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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL 93

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OCT - DEC-1900

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XCIII.

OCTOBER 2 TO DECEMBER 25, INCLUSIVE,

1900.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1901.

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ERRATA.

690,476, page 42, second claim, line 4, before the words "coin-receiver when" insert the words *coin from the.*

690,872, page 199, in heading, title of invention, for "Vehicle-Tire" read *Vehicle-Wheel.*

690,949, page 244, strike out all after number—heading, drawing, and claims— and insert WITHDRAWN.

690,969, page 253, in heading, title of invention, for "Compensating High-Duty Compound Engine" read *Compensating High-Duty Pumping-Engine.*

691,144, page 316, in heading, assignment, name of assignee, for "A. Kouphone Manufacturing Company" read *Akouphone Manufacturing Company.*

691,510, pages 487–488, strike out all after number—heading, drawing, and claims—and insert WITHDRAWN.

691,699, page 559, third claim, line 2, strike out the clause "loosely suspended from the truck bolster" after the word "bearing" at the beginning of the line and insert after the word "bearing" at the end of the same line.

691,844, page 637, fourth claim, line 4, for the word "posts" read *post*, and sixteenth claim, line 3, strike out the word "sheets" and insert before the word "provided," same claim and line.

692,121, page 735, in heading, assignment, name of assignee, for "Kinsey T. Richards" read *Kimsey T. Richards.*

692,202, page 766, in heading, after residence of last-mentioned patentee insert *said Keller assignor, by mesne assignments, to said Kline.*

692,513, page 904, in heading, assignment, residence of assignee, for "Westhaven, Conn." read *New Haven, Conn.*

692,683, page 969, in heading, assignment, after name of assignee insert a comma.

692,787, page 1003, strike out all after number—heading, drawing, and claims—and insert WITHDRAWN.

693,184, page 1200, forty-sixth claim, line 4, for "plurality of contacts" read *contact.*

693,287, page 1239, in heading, after name of patentee insert *Geboren Mühlenbeck.*

693,810, page 1464, in heading, assignment, after residence of patentee insert *assignor of one-half to John T. Plummer, Denver, Colo.*

693,909, page 1526, strike out all after number—heading, drawing, and claim—and insert WITHDRAWN.

694,150, page 1618, first claim, line 2, for the word "rolls" read *rows.*

695,159, page 2064, first claim, line 2, second claim, line 2, third claim, line 2, and fourth claim, line 2, strike out the words "a sound-curve."

695,415, page 2154, in heading, assignment, for "The Philadelphia Pneumatic Tool Company, Philadelphia, Pa., a Corporation of Pennsylvania," read *The Philadelphia Pneumatic Tool Company, Philadelphia, Pa., a Corporation of New Jersey.*

695,759, page 2299, in heading, title of invention, for "Closing Containing Vessel" read *Closing Containing Vessels.*

695,777, page 2307, in heading, assignment, for "The Magneto Electric Company, Incorporated, New York, N. Y., a Corporation of New York," read *The Magneto Electric Company, Incorporated, New York, N. Y.*

695,887, page 2351, in heading, assignment, residence of assignee, for "Nashua, New Hampshire, Boston, Mass.," read *Nashua, N. H., and Boston, Mass.*

696,019, page 2415, third claim, line 3, after the word "alcohol" strike out the comma and insert after the word "hydrochlorid," same claim and line.

696,371, page 2567, first claim, line 7, strike out the words "of one."

35,582, (Design,) page 409, in heading, name of patentee, for "Onerbacker" read *Onerbacker.*

35,786, (Design,) page 1957, in heading, after residence of assignee insert *assignor to Samuel L. Barbour, Hartford, Conn.*

Commissioner's Decisions, page 417, first column, line 5, for "96 O. G." read *95 O. G.*, and same column, line 11, for "39 O. G." read *59 O. G.*

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ERRATA.

658,757, page 5, first claim, line 5, for the word "and" before the word "maintained" read *while;* fourth claim, lines 1 and 2, strike out the compound word "light-spoke" in both places, and page 7, eighteenth claim, lines 6–7, after the word "roll" strike out the words "a support for a feed-roll" and insert after the word "roll," same claim, line 7.

658,934, page 80, in heading, assignment, for "assignor of one-fourth to said Washington" read *said Capy assignor of one-fourth of the entire right to said Washington.*

659,006, page 105, seventh claim, lines 2 and 4, before the word "outer" insert the word *two* in both places.

659,043, page 118, strike out all after number—heading, drawing, and claims—and insert WITHDRAWN.

659,185, page 167, in heading, assignment, name of assignee, for "Charles W. Pratt" read *Charles H. Pratt.*

659,369, page 247, in heading, assignment, name of assignee, for "August Nauntzing" read *August Muntzing.*

659,630, page 344, first claim, line 1, for the compound word "wad-cutting" read *wad-seating.*

660,028, page 511, in heading, name of patentee, for "Charles Rahmgern" read *Charles Rahmgren.*

660,180, page 600, in heading, serial number, for "Serial No. 701,571" read *Serial No. 701,577.*

660,312, page 653, in heading, assignment, name of assignee, for "Slyvo Reams" read *Sylvo Reams.*

661,015, page 917, seventh claim, line 2, strike out the word "jointed" and insert before the word "slide," same claim, line 1; and ninth claim, line 2, strike out the word "jointed" and insert before the word "slide," same claim, line 1.

661,292, page 1048, second claim, line 2, strike out the word "one" and insert the article *a*, and same claim, line 3, strike out the article "a" and insert the word *one.*

661,548, page 1152, strike out all after number—heading, drawing, and claims—and insert CANCELED.

661,920, page 1282, in heading, title of invention, for "Self-Playing Musical Instrument" read *Self-Playing Musical Instrument and Note-Sheet Therefor.*

663,278, page 1857, strike out all after number—heading, drawing, and claims—and insert CANCELED.

664,122, page 2211, third claim, line 4, for "double" read *doubled.*

664,510, page 2384, in heading, assignment, name of assignee, for "George W. Wheelwright" read *George W. Wheelwright, Jr.*

33,366, (Design,) page 539, in heading, name of patentee, for "William Gender" read *William Geuder.*

35,305, (Trade-Mark,) page 749, in heading, title, for "Prescription-Bottles" read *Flint-Glass Flasks.*

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OF THE

UNITED STATES PATENT OFFICE.

OCTOBER—DECEMBER, 1900.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 1. TUESDAY, OCTOBER 2, 1900. Price—$5 per year.

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DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 24, 1900.

SIR: The Secretary of the Interior has ordered that Joseph H. Blackburn, of Dowelltown, Tenn., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Preparation of Specifications, Entry of Amendments, Etc.

LEGIBLE WRITING REQUIRED.

The specification and claims must be plainly written or printed on but one side of the paper. All interlineations and erasures must be clearly referred to in marginal or foot notes on the same sheet of paper. Legal-cap paper with the lines numbered is deemed preferable, and a wide margin must always be reserved upon the left-hand side of the page.

AMENDMENTS MUST BE SPECIFIC—HOW WRITTEN.

In every amendment the exact word or words to be stricken out or inserted in the application must be specified, and the precise point indicated where the erasure or insertion is to be made. All such amendments must be on sheets of paper separate from the papers previously filed, and written on but one side of the paper. Erasures, additions, insertions, or mutilations of the papers and records must not be made by the applicant.

SPECIFICATIONS REWRITTEN.

When an amendatory clause is amended, it must be wholly rewritten, so that no interlineation or erasure shall appear in the clause, as finally amended, when the application is passed to issue. If the number or nature of the amendments shall render it otherwise difficult to consider the case, or to arrange the papers for printing or copying, the Examiner or Commissioner may require the entire specification to be rewritten.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.	Netherlands.
Argentine Republic.	Norway.
Belgium.	Peru.
Brazil.	Portugal.
Costa Rica.	Russia.
Denmark.	San Salvador.
Haiti.	Servia.
Honduras.	Sweden.
Italy.	Switzerland.
Mexico.	

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

CERTIFICATES OF REGISTRATION ISSUED OCTOBER 2, 1900.

Labels.

7,800—Title: "SILK FIBRE BOND." (For Stationery.) *Ph. Hake Manufacturing Company*, New York, N. Y. Application filed April 30, 1900.

7,801—Title: "PREMO." (For Soap.) *The National Soap Works*, Titusville, Pa. Application filed September 6, 1900.

7,802—Title: "CHOSEN FEW." (For Canned Fruits.) *Lipscomb, Speights & Company*, Augusta, Ga. Application filed September 11, 1900.

7,803—Title: "GERBERT'S CELEBRATED WORCESTERSHIRE SAUCE, GLOBE BRAND." (For Sauce.) *Romain Gerbert*, New York, N. Y. Application filed September 6, 1900.

7,804—Title: "NODOUBT." (For Coffee.) *William F. McLaughlin*, Chicago, Ill. Application filed September 6, 1900.

7,805—Title: "IWANTA." (For Ginger-Ale.) *D. L. Ormsby*, New York, N. Y. Application filed September 5, 1900.

7,806—Title: "TRIMBLE CIGAR." (For Cigars.) *Buxbaum Bros.*, New York, N. Y. Application filed July 30, 1900.

7,807—Title: "RALSTON BREAKFAST FOOD." (For Breakfast-Foods.) *Robinson-Danforth Milling Company*, St. Louis, Mo. Application filed September 8, 1900.

7,808—Title: "RALSTON BARLEY FOOD." (For Barley Foods.) *Robinson-Danforth Milling Company*, St. Louis, Mo. Application filed September 8, 1900.

Print.

266—Title: "GYPSY FORTUNE TELLING GAME CARD." (For a Game.) *McLoughlin Brothers*, New York, N. Y. Application filed September 8, 1900.

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Arizona Territory	1	----	New Hampshire	1	----
Arkansas	3	----	New Jersey	19	----
California	14	2	New Mexico Territ'y	----	----
Colorado	4	----	New York	53	19
Connecticut	14	4	North Carolina	2	1
Delaware	----	----	North Dakota	1	----
District of Columbia	4	----	Ohio	35	2
Florida	2	----	Oklahoma Territ'y	2	----
Georgia	4	2	Oregon	2	----
Hawaii	----	----	Pennsylvania	41	4
Idaho	----	----	Rhode Island	5	----
Illinois	64	4	South Carolina	1	----
Indian Territory	----	----	South Dakota	1	----
Indiana	8	----	Tennessee	3	1
Iowa	16	----	Texas	10	----
Kansas	3	----	Utah	2	----
Kentucky	4	----	Vermont	1	----
Louisiana	2	----	Virginia	6	----
Maine	2	1	Washington	6	----
Maryland	3	4	West Virginia	3	----
Massachusetts	26	5	Wisconsin	8	----
Michigan	15	----	Wyoming	----	----
Minnesota	11	----	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	18	6			
Montana	2	----	Total to citizens of the United States	431	56
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Australia	----	----	Japan	----	----
Austria-Hungary	1	1	Java	----	----
Barbadoes	----	----	Mexico	----	----
Belgium	----	----	Netherlands	----	----
Bermuda	----	----	New South Wales	1	----
Brazil	----	----	New Zealand	1	----
Canada	8	1	Norway	----	----
Chile	----	----	Queensland	----	----
China	----	----	Russia	1	----
Costa Rica	----	----	Scotland	3	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Egypt	----	----	Spain	----	----
England	20	1	Sweden	----	----
Finland	----	----	Switzerland	1	----
France	7	----	Venezuela	----	----
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Haiti	----	----	Total to citizens of foreign countries	67	5
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Ireland	----	----			

PATENTS

GRANTED OCTOBER 2, 1900.

658,747. COMPOUND OF GELATIN AND TANNIN AND PROCESS OF PRODUCING SAME. JULIUS ALTSCHUL, Berlin, Germany, assignor to the Action-Gesellschaft für Anilin Fabrikation, same place. Filed Nov. 11, 1898. Serial No. 696,161. (Specimens.)

Claim.—1. The compound of gelatin and tannin herein described containing a nearly-constant proportion of forty-five per cent. of tannin and fit for use as an intestinal astringent, being nearly insoluble in the gastric juice, but readily soluble in the juices of the intestine, forming an almost colorless powder, free of taste and smell, not putrescible, very sparingly soluble in water and diluted acids, more readily soluble in alkaline liquids, being not decomposed by heating at temperatures from 100° to 130° centigrade, substantially as described.

2. The within-described process of obtaining a compound of gelatin and tannin for use as an intestinal astringent, said process consisting in mixing diluted aqueous solutions of pure commercial gelatin and tannin (gallotannic acid), pressing off the precipitate produced, allowing the same to dry at ordinary temperature, until a sample does not melt when heated on the water-bath, and finally completely drying the product at about 100° centigrade, substantially as described.

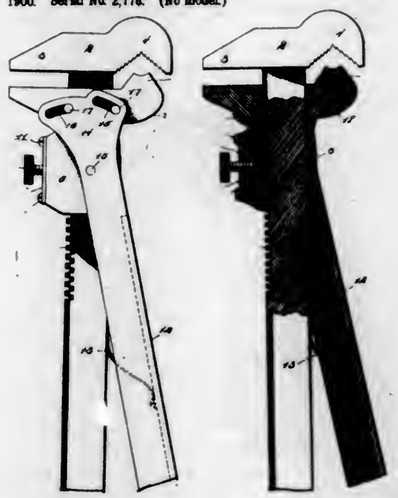
658,748. EYEGLASSES. CHARLES S. APPLE, Indiana, Pa. Filed July 24, 1900. Serial No. 24,716. (No model.)



Claim.—1. An eyeglass frame or mounting having a projecting pin adapted to extend through, and secure the spring and nose-guard, and threaded at its free end, in combination with a lock-nut.

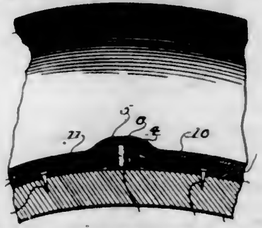
2. A pair of eyeglasses comprising frames or mountings secured to the lenses and formed at their inner ends with integral projecting pins; a spring formed at its end with openings through which said pins extend; nose-guards formed at their upper ends with openings to receive said pins; securing-nuts fitting upon the projecting ends of said pins, and means for holding said nuts in position.

658,749. WRENCH. WILLIAM D. BECHTEL, Mansfield, Ohio, assignor of one-fourth to John J. Casey, Romeo, Mich. Filed Jan. 25, 1900. Serial No. 2,776. (No model.)



Claim.—A wrench comprising a sleeve; a toothed shank formed with a fixed jaw and extending through, and slidably mounted within, the sleeve; a toothed block within a recess in the sleeve and adapted to engage the teeth of the shank; a plate detachably secured to the sleeve and adapted to retain the block in position; an adjusting-screw mounted in said plate and secured to the block; a lever pivoted to the sleeve and adapted to inclose the shank; an enlarged end to the lever having similar slots therein arranged eccentrically to the pivot of the lever; a jaw slidably mounted upon the shank; and pins projecting from the sliding jaw and adapted to be received by said slots, whereby the jaw is operated by the movement of the lever.

658,750. PNEUMATIC-TIRE FASTENING. JOSEPH A. BERGER, Chicago, Ill., assignor of one-half to John P. Larson, same place. Filed Jan. 15, 1900. Serial No. 1,521. (No model.)



Claim.—The combination with a wheel-rim; of a pneumatic-tire jacket having a series of eyelets along each edge; removable fastenings securing one of said edges to the rim at points intermediate of its eyelets and the other edge overlapping said secured edge; and a series of studs having heads of less diameter than the eyelets, and having bases of greater diameter than the eyelets, and resting loosely upon the rim; said studs being independent of both rim and tire-jacket and having their shanks passing through both series of eyelets and their bases held against the rim by the secured edge of the jacket, substantially as and for the purpose specified.

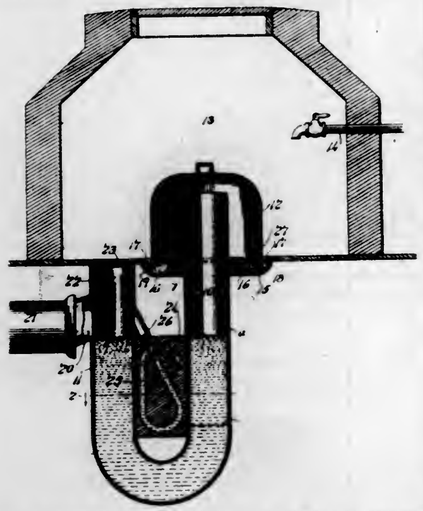
658,751. FLUSHING APPARATUS. JAMES W. BERRY, Iowa City, Iowa. Filed Nov. 15, 1898. Renewed Nov. 8, 1899. Serial No. 736,237. (No model.)

Claim.—1. In a flushing apparatus, the combination with a tank, of a main trap having inlet, descending and discharge arms, and an auxiliary pressure-relief trap having an inlet-arm 24 which inclines upward from its inlet end in communication with the descending arm of the main trap, and is located wholly below the normal level of water in said main-trap descending arm, a descending arm 25 communicating with the inlet-arm 24, and a discharge-arm 26 inclining upward from the lower end of the descending arm 25 toward its outlet end, and in communication with said discharge-arm of the main trap, substantially as specified.

2. In a flushing apparatus, the combination with a tank, of a main trap or siphon having inlet, descending and discharge arms, and a web interposed between the descending and discharge arms of the main trap and provided with a channel forming an auxiliary or relief trap having inlet, descending and discharge arms, substantially as specified.

3. In a flushing apparatus, the combination with a tank, of a main trap or siphon having descending and discharge arms, of which the former extends at its inlet end above the plane of the tank-floor, and a dome inclosing said inlet end of the descending arm and extending at its lower edge below the plane of the floor of the tank, and a hollow dome-base provided with a cavity arranged below the plane of the tank-floor to receive the depressed lower edge of the dome, said dome-base being provided above its bottom with supports for upholding the lower edge of the dome above the bottom of the base, substantially as specified.

4. In a flushing apparatus, the combination with a tank, of a main trap or siphon having descending and discharge arms, of which the former extends at its inlet end above the plane of the tank-floor, and a dome inclosing said inlet end of the descending arm, and a dome-base having an annular cavity depressed below the plane of the tank-floor and provided with spanning supports or bridges, located below the plane of the tank-floor to support the lower edge of the dome, substantially as specified.



5. In a flushing apparatus, the combination with a tank, of a main trap or siphon having descending and discharge arms, of which the former extends at its inlet end above the plane of the tank-floor, and a dome inclosing said inlet end of the descending arm, a dome-base having an annular cavity depressed below the plane of the tank-floor and provided with transverse supports for the lower edge of the dome also below the level of the tank-floor, and an interlocking connection between the dome and the supports of said base, substantially as specified.

6. In a flushing apparatus, the combination with a tank, of a main trap or siphon having descending and discharge arms, of which the former extends at its inlet end above the plane of the tank-floor, and a dome inclosing said inlet end of the descending arm, a dome-base having an annular cavity arranged below the plane of the tank-floor and provided with supports consisting of straps to receive the lower edge of the dome and maintain the latter also below the plane of the tank-floor, and tongues carried by the lower edge of the dome for extending under and engaging said supports, substantially as specified.

7. In a flushing apparatus, the combination with a tank, of a main trap or siphon having descending and discharge arms, of which the former extends at its inlet end above the plane of the tank-floor, and a removable dome inclosing said inlet end of the descending arm, and provided at its top with a grip, a dome-base having an annular cavity depressed below the plane of the tank-floor and provided with supports consisting of straps 17 for the lower edge of the dome, and laterally-extending rigid tongues 18 carried by the dome and terminally spaced from the lower edge thereof for engagement, respectively, with said supports, substantially as specified.

8. In a flushing apparatus for sewers, the combination with a reservoir, of a siphon for discharging its contents provided with a trap at its discharge end beneath the reservior, which trap has a vertical discharge-limb which extends up to and communicates with the bottom of the reservoir and is provided with a nipple which projects laterally from one side thereof, said nipple being adapted to be connected with a sewer-pipe, and a cover for the end of the trap, substantially as described.

658,752. STOPPER FOR FRUIT-JARS OR BOTTLES. JOHN RUSSEL McKeesport, Pa. Filed Feb. 8, 1900. Serial No. 4,476. (No model.)

Claim.—1. The combination with the neck of a bottle or jar provided with a pair of diametrically-opposite vertical grooves and a circumferential groove, of a sealing-stopper adapted to be mounted within said neck portion, a pair of offsets formed integral with said sealing-stopper and adapted to be mounted within said vertical grooves, a fastening-stopper mounted above said sealing-stopper, and means formed integral with said stopper and adapted to operate in said circumferential grooves for retaining the sealing-stopper within the neck of the bottle or jar.



2. The combination with the neck of a bottle or jar provided with a pair of diametrically-opposite vertical grooves, and a circumferential groove, of a sealing-stopper provided with an elastic washer mounted in said neck portion, a pair of offsets formed integral with said stopper and adapted to be seated within said vertical grooves when the stopper is placed in the neck portion, an upwardly-extending arm formed integral with said stopper, a pair of offsets suitably connected to said arm, a fastening-stopper mounted upon the said arm, and a pair of projections formed integral with said fastening-stopper and operating in said groove for retaining said sealing-stopper in position, substantially as described

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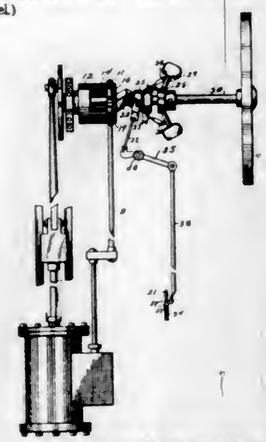
658,753. RAIL-BOND. GEORGE B. BLANCHARD, Seattle, Wash. Filed June 25, 1900. Serial No. 21,459. (No model.)



Claim.—1. A rail-bond consisting of a laminated strip bent to form a pair of flat feet and an arched intermediate portion and composed of a continuous strip of conducting material folded upon itself to form the inner and uppermost layers of the strip and thence continued along the under side of the aforesaid layers to form the lowermost layer and inclose the ends of both of the feet and thereby assist in holding the several layers together, the layers composing the flat feet being soldered together and the layers composing the arched intermediate portion being unattached, substantially as described.

2. A rail-bond consisting of a laminated strip bent to form a pair of flat feet and an arched intermediate portion, the layers composing said flat feet being soldered together and the layers composing the arched intermediate portion being unattached, and the several layers composing said laminated strip being additionally secured together by integral portions of the lowermost layer, substantially as described.

658,754. COMBINED CUT-OFF AND GOVERNOR. FREDERICK W. BOHN, Independence, Wis. Filed Mar. 13, 1900. Serial No. 8,510. (No model.)



Claim.—1. A combined cut-off and governor comprising a cam-slotted head adapted for oscillatory movement, an eccentric mounted in

the head and adapted for radial sliding movement with respect to the head, a cam slidably disposed in the head and engaging the eccentric to shift it radially, a projection upon the cam engaging the cam-slot of the head to shift the head and therewith the eccentric rotatably, and governing elements connected with the cam.

2. A combined cut-off and governor comprising a cam-slotted head adapted for oscillatory movement, an eccentric mounted in the head and adapted for radial sliding movement with respect to the head, a cam slidably disposed in the head and engaging the eccentric to shift it radially, a projection upon the cam engaging the cam-slot of the head to shift the head and therewith the eccentric rotatably, and means for operating the cam.

3. In a combined cut-off and governor mechanism, the combination of a cam-slotted head, a cam slidably connected with the head, an eccentric engaging with said slidable cam for radial movement thereby, a projection upon the cam engaging the cam-slot to rotate the eccentric, and an automatic governor connected operatively with the slidable cam.

4. In a combined cut-off and governor mechanism, the combination with a cut-off mechanism, an automatic governor connected therewith, a hand-lever, and a train of connections between an element of the cut-off mechanism and said hand-lever, said connections including an elastic link.

5. In a combined cut-off and governor mechanism, the combination of a revoluble head having a cam-slot and a cap-plate, a radially and rotatably shiftable eccentric loosely confined between the head and cap-plate, a cam movable longitudinally of the head and having a working surface inclined to the axis of the head and in engagement with said eccentric to shift it radially, a projection upon the cam engaging the cam-slot to shift the eccentric rotatably, a governor mechanism in operative relation to the cam, and means for manually shifting the cam.

6. The combination with a rotatable shaft, of a cut-off mechanism mounted upon the shaft and having a shiftable element, ballast-balls connected with the shiftable element to shift it, a hand-lever, and a shipping-lever linked to the hand-lever and having a spring-arm connected with the shiftable element of the cut-off, whereby it may be shifted manually or from the ballast-balls.

658,755. HOSE-COUPLING. JOHN J. BOWEN, Jr., Pensacola, Fla. Filed Jan. 8, 1900. Serial No. 731. (No model.)



Claim.—1. In a hose-coupling, the combination with a reduced member having flanges as described, of a receiving member, a tapered packing-ring therein, oppositely-arranged shoulders within said member for engagement with the flanges, and means within said member for locking the flanges in position.

2. In a hose-coupling, the combination with the flanged and reduced member, of a shouldered receiving member, a tapered packing-ring secured therein and adapted to inclose the reduced end of the opposite member, and a spring-controlled catch projecting through the receiving member and into engagement with said flanges.

3. In a hose-coupling, the combination with the reduced member having oppositely-arranged notched flanges, of a receiving member, a tapered packing-ring therein adapted to inclose the end of the opposite member, a threaded ring for securing said packing in position, oppositely-arranged shoulders within the receiving member for engagement with said flanges, and means as described for engaging with said notches and locking the members together.

658,756. TEMPORARY BINDER. ARTHUR BUCKLER, Danville, Pa. Filed Feb. 9, 1900. Serial No. 4,664. (No model.)

Claim.—1. A temporary binder comprising a body having one end longitudinally extended to form a handle or grip for convenience in holding the device, a spring-actuated clamp cooperating with and mounted upon the body, and having a longitudinally-disposed rock-bar, terminating at one end adjacent to said handle or grip, and extended at an angle to the axle of the rock-bar and movable with the rock-bar, to constitute an upstanding finger-piece, for pressure by a finger of the hand grasping the handle or grip, to temporarily displace the rock-bar.

2. A temporary binder, comprising a body, having a longitudinal outwardly-directed rib, and a flat face, which is inclined inwardly and downwardly toward the rib, and a spring-actuated clamp member mounted upon the inclined face to cooperate with the adjacent side of the rib.

3. A temporary binder, comprising a body, having a longitudinal groove formed therein, a portion of the grooved face of the body being flat and inclined inwardly and downwardly to the groove, and a spring-actuated clamp member mounted upon the inclined face and extending into the groove to cooperate therewith.



4. A temporary binder, comprising a body, having a handle at one end, a longitudinal groove terminating adjacent to the handle, and forming a front longitudinal rib or shoulder, which is beveled or rounded inwardly and downwardly upon its rear or inner side, and an inwardly and downwardly inclined rear face extending to the rear edge of the groove, and a spring-actuated rock-bar mounted upon the inclined face of the body, cooperating with the bottom of the groove and the rounded or beveled portion of the rib, and having a finger-piece adjacent to the handle.

658,757. BAND SAWING-MACHINE. GEORGE W. BUGBEE, Delhi, Ohio, assignor to the J. A. Fay & Egan Company, Cincinnati, Ohio. Filed May 1, 1899. Serial No. 715,164. (No model.)

Claim.—1. In a band rip-sawing machine, the combination of an upper and a lower band-saw wheel and a band-saw blade therefor, with a feeding-in and a feeding-out roll located in close proximity to the band-saw blade, and mechanism for driving the rolls, with means for raising and lowering the rolls in parallel lines and parallel with and maintained in like close proximity to the cutting edge of the band-saw blade, and constructed and arranged for permitting a roll to automatically yield in like lines to inequalities in the stock, substantially as described.

2. In a band rip-sawing machine, the combination of an upper and a lower saw-wheel, and a band-saw blade therefor, with a feeding-in and a feeding-out roll and mechanism for driving the rolls and arranged for allowing the rolls to be lifted clear out of the way when using the machine as a hand feed-saw, in lines parallel to each other and longitudinally of the saw-blade between the rolls, substantially as described.

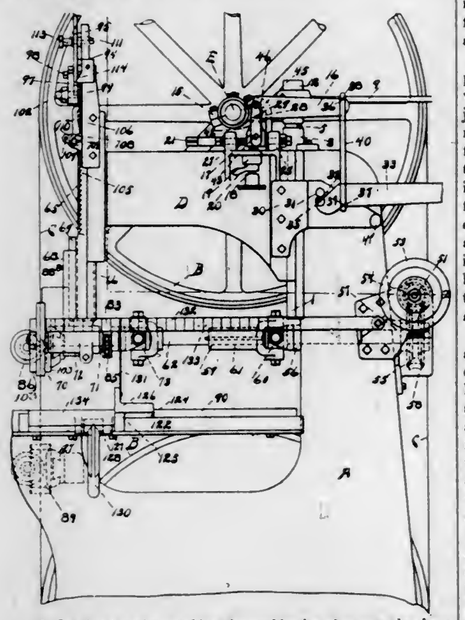
3. In a band rip-sawing machine, the combination of a frame, a lower saw-wheel therefor, a bracket, means for vertically adjusting the bracket on the frame, an upper saw-wheel mounted on the bracket, with a feeding-in and a feeding-out roll and mechanism for driving the rolls, and arranged for allowing the rolls to be lifted in a straight line on the bracket clear out of the way when using the machine as a hand feed-saw, substantially as described.

4. In a band rip-sawing machine, the combination of a light-spoke lower wheel, a light-spoke upper wheel, a band-saw blade therefor, and a raising and lowering feeding mechanism, with compensating shaft journaled through the column, substantially as described.

5. In a band rip-sawing machine, the combination of a lower band-saw wheel, an upper band-saw wheel, with a band-saw blade therefor, and a raising and lowering feeding mechanism, with a compensating shaft journaled through the column, substantially as described.

6. In a band sawing-machine, a lower band-saw wheel, an upper band-saw wheel, and a band-saw blade therefor, a column, with a work

support extending horizontally to one side thereof, in combination with a feeding mechanism comprising a horizontal feed-roll, with means for maintaining the feed-roll horizontal, and a compensating shaft for the feed-roll for compensating for the raising and lowering of the feed-roll with the latter maintained horizontal, a horizontal bearing for the shaft at the column above the plane of the work-support with the latter bearing and the horizontal bearing for the roll in substantially the same vertical plane, substantially as described.



7. In a band sawing-machine, the combination of an upper band-saw wheel, a lower band-saw wheel, and a band-saw blade therefor, a column, with a work-support extending horizontally to one side thereof, a work-support, with a feed-roll-carrying slide above the work-support, a horizontal bearing therefor, a feed-roll for the bearing, and a compensating shaft above the plane of the work-support for driving the feed-roll and compensating for the raising and lowering of the feed-roll bearing, a horizontal bearing for the shaft at the column above the plane of the work-support, with the latter bearing and the horizontal bearing for the roll in substantially the same vertical plane, substantially as described.

8. In a band sawing-machine, the combination of a column, with a work-support extending horizontally to one side thereof, an upper band-saw wheel, a lower band-saw wheel, a band-saw blade therefor, with a feed-roll-carrying slide, a lever for raising and lowering the slide relatively to the column, a horizontal bearing in the slide, a feed-roll for the bearing, with a compensating shaft for rotating the feed-roll extending from the bearing in the slide, a horizontal bearing for the shaft at the column above the plane of the work-support, with the latter bearing and the horizontal bearing for the roll in substantially the same vertical plane, substantially as described.

9. In a band sawing-machine, a lower band-saw wheel, an upper band-saw wheel, and a band-saw blade therefor, in combination with a feeding mechanism comprising a feeding-roll in front of the band-saw blade, a feeding-roll in rear of the band-saw blade having horizontal axes, means for operatively interconnecting the rolls, and a knuckle-jointed extensible shaft for compensating for the raising and lowering of the rolls, substantially as described.

10. In a band sawing-machine, the combination of a lower band-saw wheel, an upper band-saw wheel, and a band-saw blade therefor, with a feeding mechanism comprising a horizontal feeding-roll, a slide therefor, ways for the slide, means for adjusting the slide on the ways, means for allowing the roll to rise and fall automatically to inequalities in the stock, means for maintaining the feeding-roll horizontal throughout its various adjustments and positions, and a horizontal bearing at the frame for the roll, with a knuckle-jointed extensible shaft extending from the bearing at the frame to the feeding-roll for rotating the feeding-roll continuously horizontal, and compensating for the raising and lowering of the feeding-roll, substantially as described.

11. In a band sawing-machine, the combination of a frame, an upper band-saw wheel, a lower band-saw wheel, a band-saw blade therefor, with a feed-roll-carrying slide, a lever for raising and lowering the slide vertically relatively to the frame, a feed-roll for the slide, means for permitting the roll to rise and fall automatically to inequalities in the stock, a horizontal bearing in the slide for the latter, a horizontal bearing at the frame, with a knuckle-jointed extensible shaft for rotating the feed-roll extending from the latter bearing to the bearing in the slide, constructed and arranged for maintaining the feed-roll horizontally disposed and compensating for the variations in height between the horizontal bearings resulting from the raising and lowering of the feed-roll slide by the lever, and the automatic rise and fall of the roll, substantially as described.

12. In a band sawing-machine, the combination of a frame, an upper band-saw wheel, a lower band-saw wheel, a band-saw blade therefor, with a feed-roll-carrying slide, vertical ways for the slide, means for adjusting the slide vertically on the ways, means for allowing the roll to rise and fall vertically automatically to inequalities in the stock, a lever for raising and lowering the slide relatively to the frame, a feed-roll for the slide, a horizontal bearing in the slide for the latter, a horizontal bearing at the frame, with a knuckle-jointed extensible shaft for rotating the feed-roll extending from the latter bearing to the bearing in the slide, constructed and arranged for maintaining the feed-roll horizontally disposed and compensating for the variations in height between the horizontal bearings resulting from the raising and lowering of the feed-roll slide by the lever, and the automatic rise and fall of the roll and an auxiliary shaft at the frame rotatively connected with the knuckle-jointed shaft, substantially as described.

13. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock and located above the work-support, means for operatively interconnecting the rolls, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, means for raising the feeding-rolls substantially above the work-support, and a compensating shaft for driving a feeding-roll and compensating for the raising of the same and permitting the turning thereof with the axes of the rolls horizontally disposed throughout, substantially as described.

14. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock and located above the work-support, means for operatively interconnecting the rolls, means for raising and lowering the rolls, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, and means for permitting the automatic raising and lowering of the rolls to inequalities in the stock, with a knuckle-jointed extensible shaft for driving a feeding-roll with the axes of the rolls horizontal throughout and compensating for the raising and lowering of the feeding-roll, substantially as described.

15. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade arranged to raise and lower, with means for maintining the feeding-rolls horizontal, means for operatively interconnecting the rolls, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, and a guiding extension for the feeding-out roll, with a compensating shaft for driving a roll, substantially as described.

16. In a band rip-sawing machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock, and located above the work-support, means for raising and lowering the rolls and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, and a guiding extension for the feeding-out roll extending beyond its periphery and rotating therewith, and taking into the kerf in the stock and guiding the stock in a straight line in connection with the band-saw blade and the band-saw guide, with the feeding-in roll, the feeding-out roll, the band-saw blade and the band-saw guide located and operating in substantially a common vertical plane, and constructed and arranged substantially as described.

17. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock and located above the work-support, means for raising and lowering the rolls, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, and a guiding extension for the feeding-out roll extending beyond its periphery and rotating therewith, and taking into the kerf in the stock and guiding the stock in a straight line in connection with the band-saw blade and the band-saw guide, and means for permitting the automatic raising and lowering of the rolls to inequalities in the stock, substantially as described.

18. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock and located above the work-support, means for raising and lowering the rolls, and with a band-saw guide for the band-saw blade between the feeding-in roll, a support for a feed-roll and the feeding-out roll, a connection between a feed-roll support and the band-saw guide, and a guiding extension for the feeding-out roll extending beyond its periphery and rotating therewith, and taking into the kerf in the stock and guiding the stock in a straight line in connection with the band-saw blade and the band-saw guide, and means for permitting the automatic raising and lowering of the band-saw guide with a feed-roll to inequalities in the stock, substantially as described.

19. In a band rip-sawing machine, the combination of band-saw wheels, a band-saw blade therefor, a work-support with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock, and located above the work-support, means for raising and lowering the rolls and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, guiding-blocks on the band-saw guide for taking against both sides of the band-saw blade adjacent to the tooth edge thereof, and a guiding-tongue extension for the feeding-out roll extending beyond its periphery and rotating therewith, and taking into the kerf in the stock and guiding the stock in a straight line in connection with the band-saw blade and the band-saw guide, with the feeding-in roll, the feeding-out roll, the band-saw blade and the band-saw guide located and operating in substantially a common vertical plane, constructed and arranged substantially as described.

20. In a band rip-sawing machine, the combination of band-saw wheels, a band-saw blade therefor, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, with bearings for the rolls respectively, and a joint between the same for allowing the feeding-out roll to be raised for permitting the band-saw blade to be slipped over the same, for the ready removal of the band-saw blade while the feeding-in roll remains in position, constructed and arranged substantially as described.

21. In a band rip-sawing machine, the combination of band-saw wheels, a band-saw blade therefor, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, and a guiding-tongue extension intermediate of the ends of the feeding-out roll extending beyond its periphery and rotating therewith, and taking into the kerf in the stock and guiding the stock in a straight line in connection with the band-saw blade and the band-saw guide, with the feeding-in roll, a feeding-out roll, the band-saw blade and the band-saw guide located and operating in substantially a common vertical plane, bearings for the rolls respectively, and a joint between the same for allowing the feeding-out roll to be raised for permitting the band-saw blade to be slipped over the same for the ready removal of the band-saw blade while the feeding-in roll remains in position, constructed and arranged, substantially as described.

22. In a band sawing-machine, the combination of a main frame, a pair of band-saw wheels therefor, and a band-saw blade for the latter, with a feed-roll rotatable with its axis in a horizontal plane, and a slide therefor, and a saw-guide slide and saw-guide thereon, constructed and arranged for simultaneously raising and lowering the saw-guide and slide with the feed-roll and slide with the inequalities of the stock by the feed-roll acting on the stock while feeding the latter, and an adjustment between the slides, substantially as described.

23. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade, a guide for the band-saw blade located between the rolls, a connection between a feed-roll and the saw-guide for operatively raising and lowering the latter with the inequalities of the stock while feeding the stock, and means for adjusting the guide simultaneously with and independently of the feed-rolls, substantially as described.

24. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade, with a horizontal bearing for each of the rolls, a joint between the same for allowing the raising of the feeding-out roll, and a stop for limiting the downward movement of the same, with a guide for the band-saw blade located between the rolls, a connection between a feed-roll and the saw-guide for operatively raising and lowering the latter with the inequalities of the stock while feeding the stock, and means for adjusting the guide simultaneously with and independently of the feed-rolls, substantially as described.

25. In a band sawing-machine, the combination of band-saw wheels, a band-saw blade therefor, with a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade having horizontal axes for feeding the stock, and with a band-saw guide for the band-saw blade between the feeding-in roll and the feeding-out roll, a horizontal bearing for the feeding-in roll, a vertical slide on which the same is mounted, an extension 74 pivoted on the slide, a horizontal bearing for the feeding-out roll on the extension, a heel 76, a cushion-stop 77, and an adjustment 79, constructed and arranged substantially as described.

26. In a band sawing-machine, the combination of a main frame, a pair of band-saw wheels journaled therein, and a band-saw blade therefor, with a feed-roll rotatable in a horizontal plane, and a slide therefor, and a saw-guide slide and saw-guide thereon, constructed and arranged for simultaneously raising and lowering the saw-guide and slide with the feed-roll and slide by the feed-roll acting on the stock while feeding the latter, and means for independently lowering the saw-guide substantially below the feed-roll, substantially as described.

27. In a band sawing-machine, the combination of a main frame, a bracket sliding thereon, an adjustment between the frame and the bracket, with a lower saw-wheel carried by the frame, and an upper saw-wheel carried by the bracket, a band-saw blade for the wheels, and swiveling adjustment for the upper saw-wheel, a straining device for the latter, and a slide carrying a feeding-in roll in front of the saw-blade and a feeding-out roll in rear of the saw-blade, carried by the bracket, substantially as described.

28. In a band sawing-machine, the combination of a main frame, a bracket sliding thereon, an adjustment between the frame and the bracket, with a lower saw-wheel carried by the frame, and an upper saw-wheel carried by the bracket, a band-saw blade for the wheels; and swiveling adjustment for the upper saw-wheel, a straining device for the latter, and a slide carrying a feeding-in roll in front of the saw-blade and a feeding-out roll in rear of the saw-blade, and a joint between the rolls, carried by the bracket, substantially as and for the purpose specified.

29. In a band sawing-machine, the combination of a frame, a lower band-saw wheel mounted therein, a bracket sliding on the frame, an upper saw-wheel mounted thereon, a screw-shaft connecting the frame and the bracket, a collar 5 on the screw-shaft for supporting the screw-shaft on the frame, a disk 6 secured about the shaft above the collar 5, a revoluble strap 11 taking about the shaft above the disk, a collar 12 taking about the shaft above the strap for holding the strap against endwise movement but allowing its revolving on the shaft, a lever 10, and a pivot between the lever and the strap, with a connection between the lever and the disk, constructed and arranged for operating the shaft, substantially as described.

30. In a band sawing-machine, the combination of a frame, a saw-wheel-carrying bracket adjustable thereon, a feed-roll-carrying slide and a saw-guide-carrying slide on the bracket, and a lever for operating the slides, substantially as described.

31. In a band sawing-machine, the combination of a frame, a saw-wheel-carrying bracket adjustable thereon, a feed-roll-carrying slide and a saw-guide-carrying slide on the bracket, a lever for operating the slides, and a stop for the lever, substantially as described.

32. In a band sawing-machine, the combination of a frame, a saw-wheel-carrying bracket adjustable thereon, a feed-roll-carrying slide or the bracket, and a saw-guide-carrying slide therefor, substantially as described.

33. In a band sawing-machine, the combination of a frame, a feed-roll-carrying slide mounted therein, a rack and pawl between the frame and slide, for supporting the latter, a lever connecting with the slide and a stop for the lever, substantially as described.

34. In a band sawing-machine, the combination of a frame, a feed-roll-carrying slide, a rack and pawl between the frame and slide for temporarily supporting the latter, a lever, and an adjustable connection between the slide and the lever, substantially as and for the purpose specified.

35. In a band sawing-machine, the combination of a frame, a feed-roll-carrying slide, a rack and pawl between the frame and slide for temporarily supporting the latter, a lever, an adjustable connection between the slide and the lever, and a stop for the lever, substantially as described.

36. In a band sawing-machine, the combination of a frame, a feed-roll-carrying slide, a lever connecting therewith, a stop supporting the lever for operative contact of the feed-roll with the material being worked, and a second stop for the lever for bringing the feed-roll out of contact with the stock, substantially as described.

37. In a band sawing-machine, the combination of a frame, a primary slide, a sliding connection between the frame and the slide, a secondary slide, an adjusting connection between the secondary and the primary slide, and a saw-guide on the secondary slide, substantially as described.

38. In a band sawing-machine, the combination of a frame, a primary slide operatively sliding therein while feeding the stock, a secondary

slide, an adjusting connection between the slides, a feed-roll in the primary slide, a saw-guide on the secondary slide, and a lever for moving the slides, substantially as described.

39. In a band sawing-machine, the combination of a frame, a slide operatively sliding therein while feeding the stock, a feed-roll in front and a feed-roll in rear of the position for the blade mounted on the slide, and a hinged connection between the rolls, substantially as described.

40. In a band sawing-machine, the combination of a frame, wheels therefor, a band-saw blade carried thereby, with a feeding-in roll rotating in front of the band-saw blade, and a feeding-out roll rotating in rear of the band-saw blade for feeding the stock, bearings for the rolls respectively, a slide carrying the bearings, a joint between the bearings, a secondary slide, an adjusting connection between the slides, and a saw-guide for the band-saw blade mounted on the secondary slide, substantially as described.

41. In a band sawing-machine, the combination of a frame, a primary slide operatively sliding therein while feeding the stock, a feed-roll journaled therein, a secondary slide, a saw-guide thereon adjustably secured to the primary slide, constructed and arranged for allowing the roll to be raised out of work above the guide, substantially as described.

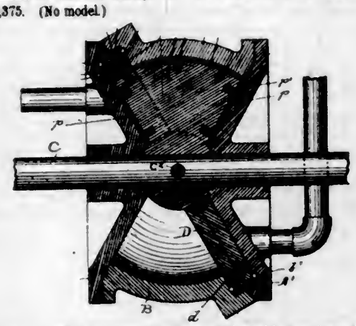
42. In a band sawing-machine, the combination of a main frame, A, a lower band-saw wheel B′ mounted therein, a band-saw blade C, a bracket D on the frame, means for adjusting the bracket vertically on the frame, an upper band-saw wheel B and a feed-roll-carrying slide 65 mounted on the bracket and carried thereby in its adjustments, a feed-roll in the slide having its axis in a horizontal plane, means for maintaining the axis of the roll in that plane, means for permitting the roll to raise and lower with the inequalities of the stock with its axis in a horizontal plane, a propelling-shaft 56 for the roll journaled in the main frame, an extensible shaft 61, 62, a knuckle-joint 60 connecting the latter with the shaft 56 and a knuckle-joint 73 connecting the same with the feed-roll on the slide, constructed and arranged for rotating the roll with its axis in a horizontal plane throughout the various adjustments of the bracket and the upper band-saw wheel and feed-roll slide, and the raising and lowering of the roll with the inequalities of the stock, substantially as described.

43. In a band sawing-machine, the combination of a main frame A, a lower band-saw wheel B′ mounted therein, a band-saw blade C, a bracket D on the frame, means for adjusting the bracket vertically on the frame, an upper band-saw wheel B and a feed-roll-carrying slide 65 mounted on the bracket and carried thereby in its adjustments, a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade on the slide having their axes in a horizontal plane, means for maintaining the axes of the rolls in that plane, driving mechanism connecting the rolls, a spreader 93 for guiding the stock in connection with the band-saw blade, means for permitting a feeding-roll to raise and lower with the inequalities of the stock with its axis in a horizontal plane, a propelling-shaft for the rolls journaled in the main frame, an extensible shaft 61, 62, a knuckle-joint 60 connecting the latter with the propelling-shaft and a knuckle-joint 73 connecting the same with one of the feed-rolls on the slide constructed and arranged for rotating the rolls with their axes in a horizontal plane throughout the various adjustments of the bracket and the upper band-saw wheel and feed-roll slide, and the raising and lowering of the roll with the inequalities of the stock, substantially as described.

44. In a band sawing-machine, the combination of a main frame, A, a lower band-saw wheel B′ mounted therein, a band-saw blade C, a bracket D on the frame, means for adjusting the bracket vertically on the frame, an upper band-saw wheel B and a feed-roll-carrying slide 65 mounted on the bracket and carried thereby in its adjustments, a feeding-in roll in front of the band-saw blade and a feeding-out roll in rear of the band-saw blade on the slide, having their axes in a horizontal plane, means for maintaining the axes of the rolls in that plane, means for permitting a feeding-roll to raise and lower with the inequalities of the stock with its axis in a horizontal plane, a saw-guide-carrying slide 68 adjustably supported on the feed-roll slide, a band-saw guide thereon between the feed-rolls, driving mechanism connecting the rolls, a propelling-shaft for the rolls journaled in the main frame, an extensible shaft 61, 62, a knuckle-joint 60 connecting the latter with the propelling-shaft and a knuckle-joint 73 connecting the same with one of the feed-rolls on the slide, constructed and arranged for rotating the rolls with their axes in a horizontal plane throughout the various adjustments of the bracket and the upper band-saw wheel and feed-roll slide, and the raising and lowering of the rolls with the inequalities of the stock, substantially as described.

45. In a band sawing-machine, arranged for combined use as a band rip-sawing machine and a hand-feed band sawing-machine, the combination of an upper band-saw wheel, a lower band-saw wheel and a band-saw blade therefor, with a driven feeding mechanism arranged to be adjusted for feeding different thicknesses of stock and to be lifted clear out of the way when using the machine as a hand-feed saw in lines parallel to and longitudinally of the cutting edge of the band-saw blade, substantially as described.

658,758. STEAM-ENGINE. WILSON W. BURSON, Rockford, and WILLIAM W. BURSON, Chicago, Ill. Filed Nov. 9, 1899. Serial No. 736,375. (No model.)



Claim.—1. The combination of a cylinder with two inwardly-inclined conic heads and a bisecting guide-groove inclined to opposite sides of the conic heads, a piston extending outward from its supporting-shaft adapted to rotate in said cylinder, a disk provided with an opening for said piston and held in the guide-groove tangent to the conic heads to form abutments on opposite sides of said disk, a packing-piece in the disk-opening on each side of the piston, adapted to move with the disk and slide upon the piston sides, with inlet and exhaust ports, operating substantially as set forth.

2. The combination of a cylinder provided with two inwardly-inclined conic heads and a guide-groove bisecting said cylinder on a plane tangent to opposite sides of said cone, a piston extending radially outward from its supporting-shaft, a disk provided with an opening with concave edges for the piston and held in the guide-groove tangent to the conic heads, packing-piece fitted to the opening of the disk and held against the piston, the inner end held at the radial center of the piston and the outer held in the disk guide-groove, whereby a steam-tight union is formed between the disk and piston in their rotation, and inlet and exhaust ports, operating substantially as set forth.

3. The combination of a cylinder provided with two inwardly-inclined conic heads and a guide-groove bisecting said cylinder on a plane tangent to opposite sides of said cones, a piston extending radially outward from its supporting-shaft, a disk provided with an opening with concave edges for the piston and formed with a ball-fitting connection therewith moving in the guide-groove tangent to the conic heads, a packing-piece with convex side fitting the disk-opening and flat side next to the piston, the inner end of said piece held at the radial center of the piston and the outer end moving in the guide-groove with the disk, operating substantially as specified.

4. The combination of a cylinder, a piston formed with a ball-shaped connection with its shaft, said ball made with a central part and two segment-pieces pivoted together, and pieces extending outward alongside of the piston, a disk fitted to said central ball and side pieces, whereby the said piston and disk may rotate together, substantially as specified.

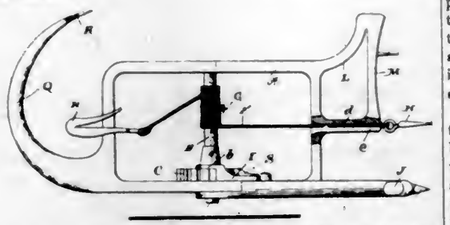
5. The combination of a cylinder, a piston with a ball-shaped connection with its shaft, said ball made with a central part and two segment-pieces pivoted together, said segment-pieces connected to two cylindrical pieces extending outward along the faces of the piston, a disk fitted to said ball and cylindrical pieces, whereby said piston and disk shall rotate together by the action of the steam, substantially as described.

6. The combination of a cylinder, a piston with a ball-shaped connection to its supporting-shaft, said ball made with a central part and two segment-pieces pivoted together, said segment-pieces joined to two cylindrical pieces extending outward along the faces of the piston, the outer ends connected by a tie-piece extending across the end of the piston, a disk fitted to said ball and cylindrical pieces, operating substantially as set forth.

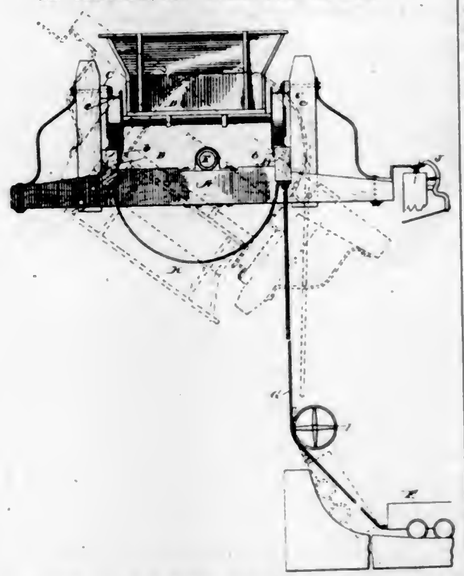
7. The combination of a cylinder provided with two inwardly-inclined conic heads, a piston extending outward from its supporting-shaft adapted to rotate in the cylinder, a disk provided with an opening for said piston and formed with a ball-fitting connection therewith, a packing-piece on each side of the piston in the disk-opening, inlet and exhaust ports near the abutments and antifriction devices placed in the guide-groove adapted to resist the side pressure of the steam upon the disk, operating substantially as specified.

658,759. WIRE-STRETCHER. ALBERT C. CALHOUN, Somerville, Tex. Filed June 18, 1900. Serial No. 20,744. (No model.)

Claim.—A machine of the character described comprising a frame, a shaft journaled therein, the shaft carrying a ratchet-wheel fast thereto, one end of the shaft projecting through the frame, a handle having an opening loosely receiving the shaft, a pawl projecting from the handle and engaging the said ratchet, the pawl having a depending flange engaging the opposite side of the ratchet from the said handle for the purpose described.



658,760. APPARATUS FOR DUMPING CARS. JAMES W. CASTLEMAN, West End, Ala., assignor of one-half to Sol. Haas, Birmingham, Ala. Filed Feb. 21, 1900. Serial No. 6,085. (No model.)



Claim.—1. In an apparatus such as described, the combination with the tilting platform, of the counterweight, the flexible connection between the counterweight and platform, and the independent curved guide eccentric to the axis of the platform carried by said platform, upon which the flexible connection is guided as the platform is tilted; substantially as and for the purpose set forth.

2. In an apparatus such as described, the combination with the tilting platform, of the counterweight, the track or way of varying inclination upon which the counterweight travels, the flexible connection between the tilting platform and counterweight, and the curved guide carried by the platform to which the flexible connection conforms as the platform is tilted; substantially as and for the purpose set forth.

658,761. SIGN FOR STREET OR OTHER CARS. LON J. COOPER, Covington, Ky., assignor to Lytle J. Hunter, same place. Filed Mar. 8, 1897. Serial No. 626,363. (No model.)

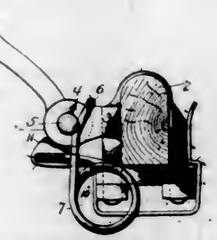


Claim.—1. In a changeable sign, the combination of index-plate, shaft L, through the latter, box N on the shaft, index-finger P attached to the box near the index-plate M, handle T on lower end of box, and spring R between part of box and projection L^4 of shaft, detents S fixed on the plate and short enough to allow the index-finger to clear them when pulled away from the index-plate, and a detent for station at the end of trip, long enough to prevent the index-finger from passing it, a sign-curtain wound on rollers, a spring for actuating one of the rollers, and mechanism for enabling the rotation of the shaft L to rotate one of the rollers in opposition to the winding-spring, substantially as and for the purposes specified.

2. In a changeable sign, the combination of one roller E, and spring therein, for actuating it in a given direction, a second roller D, and a flexible sign stretched between both rollers, and having a part of it always wound upon either or both rollers, gear-wheels G, H, beveled gear J, K, shaft L fixed to the latter, index-plate M, projection L^4 on shaft L below plate M, box N, spring R, between the top N^2 of the box or frame, and the projection L^4, handle T fixed to the box, and detents, substantially as and for the purposes specified.

3. The combination of the rollers above the platform, and flexible sign thereon, inclined roof or street-car, shaft for connecting the means for working the sign above, and the index-plate below, and the said shaft and index-finger, and means for operating it, and the adjusting devices consisting of the plate V, slotted at V^2, V^3, and set-screws V^4, V^4, engaging the index-plate M, the plate V and the plate M being likewise secured and rendered stationary by the roof, substantially as and for the purposes specified.

658,762. THILL-COUPLING. JOHN G. J. DAVIS, Augusta, Ga., assignor of one-half to Joseph H. Day, same place. Filed June 1, 1900. Serial No. 18,741. (No model.)



Claim.—1. In an antirattling device for thill-couplings, the combination with a clip and thill-iron, of a coupling-pin, a spring carried by the jaws or lugs of the clip and engaging the ends of the pin and a cam fulcrumed on the free ends of the spring and engaging the under face of the thill-iron.

2. In an antirattling device for thill-couplings, the combination with a clip and thill-iron, of a coupling-pin having circumferential grooves near its ends, a spring resting on the jaws or lugs of the clip and within the grooves in the coupling-pin, a cam-lever fulcrumed on said spring and means for locking the cam-lever in position.

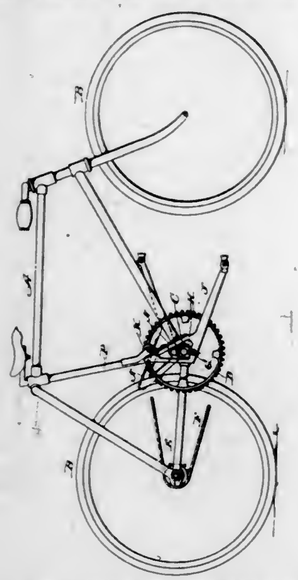
3. In an antirattling device for thill-couplings, the combination with a clip and thill-iron, of a coupling-pin, a spring supported by the clip and bearing against the coupling-pin, and a cam-lever fulcrumed on the free ends of the spring, the cam portion of said lever bearing against the under face of the thill-iron, the said cam-lever being shaped to embrace the lower end of the clip and provided near its free end with a shoulder adpted to engage the clip.

4. In an antirattling device for thill-couplings, the combination with a clip and thill-iron, of a coupling-pin, a spring having its intermediate portion adapted to rest upon the jaws or lugs of the clip and each arm of the spring coiled below said jaws or lugs, a cam-lever fulcrumed on the free ends of said spring and means for attaching the lever to the clip to lock said lever in its operative position.

5. In an antirattling device for thill-couplings, the combination with a clip and thill-iron, of a coupling-pin, a spring shaped as shown and supported on the jaws or lugs of the clip and a sheet-metal cam-lever pivotally attached to the free ends of the spring and removably connected with the clip.

6. As a new article of manufacture, an antirattling device for thill-couplings, consisting of a spring adapted to rest on the jaws or lugs of the clip and bear at an intermediate point against the coupling-pin, the free end of said spring disposed to terminate below the coupling-iron and a cam-lever having a part to be attached to the clip and fulcrumed on the free ends of the spring, the cam portion of said lever adapted to bear against the under face of the thill-iron.

658,763. PROPELLING DEVICE FOR BICYCLES. JAMES C. DEVLIN, Memphis, Tenn., assignor of one-half to Rodolphe Des Jardins, same place. Filed Nov. 4, 1899. Serial No. 735,791. (No model.)



Claim.—1. The combination with a bicycle-frame and a crank-shaft mounted therein, of a short crank fixed to said shaft, a fulcrum fixed to the frame approximately vertically above the crank-shaft, and a foot-lever pivoted upon the crank-pin, extending forward therefrom, and having an edge extending rearwardly upward in sliding contact with said fulcrum, substantially as set forth.

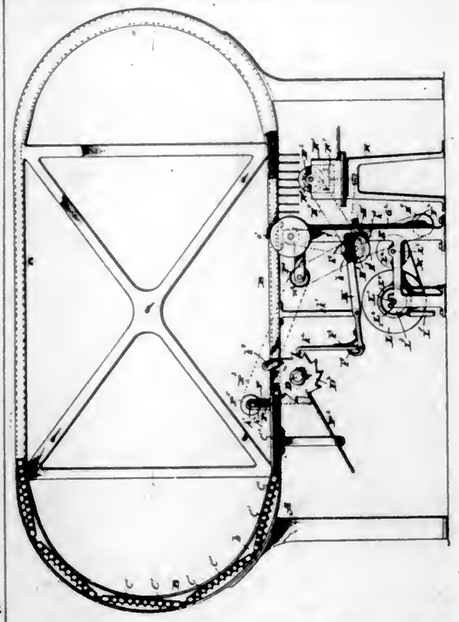
2. The combination with a frame and a crank-shaft mounted between its forks, of a short crank fixed to said shaft, a fulcrum-wheel revolubly supported by the frame approximately vertically over the shaft, a forwardly-extending foot-lever pivoted upon the crank-pin and having an edge which extends obliquely and rearwardly upward and makes sliding contact with said wheel.

3. The combination with the frame, of the crank-shaft mounted therein, the cranks fixed to said shaft, the forks fixed to the seat-post above said shaft, the wheels mounted in said forks, respectively, and the pedal-levers pivoted upon the crank-pins and having the oblique edges lying in said forks, respectively, in sliding contact with the corresponding wheels.

658,764. MACHINE FOR MAKING WAX MATCHES. JOSEPH C. DONNELLY, Philadelphia, Pa. Filed June 9, 1893. Serial No. 477,075. (No model.)

Claim.—1. In an automatic power-driven machine for making wax matches, the combination with a main driving mechanism, of a progressively-movable carrier, operative connections between said mechanism and carrier, a reciprocating taper-feeding device arranged to thrust the taper toward, and operating automatically in respect to, the carrier, and having provisions for clamping the taper during the advance stroke of the device, and for holding straight and in line during its insertion in the carrier substantially all that portion of the taper which is next to be severed, means for releasing the taper-clamp during the retraction of said device, a cutter constructed and arranged to sever the taper when it has been introduced to the carrier, and means for operating the cutter at predetermined intervals, substantially as described.

2. In an automatic power-driven machine for making wax matches, the combination with a main driving mechanism, of a progressively-movable carrier, operative connections between said mechanism and carrier, a reciprocating taper-feeding device arranged to thrust the taper toward, and operating automatically in respect to, the carrier, and having provisions for clamping the taper during the advance stroke of the device and for holding straight and in line during its insertion in the carrier substantially all that portion of the taper which is next to be severed, means for releasing the taper-clamp during the retraction of said device, a knife reciprocative independently of the feeding device in a plane intersecting the taper, a support and guide for the knife, and means connected with and operated from the main driving mechanism for reciprocating the cutter at predetermined intervals, substantially as described.



3. In an automatic power-driven machine for making wax matches the combination, with a main driving mechanism, of a progressively-movable carrier, operative connections between said mechanism and carrier, a reciprocating taper-feeding device arranged to thrust the taper toward the carrier, said device including a section movable at right angles to the feeding movement so as to clamp or release the interposed taper, and having provision for holding straight and in line during its insertion in the carrier substantially all that portion of the taper which is next to be severed, means connected with and operated from the main driving mechanism for advancing said device to the carrier while the latter is at rest and for retracting the device while the carrier is moving onward, and means for automatically effecting the clamping and the unclamping of the taper preparatory to the advancement and the retraction of the feeding device, respectively, together with a cutter constructed and arranged to sever the taper into match-lengths, and means for operating said cutter at predetermined intervals, substantially as described.

4. In an automatic power-driven machine for making wax matches, the combination, with a main driving mechanism, of a progressively-movable carrier, operative connections between said mechanism and carrier, a reciprocating taper clamping and feeding device, means for advancing said device to the carrier while the latter is at rest and for retracting the device while the carrier is moving onward, and means for effecting the clamping and the unclamping of the tapers preparatory to the advancement and the retraction of the feeding device, respectively, together with a supplementary clamping device to act upon the tapers during the retraction of the feeding device, a cutter constructed and arranged to sever the tapers into match-lengths, and means for operating said cutter at predetermined intervals, substantially as described.

5. In an automatic power-driven machine for making wax matches, the combination, with a main driving mechanism, of a progressively-movable carrier, operative connections between said mechanism and carrier, a reciprocating taper-feeding device having a lower clamp and an upper guiding portion through which the tapers freely extend, means for operating and releasing the clamp at predetermined intervals, a knife or cutter, and means for operating it in a manner to sever the tapers when they have been introduced to the carrier, substantially as described.

6. In a machine for making wax matches, the combination, with a main driving mechanism, a progressively-movable carrier, operative connections between said mechanism and carrier, of a bodily-reciprocative clamp and feed device for lines of taper, said device comprising a portion in which the tapers are clamped, and a series of guides through which the tapers freely extend, and an independent cutter movable transversely of the tapers thus clamped, and means connected with and actuated from the main driving mechanism for automatically operating the cutter, substantially as described.

7. In combination with the carrier, consisting of a series of sections hinged together, each section being provided with means for holding match-blanks or the like, means for moving such carrier with a step-by-step motion to carry the carrier-sections past a given point, which consists in two ratchet-toothed pieces moving together and connected with the carrier so as to move the same, the one having a series of ratchet-teeth, and the other a single tooth, in combination with two pawls, one for each ratchet-toothed piece, and means for actuating such pawls, arranged to move the pawl for the single-toothed ratchet-piece a greater distance than the other pawl travels, substantially as and for the purpose specified.

8. In combination with a carrier consisting of a series of connected sections, each containing a series of clamping-bars, a rotary shaft, connections between the same and the carrier whereby the latter is moved, the two ratchet-wheels on such shaft, one having only one tooth, and the other a series of teeth, a pawl to engage the teeth of the second wheel actuated to move the latter a distance to carry the carrier through a space equal to the width of one clamping-bar, and a pawl to engage the single tooth on the other wheel, actuated to move the same far enough to carry the carrier through a space equal to the width of two clamping-bars, and the space between two adjoining carrier-sections, substantially as and for the purpose described.

9. In combination with a series of connected carrier-sections, each having a series of clamping-bars, the teeth on such bars, the teeth on projecting portions of each end bar below the space between such bar and the first one of the next section, the rotary shaft, the pinions thereon to mesh with said teeth, the ratchet-wheel on the shaft having a series of ratchet-teeth, the second ratchet-wheel also fixed on the shaft, and having one tooth, separate pawls for the two ratchet-wheels, the pawl-actuating levers, and means for moving such levers, adapted to give the lever connected with the pawl for the one-toothed wheel, a throw sufficient to turn the shaft a greater distance than the other pawl turns it, so as to move the carrier a distance equal to the width of two clamping-bars and the space between the two carrier-sections, substantially as and for the purpose specified.

10. In combination with a source of supply of the taper, or other material, in a continuous strip, the stationary clamp through which the strip is passed, one or more springs to hold such clamp closed, the cam for opening it, the reciprocating clamp consisting of the two plates moving together, to and from the stationary clamp, a guide to guide one of such plates in a straight line toward and from the stationary clamp, and guiding devices to hold the other plate against the first plate as it moves from the stationary clamp, and separating it therefrom during its travel in the opposite direction, such guiding devices guiding the parts of the movable clamp in their feeding as well as in their clamping movement, substantially as and for the purpose set forth.

11. The reciprocating feed-clamp, consisting of the two plates connected by the pins on one engaging holes in the other, the straight guideways guiding one of the plates, guide-rollers on the sides of the other plate, a straight guideway for such rollers, the two camways running at their opposite ends into such straight guideways, and the switches near the upper ends of the camways to shift the rollers on the plate over into the camways as they descend, substantially as and for the purpose described.

12. In a match-machine, the combination, with a progressively-moving carrier, and its supporting and operating parts, of two opposing clamping and feeding plates connected to each other so as to reciprocate together to and from said carrier, but be capable of being separated and brought together again during reciprocation, a guiding device for one of the plates, guide-rollers at the sides of the other plate, a straight guideway for such rollers, and the two camways running at their upper and lower ends into the straight guideway, the switches at the points where the upper ends of the camways run into the straight guideway, and springs holding such switches normally swung across the straight guideway, substantially as and for the purpose specified.

13. In a match-machine, the combination, with a progressively-moving carrier, and its supporting and operating parts, of a reciprocating clamp and feed device, to clamp the lines of taper and feed them progressively to the carrier, said device being provided with a slot immediately above the clamping portion, a cutter reciprocative independently of the clamp and feed device, and means for forcing the cutter in through the slot to cut the clamped tapers, substantially as described.

14. In combination with means for holding and supplying a strip of material from which matches are to be made, and a suitable carrier to receive and hold portions cut off from such strip, a reciprocating clamp grooved to hold and guide the strip and adapted to surround the same up to a point close to its end, means for moving such clamp toward and from the carrier into which the strip is to be thrust, means for opening and closing the clamp as it moves away from and toward the carrier, respectively, and a cutter arranged to cut the strip at a point below the upper edge of the strip-surrounding part of the clamp, and means for actuating such cutter, substantially as and for the purpose specified.

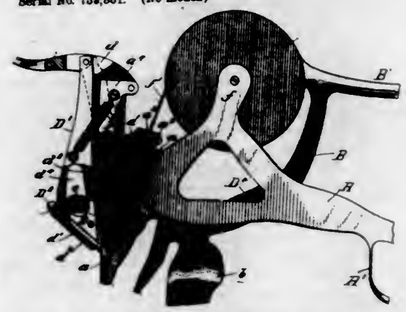
15. The feeding-clamp for feeding a taper, consisting of the two separable plates, having corresponding taper-receiving grooves in their opposing faces, with their lower portions made small enough to grasp the taper when the plates are forced together, and their upper portions made larger to simply surround and guide the taper, in combination with a cutter to cut the taper above the smaller portions of the receiving-grooves of the clamp, substantially as and for the purpose set forth.

16. The feeding-clamp for feeding lines of taper, which consists of the two separable plates having the series of corresponding taper-receiving grooves in their opposing faces, with their lower portions made small enough to grasp the tapers when the plates are forced together and their upper portions made larger, and a way for a cutting-blade to pass across the upper ends of the lower portions of the grooves, in combination with a cutter, and means for forcing the same through such way and retracting it, substantially as and for the purpose described.

17. In combination with a series of rolls or other sources of supply of taper, a movable carrier, and its supporting and operating parts, said carrier having the transverse bars with a series of corresponding grooves in their abutting faces, corresponding in number with the tapers to be operated upon, the reciprocating feed-clamp having its clamping-plates provided with grooves on their opposing faces through which the taper passes, situated similarly to those in the carrier-bars, means for moving such clamp toward and from the carrier, and cutting mechanism operating in a fixed path independently of the clamp to act on the tapers at a point below the carrier, substantially as and for the purpose shown.

18. In combination with sources of supply of several lines of taper, the grooved stationary clamp, means for opening and closing said clamp, the correspondingly-grooved reciprocating feed-clamp, means for opening and closing it as it moves toward and from the stationary clamp, respectively, a carrier moving progressively across the path of the feed-clamp provided with a series of spring-pressed clamping-bars, with their opposing faces having taper-receiving grooves corresponding in number and position with those on the feed-clamp, springs to press such bars together, means for separating them to allow the passage of taper ends between them by the reciprocating feed-clamp, and then releasing them, and a cutter operating in a fixed path independently of the clamp to cut the tapers off below the carrier, substantially as and for the purpose set forth.

658,765. HAND LASTING-TOOL. NAPOLEON DUBEAULT, Montreal, Canada, assignor to Joseph Adam, same place. Filed Dec. 11, 1899. Serial No. 739,881. (No model.)



Claim.—1. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame carried by one of said levers; a hand-lever pivotally connected thereto; a nail driving and severing plunger pivotally connected to said hand-lever, said plunger having a cam-surface; and a stationary guide carried by said frame against which said surface is adapted to ride during the movement of said hand-lever, whereby said plunger will be caused to be positively forced toward said frame.

2. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame carried by one of said levers, said frame having a passage-way for the nail-strip, said passage-way being exposed for substantially its entire length; a hand-lever pivoted to said frame; a nail driving and severing plunger pivotally connected to said hand-lever; and means for positively forcing said plunger toward said frame, substantially as described.

3. In a lasting-tool, the combination with two pivoted levers provided with jaws; of a hand-lever pivoted to one of said levers, a nail-driving plunger pivoted to said hand-lever and provided with an opening having an inclined side; a feeding and cutting rod mounted in said plunger; a bracket fixed upon one of said pivoted levers and having a frio-

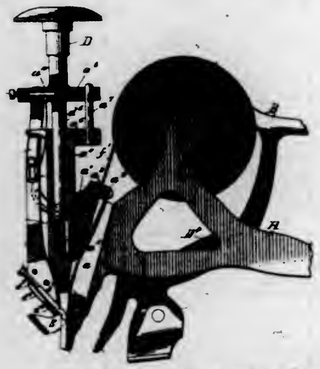
tion-roller adapted to engage said opening and bear against said inclined side, whereby the said plunger is forced toward and into the path of movement of the nail-strip during its downward movement, whereby the nail is driven to its seat and severed, substantially as described.

4. In a lasting-tool, the combination with two levers provided with jaws; of a frame fixed on the end of one of said levers, having an opening therethrough; a plug secured in said opening, having an orifice communicating with said opening for the passage of the nails; a lug mounted on said frame; a hand-lever pivoted upon said lug; a plunger pivoted to said hand-lever; a feeding and cutting rod mounted in said plunger; and means for forcing the said plunger toward the said frame during its downward movement, whereby the nail is driven to its seat and severed, substantially as described.

5. The combination with a hand lasting-tool having a reciprocating nail-driver; and a hand-lever for imparting movement thereto; of a pivotally-mounted stop-plate adapted to lock said lever in an inoperative position.

6. In a hand lasting-tool, a plunger, having its lower end arranged at an angle to its longitudinal center, said end having a screw-threaded opening and also having a spring-clamp; and a cutting nail-driver having a portion of its length screw-threaded, removably and adjustably secured in said opening and clamp, substantially as described.

658,766. HAND LASTING-TOOL. NAPOLEON DUBEAULT, Montreal, Canada, assignor to Joseph Adam, same place. Filed Dec. 16, 1899. Serial No. 740,547. (No model.)



Claim.—1. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame connected to one of said levers, said frame having a socket; a plunger mounted in said socket; a cutting feed-rod and nail-driver mounted on said plunger, the connection of said feed-rod and said plunger being at a point above the lower end of said plunger and away from the longitudinal center thereof; and means for positively forcing said feed-rod toward the frame to drive the nail and sever it after being driven.

2. A hand lasting-tool comprising two pivotally-mounted levers having gripping-jaws; a frame connected to one of said levers, said frame having a socket; a plunger mounted in said socket; a lateral extension formed on said plunger above the lower end thereof a cutting feed-rod and nail-driver connected to said extension and means for positively forcing said feed-rod toward the frame to drive the nail and sever it after being driven.

3. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame connected to one of said levers, said frame having a socket; a plunger mounted in said socket; a lateral extension formed on said plunger, said extension having an opening; a cutting-feed-rod carrier mounted within said opening and having a loose connection with said extension to allow of a limited oscillating movement, said carrier supporting a cutting feed-rod; and means for positively forcing said carrier and its feed-rod toward the frame to drive the nail and sever it after being driven.

4. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame connected to one of said levers, said frame having a socket; a plunger mounted in said socket; a lateral extension formed on said plunger, said extension having an opening; a cutting-feed-rod carrier mounted within said opening and having a loose connection with said extension to allow of a limited oscillating movement, said carrier supporting a cutting feed-rod; and a guide, located in the path of movement of said carrier, for directing the movement of said feed-rod toward said frame, whereby the nail will be driven and severed.

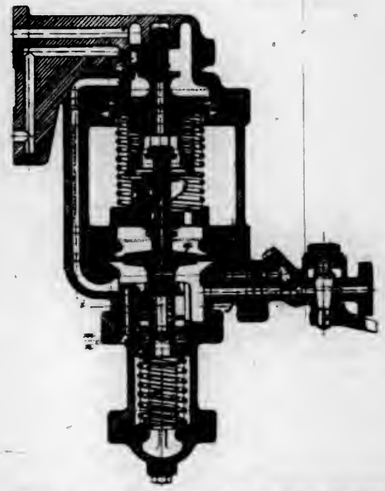
5. A hand lasting-tool comprising two pivotally-connected levers having gripping-jaws; a frame connected to one of said levers, said frame having a socket; a plunger mounted in said socket; a lateral extension formed on said plunger, said extension having an opening; a cutting-feed-rod carrier mounted within said opening and having a loose connection with said extension to allow of a limited oscillating movement; a feed-rod and nail-driver carried by said carrier, said feed-rod having its longitudinal center extending in substantial alinement with the direction of movement of the carrier during the severing operation; and a guide located in the path of movement of said feed-rod for directing the movement of said feed-rod toward said frame, whereby the nail will be driven and severed.

6. In a hand lasting-tool the combination with levers having gripping-jaws; and a frame carried thereby; of a plunger mounted to have a vertical movement; a feed-rod carrier loosely connected to said plunger at a point away from the longitudinal center of said plunger; a feed-rod carried by said carrier, said feed-rod having its longitudinal center extending in substantial alinement with the direction of movement of the carrier during the severing operation; and means for positively forcing said feed-rod toward the frame to drive the nail and sever it after being driven.

7. In a hand lasting-tool, an oscillating frame or carrier; a cutting feed-rod and nail-driver removably and adjustably carried by said carrier, said feed-rod having its longitudinal center extending in substantial alinement with the direction of movement of the carrier during the severing operation; and an anvil toward which said driver is forced during said severing operation.

8. In a hand lasting-tool, an oscillating frame or carrier; means for moving the lower end of said carrier toward and from an anvil formed on said tool; and a cutting feed-rod and nail-driver removably and adjustably carried by said carrier, said feed-rod having its longitudinal center extending in a direction at an angle to the longitudinal center of the carrier.

658,767. AUTOMATIC BRAKE FOR RAILWAYS. MARTIN L. E. DUVAL, Paris, France, assignor to La Compagnie de Fives Lille, same place. Filed June 8, 1898. Serial No. 682,959. (No model.)

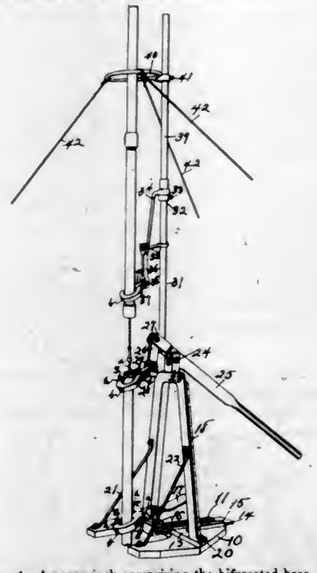


Claim.—1. In a distributer for air-brake appliances, the combination with means adapted to be actuated by variations in train-pipe pressure for controlling communication between the train-pipe, auxiliary reservoir and brake-cylinder, of a reciprocatory rod and means for reciprocating the same in accordance with variations in train-pipe pressure in making ordinary service as well as emergency applications of the brakes, two or more ports at the distributer leading to the atmosphere through which the train-pipe is adapted to exhaust in making emergency applications of the brakes, a valve for simultaneously opening and closing said ports connected to the rod so as to be movable therewith during ordinary or service braking operations, but so disposed as to open said ports only upon extreme movement of the rod in making quick action or emergency stops.

2. In a distributer for air-brake appliances, the combination with means actuated by variations in train-pipe pressure for controlling communication between the train-pipe, auxiliary reservoir and brake-cylinder, said means comprising an actuating part—such as a diaphragm—of a passage of variable area through which said diaphragm is exposed to train-pipe pressure, a regulating-rod acting automatically to vary the area of said passage as the pressure in the train-pipe fluctuates, a second diaphragm directly exposed to train-pipe pressure for actuating said rod, a port leading from the train-pipe side of said second diaphragm to the atmosphere, a valve for opening and closing said port connected to and movable with the rod during both service and emergency operations of the brakes, but so disposed as to open the port only upon the extreme movements of the rod in emergency operations.

3. In a distributer for air-brake apparatus, the combination with a triple valve for controlling communication between the train-pipe, auxiliary reservoir and brake-cylinder, means adapted to be actuated by fluctuations in train-pipe pressure for operating the triple valve, a regulating-rod, means—such as a diaphragm—directly exposed to train-pipe pressure for operating said rod according to fluctuations in train-pipe pressure, a seat against which the rod slides, and an orifice or passage through which the triple-valve-operating means is exposed to train-pipe pressure, said orifice being formed through the rod and its seat by an opening in one of said parts of such size as to be capable of registering with a part only of one of three triangular openings through the other part, said three openings corresponding respectively to the service application, emergency application and release of the brakes.

658,768. PUMP-JACK. CHARLES F. ECHELBARGER, Bancroft, Iowa, assignor of one-half to Samuel Mayne, same place. Filed Nov. 17, 1899. Serial No. 737,301. (No model.)



Claim.—1. A pump-jack comprising the bifurcated base, the stand rising therefrom, the lever on the stand, the lifting-hook on the lever, the treadle-hook on the base, the upright pipe and the holding-hook on the pipe, the hooks being normally in the vertical plane of the furcate of the base.

2. The pump-jack comprising the base, the stand rising therefrom, the lever on the stand, the lifting-hook on the lever, the treadle-hook on the base, the upright pipe and the ring on the upright pipe.

3. A pump-jack comprising the base, the chair thereon, the treadle slidably mounted in the chair, the treadle-hook on the slide and swiveled thereto, the yoke-stand fixed to and rising from the base, the lever swiveled to the top of the stand, the lifting-hook pending from the short arm of the lever, the upright pipe on the stand, the bracket swiveled to the upright pipe, the holding-hook pending from the bracket, and the ring fixed to the upper end portion of the upright pipe.

4. In a pump-jack, the combination of the base, the chair thereon, the plate slidingly mounted in the chair and the hook swiveled in said sliding plate, and arranged to be moved laterally or rotatably out of the vertical plane of a well-tube.

5. In a pump-jack, the combination of the base, the chair on the base, the plate slidingly mounted in the chair, and the hook mounted for vertical and lateral oscillation on the plate.

6. In a pump-jack, the combination of a bifurcated base, a stand rising therefrom, a treadle-lever on the base and projecting over the furcate thereof, the lifting-lever and hook on the stand and projecting over the furcate of the base, and the holding-hook located above the lifting-hook and projecting over the furcate of the base, the treadle-hook, lever and holding-hook all being swiveled for lateral oscillation.

658,769. METHYL ETHER OF ANTHRANILIC ACID AND PROCESS OF MAKING SAME. HUGO ERDMANN and ERNST ERDMANN, Halle-on-the-Saale, Germany, assignors to the Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Filed Nov. 11, 1898. Serial No. 696,160. (Specimens.)

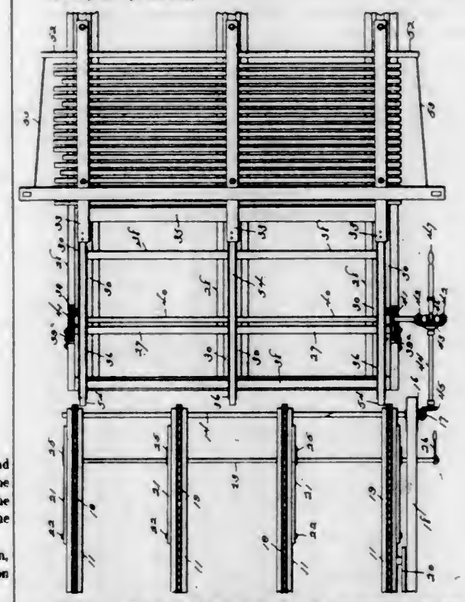
Claim.—1. The hereinbefore-described methyl ether of anthranilic acid prepared by the action of acids upon a solution of anthranilic acid in methyl alcohol, said ether possessing the constitution represented by the formula:

$$C_6H_4\begin{cases}(1)NH_2\\(2)COOCH_3,\end{cases}$$

forming colorless crystals of blue fluorescence, which melt at 23.5° centigrade, dissolving easily in alcohol, ether, benzene and other organic solutions or oils, these solutions showing a beautiful blue fluorescence, being sparingly soluble in water, but dissolving readily in diluted mineral acids, said ether possessing an intense smell which resembles that of orange-blossoms.

2. The herein-described process for the manufacture of the methyl ether of anthranilic acid which consists in treating anthranilic acid with methyl alcohol and acids and separating the ether from the salt thus formed, by means of an alkali, substantially as set forth.

658,770. LUMBER-STACKING MACHINE. ROBERT FULLERTON, Des Moines, Iowa. Filed Jan. 6, 1899. Renewed May 4, 1900. Serial No. 15,542. (No model.)



Claim.—1. In a lumber-stacking machine, the combination of a frame having a number of longitudinal top pieces, shafts rotatably mounted in the frame at the ends of the said top pieces, sprockets on said shafts arranged in alinement with the said longitudinal top pieces, endless conveyer-chains passed over the said sprocket-wheels to travel on top of the said top pieces and return beneath them, means for driving one of said shafts, a series of arms pivoted to the said longitudinal top pieces, a shaft mounted beneath the said top pieces adjacent to said arms, eccentrics on said shaft arranged to be capable of engaging said arms and forcing them upwardly above the conveyer-chains, and a lever attached to the said shaft, all arranged and combined to operate in the manner set forth and for the purposes stated.

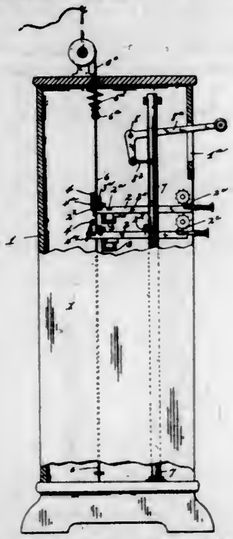
2. A lumber-stacking machine, comprising in combination, a supporting-frame, a stacker-frame slidingly mounted therein, a series of channel-bars hinged to the frame to swing in a vertical plane, means for raising and lowering the said channel-bars, spacing-strips designed to be placed

in the channel-bars, and means for automatically engaging and holding the spacing-strips at their upper ends when the said channel-bars are returned, for the purposes stated.

3. A lumber-stacking machine, comprising in combination, a frame, sills on said frame, rollers in the said sills, and side pieces adjacent to the rollers, uprights fixed to the frame, horizontal strips connected with said uprights, leaf-springs fixed to the said strips, a cross-piece connected with the said frame, channel-bars hinged to said cross-piece, spacing-strips designed to be placed in said channel-bars, segmental racks fixed in said channel-bars, a shaft rotatably mounted in a fixed support, pinions on said shaft to engage said racks, and means for operating the said shaft to raise and lower the rack, all arranged and combined substantially in the manner set forth and for the purposes stated.

4. A lumber-stacking machine, comprising in combination, a supporting-frame, longitudinal top pieces therefor, shafts mounted in the ends of said longitudinal pieces for rotation, sprockets on said shaft, endless conveyer-chains passed over said sprockets and over the longitudinal pieces, means for driving one of said shafts, arms pivoted to the said longitudinal pieces, a shaft mounted beneath the said arms, eccentrics thereon to engage the arms, a lever fixed to the shaft, a second frame having grooved sills, rollers in said grooves, uprights fixed to the said frame, horizontal strips connected with said uprights, leaf-springs fixed to said strips, a cross-piece fixed to the sills, channel-bars hinged to said cross-piece and having serrated lower edges, segmental racks fixed to the said channel-bars, a shaft rotatably mounted in a stationary support, pinions thereon to engage the said racks, means for connecting the said shaft with one of the aforesaid shafts whereby it may be rotated in either direction to thereby raise and lower the said racks, spacing-strips designed to be placed in the said channel-bars, and a stacker-frame mounted upon the said rollers, uprights at the outer ends of the said lumber-stacking frame, direction-pulleys fixed to said uprights, a rope connected with the uprights of the stacker-frame and passed over said pulleys and weights on said ropes, all arranged and combined to operate in the manner set forth and for the purposes stated.

658,771. **VOTING-MACHINE.** OTTMAR A. GATRELL, Columbus, Ohio, assignor of two-thirds to Edward R. Haring and Leonard F. Benckenstein, same place. Filed July 29, 1899. Renewed Apr. 12, 1900. Serial No. 12,633. (No model.)



Claim.—1. In a voting-machine, a series of push-keys arranged in horizontal and vertical rows each having two notches and a wedge-shaped projection, the angle-bar 3, the movable blocks 5 supported on the angle-bar and operated by the wedge-shaped projections, and the pivoted latches 3^a to transversely engage notches, with means for holding all the latches 3^a of each horizontal row disengaged until operated by a key, substantially as described.

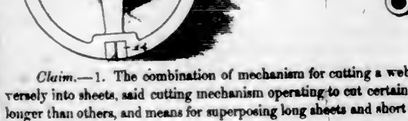
2. In a voting-machine, a series of push-keys arranged in horizontal and vertical rows each having two notches, latches pivoted to swing transversely into said notches, a movable plate 4^a for each horizontal row carrying pins 4^b to hold said latches disengaged from said notches until pushed by one of said keys, substantially as described.

3. In a voting-machine, a series of push-keys arranged in horizontal and vertical rows each having two notches and latches pivoted to swing transversely into said notches, a movable plate carrying pins for each horizontal row to hold said latches disengaged from said notches until pushed by one of said keys, and means for simultaneously disengaging said latches from the notches, substantially as described.

4. In a voting-machine, a series of notched push-keys arranged in horizontal and vertical rows, latches pivoted to swing transversely into said notches, a movable plate 4^a for each horizontal row carrying pins 4^b to hold said latches disengaged from said notches until pushed by one of said keys, substantially as described.

5. In a voting-machine, paper-rolls 12 and 13, one of said paper-rolls having a ratcheted head, a spring-actuated key-bar having a two-part frame with reversely-acting pawls to engage said ratchet whereby paper may be wound from one roll to the other on both inner and outer movement of the key, as shown and described.

658,772. **PENHOLDER PROVIDED WITH DEVICE FOR DRYING PENS.** ROBERT GAUCK, Bant, Germany. Filed Jan. 9, 1900. Serial No. 358. (No model.)



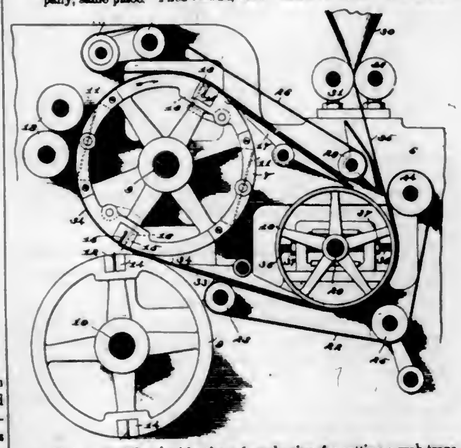
Claim.—1. The combination with a penholder, of a pen-wiper consisting of a pair of levers each provided with a wiping-pad and means for throwing the levers into and out of operative position with respect to the pen, substantially as described.

2. The combination with a penholder of a pen-wiping device consisting of a pair of levers carrying pads, said levers being pivoted to the penholder and a single device to which both of said levers are connected whereby they may be simultaneously thrown into and out of operative position.

3. The combination with a penholder of a pair of bell-crank levers carrying pads, a thrust-rod connected with both levers and a spring acting against said thrust-rod, whereby the levers will be held either in their operative or inoperative position.

4. The combination with a penholder of a pen-wiping device consisting of a pair of levers carrying pads, a spring acting upon both levers and tending to hold them either in operative position with respect to the pen, or out of such operative position, substantially as described.

658,773. **DELIVERY APPARATUS FOR PRINTING-PRESSES.** SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Jan. 24, 1900. Serial No. 2,611. (No model.)



Claim.—1. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for superposing long sheets and short sheets, substantially as described.

2. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for folding long and short sheets together, the long sheet being outermost, substantially as described.

3. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for assembling long and short sheets so that the ends of the long sheets project beyond the ends of the short sheet, substantially as described.

4. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, means for assembling long and short sheets so that the ends of the long sheet project beyond the ends of the short sheet, and folding mechanism which operates to fold the assembled sheets with the short sheet folded inside the long sheet, substantially as described.

5. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, and means for conducting the short sheets back to and superposing them upon the long sheets before they are cut from the web, in such manner that the rear margin of the long sheet before it is cut projects beyond the rear margin of the short sheet, substantially as described.

6. The combination of coacting cutting-rolls, and traneverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, substantially as described.

7. The combination of coacting cutting-rolls, transverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, and folding devices for folding the severed sheets, substantially as described.

8. The combination of coacting cutting-rolls, and transverse cutting devices carried by each of said rolls at points slightly less than one hundred and eighty degrees apart, whereby alternate sheets will be cut of different lengths, one of the cutting devices carried by each roll being adjustable to a position one hundred and eighty degrees from the opposite cutting device carried by the same roll, substantially as described.

9. The combination of mechanism for cutting a web transversely into sheets, said cutting mechanism operating to cut certain sheets longer than others, means for conducting the short sheets back to and superposing them upon the long sheets before they are cut from the web, and means for varying the length of the path of said short sheets, substantially as described.

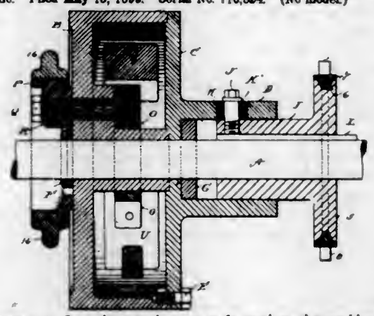
658,774. **PEELING AND GOUGING KNIFE.** GEORGE E. GRIER, Pomona, Cal. Filed Mar. 3, 1900. Serial No. 7,218. (No model.)



Claim.—1. In a device of the kind described, the combination of a suitable handle, a bow-shaped guard and a bow-shaped knife-blade having flat parts adjacent to the bow formed with slots running parallel with its length and means for securing the knife-blade by means of its flat parts adjustably to the guard, substantially as set forth.

2. In a device of the kind described, the combination of a suitable handle, a bow-shaped guard having ears extending at right angles with the body of the guard, screw-holes in the ears, a flexible bow-shaped knife-blade having flat parts adjacent to the bow formed with slots running parallel with its length and screws adapted to be inserted in said slots and screwed fast to the guard whereby the knife-blade is secured by means of its flat parts, substantially as set forth.

658,775. **SHAFT-GOVERNOR.** CHARLES O. HEGGEM, Massillon, Ohio. Filed May 15, 1899. Serial No. 716,824. (No model.)



Claim.—1. In an improved governor for engines, the combination with a shaft, of a governor-casing loosely mounted thereon, governor means for engaging with said casing to rotate it with said shaft and to also partially rotate it on said shaft, and other means for connecting the inlet-valve with said casing whereby the pressure medium may be more or less cut off as desired.

2. In an improved governor for engines, the combination with a rotatable shaft, of a shell or casing rotatably mounted thereon, means for engaging with said shell or casing and with said shaft to cause the casing to rotate with the shaft and partially rotate on the shaft, a shaft carried by said shell or casing, a lever engaging with one end of said shaft, governor-weights connected with said lever and adapted to operate it to partially rotate said casing-shaft, an eccentric mounted on the outer end of said casing-shaft and adapted to be partially rotated thereby, and a strap adapted to operate a slide-valve mounted on said eccentric, substantially as shown and described.

3. In an improved governor for engines, the combination with a rotatable casing loosely mounted on a main shaft, of one or more governor-weights pivotally mounted therein, a shaft carried by said casing parallel to said main shaft, a lever connected with said casing-shaft and adapted to be operated by said governor-weights, means for connecting the other end of said casing-shaft with an inlet-valve leading into an engine-cylinder and adapted to operate said valve to open or close the inlet-opening more or less according to the speed of the engine, and other means to engage with the main shaft and with said casing and adapted to partially rotate such casing on said main shaft, substantially as shown and described.

4. In an improved governor for engines, the combination with a shaft, of a casing rotatably mounted thereon, a non-rotatable sleeve sliding on said shaft, means for sliding said sleeve and holding it in adjusted positions, a stud carried by said sleeve, a roller mounted on said stud and projecting within a helical slot in said casing, whereby when the sleeve is moved longitudinally on its shaft said casing will partially rotate on said shaft and will also rotate with said shaft, a shaft carried by said casing, an elongated ring or lever fixed on the inner end of said shaft within said casing, a pair of pivoted weights also pivoted within said casing, a link for connecting the free ends of the respective weights with said lever, an eccentric mounted on the outer end of said shaft outside of said casing, a strap mounted upon said eccentric and adapted to operate the inlet-valve of the engine, the partial rotation of said casing on its shaft operating to drive the engine either backward or forward while the partial rotation of said eccentric by governor-weights operates to vary the amount of pressure fluid taken into the engines, all substantially as shown and described.

5. In an improved governor for engines, the combination with a shaft, of a sleeve slidably mounted thereon, a collar adapted to engage with said sleeve carrying one or more studs or projections, a bell-crank lever engaging with said projections at one end and at its other end engaging with an operating-rod, a hand-operated lever connected with said rod and adapted to reciprocate it, a stud carried by said sleeve having a roller mounted thereon, said roller adapted to extend within a helical groove in the casing whereby the casing is partially rotated on the shaft and whereby the casing is also made to rotate with the shaft, a shaft also carried by said casing, a lever engaging with the inner end of said shaft within said casing, a pair of pivoted weights within said casing, a pair of links connecting their respective weights with said lever, an eccentric mounted on the outer end of said casing-shaft and adapted to be partially rotated thereby, and a strap mounted on said eccentric and connecting with a fluid-admission valve, substantially as shown and described.

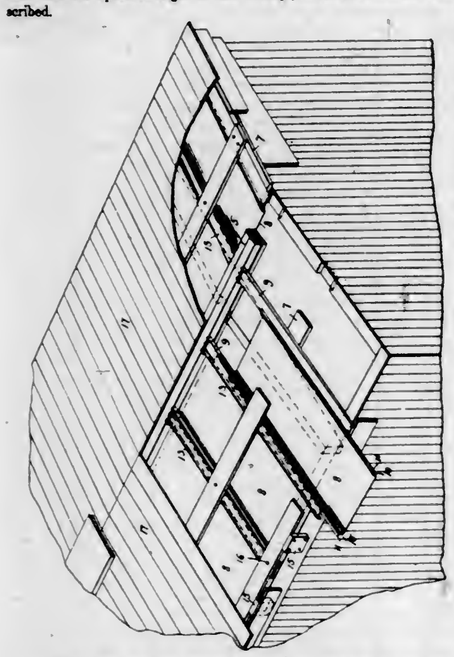
6. In an improved governor for engines, the combination with a shaft, of a casing rotatably mounted thereon and consisting of two parts, means for securing said parts together whereby they will hold oil or other lubricating liquid, governor-weights carried within said casing, and means for connecting said governor-weights with the pressure-fluid-admission valve, substantially as shown and described.

7. In an improved governor for engines, the combination with a shaft, of a casing loosely mounted thereon said shell or casing consisting of two parts adapted to be screwed together, a hub or projection formed upon one of said parts having a helical groove therein, a sleeve slidably keyed upon said shaft, means carried by said sleeve for extending within said helical groove to partially rotate said casing upon said shaft and to also rotate said casing with said shaft, pivotally-mounted governor-weights carried within said casing, and means for connecting said weights with a pressure-fluid-inlet valve for an engine-cylinder, whereby the amount of said fluid is regulated, substantially as shown and described.

658,776. **CAR-ROOF.** JOHN HODGE, Topeka, Kans. Filed May 9, 1898. Serial No. 680,220. (No model.)

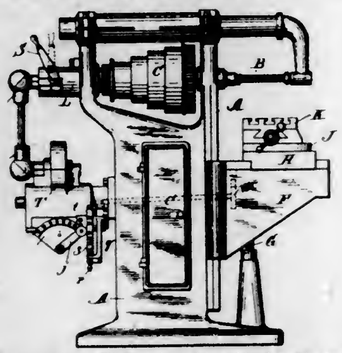
Claim.—1. In a car-roof, the combination with the ridge-pole having longitudinally-extending side grooves therein and mortises arranged at intervals along its sides, of false carlines fitting in said mortises at one end, roofing-plates, whose inner ends fit in said grooves, the said plates having upturned side edges and outwardly-extending flanges, the latter resting upon said false carlines, and cap-plates embracing said false car-

lines and the upturned edges of said roofing-plates, substantially as described.



2. In a car-roof, the combination with the ridge-pole having longitudinally-extending side grooves therein and mortises arranged at intervals along its sides, the upper side plates of the car, and intermediate purlins, of false carlines fitting in said mortises at one end, resting upon said side plates at the other end and supported by said purlins at intermediate points, roofing-plates whose inner ends fit in said grooves, whose outer ends rest upon said side plates and whose intermediate portions rest upon said purlins, the said plates having upturned side edges and outwardly-extending flanges, the latter resting upon said false carlines, and cap-plates embracing said false carlines and the upturned edges of said roofing-plates, substantially as described.

658,777. **MILLING-MACHINE.** FREDERICK HOLL, Cincinnati, Ohio, assignor to the Cincinnati Milling Machine Company, same place. Filed Mar. 26, 1900. Serial No. 10,211. (No model.)



Claim.—1. In a milling-machine, the combination of the work-support having its various movements, automatic driving mechanism for all of said movements, a pair of unequal-sized gears fast on the rear end of the live-spindle, a stub-spindle parallel with and adjacent thereto and carrying feathered gears to mesh alternately with the aforesaid gears, a shifter for said feathered gears, a second stub-spindle beneath the first-named stub-spindle, means for connecting said stub-spindles for simultaneous rotation, two gears of unequal size fast on said last-named stub-spindle, a third stub-spindle below said second stub-spindle and having loosely mounted thereon, but incapable of sliding, two cone-gears of unequal size with the smallest gear of the largest cone of which the larger gear of the second stub-spindle meshes and with the largest gear of the smaller cone of which the smaller gear of the stub-spindle meshes, a fourth stub-spindle in rear of and parallel with the third stub-spindle, a shiftable frame in which said fourth stub-spindle is carried, a gear feathered on said fourth stub-spindle, means for shifting said last-named gear laterally to bring it opposite any one of the gears of the two sets of cone-gears, means for drawing forward said stub-spindle and its feathered gear into mesh when set to mesh with the selected gear of the cone-gears, and a revoluble connection between said fourth stub-spindle and said automatic driver for the work-support, whereby a double shift of gears and speeds is obtained for the work-support which shall be in multiples of two for each of the sets of cone-gears, substantially as described.

2. In a milling-machine, the combination of the work-support having its various movements, automatic driving mechanism for all of said movements, a box secured to the rear upper part of the standard containing therein the rear end of the live-spindle on which is fast a pair of unequal-sized gears, a stub-spindle parallel with the live-spindle and journaled in said box, feathered gears on a sleeve arranged to mesh alternately with the gears on the live-spindle, a shifting arm pivoted to said box and having jaws to engage one of said feathered gears, an extension of said feathered spindle into a suitable housing with a beveled gear on said spindle, a second beveled gear journaled in said housing and meshing with the first beveled gear, a shaft extending downward from said last-named gear and carrying a beveled pinion in a housing secured to a second box beneath the first-named box and secured to the upright of the machine, a beveled pinion on a stub-spindle meshing with the beveled gear last mentioned, two gears of unequal size fast on said last-named stub-spindle, a third stub-spindle below said second stub-spindle journaled in said second box and having loosely mounted thereon two independently-revoluble cone-gears of different sizes, the smallest gear of the larger cone constantly meshing with the larger gear of the spindle above it and the largest gear of the smaller cone constantly meshing with the smaller of the spindle above it, a slide mounted in guides in the lower part of the second box having journaled at its rear end a stub-spindle on which is feathered a shiftable gear, a hollow spindle beneath said feathered stub-spindle and containing a rack and a projecting jaw engaging said shiftable gear, a segment-rack engaging the first-named rack, an operating-shaft fast to said segment-rack extending forward and supported in journals and carrying at the front of the box an index-pin held in constant engagement with one of a series of holes or notches in a segment-index fast at the front of the slide, a lever pivoted to the side of the slide and carrying a segment-rack meshing with a fixed rack on the lower box and a locking-pin carried by said lever engaging an index-segment provided with holes or notches, whereby when the shiftable gear is brought opposite any one of the gears of the two cones and locked in position by its segment rack and pin the last-named lever may be operated to throw forward the slide to cause the engagement of the shiftable gear with the gear to which it is opposed and to hold it so locked and thus obtain the requisite speed of the feed of the machine, substantially as described.

3. In a milling-machine, the combination of the work-carrying table having automatic vertical and horizontal movements imparted from the live-spindle, the train of gearing for actuating the work-carrying table, the train of gearing actuated by the live-spindle, intermediate sets of cone-gears having different velocities imparted to them from the live-spindle, and a variable-speed connection between said cone-gears, said trains of gearing and the work-carrying table, substantially as described.

4. In a milling-machine in which the speed of the work-carrying table is effected from the live-spindle, the combination of the train of gearing actuating the work-carrying table, the train of gearing from the live-spindle, intermediate sets of cone-gears having different velocities imparted to them from the live-spindle, a variable-speed connection between said cone-gears, and a shaft connected by a universal joint with the train of gearing actuating the work-carrying table, substantially as described.

5. In a milling-machine in which the speed of the work-carrying table is effected from the live-spindle, the combination of the train of gearing actuating the work-carrying table, the train of gearing actuated by the live-spindle, intermediate sets of cone-gears having different velocities imparted to them from the live-spindle, a communicating shaft geared at one end to the live-spindle mechanism and at its opposite end to the cone-gear-driving mechanism, substantially as described.

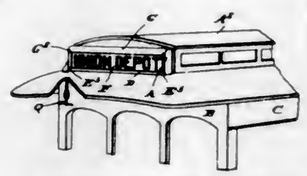
6. In a milling-machine in which the speed of the work-carrying table is effected from the live-spindle, the combination of the train of gearing actuating the work-carrying table, the train of gearing actuated by the live-spindle, intermediate gearing between the gearing actuating the work-carrying table, a variable-speed connection between two last-named trains of gearing, and a communicating shaft geared at one end to the live-spindle mechanism and at its opposite end to the intermediate gearing, substantially as described.

7. In a milling-machine, the combination of the feed-table-driving mechanism, and the spindle-driving mechanism, of a box containing a plurality of sets of cone-gears constantly driven by the spindle-driving mechanism, a sliding bearing beneath said box having journaled at its rear end a feathered shaft carrying a gear feathered and shiftable thereon so as to be brought opposite to any one of the gears of the sets of cone-gears, and a lock hand-lever with connecting mechanism for throwing forward or backward said shiftable gear into or out of engagement with one of the gears of the cone sets, substantially as described.

8. In a milling-machine, the combination of the feed-table-driving mechanism, and the spindle-driving mechanism, of a box containing a plurality of sets of cone-gears constantly driven by the spindle-driving mechanism, a sliding bearing beneath said box having journaled at its rear end a feathered shaft carrying a gear feathered and shiftable thereon so as to be brought opposite to any one of the gears of the sets of cone-gears, a lock hand-lever with connecting mechanism for throwing forward or backward said shiftable gear into or out of engagement with one of the gears of the cone sets, a shifting fork embracing said shiftable gear, a rack and segment for operating said shifting fork and a hand lock-lever for holding said segment-rack in any of its adjusted positions, substantially as described.

9. In a milling-machine, the combination with the box T, the fixed rack *v* thereon, the hand-lever *q* engaged by a locking-pin with the segment *t*, the slide M' to which the lever *q* is pivoted, the segment *u* engaging with the rack *v*, the shaft K' carried by the slide M', the gear L' feathered on the shaft K', the cone-gears I' J', the power-transmitting shaft O' leading to the table-driving mechanism, and a universal joint between the shafts O' and K'.

658,778. **STATION-INDICATOR.** LYTLE J. HUNTER, Covington, Ky. Filed July 15, 1899. Serial No. 723,970. (No model.)



Claim.—1. In a station-indicator, a casing having a bottom D provided with side flanges D^2, and the ends E having flange E^2 and projection E^3, and cap G, and glass F, and a locking-detent for keeping the glass from sliding out of place, substantially as and for the purposes specified.

2. In a station-indicator casing, the bottom D having flanges D^2, ends E having flanges E^2, glass F, cap G, and rear illuminating-chamber having open front provided with flanges H^2, engaging the adjacent flange D^2 and cap G, substantially as and for the purposes specified.

3. In the casing of a station-indicator, the bottom D provided with side flanges D^2, and the transverse gutter S, ends E E^2 having flanges E^2 and glass F, whose ends are located between the flanges E^2 and a flange D^2, and the cap G, lapping the glass and flange E^2, substantially as and for the purposes specified.

4. In a station-indicator, a casing containing an indicator-strip and having rollers, and ends wherein the rollers are journaled, a beveled gear on one of the rollers, a horizontal beveled gear outside of the casing and meshing with the first-named gear, a vertical shaft connected to the horizontal gear, a piece R for supporting the latter gear, and a bracket-piece R^1 having a double-curved hook engaging a slot in the end of the casing and connected at bottom to the piece R, and means for rotating the shaft of the horizontal gear, and holding it at a given point of rotation, substantially as and for the purposes specified.

5. In a station-indicator, a casing containing an indicator-strip and having rollers, and ends wherein the rollers are journaled, a beveled gear on one of the rollers, a horizontal beveled gear outside of the casing, and meshing with the first-named gear, a vertical shaft connected to the horizontal gear, a piece R for supporting the latter gear, and a bracket-piece R^1 having a double-curved hook engaging a slot in the end of the casing and connected at bottom to the piece R, the piece R having the side flanges R^2, and the eye-flanges R^3, the side flanges R^2 and the bracket-piece R^4 together covering the horizontal gear-wheel, and contributing to the support thereof, cap G having eyes G^2 and means for rotating the shaft of the horizontal gear, and holding it at a given point of rotation, substantially as and for the purposes specified.

6. In a station-indicator, a casing, rollers therein, an indicator-strip connected with the rollers, ends of casing, a vertical beveled gear on one of the rollers, within the casing, a horizontal beveled gear engaging the first-named gear, vertical shaft connected to the last-named gear, a sleeve embracing said shaft, a bracket-piece R for directly supporting the horizontal gear and its shaft and in turn hung from the casing of the indicator, the sleeve having its upper end connected to the piece R, and extending down, and provided at its lower end with notches, a sleeve Q located on the shaft below the first-named sleeve, and capable of reciprocating with the length of the shaft and constructed to compel the shaft to rotate with it, this sleeve Q having a finger rigidly connected thereto for engaging a given notch on the upper sleeve, and elastic means for elevating the sleeve Q and elastically pressing it toward the upper sleeve, substantially as and for the purposes specified.

7. A casing for car-indicators comprising end portions having flanges, a bottom portion and a cap connected to and extending between said end portions at bottom and top of the casing, this bottom and this top being also provided with flanges spaced away from the flanges of the end portions, spaces being formed between the flanges of said end portions on one side and the flanges of the cap and bottom portion on the other side, substantially as and for the purposes specified.

8. A casing for car-indicators comprising end portions having flanges, a bottom portion and a cap connected to and extending between said end portions at bottom and top of the casing and also provided with flanges spaced away from the flanges of the end portions, and a back portion formed with an illuminating-chamber and having its edges held between the flanges of the end portions on one side and the flanges of the cap and bottom portion on the other side, substantially as and for the purposes specified.

9. In a car-indicator, the combination of a casing having an end portion formed with an opening leading to the inside of the casing, and with a projection exterior to the casing, a shaft mounted to turn in the casing, a gear-wheel on said shaft, an operating-shaft outside of the casing having its end journaled in the exterior projection of the end portion of the casing, a gear-wheel on said operating-shaft with one side of its periphery extended through the opening in the end portion of the casing and in mesh with the gear-wheel on the shaft inside the casing, and a cover-plate extended over the gear-wheel on the operating-shaft, substantially as and for the purposes specified.

10. In a car-indicator, the combination of a casing comprising end portions, a bottom portion, and a cap, a transparent sign held in the casing, a back portion for the casing secured to the back part of the casing and cut away upon its front side, and an illuminating device in said back portion, substantially as and for the purposes specified.

11. In a car-indicator, the combination of a casing, a shaft therein, a sign-curtain carried by the shaft, a projection on the casing, a sleeve held by said projection and extended at an angle to the shaft therein, an operating-shaft extended through the sleeve, gearing between said operating-shaft and the curtain-carrying shaft, a part mounted for movement endwise along the operating-shaft, but held to turn in unison therewith, devices carried by said part and by the sleeve and adapted for engagement to hold the operating-shaft against rotative movement in the sleeve, and a spring for holding said devices normally in engagement, substantially as and for the purposes specified.

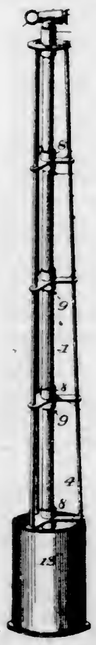
658,779. **POST OR POLE.** JOHN H. HUNTRESS, Janesville, Wis. Filed Aug. 28, 1899. Serial No. 728,773. (No model.)

Claim.—1. A support comprising an upright, a disk secured to the lower end of said upright, a sleeve secured to and projecting above the upright, an annular flange encircling said sleeve, a removable device mounted in said sleeve and adapted for attachment of the device to be supported, and rigid rods connecting said annular flange with the disk at the lower end of the upright

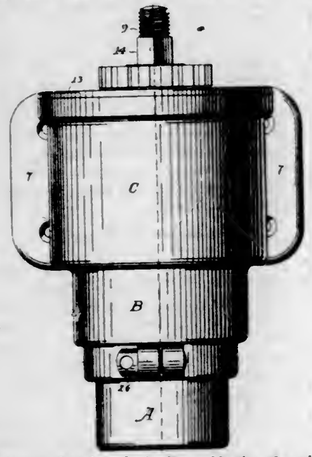
2. A support comprising an upright, a sleeve secured to the upper end thereof, said sleeve having an internal L-shaped groove, a T-coupling having a lug on its depending member to enter said sleeve, and a fastening device connected with the horizontal member of said T-coupling for securing the device to be supported, to the upright.

3. A support comprising a central upright, a disk secured directly to the lower end of said upright, a sleeve secured to the upper end of the upright, a removable device mounted in said sleeve for supporting a device to be supported, an annular flange at the upper end of said upright, a bracket having a series of radiating arms, secured to the upright above the base thereof, a series of brackets secured to the upright above the first-mentioned bracket and having radiating arms, the arms of the brackets of said series of brackets being of gradually-decreasing lengths from the base-bracket toward the top of the upright, and rigid rods secured at their respective ends to the disk at the lower end of the upright and the flange at the upper end thereof and passing successively through the arms of said brackets.

658,779.



658,780. LIQUID DOOR-CHECK. HORACE K. JONES, Hartford, Conn., assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Mar. 8, 1900. Serial No. 7,881. (No model.)



Claim.—1. In a door-check, the combination of a cylinder, with a piston loosely fitted therein and means for compressing the said cylinder for adjusting the fit of the piston therein, substantially as described.

2. In a door-check, the combination of the cylinder, the piston within the said cylinder and a clamp surrounding the said cylinder and arranged to exert its pressure on the body of the cylinder remote from its ends, substantially as described.

3. In a door-check, the combination of the cylinder having a peripheral groove, the piston within the said cylinder and a clamp surrounding the said cylinder at the said groove, with a portion of its inner face fitted therein, substantially as described.

4. In a door-check, the combination of the cylinder, with a piston fitted within the said cylinder and means for adjusting the wall of the said cylinder to regulate the leakage between the said wall and the periphery of the said piston, substantially as described.

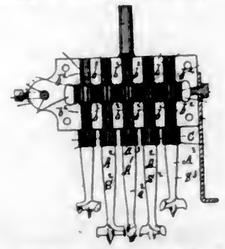
658,781. SASH-CORD GUIDE. WARREN T. KELLOGG, Lansingburg, N. Y. Filed Aug. 4, 1899. Serial No. 726,093. (No model.)



Claim.—1. A sash-balance case and a fixed pulley-shaft extending across the same, in combination with two tubular non-rotary struts sleeved thereon and a pulley having its central part hollow, laterally expanded and perforated so as to present two annular bearings, one of which turns on each of the said struts, the latter being in contact with each other at their inner ends and with the walls of the balance-case at their flanged outer ends, substantially as set forth.

2. A sash-balance case and a fixed pulley-shaft extending across the same, in combination with two tubular non-rotary struts sleeved thereon and extending end to end from one case-wall to the other and a pulley consisting of two plates provided with interlocking devices and spread apart at the center where they are provided with annular bearings, turning respectively on the said struts substantially as set forth.

658,782. AUGER-CUTTER. WARREN T. KELLOGG, Lansingburg, N. Y. Filed Aug. 4, 1899. Serial No. 726,094. (No model.)



Claim.—In combination with a series of augers geared together and a shaft for operating them, a stock, in which they are journaled, provided with a passage-way at right angles to the said augers, a handle movable forward and back in said passage and a clamping device for adjusting the position of the said handle in the said stock, substantially as and for the purpose set forth.

658,783. CAR CONSTRUCTION. GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed Feb. 26, 1900. Serial No. 6,534. (No model.)

Claim.—1. The combination with the side plates 1 having inwardly-extending flanges 2 at their lower edges, of the floor-plates 3 resting upon, and secured to, said internal flanges, and the end plates 4 whose lower edges are flanged under the bottom or floor plates, said parts being secured together with suitable rivets; substantially as described.

2. In a car, the combination with the side plates 1, of the floor-plates, end plates extending laterally beyond the side plates, and corner angles riveted to the side plates and the projecting ends of the end plates; substantially as described.

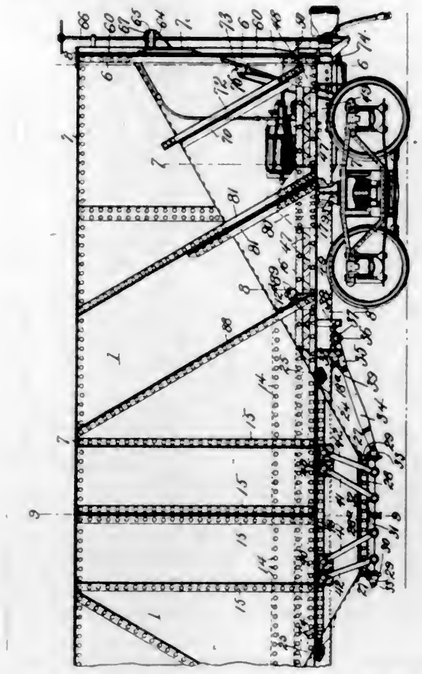
3. The combination with the side plates whose lower edges are flanged inwardly, of floor-plates resting upon, and riveted to, said flanges, the contiguous edges of said floor-plates abutting against each other, said butt-joints extending transversely the car, and transversely-arranged angle or T bars on the under side of the bottom of the car, to one member of which the contiguous edges of said floor-plates are riveted; substantially as described.

4. The combination with the side plates 1, of floor-plates, and obliquely-arranged hopper-plates 13 whose upper edges are riveted to the side plates, and whose lower edges are flanged under the bottom plates; substantially as described.

5. The combination with a side plate 1, of an obliquely-arranged hopper-plate 13 riveted thereto at a point above the lower edge of the side plate, and an angle-bar 16 secured to the inner face of the side plate and having its horizontal member extending inwardly to brace the hopper-plate; substantially as described.

6. The combination with a side plate 1, of an obliquely-arranged hopper-plate 13 riveted thereto at a point above the lower edge of the side plate, an angle-bar 16 secured to the inner face of the side plate and having its horizontal member extending inwardly to brace the hopper-plate, an angle-bar 17 secured to the lower edge of the side plate, and vertical posts 15 arranged on the outer side of the side plate; substantially as described.

7. The combination with a side plate, of a side sill formed with an inwardly-turned flange at its upper edge, and an outwardly-turned flange at its lower edge, of a hopper-plate secured to the inner face of the side plate at a point above said side sill, so that said hopper-plate is strengthened by the inwardly-extending flange of the side sill, a post or posts arranged on the outer face of the side plate, and a strengthening-plate 18 secured to the lower flange of the side sill and extending inwardly and secured to the hopper-plate 13; substantially as described.



8. The combination with a side plate, of a side sill formed with an inwardly-turned flange at its upper edge and a flange at its lower edge, of an inclined hopper-plate secured to the inner face of the side plate at a point above said side sill, said hopper-plate being supported by the inwardly-extending flange of the side sill, and a strengthening-plate 18 secured to the lower flange of the side sill and extending inwardly, its inner edge being secured to the inclined hopper-plate; substantially as described.

9. The combination with the side plates of a car whose ends are cut away, of inclined floor-plates, continuous floor-beams which extend laterally beyond the side plates, and inclined stiffening-braces to which the projecting ends of the floor-beams are secured; substantially as described.

10. In a hopper-bottom car, the combination with the under frame in which are included side sills, of an inclined floor, side walls, a plurality of transversely-arranged floor-beams arranged under the inclined floor and above the plane of the side sills, and a plurality of inclined stiffening-braces extending from the upper edges of the side walls to the side sills, and to which the floor-beams are respectively secured; substantially as described.

11. The combination with a side plate, of an inclined hopper-plate riveted to said plate above its lower edge, a side sill arranged at the lower edge of the side plate, and a stiffening-plate riveted to the side sill and to the inclined hopper-plate; substantially as described.

12. The combination with the center sills, of plates 20 secured thereto and forming the inner side plates of the hopper, said plates being provided with flanges at their lower edges, and bottom plates which rest upon, and are secured to, said flanges; substantially as described.

13. The combination with the center sills, of plates 20 secured thereto and forming the inner side plates of the hopper, said plates being provided with flanges on their lower edges, bottom plates which rest upon, and are secured to, said flanges, and inclined plates 13 forming the outer side walls of the hopper which are also provided with inturned flanges at their lower edges which extend under, and are riveted to, the bottom plates; substantially as described.

14. The combination with the center sills which pass through the deepest portion of a hopper-bottom car, of A-shaped castings secured to said center sills within the car, a hood-sheet 23 secured to said castings and extending over the center sills to shed the contents of the car, inclined bottom plates through which the center sills pass, the ends of the hood-sheet being flanged to correspond with the inclination of the bottom plates, and suitable rivets passing through said hood-sheet flanges for securing the same to the bottom plates; substantially as described.

15. The combination with the side plates, of inclined bottom plates, transversely-arranged angle tie-bars secured to the center sills and to the under sides of the side sills, rivets for connecting the floor-plates with said angle tie-bars, and hopper-strengthening plates 18 to which the outer ends of said angle tie-bars are connected; substantially as described.

16. The combination with the side plates, of the inclined bottom plates, inclined hopper-plates secured to the side plates, center sills, side sills, strengthening-plates riveted to the side sills and to the inclined hopper-plates, the ends of said strengthening-plates being bent at an angle, and angle-irons 24 riveted to the bottom plates 3 and the bent ends of the strengthening-plates; substantially as described.

17. The combination with the side plates, of the inclined bottom plates, inclined hopper-plates secured to the side plates, center sills, side sills, strengthening-plates riveted to the side sills and to the inclined hopper-plates, the ends of said strengthening-plates being bent at an angle, angle-irons 24 riveted to the bottom plates 3 and the bent ends of the strengthening-plates, and castings attached to the outer face of the center sills to which said angle-irons are secured; substantially as described.

18. The combination with the side plates, of the inclined bottom plates, the inclined hopper-plates secured to the side plates and having an inturned flange at its lower edge extending under the bottom plate, said flange being bent vertically opposite the hopper-opening; substantially as described.

19. The combination with the hopper-plate 13 provided with a vertical flange to form one of the side walls of the hopper-opening, of inclined bottom plates 3, the hopper-plates 20, and a strip 26 formed with a flange at its lower edge; substantially as described.

20. The combination with the hopper-plate 13 provided with a vertical flange to form one of the side walls of the hopper-opening, of inclined bottom plates 3, the hopper-plates 20, angle-plates 27 whose vertical members are coextensive in depth with the vertical flanges of the hopper-plates 13, and rivets for securing the angle members of these plates 27 to the bottom plates 3; substantially as described.

21. The combination with the inclined bottom plates of the hopper-plates 13 and 20 provided with flanges on their lower edges to support the bottom plates, the flange of the plate 13 opposite the hopper-opening being bent vertically, a strip 26 secured to the lower edge of the plate 20, and angle-plates 27 secured to the ends of the bottom plates; substantially as described.

22. The combination with an inclined bottom plate, of a side hopper-plate 13 riveted thereto, said hopper-plate having a vertical flange opposite the hopper-opening, and an angle-bar 28 secured to the outer face of the vertical flange of the side hopper-plate 13; substantially as described.

23. The combination with the bottom plates and the side hopper-plate 13, of the angle-plates 27, the angle-bars 28, and corner-straps 29 for strengthening the plates 27, said straps being riveted to the angle-bars 28; substantially as described.

24. The combination with the angle-beams 30, of the hopper-door, of castings 31 secured to said angle-beams for bracing the same, and a plate 32 riveted on said castings and beams, said plate forming a panel of the door proper; substantially as described.

25. The combination with a hopper-bottom car, the walls of whose hopper-opening are vertically disposed, of a door for closing said opening, means for guiding said door in its opening and closing movements whereby, when said door is closed, it is on a horizontal plane, and when open, is inclined or tilted to one side of the hopper-opening, a rock-shaft mounted on the car, a rock-arm on said shaft, a link connection between said arm and said door, and a stop-block in the path of the rock-arm, with which said rock-arm coöperates when the door is closed; substantially as described.

26. The combination with a hopper-bottom car, the walls of whose hopper-opening are vertically disposed, of oppositely-opening doors for bearing against the lower edges of said vertical walls inclosing said opening, hangers for suspending said doors, mechanism for operating said doors independently of each other, said mechanism comprising links and rock-arms, and stop-blocks in the paths of the rock-arms for coöperating with said rock-arms when the doors are closed and the rock-arms and links move past a dead-central position with respect to each other; substantially as described.

27. In a hopper-bottom car, the combination with a door for closing the exit for the load, of stationary frames arranged on each side of the door and formed with guideways, rollers on the door fitting in the guideways of the frame, and mechanism for opening and closing said door; substantially as described.

28. The combination with a hopper-bottom car provided with vertical walls around its hopper-opening, of frames arranged on each side of the car and formed with guideways, a door for closing the hopper-opening, rollers on said door which fit in said guideways whereby, when the door is closed it bears against the vertical wall forming the hopper-opening, and when said door is open, it is inclined or tilted, and mechanism for moving said door, said mechanism comprising a link having one end pivotally connected to the door and its other end to the rock-arm, a rock-shaft on which said arm is mounted, means for locking said shaft against movement, and a stop-block in the path of the link for determining a position past dead-center, whereby said link in its dead-central position serves to lock the closed door; substantially as described.

29. The combination with a hopper-bottom car provided with vertical walls around its hopper-opening, of a door for closing said hopper-opening, hangers arranged at each side of the door for pivotally supporting the front edge thereof, laterally-projecting rollers at the rear edge of the door, and frames on each side of the door formed with guideways for receiving said rollers and guiding the rear edge of the door in its opening-and-closing movement; substantially as described.

30. The combination with a hopper-bottom car, of side sills extending the length thereof, said sills comprising oppositely-arranged angle-bars 16 and 17, the side plates of the car forming the webs of the sills, respectively, at the center of the car, and latticework between said bars at the ends of the car; substantially as described.

31. In a hopper-bottom car, the combination with channel-iron center sills whose flanges are presented inwardly, of hopper-sheets which are secured to the backs of the vertical webs of the channels, said channels offering a solid, uninterrupted bearing of considerable area to said hopper-sheets; substantially as described.

32. The herein-described end sill comprising a casting having a deep central portion, horizontally-disposed flanges extending outwardly from the upper and lower edges thereof, angle-braces 53 stiffened by obliquely-arranged ribs formed integral with the end sill, said upper and lower outwardly-extending flanges receding toward the ends of said end sill; substantially as described.

33. The herein-described end sill comprising a single casting having an opening for the reception of a coupler-shank, and pole-pockets 51 at the ends of said end sill; substantially as described.

34. The combination with an end sill having rearwardly-extending projections 55, of horizontal corner connection-plates 56 riveted to said projections, side sills which are secured to said end sills, and to which said connection-plates 56 are also riveted, center sills secured to the end sill, and diagonal braces connected to said center sills and to said connection-plates 56; substantially as described.

35. The combination with side sills, of an end sill projecting laterally beyond said side sills, vertical connection-plates 48 secured to the outer faces of said side sills, and corner-posts 6, riveted to said connection-plates and the side sills and to the projecting ends of the end sill; substantially as described.

36. The combination with a sheet-metal car-body, of side and center sills, an end sill connected to said side and center sills, connection-plates 59 attached to said end sill, and angle-posts secured to said connection-plates and to the end plates of the car-body; substantially as described.

37. The combination with the body portion of a hopper-bottom car, of side and center sills and an end sill, a connection-plate depending from about the center of the end plate of the car-body, vertical connection-plates secured to the end sill, and diagonal braces riveted to said connection-plates; substantially as described.

38. The combination with a hopper-bottom car-body, of side, center, and end sills, connection-plates 59 secured to the end sill, vertical posts 60 secured to said connection-plates and to the end plate of the car-body, a connection-plate 61 depending from the center of the end plate of the car-body, and diagonal braces 62 which are secured to plate 61 and to the outer vertical connection-plates 59; substantially as described.

39. The combination with a hopper-bottom car-body, of side, center, and end sills, connection-plates 59 secured to the end sill, vertical posts 60 secured to said connection-plates and to the end plate of the car-body, a connection-plate 61 depending from the center of the end plate of the car-body, diagonal braces 62 which are secured to plate 61 and to the outer vertical connection-plates 59, and rivets which pass through the posts 60 and the diagonal braces 62, at their points of intersection; substantially as described.

40. The combination with the body portion of a hopper-bottom car, of side, center, and end sills, corner-posts secured to the corners of the car-body and to the side and end sills, intermediate end posts 60 secured to the end plates of the car-body and to the end sills, and handholds or rods 63 secured to one of the corner-posts 6, and one of the intermediate posts 60; substantially as described.

41. The combination with the side, center, and end sills, of a transom for supporting the side and center sills, a cover-plate 77 riveted to said transom and center sills, corner connection-plates 56 riveted to the end and side sills, and diagonal braces 68 riveted to the corner connection-plates 56, and to the cover-plate 77; substantially as described.

42. The combination with the body portion of a hopper-bottom car, of a transversely-arranged angle-bar 12 secured to said body portion, center sills, an angle connection-plate 69 secured to said center sills, and angle-bars 70, arranged at right angles to the inclination of the bottom of the car-body, which bars 70 are secured to the angle connection-plate 69 and the depending flange of one of the transverse strengthening-bars 12 on the car-body; substantially as described.

43. The combination with the body portion of a hopper-bottom car, of a transversely-arranged angle-bar 12 secured to said body portion, center sills, an angle connection-plate 69 secured to said center sills, and angle-bars 70, arranged at right angles to the inclination of the bottom of the car-body, which bars 70 are secured to the angle connection-plate 69 and the depending flange of the transverse strengthening-bar 12 on the car-body, said angle-bars 70 being cross-braced by latticework; substantially as described.

44. The combination with a car-body, of side and end sills, vertical connection-plates 48, secured to the side sills, and obliquely-arranged angle-bars 72 secured to the side plates of the car, and to the connection-plates 48; substantially as described.

45. The combination with a car-body, of the angle corner-posts 6, the side sills to which said posts are connected, a connection-plate interposed between said posts and side sills, obliquely-arranged bars 72 secured to said connection-plates and attached to the side plates of the car-body, and a handhold or rod 73, connecting one of the bars 72 and one of the corner-posts 6; substantially as described.

46. The combination with a frame for supporting a car-body, of a brake-cylinder arranged thereon, an end post extending upwardly from the end sill of the frame, and a bracket 76 mounted on said end post, in which is fulcrumed the brake-lever, to which the piston-rod of the brake-cylinder is connected; substantially as described.

47. The combination with the cover-plate 77, of an angle connection-plate 78, a car-body having an angle-bar 12^a arranged on its under side, and obliquely-arranged angle-braces 79 connected to said angle-bar 12^a and to said connection-plate 78; substantially as described.

48. The combination with a car-body, of side sills, connection-plates 80 secured to said side sills, and inclined twin brace-bars 81, connected to said connection-plates and to the car-body; substantially as described.

49. The combination with a car-body, of side sills, a body-bolster, and inclined stiffening-braces extending from said car-body and connected to the side sill at the ends of the body-bolster; substantially as described.

50. The combination with a car-body, of side sills, connection-plates, inclined stiffening-braces secured to said connection-plates and to the car-body, a floor-beam on the under side of the car-body, and connection-plates for securing said floor-beam to the inclined stiffening-braces; substantially as described.

51. The combination with a car-body, of side sills, inclined stiffening-braces extending from said car-body to said side sills, a transversely-arranged floor-beam which is secured to said inclined stiffening-braces, and floor-supports secured to said beam intermediate said stiffening-braces; substantially as described.

52. The combination with a car-body, of side sills, a body-transom, a cover-plate for said transom, inclined stiffening-braces extending from the car-body to the side sills, and inclined floor-supports arranged under the car-body and attached to said cover-plate; substantially as described.

53. The combination with a car-body, of side and center sills, a body-bolster, a cover-plate for said bolster, inclined stiffening-braces extending from the car-body and secured to the side sills opposite the body-bolster, a floor-beam arranged under the car-body and secured to said inclined stiffening-braces, and floor-supports arranged upon said cover-plate and secured to said floor-beam; substantially as described.

54. The combination with a car-body, of side sills, connection-plates 80 secured to the side sills, inclined stiffening-braces arranged in pairs and secured to said connection-plates and to the car-body, connection-plates 82 arranged between said twin braces, a floor-beam which is secured to said connection-plate 82, and supports for said floor-beam intermediate the stiffening-braces; substantially as described.

55. The combination with a car-body, of side sills, connection-plates 80 secured to the side sills, twin brace-bars 81 secured to said connection-plates on the car-body, connection-plates 82 arranged between said twin braces, a transversely-arranged angle-bar 12^a on the under side of the car-body to which the connection-plates 82 are also secured, a cover-plate 77 and an angle-plate 78, angle-braces 79 connected to the plate 78 and the angle-bar 12^a, connection-plates 83 extending inwardly from the plates 80, connection-plates 12^b secured to the upper ends of the angle-braces 79, and diagonal braces 85 connected to the plates 82 and the angle-plate 78, and to the plates 83 and 12^b respectively; substantially as described.

56. The combination with a car-body, of an angle-bar 12^d arranged transversely on its under side, and extending laterally therebeyond, side and center sills, an angle-plate 86 secured to said sills, said angle-plate being coextensive with the angle-bar 12, and latticework attached to said plate 86 and said bar 12^d; substantially as described.

57. The combination with a car-body, of an angle-bar 12^d arranged transversely on its under side, side and center sills, an angle-plate 86 secured to said sills, said plate 86 and said bar 12^d extending laterally beyond the side edges of the car-body and beyond the upper faces of the side sills respectively, and angle-braces 88 connected to the side plates of the car-body and to the projecting ends of said plate 86 and said bar 12^d; substantially as described.

58. The combination with a car-body, of an angle-bar 12^d, arranged transversely on its under side, side and center sills, an angle-plate 86 secured to said sills, said plate 86 and said bar 12^d extending laterally beyond the side edges of the car-body and beyond the upper faces of the side sills respectively, angle-braces 88 connected to the side plates of the car-body and to the projecting ends of said plate 86 and said bar 12^d, and plates 89 riveted to the side sills, to which the lower ends of the braces 88 are secured; substantially as described.

59. The combination with the side plates whose lower edges are flanged inwardly, of floor-plates resting upon, and riveted to, said flanges, the contiguous edges of said floor-plates abutting against each other, said butt-joints extending transversely the car, filling-plates arranged under the contiguous edges of the floor-plates and between the flanges of the side plates, and transversely-arranged angle or T bars extending transversely the car and riveted to the filling-plates; substantially as described.

60. The combination with a side wall of a hopper-bottom car in the form of a plate-girder, of inclined stiffening bars or braces which are arranged on the side walls to better resist the shearing forces in said side walls, and also to prevent the plates forming the side wall from buckling under action of said shearing forces; substantially as described.

61. The combination with a hopper-bottom car and its frame, the side plates of said car being in the form of plate-girders, of inclined stiffening-braces arranged at the ends of the side plates for resisting the bulging tendency of said side plates, said stiffening-braces sloping downwardly toward the supporting-bolsters of the frame; substantially as described.

62. The combination with a hopper-bottom car and its frame, of floor-supports arranged under, and at right angles to, the inclined ends of the car so that said floor-supports are subjected to direct stresses only and in line with the direction the floor tends to deflect under load, and inclined stiffening-braces at the ends of the side plates of the car for coöperating with said floor-supports in bracing the ends of the car; substantially as described.

63. The combination with a hopper-bottom car and its frame, of inclined stiffening-braces at the ends of the side walls of the car, and floor-supports for tying said stiffening-braces together, said floor-supports being arranged at right angles to the inclination of the floor of the car; substantially as described.

64. The combination with a hopper-bottom car and its frame, of inclined stiffening-braces at the ends of the side walls of the car, floor-beams for tying said stiffening-braces together, and intermediate floor-supports arranged at right angles to the inclination of the floor of the car, said floor-supports being secured at their lower ends to the framing of the car; substantially as described.

65. The combination with a hopper-bottom car and its under frame, of exteriorly-arranged inclined stiffening-braces at the ends of the side walls of the car, floor-beams which are secured directly to the bottom plates of the car and which project laterally beyond the side plates and are attached to the inclined stiffening-braces, tying said stiffening-braces together, an angle superimposed upon the car-framing, and intermediate floor-supports connected to said floor-beam and said angle; substantially as described.

66. The combination with the side plates of a car, of side sills formed with parallel angles, the side plates of the car being connected to said angles and forming the web of the side sill, a body-bolster for carrying the parallel members constituting the side sills, a connection-plate opposite the body-bolster, which connection-plate forms the web of the side sill, and inclined stiffening-braces secured to the side plates of the car and to said connection-plates; substantially as described.

67. The combination with a hopper-bottom car, of side and center sills, the side walls of the car being secured directly to the side sills, inclined stiffening-braces at the ends of the side walls of the car, said stiffening-braces being also secured to the side sills, floor-beams connected at their ends to said inclined stiffening-braces, and parallel floor-supports extending from the center sills to the floor-beams; substantially as described.

68. The combination with a hopper-bottom car, of the side and center sills, inclined stiffening-braces on the ends of the side walls of the car, said stiffening-braces being secured to the side sills, floor-beams which are secured at their ends to said inclined stiffening-braces, connection-plates arranged above the center sills, and parallel floor-supports connected to said connection-plates and to said floor-beams, said floor-supports being arranged at right angles to the inclination of the floor of the car; substantially as described.

69. The combination with the side wall of a car in the form of a plate-girder, of supports therefor consisting of bolsters, tension members extending horizontally from each bolster to the plate-girder, and compression members extending upwardly from the bolsters to the plate-girder for supporting the same, substantially as described.

70. The combination with the side wall of a car in the form of a plate-girder, of a support therefor in the form of a bolster, a tension member extending substantially horizontally from the bolster to the plate-girder and attached to each of said parts, and an inclined support which extends from the bolster to the plate-girder side, said support being placed under compression under load and attached directly to the plate-girder side and said bolster, substantially as described.

71. The combination with the side wall of a car in the form of a plate-girder, of a bolster, members attached to said bolster and to the side wall of the car, said members being placed in tension and compression, respectively, under load, and forming a triangular truss-support for the plate-girder, substantially as described.

72. In a car, the combination with the side walls in the form of plate-girders, of bolsters, floor-supports under compression and supported upon the bolsters, and side sills under tension attached to the bolsters and to the deep portions of the plate-girder sides, substantially as described.

73. In a car, the combination with the side walls in the form of plate-girders, of bolsters, floor-supports which are under compression under load, and side sills which are placed under tension, said floor-supports and side sills being attached to the bolster and to the car-body, forming supporting-trusses for said body, substantially as described.

74. In a car, the combination with the side walls in the form of plate-girders, of bolsters, inclined floor-supports which are placed under compression under load, and center sills which are placed under tension under load, substantially as described.

75. In a hopper-bottom car, the combination with the body portion located above the supporting-bolsters, of supporting-bolsters, tension members in the form of side and center sills, attached to said bolster and to said body portion, said center sills extending through the lower portion of the car-body, and compression members in the form of floor-frames and stiffeners, all of which are attached at one extremity of the body-bolsters and at the other extremity to the car-body, said parts forming supporting-frames for carrying the car-body on the bolsters, substantially as described.

76. In a car, the combination with the side walls in the form of plate-girders and inclined floor-plates, of body-bolsters arranged under said inclined floor-plates, inclined floor-supports extending from said floor-plates to the body-bolsters, side sills attached to the bolsters and to the plate-girder sides, and center sills attached to said bolsters, said floor-supports being placed under compression under load, and said side and center sills being placed under tension under load, substantially as described.

77. In a car, the combination with plate-girder sides and the floor-plates, of supporting-bolsters at or near each end of the car, inclined stiffening-braces, floor-beams carried by said inclined stiffening-braces and located longitudinally between said bolsters, inclined floor-supports extending downwardly and supported upon the bolsters, and horizontal tension members forming, with said inclined floor-supports, supporting-trusses, substantially as described.

78. In a car, the combination with the side walls in the form of plate-girders, of floor-plates, inclined stiffening-braces, floor-beams carried by said inclined stiffening-braces and located longitudinally between the body-bolsters, inclined stiffening-braces which extend downwardly, and which are attached directly to the ends of the bolsters, floor-beams carried by said last-mentioned stiffening-braces, inclined floor-supports attached to said floor-beams and to the bolsters, and side and center sills, substantially as described.

79. The combination with a car-body whose side walls are in the form of plate-girders, of supporting-bolsters, compression members extending from said bolsters to support the car-body, and side sills which are in tension under vertical load, said side sills being connected to the supporting-bolsters and to the plate-girders, said side sills also forming tension-flanges for the deepest portions of said plate-girders; substantially as described.

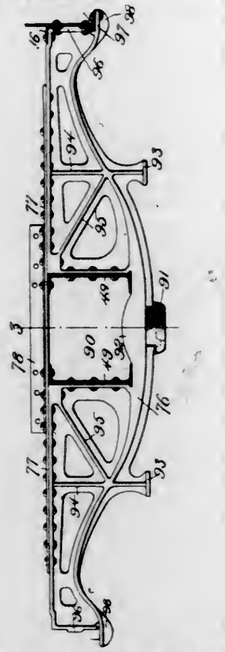
80. The combination with a car-body whose side walls are in the form of plate-girders, of supporting-bolsters, compression members extending from said bolsters to support the body, and compound tension members connected to the bolster and to said plate-girders; substantially as described.

81. The combination with a car-body whose side walls are in the form of plate-girders, of supporting-bolsters, compression members extending from said bolsters to support the body, and compound tension members connected to the bolsters and to said plate-girders, said compound tension members having flanges which extend in opposite directions from

the webs of the plate-girders, and serve as tension-flanges for the deepest portions thereof; substantially as described.

82. The combination with a car-body whose side walls are in the form of plate-girders, of supporting-bolsters, compression members extending from said bolsters to support the body, tension members connected to said bolsters and to said plate-girders, inclined hopper-plates, and reinforcing-plates 18 extending inwardly from the lower edges of the deep portions of the plate-girders to the inclined hopper-plates, which are thereby strengthened against lateral pressure, said plates 18 also serving as a portion of the tension-flange for said plate-girder; substantially as described.

658,784. **BODY TRANSOM OR BOLSTER FOR RAILWAY-CARS.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Original application filed Feb. 26, 1900, Serial No. 6,534. Divided and this application filed May 7, 1900. Serial No. 15,813. (No model.)



Claim.—1. In a body-bolster, the combination with a casting whose upper face is flush with the center and side sills throughout the width of the car to serve as an unbroken floor-support between the center and side sills, said upper face being formed with a recess at about its center for receiving the center sills, and serving as a compression member, of center sills arranged in said recess and serving as a strut, and a cover-plate bridging said recess and extending some distance therebeyond, said cover-plate being riveted to the upper flange of the bolster and serving as a tension member therefor; said cover-plate also offering a floor-support of considerable area which extends substantially across the bottom of the car, substantially as described.

2. The combination with a body-bolster formed with a recess in its upper face for the reception of the center sills, of a tension member in the form of a cover-plate bridging said recess, and an angle-plate for reinforcing said cover-plate tension member; substantially as described.

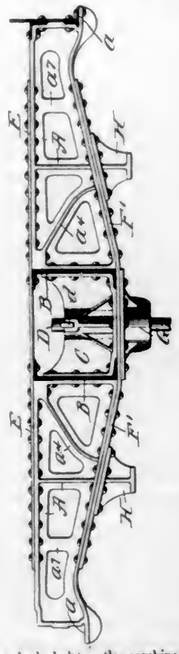
3. The herein-described body-bolster provided with a squared recess 90, open at its top, for receiving center sills, an integral center bearing on the lower face of the bolster, and a bulge or crown 92 above said center plate and between the lower ends of the center sills, whose inner edges abut thereagainst; substantially as described.

4. The herein-described body-bolster substantially of I-beam cross-section throughout, of integral side bearings depending from said bolster, the central web of the bolster being cut away at convenient places for the purpose of lightening the same, vertical ribs 94 arranged above the side bearing, and diagonal ribs 95 extending from the junction of the flanges at the upper corners of the middle pocket to the junction of the vertical ribs 94 and the bottom lateral flange of the bolster; substantially as described.

5. The herein-described body-bolster substantially of I-beam cross-section throughout its length, the vertical web of the same extending beneath the bottom flange, the ends of said bolster being broadened and formed with elongated vertical walls 96 shaped to receive the side sills, and horizontal shelf-like projections 97 extending from the ends of the bolster, said projections being strengthened by vertical flanges 98, said vertical flanges being continuations of the central vertical web of the bolster; substantially as described.

6. The herein-described body-bolster substantially of I-beam cross-section throughout, the central web of said bolster being cut away at convenient places for the purpose of lightening the same, vertical ribs connecting the top and bottom flanges of the bolster, and diagonal braces or ribs; substantially as described.

658,785. **BODY TRANSOM OR BOLSTER FOR RAILWAY-CARS.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed May 7, 1900. Serial No. 15,814. (No model.)



Claim.—1. In a body-bolster, the combination with center sills of commercially-rolled form, castings arranged on each side thereof, rivets passing through said castings and said center sills, top and bottom cover-plates, and a casting intermediate said sills, said intermediate casting being secured to said sills by rivets; substantially as described.

2. The combination with center sills of commercially-rolled form, of a casting arranged therebetween, castings A on each side of, and directly secured to, said center sills, and top and bottom plates, all of said parts being secured together by rivets; substantially as described.

3. The combination with the channel-beams B, of castings arranged on each side thereof, a bottom cover-plate serving as a compression member of a trussed structure, said channel-beams forming the struts, and a top cover-plate secured to the casting and to said channel-beams, said top cover-plate serving as a tension member, all of said parts being secured together by rivets; substantially as described.

4. The combination with the castings A, which extend from the center sills to beneath the side sills, the channel-beams B, forming the center sills, the middle casting C, through which passes the king-bolt, said king-bolt being introduced from beneath, means for securing the king-bolt in position, top and bottom cover-plates, and center and side bearings; substantially as described.

5. The combination with center sills of commercially-rolled form, said sills forming vertical struts of a trussed structure, of a casting arranged therebetween, castings on each side of said center sills, said castings being substantially I-shaped in cross-section and provided with diagonal braces, and top and bottom cover-plates secured to the tops and bottoms of the castings and center sills; substantially as described.

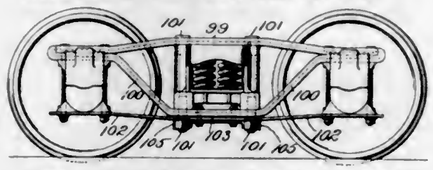
6. The combination with the center sills, of a casting arranged therebetween, castings arranged on each side of said center sills, a top cover-plate secured to said castings and to the center sills, a bottom plate parallel to the top plate and secured beneath the castings and center sills, and side bearings formed integral with said castings; substantially as described.

7. The combination with center sills, of a casting arranged therebetween, castings arranged on each side of said center sills, side bearings formed integral with said last-mentioned castings, the webs of said castings being cut away at their outer extremities, and said webs being also formed with vertical and diagonal braces, a top cover-plate riveted to the sills and said castings, a bottom cover-plate riveted to the sills and said castings, and a center bearing arranged beneath said bottom cover-plate; substantially as described.

8. In a bolster, the combination with the tension and compression members, of a strut interposed therebetween, and webs arranged between the ends or said tension and compression members, said webs extending beyond the ends of said members for carrying the load, substantially as described.

9. In a bolster, the combination with the tension and compression members, of a strut, webs secured to the strut and extending outwardly beyond the ends of said tension and compression members, for carrying the load, substantially as described.

658,786. **CAR-TRUCK.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Original application filed Feb. 26, 1900, Serial No. 6,534. Divided and this application filed May 7, 1900. Serial No. 15,815. (No model.)



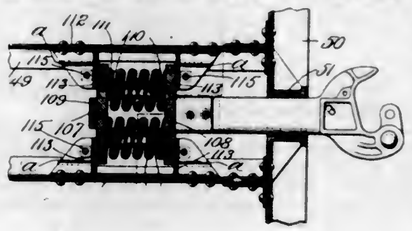
Claim.—1. In a car-truck, the combination with the top and bottom arch-bars made of channel-iron, the heads of the column-bolts being received and locked in the channels of the top arch-bars, and a spring-plank formed with continuous raised ribs at its ends which are seated in the channels of the lower arch-bars, said continuous ribs extending laterally beyond the column-bolts and entirely filling the channel between said bolts; substantially as described.

2. The combination with the lower arch-bars of a truck, said arch-bars being formed with grooved lower faces, of a spring-plank consisting of plates 103, provided with raised ribs 104 received by the grooves in the lower arch-bars, angle-bars riveted to the plates, and cross-braces or lattice-work 106 riveted to said angle-bars; substantially as described.

3. The combination with the lower arch-bars of the truck, said arch-bars being formed with grooved lower faces, of a spring-plank formed with raised ribs at its ends which are received by the grooves in the lower arch-bars, said ribs extending continuously along said grooves to points beyond the column-bolts, tie-bars in vertical alinement with the arch-bars for bolding the ribbed ends of the spring-plank in position, column-bolts which pass through the arch-bars, the ribbed ends of the spring-plank, and tie-bars, and nuts on the column-bolts which impinge against the tie-bars; substantially as described.

4. The herein-described spring-plank comprising parallel angle-bars having lattice-work between them, and plates secured to the ends of said bars for attachment to the side frames of the truck; substantially as described.

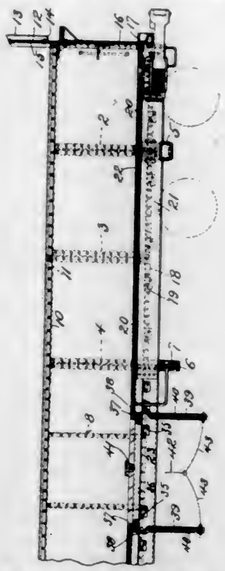
658,787. **DRAFT-RIGGING.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Original application filed Feb. 26, 1900, Serial No. 6,534. Divided and this application filed May 7, 1900. Serial No. 15,816. (No model.)



Claim.—1. The combination with commercially-rolled center sills whose lower flanges extend inwardly, of a coupler-shank, a yoke on the end of the shank, follower-plates extending through said yoke, draft-springs interposed between the follower-plates, castings secured to the inner faces of the center sills and projecting over the draft-springs, the lower flanges of said sills being cut away to receive said castings, and a removable plate secured to the lower faces of the castings for forming the bottom walls thereof; substantially as described.

2. The combination with channel-beam center sills, of a coupler-shank, a yoke on the end of said shank, follower-plates extending through said yoke, draft-springs interposed between the ends of the follower-plates, castings secured to the inner faces of the center sills and provided with abutting shoulders for coöperating with the ends of the follower-plates, draft-springs interposed between said follower-plates, the lower flanges of said channel-beams being recessed to permit the castings to extend below the plane of the sills so that the strain communicated through the follower-plates, which extend below the plane of the sills, will be placed directly upon said sills, and bottom walls for said castings, upon which said follower-plates move; substantially as described.

658,788. **GONDOLA CAR.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed May 7, 1900. Serial No. 15,817. (No model.)



Claim.—1. In a car, the combination with a body portion comprising a floor, side and end sheets, of body-bolsters, cover-plates for said bolsters, posts arranged externally the side sheets and secured to the ends of the body-bolsters, and diagonal braces 26 extending from the corners of the car inwardly, their converging ends being secured to the cover-plate; substantially as described.

2. In a car, the combination with the body portion comprising the floor, side and end sheets, of post 3 arranged externally the side sheets, connection-plates secured to the side sheets opposite the posts, and diagonal bracing secured to said connection-plates; substantially as described.

3. In a car, the combination with the body portion comprising the floor, side and end sheets, of center sills extending longitudinally the body portion, posts secured to the side sheets and extending below the plane of the center sills, cross-beams arranged between, and secured to, the depending ends of said posts, said cross-beams being arranged under said center sills, body-bolsters for supporting the side sheets and center sills, and braces radiating from the centers of said bolsters; substantially as described.

4. In a car, the combination with the body portion comprising a floor, side and end sheets, of posts 4 arranged externally the side sheets and extending below the lower edges thereof, sills for supporting the floor of the body, and cross-beams arranged under said sills for supporting the same, said beams being attached to the lower ends of said posts; substantially as described.

5. In a car, the combination with the body comprising a floor, side

and end sheets, posts 2 which extend below the lower edges of the side sheets, body-bolsters, to the ends of which said posts are secured; posts 4 which extend below the lower edges of the side sheets, cross-beams secured thereto and between the depending ends of said last-mentioned posts, and posts 3 and 8 arranged externally the side sheets for stiffening the same; substantially as described.

6. The combination with the side sheet of a car, of an angle-iron secured to the upper edge thereof and on the outer face of said sheet, an angle-iron secured to the inner face of said sheet and along the upper edge thereof, the flange of said last-mentioned angle extending outwardly, and brackets for supporting said outwardly-extending flange; substantially as described.

7. The combination with the side sheet of the car, of an L-shaped angle-iron 9, an angle-iron 10, and brackets 11 interposed between the outwardly-extending flanges of said angle-irons; substantially as described.

8. The combination with the end sheet of a car whose middle portion is highest, of an angle-iron secured to the upper edge thereof, a horizontally-disposed angle-iron arranged on one face of the end sheet, and vertically-disposed posts secured on the other face of said end sheet; substantially as described.

9. The combination with an end sheet, of an angle-iron 13 secured to the upper edge thereof, a horizontally-disposed angle-iron 14 secured to one face thereof, vertical posts 15 secured to the other face thereof, and an end sill to which the lower edge of said sheet is secured; substantially as described.

10. In a car, the combination with side and end sheets, of externally-arranged posts secured to the side sheets, interiorly-arranged posts secured to the end sheets, corner-posts for securing the side and end sheets, angle-irons arranged along the upper edges of the side and end sheets, and end sills to which the lower edges of the end sheets and the lower ends of the corner-posts are secured; substantially as described.

11. The combination with the side sheet, of an angle-iron 18 secured to the lower edge thereof, a nailing-strip arranged upon said angle-iron, and the floor-planks which are fastened to said nailing-strip; substantially as described.

12. The combination with the side sheets, of angles 18 secured to their lower edges, end sills, corner connection-plates secured to the connection-angle 24 and to the end sills, a cover-plate 22, and diagonal braces 26 secured to the corner connection-plates and to the said cover-plate; substantially as described.

13. The combination with the side sheets, connection-plates 27 secured thereto, of a cover-plate 22 arranged over the body-bolster and diagonal braces 28 secured to said connection and cover plates; substantially as described.

14. The combination with the side sheets, of posts arranged on the outer faces thereof, sills, connection-plates on said sills, a tie-brace 32 between said connection-plates, and tie-braces 33 from said tie-braces to said posts; substantially as described.

15. The combination with a car-body, and sectional sills arranged thereunder, the end sections of said sills converging at the ends of said car-body; substantially as described.

16. The combination with a car-body, and sectional sills arranged thereunder, the middle sections of said sills being parallel throughout their lengths in the middle portion of the car, and the end sections converging toward each other at the ends of the car, the outer portions of the end sections being parallel to each other; substantially as described.

17. The combination with a car-body, of channel-beam sills arranged thereunder, said sills being composed of sections joined together, and beams arranged transversely the car under the joints in the sills; substantially as described.

18. In a car, the combination with the body portion, of posts extending below said body portion, cross-beams arranged between, and secured to, the depending ends of said posts, and floor-sills arranged upon said suspended cross-beams for supporting the middle floor load; substantially as described.

19. In a car-body, the combination with the side walls in the form of plate-girders, of angles 18 forming the tension members of said girders, said angles also supporting the floor, of cross-beams suspended from the side walls, and floor-supporting sills arranged on said cross-beams; substantially as described.

20. In a car-body, the combination with the side walls, in the form of plate-girders, the tension members thereof also forming floor-supports, body-bolsters and cross-beams suspended from said plate-girders, and floor-supporting sills arranged upon said cross-beams and body-bolsters; substantially as described.

21. In a car-body, the combination with the side walls in the form of plate-girders, of angle-posts extending below the lower edge of said girder and dividing the same into a plurality of panels, bolsters attached to the depending ends of the posts nearest the ends of the car, cross-beams attached to the depending posts intermediate the ends of the car, floor-sills carried by said bolsters and cross-beams, tension members for said plate-girders which also form floor-supports, and a floor which is supported by said sills and said tension members; substantially as described.

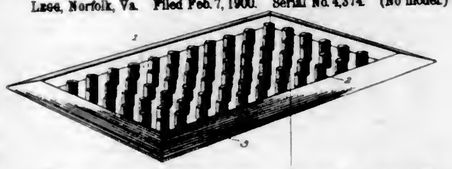
22. In a car-body, the combination with the side walls forming plate-girders, of posts 4 arranged externally the side wall and extending below the lower edges thereof, cross-beams arranged between, and secured to, the depending ends of said posts, floor-supporting sills arranged upon said cross-beams, and diagonal bracing between said girders and said floor-supporting sills; substantially as described.

23. In a car-body, the combination with the side walls in the form of plate-girders, of cross-beams carried thereby, floor-supporting sills arranged on said cross-beams, the tension members of the plate-girders also forming floor-supports, and diagonal bracing at the ends of the car connecting the plate-girders and floor-sills; substantially as described.

24. A car having a central longitudinal sill and plate-girder sides provided with vertical strengthening members, said sides extending below the floor-level and arranged to take most of the strain usually carried by the side sills, and angles secured to the inner faces of the lower edges of the plate-girder sides, said angles forming the side sills; substantially as described.

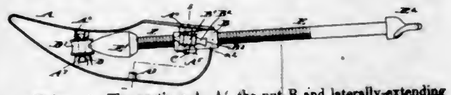
25. A car having a longitudinal center sill, and plate-girder sides having vertical strengthening members, angles forming side sills which are secured directly to the lower edges of the plate-girder sides, and cross-beams arranged under the center sill intermediate the ends of the car, said cross-beams being supported by the strengthening members projecting below the plate-girder sides; substantially as described.

658,789. **BED-PAD OR SUPPLEMENTAL MATTRESS.** ISAAC W. LEGG, Norfolk, Va. Filed Feb. 7, 1900. Serial No. 4,374. (No model.)



Claim.—A rubber pad or bed-protector having its upper surface provided with hollow projections and an edge flange beveled on its upper surface.

658,790. **STRETCHER FOR BOOTS OR SHOES.** EDWARD J. LEIGHTON, Boston, Mass. Filed Sept. 19, 1899. Serial No. 730,991. (No model.)



Claim.—1. The sections A, A′, the nut B and laterally-extending wings B′ thereon having the slots *b*, and the pins C carried by said sections and extending through said slots, in combination with the fin B^2 formed on said nut and matching to the interior surfaces of said sections at the rear, and a threaded shank extending through said nut and carrying a spreader adapted to separate said sections, all substantially as and for the purposes herein specified.

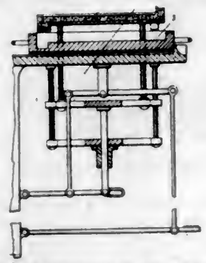
2. The sections A, A′ shackled together at the rear to form a split last, a hollow-faced antifriction-roller D′ and shaft D carried in each section, and a lug A^3 on each extending across the line of separation and lapping upon the inner face of the other, in combination with a nut B carried by the sections and a screw-threaded shank E adapted to travel in said nut, and a conical spreader E′ fixed to said shank and received between said rollers, all substantially as herein specified.

3. A shoe-stretcher consisting of two hollow sections shackled together and each formed near its mid-length on the interior lower face with a lug, said lugs extending transversely of and across the line of separation and overlapping each other and curved upwardly to allow the sections to roll relatively to each other in coming to a bearing.

658,791. **MACHINE FOR MANUFACTURING TILES.** RICHARD LESCH and BRUNO POLTE, Konstadt, Germany. Filed Feb. 25, 1898. Serial No. 671,682. (No model.)

Claim.—1. In a machine for manufacturing tiles, the combination of a stationary table, a mold, means for moving the filled mold along and over said table, means for forming, pressing and smoothing the material in the mold, a screen for sifting powdered color onto the pressed material in the mold, means for operating said screen from the mold, and means for forming the head-rail on the tile, substantially as set forth.

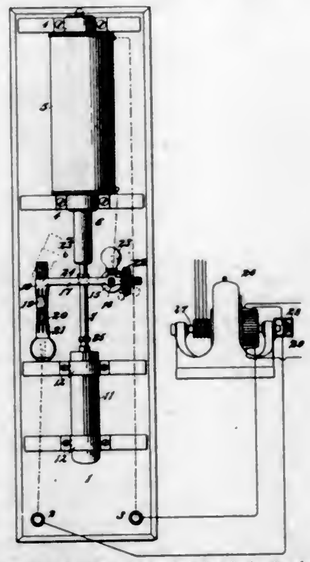
2. In a machine for manufacturing tiles, the combination of a stationary table, a mold, means for moving the filled mold along and over the table, a profiled roller for forming, pressing and smoothing the material in the mold, means for turning said roller, a screen for sifting powdered color onto the pressed material in the mold, means for operating the screen from the mold, and means for forming the head-rail on the tile, substantially as set forth.



3. In a machine for manufacturing tiles, the combination of a table, a mold, means for moving the filled mold along said table, a profiled roller, and means for turning said roller at a rate of speed greater than the speed of the mold along the table, whereby the material in the mold is formed, smoothed, and pressed toward one end of the mold, substantially as set forth.

4. In a machine for manufacturing tiles, the combination of a table, a mold, means for fashioning the tile proper in the mold, and means for forming the head-rail on the tile, the said means comprising a stationary forming-rail, a movable forming-rail provided with a tapering edge, adapted to act on the mold to bring it in proper position, means for supplying plastic material between said forming-rails, and means for compressing the said plastic material, substantially as set forth.

658,792. **CIRCUIT MAKING AND BREAKING DEVICE.** PAUL M. LINCOLN, Niagara Falls, N. Y. Filed Oct. 19, 1898. Serial No. 694,022. (No model.)

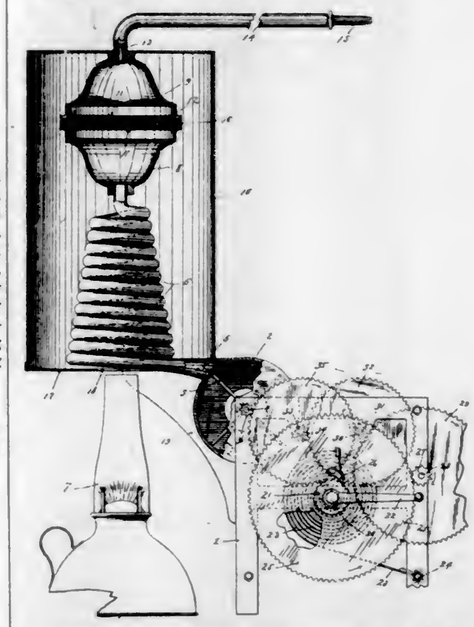


Claim.—1. In a circuit opening and closing device for electric circuits, the combination with a stationary terminal, of a coöperating movable terminal, a solenoid and a core therefor, a rod or stem provided with tripping projections on opposite sides of said movable terminal and movable with said core, and means for retarding the outward or downward movement of said rod or stem.

2. In a circuit opening and closing device, the combination with a stationary carbon terminal, of a pivoted, normally-horizontal arm having a coöperating carbon terminal and means for holding said arms normally in either open or closed position, a solenoid, a core for said solenoid having a stem provided with two projections for respectively moving the pivoted arm to its open and to its closed position, and a dash-pot having one of its members connected to said stem whereby the circuit-closing movement of the core and stem is retarded.

3. In a circuit opening and closing device, the combination with a stationary terminal, of a horizontal, pivoted arm having a coöperating terminal at one end and a weight at or near the other end, a magnet-coil, a movable core or armature actuated by said coil when energized, a rod or stem having projections adapted to engage said arm, and means connected to the rod or stem for retarding its movement in one direction.

658,793. **VAPORIZER.** JAMES M. LOCKEY, Faulkton, S. D. Filed Aug. 21, 1899. Serial No. 727,961. (No model.)



Claim.—A vaporizer comprising in combination a heating-coil, a fan delivering to said heating-coil, a spring-motor for propelling said fan, a vaporizing-chamber receiving from said coil, a tube delivering from said vaporizing-chamber, said vaporizing-chamber comprising the bulged sections 8, 9, united by screw-threads 10, and provided each with an interior perforate partition, between which partitions a medicated, absorbent material is adapted to be contained, substantially as described.

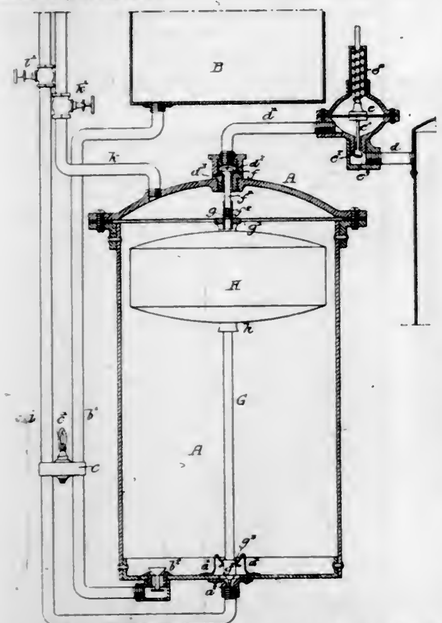
658,794. **HYDROCARBON-BURNER AND PRESSURE DEVICE THEREFOR.** GUSTAVE A. LOEBER, Philadelphia, Pa., assignor of one-half to Albert L. A. Toboldt, same place. Filed Oct. 21, 1899. Serial No. 734,380. (No model.)

Claim.—1. The combination of the reservoir, means for admitting gas to the reservoir, a burner communicating with both the upper and lower portions of the reservoir, and means for automatically closing the passage leading from the bottom of the reservoir when the fluid in the reservoir is low, and means for regulating the flow of gas to the upper portion of the reservoir, substantially as described.

2. The combination of the reservoir, a container for gas under pressure, a passage forming a communication between the container and the upper portion of the reservoir, a regulator in the passage, a burner communicating with the bottom of the reservoir, a tank also communicating with the reservoir, a check-valve for allowing the flow of fluid from the tank into the reservoir, and means for preventing the admission of gas under pressure when the fluid in the reservoir is low and also preventing the escape of fluid from the reservoir to the lamp when the fluid in the reservoir is low, and an escape for gas under pressure so that when the pressure in the reservoir is reduced fluid will automatically flow from the tank into the reservoir, substantially as described.

3. The combination of a reservoir, a tank situated above the reservoir, a pipe forming communication with the tank and with the bottom of the reservoir, a check-valve in said pipe to prevent the fluid from escaping from the reservoir through the pipe, a container for gas under

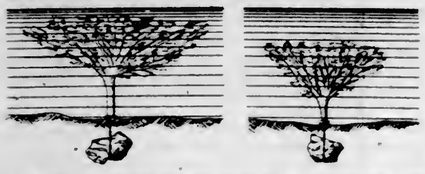
pressure, a pipe leading from the container to the upper portion of the reservoir, a regulator in said pipe for reducing the pressure, a pipe leading from the bottom of the reservoir to the burner, a float in the reservoir, and valves for closing the passage leading from the container and from the reservoir to the lamp, said valves being actuated by the float, substantially as described.



4. The combination of a reservoir, a container for gas under pressure, a pipe leading from the container to the reservoir, a regulator in said pipe, a burner, a pipe leading from the bottom of the reservoir to the burner, a pipe leading from the top of the reservoir to the burner, valves in said pipes, a float within the reservoir, and means actuated by said float when the liquid is low in the reservoir to close the outlet from the bottom of the tank to the lamp and the inlet from the gas-container, substantially as described.

5. The combination of a reservoir, a burner communicating with the bottom of the reservoir and connected independently with the top of the reservoir, a tank mounted above the reservoir and communicating with the bottom of the reservoir, a valve in said pipe, a by-pass connecting the pipe leading from the tank with the pipe leading from the reservoir of the burner, and a valve in said by-pass, substantially as described.

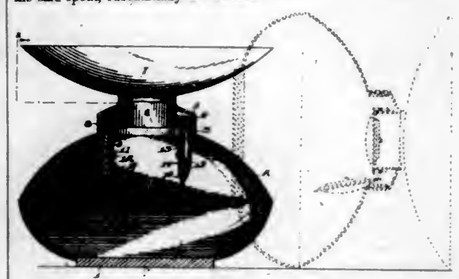
658,795. SYSTEM FOR FORMATION OF PERMANENT CHANNELS IN NAVIGABLE RIVERS. Juan B. Medici, Buenos Ayres, Argentina. Filed July 6, 1900. Serial No. 22,728. (No model.)



Claim.—The herein-described means for the formation and alteration of channels in navigable streams consisting of trees placed in upright position therein, said trees being placed in two series, the tops of one series extending to the water-level and the other series terminating a distance below the water-level.

658,796. CUSPIDOR. Charles J. Merritt, Duquesne, Pa. Filed Aug. 18, 1899. Renewed Aug. 20, 1900. Serial No. 27,427. (No model.)

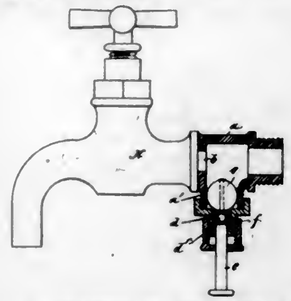
Claim.—1. In a cuspidor, a casing, a spout extending downwardly therein, and a pair of gravity-valves normally occupying an open position connected to the said spout and adapted when operated to alternately close the said spout, substantially as described.



2. In a cuspidor, a casing, a spout extending downwardly therein, a pair of hinges suitably connected thereto, a gravity-valve normally occupying an open position connected to each of the said hinges, and adapted when operated to alternately close the said spout, and each of the said valves consisting of a disk having suitably secured thereto a plate, gasket and weight, substantially as set forth.

3. In a cuspidor, the combination of a casing, a screw-threaded collar formed integral therewith, an inverted-bell-shaped portion, a spout formed integral therewith, a hood formed integral with the said spout and adapted to be secured to the said collar for supporting the said bell-shaped portion and spout, and a pair of gravity-valves normally occupying an open position connected to the said spout and adapted when operated to alternately close the same.

658,797. CUT-OFF COCK OR VALVE WITH SEPARATE CLOSING DEVICE. Hermann Moeres, Eitorf, Germany. Filed Nov. 13, 1899. Serial No. 736,862. (No model.)



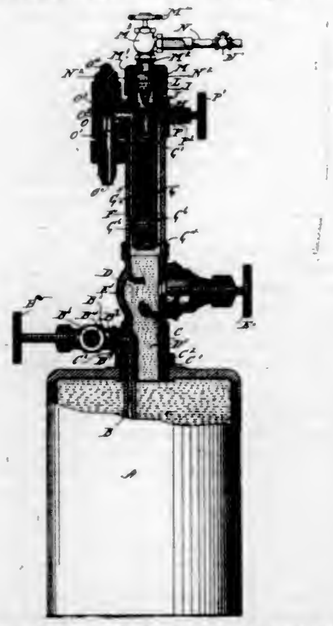
Claim.—1. In combination with a cock or faucet, a freely-movable ball-valve arranged to close the inlet-opening leading to said cock or faucet, means for bringing the said ball-valve into and out of coincidence with the said inlet-opening, and a universal-joint connection between said valve and means, substantially as described.

2. In combination with a cock or faucet, a ball-valve arranged to close the inlet-opening leading to said cock or faucet, a pin upon which said ball-valve is freely mounted, a spherical head upon one end of said pin, a sliding rod for bringing the ball-valve into and out of coincidence with the said inlet-opening, and a socket upon one end of said rod fitting over the spherical end of the pin and forming a universal-joint connection therewith, substantially as described.

3. In combination with a cock or faucet, a ball-valve arranged to close the inlet-opening leading to said cock or faucet, a pin upon which said valve is mounted, a sliding rod for bringing the ball-valve into and out of coincidence with the said inlet-opening, and a universal-joint connection between said sliding rod and pin, substantially as described.

658,798. CARBONATING APPARATUS. Edward E. Murphy, Somerville, Mass., assignor to the New Era Carbonator Company, Charlestown, W. Va. Filed Nov. 27, 1899. Serial No. 738,340. (No model.)

Claim.—1. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.



2. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

3. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means through which the gas and liquid are forced under pressure for subdividing and mechanically combining the same, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

4. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under inital liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, a wire sponge through which the gas and liquid are forced under pressure for subdividing and mechanically combining the same, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

5. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said chamber and adapted to open automatically by the pressure of the gas to admit the gas upon a reduction of the pressure in said chamber below the gas-pressure, means for retarding the flow of the liquid from the liquid-inlet pipe into the mixing-chamber to allow the gas to fill the mixing-chamber before it is filled with the liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

6. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said chamber and adapted to open automatically by the pressure of the gas to admit the gas upon a reduction of the pressure in said chamber below the gas-pressure, means for retarding the flow of the liquid from the liquid-inlet pipe into the mixing-chamber, means in said mixing-chamber for subdividing and combining the gas and liquid, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

7. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said chamber and adapted to open automatically by the pressure of the gas to admit the gas upon a reduction of the pressure in said chamber below the gas-pressure, a nozzle having a restricted outlet to retard the flow of the liquid from the liquid-inlet pipe into the mixing-chamber, and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

8. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said chamber and adapted to open automatically by the pressure of the gas to admit the gas upon a reduction of the pressure in said chamber below the gas-pressure, a nozzle having a restricted outlet to retard the flow of the liquid from the liquid-inlet pipe into the mixing-chamber, a strainer located in said nozzle and a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid.

9. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid, and an induction-head through which the incoming gas and liquid pass into the mixing-chamber and through which the excess of gas passes into the mixing-chamber by the induction of the inflowing liquid.

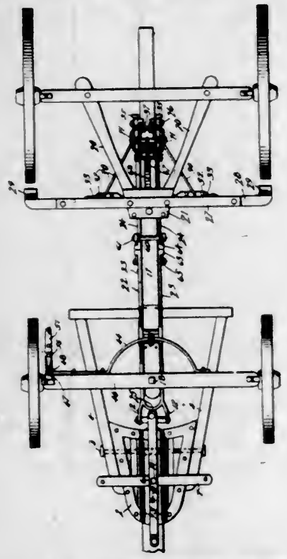
10. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of the pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, a passage through which the excess of

gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid, an induction-head provided with radial passages through which the incoming gas and excess of gas pass into the mixing-chamber and provided with a vertical passage through which the incoming liquid passes to the liquid-chamber, and means for subdividing and combining the gas and liquid.

11. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of the pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means operating to allow the gas to fill the mixing-chamber before it is filled with the liquid, a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid, an induction-head provided with radial passages through which the incoming gas and excess of gas pass into the mixing-chamber and provided with a vertical passage through which the incoming liquid passes to the liquid-chamber, and a wire sponge through which the gas and liquid are forced under pressure for subdividing and combining the same.

12. In a carbonating apparatus, a liquid-inlet pipe for supplying liquid under pressure, a gas-inlet pipe for supplying gas under less pressure than that on the liquid, a mixing-chamber for the gas and liquid in constant open communication with the liquid-supply under initial liquid-pressure and normally filled with gas and liquid, a valve normally closing said gas-inlet pipe by the pressure in said mixing-chamber and adapted to open automatically by the pressure of the gas upon a reduction of the pressure in the mixing-chamber below the gas-pressure to admit the gas which flows into the mixing-chamber by its own pressure independently of the flow of the liquid, means for retarding the flow of the liquid from the liquid-inlet pipe into the mixing-chamber to allow the gas to fill the mixing-chamber before it is filled with the liquid, a passage through which the excess of gas from the mixing-chamber returns to said mixing-chamber and is drawn therein by the induction of the inflowing liquid, an induction-head provided with radial passages through which the incoming gas and excess of gas pass into the mixing-chamber and provided with a vertical passage through which the incoming liquid passes to the liquid-chamber, and a wire sponge through which the gas and liquid are forced under pressure for subdividing and combining the same.

658,799. AUTOMATIC VEHICLE-BRAKE. HENRY PADEN, East Grand Forks, Minn. Filed Jan. 19, 1900. Serial No. 2,041. (No model.)



Claim.—1. In an automatic vehicle-brake, the combination with a running-gear having a longitudinally-movable tongue, of brake-shoes arranged to engage the hind wheels, a sleeve mounted on the reach, connections between the sleeve and the brake-shoes, whereby the latter will be applied when the sleeve is moved rearward, a connecting device extending from the tongue to the sleeve and provided with reversely-arranged ratchets, a pawl pivoted between its ends, and arranged to engage either of the ratchets, a rock-shaft mounted on the running-gear and connected with the pawl, substantially as and for the purpose described.

2. In an automatic vehicle-brake, the combination with a running-gear, of a connecting device provided with oppositely-disposed ratchets, a pawl pivoted between its ends and adapted to engage either of the ratchets, a rock-shaft mounted on the front portion of the running-gear and having a curved arm or bend slidingly connected with the pawl, and means for operating the rock-shaft, substantially as described.

3. In an automatic vehicle-brake, the combination with a running-gear, of a connecting device provided with oppositely-disposed ratchets, a pawl pivotally mounted between its ends and arranged to engage either of the ratchets, a link connected with the pawl and having a forked upper end, a roller mounted in the forked upper end of the link, and a rock-shaft mounted on the front portion of the running-gear and having a curved bend or arm passing through the fork of the link and arranged to engage the roller, substantially as described.

4. In an automatic vehicle-brake, the combination of a connecting device having ratchet-teeth, a pawl for engaging the same, a rock-shaft connected with the pawl and having an arm, a bracket slotted to receive the arm and having perforations, and a spring-actuated latch-lever fulcrumed on the arm and provided with a lug adapted to engage the perforations and the slot of the bracket, substantially as described.

5. In an automatic vehicle-brake, the combination of a connecting device having ratchet-teeth, a pawl for engaging the ratchet-teeth, a rock-shaft connected with the pawl and having an arm, a bracket forming a guide for the arm, and a spring-actuated latch-lever extending longitudinally of the bracket and fulcrumed on the arm and adapted to engage the said bracket, substantially as and for the purpose described.

6. In an automatic vehicle-brake, the combination of a connecting device having ratchet-teeth, a pawl for engaging the same, a rock-shaft connected with the pawl and having an arm, the latter being extended horizontally at its upper end, a horizontal bracket forming a guide for the arm and located beneath the upper end thereof, an approximately-horizontal latch-lever fulcrumed on the arm and arranged to engage the bracket at the upper face thereof, a stem extending from the latch-lever and guided on the upper end of the said arm, and a spring disposed on the stem and engaging the latch-lever, substantially as described.

7. In an automatic vehicle-brake, the combination with a running-gear having front hounds and provided with a transverse rod connecting the same, a pivoted guide mounted on the transverse rod and arranged between the hounds, said guide being provided with upper and lower longitudinal slots, a tongue arranged to slide in the pivoted guide and having a horizontal slot to receive the said rod, a whiffletree having a pivot arranged in the slots of the guide and adapted to engage a solid portion thereof to hold the tongue against longitudinal movement, brake-shoes, and connections between the brake-shoes and the tongue, substantially as described.

8. In an automatic vehicle-brake, the combination with a running-gear, of brake-shoes, a ratchet mounted on the reach, a sliding sleeve also mounted on the reach, connections between the sliding sleeve and the brake-shoes, and a pawl carried by the sleeve and engaging the ratchet, substantially as described.

9. In an automatic vehicle-brake, the combination of a running-gear, brake-shoes, a ratchet mounted on the reach, a sliding sleeve, connections between the brake-shoes and the sliding sleeve, a pawl mounted on the latter and adapted to engage the ratchet, and links connecting the pawl with the sleeve and adapted to support the former in an elevated position, substantially as described.

10. In an automatic vehicle-brake, the combination with a running-gear, of a ratchet mounted thereon, a sliding sleeve, a pawl arranged to engage the ratchet and pivotally mounted on the sliding sleeve, said pawl being provided with laterally-disposed arms, the links 71 pivoted together at their inner ends and similarly secured at their outer ends to the sleeve, and the links 70 connecting the arms of the pawl with the inner ends of the links 71, substantially as described.

11. In an automatic vehicle-brake, the combination with a running-gear, of a sleeve mounted on the reach, brake-shoe connections between the brake-shoes and the sleeve, upper and lower antifriction-rolls journaled on the sleeve and engaging the reach, a connecting device having side bars located at opposite sides of the reach and provided with lugs arranged in pairs and engaging the sleeve at the front and back thereof, and a longitudinally-reciprocating tongue for actuating the connecting device, substantially as described.

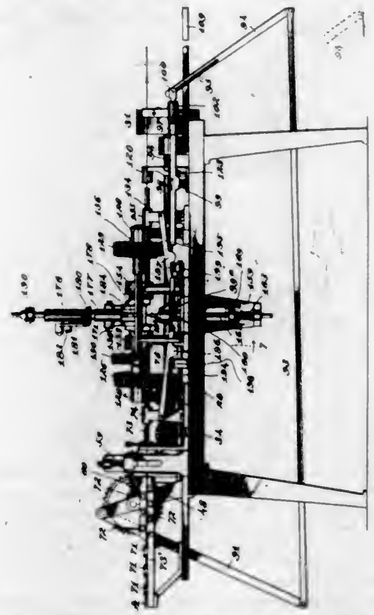
12. In an automatic vehicle-brake, the combination with a running-gear, of a transverse brake-beam suspended from the running-gear, plates or bars secured to the transverse beams and provided with perforations, a sliding sleeve, rods pivoted to the sleeve and provided with hooks or arms for engaging the perforations, and means for operating the sleeve, substantially as described.

13. In an automatic vehicle-brake, the combination with a running-gear having a longitudinally-reciprocating tongue, of a connecting device extending rearward from the tongue and composed of side bars located at opposite sides of the reach and connected together at their front ends, a sliding sleeve connected with the rear ends of the side bars of the connecting device, antifriction-rollers carried by the connecting device and by the running-gear, brake-shoes, and connections between the brake-shoes and the sleeve, substantially as described.

14. In an automatic vehicle-brake, the combination with a running-gear provided at the rear hounds with a cuff, and having spaces between the rear hounds and the reach, said cuff being provided with plates and having antifriction-rollers, the plates being located contiguous to the reach, of a connecting device composed of side bars passing between the antifriction-rollers and the plates and composed of front and rear sections, a sliding sleeve mounted on the reach and connected with the rear sections of the side bars, a transverse beam suspended from the running-gear and provided with brake-shoes, and a reciprocating tongue for engaging the connecting device, substantially as described.

15. In an automatic vehicle-brake, the combination with a running-gear, of a connecting device provided at the front portion of the running-gear with a ratchet, a front pawl mounted on the reach and arranged to engage the said ratchet, a rear ratchet mounted on the reach, a rear pawl connected with and carried by the connecting device, and arranged to engage the rear ratchet, a reciprocating tongue for actuating the connecting device, and means for operating the front pawl, substantially as described.

658,800. MACHINE FOR MAKING CHECK-ROWER WIRE. JAMES W. PARKER, Rock Island, Ill., assignor to James Edward Bering, William J. Quinlan, and Wilson M. Bering, Decatur, Ill. Filed July 5, 1900. Serial No. 22,617. (No model.)



Claim.—1. In a machine for the manufacture of check-rower wire a coiler consisting of a hollow chuck, levers pivoted on either side of said chuck and provided with heads, one of said heads having a lug adapted to engage with the ends of the wire and coil the same around the body of the wire when said chuck is rotated, combined with means for automatically causing said heads to move toward and away from each other, substantially as described.

2. In a machine for the manufacture of check-rower wire, the combination with a hollow chuck, means for rotating the same, levers pivoted on each side of said chuck and provided with heads, one of said heads having a lug adapted to engage the ends of the wire and coil the same around the body of the wire when said lug is rotated, and means adapted to bear upon said levers and automatically cause the said heads to move toward and away from each other, substantially as described.

3. In a machine for the manufacture of check-rower wire, the combination with a hollow chuck, means for rotating the same, levers pivoted on each side of said chuck and provided with heads, one of said heads having a lug adapted to engage the ends of the wire and coil the same around the body of the wire when said chuck is rotated, a ring embracing said chuck and said levers and adapted by its movement from side to side to bear upon said levers and cause said heads to move toward and away from each other, and means for moving said ring longitudinally of said chuck, substantially as described.

4. In a machine for the manufacture of check-rower wire, the combination with looping mechanism, of tubular spindles, one on each side of said looping mechanism, means for rotating said spindles in opposite directions, levers mounted on the inner ends of said spindles, one on each side thereof, provided with heads, one of said heads upon each spindle being provided with a chuck adapted to engage the free end of the wire after the loops are formed and coil the same around the body of the wire when said spindles are rotated, means for causing said spindles to approach each other to engage the ends of the wire and to cause the same to continue to approach each other during the coiling operation and to recede from each other when the coiling operation is completed, and means bearing on said levers and adapted to cause said heads to approach each other in order to engage said wire and coil the same, and to separate from each other when said coiling operation is completed, so as to permit the loops and coils to pass between said heads, substantially as described.

5. In a machine for the manufacture of check-rower wire, a coiling-head, consisting of a hollow chuck 137, wedge-shaped levers 138 139 pivoted opposite each other in the sides of said chuck and having, respectively, heads 141 142, a lug 143 on said head 142 adapted to engage the ends of the wire and coil the same around the body of the said wire, combined with a ring 145 embracing said chuck and bearing on said levers and adapted by its movement longitudinally of said chuck to cause said heads 141 142 to approach or separate from each other, and means for moving said ring back and forth longitudinally of said chuck, substantially as described.

6. In a machine for the manufacture of check-rower wire, the combination with looper mechanism, coiling mechanism and wire feeding and severing mechanism, of guides adapted to lift the ends of the wire out of alinement with said coiling mechanism and into position to be engaged by said looper mechanism, and mechanism for automatically raising said guidee and lowering them after said looping is completed, substantially as described.

7. In a machine for the manufacture of check-rower wire, the combination with a looper-head 164 provided with a mandrel 165, a looper-head 178 adapted to engage the ends of the wire and loop the same around said mandrel, coiling mechanism adapted to coil the free ends of the wire around the body thereof after said loops are formed, of guides 194 195 adapted when raised to lift the ends of the wire out of alinement with said coiling mechanism and into position to be engaged by said looper-head 178, mechanism for automatically raising said guides and lowering them as said looping is completed, mechanism for rotating said looper-head 178, and mechanism adapted to bring said looper-heads together to engage the wire out of alinement with said coiling mechanism and to separate said heads when said coiling is completed, and to free the wire from the mandrel, substantially as described.

8. In a machine for the manufacture of check-rower wire, the combination with knotting mechanism, mechanism for automatically feeding the wire to said knotting mechanism and wire-severing devices, of a wire-gripper adapted to engage the knotted wire and draw the same through the machine after said looping and knotting is completed, mechanism for reciprocating said gripper, and mechanism for causing said gripper to retain its grip upon said wire for a portion of its return stroke, releasing said wire during the remainder of said stroke and gripping said wire again at the end of its return stroke, whereby the severed end of the knotted wire will move backward into position to be engaged by said knotting mechanism and held during said knotting operation, substantially as described.

9. In a machine for the manufacture of check-rower wire, the combination with knotting mechanism, mechanism for automatically feeding the wire to said knotting mechanism, and wire-severing devices, of a sliding bar, means for reciprocating said bar, a wire-gripper secured to said bar and adapted to engage the knotted wire and draw the same through the machine after said looping and knotting is completed, mechanism for reciprocating said sliding bar, and mechanism for causing said gripper to retain its grip upon said wire for a portion of its return stroke, releasing said wire during the remainder of said return stroke, and gripping said wire again at the end of its return stroke, whereby the severed end of the knotted wire will move backward into position to be engaged by said knotting mechanism and held during said knotting operation, substantially as described.

10. In a machine for the manufacture of check-rower wire, the combination with knotting mechanism, mechanism for automatically feeding

the wire to said knotting mechanism, and wire-severing devices, of a sliding bar, means for reciprocating said bar, an arm 102 mounted on said bar, a lever 103 pivoted to said arm 102, a spring bearing on said lever 103 and adapted to normally cause one end thereof to press against said arm 102, and a cam-track adapted to engage the other arm of said lever 103 and by bearing on the same cause said arm 102 and said lever 103 to grip said wire between them during the outer motion of said bar and draw the said knotted wire through the machine, and to continue to engage said wire during a portion of the return stroke of said bar, to separate said arm 102 and said lever 103 during the remainder of the return stroke and to allow them to bear against each other again at the end of the return stroke, whereby the severed end of the knotted wire will be moved backward into position to be engaged by said knotting mechanism and held during said knotting operation, substantially as described.

11. In a machine for the manufacture of check-rower wire, the combination with a driving-shaft, wire-looping mechanism, wire-coiling mechanism, gearing for driving the same from said driving-shaft, feeding mechanism adapted to feed the wire to said looping and coiling mechanism and to drive the wire away from said looping and coiling mechanism when said looping and coiling are completed, and gearing for driving said feeding mechanism from said driving-shaft, of clutch mechanism mounted on said driving-shaft and adapted to engage with either set of gearing, and means for automatically alternately shifting said clutch mechanism to engage with the gearing for driving said wire-feeding device when said looping and coiling are completed, and to engage with the gearing operating said looping and coiling mechanism when said feeding is completed, substantially as described.

12. In a machine for the manufacture of check-rower wire, the combination of coiling mechanism and mechanism for operating the same, of a looper-head provided with a mandrel, another looper-head adapted to engage the ends of the wire, means for rotating the second looper-head to bend the ends of the wire around said mandrel and to then partially rotate said second head in a return direction until the same stands transversely of the axial line of said coiling mechanism and hold the same in said position until the coiling is completed, and thereupon to rotate said second head back to its original position, and mechanism for bringing said looper-heads together in position to engage the wire out of the axial line of said coiling mechanism and to bring said heads during said looping operation into alinement with the axial line of said coiling mechanism and then to separate said looper-heads and withdraw said mandrel from the loop, substantially as described.

13. In a machine for the manufacture of check-rower wire, the combination of a longitudinally-movable rod 161, a looper-head 164 mounted upon the upper end of said rod and provided with a mandrel 165, of a longitudinally-movable and rotatable rod 175, a looper-head carried at one end of said longitudinally-movable rod 175 and provided with lugs adapted to engage the ends of the wire and bend the same around said mandrel, means for longitudinally moving said rods 161 175 so as to bring said looper-heads together in position to engage the wire and to separate the same to free the completed knot from said mandrel, a pinion 180 mounted on said rod 175, a segmental rack 181 adapted to engage said pinion 180 and rotate the same as said segmental rack is swung, means adapted to swing said rack so as to rotate said head 178 and coil the ends of the wire around said mandrel, then to swing said rack partially backward holding the said rack stationary during the coiling operation, and then to complete the return swing so as to bring said looper-head 178 into its original position, and coiling mechanism adapted to coil the free ends of the wire after the formation of the loops upon the body of said wire, substantially as described.

14. In a machine for the manufacture of check-rower wire, the combination with looper-heads adapted to form interlocking eyes on said wire, and coiling mechanism adapted to coil the free ends of the wire after said eyes are formed upon the body of the wire in a conical form, of semiconical projections, one on each side of said looper-heads near the opposing edges thereof and located in the medial longitudinal line and adapted to bear against the inner side of the coils as the same are formed, and to cooperate with the coiling mechanism to form said conical coil, substantially as described.

658,801. COAT-HOLDER. ALBERT L. PLATT, Clinton, Ill. Filed Feb. 9, 1900. Serial No. 4,687. (No model.)

Claim.—1. A coat-holder comprising members pivoted at different points and having cooperating jaws slidably connected to slide into and out of their gripping positions when the members are moved upon their pivots.

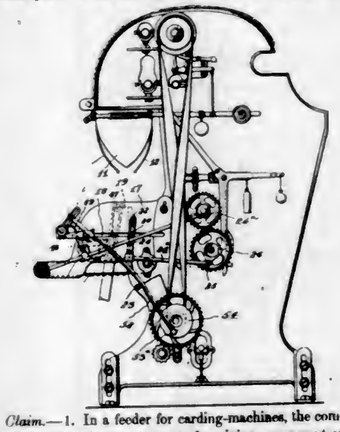
2. A coat-holder comprising independently-pivoted members slidably connected beyond their pivots, the slidably-connected portions having cooperating jaws adapted for movement into and out of operative position when the members are moved upon their pivots.

3. A coat-holder comprising pivoted members each including two arms having jaws at their extremities, the arms of one member having slidable connection with the corresponding arms of the other member, whereby the jaws will be moved toward and away from each other when the members are moved upon their pivots.



4. A coat-holder comprising two independently-pivoted members each of which includes a plurality of arms provided with jaws, the arms of one member being slidably connected with the corresponding arms of the other member to move the jaws toward and away from each other when the members are moved upon their pivots.

658,802. FEED MECHANISM FOR CARDING-MACHINES. JAMES B. PLATT, Ashland, N. H., assignor of one-half to Henri A. Noel, same place. Filed Nov. 16, 1899. Serial No. 737,198. (No model.)



Claim.—1. In a feeder for carding-machines, the combination with feed-rolls, of a pusher, an actuator for giving movement or play within certain limits to one end of said pusher, and an independent driving device connected with the opposite end of the pusher and movable in an arc of greater radius than the actuating device to impart greater travel to the pusher than the play given thereto by the actuating device, substantially as described.

2. In a feeder for carding-machines, the combination with feed-rolls, and a conveyer, of a pusher, an actuating device associated with one end of the pusher to give movement or play within certain limits thereto, and a driving-lever movable in an arc of greater radius than the actuating device and connected operatively with the opposite end of the pusher, substantially as described.

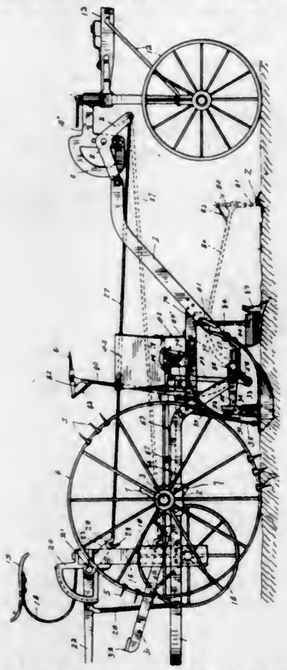
3. In a feeder for carding-machines, the combination with feed-rolls and a conveyer, of a pusher, an actuating device connected with one end of the pusher for moving the latter within certain limits, a driving-lever fulcrumed on a plane below the pivot of the actuating device for movement in an arc of greater radius and connected with the opposite end of the pusher, and a train of driving-gears for actuating the driving-lever, substantially as described.

4. In a feeder for carding-machines, the combination with feed-rolls and a conveyer, of a pusher, an actuating device connected with one end

of the pusher to impart movement thereto within certain limits, an extensible driving-lever fulcrumed at a point below the pivot of the actuating device and having one arm thereof connected with the opposite end of said pusher, a train of driving-gears, and an extensible pitman between one member of the gear-train and the extensible lever, substantially as described.

5. In a feed mechanism for carding-machines, the combination with feed-rolls, and a conveyer, of a pusher, an actuating device connected with one end of said pusher, to impart movement thereto within certain limits, driving devices connected with the opposite end of said pusher for imparting increased range of movement thereto as compared with the actuating device, said driving devices having an extensible lever which is adjustable to compensate for the application of the pusher to machines of different height, and fulcrumed at a point below the pivot of said actuating device, and means for operating said driving devices, substantially as described.

658,803. CORN-PLANTER. HORACE N. RANDALL, Tracy, Minn. Filed Jan. 29, 1900. Serial No. 3,076. (No model.)



Claim.—1. In a planter, the combination with a seed magazine or receptacle, of a vibrating feed shuttle or head cooperating therewith to deliver the seeds, of a vibrating hill-indicator movable with a properly-timed action with respect to said shuttle, to make marks on the ground between the truck-wheels indicating where the machine has planted, substantially as described.

2. In a planter, the combination with a seed-magazine and a vibrating shuttle for delivering the seeds from said magazine to the ground, of a transverse row-marker carried by the machine, and a hill-indicator comprising an arm connected for movements with said shuttle and provided at its end with a blade or marking device engageable with the ground, when said shuttle is raised, substantially as described.

3. In a planter, the combination with the main frame, traction wheel or wheels and planting devices, of the supplemental truck movable on the main frame, the lifting frame or lever pivoted to said supplemental truck and operative on said main frame when stood upon, and a cooperating hand-lever pivoted on said supplemental truck-frame and provided with connections for assisting in the lifting of the main frame and traction-wheels, substantially as described.

4. In a planter, the combination with a seed magazine or receptacle having a rotary bottom with ratchet-teeth and seed-passages, of a receiving shelf or table receiving the seeds from said magazine and provided with a ratchet device operated directly by the movements of said receding shelf to rotate said rotary magazine-bottom by action on the ratchet-teeth thereof, and a vibrating shuttle or seed-delivery head acting upon said receding table and serving to deliver the seeds to the ground, substantially as described.

5. In a planter, the combination with a seed-magazine, of a vibrating shuttle or head receiving the seeds from said magazine and delivering them to the ground, said shuttle having the forwardly-inclined rear wall or flange 54 for preventing the seeds from being thrown outward by centrifugal force, substantially as described.

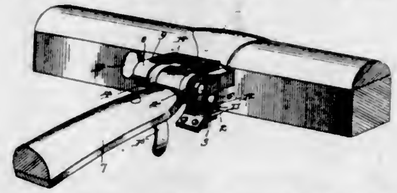
6. In a planter, the combination with a traction wheel or wheels and a hub or knocker with striking projections, of a seed-magazine, a vibrating shuttle or seed-delivery head-receiving end from said magazine and delivering it to the ground, and connections for vibrating said shuttle involving the pivoted lever 63 with pivoted finger or projection 66 subject to the trip projections of said knocker, under one direction of movement only, being adapted to yield under backward movements of said truck-wheels substantially as described.

7. In a planter, the combination with a furrow-forming shoe and planting device, of truck or traction wheels, and graders or planters positioned to cut the upper surface of the ground in line with, and in advance of said traction-wheels, said graders having horizontally-extended lower edges that extend obliquely across the paths of said wheels, substantially as and for the purposes set forth.

8. In a planter, the combination with a rear truck and planting devices carried thereby and operated from the traction-wheels thereof, of a forward truck connected to the forward frame portion of said truck by a compound pivot or joint which permits said forward truck to swing horizontally and oscillate vertically, substantially as described.

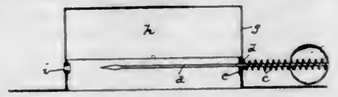
9. In a planter, the combination with the forward truck, of a rear main truck connected to said forward truck by a bell-crank lever, planting mechanism carried by main truck, a lifting-truck mounted on the main truck, a lifting-lever on said lifting-truck connected to the main truck, and a detachable connection between said bell-crank and said lifting-lever, substantially as and for the purposes set forth.

658,804. THILL-COUPLING. CHARLES H. RASTEDE, Cedar Rapids, Iowa. Filed Jan. 25, 1900. Serial No. 2,771. (No model.)



Claim.—In a thill-coupling, the combination with an axle-clip having forwardly-extending ears and a thill or coupling iron arranged between the ears, of a pivot-bolt passing through the ears and the coupling or thill iron and provided at one end with an enlarged head having a vertical slot, the substantially V-shaped antirattler-spring arranged between the perforated ears in rear of the coupling or thill iron and bearing against the same, the rear side of the spring being provided with a forwardly-extending flange arranged above the ears, the substantially L-shaped shank or piece having one of its portions arranged horizontally and secured to the said flange, its other portion being disposed vertically and passing through the slot of the head of the bolt, and a set-screw mounted on the head of the bolt at the outer side thereof and extending to the slot and engaging the vertical portion of the L-shaped piece or shank and adjustably securing the same to the bolt, whereby the antirattler-spring is adapted to engage the coupling or thill iron, and is capable of holding the same in place, and is also supported by the bolt, substantially as described.
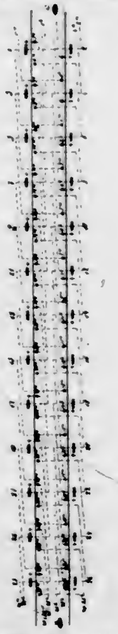
658,805. HAT-FASTENER. GEORGE SCHNEIDER, Baltimore, Md. Filed Dec. 22, 1899. Serial No. 741,225. (No model.)



Claim.—1. In a hat-fastener the combination of a hat; two eyelets each secured at an opposite side of the vertical wall of said hat; a pin having a head and passing loosely through one of said eyelets and adapted for the point of the pin to enter the eyelet at the opposite side; and a spiral spring surrounding the pin and having one end secured to said head and the other end secured to the eyelet through which the pin first enters, whereby the spiral spring draws the pin in a straight line so that its point will enter and be retained in the point-end eyelet.

2. In a hat-fastener the combination of a hollow head provided with an opening at one side; a pin passing through said opening and secured in said head; an eyelet for attachment to the hat; and a spiral spring surrounding the pin and secured at one end within the hollow head and passing through the opening in said head and at the other end secured to said eyelet whereby normally the spring will be concealed within said head.

658,806. APPARATUS FOR PREVENTING COLLISIONS, &c., ON RAILWAYS. GEORGES M. SCHREIBER, Czenstochow, Russia. Filed May 17, 1899. Serial No. 717,169. (No model.)



Claim.—1. In combination in apparatus for preventing railway accidents, a series of train-stopping devices, a setting device consisting of a train-operated lever and means for setting and resetting the same, and each connected to set two of the said train-stopping devices at a distance in each direction along the track, and connections for resetting the said train-stopping devices from a much greater distance along the track, whereby an engine or train will successively set the train-stopping devices at a given distance in advance and at a given distance in the rear, and subsequently reset them, substantially as set forth.

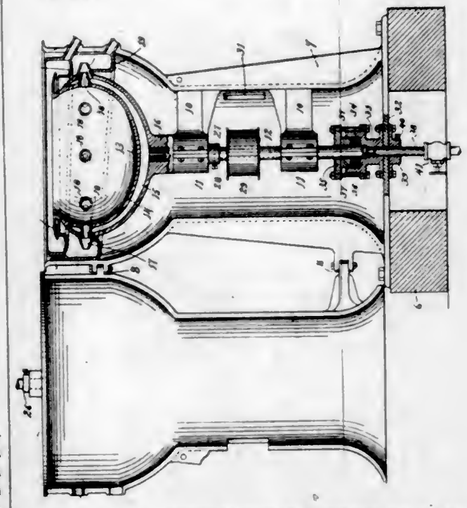
2. In combination in apparatus for preventing railway accidents, a series of train-stopping devices, a series of setting devices, said devices consisting of a cylinder *s*, and lever and mechanism for setting and resetting the lever, all being situated without the line of rails therefor actuated by engines or trains when moving in one direction only, and each connected to set two of the said train-stopping devices at a distance in each direction along the track, and connections for resetting the said train-stopping devices from a much greater distance along the track, whereby an engine or train will successively set the train-stopping devices at a given distance in advance and at a given distance in the rear, and subsequently reset them, substantially as set forth.

3. In combination in apparatus for preventing railway accidents, a series of train-stopping devices for engines or trains going in one direction, comprising a cylinder or drum and a train-operated lever with means for setting and resetting the same a series of train-stopping devices for engines or trains going only in the opposite direction, a series of setting devices therefor, operated only by engines or trains going in the first said direction and connected to set one of the train-stopping devices at a suitable distance ahead and one of them at a suitable distance in the rear, and means for resetting the said stopping devices to normal position when the engine or train has gone farther, substantially as set forth.

4. In combination in apparatus for preventing railway accidents, a series of train-stopping devices for engines or trains going in one direction, a series of train-stopping devices for engines or trains going only in the opposite direction, a series of setting devices therefor consisting of a cylinder and lever, operated only by engines or trains going in the first said direction and connected to set one of the train-stopping devices at a suitable distance ahead and one of them at a suitable distance in the rear, and means for resetting the said stopping devices to normal position when the engine or train has gone farther, a similar series of setting devices operated only by engines or trains going in the opposite direction on the same track, and two similar corresponding series of cooperating train-stopping devices and means for resetting them, whereby an engine or train will be protected against being run into by trains approaching it in either direction, and also against running into a standing or derailed train, substantially as set forth.

5. In combination with a train-stopping device, a cylinder *s* at a distance operatively connected thereto, a train-operated lever, a weight acting upon the lever in direction to return it to normal position when actuated by a train, a pawl and ratchet and connections between said lever and said cylinder for actuating the cylinder by the return movement of the said lever, and means for resetting the cylinder to its normal position, substantially as set forth.

658,807. MECHANISM FOR SIZING AND SEGREGATING ORES OR DISINTEGRATED MATERIALS. CHARLES E. SEYMOUR and HENRY S. MOREY, Placerville, Cal. Filed Oct. 24, 1896. Serial No. 609,889. (No model.)



Claim.—1. In mechanism for sizing and segregating ores, or disintegrated materials, the combination, with a revoluble treatment vessel adapted to act centrifugally on the material contained therein, said vessel provided with inner and outer walls, the space confined by the inner wall forming the vessel proper, and the space confined between the two walls forming a closed supplemental chamber, said outer wall provided with a discharge-tube, and said inner wall also provided with a similar tube, the latter telescoping into the former, and said tubes having a space therebetween with which space the supplemental chamber is in communication, of a conduit leading from a pressure device to the supplemental chamber, said conduit, in connection with the supplemental chamber, adapted to serve as a passage for an opposing force, said force consisting of a suitable agent under a continuous pressure from the source of initial energy or pressure to the discharge-tubes.

2. In mechanism for sizing and segregating ores, or disintegrated materials, the combination, of a treatment vessel adapted to act centrifugally on the material contained therein, said vessel provided with a discharge opening or openings, a hollow revoluble shaft connected to the vessel, and adapted to revolve the same therewith, said hollow shaft leading from a pressure device, and a conduit or conduits leading from said shaft to the discharge opening or openings, and being in communication with the vessel only at said opening or openings, said hollow shaft adapted to serve as a conduit for an opposing force, said force consisting of a suitable agent under a pressure from the source of initial energy or pressure, which pressure is continuous throughout the course of the agent through the shaft and conduit or conduits to the discharge opening or openings.

3. In mechanism for sizing and segregating ores or disintegrated materials, the combination, of a treatment vessel adapted to act centrifugally on the material contained therein, said vessel provided with a supplemental chamber and with a discharge to which said chamber leads, the chamber being in communication with the vessel only at the point of discharge, a hollow revoluble shaft connected to the receptacle and adapted to revolve the same therewith, said hollow shaft communicating with the supplemental chamber, and a force-feed pipe leading to the hollow shaft, and adapted to discharge the pressure agent therein.

4. In mechanism for sizing and segregating ores, or finely divided or disintegrated materials, the combination, of a receptacle adapted to act centrifugally on the material contained therein, said receptacle provided with a discharge, a hollow rotatable shaft connected to the receptacle, and adapted to revolve the same therewith, a conduit leading from the hollow shaft to the discharge, a base-plate, a gland secured thereto, into which gland the lower end of the hollow shaft extends, a stuffing-box fitting in the gland, a packing between the stuffing-box and the gland, bolts connecting the stuffing-box with the gland, and a force-feed pipe extending into the gland and communicating with the hollow shaft.

5. In mechanism for sizing and segregating ores or finely divided or disintegrated materials, the combination, of a receptacle adapted to act centrifugally on the material contained therein, said receptacle provided with a discharge, a hollow rotatable shaft connected to the receptacle, and adapted to revolve the same, a conduit leading from the hollow shaft to the discharge, a base-plate, a collar secured to said plate, a force-feed pipe extending through said collar and communicating with the hollow shaft, and a set-screw passing through the collar and impinging against the pipe.

6. In mechanism for sizing and segregating ores, or disintegrated materials, the combination, of a revoluble receptacle adapted to act centrifugally on the material contained therein, said receptacle provided with a discharge-tube, a compressible gland within the tube, means for compressing said gland to decrease the size of the discharge-opening through which the material passes centrifugally, and a conduit leading to the discharge-tube, said conduit adapted to serve as a passage for a pressure agent.

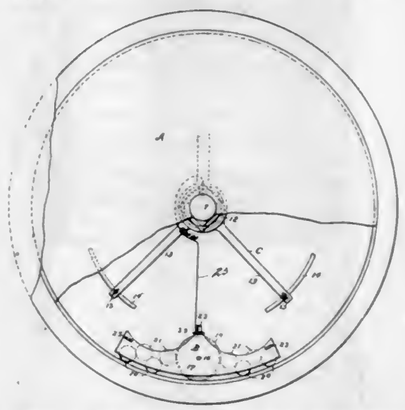
7. In mechanism for sizing and segregating ores or disintegrated materials, the combination, with a revoluble receptacle adapted to act centrifugally on the material contained therein, said receptacle provided with a supplemental chamber, each wall of the supplemental chamber provided with a discharge-tube, one tube telescoping into the other, compressible tubular glands within the respective tubes, a spool between the two glands, the apertured heads of said spool bearing against the respective glands, and said spool provided with an opening or openings between its heads, a sleeve fitting against the outer gland, a cap-nut engaging threads at the outer end of the outer tube and adapted to bear against the sleeve, and a conduit leading to the space between the tubes, said conduit adapted to serve as a passage for a pressure agent to the space between the tubes, said pressure agent adapted to enter the opening or openings in the spool.

8. In mechanism for sizing and segregating ores or finely divided or disintegrated materials, the combination, with a revoluble treatment vessel adapted to act by centrifugal force on material contained therein, said vessel provided with a discharging-outlet, adapted to discharge to the exterior of the vessel, of a conduit having a connection with the external discharge of the treatment vessel, said conduit adapted to serve as a passage for an opposing force which is conducted under a continuous pressure through the discharge into the receptacle and simultaneously through the discharge outwardly, by which construction the energy under pressure exerts both an inward and outward pressure at the point of external discharge, the inwardly-acting portion adapted to drive back the lighter particles, while permitting the heavier particles to be forced against and through it by centrifugal force to effect the discharge of the heavier particles at the point of external discharge, said discharge being facilitated by the outwardly-acting portion of the agent, and an external fluid-forcing device connected to or communicating with the conduit.

9. In mechanism for sizing and segregating ores or disintegrated materials, the combination, with a revoluble treatment vessel adapted to act by centrifugal force on the material contained therein, said vessel provided with a discharging-outlet, adapted to discharge to the exterior of the vessel, of a conduit leading to the external discharge, said conduit adapted to serve as a passage for an opposing force, said force consisting of a suitable agent under a continuous pressure from the source of initial energy or pressure to the external discharge, the force of said agent acting directly against the centrifugally-discharging material at the point of external discharge of said material, and being so regulated as to drive back lighter particles, while permitting the heavier particles to be forced against and through it at the point of external discharge, and an external fluid-forcing device connected to or communicating with the conduit.

10. In mechanism for sizing and segregating ores or disintegrated materials, the combination, with a revoluble treatment vessel adapted to act by centrifugal force on the material contained therein, said vessel provided with a discharging-outlet adapted to discharge to the exterior of the vessel, of a conduit leading to the external discharge, said conduit adapted to serve as a passage for an opposing force, said force consisting of a suitable agent under a continuous pressure from the source of initial energy or pressure to the external discharge, the force of said agent acting directly against the centrifugally-discharging material at the point of external discharge of said material, and being so regulated as to drive back the lighter particles, while permitting the heavier particles to be forced against and through it at the point of external discharge, an external fluid-forcing device connected to or communicating with the conduit, and means for adjusting the degree of the opposing force.

658,808. MOTOR-WHEEL FOR AUTOMOBILES. HERBERT SIMMONS, Wellston, Ohio. Filed Apr. 3, 1900. Serial No. 11,356. (No model.)



Claim.—1. The combination of the wheel having the runway and inner and outer hubs, the annular box on which said inner hub has its bearing, the axle-spindle loose in said annular box, and fast to the outer hub, and a motor having driving-wheels operating in the runway of said wheel, substantially as described.

2. The combination of the wheel having the runway and inner and outer hubs, the annular box on which said inner hub has its bearing, the axle-spindle loose in said annular box and fast to the outer hub, stops carried by said annular box, and a motor having driving-wheels operating in the said runway, the play of said motor being limited by said stops, substantially as described.

3. The combination of a wheel having a runway, a non-revoluble box forming a bearing for said wheel, said box being provided with stops, and a motor having driving-wheels operating in the said runway, between said stops, substantially as described.

4. The combination with a wheel having a runway, of a motor having driving-wheels operating in said runway, said motor being free to travel in said runway, and adjustable stops to limit the play of the motor, substantially as described.

5. The combination with a wheel having a runway, of a motor having magnetized driving-wheels operating in said runway, substantially as described.

6. The combination with a wheel having a runway of a magnetized motor having driving-wheels operating in said runway, substantially as described.

658,809. RAILROAD-ADVERTISER AND STATION-INDICATOR. LEE H. SIMMONS, Rocky Mount, N. C., assignor of one-half to Asher Ayers, Baltimore, Md. Filed Jan. 10, 1900. Serial No. 949. (No model.)

Claim.—1. In a station-indicator and railroad-advertiser the combination of grooved winding-rollers, the belts, the fastenings carried thereon, the name-strips adapted to engage said fastenings, said grooves in the winding-rollers being for the purpose of carrying said fastenings, substantially as and for the purposes set forth.

2. In a station-indicator and railroad-advertiser, the combination of the grooved winding-rollers, the toothed operating-wheel, the belts, provided with suitable fastenings, the name-strips adapted to be secured to said belts and operated by said operating-wheels, the vertically-sliding bars, provided with arms, the locking-bolt, and locking-pin adapted to engage and lock said arms, substantially as described.

3. In a station-indicator and railroad-advertiser, the combination of the vertically-sliding bars, the cross lifting-lever, the slots in said vertically-sliding bars, adjustable pins adapted to be carried in said slots, the arms forming the locking device, the locking-bolt, the locking-pin, and notches in said arms adapted to receive said locking-pin, substantially as described.

4. In a station-indicator and railroad-advertiser, the combination of the grooved winding-rollers, the belts carried on said rollers, the name-strips carried on said belts, the toothed operating-wheel, the vertically-sliding bars, the locking-arms, the locking-bolt, the locking-pin, and notches in said arms to receive said pin, substantially as described.



5. In a station-indicator and railroad-advertiser, the combination of the grooved winding-rollers, the belts adapted to be carried by said rollers, the name-strips adapted to be carried by said belts, the toothed operating-wheel adapted to move said belts, the vertically-sliding bars, provided with spring-fingers, adapted to operate said operating-wheel, and provided with slots, carrying adjustable pins, the cross lifting-lever adapted to be engaged by said pins, the spring-bolt, operated by said cross lifting-lever, and adapted to lock the toothed operating-wheel, the locking-arms, locking-bolt and locking-pin, adapted to lock said vertically-sliding bars, substantially as described.

6. In a station-indicator and railroad-advertiser, the combination of the vertically-sliding bars, the connecting-rods, provided with knee-joints, the wheels adapted to operate said connecting-rods, another connecting-rod provided with an adjustable clip, and the brake-rod, all arranged substantially as described.

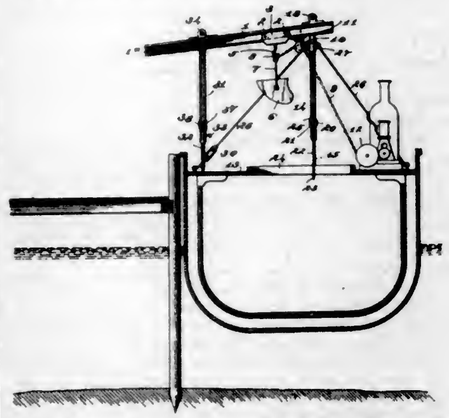
7. In a station-indicator and railroad-advertiser, the combination of the brake-rod of the car, the adjustable clip, the connecting-rod secured to said clip, the wheels turned by said connecting-rod, and adapted to operate the indicator by means of the connecting-rods provided with slots and knee-joints, substantially as and for the purposes set forth.

8. In a station-indicator and railroad-advertiser, the combination of a brake-rod, the adjustable clip, the connecting-rod secured to said clip, the wheels turned by said connecting-rod, the vertically-sliding bars adapted to be operated by the connecting-rods, said connecting-rods being provided with grooves and knee-joints, a toothed operating-wheel adapted to be operated by said vertically-sliding bars, and an adjustable pin carried by said vertically-sliding bars, grooved winding-rollers, adapted to be operated by said operating-wheel, belts adapted to be carried by said winding-rollers, name-strips adapted to be carried by said belts, and a locking device, all arranged substantially as and for the purposes set forth.

9. In a station-indicator and railroad-advertiser, the combination of the vertically-sliding bars, provided with grooves for the purpose of carrying adjustable pins, a cross lifting-lever adapted to be engaged by said pins, a cord attached to said vertically-sliding bars, for the purpose of operating the same by hand, and a locking device, all arranged substantially as and for the purposes set forth.

658,810. **PORTABLE HOIST.** Cyrus H. Sinclair, Chicago, Ill., assignor of two-thirds to George L. McCurdy and Burt C. Lindley, same place. Filed Apr. 2, 1900. Serial No. 11,063. (No model.)

Claim.—1. In a portable hoist the combination of a track or runway, a pair of inclined standards detachably secured to said runway, guys for holding the upper ends of said standards against oscillation longitudinally of said runway, bolts secured to said standards and having means of attachment to the surface upon which said standards are supported for holding the lower ends of said standards against movement, said standards serving to support said runway at one point, means for supporting said runway at another point, a trolley on said runway, a holder for the material to be hoisted adapted to be connected to said trolley and means for raising and lowering said holder, substantially as set forth.



2. In a portable hoist the combination with the vessel-deck having a hatch, of a runway, a pair of inclined standards detachably secured to said runway, bolts having hooks adapted to pass through the hatch and engage under the edge thereof, means for adjustably securing said bolts to said standards, a trolley on said runway, a holder for the material to be hoisted adapted to be supported from said trolley and means for raising and lowering said holder, substantially as set forth.

3. In a portable hoist the combination of a runway, a pair of inclined standards detachably secured to said runway at or near each end thereof, a brace secured to the standards of one of said pairs for preventing them from spreading, guys for preventing the standards of the other of said pairs from oscillating at their upper ends lengthwise of said runway, bolts adapted to be secured to the surface on which said standards are supported and to the last said standards for preventing the latter from spreading, a trolley on said runway, a holder for the material to be hoisted adapted to be attached to said trolley and means for raising and lowering said holder, substantially as set forth.

4. In a portable hoist the combination of a runway consisting of a beam having flanges, a trolley supported by said flanges, perforated lugs formed on said beam, standards for supporting said beam having perforated ears, bolts or pins passing through said lugs and ears, means for bracing said standards against oscillation, a holder for the material to be elevated adapted to be secured to said trolley and means for raising and lowering said holder, substantially as set forth.

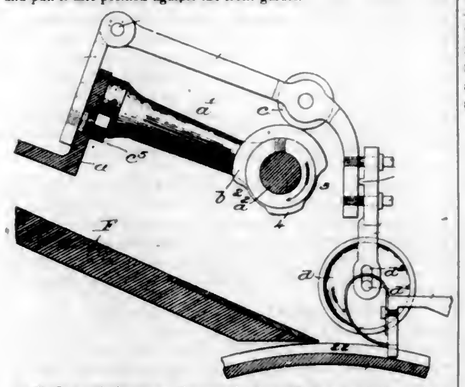
5. In a portable hoist the combination of a beam having a flange, a trolley supported by and running on said flange, inclined standards detachably pivoted to said beam and having extensible portions, collars adjustably secured on said standards, bolts provided with hooks, adjustably secured to said collars, a holder for the material to be hoisted adapted to be attached to said trolley and means for raising and lowering said holder, substantially as set forth.

6. In a portable hoist the combination of the beam 1 having the perforated lugs 18 34, the trolley having rollers engaging with said beam, a holder adapted to be secured to said trolley, means for raising and lowering said holder comprising a sheave 10 secured to said beam, extensible standards pivotally secured to said lugs 18 34, the bolts 22 secured to one pair of said standards and having hooks 23, adjustable guys 26 secured to one pair of said standards near their upper ends and the brace-rod 37 detachably secured to the other pair of said standards for preventing the same from spreading, substantially as set forth.

658,811. **FEEDING DEVICE FOR PRINTING-PRESSES.** James H. Smith, Providence, R. I. Filed Dec. 13, 1899. Serial No. 740,178. (No model.)

Claim.—1. In a printing-press, the combination with a front guide device, of an inertia feed device arranged adjacent thereto, to exert a pull upon the sheet and position the leading edge thereof relatively to the front guide device.

2. In a printing-press, the combination with front and edge guides, of an inertia feed device, to engage the sheet at or near its leading edge and pull it into position against the front guides.



3. In a printing-press, the combination with front and edge guides, of an inertia feed device located adjacent the front guides and acting upon or adjacent the leading edge of and to move a sheet in one direction, means to move a sheet in a different direction, and means to remove said inertia feed device from operative engagement with a sheet during operation of said feeding means.

4. In a printing-press, the combination with front guides, and an impression-cylinder, of an inertia feed device coöperating with the latter, and located to act upon the leading edge of the sheet adjacent the front guides.

5. In a printing-press, the combination with an impression-cylinder provided with raised under guide ribs or surfaces, of front guides, and rotary feed devices arranged adjacent thereto and opposed to and acting in conjunction with said raised under guide cylinder-surfaces, to act upon the sheet or near its leading edge and pull the sheet forward.

6. The combination with a front guide, and an inertia feed device arranged adjacent thereto, and lateral feed devices, of means to remove said inertia feed device from operative engagement with a sheet during action of said lateral feed devices and to return said inertia feed device into operative engagement with said sheet after operation of said lateral feed devices.

7. In a printing-press, the combination with an impression-cylinder, of front guides, and rotary feed devices adjacent said front guides and coöperating with said cylinder to act upon a sheet at or near its leading edge and pull the sheet against said front guides.

8. In a printing-press, the combination with an impression-cylinder, a feed-board and front guides arranged in front of the said feed-board and somewhat removed therefrom, of rotary feed devices arranged between the said feed-board and front guides to pull a sheet toward said front guides.

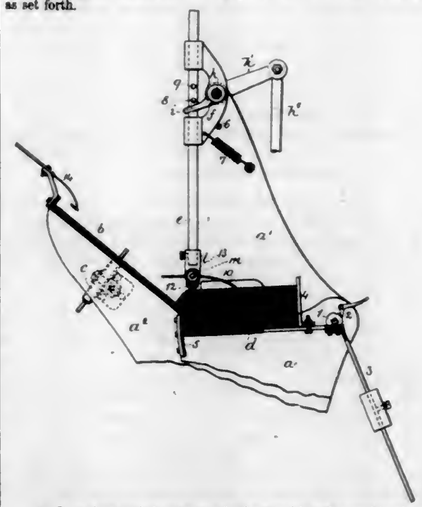
9. In a printing-press, the combination with front guides, a feed-board, and automatic feed mechanism to feed the sheets down said feed-board, of inertia feed devices arranged in front of said guides to receive the sheets from said automatic feed mechanism and pull said sheets toward said front guides, for the purpose described.

658,812. **SHEET OR SIGNATURE GATHERING MACHINE.** David G. Smyth, Hartford, Conn. Filed Oct. 4, 1899. Serial No. 732,463. (No model.)

Claim.—1. In a sheet and signature gathering machine the combination with the frame and a shield, of a swinging table for supporting the superposed pile of sheets or signatures, a pivot therefor and a pawl device adjacent to the pivot to prevent the backward movement, an arm connected to the table and an adjustable weight for maintaining the swing table and for raising the same as the sheets or signatures are removed and an adjustable guide upon the table coming adjacent to the back edge of the superposed sheets or signatures, substantially as set forth.

2. In a sheet or signature gathering machine the combination with means for supporting a superposed pile of sheets or signatures, of means for engaging the sheet or signature adjacent to the advancing edge, means for momentarily holding down the rear portion of the sheet or signature and for simultaneously raising the advancing edge and thereafter releasing the holding-down device, means for thereafter swinging the sheet or signature forward, and means for removing and delivering the sheets or signatures to a conveyer, substantially as set forth.

3. In a sheet or signature gathering machine, the combination with means for supporting a superposed pile of sheets or signatures, of means for engaging the sheet or signature adjacent to the advancing edge, means for momentarily holding down the rear portion of the sheet or signature and for simultaneously raising the advancing edge and thereafter releasing the holding-down device, means for thereafter swinging the sheet or signature forward, and means for removing and delivering the sheets or signatures to a conveyer, and a means for returning the aforesaid devices to a normal position preparatory to repeating the operations, substantially as set forth.



4. In a sheet and signature gathering machine, the combination with the frame *a*, of a curved guide 5, a table *d* pivoted to the frame and provided with an adjustable guide 4, a pawl device 2 at the pivot of the table for holding the table against the return movement, an inclined arm 3 and adjustable weight for balancing the weight of the pile of signatures and raising the same as the signatures or sheets are removed, substantially as set forth.

5. In a sheet and signature gathering machine the combination with devices for supporting a superposed pile of sheets or signatures, of a tubular cross-head, a pad on the under side of the same of adhesive material, a shaft passing through the cross-head, a spring around the shaft connected thereto and to the cross-head, a pin in the shaft and a slot in the cross-head to limit the movement of the shaft and a wire frame connected adjustably to the said shaft and a means for raising and lowering the cross-head substantially as and for the purposes set forth.

6. In a sheet and signature gathering machine the combination with the frame and a shaft having a movement first in one direction and then in the reverse direction, of an arm fixed upon the shaft, a yoke bearing loosely upon the shaft adjacent to said arm, a vertically-moving bar passing through the yoke-bearings, studs upon the shaft between the yoke-bearings and acted upon by the arm of the shaft, a stop upon the frame for limiting the movement of the yoke-bearings and a spring for returning the yoke-bearings to a normal position and means upon the lower end of the bar for engaging a sheet or signature and elevating the same, substantially as set forth.

7. In a sheet and signature gathering machine, the combination with the frame and a shaft having a movement first in one direction and then in the reverse direction, of an arm fixed upon the shaft, a yoke bearing loosely upon the shaft adjacent to said arm, a vertically-moving bar passing through the yoke-bearings, studs upon the shaft between the yoke-bearings and acted upon by the arm of the shaft, a stop upon the frame for limiting the movement of the yoke-bearings and a spring for returning the yoke-bearings to a normal position and a tubular cross-head on the lower end of said bar, a divided gelatin pad upon the lower end of said cross-head, a spring-actuated shaft passing through the cross-head and an adjustable wire frame carried by said shaft and a stop to limit the rotary movement of said shaft, substantially as set forth.

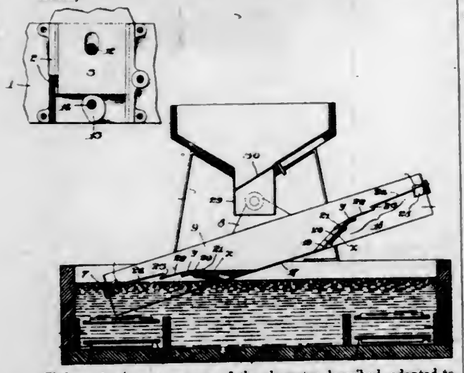
8. In a sheet and signature gathering machine, the combination with a frame and a shaft having a movement first in one direction and then in the reverse direction, of an arm fixed upon the shaft, a yoke bearing loosely upon the shaft adjacent to said arm, a vertically-moving bar passing through the yoke-bearings, studs upon the shaft between the yoke-bearings and acted upon by the arm of the shaft, a stop upon the frame for limiting the movement of the yoke-bearings and a spring for returning the yoke-bearings to a normal position and a tubular cross-head on the lower end of said bar, a divided gelatin pad upon the lower end of said

cross-head, a spring-actuated shaft passing through the cross-head and an adjustable wire frame carried by said shaft and a stop to limit the rotary movement of said shaft, and adjustable spring stripping-fingers adapted to come between and at each side of the pad in the forward movement of the mechanism for stripping the sheets or signatures, from the pad, substantially as set forth.

9. In a sheet and signature gathering machine, the combination with the frame and a shaft having a movement first in one direction and then in the reverse direction, of an arm fixed upon the shaft, a yoke bearing loosely upon the shaft adjacent to said arm, a vertically-moving bar passing through the yoke-bearings, studs upon the shaft between the yoke-bearings and acted upon by the arm of the shaft, a stop upon the frame for limiting the movement of the yoke-bearings and a spring for returning the yoke-bearings to a normal position, and a cross-head upon the lower end of the bar and a device on the under side of the same having a surface of adhesive material for engaging a sheet or signature and elevating the same, substantially as specified.

658,813. WASHER AND CONCENTRATOR FOR ORES, &c.

HENRY T. SPRING, Lansdale, and CHARLES A. SPRING, Philadelphia, Pa. Filed Jan. 17, 1899. Renewed Mar. 3, 1900. Serial No. 7,247. (No model.)



Claim.—1. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and oppositely-inclined end sections, the latter being provided with overflow-openings whereby as the outward extremities of the end sections are dipped into and raised from the water a portion of the water contained in the scoop or pan will escape therefrom by way of said openings in alternate succession.

2. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and oppositely-inclined end sections, the latter being provided with overflow-openings and inlets, said valves and inlets being at the outer extremities of said end sections together with valves for said inlets.

3. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with riffles and with overflow-openings between said riffles and the outer extremities of the end sections.

4. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with curved riffles and with overflow-openings between said riffles and the outer extremities of the end sections.

5. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with lower metallic portions and with blanket portions together with overflow-openings between said latter portions and the outer extremities of the end sections respectively.

6. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with lower curved metallic portions and with blanket portions together with overflow-openings between said latter portions and the outer extremities of the end sections respectively.

7. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with lower metallic portions and with blanket portions having transverse riffles together with overflow-openings between said latter portions and the outer extremities of the end sections, respectively.

8. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with lower curved metallic portions and with blanket portions having transverse curved riffles together with overflow-openings between said latter portions and the outer extremities of the end sections respectively.

9. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with lower metallic portions and with blanket portions having transverse curved riffles together with overflow-openings between said latter portions and the outer extremities of the end sections, respectively.

10. A scoop or pan of the character described, adapted to be suspended in or above a body of water and dipped endwise thereinto, said scoop or pan comprising side walls, a bottom section, and inclined end sections, the latter being provided with overflow-openings and valved inlets, and including each a metallic portion, 19, a blanket portion 20, with a riffle 21, a metallic portion 22, and a dip 24.

11. The combination with a water-tank, of a cradle suspended therein, a scoop in said cradle provided with oppositely-inclined ends having overflow-openings and valved inlets, and means for oscillating said cradle whereby the said inlets are dipped into and raised from the water in the tank in alternate succession, substantially as described.

12. The combination with a water-tank, of a cradle suspended therein, a scoop in said cradle provided with oppositely-inclined ends having overflow-openings and valved inlets, and means for oscillating said cradle whereby the said inlets are dipped into and raised from the water in the tank in alternate succession, together with means for gradually raising said cradle during its oscillations, substantially as described.

13. The combination with a tank, of a vertically-adjustable frame, a scoop, provided with oppositely-inclined ends having each an overflow-opening and a valved inlet, means whereby said scoop is suspended from said frame, means whereby the scoop is oscillated, and means whereby the frame is gradually raised.

14. The combination with a tank, of a vertically-adjustable frame, a scoop, provided with oppositely-inclined ends having each an overflow-opening and a valved inlet, means whereby said scoop is suspended from said frame, means whereby the scoop is oscillated so as to dip said ends into the water in alternate succession, cams acting upon said frame, and means whereby said cams are rotated.

15. The combination with a tank, of vertically-adjustable standards, a cradle suspended from said standards, and adapted to support a scoop or scoops, links or guides connected with said cradle, cams coacting with said links or guides, shafts for said cams, lower cams acting against said standards, shafts for said latter cams, and gearing intermediate the shafts of the upper and lower cams.

16. The combination with a tank provided with guideways, of vertically-adjustable standards in said guideways supporting pillow-blocks or bearings, trunnions in said bearings, a scoop-supporting cradle suspended from said trunnions, links or guides on said trunnions, stud-shafts, cams thereon coacting with said links or guides, lower shafts, coacting gearing between the same and said stud-shafts, and cams on said lower shafts coacting with the respective standards.

658,814. MEANS FOR DELICATELY SUSPENDING MOVING PARTS.

WILLIAM STANLEY and HERBERT M. SMITH, Great Barrington, Mass., assignors to the Stanley Instrument Company, of Massachusetts. Filed May 1, 1900. Serial No. 15,125. (No model.)

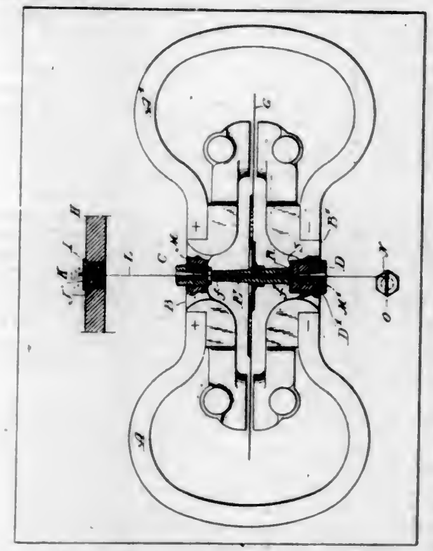
Claim.—1. In combination a movable support of magnetic material having internal bearing-surfaces, a taut wire passing through said support and engaging with said surfaces, and means for magnetically suspending said support.

2. In combination a rotatable shaft of magnetic material, a magnetic system producing a magnetic flux symmetrical thereto and a taut wire passing through the center of said rotatable shaft.

3. In combination a rotatable shaft of magnetic material, a magnetic system producing a magnetic flux symmetrical thereto, a taut wire passing through said rotatable shaft and engaging with alining bearings on said magnetic system.

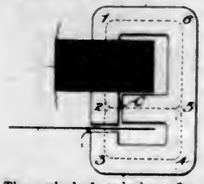
4. In combination a taut wire, a movable shaft of magnetic material through which said wire passes, a magnetic system producing a flux symmetrical to said shaft and having alining bearings with which said taut wire engages, and means for elastically maintaining said wire taut.

658,814.



658,815. METHOD OF PRODUCING PHASE DISPLACEMENT.

WILLIAM STANLEY, Great Barrington, Mass., assignor to the Stanley Instrument Company, of Massachusetts. Filed May 2, 1900. Serial No. 15,165. (No specimens.)



Claim.—1. The method of producing a flux of definite angular displacement from the electromotive force impressed upon a circuit which consists in producing a flux of lesser angular displacement than that required by means of a current in a simple coil of high inductance and fixed time constant and by such flux inducing secondary currents within a closed conductor differing in phase from said energizing-currents and so located that the time of flow of such secondary currents cannot change the time constant of the energizing coil or coils and thereby producing a resultant flux having the desired angular displacement, substantially as described.

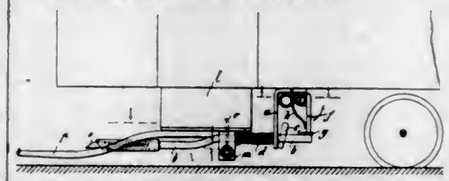
2. The method of producing a flux displaced by a definite amount relatively to the phase of the impressed electromotive force which consists in producing by a coil traversed by current due to said impressed electromotive force, a primary magnetomotive force of lesser angular displacement than that required, and by the flux due to said primary magnetomotive force inducing secondary currents within a closed circuit, setting up a secondary magnetomotive force by said secondary circuits and thereby a flux in a definite path coinciding in part that of the flux due to said primary magnetomotive force, but not passing through said energizing-coil, and combining said primary and secondary magnetomotive forces at a common portion of their paths and so as to produce a resultant magnetomotive force and consequent flux having the desired phase displacement, substantially as described.

3. The method of producing an alternating magnet flux displaced by ninety degrees from the electromotive force of the system which consists in energizing by an alternating current an open magnetic circuit of high inductance and thereby producing magnetomotive forces greatly lagging behind the electromotive force of the system and producing thereby a divided flux, inducing by one division of said flux alternating currents, said inducted alternating currents setting up magnetomotive forces such that when combined with said division of the magnetomotive forces due to the energizing-coil shall produce in said gap as a resultant an alternating magnetomotive force and flux displaced from the electromotive force of the system by ninety degrees, and combining said magnetomotive forces, substantially as described.

4. The method of producing a magnetic flux having a phase difference of ninety degrees relatively to the electromotive force of the system, which consists in producing an energizing-current displaced in phase by an angle of near eighty degrees and thereby setting up in a magnetic circuit of high inductance a magnetomotive force displaced from said electromotive force by a corresponding angle and inducing in a closed-circuited system by the flux due to said magnetomotive force alternating currents displaced in phase therefrom, and producing by said induced currents a magnetomotive force of proper strength and phase not affecting the time-constant of the circuit carrying the energizing-current and combining said magnetomotive force with the magnetomotive force due to the energizing-coil so as to produce a resultant or effective flux differing in phase from the magnetizing-current by the complement of its own angle of lag, and from the electromotive force of the system by ninety degrees, substantially as described.

658,816. PROTECTING APPARATUS FOR TRAMWAY-CARS OR SIMILAR VEHICLES.

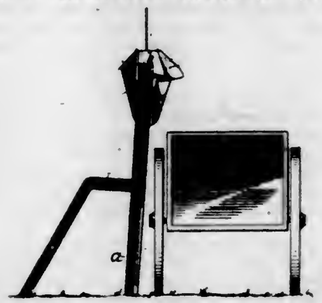
ALBERT THIELS, Hamburg, Germany. Filed Nov. 21, 1899. Serial No. 737,801. (No model.)



Claim.—A protecting apparatus for tram-cars consisting of a scoop or receptacle composed of a series of independent bars, a latch common to all of said bars and adapted to hold them in a normal elevated position, a spring acting on said latch to release it, a lever holding said latch against the action of the spring, said lever extending to a position in front of the scoop or receptacle, and a cord or chain attached to said lever and provided with a disconnecting-coupling, substantially as described.

658,817. SANITARY GARBAGE-TANK.

MORRIS WHEELER, Chicago, Ill. Filed May 19, 1900. Serial No. 17,234. (No model.)



Claim.—1. The combination with a trunnioned self-righting biported tank, of opposed oppositely-inclined lids whereof one lid turns around the upper and inner port edge and the other lid turns around the lower and outer port edge, substantially as specified.

2. The combination with a trunnioned self-righting biported tank, of opposed oppositely-inclined receiving and discharging lids whereof one lid turns around the upper and inner port edge and the other lid turns around the lower and outer port edge and mechanism to automatically operate said latter lid, substantially as specified.

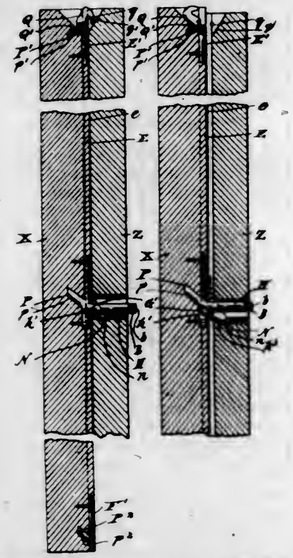
3. The combination with a biported tank trunnioned in its vertical central dividing plane, of opposed oppositely-inclined lids whereof one lid turns around the upper and inner port edge and the other lid turns around the lower and outer port edge, substantially as specified.

658,818. REVERSIBLE BALANCE-WINDOW.

HIRAM K. WHITNER, Chicago, Ill. Filed Feb. 23, 1900. Serial No. 6,159. (No model.)

Claim.—1. In a reversible balance-window the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member, provided with a bevel-foot, and adapted to engage with a journal-bearing of U form and means whereby said sash and said stiles may be held in relative positions in the opening of said window, substantially as and for the purpose set forth.

2. In a reversible balance-window the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having a pivot-pin adapted to abut against a pulley-stile, said journal member being provided with a bevel-foot, a journal-bearing of U form adapted to engage with said journal member, a pulley-stile provided with a smooth surface in the path of travel of the free end of said horizontal limb and means whereby said sash and said stiles may be held in relative positions in the opening of said window, substantially as and for the purpose set forth.



3. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having a pivot-pin adapted to abut against a pulley-stile, said journal member being provided with a bevel-foot, a journal-bearing of U form adapted to engage with said journal member, a pulley-stile provided with relatively-placed recesses adapted to engage with interstice members of a detachable stile, a detachable stile having on its outwardly-facing edge three interstice members near the lower extreme and two interstice members near the upper extreme, said interstice members being adapted to engage with said recesses at a predetermined point, a predetermined-point indicator secured to a detachable stile and a predetermined-point indicator secured to a sashway-stop and means whereby said reversible window may be balanced in sashways in said window, substantially as and for the purpose set forth.

4. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having a pivot-pin provided with an adjustable free end adapted to abut against a pulley-stile, said journal member being provided with a bevel-foot, a journal-bearing of U form adapted to engage with said journal member, a pulley-stile provided with a smooth surface in the path of travel of the free end of said pivot-pin, said sash-frame being provided with a bead-fender having in pivotal engagement a catch, said catch being provided with a keeper, said detachable stile being provided with a catch-pin adapted to engage with said catch as a means whereby said sash-frame and said detachable stiles may be immovably interlocked, and means whereby said reversible window may be balanced in sashways, substantially as and for the purpose set forth.

5. In a reversible balance-window the combination with a sash-frame and two detachable stiles, of an L-shaped journal member having a pivot-pin adapted to abut against a pulley-stile, said journal member being provided with a bevel-foot, a journal-bearing of U form adapted to engage with said journal member, said journal-bearing being provided with a tapering dowel having an anchor-fluke adapted to engage with the walls of an elliptical piercing in a detachable stile, a detachable stile provided with a piercing elliptical in form and adapted to hold in fixed engagement said dowel and said fluke, said piercing being adapted to receive said pivot-pin pertaining to said L-shaped journal member, substantially as and for the purpose set forth.

6. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having an upright limb and a pivot-pin and provided with a bevel-foot, said upright limb being in the form of a journal-bead and adapted to engage with a journal-channel, said pivot-pin being provided with a butt-end adapted to project through a piercing in a detachable stile, thereby enabling said pivot-pin to abut against a pulley-stile, a journal-bearing of U form adapted to engage with said upright limb and with said bevel pertaining to said journal member, said journal-bearing being provided with a tapering dowel having an anchor-fluke adapted to be inserted in said piercing, a detachable stile provided with a piercing elliptical in form having a niche in the walls of said piercing adapted to engage with said anchor-fluke, and means whereby said reversible window may be balanced in sash-ways in said window, substantially as and for the purpose set forth.

7. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having an upright limb and a pivot-pin and provided with a bevel-foot, said upright limb being in the form of a journal-bead, its topmost extreme being widened in conformity with a radial bead pertaining to said sash-frame, said journal member being provided with a dowel adapted to engage with a sloping piercing in said sash-frame as a means whereby said journal member may be fixed to the facing edge of said sash-frame, a journal-bearing of U form adapted to engage with said journal member and means whereby said sash and said stiles may be balanced in sashways in said window, substantially as and for the purpose set forth.

8. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having an upright limb and a pivot-pin and provided with a bevel-foot, said upright limb being in the form of a journal-bead, its topmost extreme being widened in conformity with the radial bead pertaining to said sash-frame, a sash-frame provided with a metal bead-fender secured to the extreme of its facing edge, said metal bead-fender conforming to the shape of said radial bead pertaining to said sash-frame as a means whereby a radial bead may be fitted to the facing edge of said sash-frame in alternate sections of metal and of wood, substantially as and for the purpose set forth.

9. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having an upright limb and a pivot-pin and provided with a bevel-foot, said upright limb being in the form of a journal-bead, its topmost extreme being widened in conformity with a radial bead pertaining to the sash-frame, a sash-frame having a metal bead-fender conforming to the shape of said radial bead, said bead-fender having in pivotal engagement a catch adapted to engage with said detachable stile, and being provided with a keeper, a detachable stile provided with a catch-pin adapted to engage with said catch as a means whereby said detachable stile may be securely locked to said sash-frame, substantially as and for the purpose set forth.

10. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member adapted to engage with a journal-bearing of U form, a journal-bearing of U form having an elevated bearing and provided with a dowel adapted to engage with a detachable stile, a detachable stile provided with a piercing adapted to engage with said dowel, said detachable stile being provided with another piercing adapted to hold in fixed engagement a weight-chain anchor, as a means whereby said sash and said stile may be suspended in sashways, substantially as and for the purpose set forth.

11. In a reversible balance-window, the combination, with a sash-frame and two detachable stiles, of an L-shaped journal member having an upright limb in the form of a journal-bead and a horizontal limb in the form of a pivot-pin, said journal member having a bevel, said pivot-pin being provided at its free end with a threaded stem adapted to engage with a nut, a nut adapted to engage with the free end of said pivot-pin as a means whereby said sash-frame and said stiles may be held adjustably in the center of the opening of said window, substantially as and for the purpose set forth.

12. In a balance-window, the combination, a sash-frame X, a detachable stile Z, a pulley-stile Y, a journal-bearing of U form having an elevated bearing h', adapted to engage with an L journal member, an L journal member having a journal-bead G provided with a bevel G′ and having a horizontal limb H provided with a butt-end H′ adapted to engage with said pulley-stile.

13. In a balance-window, the combination, a sash-frame X, a detachable stile Z having interstice members fixed to its outwardly-facing edge, three of said members being fixed in a relative position designated A, two of said members being fixed in a relative position designated C, a journal-bearing of U form having an elevated bearing h' adapted to engage with an L journal member, an L journal member being provided with a butt-end H′ adapted to engage with a pulley-stile, a pulley-stile Y provided with recess a and two recesses c, c adapted to engage with interstice members being in positions A and C, C′ respectively at predetermined points.

14. In a balance-window, the combination, a sash-frame X, a detachable stile Z provided with a predetermined-point indicator T and having an elliptical-shaped piercing h^4, said detachable stile Z being provided with interstice members fixed to its outwardly-facing edge in positions A and C, a journal-bearing of U form having an elevated bearing h', a journal member being provided with a butt-end H′ adapted to engage with a pulley-stile, a pulley-stile Y being provided with recess a and recess c adapted to engage with said interstice members fixed in relative positions A and C, a casing-stop provided with predetermined-point indicator t.

15. In a balance-window, the combination, a sash-frame X having in fixed engagement a journal member, an L-shaped journal member, a detachable stile Z having in fixed engagement a journal-bearing, a journal-bearing of U form in fixed engagement in a piercing h^4, a butt-end H′ protruding through said piercing h^4 and adapted to engage with a pulley-stile, a pulley-stile Y and a parting-strip S, said parting-strip being provided with an interstice member s'.

16. In a balance-window, the combination, a sash-frame X having in fixed engagement an L-shaped journal member, an L-shaped journal member adapted to engage with a journal-bearing, a detachable stile Z having an elliptical-shaped piercing h^4 provided with a niche n cut in the wall of said piercing, a journal-bearing of U form having a dowel h adapted to be inserted in said piercing h^4, said dowel being provided with an anchor-fluke N, said anchor-fluke being adapted to engage with said niche n.

17. In a balance-window, the combination, a sash-frame X having a piercing p, a detachable stile Z provided with a journal-channel g, an L-shaped journal member having a journal-bead G and a horizontal limb H, said L-shaped journal member being provided with a dowel P adapted to be fixedly engaged with said piercing p, a journal-bearing of U form having metal retaining-plates i' and i^2 adapted to be inset in the facing edge of said detachable stile Z.

18. In a balance-window, the combination, a sash-frame X provided with a piercing p^2, a detachable stile Z, an L-shaped journal member, a journal-bearing of U form, a bead-fender F′ having a dowel P² adapted to engage with said piercing p^2.

19. In a balance-window, the combination, a sash-frame X provided with a piercing p', a detachable stile Z provided with a catch-pin q, a bead-fender E′ having a catch Q and provided with a dowel P′ having in fixed engagement keeper Q′, said catch Q being adapted to engage with said catch-pin q and said dowel P′ being adapted to engage with said piercing p'.

20. The combination, a sash-frame, a detachable stile, a bead-fender having in pivotal engagement catch Q and provided with a dowel—said dowel being adapted to hold in fixed engagement keeper Q′, and a catch-pin q adapted to engage with said catch.

21. In a balance-window, the combination, a sash-frame provided with a meeting-rail K, a check-lip extension K² and provided with a beading F′, a parting-strip S provided with an interstice member s' and a detachable stile Z adapted to engage with said bead and with said check-lip extension.

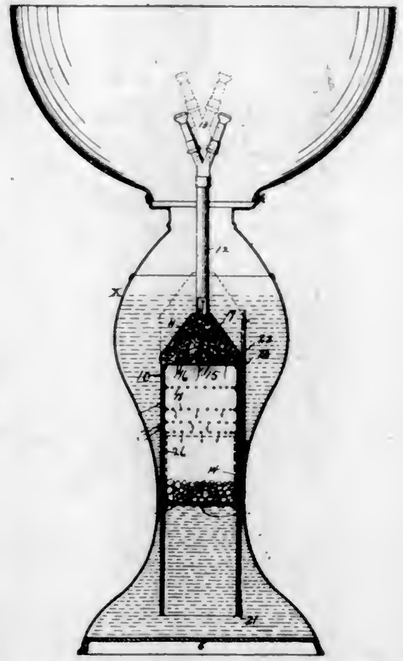
22. In a balance-window, the combination, a sash-frame X provided with the radial beads E and F and having a piercing p, an L-shaped journal member consisting of a journal-bead G and a horizontal limb H having a butt-end H′, said L-shaped journal member being provided with a dowel P adapted to engage with said piercing p, a detachable stile Z provided with longitudinal channels e and f, and having a journal-channel g, said detachable stile Z being provided with a piercing h^4 having a niche n, a journal-bearing of U form having an elevated bearing h' and provided with a dowel h having an anchor-fluke N whereby said journal-bearing may be held in fixed engagement in said piercing h^4, said detachable stile being provided with another piercing designated w adapted to hold in fixed engagement a weight-chain anchor, as a means whereby said sash and said stiles may be balanced in sashways in said window.

23. In a balance-window, the combination, a sash-frame X having a radial bead E provided with a bead-fender E′, said sash-frame having a radial bead F provided with a bead-fender F′, a journal member adapted to engage with a journal-bearing, a journal-bearing of U form having inset plates i' and i^2 adapted to be fixed to the facing edge of a detachable stile, a detachable stile Z having longitudinal channels e and f, said detachable stile having fixed to its outwardly-facing edge three interstice members in position A and two interstice members in position C, said interstice members being adapted to engage with a pulley-stile, a pulley-stile Y provided with a recess a' and two recesses c, c adapted to engage respectively with said interstice members at a predetermined point.

24. In a balance-window, the combination, a sash-frame X having the radial beads E and F and having in fixed engagement an L-shaped journal member, a detachable stile Z having the longitudinal channels e and f and having in fixed engagement a journal-bearing of U form, a parting-strip S provided with an interstice member s', said sash-frame being provided with a check-lip K′ having an extension K².

658,819. ACETYLENE-GAS GENERATOR. THOMAS F. WILLIAMS, Chicago, Ill., assignor to Edward L. Williams, Gillham, Ark. Filed May 11, 1899. Serial No. 716,370. (No model.)

Claim.—1. An acetylene-gas generator, comprising in combination, a chamber to contain a body of water, a generating-chamber adapted to contain carbid and arranged within the water-chamber and a vessel having its lower end open and inclosing the generating-chamber and providing therewith an annular water-space surrounding the generating-chamber and having direct and unobstructed communication with the liquid-supply, the generating-chamber being provided in its upper portion with water-inlets at various elevations above the carbid-space, whereby the water is admitted to the upper surface of the carbid only and in quantity regulated by the gas-pressure, substantially as described.



2. In an acetylene-gas generator, the combination with a liquid-chamber, a carbid-chamber and a vessel inclosing the carbid-chamber and providing therewith an annular water-space surrounding the carbid-chamber, the latter being provided with water-inlet openings accessible to water within said annular space, and the generating-chamber and its inclosing vessel being bodily movable and adjustable to various positions, and means for sustaining the said chamber and vessel in their adjusted positions, substantially as described.

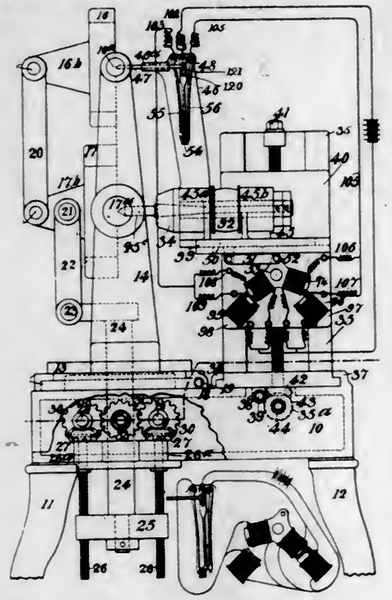
3. An acetylene-gas generator and burner embodied in a lamp having a hollow body adapted to contain a liquid, a vessel supported within said body in position to be submerged by its liquid contents, said vessel having its lower end open and unobstructed and its upper end closed to provide a gas-chamber, a pipe extending from the gas-chamber upwardly through the liquid-chamber and provided with a burner and an interior vessel providing a generating-chamber surrounded by the gas-holder and providing therewith an annular space around the generator, open to the liquid-supply, said generating-chamber having a closed lower end and water-inlet openings and gas-escape openings in its upper portion above the carbid-space, said water-inlet openings being arranged at different elevations, substantially as described.

4. In an acetylene-gas generator, the combination with a liquid-chamber and a generating-chamber, having perforations in its side wall at varying distances from its top or upper end, an open-ended vessel inclosing said generating-chamber and forming therewith an annular water-space, and means for adjusting said vessel and said chamber at various elevations within the body of water, substantially as described.

5. In an acetylene-gas generator, the herein-described means of supplying water to the carbid, comprising a carbid-containing vessel, having a bead or channel in its wall provided with perforations at different elevations, and an absorbent material in filament form wound within said channel over said perforations, substantially as described.

658,820. ENGRAVING-MACHINE. ENOCH S. WOODS, Hartford, Conn. Filed Jan. 30, 1899. Serial No. 703,782. (No model.)

Claim.—1. In a machine of the character described, a reciprocatory tool-holder, a plurality of electromagnets, and an oscillatory armature connected with and moving said tool-holder and mounted for coöperation with said magnets, substantially as described.



2. In a machine of the character described, a reciprocating tool-holder, a plurality of electromagnets, and oscillating means connected with and moving said tool-holder and operated directly by said magnets to be oscillated thereby, substantially as described.

3. In a machine of the character described, a reciprocating tool-holder, a plurality of electromagnets, and an oscillatory armature-frame connected with and moving said tool-holder and constructed and arranged to be oscillated by said magnets, substantially as described.

4. In a machine of the character described, a reciprocatory tool-holder, a plurality of electromagnets, an oscillatory armature connected with and moving said tool-holder and mounted for coöperation with said magnets, electrical contacts, electrical circuits between said contacts and said magnets, and a tracer operatively connected with said contacts, substantially as described.

5. In a machine of the character described, the combination of pattern mechanism, a work-holder, a reciprocatory tool-holder, a plurality of electromagnets, an oscillatory armature connected with and positively moving said tool-holder to and from the said work-holder, and mounted for coöperation with said magnets, electrical contacts, electrical circuits between said contacts and said magnets, and a tracer operatively connected with said contacts, substantially as described.

6. In a machine of the character described, a reciprocating tool-holder, a plurality of electromagnets, an oscillating armature-frame connected with and moving said tool-holder and constructed and arranged to be oscillated by said magnets, electrical contacts, electrical circuits between said contacts and said circuit, and a tracer operatively connected with said contacts, substantially as described.

7. In a machine of the character described, the combination of pattern mechanism, a work-holder, a reciprocating tool-holder, a plurality of electromagnets, oscillating means connected with and directly moving said tool-holder and directly oscillated by said magnets, electrical contacts, electrical circuits between said contacts and said magnets, and a tracer operatively connected with said contacts, substantially as described.

8. In a machine of the character described, a rotatable tool, a reciprocatory holder therefor, a work-holder and a pattern-holder, means for oscillating them synchronously on axes at right angles to that of the tool, means for adjusting the said reciprocatory tool-holder in a direction parallel to the plane of the said axes, means for reciprocating said tool-holder longitudinally thereof to and from said work-holder, a tracer, and electrical devices controlled by said tracer and governing the reciprocations of said tool-holder, substantially as described.

9. In a machine of the character described, a constantly-rotating tool, a reciprocating holder therefor, a work-holder and a pattern-holder mounted on independent supports, means for oscillating said holders synchronously thereon, means for the simultaneous rotary adjustment of said work and pattern holders around a common axis at right angles to the axes of oscillation, means for adjusting the said reciprocatory tool-holder in a direction parallel to the plane of the said axes, means for reciprocating said tool-holder longitudinally thereof to and from said work-holder, a tracer, and electrical devices controlled by said tracer and governing the reciprocation of said tool-holder, substantially as described.

10. In a machine of the character described, a constantly-rotating tool, a reciprocatory holder therefor, a tracer, electrical contacts movable with said reciprocatory holder, electromagnets, and an oscillatory armature therefor connected with and moving said holder, substantially as described.

11. In a machine of the character described, a constantly-rotating tool, a reciprocatory holder therefor, a plurality of electrical contacts, a tracer adapted to move one of said contacts, and electrical devices operatively connected with said contacts and directly and positively reciprocating said tool-holder in each direction, substantially as described.

12. In a machine of the character described, a constantly-rotating tool, a reciprocatory tool-holder therefor, a plurality of electrical contacts, a tracer adapted to move one of said contacts, electrical devices embodying an oscillatory armature connected with said holder and operatively connected with said contacts and directly reciprocating said tool-holders in each direction, substantially as described.

13. In a machine of the character described, the combination of a frame for supporting a pattern-holder and a work-holder, means for operating said frame about a vertical axis, a pattern-holder and a work-holder supported by said frame arranged one above the other, and each adapted to oscillate about a horizontal axis, means for oscillating the pattern-holder and work-holder simultaneously, a tracer, a tool operating upon the work, a reciprocatory holder for said tool, and electrical devices between said tracer and said reciprocatory tool-holder for controlling the movements of the latter, the said electrical devices embodying electromagnets, and an oscillating armature operated thereby, and connected with and positively moving the said tool-holder, substantially as described.

14. In a machine of the character described, the combination of pattern mechanism, a work-holder, a constantly-rotating tool, electromagnets and connections between said electromagnets and said tool for positively reciprocating said tool to and from the work, said connections being moved directly by the magnets, a plurality of movable electrical contacts controlling the circuits to said magnets, and a tracer coacting with said pattern mechanism and moving the said electrical contacts, thereby actuating the tool, substantially as described.

15. In a machine of the character described, the combination of work and pattern holders, a support on one side of said pattern-holder, a tracer removably carried by said support, and a removable supplemental support arranged to be interposed between said tracer and the first-mentioned support whereby said tracer may be operated on either side of said pattern-holder, substantially as described.

658,821. ELECTRIC GENERATOR. LEONIDAS G. WOOLLEY, Kenton, Ohio. Filed Dec. 28, 1899. Serial No. 741,816. (No model.)



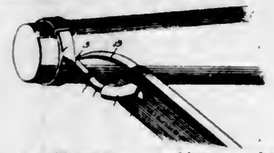
Claim.—1. In an electric generator, a motor, and a pendulum having its lower end formed of a permanent magnet, combined with a solenoid through which the ends of the magnet alternately pass, substantially as shown.

2. A motor, a pendulum having its lower end formed of a permanent magnet, and provided with two inwardly-extended arms or pole-pieces, combined with a solenoid, substantially as described.

3. In an electric generator, a motor, and a pendulum having its lower end formed of a permanent magnet, which magnet is provided with two separate arms, or inwardly-extended pole-pieces which are separated about the width of the solenoid, combined with the solenoid through which the pole-pieces vibrate, substantially as set forth.

4. In an electric generator, a motor, a pendulum having its lower end formed of a permanent magnet, and a solenoid through which the pole-pieces swing, combined with an adjustable weight applied to the pendulum for the purpose of forming a regulator, substantially as specified.

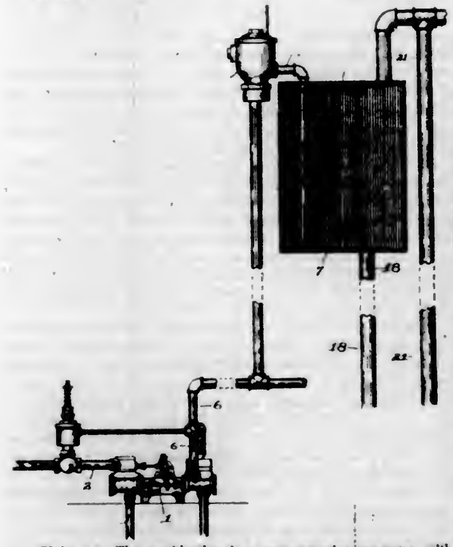
658,822. WHIFFLETREE-HOOK. MARTIN O. ALNQUIST, Lake Andrew, Minn. Filed Apr. 7, 1900. Serial No. 11,955. (No model.)



Claim.—1. A whiffletree-hook comprising a member including a stem having a ring at one end for engagement over the end of a whiffletree and having a semicircular hook at its opposite end, a second member which is hollow and is slidably engaged over the hook of the first member, said second member being adapted to rest with its end against the stem of the first member when at one limit of its movement, and means for holding the second member in the last-named position.

2. A whiffletree-hook comprising a member including a stem having an eye at one end for engagement over a whiffletree and having a semicircular hook at the opposite end, said hook having a transverse perforation at its free end and having a stop at its opposite end, and a second and hollow member slidably engaged over the hook of the first member to close the hook when at one limit of its sliding movement, said second member having also a perforation for alinement with the first-named perforation, and a pin for engagement with the perforations when in alinement to hold the members from movement with respect to each other.

658,823. WATER-PUMPING APPARATUS. CHARLES ANESHAENSEL, Jr., Indianapolis, Ind. Filed Mar. 5, 1900. Serial No. 7,333. (No model.)



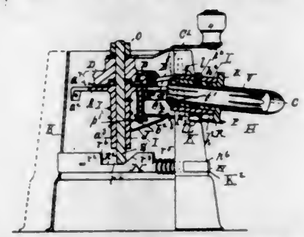
Claim.—1. The combination, in a water-pumping apparatus, with a water-supply pipe, of a valve mounted in a vertical position at the end of said pipe, said valve being composed of a chamber separate from the water-tank, a valve-seat therein, a valve below the valve-seat, a stem leading up through the valve-seat, and a float on the upper end of said stem within the upper chamber of said shell, substantially as set forth.

2. The combination, in a water-pumping apparatus, with the pipe leading from the source of water-supply toward the point of discharge, of a shut-off valve interposed between the inlet and outlet of said pipe, said valve being composed of a shell or casing, a valve-seat therein, a valve proper below said valve-seat, a stem leading from said valve up through said valve-seat, and a float on said stem above said valve-seat whereby when the water beyond said valve reaches a predetermined level said valve will be closed by the raising of said float, and the further passage of water through said pipe thus prevented until a portion of the water beyond said valve is drawn off permitting the float to descend and the valve to open.

3. The combination of a water-tank, a pipe leading thereto, and a shut-off valve in said pipe, said valve being composed of a shell or casing, a valve-seat therein, a valve proper below said valve-seat, a stem leading from said valve up through said valve-seat, and a float on said stem above said valve-seat and within said valve shell or casing, whereby when the water reaches the predetermined level said valve will be closed by the raising of said float, substantially as set forth.

4. The combination of a water-tank, a pipe leading thereto, and a valve structure arranged near the point of discharge into said tank, said valve structure being composed of a shell or casing, a valve-seat therein, a valve below said valve-seat, a valve-stem leading from said valve to above said valve-seat, and a float on said valve-stem, a pipe leading outwardly and thence downwardly from a point above said valve-seat to near the bottom of said tank, and thus forming a siphon whereby the same pipe may be used both as a supply and as a discharge pipe whereby water is supplied to and discharged from said tank, substantially as set forth.

658,824. PENCIL-SHARPENING DEVICE. CHARLES BABCOCK, Salt Lake City, Utah, assignor of one-third to Boyd Park, same place. Filed Mar. 30, 1900. Serial No. 10,791. (No model.)



Claim.—1. In a pencil-sharpener the combination with the case K, having in its side the oppositely-formed slots n^3, and n^4; of the plate A, having the downcast bearing J; the disk D, provided with the blades B, radially arranged thereon, and the downwardly-projected shaft S; the bar N, arranged to be moved outwardly and inwardly in the slots in the case sides and provided with the recess R^2, constructed with the inclined side r^3, and vertical end r^4; and the spring r^6, constructed and arranged to be operated substantially as, and for the purposes set forth.

2. In a pencil-sharpener the combination with the case K, having the transversely-arranged plate A, provided with the depending bearing J; of the disk D, having the blades B, radially arranged on the perimeter thereof, each projected upwardly on an incline and having its cutting edge arranged to project downwardly, with its shaft S, arranged in the bearing J; the pintle-shaft b^2, depending from the plate A; the tube T, arranged to turn on said pintle-shaft, and provided with the laterally-extended arm E, having the upwardly-projected pin l; the pawl P, laterally projected from said tube T; and the pencil-holding mechanism H, provided with the ratchet-wheel R, constructed and arranged to be operated substantially as, and for the purposes set forth.

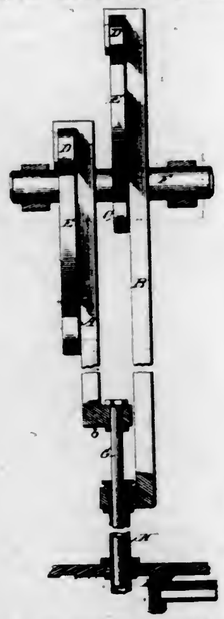
3. In a pencil-sharpener the combination with a case of a pencil-holder provided with a pencil-grasping clutch, and arranged within a tube-form shaft provided with a ratchet-wheel and constructed to journal in a tube-form bearing projected from said case; of a plate horizontally arranged in said case and provided with a depending bearing; and a depending pintle-shaft; a tube arranged to turn on the latter and having a laterally-extended arm provided with an upcast pin; and a pawl laterally projected from said tube whereby to actuate said ratchet-wheel; and a disk provided with radially-arranged blades and having a shaft arranged to journal in said depending bearing; said blades when the disk is rotated being arranged to operate the connections actuating said pawl, substantially as and for the purposes set forth.

4. The combination with the case K, of the tube k^2, projected through the latter; of the tube-form shaft L, having its inner end expanded; and

the pencil-holder proper V, arranged within the tube-form shaft, and having its ends slit inwardly and its inner end expanded; and the clutch C^2, having the cam c^4, and the handle h^1, and pivoted to said pencil-holder proper, at c^3, whereby a pencil inserted within said pencil-holder proper is by the combined action of the before-named parts rigidly grasped, substantially as and for the purposes set forth.

5. In a pencil-sharpener the combination with a case, of a horizontally-arranged plate having a tube-form bearing depending therefrom; a wheel having cutting-blades radially projecting from its perimeter, and provided with a shaft arranged to vertically journal in said depending bearing; a horizontally-arranged bar provided with slideways in the case-walls on which bar the lower end of the shaft of said wheel is supported; and a recess formed in the upper surface of said bar and provided with an incline whereon the shaft and cutting mechanism may be operated to descend and thus cut in a lower plane substantially as and for the purposes set forth.

658,825. **POWER MECHANISM.** JOHN BEAN, Los Gatos, Cal. Filed June 19, 1900. Serial No. 20,832. (No model.)



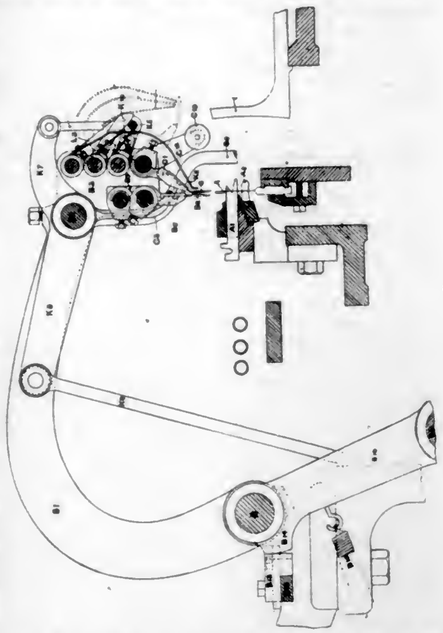
Claim.—1. A power mechanism consisting of one or more hangers each comprising two parallel bars joined at their upper ends and adapted to hook over the driving-shaft, antifriction-rollers upon the hanger, and a cam upon the driving-shaft adapted to bear against the rollers during its rotation, substantially as and for the purpose specified.

2. A power mechanism consisting of one or more hangers each comprising two parallel bars joined at their upper ends, said bars being of unequal lengths and provided with antifriction-rollers disposed on different horizontal and vertical planes, and a rotatable cam operating against the rollers, substantially as and for the purpose described.

3. A power mechanism consisting of one or more hangers each comprising two parallel bars joined at their upper ends, a depending bearing-plate at the juncture of the bars, an antifriction-roller connected to the plate, an antifriction-roller upon the lower end of one of the arms, and a rotatable cam adapted to act against the rollers, substantially as and for the purpose specified.

658,826. **KNITTING-MACHINE.** ERNST BOMBERGER, Chemnitz, Germany, assignor to Charles Henry Aldridge, Loughborough, England. Filed May 29, 1900. Serial No. 18,352. (No model.)

Claim.—1. In a rotary or flat-bar knitting-machine for making "lace" or open-work by the action of lacing-points all fixed on a lace-point rod the combination consisting of the needles the rod-carrying lacing-points at any desired distance apart mechanism for lowering and raising the rod to cause the lace-points to take loops from such needles as they are then opposite to, a slide parallel with the rod to which one end of the rod is so coupled that the rod must move endwise with the slide, a pattern-wheel having projecting from its side face studs or pegs of varying heights ranged in a concentric circle or circles, a spring drawing the slide endwise and normally holding the slide against one or other of the studs, means for from time to time moving the slide away from the face of the pattern-wheel and means for simultaneously turning the pattern-wheel a distance to move one stud out of position for serving as a stop for the slide to be held against and bringing another stud into its place.



2. The combination of mechanism for shifting the lace-point bar a distance endwise after the lace-points have taken loops from some of the needles to bring the lace-points into position to deliver the loops to adjacent needles right or left as required such combination consisting of the lace-point bar, the slide to which it is coupled, a second slide movable endwise along the first, a third slide movable crosswise of the others in guides upon the first slide, steps formed on one face of the cross-slide, a spring acting on the second slide to hold it against one or other of these steps, a pattern wheel or surface, a spring to draw the first slide endwise in a direction to hold the second slide against the pattern-surface and means for shifting the cross-slide endwise so that one step upon it may be shifted out of position for the second slide to rest against and another step brought into position and the bar so shifted to the right or left.

3. The combination of the pattern-wheel, mechanism for giving a step-by-step turning movement to this wheel, a row or rows of studs on one side face of this wheel, a lace-point bar carrying lacing-points at any desired distance apart, mechanism acted on by these studs for controlling the endwise position of the bar at the time when the lacing-points are taking loops from some of the needles, a row or rows of studs around the periphery of the pattern-wheel, and mechanism acted on by these studs for shifting the lace-point bar a distance to the right or left after the lacing-points have taken loops from some of the needles.

4. The combination of the pattern-wheel, mechanism for giving a step-by-step turning movement to this wheel, a concentric row or rows of studs on one side face of this wheel, the lace-point bar carrying lacing-points at any desired distance apart, the slide to which it is coupled, a second slide movable endwise along the first, a third slide movable crosswise of the others in guides upon the first, steps formed on one face of the cross-slide, a spring acting on the second slide to hold it against one or other of these steps, a spring acting on the first slide to hold the second slide which it carries against one or other of the studs on the side face of the pattern-wheel, a row or rows of studs around the periphery of the pattern-wheel and mechanism acted on by these studs for shifting the third or cross slide endwise and thereby causing the lace-point bar to be shifted a distance to the right or left after the lacing-points have taken loops from some of the needles.

5. The combination of the pattern-wheel, mechanism for giving a step-by-step turning movement to this wheel, two or more concentric rows of studs on one side face of this wheel, the lace-point bar carrying lacing-points at any desired distance apart, the slide to which the lace-bar is coupled, a second slide movable endwise along the first, a third slide movable crosswise of the others in guides upon the first, steps formed on one face of this cross-slide, a spring acting on the second slide to hold it against one or other of these steps, a fourth slide movable across the second slide in guides upon it and having a projection upon it which by moving the slide in its guides can be brought opposite to the studs in either of the concentric rows of studs, a spring acting on the first slide to draw it in a direction to hold this projection against one of the studs, two or more rows of studs around the periphery of the pattern-wheel, a lever having projections upon it one for each row of studs, either one or other of which projections can be brought into position to be acted on by its row of studs and mechanism acted on by the lever for shifting the third or cross slide endwise to cause the lace-point bar to be shifted endwise to the right or left.

6. The combination of the pattern-wheel, mechanism for giving a step-by-step turning movement to this wheel, a row or rows of studs on one side face of this wheel, a lace-point bar carrying lacing-points at any desired distance apart, mechanism acted on by these studs for controlling the endwise position of the bar at the time when the lacing-points are taking loops from some of the needles, a row or rows of studs around the periphery of the pattern-wheel, and mechanism acted on by these studs for shifting the lace-point bar a distance to the right or left after the lacing-points have taken loops from some of the needles, an additional row of studs on the pattern-wheel, and mechanism acted on by these studs to control whether the pattern-wheel shall be turned one or two steps at each turning movement.

7. The combination of the lacing-points, the fashioning-points in a plane in rear of them, a rock-shaft and arms extending from it by which both sets of points are carried, movable bearings for the rock-shaft, and mechanism for shifting the bearings backward or forward to bring either the lacing-points or the fashioning-points into acting position.

8. The combination of the lace-point bar carrying lacing-points at any desired distance apart, the brackets in which it is mounted, the fashioning finger-bars mounted on the same brackets and carrying fashioning-points in a plane in rear of the lacing-points, the shaft to which the brackets are fixed, narrowing-machine arms extending from a rock-shaft and carrying the first shaft, movable bearings for the rock-shaft mechanism for shifting these bearings backward or forward to bring either the lacing-points or the fashioning-points into acting position, and mechanism for turning away the lace-points whenever the fashioning-points are brought into action.

9. The combination of the lace-point bar carrying lacing-points at any desired distance apart, the brackets in which it is mounted, the fashioning finger-bars mounted on the same brackets and carrying fashioning-points in a plane in rear of the lacing-points, the shaft to which the brackets are fixed, narrowing-machine arms extending from a rock-shaft and carrying the first shaft, movable bearings for the rock-shaft mechanism for shifting these bearings backward or forward to bring either the lacing-points or the fashioning-points into acting position, arms fixed to the bracket-shaft, arms fixed to the lace-point bar and fixed guide-surfaces for these arms to bear against when the points are made to descend or ascend and cause the lace-point bar to be at these times firmly held against the arms fixed on the bracket-shaft.

10. The combination of the lace-point bar carrying lacing-points at any desired distance apart, fashioning-point bars carrying fashioning-points, flat-ended fingers carried by rods coupled to the fashioning-point bars so that they move endwise with them and which when the lacing-points descend hold the heads of any desired number of needles at each selvage away from the lacing-points so that the lacing-points cannot take loops from those needles.

11. The combination of the lace-point bar carrying lacing-points at any desired distance apart, fashioning-point bars carrying fashioning-points, two rods coupled to the two fashioning-rods so as to move endwise with them and carrying flat-ended fingers for holding a predetermined number of needles at each selvage away from the points when the points descend, and a third rod carrying other flat-ended fingers to hold back other needles and so cause straight strips of plain work to be formed in the work wherever desired or plain straight selvages when making "instep-partings" or the like in hose, socks or other articles.

12. The combination of the lace-point bar carrying lacing-points at any desired distance apart, fashioning-point bars carrying fashioning-points, two rods coupled to the two fashioning-point bars so as to move endwise with them, two flat-ended fingers each of sufficient length to act upon a large number of needles, means for readily affixing these fingers to the rods in any desired position so that at one time they may be set to act only upon a few needles at each selvage and then be set inward one toward the other so as then to cover a large number of needles and thereby allow of plain heel-pieces being formed with a laced instep-piece between them in the manufacture of socks and stockings.

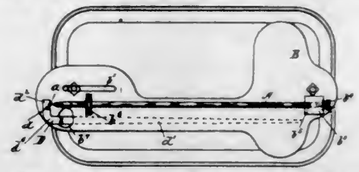
13. The combination of the lacing-point bar, the fashioning-point bars and the rods carrying flat-ended fingers for holding back some of the needles all carried by the same brackets.

14. The hereinbefore-described combination of mechanism for causing loops removed by the lacing-points to be dropped off from them whenever it is desired to form "dropped-stitch" work, such combination consisting of the lace-point bar having lacing-points fixed to it at any desired distance apart mechanism for lowering raising and racking the lace-point bar to cause the lacing-points to take loops from some needles and transfer them to others and automatic mechanism for giving an additional lift to the lace-point bar whenever desired to cause the loops which have been taken by the lacing-points to be slipped off from them to produce "dropped-stitch" work.

15. The combination of the lace-point bar having lacing-points fixed to it at any desired distance apart, the brackets in which it is mounted, the shaft to which the brackets are fixed, narrowing-machine arms extending from a rock-shaft and carrying the first shaft, a rod descending from the first shaft, a lever to which the lower end of the rod is connected, two trucks carried on the lever one acted on by a cam on the cam-shaft to lower and raise the narrowing-machine to cause loops to be taken by the lacing-points from some needles and delivered to others, and automatic mechanism acting on the second truck to shift it into position to be acted on by a second cam-surface on the cam-shaft to give an additional lift to the narrowing-machine whenever desired to cause the loops taken by the lacing-points to be dropped off from them and not placed onto other needles.

16. In a rotary or flat-bar knitting-machine the combination of a pattern-chain, mechanism for giving a step-by-step movement to the chain, three sets of studs on the chain, mechanism acted on by one set of studs for producing a fashioning course, mechanism acted on by a second set of studs for producing a lacing course and mechanism acted on by the third set of studs for producing dropped-stitch work.

658,827. **OVEN-THERMOMETER.** WILLIAM W. BRALEY, Taunton, Mass., assignor of one-half to John F. Montgomery, same place. Filed June 23, 1897. Serial No. 641,861. (No model.)



Claim.—1. The combination with an oven-door and a name-plate, as C, of an oven-thermometer comprising a supporting-plate, as B, an expansion-rod, as A, one end of which is adjustably fixed relative to said plate, and an elbow or angular index-lever having long and short arms and the short arm of which is engaged by the other or free end of said expansion-rod closely adjacent to but above the fulcrum of said lever, so that the short arm of said angular index-lever will be held in contact with said expansion-rod by the weight of the long arm of said lever, and bolts or screws for attaching said supporting-plate to said oven-door and name-plate.

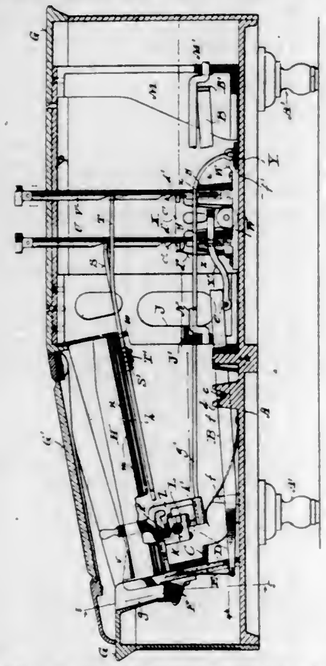
2. The combination with an oven-door and a name-plate, as C, of an oven-thermometer comprising a supporting-plate, as B, an expansion-rod, as A, one end of which is adjustably fixed relative to said plate, and an elbow or angular index-lever having long and short arms and the short arm of which is engaged by the other or free end of said expansion-rod closely adjacent to but above the fulcrum of said lever, and bolts or screws for attaching said supporting-plate to said oven-door and name-plate, the said supporting-plate having a slot, as *b*, to adapt the thermometer to name-plates of different sizes.

3. In an oven-thermometer, the combination with a supporting or base plate, as B, having near one end an aperture and near its other end on its front side an indicating-scale, of an expansion-rod at the rear side of said base-plate and one end of which is fixed relative to said plate, and an angular or elbow index-lever having long and short arms, the short arm of said lever being engaged by the free end of said expansion-rod closely adjacent to the fulcrum of said lever and the long arm of said lever being bent or offset to pass through said aperture to the front side of said plate, so that its free end may serve as a pointer or index at said indicating-scale.

4. In an oven-thermometer, the combination with a supporting or base plate, as B, having near one end an aperture and near its other end on its front side an indicating-scale, of an expansion-rod at the rear side of said base-plate and one end of which is fixed relative to said plate, an angular or elbow index-lever having long and short arms, the short arm of said lever being engaged by the free end of said expansion-rod closely adjacent to the fulcrum of said lever and the long arm of said lever being

bent or offset to pass through said aperture to the front side of said plate, so that its free end may serve as a pointer or index at said indicating-scale, a name-plate, as C, having an opening through which the said indicating-scale and the pointing end of said index-lever may be observed, and means for connecting said base-plate with said name-plate.

658,828. COIN-DELIVERY MACHINE. EDWARD J. BRANDT, Watertown, Wis. Filed June 16, 1899. Serial No. 720,754. (No model.)



Claim.—1. A coin-delivery machine comprising a base provided with transverse socket and channel ribs cross-kerfed at intervals, a fulcrum-rod made fast in the channel-rib, kerf-engaging coin-pusher levers loose on the rod, springs arranged in the socket-rib under the levers, and lever-actuating mechanism.

2. A coin-delivery machine comprising a base provided with transverse socket, channel and guide ribs cross-kerfed at intervals, a fulcrum-rod made fast in the channel-rib, kerf-engaging coin-pusher levers loose on the rod, springs arranged in the socket-rib under the levers, and lever-actuating mechanism.

3. A coin-delivery machine comprising a series of inclined coin-chutes, a notched stop-plate at the lower ends of the chutes provided with vertical guide-recesses intercepting its notches, a coin-follower under tension in each chute, coin-pushers engaging said recesses, lifting-levers having ends thereof extending forward through eyes in the coin-pushers, springs secured to said ends of the levers to bear against said coin-pushers, and lever-actuating mechanism.

4. A coin-delivery machine comprising a series of inclined coin-chutes, a notched stop-plate at the lower ends of the chutes provided with vertical guide-recesses intercepting its notches, a coin-follower under tension in each chute, coin-pushers engaging said recesses, lifting-levers having ends thereof extending forward through eyes in the coin-pushers, leaf-springs secured by screws to said ends of the levers to bear against said coin-pushers, and lever-actuating mechanism.

5. A coin-delivery machine comprising a series of inclined chutes each provided with a central longitudinal bottom groove and a slot intercepting the groove, a temporary coin-stop at the lower ends of the chutes, a coin-ejector mechanism, coin-followers in the chutes, a stationary spindle arranged under the coin-chutes, a series of pulleys arranged loose on the spindle to engage the bottom slots of said chutes, flexible straps connecting the pulleys and coin-followers, and a convolute spring in each pulley fast at its outer end to same and having its inner end in the form of a bend engaging the spindle-groove.

6. A coin-delivery machine comprising a casing provided with side sockets, a top section having a stationary pintle engageable with one of the sockets, another pintle longitudinally loose in the top section for engagement with another of the sockets, a stem on the latter section engaging a play-slot, and a spring arranged to resist retractive movement of the latter pintle.

7. A coin-delivery machine comprising a base provided with transverse socket and channel ribs cross-kerfed at intervals, a fulcrum-rod made fast in the channel-rib, kerf-engaging coin-pusher levers loose on the rod and having angularly-bent rear ends, springs arranged in the socket-rib under the levers, rockers arranged in opposition with bent ends of the levers, and rocker-actuating mechanism.

8. A coin-delivery machine comprising a series of coin-pusher levers, lever-actuating mechanism, a swing-plate arranged to be brought in position to prevent operation of the levers, a handpiece having play-slot engagement with a support, and a link rod connecting the swing-plate and handpiece.

9. A coin-delivery machine comprising a series of coin-pusher levers, lever-actuating mechanism, a swing-plate arranged to be brought into position to prevent operation of the levers, a handpiece having play-slot engagement with a support and its slot provided with end depressions, a spring exertive against the handpiece, and a link rod connecting the swing-plate and said handpiece.

10. A coin-delivery machine having a coin-ejector mechanism embodying a series of reciprocative edgewise plates made to form integral angular push-shanks and feet, together with shank-guides each consisting of a plate having one face thereof corrugated, its other face grooved opposite the convexities of the former face and said convexities cross-kerfed at intervals to form guide-slots for the shanks of said plates.

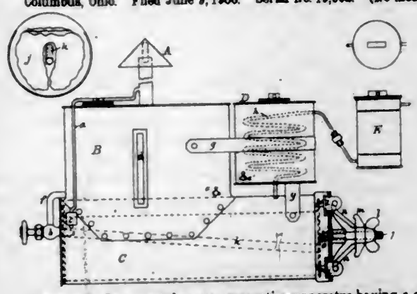
11. A coin-delivery machine having a coin-ejector mechanism embodying a series of edgewise plates provided with angular push-shanks, shank-guides consisting of a pair of plates spaced apart, each plate having one face thereof corrugated, its other face grooved opposite the convexities of the former face and said convexities cross-kerfed at intervals to form guide-slots for the shanks of said plates, the latter being inverse to each other, slotted washers engaging the push-shanks on ribs between grooves of one guide-plate, and spiral springs supported on the washers having reduced end coils engaging push-shank notches.

12. A coin-delivery machine comprising a coin-ejector mechanism embodying a series of lever and spring controlled coin-pushers, a slide operative to move a coin-pusher out of working position, a rod-actuating spring-controlled push-stem, a spring-latch engageable with the push-stem upon inward movement of same, and a latch-retractor opposed to the lever of the coin-pusher in the path of the slide.

13. A coin-delivery machine comprising a coin-ejector mechanism embodying a series of lever and spring controlled coin-pushers, a pair of slides operative to move coin-pushers out of working position rod-actuating spring-controlled push-stems, an oscillative spring-latch engageable with either push-stem upon inward movement of same, a latch-retractor opposed to the levers of those coin-pushers in the paths of the slides, and means for effecting simultaneous action of both slides incidental to operation of a single push-stem.

14. A coin-delivery machine comprising a coin-ejector mechanism embodying a series of lever and spring controlled coin-pushers, a pair of slides operative to move coin-pushers out of working position, sockets containing spiral springs, push-stems held against rotation in the sockets on the springs, an oscillative spring-latch engageable with either push-stem upon inward movement of same, a latch-retractor opposed to the levers of those coin-pushers in the paths of the slides, and means for effecting simultaneous action of both slides incidental to operation of a single push-stem.

658,829. ACETYLENE-GAS APPARATUS. JOHN H. CALKINS, Columbus, Ohio. Filed June 9, 1900. Serial No. 19,692. (No model.)



Claim.—1. In an acetylene-gas-generating apparatus having a generating-chamber C, and a tank B to supply water thereto, a drawer F for said chamber and a perforated tube in said drawer and movable therewith into which tube water from the tank B drips or flows, said tube being adapted to receive and support a cloth containing the carbid, substantially as described.

2. In an acetylene-gas-generating apparatus having a gas-generating chamber C, and a reservoir B to supply water to said chamber, a drawer F for said chamber and an inclined perforated tube *k* in said drawer into which water drips or flows from the reservoir B, substantially as described.

658,830. BED. NELSON CLEMENT, Chicago, Ill., assignor of one-half to M. H. Gibson, same place. Filed Jan. 25, 1900. Serial No. 2,712. (No model.)

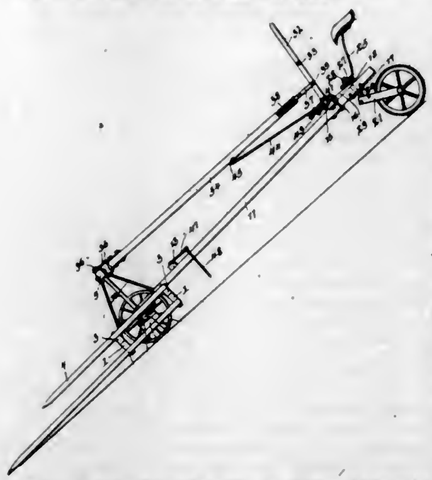


Claim.—1. In a bed, the combination of rigid head and foot frames side bars extending between said head and foot frames and detachably connected therewith, cross-supports removably connected with said side bars and forming in conjunction with the latter a rectangular supporting-frame, a rectangular flexible sheet or web forming a bed-bottom, and provided at its side and end margins with extensions detachably engaged with said supporting-frame, and a distending-frame connected with said bed-bottom and constructed to fit closely between the rigid head and foot frames, and to be thereby held against substantial movement, substantially as described.

2. In a bed, the combination with a rigid bedstead-frame, of a flexible sheet forming the bed-bottom, detachably engaged at its sides and end margins with said frame, and a distending-frame of skeleton or open construction constructed of a length to fit closely between the head and foot portions of the bedstead-frame, whereby it is held against substantial endwise movement, with which distending-frame the bed-bottom is engaged to hold it distended below its points of attachment, substantially as described.

3. In a bed, the combination with the head and foot pieces, the side bars removably engaged with bearings in said head and foot pieces respectively, the cross-supports resting upon said side bars, the flexible-sheet bed-bottom provided with side and end extensions terminating in loops engaged with the side bars and cross-supports respectively, and the distending-frame comprising end pieces connected by the upper and lower holding-bars, around which the side extensions of the bed-bottom are carried, as and for the purpose described.

658,831. PUSH-RAKE. WILHELM G. DANIELSEN, Logan, Utah. Filed June 19, 1900. Serial No. 20,854. (No model.)



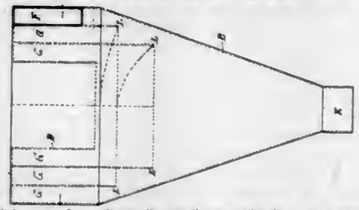
Claim.—1. In a push-rake, the combination of a pivotally-supported rake-head, a push-frame, a hand-lever pivoted at its lower end at a point above the upper side of said push-frame, a tilting-bar connected to the rake-head and attached to the hand-lever at a point above the pivot of the latter, whereby said hand-lever may be swung rearward, past the dead-center, when the rake-teeth are elevated by the tilting of said rake-head, and thereby lock the same in an elevated position, draft-levers on the push-frame, and connections between said draft-levers and said tilting-bar, substantially as described.

2. In a push-rake, the combination of a pivotally-supported rake-head, a push-frame, a hand-lever pivoted to said push-frame, a tilting-bar having its front end flexibly connected to the rake-head and its rear end connected to said hand-lever, draft-levers on the push-frame, an equalizing-bar pivoted to the tilting-bar and connections between said equalizing-bar and said draft-bars, substantially as described.

3. In a push-rake, the combination with the push-bar, of the connecting-plates therefor, on the upper and lower sides thereof, the upper connecting-plate having ribs or flanges on its upper side, the seat-supporting bar having its foot seated in said ribs or flanges and secured on said upper plate, and the caster-frame having the spindle or rudder-post in bearings in said plates, and bearing under the foot of the seat-supporting bar, substantially as described.

4. In a push-rake, the combination with the push-bars, of the connecting-plates therefor, on the upper and lower sides thereof, the upper connecting-plate having ribs or flanges on its upper side, the seat-supporting bar having its foot seated in said ribs or flanges, a plate disposed on the upper side of the foot of said seat-supporting bar, and clamping-bolts passing through said plate, said connecting-plates and said push-bars, and the caster-frame having its post journaled in bearings in said connecting-plates, substantially as described.

658,832. DUST-COLLECTOR. ROGER DANVIN, Paris, France. Filed Mar. 13, 1899. Serial No. 708,791. (No model.)



Claim.—1. In a dust-collector, the combination of a separating-chamber having a cylindrical upper portion and a conical lower portion and having an air-outlet at the top and a dust-outlet at the bottom, with a single spiral conduit entirely detached from the central exit-sleeve, D, placed in the upper portion of the separating-chamber, said spiral conduit having an inlet substantially tangential to the cylindrical portion of said chamber and the walls of which are free from perforations or deflecting devices of any kind, the convolutions as well as the space between the last spiral and the central exit-sleeve being open at the bottom for the free discharge of air and dust, substantially as shown and specified.

2. In a dust-collector, the combination of a separating-chamber having a cylindrical upper portion and a conical lower portion and having an air-outlet at the top and a dust-outlet at the bottom, with a single spiral conduit entirely disconnected from the central exit-sleeve, D, placed in the upper portion of the separating-chamber, said spiral conduit having an inlet substantially tangential to the cylindrical portion of said chamber, the convolutions as well as the space between the last spiral and the central exit-sleeve being open at the bottom for the free discharge of air and dust, each successive spiral reaching lower into the conical portion of the separating-chamber, the openings, L, remaining substantially constant in their discharging-section, substantially as shown and described.

658,833. ENAMELING-TABLE FOR BATH-TUBS. EDWARD DITHRIDGE, Ellwood City, Pa. Filed Oct. 26, 1897. Renewed Mar. 6, 1900. Serial No. 7,596. (No model.)



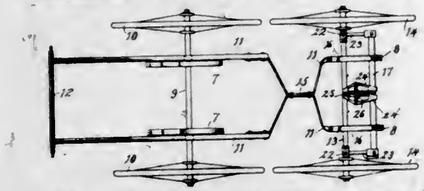
Claim.—1. The combination with a tilting enameling-table, of links or rods secured thereto, and a tub having above its bottom projections arranged to be engaged by said rod.

2. In devices for supporting bath-tubs, while applying enamel thereto, the combination of a suitable frame, a tilting table supported thereby, and

links or rods upon the table arranged to extend upwardly above the bottom of the tub and engage projections upon its sides above the bottom.

3. In devices for supporting bath-tubs while applying enamel thereto, the combination of a suitable frame, a tilting table supported thereby, and swinging links or rods upon the table having hooked upper ends arranged to engage eyes cast upon the sides of the tub above the bottom; substantially as described.

658,834. **VEHICLE.** CLARKE S. DRAKE and HARRY F. DRAKE, Milwaukee, Wis. Filed Feb. 19, 1900. Serial No. 5,678. (No model.)



Claim.—1. In combination, a rigid vehicle-frame, a laterally-shiftable axle, wheel-spindles hinged to the axle, and crank-arms rigid on and radiating from the spindles and pivoted to the rigid frame.

2. In combination, a rigid vehicle-frame, an axle on which the frame rests shiftable laterally with reference to each other, wheel-spindles hinged to the extremities of the axle, crank-arms rigid on and radiating from the spindle-heads, and means rigid on the frame connecting the cranks of both spindles to the rigid frame.

3. In combination, a rigid vehicle-frame, an axle shiftable endwise with reference to the frame, bearing-rollers mounted in the frame transversely of and resting revolubly on the axle, wheel-spindles hinged to the axle, and crank-arms rigid to and radiating from the spindles and jointed to a frame member.

4. In combination, a rigid vehicle-frame, an axle shiftable endwise with reference to the frame, bearing-rollers mounted revolubly and movable endwise in the frame transversely of and resting on the axle, wheel-spindles hinged to the axle, and crank-arms rigid to and radiating from the spindle-heads and jointed to a frame member.

5. In combination, a rigid vehicle-frame, an axle shiftable endwise transversely of the frame, a subframe rigid to and forming a part of the vehicle-frame, a roller mounted in the subframe above and transversely of the axle the roller being revoluble and shiftable endwise on its axle-pin, and means for shifting the frame and axle laterally relative to each other.

6. In combination, a rigid frame member as 17, an adjacent axle shiftable relatively endwise, and a retrieving device comprising a pair of levers hinged to the frame member and extending to the axle and adapted severally to engage a catch on the axle and capable of swinging away from but not across the line between the levers, and a yielding spring drawing the levers actively toward each other.

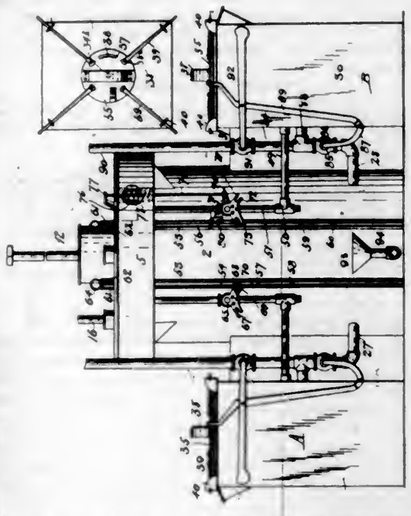
7. In combination a rigid frame member as 17, an adjacent axle shiftable relatively endwise, and a retrieving device comprising a pair of U-shaped levers straddling and hinged to the frame member and extending to and straddling the axle, a pin in the axle adapted to be engaged at its respective ends and on its respective sides by the U-shaped levers, means permitting each lever to swing away from but not across the line between the levers, and a spring adapted to retrieve a lever when forcibly swung away from the line between the levers.

8. In a vehicle, a rear axle, side bars secured rigidly to said axle, a front axle with wheels capable of being swung into planes at oblique angles to the rear axle, and portions of the side bars bent toward and made to abut against each other and there bolted or riveted to each other forming spaces for wheels on the front axle when the wheels are shifted to oblique angles to the rear axle.

658,835. **ACETYLENE-GAS GENERATOR.** FRANCIS M. DRAPER, Dana, Ind. Filed Sept. 23, 1899. Serial No. 731,465. (No model.)

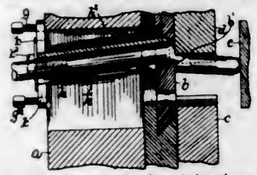
Claim.—1. In an acetylene-gas machine, the combination with the gasometer comprising the stationary and movable sections, the generators, and the water-receptacle at the upper end of said gasometer of the pipe connected with said water-receptacle and generators, the valve connected with one of said pipes, the slotted lever connected therewith, the valve connected with the other pipe provided with a slotted elbow-lever and with a pin and arm, the bars connected with the movable section of the gasometer, the pivoted pawl and the spring-operated rod, substantially as described.

2. In an acetylene-gas machine, the combination with the gasometer comprising the stationary and movable sections, the brackets secured to said movable section, the levers pivoted thereto formed with projections, the bars provided with holes with which said projections engage, the pins secured to said bars and the valves, pipes and generators connected with said gasometer and the slotted elbow-levers with which said pins are adapted to engage, substantially as described.



3. In an acetylene-gas machine, the combination with the gasometer comprising the stationary and movable sections, provided with water-receptacles at the top and bottom, the brackets secured to the movable section, the bars connected therewith provided with pins at different heights and the generators, of the pipes connecting the water-chamber at the upper end of the gasometer with the generators, the valve in one of said pipes provided with a slotted elbow-lever, the valve in the other pipe, provided with a slotted lever, a pin and an arm, the pivoted pawl, and the spring-actuated rod and the arm secured to the movable section of the generator for operating said rod, substantially as described.

658,836. **MECHANISM FOR MANUFACTURING RIVETS.** PERRY R. DUNCAN, Cleveland, Ohio, assignor of one-half to Dan J. Cahill, same place. Filed May 11, 1900. Serial No. 16,327. (No model.)



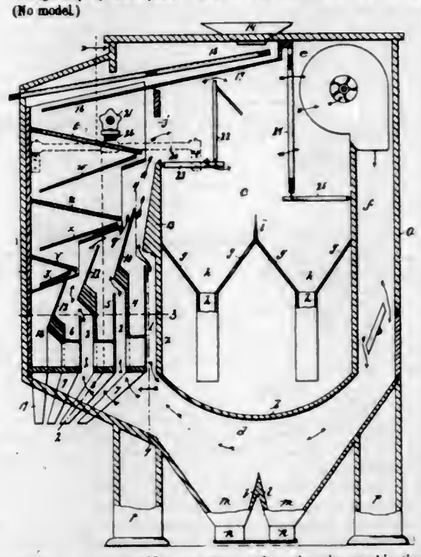
Claim.—1. In a machine for heading bolts, rivets and the like, wherein the blank to be headed is sheared from a continuous bar, a blank holding and gripping device consisting of a stationary die and a movable die, a shear located in front of said gripping device and in such relation thereto that the blank will be sheared by the passage of the movable die across the inner face of the shear-carrying plate, and a guideway extending outwardly from the outer face of the said shear-carrying plate at an obtuse angle to the direction in which the movable die travels during the shearing operation, said guideway comprising a horizontal bottom portion and a vertical side portion, the said side portion extending beyond the bottom portion at the inner end of said guideway forming a nose adapted to enter the shear-hole in the shear-plate, substantially as described and for the purpose set forth.

2. In a machine for heading bolts, rivets and the like, wherein the blank to be headed is sheared from a continuous bar, a blank holding and gripping device consisting of a stationary die and a movable die, a shear located in front of said gripping device and in such relation thereto that the blank will be sheared by the passage of the movable die across the inner face of the shear-carrying plate, a guideway, extending outwardly from the outer face of the said shear-carrying plate at an obtuse angle to the direction in which the movable die travels during the shearing operation, comprising a horizontal bottom portion and a vertical side portion, said side portion extending beyond the bottom portion at the inner end of the guideway, a supporting-plate rigidly connected to said guideway at its outer end and means for adjustably securing the said plate to the frame of the said machine, substantially as described and for the purpose set forth.

3. In a machine for heading bolts, rivets, and the like, wherein the blank to be headed is sheared from a continuous bar, a blank holding and gripping device consisting of a stationary die and a movable die, a shear located in front of said gripping device, said shear consisting of a plate having an opening formed therein of sufficient size to permit the passage of the said bar therethrough, the plate around said opening being beveled outwardly to form the shear-blade, and a guideway located in proximity to and extending outwardly from the face of the said plate at an obtuse angle to the direction in which the movable die travels during the shearing operation, the said guideway having a beveled end adapted to abut against the bevel on the shear-plate, substantially as described and for the purpose set forth.

4. In a machine for heading bolts, rivets and the like, wherein the blank to be headed is sheared from a continuous bar, a blank holding and gripping device consisting of a stationary die and a movable die, a shear located in front of said gripping device, a face-plate located in front of said shear, said face-plate having an opening formed therein of sufficient size to allow the bar to be sheared to pass therethrough, the edges of the plate around said opening being beveled toward the outer face of the plate, and a guideway located in front of said plate having its inner end fitting into the opening in said plate and abutting against the beveled edge around the said opening, the body of the said guideway extending outwardly from the said face-plate at an obtuse angle to the direction in which the movable die travels during the shearing operation, substantially as described and for the purpose set forth.

658,837. **PURIFIER, SEPARATOR, AND GRADER.** GEORGE L. ERNST, Port Huron, Mich., assignor to the Davidson-Martin Manufacturing Company, same place. Filed Oct. 16, 1899. Serial No. 733,726. (No model.)



Claim.—1. In a purifier, separator and grader, the combination within an inclosing case, of a main air-chamber, an auxiliary air-chamber opening into the main air-chamber toward the upper end thereof, a series of deflecting-partitions forming independent air-passages within the auxiliary chamber, each provided with an adjacent deposit-chamber for the deflected and precipitated material, said partitions gradually increasing in height in a line having a general direction toward the opening of the auxiliary chamber into the main air-chamber, means to effect ascending air-currents through said air-passages into said main air-chamber, and separating devices in said auxiliary chamber arranged to discharge into the ascending air-currents through said air-passages.

2. In a purifier, separator and grader, the combination within an inclosing case, of a fan located in the upper portion of the case, a main air-chamber communicating with the interior of the fan-case on one side thereof, a vertical air-trunk communicating with the opposite side of the fan-case, a transverse air-trunk below the main air-chamber communicating with said vertical air-trunk, an auxiliary chamber at one side of the main air-chamber and opening thereinto, plural deflecting-partitions in said auxiliary chamber forming independent air-passages communicating at their base with said transverse air-trunk, and at their upper ends with said main air-chamber, each of said air-passages provided with an adjacent deposit-chamber, and plural separating devices in said auxiliary chamber arranged to discharge into the air-currents in ascending through said air-passages, said partitions gradually increasing in height in a direction toward the fan, substantially as described.

3. In a purifier, separator and grader, the combination within an inclosing case, of a main air-chamber, an air-trunk therebelow, an auxiliary chamber at one side the main air-chamber and opening thereinto, deflecting-partitions forming independent air-passages within the auxiliary chamber communicating at their base with said air-trunk, and at their upper ends through the auxiliary chamber with the main air-chamber, a deposit-chamber adjacent to each of said air-passages, means to effect an air circulation through said air-trunk and upward through said air-passages into the main air-chamber and from said main air-chamber into said air-trunk, and separating devices in said auxiliary chamber arranged to discharge into the air-currents ascending through said air-passages, said partitions gradually increasing in height in a direction toward the opening of said auxiliary chamber into the main air-chamber.

4. In a purifier, separator and grader, the combination within an inclosing case, of a main air-chamber provided with separating devices, an air-trunk therebelow, an auxiliary chamber at one side the main air-chamber and opening thereinto, deflecting-partitions forming independent air-passages within the auxiliary chamber communicating at their base with said air-trunk, and at their upper ends with the main air-chamber, a shaker within the auxiliary chamber carrying a series of alternating screens and return-boards one below another, and means to effect an air circulation through said air-trunk and through said air-passages into said main air-chamber, each of said screens arranged to discharge the stock passing thereover into the air-current ascending through the corresponding air-passage.

5. In a purifier, separator and grader, the combination within an inclosing case, of a main air-chamber, a transverse air-trunk therebelow, a vertical air-trunk on one side the main air-chamber communicating at its base with a transverse air-trunk, a fan and its case located in the upper part of the inclosing case communicating on opposite sides thereof with the main air-chamber and with the upper end of the vertical air-trunk, an auxiliary chamber on the side of the main air-chamber opposite the vertical air-trunk communicating at the top thereof with the main air-chamber, a feeding device discharging into the upper end of the auxiliary chamber, deflecting-partitions forming independent air-passages within the auxiliary chamber communicating at their upper ends through the auxiliary chamber with the main air-chamber, and at their lower ends with said transverse air-duct, deposit-chambers located in said auxiliary chamber adjacent to the corresponding air-passages, and separating devices arranged one below another in the auxiliary chamber to discharge the stock passing thereover into the air-currents passing through said air-passages, said partitions arranged to deflect the air-currents rising through said air-passages over corresponding deposit-chambers, respectively.

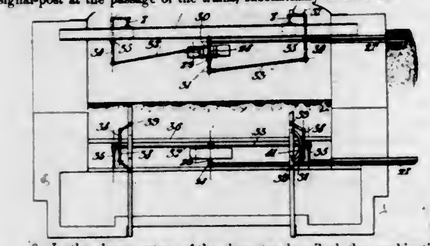
6. In a purifier, separator and grader, the combination within an inclosing case, of a main air-chamber, a fan located in the upper part of said inclosing case arranged to produce an ascending suction-current upon one side through the main air-chamber, and a blast-current upon the other side and forming an endless air-current, an auxiliary chamber opening at its upper end into the main air-chamber, deflecting-partitions forming independent passages within the auxiliary chamber for the ascending current, a deposit-chamber adjacent to each of said air-passages to receive the deflected and precipitated stock, said partitions increasing gradually in height in a line having a general direction toward the fan, a shaker within the auxiliary chamber carrying a series of alternating successive screens and return-boards, one below another, each successive screen receiving the product passing through the screens above, and said screens each arranged with its discharge end corresponding to the increased height of the partitions to fall over the coarser product into its aforesaid independent air-passage, said main air-chamber located between the said screens and the air-passages and the fan, and adapted to receive the stock to precipitate each by gravity from the suction-current.

658,838. **ALARM DEVICE FOR RAILWAY-TRACKS.** JOSEPH FAYOLLE, Lyons, France. Filed Apr. 25, 1900. Serial No. 14,248. (No model.)

Claim.—1. In an alarm system of the character described, the combination of a rotatable signal-post carrying a visual signal, a lever pivoted at the side of the track-rail and adapted to be engaged and depressed by the wheels of the engine, connections between said lever and an arm from said post whereby said post is rotated when the lever is depressed; movable petard-carriers arranged at the sides of the rails and adapted, when actuated, to place petards or detonators on the track, and connections between a second arm from said signal-post and said petard-carriers, whereby they are operated when the post is rotated.

2. In the alarm system of the character described, the combination

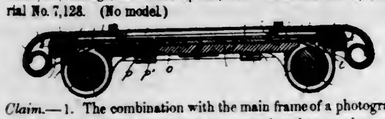
of a rotatable signal-post, a transverse rod pivotally connected to an arm on said post, and extending under the track-rail to the center line of the track, a small shaft arranged parallel to the rails and between the same, a suitable connection between the transverse rod and said shaft, pivoted petard-carriers on the sides of the track-rails, suitable connections between said shaft and the pivoted petard-carriers, with means for rotating said signal-post at the passage of the trains, substantially as set forth.



3. In the alarm system of the character described, the combination of the pivoted petard-carrier on the sides of the track-rails and a suitably-curved piece secured upon said petard-carrier, with a lever pivoted on the engine of the train, means on said lever for engaging the convex surface of said curved piece, and suitable connections between said lever and the alarm-whistle of the train, substantially as set forth.

4. In an alarm system of the character described, the combination of the pivoted petard-carrier on the sides of the track-rails, a suitably-curved piece secured upon said petard-carrier, and a suitable incline having an abrupt end and adapted to be placed upon the track-rail, with a lever pivoted on the engine of the train and adapted to engage said curved piece, and suitable connections between said lever and the operating device of the train-brake, substantially as set forth.

658,839. PHOTOGRAPHIC-PRINTING FRAME. CHARLES F. GODDARD, Jr., Chicago, Ill. Filed Apr. 25, 1898. Renewed Mar. 2, 1900. Serial No. 7,128. (No model.)

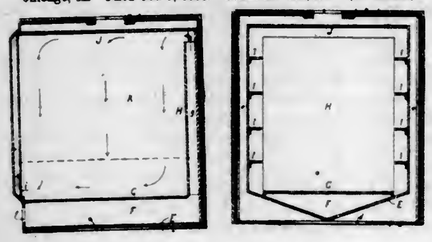


Claim.—1. The combination with the main frame of a photographic-printing frame, of a glass front plate for supporting the negative, a movable negative-holder in contact with said glass plate, said negative-holder being provided with corner-notches to receive the negative whether the latter be placed longitudinally or transversely of the printing-frame, means for moving said negative-holder laterally and obliquely, a removable hinged back for holding a web of sensitive paper against the negative, and suitable rolls mounted upon the respective ends of said removable back for receiving said paper-web, substantially as and for the purpose specified.

2. The combination in a printing-frame of the class described of a main frame, a removable back, rolls mounted upon said back and inclosed within a suitable casing, a glass plate supported within the frame, a negative-holder in contact with said glass plate, and movable flexible curtains arranged in front of the frame, each being adapted to slide in opposite directions a distance corresponding substantially to the opening within the negative-holder, substantially as described.

3. In a printing-frame of the class described, the combination with means for supporting a negative therein, rolls for supporting a web of sensitive paper in position to be moved past and in contact with the negative, means for adjusting the negative to register with the margin of the prints respectively as made upon said web, and a pair of flexible sliding curtains adapted to be moved from opposite directions across the entire face of the negative, substantially as described.

658,840. BAKING OR ROASTING OVEN. HARRY C. GOODRICH, Chicago, Ill. Filed Oct. 5, 1898. Serial No. 692,697. (No model.)



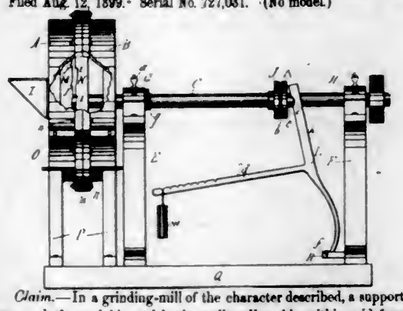
Claim.—1. In an oven, the combination of an outer casing and an inner baking-chamber, the casing and chamber separated to form a flue or passage for conducting the heat and products of combustion upward exteriorly of the baking-chamber, and a combustion-chamber formed within and by the outer casing below the baking-chamber and having an air-heating chamber communicating with the outer air, the baking-chamber having a hot-air flue leading to its upper portion from the hot-air chamber, and an air-exit at its lower portion, with the baking-chamber closed against the admission of products of combustion, substantially as described.

2. In an oven the combination of an outer casing and an inner baking-chamber spaced apart to form flues and a combustion-chamber between them, and having a heat conducting and transmitting plate for the combustion-chamber separating such chamber from an air-heating chamber at the bottom of the baking-chamber, the air-heating chamber communicating with the outer air and the baking-chamber having an air-conducting flue leading to its upper portion from the air-heating chamber, and an exit or flue at its lower portion, with the baking-chamber closed against the admission of the products of combustion thereinto, substantially as described.

3. In an oven, the combination of an outer casing and an inner baking-chamber, the casing and chamber being spaced apart to form a combustion-chamber at the bottom of the baking-chamber, and flues for the escape of the products of combustion exteriorily of the baking-chamber at the sides and top thereof, the baking-chamber being formed with an air-heating chamber at its bottom portion communicating with the outer air, and the baking-chamber having also an air-conducting flue leading to its upper portion from the air-heating chamber, and an air-exit flue leading from its lower portion to the outer air and having the bottom plate of said chamber formed and arranged to deflect the products of combustion and to conduct heat to the air-heating chamber, substantially as described.

4. In an oven, the combination of a baking-chamber closed against the admission of the products of combustion thereinto and having at its bottom an air-heating chamber one side of which is formed by a heat-transmitting plate, the said air-heating chamber having communication with the outer air and the said inner baking-chamber having an air-conducting flue leading to its upper portion from the air-heating chamber and with an air-exit flue at its lower portion, for entering pure hot air only to the baking-chamber, substantially as described.

658,841. GRINDING-MILL. EDWARD HARDS, Fremont, Nebr. Filed Aug. 12, 1899. Serial No. 727,031. (No model.)

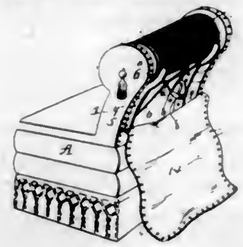


Claim.—In a grinding-mill of the character described, a supporting-frame, a shaft revolubly and horizontally adjustable within said frame, a collar fixed to said shaft, an approximately vertically-positioned lever pivoted to said frame, the upper end of which is adapted to work against said collar, a stem extending from said lever, a weight adjustable upon said stem so arranged that said lever exerts a pressure against said collar, a coarse-dress grinding-bur fixed to said shaft, said bur being provided with a spirally-disposed feeding-furrow and radially-disposed sloping dress-cuts feeding toward the peripheral edge of said grinding-bur, a second stationary bur positioned adjacent said first-mentioned bur of a finer dress and provided with a plurality of sloping dress-cuts feeding toward the peripheral edge of said bur, and a housing provided with an intake-hopper and an escape-opening surrounding said grinding-burs.

658,842. FIRE-ESCAPE. CHARLES R. HARRIS, Williamsport, Pa., assignor to the Harris Safety Company, New York, N. Y. Filed June 16, 1899. Renewed Mar. 1, 1900. Serial No. 7,018. (No model.)

Claim.—1. A combined fire-escape and article of furniture consisting of a frame, a reel mounted on said frame, a flexible ladder wound on the reel and secured at one end thereto, the other end of said ladder permanently secured to the article of furniture, said reel and ladder normally occupying a fixed position on the frame and forming a constituent part of the article of furniture, said reel and that portion of the ladder wound thereon being removable and adapted to be discharged simultaneously, and a removable covering normally inclosing said reel and ladder.

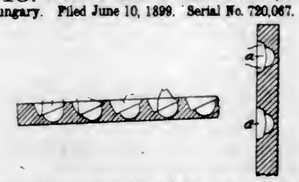
2. A fire-escape comprising an article of furniture, a ladder wound in the form of a roll and normally constituting a filling for the head-rest for said article of furniture and a grappling-hook pivoted to the article of furniture and to which the ladder is secured.



3. A fire-escape comprising an article of furniture, grappling-hooks adjustably mounted in the article of furniture and adapted to grasp the sill of a window, and a flexible ladder secured to the grappling-hooks and disposed in the article of furniture.

4. A fire-escape comprising an article of furniture, vertical supports secured in said article of furniture, yokes on the upper end of said supports, a roll of flexible ladder mounted in the yokes and constituting a filling for a head-rest, and grappling-hooks adjustably connected to said supports and to which one end of the ladder is secured.

658,843. GRAIN-SEPARATOR. NICOLAUS HEID, Stockerau, Austria-Hungary. Filed June 10, 1899. Serial No. 720,067. (No model.)



Claim.—1. A grain-separating cylinder constructed of plates having seed-pockets, each pocket being of different cross-sectional areas and having an offset between the inner portion of greater area and the other portion, for the purpose set forth.

2. A grain-separating cylinder constructed of plates having seed-pockets, each pocket being of different cross-sectional areas, and having an offset between the outer portion of least area and the inner portion, the latter having its wall inclined to the surface of the plate in the direction of rotation of the cylinder, for the purpose set forth.

3. A grain-separating cylinder, constructed of plates having pockets, each pocket being of different cross-sectional areas, the inner circular portion thereof being of greater area and eccentric to the outer hemispherical portion, for the purpose set forth.

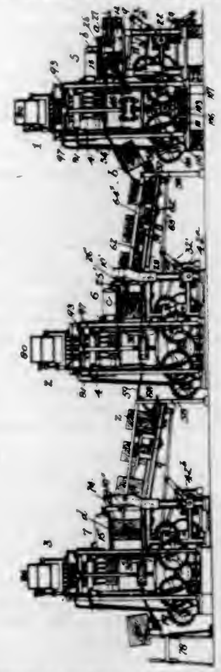
4. A grain-separating cylinder, constructed of plates having pockets, each pocket being of different cross-sectional areas, and having the inner circular portion of greater area and eccentric to the outer hemispherical portion, and an offset between said circular and hemispherical portions, substantially as and for the purpose set forth.

658,844. MACHINE FOR MAKING BOXES. HENRY E. HESSCHEL, New York, N. Y., assignor to the Standard Oil Company of New York, same place. Filed Mar. 14, 1900. Serial No. 8,665. (No model.)

Claim.—1. In combination, a plurality of nailing mechanisms, and inclined conveyers between the same with means for operating the parts, the low end of each conveyer being at the discharge side of the nailing mechanism from which point it rises to the feed side of the next following nailing-machine, substantially as described.

2. In combination, a nailing mechanism for attaching the first side and ends, a nailing mechanism for attaching the second side to the ends, a nailing mechanism for attaching the bottom of the box, means operating in connection with each nailing-machine for placing the parts in position to be nailed, and means operating in connection with the nailing mechanism for moving the two sides and the bottom of the box laterally of the machine, to assemble the same with the other parts of the box, there being one of the said laterally-feeding means at each nailing mechanism, and the hoppers of all the feeding means being located to one side of the machine and of the course of the work through the apparatus, substantially as described.

3. In combination, in a box-machine, nailing mechanisms, and a feeder for each of the sides and the bottom of the box, each feeder comprising a hopper and a feed-slide, said feeders operating transversely of the machine to feed the sides and bottoms laterally in respect thereto with means for operating the said parts all the said hoppers being located to one side of the machine and of the course of the work, substantially as described.



4. In combination in a nailing-machine, a nailing mechanism for attaching parts of the box, means for giving the partially-formed box a half-turn after leaving the said nailing mechanism, a second nailing mechanism, means for feeding the work to the second nailing-machine in its inverted position, means for giving the box-frame a quarter-turn after leaving the second nailing mechanism, a third nailing mechanism and means for feeding the work to the third nailing-machine, substantially as described.

5. In combination, three nailing mechanisms, means for assembling box parts at said mechanisms, said means comprising a feeder for moving the box parts into place, and means for feeding the assembled parts of the box to the nailing mechanisms, means for turning the work between the nailing mechanisms, and conveyers for carrying the work from one nailing mechanism to the next, the feed mechanism for the second and third nailing mechanisms being located between the conveyers and the said mechanism and each including a laterally-disposed hopper for the parts, substantially as described.

6. In combination, three nailing mechanisms, means for assembling box parts at said mechanisms, said means comprising a feeder for moving the box parts into place, means for feeding the assembled parts of the box to the nailing mechanisms, and conveyers for carrying the work from one nailing mechanism to the next, said conveyers being inclined, substantially as described.

7. In combination, in a box-nailing machine, a nailing mechanism, means for partially turning the work as it moves by gravity therefrom, a second nailing-machine, and means for raising the work after being turned and for feeding it thereto, substantially as described.

8. In combination, nailing mechanism, a frame having tracks or rests for the end parts of the box, said frame having also bearings for the inner faces of the end parts, means to engage and hold the end parts against said bearings, a hopper located to one side of the machine, and means for feeding the box side part over the end parts, substantially as described.

9. In combination, a nailing-machine, a frame having the tracks 9' and the bearing-surfaces as 12 against which the inner faces of the box parts may rest, and a feed device moving in line with the spaces between the box parts and having outwardly-reaching dogs engaging the forward edges of the unattached end parts, substantially as described.

10. In combination, the nailing mechanism, the frame having the tracks 9' and the bearing-surfaces for the end parts of the box, the feed-slide having the outwardly-reaching dog, the dogs for feeding the box side with means for feeding the side over the end parts, substantially as described.

11. In combination, the nailing mechanism, the frame having the rests for the end parts, a laterally-disposed feeding device for the box sides to feed the same over the end parts, means for feeding the assembled parts to the nailing mechanism and means for feeding one of the end parts of the box to its assembling position in a direction longitudinally of the machine, substantially as described.

12. In combination, the nailing mechanism, the frame having the rests for the box parts, a laterally-disposed feeding device for the box sides, means for feeding the assembled parts to the nailing mechanism and means for feeding one of the end parts of the box to its assembling position, said means comprising a hook 27 attached to the feeder for the assembled parts, substantially as described.

13. In combination, the nailing mechanism, a laterally-disposed feeding device, a guard-rail in line with the edges of the box parts for limiting the movement of the parts as fed by the said device, means coöperating with said feeder and guard for assembling the parts and means for feeding the assembled parts to the nailing mechanism, substantially as described.

14. In combination, nailing mechanism, a feed device for feeding the assembled parts thereto, means for supporting part of the box to be acted on by the feed device and a table to hold another part of the box to be acted on by the feeder, said feeder engaging the box part on the table directly and moving the same positively thereover, substantially as described.

15. In combination, a nailing mechanism, a feeder for the parts of the box, and a table for one of the box parts along which it is fed, said table being inclined whereby the box parts will be assembled loosely and will be brought together when fed to the nailing mechanisms, substantially as described.

16. In combination, a nailing-machine, a feeder and supporting means for the box parts, said supporting means presenting a bearing-surface in advance of the nailing mechanism to hold the parts of the box separated while moving to the nailing mechanism, substantially as described.

17. In combination, a nailing mechanism, a feeder, supporting means for one part of the box upon which it is placed to be assembled with the other parts, and the tracks having inclined portions to make the parts of the box approach each other, substantially as described.

18. In combination in a box-nailing machine, a nailing mechanism, feed mechanism for the assembled parts, the inclined table, and the tracks having the inclines, substantially as described.

19. In combination, in a box-nailing machine, the tracks 9', the guard-rails 53, the lugs 11 and the projection 13 and feed mechanisms, substantially as described.

20. In combination, the nailing mechanism, a feed device for the assembled parts, a support along which one of the parts moves and means for pressing the box part on said support, substantially as described.

21. In combination, a nailing mechanism, the inclined tracks 55' leading therefrom, the rollers 56 arranged to be struck by the depending portions of the partly-formed box, a second nailing mechanism and means for carrying the partly-formed box from the rollers to the second nailer, substantially as described.

22. In combination, a nailing mechanism, a feeder therefor comprising a reciprocating slide, a lever 32 for operating said slide having connection therewith, a feeder operating transversely of the machine and comprising a slide, a shaft 22 which is rocked by the lever 32, the bevel-gearing and the lever operated thereby and connected with the transverse slide substantially as described.

23. In combination, a nailing mechanism, an inclined conveyer leading therefrom having tracks with detent projections a feed-slide operating below the said tracks and having dogs to engage the work, and a second nailing mechanism to receive the work from the conveyer, substantially as described.

24. In combination, a conveyer comprising a reciprocating slide, a nailing mechanism, a feed mechanism for the nailing mechanism comprising a feed-slide, a lever a link connected with the lever and connected with the feed-slide for operating the same and a link connection 65 from said lever to the slide of the conveyer, substantially as described.

25. In combination, a nailing mechanism, a second nailing mechanism, and means for transferring the partly-formed material from the first nailing mechanism to the second, said means comprising dog carriers arranged outside the path of the material and dogs reaching inwardly therefrom, substantially as described.

26. In combination with a nailing mechanism, means for feeding thereto unattached parts, said means comprising a carrier with dogs reaching outwardly therefrom to engage the said parts, a second nailing mechanism and means for feeding thereto the parts which are attached by the first nailing mechanism, said means comprising a carrier with dogs reaching inwardly therefrom, substantially as described.

27. In combination, a nailing mechanism, tracks leading thereto upon which the material moves, and a feed-slide having upwardly-extending arms outside of the plane of the box parts, said arms having dogs carried thereby extending inwardly, substantially as described.

28. In combination with the nailing mechanism, a feed mechanism comprising a feed-slide with arms or bars attached thereto in the form of an open frame through which the box parts may pass, the dogs reaching inwardly from said arms or bars to engage the box parts, means for feeding parts of the box from one side of the machine, the said frame being left open at one side to permit the lateral feeding of the box parts, substantially as described.

29. In combination, a nailing mechanism, a feed-slide, the arms extending laterally therefrom, the upwardly-extending arms, the dogs carried thereby, and the upper cross-bar carrying dogs, substantially as described.

30. In combination, a nailing mechanism, means for feeding the material thereto, springs 48 for pressing upon the parts of the material and guiding and bearing surfaces for the material opposite the springs, to and from which the material is moved by the feeding means, substantially as described.

31. In combination, a nailing mechanism, tracks or supporting means for the partially-formed box of U shape, feeding means and spring-arms supported out of the way of the lower cross-piece of the box and arranged to engage the inner faces of the material, substantially as described.

32. In combination, a nailing mechanism and a conveyer with the guard 68 and the track portion said guard extending from the nailing mechanism downwardly to the conveyer, substantially as described.

33. A nailing-machine comprising a plurality of nailing mechanisms with means for carrying the partly-formed box from one nailing mechanism to another, each nailing mechanism being independently controlled to be thrown into and out of operation with means for so controlling the nailing mechanisms, substantially as described.

34. In combination, a nailing-machine comprising a plurality of nailing mechanisms, a feed mechanism for each nailing mechanism, conveying or transferring means, means for operating and controlling each feed mechanism independently of the other feed mechanism or mechanisms, and devices actuated by the feed mechanisms of each nailing mechanism whereby the latter is placed in operation each time a feeding action takes place, substantially as described.

35. A nailing-machine comprising independently operated and controlled nailing mechanisms, means for controlling the said mechanisms to throw either out of operation alone and transferring or conveying means between the nailing mechanisms arranged to permit the ready removal or replacing of the material, substantially as described.

36. In combination, a plurality of nailing mechanisms means whereby each nailing mechanism is independently operated and controlled to be thrown into and out of operation and a conveying mechanism with means whereby it is controlled by and operates with the nailing mechanism to which it is intended to carry the material, substantially as described.

37. In combination, a plurality of nailing mechanisms, and conveyer mechanism between the same and extending permanently from one nailing mechanism to the other to receive the material at one end and discharge it at the other, said conveyer mechanism being independent of the nailing mechanism and being of a length to hold a plurality of partly-formed boxes, and being open for the removal or replacing of the boxes, substantially as described.

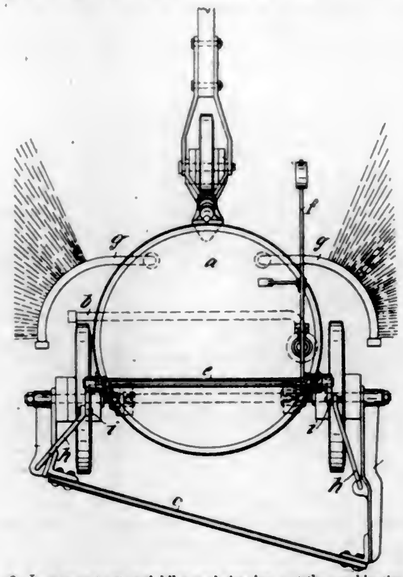
38. In combination, a plurality of nailing mechanisms, conveyer mechanism between the same, said conveyer mechanism having a step-by-step action and being of a length to hold a plurality of partly-formed boxes, and being open for the removal or replacing of the boxes and means for moving the conveyer step by step, substantially as described.

39. In combination, a plurality of nailing mechanisms, means for operating and controlling each nailing mechanism independently of the other mechanisms, means for giving the material a partial turn in its passage from one nailing mechanism to the next, conveying means permanently arranged between and extending from one nailing mechanism to the other with means for operating the same in proper time-relative to the nailing actions to form a complete machine, substantially as described.

40. In combination, a plurality of nailing mechanisms each one of which is constructed to nail at both ends of the box, means for operating and controlling each nailing mechanism independently whereby any nailing mechanism may be put out of operation and means for transferring the material from one nailing mechanism to the next, said transferring means extending permanently from one nailing mechanism to the other and being automatically timed in its operations with respect to the nailing actions, substantially as described.

658,845. STREET SPRINKLING AND CLEANING CART. AUGUSTIN HENTSCHEL, Berlin, Germany. Filed Mar. 8, 1900. Serial No. 7,843. (No model.)

Claim.—1. A street sprinkling and cleaning apparatus comprising a water-cart, a sprinkler extending across the path traveled over by said cart, and means in rear of said sprinkler for side-tracking the dirt on the sprinkled-over path, in combination with means for sprinkling a path on one or both sides of the cart for the purpose set forth.



2. In a new street sprinkling and cleaning cart the combination of sprinklers on each side of said cart and adapted to water the path then next adjoining that over which the said cart is advancing, a third sprinkler beneath said cart, and an oblique scraper on the rear of the said cart and directly behind said third sprinkler, substantially as described.

3. In a new street sprinkling and cleaning cart the combination of a reservoir, sprinklers in connection therewith and on each side thereof and adapted to water the path next adjoining that over which the said cart is advancing a third sprinkler in connection with said reservoir and beneath the same, and an obliquely-mounted adjustable scraper to the rear of said reservoir and behind said third sprinkler and adapted to shove the dirt loosened by the first sprinkling and flooded by said second aside, substantially as described.

658,846. ARTIFICIAL OIL OF JASMIN. ALBERT HESSE, Leipsic, Germany, assignor to Heine & Co., same place. Filed Feb. 5, 1900. Serial No. 4,107. (Specimens.)

Claim.—1. A composition of matter consisting of benzyl-acetate, linalyl-acetate, benzyl-alcohol, linalool, and methyl-ester of anthranilic acid ($C_6H_4NO_2$), substantially as described and for the purpose specified.

2. A composition of matter consisting of a mixture of benzyl-acetate, linalyl-acetate, benzyl-alcohol, and linalool in the proportions described, and methyl-ester of anthranilic acid, and jasmon, ($C_{11}H_{16}O$,) substantially as and for the purpose described, jasmon being a liquid ketone of the composition ($C_{11}H_{16}O$,) derivable from natural oil of jasmin and soluble in water, its boiling-point at a pressure of seven hundred and fifty-five millimeters lying between 257° and 258° centigrade, and its specific gravity at 15° centigrade being 0.945.

3. A composition of matter consisting of benzyl-acetate, linalyl-acetate, benzyl-alcohol, linalool, methyl-ester of anthranilic acid, jasmon and indol (C_8H_7N), substantially as and for the purpose specified.

4. A composition of matter consisting of benzyl-acetate, linalyl-acetate, benzyl-alcohol, linalool, and jasmon, as and for the purpose specified.

5. A composition of matter consisting of benzyl-acetate, linalyl-acetate, benzyl-alcohol, linalool, jasmon and indol, substantially as and for the purpose specified.

6. A composition of matter consisting of benzyl-acetate, linalyl-acetate, benzyl-alcohol, linalool, methyl-ester of anthranilic acid, and indol, substantially as and for the purpose specified.

658,847. SASH-LOCK. GEORGE R. HILL, St. Louis, Mo. Filed Feb. 16, 1900. Serial No. 5,498. (No model.)

Claim.—1. In a sash-lock, a suitable sash-supporting platform occupying a position adjacent to the lower edge of the sash for the raised position of the latter, the sash and platform being adapted to be lowered and the parts locked in their depressed position, and to automatically resume their original position upon the parts being released from the locking device, substantially as set forth.



2. In a sash-lock, a suitable tilting platform for the support of the sash, means for lowering and raising the said platform, and retaining the same in either of its extreme positions, and devices for tilting the platform when in one of its extreme positions for throwing the sash off from the supporting-surface of said platform, substantially as set forth.

3. In a sash-lock, a suitable platform for the support of the sash, a weight or bar to which said platform is secured, rods for guiding the bar in its vertical movements, a second weight or bar, guide-rods for the same, a pulley, a cord passing over the pulley and having its ends secured to the respective weights aforesaid, a locking device for said second weight or bar, and means for disengaging the locking device, substantially as set forth.

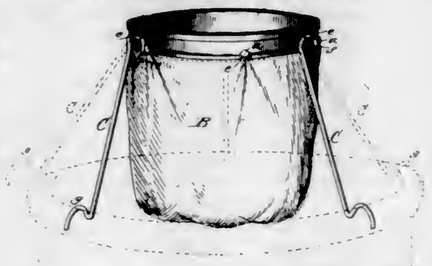
4. In a sash-lock, a suitable platform, lugs for the same, a bracket, a pocket for said bracket, a pivotal pin passing through the lugs and through the lateral walls of the pocket, a loop having arms coiled about the pin within the pocket, the loop normally bearing against the under surface of the platform and tending to tilt the same, depressions formed in the bracket for receiving the sides of the loop to insure a true horizontal position for the platform when supporting the sash, means for raising and lowering the platform, a supporting-ledge for the sash, the platform being adapted to throw the sash laterally upon the ledge when the lower edge of the sash comes opposite said ledge, substantially as set forth.

5. A sash-lock comprising a platform for the sash, a compartment for receiving the sash located below the window-sill, a weight having tubular enlargements carrying said platform, antifriction-sleeves within the enlargements, guide-rods over which said sleeves pass, located below the sill, a second weight or bar having tubular enlargements and similar sleeves and guide-rods therefor, a pulley mounted below the sill, and having a cord passing over the same with its ends secured to the respective weights, a recess formed in the second weighted bar, a latch located in the path of such recess, a keeper in the sill for engaging the latch, a push-button carried by the inner wall of the compartment below the sill, and operating through said recess and adapted to engage the latch, the parts operating substantially as and for the purpose set forth.

6. In a sash-lock, a suitable window-frame having the usual inner sill and outer supporting-ledge for the sash, means for depressing the sash below sill and ledge and locking the parts in said position, and devices for disengaging the parts from their locked position, and raising the sash and depositing the same automatically upon the ledge, substantially as set forth.

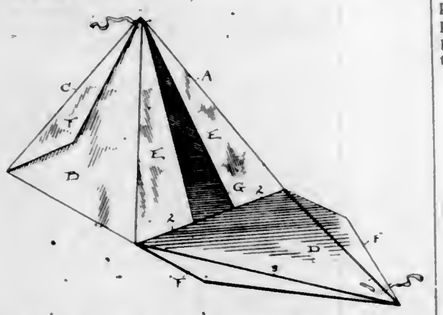
7. In a sash-lock, a suitable window-frame, having the usual inner sill and outer sash-supporting ledge, means for permitting the depression of the sash below the sill and ledge, and mechanical devices for automatically returning the sash to its original position, substantially as set forth.

658,848. BAG-HOLDER. CAMILLA M. HIRSCH, New Ulm, Minn. Filed June 25, 1900. Serial No. 21,450. (No model.)



Claim.—A bag-holder, comprising a suitable band with external means for attaching a bag thereto, legs or supports having feet at their lower ends which are curved as shown to fit over the convex or rounded edge or rim of a fruit-jar or other vessel, and the upper ends of the legs or supports having right-angle shanks with their extremities extending at right angles to the shanks to secure them in place, and eye-plates for pivotally connecting the shanks to the band at a point above the plane of the means for attaching the bag, substantially as and for the purpose set forth.

658,849. PYRAMIDAL HAT-BOX. WILLIAM A. JACK and JOHN M. KINNER, Cleveland, Ohio. Filed June 4, 1900. Serial No. 18,932. (No model.)



Claim.—1. A blank for forming a pyramidal hat-box comprising a square bottom and four several triangular sides hinged thereto and having each a pair of triangular wings at their edges, the wings of two of said sides being constructed to rest their lower edges on the bottom of the box when the sides are folded and the wings of the outer sides at an inclination to said bottom, substantially as described.

2. A blank for a hat-box having two inner and two outer pointed sides adapted to fold into pyramidal shape, and the said inner sides provided each with wings having straight lower edges at substantially right angles to the inner edges of said wings to rest down upon the bottom of the box their full length at the base of the outer sides and within the same to form a bracing-support for all said sides, substantially as described.

3. A pyramidal hat-box comprising a square bottom and four several triangular sides hinged to said bottom and having each a pair of triangular wings along its edges, the wings of the two inner sides being constructed with extended portions adapted to rest the full width of their base on the bottom within the outer sides and serving to brace all said sides, and the two outer sides having means at their top to connect the said sides, substantially as described.

658,850. PIPE-WRENCH. MATHEW F. JONES, Lawrence, Mass., assignor of one-half to William Farrell, same place. Filed Dec. 1, 1899. Serial No. 738,896. (No model.)



Claim.—1. In a device of the character described, the combination with a lever, of a foot projecting from said lever at an angle thereto, teeth arranged on the respective edges of said foot and disposed toward the toe thereof, a reversible jaw pivoted to said foot and provided with a V-shaped engaging portion the teeth of which are oppositely disposed and at an angle other than that assumed by the first-named teeth, substantially as described.

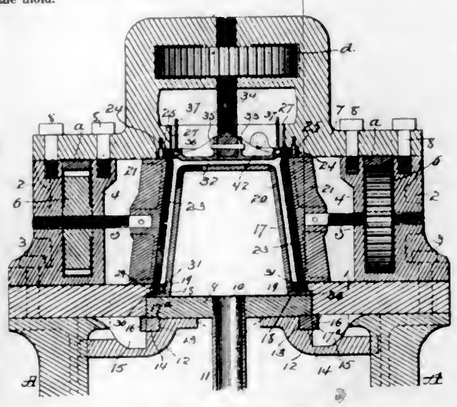
2. In a wrench, the combination with a lever provided at one end with a foot, forwardly-projecting teeth arranged on the edges of said foot, rearwardly-projecting teeth arranged on the edges of the lever at the juncture of the lever and foot, and a pivoted V-shaped jaw adapted to hold a pipe in contact alternately with any of the above-named teeth and formed with a shoulder on its convex surface, substantially as described.

658,851. APPARATUS FOR MAKING PAILS FROM PULP. FRANK E. KEYES, New York, N. Y., assignor of one-half to Charles R. Smith, Menasha, Wis. Filed June 26, 1899. Serial No. 721,932. (No model.)

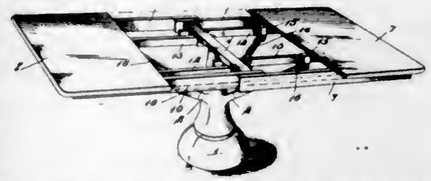
Claim.—1. In an apparatus for making pails from pulp, the combination with a perforated mold, of a flexible band around said mold and spaced therefrom, plungers or staves adapted to press said flexible band toward said mold and a chime-plate adapted to be pressed toward the end of said mold.

2. In an apparatus for making pails, the combination with a perforated mold, of a fabric covering for said mold, a flexible band around the mold and spaced therefrom and plungers or staves adapted to press said flexible band toward the mold.

3. In an apparatus for making pails from pulp, the combination with a ring and a movable base, of a perforated mold on said base, a movable notched ring carried by the movable base, recessed arms on the fixed ring for the reception of said movable ring for locking said base in its highest position, a flexible band around said mold when the latter is in its highest position, means for pressing said flexible band toward the mold, a chime-plate and means for pressing said chime-plate down toward the top of the mold.



658,852. EXTENSION-TABLE. FRANK M. KLING, Cairo, Ill. Filed Apr. 5, 1900. Serial No. 11,580. (No model.)

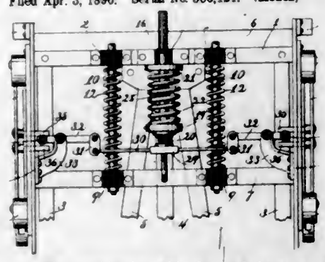


Claim.—1. In an extension-table the combination with a standard, of a cross-beam mounted thereon, arms projecting therefrom, guides secured to the cross-beam, brackets secured to the arms, tops, and strips to said tops, slidably mounted within said guides and brackets.

2. In an extension-table the combination with a standard of a cross-beam mounted thereon, guides secured to the cross-beam, arms projecting from the standard, brackets pivotally mounted upon the arms, tops, sets of strips secured to said tops and slidably mounted within the guides and brackets.

3. In an extension-table the combination, with a standard, of hollow projections thereon, arms within the projections, brackets pivoted upon the arms, a cross-beam mounted upon the standard, guides secured thereto, tops, and parallel sets of strips to said tops slidably mounted within the guides and brackets.

658,853. SAFETY DEVICE FOR ELEVATORS. WILHELM LESSING, Ringebrauk, Germany, assignor to Heinrich Staby, Unna, Germany. Filed Apr. 3, 1896. Serial No. 586,121. (Model.)



Claim.—1. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member on opposite sides of said guide-beam; brake-blocks pivoted to the free ends of said brake-arms; and brake-operating mechanism connected to said traveling member common to said brake-blocks being adapted to engage the brake-blocks to raise the same, while the brake-arms swing said brake-blocks toward each other to grip said guide-beam between them, substantially as described.

2. The combination with two or more guide-beams or stationary members of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member on opposite sides of each of said guide-beams; brake-blocks pivoted to the free ends of said brake-arms; brake mechanism connected to said traveling member adapted to synchronously directly engage said brake-blocks to raise the same while said brake-arms swing said brake-blocks, those adjacent to each guide-beam swinging toward each other to engage the respective guide-beams between them, substantially as described.

3. The combination with the guide-beams or stationary members of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member and disposed in parallel series on opposite sides of each of said guide-beams; vertically-extending brake-blocks pivoted to each series of said brake-arms; levers mounted on said traveling member and adapted to directly engage with and operate said brake-blocks, and mechanism for operating said levers synchronously, substantially as described.

4. The combination with oppositely-disposed guide-beams or stationary members of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member and situated in parallel series, on opposite sides of each of said guide-beams; vertically-extending brake-blocks pivoted to each series of said brake-arms; two levers mounted on said traveling member and adapted to engage with and operate said brake-blocks; a yielding connection between said levers; and mechanism for operating said yielding connection to swing said levers; substantially as described.

5. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling cage; braking devices adapted to engage said guide-beam; a suspension device for said cage; brake mechanism for operating said braking devices; a yielding connection between said brake mechanism and suspension device and a yielding connection between said braking devices and said traveling cage, substantially as described.

6. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling cage; a support for said cage; a spring connection between said support and cage; brake mechanism adapted to engage said guide-beam and operated by the spring connection between said support and cage, said brake mechanism having separate mounting from said traveling cage; and a yielding connection between said cage and said mounting for said brake mechanism, substantially as described.

7. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member and disposed in parallel series on opposite sides of said guide-beam; vertically-extending brake-blocks pivoted to each series of said brake-arms; friction devices on said brake-blocks for engaging said guide-beam; and brake mechanism on said traveling member connected to said brake-arms to swing the same toward each other to engage said guide-beam with said brake-blocks and friction devices, substantially as described.

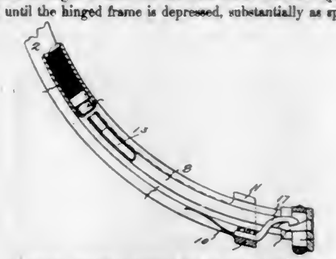
8. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member and disposed in parallel series on opposite sides of said guide-beam; vertically-extending brake-blocks pivoted to each series of said brake-arms; a lever mounted on said traveling member, adapted to engage said brake-blocks to swing the same to engage said guide-beam and to hold the same from such swinging; and mechanism for operating said lever, substantially as described.

9. The combination with the guide-beams or stationary members of an elevator or lift; of a traveling member; brake-arms pivotally mounted on said traveling member and disposed in parallel series on opposite sides of each of said guide-beams; vertically-extending brake-blocks pivoted to each series of said brake-arms; levers mounted on said traveling member, adapted to engage said brake-blocks to swing the same synchronously to engage said guide-beams and to hold the same from such swinging; and mechanism for operating said levers; substantially as described.

10. The combination with the guide-beam or stationary member of an elevator or lift; of a traveling member; two series of parallel-disposed brake-arms pivotally mounted on said traveling member on opposite sides of said guide-beam; vertically-extending brake-blocks pivoted to each series of said brake-arms; a lever mounted on said traveling member; studs on said brake-blocks on opposite sides of the end of said lever adapted to be engaged by said lever when swung in either direction; and mechanism for swinging said lever and holding it stationary, substantially as described.

658,854. CAR-FENDER. HENRY LUTKENKIRCHEN, Hartford, Conn., assignor of one-half to Camillo L. Fischer, same place. Filed Feb. 14, 1900. Serial No. 5,137. (No model.)

Claim.—1. A fender having a frame adapted to be fixed to a car, a frame hinged to the fixed frame and adapted to be depressed by weight brought upon it, a frame movably supported by the hinged frame, springs tending to thrust the movable frame forwardly from the hinged frame, and a lock arranged to hold the movable frame with the springs compressed until the hinged frame is depressed, substantially as specified.



2. A fender having a frame adapted to be fixed to a car, a frame hinged to the fixed frame and adapted to be depressed by weight brought upon it, a frame movably supported by the hinged frame, springs tending to thrust the movable frame forwardly from the hinged frame, a hook extending from the fixed frame, and a hook extending from the movable frame in such manner that they normally engage and hold the movable frame with the springs compressed until the hinged frame is depressed, substantially as specified.

3. A fender having a frame adapted to be fixed to a car, a tubular frame hinged to the fixed frame and adapted to be depressed by weight upon it, rods movably supported by the tubular frame, a striking-bar secured to the outer ends of the rods, springs located in tubes tending to thrust the rods and striking-bar forwardly from the tubular frame, and a lock arranged to hold the striking-bar and rods with the springs compressed until the tubes are depressed, substantially as specified.

4. A fender having a frame adapted to be fixed to a car, a tube hinged to the fixed frame near each side, tubes hinged to the fixed frame between the side tubes, a bar connecting the outer ends of the tubes, rods extending into the tubes, a striking-bar connecting the outer ends of the rods, springs in the side tubes tending to thrust the rods and striking-bar forwardly from the tubes, and a lock arranged to hold the striking-bar and the rods with the springs compressed until the tubes are depressed, substantially as specified.

5. A fender having a frame adapted to be fixed to a car, a tube hinged to the fixed frame near each side, tubes hinged to the fixed frame between the side tubes, a bar connecting the outer ends of the tubes, springs lifting the outer ends of the tubes and the tube-bar, rods extending into the tubes, a striking-bar connecting the outer ends of the rods, springs in tubes tending to thrust the rods and striking-bar forwardly from the tubes, and a lock arranged to hold the striking-bar and rods with the springs compressed until the tubes are depressed, substantially as specified.

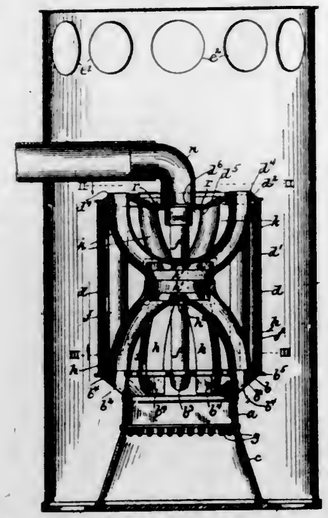
6. A fender having a frame adapted to be fixed to a car, a frame hinged to the fixed frame, a frame movably supported by the hinged frame, springs tending to thrust the movable frame forwardly from the hinged frame, springs tending to lift the hinged frame and the movable frame, and a lock holding the movable frame when the hinged frame is raised and releasing the movable frame when the hinged frame is depressed, substantially as specified.

658,855. HOT-AIR FURNACE. ALEXENDER W. MARCOPSKY, Cleveland, Ohio. Filed Jan. 10, 1900. Serial No. 983. (No model.)

Claim.—1. A hot-air furnace having a fire-pot; a smoke-chamber formed above and in open relation with the fire-pot; an air-chamber surrounding the smoke-chamber and the fire-pot, several air-flues in open relation with the air-chamber at the outer side of the fire-pot and arranged at suitable intervals about the fire-pot, which flues converge upwardly, are formed in one and the same casting, and have their upper ends terminating in a common outlet, and several air-flues in open relation with the aforesaid air-chamber at the top of the smoke-chamber and converging downwardly from the said top, formed in one and the same casting and having their lower ends terminating in a common inlet that registers with the aforesaid outlet of the lower and upwardly-converging flues.

2. A hot-air furnace having a fire-pot; a smoke-chamber formed above and in open relation with the fire-pot; an air-chamber surrounding the smoke-chamber and the fire-pot, several air-flues in open relation with the air-chamber at the outer side of the fire-pot and arranged at suitable intervals about the fire-pot, which flues converge upwardly, are formed in one and the same casting, and have their upper ends terminating in a common outlet, several air-flues in open relation with the aforesaid air-chamber at the top of the smoke-chamber and converging downwardly

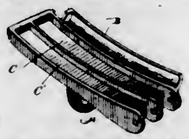
from the said top, formed in one and the same casting and having their lower ends terminating in a common inlet that registers with the aforesaid outlet of the lower and upwardly-converging flues, and the lower wall of the first-mentioned casting, at the bottom of the common outlet for the flues forming the said casting, being provided with an upward bulge so as to form a small dome h^2 centrally above the fire-pot, which dome is open at the bottom, substantially as shown, for the purpose specified.



3. A fire-pot for a hot-air furnace divided centrally into two sections arranged one above the other, with the upper section flaring upwardly from the upper end of the lower section and having a series of upwardly-flanged air-conducting apertures formed in the inner and lower portion of the upper fire-pot section, and another series of upwardly-flanged air-conducting apertures formed in the upper and outer portion of the said fire-pot section, substantially as and for the purpose set forth.

4. A hot-air furnace having a fire-pot that is composed of two sections arranged one above the other with the upper section flaring upwardly from the upper end of the lower section and having several upright flanged air-conducting apertures in its inner and lower portion, an air-chamber surrounding the smoke-chamber and the fire-pot, a flue-forming casting upon the aforesaid flanges and leading from the aforesaid apertures upwardly and inwardly over the fire-pot and having the flues formed therein terminating at the upper end of the casting in a common outlet, and another flue-forming casting resting upon the upper and outlet-forming end of the first-mentioned casting and having separate flues formed therein and leading upwardly and outwardly from the upper end of the first-mentioned casting to the top of the smoke-chamber and there communicating with the aforesaid air-chamber, substantially as shown, for the purpose specified.

658,856. **BRAKE-SHOE.** Thomas W. Mitchell, South Omaha, Nebr. Filed Feb. 23, 1900. Serial No. 6,871. (No model.)



Claim.—1. A brake-shoe embodying a plurality of longitudinally-arranged independently-removable wear-blocks for cooperating with different portions of the surface of the wheel; substantially as described.

2. A brake-shoe embodying a base having independent longitudinally-arranged seats therein and a plurality of independent wear-blocks removably mounted in said seats and adapted to cooperate with different portions of the surface of the wheel, whereby wear may be equalized, substantially as described.

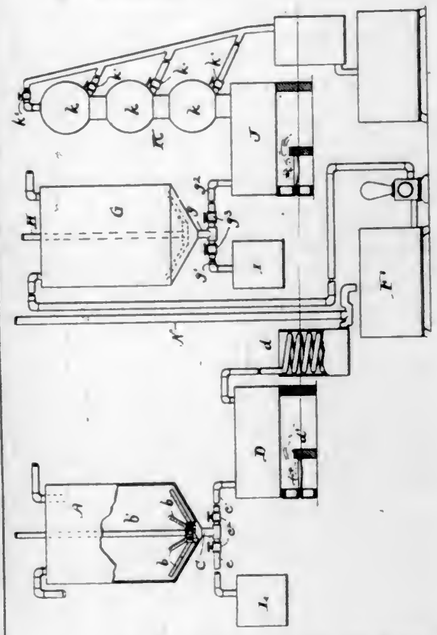
3. A brake-shoe embodying a removable wear-block having its surface grooved to fit the wheel-flange and an independent removable wear-block conforming to a portion of the wheel-tread; substantially as described.

4. A brake-shoe embodying a removable wear-plate grooved to conform to the wheel-flange, and an independent removable wear-block conforming to the side of the tread removed from the flange whereby the portion of the tread subjected to rail wear is not subjected to brake wear; substantially as described.

5. A brake-shoe embodying a base having a seat at one edge curved transversely to conform to the wheel-flange and independent seats conforming to the wheel-tread, and similarly-formed independent wear-blocks removably mounted in said seats and adapted to cooperate with the flange and tread respectively; substantially as described.

6. In a brake-shoe, a base having independent longitudinal seats with a flange closing said seats at one end and projections at the opposite end of said base combined with independent wear-blocks removably mounted in said seats and having projections at one end cooperating with the end flanges of the seats and projections at the opposite end and a pin passing through the projections on the base and cooperating with the projections on the wear-blocks to hold all said blocks in place; substantially as described.

658,857. **PROCESS OF DESULFURIZING PETROLEUM-OIL.** Thomson McGowan, Cleveland, Ohio. Filed May 25, 1899. Serial No. 718,277. (No specimens.)



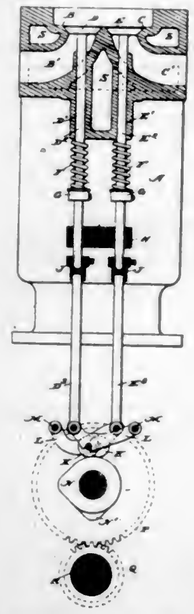
Claim.—1. The process of desulfurizing crude Lima or like sulfurized petroleum oil, which consists in distilling a mixture of sulfuric acid with said sulfurized oil which has not been previously treated so as to change the chemical character of the sulfur compounds therein, substantially as specified.

2. The process of desulfurizing crude Lima or like sulfurized petroleum oil, which consists in agitating sulfuric acid with said oil; then allowing the mixture to settle; then segregating the oil from the precipitated sludge and so much of the acid as settles with it; and finally distilling the said sulfurized oil with so much of the acid as remains mixed with it, substantially as specified.

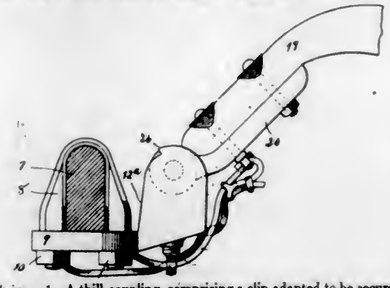
658,858. **GAS-ENGINE.** Lewis H. Nash, South Norwalk, Conn., assignor to The National Meter Company, New York, N. Y. Filed Jan. 25, 1897. Serial No. 620,674. (No model.)

Claim.—In a gas-engine a plurality of puppet-valves having parallel stems, rocking arms respectively pivoted to said stems at one end and to fixed bearings at the other, said rocking arms overlapping one another, and cams by means of which the said rocking arms and valve-stems are operated.

658,858.



658,859. **THILL-COUPLING.** Theodore Near, New York, N. Y. Filed Aug. 2, 1900. Serial No. 25,627. (No model.)

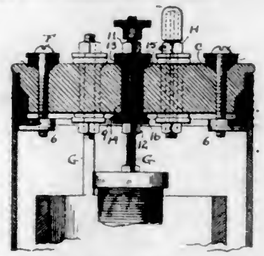


Claim.—1. A thill-coupling, comprising a clip adapted to be secured to the axle of the vehicle, and provided with a forwardly-directed supplemental clip formed integrally with the base thereof, said supplemental clip being composed of a bottom and sides, the tops of the sides being provided with shaft-bearings, and a detachable clip composed of sides, a back and a bottom, and the sides of which are provided with top flanges which are adapted to hold a shaft placed in said bearings in position, said detachable clip being adapted to inclose the supplemental clip and to be secured thereto by a screw passed through the bottom thereof, substantially as shown and described.

2. A thill-coupling, comprising a clip adapted to be secured to the axle of the vehicle, and provided with a forwardly-directed supplemental clip formed integrally with the base thereof, said supplemental clip being composed of a bottom and sides, the tops of the sides being provided with shaft-bearings, and a detachable clip composed of sides, a back and a bottom, and the sides of which are provided with top flanges which are adapted to hold a shaft placed in said bearings in position, said detachable clip being adapted to inclose the supplemental clip and to be secured thereto by a screw passed through the bottom thereof, said screw being provided with a slotted head through which is passed a strap or band, substantially as shown and described.

658,860. **COVER FOR BATTERY-JARS.** Philip P. Nungesser, Cleveland, Ohio, assignor to the Nungesser Electric Battery Company, same place. Filed Feb. 13, 1900. Serial No. 5,068. (No model.)

Claim.—1. A jar having an even smooth interior surface about its top, a jar-cover having a relatively-reduced annular lower portion seated therein, packing about said lower portion, a clamping-ring bearing against the bottom of said packing and bolts through the cover threaded into the inner edge of the said clamping-ring to tighten the ring against the packing, in combination with battery elements in the jar and connections therewith through said cover, substantially as described.



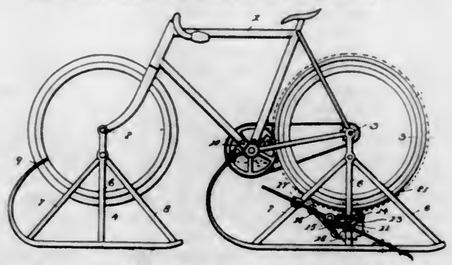
2. In electric batteries, a jar-cover having an annularly-reduced lower portion, a packing-ring about said lower portion, a clamping-ring bearing upward against said packing-ring, screws through the cover engaging said clamping-ring and battery elements having their connections through said cover, substantially as described.

3. In battery-jars, a jar-cover, a packing-ring about its bottom portion and a clamping-ring therefor substantially right-angled in cross-section and tightening-screws engaging said ring through the cover, substantially as described.

4. In battery-jaws, a jar-cover and a packing-ring about the edge thereof, a clamping-ring substantially L-shaped in cross-section to engage said packing-ring and screws at different places through the cover engaging said rings, substantially as described.

5. In electric batteries, a cover having a series of holes through from top to bottom countersunk at their top, in combination with a clamping-ring below the cover, screws through said holes engaging said ring, and compressible washers about the tops of said screws in countersunk portions of said holes, substantially as described.

658,861. **ICE OR SNOW VEHICLE.** Louis Olson, Minneapolis, Minn. Filed June 7, 1900. Serial No. 19,432. (No model.)



Claim.—1. An ice or snow vehicle comprising a bicycle, frames secured to the axles of the bicycle, runners secured to said frames, push-rods supported on opposite sides of the rear-runner frame, and means for reciprocating the push-rods, consisting of a toothed band on the rear wheel, a shaft mounted upon the rear-runner frame, a gear-pinion on said shaft, cranks on the ends of said shaft, and links connecting said cranks and push-rods.

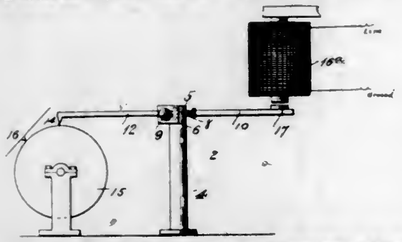
2. In an ice and snow vehicle comprising a pair of runners, frames mounted thereon, consisting of upright wheel-supporting arms and inclined braces, a short shaft journaled in the wheel-supporting arm, a pinion mounted on said shaft, cranks secured to the ends of the shaft, a pair of push-rods, and link connections between the cranks and push-rods, said push-rods being secured in brackets at an angle to the runners.

3. The combination with a bicycle; of a band fitting upon the rear wheel thereof and having gear-teeth, runner-frames secured to the axles of the bicycle, runners suspended by said frames, a shaft mounted in bearings in the rear-runner frame, a gear-pinion on said shaft meshing with the teeth on the band, cranks on said shaft, push-rods supported on opposite sides of the rear-runner frame at an angle to the runner, and links connecting said crank and push-rods.

4. In a snow and ice vehicle comprising a bicycle and detachable runners, the combination with the rear wheel of the bicycle; of a curved band fitting the periphery of the wheel, a supplemental band formed with gear-teeth secured to said curved band, push-rods in the rear-runner frame,

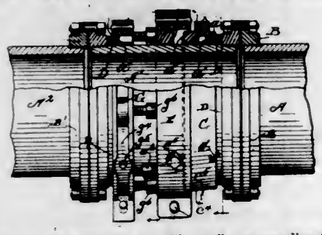
and mechanism driven by the gear-teeth on the rear wheel for reciprocating said push-rods.

658,862. TELEGRAPHOPHONE. EDWARD C. PARAMORE, Philadelphia, Pa., assignor of one-half to Howard T. Goodwin, Ridley Park, Pa. Filed Nov. 18, 1899. Serial No. 737,481. (No model.)



Claim.—In a recorder for sound-reproducing instruments, a flat torsion-spring secured at its ends in slotted posts, set-screws to hold said spring in the posts, and a set-screw for adjusting the tension of said spring, in combination with a stylus-arm attached to said spring and an arm carrying an armature also attached to said spring, substantially as described.

658,863. PIPE FITTING OR COUPLING. FRANK PFEIFFER, Chicago, Ill. Filed Jan. 17, 1900. Serial No. 1,749. (No model.)



Claim.—1. The combination with a collar surrounding the joint of two pipes, of a clamp composed of two members hinged together at one of their ends and having means to secure their other ends together, said clamp located around the pipe near the collar and having an annular flange and an annular bead on its surface adjacent to the collar, a piece of packing located between the collar and clamp, and means to press the clamp against the packing, substantially as described.

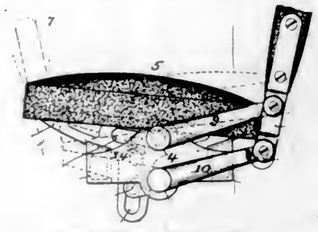
2. The combination with a collar surrounding the joint of two pipes, of a clamp composed of two pieces hinged together at one of their ends and having means to secure them together at their other ends, said clamp located around the pipe near the collar and having an annular groove in its surface adjacent to the collar, a piece of packing located between the clamp and collar, a main clamp located on the pipe and having an annular recess to receive the first-named clamp, and a series of set-screws extending obliquely through the main clamp and against the other clamp, substantially as described.

3. The combination with a collar surrounding the joint of two pipes, of a clamp composed of two members hinged together at one of their ends and having means at their other ends to secure them together, said clamp located around the pipe near the collar and having an annular flange and an annular bead on its surface adjacent to the collar and its other surface beveled, a piece of packing located on the pipe near the first-named clamp, and a series of set-screws extending obliquely through the main clamp and against the beveled portion of the other clamp, substantially as described.

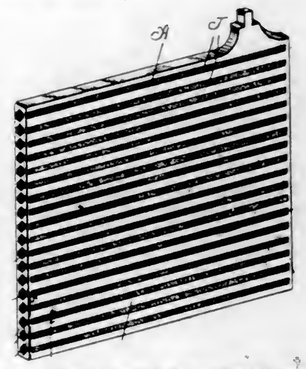
658,864. STEP-OVER CAR-SEAT. CHARLES K. PICKLES, St. Louis, Mo., assignor to Samuel M. Dodd, same place. Filed July 22, 1898. Serial No. 686,589. (No model.)

Claim.—1. In a car-seat, the combination of a seat, a stationary supporting-base, a back provided with a pivot-plate extended below the same, a pair of back-supporting arms having different radii, and pivoted to the base and to the projecting portion of the pivot-plate at opposite sides thereof, such pivots being on the median line of the back and of the base, and wholly below the surface of the seat, means to permit of the differential movement of the arms, and crank extensions on the arms having operative engagement with the carrying-frame of the seat, substantially as set forth.

2. In a car-seat, the combination of a seat, a stationary supporting-base, a back provided with a pivot-plate extended below the same, a pair of back-supporting arms having different radii, and pivoted to the base and to the projecting portion of the pivot-plate at opposite sides thereof, such pivots being on the median line of the back and of the base, and wholly below the surface of the seat, means to permit of the differential movement of the arms, the same comprising a pivot pin or lug on the lower arm, and an elongated slot in the pivot-plate of the back, and crank extensions on the arms having operative engagement with the carrying-frame of the seat, substantially as set forth.



658,865. SECONDARY BATTERY. HENRY C. PORTER, Chicago, Ill., assignor to Owen H. Fay, same place. Filed Dec. 27, 1898. Serial No. 700,319. (No model.)



Claim.—A secondary or storage battery electrode comprising a grid composed of a plurality of bars having V-shaped grooves in the opposite faces thereof so as to form pockets therebetween, end bars connecting said plurality of bars and provided with perforations therein registering with the spaces between said grooved bars and active material packed within said grooves and the openings in the end bars, substantially as described.

658,866. PAIL-COVER. JAMES H. QUACKENBUSH, Grand Rapids, Mich. Filed Dec. 4, 1899. Serial No. 739,183. (No model.)



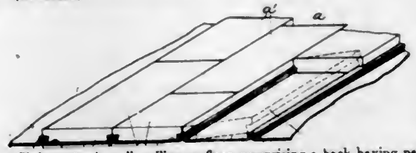
Claim.—In combination with a temporary pail-cover having a glass-covered receptacle therein, packing around its edges, and an opening near its periphery, a door pivoted to swing over said opening, and catches *d* and *d'* at the edges of said door, substantially as and for the purpose set forth.

658,867. BICYCLE-FRAME PUMP. CHARLES A. ROMANS, Danbury, Conn. Filed Nov. 2, 1899. Serial No. 735,566. (No model.)

Claim.—In a cycle, the combination with the crank-hanger and the lower frame-tube, of the seat-post tube formed as a pump-cylinder and having a plug 20 at its lower end adjacent to the crank-hanger, and the seat-post forming a plug for the upper end of the seat-post tube, said seat-post having a longitudinal opening, a valve 21 in the seat-post tube above and adjacent to the plug 20, a valve 22 in the lower frame-tube, a tube extending from the valve 22 through the lower frame-tube and the crank-hanger to the plug 20, and a piston in the seat-post tube having its rod extending upward through the seat-post and having a handpiece at its upper end.



658,868. WALL, FLOOR, OR CEILING FOR BUILDINGS. HENRY ROSENBAUM, Cincinnati, Ohio. Filed Feb. 6, 1899. Serial No. 704,667. (No model.)



Claim.—1. A wall, ceiling or floor comprising a back having parallel dovetailed ridges so as to form, between them, channels whose opposing side walls converge forwardly, and slabs occupying the channels and extending, respectively, across a channel and having the channel-engaging portions reduced in width in a forward direction and wider at the rear extremity than the forward and open side of the engaging channel.

2. A wall, ceiling or floor, comprising a back-forming metallic sheet bent so as to form parallel hollow dovetailed ridges, and facing-forming slabs engaging the channels formed between the ridges and overlapping the outer or forward sides of the ridges.

658,869. WALL, FLOOR, OR CEILING FOR BUILDINGS. HENRY ROSENBAUM, Cincinnati, Ohio. Filed Feb. 11, 1899. Serial No. 705,315. (No model.)



Claim.—As a new article of manufacture, a facing-bearing brick having the facing and the body portion composed of separate pieces, and having the facing provided, at its rear side, with two downwardly and inwardly projecting lugs that are arranged a suitable distance apart longitudinally of the facing and engage corresponding holes formed in the body portion, substantially as shown, for the purpose specified.

658,870. JACQUARD-CARD WIRE. ROBERT L. SHAW, Paterson, N. J. Filed Jan. 18, 1900. Serial No. 1,841. (No model.)

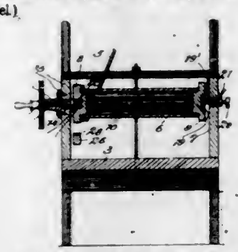


Claim.—1. A jacquard-card wire provided with a plurality of loops therein adapted to receive the corresponding card-lacings, each loop having a contracted entrance and being elastic, substantially as described.

2. A jacquard-card wire bent to form a plurality of loops therein adapted to receive and closely embrace the corresponding card-lacings, each loop having a contracted entrance and being elastic, substantially as described.

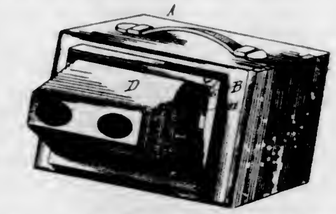
3. A jacquard wire bent to form a plurality of loops therein adapted to receive and closely embrace the corresponding card-lacings, each loop being elastic and being normally substantially closed, and said loop being adapted to be opened by bending it against the force of its elasticity, substantially as described.

658,871. DEVICE FOR HOISTING WELL-BUCKETS. HYMON H. SIMMONS, Simmonsville, Miss. Filed July 13, 1900. Serial No. 23,523. (No model.)



Claim.—The combination with an elevating rope or cable, of an adjustable drum, a stub-shaft projecting from one end thereof, a pinion on said shaft, a driving-gear having a crank-handle, the said gear being in continual mesh with the pinion and both the gear and pinion having their axes in the same horizontal plane, a gravitating pawl to take into the teeth of the pinion, a brake-lever having its inner end adjacent the crank-handle of the driving-gear and said brake arranged to contact with one end of the drum, and a strap attached to the said lever and having an upper hooked extremity to engage the pawl and simultaneously throw the latter out of the teeth of the pinion when the brake-lever is operated to contact with the drum end.

658,872. FOCUSING DEVICE FOR CAMERAS. HERBERT E. S. SINGLETON, San Francisco, Cal., assignor, by direct and mesne assignments, of one-half to Sidney F. Lee and Harry Hampshire, same place. Filed Sept. 27, 1899. Serial No. 731,844. (No model.)



Claim.—1. In a focusing attachment for cameras, the combination with a frame adapted to be attached to a camera of foldable supports pivoted to said frame and adapted to be folded one upon the other in flat position, a cover supported thereby, a bail connected to one of said supports and a latch for holding the free end of said bail.

2. In a focusing attachment for cameras, a frame having a groove or rabbet, a flexible cover secured therein, and spring-actuated foldable supports movable automatically toward the rear for expanding said cover into a focusing-hood.

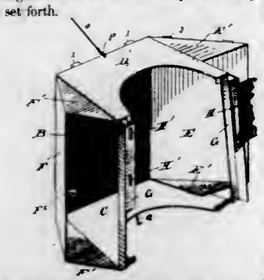
3. In combination, the frame, the pivoted folding supports, the hood attached thereto and the spring for swinging said supports on their pivots, substantially as described.

4. In combination, the frame, the swinging supports attached at opposite sides of the frame, and arranged to overlap when folded, and a hood attached to the supports and forming, when folded, flaps extending inwardly from opposite sides of the frame and overlapping each other, substantially as described.

5. In combination, the frame, the overlapping pivoted supports, the hood attached thereto and the fastening device to hold the hood folded, said device being connected at or near the free end of one of the flaps, substantially as described.

658,873. LANTERN. CHARLES J. SONNEMA, Pekin, Ill. Filed Jan. 23, 1900. Serial No. 2,551. (No model.)

Claim.—1. A reflector for lanterns comprising a box for partially inclosing the lantern, composed of the back B, bottom and top C and D respectively, said bottom and top having curved openings to surround said lantern, guides G secured to the top and bottom portions and adapted to pass over the tube of the lantern, a reflecting portion H hinged to one of the guides and adapted to be attached to the opposite guide, the hinged sides E and F hinged to the back B and adapted to be opened and closed for the purpose set forth.



2. In a lantern, the combination of the tube A, a reflector comprising a box adapted to partially inclose the lantern and fit snugly around one side thereof to prevent exit of light at that side, said box adapted to be attached to the lantern-tube A, adjustable reflecting sides for the box and means for locking the same in any desired position for the purposes set forth.

3. In a lantern, the combination of the tubes A of the lantern, a reflector adapted to fit snugly around one side of the lantern; said box adapted to be attached to the said lantern-tube A, adjustable reflecting sides for the box, means for locking same in the position desired, a reflector H hinged to the front of the lantern and adapted to open and close substantially as set forth.

4. In a reflector, the combination of a back B having adjustable sides E and F, upper and lower wings thereof, guides G for attachment to a lantern, cleats I and J on the back and side of such reflector for the purposes set forth and a reflector H on the front all arranged substantially as and for the purpose set forth.

5. In a device of the character described for use on vehicles the lantern-tube A thereof adapted to be attached to a vehicle, a hanger composed of a portion K secured to the bottom of the vehicle, a portion L hinged on the said portion K and adapted to receive the tube A, means for locking the said portion L to support the tube therein, a reflector-box composed of a back B, bottom and top C and D respectively, sides E and F, the guides G and the reflector H all arranged as set forth, and a wire O attached at one end to the bottom of the vehicle and at the other to the reflector, a hook Q attached to the body of the reflector and adapted for attachment to the oil-fount of the lantern, all arranged as set forth.

6. In a lantern for the purposes described, the main reflector partially inclosing the lantern, the sides thereof adapted to be opened and closed, the front reflector H hinged to said reflector at one side and adapted to swing horizontally on its hinge and locked in its closed position in combination with guides on the said body for engaging the lantern-tube and means for locking the main reflector to the lantern substantially as set forth.

658,874. VALVE FOR PNEUMATIC TIRES. JOHN A SPENCER, Los Angeles, Cal. Filed Feb. 7, 1900. Serial No. 4,379. (No model.)

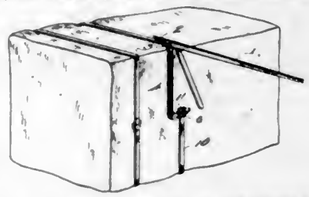


Claim.—1. A valve for pneumatic tires comprising an externally-threaded casing having a valve-seat; an internally-threaded sleeve fitting said casing and provided at one end with an internally-threaded nipple; a valve fitting said seat; a stem secured at one end to the valve and formed at its opposite end with a threaded plug fitting said nipple; and a dust-cap to engage the projecting end of the plug.

2. A valve for pneumatic tires, comprising an externally-threaded casing having a conical valve-seat and an internal annular shoulder; an internally-threaded sleeve fitting said casing and provided at one end with an internally-threaded nipple; a conical valve fitting said seat; a valve-stem secured at one end to the valve, and provided at its opposite end with a threaded plug, adapted to project through and beyond said nipple; a coil-spring surrounding the stem and held between the plug and the shoulder of the casing.

3. A valve for pneumatic tires, comprising an externally-threaded cylindrical casing formed with a conical valve-seat; and an internal annular shoulder; an internally-threaded sleeve fitting said casing and provided at one end with an internally-threaded nipple; a valve fitting the valve-seat; a stem secured at one end to the valve and provided at its opposite end with a threaded plug adapted to be engaged by said nipple; and a dust-cap fitting the end of the plug and adapted to abut against the end of the nipple.

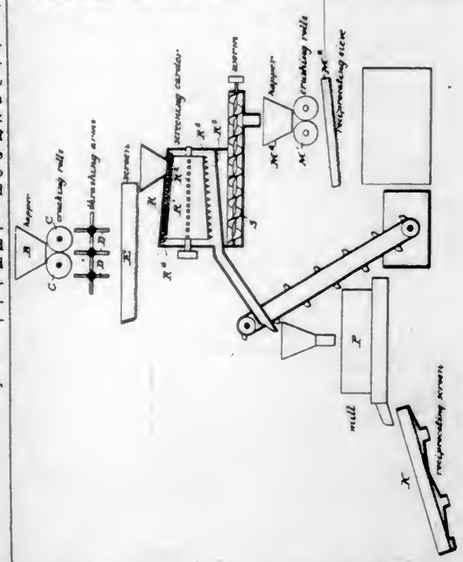
658,875. BALE-BAND TIGHTENER. FRITZ SPLETTSTOSSER, Stryker, Tex. Filed May 23, 1900. Serial No. 17,758. (No model.)



Claim.—1. In a bale-band tightener, the combination with a lever having a convex end; of an arm pivoted to the lever; and a lateral extension to said arm having a recess therein, said recess having a transverse slot within the center of one of the side walls thereof.

2. In a bale-band tightener, the combination with a lever and having a recess therein; of a convex end thereto; an arm pivoted to the lever; a lateral extension to the arm; and a recessed thickened portion to the extension having a transverse slot therein at the center of one of the sides of the recess, the end wall of said slot being inclined.

658,876. TREATMENT OF COTTON-SEED. JOHN C. W. STANLEY, London, England, assignor to the Cotton Seed Oil Syndicate, Limited, same place. Filed Mar. 28, 1900. Serial No. 10,574. (No specimens.)



Claim.—1. A process for the treatment of cotton-seed, consisting in cracking and disintegrating the seed, roughly separating the kernels from the hulls and the cotton and kernel adhering to the hulls, then opening up the cotton on the hulls and separating the fragments of kernel, free cotton and small pieces of hull from the larger pieces of hull and adhering cotton, crushing the separated kernel, free cotton and hull, separating the kernel therefrom, reducing the hull and cotton to a finely-divided condition, and separating the cotton from the hull-meal, substantially as set forth.

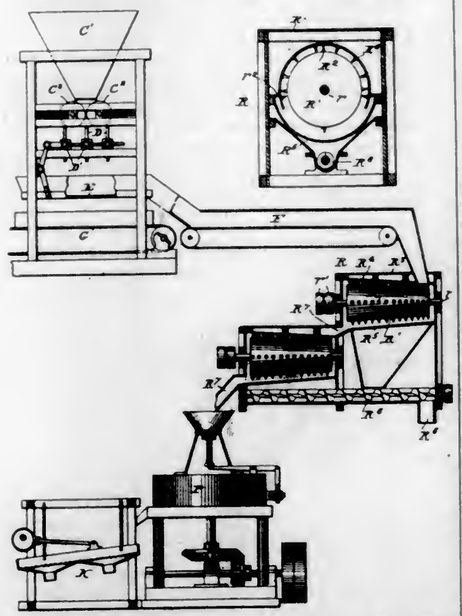
2. A process for the treatment of cotton-seed, consisting in cracking and disintegrating the seed, roughly separating the kernels from the hulls and the cotton and kernel adhering to the hulls, then opening up the cotton on the hulls and separating the fragments of kernel, free cotton and small pieces of hull from the larger pieces of hull and adhering cotton, reducing the larger pieces of hull and adhering cotton to a finely-divided condition, and separating the cotton from the hull-meal, substantially as set forth.

3. A process for the treatment of cotton-seed, consisting in cracking and disintegrating the seed, roughly separating the kernels from the hulls and the cotton and kernel adhering to the hulls, then opening up the cotton on the hulls and separating the fragments of kernel, free cotton and small pieces of hull from the larger pieces of hull and adhering cotton, crushing the separated kernel, free cotton and hull, separating the kernel therefrom, reducing the hull and cotton to a finely-divided condition, separating the cotton from the hull-meal, reducing the larger pieces of hull and adhering cotton to a finely-divided condition, and separating the cotton from the hull-meal, substantially as set forth.

4. In the treatment of the tailings from disintegrated cotton-seed, comprising hulls with adhering fiber and small fragments of kernel, subjecting the particles of such tailings while in a compact mass to agitation to detach the kernels from the hull and fiber, and then separating the kernels, hull and free fiber, substantially as set forth.

5. In the treatment of the tailings from disintegrated cotton-seed, comprising hulls with adhering fiber and small fragments of kernel, causing the particles of such tailings to travel in a compact mass, and at the same time agitating them to detach the kernels from the hull and fiber, and then separating the kernels, hull and free fiber, substantially as set forth.

658,877. APPARATUS FOR TREATING COTTON-SEED. JOHN C. W. STANLEY, London, England, assignor to the Cotton Seed Oil Syndicate, Limited, same place. Filed Mar. 28, 1900. Serial No. 10,575 (No model.)



Claim.—1. In an apparatus for treating cotton-seed, the combination of cracking-rollers, disintegrating mechanism to which the cracked seed is delivered, a screen for roughly separating the kernel from the hulls and onto which the disintegrated material falls, mechanism for opening up the cotton on the hulls and separating fragments of kernel therefrom, a grinding-mill to which the hulls and adhering cotton are delivered, and a reciprocating screen onto which the ground hulls and cotton are delivered and which separates them, substantially as set forth.

2. In an apparatus for treating cotton-seed, the combination of cracking-rollers, disintegrating mechanism to which the cracked seed is delivered, a screen for roughly separating the kernel from the hulls and onto which the disintegrated material falls, a screening-carder to which the roughly-separated hulls are delivered, said carder comprising a rotary-toothed conical drum, an imperforate casing concentric with and surrounding the upper portion of the drum and provided on its interior with teeth which intercalate with the teeth of the drum, and a screen concentric with and inclosing the lower portion of the drum, a grinding-mill to which the tailings from the screening-carder are delivered, and a reciprocating screen onto which the ground material is delivered and which separates the hull-meal from the cotton, substantially as set forth

3. In a screening-carder for treating cotton-seed hulls, the combination of a toothed conical drum, a casing provided internally with teeth intercalating with those of the drum, said casing extending nearly around the drum and having an opening at the bottom directly under the drum, and a concave screen concentric with the drum and casing and in close proximity thereto.

4. In a screening-carder for treating cotton-seed hulls, the combination of a toothed conical drum, an imperforate casing provided internally with teeth intercalating with those of the drum, said casing extending nearly around the drum and having an opening directly under the drum and extending the whole length thereof, a concave screen supported below the drum and concentric with it and the casing, the longitudinal edges of the screen overlapping the longitudinal edges of the casing, and plates bridging the spaces between said overlapping ends.

5. In a screening-carder for treating cotton-seed hulls, the combination of a toothed conical drum, an imperforate casing provided internally with teeth intercalating with those of the drum and open on its under side throughout its length, a concave screen concentric with the casing and the drum and placed directly below and in close relation to the opening of the casing, a spout for discharging the overtails of the screen, and a trough and conveyer below the screen for taking away the finer material.

658,878. RACK OR SUPPORT FOR MUSIC, BOOKS, OR THE LIKE. CHARLES E. STEWART, Bobcaygeon, Canada. Filed Dec. 28, 1899. Serial No. 741,858. (No model.)



Claim.—1. A support for music, books, or the like, and brackets adapted for attachment to a suitable back upon which said support has an intermediate longitudinal tilting bearing; said support constructed with sides projecting oppositely from the line of said bearing and with the general direction of said sides extending at an angle to each other, thereby forming two supports, either of which may be depressed, and when the article rests upon one side, the other side will project upwardly, for the purpose set forth.

2. A music-rack comprising a suitable back and a support adjacent to said back, provided at an intermediate point with a longitudinal tilting bearing, whereby either side may be depressed when the article rests thereon; said support being trough-like in shape, whereby when the article rests upon one depressed side, the other side will project upwardly and in front of the article to hold the leaves from turning.

3. A book-support, music-rack, or the like, comprising a suitable back, supporting-brackets, and a rigid trough-like support provided with a tilting bearing upon said brackets intermediate of its sides and adapted to rest thereon in opposite positions; substantially as described.

4. A book-support, music-rack, or the like, comprising supporting-brackets, a trough-like support having tilting bearings upon said brackets, and a suitable back having a recess 7 into which the edge of the support enters; substantially as and for the purposes set forth.

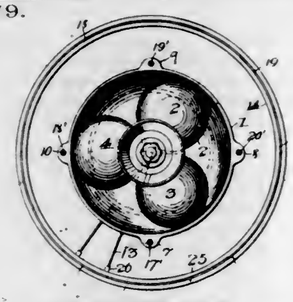
5. A book or music support having the general directions of its sides extending at an angle to each other, and mounted to rock upon a longitudinal axis intermediate of said sides, so that by tilting the support either side may be brought into and held in supporting position, and when the book or music rests upon the inner side, the outer side projects in position to provide a leaf-holder.

658,879. WHEEL FOR VEHICLES. SAMUEL SWEENEY, Los Angeles, Cal. Filed Dec. 18, 1899. Serial No. 740,846. (No model.)

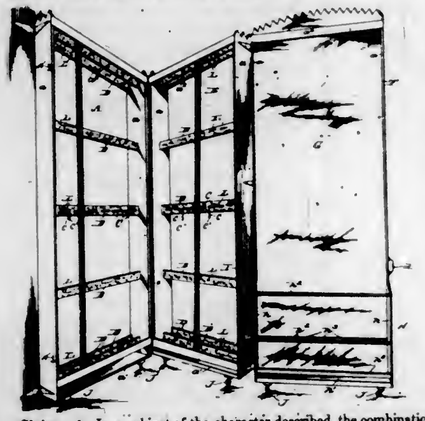
Claim.—1. In wheels, a hub composed of two curved shells having flanges at their meeting edges and fastening devices therefor, and perforated midway rims to receive the spokes, each shell also having an aperture in its side, conical bearings inserted in said apertures and balls inclosed within the shells and resting on said bearings, all arranged as set forth.

2. In wheels, a hub composed of two curved shells having flanges at their meeting edges and fastening devices therefor, and perforated midway rims to receive the spokes, each shell also having an aperture in its side, conical bearings having recesses in their larger ends inserted in said apertures and balls inclosed within said shells and resting on said bearings, all arranged as set forth.

658,879.



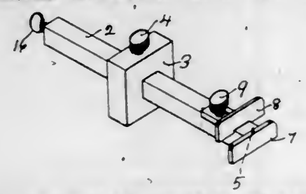
658,880. CABINET. JOHN L. TANDY, Horton, Kans. Filed Dec. 2, 1899. Serial No. 738,997. (No model.)



Claim.—1. In a cabinet of the character described, the combination of a frame open at the top, cross-strips connecting the sides thereof, horizontally-disposed pins secured to one of said strips, and cross-bars at the top and bottom of the frame for retaining molding between said pins.

2. A cabinet for picture-frame molding, &c., having similar sections open at their tops and hinged together at opposite sides alternately, and each provided with cross-strips on the median line thereof, horizontally-disposed pins projecting in opposite directions from one of said strips, and having elastic bands secured thereto, and cross-bars at the top and bottom of the frame for retaining molding in an upright position between said pins, substantially as described.

658,881. GAGE FOR CARPENTERS. GEORGE H. THOMPSON, Somerville, Mass. Filed Feb. 2, 1899. Serial No. 704,241. (No model.)

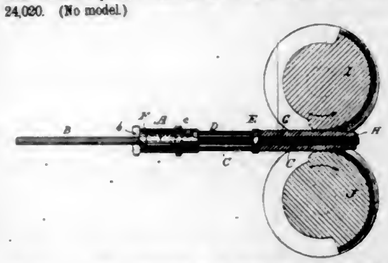


Claim.—1. In a device of the character indicated, in combination, the hollow staff 2, the collar 3, and the auxiliary gage 8; said collar and auxiliary gage being independently adjustable on said staff 2, and a slide adjustably secured on the staff; substantially as described.

2. In a device of the character indicated, the staff 2 having the fixed cutter 5, and slide 20 in combination with the collar 3 and the cutter 24 and adjusting connections whereby the collar and cutter 24 are made adjustable on the staff 2, and cutter 6 extending through the slide and secured to staff 2; substantially as described.

3. A device of the character indicated comprising in combination, the staff 2 carrying fixed cutters 5 and 6, slotted slide 20, through the slot of which the cutter 6 extends, the auxiliary gage 8, the collar 3, the cutter 24 and the adjusting connections whereby said auxiliary gage 8, collar 3, and cutter 24 are separately adjustable on the staff; substantially as described.

658,882. MANDREL MECHANISM FOR ROLLING BILLETS INTO TUBES. GEORGE J. THUST, Toledo, Ohio, assignor to the Shelby Steel Tube Company, Pittsburg, Pa. Filed July 18, 1900. Serial No. 24,020. (No model.)



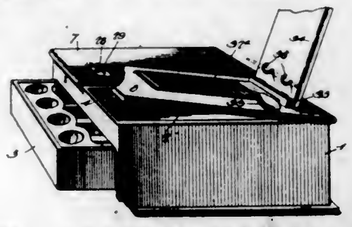
Claim.—1. The combination in an apparatus for rolling billets into tubes, of a mandrel, a longitudinally-movable collar thereon, and means for securing said collar when moved forward on said mandrel, substantially as and for the purpose set forth.

2. The combination in an apparatus for rolling billets into tubes, of a head having an operating-handle thereon, a mandrel removably secured in said head, a collar adapted to be projected outwardly from said head over said mandrel, and means for securing said collar when so moved forward, substantially as and for the purpose set forth.

3. The combination in an apparatus for rolling billets into tubes, of an operating-handle, a head secured thereon, a mandrel removably secured in the front end of said head, a collar adapted to slide on said mandrel in front of said head, a collar adapted to slide on the handle at the rear of said head, rods connecting said collars together, and means for securing the collar on the operating-handle up against the rear end of the head, substantially as and for the purpose set forth.

4. In an apparatus substantially as described for rolling seamless metal tubes, the combination of a mandrel with a movable stop or shoulder and means for securing it to the mandrel at prescribed distances from the point thereof for the purposes set forth.

658,883. CASH-DRAWER. ALBERT B. TOMLIN, Fort Collins, Colo. Filed Mar. 20, 1900. Serial No. 9,443. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a casing, a cash-drawer, a registering dial or disk provided with a ratchet-wheel, the bell-crank lever 18 arranged to be engaged by the cash-drawer and having one of its arms extended upward, a longitudinal actuating-bar pivoted at its rear end to the upwardly-extending arm of the bell-crank lever, and having its front end engaging the ratchet-wheel, a bell-crank lever 25 fulcrumed at its angle near the front end of the actuating-bar and provided at one of its arms with a projection or lug arranged to engage the dial or disk, and a connecting-bar disposed longitudinally and extending from the other arm of the bell-crank lever 25 to the upper arm of the bell-crank lever 18, substantially as and for the purpose described.

2. In an apparatus of the class described, the combination of a casing, a cash-drawer, a registering dial or disk provided with a ratchet-wheel, the bell-crank lever 18 arranged to be engaged by the cash-drawer and having one of its arms extending upward, a longitudinal actuating-bar pivoted at its rear end to the upwardly-extending arm of the bell-crank lever, and having its front end engaging the ratchet-wheel, a bell-crank lever 25 fulcrumed at its angle near the front end of the actuating-bar and provided at one of its arms with a projection or lug arranged to engage the dial or disk, a connecting-bar disposed longitudinally and extending from the other arm of the bell-crank lever 25 to the upper arm of the bell-crank lever 18, and the bracket 24 mounted on the casing adjacent to the bell-crank lever 25 and extending over the connecting-bar

and provided with a loop 23 receiving and guiding the actuating-bar, substantially as described.

3. In an apparatus of the class described, the combination of a casing having a compartment and provided with a lid arranged over the compartment and forming a support for a pad or tablet, and having means for engaging the same, a cash-drawer, registering mechanism, and a cover hinged to the lid and arranged to conceal the pad or tablet, substantially as described.

658,884. HORSESHOE TOE-CALK. WILLIAM A. WEBER, Wapakoneta, Ohio. Filed Mar. 31, 1900. Serial No. 11,007. (No model.)



Claim.—1. A horseshoe toe-calk comprising a bar of metal and a lug thereon having two flat parallel sides and a blunt end.

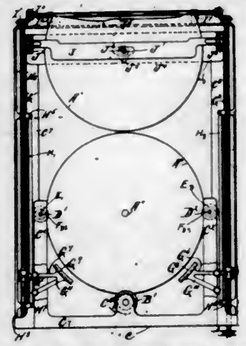
2. A horseshoe toe-calk comprising a bar of metal and lug thereon having two flat parallel sides and two of its sides curved or circular and tapering near its end.

3. A horseshoe toe-calk comprising a bar of metal, a flange or lip along one side thereof and a lug on the upper face of said bar having two sides flat and parallel, and the other two sides curved and tapering near the blunt end of the lug.

4. A horseshoe toe-calk comprising a bar of metal having a sharp bearing edge and a flat upper face to engage the shoe, a flange on one side of said bar to enlarge the upper face in contact with the shoe, and a lug projecting upward from said flat upper face at one end of the bar and having two flat parallel sides and two curved or circular and tapering near the end.

5. A horseshoe toe-calk comprising a bar of metal, a flange or lip on said calk to increase the flat face against the shoe, an upwardly-projecting lug on said calk having two flat parallel sides and two curved or circular sides, both sloping or tapering near the blunt end, substantially as set forth.

658,885. TUNE-SHEET FEEDER. JULIUS WELLNER, Jersey City, N. J. Filed Dec. 19, 1899. Serial No. 740,865. (No model.)



Claim.—1. The combination in a mechanical musical instrument of separate tune-sheets operating the same; a horizontal rod furnished with threads that engage with the edge of the tune-sheets, and arms attached to and operated by vertical screw-cut rods substantially as and for the purposes described.

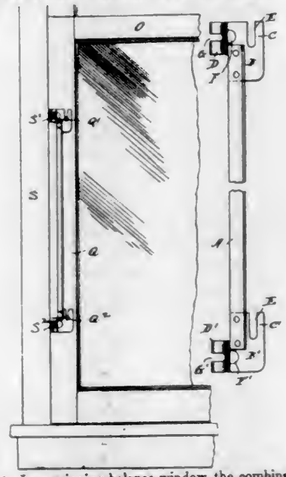
2. The combination in a mechanical musical instrument of the tune-sheets operating the same; with one or more screws moving and guiding said tune-sheets by means of direct engagement between the screw-threads and edge of sheet, means for steadying the circumference of the tune-sheets, and screw-cut elevating-rods, each having an arm attached to and operated by it substantially as and for the purposes described.

3. In a mechanical musical instrument, separate tune-sheets for operating the same, one or more horizontal screws conveying said tune-sheets to their elevating position by means of direct engagement between the screw-threads and tune-sheet edges, one or more perpendicular screws having means attached for elevating the tune-sheets to their locking position, substantially as and for the purposes described.

4. In a mechanical musical instrument separate tune-sheets for operating the same, means for conveying the tune-sheets to their elevating position substantially as described, one or more perpendicular elevating-screws, screw-actuated arms with antifriction-bearings for supporting the tune-sheets attached to said screws, a locking-bar operated by means attached to one of the elevating-screws substantially as described.

5. In a mechanical musical instrument with separate tune-sheets for operating the same, the combination of means conveying the said tune-sheets to and from their elevating position with a screw-cut elevating rod or rods, and means for engaging the edges of the tune-sheets for elevating the same attached to and operated by said screw-cut rod or rods substantially as and for the purposes described.

658,886. SWINGING WINDOW. HIRAM K. WHITNER, Chicago, Ill. Filed Feb. 9, 1900. Serial No. 4,603. (No model.)



Claim.—1. In a swinging balance-window, the combination, with a window-frame, a lower and an upper sash-frame, of a portable hanger having a cross-head fixed at each extreme of a bar, said bar being adapted to give stability to said cross-heads, each of said cross-heads being provided with a cleft of U form and a hollow cylindriform socket, each of said hollow sockets being provided with a keyhole-form eye and slot incurvated to conform with the wall of said hollow socket, said incurvated slot being adapted to register with a protruding screw fixed to a casing-stop pertaining to said window, said U-form clefts being adapted to register with the protruding screws fixed to the side stile of a lower sash-frame, whereby the lower sash of said window may be swung inward, and means whereby the upper sash may be swung inward, substantially as and for the purpose set forth.

2. In a swinging balance-window, the combination, with a window-frame, a lower and an upper sash-frame, of a portable hanger having a cross-head fixed at each extreme of a bar, said bar being adapted to give stability to said cross-heads, each of said cross-heads being provided with a hollow cylindriform socket, each of said hollow sockets being provided with a U-form cleft and with a slot of T form having an incurvated horizontal slot and a pendent cleft, said T-form slot being adapted to register with a screw protruding from a parting-strip pertaining to said window, a duplicate of said T-form slot being adapted to register with another screw protruding from said parting-strip, said U-form cleft being adapted to register with a protruding screw fixed to a side stile pertaining to an upper sash-frame, a duplicate of said U-form cleft being adapted to register with another screw protruding from said side stile, whereby said upper sash may be swung inward, and means whereby the lower sash pertaining to said window may be swung inward, substantially as and for the purpose set forth.

3. In a swinging balance-window, in combination with a window-frame, a lower and an upper sash-frame, a casing-stop S provided with the protruding screws S' and S^2, a sash-frame having a side stile Q provided with the protruding screws Q' and Q^2, a portable hanger having a bar A provided with cross-heads B and B′ having clefts E and E′ of U form, said clefts being adapted to register with said screws Q' and Q^2, said portable hanger being provided with hollow cylindriform sockets D and D′ and having slots of keyhole form consisting of eyes F and F′ and incurvated slots G and G′, said keyhole-form slots being adapted to register with said screws S' and S^2 as a means whereby said lower sash may be swung inward, substantially as and for the purpose set forth.

4. In a swinging balance-window, in combination with a window-frame, a lower and an upper sash-frame, a parting-strip s provided with the protruding screws s' and s^2, a sash-frame having a side stile q provided with two relatively-placed screws q' and q^2, a portable hanger having a bar a provided with the cross-head at the top extreme and provided

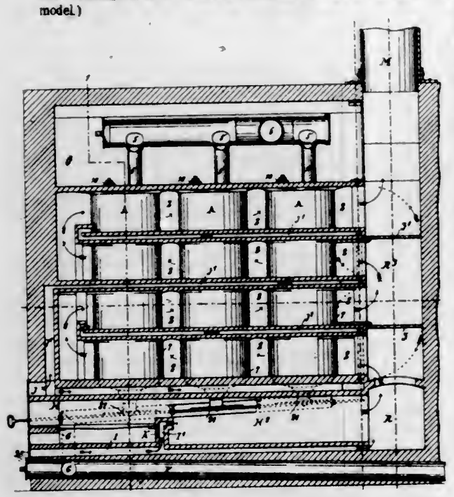
with a duplication of said cross-head at the bottom extreme, each of said cross-heads being provided with a hollow cylindriform socket *d*, each of said hollow cylindriform sockets being provided with a U-form cleft *e* and an incurvated slot *g* and a pendent cleft *f*, as a means whereby said upper sash may be swung inward, substantially as and for the purpose set forth.

5. In a swinging balance-window, in combination with a window-frame provided with casing-stops and parting-strips, a lower and an upper sash-frame provided with side stiles, a recedable screw-bolt X adapted to engage with a facing-plate Y' adapted to be fixed to said casing-stops, to said parting-strips and to said side stiles, a nut Z adapted to limit the approach of said recedable bolt, substantially as and for the purpose set forth.

658,887. METHOD OF PREPARING MEAT EXTRACTS. SAMUEL BERGHEIM, London, England. Filed May 1, 1900. Serial No. 15,118. (No specimens.)

Claim.—The process of preparing meat extracts, whereby it is possible to incorporate therewith albumen varying in proportion from five (5) per cent. upward, which consists in first boiling the albumen in water until it is jellified; boiling the meat extract and adding thereto gelatine dissolved in water; and then adding the jellified albumen, prepared as above, to the meat extract, and stirring the mixture until the same attains a consistency equal to cream; and finally gradually reducing the heat and permitting the preparation to cool.

658,888. WOOD-DISTILLING APPARATUS. CARL W. BILFINGER, Washington, N. C. Filed Jan. 27, 1899. Serial No. 703,604. (No model.)



Claim.—1. A wood-distilling apparatus comprising an oven a furnace, smoke and air flues arranged in the oven in sections as herein shown and described, means for diverting the flow of combustion-gases through each section independently of the others; retorts set in the oven and having charging-apertures in their tops; removable lids upon the apertures and means for securing them thereon; funnel-shaped bottoms with outlets provided with means for closing the same, for discharging the tar; and conduits for withdrawing the volatile products of the distillation from the retorts.

2. An oven for a wood-distilling apparatus, comprising a furnace, a chamber above the furnace, a smoke-flue from the furnace to the chimney alongside the chamber and separated therefrom by a partition-wall, a series of horizontal walls dividing the chamber into sections, apertures in the partition-wall forming an inlet and an outlet for each section of the chamber; dampers closing the apertures in the partition-wall, and means for dividing the adjoining smoke-flue into compartments corresponding with the sections of the damper.

3. An oven for a wood-distilling apparatus, comprising a furnace, a chamber above the furnace, a smoke-flue from the furnace to the chimney alongside the chamber and separated therefrom by a partition-wall, a series of horizontal walls dividing the chamber into sections; air-flues arranged in the horizontal walls and in the partition-wall and opening into the chamber; apertures in the outer wall of the oven communicating with the air-flues and means for closing the same; apertures in the partition-wall forming an inlet and an outlet for each section of the chamber; dampers closing the apertures in the partition-wall, and means for dividing the adjoining smoke-flue into compartments corresponding with the sections of the damper.

658,889. WIRE POST. AUGUSTUS T. BROOK, New York, N. Y. Filed Nov. 9, 1899. Serial No. 736,372. (No model.)



Claim.—A fence-post consisting of a single length of wire forming a loop at the top of the post and twisted together substantially from end to end, a vertically-disposed plate *p* embraced by the twisted wire or wires, and a horizontal anchor-plate having holes through which the two ends of the wire are looped, said ends being twisted and so secured, substantially as set forth.

658,890. BUNSEN BURNER. FRANK M. BROOKS, New York, N. Y. Filed Mar. 15, 1900. Serial No. 8,719. (No model.)

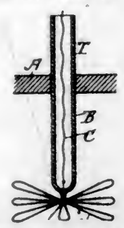


Claim.—1. In a Bunsen burner a tube within which the air and gas mix, and a diaphragm or obstruction to the passage of the fluids having a single central perforation or opening, said diaphragm being located within the central longitudinal third of said tube, for the purposes set forth.

2. In a Bunsen burner a tube within which the air and gas mix, a diaphragm or obstruction to the passage of the fluid, having a single centrally-located perforation or opening, said diaphragm being located within the central longitudinal third of said tube, and means at or near the lower end of the tube to regulate the supply of air, for the purposes set forth.

3. In a Bunsen burner a tube within which the air and gas mix, a ledge or obstruction projecting radially into the tube leaving a single central opening through the same, said ledge being located within the central longitudinal third of the tube, whereby reverse currents or eddies of the fluids are generated, for the purposes set forth.

658,891. ELECTRODE AND ELECTRODE CONNECTION. HENRY CARMICHAEL, Malden, Mass., assignor to S. D. Warren & Co., Boston, Mass. Filed May 11, 1899. Serial No. 716,373. (No model.)



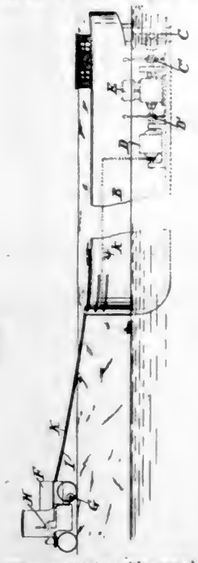
Claim.—1. The combination with the inclosing case of a cell for electrolytic or kindred purposes, of a plurality of introductory conduits for electrode connections each of the said conduits consisting of a tube of insulating material closed at one end, passing through the inclosing case and having its open end outside and its closed end inside the case, a pin on non-corrodible conducting material passing through and sealed in the inner end of the insulating-tube, and protruding from the wall of the tube both inside and outside, and having an electrical conductor in contact with the inner end of the pin and leading through the open end of the tube, and wires strung between the exposed ends of the several pins.

2. An introductory conduit for electrodes which consists of a tube of vitrified porcelain, closed at one end, a pin of platinum passing through and sealed in the closed end of the tube, a copper conductor within the tube, joined electrically to the intruding end of the platinum pin, and a filling of asphalt in the tube, inclosing the copper conductor.

3. An electrode and connections thereto which consist of a tube of insulating material closed at one end, a pin of non-corrodible conducting material sealed in the closed end of the tube and protruding from and intruding within the tube, and an active electrode consisting of filaments of non-corrodible conducting material radiating from and supported by the protruding end of the pin.

4. As a new article of manufacture, an electrode connection consisting of a tube of vitrified porcelain, open at one end and closed at the other, having a pin of non-corrodible metal fused in the closed end so that the points of the pin protrude from and intrude within the tube.

658,892. CANAL-BOAT PROPULSION. JUSTUS B. ENTZ, Philadelphia, Pa. Filed Feb. 10, 1900. Serial No. 4,734. (No model.)



Claim.—1. The combination with a vessel adapted to traverse artificial and natural waterways and to be connected mechanically to a land-tractor, of a propeller, an electric generator adapted to be connected electrically with the motor of said tractor, a prime mover, and means to couple said prime mover to or from said propeller or said generator at will.

2. The combination with a vessel adapted to traverse artificial and natural waterways, a dirigible, electric land-tractor, and a mechanical connection from said vessel to said tractor, of a propeller for said vessel, an electric generator on the vessel and adapted to be connected electrically with the motor of said tractor, a prime mover, and means to couple said prime mover to or from said propeller or said generator at will.

658,893. GAS-BURNER. WILLIAM E. GIBBS, Fanwood, N. J., assignor to Alexander C. Humphreys and Arthur G. Glasgow, New York, N. Y. Filed Dec. 15, 1899. Serial No. 740,376. (No model.)



Claim.—1. In a gas-burner, a casing forming the outer wall of the burner-chamber and a tube extending above the lower portion of said casing in combination with a mixing and preheating cage connected to said tube and situated in said casing so as to be interposed in the path of the gases passing through the burner and out of contact with the casing, said cage extending to the top of the burner as described and so as to be directly heated by the flame of the burner.

2. In a gas-burner, a casing froming the outer wall of the burner-chamber and a tube extending above the lower portion of said casing in combination with a mixing and preheating cage connected to said tube and formed of an integral piece of metal situated in said casing so as to be interposed in the path of the gases passing through the burner, said cage extending to the top of the burner as described and so as to be directly heated by the flame of the burner.

3. In a gas-burner, a casing forming the outer wall of the burner-chamber in combination with a mixing and preheating cage consisting of a series of bars separated by spaces or slots, said cage being situated in said casing so as to have its slotted side walls interposed in the path of the gases passing through the burner, said cage extending to the top of the burner so that each bar has its upper end directly exposed to the flame of the burner.

4. In a gas-burner, a casing forming the outer wall of the burner-chamber in combination with a mixing and preheating cage supported from the top of the burner so as to have its top edge directly exposed to the flame said cage depending in the casing out of contact with its sides or bottom, and a Bunsen tube communicating directly with the inside of the cage and through its walls with the casing.

5. In a gas-burner, a casing forming the outer wall of the burner-chamber in combination with a mixing and preheating cage having its upper edge directly exposed to the flame of the burner, said cage extending down into the casing and being supported therein out of contact with its sides or bottom, and a Bunsen tube communicating directly with the inside of the cage and through the walls of said cage with the casing.

6. In a gas-burner, a casing forming the outer wall of the burner-chamber in combination with a mixing and preheating cage formed of a vertically-slotted metal cylinder, said cylinder having the upper ends of its bars separating its slots directly exposed to the flame and being supported in the casing out of contact with its walls and bottom, and a Bunsen tube communicating directly with the inside of the cage and through its slots with the casing.

7. In a gas-burner, a Bunsen tube in combination with a burner-casing supported thereon, a hollow cylindrical mixing and preheating cage situated in said casing with its upper edge directly exposed to the flame and close to though out of contact with the upper edge of the casing, and means for relatively adjusting the cage and casing in a longitudinal direction to vary the relative position of the top edges.

8. In a gas-burner, a Bunsen tube in combination with a burner-casing supported thereon, a mixing and preheating cage situated in said casing with its upper edge directly exposed to the flame and its lower edge out of contact with the sides and bottom of the casing, and means for relatively adjusting the cage and casing.

9. In a gas-burner, a Bunsen tube in combination with a burner-casing supported thereon, a mixing and preheating cage situated in said casing and independently supported on the tube with its upper edge directly exposed to the flame, and means for relatively adjusting the cage and casing.

10. In a gas-burner, a Bunsen tube closed at its upper end and having apertures in its wall in combination with a burner-casing supported at its bottom on a portion of the tube below its apertured portion and a mixing and preheating cage supported in the casing on the top of the tube and out of contact with the casing.

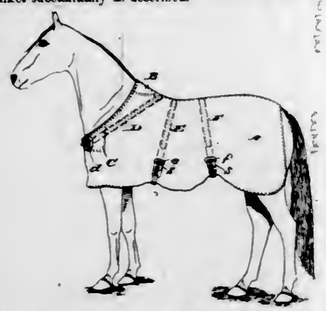
11. In a gas-burner, a Bunsen tube closed at its upper end and having apertures in its wall in combination with a burner-casing supported at its bottom on a portion of the tube below its apertured portion, said casing being longitudinally adjustable on the tube, and a mixing and preheating cage supported in the casing on the top of the tube and out of contact with the casing.

658,894. BLANKET. THOMAS D. GORDON, Monmouth, Ill. Filed Feb. 1, 1900. Serial No. 3,612. (No model.)

Claim.—1. A horse-blanket provided with means for fastening same to the animal, consisting of straps fastened to the under side of the blanket and having their ends passing through openings located away from the edges of the blanket, substantially as described.

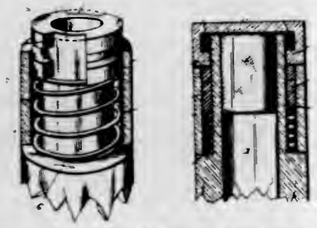
2. A horse-blanket provided with means for fastening same to the animal, consisting of straps fastened to the under side of the blanket by stitching, the lower ends of the straps passing through openings in the blanket located away from the edges thereof and the stitching which fastens the straps to the blanket terminating at a distance from the holes, substantially as described.

3. A horse-blanket provided with a fastening-strap D fastened to the under side of the blanket and extending from the front thereof backward away from the front upper edge of the blanket to a point approximately behind that part of the blanket which covers the horse's withers, the ends of said strap D passing through openings located away from the front edges of the blanket substantially as described.



4. A horse-blanket provided with means for fastening same to an animal, consisting of straps stitched to the under side of the blanket for the greater portion of their length and having their ends, some distance below where the stitching stops, passing through openings in the blanket at a distance away from the edges thereof, the forward neck-strap having its upper portion located at a distance behind the forward upper edge of the blanket, substantially as and for the purpose described.

658,895. NON-REFILLABLE BOTTLE. WILLIAM HINTON, Hinton, W. Va., assignor of one-half to George O. Queesenberry, same place. Filed Feb. 10, 1900. Serial No. 4,811. (No model.)



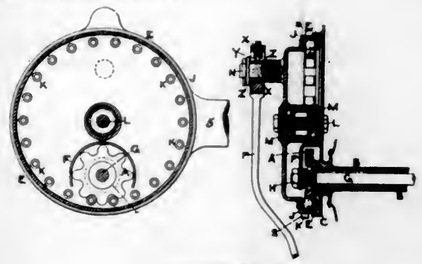
Claim.—1. In a non-refillable bottle, the combination, with a bottle the neck of which is grooved annularly and provided with longitudinal grooves in position to intersect the annular groove, of longitudinally-movable keys in the longitudinal grooves, a cap provided with inwardly-extending projections in position to enter the annular groove and be locked therein by the keys, substantially as described.

2. In a non-refillable bottle, the combination with a bottle, the neck of which is annularly grooved near its upper end and provided with longitudinal grooves in position to intersect the annular groove, keys in said longitudinal grooves, a cap provided with inwardly-extending projections in position to enter the annular groove and be locked therein by the keys, a spring for holding the keys across the annular groove and a shield around the spring, substantially as described.

3. In a non-refillable bottle, the combination, with a bottle the lower portion of the neck of which is shouldered and the upper end is provided with an annularly-grooved collar, said collar being provided with longitudinal grooves, keys in said longitudinal grooves of substantially the same length as the height of the collar, a spring upon the neck between the shoulder and the bottom of the collar, a cylindrical shield around the spring, and a cap, the flange of which is adapted to rest against the top of the shield when in position, and is provided with inwardly-extending projections adapted to enter the longitudinal grooves and be locked within the annular groove by means of said keys, substantially as described.

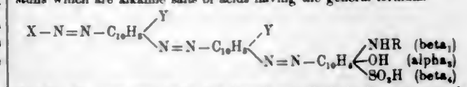
658,896. DRIVING-GEAR FOR VELOCIPEDES. WILLIAM H. HIRST, Hull, England. Filed June 4, 1900. Serial No. 18,967. (No model.)

Claim.—In a velocipede, the combination, with an axle, and a driving-wheel journaled thereon; of a toothed pinion secured to the driving-wheel; a plate secured to the frame of the machine and provided with a projecting stud, an annular flange concentric with the hub, and a projecting bracket which is secured to the said axle and forms a guard for the said pinion; an internal-toothed wheel gearing into the said pinion and running on the said hub and in the said flange and forming a closed chamber with the said plate, and means for revolving the said toothed wheel, substantially as set forth.



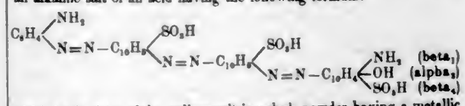
658,897. BLUE TRISAZO DYE. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed July 20, 1900. Serial No. 24,293. (No specimens.)

Claim.—1. As new articles of manufacture the new trisazo dyestuffs which are alkaline salts of acids having the general formula:



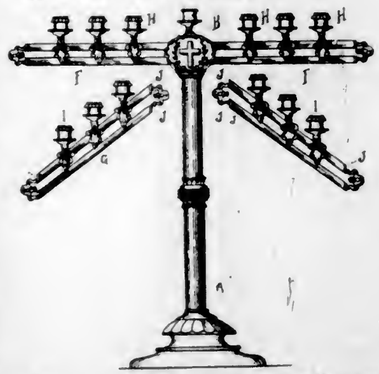
X—N=N— representing in this formula a radical of a diazo compound, Y a hydrogen atom, that may be substituted by a sulfo group, and R meaning a hydrogen atom, which may be substituted by an alkyl radical, and which are dark powders, having a metallic luster, soluble in water with from reddish-blue to blue colors; dyeing unmordanted cotton from reddish-blue to greenish-blue shades which are distinguished by their fastness to light, substantially as hereinbefore described.

2. As a new article of manufacture the new trisazo dyestuff, being an alkaline salt of an acid having the following formula:



which in the form of the sodium salt is a dark powder having a metallic luster, readily soluble in water with a pure-blue color, the free dyestuff sulfonic acid being precipitated therefrom by the addition of mineral acids; soluble with difficulty in alcohol; being dissolved by concentrated sulfuric acid (66° Baumé) with a greenish-blue color which is changed into pure blue on the addition of a small quantity of ice, while on the addition of a larger quantity of ice a dark precipitate is obtained; dyeing unmordanted cotton clear-blue shades which shades are distinguished by their fastness to light, substantially as hereinbefore described.

658,898. CANDELABRUM. GEORGE P. KATO, Jr., Jersey City, N. J., assignor of one-half to John J. Cullen, same place. Filed Jan. 17, 1899. Serial No. 702,419. (No model.)

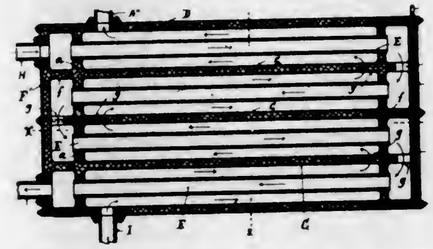


Claim.—1. In a candelabrum having arms with fixed candle-sockets on their upper edges, a T-shaped tongue furnished at each end of the arm, T-shaped grooves receiving said tongues furnished in the apex of the candelabrum substantially as described.

2. In a candelabrum having an apex and arms, the arms having fixed sockets on their upper edges, lugs furnished at the ends of each arm terminating the web of the arm, in combination with perpendicular sockets furnished in the said apex adapted to receive said lugs substantially as described.

3. A candelabrum having the standard and head or apex, the latter being provided with the fastening-sockets at its opposite sides, combined with the normally-inclined arms having the fixed vertically-disposed candle-sockets on their upper edges, said arms being detachable and provided on both their ends with fastening devices to engage and coöperate with said sockets, whereby said arms are each rendered reversible, end for end, and capable of being changed from a downward inclination to an upward inclination with the candle-sockets always remaining upright; substantially as set forth.

658,899. COOLING AND CONDENSING APPARATUS. HENRY D. POWNALL, Cincinnati, Ohio. Filed Dec. 7, 1899. Serial No. 739,492. (No model.)



Claim.—1. In a cooling and condensing apparatus, a coil of pipes in which the medium to be cooled or condensed is circulated, a non-corrosive receptacle through which the impure cooling-water is circulated; a series of non-corrosive tubes spanning said receptacle; a body of pure water; and means for circulating it first through the tubes of the receptacle, where it is cooled, and then in contact with the condenser-coils, substantially as specified.

2. In a cooling and condensing apparatus a coil of pipes in which the medium to be condensed is circulated; a non-corrosive receptacle through which the impure cooling-water is circulated, a series of non-corrosive tubes spanning said receptacle; removable heads inclosing the ends of said tubes; a body of pure water and means for circulating it first through the tubes of the receptacle, where it is cooled and then in contact with the condenser-coils, substantially as specified.

3. As a new article of manufacture a cooling and condensing apparatus consisting of a receptacle molded from cement or other vitreous composition; tubes of vitreous material spanning the same; heads with recesses forming connecting-passages between the tubes, metal studs bedded in the composition for securing and holding the heads in place; and outside pipe connections directing the different mediums respectively to the inside and outside of said tubes, substantially as specified.

4. In a cooling and condensing apparatus, a receptacle molded in a single piece from cement or other similar vitreous material; a series of tubes of vitreous material spanning the same; removable heads incasing the ends of said receptacle and provided with recesses forming connecting-passages between the pipes; means substantially as described for detachably securing the heads in place; and outside pipe connections directing the different mediums respectively to the inside and outside of said tubes, substantially as specified.

658,900. BATTERY FLUID. GENNARO ROMANELLI, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,307. (No specimens.)

Claim.—1. As an improved article of manufacture, a battery fluid consisting of cupric chlorid mixed with sulfate of sodium.

2. As an improved article of manufacture, a battery fluid consisting of cupric chlorid mixed with approximately thirty per cent. of sulfate of sodium.

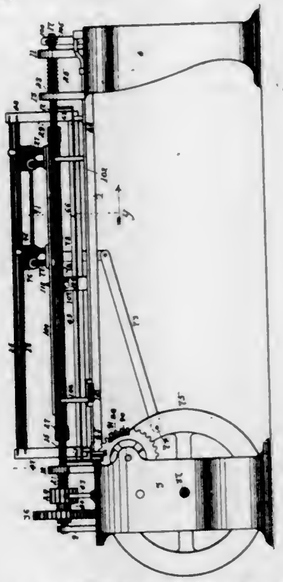
3. A battery fluid consisting of cupric chlorid mixed with sulfate of sodium, combined with chlorid of sodium in solution, substantially as and for the purpose set forth.

4. A battery fluid consisting of one part by weight of chlorid of sodium in solution, and one-half to three-fourths of a part by weight of cupric chlorid mixed with sulfate of sodium in the proportion of about thirty per cent. of sulfate of sodium, substantially as and for the purpose set forth.

5. A battery fluid, consisting of chlorid of sodium combined in solution with acetic acid, and cupric chlorid mixed with sulfate of sodium, substantially as and for the purpose set forth.

6. A battery fluid, comprising a solution of cupric chlorid mixed with sulfate of sodium for contact with the negative electrode and a solution of chlorid of sodium for contact with the positive electrode.

658,901. MACHINE FOR ROLLING TUBES FOR PNEUMATIC TIRES. WILLIAM H. TANEYHILL, Columbus, Ohio, assignor of one-half to David B. Aungst, Akron, Ohio. Filed Aug. 4, 1900. Serial No. 25,929. (No model.)



Claim.—1. In a machine for rolling tubes of the class specified, the combination with means for detachably holding a mandrel bearing an inner tube, and for revolving it with an intermittent movement, and for presenting successive layers of material to be wound thereon, of pressure-rollers arranged to travel reciprocally on said mandrel at each pause in its revolution, and mechanism coacting with the revolving machinery to cause such movement substantially as shown and described.

2. In a machine for rolling tubes of the class specified, the combination with means for detachably holding a mandrel bearing an inner tube, and for revolving it with an intermittent movement, and for presenting successive layers of material to be wound thereon, and pressure-rollers arranged to travel reciprocally on said mandrel at each pause in its revolution, and mechanism coacting with the revolving machinery to cause such movement, of device to raise said rollers from contact with the tube being formed during the time of such partial revolution, substantially as shown and described.

3. In a machine for rolling tubes of the class specified, the combination with means for detachably holding a mandrel bearing an inner tube, and for revolving it with an intermittent movement, and for presenting successive layers of material to be wound thereon, of pressure-rollers arranged to travel reciprocally on said mandrel at each pause in its revolution, and mechanism coacting with the revolving machinery to bring said rollers into contact with said material on said mandrel simultaneously with the winding of the successive layers thereon, and to place them out of contact after a determinate number of partial revolutions substantially as shown and described.

4. In a machine for rolling tubes of the class specified having means for detachably holding a mandrel bearing an inner tube, and revolving it with an intermittent movement, a reciprocating roller-carriage having sliding shafts bearing spring-pressed rollers arranged to run reciprocally on said mandrel, and fingers extending from said roller-shafts in combination with wedges to be engaged thereby at the end of each movement of said carriage, to raise said rollers from the mandrel, substantially as shown and described.

5. In a machine for rolling tubes of the class specified, the combination with pressure-rollers arranged to travel reciprocally along a mandrel to hold the tube, of oppositely-disposed spring-pressed heads to receive the ends of said mandrel, and mechanism to cause intermittent revolution

of one of said heads to revolve said mandrel, substantially as shown and described.

6. In a machine for rolling tubes of the class specified, the combination with pressure-rollers arranged to travel reciprocally along a mandrel to hold the tube, of oppositely-disposed sliding spring-pressed heads to receive the ends of the mandrel, mechanism to cause intermittent revolution of one of said heads to revolve said mandrel, and coacting mechanism to withdraw one of said heads after a determinate number of revolutions of said mandrel to permit its removal substantially as shown and described.

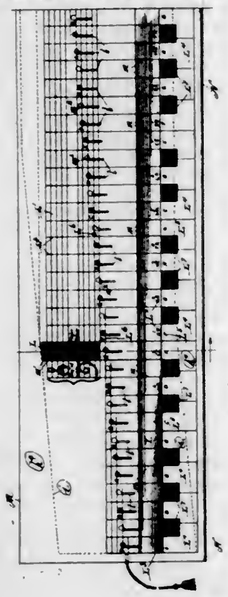
7. In a machine for rolling tubes of the class specified, the combination with pressure-rollers arranged to travel reciprocally along the mandrel to hold the tube, of oppositely-disposed spring-pressed heads to receive the ends of the mandrel, mechanism to cause intermittent revolution of one of said heads to revolve the mandrel, coacting mechanism to withdraw one of said heads after a determinate number of revolutions of said mandrel, and a spring-pressed blade in the opposite head to eject the end of the mandrel therefrom, substantially as shown and described.

8. In a machine for rolling tubes of the class specified, the combination with pressure-rollers arranged to travel reciprocally along a mandrel to hold the tube, of a sliding frame arranged to move reciprocally in a course parallel with the course of said rollers, having spring-pressed heads to receive the ends of said mandrel, mechanism to operate said rollers, coacting mechanism to cause intermittent revolution of said mandrel, and devices to move said frame reciprocally during a portion of the revolution of said mandrel to prevent the rollers from engaging the valve-stem, substantially as shown and described.

9. In a machine for rolling tubes of the class specified adapted to embed screw-threaded nuts therein, having means for detachably holding a mandrel bearing an inner tube and for revolving it with an intermittent movement a reciprocating roller-carriage having sliding spring-pressed rollers arranged to run reciprocally on said mandrel and fingers extending from said roller-shafts, in combination with a series of bosses arranged in the same order and distance apart as said screw-threaded nuts, adapted to be engaged by said fingers to raise said rollers to pass said nuts, substantially as shown and described.

10. In a machine for rolling tubes of the class specified, the combination with means for detachably holding a mandrel bearing an inner tube and for revolving it with an intermittent movement, and for presenting successive layers of material to be wound thereon, and pressure-rollers arranged to travel reciprocally on said mandrel at each pause in its revolution, and coacting machinery to cause such movement, of fixed rollers adjusted to bear against said mandrel and to press the tubes thereon adjacent to the valve-stem, substantially as shown and described.

658,902. **MECHANICAL MUSIC-CHART.** SAMUEL B. TURNER, Chicago, Ill. Filed May 2, 1898. Serial No. 679,453. (No model.)



Claim.—1. The combination with a body or supporting-piece having a cavity provided with inclined edges and shoulders, of a transposer movably located within the cavity and having inclined edges and shoulders to engage those of the body, substantially as described.

2. The combination with a body or supporting-piece having a cavity, a vertical opening to exhibit the sharps and flats in the different keys, as well as other characters showing the relation between major and minor music, said characters being arranged in pairs on one side of a single transposer, and a horizontal opening, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, substantially as described.

3. The combination with a body or supporting-piece having a cavity provided with inclined edges and shoulders, said piece having a vertical opening, a horizontal opening and a series of note-shaped openings, of a transposer movably located within the cavity of the body and having signatures or marks of transposition and a series of black or colored spaces arranged on its front surface, substantially as described.

4. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, and a series of note-shaped openings, said body being provided on its front surface with bars, staffs and clefs, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, and a series of black or colored spaces located on its front surface, substantially as described.

5. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, said body being provided on its front surface with bars, staffs and clefs, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition thereon and also having a series of black or colored spaces diagonally located on its front surface, said spaces bearing figures, the transposer also having words and Arabic figures representing the diatonic scale arranged in horizontal lines on its front surface, substantially as described.

6. The combination with a body or supporting-piece having a cavity provided with inclined edges, said body having a vertical opening, a horizontal opening, and a series of note-shaped openings and being provided on its front surface with bars, staffs and clefs, of a transposer having inclined edges and located within the cavity of the body and provided with signatures or marks of transposition, and a series of black or colored spaces arranged on its front surface, substantially as described.

7. In a chorigraph or mechanical music-chart, the combination with a body having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, and being provided on its front surface with bars, staffs, clefs, lines, words, letters and a representation of the keyboard of a piano or organ, and having secured over its front a transparent piece, of a transposer diagonally movably located within the cavity of the body, said transposer having thereon signatures or marks of transposition, arranged in pairs, and having connected therewith characters of explanation, and also having thereon black or colored spaces, and also a line of syllables and a line of numerals arranged horizontally, substantially as described.

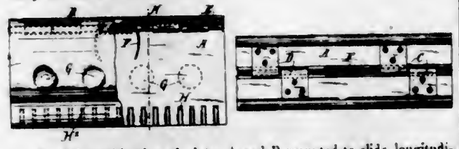
8. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, of a transparent piece secured over the front of the body, and a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, substantially as described.

9. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, and a series of note-shaped openings, said body being provided on its front surface with bars and staffs, of a transparent piece secured over the front surface of the body and having lines to register with the bars and staffs of the body, and a transposer diagonally movably located within the cavity of the body and having on its front surface signatures and black or colored spaces, substantially as described.

10. In a chorigraph or mechanical music-chart, the combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, and being provided on its front surface with bars, staffs, clefs, lines, words, letters and a representation of the keyboard of a piano or organ, and having secured over its front a transparent piece having thereon lines to register with the bars and staffs, of a transposer diagonally movably located therein said transposer having thereon signatures or marks of transposition and syllables and numerals representing the diatonic scale, and a line of black or colored blocks arranged diagonally, substantially as described.

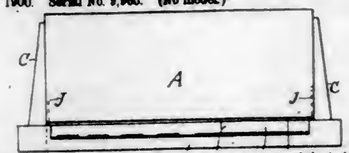
658,903. **MASSAGE APPARATUS.** FRANZ L. UNGETHUM, Oetzsch, Germany. Filed Sept. 9, 1899. Serial No. 730,022. (No model.)

Claim.—1. The combination of a series of plates having at their lower operative surfaces a series of engaging teeth said plates being hinged together and longitudinally movable on their hinge-pin and means for normally holding the plates apart and in register one with the other substantially as described.



2. The combination of plates A and B mounted to slide longitudinally on a common hinge-pin E and having a series of teeth at their lower adjacent edges and depressions at their backs for the thumb or finger of the operator, and a spring mounted on the said hinge-pin having its ends engaging the said plates and serving to normally hold the same apart on their hinge-pin and also to hold them normally in register one with the other in the manner and for the purpose substantially as described.

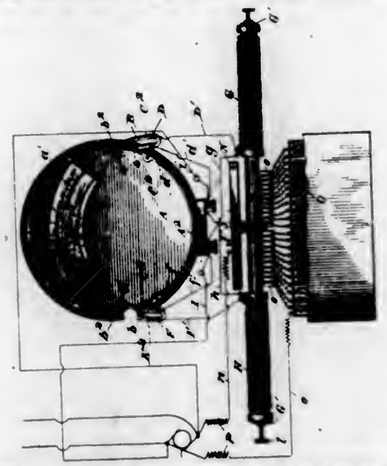
658,904. **WAGON-BOX SUPPORT.** WILLIAM C. WARREN and ARTHUR SMITHSON, Sedan, Minn. Filed Apr. 19, 1899. Renewed Mar. 23, 1900. Serial No. 9,965. (No model.)



Claim.—1. The combination with a wagon-box and the bolster supporting it, of a metallic sheet interposed between the bolster and the wagon-box, and adapted to be secured to the latter; said sheet having solid end portions as wide as the bolster extending upward at both sides of the wagon-box, it also having two corrugations depending downward one in the front and the other in the rear of the bolster, substantially as and for the purposes set forth.

2. The combination with the box, bolster and bolster-stakes of a wagon, of a sheet metallic lining extending all along the top of the bolster and up between the bolster stakes or standards and the box, said lining being securable to the wagon-box, and having two corrugations depending one in front and the other in the rear of the bolster, substantially as and for the purposes set forth.

658,905. **ELECTRIC-CURRENT REGULATOR.** DANIEL WATKINS, Davenport, Iowa, assignor of two-thirds to C. J. Ruymann, same place. Filed Mar. 28, 1900. Serial No. 10,527. (No model.)



Claim.—1. The combination of a movable volt-indicator, a pair of pins at the side thereof adapted to be electrically connected by contact with said indicator, a rheostat, an electromagnetic device connected with said pins and adapted to be energized upon the closing of the circuit by the indicator, a rheostat-switch and means for moving said switch controlled by said magnetic device, substantially as and for the purpose described.

2. The combination of a movable volt-indicator, pairs of pins or contacts on opposite sides thereof adapted to be electrically connected by contact with said indicator, and a pair of electromagnetic devices respectively electrically connected with said pins and adapted to be energized by the closing of the circuit by the indicator; with a rheostat, a rheostat-switch and means for moving said switch by said magnetic devices, substantially as described and for the purpose set forth.

3. The combination of the movable volt-indicator, the adjustable bar beside the indicator carrying a pair of pins or contacts adapted to be put in electrical connection by contact with the indicator, an electromagnetic device and connections between the pins on said bar and said device whereby a circuit is established through the latter when the circuit is closed by the indicator.

4. The combination of a volt-indicator, an adjustable bar having pairs of pins on opposite sides of the indicator adapted to be put in electrical communication by contact of the indicator therewith, a pair of electromagnetic devices and electrical connections respectively between said electromagnetic devices and the opposite pairs of pins on the bar whereby an electrical circuit is established through one electromagnetic device upon the contact of the indicator with the pins on the bar, substantially as described.

5. The combination of a volt-indicator, an adjustable bar having a pair of pins on opposite sides of the indicator adapted to be put in electrical communication by contact of the indicator therewith, a pair of electromagnetic devices and electrical connections respectively between said electromagnetic devices and the opposite pairs of pins on the bar whereby the electrical circuit is established through electromagnetic devices, alternately, by contact of the indicator with the pins on the bar; with a generator, a rheostat interposed in the field-circuit of the generator, and means for shifting the rheostat-switch by said electromagnetic devices.

6. The combination of a volt-indicator, a rheostat, its adjustable switch or contact-piece, the opposite solenoids, the common core attached to and operating the rheostat-switch, the pairs of pins or contacts on opposite sides of the indicator, the electrical connections between said pins and the solenoids respectively, for the purpose and substantially as described.

7. The combination of the voltmeter, its indicator, an adjustable bar beside the indicator, the rheostat, and its adjustable switch or contact piece; with the opposite solenoids, the common core attached to and operating the rheostat-switch, the pairs of contacts mounted upon said adjustable bar on opposite sides of the indicator, and electrical connections between said contacts and the solenoids respectively, substantially as and for the purpose described.

8. The combination of a current-regulating device, a volt-indicator, the adjustable arc-shaped bar beside the indicator, contact-pins on said bar and electrical connections between said pins and the current-regulating device, the circuit being closed by the contact of the indicator with said pins, for the purpose and substantially as described.

9. The combination of the volt-indicator, the adjustable bar carrying opposite pairs of contact-pins, the opposite solenoids, electrical connections respectively between the opposite solenoids and the opposite contacts on the bar, a rheostat interposed in the electrical circuit and the rheostat switch or contact operated by the solenoids, for the purpose and substantially as described.

10. The combination of the voltmeter, its movable indicator, the adjustable bar attached to the meter carrying opposite pairs of contact-pins, the opposite solenoids, the core therefor, electrical connections respectively between the opposite solenoids and the opposite contacts on the bar, a rheostat interposed in the electrical circuit and the rheostat switch or contact operated by the core of the solenoids, for the purpose and substantially as described.

11. The combination of a solenoid, a tubular core therefor, a fixed tube projecting into the core having a piston on its inner end, and perforations in said tube in rear of said piston, for the purpose and substantially as described.

12. The combination of the solenoid, the tubular core therefor, a fixed perforated tube projecting into the core having a piston on its inner end and perforations in rear of said piston, and an adjustable valve in said fixed tube for regulating the extent of the perforations, for the purpose and substantially as described.

13. The combination of the rheostat, its adjustable switch, a pair of opposite solenoids, a tubular core common to both solenoids and supporting the rheostat-switch, said core having closed ends, a tube projecting through the closed ends of the core having a piston on its inner end, and perforations in said tube exterior to said piston for regulating the passage of oil, all substantially as and for the purpose described.

14. The combination of the rheostat, its adjustable switch, a pair of opposite solenoids, and a tubular core common to both solenoids and supporting the rheostat-switch, said core having closed ends, with a tube projecting through the closed end of the core having a piston on its inner

end, and perforations in said tube exterior to said piston for regulating the passage of oil, a valve in said tube for regulating the flow of the oil therethrough, and a rod for adjusting said valve, all substantially as and for the purpose described.

658,906. EGG-CARTON. JAMES H. BATCHELDER, Tama, Iowa. Filed Dec. 7, 1899. Serial No. 739,560. (No model.)

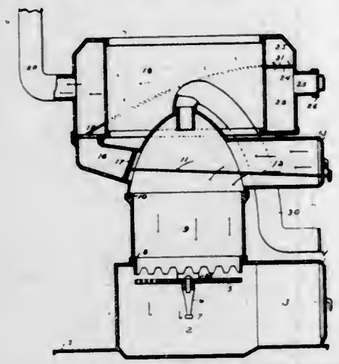


Claim.—1. An egg-carton, comprising a rectangular box having vertical corrugations at regular intervals in the front and back to form seats for the ends of the filler cross-strips, and a filler consisting of a single longitudinal strip central to the box and a series of cross-strips interlocked at regular intervals therewith.

2. In combination with a suitable filler, a carton provided with a series of circumferential, inwardly-projecting ribs or corrugations adapted to form cushions for the sides and ends of the eggs, substantially as described.

3. An egg-carton formed of a blank scored to form the bottom, sides, ends and cover, when folded up, the cover having a flap to tuck in at the front, the inner end piece terminating in an inwardly-folding flap, and the adjacent end flaps having transverse slits whereby they may be interlocked, the body of the box being corrugated to form seats for the ends of filler-strips and cushions for the sides and ends of the eggs, substantially as described.

658,907. HEATING-FURNACE. CARL BRANDT, Cedar Falls, Iowa. Filed May 25, 1900. Serial No. 17,982. (No model.)

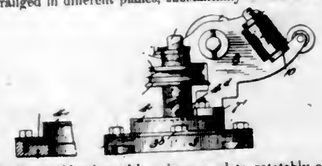


Claim.—1. A furnace having a radiator communicating with the smoke-exit, flues between said radiator and the ash-pit, to create downdrafts through the combustion-chamber, a direct flue between the combustion-chamber and the smoke-exit and communicating with said radiator, a damper in said flue, and a draft-pipe leading to the top of the combustion-chamber, to admit air thereto, substantially as described.

2. A furnace having a radiator provided with inclined baffles forming upper and lower communicating flues in the radiator, pipes to establish communication between the lower radiator-flues and the ash-pit, at a point below the grate, and said upper flues of said radiator having a smoke-exit, said furnace being further provided with a direct flue to establish communication between the combustion-chamber and said upper radiator-flue, said direct flue having a damper, for the purpose set forth, substantially as described.

658,908. ROPE OR CABLE GUIDE. LIBENA A. FENNER, Jersey City, N. J., executrix of John H. Fenner, deceased. Filed May 12, 1900. Serial No. 16,509. (No model.)

Claim.—1. In combination with a base or support, the frame rotatably carried thereby, and the guide-pulleys carried thereby having their axes arranged in different planes, substantially as described.



2. In combination with a base, a plate rotatably carried thereby, horizontally-arranged opposing pulleys carried by said plate, and a vertically-disposed guide-pulley having its lower edge arranged in line with the space between said opposing pulleys, substantially as described.

3. In combination with a base, a plate rotatably carried thereby, vertical posts on said rotary plate, opposing pulleys carried by said posts, a yoke connecting said posts at their upper ends, vertically-arranged webs carried by said rotary plate and yoke, and a pulley journaled between said webs, substantially as described.

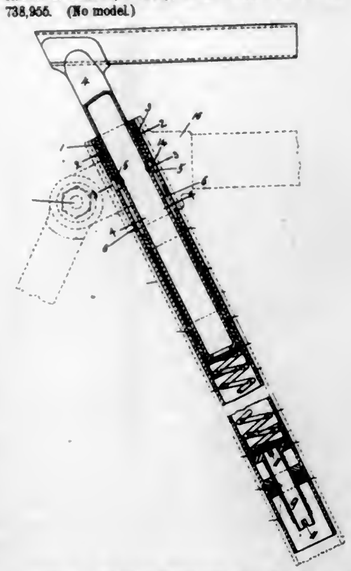
4. In combination with a base, a rotary plate thereon, posts carried by said plate, opposing guide-pulleys carried by said posts, a yoke connecting the upper ends of said posts, vertical webs carried by said rotary plate and yoke, a guide-pulley journaled between said webs adjacent to the horizontal pulleys and cylindrical pulleys journaled in ears at the outer edges of the webs, substantially as described.

5. In combination with a base, a rotary plate thereon, posts carried by said plate, opposing guide-pulleys carried by said posts, a yoke connecting the upper ends of said posts, vertical webs supported by said plate and yoke, a guide-pulley journaled between said webs, inclined parallel cylindrical rollers journaled at the outer edges of said plates, and a roller journaled at the lower ends of said cylindrical rollers upon a horizontal axis, substantially as described.

6. In combination with a base having an open center with an annular rabbet, a rotary plate having its edge seated in said rabbet, a retaining-ring for holding said rotary plate in said rabbet, and a plurality of angularly-disposed guide-pulleys carried by said plate, substantially as described.

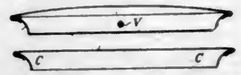
7. In combination with a suitable base or support, a rotary plate carried thereby, removable posts carried by said plate, opposing pulleys journaled on said posts, a yoke removably carried by the upper ends of said posts, vertical webs connected to said yoke and also removably connected to said rotary plate, and guide-pulleys carried by said webs, substantially as described.

658,909. SADDLE-SUPPORTING DEVICE FOR CYCLES. DOSABHOI S. FRASER, Bombay, India. Filed Dec. 2, 1899. Serial No. 738,955. (No model.)



Claim.—A device for supporting in a yielding manner the seat-pillars of cycles and the like, consisting of the combination with an incasing tube, of a guide-tube therein having longitudinal slots, a seat-pillar fitting in said guide-tube and carrying studs engaging with said slots, a nut secured in the incasing tube below the ends of the guide-tube and seat-pillar, a screw meshing with said nut, flanged caps on said screw and under the ends of the guide-tube and pillar, and a helical spring between said caps.

658,910. MONEY-TRAY. JAMES H. GRAY, London, England. Filed Nov. 13, 1896. Renewed Nov. 29, 1898. Serial No. 697,803. (No model.)



Claim.—1. As a new article of manufacture, a money-tray consisting of a supporting-frame and an exposed sheet of material supported thereby at its edges leaving the body portion freely suspended and having a degree of elasticity to permit the same to yield under the pressure of the fingers in picking up the coin.

2. A money-tray comprising a frame and an exposed sheet of material supported thereby and having a degree of elasticity which will permit the same to be indented by the fingers independently at the several points of contact about the coin in picking up the same, substantially as described.

3. In combination in a money-tray, a supporting-frame and a flexible cover secured thereto and extending above the plane of its connection with the frame, substantially as described.

4. In combination in a money-tray, a supporting-frame, a cover distended into convex form and means for holding the cover distended while allowing the same dexion, substantially as described.

5. A money-tray consisting of a frame and a sheet of elastic material supported thereby, said elastic material being pneumatically controlled.

6. In a device of the character described, a tray, an air-valve in said tray, and a flexible air-tight coyer secured over said tray, substantially as described.

7. In a device of the character described, a tray having outwardly-flaring edges, an air-valve in said tray, and a resilient air-tight covering secured to the tray edges, substantially as described.

658,911. CLAMPING SOCKET AND SUPPORT FOR CAMERAS. GEORGE W. HALL, Hermon, Me. Filed Jan. 19, 1900. Serial No. 2,078. (No model.)



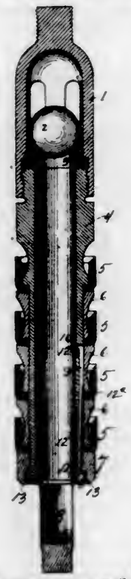
Claim.—1. In a support as described, a yoke or base-piece having a socket for a ball, a horizontal ring rigidly connected to said base-piece and having a fixed jaw at one side and a movable jaw at the other side of the ball-socket, a cam-lever connected to one jaw and acting on the other to close said jaws, and a ball provided with means for attachment to an instrument, all combined substantially as described so that the ball may be removed from the socket, or entered between said jaws, and clamped to hold the instrument in perpendicular or any inclined position.

2. In a support as described, a metallic yoke having a ball-socket, a horizontal ring rigidly connected to said yoke and having its opening over the socket, a fixed jaw at one side of the ring and a movable jaw at the other side of the ring, a ball adapted for removal or to enter between the jaws, and means for closing the jaws onto the ball to hold said ball and its attachment in any adjusted position, substantially as described.

3. In a socket as described, the ball-socket rigidly connected to a horizontal ring, a fixed jaw rigidly connected to the ring at one side and a movable jaw pivoted to the ring at the other side, a cam-lever pivoted to one jaw and engaging the other to open or close the movable jaw, and a ball having a stem attachment for an instrument, and adapted for removal or for entry into the socket between said jaws, whereby the instrument may be held in any adjusted position by the clamping of the ball, substantially as described.

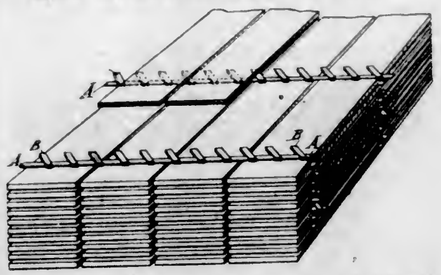
4. In a support as described, the socket, the upper ring having a jaw fixed and a jaw pivoted thereto, and a cam-lever pivoted to one jaw and engaging the other, said ring having lugs by which it is supported, and a second lower ring connected to said lugs and having wings for leg attachment, and a stemmed ball adapted to enter said socket, all combined substantially as described.

658,912. VALVED PISTON. CHARLES N. HARE, Bowling Green, Ohio. Filed May 17, 1900. Serial No. 16,980. (No model.)



Claim.—In a valved piston for oil-wells, a valve-carrying tube, a series of buckets or suckers alternating with a series of metal sleeves on said tube, a screw-threaded portion at the bottom of said tube, a screw-threaded sleeve thereon, a spring-cotter having a detent at its lower end, normally in engagement with said screw-threaded sleeve and secured at its upper end by one or more of said alternating metal sleeves.

658,913. LUMBER-SEPARATING STRIP. CAESAR HASS, London, England. Filed July 28, 1900. Serial No. 25,063. (No model.)



Claim.—1. A lumber-separating strip, consisting of a body strip or bar provided with tongues or blocks, the said parts being combined and constructed to provide transverse air-circulating spaces, substantially as set forth.

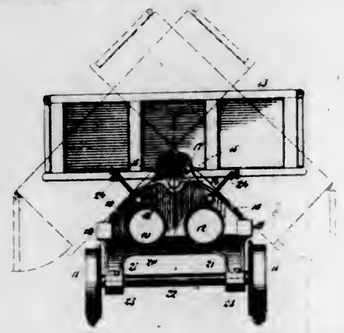
2. A lumber-separating strip, consisting of a thin body-strip and tongues or blocks extending therefrom, substantially as set forth.

3. A lumber-separating strip, consisting of a body strip or bar provided with tongues or blocks which extend therefrom at acute angles, the said parts being combined and constructed to provide transverse air-circulating spaces, substantially as set forth.

658,914. DUMPING-CAR. THOMAS HILL, Jersey City, N. J. Filed Dec. 1, 1899. Serial No. 738,756. (No model.)

Claim.—1. A dumping-car comprising the truck-frame and car-

body, the latter having the trunnions 14 at its ends, combined with the end frames 12 extending upward a substantial distance from the truck-frame and having the inwardly-extending flanges 16 and, at their apices, the seats 15 and upward extensions 17, said seats being provided to receive said trunnions and said extensions each containing a runway 18 for the ascent of said trunnions when said car-body is dumped, and said inwardly-extending flanges 16 being projected below the ends of the car-body and extending on regular lines from the apex of said end frames to the truck-frame for the support of the car-body during its dumping movement; substantially as set forth.



2. A dumping-car comprising the truck-frame and car-body, the latter having the trunnions 14 at its ends, combined with the end frames 12 extending upward from the truck-frame and having at opposite edges the inwardly-extending flanges 16 and, at their apices, the seats 15 for said trunnions and the upward extensions 17 each containing the upwardly-diverging runways 18 for said trunnions, the said inwardly-extending flanges 16 being projected below the ends of the car-body and extending on regular lines from the apex of said end frames to the truck-frame for the support of the car-body during its dumping movement; substantially as set forth.

3. The dumping-car comprising the truck-frame and car-body, the latter having the trunnions at its ends, and said truck-frame comprising the ends having the inwardly-extending surfaces 16 and trunnion-seats 15, the extensions 17 containing the runways for said trunnions, the downwardly and inwardly inclined sections 20 connecting with said ends and inclining to the bearings for the wheels, and sides connecting said ends; substantially as set forth.

658,915. VALVE APPARATUS FOR HYDRAULIC PRESSES. JOHANNES JACOBSEN, Friedenau, Germany. Filed Apr. 12, 1900. Serial No. 12,504. (No model.)

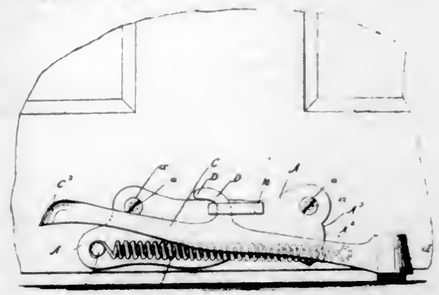


Claim.—1. In a valve mechanism for hydraulic presses, the combination with a casing, of a piston moving in said casing with friction, a supply-port leading to the casing, feed-ports leading from the casing, exhaust-ports leading from the casing, and passages leading from said feed-ports to the outer ends of the casing to supply pressure to the ends of said piston.

2. In a valve mechanism for hydraulic presses, the combination with a casing, of a supply-port leading to said casing, feed-ports leading from said casing, exhaust-ports leading from said casing, a piston moving in said casing with friction and acting as a valve to place each of said feed-ports alternately in connection with the supply-port, and one of the exhaust-ports, and passages leading from said feed-ports to the ends of the casing to supply pressure to the ends of said piston.

3. In a valve mechanism for hydraulic presses, the combination with a casing, of a piston having the same area at both ends and sliding in said casing with friction, a supply-port leading to the casing, feed-ports leading from the casing, exhaust-ports leading from the casing, and passages leading from said feed-ports to the outer ends of the casing to supply pressure to the ends of the piston.

658,916. DOOR-CHECK. EUGENE E. JONES, New York, N. Y. Filed Nov. 1, 1899. Serial No. 735,464. (No model.)



Claim.—1. A door-check, comprising a plate adapted to be secured to the door and provided with a bearing; a lever slidably mounted in said bearing whereby it is capable of slight longitudinal movement; a spring connected with the said lever and the said plate to normally depress the lever; locking means upon the said lever and the said plate, whereby when the lever is raised in its slidable bearing to a certain position, the lever will be held in the raised position through the tension of the spring.

2. A door-check, comprising a plate adapted to be secured to the door, a lever pivotally mounted therein, a spring connected with said lever and said plate to normally depress the lever, a curved bearing-face upon the forward edge of the door-plate or that nearest to the holding end of the lever, said bearing-face being inwardly directed at the top, and a projection upon the lever adapted to ride upon said curved face, whereby when the lever is raised to a certain position, it will be maintained in such raised position through the tension of the spring.

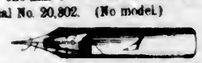
3. A door-check, comprising a plate adapted to be secured upon the door and provided with a bearing; a lever connected with said plate and provided with an integral projection which positively engages the bearing to be thereby retained against detachment from the door-plate and which is longitudinally slidable in said bearing; a spring connected with the said lever and with the door-plate whereby to maintain the lever normally depressed, and by which when the lever is raised, it is maintained in such raised position; the said lever and the said plate being provided with bearing-faces adapted mutually to engage when the lever is raised.

4. A door-check, comprising a plate adapted to be secured to the door and provided with a projecting bearing upon its outer face which is vertically slotted, a lever slidably mounted in said slotted bearing whereby it is capable of slight longitudinal movement; and a spring connected with the said lever and the said plate to normally depress the lever, and by which when the lever is raised, it is maintained in such raised position.

5. A door-check, comprising a plate adapted to be secured to the door and provided with a slotted bearing; and a lever provided with a curved projection hooked into said slotted bearing; and a spring connected with the said lever and the said plate.

6. A door-check, comprising a plate adapted to be secured to the door and provided with a slotted block or loop upon the outer face thereof; a lever provided with an upwardly-projecting hook engaging said slotted block or loop and slidably mounted therein, whereby the lever is capable of slight longitudinal movement; a spring connected with the said lever and said plate to normally depress the lever; the said plate and the said lever having mutually-engaging bearing-faces adapted to be interlocked by the spring when the lever is raised to a certain position.

658,917. FOUNTAIN-PEN. FRANK JORDAN, New York, N. Y., assignor of one-half to Thomas B. Gale, same place. Filed June 19, 1900. Serial No. 20,802. (No model.)

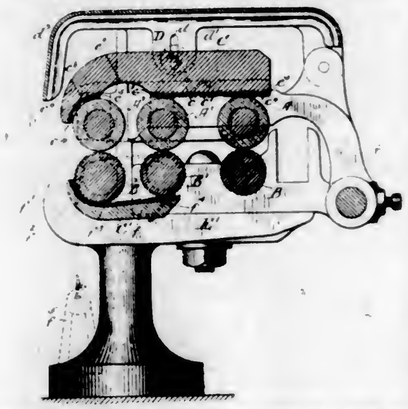


Claim.—1. The combination with a slitted-nib pen having an elongated slot extended lengthwise from the inner end of the slit, of a fount located along the concave side of the pen and provided with means having an extended engagement with the slot for securing the fount against movement when the nibs are forced apart as in use, substantially as set forth.

2. The combination with a slitted-nib pen having an elongated slot extended lengthwise from the inner end of the nib, of a fount located along the concave side of the pen, the said fount being provided with a pair of prongs arranged to pass through the said slot and be folded over in opposite directions into engagement with the convex side of the pen for holding the fount to the pen against movement when the nibs are forced apart as in use, substantially as set forth.

3. A pen-fount blank comprising a sheet of metal or other suitable material of tapered form having a pair of prongs extended laterally therefrom, substantially as set forth.

658,918. CLEARER FOR DRAWING-ROLLS. WILLIAM E. KRACK, Fitchburg, Mass. Filed Aug. 4, 1899. Serial No. 726,124. (No model.)

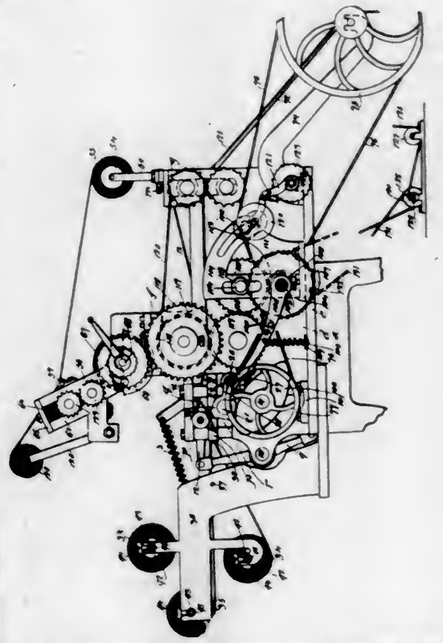


Claim.—1. A clearer for drawing-frames comprising a single integral piece of material, having upon its working face a curved and a flat clearing-surface separated by a lint receiving and retaining space extending from a point substantially above the front drawing-roll to the second drawing-roll, the clearing-surface of the curved face being in contact throughout with the drawing-roll and being carried only to the corner of the lint receiving and retaining space between the front and second drawing-rolls, whereby lint cleared from the drawing-roll is carried at once free of the clearing-surface into the lint receiving and retaining space.

2. A clearer for a series of sets of drawing-rolls of a drawing-frame comprising a long, flat, relatively-wide, integral support, common to all the series and sets, and providing a series of sets of independent faces or beds for receiving and holding clearer-cloth and presenting it to said series of sets of drawing-rolls, which sets of independent faces or beds are separated from each other by cross-recesses, each of which sets or faces or beds having a relatively-wide, flat surface and a curved surface, clearer-cloth applied to said flat and said curved surfaces, the latter contacting throughout its extent with the drawing-roll, the said flat and curved surfaces being disposed with respect to each other to provide means for the simultaneous setting of the clearer to a series of sets of drawing-rolls and, also, to provide means whereby the same clearer may be applied to drawing-frames in which the sets of drawing-rolls vary in setting or distance from each other and the said curved and flat surfaces being adapted to bear upon the surfaces of the rolls in the manner indicated, as and for the purposes set forth.

658,919. MACHINE FOR FOLDING OR PLAITING PAPER. MATTHIAS KOCH, Montreal, Canada. Filed Sept. 19, 1899. Serial No. 731,629. (No model.)

Claim.—1. In a machine for folding or plaiting paper, the combination with the frame of the machine, of a pair of feed-rollers mounted one above the other in said frame; a pair of horizontal guideways formed one above the other at each side of said frame and extending toward said rollers; a pair of bars extending parallel to said rollers and supported at their ends in said guideways; a plaiting-knife secured rigidly to said upper bar and projecting toward the lower feed-roller; a second plaiting-knife secured rigidly to said lower bar and projecting toward the upper feed-roll; a shaft 10, rotatably mounted in the frame of the machine; a pair of levers 151 mounted rigidly at their lower ends upon said shaft 10; a pair of links 12 connecting said levers 151 to the upper knife-bar; a shaft 20 rotatably mounted in the frame of the machine; a pair of levers 21 mounted rigidly at their lower ends upon said shaft 20; a pair of links 22 connecting said levers 21 to the lower knife-bar; a lever 9 mounted rigidly at its upper end upon said shaft 10 a driving-shaft; an eccentric mounted upon said driving-shaft, a collar and link connecting said eccentric to the lower end of the lever 9; a counter-shaft a pair of engaging spur-gears mounted respectively upon said driving-shaft and counter-shafts; a lever 19 mounted rigidly at its upper end upon said shaft 20; a crank mounted rigidly upon said counter-shaft; a pitman connecting said crank to the lower end of said lever 19; and means for alternately intermittently oscillating said bars in a plane at right angles to the plane of the axes of the feed-rolls substantially as described and for the purpose set forth.



2. In a machine for folding or plaiting paper, the combination with the frame of the machine, of a pair of feed-rollers mounted one above the other in said frame; a pair of horizontal guideways formed one above the other at each side of said frame and extending toward said rollers; a pair of bars extending parallel to said rollers and supported at their ends in said guideways; a plaiting-knife secured rigidly to said upper bar and projecting toward the lower feed-roller; a second plaiting-knife secured rigidly to said lower bar and projecting toward the upper feed-roller; means for alternately reciprocating said bars; a driving-shaft, a gear mounted upon said shaft and having a laterally-projecting pin; means for intermittently oscillating the upper bar consisting of a bell-crank lever mounted rigidly upon one end of the upper bar, and having one arm projecting across the path of said pin, an adjustable link carried rigidly by the other arm thereof, a retractile coiled spring connecting the free end of said link to the frame of the machine; and means for intermittently oscillating said lower bar alternately with the oscillation of said upper bar and in a plane at right angles to the plane of the axes of the feed-rollers, substantially for the purpose set forth.

3. In a machine for folding or plaiting paper, the combination with the frame of the machine, of a pair of feed-rollers mounted one above the other in said frame; a pair of horizontal guideways formed one above the other at each side of said frame and extending toward said rollers; a pair of bars extending parallel to said rollers and supported at their ends in said guideways; a plaiting-knife secured rigidly to said upper bar and projecting toward the lower feed-roller; a second plaiting-knife secured rigidly to said lower bar and projecting toward the upper feed-roller; means for alternately reciprocating said bars; a driving-shaft, means for intermittently oscillating the said lower bar consisting of a cam mounted rigidly upon said driving-shaft, an arm mounted rigidly upon the adjacent end of the lower bar and adapted to be acted upon by said cam, and means for intermittently oscillating said upper bar alternately with the oscillations of the lower bar, substantially as described and for the purpose set forth.

4. In combination with a pair of feed-rollers, a driving-shaft, an oval cam mounted upon said shaft, a stub-shaft, a ratchet-wheel and a gear-wheel mounted rigidly upon said shaft, a lever fulcrumed upon said shaft and carrying a spring-pawl to engage said ratchet-wheel the free end of said lever being engaged by said oval cam, and a retractile coiled spring connecting said lever to the frame, substantially as described.

5. In combination with a pair of feed-rollers, a driving-shaft, an oval cam mounted eccentrically upon said shaft, a stub-shaft, a ratchet-wheel and a gear-wheel mounted rigidly upon said shaft, a lever fulcrumed upon said shaft and carrying a spring-pawl to engage said ratchet-wheel the free

end of said lever being engaged by said oval cam, and a retractile coiled spring connecting said lever to the frame, substantially as described.

6. In a machine for making plaited paper, the combination of means for plaiting the paper; a pair of rollers for feeding the plaited paper; a pair of rollers for feeding one or more binding-strips to said plaited paper; means for causing said binding-strips to adhere to said plaited paper; and means for operating said pairs of rolls and adapted to cause said strip-feeding rolls to feed a greater length than the paper fed by the paper-feeding rollers, for the purpose set forth.

7. In a machine for making plaited paper, the combination of means for plaiting the paper; a pair of rollers for feeding the plaited paper; a pair of rollers for feeding one or more binding-strips to said plaited paper; means for causing said binding-strips to adhere to said plaited paper; and a train of gears for operating said pairs of rolls and adapted to cause said strip-feeding rolls to feed a greater length than the paper fed by the paper-feeding rollers, for the purpose set forth.

8. In a machine for plaiting paper, the combination of the plaiting means, feeding-rollers, a conveyer consisting of a pair of receiving-rollers *e* located adjacent to the feeding-rollers, a pair of compressor-rollers *j*, *k*, located a short distance from said receiving-rollers, means for regulating the distance between said compressor-rollers, a series of loops independent of one another and each taking over one of said receiving-rollers and one of the compressor-rollers, a table-support inside the lower series of loops with its surface on a line with the tops of the lower rollers, a swinging table pivoted at one end adjacent to and on a level with the outer end of said table-support, a roller at the free end of said swinging table, for receiving the completed lining, a pair of rollers for feeding one or more binding-strips to the plaited paper; means for causing said binding-strips to adhere to said plaited paper; and means for driving the rollers for feeding the strips, the conveyer, pressure-rollers, and the last-mentioned receiver-roller at a uniform speed and means for driving the main feed-rollers at a less speed, substantially as described and for the purpose set forth.

9. In a machine for plaiting paper, the combination of the plaiting means, feeding-rollers, a conveyer consisting of a pair of receiving-rollers *e* located adjacent to the feeding-rollers, a pair of compressor-rollers *j*, *k*, located a short distance from said receiving-rollers, means for varying the distance between said compressor-rollers, a series of loops independent of one another and each taking over one of said receiving-rollers and one of the compressor-rollers, a table supported inside the lower series of loops with its surface on a line with the tops of the lower rollers, a swinging table pivoted at one end adjacent to and on a level with the outer end of said table-support, a roller at the free end of said swinging table, for receiving the completed lining and means for driving said feeding-rollers, the conveyer and the last-mentioned receiver-roller at a uniform speed; a series of rollers each carrying a roller-strip of paper, means for coating one side of said strips with an adhesive compound, a pressure-roller extending transversely of the machine within the upper series of loops and furnished with trunnions located in slots in the frame of the machine, substantially as described and for the purpose set forth.

10. In a plaiting-machine, a plaiting-knife made up of a carrying-bar; a series of independent knife-sections arranged side by side, means for securing each of said knife-sections independently to said carrying-bar; a bar extending across said knife-sections near their forward ends; and means for detachably rigidly connecting said knife-sections independently to said last-mentioned bar, substantially as described.

11. In a plaiting-machine, the combination with the plaiting, feeding and binding mechanism, of driving mechanism therefor comprising a main driving-shaft and a stub-shaft, a pair of gears intermeshing with one another and mounted one on each of said shafts, a fly-wheel mounted upon said stub-shaft, tight and loose pulleys mounted upon said stub-shaft, and a belt for connecting said tight or loose pulleys to the initial source of power, substantially as and for the purpose set forth.

658,920. WHEEL. HYMAN LIEBERTHAL, Chicago, Ill. Filed June 21, 1900. Serial No. 21,054. (No model.)



Claim.—1. The combination with the rim of a wheel, of a series of curved springs alternately secured at one end to one side of the rim and the other end thereof extending above the opposite side of the rim but in alinement therewith, and a suitable covering for the said springs.

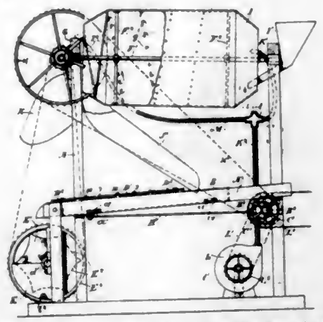
2. The combination with the rim of a wheel, of a series of bowed springs extending transversely of said rim and alternately secured at one end thereto and the other end thereof extending above the opposite side of the rim, and a flexible cover for the said springs.

3. In a wheel, a series of bowed springs extending transversely of the rim of the wheel and alternately secured thereto, and a suitable covering for the said springs.

4. The combination with the rim of a wheel, of a series of curved springs extending transversely of said rim and alternately secured thereto at one end, said springs narrower at one end than at the other, and a suitable covering for said springs, substantially as set forth.

5. In a wheel, a series of alternately-arranged springs extending transversely of the rim of the wheel and provided with a fast and free end, and a suitable covering for the said springs.

658,921. ORE-SEPARATOR. JOHN B. MOORE, Oakland, Cal., assignor, by mesne assignments, to the Moore Improved Gold Separator Company, of California. Filed Dec. 21, 1899. Serial No. 741,162. (No model.)



Claim.—1. The combination of a longitudinally-reciprocating concentrating-table and a rotary imperforate cylinder having a tapering imperforate collar secured to its feed end, the axis of said cylinder being inclined upward from the feed toward the discharge, a tapering screen attached to its discharge end, a closely-set spiral line of fingers or projections on the inner surface of the imperforate cylinder and a spiral converging blade mounted on the inner surface of the tapering screen, whereby the desired depth of pulp is maintained and disintegrated within the cylinder, the coarser material is forced away from the pulp and separately discharged and the finer material delivered to the surface of the concentrating-table.

2. The combination of a longitudinally-reciprocating concentrating-table and a rotary imperforate cylinder having a tapering imperforate collar secured to its feed end, the axis of said cylinder being inclined upward from the feed toward the discharge end of the cylinder, a tapering screen attached to its discharge end, a spiral set of fingers or projections arranged within the imperforate cylinder, the cylinder being arranged at an inclination, an inclined collar secured to the feed end of said cylinder, of means for supplying water to the interior of the said cylinder, and a chute leading from the discharge end of the cylinder to the concentrating-table, said chute conveying the separated material from the cylinder to the table.

3. In a machine of the described character, the combination with a rotary separator into which the material to be treated is fed, a longitudinally-reciprocating concentrating-table arranged below the separator, a chute leading from the discharge end of the separator to the upper end of the concentrating-table, a series of riffle-plates movably connected to the table and dividing its surface into riffles or pockets, a series of finger-bars arranged crosswise of the table and working in said pockets, and means for imparting lateral motion to the finger-bars during the longitudinal movement of the concentrating-table.

4. The combination of a rotary separator which eliminates the coarse impurities, a chute or runway leading the finer pulp from the discharge end of the separator, a concentrating-table receiving the fine pulp from said chute, a series of transversely-moving agitators working across the upper surface of the concentrator and maintaining the suspension of the finer material while permitting the grain-gold to settle, a trough arranged below the concentrating-table, a drum working therein and a series of amalgamating-plates secured to the drum and operating to intercept the float-gold escaping from the concentrating-table.

5. The combination with a concentrating-table, of means for imparting a longitudinally-reciprocating motion thereto, a series of transverse riffle-plates mounted to swing within the sides of the table, a laterally-movable rod arranged in advance of each riffle-plate, each rod carrying a series of depending fingers and of means for imparting movement to the finger-carrying rods during the longitudinal movement of the table.

6. The combination with the rotary separator eliminating the coarse material, of the longitudinally-reciprocating concentrating-table arranged below the separator, a chute leading from the discharge end of the separator to the upper end of the concentrating-table and delivering the pulp thereto, of devices by means of which the material passing over the surface of the concentrating-table is agitated while permitting the grain-gold to settle, a trough arranged below the discharge end of the table, a drum working therein, and a series of amalgamating-plates secured to and carried by the drum for intercepting the float-gold.

7. The combination of a supporting-frame, a concentrating-table movably mounted thereon, means for reciprocating said table longitudinally, finger-bars movable transversely of the table and mechanism whereby longitudinal movement of the table causes transverse movement of alternate finger-bars in opposite directions, substantially as described.

658,922. SUBMARINE DREDGE. GUST A. OVERSTROM, Deer Lodge, Mont., assignor of one-half to J. P. Hanson, Butte, Mont. Filed Apr. 21, 1900. Serial No. 13,697. (No model.)



Claim.—1. In a submarine dredge, the combination of a submerged support, a suction and force pump and an operating-motor therefor on the support, a delivery-pipe extending from said pump to the shore, and means for moving the submerged support with the pipe across the ground to be worked.

2. In a submarine dredge, the combination of a submerged support, a suction and force pump and an operating-motor therefor on the support, a delivery-pipe extending from the said pump to the shore, and means connected with the support and extending to the shore for moving the submerged support with the pipe across the ground to be worked.

3. In a submarine dredge, the combination of a submerged support, a suction and force pump and an operating-motor therefor on the support, a delivery-pipe, provided with an interposed flexible length, extending from said pump to the shore, and means for moving the submerged support with the pipe across the ground to be worked.

4. In a submarine dredge, the combination of a submerged support, a suction and force pump and an operating-motor therefor on the support, a delivery-pipe, extending from the said pump to the shore, provided with interposed flexible and expansible lengths, and means for moving the submerged support with the pipe across the ground to be worked.

5. In a submarine dredging apparatus, the combination of pulleys anchored at opposite edges of the ground to be worked, a submerged support, a suction and force pump, and an operating-motor therefor on the support, a delivery-pipe extending from the said pump to the shore, and cables connected with the support and extending over said pulleys to the shore, for the purpose set forth.

6. In a submarine dredge, the combination of a float device, a suction and force pump and an operating-motor therefor on the float device, a delivery-pipe extending from the pump to the shore, and means for increasing and diminishing the displacement of the float device at will.

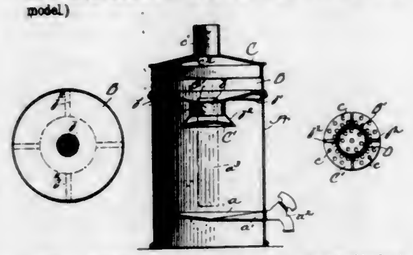
7. In a submarine dredge, the combination of a float device formed with an air-tight compartment having water inlet and outlet valves, a compressed-air supplier communicating with said compartment and operating to let water in or force it out of said compartment, to increase or diminish the displacement of the float, a suction and force pump and an operating-motor therefor on the float device, and a delivery-pipe extending from the pump to the shore.

8. In a submarine dredge, the combination of a float device, a suction and force pump and an operating-motor therefor on the float device, a delivery-pipe extending from the pump to the shore, means for increasing and diminishing the displacement of the float device at will, and means upon the shore connected with the float device for moving said device while submerged and with the delivery-pipe across the ground to be worked.

9. In a submarine dredge, the combination of a float device, a suction and force pump and an operating-motor therefor on the float device, a delivery-pipe extending from the pump to the shore, floats connected with the pipe, and means for increasing and diminishing the displacement of the float device at will.

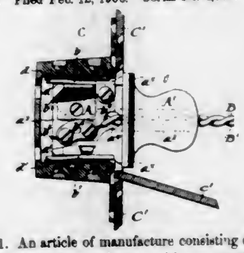
10. In a submarine dredge, the combination of a submerged support, a suction and force pump and an operating-motor therefor on the support, a suction-nozzle for the pump pivotally mounted upon the support and extending beneath the same, means connected with said nozzle and extending to the shore for turning the nozzle, and a delivery-pipe extending from the pump to the shore.

658,923. CREAM-SEPARATOR. EDWARD H. PIPER and BENJAMIN F. HOUSE, Eureka, Ill. Filed Apr. 11, 1900. Serial No. 12,416. (No model.)



Claim.—A cream-separator comprising the cylindrical body A, having a bottom substantially conical in shape provided with a trough or conduit extending from the center to one side, a faucet communicating with the trough, air-ducts oppositely arranged on the separator extending from a point near the bottom to a point just below the top and open at the bottom and closed at the top, air-inlet openings in the receptacle for the admission of air from the air-ducts and covered with suitable gauze material, the arrangement and combination of parts substantially as herein shown and described.

658,924. ELECTRICAL FITTING. WILLIAM T. PRINGLE, Lansdowne, Pa. Filed Feb. 12, 1900. Serial No. 4,910. (No model.)



Claim.—1. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a member provided with insulated seats for the respective terminals of an electric circuit, a handle member in integral relation with said seat member, and a conductor passage-way opening through said handle member, and terminating in a lateral opening intermediate of said handle and said seat member, substantially as set forth.

2. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a member provided with insulated

sents for the respective terminals of an electric circuit, a handle member in integral relation with said seat member, and a conductor passage-way opening through said handle member, and terminating in lateral openings intermediate of the length of the plug, substantially as set forth.

3. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a recessed diaphragm provided upon its opposite sides with insulated seats for the respective terminals of an electrical circuit; a handle member distinct from said seat member; a conductor passage-way extending through said handle member in alinement with said diaphragm; and a conductor passage-way extending through said diaphragm at right angles with the first passage-way aforesaid, substantially as set forth.

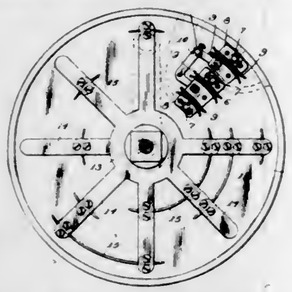
4. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a diaphragm provided with insulated seats for the respective terminals of an electrical circuit; a handle member separated from said seat member by a shoulder or ridge; a conductor passage-way extending through said handle member in alinement with, and obstructed by, said diaphragm; and lateral openings in the opposite faces of said diaphragm at the termination of said passage-way, substantially as set forth.

5. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a diaphragm provided upon its opposite sides with seats for the respective terminals of an electrical circuit, comprising marginal flanges at the edges of said diaphragm; a handle member in integral relation with said seat member; and a conductor passage-way extending through said handle member, parallel with said marginal flanges, and communicating with said opposite terminal-seats, substantially as set forth.

6. An article of manufacture consisting of an electrical attachment-plug formed of ceramic, comprising a seat portion having respective insulated terminal-seats upon outer surfaces thereof; recessed insulated fuse-seats in the faces of said seat portion, between said terminal-seats; a handle member distinct from said seat member; and a conductor passage-way extending through said handle member, and terminating in lateral openings in respective opposite faces of said seat member, substantially as set forth.

7. The herein-described process of molding an electrical attachment-plug of ceramic, which consists in manually adjusting the mass of clay crumbs around a core-stem, subjecting said mass to pressure in a direction substantially at right angles with the axis of said core-stem, withdrawing said core-stem while said mass is under pressure and subsequently removing said pressure, substantially as set forth.

658,925. **ELECTRIC SWITCH.** NATHANIEL D. RAND, Watertown, Mass. Filed Feb. 10, 1900. Serial No. 4,818. (No model.)



Claim.—1. The combination, with a base, of contact-points secured thereto, a portion only of which are provided with binding-posts, means for grouping said points, and movable switch-arms each provided with means for completing a different circuit through said contact-points, substantially as described.

2. In an electrical switch, the combination, with a flanged base, said flange being provided with openings and the base being provided with perforations adjacent thereto, of contact-points secured to the upper surface of the base, a portion only of which are provided with binding-posts, there being a binding-post for each perforation through the base, a binding-plate in contact with the remaining contact-points, said plate being provided with a binding-post, and movable arms, each of which is provided with means for forming a different circuit through said contact-points, substantially as described.

3. In an electrical switch, the combination, with a centrally-perforated base, of groups of contact-points secured to the upper surface thereof, said points being arranged in groups, a binding-strip for electrically connecting a portion of the points of each group, a spindle journaled in said base, radially-projecting arms secured to said spindle, each of said arms being provided with means for forming a different circuit through said contact-points, a cover upon the base provided with indicating characters, and a handle and an indicator upon the head of the said spindle outside of the cover, substantially as described.

4. In an electrical switch, the combination, with a base provided with contact-points, of a spindle journaled insulatingly at the center of said base, an armed plate secured to the said spindle, the arms being provided with blades of different lengths for forming a circuit through the said contact-points, a collar between said plate and the base, a cover over said arms provided with characters for indicating the different circuits, and a handle, and an indicator upon the spindle outside of the cover, substantially as described.

5. In an electrical switch, the combination, with a base, of a series of contact-points secured thereto, a spindle journaled at the center of said base and provided with a series of radially-projecting arms, each arm being provided with means for forming a different circuit through said contact-points, a cover on the base, the top of which is perforated for the projection of the head of the spindle, the projecting portion of the spindle being squared and provided with a shoulder, a handle upon the squared portion of the spindle, an indicator between the handle and the shoulder of the spindle, and a screw through the handle into the end of the spindle, substantially as described.

658,926. **ENVELOP.** OSCAR RICHTER and ERIK L. VOGVILD, Chicago, Ill. Filed Mar. 29, 1899. Serial No. 710,948. (No model.)



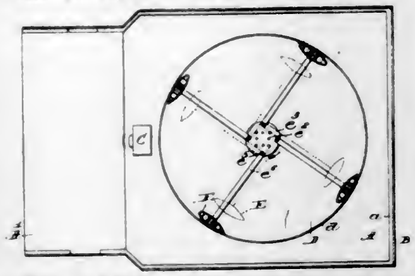
Claim.—1. In an envelop, the combination with the envelop-body, of stiff metallic wire ribs attached to the material of the body and crossing each other, substantially as and for the purpose set forth.

2. In an envelop, the combination with the body thereof of comparatively-stiff ribs of wire or the like, a transparent protecting-piece applied to the envelop at a line of sealing, and characters of indelible ink or its equivalent in close juxtaposition to said transparent piece, substantially as and for the purpose set forth.

3. In an envelop, the combination with the body thereof of ribs of wire or the like, characters of indelible ink or the like applied to the envelop at the line of sealing, and a comparatively-large piece of transparent paper or the like above the characters and crossing the lines of sealing and cemented in place, substantially as and for the purpose set forth.

4. In an envelop, the combination with the envelop-body, of stiff longitudinal and transverse ribs attached to the material of the body and crossing each other, said ribs extending across one side of the envelop and about the lateral and end edges thereof and back on the reverse side to protect the same, and a seal covering the ends of both longitudinal and transverse ribs, substantially as and for the purpose set forth.

658,927. **AQUATIC COURSE.** HERBERT N. RIDGWAY, Winthrop, Mass. Filed May 5, 1899. Serial No. 715,663. (No model.)



Claim.—1. A retainer or reservoir, a circularly-movable driver, a series of arms pivoted thereto to swing in a substantially-horizontal plane, boats engaged by said arms, and means to move said driver when desired, substantially as described.

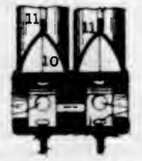
2. A retainer or reservoir, a surrounding landing, a series of boats lying when stopped at said landing, a circularly-movable driver, an arm connecting each of said boats with the driver, said arms being pivoted to the driver to swing in a substantially-horizontal plane, whereby said boats are moved laterally from said landing when the driver is started and thereafter moved in a prescribed path on the body of the field of water, said boats approaching said landing when the driver is stopped.

3. A retainer or reservoir, a surrounding landing, a series of boats, a circularly-moving driver, a series of arms pivoted on said driver and connected with said boats, and stops carried by said driver, substantially as described.

4. A retainer or reservoir for water, a circularly-movable driver, a series of arms connected therewith to swing in a substantially-horizontal plane, boats engaged by said arms, the said driver and arms being located entirely below the plane of the top of the retainer or reservoir and bottom of the boats whereby when the latter is filled with water the driver and arms are concealed below the water-surface, substantially as described.

5. A retainer or reservoir, a surrounding landing, a series of boats, a circular movable driver, and a series of connections between said driver and said boats and movable with respect to the driver to draw the boats inwardly toward the center of the reservoir when the driver is started, the boats when the driver is stopped moving independently of the driver outwardly toward the landing.

658,928. **RADIATOR.** FERDINAND SCHWEDTMANN, St. Louis, Mo. Filed Feb. 27, 1899. Serial No. 706,992. (No model.)



Claim.—1. In a radiator for steam or hot water, a plurality of sections each consisting of a wrought-metal radiating portion and a base, the base having a longitudinal opening and openings communicating with the radiating portion, and the sides of the radiating portion being provided with openings and with flanges surrounding the same, said flanges being adapted to be forced into the longitudinal opening of the base, in combination with means for clamping the flanges of the radiating portion against the inner periphery of the base.

2. In a radiator for steam or hot water, a plurality of sections each consisting of a wrought-metal radiating portion and base, the base having a longitudinal opening and openings communicating with the radiating portion and the sides of the radiating portion being forced around the ends and into the longitudinal openings of the base, in combination with a coupling fitting the longitudinal openings of two adjoining sections.

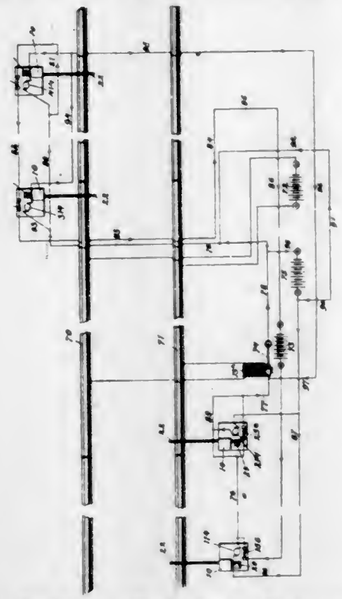
3. In a steam-radiator, a plurality of sections each having one or more columns or flues formed of sheet metal, hollow blocks of unyielding material carried by said sections and forming steam-tight joints with the metal thereof, a filling of suitable material in the bottom of said sections to prevent the accumulation of water therein, and means for connecting said sections through said blocks.

658,929. **ELECTRICAL SEMAPHORE SYSTEM.** JUDSON SHOECRAFT, Topeka, and CHARLES C. GARDINER, Bradford, Kans.; said Shoecraft assignor to said Gardiner. Filed June 20, 1899. Serial No. 721,239. (No model.)

Claim.—1. A signal system comprising a number of signals each having an operating mechanism, and each mechanism comprising a motor for actuating the signal and a locking-magnet for holding the signal against movement, a source of electricity with which the motors are connected in multiple, a separate source of electricity with which the magnets are connected in series, the circuits of the two sources of electricity including a common conductor, and a track-relay for opening and closing the common conductor.

2. A signal system comprising a number of signals, each having an operating mechanism, and each mechanism comprising a motor for actuating the signal and a locking-magnet for holding the signal against movement, a source of electricity with which the motors are connected in multiple, a separate source of electricity with which the magnets are connected in series, the circuits of the two sources of electricity including a common conductor, a relay for opening and closing the common conductor, said relay having its winding terminals connected with opposite insulated rails of a trackway, a battery for the relay having its terminals connected with said rails, and a circuit-breaker in the local circuit of each motor, said circuit-breaker being operated and held operative by that portion of the mechanism that is held by the locking-magnet, whereby when the locking-magnet circuit is broken at the relay, the circuit-breaker will be released to close the local circuit of the motor.

3. The combination with a semaphore, of a follower connected therewith, and having a definite path of movement, electrically-operated means for moving the follower to move the semaphore in one direction, means for releasing the follower and subsequently breaking the motor-circuit, means for holding the follower intermediate the limits of its motion, means for releasing the follower to allow it to reach the limit of its continued movement, and means for throwing the follower into operative relation with its moving means.



4. The combination with a semaphore, of a follower connected therewith, and having a definite path of movement, electrically-operated means for moving the follower in one direction to the limit of its movement, means for releasing the follower at said limit of movement, means in the path of the follower for engagement thereof in its opposite movement to break the circuit of its moving mechanism, means for supporting the follower to hold the circuit broken, means for releasing the follower, means for simultaneously breaking the circuit of the moving means, and means for subsequently throwing the follower into operative relation with the moving means.

5. The combination with a semaphore of an electric motor, a circuit including said motor a screw-shaft adapted for rotation by the motor, a follower adapted to move alternately with and independently of the screw-shaft, connections between the follower and the semaphore, and a circuit-breaker for breaking the motor-circuit, said circuit-breaker being adapted for operation by engagement of the follower.

6. The combination with a semaphore, of an electric motor, a screw-shaft adapted for rotation by the motor, an electric circuit for the motor, a follower adapted for engagement and disengagement with the screw-shaft to move alternately with and free thereof, means in the path of the free movement of the follower for opening the motor-circuit, means for holding the follower to maintain said circuit open, and means for releasing the follower to permit closing of the circuit.

7. The combination with a semaphore, of an electric motor, a screw-shaft adapted for rotation by the motor, an electric circuit for the motor, a follower adapted for engagement and disengagement with respect to the screw-shaft to move alternately with and free thereof, a circuit-breaker in the motor-circuit, an adjustable striker carried by the follower and adapted to engage and operate the circuit-breaker in one direction of movement of the follower, means for holding the follower in its operative relation to the circuit-breaker, means for releasing the follower to release the circuit-breaker, and means for breaking the circuit of the motor at a different point subsequent to the closure of the circuit-breaker.

8. The combination with a semaphore, of an electric motor, a screw-shaft adapted for rotation by the motor, an electric circuit for the motor, a follower adapted for alternate engagement and disengagement with respect to the screw-shaft to move with or free thereof, a movable striker carried by the follower adapted for alternate projection and retraction, a circuit-breaker in the motor-circuit adapted for engagement by the striker in one direction of movement of the follower, means for holding the striker in operative relation to the circuit-breaker, and a common means

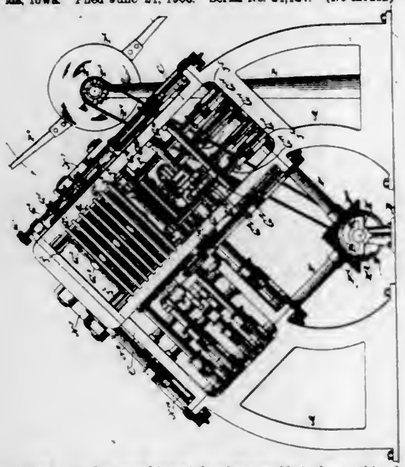
for releasing the striker to release the circuit-breaker and for breaking the circuit to the motor at a different point.

9. The combination with a semaphore, of an electric motor, a screw-shaft adapted for rotation by the motor, an electric circuit for the motor, a follower connected with the semaphore and adapted for engagement and disengagement with respect to the screw-shaft to move alternately with and free thereof, a circuit-breaker in the motor-circuit, a movable striker carried by the follower and adapted to engage and operate the circuit-breaker in one direction of movement of the follower, electromagnetic means for holding the follower in its operative relation to the circuit-breaker, an electric circuit for said electromagnetic means, and a common relay for the circuits of the motor and the electromagnetic means adapted to break said circuits subsequent to the engagement of the striker with the circuit-breaker.

10. The combination with a semaphore, of an electric motor, a screw-shaft rotatably connected with the motor, an electric circuit for the motor a circuit-breaker in the motor-circuit, a follower connected with the semaphore and adapted for alternate engagement and disengagement with respect to the screw-shaft to move alternately free of and with the shaft, a shaft carried by the follower, a striker carried by said shaft and adapted to be moved into and out of operative relation with the circuit-breaker, means for holding the striker with the follower in operative relation to the circuit-breaker, means for releasing the follower to move the strike. from the circuit-breaker, a weighted lever upon the striker-shaft adapted to lie on opposite sides of its center of gravity to alternately project and retract the striker, connections with said lever for alternately throwing the follower into and oot of engagement with the screw-shaft, and means for moving the lever.

11. The combination with a semaphore, of an electric motor, a screw-shaft adapted for rotation by the motor, an electric circuit for the motor, a follower connected with the semaphore and adapted for engagement and disengagement with respect to the screw-shaft to move with or free thereof, a circuit-breaker in the motor-circuit, a shaft carried by the follower, a striker carried by said shaft and adapted to engage and operate the circuit-breaker at times, means fof holding the follower with the striker in operative relation to the circuit-breaker, means for releasing the follower to move the striker from operative relation to the circuit-breaker, a weighted lever connected with the striker-shaft and adapted to lie on either side of its center of gravity to project or retract the striker, means carried by the striker-shaft for engaging the follower with the screw-shaft when the striker is retracted, a spring-finger adapted to engage the weighted lever and throw it from one side to the other of the center of gravity, and means carried by the follower for energizing said finger.

658,930. CELL-CASE MACHINE. Joseph Starman, Cedar Rapids, Iowa. Filed June 21, 1900. Serial No. 21,127. (No model.)



Claim.—1. In a machine of the class specified, the combination of feeding, punching and cutting mechanism, of a series of superimposed die-plates with dies attached thereto, provided with continuous channels below the dies to receive the chips and dust, a tight closure for the bottoms of said channels, and means for removing the contents thereof.

2. In a machine of the described class, the combination of a die-plate, dies secured thereto, a continuous channel through said die-plate from end to end below the dies, tightly closed at the bottom, and pneumatic means for removing the punchings from said channels.

3. In a machine of the class described, the combination of a die-plate having a continuous channel therethrough, practically central thereto, a plate closing the bottom of said channel, dies mounted over the same, and a pair of guide-rods passing through each end of the plate and at each side of said channel.

4. In a machine of the described class, the combination with feeding, punching and cutting mechanism, of a strip-holder having strip-receiving slots in line with the advance of the strip material, means for preventing the displacement of the strip in cutting off, and a reciprocating carrier adapted to engage the strip while so held and advance it in the same line until it interlocks with other strips intersecting its path.

5. In a machine of the described class, the combination with feeding, punching and cutting mechanism, of a strip-holder in line with the advance of the strip material, adapted to permit the advance and prevent the retrograde movement of the strip, said strip-holder being in a fixed position, and a reciprocating strip-carrier adapted to take the strips from the strip-holder and forward them to a position interlocking other intersecting strips.

6. In a machine of the described class, the combination with feeding, punching and cutting mechanism, of a strip-holder into which the strip is fed before cutting off, means for preventing any backward movement of the strip, while free to move forward, and a reciprocating strip-carrier coinciding and coacting with said holder, having also means for moving the strip forward and preventing backward movement, whereby the severed strip is positively moved to a position interlocking other intersecting strips.

7. In a cell-case machine, interlocking mechanism, comprising a fixed strip-holder into which the strip is thrust before cutting off, means for severing the strip from the main sheet, a detent in the strip-holder adapted to permit the advance and prevent the retreat of the strip, and a reciprocating strip-carrier adapted to receive the strip from the holder, grip it, and at one outstroke carry it past the holder-detent, a detent in the carrier to engage the strip at the succeeding instroke and positively push it forward through the holder and into engagement with intersecting strips, at a succeeding outstroke.

8. In a cell-case machine, a strip-holder comprising a series of parallel fingers arranged in pairs slightly separated to receive the strip, and adapted to allow the strip to move freely forward from end to end of the fingers, and detents in connection with said fingers to prevent retrograde movement of the strips.

9. In a cell-case machine, a reciprocating strip-carrier, comprising a series of parallel fingers arranged in pairs slightly separated to receive the strip, and adapted to allow the strip to move freely between them from end to end forwardly, a gripper in connection with said fingers to grip the strip while at rest, and a detent farther forward along said fingers to prevent retrograde movement of the strip as it is pushed forward through said fingers.

10. In a cell-case machine, strip-interlocking mechanism, comprising a strip-holder in a fixed position having a series of parallel fingers in pairs separated to receive the strip, and provided with means for preventing backward movement of the strip while allowing its free movement forward, and a similarly-constructed reciprocating strip-carrier, the fingers of which lie in the same planes as those of the strip-holder, and may move in and out in the lateral spaces between the respective pairs of holder-fingers, whereby the strip is alternately drawn forward by the carrier and held in its successively-advanced position by the strip-holder, substantially as described.

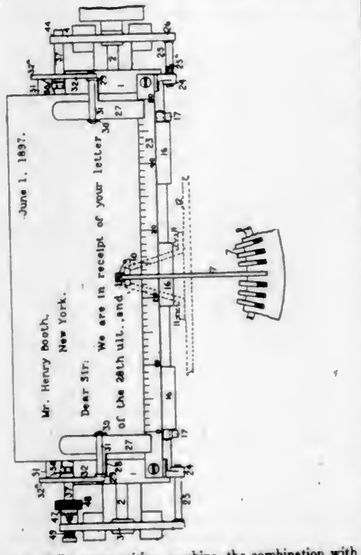
11. In a cell-case machine, a pair of oppositely-arranged machine-sections, each provided with feeding, punching and cutting mechanism arranged to operate on one-half of the strips in the finished cell-case, and in parallel planes which intersect those of the opposite machine-section, and each section provided with mechanism whereby the strip is received and held until cut off, then advanced in the same plane by one revolution of the machine a part of the way to their final position, and in a succeeding revolution thrust forward and interlocked with the corresponding series in the opposite machine-section.

12. In a cell-case machine, an ejector comprising a revolving sweep having a pivoted connection with its carrying-shaft, a cam, and an arm connecting with said sweep and provided with a cam-traveler, whereby the arm is deflected from a radial position while ejecting the cell-case, and tends to push the same out diagonally, substantially as described.

13. In a cell-case machine, the described ejector, comprising a fixed cam, a shaft mounted to revolve therein, a yoke fixed to one of said shafts, bell-crank arm pivoted to said yoke, travelers on one arm of each bell-crank to follow the cam, and sweeps secured to the other arm of each bell-crank, with means for revolving the shaft and its connections.

658,931. TYPE-WRITING MACHINE. Burnham C. Stickney, Elizabeth, N. J., assignor to Jacob Feibel, New York, N. Y. Filed Apr. 4, 1900. Serial No. 11,461. (No model.)

Claim.—1. In a front-strike type-writing machine, the combination with a series of types, a cylindrical platen, and means for guiding and feeding the paper from its entrance into the machine toward the printing-point, of a pair of pressure devices constructed and arranged wholly independently of said guiding and feeding means, for receiving the paper from said guiding and feeding means and conducting it away from the printing-point, said conducting devices being each provided with a supporting-arm arranged at the delivery side of the platen, said supporting-arms being so mounted at their extended ends upon a bar arranged longitudinally of the platen that they may be adjusted along said bar, wholly independently of said devices for guiding and feeding the paper toward the printing-point, and said bar being so arranged that the paper, as it is conducted away from the printing-point, does not pass between the bar and the platen.



2. In a front-strike type-writing machine, the combination with a series of types, a cylindrical platen, and suitable devices for guiding and feeding the paper toward the printing-point, the construction and arrangement being such that the paper is inserted in the machine in rear of the platen, of an independent device for guiding the paper upwardly from the printing-point, said device being constructed at one end to receive the paper from said guiding and feeding devices and at the other end to positively deflect the paper rearwardly over the point at which it is inserted in the machine, said guiding device being provided with a support which extends therefrom to a point wholly outside the field or area between the printing-point and the point of issuance of the paper, and which is so mounted at its extended end upon a bar arranged parallel with the platen that it may be adjusted along said platen without liability of interference from and wholly independently of said devices for guiding and feeding the paper toward the printing-point, and said bar being so arranged that the paper, as it feeds away from the printing-point, does not pass between the bar and the platen.

3. In a type-writing machine, the combination with a platen, of a device for guiding the paper, and a bar upon which said device is supported and along which it may be adjusted and from which it extends forwardly directly over the platen, said guiding device including a finger which extends partly around the platen, and said bar being parallel with the platen and arranged relatively to the guide so that the paper feeds between said finger and the platen and passes onward over the bar in all adjusted positions of said guiding device.

4. In a type-writing machine, the combination with a platen of a fixed bar parallel therewith and arranged above the platen and in rear of a vertical line passing through the axis of the platen, and a device adjustably mounted upon said bar and extending forwardly therefrom directly over the platen for guiding the paper rearwardly over said bar after it has passed the printing-point.

5. In a type-writing machine, the combination with a platen, mechanism for feeding the paper toward the printing-point, a relatively-fixed bar parallel with the platen and arranged above the platen so that paper may be inserted in the machine in rear of said bar, and a spring-pressed device independent of said paper-feeding means and adjustably mounted upon said bar and extending forwardly therefrom directly over the platen, for guiding the paper rearwardly over said bar after it has passed the printing-point.

6. In a front-strike type-writing machine, the combination with a platen of a paper-guide curved to conform substantially to the curvature of the platen and terminating at its lower end in front of the platen and extending upwardly and rearwardly over the platen, a bar parallel with the platen and arranged in rear of the rear end of said guide, and means extending rearwardly over the platen for supporting said guide adjustably upon said bar, said supporting means being so arranged that the paper will pass under the guide and over the bar.

7. In a front-strike type-writing machine, the combination with a platen, of a paper-guide finger curved to conform substantially to the curvature of the platen and extending rearwardly over the platen, a bar parallel with the platen and arranged at the rear end of said guide-finger but not directly engaged thereby, and means extending directly over the platen forwardly from said bar for supporting said guiding-finger upon said bar and pressing said finger against the platen, said supporting and pressing means being so arranged that the paper will pass under said guiding-finger, and the rear end of the guiding-finger being bent away from the platen, so as to direct the paper over said bar.

8. In a type-writing machine, the combination with a cylindrical platen and a series of type-bars constructed to make impressions upon the paper in view of the operator, of means for feeding the paper toward the printing-point, including a plate extending longitudinally of and parallel with the platen and contiguous thereto, so that the paper passes between said plate and the platen when moving to the printing-point, a device extending from and mounted independently of said plate to guide the paper rearwardly from the printing-point, and an arm supporting said guiding device and extending to a point wholly outside of the field or area between the printing-point and the point of issuance of the paper, and adjustably mounted at its extended end upon a longitudinally-arranged bar, so that said finger may be moved along said plate and platen, said bar being so arranged that the paper as it feeds away from the printing-point, does not pass between the bar and the platen.

9. In a front-strike type-writing machine, the combination with a series of type-bars and a cylindrical platen, of means for feeding the paper toward the printing-point, including a plate extending longitudinally of and parallel with the platen and contiguous thereto and supported below the printing-point, so that the paper passes between said plate and the platen, a paper-guide terminating at its lower end at said plate and also overlapping said plate but mounted independently thereof and terminating at its upper end above the platen, and a support for said paper-guide extending to a point wholly outside of the field or area between the printing-point and the point of issuance of the paper and adjustably mounted at its extended end upon a bar parallel with the platen, so that said finger may be moved along said plate and platen, and so arranged that the paper as it feeds away from the printing-point, does not pass between the bar and the platen.

10. In a type-writing machine, the combination of a platen, a pair of arms on the delivery side of the printing-point adjustable longitudinally of the platen according to the width of the paper used and so as to stand outside the edges of the paper, paper-guiding fingers connected to the arms and arranged on the inner sides thereof so as to overlie the paper at its side margins, and means for feeding the paper past the printing-point, under said guiding-fingers and between said arms.

11. In a type-writing machine, the combination of a platen, devices for passing the paper under the platen, a bar arranged lengthwise of the platen, a pair of arms adjustable along said bar and extending from said bar in a direction opposite that of the advance movement of the paper, and offset guiding-fingers carried by said arms; the organization being such that the paper is fed between said arms and under the guiding-fingers and over the bar.

12. In a front-strike type-writing machine, the combination with a cylindrical platen, of means for carrying the paper forwardly around the under side of the platen, and a pair of fingers which engage the side margins of the paper to direct the latter rearwardly over the platen, said fingers being mounted upon supports which overhang the platen and are adjustably mounted upon a bar which extends longitudinally of the platen, and the relationship of the fingers, their supports and the bar being such that the paper advances over the bar, so that all of the writing remains exposed to view.

13. In a type-writing machine, the combination with a cylindrical platen and a platen-frame, of a pair of devices overhanging the platen and carried by said platen-frame, and means arranged between said devices and carried thereby for deflecting the paper rearwardly over the platen and between said devices.

14. In a front-strike type-writing machine, the combination with a cylindrical platen and a series of type-bars of devices for pressing the paper against the platen so as to cause it to feed toward the printing-point, and a pair of paper-guides curved substantially in conformity with the platen and constructed to direct the paper upwardly and rearwardly from

the printing-point, said guides being provided with and arranged between spring-pressed vibratory lateral supports, and said lateral supports being arranged out of the path of the paper, and adjustably mounted upon a bar parallel with the platen, the construction and arrangement being such that the paper passes out between said supports.

15. In a front-strike type-writing machine, the combination with a cylindrical platen and suitable paper-feeding devices so constructed and arranged that the paper may be inserted in the machine in rear of the platen, of a guide for directing the paper upwardly from the printing-point and for positively deflecting the paper rearwardly over the point at which it is inserted in the machine, said guide being provided with a lateral support extending rearwardly over the platen and arranged out of the path of the paper, and said lateral support being adjustably mounted at its rear end upon a device over which the paper passes in issuing from the machine.

16. In a front-strike type-writing machine, the combination with a cylindrical platen of a pair of curved paper-guides each provided with a vibratory spring-pressed lateral support extending rearwardly over the platen, said lateral supports being arranged out of the path of the paper, and a bar upon which said lateral supports are adjustable, said bar being arranged above and parallel with the platen so that the paper may be inserted in the machine in rear of said bar, and said guides being disposed between said lateral supports, and the construction and arrangement being such that the paper may feed between said guides and the platen and pass out over said bar.

17. In a front-strike type-writing machine, the combination with a cylindrical platen of a flexible guide extending partly around the platen and constructed to press the paper against the platen and direct it upwardly and backwardly, a laterally-arranged support to which said guide is attached at a point between the ends of the guide, said lateral support being arranged out of the path of the paper, and a bar upon which said lateral support is adjustable, the construction and arrangement being such that the paper feeds between said guide and the platen and passes onward over said bar.

18. In a type-writing machine, the combination with a platen of a pair of paper-guides and a bar along which said guides may be independently adjusted toward and from each other, said guides extending directly forward above the platen from said bar and the bar being arranged relatively to said guides so that the paper feeds between the guides and the platen and passes onward over the bar.

19. In a front-strike type-writing machine, the combination with any suitable mechanism for feeding the paper toward the printing-point, of a pair of devices for guiding the paper from the printing-point, and a bar parallel with the platen upon which both of said guiding devices are mounted so that they may vibrate independently and also so that they may be independently adjusted toward and from each other, the bar being arranged relatively to the guides so that the paper feeds between the guides and the platen and passes onward over the bar.

20. In a front-strike type-writing machine, the combination with a platen, of means, including a pair of paper-guides, each extending partly around the platen and each provided with a laterally-arranged support, and each of said lateral supports being adjustable along the platen and arranged out of the path of the paper, so that the latter may pass out between said supports, for feeding and guiding wide or narrow sheets around the platen in such manner as to leave all of the written portion of the page in full view of the operator.

21. In a front-strike type-writing machine, the combination with a cylindrical platen and a series of type-bars, of a roller constructed to press the paper against the platen so as to cause it to feed toward the printing-point, and a pair of paper-guides terminating at their forward ends in front of the platen and extending rearwardly over the platen and each curved substantially in conformity with the platen and constructed to direct the paper upwardly and rearwardly from the printing-point and each guide being provided with a spring-pressed lateral support, said lateral supports being arranged out of the path of the paper and mounted for adjustment along said platen independently of each other and of said roller, and the construction and arrangement being such that the paper passes between said lateral supports when issuing from the machine.

22. In a front-strike type-writing machine, the combination with a cylindrical platen of a scale-plate supported below the printing-point, so that the paper passes between said plate and the platen, a pair of paper-guides whose lower ends overlap said plate and whose upper ends terminate above the platen, a laterally-arranged support for each of said paper-guides, and a bar upon which said lateral supports are independently adjustable, said bar being arranged parallel with the platen, and the construction and arrangement being such that the paper feeds between said guides and the platen and passes onward over said bar and between said lateral supports.

23. In a type-writing machine, the combination of a platen, a presser-arm arranged at the delivery side of the platen, a paper-guide curved to match the platen and pivotally supported between its ends upon said arm, and a bar along which said arm is adjustable, the relationship of the platen, arm, guide and bar being such that after leaving the printing-point the paper does not pass between the bar and the platen.

24. In a type-writing machine, the combination with a paper-guide having ears, of an arm arranged laterally of said guide and provided with a lateral pin upon which said ears are pivoted, and a rod parallel with the platen along which said arm is adjustable, the relationship of the said parts being such that the paper when issuing from the machine passes over said rod and by said arm.

25. In a type-writing machine, the combination with a cylindrical platen, of a paper-guide provided with a lateral extension, an ear formed upon the paper-guide in line with the first ear, an arm arranged laterally of the paper-guide and provided with a lateral pin upon which said ears are pivoted, and a bar parallel with the platen and along which said arm is adjustable, the relation of the said parts being such that the paper when issuing from the machine passes over said rod and by said arm.

26. In a type-writing machine, the combination with a platen, of a bar parallel therewith, an arm adjustable along said bar and extending forwardly therefrom directly over the platen, a single lateral projection provided upon said arm, and a paper-guide supported wholly upon said single lateral projection, the relationship of the said parts being such that the paper after leaving the printing-point passes over said bar and by said arm.

27. In a type-writing machine, the combination with a platen, of a bar parallel therewith, a vibratory arm adjustable along said bar, and a paper-guide supported laterally upon the free end of said vibratory arm, the relation of the parts being such that the paper when issuing from the machine passes over said bar and by said arm.

28. In a type-writing machine, the combination with a platen, of a paper-guide provided with a spring-pressed lateral support, and a bar along which said support is adjustable, the relation of the said parts being such that the paper when issuing from the machine passes over said bar and by said lateral support.

29. In a type-writing machine, the combination with a platen, of a bar parallel therewith, a pair of paper-guides, arms upon which said guides are carried, said arms being pivotally mounted and independently adjustable along said bar, and said arms being also arranged laterally of said guides, and means for causing said arms to press said guides against the platen, the construction and arrangement being such that the paper feeds between said guides and the platen and passes onward over said bar and between said arms.

30. In a type-writing machine, the combination with a platen, of a bar parallel therewith, a pivoted arm adjustable along said bar, a paper-guide pivoted between its ends to said arm, and a spring, the relation of said parts being such that the paper after leaving the printing-point passes over said bar and by said arm.

31. In a front-strike type-writing machine, the combination with a platen of a bar arranged in rear of the printing-point, an arm adjustable along said bar and extending directly over the platen forwardly from said bar and arranged out of the path of the paper, a paper-guide arranged laterally of said arm and pivoted between its ends to said arm, and a spring for causing said arm to press the paper-guide against the platen.

32. In a type-writing machine, the combination with a platen of a longitudinally-grooved cylindrical rod parallel therewith, an arm pivotally engaging said rod and slidable therealong, a paper-guiding device carried by said arm, and a spring, one end of which is connected to said groove and the other end of which is arranged to put a tension upon said arm so as to cause the latter to press said guiding device against the platen.

33. In a type-writing machine, the combination with a platen of a longitudinally-grooved cylindrical rod parallel with said platen, a sleeve splined to the groove, a spring connected at one end to the sleeve, an arm to which the other end of said spring is connected, said arm being pivotally mounted upon said rod and constructed for adjustment therealong together with said sleeve, and a paper-guide carried by the free end of said arm.

34. In a type-writing machine, the combination with a platen of a longitudinally-grooved cylindrical rod parallel with said platen, a sleeve splined to the groove, a spring connected at one end to the sleeve, an arm to which the other end of said spring is connected, said arm being pivotally mounted upon said rod and constructed for adjustment therealong together with said sleeve, a paper-guide carried by the free end of said arm, and means for adjusting the tension of said spring.

35. In a type-writing machine, the combination with a platen of a cylindrical rod parallel therewith, a sleeve splined to said rod and provided with a crown-ratchet, a spring surrounding said sleeve, a second crown-ratchet to which one end of said spring is attached, an arm carried by said rod and connected to the other end of said spring, said arm, sleeve, spring and crown-ratchets being simultaneously adjustable along said rod, and a paper-guide carried by the free end of said arm.

36. In a type-writing machine, the combination with a platen of a grooved cylindrical rod parallel therewith, a sleeve splined to said rod, a crown-ratchet surrounding said sleeve and fixed thereto, a second crown-ratchet loosely carried by said sleeve and engaging the first crown-ratchet, a spring arranged around said sleeve and attached to the second crown-ratchet, an arm upon said rod, said arm, sleeve, ratchets and springs being simultaneously adjustable along said rod, and a paper-guiding device carried by said arm.

37. In a type-writing machine, the combination with a cylindrical platen of a pair of paper-guides each provided with a lateral support arranged out of the path of the paper, a rod parallel with the platen and upon which said supports are independently adjustable, the construction and arrangement being such that the paper feeds between said guides and passes onward over said rod and between said lateral supports, and means for pressing said guides independently against the platen.

38. In a type-writing machine, the combination of a platen, a rod parallel therewith, a pair of paper-guides adjustable along said rod, and spring mechanism for pressing said guides against the platen, said spring mechanism including means for adjusting the pressure of both of said guides simultaneously.

39. In a type-writing machine, the combination with a platen of a rod parallel therewith, a pair of paper-guides carried by said rod and independently adjustable therealong, an independent spring for each paper-guide, and means for simultaneously adjusting said springs.

40. In a type-writing machine, the combination with a platen of a rod parallel therewith, a pair of paper-guides adjustable along said rod, an independent spring for each paper-guide, means for adjusting each of said springs independently, and means for adjusting both of said springs simultaneously.

41. In a type-writing machine, the combination with a platen-frame of a platen, a rod journaled in said platen-frame, a paper-guide adjustable along said rod, spring mechanism splined to said rod and connected to said paper-guide, and means for adjusting said rod in its bearings to increase or diminish the tension of said spring mechanism.

42. In a type-writing machine, the combination with a platen and a platen-frame, of a paper-guide, a rod parallel with the platen upon which said guide is adjustable, spring mechanism connected to said guide and splined to said rod, bearings in the platen-frame in which said rod is journaled, a crown-ratchet carried by said platen-frame, a second crown-ratchet carried by said rod, and a spring for moving said rod endwise in its bearings in a direction to cause engagement of said crown-ratchets.

43. In a type-writing machine, the combination with a platen and a rod parallel therewith, of an arm bent at one end into a yoke which pivotally engages said rod, and carrying at the other end a laterally-arranged paper-guide.

44. In a type-writing machine, the combination with a platen and a rod parallel therewith, of an arm bent at one end into a yoke which pivotally engages said rod and carrying at the other end a laterally-arranged paper-guide, said yoke and said paper-guide being arranged upon the same side of the arm.

45. In a type-writing machine, the combination with a platen and a longitudinally-grooved rod parallel therewith, of an arm carrying at one end a paper-guide and bent at the other end to form a yoke which pivotally engages said rod, and a spring confined in said yoke and surrounding said rod, one end of the spring being suitably connected to said groove and the other end of the spring bearing upon said yoke.

46. In a type-writing machine, the combination with a platen and a grooved rod parallel therewith, of an arm carrying at one end a paper-guide and bent at the other end to form a yoke which pivotally engages said rod, a sleeve splined upon said rod and confined by said yoke, and a spring coiled around said sleeve, one end of the spring engaging said yoke and the other end of the spring being connected to said sleeve.

47. In a type-writing machine, the combination with a platen and a grooved rod parallel therewith, of an arm carrying at one end a paper-guide and bent at the other end to form a yoke which pivotally engages said rod, a sleeve splined upon said rod and confined by said yoke, a spring wound around said sleeve, one end of the spring engaging said yoke and the other end of the spring being connected to said sleeve, and means for adjusting the tension of the spring.

48. In a type-writing machine, the combination with the platen of a paper-guide adjustable along said platen, and a paper-gage which is set automatically in accordance with the position to which said paper-guide is adjusted.

49. In a type-writing machine, the combination with a platen of a roller for feeding the paper toward the printing-point, a device for guiding the paper away from the printing-point, said guiding device being adjustable longitudinally of the platen and independently of said feeding-roller, and a paper-gage attached to said guiding device.

50. In a type-writing machine, the combination with a platen of a platen-scale, a paper-guide extending from said scale partly around the platen, and a paper-gage secured to said paper-guide.

51. In a type-writing machine, the combination with a platen and a platen-scale, of a paper-gage mounted for adjustment longitudinally of the platen and having a part which extends to said platen-scale, so that the adjustment of said paper-gage may be determined by reference to said platen-scale.

52. In a front-strike type-writing machine, the combination with a platen of a rod arranged over the platen and parallel therewith, a forwardly-extending paper-guiding device mounted adjustably upon said rod, and a rearwardly-extending paper-gage secured to said forwardly-extending device so as to move therewith along said rod.

53. In a front-strike type-writing machine, the combination with a platen of a rod arranged thereover and parallel therewith, a forwardly-extending arm adjustably mounted upon said rod and arranged out of the path of the paper, a laterally-disposed paper-guide carried by the forward end of said arm, and a rearwardly-extending paper-gage attached to said arm, the construction and arrangement being such that paper enters between said guide and the platen and passes onward over said rod.

54. In a front-strike type-writing machine, the combination with a platen of a rod arranged thereover and parallel therewith, a forwardly-extending arm adjustably mounted upon said rod and arranged out of the path of the paper, a laterally-disposed paper-guide carried by the forward end of said arm, and a rearwardly-extending paper-gage attached to said arm, said paper-gage being offset or out of line with said arm.

55. In a front-strike type-writing machine, the combination with a platen of a paper-shelf, a rod arranged over the platen, an arm adjustably mounted upon said rod, a lateral paper-guide carried by said arm, and an extension upon said arm reaching rearwardly to said paper-shelf.

56. In a type-writing machine, the combination with a platen of a rod arranged thereover and parallel therewith, an arm carrying at its forward end a lateral paper-guide and its rear end bent to form a yoke which pivotally engages said rod, said arm also having a rearwardly-extending portion which forms a paper-gage.

57. In a type-writing machine, the combination with a paper-shelf, a platen, and a rod arranged over the platen and parallel therewith, of a paper-gage adjustable upon said rod and extending rearwardly therefrom to a point in rear of the working face of said paper-shelf.

58. In a type-writing machine, the combination of a paper-shelf having a longitudinal depression, a platen, a rod over said platen, and a paper-gage adjustable upon said rod and extending rearwardly into said depression.

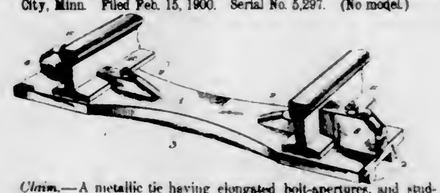
59. In a type-writing machine, the combination with a paper-shelf and a platen, of a rod arranged over said platen, a forwardly-extending arm carrying a paper-guide, and a paper-gage attached to said arm and extending rearwardly to a point beyond the working face of said paper-shelf.

60. In a front-strike type-writing machine, the combination with a platen of a bar parallel therewith and arranged so as not to intercept the view of any of the written portion of the paper, a spring-pressed arm adjustably mounted upon said bar, a paper-guide carried upon the free end of said arm, and an independently spring-pressed roller also carried upon the free end of said arm.

61. In a type-writing machine, the combination with a platen of a bar parallel therewith, an arm adjustably mounted upon said bar, a lateral pin provided upon said arm, a paper-guide pivoted upon said lateral pin, an independent frame also pivoted upon said pin and carrying a roller, and a spring for pressing said roller independently against the platen, the construction and arrangement being such that the paper enters or feeds between said guide and said roller and the platen and passes onward over said bar.

62. In a type-writing machine, the combination of a platen, a bar arranged parallel therewith, an arm supported at one end upon said bar and extending partly around the platen and above the surface thereof, and a lateral guiding-finger carried by said arm and pressing upon the platen, the relationship of said parts being such that the paper as it leaves the printing-point passes under said finger and over said bar and by said arm.

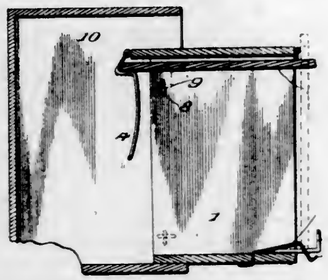
658,932. METALLIC RAILWAY-TIE. OTTO VILL, Minnesota City, Minn. Filed Feb. 15, 1900. Serial No. 5,297. (No model.)



Claim.—A metallic tie having elongated bolt-apertures, and stud-apertures, the former of which are surrounded by semicircular recesses on the under side of the tie; in combination with blocks and knees, each of which is provided with a stud to engage said stud-apertures, elongated bolts inserted through the bolt-apertures and provided with elongated heads that engage the recesses, wedge-keys inserted in the elongated ap-

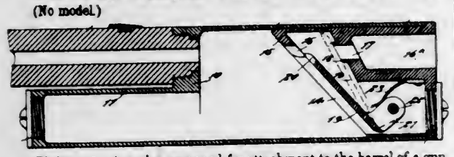
ertures to hold the heads of said bolts in the recesses, and clamping-nuts engaging the ends of said bolts, substantially as and for the purpose set forth.

658,933. **TRAP ATTACHMENT FOR NESTS.** JOHN J. WALSH, Manassas, Va. Filed Jan. 31, 1900. Serial No. 3,515. (No model.)



Claim.—A trap attachment for nest-boxes, comprising a box-like frame, fastening means for detachably connecting the frame to a nest-box, a gravity-closing door hinged near its upper end to the top portion of the frame, a trigger for engaging the lower end of the door to hold it open and adapted to be tripped by the fowl passing through the frame to release the door and allow the latter to close by gravity, a spring-metal catch applied to the threshold of the door and consisting of a strip bent downwardly and upwardly to form an engaging portion and a finger-piece, and a loop-shaped stop device having a horizontal portion inclosing the catch and a vertical free end cooperating with the catch to limit the outward movement of the door, substantially as set forth.

658,934. **ATTACHMENT FOR BARRELS OF FIREARMS.** READE M. WASHINGTON and ALFRED W. CAPT, Dallas, Tex., assignors of one-fourth to said Washington. Filed Jan. 5, 1899. Serial No. 701,240. (No model.)



Claim.—1. A casing arranged for attachment to the barrel of a gun, and having an outlet for a bullet, an inclined deflecting-plate in said casing and a valve normally held in an open position and operated by the gases to close the outlet for the bullet after said bullet has escaped from the casing, substantially as described.

2. A casing provided with a gas-condensing chamber and arranged for connection with the barrel of a gun, the said chamber having an outlet for a bullet, the said casing having a tubular extension forming part of the gas-condensing chamber and extending rearwardly beneath the barrel of the gun, a closure for the rear end of said tubular extension, a valve operated by the gases to close the outlet for the bullet after said bullet has escaped and a support against which said valve normally rests, the said support being located between the end of the gun-barrel and the outlet for the bullet, substantially as described.

3. A casing adapted for attachment to the barrel of a gun, a chamber at the forward end of said casing and having an inlet in its inner or rear wall in line with the bore of the gun, a plate in said casing between the rear end of said chamber and the end of the gun-barrel and a pivoted valve normally resting on the said plate, the plate and valve being constructed to permit of the passage of a bullet, the said valve being adapted to close the opening in the rear end of said chamber immediately after the escape of the bullet, being carried to said closing position by the action of the gases, substantially as described.

4. A device adapted to control the noise of the explosion of a charge and prevent the escape of smoke from the muzzle of a gun, said device consisting of a casing arranged for attachment to the muzzle of a gun, the casing being provided with a downwardly and forwardly extending deflecting-plate having an opening in line with the axis of the barrel, the casing being provided with a passage-way for a bullet forward of the deflecting-plate, and a valve normally resting with its upper end on said deflecting-plate, and adapted to be moved to close said passage-way by the accumulation of gases within the said casing, as described.

5. The combination, with the barrel of a gun, a casing attached to the muzzle of said barrel, and a cap removably secured in the forward end of the casing, the cap being provided with an inclined deflecting-plate having an opening therein in line with the axis of the barrel, of a chamber forward of the deflecting-plate, provided with an opening also in line with the axis of the bore of the gun, and a valve having bearing normally against the deflecting-plate, the said valve being forced to a seat at the inlet of the said chamber, by the action of the gas accumulated in the barrel and back of the said valve and deflecting-plate, after a bullet has been discharged, as described.

6. The combination with the barrel of a gun, of a casing attached to the muzzle of said barrel, a cap secured in the forward end of the casing and provided with an inclined deflecting-plate having an opening therein in line with the axis of the barrel, a chamber forward of the deflecting-plate and provided with an inlet-opening also in line with the bore of the gun-barrel and formed with a valve-seat and a spring-pressed valve normally resting against the deflecting-plate and adapted to be forced against said valve-seat, substantially as described.

7. The combination with the barrel of a gun, and a casing attached to the muzzle of the barrel and having a tubular extension at the rear lower portion provided with a removable closure at its rear end, of a cap removably secured in the forward end of the casing, the inner face of said cap being inclined from the upper edge downwardly and forwardly and the said inner face being open from a point at or near its bottom to a point near the top, an inclined deflecting-plate at the upper portion of the inclined inner face of the cap, the said plate having an opening in its lower edge in longitudinal alinement with the axis of the bore of the barrel, a chamber formed at the forward upper end of said cap and forward of the plate, the said chamber being provided with an inlet in its inner wall in line with the opening in the plate and the bore of the barrel, the inner wall of said chamber being inclined and having a flange formed thereon around the inlet-opening and constituting a valve-seat, and a pivoted and spring-pressed valve normally resting at its upper end against the lower portion of the deflecting-plate and having an opening at its upper edge forming with the opening in the lower edge of the deflecting-plate, a passage for the bullet, the said valve being forced to its seat at the inlet-opening of said chamber by the action of the gases after a bullet has been discharged, the front of said cap below the chamber having an opening provided with a removable closure, for the purpose set forth.

8. A casing arranged for attachment to the barrel of a gun and provided with a gas-condensing chamber, and a cap removably secured in the forward end of said casing and provided with a chamber having an opening in line with the axis of the bore of the gun and forming a passage for a bullet, a valve pivoted in said cap and operated by the gases to close the outlet for the bullet immediately after the escape of the bullet, the said cap being provided with an opening in its front below the said chamber, and a closure for said opening, substantially as described.

9. A device adapted to control the noise of the explosion of a charge and prevent the escape of smoke from the muzzle of a gun, the said device comprising a casing arranged for attachment to the muzzle of a gun the casing being provided with a passage-way for a bullet, a valve for closing said passage-way, a spring for normally holding said valve open, and a deflecting-plate for turning the flow of gas toward the valve, the valve being carried to closing position by the gases.

10. A casing for attachment to the muzzle of a gun, a cap removably secured in the forward end of said casing and having a valve-seat with an opening for the passage of the bullet and a valve carried by said removable cap and free to swing, the said valve being normally held in an open position, and adapted to be moved by the action of the gases to a closed position, substantially as described.

11. A casing arranged for attachment to the muzzle of a gun, a removable cap fitted in the forward end of the casing and having a valve-seat with an opening for the passage of the bullet, the axis of said opening coinciding with the axis of the bore of the gun, a valve carried by said cap and free to swing to close said opening, a spring for normally holding said valve in the open position, and a deflecting-plate carried by the cap and arranged to deflect the gases toward the valve, the said valve being closed by the action of the gases, whereby the said casing receives and confines for a time the gases resulting from firing the gun.

658,935. **DOOR OR WINDOW VENTILATOR.** PETER ABRAHAMSON, San Francisco, Cal. Filed Apr. 10, 1899. Serial No. 712,494. (No model.)



Claim.—1. The combination with a window or like opening, of plates fixed in parallel planes with an interspace, one plate having a space between it and the top of the opening, and the other a like space between it and the bottom, and screen continuations of the plates to cover said spaces, a guided slidable plate movable in the interspace to open or close the passage therethrough, and means for moving said slidable plate.

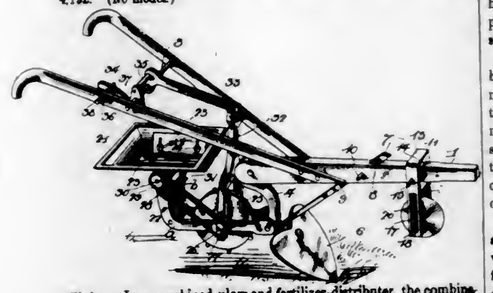
2. In a sash, or door-transom ventilator, a frame fixed in the opening having parallel vertically-disposed plates fixed to the outer and inner parts of the frame, one having an opening between it and the top of the frame and the other between its lower edge and the bottom, each of said plates having a screen continuation with an interspace between the two plates, a guided slidable frame movable in a parallel plane and substantially in contact with one of said plates, cords connecting therewith and leading over direction-pulleys at the top and thence to a point within reach of the operator whereby said slidable frame may be moved to close the open passage or to expose it.

3. In a sash, or door-transom ventilator, a frame fitted to the ventilating-opening having a plate fixed vertically in the outside of said frame having a space between one of its horizontal edges and the corresponding side of the frame, and a screen fixed in said space, a similar plate and screen fixed in a supplemental frame in the reverse position to the first-named plate and screen, said supplemental frame being hinged at one side to the main frame and having a latch or catch upon the opposite side whereby it may be opened and closed with relation to the main frame.

4. In a sash, or door-transom ventilator, a frame fixed in the ventilating-opening having an outer fixed plate and screen continuation, a supplemental frame fitting and hinged to the main frame with a latch by which it may be opened and closed with relation thereto, said supplemental frame having a plate and screen continuation in reverse position to the first-named plate whereby a tortuous passage is formed from the outside to the inside of the apartment, a slidable frame moving in guides upon the hinged supplemental frame and direction-pulleys at the top of said frame and cords connecting with the slidable frame passing over the direction-pulleys to a point within reach of the operator, and holding devices to which said cords may be secured when the slide has been moved to close the passage through the screen.

5. A sash, or door-transom ventilator consisting of exterior and interior plates so fixed with relation to each other as to form a tortuous passage, a slidable plate movable to open or close the passage, connecting-cords by which the plate is moved, with holding devices therefor, and tubes or channels through which the cords pass.

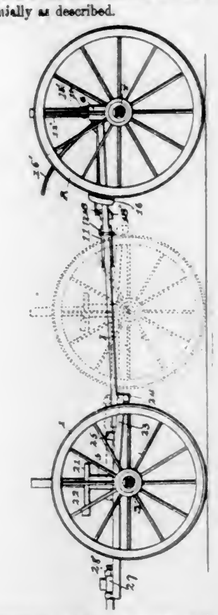
658,936. **COMBINED PLOW AND FERTILIZER-DISTRIBUTER.** ANTHONY ASHORE, Alexanderville, Ga. Filed Feb. 6, 1900. Serial No. 4,192. (No model.)



Claim.—In a combined plow and fertilizer-distributer, the combination with the plow-beam; of a standard pivoted thereto and provided with a shovel, the plow-handle bars secured to the beam and connected by a cross-bar, the fertilizer-distributer box having an opening in its bottom, the standards projecting downwardly from said bottom and horizontally and pivoted at their forward ends to the plow-standard, a traction-wheel pivoted to the distributer-standards, a stirrer journaled to said last-named standards and having fingers to work through the slot in the fertilizer-hopper, sprocket-wheels mounted upon the axes of the stirrer-wheel and traction-wheel, a sprocket-chain connecting the sprocket-wheels, a vertically-disposed bar pivoted to said last-named standards, a lever pivoted to the cross-bar connecting the plow-handles and to the upper end of the vertically-disposed bar, a bell-crank lever pivoted to said cross-bar, and fingers connected to the first-named lever, substantially as and for the purpose set forth.

658,937. **DUMPING-WAGON.** FREDERICK BAUER and DOMINICK GENER, Wilmerding, Pa. Filed Apr. 20, 1900. Serial No. 13,611. (No model.)

Claim.—1. The combination in a lumber-wagon, of the front and rear trucks, the front and the rear hounds secured in their respective trucks, the roller mounted in the standards of the rear bolster, the bed-plate mounted on the bolster of the front truck and carrying a cage, and the coupling-pole adapted to engage in the front and rear hounds, said coupling-pole being adapted to be rigidly secured in the rear hounds and adapted to slide forwardly between the front hounds as the front truck is moved backward, substantially as described.

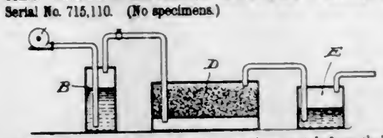


2. The combination in a lumber-wagon, of the front and rear trucks, the front and rear hounds secured in their respective trucks, the roller mounted in the standards of the rear bolster, the bed-plate mounted on the bolster of the front truck, the coupling-pole adapted to engage in the front and rear hounds, said coupling-pole being adapted to be rigidly secured in the rear hounds and adapted to slide forwardly between the front hounds as the front truck is moved backward, and means for locking said pole against forward movement when the trucks are in the extended position, substantially as described.

3. In a lumber-wagon, the combination with the rear truck carrying brake mechanism, the roller journaled in the standards of the rear truck, means securing said roller against rotation, the hounds secured in said rear truck, the front truck, the hounds carried thereby, and the bed-plate mounted on said front truck, of the coupling-pole adapted to be rigidly secured to the hounds of the rear truck and to slide forwardly between the hounds of the front truck as the latter is moved backward, and a pin carried by said pole near its forward end for engagement with the bolster of the front truck, as and for the purpose described.

4. In a lumber-wagon, the combination with the front and rear trucks, and the hounds carried thereby, of a coupling-pole provided near its forward end with a pin to engage with the bolster of the front truck, means for securing the rear end of said pole to the rear hounds, and a slide-bolt carried by the front truck for engagement with the pin carried by the pole to limit the forward movement of said pole, substantially as described.

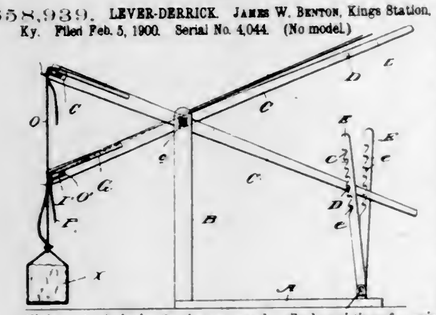
658,938. **PROCESS OF EXTRACTING GOLD, SILVER, &c., FROM ORES.** JOSEPH R. DE ALZUGARAY, London, England. Filed May 1, 1899. Serial No. 715,110. (No specimens.)



Claim.—The process for extracting precious metals from their ores, consisting in moistening the crushed ore to such an extent that it will "ball" in the hand, with a concentrated solution of cyanid, placing the moistened ore in a gas-tight vessel, subjecting the same to the action of a gaseous mixture of bromin and oxygen, whereby the precious metals are converted into soluble salts of the same, obtaining the precious metals in

solution by washing the ore, and finally recovering the metals from the solution in any suitable manner, all as herein described.

658,939. LEVER-DERRICK. JAMES W. BENTON, Kings Station, Ky. Filed Feb. 5, 1900. Serial No. 4,044. (No model.)



Claim.—1. A device for the purpose described consisting of a pair of alternately-movable levers, a gripping-lever directly pivotally connected with each of said levers, and means for locking the same, as set forth.

2. A device for the purpose described, consisting of a pair of independently-pivoted levers, a gripping-lever pivotally mounted on each of said levers to grip a rope and bind it thereto, means for locking the gripping-lever, and means for locking the pivoted levers in their elevated position, as set forth.

3. In a device of the character described, a base, uprights rising therefrom, a lever pivotally mounted on each upright, and having a bifurcated end, and a gripping-lever pivotally mounted on each lever and constructed to grip a rope in the bifurcation thereof, as set forth.

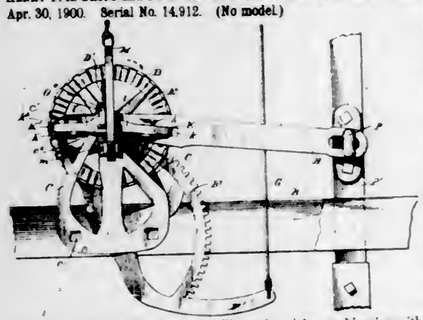
4. In a device of the character described, the combination with uprights, levers pivoted thereon, and gripping-levers pivotally mounted on said levers, of means for locking the pivoted levers in their elevated position, and means for locking the gripping-levers, as set forth.

5. In a device of the character described, the combination of pivotally-mounted levers, gripping-levers pivotally mounted therein to engage in slots in the ends thereof, ropes designed to be gripped in said slots by said gripping-levers, and means for locking the gripping-levers in the slots, as set forth.

6. The combination with a base and uprights, of levers pivotally mounted in said uprights, gripping-levers pivotally mounted on said levers, and adapted to bind a rope in slots therein, a pivotally-mounted notched bar for each lever and means on the levers for engaging the notches of the bars, as and for the purpose specified.

7. The combination of the pivoted levers, the gripping-levers pivoted thereon, the ropes passed through openings in the gripping-levers, the locking-bars pivotally connected with the gripping-levers, and the pivoted notched bars constructed to be engaged by means on the operating-levers, as set forth.

658,940. AUTOMATIC REGULATOR FOR WIND-WHEELS. HENRY F. A. BRUNS and FRANCIES E. ELDREDGE, Waverly, Iowa. Filed Apr. 30, 1900. Serial No. 14,912. (No model.)



Claim.—1. In an automatic windmill-regulator, the combination with an operating-rod, of means for controlling the movement the. of comprising a segment attached to one end thereof, means for operating said segment comprising a toothed wheel and actuating and retaining pawls adapted to engage said toothed wheel to rotate the same, and means for simultaneously withdrawing said pawls from operative position, and means for locking said pawls in such withdrawn position.

2. In a windmill-regulator, the combination with an operating-rod, of means for controlling the movement thereof comprising a toothed segment, means adapted to operate said toothed segment comprising pivoted actuating and retaining pawls, means for throwing said pawls out of operative position, additional self-actuated means for temporarily locking the pawls in inoperative position, and means for automatically releasing the locking means, substantially as described.

3. In an automatic windmill-regulator, the combination with an operating-rod, of means for controlling the movement of said rod, comprising suitable supporting-brackets, a segment pivoted in said bracket and connected to the operating-rod, a toothed member adapted to mesh with said segment, and mechanism adapted to operate said toothed member comprising retaining and actuating pawls, means for withdrawing said pawls from operative position, and a catch or lock for holding the same in such withdrawn position, substantially as described.

4. In an automatic windmill-regulator, the combination with an operating-rod, of means for controlling the movement thereof comprising a toothed member, actuating and retaining pawls adapted to operate said toothed member, extended portions on said pawls adapted to overlap, and means for engaging said extended portions of the pawls for withdrawing the pawls from operative position, substantially as described.

5. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a toothed member, pivoted actuating and retaining pawls adapted to operate said toothed member, extensions on said pawls beyond their pivotal points, springs between said extensions adapted to normally throw the pawls into engagement with the toothed member, means for withdrawing said pawls from such engagement, and means for temporarily locking said pawls in such withdrawn position, substantially as described.

6. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a toothed member, pivoted actuating and retaining pawls for operating said toothed member, a catch for holding said pawls in withdrawn or inoperative position, and means for forcing said pawls into such inoperative position, and for releasing the catch to throw the pawls into operative position, substantially as described.

7. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a rotary member, operating means for said rotary member adapted to be thrown into and out of engagement therewith, a lock for holding said operating means in inoperative position, and means for both forcing said operating means for the rotary member into inoperative position, and for subsequently releasing the lock from engagement therewith, substantially as described.

8. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a toothed member, pawls in engagement with said member and adapted to operate the same, extensions on said pawls, a catch adapted to engage said extensions to hold the pawls in withdrawn position, a cam-lever adapted to force the pawls into withdrawn position, and a projection on said lever adapted to engage the catch to release the same, substantially as described.

9. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod, comprising a toothed member, a spring-arm in engagement with said toothed member to limit the freedom of movement thereof, adjusting means for said spring-arm, means for preventing lateral movement of said arm, and means for operating said rotary member, substantially as described.

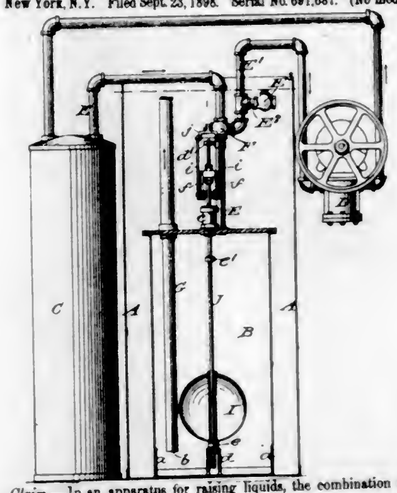
10. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising suitable supporting-brackets, a segment pivoted in said brackets and connected at one end of said operating-rod, a pinion in engagement with said segment, carrying a rotary toothed member, retaining and actuating pawls for operating said toothed member, and means for simultaneously and temporarily withdrawing the pawls from operative position, substantially as described.

11. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a rotary member in engagement therewith, retaining and actuating pawls for operating said rotary member, a catch for temporarily holding said pawls in withdrawn or inoperative position having an inclined lower edge, a cam-lever for forcing said pawls into inoperative position, and a projection on said cam-lever adapted to engage the inclined under edge of the catch to release the same, substantially as described.

12. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod comprising a rotary member, means for actuating said rotary member, a lever for throwing said actuating means into inoperative position and a stop on said lever adapted to limit the movement thereof, substantially as described.

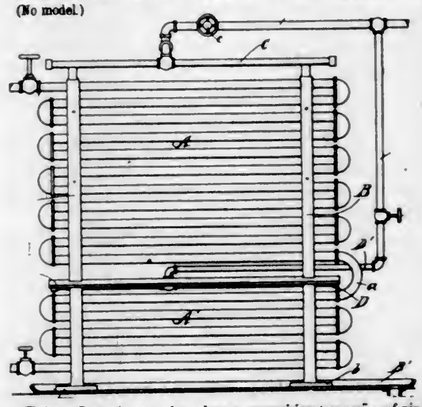
13. In an automatic windmill-regulator, the combination with an operating-rod, of mechanism for controlling the movement of said rod, a suitable supporting-bracket for such mechanism, and a friction device in contact with a part of such mechanism and adapted to regulate the movement thereof comprising an elongated spring-arm bifurcated at one end, adjusting means for said arm, and a bar or projection on the supporting-bracket adapted to engage the bifurcated end of the spring-arm to prevent lateral movement thereof, substantially as described.

658,941. APPARATUS FOR RAISING LIQUIDS. JAMES CLAYTON, New York, N.Y. Filed Sept. 23, 1898. Serial No. 691,687. (No model.)



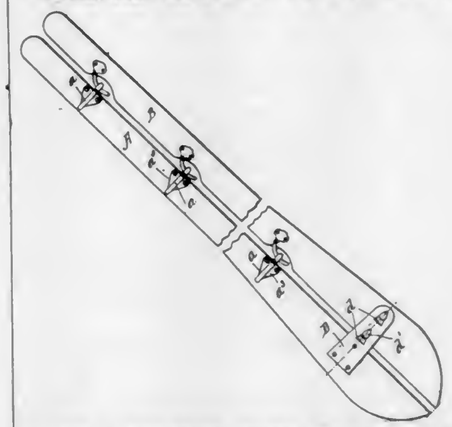
Claim.—In an apparatus for raising liquids, the combination of a pressure-tank provided with valves for controlling the entrance of liquid thereinto and with a liquid-discharge conduit, a reservoir for compressed air or gas, a pipe between said reservoir and tank for the passage of the compressed air or gas from said reservoir to said tank, a compressor for supplying the compressed air or gas to said tank, a pipe branching from the first-mentioned pipe and constituting the suction-pipe of the compressor for returning to the compressor the spent air or gas from the tank, a three-way cock at the branching of said pipes, an arm on the spindle of said cock, a float in the pressure-tank, a rod actuated by said float, a tumbler-lever and an independent fixed fulcrum therefor, connections between said tumbler-lever and rod and between said lever and the arm on the cock-spindle, an inlet from the atmosphere to said suction-pipe and an outwardly-closing check-valve at said outlet, all substantially as and for the purpose herein described.

658,942. COOLING ATTACHMENT FOR CONDENSERS. CHAS. F. CONOVER, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,318. (No model.)



Claim.—In an improved condenser, comprising two series of pipes suitably connected, the combination with the same, of a distributing-pipe suitably perforated for sprinkling water and located above the upper series of pipes, a secondary perforated distributing-pipe located above the lower series of pipes, both the said perforated pipes being adapted to allow water to drip over the pipes below, a sloping hood located directly above the lower series of pipes and adapted to throw the water from the pipes above (which becomes heated by contact with said pipes) away from the pipes below, thereby allowing the fresh water from the aforesaid secondary distributing-pipe to come in contact with the pipes in the lower series, and means for supplying the distributing-pipes with water, substantially as described.

658,943. CORSET-CLASP. JOSEPH G. DALLAIRE, St. Laurent D'Orleans, Canada. Filed Mar. 21, 1900. Serial No. 9,483. (No model.)



Claim.—A corset-fastening comprising a pair of steels, A, B, the latter having cut-away portions in an edge thereof, a series of eye members each having a plate fastened to the steel A in position to register with one of the cut-away portions in the steel B and also provided with a hook and the spring-tongue, the hooks *b* fastened to the steel B and curved downwardly across the cut-away portions therein, the apertured plate fastened to the lower portion of one steel, and studs on the corresponding part of the other steel having engagement with said apertured plate, substantially as described.

658,944. TYPE-GRAB. ALEXANDER DOW, New York, N. Y. Filed June 15, 1900. Serial No. 20,395. (No model.)



Claim.—1. As a type-grab two parallel jaws secured together adapted to open and receive between them a line of type, one of said jaws being provided with a rib or edge to enter a nick on the edges of the types, substantially as described.
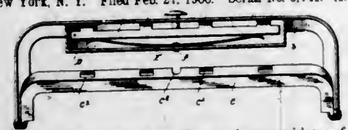
2. As a type-grab two parallel jaws secured together adapted to open and receive between them a line of type, one of said jaws being provided with a rib or edge to enter a nick on the edges of the types, and an abutment interposed between the jaws to limit the distance to which the type may be introduced between the jaws, substantially as described.

3. As a type-grab, two parallel jaws pivotally connected, one of said jaws presenting to the other a flat surface and the other jaw presenting to said flat surface an edge at right angles thereto, and means to normally hold said jaws together and means to open the same, substantially as described.

4. As a type-grab, two parallel jaws pivotally connected, one of said jaws presenting to the other a flat surface and the other jaw presenting to said flat surface an edge at right angles thereto, an abutment interposed between the jaws to limit the distance to which type may be introduced therein, and means to normally hold said jaws together, and means to open the same, substantially as described.

5. As a type-grab, two parallel blades suitably hinged together with a spring interposed to normally retain their edges in contact; a handle secured to one blade and a thumb-plate secured to the other blade, one of said plates having a flat bearing-surface and the other plate having an overturned edge at right angles to the surface of the flat plate, and an abutment secured to the flat plate in a position to limit the distance to which the type may be introduced between the blades, substantially as described.

658,945. **TRAVELING-BAG FASTENER.** BENJAMIN F. DU BOIS, New York, N. Y. Filed Feb. 27, 1900. Serial No. 6,741. (No model.)



Claim.—1. In a traveling-bag, the combination with two frames, an elongated boxing secured on the under side of one of the frames and extending substantially from end to end thereof, of a rigid locking-bar located within the boxing and having a plurality of upwardly-extending catch projections on its upper edge having inclined faces and the opposite frame member having a series of openings registering with said catch projections and arranged to engage the same when the frames are brought together and means extending beyond the frames for actuating the locking-bar, substantially as described.

2. In a traveling-bag, the combination with two frame-pieces, an elongated box on the under side of one of the frames, an elongated spring-pressed locking-bar located within the box having catch projections at its ends and center, and the companion frame having a series of openings therein arranged to register with the catch projections on the locking-bar, and an actuating projection extending above the bar, substantially as described.

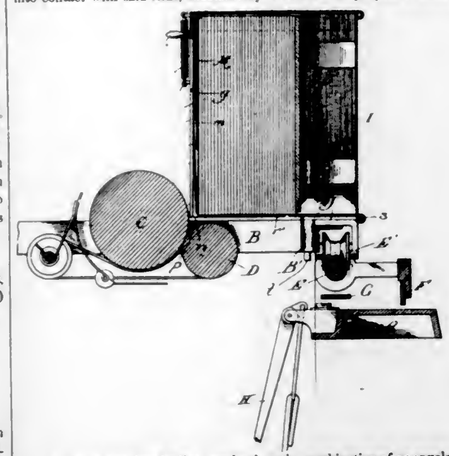
3. In a traveling-bag, the combination with the frames, a box secured to the under side of one of the frames and extending substantially the length thereof, a spring-actuated locking-bar located within the box and extending substantially the length of the box, inclined catches on the upper edge of the bar spaced apart and located at or near the ends and center, an actuating device extending above the frame and a companion frame having a series of openings therein registering with said catch projections, substantially as described.

658,946. **FEED ATTACHMENT FOR TYPE-WRITING MACHINES.** FREDERICK P. GORIN, Chicago, Ill., assignor, by direct and mesne assignments, to The Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed Apr. 11, 1898. Renewed July 31, 1900. Serial No. 25,456. (No model.)

Claim.—1. A device for feeding envelops, or the like, to a type-writer, comprising a receptacle for articles to be fed provided at its lower forward part with a discharge, forwardly-extending attaching-strips upon which the bottom of the receptacle rests and which are pivotally connected with the lower rear portion of the receptacle and supplied with attaching means, a spring-held presser-plate movable within the receptacle, and a slide at the front end of the receptacle for effecting the discharge, substantially as and for purpose set forth.

2. The combination with a type-writer and the impression and feed rolls thereof, of a feed attachment, comprising a receptacle provided at the front end with a transversely-extending discharge-slot in the entrant angle between said rolls and close to the line of contact between said rolls, means within the receptacle for advancing the articles to the front end of the receptacle, means for attaching the receptacle to the type-writer, and a spring-held discharge-slide connected with the front end of the receptacle and provided with a handle, and operating when depressed to feed the article directly into said angle whereby it may be drawn between the rolls without the aid of further mechanical agency, substantially as and for the purpose set forth

3. The combination with a type-writer, of an envelop-feed attachment, comprising a receptacle for receiving the envelop-flap edge downward provided at the front end of its bottom with a discharge-slot, a front end for the receptacle provided with a recess to permit the flap of the envelop about to be discharged to protrude slightly, a slide movably connected with the front end for engaging said flap and effecting the discharge, and means for yieldingly holding the envelops on edge and pressing them into contact with said slide, substantially as and for the purpose set forth.



4. In an envelop-feeding mechanism, the combination of an envelop-receptacle provided with a discharge-opening, a slide mounted in said receptacle, and means for pressing the envelops against the back of said slide when the latter is in normal position and causing the unsealed flap to move past the plane of the slide, so that the feeding edge of the slide may enter between the unsealed flap and the body of the envelop to engage the fold thereof and discharge the envelop.

5. In an envelop-feeding mechanism, the combination of an envelop-receptacle provided with a discharge-opening, a reciprocatory feeder provided with a knife-edge and arranged normally above the free edge of the flap of the foremost envelop, and a pressure device, the construction and arrangement being such that at the feeding movement said knife-edge is introduced between the flap and the body of the envelop to engage the fold thereof and discharge the envelop.

6. In an envelop-feeding mechanism, the combination of an envelop-receptacle, means for causing the unsealed flaps of the envelops to gap, and a slide constructed and arranged to move along the back of the envelop at the feeding operation without moving said envelop until it engages the fold of said envelop, whereupon by a further movement it carries the latter out of said receptacle.

7. In an envelop-feeding mechanism, the combination of an envelop-receptacle and a feeding device constructed to have a feeding movement relatively to each envelop, the extent of said relative movement being greater than the width of the flap, but less than the width of the envelop, the construction and arrangement being such that the feeding edge of said feeding device enters between the flap and the body of the envelop to engage the fold thereof and eject the envelop.

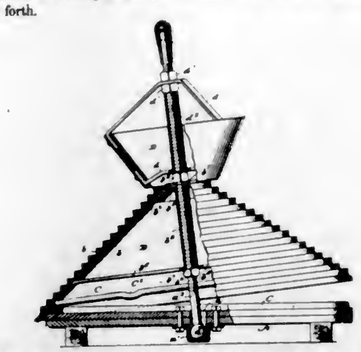
8. In an envelop-feeding mechanism, the combination of an envelop-receptacle having a discharge-opening, a slide, means for pressing the envelops toward said opening, means for causing the unsealed flaps of the envelops to gap, and an ejecting-slide adapted to enter between the said flaps and the bodies of the envelops.

9. In an envelop-feeding mechanism, the combination of an envelop-receptacle, an ejecting-slide constructed to enter between the unsealed flaps and the bodies of the envelops, and means opposing the slide for holding the flap substantially parallel therewith during the ejecting operation.

658,947. **ORE-SEPARATOR.** WILLIAM J. GOYNE, Barton Heights, Va., and WILLIAM H. GOYNE, Gowen, Pa. Filed Jan. 12, 1900. Serial No. 1,228. (No model.)

Claim.—1. A hand-operated ore-separator comprising a base or platform, a shaft having its lower end loosely supported in said base or platform, the upper free end of said shaft being without support and provided with a loose grip or handle whereby said shaft may be simultaneously rotated and gyrated, a cone-shaped separator-body secured to said shaft, a hopper also secured to said shaft in juxtaposition to said separator-body, and a ring provided with undulations arranged to vibrate said separator-body while in rotation, substantially as set forth.

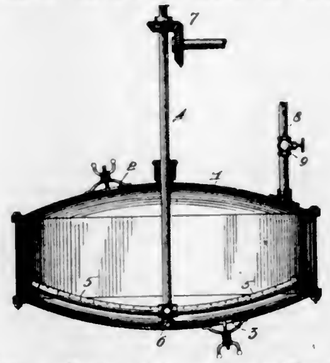
2. A hand-operated ore-separator comprising a base or platform, a shaft having its lower end loosely supported in said base or platform, the upper free end of said shaft being without support and provided with a loose grip or handle whereby said shaft may be simultaneously rotated and gyrated, a cone-shaped separator-body adjustably secured to said shaft, a hopper also adjustably secured to said shaft above said separator-body, and means for causing said body to vibrate while in rotation, substantially as set forth.



3. An ore-separator comprising a base or platform, an annular track secured thereto, a shaft having its lower end loosely supported in said base or platform, its upper end being free to gyrate, a cone-shaped separator-body adjustably mounted on said shaft, a series of concentric annular rings or flanges secured to the upper face of said separator-body, and an annular ring secured to the lower face of said body and arranged to contact with said track, said ring having a series of undulations or corrugations, substantially as set forth.

4. An ore-separator comprising a base or platform, an annular track secured thereto, a threaded shaft having a lower enlarged portion loosely mounted in said base or platform, a cone-shaped separator-body mounted on said shaft, nuts working on said shaft and engaging said separator-body, a hopper also mounted on said shaft, nuts working on said shaft and engaging said hopper, a series of concentric annular rings or flanges secured to the upper face of said separator-body, and an annular ring secured to the lower face of said body and arranged to contact with said track, said ring having a series of undulations or corrugations, substantially as set forth.

658,948. **METHOD OF EXTRACTING OIL.** NORRIS R. GREGG, St. Louis, Mo. Filed Feb. 21, 1900. Serial No. 5,992. (No specimens.)

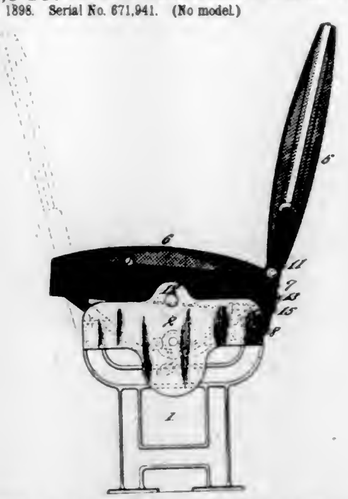


Claim.—1. The method of extracting oil or grease from oily or fatty materials consisting in placing the material in a receptacle and extracting the air from said receptacle to produce a vacuum therein and cause the oil sacks or cells to open, substantially as described.

2. The method of extracting oil or grease from oily or fatty materials consisting in placing said material in a receptacle, subjecting the material while in said receptacle to heat or moisture, and subsequently extracting the air from said receptacle to create a vacuum therein under which the oil sacks or cells are caused to burst, substantially as described.

3. The method of extracting oil or grease from oily or fatty materials consisting in placing said material in a receptacle, injecting hot air or moisture into said receptacle and agitating the material and subsequently extracting the air and moisture from said receptacle thereby creating a vacuum therein, substantially as described.

658,949. **CAR-SEAT.** PETER M. KLING, St. Louis, Mo. Filed Feb. 28, 1898. Serial No. 671,941. (No model.)



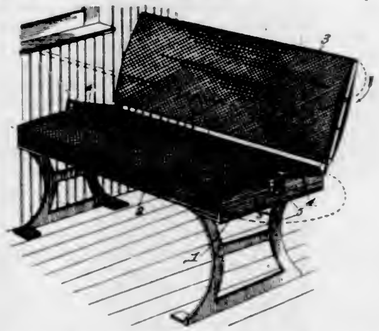
Claim.—1. In a car-seat, the combination of a frame having end pieces, a back provided with brackets, upper and lower links connecting said brackets to said end pieces, and levers having slot-and-pin connections with said brackets and said end pieces and which are pivoted to said lower links, substantially as set forth.

2. In a car-seat, the combination of a frame having end pieces, a back provided with brackets extending below the top surface of the cushing slot-and-pin connections with said brackets and said end pieces, and which are pivoted to said lower links, substantially as set forth.

3. In a car-seat, the combination of a frame, a back provided with brackets, upper and lower links connecting said brackets to said end pieces, a shaft journaled in said end pieces and to which said lower arms are secured and by which said lower arms are connected to said end pieces, and levers having slot-and-pin connections with said brackets and with said end pieces and which are pivoted to said lower links, said levers having heads provided with segmental slots to receive said shaft, substantially as set forth.

4. In a car-seat, the combination of a frame having end pieces, a cushion, a back provided with brackets, upper and lower links connecting said brackets to said end pieces, a shaft journaled in said end pieces and which said lower links are secured and by which said lower links are connected to said end pieces, cranks on said shaft, and arms connected to said cranks and which carry said cushion, substantially as and for the purpose set forth.

658,950. **CAR-SEAT.** PETER M. KLING, St. Louis, Mo. Filed Mar. 30, 1900. Serial No. 10,733. (No model.)



Claim.—1. In a car-seat, a back, arms pivotally connected to the back, and means for pivotally connecting the arms to the frame of the seat whereby the back can be reversed by swinging it around the seat in the arc of a circle in a horizontal plane, substantially as set forth.

2. In a car-seat, the combination of a frame, a back, and arms connecting the frame to the back, whereby the back can be reversed by swing-

ing it around the seat in the arc of a circle in a horizontal plane, substantially as set forth.

3. In a car-seat, the combination of a frame, oscillatory blocks fitting in openings in the frame, arms pivotally connected to said blocks, and a back pivotally connected to the arms, substantially as set forth.

4. In a car-seat, the combination of a frame having wedge-shaped openings, rocking blocks fitting in the openings, arms having pins loosely fitting in said rocking blocks, and a back pivotally connected to the arms, substantially as described.

5. In a car-seat, the combination of a frame having wedge-shaped openings, a back having openings or sockets, blocks fitting in said openings and adapted to rock therein, arms having pins fitting in the openings in the blocks and also having pins fitting in the openings or sockets in the back of the seat, substantially as and for the purpose set forth.

6. In a car-seat, the combination of a frame, arms pivotally connected to the frame, and a back pivotally connected to the arms, whereby the back can be reversed by swinging it around the seat in an arc of a circle in a horizontal plane, one of said arms being located at a higher elevation than the other, substantially as and for the purpose set forth.

658,951. SEAT. PETER M. KLING, St. Louis, Mo. Filed Mar. 30, 1900. Serial No. 10,734. (No model.)

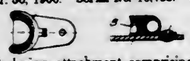


Claim.—1. In a seat, the combination of a frame, a seat portion pivoted to the frame, levers pivoted to the frame and having projections against which the seat portion rests, and pivoted arms to which the back of the seat is secured and which are adapted to engage and move said levers to shift said projections and permit the seat portion to be reversed, substantially as set forth.

2. In a seat, the combination of a frame, a seat portion pivoted to the frame, levers pivoted together at their adjacent ends and to the frame near their middles and which have projections against which the seat portion rests, and pivoted arms to which the back of the seat is secured and which are adapted to engage the adjacent ends of said levers and move the levers to shift said projections and permit the seat portion to be reversed, substantially as set forth.

3. In a seat, the combination of a frame having slots, a seat portion pivoted to the frame, levers fitting in the slots in the frame, vertical pivot-pins by which said levers are held in said slots, and pivoted arms to which the back of the seat is secured, said levers being pivoted together at their adjacent ends where they are made to project beyond the face of the frame, and said levers having projections at their outer ends against which the seat portion rests, substantially as and for the purpose set forth.

658,952. LACING ATTACHMENT. PETER M. KLING, St. Louis, Mo. Filed Mar. 30, 1900. Serial No. 10,735. (No model.)



Claim.—1. A lacing attachment comprising an attaching-base, a neck projecting from said attaching-base and having a rounded bearing-surface for the lace, a head conforming to the rounded bearing-surface and overhanging the latter so as to retain the lacing thereon, and an extension of reduced dimension in the direction of the circumference of the neck, extending from the overhanging head to the attaching-base and preventing the disconnection of the lacing-cord with the lacing attachment; substantially as herein set forth.

2. In a lacing attachment, the combination of a plate, a neck having a rounded bearing-surface of more than half a circle, a head overhanging the neck, and a projection joining the head to the plate, substantially as set forth.

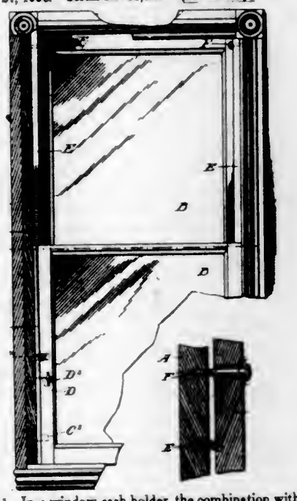
3. A lacing attachment comprising an attaching-base, a rounded neck projecting integrally therefrom, a head integral therewith, conforming to, and overhanging the neck, and a reduced extension between an intermediate point on the periphery of the overhanging head and a point in the attaching-base, integral with said parts and forming a reduced eye at the back of the neck; substantially as set forth.

658,953. COMPOUND FOR PROTECTING TREES. JAMES LAMBERT, Sayre, Pa. Filed July 21, 1900. Serial No. 24,387. (No specimens.)

Claim.—1. As an insecticide, the herein-described composition of matter consisting of linseed-oil, sulphur and wood-ashes.

2. A paste for protecting trees and the like from worms and insects, consisting of linseed-oil, sulphur and wood-ashes combined together in the following proportions, to wit: one pound each of the sulphur and wood-ashes to one gallon of linseed-oil.

658,954. WINDOW-SASH HOLDER. GEORGE E. LINT, York, Pa. Filed June 27, 1900. Serial No. 21,831. (No model.)



Claim.—1. In a window-sash holder, the combination with a frame, of a sash provided with a strip disposed between the sash and frame, a spring for forcing said strip away from said sash, a spindle mounted in said sash, and a flexible connection between said spindle and strip; substantially as specified.

2. In a window-sash holder, the combination with the frame having a way, of a sash provided with a wedge-strip having its lower end in contact with a sash, a spring for forcing the upper end of said strip away therefrom, a spindle rotatably mounted in said sash, and a flexible connection extending from said spindle to said strip; substantially as specified.

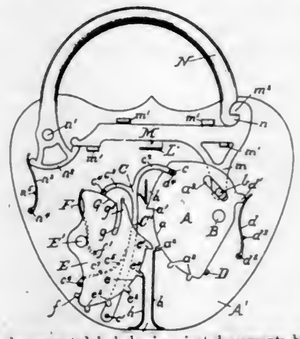
3. In a window-sash holder, the combination with a frame having a way, of a sash provided with a spring-pressed wedge-strip pivoted at one end, a shoulder upon said sash at the opposite side of said strip, a bead bearing against said shoulder, and a headed pin extending through an aperture in said bead and adjustably secured to said frame; substantially as specified.

4. In a window-sash holder, the combination with a frame having a way, of a sash provided with a wedge-strip pivoted at its lower portion in said sash, a spring to force said strip against said way, a spindle rotatably mounted in said sash, a flexible connection between said strip and spindle, a yielding bead bearing against a shoulder upon said sash upon the opposite side from said strip, and a headed pin extending through the aperture in said bead and adjustably secured to said frame; substantially as specified.

658,955. LOCK. ABRAHAM L. MACMASTER, Chicago, Ill., assignor to Jacob C. Le Boeky and Jesse C. Cox, same place. Filed June 15, 1899. Serial No. 720,720. (No model.)

Claim.—1. In a key-operated lock, two pivoted segments located upon opposite sides of the keyway thereof, and bearing upon their peripheries teeth or pins for engagement with the key and for preventing the insertion of foreign objects into said lock; in combination with a bolt, sliding within suitable guides and operated by one of said segments.

2. In a lock, the combination of a sliding bolt, a toothed pivoted segment for operating said bolt, a detent for engaging and releasing said segment, means for operating said segment, and means for operating said detent.



3. In a key-operated lock having pivoted segments bearing upon their peripheries pins or teeth for engagement with the key, the combination of a detent, a cam upon one of said segments for operating said detent, and locking parts operated by the other of said segments.

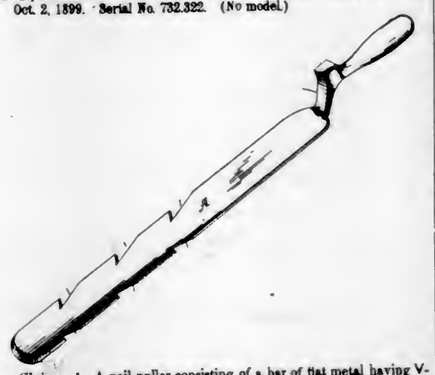
4. In a lock operated by the thrust of a key thereinto, the combination of a detent forming one of the component parts of said lock, a sliding bolt, pivoted segments whereof one actuates said bolt, and another operates said detent, and means for operating said segments.

5. In a key-operated, bolt-actuating mechanism, the combination of a sliding bolt; two pivoted segments lying on opposite sides of the keyway of said mechanism, one of said segments having means for actuating said bolt and having means for engagement with a detent; a cam upon the other of said segments whereby said detent may be held in engagement with said first-mentioned segment, unless retracted therefrom by means of said second segment; and teeth or pins upon said segment for engagement with the operating-key.

6. In a key-operated lock, the combination of a bolt; a pivoted segment for actuating said bolt; a detent acting upon said segment; a second pivoted segment for operating said detent; a keyway tangential to both said segments at the cylindrical portions thereof, and pins or teeth upon the cylindrical portions of said segments, said pins or teeth entering and receding from said keyway as said segments are rotated.

7. In a key-operated lock, the combination of a locking-bolt; a pivoted segment having a toothed cylindrical surface and acting upon said bolt; said segment having a slot therein for receiving a portion of a detent; a pivoted detent having a portion for entering said slot in said segment, and another portion for traveling upon the cam-surface of a second segment, and for entering a slot in said second segment; a second pivoted segment having a cam-surface to act upon the adjacent arm of said detent; said second segment having a toothed cylindrical surface, and both of said segments being operated by the engagement of the teeth of said segments with a key.

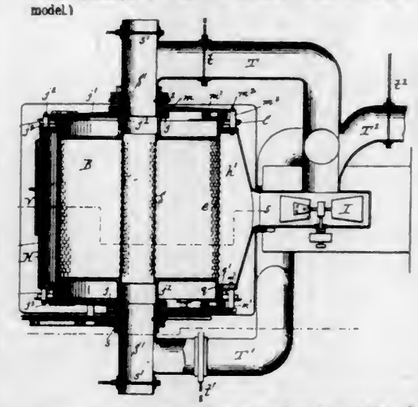
658,956. NAIL-EXTRACTOR. LOUIS MAURICK, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,322. (No model.)



Claim.—1. A nail-puller consisting of a bar of flat metal having V-shaped notches in its edges, and provided with a handle raised above the body portion of the puller.

2. A nail-puller consisting of a bar of flat metal having V-shaped notches in its edges, having a handle raised above the plane of the body portion, and having a portion of the handle adapted to be used as a hammer.

658,957. MALTING AND DRYING APPARATUS. FREDRICK H. C. MEY, Buffalo, N. Y. Filed Dec. 23, 1899. Serial No. 741,427. (No model.)



Claim.—1. The combination with a perforated rotary drum having an internal discharge tube or conduit, of an annular air-chamber surrounding the drum and communicating at its inner side with the interior thereof, and having a shiftable section which is movable circumferentially of the drum, and a removable section interposed between said shiftable section and the remaining portion of the air-chamber, and an air-propelling device connected with said air-chamber, substantially as set forth.

2. The combination with a perforated drum having an internal air-discharge tube or conduit and provided in its body with a filling and discharge opening, of an annular air-chamber surrounding the drum and communicating at its inner side with the interior thereof and comprising a stationary section covering nearly one-half of the circumference of the drum and terminating at the top and bottom of the drum, a shiftable section arranged opposite said stationary section and movable circumferentially of the drum, and a removable section adapted to be interposed between the upper ends of said stationary and shiftable sections, and an air-propelling device connected with said air-chamber, substantially as set forth.

3. The combination with a perforated drum having an internal air-discharge tube and journals or trunnions projecting axially from its heads, of an air-chamber surrounding the drum and communicating with the interior thereof and having stationary and movable segments, supporting spiders or frames mounted on the trunnions of the drum and secured to the ends of said segments, and an air-propelling device connected with said air-chamber, substantially as set forth.

4. The combination with a perforated rotary drum having a feed-opening in its body, of an air-chamber surrounding the drum and having a movable section or segment, an air-propelling device connected with said chamber, and a spray-pipe arranged in said section and carried by the same, substantially as set forth.

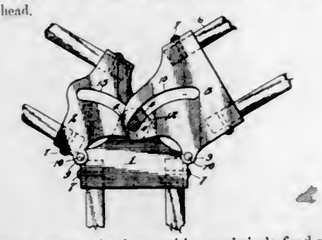
5. The combination with a perforated rotary drum having an axial air-discharge tube connecting with the interior of the drum and hollow journals or trunnions communicating with the ends of said axial tube, of stationary open-ended air-discharge tubes connected with the ends of said trunnions by rotary joints and provided with dampers, an air-chamber applied to the outer side of the drum and communicating with the interior thereof, an air-propelling device connected with said chamber, pipes or conduits connected with said discharge-tubes on the inner sides of their dampers and leading to said air-propelling device, and dampers arranged in the last-named pipes, substantially as set forth.

658,958. HEAD FOR TRIPODS. CHARLES W. MORRELL and HART H. MCNAUGHTON, Charlotte, Mich. Filed Nov. 7, 1899. Serial No. 736,177. (No model.)

Claim.—1. A tripod-head, comprising normally-superposed members of substantially the same shape and size, certain of the members being oppositely disposed and pivotally connected to one of the other members, and also foldable inwardly in opposite directions and in substantially-parallel planes one upon the other.

2. A tripod-head, comprising a relatively-fixed member, and opposite members pivotally or hingedly connected to and foldable inwardly in substantially-parallel planes transversely across the fixed member, one of the foldable members being shorter than the other, and received between

the fixed member and the said other foldable member, in the folded position of the head.



3. A tripod, having a head, comprising a relatively-fixed member, provided with a leg-standard hingedly connected to the outer side of the fixed member, opposite members pivotally or hingedly connected to and foldable inwardly in opposite directions in substantially-parallel planes transversely across each other and the fixed member, one of the foldable members being shorter than the other, and received between the fixed member and the other foldable members, in the folded position of the head, and leg-standards hingedly connected to the outer sides of the respective foldable members, the leg-standard of the shorter member being received between the leg-standards of the other members.

4. A tripod-head, comprising a relatively fixed or stationary member having an upstanding pin, and opposite members pivoted or hinged to the fixed member and foldable transversely inward in opposite directions and across the upper face of the fixed or stationary member, and provided with slots slidably receiving the upstanding pin.

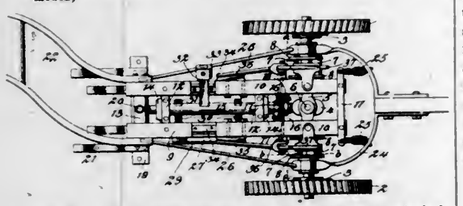
5. A tripod-head, comprising a relatively fixed or stationary member, opposite members pivoted or hinged to the fixed or stationary member and foldable inwardly thereupon, each foldable member being provided with an arcuate slot struck from the pivotal connection of the member as a center, and an upstanding pin carried by the fixed or stationary member, located equidistant from the pivotal connections of the members, and slidably received within the slots of both pivotal members.

6. A tripod-head, comprising a relatively fixed or stationary member, opposite members mounted to fold inward upon the fixed or stationary member, each foldable member being provided with an arcuate slot, and a thumb-screw carried by the fixed or stationary member, and the upper end of the thumb-screw forming a pin which is slidably received within the slots of the foldable members.

7. A tripod-head, comprising a relatively fixed or stationary member, and opposite members pivoted or hinged to the upper side of the fixed or stationary member, and foldable transversely inwardly in opposite directions thereupon, one of the foldable members being spaced above the other, and the latter member being received between the former and the fixed or stationary member, in the folded position of the members.

8. A tripod-head, comprising a fixed or stationary member, an upwardly-projecting thumb-screw carried thereby, and opposite pivotally-connected members foldable inwardly upon the fixed or stationary member, and provided with slots slidably receiving the shank of the thumb-screw, the latter projecting at one side of the head and also forming means for connecting with the article to be supported.

658,959. COTTON CHOPPER AND CULTIVATOR. NINIAN S. MCCRACKEN, Union, Tex. Filed July 24, 1900. Serial No. 24,685. (No model.)



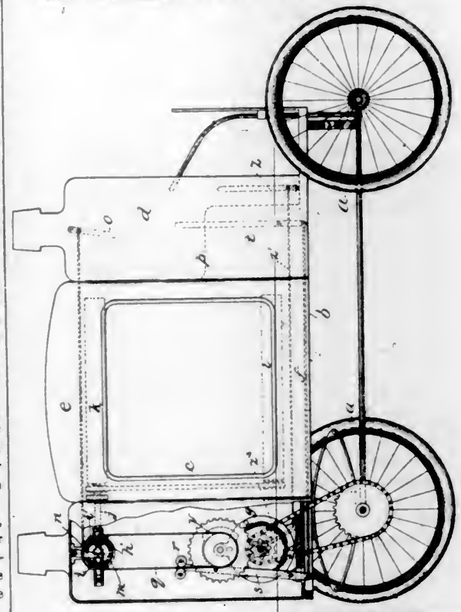
Claim.—1. In a cotton-chopper, the combination of a rock-shaft, having a chopping-hoe and reversely-arranged ratchets, levers having dogs to engage said ratchets, springs to move said levers in one direction, links connected to said levers and revoluble power elements adapted to engage and impart longitudinal movement to and disengage said links, substantially as described.

2. In a cotton-chopper, the combination of a rock-shaft, having a chopping-hoe, a weighted lever projecting from the sides of the rock-shaft opposite said chopping-hoe and means to actuate the rock-shaft, substantially as described.

3. In a cotton-chopper the combination of an axle-shaft, a rearward-extending frame on which said axle-shaft turns, said frame carrying the chopping mechanism, a cross-bar pivoted to the rear of said frame and to which the cultivating-teeth are attached, and connections between the ends of said pivoted cross-bar and said axle, substantially as described.

4. In a cotton-chopper, the combination of an axle, a draft-tongue having the hounds pivoted on the axle, a rearward-extending frame provided with the chopping mechanism and the cultivating-teeth, supporting-springs attached to the said frame and said hound, and connections between said hounds and the rear end of said frame, substantially as described.

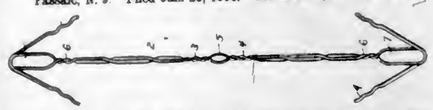
658,960. ADVERTISING MOTOR-VEHICLE. ARTHUR F. RANDALL, Boston, Mass., assignor to Henry M. White, same place. Filed Mar. 17, 1899. Serial No. 709,396. (No model.)



Claim.—1. In a vehicle of the character described, the combination of a motor, suitable connections between the same and the running-gear of the vehicle for propelling the same, traveling display devices, and connections between the latter and the motor for successively exhibiting said devices, provisions existing by virtue of which the vehicle can be propelled by the motor without affecting the display devices and vice versa, and means also to operate the display devices in opposite directions.

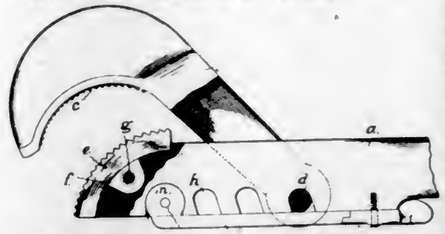
2. In a vehicle for displaying advertisements or signs, the combination of the following instrumentalities; viz., a vehicle, a supporting-frame erected upon the same, a plurality of movable surfaces or sheets having advertisements thereon carried by said supporting-frame and visible from the outside of said vehicle, a motor mechanism carried by said vehicle and deriving its power independent of the movement of the vehicle, means to connect said movable surfaces with said motor mechanism to automatically move said surfaces independent of the movement of the said vehicle and in one direction to display the advertisements thereon and to permit said surfaces to be moved in the opposite direction, and means to effect movement of said surfaces in the opposite direction, while said motor mechanism continues to run in the same direction, substantially as described.

658,961. HEDDLE ATTACHMENT FOR LOOMS. OSCAR RUNGE, Passaic, N. J. Filed Jan. 29, 1900. Serial No. 3,196. (No model.)



Claim.—A wire heddle formed of strands having a central thread-receiving eye with twisted portions adjacent opposite sides of said eye and outer twists to provide an initial means for forming end loops, the free extremities of the strands beyond the outer twists being bent outwardly from each other and primarily arranged in longitudinal parallel planes and crossed at an intermediate point in reverse directions and the opposite portions brought inward toward the partially-completed loops and the terminals intertwisted in reverse directions around the said outer twists so that the said end loops may be freely opened or closed to apply or withdraw the heddle to or from a frame, the bends in the said terminals continually retaining their primary contour as a guide in accurately connecting the same.

658,962. PIPE-WRENCH. THOMAS E. RYAN, San Francisco, Cal. Filed Oct. 11, 1899. Serial No. 733,307. (No model.)

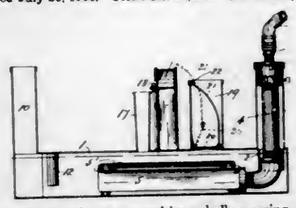


Claim.—1. In a wrench of the character described the combination with the movable jaw, and a solid shank having a handle portion at one end and a gripping-jaw at the other end, of a quadrant-shaped face on the jaw-bearing end, a detachable jaw fitted thereto, said jaw having a serrated outer face and a smooth inner face of the same curvature as the face on the end of the shank and on which the said jaw has a solid bearing for the entire extent of the surface, a mortise in the middle of the bearing-surface on the end of the shank, a fixed tongue on the curved inner face of the jaw standing perpendicularly thereto and taking into the mortise, and a cross-pin inserted through the shank and the tongue and holding said curved faces in positive contact as described.

2. The herein-described pipe-wrench comprising the shank having a fixed jaw and provided with a series of open sockets along one edge and a pair of circular recesses in its opposite sides forward of said series, a movable jaw having a hinge-pin adapted to fit the open sockets, a latch-bar having ears of circular shape at its front end entering said recesses flush with the sides of the shank and fitted to turn therein, and a latch adapted to lock the rear end of the bar to the shank, the whole constructed substantially as set forth.

3. The herein-described pipe-wrench comprising the straight shank having a handle portion at one end and a fixed jaw on the other end, and provided with spaced open sockets along one edge between the jaw and the handle, a movable jaw having a hook-shaped gripping-face of greater degree of curvature than the fixed jaw and having a hinged pin fitted to the open sockets, and the latch-bar having ears of circular shape on one end standing perpendicularly from one side of the bar, and recesses of corresponding shape in the opposite sides of the shank in which said ears are let in flush with the sides of the shank and are fitted to turn, and a hinge-pin inserted through the ears, and a latch adapted to lock the free end of the bar, constructed for operation as set forth.

658,963. WATER-HEATER. FRIDOLIN SCHIFFERLE, St. Louis, Mo. Filed July 26, 1900. Serial No. 24,924. (No model.)



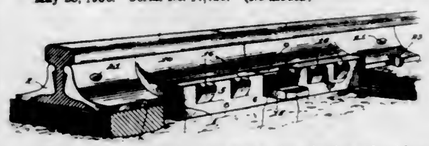
Claim.—1. A water-heater comprising a hollow casing, a series of air-inlet flues and an escape-flue leading from the same, a burner confined within the casing, a feed-pipe for the burner, a tube carried by the casing and inclosing the feed-pipe, a coupling or cup inserted between the adjacent walls of the feed-pipe and inclosing tube respectively, the walls of the coupling serving to seal the opening leading to the space between the said feed-pipe and inclosing tube therefor, means for holding the coupling in position, a central nozzle projecting from the base of the coupling, the latter being provided with air-openings around the base of the nozzle for the free admixture of air with the gas delivered through the nozzle, substantially as set forth.

2. In a water-heater, a suitable casing, a handle therefor, and a straddle-bar adapted to be placed across the casing against the handle, the free ends of the bar frictionally engaging the sides of the tub, substantially as set forth.

3. In a water-heater a suitable casing, a burner located within the same, an open tube projecting from the roof of the casing, a transparent door or lid hinged at the bottom of the tube, a wire handle secured at one end to the door, a lip carried by the wall of the tube for the reception of the free end of the handle whereby the door is held in a closed position, substantially as set forth.

4. A water-heater comprising a casing, a series of air-inlet flues disposed at one end thereof on either side of the medial longitudinal line of the casing, a tube projecting from the casing between the air-inlet flues, a feed-pipe inclosed by said tube, a burner located in the casing and coupled to the feed-pipe, a cup effecting a union between the upper ends of the feed-pipe and inclosing tube and sealing the opening leading to the space between the feed-pipe and inclosing tube, a nozzle forming a part of said cup the latter being provided with air-openings around the base of the nozzle, an escape-flue at the opposite end of the casing, a deflecting wall or plate depending from the roof of the casing in front of the escape-flue, the air-inlet flues extending a suitable distance into the casing to effect a better distribution of the air conveyed by them into the casing, and a tube projecting from the roof of the casing for the reception of a lighted stick or taper, substantially as set forth.

658,964. RAIL-JOINT. WILLIAM F. SELLERS, Gallitzin, Pa. Filed May 23, 1900. Serial No. 17,729. (No model.)



Claim.—1. A rail-joint, comprising a chair, having a fixed longitudinal fish-plate, an opposite longitudinal fish-plate, which is hingedly connected to the chair and swings vertically toward and away from the fixed fish-plate, and a wedge driven between the hinged fish-plate and the chair and disposed transversely of the fish-plate, said wedge forming a lock for the hinged fish-plate.

2. A rail-joint, comprising a chair, having a fixed fish-plate at one longitudinal edge, and an opposite longitudinal rib, a removable fish-plate to fit against the inner side of the rib, and a transverse wedge located between the fish-plates and the chair.

3. A rail-joint, comprising a chair, having a fixed fish-plate, an opposite upstanding longitudinal rib, an opposite fish-plate having a detachable hinged connection with the rib and bearing against the inner side thereof, and a transverse key extending beneath the hinged fish-plate for locking the same.

4. A rail-joint, comprising a chair, having a fixed fish-plate, an opposite longitudinal upstanding rib, an opposite fish-plate having a detachable lug and slot hinged connection with the rib and bearing against the inner side thereof, and a transverse key extending beneath the hinged fish-plate for locking the same.

5. A rail-joint, comprising a chair, having a fixed fish-plate, and a transverse groove, an opposite hingedly-connected fish-plate, and a wedge-shaped key driven into the groove to lock the hinged fish-plate.

6. A rail-joint, comprising a chair, having a fixed longitudinal fish-plate, an opposite longitudinal upstanding rib, and an intermediate transverse groove opening at one end through the rib, and at the opposite end beneath the fish-plate, an opposite fish-plate, having a hinged connection with the rib and bearing against the inner face thereof, a wedge driven into the groove from the rib side of the chair, and a fastening device for the thinner end of the wedge.

7. A rail-joint comprising a chair, having a fixed fish-plate, an opposite hingedly-connected fish-plate, a finger-piece for rocking the latter fish-plate, and means for locking the same.

8. A rail-joint, comprising a chair, having a fixed fish-plate, and an opposite upstanding rib, a movable fish-plate hingedly connected to the rib, and provided with an intermediate outwardly-projecting finger-piece projecting through a recess or opening in the rib, and means for locking the movable fish-plate.

9. A rail-joint, comprising a chair, having a fixed fish-plate, and an opposite upstanding rib, having a plurality of openings, a movable fish-plate having a plurality of hook-shaped lugs hingedly engaging the openings of the rib, and means for locking the movable fish-plate.

10. A rail-joint, comprising a chair, having an integral fish-plate, an opposite integral upstanding rib, provided with an intermediate notch or recess in its upper edge and opposite openings, and a transverse groove opening outwardly through the intermediate notch in the rib, a movable

fish-plate, having an intermediate finger-piece located within the intermediate notch, and opposite hook-shaped lugs hingedly engaging the openings in the rib, and a wedge-shaped key driven through the notch in the rib and into the groove in the chair to lock the movable fish-plate.

658,965. NECKTIE-HOLDER. CHARLES E. SENNA, Boston, Mass. Filed June 21, 1900. Serial No. 21,086. (No model.)

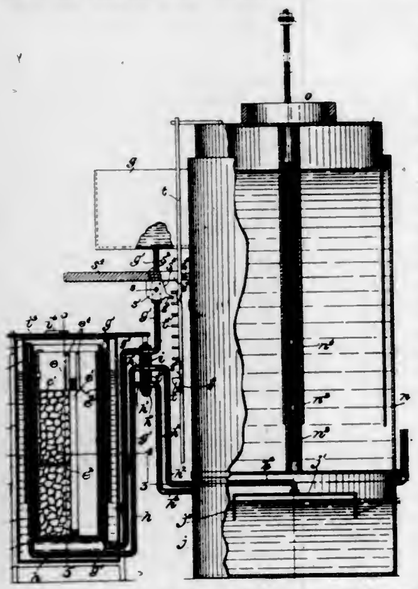


Claim.—1. A necktie-holder comprising a strip of metal bent to form two resilient arms, one of which has an outwardly-projecting integral tie-engaging spur, the free ends of said arms having integral collar-engaging jaws on their inner faces out of alinement with each other.

2. A necktie-holder comprising a strip of metal bent to form two resilient arms, one of which has an outwardly-projecting integral tie-engaging spur, the free ends of said arms having integral collar-engaging jaws on their inner faces, and oppositely-inclined guides above said jaws to facilitate the application of the holder to the collar.

3. A necktie-holder comprising a strip of metal bent to form two resilient arms, one of which has an outwardly-projecting integral tie-engaging spur, the free end of one arm having an inclined guide and two integral collar-engaging jaws, while the free end of the other arm has an inclined guide and a collar-engaging jaw located between the jaws of the other arm.

658,966. ACETYLENE-GAS-GENERATING APPARATUS. DAVID L. SPAULDING, Boston, and AMBROSE S. VOSE, Brookline, Mass. Filed Nov. 3, 1899. Serial No. 735,695. (No model.)



Claim.—1. A carbid-holder for acetylene-gas generators having a vertical partition dividing the carbid-chamber from an expansion-space and held against lateral movement, said partition comprising bars separated by slots for the purpose described.

2. A carbid-holder for acetylene-gas generators, the same being of substantially-rectangular form and vertically partitioned into compartments for the carbid in communication over the tops of the partitions whereby a water-supply entering one of the compartments will reach the others by overflowing the partitions, together with a vertical grate held against lateral movement and dividing the carbid-chambers from expansion-spaces in the compartments, substantially as described.

3. A carbid-holder for acetylene-gas generators comprising a substantially-rectangular inclosure transverse imperforate partitions vertically disposed therein and forming a series of open-top compartments, and a sectional grate vertically arranged in the inclosure, its sections occupying the compartments, respectively, and subdividing the same to form carbid-chambers on the one side and expansion-spaces on the other, substantially as and for the purpose described.

4. A carbid-holder for acetylene-gas generators having imperforate sides and bottom and vertical partition with openings therethrough together with provisions for receiving the feed-water on said bottom whence it rises for contact with the carbid; together with one or more imperforate partitions for supporting part or parts of the charge of carbid, and separating the same from the lowermost portion, whereby the separated parts of the charge are successively used in the order in which they are superposed, substantially as and for the purpose described.

5. A carbid-holder for acetylene-gas generators having imperforate sides and bottom and vertical partition with openings therethrough together with provisions for receiving the feed-water on said bottom whence it rises for contact with the carbid; together with one or more movable imperforate horizontal partitions for supporting part or parts of the charge of carbid and separating the same from the lowermost portion, whereby the separated parts of the charge are successively used in the order in which they are superposed; and suitable manipulative means for supporting the partitions in their working position.

6. A carbid-holder for acetylene-gas generators, the same having provisions for receiving the feed-water in its bottom whence it rises for contact with the carbid and a vertical partition with openings therethrough and also having a horizontal partition hinged to move vertically, said partition supporting part of the charge of carbid and separating the same from the portion below, together with means for supporting said partition in a horizontal position manipulative to release the same, substantially as described.

7. A carbid-holder for acetylene-gas generators, comprising a removable exterior shell or casing, an interior vertical partition with openings therethrough, a horizontal partition-plate hinged to the latter to swing vertically, and means for supporting said plate in horizontal position, substantially as described.

8. A carbid-holder for acetylene-gas generators, comprising an exterior shell or casing, an interior vertical partition, in the form of a vertical removable grate, a horizontal partition-plate hinged to the latter to swing vertically, and means for supporting said plate in its horizontal position.

9. A carbid-holder for acetylene-gas generators the same comprising an exterior casing, and a pair of vertically-arranged grates therein forming between them a carbid-chamber and providing expansion-spaces at each side of the same, said grates being held from lateral movement, substantially as described.

10. In acetylene-gas-generating apparatus the combination of a carbid-holder, a removable cover therefor, a water-supply conduit entering the holder, a gas-conduit leading out of the holder, a gas-vent, a single valve-piece common to the said conduits and the vent, and cover-securing means in the form of one or more horizontally-swinging latches operatively connected with the said valve, whereby displacement of the securing means effects closure of the water and gas conduits and opening of the vent.

11. In an acetylene-gas generator, the combination of a carbid-holder, a removable cover for the same, water and gas conduits communicating with the interior of the holder, a valve common to the two conduits and controlling the flow of fluid therethrough, and securing means for the cover in the form of one or more horizontally-swinging latches operatively connected with said valve whereby the displacement of the securing means effects closure of both conduits, substantially as described.

12. In acetylene-gas-generating apparatus, the combination, with the carbid-holder and its cover, and the water and gas conduits; of a plug-valve controlling said conduits, and one or more horizontally-swinging cover-securing latches rotatively connected with said plug-valve, substantially as and for the purpose described.

13. In acetylene-gas-generating apparatus, the combination, with the carbid-holder and its cover, and the water and gas conduits; of a plug-valve controlling said conduits, a plurality of horizontally-swinging cover-securing latches, one of which is fastened to the plug-valve as its pivot, and a radius-bar connecting the latches together.

14. In acetylene-gas-generating apparatus, the combination with the carbid-holder and its cover, and the water and gas conduits; of a plug-valve controlling said conduits, a plurality of horizontally-swinging cover-securing latches having their pivots offset from one another and one of said latches fastened to the plug-valve as a pivot; and a radius-bar connecting the latches together.

15. In apparatus of the character described a water-sealed gas-generating chamber comprising a double-walled tank for containing a body of water between its walls, said tank having a water-inlet in its outer wall at the top portion thereof; a cover with a depending portion extending down between the walls of the tank to form the seal; a water-outlet pipe opening at the normal level of the water seal within the depending portion of the cover between the same and the inner wall of the tank, said pipe extending under the depending portion of the cover and out through the outer wall of the tank; and a bend in continuation of said outlet-pipe extending upward to the normal level of the water seal outside the depending portion of the cover between the same and the outer wall of the tank, substantially as described.

16. In acetylene-gas-generating apparatus, the combination, with the carbid-holder and a gas-condnit leading from the generating-chamber thereof, and a gas-vent pipe; of a water-tank having a vertical partition dividing it into compartments, a pipe opening into one compartment at the water-level and into the other compartment at the bottom; a washer device in one compartment in communication with the gas-conduit; and a blow-off from the other compartment with which the gas-vent communicates.

17. In acetylene-gas-generating apparatus, the combination, with the carbid-holder and a gas-conduit leading from the generating-chamber thereof, and a gas-vent pipe; of a water-tank with a vertical partition dividing it into compartments; a water-supply pipe entering the lower part of one compartment, an outlet-pipe extending from the lower part of the other compartment, in the form of an upwardly-extending bend having an opening at the top, a pipe extending from the upper part of one compartment through the partition to the lower part of the other compartment; a washer-hood in one compartment in communication with the gas-conduit; and a blow-off from the other compartment with which the gas-vent communicates.

18. In acetylene-gas-generating apparatus, the combination, with the gasometer, of an automatically-controlled water-supply valve, the latter and the gasometer-dome having coacting abutments, a plurality of such abutments on the one part designed to separately coact with the same abutment on the other part under either direction of movement of the gasometer-dome, whereby a predetermined extent of movement of the gasometer-dome in either direction from different positions will effect operation of the valve, substantially as described.

19. In acetylene-gas-generating apparatus, the combination, of a water-supply valve having a tappet, and a gasometer-dome having a series of tappets arranged to severally coact with that of the valve under either direction of movement of the gasometer-dome, whereby the same extent of movement of the dome from different positions may effect operation of the valve, substantially as described.

20. In acetylene-gas-generating apparatus, the combination, of a water-supply valve having a tappet, and a gasometer-dome having a series of tappets arranged to severally coact with that of the valve under either direction of movement of the gasometer-dome whereby the same extent of movement of the dome from different positions may effect operation of the valve, means provided for restoring the valve to position for coaction with a dome-tappet upon its return, after having once passed the valve-tappet.

21. In acetylene-gas-generating apparatus, the combination, of a water-supply valve having a tappet, and a gasometer-dome having a series of tappets arranged to severally coact with that of the valve under either direction of movement of the gasometer-dome, whereby the same extent of movement of the dome from different positions may effect operation of the valve, and means in the nature of a weight applied to the valve-tappet to restore the same to position for coaction with a dome-tappet, after having been displaced by the latter, substantially as described.

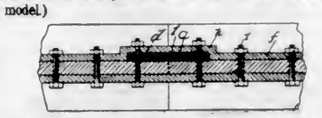
22. In acetylene-gas-generating apparatus, the combination, of an oscillating water-valve having a disk, a tappet pivoted thereto and having lateral projections to abut the periphery of the disk, a weighted arm secured to the tappet and projecting therefrom, and a gasometer-dome having a depending arm with a series of equidistant tappets adapted to coact with the tappet of the valve, substantially as and for the purpose described.

23. In acetylene-gas-generating apparatus, the combination, of a water-supply valve having a tappet, and a gasometer-dome having a series of rigid tappets arranged to severally coact with the valve-tappet for opening and closing the valve, and a pivoted end tappet shouldered so as to turn the valve under one direction of movement of the dome and to trip past the valve-tappet under the reverse direction of movement of said dome substantially as described.

24. In acetylene-gas-generating apparatus, the combination, of a water-supply valve having a tappet, and a gasometer-dome having a series of tappets arranged to severally coact with that of the valve, whereby the same extent of movement of the dome from different positions may effect operation of the valve, said dome also having a guard beyond the tappets to prevent shifting of the valve by hand, substantially as described.

25. In acetylene-gas-generating apparatus, the combination of an oscillatory water-supply valve having a tappet projection, and a gasometer-dome having a depending arm or bar with a series of tappet projections to coact with that of the valve and also with a guard-strip beyond the tappets to prevent turning of the valve by hand, substantially as described.

658,967. RAIL-BOND. JOHN T. STACK, Chicago, Ill., assignor to John P. Barrett, same place. Filed July 13, 1899. Serial No. 723,701. (No model.)



Claim.—1. Means for bonding rails comprising a bond having its ends adapted for connection with the end portions of adjoining rails; a fish-plate having a recess which incloses the bond; a couple of washers, each fitted between one of the ends of the bond and the fish-plate, and made slightly thicker than the space normally existing between the bond ends and the fish-plate, whereby when the fish-plate is secured to the rails, the washers serve to clamp the bond ends against the same, and thereby form a tight joint therewith, while at the same time they allow ample play of the bond to accommodate itself to the expansion and contraction of the rails; and bolts or the like for securing the fish-plate to the rails.

2. Means for bonding rails comprising a bond having its ends adapted for connection with the end portions of adjoining rails; a fish-plate having a recess which incloses the bond; a couple of washers, each fitted between one of the ends of the bond and the fish-plate, and made slightly thicker than the space, normally existing between the bond ends and the fish-plate, whereby when the fish-plate is secured to the rails, the washers serve to clamp the bond ends against the same, and thereby form a tight joint therewith, while at the same time they allow ample play of the bond to accommodate itself to the expansion and contraction of the rails; tar or like substance confined within the space in the fish-plate and embedding the bond; and bolts arranged for securing the fish-plate to the rails, and extended through said washers.

658,968. PIPE-WRENCH. WILLIAM J. STREALY, Lewisburg, W. Va., assignor of one-half to Joseph M. McWhorter, same place. Filed May 21, 1900. Serial No. 17,419. (No model.)



Claim.—1. The combination with a body comprising similar plates, of a dog pivoted therein, a chain detachably secured to the opposite ends of said dog and a lever mounted between the plates above, and adapted to contact with, said dog.

2. The combination with a body comprising similar plates, of a dog pivoted therebetween, a tongue at one end thereof, and forked at the opposite end, a chain engaged by said tongue and fork, and a lever pivoted between the plates above, and adapted to contact with, the dog.

3. The combination with a body comprising similar side plates and an intermediate plate, of a dog pivoted between the side plates, a tongue at one end thereof, a fork at the opposite end, a chain adapted to be engaged by said fork and tongue, a lever pivoted between the side plates above the dog, and means for locking said lever in contact with said dog.

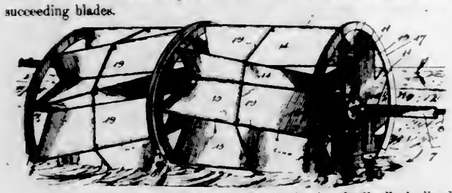
4. The combination with a body comprising similar side plates and an intermediate plate, of a dog pivoted between the side plates, an arm at one end thereof, a tongue at the opposite end, a chain adapted to be engaged by said tongue, a lever pivoted between the side plates above the dog, trunnions thereto and a pin adapted to engage slots within the side plates and lock the lever in contact with the dog.

5. The combination with a body comprising similar side plates and an intermediate plate having a concave inner edge, of toothed jaws upon the edges of the side plates, lugs thereto secured within recesses in the intermediate plate, a dog pivoted between the side plates and resting within the concave edge of the intermediate plate, a tongue at one end of said dog, a fork at the opposite end, a chain adapted to be engaged by said tongue and fork, a lever pivoted between the side plates above the dog, trunnions thereto to limit the downward movement of the lever, and a locking-pin seated within slots in the side plates and adapted to lock the lever in contact with the dog.

658,969. CURRENT-MOTOR. GEORGE WALTER, Fort Benton, Mont. Filed Aug. 31, 1899. Serial No. 729,086. (No model.)

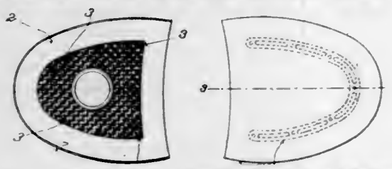
Claim.—1. A water-motor comprising a plurality of coaxial drums having blades disposed at angles to the axes of the drums, and the blades of one drum being arranged at an angle to the blades of the other drum and in staggered relation thereto, the inner and outer edges of the blades being straight and said drums being disposed to receive the water in a direction at right angles to the common axis of the drums.

2. A water-motor comprising a hollow drum having blades disposed at an angle to the axis of the drum, the inner and outer edges of each blade being straight, each of said blades including two plates with their outer edges in mutual contact and with their inner edges separated and in contact with the inner edges of the plates of the adjacent plates of the succeeding blades.



3. A water-motor comprising a drum having longitudinally-inclined buckets, drip-cups within the drum arranged to receive the leakage into the buckets and terminating in drip-tubes extending toward the axis of the drum.

658,970. **RUBBER OR CUSHION HEEL FOR BOOTS OR SHOES.** FRANK W. WHITCHER, Boston, Mass., assignor to Frank W. Whitcher & Co., same place. Filed Feb. 6, 1899. Serial No. 704,619. (No model.)

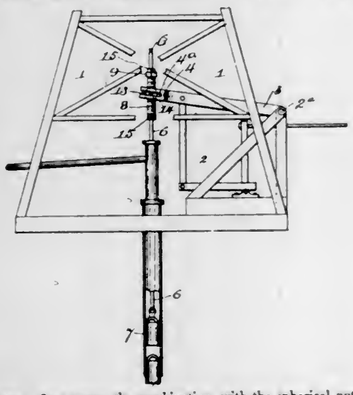


Claim.—1. The solid-rubber or cushion heel having the nail or tack receiving holes 3, 3, formed therein, and also having embedded in the material thereof adjacent its outer edge the thin, narrow, flexible U-shaped metal strip 5 corresponding in outline substantially to the contour of the heel and having the holes 7, 7, registering with holes 3, 3, the said strip preventing the securing nails or tacks from drawing through the heel.

2. The solid-rubber or cushion heel having the nail or tack receiving holes 3 3 formed therein, and also having embedded in the material thereof adjacent its outer edge the thin, narrow, flexible and resilient U-shaped metal strip 5, corresponding in outline substantially to the contour of the heel and having the holes 7 7 registering with the holes 3 3, the said strip preventing the securing nails or tacks from drawing through the heel.

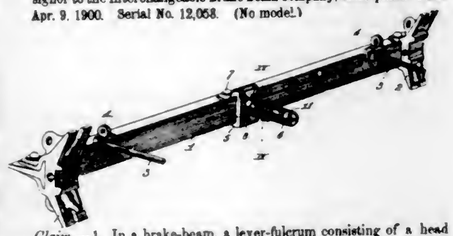
3. The solid-rubber or cushion heel having the nail or tack receiving holes formed therein, and also having embedded in the material thereof adjacent its outer edge, the thin, narrow, flexible metal strip corresponding in outline substantially to the contour of the heel and having holes registering with the holes in the heel, the said strip preventing the securing nails or tacks from drawing through the heel.

658,971. **ADJUSTING DEVICE FOR PUMP-RODS.** JACOB H. WILT, Franklin, Pa. Filed Jan. 5, 1900. Serial No. 505. (No model.)



Claim.—In a pump, the combination, with the spherical nut vertically adjustable on the pump-rod, and having trunnions, of a walking-beam pivoted at one end to a fixed member of the pump-frame, the other end being forked so as to extend around the nut, each member of the forked end having a U-shaped bearing for the said trunnions, whereby the said beam may be operated without engaging the nut, substantially as set forth.

658,972. **BRAKE-BEAM.** FRANCIS B. AGLAR, St. Louis, Mo., assignor to the Interchangeable Brake Beam Company, same place. Filed Apr. 9, 1900. Serial No. 12,058. (No model.)

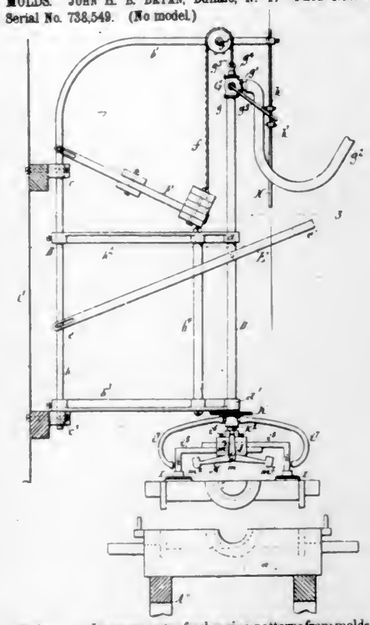


Claim.—1. In a brake-beam, a lever-fulcrum consisting of a head fitted to the beam and having diagonally-arranged grooves, and a stem having a rib adapted to fit and be held in said grooves in combination with the bolt 10, substantially as and for the purpose set forth.

2. In a brake-beam, a lever-fulcrum consisting of a head having diagonally-arranged dovetail grooves, a stem having a dovetail rib adapted to fit in said grooves, and a bolt for holding said rib from movement in the direction of its length in said grooves, substantially as described.

3. In a brake-beam, a lever-fulcrum comprising a head having diagonally-arranged dovetail grooves, a stem having a dovetail rib adapted to fit in said grooves, and the bolt 10 for holding said rib from movement in the direction of its length in said groove.

658,973. **APPARATUS FOR DRAWING PATTERNS FROM MOLDS.** JOHN H. R. BRYAN, Buffalo, N. Y. Filed Nov. 28, 1899. Serial No. 738,549. (No model.)



Claim.—1. In an apparatus for drawing patterns from molds, the combination with a horizontally-movable supporting-frame having a vertical guide, of a hollow vertical lifting-rod arranged in said guide and capable of vertical movement therein, a suction-head attached to the lower end of said rod and communicating therewith, and a suction-pipe connected with the upper portion of said rod, substantially as set forth.

2. In an apparatus for drawing patterns from molds, the combination with a supporting-frame capable of swinging horizontally about a vertical pivot and having at its free end a vertical guide, of a vertical lifting-rod arranged in said guide and capable of vertical movement therein, a suction-head attached to the lower end of said rod, and a suction-pipe connected with said head, substantially as set forth.

3. In an apparatus for drawing patterns from molds, the combination with a horizontally-movable supporting-frame having a vertical guide, of a vertical lifting-rod arranged in said guide and capable of vertical movement therein, a suction-head attached to the lower end of said rod, a suction-pipe connected with said head, and a counterbalancing device mounted in said frame and connected with said lifting-rod, substantially as set forth.

4. The combination with an upright rod capable of vertical movement, and a suction-holder arranged below said rod, of a flexible coupling connecting said holder with said rod, substantially as set forth.

5. The combination with a hollow rod adapted to be placed in communication with an exhaust, of a suction-holder, and a flexible coupling connecting said holder with said rod, substantially as set forth.

6. The combination with a hollow rod adapted to be placed in communication with an exhaust, of a flexible coupling communicating with the lower end of said rod, a supporting-head carried by said coupling, a suction-holder, attached to said head, and a flexible pipe connecting said holder with said coupling, substantially as set forth.

7. The combination with an upright rod capable of up-and-down movement, of a suction-holder and a rapping device connected with the lower end of said rod, substantially as set forth.

8. The combination with an upright rod capable of up-and-down movement, of a supporting-head arranged at the lower end of said rod, a suction-holder carried by said head, and a rapping device also carried by said head, substantially as set forth.

9. The combination with an upright rod capable of up-and-down movement, of a suction-holder connected with the lower end of said rod, and a rapping device carried by said rod and adapted to jar said suction-holder, substantially as set forth.

10. The combination with an upright rod capable of up-and-down movement, of a supporting-head connected with the lower end of said rod, a suction-holder attached to said head, and a rapping device also attached to said head and adapted to jar said suction-holder, substantially as set forth.

11. The combination with an upright rod capable of up-and-down movement, of a supporting-head connected with the lower end of said rod, suction-holders provided with arms which are secured to said head, and a rapping device pivoted to said head and adapted to strike said arms, substantially as set forth.

12. The combination with a supporting-frame having a vertical guide, of a vertical, hollow lifting-rod arranged in said guide and capable of vertical movement therein, a suction-head attached to the lower end of said rod, a three-way cock communicating with said rod above said head and provided with an actuating-arm, and stops arranged on said frame, one above the other, and receiving the actuating-arm of said cock between them, substantially as set forth.

13. The combination with a supporting-frame having a vertical guide and capable of vertical movement therein, of a vertical hollow lifting-rod arranged in said guide and capable of vertical movement therein, a suction-head attached to the lower end of said rod, a three-way cock communicating with said rod above said head and provided with an actuating-arm, a vertical lifting-rod secured to said frame, and stops adjustably secured to said rod, one above the other, and receiving the actuating-arm of said cock between them, substantially as set forth.

14. The combination with a hollow rod capable of up-and-down movement and carrying a suction-holder at its lower end, of a three-way cock at the upper end of said rod, provided with a nipple for connection with an exhaust and with an air-inlet, a hollow plug secured to said inlet, and a counterbalance attached to said plug, substantially as set forth.

658,974. **PHOTOGRAPHIC-PLATE HOLDER.** NORRIS BULL, Rochester, N. Y. Filed Apr. 16, 1900. Serial No. 13,117. (Model.)

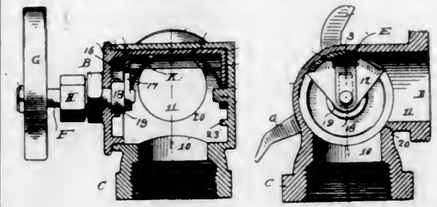


Claim.—1. The combination with a plate-holder and its exposing-slide, of the double light-excluding shutter consisting of a base and two parallel inclined ribs of elastic material, said ribs being adapted to bear against said slide, substantially as described.

2. The combination with a plate-holder and its exposing-slide, of a double light-excluding shutter made of rubber and consisting of a base and two parallel inclined ribs, said ribs being adapted to bear against said slide, substantially as described.

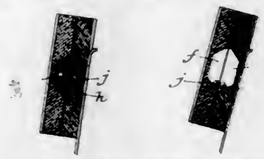
658,975. **VALVE.** THOMAS CLANCY, Bridgeport, Conn. Filed July 30, 1900. Serial No. 25,229. (No model.)

Claim.—1. The combination with a cylindrical valve-body having inlet and outlet openings and a stud 15 at its inner end, of an oscillatory arc-shaped valve having arms one of which is provided with an opening to receive stud 15 and the other with an angular opening, a spindle having an angular lug adapted to engage the angular opening and a spring engaging stud 15 and the inner end of the spindle and acting to press the valve against the inner periphery of the body.



2. The combination with a cylindrical valve-body having inlet and outlet openings, of an oscillatory arc-shaped valve adapted to close either of said openings and a bow spring whose ends have bearings at the ends of the valve and which bears against the inner side of the valve to hold it pressed against the inner periphery of the body.

658,976. **LIGHTNING-ARRESTER.** FRANK B. COOK, Chicago, Ill. Filed Feb. 7, 1900. Serial No. 4,337. (No model.)



Claim.—1. A high-tension arrester, or current-protecting device, consisting of carbon plates held adjacent to each other but separated from one another, a mass of non-conducting material adapted to be melted into a liquid, or semiliquid form and a movable conductor normally held out of contact by the material aforesaid, which conductor is adapted to make contact between the plates when said material is melted.

2. A high-tension arrester, or current-protective device, consisting of carbon plates held adjacent to each other, but separated from one another, a cup-shaped recess or cavity in one or both of the carbon plates, a mass of non-conducting material adapted to be melted into a liquid or semiliquid form, and a ball or balls of conducting material, held by the non-conducting material, which when released by the non-conducting material falls by gravity into a position to close the circuit between the plates.

3. A high-tension arrester, or current-protecting device, consisting of carbon plates held adjacent to each other, but separated from one another, a recess or cavity in one or both of the carbon plates, a mass of non-conducting material adapted to be melted into a liquid or semiliquid state held within the recess or cavity, and a movable contact-maker, normally withheld by the material aforesaid, which is adapted when said material is melted to establish a conducting-path between the carbon plates.

658,977. **COMPOSITION OF MATTER FOR WAX TAPERS.** JUAN CRAVERI, Buenos Ayres, Argentina. Filed Nov. 17, 1899. Serial No. 737,311. (No specimens.)

Claim.—A composition of matter for making wax matches and the like, consisting of white ceresin forty parts, purified colophony fifteen parts, sulfate of lime thirty-two parts, oxid of zinc seven parts, and nitrate of potassium six parts, substantially as described.

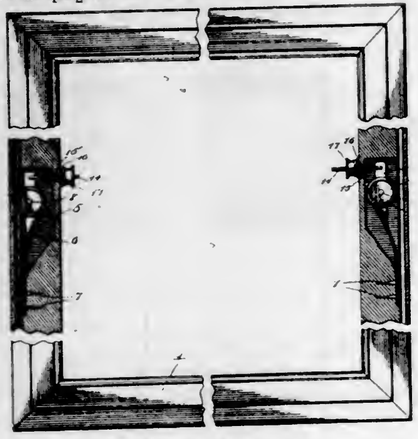
658,978. **WINDOW-SCREEN.** ALFRED A. CYR, Providence, and ALBERT A. AUSTIN, Cranston, R. I. Filed Feb. 7, 1900. Serial No. 4,389. (No model.)

Claim.—1. In a window-screen, the combination with the recessed frame, of a twisted spring secured within the recess, a stud thereon, a roller mounted upon the stud, and means for retracting and rejecting the wheel as desired.

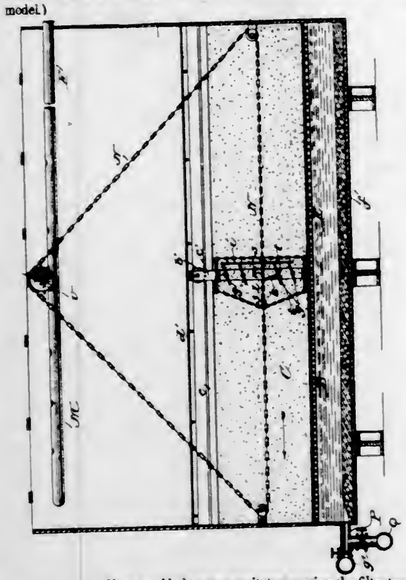
2. In a window-screen, the combination with the recessed frame, of a spring secured at one end within the recess, a normally-projected wheel mounted upon the free end of the spring, and means for retracting the wheel as desired.

3. In a window-screen, the combination with the recessed frame, of a twisted spring secured at one end within the recess, a stud projecting from the spring, a wheel mounted upon the stud, a rim detachably secured to the wheel, a sleeve secured within the frame, a screw pivoted to the

spring and loosely mounted within the sleeve, and a nut for adjusting said screw and spring back and forth within the sleeve.



658,979. MEANS FOR CLEANING GRANULAR FILTER-BEDS. JOHN DAVIS, Pittsburg, Pa. Filed Feb. 26, 1900. Serial No. 6,586. (No model.)



Claim.—1. A filter provided with an agitator crossing the filter transversely; in combination with a shaft and a chain for moving the agitator longitudinally in the filter.

2. A filter provided with an agitator consisting of a frame having blades pivotally secured therein and crossing the filter transversely; in combination with means for moving the agitator longitudinally in the filter.

3. A filter provided with an agitator consisting of a frame having blades pivotally secured therein and crossing the filter transversely, and a track supporting the agitator; in combination with means for moving the agitator longitudinally in the filter.

4. A filter provided with an agitator consisting of a frame having blades pivotally secured therein and crossing the filter transversely, and a track supporting the agitator; in combination with a chain connected to each end of the frame, and a shaft connected to said chain to move the agitator in opposite directions in the filter.

5. A filter provided with an agitator consisting of a frame having blades pivotally secured therein and crossing the filter transversely, chains connected to the four corners of the frame on each side thereof, and a track supporting the agitator; in combination with a chain connected to the chains at each end of the agitator and a shaft for moving the agitator longitudinally in the filter.

6. A filter provided with an agitator consisting of a frame having blades pivotally secured therein, and lateral extensions at each corner and on both sides of the frame, chains connected to said extensions and joined in the center of the agitator; in combination with means for moving the agitator longitudinally in the filter.

7. A filter provided with an agitator consisting of a frame having blades pivotally secured therein, chains connected to each corner of the frame and on both sides thereof and joined in the center of the frame, a connection for reversing the blades, and a track supporting the agitator; in combination with a chain connected to the chains on both sides of the frame, and means for moving the agitator longitudinally in the filter.

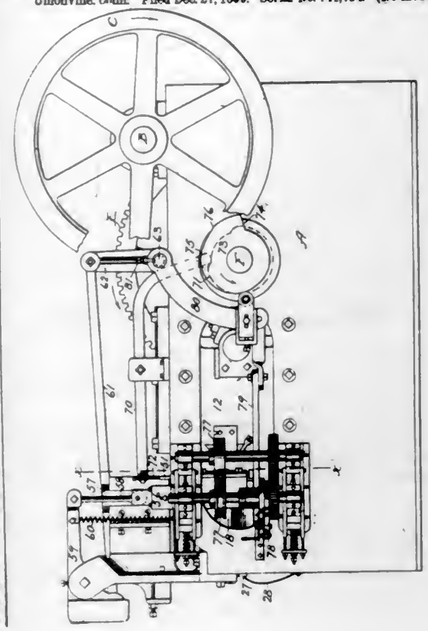
658,980. SADDLE FOR BICYCLES, &c. THOMAS I. DUFFY, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Jan. 19, 1899. Serial No. 702,735. (No model.)



Claim.—1. A saddle comprising an open frame having its upper surface provided with a groove or channel and having also a lip or bead formed at its outer edge, an inflatable air-tube seated within the said groove or channel, a flexible seat-cover arranged over the said tube and frame and having its marginal portion extended downward so as to cover or conceal the said lip or bead on the frame, a wire or rod adapted to be sprung into the groove or channel on the frame and to be retained in such position by the said bead or lip, and means for connecting the said wire or rod with the under side of the said flexible seat-cover, substantially as and for the purpose set forth.

2. A saddle comprising a frame having a groove or channel formed on its upper surface and having also a lip or bead formed at its outer edge; an inflatable air-tube seated and arranged within the said groove or channel; a flexible seat-cover arranged over the said tube and frame and having its marginal portion extended downward so as to cover or conceal the said lip or bead on the frame; a wire or rod bent into the proper shape and adapted to be sprung into the said groove or channel and retained in such position by the said lip or bead; and one or more flexible flaps or like means for connecting the said wire or rod with the under side of the said flexible cover, the inner wall of the said groove or channel extending upward beyond the said bead or lip, substantially as and for the purposes set forth.

658,981. MACHINE FOR MAKING NUTS. GEORGE DUNHAM, Unionville, Conn. Filed Dec. 27, 1899. Serial No. 741,734. (No model.)



Claim.—1. In a nut-machine, the combination of a crank-shaft having two cranks with a punch-slide having a punch for the round hole in the nut, another slide having at one side of the said round-hole punch a punch for blanking out the nut and dies for coaction with said punches, the said two slides and cranks being arranged and connected for making the strokes of the said slides and punches alternately, with the blanking-punch withdrawing from action on the bar when the round-hole punch begins to act thereon, substantially as described.

2. In a nut-machine, the combination of the crank-shaft with the two slides and their punches, dies for coacting with said punches and a feeding mechanism having the cam with a feeding rise following its main feeding incline, and timed to act between the cutting operations of the said two punches, substantially as described.

3. In a nut-machine, the combination of the punching-die and punch for the hole in the nut, with the blanking-punch and its die, mechanism for bringing the said blanking-punch forward for blanking a nut and into position for stopping the bar for punching the hole, and then withdrawing the said blanking-punch from the end of the bar when the hole is being punched therein, and feeding mechanism relatively timed to feed the end of the bar against the said blanking-punch, between the cutting action of the said two punches, substantially as described.

4. In a nut-machine, the combination of two slides making the forward end of their strokes alternately, with a blanking-punch mounted in one of said slides, a punch for the hole in the nut mounted in the other slide, dies for coacting with said punches and feeding mechanism arranged to feed the stock forward for blanking the nut and then forward a second time after a nut has been blanked therefrom and before the next hole is punched in the said bar, substantially as described.

5. In a nut-machine, the combination of the die-holder with the round-hole die-block, the wedge 47 on one side of said block, the shear-block 35 on the opposite side, the blocks 43 and 29 with portions bearing on the said shear-block and the holding-screws 42 and 44, substantially as described.

6. In a nut-machine, the combination of the central-hole punch and die with the blanking-punch and die arranged side by side, the die 25 and its punch, arranged vertically underneath the said blanking punch and die, the stops for arresting a blank in front of said die 25, and the reciprocating pusher or carrier finger 53 for forcing the blank from the blanking-die vertically down upon the said stops, substantially as described.

7. In a nut-machine, the combination of the central-hole punch and die, with the blanking-out punch and die, the shaping-die 25 and its punch, the stops in front of the said die, the crowning-die in back of the die 25, a knock-out for clearing the crowning-die, the second trimming-die and punch 20 and 17, the carrier-head, the two pusher or carrier fingers 53 and 55 mounted on said head, and mechanism for reciprocating the said head and its fingers, substantially as described.

8. In a nut-machine, the combination of the two slides making the forward end of their stroke alternately, with the central-hole punch in one slide, the blanking-out punch in the other slide, dies for coacting with the said punches, a clamping-bar, and mechanism for forcing said bar upon the stock while the central hole for the nut is being punched therein and for releasing the pressure thereon when the stock is being acted upon by the blanking-punch, substantially as described.

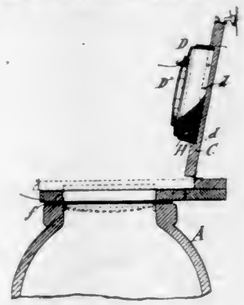
9. In a nut-machine, the combination of a punch for the central hole in the nut, a shear-punch for blanking out the nut, dies for said punches, and a stop-gage 50 for gaging the bar in blanking out the nut, while the shear-punch serves as a stop-gage for gaging the bar in punching the hole in the nut, substantially as described.

10. In a nut-machine, the combination of a crank-shaft having two differently-arranged cranks with a punch-slide connected with one of the said cranks having a punch for the round hole in the nut, another slide connected with the other one of the said cranks having a punch for blanking out the nut and dies for coacting with said punches, whereby the blanking-punch is back of the rod of iron before the round-hole punch enters the said iron sufficiently to stretch said rod, substantially as described.

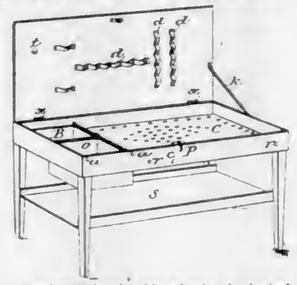
658,982. COVER FOR WATER-CLOSETS. MORIS FISCHER, New York, N. Y. Filed Oct. 30, 1899. Serial No. 735,240. (No model.)

Claim.—1. The combination, with a water-closet bowl, of a water-closet seat placed upon the same, a packing-ring secured to the under side of the seat and extending over the edge of the bowl, a cover hinged to the seat, and a perforated disinfectant-receptacle secured to said cover and adapted to pass through the opening of the seat and press the packing-ring against the edge of the bowl, substantially as set forth.

2. The combination, with a water-closet bowl, of a water-closet seat placed upon the same, a packing-ring secured to the under side of the seat and extending over the edge of the bowl, a cover hinged to the seat, and a perforated disinfectant-receptacle secured to said cover and provided with tapering sides and a packing-ring secured thereto, said disinfectant-receptacle being adapted to pass through the opening of the seat and press the packing-ring against the edge of the bowl, and simultaneously close the opening in the seat, substantially as set forth.

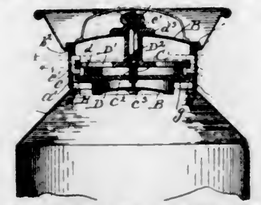


658,983. PAINTER'S BRUSH-CABINET. JAMES H. FRANCIS, Nettleton, Miss. Filed Aug. 17, 1897. Serial No. 648,606. (No model.)



Claim.—A painter's brush-cabinet having in the body thereof, the cross-rods *a a*, *r r*, the box O and the pans B N, the said box and pans being hung by hooks *e f g* on the rods, the box O being provided with the comb A and the pan N with the perforated cover C, all substantially as shown; whereby it may be used by a painter in the manner described.

658,984. LOCK FOR VESSEL-COVERS. LOUIS A. FRANK, Chicago, Ill. Filed Jan. 24, 1900. Serial No. 2,617. (No model.)



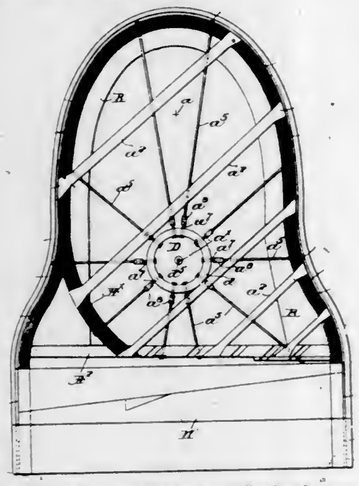
Claim.—1. The combination with a vessel having in its opening inward projections, each provided with a recess, of a cover to close the opening, a hollow stem rotatably located in the cover and having at its upper end a dial or knob, a disk having recesses in its periphery and located on the lower portion of said stem, a stem rotatably located in the hollow stem and having at its upper end a knob or dial, and its lower portion formed angular in cross-section, and a disk mounted on the lower portion of the stem, which extends through the hollow stem and having recesses in its periphery, substantially as described.

2. The combination with a vessel having projections in its opening, of a cover having a hollow extension to fit in said opening, and provided on its top with a graduate scale, said extension being closed at its bottom and provided with an annular shoulder, a hollow stem rotatably located in the cover and having at its upper end a dial or knob provided with a graduate scale and an index, a disk having recesses in its periphery and located on the lower portion of said stem, a stem rotatably located in the hollow stem and having on its upper end a knob or dial provided with an index, and a disk mounted on the lower portion of the stem which extends through the hollow stem and having recesses in its periphery and resting on the annular shoulder at the bottom of the said extension, substantially as described.

3. The combination with a vessel having in its upper portion an an-

nular shoulder, and below said shoulder, openings in its walls, of a reinforcing-band encircling the upper portion of the vessel and provided with projections extending through said openings, a cover having an annular flange to rest on said shoulder, a hollow stem rotatably located in the cover, and having at its upper end a dial or knob, a disk having recesses in its periphery and located on the lower portion of said stem, a stem rotatably located in the hollow stem, and having at its upper end a knob or dial, and its lower portion formed angular in cross-section, and a disk mounted on the lower portion of the last-named stem, and having recesses in its periphery, substantially as described.

658,985. **PIANO CONSTRUCTION.** EMIL A. GERTZ, Hanover, Germany, and RICHARD W. GERTZ, Cambridge, Mass. Filed Apr. 30, 1900. Serial No. 14,804. (No model.)



Claim.—1. In piano construction, a sounding-board, a supporting-rim therefor to which the sounding-board is secured, and adjustable tension members connected with and to compress the rim and thereby regulate the compression of the sounding-board.

2. In piano construction, a sounding-board rim elliptical in shape throughout the greater portion of its perimeter, and tension members radiating from one of the foci of the elliptical portion to the rim, and means to vary the tension of said members.

3. In piano construction, a sounding-board, a supporting-rim therefor, both arranged symmetrical relatively to the longitudinal center of the piano and elliptical in shape throughout the greater portion of their extent, arch-bars secured to the under side of the sounding-board and to the rim, braces for the latter located between pairs of said arch-bars and parallel thereto, and means to compress the rim and thereby regulate the compression of the sounding-board.

4. In piano construction, a sounding-board rim elliptical in shape throughout the greater portion of its perimeter and composed of a series of thin layers of wood cemented together, brace members extended diagonally to the longitudinal axis of the rim, and enlarged at their ends to enter corresponding sockets in the rim, for retaining the shape of the rim, and a series of adjustable tension members radiating from one of the foci of the ellipse to the various parts of the rim to adjustably compress the same.

5. In piano construction, a sounding-board rim substantially elliptical in shape, a sounding-board mounted thereupon and correspondingly shaped, means to compress said rim, and a common controlling device for said means.

6. In piano construction, a case-bottom, inner and outer rims secured thereto independently of each other with a clearance-space between them, a sounding-board secured to the inner rim, and means to regulate the compression of the sounding-board by or through its supporting-rim.

7. In piano construction, a case-bottom composed of a plurality of layers of wood superposed one upon the other and secured together, an outer rim secured to said case-bottom, a laminated inner rim also secured thereto independently of the outer rim, and a sounding-board mounted on and secured to said inner rim.

8. In piano construction, a laminated supporting-rim for the sounding-board, diagonal braces anchored in the rim to maintain its shape, a series of adjustable tension members anchored at their outer ends in the rim and converging toward a common point, a metal disk having an upturned flange to receive and hold the inner ends of the tension members, and means to vary the tension of said members.

9. In piano construction, a sounding-board rim, a sounding-board supported thereby, both symmetrically shaped relative to the longitudinal central axis of the piano and elliptical in shape throughout the greater portion of their extent, a string-frame secured to said rim above the sounding-board and similarly shaped, a pointed arch-brace for said string-frame at the arched end of the latter, and triangular braces, the inner sides of which intersect one of the foci of the elliptical portion of the rim.

10. In piano construction, a metallic string-frame, comprising a web portion and brace-ribs, the greater portion of the frame being elliptical in shape, said braces comprising two longitudinal parallel ribs extending from front to rear of the frame, the two triangles having their apexes on said longitudinal ribs and with their inner sides intersecting at one of the foci of the elliptical portion.

11. In piano construction, a string-frame, symmetrical relative to its longitudinal central line and elliptical in shape throughout the greater portion of its extent, said frame having an edge flange or rib, longitudinal and diagonal brace-ribs, the latter forming triangles the inner sides of which intersect, and a pointed arch-brace connecting the triangles.

12. In piano construction, separated inner and outer rims, a case-bottom to which they are secured, a sounding-board mounted on the inner rim and conforming in shape substantially thereto, a metallic string-frame having at its edge a stiffening-rib and upturned ears at the top of said rib, means extended through said rib to secure the frame to the inner rim, connections between the upturned ears of the stiffening-rib and the outer rim, and means to compress the inner rim and thereby maintain the desired compression of the sounding-board.

13. In piano construction, inner and outer rims symmetrically shaped relative to the longitudinal central axis of the piano, means to secure said rims together in front of the "strike," the rims being separated and disconnected throughout the remainder of their extent, a sounding-board mounted on the portion of the inner rim separated from the outer rim, means to compress such portion of the inner rim to regulate the compression of the sounding-board, and a case-bottom to which the inner and outer rims are independently secured.

14. In piano construction, a symmetrical inner rim elliptical in shape throughout the greater portion of its extent, and correspondingly-shaped sounding-board, and a string-frame, both mounted on and secured to said rim, adjustable tension members anchored at their outer ends in the rim, a circularly-flanged disk concentric with one of the foci of the elliptical portion of the rim, the flange receiving and holding the inner ends of the tension members, a hub on the string-frame also concentric with said focus, a threaded bolt secured to the flanged disk and upturned through said hub, and an adjusting-nut on the upper end of the bolt whereby the compression of the rim may be varied to adjust the sounding-board.

15. A metallic string-frame for pianos, comprising a flat or web portion, a stiffening-rib around the perimeter of the frame, the latter being elliptical in shape for the greater portion of its extent, two parallel longitudinal brace-ribs, diagonal brace-ribs forming two triangles having their apexes in the longitudinal ribs, and their inner sides intersecting at one of the foci of the elliptical portion, and a pointed arch-rib springing from the longitudinal ribs and symmetrically located relative to the other focus of the ellipse.

16. A metallic string-frame for pianos, having a stiffening-rib around the perimeter of the frame, the latter being elliptical in shape for the greater portion of its extent, two parallel longitudinal brace-ribs, diagonal brace-ribs forming two triangles having their apexes in the longitudinal ribs, and their inner sides intersecting at one of the foci of the elliptical portion, a pointed arch-rib springing from the longitudinal ribs and symmetrically located relative to the other focus of the ellipse, and a short longitudinal brace-rib extending from the intersection of the inner sides of the triangular braces to the front edge of the frame.

17. In piano construction, a sounding-board rim, tension members connected with said rim, and means to vary the tension of said members.

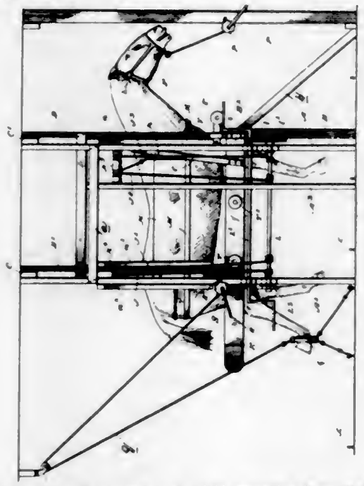
18. In piano construction, a sounding-board rim, a sounding-board, arched bars secured to the under side thereof, and a series of straight braces or bars attached at their extremities to the rim and running parallel to and between the arched bars, said straight braces being connected with the sounding-board at their ends to positively retain the arch of the board.

19. A case-bottom, and inner and outer rims independently secured thereto and separated one from the other, to leave a clearance-space between them.

20. A case-bottom, separated inner and outer rims independently secured thereto, with a clearance-space between them, a sounding-board mounted on the inner rim, and means to compress said rim to maintain the desired arch of the sounding-board.

658,986. **STOCK FOR SHOEING HORSES.** MARTIN L. HENPHILL, Rensselaer, Ind. Filed Mar. 8, 1900. Serial No. 7,808. (No model.)

Claim.—1. In a shoeing-stock, the combination with a rigid supporting-frame, of a depending stationary frame carried thereby, suitable braces for the depending frame, a guide carried by the depending frame, a like depending stationary frame on the opposite side having a pivotal connection with the support, a standard having a head with which the two depending frames engage, a sling, and mechanism for elevating the same, substantially as described.

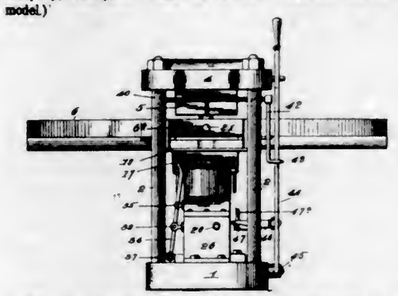


2. A shoeing-stock consisting of a rigid supporting-frame, two depending frames carried thereby, a pivotal support for one and a fixed support for the other depending frame, whereby the one is capable of movement independently of the other, a standard having a cross-head thereon, one end of which is fixed to one of the depending frames, and the other end slidingly engaged with the other depending frame, means on the head for limiting the outward movement of the swinging frame, a sling, and mechanism for elevating the same, substantially as described.

3. In a horseshoeing-stock, the combination with a rigid supporting-frame, of a fixed depending frame, a swinging depending frame capable of movement independently of the fixed frame, means for limiting the outward movement of the latter, a sling, means for elevating the same, a detachable flexible connection *n* for the rear of the depending frame on a plane above the sling, side straps carried by the sling and extending beyond the edges thereof and an adjustable shoulder-strap, substantially as described.

4. In a horseshoeing-stock, the combination with a main framework, of an immovable depending frame thereon, a corresponding depending frame arranged opposite the immovable frame hingedly secured at its upper end and capable of an independent swinging movement, and a sling connected at its respective ends to the immovable and swinging frames and adapted to draw the latter toward the former when pressure is applied thereto, substantially as described.

658,987. **MEAL-CAKE-FORMING MACHINE.** ALFRED JONES, St. Louis, Mo., assignor of one-half to the Mound City Paint and Color Company, same place. Filed Aug. 4, 1900. Serial No. 25,582. (No model.)



Claim.—1. In a cake-forming machine, the combination of a turn-table, mold-boxes mounted therein, a ram through means of which said mold-boxes are elevated to compress the cake therein, mechanism for intermittently rotating said turn-table, and means whereby said rotating mechanism is intermittently thrown out of action, substantially as described.

2. In a cake-forming machine, the combination of a turn-table, means for intermittently rotating said turn-table, a ram, means for controlling the flow of pressure medium to and from said ram, movable mold-boxes carried by said turn-table and adapted to be elevated by said ram, and means carried by said mold-boxes arranged to engage said pressure-medium-controlling means, and to be freed from said controlling means on the elevation of said mold-boxes by said ram, substantially as described.

3. In a cake-forming machine the combination of a turn-table, mold-boxes composed of bottom plates and frames hinged thereto, said mold-boxes being mounted in said turn-table, a ram for elevating said mold-boxes, and means for holding the frames of said mold-boxes elevated on the descent of the mold-box bottoms, substantially as described.

4. In a cake-forming machine, the combination of a turn-table, mold-boxes composed of bottom plates and frames hinged thereto, said mold-boxes being mounted in said turn-table, a rocking rod and a hook carried by said rocking rod arranged to engage and retain said mold-box frames, a ram whereby said mold-boxes are elevated, and means for rocking said rod to free said hook from the mold-box frame, substantially as described.

5. In a cake-forming machine, the combination with a ram and head, of a turn-table, mold-boxes carried by said turn-table, pins projecting from said mold-boxes, a ram-cylinder, a valve-housing, means of communication between said valve-housing and ram-cylinder, a slide-valve in said housing, a piston-cylinder having communication with the means of communication between said ram-cylinder and valve-housing, a piston in said piston-cylinder, and a rocking lever having connection with said slide-valve and said piston, and adapted to receive the engagement of the pins carried by said mold-boxes, substantially as described.

6. In a cake-forming machine, the combination of a turn-table, mold-boxes carried by said turn-table, means for compressing the material in said mold-boxes, ratchet-teeth carried by the hub of said turn-table, a rocking lever having a pawl arranged to engage said ratchet-teeth, and a dog arranged to be moved into the path of travel of said pawl to hold it away from said ratchet-teeth, substantially as described.

7. In a cake-forming machine, the combination of a turn-table, mold-boxes carried by said turn-table, means for compressing the material in said mold-boxes, ratchet-teeth carried by the hub of said turn-table, arms projecting from said hub, a rocking lever having a pawl, and a dog arranged to be struck by the arms carried by said hub and moved into the path of travel of the pawl carried by said rocking lever, substantially as described.

8. In a cake-forming machine, the combination with a turn-table, mold-boxes carried thereby, and means for compressing the material in said mold-boxes, of ratchet-teeth carried by the hub of said turn-table, a rocking lever, a pawl carried by said rocking lever adapted to engage said ratchet-teeth, a controlling-lever, a pivoted dog arranged to be thrown into the path of travel of said pawl to prevent it from engaging said ratchet-teeth, and means of connection between said dog and said controlling-lever, substantially as described.

9. In a cake-forming machine, the combination with a turn-table, a head and a ram, of yokes carried by said turn-table, and mold-boxes comprising the bottom plates, guide-pins carried by said bottom plates and arranged in said yokes, and frames pivotally connected to said bottom plates, substantially as described.

658,988. **SOLIDIFIED MINERAL OIL AND METHOD OF MAKING SAME.** JOHN A. JUST, Syracuse, N. Y. Filed Apr. 14 1900. Serial No. 12,930. (No specimens.)

Claim.—1. The composition of matter consisting of a mineral-oil distillate, thickened or solidified by an aqueous solution of soap and a substance insoluble in said distillate and forming with water at ordinary temperatures a tenacious or viscid solution.

2. The herein-described composition of mineral-oil distillate and a solution of a caseinate and soap in water.

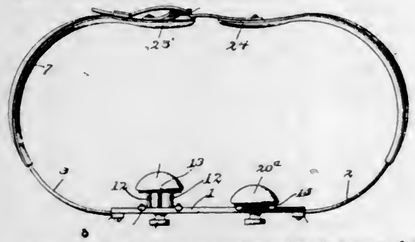
3. The herein-described composition consisting of a mineral-oil distillate and a solution of a caseinate, soap and glycerin in water.

4. The process of solidifying mineral-oil distillates which consists in incorporating therein by agitation an aqueous solution of soap and a substance insoluble in said distillates and forming with water at ordinary temperatures a tenacious or viscid solution.

5. The process of solidifying mineral-oil distillates which consists in incorporating such liquids by agitation with a solution of a caseinate, soap and glycerin in water.

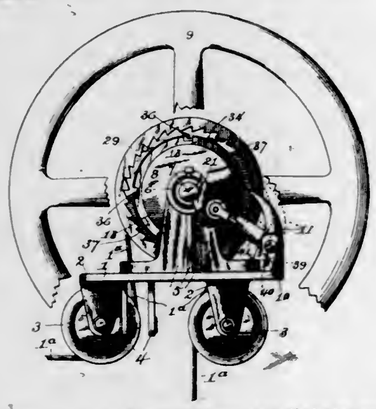
6. The process of solidifying mineral-oil distillates which consists in emulsifying such distillates by shaking a quantity thereof with a suitable quantity of a solution of a caseinate and soap in water, and in then gradually adding and incorporating more of such distillates by agitation.

658,989. HERNIAL TRUSS. JOHN F. KAMPF, Toledo, Ohio, assignor, by mense assignments, to the Infallible Truss Company, same place. Filed Jan. 6, 1899. Serial No. 701,338. (No model.)



Claim.—In a truss, a plate attached to and forming a part of the truss-frame, having a screw-stem loosely journaled therein and guiding-studs rigidly attached thereto in parallel relation, a disk adapted to ride upon said studs having a central screw-threaded portion to receive the screw-stem, the button secured to the disk and formed with a hollow interior to house the studs and the screw-threaded portion of the disk, and a milled nut on the end of the screw-stem to permit of manually rotating the same and thereby imparting a variable adjustment to the button, substantially as described and for the purpose set forth.

658,990. MEANS FOR OPERATING DUMB-WAITERS. JOSEPH W. KINCAID, Reading, Pa., assignor to the Reading Crane and Hoist Works, same place. Filed Dec. 16, 1899. Serial No. 740,538. (No model.)



Claim.—1. In a hoist, the combination, with the driving mechanism, of a clamp having prongs or forks provided with inner shoulders and secured to the shaft of said mechanism, and a clutch-ring loose upon said mechanism and engaged by the said forks and shoulders to couple the shaft with said mechanism.

2. In a hoist, the combination, with the shaft, the disk having a sleeve loose upon the shaft, and the lift-sheave loose upon the sleeve and having an inclined face at its end, of a clutch-ring held loose upon the sleeve in engagement with said end by a nut upon the sleeve, and a clamp secured to the shaft and having shouldered prongs engaging the said ring to couple the latter with the said shaft.

3. In a hoist, the combination, with the shaft, the disk having a sleeve terminating in a screw-thread and loose upon the shaft, the lift-sheave loose upon the sleeve and having a hub one end of which terminates in inclined faces and the other end in projections or lugs, and the brake-wheel loosely mounted on said lugs, of the clutch-ring, a nut on the screw end of the sleeve to hold loose upon the latter the said ring, and the clamp secured to the shaft and having forks engaging the ring to couple the latter with the shaft and with the sheave.

4. A friction-wheel having peripheral lugs, and radial ribs between the lugs, and friction-disks held between the ribs and lugs.

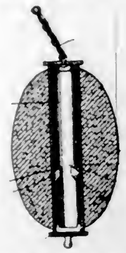
5. A friction-wheel having recessed faces, lugs flush with the periphery of the wheel and extending into the faces, radial ribs between the lugs upon said faces, and friction-disks held in the faces by the ribs and lugs.

6. The combination, with the shaft, the disk having a sleeve loose upon the shaft, the lift-sheave loose upon the sleeve and having a lug-hub, and the friction-brake ratchet-wheel loose upon the lug-hub, of the clutch-ring loosely secured on the said sleeve, the pronged clamp fixed to the shaft and engaging the ring to lock the latter and the sheave to the shaft, and the spring-controlled pawl operated by turning the sheave to have the pawl hold the friction-wheel while the shaft and its said locked parts are revolved.

7. The combination, with the shaft, the disk having a sleeve and a hub loose upon the shaft, the lift-sheave loose upon the sleeve and having a hub with inclined faces and a lug-hub, and the friction-brake ratchet-wheel loose upon the lug-hub, of the clutch-ring secured loose upon the sleeve against the cam-hub, the clamp fixed to the shaft and having prongs engaging the said ring to lock the latter and the sheave to the shaft, and a pawl controlled by a spring-operated roller, the latter being worked by turning the sheave with its hub in engagement therewith to have the pawl engage and disengage the ratchet-wheel.

8. In a hoist the combination, with the driving mechanism, of a clutch-ring loose upon said mechanism and having peripheral notches, a clamp on said mechanism having prongs to engage said notches, and shoulders on the inner side of the prongs to engage the outer face of the said ring.

658,991. SOAP CAKE AND HOLDER FOR SAME. CHARLES LANGGUTH, Chicago, Ill., assignor of one-half to Frederick Daenzer, same place. Filed May 23, 1899. Serial No. 717,894. (No model.)



Claim.—The combination of an oval or oblong cake of soap provided longitudinally with a bore or opening; a tube extending through said bore or opening and provided at one end with a head or enlargement, said tube being also provided at a point between its ends with a couple of lateral openings or notches; a device for retaining the soap upon the said tube consisting of a couple of spring-prongs having their outer ends united or joined to form a head and having their inner ends beveled and adapted to engage said openings in said tube, substantially as shown and described and for the purposes stated.

658,992. UTENSIL-HANDLE. FRANK A. MILLER, Washington, Pa. Filed Apr. 17, 1900. Serial No. 13,210. (No model.)

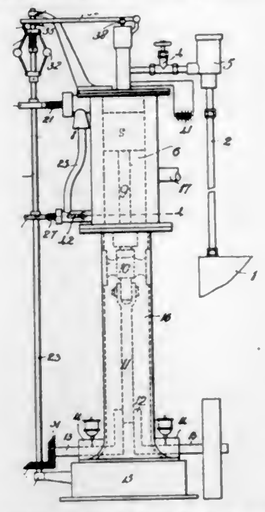


Claim.—1. In a device of the character described, the combination with a socket-piece adapted to be suitably secured to a utensil, of a combination handle and stove-lid lifter comprising in its construction a grip portion, a shank arranged at one end of the grip portion, a stove-lid lifter formed integral with said shank portion, a catch carried by said shank portion and adapted to engage said socket-piece for securing the handle and stove-lid lifter thereto, and means carried by said shank and engaging said catch for keeping the same in engagement with said socket-piece.

2. In a device of the character described, the combination with a socket-piece provided with flanged sides and a recess on its upper face and adapted to be suitably secured to a utensil, of a handle provided with a wire grip, a shank portion formed integral with said handle, a stove-lid lifter formed integral with said shank and adapted to be seated within said socket-piece, a catch carried by said shank and adapted to engage in said recess for securing the handle and stove-lid lifter to said socket-piece, and a spring carried by said shank and adapted to engage said catch for keeping the same in engagement in said recess.

658,993. INTERNAL-COMBUSTION ENGINE. EDWARD A. MITCHELL, London, England. Filed Mar. 3, 1899. Serial No. 706,209. (No model.)

Claim.—1. In a continuous-combustion gas-engine having an impulse every revolution, the combination of a generator for generating combustible gas under pressure, a valve for admitting air to the cylinder during the latter part of the outstroke and during the first portion of the return stroke, means for closing said valve during the latter part of the return stroke, a valve for admitting the gas under pressure direct from the generator to the cylinder during the first portion of the working stroke of the piston said valve being closed during the latter portion of the working stroke, and means for igniting the gas while the same is being admitted to the cylinder.

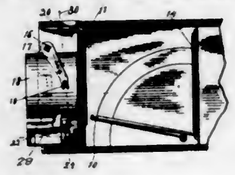


2. In an internal-combustion engine having an impulse every revolution, the combination of a generator for generating combustible gas under pressure, a cylinder closed at both ends, a piston movable in said cylinder, a valve for permitting the escape of air in front of the piston during the working stroke, a valve for admitting air to the cylinder during the first portion of the return stroke of the piston, means for closing said valve during the latter portion of said return stroke, a valve for admitting the motive fluid under pressure from the generator to the cylinder during the first part of the working stroke of the piston, said valve being closed during the latter part of the working stroke, and means for igniting the motive fluid while the same is being admitted to the cylinder, substantially as described

3. In an internal-combustion engine having an impulse every revolution, the combination of a cylinder closed at both ends, a piston movable in said cylinder, a chamber open to the air and connected through another opening to the rear end of the cylinder, a valve for closing said opening during the latter part of the return stroke, and the first part of the working stroke of said piston, a pipe connecting the space in front of the piston with the atmosphere, and projecting into the chamber, connected with the rear part of the cylinder, a valve in said pipe, and means for closing said valve for a short time before the piston reaches the end of its working stroke, substantially as described.

4. In an internal-combustion engine having an impulse every revolution, a cylinder, a piston, movable in said cylinder, an exhaust-port opening out of said cylinder, means for opening said port before the piston reaches the end of its working stroke, a chamber open to the air and connected through another opening to the rear end of the cylinder, a valve in said opening and means for opening said valve after the opening of the exhaust-port, and closing same before the closing of said port.

658,994. FOCUSING DEVICE FOR CAMERAS. JOHN A. MOSHER, Chicago, Ill., assignor to the Adams & Westlake Company, same place. Filed Aug. 31, 1899. Serial No. 729,044. (No model.)



Claim.—In a camera, in combination, a box 10, having a fixed front plate 28, and a fixed division-plate 11, back of such front plate, a telescopic lens-tube fixed to and setting through such partition and projecting through and movable in the aperture in the front plate; lens-tubes 26 and 27, adapted to reciprocate through apertures in said front plate; an arm 29, rigidly securing the lens-tubes 26 and 27, to the movable portion of the telescopic lens-tube; screens upon which the lenses of the tubes 26 and 27, are adapted to be focused; a rock-shaft 15, journaled in the side walls of the camera-box between its front plate and the partition 11; a pair of crank-arms fixed upon such shaft and pivotally connected with the movable portion of the telescopic tube; and a crank-arm 16, fixed upon the outer end of the rock-shaft whereby the said shaft may be manually oscillated; all substantially as described and for the purposes specified.

658,995. BICYCLE-BELL MECHANISM. PERRY A. MCCASKEY, Indianapolis, Ind., assignor to Henry T. Hearsey, same place. Filed Oct. 14, 1899. Serial No. 733,577. (No model.)



Claim.—1. A gong-hammer provided with a supporting-carrier adapted to maintain the hammer in variable operative positions relatively to the gong and to also carry the hammer-operating arm longitudinally to operative positions relatively to exterior prearranged hammer-tripping devices.

2. A gong-hammer provided with a supporting-carrier and a spring so mounted as to impart to the hammer a striking thrust and to sustain the rebound, and to also maintain the hammer and carrier in inoperative positions relatively to prearranged hammer-tripping devices.

3. A gong-frame having a gong rigidly attached thereto and provided with a lever pivoted at one end thereto and having an operating-arm at the opposite end thereof, a gong-hammer pivoted upon the lever substantially in alinement with the pivoted end and the arm thereof, and a spring for the lever and the hammer.

4. A gong mechanism including a frame, a gong, a gong-hammer having an operating-arm adapted to be engaged by an independently-mounted tripper and provided with a supporting-carrier pivoted to the frame and adapted to carry the operating-arm longitudinally, a spring mounted upon the frame and acting upon the hammer so as to simultaneously withdraw the operating-arm longitudinally from contact with a tripper and to impart a striking thrust to the hammer and to also prevent contact of the hammer with the gong after a rebound thereof, a tripper suitably mounted, and means whereby the carrier may be operated to transfer the hammer to be acted upon by the tripper.

5. A gong mechanism consisting of a rigidly-supported frame, a gong rigidly mounted upon the frame, a gong-hammer carrier and controller having a projecting operating-arm and pivoted to the frame, stops for the carrier and controller whereby the lateral movement thereof is gaged, a gong-hammer mounted upon the carrier and controller, a tripper adjacently mounted, and a spring so mounted and strained as to operate to withdraw the hammer from contact with the tripper and to also impart the thrust to the hammer and to also hold the rebound thereof.

6. A bicycle-bell mechanism comprising a rigidly-supported frame, a bell or gong rigidly attached to the frame, a lever pivoted to the frame, a gong-hammer pivoted to the lever, a spring for the lever and the gong-hammer, and means whereby the gong-hammer pivoted to the lever may be tripped when moved into contact therewith.

7. A bicycle-bell mechanism comprising a frame, a bell attached to the frame, a lever pivoted to the frame, a gong-hammer pivoted to the lever, and a spiral spring anchored at one end and at the opposite end engaging the gong-hammer under longitudinal tension so as to cause both a striking thrust of the hammer and a withdrawal of the hammer from contact with relatively-fixed adjacent tripping devices.

8. The combination with a bicycle crank-arm and a pedal, of a disk secured to the crank-arm and provided with radially-disposed apertures adapted to receive the end of an operating arm or lever of the gong-hammer, a gong-frame secured rigidly to the pedal, a gong rigidly secured to the gong-frame, a lever pivoted to the rigidly-secured gong-frame, a gong-hammer pivoted to such lever, and a spirally-coiled spring anchored at one end thereof and at the opposite end thereof engaging the pivoted gong-hammer.

9. The combination with the rigidly-secured frame and the gong rigidly attached thereto. of the combined hammer carrier and controller

pivoted to such frame, the gong-hammer pivoted to such combined carrier and controller and provided with the finger projecting oppositely from the operating-arm thereof, and a spring connecting the gong-hammer and engaging the finger, whereby both a tensile and a torsional elasticity of the spring imparts a simultaneous impetus to the gong-hammer.

10. In a gong mechanism, the combination with the crank-arm and the pedal, of the tripper, the frame rigidly secured to the pedal and having the gong-bracket rigidly attached thereto, the gong attached to such bracket, the combined hammer carrier and controller comprising an oblong rectangular lever pivoted at one end thereof to such frame and having an upwardly-extending arm, a pivot-pin attached to the body of such lever substantially in alinement with the pivoted end and the arm thereof, the gong-hammer pivoted to such pivot-pin, and the spring whereby the gong-hammer is withdrawn from contact with the tripper.

11. In a bicycle-gong mechanism, the combination with the crank-arm and pedal, of the frame secured to the pedal, the gong secured to the frame, the hammer carrier and controller, the hammer-spring, and the tripper secured to the crank-arm and having the radial arms provided with an annular ring attached to the outer ends of the radial arms, whereby a garment-guard is provided for the tripper.

12. In a bicycle-gong mechanism, the combination of the crank-arm, the pedal, the tripper, the frame, the gong attached to the frame, the gong-hammer carrier and controller, the gong-hammer arm mounted on the carrier and controller and so as to project such arm toward the tripper substantially parallel with the pedal-axle, and a spring attached to the frame and so strained as to normally maintain the gong-hammer arm in such parallel position except when disturbed by the tripper.

13. In a bicycle-gong mechanism, the combination with the crank and the pedal, of the tripper, the gong-frame, the gong, the combined hammer carrier and controller, the gong-hammer pivoted to the combined hammer carrier and controller and provided with a finger projecting oppositely from the tripper, and a spring anchored at one end and connected at the opposite end to the pivoted gong-hammer and strained in alinement with one side of the finger attached to the gong-hammer, whereby the gong-hammer is normally withheld from contact with the tripper and whereby also both the striking thrust and the rebound are imparted to the gong-hammer.

14. In a bicycle-gong mechanism, a disk having the central aperture and provided with the radiating apertures whereby contact-arms having an annular guard-ring at the extremities thereof are formed to prevent interference with garments.

15. In a bicycle-gong mechanism, the combination of the tripper, the gong-frame having the peripheral flange, the supporting guide-openings in said flange, the gong, the combined carrier and controller supported and stopped in one of said guide-openings, the gong-hammer mounted on said combined carrier and controller and having an arm working radially and adapted to be carried longitudinally by said combined carrier and controller and partially supported in the other of said guide-openings, and the spring adapted to normally maintain said gong-hammer arm substantially in alinement with its longitudinal travel, whereby both the hammer and its carrier are normally retained in inoperative positions except when controlled by human agency.

16. In a bicycle-gong mechanism, the combination with the pedal-axle and the pedal-frame, of a striker so secured as to rotate with the pedal-axle, a base-plate secured to the pedal-frame, a gong mounted on the base-plate, a lever pivoted to the base-plate and extending so as to be accessible by a rider's foot whereby it may be actuated, and a gong hammer or clapper pivoted on such lever whereby it may be moved into and out of engagement with the striker.

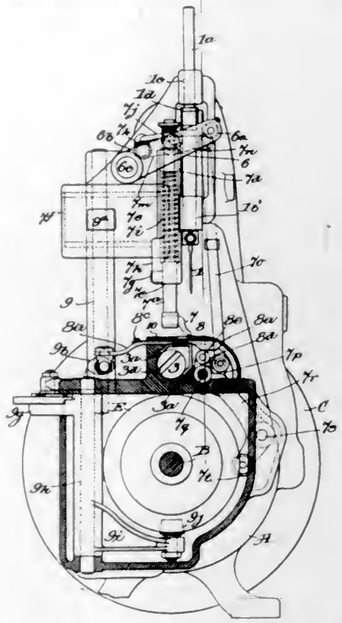
17. In a bicycle-gong mechanism, the combination with the pedal-axle and the pedal-frame, of a striker so secured as to rotate with the pedal-axle, a base-plate secured to the pedal-frame, a gong mounted on the base-plate, a lever pivoted to the base-plate and having its free end extending so as to be accessible by a rider's foot whereby it may be actuated, a gong hammer or clapper pivoted on such lever whereby it may be moved into and out of engagement with the striker, and a spring to hold said lever and said gong-hammer in their inoperative positions.

18. In a bicycle-gong mechanism, the combination with the pedal-axle and the pedal-frame, of a gong and operating apparatus therefor mounted on the pedal-frame, a tripper or striker comprising a series of arms whose outer ends are connected by a rim and so secured as to rotate with the pedal-axle, and means whereby the gong-operating apparatus may be brought into operative engagement with such tripper.

19. In a bicycle-gong mechanism, the combination with the crank-arm and the pedal and its axle, of a gong and an operating mechanism therefor including a gong-hammer having an arm extending toward the crank-arm and means whereby such arm is normally maintained in a line substantially parallel to the axis of the axle and mounted on the pedal, a tripper or striker comprising a disk having apertures therein and secured so as to be carried with the crank-arm, and means whereby said gong-hammer may be moved by a rider's foot bodily with its arm in such parallel line into and out of engagement in said apertures in said tripper.

20. In a bicycle-gong mechanism, the combination with the crank-arm and the pedal and its axle, of a tripper consisting of a disk having the central aperture whereby it is secured by the axle so as to move with the crank-arm and provided with radially-disposed apertures whereby contact-arms having an annular guard-ring at the extremities thereof are formed to prevent interference of the arms with garments, a frame mounted on the pedal, a gong and gong-operating mechanism therefor mounted on the frame and including a gong-hammer having an operating-arm normally situate at a substantially right angle to the face of such disk-tripper and adapted to enter the radially-disposed apertures thereof, a lever pivoted to the frame and extending so as to be engaged by the foot of a rider and supporting the gong-hammer whereby such hammer may be moved into an operative contact with such tripper by the rider's foot, and a spring whereby such hammer may be withdrawn from such contact with such tripper.

658,996. STITCH-SEPARATING MECHANISM FOR SEWING-MACHINES. MARSHALL H. PEARSON, Leicester, England, assignor to the United Shoe Machinery Company, Paterson, N. J. Filed May 3, 1900. Serial No. 15,374. (No model.)



Claim.—1. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tool, and means for actuating the parts, substantially as described.

2. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool acting to feed the work, and means for actuating the parts, substantially as described.

3. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool acting to set or prick up a stitch and thereafter to feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after being set or pricked up by the stitch setting or picking-up tool, and means for actuating the parts, substantially as described.

4. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool, acting to set or prick up a stitch and to withdraw therefrom, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the withdrawal of the stitch setting or pricking-up tool, and means for actuating the parts, substantially as described.

5. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool acting to set or

prick up a stitch, to withdraw therefrom, and again to engage the stitch and feed the work, and means for actuating the parts, substantially as described.

6. A sewing and pricking-up machine, having, in combination, a stitch setting or pricking-up tool acting to set or prick up a stitch to withdraw therefrom and again to engage the stitch and feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch while the stitch setting or pricking-up tool is withdrawn from the work, and means for actuating the parts, substantially as described.

7. A sewing and pricking-up machine having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating upon opposite sides of a stitch, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tools, and means for actuating the parts, substantially as described.

8. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of a stitch and acting to feed the work, and means for actuating the parts, substantially as described.

9. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of a stitch to set or prick it up and thereafter to feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after being set or pricked up by the stitch setting or pricking-up tools, and means for actuating the parts, substantially as described.

10. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of a stitch, acting to set or prick up a stitch and to withdraw therefrom, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the withdrawal of the stitch setting or pricking-up tools, and means for actuating the parts, substantially as described.

11. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools acting to set or prick up the opposite sides of a stitch to withdraw therefrom and again to engage the stitch and feed the work, and means for actuating the parts, substantially as described.

12. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of a stitch to set or prick up the stitch, to withdraw therefrom and again to engage the stitch and feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread of the just-formed stitch while the stitch setting or pricking-up tools are withdrawn from the stitch, and means for actuating the parts, substantially as described.

13. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism comprising a take-up, a stitch setting or pricking-up tool, the stitch-forming mechanism acting to form a stitch and the take-up acting to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tool, and means for actuating the parts, substantially as described.

14. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, comprising a take-up, two stitch setting or pricking-up tools operating on opposite sides of a stitch, the stitch-forming mechanism acting to form a stitch and the take-up acting to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tools, and means for actuating the parts, substantially as described.

15. A lock-stitch-sewing and pricking-up machine, having, in combination, a needle, a shuttle, a take-up, a stitch setting or pricking-up tool, the needle, shuttle and take-up acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tool, and means for actuating the parts, substantially as described.

16. A lock-stitch-sewing and pricking-up machine, having, in combination, a needle, a shuttle, a take-up, two stitch setting or pricking-up tools operating on opposite sides of a stitch, the needle, shuttle and take-up acting to form a stitch and to exert a further pull on the thread of the just-formed stitch after the operation thereon of the stitch setting or pricking-up tools, and means for actuating the parts, substantially as described.

17. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools for setting or pricking up the opposite sides of a stitch, and mechanism for simultaneously moving the tools to feed the work, substantially as described.

18. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools for setting or pricking up the opposite sides of a stitch, mechanism for simultaneously advancing the tools to set or prick up a stitch and mechanism for simultaneously moving the tools laterally to feed the work, substantially as described.

19. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools for setting or pricking up the opposite sides of a stitch, two slides upon which such tools are mounted, the mechanism for moving the slides simultaneously to feed the work, substantially as described.

20. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool acting to feed the work, a feed-adjuster, and means for actuating the parts, substantially as described.

21. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools for setting or pricking up the opposite sides of a stitch, two slides upon which such tools are mounted, a slide-actuating device having an arm, a rock-shaft having an arm provided with an adjustable slot adapted to engage the arm on the slide-actuating device, and means for oscillating the rock-shaft, substantially as described.

22. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool acting to feed the work, a slide upon which the stitch setting or pricking-up tool is mounted, a slide-actuating device having an arm, a rock-shaft having an arm provided with an adjustable slot adapted to engage the arm on the slide-actuating device, and means for oscillating the rock-shaft, substantially as described.

23. The combination with a stitch setting or pricking-up tool acting to set or prick up the stitches of a seam and to feed the work, of a presser acting to release the work during the feed, and means for actuating the parts, substantially as described.

24. The combination with two stitch setting or pricking-up tools operating on opposite sides of a stitch, of means for actuating the tools to set or prick up a stitch, and to feed the work, substantially as described.

25. The combination with two stitch setting or pricking-up tools operating on opposite sides of a stitch, of means for actuating the tools to set or prick up a stitch and to feed the work, and a presser to hold the work, substantially as described.

26. The combination with two stitch setting or pricking-up tools operating on opposite sides of a stitch, of means for actuating the tools to set or prick up a stitch and to feed the work, a presser to hold the work at all times except during the feed, and means for actuating the presser, substantially as described.

27. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the setting or pricking up of the stitch, and the stitch setting or pricking-up tool acting to hold the tightened stitch until after the next stitch is formed, and means for actuating the parts, substantially as described.

28. A sewing and pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of a stitch, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the setting or pricking up of the stitch, and the stitch setting or pricking-up tools acting to hold the tightened stitch until after the next stitch is formed, and means for actuating the parts, substantially as described.

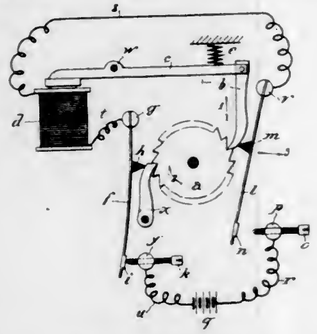
29. A sewing or pricking-up machine, having, in combination, stitch-forming mechanism, a stitch setting or pricking-up tool, acting to set or prick up a stitch and to feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the pricking-up operation and before the feed, the stitch setting or pricking-up tool acting to hold the tightened stitch after the feed until the next stitch is formed, substantially as described.

30. A sewing or pricking-up machine, having, in combination, stitch-forming mechanism, two stitch setting or pricking-up tools operating on opposite sides of the work, acting to set or prick up a stitch and to feed the work, the stitch-forming mechanism acting to form a stitch and to exert a further pull on the thread after the pricking-up operation and before the feed, the stitch setting or pricking-up tools acting to hold the tightened stitch after the feed until the next stitch is formed, substantially as described.

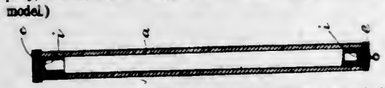
658,997. ELECTRICAL PROPELLING APPARATUS. DAVID PERRET, Neufchâtel, Switzerland. Filed June 20, 1900. Serial No. 20,942. (No model.)

Claim.—In electrical propelling apparatus the combination of a ratchet-wheel and of a click pivoted to the armature of an electromagnet, the said armature being acted upon by an accumulator intended to collect the power obtained from the attraction of the said armature by the electromagnet, with two independent contact devices placed in one and the same circuit, the one of which being intended to cause the inducting of the electromagnet and consisting of two fixed insulated terminals to one of

which is fixed a spring *f* bearing an insulated tooth *h* operating a click *x* gearing into the said ratchet-wheel, and bearing against a fixed contact-piece *y* the flexion of the spring alone causing a slight gliding at this contact, and the other contact device intended to stop the electromagnet, consisting also in two fixed and insulated terminals to one of which is attached a spring *l* pressing by means of an insulated tooth *m* the said click into gear with the said ratchet-wheel, while the other terminal forms the fixed contact-piece, against which the flexion of the spring *l* alone causes the slight gliding at the contact-point, substantially as and for the purpose specified.



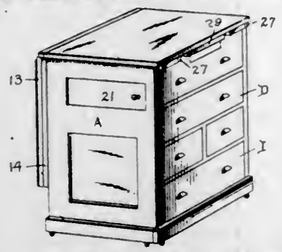
658,998. POCKET-CASE FOR THERMOMETERS. WILLIAM A. RANDALL, Swampscott, Mass., assignor to the Randall-Faichney Company, Boston, Mass. Filed Jan. 11, 1900. Serial No. 1,095. (No model.)



Claim.—1. A pocket thermometer-case comprising a tubular body open at both ends, and end caps or heads adapted for detachable connection with the body, one of said end caps being formed to engage and hold a thermometer upright when separated from the tubular body.

2. A pocket thermometer-case comprising a tubular body screw-threaded at its ends, a head *c* screw-threaded to engage one end of the body and formed to hold a thermometer upright when separated from the tubular body, and a head *e* screw-threaded to engage the other end of the body, one of said heads having means for attachment to a securing device.

658,999. OPERATING-TABLE. MICHAEL E. SCANNELL, Worcester, Mass. Filed May 7, 1900. Serial No. 15,684. (No model.)



Claim.—1. In a surgical operating-table, the combination of the body portion or drawer-casing, a support or gate hinged to fold back against the body portion, a back-rest or extension-leaf hinged to the body portion, and a second extension-leaf hinged to the back-rest to form a prop for engaging the folding gate to support the back-rest at different desired inclinations, substantially as described.

2. In a surgical operating-table, the combination of a body portion A forming a casing for drawers and having a recess at the rear thereof, two folding gates, each comprising pivotally-connecting frames 10 and 11 hinged to the body portion so as to fold back into said pocket or recess when not in use, cross-pieces for connecting said gates or supports to hold them in their folded-out or extended position, a back-rest or extension-leaf hinged to the body portion, and a second extension-leaf hinged to the back-rest to form a prop for supporting the same at different inclinations as desired, substantially as described.

3. In a surgical operating-table, the combination of the body portion, an extension-leaf or back-rest hinged thereto, a second extension-leaf hinged to the back-rest and forming a prop for supporting the same at different inclinations, a head-rest, and means for securing the head-rest rigidly to the back-rest or second extension-leaf as desired, substantially as described.

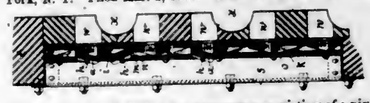
4. In a surgical operating-table, the combination of the extension-leaf or back-rest 13, a second extension-leaf 14 hinged thereto so as to form a prop therefor, a head-rest 17 hinged to the back-rest 13, and means for connecting the head-rest either to the part 13 or prop 14 as desired, comprising pins 20, carried by a cross-piece 19 and mounted so as to be longitudinally movable to engage recesses in the back-rest 13 or leaf 14 as desired, substantially as described.

5. In a surgical operating-table, the combination of a body portion or main casing, and a stirrup arranged to be pushed back therein comprising a board or slide 26, a stirrup-piece or yoke 27 hinged thereto, said parts being rabbeted so that when the yoke-piece 27 is folded down it will be supported in line with the slide 26, and a prop 28 hinged to the yoke-piece 27 so as to form a center part therefor, substantially as described.

6. In a surgical operating-table, the combination of a body portion or casing for drawers having a space above the drawers, and a side bracket arranged to fold back into said space, and comprising a hinged cover or door 21, a piece 22 hinged to the free end of the door, a bracket 23 detachably supporting a receptacle 25, and a glass plate arranged above said receptacle, substantially as described.

7. In a surgical operating-table, the combination of a body portion or casing for drawers having a space above its top drawer, extension-leaves and supports arranged to open out the operating-table as desired, and a swinging bracket arranged to fold into the space above the top drawer and which can be swung back alongside the table into the vicinity of the head-rest thereof, or which can be swung around to the front of said table, said swinging bracket comprising a door 21, a piece 22 hinged to the free end of the door, and a bracket 23 for supporting a receptacle 25 and glass plate 24, substantially as described.

659,000. SELF-CLOSING APERTURE-COVER. MINOTT W. SEWALL, Roselle, N. J., assignor to The Babcock & Wilcox Company, New York, N. Y. Filed Mar. 2, 1900. Serial No. 7,070. (No model.)

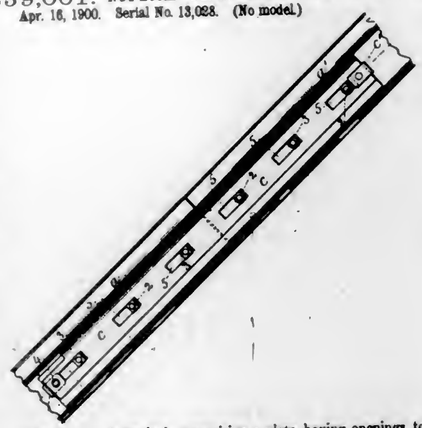


Claim.—1. A self-closing aperture-cover consisting of a pivotal plate or disk, engaging with suitable fixtures to guide and retain it, and movable in a vertical or inclined direction, substantially as set forth.

2. A self-closing aperture-cover consisting of a pivotal plate or disk engaging with suitable fixtures to guide and retain it, movable in a vertical or inclined direction, and seated upon an aperture-face at an angle to its direction of movement, substantially as described.

3. A cleaning-aperture for steam-generators located in its inclosing walls, constructed with flaring sides, as shown, and fitted with one or more pivotal self-closing doors, movable in a vertical or inclined direction and engaging with suitable fixtures to guide and retain the same, substantially as described.

659,001. NUT-LOCK. NELSON STAFFORD, New York, N.Y. Filed Apr. 16, 1900. Serial No. 13,028. (No model.)



Claim.—1. A nut-lock comprising a plate having openings to receive the nuts and a curved upper edge, a tang at one end bent to engage

one end of the fish-plate and the other end of said plate provided with a perforation and a yoke-plate adapted to engage the opposite end of the fish-plate and having a projecting pin to pass into the perforation in the end of the lock-plate and engage the same, substantially as set forth.

2. A nut-lock comprising a plate of approximately the length of the fish-plate connection having spaced-apart holes or mortises to receive the nuts, a curved upper edge conforming to the fish-plate and coming beneath the tread of the rail, a tang at one end bent to pass around the end of the fish-plate and the opposite end provided with a perforation, a yoke-plate adapted to pass over or straddle the opposite end of the fish-plate and having a projecting pin to pass through the perforation in the end of the plate and to be riveted or otherwise connected thereto in securing the parts, substantially as set forth.

3. A nut-lock comprising a plate having openings to receive the nuts, a tang at one end bent to engage one end of the fish-plate and the other end of said plate provided with a perforation, a yoke-plate adapted to straddle and engage the opposite end of the fish-plate, and a pin for connecting the yoke-plate and the plate with openings at its end perforation, substantially as set forth.

4. A nut-lock comprising a plate of approximately the length of the fish-plate connection having spaced-apart holes or mortises to receive the nuts, and a perforation in one end, a tang at the other end bent to pass around one end of the fish-plate, a yoke-plate adapted to pass over or straddle the opposite end of the fish-plate and having a projecting pin to pass through the perforation in the end of the lock-plate and to be riveted or otherwise connected thereto in securing the parts, substantially as set forth.

659,002. THERMO-ANNUNCIATOR. JOHN C. J. STEPHAN, New York, N. Y. Filed Apr. 7, 1900. Serial No. 11,940. (No model.)



Claim.—1. In a thermo-annunciator, the combination with an annunciator or sounder adapted to be set off by the movement of a detent, and the said detent, of a thermostatic device comprising a rack connected with and adapted when freed to operate said detent, a pawl to engage and hold said rack, and a thermostat adapted to actuate said pawl and free the rack when the temperature at the thermostat reaches a predetermined point.

2. In a thermo-annunciator, the combination with an annunciator or sounder adapted to be set off by the movement of a detent, the said detent, and a thermostatic device comprising a rack connected with and adapted, when freed, to operate said detent, a pawl to engage and hold said rack, and a thermostat adapted to actuate said pawl and free the rack when the temperature at the thermostat reaches a predetermined point, and means for setting and holding said pawl at a predetermined distance from the thermostat, normally, substantially as and for the purposes set forth.

3. In a thermo-annunciator, the combination with the sounder, the detent for setting the sounder in operation, the connector, and a regulator for varying the length of the connector, of a thermostatic apparatus comprising the slidable, tapered or inclined rack 3, its retracting-spring, a spring-pawl 6, to engage said rack, and a thermostat adapted to disengage said pawl from the rack, substantially as set forth.

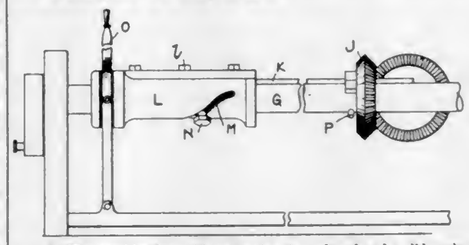
4. The combination of the guide 2, the inclined rack 3, mounted slidably in said guide, the spring 4, for retracting the rack, the spring-pawl 6, engaging the teeth of the rack, and the thermostat 7, at the side of the rack and taking under said pawl, whereby expansion of said thermostat lifts said pawl from engagement with the rack-teeth, substantially as set forth.

5. The combination with the sounder, having an operating-spring and escapement device, a rocker-arm 21, means between said arm and the escapement device for locking the latter through said arm, and a detent 23 for holding said arm, of means for setting the arm 21 in winding, comprising the stud 24, and the rocker 27 which acts on the arm 21, said rocker having a spring-arm 26, substantially as set forth.

6. In a thermo-annunciator, the combination with an annunciator, of a thermostatic device for setting the latter, said device comprising a movable rack, a pawl to hold said rack against movement, and a thermostat adapted to actuate said pawl to free the rack when the temperature at the thermostat reaches a predetermined point, and operative means between said rack and annunciator whereby the latter is set in operation.

659,003. VALVE OPERATING MECHANISM. CHARLES W. A. TAYLOR, Alloa, and DAVID SMAIL, Glasgow, Scotland, assignors of one-third to John Storey, Liverpool, England. Filed June 7, 1900. Serial No. 19,412. (No model.)

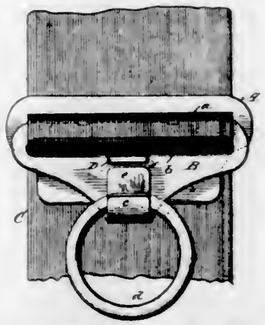
Claim.—1. The combination with an engine, its valve-chest, a slide-valve therein, a rotating, valve-operating shaft, and an eccentric thereon and engaging said valve, of a crank-shaft, a driving toothed wheel J, mounted loosely on said crank-shaft, a limiting device to limit the extent of rotation of said wheel about the shaft, a slotted sleeve L, mounted loosely on the crank-shaft, a key K, fixed to said sleeve and slidable through the wheel J, a stud N, in the crank-shaft and engaging the slot in said sleeve, means for rotating said sleeve, and gearing between the wheel J and the valve-operating shaft for driving the latter.



2. The combination with an engine, its valve-chest, a slide-valve within said chest, a valve-operating shaft A, entering said chest, and an eccentric E, on said shaft and engaging said valve for operating the latter, of a crank-shaft G, a cross-shaft H between the shafts A and G, gearing connecting the shafts A and H, intergearing toothed wheels on the respective shafts G and H, the wheel J on the shaft G being loose on the shaft, means for limiting the extent of rotation of the wheel J, and means for rotating said wheel J on said shaft.

3. In mechanism for the purpose described, the combination with the crank-shaft G, provided with the studs N and P, the sleeve L, loose on the shaft G and provided with a spiral slot M, engaged by the stud N, the gear-wheel J, loose on the shaft G and provided with shoulders Q R to engage the stud P, and the key K, fixed to the sleeve L and playing through the wheel J, substantially as and for the purpose set forth.

659,004. BACK-BAND BUCKLE AND TRACE-CARRIER. MARION TAYLOR, Soudan, Va. Filed July 7, 1900. Serial No. 22,788. (No model.)



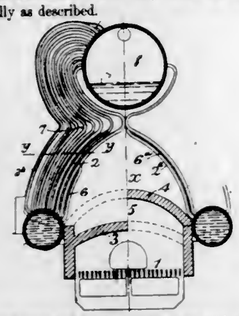
Claim.—1. A back-band buckle and trace-carrier, consisting of two slotted plates each having a trace-hook, the front plate having a groove at the lower edge of its slot and the back plate having a tongue at a right angle to the plane thereof, said tongue extending through the slot of said front plate and engaging the groove, substantially as and for the purpose specified.

2. A back-band buckle and trace-carrier, consisting of a slotted front plate having a trace-hook, a groove at the lower edge of the slot and a notched upper edge, and a slotted back-plate having a tongue extending at a right angle to the plane thereof and passing through the slot of said front plate and engaging the groove, substantially as and for the purpose set forth.

659,005. WATER-TUBE BOILER. JOHN I. THORNYCROFT, London, England. Filed Nov. 24, 1897. Serial No. 659,710. (No model.)

Claim.—1. In a water-tube boiler the combination with a primary combustion-chamber, of a secondary combustion and mixing chamber having rows of tubes around it, and means for collecting the gases from all parts of the fire in the primary combustion-chamber and delivering them to the secondary combustion-chamber whereby the gases are mixed and averaged in combustible quality before passing to the spaces among the tubes, substantially as described.

2. In a water-tube boiler, the combination with a primary combustion-chamber, of a secondary mixing and combustion chamber communicating with the primary combustion-chamber by a comparatively-small opening and having its walls composed of tubes, and means for collecting the gases from all parts of the fire in the primary combustion-chamber and delivering them through the small opening into the mixing-chamber whereby the gases are mixed before they reach the spaces among the tubes, substantially as described.



3. In a water-tube boiler, the combination with a primary combustion-chamber, of a roof located thereover whereby the gases from the different parts of the fire are collected, a secondary mixing and combustion chamber located above the roof and communicating with the first combustion-chamber by a narrow opening, a wall of tubes inclosing the secondary mixing and combustion chamber whereby the gases are mixed and averaged in combustible quality and combustion facilitated before the gases reach the spaces among the tubes, substantially as described.

4. In a water-tube boiler, the combination with a combustion-chamber, of a roof located thereover and having its parts on different levels whereby a narrow opening is formed between the different parts of the roof, a secondary mixing and combustion chamber located above the roof, and rows of tubes surrounding said chambers whereby the gases are collected from all parts of the fire and averaged in combustible quality and combustion facilitated before the gases reach the spaces among the tubes, substantially as described.

5. In a water-tube boiler, the combination with a combustion-chamber, of a secondary mixing and combustion chamber the bottom and walls of which are composed of tubes and which communicates with the first combustion-chamber by a narrow opening whereby gases are collected from all parts of the fire and mixed and averaged in combustible quality and combustion is facilitated before the gases reach the spaces between the tubes which form the walls of the chamber, substantially as described.

6. In a water-tube boiler, the combination with a combustion-chamber, of a roof for said chamber formed by partitions of tubes which are arranged at different levels, the partitions being arranged to form a narrow opening between them, a secondary combustion-chamber located above the roof and inclosed by walls of tubes whereby gases are collected from all parts of the fire and mixed and averaged in combustible quality and combustion is facilitated before the gases reach the spaces between the tubes which form the walls of the chamber, substantially as described.

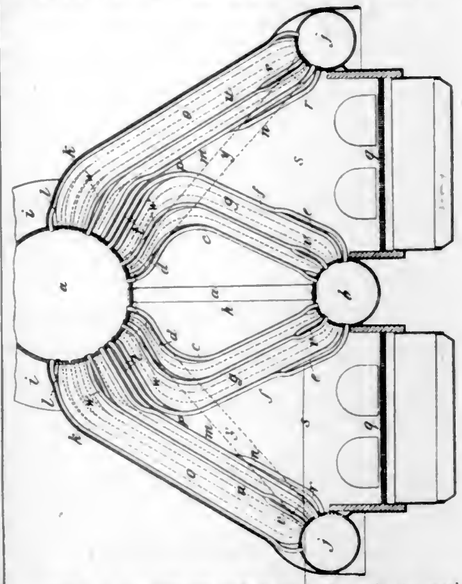
7. In a water-tube boiler, the combination with a primary combustion-chamber, of a secondary mixing and combustion chamber located above the primary combustion-chamber and communicating therewith by a narrow opening, a wall of tubes surrounding the secondary chamber these tubes being spaced apart at one end to allow the passage of the mixed gases therethrough and a second wall of tubes outside the first wall and forming a smoke-flue, substantially as described.

8. In a water-tube boiler, the combination with a primary combustion-chamber, of a secondary mixing and combustion chamber communicating with the primary combustion-chamber by a narrow opening, a wall of tubes surrounding the secondary chamber, these tubes being spaced apart at one end to allow the passage of the mixed gases therethrough and a second wall of tubes outside the first wall and forming a smoke-flue, and additional tubes located in the flue, substantially as described.

9. In a water-tube boiler, the combination with a combustion-chamber, of a row of tubes forming the walls thereof, the said tubes being bent at their ends to provide spaces of varying size, the spaces through which the gases in the chamber have the greatest tendency to move being smaller than the other spaces, substantially as described.

10. In a water-tube boiler, the combination with a primary combustion-chamber, of a secondary chamber located above the primary chamber and communicating therewith by a narrow opening, a row of tubes forming the walls of the secondary chamber, the said tubes being bent at one of their ends to provide spaces of varying size, the spaces through which the gases have the greatest tendency to move being smaller than the other spaces, substantially as described.

659,006. WATER-TUBE BOILER. JOHN I. THORNYCROFT, London, England. Filed July 6, 1899. Serial No. 722,923. (No model.)



Claim.—1. In a water-tube boiler, an upper steam and water vessel, a lower water vessel, water-tubes connecting the two vessels and arranged to form a flue with openings for inlet and outlet of hot gases, and other water-tubes connecting said vessels and arranged within said flue so as to form, except at their ends, one or more close walls that divide said flue longitudinally into two or more compartments that communicate with each other at top and bottom, substantially as described for the purpose specified.

2. In a water-tube boiler, the combination of an upper steam and water vessel, a lower water vessel, and water-tubes so disposed that some of them form a flue in which other tubes are located, some of these latter tubes being arranged to form, except at their ends, one or more intermediate close walls that divide the flue lengthwise into two or more compartments that communicate with each other at their upper and lower ends through passages formed by and between the upper and lower end portions of the tubes forming said intermediate wall or walls, substantially as described for the purpose specified.

3. In a water-tube boiler, an upper steam and water vessel, a lower water vessel, two fire-boxes, two groups of water-tubes connecting said vessels and located between said fire-boxes and arranged to form a central exit-flue between them, the tubes in each group being arranged to form two or more adjacent flues or flue-compartments that are each in communication at one end with the adjacent fire-box and at the other end with the central flue, substantially as described.

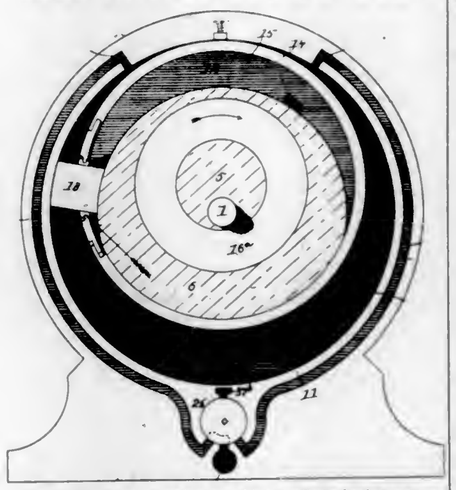
4. In a water-tube boiler, an upper steam and water vessel, three lower water vessels, an uptake, water-tubes connecting said upper vessel to each of said lower vessels and arranged in four groups so as to form the sides of two fire-boxes, the tubes composing each inner group being arranged to form a flue having inlets and outlets for hot gases and in which other tubes of the group are located, some of these latter tubes being arranged to form, except at their ends, one or more intermediate close walls which divide the flue lengthwise into two or more compartments that communicate with each other at their upper and lower ends and also with the adjacent fire-box, and with said uptake, substantially as described.

5. In a water-tube boiler, an upper steam and water vessel, three lower water vessels, an uptake, water-tubes connecting said upper vessel to each of said lower vessels and arranged in four groups so as to form the sides of two fire-boxes, the tubes of each group being arranged to form two or more adjacent flues or flue-compartments that are each in communication at one end with the adjacent fire-box and at the other end with the uptake, substantially as described.

6. In a water-tube boiler, the combination of an upper steam and water vessel, three lower water vessels, two inner and two outer groups of water-tubes connecting the upper vessel to the lower vessels and arranged to form a central exit-flue two fire-boxes and two inner and two outer flues, the inner and outer flues at the inner and outer sides of each fire-box being in communication with the fire-box at their lower ends and in communication with each other and with the central flue at their upper ends, and an intermediate close wall of tubes arranged within each inner flue so as to divide the same into two adjacent compartments that are in communication with each other at their upper and lower ends by passages formed by and between the tube ends, substantially as described.

7. In a water-tube boiler, the combination of an upper steam and water vessel, three lower water vessels, two inner and outer groups of water-tubes connecting the upper vessel to the lower vessels and arranged to form a central exit-flue two fire-boxes and two inner and outer flues, the inner and outer flues at the inner and outer sides of each fire-box being in communication with the fire-box at their lower ends and in communication with each other and with the central flue at their upper ends, and an intermediate close wall of tubes arranged within each inner and outer flue so as to divide each of such flues into two adjacent compartments that are in communication with each other at their upper and lower ends by passages formed by and between the tube ends, substantially as described.

659,007. ROTARY ENGINE. OLIVER F. TINKHAM, Havana, Ill., assignor of one-half to Lawford G. Pullen and Fredrick W. Holzgrafe, same place. Filed Dec. 9, 1899. Serial No. 739,770. (No model.)



Claim.—1. A rotary engine comprising a cylinder having a steam-space divided into two crescent-formed compartments one of which overlaps the other, an inlet communicating with the overlapped compartment, an outlet communicating with the overlapping compartment, a passage-way between the compartments and a piston operating in both compartments; the inlet, outlet and intercommunicating passage being so located that steam travels in the overlapped compartment past the outlet, is then transferred to the overlapping compartment, and travels in the overlapping compartment beyond the inlet, substantially as described.

2. In a rotary engine, the combination of a cylinder having an annular steam-space, a ring journaled in the cylinder eccentric thereof, and dividing the annular space into two opposite crescent-shaped compartments, a piston journaled concentric with the cylinder and extended through the ring and to the outer wall of the annular space, a web for the ring having a passage-way between the two compartments opening into the compartment inside the ring at a point that moves alternately into and out of the annular space as the ring revolves, substantially as described.

3. In a rotary engine, the combination of a cylinder having an annular steam-space, a ring journaled in the cylinder eccentric thereof and having passage-ways through which the compartment of the annular space inside the ring communicates with the space outside the ring, a piston journaled concentric with the cylinder and extended loosely through the ring to the outer wall of the annular space, and valves for the passage-ways attached to the piston and shiftable thereby, such valves forming continuations of the ring, substantially as described.

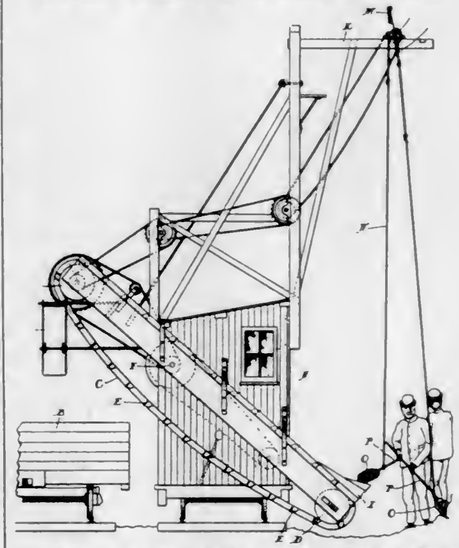
4. In a rotary engine, the combination of a cylinder having an annular space the internal wall of which is formed by bosses extending inward from the faces of the engine, an eccentric ring dividing the annular space into two compartments, a web for the ring fitted between the bosses, a piston journaled concentric with the cylinder and extended through the ring, and a passage-way having an opening in the web of the ring which is alternately covered and uncovered by passing between and then clear of the bosses, substantially as described.

5. In a rotary engine, the combination of a cylinder having a steam-space divided into two compartments in which the steam is used successively, a piston on which the steam acts, a steam-passage communicating with the primary steam-compartment of the cylinder, and a supplemental steam-passage communicating with the secondary steam-compartment, whereby the piston may be started in the secondary compartment by live steam supplied thereto, substantially as described.

6. In a rotary engine, the combination of a cylinder having a steam-space divided into two compartments in which the steam is used successively, a piston on which the steam acts, a steam-passage communicating with the primary steam-compartment, an exhaust-passage for the secondary steam-compartment and a supplemental steam-passage communicating with the exhaust-passage of the secondary steam-compartment through a valve, whereby steam may be temporarily admitted to the secondary compartment through the exhaust thereof to start the piston in such secondary compartment.

7. The combination in a rotary engine of a cylinder, a space-dividing eccentric ring, such ring having an internal web, a piston journaled concentric with the cylinder and extended through the ring and the web thereof, and wings hinged to the piston and extended into grooves in the web to form a steam-excluding wall, substantially as described.

659,008. MACHINE FOR EXCAVATING, CONVEYING, AND LOADING BALLAST UPON RAILWAY-CARS. AUGUSTUS TORREY, Detroit, Mich. Filed July 16, 1900. Serial No. 23,721. (No model.)



Claim.—1. In a machine for the purpose described, a loading-car upon a track alongside of the bank and provided with inclined conveyers mounted on the car transversely of the track, and projecting with their ends beyond the sides of the car, the lower ends extending down to near the ground at the foot of the bank and provided with hoppers adapted to receive the material for supplying the conveyers by means of shovels and the upper ends extending to a suitable height and distance beyond the opposite side of the car for directly discharging the material from the conveyers upon a ballast-car standing alongside the loading-car on a separate track.

2. In a machine for the purpose described, a loading-car upon a track alongside of the bank and provided with two inclined conveyers mounted transversely of the track at the opposite ends of said car respectively, and projecting with their ends beyond the sides of the car, the lower ends of said conveyers extending from the car toward the foot of the bank, and provided with hoppers adapted to supply the material to the conveyers and to receive it by means of manually-operated shovels from the bank and the upper ends of said conveyers extending on the opposite sides to a distance and height for directly discharging the material from both conveyers into the opposite ends respectively, of a ballast-car upon a separate track alongside of the loading-car.

3. In a machine for the purpose described, a loading-car upon a track alongside of the bank and provided with two inclined conveyers transversely supported at the opposite ends on the car respectively, each conveyer projecting with its lower end beyond the side of the car toward the foot of

the bank and with its upper end beyond the opposite side of the car, said conveyers provided at their lower ends with hoppers and at their upper ends provided with lateral discharge-chutes adapted to be thrown into and out of operation, all so arranged that a ballast-car standing on a separate track beside the loading-car may be filled by first conveying the material directly from the hoppers and then completing the load by directing the material from both conveyers toward the intervening spaces by means of the chutes.

4. In a machine for the purpose described, a loading-car upon a track alongside of the bank and having its platform inclosed with a housing, two inclined conveyers transversely supported on the outside of the housing at the opposite ends thereof respectively, a source of power inclosed within said housing and suitable transmitting-gear for imparting a continuous motion to both of said conveyers under control of a suitable clutch for throwing them in and out of operation, said conveyers extending with their lower ends beyond the side of the car, toward the foot of the bank and provided with hoppers adapted to receive the material from the bank by means of shovels and to supply the same to the conveyers, and the upper ends extending beyond the opposite side of the car and adapted to directly discharge the material into a ballast-car standing on a separate track on the side of the loading-car.

5. In a machine for the purpose described, the combination of a loading-car upon a track alongside of the bank and provided with two inclined conveyers mounted thereon transversely to the track and adapted to receive the material from hoppers at the foot of the conveyers on the side of the loading-car adjacent to the bank and discharge it on the opposite side into a ballast-car standing alongside of it on a separate track, shovels suspended from the loading-car free to swing between the hoppers and the bank and means for imparting a continuous rising-and-falling motion to the shovels as a mechanical aid to the manual operation of the same.

6. In a machine for the purpose described, the combination with a loading-car upon a track alongside of the bank, and provided with inclined conveyers mounted on said car transversely of the track and adapted to receive the material from hoppers at the foot of the conveyers on one side of the car and convey it into a ballast-car upon the opposite side of said loading-car, of track-shovels pendulously suspended from the loading-car in front of the hoppers and mechanically-operating devices on said car from which said shovels are suspended and adapted to impart to said shovels a concerted up-and-down motion as a mechanical aid to the manual operation of said shovels.

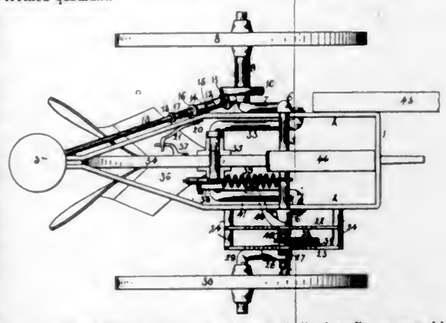
7. In a machine for the purpose described, the combination of a loading-car upon a track alongside of the bank and provided with two inclined conveyers mounted thereon transversely to the track and adapted to receive the material from hoppers at the foot of the conveyers on the side of the loading-car adjacent to the bank and discharge it on the opposite side into a ballast-car standing alongside of it on a separate track, a revolving crank-shaft mounted on an overhanging frame above the hoppers and shovels, two for each hopper freely suspended from oppositely-extending cranks on said shaft and adapted to swing freely between the hoppers and the bank.

8. In a machine for the purpose described, the combination of a loading-car upon a track alongside of the bank and provided with two inclined conveyers mounted thereon transversely to the track and adapted to receive the material from hoppers at the foot of the conveyers on the side of the loading-car adjacent to the bank and discharge it on the opposite side into a ballast-car standing alongside of it on a separate track, a revolving crank-shaft mounted on an overhanging frame above the hoppers, and shovels, two for each hopper freely suspended in front of the hoppers by ropes from oppositely-extending cranks on said crank-shaft, the cranks supporting the shovels for one hopper being at right angles to the cranks supporting the shovels for the other hopper.

9. In a machine for the purpose described, the combination with a loading-car upon a track alongside of the bank and provided with two inclined conveyers operated from a source of power on the car and adapted to receive the material from the hoppers on the side of the car adjacent to the bank near the ground and to convey it directly into a ballast-car standing on the other side of the loading-car, of the crank-shaft having oppositely-extending cranks at each end, with the cranks at one end placed at right angles to the cranks at the other end the overhead frame supporting said shaft on the loading-car at a distance above the hoppers and overhanging the same, the length of the cranks, the actuating connection with the source of power for imparting continuous rotary motion to the crank-shaft, the suspension devices from said crank-shaft and the track-shovels, connected at their handles to the suspension devices and adapted to be manually operated with the mechanical assistance of the power derived from the motion of the crank-shaft.

659,009. WHEELED PLOW. LEWIS E. WATERMAN, Moline, Ill., assignor to the Emerson Manufacturing Company, Rockford, Ill. Filed Jan. 16, 1900. Serial No. 1,702. (No model.)

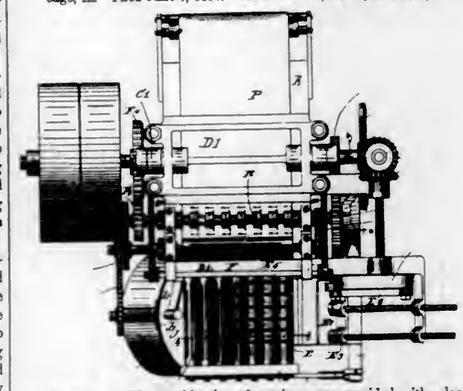
Claim.—1. In a wheeled plow, a main frame, an axle rigidly connected to the frame, a wheel supported by the axle, a toothed quadrant connected to the main frame, a stub-axle supported by the main axle and supporting a wheel, and a hand-lever connecting the stub-axle with the toothed quadrant.



2. In a wheeled plow, a main frame, a bail pivotally supported by the frame, a plow-beam supported by the bail, two toothed quadrants supported by the main frame, a wheel supported by the main frame, a hand-lever for moving the wheel and having a connection with one of the toothed quadrants, a hand-lever for moving the bail and having a connection with the other toothed quadrant and a spring connecting the hand-levers.

3. In a wheeled plow, a main frame, a bail pivotally supported by the main frame, a plow-beam, brackets connecting the beam and bail, an arm extending from one of the brackets and a spring connecting the arm with a stationary support.

659,010. CELL-CASE MACHINE. WILLIAM E. WILLIAMS, Chicago, Ill. Filed June 1, 1897. Serial No. 639,009. (No model.)



Claim.—1. The combination of a strip-turner provided with a longitudinal slot extending from one end, means to rotate the strip-turner upon its longitudinal axis, and means to feed a strip endwise into the slot in the strip-turner.

2. The combination of a strip-turner provided with a longitudinal slot extending from one end, means to rotate the strip-turner upon its longitudinal axis, means to feed a continuous strip endwise into said slot, and means to afterward sever the entered portion of the strip from the body portion.

3. The combination of a set of strip-turners each provided with a longitudinal slot extending from one end, means to feed a set of strips endwise into the slots, respectively, means to then sever the entered portions of the strips from the body portions, and means to then rotate the turners upon their longitudinal axes.

4. The combination with strip-turners, of means for feeding a set of strips to said turners, and means for moving the strips from the turners, edgewise, through different distances, whereby all the strips of the set are brought into a plane perpendicular to the planes of the individual strips.

5. The combination with means to hold a set of strips while in the same plane, means to turn the individual strips into parallel planes less than a strip's width apart, and to bring corresponding edges of all the strips into a plane perpendicular to said planes.

6. In a cell-case machine, the combination with a member provided with a strip-receiving slot widened at intervals, of pushers wider than the body of the slot, and means for advancing said pushers into the passages formed by widening the slot, whereby a strip lying in the slot may be ejected.

7. The combination with a revoluble table, of means for delivering upon the table in succession sets of spaced strips, and means for turning the table on an axis passing through its center, through a predetermined angle between successive deliveries.

8. The combination with a suitable revoluble table, of a set of strip-turners, means for feeding sets of notched strips in succession into said turners, means for rotating the turners alternately in opposite directions to turn oppositely the notched edges of successive sets of strips, means for delivering the sets upon the table, successively, while so turned, and means for turning the table through a fixed angle between successive deliveries.

9. The combination with a set of revolubly-mounted strip-turners, of means for turning them alternately in opposite directions through supplemental angles.

10. The combination of a set of strip-turners arranged to receive a set of laterally-contiguous strips in the same plane, means to feed a sheet of stock toward said turners, means to slit the advancing sheet into laterally-contiguous strips corresponding with the turners, means to sever the end portions of the strips after their entry into the turners, and means to turn the individual strips into planes less than a strip's width apart.

11. The combination of strip-forming devices, sheet-slitting devices, and strip-turning devices, feeding devices arranged to draw a sheet of stock through the forming and slitting devices and push it into the turning devices, means to sever the end portion of the formed and slit sheet after its entry into the turners, means for turning the strips into parallel planes less than a strip's width apart, and means to push the strips edgewise to bring their corresponding edges into a plane perpendicular to the planes of the strips and eject them from the turners.

12. The combination with means for forming identical sets of laterally-notched strips, of means for advancing the sets successively to the same position, means for turning the strips of successive sets oppositely into the same plane, a table, means for delivering the sets successively upon the table, and means for rotating the table in its own plane through a predetermined angle between the deliveries of successive sets thereon.

13. The combination with a table, of strip-holding devices normally projecting from the table's surface, and means for at intervals retracting said devices within or below said surface.

14. The combination with the table, of strip-holding fingers normally projecting from its surface, a discharging-arm and means for successively retracting the fingers and sweeping the arm across said surface.

15. The combination of a form-table provided with fingers for holding the strips, and with gear-teeth on its edges and a pinion engaging the gear-teeth for revolving the table.

16. The combination of dies and punches for punching a sheet of paper, slitters for slitting paper into strips, a feeding device for the paper with a shear for cutting off the strips, strip-turners for turning the strips edgewise, a form-table adapted to be turned through a sufficient angle to permit the interlocking of the second set of strips, and a set of pushers for pushing the strips from the turners to the form-table.

17. The combination of a set of strip-turners arranged in parallel relation to each other and a set of pushers set at an angle inclined to the plane of alinement of the turners whereby the pushers in descending engage the strips successively to bring a different arrangement of the strips at the next point of registration.

18. The combination with punching, slitting, feeding and cutting mechanism for strips, a form-table, and guideways and strip-pushers set at an incline with the plane of the paper as operated upon by the punches and slitters.

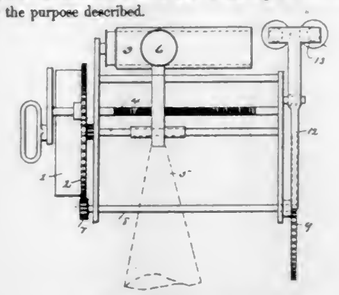
19. The combination with mechanism for punching and cutting strips, revoluble strip-turners and a cam for actuating the turners, said cam having cam-faces adapted to actuate the turners in different directions alternately, and return them to the same normal position each time.

20. The combination of mechanism for punching and cutting strips and a form for holding strips, with mechanism for delivering every alternate set of strips upon the form in reverse position as relates to the notches in their sides.

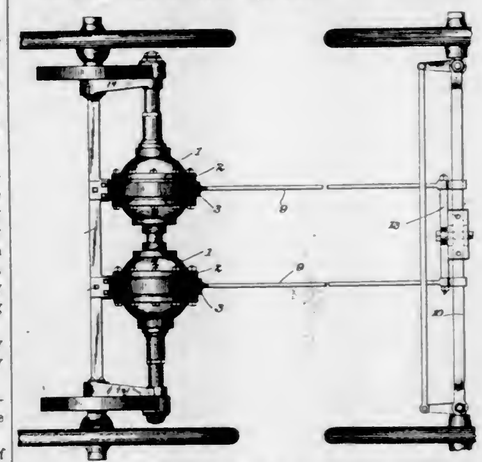
21. The combination with means for punching and cutting strips, of devices for temporarily supporting the formed strips, a table below the plane of said devices, a set of pushers adapted to push the formed strips down to said table, a crank-shaft, and a pitman carried by said shaft and reciprocating the set of pushers.

659,011. PHONOGRAPHIC ENUNCIATOR FOR CARS. ANDREW C. WOLFE, Freeport, Pa., assignor of one-third to Joseph F. Hewitt, Allegheny, Pa. Filed Dec. 26, 1899. Serial No. 741,546. (No model.)

Claim.—In combination with a graphophone or other like machine, the record-cylinder 3 the disk 9 for governing the movement of the said record-cylinder, the said disk being provided with a series of peripheral teeth 11, arranged at irregular intervals, the space between being proportioned to the number of words used in making the announcement, as and for the purpose described.



659,012. AUTOMOBILE. OTTO V. BACHELLE, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,297. (No model.)



Claim.—1. An automobile having in combination a motor, a gear, a driver driven by said gear, one of the two first said parts having a slotted shaft and a flexible blade secured at one end to the other of the two first said parts and having its other end held in said slotted shaft, substantially as set forth.

2. An automobile having in combination a motor, a driver, a train of gears one of which is connected with for driving said driver and a flexible blade loosely connecting the other of said gears with said motor, substantially as set forth.

3. An automobile having in combination a motor, a driver, a train of gears one of which is connected with for driving said driver, a shaft to which the other of said gears is secured and a flexible blade having its ends loosely connected with said shaft and motor respectively, substantially as set forth.

4. An automobile having in combination a motor, a driver, a train of gears one of which is connected with for driving said driver, a shaft upon which the other of said gears is mounted having a slotted end, a flexible blade having one end secured to the motor and the other end fitting in said slotted shaft and means for holding said blade in place in said slot, substantially as set forth.

5. An automobile having in combination the pinion-shaft, the pinion on said shaft, a socket in which said pinion is located having an open end of sufficient size to admit the pinion, a removable portion closing said open end, antifriction-bearing devices carried in said removable portion and cooperating with said pinion-shaft, a motor for driving said pinion and a driver geared to said pinion-shaft, substantially as set forth.

6. An automobile having in combination the pinion-shaft, the pinion thereon, a socket in which said pinion is housed having an open end of sufficient size to admit the pinion, a bushing closing said open end, antifriction-bearing devices carried in said bushing, means for adjusting said antifriction-bearing devices and a cap secured in said bushing and inclosing

the last said means, a motor for driving said pinion-shaft and a driver geared to said pinion, substantially as set forth.

7. An automobile having in combination an axle, a driver thereon, a bracket-arm secured to said axle, a gear secured to said driver adjacent to said bracket-arm, a pinion mounted in said bracket-arm and partially inclosed thereby, a gear-casing incasing said gear and secured to said bracket-arm, a removable portion secured to said bracket-arm, and coöperating therewith for completely inclosing said pinion and a motor connected with said pinion, substantially as set forth.

8. An automobile having in combination an axle having a shoulder thereon, a driver having its hub journaled on said axle contiguous to said shoulder, a bracket-arm rigidly secured to said shoulder at one end and having a pinion-socket at the other end, a gear secured to said driver, a ring secured to said pinion-socket and surrounding said gear, a plate secured to one side of said ring between said bracket-arm and gear, a plate secured to the other side of said ring and surrounding said hub, a pinion located in said socket and meshing with said gear, and means for closing said socket, substantially as set forth.

9. An automobile having in combination an axle, a driver on said axle, a gear secured to said driver, a rigid arm secured to the axle adjacent to said gear and having a pinion-socket in one end whose side is partially cut away and provided with laterally-projecting flanges, a ring secured to said flanges and surrounding said gear, a removable segment secured to said socket and flanges and completing the cut-away portion of said socket, a plate carried by said ring on each side of said gear, a removable portion located in and closing the end of said socket, and a pinion located in said socket and journaled in said removable portion and meshing with said gear, substantially as set forth.

10. An automobile having in combination a motor, a motor-casing, a driver, a bracket-arm supporting one of said gears, a flexible connection between the motor and one of said gears, and a two-part telescopic sleeve incasing said flexible connection and extending between the arm and the motor-casing, substantially as set forth.

11. An automobile having in combination an axle, a motor, a reach having a divided band clamped to said axle and also embracing and clamping the motor, substantially as set forth.

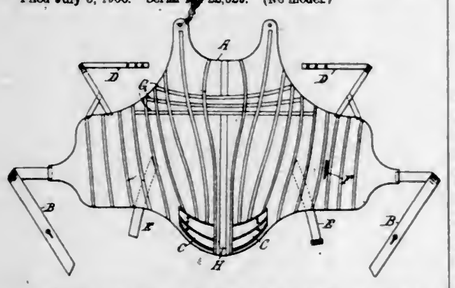
12. An automobile having in combination a motor frame or casing, an axle, and a reach having a divided band embracing and clamping said motor-frame, the ends of said divided band being bolted to the axle, substantially as set forth.

13. An automobile having in combination the front and rear axles, a pair of reaches secured to the rear axle and abutting against the front axle and having vertical yokes embracing the front axle, and a bar connecting the forward ends of said reaches together, substantially as set forth.

14. An automobile having in combination a motor, a driver, a train of gears one of which is connected with for driving said driver, a shaft upon which the other of said gears is mounted having its end transversely slotted and screw-threaded, a flexible blade having one end secured to the motor and the other end fitting in said slotted shaft and a collar screwed on the end of said shaft over and embracing the inserted end of said blade, substantially as set forth.

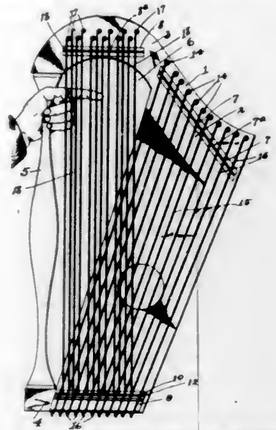
15. An automobile having in combination the front and rear axles, a pair of reaches rigidly secured to the rear axle and abutting against the front axle, a yoke on the forward end of each reach embracing the front axle for holding it against horizontal but permitting of vertical movement, a bar connecting the forward ends of said reaches together, the forward spring of the vehicle-body and a pivotal connection between said spring, and said bar and axle having a horizontal axis, substantially as set forth.

659,013. **APPAREL-CORSET.** MARY L. BARCLEY, Newark, N. J. Filed July 5, 1900. Serial No. 22,629. (No model.)



Claim.—A closed-front corset, having at its lower front center a reinforcing-piece which is strengthened by a series of transverse stays arranged in converging pockets, and provided with eyelets adapted to engage with hooks on the ends of the securing-belts, which are attached to the side extremities of the corset; the same operating to draw across the back from opposite sides, to fit the corset tightly about the form, and at the same time to produce a pressure at the said reinforcing-piece, substantially as described, and as and for the purposes set forth.

659,014. **MUSICAL INSTRUMENT.** CARL E. BROWN, Columbus, Ohio, assignor to the Harp-O-Chord Company, same place. Filed May 31, 1900. Serial No. 18,543. (No model.)



Claim.—1. A musical instrument having a set of treble or melody strings and a set of chord strings and an opening in the body of said instrument by means of which one of said string sets may be picked from the under side, substantially as specified.

2. In a musical instrument, the combination with a body having an opening 6 therein, of sets of treble or melody and chord strings, one set running over the closed portion of said body and the other set over the opening thereof, substantially as specified.

3. In a musical instrument, the combination with a substantially harp-shaped body having an opening 6 adjacent to one side thereof, of sets of treble or melody and chord strings running respectively over the closed and open portion of said body and crossing each other obliquely, substantially as specified.

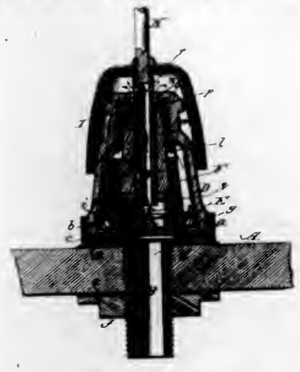
4. In a musical instrument, the combination with a body 1 having open and closed portions, bridges 8 and 7 arranged respectively above said open and closed portions and a bridge adjacent to the lower end of said body, of sets of treble or melody and chord strings one set running over the bridge 7 and the remaining set over the bridge 8 and one set running over the bridge 9 and the other through the latter, substantially as specified.

5. In a musical instrument, the combination with a body having an opening adjacent to one side thereof, a hand-post or spindle connecting the upper and lower portions of said body on the outer side of said opening, upper bridges 7 and 8 arranged respectively over the open and closed portions of said body and a lower bridge 9, of sets of treble or melody and chord strings, one of said sets running over the closed portion of the body and the remaining set over the opening thereof, and one of said sets running over the lower bridge and the other through the same, substantially as specified.

659,015. **MEANS FOR AUTOMATICALLY SUPPLYING WATER TO TANKS.** WILLIAM E. CLARK, Springfield, Mass. Filed Aug. 4, 1900. Serial No. 25,874. (No model.)

Claim.—1. Means for automatically supplying water to tanks, troughs, and other vessels, consisting of an outer casing having an opening at its upper end for the discharge of water, a perforated valve-casing located in the outer casing, a water-passage between the outer casing and valve-casing, a perforated support for the lower end of the valve-casing detachably connected to the interior of the outer casing, a valve-plug adapted to work in the valve-casing, a tubular stem connected to the plug and having perforations at its upper end for the discharge of water, a suitable rod connecting with the tubular stem, and a float connecting with the rod, substantially as and for the purpose set forth.

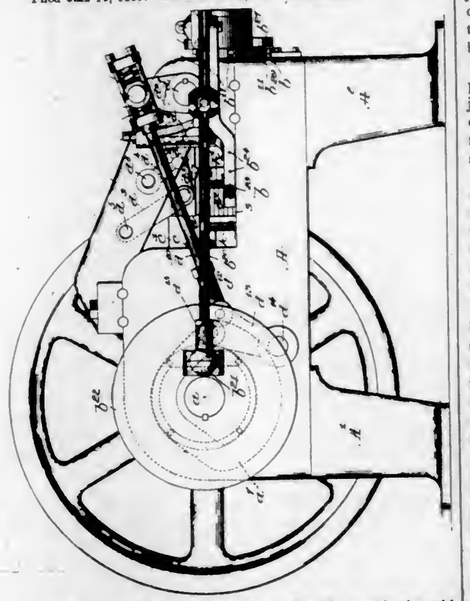
2. Means for automatically supplying water to tanks, troughs, and other vessels, consisting of a coupling-pipe having a flanged seat, an outer casing connected thereto and having an opening at its upper end for the discharge of water, a perforated support detachably connected to the outer casing, a perforated valve-casing seated upon the support, a valve-plug adapted to work in the valve-casing, a tubular stem connected to the valve-plug and having perforations near its upper end, a deflecting-hood extending down over the upper end of the outer casing, and a suitable float connecting with the valve-plug, substantially as and for the purpose described.



659,016. **METHOD OF MAKING JEWEL-SETTINGS.** ALFRED COLLIER, East Orange, N. J., assignor to M. B. Bryant & Co., New York, N. Y. Filed Feb. 26, 1900. Serial No. 6,454. (No model.)

Claim.—The method of making settings for jewels consisting in first forming the cramping-prongs in relief on the exterior walls of a head and subsequently articulating the said cramping-prongs by removing the central body of head metal, substantially as set forth.

659,017. **MACHINE FOR MAKING SPIKES.** HENRY H. CUMMINGS, Malden, Mass., assignor to Amos L. Prescott, Passaic, N. J. Filed Jan. 19, 1899. Serial No. 702,641. (No model.)



Claim.—1. In a machine for making spikes, the combination with feeding mechanism, of means to shape the body of the spike, means to move a portion of the metal at the head bodily away and turn it out substantially perpendicular to the spike to form a portion of the head thereof, means to compress the metal at the head, and means to offset the head in a direction opposite said turned-out portion just prior to said compression, substantially as described.

2. In a machine for making spikes, the combination with feeding mechanism, of means to shape the body of the spike, means to move a portion of the metal at the head bodily away and turn it out substantially perpendicular to the spike means to compress the head and said bent-out portion thereof, and a wiper to deflect the extremity of said turned-out portion in the direction of the length of the spike, substantially as described.

3. In a machine for making spikes, the combination with feeding mechanism, of means to shape the body of the spike, means to move a portion of the metal at the head bodily away and turn it out substantially perpendicular to the spike, means to compress the head and said bent-out portion thereof, and a wiper to deflect the extremity of said turned-out portion in the direction of the length of the spike, and to form the point of the spike, substantially as described.

4. In a machine for making spikes, means for supplying individual blanks, carrying means to carry the said individual blanks into position, two dies movable simultaneously toward each other for forming respectively the body and the head of the blank, mechanism to move the head-forming die straight ahead in the direction of the length of the blank, and mechanism for moving the body-forming die obliquely toward the blank and toward said other die, said two dies coöperating in swaging between them certain portions of the metal of the blanks, substantially as described.

5. In a machine for making spikes, means to carry the blanks into position, two dies movable toward each other, mechanism to move one of said dies in the direction of the length of the blank, mechanism for moving the other of said dies obliquely toward the blank and said other die, said first-mentioned die having a cavity to form the head of the spike, and said obliquely-moving die having a channel or slot substantially perpendicular to and extending from the blank, substantially as described.

6. In a machine for making spikes, means to carry the blanks into position, two dies movable toward each other, mechanism to move one of said dies in the direction of the length of the blank, mechanism for moving the other of said dies obliquely toward the blank and said other die, said first-mentioned die having a cavity to form the head of the spike, and said obliquely-moving die having a channel or slot substantially perpendicular to and extending from the blank, and means for adjusting the angular position of said last-mentioned die relatively to said other die, substantially as described.

7. In a machine for making spikes, means to support the blanks in position to be formed, a die for forming the head thereof, a second die adjacent thereto, said second die being oblong and supported adjacent its opposite ends by pivoted links, and means to swing said die on said links toward and from said other die, in substantial parallelism to the blank to be formed, substantially as described.

8. In a machine for making spikes, means to support the blanks in position to be formed, a die for forming the head thereof, a second die adjacent thereto, said second die being oblong and supported adjacent its ends by pivoted links, means to swing said die on said links toward and from said other die, and means for adjusting one of the ends of said link-supported die relatively to said pivots, substantially as described.

9. In a machine for making spikes, a substantially-cylindrical die-block containing a plurality of dies or recesses to receive die-blanks extending longitudinally thereof, mechanism at one side for feeding blanks to said recesses, mechanism at the opposite side for discharging the spikes from said die-block, means intermediate said two sides coöperating with the dies of said die-block for forming the heads of said spikes, and means to rotate said die-block step by step, substantially as described.

10. In a machine for making spikes, a substantially-cylindrical die-block containing a plurality of dies or recesses to receive die-blanks extending longitudinally thereof, mechanism at one side for feeding blanks to said recesses, mechanism at the opposite side for discharging the spikes from said die-block, means intermediate said two sides coöperating with the dies of said die-block for forming the heads of said spikes, means to rotate said die-block step by step, and a wiper for finishing the spike, substantially as described.

11. In a machine for making spikes, the combination with means to carry blanks and dies for shaping the spikes, of an anvil, means to move said anvil against the partly-formed spike, a wiper for bending a portion of the spike over said anvil, and means thereafter to move said anvil away from the carrier and thereby discharge the spike therefrom, substantially as described.

12. In a machine for making spikes, a die for shaping the blank, coöperating movable parts adjacent thereto, and mechanism for operating said die, said mechanism including driving means, a pivotal connection between the same and said die, a journal-bearing for said connection, and means permitting said bearing to yield under a predetermined pressure, substantially as described.

13. In a machine for making spikes, a die for shaping the blank, coöperating movable parts adjacent thereto, and mechanism for operating said die, said mechanism including driving means, a pivotal connection between the same and said die, a journal-bearing for said connection com-

prising a fixed journal-box, and a movable journal-box, a spring normally holding said movable box against said fixed box and permitting it to yield when necessary, substantially as described.

14. In a machine for making spikes, a die for shaping the blank, coöperating movable parts adjacent thereto, and mechanism for operating said die, said mechanism including driving means, a rod extending therefrom, a recess being formed in one side of said rod, a ball in said recess, connecting means between said rod and said die, said means adjacent said rod inclosing said ball and containing a spring maintaining said ball under pressure normally in said recess locking together said rod and the adjacent portion of the connecting means as and for the purpose set forth.

15. In a machine for making spikes, a carrier for carrying the blanks to be formed, means to move said carrier intermittingly, said means including a reciprocating rod and a bell-crank, and a yielding connection between said rod and bell-crank normally maintaining them rigidly locked together but permitting the rod to slide relatively to the bell-crank when extreme resistance is offered, substantially as described.

16. In a machine for forming spikes, a carrier for the blanks, forming devices coöperating therewith, mechanism for moving said carrier, and mechanism for operating said forming devices, a driving-shaft for said machine, and means between said shaft and said mechanisms for automatically permitting the latter to become inoperative when required, substantially as described.

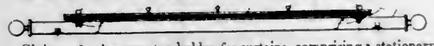
17. In a machine for making spikes, a cylindrical die-block having dieing-surfaces on its periphery, said die-block having dovetail recesses longitudinal thereof in opposite pairs, dies for said recesses, a bolt between said pairs and extending through said die-block, and clamping-plates at the ends of said bolt, said plates respectively engaging the adjacent edges of said respective pairs of dies, substantially as described.

18. A machine for making spikes, comprising a driving-shaft, a shaft journaled at an angle thereto and provided with a die-block, means for moving said latter shaft and die-block, a heading-die adjacent said die-block, ways therefor, and connections between said driving-shaft and said heading-die for reciprocating the latter in said ways, a second die in line with said die-block, and connections between said second die and said driving-shaft for moving said second die to coöperate with said die-block and said heading-block, substantially as described.

19. In a machine for making spikes, a driving-shaft, dies for forming the spikes, operating connections between said shaft and said dies, and mechanism for delivering the blanks to said dies, said mechanism including a reciprocating rod driven by said shaft, a bell-crank lever pivoted to the frame of the machine and to said rod, and an arm extending from said lever and having fingers for engaging and feeding the blanks, said bell-crank being connected to operate mechanism for carrying the blanks, substantially as described.

20. In a machine for making spikes, a support for holding a partially-formed spike, a reciprocating wiper, a guideway for said wiper, said guideway being arranged obliquely to the spike held in said support, and means for reciprocating said wiper, substantially as described.

659,018. **CURTAIN-SUPPORT.** EMMA DAMRAU, New York, N. Y. Filed July 12, 1900. Serial No. 23,349. (No model.)



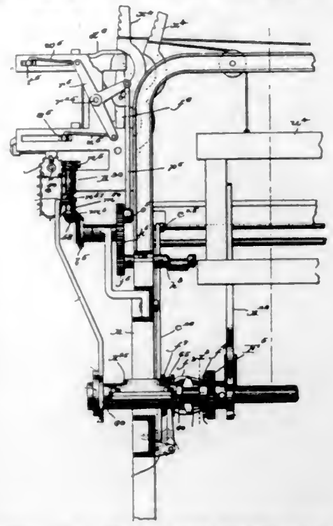
Claim.—1. A support or holder for curtains, comprising a stationary member, a bar movably connected with one side thereof, and a supplemental bar movably mounted rearwardly of the first-named bar, and set-screws which are passed through the supplemental bar and adapted to bear on the first-named bar, substantially as shown and described.

2. A curtain-pole which is adapted to be mounted in brackets and provided with devices for preventing it from turning therein, a bar connected at its opposite ends with the rear side of said pole, and between which and said pole the curtain is adapted to be passed, a supplemental bar also connected at its opposite ends with the rear end of said pole rearwardly of the first-named bar, and adjusting devices which are passed through said supplemental bar and adapted to bear on the first-named bar, substantially as shown and described.

3. A curtain-pole provided with socket-plates which are secured in the front side thereof near its opposite ends, and other socket-plates which are secured in the rear side thereof adjacent to its opposite ends screws passed into the sockets in the last-named plates, a bar connected with the rear side of said pole by said screws which are passed through the opposite ends thereof, and a supplemental bar also mounted on said screws rearwardly of the first-named bar, and provided with set-screws which are passed therethrough and which are adapted to bear on the first-named bar, substantially as shown and described.

4. A curtain or portière holder, comprising a stationary member, provided adjacent to its opposite ends with supporting devices a bar movably mounted on said devices, a supplemental bar also movably mounted on said devices rearwardly of the first-named bar and set-screws which are passed through the supplemental bar and adapted to press upon said first-named bar and to force the latter against the stationary member, substantially as shown and described.

659,019. **CONTROLLER FOR SHEDDING MECHANISM.** CHAS. M. DAY, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Apr. 19, 1900. Serial No. 13,415. (No model.)



Claim.—1. In a loom, shed-forming mechanism, normally-operative actuating means therefor, including a clutch or coupling, a normally-inoperative clutch-controlling device, including a rotatable cam, a weft-detector, and means operated by or through detecting movement of said detector to effect rotation of the cam and thereby render the clutch or coupling inoperative, to stop the action of the shed-forming mechanism.

2. In a loom, the cam-shaft having a gear thereon, shed-forming mechanism, actuating means therefor, a coupling between them, controlling means for the coupling, including an intermittingly-rotatable gear and devices to effect its engagement with and actuation by the cam-shaft gear, and a weft-detector operatively connected with said devices, to effect the operation of the latter upon failure of the weft.

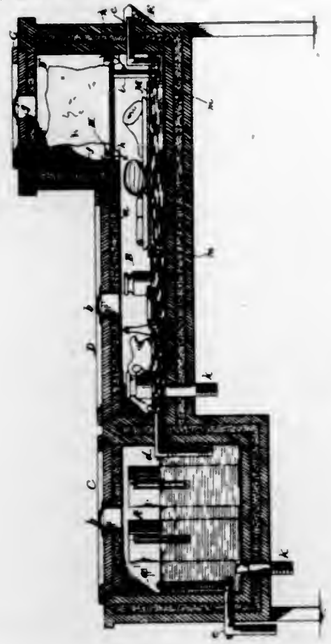
3. In a loom, a pattern-surface to control the formation of the shed, actuating means for the pattern-surface, an intermediate coupling, means, including an intermittingly-rotatable cam, to control the coupling, a weft-detector, and devices by or through the same upon failure of the weft to effect a single rotation of the cam, to move the coupling into inoperative position and stop the pattern-surface and thereafter to throw the coupling into operative position.

4. In a loom provided with weft-replenishing mechanism, a detector to effect the operation of said mechanism upon weft failure, shed-forming mechanism, normally-operative actuating means therefor, a coupling between said means and the shed-forming mechanism, controlling means for the coupling, including a rotatable cam, to interrupt the coöperation of the shed-forming mechanism and its actuating means, and connections between the detector and said controlling means, operated by or through detecting movement of said detector to effect rotation of the cam and thereby render the coupling inoperative, to stop the action of the shed-forming mechanism.

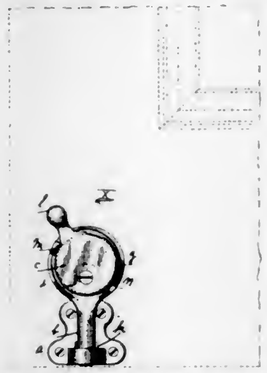
659,020. **REFRIGERATOR OR CREAMERY.** WILLIAM R. FOWLER, Lafayette, Ind., assignor to the Polar Creamery Company, same place. Filed July 16, 1900. Serial No. 23,818. (No model.)

Claim.—1. In a milk-cooler and refrigerator, one deep and one shallow tank communicating with each other through a pipe having a rocking portion with a lateral extension from said rocking portion forming an adjustable inlet, and provided, respectively, at their outer ends with a discharge-pipe and a supply-pipe, the several pipes having elbows to act as traps, the shallow tank having an ice-chamber arranged above it, provided with a shelf or pan for the ice, and a drip-tube connected thereto and extending down below the water-level in said tank, substantially as and for the purposes set forth.

2. In a refrigerator and creamery, one deep and one shallow tank communicating with each other through a pipe having an arm with swinging adjustment in a vertical plane, and provided, respectively, at their outer ends with a discharge-pipe and a supply-pipe, the several pipes having elbows to act as traps and the outlet-pipe having an adjustable inlet as described, the said shallow tank having an ice-chamber extension arranged above it provided with a pan for the ice, said pan having a drip-tube, substantially as and for the purposes set forth.



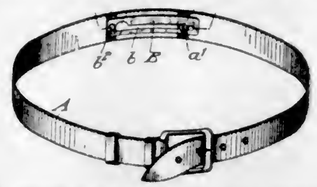
659,021. **DOOR-STOP.** RUTH E. FULTON, Perry, Okla. Filed Sept. 21, 1899. Serial No. 731,152. (No model.)



Claim.—The combination in a door-stop, having a pyramid-shaped body-plate with a guide-loop at its base, a reciprocating bolt passing through an opening in said loop, a circular collar on the bolt, engaged by an annular rim on the bolt-reciprocating wheel the latter pivoted eccentrically by a screw in an opening, near the summit of the body-plate; an operating-crank on the wheel placed between two stop-lugs on the front of the collar, adapted to limit the movement of the wheel in reciprocating the bolt, substantially as described and for the purpose specified.

659,022. **APPAREL-BELT.** GUSTAV H. GENTZEL, Jersey City, N. J., assignor to the John Mehl & Company, same place. Filed June 21, 1900. Serial No. 21,048. (No model.)

Claim.—1. The combination with a belt, of a waist-button-attaching device located along the inside of the belt, the said belt and attaching device being secured immovably together at one point and having a sliding connection with each other at another point, substantially as set forth.

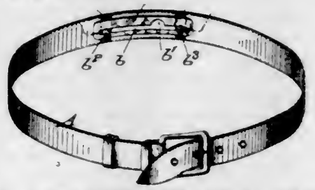


2. The combination with a belt having a pair of cross-straps spaced apart and secured thereto, of a waist-button-attaching device having one end secured rigidly to one of the cross-straps and having its other end loosely secured to the other cross-strap, substantially as set forth.

3. The combination with a belt, of a waist-button-attaching device located along the inside of the belt, comprising a flat strip of flexible material having an elongated button-receiving slot therein and a button-receiving opening communicating with the said slot, the said belt and attaching device being secured immovably together at one point and having a sliding connection with each other at another point, substantially as set forth.

4. The combination with a belt, of a waist-button-attaching device having a button-shank receiving elongated slot therein and a button-receiving opening communicating with the said slot, of rivets for securing the device to the belt, one of the said rivets passing through the said elongated slot in the device, substantially as set forth.

659,023. **APPAREL-BELT.** GUSTAV H. GENTZEL, Jersey City, N. J., assignor to the John Mehl & Company, same place. Filed July 19, 1900. Serial No. 24,135. (No model.)



Claim.—1. The combination with a belt, of a waist-button-attaching device having an elongated button-shank-receiving slot therein and a button-receiving opening communicating with the said slot, and means for loosely securing the device to the belt, comprising rivets passing through the said slot and secured to the said belt, substantially as herein set forth.

2. The combination with a belt having a pair of cross-straps spaced apart and secured thereto, of a waist-button-attaching device having an elongated button-shank-receiving slot therein and a button-receiving opening communicating with the said slot, and means for loosely securing the device to the belt comprising rivets passing through the said slot and secured to the said cross-straps, substantially as set forth.

659,024. **SACK FILLING AND CLOSING MACHINE.** ERNST W. GERBRACHT, New York, N. Y., and JOHN R. OKELL, Philadelphia, Pa., assignors to the American Sugar Refining Company, New York, N. Y. Filed Mar. 22, 1900. Serial No. 9,814. (No model.)

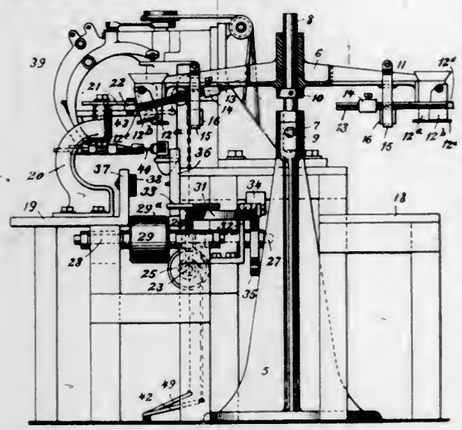
Claim.—1. In a sack filling and closing machine, the combination of a movable sack-carrier with a series of sack-holders mounted thereon and each consisting of a funnel having a pivoted portion or flap, and a weighted external arm for maintaining the same in an expanded position, substantially as specified.

2. In a sack filling and closing machine, the combination of a rotatable sack-carrier provided with radial arms, a sack-holder on each of said arms, each holder consisting of a portion fixed to an arm and a portion pivotally connected to the fixed portion to move about a horizontal axis, and a vertically-movable weight connected with said pivotal portion of the holder, substantially as specified.

3. In a sack filling and closing machine, the combination of a rotatable sack-carrier provided with radial arms, a sack-holder on each of said arms and each sack-holder having a movable section, and a standard carrying a radially-adjustable arm with which the movable sections of the sack-holder successively coact and by which said sections are moved into operative positions, substantially as specified.

4. In a sack filling and closing machine, the combination of a rotatable sack-carrier, and a series of sack-holders mounted on said carrier and each section consisting of a fixed section and a movable section pivotally

connected to the fixed section, a weighing and delivering device adapted to deliver material to the sacks successively as the carrier is rotated, a trip-arm extending toward the path of movement of the sack-holders, and a roller mounted on said arm and adapted to engage with the pivotally-supported sections of the sack-holders successively to release the filled sacks from the carrier, substantially as specified.



5. In a sack filling and closing machine, the combination of a rotatable sack-carrier, a series of contractible sack-holders mounted thereon, a traveling conveyer located at one side of the rotatable sack-carrier and below the sack-holders, and means for contracting the sack-holders so as to drop a sack therefrom onto said conveyer, substantially as specified.

6. In a sack filling and closing machine, the combination of a rotatable carrier, a series of tubular sack-holders depending from said carrier and each adapted to engage with the open end of a sack, each holder consisting of a fixed section and a movable section pivotally connected at its upper end with the fixed section; a lug or striking-plate secured to the outer face of the pivoted section of each sack-holder; a filling device arranged to successively fill sacks carried by said holders as the carrier rotates; and a relatively-stationary trip-arm extending into the path of the striking-plates on the pivoted sections of the sack-holders and adapted to move said sections successively to disengage or release filled sacks from the holders, substantially as specified.

7. In a sack filling and closing machine, the combination with a rotatable carrier provided with radial arms carrying sack-holders, of a table in the sack-affixing position, a weighing and delivering apparatus in the filling position, a device for shaking the sacks after being filled, and a device for automatically and successively releasing the filled sacks at a given position from the sack-holders, substantially as specified.

8. In a sack filling and closing machine, the combination of a rotatable carrier, consisting of a series of radially-extending arms, a tubular sack-holder depending from each of said arms, each holder consisting of a section rigid with the arm and a section pivotally connected to said fixed section, a sack-affixing table over which the sack-holders are successively moved as the carrier rotates, a filling device arranged above and adapted to successively fill the sacks applied to the holders at the sack-affixing table, a trip for engaging with the pivoted sections of the sack-holder and successively releasing the filled sacks, and an endless conveyer arranged to receive the sacks when released from the rotatable carrier, substantially as specified.

9. In a sack filling and closing machine, the combination of a rotatable carrier, a series of sack-holders mounted on said carrier, a sack-affixing table over which the sack-holders are successively moved as the carrier rotates, means for successively filling the sacks attached to the holders after the sacks have passed the sack-affixing table, a shaking device adapted to contact with the lower end of the filled sacks while their holders are passing from the filling position to the releasing means, means for successively disengaging the filled sacks from the sack-holders after passing the shaking device, and an endless conveyer arranged to receive the filled sacks when released from the sack-holders substantially as specified.

10. In a sack filling and closing machine, the combination of a movable sack-carrier having thereon a series of holders from which the sacks can be suspended, a traveling belt onto which the filled sacks are delivered from the sack-holders, and a spring-retainer adapted to engage with the sack and prevent it from falling backward on the traveling conveyer, substantially as specified.

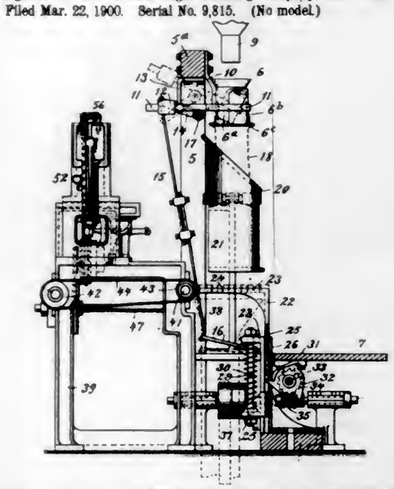
11. In a sack filling and closing machine, the combination of a rotatable sack-carrier, a series of holders supported by said carrier, a weighing and delivering apparatus whereby the successive sacks are filled, a conveyer onto which the filled sacks are delivered by the sack-holders, and a device located in the path of movement of the filled sacks on the conveyer which will sew the mouth of said sacks as they pass through said device, substantially as specified.

12. In a sack filling and closing machine, a sack-holder comprising a fixed portion provided with a lower horizontal flange, a pivotal portion pivoted to the fixed portion and provided with a lower horizontal flange, a bar attached to the pivotal portion, and an adjustable weight on said bar, substantially as specified.

13. In a sack filling and closing machine, the combination of a sack-holder, consisting of a fixed section and an adjustable section pivotally connected to the fixed section; an arm extending laterally from said pivoted section; and a cushion arranged in the path of said arm to limit the extent of movement of the pivoted section in one direction, substantially as specified.

14. In a sack filling and closing machine, a sack-holder consisting of a relatively-stationary section, a movable section pivotally connected to said relatively-stationary section to move about a horizontal axis, and a vertically-movable weighted arm secured to the movable section to rock it about the horizontal axis of its pivotal connection with the other section, substantially as specified.

659,025. SACK FILLING AND CLOSING MACHINE. ERNST W. GERBRACHT, New York, N. Y., and JOHN R. OKELL, Philadelphia, Pa., assignors to the American Sugar Refining Company, New York, N. Y. Filed Mar. 22, 1900. Serial No. 9,815. (No model.)



Claim.—1. In a sack filling and closing machine, the combination with a sack-holder, of a perforated shaker arranged under the holder, means for releasing a filled sack from the holder, and means for guiding the filled sack onto said shaker, substantially as specified.

2. In a sack filling and closing machine, the combination with a sack-filling apparatus, of a perforated shaker arranged under it, and a collecting-chute under the shaker, substantially as specified.

3. In a sack filling and closing machine, the combination with a sack-holder formed of a fixed portion and a pivotal portion, pivotally connected with the fixed portion, of a weighted arm attached to the pivotal portion, a lever having one end extending under said arm, a foot-treadle, and a strap between said lever and treadle, substantially as specified.

4. In a sack filling and closing machine, the combination with a sack-holder, of a tubular chute arranged under it, having an open bottom and an open side, and a shaker arranged under the chute, substantially as specified.

5. In a sack filling and closing machine, the combination of an elevated sack-holder, a tubular guide adapted to receive the lower end of a sack engaged by said holder, means for disengaging the holder from the sack when the latter is filled, a support for the filled sack arranged below said guide, and means for vibrating said support, substantially as specified.

6. In a sack filling and closing machine, the combination of an elevated sack-holder having at its lower end means for engaging and supporting a sack to be filled, means under the control of an operator for disengaging said holder from the sack, a perforated support arranged below the holder and adapted to receive the sack released therefrom, means for vibrating said support for the filled sack toward and from the holder, and a chute arranged below said perforated support, substantially as specified.

7. In a sack filling and closing machine, the combination of a holder adapted to detachably support a sack in position to be filled, a support below the holder for receiving the sack when disengaged from said holder, means for vibrating said support, and a guide arranged between the holder and support and adapted to extend about the lower end of the sack while engaged with the holder and about the upper end of the sack when mounted on the vibrating support, substantially as specified.

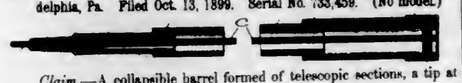
8. In a sack filling and closing machine, the combination of a holder adapted to detachably support a sack in position to be filled, a vibratable support arranged below and adapted to receive the sack when released by said holder, and a tubular guide arranged between said holder and support to surround the unsupported end of the sack engaged with the holder or mounted on the vibratable support, said guide having an opening or passage through its vertical wall whereby the filled sack may be removed laterally from the vibratable support, substantially as specified.

9. In a sack filling and closing machine, the combination of a sack-holder adapted to detachably support a sack to be filled, means for disengaging a filled sack from said holder, a support beneath the holder, and a tubular guide between the holder and the support and adapted to direct the sack onto the support, a sewing-machine at one side of said support, and a conveyer arranged to carry the filled sack from said support past the sewing-machine, substantially as specified.

10. In a sack filling and closing machine, the combination of a vertical frame, a sack-holder suspended from said frame, said sack-holder consisting of a fixed portion and a pivoted movable portion, a weighted arm connected to the movable portion, a lever pivoted to said frame and having one end located under the weighted arm, a foot-treadle, and a strap adjustable in length interposed between the foot-treadle and the opposite end of the lever, substantially as specified.

11. In a sack filling and closing machine, the combination of a vertical frame, a horizontally-disposed platform, a sack-holder, a tubular chute carried by said frame and located under said sack-holder and adapted to hold and guide the sack in its falling movement, and a device located upon the platform and connected to the sack-holder, whereby the sack-holder may be actuated to release the filled sack.

659,026. LEAD OR OTHER PENCIL. EDWIN M. GOLDSMITH, Philadelphia, Pa. Filed Oct. 13, 1899. Serial No. 733,459. (No model.)



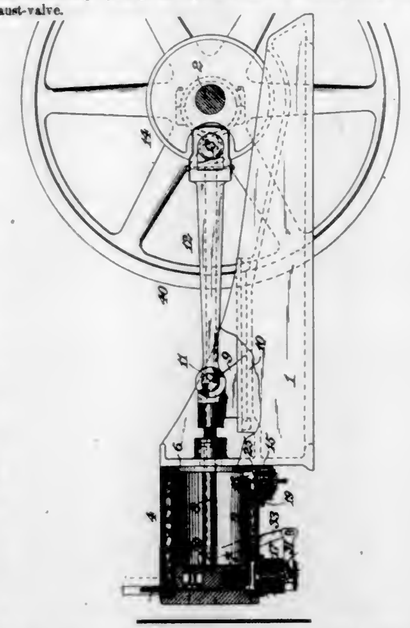
Claim.—A collapsible barrel formed of telescopic sections, a tip at one end thereof, a head in the other end rigidly secured to the section thereof, and a piece of marking material in said barrel, the same being movable at one end through the said tip and guided therein and rigidly secured at the other end in said head.

659,027. GAS-ENGINE. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Feb. 1, 1900. Serial No. 3,565. (No model.)

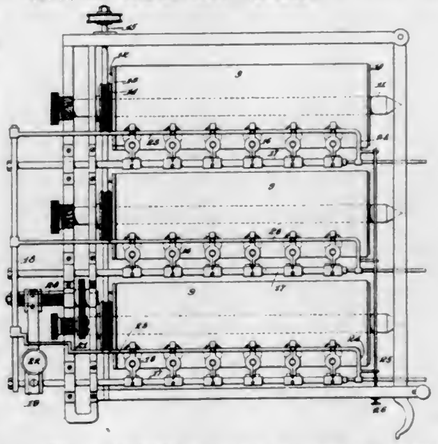
Claim.—1. In an internal-combustion motor, the combination of a cylinder having an admission-port at one end and an exhaust-port at the other, and having its wall solid or imperforate between said ports, a piston working in said cylinder, admission-valves controlling the supply of a mixture of gas and air to the admission-port, an independent exhaust-valve controlling the discharge of products of combustion from the exhaust-port, and a supply-valve controlling a passage through the piston for the traverse of initially-compressed charges of a mixture of gas and air from the suction side of the piston to the pressure side thereof.

2. In an internal-combustion motor, the combination of a cylinder having an admission-port at one end and an exhaust-port at the other, and having its wall solid or imperforate between said ports, a piston working in said cylinder, a crank-shaft and fly-wheel connected to and rotatable by the piston, means for automatically effecting the supply of a mixture of gas and air to the admission-port, means, actuated from the crank-shaft, for releasing products of combustion from the exhaust-port, and an automatically-operating supply-valve, controlling a passage through the piston and affording traverse for a charge of a mixture of gas and air from the suction to the pressure side thereof, coincidently with the release of the products of combustion from the pressure side.

3. In an internal-combustion motor, the combination of a cylinder having an admission-port at one end and an exhaust-port at the other, and having its wall solid or imperforate between said ports, a piston working in said cylinder, a crank-shaft and fly-wheel connected to and rotated by the piston, an admission-valve casing, communicating, by the admission-port, with the cylinder, on the suction side of the piston, a gas-supply pipe leading into said casing, an air-admission valve controlling an air-inlet to said casing, a check-valve controlling communication between said casing and the admission-port, an exhaust-valve casing having a discharge-passage and communicating, by the exhaust-port, with the opposite end of the cylinder, an exhaust-valve controlling communication between said casing and the exhaust-port, connections with the crank-shaft, through which said exhaust-valve is unseated coincidently with the compression of charge of mixed gas and air by the piston, and a supply-valve controlling a passage through the piston and opening toward the exhaust-valve.



659,028. PHONOGRAPH. BARTON B. HILL, Paris, France. Filed Mar. 10, 1899. Serial No. 708,570. (No model.)



Claim.—1. Apparatus for recording phonographically orchestral, band or multiple instrumental music, compising a plurality of record-cylinders, a series of phonographic recording devices coöperating with each cylinder, means for relatively moving the cylinders and recording devices, whereby a series of spiral records will be formed on each cylinder, and means for simultaneously moving the recording devices toward and away from said cylinders, substantially as set forth.

2. In apparatus for recording phonographically orchestral, band or multiple instrumental music, the combination of a series of cylinders, a series of recording devices coöperating with each of said cylinders, means for simultaneously moving all of the recording devices with respect to the cylinders, whereby a series of spiral records will be formed on each of said cylinders, and means for simultaneously moving all of the recording devices toward or away from the respective cylinders, substantially as set forth.

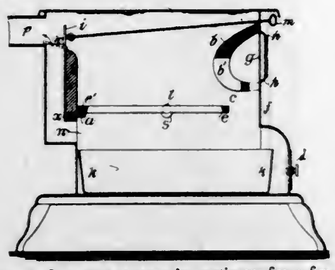
3. Apparatus for recording phonographically orchestral, band or multiple instrumental music, comprising in combination a plurality of record-cylinders, a plurality of recording devices coöperating with each cylinder, a frame movable laterally with respect to the cylinders and carrying said recording devices, means for rotating the cylinders, and means for simultaneously moving said frame laterally, substantially as set forth.

4. Apparatus for recording phonographically orchestral, band or multiple instrumental music, comprising in combination a plurality of record-cylinders, a plurality of recording devices coöperating with each cylinder, a frame movable laterally with respect to the cylinders and carrying said recording devices, means for rotating the cylinders, means for simultaneously moving said frame laterally, and means for simultaneously moving the recording devices toward and away from the cylinders, substantially as set forth.

659,029. COMBUSTION PROCESS. CHARLES HORNBOSTEL, New York, N. Y. Filed Sept. 3, 1897. Serial No. 650,529. (No specimens.)

Claim.—In the combustion of fuel, the process of forcing the air on which said combustion is sustained, into intimate contact with a compound of manganate of soda and sulphuric acid and in forcing said air after said contact into a mass of ignited fuel, all substantially as set forth.

659,030. STOVE FOR CONTINUOUS FIRE. NICHOLAS A. L. J. JOHANNSEN, New York, N. Y. Filed Aug. 3, 1899. Serial No. 725,947. (No model.)



Claim.—1. In a stove or range for continuous fire, a fire-pot with a lateral opening *c* for the purpose of removing clinkers, in combination with a metallic guard facing that opening, a window above the guard, and a door below same, for the purpose set forth.

2. In a stove or range for continuous fire, a fire-pot with a lateral opening *c* for the purpose of removing clinkers, in combination with a guard facing that opening, a window above the guard, a door below the guard, and a draft-deviating device, substantially as described.

3. In a stove or range for continuous fire, a fire-pot with a lateral opening *c* for the purpose of removing clinkers, in combination with a guard facing that opening, a window above the guard, a door below the guard, the top portion of the door being bellied, and an ash-pit extending in the front beyond the guard, for the purpose set forth.

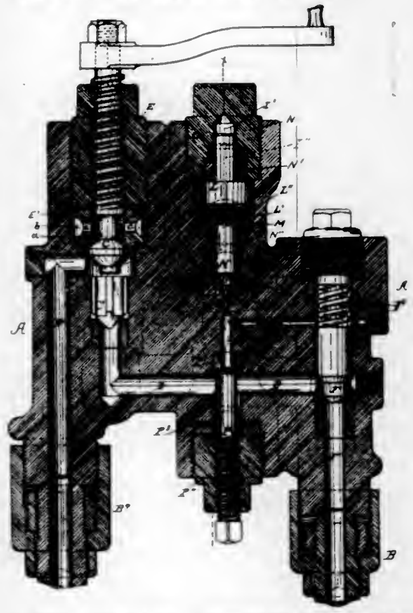
4. In a stove or range for continuous fire, a fire-pot with a lateral opening *c* for the purpose of removing clinkers, in combination with a guard facing that opening, a window above the guard, a door below the guard, and a bottom grate secured to pivot-lugs so that its swinging axis will run parallel with the guard, as specified.

5. In a stove or range for continuous fire, a horizontal grate secured to pivot-lugs eccentrically, so as to divide it into two uneven halves, in combination with a front grate composed of a solid top portion and a grated lower portion and being curved and mounted inwardly, so that the lower portion stands in oblique direction toward the bottom grate, substantially as described.

6. In a stove or range for continuous fire, a compound fire-grate composed of a horizontal grate secured eccentrically to pivot-lugs, forming thereby two uneven halves, a curved front grate composed of a solid top and a grated lower portion and mounted inwardly on the front of the stove, so that its grated lower portion stands in oblique direction toward the front end of the bottom grate forming there a lateral opening *c*, in combination with a front guard facing the opening, substantially as described.

7. In a stove or range for continuous fire, a compound fire-grate composed of a horizontal grate secured eccentrically to pivot-lugs, forming thereby two uneven halves, a curved front grate composed of a solid top portion and a grated lower portion and mounted inwardly on the front of the stove, so that its grated lower portion stands in oblique direction toward the front end of the bottom grate, forming there a lateral opening *c*, in combination with a front guard facing the opening, and a window above that guard, as specified.

659,031. HYDRAULIC VALVE. HUGH W. KIMES, Dayton, Ohio, assignor to the Stilwell-Bierce & Smith-Vaile Company, same place. Filed Sept. 25, 1899. Serial No. 731,570. (No model.)



Claim.—1. In a valve for controlling hydraulic pressure, the combination with low and high pressure valves, of a main passage communicating with both of said valves, a reduced passage between said high-pressure valve and said main passage, a passage forming a communication between said reduced passage and the low-pressure valve, a communication between the press-cylinder and the high-pressure valve, whereby said high-pressure valve is opened by pressure obtained indirectly through the low-pressure valve, and means located in the main passage for throttling the passage of pressure from the high-pressure valve to said main passage whereby the initial pressure from the high-pressure valve is directed to the low-pressure valve to instantaneously close said low-pressure valve upon the opening of said high-pressure valve, substantially as specified.

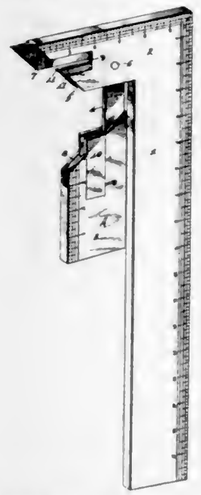
2. In a valve mechanism for hydraulic rams, the combination of a low and a high pressure valve, a main passage common to both of said valves, a check-valve intercepting the communications between said main passage and the passage leading to the press-cylinder, a communication between said press-cylinder and the high-pressure valve whereby said high-pressure valve is opened when the pressure in the press-cylinder reaches a predetermined stage, a reduced passage forming a communication between high-pressure valve and said main passage, a direct passage forming a communication between the said reduced passage and the low-pressure valve, and a throttling device for retarding the communication between said reduced passage and the main passage whereby the pressure from the high-pressure valve is enabled to have an effect upon the low-pressure valve to close the same instantaneously with the opening of the high-pressure valve, substantially as specified.

3. In a valve mechanism for hydraulic rams, the combination with low and high pressure valves, of a main passage communicated with by both of said valves, a check-valve interposed between said main passage and the passage leading to the press-cylinder, a communication between said press-cylinder and the high-pressure valve, whereby said high-pressure valve is opened when the pressure in said press-cylinder attains a predetermined stage, a passage D″ forming a direct communication between said high-pressure valve and said main passage, a passage forming a direct communication between said passage D″ and the low-pressure valve, and a throttling device interposed in said main passage between said passage D″ and the low-pressure valve, whereby an accumulation of high pressure between said low-pressure valve and throttling device is prevented, and the high pressure is enabled to act upon the low-pressure valve instantaneously with the passage of pressure from the high-pressure valve to the passage D″, substantially as described.

4. In a valve mechanism for hydraulic rams, the combination with low and high pressure valves, of a main passage communicated with by both of said valves, a check-valve interposed between said main passage and the passage leading to the press-cylinder, a manually-operative valve coöperating with said check-valve, a communication between said press-cylinder and the high-pressure valve, whereby said high-pressure valve is opened when the pressure in said press-cylinder attains a predetermined stage, a passage D″ forming a direct communication between said high-pressure valve and said main passage, a passage forming a direct communication between said passage D″ and the low-pressure valve, and a throttling device interposed in said main passage between said passage D″ and the low-pressure valve whereby an accumulation of high pressure between said low-pressure valve and throttling device is prevented and the high-pressure valve is enabled to act upon the low-pressure valve instantaneously with the passage of pressure from the high-pressure valve to the said passage D″, substantially as described.

5. In a valve mechanism for hydraulic rams, the combination of low and high pressure passages, a main passage common to both of said passages and communicating with a passage leading to the press-cylinder, means for reducing the volume and for controlling the flow of high pressure to said main passage, the said means being located within said main passage between the high and low pressure valves, a check-valve for controlling the passage of pressure from said main passage to the passage leading to the press-cylinder, a differential valve or plunger controlling the high-pressure passage communicating with the main passage, and a direct passage forming a communication between the high-pressure valve and the low-pressure valve whereby the initial pressure admitted through said high-pressure valve will have the effect of instantaneously closing said low-pressure valve upon the admission of pressure through the high-pressure valve, substantially as specified.

659,032. SMOOTH-SURFACE FOLDING SQUARE. EDDY C. LARSEN, St. Louis, Mo. Filed Nov. 20, 1899. Serial No. 737,617. (No model.)



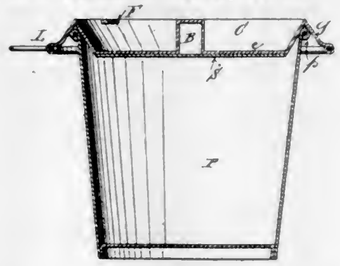
Claim.—A folding square having one side composed of two parts 2, 3, the part 2 being integral with the main part of the square, an arm 4 integral with the part 3, the said arm being pivotally secured within a mortise in the part 2, a tenon 7 integral with the part 2 and operating within a mortise in the part 3, and a key removably carried on each side of the folding part 3 for locking the same in a normal or square position, substantially as specified.

659,033. SAP-PAIL. ABBOT A. LOW, New York, N. Y. Filed Feb. 6, 1900. Serial No. 4,249. (No model.)

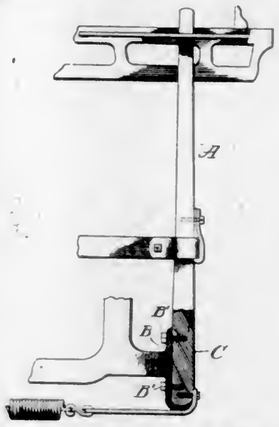
Claim.—1. In combination with a sap-pail, a cover formed with an annular inverted-V-shaped groove, with a diametrical embossment, and with a transverse strap upon its under side for the purpose and substantially as set forth.

2. In combination with a sap-pail, a cover C, formed with an annular inverted-V-shaped groove *g*, having the offset O, and with a diametrical embossment E, opening at both ends into said annular groove *g*, and coinciding axially with the offset O, for the purpose and substantially in the manner set forth.

3. In combination with a sap-pail, a cover C, formed with an annular inverted-V-shaped groove *g*, with a diametrical embossment B, opening at both ends into said annular groove *g*, and with a finger-bar F, attached to the ridge of the groove and extending across the cover parallel to the diametrical embossment, substantially as set forth.

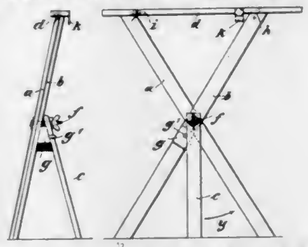


659,034. ATTACHMENT FOR PICKER-STICKS. EUGENE MERCHANT, Skowhegan, Me. Filed June 28, 1900. Serial No. 21,965. (No model.)



Claim.—An attachment for picker-sticks of looms, comprising in combination with the stick, a grooved plate fastened to the edge of said stick, the grooved portion of the plate adapted to be fulcrumed on the picker-stick stud, the lower end of said plate being curved and extended about the under end of the stick, as set forth.

659,035. COLLAPSIBLE TRESTLE. FERDINAND J. MESSING, Laar, Germany. Filed Feb. 12, 1900. Serial No. 4,941. (No model.)

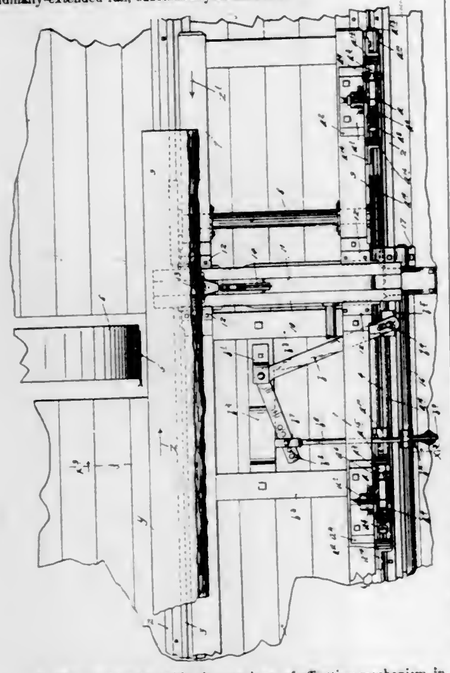


Claim.—1. The combination of the crossed legs *a*, *b*, the pivot *f* on which they turn; the bar *d* loosely hinged to the top of one leg and detachably connected to the top of the other leg and the stay or prop *c* hinged to the legs *a*, *b*, at their intersection, substantially as set forth.

2. The combination of the crossed legs *a*, *b*, the central pivot *f* on which they turn; the horizontal bar *d* connected loosely to the top of one leg and detachably to the top of the other; the stay or prop *c*; the block *g* spreading the stay from the crossed legs and the stop-pin *g′* for holding the prop *c* in position, substantially as shown and described.

659,036. LOG-CARRIAGE. FRED H. MILLER and PETER LARSON, Crookston, Minn. Filed Dec. 7, 1899. Serial No. 739,479. (No model.)

Claim.—1. The combination with a log-carriage, of an automatic offsetting device, involving a pivoted and extensible leg or arm, provided at its free end with a pivoted head or shoe adapted to slide over a longitudinally-extended rail, substantially as described.



2. The combination with a log-carriage, of offsetting mechanism, involving a pair of pivoted legs or levers having spring-pressed and extensible sections, friction shoes or heads pivoted to the extensible sections of said legs or levers and arranged to slide over a longitudinally-extended rail or guide, a tie bar or rod connecting said legs or levers for common pivotal movements, and connections between said connecting bar or rod and the log-operating devices, said parts operating substantially as described.

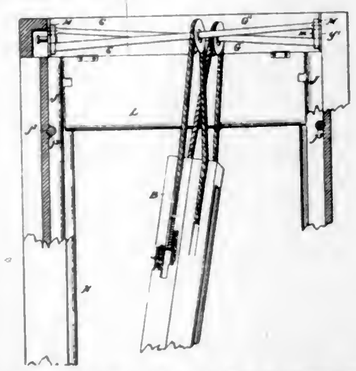
3. The combination with a log-carriage, of offsetting mechanism comprising block and knee devices supporting the log on the carriage, a rock-shaft with connections for reciprocating said block and knee devices, a pair of pivoted legs or levers, having extensible spring-pressed sections, friction shoes or heads pivoted to said extensible sections, a bar or rod tying together said shoes or heads, and connections between said bar or rod and said rock-shaft for oscillating the same, substantially as and for the purposes set forth.

4. The combination with a log-carriage, of an automatic offsetting device involving a pivoted leg or arm, made up of telescoping and longitudinally-adjustable spring-pressed sections, and a friction head or shoe pivoted to the extensible section of said leg and provided with connections to the log-supporting devices, which heads or shoes are adapted to slide over a longitudinal rail, substantially as described.

5. The combination with a log-carriage, of automatic offsetting mechanism involving the leg or arm a^4 with the telescoping sections a^4 and a^5, the former adjustably secured by the brackets, the spring a^7 within the section a^4 acting on the extensible section a^5 and subject to the set-screw a^8, and the friction shoe or head a^{10} pivoted to said section a^5 at a^{11} and provided with the friction block or brush a^{12} adapted to work over one of the track-rails, substantially as described.

659,037. WINDOW. ARCHIBALD McKINNON, Glasgow, Scotland. Filed Feb. 24, 1900. Serial No. 6,343. (No model.)

Claim.—1. The combination of a pair of sliding window-sashes, cords or chains connecting said sashes and passing over sheaves whereby the said sashes are made to mutually counterbalance each other, a sliding rod connected with each of said cords and a take-up spring and detent connected with the sliding rod whereby the cords are normally retained in proper length to cause the movement of one sash to impart equal movement to the other in the opposite direction or the said cords may be lengthened to permit the movement of one sash without the other or facilitate their removal from the frame and reversal in position, as explained.



2. The means whereby the upper sash can be lowered without raising the lower sash, consisting of a sliding bar, to which one end of the rope is attached, recessed within the lower sash-stile and controlled in its movement by a spring-actuated catch, whereby an amount of slack rope is obtained the extent of which determines the extent of lowering of the upper sash, substantially as hereinbefore described and shown in the accompanying drawings.

3. The combination with a sliding lower sash of a sliding upper sash connected to the former by a rope at each side passing over pulleys, in the upper part of the casement, which are capable of sliding from side to side of said casement, a top lintel carrying the top batten-rod and parting-bead hinged to the said casement, side parting-beads of a wedge-shaped cross-section arranged in similarly-shaped recesses in the pulley-stile, and dowel-pins secured within said recesses adapted to enter notches in the back of said parting-beads when raised and retain them flush with the pulley-stile and for guiding the parting-beads outward into their normal position when lowered, substantially as described and shown.

4. The means for enabling the sashes to be removed from the casement, and reversed for cleaning and repairing purposes, consisting of the rods G carrying the cord-pulleys, constructed and arranged as described, and having at their ends the pivoting-links M whereby the said rods can be inclined to allow the pulleys to travel therealong, substantially as hereinbefore described and shown in the accompanying drawings.

5. The combination of a sliding sash D a parting-bead J guiding the said sash in its movement, and having notches j^3; a casement-frame having a recess j into which the parting-bead may be slipped sidewise to release the sash; and dowels j^2 which retain the parting-beads in operative position, or when the parting-bead is slipped endwise, permit its lateral recession by entering the notches j^3 in the said parting-bead substantially as hereinbefore described and shown in the accompanying drawings.

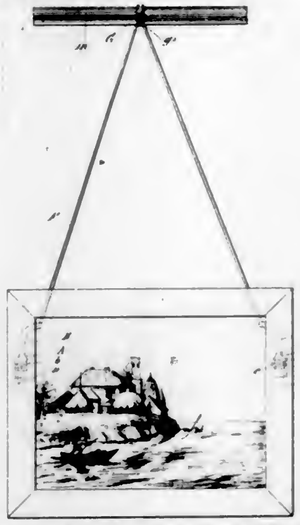
659,038. HANGING DEVICE FOR PICTURES, &c. MAX POLLACK, New York, N. Y. Filed May 7, 1900. Serial No. 15,713. (No model.)

Claim.—1. In a hanging device, substantially as described, the base-plate A, the lever B, adapted to engage hanging-rods with one end, cut into a segmental ratchet at the other, a stud having a slanting top, upon which said lever is pivoted, a pawl working in said ratchet and pivoted to a projection on said base-plate, and a spring actuating said pawl, all substantially as and for the purpose set forth.

2. In a hanging device the combination with the hook G, projection g, and rods F, pivoted to said hook, of the lever B, pivoted to rod F ratchet b' on the end of said lever, and pivoted to stud r, the base-plate A, and the stud r, thereon, the pawl D, pivoted on said base-plate A, and engaging said ratchet b, and spring o, actuating said pawl, all substantially as and for the purpose set forth.

3. In a hanging device, the combination with the two rods F, and F, arranged and adapted to be folded together, as set forth, and means as specified for supporting the same, of levers B, pivotally and detachably fastened to said rods, ratchets b' formed on the lower ends of said levers, base-plates A, studs r, integral with said base-plates, and pivotally attaching the said levers thereto, the pawls D, adapted and arranged to engage said ratchets, and the springs o, arranged to actuate said pawls, all substantially as and for the purpose set forth.

4. In a hanging device, for pictures and like articles, the combination with the lever B, cut at its lower end into a segmental ratchet, of the base-plate A, the stud r, integral with the said base-plate, cut at an angle to said base-plate, and pivotally and detachably attaching said base-plate and said lever, the pawl D, pivoted to said base-plate and engaging said ratchet, the spring o, actuating said pawl, means as set forth, whereby said device is adapted to engage a wall-molding, whereby facility is afforded to said device, for raising and lowering a picture attached thereto, all substantially as and for the purpose set forth.



5. In a hanging device, the combination with the base-plate A, the stud r, integral therewith, and cut at an angle thereto as specified, of the lever B, pivotally and detachably connected to said base-plate by said stud, and arranged and adapted, to maintain unchanged, the angle between a picture attached thereto and a wall, while said picture is raised and lowered, means as set forth adapting said picture to be raised and lowered, means as described for connecting a picture to said base-plate, and means substantially as specified for supporting said hanging device, all substantially as and for the purpose set forth.

659,039. ARTIFICIAL TEETH. CARL REININGHAUS, München-Gladbach, Germany. Filed Dec. 26, 1899. Serial No. 741,643. (No specimens.)



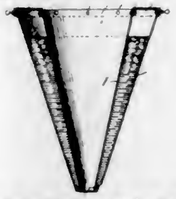
Claim.—The combination of the main skeleton frame shaped to fit the gum and jaws as described, of an auxiliary frame attached thereto and formed with curved teeth engaging portions adapted to engage any remaining natural teeth of the wearer, and artificial teeth suitably secured to said auxiliary frame by intermediate devices, substantially as set forth.

659,040. APPAREL-SHIRT. JOHN S. RICHMOND, Chicago, Ill. Filed Mar. 27, 1899. Serial No 710,558. (No model.)



Claim.—As a new article of manufacture, a union suit comprising a body portion and integral leg portions, said body portion presenting an unbroken front across the chest, and having side portions of diminishing width to form side straps arranged to overlap at the back and to be passed around and secured to the body portion, one of the side portions being slitted to permit the terminating strap of the other side portion to pass therethrough, said body portion having projections or extensions formed in the edges of the material thereof adjacent to the lower edges of the juncture of the side portions therewith, whereby gaping at the crotch is prevented, as and for the purpose set forth.

659,041. FILTER-BAG OR STRAINER. JOICHI TAKAMINE, New York, N. Y., and EBENEZER V. HITCH, Chicago, Ill. Filed June 30, 1900. Serial No. 22,231. (No model.)



Claim.—1. A filter or strainer having inner and outer filtering or straining walls arranged to form a chamber or pocket between them which is adapted to contain the material to be filtered or strained, substantially as and for the purpose set forth.

2. A filter or strainer comprising two filtering or straining walls suitably connected at bottom, separated at top and arranged to form a chamber or pocket between them which is adapted to contain the material t be filtered, substantially as and for the purpose set forth.

3. A filter or strainer having inner and outer filtering or straining walls arranged to form a chamber of approximately-annular cross-section which is adapted to contain the material to be filtered or strained, substantially as and for the purpose set forth.

4. A filter or strainer consisting of an inner strainer-wall of flexible material, and an outer strainer-wall of flexible material connected at bottom with the bottom of the inner wall and forming therewith a chamber which is adapted to contain the material to be filtered or strained, substantially as and for the purpose set forth.

5. A filter or strainer consisting of an inner strainer-wall having a liquid-outlet at bottom, and an outer strainer-wall connected at bottom with the inner wall and forming therewith a chamber which is adapted to contain the material to be strained, substantially as and for the purpose set forth.

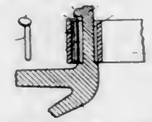
6. A filter or strainer consisting of an inner strainer-wall of approximately-circular cross-section, and an outer strainer-wall of larger approximately-circular cross-section arranged approximately concentrically with the inner strainer-wall and attached to the inner strainer-wall at bottom and separated therefrom at top to form a chamber of approximately-annular cross-section which is adapted to contain the material to be strained, said filter or strainer having an opening at bottom for the passage of the liquid which filters through its inner wall, substantially as set forth.

7. A filter or strainer comprising inner and outer conical sections or bags connected at their small ends and separated at their large ends to afford a material containing and straining chamber between them, substantially as set forth.

8. In a filter or strainer, the combination of the inner and outer filtering or straining walls attached at the bottom and separated at the top, with a suitable frame engaging the said inner and outer walls at top for supporting them with a material containing and straining chamber between them, substantially as set forth.

9. A filter or strainer comprising inner and outer conical walls or bags 1, 4, connected at their small ends, and separated at their large ends, and a ring 15 supported between the said bags at their small ends, substantially as set forth.

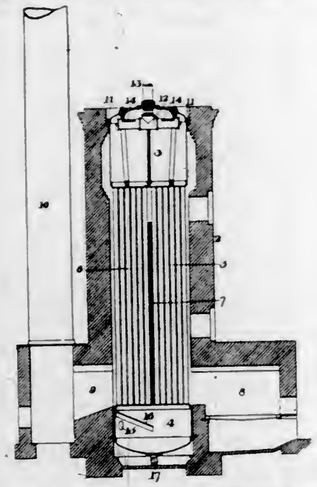
659,042. WINDOW-BLIND HINGE. BENJAMIN S. TAYLOR and BENJAMIN F. TAYLOR, Providence, R. I. Filed Mar. 15, 1900. Serial No. 8,774. (No model.)



Claim.—In a window-blind hinge the combination of a member having a pintle with a pin or projection on one side at its upper end, and a member having a socket with a channel or groove in one side to allow

said pin or projection to pass through when the socket is placed on the pintle, and a removable pin with a head on one side to occupy said channel or groove, substantially as described.

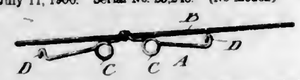
659,043. STEAM-BOILER. WILLIAM C. TEMPLE, Pittsburg, Pa. Filed Sept. 20, 1899. Serial No. 731,054. (No model.)



Claim.—1. A vertical water-tube boiler comprising an upper and a lower drum, a plurality of tubes connecting the same and adapted to maintain a circulation of water through the lower drum, a feed-pipe entering the lower drum, and a partition set opposite to the feed-pipe and having a space for the passage of water, said partition being arranged to deflect the entering current of feed-water out of the path of circulation through said tubes; substantially as described.

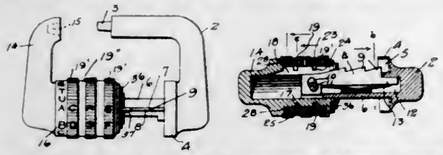
2. A vertical water-tube boiler comprising a casing having a transverse partition therein, a fire-chamber communicating with the heating-space on one side of the partition, and an outlet for the gases on the other side of the partition, front and rear sets of tubes arranged on opposite sides of the partition, a mud-drum connecting the lower ends of the sets of tubes, a steam and water drum connecting their upper ends, a feed-pipe leading to the mud-drum, and a partition arranged to shield the mouth of the feed-pipe from the circulation-current maintained in said lower drum by the two sets of tubes; substantially as described.

659,044. CLOTHES-PIN. CHARLES R. TOWERS, Thornton, Tex. Filed July 11, 1900. Serial No. 23,248. (No model.)



Claim.—As an improved article of manufacture a clothes-pin made of a piece of flexible wire coiled at its middle portion to receive a clothes-line, the arms of said clothes-pin being bent to form circles C, and the ends formed into hooks to engage over the line, each arm bearing against the under portion of the line the entire distance between the middle coil and said circles C when the hooked ends of the pin are caught over the line, as set forth.

659,045. PERMUTATION-PADLOCK. AGNESS AMESS, Minneapolis, Minn. Filed Feb. 26, 1900. Serial No. 6,444. (No model.)



Claim.—1. A permutation-lock, comprising two members having heads provided with outwardly-extending interlocking arms, a spline having a longitudinal slot provided on the head of one member, a toothed locking-bar provided in said slot and having an inclined slot, a pin passing through the slot in said bar and permitting a limited vertical and longitudinal movement thereof, a spring provided beneath said bar and normally holding the same in the upper part of the slot in said spline, a hollow spindle wherein said spline is slidable and having a longitudinal slot to receive said bar and provided with a series of annular grooves, a series of rotating tumblers provided on said spindle, a corresponding series of washers provided in said annular grooves and controlled by the movement of said tumblers and adapted to engage the teeth of said bar and thereby lock said members together, substantially as described.

2. The combination, in a permutation-lock, with a locking member having a hollow spindle, of a second member having a spline and a locking-bar slidable in said spindle, said spindle having a series of annular grooves in its surface and provided also with a longitudinal slot to receive said bar, a sectional washer provided in each of said annular grooves and comprising interlocked sections 21 and 23 having, respectively, a pin 25 and a slot 24, a series of tumblers corresponding in number to said washers provided on said spindle and having annular depressions to receive said pins 25, whereby said washers are rotated with said tumblers, and said slots 24 being adapted to register with the longitudinal slot in said spindle as said washers and tumblers are rotated, substantially as described.

3. In a lock of the class described, the combination, with a member, having a hollow spindle provided with a longitudinal groove, of a series of rotating tumblers provided on said spindle, each tumbler having an annular series of lugs in its surface, springs provided on said spindle having lugs to enter the longitudinal groove therein and be locked thereby against rotary movement and the free ends of said springs being adapted to bear upon said lugs as said tumblers are rotated, substantially as described.

4. In a lock of the class described, the combination, with a member having a hollow spindle provided with a longitudinal groove, of a series of rotary tumblers provided thereon, each tumbler being provided with an annular series of lugs or projections arranged at intervals on said tumblers, springs comprising split rings having lugs to enter said longitudinal groove and bear at their opposite ends upon said lugs in said tumblers and adapted to slide over the same as said tumblers are rotated and one or more of said lugs on said tumblers being cut away to permit the ends of said springs to drop into the space between the preceding and succeeding lugs and thereby limit the rotation of said tumblers in one direction, substantially as described.

5. In a lock of the class described, the combination, with a member having a hollow spindle provided with a longitudinal groove, of a series of rotating tumblers provided thereon, each having an annular series of lugs or projections, a spring provided in each of said tumblers, each spring having a lug to enter said longitudinal groove and bear upon said lugs in said tumblers as they are rotated, and one or more of said lugs in said tumblers being cut away to permit the end of the spring to drop into the space between the succeeding and preceding lugs and thereby lock said tumblers against rotation in one direction, substantially as described.

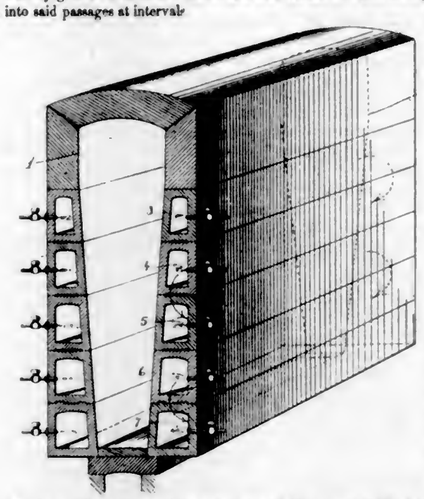
6. In a lock of the class described, the combination, with a member having a hollow spindle provided with a series of annular grooves and a longitudinal slot and a longitudinal groove, of a second member having a spline telescoping with said spindle and a toothed locking-bar slidable in said slot, a series of tumblers provided on said spindle, frictional washers provided between said tumblers and having lugs to enter said groove, sectional washers provided in said annular groove and adapted to rotate with said tumblers and having slots adapted to register with said longitudinal slot, a washer provided at the end of said spindle and comprising two sections hinged together, on one side of said washer and provided with an interlocking notch and lug upon the opposite side, whereby the sections are held firmly together, and a spring-washer provided on said spindle outside said hinged washer, substantially as described.

7. In a lock of the class described, the combination, with a locking member, having a hollow spindle provided with a longitudinal slot and a series of annular grooves in its surface, of a series of rotating tumblers provided on said spindle, a washer adapted to rotate with said tumblers provided in the annular groove at the end of said spindle and comprising two sections 32 and 33 hinged together, said sections having, respectively, an interlocking lug and notch on the opposite side from said hinge, and a slot to register with said longitudinal slot, for the purpose specified.

659,046. COKING-OVEN. CHRISTOPHER G. ATWATER, Boston, Mass. Filed Nov. 7, 1899. Serial No. 736,165. (No model.)

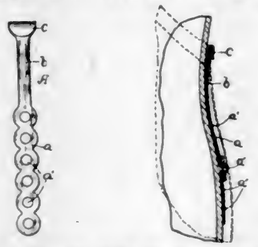
Claim.—1. In a coke-oven, a coking-space, passages over each other along the sides thereof and burners at intervals for introducing gas gradually into said passages, said passages being successively of increasing cross-section as the outlet is approached.

2. In a coke-oven, a coking-space narrowing toward the bottom, passages over each other along the sides thereof, said passages being of successively-greater cross-section downward, and burners for introducing gas into said passages at intervals



3. In a coke-oven, a coking-space shaped like a truncated wedge base upward, horizontal fire-brick passages under each other fitted to the sides of said wedge so as to widen downward in proportion as the coking-space narrows, and burners for introducing gas into said passages at intervals.

659,047. SKIRT-FASTENER. MARSHALL D. BIDDLE, Cleveland, Ohio. Filed Mar. 29, 1900. Serial No. 10,638. (No model.)



Claim.—1. A device for securing and maintaining a downward tension on a skirt-band comprising a shank portion provided with a series of eyelets for adjustably engaging studs on a supporting-garment, and a body portion formed integral therewith and provided with outwardly and downwardly turned hooks, substantially as described.

2. An improved article of manufacture of the character described for preventing the upward movement of a skirt-band on a corset or similar garment, consisting of a device formed from a single piece of sheet metal, comprising a longitudinal shank portion provided with a series of eyelets, and two divergent arm portions, each of the respective arm portions being bent upon itself at its free end to form a hook, substantially as described and for the purpose set forth.

659,048. MICROMETER-INDICATOR. JOSEPH BOULET, Beverly, Mass. Filed Jan. 12, 1900. Serial No. 1,216. (No model.)



Claim.—1. A micrometer-indicator embodying the following parts constructed, arranged, and operating together as described, namely: a body A; extension-arm L; pivot-block D; plug C; arm A; needle F; spring G; and scale J; all combined as and for the purposes specified.

2. A micrometer-indicator comprising a body A; an extension-arm L; a pivot-block D; a plug C; an arm H; a needle F; a spring G; and a scale J, arranged as described, in combination with a detachable contact-piece supported by arm L, and formed and arranged to act upon the end of needle F, while the attachment is in contact with the work being tested, and thereby actuating the needle and through it indicating the variations in the work in the manner specified.

659,049. WATCHCASE-OPENER. DANIEL W. CAMPBELL and ALBERT E. PRESCOTT, North Creek, N. Y. Filed Nov. 17, 1899. Serial No. 737,344. (No model.)



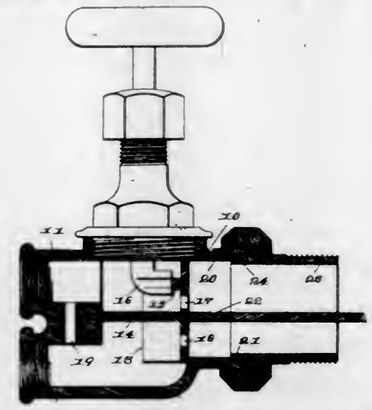
Claim.—1. A wrench for opening watchcases consisting of an unyielding body provided with a handle, and having a concave end, and a concave facing of soft rubber immovably secured upon said end, substantially as specified.

2. A case-opener, having a cylindrical end portion terminating in a concave end lined with a concave rubber facing having its margin projecting beyond the level of said concave end, substantially as specified.

3. A case-opener, consisting of the body having the cylindrical end portions, the annular gripping-groove between said end portions, the concave ends of different curvature, and the rubber facings of said concave ends, substantially as specified.

4. A tool for the purpose described, consisting of an unyielding body provided with a handle, and having a concave end, and a concave soft-rubber facing immovably secured upon said end and having its margin projecting beyond the level thereof, substantially as specified.

659,050. CIRCULATING-VALVE. JOHN COLLIS, Des Moines, Iowa, assignor to William P. Collis, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,935. (No model.)



Claim.—1. The combination, with a valve-chamber having induction and eduction openings at one end, arranged the one above the other, and a tubular extension at the other end, of a semicircular valve in the valve-chamber, a disk-shaped partition secured to the semicircular valve, a valve-stem connected with the valve, and a partition in the tubular extension, arranged substantially in alinement with the said disk-shaped partition, for the purposes stated.

2. The combination with a valve-chamber having induction and eduction openings at one end, arranged the one above the other, and also having passage-ways between said openings, and a tubular extension at the other end, of a semicircular valve or valve-chamber, a disk-shaped partition secured to the semicircular valve, a valve-stem connected with the valve and a partition in the tubular extension, arranged substantially in alinement with the said partition for the purposes stated.

3. The combination, with a valve-casing having induction and eduction openings at one end and a tubular extension at the other end, of a semicircular valve in the casing, a disk-shaped partition connected with the valve, a horizontal partition in the said tubular extension, and a coup-

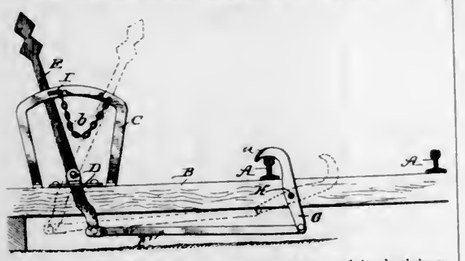
ling-pipe designed to be connected with said tubular extension and a horizontal partition in said coupling-pipe to project beyond it and designed to aline with the partition in the tubular extension, for the purposes stated.

4. The combination with a valve-casing having induction and eduction openings at one end and a tubular extension at the other end, of a semicircular valve in the casing, a disk-shaped partition connected with said valve, said valve being provided with a passage-way above and a passage-way below the said disk-shaped partition, for the purposes stated.

5. An improved circulating-valve, comprising in combination a casing, induction and eduction pipes admitted into one end of the casing the one above the other, a horizontal partition in the casing to separate the induction and eduction pipes, a tubular extension at the opposite end of the casing, a horizontal partition in said tubular extension, and a valve located between the said partitions and arranged to be capable of cutting off the flow above and below said partitions when closed, and for permitting the flow above and below said partitions when open, and a partition connected with the valve for cutting off communication between the upper and lower chambers when the valve is either open or closed, substantially as, and for the purposes stated.

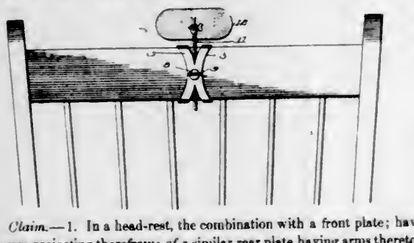
6. The combination with a valve-casing having at one end induction and eduction openings, and at the other end a tubular extension, of a horizontal partition in the said tubular extension, a valve in the casing, and a partition connected with said valve, said partition being designed to aline with the aforesaid partition when the valve is open to form continuous passage-ways through the valve-chamber above and below the said partitions, for the purposes stated.

659,051. RAILWAY-CAR CHOCK. JOHN T. CONDON, Le Mars, Iowa. Filed July 10, 1900. Serial No. 23,116. (No model.)



Claim.—A railway-car chock consisting of an upright chock-lever fulcrumed below the rails to vibrate in a plane at right angles to said rails, and having at its upper end a hook-shaped beak arranged to be projected across one of the rails or be withdrawn from the same, a connecting-rod arranged below the road-bed, and extending to one side of the track, and an upright lever connected to said rod and provided with locking devices substantially as described.

659,052. HEAD-REST. VASSER CRENSHAW, Augusta, Ark. Filed Apr. 13, 1900. Serial No. 12,749. (No model.)

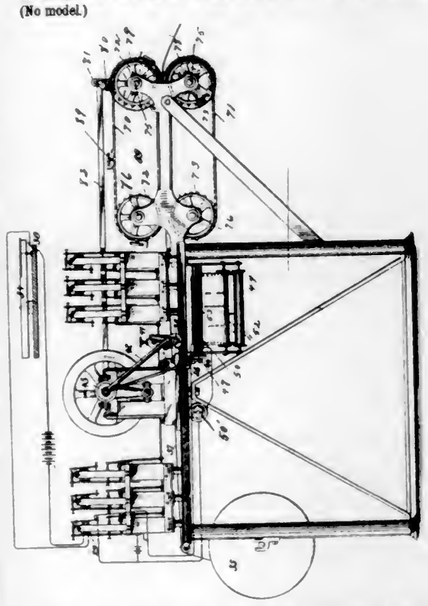


Claim.—1. In a head-rest, the combination with a front plate; having arms projecting therefrom; of a similar rear plate having arms thereto; connecting-strips between and integral with the upper arms of said plates; toes upon the lower arms of the front plate; hooked extensions upon the corresponding arms of the rear plate adapted to engage said toes; a screw mounted within the rear plate; a plate swiveled thereto; and a rod between the plates and adapted to be engaged by said swiveled plate.

2. In a head-rest, the combination with a rod having a rest at one end thereof, of an attachment struck up from a single piece of metal, and comprising a rear plate having a threaded aperture therein, arms extending in opposite directions from the plate, a front plate, arms extending in opposite directions therefrom, connecting-strips between and integral with the upper arms of the plates, extensions upon the lower arms of the rear plate, hooks thereon, toes upon the lower arms of the front plate adapted to engage said hooks, a plate having a groove therein adapted to receive the rod, and a screw engaging the aperture within the rear plate and swiveled to said grooved plate.

3. As a new article of manufacture, a head-rest attachment struck up from a single piece of metal and comprising a rear plate having a threaded aperture therein, arms extending in opposite directions from the plate, a front plate, arms extending in opposite directions therefrom, connecting-strips between and integral with the upper arms of the plates, extensions upon the lower arms of the rear plate, hooks thereon, and toes upon the lower arms of the front plate adapted to engage said hooks.

659,053. PERFORATING AND RECORDING MACHINE. GEORGE H. DAVIS, New York, N. Y. Filed Sept. 2, 1896. Serial No. 604,608. (No model.)



Claim.—1. In a perforating-machine the combination with a driving-shaft, a series of punches, a series of punch setting and controlling dogs, electrical circuits and electromagnets for actuating said dogs, a series of circuit-selectors, a stencil which actuates said circuit-selectors, a die-block over which the material to be perforated is fed, and means for producing a relative reciprocation between the punches and die-block, substantially as described.

2. In a perforating-machine the combination with a constantly-driven shaft of a series of punches, a series of punch setting and controlling dogs, electric circuits and electromagnets for actuating said dogs, an electric contact device in said circuits comprising two members, a stencil which passes between the members of said device and means for feeding the material to be perforated beneath the punches, substantially as described.

3. In a perforating-machine the combination with a constantly-driven shaft, a series of punches, a die-block means for producing a relative reciprocation between the punches and die-block, a series of punch setting and controlling dogs, electric circuits and electromagnets for actuating said dogs, an electrical contact device in said circuits comprising two members, a stencil which passes between the members of said device and means for feeding the material to be perforated beneath the punches, substantially as described.

4. In a perforating-machine the combination with a reciprocating frame of a series of punches mounted to reciprocate in said frame, a series of punch setting and controlling dogs, electric circuits and electromagnets for actuating said dogs, an electric contact device in said circuits comprising two members, a stencil which passes between the members of said device and means for feeding the material to be perforated beneath the punches, substantially as described.

5. In a perforating-machine the combination with a constantly-driven shaft, a frame reciprocated thereby, a series of punches mounted in said frame, a series of punch setting and controlling dogs, electric circuits and electromagnets for actuating said dogs, an electric contact device in said circuits comprising two members, a stencil which passes between the members of said device, a die-plate and die-block and means for feeding the material to be perforated between said plate and block substantially as described.

6. In a perforating-machine the combination with a driving-shaft of a frame reciprocated by said shaft, a series of punches mounted in said frame, a series of punch setting and controlling dogs carried by said frame, electrical circuits and electromagnets for actuating said dogs so as to throw them in operative relation to said punches, a series of circuit-selectors, a stencil which engages and actuates said circuit-selectors and a die-block over which the material to be perforated is fed, substantially as described.

7. In a perforating-machine the combination with a driving-shaft of a frame reciprocated by said shaft, a series of punches mounted in said frame, a series of punch setting and controlling dogs carried by said frame, electrical circuits and electromagnets for actuating said dogs, a roller, a series of selectors cooperating with said roller, a stencil passing between the selectors and roller and means for feeding the material to be perforated beneath said punches, substantially as described.

8. In a perforating-machine, the combination with a driving-shaft, of a series of perforating-punches, a series of punch setting and locking devices to render said perforating-punches operative, means for controlling the action of said setting and locking devices, feeding mechanism to drive the paper beneath the punches, auxiliary rack-forming punches operated from said driving-shaft, and connections between the paper-feeding mechanism and said auxiliary punch mechanism whereby the latter mechanism may be rendered operative when desired to form a rack in the edges of the sheet.

9. In a perforating-machine, the combination with a driving-shaft, of a series of punches operated thereby, a series of punch-controlling dogs in operative relation to said punches, means for controlling the action of said dogs, auxiliary rack-forming punches, dogs for controlling said last-named punches, a pair of paper-feeding rollers, one of which is provided with a rack-wheel, connections between said rack-wheel and the auxiliary punch-controlling dogs to actuate the latter, and means for throwing said rack-wheel connections into and out of action as desired.

10. In a perforating-machine, the combination with a driving-shaft, of a series of punches operated thereby, a series of punch-controlling dogs in operative relation to said punches, electrical means for controlling the action of said dogs, auxiliary rack-forming punches, dogs for controlling the said last-named punches, a pair of paper-feeding rollers, one of which is provided with a rack-wheel, connections between said rack-wheel and the auxiliary punch-controlling dogs to actuate the latter, and means for throwing said rack-wheel connections into and out of action as desired.

11. In a perforating-machine, the combination with a series of punches, of means for operating said punches, a series of electromagnets to control said punches, spark-reducing means and piano-key mechanism with which said magnets are in circuit, a copy-holder having a contact-roller over which the stencil passes in circuit with said punch-controlling magnets, means for feeding said stencil, a series of selectors which enter the perforations in the stencil and complete the circuit through the contact-roller, a switch to throw the circuit through the piano-key mechanism or the copy-holder as desired, and paper-feeding mechanism to carry the sheets to be perforated beneath the punches.

12. In an electrical perforating-machine, the combination with the punch mechanism, of a series of electromagnets to control the action of said punches, and a copy-holder having a contact-roller in circuit with said magnets over which the stencil passes, means for giving the stencil a step-by-step feeding movement, a series of selectors having curved faces which rest upon said contact-roller and complete the circuit through the punch-controlling magnets, said selectors being of approximately the same width as the punch perforations in the stencil less the length of a single step-feeding movement of the stencil, and means for feeding the paper beneath the punches.

13. In a perforating-machine, the combination with the punches and their operating mechanism, of paper-feeding mechanism comprising two endless aprons moving in proximity to each other, a series of clamping-plates movable to and from the surface of said apron carried by one of said aprons, a series of plates carried by the other apron with which said movable plates cooperate, and means for imparting an intermittent feeding movement to said aprons.

14. In a perforating-machine, the combination with the punches and their operating mechanism, of paper-feeding mechanism comprising two endless aprons moving in proximity to each other, a series of spring-pressed clamping-plates carried by one of said aprons, a series of rigid plates carried by the other apron, and means for imparting an intermittent feeding movement to said aprons.

15. In an electrical perforating-machine the combination with the punches of a series of circuits and electromagnets to control the selection of said punches, primary windings for said magnets, circuit-closing devices, spark-reducing means to reduce the sparking at the circuit-closing devices and means whereby the spark-reducing means are rendered operative when the circuit-closing devices are opened, substantially as described.

16. In an electrical perforating-machine the combination with the punches of a series of circuits and electromagnets to control the selection of said punches, primary windings for said magnets, circuit-closing devices, spark-reducing means arranged to be thrown in circuit with said circuit-closing devices to reduce the sparking at the latter, and means whereby the spark-reducing means are cut into circuit after the initial action of said primary windings to reduce the sparking when the circuit-closing devices are opened substantially as described.

17. In an electrical perforating-machine the combination with the punches of a series of circuits and electromagnets to control the selection of said punches, primary windings for said magnets, circuit-closing devices, spark-reducing means arranged to be thrown in series with said circuit-closing devices and means whereby the spark-reducing means are cut in series after the initial action of said primary windings to reduce the sparking when the circuit-closing devices are opened substantially as described.

18. In an electrical perforating-machine the combination with the punches of a series of circuits and electromagnets to control the selection of said punches, primary windings for said magnets, circuit-losing devices, resistances arranged to be thrown in series with said circuit-losing devices and means whereby the resistances are cut into circuit after the initial action of said primary windings to decrease the flow of current through said magnets substantially as described.

19. In an electrical perforating-machine the combination with the punches and their operating mechanism of a series of circuits and electromagnets to control the action of said punches, primary windings for said magnets arranged to actuate the punch-controlling devices when energized, electrical resistances and means whereby the resistances are cut into circuit after the initial action of said primary windings to decrease the flow of current to the magnets, substantially as described.

20. In an electrical perforating-machine the combination with the punches, of a series of circuits, electromagnets and circuit-closing devices to control the action of said punches, primary windings for said magnets, electrical resistances and means whereby the resistances are thrown into series with the primary windings and the circuit-closing devices after the initial action of said primary windings to prevent sparking, substantially as described.

21. In an electrical perforating-machine, the combination with the punches, a series of punch-selectors, a series of electromagnets to control the action of said punch-selectors, a series of circuits including contact devices for energizing said magnets, a stencil and spark-reducing means for reducing the spark at the contacts at the time the contacts are opened by the stencil, substantially as described.

22. In an electrical perforating-machine the combination with the punches of a series of electromagnets to control the action of said punches, electrical resistances and means whereby the resistances are cut into circuit after the initial action of said magnets to decrease the flow of current through said magnets, a stencil and a series of contact devices in circuit with said magnets, substantially as described.

23. In an electrical perforating-machine, the combination with the punches, a series of punch-selectors, a series of electromagnets to control the action of said punch-selectors, a series of circuits including contact devices for energizing said magnets, a stencil and means for reducing the spark at said contact devices, substantially as described.

24. In an electrical perforating-machine the combination with the punches, a series of punch-selectors, a series of electromagnets to control the action of said punch-selectors, a series of circuits including contact devices for energizing said magnets, a stencil and means for reducing the currents in said circuits at the time the contact devices are opened by the stencil to reduce the spark at the contacts, substantially as described.

25. In an electrical perforating-machine the combination with the punches, of a series of electromagnets to control the action of said punches, of current-reducing devices arranged to be thrown in circuit with the winding of said magnets and means whereby the current-reducing devices are cut into circuit after the initial action of said magnets to decrease the flow of current through said magnets, a stencil and a series of contact devices in circuit with said magnets, substantially as described.

26. In an electrical perforating-machine the combination with the punches of a series of electromagnets to control the action of said punches, electric resistances, means whereby the resistances are cut into circuit after the initial action of said magnets, to decrease the flow of current to the magnets, a stencil and a series of contact devices in series with said magnets.

27. In an electrical perforating-machine the combination with the punches of a series of electromagnets to control the action of said punches, electrical resistances arranged to be thrown in series with the winding of the magnets, means whereby the resistances are cut into circuit after the initial action of said magnets to decrease the flow of current through the magnets, a stencil and a series of contact devices in series with said magnets, substantially as described.

28. In an electrical perforating-machine, the combination with the punches and their operating mechanism, of a series of electromagnets to control the action of said punches, said magnets having a primary and secondary winding, the former winding being arranged to actuate the punch-controlling devices when energized, and means whereby the secondary winding is cut into circuit after the initial action of said primary winding to increase the resistance of the coil and decrease the flow of current to the electromagnets.

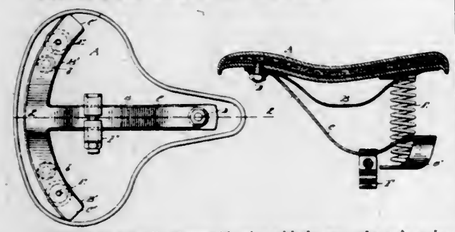
29. In an electrical perforating-machine, the combination with the punches and their operating mechanism, of a series of punch-controlling devices, magnets for actuating said punch-controllers, said magnets being provided with primary and secondary windings, said secondary winding being of finer wire than the primary winding and lying beneath the convolutions of the latter, and means operated by the armature when actuated by the completion of the circuit through the primary winding to cut the secondary winding into series with said primary winding and increase the resistance through the coil and reduce the current flowing to the magnets.

30. In an electrical perforating-machine, the combination with the perforating-punches, of operating mechanism for said punches, paper-feeding devices to carry the paper beneath the punches, a series of primary magnets for controlling the action of said punches, a series of relay-magnets which control the circuits through said primary magnets, and key mechanism in circuit with said relay-magnets.

31. In an electrical perforating-machine, the combination with a series of perforating-punches, of means for operating said punches, paper-feeding devices to carry the paper beneath said punches, a series of punch-actuating dogs to bring said punches into action, primary magnets controlling said punch-actuating dogs, a series of relay-magnets which control the circuits through said primary magnets, and key mechanism in circuit with said relay-magnets, by the action of which said relay-magnets are energized.

32. In an electrical perforating-machine, the combination with a series of perforating-punches, of means for operating said punches, paper-feeding devices to carry the paper beneath said punches, a series of punch-actuating dogs to bring said punches into action, primary magnets controlling said punch-actuating dogs, a series of relay-magnets which control the circuits through said primary magnets, key mechanism in circuit with said relay-magnets, by the action of which said relay-magnets are energized, a copy-holder having a contact-roller over which a stencil passes, a series of selectors or contact-fingers resting on said contact-roller and in circuit with said relay-magnets, and a switch to throw the current through the key mechanism or the contact-roller as desired.

659,054. VELOCIPEDE-SADDLE. Ephraim J. Day, Lynn, Mass. Filed Jan. 3, 1900. Serial No. 207. (No model.)



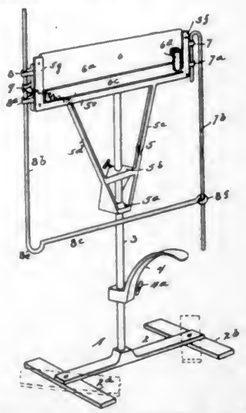
Claim.—In a saddle, the combination with the seat, of a main spring secured at its front end to said seat, curved downwardly intermediate its ends, and having integral lateral wings or arms at its rear end secured to the under side of said seat, an auxiliary spring located beneath said main spring secured at its front end by a common fastening device to said main spring and to said seat, the said auxiliary spring being curved downwardly intermediate its ends and having integral laterally and downwardly extending wings or arms at its rear end, and a pair of coil-springs connecting, respectively, the ends of the wings on said main and auxiliary springs.

659,055. WELDING AND TEMPERING COMPOUND. Melvin C. Dean, Niles, Ohio. Filed Apr. 20, 1900. Serial No. 13,564. (No specimens.)

Claim.—The compound herein described for tempering and welding iron and steel, consisting of pulverized borax, black oxid of manganese and carbonate of iron, as set forth.

659,056. MANUSCRIPT-HOLDER. John S. Downie, Detroit, Mich. Filed Aug. 5, 1899. Serial No. 726,265. (No model.)

Claim.—1. In a copy-holder, in combination with a standard, a holding-frame adjustable on said standard, and provided with slotted posts for the reception of a clip, and a removable clip adapted to engage in said slotted posts, substantially as described.



2. In a manuscript-holder, the combination of a standard, an arm 4 secured to said standard so as to be vertically adjustable thereon, means for clamping said arm in the desired position upon said standard, said arm curving upward and forward and being adapted to engage over the paper rolling out from the type-writer, and turn said paper downward, substantially as described.

3. In a manuscript-holder, in combination with a standard, a manuscript-frame mounted thereon, said frame being provided with vertical apertures upon one edge thereof, a rod 8^a, extending through said apertures, a friction-brake adapted to hold said rod in the position at which it is placed, said rod being bent at its lower end, and extending across said frame, substantially as described.

4. In a manuscript-holder, in combination with a standard, a base consisting of a bar 2, and a cross-bar pivoted to each end of the bar 2, beneath the same, so as to swing in a horizontal plane, substantially as and for the purpose described.

5. In a manuscript-holder, in combination with a standard, a frame vertically adjustable on the standard, and provided with vertical posts, and a holding-clip adapted to engage said vertical posts, and to be removed therefrom, substantially as described.

6. In a manuscript-holder, in combination with a frame vertically adjustable along the standard, and provided with slotted posts, a plate adapted to engage in the slots of said posts, and a spring secured to said plate and arranged to form therewith a spring-clip, substantially as described.

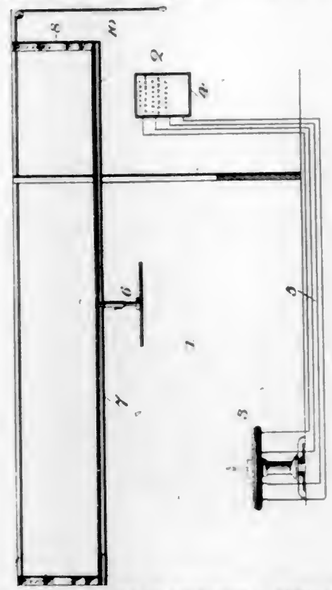
7. In a manuscript-holder, in combination with a standard, a manuscript-holding frame mounted thereon and provided with vertical apertures upon each edge of said frame, a rod 7^b, extending vertically and bending backward upon itself and at the backward-extending part thereof, fitting into said apertures, upon one side of said frame, a rod 8^a, extending vertically through the apertures upon the other side of said frame then extending across said frame and engaging the rod 7^b, substantially as described.

8. In a manuscript-holder, in combination with a standard, a manuscript-holding frame mounted thereon and provided with vertical apertures upon each edge of said frame, a rod 7^b, extending vertically and then bending backward upon itself and at the backward-extending part thereof fitting into said apertures upon one side of said frame, a rod 8^b, extending vertically through the apertures upon the other side of said frame then bending outward forming a loop 8^a, then extending across said frame and engaging with the rod 7^b, substantially as described.

659,057. SERVING APPARATUS FOR DINING-ROOMS. James Doyle, Pittsburg, Pa. Filed Dec. 15, 1898. Serial No. 699,400. (No model.)

Claim.—1. In combination, a track, a dumb-waiter adjustably supported from said track with its receiving-platform comprising a series of removable sections, means for securing said sections together, and means for moving said dumb-waiter along the track to the desired position.

2. In a serving apparatus for dining-rooms, a pair of supporting-brackets, adjustable brackets, means for adjustably connecting the same to the supporting-brackets, a track carried by the said adjustable brackets, a hanger suitably connected to said track, a dumb-waiter suitably connected to said hanger and provided with a series of carrying-sections, an endless cable, and means carried by said cable to engage the adjustable brackets and move the same upon the tracks.

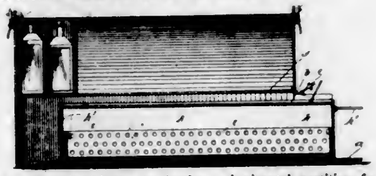


3. In a serving apparatus for dining-rooms, a suitably-supported track, a dumb-waiter provided with a series of numbered carrying-sections, means for connecting said waiter to said track, means for moving said dumb-waiter on said track, in combination with a dining-table divided into a series of numbered sections corresponding with the carrying-sections of the dumb-waiter.

4. In a serving apparatus for dining-rooms, a dumb-waiter consisting of a hanger-arm, a supporting-rod suitably connected thereto, a collar carried by the said supporting-arm and provided with a series of cut-away portions, a series of clamps carried by the said collar, and a series of carrying-sections adapted to be mounted in the said collar and secured thereto by means of the said clamps.

5. In a serving apparatus for dining-rooms, a suitably-supported track, a dumb-waiter provided with a series of numbered carrying-sections, means for connecting said waiter to said track, and means for moving said waiter on said track, in combination with a dining-table divided into a series of numbered sections corresponding with the carrying-sections of the dumb-waiter, and an annunciator connected with the dining-table and divided into a series of numbered sections corresponding with the numbered sections of the said dining-table.

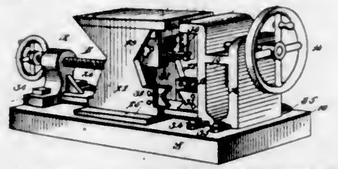
659,058. SURGEON'S CASE. Emil A. Edlen, Moline, Ill. Filed June 5, 1900. Serial No. 19,140. (No model.)



Claim.—A physician's case, having a horizontal partition formed therein, forming the case into an upper and a lower compartment, a sterilizing-pan fitted in the lower compartment, and a perforate sterilizing-tray loosely fitted in the sterilizing-pan and adapted to carry the surgical instruments.

659,059. COMBINATION-TOOL. Frederick C. Engelhardt, New York, N. Y. Filed Jan. 31, 1900. Serial No. 3,530. (No model.)

Claim.—1. A combination-tool, comprising a base provided at one end with spaced and connected standards, the inner standard being provided with a horizontal jaw, a lathe-spindle mounted in the standards and provided with a lathe-chuck at its inner end, said chuck being provided with a central recess and with set-screws, a holder mounted to slide on the base and having a flat top, the front portion of which constitutes an opposing jaw for the jaw of the standard, a box-receptacle depending from the top of the holder and provided with vertical grooves in its sides and a horizontal groove in its sides at the bottom, and set-screws in the sides of the receptacle, substantially as described.



2. In a combination-tool, the combination with a base, provided with standards, and a lathe-spindle mounted in the standards and carrying a lathe-chuck on its inner end, of a holder mounted to slide on the base and provided with a box-receptacle depending from the top thereof, said box-receptacle having vertical grooves in its side walls and extending out through the bottom and horizontal grooves in the said walls at the bottom and intersecting the vertical grooves, and set-screws in the side walls of the box-receptacle, substantially as described.

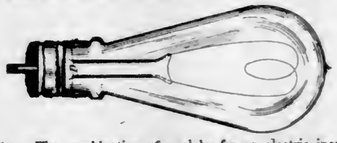
659,060. TOY HORSE. Melchior Flick, Cleveland, Ohio. Filed Nov. 29, 1899. Serial No. 738,654. (No model.)



Claim.—1. The horse, the front wheels and the upright standard thereon, a plate extending forward from the bottom of the horse and an inclined arm fixed thereon and having said standard rotatably engaged therein, a spring on said upright beneath said arm to cushion the weight of the horse and rider, and steering mechanism connected with said standard between said plate and arm, substantially as described.

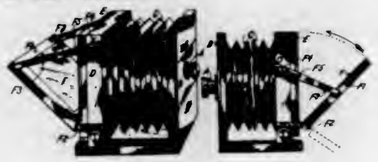
2. The horse and its supporting wheels and axles, in combination with a detachable handle-stem connected with the rear and bottom of the body of the horse, a spring-catch on said handle and a fixed catch therefor on the horse, substantially as described.

659,061. ELECTRIC LAMP. Frank L. Fowler, Philadelphia, Pa. Filed Oct. 26, 1898. Serial No. 694,566. (No model.)



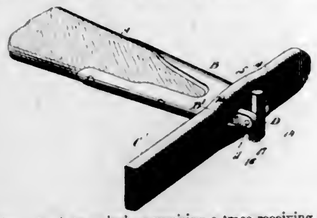
Claim.—The combination of a globe for an electric incandescent lamp, a collar, fastening devices common to said collar and globe, tongues struck up from said collar and adapted to engage openings in a base located in proximity to said collar, said tongues being deflected and adapted to engage said base so that disengagement of the parts is prevented.

659,062. FOCUSING ATTACHMENT FOR CAMERAS. Joseph Gaut, Leichhardt, New South Wales, assignor of one-half to John Joseph Rouse, Sydney, New South Wales. Filed May 10, 1900. Serial No. 16,225. (No model.)



Claim.—The combination with the rear frame of a photographic camera, of a focusing-screen suitably connected thereto, a pair of straps secured to said rear frame and projecting outwardly therefrom, a frame F' pivotally connected at its lower end to said straps, carrying a reflector and capable of variable inclinations, a pair of jointed folding bars connected at one end to near the top of said frame F' and at their opposite end adjustably secured to said rear frame, and means for adjusting said bars lengthwise, substantially as described.

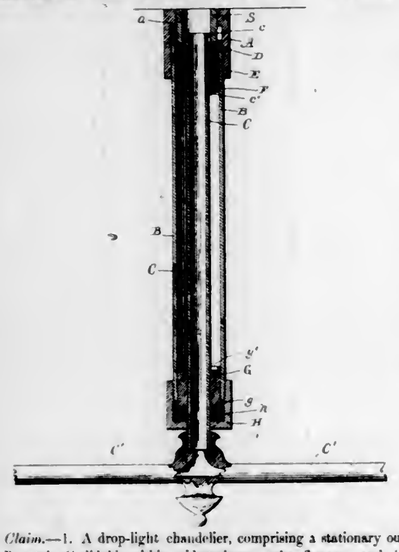
659,063. TRACE-LOCK. THOMAS J. HALSTEAD, Dallas, Tex. Filed June 16, 1900. Serial No. 20,561. (No model.)



Claim.—1. A trace-lock, comprising a trace-receiving section having a forked end, the inner wall between the members of the fork being concaved, a button pivotally and slidably mounted between the members of the fork and having one convexed end adapted to engage the concave wall between the members of the fork, and a spring carried by the button and serving to hold the same in alinement with the trace-carrying section or at right angles thereto, substantially as described.

2. A trace-lock consisting of a bifurcated section having a concaved inner wall between its members and means for attachment to a whiffletree, a pin passed through the members of said bifurcated section, and a button consisting of a shell permanently closed at one end, which permanently-closed end is convexed at its outer surface, the opposite end of the shell being provided with a block which extends to a point near its center, the shell having slots in opposite sides, which slots receive the pin in the bifurcated section, said pin serving as a pivot for the button, and a spring located within the shell, having bearing against the permanently-closed end thereof and against said pin, as set forth.

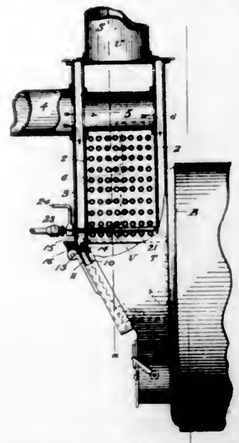
659,064. DROP-LIGHT GAS-FIXTURE. GEORGE W. HINCHMAN, Glenwood, Ind. Filed Mar. 13, 1900. Serial No. 8,471. (No model.)



Claim.—1. A drop-light chandelier, comprising a stationary outer tube B, a tube C slidable within said stationary tube, flanges c and c' on said inner tube, a bushing G in the lower end of the stationary tube and through which the inner tube passes, an expansible or loose packing E around the upper end of the inner tube between the flanges c and c', and a depending pipe S at the upper end of the fixture with which the upper end of said expansible or loose packing engages when the tube is at its upper position, and by which said packing is compressed, substantially as shown and for the purpose set forth.

2. A drop-light chandelier, comprising the stationary tube B, a tube C slidable therein and carrying the burners, flanges c and c' on the upper end of the inner tube, loose washers F and D and interposed loose packing E on the upper end of said inner tube between the flanges c and c' thereof; together with the depending pipe S adapted to receive the upper flanged end of the tube C and move the washer D, a bushing G in the lower end of the stationary tube and having a flange *g* adapted to engage and move the washer F, and a cap H screwed upon the lower end of the stationary tube, the parts being constructed and arranged as herein shown and described.

659,065. HEAT-ECONOMIZER. JOHN B. HOUSTON, Vancouver, Canada. Filed July 11, 1900. Serial No. 23,259. (No model.)



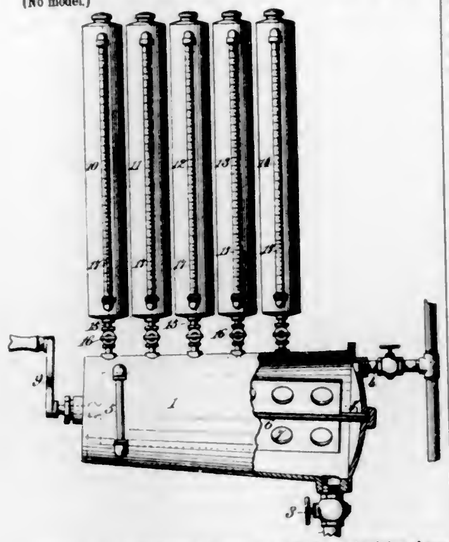
Claim.—1. In an economizer of the class described; in combination with an uptake-flue connecting the boiler-tubes with the smoke-stack; a number of tubes passing horizontally across such uptake; an air-tight jacket or casing surrounding the front, back and sides of the uptake and extending from the base of the smoke-stack down to the furnace-front; means for conveying the air for combustion to within such jacket; an air-passage connecting the front and back jacket through the uptake; division-plates or partitions in the air-tight jacket dividing the groups of tubes vertically into two sections, and so arranged that the entering air shall flow in two streams in opposite directions through the back and front sections of the vertically-divided group of tubes and thereafter pass to the furnaces, substantially as and for the purposes set forth.

2. In an economizer as described; in combination with an uptake-flue; a jacket surrounding the front, back and sides of the same; an uptake door or doors composed of an inner and outer casing, which being flanged around their edges and riveted together one within the other, around such flanged edges forming the joint of the opening the door is designed to close; an air-space retained between the inner and outer casing of the door and means whereby air may be circulated within such door air-space, when the door is shut and fastened, as and for the purposes described.

3. In an economizer as described, in combination with an uptake; a jacket surrounding the same; an aperture in the base of such jacket just over such uptake-door; an uptake-door having an inner and outer casing and an air-space therebetween; an aperture in the upper flange of the outer casing to correspond with one in the base of the jacket; a casting surrounding such opening fastened to the door and carried up close to the aperture in the jacket-base; a groove surrounding the opening in the casting and packing therein that joints around the aperture in the base of the jacket when the door is closed and fastened, and forms an air-tight closure surrounding the passage; an opening in the inner casing of said door in proximity to the lower flanged edge; a corresponding opening in the bottom plate of the uptake-flue; a casting attached to the bottom plate of the uptake-flue having a port or passage in it to correspond with the aperture, such passage and casting to be carried up and around until its face is adjacent to and in a proximate plane with that of the inner casing of the door; a groove surrounding such opening and a packing in the groove to form an air-tight joint around the opening in the door-casing when the door is shut and fastened, all substantially as and for the purposes set forth.

4. In an economizer having air-tubes passing across an uptake-flue and a jacket surrounding the same, in combination; a steam-pipe closed at its inner end and passing through the jacket into the uptake in a line at right angles to the direction of the air-tubes and in a parallel horizontal plane, said pipe to be capable of rotation in the jacket-casings; perforations in such steam-pipe between each vertical row of tubes and adjacent to the front and back plates of the uptake; a gland-packed attachment to the steam-service exterior to the economizer; and a handle for rotating the same, substantially as and for the purposes described.

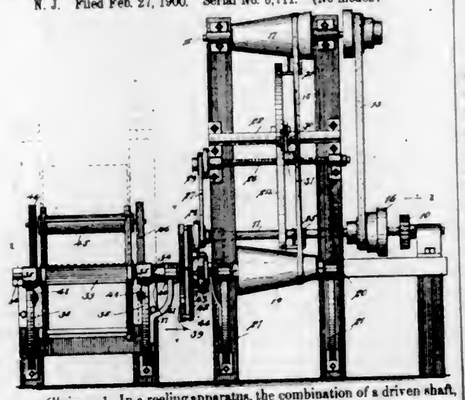
659,066. APPARATUS FOR MEASURING AND MIXING LIQUIDS. HENRY G. IRMIGER and JAMES MCCARTHY, Green Bay, Wis. Filed June 26, 1899. Renewed Apr. 19, 1900. Serial No. 13,514. (No model.)



Claim.—1. An apparatus for measuring, diluting and mixing chemicals for introduction into a washing-machine, comprising a mixing-cylinder, an agitator therein, a series of tanks for the chemicals having valved communication with said cylinder, and measuring devices on each of said tanks.

2. An apparatus for measuring, diluting and mixing chemicals for introduction into a washing-machine, comprising a mixing-cylinder having valved inlet and discharge pipes, an agitator therein, a water-gage thereon, a series of tanks for the chemicals located above said cylinder, pipes respectively connecting said tanks with said cylinder, cocks or cut-offs in said pipes, and a graduated measuring-tube for each of said tanks.

659,067. REELING-MACHINE. WILLIAM J. IRWIN, Hoboken, N. J. Filed Feb. 27, 1900. Serial No. 6,711. (No model.)



Claim.—1. In a reeling apparatus, the combination of a driven shaft, a stepped pulley thereon, a second shaft, a stepped pulley on the second shaft, a belt passing between said pulleys, a third shaft, a cone-pulley on the second shaft, a cone-pulley on the third shaft, a belt passing between the cone-pulleys, a belt-shifter working with the belt of the cone-pulleys and driven continuously from the first-named or driven shaft to steadily shift the speed, and reeling devices driven from the third shaft.

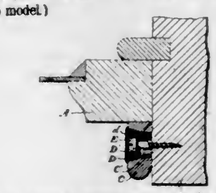
2. The combination of a driven shaft, a second shaft, adjustable gearing for driving the second shaft from the first-named or driven shaft, a third shaft, cone-pulleys on the second and third shafts, a belt passing between the cone-pulleys, a belt-shifter working with the belt and driven continuously from the first or driven shaft to steadily shift the belt, and reeling devices driven from the third shaft.

3. The combination of a drive-shaft, a second shaft driven therefrom, a third shaft, cone-pulleys on the second and third shafts, a belt passing between the cone-pulleys, a belt-shifter working with the belt, a screw driven continuously from the drive-shaft, a nut carried on the belt-shifter and engaging the screw, whereby to automatically drive the belt-shifter and steadily shift the belt, and reeling devices connected with the third shaft.

4. In a reeling-machine, the combination of a driven shaft, a clutch member splined thereon, a second clutch member mounted to turn and serving to be engaged by the first-named clutch member, the second clutch member having a notched hub, and a reel, the journal of which is removably fitted in said notched hub.

5. In a reeling-machine, the combination of a drive-shaft, a clutch member splined thereon, a second clutch member, the hub of which is mounted to turn and formed with a notch therein, the first-named clutch member being movable to engage and disengage the second clutch member, and a reel, one of the journals of which is formed with a flattened portion removably fitted within the notch of the hub of the second clutch member.

659,068. ADJUSTABLE FASTENER FOR WINDOW-BEADS. HOBART B. IVES, New Haven, Conn. Filed Dec. 22, 1897. Serial No. 662,975. (No model.)



Claim.—As an article of manufacture, a device for use in adjustable fasteners for window-beads, having a thick slotted table, thin sides and a lip or flange, said sides being drawn up from the metal adjacent to the table to form with the table a cup-shaped body with the lip or flange on its upper edge, such table being left substantially the normal thickness of the metal, and said lip being formed of the metal displaced in thinning the sides, such bottom, sides and lip being integral with each other, substantially as and for the purpose described.

659,069. SASH-LOCK. HOBART B. IVES, New Haven, Conn. Filed Mar. 29, 1900. Serial No. 10,675. (No model.)



Claim.—1. A latch-hook for sash-locks having the longitudinal slot, the offset from such slot, and the downwardly-extending longitudinal guiding and locking flange at one side of the slot, such slot being formed by forcing down a portion of the latch-hook body to form the flange, substantially as and for the purpose described.

2. In a sash-lock, in combination with a base having a recess with a guiding-shoulder, a locking-notch, and a curved guiding-surface, a latch-hook having a longitudinal slot and a longitudinal downwardly-extending flange along one side of such slot, a turning knob having a pivot-pin passing down through the latch-hook slot into the base, and cam connections between the knob and the latch-hook to cause the latch-hook, as the knob is turned, to swing to carry its flange around over the curved surface on the base, and then to move longitudinally to carry the end of the latch-hook flange into the notch, substantially as and for the purpose described.

3. In a sash-lock, in combination with a base having a recess with the two guiding-shoulders, a locking-notch at the end of each guiding-shoulder, and the two curved guiding-surfaces, each leading to one of the locking-notches, a latch-hook having a longitudinal slot, an offset from such slot, a longitudinal guiding and locking flange along one side of the longitudinal slot, extending down into the recess in the base, a turning

knob having an eccentric stud and a pivot-pin extending from the knob down through the slot in the latch-book and into the base, substantially as and for the purpose described.

4. In a sash-lock, in combination with a base having a recess with the two guiding-shoulders substantially at right angles to each other, a locking-notch at the end of each shoulder, and the two curved guiding-surfaces, a stamped latch-hook having the longitudinal slot and the offset therefrom, such slot being formed by partly cutting away a portion of the body and bending such portion downward to form a longitudinal guiding and locking flange on the latch-hook, to extend down into the recess in the base, when the latch-hook is in place on the latter, and a turning knob, having the pivot-pin extending down through the slot in the latch-hook and into the base, and the eccentric stud to engage the offset from the latch-hook slot, substantially as and for the purpose described.

5. In a sash-lock, in combination with the base having a recess provided with a guiding-shoulder, a recess formed at the end of such shoulder by punching a hole through the base, and a curved guiding-surface, a latch-hook having a guiding and locking projection extending down into the recess in the base, and a longitudinal slot, a turning knob, a pivot-pin for the same extending down through the slot in the latch-hook and into the base, and cam connections between the knob and latch-hook, substantially as and for the purpose described.

6. In a sash-lock, in combination with the base having a recess provided with two shoulders at an angle to each other, a locking-notch at the outer end of each shoulder, each formed by punching an opening through the base, and the two curved guiding-surfaces each leading around to one of the locking-notches, a latch-hook having a guiding and locking projection extending down into the recess in the base, a longitudinal slot and an offset therefrom, a turning knob having the eccentric stud and the knob pivot-pin extending down through the longitudinal slot in the latch-hook and pivotally connecting the knob with the base, substantially as and for the purpose described.

7. In a sash-lock, in combination with the swinging latch-hook, and a suitable base, a turning knob made movable with reference to the latch-hook, connections between the knob and the latch-hook, for actuating the latter, as the knob is rotated, a pivot-pin pivotally connecting the knob with the base, and spring mechanism acting upon and transmitting power through the knob to complete the operation of the latch when the knob has been turned partly around in one direction, substantially as and for the purpose described.

8. In a sash-lock in combination with a latch-hook having both rotary and rectilinear movement and a suitable base, a turning knob made movable with reference to the latch-hook, connections between the knob and the latch-hook for actuating the latter as the knob is rotated, a pivot-pin connecting the knob with the base, and spring mechanism acting upon and transmitting power through a part turning with the knob to complete the operation of the latch-hook through the knob when the knob has been partly turned in one direction, substantially as and for the purpose described.

9. In a sash-lock, in combination with the latch-hook and a suitable base, a turning knob made so as to turn with reference to the latch-hook, connections between the same and the latch-hook for actuating the latter as the knob is rotated, a pivot-pin turning with the knob and pivotally connecting the latter with the base, an eccentric cam-piece on the pin and turning therewith, and a spring engaging such cam-piece, substantially as and for the purpose described.

10. In a sash-lock, in combination with the latch-hook and a suitable base, a turning knob made so as to turn with reference to the latch-hook, connections between the same and the latch-hook for actuating the hook as the knob is turned, a pivot-pin turning with the knob and pivotally connecting the latter with the base, a two-armed eccentric cam-piece on the pivot-pin and turning with the same, and the two springs suitably supported independent of the knob and latch-hook and engaging the cam-piece, substantially as and for the purpose described.

11. In a sash-lock, in combination with a swinging and reciprocating latch-hook, and a suitable base, a turning knob, eccentric connections between the knob and latch-hook, a pivotal connection between the knob and base, engaging guiding and locking means on the latch-hook and base, whereby the latch-hook, as it is actuated by the turning of the knob, is first caused to swing around and then to move longitudinally to bring the locking devices into operation, and spring mechanism acting to complete the turning of the knob, when it has been partially turned to actuate the latch-book, substantially as and for the purpose described.

12. In a sash-lock, in combination with a swinging and reciprocating latch-hook, having a longitudinal slot, and a suitable base, a turning knob, a pivot-pin for the latter extending down through the slot in the latch-hook, and pivotally connecting the knob with the base, eccentric connections between the knob and latch-hook, engaging guiding and locking means on the base and latch-hook, whereby the latter as it is actuated by the turning of the knob is caused to swing about the pivot-pin and then to move longitudinally to bring the locking device into operation, and spring mechanism acting to complete the turning of the knob, when it has been partially turned to actuate the latch-hook, substantially as and for the purpose described.

13. In a sash-lock, in combination with a swinging and reciprocating latch-hook having a guiding and locking projection, and a base having a surface to engage such projection and guide it in a curved path, and an offset or recess into which the projection on the latch-hook is moved by the longitudinal movement of the latch-hook after the projection on the book has left the guiding-surface on the base, a turning knob, eccentric connections between the knob and latch-hook to cause the latter to swing to carry its guiding projection along the surface on the base, and then move longitudinally to carry the projection into the offset or recess on the base, a cam-piece turning with the knob, and a spring engaging such piece so as to turn the knob, substantially as and for the purpose described.

14. In a sash-lock, in combination with a base having a curved guiding-surface and a locking-notch, the latch-hook having a projection to engage such surface and notch and a longitudinal slot, a turning knob pivotally connected with the base by a pivot-pin turning with the knob and passing through the slot in the latch-hook, such knob having an eccentrically-arranged stud engaging a way in the latch-hook, a cam-piece on the pivot-pin and turning with the same, and a spring engaging such piece, so that its pressure thereon tends to swing the knob, to cause the latch-hook to be swung and then moved longitudinally to bring its projection into the locking-notch, substantially as and for the purpose described.

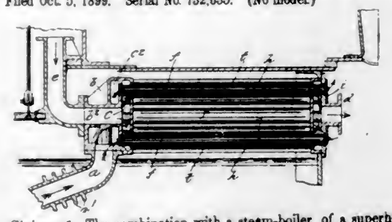
15. In a sash-lock, in combination with a suitable base, a latch-hook and the turning knob for actuating the same, made movable with reference to the latch-hook and having a pivot-pin turning with it and pivotally connecting it with the base, connections between the knob and latch-hook, whereby the former actuates the latter, a cam-piece on and turning with the pivot-pin, and a spring engaging the same, substantially as and for the purpose described.

16. In a sash-lock, in combination with a suitable base having a curved surface and a locking-notch at the end thereof, a swinging and sliding latch-hook having a guiding and locking projection, and a longitudinal slot, a turning knob having an eccentric stud engaging a way in the latch-hook, a pivot-pin turning with the knob and pivotally connecting it with the base, an eccentric cam-piece on the pin and turning therewith, and a spring pressing against such cam-piece, substantially as and for the purpose described.

17. In a sash-lock, in combination with a suitable base having a shoulder and a locking-notch, a swinging and sliding latch-hook having a projection and a longitudinal slot, a turning knob having an eccentric stud engaging a way in the latch-hook, a pivot-pin turning with the knob and extending therefrom through the slot in the latch-hook and into the base, a two-armed cam-piece on and turning with the pivot-pin, and two springs on opposite sides of such piece pressing against the latter, substantially as and for the purpose described.

18. In a sash-lock, in combination with the base having the two shoulders at an angle to each other, and the two locking-notches at the ends of the respective shoulders, the latch-hook having the longitudinal slot, and a guiding and locking projection, the turning knob having a pivot-pin turning with it, extending down through the slot in the latch-hook and into the base, and an eccentric stud engaging a way in the latch-hook, a two-armed cam-piece on and turning with the pin, and two springs on opposite sides of the cam-piece pressing against the latter, substantially as and for the purpose described.

659,070. SUPERHEATER. CARL JACOBI, Aschersleben, Germany. Filed Oct. 5, 1899. Serial No. 732,635. (No model.)



Claim.—1. The combination with a steam-boiler, of a superheater contained therein, a pipe connection between one end of the heating appliance of said superheater and the boiler-furnace, said pipe connection water-cooled in the boiler-water and a steam-pipe from the steam-dome to the superheater, both pipes entering the same end of the superheater, substantially as and for the purpose set forth.

2. The combination with a steam-boiler, of a superheater contained therein, a water-cooled pipe connection between the furnace and superheater, tubes in the superheater conducting furnace-gases therethrough, a pipe leading from the steam-dome and delivering steam around said tubes, substantially as and for the purpose set forth.

3. The combination with a steam-boiler, of a superheater located within the steam-space of said boiler, and a pipe connecting between the heating appliances of said superheater and the boiler-furnace, said pipe connection water-cooled in the boiler-water and of a cross-sectional area proportionate to the like area of said heating appliances to supply only that quantity of heat thereto necessary to raise the temperature of the steam to a given temperature, substantially as set forth.

4. The combination with a steam-boiler, of a superheater located within the steam-space of said boiler, and a pipe connection between the heating appliances of the superheater and the boiler-furnace, said pipe connection water-cooled in the boiler-water and having heat-radiating ribs, for the purpose set forth.

5. The combination with a steam-boiler, of a tubular superheater contained in the steam-space of said boiler and having its steam-circulator tubes inclosed in heating-flues, a distributing-chamber for the furnace-gases in communication with one end of said heating-flues, the opposite end of which communicates with the atmosphere, and a furnace-gas-supply pipe connecting said distributing-chamber with the boiler-furnace and water-cooled in the boiler-water, for the purpose set forth.

6. The combination with a steam-boiler, of a tubular superheater contained in the steam-space of said boiler and having its steam-circulator tubes inclosed in heating-flues, a distributing-chamber for the furnace-gases in communication with one end of said heating-flues, the opposite end of which communicates with the atmosphere, a furnace-gas-supply pipe connecting said distributing-chamber with the boiler-furnace and being immersed in the boiler-water, and a cut-off device for cutting off the flow of furnace-gases through the heater-flues, for the purpose set forth.

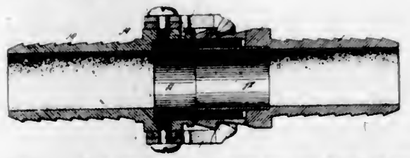
7. The combination with a steam-boiler, of a tubular superheater contained in the steam-space of said boiler and having its steam-circulator tubes inclosed in heating-flues, a distributing-chamber for the furnace-gases in communication with one end of said heating-flues, the opposite end of which communicates with the atmosphere, a furnace-gas-supply pipe connecting said distributing-chamber with the boiler-furnace and being immersed in the boiler-water, and a jacket inclosing said heater-flues and having longitudinal slots or passages above the level of the boiler-water, for the purpose set forth.

8. The combination with a steam-boiler of a superheater, means for simultaneously passing steam and furnace-gases therethrough without mixing, a jacket therefor partially immersed and cooled by the water in the boiler, substantially as set forth.

9. The combination with a steam-boiler, of a superheater a pipe connection therewith, means for feeding steam through the heater, and a jacket surrounding the same, said pipe connection and jacket wholly in contact with the water in the boiler, substantially as set forth.

10. The combination with a steam-boiler, of a superheater a furnace-gas pipe feeding the same, immersed in the boiler-water, and means for concentrically feeding furnace-gases and steam through said superheater, substantially as set forth.

659,071. HOSE-COUPLING. SHELDON JOSEPH, Columbus, and WILLIAM H. CLARK and WILLIAM J. CLARK, Salem, Ohio, assignors to the W. J. Clark Company, Salem, Ohio. Filed Feb. 2, 1900. Serial No. 3,691. (No model.)

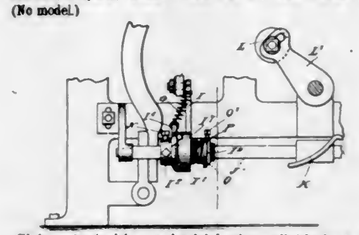


Claim.—1. In a hose-coupling, a section provided within its head with a metallic tubular extension separated from the contiguous surface of the head by an annular chamber, and a mating section provided with a flexible tube extending therefrom and adapted to enter the said chamber of the first-named section between the wall of the head and the tubular extension, for the purpose described.

2. In a hose-coupling, a section provided within its head with a tubular extension separated from the contiguous surface of the head by an annular chamber the interior of the said tubular extension being of the same diameter as the interior of the shank of the section, a mating section having a flexible tube secured within its head and extending therefrom, the interior diameter of the flexible tube being greater than the interior diameter of the shank of said last-named section the said flexible tube being adapted to enter the space or chamber between the wall of the head of the first-named section and the tubular extension, and means for locking the sections of the coupling together, substantially as described.

3. In a hose-coupling, a section the head of which is provided with an inner tube separated from the head proper by an annular chamber, a mating section having a flexible tube attached to its head and projecting beyond the same, adapted to enter the chamber in the first-named section, pivoted jaws carried by the section having the flexible tube and arranged for locking engagement with the head of the first-named section, and a spring crossing the opening between the jaws, and serving to hold both jaws normally in locking position, the jaws being so constructed that they may be separated by a tool, as described.

659,072. PICKER MECHANISM FOR LOOMS. EPHRAIM M. KEFFER, Hespeler, Canada. Filed Dec. 27, 1899. Serial No. 741,720. (No model.)



Claim.—1. A picker mechanism having a relief device for the picker-stick, and comprising a clutch member secured on the picker-shaft and provided on its face with two oppositely-arranged sets of clutch-teeth and two oppositely-arranged projections between the sets of clutch-teeth, the said projections each having a set of recesses, and a picker-shaft arm mounted to turn on the hub of said clutch member and having similarly-arranged sets of clutch-teeth for engagement with the recesses of said clutch member, and similarly-arranged sets of recesses in the face of the hub of said arm and adapted to be engaged by the teeth of the clutch member secured on the picker-shaft, the recessed faces of the clutch members being adapted to slide upon each other, when the teeth of the clutches move out of engagement with the recesses, substantially as described.

2. A picker mechanism having a relief device for the picker-stick and comprising a clutch member secured on the picker-shaft and provided with oppositely-arranged sets of clutch-teeth, and oppositely-arranged sets of recesses in its face, the sets of recesses being located between the sets of clutch-teeth, the said clutch member being provided with an arm, and a picker-shaft arm mounted to turn and to slide and having oppositely-arranged sets of clutch-teeth for engagement with the recesses of said clutch member and oppositely-arranged sets of recesses in the face of the hub of said picker-shaft arm and adapted to be engaged by the teeth of the clutch member secured on the picker-shaft, the recessed faces of the clutch members being adapted to slide upon each other when the clutches move out of mesh, a spring for normally holding the clutch members in engagement, the said spring yielding to allow of disengagement of the clutch members when the picker-stick is locked against movement, and a spring connecting the arm of the clutch member secured to the shaft with the picker-shaft arm, substantially as described.

3. A picker mechanism, comprising a picker-shaft, a picker-shaft arm connected with a picker-stick, a clutch having two members one of which is on the hub of said picker-shaft arm and the other secured to said picker-shaft, the said clutch members being held normally in engagement, but arranged to be disengaged on the rocking of the picker-shaft when the picker-stick is locked against movement, and a spring connecting the clutch member on the picker-shaft with the picker-shaft arm, substantially as shown and described.

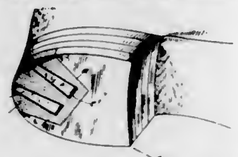
4. A picker mechanism, comprising a picker-shaft, a picker-shaft arm connected with a picker-stick, a clutch having two members one of which is on the hub of said picker-shaft arm and the other secured to said picker-shaft, a spring engaging the picker-shaft arm to hold its clutch member normally in engagement with the other clutch member, an arm on the clutch member secured to the picker-shaft, and a spring connecting said arm with the picker-shaft arm, to return the clutch members to normal meshing position after they have been disengaged, substantially as described.

5. A picker mechanism, comprising a picker-shaft, a picker-shaft arm, a sweep-stick pivotally connected at one end with the free end of the picker-shaft arm and at the other end with a strap connected with a picker-stick, a clutch having two members one of which is on the hub of said picker-shaft-arm and the other secured to said picker-shaft, the hub of the picker-shaft arm being mounted to turn loosely and having sliding movement to disengage the clutch members when the picker-stick is locked against movement, the rocking of the said picker-shaft, when the picker-

stick is locked, imparting said sliding movement to the picker-shaft arm, means for holding the said clutch members normally in engagement, an arm on the clutch member secured to the picker-shaft, and a spring connecting said arm with a projection on the picker-shaft arm, for turning the picker-shaft to return the clutch member secured thereto to the normal meshing position, after the clutch members have been disengaged, substantially as described.

6. A picker mechanism, comprising a picker-shaft, a picker-shaft arm connected with a picker-stick, a clutch having two members one of which is on the hub of said picker-shaft arm and the other secured to the picker-shaft to turn therewith and provided with a hub having a threaded end, said picker-shaft arm being mounted to turn loosely on the hub of the other clutch member and to slide thereon, a coiled spring on the hub of the clutch member secured to the picker-shaft, and pressing against the hub of the picker-shaft arm to normally hold the clutch members in engagement, an adjustable collar on the threaded end of the hub for adjusting the tension of said spring, the teeth of the clutch members having the front and back slanting at different degrees, whereby when the picker is locked against movement, the rocking of the picker-shaft and the clutch member secured thereto, will slide the picker-shaft arm against the tension of the spring and move its clutch member out of mesh, the further turning of said picker-shaft carrying the engaging portion of its clutch member out of meshing position relatively to the other clutch member, and a spring connected at one end with an arm on the clutch member secured to the picker-shaft, and at its other end with the picker-shaft arm near the end thereof to return the clutch member on the picker-shaft to normal meshing position, for the purpose set forth.

659,073. BOOT-HEEL. Charles E. Keller, Los Angeles, Cal. Filed Feb. 5, 1900. Serial No. 4,033. (No model.)



Claim.—1. An attachment for the heels of boots and shoes, comprising a spring-prong adapted to be attached to the heel, and a cushion-plate detachably embraced by the prong.

2. An attachment for the heels of boots and shoes, comprising a spring having a body-plate attached to the heel, a spring-prong projecting downwardly and then rearwardly parallel with the body-plate, and a yielding cushion-plate held between the body-plate and the prong.

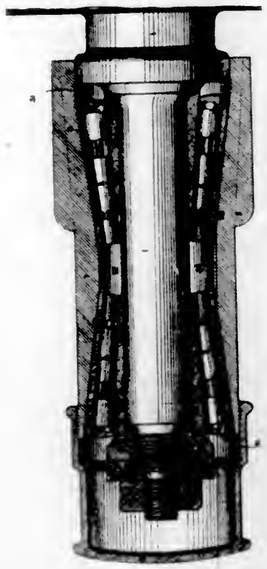
3. An attachment for the heels of boots and shoes, the attachment comprising a spring having a body-plate and one or more spring-prongs carried thereon and extending parallel therewith, and a yielding cushion-plate having openings formed therein through which the prongs are passed, the cushion-plate also having grooves for the reception of the prongs.

659,074. JOURNAL-BOX. Hippolyte J. La Force, Levallois-Perret, France. Filed Aug. 24, 1899. Serial No. 728,366. (No model.)

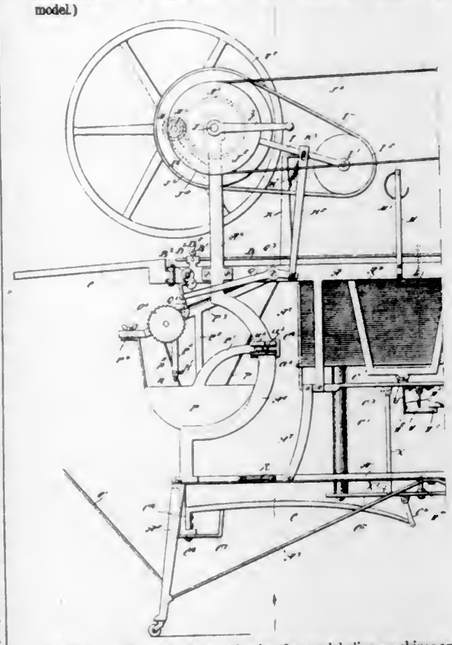
Claim.—1. In a journal-bearing, the combination with a journal of two bushings having outer surfaces which taper, or converge, toward the middle of the journal, two series of tapering rollers converging in the same direction as the bushings and arranged to roll upon the latter, means for maintaining a uniform separation between said rollers, liners to inclose the latter, each liner having its smaller end adjacent to the middle part of the journal and having its larger end provided with an inwardly-projecting flange fitting on the bushing, to confine the lubricating-oil at the ends of the bushings, and a boxing tapered to fit the liners and provided centrally between its ends with a cylindrical oil-chamber communicating with the inner ends of the liners, substantially as described.

2. In a journal-bearing, the combination with a cylindrical journal of two bushings having outer faces which taper, or converge toward the middle part of the journal, a series of rollers arranged on the outer face of each bushing intermediate rolls formed in rigidly-connected pairs and lying in annular recesses in said rollers, an exterior ring bearing on the peripheries of the rolls in each pair an anterior ring having bearing against a cylindrical connection which rigidly unites the rolls of each pair, and liners inclosing the rollers in the two series, substantially as described.

3. In a journal-bearing the combination with a journal of two bushings having outer faces that taper toward the middle part of the journal, two series of rollers arranged on said outer faces, intermediate rolls formed in pairs which lie in annular recesses in the rollers, the members of each pair being rigidly connected by reduced cylindrical pieces, two of said pairs being connected by a wire, an outer and an inner ring, the former bearing with its inner face upon the peripheries of the pairs of rolls and the latter having its outer face bearing upon the cylindrical pieces connecting said rolls, liners inclosing the rollers in both series and provided at their larger ends with inwardly-projecting flanges fitted on the bushings and an outer tube tapered from both ends toward its middle to inclose the liners, substantially as described.



659,075. CAN-LABELING MACHINE. William H. Leister, Westminster, Md. Filed July 29, 1899. Serial No. 725,481. (No model.)



Claim.—1. A can-feeding mechanism for can-labeling machines and the like, comprising two superimposed and oppositely-inclined tracks adapted to convey the cans, the upper end of the lower track curving upward above the lower end of the upper track and at such distance therefrom as to permit the cans to pass between the two, and a can checking and feeding wheel engaging the cans upon the lower track and prior to engaging any part of the labeling mechanisms to regulate their rate of feed.

2. A can-feeding mechanism for can-labeling machines and the like, comprising two superimposed and oppositely-inclined tracks adapted to convey the cans, the upper end of the lower track curving upward above the lower end of the upper track and at such distance therefrom as to permit the cans to pass between the two, a can checking and feeding wheel engaging the cans while upon the lower track and regulating their rate of feed, and a swinging frame carrying the journals for said wheel and permitting it to be raised by the can.

3. A can-labeling machine comprising label-supporting mechanisms, a can-conveying track extending above the labels, said track having a depression or drop over one end of the labels, and a longitudinally-adjustable track-section at the approach end of said depression or drop, whereby the length of the depression and the point of dropping the can may be regulated.

4. A can-labeling machine comprising label-supporting mechanisms, a can-conveying track extending above the labels, said track having a depression or drop over one end of the labels, a longitudinally-adjustable track-section at the approach end of said depression or drop whereby the length of the depression and the point of dropping the can may be regulated, mechanism for applying cement to the cans before reaching said depression, and means for adjusting said mechanism along the track.

5. A cement-applying means for can-labeling machines, comprising a cement-tank placed below the can chute or track; pivoted arms carrying cement-conveying pads at their outer or swinging ends adapted normally to lie in the cement and to be raised into contact with the cans as they pass over the track, a lever engaging said arms to raise them, a two-part plunger, one part connected with said lever and the other projecting in the path of the cans, and a spring connecting the two parts, whereby a yielding pressure is applied to raise said pads.

6. A can-feeding device for labeling-machines and the like, comprising a chute or track, a vertically-swinging frame carrying a feed-regulating wheel engaging the cans, means for turning said wheel to feed the cans forward, a vertically-swinging can-accelerating wheel engaging the cans after passing the regulating-wheel, and means for turning said accelerating-wheel at a higher peripheral speed than the regulating-wheel.

7. A can-labeling machine, comprising a chute or track, means for presenting the labels from beneath the track so that the cans will engage one end thereof, means for applying an adhesive material to the cans before reaching the labels, a spring-plate engaging the periphery of the can to smooth the label thereon before its other end is pasted down, and means for applying an adhesive material to the other or free end of the label before it is wound upon the can.

8. A can-labeling machine comprising a can chute or track having an opening in its bottom adapted to receive the labels, a label-plate movable on vertical guides toward and from said opening, a bar-spring fixedly supported at one end and having its other end pivotally connected with the label-plate to raise it, and means for adjusting the tension of said spring.

9. A can-labeling machine comprising a can chute or track having an opening in its bottom adapted to receive the labels, a label-plate movable on vertical guides toward and from said opening, a bar-spring fixedly supported at one end and pivotally connected at its other end with the label-plate to raise it, and an adjustable arm adapted to engage said spring at various distances from its support to adjust its tension.

10. A paste-applying means for labeling-machines comprising means for supporting a pile of labels, a paste-reservoir at one side of and beneath the labels a roller in said reservoir, a belt passing about said roller, guide-rollers for said belt, comprising two rollers located one above the end of the pile of labels and the other adjacent and upon substantially the same level, the belt passing about the first of said two rollers and above the other, and means for causing the belt to travel over said rollers.

11. A label-pasting device comprising a paste-reservoir having a roller therein, a belt passing over said roller, guide-rollers for said belt adapted to present a belt-section for contact with a label presented from below, means for moving the belt over the rollers, a pivotally-supported two-tined fork, the tines thereof engaging the opposite sides of the belt as it comes from the paste, to remove the surplus paste, and means for presenting the labels from below to engage their ends with said belt.

12. A label-pasting device comprising a belt, rollers supporting the same and passing the belt beneath the surface of the paste, and a scraper for said belt, consisting of a pivotally-supported two-tined fork having one tine upon each side of the belt and engaging the edges thereof to scrape off the surplus paste.

13. A label-pasting device for labeling-machines, comprising a removable paste-reservoir, a roller journaled in the lower portion of the reservoir, a frame carried by the paste-reservoir and projecting above the same, said frame having an inclined upper portion extending beyond the reservoir, a roller journaled in the inclined portion of the frame over the reservoir, two rollers journaled in the inclined portion of the frame extending beyond the reservoir, one in front of the other, and a belt passing over said rollers, substantially as described.

14. In a label-machine, the combination with a supporting-frame, of a paste-reservoir, means for detachably securing the paste-reservoir to the frame, a roller journaled in the paste-reservoir, standards secured to and projecting above the paste-reservoir and provided at their upper ends with inclined bars projecting beyond the paste-reservoir, a roller mounted in the inclined bars over the paste-reservoir and provided with a ratchet-wheel at one end, two rollers mounted in the projecting ends of the inclined bars, one in front of the other, a belt passing around said rollers, and means for operating the ratchet-wheel, substantially as described.

15. In a can-labeling machine, a chute or track having an opening in its bottom, and sockets in the chute or track at each side of the opening, said sockets having slots in their inner sides, means for supporting a pile of labels in said opening, and spring-pressed hooks in said sockets and extending outward through the slots of the sockets over the labels, substantially as described.

16. A can-labeling machine having a can chute or track provided with a hole in its bottom adapted to receive the labels, means for supporting a pile of labels in said hole with their tops at a constant level, sockets or guides formed in the rail at each side of said hole and near one end of the label-pile, said sockets opening at their inner sides, a block sliding in said socket and having a hook-arm extending outward and over the labels, a spring holding said block down, and means for interposing an adhesive material between the opposite end of the label and the can as it rolls over the labels.

17. A label-pasting device, comprising a frame provided with means for securing it in place on the frame of a labeling-machine, said frame having mounted thereon a paste-reservoir having a roller journaled therein and beneath the surface of the paste, a belt passing over said roller, guide-rollers for said belt journaled in the frame and presenting a section of the belt for engagement by the labels, the roller supporting the loop of the belt at the point where it is engaged by the labels and being free to move vertically, and means for moving said belt over the rollers.

18. In a label-pasting device for labeling-machines, a removable paste-reservoir, a roller mounted in said reservoir, standards secured to and projecting above the paste-reservoir and provided at their upper ends with inclined bars projecting beyond the paste-reservoir, the ends of the said bars being provided with vertical slots and adjacent to said ends with L-shaped slots, a roller mounted in the inclined bars over the paste-reservoir, rollers mounted in the slots of the projecting portion of the said bars, and a belt passing over said rollers, substantially as and for the purpose set forth.

19. In a can-labeling machine, the combination with a track or chute, and a cement-tank below the track or chute, of a frame pivoted in one end of the tank and provided with arms having pads at their ends, a lever pivoted between its ends in the opposite end of the tank and having one member engaging the said frame to lift it when the lever is rocked, and a plunger secured to the other member of the said lever and projecting into the path of the cans, substantially as described.

20. In a can-labeling machine, the combination with a bed or table, of a paste-applying belt mounted to travel in the direction of the length of the table or bed and in an opposite direction to the travel of the cans, and having a section extending over one end of the pile of labels, a swinging frame above the bed or table and carrying a pressure-belt, said frame projecting over the paste-applying section of the paste-belt, and means for operating the paste-belt from the swinging frame, as and for the purpose set forth.

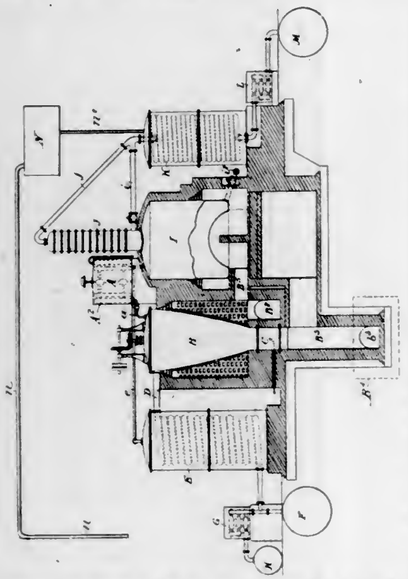
21. In a can-labeling machine, the combination with a bed or table, and a paste-applying belt mounted to travel in the direction of length of the table and in an opposite direction to the travel of the cans and having a section extending over the end of the pile of labels, of a shaft above the table, or bed, means for operating the said shaft, a drum mounted on the shaft, a frame mounted at one end on the said shaft and having its free end projecting over the paste-applying section of the paste-belt, a drum mounted in the free end of the frame, a pressure-belt passing around the said drums, a pawl-and-ratchet mechanism for operating the paste-belt, and a connection between the pawl-and-ratchet mechanism and the said frame, substantially as described.

22. In a can-labeling machine, the combination with a bed or table, a paste-applying belt mounted to travel on rollers in the direction of length of the bed or table and in an opposite direction to the travel of the cans, and having a section extending over one end of the pile of labels, and a ratchet-wheel on one of the rollers over which said belt passes, of a shaft above the bed or table, means for operating the shaft, a drum on the shaft, a swinging and spring-pressed frame mounted at one end on said shaft and having its free end projecting over the paste-applying section of the paste-belt, a drum mounted in the free end of the frame, a pressure-belt for smoothing the labels, passing around the said drums, a lever pivoted between its ends to the bed or table, a counterbalanced pawl pivoted to

one end of the lever and engaging the ratchet-wheel, and a link having its upper end loosely pivoted to the swinging frame, and its lower end pivoted to the end of the lever opposite that carrying the pawl, substantially as described.

23. In a can-labeling machine, the combination with a label-support, and means for feeding the same upward, of a bell, a spring-hammer, a pivoted hooked bar on a fixed support and engaging the hammer to hold it raised, and a projection carried by the label-support and adapted to engage the pivoted bar to disengage it from the hammer, substantially as described.

659,076. PROCESS OF SEPARATING FREE CARBON FROM TAR. FREDERIC LENNARD, London, England. Filed Aug. 22, 1899. Serial No. 728,096. (No specimens.)



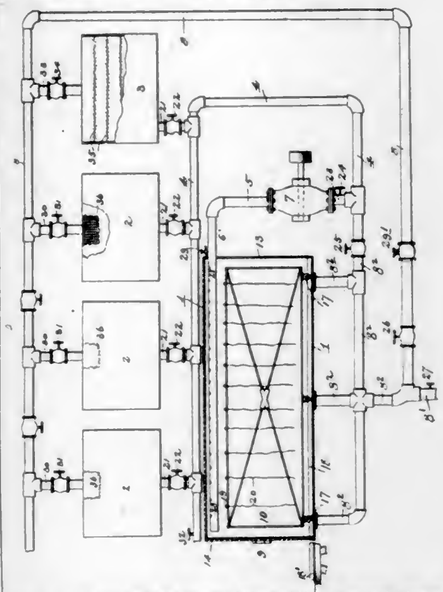
Claim.—The process of distilling tar to separate the free carbon therefrom, consisting in diluting the tar with an oil or spirit which will, in combination with the said tar, produce a mixture having an appreciably-lower vaporizing-point than the tar alone has, and subjecting the mixture to the action of heat and of steam, and thereby effecting simultaneously the volatilization of the liquid portion and the deposit of the free carbon, substantially as described.

659,077. TANNING APPARATUS. JAMES F. LESTER, Atlanta, Ga. Filed Dec. 15, 1898. Renewed Jan. 12, 1900. Serial No. 1,212. (No model.)

Claim.—1. In an apparatus for treating hides and fibrous materials the combination of a suitable chamber for containing the material to be treated, one or more independently-controlled fluid-tanks, a supply-pipe connecting said tanks with the chamber, a pump interposed in the supply-pipe for creating a pressure within the chamber, a valve regulating the supply of fluid to the pump, and a valve-controlled discharge-pipe, substantially as specified.

2. In an apparatus for treating hides and fibrous materials the combination of a suitable chamber for containing the material to be treated, one or more independently-controlled fluid-tanks, situated above the chamber and connected therewith by valved supply-pipes, a pump interposed in the main supply-pipe for creating both a fluid and an air pressure within the chamber, a valve controlling the inlet to the pump, a valve regulating the pressure and controlling the circulation, and a valved discharge-pipe, substantially as specified.

3. In an apparatus for treating hides and fibrous materials, the combination of a suitable chamber for containing the material to be treated, one or more independently-controlled fluid-tanks, situated above the chamber and connected therewith by valved supply-pipes, a pump interposed in the main supply-pipe for creating both a fluid and an air pressure within said chamber, a valve controlling the inlet to the pump, valved return-pipes connecting the fluid-tanks with the chamber, valves regulating the pressure and controlling the circulation, and means for the escape of air from the chamber, substantially as set forth.



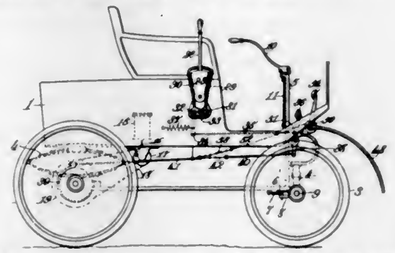
4. In an apparatus for treating hides and fibrous materials, the combination of a suitable chamber for containing the material to be treated, one or more fluid-tanks situated above the chamber and connected therewith by valve-controlled supply-pipes, valve-controlled return-pipes also connecting said fluid-tanks with said chamber, a pump interposed in the main supply-pipe for creating pressure within the chamber and return-pipes, valves for regulating the pressure and controlling the circulation, a valve-controlled discharge-pipe, an air-valve in the main supply-pipe, and an air-valve in the chamber, as and for the purpose set forth.

5. The combination of the hide-chamber 1, provided with a door 9; pump 7 situated near said chamber-pipe 5 extending up from said pump and connected with pipe 6; pipe 6 entering the closed end of said chamber and extending through it, its full length and having perforations 28; air-cock 29, in the upper part of said chamber; pipe 23 connecting said pipe to pipe 4, provided with a cock 24; pipe 4 running up and above said chamber; air-cock 32 in the front end of said pipe; tanks 2 and 3 situated above said pipe 4, and connected to same by means of pipes 21, each pipe provided with a cock 22; pipe 8 running above tanks 2 and 3 and connected with tank 2 by pipes 30, and with tank 3 by pipe 33, each pipe 30 being provided with a cock 31 and pipe 33 with a cock 34; said pipe 8 running down and then below said pump 7 and said chamber 1, and having a waste-pipe 8′ and cock 27, and connected to said tank by means of branch pipes 8^2 said pipe 8 being provided with cocks 25 and 26; track 18 situated in the bottom of the hide-chamber 1 and adapted to carry carriages, substantially as shown and described and for the purposes set forth.

6. The combination of the hide-chamber 1 provided with a door 9 and pump 7 situated near said chamber; pipe 5 extending up from said pump and connected with pipe 6; pipe 6 entering the closed end of said chamber and extending through its full length and having perforations 28; air-cock 29 in the upper part of said chamber; pipe 23 connecting said pump 2 with pipe 4 and provided with a cock 24; pipe 4 leading back, turning up then forward to the open end of said hide-chamber and above the same; air-cock 32 in the front end of said pipe, tanks 2 and 3 situated above said pipe and connected with the same by means of pipes 21, which pipe provided with a cock 22; pipe 8 running above tanks 2 and 3, and connected with tanks 2 by pipes 30 and with tank 3 by pipe 33, each pipe 30 being provided with a cock 31 and pipe 33 with a cock 34; strainers 36 and 35 situated in tanks 2 and 3 respectively; said pipe 8 running down and then below said pump 7 and said hide-chamber and having a waste-pipe 8′ and connected with said chamber by branch pipes 8^3, said pipe 8 being provided with cock 26 and safety-valve 29′; track 18 situated in the bottom of the hide-chamber carriages 10 adapted to carry material and to run it on said track and out on track 18′; track 18′ situated at the open end of the hide-chamber, substantially as shown and described and for the purposes set forth.

7. A device for applying tanning or cleaning fluids to hides or skins or other material, putting the fluids under pressure, agitation and circulation at the same time, consisting of the combination of the hide-chambers 1 provided with a door 9; pump 7 situated near the closed end of said chambers; pipe 5 extending up from said pump and connected with pipe 6; pipe 6 entering the closed end of said chamber and extending through it, its full length and having perforations 28; air-cock 29, in the upper part of said chamber; pipe 23 connecting said pump to the pipe 4, and provided with a cock 24; pipe 4, turning up, then forward to the front or open end of said tank and above the same; air-cock 32 in the front end of said pipe; tanks 2 and 3 situated above said pipe 4, and connected to the same by means of pipe 21, such pipe provided with a cock 22; pipe 8 running above tanks 2 and 3 and connected with tanks 2 by pipes 30, and with tank 3 by pipes 33, each pipe 30 being provided with a cock 31 and pipe 33 with a cock 34; said pipe 8 running down and then below said pump 7 and said chamber 1; and having a waste-pipe 8′ and cock 27, and connected to said tank by means of branch pipes 8^3, said pipe 8 being provided with cocks 25 and 26; track 18 situated in the bottom of hide-chamber 1 and adapted to carry carriages, substantially as shown and described and for the purposes set forth.

659,078. MOTOR-VEHICLE. CHARLES A. LIEB, New York, N. Y. Filed May 23, 1900. Serial No. 17,712. (No model.)



Claim.—1. In a motor-vehicle, normally-locked controlling means for the motor, a normally-applied brake, and releasing means for said controlling means and brake.

2. In a motor-vehicle, normally-locked controlling means for the motor, a normally-applied brake, and means for simultaneously releasing said brake and controlling means.

3. In a motor-vehicle, normally-locked controlling means for the motor, a normally-applied brake, and foot-operated releasing means for said controlling means and brake.

4. In a motor-vehicle, a normally-locked controlling-lever for the motor, a normally-applied brake, and foot-operated releasing means for said lever and brake.

5. In a motor-vehicle, a normally-locked controlling-lever for the motor, releasing means therefor, and means for returning said lever to its locked position when pressure upon said lever is relieved.

6. In a motor-vehicle, a normally-locked controlling-lever for a motor, releasing means therefor, and means for returning said lever to its locked position, when the pressure upon said releasing means is relieved.

7. In a motor-vehicle, a normally-locked controlling-lever for the motor, foot-operated releasing means therefor, and a spring for returning said lever to its locked position when the pressure upon either said lever or releasing means is relieved.

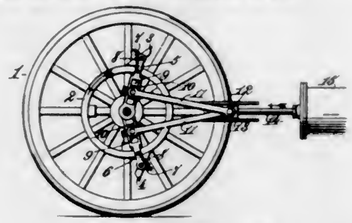
8. In a motor-vehicle, a normally-locked controlling-lever for the motor, a normally-applied brake, releasing means for said lever and brake, and means for returning said lever to its locked position and applying said brake when the pressure upon said releasing means is relieved.

9. In a motor-vehicle, a normally-locked controlling-lever for the motor, a normally-applied brake, foot-operated releasing means for said lever and brake, and a spring for returning said lever to its locked position and applying said brake when the pressure upon said releasing means is relieved.

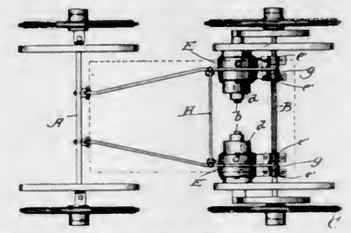
10. In a motor-vehicle, normally-locked controlling means for the motor, releasing means therefor, a normally-applied brake, and connections between said brake and said releasing means, whereby the actuation of said releasing means simultaneously releases said brake.

659,079. MEANS FOR TRANSMITTING MOTION. CHARLES A. LIEB, New York, N. Y. Filed May 23, 1900. Serial No. 17,713. (No model.)

Claim.—The combination with a motor, a vehicle-wheel and the axle on which said wheel is mounted, of a circular disk secured to said wheel and projecting laterally therefrom, oppositely-extending rocking levers loosely mounted on said axle, reversible dogs pivoted at points intermediate their ends to said levers and adapted to be turned so as to bring one end or the other thereof into engagement with said disk, lugs or projections on said dogs extending laterally from the pivotal points thereof, coil-springs secured to said lugs and to said levers for holding the engaging portions of said dogs in constant contact with said disk, a sliding block arranged in each of said levers and connections between said blocks and said motor, as and for the purpose set forth.



659,080. SUPPORTING-FRAME FOR MOTORS OF ELECTRIC CARRIAGES. CHARLES A. LINDSTROM, Chicago, Ill., assignor, by direct and mesne assignments, to the Hewitt-Lindstrom Motor Company, same place. Filed May 5, 1899. Serial No. 715,692. (No model.)



Claim.—1. The combination in an electric vehicle, with the front axle, the rear axle, and a supporting-frame consisting of two longitudinal side bars, having their forward ends swiveled to the front axle, and their rear ends loosely mounted on the rear axle, of the motors, means for imparting the motion thereof to the rear axle and casings within which said motors are housed, which have their rear ends independently supported on the rear axle and their forward ends supported by said side bars.

2. The combination in an electric vehicle with the front axle, the rear axle, and a supporting-frame consisting of two corresponding longitudinal side bars or perches the forward ends of which converge toward each other and are independently swiveled to the front axle and their rear ends loosely mounted on the rear axle, of the motors, means for imparting the motion thereof to the rear axle and casings within which said motors are housed which have their rear ends independently supported on the rear axle and their forward ends supported by said side bars or perches.

3. The combination in an electric vehicle, with the front axle, the rear axle, and a supporting-frame consisting of two corresponding longitudinal side bars or perches the forward ends of which are independently swiveled to the front axle and their rear ends loosely mounted on the rear axle, and a cross-bar having its ends pivoted to and connecting said side bars of the motors, means for imparting the motion thereof to the rear axle and casings within which said motors are housed which have their rear ends independently supported on the rear axle and their forward ends supported by said side bars or perches.

4. The combination in an electric vehicle, with a front and rear axle longitudinal perches or side bars having their ends pivotally connected to the front and rear axles, of motors, casings therefor which have their rear ends independently and loosely mounted on the rear axle, and spring-controlled devices for suspending the forward ends of said casings to said perches or side bars.

5. The combination in an electric vehicle, with a front and rear axle, longitudinal perches or side bars having their ends pivotally connected to the front and rear axles, of motors circular casings therefor, arms connected to said casings having their rear ends loosely clipped to said rear-axle bolts having their lower ends pivotally connected to the forward side of said casings, extending up through said perches and provided with nuts on their upper screw-threaded ends and springs surrounding said bolts, as and for the purpose set forth.

6. In a vehicle, the combination with a non-rotatable axle, of individual wheel-shafts mounted upon the ends thereof, two perch members, each united with said stationary axle by universal joints, and an additional

axle, said perch members having at their other ends a rotatable or swinging connection with the latter axle.

7. In a vehicle, the combination with a non-rotatable axle, of individual wheel-shafts mounted upon the ends thereof, two perch members, each united with said stationary axle, at separated points by universal joints, and an additional axle, said perch members having at their other ends a rotatable or swinging connection with the latter axle.

8. The combination with a non-rotatable axle, of individual shafts for the steering-wheels supported upon said axle, a perch member having connection at one end with said axle by means of a universal joint and journaled to the driving-axle at the other end, and a motor having pivotal connection with said driving-shaft and having a yielding connection with said perch.

9. In a motor-vehicle, the combination with a non-rotatable axle, of individual shafts upon the ends of the said axle for guiding the wheels supported thereby, two perch members, each having a flexible connection at one end with the said axle, the points of connection of the axle with the perch members being separated, a second axle having pivotal or swinging connection with the other ends of said perch members, and two motors, each having a pivotal connection with the latter axle, each motor also having a spring-like connection with a perch member, the spring connections between the motors and the perch members being independent of each other.

10. In a motor-vehicle, the combination with the two members of a perch uniting the front and rear axles, one of the said axles having flexible connections with the contiguous ends of the perch members, the said flexible connections being at separated points, the other ends of the said perch members being suitably connected with the remaining axle, of a cross-bar uniting the perch members.

11. In a motor-vehicle, the combination of the front and rear axles and the reach connecting said axles, of the motor hinged to the rear axle beneath the reach member so as to be capable of swinging vertically, and a suspension device connected to the front part of the motor and suspending the same from the overlying reach, and cushions on said suspension device above and below the reach, for the purpose and substantially as described.

12. The combination of the front and rear axles, the perch or reach members connecting said axles, a motor having a bifurcated bracket by which it is hung on the rear axle and capable of vertical swinging movement thereon, and a rod connected to the front part of the motor and suspending the same from the reach, and cushions on said rod above and below the reach, for the purpose and substantially as described.

13. In a motor-vehicle, the combination of the axle, the wheels thereon, the independent motors beside each wheel and gearing between said motors and the wheel, each motor being suspended from the axle by a hinged joint so as to be capable of a swinging movement around the axle, with the reach members hinged to the rear axle, and a cushion-suspension device attached to the front side of each motor and suspending the same from the adjoining reach member, for the purpose and substantially as described.

14. In a motor-vehicle, the combination of the front and rear axles, the perch members connecting these axles having a hinge-joint to the rear axle and a swivel connection to the front axle, and independent motors each suspended from the rear axle by a hinged or rocking joint and capable of independent vertical movement thereon and a bar or rod attached to the front of each motor-casing and suspended from the adjoining reach member, and cushioning devices on said rod, for the purpose and substantially as described.

15. In a motor-vehicle, the combination of the front and rear axles, and two perch members each united with the front axle by a swivel or universal joint and with the rear axle by a connection which will permit vertical swing of the perch on the rear axle but prevent lateral movement thereof, substantially as described.

16. In a motor-vehicle, the combinatioo of the front and rear axles, a perch connecting the same and consisting of two independently-movable side members respectively loosely connected by a swivel-joint to the front axle and by a hinged or rocking joint to the rear axle which will permit vertical swing of the perch on the rear axle but prevent lateral movement thereof, and a connection between the side members of the perch intermediate the axles, substantially as described.

17. In a motor-vehicle, the combination of the front and rear axles, two perch members each united with the front axle by a swivel or universal joint and with the rear axle by a connection which will permit vertical swing of the perch on the rear axle but prevent lateral movement thereof, and a transverse bar pivotally connected to the said perch members at a point intermediate the axles, substantially as described.

18. In a motor-vehicle, the combination of the front and rear axles, a perch connecting the same and consisting of two side members respectively loosely connected by a swivel-joint to the front axle and by a hinged or rocking joint to the rear axle, and a cross-bar pivotally connecting the members, with the motors each having a rear hinge connection with the rear axle, and suspended by a front yielding connection to the adjacent perch member, substantially as described.

19. The combination in an automobile of the axle and a suitable motor-frame; with a bracket rigidly connected to said motor-frame and having a bifurcated outer end pivotally connected or hinged to said axle, and a reach pivotally connected at one end to said axle between the bifurcations of said bracket and to which reach the opposite side of said motor-frame is secured.

20. The combination in an automobile of the axle and a suitable motor-frame, with a bracket rigidly connected to said motor-frame and having a bifurcated end pivotally connected to said axle, and a reach pivotally connected at one end to said axle between the bifurcations of the bracket and to which reach the opposite side of said motor-frame is yieldingly secured.

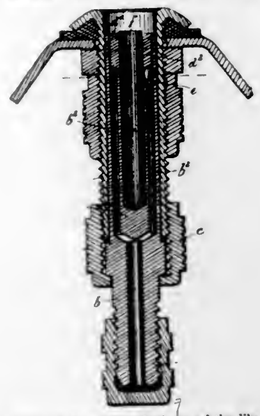
21. The combination in an automobile of the front and rear axles, the reach members hinged to the rear axle and pivotally attached to the front axle, and a pair of motor-frames; with a bracket rigidly connected to each motor-frame and pivotally connected to the rear axle, and a yielding suspension device connecting the opposite side of said motor-frame to the adjoining reach member which has its rear end pivotally secured to said rear axle at a point coinciding with the point of attachment of the bracket thereto.

22. The combination in an automobile of the axle, and a motor-frame; with a bracket rigidly connected at one end to said motor-frame and having its opposite end bifurcated and pivotally connected to said axle, and a reach to which the opposite side of said motor-frame is suitably secured, and one end of which is pivotally connected to said axle at a point between the bifurcations of said bracket.

23. The combination in an automobile of the axle, and a motor-frame; with a bracket rigidly connected at one end to said motor-frame and having its opposite end bifurcated and pivotally connected to the axle, and a reach having one end provided with a knuckle which is pivotally connected to said axle between the bifurcations of said bracket and to which reach the opposite side of said motor-frame is yieldingly secured.

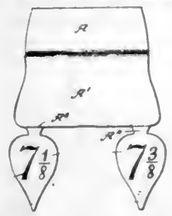
24. The combination in an automobile, of a suitable motor-frame and devices for yieldingly connecting one side of the same to the reach, said reach, and the axle of the drive-gear to which one end of said reach is pivotally connected; with a bracket consisting of an attaching-plate rigidly secured to said motor-frame, and an upwardly-inclined arm protecting from said attaching-plate the upper end of which is bifurcated and each bifurcation pivotally secured to said axle and between which bifurcations the adjacent end of said reach is pivotally secured.

659,081. VALVE FOR PNEUMATIC TIRES. WALTER J. LLOYD, Birmingham, England. Filed July 23, 1900. Serial No. 24,590. (No model.)



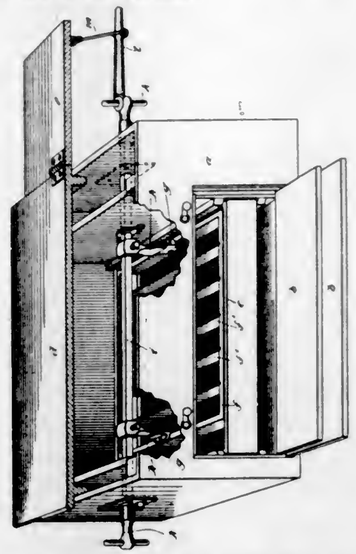
Claim.—An air-valve for pneumatic tires and the like consisting essentially of a barrel or body attached to the tire or other article to be inflated and a nozzle secured to the barrel or body by a screwed union or coupling ring the said nozzle having a plain inner end taking into the barrel or body in which plain inner end a smaller tube lined internally with india-rubber or other flexible and non-porous material and closed at its outer end is so fitted as to leave an annular air-space or chamber between the said smaller tube and the plain end of the nozzle the said chamber communicating with the interior of the valve by a fine hole (or holes) in the smaller tube which fine hole is normally closed by the india-rubber or other flexible and non-porous lining of the said tube substantially as herein set forth and shown.

659,082. SIZE-INDICATOR. ABRAM B. LUSTIG, New York, N. Y. Filed Apr. 4, 1900. Serial No. 11,468. (No model.)



Claim.—A box provided with a size-indicator comprising a body having an upper and a lower member, with a crease or fold between the members, the lower member extending on the outside of the box, and the upper member located within the box and fastened thereto, the crease or fold between said members engaging the upper edge of the box and the lower member extending downward a distance about equal to the width of the rim or cover, and indicating-sections each terminating at its lower end in a point, and each indicating-section having a relatively-narrow strip at its upper end by which it is detachably connected with the lower edge of the lower body member.

659,083. INCUBATOR. JOHN MABUS, Minier, Ill. Filed Feb. 7, 1900. Serial No. 4,363. (No model.)



Claim.—1. The combination with an incubator having a member movable longitudinally to turn the eggs, and movable transversely to be passed in and out of the incubator, of a reciprocatory bar, fingers attached to said bar, and lugs or projections fastened on the said member of the incubator, the fingers of the bar being respectively engaged with the inner faces of the lugs or projections.

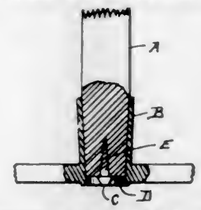
2. The combination with an incubator having a member reciprocatory longitudinally to turn the eggs, and movable transversely to be passed in and out of the incubator, of a reciprocatory bar mounted in the incubator, and means loosely connecting the bar with the said member of the incubator, by which to impart reciprocatory movement to said member.

3. The combination with an incubator, of a member mounted therein and to turn the eggs, and movable transversely to be passed in and out of the incubator, lugs or projections carried by said member, fingers respectively loosely engaged with the inner faces of the lugs or projections, and means for causing the fingers to reciprocate, whereby to drive the said member of the incubator.

4. The combination, with an incubator having a transversely-movable tray, of a frame mounted in the tray and reciprocatory therein to turn the eggs, the frame being movable transversely with the tray, lugs or projections extending up from the end portions of the frame, a reciprocatory bar, and fingers carried by the bar and respectively loosely engaged with the inner faces of the lugs or projections.

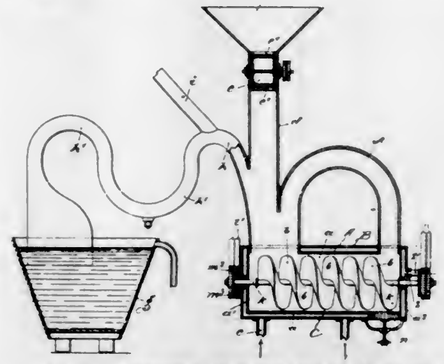
5. The combination with an incubator, of a member mounted therein and movable to turn the eggs, a lug or projection extending up from said frame, a reciprocatory bar, and a finger carried by the bar and loosely engaging one side of the lug or projection.

659,084. DEVICE FOR ATTACHING HANDLES TO CARPET-SWEEPER RAILS. FRANCIS C. MASON, Grand Rapids, Mich. Filed June 20, 1900. Serial No. 20,012. (No model.)



Claim.—The combination of the ferrule B provided with slots at its lower end, the attaching-plate D provided with lugs engaging said slots and secured therein, and the screw E, all constructed as and for the purpose described.

659,085. RENDERING APPARATUS. FRANZ X. MILLER, Regensburg, Germany. Filed Mar. 23, 1900. Serial No. 9,917. (No model.)



Claim.—1. In apparatus of the character described, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, means arranged in said shaft to prevent the escape of gases or vapors via the feed-hopper, and a conveyer arranged in said vessel and adapted to rotate alternately in opposite directions, substantially as set forth.

2. In a vessel of the character described, the combination of a vessel for the material to be treated, means for heating said vessel a feed-hopper, a shaft connecting said feed-hopper with said vessel, means arranged in said shaft to prevent the escape of gases or vapors via the feed-hopper, a conveyer arranged in said vessel and adapted to rotate alternately in opposite directions, and a cooling or condensing vessel having pipe connection with said cooling or condensing vessel, substantially as described.

3. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a revolving drum disposed in said shaft below said hopper and provided with troughs adapted to be pressed outward beyond a line bounding the circumference of said drum, to hermetically seal said shaft.

4. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a revolving drum having water therein disposed in said shaft and provided with troughs having waterproof linings, said troughs having perforations connecting them with said drum, whereby the water may enter said troughs behind said lining and press it outward beyond a line bounding the circumference of said drum.

5. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said

vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a conveyer disposed in said vessel and adapted to rotate alternately in opposite directions whereby the material being treated is thoroughly heated.

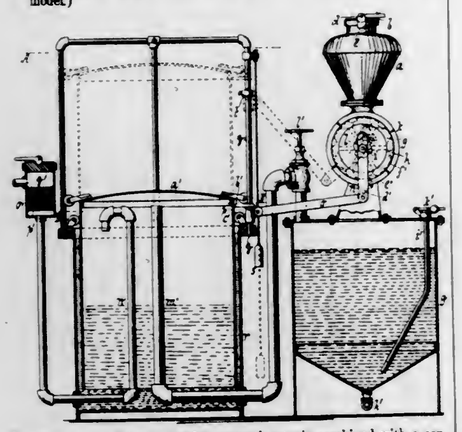
6. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a tube connecting said shaft with said vessel for cooling the contents thereof.

7. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a conveyer disposed in said vessel and adapted to rotate alternately in opposite directions whereby the material being treated is thoroughly heated, and means for preventing the displacement of said conveyer.

8. In an apparatus for melting and roasting fats, the combination of a vessel for receiving the material to be treated, means for heating said vessel, a feed-hopper, a shaft connecting said feed-hopper with said vessel, and a conveyer disposed in said vessel and adapted to rotate alternately in opposite directions whereby the material being treated is thoroughly heated, and a key for locking said conveyer against displacement.

9. In an apparatus for roasting fats, the combination of a cylinder, means for heating said cylinder, a conveyer adapted to rotate in said cylinder alternately in opposite directions, means for supplying material to be treated to said cylinder, and means for preventing the displacement of said conveyer.

659,086. ACETYLENE-GAS GENERATOR. OLIVER J. MOUSSETTE, New York, N. Y. Filed Feb. 6, 1900. Serial No. 4,219. (No model.)



Claim.—1. A hopper and a generating-tank, combined with a carrier, a ratchet and pawl for the carrier, a slide linked to the pawl-bar, a movable dome having a finger *b'* made to extend over the slide to press the latter down, a weight for causing the slide to move upward to follow the dome as the latter rises, and a stop to arrest the slide at a certain point while allowing the dome to continue rising independently of the slide substantially as described.

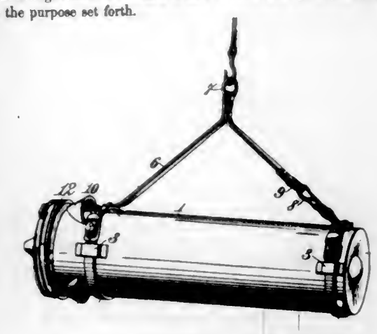
2. A hopper and a generating-tank combined with a carrier having pockets, and a door or trap, said pockets having constricted mouths substantially as described.

3. A hopper and a generating-tank, combined with a carrier, a ratchet and pawl for the carrier, a slide linked to the pawl-bar, a stop *t* for the slide, a movable dome having a finger *b'* engaging the slide, and a weight for moving the slide in one direction substantially as described.

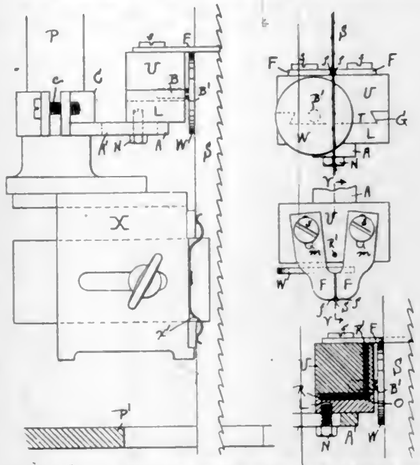
4. A hopper and a generating-tank, combined with a carrier, a ratchet and pawl for the carrier, a slide linked to the pawl-bar, a fixed rod having an adjustable stop *t* for the slide, and a weight and movable dome for reciprocating the slide substantially as described.

659,087. CHURN. JOSEPH H. MCCAUSLAND, Lampasas, Tex. Filed July 28, 1900. Serial No. 25,159. (No model.)

Claim.—A churn comprising a cylindrical body having a recess in the bottom thereof, and screw-threads upon the upper open end thereof, suspending means for said body which provides for the support of the same in a horizontal position and for an oscillatory movement to be imparted thereto, a cap screwed upon the upper end of said body having a central tapering recess or depression therein, and a dasher located within said body and comprising a central longitudinal shaft and a series of spirally-arranged blades thereon, the broad faces of said blades lying at an angle to the direction of oscillation of said body, the opposite ends of said shaft fitting within the recesses in said bottom and cap, respectively, as and for the purpose set forth.



659,088. CLEANER FOR SAWS. JOEL B. L. MCKENZIE, Rahway, N. J. Filed Mar. 13, 1900. Serial No. 8,500. (No model.)



Claim.—1. A cleaner for saws, comprising a pair of knives, one on each side of the saw, with parts shaped to the set of the saw-teeth, to clean the same in operation.

2. A cleaner for saws, comprising a carrier and a pair of knives adjustable thereon on opposite sides of the saw, and having parts shaped to the set of the saw-teeth, to clean the same in operation.

3. A cleaner for saws, comprising a pair of knives, one on each side of the saw-teeth and adjustable knives on said knives F'.

4. A cleaner for band-saws, comprising a pair of knives, between which the saw passes, said knives mounted on a sliding block and yielding means to hold the block against the back of the saw.

5. A cleaner for band-saws, comprising a pair of knives between which the saw passes, said knives mounted on a sliding block, a wheel mounted in the block and a spring to hold the wheel against the saw.

6 A cleaner for band-saws having a stationary supporting part, a part sliding on said support and carrying knives to clean the saw and a spring to press the sliding part up to the saw.

659,089. STOOL. GEORGE B. MCKINNEY, Barry, Ill. Filed Feb. 3, 1900. Serial No. 3,835. (No model.)

Claim.—1. A stool comprising a base having a stud extending upward therefrom, a seat, a standard having a laterally-yielding lower coil-spring section extending over the stud on the base and a rigid upper section fitting within the coil-spring section, substantially as described.

2. A stool comprising a base, a standard mounted on the base and having a coil-spring section and a tubular rigid section fitting one within the other and a seat provided with a post having sliding movement in the standard, substantially as described.

3. A stool comprising a base, a standard or upright having a lower coil-spring section attached to the base, and an upper rigid tubular section adapted to enter the upper end of the coil-spring section, the said upper section being provided near its lower end with an external collar adapted to rest on the upper end of the coil-spring section, and a seat provided with a stem fitting within the said standard, substantially as described.



4. In a stool, a base having a stud extending upward therefrom, a standard comprising a tubular rigid section, and a coil-spring section extending over and attached to the said stud on the base, the tubular rigid section having interiorly-located teeth, a seat having a chamber in its lower portion extending from side to side, a post for the seat having sliding movement in the standard, a latch having teeth arranged for engagement with the teeth in the standard, an arm located in the chamber of the seat and secured at one end to the bottom of the seat, the other end of said arm extending out through an opening in the bottom of the seat and a rod connecting said arm with the said latch, substantially as described.

5. In a stool, a base, a standard comprising a tubular rigid section, and a coil-spring section, the tubular rigid section having interiorly-located teeth, a seat having a bottom chamber, a hollow post for the seat having sliding movement in the standard, the said post having opposing slots, a latch having horizontal movement in the said post and adapted to extend within the post or out through either of the slots, the said latch being provided at one of its side edges with teeth adapted to fit the teeth of the standard, the said latch being also provided in each side with a diagonally-arranged slot extending in direction of its upper and lower edges, a rod having a flattened lower end extending through a central vertical slot in the latch, the said flattened surface being provided with pins extending through the diagonal slots in the latch, a spring-arm located in the chamber in the bottom of the seat and secured at one end to the seat, the other end of said arm extending out through an opening formed in the bottom of the seat, the upper end of the said rod having a hinge connection with the central portion of the spring-arm, for the purpose set forth.

6. A stool comprising a base, a tubular standard having a laterally-yielding section mounted on said base, a rigid section, fitting within the laterally-yielding section, and a seat provided with a post adjustably held in the said standard, substantially as described.

659,090. WRENCH. ORVILLE H. MCMURRAY, Springfield, Mo. Filed June 1, 1900. Serial No. 18,740. (No model.)

Claim.—1. The combination with a shank and fixed jaw, of a sliding jaw upon the shank having a groove in the rear face thereof and slots in the walls of said groove, a lever journaled within the slots and adapted to engage the shank, said lever adapted to register with, and slide within the slots when disengaged from the shank.

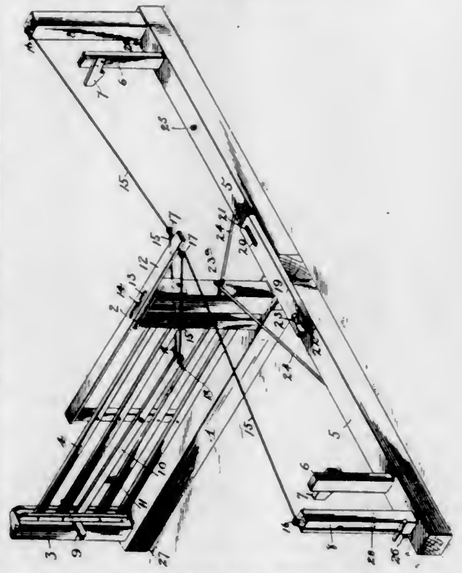
2. The combination with a shank and a fixed jaw, of a sliding jaw upon the shank having a groove in the rear face thereof and slots within the walls of said groove, a lever within the groove and having trunnions bearing in said slots, and a spring for normally holding said lever in engagement with the shank, said lever adapted to register with, and be moved laterally within, the slots when disengaged from the shank.

3. The combination with a toothed shank having a fixed jaw, of a jaw slidably mounted thereon provided with a groove within its rear face and slots in the walls of said groove, a lever within the groove, trunnions thereto bearing within the slots, teeth upon the lever normally engaging the teeth of the shank, and a spring within the groove and bearing upon the lever, said lever adapted to register with, and be moved laterally within, the slots of the jaw when disengaged from the shank.

659,090.



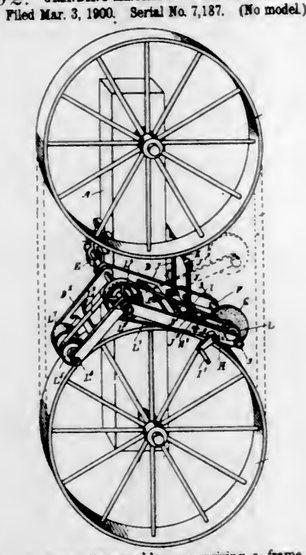
659,091. GATE. EDWARD NICHOLS, St. Francisville, Mo. Filed June 1, 1900. Serial No. 18,784. (No model.)



Claim.—1. In a foldable gate of the character described, the combination of a gate-sill carrying a hinge-post and a latch-post, a swinging gate hinged to said hinge-post and provided with a catch to engage catches on the latch-post, supporting-sills hinged to the sides of the gate-sill adjacent to the hinge-post and adapted to extend in opposite directions at right angles to said gate-sill and to fold parallel therewith, one of said supporting-sills being provided with a stud and the other with a pair of studs, a locking-bar adapted to hold the supporting-sills rigid in extended position and provided at one end with a notch and at the other end with a slot, said notch and slot being adapted to engage the adjacent studs on the supporting-sills when said sills are extended and to engage the pair of sills on one sill when the sills are folded, means for releasing the catch on the gate and swinging the gate, and means for connecting the free ends of the supporting-sills to hold said sills secured when folded, substantially as set forth.

2. In a foldable gate of the character described, the combination of a gate-sill carrying a hinge-post and a latch-post, a swinging gate hinged to said hinge-post and provided with a catch to engage catches on the latch-post, supporting-sills hinged to the sides of the gate-sill adjacent to the hinge-post and adapted to extend in opposite directions at right angles to said gate-sill and to fold parallel therewith, one of said supporting-sills being provided with a stud and the other with a pair of studs, a locking-bar adapted to hold the supporting-sills rigid in extended position and provided at one end with a notch and at the other end with a slot, said notch and slot being adapted to engage the adjacent studs on the supporting-sills when said sills are extended and to engage the pair of sills on one sill when the sills are folded, brace-rods pivoted at one end to the supporting-sills to fold parallel with said sills and adapted to be connected at their free ends to the hinge-post, means for releasing the catch on the gate and swinging the gate, and means for connecting the free ends of the supporting-sills to hold said sills secured when folded, substantially as set forth.

659,092. GRINDING-MACHINE. FRED A. NYSTROM, Cosmopolis, Wash. Filed Mar. 3, 1900. Serial No. 7,187. (No model.)



Claim.—1. A grinding-machine, comprising a frame mounted to swing, a grinding-wheel shaft journaled in the free end of said frame, a grinding-wheel mounted to turn with and to slide on said grinding-wheel shaft, a feeding device for engaging said grinding-wheel and carried by said frame, to move the grinding-wheel longitudinally on its shaft and transversely of the band-saw wheel to be trued, and a support for the free end of said frame, and comprising a fixed rod, and screw-rods mounted to swing on the rod, and engaging said frame, and nuts on the screw-rods securing the frame in position on the screw-rods, as set forth.

2. A grinding-machine, comprising a frame mounted to swing, a grinding-wheel shaft journaled in the free end of said frame, a grinding-wheel mounted to turn with and to slide transversely on said grinding-wheel shaft, a feeding device for engaging said grinding-wheel and carried by said frame, to move the grinding-wheel longitudinally on its shaft and transversely of the band-saw wheel to be trued, said feeding device comprising a shifting collar on the grinding-wheel, a shifting arm engaging said shifting collar and having a nut, and a screw-rod mounted to turn in said frame and engaging said nut of the shifting arm, as set forth.

3. The combination with band-saw wheels, of a swinging grinding-wheel mounted between the band-wheels to swing into engagement with either of said wheels, and means for operating the grinding-wheel from one of the band-saw wheels, substantially as described.

4. The combination with bend-saw wheels, of a swinging frame mounted between the band-wheels, a grinding-wheel mounted in the free end of the frame, a feed device for feeding the grinding-wheel transversely, means for locking the frame in position to hold the grinding-wheel in engagement with either band-wheel, and means for operating the grinding-wheel from one of the band-saw wheels, substantially as described.

5. The combination with band-saw wheels, of a swinging frame mounted between the band-wheels, a grinding-wheel mounted in the free end of the frame, means for locking the frame in position to hold the grinding-wheel in engagement with either band-wheel, a second swinging frame, a pulley or roller mounted in the free end of said second frame and engaging one of the band-wheels, and means for operating the grinding-wheel from the pulley, substantially as described.

6. The combination with band-saw wheels, of a swinging frame mounted between the band-wheels, a grinding-wheel mounted in the free end of the frame, a feed device for feeding the grinding-wheel transversely, means for locking the frame in position to hold the grinding-wheel in engagement with either band-wheel, a second swinging frame, a pulley or roller mounted in the free end of the second frame and engaging one of the band-wheels, and gearing between the pulley or roller and the grinding-wheel, substantially as described.

7. A grinding-machine, comprising two oppositely-extending swinging frames, a grinding-wheel mounted in one frame, a pulley or roller mounted in the other frame, gearing between the grinding-wheel and pulley or roller, whereby the former is operated from the latter, and an adjusting device for the frame carrying the grinding-wheel, substantially as described.

8. A grinding-machine, comprising two oppositely-extending swinging frames, a grinding-wheel mounted in the free end of one frame, a feed device for feeding the grinding-wheel transversely, means for adjusting the frame carrying the grinding-wheel, a pulley mounted in the free end of the other frame, and means for operating the grinding-wheel from the pulley, substantially as described.

9. In a grinding-machine, the combination with a swinging frame, and a grinding-wheel mounted therein, of screw-rods having their upper ends loosely mounted on supports and their lower ends projecting through a cross-bar of the said frame, and nuts on the screw-rods, substantially as described.

10. In a grinding-machine, the combination with a shaft or rod, a frame pivotally mounted on the shaft or rod, a grinding-wheel mounted in the free end of the frame, a pulley on the shaft of the grinding-wheel, means for adjusting the frame, a second frame mounted on the said shaft or rod, pulleys mounted in the free end of the second frame, pulleys on the rod, and belts passing around the said pulleys, substantially as described.

659,093. FIRE-ESCAPE. FREDERICK OCKERS, West Sayville, N. Y. Filed Feb. 14, 1900. Serial No. 5,197. (No model.)



Claim.—1. A fire-escape, comprising a pulley-block, a rope reeved therethrough, a seat provided upon a rope, a friction lever or brake fulcrumed intermediate of its ends upon the block and having its inner end in frictional engagement with the rope, and a suspending device connected to the outer free end of the lever or brake, and also adjustable transversely thereof.

2. A fire-escape, comprising a pulley-block, a rope reeved therethrough, a bell-crank lever or brake mounted upon the block and in frictional engagement with the rope, said lever or brake having a plurality of laterally-disposed perforations or openings, and a detachable suspending device for connection with any of the openings in the lever or brake.

3. A fire-escape, comprising a pulley-block, means for preventing rotation of the pulley in one direction, a rope reeved through the block and over the pulley, a seat provided upon the rope, and a friction lever or brake in frictional engagement with the rope, and arranged to retard the movement of the rope in the same direction as that in which the pulley is prevented from rotating.

4. A fire-escape, comprising a pulley-block, having a pulley provided with ratchet-teeth, a pawl or detent mounted upon the block and coöperating with the ratchet-teeth of the pulley to prevent rotation of the latter in one direction, a rope reeved through the block and over the pulley, a seat provided upon the rope, and a friction brake or lever mounted upon the block and arranged to frictionally engage the rope and retard the movement thereof in the same direction as that in which the pulley is prevented from rotating.

5. In a fire-escape, a pulley-block, a pulley mounted therein and provided with a marginal series of ratchet-teeth, a pawl mounted upon the block and coöperating with the ratchet-teeth to prevent rotation of the pulley in one direction, a rope reeved through the block and over the pulley, a seat provided upon the rope, a bell-crank friction lever or brake mounted upon the block, the inner end of the lever being grooved for frictional engagement with the rope, and the opposite end thereof being provided with a plurality of laterally-disposed perforations or openings, and a removable suspending device for adjustable engagement with the respective openings in the lever or brake.

659,094. SAW. JOSHUA OLDHAM, New York, N. Y. Filed July 27, 1899. Serial No. 725,265. (No model.)



Claim.—1. In a saw, the combination, with a blade having a slot or socket terminating in an enlargement at the inner end, of an insertible tooth having a channeled or grooved longitudinal edge, the walls of the groove or channel being of uniform cross-sectional area throughout, being compressed and extending or projecting at the inner end of the tooth into said enlargement of slot, substantially as set forth.

2. In a saw, the combination, with a blade having a slot or socket terminating in an enlargement at the inner end, of an insertible tooth having forward and rearward channeled or grooved edges, the walls of the grooves or channels being of uniform cross-sectional area throughout, being compressed and projecting or extending at the inner end of the tooth into said enlargement of slot, substantially as specified.

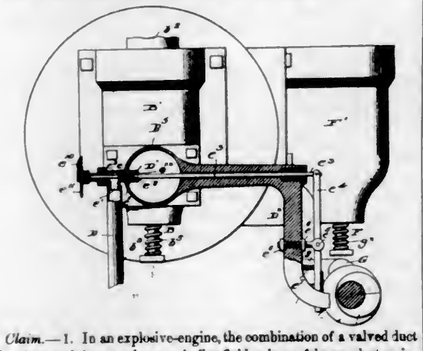
3. In a saw, the combination, with a blade having a slot or socket terminating in an enlargement at the inner end, of an insertible tooth having grooved or channeled longitudinal edges, the walls of the grooves or channels being of uniform cross-sectional area throughout, being compressed and extended at the inner end of the tooth into said enlargement of slot, said socket or slot and tooth having engaging grooves and ribs, respectively, substantially as described.

4. In a saw, the combination of a blade having a slot or socket terminating in an enlargement at the inner end and in seats at the outer end, extending along the edge of the blade, and an insertible tooth having forward and rearward shoulders or projections at its base engaging said seats, and channeled or grooved longitudinal edges, the walls of the grooves or channels being of uniform cross-sectional area throughout, being compressed and extending into said enlargement of slot or socket, said shoulders and seats having engaging ribs and grooves, respectively, substantially as set forth.

5. In a saw, the combination, with a blade having a tooth-receiving slot or socket, of an insertible tooth having a point, formed with a bifurcated offset forward portion and a rear plate-like portion of uniform thickness, the outer edge of said point being differently sloped rearwardly, and a shoulder being formed at the base of said rear plate-like portion ranging flush with said forward portion, substantially as set forth.

6. In a saw, the combination, with a blade having a slot or socket terminating at its inner end in an enlargement of an insertible tooth, with the walls of its grooved or channeled portions projecting forwardly and rearwardly into said enlargement of slot, and having a point formed with a bifurcated offset forward portion, and a rear plate-like portion of uniform thickness, the outer edge of said point being differently sloped rearwardly, and a shoulder being formed at the base of said plate-like portion, ranging flush with said forward portion, substantially as indicated.

659,095. GASOLENE-ENGINE. JOHN M. OLSEN, Elkhorn, Wis. Filed Oct. 21, 1898. Serial No. 694,229. (No model.)

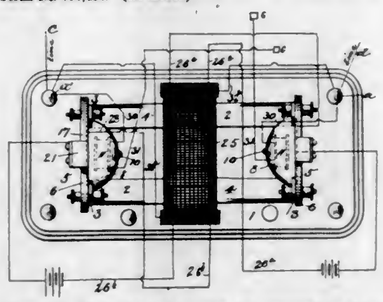


Claim.—1. In an explosive-engine, the combination of a valved duct or pipe for supplying gasolene or similar fluid, a lever fulcrumed at an intermediate point of its length and having one end connected to the valve in said supply pipe or duct, a cam adapted to be driven by the main engine-shaft and to actuate said valve-lever, and means for adjusting the fulcrum of said lever and to vary the throw or extent of movement of the end thereof to which the said valve is connected, substantially as set forth.

2. In an explosive-engine, the combination of a valved duct or pipe for supplying gasolene or similar fluid, an arm having a threaded stem carried by a support on the engine, adjusting-nuts engaging said threaded stem on opposite sides of said support, a lever fulcrumed on said arm and having one end connected with the valve in the gasolene-supply duct or pipe, and a cam adapted to be rotated by the main engine-shaft and to actuate said valve-lever, substantially as set forth.

3. In an explosive-engine, the combination of a valved duct or pipe for supplying gasolene or similar fluid, an arm having a threaded stem carried by a support on the engine, adjusting-nuts engaging said threaded stem on opposite sides of said support, a lever fulcrumed on said arm and having one end connected with the valve in the gasolene-supply duct or pipe, and a cam adapted to be rotated by the main engine-shaft and to actuate said valve-lever, and a governor for controlling said cam, substantially as set forth.

659,096. COMBINED RELAY AND REPEATER FOR TELEPHONE-LINES. EDWARD C. PARAMORE, Philadelphia, Pa., assignor of one-half to Howard T. Goodwin, Ridley Park, Pa. Filed Nov. 18, 1899. Serial No. 737,482. (No model.)



Claim.—1. In a relay and repeater the combination of two telephone-lines, two repeating-magnets arranged to be actuated one by each of said telephone-lines, two microphones arranged to be actuated one by each of said repeating-magnets, an induction-coil, a first primary on said induction-coil connected with one of said microphones, a second primary on said induction-coil connected to the other of said microphones, batteries in circuit with each of said primaries, and a secondary on said induction-coil, having each of its free ends connected to one of said telephone-lines, substantially as described.

2. In a relay and repeater the combination of two telephone-circuits, two repeating-magnets one in each of the said telephone-circuits, two microphones, each being arranged to be actuated by one of said repeating-magnets, an induction-coil, a first primary on said induction-coil connected in circuit with one of said microphones, a second primary connected in circuit with the other of said microphones, and a secondary on said induction-coil, which is wound on top of the two primaries and oppositely connected to each of the said telephone-lines, substantially as described.

3. In a relay and repeater the combination of two telephone-lines, two repeaters one in each telephone-line, an induction-coil, a first primary on said induction-coil, which is connected to one of said repeaters, a second primary on said induction-coil, which is connected to the other of said repeaters, a secondary on said induction-coil, which is connected at one end to one of said telephone-lines and at the other end to the other of said telephone-lines, and batteries in circuit with said primaries, substantially as described.

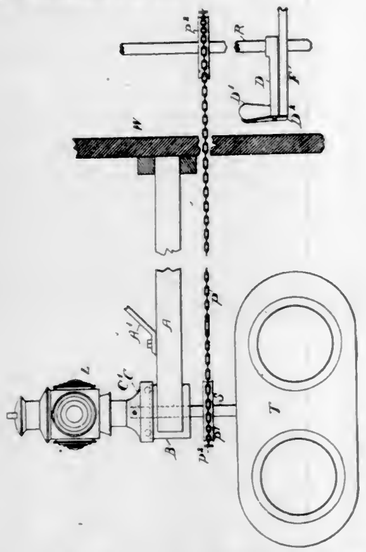
659,097. RAILWAY-SIGNAL. GEORGE A. PARLEE, Taché, Canada. Filed Oct. 4, 1899. Renewed Aug. 9, 1900. Serial No. 26,449. (No model.)

Claim.—1. In a railway-signal, a lamp provided with a cap, C, and a spindle, S, depending from the same in combination with a socketed bearing-plate for receiving the spindle, S, a bracket supporting the bearing-plate and antifriction-rollers arranged between the cap, C, and the bearing-plate, substantially as set forth.

2. In a railway-signal, a lamp provided with a cap, C, having a depending circular flange, and a depending stem, S, in combination with a bracket, and a circular socketed bearing-plate, B, arranged thereon and provided with a circular groove and a series of antifriction-balls arranged in said groove, substantially as set forth.

3. In a railway-signal, a lamp provided with a lower circular cap, as C, having a depending circular flange, and a stem, as S, depending therefrom, and a target, as T, attached to said stem in combination with a bracket, a circular socketed bearing-plate for receiving the stem, S, supported by the bracket and provided with a circular groove, and a series

of antifriction-balls arranged in the groove between the bearing-plate and the cap, C, substantially as set forth.



4. In a railway-signal, a lamp provided with a lower circular cap, C, and a stem, as S, depending therefrom in combination with a bracket provided with a socketed bearing-plate, B, for receiving the stem, S, a turning spindle arranged at a distance from the lamp-spindle, pulleys, P', P^2, secured one to the lamp-spindle and one to the turning spindle and an endless belt or chain passing over the two pulleys and fastened to each pulley by fastening means, P^3, P^4, all substantially as shown.

5. In a railway-signal, a lamp provided with a lower cap, C, having a circular depending flange and a depending stem, as S, provided at its lower end with a target, as T, in combination with a bracket, and a circular bearing-plate as B, mounted on said bracket and provided with a circular groove, antifriction-balls arranged in said groove, a turning spindle parallel to the lamp-spindle, pulleys, P', P^2, mounted one on each spindle, a chain or belt passing over the pulleys and fastened to each pulley by a screw, as P^3, P^4, all substantially as set forth.

659,098. APPARATUS FOR GRIPPING AND DELIVERING MAIL-BAGS. SIMON R. PATTEN, Omaha, Nebr., assignor of one-half to Alfred Millard, same place. Filed May 8, 1900. Serial No. 15,924. (No model.)

Claim.—1. The combination with a mail-car having a side opening X, of a gripper-frame opposite said opening with hinges arranged out of line, substantially as and for the purpose set forth.

2. The combination with a car, its opening X and hinged gripper-frame, of locking devices arranged to engage and hold the gripper-frame in its closed position, and means extending into the car for shifting said locking devices to release the frame, substantially as set forth.

3. The combination of the gripper-frame, spring for throwing it inward and locking devices for retaining it in its inner position, substantially as set forth.

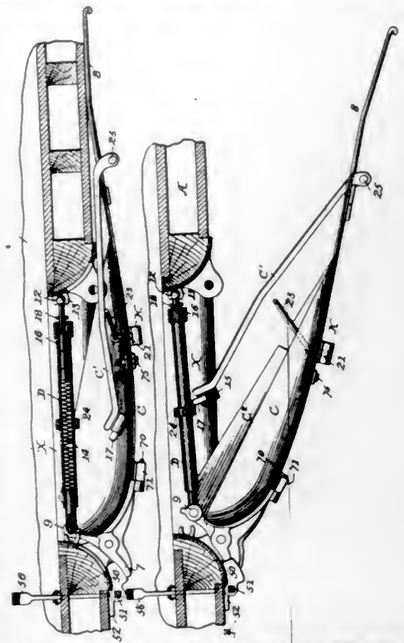
4. The combination of a car having a side opening X and cheek-pieces I, the gripper-frame hinged thereto and provided with flanges 7, blocks supported to be carried between the cheek-pieces and flanges, and means for removing the blocks out of position from within the car, substantially as set forth.

5. The combination of a car having a side opening and cheek-pieces, gripper-frame hinged thereto and provided with flanges 7, a vertical sliding rod carrying blocks 50, and means for shifting said rod, substantially as set forth.

6. The combination with a car having a side opening, of a hinged gripper-frame, cross-bar provided with a bearing, detent carried by the gripper-frame, and a yielding contact-piece between the bearing and the detent, substantially as set forth.

7. The combination with the hinged gripper-frame and cross-bar having a bearing, of a detent provided with a pin for engaging said bearing and a spring for throwing the said pin outward, substantially as set forth.

8. The combination with the pivoted gripper-frame, of a cross-bar in two sections with a spring between the sections, a socket for receiving the end of one of the sections and a handle upon the latter section, substantially as and for the purpose set forth.



9. The combination of the hinged gripper-frame, detent connected therewith, cross-bar D and adjustable collar upon the bar constituting a bearing for the detent, substantially as set forth.

10. The combination with a car having a side opening, and with a gripper-frame, of a holder K provided with a bolt for engaging a ring connected with a pouch to be delivered from the car, a lever connected with said bolt, and a detent for holding open the gripper-frame arranged to make contact with and operate the said lever, substantially as set forth.

11. The combination with the gripper-frame connected with the car, of a bolt supporting the bag to be delivered from the car, a detent for holding the gripper-frame in its open position, and means whereby the said bolt is retracted by the movement of said detent, substantially as set forth.

12. The combination of the gripper-frame, a holder for supporting the bag to be delivered from the car provided with a bolt arranged to swing to the rear by draft from the pouch substantially as set forth.

13. The combination with the gripper-frame, of a lever carrying a bolt pivoted to the said lever to swing to the rear, substantially as set forth.

14. The combination with the gripper-frame, of downwardly-projecting ears having slots, a bolt extending into said slots and supported to swing to the rear, a detent, and means whereby the bolt is withdrawn by the action of the said detent, substantially as set forth.

15. The combination with the gripper-frame, of downwardly-projecting ears having inclined slots, a bolt extending into said slots and supported to swing to the rear, a detent, and means whereby the bolt is withdrawn by the action of the said detent, substantially as set forth.

16. The combination with a car having a side opening, of a gripper-frame hinged at one side of said opening by hinges arranged out of line to cause the frame to swing inward, a spring arranged and connected to cause the frame to swing inward, and a movable detent for holding the frame in its outward position, substantially as set forth.

17. The combination of a car having a side opening, and a gripper-frame, the lower portion of which is movably connected to the upper portion, substantially as set forth.

18. The combination of a car having a side opening and a gripper-frame in two sections, and means for connecting said sections to permit the ready removal of the lower section, substantially as set forth.

19. The combination of a car having a side opening, a gripper-frame, and an inclined plate extending outside of the said opening above the floor of the car, substantially as set forth.

20. The combination of a car having a side opening, a gripper-frame, and plate M pivoted above the sill of said opening to swing outward to an inclined position and also inward upon the said sill, substantially as set forth.

21. The combination with a car having a side opening and gripper-frame, of a movable deflecting-plate Q, and means whereby said plate may be temporarily supported in a position projecting beyond the side of the car, substantially as set forth.

22. The combination with a car and movable deflecting-plate Q, of means extending into the car for shifting the said plate and for holding it in its outer position, substantially as set forth.

23. The combination with the pivoted pins 30, of yielding diverging fingers arranged at one side of the vertical plane of the said pins, substantially as and for the purpose set forth.

24. The combination with the car and pouch-supporting means, of a swinging frame arranged adjacent to the track and supporting a pouch-receiving frame H, provided with a flange *c*, substantially as set forth.

25. The combination with the track, of a frame N hinged to a supporting-frame by hinges arranged out of line and a pouch-receiving frame H carried by the frame N, substantially as set forth.

26. The combination of the pivoted frame N, pouch-receiving frame H and catches arranged to engage the frame N in its different positions, substantially as set forth.

27. The combination of the swinging frame N, of the pouch-receiving frame H secured to the frame N at a point upon a plane extending through the hinges of the frame N and having an acute angle with the track, substantially as set forth.

28. The combination with the hinged frame N and pouch-receiving frame H and with the frame N′ supporting the frame N, of a detent or catch having a beveled edge coinciding with a beveled engaging face upon the frame N, substantially as set forth.

29. The combination with the frame N′ and frame N hinged thereto, of a pouch-receiving frame H pivoted to the frame N, a detent for holding the frame H in its outer position, a catch for engaging and holding the frame N in its forward position, and means for moving said catch from the said detent, substantially as set forth.

30. The combination with the hinged frame N arranged adjacent to the track, of a frame H hinged to the frame N, adapted to swing toward the frame N, and a detent for holding the frame H in its outer position, substantially as set forth.

659,099. THILL-COUPLING. WIRETON K. PENDLETON, Ocoee, Fla., assignor of two-thirds to William Pendleton Blakely and William Strickler Jones, same place. Filed Nov. 11, 1899. Renewed Aug. 27, 1900. Serial No. 28,246. (No model.)



Claim.—1. A thill-coupling, consisting of jaws adapted to hold the pole or shaft and having recesses at their upper ends, a base-plate adapted to extend underneath the axle and connected with said jaws and having an aperture near its rear end, a bolt extending loosely through said aperture, a clip engaging said bolt and adapted to extend over the axle, the said clip being provided with ears arranged to enter the recesses in the jaws, and means for locking said bolt, as set forth.

2. In a thill-coupling, the combination of the jaws and base-plate, a clip arranged for engagement with the jaws at one end, a bolt connected to said clip at its other end and extending through the base-plate, a nut screwing on the lower end of said bolt and formed with trunnions, and a locking-lever mounted on said trunnions and having cam-surfaces adapted to ride on the lower face of said base-plate, as set forth.

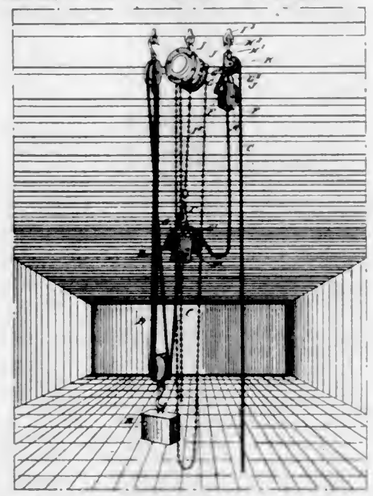
3. A thill-coupling, comprising a base-plate and thill-holding jaws, which latter are formed with recesses at their upper ends, a clip adapted to rest on the axle and having ears arranged to enter said recesses, and a connection between the rear of the base-plate and the rear of the clip, as and for the purpose set forth.

4. A thill-coupling, comprising a base-plate and thill-holding jaws, which latter are recessed at their upper ends, a clip provided with apertured ears at its front end adapted to enter said recesses, and an apertured rear end, and a notched bolt detachably connected to the base-plate and engaging the apertured rear end of the clip, as set forth.

5. A thill-coupling, consisting of spaced-apart jaws adapted to receive the pole or shaft, and a base-plate adapted to extend underneath the axle, and a clip arranged for connection to the rear of the base-plate and having apertured ears adapted to engage the upper ends of said jaws and an extension beyond said ears, said extension forming an antirattler, as set forth.

6. In a thill-coupling, the combination with the jaws having vertical passages enlarged at their lower ends, of a pole or shaft having a non-circular or flattened opening in its rear end, and a pivot-pin having a correspondingly-shaped shank fitted in said opening, and a fixed flattened head and a detachable flattened head on said shank adapted to be inserted in said passages, as set forth.

659,100. HOISTING-GRIP. JOHN PIERCY, New York, N. Y. Filed May 15, 1900. Serial No. 16,767. (No model.)



Claim.—1. A hoisting-grip, comprising a casing, gripping-jaws arranged in said casing and mounted to move toward or from each other and grip or release a cable or rope, the said jaws being provided near their upper ends with outwardly-extending ears or lugs formed with elongated slots, pins or bolts extending through said slots, cam-levers pivoted in the casing, the cam ends of said levers being adapted to move into or out of engagement with the jaws, and arranged to press the said jaws to grip the cable or rope, and links pivotally connected with the outer ends of said levers and connected with a hoisting device, the links, upon an upward pull, causing the levers to swing to move the jaws into gripping contact with the hoisting rope or cable, substantially as shown and described.

2. A hoisting-grip, comprising a casing consisting of front and back plates, pins or bolts connecting the plates with each other the pins or bolts being located near the upper and lower portions of the plates and at or near the middle thereof, gripping-jaws adapted to grip or release a cable or rope and arranged between the plates, the said jaws being provided near their upper ends with elongated slots through which extend the upper pins or bolts connecting the plates of the casing, the lower pins connecting the casing extending at the outer sides of the jaws at the lower portion thereof, and forming guides for the same, cam-levers mounted to turn on the intermediate bolts and adapted to engage with their cam ends the outer sides of said jaws and press the latter in gripping contact with the cable or rope, links pivotally connected with said levers, a ring adapted to be engaged by a hoisting device, and chain connections between the links and the ring, the links upon an upward pull, causing the levers to swing and move the jaws into gripping contact with the hoisting rope or cable, substantially as shown and described.

3. The combination with a main hoisting-grip having movable jaws controlled by the hoisting device, of an auxiliary grip having gripping-jaws, a casing, means connected with the casing for operating said gripping-jaws, means for suspending said casing from a fixed support, a pulley journaled in said casing and a hoisting cable or rope which passes between both sets of gripping-jaws and over the said pulley, substantially as shown and described.

4. A hoisting-grip, comprising a support, gripping-jaws, loosely mounted near one end on said support, whereby the jaws may move toward or from each other and grip or release a cable or rope, levers piv-

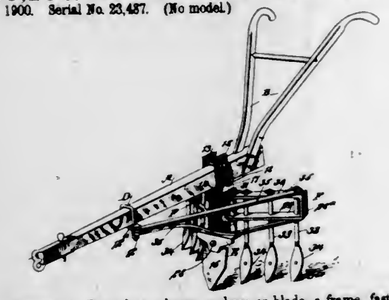
oted near their inner ends on said support, and having cams at said ends adapted to move into or out of engagement with the outer sides of said jaws, and arranged to press the said jaws to grip the cable or rope, and links pivotally connected with the outer ends of said levers and connected with a hoisting device, the links upon an upward pull causing the levers to swing to move the jaws into gripping contact with the hoisting rope or cable, substantially as described.

659,101. PICK. ISAAC PRICE and JOHN O'MEALIA, Sherrard, Ill. Filed Mar. 26, 1900. Serial No. 10,303. (No model.)



Claim.—A tool of the character described comprising the pick, proper, having a countersink or recess in its forward edge, a handle-socket piece having a threaded passage opening through its forward end, a transverse passage communicating with said threaded passage and opening laterally through said socket, and a handle-receiving socket, with an imperforate partition between said socket and transverse passage, and a screw-bolt, with its head let into the recess or countersink of said pick and having a reduced angular end terminal with handspike-receiving apertures or holes opening through the respective sides thereof, substantially as specified.

659,102. PLOW. JOHN W. REAVES, Morgan, Ark. Filed July 13, 1900. Serial No. 23,457. (No model.)



Claim.—1. In a plow, a beam, a share or blade, a frame, fastening means by which the upper portion of the frame is connected with the beam, another fastening means by which the lower portion of the frame is connected with the share or blade, and cultivator blades or teeth carried by said frame.

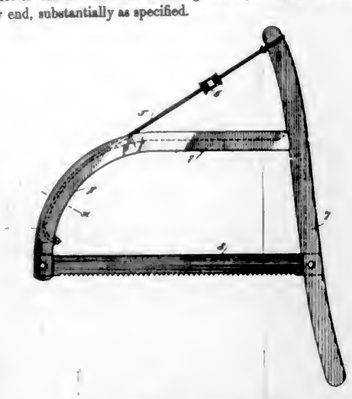
2. In a plow, a beam, a share or blade, a frame, fastening means by which the upper portion of the frame is connected with the beam, another fastening means by which the lower portion of the frame is connected with the share or blade, cultivator blades or teeth carried by said frame, and braces extending from the rear portion of the frame forwardly to the beam.

3. In a cultivator attachment for plows, a shank having a shoulder, the shank forming a portion of a blade or share, a bracket having horizontal projections arranged for engagement with a shoulder of the shank, means for securing the bracket to the shank, a tooth-carrying frame connected with a member of the said bracket, and braces for the frame which extend to and are adapted for connection with a plow-beam.

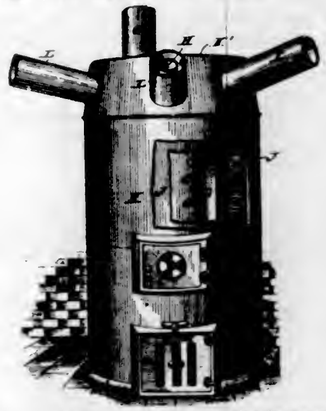
4. In a cultivator attachment for plows, a beam, a shank provided with a shoulder between its ends, a blade or share connected with the shank, a head attached to the blade or share and having an opening through which the shank passes, a bracket attached to the said shank, having inward projections arranged for engagement with a shoulder of the shank, and an outward projection, a tooth-carrying frame, a fastening device for the frame passed through the outward projection of the bracket and a portion of said head, braces attached to the frame, and means for connecting the braces with the beam of the plow, as set forth.

659,103. SAW. RALPH ROCKWELL, Oracle, Ariz. Filed July 12, 1900. Serial No. 23,390. (No model.)

Claim.—In a saw, a frame comprising a top and front portion made of a single length of material having a channel along its top or outer portion, a back or handle portion extended above the top of the frame, and a tie-rod attached to said upward extended portion and carried through the slot of the front and then through an opening in the front near its lower end, substantially as specified.



659,104. FURNACE. JOHN S. L. RODRICK, Washington, D. C. Filed June 1, 1900. Serial No. 18,715. (No model.)



Claim.—1. An improved furnace comprising the fire-pot, the combustion-chamber, upright plates on the outer sides of same forming a series of longitudinal superheating-chambers, a smoke-drum upon the combustion-chamber and having on its outer side upright plates coinciding with those on said combustion-chamber and forming continuations thereof, a cap on said smoke-drum and provided with nipples communicating with the superheating-chambers, the jacket around said fire-pot, combustion-chamber and smoke-drum, the casing, the heating-flues, and the superheating-flues communicating with the upper ends of the superheating-chambers and leading into the main heating-flues, substantially as set forth.

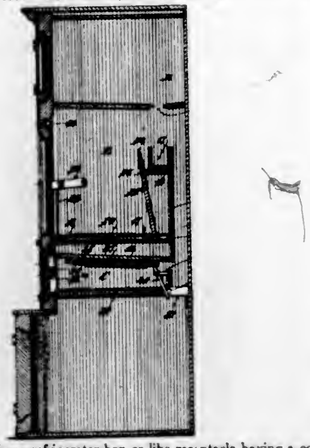
2. A furnace substantially as described comprising the fire-pot and combustion-chamber, a series of upright, superheating-chambers extending around said fire-pot and combustion-chamber, a cap-plate at the upper end of said superheating-chambers and provided with openings communicating with said chambers, the casing and main heating-flues leading therefrom, and the superheating-flues communicating with the superheating-chambers and discharging into the main heating-flues, substantially as set forth.

3. The combination in a furnace with the fire-pot, combustion-chamber and means forming a series of upright superheating-chambers around said parts, of the casing and main heating-flues, and a cap-plate provided with openings communicating with the superheating-chambers, and the superheating-flues leading from said cap-plate to discharge into the main heating-flues, substantially as set forth.

4. In a furnace the combination of the combustion-chamber the smoke-chamber above the same and the inlet-pipe leading from the smoke-chamber into the combustion-chamber and deflected rearwardly within the latter, substantially as set forth.

5. In a furnace substantially as described, the combination of the combustion-chamber, the smoke-chamber and the combined scraper and deflector in the latter, said deflector being adjustable within the smoke-chamber and consisting of a plate and a bail or handle, substantially as set forth.

659,105. REFRIGERATOR. CARL SANDER, New York, N. Y. Filed July 10, 1900. Serial No. 23,084. (No model.)

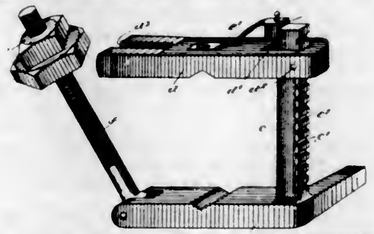


Claim.—1. In a refrigerator-box or like receptacle having a compartment and an opening leading thereto, a shelf mounted to slide in said compartment and to extend out through the said opening, a shifting bar operatively connected with the shelf and extending into the upper part of the compartment, and a door for closing said opening, the door being supported to swing about a horizontal axis to bring the upper end of the door rearwardly against the shifting bar to slide the shelf forward.

2. A refrigerator-box or like receptacle having a compartment, an opening leading thereto, a shelf mounted to slide in said compartment and to extend out through said opening, a trip-bar in engagement with the rear of said shelf, a door for said opening, having a pivotal support within the compartment upon which the said door may rock, which door when opened engages with the upper end of the trip device thus forcing the shelf outward, which device when the door is closing engages with the projecting portion of the shelf and restores said shelf to its normal position.

3. In a refrigerator-box or like receptacle, having a chamber and an opening leading into said chamber, a shelf mounted to slide in said compartment, and capable of extending out through said opening, slideways above the shelf, a trip-bar mounted in said slideways, the trip-bar being provided with a spring-controlled head at its forward end, a shifting bar engaging with the rear of said shelf and connected with the rear portion of the trip-bar, and a door adapted to normally close said opening, which door is provided with a pivotal support within the said compartment, the upper portion of the door when said door is opened being arranged to engage with the said spring-controlled head, and the lower portion of the door, when said door is closed, being adapted to engage with the forward end of said shelf.

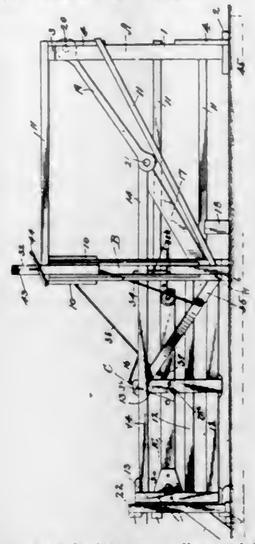
659,106. LATHE-DOG. GEORGE W. SCHELLENBACK, Joplin, Mo. Filed May 19, 1900. Serial No. 17,285. (No model.)



Claim.—1. A lathe-dog having two jaws, an arm connecting the same, one of the jaws having an opening through which the arm is loosely passed, and the arm being formed with a notch or notches therein adapted to receive a tooth-like portion of the jaw having the opening, a key adapted to fit in the opening to secure the jaw on the arm, and a spring mounted on the jaw and carrying the key.

2. A lathe-dog, having two jaws, one of which has an opening therein with a tooth-like projection on one of its walls, an arm attached to the other jaw and projected through the opening in the first-named jaw, the arm being formed with notches the walls of which are engaged by the said tooth-like projection on the first-named jaw, and a removable key serving to hold the arm in the opening of the first-named jaw.

659,107. GATE. JOHN B. SHAFFER, Mount Carroll, Ill. Filed Jan. 20, 1900. Serial No. 2,130. (No model.)



Claim.—1. A gate having a rearwardly-extended top rail, a diagonal member secured to the rear end of said top rail and to the bottom member of said gate, a pair of pivoted links connected at their lower ends to the rear end of said top rail and reversely connected to a framework, an additional pair of pivoted links connected at their upper ends to said gate, near the top, and about the middle, said additional links being reversely connected at their opposite ends to a support or framework, and gate-actuating levers linked to said additional links, substantially as described.

2. A gate having a rearwardly-extended top rail, a pair of pivoted links connected at their lower ends to said top rail at its rear end and connected at their upper ends to a framework, a second pair of pivoted links connected at their upper ends to said gate, about its middle and near the top, the opposite ends of said links being reversely connected to the framework, a latch, a latch-string connected to said latch and having two branches extending each way through pulleys or guides and passing through holes in the gate-actuating levers, stops on said latch-string to limit its motion, gate-actuating levers linked to said second pair of links, substantially as described.

3. The combination of a framework consisting essentially of four posts, a gate having a rearwardly-extended top rail and a diagonal member attached at its upper end to the rear end of said top rail and at its lower end to the bottom member of said gate, a pair of pivoted links connected at their lower ends to the rear end of said top rail, and attached at their upper ends to the rear posts of said frame, a second pair of links pivotally connected at their upper ends to said gate, near the top and about the middle thereof, said links being reversely pivoted at their opposite ends to the forward posts of said frame, and means for actuating said gate, substantially as described.

659,108. COMBINED BARREL AND BAG TRUCK. CHARLES F. SINNEMAKER, Tipton, Iowa. Filed July 14, 1900. Serial No. 23,646. (No model.)

Claim.—The combination of a truck of the character described, provided intermediate of its length with a downwardly-curved cross-bar extending from side piece to side piece in a plane below the lower edges of the side pieces, a longitudinal bar extending from one end of the truck to the other and resting upon the cross-bar, a downwardly-curved saddle or head secured to the lower end of the truck, a double hook hinged to

the side pieces of the truck and adapted to rest in the downwardly-curved head, and a hook hinged to a collar adjustably connected to the longitudinal bar, said hooks having a swinging movement, substantially as and for the purpose described.



659,109. MOISTENER AND LIQUID-DISTRIBUTER. CHARLES P. SMITH, Los Angeles, Cal., assignor of two-thirds to Frank Newnham and Charles S. Beath, same place. Filed Sept. 25, 1899. Serial No. 731,675. (No model.)

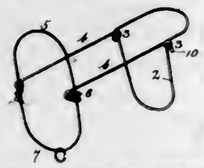


Claim.—1. The combination with a hollow handle provided with an air-inlet at one end and with a chamber at the other end, the end wall of the handle forming the inner wall of the chamber and being perforated to allow liquid to pass into the chamber from the hollow of the handle; of a roller journaled to substantially close the mouth of the chamber; and an absorbent packing extending from end to end of the roller and filling the chamber between the roller and the perforations.

2. A liquid-distributer comprising a hollow handle beveled at one end and provided with a cap at the other end; the shell of said handle being provided at the beveled end with a chamber and with bearings at the ends of such chamber and also perforated to admit liquid to the chamber from the interior of the handle; an absorbent body in the chamber; a pin inserted through said bearings to retain the absorbent body in the chamber; a roller journaled in the bearings to contact with the absorbent body and form the outer wall of the chamber; and a valve to admit air into the handle.

3. The combination of a valved handle provided with a reservoir and having a wedge-shaped end, an open chamber extending along the wedge edge, and having the wall between the reservoir and the chamber perforated, and also having lugs closing the ends of the chamber and perforated to form journal-bearings; a roller journaled in said bearings and substantially closing the mouth of said chamber; and a packing of absorbent material in said chamber between the perforated wall and the roller.

659,110. HALTER. ISAAC N. SMITH, Ashley, Ill. Filed Jan. 15, 1900. Serial No. 1,558. (No model.)

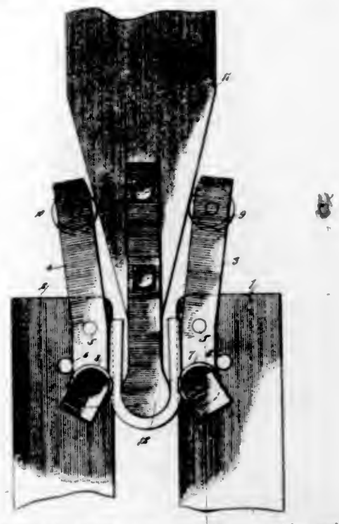


Claim.—A halter made of wire and consisting of a head-stall, two cheek-strands, a chin-strand and a nose-band all formed from a single length of wire, a loop formed in each cheek-strand, a throat-latch made of another piece of wire, one end of which is hinged to the loop in one of the cheek-strands and provided with a hook for engagement with the loop in the other cheek-strand, a ring sliding on the chin-strand, and a leading-rope attached to the ring, said halter adapted to control a fractious animal by a pull upon the leading-rope to tighten the nose-band, substantially as described.

659,111. CLIP-FORMING MACHINE. GEORGE E. SOPER, Kankakee, Ill. Filed May 14, 1900. Serial No. 16,655. (No model.)

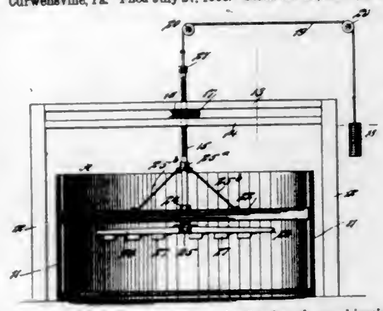
Claim.—1. A machine for bending metal into substantially U shape, comprising swinging arms, a plunger-bar operating to swing said arms to cause the lower ends to move toward each other, and a bending-head carried by the plunger, as specified.

2. In a machine for bending metal to substantially U form, swinging arms, rollers journaled in the lower ends of said arms and adapted to engage the metal to be bent, a plunger having inclined or wedge-shaped opposite edges, rollers carried by the upper ends of said arms for engaging with said edges, and a bending-head carried by the plunger, substantially as specified.



3. A machine for forming clips or the like, comprising swinging arms, grooved rollers journaled in the lower ends of said arms, rollers carried by the upper ends of said arms, a plunger-bar engaging with said upper rollers and adapted upon a movement to swing the arms in such manner as to cause the opposite side members of the clips to converge, and a bending-head carried by the plunger, substantially as specified.

659,112. DEVICE FOR EMPTYING LEACHES. BENJAMIN SYKES, Curwensville, Pa. Filed July 27, 1900. Serial No. 25,013. (No model.)



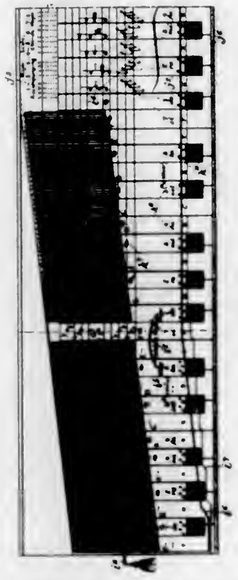
Claim.—1. In a device for emptying leaches, the combination, with a leach, of a shaft adjustably suspended in the said leach, an adjustable guide for the shaft, stirrer-arms secured to the lower end of the said shaft and radiating therefrom, and collecting-blades attached to the under faces of the said stirrer-arms and at an angle thereto, for the purpose set forth.

2. In a device for emptying leaches, a leach, a shaft mounted to rotate and having vertical adjustment in the said leach, a guide-bar adjustable in the leach and through which the said shaft is passed, the shaft being provided at its lower end with a hub, stirrer-arms radiating from the said hub and extending to the side portions of the leach, and collecting-blades adjustably attached to the under faces of the stirrer-arms, the said collecting-blades being at an angle to the longitudinal axis of the stirrer-arms, as set forth.

3. In a device for emptying leaches, the combination, with a leach provided with a discharge-opening in its bottom, opposing guide-ribs secured to its inner face, and a frame extending upward at the sides and across the top of the leach, of a shaft mounted to turn in the said frame and having end movement therein, the lower portion of said shaft entering the leach, a swivel-cap connected with the shaft, a series of

weights, a support for said weights and a cord, rope or chain attached to said support and to the said swivel-cap, the rope or chain having guides between its ends, a driving device for the shaft, a guide-bar held to slide in engagement with the ribs of the leach, the shaft being passed through said guide-bar, arms radiating from said shaft and extending toward the side portions of the leach, blades adjustably attached to the said arms at an angle thereto, and a wiper carried by one of the arms and arranged for engagement with the inner wall of the leach, as set forth.

659,113. MECHANICAL MUSIC-CHART. SAMUEL B. TURNER, Chicago, Ill. Filed Apr. 7, 1900. Serial No. 12,017. (No model.)



Claim.—1. In a chorigraph or mechanical music-chart, the combination with a body or supporting-piece having series of steps, of a transposer movably connected therewith, said transposer having supports to engage said steps, substantially as described.

2. In a chorigraph or mechanical music-chart, the combination with a body or supporting-piece having a cavity with steps therein, and having connected therewith a partly-transparent piece having thereon a music-staff, of a transposer with supports having beveled edges to engage said steps, said transposer having thereon signatures or marks of transposition, and also notes or characters representing the diatonic scale or scales, substantially as described.

3. In a chorigraph or mechanical music-chart, the combination with a body or supporting-piece having a cavity with steps therein and having connected therewith a transparent piece the same being made opaque in parts and having thereon a music staff or staffs and a representation of the keyboard of a piano or organ and groups of numerals representing scales and chords, of a transposer movably located within the cavity of the body and having supports to engage said steps, said transposer having thereon signatures, syllables and characters representing scales and chords, and also a double indicator, substantially as described.

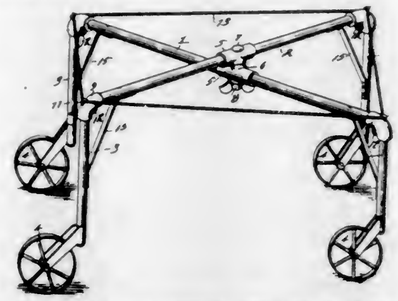
659,114. COTTON-PICKER'S SHADE. ALEXIS VOORHIES, New Iberia, La. Filed July 6, 1900. Serial No. 22,712. (No model.)

Claim.—1. A portable canopy or shade, comprising crossed frame-bars, having wheeled supports, an adjustable connection for the crossed portions of the bars, and a cover for the frame.

2. A portable canopy or shade, comprising crossed frame-bars, having wheeled supports, an adjustable clamping pivotal bolt connecting the intersecting portions of the bars, and a cover for the frame.

3. In a portable canopy or shade, a frame, comprising crossed bars, each of which is formed by opposite pipe-sections, and an intermediate T-coupling, the lower coupling being inverted, and the outer ends of the vertical branches of the two couplings being toothed and intermeshed, and an adjustable clamping-bolt passing through the vertical branches of the couplings, standards at the opposite ends of the crossed bars, wheels at the lower ends of the standards, and a cover stretched over the crossed bars.

4. A portable canopy or shade, comprising crossed frame-bars, having an adjustable pivotal connection at their intersection, wheeled supports for the opposite ends of the bars, a brace-cable for the bars, and a cover stretched over the frame.



5. A portable canopy, comprising crossed frame-bars, wheeled supports for the bars, bolts passing loosely through the supports, one end of each bolt being provided with a rebent hook, the extremity of which is received within a perforation in the frame, a nut for the opposite end of the bolt, a cable-brace held within the hooked portions of the bolts, and a cover for the frame.

6. A portable canopy or shade, comprising crossed and pivotally-connected frame-bars, standards at the outer ends of the bars, caster-wheels carried by the standards, and a cover stretched over the frame.

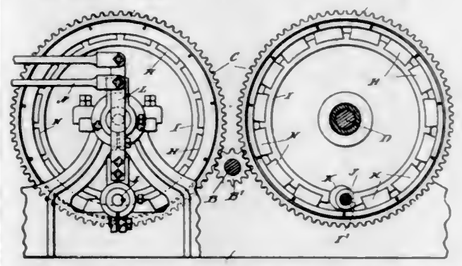
7. A portable canopy or shade, comprising pivotally-connected crossed frame-bars, wheeled supports for the opposite ends of the respective bars, end bars at the opposite ends of one of the crossed bars, and a cover connected to the end bars only.

8. A portable canopy or shade, comprising pivotally-connected crossed frame-bars, wheeled supports for the opposite ends of the bars, transverse end bars at the opposite ends of one of the crossed bars, cable-braces between respective ends of the opposite end bars, and a cover, having detachable connections at opposite ends with the respective end bars only.

9. A portable canopy or shade, comprising crossed and pivotally-connected frame-bars, four-way couplings at the opposite ends of one of the bars, wheeled standards connected to the pendent branches of the respective couplings, and other wheeled standards connected to the opposite ends of the other crossed bar, transverse end bars passed through the horizontal branches of the respective couplings, cable-braces between the respective ends of the opposite end bars, and a cover detachably connected to the end bars only.

10. A portable canopy and shade, comprising crossed and pivotally-connected frame-bars, wheeled standards at the opposite ends of the frame-bars, transverse end bars at opposite ends of one of the frame-bars, flexible braces extending from corresponding ends of the opposite end bars, adjustable fastenings carried by the standards of the other frame-bar and adjustably receiving the intermediate portions of the respective braces, whereby the frame-bars may be adjusted upon their pivotal connection, and a cover fitted over the device.

659,115. FRICTION-BRAKE. FRIEND N. WHITCOMB and HARRY W. WHITCOMB, Barre, Vt. Original application filed Dec. 22, 1898, Serial No. 700,025. Divided and this application filed Feb. 9, 1900. Serial No. 4,622. (No model.)

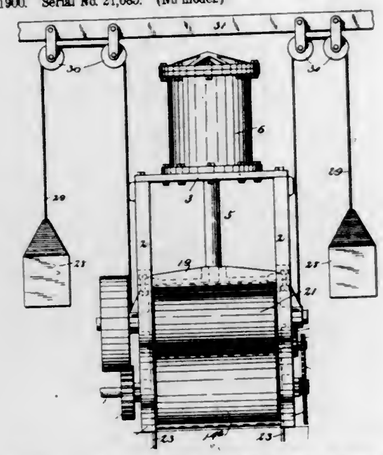


Claim.—1. A brake mechanism, comprising a brake-wheel, a split brake-ring, and an eccentric mounted in one end of the ring with its working face projecting beyond the same and into engagement with the other end of the said ring, substantially as and for the purpose set forth.

2. A brake mechanism, comprising a brake-wheel, a split brake-ring carrying blocks for engaging said brake-wheel, an eccentric for opening said split ring, to move the blocks in frictional contact with said brake-wheel, and a shaft under the control of the operator and journaled in one end of said split ring, the shaft carrying the eccentric and the latter having its working face projecting beyond the end of the ring and abutting against the other end of said ring, substantially as shown and described.

3. A brake mechanism, comprising a brake-wheel, a split brake-ring having one end forked and carrying brake-blocks on its outer face for engaging the brake-wheel, a shaft mounted in the forked end of the ring, means for operating the shaft, and an eccentric secured to the shaft between the members of the fork of the ring, with its working face projecting beyond the end of said ring, substantially as herein shown and described.

659,116. BALING-PRESS. FRANK L. WHITE, Pine Bluff, Ark., assignor of one-half to Edward D. Russell, same place. Filed June 21, 1900. Serial No. 21,085. (No model.)



Claim.—1. In a baling-press, a cylinder, a piston mounted to reciprocate in said cylinder, a presser-roller journaled in bearing-blocks connected to said piston, said bearing-blocks sliding vertically in the frame and carrying sliding plates, disks mounted to slide on the plates, and base-rollers journaled in the frame, substantially as described.

2. In a baling-press, the combination of the feed-rollers, the base-rollers journaled in the frame of the machine, means for revolving said rollers in the same direction, a cylinder, a piston moving in said cylinder, a pressure-roller connected to said piston, and carrying sliding plates having disks freely mounted thereon, base-rollers journaled in the frame, and counterweights connected to the presser-roll shaft, substantially as described.

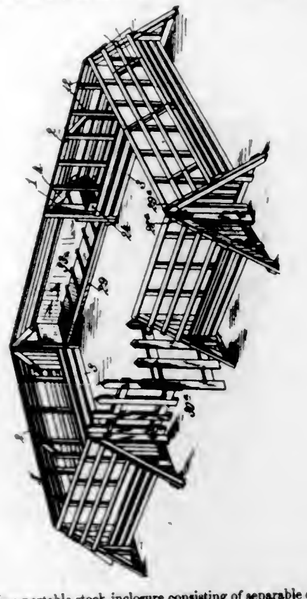
3. In a baling-press, a cylinder, a piston moving therein, a presser-roller connected to said piston, sliding plates carried by the piston, disks mounted to move freely on said sliding plates, base-rollers below said presser-roller, and means for relieving the pressure behind the piston-head, substantially as described.

659,117. PORTABLE STOCK-INCLOSURE. STEPHEN P. WHITE and JACOB C. MILLER, Pulaski, Tenn. Filed July 17, 1900. Serial No. 23,963. (No model.)

Claim.—1. A portable stock-inclosure, composed of a series of separate sections, each consisting of vertical front posts, horizontal strips connected to the lower part of said posts, inclined bracing-posts, transverse strips connecting the inclined to the vertical posts, uprights between said transverse strips and inclined posts, horizontal strips connected to said uprights to form a manger, and a hinged lid for said manger, substantially as described.

2. A portable stock-inclosure, consisting of a series of connected sections having vertical front posts, short uprights and inclined bracing-posts with mangers formed between the front posts and short uprights, and coverings for said manger hinged to the inclined bracing-posts, whereby the mangers can be supplied from the outside, substantially as described.

3. In a portable stock-inclosure, formed of separate connected sections, each formed of vertical front posts and inclined bracing-posts, a removable and attachable wind-break consisting of a boarding having pintles at its ends near one edge, bearings on the upper ends of the posts to receive said pintles and enable the boarding to cover the upper part of the inclined, outer part of said section, and means for holding the wind-break projected, substantially as described.

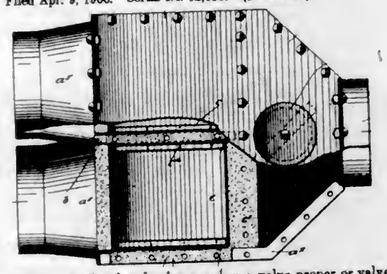


4. In a portable stock-inclosure consisting of separable connected sections, a wind-break and shelter consisting of a roofing having pintles at its ends in line with the apex of the roof, the wider, inner side of said roof being provided with a trough adapted to carry off water flowing from the roof, or to be used in feeding salt to stock, and means for holding the wind-break projected, substantially as described.

5. In a portable stock-inclosure, a detachable roof-section having end pintles adapted to lie in bearings in the upper ends of the posts, said roof having a trough along one edge, the ends of the trough being provided with transverse pieces pivotally attached and capable of being turned across the open ends of said trough, or thrown back to permit the escape from said trough of water shed from the roof, and means for holding said roof projected, substantially as described.

6. A portable stock-inclosure, consisting of a series of separable connected sections, one of said sections provided with a trough and each of the remaining sections with a manger and consisting of vertical front posts, horizontal strips connected to the lower part of said posts, inclined bracing-posts, transverse strips connecting the inclined to the vertical posts, uprights between said transverse strips and inclined posts, horizontal strips connected to said uprights to form a manger, and a hinged lid for said manger, substantially as herein described.

659,118. COTTON-VALVE. GEORGE W. WILLIAMS, Waco, Tex., assignor to the Kellett-Chatham Machinery Company, same place. Filed Apr. 9, 1900. Serial No. 12,110. (No model.)

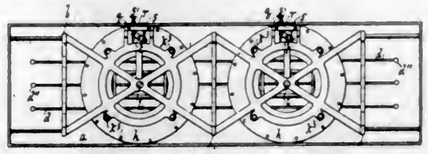


Claim.—1. A valve, having a casing, a valve proper or valve-plate mounted therein, and a side apron fastened to the valve-plate and to the casing, for the purpose described.

2. A valve, having a valve-casing with an inlet-orifice and two outlet-orifices, the outlet-orifices being arranged side by side and having their

axes disposed parallel to the axis of the inlet, a partition fitted in the casing intermediate the outlet-orifices and forming two passages which constitute continuations of the outlet-orifices, and valves arranged in the casing respectively at the sides of the partition to prevent back flowing currents in the casing.

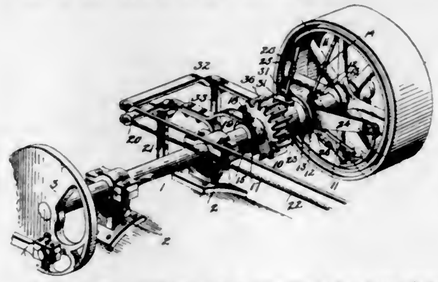
659,119. CLOTH-CUTTING APPARATUS. MARCUS A. ADLER, New York, N. Y., assignor to Charles S. Adler, same place. Filed Jan. 24, 1900. Serial No. 2,649. (No model.)



Claim.—1. A slotted table-top having supporting-legs and provided with a rotary supporting portion comprising strips spaced to correspond with the slots in the table-top, risers for severally supporting the strips, and a rotary or swivel base for the risers, all of said parts being made throughout of metal and said table-top having soft or yielding abutments or fillers at the ends of the slots substantially as described.

2. A table-top having series of longitudinal and transverse slots and supporting-legs and provided with a rotary supporting portion comprising strips spaced to correspond with the slots in the table-top, risers for severally supporting the strips, and a rotary or swivel base for the risers, all of said parts being made throughout of metal and said table-top having soft or yielding abutments or fillers at the ends of the longitudinal and transverse slots substantially as described.

659,120. TRACTION-ENGINE. HUGH M. ASH, Agricultural College, N. D., assignor of one-half to John Wouters, same place. Filed June 16, 1900. Serial No. 20,589. (No model.)



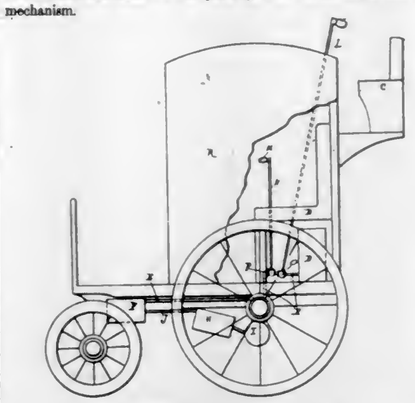
Claim.—1. The combination with the constantly-driven power-shaft, of a band-wheel loosely engaged therewith and adapted to be connected by a belt to the machinery to be driven, a wheel fixed to said power-shaft, a friction-shoe carried by the fixed wheel, and means for forcing it into frictional contact with the loose wheel to lock said latter wheel to the shaft to turn in unison therewith, substantially as set forth.

2. The combination with a power-shaft, of a loose and fixed wheel carried thereby, a drive-gear loosely mounted on the power-shaft, frictional shoes to engage the fixed wheel to lock said gear to turn in unison therewith, friction-shoes carried by the fixed wheel and adapted to frictionally engage the loose wheel and lock said loose wheel to the fixed wheel, and means for operating said friction-shoes, substantially as set forth.

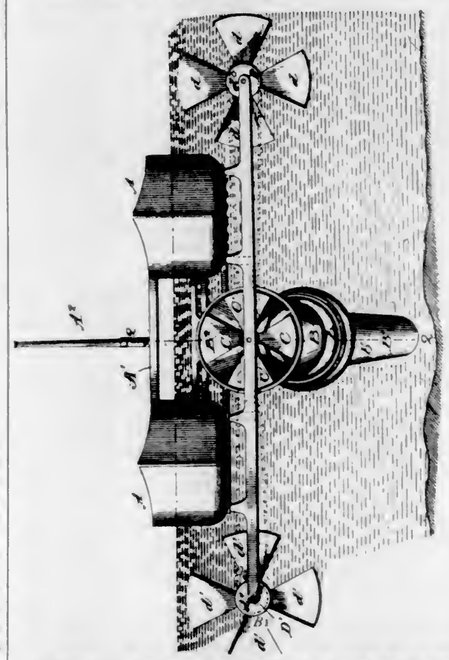
659,121. APPLIANCE FOR AUTOMOBILES. EDWARD W. AYRES, Washington, D. C. Filed June 16, 1900. Serial No. 20,595. (No model.)

Claim.—1. In an automobile, a motor, a source of motive supply, connections between said motor and supply, a movable device under control of the driver and arranged in one position to interrupt said connections, and an auxiliary movable device located accessible to the passengers and constructed to in one position interrupt said connections and thereby stop the vehicle.

2. In an automobile, a motor, a source of motive supply, connections between said motor and supply, mechanism in said connections and constructed to interrupt such connections, a device connected to said mechanism and under the control of the driver for stopping the motor, a second mechanism arranged in the connections between the motor and the motive supply and constructed to interrupt such connections, an operating-lever located accessible to the passengers and connected to said second mechanism.



659,122. APPARATUS FOR IMPROVING AND PRESERVING CHANNELS OF STREAMS. MILTON W. BELL, New Orleans, La. Filed June 1, 1900. Serial No. 18,766. (No model.)



Claim.—1. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported by the said float and submerged for its entire length beneath the surface of the water; and means operated by the current or resistance of the body of water, for accelerating the passage of a current of water through said deflector, substantially as described.

2. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a funnel-shaped tubular deflector supported by the said float and submerged for its entire length beneath the surface of the water; and means operated by the current or resistance of the body of water for accelerating the passage of a current of water through said deflector, substantially as described.

3. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported by the said float and submerged for its entire length beneath the surface of the water; means for varying the inclination of said deflector; and means operated by the current or resistance of the body

of water for accelerating the passage of a current of water through said deflector, substantially as described.

4. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector comprising two entirely-submerged members connected by a universal joint permitting deflection of the discharge member both laterally and vertically; means for varying the direction of the said discharge member; and means operated by the current or resistance of the body of water, for accelerating the passage of a current of water through said deflector, substantially as described.

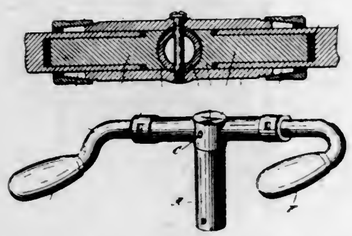
5. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported thereby, and submerged throughout its entire length; and a suction wheel or wheels mounted in the receiving end of said deflector and operated by the current or resistance of the body of water, for accelerating the passage of a current of water through said deflector, substantially as described.

6. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported thereby; a bladed suction wheel or wheels rotatably mounted in the receiving end of said deflector-tube; and means operated by the current or resistance of the body of water, for positively rotating said suction wheel or wheels, substantially as described.

7. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported thereby; a bladed suction wheel or wheels rotatably mounted in the receiving end of said deflector-tube; one or more bladed wheels driven by the pressure of the current of the stream or watercourse, and gearing between said wheels and the said suction-wheel for imparting positive rotation to the latter, substantially as described.

8. In an apparatus for improving and preserving the channels of streams and watercourses, the combination with a float; of a tubular deflector supported thereby; a bladed suction wheel or wheels rotatably mounted in the receiving end of said deflector-tube; one or more bladed wheels driven by the pressure of the current of the stream or watercourse, and gearing between said wheels and the said suction-wheel, for imparting positive rotation to the latter at an accelerated speed, substantially as described.

659,123. HANDLE-BAR. ALEXANDER BIES, Schenectady, N. Y. Filed Jan. 11, 1900. Serial No. 1,132. (No model.)

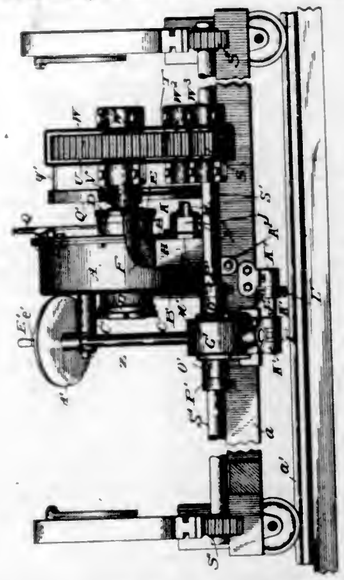


Claim.—1. A handle-bar, comprising a stem, a head secured to said stem and having tubular ends, fluted pins inserted in the tubular ends, grip-bars having tubular ends interiorly fluted and arranged to fit over the tubular pins and into the tubular ends of the head, and means for securing the grip-bars in place, as set forth.

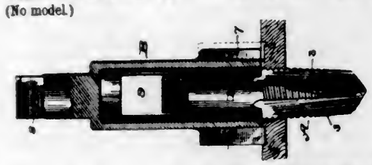
2. A handle-bar, comprising a stem, a tubular head secured to said stem, pins fitted in the ends of the head and having curved inner ends adapted to fit around the stem, the said pins being further provided with reduced fluted shanks, grip-bars having interiorly-fluted tubular ends adapted to fit over the fluted shanks and into the tubular ends of the head, and clamping-nuts screwing on the ends of the head, as set forth.

659,124. POWER SET-WORKS FOR SAWMILL-CARRIAGES. FREDRIC BILLINGS and CLAY S. PRESCOTT, Marinette, Wis., assignors of one-third to Henry C. Higgins, same place. Filed Apr. 14, 1899. Serial No. 713,001. (No model.)

Claim.—In a power set-works, the combination of head-block standards, a set shaft, gearing connecting said standards and set shaft, a cylinder provided with abutments or heads, a shaft or rod provided with a piston, a throttle-valve under the control of the operator arranged to admit pressure upon either or both sides of the piston for controlling the movement thereof in either direction, or for stopping the same at an intermediate point, gearing connecting said piston-shaft and said set shaft, the parts being so proportioned that one movement of the piston in either direction from abutment to abutment will cause the head-block standards to travel through the entire length of their stroke, substantially as described.

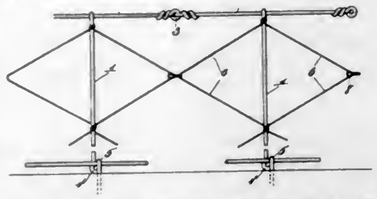


659,125. COMBINATION REAMER, TAP, AND COUNTERSINK. CARL BOENTGEN, Astoria, Oreg. Filed Mar. 22, 1900. Serial No. 9,823. (No model.)



Claim.—The combination, with a boring or reaming tool having a shank shaped in part for engagement with a rotating means and also having a cylindrical portion, of a secondary or countersink cutter recessed to receive and be capable of rotating upon the cylindrical portion of said tool-shank, and also having a portion adapted to be engaged by a rotating means, the whole so arranged that the boring-tool may be left in position in the hole it bores and forming a spindle or pivot upon which the secondary cutter may be rotated, substantially as described.

659,126. WIRE FABRIC. WILLIAM R. BOWMAN, Sloan, Pa. Filed Apr. 7, 1900. Serial No. 11,922. (No specimens.)

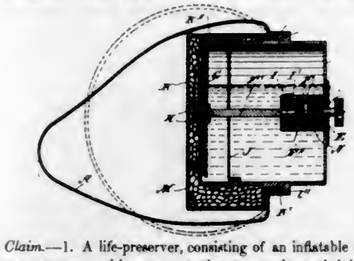


Claim.—1. A panel comprising a stay, a hook between its ends, a rod secured therein, a hook at one end, a rod engaged thereby, wire loops secured to said stay, and hooks formed on said loops.

2. A wire fabric comprising similar panels each formed of a stay, having rods secured thereto, looped wires secured to the stays and hooks formed on said loops and rods, the hooks upon the loops and rods of one panel engaging the corresponding loops of the adjacent panels.

3. A panel comprising a stay, a hook formed between its ends, a rod secured therein, a hook at the end of the stay, a rod secured therein, looped wire secured to the stay, a hook formed at the end of each loop and oppositely-extending arms to said hook.

659,127. LIFE-PRESERVER. ALCEO BRISIGHELLI, Cordoba, Argentina. Filed Feb. 9, 1900. Serial No. 4,638. (No model.)



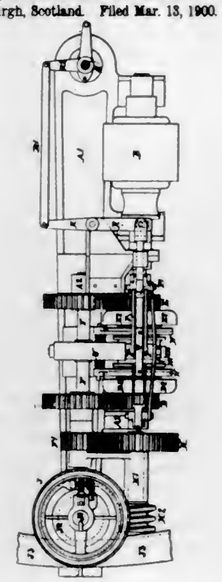
Claim.—1. A life-preserver, consisting of an inflatable casing, and a gas-generator comprising a generating-receptacle carried by the said casing and communicating with the interior thereof, a liquid-receptacle, having a valve-controlled connection with the generating-receptacle, a filling which when dry keeps the valve closed and when wetted allows it to open, and a perforated cap for holding said filling in position.

2. A life-preserver, consisting of an inflatable casing, and a gas-generator comprising a generating-receptacle carried by the said casing and communicating with the interior thereof, a liquid-receptacle communicating with the generating-receptacle, a valve for closing said communication, a spring for opening the valve, a filling which when dry opposes the action of the spring and keeps the valve closed, and when wetted allows it to open, and a perforated cap for holding said filling in position.

3. A life-preserver, consisting of an inflatable casing, and a gas-generator comprising a generating-receptacle carried by the said casing and communicating with the interior thereof, a liquid-receptacle communicating with the generating-receptacle, a valve for closing said communication, a rod connected with the valve, a socket secured to the liquid-receptacle and into which extends the valve-rod, a piston secured to the rod within the socket, a spring coiled on the rod within the socket between the piston and the valve, and a perforated cap screwing into the outer end of the socket.

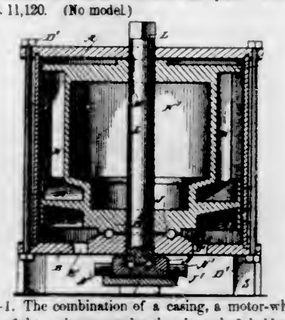
4. A life-preserver, consisting of an inflatable casing, and a gas-generator comprising a generating-receptacle carried by the said casing and communicating with the interior thereof, a liquid-receptacle communicating with the generating-receptacle, a valve for closing said communication, a rod connected with the valve, a socket secured to the liquid-receptacle and into which extends the valve-rod, a piston secured to the rod within the socket, a spring coiled on the rod within the socket between the piston and the valve, a guide-bar secured to the rod between the valve and the socket and engaging the liquid-receptacle, and a perforated cap screwing into the outer end of the socket.

659,128. STEERING MECHANISM FOR SHIPS. ANDREW R. BROWN, Edinburgh, Scotland. Filed Mar. 13, 1900. Serial No. 9,039. (No model.)



Claim.—An electric tiller consisting of the following parts in combination, namely, a tiller fixed to the rudder-head and carrying the other parts, an electric motor, a continuously-rotating shaft driven by the motor, two pinions on the shaft one directly gearing with a spur-wheel on a second shaft and the other driving an intermediate pinion which gears with another spur-wheel on the said second shaft, gearing between the said second shaft and a pinion which gears with a toothed rack fixed to the deck, clutches on the motor-shaft for engaging with either pinion on that shaft, a bell-crank lever to act on the clutches, a bar with inclines to act on knife-edges on the bell-crank lever to move that lever, the said bar being connected to a lever on a vertical shaft coaxial with but independent of the rudder-stock, and means to move the said vertical shaft correspondingly with the desired movement of the rudder, the several parts being arranged and operating substantially as herein set forth.

659,129. WATER-WHEEL. MARK A. BROWN, Douglas, Ga., assignor of one-half to William O. Paxson, same place. Filed Apr. 2, 1900. Serial No. 11,120. (No model.)



Claim.—1. The combination of a casing, a motor-wheel mounted on the bottom of the casing to revolve therein, a shaft held to rotate with the wheel but free to slide relatively thereto, and a bearing for the lower end of the shaft below the bottom of the casing, substantially as described.

2. The combination of the casing, the driving-wheel supported to turn therein, the shaft connected to turn with the driving-wheel, but free to slide relatively thereto, and a rocking step-bearing for the end of the shaft, substantially as described.

3. The combination of the driving-wheel, a shaft held to rotate with the wheel but capable of sliding relatively thereto, a bearing for the wheel, a step-bearing for the end of the shaft, said step-bearing having trunnions, and a plate supporting said trunnions.

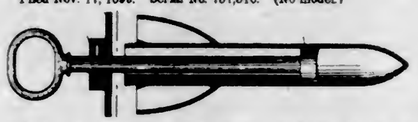
4. The combination of the driving-wheel, a shaft held to rotate with the wheel but capable of sliding relatively thereto, a bearing for the wheel, a step-bearing for the end of the shaft, said step-bearing having trunnions, and a sliding plate supporting said trunnions.

5. The combination of the driving-wheel, a shaft held to rotate with the wheel but capable of sliding relatively thereto, a bearing for the wheel, a step-bearing for the end of the shaft, said step-bearing having trunnions, and a plate supporting said trunnions, and mounted to slide transversely of the axes of the trunnions.

6. The combination with a casing, of a water-wheel mounted on a bearing in the bottom of the casing, a shaft passing through the casing and wheel, said shaft being held to rotate with the wheel but free to slide vertically and independently of the wheel, a rocking bearing for the lower end of the shaft, and means for adjusting the bearing to center the shaft, substantially as described.

7. The combination with a casing, of a water-wheel mounted on a bearing in the bottom of the casing, a shaft passing through the wheel and casing, said shaft being held to rotate with the wheel but free to slide vertically and independently thereof, a recessed bar fitted to slide below the bottom of the casing, and a bearing fitting in the recess of the bar and provided with trunnions mounted in said bar, and with flanges which serve as stops to limit the rocking movement of the bearing, substantially as herein shown and described.

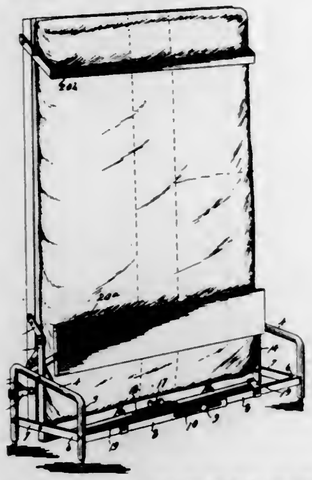
659,130. SYRINGE. CHARLES A. BUCKLIN, New York, N. Y. Filed Nov. 17, 1899. Serial No. 737,310. (No model.)



Claim.—A syringe, comprising a barrel, a hollow enlarged and longitudinally-tapered container at the upper end portion of the barrel and

integral therewith, the end of the barrel being extended beyond the end of the container, a cup-shaped gland for the syringe-piston stem and adapted to engage with the barrel, and a flange on the gland serving as a cover for the container, the flange and gland being integral, substantially as specified.

659,131. BED. ISAAC C. BURGETT, Middleburg, Nebr. Filed May 17, 1900. Serial No. 17,041. (No model.)



Claim.—1. In a device of the character set forth, the combination with a bed-frame, of a supporting-rack comprising oppositely-disposed arched devices having less height than the elevation of the said frame when let down into horizontal position for use and united by transverse adjusting means, and hangers fixed to said arched devices and extending above and below the top of the latter and having the bed-frame pivoted to the upper terminals thereof and their lower terminals also adjustably connected for transverse extension.

2. In a device of the character set forth, of opposite arched supports transversely adjustable in relation to each other and having upper inclined members, hangers fixed to said supports and adjustable therewith and having upstanding arms to which said bed-frame is pivotally connected, and means for adjusting the said supports and hangers.

3. In a device of the character set forth, the combination with a bed-frame, of opposite arched supports of less height than the bed-frame when the latter is in horizontal position, each support having one leg shorter than the other and both legs connected by an upper inclined member, hangers fixed to said supports in a stationary manner nearer the longer legs thereof and provided with upstanding arms pivotally attached to the said frame, and means for transversely adjusting the supports and hangers.

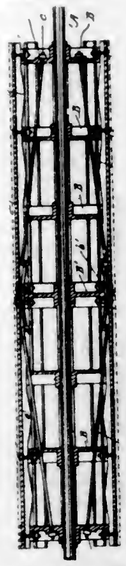
4. In a device of the character set forth, the combination with a bed-frame, of opposite supports, adjustable connecting and tie bars for said supports, and a transversely-extensible hanger having upstanding portions pivotally connected to the said frame.

659,132. CYLINDER FOR THRESHING-MACHINES. WILLIAM H. BUTTERWORTH and JOHN BUTTERWORTH, Trenton, N. J. Filed Oct. 25, 1898. Serial No. 694,518. (No model.)

Claim.—1. In a threshing-cylinder, the combination, with a shaft, and heads secured thereon; of connections bearing on the middle head, inclined truss-rods engaging with the end portions of the said connections and connected to the end heads, and rubbing-plates carried by the said heads, substantially as set forth.

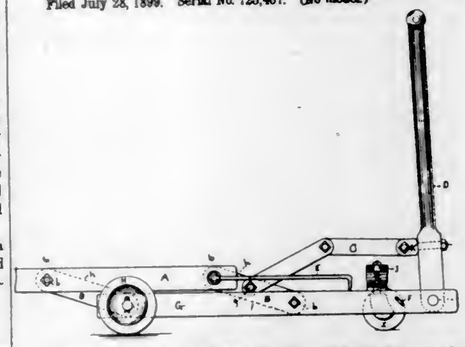
2. In a threshing-cylinder, the combination, with a shaft, and heads secured thereon; of connections bearing on the middle head, inclined truss-rods connecting the said connections with the end heads, and rubbing-plates secured to the said heads in sections arranged end to end, said plates being provided on their under surfaces with stiffening-flanges which bear on the said heads and which straddle the said connections, substantially as set forth.

3. In a threshing-cylinder, the combination, with a shaft, and heads secured thereon and provided with peripheral flanges having longitudinal slots *a'*; of rubbing-plates each provided with holes and having two flanges which rest on the said peripheral flanges, and bolts passing through the said holes and slots and between the said flanges of the rubbing-plates, said plates and bolts being slidable together lengthwise of the cylinder when the nuts on the bolts are partially unscrewed, substantially as set forth.



4. In a threshing-cylinder, the combination, with a shaft, and heads secured thereon and provided with peripheral flanges having longitudinal slots *a'*; of rubbing-plates formed in sections arranged end to end and provided with holes, said sections being slidable longitudinally in opposite directions, and bolts passing through the said holes and slots and normally securing the said sections in position, substantially as set forth.

659,133. STOVE-TRUCK. GEORGE W. CHURCH, Painesville, Ohio. Filed July 28, 1899. Serial No. 725,407. (No model.)

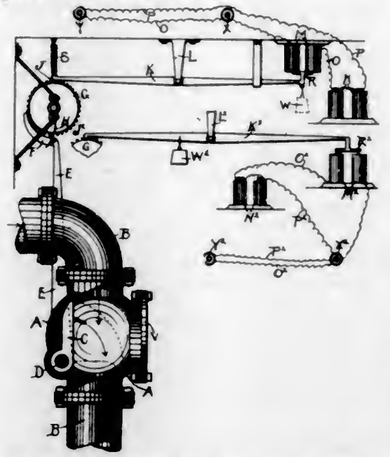


Claim.—A stove truck and lifting machine, consisting of a main platform or frame mounted upon wheels, a pair of lifter-bolsters swingingly mounted between the frame, an auxiliary platform carried by the upper ends of said lifter-bolsters, a pair of hinged arms pivoted upon each side midway of the rear lifter-bolster, a handle pivoted in the rear of the frame and having one of the free ends of the hinged arms swingingly connected thereto, and a hook connected to the rear of the auxiliary platform and adapted to connect with an eye carried by the main platform.

659,134. SELF-CLOSING VALVE FOR STEAM-PIPES. FRANK W. CHURCHOUSE, Tacoma, and HENRY O. BENEDICT, Seattle, Wash. Filed Jan. 25, 1899. Serial No. 703,310. (No model.)

Claim.—1. A self-closing valve comprising a globe-shaped case, a rotatable shaft mounted in said case and having a lever-arm fixed to the outer end thereof, a swinging gate in said case and carried by said shaft, a ratchet-wheel with which said lever engages, a toothed arm pivotally mounted near its center and engaging said ratchet-wheel, and electrically-operated means for tripping said toothed arm, substantially as described.

2. In a self-closing valve, the combination with the valve-case and a swinging gate therein, of an arm connected with said gate and located outside of the case, a loosely-mounted ratchet-wheel with which said arm engages, a pivotally-mounted toothed arm engaging said ratchet, and an electromagnetic device operatively connected with said toothed arm for releasing the ratchet, substantially as described.



3. The combination with the valve and operating-lever connected therewith, said lever having a hook pivoted to its end, of the rotatable ratchet-wheel with which the end of said hook engages, means for causing said hook to exert a pressure on said wheel to turn the same, a second lever normally in connection with said ratchet-wheel to prevent it from turning, and electrical means for actuating said second lever to release said wheel and permit the movement of the same and the valve, substantially as described.

4. The combination with the valve and operating-lever connected therewith, of a rotatable wheel having connection with said lever, a second lever normally in connection with said wheel for holding the valve in one position, and electrical means for actuating said second lever to release said wheel and permit the movement of the valve, substantially as described.

659,135. FINGER ATTACHMENT FOR CLERKS. CHARLES W. T. DAVIES, San Francisco, Cal., assignor, by direct and mesne assignments, to Leonard C. Bailey, Washington, D. C. Filed Apr. 6, 1898. Serial No. 676,690. (No model.)



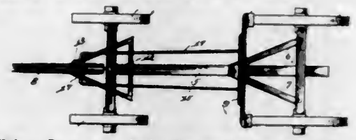
Claim.—1. A finger-stamp comprising a flexible sleeve adapted to fit closely a finger of the operator, printing characters upon the inner face of said sleeve at a point adapted to come opposite the ball of the first joint of the finger, and a second set of printing characters on the outer face of said sleeve, whereby by bending the finger the said sets of characters can be brought into play in rapid succession; substantially as described.

2. A finger-stamp comprising a flexible sleeve adapted to fit closely a finger of the operator, printing characters upon the inner face of said sleeve at a point adapted to come opposite the ball of the first joint of the finger, a second set of printing characters upon the outer face of the sleeve and at a point adapted to come opposite the back of the first joint of the operator's finger, and a third set of printing characters upon the outer face of the sleeve and at a point adapted to come opposite the back of the second joint of the operator's finger, whereby by bending the finger the said sets of characters can be brought into play in rapid succession; substantially as described.

3. As an improved article of manufacture, a hand-stamp consisting of a single thumb-stall constructed throughout of soft rubber or other pliable material which is shaped and designed to inclose and fit the thumb snugly, said thumb-stall being provided with an impression character or device; substantially as described.

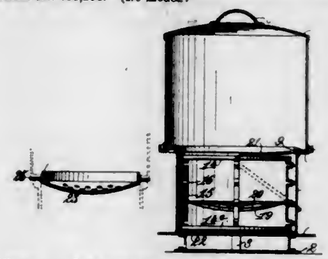
4. As an improved article of manufacture, a hand-stamp consisting of a single thumb-stall constructed throughout of soft rubber or other pliable material which is shaped and designed to inclose and fit the thumb snugly, said thumb-stall being provided with an impression character or device also of rubber or other pliable material; substantially as described.

659,136. VEHICLE-BRAKE. JAMES DAVIS, Butler Springs, Ala. Filed Apr. 14, 1900. Serial No. 12,870. (No model.)



Claim.—In a wagon-brake, the combination, with the tongue, of two staples projecting upwardly therefrom at a slight distance apart and adjacent to the pivotal point, a brake-beam, forwardly-extending rods secured to said beam, the front ends of which are bent downward and provided with a cross-bar to fit between the brackets, and a lever pivotally secured above said rods, the lower end of which is bent laterally and then downwardly and is adapted to be moved into and out of the path of cross-bar to the rear thereof.

659,137. APPARATUS FOR COOKING AND STEAMING MEATS, VEGETABLES, &c. LOLA N. DOUBLER, Milton, Pa. Filed Oct. 30, 1899. Serial No. 735,255. (No model.)



Claim.—1. In a cooking apparatus, the combination with a base formed of two parallel plates rigidly connected with a suitable intervening space, the upper plate being of greater diameter and having a series of perforations near its edge, of two containers, one open at both ends and the other, which is of greater diameter than the first, closed at one end, and an annular connection between the same consisting of an outwardly and downwardly extending rim having a narrow flange to enter the open top of the smaller container, substantially as described.

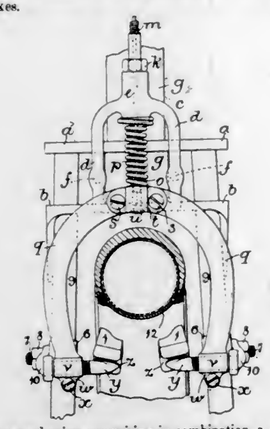
2. In a cooking apparatus, a basket to support the food-containing trays, consisting of an upper and a lower ring and strips extending from one ring to the other and provided with notches formed by bending the strips horizontally outward and then back, one of said strips having one end pivotally connected to one of the rings and the other end free but adapted to enter a keeper on the other ring for securing it in upright position, substantially as described.

3. In a cooking apparatus, the combination with two parallel rings of metal one above the other, of strips extending from one ring to the other and having notches formed by bending the strips outward and then back, one of said strips having its end pivoted to one of the rings and the other ring being provided with a keeper consisting of a metallic strip having one end rigidly secured to the ring and the remaining portion and end in parallelism with but removed from the outer face of said ring to allow the end of the pivoted strip to enter, substantially as described.

4. In a cooking apparatus, the combination with a base formed of two parallel metal plates rigidly connected with a suitable intervening space, of a container open at both ends, one end adapted to lie within a series of perforations in the upper plate, a second container closed at one end, its open end adapted to lie outside said perforations and a basket to sit within the latter and formed of an upper and lower ring connected by notched strips, one of which is pivoted to one ring and has a detachable connection to the other, substantially as described.

659,138. VELOCIPEDE-BRAKE. JOHN DRING and THOMAS L. MITCHELMORE, London, England. Filed June 19, 1900. Serial No. 20,861. (No model.)

Claim.—1. A brake mechanism comprising in combination a horseshoe-shaped frame provided with screw-threaded bosses at its lower ends, the brake-shoes having screw-threaded stems projecting into the bosses and capable of turning therein and moving laterally to adjust the position of the shoes, and means for moving the horseshoe-shaped frame to actuate the brakes.



2. A brake mechanism comprising in combination, a guide-bracket, a boss or socket formed thereon, an adjustable bush bored to two diameters located in said boss or socket, a horseshoe-shaped frame, laterally-adjustable friction-shoes carried by said horseshoe-shaped frame, an incompressible flexible member, one end of which is seated in the larger bore of the bush, an abutment for the opposite end of the incompressible member, an inextensible member extending through the incompressible member and attached to the horseshoe-shaped frame, and an operating device attached to the opposite end of the inextensible member.

3. A brake mechanism comprising, in combination, a horseshoe, laterally-adjustable pivoted friction-shoes carried by said horseshoe, brake-operating device consisting of a bracket clamped to the handle-bar of a velocipede, a projecting lug or bush bored to two diameters carried by said bracket, a hand-lever, a curved surface on said hand-lever serving as a bearing for a connecting medium, and the connecting medium extending between said horseshoe and brake-operating device.

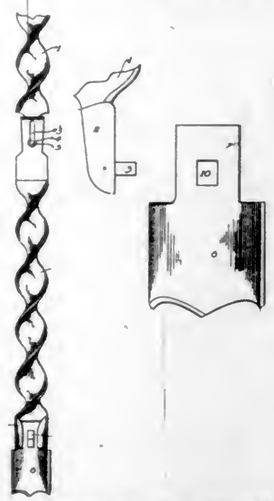
4. The combination with the frame of a velocipede, of a brake-carrying frame, an inextensible member connected with the brake-frame, an incompressible member surrounding the inextensible member and acting as a guide therefor, a bracket clamped to the handle-bar of a velocipede, a lug or bush on the bracket serving as an abutment for one end of the incompressible member, a hand-lever pivoted to the bracket to which one end of the inextensible member is attached and which is provided with a curved surface serving as a bearing for the inextensible member.

5. The combination with the frame of a velocipede, of a horseshoe-shaped frame, laterally-adjustable brake-shoes pivotally connected with the lower ends of the horseshoe-shaped frame, a guide-bracket attached to the frame of the velocipede, a spring interposed between the guide-bracket and the upper end of the horseshoe-shaped frame, a bush adjustable in the guide-bracket, and bored to two diameters, and a flexible connecting medium extending through the bush and attached to the brake-carrying frame, and a flexible incompressible guide-casing surrounding the inextensible member and projecting into the larger bore of the bush.

6. The combination with the frame of a velocipede, of a brake-carrying frame, an inextensible member connected at one end with the brake-carrying frame, and at its opposite end provided with an operating device, an incompressible member serving as a guide for the inextensible member, and abutments for the opposite ends of the incompressible member, one of which is adjustable in line with the axis of the incompressible member for the purpose specified.

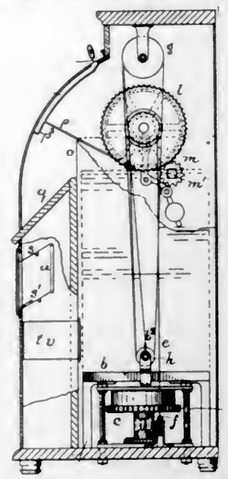
7. A brake mechanism comprising, in combination, a horseshoe, laterally-adjustable friction-shoes carried by said horseshoe, a connecting medium consisting of an incompressible member and an inextensible member capable of relative longitudinal movement, a guide-bracket serving as an abutment for the incompressible member and a free way for the inextensible member of the connecting medium and a brake-operating device consisting of a bracket clamped to the handle-bar of a velocipede, a lug or bush serving as an abutment for the opposite end of the incompressible member and a free way for the inextensible member located on said bracket, a hand-lever and a curved surface on said hand-lever serving as a bearing for inextensible member of the connecting medium.

659,139. COAL OR ROCK DRILL. JAMES EAGEN, Wyoming, Pa. Filed July 8, 1898. Renewed Mar. 15, 1900. Serial No. 8,855. (No model.)



Claim.—A bit for coal and rock drills, consisting of a body portion substantially S shape in cross-section, its cutting edge being formed by two bevels, each bevel being coextensive with and cutting straight across one of the two convexed portions of the body portion, the two bevels being upon opposite sides of the bit and being oppositely inclined and meeting at the axial center of the bit, whereby three entering and cutting points are formed, one midway the cutting edge and one at each end thereof, for the purposes set forth.

659,140. COIN-CONTROLLED MECHANISM FOR DISPENSING NEWSPAPERS. GEORGE EASTERBEE, Portland, Oreg. Filed June 8, 1899. Serial No. 719,843. (No model.)

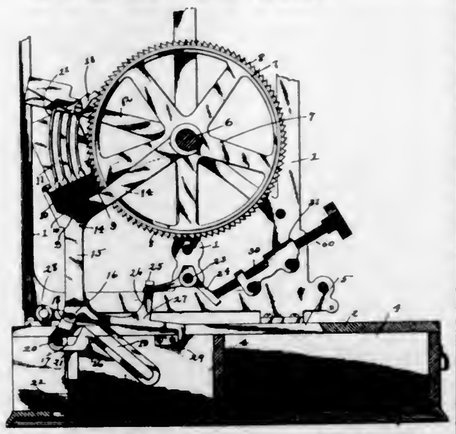


Claim.—1. In a machine for the purpose specified, the combination of a lifting-platform, a friction-drum journaled horizontally above the lifting-platform, for expelling the papers, a mechanical power for operating the said lifting-platform and said friction-drum conjointly and relatively, and a clutching device adapted to normally resist the action of the operative power, said clutching device having a portion depressible by a coin or weight, the depression of which portion releases the resistance of said clutching device and allows said paper lifting and expelling devices to operate; and said depressible portion being adapted to automatically discharge said coin or weight again to restore the clutching device to its operative state, substantially as described.

2. In a machine for the purpose specified, the combination of a lifting-platform, a friction-drum journaled horizontally above the lifting-platform, for expelling the papers, cords and pulleys, and an automatic device for winding up said cords and lifting said platform, there being also pulleys on the spindle of the said drum over which said cords pass and whereby the power applied for lifting the platform is transmitted to said drum and operates the same, and a clutching device adapted to normally resist the action of said wind-up device, said clutching device being connected with a fulcrumed lever whereby said clutching device is thrown into and out of an operative state, and the free end of said lever being adapted to hold a coin or weight, while in an upright position, wherewith to depress said lever and release the resistance of such clutching device, substantially as described.

3. A machine for the purpose specified, comprising a case, a lifting-platform, a friction-drum for expelling the papers, cords and pulleys for lifting said platform and an automatic device for winding up said cords, pulleys on the spindle of the said friction-drum, over which pulleys said cords pass and whereby the power applied for lifting the platform is transmitted to said drum and operates the same; means for relatively controlling the lift of the said lifting-platform; a gear on the spindle of the friction-drum; a smaller gear meshing therewith, loosely mounted on a short spindle affixed to a wall of the casing; a clutch engaging such smaller gear, and a fulcrumed lever and coöperating device whereby said clutch may be thrown in and out of contact with said smaller gear, the said lever and said coöperative device being adapted to normally keep the said clutch in engagement with said smaller gear, and the upper end of said lever being adapted, while in a raised position, to hold a coin or weight whereby to depress said lever and release the resistance of said clutching mechanism, an opening in the case for receiving such coin or weight, a chute from such opening leading to the receiving end of the lever, and a trap for catching the coin or weight as it falls from the end of the lever; said trap being adapted to hold the coin or weight that has been deposited in the machine for operating the same, and discharging said coin in a receptacle therefor provided upon a second coin being introduced into the machine, and there being a glass in the front of the machine affording a view of the operation of said trap, substantially as described.

659,141. CASH-REGISTER. LEO EHRLICH, St. Louis, Mo. Filed Sept. 29, 1898. Serial No. 692,180. (No model.)



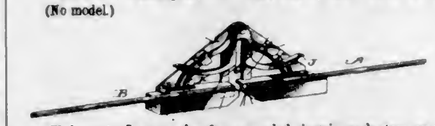
Claim.—1. In a cash-register the combination of a series of register-wheels and a sliding cash-drawer, of a slotted swinging lever pivoted coaxially with said wheels and adapted to control the movement of the same, and means attached to said drawer and entering the slot in said lever so that the swinging movement of the lever is produced by the opening and closing movement of the drawer, substantially as described.

2. In a cash-register, the combination of registering-wheels, means for turning said wheels, swinging yokes for controlling said means, a sliding cash-drawer carrying a pin, and a swinging lever for supporting said yokes, said lever having a foot termination provided with an angular slot through which said drawer-pin passes loosely, substantially as and for the purpose specified.

3. In a cash-register, the combination of registering-wheels, means for turning said wheels, swinging yokes for controlling said means, a sliding cash-drawer carrying a pin, a lever for supporting said yokes and adapted by its movement to operate its registering-wheels, said lever having a foot termination provided with an elongated slotted opening through which said drawer-pin passes, said slot having a horizontal portion through which said pin may travel without imparting movement to the lever, substantially as and for the purpose specified.

4. In a cash-register, the combination with the registering mechanism, a sliding cash-drawer, a stationary horizontal rack-bar, a swinging pawl supported from said cash-drawer and a pin carried by said cash-drawer, of a lever 14 adapted by its swinging movement to operate the registering mechanism, said lever having a foot termination provided with an elongated slotted opening through which said drawer-pin passes, said slot having a horizontal portion through which said pin may travel during the first part of the opening movement of the drawer without imparting movement to the lever and while the swinging pawl is moving into operative relation with the rack-bar, substantially as and for the purpose specified.

659,142. CROSSING FOR SUSPENDED ELECTRIC CONDUCTORS. JOHN FLOYD, Washington, D. C. Filed Feb. 2, 1900. Serial No. 3,719. (No model.)



Claim.—1. In a crossing for suspended electric conductors, an angular plate and brace-rods connecting two blocks, of slots and grooves in the blocks, of sliding rods mounted in the grooves, and adapted to be operated by similar arms, substantially as shown and described.

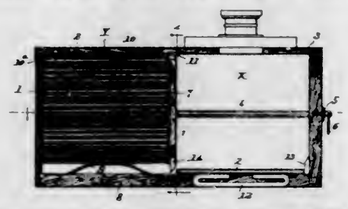
2. In a crossing for suspended electric conductors, an angular plate and brace-rods connecting similar blocks, having slots and grooves therein, of sliding rods mounted in the said grooves and adapted to be operated by similarly-curved arms, substantially as shown and described.

3. In a crossing for suspended electric conductors, an angular plate and brace-rods connecting similar blocks, having slots and grooves therein, of sliding rods mounted in said grooves provided with lugs projecting across the said slots, of similarly-curved arms pivoted at their centers in the apex of the angular plate, the said arms adapted to engage the lugs through the slots and to operate the sliding rods, substantially as shown and described.

4. In a crossing for suspended electric conductors, an angular plate connecting similar blocks having slots and grooves therein, of similarly-curved arms centrally pivoted in the apex of the angular plate, the said arms having one end slotted and the other provided with a flange, of sliding rods mounted in the said grooves having lugs thereon, adapted to be engaged by the slotted ends of the arms, substantially as shown and described.

5. In a crossing for suspended electric conductors, an angular plate supporting two blocks intermediate the main conductor, the said blocks having slots and grooves therein, of sliding rods mounted in the said grooves having lugs projecting across the said slots, of similarly-curved arms pivoted at their centers in the apex of the angular plate, the said arms being reversed with respect to each other, of the arms having flanges at one end, and slots at the other adapted to engage the lugs through the slots and to operate the sliding rods, the arms being raised and lowered by the trolley, substantially as shown and described.

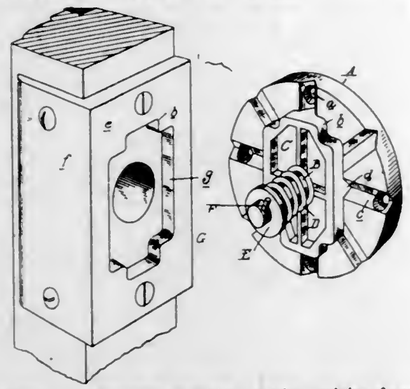
659,143. MAGAZINE-CAMERA. GEORGE DE GEOFROY, Paris, France. Filed Mar. 13, 1900. Serial No. 8,541. (No model.)



Claim.—In a photographic apparatus, the combination of a box having a dark chamber end or compartment Y and an opposite compartment X having hooks 11, a drawer for carrying a pile of spring-held plate-holders and sensitive plates, said drawer being adapted to be moved from one compartment to the other, spring-catches 14 mounted in said drawer, inclined blocks 13 in the compartment X, and magnets 12 in the same compartment; the construction and operation being such that, as the drawer is pulled from the dark chamber, the hooks 11 will catch over the top plate-holder and draw it into the compartment X, when it with its plate will fall to the bottom of the apparatus, be slid along by the inclined blocks 13, and attracted and held by the magnets 12 during exposure, to

be afterward transferred by the return movement of the drawer, through the medium of the spring-catches 14, to the dark chamber Y and to the bottom of the pile, substantially as set forth.

659,144. SASH-CENTER. GEORGE W. GOLDEN, Detroit, Mich. Filed Apr. 2, 1900. Serial No. 11,236. (No model.)



Claim.—1. A sash-center comprising a member consisting of a securing-plate having an integral centrally-projecting pin, a holding-plate sleeved upon said pin and bearing against said securing-plate, a spring sleeved upon said pin and bearing against said holding-plate, an abutment for said spring secured to said pin and a securing member having a detachable engagement with said holding-plate preventing independent rotation thereof.

2. A sash-center, comprising a frame member consisting of a securing-plate having a centrally-projecting integral pin, a holding-plate sleeved upon said pin and having a notched engagement with said securing-plate, a spring sleeved upon said pin and bearing upon said holding-plate, and a collar on said pin forming an abutment for said spring; and a sash member comprising a securing-plate recessed to receive said holding-plate and to hold the same from rotation for the purpose described.

3. A sash-center comprising the frame member consisting of a plate A having radial notches c thereon and a centrally-projecting pin B, the plate C pivoted upon said pin and having the ribs *d*, the spring D sleeved upon the pin and the collar E forming an abutment therefor; and a sash member comprising an angle-plate adapted to be secured to the side rail of the sash and having a recess *g* adapted to receive the plate C, substantially as and for the purpose described.

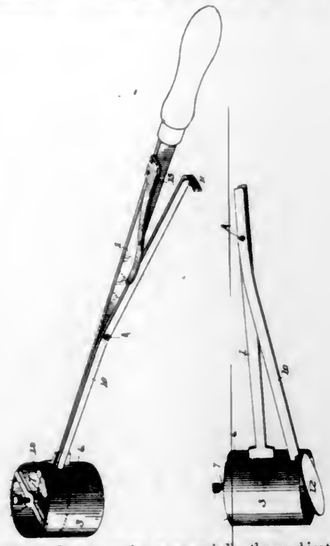
659,145. COOKING UTENSIL. WILLIAM H. GOLDING, New York, N. Y. Filed Feb. 6, 1900. Serial No. 4,239. (No model.)



Claim.—1. The combination with a vessel having a cover provided with a handle and a cage within the vessel comprising upper and lower rings, wires connected with the rings to form sides, said wires being continued below the lower rings at points to form supporting-feet, inwardly-projecting fingers carried by the upper ring, and an additional wire having its end portions bent inwardly above the upper ring and twisted to form a handle, said handle being passed through the cover.

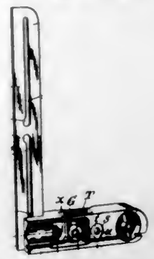
2. The combination with a vessel of a cover having openings therein, and segmental slots, a disk below the cover and having openings adapted to register with the openings of the cover, a handle having its ends passed through the slots of the cover and engaged with the disk, alining openings in the handle, disk, and centrally of the cover, a cage within the vessel comprising upper and lower rings, wires connected with the rings and forming sides, wires connected with the lower ring to form a bottom separated by interspaces, supporting-feet upon the lower ring, fingers carried by the upper ring and extending inwardly thereof and a handle for the cage extending through the alining opening in the cover, the disk and the handle of the cover.

659,146. MEASURING SCOOP OR LADLE. FRANK D. HAYDEN, Richmond, Va. Filed May 3, 1900. Serial No. 15,370. (No model.)



Claim.—In a measuring scoop or ladle, the combination of a head rigidly secured to a shank or handle and provided with a slot, and having a cross-bar at one end interiorly threaded and furnished with an adjusting-screw, an arm or lever pivoted to the shank, the inner end of said arm or lever extending through the slotted wall of the head and being provided with a disk or plate plunger rigidly secured thereto, and a spring secured to the shank and pressing upon the outer end of said arm or lever to retract the plunger, substantially as and for the purposes set forth.

659,147. COMBINATION-TOOL. CHARLES HOLSCLAW, Louisville, Ky. Filed June 1, 1899. Serial No. 718,952. (No model.)



Claim.—1. A head or stock for a combination set provided with a deep longitudinal groove extending in one face thereof from end to end and with a recess in the same face at one side of the groove and opening into said groove, a friction-plate seated in the recess and provided with a lip extending into said longitudinal groove, a blade seated edgewise in said longitudinal groove and provided with a longitudinal groove in one side which receives the lip of the plate, and a screw for pressing the friction-plate vertically in the recess, and forcing its lip into contact with the inner wall of the groove of the blade, substantially as described.

2. A head or stock for a combination set provided with a transverse groove in one of its faces, one of its walls being undercut, and a hole being bored from the bottom of the groove through the head, a screw-threaded bar in said opening having a hooked end projecting into the groove and held against rotating or moving laterally, a blade provided with a longitudinal slot, one edge of the blade and the adjacent wall of the slot being oppositely inclined, the blade being adapted to slide in the groove and be

clamped between the inclined wall of the groove and the hook end of the bar, the inclined edge of the blade engaging the inclined wall of the groove and the hooked end of the screw-threaded bar engaging the inclined wall of the slot, the slot being provided with an enlargement at one end to admit the hooked end of the bar and the opposite end of the slot of the blade being closed and acting as a stop to prevent the endwise removal of the blade from the screw-threaded bar, and a nut on the inner end of the bar, substantially as described.

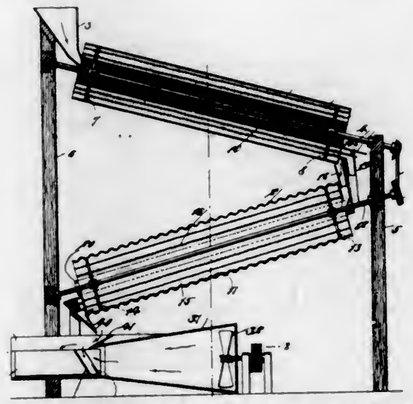
3. A head or stock provided with a cylindrical socket in one of its faces, having a central aperture extending from its bottom through the stock, a clamping-disk seated in the socket, having a radial slot terminating at its center, a rib on the outer face of the disk to one side of the center and parallel with said slot, a clamping-screw passed through the stock and provided with an undercut beveled head and adapted to slide in the radial slot to the center of the disk, and a clamping-nut on the screw on the opposite side of the stock, substantially as described.

4. A head-stock for a combination set provided with registering cylindrical sockets in opposite faces separated by a wall having a central aperture, a rotary clamping-disk seated in one of said sockets and provided with a straight rib on its outer face to one side of the center and a radial slot parallel with the rib and terminating at the center of the disk, a clamping-screw in the central aperture of the separating-wall between the sockets, an undercut beveled head on said screw adapted to slide in the radial slot to the center of the disk, and a clamping-nut threaded on the screw in the opposite socket, substantially as described.

5. A head-stock for a combination set provided with registering cylindrical sockets in opposite faces, separated by a wall having a central aperture, a rotary clamping-disk seated in one of said sockets and provided with a straight rib on its outer face to one side of the center and a radial slot parallel with the rib and terminating at the center of the disk, a clamping-screw in the central aperture of the separating-wall between the sockets, an undercut beveled head on said screw adapted to slide in the radial slot to the center of the disk, a clamping-nut threaded on the screw in the opposite socket, and a blade provided with a longitudinal slot and an entrance-hole at the end of the slot to receive the beveled head, a beveled wall on one side of said slot to engage the beveled head and a groove in one face parallel with the slot adapted to fit over the rib on the disk, substantially as described.

6. A combination set, comprising in its construction a suitable head or stock provided with a suitable retaining-groove and carrying a clamping-stud which works in said groove, a blade provided with a slot and having a beveled edge carrying a countersunk tubular device, perforated diametrically for the accommodation of a needle, a clamping steel bearing, a head seated in said tubular device, a rectangular or polygonally-shaped body portion, a threaded end portion, a collar-like part embracing the smaller part of the tubular device, a suitable washer surrounding the threaded part of the stud, and a suitable nut on said threaded part, substantially as described.

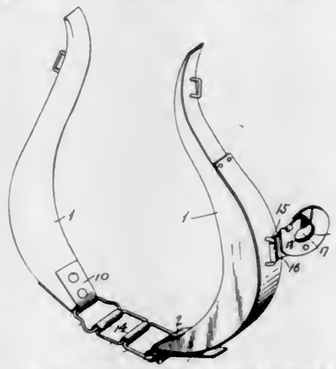
659,148. GOLD-SEPARATOR. FRANK P. HOPKINS and LOUIS MANEKE, Spirit Lake, Iowa. Filed Feb. 17, 1900. Serial No. 5,581. (No model.)



Claim.—1. A gold-separator, comprising two rotary cylinders inclined in opposite directions and one arranged above the other, the upper cylinder having two cylindrical screens spaced apart and of different mesh and also having a gravel-screen consisting of longitudinally-placed bars, the bars being spaced apart, two cylindrical screens in the lower cylinder spaced apart and of different mesh, a chute for feeding material from the upper cylinder to the interior screen of the lower cylinder, a rotary pipe arranged at one side of the lower cylinder, a chute for discharging material from a screen of the upper cylinder into the said pipe, a series of receptacles for receiving material discharged from the lower cylinder and from said pipe, deflecting-plates arranged in said receptacles, and means for causing an air-blast to separate fine sand or the like from the values passing into the receptacles, substantially as specified.

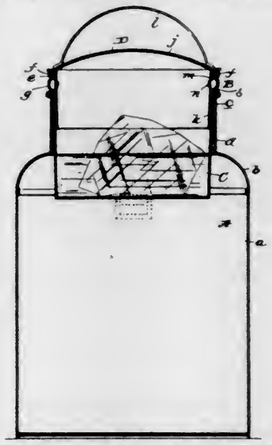
2. A gold-separator, comprising two rotary cylinders inclined in opposite directions and one arranged above the other, the upper cylinder having two cylindrical screens spaced apart and of different mesh and also having a gravel-screen consisting of longitudinally-placed bars, two cylindrical screens in the lower cylinder spaced apart and of different mesh, a chute for feeding material from the upper cylinder to the interior screen of the lower cylinder, a rotary pipe arranged at one side of the lower cylinder, a chute for discharging material from a screen in the upper cylinder into said pipe, a receptacle for receiving material discharged from the lower cylinder and from said pipe, and an air-blast device for operating upon material passing into the receptacle, substantially as specified.

659,149. HAME-FASTENER. DAVID G. JONES and JOHN W. JONES, Granbury, Tex. Filed Oct. 23, 1899. Serial No. 734,490. (No model.)



Claim.—A hame-fastener consisting of a chain secured to the lower end of one hame, the opposite hame having a metal strap secured thereto and its doubled lower end formed into curved arms having alined separated pintle-bearings, and a lever, having a hooked end, and reversely-curved loops, said lever being pivoted upon a pintle passing through the alined pintle-bearings and between the curved loops of said lever, substantially as described.

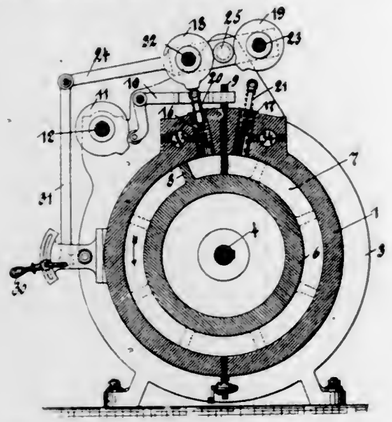
659,150. COOLER FOR MILK-CANS. ROBERT B. KING, Bristol, Pa. Filed Aug. 2, 1900. Serial No. 25,700. (No model.)



Claim.—The combination with the milk-can having the neck c and the mouth *d*; of the removable, combined cooler and stopper consisting

essentially of the body adapted to contain ice, and tapered or gradually reduced in diameter toward its bottom whereby it is enabled to snugly occupy the mouth and tightly engage the neck of the can, and having the oppositely-disposed bayonet-ways adjacent to its upper edge, and the removable cover for the body having the handle *l*, and also having the depending flange tapered in conformity to the body and of a diameter to snugly fit into the upper portion thereof, and the exterior protuberances on said flange adapted to enter the bayonet-ways of the body, whereby it is necessary in connecting the cover to or disconnecting it from the body to move said cover vertically and partially turn the same, substantially as and for the purpose set forth.

659,151. ROTARY ENGINE. JOHANN MÜLLFARTH, Cologne, Germany. Filed Feb. 19, 1900. Serial No. 5,841. (No model.)



Claim.—1. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17 and means for operating said valves, as and for the purpose set forth.

2. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17, cam-wheels 18 and 19 for opening said valves and springs 20 and 21 for closing the same, as and for the purpose set forth.

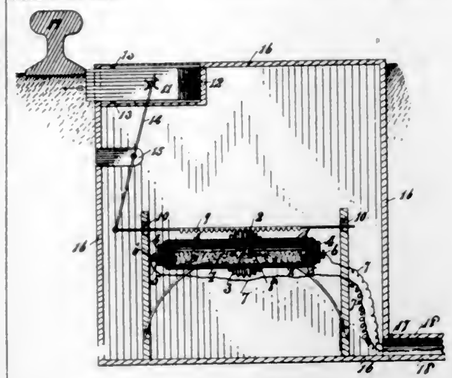
3. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17, cam-wheels 18 and 19 for opening said valves, springs 20 and 21 for closing the same, beams 24 and means for moving said beams, as and for the purpose set forth.

4. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17, cam-wheels 18 and 19 for opening said valves, springs 20 and 21 for closing the same, beams 24, a hand-lever 30 and a rod 31 connecting the hand-lever 30 with the beam 24, as and for the purpose set forth.

659,152. OPEN-SWITCH DETECTOR. JOHN M. MCCAULEY, Binghamton, N. Y. Filed Nov. 16, 1899. Serial No. 737,200. (No model.)

Claim.—1. The combination with a tube having mercury therein, a shaft for supporting the tube and electric contacts at opposite ends of the tube, of a spring-actuated slide block or bolt in position to be engaged by a switch-rail and means extending therefrom to the shaft for turning the latter and mercury-tube whereby to make or break the electric circuit.

2. The combination with a rock-shaft supported in suitable bearings and having a pinion thereon, of a tube containing mercury carried by the shaft, stoppers in the ends of the tube, contacts extending through said stoppers and electric wires electrically connected with said contacts, of a slidable rack-bar, the teeth of which are intermeshed with those of the pinion, a spring-actuated slide block or bolt adapted to engage a rail of a switch and a lever fulcrumed at or near its center and connected with this slide block or bolt and rack-bar whereby motion from one is communicated to the other.



659,153. DOOR-SECURER. FERDINAND D. MCGEE, New Bedford, Mass. Filed Jan. 31, 1900. Serial No. 3,508. (No model.)



Claim.—1. A door-securer comprising a rigid body provided with a laterally-projecting blade or tooth at its inner end and a projecting gage-flange on the same side as the tooth for adjusting the position of the body with relation to the inner face of the door-jamb, a locking-bar pivotally mounted on a fixed pin on the opposite side of the body in position to bring its end in line with the gage-flange when in locking position, and a plurality of arms or braces of unequal length pivotally secured to the outer end of the body in position to engage the door-jamb or moldings of different thicknesses, to brace the body against bending under strain brought against the locking-bar in attempting to open the door, one of said braces being shorter than the distance between the gage-flange and pivotal point of the brace whereby, when folded, it will lie between such parts, and another brace being longer than the space between the gage-flange and brace-pivot, substantially as described.

2. A door-securer comprising a rigid body provided with a laterally-projecting blade or tooth at its inner end and a notched gage-flange on the same side as the tooth for adjusting the position of the body with relation to the inner face of the door-jamb, a locking-bar pivotally mounted on a fixed pin on the opposite side of the body in position to bring its end in line with the gage-flange when in locking position, and a plurality of arms or braces of unequal lengths pivotally secured to the outer end of the body in position to engage the door-jamb or moldings of different thicknesses to brace the body against bending under strain brought against the locking-bar in attempting to open the door, said braces being arranged to fold substantially in line with the body, the shorter brace when folded lying in the space between the gage-flange and the pivotal point of the brace, and a longer brace in the notch in the gage-flange, substantially as described.

659,154. APPARATUS FOR DREDGING EARTH, &c. EWEN MCGREGOR, Mangaonoho, New Zealand. Filed Feb. 9, 1900. Serial No. 4,644. (No model.)



Claim.—1. An apparatus for excavating or dredging earth and similar operations comprising a carrying-rope anchored on each side of the material to be removed supports for the carrying-rope means on the supports for traversing the carrying-rope laterally, a scoop provided with rollers and mounted upon the carrying-rope and a cutting edge on the scoop and a hauling-rope and hauling machinery substantially as set forth.

2. In an apparatus for excavating or dredging earth and similar operations, the combination with carrying and hauling ropes, of a support for the same, provided with a track transverse to the line of said ropes, a trolley mounted to move on said track, pulleys or other supports on said trolley for said ropes, and means for moving said trolley.

3. An apparatus for excavating or dredging earth and similar operations comprising a carrying-rope anchored on each side of the material to be removed, supports for the carrying-rope, a scoop provided with rollers and mounted on the carrying-rope, a cutting edge on the scoop a hauling-rope and hauling machinery and a releasing device whereby the pull of the hauling-rope is transferred from the top to the bottom of the scoop, substantially as set forth.

4. In apparatus such as described herein, a scoop provided with a releasing device comprising a spring pivoted to the scoop and to which the hauling-rope is attached, and a catch, substantially as set forth.

5. In apparatus such as described herein, a scoop provided with a releasing device comprising a spring pivoted to the scoop and to which the hauling-rope is attached, and a catch having its holding edge at an obtuse angle to the body of the catch, substantially as set forth.

6. An apparatus for excavating or dredging earth and similar operations comprising a carrying-rope anchored on each side of the material to be removed to form a cutting with sloping sides, supports near the end of and for the carrying-rope, a third support at the foot of the proposed cutting and to which the carrying-rope is fastened so that it forms an angle in the carrying-rope, a scoop provided with rollers and mounted upon the carrying-rope, a cutting edge on the scoop, and a hauling-rope and hauling machinery substantially as set forth.

7. An apparatus for excavating or dredging earth and similar operations comprising a carrying-rope anchored on each side of the material to be removed, supports for the carrying-rope, a scoop provided with rollers, and mounted upon the carrying-rope, a hauling-rope and hauling machinery, and means for vertically deflecting the carrying-rope, substantially as set forth.

8. An apparatus for excavating or dredging earth and similar operations comprising a carrying-rope anchored on each side of the material to be removed, supports for the carrying-rope, a scoop provided with rollers and mounted upon the carrying-rope, a hauling-rope and hauling machinery, and means for laterally deflecting the carrying-rope, substantially as set forth.

659,155. INKSTAND. GEORGE H. NEHF, Tacoma, Wash. Filed Jan. 20, 1900. Serial No. 2,228. (No model.)



Claim.—1. An inkstand comprising in its construction an ink-well, having an aperture in its bottom, a plug or stopper adapted to be inserted in said aperture, a spring-actuated valve mounted in said stopper, and a series of funnels mounted one upon the other, the lowest funnel being supported by the side walls of the ink-well, substantially as described.

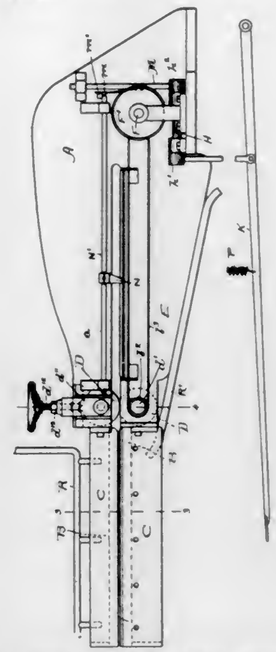
2. An inkstand comprising in its construction an ink-well formed with a screw-threaded aperture in its bottom, a plug or stopper adapted to close said aperture, a spring-actuated valve mounted in said stopper, an annular shoulder or ledge formed on the side walls of the said inkstand, a funnel having a peripheral flange at its upper end adapted to be supported on said annular shoulder or ledge, and a series of funnels supported by said peripheral flange and adapted to support one another, substantially as described.

659,156. CAN-SOLDERING MACHINE. EDWIN NORTON, Maywood, Ill., assignor to the Norton Brothers, of Illinois. Filed June 14, 1899. Serial No. 720,451. (No model.)

Claim.—1. In a machine for uniting together the parts of a seam or joint of tin-plate or other sheet metal having a soft fusible metal coating, the combination with a pair of heaters between which the parts of the seam to be united may be embraced and the tin or other soft-metal coating thereof heated to the fusing-point, of a pair of compressing-rollers at one end of the heaters between which the seam may be passed direct from the heaters, and by which the parts or folds of the seam are compressed and the fusible coating set, whereby the parts of the seam are securely and hermetically united together through the agency of the tin or other soft-metal coating of the tin-plate or sheet metal itself, substantially as specified.

2. The combination with a pair of heaters adapted to embrace and heat the parts of the seam between them, of a pair of compressing-rollers between which the seam passes from the heaters, substantially as specified.

3. The combination with a pair of heaters adapted to embrace and heat the parts of the seam between them, of a pair of compressing-rollers between which the seam passes from the heaters, and mechanism for driving the compressing-rollers first in one direction and then the other, substantially as specified.



4. The combination with a pair of heaters adapted to embrace and heat the parts of the seam between them, of a pair of compressing-rollers between which the seam passes from the heaters, mechanism for driving the compressing-rollers first in one direction and then the other, and a movable trip adapted to be engaged by the can-body or vessel after passing between the compressing-rollers for automatically reversing the compressing-rollers, substantially as specified.

5. The combination with a pair of heaters adapted to embrace and heat the parts of the same between them, of a pair of compressing-rollers between which the seam passes from the heaters, and a horn upon which one of the compressing-rollers and one of the heaters is mounted, substantially as specified.

6. The combination with a pair of copper heater bars or shoes B B, each furnished with a heating-chamber C, of a pair of compressing-rollers D D and a horn E upon which one of said compressing-rollers and one of said heating-bars with its heating-chamber is mounted, so that the can-body may be passed over or around the same, substantially as specified.

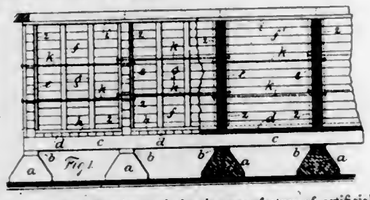
7. The combination with a pair of copper heater bars or shoes B B, each furnished with a heating-chamber C, of a pair of compressing-rollers D D and a horn E upon which one of said compressing-rollers and one of said heating-bars with its heating-chamber is mounted, so that the can-body may be passed over or around the same, a pair of oppositely-driven pulleys, a driving-shaft, a clutch, connecting mechanism between the driving-shaft and one of said compressing-rollers, a clutch-operating lever or rock-shaft, and a movable trip adapted to be engaged by the can-body or vessel as it leaves the compressing-rollers to automatically operate the clutch to reverse the compressing-rollers, substantially as specified.

8. The combination with a pair of copper heater bars or shoes B B, each furnished with a heating-chamber C, of a pair of compressing-rollers D D and a horn E upon which one of said compressing-rollers and one of said heating-bars with its heating-chamber is mounted, so that the can-body may be passed over or around the same, a pair of oppositely-driven pulleys, a driving-shaft, a clutch, connecting mechanism between the driving-shaft and one of said compressing-rollers, a clutch-operating lever or rock-shaft, and a movable trip adapted to be engaged by the can-body or vessel as it leaves the compressing-rollers to automatically operate the clutch to reverse the compressing-rollers, said movable trip being mounted upon a slide N and a spring dog or pawl connected to the clutch-lever, substantially as specified.

9. The combination with a pair of heater bars or shoes B B, one of which is furnished with a longitudinal groove *b* to receive the seam, of a

pair of compressing-rollers D D, one of which is furnished with a groove *d* to receive the seam, substantially as specified.

659,157. FREEZING-TANK FOR MANUFACTURING ARTIFICIAL ICE. CHARLES F. RICHARDS, East Orange, N. J., assignor to himself, and Byron R. Bacon, South Orange, N. J. Filed Nov. 24, 1899. Serial No. 738,133. (No model.)



Claim.—1. In a freezing-tank for the manufacture of artificial ice, the combination with a suitable foundation, of longitudinal beams supported thereby, the transverse flooring-beams and bulkhead-walls spaced apart and means for securing the same to the longitudinal beams, sides between the bulkheads with the ends let into grooves formed in opposite faces of the bulkheads and with posts between the bulkheads and outside of the sides, and truss-rods passing through the bulkheads and over the posts to bind the parts together and stiffen the tank-sections, substantially as set forth.

2. In a freezing-tank for the manufacture of artificial ice, the combination with a suitable foundation, of longitudinal beams and transverse flooring-boards laid thereon and secured thereto and bulkheads dividing the tank into sections and placed transversely of the beams, and dock-spikes for connecting the said timbers forming the bulkheads said spikes passing down through two of the timbers into a third and being staggered in relation to one another as the bulkheads are built up, and tie-rods passing down through all the bulkhead-timbers to securely connect the same together and prevent spreading during the calking operation, substantially as set forth.

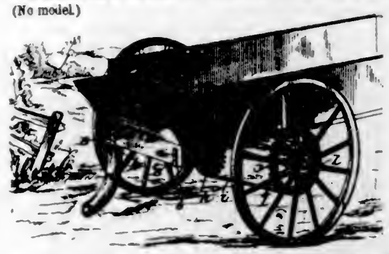
3. In a freezing-tank for the manufacture of artificial ice, the combination with a suitable foundation, of longitudinal beams placed thereon and flooring-boards placed transversely of the longitudinal beams, bulkheads also placed transversely of the beams and spaced apart to provide tank-sections, the sides *f f* extending between the bulkheads with the respective ends let into grooves upon opposite faces of the bulkheads, posts between the bulkheads and outside of the sides and tie-rods passing through the bulkheads and over the immediate posts to clamp the respective sides and bulkheads together and to hold the sides against outward pressure, substantially as set forth.

4. In a freezing-tank for the manufacture of artificial ice, the combination with concrete foundation-blocks and wall-plates thereon, of longitudinal beams at right angles to the wall-plates and foundation-blocks, transverse flooring-boards laid upon the said longitudinal beams, bulkheads built up of timbers also resting upon the longitudinal beams and dividing the tank into sections, sides extending between the bulkheads with the respective ends of the sides received in recesses or grooves in opposite faces of the bulkheads, a subsill and a top plate outside of the sides and between and over the respective ends of the bulkheads, posts with notched ends between the bulkhead ends and outside of the sides, the notched ends resting between the subsill and sides and the top plate and sides, and truss-rods extending from bulkhead to bulkhead outside of the posts to bind the parts together and to withstand outward pressure of the water, substantially as and for the purposes set forth.

5. In a freezing-tank for the manufacture of artificial ice, the combination with the sides and bulkheads forming supports, of removable covers each composed of a frame of strips with diagonal and transverse boards upon the opposite surfaces and filling-strips of non-conducting material between the same, and a filling of non-conducting material between the strips of the frame and means for elevating the covers, substantially as set forth.

6. In a freezing-tank for the manufacture of artificial ice, the combination with the sides and bulkheads forming supports, of removable covers each composed of a frame having sides, ends and transverse strips of the same size with two adjacent strips transversely through the center and with other transverse strips and lining-strips narrower than the strips of the frame, diagonal board strips in the spaces between the strips of the frame and secured to the narrower strips, a filling of non-conducting material between the diagonal board strips and the frame-strips, linings of non-conducting material upon the surface of the diagonal boards and transverse board strips upon opposite faces of the cover, there being a narrow transverse slot through the center of the cover for the purposes described, and means by which the cover is raised, substantially as set forth.

659,158. FERTILIZER-DISTRIBUTING ATTACHMENT. WILLIAM SCHLABACH, Nordheim, Tex. Filed May 16, 1900. Serial No. 16,868. (No model.)

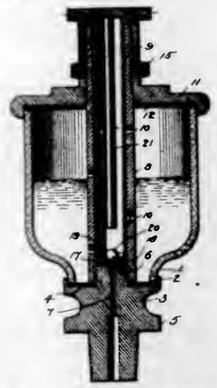


Claim.—1. A fertilizer-distributing attachment for farm-wagons, comprising a hopper having a pendent trough-like bottom closed at one end and open at the other, the open end having a discharge-spout, the wing members hinged to the front wall of the trough portions, said wing members being laterally adjustable and adapted to extend over the inner faces of the remaining ends of the conveyer-shaft in the trough, and means driven from the wagon-wheel for operating the conveyer, substantially as shown and described.

2. The combination with the wagon end; of the hopper having a pendent trough portion provided with a discharge, the conveyer operating within the trough for leading the material to the discharge; the inner wall of the trough having an inwardly and downwardly extending flange adapted to project over the end of the wagon-bed and means for operating the conveyer adapted to be connected with and driven from one of the wagon-wheels as specified.

3. The hereinbefore-described improvement in fertilizer-distributing attachments for farm-wagons, comprising a hopper having a pendent trough portion extending its full length and having a discharge at one end, a boot or spout adjustably connected to the discharge end of the said trough having an inwardly-extending flange adapted to fit over the outer end of the wagon-bed and having pivotally-connected wing members at the opposite ends adapted to swing outward against the inner face of the rear ends of the side members of the wagon, the conveyer operatively held within the trough portion and means for driving the conveyer, substantially as shown and for the purposes described.

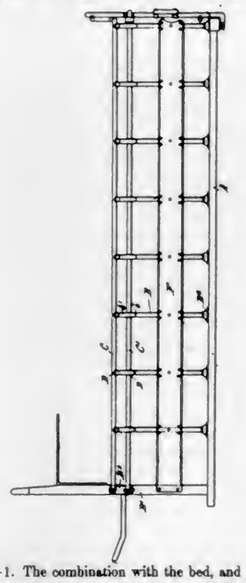
659,159. OIL-CUP. DAVID E. SMITH, Oswayo, Pa. Filed Nov. 1, 1899. Serial No. 735,527. (No model.)



Claim.—1. The combination with a base-ring, a cylinder, a tube projecting outside of said cylinder, a cap and a valve-seat having an oil-duct therein, of a ball-valve, a nut on the upper end of the tube adjustable thereon and provided with a spindle which depends into the tube, the space from the spindle to the tube being less than the diameter of the ball-valve whereby to limit the movements of the ball-valve, which space is regulated by the adjustment of the nut up and down on the tube.

2. The combination with a base-ring having an oil-duct therethrough and provided with a screw-threaded nipple, a perforated tube screwed on the nipple, a cylinder and a cap, the cylinder being held between the cap and the base-ring, of a valve-seat having a duct which leads into the duct in the base-ring and provided with a concaved upper surface, a ball-valve resting in the concaved seat and adapted to normally close the duct, a nut adapted to screw on the upper end of the tube, said nut having an air-vent and provided with a depending spindle located centrally in the tube, the nut being adjustable on the tube whereby the size of the valve-space is regulated.

659,160. WAGON-BODY. WALTER G. STEWART, Reading, Pa. Filed Feb. 10, 1900. Serial No. 4,715. (No model.)

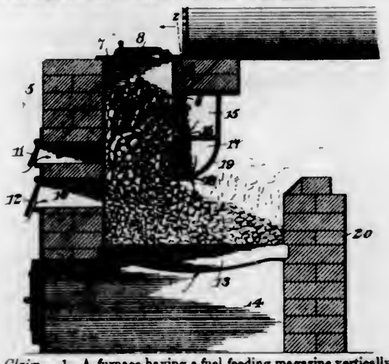


Claim.—1. The combination with the bed, and standards thereon having their upper portions outwardly inclined, of longitudinal shelving-rails rigidly secured to said outwardly-inclined portions of the standards and a longitudinal sign-rail placed flatwise against the vertical portions of a series of standards and firmly secured to each of said standards to rigidly brace the same, substantially as set forth.

2. The combination with the bed, of vertical side standards thereon formed of pipes or cylindrical bars having their upper portions outwardly inclined, and two suitably-spaced longitudinal shelving-rails formed of pipes or cylindrical bars, supported upon the top surfaces of said inclined portions of the standards and rigidly secured thereto at each point of contact, substantially as set forth.

3. The combination with the vertical standards formed of pipes or cylindrical bars, of the cylindrical rail extending crosswise of said standards, saddle-rings interposed between said rail and the standards at each point of attachment thereto and formed with reversely-curved bearings or seats for said standards and rail respectively, and means for clamping said standard, rail and saddle-ring firmly together, substantially as set forth.

659,161. FURNACE. EDWIN M. WASHBURN, Hillsdale, Mich. Filed Sept. 20, 1899. Serial No. 731,119. (No model.)

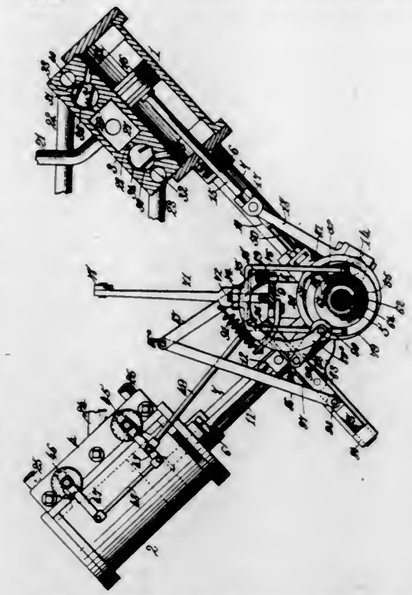


Claim.—1. A furnace having a fuel-feeding magazine vertically disposed over a grate below in advance of a primary bridge-wall, combined with a duct extending transversely in the rear of the rear wall of the said magazine and having a lower front reduced feed-opening in the form of a continuous slot to feed a thin sheet of air to the throat of the fire-box downwardly in a vertical direction and over and across the rear portion of a bed of coals therein to cause a consumption of the gases and particles of combustion, the air being directed fully and exclusively from above and over the plane of the rear surface of the burning coals at the point of greatest heat of the latter and the ingress of the air to the duct taking place at the opposite ends of the latter solely.

2. A furnace having a fuel-feeding magazine, a grate and a primary bridge-wall, combined with an air flue or duct extending transversely across the fire-box in rear of the magazine and provided with a continuous slot in the lower portion thereof to feed a thin sheet of air to the throat of the fire-box and across the rear portion of the bed of coals therein, to cause a consumption of the gases and particles of combustion, and another transversely-extending flue or duct above that having the continuous slot and in rear of the magazine, the said upper duct having communication with the magazine by means of perforations to cause the air to feed through the charge of coal and downwardly to the burning bed of coal.

3. A furnace having a fuel-feeding magazine, a grate and a primary bridge-wall, and air-feeding ducts or flues arranged at different elevations and extending transversely in rear of the magazine from one side to the other of the furnace, one of the said ducts admitting air to the charge of coal above the throat of the fire-box by means of a transverse line of apertures, and the other delivering a thin sheet of air by means of a transverse continuous slot in the lower portion thereof below the plane of the said apertures, and the other duct, and above the bed of burning coals, the air from the lower duct being directed fully and exclusively above and over the plane of the rear surface of the bed of burning coals at the point of greatest heat of the latter and the rear terminals of the grate-bars.

659,162. STEAM-MOTOR FOR AUTOMOBILES. FRANK W. WATERMAN, Baltimore, Md. Filed Dec. 14, 1899. Serial No. 740,343. (No model.)



Claim.—1. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for operating the valves of the high-pressure cylinder connected directly to one of said straps, a valve-rod for operating the valves of the low-pressure cylinder, and differential cut-off mechanism connecting said latter valve-rod with the other of said eccentric-straps, substantially as described.

2. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for operating the valves of the high-pressure cylinder connected directly to one of said straps, a valve-rod for operating the valves of the low-pressure cylinder, differential cut-off mechanism connecting said latter valve-rod with the other of said

eccentric-straps, and means for varying the throw of said eccentric, substantially as described.

3. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder, geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for operating the valves of the high-pressure cylinder connected directly to one of said straps, a valve-rod for operating the valves of the low-pressure cylinder, differential cut-off mechanism connecting said latter valve-rod with the other of said eccentric-straps, means for varying the throw of said eccentric and mechanism operated thereby to vary the throw of said cut-off mechanism inversely to that of the eccentric, substantially as described.

4. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder, cut-off mechanism for the valves of the high-pressure cylinder, variable cut-off mechanism for the valves of the low-pressure cylinder, a single eccentric for operating both of said cut-off mechanisms, and means for adjusting said eccentric to vary the throw of the cut-off mechanism of the high-pressure cylinder and thereby automatically adjust said variable cut-off mechanism to maintain a uniform cut-off of the valves of the low-pressure cylinder, substantially as described.

5. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for operating the valves of the high-pressure cylinder connected directly to one of said straps, a block slidably mounted on and rotating with said shaft and having an inclined surface and a link connection with said eccentric, means for adjusting said block toward or from the eccentric, whereby to vary the throw thereof, a valve-rod for operating the valves of the low-pressure cylinder, differential cut-off mechanism connecting said latter valve-rod with the other of said eccentric-straps, and means for adjusting the throw of said differential cut-off mechanism inversely to that of said eccentric including a pivoted arm having at its end a roller bearing on the inclined portion of said block, substantially as described.

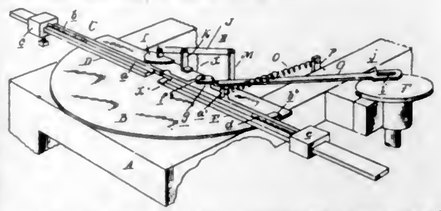
6. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for the high-pressure cylinder connected directly to one of said straps, a cylindrical block slidably mounted on said shaft to rotate therewith, and having an inclined surface and a link connection with said eccentric, means for adjusting said block toward or from the eccentric to vary the throw thereof, a valve-rod for the low-pressure cylinder, a guide-block, a slotted rock-arm pivotally secured thereto at one end and having its outer end pivotally connected to said latter valve-rod, a crank-arm pivotally mounted on the frame and having a stud working through said slot, an arm carried by the other of said eccentric-straps and pivotally secured to said stud, and mechanism automatically operated in the adjustment of said block to vary the throw of said rock-arm inversely to that of said eccentric, substantially as described.

7. In a steam-motor, in combination with a high-pressure and a low-pressure cylinder geared to a common drive-shaft, an eccentric mounted on said shaft having straps, a valve-rod for the high-pressure cylinder connected directly to one of said straps, a cylindrical block slidably mounted on said shaft to rotate therewith, and having an inclined surface and a link connection with said eccentric, means for adjusting said block toward or from the eccentric to vary the throw thereof, a valve-rod for the low-pressure cylinder, a guide-block, a slotted rock-arm pivotally secured thereto at one end and having its outer end pivotally connected to said latter valve-rod, a crank-arm pivotally mounted on the frame and having a stud working through said slot, an arm carried by the other of said eccentric-straps and pivotally secured to said stud, a rock-shaft, a curved arm secured thereto and having at its outer end a roller bearing on the inclined surface of said block, a crank-arm on said rock-shaft, an arm connected at one end to said crank-arm and at its other end to said guide-block and a spring connected at one end to the frame of the motor and at its other end to said crank-arm, the combination operating substantially as and for the purpose described.

8. In a steam-motor, in combination with cut-off mechanism for a high-pressure cylinder and variable cut-off mechanism for a low-pressure cylinder, a drive-shaft, a single eccentric mounted thereon comprising an eccentric-ring slidably mounted on the shaft and provided with parallel slots, straps on said eccentric-ring connected, respectively, with said cut-off mechanisms, plates keyed on said shaft on opposite sides of said eccentric-ring and having studs engaging in the slots thereof, a cylindrical block slidably mounted on said shaft to rotate therewith, a link pivotally connected at opposite ends to said eccentric-ring and said block, respectively, means for adjusting said block toward or from the eccentric to raise or lower said ring and vary the throw of the eccentric, and mechanism cooperating with said block in the adjustment thereof to automatically adjust the throw of said variable cut-off mechanism inversely to the throw of said eccentric, substantially as and for the purpose described.

659,163. BENDING-MACHINE. OLIVER J. BRAUDETT, Pontiac, Mich. Filed Mar. 5, 1900. Serial No. 7,388. (No model.)

Claim.—1. In a bending-machine, the combination with a support, a work-holder thereon comprising a movable work-supporting member and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and alinement with the complementary member, a continuously-operating device, and connections between said device and the movable member whereby the latter is intermittently reciprocated in constant succession.



2. In a bending-machine, the combination with a support, a work-holder thereon comprising a movable work-supporting member and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and in alinement with the complementary member, a continuously-rotating device connected to and adapted to reciprocate the movable member in constant succession, and means for maintaining the members in alinement during a portion of each period of revolution of said rotating device.

3. In a bending-machine, the combination with a support, a work-holder thereon comprising a movable work-supporting member and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and in alinement with the complementary member, a continuously-rotating crank connected to and adapted to reciprocate the movable member in constant succession, and means for maintaining the members in alinement during substantially one-half of each period of rotation of the crank.

4. In a bending-machine, the combination with a support, a work-holder comprising a movable work-supporting member and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and alinement with the complementary member, a crank adapted to be continuously rotated, and a lost-motion connection between the crank and movable member.

5. In a bending-machine, the combination with a support, a work-holder thereon comprising a movable work-supporting member and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and alinement with the complementary member, a crank adapted to be continuously rotated, a lost-motion connection between the crank and movable member, and a spring acting upon the movable member to move the latter in alinement with the complementary member.

6. In a bending-machine, the combination with a support, a work-holder thereon comprising a movable work-supporting member, and a complementary member, the movable member being mounted for reciprocatory movement into angular relation to and alinement with the complementary member, a clamping device for holding the work within the holder, and a continuously-operating device for reciprocating intermittently the movable member.

659,164. TOWEL-HOLDER. ROBERT H. BORN, St. Louis, Mo. Filed Mar. 26, 1900. Serial No. 10,212. (No model.)



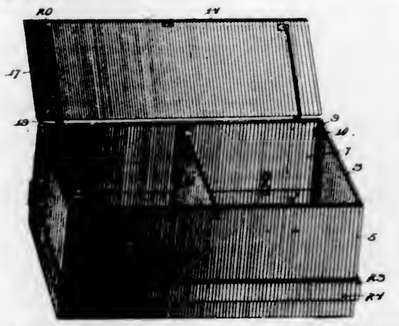
Claim.—1. In a towel-holder, the combination with a tube formed with a bell-mouth opening at an angle to the axis of said tube, of a cap or plug arranged in one end of said tube, a coiled spring arranged in said tube and having one of its ends secured to said cap or plug, and a clasp secured to said coiled spring, substantially as and for the purpose specified.

2. In a towel-holder, the combination with a tube formed with a bell-mouth arranged at an angle to the axis of said tube, of securing lugs or ears arranged on said tube, a spring arranged in and secured to said tube, and a clasp carried by said spring, substantially as described.

3. The combination with a tube C provided with a slot, of a spring arranged in said tube, a rod to which the upper end of said spring is connected, said rod projecting through said slot in the tube, and a clasp secured on said rod; substantially as described.

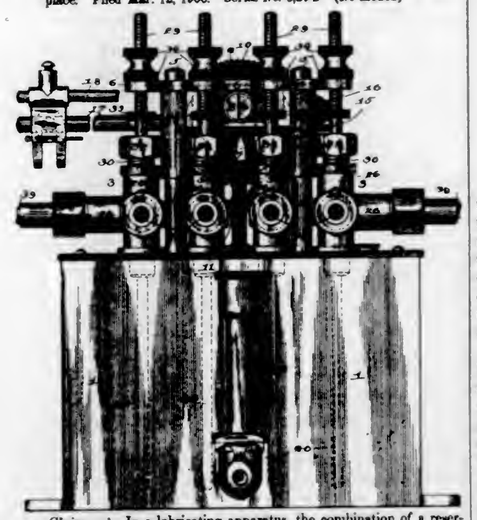
4. The combination with a tube provided with a notch in its upper end, of a clasp which is designed to fit in said notch, and a spring for drawing said clasp into the tube; substantially as described.

659,165. FOLDING SHIPPING-CRATE. ALBERT BRAUN and ELI MCPHERSON, Allegheny, Pa. Filed Nov. 6, 1899. Serial No. 735,996. (No model.)



Claim.—The herein-described folding crate, made up of a bottom having end strips and side strips secured to its upper face with the side strips of greater depth than the end strips, ends 3 hinged to the end strips, a strip 12 secured to the upper face of the bottom centrally thereof, a partition 11 hinged to said strip 12, front and rear walls respectively hinged to the side strips, said rear wall being provided in its upper edge with recesses, and means for securing the end walls and the partition to the front and rear walls, combined with a top or cover, headed links connected at their one end to the under face of the top or cover near its forward edge and lying within the recesses of the rear wall with their other ends connected to the rear edge of said top or cover, and staples secured at an angle in the rear wall and engaging said links with their loops registering with the recesses in the said wall to form a hinge connection between the top and the rear wall and permit the lowering of said top or cover when in the vertical position against the said rear wall, as and for the purpose described.

659,166. LUBRICATOR. THOMAS A. DELANEY and BENJAMIN T. MCCANNA, Chicago, Ill., assignors to the Hills-McCanna Company, same place. Filed Mar. 12, 1900. Serial No. 8,294. (No model.)



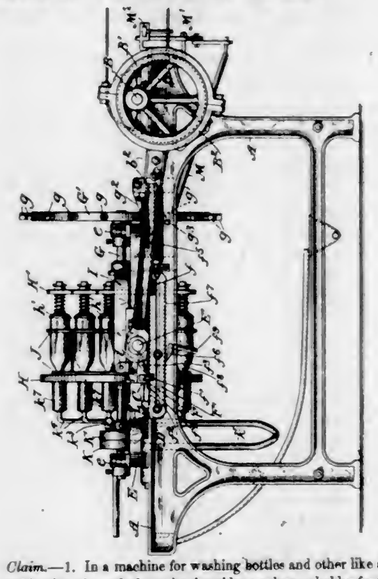
Claim.—1. In a lubricating apparatus, the combination of a reservoir, a pump for forcing the lubricant from the reservoir to the point of use, a cam-piece attached to a moving part of the engine lubricated, and provided with an oblique section and parallel sections and connections between said cam-piece and pump, whereby the pump receives a uniform stroke, independent of the variations in the stroke of the cam-piece, substantially as set forth.

2. In a lubricating apparatus, the combination of a reservoir 1, a shaft 7 rotatably mounted on the reservoir, one or more pumps 3 mounted on the reservoir, studs 5 on the reservoir, a cross-head 4 reciprocated on and guided by said studs and provided with one or more ears 6 to engage the pump-plungers, a connection between the cross-head and the shaft whereby the rotation of the former reciprocates the latter, and means for rotating the shaft, substantially as set forth.

3. In a lubricating apparatus, the combination of a pump, a discharge-pipe for the pump, a cylinder connected to said pipe, formed with an inlet and a lateral outlet for the lubricant, a plunger in said cylinder actuated by the lubricant passing through the pump discharge-pipe, and an external indicator connected to said plunger and adapted by its movement to show the motion of the lubricant in the pipe, substantially as set forth.

4. In a lubricating apparatus, a pump for forcing the lubricant comprising in combination a body containing the two valve-chambers, a pump-barrel adapted to be inserted in the body and limit the opening of the suction-valve, two valves of spherical form, a plunger adapted to the barrel, a spiral spring to close the discharge-valve, and a plug adapted to be screwed into the discharge-orifice against said spring, substantially as set forth.

659,167. BOTTLE-WASHER. MELVIN E. DONALLY, New York, N. Y., assignor to Amalia M. Donally, same place. Filed Mar. 18, 1897. Renewed Mar. 7, 1900. Serial No. 7,747. (No model.)



Claim.—1. In a machine for washing bottles and other like articles, the combination of a main frame having side members, a holder for the bottles or other like articles, a frame in which said holder is rotatably mounted, means for reciprocating said frame, a disk or wheel secured to said holder to rotate therewith with its periphery in proximity to the side members of the main frame and having projecting pins or studs, and a cam or incline supported upon one of said side members in the path of said studs to coöperate therewith, whereby said holder is rotated during the reciprocations of the frame.

2. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is rotatably mounted, means for reciprocating said frame, a wheel secured to said holder to rotate therewith and having projecting pins or studs, a pivoted arm inclined in one direction in the path of said studs, and a second pivoted arm above the first and inclined in the opposite direction, both of said arms being in operative relation with said studs whereby said holder is rotated during the reciprocations of the frame.

3. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is mounted, a carrier in which said frame is mounted to swing, means for reciprocating said frame, a bolt engaging said frame and a relatively-fixed part, a cam to engage and withdraw said bolt and means to move said cam into operative relation with said bolt, whereby, as said cam completes its movement, the frame is released and is permitted to swing with the holder to a substantially-vertical position.

4. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is mounted, a carrier in which said frame is pivoted, means for reciprocating said carrier, a bolt engaging said frame and said carrier, a cam to withdraw said bolt, a slide upon which said cam is mounted, and means to shift said slide progressively as the frame is reciprocated.

5. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is mounted, a carrier in which said frame is pivoted, means for reciprocating said carrier, a bolt engaging said frame and said carrier, a cam to withdraw said bolt, and means actuated by the successive reciprocations of the frame to shift said cam into operative relation with the bolt.

6. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is mounted, a carrier in which said frame is pivoted, means for reciprocating said carrier, a bolt engaging said frame and said carrier, a cam to withdraw said bolt, a slide upon which said cam is mounted, means to shift said slide progressively as the frame is reciprocated, a spring to return said slide to initial position and a detent to retain said slide against the action of said spring.

7. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, a frame in which said holder is mounted, a carrier in which said frame is pivoted, means for reciprocating said carrier, a bolt engaging said frame and said carrier, a cam to withdraw said bolt, a slide upon which said cam is mounted, means to shift said slide progressively as the frame is reciprocated, a spring to return said slide to initial position and a detent to retain said slide against the action of said spring and having a projection in the path of movement of said frame, whereby as said frame is swung or tilted, the detent is released and the slide is returned to initial position.

8. In a machine for washing bottles and other like articles, a holder to receive a number of bottles or other like articles, said holder comprising a relatively-fixed plate, a shaft and a longitudinally-movable plate having spring-seated cups or plungers to receive the ends of the bottles, and means to withdraw said movable plate to release the bottles.

9. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, said holder comprising a relatively-fixed plate and a relatively-movable plate adapted to receive the bottles between them, means for supporting the plates, a frame in which said holder is mounted, supports in which said frame is pivoted to swing, and an arm or yoke engaging said movable plate and pivoted to the supports for said frame but eccentrically with respect to said frame.

10. In a machine for washing bottles and other like articles, the combination of a holder for the bottles or other like articles, said holder comprising a shaft, a plate fixed upon said shaft, and a plate held to rotate with and free to move longitudinally upon said shaft, a frame in which said holder is free to rotate, supports in which said frame is pivoted to swing, and an arm or yoke engaging the last-named plate and pivoted to the supports for said frame but eccentrically with respect to said frame.

11. In a machine for washing bottles and other like articles, the combination of a swinging frame and a holder for the bottles or other like articles, mounted in said frame, said holder comprising a relatively-fixed plate and a longitudinally-movable plate adapted to receive the bottles between them, means for supporting the plates and connections between said movable plate and a relatively-fixed part whereby the plate is moved to release the bottles when the frame swings.

12. In a machine for washing bottles and other like articles, the combination of a frame, a holder for the bottles or other like articles, mounted to rotate in said frame, a head secured to said frame and having an annular channel in its face and connected to a water-supply, and a second head having an annular channel in its face and secured to said holder to rotate therewith in contact with the first-named head, and pipes connected to the second-named head to deliver water to the bottles in the holder.

13. In a machine for washing bottles and other like articles, the combination of a reciprocating frame, a bodily-removable, rigid case independent of the frame in which a number of bottles may be placed and set together in the frame and means to secure said case and bottles in said frame.

14. In a machine for washing bottles and other like articles, the combination of a reciprocating frame, a holder supported by said frame and comprising a relatively-fixed plate and a relatively-movable plate, means for supporting the plates, a removable case to receive a number of bottles, and means to move said movable plate to secure or release the bottles and case.

15. In a machine for washing bottles and other like articles, the combination with a reciprocating carrier, of a holder mounted in said carrier and having a central shaft, a case to receive a number of bottles, said case being slotted from one side to the center to be slipped laterally upon said shaft, and means to secure said case and bottles in the holder.

16. In a machine for washing bottles and other like articles, the combination with a reciprocating carrier, of a holder mounted in said frame and having a central shaft with a flattened portion, a case to receive a number of bottles, said case having a slot extended from one side to the center, the central portion of said slot having a width equal to the full diameter of the shaft and the outer portion having a width equal to the thickness of the flattened portion of the shaft, and means to secure said case and bottles in the holder.

17. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a swinging frame, a holder mounted in said frame, means to lock said holder in position in the carrier, a bodily-removable, rigid case independent of the holder to receive a number of bottles and means to secure said case and bottles in said holder.

18. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a frame mounted to swing in said carrier, a bottle-holder mounted to rotate in said carrier, nozzles supported by said holder to rotate therewith and to direct a stream of water into each bottle, a sieve-like jacket around each nozzle to receive shot from the bottles, and to permit the water to escape freely, each of said nozzles being located axially with respect to the jacket and the bottle, and means to deliver water to said nozzles.

19. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a frame mounted to swing in said carrier, a bottle-holder mounted to rotate in said holder, nozzles supported by said holder to direct a stream of water into each bottle, a sieve-like jacket around each nozzle to receive shot from the bottles, and to permit the water to escape freely, each of said nozzles being located axially with respect to the jacket and the bottle, a water-supply pipe to deliver water to the nozzles, a valve to control said water-supply pipe and means to open said valve.

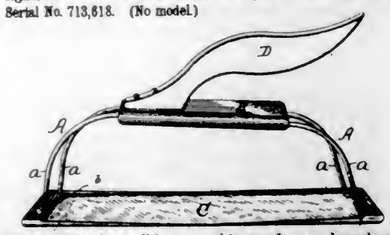
20. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a frame mounted to swing in said carrier, a bottle-holder mounted to rotate in said holder, nozzles supported by said holder to direct a stream of water into each bottle, a perforated jacket around each nozzle to receive shot from the bottles, a water-supply pipe to deliver water to the nozzles, and a valve to control said water-supply pipe having an arm in the path of movement of said swinging frame.

21. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a frame, a bottle-holder mounted in said frame, means to reciprocate said frame, stopping mechanism, and devices advanced progressively by the reciprocations of the frame to operate said stopping mechanism.

22. In a machine for washing bottles and other like articles, the combination of a reciprocating carrier, a swinging frame mounted in said carrier, a locking device to hold and release said frame, a bottle-holder mounted in said frame, means to reciprocate said carrier, a stopping mechanism and devices actuated by the frame as it is released and swings to operate said stopping mechanism.

23. In a machine for washing bottles and other like articles, the combination with a reciprocating carrier, a frame mounted to swing in said carrier, a bottle-holder mounted in said frame, a cam carried by said frame, stopping mechanism and a shipper-lever therefor in the path of said cam to be operated thereby.

659,168. SHOE-POLISHER. JOHN T. FOSKETT, Chicago, Ill., assignor of one-half to Pierce Ford, same place. Filed Apr. 19, 1899. Serial No. 713,618. (No model.)



Claim.—1. A shoe-polisher, comprising two frame end members, each composed of a single piece of wire and consisting of the arched branches, *a a*, the horizontal parts, *a' a'*, the connecting cross-bars, a^3, extending at right angles to said arched branches, and the handle bridge-piece, in the respective ends of which the terminal ends of the branches *a a* are secured, substantially as described.

2. In a shoe-polisher, the combination with the two frame end members, each composed of a single piece of wire, consisting of the arched branches, *a a*, and the connecting cross-bars, joining the lower ends, the bridge-piece, in which the contracted upper ends of the arched branches are secured, and the polishing-cloth, provided with pockets in its respective ends for the insertion of the cross-bar ends of the frame members, substantially as described.

659,169. MECHANISM FOR SUPPLYING ELECTRIC POWER TO RAILWAY-CARS. GEORGE F. GALE, Boston, Mass. Filed Mar. 21, 1899. Serial No. 709,922. (No model.)

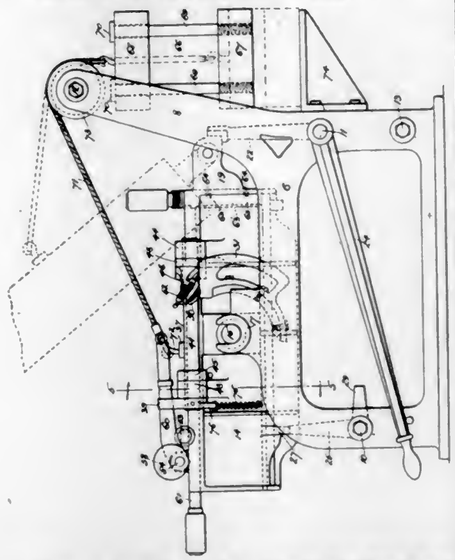


Claim.—1. In a mechanism for operating cars by electric power the pivoted contact-disk in the road-bed having more than two contact-points; a contact-point so arranged that a partial revolution of said disk shall make and break contact therewith, a third rail with which said disk is in electrical connection so arranged that a projection on the car may engage said rail and operate said disk, substantially as and for the purpose specified.

2. In a device of the character described the connected rails, A, A' arranged with a space between; the rotary disk having contact points and arms projecting into said space; the contact-plate in the electric circuit having contact-points adapted to be engaged by the disk-points; the outer rails and conducting-wires connected to said plate and outer rails all being combined to operate, substantially as described.

3. In combination the connected rails A, A' insulated respectively from next adjacent rails at their ends, the rotary disk E, in contact with said rails and having radial fingers projecting into the space between said rails in position to be engaged by a projection on the car; the contact-points *f* on said disk; the contact-plate D, having points *d* in position to be engaged by the disk-point; the rails H, H' and the wires connecting the rails H, H' and the plate D, with an electrical supply, substantially as described.

659,170. CASTING-BOX FOR STEREOTYPING. SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Mar. 16, 1898. Serial No. 674,068. (No model.)



Claim.—1. In a casting-box, the combination with a tilting case and a core, of mechanism adapted to engage the core, and connections between said mechanism and case whereby when the casting-box is tilted said mechanism will be caused to press down upon the core, force said core into the case and hold it in place, substantially as described.

2. In a casting-box, the combination with a tilting case and a core, of clamps adapted to engage the core, and cam mechanism between said clamps and case whereby when the casting-box is tilted said clamps will be caused to press down upon the core, force said core into the case and hold it in place, substantially as described.

3. In a casting-box, the combination with a tilting case having rock-shafts at each side thereof, clamps carried by said rock-shafts, and cam mechanism for rocking said shafts when the casting-box is tilted, of a core adapted to fit into said case and to be locked into position by said clamps, substantially as described.

4. In a casting-box, the combination with a tilting case and a core, of clamps adapted to rock on axes substantially parallel with the sides of the case to engage the side edges of the core for locking the core in the case, means for automatically operating the clamps to lock the core when the casting-box is tilted, and means for automatically moving said clamps out of operative engagement with said core, when the casting-box is returned to its normal position, substantially as described.

5. In a casting-box the combination with a tilting case and a core, of clamps provided with means for automatically actuating them and locking the core in the case when the casting-box is tilted, and springs arranged in position to automatically move said clamps out of operative engagement with said core when the casting-box is returned to its normal position, substantially as described.

6. In a casting-box, the combination with a supporting-frame, of a case pivotally mounted in said frame, stationary cams carried by said frame, a core adapted to fit into said case, clamps carried by said case and adapted to rock on axes substantially parallel with the case to engage the side edges of said core to lock it in operative position, and arms connected with said clamps and adapted to engage said cams for automatically operating said clamps when the casting-box is tilted, substantially as described.

7. In a casting-box, the combination with a tilting case and a core, of clamps carried by said case and adapted to rock on axes substantially parallel with the case to engage the side edges of said core to lock it in operative position, and means for automatically operating said clamps when the casting-box is tilted, the said means being constructed and arranged to impart an increasing pressure to said clamps, substantially as described.

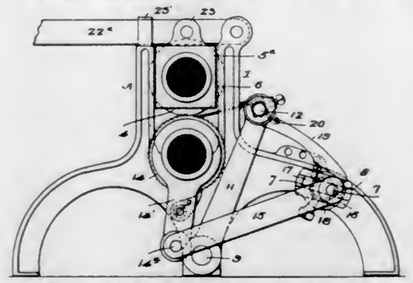
8. In a casting-box, the combination with a tilting case and a core, of clamps carried by said case and adapted to engage the side edges of said core to lock it in operative position, and cams for automatically operating said clamps when the casting-box is tilted, the said cams being provided with beveled engaging portions, whereby a gradually-increasing pressure will be imparted to said clamps, substantially as described.

9. In a casting-box, the combination with a stationary frame, and cams carried thereby, of a case pivoted upon said frame, the core for said case, rock-shafts carried by said case, clamps carried by said rock-shafts, arms for rocking said rock-shafts, and rollers carried by said arms adapted to engage said cams, substantially as described.

10. In a casting-box, the combination with a stationary frame, and cams carried thereby, of a case pivoted upon said frame, the core for said case, rock-shafts carried by said case, clamps carried by said rock-shafts, arms for rocking said rock-shafts, and adjustably-mounted rollers carried by said arms, adapted to engage said cams, substantially as described.

11. In a casting-box, the combination with a case and a core pivoted at one end thereto, of automatic mechanism adapted to engage the core, and connections between said mechanism and case whereby when said casting-box is tilted said mechanism will be caused to engage said core, force it into the case and hold it in place, substantially as described.

659,171. PLAITING-MACHINE. THOMAS F. HAGERTY, San Francisco, Cal. Filed May 3, 1900. Serial No. 15,335. (No model.)



Claim.—1. In a plaiting-machine, the combination of a frame, an upper and a lower pressing-roller geared together and mounted in said frame, a driving-shaft mounted in the frame, an eccentric mounted upon the driving-shaft, a strap or pitman surrounding said eccentric and having an arm, a pair of arms 10, 11, journaled upon each side of the frame, said arm 10 being of a different shape and being provided with a curved slot intermediate of its length, a rock-shaft carried by the upper ends of said arms, a blade carried by the rock-shaft, means to trip said rock-shaft connected to the shaft, an adjusting device connecting the arm of the pit-

man adjustably with the curved slot of the arm 10 to regulate the throw of the rock-shaft and the size of the plait, and means to impart motion to the driving-shaft.

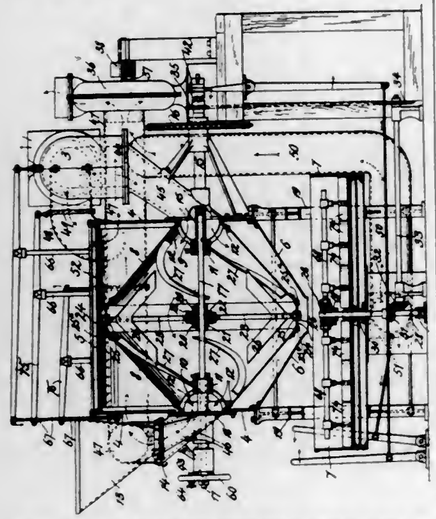
2. In a plaiting-machine, the combination of a frame, an upper hollow roller and a lower hollow roller mounted in said frame, vertically-movable boxes carrying the upper roller and mounted in the frame, a pair of levers connected to the frame and also to said boxes, springs connected near the outer ends of the levers to give a yielding pressure to the upper roller, eccentrics carried by the levers to hold the upper roller out of contact with the lower roller when the machine is not in use, means for revolving the rollers, means for feeding the material to the rollers and plaiting the same, and means to impart motion to the rollers and plaiting means.

659,172. COMBINED MANE COMB AND BRUSH. CHRISTINE HUB, born HAHN, Triers, Germany. Filed June 5, 1899. Serial No. 719,487. (No model.)



Claim.—In a combined mane comb and brush, a plurality of bars bent at one end to form teeth and secured at their other ends in a suitable plate, a guide-frame secured to the back of said bars and to said plate, said frame having grooves therein, and a brush having a back provided with tongues adapted to slide in said grooves and in the guide-plate, substantially as set forth.

659,173. ROASTING-MACHINE. RUDOLPH W. KOCH, Fruitvale, Cal. Filed Mar. 26, 1900. Serial No. 10,214. (No model.)



Claim.—1. A roasting-machine comprising a revoluble drum, a furnace arranged adjacent thereto, an air-pump, a valved connection between the furnace and one end of the drum, a valved connection between the other end of the drum and the exhauster, means for closing the valve in either of said connections and opening the valve in the other, and means for directing the hot air and products of combustion to the air-pump instead of to the drum, substantially as described.

2. A roasting-machine comprising a revoluble drum; a cooler below said drum; a furnace connected with said drum for heating the interior thereof; a suction device communicating with the furnace, drum and cooler, and means for closing the communication between the suction device and either the furnace, drum or cooler at will, substantially as described.

3. A roasting-machine comprising a furnace, a casing rovided with a bopper, a revoluble drum rotatably arranged within the casing, an exhaust-fan, a pipe connection between the furnace and the drum, a branch pipe leading from the said pipe connection to the exhaust-fan, a valve in the branch pipe, a valve in the pipe connection between the branch pipe and the drum, a valved pipe connection between the drum and the exhaust-fan, and means for operating said valves, whereby the hot air and products of combustion may be withdrawn by the fan from the furnace through the drum, or directly from the furnace, substantially as described.

In a coffee-roasting machine, the combination with a revoluble, drum, of a cooler into which the contents of the drum are discharged, a rotary stirrer for stirring the coffee within the cooler, an exhaust-fan common to both the drum and cooler, and means for shutting off the communication between the exhaust-fan and either the drum or cooler at will, substantially as described.

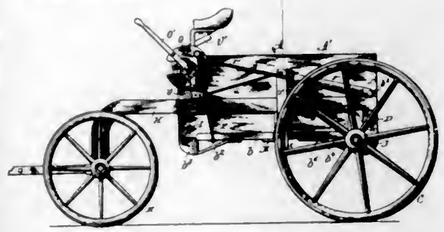
5. In a coffee-roasting machine, the combination with a revoluble drum, of a cooler arranged below the drum; a sieve within the cooler, adjustable oscillatory blades for stirring the coffee within the cooler, and discharging the contents of the cooler automatically, weights for holding the blades in their normal position, and stops for limiting the oscillatory movement of the blades, substantially as described.

6. In a coffee-roasting machine, the combination with a furnace, of a revoluble drum, an exhaust-fan, a pipe leading from the furnace to the drum, a pipe leading from the drum to the blower, a branch pipe connecting said pipes between the furnace and drum, and valves arranged in said pipes and branch pipe, substantially as described and for the purpose specified.

7. In a roasting-machine, the combination with a revoluble drum arranged to rotate loosely about a central shaft, radial arms carried by said shaft, segmental gates arranged on the ends of said arms and normally closing discharge-openings in the drum, means for causing the shaft to rotate in unison with the drum, and means for arresting the rotation of the shaft while the drum is rotating to open the gates, substantially as described.

8. In a roasting-machine, the combination with a revoluble drum and a cooler, of revoluble stirrer-arms within the cooler, and weighted stirrers loosely sleeved on the stirrer-arms and arranged to stir and automatically discharge the contents of the cooler, substantially as described.

659,174. GARBAGE-WAGON. DAVID LIPPY and HUBBARD D. B. WILLIAMS, Mansfield, Ohio, assignors of one-half to Jerome J. King and and Wells W. Stark, same place. Filed July 20, 1900. Serial No. 24,262. (No model.)



Claim.—1. A dumping-wagon for the purposes set forth, comprising a body supported upon wheels and having the sides thereof projecting beyond the front and rear walls, a bottom for said body consisting of two transverse sections hinged between the projecting ends of the sides, a shaft journaled in the projecting forward ends of the sides of the body, rods connecting the hinged sections of the bottom to said shaft, and means for supporting the hinged sections in an elevated position, substantially as shown and described.

2. A dumping-wagon for the purposes set forth, comprising a body supported upon wheels and having the sides thereof projecting beyond the front and rear walls, a bottom for said body consisting of transverse sections hinged between the projecting ends of the sides of the body, a rock-shaft journaled in the projecting forward ends of the sides of the body, disks mounted upon the ends of the rock-shaft, rods connecting the hinged sections of the bottom of said disks, and a lever attached to one of said disks; together with means for engaging and holding the hinged sections in an elevated position, substantially as shown and described.

3. A dumping-wagon for the purposes set forth, comprising a body supported upon wheels and having a bottom consisting of transverse sections hinged to the ends of said body, a covering-plate attached to the outer end of one of the hinged sections and projecting at each end beyond said section, catches pivoted to the sides of the wagon-body and adapted to engage the projecting ends of the covering-plate, and means for operating the hinged sections and catches, substantially as shown and described.

4. A dumping-wagon, for the purposes set forth, comprising a body supported on wheels and provided with a bottom consisting of sections or parts hinged to the end walls of said body, a rock-shaft, rods connecting said sections to the rock-shaft; together with catches engaging the sectional bottom, and means for operating said catches, substantially as shown and described.

5. A dumping-wagon, for the purposes set forth, comprising a body supported on wheels and provided with a bottom consisting of sections

or parts hinged to the body, one of the sections carrying a covering-plate, a rock-shaft, a rod connecting one of the sections to the rock-shaft, and an extensible rod connecting the other section to the rock-shaft; together with catches engaging the sectional bottom, substantially as shown and described.

6. A dumping-wagon for the purposes set forth, comprising a body supported on wheels and provided with a bottom consisting of sections or parts hinged to the body, one of the sections carrying a plate to cover the joint, a rod connecting one of the sections to a rock-shaft, and an extensible rod connecting the other section to the rock-shaft, said extensible rod consisting of two sections slidable one upon the other and having an interposed spring; together with catches for engaging the sectional bottom, substantially as shown and described.

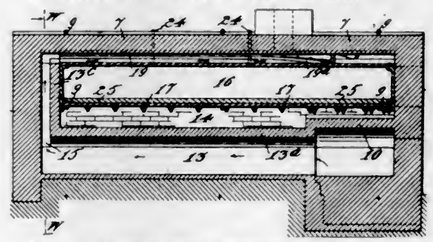
7. A dumping-wagon for the purposes set forth, comprising a body supported on wheels and provided with a bottom consisting of sections or parts hinged to the body, one of the sections carrying a plate to cover the joint, a rock-shaft, a rod connecting one of the sections to said rock-shaft, and an extensible rod connecting the other section to said shaft, said extensible rod consisting of two parts slidable one upon the other and having an interposed spring; together with catches pivoted to the sides of the body and adapted to engage the sectional bottom, and a rock-shaft to which said catches are connected; the aforesaid rock-shafts having operating-levers, substantially as shown and described.

8. In a dumping-wagon, the combination, of the body, hinged sections forming the bottom of said body and pivoted thereto beyond the front and rear ends thereof, stub-axles attached to the sides of the body to support the rear wheels, and flat bars extending along the sides of the body beyond the front end thereof, to form the connection for the front axle; together with means for operating the hinged sections and engaging the same, substantially as shown and described.

9. In a dumping-wagon, the combination, of the body, hinged sections forming the bottom of said body and hinged thereto beyond the front and rear ends thereof; stub-axles attached to the sides of the body, and flat bars extending along said sides beyond the front end thereof, to form the connection for the front axle; together with a rock-shaft, rods connecting the hinged sections of the bottom to said rock-shaft; catches engaging the hinged bottom, and means for operating said catches, substantially as shown and described.

10. In a dumping-wagon, the combination, of the body, a sectional bottom therefor consisting of a front section pivoted to the front of the body and a rear section having arms by which it is pivotally suspended from the upper part of the rear end of the body, a covering-plate carried by one of the sections; a rod connecting one of the sections to a rocking lever, and an extensible rod connecting the other section to said lever and consisting of slidably-connected sections with an interposed spring; together with catches engaging the sectional bottom, substantially as shown and described.

659,175. BAKE-FURNACE. WILLIAM J. MEIKLEHAM, Denver, Colo. Filed Feb. 23, 1900. Serial No. 6,304. (No model.)

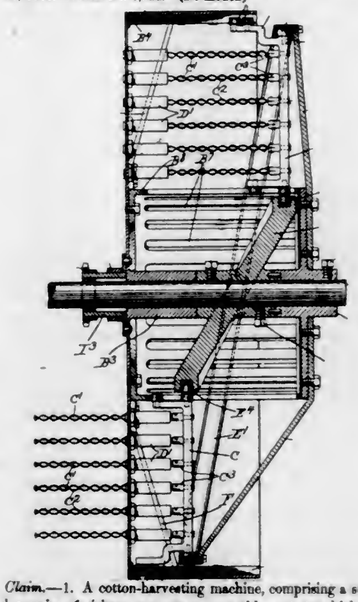


Claim.—1. In a bake-furnace, the combination of a fire-box, an oven extending lengthwise of the furnace and having its front portion above the fire-box, a flue passing beneath the oven and upwardly at the rear end of the oven, a chamber above the roof of the oven, with which the upwardly-extending rear flue communicates, dividing the said chamber above the oven into three compartments, namely a flue extending lengthwise of the furnace on each side of the partition, and a central compartment located between the fork-arms of the partition and above the front part of the oven, said central compartment being connected with the said flues at their forward extremities, and an outlet-flue communicating with the central compartment.

2. In a bake-furnace, the combination of a fire-box, an oven extending lengthwise of the furnace and having its front portion above the fire-box, a divided flue passing beneath the oven and upwardly at the rear end of the oven, a chamber above the roof of the oven, a partition dividing said chamber into two side flues communicating respectively with the flues leading from the fire-box, the said partition being forked above the front portion of the oven and inclosing a central space communicating with the forward extremities of the side flues, and an outlet-flue communicating with the said central compartment.

3. In a bake-furnace, the combination with the outer walls of the furnace and a fire-box, of a metal oven extending lengthwise of the furnace and having its front portion above the fire-box, a flue passing beneath the oven and upwardly at the rear end of the oven, a chamber above the roof of the oven with which the upwardly-extending rear flue communicates, a forked partition dividing the said chamber above the oven into three compartments, namely the flue extending lengthwise of the furnace on each side of the partition, and a central compartment located between the fork-arms of the partition and above the front part of the oven, the said central compartment communicating with the said flues at their forward extremities, and an outlet-flue communicating with the said central compartment.

659,176. COTTON-HARVESTING MACHINE. DON D. MILES, Aurora, Ill., assignor to Nathaniel Bowditch, same place. Filed Mar. 16, 1900. Serial No. 8,921. (No model.)



Claim.—1. A cotton-harvesting machine, comprising a supporting-wheel, a series of pickers, one or more movable parts to which said pickers are attached, said part or parts mounted in suitable guideways on said supporting-wheel so that they may be moved in a direction substantially parallel to the axis of said supporting-wheel laterally, and means for moving said parts along said guideways, so as to vary the position of the pickers with relation to the material acted upon.

2. A cotton-harvesting machine, comprising a supporting-wheel upon which the machine is supported, one or more movable parts, a series of pickers attached to each of said parts, said parts movably mounted on the supporting-wheel and supported at their ends, and means for moving said parts bodily along their supports, so as to vary the position of the pickers with relation to the material acted upon.

3. A cotton-harvesting machine, comprising a series of movable parts, a series of pickers attached to each of said parts, means for moving said parts bodily so as to vary the position of the pickers with relation to the material acted upon, and a spiral guide associated with each picker, through which the part of the picker which engages the cotton extends.

4. A cotton-harvesting machine, comprising a series of movable parts, a series of pickers rotatably attached to each movable part, means for moving said movable parts bodily so as to reciprocate the pickers, and a spiral guide engaging the part of each picker which engages the cotton so as to rotate the same when the picker is reciprocated.

5. A cotton-harvesting machine, comprising a supporting-wheel upon which the machine is supported, a series of movable parts mounted upon said wheel, each having one or more pickers connected thereto, a cam device associated with said movable parts and adapted to vary their position when the wheel is rotated.

6. A wheel for cotton-harvesting machines, comprising a series of parts rotating with and movable with relation to the web of said wheel,

one or more pickers connected with each of said movable parts and rotatably attached thereto, a spiral guide associated with each picker, and means for moving said movable parts in a direction substantially parallel to the axis of the wheel.

7. A wheel for cotton-harvesting machines, comprising a series of parts movable in a direction substantially parallel to the axis of said wheel, one or more pickers connected with each of said movable parts and rotatably attached thereto, a spiral guide associated with each picker, a cam associated with said movable parts, so that when the cam and parts are moved relatively said parts will be moved in a direction substantially parallel to the axis of the wheel and the cotton on the pickers brought into contact with the face of the wheel so that the pickers are withdrawn therefrom.

8. A supporting-wheel for cotton-harvesting machines, comprising a series of parts rotating with and movable in a direction substantially parallel to the axis of said wheel, one or more pickers rotatably connected with each of said parts, two cams engaging said parts at different points, said cams producing a bodily movement of said parts when the wheel is rotated.

9. A wheel for cotton-harvesting machines, comprising a series of parts movable in a direction substantially parallel to the axis of said wheel, one or more pickers rotatably connected with each of said parts, a spiral guide engaging each of said pickers, two cams between which said movable parts are located, said cams engaging the movable parts so as to move them in a direction substantially parallel to the axis of said wheel when the wheel is rotated and bring the cotton on the pickers into contact with the face of the wheel so that the pickers are withdrawn therefrom.

10. A wheel for cotton-harvesting machines, comprising a series of parts movable in a direction substantially parallel to the axis of said wheel, two cams inclined with relation to the axis of said wheel and engaging said parts at different points, one or more pickers mounted upon each of said parts.

11. A wheel for cotton-harvesting machines, comprising a series of parts movable in a direction substantially parallel to the axis of said wheel, two cams inclined with relation to the axis of said wheel and engaging said parts at different points, one or more pickers rotatably mounted upon each of said parts, and a spiral guide engaging each of said pickers.

12. A wheel for cotton-harvesting machines, comprising a series of movable parts, a series of guideways at the rim of the wheel and near the hub thereof extending substantially parallel to the axis of the wheel, projecting parts associated with said movable parts and engaging said guideways, one or more pickers connected with said movable parts, and means for moving said parts in the guideways of the wheel.

13. A wheel for cotton-harvesting machines, comprising a series of parts movable in a direction substantially parallel to the axis of said wheel, two sets of guideways associated with said wheel and between which said parts are interposed, two fixed cams engaging each of said movable parts at different points, and one or more pickers connected with each of said movable parts.

14. A wheel for cotton-harvesting machines, comprising a web and a projecting rim, a series of guideways associated with the rim of said wheel, a second series of guideways separated from the rim by an intervening space, a series of parts movable in a direction substantially parallel to the axis of said wheel interposed between the two sets of guideways and provided with parts coöperating with said guideways, and means for moving said parts in a direction substantially parallel to the axis of said wheel when the wheel is rotated.

15. A cotton-harvesting machine, comprising a wheel provided with a web and a projecting rim, an axle upon which said wheel is rotatably mounted, two cams inclined with relation to the axis of said wheel and separated by an intervening space, said cams attached to said axle, a series of bars between said cams and provided with parts which coöperate therewith, one or more spiral pickers rotatably mounted upon each of said bars, a spiral guide associated with each of said pickers, said guides connected with the web of the wheel.

16. A cotton-harvesting machine, comprising a wheel provided with a projecting rim, a series of guideways associated with said rim, a cylindrical part smaller in diameter than the wheel and connected therewith, said part provided with a series of slots which correspond to the guideways in the rim, a series of parts movable in a direction substantially parallel to the axis of said wheel provided with engaging devices which coöperate with the guideways in the rim and the slots in the cylindrical part, and means for moving said parts in a direction substantially parallel to the axis of said wheel when the wheel is rotated.

17. A cotton-harvesting machine, comprising two supporting-wheels in proximity to each other, a series of spiral guides, a series of pickers adapted to be projected through said spiral guides from the opposed sides of the wheels so as to engage the cotton-plant, and a comb or removing device interposed between the wheels and adapted, when the wheels are rotated, to engage the cotton that may adhere to the wheels and remove it therefrom.

18. A cotton-harvesting machine, comprising two wheels in proximity to each other, a series of spiral guides, a series of pickers adapted to be projected through said spiral guides from the opposed sides of the wheels so as to engage the cotton-plant, a conveying device for handling the cotton after it is picked, and a comb associated with said conveying device and adapted, when the wheels are rotated, to engage the cotton adhering thereto and remove it therefrom.

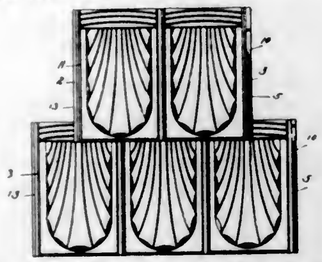
19. A cotton-harvesting machine, comprising two wheels rotatably mounted upon a suitable axle and provided with cotton-picking devices projected through spiral guides, a conveying device for engaging the cotton after it is picked and moving it to a predetermined point, a supporting device mounted upon said axle for supporting said conveying device, a sleeve rigidly connected with one of said wheels and provided with a sprocket-wheel, a collar on said supporting device, through which said sleeve loosely passes, and a flexible belt connected with said sprocket-wheel and with the mechanism of the conveying device, substantially as described.

20. A cotton-harvesting machine, comprising two wheels movably mounted upon a suitable axle, a series of bars movable in a direction substantially parallel to the axis of said wheels associated with each wheel, one or more spiral pickers rotatably mounted upon each of said bars, a spiral guide associated with each of said pickers, the opposed faces of the two wheels being provided with a series of openings through which the pickers are projected into the space between the wheels, one or more cams associated with each wheel and adapted to engage said bars so as to move them and vary the length of the pickers projecting from the opposed faces of the wheels, a comb or removing device between the wheels adapted to engage the cotton adhering to the wheels and a conveying device associated with said comb, which receives the cotton and carries it to a predetermined point.

21. A cotton-harvesting machine, comprising two wheels in proximity to each other, a series of guides connected thereto, a series of pickers adapted to be projected through said guides from opposed sides of the wheels, so as to engage the cotton-plants, a conveying device for conveying the picked cotton to a given point so that it may be removed from the machine, an adjustable comb associated with said conveying device and a movable part adapted to be varied in position with relation thereto, said comb adapted, when the wheels are rotated, to engage the cotton adhering to said wheels and remove it therefrom.

22. A wheel for cotton-harvesting machines, comprising a wheel proper, and a series of guides associated therewith, a series of cotton-pickers adapted to be reciprocated in said guides, a series of bars, each having one or more pickers connected therewith, a part fixed against rotation in a plane at an angle to the plane of the wheel proper, said bars engaging said part, but movably connected therewith so that they may be rotated with relation thereto.

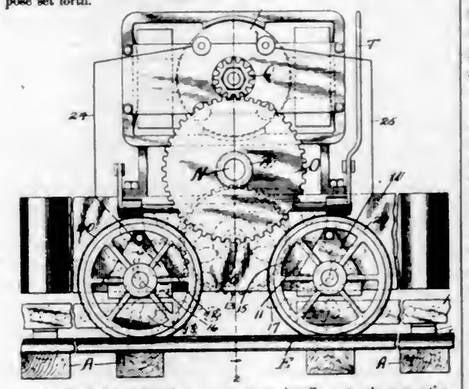
659,177. METALLIC SHINGLE. HENRY E. MOOMAW, Salem, Va., assignor to J. E. Annis, Chattanooga, Tenn. Filed July 26, 1900. Serial No. 24,855. (No model.)



Claim.—A sheet-metal shingle raised and folded near one longitudinal edge to form the longitudinal folded sealing-flange 5, inclining downward toward the adjacent edge of the sheet, and having another raised portion between said sealing-flange and the adjacent edge of the sheet, this raised portion constituting a longitudinal stop-wall 8 and a longitudinal cam-surface 9, and having near its opposite edge a raised portion forming a longitudinal stop-wall 12 and a cam portion 11 and at its extreme edge an upward and outward inclined sealing-flange 13, said sealing-flanges and cam-surfaces all having similar angles, as and for the purpose set forth.

659,178. ELECTRIC-RAILWAY SYSTEM. EDMUND C. MORGAN, Chicago, Ill., assignor to the Morgan Electric Machine Company, same place. Filed Jan. 2, 1900. Renewed Sept. 10, 1900. Serial No. 29,474. (No model.)

Claim.—1. In an electric-railway system, track-rails, a truck, supporting-wheels therefor arranged to operate on said rails, a traction-rack arranged parallel with said track-rails, supporting-stringers for said rack, said rack arranged between said stringers and intermediate the edges thereof, a propelling-gear mounted on said truck, and arranged to enter the space between said stringers to engage said rack and the motor carried by said truck for operating said propelling-gear, as and for the purpose set forth.



2. In an electric-railway system, track-rails, a truck, supporting-wheels therefor arranged to operate on said track-rails, a traction-rack arranged parallel with respect to said track-rails, supporting-stringers for said rack, said rack arranged between said stringers and intermediate the edges thereof, a propelling-gear mounted on said truck for lateral movement with respect thereto and arranged to enter the space between said stringers to engage said rack, and a motor carried by said truck for operating said gear, as and for the purpose set forth.

3. In an electric-railway system, track-rails, a truck, supporting-wheels therefor arranged to operate on said track-rails, a traction-rack, a propelling-gear mounted on said truck for lateral movement with respect to said truck and arranged to engage said rack and a motor carried by said truck, and arranged to operate said gear, as and for the purpose set forth.

4. In an electric-railway system, track-rails, a truck, supporting-wheels therefor arranged to operate on said track, a traction-rack arranged parallel with respect to said rails, a propelling-gear carried by said truck and arranged to engage said rack, said gear mounted for lateral movement with respect to said truck, and means for yieldingly holding said gear in central relation with respect to said rack in combination with a motor carried by said truck for operating said gear, as and for the purpose set forth.

5. In an electric-railway system, track-rails, a truck, supporting-wheels therefor operating on said rails, a traction-rack arranged in parallel relation to said rails, supporting-stringers for said rack, said rack arranged between said stringers and intermediate the edged thereof, a propelling-gear mounted on said truck and arranged to enter the space between said stringers to engage said rack, said gear mounted for lateral movement with respect to said truck, means for yieldingly holding said gear in centered relation with respect to said rack in combination with a motor carried by said truck for operating said gear, as and for the purpose set forth.

6. In an electric-railway system, track-rails, a truck supported thereon, a traction-rack, a propelling-gear carried by said truck and arranged to engage said rack, springs arranged to engage said gear to yieldingly hold the same in centered relation with respect to said rack, and a motor carried by said truck for operating said gear, as and for the purpose set forth.

7. In an electric-railway system, a truck, track-rails upon which said truck is supported, a traction-rack, a fixed shaft mounted on said truck, a propelling-gear loosely sleeved upon said shaft, a motor carried by said truck and gearing intermediate said motor and propelling-gear for actuating the latter, as and for the purpose set forth.

8. In an electric-railway system, a truck, track-rails, upon which said truck is supported, brackets or castings mounted on said truck, a shaft stationarily supported by said brackets or castings, a propelling-gear loosely sleeved upon said shaft, an intermediate shaft also mounted in said brackets or castings, a driving-gear mounted thereon, and arranged to engage and drive said propelling-gear, a motor carried by the truck and arranged to drive said driving-gear in combination with a traction-rack arranged to be engaged by said propelling-gear, as and for the purpose set forth.

9. In an electric-railway system, a truck, track-rails upon which said truck is supported, and a traction-rack in combination with a propelling-gear carried by said truck and arranged to engage said rack, a drive-shaft for said propelling-gear, drive-gears of different sizes loosely mounted on said drive-shaft, a motor having gears of corresponding difference in size arranged to engage and actuate said drive-gears, a friction-gearing arranged to be alternately shifted to engage and disengage said driving-gears from said drive-shaft, as and for the purpose set forth.

10. In an electric-railway system, a truck, track-rails upon which said truck is supported and a traction-rack in combination with propelling-gears mounted on said truck at the respective ends thereof and arranged to engage said rack, in combination with a motor carried by said truck, and gearing actuated by said motor for synchronously operating said propelling-gears, as and for the purpose set forth.

11. In an electric-railway system, a truck, track-rails upon which said truck is supported, and a traction-rack in combination with a fixed shaft mounted at each end of said truck, a propelling-gear loosely sleeved upon each fixed shaft, a motor carried by said truck and gearing intermediate said motor and propelling-gears for actuating the latter, as and for the purpose set forth.

12. In an electric-railway system, a combined traction and third rail comprising stringers having seats or grooves in the juxtaposited faces thereof, and intermediate their edges, plates arranged in said grooves or seats, and bolts passing through said plates to form rack-teeth, as and for the purpose set forth.

659,179. COMBINED THIRD AND TRACTION RAIL FOR ELECTRIC RAILWAYS. EDMUND C. MORGAN, Chicago, Ill., assignor to the Morgan Electric Machine Company, same place. Filed Jan. 2, 1900. Renewed Sept. 10, 1900. Serial No. 29,475. (No model.)



Claim.—1. A combined third and traction rail for electric railways comprising plates having openings formed therethrough to receive the cogs of the traction gear or wheel, and tongues formed at the ends of said openings to form a bearing for said cogs, as and for the purpose set forth.

2. A combined third and traction rail for electric railways comprising plates superposed upon each other, and having registering openings formed therethrough, as and for the purpose set forth.

3. A combined third and traction rail for electric railways comprising plates superposed upon each other having registering openings formed therethrough and engaging tongues at the ends of said openings, as and for the purpose set forth.

4. A combined third and traction rail for electric railways adapted to be engaged by the gear in combination with a support for said rail, said support comprising stringers arranged to receive said rail between the adjacent faces thereof, thereby inclosing said rail, as and for the purpose set forth.

5. A combined third and traction rail for electric railways comprising plates having openings therethrough in combination with an insulating-support for said rail, said support including stringers arranged to receive the edges of said plates therebetween, said stringers being suitably spaced apart, as and for the purpose set forth.

6. A combined third and traction rail for electric railways comprising plates having openings formed therethrough in combination with a support for such rail including stringers placed above and below said rail whereby said rail is inclosed, as and for the purpose set forth.

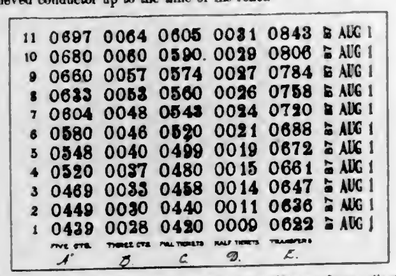
7. A combined third and traction rail for electric railways comprising plates having openings therethrough in combination with a support for such rail including stringers arranged above and below such rail to receive the edges thereof therebetween the meeting surfaces of said stringers being recessed or grooved to form a seat to receive the edges of said rail, as and for the purpose set forth.

8. A combined third and traction rail for electric railways comprising plates superposed upon each other, and having registering openings formed therethrough, the one layer of said plates breaking joints with the other layer, as and for the purpose set forth.

9. The combination with a third or traction rail, a support therefor, transverse sleepers suitably spaced upon which said support rests, longitudinally-arranged stringers for supporting said sleepers, and cross-ties for supporting said stringers, as and for the purpose set forth.

659,180. MEANS FOR CHECKING COLLECTORS IN PUBLIC CONVEYANCES, &c. JOHN F. OHMER, Dayton, Ohio. Filed Dec. 9, 1899. Serial No. 739,768. (No model.)

Claim.—1. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered, at the time of relief of each conductor in combination with a form to be used when one conductor is relieved from his charge by another, whereby a receipt can be given to the conductor so relieved, said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief.



2. In a system for keeping account of the different fares collected in street-cars, an impression or print taken from the register comprising a statement showing in classified arrangement the different fares registered by the trip or for any number of trips combined in combination with a form to be used when one conductor is relieved by another, whereby a receipt can be given to the conductor so relieved, said form showing the particular trip or group of trips made, by the relieved conductor, up to the time of his relief.

3. In a system for keeping account of the fares collected by conductors in public conveyances, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a statement showing a classification of the different fares registered at the time of relief of each conductor in combination with a printed or written form whereby a receipt can be given to the conductor relieved from his charge, said receipt showing the number of trips made by the relieved conductor and also showing the number of passengers carried.

4. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered at the time of relief of each conductor in combination with a form to be used when one conductor is relieved from his charge by another, whereby a receipt can be given to the conductor so relieved said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief, and a printed or written form constituting a receipt to the conductor for cash fares and other classifications of fares reported by the conductor.

5. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered at the time of relief of each conductor in combination with a form to be used when one conductor is relieved from his charge by another, whereby a receipt can be given to the conductor so relieved said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief, and a printed form upon which can be noted the fares as recorded by the register when the car is taken out and returned, and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register.

6. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered at the time of relief of each conductor in combination with a form to be used when one conductor is relieved from his charge by another, whereby a receipt can be given to the conductor so relieved said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief, a printed form comprising a daily report showing the fares as recorded by the register when the car is taken out and returned, and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register, and a printed form comprising a monthly statement taken from said daily report.

7. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered at the time of relief of each conductor the combination with a form to be used when one conductor is relived from his charge by another, whereby a receipt can be given to the conductor so relieved said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief, a printed form comprising a daily report showing the fares as recorded by the register statement when the car is taken out and returned, and any discrepancies appearing between the fares as reported by the conductor and those appearing in the impressed statement of the register; a printed form comprising a monthly report of the totals of said daily report; and another printed form comprising an annual report of the totals of the monthly report.

8. In a system for keeping account of the different fares collected in street-cars, an impression or print taken from the register comprising a statement showing in classified arrangement the different fares registered by the trip or for any number of trips combined, in combination with a form to be used when one conductor is relieved by another, whereby a receipt can be given to the conductor so relieved, said form showing the particular trip or group of trips made by the relieved conductor up to the time of his relief, and a printed form showing the fares as recorded by the register when the car is taken out and returned, and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register.

9. In a system for keeping account of the different fares collected in street-cars, an impression or print taken from the register comprising a statement showing in classified arrangement the different fares registered by the trip or for any number of trips combined, in combination with a form to be used when one conductor is relieved by another, whereby a receipt can be given to the conductor so relieved, said form showing the particular trip or group of trips made by the relieved conductor up to the time of his relief, a printed form comprising a daily report showing the fares as recorded by the register when the car is taken out and returned, and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register, and a printed form comprising a monthly report taken from the said daily report.

10. In a system for keeping account of the different fares collected in street-cars, an impression or print taken from the register comprising a statement showing in classified arrangement the different fares registered by the trip or for any number of trips combined, in combination with a form to be used when one conductor is relieved by another, whereby a receipt can be given to the conductor so relieved, said form showing the particular trip or group of trips made by the relieved conductor up to the time of his relief, a printed form comprising a daily report showing the fares as recorded by the register statement when the car is taken out, and returned, and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register, a printed form comprising a monthly report of the totals of said daily report, and another printed form comprising an annual report of the totals of said monthly report.

11. In a system for keeping account of fares collected in street-cars and of the character of the service, an impression or print taken from the register comprising a statement showing in classified arrangement the different fares registered by the trip or for any number of trips combined in combination with a form whereby a receipt can be given to the conductor relieved from his charge, said receipt showing the particular trip or group of trips made by the relieved conductor, and also showing the number of passengers carried; and a printed form showing the fares as recorded by the register when the car is taken out and returned and any discrepancies occurring between the fares as reported by the conductor and those appearing in the impressed statement of the register.

12. In a system for keeping account of fares collected by conductors in street-cars, and the like, an impression or print taken from the register comprising a statement showing a classified arrangement of the fares registered by the trip in combination with a form to be used when one conductor is relieved by another conductor, said form showing the number of the trip at which the first conductor is relieved and the next conductor begins, and the number of the trip upon which the second conductor is relieved.

13. In a system for keeping account of fares collected by conductors in street-cars, and the like, an impression or print taken from the register comprising a statement showing a classified arrangement of the fares registered by the trip in combination with a form to be used when one conductor is relieved by another conductor, said form showing the number of passengers carried by the first conductor up to the time of his relief.

14. In a system for keeping account of the fares collected by conductors in street-cars, a sheet provided with data recorded from time to time including a distinct impression or print taken from the register, said impression or print comprising a classified arrangement of fares registered

at the time of relief of each conductor in combination with a form to be used when one conductor is relieved from his charge by another, whereby a receipt can be given to the conductor so relieved said form showing the number of passengers carried or total registrations made by the relieved conductor up to the time of his relief, and a form upon which is noted the number of trips made and the number of passengers carried.

659,181. BOOT-TREE. HENRY B. PELTON, Mishawaka, Ind. Filed July 18, 1900. Serial No. 24,085. (No model.)



Claim.—1. In a collapsible tree, the combination of the front and rear leg portions, the upper portion, and the sole portion hinged at its heel end to the rear leg portion and having a sliding connection at its toe end with the upper, for the purpose and substantially as described.

2. In a collapsible tree, the combination of the front and rear leg portions, the upper portion hinged to the front and rear leg portions, and the sole portion hinged at its heel end to the rear leg portion and having a loop on its toe end, and a pin on the upper portion of the tree engaging said loop, for the purpose and substantially as described.

3. The combination in a collapsible tree, of the front and rear leg portions, the upper portion pivoted to the front leg portion and having an extension by which it is also pivoted to the rear leg portion, the sole portion hinged at its heel end to the rear leg portion and having a loop on its toe end loosely engaging in a slot in the said upper portion, substantially as described.

4. The combination in a collapsible tree, of the front and rear leg portions, the upper portion pivoted to the front leg portion and having an extension by which it is also pivoted to the rear leg portion, the sole portion hinged at its heel end to the rear leg portion and having a loop on its toe end, and a pin on the upper portion engaging said loop, said loop being adapted to play through a slot in said upper portion, and a latch pivoted to the sole portion near the heel end thereof and adapted to engage an abutment on the upper portion to lock the tree in extended position, substantially as described.

5. The combination in a collapsible tree of the front and rear leg portions, the upper portion pivoted to the front leg portion and having an extension by which it is also pivoted to the rear leg portion and the sole portion hinged at its heel end to the rear leg portion and having a loop on its toe end adapted to play through a slot in the said upper portion; with a latch adapted to lock the tree in extended position, and a link pivoted to one leg portion and adapted to engage the other to expand the leg for the purpose and substantially as described.

6. The combination in a collapsible tree of the front and rear leg portions, the upper portion pivoted to the front leg portion and having an extension by which it is also pivoted to the rear leg portion, the sole portion hinged at its heel end to the rear leg portion and having a loop on its toe end, and a pin on the upper portion engaging said loop, the loop being adapted to play through a slot in the said upper portion, and a latch pivoted to the sole portion near the heel end thereof adapted to engage an abutment on the upper portion to lock the boot in extended position, and a link pivoted to one leg portion and adapted to engage the other leg portion, for the purpose and substantially as described.

659,182. RETRACTOR. CHARLES J. PILLING, Philadelphia, Pa., assignor to himself and George P. Pilling, same place. Filed May 21, 1900. Serial No. 17,443. (No model.)

Claim.—1. In surgical instruments of the class described, an integral structure consisting of the blade A with the handle B substantially at right angles thereto, the latter having an outwardly-projecting curved end *m*, said members being formed with a continuously-concave outer face extending in unbroken continuity from end to end of the instrument, and forming a drainage-gutter *h*; substantially as described.

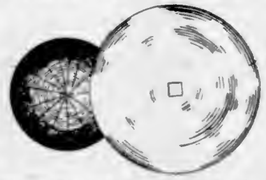
2. In surgical instruments of the class described, an integral blade and handle, having a continuously-concave face, and at or near the longitudinal center of the handle a thumb-rest *f* formed by a widening of the concavity of the handle; substantially as described.



3. In surgical instruments of the class described, an integral blade and handle, having a continuously-concave face, the extreme end of the handle having an outwardly-curved end *m*, and at or near the longitudinal center of the handle a thumb-rest *f* formed by a widening of the concavity of the handle; substantially as described.

659,183. WITHDRAWN

659,184. PROCESS OF MAKING WOOD-PULP. ARTHUR D. SCHAEFFER, Hartford City, Ind., assignor to Pierce M. Schaeffer, same place. Filed Aug. 3, 1900. Serial No. 25,743. (No specimens.)



Claim.—That process of making wood-pulp which consists in subjecting the piece of wood to chemical treatment until the outer portion thereof is in the desired condition, while the inner portion remains substantially unchanged, and then subjecting the log so treated to the ordinary grinding process, substantially as and for the purpose set forth.

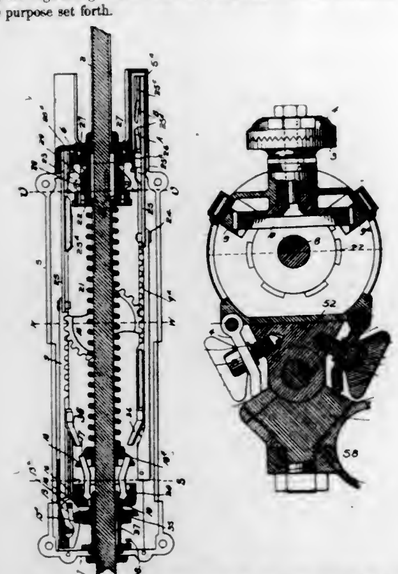
659,185. ROCK-DRILL. ABRAHAM M. SOUTHARD, Denver, Colo., assignor to Charles W. Pratt, same place. Filed Apr. 22, 1898. Serial No. 678,483. (No model.)

Claim.—1. In a rock-drill, the combination with the reciprocating shaft and power-spring, of a clamp comprising a collar surrounding the shaft, shoes located in the collar and engaging the shaft, gripping-levers engaging the shoes, and another collar engaging the levers and against which the power-spring presses, normally causing the lever to grip the shoes whereby the latter are made to grip the drill-shaft.

2. In a rock-drill, the combination with the reciprocating shaft and the power-spring surrounding the shaft, of a collar surrounding the shaft, shoes located in the collar and engaging the shaft, gripping-levers engaging the shoes, another collar engaging the levers and against which the power-spring presses, normally causing the levers to grip the shoes, a clamp-releasing mechanism comprising two connected jaws one being pivoted on the casing, and the other being adapted to slide on the pivoted jaw, and a lever having an arm passing through slots formed in the two jaws, one slot having an angular and a straight portion, and the other slot being shorter, whereby as the lever-arm moves through the angular portion of the one slot, the two jaws are forced inwardly to engage the two collars, after which the lever-arm forces the jaw containing the short slot rearwardly thrusting the collar against the spring, thereby releasing the shaft from the action of the gripping-levers.

3. In a rock-drill, the combination with the drill-shaft and the power-spring surrounding the shaft, of two separated collars surrounding the shaft, one collar being engaged by the power-spring, gripping-levers connecting the two collars, and releasing mechanism comprising two jaws 41 and 42 adapted to hold one collar, while the other is forced rearwardly against the spring and the gripping-levers released, the two jaws being connected

by a bolt passing through a slot in the jaw 41 and fitting an opening in the jaw 42, whereby the one jaw is adapted to slide on the other, the jaw 41 being pivoted on the casing and provided with a slot composed of an angular and a straight portion, the jaw 42 being provided with a shorter slot registering with the slot in the jaw 41, a lever having an arm entering the registering slots of the two jaws, whereby they are actuated for the purpose set forth.



4. In a rock-drill, the combination of the reciprocating shaft and the power-spring surrounding the shaft, of a tension-collar surrounding the shaft and engaging the power-spring, a sleeve connected with the collar, the latter being adapted to turn on the sleeve, a dog fulcrumed on the sleeve and having one extremity projecting into a cam-slot formed in the collar, and a toothed shank splined on the shaft and which the opposite extremity of the dog is adapted to engage.

5. In a rock-drill, the combination of the reciprocating shaft and the power-spring surrounding the shaft, of a tension-collar surrounding the shaft and engaging the power-spring, a sleeve connected with the collar, the latter being adapted to turn on the sleeve, a dog fulcrumed on the sleeve and having one extremity projecting into a cam-slot formed in the collar, and a toothed shank splined on the shaft and which the opposite extremity of the dog is adapted to engage, the sleeve being connected with the shank by a screw passing through the sleeve and engaging a longitudinal groove formed in the shank.

6. The combination with the drill-casing provided with a lug, of a supporting-lug with which the casing-lug is pivotally connected, a plate hinged to the casing and adapted to engage the supporting-lug, and a set-bolt journaled in the plate and adapted to engage a threaded opening in the casing-lug, for the purpose set forth.

7. The combination with the drill-casing provided with a projection, of supporting means upon which the casing projection is pivotally mounted, a plate hinged to each side of the casing and adapted to engage the supporting means, and a set-bolt journaled in each plate in such a manner as to turn freely; but having no longitudinal movement, said bolt being adapted to engage a threaded opening formed in the casing projection.

659,186. NON-REFILLABLE BOTTLE. FRANCIS J. STALLINGS, Effingham, Ill. Filed July 15, 1899. Serial No. 723,911. (No model.)

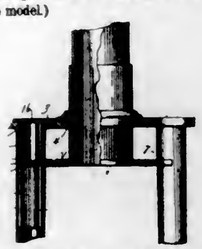
Claim.—1. The combination with a separable cork having an annular ring therein and a stud or pin projecting beyond the surface for engagement with a corresponding hole or depression in the neck of the bottle, of a lower section fitted therein and containing a valve in its hollow interior, said valve consisting of a large hollow V-shaped upper head and a smaller lower head connected by a stem.

2. A bottle-stopper consisting of an upper and lower section adapted to be forced into the neck of a bottle after the manner of an ordinary cork, said stopper having locking means for preventing its removal from the bottle-neck, said locking means consisting of an annular ring, a groove in the neck of the bottle, into which said ring fits, studs, and depressions in the neck of the bottle into which the studs are forced, a valve consisting of a large, hollow V-shaped head and a smaller head connected by means of a stem and operating in the hollow interiors of the two sections and constructed to allow the contents of the bottle to escape therefrom, but to prevent refilling the bottle.



3. In a non-refillable bottle, the neck of which is provided with holes or depressions and an annular groove, the combination of a separable cork, one part of which is provided with screw-heads and having spring-extended pins or studs on the outer surface thereof, and an annular ring contained in an annular groove, of a valve located in the hollow interior of the cork, said valve composed of enlarged heads and a connecting-neck, and a funnel-shaped seat into which the correspondingly-shaped upper head of the valve fits when not in use, to prevent refilling, and grooves in the upper section to permit the liquid to escape into the upper section and through the aperture of the cork.

659,187. BICYCLE FORK-CROWN. HENRY L. F. TREBERT, Syracuse, N. Y., assignor to E. C. Stearns. Filed July 16, 1900. Serial No. 23,853. (No model.)



Claim.—1. In combination in a bicycle fork-crown, the steering-post, an exterior reinforcing-piece fitted to the lower end thereof, a crown-plate fitted thereto and perforated at its ends to receive the fork sides, the fork sides slotted on their inner faces, a locking-plate fitted to said slots and to the lower ends of the post and locking-pieces fitted within the fork sides and engaging with the ends of said locking-plates.

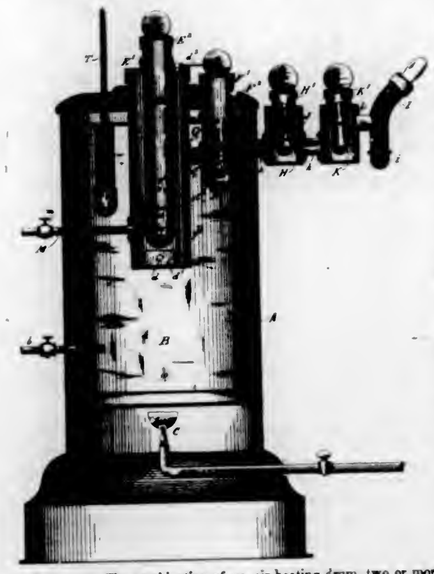
2. In combination in a bicycle fork-crown, the steering-post, a tubular exterior reinforcing-piece fitted to the lower end thereof, a crown-plate centrally perforated to fit over the reinforcing-piece, and perforated at the ends to receive the fork sides, the fork sides slotted on their inner faces, a locking-plate having lips fitted to said slots and formed with inclined slots between the lips and the main portion of the locking-plate, tips on the ends of said lips, locking-pieces fitting within the upper end of the fork sides and formed with slots on their outer faces to receive said locking-plate tips.

3. In combination in a bicycle fork-crown, the steering-post, a tubular exterior reinforcing-piece fitted to the lower end thereof, a crown-plate centrally perforated to fit over the reinforcing-piece, and perforated at its ends to receive the fork sides, the fork sides slotted on their inner faces, a locking-plate having lips fitted to said slots and formed with inclined slots between each lip and the main portion of the locking-plate, tips on the ends of said lips, locking-pieces fitting within the upper end of the fork sides and formed with slots on their inner faces having edges to fit said locking-plate slots and with slots on their outer faces to receive said locking-tips, and a finishing-plate having an integral cone to surround the steering-post and with a marginal flange to cover the top plate.

4. In combination in a bicycle fork-crown, the steering-post, a crown-plate fitted to the lower end thereof and fitted to receive at its ends the upper ends of the fork sides, the fork sides fitted thereto and slotted on their inner faces, a locking-plate arranged below and parallel to the crown-plate, fitting the lower end of the steering-post and having ends fitted to the slots in the fork sides.

5. In combination in a bicycle fork-crown, the steering-post, a tubular reinforcing-piece fitted outside its lower end and having a beveled upper end, a crown-plate centrally perforated snugly to fit said reinforcing-piece and perforated at its ends to receive the fork sides, the fork sides having their upper ends fitting said perforations and slotted on their inner faces substantially on a plane with the lower end of the steering-post, a locking-plate substantially perforated to fit the lower end of the reinforcing-piece around the steering-post and having lips on its ends fitted to said slots in the inner faces of the fork sides, said ends being formed with inclined slots between the lip on each side and the main portion of the locking-plate, tips on the ends of said lips, locking-pieces fitting within the upper end of the fork sides formed with slots on their inner faces, the edges thereof being adapted to fit the locking-plate slots and with slots on the lower portion of their outer faces fitting said locking-plates, tips, tubes, and a finishing-plate formed with an integral cone surrounding the steering-post and reinforcing-piece and with a downwardly-depending marginal flange to cover the top plate.

659,188. INHALER. GEORGE B. UNDERWOOD, New York, N. Y. Filed Dec. 3, 1896. Serial No. 614,351. (No model.)



Claim.—1. The combination of an air-heating drum, two or more receptacles arranged in series so as to be of different temperatures, and means for drawing air from the drum through said receptacles successively, with means for regulating the admission of hot air into the first receptacle; and means for admitting cool air or gases into said receptacle to reduce the temperature therein, for the purpose and substantially as described.

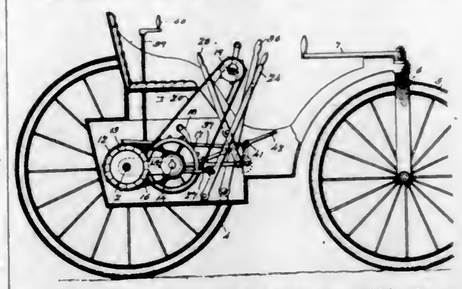
2. The combination of an air-heater, a plurality of cylinders suspended therein and communicating with each other, and arranged to be of different temperatures, and means for drawing hot air successively through said cylinder; with removable medicine-receptacles in said cylinder provided with outlets for the vaporized medicines, substantially as and for the purpose described.

3. The combination of an air-heater, two or more cylinders heated thereby to different temperatures and communicating with each other; means for admitting air from the heater into one cylinder and for withdrawing it from the other cylinder, and means for introducing volatilizable drugs into said cylinders, and a pipe for admitting cool air or gases into the first cylinder, for the purpose and substantially as described.

4. The combination of an air-heater, a plurality of cylinders suspended therein and communicating with each other, and arranged to be of different temperatures, a cylinder exterior to the heater, communicating with said inner cylinders, and means for conducting air successively through the cylinders and from the outer cylinder to the patient; with medicine-receptacles in the cylinders provided with outlets for the escape of the volatilized medicines, all substantially as and for the purpose described.

5. The herein-described apparatus for administering medicines by inhalation, comprising an air-heater, a pair of cylinders of different sizes suspended therein, and arranged to be of different temperatures, the largest of said cylinders communicating with the interior of the heater and also with the smallest cylinder; a pair of communicating cylinders exterior to the heater communicating with each other and the smaller inner cylinder, and an inhaler-tube connected to the outermost one of the said outer cylinders, with removable receptacles in said cylinders, adapted to receive volatilizable medicines substantially as and for the purpose set forth.

659,189. SPRING-MOTOR VEHICLE. WILHELM WEINER, Wymore, Nebr., assignor of one-half to Henry Schmitz, same place. Filed Jan. 24, 1900. Serial No. 2,672. (No model.)



Claim.—1. The combination, in a spring-motor vehicle, of a traction-wheel loose on its shaft, and connected thereto by pawl-and-ratchet mechanisms (or equivalent devices) a clutch, loose on said shaft, and adapted to engage and rotate with said traction-wheel, a spring-motor, a shaft for winding the spring thereof, connections between the revoluble clutch and said shaft to communicate rotary motion from the traction-wheel to said shaft, pawl-and-ratchet mechanism for the latter, to prevent retrograde rotation thereof, a spring-actuated wheel connected to the springs, (one or more) on the winding-shaft, and adapted to be rotated by the reaction of said spring, a detent for said spring-actuated wheel, and connections between the latter and the shaft of the traction-wheel, substantially as described.

2. The combination, in a spring-motor vehicle, of a traction-wheel, loose on its shaft and connected thereto by pawl-and-ratchet mechanism (or equivalent devices), a sleeve or tubular shaft loose on said shaft, and connected thereto by pawl-and-ratchet mechanisms (or equivalent devices), springs (one or more), having one end fast to said tubular shaft, a loose winding-wheel on said sleeve, and to which the outer ends of said springs are connected, and a device to permit or prevent rotation of said winding-wheel, substantially as described.

3. The combination, in a spring-motor vehicle, of an axle-shaft, a traction-wheel loose thereon, pawl-and-ratchet connections between said wheel and shaft, a clutch loose on said shaft, to engage and rotate with said traction-wheel, a spring-shaft, connections between the revoluble clutch and said spring-shaft, to communicate rotary motion from the traction-wheel to said spring-shaft, pawl-and-ratchet mechanism to prevent retrograde rotation of said spring-shaft, a spring-actuated wheel on said spring-shaft, a detent for said spring-wheel, and connections between the latter and the axle-shaft; with the tubular shaft on said axle-shaft, and connected thereto by pawl-and-ratchet mechanism, a detent to lock said tubular shaft against rotation, springs, (one or more) fast at one end to said tubular shaft, a wheel loose on said tubular shaft and to which said springs are attached, and means to rotate or lock said spring-wheel, all arranged and combined to operate, substantially as described.

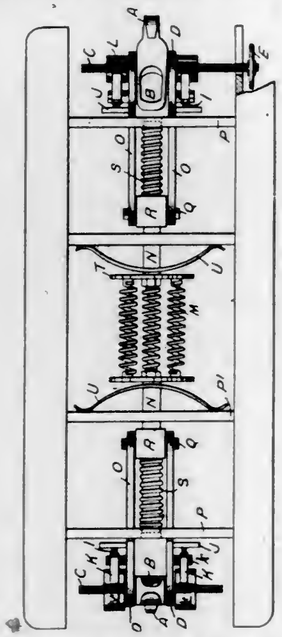
659,190. COUPLING FOR RAILWAY OR SIMILAR VEHICLES. CHARLES H. BAGOT, Egremont, and DAVID DISHART, Sunderland, England. Filed June 4, 1900. Serial No. 19,071. (No model.)

Claim.—1. A coupling for railway or other vehicles, comprising a coupling-piece having a hook at one end and a link at the other, and means for pivotally supporting the coupling-piece, so that it is capable of a complete revolution upon its axis, the structure being such that the coupling-piece is free to swing to one side or the other in the operation of coupling and uncoupling.

2. A coupling for railway and other vehicles, comprising a coupling-piece formed with a hook at one end and with an open link at the other end, and means for pivotally supporting the said hook so that it is capable of a complete revolution, said means also being adapted to turn the coupling-piece in either direction, when desired, so as to be brought into or out of operative position, substantially as described.

3. A coupling for railway and other vehicles, comprising a coupling-piece having one half formed as a hook and the other half as a link, means for pivotally mounting the said coupling-piece, and means for holding it in one position or another, the structure being such that the hook and link are free to swing to either side in coupling or uncoupling, substantially as described.

4. In means for coupling railway and similar vehicles, the combination of a coupling-piece having one half formed as a hook and the other half as a link, means for supporting said coupling-piece at the end of the vehicle, and for rotating it to bring either its hook or its link into or out of the operative position, means for holding it yieldingly in the position given to it and means for locking the coupling; substantially as described.



5. A car-coupler, comprising a coupling-piece formed with a hook at one end and a link at the other, means for pivotally supporting the same, comprising a shaft, brackets for supporting the said shaft, said shaft extending a suitable distance beyond the brackets so that it may be turned without going between cars for regulating the position of the coupling-piece, and means for yieldingly holding the coupling-piece in or out of coupling position, the construction being such that the meeting couplers when in coupling position may automatically pass by each other into locking engagement, substantially as described.

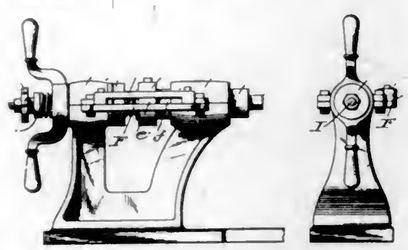
6. A car-coupler, comprising a coupling-piece formed with a hook and link at opposite ends, side brackets for supporting the same, a shaft carrying the said coupling-piece and finding bearings in said brackets, the said shaft extending to one side and provided with hand-operating means, a locking-disk on the said shaft, and a bolt adapted to engage the same, the structure being such that the coupling may be held in a yielding position for automatically coupling, and, after the coupling operation has taken place, may be positively locked in said position, substantially as described.

7. Means for coupling railway and similar vehicles, comprising a coupling-piece A, B, shaft C carrying same, means for revolubly supporting said shaft at the vehicle end, means for rotating said shaft and coupling-piece, cam-pieces L on said shaft, intermediate pivotal pieces K adapted to engage said cam-pieces, and springs adapted to bear on said pivotal pieces and maintain them in a vertical or normal position; in combination substantially as and for the purpose set forth.

8. A car-coupler, comprising a coupling-piece, side brackets supporting the same in position, a shaft for pivotally mounting the coupling-piece, cam-blocks secured to the said shaft, pivoted blocks engaging said cam-blocks, and springs for yieldingly holding the pivoted blocks in proper position, the structure being such that the coupling-piece will be held either in its coupling position or out of said position, substantially as described.

9. In a car-coupler, the combination of a revoluble coupling-piece, side brackets supporting the same, a block for holding the side brackets together, means for yieldingly connecting the side brackets to a car or other vehicle, a shaft supporting the revoluble coupling-piece, cam-blocks carried by the said shafts and provided with projections arranged upon the longitudinal and transverse axes of the coupling-piece, pivoted pieces having V-shaped recesses, the said pieces being thus adapted to engage the cam-blocks, studs or projections upon the side brackets, springs interposed between the studs or projections and the pivoted pieces, whereby the coupler will be yieldingly held in its various positions, substantially as described.

659,191. BUTTON-BLANK-CUTTING MACHINE. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Mar. 17, 1900. Serial No. 9,088. (No model.)



Claim.—1. The combination in a button-cutting machine, of the pusher, an exterior guideway beside the pusher and a lateral finger attached to the pusher and engaging said guideway, whereby rotation of the pusher is prevented, substantially as described.

2. The combination of the tail-stock, the reciprocating pusher therein provided with a finger engaging an exterior guideway beside the pusher, and the upper and lower bars forming such guideway, and means for reciprocating the pusher, substantially as and for the purpose described.

3. The combination of the tail-stock, the reciprocating pusher therein, the upper and lower plates forming a guideway exterior to the pusher; with a ring on the pusher provided with a finger engaging such guideway, and means for reciprocating the pusher, substantially as described.

4. The combination in a button-cutting machine of the pusher, a wooden plug in the pusher and means for projecting the plug from the pusher as the same is worn.

5. In a button-cutting machine, the combination of the tail-stock, the pusher therein, and means for reciprocating the pusher; with an adjustable wood plug within the pusher and means for gradually ejecting the plug from the pusher as it wears.

6. In a button-cutting machine, the combination of the head-stock, the saw therein, the tail-stock, the pusher therein, means for reciprocating the pusher and means for preventing rotation thereof; with an adjustable wood plug within the pusher and means for gradually ejecting the plug from the pusher as it wears, substantially as described.

7. In a button-cutting machine the combination of the tubular pusher and means for reciprocating the same, a wood plug in the pusher, a plug-adjusting block in said pusher, and a rotatable rod having a screw-thread connection with said block for adjusting the same, substantially as specified.

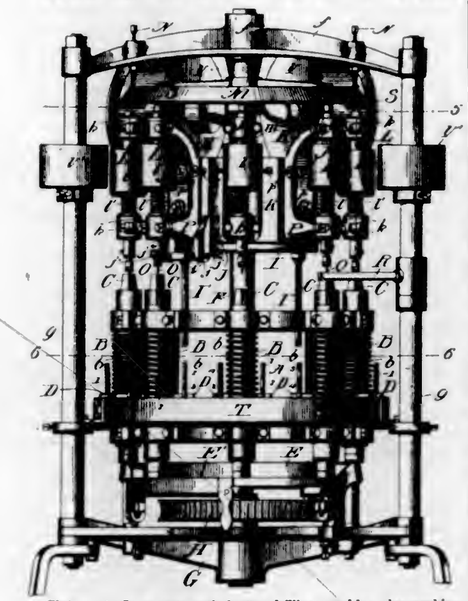
8. In a button-cutting machine, the combination of the head-stock carrying the saw, the tail-stock provided with a reciprocating tubular pusher and means for reciprocating the pusher; with a lateral finger on said pusher engaging a slot exterior to the pusher, a wood plug within the pusher, and means for adjusting said plug, substantially as specified.

9. In a button-cutting machine, the combination of the head-stock carrying the saw, the tail-stock provided with a reciprocating tubular pusher, a sleeve surrounding one end of said pusher and having a screw-threaded engagement therewith, and means for rotating said sleeve and thereby reciprocating the pusher; with a wood plug within the pusher and means for adjusting said plug, substantially as described.

10. In a button-cutting machine the combination of the head-stock carrying the saw, the tail-stock provided with a reciprocating tubular pusher, a sleeve surrounding one end of said pusher and having a screw-threaded engagement therewith, and means for rotating said sleeve and thereby reciprocating the pusher, the said sleeve having a flange on its inner end adapted to bear against the inner end of the journal-bearing of the tail-stock to receive the endwise thrust of the pusher, and ball-bearings interposed between the end of the flange and said journal-bearing, substantially as and for the purpose described.

11. In a button-cutting machine the combination of the head-stock carrying the saw, the tail-stock provided with a reciprocating tubular pusher and means for reciprocating the pusher with a ring attached to said pusher and provided with a projecting finger engaging a guideway formed between upper and lower bars attached to the tail-stock exterior to the pusher to prevent rotation thereof, an adjustable wood plug in said pusher a plug-adjusting block in the pusher, means for preventing rotation of said block, and a rotatable rod in said pusher having a screw-threaded engagement with said block for adjusting the same, substantially as and for the purpose described.

659,192. BUTTON-DRILLING MACHINE. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Apr. 2, 1900. Serial No. 11,195. (No model.)



Claim.—1. In an automatic button-drilling machine, the combination of a traveling chuck or button-holder and a coöperating drill traveling therewith; with means for causing the drill to operate upon the blank a number of times during the travel of the drill and chuck, substantially as and for the purpose described.

2. In a drilling-machine, the combination of the blank-holder and a drill-holder, and means for traveling the same orbitally; with means for causing the drill to intermittently operate upon the blank a number of times during the travel, substantially as and for the purpose described.

3. In an automatic button-drilling machine, the combination of a button-holder and coöperating drill, and means for traveling the same together; with means for causing the drill to operate a plurality of times upon the blank during the travel of the drill and chuck, and means for shifting the parts relative to each other in the interval between the drilling operations so that the drills will operate at different points on the blanks in the successive drilling operations, substantially as described.

4. In a drilling-machine, the combination of the blank-holder and a drill-holder, and means for moving the same orbitally; with means for causing the drill to intermittently operate upon the blank a number of times and at different points thereof during the travel, and means for adjusting the position of the blank between the drilling operations, substantially as described.

5. In an automatic button-drilling machine, the combination of a series of blank-holders or chucks, a corresponding series of drill-holders opposite the chucks and means for traveling the pairs of drills and blanks together; with means for causing the drills to repeatedly operate upon the blanks in the opposite chucks and at different points of the blank during their travel, substantially as and for the purpose described.

6. In an automatic button-drilling machine, the combination of a series of blank-holders or chucks, a corresponding series of drill-holders opposite the chucks and means for traveling the pairs of drills and blanks together; with means for causing the drills to operate upon the blank in the opposite chuck a number of times during their travel and means for partially rotating each chuck during its travel in the intervals between the drilling operations, for the purpose and substantially as described.

7. The combination of a series of chucks, a corresponding series of drills, and means for traveling the two series together; with means for causing each drill to operate upon the blank in its corresponding chuck and at different points of the blank during its travel, substantially as and for the purpose described.

8. In a button-drilling machine, the combination of a series of chucks, a corresponding series of drills, and means for traveling the two series together; with means for causing the drills to operate repeatedly upon the blanks during their travel, and means for partially rotating the chucks after each drilling operation so as to present the undrilled portion of the button to the drills, substantially as and for the purpose described.

9. The combination of a series of button-blank holders or chucks, a corresponding series of drill-holders, one for and opposite each chuck, and means for traveling the chucks and drills together, means for rotating the drills during part of their travel, means for repeatedly causing the drills to operate upon the blanks during their travel, and means for partially rotating the chucks on their axes in the interval between the drilling operations, for the purpose and substantially as described.

10. The combination of a series of button-blank holders or chucks, a corresponding series of drill-holders, one for and opposite each chuck, means for moving the chucks and drills in an orbital path, and means for rotating the drills during part of their orbital movement, with means for repeatedly causing the drills to operate upon the blanks during their travel, and means for partially rotating the chucks in the interval between the drilling operations during their travel, for the purpose and substantially as described.

11. The combination of a button-blank holder and a drill coöperating therewith, both mounted upon a movable support and moving together, and cams or shoes for forcing said drill to repeatedly operate upon the blank during the travel, substantially as described.

12. The combination of a button-blank holder or chuck, a drill co-operating therewith, both mounted upon a rotatable support and moving in an orbital path, a spring for moving said drill away from the chuck and a series of cams or shoes for forcing said drill to repeatedly operate upon different parts of the blank in the chuck during their travel, substantially as described.

13. The combination of a chuck, a drill coöperating therewith, both moving together in a linear path; a spring for moving said drill away from the blank, and cams or shoes for forcing said drill to operate upon the blank during its travel; with means for partially rotating the chuck after each drilling operation, substantially as described.

14. The combination of a button-blank holder or chuck, a drill co-operating therewith, both mounted upon a rotatable support and moving in an orbital path, a spring for moving said drill away from the blank, and a series of cams or shoes for forcing said drill to operate upon the blank during its travel; with means for raising the chuck after it has received the blank and means for partially rotating the chuck after each drilling operation, substantially as described.

15. In a button-drilling machine, the combination of a chuck or blank-holder and means for moving the same in a lineal path, a collar on said holder, a fixed bearing-flange against which said collar contacts to prevent rotation of the chuck, and means for partially rotating the chuck on its axis at intervals in its travel, for the purpose and substantially as described.

16. In a button-drilling machine, the combination of a chuck or blank-holder and means for moving the same in a lineal path, a collar on said holder, and a fixed bearing-flange against which said collar contacts to prevent rotation of the chuck; with strikers adapted to engage pins on said collar and partially rotate the chuck at intervals in its travel beside the flange, for the purpose and substantially as described.

17. In a button-drilling machine the combination of a chuck or blank-holder and means for moving the same lineally, a collar on said holder, a fixed bearing-flange against which said collar contacts to prevent rotation of the holder, and means for partially rotating the chuck at intervals in its travel; with a drill arranged above and traveling with said chuck, means for rotating said drill, and means for causing said drill to operate upon the blank in the chuck during their travel, substantially as described.

18. In a button-drilling machine the combination of a chuck or blank-holder and means for moving the same in an orbital path, a collar on said holder, a fixed bearing flange or ring against which said collar contacts to prevent rotation of the holder, and fixed strikers adapted to engage pins on said collar and partially rotate the chuck at intervals in its travel with a drill arranged above and traveling with said chuck, means for rotating said drill, and means for causing said drill to operate upon said blank during the travel and while the chuck is kept from rotating, substantially as and for the purpose described.

19. The combination in a button-drilling machine of the blank-holder or chuck adapted to move in an orbital path, and a collar on said chuck, a ring against which said collar bears during the travel of the chuck to prevent rotation thereof, and a fixed striker beside said ring adapted to engage pins upon said collars and cause a partial rotation of the chuck as it passes the striker, substantially as described.

20. The combination in a button-machine of the blank-holder, or chuck adapted to move in an orbital path, and a collar on said chuck provided with upstanding pins, a ring beside said path against which said collar bears during the travel of the chuck to prevent axial rotation thereof, fixed strikers beside said ring adapted to engage the pins on said collar and cause a partial rotation of the chuck on its axis as it passes each striker, said ring being notched to permit turning of the collar when the striker engages the same, substantially as described.

21. The combination in a button-machine, of the blank-holder or chuck adapted to move in an orbital path, and a collar on said chuck, a

ring against which said collar bears during the travel of the chuck to prevent axial rotation thereof, fixed strikers beside said ring adapted to engage pins upon said collar and cause a partial rotation of the chuck on its axis as it passes the strikers; with a drill-holder and drill arranged opposite and moving with the chuck, and means for causing said drill to operate upon the blank in the chuck during the travel of the parts in the intervals between the partial rotation of the chuck, substantially as described.

22. The combination in a button-machine, of the blank-holders or chucks adapted to move in an orbital path, and a collar on each chuck, a fixed ring against which said collars bear during the travel of the chucks to prevent axial rotation thereof, fixed strikers beside said ring adapted to engage pins upon said collars and cause a partial rotation of each chuck as it passes the strikers, said ring being notched to permit turning of the annular collar when the striker engages the same; with a series of drill-holders and drills—one for each chuck—and arranged opposite and moving with the chucks, and means for causing said drills to operate upon the blanks during the travel of the parts in the intervals between the partial axial rotation of the chucks, substantially as described.

23. In a drilling-machine, the combination with a button-holder or chuck, a corresponding drill above and opposite the chuck and means for causing the drill and holder to travel together lineally; with means for adjusting the drill eccentric to the chuck for the purpose and substantially as described.

24. In a button-drilling machine, the combination with a series of button-holders or chucks and a corresponding series of drills above and opposite the holders and means for causing the drills and holders to travel together lineally; with means for adjusting the drill-support concentrically to the chuck-support whereby the drills are caused to operate eccentrically upon the button-blanks held in the chucks, substantially as described.

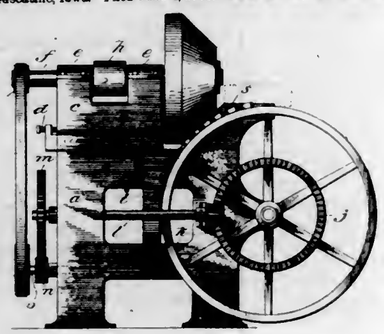
25. The combination of a series of drill-holders mounted upon a common movable support; with a drill-setting arm mounted upon a stationary support beside the drill-holder and adapted to be swung under the drill-holders and support the drills while being fastened in the holders, for the purpose and substantially as described.

26. The combination of the drill-spindle, the casting supporting the same, the bolt securing said casting to a suitable support, a pin on said support projecting into an opening in said casting and the bolts tapped through said casting and engaging said pin, for the purpose of adjusting the inclination of said casting on said support, for the purpose and substantially as described.

27. The combination of the series of chucks mounted on a rotatable support, and means for partially rotating the chucks axially at suitable intervals; with a drill-holder located above and rotating with the chuck-support, a series of drills on said holder, the annular ring supported above said drills, the shoes attached to said ring and adapted to depress the drills, and means for rotating said drills, the drills operating upon the blanks in the intervals between the partial rotations of the chucks, substantially as described.

28. The combination of the annular series of chucks mounted on a rotatable support, a fixed ring beside said support, the collars on the chuck-spindles engaging said ring to prevent rotation of the holders, and the strikers adapted to engage said collars and partially axially rotate the chucks at suitable intervals; with a drill-holder located above and rotating with the chuck-support, a series of drills on said holder, the annular ring supported above said drills, the cams or shoes attached to said ring and adapted to depress the drills, and means for rotating said drills, the drills operating upon the blanks in the intervals between the partial rotations of the chucks, all substantially as and for the purpose set forth.

659,193. BUTTON-GRINDING MACHINE. NICHOLAS BARRY Jr., Muscatine, Iowa. Filed June 4, 1900. Serial No. 19,042. (No model.)



Claim.—1. In a machine for grinding button-blanks to uniform thickness, the combination of the conical grinding-wheel rotating at high speed, with a feed-wheel adapted to carry the button-blanks on its periphery to and past the grinding-wheel, said feed-wheel rotating at slow speed beside and at right angles to the grinding-wheel, substantially as described.

2. The combination of the feed-wheel, a conical grinding-wheel rotating at high speed at right angles thereto, and a guard-plate to prevent the lateral displacement of the blanks on the feed-wheel during the grinding operation, substantially as described.

3. The combination of the feed-wheel, a conical abrading-wheel rotating at high speed at right angles to the feed-wheel, and a guard-plate to prevent the lateral displacement of the blanks on the feed-wheel during the grinding operation; with means for adjusting the relative distances between the peripheries of the abrading and feed wheels, substantially as and for the purpose described.

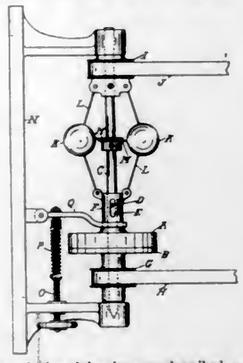
4. The combination of the main frame, the longitudinally-adjustable carrier thereon, and the rotary abrading-wheel mounted on said carrier with its shaft parallel with the length of said carrier; with the feed-wheel journaled in the frame and rotating at right angles to the abrading-wheel adapted to carry buttons on its periphery to and past the abrading-wheel, substantially as described and for the purpose set forth.

5. The combination of the main frame, the longitudinally-adjustable carrier thereon, the shaft journaled in said carrier and the abrading-wheel carried by said shaft; with the feed-wheel journaled in the frame and rotating at right angles to the carrier, and the guard beside the feed-wheel to prevent displacement of the blanks thereon during the grinding operation, substantially as described and for the purpose set forth.

6. In a button-grinding-machine, the combination of the main frame, the adjustable conical grinding-wheel, the feed-wheel below and at right angles to the grinding-wheel and means for driving said wheels; with the guard-plate beside the feed-wheel to prevent lateral displacement of the button-blanks during the grinding operation, substantially as described.

7. In a button-grinding machine, the combination of the main frame, the adjustable carrier thereon, the shaft journaled in said carrier carrying a cone-shaped grinding-wheel, the feed-wheel below and at right angles to the grinding-wheel and gearing for driving said feed-wheel from the grinding-wheel shaft; with the guard-plate beside the feed-wheel to prevent lateral displacement of the button-blanks during the grinding operation, the feed-tray, and the discharge-chute, all substantially as and for the purpose described.

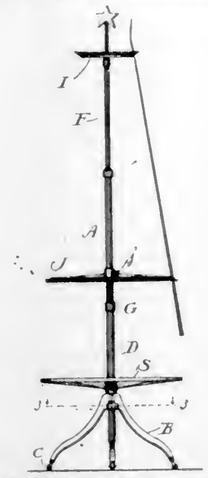
659,194. SPEED-REGULATOR. FREDERICK W. BAYNES, London, England. Filed Jan. 18, 1899. Serial No. 702,512. (No model.)



Claim.—In a device of the character described, a frame having horizontal arms, a spindle having its tapering lower end mounted in a tapering socket of the lower arm and its upper end journaled in the upper arm, a pulley rigidly mounted on the lower end of the spindle, a disk carried by the pulley and having its upper edge beveled, a sleeve splined on the spindle above the disk and provided with a depending annular-beveled flange fitting on the beveled edge of the disk, a second pulley rigidly secured to the upper end of the spindle, bow-springs connecting the second-named pulley with the sleeve, weights mounted on the bow-springs, guards secured to the weights and surrounding the spindle, and a spring-pressed arm pivoted to the frame with its free end bearing down on the sleeve, substantially as described.

659,195. DISPLAY-RACK. JOHN H. BEST, Denver, Colo. Filed July 22, 1899. Serial No. 724,767. (No model.)

Claim.—1. In a display-rack for whips, the combination with a central support, of an upper holder mounted thereon, and a lower holder secured on said support and comprising two concentric members, one of which is supported on the other and capable of a limited axial movement, said concentric members being provided with means for engaging the whips, substantially as and for the purpose described.



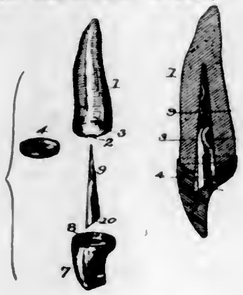
2. In a display-rack for whips, the combination with a central support, of an upper holder and a lower holder mounted on said support, said lower holder comprising two members, one of which is rigid on the support and the other member being movably secured to the under side of the upper member and adapted to have a limited axial movement, said concentric members being provided with arms for engaging the whips, substantially as and for the purpose described.

3. In a display-rack for whips, the combination with a central support, of an upper member provided with a plurality of arms forming notches to receive the ends of the whips, and a lower support comprising two concentric members, the upper member of said lower holder being rigidly mounted on the support and provided with a plurality of arms extending in one direction, and the lower member adapted to have a limited axial movement independent of the upper member and provided with a corresponding plurality of arms extending in an opposite direction to those on the upper member and forming sockets with the arms on the upper member to receive the butt-ends of the whips, substantially as described.

4. In a display-rack for whips, the combination with a central support, of an upper holder and a lower holder comprising two concentric members having oppositely-inclined arms thereon to form sockets for the butt-ends of the whips, one of said members having a limited axial movement independent of the other member, substantially as described.

5. In a display-rack for whips, the combination with a central support, of an upper holder, and a lower holder comprising an upper member rigidly secured to the support and provided with arms on its periphery extending in one direction, and a lower member movably supported on the under side of the upper member and provided with reversely-inclined arms forming sockets with the arms on the upper member to receive the butt-ends of the whips, and projections on the lower member whereby the same may be adjusted axially, substantially as and for the purpose described.

659,196. DENTISTRY. AUGUST P. JOHNSON, Ada, Minn. Filed Aug. 10, 1900. Serial No. 26,500. (No model.)

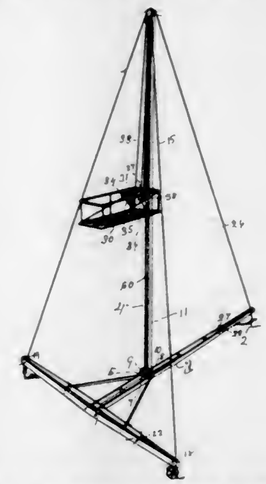


Claim.—1. The improved dental attachment comprising the crown or artificial tooth having a symmetrical conoidal depression or cavity, the post or anchor baked in said crown and fixed in the center of said cavity, the convex metal cap, made separately or independently of the crown and post and having a central opening adapted to receive the post and allow adjustment therein, its convexity being symmetrical and having the same degree of curvature as the said cavity, whereby it is adapted to fit in the same, whatever be the adjustment of the crown, as and for the purpose shown and described.

2. An anchor or post for artificial tooth-crowns which is tapered, twisted, and also grooved longitudinally, substantially as shown and described.

3. An anchor or post for artificial tooth-crowns which is grooved throughout its length, and tapered and twisted in its distal portion, substantially as shown and described.

659,197. FRUIT-PICKING MACHINE. FREDERICK E. ALLEN, Lynn, Mass., assignor of one-half to the Improvements Manufacturing Company, Boston, Mass. Filed Feb. 11, 1898. Serial No. 669,890. (No model.)



Claim.—1. In a machine of the character indicated, the combination with a shaft, a picker's carriage, a base-frame, and means consisting of a horn, and mechanism for operating the latter for lifting and lowering the picker's carriage.

2. In a machine of the character indicated, the combination with a shaft, a picker's carriage, a base-frame, and means consisting of a horn and cord, and mechanism for operating the latter for lifting and lowering the picker's carriage.

3. In a machine of the character indicated, the combination with a shaft, a picker's carriage, a base-frame, and means consisting of a horn, cord and drum, and mechanism for operating the latter for lifting and lowering the picker's carriage.

4. In a machine of the character indicated, the combination with a shaft, a picker's carriage, a base-frame, and means consisting of a horn, cord, springs 47, and drum and mechanism for operating the latter for lifting and lowering the picker's carriage.

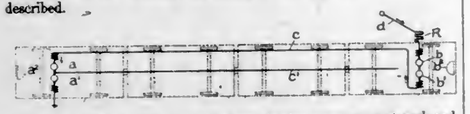
5. In a machine of the character indicated, the combination with a shaft, a picker's carriage, a base-frame, and means consisting of a horn, cord, spring, drum, and devices 42 and 44 for lifting and lowering the picker's carriage.

6. In a machine of the character indicated, in combination, the base-frame, the shaft, 4, having its bottom end seated in the base-frame, the cap, 14, mounted on the top of said shaft, the guy-cords 15, 26, intermediate said cap and the base-frame, and the winders 24, 27, for adjusting the guy-cords, all substantially as described.

REISSUES.

11,859. ELECTRIC RAILWAY. JUSTUS B. ENTZ, Philadelphia, Pa., assignor to the General Electric Company, of New York. Filed Aug. 3, 1900. Serial No. 25,847. Original No. 619,287, dated Feb. 14, 1899.

Claim.—1. Means for operating motor-cars from each end of a train which comprise a train-conductor circuit or system, and identical controllers on each motor-car provided respectively with devices for arranging the motors and train-conductor circuit or system in fixed combination on the rear car and with devices for cutting out the train-conductor circuit or system and reversing the motors on the front car, substantially as described.



2. In combination, in a train system, having a motor-car at each end of the train, a plurality of train-conductors, and identical controllers on each end car provided respectively with devices for arranging the motors and train-conductors in fixed combination on the rear car and with devices for connecting the said train-conductors, trolley-conductor and motors and their accessories in variable combinations on the front car, substantially as described.

3. In combination, in a train system, a plurality of motor-cars, a plurality of motors permanently connected in series on each of said cars, a plurality of train-conductors, and identical controllers at each end of the train provided respectively with devices for connecting the said train-conductors to terminal and intermediate points in the motor-circuit on the rear car, and with devices for connecting the said train-conductors, trolley-conductor, and motors and their accessories in variable combinations on the front car.

4. In combination, in a train system, a plurality of motor-cars, two motors permanently connected in series on each of said cars, a train-conductor circuit or system comprising two conductors running from car to car, and identical controllers at each end of the train provided respectively with devices for connecting the said train-conductors to terminal and intermediate points in the motor-circuit on the rear car, and with devices for connecting the said train-conductors, trolley-conductor, and motors and their accessories in variable combinations on the front car.

5. In combination, in a train system, comprising any desired number of motor-cars, a plurality of motors on each of said cars, a series multiple controller for controlling said motors, and a train-conductor circuit or system comprising two train-conductors connecting said motors to said controller.

6. In combination, in a train system comprising any desired number of motor-cars, a plurality of motors on each of said cars, identical series multiple controllers for controlling the said motors located at each end of the train, a train-conductor circuit or system comprising a plurality of train-conductors connecting said motors to said controllers, and devices on each of said controllers for arranging the motors and train-conductors in fixed combination on the rear car.

11,860. BELT FOR ORE-CONCENTRATORS. William J. Loring, Angel's Camp, Cal. Filed May 18, 1898. Serial No. 681,095. Original No. 550,517, dated Nov. 26, 1895.



Claim.—1. A concentrator-belt consisting of a body portion having yieldable edge flanges, said edge flanges being reinforced by textile material cut on the bias.

2. A belt composed of layers of rubber and textile material, and having solid rubber edges; there being in such edges textile material that is cut on the bias.

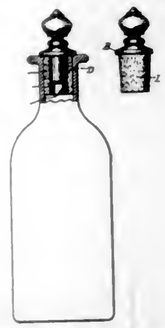
3. A belt for ore-concentrators having a rubber edge flange, and having a piece or strip of textile material cut on the bias and entering into said flange.

4. A belt for the purpose described composed of layers of rubber and of textile material cut on the bias and having a solid rubber edge, a part of the textile material being embedded in said flange, substantially as described.

5. A belt for the purpose described composed of alternating layers of rubber and of textile material cut on the bias, and having a solid rubber edge flange, one of said layers of textile material being extended sidewise and embedded in said flange, substantially as described.

11,861. COMBINED BOTTLE-STOPPER AND SPRINKLER. William W. Lowrey, New York, N. Y., assignor to the Lowrey Stopper and Sprinkler Company, Baltimore, Md. Filed July 25, 1900. Serial No. 24,836. Original No. 636,821, dated Nov. 14, 1899.

Claim.—1. As an article of manufacture a bottle-stopper comprising an apertured cork having a removable male portion adapted to close the aperture at its outer end and a disk or piece of vitreous material set in said aperture at its lower or inner end and provided with one or more passages or openings as and for the purpose described.



2. In a new article of manufacture the combination of a female portion having a sprinkler provided with two or more perforations connected therewith and a male portion adapted to engage with said female portion substantially as shown and described.

3. In a new article of manufacture, the combination of an externally-tapering-shaped cork or female portion having a vertically-tapering aperture, the glass sprinkler secured at the base of the latter said sprinkler provided with a series of vertically-arranged grooves on its circumference and the glass stopper or male portion substantially as shown and described.

DESIGNS.

33,275. BADGE. Robert Dudley Schaller, Newark, N. J. Filed July 17, 1900. Serial No. 23,981. Term of patent 3½ years.



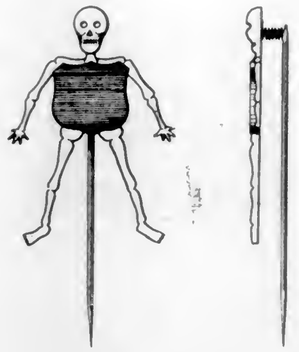
Claim.—The design for a badge, as herein shown and described.

33,276. BADGE. Albert W. Adcock, Chicago, Ill. Filed Aug. 17, 1900. Serial No. 27,218. Term of patent 14 years.



Claim.—The design for a badge, substantially as herein shown and described.

33,277. BADGE. Arnold C. Messler, Pawtucket, R. I. Filed June 11, 1900. Serial No. 20,467. Term of patent 7 years.



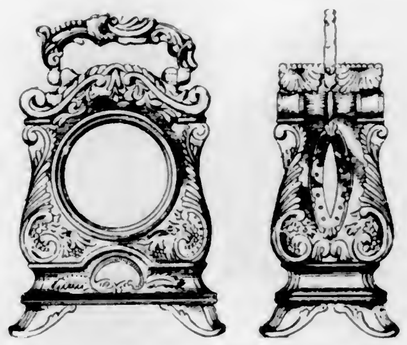
Claim.—The design for a badge, substantially as shown and described.

33,278. CLAMP FOR RIMLESS SPECTACLES. Frederick A. Stevens, Providence, R. I. Filed Aug. 31, 1900. Serial No. 28,715. Term of patent 14 years.



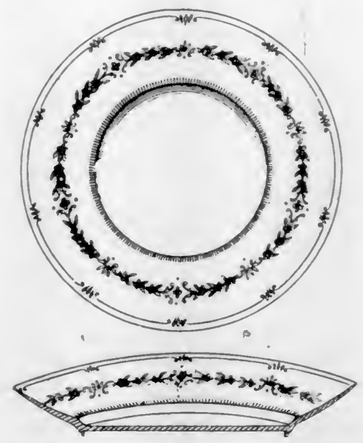
Claim.—The design for a clamp for rimless spectacles substantially as herein shown and described.

33,279. CLOCK-CASE. Charles F. Mosman, Bridgeport, Conn., assignor to the Jennings Bros. Manufacturing Company, same place. Filed July 30, 1900. Serial No. 25,351. Term of patent 7 years.



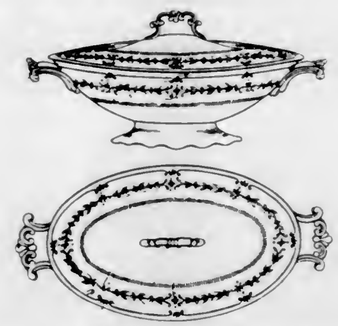
Claim.—The design for a clock-case, as herein shown and described.

33,280. DISH. William H. Grindley, Cougleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Sept. 8, 1900. Serial No. 29,461. Term of patent 3½ years.



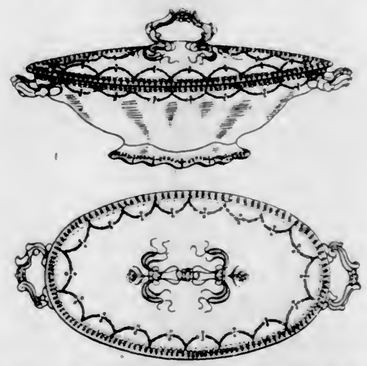
Claim.—The design for a dish substantially as shown and described.

33,281. COVERED DISH. William H. Grindley, Cougleton, England, assignor to William S. Pitcairn, New York, N. Y. Filed Sept. 8, 1900. Serial No. 29,460. Term of patent 3½ years.



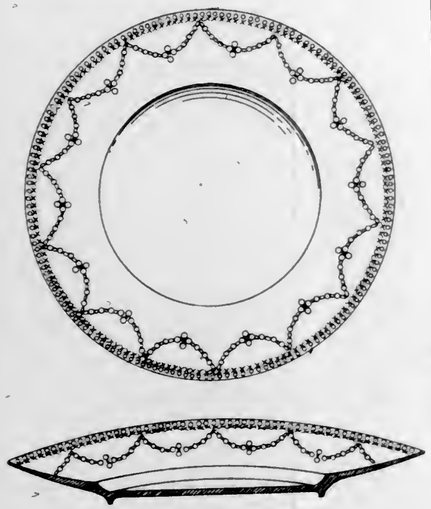
Claim.—The design for a covered dish substantially as shown and described.

33,282. COVERED DISH. John Slater, Hanley, England. Filed Sept. 8, 1900. Serial No. 29,462. Term of patent 7 years.



Claim.—The design for a covered dish substantially as herein shown and described.

33,283. PLATE. JOHN SLATER, Hanley, England. Filed Sept. 8, 1900. Serial No. 29,463. Term of patent 7 years.



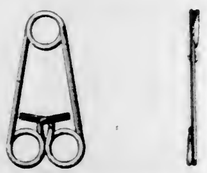
Claim.—The design for a plate substantially as herein shown and described.

33,284. POWDER PACKING AND DISPENSING BOX. EDWARD E. CLEMENT, Washington, D. C. Filed Aug. 23, 1900. Serial No. 27,855. Term of patent 14 years.



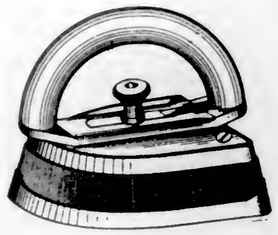
Claim.—The design for a powder packing and dispensing box, substantially as shown and described.

33,285. CLOTHES-PIN. JAMES FILLMORE MATTHEWS, El Reno, Okla. Filed Aug. 21, 1900. Serial No. 27,626. Term of patent 14 years.



Claim.—The design for a clothes-pin herein shown and described.

33,286. SAD-IRON. GEORGE H. DIPPO, Chagrin Falls, Ohio, assignor to the Ferro-Steel Company, Cleveland, Ohio. Filed Mar. 28, 1900. Serial No. 10,552. Term of patent 14 years.



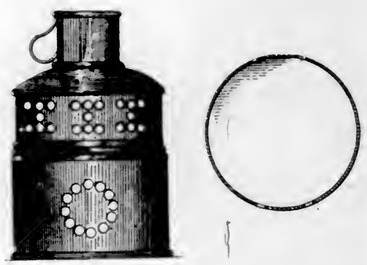
Claim.—The design for a sad-iron substantially as shown and described.

33,287. AX. GOTLIEB ZUMBACH, Helvetia, W. Va. Filed Aug. 30, 1900. Serial No. 28,611. Term of patent 3½ years.



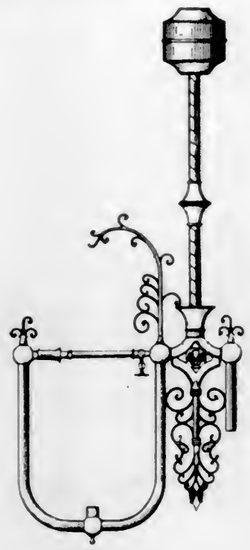
Claim.—The design for an ax herein shown and described.

33,288. LANTERN. FERDINAND E. LIEBNOW, Spokane, Wash., assignor of two-thirds to Daniel J. Munn, New Westminster, Canada. Filed Aug. 20, 1900. Serial No. 27,503. Term of patent 3½ years.



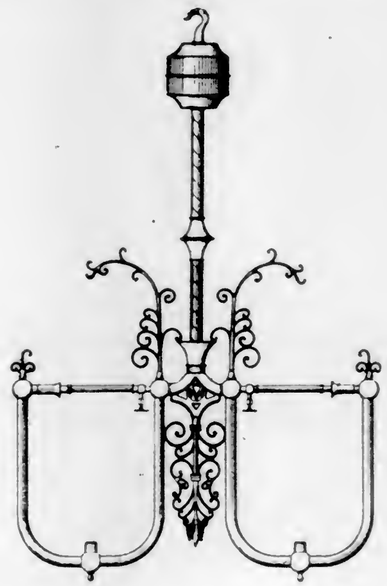
Claim.—The design for a lantern, substantially as herein shown and described.

33,289. LAMP-FIXTURE. CLARENCE R. GILLETT, Chicago, Ill., assignor to the Magic Light Company, same place. Filed Sept. 7, 1900. Serial No. 29,342. Term of patent 14 years.



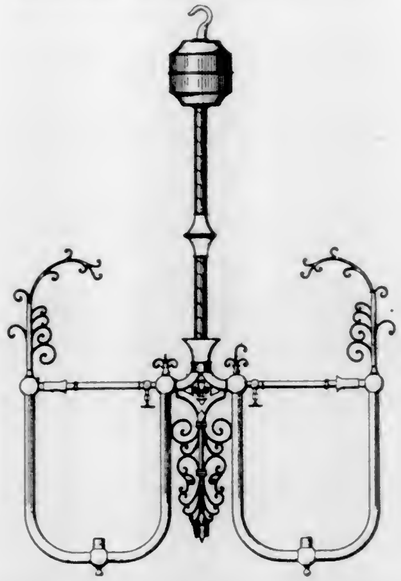
Claim.—The design for a lamp-fixture, substantially as herein shown and described.

33,290. LAMP-FIXTURE. CLARENCE R. GILLETT, Chicago, Ill., assignor to the Magic Light Company, same place. Filed Sept. 7, 1900. Serial No. 29,343. Term of patent 14 years.



Claim.—The design for a lamp-fixture, substantially as herein shown and described.

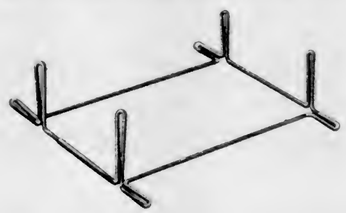
33,291. LAMP-FIXTURE. CLARENCE R. GILLETT, Chicago, Ill., assignor to the Magic Light Company, same place. Filed Sept. 7, 1900. Serial No. 29,344. Term of patent 14 years.



Claim.—The design for a lamp-fixture, substantially as herein shown and described.

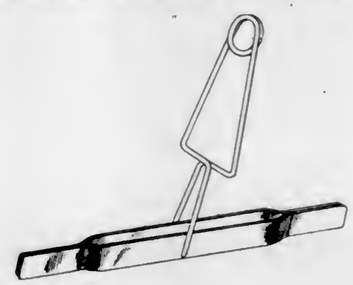
33,292. WITHDRAWN

33,293. BOOK-HOLDER. EDWIN S. WOKER, Geneseo, Ill. Filed Sept. 5, 1900. Serial No. 29,093. Term of patent 3½ years.

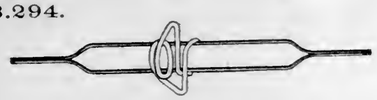


Claim.—The design for a book-holder herein shown and described.

33,294. TROUSERS-HANGER. MORRIS A. HEIMANN, St. Louis, Mo. Filed June 28, 1900. Serial No. 22,002. Term of patent 7 years.

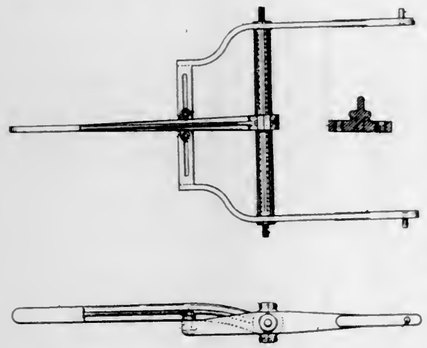


33,294.



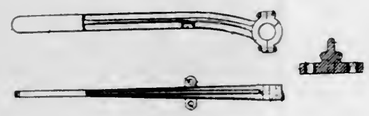
Claim.—The design for a trousers-hanger as herein shown and described.

33,295. JACQUARD-LEVER. OTTO W. SCHAUM, Philadelphia, Pa. Filed May 31, 1900. Serial No. 18,677. Term of patent 14 years.



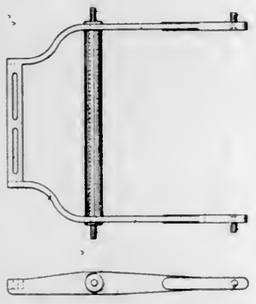
Claim.—The design for a jacquard-lever, substantially as herein shown and described.

33,296. ARM MEMBER FOR JACQUARD-LEVERS. OTTO W. SCHAUM, Philadelphia, Pa. Filed Aug. 31, 1900. Serial No. 28,716. Term of patent 14 years.



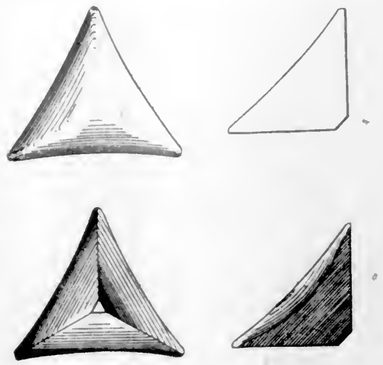
Claim.—The design for the arm member of a jacquard-lever, substantially as herein shown and described.

33,297. YOKE MEMBER FOR JACQUARD-LEVERS. OTTO W. SCHAUM, Philadelphia, Pa. Filed Aug. 31, 1900. Serial No. 28,717. Term of patent 14 years.



Claim.—The design for the yoke member of a jacquard-lever, substantially as herein shown and described.

33,298. CORNER-PIECE FOR STAIRCASES. HIRAM C. BURK, Cleveland, Ohio. Filed July 27, 1900. Serial No. 25,057. Term of patent 7 years.



Claim.—The design for a corner-piece for staircases, substantially as shown and described.

33,299. SPLIT-PULLEY SPOKE-ARM. OSWALD WOLLENWEBER, Marion, Ohio. Filed July 21, 1900. Serial No. 24,448. Term of patent 14 years.



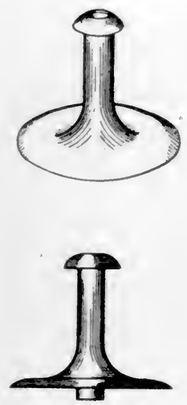
Claim.—The design for a split-pulley spoke-arm as herein shown and described.

33,300. NUT-LOCK WASHER. JOHN CORT, Seattle, Wash. Filed June 2, 1900. Serial No. 18,906. Term of patent 14 years.



Claim.—The design for a nut-lock washer, as herein shown and described.

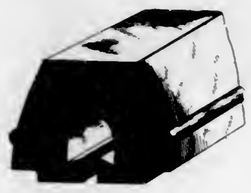
33,301. VALVE-CASE FOR PNEUMATIC TIRES. ELTON W. MCCASLIN, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Sept. 22, 1899. Serial No. 731,355. Term of patent 14 years.



Claim.—The design for a valve-case for pneumatic tires, substantially as herein shown and described.

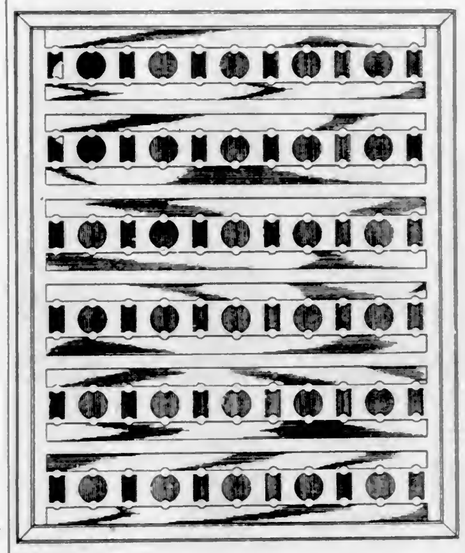
33,302. TIRE. ALFRED DUCASBLE, Paris, France. Filed Jan. 15, 1900. Serial No. 1,562. Term of patent 14 years.





Claim.—The design for a tire, substantially as shown and described.

33,303. ELECTRIC SWITCHBOARD. JOHN MARION CREAMER, Knoxville, Tenn. Filed July 23, 1900. Serial No. 24,610. Term of patent 14 years.



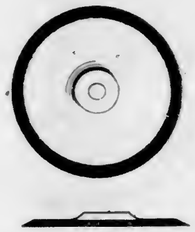
Claim.—The design for an electric switchboard, as herein shown and described.

33,304. LINING FOR SWITCH-CAPS. GEORGE B. THOMAS, Hartford, Conn., assignor to the Perkins Electric Switch Manufacturing Company, same place. Filed Aug. 27, 1900. Serial No. 28,264. Term of patent 14 years.



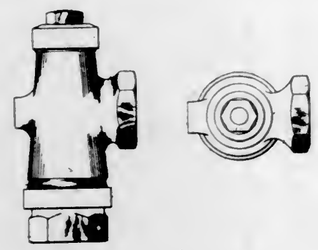
Claim.—The design for a switch-cap lining herein shown and described.

33,305. LINING FOR SWITCH-CAPS. GEORGE B. THOMAS, Hartford, Conn., assignor to the Perkins Electric Switch Manufacturing Company, same place. Filed Aug. 27, 1900. Serial No. 28,265. Term of patent 14 years.



Claim.—The design for a lining for switch-caps herein shown and described.

33,306. VALVE-CASING. JAMES DANIEL PERKINS, Greenville, S. C. Filed Sept. 1, 1900. Serial No. 28,849. Term of patent 7 years.



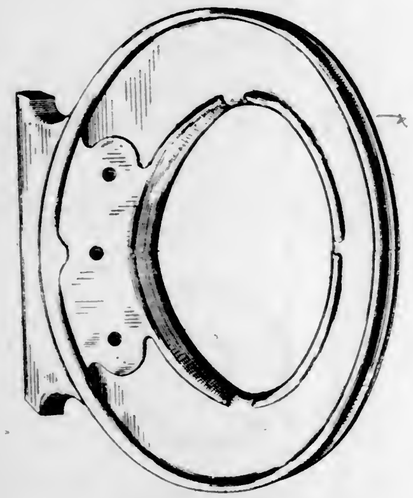
Claim.—The design for a valve-casing herein shown and described.

33,307. PIPE-COUPLING. HENRY G. THOMPSON, New Haven, Conn., assignor to the New Haven Novelty Machine Company, same place. Filed Aug. 17, 1900. Serial No. 27,216. Term of patent 14 years.



Claim.—The design for a pipe-coupling, substantially as herein shown and described.

33,308. LAVATORY-SLAB. HENRY HORNBOSTEL, New York, N. Y., assignor to the Henry Huber Company, same place. Filed July 5, 1900. Serial No. 22,637. Term of patent 14 years.



Claim.—The design for a lavatory-slab, substantially as herein shown and described.

33,309. DEFLECTOR FOR WALL-REGISTERS. JACOB S. LOWRY, Cincinnati, Ohio. Filed May 7, 1900. Serial No. 15,841. Term of patent 14 years.



Claim.—The design for a wall-register deflector, as herein shown and described.

33,310. COOKING-STOVE. EDWARD J. KING and THOMAS R. KENNEDY, Rochester, N. Y., assignors to the Co-Operative Foundry Company, same place. Filed Sept. 10, 1900. Serial No. 29,605. Term of patent 7 years.



Claim.—The design for a cooking-stove substantially as herein shown and described.

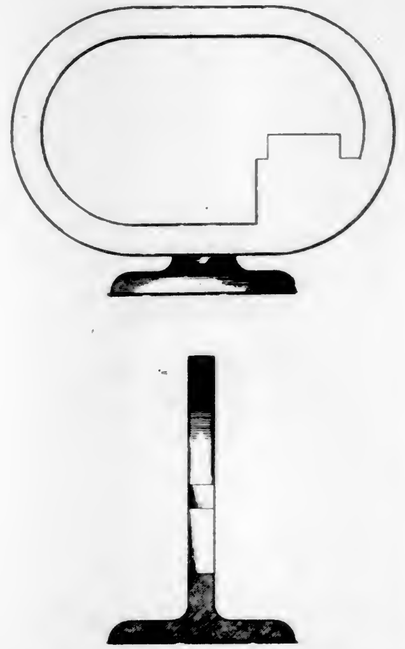
33,311. HEATING-STOVE. EDWARD J. KING and THOMAS R. KENNEDY, Rochester, N. Y., assignors to the Co-Operative Foundry Company, same place. Filed Sept. 10, 1900. Serial No. 29,606. Term of patent 7 years.

33,311.



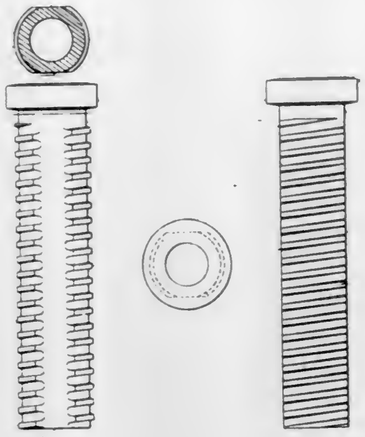
Claim.—The design for a heating-stove substantially as herein shown and described.

33,312. SEWING-MACHINE FRAME OR HEAD. WILLIAM J. STEWART, Chicago, Ill. Filed Sept. 10, 1900. Serial No. 29,611. Term of patent 14 years.



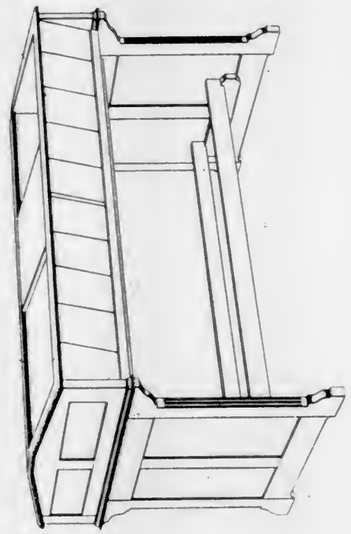
Claim.—The design for a sewing head or frame, as herein shown and described.

33,313. CHAIR-SPINDLE. HARRY W. BOLENS, Port Washington, Wis. Filed Aug. 31, 1900. Serial No. 28,713. Term of patent 14 years.



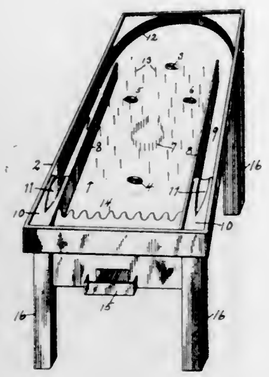
Claim.—The design for a chair-spindle, substantially as herein shown and described.

33,314. DESK. GEORGE R. MELHUISH, Chicago, Ill., assignor to the Library Bureau, Boston, Mass. Filed Sept. 10, 1900. Serial No. 29,608. Term of patent 14 years.



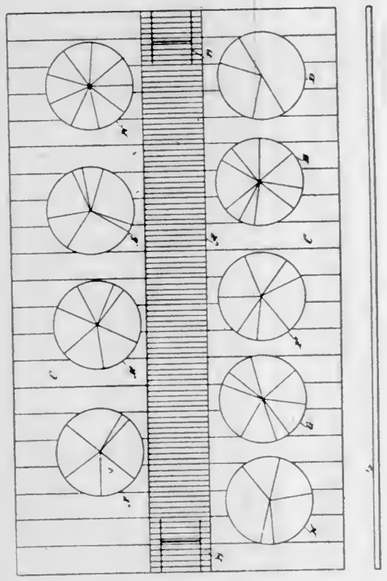
Claim.—The design for a desk herein shown and described.

33,315. GAME-TABLE. JOHN D. FREESE, Chicago, Ill. Filed Aug. 31, 1899. Serial No. 729,130. Term of patent 3½ years.



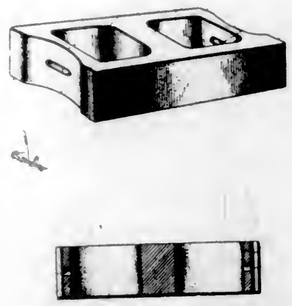
Claim.—The design for a game-table, substantially as herein shown and described.

33,316. GAME-BOARD. JAMES L. ROBERTSON, Jr., New York, N. Y. Filed May 28, 1900. Serial No. 18,331. Term of patent 3½ years.



Claim.—The design for a game-board as herein shown and described.

33,317. BUILDING-BLOCK. ERASTUS S. LAFFERTY, Galesburg, Ill. Filed Sept. 10, 1900. Serial No. 29,610. Term of patent 14 years.



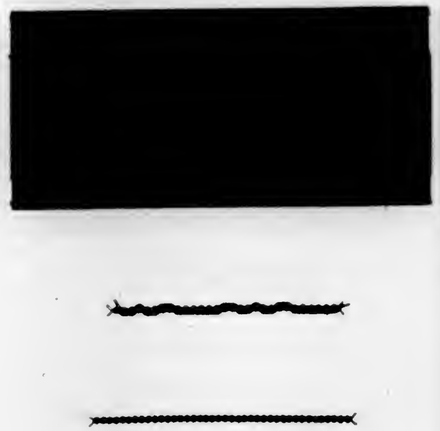
Claim.—The design for a building-block, as herein shown and described.

33,318. MONUMENT. ELZY M. WOLFF, Mansfield, Ohio. Filed Aug. 1, 1900. Serial No. 25,480. Term of patent 3½ years.



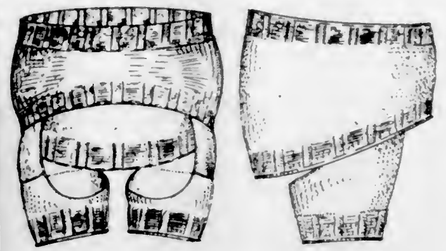
Claim.—The design for a monument substantially as illustrated and described.

33,319. HAT-BAND. WILLIAM KOENIGS, Paterson, N. J., assignor, by mesne assignments, to Edward M. Knox, New York, N. Y. Filed Aug. 21, 1900. Serial No. 27,630. Term of patent 3½ years.



Claim.—The design for a hat-band, substantially as shown and described.

33,320. ABDOMINAL BAND. ADELE M. KAUFFMAN, St. Paul, Minn. Filed Mar. 2, 1900. Serial No. 7,133. Term of patent 3½ years.



Claim.—The design for an abdominal band, as herein shown and described.

33,321. SKIRT-PROTECTOR. ALFRED W. STOKELEY, Philadelphia, Pa. Filed Aug. 28, 1900. Serial No. 28,360. Term of patent 14 years.



Claim.—The design for a skirt-protector substantially as herein shown and described.

TRADE-MARKS

REGISTERED OCTOBER 2, 1900.

35,155. RUGS. THE FIFTH CARPET COMPANY, New York, N. Y. Filed Aug. 16, 1900.

EMPIRE

Essential feature.—The word "EMPIRE." Used since April 16, 1900.

35,156. LINEN OR COTTON THREAD. LANDIS MACHINE COMPANY, St. Louis, Mo. Filed July 21, 1900.



Essential feature.—The representation of a sewing-machine encircled by a harness tug or trace. Used since February 1, 1900.

35,157. CANVAS. AUGUST WOLF, Buffalo, N. Y. Filed July 27, 1900.



Essential feature.—The representation of a disk or circular panel on which appear the representation of a shield, the letters "O. K." across the face of the shield, and an eagle represented as flying over said letters. Used since July 21, 1898.

35,158. COAT-PADS. PHŒNIX COAT PAD COMPANY, Baltimore, Md. Filed July 13, 1900.

RAGLAN.

Essential feature.—The word "RAGLAN." Used since December 15, 1899.

35,159. CERTAIN NAMED LEATHER. BITTEL, TEPEL & Co., New York, N. Y. Filed Aug. 13, 1900.

INVINCIBLE

Essential feature.—The word "INVINCIBLE." Used since July, 1900.

35,160. CERTAIN NAMED SKINS AND LEATHER. J. P. MATHIEU & Co., Philadelphia, Pa. Filed Aug. 16, 1900.

EUREKA

Essential feature.—The word "EUREKA." Used since January 1, 1900.

35,161. CERTAIN NAMED SKINS AND LEATHER. J. P. MATHIEU & Co., Philadelphia, Pa. Filed Aug. 16, 1900.

EMPIRE

Essential feature.—The word "EMPIRE." Used since July 1, 1898.

35,162. LEATHER BOOTS AND SHOES. CHARLES B. WHITCOMB, Holbrook, Mass. Filed Aug. 18, 1900.

BOAR



Essential feature.—The word "BOAR" and the representation of a boar's head. Used since August 1, 1900.

35,163. CERTAIN NAMED BOOTS AND SHOES. CROSS & TUCKER, Lynn and Boston, Mass. Filed Aug. 13, 1900.

Allbrokin

Essential feature.—The word "ALLBROKIN." Used since July 17, 1900.

35,164. CERTAIN NAMED SHOES. WICHERT & GARDINER, New York, N. Y. Filed June 21, 1900.



Essential feature.—The representation of a lion rampant on a striped bar and with a dragon's tail appearing with fins. Used since 1890.

35,165. BOOTS AND SHOES. PRAY-SMALL COMPANY, Auburn, Me., and Boston, Mass. Filed Aug. 23, 1900.

Essential feature.—The word "FEDERATION." Used since July 28, 1900.

35,166. BOOTS, SHOES, AND OVERSHOES. ISRAEL LEVINSTEIN, Baltimore, Md. Filed Sept. 1, 1900.

KLIM-AX

Essential feature.—The compound word "KLIM-AX." Used since December, 1898.

35,167. RUBBER BOOTS AND SHOES. APSLEY RUBBER COMPANY, Hudson, Mass. Filed July 16, 1900.

Essential feature.—The representation of an oval and a ring. Used since July 1, 1900.

35,168. RUBBER BOOTS. APSLEY RUBBER COMPANY, Hudson, Mass. Filed July 18, 1900.

WASHSTAND

Essential feature.—The word "WASHSTAND." Used since July 1, 1900.

35,169. AMERICAN TURQUOISE. L. TANNENBAUM & Co., New York, N. Y. Filed Aug. 2, 1900.



Essential feature.—The representation of a dot-star and a crescent. Used since July 25, 1900.

35,170. BADGES, BUTTONS, AND PINS. STEIN & LANGLOS, New York, N. Y. Filed Aug. 13, 1900.

THE ONLY PEBBLE ON THE BEACH

Essential feature.—The phrase "THE ONLY PEBBLE ON THE BEACH." Used since July 10, 1900.

35,171. CERTAIN NAMED MUSICAL INSTRUMENTS. THE AEOLIAN COMPANY, Meriden, Conn., and New York, N. Y. Filed July 11, 1900.

AUTOLIAN

Essential feature.—The word "AUTOLIAN." Used since November, 1899.

35,172. CERTAIN NAMED MUSICAL INSTRUMENTS. THE AEOLIAN COMPANY, Meriden, Conn., and New York, N. Y. Filed July 11, 1900.

AUTOLIA

Essential feature.—The word "AUTOLIA." Used since November, 1899.

35,173. CERTAIN NAMED MUSICAL INSTRUMENTS. THE AEOLIAN COMPANY, Meriden, Conn., and New York, N. Y. Filed July 11, 1900.

AERIOLIAN

Essential feature.—The word "AERIOLIAN." Used since November, 1899.

35,174. CERTAIN NAMED MUSICAL INSTRUMENTS. THE AEOLIAN COMPANY, Meriden, Conn., and New York, N. Y. Filed July 11, 1900.

AERIOLA

Essential feature.—The word "AERIOLA." Used since November, 1899.

35,175. VETERINARY REMEDIES. WRIGHT & HILLS LINSEED OIL COMPANY, Chicago, Ill. Filed Aug. 8, 1900.

LIN-HOOF

Essential feature.—The compound word "LIN-HOOF." Used since July 14, 1900.

35,176. LINIMENT. THOMAS MILBURN, Toronto, Canada. Filed July 19, 1900.

TROOP

Essential feature.—The word "TROOP." Used since June 15, 1900.

35,177. REMEDY FOR CERTAIN NAMED DISEASES. LEOPOLD GERSTLE, Highland Park, Tenn. Filed July 20, 1900.

KIS-KO

Essential feature.—The compound word "KIS-KO." Used since May, 1900.

35,178. CURE FOR CERTAIN NAMED DISEASES. ANTON KARGEWSKI, Colegrove, Cal. Filed July 17, 1900.

ULGA

Essential feature.—The word "ULGA." Used since August 15, 1899.

35,179. DISINFECTANTS. THE MOORE CHEMICAL & MANUFACTURING COMPANY, Kansas City, Mo. Filed June 16, 1900.

CAR-SUL

Essential feature.—The compound word "CAR-SUL." Used since January 1, 1900.

35,180. ANTISEPTIC. ORIENTA CHEMICAL CO., Mamaroneck, N.Y. Filed Dec. 12, 1899.

THYMODINE

Essential feature.—The word "THYMODINE." Used since December 20, 1897.

35,181. ALKALOIDS. CHEMISCHE FABRIK GUESTROW, Guestrow Germany. Filed Aug. 29, 1900.

YOHIMBINE

Essential feature.—The word "YOHIMBINE." Used since January 1, 1900.

35,182. TONIC. ALFRED R. ASHBY, Brunswick, Ga. Filed Aug. 9, 1900.



Essential feature.—The representation of a flamingo. Used since July 16, 1900.

35,188. NUTRITIVE FERRUGINOUS PREPARATIONS. ADOLF JOLLES, Vienna, Austria-Hungary. Filed Aug. 22, 1900.

FORSAN

Essential feature.—The word "FORSAN." Used since July 1, 1900.

35,184. TEA. JULIUS A. MATTHEWS, New York, N. Y. Filed July 10, 1900.

Siberian Transit



SAMOVAR

Essential feature.—The picture or representation of a samovar and the words "SIBERIAN TRANSIT" and "SAMOVAR." Used since July 1, 1900.

35,185. SYRUP. ABRAM LYLE & SONS, Limited, London, England. Filed Mar. 21, 1900.



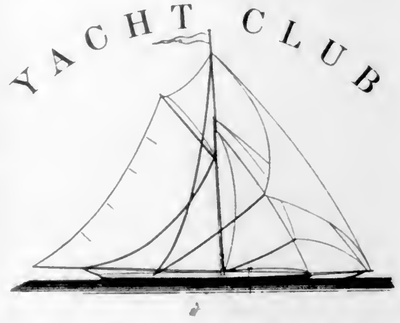
Essential feature.—The representation of a dead lion and the motto "OUT OF THE STRONG CAME FORTH SWEETNESS." Used since October, 1884.

35,186. SUGAR-SYRUPS. J. D. HAGE & Co., New York, N. Y. Filed Aug. 28, 1900.

PARADISE

Essential feature.—The word "PARADISE." Used since May 21, 1898.

35,187. VINEGAR AND PICKLES. PERCY DONALDSON, Baltimore, Md. Filed Aug. 14, 1900.



Essential feature.—The picture of a yacht under full sail and the words "YACHT CLUB." Used since 1895.

35,188. BUTTER OR A SUBSTITUTE FOR BUTTER. HENRY J. BIGELOW, Boston, Mass. Filed Aug. 11, 1900.

PASTRIO

Essential feature.—The word "PASTRIO." Used since August 1, 1900.

35,189. NUTS AND TUBERS. CHICAGO NUT FOOD CO., Chicago, Ill. Filed July 30, 1900.

QUEEN

Essential feature.—The word "QUEEN." Used since January 2, 1900.

35,190. BAKING-POWDER. BRICK & Co., Springfield, Ohio. Filed July 30, 1900.



Essential feature.—The representation of a seal with the words "THE WORLD'S" thereon. Used since September 1, 1899.

35,191. CANNED GOODS. ADAM ROTH GROCERY COMPANY, St. Louis, Mo. Filed May 10, 1900.

DRUM

Essential feature.—The word "DRUM." Used since March 20, 1900.

35,192. FISH IN HERMETICALLY-SEALED TINS. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed June 6, 1900.



Essential feature.—The pictorial representation of a lily of the order botanically known as *Lilium candidum*. Used since May 10, 1900.

35,193. CIGARS. WILLIAM BOUCHER, Baltimore, Md. Filed July 9, 1900.

35,193.



Essential feature.—A monogram of the letters "W" and "B." Used since July 1, 1893.

35,194. CIGARETTES. THE WELLS-WHITEHEAD TOBACCO COMPANY, Wilson, N. C. Filed Sept. 10, 1900.



Essential feature.—A monogram of the letters "W W T Co" in connection with a sunburst arranged below it. Used since February 1, 1900.

35,195. CLEANING COMPOUND FOR MACHINERY-BELTS. ADAM STOCKUM, Dayton, Ohio. Filed May 7, 1900.

CLEBELT

Essential feature.—The word "CLEBELT." Used since February 1, 1900.

35,196. PASTE. JOHN F. BLY, Chicago, Ill. Filed July 19, 1900.



Essential feature.—The representation of a lion. Used since May 15, 1900.

35,197. TALCUM AND TOOTH POWDERS. LEOPOLD MAYER, New York, N. Y. Filed July 21, 1900.

FLORA

Essential feature.—The word "FLORA." Used since May, 1898.

35,198. CERTAIN NAMED TOILET ARTICLE. AMELIA MAYER, Omaha, Nebr. Filed Aug. 22, 1900.

RE-NO-MAY

Essential feature.—The hyphenated word "RE-NO-MAY." Used since July 1, 1900.

35,199. CERTAIN NAMED TOILET ARTICLES. HARRY K. BUCK, Philadelphia, Pa. Filed Aug. 21, 1900.



Essential feature.—A representation of the Liberty Bell. Used since July 11, 1898.

35,200. MEDICATED BATHING LIQUIDS. GEORGE BÜCKLE, New York, N. Y. Filed Aug. 15, 1900.



Essential feature.—The representation of a human figure standing in a well charged with electric sparks. Used since February 1, 1900.

35,201. METALLIC PERCUSSION-CAPS. LAURA VON RAGUÉ, Barmen, Germany. Filed May 25, 1900.



Essential feature.—The representation of two crossed muskets having between them two crossed pistols, these four being bound together by a band with flying ends and surrounded by a serpent having its tail in its mouth. Used since February, 1881.

35,202. VEHICLE-PEDALS. CYCLE COMPONENTS COMPANY, New York, N. Y. Filed June 6, 1900.

CCC

Essential feature.—The three letters "C C C." Used since October 1, 1896.

35,203. EXPANDED SHEET-METAL STRUCTURES. INTERNATIONAL METAL LATH COMPANY, New York, N. Y. Filed Aug. 11, 1900.

HERRING BONE

Essential feature.—The words "HERRING BONE." Used since December 14, 1898.

35,204. CERTAIN NAMED ELECTRICAL APPLIANCES. WESTERN ELECTRICAL SUPPLY COMPANY, St. Louis, Mo. Filed June 7, 1900.

WESCO

Essential feature.—The word "WESCO." Used since December 1, 1899.

35,205. ROAD-BUILDING MACHINERY AND SUPPLIES. ACME ROAD MACHINERY COMPANY, Frankfort, N. Y. Filed July 16, 1900.

ACME

Essential feature.—The word "ACME." Used since April 2, 1900.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

HASTINGS *v.* GALLAGHER.

Decided September 18, 1900.

1. PRELIMINARY STATEMENT BY ASSIGNEE—MOTION TO FILE.

Where it appeared that an applicant declined to make a preliminary statement and such preliminary statement was executed by the assignee of the entire interest, *Held* that such a statement should be accepted, although there was no motion made that the assignee instead of the inventor should be permitted to file the statement.

2. SAME—RULE 131 CONSTRUED.

Rule 131, which relates only to the assignee of an undivided interest, affords no warrant for the assertion that the assignee of the entire interest is required to make a motion to be permitted to file a preliminary statement in place of the inventor.

3. SAME.

The rules of the Office provide that an assignee of an entire interest may prosecute an application to the exclusion of an inventor, and there appears no reason why such an assignee should be permitted to make amendments and have sole charge of an application and yet not be allowed to conduct the interference, which includes thereunder the execution and submission of a preliminary statement.

APPEAL from Examiner of Interferences.

BODY-BOLSTER FOR RAILWAY-CARS.

Application of George S. Hastings filed January 4, 1900, No. 345. Patent of Thomas M. Gallagher dated August 29, 1899, No. 632,180.

Mr. Joseph L. Levy and *Messrs. Wilkinson & Fisher* for Hastings.

Messrs. Knight Bros. for Gallagher.

DUELL, *Commissioner:*

The question presented by this appeal is whether the Examiner of Interferences erred in holding that the preliminary statement executed by the assignee of Gallagher was filed in compliance with the rules, and therefore should be accepted and approved and not be stricken out.

The facts in the case disclose that the Shickle, Harrison & Howard Iron Company is the assignee of the entire interest of Gallagher and that after the declaration of the interference the assignee, by its vice-president and general manager, executed the preliminary statement, setting forth in said statement that Gallagher had left the employ of the Company and declined to make a preliminary statement. It further appears that a patent issued upon the Gallagher application prior to the filing of Hastings's application, so that the interference is between a patent and an application.

It is urged on behalf of Hastings that the preliminary statement above referred to was improperly accepted and filed, for the reason that there was no motion founded upon satisfactory proof made for leave that the assignee file the preliminary statement instead of the inventor. It is contended that Rule 131 requires such motion. The rule reads as follows:

When, on motion duly made and upon satisfactory proof, it shall be shown that, by reason of the inability or refusal of the inventor to prosecute or defend an interference, or from other cause, the ends of justice require that an assignee of an undivided interest in the invention should be permitted to prosecute or defend the same, the Commissioner may so order.

To me it seems very clear that this rule relates only to the assignee of an undivided interest and affords no warrant for the assertion that the assignee of the entire interest is required to make the motion referred to in the rule. I cannot agree with the contention of Hastings's attorneys that the assignee of an entire interest is referred to and included under the statement contained in the rule relative to an assignee of an undivided interest. That would mean that the greater is included under the less—a proposition which is clearly untenable.

Furthermore, the rules provide that the assignee of an entire interest may prosecute the application to the exclusion of the inventor, and I can see no reason why the assignee should be permitted to submit alterations and amendments and have sole charge of the application and yet not be allowed to conduct the interference, which includes thereunder the execution and submission of a preliminary statement.

In the present case it appears by the affidavit of an officer of the assignee that the inventor declines to execute a preliminary statement. I fail to find any positive requirement in the rules that the inventor must execute the preliminary statement where he has parted with his entire interest in the application which has thereafter and before the declaration of the interference become a patent. Rule 110 provides:

Each party to the interference will be required to file a concise preliminary statement, under oath, on or before a date to be fixed by the office, showing the following facts: * * *

While under the practice of the Office the inventor, although he has parted with his entire interest in the application or patent, is made a party, I consider that where he has so divested himself of all interest he is merely a nominal party and that the term "each party to the interference" is broad enough and intended to refer to an assignee of the entire interest of the inventor. Why should an assignee of an entire interest be compelled to incur the expense of making a motion for leave to file the preliminary statement required by the rules and the Office be obliged to entertain such a motion and an appeal therefrom where it appears affirmatively and by the oath of the assignee that the inventor declines to make the preliminary statement, when such assignee under the rules is entitled to prosecute the application by an attorney of his own selection and in such manner as he sees fit without recourse to the inventor? No sound reason has been urged why such requirement would be reasonable, nor do I think any exists. In the absence of any affirmative rule requiring leave to be obtained by an assignee of an entire interest to file a preliminary statement I am not prepared to give a forced interpretation to any rule so as to compel motion to be made by such assignee.

The decision of the Examiner of Interferences in accepting and approving the preliminary statement, as well as his decision refusing to strike out such statement, is therefore affirmed.

EX PARTE GARMS.

Decided May 16, 1900.

1. RULE 66—EXAMINER COMPLYING WITH THE PROVISIONS THEREOF.
   Where an Examiner rejected claims upon an "old way" of doing a thing and upon request of the applicant refused to make a particular citation of this old way or to furnish the affidavit required by Rule 66, *Held* that this rule is explicit in its requirement and that there is no excuse for failure on the part of an Examiner to be guided by the Rules of Practice, particularly where the language admits of but one construction, as in this case.
2. SAME—SAME.
   Held, further, that it would have been much easier for the Examiner to comply with the rule instead of assuming to arbitrarily override it and force applicant to repeatedly request compliance with it, and finally to take a petition, consuming the Examiner's time in answering and obliging the Commissioner to review the case and write an opinion for the guidance of the Examiner in construing a rule that is as plain as A B C.

ON petition.

APRON AND APRON-TIE.

Application of William Garms filed January 27, 1897, No. 620,980.

Messrs. Townsend Bros. for the applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner refusing to comply with the provisions of Rule 66.

The Examiner's letter of April 28, 1899, after setting forth applicant's construction, says:

> This is an old way of fastening sheets of paper together, that is, to turn the corners down, perforate the turned-down corner and body of the paper and then fasten them together with an eyelet.

He then rejects claims 1, 2, and 3 on this "old way" taken in connection with a patent.

Thereupon applicant made the following request:

> If the Examiner knows of such a construction for such a purpose, he is requested to make such knowledge a part of the record either by citation or by the affidavit provided for in Rule 66.

To this the Examiner replied June 27, 1898:

> In regard to applicant's request in the above-referred-to amendatory paper that an affidavit be furnished as to the matter set forth in the second paragraph in the official letter of April 28, 1899, it is said that the Examiner is willing to rely on the official knowledge of the appellate tribunal in this matter.

In his letter of July 6, 1899, applicant again requested:

> If there is such knowledge, let the facts be specifically set forth. The Examiner must either state the facts as requested or furnish references upon which to reject this application, or else allow the patent without further delay.

After this applicant made four distinct requests for an affidavit setting forth the facts in connection with the "old way" cited by the Examiner, the last of these requests closing with these words:

> We further request that the Examiner definitely refuse to comply with this request or that the claims be allowed.

To each of these requests the Examiner answered by stating that applicant's communications had been incorporated, and a similar answer was returned to two additional requests.

This petition was then taken.

Rule 66 is explicit in its requirements That portion of the rule applicable to this case reads as follows:

> When reference is made to facts within the personal knowledge of an employee of the Office, the data will be as specific as possible, and the reference must be supported, when called for, by the affidavit of such employee, (Rule 76); such affidavit shall be subject to contradiction, explanation, or corroboration by the affidavits of the applicant and other persons.

There is no excuse for failure on the part of an Examiner to be guided by the Rules of Practice, particularly where the language admits of but one construction, as in this case. Granted that the Examiner's "old way" is familiar, not only to him, but to the appellate tribunals of the Office, is that any reason why applicant should be deprived of the right which the rule plainly gives him—namely, to "contradict, explain, or corroborate?"

How much easier it would have been for the Examiner to have taken a number of sheets of paper, fastened them together as described by him, and introduced his own affidavit, with the bunch of sheets attached as an exhibit, setting forth that this exhibit was a sample of what had been done by the Examiner himself for more than two years prior to the filing of the application. Instead of this he arbitrarily assumes authority to override the rule, forces applicant to request again and again a compliance with the rule, and finally to take a petition, takes the time that should be given to the consideration of other applicants to write a two-page answer to the petition, and forces the Commissioner to review the case and write an opinion for the guidance of the Examiner in construing a rule that is as plain as A B C.

The petition is granted.

EX PARTE DEETER.

Decided August 11, 1900.

1. WITHDRAWAL OF CASE FROM ISSUE—DEATH OF INVENTOR—NOTICE OF ALLOWANCE TO ADMINISTRATOR.
   Where a case was allowed February 8, 1900, and notice of allowance was sent to the attorney of record and the final fee was not paid within the six months, but on the last day on which the payment could have been made certified copies of letters testamentary, showing that the inventor was dead and that an administrator was appointed, were filed, together with a request that the case be withdrawn from issue and notice of allowance sent to the administrator, *Held* that the request should be denied.
2. SAME—SAME—SAME.
   Held, further, that the administrator takes the place of the inventor in the prosecution of the application, and a notice to the inventor is binding upon the administrator afterward appointed. The death of the inventor and the appointment of an administrator do not affect the status of the case as a pending application.
3. SAME—SAME—FORFEITED APPLICATION.
   Held, further, that the application has been forfeited by reason of the failure to pay the final fee within six months after the notice of allowance.

REQUEST to withdraw from issue.

VEHICLE-WHEEL.

Application of Isaac Deeter filed September 16, 1898, No. 691,105.

Mr. E. W. Anderson for the applicant.

CHAMBERLIN, *Acting Commissioner:*

This is a request that the above-entitled case be withdrawn from issue and that a notice of allowance be sent to the administrator of the deceased inventor.

The record shows that this case was allowed on February 8, 1900, the notice of allowance being sent to the attorney of record for the inventor, and that the final fee was not paid within the six months allowed by law. On August 8, the last day of the six months, the attorney of record filed the present request, accompanied by a certified copy of the letters testamentary showing that the inventor is dead and that Henry T. Deeter was appointed administrator of his estate on April 28, 1899.

The request seems to be based upon the technical holding that the administrator has not been notified of the allowance of the case; but such a holding is not well founded in law. The administrator takes the place of the inventor in the prosecution of the application, and a notice to the inventor is binding upon the administrator afterward appointed. The death of the inventor and appointment of an administrator does not affect the status of a case as a pending application. (*Decker* v. *Loosley*, 77 O. G., 2140; *Handley* v. *Bradley*, 89 O. G., 522.)

It is not necessary to file another application and commence proceedings anew, since the administrator is merely substituted for the inventor in the same proceedings "upon proper intervention by him," (Rule 25,) and he is bound by actions which have been taken by and notices which have been given to the inventor to the same extent as the inventor would be if he were alive. This practice is sustained by the decision of the Supreme Court in *De la Vergne Refrigerating Co.* v. *Featherstone*, (62 O. G., 741.)

The application has been forfeited by reason of the failure to pay the final fee within six months after the notice of allowance.

The request is denied.

EX PARTE DAVIDSON.

Decided August 13, 1900.

REJECTION UPON AN ALLOWED APPLICATION AND A PATENT—APPEAL TO THE EXAMINERS-IN-CHIEF.

It being settled that it is proper in some cases to reject claims on an applicant's allowed case, the question whether the facts of the particular case justify it relates to the merits and is properly appealable to the Examiners-in-Chief and should not be passed upon by the Commissioner on petition.

ON petition.

CENTRIFUGAL FAN AND PUMP.

Application of Samuel C. Davidson filed December 15, 1899, No. 740,399.

Messrs. A. C. Fraser & Co. for the applicant.

CHAMBERLIN, *Acting Commissioner:*

This is a petition from the action of the Primary Examiner rejecting certain claims upon an allowed case filed by this applicant taken in connection with a patent cited.

The petitioner contends that it was not proper to cite his allowed case as a reference, and that is the question which he wishes reviewed. It is obvious that it is proper under certain circumstances to refuse to allow an application in view of a previous allowed application filed by the same party, for otherwise it might be necessary to allow two applications identical in all respects filed by the same party. Even where the applications are not identical the differences may be so slight and immaterial that they cover substantially the same invention, and it would not be proper to allow both. Two patents should not be granted to a party where there is no proper line of division or where there is no patentable distinction between them.

The petitioner apparently admits this in so far as the divisibility of the invention is concerned, but contends that the facts in this particular case do not justify the citation of his allowed case. He argues that his allowed case contains broad claims and shows several species of the invention, including the species shown and claimed in the present case, and that he could not have made the present claims in that case, since he had claims therein limited to a different species. He also argues, broadly, that the Examiner was wrong in holding that the claims in this case to be allowable should be patentably different from the claims in his allowed case.

It is apparent from these contentions that to pass upon the question whether the Examiner's action was proper it would be necessary to thoroughly review the record and the merits of the case. It being settled that it is proper in some cases to reject claims on the applicant's allowed case, the question whether the facts of a particular case justify it relates to the merits and is properly appealable to the Examiners-in-Chief. (*Ex parte Osborne*, 69 MS. Dec., 473.) The matter will not be passed upon on this petition; but it may be stated that the petitioner's broad contention that there need be no patentable distinction between the claims is not well founded. It would obviously be improper to grant two patents where there was no patentable distinction between the claims.

The petition is dismissed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

FARQUHAR COMPANY *v.* NATIONAL HARROW COMPANY.

Decided June 1, 1900.

INJUNCTION—THREATENING SUITS FOR INFRINGEMENT OF PATENTS.

While the owner of a patent may lawfully warn others against infringement and by means of circulars or letters distributed among agents and customers of a manufacturer of goods claimed to infringe give notice of his rights as he understands them and of his intention to enforce them by suits when done in good faith, the sending of such notices and circulars in bad faith and without any intention of bringing the suits therein threatened, but solely for the purpose of destroying the business of such manufacturer, constitutes a fraudulent invasion of property rights, against which the party injured is entitled to relief in equity by injunction.

APPEAL from the Circuit Court of the United States for the District of New Jersey.

Before ACHESON, DALLAS, and BRADFORD, Judges.

Mr. John G. Johnson and *Mr. William Strawbridge* for the appellant.

Mr. E. Risby for the appellee.

DALLAS, *J.*:

We entirely concur in the statement of the court below that—

the patent owner is justified in using all lawful means to protect his monopoly—

and that—

he may give notice of his rights as he understands them, and of his intention to ask the courts to enforce them in suit to be brought for the purpose.

But the bill in this case, which was dismissed on demurrer, (99 Fed. Rep., 160,) charges the defendant with something more than the use of lawful means to protect its monopoly. It alleges not merely that the defendant is giving notice of its rights and of its intention to enforce them, but that it—

is now endeavoring to break up and destroy the harrow business of your orator, and to drive it out of the field of the manufacture of spring-tooth harrows, * * * by the circulation among the customers and agents of your orator of letters, addressed and mailed to said customers and agents, in and by which said customers and agents are falsely and maliciously informed that the harrows of your orator's manufacture, handled by said customers and agents, are infringements upon patents owned by the defendant corporation; * * * that the threats of the defendant company against the customers and agents of your orator are rendered the more effective and harmful to the business of your orator by circulars in which, by innuendo, it is conveyed to customers and agents of your orator, and contrary to the fact, as the defendant, the National Harrow Company, and its officers, well know, that your orator is not able to fulfil, by reason of lack of means, and will otherwise evade, guaranties given by your orator to its customers and agents to protect them against suits for infringement brought by the National Harrow Company against them; that said threats of the defendant against the customers and agents of your orator are rendered still more effective by the circulation by the defendant company of notices in and by which it is falsely stated and pretended that certain patents owned by the defendant company have been adjudicated and sustained in contested cases, and injunctions issued against the defendants therein; that the defendant has continued for many years, and particularly for the past three years, the sending of the letters and circulars hereinbefore referred to, to the customers and agents of your orator, for the purpose of breaking up and destroying your orator's business in spring-tooth harrows; that the threats of suit against the customers and agents of your orator are not made in good faith, or with any intention of instituting suit against such customers or agents or against your orator.

Assuming, as on demurrer must be assumed, the truth of these allegations, we are of opinion that the court below erred in holding them insufficient to entitle the complainant to relief in equity. Where notices are given or circulars distributed in good faith to warn against infringement, no wrong whatever is committed; but where, as is here averred, they are not made or issued with such intent, but in bad faith, and solely for the purpose of destroying the business of another a very different case is presented. In such a case property rights are fraudulently assailed, and a court of chancery, whose interposition is invoked for their protection, should not refuse to accord it. (*Emack* v. *Kane*, C. C., 34 Fed. Rep., 46; *Kelley* v. *Manufacturing Co.*, C. C., 44 Fed. Rep., 23; 10 L. R. A., 686; *Casey* v. *Union*, C. C., 45 Fed. Rep., 135; 12 L. R. A., 193; *Toledo, A. A. & N. M. Ry. Co.* v. *Pennsylvania Co.*, C. C., 54 Fed. Rep., 730; 19 L. R. A., 387; *Computing Scale Co.* v. *National Computing Scale Co.*, C. C., 79 Fed. Rep., 962; *Lewin* v. *Light Co.*, C. C., 81 Fed. Rep., 904; *Railway Co.* v. *McConnell*, C. C., 82 Fed. Rep., 65; *Adriance, Platt & Co.* v. *National Harrow Co.*, C. C., 98 Fed. Rep., 118; *In re Debs*, 158 U. S., 564; 15 Sup. Ct., 900; 39 L. Ed., 1092.) The objection that the "bill is lacking in allegations necessary to establish jurisdiction of the circuit court" is not well taken. (*Herbert* v. *Rainey*, C. C., 54 Fed. Rep., 248-251; *Toledo, A. A. & N. M. Ry. Co.* v. *Pennsylvania Co.*, *supra*.)

The decree is reversed, and the cause will be remanded to the circuit court, with direction to enter a decree disallowing the demurrer to the bill of complaint and with leave to the defendant to answer within such time as that court may prescribe.

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[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 28, 1900.

SIR: The Secretary of the Interior has ordered that Leonidas C. Dyer, of Washington, D. C., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., September 29, 1900.

SIR: The Secretary of the Interior has ordered that Earl Hickman, of Butler, Mo., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 2, 1900.

SIR: The Secretary of the Interior has ordered that William C. Lefferts, of Passaic, N. J., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

CERTIFICATES OF REGISTRATION ISSUED OCTOBER 9, 1900.

Labels.

7,809.—Title: "YUM YUM PLUMS." (For Plums.) *C. H. Godfrey*, Benton Harbor, Mich. Application filed September 17, 1900.

7,810.—Title: "PEANUT RELISH." (For a Relish.) *Frederick W. Freeman*, Columbus, Ohio. Application filed September 15, 1900.

7,811.—Title: "LOBELIA SWEET CORN." (For Canned Corn.) *United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 18, 1900.

7,812.—Title: "WM. PENN FAMILY SOAP." (For Soap.) *The National Soap Works*, Titusville, Pa. Application filed September 13, 1900.

7,813.—Title: "PEARL-E-TEETH." (For a Tooth-Wash.) *J. Wm. H. Ahrens*, New York, N. Y. Application filed May 26, 1900.

7,814.—Title: "ERB'S HEALTH CAPSULES." (For a Medicine.) *Ludwig G. B. Erb*, New York, N. Y. Application filed September 15, 1900.

7,815.—Title: "THE BOSTON." (For Candy.) *The Boston Confectionery Co.*, New York, N. Y. Application filed September 1, 1900.

7,816.—Title: "CRISPY CORN WAFERS." (For Confections.) *Crispy Wafer Co.*, Anderson, Ind. Application filed September 18, 1900.

7,817.—Title: "U. S. GRANT." (For Cigars.) *Max Blaskower*, San Francisco, Cal. Application filed September 5, 1900.

7,818.—Title: "B. B. ODELL, JR." (For Cigars.) *Canniff & Waring*, Newburg, N. Y. Application filed September 18, 1900.

7,819.—Title: "LA DOMINENCIA." (For Cigars.) *M. Newlander & Co.*, Chicago, Ill. Application filed September 15, 1900.

7,820.—Title: "OUR SENATOR." (For Cigars.) *B. B. Smith*, Alexandria, Va. Application filed September 13, 1900.

7,821.—Title: "NATURA ARTIS MAGISTRA." (For Spun Silk Yarn.) *Magid Hope Silk Manufacturing Company*, Milford, Mass. Application filed September 12, 1900.

Print.

267.—Title: "FRANCISCO GOYA." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed September 18, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 2, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc.	Sept. 24	Sept. 22	125
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Sept. 22	Sept. 25	23
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Sept. 17	Sept. 18	171
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Sept. 8	Sept. 21	45
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 8	Sept. 17	262
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Sept. 6	Sept. 18	130
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 5	Sept. 21	96
253	X. Carriages and Wagons	Sept. 5	Sept. 20	109
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Sept. 5	Sept. 19	112
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 4	Sept. 20	89
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 4	Sept. 20	144
240	VII. Velocipedes, Games, and Toys.	Sept. 4	Sept. 19	136
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Sept. 4	Sept. 19	134
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Sept. 4	Sept. 19	128
246	I. Tillage and Fences	Sept. 4	Sept. 19	135
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 4	Sept. 19	92
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Sept. 4	Sept. 18	115
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 4	Sept. 18	152
248	XVIII. Steam-Engineering, etc	Sept. 4	Sept. 18	115
255	XII. Mechanical Engineering, Store-Service, etc.	Sept. 4	Sept. 18	158
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 4	Sept. 18	126
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 4	Sept. 18	157
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Sept. 4	Sept. 18	322
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 4	Sept. 18	120
80	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 4	Sept. 18	148
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Sept. 4	Sept. 18	181
93	XXI. Textiles, etc	Sept. 4	Sept. 17	127
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Sept. 4	Sept. 17	148
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Sept. 3	Sept. 19	158
	Between one and two months.			
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Aug. 27	Aug. 20	217
102	XIX. Stoves and Furnaces	Aug. 20	Aug. 25	253
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Aug. 19	Aug. 11	231
	Between two and three months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 23	Aug. 11	242
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 18	Aug. 20	146
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	July 6	Sept. 10	123
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 6	July 23	341

Total number of applications awaiting action.....5,511

Applications Under Examination—Continued.

Under one month.			
*Designs	Sept. 21	Sept. 28	37
†Trade-Marks	Sept. 12	Sept. 29	52
‡Labels and Prints			

ISSUE OF OCTOBER 9, 1900.

Patents	436—No. 659,198 to No. 659,633,	inclusive.
Designs	32—No. 31,322 to No. 31,353,	inclusive.
Trade-Marks	34—No. 35,206 to No. 35,239,	inclusive.
Labels	13—No. 7,809 to No. 7,821,	inclusive.
Prints	1—No. 267.	
Reissues	3—No. 11,862 to No. 11,864,	inclusive.
Total issue	519	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2		Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	1		New Jersey	19	2
California	25	1	New Mexico Territ'y		
Colorado	5		New York	68	12
Connecticut	12		North Carolina	2	
Delaware			North Dakota	1	
District of Columbia	3		Ohio	31	6
Florida	1		Oklahoma Territ'y	1	
Georgia	2		Oregon	2	
Hawaii			Pennsylvania	43	8
Idaho	1		Rhode Island	2	
Illinois	38	1	South Carolina	2	
Indian Territory			South Dakota		
Indiana	10	1	Tennessee	5	
Iowa	12		Texas	5	
Kansas	6		Utah	1	
Kentucky	3		Vermont	1	
Louisiana	2		Virginia		2
Maine	2		Washington	2	
Maryland	4		West Virginia	1	
Massachusetts	30	7	Wisconsin	11	
Michigan	21	1	Wyoming		
Minnesota	12	1	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	13	2	Total to citizens of the United States	415	44
Montana	2				
Nebraska	8				

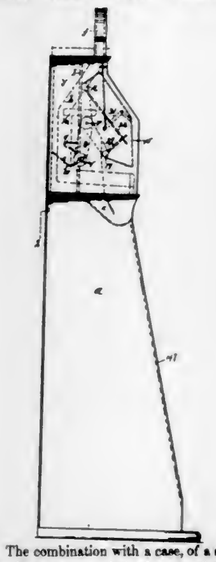
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	1	
Australia			Japan		
Austria-Hungary			Java		
Barbadoes			Mexico		
Belgium	1		Netherlands		
Bermuda			New South Wales		
Brazil			New Zealand	1	
Canada	3	1	Norway		
Chile			Queensland		
China			Russia	1	
Costa Rica			Scotland	3	
Cuba			South African Republic	1	
Denmark	1		South Australia		
Egypt			Spain		
England	14	2	Sweden	2	
Finland			Switzerland		
France	10		Venezuela		
Germany	14	1	Victoria	1	
Guatemala					
Haiti			Total to citizens of foreign countries	53	4
India					
Ireland					

PATENTS

GRANTED OCTOBER 9, 1900.

659,198. **VENDING DEVICE.** JOSEPH AARONS, Detroit, Mich. Filed Oct. 24, 1899. Serial No. 734,636. (No model.)



Claim.—1. The combination with a case, of a storage-chamber provided with a swinging gate toward the lower end thereof and above its base, a rotatable shaft provided with delivery mechanism to discharge merchandise from said chamber, said gate arranged to swing outward when an article of merchandise is discharged from the chamber and when in normal position to separate the lower article in said chamber from the articles thereabove, and to support the articles thereabove thereupon, substantially as set forth.

2. The combination with a case, provided with a recessed base, of a storage-chamber, a rotatable shaft at the base of the chamber provided with fingers to rotate through the corresponding recesses of the base to discharge merchandise from said chamber, and a swinging gate above said base normally projecting into the storage-chamber, for the purpose described.

3. The combination with a case, of a storage-chamber, a rotatable shaft located at the base of the storage-chamber, an additional rotatable shaft, means to actuate the latter shaft, means connecting the two shafts whereby the shaft at the base of the chamber will be actuated by the other shaft, the shaft at the base of the chamber provided with delivery mechanism to deliver merchandise from the storage-chamber and a swinging gate above said base, for the purpose set forth.

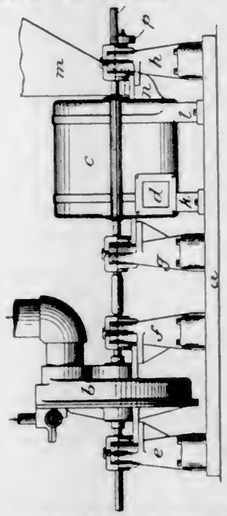
659,199. **METAL TAG.** JAMES W. ANDERTON, Dayton, Ohio. Filed Jan. 18, 1900. Serial No. 1,959. (No model.)



Claim.—1. As a new article of manufacture, a dealer's tag for finger-rings the same consisting of thin sheet metal having an enlarged end upon which the price-mark and other information is inscribed, a tapering shank extending from said enlarged portion and terminating in an enlarged end, a longitudinal slot at the point where the shank leaves the body of the tag, said slot being enlarged at the end nearest the shank, whereby the end of the shank may be inserted therein by giving it a half-turn and may be locked therein by turning it back in the opposite direction.

2. A tag for finger-rings, the same consisting of thin sheet metal having an oval body upon which the price-mark and other data may be inscribed, a shank extending from said oblong body having two tapering sides terminating in a head substantially of the width of the widest part of the shank; a slot in the oblong body adjacent to the point where the shank departs from said body, the portion of the slot nearest the shank being enlarged and the head of the shank being adapted to be inserted and locked in said slot by turning said head parallel with the slot and in then turning said head at right angles to the slot, substantially as shown and described.

659,200. **FUEL-FEEDING ATTACHMENT.** THOMAS ASENCIO, New York, N. Y., assignor to Alfred P. Boller, same place. Filed Apr. 27, 1900. Serial No. 14,530. (No model.)



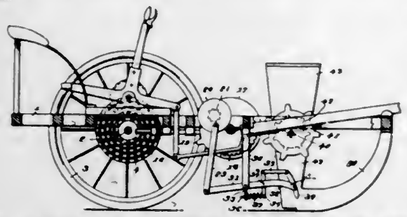
Claim.—An attachment for steam-boiler and other furnaces comprising a rotary motor and a rotary pulverizer and blower arranged to be actuated by the motor, the said motor, pulverizer and blower having a common shaft and being so correlated in capacity and operation that an attachment of a given capacity will furnish the necessary and uniform amount of fuel elements required for any particular furnace.

659,201. **CORN-PLANTER.** JOHN W. BERLIEN, Argo, Mo. Filed Feb. 20, 1900. Serial No. 5,952. (No model.)

Claim.—1. In a corn-planter, the combination, with the wheel-supported frame provided with adjustable dropping mechanism, of a marking-lever on the frame, and means for detachably connecting said lever with the dropping mechanism independently of the adjusting mechanism, substantially as described.

2. In a corn-planter, the combination, with a wheel-supported frame provided with intermittent dropping mechanism, of an intermittently-

movable marking-lever detachably connected with the dropping mechanism, and means for causing the lever to operate only at a predetermined time relatively to the operation of the seeding mechanism irrespective as to the time it is thrown into its operative position, substantially as described.



3. In a corn-planter, the combination, with a wheel-supported frame provided with seedboxes and an operating-shaft for the boxes, of a toothed wheel on said shaft, a train of gearing, one wheel of which is provided with a projection for engaging with said toothed wheel, a marking-lever, and means for connecting said lever with the wheel provided with the projection in such manner as to cause it to operate only at a predetermined time relatively to the operation of the shaft of the seedboxes, substantially as described.

4. In a corn-dropper, the combination, with a wheel-supported frame provided with seedboxes and an operating-shaft for the boxes, of a toothed wheel on said shaft, a train of gearing, one wheel of which is provided with a projection for engaging said toothed wheel and with a mutilated gear, a shaft, a movable pinion on one end of said shaft for engaging with the mutilated gear, and a marking-lever connected with the other end, substantially as described.

5. In a corn-planter, the combination, with a wheel-supported frame provided with seedboxes and an operating-shaft for the boxes, of two crown-wheels, each of which is provided with concentric rows of teeth and one of them is on the axle of the machine and the other one is adapted to operate the shaft of the boxes, a shaft journaled on the frame, and a pinion adjustably secured on each end of said shaft in position to engage with its respective crown-wheel, substantially as described.

6. In a corn-planter, the combination, with a wheel-supported frame provided with seedboxes and an operating-shaft, of a toothed wheel on said shaft, two crown-wheels, each of which is provided with concentric rows of teeth, and one of them is provided with a projection in position to engage with said toothed wheel, and the other one is mounted on the axle of the machine, a shaft journaled on the frame, a pinion adjustably secured on each end of said shaft in position to engage with its respective crown-wheel, a marking-lever, and means for detachably connecting said lever with the crown-wheel provided with the projection, substantially as described.

7. In a corn-planter the combination with the crown-wheel mounted on the axle of the machine having concentric rows of teeth on one of its faces, a shaft, pinions adjustably mounted thereon, another crown-wheel like the first named, a cam or projection integral with the periphery of the same a spur-wheel adapted to be engaged by said cam and seeding mechanism in position to be operated by said spur-wheel, substantially as described.

8. In a corn-planter, a marking-lever comprising a lever pivoted to a hanger from the machine, an inverted-L-shaped lever pivoted thereto, and a marking-point pivoted to the forward ends of both of said levers, and means to operate the same, substantially as described.

9. In a corn-planter a marking-lever comprising a lever pivoted to a hanger from the machine, a perforated lug depending from said lever, an inverted-L-shaped lever pivoted to said lever, a rod extending from the lower end thereof through the said perforated lug, a coiled spring secured around said rod and a marking-point pivoted to the forward ends of the first-named levers, substantially as described.

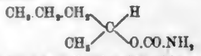
10. In a corn-planter, the combination with a wheel mounted upon the axle thereof and provided with concentric rows of crown-teeth on one of its faces, a shaft, pinions adjustably mounted on said shaft, a second crown-wheel like the first named, a segmental rack secured on one of the faces thereof of a shaft suitably mounted, a pinion adjustably mounted on said shaft adapted to engage the said segmental rack and a disk having a crank mounted on the other end of said shaft, a link connected to said crank, and a marking-lever, substantially as described.

11. In a corn-planter, the combination with a wheel mounted upon the axle thereof and provided with concentric rows of crown-teeth on one of its faces, a shaft, pinions adjustably mounted thereon, a second crown-wheel like the first named, a segmental rack secured on one of the faces thereof, of a shaft suitably mounted, a pinion adjustably mounted on one end of the same and adapted to engage said rack, and a disk having a crank mounted on the other end of said shaft, a link pivoted to said crank and a marking-lever comprising a lever pivoted to said link, and pivoted near its center to a hanger, a depending perforated lug integral with said lever, an inverted-L-shaped lever pivoted to the forward end of the first-named lever and a rod secured to the lower end of the same and projecting through the perforated lug, a spring coiled around said rod, and a marking-point pivoted to the forward ends of both of the first-named levers, substantially as shown and described.

659,202. METHYLPROPYLCARBINOLURETHANE AND METHOD OF MAKING SAME. OTTO BONHOEFFER and HEINRICH DRESER, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed Oct. 17, 1899. Serial No. 733,918. (Specimens.)

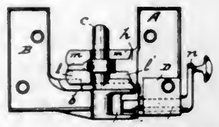
Claim.—1. The process for the production of methylpropylcarbinolurethane which process consists in allowing urea salts to act on methylpropylcarbinol, isolating the so-formed methylpropylcarbinolurethane and subsequently purifying the same.

2. As a new article of manufacture the methylpropylcarbinolurethane having the formula:



forming when crystallized from ligroine thin white needles melting at 74° centrigrade, being readily soluble in alcohol, benzene, toluene, ether, carbon tetrachloride, also soluble in water, and adapted for being used in medicine as soporific.

659,203. HINGE. NUMA A. BOURQUIN, Reading, Pa., assignor of one-half to Irvin P. Fessler, same place. Filed Apr. 10, 1900. Serial No. 12,275. (No model.)



Claim.—1. In a hinge, the combination with one leaf carrying the pintle with lugs at each side thereof, and a pair of flanges forming a channel extending around the outer side of the base of the pintle; of the other leaf carrying an eye for the pintle with lugs at each side of the eye, a bearing on this leaf, a shaft journaled therein and having a crank-handle at its outer end, and a lip at the inner end of the shaft traveling in said channel and adapted to raise this leaf when the handle is manipulated, substantially as described.

2. A hinge comprising two leaves with upright bodies and horizontal projections from their lower ends, one projection carrying the pintle and the other the eye, a pair of inclined lugs at opposite sides of the pintle, a similar pair at opposite sides of the eye and adapted to engage the first pair, two spaced horizontal flanges on one leaf forming a channel extending around the axis of the pintle, a horizontal crank-shaft journaled in the other leaf, and a lip on said shaft traveling in the channel, as and for the purpose set forth.

659,204. BROMO-TANNIN-GELATIN COMPOUND. HEINRICH BRAT, Rummelsburg, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Filed Aug. 9, 1900. Serial No. 26,373. (No specimens.)

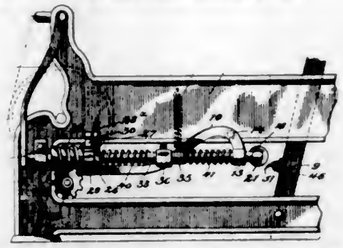
Claim.—The new organic bromo compound herein described, obtained by precipitating bromo-tannin solutions by means of gelatin solutions; said product containing tannic acid, gelatin and bromin; forming a yellowish-gray powder free from taste and smell, being nearly insoluble in water and diluted acids; being readily soluble in caustic alkalies to a reddish-brown solution; being reprecipitated from the solution obtained by addition of acids; being only little attacked by the action of the juices of the stomach; containing about twenty per cent. of bromin.

659,205. LET-OFF MOTION FOR LOOMS. JOHN C. BRYAN, Augusta, Ga. Filed Oct. 14, 1899. Serial No. 733,628. (No model.)

Claim.—1. In a let-off motion for looms, the combination with a warp-beam and a lay-arm, of a follower operatively held in constant contact with the bulk of warp on the beam, a rotatable and longitudinally-movable device connected to said follower and by its movement controlling the feed of the warp-beam, and a contacting projection on the lay-arm to intermittently and directly engage a portion of the said rotatable and longitudinally-movable device.

2. In a let-off motion for looms, the combination with a warp-beam and a lay-arm, of an automatically-adjustable rotatable and longitudinally-

movable device for controlling the feed of the warp-beam, and a projection on the lay-arm to intermittently and directly contact with an extremity of said rotatable and longitudinally-shiftable device.



3. In a let-off motion for looms, a warp-beam, a lay-arm having a projection, and a horizontally-disposed rotatable and longitudinally-movable device with which a projection on the lay-arm intermittently contacts to control the pay-off of the warp-threads from the beam.

4. A let-off motion for looms having a rotatable and longitudinally-shiftable device controlling the feed of the warp from the warp-beam, a follower having one extremity in contact with the bulk of the warp on the beam and the opposite extremity loosely and adjustably supporting the said rotatable and shiftable device, and a lay-arm having a projection adapted to contact with a portion of the said rotatable and shiftable device.

5. A let-off motion for looms having a rotatable and longitudinally-shiftable device adapted to operate the feeding mechanism of the warp-beam and having bearing against the arm of the whip-roll, a lay-arm having a projection adapted to contact with a portion of said rotatable and shiftable device, and means for engaging the said rotatable and shiftable device and controlling its depression below a horizontal plane automatically and proportionately to the gradual diminution of the bulk of warp-threads on the beam.

6. A let-off motion for looms, comprising a rotatable and longitudinally-shiftable device for controlling the feed of the warp-beam proportionate to the tension on the warp-threads, a lay-arm for directly operating the said rotatable and shiftable device, yielding means on opposite portions of the said rotatable and longitudinal shiftable device adapted to be adjusted to control the longitudinal movement of the latter, and means for supporting the said rotatable and shiftable device and regulating its vertical position proportionately to the feed of the warp-threads from the beam and to bring a portion thereof within a greater distance of the path of movement of the lay-arm.

7. A let-off motion for looms comprising a rotatable and longitudinally-shiftable device in operative relation to the feeding-gears of a warp-beam and suspended in bearings to permit of movement below a horizontal plane, of a means for automatically increasing the feeding operation of said device to gradually compensate for the regular diminution of the bulk of the warp on the beam, and a lay-arm directly operating to actuate the said device.

8. In a let-off motion for looms, the combination with a warp-beam and feeding-gearing therefor, and a lay-arm having a projection, of a horizontally-disposed and longitudinally-movable rotatable device for actuating the said gearing and adapted to be longitudinally shifted through a portion of the same without affecting its operation, the said rotatable and shiftable device being actuated by having a portion thereof brought into contact with the projection on the lay-arm.

9. In a let-off motion for looms, the combination with a warp-beam and feeding-gearing therefor, and a lay-arm having a projection, of a horizontally-disposed rotatable device for actuating the said gearing and adapted to be longitudinally shifted through a portion of the same without affecting its operation, the said rotatable and shiftable device being actuated by having a portion thereof engaged by the projection on the lay-arm, means controlled by the diminution of the bulk of warp on the warp-beam for loosely supporting a portion of the said rotatable and shiftable device and regulating its vertical elevation without interfering with the gearing, and means for regulating the movement of said rotatable and shiftable device.

10. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same and a lay-arm, of mechanism, including a horizontally-disposed device capable of rotary and longitudinal movement, and interposed between a portion of the path of movement of the said lay-arm and the gearing and adapted to be intermittently contacted by the lay-arm and automatically adjustable to regularly compensate for the diminution of the bulk of warp on the warp-beam and the tension of the warp-threads.

11. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same and the lay-arm, of horizontally-disposed mechanism interposed between the path of movement of the said lay-arm and the gearing, means for regulating the tension of the said mechanism, and means for automatically controlling the depression of the same below a horizontal plane proportionately to the diminution of the bulk of warp-threads on the beam.

12. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm having a projection, of a rotatable and longitudinally-shiftable rod or shaft operatively connected to the said gearing and having an angular extremity with a movable element thereon for engagement by the projection on the lay-arm, and means for adjusting the said rod or shaft.

13. In a let-off motion for looms the combination with a warp-beam, gearing for operating the same, and a lay-arm having a projection, of a rotatable and longitudinally-shiftable rod or shaft in intimate relation to the said gearing and having an angular extremity with a movable element thereon for engagement by the projection on the lay-arm, and an automatically-movable follower having loose engagement with the said rod or shaft at one extremity and the opposite extremity supplied with an antifrictional device adapted to bear against the bulk of warp on the beam.

14. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm having a projection, of a rotatable and longitudinally-shiftable rod or shaft having the extremity adjacent the lay-arm provided with an angular projection and supplied with a movable element adapted to be engaged by the projection of the lay-arm, means for adjustably supporting the said rod or shaft, springs surrounding opposite portions of the same, adjustable sleeves between the said springs, and a collar for controlling the movement of the said sleeves.

15. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm, of a rotatable and shiftable rod or shaft to actuate the said gearing and having a crank at its front extremity with a roller thereon, a support adjustably secured to the lay-arm and a cam adjustably mounted on the said support and adapted to engage the said roller.

16. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm, of a device in connection with the gearing and capable of having both a rotary and longitudinal movement, individual yielding mechanism on different portions of said device, means for adjusting said yielding mechanism, and means for loosely and adjustably supporting one extremity of the said device

17. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm, of a rotatable and longitudinally-movable device operatively connected to said gearing and actuated by the lay-arm, opposed yielding mechanism on different portions of the said device, and means for automatically controlling the depression of the said device proportionately to the diminution of the bulk of the warp-threads on the beam.

18. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm, of a rotatable and longitudinally-movable device operable by contact with the said lay-arm, and means for lowering one extremity of the device below a horizontal plane and proportionately to the diminution of the bulk of warp-threads on the beam.

19. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same and a lay-arm, of a rotatable and longitudinally-movable device operable by contact with a part of the lay-arm, means for automatically controlling the depression of the said device below a horizontal plane proportionately to the diminution of the bulk of warp-threads on the beam, and opposed yielding mechanism on the said device for regulating its movement in a longitudinal direction.

20. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, a whip-roll having an arm, and a lay-arm, of a rotatable and longitudinally-shiftable device operatively connected to the said gearing and having one extremity engaged by the arm of the whip-roll, the said device being operable by the intermittent contact therewith of a projection on the lay-arm, and means for adjusting the said device to proportionately compensate for the diminution of the bulk of warp-threads on the beam.

21. In a let-off motion for looms, a warp-beam, gearing for operating the same, and a lay-arm, combined with mechanism for operating the gearing, and bearings for loosely supporting said mechanism to permit it to be automatically moved below a horizontal plane proportionately to the diminution of the bulk of warp-threads on the beam, the said mechanism being intermittently contacting by a portion of the lay-arm and the length of operation depending on the depression of the mechanism.

22. A let-off motion for looms, comprising the usual beam-operating instrumentalities, and a lay-arm, and a horizontally-disposed rotatable and longitudinally-movable device adapted to be directly and intermittently engaged by a portion of the lay-arm to actuate the beam.

23. In a let-off motion for looms, the combination with a warp-beam,

gearing for operating the same, and a lay-arm, of a rotatable and longitudinally-shiftable device operatively connected to and movable through a part of said gearing, the said device being also adjustable below a horizontal plane proportionately to the diminution of the bulk of warp-threads on the beam and actuated by direct and intermittent contact with a portion of said lay-arm.

24. In a let-off motion for looms, the combination with a warp-beam, gearing for operating the same, and a lay-arm, of a cam projection on the lay-arm, and a rotatable and longitudinally-movable device between the gearing and the lay-arm, the said device being capable of the two movements independently and through the medium of an intermittent contact with the cam projection on the lay-arm.

659,206. PROCESS OF AND ATTACHMENT FOR BUILDING UP BROKEN OR DECAYED TEETH. John P. Carmichael, Milwaukee, Wis. Filed June 9, 1899. Serial No. 719,994. (No model.)



Claim.—1. A process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling one or more grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth, and to the groove or grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming a rib or ribs in the base; removing the base from the tooth; next stiffening and building up the base with a suitable material; and finally applying the complete attachment to the tooth and cementing or otherwise securing said attachment to the tooth.

2. A process of forming an attachment for and connecting the same to a natural tooth, which consists in cutting, grinding, or drilling grooves in a natural tooth; shaping and fitting a base of suitable material to the tooth and to the grooves in said tooth, and thereby conforming the base to the shape of the portion of the tooth to which it is applied, and also forming ribs in the base by pressing said base into the grooves; applying a staple to the base during the operation of shaping and contouring; removing the base, together with the staple from the tooth; next stiffening and building up the base with a suitable material; and finally applying the complete attachment to the tooth, and cementing or otherwise securing said attachment to the tooth.

3. An attachment for natural teeth, consisting of a base or inner portion of suitable material provided with a transverse portion adapted to fit across the end of a natural tooth, and also provided with side ribs adapted to engage and fit side grooves or corrugations in said tooth, an outer portion covering the base or inner portion, and a U-shaped retaining device disposed between the inner and outer portions, and adapted to engage the side grooves or corrugations of the tooth.

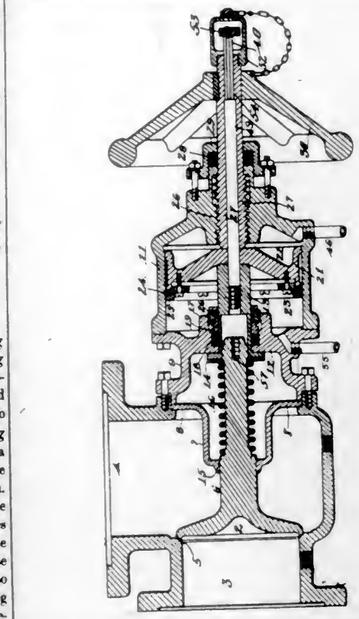
4. An attachment for natural teeth, consisting of a base or inner portion and an outer portion covering the inner portion, the said attachment provided with a back member, a bottom member, and side members, the back member fitting around the back of the tooth, the bottom member fitting across the end of the tooth, and the side members fitting the approximate side edges of the tooth, said bottom member provided with a transverse rib adapted to fit a transverse groove in the end of the tooth, and the side members provided with vertical ribs adapted to fit vertical grooves in the approximate side edges of the tooth.

5. An attachment for natural teeth, consisting of a base or inner portion shaped to fit the natural tooth, and provided with a rib or ribs adapted to fit a groove or grooves formed in said tooth, and an outer portion covering the base or inner portion.

6. The combination with a natural tooth having a groove or grooves in its outer lateral side edge or edges, of an attachment conforming and fitted to irregular, broken or decayed portions of the tooth and provided with a rib or ribs fitting in the groove or grooves of the tooth, said attachment adapted to act as a connecting medium for bridge-teeth, plates, and the like, or as a means for building up the irregular, broken or decayed portion of the tooth, or as a retainer for fillings, inlays, and the like.

659,207. COMBINATION-VALVE. Arthur W. Cash, Newark N. J., assignor to the Foster Engineering Company, same place. Filed Jan. 31, 1900. Serial No. 3,473. (No model.)

Claim.—1. In a valve of the character described, the combination of an inlet and outlet casing, a main valve to control the inlet to said casing, a fluid-pressure chamber in an extension of the valve-casing, a piston in said chamber, an auxiliary valve having a diaphragm-chamber at one end and a spring at the other end to alternately control the operation of said auxiliary valve, pipe connections between the auxiliary valve and the inlet side of the main valve and between said auxiliary valve and the fluid-pressure chamber of the main valve, respectively, and a pipe connection between the outlet side of the main valve and the diaphragm-chamber of the auxiliary valve, substantially as specified.



2. In a valve of the character described, the combination of a main-valve casing having an inlet and an outlet at one end and provided at its other end with an extension containing a fluid-pressure chamber, a valve to control the inlet to said main-valve casing, a piston arranged in the fluid-pressure chamber and adapted to effect a closing of said valve, a hand-wheel having a screw-stem inserted through one end of the main-valve casing and adapted to exert a pressure against said piston for closing the valve, an auxiliary valve provided with a diaphragm-chamber, pipe connections between the auxiliary valve and the inlet side of the main valve and between said auxiliary valve and the fluid-pressure chamber of the main valve, respectively, and a pipe connection between the outlet side of the main valve and the diaphragm-chamber of the auxiliary valve, substantially as specified.

3. In a valve of the character described, the combination of a main-valve casing having an inlet and an outlet and provided with a fluid-pressure chamber, a valve to control the inlet to said main-valve casing, a piston arranged in the fluid-pressure chamber and adapted to effect automatic closing of said valve, means for closing said valve manually, an auxiliary valve provided with a diaphragm-chamber at one end and a spring at the other end to alternately control the operation of said auxiliary valve, a hand-wheel to control the auxiliary valve against the pressure of its said spring, pipe connections between the auxiliary valve and the inlet side of the main valve and between said auxiliary valve and the fluid-pressure chamber of the main valve, respectively, and a pipe connection between the outlet side of the main valve and the diaphragm-chamber of the auxiliary valve, substantially as specified.

4. In a valve of the character described, the combination of a main-valve casing provided with an inlet and an outlet and with a fluid-pressure chamber, a valve to control the inlet to said main-valve casing, a dash-pot connected with said valve, a piston arranged in the fluid-pressure chamber and adapted to effect the closing of said valve, means for manually operating said valve in both directions of movement, an auxiliary valve provided with a diaphragm-chamber, pipe connections between said auxiliary valve and the inlet side of the main valve and between the auxiliary valve and the fluid-pressure chamber of the main valve, respectively, and a pipe connection between the diaphragm-chamber of the auxiliary valve and the outlet side of the main valve, the parts of said mechanism being arranged to operate as a non-return valve, and also as an automatic and emergency stop and hand-stop, substantially as specified.

5. In a valve of the character described, the combination of a main-valve casing provided with an inlet and an outlet, a valve to control the inlet to said main-valve casing, a piston adapted to effect a closing of said valve, a hand-wheel having a screw-stem inserted through one end of the main-valve casing and adapted to be operated for manually closing the valve by pressure exerted against said piston, an auxiliary valve provided with a diaphragm and with a spring to alternately control said auxiliary valve and having a hand-wheel provided with a stem to be manually operated against said diaphragm and spring, and pipe connections between said auxiliary valve and the main-valve casing, substantially as specified.

6. In a valve of the character described, the combination of a main-valve casing provided with an inlet and an outlet, a reducing-valve to control the inlet to said valve-casing, a piston to automatically close said valve, means for manually acting upon said piston to close the said valve, an auxiliary valve having a diaphragm-chamber, and pipe connections between said auxiliary valve and parts of the main valve and between the auxiliary valve and the source of pressure, respectively, whereby the said valve mechanism is adapted to be operated as a reducing-valve, a non-return valve, an automatic and emergency stop, and hand-stop, substantially as specified.

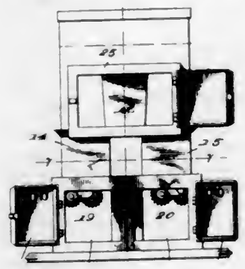
7. In a valve of the character described, the combination of a main-valve mechanism, for controlling the flow from the source of pressure to a pipe-line, an auxiliary valve provided with a diaphragm-chamber, pipe connections between said auxiliary valve and parts of the main valve and with the source of pressure, respectively, a pipe connection between the diaphragm-chamber of the auxiliary valve and the outlet side of the main-valve mechanism, and hand-wheels for the main-valve mechanism and auxiliary valve, respectively, whereby said valve mechanism is adapted to be operated as a non-return valve, an automatic and emergency stop and hand-stop, substantially as specified.

8. In a valve of the character described, the combination of a main-valve mechanism having an inlet from the source of pressure and an outlet to the main pipe-line, a valve to control the inlet to said main-valve mechanism, a fluid-pressure chamber having therein a piston adapted to close the main valve, an auxiliary valve provided with a diaphragm-chamber, a pipe connection between the source of pressure and said auxiliary valve, another pipe connection between the auxiliary valve and the fluid-pressure chamber of the main-valve mechanism, also a pipe connection between the diaphragm-chamber of the auxiliary valve and the outlet side of the main valve, and means for operating the main-valve mechanism and the auxiliary valve manually, substantially as specified.

9. In a valve of the character described, the combination of a main-valve casing provided with an inlet and an outlet and having a fluid-pressure chamber, a valve to control the inlet to said main-valve casing, a piston in the fluid-pressure chamber, an auxiliary valve communicating with said fluid-pressure chamber and also with the source of pressure, a pipe connection between the outlet side of the main valve and a diaphragm-chamber in the auxiliary valve, hand-wheels for the main-valve mechanism and the auxiliary valve, respectively, and drainage devices, substantially as specified.

10. In a valve of the character described, the combination of a main-valve casing provided with an inlet and an outlet and having a fluid-pressure chamber, a valve to control the inlet to said main-valve casing, a tubular piston in the fluid-pressure chamber, a hand-wheel having a tubular screw-stem inserted through one end of the main-valve casing and adapted to exert a pressure against said piston for manual closing of the valve, a rod inserted through said tubular hand-wheel stem and through the tubular piston and adapted to be detachably engaged with the stem of the valve, a steam-tight cap over the outer end of said rod, a nut on said rod to be engaged by the hand-wheel stem in drawing the valve from its seat, an auxiliary valve provided with a diaphragm-chamber, pipe connections between said auxiliary valve and the inlet side of the main-valve casing and between the auxiliary valve and said fluid-pressure chamber, also a pipe connection between the diaphragm-chamber and the auxiliary valve and the outlet side of the main-valve casing, and a hand-wheel for the auxiliary valve, substantially as specified.

659,208. HOT-AIR FURNACE. Samuel A. Cheney, Newburyport, Mass. Filed July 15, 1899. Serial No. 723,931. (No model.)

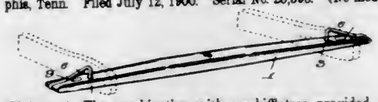


Claim.—1. In a hot-air furnace, the combination with two separate ash-pits, two separate fire-boxes above the same, a common fuel-door for said boxes of a combustion-chamber common to both of the fire-boxes, an air-flue extending vertically between the ash-pits, fire-boxes and through the combustion-chamber, substantially as described.

2. In a hot-air furnace, the combination with two separated ash-pits, two separated fire-boxes above the same, a common fuel-door for said boxes, of a combustion-chamber common to both of the said boxes, an air-flue extending vertically between the ash-pits, fire-boxes and through the combustion-chambers, and an air-chamber surrounding the combustion-chamber.

3. In a hot-air furnace, the combination with two separated ash-pits, two separated fire-boxes above the same, a common fuel-door for said boxes, of a combustion-chamber common to both of said boxes, an air-flue extending vertically between the ash-pits, and fire-boxes and through the combustion-chamber, a jacket surrounding the whole, an air-space above the combustion-chambers and in communication with said jacket, an extension leading from the combustion-chamber and ash-pits respectively through the jacket and each provided with suitable doors, a smoke-pipe and hot-air flues leading from the furnace, substantially as described.

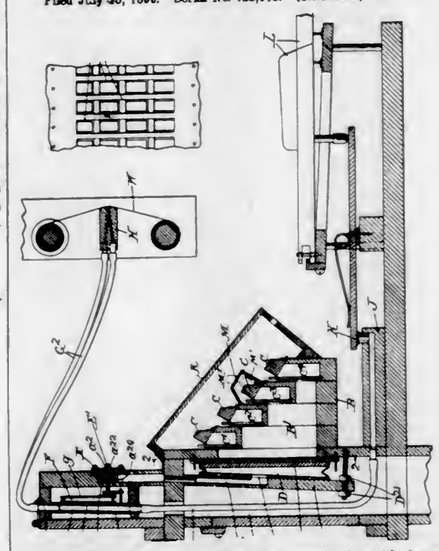
659,209. TRACE-FASTENER. Henderson P. Childress, Memphis, Tenn. Filed July 12, 1900. Serial No. 23,398. (No model.)



Claim.—1. The combination with a whiffletree provided with a keeper-socket adjacent to one end, of a trace-fastener composed of a single piece of metal bent around the end of the whiffletree and having an angular extremity forming a keeper end designed for reception in the keeper socket and having its opposite end passed through the whiffletree and bent back or deflected to engage with the latter.

2. The combination with a whiffletree provided with a keeper-socket, an opening intermediate of the socket and the end of the whiffletree, a recess intermediate of the opening and socket, and a channel in the face of the whiffletree and extending from the opening to the recess, of a trace-fastener bent around the end of the whiffletree and provided with an angular keeper end passed into the keeper-socket from above, the opposite end of said trace-fastener being passed through the opening in the whiffletree and bent into the channel and having its extremity bent into the recess, whereby the trace-fastener is secured upon the whiffletree without the employment of separate retaining devices.

659,210. PNEUMATIC ORGAN. Melville Clark, Chicago, Ill. Filed July 25, 1899. Serial No. 723,913. (No model.)



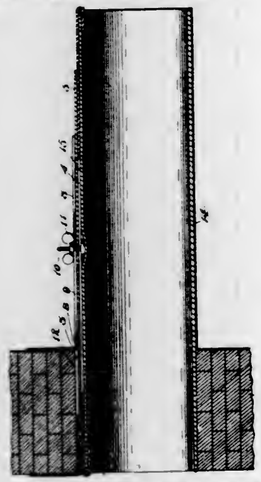
Claim.—1. In a pneumatic organ, in combination with the wind-chest, reed-blocks mounted thereon having a throat communicating therewith, reed-cells through which said throat leads, and mutes for closing

the exterior openings of the cells; the motor-pneumatic within the wind-chest having its moving wall operating as a valve to close said mouth and exposed therethrough to atmospheric pressure operating exteriorly upon it over substantially the same area as that which is exposed interiorly.

2. In a reed-organ, in combination with the reed-cells and the valves which control them located within the wind-chest; mutes located outside the wind-chest; muffle-hoods applied to individual mutes and the sets of reeds which said mutes control respectively, and a swell box or hood applied to a plurality of mutes and their respective sets of reeds.

3. In a reed-organ, in combination with reed-cells having valves interior to the wind-chest and the mutes exterior thereto; a muffle-hood applied to any mute and the set of reeds which it controls, such hood being independent of the initial opening movement of the mute, and being engaged and opened by the mute in the latter part of said opening movement.

659,211. **STOVEPIPE-FASTENER.** JOHN W. COMBS, Princeton, Mo., assignor of one-half to James A. Thompson, same place. Filed Jan. 19, 1900. Serial No. 2,014. (No model.)

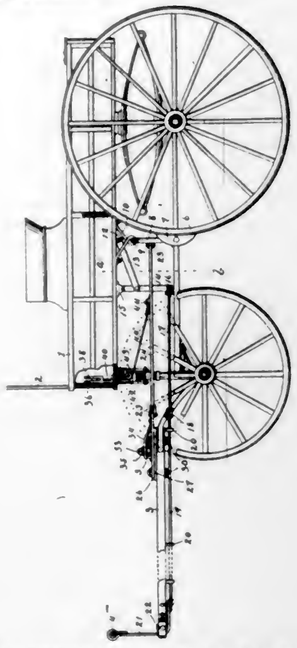


Claim.—In a stovepipe-fastener, a main bar, having its outer end bent or folded into a hook, opposite longitudinal flanges upon the opposite side of the bar from the hook, and also a longitudinal slot located between the flanges, a supplemental bar slidable longitudinally upon the main bar and between the flanges thereof, and also projecting longitudinally at the inner end of the main bar, an outwardly-extending clamp-shoulder provided at the outer projecting end of the supplemental bar, and an inwardly-directed hook located upon the inner side of the outer end of said bar, the latter also having a plurality of perforations, a substantially L-shaped wall-clamp slidable upon the outer side of the supplemental bar and between the flanges of the main bar, coöperating with the outwardly-directed clamp-shoulder, and also provided with a longitudinal slot, a headed screw-threaded fastening carried by the supplemental bar and projecting through one of the perforations thereof, the head of the fastening being located upon the outer side of the main bar and the adjacent shank portion being slidable in the slot of the main bar, and a nut provided upon the outer projecting end of the fastening and to bind against the outer side of the L-shaped clamp.

659,212. **WAGON-BRAKE.** GEORGE W. COX, Union, Kans. Filed Nov. 26, 1897. Serial No. 659,797. (No model.)

Claim.—1. In a wagon-brake, the combination with a rock-shaft adapted to support the brake-shoes, of a lever secured to and extending beyond the axial center of the rock-shaft in opposite directions, a forwardly and rearwardly movable support for the doubletree, mechanism connecting the said support with one end of the said lever, and mechanism, operated by the horses when pulling backward, and connected with the said lever upon the other side of the rock-shaft, substantially as described.

2. In a wagon-brake, the combination with a rock-shaft provided at its ends with arms adapted to support the brake-shoes, a lever secured to the rock-shaft and extending at each side of the axial center thereof, a forwardly and rearwardly movable support for the doubletree, mechanism for rocking the shaft connecting the lever at one side of the rock-shaft with the said support, a forwardly and rearwardly movable bar provided with means for connecting the neck-yoke at one end, and mechanism connecting the other end of the said bar with the said lever upon the opposite side of the rock-shaft from the first-named connection therewith, substantially as described.



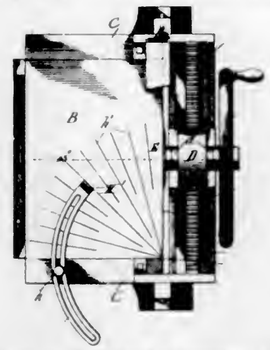
3. In a wagon-brake, the combination with a rock-shaft provided with arms at its ends for supporting the brake-shoes, of a forwardly and rearwardly movable support for the doubletree, a forwardly and rearwardly movable bar provided with means for attaching to the neck-yoke so as to be moved forwardly thereby, a lever secured to and projecting each side of the rock-shaft, mechanism for rocking the shaft connecting the movable support and one end of the said lever, and mechanism connecting the other end of the said lever with the movable bar, substantially as described.

4. In a wagon-brake, the combination with a rock-shaft provided with arms for supporting the brake-shoes, of the wagon-tongue, a sliding bar supported by the tongue, a strap secured at one end to the forward end of the said sliding bar and passing over a bearing provided therefor in the forward end of the tongue and adapted to have its forward end secured to the neck-yoke, a forwardly and rearwardly movable support for the doubletree mounted upon the tongue, a lever secured to the rock-shaft and extending each side of the axial center thereof, mechanism connecting the movable doubletree-support with one end of the said lever, and mechanism connecting the sliding bar with the other end of the said lever, whereby the rock-shaft may be rocked in two directions alternately by the moving of the sliding bar and the doubletree-support, substantially as described.

5. In a wagon-brake, the combination with a rock-shaft provided with arms for supporting the brake-shoes, of a lever 18 secured thereto and extending each side of the axial center thereof, the forwardly and rearwardly movable bar 19, the forwardly and rearwardly movable doubletree-support 26, the rod 24, couplings 23 and 25 for connecting the ends of the rod 24 with one end of the lever 12 and the doubletree-support respectively, the lever 14, the link 13 pivoted at its ends to the other end of the lever 12 and to the lever 14, the rod 17 and couplings 16 and 18 connecting respectively the two ends of the rod 17 with the lever 14 and the bar 19, substantially as described.

659,213. **MITER-MACHINE.** CARL W. DEHN, Topeka, Kans. Filed Nov. 7, 1898. Serial No. 695,761. (No model.)

Claim.—1. In a trimming and miter machine, the combination of a fixed bed or plate, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a rotatable cutter carried by and traveled back and forth on the tilting or swinging frame in alinement with the inner edge of the fixed bed or table, and means for adjusting and holding the tilting or swinging frame and the rotatable cutter at any desired angle of inclination parallel to and at all times in center line with the inner edge of the bed or table, substantially as described.



2. In a trimming and miter machine, the combination of a fixed table, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a sliding head-stock mounted and traveled back and forth on the tilting or swinging frame, a revoluble shaft mounted in the head-stock, a cutter on the shaft having its cutting edge in alinement with the inner edge of the fixed bed or table, means for traveling the head-stock back and forth, and means for adjusting and holding the tilting or swinging frame and the rotatable cutter in any desired angle of inclination parallel to and at all times in center line with the inner edge of the bed or table, substantially as described.

3. In a trimming and miter machine, the combination of a fixed bed or table, a tilting or swinging bed or frame pivotally mounted in line with the inner edge of the fixed bed or table, a guide on the tilting or swinging frame, a sliding head-stock mounted and traveling back and forth on the guide, a revoluble shaft mounted in the sliding head-stock, a cutter on the shaft arranged adjacent to and in alinement with the inner edge of the fixed bed or table, and a handle on the shaft for rotating the cutter and simultaneously moving the head-stock, substantially as described.

4. In a trimming and miter machine, the combination of a fixed bed or table, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a guide on the tilting or swinging frame, a rack on the guide, a head-stock traveling on the guide, a revoluble spindle mounted in the head-stock, a cutter on the spindle arranged adjacent to and in alinement with the straight inner edge of the fixed bed or table, a pinion on the spindle engaging with the rack of the guide, and a shaft on the spindle to rotate the cutter and simultaneously move the head-stock back and forth, substantially as described.

5. In a trimming and miter machine, the combination of a fixed bed or table, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a guide on the tilting or swinging frame, a rack on the guide, a head-stock sliding on the guide, a revoluble spindle mounted in the head-stock, a cutter on the spindle arranged adjacent to and in alinement with the straight inner edge of the fixed bed or table, a pinion on the spindle engaging the rack of the guide, a handle on the spindle for rotating the cutter and moving the guide back and forth, and nut-and-bolt mechanism for adjusting and holding the tilting or swinging frame and the cutter in any desired angle of inclination to the fixed bed or table, substantially as described.

6. In a machine of the class described, the combination of a fixed bed or table, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a guide on the tilting or swinging frame, a rack on the guide, a head-stock sliding on the guide, a revoluble spindle mounted in the head-stock, a cutter on the spindle arranged adjacent to and in alinement with the straight inner edge of the fixed bed or table, a pinion on the spindle engaging the rack of the guide, a handle on the spindle for rotating the cutter and moving the head-stock back and forth, bevel protractor lines on the fixed bed or table, and a gage movably secured to one end of the tilting or swinging frame for guiding and holding the material to be operated upon at different angles in relation to the cutter, substantially as described.

7. In a trimming and miter machine, the combination of a fixed bed or table, a tilting or swinging frame pivotally mounted in line with the inner edge of the fixed bed or table, a space or slot between the adjacent side edges of the fixed bed or table and the tilting or swinging frame adapted to receive the edge of a cutter, a guide on the tilting or swinging frame, a rack on the guide, a movable head-stock mounted on the guide, a rotatable spindle mounted in the head-stock, a toothed pinion on the spindle engaging the rack on the guide, a circular cutter attached to the spindle and traveling in the axial line of the swinging frame and of larger diameter than the toothed pinion, and means for rotating the cutter-spindle and revolving the cutter and moving the head-stock back and forth, substantially as described.

8. In a trimming and miter machine, the combination of a fixed bed or table, a swinging or tilting frame pivoted on a line with the cutting edge of the table to swing in the arc of a circle around such edge centrally, and a revolving cutter traveling in the axial line of and carried by the tilting or swinging frame for changing the angle of cut, substantially as described.

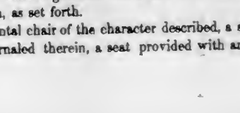
659,214. **PROCESS OF MAKING YEAST EXTRACTS.** EMILE DE MEULENEESTER, Brussels, Belgium. Filed May 9, 1899. Serial No. 716,149. (No specimens.)

Claim.—1. In the manufacture of yeast extracts, the herein-described process of extracting and solving the protoplasm consisting in adding to pressed yeast gum-arabic substantially in the proportions specified, substantially as described.

2. The herein-described process of extracting and solving protoplasm from yeast consisting in mixing with pressed yeast gum-arabic and then heating the mixture at a temperature of 70° to 95° centigrade.

3. A process of manufacturing yeast extracts consisting in the extraction and the solution of the protoplasm by the addition of gum-arabic; the elimination of the residual and insoluble matters by the addition of a substance which will coagulate after having been mixed with it and the purification of the extracts by the addition of wood-charcoal and filtration.

659,215. **NUT-LOCK.** JOHN L. DOELP, New Martinsville, W. Va. Filed July 2, 1900. Serial No. 22,291. (No model.)



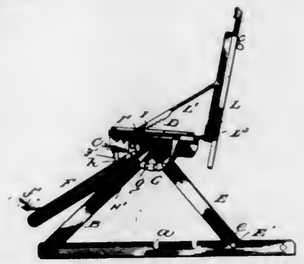
Claim.—1. The combination of a nut formed with a split sleeve having a cam-surface on its periphery, and a ring surrounding the sleeve formed on its interior, with a corresponding cam-surface engaging that on the sleeve.

2. The combination of a nut formed with a split sleeve having a cam-surface on its periphery, a ring surrounding the sleeve formed on its interior, with a corresponding cam-surface engaging that on the sleeve, and a stop on the sleeve for preventing endwise movement of the ring.

3. The combination of a nut provided with a split sleeve having a cam-surface on its periphery, and a flange projecting from its periphery at one end and a ring surrounding the sleeve inside the flange and having a cam-surface engaging the cam-surface on the sleeve.

4. The combination of a nut provided with a split sleeve having a stop-flange on its periphery at one end, a nut encircling the sleeve having a cam-surface on its interior engaging the cam-surface on the sleeve and having also a recess at one end with tapered walls, for the purpose specified.

659,216. **DENTAL CHAIR.** CHARLES B. DOWLING and WILLIAM D. DURHAM, Swansea, S. C. Filed Jan. 9, 1900. Serial No. 851. (No model.)



Claim.—1. In a dental chair of the character described, a suitable support, a hollow tube journaled in said support, a chair-seat pivoted on said tube, and segmental racks secured to said seat; with arms secured to said support and provided with suitable means for engaging said racks, and suitable means extending through said hollow tube and connecting said arms, whereby said arms are operated to simultaneously move inward to engage said segmental racks, and to be simultaneously disengaged therefrom, as set forth.

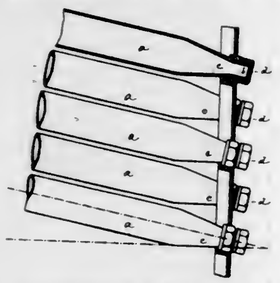
2. In a dental chair of the character described, a suitable support, a hollow tube journaled therein, a seat provided with an adjustable back

pivoted on said hollow tube, and segmental racks secured to said seat; with spring-arms secured to said support and provided with suitable means for engaging said racks, and suitable means extending through said hollow tube connecting said spring-arms, whereby said arms are simultaneously operated to move inward to engage said racks, and moved away to be disengaged therefrom, as set forth.

3. In a dental chair, the combination of a suitable support, a hollow tube journaled therein, a seat pivotally mounted thereon, and segmental racks secured to the sides of the seat, with spring-arms secured on said support and adapted to each engage one of said racks, a lever pivoted to one of said spring-arms, a movable rod in said hollow tube, said rod being secured at one end to the lever, and having its opposite end secured to the opposite spring-arm, whereby said arms are operated to move inward to engage said segmental racks, and to be simultaneously disengaged therefrom, as set forth.

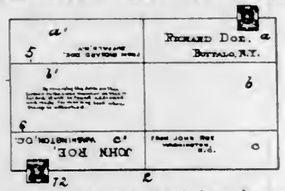
4. The combination with a suitable base, having journaled therein a hollow tube, of a chair-seat rockably mounted on said tube, a rod passing through said tube and provided at each end with spring locking-arms, a rack adapted to be engaged by said arms, and means for operating said arms and rod to lock the seat at any desired angle, as set forth.

659,217. **STEAM-GENERATOR.** GUSTAV DÜRR, Dusseldorf, Germany. Filed Apr. 25, 1899. Serial No. 714,356. (No model.)



Claim.—In a steam-generator, a Field tube set at an inclination to the boiler-wall and having a rear end which is gradually reduced, and is set in an approximately-horizontal or slightly-inclined plane to prevent stagnation within the tube, combined with a cap adapted to close the narrow rear end of the tube, substantially as specified.

659,218. **RETURN-LETTER SHEET.** ABRAHAM J. ELIAS, Buffalo, N. Y. Filed June 4, 1900. Serial No. 18,976. (No model.)



Claim.—A combined inquiry and reply letter sheet, consisting of a single sheet having each of its two sides divided into two portions by a middle vertical fold, the outer one of the two sides being further divided into subsections, the upper and lower ones of which bear the addresses of the inquirer and the party who is to reply, in reverse order, as and for the object set forth, said sheet being adapted for folding and reverse folding in the manner as and for the object set forth.

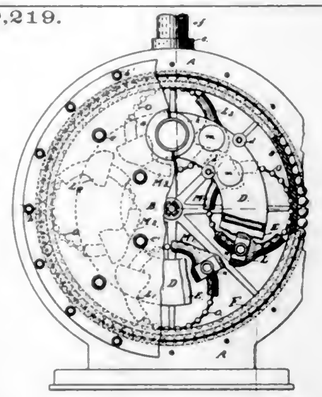
659,219. **STEAM-MOTOR.** JOHN H. FEDELER, New York, N. Y. Filed June 15, 1900. Serial No. 20,473. (No model.)

Claim.—1. The combination in a steam or water motor of one or more piston-rings or series of balls passing through and along the center line of one or more ejectors substantially as described and for the purpose set forth.

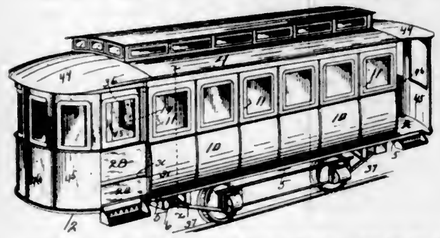
2. In a steam or water motor, the combination of; one or more ejectors; one or more piston-rings or series of balls with wheel F, substantially as described and for the purpose set forth.

3. In a steam or water motor, pipe M connected to pipe *y* by nut S in combination with piston-ring or series of balls substantially as described and for the purpose set forth.

659,219.



659,220. **CONVERTIBLE STREET-CAR.** GEORGE N. FILLIS, Canton, Ohio. Filed Jan. 11, 1900. Serial No. 1,091. (No model.)



Claim.—1. A street-car having hinged thereto a step having located upon one side thereof a track or way, a track or way located upon the upper portion of the car and side sections located between the tracks or ways, substantially as and for the purpose specified.

2. In a convertible car the combination of an upper track or groove located beneath the roof-section, supporting-posts, a hinged step constructed so as to be lowered and raised and provided with a lower track or groove parallel with the upper track or groove, and sectionally-constructed sides with sashes operated between the parallel tracks or grooves and combination step, substantially as and for the purpose specified.

3. The combination of a car having hinged thereto combined steps and track-sections, substantially as and for the purpose specified.

4. The combination in a convertible car of sectional members forming the sides thereof, and track-sections or turn-tables for sliding the sections thereon and housing the same, substantially as and for the purpose specified.

5. the combination of a car provided with a fixed end or ends and sliding members located parallel with the fixed end or ends and a door hinged to the sliding member, substantially as and for the purpose specified.

6. The combination of a car provided with platforms, a hinged door or frame provided at its bottom or lower end with a hinged track-section, and its upper end or portion provided with a vertically-movable hinged track-section and means for holding the upper track-section in an extended position, substantially as and for the purpose specified.

7. In a street-car the combination of a hinged door or frame, track-sections connected thereto, parallel tracks or ways located upon the sides of the car and side members, substantially as and for the purpose specified.

8. In a convertible street-car the combination of a hinged door or frame, and the hinged door or frame provided with means for receiving sectional sides, substantially as and for the purpose specified.

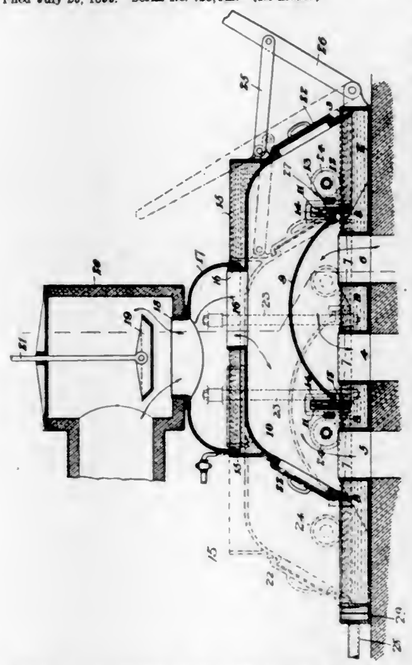
9. In a convertible car, the combination of vertical posts between the floor and roof, sectional sides operated between an upper horizontally-constructed track or groove and a lower horizontally-constructed step which can be lowered or raised and provided with a track or groove parallel with the upper track or grooves whereby said sides are operated and retained in a vertical position for an open or closed car, substantially as and for the purpose specified.

10. In a convertible car the combination of the roof, the sides constructed of detachable sections provided with window-frames and operated horizontally, a hinged step provided with a track or groove upon which the lower ends of the detachable sections rest, and means for housing the said side sections, substantially as and for the purpose specified.

11. The combination in a convertible car, the sides thereof made in sections and constructed so as to interlock when closed, a sliding frame or section on each end constructed to interlock with and to secure the side sections when closed and permit movement of said side sections when released, substantially as and for the purpose specified.

12. In a street-car the combination of a floor having posts and seats connected thereto, sectional sliding sides, tracks or ways adapted to hold and operate said sectional sides, a hinged sliding door or frame provided with hinged track-sections, means for holding the side sections in a nested and fixed position, substantially as and for the purpose specified.

659,221. **REVERSING-VALVE.** SAMUEL FORTER, Pittsburg, Pa. Filed July 29, 1899. Serial No. 725,442. (No model.)



Claim.—1. In reversing-valves, a plate provided with valve-ports; suitable channels around said ports receiving a sealing liquid; a movable casing having its lower edge sealed by said liquid; an inlet-port in said casing and a valve within said casing moving therewith and having its lower edge sealed by said liquid when seated.

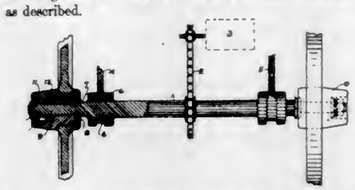
2. In reversing-valves, a plate provided with valve-ports; suitable channels around said ports receiving a sealing liquid; a horizontally-movable casing having its lower edge sealed by said liquid; an inlet-port in said casing; a valve within said casing and moving therewith and vertically-movable closure-plates constituting the lower edges of said valve and making the connection between the same and the sealing liquid.

3. In reversing-valves, a plate provided with valve-ports; suitable channels around said ports receiving a sealing liquid; a horizontally-movable casing having its lower edge sealed by said liquid; a port in the upper part of said movable casing; suitable channels in said casing around said port to receive a sealing liquid; a bell supporting a valve-seat and entering said sealing liquid and a valve for said seat.

4. In reversing-valves, a plate provided with valve-ports; suitable channels around said ports receiving a sealing liquid; a horizontally-movable casing having its lower edges sealed by said liquid; an inlet-port in said casing; a valve within said casing and moving therewith; vertically-movable closure-plates constituting the lower edges of said valve and making the connection between the same and the sealing liquid and guides in said casing for said closure-plates.

659,222. **SELF-PROPELLED VEHICLE.** CLAUD H. FOSTER, Cleveland, Ohio. Filed Jan. 15, 1900. Serial No. 1,441. (No model.)

Claim.—1. In a self-propelled vehicle a driving-axle, wheels on said axle and normally driven thereby, and connections between said wheels and axles such that when the vehicle rounds a curve the outer and faster-moving wheel remains in engagement with the axle while the inner and slower-moving wheel automatically disengages itself therefrom, substantially as described.



2. In a self-propelled vehicle a driving-axle, wheels on said axle and normally driven thereby, and connections between said wheels and axle such that the inertia of the vehicle in turning a curve will free one of said wheels from its axle and permit it to rotate independently thereof, substantially as described.

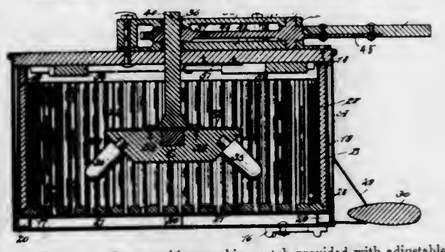
3. In a self-propelled vehicle a driving-axle, a wheel normally driven by said axle and capable of lateral movement thereon, and clutch members carried by the axle and wheel, the whole being so constructed that when the vehicle rounds a curve the wheel moves laterally with respect to the axle and unclutches itself therefrom, substantially as described.

4. In a self-propelled vehicle a driving-axle, wheels on said axle and capable of lateral movement thereon, clutch members carried by said axle, corresponding clutch members carried by the wheels, and means for normally maintaining such members in engagement, said means being so constructed that when the vehicle rounds a curve the inertia of the same causes the wheels and axle to move laterally with respect to each other so that the slowly-moving wheel is disengaged from the axle, substantially as described.

5. In a self-propelled vehicle a driving-axle, wheels on said axle and capable of lateral movement thereon, and driving connections between the wheels and axle such that the inertia of the vehicle in rounding a curve causes the wheels and axle to move laterally with respect to each other and thus to free one of the wheels from the axle so that it may rotate independently thereof, substantially as described.

6. In a self-propelled vehicle a driving-axle, spindles at the ends of said axle, wheel-hubs mounted on said spindles, clutch members carried by said axle and wheel-hubs, an enlarged bore in the outer ends of said hubs, and springs mounted in said enlarged bore and surrounding said spindle, said springs normally pressing the hubs inwardly to force the clutch members together, the whole being so constructed that when the vehicle rounds a corner the spring on the inner spindle will be compressed and the corresponding clutch members disengaged so that the wheel may turn independently of the axle, substantially as described.

659,223. **WASHING-MACHINE.** ANNA S. FRIDOLPH and SAMUEL A. FRIDOLPH, Villisca, Iowa, assignors of one-third to Peter D. Minick, same place. Filed July 12, 1899. Serial No. 723,594. (No model.)



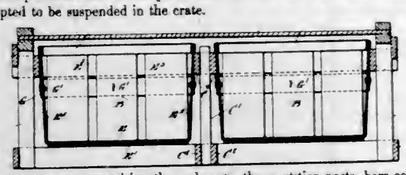
Claim.—1. In a washing-machine, a tub provided with adjustable plates upon its under face, adapted to hold the tub against lateral movement when placed upon stoves irrespective of the size of the stove.

2. In a washing-machine, a tub adapted to be placed upon a stove, plates adjustably secured upon the bottom of the said tub, adapted to enter the openings in the stove and preserve the tub against lateral movement, an agitating device located within the said tub, and means for imparting rotary reciprocating movement to the said agitating device, as and for the purpose specified.

659,224. **WOODEN SHIPPING AND PACKING BOX.** RUSSELL B. FULLER, Holland, Mich. Filed Oct. 19, 1899. Serial No. 734,039. (No model.)

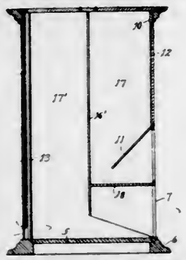
Claim.—1. A crate, comprising the end posts, bars connecting the two end posts of a side at the top and bottom, bars connecting the end

posts at the top and at the outer side thereof, bars connecting the upper portions of said end posts at the inner sides, the said inner bars having their top surfaces on a lower plane than the outer end bars, and a basket adapted to be suspended in the crate.



2. A crate, comprising the end posts, the partition-posts, bars connecting the end posts and partition-posts of a side at the top and bottom, end bars connecting with the upper portions of the end posts, end bars connecting with the interior surfaces of the end posts and on a lower plane than the outer end bars, the top side bars also being on a lower plane than the outer end bars, bars connecting with the opposite sides of the partition-posts, the said bars being on a plane with the inner end bars, and baskets adapted to be supported in the crate.

659,225. **DISPLAY AND CELL CASE.** ADAM A. GRAU, West Bend, Wis. Filed May 31, 1900. Serial No. 18,501. (No model.)

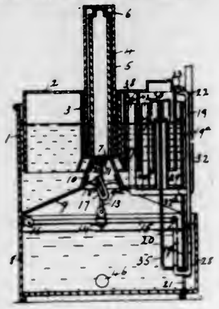


Claim.—1. In a case provided with a bottom, an outer wall having an exterior glazed panel, side walls, an inner wall a little at the rear of said outer wall and forming with said outer wall and said side walls a display-compartment, a door in said outer wall below said glazed panel opening into said display-compartment at the lower end, and an interior goods-holding cell at the rear of said display-compartment, said goods-holding cell being provided with a discharge-opening at its lower end.

2. A case, comprising a frame, glazed walls at a plurality of sides of the case, inner walls near to and behind the glazed walls, doors in the exterior walls below the glazed surfaces opening into display-compartments formed between the glazed walls and said inner walls, and goods-holding cells in the case behind the display-compartments, each goods-holding cell being provided with a goods-discharging opening at the lower extremity.

3. A case, comprising a frame, glazed walls at three sides of the case, inner walls near to and behind each of the three glazed walls, doors in the exterior walls below the glazed surfaces opening into display-compartments formed between the glazed walls and said inner walls, and a plurality of tiers of goods-holding cells in the case behind the display-compartments, one tier of cells being behind another tier of cells, and each cell being provided with a goods-discharging opening at its lower extremity.

659,226. **ACETYLENE-GAS GENERATOR.** ISAAC L. HARRIS, Jacksonville, Fla. Filed Apr. 7, 1900. Serial No. 11,982. (No model.)

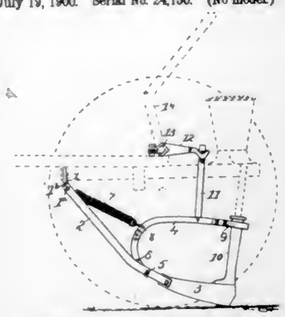


Claim.—1. In an acetylene-gas generator in combination with a water-tank and a gasometer, the carbid-chamber, the carbid-valve and the rod carrying it, the oblique guide-plate containing a longitudinal slot in which a pin works loosely, said pin being fastened to the carbid-valve rod for giving a rotary motion to the valve, the serrated pins fixed near the periphery on the upper side of the carbid-valve so that when the valve is being opened for the discharge of carbid, the said serrated pins will perform rotative and vertical, or curved helical motions for the purpose of loosening the carbid in the carbid-chamber substantially as shown and described.

2. In an acetylene-gas generator in combination with a water-tank and a gasometer, the carbid-chamber, the convex valve and the rod carrying it, the oblique guide-plate, the pin fastened into the carbid-valve rod and working loosely in the guide-plate for giving a rotary motion to the valve when discharging carbid from the carbid-chamber substantially as shown.

3. In an acetylene-gas generator in combination with a water-tank and a gasometer, the valve controlling the gas-pipe leading from the generator-tank to the gasometer, said valve consisting of a hollow cap containing a small tube inside in which the valve-rod works loosely, the projections upward from the end of the gas-pipe, and the strips connecting said cap to an open tube or jacket surrounding the gas-pipe for securing the proper position and adjustment of said cap whereby when said cap lowers over the open end of the gas-pipe a water seal is created between said cap and the gas-pipe preventing the passage of gas but admitting the passage of water, the plug-cock valve in the open air-pipe on the outside of the gasometer communicating with the said cap-valve of the gas-pipe in the inside of the gasometer so that when the plug-cock on the outside is closed the cap-valve in the inside is open and when the plug-cock is open the cap-valve is closed, the rod partly within and partly without the gas-generator communicating between the said plug-cock on the outside and the said cap-valve in the inside and operating the latter, the carbid-valve and the rod carrying it, the lever 15 inside the generator carrying the rod, the yoke 23 fastened to the bell of the gasometer, the carbid-valve rod partly within and partly without the generator connected to the lever 15 and communicating with the yoke 23, a pin fastened to the plug-cock handle and projecting behind the carbid-valve rod on the outside of the generator for pressing said carbid-valve rod beyond the reach of the yoke thereby throwing said carbid-valve out of action, in a closed position, simultaneously with the closing of the gas-valve inside the gasometer and the opening of the air-pipe into the generator-tank substantially as shown and described.

659,227. **GRAIN-DRILL.** GEORGE D. HAWORTH, Chicago, Ill. Filed July 19, 1900. Serial No. 24,130. (No model.)



Claim.—1. The combination with a furrow-former hitched at its forward end to swing vertically, of a lever pivotally connected with the draft-bar of the furrow-former in the rear of the pivot thereof and a spring to impart downward pressure on the lever to the furrow-former, substantially as described.

2. The combination with a furrow-former hitched at its forward end to swing vertically, of a lever pivotally connected with the draft-bar of the furrow-former in the rear of the pivot thereof and an extension-spring hitched to the lever and extended forward therefrom, whereby downward pressure on the lever is yieldingly imparted to the furrow-former.

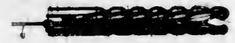
3. The combination with a furrow-former hitched at its front end to swing vertically, of a bent lever pivoted to the draft-bar of the furrow-former in the rear of the pivot thereof and extended upward and backward, and an extension-spring hitched to the lever at the rearward turn thereof and extended forward therefrom.

4. The combination with a furrow-former hitched at its front end to swing vertically, of a lever pivotally connected with the draft-bar of the furrow-former back of the pivot thereof, a spring to impart downward

pressure on the lever to the furrow-former and a stop to limit upward swing of the lever independent of the furrow-former, substantially as described.

5. The combination with a furrow-former hitched at its forward end to swing vertically, of a supporting-bracket for the furrow-former having pivot-pins for the draft-bars of the furrow-former and also having guard-fingers to hold the bars on the pins, substantially as described.

659,228. **COIN-HOLDER.** HENRIETTA L. HAYNES, Boston, Mass. Filed Sept. 6, 1899. Serial No. 729,585. (No model.)



Claim.—1. A coin-holder consisting of an open-faced case having an open end and parallel side grooves which receive the coins, said grooves being made of greater width than the thickness of the coins whereby said coins are adapted to occupy oblique positions in the case so as to overlap one another and means for directing the coins into corresponding oblique positions as they are slid into the case, substantially as described.

2. A coin-holder consisting of an open-faced case having an open end and parallel side grooves which receive the coins, said grooves being made of greater width than the thickness of the coins, and alternately-arranged projections and recesses on the interior of said grooves whereby the coins are disposed obliquely in said case, substantially as described.

3. A coin-holder consisting of an open-faced case having an open end and parallel side grooves which receive the coins, said grooves being made of greater width than the thickness of the coins, and alternately-arranged projections and recesses on one side of the interior of said grooves and projections on the opposite sides of the interior of said grooves, whereby the coins are directed and disposed obliquely in said grooves, substantially as described.

4. A coin-holder consisting of an open-faced case having an open end and parallel side grooves which receive the coins, said grooves being made of greater width than the thickness of the coins, and the projection 4, at one side of the groove at the lower end of the case by which the lowermost coin is disposed obliquely in the case, substantially as described.

5. A coin-holder consisting of an open-faced case having an open end and parallel side grooves which receive the coins, said grooves being made of a greater width than the thickness of the coins, and the projections 5 located at regular distances apart along one side of said grooves just above the upper edges of the coins, which assist in directing the coins into oblique position in the case, substantially as described.

6. A coin-holder consisting of an open-faced case open at one end and having parallel grooves for the reception of the coins and a self-acting retaining device for the coins consisting of a pair of spring-acting arms having inwardly-projecting ends or points which partially close the open end of the case, substantially as described.

7. A coin-holder consisting of an open-faced case open at one end and having parallel grooves for the reception of the coins, and a self-acting retaining device for the coins consisting of a U-shaped piece of spring-acting wire fitted into the parallel grooves of the case and formed with inwardly-projecting ends which partially close the open end of the case substantially as described.

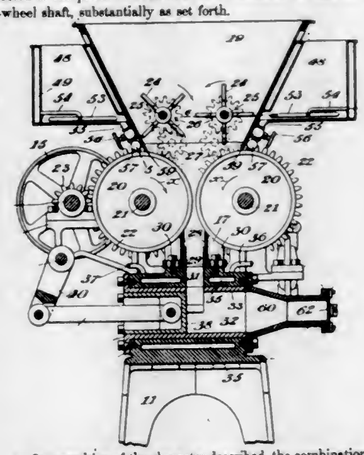
8. A coin-holder consisting of an open-faced case, open at one end and having two parallel-arranged coin-receiving portions provided with independent retaining devices for the coins and a rest located at said open end of the case between said coin-receiving portions on either side of which the coins are placed in position to be slid into the respective coin-receiving portions, substantially as described.

659,229. **MACHINE FOR MANUFACTURING FIRE-KINDLERS.** &c. CHARLES HOFT and GEORGE H. KLOTTER, Cincinnati, Ohio. Filed Nov. 27, 1899. Serial No. 738,299. (No model.)

Claim.—1. In a machine of the character described, the combination of compressing and molding devices, feed-wheels arranged to receive between them materials to be fed to the compressing and molding devices, means for supplying solid materials between the feed-wheels, tubes arranged across the peripheries of the feed-wheels and having spray-orifices for the discharge of liquid thereon, and means for supplying liquid to said tubes, substantially as set forth.

2. In a machine of the character described, the combination of a bed-plate having a compression-chamber and provided with a port leading thereto, feed-wheels arranged to discharge materials to said port, shafts on which the feed-wheels are held, a crank on one of the said feed-wheel shafts, a compressing device in the compression-chamber, a driving means for the feed-wheel shafts, and means comprising a rock-shaft connected to the crank on the feed-wheel shaft for actuating the compressing device from the feed-wheel shafts, substantially as set forth.

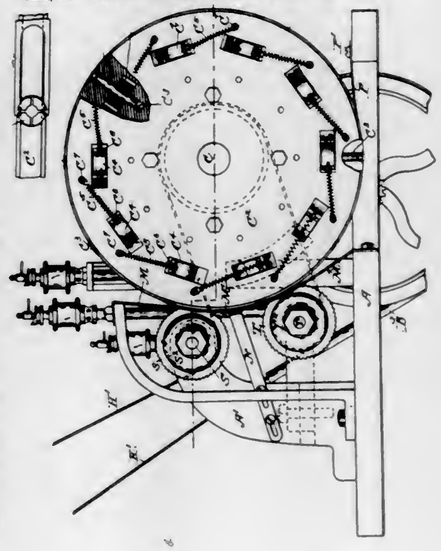
3. In a machine of the character described, the combination of a bed-plate having a compression-chamber and provided with a port leading thereto, feed-wheels arranged to discharge materials to said port, shafts on which the feed-wheels are held, a piston in the compression-chamber, a crank on one of the feed-wheel shafts, and a rock-shaft having one arm connected to the piston and another arm connected to the crank of the feed-wheel shaft, substantially as set forth.



4. In a machine of the character described, the combination of a bed-plate having a compression-cylinder, a piston therein, a discharge-section for the cylinder provided with a die portion, knives arranged on opposite sides of the die and adapted to move toward and away from each other to sever the molded material issuing from said die into lengths, and means for actuating said knives, substantially as set forth.

5. In a machine of the character described, the combination of a bed-plate having a compression-cylinder, a piston therein, a discharge-section for the cylinder provided with a die portion, knives arranged on opposite sides of the die and arranged, when moved toward each other, to sever the molded material issuing from said die, feed-wheels for feeding the material to the compression-cylinder, shafts on which said feed-wheels are held, cams on one of said feed-wheel shafts, and rock-shafts each provided with two arms, one of which has a roller engaging one of said cams and the other of which is connected to one of said knives for moving the same, substantially as set forth.

659,230. **MACHINE FOR SAWING KERFS.** GEORGE A. HOLMES, Newton, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Feb. 5, 1900. Serial No. 4,036. (No model.)



Claim.—1. In a machine for forming kerfs in blanks or eyelets, the combination with a non-clamping revoluble carrier formed with pockets to receive the blanks; a saw or saws for forming the kerfs, and means for continuously revolving the saw and carrier.

2. In a machine for forming kerfs in blanks or eyelets, the combination with a continuously-revolving carrier formed with peripheral pockets; mandrels arranged within the pockets to receive the blanks; saws for forming the kerfs; and means for imparting a partial revolution to said mandrels.

3. In a kerfing-machine, the combination with a continuously-rotating non-clamping disk formed with peripheral pockets, of cutting devices for forming the kerfs.

4. In a kerfing-machine, the combination with a rotary carrier having peripheral pockets to receive the blanks; means independent of the carrier for holding the blanks thereupon, and means for discharging the blanks after they are kerfed.

5. In a kerfing-machine, a revoluble non-clamping disk provided with peripheral pockets and saw-slits, in combination with a rotary saw.

6. In a kerfing-machine, a revoluble carrier non-clamping disk provided with peripheral pockets, and slitted to accommodate a saw, in combination with a saw, and a blank-holding device.

7. In a machine for sawing kerfs or eyelets, a revolving carrying-disk provided with an edge narrower than the flange of the eyelet or blank to be kerfed, in combination with a stripper.

8. In a machine for sawing kerfs in eyelets, a disk provided with one or more spring-mandrels in combination with a cam, whereby the mandrel is turned.

9. In a machine for sawing kerfs in eyelets, a disk provided with mandrels having projecting spring-pins, in combination with spring-holders, whereby the eyelet is pressed onto the mandrel and caused to revolve with it.

10. A kerfing-machine comprising a rotating carrying-disk having a series of mandrels arranged radially on said disk and each adapted to receive and hold a blank, and present it to the kerfing-saws, mechanism for causing said mandrels to make partial rotations on their axes; and kerfing-saws arranged to kerf the said blanks.

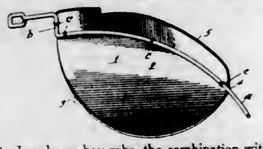
11. A kerfing-machine comprising a rotating carrying-disk having a series of mandrels arranged radially, each adapted to receive and hold a blank and to present it to the kerfing-saws, mechanism for causing the said mandrels to each make a partial rotation on its longitudinal axis; and kerfing-saws, working through blank-holders, substantially as and for the purpose set forth.

12. A kerfing-machine comprising a carrying-disk having radial mandrels rotatable on their axes, adapted to hold blanks each of said mandrels being provided with a retaining-spring, and a cam-pin; a fixed cam-piece placed in the path of the cam-pins and adapted to so act upon the said pins as to turn their respective mandrel to such a position that the saws will cut the kerfs at the desired angles, substantially as and for the purpose set forth.

13. In a kerfing-machine, the combination with a rotating carrier having peripheral pockets for receiving eyelets, of a plurality of kerfing-saws located successively in the path of movement of said carrier, and means for imparting a partial rotation to said eyelets at a point intermediate the operative contact of said saws.

14. In a kerfing-machine, the combination with a rotary carrier having peripheral pockets to receive the blanks, means located without and independent of the carrier for holding the blanks thereupon, and means for discharging the blanks after they are kerfed.

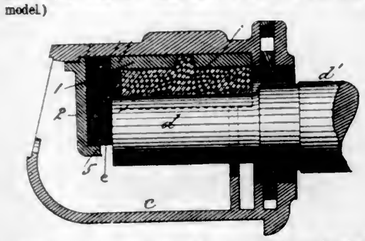
659,231. **ATTACHMENT FOR HORSE HAY-RAKES.** HERMANN HOPPE, Syracuse, N. D. Filed June 5, 1900. Serial No. 19,163. (No model.)



Claim.—1. In a horse hay-rake, the combination with a rake-tooth having an offset, of a guard or wing comprising a plate having a curved flange on its rear side adapted to bear against said rake-tooth and said offset thereof and means to secure said guard or wing to said tooth and said offset, substantially as described.

2. A horse hay-rake having a guard-plate disposed at right angles to the rake-head, at the end thereof, and extending downward therefrom, the rear side of said guard-plate being curved and provided with a bearing-flange, and a rake-tooth disposed and fitted in the angle formed by said plate and flange and secured to said plate and flange, substantially as described.

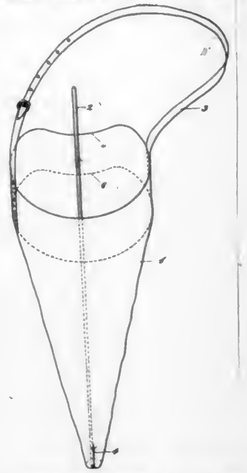
659,232. **CAR-JOURNAL-BEARING STOP-KEY.** CLARENCE H. HOWARD, St. Louis, Mo. Filed July 30, 1900. Serial No. 25,342. (No model.)



Claim.—1. A journal-bearing stop-key having a bearing portion and a lug or ear projecting therefrom at right angles, and having a hole through the bearing portion, the edge or perimeter of the said hole being partly alined to the inside faces respectively of the lug, and of a groove adjacent thereto in each side of the stop-key, the said lug having a bottom flange, and a stop-plate adapted to fit between the said faces and within the said hole, substantially as described.

2. A journal-bearing stop-key having a bearing portion and a lug or ear projecting therefrom at right angles, and having a hole through the bearing portion, the edge or perimeter of the said hole being partly alined to the inside face of the lug, the said lug having a bottom flange, and a stop-plate adapted to bear against the said face and flange and to fit within the said hole, substantially as described.

659,233. **FERTILIZER-DISTRIBUTER.** RUDOLPH C. HOYER, Vicksburg, Miss. Filed Mar. 15, 1900. Serial No. 8,792. (No model.)

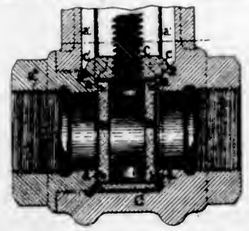


Claim.—In a fertilizer-distributer, a flexible bag, cone-shaped, open at both ends; the upper end of the bag distended by wire rings; a rod passing through and projecting out of the upper opening of the bag; the lower end of the rod secured to a lower corner of a vertical slit in the lower orifice of the bag; a strap secured to the upper edges of the bag; a buckle on this strap substantially as and for the purpose specified.

659,234. **BLOW-OFF VALVE.** JOHN HUGHES, Somerville, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Feb. 23, 1900. Serial No. 6,149. (No model.)

Claim.—1. In a blow-off valve the combination, with the valve-casing A and removable plug a^3, of the sliding valve B; the winged stirrup C; the stem D; the nut F; and the hand-wheel E; substantially as described.

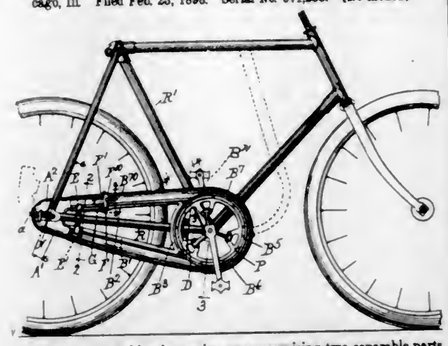
2. In a blow-off valve the combination, with a valve-casing having a removable part and furnished with two oppositely-disposed valve-seats and above these two other seats with grooves leading vertically therefrom, of a sliding valve having valve-seats corresponding to those of the valve-casing, and perforated for the passage of a stem; a stirrup adapted to carry said valve, and having a threaded upper projection furnished with wings adapted to run in said grooves and rest upon said other seats; and a threaded rotary stem adapted to raise and lower said stirrup; together with means for actuating said stem; substantially as described.



3. In a blow-off valve the combination, with a valve-casing having a removable part and furnished with two oppositely-disposed valve-seats and above these two other seats, of a sliding valve having corresponding valve-seats; a stirrup adapted to carry said valve and having a projection from its upper part adapted to engage said other seats thereby determining its downward movement; together with means for raising and lowering said stirrup; substantially as described.

4. In a blow-off valve the combination, with a valve-casing having a removable part and furnished with oppositely-disposed valve-seats, of a sliding valve having corresponding valve-seats; and a stirrup adapted to carry said valve; together with means for raising and lowering said stirrup, and for determining its downward movement by contact of its upper part with the valve-casing; substantially as described.

659,235. **BICYCLE GEARING-CASE.** THOMAS R. JEFFERY, Chicago, Ill. Filed Feb. 23, 1898. Serial No. 671,253. (No model.)



Claim.—1. A bicycle gearing-case comprising two separable parts, one of which is a two-part hood adapted to inclose the driven pinion on the driving-wheel axle, and which is supported directly on such axle, the other of said parts comprising an annular hood for the driving-rim of the driving sprocket-wheel having an outer and inner circumferential wall, the latter being rifted to afford a path of rotation for the web of said driving-rim, and provided with positive supports extending to the frame proximate to said wheel; said parts having, each, hollow extensions adapted to telescope with each other and inclose the driving-chain between the wheels.

2. In a gearing-case, an inner frame comprising bars in the plane of the drive-chain extending along the inner side of both plies thereof, and a bar connecting their ends abreast of one of the sprocket-wheels on the side toward the other, and annular wheel-guards projecting rigidly from such connecting-bar at opposite sides of the wheel, the central opening in said guards being of such diameter as to laterally expose the wheel throughout the greater part of its diameter, in combination with an exterior hood encompassing the wheel and covering the chain and adapted to be seated on such inner frame.

3. In a bicycle gearing-case, a hood for the driven wheel parted diametrically and hinged together, and means by which it is supported on the bicycle-frame, combined with a channeled hood or cover for the driving-wheel, also parted diametrically and having the parts hinged together, corresponding proximate ends being telescoped, and means for locking the outer of said telescoped parts to hold it folded.

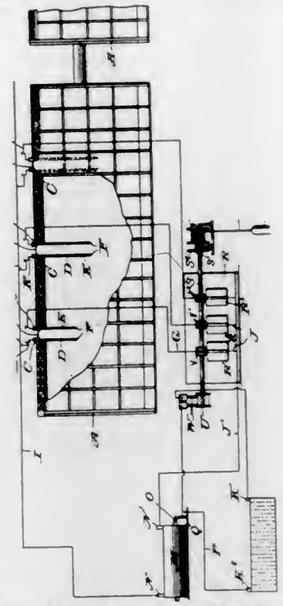
4. In a bicycle gearing-case, a hood for the driven wheel parted diametrically and hinged together, and means by which it is supported on the bicycle-frame, combined with a channeled cover or hood for the driving-wheel also parted diametrically and having the parts hinged together; corresponding proximate ends of said hoods being telescoped, whereby the hoods are adapted to be longitudinally separated; and annular wheel-guards and means for securing them rigidly to the bicycle-frame, the channeled parts of the driving-wheel hood being mounted on said wheel-guards; and means for locking the outer of said telescoped hoods to hold the hinged parts thereof folded together and seated.

5. A bicycle gearing-case consisting of a driven-wheel hood divided and having the parts hinged together; a hood or cover for the driving-wheel, also divided and having the parts hinged together; a rigid frame consisting of an upper channel-bar B^2, lower channel-bar B', segmental channel-bar B^3, rigidly united; and the annular guards B^4 and B^5 projecting rigidly from said segmental channel-bar at opposite sides of the wheel; the divided and hinged hoods for the driving and driven wheels being adapted to be folded and engaged with said rigid frame.

6. In a bicycle gearing-case, in combination with a rigid frame comprising straight bars extending alongside the upper and lower plies of the chain between the same and the curved bar connecting said straight bars and extending abreast of the driving-wheel; rings B^4 and B^5, which are angular in radial cross-section, having one lip or flange of their angular structure extending in a plane parallel to the wheel, and the other extending cylindrically coaxial with the wheel, and the divided cover or hood for the wheel having its two parts hinged together and its two lateral edges adapted to lap respectively by the first-mentioned flanges of said rings.

7. In a gearing-case, the annular wheel-guards B^4 and B^5, quadrantal in cross-section and having the lips in the planes transverse to the axis of the wheel grooved in the edge, in combination with the caps B^6 and B^7 which have their edges entered in such groove.

659,236. **PROCESS OF MAKING SULFURIC ACID.** ALBERT C. JOHNSON, Baltimore, Md. Filed Dec. 14, 1899. Serial No. 740,297. (No specimens.)



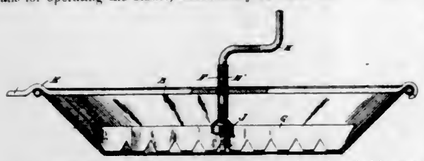
Claim.—1. The process previously described of producing sulfuric acid, consisting in introducing a series of electric sparks within a tower or gas chamber containing vaporous sulfuric-acid gas, whereby the acid-laden moisture held in suspension may be precipitated.

2. The process previously described of producing sulfuric acid consisting in causing a series of electric sparks within a chamber containing vaporous sulfuric-acid gas, and introducing oxyhydrogen gas, which is exploded by the electric sparks, whereby the acid-laden particles of moisture may be precipitated.

659,237. **MINER'S SEPARATING-PAN.** ANDERS J. KETELSEN, Chicago, Ill. Filed May 18, 1900. Serial No. 17,182. (No model.)

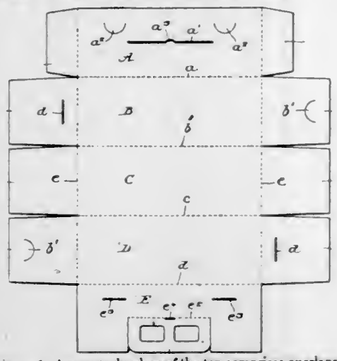
Claim.—1. In combination with a suitable separator-receptacle, a detachable separator adapted to be supported from the top of the receptacle, comprising a supporting-bar having hook portions adapted to en-

gage the edges of the receptacle, a tubular bearing on said supporting-bar, magnetic separator-blades rotatably mounted in said tubular bearing and means for operating the blades, substantially as described.



2. In combination with a pan or like receptacle, a detachable separator adapted to be supported upon the pan and projected thereinto comprising a brace-bar having a hooked end adapted to engage one edge of the pan and an offset portion adapted to engage the opposite end of the pan, an extended portion constituting the handle of the offset end of the rod, magnetic separator-blades supported centrally of said bar and adapted to project into the pan and means for agitating the blades, substantially as described.

659,238. **FOLDING RECEPTACLE.** JOHN KILLINGER, Wayne, Pa. Filed Mar. 9, 1899. Serial No. 708,314. (No model.)



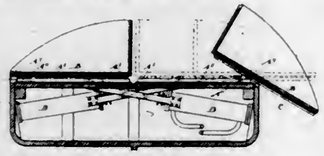
Claim.—1. A receptacle whereof the top comprises overlapping folds or sections, the upper fold or section being provided with a longitudinal slot or opening and the under fold or section having formed integrally therewith a tongue which extends through said slot or opening and affords a suitable handle, substantially as described.

2. A receptacle whereof the top comprises overlapping folds or sections, the upper fold or section being provided with a longitudinal slot or opening and with locking-tongues, and the under fold or section being provided with a handle which extends through said slot or opening, and with slits with which said tongues are adapted to be engaged, substantially as described.

3. A receptacle whereof the top comprises overlapping folds or sections, the upper fold or section being provided with a longitudinal slot or opening and the under fold or section having formed integrally therewith a tongue which extends through said slot or opening and affords a suitable handle, the said upper fold or section and the tongue being provided with an interlocking portion at the base of the tongue, substantially as described.

4. A receptacle whereof the top comprises overlapping folds or sections, the upper fold or section being provided with a longitudinal slot or opening having an offset portion to constitute a lug or teat, and the under fold or section having formed integrally therewith a tongue which extends through said slot or opening and affords a suitable handle, the said tongue being provided at its base with a slit with which said lug or teat is adapted to engage, substantially as described.

659,239. **DUMPING-SCOW.** THOMAS LAWSON, New York, N. Y. Filed July 7, 1900. Serial No. 22,773. (No model.)



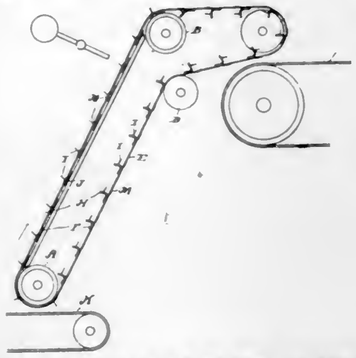
Claim.—1. In a dumping-scow, the open carriers B adapted to dump as shown, in combination with antifriction-ways and supports and with two cylinders D and two connecting-rods D′ for each carrier, and with steam-pumps I and connections for directing inelastic fluid into each, substantially as herein specified.

2. In a dumping-scow, carriers adapted to transport and dump material in combination with means for also moving such carriers bodily outward and inward, comprising straight supporting-ways A^3 and returnways A^4 A^5 and A^6, and the series of balls M adapted to travel around in either direction in such ways, and the runners C, moving with the carriers on the said balls, all arranged to serve substantially as herein specified.

3. In a dumping-scow, carriers adapted to transport and dump material in combination with means for also moving such carriers bodily outward and inward, comprising straight supporting-ways A^3 and returnways A^4 A^5 and A^6 and the series of balls M adapted to travel around in either direction in such ways and the runners C moving with the carriers on the said balls and supporting the carriers thereon during a period and the inclines A^3 and hooks A^7 on the scow and the trunnions B on the carriers supporting each carrier and allowing it to dump at another period, all arranged for joint operation substantially as herein specified.

4. In a dumping-scow, carriers adapted to transport and dump material in combination with means for also moving such carriers bodily outward and inward at exactly-determined rates, comprising the cylinders D, and the pump I, and connections arranged to supply water to impel the carriers laterally at will, all substantially as herein specified.

659,240. **FEEDING DEVICE FOR CARDING-MACHINES.** THOS. LEE, Philadelphia, Pa. Filed Mar. 1, 1899. Serial No. 707,332. (No model.)



Claim.—1. A carrier-apron or the like having cross-strips so connected thereto as to move positively in unison therewith, teeth carried by said strips, and means for causing said teeth at predetermined times to pass through said apron and be withdrawn therefrom, as specified.

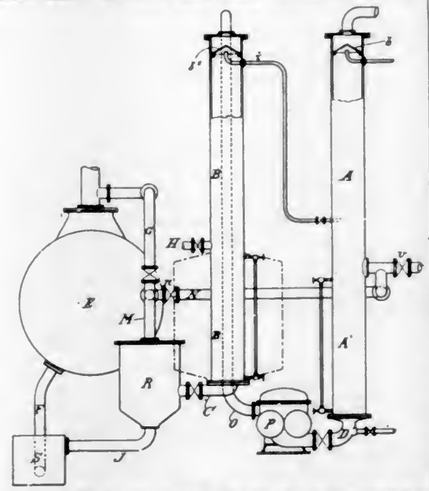
2. A feeding device of the character described consisting of an endless traveling apron mounted upon suitable drums, a series of cross-strips secured to said apron, a corresponding series of strips hinged to the first-named strips, teeth projecting from each of the last-named strips, and means for swinging said teeth through the apron at predetermined times and withdrawing them therefrom, as and for the purpose set forth.

659,241. **METHOD OF DEFECATING SUGAR SOLUTIONS.** SAMUEL M. LILLIE, Philadelphia, Pa. Filed Oct. 21, 1899. Serial No. 734,414. (No specimens.)

Claim.—1. The within-described process of using heat for defecating sugar solutions and subsequently in other processes, consisting, first, in heating the sugar solutions under pressure in closed vessels, second, in reducing the pressure upon the heated solution to develop steam from the same, and third, in collecting the steam thus developed and employing it for heating purposes, substantially as described.

2. The within-described process of using heat for defecating sugar solutions and subsequently in other processes, consisting, first, in heating the solution under pressure in closed vessels, second, in reducing the pressure upon the heated solution to develop steam from the same, and third, in collecting the steam thus developed and employing it in preliminary heating of the said sugar solution, substantially as described.

3. The within-described process of defecating and evaporating sugar solutions, consisting, first, in heating the solutions to high temperatures in suitable heating apparatus by direct contact with live steam; and second in reducing the pressure on the heated solution to develop steam from the same and partially concentrate it thereby, and remove water of condensation added to the solution during heating, substantially as specified.



4. The within-described process of heating sugar solutions, charged with defecating reagents, by steam of different pressures and corresponding temperatures, consisting in forcing the solution through a series of vessels in succession, in number equal to the number of steam-pressures to be used in heating it, and in subjecting it in the several vessels respectively to the direct contact of the steam under the several pressures in the order of their increasing pressures, substantially as described.

659,242. **CUSHION FOR HAND-STAMPS, INKING-PADS, &c.** JOHN LOEFFLER, Washington, D. C., assignor of one-half to James Cantwell, same place. Filed Dec. 22, 1899. Serial No. 741,324. (No model.)



Claim.—1. A cushion composed of a series of connected ribs projecting toward and out of the vertical plane of each other, and having intervals and spaces of different size between the ribs.

2. A cushion composed of a series of connected resilient ribs having an interval between them, and a space vertically opposite the interval into which the ribs are curled under pressure.

3. A cushion composed of two sets of ribs extending toward each other with an interval and a space between the ribs of each set, and vanes or webs to connect the two sets laterally and to make the intervals and spaces of one set continuous with the spaces and intervals of the other set.

4. A cushion composed of rubber having a series of T-shaped openings separated by a series of inverted-T-shaped openings.

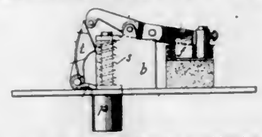
5. A cushion comprising top and bottom plates, pairs of ribs projecting from each plate and terminating in the same horizontal plane but out of the vertical plane of each other, and elastic vanes or webs parallel with the said plates and connecting the top pairs of ribs with the bottom pairs of ribs.

659,243. **LUBRICATOR.** HEINRICH F. LOOS, Nuremberg, Germany. Filed Dec. 3, 1898. Serial No. 698,183. (No model.)



Claim.—In combination with the reservoir *d*, contracted at *f*, the ring *h* seated therein and having an interior conical bearing-surface, a cap fitting in the reservoir and having a spring-wall and a lower edge *e* adapted to enter the said conical bearing-surface, said cap having also a lateral filling-opening and a spring *i* for pressing the cap upwardly, substantially as described.

659,244. **CIRCUIT-CONTROLLER.** ADAM LUNGEN, New York, N. Y. Filed Feb. 23, 1900. Serial No. 6,180. (No model.)



Claim.—1. In a circuit-controller, the combination of a pivoted circuit-controlling lever, a second lever bearing against one end of the circuit-controlling lever and having a V-shaped cam-surface engaging with said circuit-controlling lever, means for forcing the cam-lever against the end of the circuit-controlling lever and simultaneously moving its cam-surface along said end, for the purpose set forth.

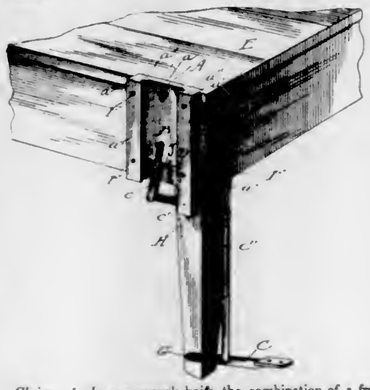
2. In a circuit-controller, the combination of a circuit-controlling lever a plunger, and a pivoted lever carried by the plunger and provided with V-shaped cam-faces, and a spring tending to force the pivoted lever against the end of the circuit-controlling lever.

3. In a circuit-controller, the combination of a circuit-controlling lever provided with a roller arranged parallel to its pivot and a reciprocating V-shaped cam, whose working faces are held in engagement with said roller during its reciprocations.

4. In a circuit-controller the combination of a circuit-controlling lever provided with a fork at one end between the arms of which a roller is held, a plunger, a lever pivotally connected with the plunger and having V-shaped cam-faces engaging with said roller, and a spring adapted to hold said lever in such engagement, substantially as described.

5. In a circuit-controller, the combination of a pivoted circuit-controlling lever, a second lever arranged at right angles to the circuit-controlling lever and having reversed cam-faces acting thereon, a spring holding the cam-faces against the circuit-controlling lever and means for reciprocating the second lever substantially as described.

659,245. **KNIFE FOR CUTTING WRAPPING-TWINE.** GILBERT S. LYLES, Chicago, Ill. Filed Dec. 11, 1899. Serial No. 739,876. (No model.)



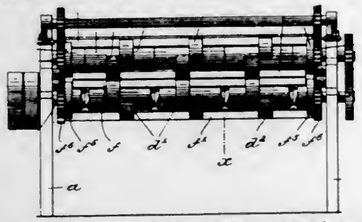
Claim.—1. In a wrapper's knife the combination of a frame consisting of a flat back and two side flanges formed with inwardly-presented grooves, with a knife-blade slidingly engaged with such grooves, a compression-spring engaging such knife with such flat back of said frame, and a foot-lever for operating said knife-blade, substantially as described and for the purposes herein set forth.

2. In a wrapper's knife the combination of a grooved frame A with a knife-blade B sliding within such frame, the upper portion of such knife-blade presenting a cutting edge, a spring D, and operatively connected with the whole, a foot-lever C, substantially as described and for the purposes herein set forth.

659,246. **MACHINE FOR CREASING CARDBOARD.** LEWIS A. MAYALL, Philadelphia, Pa. Filed June 18, 1900. Serial No. 20,630. (No model.)

Claim.—1. In a rotary creasing-machine, a shaft, a series of seg-

mental rolls carried by said shaft, a forming-bar carried by said rolls, a second series of segmental rolls located on said shaft and adjustable thereon independently of said first series of rolls, and a second forming-bar carried by said second series of rolls, both series of rolls being arranged alternately to form conjointly continuous rolls adapted to feed the material to be creased, substantially as and for the purposes described.

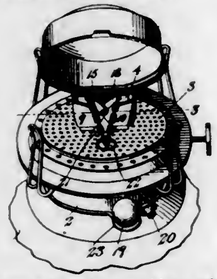


2. In a rotary creasing-machine, two shafts geared together, a series of segmental rolls secured to one of said shafts, a forming-bar carried by said rolls, a similar series of segmental rolls secured to the other of said shafts and a die-bed carried thereby, in combination with a second series of segmental rolls located on each of said shafts and adjustable thereon independently of the other series, a second forming-bar and a second die-bed respectively carried by each second series of segmental rolls, and a roll and gear-wheel to which either end of the second forming-bar and the second die-bed are secured, said gear-wheels meshing together, substantially as and for the purposes described.

3. In a rotary creasing-machine, a shaft and means for rotating the same, in combination with a forming-bar rotating with said shaft and consisting of two members, a channel-piece carried by the shaft in which the inner of the members is longitudinally and the outer member is transversely movable, a series of inclined projections formed on the outer side of the inner member, a series of similar but oppositely-arranged projections formed on the inner or contiguous side of the outer member, and means for periodically shifting the inner member in the channel-piece during the rotation of the shaft, to thereby cause the outer member to move transversely in and out of said piece, substantially as and for the purposes described.

4. In a rotary creasing-machine, a rotary shaft or roll, a plurality of die-beds arranged longitudinally of the shaft or roll and parallel to each other, each die-bed comprising a box having an open upper face or side, a strip adapted to slide in said box and normally closing its open face or side, a series of pins depending from the strip and adapted to traverse the base of the box, and yielding or elastic supports surrounding the pins and interposed between the base of the box and the under face of said strip, and means for adjusting each die-bed independently of the other bed or beds, so as to cause the beds to approach or recede from each other, substantially as and for the purposes described.

659,247. LAMP-EXTINGUISHER. WILLIAM C. MILLER, Lincoln, Nebr., assignor of one-half to August Wendelboe, same place. Filed Aug. 6, 1900. Serial No. 26,070. (No model.)



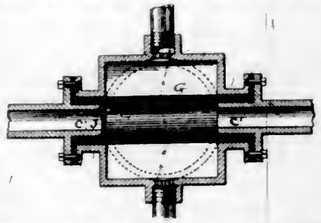
Claim.—1. A lamp-extinguisher comprising a pair of pivoted hood-sections designed to close above a wick-tube, operating-levers extending in opposite directions from the pivot of the sections, a flexible piece connected directly to both of the levers, and a weight connected to the flexible piece to exert a direct pull upon the levers to effect the closing of the hood-sections.

2. A lamp-extinguisher comprising a pair of pivoted hood-sections designed to close over a wick-tube, a pair of operating-levers extending in opposite directions from the sections and disposed in obtuse angular relation to the abutting faces thereof to locate them in upwardly-divergent positions when the sections are depressed, a branched flexible piece connected to the outer ends of said levers and a weight connected to the lower end of said piece and designed to exert a direct downward pull to swing the levers downwardly from positions above the horizontal.

3. The combination with a lamp-top comprising a neck, a globe-supporting base and a wick-tube, of a pair of pivoted hood-sections designed to close over the wick-tube, operating-levers extended from said sections, a branched flexible piece having its branches connected to the levers, a weight suspended by the piece, a seat for said weight, and a supporting device for the seat, encircling the neck of the lamp-top.

4. The combination with a lamp-top comprising a neck, a globe-supporting base, and a wick-tube, of a pair of pivoted hood-sections designed to close over the wick-tube, operating-levers extended from said sections, a flexible piece directly connected to the levers and passed through the globe-supporting base, a weight suspended by the flexible piece, and a seat for said weight located below the base.

659,248. AUTOMATIC GAS-CONTROLLER. WILLIAM G. MILLER, Pittsburg, Pa. Filed Nov. 20, 1899. Serial No. 737,708. (No model.)



Claim.—1. A fluid-controlling device comprising a suitable chamber having gas inlet and outlet passages, a fluid-conduit through said chamber comprising an expansible tube, said tube adapted to open and close the gas-outlet passage, substantially as described.

2. A chamber with inlets and outlets for water and gas, respectively, and a tubular controller for the gas-outlet in open relation at its ends with the water inlets and outlets and adapted to expand to close the gas-outlet, substantially as described.

3. The chamber having inlet and outlet openings for gas, and a fluid-conduit through said chamber having an expansible tube extending across the chamber in such relations to the gas-outlet opening as to close the same when expanded, substantially as described.

4. In fluid-controlling devices, a chamber having inlet and outlet passages midway between its ends and a distensible member arranged at right angles to said passages and its ends coupled up for the passage of a pressure fluid, substantially as described.

5. The chamber having two sets of fluid inlets and outlets, and an elastic member having its ends coupled up with one each of said inlets and outlets and constructed to expand and close the other inlet and outlet under internal pressure, and service-pipes united with all said inlets and outlets, substantially as described.

6. A chamber having gas inlets and outlets and water inlets and outlets at right angles to each other, and pipes connected therewith, and a distensible member coupled up to complete the water connection through said chamber and adapted when expanded to close the gas-outlet, substantially as described.

7. In an instantaneous heater, a water-service pipe and an expansible tube set into said pipe, a wall inclosing said tube and normally separate therefrom and an inlet and an outlet for gas in said wall, the outlet being at right angles to the axis of the expansible tube, substantially as described.

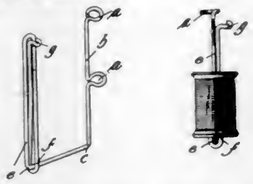
8. The chamber having gas inlet and outlet openings and perforated diaphragms over said openings, and an expansible tubular member forming a fluid-conduit through said chamber and adapted to bear against said outlet when expanded, substantially as described.

9. The chamber having a water and a gas inlet and a water and a gas outlet, the water service-pipes connected with the water inlet and outlet and the elastic tube coupled up with said pipes and arranged to close the gas-outlet when expanded, and a back-pressure valve in the water service-passage through said pipes and tube, substantially as described.

10. In a fluid-controlling device, an elastic and expansible tube having flanges at its ends, in combination with a cylindrical chamber having ends with necks in which said tube is supported and having a gas-inlet and a gas-outlet midway between its ends adapted to be closed by said tube when expanded, substantially as described.

659,249. SPOOL-HOLDER. JOHN A. MYERS, Mercer, Pa. Filed Jan. 26, 1900. Serial No. 2,906. (No model.)

Claim.—An attachment composed of a single piece of wire, one part of which is bent to form a supporting connection, a parallel part consisting of a vertical wire *e* extending from a horizontal part *c* and a doubled extension of *e* comprising the parts *f*, *g*, these parts being doubled around the horizontal part *c* and terminating in a spring-extension container, substantially as described.



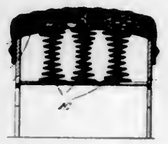
659,250. STUB-HOLDER FOR CHECK OR OTHER BOOKS. ROBERT F. MCKINLEY, Bedford, Ind. Filed Jan. 11, 1900. Serial No. 1,160. (No model.)



Claim.—1. The combination with a stub-book, of a stub-holder, comprising a base-plate secured to the inner side of the cover, which is adjacent to the stubs, a stub-engaging member pivoted to swing laterally upon the base-plate and extended longitudinally of the cover to have its free end overlap the adjacent stubs, and a hook-shaped keeper carried by the plate, to embrace the stub-engaging member and hold the latter normally in engagement with the stubs.

2. A stub-holder, comprising a flat base-plate, having opposite perforations for the reception of fastening devices, and a hook-shaped spring-tongue struck up at one edge of the plate, to form a keeper, and a bowed-spring stub-engaging arm, having its rear end pivoted to the base to swing laterally thereon, and its opposite free end projecting beyond the base-plate, the keeper being located intermediate of the opposite ends of the arm to laterally engage the latter.

659,251. DETACHABLE COVER FOR UPHOLSTERED FURNITURE. FRANK NERAD, Chicago, Ill. Filed Jan. 6, 1900. Serial No. 600. (No model.)



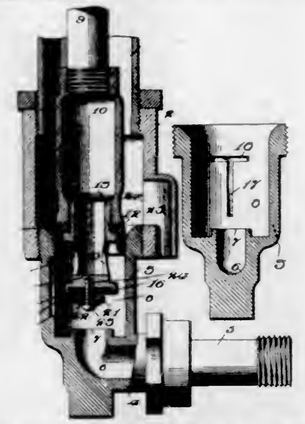
Claim.—1. In a couch or lounge, the combination with the usual frame and metal springs suitably secured to the frame and to each other, of headed pins secured around the frame, a cover or cushion consisting of stuffing material and top and bottom fabrics, said fabrics being extended to form a skirt or flap, and plates secured to and concealed in said flap and provided with sockets to fit over the headed pins, substantially as described.

2. In an article of furniture, the combination with a frame carrying headed pins, of a cushion having the top and bottom fabrics thereof extended to form a flap depending from the cushion, and plates carried by the flap, said plates positioned between the two fabrics constituting the flap and provided with sockets to receive the headed pins the inner fabric of the flap being formed with the openings in line with said sockets, substantially as described.

659,252. VALVE FOR HYDRANTS. HORACE F. NEUMEYER, Macungie, Pa. Filed June 18, 1900. Serial No. 20,739. (No model.)

Claim.—1. The combination with a cylinder having a passage-way for the induction of liquid, of a piston within the cylinder and having a valve controlling the passage-way, said cylinder being provided with a drain-channel disposed in the direction of movement of the piston and with a transverse channel extension located immediately above the piston in the closed position of the valve.

2. The combination with a cylinder having a passage-way for the induction of liquid and a valve-seat, of a hollow plunger having means of communication with the interior of the cylinder, said plunger being provided with a piston fitting closely within the cylinder and with a valve extension disposed within the valve-seat, said cylinder being provided with a drain-channel extended below the piston and with a transverse channel extension disposed immediately above the piston in the closed position of the valve, said valve extension being capable of maintaining its connection with the valve-seat during the movement of the piston to close the channel extension.



3. The combination with a cylinder having a longitudinal drain-channel terminating at its upper end in a transverse channel extension extended in opposite directions from the channel, and an inwardly-extending valve-seat located at the lower end of the cylinder and surrounding a passage-way for the induction of liquid, a plunger having means of communication with the cylinder and provided with a piston fitting closely within the cylinder and with a controlling-valve located below the piston, said controlling-valve comprehending a valve extension extending within the valve-seat a distance at least equal to the movement of the piston necessary to effect the closing of the channel extension.

4. The combination with a cylinder having an internal, longitudinal drain-channel terminating at its upper end in a transverse extension, and an upstanding valve-seat located at the lower end of the cylinder and surrounding a passage-way for the induction of liquid, a discharge-pipe located above the cylinder, a hollow plunger provided with a piston fitting closely within the cylinder, a separable valve-plug fast with the lower end of the plunger and provided with ports located below the piston, a valve inlaid in the end of the valve-plug and of sufficient dimensions to seat upon the valve-seat, said valve being provided with an axial valve extension extending into the valve-seat to a distance greater than the width of the channel extension, and a plunger-casing screwed upon the upper end of the cylinder and provided with a drain-port.

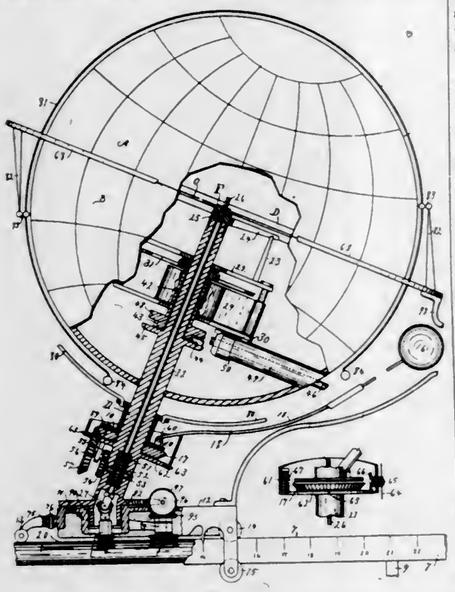
5. A valve-plug of the character described having a compression-disk inlaid in its end face, a metal valve extension disposed against said disk, a compressible cup-shaped packing disposed against the under side of said valve extension and having its edges slightly removed from contact with the disk, a metal washer disposed against the under face of the packing, and a screw piercing the washer, packing, valve extension and compression-disk and screwed into the valve-plug to retain said elements in a permanent assemblage.

659,253. TELLURIAN. JOHN H. F. OTTO, Milwaukee, Wis. Filed Jan. 20, 1900. Serial No. 2,191. (No model.)

Claim.—1. In a tellurian, the combination of a globe representing the earth; a globe representing the sun; a circular track representing the earth's elliptical orbit around the sun; a carriage mounted upon said circular track; a revoluble standard supporting said globe from said track; a rack-bar supported by said track, parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a spring-actuated clock-gear located in said globe; and means for communicating motion from said clock-gear in said globe to said rack-pinion; and from said rack-bar back to said globe, whereby said carriage and globe are driven around and upon said elliptical track regardless of its varying distance from the globe representing the sun, while the earth is rotated upon its own axis and such axis is retained at the proper inclination to the plane of the track, substantially as and for the purpose specified.

2. In a tellurian, the combination of a globe representing the earth; a track representing the elliptical orbit around the sun; a carriage mount-

ed upon said track; a revoluble standard supporting said globe from said carriage; a rack-bar supported by said track, parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a spring-actuated clock-gear located in said globe; a hollow standard supporting said globe from said carriage; a shaft communicating from the driving mechanism in said globe through said standard to the driving mechanism of said carriage; a sphere representing the moon, supported by a revoluble disk from said standard; and means for communicating motion from said standard to said revoluble disk, whereby the sphere, representing the moon, will be actuated by the rotation of said shaft and said carriage simultaneously driven upon said track; and means for communicating motion back from said rack-bar to said revoluble standard, substantially as and for the purpose specified.



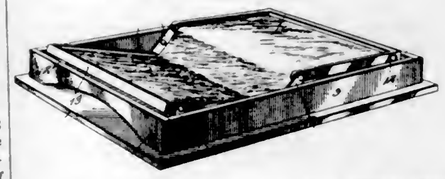
3. In a tellurian, the combination of a globe representing the earth; a circular track representing the earth's orbit around the sun; a carriage mounted upon said circular track from which said globe is revolubly supported; a rack-bar supported by said track, parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a spring-actuated clock-gear located in said globe; a hollow standard supporting said globe from said carriage; a shaft communicating from the driving mechanism in said globe through said standard to the driving mechanism of said carriage; a sphere representing the moon, supported by a revoluble disk from said standard; means for communicating motion from said standard to said revoluble disk, whereby the sphere representing the moon will be actuated by the rotation of said shaft and said carriage simultaneously driven upon said track; a pivotal joint connecting the moon-supporting rod with said revoluble disk; an encircling sleeve pivotally supported at opposite sides to a flange projecting from said standard; and means for tilting said encircling sleeve upon its pivotal support, from time to time, with each revolution of the sphere representing the moon, around the earth, substantially as and for the purpose specified.

4. In a tellurian, the combination of a revoluble globe representing the earth; a circular track representing the earth's orbit; a globe-supporting standard revolubly supported from said carriage; a rack-bar supported by said track, parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a revoluble shaft communicating from the driving mechanism in said revoluble globe through said standard, to the driving mechanism of said carriage; a sphere representing the moon, revolubly supported from said globe-supporting standard; means for communicating motion from said revoluble shaft to the sphere representing the moon; and means for communicating motion from said rack-bar to said globe-supporting standard and globe, whereby the spheres representing the earth and moon may be actuated from the rack-bar of said carriage-supporting track, independently of the driving clock-gear, substantially as and for the purpose specified.

5. In a tellurian, the combination of a globe representing the earth; an annular dial-plate surrounding said globe on its equator, pivotally supported from the globe-supporting standard, and provided with index marks or characters representing the daily and hourly movements of the earth upon its axis; a circular track representing the earth's orbit around the sun; a carriage mounted upon said circular track, from which said globe is revolubly supported; a rack-bar supported by said track, parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a spring-actuated clock-gear located in said globe; a hollow standard supporting said globe from said carriage; a shaft communicating from the spring-actuated clock-gear in said globe through said standard, to the driving mechanism of said carriage; a sphere representing the moon, supported by a revoluble disk from said standard; and means for communicating motion from said standard to said revoluble disk, whereby the globe, representing the moon, will be actuated by the rotation of said shaft and said carriage simultaneously driven upon said track, substantially as and for the purpose specified.

6. In a tellurian, the combination of a globe representing the earth; an annular dial-plate surrounding said globe on its equator, pivotally supported from the globe-supporting standard, and provided with index marks or characters representing the daily and hourly movements of the earth upon its axis; a circular track representing the earth's orbit around the sun; an index-plate located upon said globe-supporting track, representing the monthly and daily subdivisions of time of the annular movement of the earth in its orbit around the sun; a carriage mounted upon said circular track, from which said globe is revolubly supported; a rack-bar supported by said track parallel with the plane of movement of said carriage; a rack-pinion having journal-bearings in said carriage and operating in said rack-bar; a spring-actuated clock-gear located in said globe; a hollow standard supporting said globe from said carriage; a shaft communicating from the spring-actuated clock-gear in said globe through said standard to the driving mechanism of said carriage; a sphere representing the moon, supported by a revoluble disk from said standard; and means for communicating motion from said standard to said revoluble disk, whereby the sphere representing the moon will be actuated by the rotation of said shaft, and said carriage simultaneously driven upon said track, substantially as and for the purpose specified.

659,254. BOOK-HOLDER. EDWARD C. PASAL, Urbana, Ill. Filed June 27, 1900. Serial No. 21,835. (No model.)

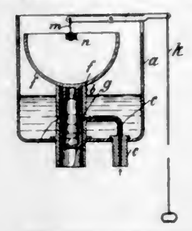


Claim.—1. A book-support comprising a frame, oppositely-disposed straight links pivoted between their ends to the frame, supporting-boards pivoted to the corresponding ends of the links, and additional links of equal lengths each of which is pivoted at one end to the frame and is pivoted at its opposite end to a supporting-board, whereby the outer edges of the boards will lie at all times in common horizontal planes, and one board may lie horizontal and the other slantingly with its inner edge lower than the adjacent edge of the adjacent board.

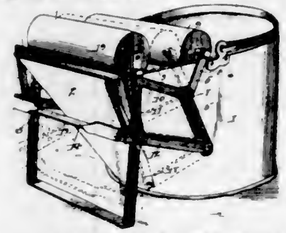
2. A book-support comprising a frame, oppositely-disposed straight links pivoted between their ends to the frame, supporting-boards pivoted to the corresponding ends of the links, and additional links of equal lengths, each of which is pivoted at one end to the frame and is pivoted at its opposite end to a supporting-board, and a fabric secured to the outer edge of one board and disposed transversely of both boards and attached at its opposite end to the outer edge of the second board, whereby the outer edges of the boards will lie at all times in common horizontal planes while the two boards lie at an angle to each other.

659,255. FLUSHING DEVICE FOR WATER-CLOSETS. ROBERT PAULS, Altona, Germany. Filed Mar. 23, 1900. Serial No. 9,974. (No model.)

Claim.—A flushing device for water-closets with automatic regulation of the water-supply, comprising in combination a tank, a flushing-pipe having water admission and exit openings, a bell-shaped float normally resting on the upper end of the aforesaid flushing-pipe, a piston-tube in connection with the float adapted to move in the flushing-pipe, an annular groove in said piston-tube adapted to admit water to the tank, a water-supply pipe terminating in the flushing-pipe in the interior of the tank and a lever in connection with a pulling-cord for actuating the flushing device, substantially as described and shown and for the purpose set forth.



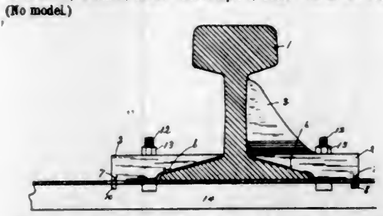
659,256. MOP-WRINGER. EDWARD J. PECK, Hannibal, Mo. Filed July 13, 1900. Serial No. 23,501. (No model.)



Claim.—1. In a mop-wringer, the combination of a pail or receptacle having a projection or spout with upper parallel side portions, an outwardly-inclined leg having its resting portion in advance of the spout and its side bars rigidly secured to the sides of the spout or projection and extended above the rim of the latter, a wringing-roller journaled in the upper ends of the said side bars and having a fixed plane of rotation, a longitudinally-shiftable wringing-roller movable to and from the first-named roller, both rollers having their ends between the planes of the sides of the spout and partially depending between the latter to serve as a guiding means in the event of wear and to accurately retain the mop within the confines of the spout during the wringing operation, and means for operating the swinging roller.

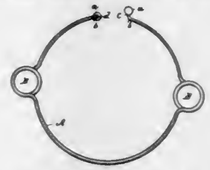
2. In a mop-wringer, the combination of a pail or receptacle having a projection or spout with upper parallel side portions, an outwardly-inclined leg having its rest portion in advance of the projection or spout and its side bars rigidly secured to the sides of the latter by a single fastening passed through each bar, the upper extremity of each bar having a transversely-extending corrugation to fit over the rim of the pail to prevent movement of the same and the use of a single fastening therethrough, bars or reinforce-bearings secured to the opposite sides of the projection or spout, bell-crank levers attached to the upper portions of the bars or bearings and having a wringing-roller rotatably mounted in their shorter arms and shiftable thereby in a longitudinal direction, a wringing-roller having bearing in the upper extremities of the side bars of the leg and having a fixed plane of rotation, both rollers being confined between and partially depending below the upper portions of the spout to provide guiding means for said rollers to retain them in place in the event of wear and to accurately confine the mop between the said side portions of the spout, a treadle having its angular members pivoted to the lower portions of the bars or bearings, and connecting devices between the outer ends of the longer arms of the bell-crank levers and the angular members of the treadle.

659,257. RAILWAY-RAIL FASTENING AND BRACE. JASPER N. POWELL, Wichita, Kans. Filed Apr. 4, 1898. Serial No. 676,415. (No model.)



Claim.—In the herein-described railway-fastening, in combination with a railway-rail, and metallic tie, a metallic block 2 having a tapered end, the brace 3 extending upward from said tapered end, a lug 8 extending downward from the outer and lower edge of said block, said block having also the bolt-hole 11, the ridge 6 extending across the beveled surface, and the ridge 7 extending across the outer end and under surface of said block, and the bolt 12 for passing through said opening 11, substantially as shown, and described.

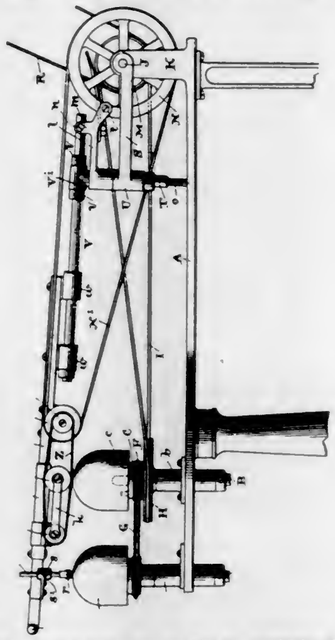
659,258. NAPKIN-HOLDER. CHARLES H. PRATT, Helena, Mont. Filed June 12, 1899. Serial No. 720,202. (No model.)



Claim.—1. A napkin-holder, consisting of an open wire ring, having short coil-springs on each side, on the same surface or face of the ring, coiled in opposite directions, and a single wire front, substantially as shown and described.

2. A napkin-holder, consisting of an open wire ring, having short coil-springs on each side, on the same surface or face of the ring, coiled in opposite directions, a single wire front and means for locking the ends, substantially as shown and described.

659,259. HAT-POUNCING MACHINE. CHARLES H. REID, Danbury, Conn. Filed Oct. 26, 1899. Serial No. 734,845. (No model.)



Claim.—1. In a hat-pouncing machine, the combination of a pouncing-arm pivoted as described, pouncing mechanism carried by said arm, suitably-mounted driving mechanism, operative connections between said driving mechanism and pouncing mechanism, a rotatory hat-block, operative connections between said block and said driving mechanism, with automatically-operated instrumentalities intermediate of said pouncing-arm and driving mechanism, whereby said hat-block and pouncing mechanism will be set in motion when said pouncing-arm is moved in a direction toward said hat-block, and brought to a standstill when said arm is moved in the opposite direction, substantially as set forth.

2. In a hat-pouncing machine, the combination of a pouncing-arm pivoted as described, pouncing mechanism carried by said arm, suitably-mounted driving mechanism, operative connections between said driving mechanism and pouncing mechanism, a rotatory hat-block, operative con-

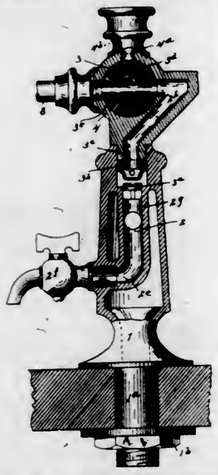
nections between said hat-block and said driving mechanism, with automatically-operated instrumentalities intermediate of said pouncing-arm and driving mechanism, whereby the various rotatory members will be set in motion when said pouncing-arm is moved in a direction toward said hat-block, and brought to a standstill when said arm is moved in the opposite direction, and an adjustable guide-arm carried by said pouncing-arm adapted to bear upon a templet synchronously rotated with said hat-block, substantially as set forth.

3. In a hat-pouncing machine, the combination of a pouncing-arm pivoted as described, pouncing mechanism carried by said arm, suitably-mounted driving mechanism, operative connections between said driving mechanism and pouncing mechanism, a rotatory hat-block, operative connections between said block and said driving mechanism, with automatically-operated instrumentalities intermediate of said pouncing-arm and driving mechanism whereby said pouncing mechanism will be set in motion when said pouncing-arm is moved in a direction toward said hat-block, and brought to a standstill when said arm is moved in the opposite direction, substantially as set forth.

4. In a hat-pouncing machine, the combination of the bed or frame, pulleys which constitute the driving mechanism suitably journaled thereon, a yoke pivoted so as to swing in a vertical plane, the pouncing-arm swivelly connected to a rod which latter is pivoted to said yoke in such manner as to be capable of swinging in a horizoutal plane, a belt-shifter and brake carried by said yoke and adapted to be engaged by said rod, pouncing mechanism carried by said pouncing-arm, operative connections between said pouncing mechanism and driving-pulleys, with a rotatory hat-block suitably journaled on said bed, and operative connections between said hat-block and driving-pulleys, substantially as described.

5. In a hat-pouncing machine, the bed or frame, pulleys which constitute the driving mechanism suitably journaled thereon, a yoke or frame pivoted so as to swing in a vertical plane, the pouncing-arm swivelly connected to a rod which latter is pivoted to said yoke in such manner as to be capable of swinging in a horizontal plane, a belt-shifter carried by said yoke and adapted to be engaged by said rod, pouncing mechanism carried by said pouncing-arm, operative connections between said pouncing mechanism and driving-pulleys, an adjustable guide-arm carried by said pouncing-arm and adapted to bear upon a suitably-shaped templet, in combination with a rotatory hat-block and operative connections between said hat-block and said driving-pulleys, substantially as described.

659,260. FLUID-MIXING FIXTURE. ALFRED A. SCHRATS, Detroit, Mich. Filed May 3, 1900. Serial No. 15,324. (No model.)



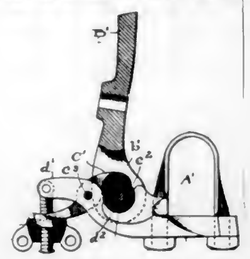
Claim.—1. In a fixture for mingling antiseptic fluid with water, in combination with a standard provided with an inflow-pipe for water and a nozzle for the delivery of the same, an antiseptic-tank connected with the fixture, a three-way valve adapted to allow the flow therethrough of both water and the antiseptic liquid, a nozzle for the delivery of the mingled liquids, and a check-valve in the fixture between the inflow-pipe for water and the three-way valve, and also between said two delivery-nozzles, substantially as described.

2. In a fixture for mingling antiseptic fluid with water, in combination with a standard provided with an inflow-pipe for water, an antiseptic-tank connected with the fixture, a three-way valve adapted to allow the flow therethrough of both water and the antiseptic liquid, a check-valve in the fixture between the inflow-pipe for water, and the three-way valve, and a regulating-nipple adjustable with respect to the check-valve, and adapted to determine the amount to which the check-valve opens, substantially as described.

659,261. PROCESS OF PRODUCING GLUE OR GELATIN FREE FROM FAT. CARL T. SETTERBERG, Stockholm, Sweden. Filed Dec. 21, 1897. Serial No. 662,922. (No specimens.)

Claim.—The method of producing glue or gelatin of a light color and free from fat from spetches or cartilage, consisting in first neutralizing a part of the lime or alkali by washing the spetches or the cartilage with a solution of an acid or an acid salt and then permitting the glue material to come in contact with a solution of an aluminium salt, which may be added in so great quantity, that a glue or gelatin solution prepared at the boiling, shows a neutral or alkaline reaction and finally manufacturing, in the usual manner, glue or gelatin from the material thus treated.

659,262. THILL-COUPLING. WILLIAM C. SHEPHERD, Cleveland, Ohio. Filed Feb. 24, 1900. Serial No. 6,351. (No model.)

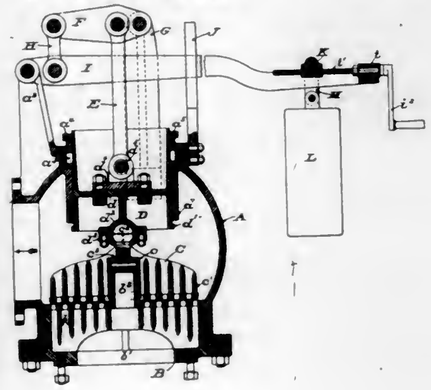


Claim.—1. In thill-couplings, a clip having a forwardly-projecting arm with a seat on its top for the thill or pole iron, and a locking-jaw pivoted between its ends on said arm in front of said seat and extending below the same at its free end, and a screw pivoted on said arm engaging the said free end of the jaw to press it into engagement, substantially as described.

2. The clip and its arm having a seat for the thill or pole iron, a locking-jaw pivoted between its ends on said arm in front of said seat, and having its upper end adapted to swing over said seat to engage on the thill or pole iron extending forward below said arm, a screw pivoted on the extremity of said arm and a nut thereon to engage beneath the front end of the locking-jaw, substantially as described.

3. The clip having a forwardly-projecting arm, a jaw overlapping said arm at both sides and pivoted substantially at its middle thereon and having a recess in its lower end, a screw pivoted on the extremity of said arm and adapted to swing into said recess, and a nut on said screw to engage against the under side of said recessed portion of the jaw, substantially as described.

659,263. RELIEF-VALVE. CHARLES M. W. SMITH, Cambridge, Mass., assignor to Walter C. Carr, New York, N. Y. Filed Jan. 30, 1900. Serial No. 3,293. (No model.)

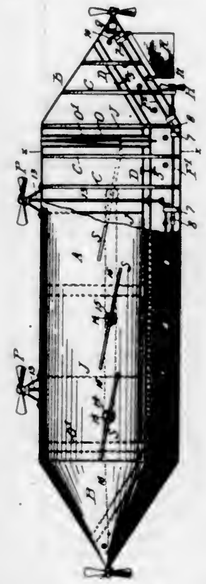


Claim.—1. In a pressure-relief valve, the combination of a valve body or casing, a weighted lever hinged to said casing, a valve consisting of a series of annular concentric rings flexibly connected thereto, provided with a centrally-located dash-pot integral therewith, and an annular concentrically-ringed valve-seat provided with a vertically-projecting piston operating in said dash-pot, substantially as described.

2. In a pressure-relief valve, the combination of a valve body or casing, a weighted lever hinged to said casing, a guiding-plunger operatively connected thereto, an annular concentrically-ringed valve consisting of a series of annular rings flexibly connected to said plunger, so as to be free to adjust itself to its seat in all directions, and an annular concentrically-ringed valve-seat consisting of a series of annular rings removably attached to said valve body or casing, substantially as described.

3. In a pressure-relief valve, the combination of the main valve body or casing A, seat B removably connected thereto, provided with vertically-projecting piston b^3 integral therewith, main valve C provided with dash-pot c integral therewith, flexibly connected to plunger D which in turn is hinged by link E to the two-part lever F, which in turn is hinged by link H to two-part lever I, which in turn is hinged to the main valve case or body A by means of vertically-projecting lugs a^3, this two-part lever I being steadied by guide J, which is fastened to the main case A and is provided with the sliding nut K, from which the weight L is suspended by means of the links M, which weight is horizontally adjustable on the two-part lever I by means of adjusting-screw i and crank i^3 connected therewith, all for the purpose as set forth.

659,264. AIR-SHIP. CHARLES STANLEY, San Francisco, Cal., assignor to the Stanley Aerial Navigation Company, of California. Filed Aug. 7, 1899. Serial No. 726,442. (No model.)

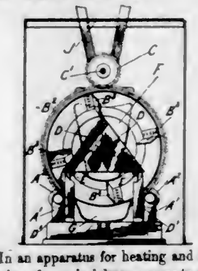


Claim.—1. In an air-ship, the combination with a buoyant shell, of a series of side planes arranged along the side of the ship in a normal horizontal line and substantially continuous, such planes being independently pivoted and connected together so as to be simultaneously and pivotally movable, the planes in the series increasing in length from the bow toward the stern.

2. In an air-ship, a buoyant structure having bow and stern propellers, and also vertically-acting propellers for transmitting ascensional and descensional force, and provided further with a series of side planes pivoted along each side and connected together for simultaneous adjustment.

3. In an air-ship, a buoyant shell having a gas-space separated from an accommodation-space below, in combination with parachute-tubes extending vertically through the gas-space, and parachutes adapted to be concealed in folded form within such tubes and to expand above said tubes and the shell.

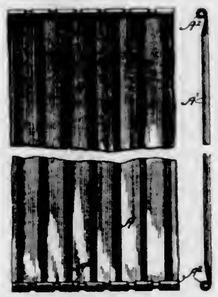
659,265. APPARATUS FOR HEATING AND DAMPENING OLEAGINOUS MEAL. JOHN C. W. STANLEY, London, England, assignor to The Cotton Seed Oil Syndicate, Limited, same place. Filed Aug. 21, 1899. Serial No. 728,006. (No model.)



Claim.—1. In an apparatus for heating and dampening oleaginous meal, the combination of a conical drum, means to rotate it, means to feed the meal to be treated to its smaller end, inclined surfaces within the drum and meeting at their upper edges, means to heat said surfaces, vanes secured to the interior face of the drum to carry the meal upwardly and discharge it upon the inclined surfaces, and means to dampen the meal as it falls from the inclined surfaces, substantially as set forth.

2. In an apparatus for heating and dampening oleaginous meal, the combination of a conical drum, means to rotate it, means to feed the meal to be treated to the smaller end of the drum, inclined plates supported within the drum and meeting at their upper edges, vanes secured to the interior surface of the drum to carry the meal upwardly and discharge it upon the inclined plates, a stack of steam-pipes supported between the plates to heat the latter, and nozzles connected to said steam-pipes to discharge steam upon the meal as it falls from the plates, substantially as set forth.

659,266. CUSHIONING-BODY. ROBERT I. STEWART, Xenia, Ohio. Filed Feb. 12, 1900. Serial No. 4,987. (No model.)



Claim.—1. A cushioning-body composed of a series of layers corrugated jointly and forming a flexible corrugated sheet and bent back upon itself at its edge transversely to the length of the corrugations substantially as set forth.

2. A cushioning-body composed of a flexible corrugated sheet bent back upon itself at its edge transversely to the corrugations substantially as set forth.

3. A cushioning-body composed of a flexible corrugated sheet provided with a portion deflected laterally to the plane of such sheet whereby the corrugations will be held in form independently of any separate fastening means substantially as set forth.

4. A cushioning-body comprising a plurality of layers of paper corrugated jointly forming a flexible corrugated packing-body and bent transversely of said corrugations whereby the layers are locked together in the corrugated form substantially as set forth.

5. A cushioning-body composed of a plurality of sheets or layers corrugated jointly forming a cushioning-body, said layers and corrugations being held in form independently of separate fastening means substantially as set forth.

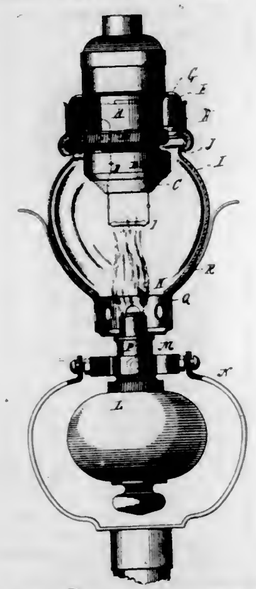
659,267. TOY VELOCIPEDE. ELLSWORTH THOMPSON and AMOS E. EVANS, Golden, Ill. Filed May 10, 1899. Serial No. 716,319. (No model.)

Claim.—In a toy or velocipede, the combination with the rear portion of the body of a horse provided with jointed legs and driving mechanism connected therewith, the forward portion of the body carrying the

head, a vertical bracket depending rigidly from the forward portion, an axle journaled in said bracket, and front wheels on said axle, the two parts of the body being cut away at the sides of their vertical meeting-lines, top and bottom plates projecting from the rear portion of the body, top and bottom plates projecting rearward from the front portion of the body and overlapping the plates of the rear portion, and a vertical pivot parallel with but in the rear of the vertical bracket which carries the front wheels and passing through and connecting the overlapping plates, reins attached to the head carried by the front portion and a saddle attached to the rear portion of the body, all substantially as described.



659,268. GLOWER-HEATING APPARATUS FOR ELECTRIC LAMPS. JOHN VAN VLECK and WILLIAM N. STEVENS, New York, N. Y. Filed Apr. 27, 1900. Serial No. 14,522. (No model.)



Claim.—1. The combination with an electric lamp of the type herein specified having a fixed glower and a surrounding guard therefor provided with an opening below said glower, of a removable flame-producing burner for heating said glower and means for centering said burner with respect to said opening, substantially as described.

2. The combination with an electric lamp of the type herein specified having a glower and a substantially-globular guard device surrounding said glower and provided with an opening below the same, of a removable flame-producing burner for heating said glower provided with a guide adapted to fit upon said guard device and to center said burner with respect to said opening, substantially as described.

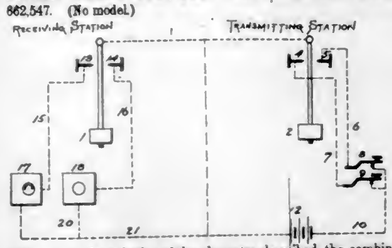
3. The combination with an electric lamp of the type herein specified, having a glower and a translucent globe surrounding said glower and provided with an opening below the same, of a removable flame-producing burner for heating said glower provided with a guide adapted to fit upon said guard device and to center said burner with respect to said opening, substantially as described.

4. In an electric lamp of the type herein specified, a glower, a support below which the glower is secured, a heater below said glower, an inclosing globe for said glower carried by said support, and means for sustaining said globe from a point on said support at a distance above said glower, whereby an annular passage for the escape of hot air is provided around said support, substantially as described.

5. In an electric lamp of the type herein specified, a glower, a cylindrical support therefor, the arched or bent-over ring F upon said support provided with openings G and secured upon said ring the globe L having an opening K, and inclosing said glower, substantially as described.

6. In an electric lamp of the type herein specified, a glower, a support therefor, a fixed sleeve surrounding said glower and a portion of said support and open to the atmosphere at top and bottom and a deflecting-surface immediately above said glower; whereby a heating-flame introduced at the bottom of said sleeve will impinge upon said glower and said deflecting-surface and thereafter pass off through the annular space between said sleeve and said support, substantially as described.

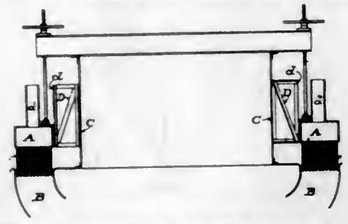
659,269. ANNUNCIATOR FOR TELEPHONE-EXCHANGES. BENJAMIN WALLER, Detroit, Mich. Filed Dec. 20, 1897. Serial No. 662,547. (No model.)



Claim.—1. In a device of the character described, the combination with a plurality of synchronous switches, of contacts for the same, circuit-closers, annunciators, and means for holding said annunciators temporarily exposed when actuated by an intermittent electrical current, all substantially as described.

2. In a device of the character described, the combination with a plurality of switches, of contacts for the same, a conductor connecting the switches, wires leading to the contacts, circuit-closers connected with said wires, a battery, annunciators at the receiving-station, and means for holding said annunciators temporarily exposed when actuated by an intermittent electrical current.

659,270. HYDRAULIC AIR-COMPRESSING APPARATUS. WILLIAM O. WEBBER, Brookline, Mass., assignor to Walter C. Carr, New York, N. Y. Filed Jan. 30, 1900. Serial No. 3,327. (No model.)



Claim.—1. In a hydraulic air-compressing apparatus, the combination with a water-passage, of a submerged air-chamber located adjacent thereto and having a substantially-unobstructed upper face, an air-inlet pipe to said chamber of less diameter than the chamber and extending at an angle thereto, to a point above the water-level whereby a free flow of water over said upper surface of the chamber is permitted, and a series of air-outlet pipes discharging into said water-passage, substantially as specified.

2. In a hydraulic air-compressing apparatus, the combination with a water-passage, of a submerged air-chamber located adjacent thereto, an air-inlet pipe to said chamber of less diameter than the chamber, and a series of outlet-pipes extending from said chamber upon opposite sides from said inlet connection therewith and each of less diameter than the inlet, substantially as specified.

3. In a hydraulic air-compressing apparatus, the combination with a water-passage, of a submerged air-chamber located adjacent thereto, air-inlet pipes disposed at opposite sides of the center of said chamber, and a series of air-outlet pipes from said chamber located between the points of connection of said inlet-pipes, substantially as specified.

4. In a hydraulic air-compressing apparatus, the combination with a water-passage, of a continuous air-chamber extending laterally of the same, a series of outlet-pipes extending from said chamber toward said water-passage, and an air-inlet for said chamber, substantially as specified.

5. In a hydraulic air-compressing apparatus, the combination with a water-passage of a continuous air-chamber surrounding the same, a series of outlet-pipes depending from said chamber toward said water-passage, an air-inlet for said chamber, and a central frame provided with means for raising and lowering said chamber and parts carried thereby, substantially as specified.

6. In a hydraulic air-compressing apparatus, the combination with a water-passage, of an air-chamber surrounding the same, a series of outlet-pipes extending from said chamber toward said water-passage, an air-inlet for said chamber, a central frame provided with means for raising and lowering said chamber, and guides between the chamber and frame for determining the horizontal position of the air-outlet pipes relative to the water-passage, substantially as specified.

7. In a hydraulic air-compressing apparatus, an enlarged, submerged air-inlet chamber provided with downwardly-projecting air-outlet pipes on the lower part thereof, said air-outlet pipes being provided with curved guides for the purpose of guiding and regulating the amount of water passing between them, substantially as described.

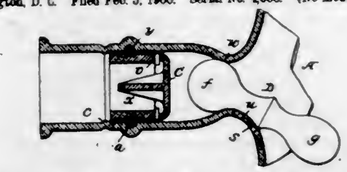
8. In a hydraulic air-compressing apparatus, an enlarged, submerged air-inlet chamber provided with downwardly-projecting air-outlet pipes on the lower part thereof, said air-outlet pipes being provided with curved guides for the purpose of guiding and regulating the amount of water passing between them, and adjustably connected thereto, substantially as described.

659,271. HOOK. FRITZ WENDLER, Glatz, Germany. Filed Aug. 30, 1900. Serial No. 28,549. (No model.)



Claim.—As a new article of manufacture a hook with a part *a* bent at a right angle and turnably fastened at an eye *b* combined with a ring *c* provided with a screw *d* in the described manner and for the purpose mentioned.

659,272. NON-REFILLABLE BOTTLE. HARVEY T. WHITE, Washington, D. C. Filed Feb. 5, 1900. Serial No. 4,006. (No model.)

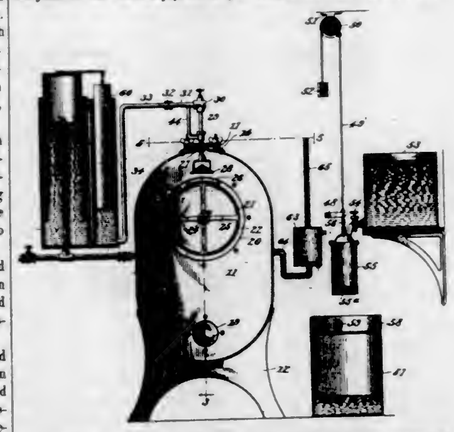


Claim.—1. The combination of the bottle, its neck and valve, a cup-shaped plug C having tortuous passages and a projection extending from its bottom wall only, and formed with integral right-angled ribs, a packing adapted to openings in the plug and neck, and a rib *c* with inclined faces arranged within the neck in a position above the upper end of the plug when the latter is in place, substantially as and for the purpose set forth.

2. The combination of the bottle, a cup-shaped plug C having tortuous passages and a projection extending from its bottom wall only, and formed with integral right-angled ribs, a packing adapted to openings in the plug and neck, and a rib *c* with inclined faces arranged within the neck in a position above the upper end of the plug when the latter is in place, a valve-seat at the junction of the body and neck and a valve having a spherical head adapted to said seat, a weighted stem and inclined face upon said stem and a bearing-face upon the bottle below the seat, substantially as and for the purpose set forth.

659,273. ACETYLENE-GAS GENERATOR. BENJAMIN F. WILLIAMS, Quanah, Tex. Filed Apr. 26, 1898. Serial No. 678,885. (No model.)

Claim.—1. In an acetylene-gas machine, the combination with a generator, of a revoluble carbid-cage therein, means for rotating said cage, a vertical water-pipe passing through the top of the generator, and carrying at its inner end a distributing device, a vertical glass feed-tube in alinement with and adjoining the said feed-pipe a horizontal water-pipe and a bracket provided with a head or socket at its lower end to protect the joint of the vertical pipe and sight-tube, substantially as described.



2. The combination with the removable lid of the generator, of a vertical water-pipe passing therethrough and carrying at its inner end a distributing device, a vertical glass feed-tube in alinement with and adjoining the said feed-pipe, a horizontal water-pipe, a valve connecting it with the vertical sight-feed tube, and a bracket depending from the horizontal pipe and provided with a head or socket at its lower end to protect the joint of the vertical pipe and the sight-tube, substantially as described.

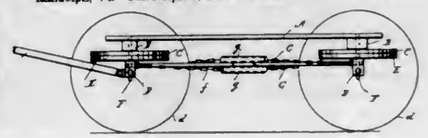
3. The combination with a generator, of a removable cover therefor, a water-feed tube extending through said cover, a vertical glass sight-tube in alinement with and adjoining said feed-tube a horizontal tube connected to the top of said sight-tube and carrying a downwardly-projecting bracket, having a head or socket for the reception of the upper end of the feed-tube and the lower end of the sight-tube, substantially as described.

4. In an acetylene-gas machine, the combination, with a generator, of a revoluble carbid-cage therein, a water-supply pipe and a gas-outlet pipe communicating with the generator, and automatic means for intermittently rotating the cage at predetermined intervals independently of the formation of gas within the generator, substantially as described.

5. In an acetylene-gas machine, the combination, with a generator provided with a water-supply pipe and a gas-outlet, of a carbid-cage revolubly mounted in the generator, one end of which is provided with a ratchet-wheel, a lever provided with a pawl in position to engage with the ratchet-wheel and automatic means for intermittently operating the lever at predetermined intervals independently of the formation of the gas within the cylinder, substantially as described.

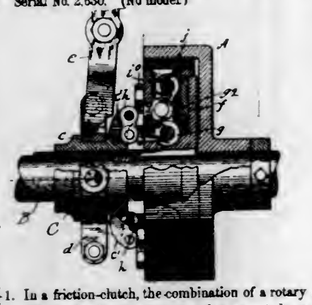
6. In an acetylene-gas machine, the combination, with a generator, each end of which is provided with an opening, of a stuffing-box in one of the openings, and a cap in the other provided with a bearing upon its inner surface, a rotary carbid-cage in the generator, one end of the shaft of which is journaled in said bearings and the other end projects through the stuffing-box and is provided with a ratchet-wheel, a lever pivotally secured upon the shaft adjacent to the ratchet-wheel and provided with a pawl in position to engage with the wheel, automatic means for intermittently operating the lever at predetermined intervals independently of the formation of gas within the generator, and a water-supply pipe and a gas-outlet communicating with the generator, substantially as described.

659,274. SHORT-TURNING GEAR. CHARLES A. WILLIAMS, Randolph, Vt. Filed Apr. 5, 1900. Serial No. 11,696. (No model.)



Claim.—The combination, with a vehicle-body, and cross-pieces B and turn-plates C secured to the end portions thereof; of axles and turn-plates pivoted under the aforesaid turn-plates, a bar *f* arranged below the turn-plates and engaging with the axle-pivots, two guide-tubes secured respectively to the upper and lower sides of the bar *f* and crossing each other, and crossed flexible connections passing through the said guide-tubes and secured to the end portions of the axles, substantially as set forth.

659,275. FRICTION-CLUTCH. David Williamson, New York, N. Y., assignor of one-half to C. K. Cooper, Sr., same place. Filed Jan. 24, 1900. Serial No. 2,630. (No model.)

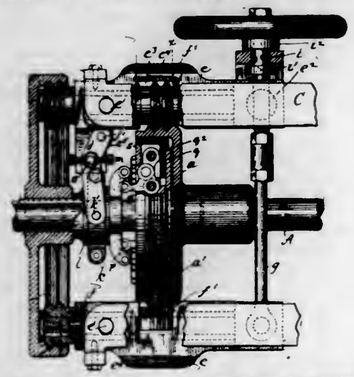


Claim.—1. In a friction-clutch, the combination of a rotary shaft, a sleeve adapted to slide axlewise, a rotary member mounted concentrically with the shaft, a friction-shoe adapted to engage said rotary member, a system of levers connecting the sleeve and shoe together and means whereby that terminal member of said system which is connected with the sleeve, will occupy a radial position with respect to the shaft when the clutch is open, substantially as described.

2. In a friction-clutch, the combination of a carrying-plate, a shoe, a bell-crank, a toggle one member of which is one arm of the bell-crank, a link connected with the other arm of the bell-crank, a sleeve connected with the link, the link being in a radial position with respect to the shaft, when the clutch is open, substantially as described.

3. In a friction-clutch, the combination of a carrying-plate, a shoe, two levers pivoted together and one pivoted to the shoe and the other to the carrying-plate said levers occupying a radial position with respect to the shaft when the clutch is closed one of said levers constituting one arm of a bell-crank the other arm of which extends lengthwise of the shaft, a link connected with said other arm and occupying a position radial to the shaft when the clutch is open and a shifting sleeve with which the link is connected.

659,276. POWER-TRANSMITTER. David Williamson, New York, N. Y., assignor of one-half to C. K. Cooper, Sr., same place. Filed Jan. 24, 1900. Serial No. 2,631. (No model.)

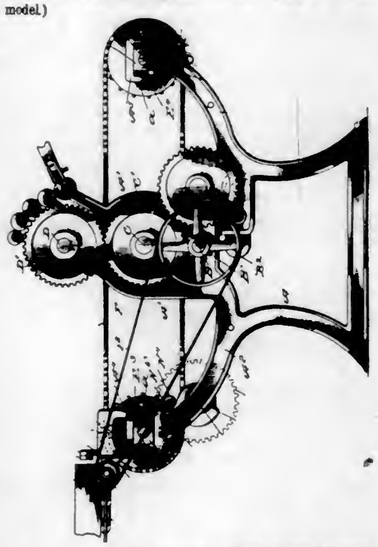


Claim.—1. In a power-transmitting device, the combination of a driving disk or wheel and a driven disk or wheel, a shaft pivotally mounted adjacent to the peripheries of said disks or wheels, said shaft carrying pinions on opposite sides of its pivot adapted to be thrown into and out of engagement with said disks or wheels respectively, and a clutching mechanism for connecting and disconnecting said disks or wheels and operated by the movement of said shaft upon its pivot, substantially as described.

2. The combination of a driving and a driven shaft axially in line with each other, two disks or wheels carried respectively by the shafts, one of which has an external gear-surface and the other an internal gear-surface, a shaft pivotally mounted adjacent to the gear-surfaces of the two disks and carrying pinions adapted to engage respectively therewith, clutch mechanism between the two shafts, connections between the pivoted shaft and the clutch whereby the clutch is operated and means for swinging the shaft on its pivot, substantially as described.

3. The combination of a driving and a driven shaft axially in line with each other, two disks or wheels carried respectively by the shafts one of which has an external gear-surface and the other an internal gear-surface, clutch mechanism between the two disks, a plurality of shafts pivotally mounted around said disks and each carrying pinions adapted to engage with the respective gear-surfaces and one of them being arranged to operate the clutch mechanism and means for swinging said shafts simultaneously to throw the corresponding gear-surfaces into and out of engagement and the clutch into and out of operation, substantially as described.

659,277. FEEDING DEVICE FOR PRINTING-PRESSES. Robert Wilson, St. Louis, Mo. Filed Nov. 22, 1899. Serial No. 737,902. (No model.)



Claim.—1. In a printing-press, a frame having a central upright and arms projecting therefrom, shafts supported by said central upright, printing-cylinders supported by said shafts, sprocket-wheels also supported by one of said shafts, a shaft supported by each of said projecting arms, sprocket-wheels supported by said shafts, sprocket-chains traveling around the last-mentioned sprocket-wheels and driven by the sprocket-wheels supported by the central upright, gripper mechanism carried by said chains, a stop-board, means for feeding bags against said stop-board, and a cam and cam-lever supported by one of said arms and arranged to move said stop-board to allow the bags to be fed thereunder and caught by the gripper mechanism, substantially as described.

2. The combination in a printing-press, of a frame having a central upright, arms extending outwardly therefrom on each side thereof, shafts supported by said central upright, printing-cylinders carried by said shafts, sprocket-wheels supported by one of said shafts, a shaft on each side of the printing-cylinders supported by the said outwardly and upwardly extending arms, sprocket-wheels carried by said shafts, sprocket-chains traveling around the last-mentioned sprocket-wheels and driven by the said central sprocket-wheels, and gripping mechanism carried by said chains between the said printing-cylinders, substantially as described.

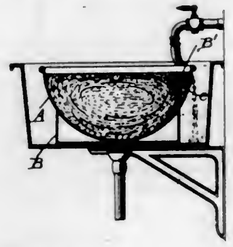
3. The combination in a printing-press, of a frame having a central upright, arms extending outwardly therefrom on each side thereof, shafts supported by said central upright, printing-cylinders carried by said shafts, sprocket-wheels supported by one of said shafts, a shaft on each side of the printing-cylinders supported by the said arms, sprocket-wheels carried thereby, sprocket-chains traveling around the last-mentioned sprocket-wheel and driven by the sprocket-wheels supported by the central upright, gripper mechanism carried by said sprocket-chains comprising a spring-actuated H-shaped trigger, a pin or lug projecting from one of said arms and arranged so that one side of the H-shaped trigger is engaged thereby, and a pin or lug on the opposite arm arranged to engage the opposite side of said trigger, substantially as described.

4. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said central upright and supporting-frames at the ends thereof, bearing-blocks adjustably supported in said frames, shafts and sprocket-wheels suitably carried by said adjustable bearing-blocks, the said chains engaging the sprocket-wheels supported by the said central upright and passing around the sprocket-wheels at each end of the machine and between the printing-cylinders, and gripper mechanism carried by said chains, substantially as described.

5. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said central upright and supporting-frames at the ends thereof, bearing-blocks adjustably supported in said frames, shafts and sprocket-wheels suitably carried by said adjustable bearing-blocks, the said chains engaging the sprocket-wheels supported by the said central upright and passing around the sprocket-wheels at each end of the machine and between the printing-cylinders, gripper mechanism carried by said chains comprising an H-shaped trigger, a pin or lug suitably supported so that it engages one side of said H-shaped trigger to cause it to catch the bags, and a pin or lug suitably supported so as to engage the opposite side of said H-shaped trigger to release the bags, substantially as described.

6. The combination in a printing-press, of a frame having a central upright, shafts, printing-cylinders and sprocket-wheels suitably supported by said central upright, arms extending outwardly from said upright, shafts and sprocket-wheels suitably carried by said arms, sprocket-chains engaging the sprocket-wheels supported by the said central upright and traveling around said sprocket-wheels and between the printing-cylinders, gripper mechanism carried by said chains comprising an H-shaped trigger, a pin or lug suitably supported by one of said arms so that it engages one side of said H-shaped trigger, a pin or lug suitably supported by the opposite arm so as to engage the opposite side of said H-shaped trigger, a stop-board, means for feeding bags against said stop-board, and a cam and cam-lever supported by one of said arms and arranged to elevate said stop-board to allow the bag to be fed thereunder just as said gripper mechanism passes under said stop-board, substantially as described.

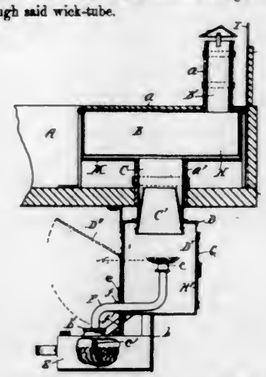
659,278. PHOTOGRAPHIC-PRINT WASHER. Daniel Argerbright, Troy, Ohio. Filed Nov. 15, 1899. Serial No. 737,010. (No model.)



Claim.—The herein-described photographic-print washer, comprising the semicylindrical vessel having the longitudinal supply-pipe abutting against its rear wall at the upper portion thereof, and provided with a series of overflow perforations in its rear wall above said pipe to strengthen the rotary current to aid in drawing the prints at the upper portion of said vessel rearwardly through the overflow-current established thereby, said pipe having downwardly-directed perforations therein to direct jets downwardly against the concave bottom wall of the vessel to set up a rotary current, and downwardly and inwardly directed perforations to direct jets inwardly against the rearwardly and downwardly moving prints to force them away from said pipe, substantially as specified.

659,279. COMBINED CARRIAGE-LAMP AND FOOT-WARMER. John B. Bartholomew, Detroit, Mich. Filed June 2, 1899. Serial No. 719,094. (No model.)

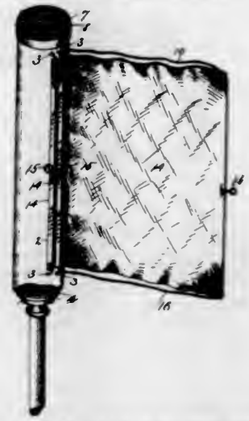
Claim.—1. The combination with the vehicle-body, of the warming-chamber located therein, the combustion-chamber located below the body and communicating with the warming-chamber, the fuel-reservoir mounted on the exterior of the combustion-chamber, the wick-tube passing from the reservoir into the combustion-chamber and the burner located within the combustion-chamber and communicating with said exterior reservoir through said wick-tube.



2. The combination with the vehicle-body, of the warming-chamber located therein, the combustion-chamber communicating with the warming-chamber, the fuel-reservoir located adjacent to the combustion-chamber but distinct therefrom, the wick-tube communicating with the fuel-reservoir extending into the combustion-chamber, and the burner upon said tube within said chamber.

3. The combination with the vehicle-body, the warming-chamber composed of two parts the one within the other, the flue leading from said chamber, the thimble passing through the bottom of the vehicle-body and entering the warming-chamber, the combustion-chamber communicating with said thimble, and the burner within said combustion-chamber.

659,280. SIGNAL-FLAG. Harry F. Beaver, Augusta, Ga. Filed July 12, 1900. Serial No. 23,354. (No model.)



Claim.—1. A signal-flag consisting of a casing having a slot therein, a hole in the casing at each end of the slot, a spring-roller journaled in the casing, a flag secured to the roller, and a cord secured at each outer corner of the flag and passing into the hole in the casing, and around the roller, substantially as described.

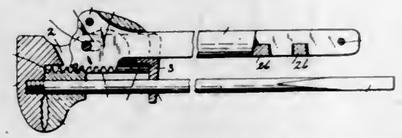
2. A signal-flag comprising a casing having a slot therein, a hole at each end of the slot, a spring-roller journaled in the casing, a cover for said casing, a flag secured to the roller and extending out through the slot, a handhold secured to the flag, a cord secured to each of the outer corners of the flag and extending into the holes in the casing and around the roller, and a pair of rollers journaled in the casing one upon each side of the slot, substantially as described.

3. A signal-flag consisting of a casing having a plurality of longitudinal slots therein, an equal number of spring-rollers journaled in the casing, flags secured to the rollers and extending through the slots, holes in the casing at the ends of the slots, and cords secured at the outer corners of the flags and extending through the holes in the casing, substantially as described.

4. A signal-flag consisting of a casing having a number of longitudinal slots therein, holes at the ends of the slots, a cover for the casing,

spring-rollers journaled in the casing, flags secured to the rollers, cords secured at the outer corners of the flags and passing through the holes in the casing, handholds on the outer edges of the flags, and rollers journaled at each side of the slots in the casing, substantially as described.

659,281. WRENCH. JOHN BEERMAKER, Wahoo, Nebr. Filed Apr. 25, 1900. Serial No. 14,288. (No model.)

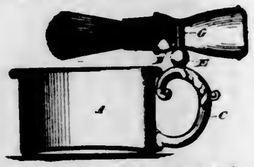


Claim.—1. A wrench, consisting of a rigid jaw, a rod secured to said jaw, a jaw sliding on said rod, said jaw provided with cogs, a lever pivoted to the frame of the rigid jaw and provided with intermeshing cogs, and a lock pivoted to the lever, and bearing against shoulders on the jaw-frame, substantially as described.

2. A wrench, comprising a rigid jaw on an apertured frame, a rod secured to said jaw, a sliding jaw on said rod, cogs on said jaw, a lever pivoted in slots in the frame and provided with cogs intermeshing with the cogs on the sliding jaw, a lock for said jaws pivoted on the lever, and having locking-ears which bear against shoulders on the frame, and a pivoted latch for locking the lever after the adjustment is made, substantially as described.

3. A wrench, consisting of a rigid jaw on an apertured frame, a sliding jaw, a pivoted lever for adjusting the jaws, a lock for said lever, cogs on the lever and sliding jaw, and sight-apertures in the frame for indicating when the cogs are in mesh, substantially as described.

659,282. SHAVING MUG AND BRUSH. HENRY BERRY, Shelton, Conn., assignor to the Derby Silver Company, Derby, Conn. Filed Oct. 29, 1898. Serial No. 694,873. (No model.)



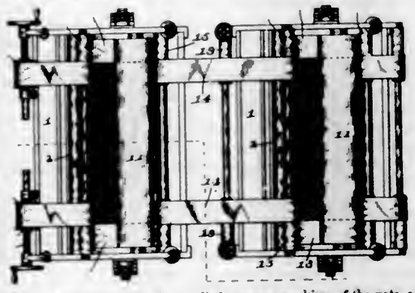
Claim.—1. The herein-described mug and brush comprising a mug having a vertical support carried at one edge thereof and extending upward above said mug, and the shaving-brush having a handle provided with a recess extending transversely of said handle to engage the vertical walls of said support, said recess having vertical walls which closely engage the said vertical walls of said support and in conjunction therewith firmly maintain said brush in a horizontal position above the mug or receptacle and free of the contents thereof; substantially as set forth.

2. The herein-described mug and brush comprising a mug having the vertical supporting pivot-pin D carried at one edge thereof and extending upward above said mug, and the shaving-brush having a handle provided with a tubular recess G extending transversely and centrally of said handle to engage the vertical walls of said support, said recess G having vertical walls which closely engage the said vertical walls of said support and in conjunction therewith firmly maintain said brush in a pivotal manner and in a horizontal position above the mug or receptacle and free of the contents thereof; substantially as set forth.

659,283. CYLINDER PAPER-MACHINE. HENRY L. BEVERIDGE and CYRUS E. FRYE, Indianapolis, Ind. Filed Apr. 30, 1900. Serial No. 14,984. (No model.)

Claim.—1. The combination, with a cylinder-mold of a cylinder paper-machine, of a continuous deckle-strap running over suitable drums and passing around said mold at or near the end thereof and of sufficient width to itself cover the desired portion of the mold, and means whereby said deckle-strap may be adjusted longitudinally of the mold.

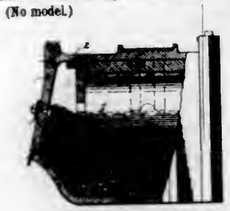
2. The combination, in a cylinder paper-machine, with a cylinder-mold having smooth ends with the usual wire-screen cloth between said ends, of continuous deckle-straps of a width to themselves cover the desired portions of the mold, drums over which said deckle-straps pass, and means whereby said deckle-straps may be adjusted nearer to or farther from each other and off from or onto said smooth ends of the cylinder-mold, whereby the exposed portion of the wire-cloth surface thereof is increased or diminished in length and the width of the sheet of paper being formed increased or diminished at will, substantially as set forth.



3. The combination, in a cylinder paper-machine, of the vats, a plurality of cylinder-molds running in said vats, and continuous deckle-straps passing over suitable drums and under and against those portions of the peripheral surfaces of the several cylinder-molds which are immersed in the vat, means for adjusting said deckle-straps longitudinally of the cylinder-mold, and means for adjusting the tension of said continuous deckle-straps, substantially as set forth.

4. The combination, in a cylinder paper-machine, of a vat, a cylinder mold having portions of its peripheral surface at the ends thereof smooth and imperforate, two deckle-straps one arranged at each end of the mold and passing under the same and formed of sufficient width to themselves cover the desired portions of the mold, drums upon which said deckle-straps are mounted, and screw-shafts for operating certain of said drums and thus adjusting said deckle-straps nearer to or farther from each other, substantially as and for the purposes set forth.

659,284. JOURNAL-BOX. WALTER F. BORN, Downer's Grove, and WILLIAM G. DUNHAM, Clyde, Ill. Filed Sept. 5, 1899. Serial No. 729,458. (No model.)



Claim.—1. The combination of the journal-box having a lid, a lever pivoted to said lid, said box and lever having inclined engaging surfaces for forcing the lid inward against its seat, and a lock for holding said lever in place, substantially as set forth.

2. The combination of the journal-box having a lid, a pivoted lever for holding said lid closed, said lid and lever having inclined engaging surfaces for forcing the lid inward, an elastic gasket between the lid and the box, and a lock for holding said lever, substantially as set forth.

3. The combination of the journal-box having a lid, a pivoted lever for holding said lid closed, said box and lever having inclined engaging surfaces for forcing the lid inward against its seat and a laterally-deflectable rotary lock for holding said lever, substantially as set forth.

4. The combination of the journal-box having a lid, a latch or lever for holding said lid and a rotary laterally or transversely deflectable and longitudinally-movable lock for holding said lever, substantially as set forth.

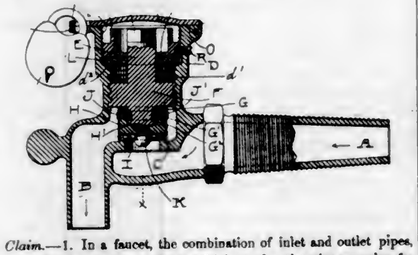
5. The combination of the journal-box having a lid, a latch or lever for holding said lid and a rotary laterally or transversely deflectable and longitudinally-movable lock for holding said lever, said lock having a notch in the end thereof for receiving said lever, substantially as set forth.

6. The combination of the journal-box having a lid, a latch or lever for holding said lid, a rotary laterally or transversely deflectable and longitudinally-movable lock for holding said lever and a spring for resisting the lateral movement of said lock, substantially as set forth.

7. The combination of the journal-box having a lid, a latch or lever for holding said lid, and a rotary laterally or transversely deflectable and longitudinally-movable lock for holding said lever or latch, said lock being provided with a stop or shoulder for holding it against longitudinal movement until it has been deflected laterally, substantially as set forth.

8. The combination of the journal-box having a lid, said box being provided with a hinge-lug, a rod passing through said lug and lid for hinging the lid thereto, a latch or lever for holding said lid closed, a lock rotatably mounted on said pin and being movable transversely or laterally and longitudinally, a spring sleeved upon said rod for resisting transverse or lateral movement of said lock, said lock being adapted to engage and hold said latch or lever and being also provided with a stop fitting against said hinge-lug, for holding the lock against longitudinal movement until it has been deflected laterally, substantially as set forth.

659,285. FAUCET. PATRICK F. BOYLE, Worcester, Mass. Filed Oct. 20, 1899. Serial No. 734,273. (No model.)

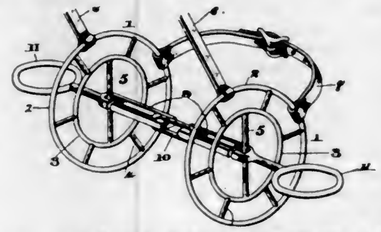


Claim.—1. In a faucet, the combination of inlet and outlet pipes, an apertured valve-seat separating said inlet and outlet pipes, a valve for said valve-seat, a valve-stem in connection with said valve-seat, a resilient packing-gland bored to embrace the valve-stem and having one of its surfaces provided with an upturned flange, and with a plurality of upturned ribs, a seat for said packing-gland, a washer to securely hold the packing-gland in its seat, and means applied to the valve-stem and adapted to raise or lower the valve, substantially as described.

2. The combination with a valve-stem of a resilient packing-gland bored to embrace said valve-stem, a seat for said packing-gland, a washer to force the gland into place, said packing-gland having that surface in contact with the washer, provided with comparatively-broad upturned edges and ribs projecting slightly above the surface of the packing-gland whereby the adhesion of the packing to the washer will be prevented, substantially as described.

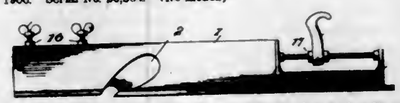
3. In a faucet, the combination of inlet and outlet pipes, valve mechanism, an operating-stem for said valve mechanism, a resilient packing-gland bored to embrace said stem and having one of its surfaces provided with an upturned flange and with a plurality of upturned ribs, a washer to hold the gland in place, locking means for said washer, locking means to close over and conceal the valve mechanism, substantially as set forth.

659,286. BIT. ROBERT A. BRIGGS, Rudd, Iowa. Filed Aug. 11, 1897. Serial No. 647,867. (No model.)



Claim.—In a snaffle-bit for bridles, cheek-pieces provided with the bars 5 and connected by an adjustable nose-strap, in combination with the slotted snaffle-pieces 8 8 connected by a link 10 and having the usual rein-links 11 at the outer end substantially as shown and described, for the purpose set forth.

659,287. BENCH-PLANE. EDWARD O. CARVIN, Valley Springs, Cal., assignor of one-half to T. J. French, same place. Filed June 14, 1900. Serial No. 20,364. (No model.)

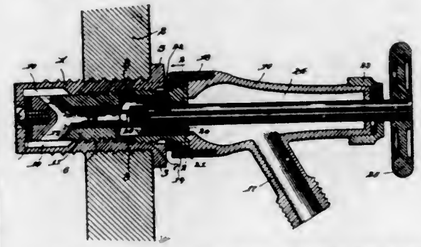


Claim.—1. In combination with a carpenter's plane, a handle adjustable lengthwise of the plane and to any angular position, and means for securing the handle in an adjusted position, substantially as set forth.

2. A carpenter's plane having its rear portion reduced upon its top side for a short distance from its rear end, a support disposed parallel of the plane and located above the heel thereof, and a handle adjustably mounted upon the said support, substantially as specified.

3. In combination with a carpenter's plane, a support mounted so as to be turned about its axis, means for turning said support and securing it in an adjusted position, and a handle adjustable on the said support, substantially as specified.

659,288. BARREL TAP AND VALVE. FREDERICK F. CHURCH, Medford, Mass. Filed May 26, 1900. Serial No. 18,111. (No model.)



Claim.—1. The combination with a valve-casing, having a valve-plug, of a nozzle, a removable coupling between the casing and the nozzle, and a valve-stem, having independent detachable operative connections with the valve-plug and the coupling, respectively, whereby the latter may be removed independently of the valve-plug.

2. The combination with a valve-casing, having a valve-plug, of a nozzle, a detachable screw-threaded coupling between the casing and the nozzle, and a rotary valve-stem having independent operative connections between the valve-plug and the coupling, whereby the latter may be removed independently of the valve-plug.

3. The combination with a valve-casing, which is open at one end, and provided with a valve-port at the opposite end, an externally-screw-threaded valve-plug contained within the casing and controlling the valve-port, a nozzle at the open end of the casing, a screw-threaded coupling between the nozzle and the open end of the casing, and a longitudinally and rotary movable valve-stem, having independent operative connections with the valve-plug and the coupling, whereby the latter may be detached independently of the valve.

4. The combination with a valve-casing, having a valve-plug, of a nozzle, a rotary detachable coupling between the nozzle and the casing, and a rotary and longitudinally movable valve-stem having independent detachable operative connections with the valve-plug and the coupling respectively.

5. The combination with a valve-casing, having a valve-plug, of a nozzle, a detachable coupling, having a swiveled connection with one of the members, and a screw-threaded connection with the other, and a valve-stem, having a detachable operative connection with the valve-plug and the coupling respectively.

6. The combination with a valve-casing, having a plug-valve, of a nozzle, a removable ring or collar at the inner end of the nozzle and provided with an inner annular flange, a coupling, having an outer annular flange loosely held between the flange of the collar and the adjacent end of the nozzle, and also provided with a screw-threaded connection with the valve-casing, and a valve-stem, having a detachable operative connection with the valve-plug and the coupling respectively.

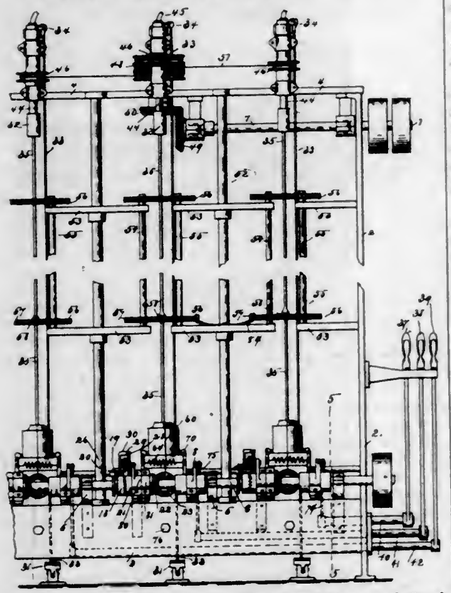
7. The combination with a valve-casing, having a plug-valve, which is provided in its inner end with recesses or notches, of a nozzle, a detachable coupling, having a swiveled connection with the nozzle and a screw-threaded connection with the valve-casing, and provided with inwardly-projecting lugs, and a longitudinally and rotary movable valve-stem, having its inner end provided with lugs or projections for separate engagement with the recesses of the valve-plug and with the lugs of the coupling.

8. A barrel tap and valve, comprising a bushing, having its inner end provided with a valve-port, an externally-screw-threaded valve-plug, having a longitudinal bore and branch openings communicating therewith, a nozzle, a removable collar or ring provided at the inner end of the nozzle, and having an inwardly-directed annular flange, a tubular coupling, having an outer annular flange loosely held between the adjacent end of the nozzle and the inner flange of the ring, the inner end of the coupling being externally screw-threaded to fit a correspondingly internally-screw-threaded portion of the bushing, and a rotary and longitudinally movable valve-stem projecting longitudinally at opposite ends of the nozzle, and having its inner end provided with lugs or projections for detachable en-

gagement with corresponding recesses formed in the adjacent end of the valve-plug, and with lugs upon the interior of the coupling.

9. In a valve, a casing, a valve therein, a nozzle, a detachable coupling connecting the nozzle to the casing, and common means for controlling the valve and coupling.

659,289. GLASS-BLOWING MACHINE. HENRY J. COLBURN, Toledo, Ohio, assignor to the Toledo Glass Company, same place. Filed Oct. 14, 1899. Serial No. 733,685. (No model.)



Claim.—1. In a glass-blowing machine, a revoluble motor-shaft and means for imparting a rotary motion thereto, a mold-case supported by one side for a swinging movement about said shaft independent of the said rotary motion thereof, a mold supported on said case, a tank beneath said shaft, and mechanism for swinging said mold-supporting case and mold into and out from said tank, substantially as set forth.

2. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold-table having a pivotal connection with said case, a mold supported on said table, and mechanism between said motor-shaft and mold-table whereby a rotary motion is imparted to said table and mold, substantially as described.

3. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold-table having a pivotal connection with said case, a mold supported on said table, and mechanism between said motor-shaft and mold-table whereby a rotary motion is imparted to said table and mold, a tank beneath said mold-supporting case and mechanism for swinging said case and mold into and out from said tank, substantially as described.

4. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold-table having a pivotal connection with said mold-supporting case, a mold supported on said table, mechanism between said motor-shaft and mold-table whereby a rotary motion is imparted to said table and mold, and mechanism for automatically arresting the rotation of said mold, substantially as described.

5. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold-table having a pivotal engagement with one side of said mold-supporting case, and having a gear fixed thereon, two mold-sections having a sliding engagement with said table, mechanism between said motor-shaft and mold-table whereby a rotary motion is imparted to said table, and mechanism for sliding said mold-sections from and toward each other, substantially as described.

6. In a glass-blowing machine, a mold-supporting case, a mold-table having a pivotal connection with said case, a mold supported on said table, mechanism for imparting a rotary movement to said mold and table, and means for wetting said mold, substantially as described.

7. In a glass-blowing machine, a movable mold-supporting case, a mold-table having a pivotal engagement with said case and having a gear fixed thereon, a mold carried on said table, a shaft extending from the interior of said mold through the bottom thereof and through said mold-table and case having a head thereon constituting the bottom of said mold, a gear fixed on said shaft, and gearing engaging the gears on said shaft and said table, means for rotating said gearing, whereby the mold and the bottom thereof are caused to be rotated in opposite directions, and means for moving said mold-supporting case, substantially as described.

8. In a glass-blowing machine, a mold-supporting case, a mold-table having a pivotal connection with said case, a mold supported on said table, mechanism for imparting a rotary motion to said table and mold, and mechanism acting to cause a cessation of the rotation of said mold subsequent to a predetermined number of rotations thereof, substantially as described.

9. In a glass-blowing machine, a mold-supporting case, a rotary mold-table having a pivotal connection with said case, a sectional mold supported on said table, a motor-shaft, mechanism actuated by said shaft for imparting a rotary motion to said table and mold, and mechanism acting to cause a cessation of said table and mold rotation at a point therein when the dividing-planes of the mold-sections stand at right angles to the axis of said shaft, substantially as described.

10. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for swinging movement on said shaft, a mold-table having a pivotal engagement with one side of said case and having a gear fixed thereon, two mold-sections having a sliding engagement with said table, a shaft extending from the interior of said mold through the bottom thereof and through said mold-table and mold-supporting case, having a head thereon constituting the bottom of the mold, and gear connections between said last-named shaft and between said table and the motor-shaft, whereby simultaneous rotary movements are imparted to said mold-bottom shaft and said mold-table, in opposite directions, substantially as described.

11. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold-table having a pivotal connection with said mold-supporting case, a mold supported on said table, a clutch-sleeve having a gear fixed on one end thereof carried on said motor-shaft in which sleeve the latter rotates freely, gear connections between said clutch-sleeve gear and mold-table whereby a rotary motion is imparted to said table and mold, a clutch-collar sliding on and having a spline connection with said motor-shaft, and a shipping-lever engaging said collar whereby the latter is moved into and out of engagement with said clutch-sleeve, substantially as described.

12. In a glass-blowing machine, a mold-supporting case, a motor-shaft on which said case is hung, a mold-table having a pivotal connection with said case, a mold supported on said table, a clutch-sleeve having a gear fixed on one end thereof carried on said motor-shaft in which sleeve the latter rotates freely, gear connections between said clutch-sleeve gear and mold-table whereby a rotary motion is imparted to said table and mold, and means for effecting the temporary engagement of said motor-shaft and clutch-sleeve, whereby the latter and said motor-shaft are caused to rotate coincidingly and means for automatically effecting the disengagement of said sleeve and shaft after said clutch-sleeve and mold shall have completed a predetermined number of revolutions while a glass article is being formed in said mold, substantially as described.

13. In a glass-blowing machine, a motor-shaft, a mold-supporting case hung for a vertically-swinging movement on said shaft, a mold supported on said case, a tank beneath said shaft, mechanism for swinging said mold-supporting case and mold about said shaft into and out from said tank, a blowiron and means for supporting the same in operative relation to said mold, a revoluble hollow shaft carrying a sleeve for engagement with said blowiron, means for imparting rotary motion to said shaft, and an air-conduit in communication with the latter, substantially as described.

14. In combination, in a glass-blowing machine, a motor-shaft, a mold-supporting case hung on said shaft for a swinging movement vertically, a mold-table, having a pivotal connection with said mold-supporting case, a mold supported on said table, a clutch-sleeve having a gear fixed on one end thereof carried on said motor-shaft and normally disengaged therefrom, gear connections between said clutch-sleeve gear and mold-table, whereby, through the rotation of said sleeve, rotary motion is imparted to said table and mold, a clutch-collar on said motor-shaft having a sliding engagement therewith and engaging said sleeve, a pin 27, projecting radially from said sleeve, a pivoted shipping-lever connected to said clutch-collar, a latch-spring 26 supported near said shipping-lever for engagement with said lever when said collar and sleeve are interengaged, a ratchet-wheel located near said sleeve whose teeth are successively engaged by said pin 27, and carrying on one face thereof a laterally-projecting pin 29, a post fixed on said shipping-lever having a cam-surfaced arm for engagement with said pin 29, whereby the free end of said shipping-lever is lifted and disengaged from said latch-spring and means for swinging said lever and clutch-collar from said sleeve, substantially as described.

15. In a glass-blowing machine, the combination of a mold with means for rotating the same, and means for automatically stopping the rotation of the mold after a predetermined number of rotations thereof have been made, and means for varying the number of rotations as may be desired.

16. In a glass-blowing machine, the combination of a mold and a blowiron, means for imparting with respect to the said mold and blowiron a rotational movement to the one relative to the other, means for automatically stopping such relative movement of rotation after a predetermined number of rotations have been made, and means for varying the number of said rotations as may be desired.

17. In a glass-blowing machine, a support for a blowpipe, an air-supply conduit, a coupler on the end thereof movable for making air-supply connection between the air-supply conduit and the blowpipe after the latter is in its support, a sectional mold, and a common means movable to different positions to actuate the coupler and the mold-sections.

18. In a glass-blowing machine, a support for a blowpipe a longitudinally-movable coupler for connecting the air-supply conduit to one end of the blowpipe, a sectional mold in which the gather is adapted to be shaped during the blowing, a single actuating-rod movable to different positions and having connection with the coupler and the sections of the mold, and means for moving said rod to simultaneously move the coupler and mold-sections.

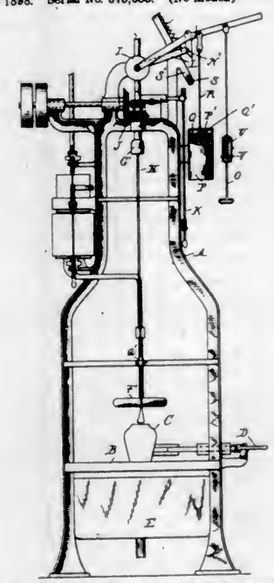
19. In a glass-blowing machine in which a blowpipe is detachably supported in operative relation to an air-supply pipe and a sectional mold, a coupler, movable after the blowpipe is in its support to effect air communication between the conduit and blowpipe, the blowpipe, the sectional mold, and a single actuating device for the coupler and mold-sections, under the control of the operator for each operation.

20. In a glass-blowing machine, a driven shaft, a rotating mold supported thereon, a drive connection between the mold and the shaft, and a clutch in said connection.

21. In a glass-blowing machine, the combination of a series of non-traveling sectional molds, blowpipe-supports and vertically-reciprocating air-supply couplings, supported side by side, a common drive mechanism for the rotatable movement of all the blowpipes, a tank, and independent actuating devices for opening and closing and wetting each mold.

22. In a glass-blowing machine, the combination with a detachable rotatable blowpipe, a support therefor, the air-conduit, a rotating coupler movable to connect the end of the blowpipe to the conduit, and means under the control of the operator for effecting this coupling after the blowpipe is in its support.

659,290. GLASS-BLOWING MACHINE. LESLIE H. COLBURN, Toledo, Ohio, assignor to the Toledo Glass Company, same place. Filed Mar. 30, 1898. Serial No. 675,656. (No model.)



Claim.—1. In a glass-blowing machine, the combination with the device to supply air to the article to be blown, of a controlling device therefor, and a manually-operated actuating device for said controlling device having means for affecting the speed of the controlling device.

2. In a glass-blowing machine, the combination with the device to supply air to the article to be blown, of a controlling device for such air-supply, a manually-operated actuating device for said controlling device, and means for timing the movement of the controlling device.

3. In a glass-blowing machine, the combination with the device to supply air to the article to be blown, a valve controlling the same, means for opening said valve directly by the power of the operator and a retarding device applied to such opening means.

4. In a glass-blowing machine, the combination with the blowpipe and a device to supply air thereto, a controlling device for the air-supply having a timed period of operation, means for shutting off said air-supply at the end of such period and means for automatically restoring atmospheric pressure in the blowpipe on the shutting off of the air-supply.

5. In a glass-blowing machine, the combination with the controlling device for the air-supply, of an actuating device therefor, comprising the lever M, the arm L adapted to be moved in one direction by the lever and means for disconnecting the arm from the lever returning it independently thereof, substantially as described.

6. In a glass-blowing machine, the combination with the air-supply pipe, of a valve, the arm L connected thereto, the lever M beside the arm L, a hook connecting the two, a spring T connected to the arm and disengaging device for the hook at the end of the movement of the lever and a pull device for operating the lever.

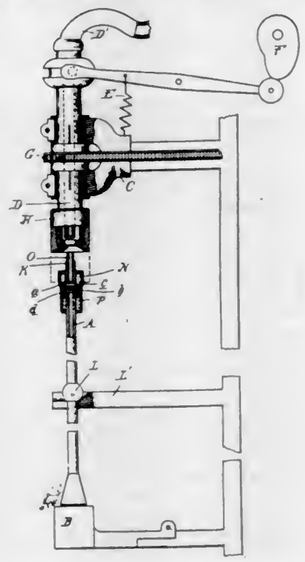
7. In a glass-blowing machine, the combination with the controlling-valve, having operating means adapted to manually move the same, comprising a lever M, a pull-rod and a retarding device, comprising a dash-pot, and a piston working therein with a restricted port, substantially as described.

8. In a glass-blowing machine, the combination with the air-controlling device, of a manually-operated actuating means therefor, a retarding device for said actuating means, and means for indicating the pull required for a given time interval, substantially as described.

9. In a glass-blowing machine, the combination with the controlling device for the air-supply, of an actuating device and a retarding device therefor, and a pull-rod in said actuating device, consisting of two parts slidingly engaged together and an interposed spring, and means to indicate the strength of pull on said pull-rod, substantially as described.

10. In a glass-blowing machine, the combination with the device to supply air to the article to be blown, a controlling device therefor, manually-operated means for the controlling device, and means for changing the operating time, comprising the adjustable pin S and its coöperating mechanism, substantially as described.

659,291. GLASS-BLOWING MACHINE. LESLIE H. COLBURN, Toledo, Ohio, assignor to the Toledo Glass Company, same place. Filed Feb. 14, 1898. Serial No. 670,187. (No model.)



Claim.—1. In a glass-blowing machine, the combination with means to supply air under pressure, of a blowpipe adapted to be supported detachably in operative relation to said supply, of a controlling device for said supply comprising a sleeve carried by the blowpipe and adapted to be moved to open and close the air-supply into the article to be blown.

2. The combination in a blowpipe, of a controlling-valve for the air-passage in the pipe comprising a movable sleeve having a passage or chamber therein, two ports in separated passages in the blowpipe, said sleeve adapted to be moved to connect said ports or to close one of them.

3. In a glass-blowing machine, the combination with a blowpipe, of a support for the blowpipe, of an air-supply device, a coupler arranged above the mouth of the blowpipe when in its support, means for moving said coupler, after the blowpipe is supported, into engagement therewith, an air-controlling valve, and means for operating the air-controlling valve by the movement of the coupler after the engagement has been made between the two.

4. In a glass-blowing machine, the combination with the blowpipe, its support and an air-supply device, of a coupler adapted to be moved to connect the air-supply device to the blowpipe and means for moving said coupler after connection has been perfected to control the air-supply.

5. In a glass-blowing machine, the combination with the blowpipe, its support, and an air-supply device, of a coupling, means for moving said coupling to engage with the blowpipe, and for effecting a further movement of the coupling member after its connection to the blowpipe, to control the air-supply thereto.

6. In a glass-blowing machine, the combination with the blowpipe, its support and an air-supply conduit, a coupling on the conduit, of a valve on the blowpipe for controlling the air-supply, and means for actuating said valve by the coupling.

7. In a glass-blowing machine, the combination with the blowpipe, its support and the air-supply tube or conduit, means for vertically actuating said tube and for rotating the same, a spring-actuated valve on the blowpipe, normally closed, and a connection between that valve and the coupling member whereby the movement of the coupling member actuates the valve, substantially as described.

8. In a glass-blowing machine, the combination with the blowpipe, its support and an air-supply conduit, a movable coupling on the conduit, a valve for controlling the admission of air to the blowpipe, means for moving the coupling into engagement with the pipe, and for giving it a further movement after its engagement, which movement opens the air-valve.

9. In a glass-blowing machine a rotating coupler, means for moving it to connect it with the blowpipe to thereby rotate the same, and an air-valve opened by said coupler.

10. In a glass-blowing machine, a sliding, rotating coupler, an air-supply means connected to the coupler, and an air-valve opened by and upon the coupler's engagement upon the blowpipe.

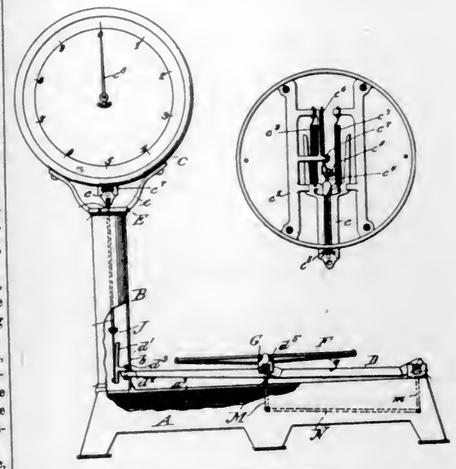
11. In a glass-blowing machine, a mold, a blowpipe, a support for the blowpipe in operative relation to the mold, an air-supply conduit, a movable coupler at the terminus of said conduit and arranged above the blowpipe when in its support, a valve controlling the flow of air to the article to be blown, means for moving said coupler into engagement with the blowpipe to effect the coupling of the two and to operate said valve.

659,292. **PLATFORM SPRING-BALANCE SCALE.** JOHN W. CULMER, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed Nov. 28, 1898. Serial No. 697,618. (No model.)

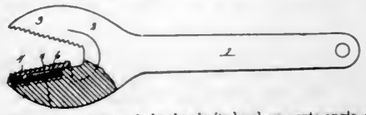
Claim.—1. In a scale, the combination of a base having two bearing-lugs at one end and a hollow standard at the other end, said standard having a vertical slot, with a lever pivotally supported on said lugs and extended through the slot into the standard, a load-plate pivotally supported on the lever between its ends, means for holding this load-plate in a horizontal position, a spring-balance supported upon the standard, and having a spring-suspended runner, a curved nosepiece on the end of the lever within the standard, and a flexible strap connecting said nosepiece with the runner of the spring-balance, substantially as specified.

2. In a scale, the combination of a base having a hollow standard, a spring-balance secured to the standard and having a spring-supported runner, with a lever pivoted to the base and extending into said standard, a nosepiece for said lever having curved outer face and having a rearwardly-extended slotted arm by which the nosepiece is adjustably secured to the end of the lever, a flexible device secured to the lower front side of said nosepiece and extending therefrom upward, means connecting the upper ends of said flexible device with the runner of the spring-balance, a load-plate supported by said lever between its ends, and means for holding said load-plate in a substantially-horizontal position, substantially as specified.

3. In a scale, the combination of a base having at one end two bearing-lugs, and a hollow standard at the other end, and a slot which extends into said standard, and a spring-balance supported on said standard, with a lever pivoted on said bearing-lugs and extended therefrom in the line of said slot into said standard and having the two alined knife-edges, a flexible connection in said standard, between the runner of the spring-balance and the end of said lever, a spider having downwardly-extended bearing-lugs which rest upon said knife-edges, the stems M *m*, secured to and projecting downward from the spider and base, the check-rods pivotally connected with said stems and a load-plate on said spider, substantially as specified.



659,293. **WRENCH.** RICHARD F. DOWNEY, Menominee, Mich., assignor of four-fifths to Mathew A. Burns and Albert Dudly, same place. Filed Apr. 16, 1900. Serial No. 12,972. (No model.)



Claim.—1. A wrench having in its head an acute-angle opening, forming opposed jaws, which converge inwardly, one of said jaws comprising a movable member dovetailed to the portion of the wrench which supports it, said supporting member having a channel in its upper face, a spring located in said channel covered by said movable member, said spring being confined between a lug on said movable member and the end of said channel and a screw or stop in the outer end of said channel.

2. A wrench having in its head an acute-angle opening forming opposing jaws which converge inwardly one of said jaws comprising a movable member adapted to slide upon the supporting portion, a channel in the face of said supporting portion below said movable member, a spring in said channel, said movable member having a depending lug engaged by said spring and a screw entering the outer end of said channel longitudinally whereby an adjustable stop is provided for said movable member.

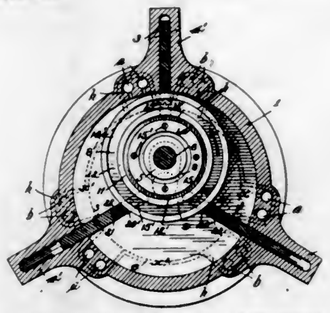
659,294. **TRACK-CLEARER.** MATTHIAS B EATON, Boston, Mass. Filed Dec. 14, 1899. Renewed Sept. 12, 1900. Serial No. 29,851. (No model.)



Claim.—A track-clearer having double outside moldboards and a common edge, said common edge extending outside the rail and said moldboards extending diagonally across the rail and adapted to throw outside the rail, and double corresponding inside moldboards extending diagonally across the rail and adapted to throw inside the rail.

659,295. **ROTARY ENGINE.** JAMES M. EVANS, Chicago, Ill. Filed Mar. 1, 1900. Serial No. 7,034. (No model.)

Claim.—1. The combination with a rotary engine having a steam-chamber, of a piston having a laterally-expansible portion surrounding the same to form a steam-tight fit with the walls of said chamber, substantially as described.



2. The combination with a rotary engine, a steam-chamber, and a piston comprising a core and laterally-expansible shell surrounding the core, substantially as described.

3. The combination with a rotary engine, a steam-chamber, of a piston comprising a core and a laterally-expansible sectional shell surrounding the core, substantially as described.

4. The combination with a rotary engine having a steam-chamber, of a piston comprising a core, a shell formed in sections and a flexible connection between the sections and the core, substantially as described.

5. The combination with a rotary engine having a steam-chamber, of a core, a shell inclosing the same formed in two sections, a flexible connection between the shell and the core and a steam-inlet leading through the shell, substantially as described.

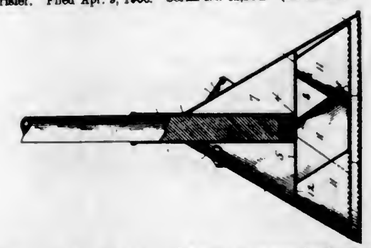
6. The combination with a rotary engine having a steam-chamber, of a core mounted thereon having a peripheral flange, a sectional shell inclosing said flange a steam-inlet leading through the shell, partitions adapted to slide in the walls of the cylinder, legs on the partitions, straddling the piston, said legs being confined in recesses in the walls of the steam-chamber and a connection between the legs and the shell, substantially as described.

7. The combination with a rotary engine having a steam-chamber, of a core mounted therein having a peripheral flange, a sectional shell inclosing said flange, a steam-inlet leading through the shell, partitions adapted to slide in the walls of the cylinder, legs on the partitions straddling the piston, said legs being confined in recesses in the walls of the steam-chamber and projections extending from the inner faces of the legs guided in ways in the shell, substantially as described.

8. The combination with an engine having a steam-chamber, a piston eccentrically mounted therein, and a series of sliding partitions connected to the piston, of a shoe carried by each partition adapted to bear on the cylinder, a sliding blade carrying the shoe and a pivotal connection between the blade and the shoe and the blade and the partition, substantially as described.

9. In combination with a rotary engine having a steam-chamber of a piston mounted therein comprising a core, a sectional shell inclosing the same having steam-inlets through the same, partitions dividing the steam-chambers, said shell having annular channels therein, projections on the partitions guided in the channels, and a diaphragm interposed between the shell and the core.

659,296. **CLOTHES-POUNDER.** ALBERT FLESHER, Alert, Okla., and JOSEPH L. CRISLER, Perth, Kans.; said Flesher assignor to said Crisler. Filed Apr. 9, 1900. Serial No. 12,264. (No model.)



Claim.—As an article of manufacture, a pounder-head comprising a hollow conical body having vent-openings in its upper portion, a horizontal diaphragm within said body dividing the same into two chambers and having a plurality of openings, and a circular series of conical individual pounders open at both ends and having their smaller ends united to the diaphragm and in communication with the openings therein and their larger ends united peripherally to each other and to the body of the pounder-head above the lower edge thereof whereby an air-chamber is formed beneath the diaphragm and around the individual pounders, substantially as described.

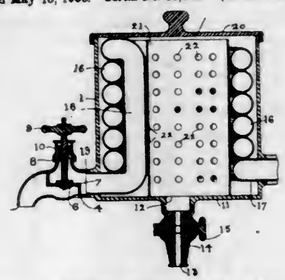
659,297. **CLASP FOR BINDING-STRAPS.** IRVING P. FOX, Lexington, Mass. Filed Jan. 18, 1900. Serial No. 1,849. (No model.)



Claim.—1. The binding-strap *a* having a clasp permanently attached to one end of it comprising a spring-metal plate folded upon itself to present an under part *d* and an upper part *e* disposed with a space between them for the strap and having an entrance along one side and both ends, said under part having one or more pointed prongs extending into the space between said parts which project toward the back end of the plate, and the upper part having on its under side one or more transverse ribs disposed at points back of the points of the prongs, substantially as described.

2. The binding-strap *a* having a clasp permanently attached to one end of it comprising a spring-metal plate folded upon itself to present an under part *d* and an upper part *e* disposed with a space between them for the strap and having an entrance along one side and both ends, said under part *d* having one or more pointed prongs *d'* extending into the space between said parts which project toward the back end of the plate, and which are formed with the outer edge disposed substantially parallel to the edge of the part *d* and with the inner edge at an angle thereto, and the upper part *e* having on its under side one or more transverse ribs *e'* disposed at points back of the points of the prongs *d'*, substantially as described.

659,298. **WHISKY-COOLER.** MICHAEL GRATZ, Los Angeles, Cal. Filed May 15, 1900. Serial No. 16,744. (No model.)



Claim.—In a device of the character described, the combination with a cup, an inlet and an outlet diametrically opposite each other, a drain-cock, and a perforated shield forming an ice-chamber extending from the bottom to the top of said cup, a gutter 23 formed in one side of said shield of a coiled pipe leading from the inlet and secured between the said shield and cup and a vertical leg 18 positioned in the gutter 23 of the shield inside the coil connecting said coil with the outlet whereby said vertical leg is immediately adjacent to the shield.

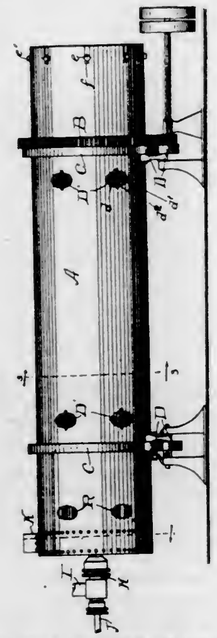
659,299. **ROTARY DRIER.** DURBIN GRUPE, Davenport, Iowa. Filed Aug. 7, 1899. Serial No. 726,389. (No model.)

Claim.—1. The combination in a rotary drier, of a revoluble cylinder and steam-chambers in the ends thereof, of flues having their ends secured in said chambers and independent supporting-plates therefor located at suitable distances apart and in spiral progression intermediate said chambers.

2. The combination in a rotary drier of a revoluble cylinder, a non-adjustable steam-chamber secured in one end thereof, and an adjustable steam-chamber located in the opposite end of the same, of flues having their ends secured in said chambers and independent supporting-plates therefor located at suitable distances apart and in spiral progression intermediate said heads.

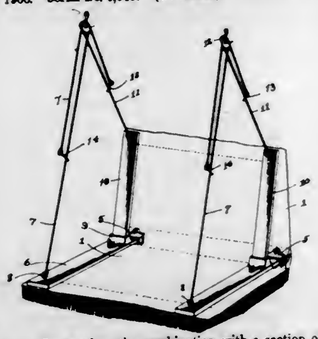
3. The combination in a rotary drier of a revoluble cylinder having longitudinal slots at one end thereof, a non-adjustable steam-chamber secured in the opposite end, an adjustable steam-chamber located in the end

of the same contiguous to said slots and radial bolts, of flues having their ends secured in said chambers and independent supporting-plates therefor located at suitable distances apart and in spiral progression intermediate said chambers.



4. The combination in a rotary drier with a revoluble cylinder, and steam-chambers secured in the ends of the same, of flues connecting said chambers and corresponding independent supporting-plates therefor located at equal distance apart in spiral progression intermediate said chambers the total surface area of which corresponds to the area in a given transverse plane through said cylinder occupied by said flues.

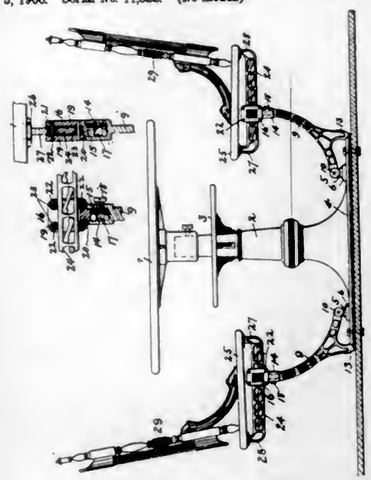
659,300. SWING. CHESTER K. HANN, Columbus, Ohio. Filed Mar. 1, 1900. Serial No. 6,915. (No model.)



Claim.—1. In a swing, the combination with a section of flexible material and oppositely-located socket-brackets 5 secured thereto, of bars 6 having their outer ends jointedly connected with the forward portion of said flexible strip and their inner ends adapted to enter the sockets of said brackets 5, sockets 9 on the upper sides of said bars 6, bars 10 having their outer ends jointedly connected with the edge portion of said flexible strip and means connected with the forward and rear portions of said strip for suspending the swing-body thus formed, substantially as specified.

2. In a swing, the combination with a flexible strip 1, cross-bars 2, 3 and 4 secured therein as described, and socket-brackets 5 secured on said cross-bar 4, of bars 6 having their outer ends jointedly connected with the forward bar 2 and their inner ends adapted to enter said sockets 5, socket-brackets 9 on said bars 6, bars 10 having their outer ends jointedly connected with the bar 3 and their inner ends adapted to enter the sockets 9 and adjustably-supported ropes connected with the outer ends of said bars 10 and 6, substantially as specified.

659,301. CHAIR. W. G. HASTINGS, Sandusky, Ohio. Filed Apr. 3, 1900. Serial No. 11,322. (No model.)



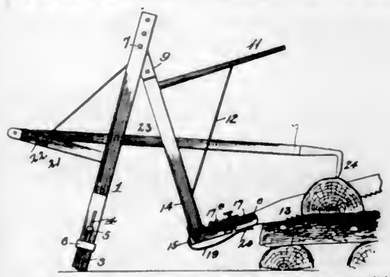
Claim.—A chair having a single leg, a support in rear of the leg, a socket at the upper end of said leg, a bearing having upper and lower rollers journaled therein and having a grooved stud pivoted in the socket in the leg, and a single slide secured under the chair-seat and adapted to slide edgewise in the roller-bearing, substantially as described.

659,302. BUCKLE. JAMES W. HEYLMUN, Williamsport, Pa. Filed May 7, 1900. Serial No. 15,769. (No model.)



Claim.—In a device of the character described, a base formed of a single piece of wire and comprising substantially-parallel arms; sharpened ends thereto; an intermediate or cross strip; coils projecting from the arms at points between the ends and the cross-strip; a hooked tongue adapted to engage the cross-strip; arms thereto extending over and pivoted within the coil; and a bow formed of a single piece of wire and the ends thereof pivoted to the arms of the tongue, said loop adapted to receive the ends of the base when the tongue is in engagement with the intermediate strip.

659,303. WOOD-SAWING MACHINE. GEORGE R. JACKSON, Palmyra, Ind. Filed Apr. 28, 1900. Serial No. 14,480. (No model.)

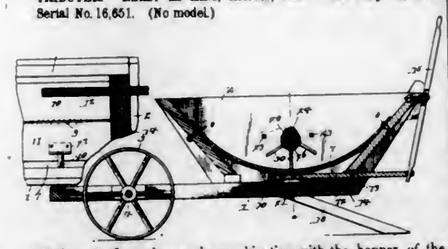


Claim.—1. In a sawing-machine, a frame having extensible legs, a pendent bar pivoted to the frame and consisting of two parallel arms, a spring on the pivot-bolt for throwing the pendent bar in one direction, a guide-rail extending between the parallel arms provided with a prong at one end and bolted to an extension of the frame at the opposite end, a weight at the lower end of one of the parallel arms, and the saw connected to the other arm, substantially as described.

2. A sawing-machine consisting of an adjustable frame, a pendent bar pivoted to the frame and having a spring to swing it in one direction, a guide-rail attached at one end to an extension on the frame and passing between the parallel arms of the pendent bar, a prong on the opposite end of the guide, a weight on the end of one arm of the pendent bar, the saw secured to the other arm, and a spring for regulating the depth of the saw cut, substantially as described.

3. A sawing-machine consisting of an adjustable frame, a pendent bar pivoted to the frame, a saw-clamp pivoted to the lower end of said pendent bar, said saw-clamp comprising two blocks pivoted together, a plate secured to one of the blocks and extending over the other, and a thumb-screw for holding the blocks together and in adjusted position, substantially as described.

659,304. CONVERTIBLE PLANTER AND FERTILIZER-DISTRIBUTER. EARLY M. KING, Ariosto, Ala. Filed May 14, 1900. Serial No. 16,651. (No model.)



Claim.—1. In a planter, the combination with the hopper, of the reversible bearing-plates on the side thereof, having the eccentrically-disposed openings and the stirrer having its shaft journaled in said openings, substantially as described.

2. In a planter, the hopper having the inclined end walls and the curved bottom plate provided with a discharge-opening, the cut-off plate movable transversely under the bottom plate and having its ends disposed between the latter and the end walls of the hopper, the said bottom plate and the end walls of the hopper forming the guides for the cut-off plate, and the operating-lever attached to the center of the cut-off plate, substantially as described.

3. In a planter the hopper having the inclined end walls and curved bottom plate provided with a discharge-opening, the coacting curved cut-off plate and gage-plate movable transversely under the bottom plate of the hopper and having their ends disposed between the latter and the end walls of the hopper, the said bottom plate and said end walls of the hopper forming the guides for the said cut-off and gage plates, the operating-lever attached to the center of the cut-off plate, and the adjusting-bolt, operating in one side of the hopper and connected to the center of the said gage-plate, substantially as described.

659,305. VENTILATING ATTACHMENT FOR WINDOWS. SAMUEL M. KING, Paris, Me. Filed June 16, 1900. Serial No. 20,506. (No model.)



Claim.—1. The herein-described ventilating attachment for windows consisting of a wedge-shaped frame the large end of which is pivoted to the casing above the window, the small end of said frame resting against the upper rail of one of the sashes and a covering for the triangular ends and the outer surface of said frame.

2. The herein-described ventilating attachment for windows consisting of a wedge-shaped frame the large end of which is provided with an upward extending arm, a bracket on the casing above the window to which the upper end of said arm is pivoted, the small end of said frame being adapted to rest against the upper rail of one of the sashes and a covering for the triangular ends and outer surface of said frame.

659,306. SPOOL OR BOBBIN. JACOB D. KINGSLAND, New York, N. Y., assignor of one-half to Alfred D. Zeigler, same place. Filed Jan. 9, 1900. Serial No. 854. (No model.)

Claim.—1. In paper spools or bobbins, the body A having a continuous uncut end, in combination with a bushing fixed within the end of said body and having a notch in its outer end within and covered by the uncut end of said body.



2. In paper spools or bobbins, the combination with a body A of fibrous material having an uncut end, of a paper ring fixed within the end of said body and having a notched opening through and covered by the uncut end thereof.

3. In paper spools or bobbins, the combination with a body of fibrous material, of a notched bushing fixed within the end of said body, and an attacher fixed within said body, said bushing and attacher having interengaging provisions holding the bushing in position.

4. In paper spools or bobbins, the combination with a body, of a notched bushing fitting in the end thereof, and a notched attacher fixed in said body and engaging said bushing for holding it in place.

5. In paper spools or bobbins, a body A, a bushing fitting therein, and a split ring surrounding said bushing and fixed within said body for holding the bushing therein.

6. In paper spools or bobbins, a body A, in combination with a bushing B having a notch C at its outer end, and an attacher surrounding said bushing, having a coinciding notch, and fixed within said body for holding said bushing therein.

7. In paper spools or bobbins, a paper body A, in combination with a metal bushing B fitting therein, and a split ring D surrounding said bushing and fixed within said body, said ring and bushing having interengaging provisions preventing their independent rotation, and said ring holding said bushing in position.

8. In paper spools or bobbins, the paper body A, in combination with the bushing B having flange *a*, notch C, tubular extension *b*, and groove *e*, and the paper-attacher D fitting in said groove, having a coinciding notch, and fixed within said body for holding said bushing therein.

9. For paper spools or bobbins, the improved bushing B, having flange *a*, notch C, body *b*, groove *e* and shoulder *d*.

10. For paper spools or bobbins, the improved attacher D consisting of a ring-like flexible member having a notch E and a cut-away portion *g* adapted to be fixed within a paper body for holding a bushing therein.

659,307. APPARATUS FOR AUTOMATICALLY PREVENTING RAILWAY ACCIDENTS. JEAN M. LAFFAR, Le Vésinet, France, assignor to the Laffas Syndicate, Limited, London, England. Filed May 4, 1900. Serial No. 15,541. (No model.)



Claim.—1. The combination with the train-pipe of a fluid-pressure brake system, of a valve-chamber in the train-pipe said chamber being divided into two normally-communicating compartments with which the parts of the train-pipe respectively connect and through which they communicate, a normally-open valve for closing communication between the compartments of the valve-chamber, a second normally-closed valve for opening a passage from one of the compartments to the atmosphere, and means associated with the track for effecting the operation of said valves, whereby the brakes are applied.

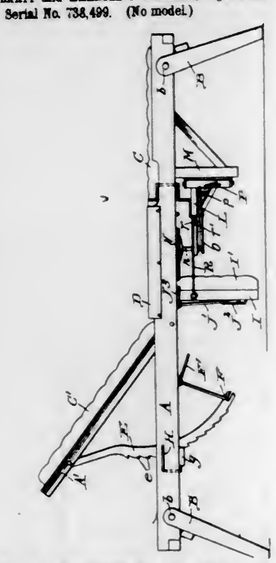
2. The combination with the train-pipe of a fluid-pressure brake system, of a valve-chamber in the train-pipe said chamber being divided into two normally-communicating compartments with which the parts of the train-pipe respectively connect and through which they communicate, a valve normally opening communication between the compartments of the valve-chamber but closing a passage from one compartment to the atmosphere, and means associated with the track for effecting the operation of said valves as the train passes, whereby the brakes are applied.

3. The combination with the train-pipe of a fluid-pressure brake system, of a valve-chamber in the train-pipe said chamber being divided into two normally-communicating compartments with which the parts of the train-pipe respectively connect and through which they communicate, a valve normally opening communication between the compartments of the valve-chamber but closing a passage from one compartment to the atmosphere, a second normally-closed valve for opening a passage from the other compartment to the atmosphere, means independent of the valves for closing the passage from one compartment to the atmosphere, and means associated with the track for effecting the operation of the valves as the train passes, whereby the brakes are applied.

4. The combination with the train-pipe of a fluid-pressure brake system, a valve located in said train-pipe and adapted to open a port to the atmosphere to effect the application of the brakes, and a depending trip arm or lever for effecting the opening of said port, of a normally-lowered device associated with the track and adapted when raised to trip the depending arm or lever on the car as the latter passes, a normally-elevated counter-rail along the track connected with the tripping device and adapted upon being depressed by the car-wheel to elevate said tripping device into operative position to trip the arm or lever on the car and thus apply the brakes.

5. In an automatic distributer, the combination with a sector *z* furnished with stop-teeth and the spring-tongue pieces *z'* rubbing against the raised rim of this sector, and engaging with and resting on one of these teeth substantially and for the purposes as described.

659,308. **INVALID-BED.** JOHN A. LEMMONS, Anderson, and JOHN J. HUBBARTT and EMANUEL C. RUMMELL, Ingalls, Ind. Filed Nov. 27, 1899. Serial No. 738,499. (No model.)



Claim.—1. The combination with a bed or couch having a hinged or drop section, and means for raising and lowering the same, of a crane pivoted to the bed or couch frame to swing underneath the opening formed by the drop or trap when lowered, a vertically-movable platform or table carried by the crane-arm, and having a downward extension working in guides of said arm, a spring-actuated vertically-operating lever engaging the lower extremity of said extension, for operating said platform or table, and means for locking said lever out of operation, substantially as specified.

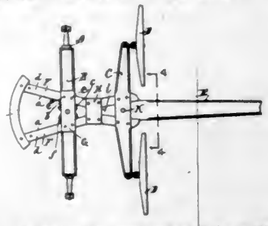
2. The combination with a bed or couch having a vertically-swinging drop-section, and means for raising and lowering the same, of a crane pivoted to the frame of the bed or couch to swing horizontally thereunder, and a connection between said crane and the trap or drop whereby upon downward movement of said drop-section, said crane is swung horizontally, substantially as specified.

3. The combination with a bed or couch having a vertically-swinging drop or trap section and means for raising and lowering the same, of the pivoted horizontally-swinging crane, the rod connecting said crane with the drop or trap, to swing said crane horizontally upon downward movement of said trap and means for disconnecting said rod from one of the parts which it connects, substantially as specified.

4. The combination with a bed or couch having a vertically-swinging drop or trap section, the cranked rocker-shaft for operating the same, and means for holding the said section closed, of the pivoted horizontally-swinging crane, the rod connected to said section at one end, and to the crane at its opposite end, to swing said crane horizontally upon downward movement of said trap-section and the pivoted rod for effecting a disconnection of the first-named rod from the crane, substantially as specified.

5. The combination with a bed or couch having a trap or drop section, of the crane pivoted to the bed or couch frame to swing thereunder, the vertically-movable platform carried by the said crane, and having a downward extension working in guides of said crane, the pivoted spring-actuated lever engaging the lower extremity of said downward extension for raising said platform, and the locking-pin for said lever, substantially as specified.

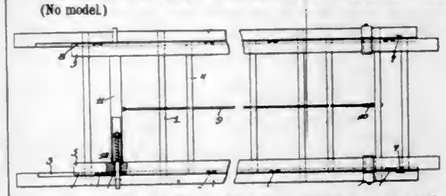
659,309. **WAGON.** ISAAC A. MANCHESTER, Fall River, Mass. Filed July 24, 1900. Serial No. 24,715. (No model.)



Claim.—1. In a wagon, the combination of the stock of the axle with hounds formed of angle-iron, and having the attaching-ears, substantially as described.

2. In a wagon, the combination of the stock of the axle, with the hounds formed of angle-iron, and having the attaching-ears, and the socket for the pole, formed by the cross-plates between the hounds, substantially as described.

659,310. **EXTENSION-LADDER.** HARRY L. MARSTON and JACOB D. HATCH, Brockton, Mass. Filed Apr. 26, 1900. Serial No. 14,374. (No model.)



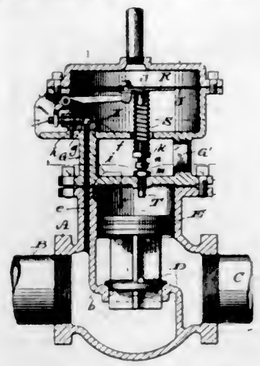
Claim.—1. In an extension-ladder, the combination with a hollow rung having a polygonal interior for part of its length, of a guide-bracket having a shank of corresponding shape for part of its length and movable longitudinally in said rung to disengage the correspondingly-shaped shank and rung to permit rotation of said bracket, and means to prevent longitudinal movement of said bracket, substantially as described.

2. In an extension-ladder, the combination with a hollow rung, of a guide-bracket provided with a shank arranged to reciprocate in said rung, a bearing for said shank in the rung, the inner portion of said shank being shaped to turn freely in said bearing and the outer portion being shaped to engage said bearing to hold the shank from rotation, substantially as described.

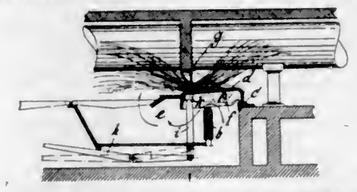
659,311. **PUMP-GOVERNOR.** HERMANN MASCHMEYER, Milwaukee, Wis., assignor of one-fifth to John A. Hill, same place. Filed June 4, 1900. Serial No. 18,951. (No model.)

Claim.—1. The combination of a casing constituting a pipe-coupling and provided with an apertured partition between its inlet and outlet, a valve controlling the partition-aperture, a piston of greater area than the valve in union with same and movable in a cylindrical portion of the casing, a cover for the cylindrical portion of the aforesaid casing provided with standards, a shell surmounting the standards, a chambered block in the shell constituting part of a by-pass through which communication is established between the inlet portion of the casing and the piston-containing cylindrical portion of same, a pin-valve arranged in said block to control said by-pass, an expansible diaphragm arranged in said shell to be opposed by fluid under pressure, a spring opposed to movement of the diaphragm by fluid under pressure, means for regulating tension of the spring, and a lever connecting the pin-valve with the diaphragm.

2. The combination of a casing constituting a pipe-coupling and provided with an apertured partition between its inlet and outlet, a valve controlling the partition-aperture, a piston of greater area than the valve in union with same and movable in a cylindrical portion of the casing having by-pass communication with the inlet portion of said casing, a valve controlling the by-pass, an expansible diaphragm in a shell supported on the aforesaid casing open to a conductor of fluid under pressure, a spiral spring opposed to movement of the diaphram by fluid under pressure, a screw having set-nut adjustment in opposition to the first of the aforesaid valves, a nut adjustable on the screw against said spring, and a lever connecting said diaphragm with the by-pass valve.

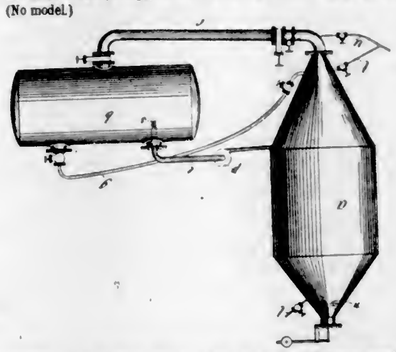


659,312. **FEEDING AIR DEVICE FOR FURNACES.** PAUL MATHIAS, Leberau, Germany. Filed Apr. 30, 1900. Serial No. 14,862. (No model.)



Claim.—The combination with a furnace, of a hollow bridge-wall, a hollow arch *g* located above the bridge-wall, flues *f* connecting the arch and the bridge-wall, partitions *l* in the arch *g* for distributing the heated air, and means for raising and lowering the bridge-wall, in order to contract and enlarge the opening between the bridge-wall and the arch.

659,313. **APPARATUS FOR MANUFACTURING CELLULOSE.** EINAR MORTERUD, Konga, Sweden. Filed Feb. 7, 1900. Serial No. 4,382. (No model.)



Claim.—1. The combination of digesters, a common storage-tank for containing raw material and solution for treating the raw material, pipes connecting the storage-tank with each digester for supplying the said solution and raw material to the digesters, and valves on the pipes.

2. The combination of a digester, a storage-tank for containing raw material and solution for treating the raw material, a pipe connecting the bottom of the storage-tank with the digester for supplying said solution and raw material to the digester, and valves on the said pipe.

3. The combination of a digester, a storage-tank for containing raw material and solution for treating the raw material, a pipe connecting the bottom of the storage-tank with the bottom of the digester, means forcing the solution and raw material through said pipe into the digester, and valves on said pipe.

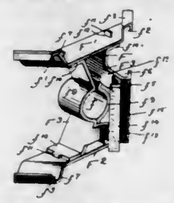
4. The combination of a digester, a storage-tank for containing raw material and solution for treating the raw material, a pipe connecting the bottom of the storage-tank with the bottom of the digester, a steam-jet for forcing solution and raw material through said pipe into the digester, and valves on said pipe.

5. The combination of a digester, a storage-tank for containing raw material and solution for treating the raw material, a pipe connecting the bottom of the storage-tank with the bottom of the digester, means on said pipe for forcing the solution and raw material into the digester, a pipe connecting the upper part of the digester with the lower part of the storage-tank, and valves on the said pipes.

6. The combination of a digester, a storage-tank for containing raw material and solution for treating the raw material, a pipe connecting the bottom of the storage-tank with the bottom of the digester, means on said pipe forcing the solution and raw material into the digester, a pipe connecting the upper part of the digester with the lower part of the storage-tank, valves on the said pipes, a pipe connecting the intermediate part of the digester with the storage-tank, and means on said pipe for forcing the solution from the digester into the storage-tank.

7. The combination with a cellulose-digester of a storage-tank for raw material and solution for treating the raw material, said tank having at its top an opening for the introduction of raw material and being at its bottom provided with pipes leading to the digester, through which gas may be carried back from the boiler to the storage-tank substantially as described.

659,314. **STREET-SIGN POST AND HOLDER.** SERENO E. NORTON, Evanston, Ill. Filed May 28, 1900. Serial No. 18,238. (No model.)



Claim.—1. The sign post and holder, comprising in combination the post-pipe A, the bottom disk B secured thereto, a bracing-cup C having a socket through which the post-pipe passes, a cap or head D secured to the top of the post-pipe and provided with a number of holder-arms E and sign-holders F on the outer ends of said arms E, and each provided with hook-shaped sockets or recesses f' f^3 arranged at an angle to each other to receive the top edges of the signs, and similar sockets f^3 f^4 to receive the bottom edges of the signs, and similar sockets f^5 f^6 to receive the end edges of the signs, substantially as specified.

2. The combination with signs arranged at an angle to each other and a skeleton sign-post, of arms therefor extending to the corners or meeting angles of the signs, and sign-holders secured to said arms at the ends thereof and each extending across the corner or angle formed by two meeting signs, and provided each with sockets to receive the upper and lower edges and end edges of the signs, substantially as specified.

3. The combination with signs arranged at an angle to each other and a skeleton sign-post and its arms extending to the corners or meeting angles of the signs, of sign-holders on the ends of the arms and each extending across the corner or angle formed by two meeting signs, and having top and bottom pieces each provided with sockets at an angle to each other to receive the top and bottom edges of signs extending at an angle to each other, substantially as specified.

4. The combination with signs arranged at an angle to each other and a skeleton sign-post and its arms extending to the corners or meeting angles of the signs, of sign-holders on the ends of the arms and each extending across the corner or angle formed by two meeting signs, and having top and bottom pieces each provided with sockets at an angle to each other to receive the top and bottom edges of signs extending at an angle to each other and having also intermediate connecting-pieces provided with sockets to receive the end edges of the signs, substantially as specified.

5. The combination with a sign-post and its arms, of sign-holders on the ends of the arms having top and bottom pieces each provided with sockets at an angle to each other to receive the top and bottom edges of

signs extending at an angle to each other and having also intermediate connecting-pieces provided with sockets to receive the end edges of the signs, said connecting-pieces having tongues extending through slots in the top and bottom pieces, substantially as specified.

6. The combination with a number of signs standing at an angle to each other, of holders at the meeting angles of the signs comprising each a sheet-metal top piece F′ having angle bends or flanges forming sockets f' f^2, a sheet-metal bottom piece F^2 having angle bends or flanges forming sockets f^3 f^4 therein, and intermediate connecting-pieces F^3 F^3 having bends or flanges f^{14} f^{15}, substantially as specified.

7. The combination with signs arranged at an angle to each other, of holders at the meeting angles of the signs having top and bottom pieces, each furnished with sockets at angles to each other for receiving the top and bottom edges of the signs, and means for securing said top piece to the holder after the signs are in place in the bottom piece, substantially as specified.

8. The combination with signs arranged at an angle to each other, of holders at the meeting edges of the signs having top and bottom pieces, each furnished with sockets at angles to each other for receiving the top and bottom edges of the signs, and means for securing said top piece to the holder after the signs are in place in the bottom piece, said means consisting of tongues passing through slots in said top piece, substantially as specified.

9. The combination with a sign-post having arms, of sign-holders on the ends of the arms, having top piece F′ furnished with sockets f' f^2 at an angle to each other to receive the top edges of the signs, and a bottom piece F^2 furnished with sockets f^3 f^4 at an angle to each other to receive the bottom edges of the signs, and intermediate connecting-pieces F^3 F^3 furnished with sockets f to receive the end of the post-arm, substantially as specified.

10. The combination with a sign-post having arms, of sign-holders on the ends of the arms, having top piece F′ furnished with sockets f' f^2 at an angle to each other to receive the top edges of the signs, and a bottom piece F^2 furnished with sockets f^3 f^4 at an angle to each other to receive the bottom edges of the signs, and intermediate connecting-pieces F^3 F^3 furnished with sockets f to receive the end of the post-arm, said connecting-pieces F^3 F^3 having wings f^{13} furnished with sockets f' f^2 to receive the end edges of the signs, substantially as specified.

11. The combination with a sign-post having arms, of sign-holders on the ends of the arms, having top piece F′ furnished with sockets f' f^2 at an angle to each other to receive the top edges of the signs, and a bottom piece F^2 furnished with sockets f^3 f^4 at an angle to each other to receive the bottom edges of the signs, and intermediate connecting-pieces F^3 F^3 furnished with sockets f to receive the end of the post-arm, said connecting-pieces F^3 F^3 having tongues f^{11} passing through slots in said top and bottom pieces, substantially as specified.

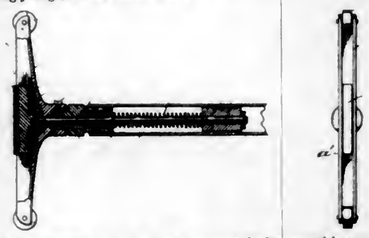
12. The combination with a sign-post having arms, of sign-holders on the ends of the arms, having top piece F′ furnished with sockets f' f^2 at an angle to each other to receive the top edges of the signs, and a bottom piece F^2 furnished with sockets f^3 f^4 at an angle to each other to receive the bottom edges of the signs, and intermediate connecting-pieces F^3 F^3 furnished with sockets f to receive the end of the post-arm, said connecting-pieces F^3 F^3 having wings f^{13} furnished with sockets f' f^2 to receive the end edges of the signs, and said connecting-pieces F^3 F^3 having tongues f^{11} passing through slots in said top and bottom pieces, substantially as specified.

13. The combination with post-pipe A having cap or head D furnished with sockets d to receive the post-pipe, and sockets d' to receive arms, arms E, signs G, sign-holders F having each a top piece F′, furnished with bends or flanges f' f^2 forming sockets or recesses f' f^2, bottom pieces F^2 having bends or flanges f^3 f^4 forming sockets f^3 f^4, connecting-pieces F^3 F^3 having semicircular bends f^5 forming sockets f to receive the ends of said arms E, flanges f^{16} to form shoulders to fit against the top and bottom pieces F′ F^2, and tongues f^{11} passing through slots in said top and bottom pieces, said connecting-pieces F^3 F^3 having also each a wing f^{12} provided with bends or flanges f^{14} f^{15} forming sockets for the ends of the signs, substantially as specified.

659,315. **SHADE-FIXTURE.** JAMES W. PATERSON, Chicago, Ill. Filed May 11, 1900. Serial No. 16,249. (No model.)

Claim.—1. In a shade-fixture a rod adapted to be secured to the lower margin of a shade and provided at each end with a head having arms oppositely extended at right angles with said rod, means for adjusting said heads longitudinally of said rod and rigidly securing the same relatively to said rod in their adjusted positions, and antifriction devices at the extremity of each arm adapted at all times to engage the window-jamb whereby said rod is at all times held in a horizontal position.

2. A holding mechanism for spring-actuated shades or the like, comprising a rod secured to the lower margin of a shade and provided at each end with a head, means for adjusting said heads longitudinally of the rod and rigidly securing the same relatively to said rod, an arm on each head forming right angles with said rod, a roller at the extremity of each arm adapted at all times to bear against a window-jamb or the like and a friction device movable with respect to said heads and rod and adapted to yieldingly engage said window-jamb.



3. A holding device for spring-actuated shades comprising a rod having tubular ends and adapted to be secured to the lower margin of a shade or the like, a head secured on each end of said rod and adjustable longitudinally thereon, means for rigidly securing said head in its adjusted position, arms on each head extending at right angles with said rod and oppositely from each other, an antifriction device at the extremity of each arm adapted to engage at all times a window-jamb or the like and a spring-pressed friction-pad longitudinally movable with respect to said rod and adapted to engage the jamb intermediate of the extremities of said arm.

4. In a shade-holding mechanism, a tubular rod mounted on the lower margin of a shade or the like, and provided at its ends with screw-threads, a milled nut provided at one end with screw-threads complemental to those of said rod and at its opposite end provided with a peripheral groove, a head provided with a central socket adapted to rotatively engage the grooved end of said milled nut and oppositely-directed arms on each head extending at right angles with said rod, antifriction devices at the extremity of each arm, a plunger longitudinally movable with respect to said rod and provided at its outer end with a resilient pad adapted to engage the jamb and a spring engaging said plunger acting normally to hold the padded end thereof pressed against the jamb.

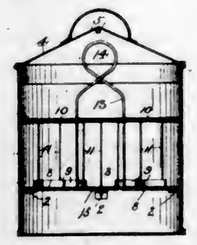
5. In a device of the class described a curtain-rod provided with tubular ends having at its extremities interior screw-threads, a milled nut provided at one end thereof with screw-threads complemental to those on said rod, a head having rotative engagement with said nut and longitudinally adjustable with respect to the same, arms on said head extending oppositely at right angles with said rod and provided at their outer ends with rollers adapted to engage the jamb of a window or the like, a plunger in each end of said rod the outer ends whereof extend through said nuts and heads, a friction-pad at the outer end of each plunger and springs in the tubular ends of said rod engaging said plungers whereby the same are held normally in their extended positions.

6. In a device of the class described a tubular rod adapted to be secured at the lower horizontal margin of a curtain or the like, means for maintaining the same at all times in a horizontal position comprising heads longitudinally adjustable with respect to said rod and rigid with respect to the same in their adjusted positions, oppositely-extending arms on each head forming approximately right angles with said rod and adapted to engage the vertical faces of the jambs in grooves provided therefor and a rotatable part forming the connection between said heads and said rod and adapted to provide for the longitudinal adjustment of the same by the rotation thereof.

7. In a holding device for spring-actuated shades a tubular rod adapted to be secured at the lower horizontal margin of a shade, a head secured at each end of said rod and provided with upwardly and downwardly extending arms forming right angles with said rod and adapted to engage the window-jambs in grooves provided therefor, antifriction devices at the extremity of each arm adapted to bear against said jamb, a plunger having movement longitudinally of said rod and secured within the same the outer end thereof passing outwardly through said head, an elongated friction-pad parallel with said arms and adapted to engage the jamb in the plane thereof, a pushing-spring engaging with one of its ends said rod and with its other end said plunger whereby the same is normally held in its extended position, means for longitudinally adjusting said heads with respect to said rod comprising a milled nut having screw-threaded engagement with said rod and rotative engagement with said head, whereby rotation in one direction acts to draw said head inwardly toward said rod and rotation in the opposite direction moves the same outwardly therefrom.

659,316. **FRUIT-COOKER.** EMMA PEACH, Waterville, Minn. Filed June 11, 1900. Serial No. 19,868. (No model.)

Claim.—A fruit-cooker comprising an outer receptacle or steamer having brackets therein to support a fruit-jar tray and provided with a perforated cover, a fruit-jar tray designed to be inserted in said steamer and comprising an upper and lower disk, the lower disk having a series of perforations therein of a size smaller than the cans or jars to be used, and annular rings surrounding said perforations to support said jars or cans, a number of perforations in said disk to permit the passage of steam therethrough, wire supports attached to said disks for holding them apart, the upper disk having a number of perforations registering with those in the lower disk, and a wire handle attached to the lower disk and extending upward through the upper disk and formed into a handhold, substantially as described.

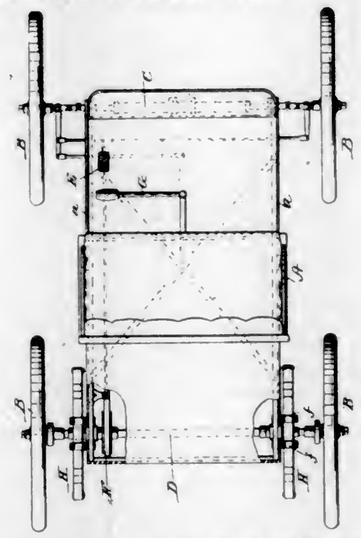


659,317. **PRESSER-FOOT FOR SEWING-MACHINES.** ANDERS G. PETERSON, Holdrege, Nebr. Filed Jan. 30, 1899. Serial No. 703,935. (No model.)



Claim.—In a presser-foot mechanism for sewing-machines, the presser-bar, the presser-foot, the vertical groove B, in its rear face to embrace the lower end of the presser-bar, the bifurcated vertical extension, the rounded toothed bottom of the foot bisected its entire length forming a pair of toothed feet, on either side of the needle, in combination with a suitable work-support, substantially as and for the purposes set forth.

659,318. **MOTOR-VEHICLE.** GEORGE T. PILLINGS, Elgin, Ill. Filed July 7, 1900. Serial No. 22,834. (No model.)



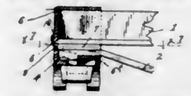
Claim.—1. A motor-vehicle frame provided with vertical jaws secured to the frame; in combination with boxes secured to the axles and having flanges provided with inner convex surfaces engaging said jaws.

2. A motor-vehicle frame composed of parallel bars having vertical jaws secured between them; in combination with boxes secured to the axles and having flanges provided with convex inner surfaces engaging the edges of said jaws.

3. A motor-vehicle frame provided with vertical jaws secured to the frame; in combination with axle-boxes supporting springs and having flanges engaging said jaws.

4. A motor-vehicle frame provided with vertical jaws secured to the frame; in combination with a box secured to the axle, supporting a spring and provided with flanges having convex bearing-surfaces engaging the edges of said jaws.

659,319. **BRAKE-BEAM.** EDWARD POSSON, St. Paul, Minn. Filed Sept. 25, 1899. Serial No. 731,538. (No model.)



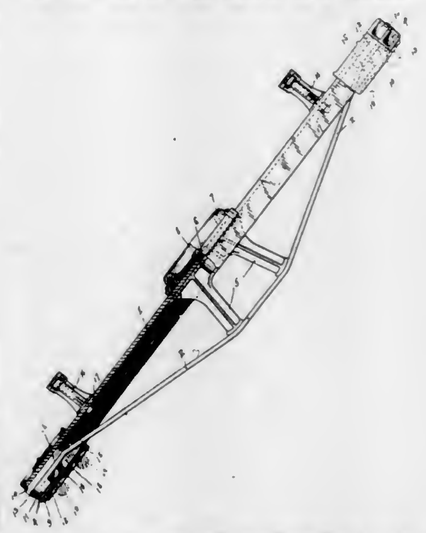
Claim.—1. In a trussed beam, the combination with compression and tension members and a cap or socket, which parts are adapted to be interlocked by the movement of one of said parts transversely of the line of load strains thereon, and a spacing-key insertible between said parts to hold the same interlocked by preventing the transverse movements necessary to unlock them, whereby said key is not subjected to load strains, substantially as described.

2. In a trussed beam, the combintion with the tension and compression members, of caps or sockets fitting over the ends of said members, said tension member having an interlocking engagement with said caps or sockets, by movement transverse to the line of the load strains thereon, and keys insertible between said tension and compression members to hold said tension member against lateral movement with respect to said compression member and thus the parts interlocked without load strains on said key, substantially as described.

3. In a trussed beam, the combination with the tension and compression members, the former having enlargements or heads at its ends, of caps or sockets fitting over the ends of said members, and provided with lock-lugs adapted to interlock with the heads of said tension members, when the latter are moved transversely to the line of the load strains thereon, and keys insertible between the adjacent ends of said members to hold said parts interlocked, substantially as described.

4. In a trussed beam, the combination with the tension and compression members 1 and 2, the latter having the enlarged or headed ends 4, of the caps or sockets fitting over the ends of said members 1 and 2 and formed with the recesses 6, 6^a, 6^b and lock-lugs 6^c, with which the ends of the said members are adapted to be interlocked, as described, and the keys 7 with ears or projections 8 working through perforations 9 in said caps and adapted to be bent or upset, substantially as described.

659,320. **METALLIC TRUCK-BOLSTER.** EDWARD POSSON, St. Paul, Minn. Filed Dec. 1, 1899. Serial No. 738,786. (No model.)



Claim.—1. In a trussed beam, the combination with tension and compression members having opposing shouldered portions, of end caps

or sections embracing the ends of said members and having lock lugs or flanges engageable between the opposing shoulders of the said members only by movements transversely to the line of load strains thereon, and keys or spacing-blocks insertible between said members or parts to hold the said parts against the transverse movements necessary to unlock them, substantially as described.

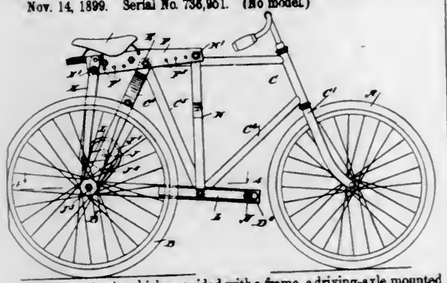
2. In a trussed beam, the combination with tension and compression members, having opposing shouldered portions, of end caps fitting over the ends of said members and having lock lugs or flanges engageable between the opposing shouldered portions of said members, the shouldered portions of the tension member being engageable behind the lock-lugs of said caps, by movement transversely to the line of the load strains thereon, and locking-keys insertible between the ends of the compression and tension members to hold the parts interlocked, substantially as described.

3. In a trussed beam, the combination with the compression member 1 formed by a channel-iron with its flanges cut at the ends to form the shoulders 3, of the tension member 2 provided at its ends with the heads or shouldered lugs 4, the end caps 9 fitting over the ends of said members 1 and 2 and provided with the lock lugs or flanges 10 fitting between the opposing shouldered portions 3 and 4 of said members 1 and 2, respectively, and the lock-keys 12 insertible between the ends of said members 1 and 2, to hold the parts interlocked, substantially as described.

4. In a trussed metallic bolster, the combination with compression and tension members, of end caps or sections fitting over the ends of said members, which members are constructed to interlock by movement of one of said parts transversely to the line of load strains thereon, and keys or spacing-blocks insertible between the parts, to hold them interlocked without load strains on said keys, substantially as described.

5. In a trussed beam, the combination with the compression member formed by a channel-iron, with its flanges cut at the ends to form shoulders offset from the ends thereof, of end caps fitting over the ends of said compression member and engaging the end and offset shoulders thereof, and a tension member secured at its ends to said caps, substantially as described.

659,321. VELOCIPEDE. JAMES PRESTON, Tuckahoe, N. Y. Filed Nov. 14, 1899. Serial No. 736,951. (No model.)



Claim.—1. A vehicle provided with a frame, a driving-axle mounted in the frame, an auxiliary frame connected with the main frame and having an approximately-horizontal member and an upwardly-extending member, the said auxiliary frame being connected at the junction of its members with the driving-axle, pedal-levers mounted at the forward end of the horizontal member of the auxiliary frame, a driving-gear for the driving-axle of the vehicle, and a seat mounted to swing at the upper part of the upwardly-extending member and connected with the said driving-gear and with the said pedal-levers, substantially as shown and described.

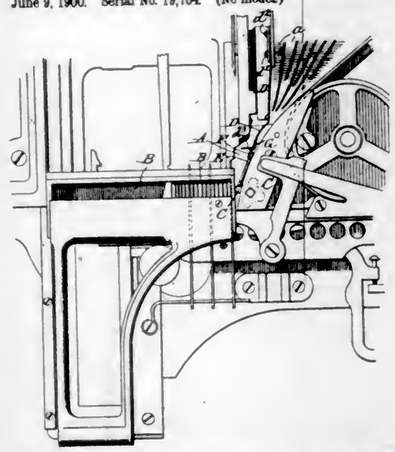
2. A vehicle provided with a main frame, a driving-axle mounted in the frame, an auxiliary frame having an approximately-horizontal member extending forwardly from the rear or driving axle, and an approximately-vertical member extending upwardly from the driving-axle, a seat-lever carrying a seat and pivoted at or near its middle to the upper end of the vertical member and connected with the driving-gear of the vehicle, the said horizontal member of the auxiliary frame being connected between its ends to the main frame, and pedal-levers mounted to swing on the forward end of the horizontal member and extending rearwardly, the said pedal-levers being connected with the said seat-lever, substantially as described.

3. A vehicle provided with a main frame having a uniting piece or block for the lower ends of the frame members, wheels mounted in said frame, an auxiliary frame having members extending upwardly from the rear or driving axle and connected with the main frame and members extending forwardly from the rear axle and located at opposite sides of the uniting-piece for the main-frame members and connected thereto, a seat mounted to swing at the upper end of the upwardly-extending members of the auxiliary frame, a driving-gear carried by said upwardly-extending members, and connected with a gear on the rear or driving axle of the vehicle, and pedal-levers carried at the forward ends of the forwardly-extending members of the auxiliary frame, the said seat being connected with the pedal-levers, and the driving-gear, substantially as described.

4. A vehicle having a main frame comprising front and rear forks for the wheels a center brace upper and lower braces and a uniting piece or block for the frame members, and an auxiliary frame consisting of spaced parallel approximately L-shaped bars connected at the horizontal members with the uniting-piece for the main-frame members, at the junction of the horizontal and upright members, with the driving-axle of the vehicle, and at the upper end of the upright members with the upper brace, the center brace and the rear upper fork, pedal-levers carried by the horizontal members of the auxiliary frame, a driving-gear carried at the lower portion of the upright members of the said auxiliary frame, and a seat-lever provided with a seat and fulcrumed at the junction of the upper end of the upright members with the main frame, the said seat-lever having connection with the driving-gear and with the said pedal-levers, substantially as described.

5. A vehicle having a main frame provided with forks for the wheels, upper and lower braces, a center brace, and a uniting-piece for the frame members, and an auxiliary frame consisting of spaced parallel L-shaped bars for connection with the uniting-piece for the main-frame members, the rear or driving axle, and with the junction of the upper brace, the center brace and the rear upper fork, pedal-levers pivotally connected with the horizontal portion of the auxiliary frame and at a point forward of the connection of said horizontal portion with the uniting-piece, a shaft mounted to turn in the upright members of said auxiliary frame and provided with a sprocket-wheel, a seat-lever pivoted at the upper portion of the upright members of the auxiliary frame, links connecting the forward end of the seat-lever with the pedal-levers, links connecting the rear end of the seat-lever with crank-arms on the said shaft, and a chain connecting the said sprocket-wheel with a sprocket-wheel on the driving-axle of the vehicle, substantially as shown and described.

659,322. CHUTE-SPRING FOR MATRIX-ASSEMBLING MACHINES, &c. FRANK J. RENZ and LYNNE COLLINS, St. Paul, Minn. Filed June 9, 1900. Serial No. 19,704. (No model.)



Claim.—1. In machines for assembling matrices, type and the like, an assembler-chute spring provided with a tongue extending from the end thereof.

2. In machines for assembling matrices, type and the like, an assembler-chute spring provided with a lower forked shoulder in combination with a tongue extending below said fork.

3. In machines for assembling matrices, type and the like, an assembler-chute spring provided with a lower forked shoulder in combination with a central longitudinal tongue extending below said fork.

4. In machines for assembling matrices, type and the like, an assembler-chute spring provided with a raised portion at its lower end.

5. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with longitudinal ribs.

6. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a forked shoulder in combination with a raised portion.

7. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a forked shoulder in combination with longitudinal ribs arranged at said lower end.

8. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a terminal tongue in combination with a raised portion.

9. In machines for assembling matrices, type and the like, an assembler-chute spring having a bend at d^4, and a second bend at d^5; provided at the second bend, d^5, with a raised portion.

10. In machines for assembling matrices, type and the like, an assembler-chute spring having a lower bend and a lower forked shoulder and a second bend, d^5, and provided with a raised portion at the second bend, d^5, and at forked shoulder.

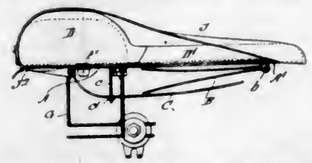
11. In machines for assembling matrices, type and the like, an assembler-chute spring provided with longitudinal ribs extending from the forked shoulder beyond the second bend.

12. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a terminal tongue in combination with longitudinal ribs.

13. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a forked shoulder in combination with a terminal tongue and longitudinal ribs.

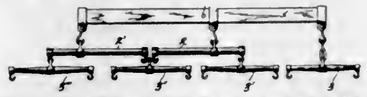
14. In machines for assembling matrices, type and the like, an assembler-chute spring provided at its lower end with a terminal tongue in combination with two longitudinal ribs arranged one on each side of the tongue.

659,323. CYCLE-SADDLE. WILLIAM S. RICHMOND, London, England. Filed June 12, 1897. Serial No. 640,587. (No model.)



Claim.—In a cycle-saddle the combination with a supporting-frame of a padded seat D for the buttocks carried by said frame a bifurcated resilient peak projecting freely forwardly from said padded seat D and having padded surfaces D' D' at a lower level than the surface of seat D two straps J J having at the forward ends pockets to receive the ends of the bifurcated peak and means for stretching said straps divergently rearward over the padded seat, space being left forwardly of the padded seat between the under surfaces of the straps and the surfaces of the padded peaks respectively the whole substantially as and for the purpose set forth.

659,324. DRAFT-EQUALIZER. CHARLES H. SAWYER, St. Louis, Mo. Filed Feb. 26, 1900. Serial No. 6,605. (No model.)



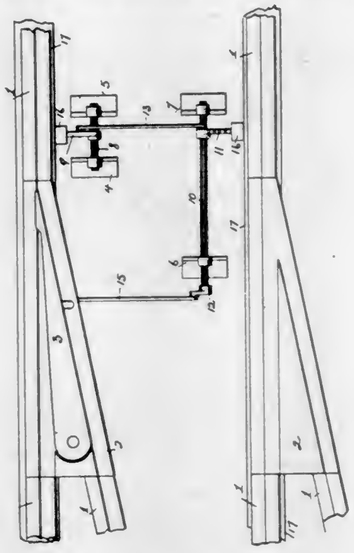
Claim.—1. A draft-equalizer comprising a base-bar, a singletree coupled thereto at a certain distance from the point of draft thereof, a distributer coupled thereto at a certain distance on the opposite side of the point of draft, and an intermediate distributer coupled to the base-bar at a point on that side of the point of draft which is nearer the point of attachment of the singletree to the base-bar, substantially as set forth.

2. A draft-equalizer comprising a base-bar, a singletree coupled at one end thereof, a distributer-bar coupled to the opposite end, an intermediate distributer, the adjacent arms of the distributers being coupled together, a singletree suspended from the coupled ends, a singletree coupled to the free arm of each distributer, the several singletrees being equally removed from the base-bar, and the point of attachment of the intermediate distributer-bar being on that side, of the point of draft of the base-bar, which is toward the singletree coupled to the end thereof, substantially as set forth.

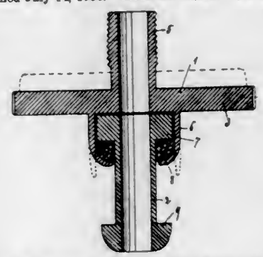
3. A draft-equalizer having a base-bar, a singletree coupled at one end thereof, a distributer at the opposite end, and an intermediate distributer coupled to the base-bar and having its point of attachment on that side of the point of draft of the base-bar which lies nearer the singletree, substantially as set forth.

659,325. SWITCH-TURNING MECHANISM. WALKER L. SELLERS, Pittsburg, Pa. Filed Apr. 12, 1900. Serial No. 12,563. (No model.)

Claim.—In a switch, the combination with the shafts and segment-gears mounted on and rocking with said shafts, a pivoted bar connecting said segment-gears, the rack-bars meshing with the teeth of said gears, said bars having elongated slots on either side of the teeth thereof, the stationary headed pins passing through said slots and guiding the rack-bars in their longitudinal movements, the switch-plate, the switch-point pivoted thereto, an integral lug, on the under side of said switch-point, guided in a transverse slot in said plate, and crank and pivotal bar connections between said lug and one of said shafts, as shown and described.

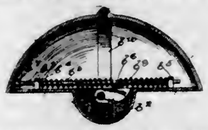


659,326. SWIVEL FOR HOSE. DE WANE B. SMITH, Deerfield, N. Y. Filed July 14, 1900. Serial No. 23,590. (No model.)



Claim.—The combination in a swivel of the part adapted to be attached to the fitting, having a socket with inwardly-turned end or shoulder, a part adapted to be attached to the hose having a head received in said socket and a packing interposed between the said inwardly-turned end or shoulder of the socket and said head, substantially as set forth.

659,327. AUTOMATIC GONG-BELL. EDWARD D. STACY, Chicago, Ill. Filed June 20, 1900. Serial No. 20,976. (No model.)

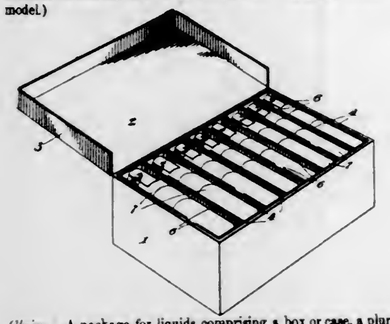


Claim.—1. An automatic alarm-bell comprising a base-plate, a gong mounted over the said base-plate, a horizontal shaft supported in the base-plate under said gong, one end of said shaft adapted to be impelled against the side of said gong, an open helical spring surrounding said shaft, between said shaft-supports, another similar spring surrounding said shaft for holding said shaft normally out of contact with said gong, a cam for

compressing the first said spring, a shaft to which the said cam is fixed and a housing depending from the said base under the said gong for the said shaft and cam, substantially as set forth.

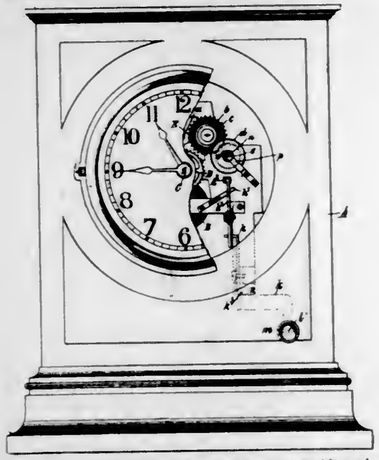
2. An automatic alarm-bell comprising a base-plate, a gong mounted over the said base-plate, a projectile under said gong for striking said gong, a spring for holding said projectile out of contact with said gong, a spring for propelling said projectile, a cam adapted to be rotated for compressing the latter spring, a shaft to which said cam is attached, a housing in the said base for covering the said cam and shaft, and a means associated with a moving vehicle for rotating said shaft, substantially as set forth.

659,328. **PACKAGE FOR CONTAINING WHISKY, &c.** LOUIS C. STRAUSS, Cincinnati, Ohio. Filed June 2, 1900. Serial No. 18,862. (No model.)



Claim.—A package for liquids comprising a box or case, a plurality of independent open-front envelops of elongated form arranged in the box or case and having notched sides alternating in adjacency to the fore and back walls of the box or case and bottles or receptacles arranged in the envelops, substantially as set forth.

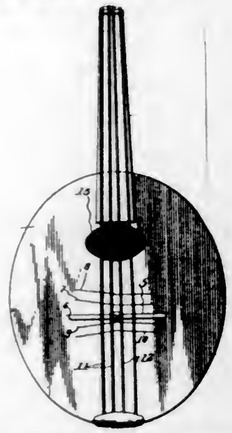
659,329. **TIME-INDICATING MECHANISM.** ROBERT W. J. SUTHERLAND, Caerphilly, England. Filed May 14, 1900. Serial No. 16,675. (No model.)



Claim.—1. A time-indicator for use in connection with a telephonic service, consisting of the combination with an ordinary timepiece or time-indicating mechanism, of bevel-gearing connecting the motor-train with the seconds-hand spindle adapted to communicate any desired speed to said spindle, the special indicating-hand fast on said spindle, the special divided circle on the general dial traversed by said hand, the spring keeping the gearing of the indicating-hand normally out of gear with the motor-train, the combination of levers and press-button for bringing said gear into engagement at will, and the device for maintaining the said gear during a given time and automatically disengaging the gear on the completion of that time consisting in the aforesaid spring, the notch in the sleeve of the indicating-hand gear and the tongue on the bracket which supports said wheel adapted to engage said notch at each revolution of the indicating-hand, as described.

2. In a time-indicator for use in connection with a telephonic service, the combination with time-indicating mechanism of the spring for keeping the gearing of the indicating-hand spindle normally out of engagement with the motor-train, the combination of levers and press-button for bringing said gear into engagement at will, and the device for maintaining the said gear during a given time and automatically disengaging the gear on the completion of that time consisting in the notch in the sleeve of the indicating-hand gear-wheel, a bracket and tongue on the bracket which supports said wheel adapted to engage said notch at each revolution of the indicating-hand, as described.

659,330. **MUSICAL INSTRUMENT.** EMMITT A. TAPLEY, Chicago, Ill., assignor of one-half to Daniel W. Scott, same place. Filed Nov. 27, 1899. Serial No. 738,336. (No model.)



Claim.—1. In a musical instrument, the combination of a body, a series of strings stretched thereon, a bridge bodily slidable between said strings and body and consisting of relatively-movable parts, whereby the pitch of the strings can be correspondingly raised or lowered; said movable parts being connected together independently of the instrument-body and strings.

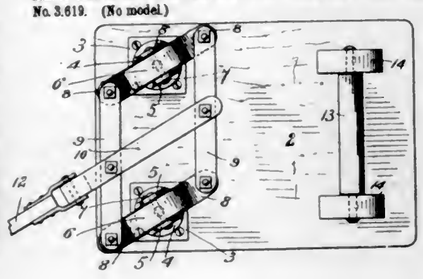
2. In a musical instrument, the combination of a body, a series of strings stretched thereon, a bridge movable between said strings and body and consisting of two parts pivoted together and relatively movable, substantially as and for the purpose specified.

3. In a musical instrument, the combination of a body, a series of strings stretched thereon, a bridge movable between said strings and body and consisting of two parts independently pivoted to a connecting plate or link, substantially as and for the purpose specified.

659,331. **FLASH-POWDER.** AUGUST WEISS, Strasburg, Germany. Filed Aug. 1, 1898. Serial No. 687,435. (No specimens.)

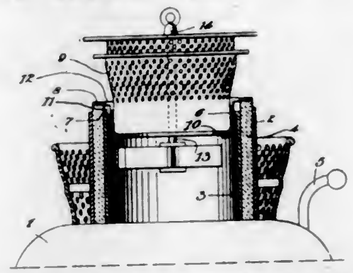
Claim.—As a new article of manufacture, a flash-powder for use in taking photographs by artificial light, consisting of a mixture of powdered aluminium and powdered perchlorate of potassium, in proportions substantially as set forth.

659,332. **FRONT WHEEL AND YOKE FOR TRUCKS OR OTHER VEHICLES.** ENOCH WHALLEY, Williamsett, Mass., assignor of one-half to Charles H. Curran, Holyoke, Mass. Filed Feb. 1, 1900. Serial No. 3,619. (No model.)



Claim.—In a truck, a floor, the plates 3, 3, fixed under said floor, each having a central socket therein, two wheel-supporting yokes 4, each having a pivotal projection entering said sockets, two depending wheel-supporting arms 5, 5, and two forwardly and rearwardly extending arms 8, 8, and means in said arms 5, 5, for supporting a wheel for rotation, combined with two separated bars 9, 9, each pivotally connected to the extremities of said arms 8, 8, and a suitable draw-strap pivotally connected to said bars, intermediate of said yokes, substantially as described.

659,333. **LAMP-BURNER.** FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, of Connecticut. Filed July 18, 1900. Serial No. 23,991. (No model.)



Claim.—1. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube, a wall smaller than and located inside of said inner tube, a spacer to hold said wall away from said wick and form, with said wall, a gas-space at the inside of said wick, one of said parts being perforated to allow the escape of gas from said space to the flame.

2. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube, a cylindrical wall smaller than and located inside of said inner tube, a spacer below said extinguisher and between said wall and inner tube to form, with said wall, a gas-space at the inside of said wick, said extinguisher being perforated to allow the escape of gas from said space to the flame.

3. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube, a cylindrical wall smaller than and located inside of said inner tube, said wall being fixed to said extinguisher and movable therewith, a spacer below said extinguisher and between said wall and inner tube to form, with said wall, a gas-space at the inside of said wick, one of said parts being perforated to allow the escape of gas from said space to the flame.

4. In a lamp-burner in combination, an outer and an inner wick-tube, a cylindrical wall smaller than and vertically movable within said inner tube, a spacer between said inner tube and wall, an extinguisher-flange on said wall and extending out over and resting on said wick and adapted to be raised above said outer tube and provided with perforations extending within the inner wick-tube.

5. In a lamp-burner in combination, an outer wick-tube, an inner wick-tube having an inwardly-turned flange at the top, a cylindrical wall smaller than and vertically movable within said inner tube and flange, an extinguisher-flange on said cup and extending out over and resting on said wick and adapted to be raised above said outer tube and provided with perforations within the inner wick-tube, and a spreader adapted to rest within said cup and provided with perforations above said extinguisher-flange.

659,334. **LAMP-BURNER.** FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, of Connecticut. Filed July 19, 1900. Serial No. 24,180. (No model.)

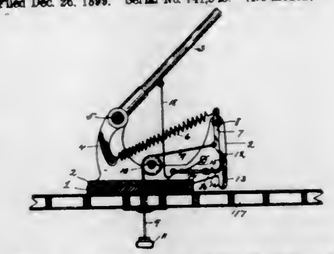


Claim.—1. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube, a stationary wall smaller than and located inside of said inner tube, a spacer to hold said wall away from said wick and form, with said wall, a gas-space at the inside of said wick, one of said parts being perforated to allow the escape of gas from said space to the flame.

2. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube, a stationary cylindrical wall smaller than and located inside of said inner tube, a spacer below said extinguisher and between said wall and inner tube to form, with said wall, a gas-space at the inside of said wick, said extinguisher being perforated to allow the escape of gas from said space to the flame.

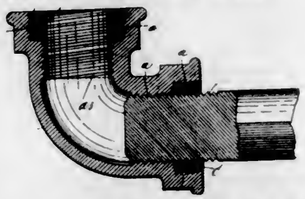
3. In a lamp-burner in combination, an inner and an outer wick-tube, an extinguisher adapted to rest on top of a wick and be moved up above said outer tube to allow the flame to burn at the outside of said wick, a stationary cylindrical wall smaller than and located inside of said inner tube, a spacer below said extinguisher and between said wall and inner tube to form, with said wall, a gas-space at the inside of said wick, a perforated spreader movable up and down said wall and fixed to said extinguisher, said extinguisher being perforated to allow the escape of gas from said space to the flame.

659,335. **BASE FOR TROLLEY-POLES.** ANDREW C. WOLFE, Freeport, Pa., assignor of one-third to Joseph F. Hewitt, Allegheny, Pa. Filed Dec. 26, 1899. Serial No. 741,545. (No model.)



Claim.—A trolley-pole base consisting of the pivoted frame 2, the trolley-pole 3 mounted thereon, the spring 6 attached thereto, and to a lever 7 pivoted to the said frame 2, the pivoted keeper 12 and spring 13, the latch-bar 14 and connecting-cord 18, and a means whereby the parts may be brought back to their normal position, arranged and combined for service, substantially as and for the purpose described.

659,336. **PIPE-COUPLING.** CHARLES H. BOOTH, New York, N. Y. Filed May 25, 1900. Serial No. 18,014. (No model.)



Claim.—A pipe-coupling, provided at each of its ends with annular chambers commencing at the outside and having a uniform bore, the walls of which are provided with a plurality of annular concentric or parallel ribs; the bore of the coupling inwardly of the chamber being screw-threaded, and solid annular packing material immovably secured in the said chambers and entering between each of the concentric ribs, the outer faces of the packing being flush with the outer face of the coupling, and the inner edges of the packing being flush with and threaded to correspond with the inner walls of the coupling, substantially as shown and described.

659,337. **CIGARETTE-ROLLER.** ANTHONY W. BROWN, New York, N. Y., assignor, by mesne assignments, of one-half to John L. Lockwood, Jr., same place. Filed Mar. 9, 1900. Serial No. 8,011. (No model.)



Claim.—1. In a cigarette-roller, the combination with two semicylindrical members hinged together on two of their longitudinal edges, of

a piston adapted to slide within said semicylindrical members and an elastic collar attached to said piston adapted to operate outside of said semicylindrical members.

2. In a cigarette-roller, the combination with two semicylindrical members hinged together on two of their longitudinal edges, of an elastic collar adapted to slide over and hold in position said semicylindrical members when they are closed.

3. In a cigarette-roller, the combination with two semicylindrical members hinged together on two of their longitudinal edges, of a longitudinal slot in one of said semicylindrical members, of a piston adapted to operate within said semicylindrical members when closed and an elastic collar, adapted to slide over said semicylindrical members when closed, attached to said piston.

4. In a cigarette-roller, the combination with two semicylindrical members hinged together on two of their longitudinal edges, of an elastic collar, having a shoulder 6, adapted to inclose and slide over said semicylindrical members and a piston attached to said elastic collar adapted to operate within said semicylindrical members, having its working face in advance of the shoulder 6.

5. In a cigarette-roller, the combination with two semicylindrical members hinged together on two of their longitudinal edges, one of said members being shorter than the other, and the longer member having a longitudinal slot, of a ring or collar adapted to slide over said semicylindrical members when they are closed, and a piston attached to said ring through said slot and adapted to operate in said semicylindrical members.

659,338. PROCESS OF EXTRACTING ZINC AND COPPER FROM THEIR ORES. CALEB G. COLLINS, New York, N. Y., assignor to Calvin Amory Stevens, same place. Filed Oct. 30, 1899. Serial No. 735,289. (No specimens.)

Claim.—1. The herein-described process of treating ores of copper and zinc, and other metals soluble only in a strong solution of the solvent, which consists in immersing the comminuted ore, in a solution containing sodium sulfate and bisulfate (niter-cake), in proportion to the contained copper and zinc therein, but sufficient in strength to dissolve only copper and zinc therefrom, and subsequently recovering these metals from the solution, substantially as described.

2. The herein-described process of treating ores of copper and zinc which consists in immersing the comminuted ore in a solution containing sodium sulfate and bisulfate (niter-cake) removing the depleted ore and extracting the metal therefrom by electrolytic action, adding more comminuted ore to the remaining solution, and repeating the operation, substantially as described.

3. The herein-described process of treating ores of copper and zinc containing other metals soluble in any excess of solution which may be employed above that required to dissolve the copper and zinc contained therein, which consists in introducing comminuted ore into a solution containing sodium sulfate and bisulfate (niter-cake) not exceeding 5° Baumé, and subsequently recovering the copper and zinc from the solution, substantially as set forth.

659,339. PROCESS OF EXTRACTING COPPER AND ZINC FROM THEIR ORES. CALEB G. COLLINS, New York, N. Y., assignor to Calvin Amory Stevens, same place. Filed Oct. 30, 1899. Serial No. 735,290. (No specimens.)

Claim.—1. The herein-described process of treating ores of copper and zinc, and other metals soluble only in a strong solution of the solvent, which consists in exposing the comminuted ore to the action of a solution of sodium sulfate containing hydrochloric and sulfuric acid (salt-cake solution) in proportion to the contained copper and zinc but sufficient in strength to dissolve only copper and zinc therefrom and subsequently recovering these metals from the solution, substantially as described.

2. The herein-described process of treating ores of copper and zinc containing other metals soluble in any excess of solution which may be employed above that required to dissolve the copper and zinc contained therein, which consists in introducing the comminuted ore into a solution of sodium sulfate containing hydrochloric and sulfuric acid (salt-cake solution) not exceeding 5° Baumé, and subsequently recovering these metals from the solution, substantially as set forth.

659,340. PROCESS OF EXTRACTING ZINC AND COPPER FROM THEIR ORES. CALEB G. COLLINS, New York, N. Y., assignor to Calvin Amory Stevens, same place. Filed Oct. 30, 1899. Serial No. 735,291. (No specimens.)

Claim.—The herein-described process of treating ores of copper and zinc, and other metals soluble in a strong solution of the solvent employed, which consists in exposing the comminuted ore to the action of a solution of sodium sulfate containing sodium bisulfate, sodium chlorid and hydrochloric acid (salt-cake and niter-cake solution) in proportion to the contained copper and zinc but sufficient in strength to dissolve only copper and zinc therefrom, and subsequently recovering these metals from the solution, substantially as described.

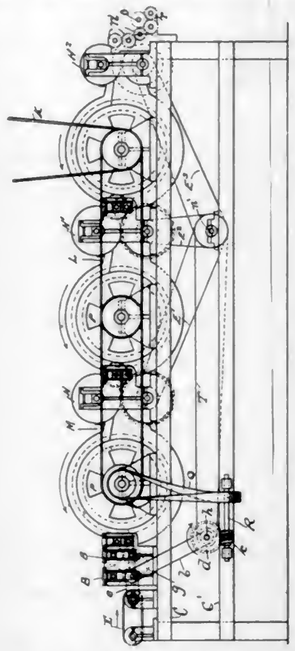
659,341. SELF-LEVELING SPOON. WILLIAM H. DODD and JOSEPH F. GREER, Montclair, N. J. Filed July 12, 1900. Serial No. 23,406. (No model.)



Claim.—1. The combination with the weighted bowl, formed with the cylindrical shank, of the handle formed with the socket to receive said shank, as and for the purpose set forth.

2. The combination with the weighted bowl, the cylindrical shank formed integral therewith, of the handle, provided with the socket, and means for securing the shank in the socket so as to permit of the axial movement of the shank and handle with reference to each other, as and for the purpose set forth.

659,342. FLAX-MACHINE. DAVID S. EASTWOOD and NARCISSE H. NORMAND, New Bedford, Mass., assignors, by mesne assignments, to the National Flax Fibre Company, Boston, Mass. Filed Jan. 18, 1900. Serial No. 1,837. (No model.)



Claim.—1. In a flax-machine the combination of an endless apron, two or more pairs of intermeshing fluted rolls, a pair of feed-rolls, a main chamber, a cylinder held to revolve in said chamber and covered with wire-netting, and having openings in its ends, flat radial cross-bars secured on the periphery of said cylinder, a receiving-chamber connected with said main chamber, a pair of condensing-cylinders covered with wire-netting placed at one end of said receiving-chamber, substantially as described.

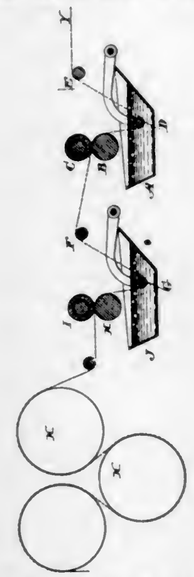
2. In a flax-machine, the combination of an endless apron two or more pairs of fluted rolls each succeeding pair having finer fluting than the preceding pair, a pair of feed-rolls, a main chamber having a bottom with narrow open spaces, a cylinder held in said main chamber and covered with wire-netting and having openings in its ends, flat radial bars held on the outside of said cylinder, strips of metal with teeth on some of said radial bars, a receiving-chamber having a bottom with open spaces a pair of condensing-cylinders covered with wire-netting placed at the end of said receiving-chamber, substantially as described.

3. In a flax-machine a series of main chambers having narrow openings in their under sides each chamber containing a cylinder covered with wire-netting and having flat radial bars on their outsides, and having openings in their ends, a like series of small chambers connected with said main chambers, each having a pair of condensing-cylinders with wire-net coverings, placed at one end of the chamber, substantially as described.

4. In a flax-machine, a pair of feed-rolls, a main chamber having a bottom with narrow open spaces a cylinder held in said main chamber and covered with wire-netting and having openings in its ends flat radial bars held on the outside of main cylinder, strips of metal with teeth on some of said radial bars, a receiving-chamber having a bottom with open spaces, a pair of condensing-cylinders covered with wire-netting placed at the end of said receiving-chamber, substantially as described.

5. In a flax-machine, a pair of feed-rolls, a main chamber having a bottom with narrow open spaces and having openings on its ends with plates to turn and cover said openings, a cylinder held in said main chamber and covered with wire-netting, and having openings in its ends, flat radial bars held on the out ide of said cylinder, strips of metal with teeth on some of said radial bars, substantially as described.

659,343. PROCESS OF DYEING. JOHN W. FRIES, Salem, N. C. Filed Dec. 14, 1899. Serial No. 740,300. (No specimens.)



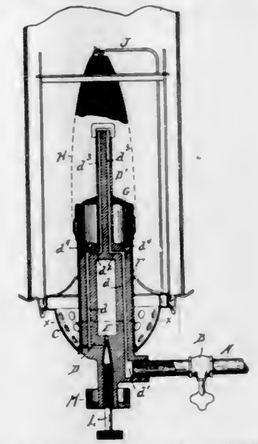
Claim.—1. The herein-described method of dyeing textile material consisting in saturating said textile material with a thick solution of soap and "direct dyes" at ordinary temperatures, then subjecting the saturated textile material to mechanical pressure to expel the air and force the coloring solution into and through the fiber and remove the excess of the solution, then immediately and before drying passing the colored material in its wet condition through a bath containing a salt solution at ordinary temperature capable of precipitating the fatty substances of the soap together with the color-matter of the dyes, and then subjecting the textile material so treated while still wet to a second action of mechanical pressure to thoroughly intermingle both solutions before either is dried and remove all excess of fluid.

2. The herein-described process of coloring or dyeing textile material consisting in applying to the textile material a solution of the "direct dyes" in a solvent at ordinary temperature, removing by mechanical pressure the air and excess of the dye solution and forcing the dye and solvent into and through the fiber of the textile material, then immediately and before drying immersing the dyed textile material in a bath of an acetate of an alkaline base at ordinary temperature capable of precipitating the solvent and the coloring-matter of the dyes, and maintaining the strength of the precipitating-bath during the process by adding thereto additional quantity of the precipitating salt to prevent bleeding of the color from the dyed textile material.

3. The herein-described method of dyeing textile material consisting in saturating said textile material with a solution of soap and "direct dyes" at ordinary temperature, then immediately and before drying passing the colored material through a bath at ordinary temperature containing a salt solution capable of precipitating the fatty substances of the soap together with the color-matter of the dyes, forcing the precipitating salt into close union with the dye and soap by mechanical pressure upon the textile material, and maintaining the precipitating-bath by adding thereto concentrated solutions of the precipitating salt during the process to prevent bleeding of the color from the dyed textile material.

4. The herein-described process of coloring or dyeing textile material consisting in applying to the textile material a solution of the "direct dyes" in a solvent at ordinary temperatures, removing by mechanical pressure the air and excess of the dye solution, then immediately and before drying immersing the dyed textile material in a bath of acetate of lime capable of precipitating the solvent and the coloring-matter of the dyes at ordinary temperatures, subjecting the textile material so treated while still wet to further mechanical pressure to expel the air and force a thorough intermingling of the two solutions before either is dried to insure full precipitation, and finally drying the textile material so dyed.

659,344. HYDROCARBON-BURNER. WILLIAM S. HAWORTH, Detroit, Mich., assignor of one-half to Seymour R. Haworth, same place. Filed May 23, 1900. Serial No. 17,635. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of an inlet-pipe for hydrocarbon, a solid rectangular frame bored at one point to connect with said inlet, and bored to form a rectangular tube, a stand-pipe erected thereon, having therein two passage-ways connected at the top thereof, and each connected at the bottom of the stand-pipe with a passage respectively upon either side of the frame of the generator through which vapor is discharged, a surrounding casing, and means whereby the flame is compelled to surround the stand-pipe, substantially as described.

2. In a hydrocarbon-burner, the combination of an inlet-pipe for hydrocarbon, a solid rectangular frame bored at one point to connect with said inlet, and bored to form a rectangular tube, a stand-pipe erected upon the top thereof, having therein two passage-ways connected at the top and connected at their bottom with the passages respectively upon either side of the rectangular space formed by the frame of the generator through which vapor is discharged, a surrounding casing, means whereby the flame is compelled to surround the stand-pipe, and a mantle surrounding said frame, substantially as described.

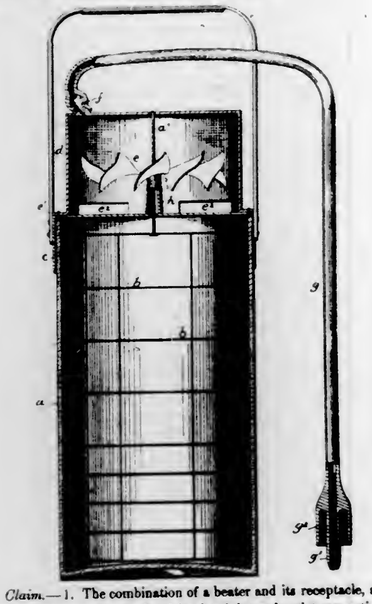
3. In a hydrocarbon-generator, the combination of a rectangular frame, having a passage-way through each of its sides and a central extension thereof at the upper end, consisting of a single piece with two passage-ways therein connected at the top, and connected with a source of supply of hydrocarbon at one of the sides of the rectangle, an interior inlet communicating with said passages leading into the rectangular space formed by the generator, and a valve governing said inlet, substantially as described.

4. In a hydrocarbon-burner, the combination of a rectangular frame, having a passage-way through each of its sides and a central extension thereof at the upper end, consisting of a single piece with two passage-ways therein connected at the top, said passage being connected with a source of supply of hydrocarbon at one of the sides of the rectangle, and an interior inlet leading into the rectangular frame, a valve governing said inlet, a casing F, having air-passages at the bottom surrounding said rectangular generator and forming a mixer, the upper portion of which extends beyond the rectangular portion of the generator and partially inclosing a perforated central connection, substantially as described.

5. A rectangular hydrocarbon-generator cast in one piece and containing at its upper end when arranged for use, a stand-pipe with two passages bored to communicate with the two sides of the rectangular generator, plugs closing off the bored holes in such manner as to form a con-

timmons interior passage to which access may be had at different points for cleaning, substantially as described.

659,345. BEATER. Clifford E. Ivins, Glenolden, Pa. Filed Apr. 21, 1900. Serial No. 13,808. (No model.)



Claim.—1. The combination of a beater and its receptacle, a rotary motor for the beater, and a hood having inlet and outlet connections penetrating it, the arrangement of the outlet connections being such that the medium which drives the motor is adapted to escape in contiguity with the receptacle and cool the contents thereof, substantially as described.

2. The combination of a beater and its receptacle, a rotary motor for the beater having a casing removably attached to the receptacle, inlet connections for supplying fluid to the motor, and discharge-outlets therefor, the arrangement being such that the waste fluid is adapted to run down over the sides of the receptacle and cool the contents thereof, substantially as described.

659,346. DEVICE FOR SQUEEZING LIMES, LEMONS, &c. Patrick King, New York, N. Y. Filed Mar. 2, 1900. Serial No. 7,050. (No model.)

Claim.—1. In combination with the squeezing-jaws of a fruit-squeezing device, said jaws constructed when drawn together, to grasp and squeeze the fruit, and when separated to permit the fruit to drop from them, a tray loosely attached to one of said jaws and arranged to move sidewise to and from a position under said jaws.

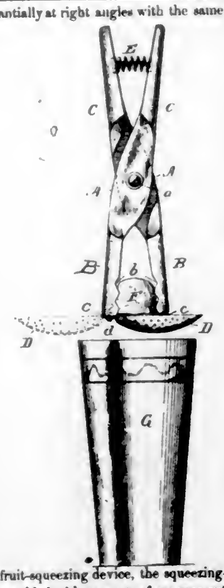
2. In combination with the squeezing-jaws of a fruit-squeezing device, said jaws constructed when drawn together, to grasp and squeeze the fruit, and when separated, to permit the fruit to drop from them, a perforated tray loosely attached to one of said jaws and arranged to move sidewise to and from a position under said jaws.

3. In combination with the squeezing-jaws of a fruit-squeezing device, a perforated tray loosely attached to the free end of one of said jaws and constructed to move in a direction substantially at right angles with the same, under and away from the jaws.

4. In combination with the squeezing-jaws of a fruit-squeezing device, a perforated tray pivoted to the free end of one of said jaws and constructed to swing on its pivot in a direction substantially at right angles with the same under and away from the jaws.

5. In combination with the squeezing-jaws of a fruit-squeezing device, said jaws constructed when drawn together, to grasp and squeeze the fruit, and when separated, to permit the fruit to drop from them, a concave perforated tray loosely attached to one of said jaws and arranged to move sidewise to and from a position under said jaws.

6. In a fruit-squeezing device, the combination with the crossed levers having the squeezing-jaws at one end and a spring between said levers for normally keeping the jaws apart, a perforated tray loosely attached to the free end of one of said jaws and constructed to move in a direction substantially at right angles with the same under and away from the jaws.



7. In a fruit-squeezing device, the squeezing-jaws having their operating-faces provided with two sets of grooves extending from points between two opposite edges to said edges, and in a direction toward the free ends of the jaws.

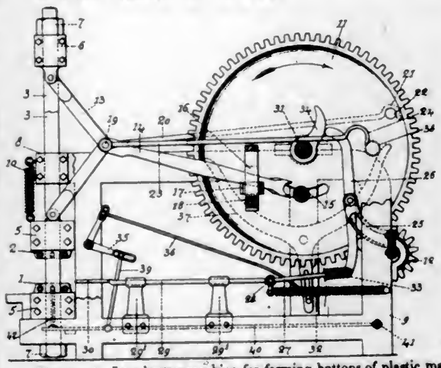
8. In a fruit-squeezing device the squeezing-jaws having their operating-faces provided with a groove extending longitudinally between two opposite edges of the jaws and two sets of grooves extending from said longitudinal groove to said edges and in a direction toward the free ends of the jaws.

9. In a fruit-squeezing device, the combination with the squeezing-jaws having outwardly-extending grooves in their operating sides, a perforated tray loosely attached to the free end of one of said jaws, and constructed to move in a direction substantially at right angles with the same under and away from the jaws.

10. In a fruit-squeezing device, the combination with the squeezing-jaws having outwardly-extending and diverging grooves in their operating sides, a perforated tray loosely attached to the free end of one of said jaws, and constructed to move in a direction substantially at right angles with the same under and away from the jaws.

11. In combination with the squeezing-jaws of a fruit-squeezing device and having their free ends flat, a perforated tray loosely attached to the free end of one of said jaws, and constructed to move in a direction substantially at right angles with the same under and away from the jaws.

659,347. BUTTON-MACHINE. Napoleon C. La Casse, Auburn, N. Y., assignor of one half to Benjamin U. Wilcox, same place. Filed Jan. 2, 1900. Serial No. 129. (No model.)



Claim.—1. In a button-machine for forming buttons of plastic material the knuckle-joint 13, between the top cross-head 6, and the upper die-bed 2, having spiral springs 10, 10, near either end provided at its flexing-point with the connecting-bar 14, the link-rod 20, having a hook 21, and the link-rod 23, having a hook 24; the main wheel 11, carried on the shaft 31, having the cam 34, and provided with a push-pin 15, on one side and a pin 22, on the other side thereof; a stirrup 16, having a buffer 17, and a buffer-spring 18, on the framework between the knuckle-joint and the shaft of the main wheel; and a vertical lever 26, pivoted centrally at one end of the framework and having a slotted rod 27, and spring 33, around said slotted rod at its bottom end the said slotted rod being pivoted to the end bar of the button-dischargers 29, and a spiral spring 32, between said button-dischargers and the rear end of the machine substantially as described and shown.

2. In a button-machine for forming buttons of plastic material the knuckle-joint 13, between the top cross-head 6 and the upper die-bed 2, having spiral springs 10, 10, near either end, provided with a connecting-bar 14, at its flexing-point combined with the main wheel 11, on the shaft 31, provided on one side with a push-pin 15, for engaging the free end of said connecting-bar 14, to straighten said knuckle-joint and a stirrup 16, having a buffer 17, and a buffer-spring 18, on the framework between the knuckle-joint and the shaft of the main wheel for sustaining said connecting-bar when its end is disengaged from said push-pin substantially constructed in the manner and for the purpose herein specified and shown.

3. In a button-machine for forming buttons of plastic material the knuckle-joint 13, between the top cross-head 6, and the upper die-bed 2, having spiral springs 10, 10, near either end, provided with the link-rod 20, at its flexing-point having a hook 21, on its outer end combined with the main wheel 11, on the shaft 31, provided on one side with the pin 22, on which the hook 21, of said link-rod 20, hooks for flexing said knuckle-joint substantially in the manner and for the purpose herein described and shown.

4. In a button-machine for forming buttons of plastic material the knuckle-joint 13, between the top cross-head 6, and the upper die-bed 2, having spiral springs 10, 10, near either end, provided with the link-rod 23, at its flexing-point having a hook 24, on its outer end combined with the shaft 31, of the main wheel 11, and hooking on said shaft when said knuckle-joint is straightened and adapted to prevent its outward flexion in the manner and for the purpose herein described and shown.

5. In a button-machine for forming buttons of plastic material the shaft 31, carrying the main wheel 11, having the push-pin 15, and the pin 22, provided with a cam 34, at one side of said main wheel in combination with the vertical lever 26, centrally pivoted in suitable place near the end of the framework 9, its top end adapted to ride against the said cam 34, and its bottom end sliding in the slotted end of the rod 27, against the spring 33, said rod 27, being pivoted to the end bar 28 of the button-dischargers 29, and connected rearwardly to the framework 9, by the spiral spring 32, adapted for retracting said button-dischargers and said vertical lever substantially in the manner and for the purpose herein described and shown.

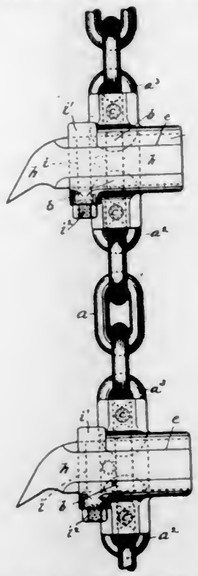
6. In a button-machine for forming buttons of plastic material the knuckle-joint 13, between the top cross-head 6, and the upper die-bed 2, having spiral springs 10, 10, near either end, provided at its flexing-point with the connecting-bar 14, the link-rod 20, having the hook 21, at its outer end and the link-rod 23, having the hook 24, at its outer end in combination with the main wheel 11, having the push-pin 15, on one side adapted to engage in the end of said connecting-bar 14, and the pin 22, on the other side adapted for the hooking on of the hook of said link-rod 20; the stirrup 16, on the framework having a buffer and buffer-spring and adapted to sustain said connecting-bar in position for engagement with said push-pin; and the shaft 31, of the said main wheel 11, on which the hook 24, of said link-rod 23, hooks provided with the cam 34, adapted to operate against the upper end of the centrally-pivoted vertical lever 26, the lower end of which is adapted to slide in the slotted end of the rod 27, against the spring 33, around said slotted end its other end being pivoted to the end bar 28, of the button-dischargers 29, and connected rearwardly to the framework 9, by the spiral spring 32, for retracting said button-dischargers and said vertical lever 26, the whole timed and arranged for joint operation substantially in the manner and for the purpose herein described and shown.

659,348. CUTTING-CHAIN FOR MINING-MACHINES. Henry H. Mercer, Claremont, N. H., assignor to the Sullivan Machinery Company, same place and Chicago, Ill. Filed Mar. 9, 1899. Serial No. 708,351. (No model.)

Claim.—1. In a chain-cutter for mining-machines, a cable-chain composed of welded links, a block on said chain, and a cutter carried by said block, substantially as set forth.

2. In a chain-cutter for mining-machines, a cable-chain composed of welded links, a block engaging said chain and detachably secured thereto, and a cutter carried by said block, substantially as set forth.

3. In a chain-cutter for mining-machines, an endless cable-chain composed of welded links, a sectional block engaging the links of said chain and secured thereto, and a cutter carried by said block, substantially as set forth.

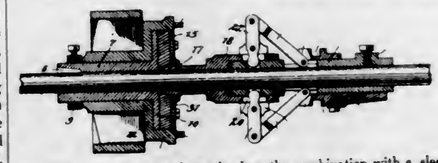


4. In a chain-cutter for mining-machines, an endless cable-chain composed of welded links, a block composed of sections having seats on their contiguous faces conforming to the links and adapted to receive the same and secured thereto, and a cutter carried by said block, substantially as set forth.

5. In a chain-cutter for mining-machines, an endless cable-chain composed of welded links, a block composed of sections adapted to engage the links of said chain and secured thereon, and a cutter extending out from each of said sections, substantially as set forth.

6. In a chain-cutter for mining-machines, an endless cable-chain composed of welded links, a block composed of sections adapted to engage the links of said chain and secured thereon, said sections having seats formed in their outer surfaces, and cutters fitting in said seats, substantially as set forth.

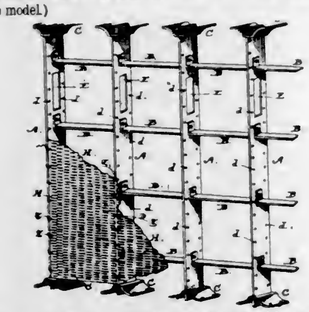
659,349. CLUTCH. Herman Moon and Duward McMurren, Grove City, Pa. Filed June 1, 1900. Serial No. 18,769. (No model.)



Claim.—1. In a clutch mechanism, the combination with a sleeve having a flanged web, said flange having slots therethrough of a pulley disposed loosely on the sleeve and provided with a flange which encircles the flange of the web, clutch members having stems slidably engaged with the slots and having segmental heads lying between the flanges, the inner ends of the stems being beveled, arc-shaped stop-blocks upon the stems, bow-springs disposed with their ends against the web-flange and each with its bow against the ends of mutually-adjacent stop-blocks to hold the members normally retracted with the ends of the blocks in contact to hold the beveled ends of the stems spaced, and means for engagement with the beveled portions of the members to move them radially.

2. In a clutch mechanism, the combination with cooperating clutch-faces and their carrying members, of a reciprocatory sleeve adapted for engagement with one member to operate it, said sleeve having slots therein, a second sleeve projecting into the first sleeve and adapted for attachment fixedly with a shaft the second sleeve having recesses therein, levers pivoted to the first sleeve and engaging the recesses of the second sleeve, a collar on the second sleeve and having link connections with the levers, a finger upon the collar slidably engaged with the second sleeve to prevent rotation with respect thereto, and means for reciprocating the collar.

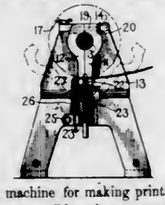
659,350. SHEET-METAL FRAMEWORK FOR PARTITIONS. THOMAS F. OSBORN, Oakland Cal. Filed Apr. 5, 1900. Serial No. 11,713. (No model.)



Claim.—1. The improved framework for partitions, comprising the uprights A having openings for pipes, &c., shoes securing the ends of the uprights to the floor and ceiling, braces at intervals formed of separate strips having at their ends feet at right angles to the plane of their bodies, which feet are attached to the uprights, and the lacing-holes along the edges of the uprights, as described.

2. A structure for metal partitions in buildings comprising the upright strips of sheet metal corresponding approximately in width to the thickness of the partition required, means for securing in place the top and bottom ends of the upright strips, braces arranged diagonally to the uprights and between them in pairs whereof the members stand in parallel planes and are connected at their point of crossing, feet at the ends of said braces bent at right angles to their bodies and their plane and riveted to the uprights, holes for lacing-wires in the upright strips along the marginal edges thereof, and lathing covering the space between the uprights and secured in said holes, as described.

659,351. PRINTING-PRESS. GEORGE E. PANCOAST, New York, N. Y., assignor to the American Lithographic Company, of New York. Filed Mar. 6, 1900. Serial No. 7,447. (No model.)



Claim.—1. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

2. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

3. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving scraper arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

4. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding scraper arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

5. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; means for holding one end of the flexible body in fixed position, and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

6. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a holding device carried by the frame of the machine and adapted to engage one end of the flexible body and hold it in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

7. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved, a clamping device carried by the main frame of the machine and adapted to engage one end of the flexible body and hold it fixed in position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

8. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; means for holding one end of the flexible body in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding-pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

9. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; means for holding one end of the flexible body in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving scraper arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

10. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a holding device carried by the frame of the machine and adapted to engage one end of the flexible body and hold it in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving scraper arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

11. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a clamping device carried by the main frame of the machine and adapted to engage one end of the flexible body and hold it in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding scraper arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

12. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

13. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a support for said curved body from which it is removable and replaceable; preëstablished guides whereby said curved body may be mounted in exact predetermined position both longitudinally and transversely; means for holding one end of the flexible body in fixed position; preëstablished guides whereby said flexible body may be held in exact predetermined position both longitudinally and transversely; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form in exact predetermined position.

14. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

15. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body, while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

16. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; means for holding one end of the flexible body in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

17. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a holding device carried by the frame of the machine and adapted to engage one end of the flexible body and hold it in fixed position; and means for bringing said bodies together in progressive transferring contact; said means including a revolving pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

18. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; a suitable printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, one of said bodies being flexible and the other curved; a support for said curved body from which it is removable and replaceable; preëstablished guides whereby said curved body may be mounted in exact predetermined position both longitudinally and transversely; means for holding one end of the flexible body in fixed position; preëstablished guides whereby said flexible body may be held in exact predetermined position both longitudinally and transversely; and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding pressure device arranged to revolve around the said curved body while simultaneously bearing upon the said flexible body on its outer side and pressing it radially against said curved body, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

19. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible, said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

20. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, and means for bringing said bodies together in progressive transferring contact, said means including a revolving yielding pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form,

whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

21. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface; and means for bringing said bodies together in progressive transferring contact, said means including a revolving scraper arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

22. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, means for holding one end of the basic surface in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

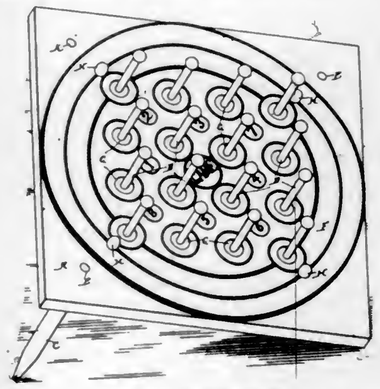
23. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, a holding device carried by the frame of the machine and adapted to engage one end of the basic surface and hold it in fixed position; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

24. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface, and means for bringing said bodies together in progressive transferring contact; said means including a revolving pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form, whereby the design or designs of the basic surface are progressively imposed upon the printing-form, and preëstablished guides whereby said design or designs may be imposed upon the printing-form in exact predetermined position both longitudinally and transversely.

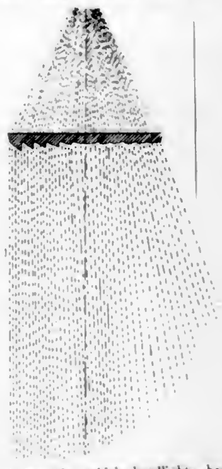
25. In a machine for making printing-surfaces, the combination of a suitable non-expansible and non-contractible basic surface having fixed thereto a design or designs so that the design is non-expansible and non-contractible; said basic surface comprising a flexible sheet; a suitable curved or cylindrical printing-form adapted to have a design imposed upon it and to be thereafter developed into a printing-surface; a support for said printing-form from which it is removable and replaceable; preëstablished guides whereby said printing-form may be mounted in exact predetermined position both longitudinally and transversely; means for holding one end of the basic surface in fixed position; preëstablished guides whereby said basic surface may be held in exact predetermined position both longitudinally and transversely; and means for bringing said bodies together in progressive transferring contact, said means including a revolving pressure device arranged to revolve around said printing-form while simultaneously bearing upon said flexible basic surface on its outer side and pressing it radially against the printing-form, whereby the design or designs of the basic surface are progressively imposed upon the printing-form.

659,352. COMBINATION-TARGET. WILLIAM R. PARK, Philadelphia, Pa. Filed Nov. 27, 1899. Serial No. 738,327. (No model.)

Claim.—In combination, a target comprising a board suitably shaped and supported having holes therein, a series of pins set in the front of the board and having heads on their free ends, disks suitably stamped or printed having holes, said disks being adapted to pass over the pins of the board, and pegs adapted to pass through the disk and be inserted in certain of the holes in the board, said pegs having knobs on their free ends adapted to bear against and rigidly hold the disks in place.



659,353. HEADLIGHT-LENS. JULIAN H. PITKIN, Chicago, Ill. Filed May 11, 1900. Serial No. 16,322. (No model.)



Claim.—1. A lens for vehicle-headlights, having a continuous prism, the angle of whose emergent surface varies throughout the length thereof.

2. A lens for vehicle-headlights provided with a series of continuous annular prisms, the angle of each of which varies throughout the prism.

3. A lens for vehicle-headlights provided with a series of continuous annular prisms, the angle of each of which varies from the bottom to the top of the lens.

4. A lens for vehicle-headlights provided with a series of continuous annular prisms, the angle of each of which increases progressively from the bottom to the top of the lens.

5. A lens for vehicle-headlights provided with a series of continuous annular prisms varying in angle as between themselves, and the angle of each of which varies throughout the prism.

6. A lens for vehicle-headlights provided with a series of continuous annular prisms varying in angle as between themselves, and the angle of each prism varying continuously from the bottom to the top of the lens.

7. A lens for vehicle-headlights having a series of continuous annular prisms arranged on one face thereof, the angle of each of which varies throughout the prism, the incident surface of all the prisms being in the same plane.

8. A lens for vehicle-headlights having a continuous prism, the angle of whose emergent surface varies throughout the length of the prism, said prism having its emergent surface curved transversely.

9. A lens for vehicle-headlights having a plurality of prisms arranged concentric to each other and to the source of light, and the angle of whose emergent surfaces varies throughout the length of the prisms, said prisms having their emergent surfaces curved transversely.

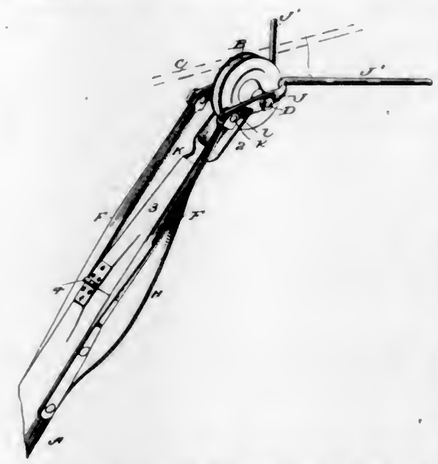
659,354. DOOR. JAMES A. WHEELER, Oswego, N. Y. Filed Jan. 18, 1900. Serial No. 1,856. (No model.)



Claim.—1. As an improved article of manufacture, a door or analogous article formed in one piece of solidified artificial compound cement and reinforced and protected by a metallic frame embracing said article around the edges thereof as set forth.

2. A door or analogous article composed of solidified compound cement and formed with an internal cavity and a metallic frame embracing said article around the edges thereof as set forth.

659,355. TROLLEY FINDER AND GUARD. HARRY C. WILLIAMS, Pasadena, Cal. Filed Apr. 26, 1900. Serial No. 14,486. (No model.)

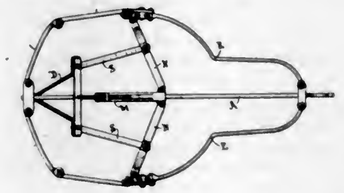


Claim.—1. In a trolley-finder, a swinging frame carried by the trolley-pole and carrying the trolley-wheel and adapted to be forced downwardly and rearwardly by the resistance of the wire when the wheel is placed thereon, a spring for returning the said frame to an upright position when the resistance is removed, and a pivoted finder movable with the swinging frame and adapted to lie below the wire when said frame is depressed and to assume an upright position when the swinging frame is actuated by said spring, substantially as described.

2. In a trolley-finder, a swinging frame, a trolley-wheel carried by the frame, a spring to resist the downward and rearward movement of said frame and return it to its normal position, and finder-arms intermediately pivoted and carried by the frame and having their inner ends connected to work in guides, substantially as described.

3. In a trolley-finder, a trolley-pole, standards upon the pole, a swinging frame pivoted to and mounted to swing between said standards, a spring bearing upon the frame to resist its downward and rearward movement, a trolley-wheel carried by the swinging frame, and finder-arms intermediately pivoted to the frame and having their inner or lower ends loosely connected with the upper ends of the standards, substantially as described.

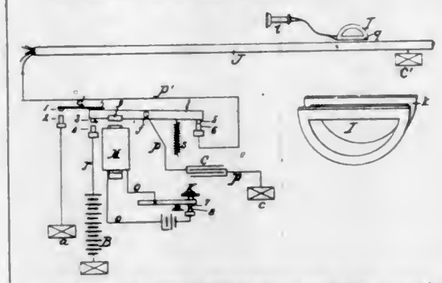
659,356. CULTIVATOR. FRANK L. YOUNG, Lockport, N. Y. Filed Jan. 8, 1900. Serial No. 713. (No model.)



Claim.—1. In a cultivator, the combination of a central bar, flexibly-jointed three-part side bars carrying cultivator-teeth upon each side of the central bar and hinged thereto at front and rear, and mechanism for expanding and contracting said side bars.

2. In a cultivator, the combination, with the central bar and two main side bars hinged thereto at the forward end, of two laterally-projecting side bars hinged to the rear of said central bar, connecting-bars pivotally connected to the free ends of said main and rear side bars, additional and auxiliary teeth carried by the rear side bars and the connecting-bars, and mechanism for expanding and contracting the main side bars.

659,357. APPARATUS FOR LOCATING FAULTS IN ELECTRIC CIRCUITS. WILLIAM E. ATKEARN, New York, N. Y. Filed Jan. 23, 1899. Serial No. 703,094. (No model.)



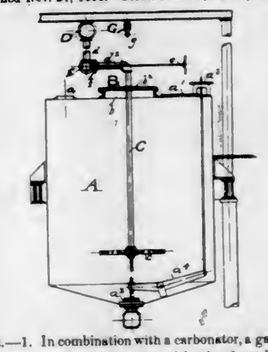
Claim.—1. For locating faults in electric circuits the combination of a double-contact relay having one of its contacts connected with the faulty line and its other contact connected with a grounded battery, the lever of said relay connected with a grounded condenser and actuated by an interrupted local circuit, and an inductor in circuit with an indicator held contiguous to the faulty circuit, substantially as herein shown and described.

2. For locating faults in electric circuits the combination with the faulty circuit of a double-contact relay, a local battery or other source of current connected with one of the contacts of the relay and the ground, the faulty circuit connected with the other contact of said relay, a condenser connected with the lever of said relay and the ground, a local source of current and an interrupter for energizing the magnet of said relay, and an inductor in circuit with an indicator, all substantially as herein shown and described.

659,358. PROCESS OF PRODUCING HOMOGENEOUS HORN SUBSTANCES. JOHANN G. BIERICH, Menkenhof, Russia. Filed Oct. 5, 1899. Serial No. 732,690. (No specimens.)

Claim.—The process for producing homogeneous horn substance from horn cuttings, horn shavings and the like consisting in cleaning the material, mixing the same with glycerin, subjecting the mixture to a temperature of about 100° Celsius for about forty minutes and at a pressure of about two hundred atmospheres, said process being carried on under exclusion of air, substantially as described.

659,359. CARBONATATION-VAT. EDMUND C. BURR, San Francisco, JOHN C. H. STUT, Oakland, and JOHN W. ATKINSON, Santa Maria, Cal. Filed Nov. 27, 1899. Serial No. 738,475. (No model.)

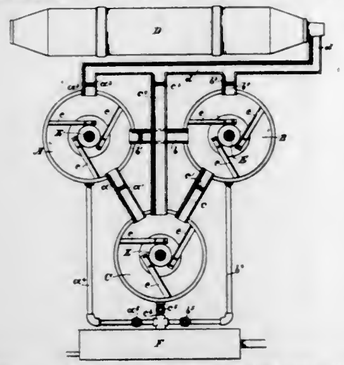


Claim.—1. In combination with a carbonator, a gas-introducing pipe extending down into the carbonator and having branches upon its lower

end, a removable cover for the carbonator to which said gas-introducing pipe is secured adapting it to be lifted with the cover, said cover covering and adapted to expose an opening in the carbonator of sufficient area to permit the passage of the gas-pipe branches through it, fixed gas-supply pipes, and detachable connections between said gas-introducing pipes and the fixed gas-supply pipes, said connections being located to one side of the vertical plane of the cover whereby the latter may be lifted off and its attached pipes raised from the carbonator without interference with said fixed gas-supply pipes.

2. In combination with a carbonator, a sectional cover therefor, the parts of which are separately removable, gas-introducing pipes depending within the carbonator and passing through and secured one to each section of the cover, fixed gas-supply pipes, detachable connections between said pipes and the fixed gas-supply pipes, said connections being located to one side of the vertical plane of the cover whereby the latter with its pipes may be removed from the carbonator without obstruction, a valve in the fixed pipes controlling the supply of gas to the removable pipes and a valve-stem for operating said valve and passing transversely above the cover in the plane of the division of its sections whereby it will not obstruct their removal.

659,360. LIME-TANK FOR SUGAR-FACTORIES. EDMUND C. BURR, San Francisco, JOHN C. H. STUT, Oakland, and JOHN W. ATKINSON, Santa Maria, Cal. Filed Nov. 27, 1899. Serial No. 738,477. (No model.)



Claim.—1. In combination with a milk-of-lime supply, two lime-settling tanks A, B, each communicating with said supply, means for controlling the communication with each tank, a third lime-settling tank communicating with each of the tanks A, B, and a pump communicating with the third tank and from which it draws the milk of lime, substantially as and for the purpose described.

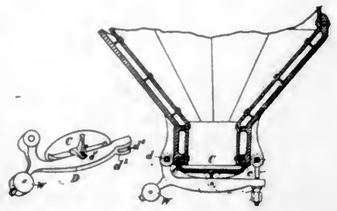
2. In combination with a milk-of-lime supply, a group of lime-settling tanks two of which A, B, communicate with said supply and each of which communicates by an overflow with a third tank, means for separately controlling the communication from said supply to said two tanks A, B, and a pump connecting with said group of tanks and adapted to draw the milk of lime therefrom, substantially as and for the purpose set forth.

3. In combination with a milk-of-lime supply-conduit *d*, two lime-settling tanks A, B, each having a valve-controlled connection with said supply-conduit *d*, a third tank C, an overflow from each of the tanks A, B, to the tank C, means for separately controlling said overflow, a pump communicating with the third tank C and from which it draws the milk of lime and adapted to supply a pipe system, substantially as described.

659,361. RELEASING MECHANISM FOR DIFFUSION-CELL DOORS. EDMUND C. BURR, San Francisco, JOHN C. H. STUT, Oakland, and JOHN W. ATKINSON, Santa Maria, Cal. Filed Nov. 27, 1899. Serial No. 738,478. (No model.)

Claim.—1. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, and having a connection between its extremities with said bottom-cover, and a swinging bolt, having a nut adapted to bear up under the free extremity of said yoke-bar, the under surface of which, forming the bearing for the nut, being curved, to permit the nut and bolt to swing outwardly.

2. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, connected with the bottom-cover, and having, at its other extremity, a fork, the under surface of which is rounded or convexed to its outer end, a swinging bolt, adapted to enter the fork extremity of the yoke-bar, and a nut on the lower end of said bolt adapted to bear under the curved under surface of said forked extremity of the yoke-bar.



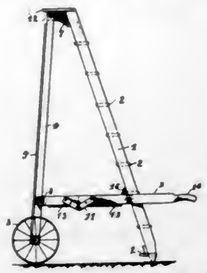
3. In combination with a cell or tank, having a bottom-cover, a yoke-bar pivoted at one extremity, and having a connection with the bottom-cover, a swinging bolt, and a nut thereon adapten to engage the curved free extremity of said yoke-bar, and means for engaging said nut to pull the swinging bolt out and free the yoke-bar and bottom-cover.

4. In combination with the bottom-cover of a cell or tank, a holding mechanism therefor, consisting of a pivoted yoke-bar, a swinging bolt, and a nut thereon, and a releasing mechanism, consisting of a pivoted lever, and a connected link having means for engaging the nut.

5. In combination with the bottom-cover of a cell or tank, a holding mechanism therefor, consisting of a pivoted yoke-bar, having a curved or convex under surface at its free extremity, a swinging bolt, and a nut on said bolt adapted to bear under said curved or convex surface of the yoke-bar extremity, and a releasing mechanism, consisting of a pivoted lever, and a connected link, having means for engaging the nut.

6. In a diffusion-battery, having a series of cells each with a bottom-cover, a means for holding each bottom-cover, consisting of a pivoted yoke-bar, a swinging bolt, and a nut thereon to engage the free end of the yoke-bar, a means for releasing said holding means, consisting of a portable lever, and a pulling-link carried by said lever, and having a means for detachably engaging the nut of the swinging bolt, and a series of bearings, corresponding to the diffusion-cells, in any of which the portable lever may be pivoted.

659,362. STEP-LADDER. JOHN S. BUTLER, Palo Alto, Cal. Filed Mar. 22, 1899. Serial No. 710,062. (No model.)



Claim.—1. A portable step-ladder, having parallel side rails 1, pointed at the bottom, pivoted rear supports 4, wheels 3, cross-rails 8, rule-jointed barrow-rails 9, pivoted to said cross-rails, handles 10 on said barrow-rails, members 14, latches 16, and platform 13, substantially as specified.

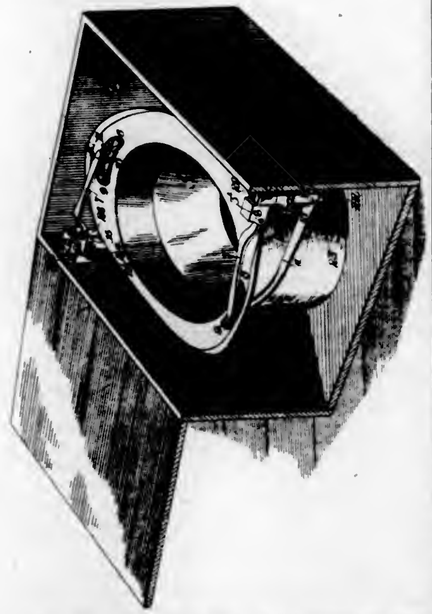
2. A portable step-ladder, having parallel side rails 1, pointed at the bottom, pivoted rear supports 4, extended axle 6, diagonal braces 5, wheels 3, cross-rails 8, rule-jointed barrow-rails 9, pivoted to said cross-rails, and two-part platform 13, substantially as specified.

659,363. HAT-HOLDER. JOHN J. CANNAN, Rochester, N. Y. Filed Feb. 6, 1900. Serial No. 4,210. (No model.)

Claim.—1. In a hat-holder, the combination with a base, the stationary arms thereon having the narrow plates upon their extremities adapted to support the hat-brim at its ends, of the movable arms pivoted to the base and having the narrow plates upon their outer ends adapted to engage the brim directly opposite the supporting-plates, the shoulders on the arms in rear of the pivots, and the springs operating against the shoulders to hold the arms in the operative position.

2. In a hat-holder, the combination with a base-plate adapted to be mounted upon a stationary support, of the holding-arms relatively movable toward and from each other, pivotally connected to the base to swing together thereon, means for arranging the arms, and a stop for limiting their outward movement.

3. In a hat-holder, the combination with a base-plate mounted upon a stationary support, of a plate pivoted to the support to turn thereon having the stationary arm and the coöperating movable arm, means for turning the plate on its pivot with the arms extended, and an adjustable stop for limiting its outward movements.



4. In a hat-holder, the combination with a base-plate, the coöperating arms having the narrow plates thereon adapted to engage upon the opposite sides of a hat-brim, said arms being connected upon their inner ends, of a pivotal connection between the arms and the base, a stop for limiting their outward movement, and a catch for retaining the arms when moved out of operative position.

5. In a hat-holder, the combination with a base-plate, the arms engaging opposite sides of the hat-brim and connected upon the ends, of the pivotal connection between the arms and the base, a spring-catch for retaining the arms when the latter have been moved out of operative position, spring connections for extending the arms when the catch is released, and an adjustable stop for limiting their outward movement.

6. In a hat-holder, the combination with a base having the stationary arm provided with a hat-support, a movable arm coöperating with the support, and means for holding the latter in operative position, of a stationary support, a pivotal connection between the support and the base, means for holding the arms extended, a stop for limiting their outward movement, and a retaining device operating to hold the arms when moved out of operative position.

7. In a device for holding hats adapted to support a hat by engaging its brim at opposite ends, the combination with a support having the brackets, of the base having the engaging arms, and the brackets pivotally connected to the support, the spring-catch on the latter engaging the base to retain the arms when moved out of the operative position, a yielding connection between the base and support holding the arms in operative position, and an adjustable stop for limiting their movement in one direction.

8. In a hat-holder, the combination with a base having the stationary arm provided with a hat-support, a movable arm pivoted to the base and coöperating with the support, the shoulder on the end of said arm, and the spring attached to the base and bearing thereon, of the stationary support, pivotal connections between it and the base, a spring-catch for retaining the arms when moved out of the operative position, spring connections between the support and the base for returning the latter to the normal position, and an adjustable stop for limiting the outward movement of the arms.

9. In a hat-holder, the combination with the base, of a stationary arm thereon having the narrow plate at its end, of the movable arm pivoted on the base, and a narrow plate loosely pivoted on said arm and adapted to engage upon opposite sides of the hat-brim to clamp the latter between them.

10. The combination with a stationary support, of two holders for coöperating with a hat-brim upon opposite sides of the crown, each embodying a stationary arm, having a narrow plate at its end, arranged at an angle to said arm for engaging flatly against one side of the hat-brim, and a movable arm having a correspondingly-narrow plate loosely mounted upon its end and adapted to engage the other side of the hat-brim.

11. The combination with a stationary support, of two holders for coöperating with opposite ends of a hat, each embodying a stationary arm mounted upon a base secured to the support, and a narrow plate thereon for engaging one side of a hat-brim, and a movable arm pivoted to said base and having the loosely-pivoted plate thereon for coöperating with the other side of the brim, and means for pressing the arms together.

12. In a hat-holder, the combination with the stationary arm mounted upon a base having the narrow plate at its end adapted to engage a hat-brim, of a movable opposing arm pivoted to said base having a narrow plate adapted to engage the opposite side of a hat-brim, one of said plates being inclined and the other having a pivotal connection with its arm whereby it may engage flatly against the brim, and means for holding the plates together with a hat-brim between them.

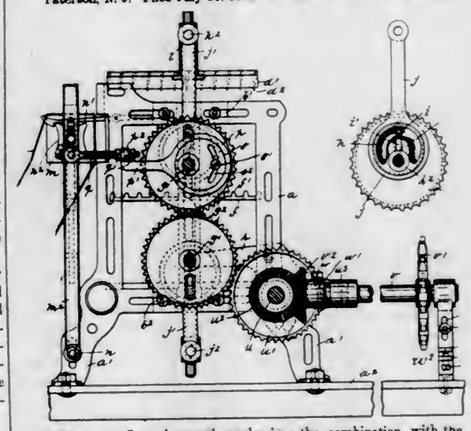
13. In a hat-holder, the combination with a support, the relatively-movable arms connected to a base and mounted on the support, each having the narrow curved plates at their ends for engaging opposite sides of a hat-brim, one of said plates being slightly inclined and the other movable relative its supporting-arm to engage flatly against the brim, and means for holding the arms in engagement with opposite sides of a hat-brim.

14. The combination with a stationary support, of the arms thereon adapted to engage one side of a hat-brim upon opposite sides of the crown, engaging members resting upon the opposite side of the brim above the stationary arms, movable connections between the members upon one side of the hat-brim and the support, and means upon the latter for holding said members in engagement with the hat-brim.

15. The combination with a stationary support or receptacle having the elongated apertures in its sides, the holders arranged upon opposite sides of the crown of the hat embodying a base provided with the stationary arm having the narrow plate at its end, the movable arm pivoted on the base, and the narrow plate loosely mounted on said arm coöperating with the former plate to engage a hat-brim between them, of the bolts extending through the aperture and engaging each holder, whereby the latter may be adjusted relatively.

16. In a hat-receptacle having the elongated apertures in its sides, the combination with a hat-holder adapted to be arranged upon opposite sides of the crown of the hat embodying a base-plate, coöperating arms having the narrow plates thereon adapted to engage upon the opposite sides of a hat-brim connected together upon their inner ends, pivoted connections between the arms and the base, and a stop for limiting their outward movement, of a bolt extending through the aperture and engaging the base of each holder and permitting the latter to be adjusted relatively to support hats of various sizes.

659,364. JACQUARD MECHANISM FOR LOOMS. JOHN DEAN, Paterson, N. J. Filed July 28, 1899. Serial No. 725,368. (No model.)



Claim.—1. In a jacquard mechanism, the combination, with the frame, of gears journaled therein, reciprocating grids arranged in said frame, operative connecting means between said gears and the grids, brackets fulcrumed in said frame concentrically with said gears, a revoluble shaft carried by said brackets, gears carried by said shaft and intermeshing with

said first-named gears, another revoluble shaft carried by one of said brackets, gearing connecting said shafts, and means for adjustably supporting the free end of said last-named shaft, substantially as described.

2. In a jacquard mechanism, the combination, with the frame, of gears journaled therein, reciprocating grids arranged in said frame, operative connecting means between said gears and the grids, brackets fulcrumed in said frame concentrically with said gears, means for adjustably securing said brackets to the frame, a revoluble shaft carried by said brackets, gears carried by said shaft and intermeshing with said first-named gears, another revoluble shaft carried by one of said brackets, bevel-gearing connecting said shafts, and means for adjustably supporting the free end of said last-named shaft, substantially as described.

659,365. **STRAINER FOR FAUCETS.** ALFONSO G. DE WALDO, Warren, Ohio. Filed Aug. 8, 1900. Serial No. 26,300. (No model.)



Claim.—1. A strainer for faucets, consisting in a thimble, having an open upper end and a closed lower end, the latter being provided with a plurality of centrally-located perforations forming the strainer, said perforate portion of the bottom being depressed or deflected into the thimble and forming an inner annular packing-ring seat surrounding the strainer.

2. A strainer for faucets, consisting in a tubular body, having a strainer therein, and an outer marginal bead, a ring loosely embracing the thimble, and fastenings passing through the ring and the thimble and also projecting into the interior of the latter.

3. In a strainer for faucets, a thimble, having an open upper end, a closed perforate lower end, and an external bead at the upper edge of the thimble, the latter also having diametrically-opposite perforations adjacent to the bead, a ring detachably embracing the thimble and fitting against the under side of the bead, and provided with screw-threaded perforations registering with the perforations of the thimble, and fastenings having screw-threaded shanks passing through the corresponding perforations and entering the interior of the thimble.

659,366. **BATH-CABINET.** JOSEPH V. ELLIOTT, Santa Barbara, and CLINTON IDLOR, San Francisco, Cal. Filed Dec. 23, 1899. Serial No. 741,485. (No model.)

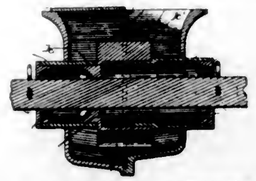


Claim.—1. In a bath-cabinet, the combination with a suitable base and a back hinged to swing from the base to a position approximately at right angles therewith, of a frame hinged to shut against the back when in such position, a covering connecting the marginal portions of the frame and base, and means within the covering for locking and releasing the frame.

2. In a bath-cabinet, the combination with a suitable base and a back hinged thereto to swing from the base to a position approximately at right angles therewith, a frame hinged to shut against the vertical back and to swing therefrom toward the base, a second frame hinged to swing from the base to a position approximately midway between the base and the vertical plane of the first frame, means for locking and releasing the first frame, and a covering of flexible material connecting the corresponding margins of the two frames and the base, substantially as set forth.

3. In a bath-cabinet, the combination with a suitable base and a back hinged to swing from the base to a position at right angles therewith, a frame hinged to shut against the vertical back and having at its upper member the pivoted rod provided with the bend to pass around the neck, and a flexible covering connecting the marginal portions of the frame and base, substantially as set forth.

659,367. **FEEDING MECHANISM FOR GRAIN-DRILLS.** ROBERT GALLOWAY, Buffalo, N. Y. Filed Aug. 8, 1900. Serial No. 26,299. (No model.)



Claim.—1. In a grain-distributer, the combination with the casing having two seed-runs and the dividing-wall between said runs, of a single feed-wheel adjustably mounted to project into and operate said runs.

2. In a grain-distributer, the combination with the casing having two seed-runs of different sizes, and the partition dividing said runs, of a single feed-wheel longitudinally movable from one run to the other; substantially as described.

3. The combination with a casing for a seeding mechanism having two runs of different capacities, and a partition dividing said runs, of a feeding-wheel adjustable through said partition more or less into either run and means for controlling the longitudinal adjustment of said wheel; substantially as described.

4. In a seeding mechanism the combination with a casing having two runs therethrough of different capacity and a rotary disk constituting a partition between said runs, of a feeding-wheel adjustable longitudinally through said partition so as to be projected more or less into either of said runs at will and a controlling mechanism for said feed-wheels substantially as described.

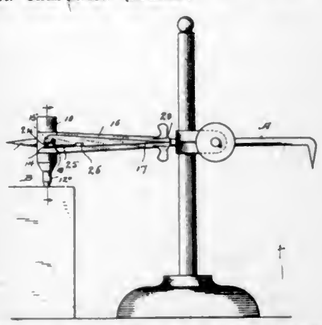
5. In a double-run seeding mechanism the combination with a casing having runs therethrough one of greater capacity than the other, a feeding-wheel adjustable longitudinally in said casing so as to operate in either run and a disk constituting the partition between said runs and through which the feed-wheel is adjusted, said disk extending to the bottom of the larger run; substantially as described.

6. In a double-run seeding mechanism the combination with the casing having the two runs therethrough, the central rotary disk constituting the partition between said runs and the feed-wheel adjustable longitudinally through said disk, of the cut-offs located on opposite sides of the feed-wheel and having cut-off wings working through the sides of the casing; substantially as described.

7. In a double-run seeding mechanism, the combination with the casing, the centrally-arranged rotary disk constituting the partition between the runs, the feed-wheel adjustable through said disk, of the cut-offs located on opposite sides of the feed-wheel with cooperating bearings and cylindrical projections for maintaining the alinement of said cut-offs and feed-wheel and disks mounted outside of said cut-offs for holding the outer ends of the cut-offs in alinement; substantially as described.

8. In a double-run seeding mechanism the combination with the casing having two seed-runs of different sizes, the dividing-disk between said runs and the bridge, of a single feed-wheel adjustable through said disk, the feed-shaft, the cut-offs on either side of the feed-wheel and the disks or hubs mounted on the feed-shaft and supporting the cut-offs, substantially as described.

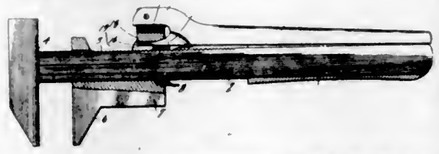
659,368. **TRUING-GAGE.** JOHN E. HABERLIN, WILLIAM R. HABERLIN, and TIMOTHY F. HAYES, Bridgeport, Conn. Filed Jan. 3, 1900. Serial No. 216. (No model.)



Claim.—1. In an instrument of the character described, the combination with a body having a slot 15 and a fixed pin 22 and an arm extending from said body, of a plunger socketed in the body, a spring acting directly upon the plunger for forcing the latter forward, a pin 14 projecting from the plunger through the slot 15 and serving to limit the movement of the plunger, and a pointer pivoted on the pin 22 and having a slot engaged by the pin 14.

2. In an instrument of the character described, the combination with a body having a slot 15 and a fixed pin 22 and an arm extending from said body, of a plunger socketed in the body, a spring acting directly upon the plunger for forcing the latter forward, a pin 14 projecting from the plunger through the slot 15 and serving to limit the movement of the plunger, and a pointer pivoted on the pin 22 and having a slot 24 one wall of which consists of a spring, said slot being engaged by the pin 14.

659,369. **WRENCH.** JOSEPH A. HENSLER, Akron, Colo., assignor of one-half to August Nauntzing, same place. Filed Mar. 24, 1900. Serial No. 10,061. (No model.)



Claim.—1. In a wrench, the combination of a handle having a shank with a fixed jaw thereon and teeth on one edge, a movable jaw mounted on the said shank, a lever pivotally connected to the movable jaw and having a key at the front extremity thereof, and a spring-actuated gib, having teeth to engage those of the shank, the said gib being operated to engage the shank by the key slidably moving thereagainst.

2. In a wrench, the combination of a handle having a shank with teeth on one edge and a fixed jaw, a jaw movably mounted on said shank and having bearing-arms connected by a transverse bridge-web, an operating-lever pivotally mounted in said arms and having an inner key reduced toward its free terminal and movable inside of the plane of the bridge-web, and a spring-actuated gib having portions movably engaging the said bridge-web and through a part of which the said key loosely extends and operable to bring the gib in clamping contact with the shank, the said gib having teeth to engage those of the shank.

3. In a wrench, the combination of a handle having a shank with teeth on one edge and a fixed jaw, a movable jaw on the shank, a lever pivotally connected to the said movable jaw, a gib having teeth to engage those of the shank, and a bowed spring located in its engaging face to normally throw it out of locking contact with the shank, the said gib being held within a part of the movable jaw and operated by a portion of the lever.

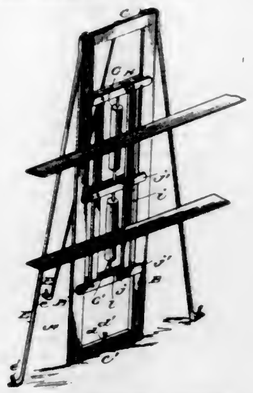
4. In a wrench, the combination of a handle having a shank with teeth in one edge and a fixed jaw, the said handle also having one portion thereof longitudinally slotted to form a seat, a jaw movably mounted on the said shank and provided with bearing-arms connected by a transverse bridge-web, a lever pivotally mounted in the said bearing-arms and having a key extending from the inner part of the head thereof and reduced toward its free terminal, the said key being located between the bridge-web and the shank, a gib having teeth to engage those of the shank and end bearing-lugs to contact with the front and rear portions of the bridge-web, the rear lugs being longitudinally slotted to permit loose movement therethrough of the key, and a bowed spring situated in the inner engaging face of the gib, the slotted portion of the handle receiving the lever when the latter is moved inwardly toward the same.

659,370. **GUIDE FOR DRIVE-BELTS.** VERNON D. KERN, Estherville, Iowa. Filed Feb. 15, 1900. Serial No. 5,374. (No model.)

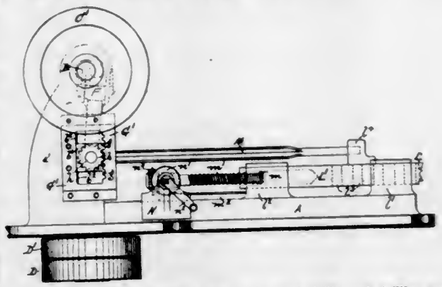
Claim.—1. In a brace and guide for drive-belts, the combination of a frame, metallic loops or keepers upon the side of the frame adjacent to the upper edge thereof, and removable brace-rods provided with laterally-bent upper ends to bear upon the upper edge of said frame and depending hooks to fit into said loops or keepers, substantially as described.

2. In a brace and guide for drive-belts, the combination of an open rectangular frame, a carrier slidably mounted in the frame and comprising vertical slats and horizontal slats, the latter being arranged in pairs with the slats of each pair located upon opposite sides of the frame and having their ends extended and overlapping the frame and forming guides for the carrier, and rollers mounted one above the other in vertical alinement on said carrier in the open spaces between said sets of slats, substantially as described.

3. In a brace and guide for drive-belts, the combination of an open rectangular frame having rack-teeth upon the inner edges of its standards or side pieces, a roller-carrier adjustably mounted in the frame, locking-pawls to engage said rack-teeth, and a lever pivoted to the carrier and adapted to be operated to throw the pawls into and out of engagement with the rack-teeth, substantially as described.



659,371. **MACHINE FOR SHARPENING ROCK-DRILLS, &c.** WALTER E. KIMBER, Johannesburg, South African Republic. Filed Mar. 3, 1899. Serial No. 707,664. (No model.)



Claim.—1. A machine for sharpening rock-drills, rock-drilling-machine bits and the like, constructed with a sharpening tool or die corresponding to the cutting-face of the drill, said sharpening-die being sunk on a curved surface or formed with a rounded or curved working face adapted to roll or rotate over the cutting-face of the drill or tool to be sharpened.

2. In a machine for sharpening rock-drills, the combination with a sharpening tool or die sunk on a circular or curved surface or with a rounded or circular working face corresponding to the cutting-face of the drill and means for holding and centering the drill or maintaining the cutting-face thereof coincident with the sharpening-die substantially as described.

3. In a machine for sharpening star-bits, the combination with a sharpening-die, consisting of two intersecting V-shaped grooves cut in a rounded or curved surface and constituting a circular or curved working face therefor corresponding to the cutting-face on the extremity of the drill said die being adapted to be rolled over the cutting-face of the drill, of means for obtaining due coincidence of the sharpening-die and the cutting-face of the drill and for supporting the drill endwise and feeding it forward to the die as the sharpening proceeds substantially as described.

4. A machine for sharpening rock-drills and rock-drilling-machine bits constructed with a roll carrying a die or impression of the cutting-face of the drill on the extremities of which roll pinions are secured which gear into fixed racks to rotate the roll as it is reciprocated and a stationary plate arranged in front of the roll in which the drill is centered and held while being sharpened, substantially as described.

5. A machine for sharpening rock-drills and rock-drilling-machine bits comprising a roll carrying a die or impression of the cutting-face of the drill, pinions fixed to the extremities of said roll, stationary racks into which the pinions gear to effect a positive rotation of the roll as it is reciprocated, a stationary plate fitted with adjustable holding and centering devices arranged in front of the roll in which the drill is secured during the sharpening process, substantially as described.

6. In a machine for sharpening rock-drills and rock-drilling-machine bits, in combination, the roll E, the pinions *h* fixed to the ends of the roll, the plates G G′ formed with an open center and provided with teeth *g* on

their front inner vertical edges with which the pinions mesh or gear to rotate the roll as it is reciprocated, the stationary plate H provided with adjustable holding and centering devices and a means for reciprocating the roll E over the surface of plate H, substantially as described.

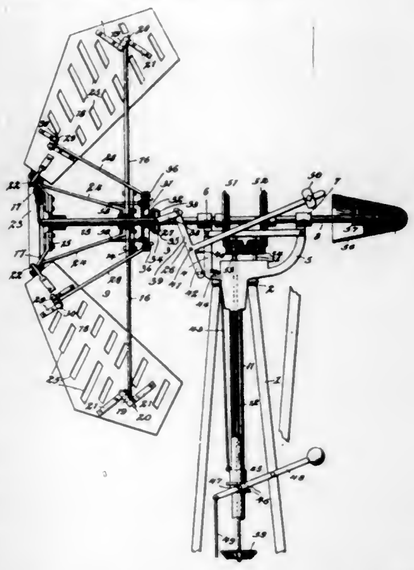
7. In a machine for sharpening rock-drills and rock-drilling-machine bits, in combination, the roll E, carrying a die or impression of the cutting-face of the drill, the pinions *h* fixed to the extremities thereof, the plates G G' open at the center and constructed with a rack or teeth *g* on their inner front vertical edge into which the pinions *h* gear, the stationary plate H formed with a central opening for the drill and with a number of radial slots corresponding to the wings of the drill, the centering and holding devices *i'* fitted within said slots and capable of being moved to or from the center of the aperture in the plate H, means for reciprocating the roll over the surface of plate H and an arrangement for supporting the drill endwise and feeding it forward while being sharpened, substantially as described.

8. In a machine for sharpening rock-drills and rock-drilling-machine bits the arrangement for centering and holding the drills comprising, in combination, the stationary plate H formed with a central aperture or opening *i* for the drill and with a number of radial slots recessed or countersunk along the radial edges, corresponding in number to the wings of the drill and opening into the central aperture *i*, the holders and centering devices *i'* fitted with the radial slots and formed with shoulders i^2 on two opposite sides to fit the recessed or countersunk radial edges of the slots, and constructed hollow or concave at their extremities to correspond to the convexity of the tips or outer edges of the wings of the finished drill, the projections *k* formed on the extremities of the holders *i'* and projecting beyond the surface of the plate H at the back to prevent the metal of the drill being rolled beyond the desired point, the pins or projections *j* formed on the holders *i'* on the inside, the disk J provided with a number of curved eccentrically-disposed slots corresponding to the holders *i'* into which the projections or pins *j* project, the lever K attached to the disk J for rotating it in either direction and the cap or cover L attached to the plate H for holding the several parts in position, substantially as described.

9. In a machine for sharpening rock-drills and rock-drilling-machine bits, in combination, the frame comprising the base-plate A and vertical sides *a a'*, the vertical recesses formed in the sides *a a'*, the blocks or slides *b b'* fitted therein, the roll E, carrying a die or impression of the cutting-face of the drill, with its extremities projecting through the blocks *b b'* to the outside of the sides *a a'*, the plates G G', secured to the vertical members *a a'*, on the outside, formed with an open center and with teeth *g* on the inner front vertical edge, the pinions *h* fixed to the ends of the roll within the plates G G' and gearing the racks *g*, the stationary plate H secured to the sides *a a'* in front of the roll E, the holding and centering devices *i'* arranged to slide in radial slots formed in the plate H, the projections *k* and pins *j* formed on the holders *i'*, the disk J formed with eccentric slots into which the pins *j* project, the lever K, cap or cover L and means for reciprocating the roll E over the surface of the plate H, and an arrangement for supporting the drill endwise and feeding the same forward during the operation of sharpening, substantially as described and shown.

10. In combination the frame comprising the base-plate A and vertical sides *a a'*, the driving-shaft B mounted in bearings in the upper ends of the sides *a a'*, the fly-wheels C C', the fast and loose pulleys D D', the vertical recesses formed in the sides *a a'*, the blocks *b b'* arranged to slide therein, the liners b^3, the roll E, fitted with a detachable die *e* corresponding to the cutting-face of the drill to be sharpened and with its extremities projecting through the blocks *b b'* to the outside of the sides *a a'*, the connecting-rod F formed with two arms *f f'* loosely embracing the turned-down ends of the roll E to the inside of the blocks *b b'*, the plates G G' fixed to the outside of the vertical members *a a'* and constructed with an open center, the rack or teeth *g* formed on the inner front vertical edge thereof, the stationary plate H arranged in front of the roll E and secured to the sides *a a'* formed with a central aperture or opening for the drill and with a number of radial slots recessed or countersunk along the radial edges, corresponding in number to the wings of the drill and opening into the central aperture *i*, the holders and centering devices *i'* fitted within the radial slots and formed with shoulders i^2 on two opposite sides to fit the recessed or countersunk radial edges of the slots, and constructed hollow or concave at their extremities to correspond to the convexity of the tips or outer edges of the wings of the finished drill, the projections *k* formed on the extremities of the holders *i'* and projecting beyond the surface of the plate H at the back to prevent the metal of the drill being rolled beyond the desired point, the pins or projections *j* formed on the holders *i'* on the inside, the disk J provided with a number of curved eccentrically-disposed slots corresponding to the holders *i'* into which the projections or pins *j* project, the lever K attached to the disk J for rotating it in either direction and the cap or cover L attached to the plate H for holding the several parts in position, the guides *l' l²* formed on the base-plate A, the bar L' formed with the holes l^3, the stop l^4, for the shank of the drill, the nut *m* fitted in the forward end of the bar L', the screw *m'* traversing the nut *m*, the bracket m^2 supporting the other extremity of the screw *m'*, the bevel-wheel n^2 secured to the end of screw *m'* beyond bracket m^2, the bracket N fixed to the base-plate A formed with boss *n*, the spindle rotating in the boss *n*, the handle n^2 connected to one end thereof and the bevel-wheel *n'* connected to the other extremity, the bevel-wheel *n'* gearing bevel-wheel n^3, for supporting the drill endwise and feeding the drill forward while being sharpened, substantially as described and shown.

659,372. **WINDMILL.** CHARLES J. LANGENBACH, Independence, Iowa, assignor of one-half to Louis F. Springer, Thomas Scarchiff, and Jason F. Van Vors, same place, and Earl Kiefer, Mankato, Minn. Filed June 11, 1900. Serial No. 19,921. (No model.)



Claim.—1. In a windmill, the combination of a tower, a wind-wheel shaft extending horizontally from opposite sides of the tower, gearing arranged at the center of the shaft for transmitting motion therefrom, a wind-wheel mounted on the shaft at one end thereof and provided with blades arranged at an angle or inclination and extending toward the tower to form a funnel or cup shaped space at the inner face of the wind-wheel, and a conical or tapering counterbalancing-weight arranged at the other end of the wind-wheel shaft and forming a shield for the gearing and adapted to direct the wind upon the blades, substantially as described.

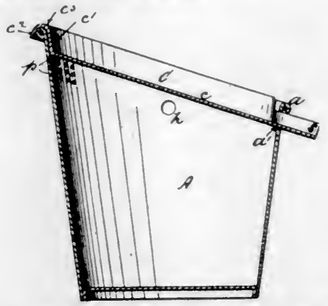
2. In a windmill, the combination of a rotary frame, a horizontal wind-wheel shaft journaled in suitable bearings of the frame, a wind-wheel arranged at one side of the rotary frame and provided with blades set at an acute angle to the wind-wheel shaft to form a funnel or cup shaped wheel, and a conical weight mounted on the other end of the wind-wheel shaft and provided with a tapering sleeve or extension forming a continuation of the side faces of the weight, substantially as described.

3. In a windmill, the combination of a wind-wheel shaft, a wind-wheel arranged at one end of the shaft, and a conical weight located at the other end and provided with a tapering sleeve or extension forming a continuation of the side faces of the weight, substantially as described.

4. In a windmill, the combination of a horizontal wind-wheel shaft, the inner and outer flanges mounted on the shaft, the inner arms extending from the inner flange at right angles to the shaft, the outer arms extending from the outer flange and arranged at an angle, and the inclined blades supported by the arms and extending toward the tower to form a conical or cup-shaped space at the inner face of the wind-wheel, substantially as described.

5. In a windmill, the combination of a horizontal wind-wheel shaft, a vertical shaft 12, a short counter-shaft 55, horizontal pinions meshing with each other and mounted on the vertical shaft and the counter-shaft, and vertical gear-wheels carried by the horizontal shaft and meshing with the pinions, substantially as described.

659,373. **SAP-PAIL.** ABBOT A. LOW, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,265. (No model.)



Claim.—1. The combination of a sap-pail having an inclined rim with a dish-shaped cover fitting thereon, formed at its lower extremity with a spout for the purpose set forth.

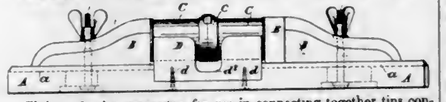
2. The combination of a sap-pail having an inclined rim and formed with a slot under said rim with a dish-shaped cover formed with a spout adapted to project through said slot for the purpose set forth.

3. The combination of a sap-pail A, formed with the inclined rim *a*, and with the slot *a'*, with the dish-shaped cover C, formed with the open spout *s*, for draining the top of the cover, and for engagement with the rim *a*, substantially as set forth.

4. The combination of a sap-pail A, formed with the inclined rim *a*, and with the slot *a'*, with the dish-shaped cover C, formed with the recurved flanges c', c^2, for the purpose described.

5. The combination of the sap-pail A, having the inclined rim *a*, and formed with the perforations *p*, with the cover C, interlocking with said rim of the pail for the purpose set forth.

659,374. **APPARATUS FOR USE IN CONNECTING TOGETHER TINS CONTAINING PROVISIONS.** ARCHIBALD W. MACONOCHIE, London, England. Filed May 24, 1900. Serial No. 17,880. (No model.)



Claim.—1. An apparatus for use in connecting together tins containing provisions or the like, the said apparatus consisting of a base, two heads mounted on the base, means for moving one of said heads toward the other to grip the tins, and a support on which the tins rest between the heads and which will permit the tins to be turned to different positions during soldering.

2. An apparatus for use in connecting together tins containing provisions or the like, the said apparatus consisting of a base, two heads mounted on the base, means for moving one of said heads toward the other to grip the tins, and a support on which the tins rest between the heads and which will permit the tins to be turned to different positions during soldering, said support having a recess or space over which the joint between the cans rests to give access to the latter in soldering.

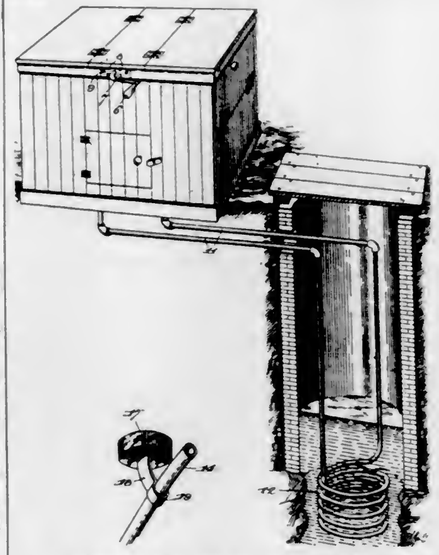
659,375. **MILK-COOLING APPARATUS.** JOHN A. MYERS, North English, Iowa. Filed July 23, 1900. Serial No. 24,554. (No model.)

Claim.—1. An apparatus of the class described comprising the tanks adapted to be raised and lowered to change their relative position, said tanks being adapted to contain a liquid, pipes or tubes connecting the tanks, and means for raising and lowering the tanks, substantially as described.

2. An apparatus of the class described comprising the tanks, pipes or tubes connecting the tanks, and a shaft or windlass having flexible connections extending to the tanks and adapted to alternately raise and lower the same when the shaft or windlass is rotated, substantially as described.

3. An apparatus of the class described comprising the tanks adapted to contain a liquid and capable of being raised and lowered to change their relative position, the pipes or tubes connected with the tanks at a point above the bottom thereof, whereby a given quantity of the liquid is caused to remain in the tanks, receptacles arranged within the tanks and adapted to contain the substance to be cooled, and arranged to float on the surface of the liquid and means for raising and lowering the tanks independently of each other, substantially as and for the purpose described.

4. An apparatus of the class described comprising the tanks capable of vertical movement and adapted to contain a liquid, the pipes 11 connected with the tanks and provided at their lower ends with a connecting-coil designed to be arranged in a well or cistern, and means for raising and lowering the tanks, independently of each other, substantially as described.



5. An apparatus of the class described comprising the tanks adapted to be raised and lowered to change their relative position and designed to contain a liquid, means for raising and lowering the tanks independently of each other, connections between the tanks to permit the liquid to flow from one to the other, and means for cooling the said connections at a point remote from the tanks, substantially as described.

6. An apparatus of the class described comprising the tanks adapted to be raised and lowered and designed to contain a liquid, means for raising and lowering the tanks independently of each other, connections between the tanks to permit the liquid to flow from one to the other, and a flexible tube communicating with the said connections and provided with a float, whereby it is adapted to deliver the surface water to the said connections, substantially as and for the purpose described.

7. An apparatus of the class described comprising the tanks adapted to be raised and lowered and designed to contain a liquid, means for raising and lowering the tanks independently of each other, connections between the tanks to permit the liquid to flow from one to the other, a flexible tube extending from the said connection and provided with a float adapted to hold it in position to cause the surface water to flow through the said connection, and an outwardly-opening valve arranged at the terminal of the said connections, whereby the liquid will be delivered to the tank at the bottom thereof, substantially as described.

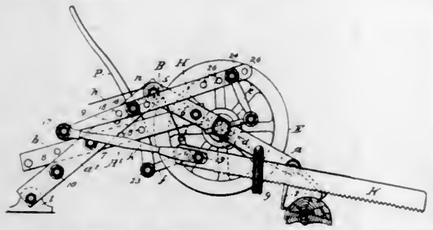
8. An apparatus of the class described comprising a casing, tanks located within the casing and adapted to be raised and lowered, pipes or tubes connecting the tanks and designed to extend into a well, cistern or the like, and means for raising and lowering the tanks independently of each other substantially as described.

9. An apparatus of the class described comprising the tanks, means for raising and lowering the tanks independently of each other, the pipes 11, designed to extend to suitable cooling means, the exterior flexible tubes 10, extending from the pipes 11 to the tanks, and the interior flexible tubes provided with floats and having outwardly-opening valves at their lower ends, substantially as described.

10. In an apparatus of the class described, the combination with a tank, of a tube or pipe connected with the tank and forming a conduit for conveying a liquid to and from the same, a flexible tube arranged within the tank and connected at one end with the said tube or pipe and provided at its other end with means for supporting it at the surface of the liquid within the tank, and an outwardly-opening valve also connected with the tube or pipe and consisting of a flexible tube, substantially as described.

659,376. **DRAG-SAW.** BENJAMIN F. NEDROW, Anacortes, Wash. Filed Mar. 12, 1900. Serial No. 8,348. (No model.)

Claim.—1. In a device of the class described; a main frame comprising opposite side members, each providing a pair of legs converging upwardly, means to pivotally connect said legs at their upper ends, a tie, means to lock said tie to the legs, a holdfast engaged with the lower extremity of one leg, and means to distance the side members; substantially as shown and described.



2. In a device of the class described; a main frame comprising opposite side members, each providing a pair of legs converging upwardly, means to pivotally connect the legs at their upper ends, a tie, means to lock said tie to the legs, a holdfast engaged with the lower extremity of one leg and a foot pivotally engaged with the lower extremity of the other leg, and suitable means to distance the side members; substantially as shown and described.

3. In a machine of the nature indicated, a frame comprising opposite side members each composed of a pair of legs pivoted together at their upper ends, a tie between the two legs of each pair, a rotatable shaft extending transversely between corresponding legs of the side members and journaled upon said legs, a lever fulcrumed upon one side of the frame, operative connections at the same side of the frame between said lever and the shaft and said lever and a saw, an operating-lever fulcrumed upon the opposite side of the frame, and operative connections at the same side of the frame between said operating-lever and the said shaft, the said levers being fulcrumed upon the legs not carrying the said shaft; substantially as described.

4. In a machine of the nature indicated, a main frame comprising side members each composed of a pair of legs pivoted together at their upper ends, means for spacing said side members from each other, a tie pivoted upon one leg of each side member and having means for adjustably engaging the opposite leg of its side member, a rotatable shaft extending between corresponding legs of the opposite side members and journaled thereon, a fly-wheel upon said shaft between said legs, cranks at the opposite ends of said shaft, an operating-lever journaled to a leg not carrying said shaft, a link connecting said lever to the shaft-crank on the same side of the frame as is said lever, a second lever fulcrumed to a leg not carrying said shaft and upon the side of the frame opposite said operating-lever, means for adjusting the fulcrum of said second lever, a link connecting one end of said second lever to the shaft-crank at that side of the frame, said link having adjustable connection with said lever, and a link connecting the opposite end of said lever with a saw; substantially as described.

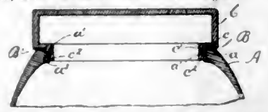
659,377. **COMBINED RECEIVER AND TRANSMITTER FOR SPEAKING-TUBE TERMINI.** CHARLES E. ORMSBY, Toronto, Canada, assignor, by direct and mesne assignments, to Elizabeth Helen Leslie, John Knox Leslie, and Alexander Edward Gundlack, same place. Filed Apr. 24, 1899. Renewed May 12, 1900. Serial No. 16,421. (No model.)



Claim.—1. In a combined receiver and transmitter for speaking-tube termini, a receiver consisting of a spherical-shaped cup having a cylindrical projecting sleeve, a sound-chamber and whistle within the interior of said sleeve, a branch pipe connecting with said sound-chamber; a transmitter consisting of a spherical-shaped cup having a cylindrical projecting sleeve, a sound-collecting branch pipe leading from the interior of said sleeve, the sleeve of said receiver adapted to pass within the cylindrical interior of the sleeve of said transmitter, a flexible sound-conduit connected to the branch pipes of said receiver and transmitter, substantially as shown and described.

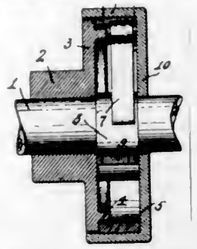
2. In a combined receiver and transmitter for speaking-tube termini, the combination of a receiver consisting of a spherical-shaped cup having a cylindrical projecting sleeve, a sound-chamber and whistle located within the interior of said sleeve, a branch pipe connecting with said sound-chamber; and a transmitter consisting of a spherical-shaped cup having a cylindrical projecting sleeve, a sound-collecting branch pipe leading from the interior of said sleeve, the said branch pipes of said receiver and transmitter connected by a flexible sound-conduit, substantially as shown and described.

659,378. **SEALING-CLAMP.** LAURA B. REED, Monticello, Ind. Filed Feb. 12, 1900. Serial No. 4,950. (No model.)



Claim.—In self-sealing vessels, the body A having the rim *a* flat on top and supporting a flat rubber ring B, the shoulders *a'*, openings a^2 and grooves a^3, the said grooves being horizontal at bottom and downwardly inclined at top, in combination with the cover C resting with a flat face on said rubber, having the collar *c'* fitting within rim *a* on the shoulders *a'*, and provided with L-shaped lugs c^2 that form, with the collar, a groove as shown and described, for the purpose set forth.

659,379. **CLUTCH.** WINFIELD S. ROGERS and LEE S. CHADWICK, Boston, Mass.; said Rogers assignor to said Chadwick. Filed Feb. 8, 1900. Serial No. 4,435. (No model.)



Claim.—1. In a device for transmitting rotary motion, the combination, substantially as set forth, of a rotary driver, a rotary driven, a friction-surface carried by the driven, a fixed friction-surface, a gripping device adapted to engage said two friction-surfaces alternatively and to normally engage said fixed friction-surfaces, and mechanism connecting said driver and gripping device and adapted by the turning of the driver in advance of the driven to release said gripping device from said fixed friction-surface and engage it with the friction-surface of the driven.

2. In a device for transmitting rotary motion, the combination, substantially as set forth, of a rotary driver, a fixed friction-surface disposed concentric thereto, a rotary driven mounted concentric to the driver, a friction-surface carried by said driven concentric to said fixed friction-surface, an open friction-ring normally gripping said fixed friction-surface and adapted to expand and release therefrom and engage the friction-surface of the driven, a lever connected with said friction-ring and adapted to expand the same, and mechanism upon the driver adapted to engage said lever and expand said ring when the driver turns in either direction in advance of the driven.

3. In a device for transmitting rotary motion, the combination, substantially as set forth, of a driving-shaft, a driven mounted loosely thereon, a friction-surface carried by the driven concentric with said shaft, a fixed friction-surface concentric with the friction-surface carried by said driven, an open friction-ring normally gripping said fixed friction-surface and adapted to expand and release therefrom and grip the friction-surface of the driven, a double cam on the shaft, and a lever pivoted at the gap of said friction-ring and having engagement with said cam.

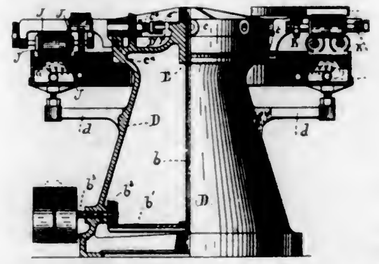
659,380. **MEANS FOR APPLYING FLUID METALS.** WILLIAM H. SMYTH, Berkeley, Cal. Filed Oct. 29, 1896. Serial No. 610,509. (No model.)

Claim.—1. A soldering-machine comprising a bath of solder and traveling mechanism therein whereby, through their relative travel, solder is applied to objects.

2. A soldering-machine comprising a bath of solder and traveling mechanism therein adapted, through the relative travel of said bath and mechanism, to apply solder to a can.

3. A soldering-machine, comprising a bath of solder and traveling mechanism therein adapted to solder the top and bottom cover-joints of a can, simultaneously.

4. A machine comprising, a solder-bath and traveling means, whereby solder is applied to a can traveling above its surface and means to effect the rotation and travel of the can.



5. A machine comprising, a solder-bath, means adapted to effect the relative travel and rotation of a can above its surface, and a device adapted to apply solder thereto while traveling.

6. A machine comprising, a solder-bath and traveling mechanism therein, whereby solder is applied to both cover-joints of a can, simultaneously, and means adapted to effect the travel and rotation of the can.

7. A solder-bath, a non-rotative device therein, adapted to effect a molten-solder mound and means whereby said mound and object to be soldered are brought into contact.

8. A solder-bath, a non-rotative device therein adapted through its travel to effect a molten-solder mound, and means whereby the mound and object to be soldered are brought into contact.

9. A solder-bath, a non-rotative device depending thereinto adapted to effect a wave of solder, and means whereby the wave and object to be soldered are brought into contact.

10. A solder-bath, a non-rotative device depending thereinto, adapted through its travel to effect a wave of solder, and means whereby said wave and object to be soldered are brought into contact.

11. A solder-bath, a non-rotative device therein adapted to effect a molten-solder mound, and means whereby said mound and the seam of a can are brought into contact.

12. A bath, means adapted to effect a liquid wave (the form of which advances more than its particles) therein, and means adapted to apply an object in contact with said wave.

13. A bath, means adapted to effect a liquid wave (the form of which advances more than its particles) therein, means adapted to apply a traveling object in contact with said wave.

14. A bath, means adapted to effect a liquid wave (the form of which advances more than its particles) therein, and means adapted to apply a rotating traveling can in contact with said wave.

15. A bath, means adapted to effect a multiplicity of liquid waves (the forms of which advance more than their particles) therein, and means adapted to apply the joints of cans in contact with said waves.

16. A bath, means adapted to effect a multiplicity of liquid waves, (the forms of which advance more than their particles) therein, and means adapted to apply a multiplicity of cans simultaneously thereto.

17. A bath, means adapted to effect a multiplicity of liquid waves (the forms of which advance more than their particles) therein, and means adapted to apply the top and bottom can-joints simultaneously of each of a multiplicity of rotating cans thereto.

18. A bath, means adapted to effect a multiplicity of liquid waves (the forms of which advance more than their particles) therein, and means adapted to effect the contact of the wave with an object above the normal surface of the solder.

19. A bath, means adapted to effect a multiplicity of liquid waves, (the forms of which advance more than their particles) therein, and means adapted to effect the travel of an object above the normal surface in contact therewith.

20. A device adapted to form a solder wave, (the form of which advances more than its particles) in contact with a traveling object above the normal surface of the solder.

21. A solder-bath and a device depending therein adapted to effect a solder wave, the form of which advances more than its particles.

22. A solder-bath, a non-rotative wave-former, and means for utilizing the wave formed whereby solder is applied to an article.

23. A bath, means adapted to effect a liquid wave (the form of which advances more than its particles) therein, and means adapted to utilize the wave, whereby solder is applied to an object.

24. A bath, means adapted to effect a liquid wave (the form of which advances more than its particles) therein and means adapted to utilize the wave, whereby solder is applied to a can.

25. A bath, means adapted to effect liquid waves (the form of which advances more than their particles) therein, and means adapted to utilize the waves, whereby solder is applied to the top and bottom cover-joint, simultaneously of a can.

26. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder and means whereby the swell is utilized to apply solder to objects above the normal surface of the solder.

27. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder, and means whereby the swell is utilized to apply solder to a can above the normal surface of the solder.

28. A device, comprising means adapted to effect advancing swells upon the surface of molten solder and means whereby the swells are utilized to apply solder to a multiplicity of can-joints, simultaneously.

29. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder and means adapted to apply objects in contact therewith, above the normal surface of the solder.

30. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder and means adapted to effect the travel of an object in contact therewith, above the normal surface of the solder.

31. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder and means adapted to effect the travel of a can in contact therewith, above the normal surface of the solder.

32. A device, comprising means adapted to effect an advancing swell upon the surface of molten solder and means adapted to effect the travel and rotation of a can in contact therewith, above the normal surface of the solder.

33. A soldering-machine, comprising a solder-bath, a traveling device provided with means depending into the bath, adapted to effect a wave of solder and means whereby objects are fed into contact with said wave and discharged therefrom.

34. A soldering-machine, comprising a solder-bath and a traveling conveyer provided with a device adapted to effect the contact of solder with a can traveling above the normal level of the solder.

35. A soldering-machine, comprising a solder-bath and a traveling conveyer adapted to effect the travel and rotation of a can, above the surface of the solder and the contact of the solder with the traveling can.

36. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, by which a wave of solder is raised above the normal surface of the solder in said bath, and means adapted to apply an object in contact with the raised portion of solder.

37. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, by which a wave of solder is raised above the normal surface of the solder in said bath, and means adapted to apply a can in contact with the raised portion of solder.

38. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, by which a wave of solder is raised above the normal surface of the solder in said bath, and means adapted to apply a traveling can in contact with the raised portion of solder.

39. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath by which solder is raised above its normal surface, and means adapted to apply a rotating can in contact with said raised portion of solder.

40. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, adapted to effect and utilize a wave of solder.

41. In combination with a bath, adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath adapted to effect and utilize a series of solder waves, whereby solder is applied to an object.

42. In combination with a bath, adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, adapted to effect and utilize a multiple series of solder waves, whereby solder is applied to a multiplicity of objects, simultaneously.

43. In combination with a bath, adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, adapted to effect and utilize a multiple series of solder waves, whereby solder is applied to a multiplicity of cans simultaneously.

44. In combination with a bath, adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath, adapted to effect and utilize a multiple series of solder waves whereby solder is applied to a multiplicity of traveling cans simultaneously.

45. In combination with a bath, adapted to contain solder, means for heating the same, of mechanism traveling longitudinally of said bath adapted to effect and utilize a multiple series of solder waves, whereby solder is applied to the top and bottom joint simultaneously of each of a multiplicity of rotating cans.

46. In combination with a bath adapted to contain solder, means for heating the same, of mechanism traveling relatively to said bath adapted to effect a liquid mound therein, and means by which said mound and object to be soldered are brought into contact.

47. A device comprising a solder-bath and traveling mechanism therein whereby solder is applied to an object above the surface of the solder.

48. Means adapted to effect, on the surface of fluid, a swell moving relatively to the receptacle containing the fluid, and means whereby the swell is utilized to apply fluid to an object.

49. Means adapted to effect a contour constantly changing location on the surface of fluid and means adapted to apply an object in contact therewith above the normal surface.

50. A machine comprising a solder-bath and traveling mechanism adapted to clamp a can endwise and apply solder continuous with that of the bath to a can above the normal surface of the solder.

51. A machine comprising a solder-bath and traveling means for clamping endwise and applying solder continuous with that in the bath to a rotating can.

52. A machine comprising a solder-bath and means for clamping endwise and rotating a can adapted to apply simultaneously to both cover-joints, solder continuous with that in the bath.

53. A machine comprising a solder-bath and means adapted to clamp endwise, effect the travel of, and apply solder to a can while traveling above the solder-surface.

54. A machine comprising a solder-bath and means adapted to clamp endwise, effect the rotation and horizontal travel of a can, its axis horizontal and apply solder from said bath thereto.

55. A machine comprising a solder-bath and means adapted to clamp endwise, effect its travel and apply solder from said bath simultaneously to both ends of a can.

56. A machine comprising means adapted to clamp endwise, effect the rotation and horizontal travel of a can, its axis horizontal, and apply solder thereto while traveling.

57. A machine comprising means adapted to clamp endwise, effect the rotation and horizontal travel of a multiplicity of cans, their axes horizontal, and apply solder thereto.

58. A machine comprising a solder-bath and a revolving carrier adapted to effect the horizontal travel of, and apply solder to, a can, its axis horizontal.

59. A machine comprising a solder-bath, a multiple series of carriers adapted to effect the horizontal travel in a circular path, of a multiplicity of cans, their axes horizontal and means for applying solder to said multiplicity of cans simultaneously.

60. A machine comprising a solder-bath, a revolving carrier adapted to effect the rotation and horizontal travel in a circular path, of a can, its axis horizontal, and apply solder thereto while traveling.

61. A machine comprising a solder-bath, a revolving carrier to effect the rotation and horizontal travel in a circular path, of a multiplicity of cans their axes horizontal and means adapted to apply solder thereto.

62. A machine comprising a solder-bath and means for effecting the travel of cans in a circular path above the normal surface and means for applying solder therefrom to said cans while so traveling.

63. A machine comprising a solder-bath, means for effecting the rotation and travel of cans in a circular path above its normal surface and means adapted to apply solder to said cans therefrom while so traveling.

64. A machine comprising a solder-bath and means for effecting the rotation and travel of a can above its surface in a circular path and means for applying solder to the top and bottom cover-joints of said can simultaneously.

65. A machine comprising a solder-bath and means for effecting the rotation and travel of a multiplicity of cans above its surface in a circular path also devices adapted to apply solder to the top and bottom cover-joints simultaneously of said cans.

66. A machine comprising a solder-bath; means adapted to clamp endwise, effect the rotation and horizontal travel of cans their axes horizontal above its surface and means adapted to apply solder to the cans from said bath.

67. A machine comprising a moving carrier-frame with clamps adapted to grasp a can endwise, its axis horizontal, pivoted eccentrically to said can.

68. A carrier adapted to effect the travel of a can, its axis horizontal, comprising endwise clamps pivoted eccentrically to the can.

69. A carrier adapted to effect the axial rotation and travel of a can with its axis horizontal and its partial revolution around a traveling center, eccentric to the can.

70. A carrier adapted to effect the travel of a can its axis horizontal and its partial revolution around a moving center eccentric to the can.

71. A carrier adapted to clamp endwise, effect the axial rotation and travel of a can, its axis horizontal, and its partial revolution around a moving center eccentric to itself.

72. A machine comprising a carrier adapted to effect the travel of a can, its axis horizontal, also its partial revolution around a moving center eccentric to said can and a solder-applying device.

73. A machine comprising a carrier adapted to effect the travel of a can, its axis horizontal also its partial revolution around the moving center eccentric to itself, a solder-bath and means whereby solder therefrom is applied to the can.

74. A machine comprising a can-carrier provided with endwise opposing clamps adapted to effect the axial rotation and travel of a can in a circular path and its partial revolution around a traveling center eccentric to itself, and a traveling device adapted to apply solder to both cover-joints simultaneously of the traveling can.

75. A machine comprising a rotating frame having a multiplicity of radial, endwise opposing clamps adapted to effect the axial rotation and travel of a multiplicity of cans, their axes horizontal, and suitably arranged to raise and lower each can by a partial revolution around a center eccentric to its axis.

76. A machine comprising a rotating frame having a multiplicity of radial endwise opposing clamps adapted to effect the axial rotation and travel of a multiplicity of cans, their axes horizontal, suitably arranged to raise and lower each can by a partial revolution around a moving center eccentric to its axis.

77. A machine comprising a rotating frame having a multiplicity of radial endwise opposing clamps adapted to effect the axial rotation and travel of a multiplicity of cans their axes horizontal, suitably arranged to raise and lower each can by a partial revolution around a center eccentric to its axis and means adapted to apply solder to said can.

78. A machine comprising a solder-bath and a rotatable frame having endwise clamps pivoted on a radial journal and means for effecting opposing endwise movement of the clamps and their pivotal motion whereby a can is received between said clamps and carried to a position to receive solder.

79. A machine comprising a solder-bath, means for effecting the travel of cans in a circular path above its normal surface, means for applying solder therefrom to said cans while so traveling and means to remove excess of solder therefrom.

80. A machine comprising a solder-bath, means adapted to apply solder therefrom to a can above the surface of the bath and a device adapted to remove excess solder from the can and automatically return it to the solder-bath.

81. A can-soldering machine comprising an endwise-clamp can-carrier, a solder-bath and means traveling therein for applying solder therefrom to said can its axis horizontal, and means for directing a cold-air current upon said can while being carried by the clamp.

82. A machine comprising devices adapted to apply solder to cans, their axes horizontal and an air-blast pipe provided with a directing-hood above the path of the soldered cans.

83. A can-soldering machine comprising an endwise-clamp can-carrier adapted to effect the axial rotation and travel of a can, its axis horizontal, a solder-bath, means for applying solder therefrom to said can, and a hood above the path of the soldered can provided with an air-inlet whereby a current of air is directed upon the can while still grasped by the clamps.

84. A solder-bath, a device adapted to effect a molten-solder mound therein and means for skimming the surface.

85. A solder-bath, a device adapted to effect a molten-solder mound therein, means for applying the objects in contact with the mound and automatic means for skimming the surface.

86. A solder-bath, a moving can-carrier adapted to effect the travel of cans above the surface of the solder, means for applying solder to the cans while so traveling and a device adapted to travel with the carrier and skim the surface of the solder.

87. A solder-bath, a moving can-carrier adapted to effect the rotation and travel of cans above the surface of the solder, means for applying solder to the cans while so traveling and a plate traveling therewith set at an angle to its direction of travel adapted to be brought into contact with the solder.

88. A device adapted to apply the top and bottom cover-joint, simultaneously, of a can to waves on a fluid-surface, the forms of which waves advance more than their particles.

89. A device adapted to effect the contact of a horizontal surface at two or more separated points therein to waves formed on the surface of a stationary body of fluid, the forms of which waves advance more than their particles.

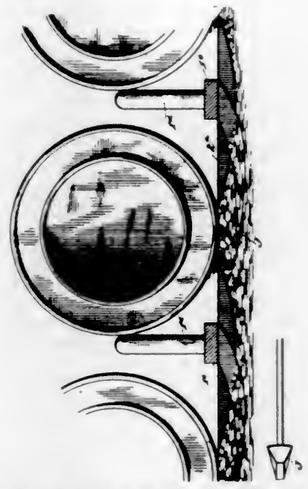
659,381. SOLDERING-MACHINE. William H. Smyth, Berkeley, Cal. Filed Dec. 30, 1899. Serial No. 742,075. (No model.)

Claim.—1. A machine comprising an endless chain, a fluid-receptacle located intermediate of its folds, and a wave-former operated by said chain.

2. A machine comprising an endless traveling chain, a fluid-receptacle located intermediate of its folds, and a device carried by said chain and adapted to form a wave in the fluid in the receptacle.

3. A machine comprising an endless traveling chain, a fluid-receptacle located intermediate of its folds with supporting-pulleys at each end

659,381



4. A machine comprising an endless traveling chain and a fluid-receptacle located intermediate of its folds, said chain provided with depending projections adapted to enter said receptacle whereby the fluid is applied to objects above the normal surface.

5. A machine comprising an endless traveling chain supported upon pulleys at each end bight thereof, a fluid-receptacle intermediate of its folds projections upon the outer surface of said chain adapted to move objects above the surface of the fluid-receptacle and projections upon the inner surface of said chain adapted to enter said fluid-receptacle whereby fluid is applied to said objects.

6. A machine comprising an endless traveling chain supported upon pulleys at each end bight thereof, a fluid-receptacle intermediate of its folds, projections upon the outer surface of said chain adapted to move objects above the surface of the fluid-receptacle and projections upon the inner surface of said chain adapted to enter said fluid-receptacle whereby fluid is applied to said objects and means for heating said fluid.

7. A machine comprising a multiplicity of endless traveling chains, each chain provided at its end bight with a supporting-pulley and joined by transverse connecting-pieces, a fluid-receptacle located between the folds of the compound chain, devices attached to the connecting-pieces adapted to enter said receptacle whereby fluid is applied to objects above said receptacle.

8. A machine comprising a fluid-receptacle, means for heating the same, an endless-chain carrier adapted to travel around said receptacle in a vertical plane provided with projecting devices adapted to enter said receptacle whereby fluid therein is applied to objects above the surface of said fluid.

9. A machine comprising a fluid-receptacle provided with a cover thereto providing longitodinal openings and means for heating said receptacle, an endless-traveling-chain carrier adapted to travel around said receptacle in a vertical plane, provided with projecting devices adapted to enter said receptacle whereby fluid therein is applied to objects above the surface of said fluid.

10. A machine comprising the receptacle A with its heating device, the compound chain 1^b with its projections J adapted to travel in said receptacle and arranged and operating substantially as described.

11. A solder-bath, a cover thereto and means traveling longitudinally of the bath and adapted to apply solder from the bath to a can above the cover.

12. A solder-bath, a cover thereto having tracks to support a rolling can and traveling means adapted to apply solder from the bath to the can while the latter rolls longitudinally of the solder-bath.

13. A solder-bath, a cover thereto having tracks to support a rolling can, feed and discharge chutes forming opposite continuations of said tracks and traveling means adapted to apply solder from the bath to a can, while the latter rolls on the tracks longitudinally of the solder-bath.

14. A solder-receptacle and a cover depending therein of substantially the same shape in cross-section but smaller width, whereby a portion of the solder in the receptacle is displaced and formed into a plurality of long parallel solder-baths.

15. A solder-receptacle having a cover depending therein of a less width than the receptacle, the long sides of said cover forming tracks for rolling cans above the surface of the solder in the receptacle.

16. A long solder-receptacle having a cover depending therein of less width than the receptacle and spaced from each side thereof whereby the solder in the receptacle is formed into substantially U-shaped section.

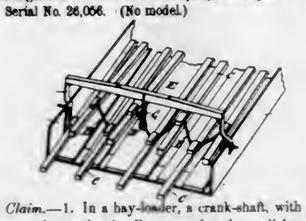
17. The combination of a solder-bath, a cover therefor constituting a support for a rolling can, and means traveling longitudinally of the bath for applying solder from the bath to the can while rolling.

18. A solder-bath, a cover thereto and non-rotative means adapted to apply solder from the bath to a can above the cover.

19. A solder-bath, a cover thereto having tracks to support a rolling can and non-rotative means adapted to apply solder to the can while rolling.

20. A solder-bath, a cover thereto having tracks to support a rolling can, feed and discharge chutes forming opposite continuations of said tracks and non-rotative means adapted to apply solder from the bath to a can, rolling on the tracks.

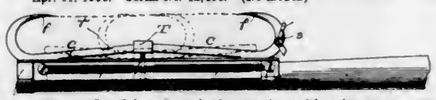
659,382. HAY-LOADER. Frank N. Trissel, Dayton, Ohio, assignor to the Ohio Rake Company, same place. Filed Aug. 6, 1900. Serial No. 26,056. (No model.)



Claim.—1. In a hay-loader, a crank-shaft, with a series of cranks thereon, and a sectional pulley secured to the medial portion of one of said cranks at the axis of rotation of said shaft, and a bearing for said pulley supported in the frame, substantially as shown and described.

2. In a hay-loader, a crank-shaft, with a series of cranks thereon, and a sectional pulley secured to the medial portion of one of said cranks at the axis of rotation of said shaft, and a divided strap forming a bearing for said pulley, with a cross-brace supported on the frame to which said strap is secured, substantially as shown and described.

659,383. FISH-GAFF. Bernard J. Warren, Dover, Me. Filed Apr. 11, 1900. Serial No. 12,406. (No model.)



Claim.—In a fish-gaff, a pair of reversely-positioned spears supported for longitudinal reciprocating movement in a frame, springs acting to move said spears in a closing direction, and means for automatically locking said spears in an open position, combined and operating substantially as set forth.

659,384. PRINTING-PLATE AND BASE. Ferdinand J. Wendell, New York, N. Y. Filed Mar. 27, 1900. Serial No. 10,322. (No model.)



Claim.—1. The combination of a printing-plate and base provided with interlocking tongue-and-grooved joints along two outer opposite edges, the said base being divided at the center between and parallel with said joints to form a two-part base, the said parts being alike and interchangeable, and the upper edges of the adjacent parts of the divided base being cut away to permit the parts being tilted sufficiently to engage or disengage the plate and base vertically.

2. The combination of a printing-plate and base provided with interlocking tongue-and-grooved joints along two outer opposite edges, the said base being divided longitudinally at the center between said joints the upper edges of the adjacent parts of the divided base being stepped, substantially as and for the purposes set forth.

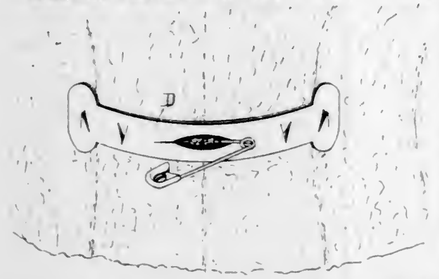
659,385. PRINTING-PLATE AND BASE. Ferdinand J. Wendell, New York, N. Y. Filed Mar. 27, 1900. Serial No. 10,323. (No model.)

Claim.—1. The combination of a printing-plate provided with thin vertical flanges raising the plate nearly type-high and forming deep side bearing-surfaces with little extra weight, with a base further raising the plate just type-high, and forming a brace at the bottom of the combined plate and base to prevent the said flanges being bent inward by lateral pressure when the parts are locked up, substantially as described.



2. The combination of a printing-plate provided with thin vertical flanges raising the plate nearly type-high and forming deep side bearing-surfaces with little extra weight, with a base further raising the plate just type-high and forming a brace at the bottom of the combined plate and base to prevent the said flanges being bent inward by lateral pressure when the parts are locked up, and one or more longitudinal braces or legs between the plate and base intermediate of the said flanges.

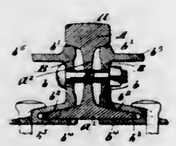
659,386. WAIST AND SKIRT ADJUSTER. WALTER J. AUSTEN, Boston, Mass. Filed Nov. 22, 1899. Serial No. 737,973. (No model.)



Claim.—1. A waist and skirt adjuster comprising a metallic strip having integral prongs for engaging a waist and skirt, said strip being provided with a slot to permit of the engagement of a safety-pin with a portion of the fabric of the waist through said slot.

2. The combination with a plate having integral prongs for engaging the material of the skirt and waist, said plate having an elongated horizontal slot; of means adapted to be removably secured to the fabric of the waist, and to be passed through said slot, for removably securing said plate to the fabric of the waist.

659,387. RAILWAY-RAIL JOINT. BANCROFT G. BRAINE, New York, N. Y. Filed Nov. 1, 1898. Renewed Mar. 10, 1900. Serial No. 8,227. (No model.)



Claim.—1. A railway-rail-joint plate comprising a vertical web portion to extend between the head and base-flange of the rail, a doubled base portion extending outward and then inwardly to embrace the base-flange of the rail, and an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion and the upper face of which top flange is below the upper extremity of the vertical portion to provide clearance-space for the wheel-flanges, and said joint-plate having bearing-faces to engage the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, substantially as described.

2. A railway-rail-joint plate comprising a vertical web portion to extend between the head and the base-flange of the rail, a doubled base portion extending outward and then inwardly to embrace the base-flange of the rail, and an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion and said joint-plate having bearing-faces to engage the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, substantially as described.

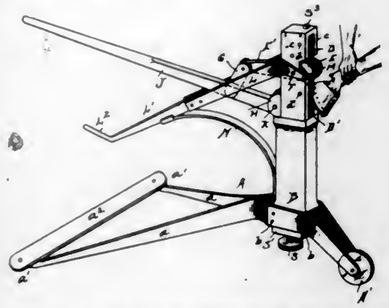
3. A railway-rail-joint plate comprising a vertical web portion to extend between the head and base-flange of the rail, a doubled base portion extending outward and then inwardly to embrace the base-flange of the rail, and an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion having an upward extension to form a guard-flange C', and said joint-plate having bearing-faces to engage the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, substantially as described.

4. In a railway-rail joint, the combination with adjacent rail-sections, of a joint-plate overlapping the abutting ends of the rail-sections comprising a vertical web portion extending between the head and base-flange of the rail, a doubled base portion extending outward beyond and then inwardly beneath the base-flange of the rail, and an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion, and said joint-plate having bearing-faces engaging the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, substantially as described.

5. A railway-rail joint comprising joint-plates on opposite sides of the rail overlapping the abutting ends of adjacent rail-sections, and means for forcing said plates toward each other, said plates comprising each a vertical web portion extending between the head and the base-flange of the rail, a doubled base portion extending outward beyond and then inwardly beneath the base-flange of the rail, and an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion, and having bearing-faces to engage the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, substantially as described.

6. A railway-rail joint comprising joint-plates on opposite sides of the rail overlapping the abutting ends of adjacent rail-sections, and means for forcing said plates toward each other, said plates comprising each a vertical web portion extending between the head and the base-flange of the rail, a doubled base portion extending outward beyond and then inwardly beneath the base-flange of the rail, and having bearing-faces to engage the under face of the head of the rail, the upper face of the base-flange of the rail, and the under face of the base-flange of the rail, and having an outwardly-extending strengthening top flange of a width from the inner side of the joint-plate substantially equal to the depth of the rail-flange-receiving slot of the doubled base portion the upper face of the top flange of the inside plate being below the upper extremity of the vertical portion of the plate to provide clearance-space for the wheel-flanges, substantially as described.

659,388. MACHINE FOR SHARPENING HORSESHOE-CALKS. PETER B. BRAKEL, Cheboygan, Mich. Filed May 28, 1900. Serial No. 18,206. (No model.)



Claim.—1. In a machine for sharpening shoe-calks, a portable frame, a vertical standard carried thereby, a cam located on said standard adapted to turn in a vertical plane, means for actuating the cam, a die having its working face approximately horizontal and extending inward from the side of said standard, whereby the calks of the shoe upon the hoof may be placed against said die, said die being fashioned to coöperate with the cam and held rigidly by the standard whereby the oscillation of the cam opens and closes a space between the die and the cam, thereby compressing and sharpening the calk, substantially as described.

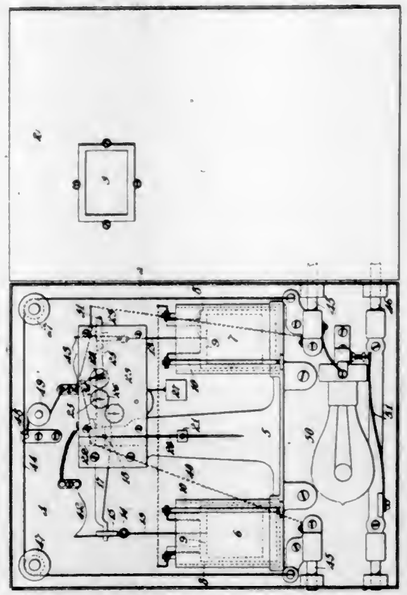
2. In a machine for sharpening shoe-calks, a portable frame, a standard carried thereby, means for adjusting the standard, a cam located in a mortise in a standard, means for actuating the cam, a die fashioned to coöperate with the cam, and held rigidly by the standard whereby the oscillation of the cam opens and closes a space between the die and the cam thereby compressing any substance inserted between them, and a lever L, pivoted to the standard and having a curved frontal portion on the short arm coöperating with the standard and adapted to hold the toe of a hoof, substantially as described.

3. In a machine for sharpening shoe-calks, a tripod framework carrying an adjustable standard, a guide for said standard within which the same is adapted to move, means for adjusting the height of the standard, a double cam operated within the standard, adjustable dies formed to and coöperating with either side of the cam, means whereby said cam operates by a lever adapted to reciprocate the reverse reciprocation of the lever operating either side of the cam alternately, substantially as described.

4. In a machine for sharpening shoe-calks, a portable frame, a standard carried thereby, a cam located upon said standard, means for actuating the cam, a die adapted to coöperate with the cam, and held rigidly by the standard whereby the oscillation of the cam opens and closes a space between the die and the cam thereby compressing any substance inserted between them, and a lever L, pivoted to the standard and having a curved frontal portion on the short arm coöperating with the standard and adapted to hold the toe of a hoof, substantially as described.

5. In a machine for sharpening shoe-calks, a portable frame, a standard carried thereby, a double cam operated within the standard, dies upon said standard adapted to coöperate one with one side of said cam to sharpen the toe-calk, and the other with the other side of said cam to sharpen the heel-calk, means whereby said cam operates by a lever adapted to reciprocate the reverse reciprocations of the lever operating either side of the cam alternately, substantially as described.

659,389. ELECTRIC METER. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Sept. 24, 1898. Serial No. 691,760. (No model.)



Claim.—1. In an electric meter, the combination with a balanced scale-beam, a retarding device for resisting the oscillations of said beam, and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, and an escapement operated thereby and controlled by the oscillation of said scale-beam, substantially as set forth.

2. In an electric meter, the combination with a balanced scale-beam, a weighted depending arm carried by said scale-beam for resisting the oscillations thereof, and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, and an escapement operated thereby and controlled by the oscillation of said scale-beam, substantially as set forth.

3. In an improved electric meter, the combination with a balanced scale-beam, an arm depending from said scale-beam, an adjustable weight on said arm, and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, and an escapement operated thereby and controlled by the oscillation of said scale-beam, substantially as set forth.

4. In an electric meter, the combination with a balanced scale-beam, a retarding device for resisting the oscillations of said beam, and an electrolytic cell, the movable electrode of which is connected to said scale-beam, of a register-train, an escapement operated thereby and controlled by the oscillations of said scale-beam, and a current-reverser operated by said register-train for reversing the current through the electrolytic cell at each oscillation of the beam, substantially as set forth.

5. In an improved electric meter, the combination with a balanced scale-beam, a weighted arm depending from said beam for resisting the oscillations thereof, and an electrolytic cell the movable electrode of which is connected with said scale-beam, of a register-train, an escapement operated thereby and controlled by the oscillations of said scale-beam and a current-reverser operated by said train for reversing the current through the electrolytic cell, substantially as set forth.

6. In an improved electric meter, the combination with a balanced scale-beam, a retarding device for resisting the oscillations thereof and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, an escapement-arm driven by said train, two pallets carried by said arm at varying distances from the center of rotation thereof, and a pallet-stud on the scale-beam coöperating successively with said pallets, substantially as set forth.

7. In an improved electric meter, the combination with a balanced scale-beam, a retarding device for resisting the oscillations thereof and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, a relatively-long escapement-arm driven by said train, two pallets carried by said arm at varying distances from the center of rotation thereof, and a pallet-stud on the scale-beam above the pivot thereof, and coöperating successively with said pallets, substantially as set forth.

8. In an electric meter, the combination with a scale-beam mounted on a knife-edge, a weighted arm depending from said scale-beam vertically beneath the pivot, and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, an elongated escapement-arm driven by said train, two pallets carried by the extremities of said arms at different distances from the center of rotation thereof, a pallet-stud on the scale-beam in line above its pivot, and a current-reverser operated by the register-train for reversing the current through the electrolytic cell, substantially as set forth.

9. An electrolytic registering-meter having a scale-beam operated by electrolytic action, a power-driven escapement controlled by the scale-beam, and a current-reverser and register operated by said power-escapement, substantially as set forth.

10. In a registering electrolytic meter, the combination with a resistance, of the two-point current-reverser operating to shunt the meter first around one half of the resistance and then around the other half, substantially as set forth.

11. In an electric meter, the combination with a balanced scale-beam, and an electrolytic cell the movable electrode of which is connected to said scale-beam, of a register-train, an escapement operated thereby and controlled by the oscillation of said scale-beam, the movable contact of a current-reverser operated by the register-train at each movement of the escapement, and the two stationary contacts with which the movable contact successively engages for reversing the current through said electrolytic cell, substantially as set forth.

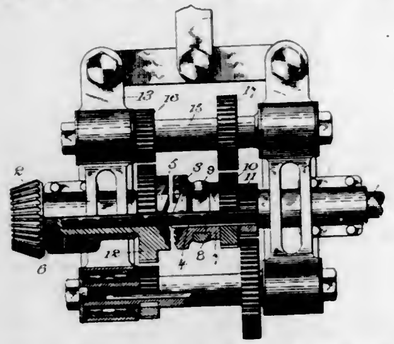
12. In an electric meter, the combination with a balanced scale-beam, and two electrolytic cells the movable electrodes of which are connected to the extremities of said scale-beam, of a register-train, an escapement operated thereby and controlled by the oscillation of said scale-beam, a movable contact operated by the register-train at each movement of the escapement, two fixed contacts with each of which the said movable contact successively engages, a divided resistance shunting both cells, and a connection between the center of such resistance and the movable contact, whereby current will be successively reversed through both cells, substantially as set forth.

13. A registering electrolytic meter having two cells whose movable electrodes are carried by the opposite ends of a scale-beam, such movable electrodes being insulated from the scale-beam and having permanent connections with the circuit through flexible metallic connections, substantially as set forth.

14. In an improved electrolytic cell, the combination of the jar, the fixed electrode therein, and the clamping-rods for adjustably maintaining said fixed electrode in place, substantially as set forth.

15. In a registering electrolytic meter, the combination with the registering mechanism of an electrolytic device for obtaining movement of such registering mechanism, and a current-reverser for reversing the current in the electrolytic device and comprising two fixed contacts and a movable contact successively engaging such fixed contacts, the engaging surfaces of the contacts being gold-plated, for the purpose substantially as described.

659,390. CHANGEABLE-SPEED GEAR. ALEXANDER FISCHER, New York, N. Y. Filed Feb. 19, 1900. Serial No. 5,770. (No model.)



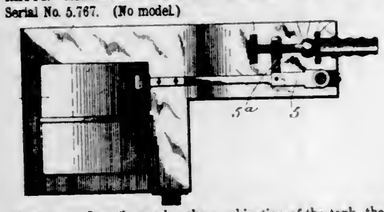
Claim.—1. In a changeable-speed mechanism the combination of the driving-shaft, two gears of different diameter rotated thereby, a driven shaft in line with the driving-shaft, a driven gear thereon, the frame slidable along a line radial to the shafts, a counter-shaft journaled in said slidable frame on one side of said shafts, gears keyed to it of proper diameter to mesh simultaneously with the driven gear and with one of the driving-gears, a second counter-shaft journaled in the slidable frame on the other side of the shaft, and gears keyed to it of proper diameter to mesh with the driven gear and with the other driving-gear.

2. In a changeable-speed mechanism, the combination of the driving-shaft, two gears of different diameter rotated thereby, a driven shaft in line with the driving-shaft, a driven gear thereon, the frame slidable along a line radial to the shafts, a counter-shaft journaled in said slidable frame on one side of said shafts, gears keyed to it of proper diameter to mesh simultaneously with the driven gear and with one of the driving-gears, a second counter-shaft journaled in the slidable frame on the other side of the shaft and gears keyed to it of proper diameter to mesh with the driven gear and with the other driving-gear, together with the axially-slidable clutch between said driving and driven shafts.

3. In a changeable-speed mechanism, the combination of the driving-shaft, two gears of different diameter rotated thereby, a driven shaft in line with the driving-shaft, a driven gear thereon, the frame slidable along a line radial to the shafts, a counter-shaft journaled in said slidable frame on one side of said shafts, gears keyed to it of proper diameter to mesh simultaneously with the driven gear and with one of the driving-gears, a second counter-shaft journaled in the slidable frame on the other side of the shaft, and gears keyed to it of proper diameter to mesh with the driven gear and with the other driving-gear, together with the axially-slidable clutch between said driving and driven shafts, the sleeve carrying the driving portion of said clutch also carrying the two first-mentioned driving-gears.

4. In a changeable-speed mechanism the combination of the driving-shaft and driven shaft arranged in line one with the other, a clutch member on the end of the driven shaft, the corresponding axially-slidable clutch-sleeve on the driving-shaft, a gear-wheel formed integrally with the clutch member on the driven shaft, a gear-wheel rigidly mounted on the clutch-sleeve of the driving-shaft, a counter-shaft parallel to said driving and driven shafts and gear-wheels keyed thereon of suitable diameter to simultaneously mesh with the gear-wheels on the clutch member and clutch-sleeve, before described, and means for shifting said counter-shaft toward and from the driving and driven shafts so as to make and break connections between said gears.

659,391. AUTOMATICALLY-CLOSING FLOAT-VALVE APPARATUS. ALEXANDER FISCHER, New York, N. Y. Filed Feb. 19, 1900. Serial No. 5,767. (No model.)

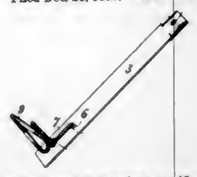


Claim.—1. In a float-valve the combination of the tank, the inlet-pipe therefor, the float-lever, and the valve-plunger adapted to close the inlet-pipe, said plunger being mounted on the float-lever by a universal joint.

2. In a float-valve the combination of the tank, the inlet-pipe therefor, the float-lever, and the valve-plunger adapted to close the inlet-pipe, said plunger being mounted on the float-lever by a universal joint, and consisting of a flat plate with a facing of yielding waterproof material located opposite the open end of the inlet-pipe.

3. The combination of the tank, the float-lever pivoted therein, the inlet-pipe whose mouth is in a plane approximately at right angles to the float-lever, the adjusting-screw mounted in a projection from the float-lever and approximately parallel to said lever, and the valve-plunger plate carried on the end of the adjusting-screw by a ball-and-socket joint.

659,392. SNOW-GUARD FOR ROOFS. CHARLES H. GILMAN, Melrose, Mass. Filed Dec. 20, 1897. Serial No. 662,548. (No model.)



Claim.—1. A snow-guard of the class specified, consisting of a thin metal plate to attach the guard to the roof, and a wire snow-stop having a loop portion to project above and to rest upon the upper surface of the roof, and a shank portion extending upward between the slates or shingles when in position on the roof, being raised in part above the surface of the thin metal plate, bent downward and permanently secured to said plate, for the purpose set forth.

2. A snow-guard of the class specified, consisting of a thin metal plate with fastening device to attach it to the roof as described, and a wire snow-stop with loop portion to project from and rest upon the upper surface of the roof, and a shank portion extending toward the top of said plate raised in part above the surface of the plate bent downward through a perforation in the plate and permanently secured thereto, being fastened to allow it to pass through the joints between slates or shingles when laid close together, for the purpose set forth.

3. A snow-guard for roofs, consisting of a thin metal strip having a fastening device at its upper end, and a wire snow-stop at its lower end, having a shank portion extending toward the upper end of said metal strip and permanently secured to said strip, said metal strip projecting beyond any portion of the snow-stop and preventing said stop from coming into contact with the slates which are under the guard, for the purpose set forth.

659,393. TOBACCO-PIPE. WILLIAM R. HALE, Gualala, Cal. Filed Jan. 2, 1900. Serial No. 151. (No model.)

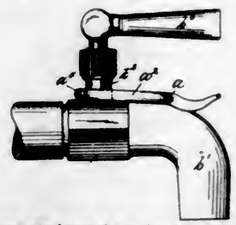


Claim.—1. A tobacco-pipe having a bowl, a detachable stem spirally grooved on the outside, a casing inclosing said groove, and a mouthpiece, said stem being hollow and unobstructed throughout its length, whereby, when detached, its interior may be readily cleansed, and fitting onto the bowl at one end and having its cavity closed by the mouthpiece at the other end when the latter is in position, said groove connecting with said cavity and with a passage through said mouthpiece, substantially as described.

2. A tobacco-pipe having a bowl, a detachable stem spirally grooved on the outside, a casing inclosing said groove, and a mouthpiece, said groove connecting with a duct from the bowl and with a passage through the mouthpiece, said stem being hollow and unobstructed throughout its length, whereby, when detached, its interior may be readily cleansed, and fitting onto the bowl at one end and having its cavity closed by the mouthpiece at the other end when the latter is in position, and said casing being removable from the stem over the mouthpiece when the latter is in position, whereby said groove may be cleansed without removing said mouthpiece, substantially as described.

659,394. FAUCET ATTACHMENT. GEORGE C. HAMILTON, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,360. (No model.)

Claim.—1. In a faucet attachment, the combination with the upper surface of a faucet-spout, of a detachable hook adapted to fit thereon and means for attaching said hook in position on said faucet substantially as described.



2. In a faucet attachment the combination with a detachable hook, of a concave place on the under side thereof adapted to fit on the upper curved surface of a faucet-spout and means for attaching said hook in position on the upper side of the faucet substantially as described.

3. In a faucet attachment the combination with a hook and a shank therefor, of a longitudinal hollow in said shank and an annular portion at one end of said hollow substantially as described.

4. In a faucet attachment the combination with a detachable hook adapted to lie on the upper side of a faucet of a rearwardly-extending portion adapted to engage the faucet and hold the hook in position.

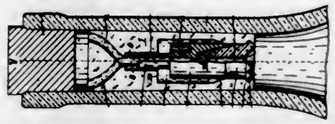
5. In a faucet attachment, the combination with the valve-stem bearing of a faucet, of a hook, a shank on said hook and an extending portion on said shank adapted to engage the valve-stem bearing to hold the hook in position.

6. In a faucet attachment, the combination with a shank adapted to lie on the upper part of a faucet-spout, of a hook at one end of said shank, and means at the other end of said shank for holding the shank in place on said spout substantially as described.

7. In a faucet attachment the combination with a hook having a shank therefor, of a longitudinal hollow in said shank, a partially-annular portion on the rear end of said shank and a concave place on the under side of the forward end of said shank substantially as described.

8. In a faucet attachment the combination with a hook of two rearwardly-extending shanks connected therewith and an annular portion connecting the rear ends of said shanks, substantially as described.

659,395. BOTTLE-STOPPER. JONAS M. HARMONY, Canton, Ohio, assignor of one-half to David H. Jackson, same place. Filed June 15, 1900. Serial No. 20,388. (No model.)

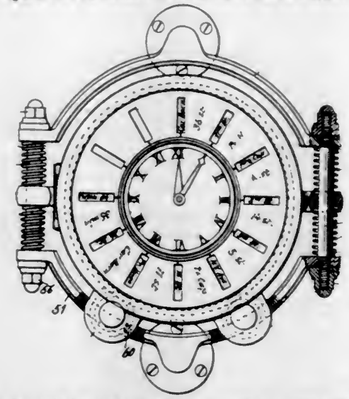


Claim.—The combination of a bottle or package having a neck; a case formed in two similar parts or valves located therein, the lower or inner end of said case provided with a cavity somewhat constricted at its lower end, a groove located in said constricted part; a cavity of reduced size located above said larger cavity, with the grooves 9 located at the sides thereof; the passage-ways 11 joined at their inner ends and diverging outward; a valve-seat provided with a passage-way flared at each end thereof, and with a rib to engage said groove; a buoyant valve slidably mounted in the case and provided with a recess or cavity at its lower end to engage the fixed valve-seat, with a groove extending downward and located around the lower portion of the cavity 15 formed in the valve, said groove and cavity closed at their lower ends, and the upward-projecting stem located upon the valve; all arranged substantially as and for the purpose specified.

659,396. SCHEDULE-INDICATOR. JOSEPH S. HILL, Los Angeles, Cal. Filed Apr. 17, 1900. Serial No. 13,258. (No model.)

Claim.—1. In a schedule-indicator, the combination of a time-indicating mechanism, a plate rotatable about said time-indicating mechanism and having a schedule of places indicated thereon, and a second plate also rotatable about said time-indicating mechanism and placed over the first-mentioned plate and provided with slots adapted to register with the names of places indicated on the first-mentioned plate.

2. In a schedule-indicator, the combination of a case comprising a main body and a door, a shell projecting from the inner side of the base of the said main body, a time-indicating mechanism located in said shell, a plate rotatable about said time-indicating mechanism and having a schedule of places indicated on the same, a second plate rotatable about said shell outside of the first-mentioned plate and having a series of slots adapted to register with the names of the schedule on the first-mentioned plate.



3. In a schedule-indicator, the combination of a case comprising a main body and a door, a time-indicating mechanism located in said case, a plate located in the main body of the case and rotatable about said time-indicating mechanism and having a schedule of places designated thereon, and a second plate carried by the door of said case over the first-mentioned plate and provided with slots adapted to register with the names of the schedule on the first-mentioned plate and rotatable about said time-indicating mechanism.

4. In a schedule-indicator, the combination of a case having offsets, a time-indicating mechanism mounted in said case, a plate having its periphery provided with teeth and having a schedule of places designated on its face and rotatable about said time-indicating mechanism, a second plate with its periphery provided with teeth rotatable about said time-indicating mechanism and provided with slots adapted to register with the names of said schedule, and gear-wheels located in said offsets and respectively engaging with the peripheries of said plates.

5. In a schedule-indicator, the combination of a time-indicating mechanism, two plates rotatable about said time-indicating mechanism one outside of the other, the inner of said plates having different schedules designated thereon and the outer of said plates having a series of slots adapted to be brought into register with any one of said schedules, and means for rotatably adjusting said plates independently of each other.

659,397. CARVING-FORK. ISAAC HIRSCH, Chicago, Ill. Filed May 11, 1900. Serial No. 16,257. (No model.)

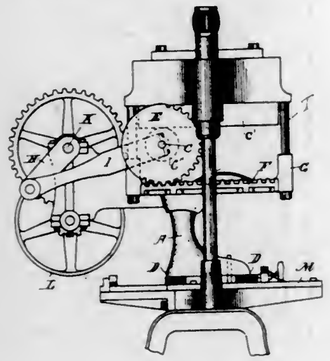


Claim.—1. In a fork, the combination with the shank thereof, of a plug extending rigidly through the shank and provided at opposite ends with pivot-bearings, a bifurcated guard provided with spring-prongs piv-

otally connected with said bearings, and a cam at the pivot at one side of the shank operating to expand the prongs in the movement of the guard between its opened and closed positions, substantially as and for the purpose set forth.

2. In a fork, the combination with the shank thereof, of a rigid plug passing through the shank provided at opposite ends with the pointed bearing projection *e* and knife-blade bearing projection *f*, a bifurcated guard having spring-prongs, with a socket *g* in one prong to engage the bearing *e*, and crossed sockets *h i*, in the other prong to engage the bearing *f*, having the shoulders *h' i'*, and intermediate cams *k*, all constructed and arranged to operate substantially as and for the purpose set forth.

659,398. **BEATING-OUT MACHINE.** CHARLES S. JOHNSON, Lynn, and JAMES C. CUTCHEON, Swampscott, Mass., assignors to the Klimax Leveller Company, Lynn, Mass. Filed June 10, 1897. Serial No. 640,131. (No model.)



Claim.—1. In a leveling-machine, in combination, a shoe-support, a form arranged to be moved in the arc of a circle, and means for simultaneously so moving the form and producing a rectilinear reciprocating motion between the axis of the said form and the shoe-support with respect to each other, for the purpose set forth.

2. In a leveling-machine, in combination, a stationary shoe-support, a form arranged to have a rolling motion along the surface of the sole of the shoe upon said support, and means for imparting such rolling motion to the said form, for the purpose set forth.

3. In a leveling-machine, in combination, a stationary shoe-support, a form mounted on a shaft, a carriage in which said shaft is mounted, and means for simultaneously reciprocating the carriage and turning the form through the arc of a circle, for the purpose set forth.

4. In a leveling-machine, in combination, a spring-backed shoe-support, a form mounted on a shaft, gears E in which the said shaft is mounted and forming a carriage therefor, stationary racks in mesh with the said gears, and means for reciprocating the said carriage, for the purpose set forth.

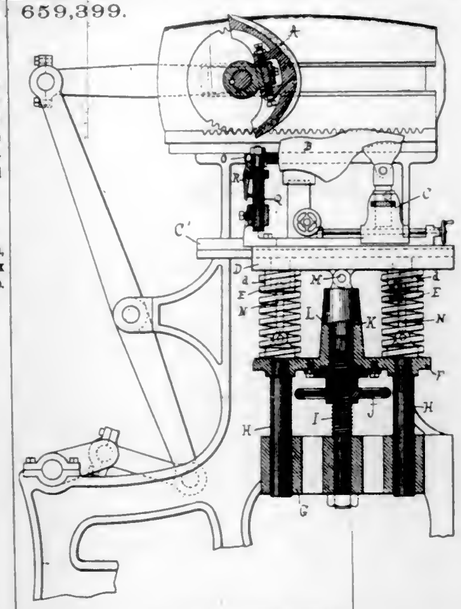
659,399. **BEATING-OUT MACHINE.** CHARLES S. JOHNSON and WILLIAMS S. JOHNSON, Lynn, Mass., assignors to the Klimax Leveller Company, same place. Filed Jan. 18, 1900. Serial No. 1,828. (No model.)

Claim.—1. In a beating-out machine operating by rolling pressure, a yielding last-supporting device comprising a fixed base-plate, a jack-platform resting on springs carried by the said base-plate, and a sliding and pivotal connection between the said platform and base-plate, whereby the platform may move pivotally in the direction of its length, and also vertically toward and away from the base-plate, for the purpose set forth.

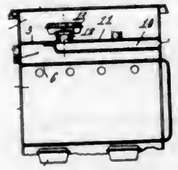
2. In a beating-out machine operating by rolling pressure, the combination with the last and its supporting-jack of a last-stop having arms or projections of different lengths to properly position the various sizes of last when upon the jack with reference to the operative position of the rolling form.

3. The improved last-stop herein described, consisting of a hub having spurs or projections of varying lengths corresponding to the sizes of last employed, a post or pin upon which said hub is supported and adapted to be revolved, and means substantially as described for locking the said hub in any desired operative position as set forth.

659,399.



659,400. **GAS-STOVE.** LAZARD KAHN, Hamilton, Ohio, assignor to F. & L. Kahn & Bros., same place. Filed Feb. 23, 1900. Serial No 6,171. (No model.)



Claim.—In a gas-stove, the combination, substantially as set forth, of a stove-body, an extreme top and subtop forming a top burner-chamber in the stove, a fine or chamber for hot gases below said subtop, a conduit extending from the exterior of the stove inwardly to the desired location of a top burner and having wall-surface exposed to the hot gases below said subtop, and a burner disposed within said top burner-chamber and communicating with said conduit.

659,401. **UNDERFRAME FOR RAILWAY-CARS.** HERBERT R. KEITHLEY, Buffalo, N. Y. Filed Apr. 24, 1900. Serial No. 14,093. (No model.)

Claim.—1. An underframe for a railway-car having a side sill constructed of a single piece of metal and composed of a longitudinal plate and vertical webs arranged at the edges of said plate and each provided at its free edge with an outwardly-extending flange, substantially as set forth.

2. An underframe for a railway-car having a center sill constructed of a single piece of metal and composed of a longitudinal plate and vertical webs arranged at the edges of said plate and each provided at its free edge with an outwardly-extending flange, said sill being formed from a single piece of metal, substantially as set forth.

3. An underframe for a railway-car having side sills, single center sill constructed of an integral piece of metal and composed of a longitudinal plate and vertical webs arranged at the edges of said plate and each provided at its free edge with an outwardly-extending flange, and a bolster connecting said side and center sills, substantially as set forth.

4. An underframe for a railway-car having side sills each constructed of a single piece of metal and composed of a longitudinal plate and vertical webs arranged at the edges thereof and each provided at its free edge with an outwardly-extending flange, a center sill constructed of a single piece of metal and composed of a longitudinal plate and vertical webs arranged at the edges thereof and each provided at its free edge with an outwardly-extending flange, and a bolster connecting said side and center sills, substantially as set forth.

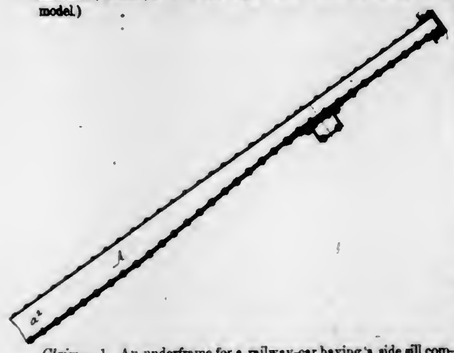
5. An underframe for a railway-car having a side sill composed of a horizontal top plate and vertical webs extending downwardly from the edges of said plate and each provided at its lower edge with an outwardly-extending flange, and a longitudinal bottom plate riveted to said flanges, substantially as set forth.

6. The combination with the side and center sills, of a body-bolster composed of a pair of Z-bars and top and bottom plates riveted to the flanges of said bars, and a tie-plate passing over the top of the center sill and having its end portions riveted between the body-bolster and the side sills, substantially as set forth.

7. The combination with the side and center sills, of a pair of horizontally-arranged Z-bars extending across the end portions of said sills on their upper and lower sides, substantially as set forth.

8. The combination with the side and center sills, of a pair of horizontally-arranged Z-bars extending across the end portions of said sills on their upper and lower sides, and a channel-bar embracing the ends of said sills and said upper and lower Z-bars and riveted to the same, substantially as set forth.

659,402. **UNDERFRAME FOR RAILWAY-CARS.** HERBERT R. KEITHLEY, Buffalo, N. Y. Filed Aug. 1, 1900. Serial No. 25,530. (No model.)

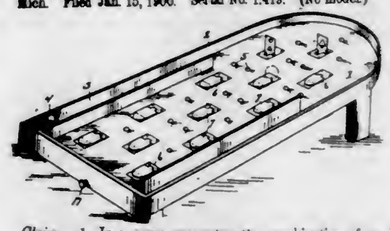


Claim.—1. An underframe for a railway-car having a side sill composed of Z-bars, each Z-bar constructed of a single plate of pressed steel and having its middle portion made of greater depth than its end portions, and top and bottom plates riveted to the flanges of said Z-bars and forming a box-girder therewith, substantially as set forth.

2. An underframe for a railway-car having a center sill composed of Z-bars, each Z-bar constructed of a single plate of pressed steel and having its middle portion made of greater depth than its end portions, and top and bottom plates riveted to the flanges of said Z-bars and forming a box-girder therewith, substantially as set forth.

3. An underframe for a railway-car having side and center sills, each composed of a pair of Z-bars and top and bottom plates riveted to the flanges of said bars to form a box-girder, each of said Z-bars being constructed of a single plate of pressed steel and having its middle portion made of greater depth than its end portions, substantially as set forth.

659,403. **GAME APPARATUS.** FREDERICK S. KRATZET, Detroit, Mich. Filed Jan. 15, 1900. Serial No. 1,419. (No model.)



Claim.—1. In a game apparatus, the combination of an inclined table, a series of wings pivoted in the table and adapted to extend upwardly therefrom above the plane thereof said wings adapted to carry figures or symbols and to lie upon the table's surface, means for maintaining said wings yieldingly in a vertical position and means for maintaining said wings in a horizontal position with the face upon the surface of the table when moved from their vertical position.

2. In a game apparatus, the combination of an inclined table upon which a ball is adapted to roll, a series of deflecting-pins in the surface of said table, a series of pivoted wings mounted upon the surface of said table between said pins and normally standing in a vertical position above the surface of the table, a counterpoise attached to said wings and depending below the surface of the table, said counterpoise serving to normally hold said wings erect and to maintain them in a horizontal position when depressed.

3. In a game apparatus, the combination of an inclined table adapted to permit a ball to roll upon the surface thereof, a series of pivoted wings set in said table adapted to carry a sign or symbol upon their face, each of said wings having a hollow arm attached thereto and depending below the surface of the table, a ball in said hollow arm adapted to roll from end to end thereof, whereby each wing is maintained in a vertical position upon the surface of the table when erect and in a horizontal position when depressed, substantially as set forth.

4. In a game apparatus, the combination of an inclined table, a series of wings projecting upwardly from the surface of the table each wing having a weighted arm attached thereto, said arm being pivoted in the table and carrying an automatically-movable weight depending below the surface of the table an actuating-rod lying against the under side of the table having extensions adapted to engage said pivoted arms.

5. In a game apparatus, the combination of an inclined table, a series of symbol-carrying members pivoted in said table to stand vertically from the plane thereof, said pivoted members being adapted to move from a vertical to a horizontal position and to lie upon the surface of the table and a counterpoise connected with each of said movable members whereby they are yieldingly maintained in position at the limit of their movement in both directions.

659,404. **EYEGLASSES.** ADAM LICHT, Newark, N. J. Filed Oct. 20, 1899. Serial No. 734,157. (No model.)



Claim.—1. In a mounting for eyeglasses or spectacles, the combination, with a lens, the spring, and post, of a strap loosely and pivotally connected with the lens, a yielding strap device connected with said post having a pair of downwardly-projecting parts extending from the main portion of said device which is connected with the post, on opposite sides toward the edge of the lens, an outwardly-extending part connected with each downwardly-projecting part, extending in opposite directions and lying in holding engagement with the edge of the lens to substantially prevent the pivotal movement of the lens when the parts are secured together, a cushioning means connected with the said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

2. In a mounting for eyeglasses or spectacles, the combination, with a lens, the spring, and a post formed with a cap or plate, having a groove or channel in its under surface, of a strap loosely and pivotally connected with the lens, and a box portion on said strap arranged in the groove or channel in said cap or plate to prevent lateral motion, oppositely-extending and yielding strap-pieces connected with said post, having their ends in engagement with the edge of the lens, to bind with the same and sub-

stantially prevent the pivotal movement of the lens when the parts are secured together, a cushioning means connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

3. In a mounting for eyeglasses or spectacles, the combination, with a lens, the spring, and a post formed with a cap or plate, having a groove or channel in its under surface, of a strap, comprising a pair of perforated arms embracing the faces of the lens and a pin or screw in said arms for pivotally securing said strap to the lens, a box portion on said strap, arranged in the groove or channel in said cap or plate of the post, to prevent lateral motion, oppositely-extending and yielding strap-pieces connected with said post, having their ends in engagement with the edge of the lens, to bind with the same and substantially prevent the pivotal movement of the lens when the parts are secured together, a cushioning means connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

4. In a mounting for eyeglasses or spectacles, the combination, with a lens, the spring, and a post formed with a cap or plate, having a groove or channel in its under surface, of a strap, comprising a pair of perforated arms embracing the faces of the lens and a pin or screw in said arms for pivotally securing said strap to the lens, a box portion on said strap and a pair of oppositely-arranged and outwardly-projecting lugs on said box portion extending into the groove or channel in said cap or plate of the post, to prevent lateral motion, oppositely-extending and yielding strap-pieces connected with said post, having their ends in engagement with the edge of the lens, to bind with the same and substantially prevent the pivotal movement of the lens when the parts are secured together, a cushioning means connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

5. In a mounting for eyeglasses or spectacles, the combination, with a lens and spring, of a post, consisting, essentially, of a cap or plate, and a pair of oppositely-projecting and downwardly-extending yielding strap-pieces connected with said cap or plate, an outwardly-extending part connected with each downwardly-projecting part, extending in opposite directions and having their free ends in holding engagement with the edge of the lens, a strap, a pivotal connection between said strap and lens, and cushioning-lugs connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, to substantially prevent the pivotal movement of the lens when the parts are thus secured together, substantially as and for the purposes set forth.

6. In a mounting for eyeglasses or spectacles, the combination, with a lens and the spring, of a post, the cap or plate of said post, a pair of oppositely-projecting yielding strap-pieces, consisting, essentially, of downwardly-extending wire portions e^2 and outwardly-extending parts e^3, in slidable engagement with the edge of the lens, and arranged to substantially prevent the pivotal movement of the lens when the parts are secured together, a strap, a pivotal connection between said strap and the lens, cushioning-lugs connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

7. In a mounting for eyeglasses or spectacles, the combination, with a lens and the spring, of a post, the cap or plate of said post having a pair of longitudinal grooves or channels in its upper surface, yielding strap-pieces having their free ends arranged and held in said grooves or channels and their opposite ends in engagement with the edge of the lens, and arranged to substantially prevent the pivotal movement of the lens when the parts are secured together, a strap, a pivotal connection between said strap and the lens, cushioning-lugs connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

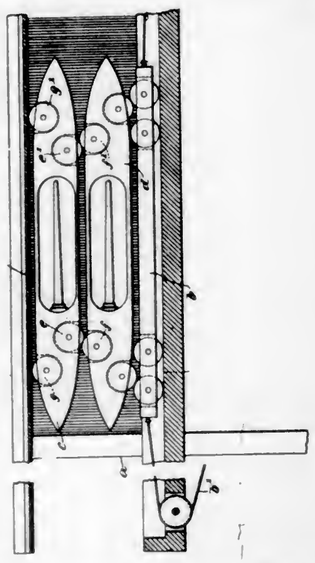
8. In a mounting for eyeglasses or spectacles, the combination, with a lens and the spring, of a post, the cap or plate of said post, having a pair of longitudinal grooves or channels in its upper surface, yielding strap-pieces having their free ends arranged and held in said grooves or channels, consisting, essentially, of downwardly-extending wire portions e^2 and outwardly-extending parts e^3 in engagement with the edge of the lens, and arranged to substantially prevent the pivotal movement of the lens when the parts are secured together, a strap, a pivotal connection between said strap and the lens, cushioning-lugs connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

9. As a new article of manufacture, a mounting for eyeglasses or spectacles, comprising a lens, a spring, and a post, consisting, essentially, of a cap or plate, having a pair of longitudinal ribs or projections between which the end of the spring is arranged, and having a pair of longitudinal grooves or channels in its upper surface, yielding strap-pieces having their free ends arranged and held in said grooves or channels and their opposite ends in engagement with the edge of the lens, and arranged to substantially prevent the pivotal movement of the lens when the parts are secured together, a strap, a pivotal connection between said strap and the lens, cushioning-lugs connected with said strap to permit of a movement of said strap in a direction toward the post, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

10. As a new article of manufacture, a mounting for eyeglasses or spectacles, comprising, a lens, a spring, a post, consisting, essentially, of a cap or plate, having a pair of longitudinal ribs or projections between which the end of the spring is arranged, and having a pair of longitudinal grooves or channels in its upper surface, and a longitudinal groove or channel in its under surface, yielding strap-pieces having their free ends arranged and held in said grooves or channels in the upper surface of said cap or plate, a strap, comprising a pair of perforated arms for pivotally securing said strap to the lens, a box portion on said strap arranged in the groove or channel in the under surface of said cap or plate of the post, to prevent lateral motion, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

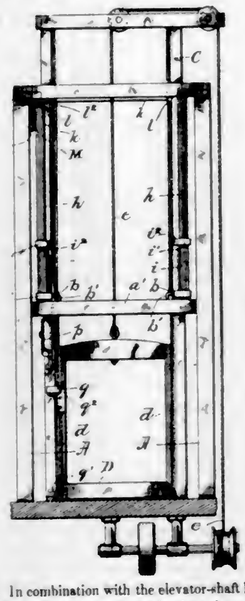
11. As a new article of manufacture, a mounting for eyeglasses or spectacles, comprising, a lens, a spring, a post, consisting, essentially, of a cap or plate, having a pair of longitudinal ribs or projections between which the end of the spring is arranged, and having a pair of longitudinal grooves or channels in its upper surface, and a longitudinal groove or channel in its under surface, yielding strap-pieces having their free ends arranged and held in said grooves or channels in the upper surface of said cap or plate, a strap, comprising a pair of perforated arms for pivotally securing said strap to the lens, a box portion on said strap and a pair of oppositely-arranged and outwardly-projecting lugs on said box portion extending into the groove or channel in the under surface of the cap or plate of said post, to prevent lateral motion, and means for positively connecting said spring, post and strap together, substantially as and for the purposes set forth.

659,405. SHUTTLE-MOTION FOR LOOMS. RICHARD B. LOYND, Philadelphia, Pa. Filed Feb. 25, 1897. Renewed Mar. 8, 1900. Serial No. 7,929. (No model.)



Claim.—The combination with superposed shuttles, of rollers carried by said shuttles and contacting with each other to connect the shuttles and permit of the passage of warp between them, substantially as described.

659,406. ELEVATOR. WILLIAM H. MECHLIN, Greenfield, Ohio. Filed Apr. 19, 1900. Serial No. 13,541. (No model.)



Claim.—1. In combination with the elevator-shaft having suitably-hinged doors for closing the hatchway, mechanism adapted to be actuated by the moving car for opening said doors ascending and descending, comprising a pair of rocking levers with parallel vertical bars or rods pivotally connecting the free ends thereof, flexible connections between one of said rocking levers and said doors for opening the latter when the levers are rocked, so as to permit the car to pass, and means carried by the car for rocking said levers when moving up or down; substantially as described.

2. In combination with the elevator-shaft having suitably-hinged doors for closing the hatchway or opening therein, said doors being adapted to slide vertically when opened, mechanism for opening and simultaneously raising said doors above the hatchway to clear the entrance thereto as the car ascends or descends and for returning the doors to their normal positions and closing them after the passage of the car, mechanism for automatically actuating said door opening and raising mechanism by the passage of the car; substantially as described.

3. In combination with the elevator-shaft having suitably-hinged doors for closing the opening or hatchway therein, said doors being adapted to slide vertically when opened, mechanism for opening and simultaneously raising said doors above the hatchway to clear the entrance thereto as the car ascends or descends and for returning the doors to their normal positions and closing them after the passage of the car, mechanism for automatically actuating said door opening and raising mechanism comprising a pair of rocking levers having vertically-disposed rising and falling parallel bars or rods pivotally connecting their free ends, and projections carried by the car for rocking said levers and thereby actuating said door-opening mechanism as the car ascends or descends; substantially as described.

4. In combination with the elevator-car having suitable engaging means thereon for engaging door-actuating mechanism at the hatchway as the car ascends or descends, doors for closing the hatchway hinged and slidably arranged within the shaft, means for opening and raising said doors as the car ascends or descends, and mechanism for automatically actuating said door opening and raising means by contact with the engaging means carried by the car whether ascending or descending; said automatically-actuated mechanism being adapted to maintain said doors in a raised position until the car has passed and then to permit their automatic return to and closing of the hatchway; substantially as described.

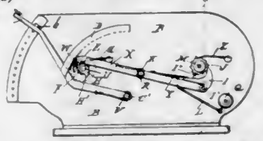
5. In combination with the car arranged to ascend and descend an elevator-shaft, a pair of centrally-pivoted rocking levers extending transversely of the shaft, one above and the other below the hatchway, vertically-disposed rods or bars pivotally connecting the free ends of said levers, hinged doors covering the hatchway slidably attached to guides upon the shaft, flexible connections between said doors and the parallelogram formed by said levers and vertical bars, for opening and raising the doors when said levers are rocked, and means carried by the car for engaging first the nearest lever and then the adjacent vertical bar as the car ascends or descends, whereby the doors are opened, raised and held in a raised position until the car has passed the landing, and then returned to normal position closing the hatchway; substantially as described.

6. In combination with the car arranged to ascend and descend an elevator-shaft, a pair of centrally-pivoted rocking levers extending transversely of the shaft, one above and the other below the hatchway, vertically-disposed rods or bars pivotally connecting the free ends of said levers, hinged doors covering the hatchway slidably attached to guides upon the shaft, flexible cords or wires connecting said doors over suitable rollers or pulleys with the parallelogram formed by said levers and vertical bars, for opening and raising the doors when said levers are rocked, and means carried by the car for engaging first the nearest lever and then the adjacent vertical bar as the car ascends or descends, whereby the doors are opened, raised and held in a raised position until the car has passed the landing, and then returned to normal position closing the hatchway; substantially as described.

7. In combination with the elevator-shaft having suitable well-doors, mechanism adapted to be actuated by the moving car for opening said doors when the car is ascending or descending, comprising a pair of rocking levers with parallel vertical bars or rods pivotally connecting the free ends thereof, flexible connections between one of said rocking levers and said doors for opening the latter when the levers are rocked, and means carried by the car for rocking said levers when moving up or down; substantially as described.

8. In combination with the elevator-shaft having suitable well-doors adapted to slide vertically to clear the entrance to the shaft, mechanism adapted to be actuated by the moving car for raising said doors as the car ascends or descends, and for lowering them after the passage of the car, said mechanism comprising a pair of rocking levers with parallel vertical bars pivotally connecting the free ends thereof, flexible connections between one of said rocking levers and said doors for raising or lowering the latter when the levers are rocked, and means carried by the car for rocking said levers when moving up or down; substantially as described.

659,407. MACHINE FOR COMPUTING NUMBERS. CHARLES T. MEREDITH, San Diego, Cal. Filed June 25, 1900. Serial No. 21,562. (No model.)

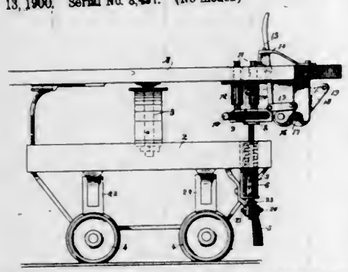


Claim.—1. In a machine for calculating numbers provided with a plurality of dial-plates, displaying numerals thereon and having index-fingers mounted therein, and operatively connected with an operating-lever, and adapted, when rotated, to point out the different numerals on the dial-plate; a plurality of number-regulating keys, having numerals marked thereon, usually ten in number, workably mounted in the frame of the device, and adapted to limit the movement of the operating-lever when pressed into the path of movement of the lever, whereby the number indicated on the key pressed in will be pointed out on the dial-face by the dial-finger

2. A device for adding, and multiplying numbers, comprising the frame A, having a plurality of dial-plates thereon, marked with the numerals from "0" to "9" inclusive, index-fingers T, T' &c., rotatively mounted in the center of said dial-plates, and arranged to point to the different numerals on the dials as the fingers move around on said dial-plate, a series of number-regulating keys N, movably mounted in said frame and adapted to limit the stroke of the operating-lever when pressed into the path of the free end of the lever, an operating-lever C, carrying thereon a segmental rack D; a spur-gear E, loosely journaled on the shaft U and engaging the gear on the rack D; a ratchet-wheel F keyed to the shaft U; the rock-lever X, pivoted to said frame, one end adapted to rest upon a circular cam H; the circular cam H, keyed to said shaft and having projecting point H'; a spring G mounted on the rock-lever and adapted to engage the teeth on the spur-gear E, permitting a movement of said gear in one direction only, a spring K rigidly affixed to shaft R and adapted to bear upon and press the rock-lever against the cam H; the dog I rotatively mounted on said lever and adapted to engage catches on the ratchet-wheel J; the spring Y rigidly affixed to the rock-lever and engaging projections on the dog I, and adapted to hold the pointed end of the dog in engagement with the ratchet; the ratchet-wheel J keyed to the journal M; the spring Z affixed to the frame, the free end adapted to bear against the ratchet J, and engage the teeth thereon, permitting a movement of the ratchet in one direction only; the dial-fingers T, T' keyed respectively

to the shafts U and M; the resilient arm L affixed to the rock-lever X, and having on the free end thereof a striker adapted to strike and ring the bell Q immediately after the end of the rock-lever passes over the point H′ on the cam H; the shaft M carrying the dial-finger T′ and having on the opposite end the thumb-piece M′.

659,408. TRACK CLEANER AND OILING DEVICE. WILLIAM MORCK, PETER KRICKAU, and WILLIAM BOEHLE, Oakland, Cal. Filed Mar. 13, 1900. Serial No. 8,497. (No model.)



Claim.—1. In a car and in combination with the truck and the body thereof, brushes having shanks slidable in vertical guides on the truck, a transverse bar connecting the shanks of opposite brushes, a second transverse bar carried by the car-body and a loose connection and guide between this bar and the first-named one, and means whereby the second-named bar may be raised and lowered to raise and lower the first-named bar and its brushes.

2. In a car and in combination with the wheel-frame and body thereof, brushes having shanks slidable in vertical guides, and springs by which they are normally depressed into contact with the rails, a lever mounted upon the car-body and automatically-adjustable mechanism intermediate between it and the brush-shanks whereby the latter may be raised.

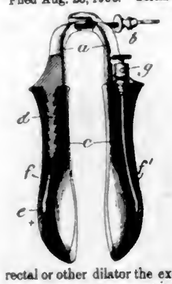
3. In a car and in combination with swivel-trucks which are turnable independently of the turning movement of the car-body, brushes having spring-pressed vertically-guided shanks carried upon the truck-frames and normally forced into contact with the rails in front of the wheels, a connection between each pair of brushes whereby they may be raised or depressed simultaneously, a transverse bar and means whereby it is vertically guided on the car-body said bar connected with and having its ends guided by the said connection a lever fulcrumed upon the car with a retaining-rack, connections intermediate between the lever and the said bar whereby the brushes may be raised or depressed while the truck swivels independently.

4. In a car, trucks having vertical swivel-bolts upon which the ends of the car are supported and by which the trucks and car-body are independently turnable, brushes having spring-pressed vertically-guided shanks mounted upon the truck-frames in front of the forward wheels thereof, and a bar connecting the brush-shanks so that they are movable in unison, a second transverse bar carried by the car-body and connected with and guided by the first-named bar, a lever fulcrumed upon the car-body, a rack with which it is engageable, a counter-shaft having rocker-arms with one of which the lever is connected, and a flexible connection between the other rocker-arm and the second-named bar.

5. In a car a body, trucks upon which the ends of the car are supported by swivel-joints whereby the trucks are independently turnable, vertically movable and guided spring-pressed brushes having the upper ends of their shanks connected to move in unison, slotted segments fixed upon the transverse connecting-bar, a lever fulcrumed upon the car-body and a rack with which it engages, a rock-shaft having arms one of which is connected with the lever and the other is connected with a vertically guided and movable transverse bar, said bar having its ends projecting through the slots in the segments and freely movable with relation thereto.

6. In a car, trucks by which the ends of the car are supported, and swivel-pins or king-bolts about which they are turnable independently, brushes having spring-pressed vertically-movable and guided shanks connected at their upper ends to move in unison and having horizontally-slotted segments fixed thereto, a bar the ends of which pass through and are freely movable in the slots of the segments, vertical stems fixed to said bar and guides in which said stems are slidable, a lever fulcrumed upon the car-body, a rack with which it engages, a journal counter-shaft having rocker-arms, one of which is connected with the lever and the other by a flexible connection with the horizontal bar whereby the latter may be raised or depressed by the movement of the lever and its movement communicated to the brush-carrying shanks through the independently-movable slotted segments.

659,409. ELECTRIC BIPOLAR DILATOR. CHARLES L. MOSHER, Chatham, N. Y. Filed Aug. 25, 1900. Serial No. 28,024. (No model.)



Claim.—1. A rectal or other dilator the expanding-blades of which are provided with contact plates or poles adapted to be included in an electric circuit and constitute the terminals of a source of electrical supply.

2. A rectal or other dilator the expanding-blades of which are insulated at their base portions and have contact-poles at or near their ends separately constituting the terminals of a source of electrical supply.

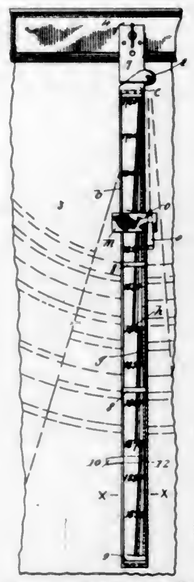
3. A rectal or other dilator having electric contact plates or poles near the inner ends of the expanding-blades and means for connecting said contact plates or poles to a source of electrical supply to constitute the terminals thereof.

4. In a bipolar surgical instrument, two or more dilating-blades, insulated electric contact plates or poles on the blades and means for connecting two or more of the insulated plates or poles to the terminals of the source of electrical supply.

5. A rectal or other dilator having electric contact plates or poles near the ends of the expanding-blades, the base portions of the blades being insulated to avoid electrical contact with the sphincter-muscles, and means for connecting said contact plates or poles to a source of electrical supply to constitute the terminal thereof.

6. In a rectal or other dilator, blades formed of insulating material, hinged connections for the blades, means for forcing the blades apart, electric contact plates or poles carried by the blades, and means for connecting said plates or poles to the terminals of a source of electrical supply.

659,410. CHART-DRAWING INSTRUMENT. ELI N. MOYER, Toronto, Canada. Filed Nov. 3, 1899. Renewed Aug. 29, 1900. Serial No. 28,473. (No model.)



Claim.—1. In combination with an arm for drawing instruments of the type described, a number of detachable strips carried by said arm and extending longitudinally thereof, each strip having a different scale marked thereon, and rigid stops upon the arm and extending across the end and

side edges of said strips for retaining said strips against longitudinal and lateral displacement upon said arm.

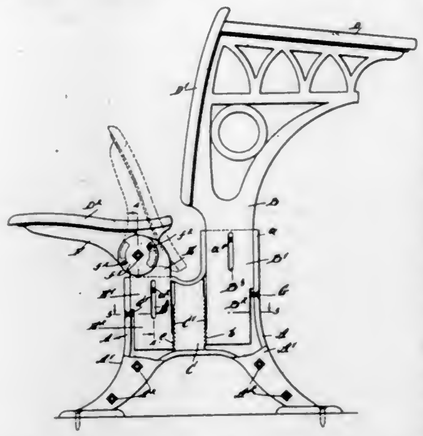
2. An arm for the purpose set forth, having a longitudinal recess in the exposed face thereof and a series of strips bearing time-scales, carried in said recess, said strips being interchangeable with one another, and rigid stops upon the arm and extending across the end edges of said strips for retaining said strips against longitudinal displacement.

3. In combination with a blackboard, a drawing instrument, of the class described, comprising an arm; a number of detachable strips carried by said arm and extending longitudinally thereof, each strip having a different scale marked thereon, rigid stops upon said arm and extending across the end and side edges of said strips for retaining said strips against longitudinal and lateral displacement; a marker carried by said arm and adjustable longitudinally thereof, and means for pivotally connecting said arm at one end to said blackboard, substantially as described and for the purpose set forth.

4. In combination with a base of an arm having a pivot-point at one end in line with one side edge thereof, a series of strips carried by the exposed face of said arm, said strips being interchangeable with one another; each strip bearing a scale consisting of a series of equal divisions radiating from said pivot-point and extending one beyond the other and offset from one another, and a series of equal divisions concentric of said pivot and subdividing said radial divisions, the divisions and subdivisions of the scale upon each strip differing from the divisions and subdivisions of the scales upon the other strips; a marker carried by said arm and movable longitudinally thereof; and means for pivotally connecting said arm, at said pivot-point, to said base, substantially as described and for the purpose set forth.

5. In combination with a blackboard 3 having a frame 4; an arm having a longitudinal recess in the exposed face thereof and a series of strips, *b*, bearing time-scales, carried in said recess, said strips being interchangeable with one another; a hinge-plate 7 pivotally connected to one end of said arm; a thumb-screw 5, for connecting said hinge-plate to the frame 4; and a slidable block *m* having a notch *n* and a diagonal hole, *p*, for a chalk-marker o, substantially as described and for the purpose set forth.

659,411. SCHOOL DESK AND SEAT. PAUL S. MCAULAY and MARTIN ANDERSON, South Omaha, Nebr. Filed Apr. 27, 1897. Serial No. 634,071. (No model.)



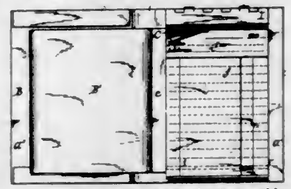
Claim.—The combination with a stand provided with vertical sockets having teeth on one lower side edge, of bars fitting in the sockets and provided at their lower ends on their inner edges with teeth engaging the teeth of the sockets and on the outer edges with recesses, the upper ends of the bars being each provided with a curved slot and a notch in its edge corresponding to the slot, but on the opposite side of the center, set-screws passing through the sockets and engaging the recesses of the said bars, and seat-bars pivoted to the upper ends of the sliding bars and provided with oppositely-arranged lugs engaging the slot and notch respectively of the sliding bars, substantially as herein shown and described.

659,412. HAND-STRAP. URIAH MCCLINCHIE, New York, N. Y. Filed Mar. 30, 1900. Serial No. 10,777. (No model.)

Claim.—An advertising hand-strap consisting of a flexible strap having its ends brought together and united near its center to form two closed loops, a holder on the outer face of the strap between the loops and over the joint of the strap, and formed of flexible material, said holder having its greatest length in the direction of the length of the strap and having a width greater than that of the strap, the holder also having an internal pocket with a flexible entrance in one end thereof to permit the removal and replacement of cards, and devices for detachably securing the flexible holder to the strap, one of said devices also securing the open end of the holder.



659,413. MANIFOLD ORDER-BOOK. THOMAS MCDOWELL, Niagara Falls, N. Y., assignor to the Carter-Crume Company, same place. Filed Feb. 3, 1899. Serial No. 704,339. (No model.)



Claim.—1. In a manifold order-book, the combination with the pile of double leaves, one half of which are provided with stubs bound together, while the other half fold in as fly-leaves, perforated lines between the leaves and between the leaves and stubs, and the transfer-sheet coated with transferring composition on both sides and of a length to be inclosed by the double leaves, of a cover, a base to support said pile hinged to the lower right-hand edge of the cover, a spring-clamp mounted on the free end of the hinged base and engaging the stubs and transfer-sheet, and a set of triplicate leaves bound together and held in the book, and adapted to lie upon either or both sides of the said base and pile of leaves, as set forth.

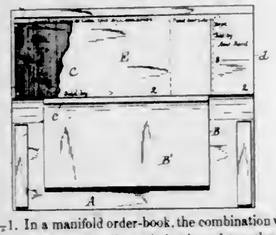
2. In a manifold order-book, the combination with the pile of double leaves, one half of which are bound together while the other half fold in as fly-leaves, and the transfer-sheet coated with transferring composition on both sides bound therein, of a cover, a base to support said pile hinged to the lower edge of the cover, a spring-clamp to hold the carbon-sheet and one end of the pile to the base, a set of triplicate leaves and a flexible cover therefor bound together at their centers, and a pocket in the inside of the first-mentioned cover containing one of the leaves of the second-mentioned cover, as set forth.

3. In a manifold order-book, the combination with the pile of double leaves, one half of which are bound together while the other half fold in as fly-leaves, and the transfer-sheet coated with transferring composition on both sides bound therein, of a cover, a base to support said pile hinged to the lower edge of the cover, a spring-clamp to hold the carbon-sheet and one end of the pile to the base, a set of triplicate leaves and a flexible cover therefor bound together at their centers, and a pocket in the right-hand side of the first-mentioned cover and opening near and on a line parallel with its central hinge receiving and containing the right-hand leaf of the said flexible cover, as set forth.

4. In a manifold order-book, the combination with the pile of double

leaves, one half of which are bound together while the other half fold in as fly-leaves, and the transfer-sheet coated with transferring composition on both sides bound therein, of a cover, a base to support said pile hinged to the lower edge of the cover, means to hold the carbon-sheet and the pile to the said base, a book containing the triplicate leaves having its hinge opposite the hinge of the first-mentioned cover, the latter cover extending on all sides beyond the other cover, and a pocket in one of the covers containing a leaf of the other cover, as set forth.

659,414. MANIFOLDING SALES-BOOK. THOMAS MCDOWELL, Niagara Falls, N. Y., assignor to the Carter-Crume Company, same place. Filed Feb. 3, 1899. Serial No. 704,341. (No model.)



Claim.—1. In a manifold order-book, the combination with the cover and a pile of duplicates said duplicates being bound together at one edge, with a leaf coated with transferring composition bound upon the top of the pile, of a board hinged to the cover and supporting the said pile, a pocket in the cover below the said hinged board and opening at or near the center of the cover, and a small book containing the original sheets, one of the covers of the latter book being entered and retained in the said pocket, as set forth.

2. In a manifold order-book, the combination with the cover, and a pile of leaves forming duplicates said duplicates being bound together at one edge with a leaf coated with transferring composition bound upon the top of the pile, of a board supporting the said pile, hinged to the right-hand edge of the leaf *a* of the cover, and having its free end attached to the bound end of the pile of duplicates, a pocket in the cover below the said hinged board and opening at or near the center of the cover, and a small book containing the original sheets, one of the covers of the latter book being entered and retained in the said pocket, as set forth.

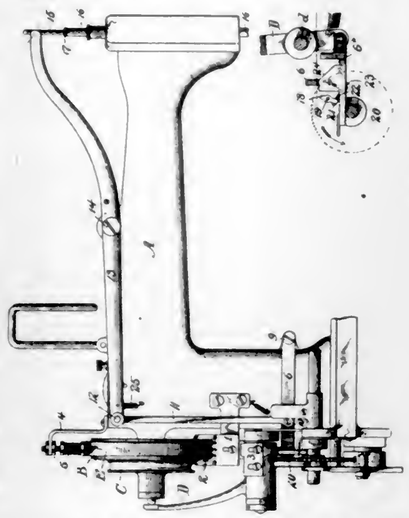
3. In a manifold order-book, the combination with the cover, and a pile of leaves forming duplicates said duplicates being bound together at one edge with a leaf coated with transferring composition bound upon the top of the pile, of a board supporting the said pile, hinged to the right-hand edge of the leaf *a*, of the cover, and having a pocket therein, a piece secured to the lower side of the pile of duplicates to enter the pocket and retain the said pile in position thereon with its bound end upon the free end of the hinged board, a pocket in the cover below the said hinged board and opening at or near the center of the cover, and a small book containing the original sheets, one of the covers of the latter book being entered and retained in the said pocket, as set forth.

4. In a manifold order-book, the combination with the cover, and a pile of leaves forming duplicates said duplicates being bound together at one edge with a leaf coated with transferring composition bound upon the top of the pile, of a board supporting the said pile hinged to the right-hand edge of the leaf *a*, of the cover, and having a pocket therein opening near and on a line parallel with the free end of the hinged board and on its upper side, a piece secured upon the lower side of the said pile and adapted to enter the pocket, said piece being secured to the bound end of the pile, a pocket in the cover below the said hinged board and opening at or near the center of the cover, and a small book containing the original sheets, one of the covers of the latter book being entered and retained in the said pocket as set forth.

5. In a manifold order-book, the combination with the stiff cover and its central horizontal hinge, a pocket in the inside of the leaf *a* of the cover and having its mouth near and parallel with the hinge, of a book shorter than the said cover and having a flexible cover and containing leaves for original slips, and having one of the leaves of its cover lying in the said pocket, a board hinged to one side of the upper leaf of the latter cover, a tablet bound at one end, supported upon the hinged board and having its bound end removably secured to the free end of said section, perforated lines across the sheets of the tablet, the ends of said tablet extending beyond the ends of the small book of originals, as and for the purpose set forth.

6. In a manifold order-book, the combination with the cover and a pile of duplicates said duplicates being bound together at one edge, with a leaf coated with transferring composition bound upon the top of the pile, of a board hinged to the cover and supporting the said pile, a small book much shorter than said cover containing the original sheets, and means substantially as described detachably securing the small book to the cover, as set forth.

659,415. TRIPPING DEVICE FOR STOP-MOTION MECHANISMS FOR BUTTONHOLE-MACHINES. WILLIAM N. PARKER, New York, N. Y. Original application filed Oct. 10, 1899, Serial No. 733,226. Divided and this application filed Jan. 3, 1900. Serial No. 199. (No model.)



Claim.—1. The combination with a stop-motion mechanism provided with a tripping device of a cutter mechanism having a cutter-carrier, of means interposed between the said stop-motion mechanism and the said cutter mechanism, whereby the tripping device is held in an inoperative position until the cutter-carrier has been raised to its elevated or normal position.

2. The combination with a stop-motion mechanism provided with a tripping device of a cutter mechanism having a cutter-carrier, of means controlled by the cutter-carrier, whereby the said tripping device is held in an inoperative position until the cutter-carrier has been raised to its elevated or normal position.

3. The combination with a stop-motion mechanism having a tripping device comprising a latch and a catch of a cutter mechanism having a cutter-carrier, of means interposed between the said latch and catch and the cutter-carrier, whereby the tripping device is held in an inoperative position until the cutter-carrier has been raised to its elevated or normal position.

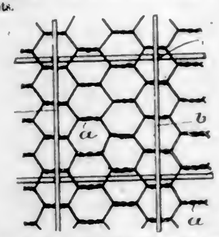
4. The combination with a stop-motion mechanism provided with a tripping device, of a cutter mechanism having a cutter-carrier, of means comprising a lever interposed between the said stop-motion mechanism and the said cutter mechanism, whereby the tripping device is held in an inoperative position until the cutter-carrier has been raised to its elevated position.

5. The combination with a stop-motion mechanism provided with a tripping device of a cutter mechanism having a cutter-carrier, a suitably-pivoted lever, means operated through the movement of the cutter-carrier adapted to engage one end of the said lever, and means interposed between the other end of the said lever and the aforesaid stop-motion mechanism, whereby the tripping device is held in an inoperative position until the cutter-carrier has been raised to its elevated or normal position.

6. The combination with a stop-motion mechanism having a tripping device comprising a catch and a latch, of the cam 24 formed on the said catch, the pivoted lever 13, the connection 11 between the said lever and the latch, a cutter mechanism having a cutter-carrier, and means carried by the cutter-carrier adapted to engage the lever 13, and thereby hold the aforesaid tripping device in an inoperative position until the cutter-carrier has been raised to its elevated or normal position.

659,416. COMPOSITE WIRE FABRIC. JOHN C. PERRY, Clinton, Mass. Filed July 1, 1899. Serial No. 722,551. (No model.)

Claim.—1. A compound wire fabric, comprising an inner fabric member and two inclosing members composed of bars or rods, the bars or rods upon one side being bonded to the bars or rods of the other side at predetermined points.



2. A compound fabric, comprising an inner member supported between wires extending on both sides thereof, but not interwoven with the same, the wires on one side being bonded to those on the other side at predetermined points.

3. A compound fabric, comprising an inner member arranged and supported between the wires extending on both sides thereof, the said wires on one side being welded to those on the other side at predetermined points.

4. A compound fabric, comprising an inner member, a series of cross-wires arranged upon one side of said member, a series of longitudinal wires arranged upon the other side of said member, the said wires being bonded at their points of intersection and holding interposed between them the inner member.

5. A compound fabric comprising an inner member, a series of cross-wires arranged upon one side of said member, a series of longitudinal wires arranged upon the other side of said member, the said wires being welded at their points of intersection and holding interposed between them the inner member.

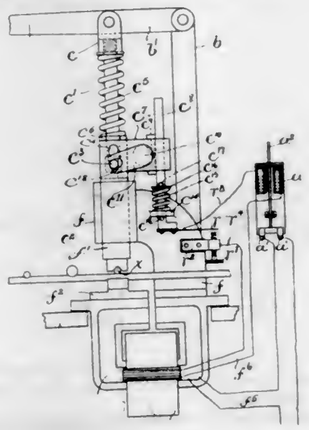
6. A compound fabric, comprising a wire fabric interposed between two sets of wires or bars, the said bars or wires upon one side being bonded to the bars or wires upon the other side and holding between them the said fabric.

7. A compound fabric, comprising an inner member or fabric, a series of strengthening wires or bars arranged upon each side thereof, the bars or wires upon one side being bonded to the bars or wires upon the other side, through the plane of the inner member, whereby the inner member is connected to and supported by said wires.

8. A wire fence, comprising a fabric of relatively-small wires and mesh, a fabric of relatively-heavy wires and mesh, said wires being arranged upon each side of said first-mentioned fabric, the inclosing wires upon one side being bonded to those of the other side at predetermined points.

9. A wire fabric, comprising two sets of wires or bars, a sheet of material arranged between said sets of wires, the wires of one set being connected at predetermined points to the wires of the other set through the plane occupied by said sheet.

659,417. SELF-ADJUSTING CIRCUIT-BREAKER FOR ELECTRICAL WELDING-MACHINES. JOHN C. PERRY, Clinton, Mass. Filed Mar. 26, 1900. Serial No. 10,149. (No model.)



Claim.—1. In an electrical welding apparatus, in combination, a circuit-breaker, means controlled by the amount of upset for operating said circuit-breaker, whereby a predetermined amount of upset is automatically produced, irrespective of the irregularities in the size and shape of the parts to be welded.

2. In an electrical welding apparatus, in combination, a circuit-breaker, a contact device arranged to control said circuit-breaker, means for operating said contact device arranged to be actuated only during the upset motion of the welding-jaw.

3. In an electrical welding apparatus, in combination, a circuit-breaker, a contact device arranged to control said circuit-breaker, means for operating said contact device, so arranged that the contact device cannot operate until a predetermined upset has been secured.

4. In an electrical welding apparatus, in combination, a circuit-breaker, means for operating the same, including a movable member, a movable welding-jaw, means for causing the said member to be moved only during the upsetting motion of the said jaw.

5. In an electrical welding apparatus, in combination, a circuit-breaker, means for operating said circuit-breaker, a movable welding-jaw, connections between said jaw and circuit-breaker means, and means arranged to give said jaw an initial motion to seat the work, thereafter to put said circuit-breaker means under control of said jaw, then to give said jaw its upsetting motion, said circuit-breaker means being arranged to operate a circuit-breaker after a predetermined amount of upset has been produced.

6. In an electrical welding apparatus, in combination, a circuit-breaker, means for operating said circuit-breaker, a movable welding-jaw, means for operating said jaw, a loose connection between said jaw and its operating means having provision for putting said circuit-breaker means under control of said jaw, whereby said jaw may be given an initial movement to seat the work without affecting the circuit-breaker means; thereafter, said circuit-breaker means to be put under control of said jaw, and then said jaw to be moved to produce the required amount of upset, the parts being so arranged that the amount of upset automatically controls the time or point at which the circuit-breaker should be operated.

7. In an electrical welding apparatus, in combination, a circuit-breaker, means for operating said circuit-breaker, a movable welding-jaw, connections between said jaw and the circuit-breaker means, and means for operating said jaw having provision for moving said jaw to securely seat the parts to be welded, irrespective of the irregularities in the size and shape of said parts, or their contact ends or points, without affecting the said circuit-breaker means, thereafter to put said circuit-breaker means under control of said jaw, and then to move said jaw to produce the required amount of upset, the circuit-breaker-operating means being so timed that they operate the circuit-breaker only when the predetermined amount of upset has been produced.

8. In an electrical welding apparatus, in combination, a current-controller, a movable welding-jaw, and automatically-adjusting connections between said jaw and controller whereby a predetermined amount of upset is automatically produced irrespective of the seating position of the jaw.

9. In an electrical welding apparatus, in combination, a current-controller, a movable welding-jaw, automatically-acting connections between said jaw and controller whereby the jaw can seat at varying positions, depending upon the parts to be welded, and thereafter have a predetermined welding movement.

10. In an electrical welding apparatus, in combination, a movable welding-jaw, and automatic means for seating said jaw at varying positions, depending upon the parts to be welded, and thereafter giving the said jaw a predetermined welding movement.

11. In an electric welding apparatus, in combination, a movable welding-jaw, a current-controller having a movable member, and means whereby the jaw may be automatically moved to seat the work without affecting the relative position or relation of said movable member to its complemental member.

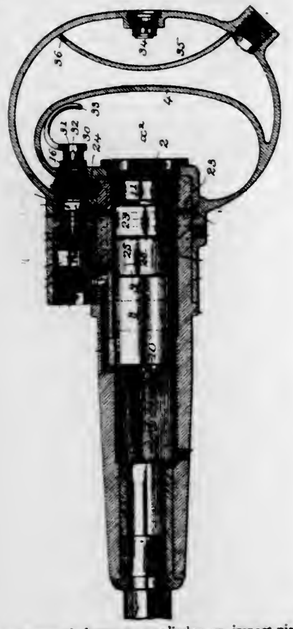
659,418. PNEUMATIC HAMMER. CHARLES K. PICKLES, St. Louis, Mo., assignor of one-half to Dwight Tredway, same place. Filed Feb. 10, 1900. Serial No. 4,803. (No model.)

Claim.—1. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, and a pneumatically-actuated piston-valve arranged in said valve-chamber, substantially as set forth.

2. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a differential-area valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, and a pneumatically-actuated and differential piston-valve arranged in said valve-chamber, substantially as set forth.

3. In a pneumatic hammer, a cylinder, an impact-piston, a handle

portion having a sleeve by which it is detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder and a pneumatically-actuated piston-valve arranged in said valve-chamber, substantially as set forth.



4. In a pneumatic hammer, a cylinder, an impact-piston, a handle portion having a sleeve by which it is detachably secured to the cylinder, a differential-area valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, and a pneumatically-actuated and differential piston-valve arranged in said valve-chamber, substantially as set forth.

5. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, a pair of annular passages formed in said sleeve, and a pneumatically-actuated piston-valve arranged in said valve-chamber, substantially as set forth.

6. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, a pair of annular passages formed in said sleeve, a cylindrical bushing or lining for said valve-chamber, and a pneumatically-actuated piston-valve arranged in said valve-chamber, substantially as set forth.

7. In a pneumatic hammer, a cylinder, an impact-piston having a reduced rearward extension, a pneumatically-actuated valve for controlling the movement of said piston, and an inlet-port to the rear piston-chamber arranged forward of the rear end of such chamber a distance less than the length of said piston extension, substantially as set forth.

8. In a pneumatic hammer, a cylinder, an impact-piston, a hollow handle portion having an inlet-neck for the attachment of the flexible supply-pipe, and an inwardly-opening check-valve arranged in said handle portion, substantially as set forth.

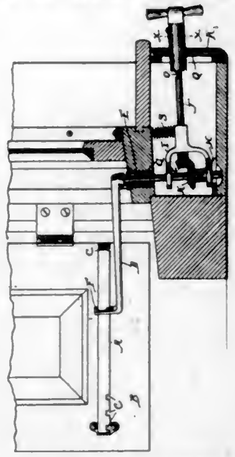
9. In a pneumatic hammer, a cylinder, an impact-piston, a hollow handle portion having an inlet-neck for the attachment of the flexible supply-pipe, an inwardly-opening check-valve arranged in said handle portion, and a lubricant-trap arranged intermediate of the inlet-neck and the check-valve, substantially as set forth.

10. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, a pneumatically-actuated piston-valve arranged in said valve-chamber, and a piston throttle-valve arranged in axial alinement with said valve, substantially as set forth.

11. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, a valve-chamber formed in one side of said sleeve and wholly independent of and parallel with the cylinder, a cylindrical bushing or lining for said valve-chamber, a pneumatically-actuated piston-valve arranged in one portion of said bushing, and a manually-controlled piston-valve arranged in the other portion of said bushing, substantially as set forth.

12. In a pneumatic hammer, a cylinder, an impact-piston, a sleeve detachably secured to the cylinder, differential-area valve-chamber formed in said sleeve, a pneumatically-actuated and differential piston-valve arranged in said chamber, and a minute passage connecting with the larger valve-chamber and adapted to introduce normal-motive fluid pressure into said chamber to hold said valve in its rearward position, substantially as set forth.

659,419. SHUTTER-WORKER. Edwin H. Price, Lansdale, Pa. Filed Jan. 27, 1900. Serial No. 2,933. (No model.)



Claim.—1. In combination with a window-shutter, a bar secured thereon, an operating-arm, the outer end of which embraces said bar, means on the bar for engaging the tilting arm, a tilting spindle to which the arm is secured, a slotted plate in which the lower end of the spindle is journaled, a yoke carried by the spindle, a shaft journaled in said yoke, beveled gears for transmitting rotation from the shaft to the spindle, and a handle attached to the shaft for revolving the same, as specified.

2. In combination, a shutter, a bar secured thereto, an operating-arm having an upturned slotted end embracing said bar, and adapted to engage notches formed in the latter, a spindle to which said arm is attached and so journaled as to be tipped, a plate in which the lower end of said spindle is journaled, said plate having a beveled slot therein, a beveled gear secured to the spindle, a yoke attached to the spindle, a shaft journaled in said yoke, a beveled pinion secured upon said shaft and meshing with the gear, notches formed in the outer end of the shaft, a handle having a socket therein adapted to fit upon said shaft to turn the latter, a plate in which the handle is journaled, and an escutcheon in which the last-named plate is fitted to slide, as and for the purpose set forth.

3. The herein-described combination of a shutter, a notched bar secured thereto, an operating-arm having an upturned slotted end embracing said bar, a spindle to which said arm is secured, said spindle being adapted to tip, a yoke attached to the spindle, a spring adapted to bear upon said yoke, and adapted to hold the spindle in its vertical position, a shaft journaled in the yoke, beveled gears for transmitting rotation from the shaft to the spindle, and means for manipulating the shaft, as specified.

659,420. HAND-STONE. Ferdinand A. Reichardt, Elizabeth, N. J. Filed Jan. 12, 1900. Serial No. 1,175. (No model.)

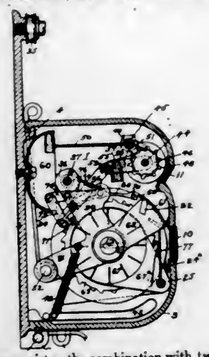


Claim.—1. A hand-stone, the surface of which has abrading properties adapted to smooth or remove skin, having a series of grooves of various sizes formed in its surface.

2. A hand-stone, the surface of which has abrading properties adapted to smooth or remove skin, having grooves formed in its surface for action upon rounded parts of the body, and having a hole formed through it for action on the skin of the fingers, &c.

3. A hand-stone, the surface of which has abrading properties adapted to smooth or remove skin, having a hole formed through it for action on the skin of the fingers, &c., having grooves formed in its surface for action upon rounded parts of the body, and having pointed ends for action on the creases in the skin.

659,421. REGISTERING MECHANISM. Jacob Schneller, Pittsburg, Pa. Filed Oct. 7, 1899. Serial No. 732,852. (No model.)



Claim.—1. In a register, the combination with two side-by-side registering-wheels provided with peripheral notches, of two actuating-pawls, one of which engages the periphery of one of said wheels and the other of which engages the peripheries of both of said wheels.

2. In a register, the combination with two side-by-side registering-wheels, each of which has a set of peripheral registering notches and a transferring-notch, of an actuating-pawl in position to engage the registering notches of one wheel and a second pawl in position to simultaneously engage the transferring-notch of said wheel and one of the registering notches of the adjacent wheel.

3. In a register, the combination with a plurality of side-by-side registering-wheels, each of which is provided with ten peripheral registering-notches and with one transferring-notch, of an actuating-pawl in position to engage successively the registering notches in one of said wheels and a plurality of actuating-pawls each of which is in position to engage the transferring-notch and one of the registering notches of corresponding adjacent wheels at the same time.

4. In a register, the combination with a plurality of registering-wheels each of which has a set of peripheral registering notches adjacent to one edge and a transferring-notch adjacent to its opposite edge, of a primary actuating-pawl and one or more transferring-pawls, a frame on which said pawls are mounted and means for rocking said frame.

5. In a register, the combination with a plurality of independently-rotatable registering-wheels having peripheral notches and located side by side on a single shaft, of friction-plates interposed between said wheels, and having perforated extensions, and a stationary rod projecting through the perforations in said extensions.

6. In a register, the combination with a plurality of registering-wheels having peripheral notches and independently rotatable on a single shaft, of friction-plates interposed between said wheels and extending beyond the peripheries of the wheels at one side, a stationary rod projecting through holes in said extensions, actuating-pawls for the wheels, and supporting and operating means therefor.

7. In a register, the combination with a plurality of registering-wheels having peripheral notches and independently rotatable on a single shaft, of actuating mechanism for said wheels and having perforated extensions through which a stationary rod projects for preventing rotation of said wheels except when directly engaged by said actuating mechanism.

8. In a register, the combination with an actuating device and mechanism for indicating and registering the movements of said device, of a special indicator and means intermediate the same and the actuating device for insuring movement of the indicator at irregular intervals.

9. In a register, the combination with an actuating device and mechanism for indicating and registering the movements of said device, of a special indicator, controlling mechanism therefor operated at each movement of the main actuating device and embodying means for effecting an operative engagement with the indicator at irregular intervals.

10. In a register, the combination with an actuating-lever, and indicating and registering mechanism operated by said lever, of a special indicating-plate, a pawl and a spring acting upon said indicating-plate in opposition, and means for bringing said pawl into operative position with reference to said plate at irregular intervals.

11. In a register, the combination with an actuating-lever and indicating and registering mechanism operated by said lever, of a special indicator-plate, a pawl and a spring acting upon said plate in opposition, a plurality of disks having differently-spaced teeth and each having one or more deep notches, and means for holding one end of said pawl in engagement with the peripheries of said disks.

12. In a register, the combination with an actuating-lever and indicating and registering mechanism operated by said lever, of a special indicator-plate, a catch for holding said plate in one extreme position, a spring for moving the plate to its other extreme position when released from the catch, a pawl for moving the plate against the action of the spring and a plurality of irregularly-toothed wheels rotated by said pawl and serving to move it into engagement with the catch and the plate alternately at irregular intervals.

13. In a register, the combination with primary and secondary indicating and registering wheels and lever-and-pawl mechanism for operating the same, of a plurality of ratchet-wheels having differently-spaced teeth and each having one or more deep notches, a double-ended pawl pivotally mounted upon the main operating-lever, means for holding its rear end in engagement with the ratchet-wheels, a pivotally-mounted indicator-plate in the path of movement of the pawl when the rear end of the latter is in its lowest position, a catch for holding the plate in one of its extreme positions and a spring or springs for moving the plate to its other extreme position when released from the catch.

14. In a register, the combination with an actuating device and two sets of mechanisms for indicating and registering the movements of said actuating device, of a special indicator, means intermediate said indicator and the actuating device for insuring movement of the indicator at irregular intervals and means for preventing movement of one of the sets of registering mechanisms when the special indicator is operated.

15. In a register, the combination with two sets of registering devices, an operating-lever and actuating means between said lever and each set of registering devices, of a special indicator, actuating and controlling means for insuring the movement of said indicator at irregular intervals and means for preventing movement of one of the sets of registering devices when the special indicator is operated.

16. In a register, the combination with two sets of registering-wheels, and an operating-lever and pawls, of a special indicator, an actuating-pawl therefor and means for throwing one set of registering-wheel pawls and the indicator-pawl respectively into and out of operative position simultaneously.

17. In a register, the combination with two sets of registering-wheels, an operating-lever and pawls, of a special indicator-plate, a pawl and a spring for actuating said indicator-plate in opposite directions, a catch for holding said plate in one extreme position and controlling mechanism for throwing the pawls for one set of registering-wheels out of operative position and the pawl for the indicator-plate into operative position simultaneously at irregular intervals.

18. In a register, the combination with an actuating-lever and indicating and registering mechanism operated by said lever, of a special indicator-plate, a pawl and a spring acting upon said plate in opposition, a plurality of disks having differently-spaced teeth and each having one or more deep notches, means for holding one end of said pawl in engagement with the peripheries of said disks and stationary friction-plates for preventing movement of the disks beyond the extent determined by the direct engagement of the pawl therewith.

19. In a register, the combination with actuating means, of mechanism for indicating and registering the movements of the actuating means, a special indicator, and means intermediate the same and the actuating means for displaying the special indicator at irregular intervals.

20. In a register, the combination with actuating means, of mechanism for indicating and registering the movements of the actuating means, a special indicator, and governing means intermediate the same and the actuating means for insuring movement of the special indicator at irregular intervals.

659,422. SURGICAL INSTRUMENT. George W. Sheidler, York, Nebr. Filed June 12, 1900. Serial No. 20,028. (No model.)

Claim.—1. In a surgical instrument, the combination with a handle, and a pair of needles, of a cannula movable upon the needles.

2. In a surgical instrument, the combination with a handle and a pair of longitudinally-curved needles, of a double cannula movable upon the needles and having its distal ends in divergent relation.

3. In a surgical instrument, the combination with a handle, a pair of needles, and a cannula movable upon the needles, of means for retaining the cannula in position to guard the points of the needles.

4. In a surgical instrument, the combination with a handle and a pair of needles, of a double cannula movably mounted upon the needles

and comprising a pair of tubes having their distal ends in divergent relation, and a latch for retaining the double cannula in fixed position upon the needles.

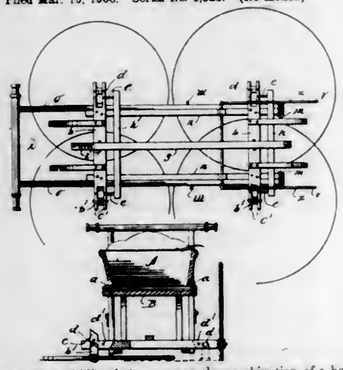


5. In a surgical instrument, the combination with a handle, of a pair of needles, a double cannula longitudinally movable upon the needles and composed of a pair of connected tubes having their distal ends divergently related and provided with transverse slots, and a spring-latch having a finger-piece encircling the cannula, and a locking-lug opposed to the slots in the tubes and arranged to engage notches in the shanks of the needles for the purpose of retaining the cannula in one position thereon.

6. In a surgical instrument, the combination with a handle, of a pair of longitudinally-curved needles detachably retained in the handle, a double cannula movable upon the needles and correspondingly curved, and coöperating mechanism carried by the cannula and needles for securing said elements in relatively-adjusted positions.

7. In a surgical instrument, the combination with a handle, of a pair of correspondingly-curved needles tapering at their outer ends and having their extremities pointed and pierced transversely by eyes located at the bases of the points, a double cannula comprising a pair of connected tubes having their distal ends in divergent relation, and means for retaining said cannula upon the needles in position to sheath the distal ends thereof.

659,423. FOLDING BABY-CARRIAGE. Ross B. Topping, Chicago, Ill. Filed Mar. 19, 1900. Serial No. 9,325. (No model.)



Claim.—In a folding baby-carriage the combination of a body having sides hinged to the bottom of said body to fold inwardly, with two axles having a knuckle-joint at each end, two eyes in said knuckle-joint, a coupling-bar connecting the center of the two axles and having a limited sliding rearward movement, a cross-bar on said coupling-bar rearward of each axle, a pin projecting forward horizontally on each end of said cross-bars, said pin adapted to engage with an eye in said knuckle-joint, side bars on the running-gear of said carriage, a hinge on the rear end of said side bars, shafts attached to said hinge adapted to swing underneath said running-gear substantially as described.

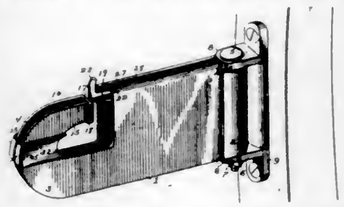
659,424. FENCE-POST. Henry J. Van Valkenburgh, Mattawan, Mich. Filed June 13, 1900. Serial No. 20,192. (No model.)



Claim.—1. A fence-post comprising two plates having alining perforations and wire-clips, each clip consisting of a hook having a threaded stem engaged with a perforation and a bill engaged with an adjacent perforation, and a clamping-nut engaged with the stem and adapted to draw the bill through the post and engage it to press it rearwardly and snap behind it, whereby the bight of the hook will be moved in the direction of the post to hold a wire thereagainst and the nut will be held from dislodgment from the stem.

2. A fence-post comprising two plates disposed one against the other and having their lower ends bent outwardly and then downwardly to form shoulders, a perforated plate disposed upon the first-named plates and lying upon the shoulders to hold the plates together and form an anchor for the post, said post having perforations therethrough, and a series of hooks each having a threaded stem passed through a perforation of the post and a bill adapted to pass through the perforations and of less length than the stem, and a clamping-nut engaged with the stem, whereby wires may be disposed between the bights of the hooks and the adjacent post-plates and the nuts may be operated to draw the bills through the post and engage and snap behind the bills to prevent displacement of the nuts.

659,425. HAME-AND-TRACE CONNECTOR. Franklin P. White, Wilmington, N. C. Filed Apr. 28, 1900. Serial No. 14,699. (No model.)



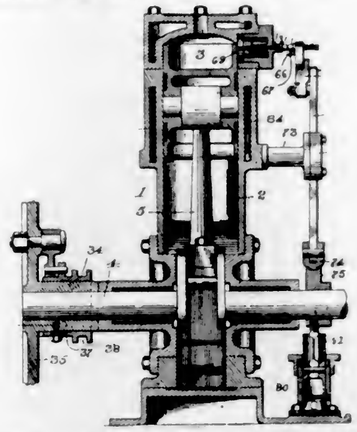
Claim.—1. In a device of the class described, a hame-hook constructed of a single piece of material bent to form an eye and to provide two sides, each side being provided with an engaging portion or hook, and an arm extending from the bill of one of the engaging portions or hooks across the space between the latter, and terminating in a lug engaging the outer face of the adjacent portion or hook, said arm being also arranged to form an abutting face for a spring-actuated bolt, substantially as described.

2. A device of the class described comprising a hook constructed of a single piece of material bent to form an eye, said hook being composed of sides having slots to form similar engaging portions or hooks, a casing or housing consisting of an extension of one of the sides and arranged between the same at the upper edges thereof, an arm extending from the bill of the hook of one of the sides and engaging the bill of the hook of the other side and located opposite the casing or housing to form an abutting face, and a spring-actuated bolt mounted in the casing or housing and abutting against the said arm, substantially as described.

3. A device of the class described comprising a hame-hook constructed of a single piece of material folded to form an eye and to provide two sides, each of the sides having a hook or engaging portion, one of the sides being provided with a tubular casing located opposite the bills of the hooks or engaging portions and spacing the said sides, and a spring-actuated bolt mounted in the tubular casing and adapted to close the mouth of the hame-hook, substantially as described.

4. A device of the class described comprising a hame-hook constructed of a single piece of material folded to form an eye, said hame-hook consisting of two sides, one of the sides being extended at the top and bottom, the upper extension being bent into tubular form to provide a casing and the lower extension forming an arm to space the sides at the bottom, and a spring-actuated bolt mounted in the casing, substantially as described.

659,426. GAS-ENGINE. Adolph A. Williams, Superior, Wis. Filed Dec. 1, 1899. Serial No. 738,883. (No model.)



Claim.—1. In a gas-engine, the combination with a suitable casing inclosing a piston and crank, of a supply-valve mechanism comprising an inlet-valve and a governor-valve, a governor for operating the said governor-valve, the structure being such that the piston will draw in air and gaseous vapor past the inlet-valve and force the same into the cylinder of the engine, and the governor-valve will control the amount of gaseous material drawn into the engine-casing and the amount forced therefrom into the cylinder, substantially as described.

2. In a gas-engine, the combination with a suitable casing inclosing a piston and crank, of a supply-valve mechanism comprising a casing mounted upon the engine-casing provided with ports leading into the said engine-casing, and into an inlet-tube, a reciprocating governor-valve having ports coinciding with the above-mentioned ports for regulating the inflow of the gaseous mixture, an inlet-valve covering an air-port and a gaseous-vapor port, a spring for normally holding the said valve upon its seat, a governor connected with the governor-valve, whereby a gaseous mixture may be drawn into the engine-casing and then be forced back through the governor-valve into the inlet-pipe and into the upper end of the engine-cylinder, substantially as described.

3. In a gas-engine, the combination with a suitable inclosing casing, of a supply-valve mechanism mounted thereon, an oil-reservoir connected with the said supply-valve mechanism, a valve for controlling the inlet from the oil-reservoir and controlling an air-inlet, a governor-valve also adapted to control the admission of the gaseous mixture to the engine-casing and the expulsion of the same therefrom as it is passed to the cylinder and a governor for operating the same, substantially as described.

4. In a gas-engine, the combination with a suitable casing of a supply-valve mechanism arranged thereon, an inlet-valve controlling the inlet-ports from an air-supply and a gas-supply, a reciprocating cylindrical valve for receiving the said charge a governor mechanism for reciprocating the said valve, said valve being provided with ports in its top and in its side portions, the casing being provided with coinciding ports, whereby the gas mixture may be drawn into the casing of the engine by the movement of the engine-piston and may be again forced from the said governor-valve into the upper end of the cylinder for operating the piston, substantially as described.

5. In a gas-engine, the combination with a suitable casing of a supply-valve mechanism mounted thereon comprising an inlet-valve and a governor-valve, an oil-reservoir for supplying the oil to the valve mechanism, said reservoir being provided with a needle-valve for regulating the amount of oil permitted to flow from said reservoir, a handle secured to the upper end of the needle-valve and provided with a pointer or indicator, said indicator moving over a dial, the construction being such that the needle-valve may be regulated to control the amount of gaseous material supplied to the explosive mixture, substantially as described.

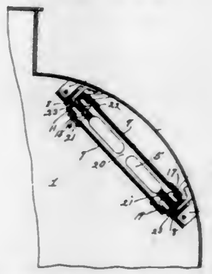
6. In an engine, the combination with a suitable casing, of a supply-valve mechanism mounted thereon, a governor-valve mounted on said casing so as to control the amount of gaseous material passing into the casing and also to control the amount of said material which is permitted to pass from the casing into the engine-cylinder, a stem on said valve passing outwardly through a suitable packing, a governor mounted upon the fly-wheel of the engine, a lever connecting the governor-valve stem with the said governor, whereby the said governor-valve will be reciprocated, substantially as described.

659,427. FRICTIONAL DRIVING-WHEEL. William O. Worth, Chicago, Ill., assignor of two-thirds to William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battle Creek, Mich. Filed Nov. 6, 1899. Serial No. 735,954. (No model.)



Claim.—A driving-wheel for the transmission of power, comprising a supporting-disk having grooves in the face thereof, a yielding, frictional material secured in the said grooves, the said disk having an overlapping rim extending inwardly from the periphery over the face of the said material, substantially as set forth.

659,428. DEVICE FOR DISPLAYING ADVERTISEMENTS. John Adams, Pittsburg, and John Crawford, Allegheny, Pa. Filed Apr. 9, 1900. Serial No. 12,265. (No model.)



Claim.—1. In a device for displaying advertisements, the combination with an endless belt, of rollers for moving the same, tracks adjacent both edges of the belt, and means secured to the belt and taking over said tracks to support the belt and keep the same taut.

2. In a device for displaying advertisements, the combination with an endless belt, of rollers for moving the same, tracks adjacent both edges of the belt, clips secured to the edges of the belt and extending beyond said tracks, and rollers journaled in said clips and bearing against the outer sides of said tracks thereby holding said belt taut.

3. In a device for displaying advertisements, the combination with an endless belt, of inclined rollers for moving the same, tracks adjacent the edges of the belt, brackets for supporting the tracks, and adjustable connections between the tracks and brackets.

4. In a device for displaying advertisements, the combination with an endless belt, of rollers for supporting the same, said rollers having annular grooves in each end, the continuous track adjacent the edges of the belt embracing the rollers and lying in the annular grooves thereof, the clips on the belt and the rollers in said clips adapted to run on said tracks.

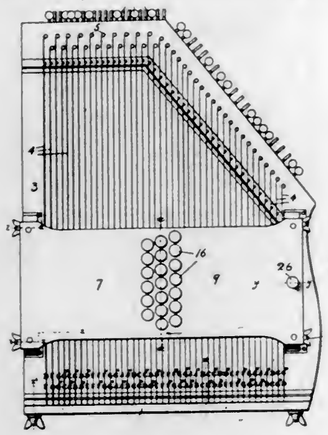
5. In a device for displaying advertisements, the combination with an endless belt, of rollers for moving the same, a continuous track adjacent the edges of the belt, frames or webs to which said tracks are secured, and means for adjustably supporting said frames or webs.

659,429. ORCHESTRA-HARP. Gerhard Almgrantz and Gideon Törnqvist, Chicago, Ill. Filed Apr. 4, 1900. Serial No. 11,471. (No model.)

Claim.—1. In a musical instrument of the character described, the combination with the body and strings of the harp of a casing spanning the strings transversely and carrying a series of vertically-movable spring-supported parallel damper-bars, means for slidably and removably securing said casing to the upper face of the harp, said means comprising a series of vertical posts formed on one of said parts and entering a corresponding series of mortises formed in the other of said parts, said posts having a limited play in said mortises, and a series of removable pins passing loosely through eyes in said posts and locking said casing to the harp-body, substantially as described.

2. In a musical instrument of the character described, the combination with the body and strings of the harp of a casing spanning the strings transversely and carrying a series of vertically-movable spring-supported parallel damper-bars, means for slidably and removably securing said casing to the upper face of the harp, said means comprising a series of vertical posts formed on one of said parts and entering a corresponding series of mortises formed in the other of said parts, said posts having a limited play in one direction in said mortises, and a series of removable pins passing loosely through eyes in the free ends of said posts and locking said

casing to the harp-body, and means for automatically locking the casing in either extreme of its sliding movement, substantially as described.



3. In a musical instrument of the character described, the combination with the body and strings of the harp of a casing spanning the strings transversely and carrying a series of vertically-movable spring-supported parallel damper-bars, means for slidably and removably securing said casing to the upper face of the harp, said means comprising a series of posts set in the upper face of the harp-body and entering a corresponding series of mortises formed in the end blocks of the casing, and having a limited play in one direction therein, and a series of pins removably secured through the end blocks of the casing and passing loosely through eyes in the upper ends of said posts and locking said casing to the harp-body, and means for automatically locking the casing in either extreme of its sliding movement, substantially as described.

4. In a musical instrument of the character described, the combination with the body and strings of the harp of a casing spanning the strings transversely and carrying a series of vertically-movable spring-supported parallel damper-bars, means for adjusting the position of said casing transversely of the strings, and means for locking the casing in either extreme of its movement, said means comprising a spring-metal plate or strip secured in the face of the harp and having a series of apertures, a pin or tooth on the base of the casing adapted to engage said apertures, and a spring-supported push-pin mounted in said casing above said plate or strip and adapted, when depressed, to disengage said plate from said tooth, substantially as described.

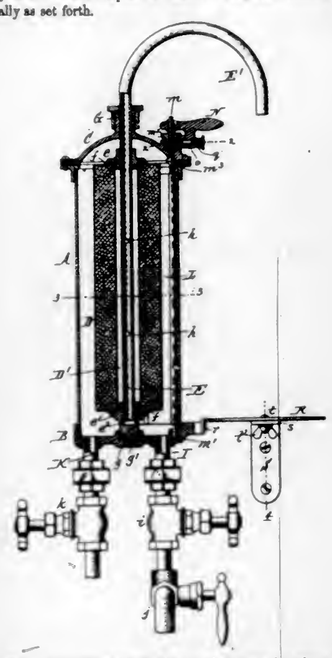
5. In a musical instrument of the character described, the combination with the body and strings of the harp of a casing carrying a series of damper-bars, said casing spanning the strings and being adjustable transversely thereof, and said damper-bars being arranged in close proximity and each provided with a vertical pin at or near its longitudinal center which extends up through a hole in the top board of the casing and terminates in a key, said keys being arranged in a plurality of parallel rows transversely of the casing, and each being marked with a musical character indicative of the chord which will be produced through the manipulation of said key when the casing is at one limit of its adjustment, and the top board of the casing bearing a series of musical characters connected with said keys and indicating the chords which will be produced by the manipulation of the keys when the casing is at the other limit of its adjustment, all substantially as shown and described.

659,430. FILTER. ALEXANDER M. AMOS, Buffalo, N. Y. Filed Jan. 24, 1900. Serial No. 2,645. (No model.)

Claim.—1. The combination with the filter-casing having an inlet and an outlet and the filter-block arranged in the casing, of a swinging scraper arranged in the casing and bearing at its free edge against the surface of the filter-block, and a locking device for holding the scraper in its operative position, substantially as set forth.

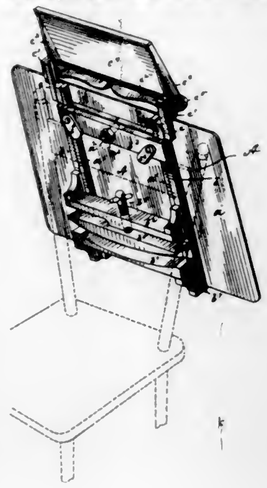
2. The combination with the filter-casing having an inlet and an outlet and a series of locking-teeth, of the filter-block arranged in the casing, an upright rock-shaft arranged in the space between the casing and the filter-block, a scraper secured at one edge to said shaft and bearing at its free edge against the surface of the filter-block, and an automatic locking-catch connected with said shaft and adapted to interlock with the teeth of the casing, substantially as set forth.

3. The combination with the filter-casing having an inlet and an outlet and a ratchet-segment, of a swinging upright scraper arranged in the casing and bearing at its free edge against the filter-block, an upright rock-shaft arranged in the casing and carrying said scraper and provided outside of the casing with an actuating-arm, and a spring bolt or catch carried by said arm and adapted to interlock with said ratchet-segment, substantially as set forth.



4. The combination with the filter-casing, a service-pipe, and a pipe leading from said service-pipe to the filter-casing, of a supporting-bracket arranged on one side of the filter and provided with a horizontal member extending forwardly from the support of the bracket and having a longitudinal slot, a steadying-plate projecting laterally from the filter-case, and a clamping-bolt passing through said steadying-plate and the slot of said bracket member, substantially as set forth.

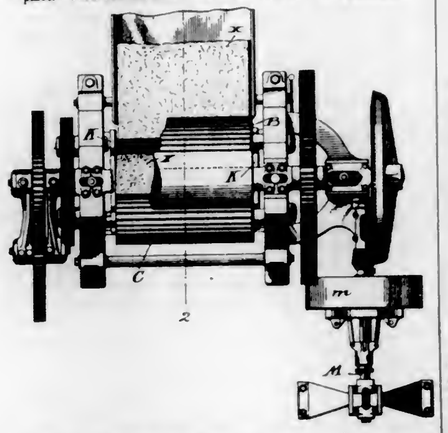
659,431. CHAIR-BACK DESK. WILLIAM H. ANDERSON, New York, N. Y. Filed July 7, 1900. Serial No. 22,785. (No model.)



Claim.—1. The combination of a plate with a removable and reversible frame having a pair of jaws and a pair of turn-buttons, and with means for removably securing the frame to the plate, substantially as specified.

2. A plate having a screw and nut combined with a removable and reversible frame having a fixed jaw, a movable jaw, and a perforated cross-piece adapted to be engaged by the screw, and with a shelf having rails adapted to removably engage either end of the frame and to be set to different angles, substantially as specified.

659,432. PROCESS OF BALING COTTON. CHARLES L. BESSONETTE, Chicago, Ill., assignor to the Ginners Compress Company, same place. Filed Dec. 11, 1899. Serial No. 739,903. (No specimens.)



Claim.—The herein-described process of forming a cylindrical bale which consists in rolling a portion of a bat in helical form, to form a cushion-core, rotating the core by external friction therewith and winding on the core a portion of the bat under great pressure to compress the core transversely and expand it longitudinally beyond the width of the bat, thereby causing the central portions of the ends of the partly-formed bale to project beyond the outer portions, then winding on the remaining portion of the bat to complete the bale and applying frictional resistance to the said central projecting portions, only, of the partly-formed bale, to retard its movement while the said remaining portions of the bat are wound on without frictional resistance at the edges of the same, substantially as described.

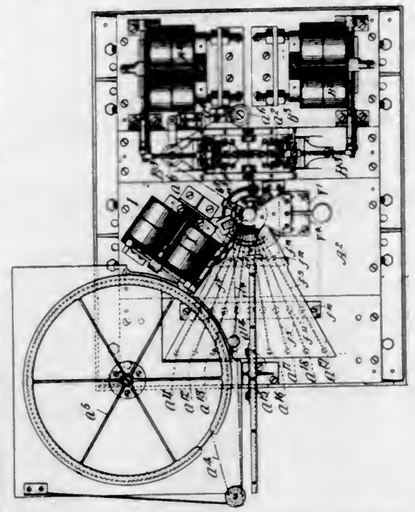
659,433. PERFORATOR FOR PREPARING TELEGRAPHIC MESSAGES. CHARLES L. BUCKINGHAM and EMIL GERMANN, New York, N. Y.; said Germann assignor to said Buckingham. Filed Jan. 13, 1898. Serial No. 666,552. (No model.)

Claim.—1. In a perforating-machine, the combination of a punch-head, one or more series of punches, one or more series of levers, preferably of bell-crank form, for actuating the same, all of like construction, having rounded ends to form a pivot-bearing, and hooked links fitting over the rounded ends of said levers, as and for the purpose set forth.

2. In a perforating-machine, the combination of one or more series of punches, one or more series of levers, preferably of bell-crank form, for actuating the same, having rounded ends, a series of hooked links fitting over the rounded ends of said levers, and a comb whose teeth extend between said levers and links in such manner as to keep each link upon the rounded end of the punch-actuating lever with which it is joined, as and for the purpose set forth.

3. In a perforating-machine, the combination of a punch-head, one or more series of punches, one or more series of actuating-levers, preferably of bell-crank form, all of which at one end are rounded, one or more series of hooked links, each of which fits over the rounded end of the lever which it actuates, a comb whose teeth hold in place each link upon the punch-lever which it actuates, and a second comb whose teeth project between the opposite ends of said punch-actuating levers, as and for the purpose set forth.

4. In a perforating-machine, the combination of a punch-head, a series of punches, a series of actuating-levers, preferably of bell-crank form, all of the same construction, each of which has a rounded end, a corresponding series of double-hooked links of varying length, a series of actuating-magnets placed one above another, each of which is provided with an armature, armature-shaft and a crank-pin, the several crank-pins being in different planes corresponding with the planes of the several links, as and for the purpose set forth.



5. In a perforating-machine, the combination of a punch-head, a series of punches, a series of actuating-levers, preferably of bell-crank form, all of the same construction, each of which has a rounded end, a corresponding series of actuating-motors placed at different distances from the actuating-levers, and link connections for said motors, said links having hooks at their upper ends fitting over the rounded ends of said bell-crank levers in planes corresponding with those of the actuating-levers, as and for the purpose set forth.

6. In a perforating-machine, the combination of a punch-head, a series of punches *a*, a series of actuating-levers, preferably of bell-crank form, *d*, each having rounded ends y^{10}, a series of double-hooked links, *y*, *y'*, y^2, y^3, a series of magnets B, one for actuating each punch, and a corresponding series of armature shafts and cranks, over which the lower ends of the hooked links are fitted, in different planes, as and for the purpose set forth.

7. In a perforating-machine, the combination of a punch-head, a series of punches *a*, a corresponding series of actuating-levers *d*, preferably of bell-crank form, all of the same construction and having rounded ends, a series of double-hooked links extending downward in different planes, two series of vertically-arranged motors and crank-shafts actuated thereby with which the lower ends of said links are connected, as and for the purpose set forth.

8. In a perforating-machine, the combination of a punch-head having two series of punches *a*, two series of actuating-levers *d*, preferably of bell-crank form, two series of double-hooked links and four vertical series of actuating-motors *B* and hooked connections between said links and bell-crank levers *d* at their upper ends and with the motors below, as and for the purpose set forth.

9. In a perforating-machine, the combination of a punch-head having two sets of punches *a*, two series of actuating-levers *d*, preferably of bell crank form, two or more series of vertically-arranged motors B, a double set of double-hooked links whose upper ends are hooked upon the levers *d* and whose lower ends are in hooked connection with the motors B, and a chip-chute Z, as and for the purpose set forth.

10. In a perforating-machine, the combination of a punch-head having two sets of punches, actuating-magnets B arranged in series and a downwardly-projecting chip-chute Z placed between said magnets, as and for the purpose set forth.

11. In a perforating-machine, the combination of a punch-head having two rows of punches *a*, *a*, two series of actuating-levers *d*, preferably of bell-crank form, a double set of double-hooked links, four vertically-arranged series of motors B, crank-shafts of varying length actuated by said motors, the whole being so arranged that the punch-actuated levers of one row of punches are linked only to motors on the same side of the perforator, while the levers for actuating the second row of punches are correspondingly linked only to those motors located on the opposite side of the machine, whereby each and every punch-actuated lever is operated by a motor on the same side of the machine, thus leaving a free vertical

space within the machine separating the motors, crank-shafts and links on one side of the machine from those on the other.

12. In a perforating-machine, the combination of a punch-head, two sets of punches, *a*, in different horizontal planes, two sets of actuating-levers, *d*, preferably of bell-crank form, two or more series of vertically-arranged motors, and two sets of links for joining the two sets of motor-armatores with the two sets of punches, one set of links being shorter than the others, as and for the purpose set forth.

13. In a perforating-machine, the combination of a punch-head having two sets of punches, *a*, in different horizontal planes, a chip-chute, Z, having two upward openings, z', z^2, and a shield or housing for guiding the chips made by the upper row of punches away from those of the lower, as and for the purpose set forth.

14. In a perforating-machine, the combination of a punch-head having two sets of punches, *a*, in different horizontal planes, and a vibrating housing for surrounding the lower set of punches, as and for the purpose set forth.

15. In a perforating-machine, the combination of a punch-head having two series of punches, *a*, in different planes, a chip-chute, Z, a vibrating housing surrounding the lower row of said punches, and apparatus actuated by the motors of the perforator for vibrating said housing during operation of said perforator, as and for the purpose set forth.

16. In a perforating-machine, the combination of a punch-head having two series of punches *a* in different planes, bell-cranks *d* and corresponding links and motors for actuating said punches, a chip-chute Z, a housing surrounding the lower series of punches and a pin or pins a^4 actuated by said bell-cranks *d* for vibrating said housing, as and for the purpose set forth.

17. In a perforating-machine, the combination of a supporting-plate A^2, a punch-head mounted thereon, punches supported within said punch-head, a chip-chute Z, extending downwardly through the center of said machine, and four vertically-arranged series of magnets B, symmetrically arranged beneath said punch-head for actuating said punches, as and for the purpose set forth.

18. In a perforating-machine, the combination of a box having a base-plate A^3, side plates A, top plate A^2, a punch-head mounted upon said top plate, punches *a* supported by and operating within said punch-head, a chip-chute extending downwardly through the center of said machine, and four series of motors B, attached to said side plates, which are symmetrically arranged underneath the punch-head and around said chip-chute for actuating said punches, as and for the purpose set forth.

19. In a perforating-machine, the combination of a box or frame having a base-plate A^3, side plates A, top plate A^2, and a punch-head thereon within which punches *a* are placed and operated, a chip-chute extending downwardly through said box, and two or more vertically-arranged series of motors B attached to said side plates for actuating said punches, as and for the purpose set forth.

20. In a perforating-machine, the combination of a box or frame having a base-plate A^3, side plates, A, top plate, A^2, and one or more vertically-arranged series of motors, B, and an auxiliary, movable frame surrounding each set of motors for carrying the armature-shafts and back-stops thereof, said frames having side pieces, r r', as and for the purpose set forth.

21. In a perforating-machine, the combination of a box or frame having a base-plate A^3, side plates A, top plate A^2, and one or more vertically-arranged series of motors, B, and an auxiliary, movable frame surrounding each set of motors for carrying the armature-shafts and back-stops thereof, said frames having side pieces, r, r', whose feet, r^6, are attached to the side plates A, as and for the purpose set forth.

22. In a perforating-machine, the combination of a supporting-box having side plates A, one or more vertically-arranged series of magnets B attached thereto, an auxiliary, removable frame for carrying the armature-shafts and back-stops surrounding said magnets, and feet, r^6, for connecting said auxiliary frame to the side plates, as and for the purpose set forth.

23. In a perforating-machine, the combination of a vertical series of magnets, B, an auxiliary, removable frame surrounding said magnets for carrying the armature-shafts, C, of said magnets and their back-stops, r^4, and bars, r^5, for holding said back-stops in said frame, as and for the purpose set forth.

24. In a perforating-machine, the combination of a supporting-box, a base-plate therefor, side plates, a top plate, a punch-head mounted upon said top plate carrying two or more series of punches, two or more series of punch-magnets symmetrically arranged beneath said punch-heads, links for connecting said magnets with said punches, a downwardly-projecting chip-chute Z, a feed-wheel D, having movable teeth, pins or stops, a series of bars for actuating said teeth mounted upon said top plate, and a series of magnets placed beneath said top plate for actuating said bars to determine the feed of the paper, as and for the purpose set forth.

25. In a perforating-machine, the combination of a supporting-box, a base-plate, side plates, a top plate, a punch-head and feed-wheel mounted upon said top plate, four symmetrically-arranged series of punch-actuating motors B, placed beneath the punch-head, and a double range of feed-controlling magnets H H', also placed beneath said top plate, a series of feed-bars f^3 and links projecting downward from said bars to the armatures of said feed-controlling magnets, as and for the purpose set forth.

26. In a perforating-machine, the combination of a supporting-box, a top plate, punch-actuating motors placed beneath said top plate, a punch-head, a double range of feed-controlling magnets, H, H', also placed beneath the top plate, one set being staggered with reference to the other, a series of feed-bars f^3 and links projecting downward from said bars to the armatures of said feed-controlling magnets, as and for the purpose set forth.

27. In a perforating-machine, the combination of an inclosing-box, a punch-head and a feed-wheel mounted upon the top plate of said box, a series of feed-controlling magnets arranged in two horizontal planes, and a removable frame or crate within which said magnets are placed, as and for the purpose set forth.

28. In a perforating-machine, the combination of a supporting-frame, a top plate bearing a punch-head and feed-wheel, punches carried within said punch-head, four horizontally-arranged sets of punch-magnets, links connecting the armatures of said magnets with the punches of said punch-head, auxiliary frames surrounding said punch-magnets carrying the armature-shafts therefor, a series of feed-controlling magnets and connections between said magnets and the feed-wheel for controlling the step-by-step movement of the latter and a removable frame within which said armatures and their magnets are supported, as and for the purpose set forth.

29. In a perforating-machine, the combination of a supporting-box, a top plate, a punch-head and feed-wheel mounted thereon, said feed-wheel being provided with a series of movable pins, stops or teeth, a series of radial bars, f^3, for actuating said pins, teeth or stops, a series of feed-controlling magnets placed beneath said top plate, and links of variable length extending from the armatures of said magnets upward to said bars, f^3, as and for the purpose set forth.

30. In a perforating-machine, the combination of a supporting-box, a base-plate A^3, side plates A, top plate A^2, a punch-head and feed-wheel D mounted upon said top plate, magnets symmetrically arranged on each side of the machine beneath said feed-wheel and punch-head for actuating the punches, shaft E^2 to which the feed-wheel is fastened and with which it rotates, a vertical shaft D^2 in line with shaft E^2 extending vertically downward from the top plate beneath the base-plate, a spring D^6 connecting the shafts E^2 and D^2 and a motor D^4 placed beneath said frame for actuating said feed-wheel, as and for the purpose set forth.

31. In a perforating-machine, the combination of a supporting frame or box having a base-plate and top plate, a feed-wheel D, mounted upon said top plate, a shaft E^2 upon which said feed-wheel is fastened, a vertical motor-shaft D^2 in line with shaft E^2, extending from the top downward through the base-plate, a spiral spring D^6 connecting said shafts E^2 and D^2, and a motor D^4 attached to the under side of said base-plate and applied to the lower end of said shaft D^2 for driving the same to actuate said feed-wheel.

32. In a perforating-machine, the combination of a supporting frame or box having a top plate and base-plate, a feed-wheel D, mounted upon said top plate, a short vertical shaft E^2 upon which said feed-wheel is fixed, a vertical shaft D^2 in line with said shaft E^2 extending downward from the top plate through the base-plate of said supporting-frame, and a coiled spring D^6 and spring-barrel for joining said shafts E^2, D^2, a motor D^4 placed beneath said base-plate, gearing connecting the armature of said motor with said shaft D^2 and a check-pawl d^{18} for preventing backward rotation of the armature of said motor, as and for the purpose set forth.

33. In a perforating-machine, the combination of a variable step-by-step feed-wheel, a motor for driving the same, a shaft geared with said motor to one end of which is connected a coiled spring, the other end being normally connected with said feed-wheel, a manual device for disconnecting said feed-wheel from its shaft and motor, and a stop which, as the feed-wheel is disconnected, locks in a fixed position that part of the spring-barrel with which the feed-wheel is normally connected, as and for the purpose set forth.

34. In a perforating-machine, the combination of a variable step-by-step feed-wheel, a motor for driving the same, a shaft connecting with said motor, a coiled spring normally connecting said feed-wheel and shaft, a clutch normally connecting said feed-wheel to one end of said spring, a manual device for disconnecting said feed-wheel from said spring, and a stop for locking in fixed position the end of the spring with which said feed-wheel is normally connected after the same has been disconnected, as and for the purpose set forth.

35. In a perforating-machine, the combination of a variable step-by-step feed-wheel, a motor-shaft D^2, a spring-barrel D^9, spring D^6, plate E, having a circular range of apertures V^7, a clutch E^{12}, E^{13}, a shaft D^8, a feed-wheel D pinned thereon, a slotted collar E^{16} rigidly fixed to said feed-wheel, a movable clutch having prongs E^{15}, a spiral spring E^{20} and a groove E^{14}, a manual arm V^4, lifting-rollers V^{12} having lost motion within the groove E^{14}, and a stop-pin V^6 whose lower end is forced into one of the apertures V^7 to lock plate E in a fixed position prior to the action of rollers V^{12} within the groove E^{14} to separate the teeth of E^{12} from E^{13}, as and for the purpose set forth.

36. In a perforating-machine, the combination of a variable step-by-step feed-wheel D, a shaft E^2 to which it is fastened, a clutch E^{12}, E^{13}, which is normally locked, a spring-box consisting of a plate and hub E, and a drum D^8 to which the two ends of a coiled spring D^6 are respectively connected, a motor-shaft D^2, a manual key for unlocking said clutch and at the same time arresting the free end of spring D^6 against rotation by forcing a pin V^6 within one of a circular range of apertures V^7, and a spring V^{18} for holding said pin V^6 normally over one of said apertures but which yields under the action of spring D^6 after disconnecting the feed-wheel in such manner that upon reconnecting the feed-wheel, the teeth of E^{12} shall be opposite the apertures between the teeth E^{13}, thereby enabling easy reengagement of said feed-wheel with the motor, as and for the purpose set forth.

37. In a perforating-machine, the combination of a variable step-by-step feed-wheel D, a motor for driving the same, a spring-barrel normally joining said motor and feed-wheel, a clutch for disconnecting said feed-wheel, a locking device for arresting the free end of said spiral spring momentarily before such disconnection, a manual lever for actuating said clutch and locking device, and means for holding said manual device in its upper or lower position, as may be desired to engage the feed-wheel with or disengage it from said motor, as and for the purpose set forth.

38. In a perforating-machine, the combination of a step-by-step feed-wheel D rotating upon a vertical axis for moving a fillet of paper, a stripper for said feed-wheel and an elongated horizontal chute through which said paper is thrust in a vertical plane, said chute having a long side opening for exposing the paper strip to the operator, as and for the purpose set forth.

39. In a perforating-machine, the combination of a step-by-step feed-wheel D, rotated upon a vertical axis, having peripheral teeth d^2 for moving a fillet of paper, a stripper having a slotted plate of metal between the prongs of which the teeth of said wheel pass, and an elongated channel or chute formed of a back plate m^5 and upper and lower ledges m^2, m^4, whereby the fillet of paper, after being perforated, is thrust along in a vertical plane within the observation of the operator.

40. In a perforating-machine, a feed-wheel rotating upon an upright axis, a long horizontal chute or guide through which a perforated tape is thrust edgewise or in a vertical plane by said feed-wheel, said chute being provided with a long opening facing the perforating operator, whereby said operator may observe a long length of the perforated tape as the same is delivered from the feed-wheel across the top of the perforating-machine.

41. In a perforating-machine, the combination of a step-by-step feed-wheel D having peripheral teeth d^2, a slotted stripper-plate having prongs m, m', an upper plate m^2 and an elongated channel formed of a back plate m^5 and edge plates m^3, m^4, whereby the fillet of paper, after being perforated, may for a considerable distance be thrust along within the observation of the operator, as and for the purpose set forth.

42. In a perforating-machine, a feed-wheel rotating upon an upright axis, a long horizontal chute or guide through which a perforated tape of paper is thrust edgewise or in a vertical plane by said feed-wheel, whereby said tape is delivered from the feed-wheel across the top of the perforator apparatus.

43. In a perforating-machine, the combination of a step-by-step feed-wheel, a stripper and paper-chute therefor, a knife mounted upon said chute having a blade m^9 and a spring m^{12} for normally holding said knife in a back position against a back-stop m^3, as and for the purpose set forth.

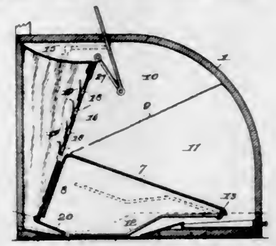
44. In a perforating-machine, the combination of a step-by-step feed-wheel, mounted upon a vertical axis, a stripper and a chute therefor through which the paper fillet is thrust in a vertical plane, said chute having a long side opening for exposing the paper to the operator over a considerable portion of its length, and a knife whose blade is normally held in back position and adapted to sever the fillet of paper at the completion of each message, as and for the purpose set forth.

45. In a perforating-machine, the combination of a step-by-step feed-wheel rotating upon a vertical axis, a long chute through which the paper is thrust in a vertical plane, said chute having a long side opening for exposing the paper to the operator over a considerable portion of its length, and a knife whose blade is normally held in back position in close proximity thereto for severing the tape at the completion of each message, as and for the purpose set forth.

46. In a perforating-machine, the combination of a series of punches, a feed-wheel having movable pins, teeth or stops, devices for actuating said pins, teeth or stops, a fixed stop for arresting the same, an arm for releasing said movable pins or teeth from the fixed stop, a magnet for lifting said arm through which current passes during the forward movement of said punches, and a spring or other retracting device which, as the punches are removed from the paper, comes into action to release said wheel, as and for the purpose set forth.

47. In a perforating-machine, the combination of a punch-head, a series of punches, a step-by-step feed-wheel having movable teeth or pins, a fixed stop for arresting said pins, an arm for releasing said pins or teeth from the fixed stop, a spring for depressing said arm, a magnet for raising the same and an electrical contact which automatically closes the circuit of said magnet as the punches are operated to effect perforation, as and for the purpose set forth.

659,434. CARPET-CLEANING MACHINE. ADAM BURKHOLDER, St. Louis, Mo. Filed Dec. 30, 1899. Serial No. 742,062. (No model.)

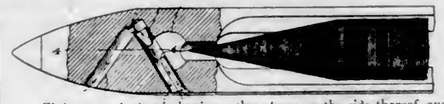


Claim.—1. In a carpet-cleaning machine, the combination of a housing provided with an opening in the bottom thereof, beaters arranged to operate in said opening, dust-receiving means contained by said housing, a bellows located within said housing connected to one of the walls thereof, having communication with the interior of the housing, and having its outlet arranged at the opening in the bottom of the housing, and means for operating said beaters and bellows; substantially as described.

2. In a carpet-cleaning machine, the combination of a housing, beaters arranged therein, means for operating said beaters, a partition located above said beaters, dust-receiving means located within said housing, a bellows having its outlet located in proximity to said beaters, said bellows being provided with communication with the interior of said housing above said partition, and means for operating said bellows; substantially as described.

3. In a carpet-cleaning machine, the combination of a housing, a screen dividing said housing into two compartments, a bellows arranged in one of said compartments, beaters, a rocking arm carried by the shaft of said beaters, and a driven connecting-rod provided with a slot adapted to receive said rocking arm, springs connected to said rod and to said arm, and means for operating said rod and said bellows, substantially as described.

659,435. LOOM-SHUTTLE. LEON W. CAMPBELL, Woonsocket, R. I., assignor of one-half to Malcolm Campbell, Boston, Mass. Filed Nov. 17, 1899. Serial No. 737,268. (No model.)



Claim.—1. A shuttle having a thread-eye on the side thereof, and a supplemental passage leading from the side mentioned for permitting the induction of a current of air through said eye.

2. A shuttle having two converging apertures communicating with each other and opening on the same side, one forming a thread-eye and the other serving for the induction of a current of air through the first-mentioned aperture.

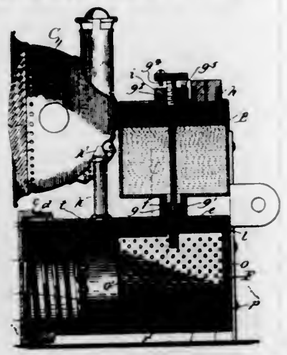
3. A shuttle having a thread-eye, an ejector located in the rear of said eye, and a duct leading to said ejector for admitting air thereto, said duct having its inlet at the side of the shuttle in which the eye is located.

4. A shuttle having two ducts leading inward from the same side and communicating at their inner ends, a thread-chamber communicating with one of said ducts, and an ejector located at the inner end of the last-mentioned duct.

659,436. ACETYLENE-GAS-GENERATING LAMP. JOSEPH C. F. DICK, Chicago, Ill., assignor to Idell E. Dick, La Grange, Ill. Filed Nov. 8, 1899. Serial No. 736,298. (No model.)

Claim.—1. In an acetylene-lamp, the combination with the burner-equipped shell and valve-controlled water-supply connected therewith, of

a carbid-holder supported within the shell, comprising a hollow slotted cylinder, a folded perforated diaphragm having a space between its sides and a head at one end, supported within said cylinder with the head forming an end closure thereof, and a pad of absorbent material fastened upon the exterior of said diaphragm, substantially as described.



2. In an acetylene-lamp, the combination with the burner-equipped shell and valve-controlled water-supply connected therewith, of a carbid-holder supported within the shell, comprising a hollow slotted cylinder, a perforated diaphragm supported within said cylinder, a pad of absorbent material covering said diaphragm, and a clamp removably fastening said pad in place, substantially as described.

3. In an acetylene-lamp, the combination with the burner-equipped shell and valve-controlled water-supply connected therewith, of a carbid-holder removably supported within the shell and communicating therewith and with the water-supply, a perforated diaphragm removably supported within the carbid-holder and provided with a pad of absorbent material, a removable cap forming the end closure for said carbid-holder, and a removable cap on the shell carrying retaining means for said holder, substantially as described.

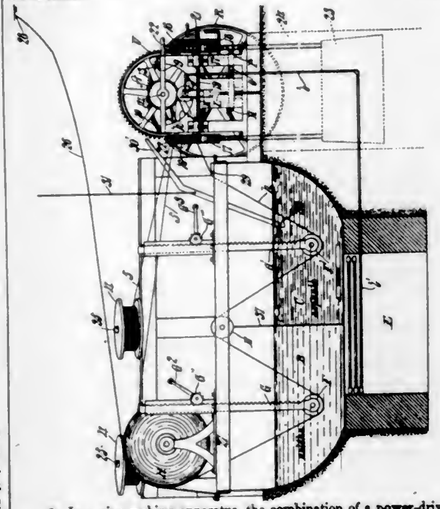
4. In an acetylene-lamp, the combination with the burner-equipped shell and valve-controlled water-supply connected therewith, of a carbid-holder comprising a hollow cylinder removably supported within the shell and communicating therewith and with the water-supply, a perforated diaphragm removably supported within the carbid-holder and having a head at one end forming an end closure for said holder, a pad of absorbent material fastened upon said diaphragm, a cap forming a removable closure for the opposite end of the carbid-holder, and a removable cap on the shell carrying a spring to bear against the capped end of the carbid-holder, substantially as described.

5. In an acetylene-lamp, the combination with the burner-equipped shell and valve-controlled water-supply connected therewith, of a carbid-holder comprising a hollow slotted and grooved cylinder removably supported within the shell, a folded perforated diaphragm having a space between its sides and a head at one end, removably supported within said cylinder with its open edge engaging and stayed by the projecting side of said groove, a pad of absorbent material fastened upon said diaphragm, a cap forming a removable closure for the outer end of said cylinder, and a removable locking-cap adjustably secured on the outer end of the shell and carrying a spring to bear against the capped end of the carbid-holder, substantially as described.

659,437. **PIPE-MAKING APPARATUS.** ALBERT S. DIXON, Los Angeles, Cal., assignor to the Asphalt Paper Pipe Company, same place. Filed Apr. 6, 1900. Serial No. 11,831. (No model.)

Claim.—1. A pipe-making apparatus comprising a power-driven mandrel; a receptacle for a thin saturating material; a receptacle for a thick coating material; a sheet-supporting device between the receptacles; means for heating the contents of the receptacles; two sheet-depressing devices, one for each of said receptacles; means for raising and lowering said devices, respectively; a paper-roll to feed a sheet of paper into one of the receptacles; means for holding the coated sheet forcibly against the mandrel; and means for feeding wire between the convolutions of the paper while the same is being wound upon the mandrel.

2. A pipe-making apparatus comprising a power-driven mandrel; a receptacle for thin saturating material; a receptacle for thick coating material; a sheet-supporting device between the receptacles; means for heating the contents of the receptacles; two sheet-depressing devices, one for each of said receptacles; means for raising and lowering said devices, respectively; means for feeding a sheet of paper through the receptacles to the mandrel; and means for holding the coated sheet forcibly against the mandrel.



3. In a pipe-making apparatus, the combination of a power-driven mandrel; means for supplying to said mandrel a sheet having coating material thereon; means for pressing the coated sheet against the mandrel; and means for feeding wire into the convolutions of the sheet as the same is wound upon the mandrel.

4. In a pipe-making apparatus, the combination of a mandrel; a roller parallel therewith to compress the pipe material when wound upon the mandrel; a wrapping-wire carriage; a way for guiding the carriage parallel with the mandrel; and a screw parallel with the mandrel to move the carriage lengthwise of the mandrel.

5. In a pipe-making apparatus, the combination of a mandrel; a roller parallel therewith; a wrapping-wire carriage; a way for the carriage parallel with the mandrel; wire-holding spools with wires led from the spools through wire-guides in the carriage to insert the wires between the mandrel and roller; a screw located between the carriage and the mandrel; and a dog on the carriage to engage the screw.

6. In a pipe-making apparatus, the combination of a mandrel; means for rotating the mandrel; a compressing-roller parallel with the mandrel; a screw parallel with the mandrel; means for connecting the screw with the mandrel to cause the screw to rotate relative to the mandrel; and a wrapping-wire carriage driven by the screw to feed the wrapping-wires between the mandrel and the roller.

7. A pipe-making apparatus, comprising a mandrel; means for supporting the mandrel at one end; movable means for supporting the mandrel at the other end; a compressing-roller parallel with the mandrel; means for moving the roller toward and from the mandrel; means for rotating the mandrel; and means for feeding a coated sheet between the mandrel and the roller.

8. A pipe-making apparatus, comprising a mandrel; means for supporting the mandrel at one end; movable means for supporting the mandrel at the other end; a compressing-roller parallel with the mandrel; means for rotating the mandrel; means for feeding a coated sheet between the mandrel and the roller; means for moving the compressing-roller toward and from the mandrel; a collar around the mandrel; and means for sliding the collar to and fro along the mandrel.

9. In a pipe-making machine, the combination of a mandrel supported at one end and free at the other end; a collar to slide along the mandrel; a drum at the free end of the mandrel; flexible connections connecting the collar with the drum; and means for returning the collar to the supported end of the mandrel.

10. In a pipe-making machine, the combination of a mandrel supported at one end, and upon which the pipe is formed; a collar to slide along the mandrel to engage the end of the manufactured pipe when the same is upon the mandrel; a drum mounted at the free end of the mandrel; pulleys at the supported end of the mandrel; flexible connections connected with the drum and with the collar and passing over the pulleys; means for rotating the drum; and a weight for operating the flexible connection to return the collar to its normal position.

11. In a pipe-making apparatus, the combination with a pipe-forming mandrel; of a collar around the mandrel and provided with a beveled socket to fit upon the end of the manufactured pipe; and means for sliding the collar along the mandrel.

12. In a pipe-making machine, the combination with a mandrel upon which the pipe material is to be wound; a roller mounted in vertical ways beneath the mandrel; screws at opposite ends of said roller to raise and lower the roller; and means for simultaneously rotating the screws to simultaneously move the opposite ends of the roller toward the mandrel, and vice versa.

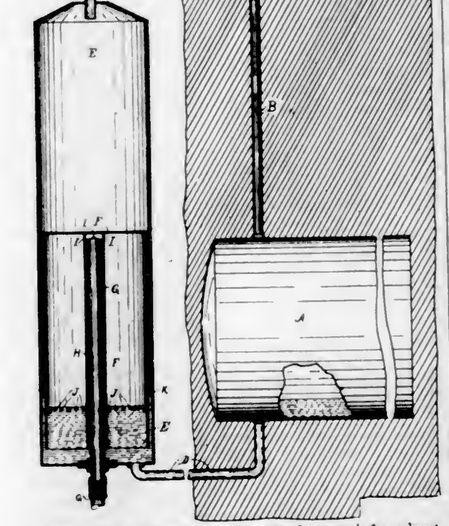
13. In a pipe-making machine, the combination with a pipe-forming mandrel; of a compressing-roller mounted in ways beneath the mandrel; screws at the ends of the roller for moving the roller up and down in said ways; sprocket-nuts for supporting and raising and lowering the screws; a chain-driving sprocket-wheel provided with means for rotating the same; and a sprocket-chain led around the sprocket-nuts and around the sprocket-chain-driving sprocket-wheel.

14. The combination of a pipe-forming mandrel; means for rotating the same; a roller parallel with the mandrel; screws for moving the roller toward and from the mandrel; nuts screwed on the screws for moving the screws endwise; means for rotating the nuts; and springs for receiving the thrust of the nuts.

15. In a pipe-making machine, a pipe-forming mandrel the face of which is smooth from end to end and is provided with longitudinal grooves whereby the pipe-forming material will be prevented from rotating with relation to the pipe-forming mandrel, and the pipe-forming material will be permitted to slide freely lengthwise of the mandrel for the purpose of removal therefrom.

16. In a pipe-making machine, the combination of a pipe-forming mandrel; a compressing-roller parallel therewith; and a V-shaped knife extending substantially parallel with the mandrel to form a rest for the sheet material fed to the mandrel and to enable the sheet to be cut to a pointed form substantially as and for the purpose set forth.

659,438. **CARBURETER.** WILLIAM J. EGAN, Milwaukee, Wis., assignor to Frank L. Kersten, same place. Filed Oct. 2, 1899. Serial No. 732,283. (No model.)

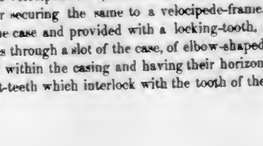


Claim.—1. A carbureter, comprising a fixed receptacle for carbureting liquid; an inlet-pipe leading thereto from a source of liquid-supply; an air-inlet pipe extending vertically within said receptacle and adapted to discharge the air at a point above the highest level of gasolene-supply; an air-chamber, open at bottom, and covering said air-inlet pipe, with a narrow space between said chamber and the walls of the said gasolene-receptacle, said air-chamber being buoyantly supported in the gasolene-supply by the air-supply entering through the air-inlet pipe, and being provided with a line of apertures near its lower edge or edges, and below the normal level at which said air-chamber is submerged in the carbureting liquid.

2. A carbureter comprising a receptacle for carbureting liquid; an inlet-pipe leading thereto from a source of hydrocarbon-supply; an air-inlet pipe extending vertically within said receptacle; a vertically-movable air-chamber, open at bottom and covering the air-inlet pipe, with its lower edges submerged in the liquid hydrocarbon, said chamber being provided with a line of perforations or apertures below the level of the liquid exterior to said chamber; a hood secured in the interior of said chamber and covering the air-inlet pipe to a point below the surface of the carbureting liquid, said hood being adapted to hold the air-chamber in a vertical position upon said air-inlet pipe, and being provided with air-escape openings above the level of the carbureting liquid, whereby the air from said inlet-pipe is permitted to enter the air-chamber and support the same buoyantly in the carbureting liquid.

3. A carbureter, comprising a receptacle; a gravity feed-pipe leading thereto from a source of hydrocarbon-supply; an air-inlet pipe extending vertically in said receptacle, to a point above the highest level of the carbureting liquid; a vertically-movable air-chamber slidably mounted upon, and guided by said air-pipe, said chamber being arranged to be supported by the pressure of the air-supply therein, acting upon the surface of the carbureting liquid; means for permitting the escape of air from said chamber in small jets at a point below the surface of the carbureting liquid exterior to said chamber; and means for drawing off the carbureted air accumulating above said air-chamber.

659,439. **BICYCLE-LOCK.** FRANK J. ERRICK, North Tonawanda, and FRANK X. BATT, Tonawanda, N. Y. Filed Apr. 2, 1900. Serial No. 11,197. (No model.)



Claim.—1. In a velocipede-lock, the combination with a case adapted to be rigidly secured to a velocipede-frame, of a locking-bolt guided in said case and having a concave head which is adapted to bear against the edge of a sprocket-wheel, and which is provided with forwardly-extending vertical flanges which are adapted to embrace the sides of the sprocket-wheel, and means for retaining said bolt in its projected position, substantially as set forth.

2. In a velocipede-lock, the combination with a case adapted to be rigidly secured to a velocipede-frame, of a sliding locking-bolt guided in the case and having a curved head which is constructed to bear against the edge of a sprocket-wheel and which is provided with a socket adapted to receive a tooth of the sprocket-wheel, and on opposite sides of said socket with forwardly-extending flanges adapted to embrace the sides of the sprocket-wheel, and means for retaining the locking-bolt in its projected position, substantially as set forth.

3. In a velocipede-lock, the combination with a case, having an attachment for securing the same to a velocipede-frame, of a sliding bolt guided in the case and provided with a locking-tooth, elbow-shaped tumblers pivoted side by side within the casing and having their horizontal arms provided with teeth which interlock with the tooth of the bolt, and a stop arranged to limit the releasing movement of said tumblers, the depending arms of the tumblers being offset rearwardly one beyond another a distance corresponding to the throw of the tumblers, substantially as set forth.

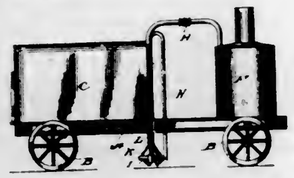
4. In a velocipede-lock, the combination with a case having an attachment for securing the same to a velocipede-frame, of a sliding bolt guided in the case and provided with a locking-tooth, a plurality of tumblers pivoted side by side in the casing and having toothed arms which interlock with the tooth of the sliding bolt and actuating-arms which are offset one beyond another, and a stop arranged to limit the releasing movement of said tumblers, substantially as set forth.

5. In a velocipede-lock, the combination with a case having an attachment for securing the same to a velocipede-frame, of a sliding bolt guided in the case and provided with a locking-tooth, a plurality of tumblers pivoted side by side in the case and having their horizontal arms provided with ratchet-teeth which interlock with the tooth of the bolt, the teeth of the several tumblers being arranged in stepped order, and springs for holding said tumblers in engagement with the toothed locking-bolt, substantially as set forth.

6. In a velocipede-lock, the combination with a case having an attachment for securing the same to a velocipede-frame, of a sliding bolt guided in the case and provided with a locking-tooth, and a shifting-pin which passes through a slot of the case, of elbow-shaped tumblers pivoted side by side within the casing and having their horizontal arms provided with ratchet-teeth which interlock with the tooth of the bolt, the teeth of

the several tumblers being arranged in stepped order and the depending arms of the elbow-shaped tumblers being arranged in similar order, and springs which hold said tumblers in engagement with the toothed locking-bolt, substantially as set forth.

659,440. MACHINE FOR REMOVING DIRT FROM STREETS. HENRY S. FARQUHAR, Baltimore, Md. Filed July 11, 1900. Serial No. 23,257. (No model.)



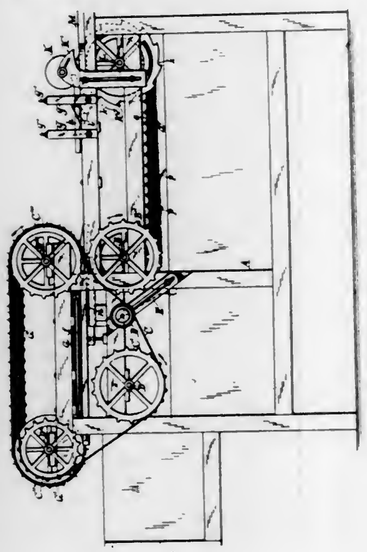
Claim.—1. A street-cleaning machine consisting of a platform or body mounted upon suitable carrying-wheels and provided with a steam-generator and a dirt-compartment, a steam-pipe leading from the generator to a pipe-frame arranged below the body and provided with steam-orifices, a hood arranged over the pipe-frame and a conduit from the hood to the interior of the dirt-compartment substantially as and for the purpose set forth.

2. A street-cleaning machine consisting of a platform or body mounted upon suitable carrying-wheels and provided with a steam-generator and a dirt-compartment, a steam-pipe leading from the generator to a pipe-frame located below the platform or body and provided with steam-exit orifices, a hood arranged above the pipe-frame, a conduit leading from the hood to the interior of the dirt-compartment and a steam-exhaust conduit leading from the dirt-compartment and terminating at a point adjacent to the pipe-frame, substantially as and for the purpose set forth.

3. In a street-cleaning device of the type described, the pipe-frame I provided with downwardly and upwardly inclined steam-exits, substantially as and for the purpose set forth.

4. In a street-cleaning machine, a platform supported upon carrying-wheels and provided with a steam-generator, and a dirt-compartment, a perforated tube-frame below the platform, a steam-controlled conduit between the generator and the pipe-frame, and a dirt-conduit with one end adjacent to the pipe-frame and the other opening into the dirt-compartment, substantially as and for the purpose set forth.

659,441. HURL CUTTING AND SEPARATING MACHINE. WILLIAM H. FAULKNER, Syracuse, N. Y. Filed June 8, 1900. Serial No. 19,810. (No model.)



Claim.—1. In a hurl cutting and separating machine, the combination of the frame and the carrier-belts, with means for separating the coarse central spear from the hurl and means for severing the same.

2. In a hurl cutting and separating machine, the combination of the frame, the carrier-belts, a suitable cutter for removing the stalk, with means for separating the short outer spears from the hurl, means for separating the coarse central spear from the hurl and a knife to sever the same therefrom.

3. In a hurl cutting and separating machine, the combination with the frame, of a belt with pins set therein close together, means for forcing the fine spears of the hurl between the pins, a pointed knife to enter between the fine spears between the pins and the coarse spears, and sever the latter from the hurl, and means for imparting motion to the belt, as set forth.

4. In a hurl cutting and separating machine, the combination with the frame, a suitable knife to cut off the stalks, wheels and carrier-belts to carry the straw from the said knife, of sprocket-wheels and a chain belt thereon having a plurality of pins set in line in each link and adapted to receive the outer loose coarse spears, a separator, a second set of sprocket-wheels and a chain therefor having pins in each link between which pins only the fine spears are received, thus separating the central coarse spear in each hurl, a knife supported upon the frame in position to enter between the coarse and fine spears during their movement, and to sever and separate completely the heart from the hurl, suitable guides, and means for imparting motion to the movable parts, as set forth.

5. In a hurl cutting and separating machine, the combination with the frame, of sprocket-wheels, a chain belt connecting the wheels, and a plurality of pins projecting from each link of the chain, and arranged in a line, and in line with the pins in the other links, said pins having narrow spaces between them to receive the fine spears and reject the coarse spears, as set forth.

6. In a hurl cutting and separating machine, the combination with the frame, of a pair of sprocket-wheels, a chain belt connecting the wheels, pins projecting outward from each link and arranged in a line and in line with the pins of the other links, said links having longitudinal grooves in opposite sides, and straight stationary horizontal guide-bars entering the grooves to hold the chain straight between the sprocket-wheels, as set forth.

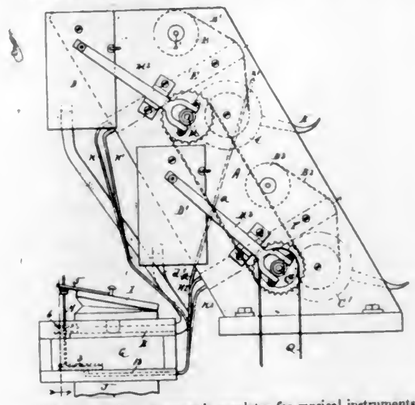
7. In a hurl cutting and separating machine, the combination with the frame, table, wheels and suitable carrier-belts to convey the straw in a horizontal position, of sprocket-wheels below the table, a chain belt thereon having pins set in line in each section and in line with the pins in the other sections, a separator, a notched guide, a second set of sprocket-wheels above the table, a chain belt for the latter wheels having pins set in line in each section, a knife supported upon the frame in a horizontal position and in the plane of the movement of the straw, suitable guides and clearers, and means for imparting motion to the sprocket wheels and chains, substantially as described and shown.

8. In a hurl cutting and separating machine, the combination with the frame, table, and suitable means to convey the straw in a horizontal position, of a pair of sprocket-wheels below the table, a chain belt for said wheels having a plurality of pins set in line in each section, a straight separator having inclined passages therein, a notched guide, the separating-plates, a second pair of sprocket-wheels above the table, a chain belt for the latter wheels having pins set in line in each section and closer together than the pins in the other belt, a notched guide for the second chain belt, a knife supported upon the frame in a horizontal position and in the plane of the movement of the straw, suitable guides and clearers, and means for imparting motion to the sprocket wheels and chains, substantially as shown and described.

9. In a hurl cutting and separating machine, the combination with the frame, table, and suitable means to convey the straw in a horizontal position, of a pair of sprocket-wheels below the table, a chain belt for said wheels having a plurality of pins set in line in each section, a straight separator having inclined passages therein, a notched guide, the separating-plates, a second pair of sprocket-wheels above the table, a chain belt for the latter wheels having pins set in line in each section and closer together than the pins in the other chain belt, stationary horizontal and parallel guide-bars entering grooves in opposite sides of the sections of the chains between the sprocket-wheels, a notched guide for the second chain belt, a knife supported upon the frame in a horizontal position and in the plane of the movement of the straw, suitable guides and clearers, and means for imparting motion to the sprocket wheels and chains, substantially as shown and described.

10. In a hurl cutting and separating machine, the combination with the frame, of sprocket-wheels and a chain belt connecting the wheels, pins projecting from each link of the chain arranged in line with the pins in the other links, means to hold a portion of the chain passing between the sprocket-wheels straight, said pins having narrow spaces between them to receive only the finer spears, and means to force the fine spears of the hurl between the pins, as set forth.

659,442. PNEUMATIC-REGULATOR FOR MUSICAL INSTRUMENTS. WILLIAM B. FLEMING, Detroit, Mich. Filed Aug. 11, 1899. Serial No. 726,851. (No model.)



Claim.—1. In a pneumatic-regulator for musical instruments, two independently-traveling music-sheets, each provided with elongated and with shortened perforations arranged in pairs, and pneumatically-actuated mechanism governed by said perforations arranged to regulate the travel of said sheets to cause said sheets to operate in unison, said mechanism provided with a controlling-pneumatic 1, with a valve provided with a spindle to govern the exhaust of said pneumatic, and with additional plural pneumatics to jointly actuate said valve-spindle, substantially as described.

2. In a pneumatic-regulator for musical instruments, traveling music-sheets each provided with elongated and with shortened perforations arranged in pairs, a drum, and a corresponding take-up roller to carry each of said sheets, means for rewinding the sheets from the storage-roller upon the drum, pneumatic mechanism governed by said perforations to govern the travel of said sheets, said mechanism provided with means for cutting out the mechanism regulating the travel of the sheets when the sheets are being rewound, substantially as set forth.

3. In a pneumatic-regulator for musical instruments, traveling music-sheets each provided with elongated and with shortened perforations arranged in pairs, a drum and corresponding take-up roller to carry each of said sheets, clutch-controlled mechanism to rewind the sheets from the storage-roller upon the drum, an oscillatory lever to govern the clutch mechanism, pneumatic mechanism to regulate the travel of said sheets, and additional pneumatic mechanism governed by said lever to cut out the first-named pneumatic mechanism to prevent its operation when the music-sheets are rewound, substantially as set forth.

4. In a pneumatic-regulator for musical instruments, traveling music-sheets provided with elongated and with shortened perforations arranged in pairs, clutch mechanisms to control the travel of said sheets, a suction-chamber provided with pneumatic mechanism controlled by one set of said perforations to govern the clutch mechanisms, and additional pneumatic mechanism governed by the other set of said perforations to cut out the first-named pneumatic mechanism, substantially as set forth.

5. In a pneumatic-regulator for musical instruments, two independently-traveling music-sheets, each provided with elongated and with shortened perforations arranged in pairs, a suction-chamber having pneumatic mechanism connected therewith governed by said perforations to regulate the travel of said sheets, said pneumatic mechanism provided with a pneumatic 1, a valve provided with a spindle to control said pneumatic and with pneumatics 15 and 16 jointly actuating said spindle, substantially as set forth.

6. In a pneumatic-regulator for musical instruments, two independently-traveling music-rolls provided with elongated and with shortened perforations arranged in pairs, a suction-chamber, pneumatic mechanism governed by one set of said perforations connected with said chamber arranged to regulate the travel of said sheets, and additional pneumatic mechanism governed by the other set to cut out the first-named pneumatic mechanism, substantially as described.

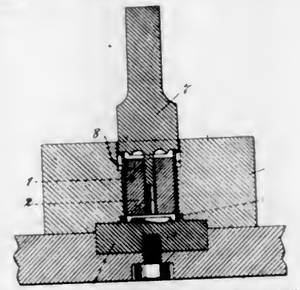
7. In a pneumatic-regulator for musical instruments, two traveling music-sheets each provided with elongated and with shortened perforations arranged in pairs, clutch-actuated mechanism to carry said sheets, a tracker-board for each of said sheets provided with two channels having communication therethrough governed by said perforations, pneumatics controlled by one set of perforations and channels governing said clutches, and additional pneumatic mechanism governed by the other set of perforations and channels and governing the first-named pneumatic to regulate the travel of the sheets, substantially as set forth.

8. In a pneumatic-regulator for musical instruments, two independently-traveling music-sheets, and a suction-chamber having connected therewith pneumatics 2 and 3, a governing-pneumatic 1, a valve to control the exhaust of pneumatic 1, and the pneumatics 15 and 16 to actuate said valve, as set forth.

9. In a pneumatic-regulator for musical instruments, two independently-traveling music-sheets, a channeled tracker-board for each of said sheets, clutches governing the travel of said sheets, pneumatics to actuate said clutches, a suction-chamber having in connection therewith pneumatics 2 and 3, a governing-pneumatic 1, a valve to control the exhaust of pneumatic 1, and pneumatics 15 and 16 to actuate said valve, as set forth.

10. In a pneumatic-regulator for musical instruments, two independently-traveling music-sheets, clutches to govern the travel of said sheets, pneumatics to actuate said clutches, a channeled tracker-board for each of said sheets, a suction-chamber provided with pneumatics 2 and 3, a governing-pneumatic 1, a valve to control the exhaust of pneumatic 1, pneumatics 15 and 16 to actuate said valve, and a spring exerting its tension upon the pneumatics 15, 16, substantially as set forth.

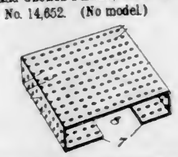
659,443. COMMUTATOR AND METHOD OF MAKING SAME. EDWIN R. GILL, New York, N. Y., assignor to the Invention Developing Company, of New Jersey. Filed Mar. 1, 1900. Serial No. 6,931. (No model.)



Claim.—1. The method of making commutators which consists in forming an insulating cylindrical core, fitting thereon a conducting-tube long enough to overhang said core, turning in the circular edge of said tube so as to make it grip the core and cutting the tube and core into peripheral sections.

2. A commutator consisting of a cylindrical insulating-core and separate conducting-sections on the periphery of said core, said sections being turned down into the material of the core at the end.

659,444. MOLDER'S CHAPLET OR ANCHOR. ROBERT B. HASKINS, Cincinnati, and GEORGE FISHER, Elmwood Place, Ohio. Filed Apr. 28, 1900. Serial No. 14,652. (No model.)

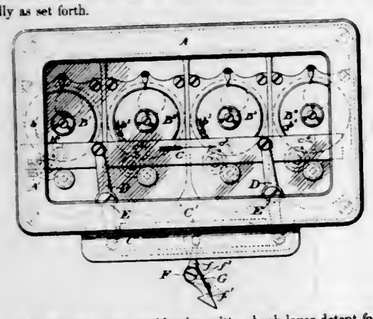


Claim.—A molder's chaplet or anchor formed of an elongated piece or sheet of foraminous flat metal having bends formed in it upon straight lines to produce within the chaplet or anchor a space or chamber having its opposite sides or ends open for the inflow of molten metal and having in its remaining walls closely-adjacent and uniform openings produced by the foramina of the metal sheet and adapted for the exit of gases, substantially as set forth.

659,445. TIME-LOCK. WILLIAM H. HOLLAR, ANTHONY KENNEDY, and ALONZO L. RHODES, Philadelphia, Pa.; said Kennedy and Rhodes assignors to said Hollar. Filed July 28, 1899. Serial No. 725,356. (No model.)

Claim.—1. In a time-lock, the combination with a hook-lever detent for an automatic bolt-operating device, of a movable bar operatively connected with said hook-lever, a detent arranged to positively secure said bar against displacement, a clock-movement, and means actuated by said clock-movement to release said bar-detent, shift said bar and

said hook-lever, and release said automatic, in predetermined relation, substantially as set forth.

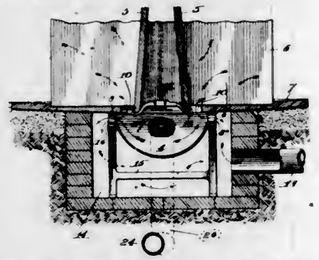


2. In a time-lock, the combination with a hook-lever detent for an automatic bolt-operating device, of a movable bar operatively connected with said hook-lever, a detent arranged to positively secure said bar against displacement, a plurality of clock-movements, and means arranged to be actuated by any one of said clock-movements to release said bar-detent, shift said bar, shift said hook-lever, and release said automatic, in predetermined relation, substantially as set forth.

3. In a time-lock, the combination with a hook-lever detent for an automatic bolt-operating device, said lever having opposite arms in relatively-movable relation, of means to connect one of said lever-arms with said automatic, and means to connect the other of said lever-arms in operative relation with a clock-movement, substantially as set forth.

4. In a time-clock, the combination with a hook-lever detent for an automatic bolt-operative device, said lever having oppositite arms relatively movable in one direction, and relatively fixed for movement in the opposite direction, of means to connect one of said lever-arms with said automatic, and means to connect the other of said lever-arms in operative relation with a clock-movement, substantially as set forth.

659,446. URINAL. LOUIS D. LAWHEN, Edwardsville, Ill., assignor to the N. O. Nelson Manufacturing Company, St. Louis, Mo. Filed June 27, 1900. Serial No. 21,784. (No model.)



Claim.—1. In a urinal, the combination with a well or recess of a gutter adapted to hold a body of water and located in said well or recess, strips held a distance above the upper edges of the gutter to provide air-spaces, the back slabs, the floor-slabs supported on said strips and arranged to provide air-spaces between them and the back slabs of the urinal, a vent-pipe communicating with said gutter through said well, a trapped drain-pipe connected to said gutter, and a trapped overflow-pipe also connected to said gutter, substantially as described.

2. In a urinal, the combination of a gutter adapted to hold a body of water and located in a well or recess, strips held a distance above the upper edges of the gutter to leave air-spaces between them, floor-slabs supported on said strips and arranged to leave air-spaces between them and the back slabs of the urinal, a vent-pipe communicating with said gutter through said well, and a trapped drain-pipe connected to said gutter, substantially as and for the purpose set forth.

3. In a urinal, the combination of a gutter adapted to hold a body of water, a vent-pipe communicating with said gutter, a double-trapped drain-pipe connnected to said gutter, and a trapped overflow-pipe connected to said gutter, substantially as set forth.

659,447. PREPARATION OF CARBID OF CALCIUM. MARC P. E. LETANG, Paris, France. Filed Dec. 13, 1897. Serial No. 661,714. (No specimens.)

Claim.—1. As a new article of manufacture a prepared carbid of calcium consisting of carbid of calcium having a protective coating composed of glucose or its equivalent capable of dissolving or liquefying the lime when produced from the decomposition of the carbid.

2. As a new article of manufacture a prepared carbid of calcium consisting of carbid of calcium having a protective coating composed of a mixture of glucose or its equivalent and an inert powder such as carbonate of lime capable of dissolving or liquefying the lime when produced from the decomposition of the carbid.

3. As a new article of manufacture a prepared carbid of calcium consisting of carbid of calcium having a protective coating composed of a mixture of glucose or its equivalent and petroleum or its equivalent capable of retarding the action of moisture and dissolving or liquefying the lime when produced from the decomposition of the carbid.

4. As a new article of manufacture a prepared carbid of calcium consisting of carbid of calcium having a protective coating composed of a mixture of glucose or its equivalent, petroleum or its equivalent and an inert powder such as carbonate of lime capable of retarding the action of moisture and dissolving or liquefying the lime when produced from the decomposition of the carbid.

5. As an article of manufacture a prepared carbid of calcium consisting of small pieces, particles or powder of carbid of calcium, and a substance such as glucose which in the presence of moisture is a solvent for lime cemented together to form one mass.

6. As an article of manufacture a prepared carbid of calcium consisting of small pieces, particles or powder of carbid of calcium, a substance such as glucose which in the presence of moisture is a solvent for lime, and a binder cemented together to form one mass.

7. As an article of manufacture a prepared carbid of calcium consisting of small pieces, particles or powder of carbid of calcium, a substance such as glucose which in the presence of moisture is a solvent for lime, a substance more or less impervious to moisture such as petroleum, and a suitable binder cemented together to form one mass.

8. As a new article of manufacture a carbid of calcium consisting of a mixture of an excess of carbid of calcium with a substance which is a solvent for lime in the presence of moisture, and a substance more or less impervious to moisture.

9. As a new article of manufacture a carbid of calcium consisting of a mixture of an excess of carbid of calcium, with a substance which is a solvent for lime in the presence of moisture, a substance more or less impervious to moisture, and an inert binder.

659,448. PROCESS OF GENERATING ACETYLENE GAS FROM CARBID OF CALCIUM. MARC P. E. LETANG, Paris, France. Original application filed Dec. 13, 1897, Serial No. 661,714. Divided and this application filed Mar. 19, 1900. Serial No. 9,179. (No specimens.)

Claim.—1. The method of generating acetylene gas in a uniform manner which consists in treating carbid of calcium with water to decompose the carbid and produce acetylene gas and lime, and simultaneously therewith subjecting the lime to the action of a substance which is a solvent in the presence of moisture to render the lime soluble or fluid whereby it may flow by gravity away from the undecomposed carbid.

2. The method of generating acetylene gas which consists in first treating carbid of calcium with a substance more or less impervious to moisture and also with a substance which is a solvent for lime when in moist condition, and in the presence of and contact with said substances subjecting the carbid of calcium to the action of water whereby the said action of the water in decomposing the carbid of calcium is retarded and the moist lime produced is rendered soluble and removed by the action of gravity substantially as quickly as formed and abnormal generation of gas avoided.

3. The method of generating acetylene gas which consists in simultaneously subjecting carbid of calcium and glucose or its equivalent to the action of water.

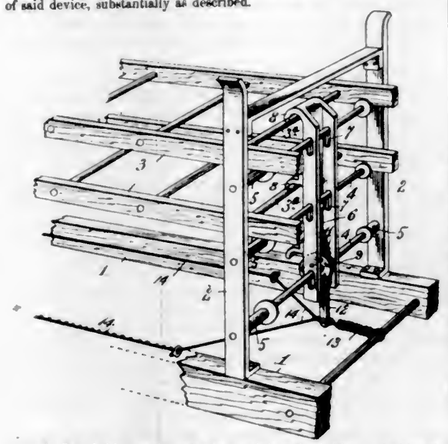
4. The method of generating acetylene gas and forming a soluble residue which consists in treating carbid of calcium with water in connection with a substance, which by double decomposition forms acetylene gas and a residue soluble in water.

5. The method of producing acetylene gas which consists in subjecting calcium carbid to the action of water, and treating the spent carbid or lime with a proportioned quantity of a carbohydrate in the presence of water whereby a soluble product is formed therefrom and dissolved away from the untreated carbid.

659,449. LADDER-TRUCK. TIMOTHY J. MACCARTHY, Holyoke, Mass. Filed Apr. 12, 1900. Serial No. 12,626. (No model.)

Claim.—1. In a ladder-truck, racks for receiving the ladders, and a locking device adapted to engage simultaneously with one or more ladders in said racks and to secure them thereto, substantially as described.

2. In a ladder-truck, racks for receiving ladders a locking device supported on one of the racks and adapted to be moved into locking engagement with one or more of the ladders therein by a single movement of said device, substantially as described.

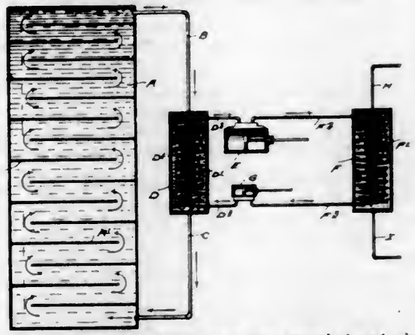


3. In a ladder-truck, racks for receiving the ladders, a locking device supported on one of the racks, and adapted to be moved into locking engagement with said ladders, and means for operating said locking device from different points on the truck, substantially as described.

4. The combination in a ladder-truck, of ladder-receiving racks, a locking device supported on one of said racks consisting of a bar 6, ladder-engaging arms 8 thereon, and a cam adapted to move said bar vertically, whereby said arms may be moved into and out of locking engagement with ladders in said racks, substantially as described.

5. In a ladder-truck racks for receiving the ladders, a locking device supported on one of the racks, and adapted to act as a stop for the ladders when they are slid into the rack, and to secure them to the latter, substantially as described.

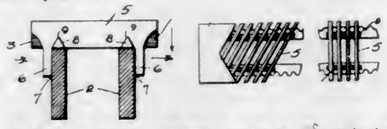
659,450. APPARATUS FOR OBTAINING POWER FROM SOLAR HEAT. EDWIN H. MCHENRY, St. Paul, Minn. Filed Sept. 30, 1897. Serial No. 653,661. (No model.)



Claim.—Means for developing power from atmospheric and solar heat, comprising in combination, a heat-collector, a vaporizing-chamber, and a conduit connecting the same to form a cycle; a coil surrounded and inclosed in said vaporizing-chamber, an engine, a condenser, and a pump, all connected in a cycle; a heat-vehicle, which remains liquid at atmospheric temperature and pressure in the first cycle, and a liquid of boiling-point below atmospheric temperature in the second cycle, said collector being larger than said vaporizing-chamber, and having such superficial area as will cause it, when exposed to the thermal influence of the sun and air, to absorb and transmit to the inclosed liquid that number of heat units which will give to the vaporizing-chamber the required horse-power.

659,451. GRATE-BAR. OTTIN OLSON, Minneapolis, Minn. Filed Jan. 19, 1900. Serial No. 1,984. (No model.)

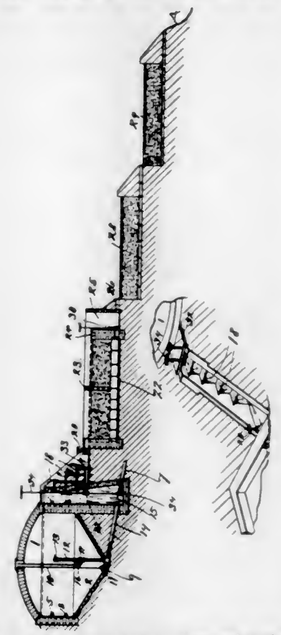
Claim.—1. In a grate-bar, the combination, with substantially-parallel webs or bars, having slots in their outer faces, of fire-bars transversely arranged thereon, lugs provided on said fire-bars to enter said slots, and lugs provided between said bars and resting upon the tops of said webs, substantially as described.



2. In a grate-bar, the combination, with the webs 2 having the heads 3 and grooves 4, of the fire-bars 5 having lugs 6 to enter said grooves, lugs 8 provided on said bars and separating the same and the knife-edges 9 provided on said lugs 8, for the purpose specified.

3. In a grate-bar, the combination, with the parallel webs 2 and the heads 3 connecting the same, of the fire-bars 5 transversely arranged upon said webs, each bar being disconnected from the other bars and having narrow elongated tops or surfaces whereon the fuel is laid, depending lugs 6 provided on said bars and adapted to extend down over said webs, lugs 8 provided on said bars and separating the same and adapted to rest upon the tops of said webs, substantially as described.

659,452. PURIFICATION OF SEWAGE. OWEN W. PROUTS, Alliance, Ohio. Filed Nov. 27, 1899. Serial No. 738,363. (No model.)



Claim.—1. The combination of a septic-tank having the inlet-pipe located to one side of the vertical center and adjacent to the inner periphery of said tank, and said tank provided with a concave bottom, a vertical outlet-pipe centrally located within the septic-tank, a sedimentation-tank located at one side of the septic-tank, a pipe communicating with the vertical outlet-pipe and said sedimentation-tank, steps located upon the outer side of said sedimentation-tank, an oxidizing-tank provided with a hollow floor or floors and provided with a partition or partitions, a channel located at the outer or delivery end of the oxidizing tank or tanks, a chamber 25 and pipes leading from said chamber and filters provided with open tiles, substantially as and for the purpose specified.

2. The combination of a septic-tank provided with an inlet-pipe, an outlet-pipe having apertures at its upper end, a valve located between the top and lower ends of said outlet-pipe, a sedimentation-tank and a pipe connected with the vertical outlet-pipe, and said sedimentation-tank, a valve or valves located between the bottom and top of said sedimentation-tank, a pipe leading from the sedimentation-tank and a valve or valves located between the oxidizing-tank and sedimentation-tank, and a sedimentation-tank, substantially as and for the purpose specified.

3. The herein-described means for the purification and disposal of sewage, consisting of the combination of a septic-tank, a sedimentation-tank, communication between said septic-tank and sedimentation-tank, steps or falls located upon one side of the sedimentation-tank, an oxidizing-tank provided with a hollow floor, a partition located above the hollow floor and means for conveying sewage from the oxidizing-tank to the filter or filters, substantially as and for the purpose specified.

4. The combination of a septic-tank, a sewage-pipe leading into said septic-tank at one side of the vertical center thereof, an outlet-pipe, a valve located at the bottom of the septic-tank and at the side of the vertical outlet-pipe, a sedimentation-tank, a sludge-pipe communicating with the septic-tank and sedimentation-tank, and a sludge-pipe leading from the sedimentation-tank to a sludge-well, and the valve 34, substantially as and for the purpose specified.

5. The combination of a septic-tank, a sedimentation-tank, means for conveying sewage and sludge from the septic-tank to the sedimentation-tank, an oxidizing-tank provided with a hollow floor and a partition located above the hollow floor, filters and means for conveying sewage from the oxidizing-tank to the filter-beds, substantially as and for the purpose specified.

6. The combination of an oxidizing-tank provided with a partition, a hollow floor extended under the partition and means for conveying sewage therefrom to filters, substantially as and for the purpose specified.

7. The combination of filters, sewage-receiving troughs provided with loose joints and the troughs located upon the top of the filters, substantially as and for the purpose specified.

8. In a sewage-disposal system, a septic-tank, a sewage pipe or pipes leading into said septic-tank at a point or points at one side of the diameter of said septic-tank whereby a rotary motion is imparted automatically to the sewage and a vertical pipe centrally located in the septic-tank, substantially as and for the purpose specified.

659,453. FLOOR AND WALL TILE. ALFRED PLANT, New York, N. Y., assignor of one-half to Frank W. Silkman, same place. Filed May 25, 1900. Serial No. 17,968. (No model.)

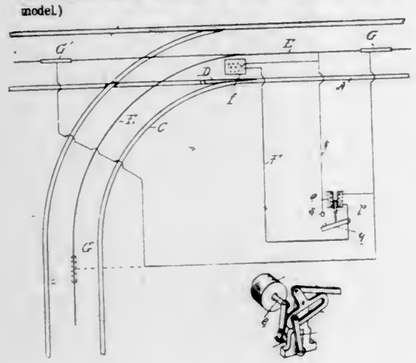
Claim.—1. A floor and wall tile, having in its under side a recess with undercut walls, and grooves intersecting said recess and running to the sides of the tile.

2. A floor and wall tile, having in its under side a recess with undercut walls, and grooves intersecting said recess, one or more of which are as deep as the recess at the point where they intersect it.

3. A floor and wall tile, having in its under side a recess with undercut walls, and grooves intersecting said recess, which are deeper at the inner end than at the outer.

4. A floor and wall tile, having in its under side a recess with undercut walls, and grooves running from said recess to the sides of the tile, said recess having the lower portion of its walls upright and the upper portion sloping outwardly to form an enlargement of the recess at its upper part.

659,454. SWITCH-OPERATING MECHANISM. FREDERICK A. RUFF, Detroit, Mich. Filed Nov. 22, 1898. Serial No. 697,180. (No model.)



Claim.—1. An insulated trolley-conductor section, comprising an insulator-strip grooved in its under side to receive the trolley-wire, conductor-sections secured to said strip on opposite sides of said groove adapted to contact with the flanges of the trolley and inclined approaches detachably secured to the opposite ends of said strip in line but out of contact with said conductor-sections, and forming the means for securing said insulated section to the trolley-wire.

2. An insulated trolley-conductor section, comprising an insulator-strip grooved on its under side to receive the trolley-wire conductor-sections secured thereto on opposite sides of said groove, and inclined approaches grooved on top to receive the trolley-wire and detachably secured to opposite ends of said insulator-strip in line but out of contact with said conductor-sections.

3. An insulated trolley-conductor section, comprising an insulator-strip grooved on its under side to receive the trolley-wire, conductor-sections secured to said strip on opposite sides of said slot, each having a downwardly-projecting guide-flange on its inner side, and inclined approaches adapted to be secured to the trolley-wire, detachably secured to opposite ends of the said insulated section in line, but out of contact with said conductor-sections and having central ribs in line with said guide-flanges, and tapering down at their ends to the wire.

4. In an electric-railway switch, the switch-operating magnet and a controller-magnet in series connection therewith, adapted to close a shunt around said switch-operating magnet when the current exceeds a predetermined strength, in combination with an insulated section of the trolley-conductor to which one terminal of said series connection is attached, and the car-motor and its controlling rheostat and switch.

5. In an electric-railway switch, the combination with the switch-operating magnet of a controller-magnet in series connection therewith adapted to close a shunt around said switch-operating magnet when the current exceeds a predetermined strength, said controller comprising a solenoid and movable core, a switch-lever connected to said core and a check or retarding spring for the purpose described.

659,455. WEATHER-STRIP. GEORGE L. SCOVILLE, West Superior, Wis., assignor to the Introstile Company, Duluth, Minn. Filed Feb 10, 1900. Serial No. 4,779. (No model.)



Claim.—1. The combination with a door, of inclined springs secured to the same, a slidable weather-strip, and means for adjustably connecting the ends of the springs to the weather-strip, whereby the latter may be tilted in either direction, substantially as and for the purpose described.

2. The combination with a door, of inclined springs secured to the same, a slidable weather-strip, and adjustable bearings mounted on the weather-strip and receiving the lower ends of the springs and adapted to permit the weather-strip to be tilted in either direction, substantially as described.

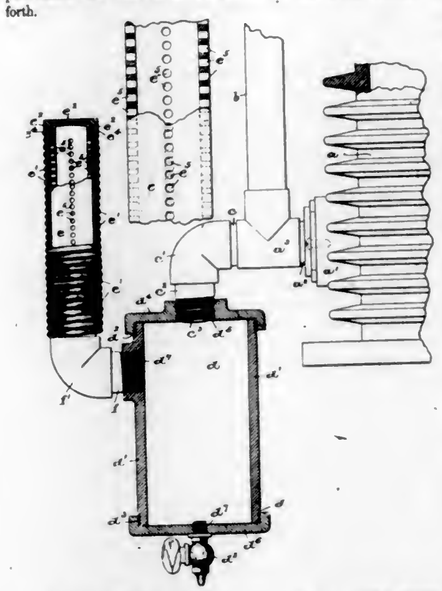
3. The combination of a door, provided at its bottom with a longitudinal recess, a slidable weather-strip arranged within the recess, inclined springs secured to one of the parts, and means carried by the other part for detachably engaging the adjacent ends of the springs, whereby the weather-strip may be removed from the door by a slight longitudinal pressure and without taking the door off of the hinges, substantially as described.

4. The combination with a door, of inclined springs mounted thereon, a slidable weather-strip, and bearings adjustably mounted on the weather-strip and provided with projecting portions arranged to hook over the ends of the springs and detachably engaging the same, substantially as described.

5. The combination with a door, of inclined springs secured to the door and provided at their lower ends with rounded portions or journals, a slidable weather-strip, and the slotted longitudinally-adjustable bearings secured to the weather-strip and having curved portions engaging the adjacent end of the springs and provided with projecting lips, substantially as and for the purpose described.

659,456. MUFFLER FOR ENGINES. JAMES M. SMITH, Newark, N. J., assignor, by direct and mesne assignments, to the Oxford Manufacturing Company, Oxford, Pa. Filed Feb. 2, 1900. Serial No. 3,667. (No model.)

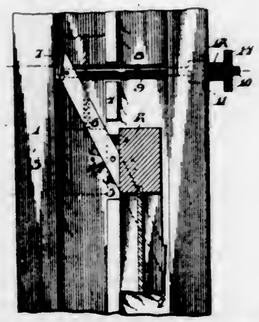
Claim.—1. In a muffler for engines, an exhaust or eduction pipe or duct, having a closed top and an inlet for receiving the exhausted medium, and provided with radially-extending and helically-disposed holes or perforations, and a spring encircling the outer surface of said pipe or duct, the central helical pitch-line of the coils of said spring corresponding to an imaginary helical line around said pipe or duct on which said holes or perforations have their centers, substantially as and for the purposes set forth.



2. In a muffler for engines, the combination, of a casing forming a relief-chamber, having a means of ingress and egress for the medium to be exhausted, of an exhaust-pipe connected therewith, having a closed top, and provided with radially-extending and helically-disposed holes or perforations, and a spring encircling the outer surface of said pipe, the central helical pitch-line of the coils of said spring corresponding to an imaginary helical line around said pipe on which said holes or perforations have their centers, substantially as and for the purposes set forth.

3. The herein-described muffler for engines, consisting, essentially, of a casing d', a top and bottom cover therefor, said top cover having an opening, and a means of ingress therein for the admission of the medium to be exhausted, said casing having an opening in one side thereof, and an eduction-pipe e connected with said opening in the side of said casing, said pipe e being provided with helically-disposed openings or perforations e^3, and a spring e' encircling said pipe and arranged over said holes or perforations, substantially as and for the purposes set forth.

659,457. SASH-LOCK. LORENZO H. SPARKS, Pittsburg, Pa. Filed July 26, 1900. Serial No. 24,879. (No model.)

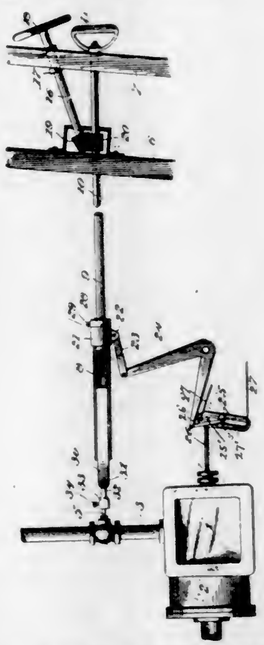


Claim.—1. In a window lock, or holder, the combination with the frame, of an operating-rod arranged thereon and extending outwardly through the frame with its extending end threaded, a clamping-bar pivotally secured to the inner face of the frame with one end of said rod pivotally connected thereto, and an adjusting-nut mounted on the other end of the rod for actuating said clamping-bar to move the same into or out of engagement with the sash, substantially as described.

2. The combination with a window frame and sash, of a clamping-bar pivotally secured to the inner face of the frame and provided with angular ends, an operating-rod pivotally connected to said clamping-bar and extending outwardly through the frame, a threaded socket countersunk in the outer face of the frame and through which said operating-rod extends, and a clamping-nut mounted on the rod and engaging said threaded socket, substantially as described.

3. A window lock and holder consisting of a clamping-bar which is pivotally secured to the inner face of the frame and is provided with angular ends, an operating-rod pivotally connected to said clamping-bar and extending through the window-frame, and means engaging said rod for actuating the clamping-bar to engage the angular ends of the latter with the sash, substantially as described.

659,458. VALVE-GEAR. LESLIE STEELE, Washington, Pa. Filed Aug. 18, 1899. Serial No. 727,676. (No model.)



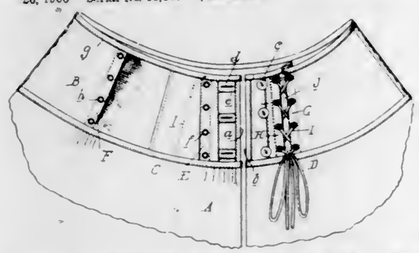
Claim.—1. In a valve-gear, the combination, with the steam-chest and its throttle-valve, of an operating-rod connected to the stem of the throttle-valve, connections between said rod and the valve which admits and exhausts steam to each end of the cylinder, a cog-wheel mounted on said operating-rod, and an operating-shaft having a bevel-gear to engage said cog on the operating-rod and impart a rotary movement thereto when the shaft is rotated, substantially as described.

2. In a valve-gear, the combination with the steam-chest and its throttle-valve, and the cylinder and its valve for admitting and exhausting steam to each end thereof; of a longitudinally-reciprocating and rotary-movable operating-rod connected to the stem of the throttle-valve and adapted to operate said valve by its rotary movement, connections between said operating-rod and the stem of the valve which admits and exhausts steam to each end of the cylinder, and means connected to said operating-rod for rotating the same, and separate means carried by the rod for longitudinally operating the same, substantially as described.

3. In a valve-gear, the combination, with the steam-chest and its throttle-valve, and the cylinder and its valve for admitting and exhausting steam to each end thereof; of a longitudinally-reciprocating and rotary-movable operating-rod connected to the stem of the throttle-valve and adapted to operate said valve by its rotary movement, a bell-crank and link connection between said operating-rod and the stem of the valve which admits and exhausts steam to each end of the cylinder, means en-

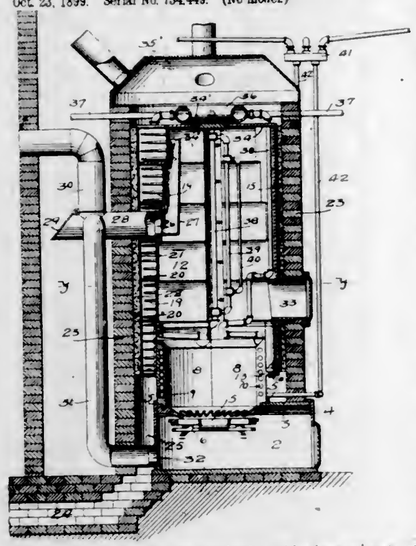
gaging said operating-rod for imparting a rotary movement thereto, and means carried by said operating-rod for longitudinally operating the same, as and for the purpose described.

659,459. GARMENT-WAIST CLOSURE. JAMES STONE, Jackson, Mich., assignor to the Bortree Corset Company, same place. Filed Mar. 26, 1900. Serial No. 10,173. (No model.)



Claim.—In an adjustable yoke, the combination with a strip or band of material cut into the form of a sector of a circle and having its top and bottom edges concentric arcs, means for securing the strip ends together, means for adjusting the length of the strip uniformly of its width comprising two spaced and radially-arranged flaps upon and extending entirely across the strip and a lacing engaging said flaps, and a reinforcement for the adjusting means, consisting of a layer of material extending over and stitched at its edges to a portion of the strip intermediate the flaps, and a reinforcing-layer of stiff material intermediate the stitched layer and the strip, substantially as and for the purpose described.

659,460. FURNACE. HENRY TILDEN, Minneapolis, Minn. Filed Oct. 23, 1899. Serial No. 734,449. (No model.)



Claim.—1. In a furnace, the combination, with a base and grate, of a fire-pot supported thereon, said fire-pot being composed of several independent vertical water-heating sections, and a sectional fire-chamber, the sections of which correspond to the fire-pot sections and each section of said chamber being provided with an air-heating flue, substantially as described.

2. In a furnace, the combination, with a base and grate, of a fire-pot supported thereon, said fire-pot being composed of independent vertical sections, each section being provided with a series of horizontal water channels or passages, and a sectional fire chamber or dome, each section of which corresponds to the fire-pot sections, respectively, and is provided with an air-heating flue containing several baffles, substantially as described.

3. The combination, with the base and grate, of a fire-pot supported upon said base, said fire-pot being composed of independent vertical sections, each section being provided in its interior with a series of water channels or passages, of a series of return water-reservoirs, pipes leading therefrom to the return-valves of the radiator, pipes leading from said return-reservoirs into said water-channels near the lower ends of said sections, a hot-water holder or reservoir, pipes leading therefrom to the radiators, and independent pipes leading from said reservoir and communicating with said water-channels near the tops of said sections, substantially as described.

4. The combination, with a base and grate, of a fire-pot supported upon said base, said fire-pot being composed of vertical independent sections, having ledges 17 and a sectional fire-chamber supported by the ledges 17 of said fire-pot and by which sectional fire-chamber said fire-pot sections are held together, substantially as described.

5. The combination, with a base and grate, of a fire-pot supported thereon, and composed of independent vertical sections, a fire-chamber supported upon said fire-pot and whereby said sections are held together, and said fire-chamber being composed of independent vertical sections, which being fastened together hold the fire-pot sections in place, substantially as described.

6. A fire-pot composed of independent vertical sections, each including within its walls a series of water channels or passages, independent water-inlet pipes communicating with said channels near the bottoms of the respective sections and connected with the radiator return-pipes, a sectional fire chamber or dome supported upon said fire-pot, independent water-pipes in said chamber leading from said fire-pot sections, respectively, and a distributing chamber or reservoir communicating with the water-pipes in said chamber and with radiator-supply pipes, substantially as described.

7. In a furnace, a fire-chamber, composed of independent vertical sections, said sections having inwardly-turned middle portions leaving V-shaped vertical recesses or openings between the sections and vertical flues between the outwardly-turned edges of each section, a cold-air duct communicating with the lower ends of said flues, means for closing the bottoms of said V-shaped recesses or openings, and means for securing the abutting edges of said sections together, substantially as described.

8. In a furnace, the combination, with a base, of a fire-pot supported thereon, said fire-pot being composed of independent vertical sections, a series of water-channels or water-passages provided within said sections, inlet-pipes communicating with said passages near the bottom of the fire-pot, a fire-chamber composed of a series of independent vertical sections supported above said fire-pot, the middle portions of said sections being inwardly turned leaving V-shaped openings, a hot-water reservoir supported above said fire-chamber and hot-water pipes arranged within said V-shaped recesses and communicating with said reservoir and the water-channels in the top of said fire-pot, substantially as described.

9. In a furnace, the combination, with a base, fire-pot and grate, of the fire chamber or dome composed of vertical sections having inwardly-projecting middle portions forming vertical air-heating flues in the backs thereof, and a surrounding wall or casing, substantially as described.

10. In a furnace, the combination, with a base, fire-pot and grate, of the fire chamber or dome composed of vertical sections, vertical air-heating flues provided in the backs of said sections, a cover for said fire pot or dome having a hole or opening 34′ and a lid 34″ for covering said hole, for the purpose specified.

11. The combination, with the base, of the fire-pot, fire-chamber and casing, said fire-pot comprising several vertical cast-iron sections, each containing a zigzag water-heating channel, pipes independently connecting the channels of the different sections with a suitable heater, wherefrom the hot water is conducted to the radiator, said fire-chamber being composed of vertical sections having their edges joined and their sections when fastened together holding the sections of the fire-pot in place, and suitable air-heating ducts formed between said fire-chamber sections and said casing, substantially as described.

12. The combination, with the base, of the sectional fire-pot resting thereon, and provided with water-heating channels, the fire-chamber composed of vertical sections resting upon said fire-pot, holding the parts thereof in place, the water-pipes leading from said fire-pot sections upward within said fire-chamber, and the expanding air-heating flues formed upon the exterior of said fire-chamber sections, substantially as described.

13. The combination, with the base, fire-pot and grate, of the fire chamber or dome composed of vertical sections having inwardly-projecting middle portions, a suitable casing between which and said sections air-heating flues are formed, and the baffle-plates projecting from said sections, substantially as described.

14. The combination, with the base, fire-pot and grate, of the fire chamber or dome composed of vertical sections having inwardly-projecting middle portions, a suitable casing between which and said sections air-heating flues are formed, and the baffle-plates and spines projecting from said sections and integral therewith, substantially as described.

15. The combination, with the base, fire-pot and grate, of the fire-chamber composed of vertical sections and verging at the top, and having inwardly-projecting middle portions, the casing surrounding said sections and secured to the edges of the sections, whereby air-heating flues are formed upon the backs of said sections, substantially as described.

16. The combination, with the base, fire-pot and grate, of the fire-chamber composed of vertical sections and verging at the top, and having inwardly-projecting middle portions, the casing surrounding said sections, whereby air-heating flues are formed upon the backs of said sections, and the baffles projecting into said flues and integral with said sections, said baffles also serving to hold said casing, substantially as described.

17. The combination, with the base and grate, of the water-heating fire-pot, provided with a plurality of water-channels, the fire chamber or dome upon said fire-pot, the air-heating flues upon the exterior of said dome, the casing forming the outer walls of said flues, the water-pipes extending upwardly from the water-channels in said fire-pot, and the auxiliary water-pipes 39 and 40, substantially as described.

18. The combination, with the base and fire-pot, of the fire chamber or dome comprising several vertical sections having inwardly-projecting middle portions whereby recesses or passages are formed in the walls of the fire-chamber, and the plates provided at the lower ends of said sections, closing the bottoms of said recesses, substantially as described.

19. The combination, with the base, and the fire-pot, of a fire chamber or dome comprising the vertical cast sections having their edges secured together, the middle portions of said sections being projected inwardly and comprising steps, as described.

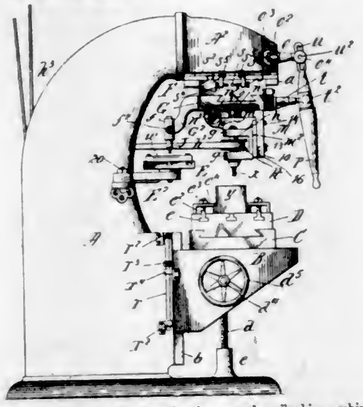
20. The combination, with the base and the fire-pot, of the fire chamber or dome, comprising the vertical cast sections having their edges secured together, the middle portions of said sections being projected inwardly and comprising steps, and the inner faces of said sections being plane surfaces, substantially as described.

21. The combination, with the base, of the sectional water-heating fire-pot thereon, the sectional fire chamber or dome upon said fire-pot and holding the parts thereof in place, the sections of the fire chamber or dome having vertically and horizontally extending flanges and baffles, and the casing, completing flues upon said dome-sections when secured about said flanges and the baffles, substantially as described.

22. The combination, with the base, of the sectional water-heating fire-pot thereon, the sectional fire chamber or dome upon said fire-pot and holding the parts thereof in place, the sections of the fire chamber or dome having vertically and horizontally extending flanges and baffles, and the casing surrounding said dome-sections when secured about said flanges and the baffles, said casing comprising the wire fabric and the non-conducting coating thereon, substantially as described.

23. The substantially-cylindrical fire chamber or dome composed of vertical sections in combination with a fire-pot composed of independent vertical sections, each having included within its walls a series of water channels or passages, independent water-inlet pipes communicating with said channels near the bottoms of the respective sections, a water-reservoir and independent pipes within the fire-chamber, connecting the tops of the respective sections with said reservoir, substantially as described.

659,461. ENGRAVING AND DIE-SINKING MACHINE. FREDERICK D. VAN NORMAN, Springfield, Mass. Filed Dec. 7, 1899. Serial No. 739,500. (No model.)



Claim.—1. In a machine of the character described in combination, a supporting standard or head, a slide adapted for horizontal movement thereon, and a second slide movable on the first slide right-angularly thereto, and carrying a cutter-head, a rigid depending arm carried by the second slide and provided with a tracer, a bracket for a pattern in conjunction with which the tracer coacts, the operating-lever arm P additional to and independent of the tracer, adapted for swinging movements in two directions at right angles to each other, and adapted to be manually operated, and having an engagement with the second slide, a work-support under said head, and relatively to which the said tool courses, which support is additional to and independent of the pattern-bracket, and which is vertically movable, and means for feeding the work-support vertically and for confining the same in any given adjustment to which it is fed, substantially as described and for the purposes set forth.

2. In a machine of the character described, the combination with a suitable work-support, of the two slides F and G, the one movable horizontally on a supporting part of the frame therefor, and the second movable horizontally on the first slide right-angularly to the line of movement of such slide, and having a cutter-head supported thereby which is adjustable rotatably in a plane perpendicular to the plane of movement of the cutter-head-supporting slide, and which is furthermore rotatably adjustable in a plane angular to the plane of said first adjustment, means for confining the head in its stated adjustments, a tracer supported by, and movable in unison with said slide G, a support for the pattern with which the tracer coacts, and in addition thereto an operating-lever handle pivotally connected to a fixed part of the machine to swing in one direction, and having a jointed connection with the said slide G relatively to which the lever may have swinging movements in a second right-angular direction, for the purposes set forth.

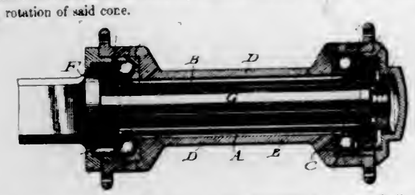
3. In a machine of the character described the combination with a vertically-adjustable work-support or bed and a pattern-support, of the two slides the one F movable horizontally above the bed on the elevated or overhanging supporting part of the frame therefor, and the second G, movable horizontally on the first slide right-angularly to the line of movement of such slide, and in a plane parallel therewith, and having a tool or cutter-head supported thereby which is adjustable about an axis perpendicular to the plane of movement of said slide G, and which is also adjustable about an axis that is parallel with the plane of movement of said slide G, the tracer bodily movable in unison with the cutter-head and having its location in operative proximity to the pattern, and in addition thereto the controlling handle-lever pivotally connected to a fixed part of the machine and having a jointed connection with the head G substantially as described.

4. In a machine of the character described, the combination with the supporting frame or structure, and a work-support, of the slide F movable horizontally in one direction relatively to the supporting part of the frame therefor, and adjustable stop devices for limiting the movements of said slide relatively to the supporting-frame, the second slide G movable across the first slide angularly to the line of movement thereof and stop devices for limiting the movements of the second slide relatively to the first, the cutter-head comprising the two parts m and m^2, the one formed with a portion which is swiveled to the said slide G and having an angular member on which the part m^2 is swivel-connected for an adjustable movement in a plane angular to the movement of the part m, means for confining said parts in their adjusted positions, the spindle for the tool or cutter journaled in said part m^2, a tracer carried by the slide G, a pattern with which the tracer coacts, and a supporting-fixture therefor and in addition thereto, a lever-handle movable in two directions right-angular to each other for imparting the movements to the cutter-head and means for causing the approaching movements of the work-supporting bed and the cutter, the one relatively to the other.

5. In a machine of the character described, the combination with the supporting frame or structure A having the overhanging elevated portion A^2, and the bed B vertically adjustable thereunder, and means for elevating it, the slide F movable horizontally in its sliding connection under said part A^2, the slide G movable horizontally in its connection with the said slide F at right angles to the line of movement thereof, the angular part m swiveled under the slide G, and having means for confining it in its swivel adjustments, the part m^2 swiveled on the vertical member of said part m^2, in a plane right-angular to the plane of swiveling movement of part m and means for confining it in its swivel-adjusted position, the cutter-spindle mounted on said part m^2, and means for rotating it, a tracer-support bodily movable in unison with the cutter-head, provided with a tracing pin or stud, a pattern-support adjacent which the tracer has its location, the lever-arm P detachably connected and engaged with one of the slides and with the frame, and articulated for movements in two directions right-angular to each other, all substantially as described, and for the purposes set forth.

659,462. BALL-BEARING. HUBBARD F. WEEKS, Freehold, N. J., assignor of two-thirds to Rullef P. Smock and Frank C. Du Bois, same place. Filed June 12, 1900. Serial No. 20,042. (No model.)

Claim.—1. In a ball-bearing for a bicycle or other vehicle, a sleeve interposed between the journal of the vehicle and the hub of the wheel thereon, the cone of the bearing being connected with said sleeve in combination with means for interlocking the cone with the journal for preventing rotation of said cone.



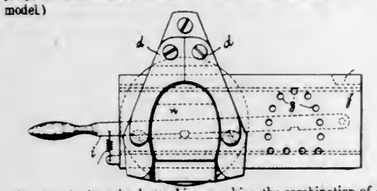
2. In a ball-bearing for a bicycle or other vehicle, a sleeve encircling the journal or axle, and a cone adjustably connected with said sleeve, the balls of the bearing being interposed between the cup in the hub and said cone in combination with means for interlocking the cone with the journal for preventing rotation of said cone.

3. In a ball-bearing for a bicycle or other vehicle, a sleeve encircling the journal or axle, a bearing-cone connected with said sleeve, and means for interlocking said cone with said journal or axle for preventing rotation of said cone.

4. In a ball-bearing for a bicycle or other vehicle, a sleeve encircling the journal or axle, a bearing-cone connected with said sleeve, and a tongue on said cone, the journal having a longitudinally-extending groove to receive said tongue for preventing the rotation of the cone.

5. In a ball-bearing for a bicycle or other vehicle, a hub, an axle, a sleeve around said axle, a cup seated in said hub, a cone connected with said sleeve, balls between said cup and cone, a screw-threaded retainer for said balls in said hub, a closing-cap having its neck entering said hub and engaging said retainer for preventing unscrewing of the same, there being a tongue and groove on said cone and axle, respectively for interlocking the latter-named parts and preventing rotation of the cone and consequently of the sleeve.

659,463. HEEL-ATTACHING MACHINE. CALVIN W. WOODS, North Brookfield, Mass., assignor to the E. & A. H. Batcheller Company, of Massachusetts. Filed Nov. 18, 1899. Serial No. 737,389. (No model.)



Claim.—1. In a heel-attaching machine the combination of a heel-post, a heel-cup having open sides, a nailing and spanking plate movable over the top of said post through the open sides of the heel-cup whereby a loaded heel and its top lift can be attached in rapid succession, substantially as described.

2. In a heel-attaching machine the combination of a heel-post, a heel-cup mounted thereon, the sliding plate supported on said post and adapted to slide over said post transversely of the heel-cup, and a stop device for arresting the movement of said plate in proper position to attach a heel or to spank on a top lift, substantially as described.

3. In a heel-attaching device the combination of a heel-post, a heel-cup, a nailing and spanking plate having a sliding engagement with the top or head of said heel-post, and a pivoted latch for locking said plate in different positions for attaching the heel and the top lift respectively, substantially as described.

4. In a heel-attaching machine, the combination of the heel-post, the heel-cup, the plate movable over and resting upon the head of the heel-post, said plate being provided with a series of countersunk recesses arranged to correspond with, and receive the ends of the nails of a loaded heel, and being also provided with a recess to receive the top lift, substantially as described.

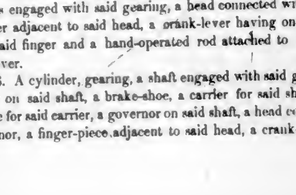
5. In a heel-attaching machine the combination of the heel-post, the heel-cup, the movable nailing and spanking plate, the head of said heel-post and the under side of said plate being formed with interlocking ribs, whereby the upward movement of the plate from the post is prevented while permitting the horizontal movement of the plate substantially as described.

6. A nailing and spanking plate for a heel-cup, comprising a single plate having formed on one side face a series of countersunk recesses arranged to receive the ends of the nails of a loaded heel, without allowing them to project through the plate, and having also a countersunk recess formed to receive the top lift, substantially as described.

7. In a heel-attaching machine, the combination of the heel-post, the heel-cup, the sliding plate, the pivoted latch formed with the notches in its edge, the stud projecting from the heel-post, and the spring arranged to move the latch normally toward the stud, substantially as described.

8. In a heel-attaching machine, the combination with a last having movements to attach a loaded heel and spank on a top lift, of a nail-driving and top-lift-spanking device, the nail-driving part of which comprises a plate having a series of countersunk recesses arranged to receive and drive the nails without allowing them to project through the plate, and the spanker portion of which comprises a top-lift-holding plate movable into position to hold the top lift stationary beneath the heel, while the heel with its projecting nails is forced down upon it, substantially as described.

659,464. TILE-BASE. HARRISON N. BLUNT, New York, N. Y. Filed Mar. 14, 1900. Serial No. 8,570. (No model.)



Claim.—1. A base for land-draining tiles, having transversely-extending ribs on its under side and apertures in it opening into the respective spaces between said ribs.

2. A tile-base having a plurality of transverse channels *b* in its lower face, and a plurality of slot-like apertures *a*, opening into the respective channels *b*.

3. The combination with an open-bottomed tile, of a tile-base which extends laterally beyond said tile, said base having in it a plurality of apertures *a*, and in its lower face a plurality of transversely-extending channels *b*, into which said apertures respectively open.

4. A tile-base having apertures *a*, transverse channels *b*, and shoulders *d*, *d*, in combination with an open-bottomed tile adapted to fit up to said shoulders, substantially as set forth.

5. The combination with an open-bottomed tile, of a base upon which said tile rests, said base having apertures in it, substantially as set forth.

6. The combination with an open-bottomed tile, of a base upon which said tile rests, said base having apertures in it and ribs on its under side, substantially as set forth.

659,465. CYLINDER-PIANO. ALESSANDRO CAPRA, Philadelphia, Pa. Filed Apr. 27, 1900. Serial No. 14,566. (No model.)

Claim.—1. In a cylinder-piano, a motor-spring, a dog on the frame, and a suitably-supported alarm in combination with a device adapted to couple said dog with a convolution of said spring whereby the dog follows the motion of said convolution, and indicates the condition of said spring when run down or nearly so.

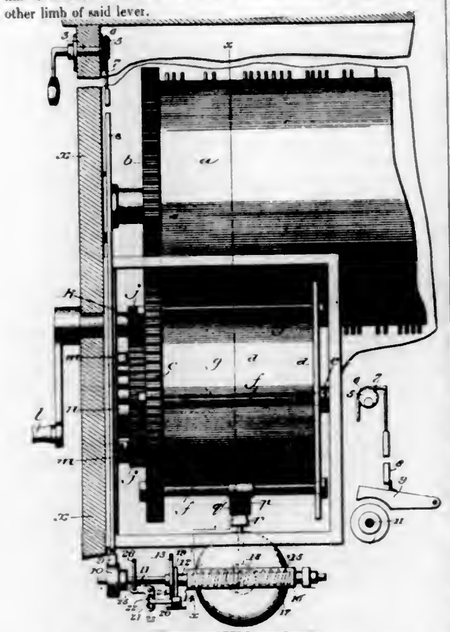
2. A clip, a dog, and a frame, said clip being formed with means for connecting it with a convolution of said spring and for movably supporting said dog, whereby the nose of the latter is adapted to be removed from the path of the head of said alarm and to be restored thereto due to the motions of said convolution.

3. A clip provided with laterally-projecting members, a spring which is connected with said clip by one of said members, a movable dog which is adapted to be engaged by the other member and an alarm having a head adapted to be removed from and engaged with said dog due to the motion of the convolutions in said spring.

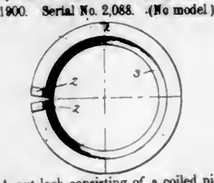
4. A spring having an opening in its convolutions, a clip in said spring, a movable dog on the frame and an alarm, said clip having a member which engages with said convolutions and a member which engages with the dog, the latter being adapted to be removed from the striking mechanism of said alarm and to be placed in the path of the same.

5. A cylinder and gearing in combination with a governor whose shaft is engaged with said gearing, a head connected with said governor, a finger adjacent to said head, a crank-lever having one limb connected with said finger and a hand-operated rod attached to the other limb of said lever.

6. A cylinder, gearing, a shaft engaged with said gearing, a friction-pulley on said shaft, a brake-shoe, a carrier for said shoe, an operating-handle for said carrier, a governor on said shaft, a head connected with said governor, a finger-piece adjacent to said head, a crank-lever having one limb connected with said lever and a hand-operated rod attached to the other limb of said lever.



659,466. NUT-LOCK. WILLIAM H. CARRUTHERS, Chicago, Ill. Filed Jan. 20, 1900. Serial No. 2,088. (No model.)

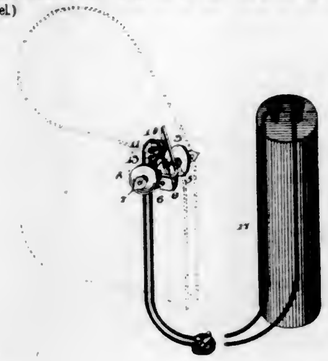


Claim.—1. A nut-lock consisting of a coiled piece of spring metal adapted to fit between the threads of a bolt and having its extremities bent parallel to the axis of the bolt, substantially as described.

2. A nut-lock comprising a coiled piece of spring metal whose ends overlap each other and are bent at right angles to the body of the device at their extremities, substantially as described.

3. A nut-lock consisting of a coiled piece of spring metal having a thread-like inner edge and overlapping ends, the extremities of said ends being reduced in depth and bent at right angles to the body of the device, substantially as described.

659,467. ELECTRICAL ILLUMINATED BUTTON. WALTER A. CHURCH, Pittsburg, Pa. Filed Dec. 9, 1899. Serial No. 739,797. (No model.)



Claim.—1. In an electrical cuff-button, the combination of a pair of buttons proper, a positioning-plate, an incandescent lamp mounted within each of the said buttons and suitably connected to said retaining-plate, an electrical supply, and means connected to the said plate and said supply for forming an electrical circuit thereby illuminating the said lamps.

2. In an electrical cuff-button, the combination of a pair of buttons proper, a positioning-plate, an incandescent lamp mounted within each of the said buttons and suitably connected to said retaining-plate, a pair of contact-springs connected to said plate and adapted to engage said lamps, an electrical supply, and connections between said plate and said supply for forming a circuit thereby permitting of the illuminating of the lamps.

3. An electrical cuff-button consisting of a pair of buttons proper, a retaining or positioning plate arranged between the same, an incandescent lamp extending through each of the said buttons and suitably connected to the said plate, and a pair of contact-springs suitably mounted on the said plate and adapted to engage the said lamps.

4. An electrical cuff-button consisting of a pair of buttons proper, a retaining or positioning plate arranged between the same, an incandescent globe extending through each of the said buttons and suitably connected to the said plate, a pair of contact-springs suitably mounted on the said plate and adapted to engage the said lamps, a storage battery, suitable wire connections between said battery and said plate, and a switch suitably connected to the said wire.

5. In an electrical cuff-button, a pair of buttons provided with centrally-arranged opening, a substantially U-shaped retaining or positioning plate arranged between said buttons and provided with a pair of screw-threaded openings, an incandescent lamp extending through each of the said buttons and secured in one of the said openings of the retaining-plate, a pair of contact-springs mounted on the said plate and adapted to engage said lamps, a storage battery, suitable wire connections between said battery and said plate, and a switch suitably connected to the said wire connections, substantially as set forth.

6. In an electrical cuff-button, a substantially U-shaped retaining-plate, connections between the same and an electrical supply, a pair of lamps connected to said plate, contact-springs of unequal length mounted on said plate and adapted to engage said lamps, and connections between said contact-springs and a source of electrical supply.

7. In an electrical cuff-button, a pair of buttons proper, a retaining-plate, a pair of sockets suitably connected to said plate, a lamp suitably secured to each of said sockets, a binding-post connected to said plate, a pair of contact-springs mounted on said post and adapted to engage the said sockets, a connection between said binding-post and an electrical supply, and a connection between said plate and a source of electrical supply, substantially as described.

8. In an electrical cuff-button, a pair of buttons proper, a retaining-plate, a pair of sockets suitably connected to said plate, a lamp suitably secured to each of said sockets, a binding-post connected to said plates, a pair of contact-springs mounted on said post and adapted to engage the said sockets, a connection between said binding-post and an electrical supply, a binding-post connected to said plate, a connection between the same and a source of electrical supply, and a switch suitably arranged upon the said connections, substantially as described

659,468. COLD-STORAGE APPARATUS. MADISON COOPER, Minneapolis, Minn. Original application filed July 3, 1899, Serial No. 722,633. Divided and this application filed Mar. 5, 1900. Serial No. 7,338. (No model.)

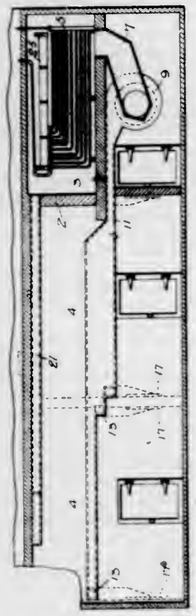
Claim.—1. In a cold-storage apparatus, the combination, with a room provided with a perforated false ceiling, and with perforated transverse ducts on the lower part only of its walls, of means for forcing cold air into the room through said ducts and thereby distributing the cold air through the lower part of the room, and means for conducting the air off at the top of the room through said perforated ceiling, substantially as described.

2. The combination, in a cold-storage apparatus, with means for cooling the air, of a storage-room provided with transverse perforated ducts arranged upon the lower part only of its walls, a perforated false ceiling forming an air-duct at the top of the room, and means for conducting air to said transverse ducts and from said perforated ceiling, for the purpose set forth.

3. The combination, in an air cooling and circulating system, with means for cooling the air, of storage-rooms provided with transverse ducts on the lower parts only of their side walls, and with perforated false ceilings, ducts leading from the air-cooling room to said transverse ducts, return-ducts leading from the space above said ceiling to said air-cooling room, and means for drawing the air from said air-cooling room and forcing it through said cold-storage rooms, for the purpose set forth.

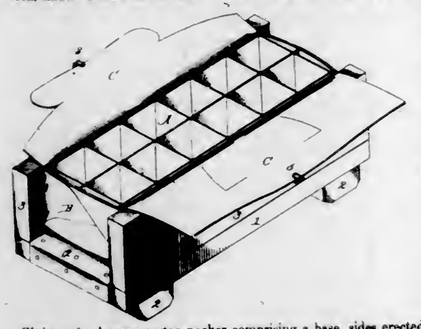
4. In a cold-storage apparatus, the combination, with a series of storage-rooms, of an air-cooling room, distributing-ducts leading from said air-cooling room to said storage-room, perforated transverse ducts arranged

upon the lower parts only of the walls of the rooms and connected with the distributing-ducts, perforated ceilings arranged over the storage-rooms, and return-ducts leading from the spaces above said ceilings to said air-cooling room, for the purpose set forth.



5. In a cold-storage apparatus, the combination, with a storage-room provided with a perforated false ceiling, of transverse ducts on the lower part of the walls of said storage-room, said ducts being provided on the front and at the top and bottom thereof with suitable perforations, means for forcing cold air into said storage-room through said ducts, and means for conducting the air off at the top of the room through said perforated ceiling, substantially as described.

659,469. EGG-CARTON PACKER. WILLIAM H. DAVIS, McPherson, Kans. Filed June 15, 1900. Serial No. 20,394. (No model.)



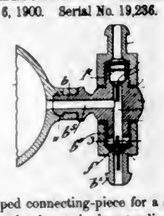
Claim.—1. An egg-carton packer comprising a base, sides erected upon the base, a cushion upon the base and between said sides, and means whereby the flaps or covers of a carton upon the cushion to be filled may be held wide open to give free access to the interior of the carton, substantially as described.

2. An egg-carton packer, comprising a base, parallel sides erected upon the base, hooks projecting outwardly from the upper edges of said sides, and a cushion upon the base and between said sides, substantially as described.

3. An egg-carton packer, comprising a base, parallel sides erected upon the base, hooks slidably secured to said sides and projecting outwardly therefrom, clamping devices for holding said hooks at the desired point, and a cushion secured upon the base between said sides, substantially as described

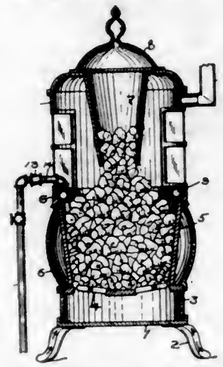
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659,470. SYRINGE. ANTON C. EGGERS, New York, N. Y., assignor to the Goodyear's India Rubber Glove Manufacturing Company, same place. Filed June 6, 1900. Serial No. 19,236. (No model.)



Claim.—A T-shaped connecting-piece for a syringe, the same consisting of a center portion having a nipple extending at right angles therefrom, short exteriorly-threaded tubular necks at opposite ends of said center portion, one of said necks being provided with radial slits extending from the bore to the outside of the neck, and the other with a valve-retaining device, nipples, interiorly threaded, screwed onto said necks, an inlet-valve in the inlet-nipple, and an outlet-valve in the opposite neck, substantially as set forth.

659,471. STOVE. GEORGE K. FENNEY and JOHNS E. SCHROYER, Indianapolis, Ind. Filed Dec. 14, 1899. Serial No. 740,273. (No model.)



Claim.—1. The combination with a stove or furnace provided with a suitable fire-pot, of a gas-burner extending along and resting upon the upper edge of the fire-pot with outlet-ports on the under side thereof, and means for supplying gas to said burner.

2. The combination with a stove provided with a suitable fire-pot and a coal-magazine, of a gas-burner extending along and mounted above the fire-pot and in such relation to the lower end of the coal-magazine that the coal therefrom will not cover the gas-burner, and means for introducing gas into said burner.

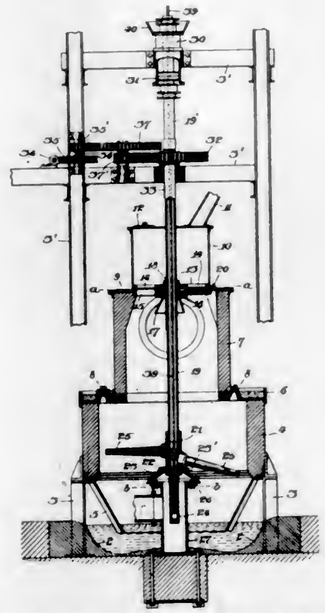
3. The combination with a stove provided with a suitable fire-pot, of a gas-burner extending along and resting upon the upper edge of the fire-pot with outlet-ports therefrom on the under side, and a pipe for supplying gas to said burner from any suitable source of supply that enters the stove above the fire-pot.

659,472. GAS-PRODUCER. SIMON A. FRASER, New Glasgow, Canada, assignor of one-half to Benjamin Talbot, Pencoyd, Pa. Filed Sept. 26, 1899. Serial No. 731,713. (No model.)

Claim.—1. In a gas-producer, a substantially-cylindrical producer-body or combustion-chamber, in combination with a revoluble stirrer having arms which revolve at different elevations in said combustion-chamber, and mechanism for revolving said stirrer when said arms are at different elevations, substantially as specified.

2. In a gas-producer, a producer-body or combustion-chamber, in combination with a revoluble stirrer having arms which simultaneously revolve through different zones in said combustion-chamber, and mechanism for revolving said stirrer, substantially as specified.

3. In a gas-producer, a closed cylindrical producer-body or combustion-chamber, a longitudinally-movable shaft journaled therein, one or more arms fixed on said shaft to act throughout said combustion-chamber, mechanism for moving said shaft longitudinally, and mechanism for revolving said shaft when said arms are at different elevations, substantially as specified.



4. In a gas-producer, a substantially-cylindrical producer-body or combustion-chamber, in combination with a bearing, a shaft supported by and movable through said bearing, a hub for limiting the movement of said shaft through said bearing, one or more arms fixed on said shaft to act throughout said combustion-chamber, and mechanism for revolving said shaft when said arm or arms are at different elevations, substantially as specified.

5. In combination with a gas-producer body, a supply-pipe, a dome therefor, a bearing supported by said dome, a shaft journaled in said bearing and longitudinally movable therethrough, and one or more arms fixed on said shaft, substantially as specified.

6. In a gas-producer, a cap having one or more apertures therein, a drum above said cap, a revoluble disk at the bottom of said drum having one or more apertures therein, said disk aperture or apertures registering with said cap aperture or apertures, and a shaft revolubly fixed to said disk to drive the same, substantially as specified.

7. In a gas-producer, a journaled hub, a spreader fixed to said hub, a revoluble shaft longitudinally movable through said hub and connected therewith to revolve said spreader, substantially as specified.

8. In a gas-producer, a cap having one or more apertures therein, a drum above said cap, a revoluble disk in the bottom of said drum having one or more apertures therein adapted to register successively with said cap aperture or apertures, a revoluble spreader, and a shaft connected with said disk and spreader to revolve the same, substantially as specified.

9. In a gas-producer, a journaled shaft, one or more arms fixed to said shaft, a cap having one or more apertures therein, a revoluble disk having one or more apertures therein to register with said cap aperture or apertures, said disk being driven by said journaled shaft, substantially as specified.

10. In a gas-producer, a journaled shaft, one or more arms fixed to said shaft, mechanism for revolving said shaft, a cap having one or more apertures therein, a revoluble disk having one or more apertures adapted to register with said cap aperture or apertures, and mechanism for moving said shaft longitudinally, substantially as specified and for the purpose set forth.

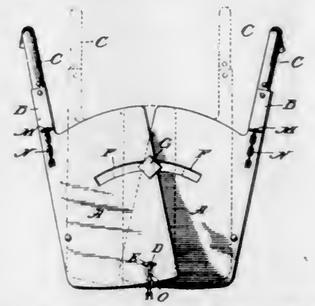
11. In a gas-producer, a journaled shaft, one or more arms fixed to said shaft, a driving-wheel through which said shaft is movable and to which it is keyed, and a cylinder and piston for moving said shaft longitudinally, substantially as specified.

12. In a gas-producer, a journaled hollow shaft, one or more hollow arms fixed to said shaft, a driving-wheel through which said shaft is free to move and to which it is keyed, a cylinder through which said shaft reciprocates, and a piston for reciprocating said shaft, substantially as specified.

13. In a gas-producer, a journaled hollow shaft, one or more hollow arms fixed to said shaft, a gear-wheel through which said shaft is free to move and to which it is keyed, a train of gearing for driving said gear-wheel, a cylinder through which said shaft reciprocates, a piston for reciprocating said shaft, a tube for supplying cooling fluid to said shaft and arms, and a basin for receiving the overflow, substantially as specified.

14. In a gas-producer, a stationary body, a revoluble and longitudinally-movable shaft, one or more arms fixed to said shaft, a cap having one or more apertures therein, a drum above said cap, a revoluble disk having one or more apertures therein which register with said aperture or apertures in said cap, a driving-wheel on said shaft for rotating the same, and a piston and cylinder for moving said shaft longitudinally, substantially as specified.

659,473. SCRAPER FOR CLEANING DITCHES OR TRENCHES. JOHN H. GREGORY, Ione, Cal. Filed July 11, 1900. Serial No. 23,220. (No model.)



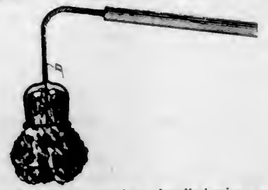
Claim.—1. A scraper composed of two blades pivotally secured together near their lower inner edges, and adjustably secured together at a point above the pivot, whereby the blades can be expanded and contracted, and handles secured to said blades, substantially as and for the purposes hereinbefore set forth.

2. A scraper composed of two blades of suitable shape and construction overlapping one another, and adjustably secured together, a platform or stand secured to the rear thereof, and handles connected with said blades, substantially as and for the purposes hereinbefore set forth.

3. A scraper composed of two blades, overlapping each other, and pivotally secured together near their lower inner edges, and adjustably secured together at a point above the pivot, handles secured to said blades, and a platform or stand connected with said blades, substantially as and for the purposes hereinbefore set forth.

4. A scraper composed of two blades, overlapping one another, having upwardly-projecting extensions, and pivotally connected together near their inner lower edges, and adjustably connected together above the pivotal point, handles secured to said blades and their extensions, and an adjustable platform or stand connected to the rear of said blades, substantially as and for the purposes set forth.

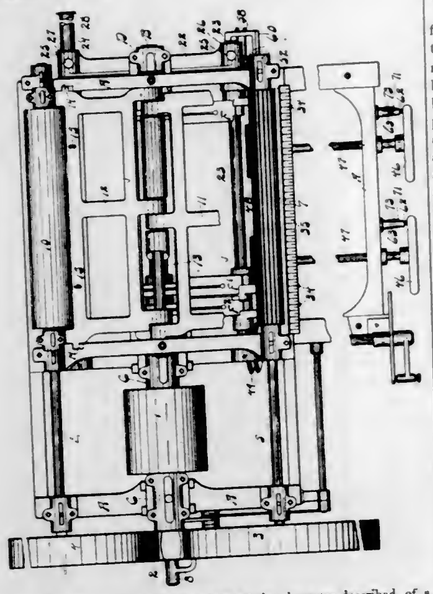
659,474. WINDOW-CLEANER. EMANUEL GUGGENHEIMER, Philadelphia, Pa. Filed Oct. 2, 1899. Serial No. 732,279. (No model.)



Claim.—In a window-washer, a handle having a socket at one end and a holder comprising a number of strands of wire twisted to form a shank which is embedded in the socket, the wires comprising the shank being bent at the opposite end to produce a holder, the extremities of the wire being bent to form loops and a wire bent into a circle threaded to the loops and secured, substantially as described.

659,475. SAWING-MACHINE. LOUIS J. HANHART, Cincinnati, Ohio, assignor to the J. A. Fay & Egan Company, same place. Filed June 4, 1900. Serial No. 19,048. (No model.)

Claim.—1. The combination, in a machine of the character described, of a frame, a saw-arbor mounted therein, a series of saw-blades, slidably secured to the arbor, an outer bearing for the arbor, a bridge-tree for the bearing slidable sidewise longitudinally of the arbor, means for supporting the bridge-tree independent of the arbor with relation to the frame and permitting the sliding sidewise of the bridge-tree and the swinging thereof away from the arbor while attached to the frame, substantially as described.



2. The combination, in a machine of the character described, of a frame, a saw-arbor mounted therein, a series of saw-blades, slidably secured to the arbor, an outer bearing for the arbor, a bridge-tree for the bearing slidable sidewise longitudinally of the arbor, with a stop for the bridge-tree, means for supporting the bridge-tree independent of the arbor with relation to the frame and permitting the sliding sidewise of the bridge-tree and the swinging thereof away from the arbor while attached to the frame, substantially as described.

3. The combination, in a machine of the character described, of a frame, a saw-arbor journaled therein, an outer bearing for the arbor, a bridge-tree for supporting the bearing, and a rod for supporting the bridge-tree, and constructed and arranged for moving the bearing and bridge-tree sidewise longitudinally of the arbor until the bearing clears the arbor and then swingingly lowering the bearing on its bridge-tree while supported by the rod, and means for fastening the bearing and bridge-tree in operative position, substantially as described.

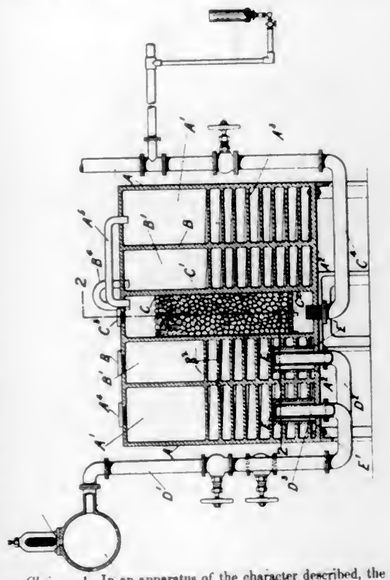
4. The combination, in a machine of the character described, of a frame, a saw-arbor, a saw-blade slidably supported by the arbor and turning therewith, a guide-piece for the saw, a shifting-shaft for the same, a hand-wheel for the latter, with notch-and-plunger mechanism between the hand-wheel and frame, inclined faces between notch and plunger, a contact-face for the plunger, and a stop for the contact-face locking the plunger and hand-wheel stationary with relation to the frame and the saw-blade in position on the arbor, substantially as described.

5. The combination, in a machine of the character described, of a saw-arbor, a saw-blade slidably supported by the arbor and turning therewith, a guide-piece for the saw, a shifting-shaft for the same, a frame in which the same is journaled, a hand-wheel for the shaft, a finger, and an index-plate, with notches and a plunger, a spring for the plunger, inclined faces between the plunger and the notches, a contact-face for the plunger, and a positive lock, having a cam-face, for taking against the contact-face for seating the inclined faces with relation to each other and thereby relatively centering the finger and a mark on the index-plate and locking the saw-blade in its proper position for cutting to exact size, substantially as described.

6. The combination, in a machine of the character described, of a saw-arbor, a series of saw-blades slidably supported by the arbor and turning therewith, side contact-pieces for the blades, a finger, an index-plate, a saw-blade-shifting shaft with a sheave therefor, a sheave to each side of the saw-blades, a rope or similar device taking about the latter sheaves and attached to the former sheave, means for adjusting the position of a side sheave for taking up lost motion, a hand-wheel for the feeding-in end of the shifting-shaft, a series of notches in the hand-wheel and a plunger for taking into the same, with a contact-face for the plunger and a movable stop for the contact-face, constructed and arranged to indicate the position of the saw-blade with relation to a mark on the index-plate and to center and positively lock the saw-blade in position at that mark, substantially as described.

7. The combination, in a machine of the character described, of a frame, a saw-arbor journaled therein, a series of saw-blades slidable on the arbor, an outer bearing for the arbor, a bridge-tree for the bearing, a rod on which the bridge-tree is pivotally hung extending longitudinally beyond the arbor and arranged for first sliding the bridge-tree sidewise longitudinally of the arbor and then swingingly away from the arbor to permit the removal of the saw-blades, side contact-faces for the blades, adjusting-shafts for the contact-faces, a hand-wheel for the adjusting-shaft, a series of notches in the hand-wheel, a plunger taking into the notches, a contact-face for the plunger, a stop for the contact-face, and constructed and arranged for rigidly securing the hand-wheel with relation to the frame and the saw-blade on its arbor by the contact of the stop with the contact-face for the plunger, substantially as described.

659,476. CARBURETER. ALBERT E. HODDER, London, England, assignor of one-half to John Bingley Garland Lester, same place. Filed Aug. 19, 1899. Serial No. 727,826. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a series of carbureting-chambers arranged one within the other, of a series of spirally-arranged vanes within each of said chambers, an air-inlet pipe leading into each chamber below the vanes therein, and a carbureted-air-outlet pipe leading from each chamber above the vanes, as and for the purpose set forth.

2. In an apparatus of the character described, the combination with a carbureting-chamber, of a series of spirally-arranged vanes therein, an air-inlet pipe leading into said chamber below the vanes, a carbureted-air-outlet pipe leading from said chamber above the vanes, and a chamber adapted to contain an enriching agent into which the said outlet-pipe leads.

3. In an apparatus of the character described, the combination with a series of carbureting-chambers arranged one within the other, of a series of spirally-arranged vanes within each of said chambers, an air-inlet pipe leading into each chamber below the vanes therein, a carbureted-air-outlet pipe leading from each chamber above the vanes, and a chamber adapted to contain an enriching agent arranged within the innermost carbureting-chamber and into which the said outlet-pipes lead.

4. In an apparatus of the character described, the combination with a series of annular carbureting-chambers arranged one within the other and spirally-arranged vanes in each chamber, of a central chamber, a perforated bottom therefor, an air-inlet pipe leading into each carbureting-chamber below the vanes therein, a carbureted-air-outlet pipe leading from each carbureting-chamber above the vanes and into the central chamber, and an outlet-pipe leading from the central chamber below the perforated bottom thereof.

659,477. FISHING-REEL. ERNEST HOLZMANN, New York, N. Y. Filed Apr. 9, 1900. Serial No. 12,118. (No model.)



Claim.—1. In a fishing-reel, the combination with a frame and spool, of a pinion on the spool-arbor, a pivoted plate in the frame, a winding cog-wheel on said plate, a cam-lever for shifting said plate to disengage the pinion from said winding cog-wheel, a hook on said cam-lever and a pin on said plate for engagement with said hook, substantially as herein shown and described.

2. In a fishing-reel, the combination with a frame, of a removable cover-plate, a spool, a pinion on the arbor of the spool, a plate pivoted to the inner side of said removable cover-plate, a cog-wheel mounted on said plate and having a tubular shaft extending through a slot in the cover-plate, a handle on the outer end of said tubular shaft, a cam-lever pivoted to the inner side of the cover-plate to act on the pivoted plate, and a pin projecting from said cam through a slot in the cover-plate, substantially as herein shown and described.

3. In a fishing-reel, the combination with a frame and spool, of a winding cog-wheel for rotating the spool, a ratchet-wheel mounted loosely in relation to the cog-wheel, a click-spring engaging the ratchet-wheel and a clutch mechanism for engaging the winding cog-wheel with the ratchet-wheel, when the cog-wheel turns in one direction, substantially as herein shown and described.

4. In a fishing-reel, the combination with a frame and spool, of a winding cog-wheel for rotating the spool, a ratchet-wheel mounted loosely in relation to the cog-wheel, a click-spring engaging the ratchet-wheel, recesses in the ratchet-wheel, cup-shaped friction-rollers in said recesses and a spring in each friction-roll, one end of the spring resting on the side of the ratchet-wheel, substantially as herein shown and described.

5. In a fishing-reel the combination with a frame and spool, of a cover-plate on one end of the frame, a pinion on the spool-arbor, a cog-wheel engaging said pinion, a tubular shaft on the inner end of which said cog-wheel is fixed, a neck in which said tubular shaft is mounted to turn, a plate from which said neck projects, which plate is pivoted to the inner surface of the above-mentioned cover-plate and the said neck and the tubular shaft therein passing through a slot in the cover-plate, substantially as herein set forth.

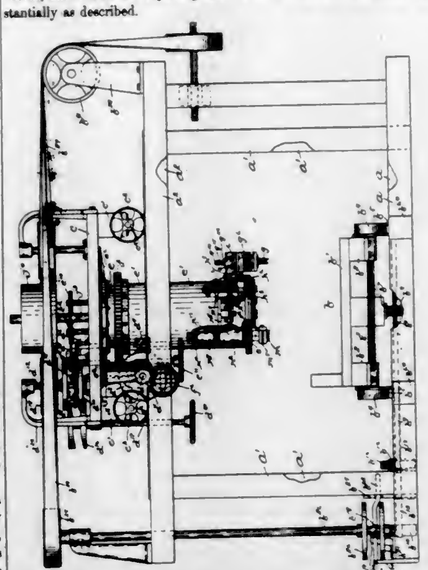
659,478. STONE-DRESSING MACHINE. ALBERT F. JONES, Salem, Mass. Filed Sept. 16, 1899. Serial No. 730,715. (No model.)

Claim.—1. In a stone-dressing machine, the combination of a turret adapted to turn on a vertical axis, a tool carried by said turret, a cam also carried by said turret for raising said tool, a spring for suddenly returning said tool when the cam releases it, a driving-shaft for said cam which passes through said turret, means for rotating said driving-shaft, and means for adjusting said turret about its vertical axis while said driving-shaft is operating, substantially as described.

2. In a stone-dressing machine, the combination of a turret adapted to turn on a vertical axis, a tool carried by said turret, a cam also carried by said turret for raising said tool, a spring for suddenly returning said tool when the cam releases it, a driving-shaft for said cam which passes through said turret, means for adjusting said turret about its vertical axis, means for adjusting said turret to different elevations, and means for rotating said driving-shaft while the turret is being adjusted, substantially as described.

3. In a stone-dressing machine, the combination of a carriage, means for moving it back and forth, a turret borne by said carriage adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, a cam carried by said turret for raising the tool, a spring for suddenly returning the tool when the cam releases it, a driving-shaft for said cam, and means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the carriage and also any other position in the cycle in which said turret revolves, substantially as described.

4. In a stone-dressing machine, the combination of a carriage, means for moving it back and forth, a turret borne by said carriage adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, a cam carried by the turret for raising the tool, a spring for suddenly returning the tool when the cam releases it, a driving-shaft for said cam, means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the carriage and also any other position in the cycle in which said turret revolves, and means for adjusting said turret to different elevations, substantially as described.



5. In a stone-dressing machine, the combination of a truck bearing a stone to be operated upon, means for moving it back and forth, a turret adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, a cam carried by the turret for raising the tool, a spring for suddenly returning the tool when the cam releases it, a driving-shaft for said cam, and means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the truck and also any other position in the cycle in which said turret revolves, substantially as described.

6. In a stone-dressing machine, the combination of a truck bearing a stone to be operated upon, means for moving it back and forth, a turret adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, a cam carried by the turret for raising the tool, a spring for suddenly returning the tool when the cam releases it, a driving-shaft for said cam, means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the truck and also any other position in the cycle in which said turret revolves and means for adjusting said turret to different elevations, substantially as described.

7. In a stone-dressing machine, the combination of a carriage, means for moving it back and forth, a turret borne by said carriage adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, means for vibrating said tool, means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the carriage and also any other position in the cycle in which said turret revolves, a driving-shaft passing through said turret which serves as a cooperative part of the means for vibrating said tool, driving mechanism in continuous engagement with which said driving-shaft is adapted to be held as the tool-carriage travels back and forth and also as the turret is adjusted on its vertical axis, a truck bearing the stone to be operated upon and means for moving it back and forth at right angles to the movement of said tool-carriage, substantially as described.

8. In a stone-dressing machine, the combination of a carriage, means for moving it back and forth, a turret borne by said carriage adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, means for vibrating said tool, means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the carriage and also any other position in the

cycle in which said turret revolves, means for adjusting said turret to different elevations, a truck bearing the stone to be operated upon and means for moving said truck back and forth at right angles to the movement of said tool-carriage, substantially as described.

9. In a stone-dressing machine, the combination of a carriage, means for moving it back and forth, a turret borne by said carriage adapted to turn on a vertical axis a complete rotation, a tool-holder carried by said turret, a tool held by said tool-holder at an oblique angle to a horizontal plane, means for vibrating said tool, means for adjusting said turret about its vertical axis whereby the tool may occupy a position at an oblique angle to the movement of the carriage and also any other position in the cycle in which the turret revolves, means for adjusting said turret to different elevations, a driving-shaft passing through said turret which serves as a coöperative part of the means for vibrating said tool, driving mechanism in continuous engagement with which said driving-shaft is adapted to be held as the carriage travels back and forth and also as the turret is adjusted on its vertical axis and to different elevations, a truck bearing the stone to be operated upon and means for moving said truck back and forth at right angles to the movement of the carriage, substantially as described.

10. In a stone-dressing machine, the combination of a tool, a tool-holder therefor, a support for holding said tool-holder with its tool disposed at an oblique angle to a horizontal plane, an adjusting device for said support whereby said obliquity of the tool may be varied, means for vibrating said tool, a turret adapted to turn on a vertical axis a complete rotation which carries said tool-support and the means for vibrating the tool whereby said turret may be turned while the tool is vibrating, means for adjusting said turret about its vertical axis whereby the oblique cutting-tool may be held in any position in the cycle in which said turret moves, a carriage bearing said turret, means for moving it back and forth while the tool is vibrating, a truck bearing the stone to be operated upon and means for moving it back and forth at right angles to the movement of said carriage, substantially as described.

11. In a stone-dressing machine, the combination of a tool, a tool-holder therefor, a support for said tool-holder adapted to hold the tool at an oblique angle to a horizontal plane, an adjusting device for said support whereby said obliquity of the tool may be varied, a cam for raising said tool, a spring for returning it when said cam releases it, a turret adapted to turn on a vertical axis a complete rotation which carries said tool-support and the operating device for the tool, means for adjusting said turret about its vertical axis whereby the tool may occupy any position in the cycle in which said turret moves, a carriage bearing said turret, and means for moving said carriage back and forth, substantially as described.

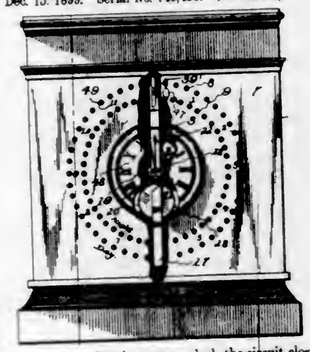
12. In a stone-dressing machine, a turret adapted to turn on a vertical axis, a vibrating tool carried by said turret, a stop for limiting the downward thrust of said tool, a spring for normally holding said tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of said spring, which latter suddenly returns the tool when the cam releases it, means for rotating said cam, and means for adjusting the turret on its vertical axis, substantially as described.

13. In a stone-dressing machine, a turret adapted to turn on a vertical axis a complete rotation, a vibrating tool carried by said turret, a tool-holder for holding said tool at an oblique angle to a horizontal plane, a stop for limiting the downward thrust of the tool, a spring for normally holding said tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of said spring, which latter suddenly returns the tool when the cam releases it, means for rotating said cam, and means for adjusting said turret on its vertical axis whereby the tool carried by it may occupy any position in the cycle in which said turret revolves, substantially as described.

14. In a stone-dressing machine, a turret adapted to turn on a vertical axis a complete rotation, a vibrating tool carried by said turret, a tool-holder for holding said tool at an oblique angle to a horizontal plane, a stop for limiting the downward thrust of the tool, a spring for normally holding said tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of said spring, which latter suddenly returns the tool when the cam releases it, means for rotating said cam, means for adjusting said turret on its vertical axis whereby the tool carried by it may occupy any position in the cycle in which said turret revolves, a carriage bearing said turret and means for moving it back and forth, substantially as described.

15. In a stone-dressing machine, a turret adapted to turn on a vertical axis a complete rotation, a vibrating tool carried by said turret, a tool-holder for holding said tool at an oblique angle to a horizontal plane, a stop for limiting the downward thrust of the tool, a spring for normally holding said tool in its lowermost position resisted by said stop, a cam for raising said tool against the action of said spring, which latter suddenly returns the tool when the cam releases it, means for rotating said cam, means for adjusting said turret on its vertical axis whereby the tool carried by it may occupy any position in the cycle in which said turret revolves, a carriage bearing said turret and means for moving it back and forth, a truck bearing the stone to be operated upon and means for moving it back and forth at right angles to the movement of the carriage, substantially as described.

659,479. ELECTRIC PROGRAM-CLOCK. HARRY F. JORDAN, Chicago, Ill., assignor of one-half to Albert L. Bentley, same place. Filed Dec. 15, 1899. Serial No. 740,436. (No model.)

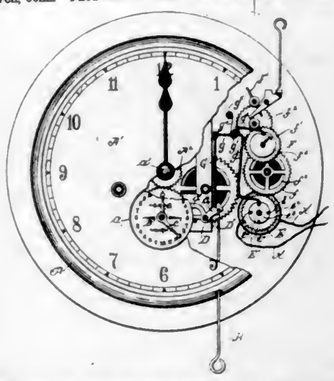


Claim.—1. In an electric program-clock, the circuit-closing arm having a bend 38, and the oppositely-extending arms 39 and 40 pivoted outward of said bend, and secured by means holding same in their normal positions, substantially as described.

2. In an electric program-clock, the combination of a casing; a clock-movement; an electric alarm; a pair of concentric plug-retaining circles on the casing; a circuit-closing arm carried by the clock-movement; the plugs for establishing an electric connection between said circles and arm; and an electric switch operated by the clock-movement, for establishing an electric connection first between one of said circles and said alarm and then between the other of said circles and said alarm, substantially as described.

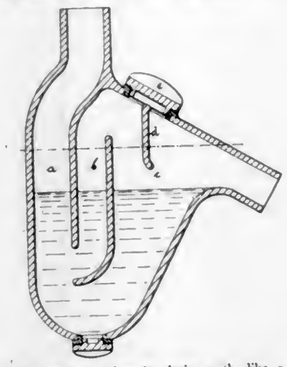
3. In an electric program-clock, the circuit-closing arm having a bend or recess as at 38, and a pair of oppositely-extending spring-arms secured to said circuit-closing arm outward of said bend or recess, one of same extending partly across said recess, substantially as described.

659,480. TIME CIRCUIT-CLOSER. CHARLES E. KATSCH, New Haven, Conn. Filed June 2, 1899. Serial No. 719,097. (No model.)



Claim.—In a clock-controlled apparatus, the combination with the mechanism of a clock; of a gear adapted to mesh with a gear secured to the hour-hand arbor of said clock mechanism; a dial secured to said first-mentioned gear; ratchet-wheels adapted to fit adjacent said first-mentioned gear and rotate therewith; arbors secured to said ratchet-wheels; pointers secured to said arbors adapted to rotate said wheels in the opposite direction from that in which the dial rotates; pawls adapted to engage said wheels and hold them against reverse rotation; a switch; motor mechanism adapted to operate said switch; laterally-extending lugs on said wheels, and a lever adapted to be tripped upon the rotation of said dial and wheels, to operate said motor mechanism, substantially as described.

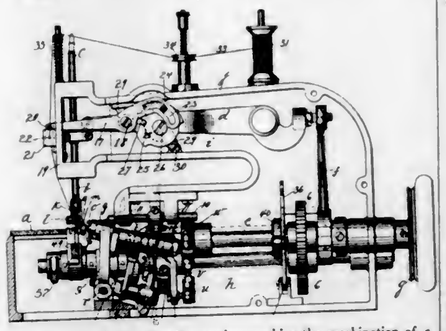
659,481. TRAP OR SIPHON FOR DRAINS OR THE LIKE. WILHELM KESSELRING and EMIL RÖTHENBACHER, Strasburg, Germany. Filed Feb. 12, 1900. Serial No. 4,893. (No model.)



Claim.—1. In a trap or siphon for drains or the like, a casing, an inlet-chamber therefor, a widened outlet-chamber in communication with the lower portion of said inlet-chamber, and a passage intermediate said inlet and outlet chambers, and communicating at its lower portion with said inlet-chamber and at its upper portion with said outlet-chamber, the lower orifice of said passage being separated from the bottom of said casing by a space substantially equal to the width of said inlet-chamber, while the upper orifice of said passage is situated above the level of the discharge-orifice of said outlet-chamber.

2. In a trap or siphon for drains or the like, a casing, an inlet-chamber therefor, a widened outlet-chamber in communication with the lower portion of said inlet-chamber, and a passage intermediate said inlet and outlet chambers, and communicating at its lower portion with said inlet-chamber and at its upper portion with said outlet-chamber, the lower orifice of said passage being separated from the bottom of said casing by a space substantially equal to the width of said inlet-chamber, while the upper orifice of said passage is situated above the level of the discharge-orifice of said outlet-chamber, in combination with a plate depending from the top of said casing into said outlet-chamber, apertures at the upper and lower portions of said casing, and closures for said apertures.

659,482. OVERSEAMING SEWING-MACHINE. HERMANN A. KLEMM, New York, N. Y. Filed Mar. 22, 1900. Serial No. 9,691. (No model.)



Claim.—1. In an overedge sewing-machine the combination of a horizontal work-plate, vertically-operating needle, means for operating said needle, a rotatory oscillating and reciprocating hook, a support for said hook, and means for operating said support adapted for shifting the hook forward and backward under the work, a reciprocating looper, a support for said looper, and looper-operating mechanism, said support and operating mechanism both independent of the hook supporting and operating mechanism.

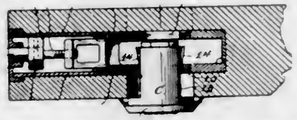
2. The combination with the vertically-operating needle and horizontal work-plate, of the rotatory oscillating hook and reciprocating looper, a support for the hook having rocking motion adapted to shift the hook toward and from the needle under the work, means for so operating said support, and means for imparting the oscillating motion of the hook on such rocking support.

3. The combination with the vertically-operating needle and horizontal work-plate, of the rotatory oscillating hook and reciprocating looper, a rocking support for the hook adapted to shift the hook toward and from the needle under the work, the main shaft and eccentric thereon connected with said support for so operating it, and means for imparting the oscillating motion of the hook on such rocking support, also means for operating the looper.

4. The combination with the vertically-operating needle and horizontal work-plate, of the rotatory oscillating and reciprocating hook adapted to shift forward under the work to engage the needle-thread and backward from under the work to clear the edge of the work in carrying the needle-loop up to the looper, means for operating said hook and means for operating the looper, said means consisting of the lever connected with the looper-bar, and the cam on the counter-shaft connected with the lever.

5. The combination with the vertically-operating needle and its operating mechanism, the rotatory and reciprocating looping-hook, and the reciprocating looper and operating mechanism therefor, of the spreader, said spreader being supported independently of the hook and looper and adapted to receive the needle-loops on its end when raised up by the hook and spread them for the looper.

659,483. CYLINDER-LOCK. HENRY S. LOCKWOOD, South Norwalk, Conn. Filed Apr. 24, 1900. Serial No. 14,108. (No model.)

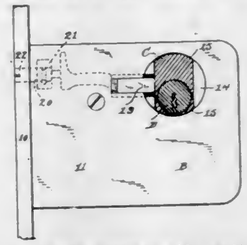


Claim.—1. In a lock the combination with a tumbler-case of other form than circular in cross-section and having an incline highest at the inner end and running out in the side thereof, of a lock-case having an opening corresponding in shape with the tumbler-case so as to prevent the latter from turning and a retaining-slide adapted to engage the incline to lock the tumbler-case against withdrawal.

2. In a lock the combination with a tumbler-case of other form than circular in cross-section and having an incline highest at the inner end and running out in the side thereof, of a lock-case having an opening with a slot leading therefrom which receives the incline and a retaining-slide adapted to engage the incline, substantially as and for the purposes set forth.

3. The lock-case B having tumbler-case opening 15 and slots 16 and 17 leading therefrom, said slot 17 being undercut as at 20, substantially as shown, for the purpose specified.

659,484. CYLINDER-LOCK. HENRY S. LOCKWOOD, South Norwalk, Conn. Filed May 23, 1900. Serial No. 17,677. (No model.)

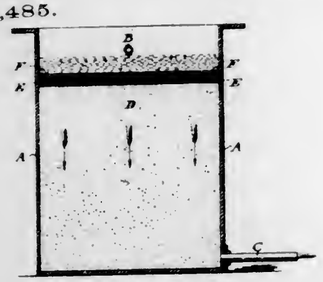


Claim.—In a lock the combination with a tumbler-case irregular or non-circular in cross-section to form a bearing-surface, said bearing-surface having transverse grooves, of a lock-case having an opening free from internal projections or threads adapted to receive the tumbler-case, and a retaining-slide adapted to directly engage the said bearing-surface of the tumbler-case and having grooves corresponding with the grooves in the said bearing-surface, whereby the tumbler-case may be locked both against rotation and withdrawal by means of the single slide.

659,485. FILTER. JEAN A. MAIGNEN, Philadelphia, Pa. Filed Apr. 26, 1899. Serial No. 714,516. (No model.)

Claim.—In a granular-bed filter, the combination with a mass of fine granular material, of a distinct layer of coarse granular material upon the top of said fine granular material, and an artificial membrane of fibrous or powdery filtering media, upheld by said distinct top layer, substantially as set forth.

659,485.



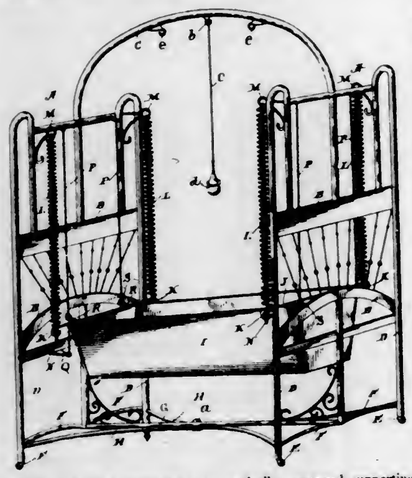
659,486. LETTER-BOX. WILLIAM H. MULLOY, St. Louis, Mo. Filed July 2, 1900. Serial No. 22,353. (No model.)



Claim.—1. A letter-box having an opening, a rod carried in suitable bearings within the letter-box, projections carried by said rod, a plate carried by said projections outside the letter-box, which plate normally rests against the side of the letter-box, thereby closing the said opening, a second plate supported by the said rod inside the letter-box, and means whereby the second-mentioned plate is made to close the said opening when the first-mentioned plate is removed therefrom, substantially as specified.

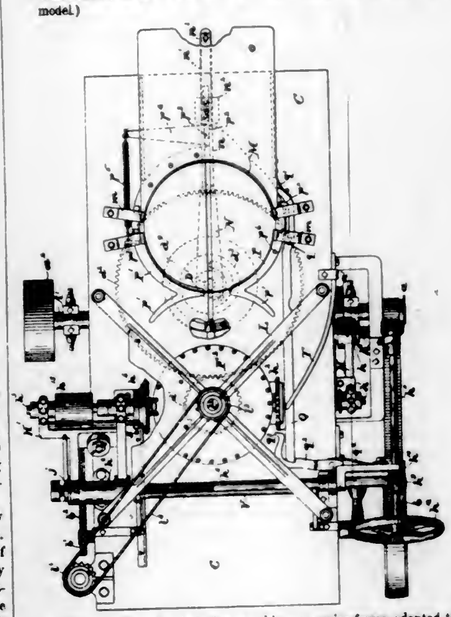
2. A letter-box having an opening, suitable guides above and below said opening, a rod supported in suitable bearings inside the letter-box, projections carried by said rod and projecting through the front side of the letter-box, a plate carried by said projections, which plate normally closes the said opening, a second plate carried by said rod within the letter-box, means whereby the second-mentioned plate is drawn against the inner ends of the said guides when the first-mentioned plate is elevated, and means whereby it is removed therefrom when the said plate is lowered, substantially as specified.

659,487. CRADLE OR CRIB. PERRY MCMURDY, Osgood, Ohio. Filed May 7, 1900. Serial No. 15,775. (No model.)



Claim.—A crib comprising two vertically-arranged supporting-frames, a crib-body situated therebetween, vertically-arranged supporting-springs having their upper ends connected to the frames and their lower ends connected to the crib-body, ropes of a length greater than that of the springs having the upper ends connected to frame and extending down through the springs and having their lower ends connected to the crib-body, guiding-rods carried by the frame and horizontal arms rigidly connected to the crib-body and adapted to receive the said rods, substantially as described.

659,488. HEAD-CUTTING MACHINE. WILLIAM E. NICHOLS, Winchendon, Mass. Filed Nov. 20, 1899. Serial No. 737,818. (No model.)



Claim.—1. In a head-cutting machine, a carrier-frame adapted to inclose and carry a barrel-head, and made up of a stationary member; a movable member pivoted on said stationary member; a spring, one end of which is secured to the stationary member and the other end of which is secured to the movable member.

2. In a head-cutting machine, a carrier-frame adapted to inclose and carry a barrel-head, and made up of a stationary member; a movable member pivoted on said stationary member; a spring, one end of which is secured to the stationary member and the other end of which is secured to the movable member; said stationary member and movable member being formed with ears adapted to push the finished barrel-head from between the clamps.

3. In a head-cutting machine, the combination of a carrier-frame adapted to inclose and carry a barrel-head, and made up of a stationary member; a movable member pivoted on said stationary member; and a spring controlling said movable member; with mechanism for reciprocating said carrier; and mechanism for engaging and pressing said movable member to press the inclosed pieces of barrel-head close together as they are brought between the clamps.

4. In a head-cutting machine, the combination of a carrier-frame adapted to inclose and carry a barrel-head, and made up of a stationary member; a movable member pivoted on said stationary member; and a spring controlling said movable member; with mechanism for reciprocating said carrier; a projection on said movable member; and a spring, mounted on the machine-frame, which engages said projection to press the movable member and the inclosed pieces of barrel-head close together as the pieces of barrel-head are brought between the clamps.

5. In a head-cutting machine, the combination of a carrier-frame adapted to inclose and carry a barrel-head and made up of a stationary member; a movable member pivoted on said stationary member; and a spring fast to the stationary member and controlling the movable member; mechanism for reciprocating said carrier-frame to feed the inclosed barrel-head to the clamps; and mechanism which holds the movable member in place against the tension of the spring during the feeding movement of the carrier-frame.

6. In a head-cutting machine, the combination of a carrier-frame adapted to inclose and carry a barrel-head and made up of a stationary member; a movable member pivoted on said stationary member; and a spring fast to the stationary member and controlling the movable member; mechanism for reciprocating said carrier-frame to feed the inclosed barrel-head to the clamps; a lever which presses against and guides the movable member in place against the tension of the spring during the feeding movement of the carrier-frame; and mechanism for holding said lever in place.

7. In a head-cutting machine, the combination of a carrier-frame comprising a stationary member, a movable member pivoted on said stationary member, and a spring controlling said movable member; mechanism for reciprocating said carrier-frame to feed the barrel-heads to the clamps; retaining mechanism which holds said movable member in place against the tension of said spring; releasing mechanism for throwing said retaining mechanism out of action to permit the spring to force the movable arm out of the way of the cutter on the return movement of the carrier-frame; and restoring mechanism for throwing the retaining mechanism into place after the movable arm has passed, on its return movement, by the cutter.

8. In a head-cutting machine, the combination of a carrier-frame comprising a stationary member, a movable member pivoted on said stationary member, and a spring controlling said movable member; mechanism for reciprocating said carrier-frame to feed the barrel-heads to the clamps; a retaining-lever which presses and guides the movable member in place during the feeding movement of the carrier; a catch which holds one end of said lever in place against the tension of a spring controlling the other end and which is released by engagement with the carrier-frame at the end of its feeding movement, thereby permitting the carrier-frame spring to force its movable member out of the way of the cutter; and a projection on the front end of said retaining-lever which engages the movable member to restore the retaining-lever to its locked position on return movement of the carrier-frame.

9. In a head-cutting machine, a reciprocating feeding mechanism comprising a crank-shaft; a crank-arm mounted on said crank-shaft; a link connecting said arm with a carrier-frame; said carrier-frame adapted to inclose and carry a barrel-head; and a driving mechanism which rotates the crank-shaft and thereby drives the carrier-frame to place the inclosed barrel-head between the clamps and draws back the carrier-frame after the barrel-head is removed from within the carrier-frame.

10. In a head-cutting machine, a reciprocating feeding mechanism comprising a crank-shaft; a crank-arm mounted on said crank-shaft; a link connecting said arm with a carrier-frame; said link being slotted to receive a lug from said carrier-frame, thereby permitting the carrier-frame to dwell while the barrel-head is removed from within the carrier-frame; and a driving mechanism which rotates the crank-shaft and thereby drives the carrier-frame to place the barrel-head between the clamps and draws back the carrier-frame after the barrel-head is removed from within the carrier-frame.

11. In a head-cutting machine, a reciprocating feeding mechanism comprising a carrier-frame adapted to inclose and carry a barrel-head; mechanism for reciprocating said carrier-frame to bring the inclosed barrel-head between the clamps; means for permitting lost motion in reciprocating said carrier-frame; and a stop which engages said carrier-frame to adjust the center of the inclosed barrel-head properly upon the clamps.

12. In a head-cutting machine, an automatic reciprocating feeding mechanism comprising a crank-shaft; a crank-arm mounted upon said shaft; a carrier-frame adapted to inclose and carry a barrel-head; a link connecting said carrier-frame with said crank-arm: a supporting-plate secured to said carrier-frame for supporting the pile of heads in the hopper to permit the reciprocations of the carrier-frame; and a hopper from which the heads are fed by the carrier-frame.

13. In a head-cutting machine, an adjusting mechanism for adjusting the cutters to vary the diameter of the head and comprising a pair of screw-shafts mounted in the supporting-machine frame; sleeves threaded to engage said screw-shafts and mounted thereon, one on one side of the axis of the rotary clamps, the other on the other side of said axis; a cutter-carrying mechanism rotatably mounted on each of said sleeves; means for securing said cutter-carrying mechanisms to their respective sleeves; and stationary mechanism mounted in the machine-frame which engages and rotates said screw-shafts.

14. In a head-cutting machine, a mechanism for throwing the stock and cutters into contact with each other and comprising a driving mechanism; an automatic rotary clamping mechanism; a rotary cam-shaft driven by said driving mechanism; mechanism operatively connecting said rotary cam-shaft and said rotary clamping mechanism to throw the rotary clamping mechanism into and out of engagement with the said driving mechanism; a cutter-carrying mechanism; a cam upon said rotary cam-shaft; and mechanism connecting said cam with the cutter-carrying mechanism by which the cutters are moved into contact with the stock when the stock is rotated to the cutters by the rotary clamping mechanism.

15. In a head-cutting machine, a mechanism for clamping and rotating the pieces of barrel-head, comprising a pair of rotary clamps mounted on clamp-shafts; and mechanism for throwing one of said clamp-shafts into and out of engagement with the rotating mechanism and clamping the pieces of barrel-head between the clamps; driving mechanism connecting the two coöperating clamp-shafts by which one clamp-shaft positively drives the other to prevent the separation of the pieces comprising the barrel-head when the clamps start to rotate.

16. In a head-cutting machine, a clamp-driving mechanism comprising a rotary sleeve; driving mechanism which rotates said sleeve; a clamp-shaft having a clamp at one end; mechanism which throws said clamp-shaft into and out of engagement with said rotary sleeve and clamps the barrel-head between said clamp and its coöperating clamp; driving mechanism on said clamp-shaft by which the shaft of the coöperating clamp is driven uniformly with the other to obviate the separation of the pieces comprising the barrel-head when the clamps start to rotate.

17. A head-cutting machine made up of a supporting-frame; driving mechanism; a rotary sleeve driven by said driving mechanism; a cam-carrying crank-shaft driven by said rotary sleeve; a reciprocating feeding mechanism comprising a crank-arm mounted on said rotary shaft; a carrier; and mechanism connecting the carrier with the crank-arm by which the carrier is reciprocated to feed the barrel-heads to the clamps; a rotary clamping mechanism comprising a pair of coöperating clamps mounted on the opposing ends of clamp-carrying shafts; a spring for forcing one of said clamp-shafts toward the other to clamp the stock, and thereby throwing the clamp-shaft into engagement with the said rotary sleeve to rotate the stock; a lever, one end of which bears upon the end of the cam-shaft and the other end of which is controlled by a cam on said shaft to draw down the clamp-shaft after the cut is made; and said cam; a cutting mechanism comprising a cam on said shaft; a lever, one end of which is controlled by said cam and the other end of which is connected to a cutter-carrying swing-frame; said frame; a rotary cutter mounted in said frame and brought into contact with the stock by the swinging of said frame by its connected lever during the rotation of the stock.

18. An automatic head-cutting machine made up of a supporting-frame; a driving mechanism; a cam-carrying crank-shaft driven by said driving mechanism; a crank-arm mounted on said shaft; a carrier, for feeding the barrel-heads, connected to said crank-arm and reciprocated by the rotation of said crank-shaft; a hopper from which said barrel-heads are fed by said carrier; a cam fast upon said crank-shaft for controlling the rotary clamping mechanism; mechanism controlled by the rotation of said cam for moving one clamp-shaft toward its coöperating clamp-shaft to clamp the stock after it is fed by the carrier and for throwing said clamp-shafts into engagement with said driving mechanism to rotate the stock to the cutters, and out of engagement therewith after the cut is made; a cam fast upon said cam-shaft for controlling the cutters; mechanism controlled by the rotation of said cam for throwing said cutters into and out of contact with the stock when clamped by said rotary clamping mechanism; and said cutters secured in position on the frame of the machine and brought by said controlling mechanism into and out of contact with the stock.

659,489. DREDGE. RALPH R. OSGOOD, Lansingburg, N. Y. Filed June 4, 1900. Serial No. 18,989. (No model.)

Claim.—1. In an excavator, the combination with a dipper-handle; of a reciprocatory handle inclosing and reinforcing sleeve.

2. In an excavator, the combination with a dipper-handle; stops located near its opposite ends and means for raising and supporting said handle; of a handle inclosing and reinforcing sleeve reciprocatory between said stops.

3. In an excavator, the combination with a dipper-handle; of a handle inclosing and reinforcing sleeve; and a trunnion-supporting sleeve, said handle and reinforcing sleeve being reciprocatory in said trunnion-supporting sleeve, substantially as described.

4. In an excavator, the combination with a tapered dipper-handle, of a reciprocatory handle inclosing and reinforcing sleeve.

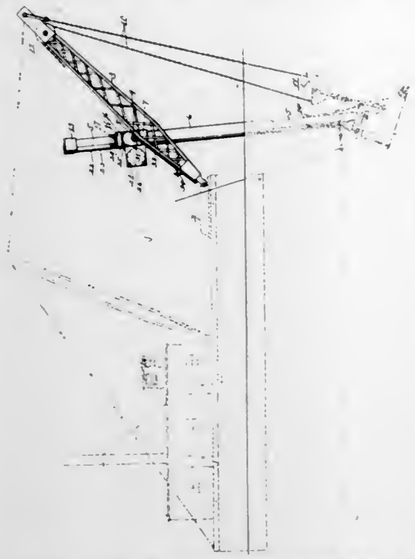
5. In an excavator, the combination with an inclosing sleeve; of a dipper-handle reciprocatory within said sleeve, and having its end portions corresponding in cross-sectional form with the interior of said sleeve and having a transversely-contracted portion of less length than the sleeve and terminating near the top of the arm, substantially as described.

6. In an excavator, the combination with a dipper-handle; and means for operating said handle; of a reinforcing-sleeve inclosing and reciprocatory upon said handle; a trunnion-supporting sleeve; and a yielding buffer interposed between overlapping portions of said sleeves, substantially as described.

7. In an excavator, the combination with a dipper-handle; and means for operating the same; of a trunnion-supporting sleeve inclosing said handle; and a yielding buffer so located as to relieve concussion caused by the sudden stopping of the dipper-handle upon reaching the limit of its downward movement through said sleeve, substantially as described.

8. In an excavator, the combination with the boom, and a slideway-support mounted upon the boom; of a dipper-handle reciprocatory through

said slideway-support; a handle-supporting link reciprocatory outside of said slideway-support; and clamping mechanism for said link mounted upon said slideway-support, and supported thereby independently of said boom.



9. In an excavator, the combination with a trunnion-sleeve; of a dipper-handle reciprocatory in said sleeve; a handle-supporting link reciprocatory outside said sleeve; and clamping mechanism for said link carried by said sleeve.

10. In an excavator, the combination with a trunnion-sleeve; of a dipper-handle reciprocatory in said sleeve; a link connected with said handle and reciprocatory outside said sleeve in unison with said handle; and toggle-actuated mechanism supported by said sleeve and adapted to engage and clamp said link.

11. In an excavator, the combination with a trunnion-sleeve; of a dipper-handle reciprocatory therein; a link connected with said handle and reciprocatory outside said sleeve in unison with said handle; clamping mechanism adapted to engage said link; a cylinder and piston carried by said sleeve and operatively connected with said clamping mechanism; and means for supplying to said cylinder and piston fluid under pressure.

12. In an excavator, the combination with a trunnion-sleeve; of a dipper-handle reciprocatory therein; a plurality of links connected with said handle, and reciprocatory outside said sleeve in unison with said handle; a friction-plate inserted between adjacent links; and means for clamping said links and plate to said sleeve.

13. In an excavator, the combination with a trunnion-sleeve; of a dipper-handle reciprocatory in said sleeve, a yoke fixed upon the outer side of said sleeve; a link located outside said sleeve and connected with and reciprocatory through said yoke in unison with said handle; clamping mechanism for said link; a toggle-joint mounted within said yoke for operating said clamping mechanism; a piston and cylinder mounted upon said yoke and operatively connected with the hinge of said toggle-joint; and means for supplying fluid under pressure to said piston and cylinder.

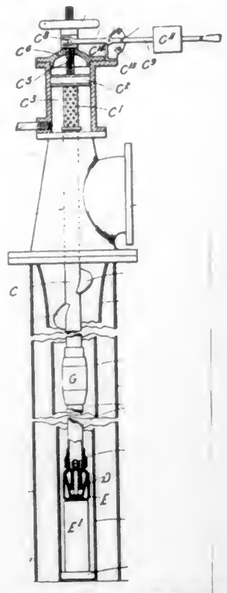
14. In an excavator, the combination with a slideway-support; of a dipper-handle and a handle-inclosing reinforcing-sleeve both reciprocatory in said slideway-support; a link located outside of said sleeve and slideway-support and connected and reciprocatory in unison with said handle; and clamping mechanism for said link mounted upon said slideway-support.

659,490. PROCESS OF FORMING PAPER-PULP FROM CANE-BRAKE CANE. THOMAS E. PHILLIPS, Bloomington, Ind., assignor of one-half to Fred Matthews, same place. Filed Aug. 13, 1898. Serial No. 688,512. (No specimens.)

Claim.—The process of forming paper-pulp from cane-brake stalks, which consists in bruising or mashing the stalks, when in a green state, to brake up the solid substance composing the joints, cutting the bruised or mashed stalks into short lengths, subjecting the bruised or mashed and cut stalks to the action of water at its normal temperature for a period of ten days or over to secure thorough disintegration of the fibrous from the glutinous and solid particles, grinding or masticating the disintegrated material and separating the fiber from the glutinous and solid particles, substantially as described

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659,491. LIQUID-RAISING APPARATUS OF THE AIR-LIFT TYPE. JOSEPH PRICE, London, England. Filed May 28, 1900. Serial No. 18,269. (No model.)



Claim.—1. In liquid-raising apparatus of the air-lift type, the combination of an air-supply pipe, a rising main for the liquid, the cross-sectional area of such main increasing from the bottom to the top, an adjustable injector air-outlet valve at the lower end of the air-supply pipe, the same comprising a downwardly-extended hollow cone, a cylindrical bell into which the cone extends, the lower end of the cone being adapted to have a seating against the bell, and a connection between the cone and bell adapted to permit of axial movement between the same, an auxiliary adjustable injector-valve between the outlet-valve and an outflow-opening in the rising main, means for imparting a spiral motion to the air in the rising main and means for adjusting the valves.

2. In liquid-raising apparatus of the air-lift type, the combination of an air-supply pipe, a rising main for the liquid, the cross-sectional area of such main increasing from the bottom to the top, an adjustable injector air-outlet valve at the lower end of the air-supply pipe, an auxiliary adjustable injector-valve between the outlet-valve and an outflow-opening in the rising main, said auxiliary valve comprising a cone secured to the air-supply pipe, a surrounding sleeve having a seating for the cone, and spiral guides formed in the sleeve, and means for adjusting the main and auxiliary valves.

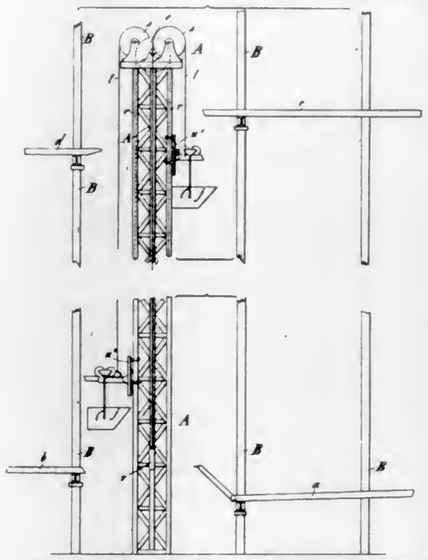
3. In liquid-raising apparatus of the air-lift type the combination of a rising main for the liquid the cross-sectional area of such main increasing from the bottom to the top, an air-supply pipe within the rising main, a conical outlet-valve at the bottom of the air-supply pipe, a cylindrical casing around such valve, guide-vanes upon the cone, a conical auxiliary outlet-valve in the air-supply pipe between the bottom outlet-valve and a liquid-outflow opening in the rising main, a sleeve or casing around the conical auxiliary valve, spiral guides within the casing, spiral vanes upon the exterior of the air-supply pipe, a cylinder in communication with the top of the air-supply pipe and with a source of pressure, a piston within the cylinder, means for balancing the weight of the piston and air-supply pipe and means for adjusting the position of such piston and pipe substantially as set forth.

4. In liquid-raising apparatus of the air-lift type the combination of a rising main for the liquid the cross-sectional area of such main increasing from the bottom to the top, an air-supply pipe within the rising main, a conical outlet-valve at the bottom of the air-supply pipe a cylindrical casing around such valve, guide-vanes upon the cone, a conical auxiliary outlet-valve in the air-supply pipe between the bottom outlet-valve and a liquid-outflow opening in the rising main, a sleeve or casing around the conical auxiliary valve, spiral guides within the casing, spiral vanes upon the exterior of the air-supply pipe and means for raising and lowering the air-supply pipe substantially as set forth.

5. In liquid-raising apparatus of the air-lift type the combination of a rising main for the liquid the cross-sectional area of such main increasing from the bottom to the top, an air-supply pipe within the rising main, a conical outlet-valve at the bottom of the air-supply pipe, a cylindrical casing around such valve, guide-vanes upon the cone and means for opening closing and adjusting the outlet-valve substantially as set forth.

6. In liquid-raising apparatus of the air-lift type the combination with an air-supply pipe, of an outlet-valve comprising a hollow cone, a sleeve or casing around the cone, a seating for the cone within the casing, spiral guides within the casing and means for raising and lowering the cone to regulate the orifice between the cone and its seating substantially as set forth.

659,492. APPARATUS FOR CONVEYING OR TRANSPORTING BUILDING OR OTHER MATERIALS. NIELS C. SCHOUBOE, Copenhagen, Denmark. Filed Apr. 17, 1899. Serial No. 713,378. (No model.)



Claim.—1. Automatic and continuously-operating apparatus for transporting or conveying building and other materials, comprising in combination, a continuously-operating hoist of the endless-chain type, a lower railway running with a descending gradient from the descending side of the hoist past the charging-places and back to the ascending side of the hoist, an upper railway running with a descending gradient from the ascending side of the hoist past the discharging-places and back to the descending side of the hoist, skips (or the like) adapted to run on said upper and lower railways and hoist-carriages adapted to receive said skips and to be coupled to and uncoupled from the chain of the hoist as required, substantially as described.

2. The combination of a continuously-operating hoist, a lower railway running with a descending gradient, an upper railway running with a descending gradient from the ascending side of the hoist past the discharging-places and back to the descending side of the hoist, skips adapted to run on the upper and lower railways, hoist-carriages, means for coupling the filled skips to the ascending hoist-carriages, means for preventing the hoist-carriage from falling back, means for uncoupling the hoist-carriage from the hoisting-chain, and means for returning the skips to the starting-point, as set forth.

3. In conveying or transporting apparatus of the character described, the combination of a lower railway, an upper railway running with a descending gradient from the ascending side of the hoist past the discharging-places and back to the descending side of the hoist, hoist-carriages, and means for counterbalancing the same so that the carriage which effects the hoisting of the filled skips, has, when empty, a tendency to fall, while the carriage disposed diametrically opposite thereto has a tendency to descend when loaded with the empty skip.

4. In conveying or transporting apparatus of the kind specified, the combination of the railway *a*, a rotary arm thereon, a pivoted arm *c'*, a spring-pressed rod *g'* arranged on the pivoted part *c'* and resting with one end upon the rotary arm *n'* provided on the railway *a*, a slotted link *k'* connected to the other end of the rod *g'* and a pivoted lever *m'* engaging with one end in the slot in the link *k'* the free arm of said lever *m'* being adapted to be rotated by a stop *f'* on the hoist-carriage *u'* according to the direction of the motion of the latter, for the purpose of causing the pivoted part *c'* either to remain in its raised position or to move down into its normal position where it is locked.

5. In conveying or transporting apparatus of the kind specified, the combination of the trolley, the skip, a pawl *d'*, the carrying-arm *a'* having a depression *e'* into which a wheel of the hoisted trolley enters after the pawl *d'* has been moved, for the purpose of securing the trolley with the skip in this position from running off.

6. In conveying or transporting apparatus of the kind specified, the combination of a hoist-carriage u^2, the railway, a stop on the hoisting-frame, and a lever rotatably mounted on the hoist-carriage u^2 for limiting the upward movement of the hoist-carriage u^2, and a stop e^3 provided on the arm of the lever c^2, adapted to engage one end of the railway, while the other arm of the lever c^2 bears against a stop f^2 on the hoist-framing and thus form a connecting-track from the railway to the hoist-carriage.

7. In conveying or transporting apparatus of the kind hereinbefore referred to, the combination with the railway *d* and the hoist-carriage u^2, of mechanism for preventing the trolley from prematurely running off the railway *d*, comprising a bent lever g^2 one arm of which is situated across the railway *d* so as to bar the same when the hoist-carriage u^2 has not yet attained the level of the said railway, but which is automatically raised by the hoist-carriage u^2 to open or unbar the railway *d* when the hoist-carriage u^2 has reached the level of the said railway.

8. In conveying or transporting apparatus of the kind specified, the combination of the railway *c* a railway *a*, having pivoted arm *c'*, the hoist-carriage *u'*, its arm *a'*, and a lever *x'* providing an inclined plane between the arm *a'* and the railway *c* and adapted to be rotated on the passage of the hoist-carriage *u'* and then form an inclined plane or track between the arm *a'* of the hoist-carriage *u'* and the railway *c*, which allows the trolley to run safely and with acceleration onto the railway *c*.

9. In conveying or transporting apparatus of the kind described, the combination of a lower railway running with a descending gradient from the descending side of a hoist and back to the ascending side thereof, and an upper railway running with a descending gradient from the ascending side of the hoist to discharging-places and back to the descending side of the hoist, as and for the purpose set forth.

10. The combination of a continuously-operating hoist, an upper railway running with a descending gradient from the ascending side of the hoist past the discharging-places and back to the descending side of the hoist, and a lower railway running with a descending gradient from the descending side of the hoist and past the discharging-places and back to the ascending side of the hoist, as set forth.

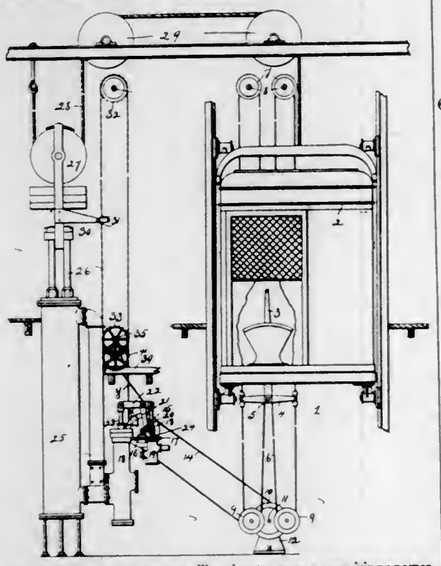
659,493. SAFETY DEVICE FOR ELEVATORS. GEORGE E. SHEPLER, Pittsburg, Pa. Filed June 3, 1899. Serial No. 719,201. (No model.)

Claim.—1. The combination with an elevator-cage, a door at a landing, a hydraulic cylinder having a piston operatively connected to the cage, valve mechanism for controlling the flow to the hydraulic cylinder, and controlling mechanism on the cage for governing the valve mechanism, of a safety controlling apparatus, for automatically stopping the cage, comprising mechanism operatively connected to the valve mechanism aforesaid but normally unaffecting it, means for operating the safety mechanism by the movement of the piston, and electrically-controlled means, governed by the door, for rendering the safety mechanism operative with respect to the valve mechanism.

2. The combination with an elevator-cage, a door at a landing, a hydraulic cylinder having a piston operatively connected to the cage, valve mechanism for controlling the flow to the hydraulic cylinder, and controlling mechanism on the cage for governing the valve mechanism, of a safety controlling apparatus, for automatically stopping the cage, comprising a power-shaft which is driven by the movements of the piston in the hydraulic cylinder, a sheave mounted loosely on said power-shaft, and operatively connected with the valve mechanism, a clutch for locking said sheave to the power-shaft, an electromagnet for operating said clutch, and circuit connections with the door whereby the magnet is energized.

3. The combination with an elevator-cage, a door at a landing, and mechanism for raising and lowering the cage, of electromagnetic mechanism governing the raising and lowering mechanism, a circuit to the door which is closed on the door becoming open, an independent switch on the cage, and circuit connections with the electromagnetic mechanism whereby the closing of the switch will energize the electromagnetic mechanism which will cause a stoppage of the cage.

4. In a safety device for controlling the movement of elevator-carriages, the combination of a shaft, a door opening therein, a hydraulic cylinder having a piston therein, means to connect said piston with the carriage, a sprocket-wheel loosely mounted on the power-shaft, a second shaft adjacent said power-shaft, means to transmit power from said sprocket-wheel to said second shaft, means to transmit power from said second shaft to said power-shaft, a sheave loosely mounted on the power-shaft and adapted to transmit power to a supplemental sheave on the valve-shaft, a pair of magnets arranged horizontally with reference to said power-shaft, a clutch mechanism on said power-shaft adapted to be controlled by said magnets and to rigidly fasten said sheave upon said power-shaft, the said sheave being provided with a segmental gear secured upon the lower periphery, a pinion upon the threaded end of the second shaft adapted to engage with said segmental gear, and abutments arranged on said second shaft adapted to engage said pinion, substantially as set forth.

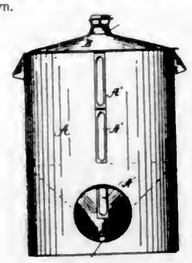


5. A safety device for controlling elevator-cages, comprising a power-shaft equipped with means for driving the same, a wheel loose on the shaft which is provided with a clutch member, a yoke or bracket, electromagnets secured thereto, rods slidable through the yoke and provided with a cross connecting piece or bracket, and a clutch member thereon which is adapted to engage the clutch member on the wheel, an armature connecting the rods, and springs for retracting the rods and armature, said clutch member on the yoke being slidably splined on the shaft and rotatable in the yoke.

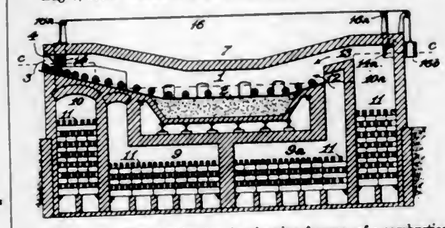
6. A safety device for controlling elevator-cages, comprising a power-shaft, a driving-wheel loose thereon, a sheave loose on the shaft which is provided with a clutch, a yoke or bracket, electromagnets secured thereto, rods slidable through the yoke and provided with a cross connecting piece or bracket and a clutch thereon which is adapted to engage the clutch on the wheel, an armature connecting the rods, and springs for retracting the rods and armature, said clutch on the yoke being rotatable therein and slidable on a spline on the shaft, a second shaft having a gear which meshes with the gear on the driving-wheel aforesaid, gearing connecting the two shafts, screw-threads on the second shaft, a pinion adapted to turn on said threads, a segmental gear on the sheave meshing with the said pinion, and abutments on the second shaft adapted to engage and lock said pinion at the limits of its movements.

659,494. **MILK AND CREAM SEPARATOR.** PERRY C. SMITH, Indianapolis, Ind., assignor, by direct and mesne assignments, to Mary E. Smith, same place. Filed Nov. 1, 1899. Serial No. 735,524. (No model.)

Claim.—In a milk and cream separator, the combination with a can having parallel sides and a base which is a right cone with a discharge-opening in its apex, of a conical top having an annular flange on its concave side and a truncated conical dome on its convex side with a screw-threaded margin, a strainer located in the dome, said top as described being used interchangeably as a cover to the can or as a funnel and strainer through which the contents of the can will be introduced and strained, and a removable conductor-tube located wholly inside of the can when in use and reaching from the strainer-dome to which it is removably attached, to near the apex of the conical bottom of the can, substantially as described and shown.



659,495. **FURNACE.** WILLIAM SWINDELL, Allegheny, Pa. Filed Aug. 1, 1900. Serial No. 25,508. (No model.)



Claim.—1. The combination, in a heating-furnace, of a combustion-chamber, a hearth therein having inclined end portions at opposite ends of a middle portion which is substantially horizontal, feed-openings and doors, adjoining the ends of said inclined portions, for the introduction of material to be heated, lateral feed-openings and doors, adjacent to the middle portion of the hearth, for the withdrawal of material, and flues opening into the combustion-chamber, above and at the sides of the inclined portions of the hearth, for the ingress of gaseous fuel to, and the discharge of products of combustion from, the combustion-chamber.

2. The combination, in a heating-furnace, of a combustion-chamber, a hearth therein having inclined end portions at opposite ends of a middle portion which is substantially horizontal, feed-openings and doors, adjoining the ends of said inclined portions, for the introduction of material to be heated, lateral feed-openings and doors, adjacent to the middle portion of the hearth, for the withdrawal of material, poke-holes extending through the roof of the combustion-chamber for the introduction of rods to move material on the hearth, and flues opening into the combustion-chamber above and at the sides of the inclined portions of the hearth, for the ingress of gaseous fuel to, and the discharge of products of combustion from, the combustion-chamber.

3. The combination, in a heating-furnace, of a combustion-chamber, a hearth therein having inclined end portions at opposite ends of a middle portion which is substantially horizontal, an opening leading through the top of the furnace into the combustion-chamber, adjacent to the outer end of one of the inclined end portions of the hearth, a door or cover controlling said opening, a lateral opening and door, adjacent to the middle portion of the hearth, for the withdrawal of material, and flues opening into the combustion-chamber above and at the sides of the inclined portions of the hearth, for the ingress of gaseous fuel to, and the discharge of products of combustion from, the combustion-chamber.

4. The combination, in a heating-furnace, of a combustion-chamber, a hearth therein having inclined end portions at opposite ends of a middle portion which is substantially horizontal, door-controlled openings leading into the combustion-chamber for the introduction and withdrawal of material to and from the hearth, a gas-flue and an air-flue, opening, adjacent one to the other, into the combustion-chamber above each of the inclined end portions of the hearth, and valve-controlled ports, each establishing communication between the combustion-chamber and one of said flues, adjacent to one end of the combustion-chamber.

5. The combination, in a heating-furnace, of a combustion-chamber, a hearth therein having inclined end portions at opposite ends of a middle portion which is substantially horizonital, door-controlled openings leading into the combustion-chamber for the introduction and withdrawal of material to and from the hearth, pairs of flues, for gas and air, respectively, having their ends adjacent and opening into the combustion-chamber, above and at each side of each of the inclined end portions of the hearth, and valve-controlled ports, each establishing communication between the combustion-chamber and one of each of the pairs of flues, adjacent to one end of the combustion-chamber.

659,496. **META-AMIDOTOLYLOXAMINSULFO-ACID.** RICHARD TAGGESELL, Buffalo, N. Y., assignor to the Schoellkopf, Hartford & Hanna Company, same place. Filed Apr. 16, 1900. Serial No. 13,109. (Specimens.)

Claim.—The herein-described new amido compound, meta-amido-tolyloxaminsulfoacid "A," of the probable formula,

$$C_6H_3{:}CH_3{:}NH_2{:}NHCOCOOH{:}SO_3H,$$

derived from meta-toluylenediaminsulfoacid of the probable constitution

$$CH_3{:}NH_2{:}NH_2{:}SO_3H \quad 1{:}2{:}4{:}5,$$

said amido compound being a slightly-colored, crystalline powder, very little soluble in water, being decomposed by boiling with a caustic alkali or strong mineral acid, thus forming the original meta-toluylenediaminsulfoacid, and forming by treatment with nitrous acid a diazo compound which forms in combination with the so-called salt "R" a dyestuff which dyes wool a bright red.

659,497. **META-AMIDOTOLYLOXAMINSULFO-ACID.** RICHARD TAGGESELL, Buffalo, N. Y., assignor to the Schoellkopf, Hartford & Hanna Company, same place. Filed Apr. 16, 1900. Serial No. 13,110. (Specimens.)

Claim.—The herein-described new amido compound, meta-amido-tolyloxaminsulfoacid "B," of the formula,

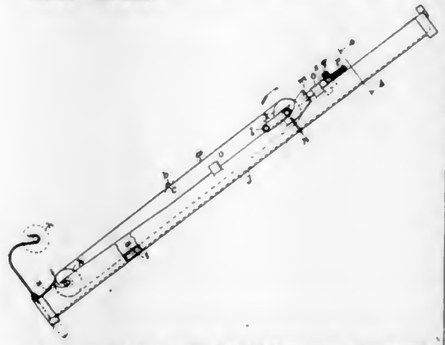
$$C_6H_3{:}CH_3{:}NH_2{:}NHCOCOOH{:}SO_3H,$$

derived from meta-toluylenediaminsulfoacid of the constitution

$$CH_3{:}NH_2{:}NH_2{:}SO_3H \quad 1{:}2{:}6{:}4,$$

said amido compound being a slightly-colored, crystalline powder, very little soluble in water, being decomposed by boiling with a caustic alkali or strong mineral acid, thus forming the original meta-toluylenediaminsulfoacid, and forming by treatment with nitrous acid a diazo compound which forms in combination with the so-called salt "R" a dyestuff which dyes wool an orange color.

659,498. **PHOTOGRAPHIC-FILM-DEVELOPING APPARATUS.** CHARLES TRAXLER, Akron, Ohio, assignor of two-fifths to Joseph Dangel and Edward D. Edwards, same place. Filed Aug. 29, 1899. Serial No. 728,873. (No model.)

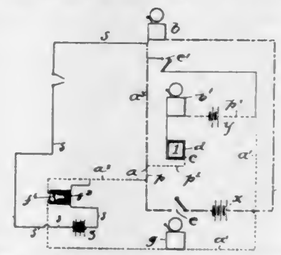


Claim.—1. In a photographic developing apparatus, a driving-roller adapted to carry a film-belt and to which power may be applied, an idler-roller rotated by said belt, said rollers serving both to support and actuate said belt, suitable open-ended bearings in or attached to a tray for the journals of said rollers, means for adjusting the distance between the two rollers to suit varying lengths of film, and a tray for developing solution in which the film-belt may run, substantially as set forth.

2. In apparatus for developing photographic films, the combination of an idler-roll and a driving-roll adapted to carry a belt formed by joining the ends of a strip of sensitized film, an approximately-rectangular tray for developing solution of sufficient length and depth to receive said belt, having suitable bearings for the journals of one of said rolls in its sides near its front end, and provided with oppositely-registering pairs of lugs projecting above its sides, a yoke extending across the tray having at each end suitable bearings for the journals of the other one of said rolls, and means for holding the yoke to the tray, a tension-bolt carrying a nut and attached to the middle of the yoke, and a cross-piece adapted to engage said bolt and provided with projecting ends supported upon the sides of the tray and bearing against the lugs thereon, substantially as set forth.

3. In apparatus of the class described, the combination of an idler-roll and a driving-roll adapted to carry a continuous belt of film, a tray for developing solution of a suitable length and depth to receive said belt and rolls, and provided with hook-shaped notches in its sides near its front end fitted to receive the journals of one of said rolls, oppositely-registering pairs of stops on the sides of said tray, a yoke extending across the tray having at each end hooked-shaped notches to receive the journals of the other one of the said rolls, a bent rod passing under the tray and pivotally secured at each end to the ends of the yoke, a tension-bolt attached to the middle of the yoke and provided with a nut, and a cross-piece adapted to receive said bolt having projecting ends to engage the stops on the sides of the tray, substantially as set forth.

659,499. **SIGNAL SYSTEM.** ISAAC W. ULLMAN, New York, N. Y. Filed Nov. 17, 1899. Serial No. 737,291. (No model.)



Claim.—1. The combination with an electrical annunciator system, complete for independent operation as such, and including bells, an annunciator and manually-operated switches, the circuit of said system being normally open, of means for automatically sounding a separate alarm from the bells of the annunciator and closing the circuit through the annunciator, embodying a normally-open auxiliary circuit formed partly by the annunciator-circuit and including said separate alarm-bell, and a normally-closed alarm-circuit having a magnet which breaks said auxiliary circuit when the alarm-circuit is closed and closes said auxiliary and annunciator circuits when the alarm-circuit is broken, said alarm-circuit also including means operating automatically to open it and thereby close the auxiliary and annunciator circuits, in certain events, as and for the purposes specified.

2. In an electrical alarm system, the combination with normally-open primary and secondary circuits, constituting a return-call annunciator system, said primary circuit including an alarm and a manually-operated circuit-closer, and said secondary circuit including an annunciator, an alarm and a manually-operated switch, of a means for automatically operating the annunciator and sounding a separate alarm-bell, comprising a normally-open auxiliary circuit, formed partly by said primary and secondary circuits and including said separate alarm-bell, and a normally-closed alarm-circuit including a magnet so related to the auxiliary circuit as to open the latter when the alarm-circuit is closed and close the same when the alarm-circuit is open, and said alarm-circuit also having fusible sections acting automatically to open it, substantially as described and for the purposes set forth.

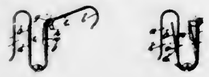
3. The herein-described electrical alarm system, consisting of a normally-open primary circuit, including a bell and a manually-operated circuit-closer, a normally-open secondary circuit, including an annunciator, a bell and a manually-operated circuit-closer, each of said circuits having a battery and both circuits constituting a return-call annunciator system, and means for automatically closing the circuit through the annunciator, embodying a normally-open auxiliary circuit deriving its energy from the battery of the primary circuit and including an alarm-bell separate from those of the other circuits, and an alarm-circuit, including a battery and fusible sections, said alarm-circuit being normally closed and having an electro-magnet so related to the auxiliary circuit as to open the same when the alarm-circuit is closed and to close the same when the alarm-circuit is open, substantially as described and for the purposes set forth.

4. The combination with a primary circuit provided with a battery, and containing an annunciator and tinkle-bell in circuit, a secondary circuit provided with a battery and bell, an auxiliary circuit provided with a gong in circuit and fed from the battery of the primary circuit and means for breaking the auxiliary circuit consisting of an alarm-circuit provided with a battery, whereby when the battery of the alarm-circuit is exausted the gong of the auxiliary circuit will ring.

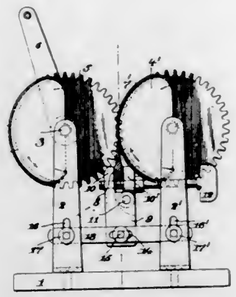
659,500. **FASTENING DEVICE.** ROBERT WALES, Invercargill, New Zealand. Filed Aug. 4, 1900. Serial No. 25,834. (No model.)

Claim.—A fastening device consisting of an S-shaped frame and a U-

shaped piece of the shape of one portion of the frame to which it is pivoted, a lever pivoted upon the frame having a cam, arranged when said lever is operated to engage with and vibrate the piece upon its pivot, whereby objects placed in position are clamped between the arms of the piece and the frame, substantially as specified and illustrated.



659,501. MACHINE FOR SHARPENING RAZORS. LEWIS D. WHIPPLE, Groton, Conn., assignor of one-half to Frank L. Miner, Philadelphia, Pa. Filed June 1, 1900. Serial No. 18,709. (No model.)



Claim.—1. In a sharpening device, a pair of revolving cylindrical rubbing-sectors, in combination with means for holding a blade in the respective paths thereof, said sectors alternating in rubbing the faces of said blade, substantially as specified.

2. In a sharpening device, a pair of journaled shafts, a pair of cylindrical sectors and a pair of intermeshing gear-wheels, fixed on said shafts, said sectors alternating in passing a place common to the path of both, and rocking arms for holding a blade in the path of each of said sectors, substantially as specified.

3. In a sharpening device, a pair of revolving cylindrical sectors, rocking arms for holding a blade in the path of each of said sectors, and means for adjusting the position of said rocking arms relative to said sectors, substantially as specified.

4. In a sharpening device, a pair of revolving disk sectors, a pair of intermeshing gear-wheels fixed to said sectors, in combination with rocking arms for holding a blade in the path of each of said sectors, said rocking arms being provided with clamping-jaws for holding said blade, and means for regulating the rocking resistance thereof, substantially as specified.

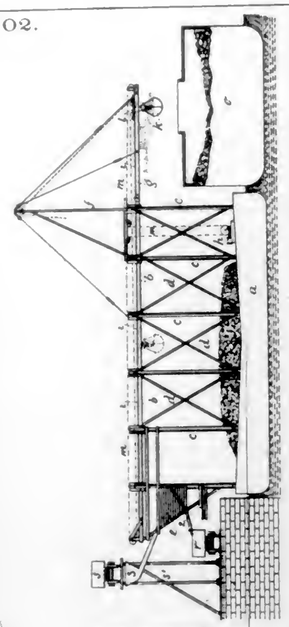
659,502. MOVABLE COAL OR ORE HANDLING AND STORAGE DEVICE. ROBERT D. WHITE, PERCY S. HILDRETH, and ALFRED LIEBMANN, New York, N. Y. Filed Nov. 3, 1899. Serial No. 735,875. (No model.)

Claim.—1. The combination with a barge or float, of a permanent trestle or framework upon and connected to the same, a platform and track carried by the said framework or trestle, a boom or arm extending out at one end beyond the float or barge, a conveyer supported by the platform and overhead track, a means for operating the said conveyer, and a loading and unloading device connected to the trestle at the end opposite to the boom and projecting beyond the barge, substantially as set forth.

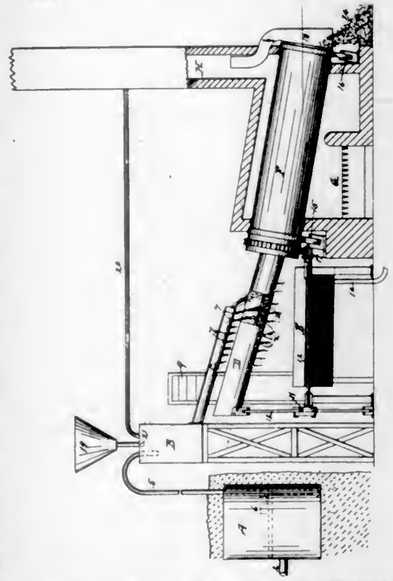
2. The combination with a barge or float, of a permanent trestle or framework upon and connected to the same, a platform and track carried by the said framework or trestle, a boom or arm extending out at one end beyond the float or barge and a pocket formed in the framework or trestle at the other end of the barge or float, and a conveyer supported by the platform and overhead track and a means for operating the said conveyer, substantially as set forth.

3. The combination with the barge or float, of a permanent trestle or framework upon and connected to the float, a platform and overhead track supported by the trestle or framework, a mast and a projecting boom at one end of the said trestle and float, and a pocket made in the trestle at the other end of the float, an engine upon the float, a traveler upon the track, ropes extending lengthwise of the platform and track and pulleys therefor, a conveyer-bucket connected to the said ropes and operating in connection with the traveler, substantially as and for the purposes set forth.

659,502.



659,503. APPARATUS FOR TREATING SEWAGE. ROBERT J. G. WOOD, Leonia, N. J. Filed Apr. 11, 1899. Serial No. 712,567. (No model.)



Claim.—1. In an apparatus for purifying and disposing of sewage, the combination with a discharge-pipe having perforations on the lower side, an elevated reservoir to which said pipe is connected, a receiving-tank connected by pipe to said reservoir, and means for forcing sewage from tank into reservoir, consisting of a pump, of an inclined vibrating oscillating hopper with open end and perforated bottom, said hopper placed below the discharge-pipe and adapted to contain an absorbent filtering material or substance, and means for vibrating and oscillating said hopper substantially as set forth.

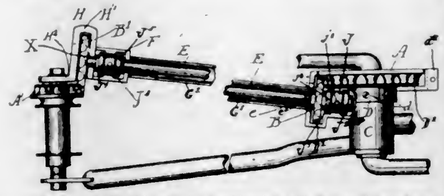
2. In combination, the receiving-tank suitably connected with sewage-main, the elevated reservoir, connected by pipe with tank, the pump suitably located, for forcing the sewage from the tank into the reservoir, the discharge-pipe, connected to reservoir, and having perforations on lower side to allow the water or fluid and other material of sewage to escape, the inclined vibrating hopper placed below the discharge-pipe, and having open end and perforated bottom, said hopper adapted to contain a suitable absorbent filtering material or substance, and means for vibrating and oscillating said hopper, substantially as described.

3. In combination, the receiving-tank connected with sewage-main, the elevated reservoir connected with tank by pipe, the pump suitably located, for forcing the sewage into the reservoir, the discharge-pipe connected to reservoir, with perforations on lower side, the inclined vibrating oscillating hopper located below discharge-pipe and having perforated bottom adapted to contain an absorbent filtering substance, and an open end, and means for operating said hopper, and the stationary filter-bed located below the hopper, and having an outlet-pipe, substantially as set forth.

4. In an apparatus for treating and utilizing sewage, and in combination with the vibrating and oscillating hopper the revolving drying-cylinder mounted on supporting-wheels within, and over a suitable furnace, provided with a suitable chimney; and the bent hood suitably supported over the discharge end of drying-cylinder; and means for revolving said drying-cylinder, substantially as and for the purpose set forth.

5. In an apparatus for treating and utilizing sewage, the combination of the receiving-tank, the elevated reservoir, and means for forcing the sewage from tank to reservoir consisting of a pipe and a pump, the perforated outlet-pipe connected to the reservoir; the vibrating oscillating inclined open-end hopper and filter-bed holder, and means for vibrating and oscillating said hopper, the stationary filter-bed placed underneath hopper, and provided with outlet-pipe; the revolving drying-cylinder, supported on wheels within a furnace with chimney, and means for revolving said cylinder, the bent hood placed over the discharge end of said cylinder for the purpose set forth: the perforated deodorizing-pipe in the top of reservoir, and connected to the holder; and the vent-pipe connecting the top of said elevated reservoir with the chimney, all arranged to produce the object set forth.

659,504. DRIVING-GEAR FOR VELOCIPEDES. CHARLES A. BAYLOR, La Porte, Ind. Filed Apr. 17, 1899. Serial No. 713,239. (No model.)



Claim.—1. In a bicycle, the combination with the usual main frame provided with a built-in shaft-hanger, of a crank-shaft extending therethrough and carrying at one end a gear, a side shaft carrying a gear meshing with the aforesaid gear, means for connecting said side shaft to the traction-wheel of the bicycle, a detachable extension mounted upon the end of the shaft-hanger adjacent the gear on the crank-shaft, bearings for the crank-shaft, one supported in said extension and the other at the opposite end of the shaft-hanger, this latter end of the shaft-hanger being made shorter than the opposite end, as measured from the median line of the bicycle-frame, an amount substantially equal to the extent the shaft-hanger is lengthened by the extension, and housings for said gears, comprising a semicylindrical casing D^2 attached to said extension and inclosing the upper half of the gear carried by the crank-shaft, a semicylindrical casing D' also carried by the extension and inclosing the upper half of the gear on the side shaft and a portion of the side shaft, and a detachable semicylindrical casing D^3 for the gear on the crank-shaft, this casing carrying a semicylindrical casing D^4 for the adjacent end of the drive-shaft and the gear thereon, substantially as and for the purposes set forth.

2. In a power-transmission mechanism, a shaft having a threaded portion, a journal-sleeve through which the threaded portion of the shaft extends, a cup threaded on the shaft adjacent to each end of said sleeve, balls interposed between the ends of the sleeve and the cups, one of said cups being of two-part construction, one of these parts being mounted adjustably upon the other, a check-nut at one end of the bearing thus formed, a gear mounted upon the shaft at the other end of the bearing, and a stop upon the shaft beyond said gear, said gear being locked between said stop and the movable part of the adjacent cup.

3. In a power-transmission mechanism, a gear-shaft having a threaded portion, a fixed journal-sleeve through which the threaded portion of the shaft extends loosely, a roller-race in each end of said journal-sleeve, a cup threaded upon the shaft adjacent to each end of said journal-sleeve, balls interposed between the ends of the sleeve and each of said cups, one of said cups being of two-part construction, one member being constructed to telescope partly within the other and having screw-threaded connection therewith, a check-nut at each end of the bearing thus formed, and a gear mounted upon the shaft and locked between one of said check-nuts and the adjacent cup.

4. In a driving mechanism for velocipedes, having front and rear intermeshing pairs of gears and an intermediate shaft, a support for the rear end of said shaft and connected parts, consisting of a yoke provided at one end with a clip adapted for engagement with the rear vehicle-wheel and at its other end with one part of a longitudinally-divided shaft-inclosing sleeve, the gear on the rear end of said shaft lying within said yoke, a removable companion part to said part of the shaft-inclosing sleeve carried by the yoke, a fixed journal-sleeve fitting within said divided sleeve and provided with a pair of radial studs, one passing through an opening in each section of said sleeve, nuts on the projecting ends of these studs, whereby the sleeve-sections are clamped together and the journal-sleeve is held fixedly in place, and suitable bearing cups and balls within the divided sleeve and abutting against said journal-sleeve, substantially as set forth.

5. In combination, a driving mechanism of a velocipede, comprising a crank-shaft mounted in a bearing-bracket, a gear upon said shaft, a drive-shaft upon which a second gear is mounted, means for supporting the drive-shaft and for housing both gears, comprising a supporting-ring D mounted upon the bearing-bracket and projecting therefrom and carrying a semicylindric casing D^2 for the gear on the crank-shaft and also a semicylindric casing D' for the adjacent end of the shaft and the gear thereon, and a detachable semicylindric casing D^3 for the gear on the crank-shaft, this casing carrying a semicylindric casing D^4 for the adjacent end of the drive-shaft and the gear thereon, the line of separation of said casings being in alinement with the axes of the shafts, and devices for attaching the respective parts of the semicylindric casings together to completely house the end of the driving-shaft and the two gears, substantially as and for the purpose set forth.

6. In combination, a velocipede-frame and driving mechanism, the latter comprising a drive-shaft provided with a drive-gear, an intermediate drive-shaft carrying a gear meshing with said drive-gear and another gear meshing with a gear on the traction-wheel, a longitudinally-divided casing inclosing said drive-shaft and having one of its sections rigidly secured at its ends to the frame of the velocipede and the other section removable, means for attaching the two sections of said casing together, comprising a pair of journal-sleeves J and J^3 fitting within the casing encircling the shaft at different points in its length, each of said sleeves being provided with radial, the threaded studs passing through holes in the respective parts of the casing and provided on their projecting ends with clamp-nuts, whereby the journal-sleeves are fixedly inclosed and the two parts of the casing secured rigidly together, inclosed bearing-cups adjustably supported on the shaft adjacent the journal-sleeves, and balls between the cups and the sleeves, for the purposes set forth.

659,505. PROCESS OF MANUFACTURING STOPPERS. ARTHUR BLUMER, La Varenne, France. Filed Feb. 27, 1899. Serial No. 707,102. (No specimens.)



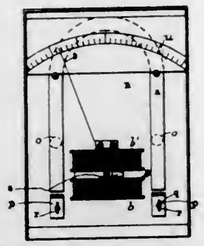
Claim.—1. The herein-described method in the manufacture of stoppers, which consists in mixing powdered cork with a collodion solution as described, then compressing the mixture and allowing it to dry, then treating the mixture with a solution of nitrocellulose and acetone, and then saturating the mixture with a fatty mineral oil.

2. The herein-described method in the manufacture of stoppers, which consists in mixing powdered cork with collodion solution as described, then compressing the mixture and allowing it to dry, then treating the mixture with a solution of nitrocellulose and acetone under pressure, and then saturating the mixture with a fatty mineral oil.

659,506. MAGNETIC REGULATOR FOR GALVANOMETERS. JAMES J. BRADLEY, Newark, and LOUIS M. PIGNOLET, Orange, N. J., said Bradley assignor to said Pignolet. Filed Apr. 13, 1899. Serial No. 712,841. (No model.)

Claim.—1. In an electrical measuring instrument, the combination of a permanent horseshoe-magnet, a plate of iron large enough to extend

beyond the limits of the poles thereof, and a solenoid containing the magnetic needle, the outer side of said solenoid being contiguous to said plate.



2. In an electrical measuring instrument the combination of a permanent magnet, a solenoid containing the magnetic needle of the instrument and a plate of iron parallel to said magnet and contiguous to the outside of said solenoid beyond the ends of which said plate projects.

3. In an electrical measuring instrument, the combination of a permanent horseshoe-magnet, an iron plate located at a predetermined distance below the magnet as and for the purpose set forth, for shielding the magnetic field between the poles thereof, and a solenoid containing the magnetic needle and located between the poles of the magnet contiguous to the said plate of iron.

4. In an electrical measuring instrument, the combination with the permanent horseshoe-magnet thereof, of a plate of iron non-magnetically secured thereto at a predetermined distance therefrom, and a solenoid located between the poles of the magnet and containing the magnetic needle of the instrument the outside of said solenoid being parallel as to its axis and contiguous to the plate of iron.

5. In an electrical measuring instrument the combination with a permanent horseshoe-magnet thereof, of a plane sheet of iron parallel to the magnet, separating-pieces of non-magnetic material securing said sheet to said magnet, and angle-irons having slots and secured to said sheet by screws passing through said slots, and into said sheet.

6. In an electrical measuring instrument, the combination with a permanent horseshoe-magnet thereof, of a plate of iron non-magnetically secured thereto at a predetermined distance therefrom and large enough to extend beyond the outside limits of the poles of the magnet, and armature-pieces connected directly to said plate and adjustable to and from said magnet.

7. In an electrical measuring instrument, the combination of a permanent horseshoe-magnet, a solenoid containing the magnetic needle of the instrument, a plate of iron parallel to said magnet at about the distance therefrom of the radius of said solenoid, armature-pieces connected to said plate and adjustable to and from the poles of said magnet, said solenoid consisting of a long fine-wire coil and of a short coarse-wire coil, ohmic resistances, and means for including in the outside circuit either the coarse coil alone, or with the fine coil only or together with said resistances.

8. In an electrical measuring instrument having a permanent magnet and a base-plate, separating-pieces between the above-named elements, one end of the separating-piece being soldered to the permanent magnet, and a screw passing through said plate into said separating-piece.

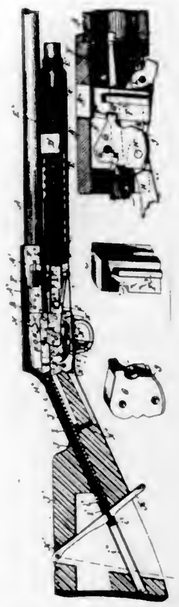
9. In an electrical measuring instrument, the combination of a rotary arbor, a magnetic needle carried thereby, a tube fixed to said needle and extending therefrom, and a pointer passing through and clasped by said tube and terminating in an eye through which said arbor passes.

659,507. **RECOIL-OPERATED FIREARM.** JOHN M. BROWNING, Ogden, Utah. Filed Feb. 8, 1900. Serial No. 4,557. (No model.)

Claim.—1. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the said bolt, and adapted to be entered into a locking-opening formed in the barrel extension, and means mounted in the said bolt for operating the said block in locking and unlocking the bolt to and from the barrel extension.

2. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt for locking the same to and unlocking it from the barrel extension, and for locking the breech-bolt at the limit of its rearward excursion while the barrel and its extension are returned to their closed positions, and a gun frame or receiver constructed to house the said parts, and containing a laterally-arranged ejection-opening.

3. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the said bolt and movable therein for engagement with the locking extension, whereby the bolt is locked to the said extension, and means connected with the said locking-block and operated by the momentum of recoil, to move the locking-block into its unlocked position after the breech-bolt has reached the limit of its rearward excursion.



4. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt and adapted to be entered into a locking-opening formed for its reception in the barrel extension, and means connected with the said block and operated by the momentum of recoil for moving the block into its unlocked position after the breech-bolt has reached the limit of its rearward excursion.

5. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a locking-block mounted in the breech-bolt and coacting with the extension for locking the bolt thereto, a rocking tumbler also mounted in the said bolt and coacting with the said block for moving it into its locked and unlocked positions, and means connected with the said tumbler and operated by the momentum of the recoil for rocking the tumbler and moving the block into its unlocked position after the bolt has reached the limit of its rearward excursion.

6. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt, a rocking tumbler also mounted in the said bolt, and coacting with the block for moving the same into its locked and unlocked positions, an operating-rod extending rearwardly into the butt-stock of the gun, and a link connecting the forward end of the said rod with the said tumbler, which is rocked by the momentum acquired by the link and rod, which continue to move rearward after the bolt has reached the limit of its rearward excursion.

7. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt and adapted at its upper end to be entered into a locking-opening formed in the extension, a rocking tumbler also mounted in the said bolt and engaging with the said block for operating the same, and means connected with the said rocking tumbler and operated by the momentum of the recoil, for unlocking the locking-block after the breech-bolt has reached the limit of its rearward excursion.

8. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block coacting with the extension to lock the bolt in its closed position, a rocking tumbler for operating the block, means coacting with the tumbler for rocking the same, and a locking-lever coacting with the tumbler for holding the same in its depressed position in which the tumbler holds the block in its unlocked position, the said block, tumbler and lever being mounted in the said bolt.

9. In a firearm, the combination with a recoiling barrel, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt for locking the breech-bolt to the barrel, a locking-lever mounted in the breech-bolt for locking the said block in its unlocked position, and means coacting with the said locking-lever to operate the same in releasing the said block.

10. In a firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block for locking the bolt to the said extension, a rocking tumbler coacting with the said block for operating the same, a locking-lever coacting with the said tumbler for holding the same in its depressed position, and means coacting with the said lever to operate the same in releasing the said tumbler and hence the locking-block, the said block, tumbler and lever being mounted in the breech-bolt.

11. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block for locking the bolt to the barrel extension, a rocking tumbler for operating the block, a locking-lever coacting with the tumbler for holding the same in its depressed position in which the tumbler holds the block in its unlocked position, a link connected with the rocking tumbler, and coacting with the locking-lever for disengaging the same from the rocking tumbler, and an operating-rod extending rearwardly into the gun-stock, and connected with the link which coacts with the rod in moving the bolt into its unlocked position by the momentum they acquire by the recoil of the gun, the said locking-block, rocking tumbler and locking-lever being mounted in the breech-bolt.

12. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a locking-block, a rocking tumbler coacting with the said block for the operation thereof, and a firing-pin mounted in the bolt, and coacting with the rocking tumbler which retracts it.

13. In a firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the said bolt, a spring-actuated operating-rod extending into the butt-stock of the gun, and means connecting the said rod with the said block which is operated by the rod for manually unlocking the bolt and opening the gun.

14. In a magazine-firearm, the combination with a reciprocating barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the bolt for locking the same to the extension, an operating-rod extending into the butt-stock of the gun, a spring encircling the said rod, a transversely-arranged operating part mounted in the stock of the gun, connected with the rear end of the said rod, and adapted to be manually operated for retracting the rod and placing the said spring under tension, and means connecting the forward end of the said rod with the said locking-block.

15. In a magazine-gun, the combination with a reciprocating barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted therein, a rocking tumbler mounted in the said bolt for operating the block, an operating-rod extending into the butt-stock of the gun, a link connecting the said rocking tumbler with the forward end of the said rod, a transversely-arranged operating-spring encircling the rod, and an operating-lever mounted in the butt-stock, connected with the rear end of the rod for retracting the same, and adapted to be manually operated.

16. In a magazine-gun, the combination with a reciprocating barrel and barrel extension, of a breech-bolt, a vertically-movable locking-block mounted in the breech-bolt, an operating-rod extending into the butt-stock of the gun, connection between the said rod and block, an operating-spring encircling the said rod, a tube located in the butt-stock and receiving the rear end of the rod, a washer mounted upon the forward end of the tube, forming a bearing for the rear end of the spring, and having the rear end of the rod extended rearwardly through it, and a transversely-arranged operating-lever pivoted in the upper portion of the butt-stock, extending downward through the rear end of the rod, projecting below the lower edge of the butt-stock for manual operation, and passing through the said tube which is slotted for the purpose.

17. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a pivotal carrier, and means mounted in the carrier itself for locking the bolt at the limit of its rearward excursion.

18. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a pivotal carrier, and a locking-dog mounted in the rear end of the carrier itself for engaging with the breech-bolt and locking the same at the limit of its rearward excursion.

19. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a pivotal carrier, a locking-dog mounted in the carrier itself and engaging with the breech-bolt to lock the same in its open position while the barrel and barrel extension are returned to their closed positions, and an operating-spring placed under tension by the recoil of the gun, and acting through the said bolt and the said locking-dog to lift the carrier into its elevated position when the bolt moves forward.

20. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a locking-block mounted therein for locking it to the said extension, a rocking tumbler mounted in the breech-bolt for operating the said block, an operating-rod extending into the butt-stock of the gun, a link connecting the said rod and the said rocking tumbler, a pivotal carrier, a locking-dog pivotally mounted in the rear end of the carrier at a point to the rear of the pivot thereof, and adapted to coact with the bolt to lock the same in its open position, and an operating-spring, whereby the locking-dog acts to lock the bolt in its open position, and to lift the carrier, under the power of the said spring, into its elevated position.

21. In a magazine-firearm, the combination with a recoiling barrel, of a tube-like barrel extension laterally cut away for the ejection of the spent cartridges, a breech-bolt adapted to enter the said extension, a vertically-movable locking-block mounted in the said bolt for locking the same to the said extension, a rocking tumbler also mounted in the said bolt for coacting with the rocking tumbler, means extending rearward from the said tumbler for operating the same and a gun frame or housing inclosing the said parts and formed with a lateral ejection-opening.

22. In a magazine-gun, the combination with a pivotal carrier, of a combined carrier-catch and cartridge-stop which in one position locks the carrier in its depressed position and in another position acts as a cartridge-stop, these two functions being performed alternately.

23. In a magazine-firearm, the combination with a pivotal carrier, of a combined cartridge-stop and carrier-catch for locking the carrier in its depressed position, pivotally mounted upon a vertical pivot located in a recess formed in the inner face of one of the side walls of the gun-frame.

24. In a magazine-gun, the combination with a pivotal carrier, of a combined cartridge-stop and carrier-catch for locking the carrier in its depressed position, and adapted to be operated to release the carrier by the head of a cartridge.

25. In a magazine-gun, the combination with a pivotal carrier, of a combined cartridge-stop and carrier-catch for locking the carrier in its depressed position, and a part brought into operation by the recoil of the gun for preventing the premature operation of the said combined part in unlocking the carrier.

26. In a magazine-gun, the combination with a pivotal carrier, of a combined cartridge-stop and carrier-catch for locking the carrier in its depressed position, and a sliding inertia-piece coacting with the carrier-catch end of the said combined part and brought into operation by the recoil of the gun, for preventing the premature operation of the said combined part in unlocking the carrier.

27. In a magazine-firearm, the combination with a pivotal carrier, of a combined cartridge-stop and carrier-catch for locking the carrier in its depressed position, and an inertia-piece brought into operation by the recoil of the gun, and coacting with the carrier-catch for preventing the premature operation thereof in unlocking the carrier, the said combined part and inertia-piece being located in a recess formed in the inner face of one of the side walls of the gun.

28. In a magazine-firearm, the combination with a recoiling barrel and barrel extension, of a breech-bolt, a locking-block, a rocking tumbler for operating the block, an operating-link connected with the said tumbler, an operating-rod connected with the said link, and a hammer passing upward through the said link which engages with it to automatically cock it.

29. An automatic firearm, having a hammer and a trigger, one of the said parts having a locking-notch and a safety-notch, and the other part having a locking-hook and a safety-hook, the said notches and hooks coacting to prevent the hammer from being released by the trigger except as the rearward draft upon the trigger is first relieved to permit the bold of the hammer to be transferred from the safety-notch and safety-hook to the cocking-notch and cocking-hook.

30. In a magazine-firearm, the combination with a hammer provided with a finger containing a locking-notch and a safety-notch, of a trigger provided with a locking-hook and a safety-hook arranged in opposition to each other and sufficiently separated from each other to permit the finger containing the said notches to pass down between them, and respectively coacting with the said notches to prevent the hammer from being released by the trigger except as the rearward draft upon the trigger is first relieved to permit the bold of the hammer to be transferred from the safety-notch and safety-hook to the cocking-notch and cocking-hook.

31. In a firearm, the combination with a hammer and a trigger, of a safety-catch for locking the trigger, and a mainspring constructed and arranged to prevent the catch from being engaged with the trigger to lock the same except when the hammer is in its cocked position.

32. In a magazine-firearm, the combination with a pivotal carrier formed at the extreme lower corner of its rear end with a nose, of a carrier-spring bent at its free end to conform to the curvature of the said nose with which it coacts to hold the carrier in its elevated and in its depressed positions, and to return it to its depressed position after it has been pushed upward for feeding a cartridge into the magazine.

33. In a firearm, the combination with the receiver and tubular magazine thereof, of a recoiling barrel and barrel extension, a front stock through

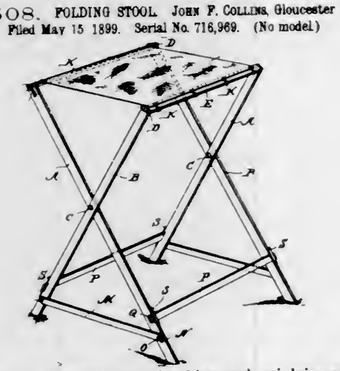
which the forward end of the magazine projects, an action-spring placed under tension by the front stock, and means applied to the projecting forward end of the magazine for detachably connecting the front stock with the magazine, whereby when the front stock is removed from the magazine, the recoiling barrel and barrel extension may be withdrawn from their connection with the receiver.

34. In a firearm, the combination with the receiver and tubular magazine thereof, of a recoiling barrel and barrel extension, an action-spring located within the said front stock for restoring the barrel and barrel extension to their closed positions, a front stock within which the action-spring is located and through the forward end of which the magazine extends, and a buffer for taking the shock of the forward excursion of the barrel and its extension, and engaging with the said front stock to which the shock is transmitted.

35. In a firearm, the combination with the receiver and tubular magazine thereof, of a recoiling barrel and barrel extension, a front stock applied to the magazine and receiver, an action-spring located within the front stock, and a nut applied to the forward end of the magazine and engaging with the front stock to hold it in place.

36. In a firearm, the combination with a recoiling barrel, of a barrel extension formed at or near its rear end with one or more ejecting pins or projections located in position to engage directly with a rim of a spent cartridge, a breech-bolt adapted to enter the said extension, one or more extractors carried by the said bolt, a gun frame or housing inclosing the said parts and formed with a lateral ejection-opening, and an action-spring for restoring the barrel and barrel extension to their closed positions, during which act of restoration the said ejecting means effect the expulsion of the spent cartridge.

659,508. **FOLDING STOOL.** JOHN F. COLLINS, Gloucester City, N. J. Filed May 15 1899. Serial No. 716,969. (No model.)



Claim.—1. In a stool, two pairs of legs, each pair being suitably pivoted, stays hinged to the upper end of one leg of each pair and having tongues adapted to enter grooves of the opposite legs, means for holding the stays and legs in engagement, a seat having hooks secured to two parallel sides for engagement with the stays, and means for bracing the lower ends of the legs.

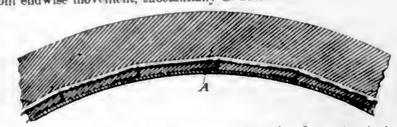
2. In a stool the combination of two pairs of legs, the members of each pair pivoted together, stays hinged to the upper ends of one leg of each pair, said stays having tongues adapted to enter grooves formed in the top of the opposite legs, hooks pivoted to one leg of each pair and adapted to engage pins projecting from the tongues, a flexible seat, hooks secured to two parallel edges thereof for engagement with the stays, swinging stay-strips M pivoted to two of the legs, hooks formed upon the last-named stays, pins projecting from the remaining legs with which the hooks are adapted to engage, cross-strips having T-heads formed upon their ends adapted to enter grooves formed in the legs, and latch-springs pivoted to the legs and adapted to hold the cross-strips in place, as specified.

659,509. **RUBBER TIRE.** JOHN L. CONNABLE, Chattanooga, Tenn. Filed May 9, 1900. Serial No. 16,058. (No model.)

Claim.—1. A rubber tire provided with retaining-wires and passages for said wires, in combination with a bearing-plate for the wires, said plate provided with holding means at diagonally-opposite corners of said plate, substantially as described.

2. A holding-plate for the retaining-wires of a rubber tire consisting of a flat metal body having upturned projections at its diagonally-opposite corners and semicircular recesses within said projections in which the wires rest and by which they are held, substantially as described.

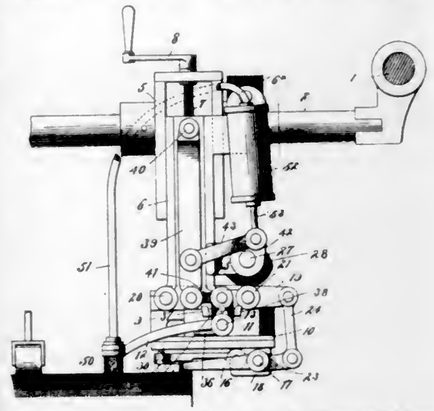
3. A holding-plate for the retaining-wire of a rubber tire consisting of a flat piece of metal provided with a bridge turned up from the body of the plate, said bridge having a semicircular open notch with a thin sharp edge, over which the wire is adapted to be bent, stretched and held from endwise movement, substantially as described.



4. A rubber tire bearing-plate provided with a flat surface body portion or base, a bridge turned up from said base, said bridge provided with an open semicircular notch G having a comparatively-thin sharp upper edge over which the wire is bent by pressure, and the edges of the base of said plate smooth and rounded and the rubber of the tire extended under said base and around the said base edges, substantially as described.

5. In a rubber tire for vehicle-wheels having longitudinal channels and retaining-wires therein, the combination therewith of a series of bearing-plates, embedded at intervals in the tire, each plate having open recessed lugs at diagonally-opposite corners adapted to receive, bend and support said retaining-wires, substantially as described.

659,510. **PAPER-FEEDING MACHINE.** TALBOT C. DEXTER, Pearl River, N. Y. Filed Nov. 17. 1899. Serial No. 737,362. (No model.)



Claim.—1. In a paper-feeding machine the combination of a suction device adapted to engage a sheet at or near its edge, means for reciprocating and raising and lowering the suction device with relation to the pile, means controlling the suction of said device causing it to engage the sheet, move it inwardly and raise it from the pile, and means for blowing air under the lifted edge of the sheet for separating it from the pile, substantially as and for the purpose set forth.

2. In a paper-feeding machine the combination of a reciprocating suction device movable inwardly and outwardly over a pile, means for raising and lowering the suction device approximately vertically with relation to the pile, and means controlling the suction of said device causing it to engage the sheet in lowered position, move it inwardly, and lift and hold it in raised position and release the sheet while it is in raised position, substantially as and for the purpose set forth.

3. In a paper-feeding machine the combination of a suction device, means for raising and lowering the suction device approximately vertically with relation to the pile, means for moving the suction device inwardly and outwardly over the pile, means controlling the suction of said device, causing it to engage the sheet in lowered position, move it inwardly and lift it into raised position, and means for feeding the separated sheet off from the pile, substantially as and for the purpose set forth.

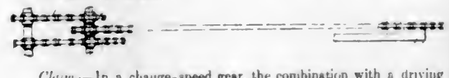
4. In a paper-feeding machine, the combination of a sheet-engaging suction device, operating means arranged to lower the suction device into engagement with the pile, raise it away from the pile and move it outwardly in raised position, and means controlling the suction of said device causing it to positively engage the sheet when in lowered position, carry the sheet inwardly, then raise it and move rearwardly with it, releasing the sheet on its rearward movement in raised position, substantially as and for the purpose set forth.

5. In a paper-feeding machine, the combination of a suitable sheet-buckling mechanism including a buckling finger, a sheet-engaging suction device, carried by the buckling-finger, and means for intermittently making and breaking the suction of said device, substantially as set forth.

6. In a paper-feeding machine, the combination of a pile-holding clamp or foot, a reciprocating buckling-finger provided with a suction sheet-engaging device, means for intermittently making and breaking the suction in said device, and means for operating the buckling-finger and holding foot or clamp, substantially as set forth.

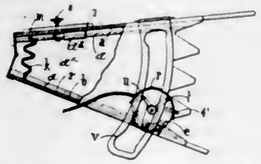
7. In a paper-feeding machine, the combination of suitable sheet-buckling mechanisms including a suctional buckling-finger arranged to move inwardly upon the pile in lowered position and outwardly in raised position, the suction device of the buckling-finger being adapted to positively engage a sheet of paper, and means for making the suction in said device when it is lowered and breaking the suction after it is elevated, substantially as and for the purpose set forth.

659,511. **TWO-SPEED GEARING FOR VELOCIPEDES.** ALEXIS DIDIERJEAN, St. Quentin, France. Filed May 23, 1898. Serial No. 681,496. (No model.)



Claim.—In a change-speed gear, the combination with a driving sprocket-wheel, of a rear driven axle, a wheel thereon, sprocket-wheels arranged over and loose with respect to the hub of said wheel and provided with opposing clutch-teeth, an intermediate axle, sprocket-wheels mounted thereon, means for communicating motion from the sprocket-wheel on the crank-axle to the said sprocket-wheels on the intermediate axle and the loose sprocket-wheels, and a coupling device for transmitting motion from either of the loose sprocket-wheels to the rear driven wheel, comprising a sleeve mounted on the hub of the latter wheel and carrying the loose sprocket-wheels and provided on its periphery with notches and clutches pivoted to the sleeve and adapted to move laterally to engage the clutch-teeth of the loose sprocket-wheels, a roller carried by each of the clutches at its outer end, a ring with which the rollers engage, and means for shifting the ring laterally for the purpose specified.

659,512. **APPARATUS FOR INDUCING ARTIFICIAL RESPIRATION.** EUGÈNE L. DOYEN, Paris, France. Filed Jan. 31, 1898. Serial No. 668,634. (No model.)



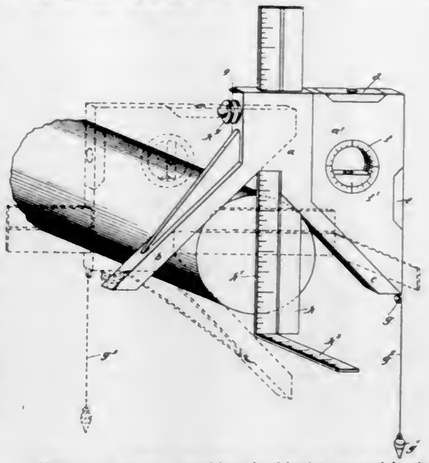
Claim.—1. In a device of the character described, the combination with a double-chambered bellows, of a distributing-valve adapted to communicate with either chamber of said bellows and consisting of two disks and a valve-spindle, one of said disks being fixed and provided with a number of apertures while the other is mounted on the valve-spindle to move therewith and is provided with grooves to communicate with apertures of the fixed disk, a spring normally acting on the movable disk, and means actuated by the bellows for operating said movable disk to put it into communication with one or the other of the bellows-chambers, as set forth.

2. In a device of the character described, the combination with a double-chambered bellows, of a distributing-valve consisting of a valve-spindle and two disks, one grooved and movable with said spindle and the other provided with apertures to be connected by the grooves of the other disk, two arms on the valve-spindle, a spring acting on one of said arms to normally hold the movable disk, and a link actuated by said bellows and having a cam-slot to be engaged with one of said arms to control the movement of the distributing-valve, as set forth.

3. In a device of the character described, the combination with a double-chambered bellows, of a distributing-valve adapted to communicate with either chamber of said bellows and consisting of a fixed disk and a movable disk provided with a spindle, the fixed disk being provided with a number of apertures and the movable disk being provided with grooves to connect the apertures of the fixed disk, two arms on the valve-spindle, one of which is connected with a spring acting to normally hold the movable disk, and a link hinged to one of the plates of the bellows and having a cam-slot to act on the other one of said arms, as and for the purpose specified.

4. The combination with a double-chambered bellows, and a distributing-valve adapted to communicate with either chamber of said bellows and consisting of two disks, one of which is fixed and provided with a number of apertures, while the other is movable and provided with grooves to connect the apertures of the fixed disk, of a spindle for said movable disk, two arms mounted radially on said spindle, a spring engaged with one of said arms, and a link having a cam-slot to engage the other one of said arms to actuate the movable disk for reversing the distributing-valve at the end of each stroke of the bellows, substantially as described.

659,513. **SQUARE.** ARMAND P. DUBUS, New Orleans, La. Filed Nov. 21, 1899. Serial No. 737,781. (No model.)



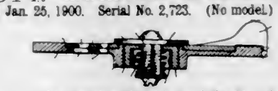
Claim.—1. A square, comprising a head having two straight edges at right angles to each other and provided with two legs at right angles to each other and with an aperture, a spirit-level in each straight edge, a spirit-level adjustable in the aperture of the head and a scale sliding in the head with its reading edge equidistant from the legs, substantially as described.

2. A square, comprising a head formed of two sections, one section being provided with two legs at right angles to each other and with a guideway, and the other section having a vertical edge and secured to the first, with its top flush with the top of the first section and extending along the outer edge of one of the legs of the said first section, spirit-levels in the second section of the head, one in the top and the other in its straight edge, and a scale sliding in the guideway of the first-named section, substantially as described.

3. A square, comprising a head having two straight edges at right angles to each other and provided with two legs at right angles to each other, and with an eye at the end of each straight edge for the attachment of a plumb-line, a spirit-level in each straight edge, a third spirit-level adjustable in an aperture of the head, and a scale adjustable in the head and having its reading edge equidistant from the legs, substantially as described.

4. A square, consisting of a head formed of two sections, one section being provided with two legs disposed at right angles to each other and with a guideway, and the other section having a vertical edge and secured to the first section with its top flush with the top of the said first section and extending along the outer edge of one of the legs of the said first section, eyes for attachment of plumb-lines, one at the top of the first section and the other at the lower end of the second section, spirit-levels secured in the second section, one in its top, one in its vertical edge, and the third in a transverse opening in the body thereof, and a scale adjustable in the guideway of the first section-head, and having its reading edge equidistant from the legs, substantially as herein shown and described.

659,514. **SINK-STRAINER.** EDWARD S. DUFFY, Chicago, Ill. Filed Jan. 25, 1900. Serial No. 2,723. (No model.)



Claim.—1. In a strainer for sinks and the like, the combination of a main base-plate provided in its upper surface with an annular recess and at its center with a screw-threaded plug-aperture, a plurality of strainer-

openings formed through said strainer-plate at points within the recess, an annular valve-plate arranged to fit within said recess and provided with apertures corresponding to and adapted to be brought into and out of register with the strainer-holes of the base-plate by rotary movement, a screw-plug seated in said plug-aperture provided with an aperture, a pressure-plate arranged to rest upon the valve-plate and provided with a shank arranged to depend through the screw-plug, a screw-cap applied to the end of the shank of the pressure-plate, a coiled spring interposed between said screw-cap and the end wall of the screw-plug and stops arranged to limit the rotation of the valve-plate in each direction, substantially as described.

2. In a strainer for sinks and the like, the combination of a main base-plate provided in its upper surface with an annular recess and at its center with a screw-threaded plug-aperture, a plurality of strainer-openings formed through said strainer-plate at points within the recess, an annular valve-plate arranged to fit within said recess and provided with apertures corresponding to and adapted to be brought into and out of register with the strainer-holes of the base-plate by rotary movement, a screw-plug seated in said plug-aperture provided in its under surface with a recess and with an aperture extending from said recess through the upper end wall of the plug, a pressure-plate arranged to rest upon the valve-plate and provided with a shank arranged to depend through the screw-plug, a screw-cap applied to the end of the shank of the pressure-plate, a coiled spring interposed between said screw-cap and the upper end wall of the screw-plug and stops arranged to limit the rotation of the valve-plate in each direction, substantially as described.

659,515. INCANDESCENT STRUCTURE SUITABLE FOR LIGHTING. JOHN H. H. DUNCAN and HARRY T. BARNETT, London, England. Filed Oct. 26, 1899. Serial No. 734,878. (No model.)

Claim.—1. An incandescent structure suitable for lighting, comprising filaments or threads of different refractory substances arranged in proximity to each other some of the filaments or threads being adapted to emit light of a different color to that emitted by the other filaments or threads substantially as described for the purpose specified.

2. An incandescent structure for lighting comprising mechanically-associated filaments or threads containing different substances or compounds, some of the filaments or threads being adapted to emit light of a different color to that emitted by the other filaments or threads substantially as described for the purposes specified.

3. An incandescent structure comprising mechanically-associated filaments or threads containing differing substances or compounds, one or some of which is or are adapted to complement the color of the light emitted by one or some of the others.

4. An incandescent structure comprising mechanically-associated filaments or threads containing differing substances or compounds, one or some of such filaments or threads being adapted to give a light of greenish tint and another or others a light or ruddy color.

5. An incandescent structure built up of interlaced filaments or threads one or some of which contain or contains a substance or compound adapted to complement the substance or compound contained in one or more of the other filaments or threads.

6. An incandescent structure built up of threads each of which consists of differing kinds of filaments adapted to complement each other as to the color of light emitted and as to strength as set forth.

7. An incandescent structure built up of interlaced filaments or threads some of which contain thoria and ceria and others chromic oxid and alumina, substantially as described.

8. An incandescent structure comprising mechanically-associated filaments or threads containing differing substances or compounds one or some of which filaments or threads are stronger than and support the other or others, substantially as described.

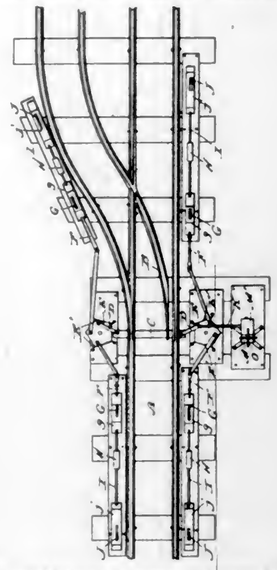
9. A composite incandescent structure for lighting composed of two different sets of interlaced filaments or threads each containing a different refractory oxid or oxids to the other substantially as herein described for the purposes set forth.

659,516. RAILWAY-SWITCH. GEORGE DURCHHOLZ, Greeley, Colo. Filed Feb. 26, 1900. Serial No. 6,592. (No model.)

Claim.—1. In a switch mechanism, the combination of a switch, a pivoted angular plate connected thereto, springs bearing upon and adapted to normally hold said plate in either of its shifting or axially-moved positions, and means for the actuation of said plate, substantially as set forth.

2. In a switch mechanism, the combination of a switch, a pivoted angular plate connected thereto, springs bearing upon and for normally holding said plate in either of its shifting or axially-moved positions, a rod connected to said plate and means for actuating, and intergeared with, said rod, substantially as set forth.

3. In a switch-operating mechanism the combination with a switch, of a pivoted angular plate connected therewith, springs for normally retaining said plate in one of two positions, a rod pivoted to the plate, ratchets thereon, gears engaging with the ratchets, and means whereby backward or forward movement is imparted to the rod through the gears and from an onwardly-moving train, substantially as described.



4. In a switch-operating mechanism the combination, with a switch, of an angular plate pivoted adjacent thereto, a rod connection therebetween, springs bearing upon the sides of the plate for normally retaining the same in one of two positions, a rod pivoted to said plate and formed of spring-connected sections, ratchets on said rod, gears meshing with said ratchets, one of said gears driven from a second gear, and means upon a train for engaging with the driving-gears and whereby the switch may be either opened or closed from an onwardly-moving train, substantially as described.

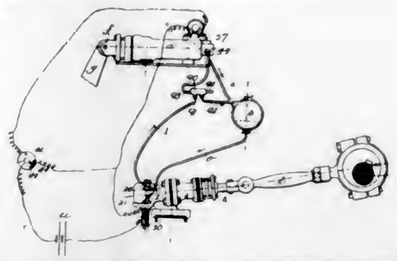
5. In a switch-operating mechanism, the combination with the switch, of a pivoted angular plate connected thereto, springs adapted to hold said plate in either of its shifting or axially-movable positions a rod pivoted to said plate and provided with ratchets, a second rod pivoted to the plate and connected to an indicating device, and means engaging with said ratchets whereby the switch may be opened or closed from an onwardly-moving train, substantially as described.

6. In a switch-operating mechanism, the combination with the switch, of a pivoted angular plate connected thereto, springs adapted to hold said plate in either of its shifting or axially-movable positions a rod pivoted to said plate and provided with ratchets, a second rod pivoted to the plate, its opposite end pivoted to an arm of an upright, an indicating device on said upright and means engaging with said ratchets whereby the switch may be opened or closed from an onwardly-moving train, substantially as described.

7. In a switch-operating mechanism the combination, with a switch, of an angular plate pivoted adjacent thereto, a rod connection therebetween, springs bearing upon the sides of the plate for normally retaining the same in one of two positions, a rod pivoted to said plate and formed of spring-connected sections, ratchets on said rod, gears meshing with said ratchets, one of said gears driven from a second gear, plates upon a train, spring-guides therefor, teeth upon the lower edges of said plates, and means for imparting vertical movement to said plates, whereby the teeth thereon may be brought into engagement with the driving-gears and thereby either open or close the switch from the onwardly-moving train, as desired, substantially as described.

659,517. HYDRAULIC BRAKE FOR RAILWAY OR TRAMWAY VEHICLES. CAMILLE DUREY, Paris, France. Filed Nov. 9, 1899. Serial No. 736,417. (No model.)

Claim.—1. In a hydraulic brake, the combination with the brake-cylinder and reservoir, of a pump having a two-part cylinder, a differential piston reciprocating therein with means for operating the same, a pipe connecting the reservoir with one side of said cylinder, a pipe connection from the same side of said pump-cylinder to the brake-cylinder, a passage connecting said connection with the other side of the pump-cylinder, and suitable valves controlling said connections, substantially as described.

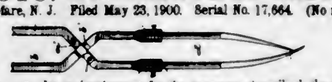


2. In a hydraulic brake, the combination with the brake-cylinder and reservoir, of a pump having a two-part cylinder, a differential piston reciprocating therein, oppositely-arranged admission and discharge chambers communicating with the rear end of said pump-cylinder, a pipe connection from said admission-chamber to the reservoir, a pipe connection from the discharge-chamber to the brake-cylinder, a valve controlling the passage from the admission-chamber to the rear end of the pump-cylinder, a valve controlling the passage from said rear end to the discharge-chamber, and a continuously-open passage from the opposite end of the pump-cylinder to said discharge-chamber, substantially as described.

3. In a hydraulic brake, the combination with the brake-cylinder and liquid-reservoir, of a pump having a two-part cylinder, a continuously-operating differential piston reciprocating therein, oppositely-arranged admission and discharge chambers having passages communicating with the rear end of said pump-cylinder, an open passage from the admission-chamber to the opposite end of the pump-cylinder, a pipe connection from said admission-chamber to the reservoir, a pipe connection from the discharge-chamber to the brake-cylinder, a check-valve controlling the passage from said admission-chamber, a check-valve controlling the passage to the discharge-chamber, means for raising the valve of the admission-chamber, and means whereby said valve may be caused to raise the valve of the discharge-chamber, substantially as described.

4. In a hydraulic brake, the combination with the brake-cylinder and liquid-reservoir, of a pump having a two-part cylinder, a differential piston continuously operating therein, admission and discharge chambers communicating with the rear end thereof, an open passage from the discharge-chamber to the opposite end of the pump-cylinder, check-valves controlling the passages from said chambers to the rear end of said pump-cylinder, a pipe connection from the admission-chamber to the reservoir, a pipe connection from the discharge-chamber to the brake-cylinder, and a pressure-controlled by-pass between said chambers, substantially as described.

659,518. PLANT CUTTER AND LIFTER. THOMAS BUTLACK, Thorofare, N. J. Filed May 23, 1900. Serial No. 17,664. (No model.)



Claim.—1. In an implement for the purposes described, the combination with the pivoted tong members, the upper ends of which terminate in handle portions and whose lower ends terminate in sockets, of a pair of jaw members one for each tong or bar, said jaw members each having means whereby they are detachably secured to the socketed ends of the tongs, the lower ends of the said jaws being flat and terminating in claws, the claw portion of one jaw being extended below the claw portion of the other jaw, whereby the claw portion of the said other jaw will close upon the flat part of the opposing jaw, substantially as shown and described.

2. An implement for the purposes described having detachable clamping-jaws, each having its lower end flattened and formed with an inwardly-extending claw member and means for connecting the two claw members to the tongs so that one of the claw members will project in a plane below the other whereby the cutting edge of the said other jaw will engage the flat surface of the opposing jaw, substantially as shown and described.

3. As a new article of manufacture, an implement for cutting and lifting asparagus and like plants, comprising a pair of pivoted tongs, the pivoted joint of the said tongs being such that one tong will have a limited movement in the longitudinal direction upon the other, the lower edge of each tong terminating in an internally-threaded socket, a detachable jaw for each tong, said jaws having screw-threaded tenons to engage the threaded sockets of their respective tong members, each jaw terminating in a shovel-like portion, the lower end of which curves inwardly and terminates in a cutting edge, said shovel-like portion having an opening for the escape of dirt, and one of the jaws being shorter than the other, whereby its claw or cutting edge will engage the opposing jaw at a point above its penetrating edge, all being arranged substantially as shown and described.

659,519. TOE-CAP FOR BOOTS OR SHOES. EDGAR H. FINFROCK, Jackson, Minn. Filed June 28, 1900. Serial No. 21,952. (No model.)



Claim.—1. A toe-cap for boots and shoes comprising a metallic plate provided with a vertical flange, and a toe-cap vulcanized to said flange and having a rim portion to embrace the toe of the shoe, substantially as described.

2. A toe-cap for boots and shoes comprising a metallic plate provided with a vertical flange having its ends bent to form protecting-clips, and a cap portion of rubber secured to said flange and having its rear ends or edges embraced by said clips, substantially as described.

3. A toe-cap for boots and shoes comprising a metallic base or reinforcing plate adapted to be secured to the sole of a shoe and provided with a vertical flange having a series of openings and clips at its ends, and a cap portion of rubber vulcanized to said flange and having portions extending through said openings and its ends embraced by the said clips, substantially as described.

4. A toe-cap for boots and shoes, comprising a base provided with a vertical flange having apertures, and a toe-cap vulcanized to said flange and having inner and outer layers bound by integral portions extending through said apertures and a rim portion to embrace the toe of the shoe, substantially as set forth.

659,520. DEVICE FOR PACKING CIGARS. FRANK P. FOLSOM, Ashland, Nebr. Filed May 1, 1900. Serial No. 15,058. (No model.)



Claim.—1. The combination of the table or support, the top plate mounted to slide therein, the bottom plate pivotally connected with the top plate, and mechanism for pressing the plates together.

2. The combination of the top plate, the bottom plate pivotally attached thereto, the actuating-lever pivoted to the bottom plate, and the link pivotally connected with the top plate and with the actuating-lever.

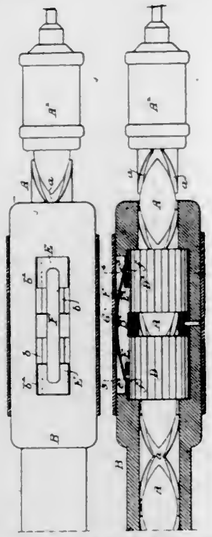
3. The combination of the top plate, the bottom plate pivoted thereto, the actuating-lever pivoted to the bottom plate, the link pivotally connected with the lever and with the top plate, and an adjusting device for varying the length of that portion of the link which is between the top plate and the actuating-lever.

4. The combination of the top plate, the bottom plate pivoted thereto, the actuating-lever pivoted to the bottom plate, the wedge-shaped block secured adjustably to the top plate and provided with a plurality of grooves or sockets, the link having one end adapted to be seated pivotally in one of said sockets, and the other end pivoted to the actuating-lever.

659,521. RATCHET MECHANISM. ZACHRY T. FURBISH, Philadelphia, Pa., assignor to the North Brothers Manufacturing Company, same place. Filed June 14, 1898. Serial No. 683,438. (No model.)

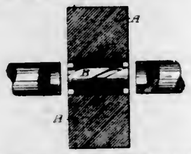
Claim.—1. The combination of a spindle having reverse spiral grooves therein, a hub having a slot providing abutments mounted on the spindle, two ratchet-wheels mounted within the hub and on the spindle, a spacing-disk arranged between said ratchet-wheels, one wheel having lugs adapted to one groove of the spindle, and the other wheel having lugs adapted to the other groove of the spindle, pawls arranged at each end of the slot in the hub and adapted to lie over the ratchet-wheels, ribs on the said pawls adapted to be confined between one of the teeth of its ratchet-wheel and the abutment of the hub, and a spring in positive engagement with the pawls and serving to control the same, so that when

the hub is reciprocated the spindle will be moved continuously in one direction.



2. The combination of a slotted hub forming abutments, a spindle adapted to the hub, said spindle having reverse spiral grooves, two ratchet-wheels mounted on the spindle within the hub, one wheel having lugs adapted to one spiral groove and the other wheel having lugs adapted to the other spiral groove, a spacing-disk arranged between said ratchet-wheels, two pawls mounted on the ratchet-wheels within the slot of the hub and having ribs adapted to be confined between one of the teeth of the wheels and the abutment of the hub, a spring resting on both pawls and having projections at each side entering recesses in the pawls, and a casing inclosing the hub and secured to the spacing-disk, confining said pawls and their springs in place, substantially as described.

659,522. APPARATUS FOR MAKING RIBBED SLEEVES OR WHEELS. ZACHRY T. FURBISH, Philadelphia, Pa., assignor to the North Brothers Manufacturing Company, same place. Filed Aug. 27, 1898. Serial No. 689,694. (No model.)



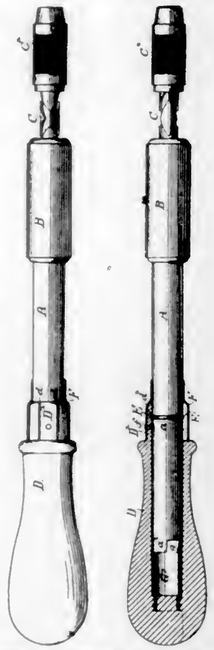
Claim.—1. The combination of a die, a grooved mandrel, the mandrel and die being so proportioned that the tube to be acted upon can be inserted between the two, with plungers adapted to act on each end of the tube and compress the same, the metal displaced by the compression entering the groove in the mandrel, substantially as described.

2. The combination in a die adapted to receive a tubular blank, a mandrel having a groove therein adapted to be mounted in the blank, two plungers adapted to act on the ends of the blank and compress it longitudinally, with means for first moving one plunger to displace a portion of the tube and then moving the other plunger to complete the displacement, substantially as described.

3. The combination of a die adapted to receive a tubular blank, a mandrel having a spiral groove therein adapted to the tubular blank within the die, two annular plungers adapted to press against the ends of the tubular blank, with means for moving one plunger while the other is stationary so as to partially form a spiral rib on the interior of the blank and then moving the other plunger while the first-mentioned plunger is stationary so as to complete the formation of the rib, substantially as described.

659,523. TOOL-HANDLE FASTENING. ZACHRY T. FURBISH, Philadelphia, Pa., assignor, to the North Brothers Manufacturing Company, same place. Filed Apr. 12, 1900. Serial No. 12,602. (No model.)

Claim.—1. The combination of a handle having a split portion, an internal annular groove in the split portion, a body portion, a projection on the body portion resting in the groove in the handle, and means for holding the split portion of the handle, substantially as described.



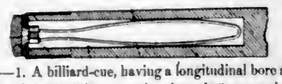
2. The combination of a handle having a split portion and an internal annular groove in the split portion of the handle, the body portion of a tool, a groove therein, a ring or segment resting in the groove in the body portion and the groove in the handle, and means for holding the split portion of the handle, substantially as described.

3. The combination of a handle having a split portion and having an internal annular groove in the split portion, a body portion having an annular groove therein, a ring resting in the two grooves, and a sleeve on the split portion of the handle, substantially as described.

4. The combination of a handle having an opening therein, a notched piece within the opening, a body portion notched at the end to engage the notched piece of the handle, an annular groove in the body portion, an internal annular groove in the handle, and a ring or a segment of a ring resting in the grooves, substantially as described.

5. The combination of a handle, an opening therein, a body portion within the opening, the end of the handle being split and having an internal annular groove, an annular groove in the body portion, a ring or a segment of a ring resting in the grooves, and a sleeve fitting snugly over the end of the handle and on the body portion, thus preventing the split portion of the handle from yielding, substantially as described.

659,524. CUE-TIP FASTENER. ROMEO GHEZZI and VIRGINIO BIANCHI, New York, N. Y. Filed May 4, 1900. Serial No. 15,473. (No model.)

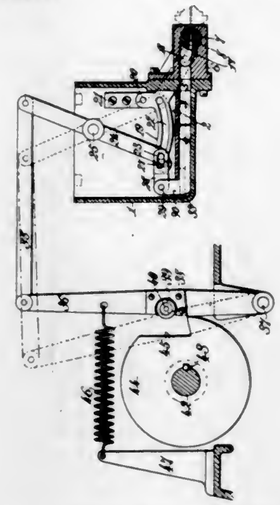


Claim.—1. A billiard-cue, having a longitudinal bore at its tip end, a seat formed at the end of the cue, a tip adapted to engage in said seat, and a spring yielding fastening device attached to the tip and adapted to pass into said bore and engage with the wall thereof, substantially as specified.

2. A billiard-cue, having a longitudinal bore at its tip end, a metal bushing arranged in said bore, a ferrule on the end of the cue, the end of said ferrule being projected beyond the end of said cue to form a tip-seat, a tip, and a fastening device of spring-wire attached to said tip and adapted to engage in the bushing, substantially as specified.

3. A fastener for a cue-tip, comprising a spring-wire bent to form opposite divergent portions, the ends being turned inward and engaging the cue-tip at opposite sides, substantially as specified.

659,525. MELTING-POT FOR TYPE-CASTING MACHINES. ADAM W. HANIGAN, Baltimore, Md. Filed Jan. 31, 1900. Serial No. 3,467. (No model.)



Claim.—1. In combination with a mold for casting type, linotype-bars or other objects, a melting-pot having an eduction-port in the bottom of one side, a mouthpiece communicating with said eduction-port of the melting-pot and provided with a discharge-port in substantially the same horizontal line with said eduction-port and with the mold cavity or cavities, a valve in said mouthpiece to control its discharge-port, a horizontally-reciprocating plunger located in the bottom of the melting-pot opposite its said port, lever mechanism connecting said valve and plunger, and operating devices for actuating said lever mechanism to open the valve and then cause the plunger to forcibly expel the molten metal in a horizontal plane and directly into the mold, substantially as described.

2. In combination with a mold for casting type, linotype-bars or other objects, a melting-pot having an eduction-port in the bottom of one side, a mouthpiece in communication with said eduction-port of the melting-pot and provided with a discharge-port in substantially the same plane with said eduction-port and with the mold cavity or cavities, a valve in said mouthpiece to control its discharge-port, a horizontally-reciprocating plunger in the bottom of the melting-pot opposite its said port, a slotted and horizontally-arranged partition in the bottom of the melting-pot above said plunger to constitute a cover for the plunger, lever mechanism connecting said valve and plunger, and operating devices for actuating said lever mechanism to open the valve and then cause the plunger to forcibly expel the molten metal horizontally and directly into the mold, substantially as described.

3. In combination with a mold for casting type, linotype-bars or other objects, a melting-pot having in its bottom a plunger-chamber provided in one side with an eduction-port, a cover or top for said plunger-chamber provided with forward and rearward extended slots, a mouthpiece in communication with said eduction-port of the melting-pot and provided with a discharge-port in substantially the same plane with said eduction-port and with the mold cavity or cavities, an oscillatory valve in said mouthpiece to control its discharge-port, a horizontally-reciprocating plunger in the chamber at the bottom of the melting-pot and provided with ears coincident with the slots in the top of the plunger-chamber, lever mechanism connecting the said valve and plunger-ears, and operating devices for actuating said lever mechanism to open and close the valve and cause reciprocation of the plunger in proper time movements to forcibly expel the molton metal horizontally through the opened valve and into the mold, substantially as described.

4. A melting-pot for type-casting machines, or the like, in which said pot is provided at the bottom of its front side with an eduction-port, a mouthpiece communicating with said eduction-port, an oscillatory valve mounted in said mouthpiece, a horizontally-reciprocating plunger in the bottom of the melting-pot, a two-armed lever mounted in the melting-pot and having one arm connected with a crank-arm on said oscillatory valve and its other arm provided with an arc-shaped slot, and lever mechanism connected with the slotted arm of said lever and with the horizontally-reciprocating plunger, to operate said valve and plunger, substantially as described.

5. The combination of a melting-pot having an eduction-port in the bottom of its front side, a mouthpiece communicating with said eduction-port, an oscillatory valve mounted in said mouthpiece and having a crank-arm on one end, a horizontally-reciprocating plunger in the bottom of the melting-pot, a two-armed lever mounted in the melting-pot and having one arm connected with the crank-arm of the valve and its other arm connected with the arc-shaped slot, a lever having in its lower end a pin engaged in said slot, and a link connected with the plunger and having a slot connected with said pin, substantially as described.

6. The combination of a melting-pot having an eduction-port in the bottom portion of its front side, a mouthpiece communicating with said eduction-port, an oscillatory-valve mounted in said mouthpiece and having a crank-arm on one end, a horizontally-reciprocating plunger located in the bottom of the melting-pot opposite its eduction-port, a link-block connected with the rear portion of said plunger and provided with a slot, a two-armed lever having one arm connected with the crank-arm of the oscillatory valve and its other arm provided with an arc-shaped slot having a short rearwardly-inclined portion, and a lever having at its lower end a pin engaged in said arc-shaped slot and in the slot of the link that connects with the plunger, substantially as described.

7. The combination with a substantially-rectangular melting-pot having a horizontally-extended eduction-port in the bottom portion of its front side, a mouthpiece communicating with said eduction-port, an oscillatory valve mounted in said mouthpiece and having a crank-arm on one end, a horizontally-reciprocating plunger located in the bottom of said melting-pot and extended across the same, a cover for said plunger constituting the top of the plunger-chamber and provided with forwardly and rearwardly extended slots, ears on the rear portion of said plunger coincident with said slots, a link-block pivotally connected with said ears and provided with a slot, a two-armed lever having one arm connected with the crank-arm of the oscillatory valve and its other arm provided with an arc-shaped slot having its rear end inclined downwardly, and a lever provided at its lower end with a transversely-arranged pin to engage in said arc-shaped slot and in the slot of the link-block that connects with the plunger, substantially as described.

8. The combination of a melting-pot having a plunger-chamber in its bottom, a partition constituting the top of said plunger-chamber and provided with forwardly and rearwardly extended slots, a plunger to reciprocate horizontally in the plunger-chamber opposite an eduction-port in the front lower part of the melting-pot, ears carried on the rear portion of said plunger coincident with the slots in the top of the plunger-chamber, a link-block pivotally connected with said ears and provided with a short slot, a mouthpiece communicating with the eduction-port of the melting-pot, an oscillatory valve mounted in said mouthpiece, a two-armed lever having one arm connected with the crank-arm of the oscillatory valve and its other arm provided with an arc-shaped slot having its rear end inclined downwardly, and a lever having its lower end provided with a pin engaged at one end in said arc-shaped slot and at its other end in the slot of the link-block, substantially as described.

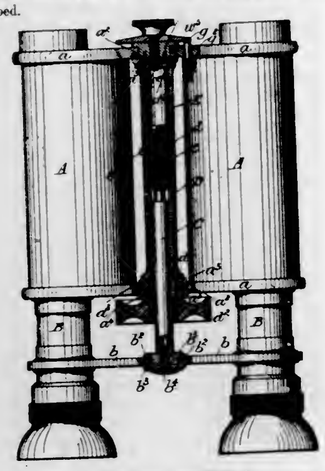
9. The combination with a mold, a melting-pot having an eduction-port in the bottom of one side, a mouthpiece in communication with said eduction-port and provided with a discharge-port substantially in the same plane with said eduction-port and with the mold cavity or cavities, a valve to control said discharge-port, a horizontally-reciprocating plunger located in the bottom of the melting-pot opposite its eduction-port, lever mechanism connecting said valve and plunger, a main actuating-lever, a cam to move said main lever in one direction, and a spring to move said lever in the opposite direction, substantially as described.

10. The combination with a mold, of a melting-pot having an eduction-port in the bottom of one side opposite said mold, a mouthpiece communicating with said eduction-port of the melting-pot and provided with a discharge-port in substantially the same horizontal plane with said eduction-port and with the mold cavity or cavities, a valve in said mouthpiece to control its discharge-port, a horizontally-reciprocating plunger located in the bottom of the melting-pot opposite its said port, a horizontally-arranged partition in the bottom of the melting-pot above said plunger to constitute a cover for the plunger, and lever mechanism for actuating said valve and plunger, substantially as described.

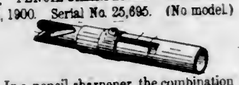
659,526. PRISMATIC BINOCULAR GLASSES. JOHN W. HASSELKUS, London, England, assignor to the Ross, Limited, same place. Filed Aug. 10, 1900. Serial No. 26,499. (No model.)

Claim.—A prismatic binocular glass consisting of body parts provided with connecting-plates hinged together by centrally-perforated hinges and eyepiece-tubes connected together by a similarly-perforated hinge, a screw-stem secured in the perforation of the last-named hinge, a hollow shaft secured centrally with the perforations of the hinges and provided with a milled head and a screw-nut for engaging the screw on the said screw-stem and a sleeve also secured centrally with the perforations of the hinges by a securing device and connected with the shaft by a secur-

ing device so as to be capable of being removed from between the hinged arms of the body parts when the securing devices are removed and the screw-stem and hollow shaft are withdrawn all substantially as hereinbefore described.



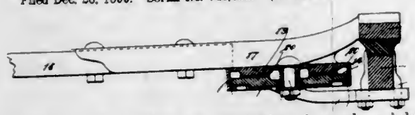
659,527. PENCIL-SHARPENER. JAMES H. HILL, Boone, Iowa. Filed Aug. 2, 1900. Serial No. 25,695. (No model.)



Claim.—1. In a pencil-sharpener, the combination of a tubular case or holder provided with a longitudinal slot having offset ends, a staff or plug slidably mounted in the holder and provided at one end with a beveled guide-face and side guard, a ring or band slidably mounted on the holder, and a screw or pin passed through the ring and slot and connected to the plug, substantially as set forth.

2. In a pencil-sharpener, the combination of a tubular case or holder provided with a longitudinal slot having offset ends, a staff or plug slidably mounted in the holder and provided at one end with a beveled guide-face and side guard, a ring or band slidably mounted on the holder, a sleeve upon the rear of the plug and having a plurality of openings, and a screw or pin passed through the ring, slot in the holder and one of the said openings in the sleeve and connected to the plug, substantially as set forth.

659,528. FIFTH-WHEEL. MONROE HOAGLAND, Henderson, Ky. Filed Dec. 28, 1899. Serial No. 741,838. (No model.)



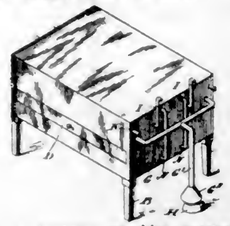
Claim.—1. In a vehicle, the combination of an axle, a bolster mounted thereon, arms rigidly attached to the under side of the axle and projected rearward of the same, a lower fifth-wheel section carried by the arms, an upper fifth-wheel section mounted on the lower fifth-wheel section, reach-sockets fastened to the bolster and to the upper fifth-wheel section, and reaches fastened in the reach-sockets.

2. In a vehicle, the combination of an axle, a bolster mounted thereon, arms attached to the under side of the axle and projecting rearwardly, a lower fifth-wheel section carried by the arms and comprising a disk with oppositely-disposed recesses in its edges, an upper fifth-wheel section having peripheral flanges with inwardly-turned lips adapted to pass through the recesses in the lower fifth-wheel section and engage with such sections, reach-sockets fastened to the bolster and to the upper fifth-wheel section, to carry the same, and reaches fastened in the reach-sockets.

3. In a vehicle, the combination of an axle, a bolster mounted thereon, arms attached rigidly to the axle and projecting rearwardly therefrom, a lower fifth-wheel section carried by the arms and comprising a disk with oppositely-situated peripheral recesses, reach-sockets fastened to the bolster, an upper fifth-wheel section carried under the reach-sockets and comprising a disk with a peripheral flange inclosing the lower fifth-wheel section and having oppositely-situated inturned lips capable of passing through the recesses in the lower fifth-wheel section, means for fastening the fifth-wheel sections to permit the relative turning thereof, and reaches carried in the fifth-wheel socket.

4. In a fifth-wheel mechanism for vehicles, the combination of arms provided with means for rigidly securing them to the axle, the arms extending rearward therefrom, a lower fifth-wheel section carried by the arms, an upper fifth-wheel section mounted on the lower fifth-wheel section, and reach-sockets adapted to be fastened to the bolster, the reach-sockets carrying the upper fifth-wheel section on their under sides and projecting rearward therefrom to receive the reaches.

659,529. INCUBATOR. JOHN H. HUGHES, Mianus, Conn. Filed Jan. 26, 1900. Serial No. 2,884. (No model.)



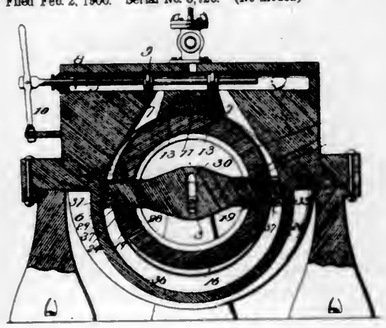
Claim.—1. An incubator, comprising an egg-chamber, a heating-tank arranged above said egg-chamber and connected with a source of heat-supply, a foul-air chamber below the said egg-chamber, and air-inlet and air-discharge chambers located above said tank, the air-inlet chamber being connected with the egg-chamber at one end and having an air-inlet opening at its opposite end, and said outlet-chamber being connected with the foul-air chamber at the end opposite to the one at which the air enters the egg-chamber and having an air-outlet opening at its other end, substantially as shown and described.

2. An incubator, comprising an egg-chamber having a drawer with a perforated bottom, a heating-chamber arranged above said egg-chamber and connected with a source of heat-supply, a foul-air chamber below said drawer, and air-inlet and air-discharge chambers above said tank, the air-inlet chamber having an air-inlet opening at its front end and connected with the egg-chamber at the rear end, and said outlet-chamber being connected with the foul-air chamber at the front end and having an air-outlet at its rear end, so that fresh air circulates through the egg-chamber from the air-inlet chamber to the foul-air chamber, substantially as shown and described.

3. An incubator, comprising an egg-chamber, a heating-tank above said egg-chamber, a foul-air chamber below said egg-chamber, spaced-apart air-inlet chambers having air-inlet openings in their front ends and connected with the egg-chamber at their rear ends, and air-discharge chambers between the inlet-chambers, said discharge-chambers being connected with the foul-air chamber at the front and having air-outlet openings at the rear, as set forth.

4. An incubator, comprising an egg-chamber having a drawer, a heating-tank arranged above said egg-chamber and connected with a source of heat-supply, a foul-air chamber below said drawer, a set of air-inlet chambers above said tank having outlet-openings at one end, and connected by ducts with said egg-chamber at the top thereof near the opposite end, and air-discharge chambers connected with the foul-air chamber at one end and having outlets to the open air at the other end, said air-discharge chambers being located over said tank, substantially as shown and described.

659,530. ROTARY ENGINE. JOSEPH H. JACKSON, Buffalo, Ala. Filed Feb. 2, 1900. Serial No. 3,726. (No model.)



Claim.—1. A rotary engine comprising an open-ended cylinder, a drum eccentrically disposed with reference to the cylinder, heads secured directly to the ends of the drum and rotatable therewith and overlapping the ends of the cylinder and closing the latter, the engine-shaft being made fast to one of said heads, a piston slidably mounted in the drum, and a second shaft out of line with the first-mentioned shaft and passing through the other head and having slidable connection with the piston and serving to direct the same in its reciprocating movements, substantially as set forth.

2. In a rotary engine, an open-ended cylinder, a drum having eccentric relation with reference to the cylinder, heads secured directly to the ends of the drum and rotatable therewith and overlapping and closing the ends of the cylinder, one of said heads being a disk and having the engine-shaft applied thereto and the other head being an annulus, a piston slidably mounted in the said drum and comprising a central portion having a transverse slot, and heads, and a second shaft out of line with the first-mentioned shaft and secured at its outer end and having its inner end passing through the central opening of the annular head and slidably connected with the central portion of the piston by entering the transverse slot thereof, substantially as set forth.

3. In an engine of the type described, the combination with the slidably-mounted piston having a groove in its outer end and the terminal portions of the wall bordering upon the groove cut away, of a packing-strip seated in said groove and having oppositely-disposed terminal extensions to fit into the aforesaid cut-away portions of the walls thereof, substantially as set forth.

4. In an engine of the type described, the combination with the cylinder and an eccentrically-disposed drum provided with a movable piston, of an abutment applied to the inner wall of the cylinder and adapted to press upon the outer wall of the drum and having its corner portions cut away, and packing-rings applied to the ends of the cylinder and having terminal portions entering the cut-away corner portions of the said abutment, substantially as set forth.

5. In an engine of the type described, the combination with the cylinder, and an eccentrically-disposed drum having a movable piston, of an abutment seated in the inner wall of the cylinder and normally bearing against the outer wall of the drum and having its corner portions cut away, packing-strips let into grooves in the walls of the recess in which the abutment is seated, and packing-rings applied to the ends of the cylinder and having their end portions underlapping the terminals of the aforesaid packing-strips and entering the cut-away corner portions of the abutment, substantially as specified.

6. In an engine of the character described, the combination with the cylinder, and an eccentrically-disposed drum provided with a movable piston, of a spring-plate applied to the outer wall of the drum and adapted to coöperate with the abutment of the cylinder to maintain a steam-tight joint, substantially as set forth.

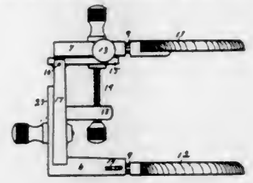
7. The combination with a cylinder, an eccentrically-disposed drum having openings in opposite points and a piston slidably mounted in the drum, of segment-plates applied to the outer wall of the drum and secured to the side walls of the openings in which the piston is slidably mounted, substantially as set forth.

8. The combination with an open-ended cylinder and the eccentrically-disposed drum provided with a movable piston and heads, the latter overlapping the ends of the cylinder and closing the latter, of curved plates overlapping the joints formed between the said heads and ends of the cylinder and secured to the latter, substantially as set forth.

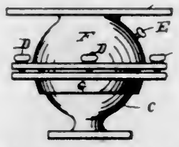
9. A rotary engine comprising a hollow base or stand, an open-ended cylinder secured to the said base and having its upper portion gradually thickened and provided with inlet and exhaust ports, a drum eccentrically disposed with reference to the cylinder and having diametrically-disposed openings, a head at one end of the drum and adapted to close one end of the cylinder and provided with the engine-shaft, a second head adapted to be secured to the opposite end of the drum and closing the other end of the cylinder and having its central portion removed, a piston comprising a central portion formed with a transverse slot, and heads, slidably mounted in the drum and in radial grooves or depressions formed in the said heads, and a second shaft secured to the aforesaid base out of line with the first-mentioned shaft and having slidable connection with the piston, substantially as set forth.

659,531. DENTAL ARTICULATOR. GEORGE R. JOHNSON, Hastings, Mich. Filed May 5, 1900. Serial No. 15,575. (No model.)

Claim.—The combination, of the frame, the plate 15 adapted to swing vertically, a top plate 7 provided with a slot 20 and pivoted on plate 15 by a set-screw passed loosely through said slot and screwed into said plate 15, said plate 7 being adjustable back and forward and in both side directions on its set-screw pivot by loosening the same, said plate 7 being provided with two holes to detachably receive the projections of the detachable jaws, the base of the frame being provided with like holes, the holes in the top plate being for the upper jaws and those in the base for the lower jaws, and an upper and lower jaw for holding dental trial plates provided with two projections for detachably entering the upper and lower set of holes, substantially as set forth.

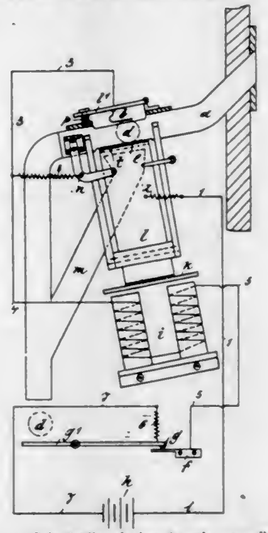


659,532. ADJUSTABLE TABLE. HENRY S. JORDAN, Grand Rapids, Mich. Filed Feb. 23, 1900. Serial No. 6,217. (No model.)



Claim.—In an adjustable table, a standard, a ball formed integral therewith, a ring surrounding said ball below the horizontal center thereof, an outwardly-extending annular flange formed integral with said ring, a table, a hollow segment secured thereto and mounted upon the top of said ball, an outwardly-extending annular flange formed integral with the lower part of said segment and parallel with the flange upon the ring, a series of bolts extending through said flanges for causing the frictional engagement of the segment and ball for retaining the table in the desired position, and separate means for securing the table in a horizontal position, substantially as described.

659,533. ELECTRICALLY-CONTROLLED COIN-FEEDING APPLIANCE FOR VENDING-MACHINES. RICHARD KANN, Jena, Germany. Filed Mar. 8, 1900. Serial No. 7,838. (No model.)



Claim.—1. Coin-feeding devices for coin-controlled vending-machines, comprising a coin-receiving guide, a cut-off normally blocking the coin-exit in said guide, means for moving said cut-off back to a normal position when moved out of it to clear said coin-exit, and an electrically-operated appliance for moving the cut-off to clear such exit; in combination with an electric circuit including the cut-off-operating appliance, circuit-terminals in the path of the coin in the guide arranged to be electrically connected by said coin to close the electric circuit and thereby cause the cut-off-operating appliance to move said cut-off clear of said

coin-exit, and a circuit-breaker in the path of and controlled by the released coin, substantially as and for the purpose set forth.

2. Coin-feeding devices for coin-controlled vending-machines, comprising a coin-guide, a cut-off normally blocking the coin-exit in said guide, means for moving said cut-off back to a normal position when moved clear of the exit, an electrically-controlled appliance for moving such cut-off clear of such exit, an electric circuit including said appliance, and circuit-terminals in the path of the coin in the guide arranged to be electrically connected by such coin to close said circuit and thereby cause the cut-off-operating appliance to move the cut-off clear of the coin-exit, and a circuit-breaker in the path of and operated by the released coin; in combination with an auxiliary circuit-closer operating to close the circuit the moment the cut-off has cleared the aforesaid coin-exit, for the purpose set forth.

3. Coin-feeding devices for coin-controlled vending-machines, comprising a plurality of coin-guides, cut-off devices normally blocking the coin-exits in said guides, means for moving said devices back to a normal position when moved clear of said exits, electrically-controlled appliances for moving said cut-off devices clear of said coin-exits, an electric circuit including said appliances, circuit-terminals in each coin-guide arranged to be electrically connected by the coins in said guides, said terminals included in series in the electric circuit, and a circuit-breaker arranged to be operated by the released coin; in combination with switch devices for switching any one or more of the pairs of coin-controlled circuit-terminals out of the circuit, for the purpose set forth.

4. Coin-feeding devices for coin-controlled vending-machines, comprising a plurality of coin-guides, cut-off devices normally blocking the coin-exits in said guides, means for moving said devices back to a normal position when moved clear of said exits, electrically-controlled appliances for moving said cut-off devices clear of said coin-exits, an electric circuit including said appliances, circuit-terminals in each coin-guide arranged to be electrically connected by the coins in said guides, said terminals included in series in the electric circuit, and a circuit-breaker arranged to be operated by the released coins; in combination with switch devices for switching any one or more of the pairs of coin-controlled circuit-terminals out of the circuit, and a circuit-closer operating to close the electric circuit the moment the cut-off devices have cleared the coin-exits in the coin-guides, for the purpose set forth.

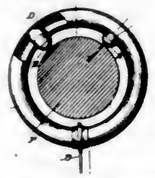
5. Coin-feeding devices for coin-controlled vending-machines, comprising a plurality of coin-guides, a coin-delivery chute below the coin-exits of and common to all said guides, a cut-off slide common to and normally blocking the coin-exits of said guides between the delivery-chute and coin-exits, an electromagnet and its armature, the latter connected with and moving the slide clear of said coin-exits, and a retracting-spring for moving the slide back to a normal position; in combination with an electric circuit including the aforesaid electromagnet, a pair of circuit-terminals in each coin-guide in the path of and arranged to be electrically connected by the coins in said guides to close the electric circuit, said terminals included in series in said circuit, a circuit-breaker at the outlet of the coin-delivery chute, and switch devices for switching any one or more of the coin-controlled circuit-terminals out of circuit, for the purpose set forth.

6. Coin-feeding devices for coin-controlled vending-machines, comprising a plurality of coin-guides, a coin-delivery chute below the coin-exits of and common to all said guides, a cut-off slide common to and normally blocking the coin-exits of said guides between the delivery-chute and coin-exits, an electromagnet and its armature, the latter connected with and moving the slide clear of said coin-exits, and a retracting-spring for moving the slide back to a normal position; in combination with an electric circuit including the aforesaid electromagnet, a pair of circuit-terminals in each coin-guide in the path of and arranged to be electrically connected by the coins in said guides to close the electric circuit, said terminals included in series in said circuit, a circuit-closer controlled by the movements of the electromagnet-armature to close the electric circuit the moment the cut-off slide has moved clear of the aforesaid coin-exits, a circuit-breaker at the outlet of the coin-delivery chute, and switch devices for switching any one or more of the coin-controlled terminals out of the circuit, for the purposes set forth.

659,534. CURTAIN-POLE RING. JOHN KRODER, New York, N. Y., assignor to the John Kroder and Henry Reubel Company, same place. Filed June 27, 1900. Serial No. 21,782. (No model.)

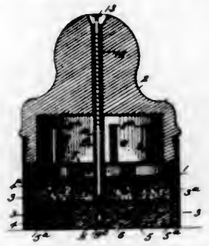
Claim.—1. A curtain-pole ring, comprising a ring proper having recesses at the inside, sockets driven into said recesses and held therein by frictional contact with the walls of the recesses, and a ball held against displacement in each socket and mounted to turn freely therein and project beyond the inner side of the ring, as set forth.

2. A curtain-pole ring, comprising a ring proper having recesses at the inner side and located at opposite sides of the upper end of the ring, a socket driven into each recess and retained therein by frictional contact of the recess-walls with the outer surface of the socket, and a ball held in each socket, the bearing-surface of the socket extending over more than one-half of the surface of the ball, to hold the latter in place in the socket, and allow the ball to turn freely in the socket, the outer projecting portion of the ball extending beyond the inner side of the ring, as set forth.



3. A curtain-pole ring, comprising a metallic ring proper having an open seam at the inside, recesses formed on the inside of the ring, each recess extending at opposite sides of the seam, a socket for each recess and adapted to be set therein, the separated walls of the recess engaging the outer surface of the socket, to hold the latter against movement by frictional contact of said walls with the outer surface of the socket, and a ball held in each socket, the upper surface of the socket extending over more than one-half of the surface of the ball, to hold the latter in place in the socket and to allow the ball to turn freely in the socket, the outer projecting portion of the ball extending beyond the inner side of the ring, substantially as shown and described.

659,535. HAND STAMPING DEVICE. GEORGE W. LANKFORD, Topeka, Kans. Filed May 3, 1900. Serial No. 15,355. (No model.)



Claim.—1. A device for the purposes described, comprising a suitable body having a detachable cap at one end, the other end of the body being open, said body having a perforated diaphragm, a series of cells or founts for holding ink or paint mounted upon the diaphragm, a similar series of dividing partitions projected down from the diaphragm whereby to produce as many separate spaces under the diaphragm as are ink or paint holding cells above, a pad of absorbent material extended up into the said separate spaces its lower face forming an impression-surface, and its upper face a paint or ink receiving surface, substantially as shown and described.

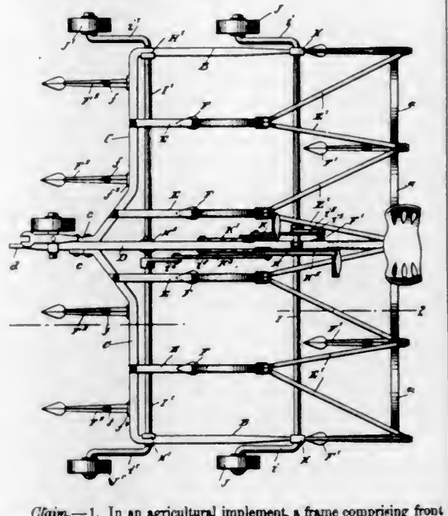
2. A device for the purposes described, comprising a body portion, an impression-pad of absorbent material held on the outer end of the body portion, and means carried upon the said body portion for feeding different colors of ink or paint to the impression-pad, and division members projected into the pad from the inner side thereof and extending to a point near the outer face of said pad, whereby to keep the colors from intermixing within the pad except at the outer or impression surfaces thereof, for the purposes hereinbefore described.

3. A device for the purposes described, comprising a body portion, an impression-pad of absorbent material held in the outer end thereof and means carried on the said pad for feeding the different colors of paint or ink to the pad and keeping the said colors from intermixing in the said pad, and a supplemental pad portion normally held out of an operative position, a spring-actuated hollow plunger connected therewith, said plunger being adapted to hold a coloring liquid, and a surrounding tube for separating the supplemental pad and its feed-pad from the other parts of the complete device, as specified.

4. In a device as described, the combination with the body portion having an apertured diaphragm, the impression-pad 6, held on the body portion under the diaphragm, a series of separate ink or paint holding cells discharging through the apertured diaphragm, a series of dividers 5 5^a, having a shape to suit the design to be painted, said dividers consisting of partitions projected down from the diaphragm into the pad with their lower edges terminating short of the impression-face of the pad, whereby blending-surfaces 6^a, for the intermixing of the different colors is produced on the pad, for the purposes specified.

5. As a new article, a stamping device for imprinting designs in different colors, consisting of a body portion 1, having a suitably-formed hand portion at the top and having an open bottom, said bottom having a shape to suit the design to be printed, said body portion also having an apertured diaphragm dividing the same into upper and lower spaces, a series of separate ink or paint holding cells in the upper spaces discharging through the diaphragm, said cells each having a filling-tube, a series of divider-partitions, one set of partitions for each paint or ink cell projected down from the diaphragm, and a pad of absorbent material projected up into the different divider-spaces with its upper face held to receive the different colors projected from the different cells above the diaphragm, all being arranged substantially as shown and described.

659,536. HARROW. HANS H. LARSEN, Campbell, Minn. Filed May 17, 1900. Serial No. 17,053. (No model.)



Claim.—1. In an agricultural implement, a frame comprising front and rear cross-bars and longitudinal connections including bars extending rearwardly from the front bar, braces connecting said longitudinal bars with the rear cross-bar, and teeth secured at the junction of the longitudinal bars and braces.

2. In an agricultural implement, a frame comprising front and rear cross-bars and longitudinal connections, including a main central longitudinal bar extending from front to rear, short longitudinal bars terminating short of the rear cross-bar, and braces diverging from the short bars and connecting with the rear cross-bar, the main and short longitudinal bars being arched at the rear ends, teeth secured to the short bars at the junction of said bars and their braces, and teeth secured to the rear cross-bar, one tooth serving to connect the main longitudinal bar with the rear cross-bar.

3. In an agricultural implement, a frame carrying teeth, the frame including short longitudinal members extending rearwardly from the front, and braces extending from the short bars rearwardly and secured at their rear ends, and teeth having their upper ends uniting the adjacent ends of the said bars and their braces.

4. In an agricultural implement, a frame and teeth thereon, the frame including a cross-bar made up of a succession of arches and the teeth being secured between adjacent arches.

5. In an agricultural implement, a frame and teeth thereon, the frame including a cross-bar made up of a succession of arches and the teeth being secured between adjacent arches, the upper ends of the teeth passing horizontally through the cross-bar.

6. In an agricultural implement, a frame and teeth carried thereby, the frame comprising front and rear cross-bars and longitudinal connections including short bars extending rearwardly from the front bar and braces connecting the short bars with the rear cross-bar, said short bars being arched at their rear ends and the rear cross-bar having a series of arches, the teeth having each a clearing-finger near the upper end, and being secured respectively beneath the arches of the short bars and between the arches of the rear bar, said arches forming clearances for the weeds, &c., thrown off from the teeth.

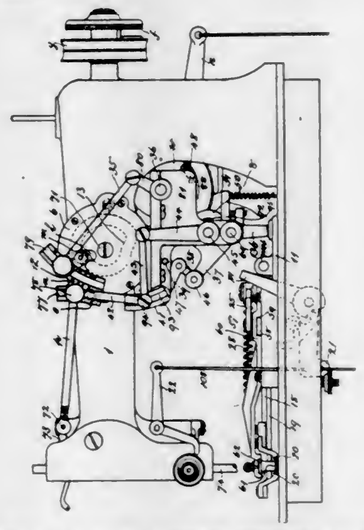
7. In an agricultural implement, a frame including longitudinally-ranging bars and teeth at the under side of said bars, the teeth having each a clearing-finger near the upper end, and the said longitudinal bars being arched at a point above the teeth.

8. In an agricultural implement, a frame comprising a rear cross-bar, a longitudinal bar about centrally of the frame and extending from the rear cross-bar to the front, side bars extending forwardly from the rear cross-bar, and returned around the front to form a two-part front cross-bar, the adjacent ends being secured to the central longitudinal bar, and additional frame members uniting the front and rear cross-bars, said additional members being formed at one end of a longitudinally-ranging bar and composed at the opposite end of diagonally-ranging braces.

9. An agricultural implement comprising a frame and teeth, the teeth each having a clearing-finger near the upper end, said finger ranging upwardly and forwardly in curved form, the end of the finger being free from the frame and spaced therefrom.

10. An agricultural implement, comprising a frame provided with teeth and rear and front rock-shafts carrying wheels, the said frame being composed of a front cross-bar which is straight for its major portion, a rear cross-bar made up of a succession of arches and longitudinal members, teeth being carried by the said cross-bars and longitudinal members, and the frame having wide, open spaces in the rear and in line with the front teeth, the forward shaft being mounted at the under side of the frame and the rear rock-shaft on the upper side of the frame, whereby to avoid offering obstruction to weeds and the like.

659,537. MACHINE FOR SEWING ON BUTTONS. FRANCIS T. LEILICH, San Francisco, Cal., assignor to the Climax Manufacturing Company, same place. Filed Oct. 20, 1899. Serial No. 734,237. (No model.)



Claim.—1. In a sewing-machine the combination of a driving-shaft, a needle-bar reciprocated thereby, means for changing the lateral position of the material relative to the needle-bar comprising a cam-wheel driven from said shaft and having a cam-surface, a block with a sharp corner near the descending incline, a roller-arm having a pointed projecting end, the roller rolling on the surface and the end of the arm engaging the block to maintain the roller wholly to one dwell until it has passed the incline a sufficient distance to move to the other dwell; and means for shifting said roller to the other dwell when permitted to move thereto, substantially as described.

2. In a sewing-machine, the combination of the main driving-shaft, the needle-bar reciprocated thereby, means for changing the lateral position of the material relative to the needle-bar comprising a cam-wheel driven from said shaft and having a cam-surface, an arm carrying a roller on said surface, coengaging devices carried respectively by said wheel and arm which hold the roller wholly to one dwell until it has passed the incline a sufficient distance to move to the other dwell, and means for causing it to move in the length of time elapsing between an ascent of the needle out of the material and the next descent thereof, substantially as described.

3. In a button-sewing machine, the combination of a button-clamp,

a main driving-shaft, a needle-bar reciprocated thereby, means for changing the lateral position of the button-clamp relative to the needle-bar comprising a cam-wheel driven from said shaft and having a cam-surface, an arm carrying a roller on said surface, coengaging devices carried respectively by said wheel and arm which hold the roller wholly to one dwell until it has passed the incline a sufficient distance to move to the other dwell, and means for causing it to so move in the length of time elapsing between an ascent of the needle out of the button-eye and the next descent thereof thereinto, substantially as described.

4. A button-sewing machine having a button-clamp, adjustable mechanism for shifting said clamp, adjustable mechanism for shifting the needle-bar carrier, and a link connecting said mechanisms whereby the transverse and longitudinal movements of the needle-bar carrier and button-clamp, respectively, are always the same, substantially as described.

5. A button-sewing machine having adjustable mechanism for shifting the needle and adjustable mechanism for shifting the button, an operative connection between the adjusting devices whereby both are simultaneously adjusted, and means for clamping the adjusting device of one of said mechanisms, substantially as described.

6. In a button-sewing machine, the combination of a rock-shaft, driven from the main driving-shaft, a rocking arm thereon, a needle-bar carrier, a link connecting said carrier with said arm and movable along said arm, a button-clamp, a train of mechanism operatively connecting said rock-shaft and button-clamp and comprising a link and a rocking arm upon which the end of the link is movable, said rocking arm extending substantially parallel with the first arm, and a link connecting the ends of the aforesaid links in their respective arms, whereby the adjustment of one simultaneously adjusts equally the other, substantially as described.

7. In a button-sewing machine, the combination of a needle-bar carrier, a rock-shaft operatively connected therewith to shift the same horizontally after a predetermined number of stitches, and driven from the main driving-shaft, a button-clamp mechanism, a cam-wheel driven in a uniform direction from said shaft step by step synchronously with the rocking thereof, an arm connected with said button-clamp mechanism to shift the same, said shifting movement being controlled by said cam, and means whereby the extent of shift of the needle-bar carrier and that of the button-clamp mechanism are simultaneously varied, substantially as described.

8. In a sewing-machine, the combination of a clamping mechanism for the article to be operated upon, a cam-wheel, a roller in the cam-groove thereof, an arm carrying said roller and operated thereby to shift the clamp mechanism, a stopping device brought into operation by the cam-wheel in its revolution, and means actuated, before the further reciprocation of the needle on restarting the machine, to advance said cam-wheel a sufficient distance to restore the roller to the original dwell, substantially as described.

9. In a button-sewing machine, the combination of a needle-bar carrier, a rock-shaft operatively connected therewith to shift the same horizontally after a predetermined number of stitches, and driven from the main driving-shaft, a button-clamp mechanism, a cam-wheel driven in a uniform direction from said shaft step by step synchronously with the rocking thereof, an arm connected with said button-clamp mechanism to shift the same, said shifting movement being controlled by said cam, and means for independently advancing said cam-wheel to return said arm to its original position, substantially as described.

10. In a sewing-machine, the combination with a stitch-forming mechanism including a vertically-reciprocating and laterally-vibrating needle, of a button-clamp confined to reciprocate in a single rectilinear path at a right angle to the vibratory path of the needle, means for actuating said clamp, and the mechanism for imparting the vibratory movement to the needle including a means for holding the needle at each end of its vibratory path during two complete reciprocations thereof, substantially as described.

11. In a button-sewing machine, the combination of a button-clamp, a main driving-shaft for reciprocating the needle, a cam driven thereby making a complete revolution in four complete revolutions of the driving-shaft, and a needle-bar carrier vibrated by said cam, said cam having two inclines and two concentric dwells, each dwell being sufficiently long to hold the needle-bar carrier stationary during two successive complete in-and-out movements of the needle through an eye of a button held in said clamp, substantially as described.

12. In a button-sewing machine, the combination of a button-clamp, a main driving-shaft for reciprocating the needle, a cam driven thereby making a complete revolution in a plurality of complete revolutions of the driving-shaft, and a needle-bar carrier vibrated by said cam, said cam having a plurality of inclines and a plurality of concentric dwells, each dwell being sufficiently long to hold the needle-bar carrier stationary during two successive complete in-and-out movements of the needle through the eye of the button held in said clamp, substantially as described.

13. In a button-sewing machine, the combination of a button-clamp, a main driving-shaft for reciprocating the needle, and mechanism for imparting one complete vibration to the needle-bar carrier during four complete revolutions of the driving-shaft, said mechanism comprising means for holding the needle-bar carrier stationary during two successive complete in-and-out movements of the needle through an eye of a button held in said clamp, at each terminal position of vibration, substantially as described.

14. In a button-sewing machine, the combination of a needle-bar carrier, a rotary shaft for imparting vertical reciprocations to the needle-bar, a rock-shaft driven from said rotary shaft and making one complete vibration to every four revolutions of said shaft, said rock-shaft being operatively connected with said carrier to vibrate the latter, a cam-wheel driven step by step from the rocking of said rock-shaft, and a clamp mechanism shifted transversely of the vibration of the carrier by said cam-wheel, substantially as described.

15. In a button-sewing machine, the combination of a rock-shaft having transverse longitudinal bearings in the arm of the machine and driven from the main driving-shaft, an arm on said rock-shaft, a link connected with said arm and operatively connected with the needle-bar carrier to impart thereto a two-and-fro movement, a vertical cam-wheel mounted at the rear side of the machine on a horizontal transverse shaft, a pawl-carrying arm mounted on a horizontal transverse shaft in line with that in which the cam is mounted, and engaging the teeth in the cam-wheel to advance the same, a connection between said latter shaft and the rock-shaft, whereby they rock synchronously, a vertical lever rocked by said cam-wheel, and a button-clamp reciprocated by the vibration of said lever, substantially as described.

16. In a button-sewing machine, the combination of a clamp mechanism, a rock-shaft 45 extending from front to rear of the machine in a horizontal bearing, an arm, on the rear end of said rock-shaft and operatively connected with said clamp mechanism to reciprocate the same, an arm on the front end of said shaft, a second rock-shaft 40 extending from front to rear of the machine in a horizontal bearing, an arm on the front end of said second shaft, a link adjustably connecting said arms on the front ends of said shafts, an arm on the rear end of said second shaft, a vertical cam-wheel on the rear side of the machine operatively connected with the main driving-shaft, and a lever operated by said cam-wheel at a predetermined point in its revolution and operatively connected with said last-named arm to vibrate the same, substantially as described.

17. In a button-sewing machine, the combination of horizontal rock-shafts o 36 extending from front to rear of the machine the shaft o being driven from the main driving-shaft, arms on the front ends of said shafts, a link adjustably connecting said arms, whereby the shaft 36 is driven by the shaft o, a feed mechanism operated from the rear end of the shaft 36, a third horizontal rock-shaft 40 extending from front to rear of the machine, an arm on the rear end of the shaft 40 operated at a predetermined point by said feed mechanism, an arm on the front end of the shaft 40, a fourth horizontal rock-shaft, an arm on the front end thereof, a link adjustably connecting the last-named two arms, a clamp mechanism, and an operative connection from said last-named shaft to said clamp mechanism to reciprocate the latter, substantially as described.

659,538. TOILET HAIR-RECEIVER. FRANK LEMON, New York, N. Y. Filed May 25, 1900. Serial No. 17,962. (No model.)



Claim.—1. A toilet hair-receiver the neck of which is provided with fingers projecting into the opening, substantially as shown and for the purpose set forth.

2. A toilet hair-receiver the neck of which is provided with yielding fingers projecting into the opening, substantially as shown and for the purpose set forth.

3. A toilet hair-receiver the neck of which is provided with yielding fingers projecting into the opening, said fingers being inclined downward, substantially as shown and for the purpose set forth.

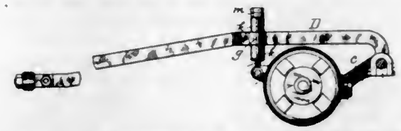
4. As a new article of manufacture a neck for a toilet article having yielding fingers projecting from the inner side thereof into the opening, substantially as shown and for the purpose set forth.

5. As a new article of manufacture, a neck for a toilet article having yielding fingers projecting from the inner side thereof into the opening of said neck, said fingers being inclined downward, substantially as shown and for the purpose set forth.

6. As a new article of manufacture, a neck for a toilet article having yielding fingers projecting from the inner side thereof into the opening and inclined downward, said neck having means for attaching the same to a receptacle, substantially as shown and for the purpose set forth.

7. As a new article of manufacture, a rubber neck having integral rubber fingers projecting from the inner side thereof into the opening and beads extending around the outer side of said neck, substantially as shown and for the purpose set forth.

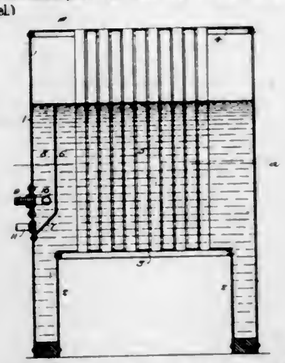
659,589. SUPPORTING DEVICE FOR ELECTRIC MOTORS. CHARLES A. LINDSTROM, Chicago, Ill., assignor, by direct and mesne assignments, to the Hewitt-Lindstrom Motor Company, same place. Filed Oct. 16, 1899. Serial No. 733,699. (No model.)



Claim.—1. The combination in an automobile with the axle of the drive-gear, and a motor-frame, of a bracket rigidly connected at one end to said motor-frame and having its opposite end bifurcated and each provided with suitable clips for pivotally connecting the same to said axle, filler-blocks and bolts for said clips, and a reach having one end provided with a knuckle which is pivotally connected to said axle between said clips, and to which the opposite side of said motor-frame is yieldingly secured.

2. In an automobile the combination with the motor-frame, of a supporting-bracket consisting of an attaching-plate rigidly secured to said motor-frame an upwardly-inclined arm projecting from said attaching-plate the upper edge of which is flanged laterally and the upper end of which is bifurcated and each of said bifurcations provided with inverted-U-shaped clips and filler-blocks and bolts for said clips, as and for the purpose set forth.

659,540. SEDIMENT-COLLECTOR FOR BOILERS. THOMAS G. LOVEGROVE, Philadelphia, Pa. Filed Dec. 11, 1899. Serial No. 739,946. (No model.)



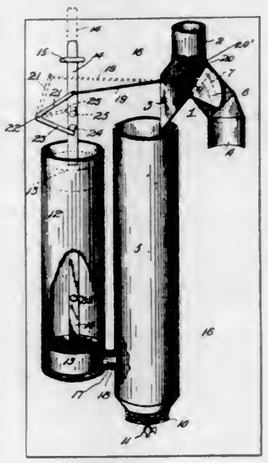
Claim.—1. The combination of the shell of a boiler, with a chord-plate disposed substantially at right angles to the water-line of the boiler and connected directly to the shell and forming with said shell a feed-water-heating chamber within the boiler, substantially as specified.

2. The combination of the shell of the boiler, with a chord-plate disposed substantially at right angles to the water-line of the boiler and connected directly to the shell and forming with said shell a feed-water-heating chamber within the boiler, and feed-supply and blow-off pipes communicating with said chamber, substantially as specified.

3. The combination of the shell of the boiler, a chord-plate forming with said shell a feed-water-heating chamber within the boiler, said chamber being open at the top, and a feed-water pipe communicating with said chamber and having within the same a perforated distributer, substantially as specified.

4. The combination of the shell of the boiler, with a chord-plate forming with said shell a feed-water-heating chamber within the boiler, said chord-plate being disposed substantially at right angles to the water-line of the boiler and connected directly to the shell and having an inclined bottom tapering toward the shell, a feed-water-heating pipe communicating with said chamber, and a blow-off pipe at the base of the tapering lower portion of the chamber, substantially as specified.

659,541. AUTOMATIC CUT-OFF FOR CISTERNS. JACKSON T. MARTIN and CLARENCE G. MARTIN, Springfield, Mo. Filed June 23, 1900. Serial No. 21,292. (No model.)



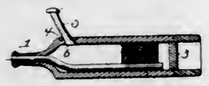
Claim.—1. In a cut-off for cisterns and the like, the combination with a valve-casing having outlets to discharge into a cistern and waste-tank, of a valve mounted in said casing and controlling said outlets and provided with a strainer to prevent the passage of refuse when mounted in position to cause the water to pass into the cistern, and a scraper for automatically removing the debris from said strainer as the valve is swung to the reverse position, substantially as set forth.

2. In a cut-off for cisterns and the like, the combination with the casing having outlets to discharge the water into a cistern and a waste-tank, of a valve pivotally mounted in said casing to swing laterally and control said outlets and having a closed side facing the waste-tank outlet and an open side facing the cistern-outlet, and a strainer-top in communication with said open side and through which the water is adapted to pass in flowing into the cistern-outlet, said closed side serving as the valve proper to control said outlets, substantially as described.

3. In a cut-off for cisterns and the like, the combination with the valve-casing having outlets to discharge into a waste-tank and a cistern, of a valve in said casing comprising substantially V-shaped end pieces, a side piece and a perforated top, forming a cut-off having a closed side facing the waste-tank outlet and an open side facing the cistern-outlet, said open side being in communication with the perforated top, and means for operating the valve, substantially as described.

4. In a cut-off for cisterns and the like, the combination with the valve-casing having outlets to discharge into a waste-tank and a cistern, of a waste-tank provided with means for regulating the discharge of the water therefrom, a float-tank in communication with the waste-tank, a float in the float-tank and adapted to rise and fall with the water therein, a plunger connected to the float and carrying spaced tappet devices, a bell-crank lever adapted to be actuated by said tappet devices, a swinging valve in the valve-casing, and a laterally-shiftable rod connecting between said bell-crank lever and the valve, substantially as described.

659,542. INHALER. HARRY A. McINTOSH, Liberty, Ind. Filed Feb. 14, 1900. Serial No. 5,206. (No model.)



Claim.—1. An inhaler comprising a casing having a mouthpiece at one end, absorbent material in said casing, means for introducing air to one side of said absorbent material and a tube sliding freely in the wall of the casing and normally inclosed therein.

2. An inhaler comprising a tubular casing having a mouthpiece at one end and a removable plug at its other end, a tube communicating with the mouthpiece and terminating near the plugged end of said casing, a nasal tube communicating with said casing and a medicated absorbent disposed in said casing between the first-mentioned tube and nasal tube.

3. An inhaler comprising a casing contracted at one end to form a mouthpiece and closed at its other end and having a hole in its wall, a nasal tube loosely mounted in said hole and an enlargement at each end of said tube to prevent its displacement.

4. An inhaler comprising a casing having an opening therein, a tube loosely mounted in said opening and made flaring at its inner end to snugly fit in the opening when the tube is pulled outward, an enlargement on the outer end of said tube to prevent its entrance into the casing when pushed inward, said casing recessed to form a seat for said enlargement.

659,543. SEWING-MACHINE PRESSER-FOOT. WILLIAM N. PARKES, New York, N. Y. Original application filed June 22, 1898, Serial No. 684,179. Divided and this application filed Oct. 10, 1899. Renewed Aug. 31, 1900. Serial No. 28,708. (No model.)



Claim.—1. In a sewing-machine presser-foot, the combination of a plurality of supplemental presser-plates loosely attached to the face of the presser-foot, ways formed in the presser-foot for guiding said plates, and a plurality of springs disposed intermediate the presser-foot and the plates, said springs adapted to impinge against the presser-foot and the plates.

2. In a sewing-machine presser-foot, the combination of a plurality of ways formed in the face of the presser-foot, a plurality of supplemental presser-plates adapted to move vertically independent of the movement of the presser-foot, means adapting the said ways to guide the said plates vertically, a spring intermediate each of the supplemental plates and the presser-foot, and means for retaining the said springs in the said ways.

3. In a sewing-machine presser-foot, the combination of a plurality of supplemental presser-plates for the presser-foot, said plates having bent portions c^4 and c^5 at their ends, means in connection with the said ends for loosely attaching the said plates to the presser-foot, and means for yieldingly holding the plates in a horizontal position.

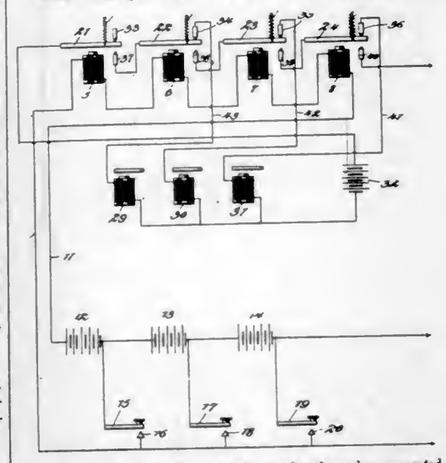
4. In a sewing-machine presser-foot, the combination of a plurality of supplemental presser-plates for the presser-foot, said plates being provided at their ends with vertically-upturned portions c^4 and convexo-convex horizontal portions c^5, ways in the face of the presser-foot, bearings across the ways for coöperating with the portions c^5 of the plates, and yielding means for normally pressing the portions c^5 against the said bearings.

5. In a sewing-machine, the combination of a presser-foot, one or more supplemental presser-plates loosely attached to the said presser-foot, said plates and presser-foot constructed to form a receptacle between the plates and the foot, a concavo-convex spring located in said receptacle, the ends of said spring being adapted to engage the supplemental presser-plates and the convex portion of the said spring adapted to engage with the presser-foot.

6. In a sewing-machine, the combination with a presser-foot, of ways formed in the face of the presser-foot, supplemental presser-plates having upturned ends extending into the said ways, a spring in each way intermediate the plates and the upper wall of the way, each of the supplemental presser-plates being adapted to move vertically or rock against the action of the said spring, and means for retaining the upturned ends of the plates in the ways.

7. In a sewing-machine, the combination with a presser-foot, of a plurality of ways formed in the face of the presser-foot and longitudinally of the same, a plurality of supplemental presser-plates having upturned ends extending into the said ways, and bearings across the said ways adapted to retain the ends of the presser-plates in the ways, the portion of the plates which comes into contact with the bearings being adapted to rock laterally thereon.

659,544. TELEGRAPH SYSTEM. FRANK D. PEARNE, Davenport, Iowa. Filed Apr. 16, 1900. Serial No. 13,156. (No model.)



Claim.—1. The combination with a series of sounders connected in multiple, of a series of relays for closing the circuits of their respective sounders and operable by currents of successively-greater intensities, a transmitting-circuit including the relays in series and means for supplying currents of different intensities thereto, and connections whereby when each relay is operated, the corresponding sounder of the preceding relay will be cut out of its operating-circuit.

2. The combination with a transmitting-circuit and means for developing therein currents of different intensities, of a plurality of relays in said circuit in series, each relay having a contact-point against which its armature rests when the relay is deënergized and a second contact-point against which the armature rests when the relay is energized, a local circuit including a battery, a series of sounders having their terminals connected in multiple with one terminal of the battery and having their opposite terminals connected with the contact-points of the relays against which the armatures normally lie, the first armature of the series of relays having connection with the second terminal of the local battery and the succeeding armatures having connection with the second contact-points of their preceding relays, the relays being responsive to currents of succeeding greater intensities.

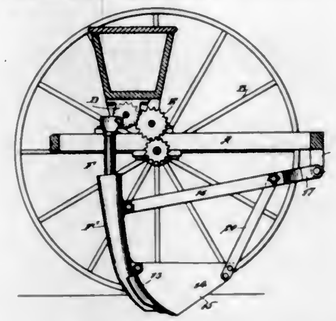
3. The combination with a transmitting-circuit and means for developing therein currents of different values, of relays connected in series in said circuit and responsive to circuits of successively-greater values, said relays including each an armature and two contacts for engagement by the armature alternately when the relay is active and passive, a local circuit including all the armatures when in their active positions and excluding them when in their passive positions, sounders included in the local circuit and having means for connection with theis corresponding armatures when the latter are in their passive positions, and connections between each armature and the preceding relay to include such armature in circuit with the armature of the preceding relay when the latter armature is in its active position.

659,545. GRAIN-DRILL. FRANK A. PLACEK, Milligan, Nebr. Filed Feb. 20, 1900. Serial No. 5,912. (No model.)

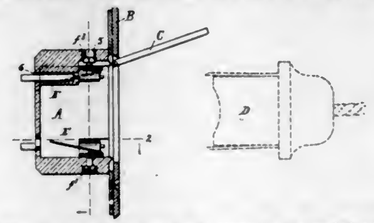
Claim.—1. In a planter, a grain-tube, a shovel secured to the bottom of the said tube, and a runner secured to the center of the said shovel, extending forwardly therefrom and having its lower edge inclined upwardly and sharpened.

2. In a planter, a grain-tube, a shovel secured to the forward lower portion of the grain-tube, the point of the shovel extending beyond the lower end of the tube, and a diamond-shaped runner secured to the central portion of the said shovel, extending from its point to its upper edge, the forward lower edge of which runner is sharpened and upwardly and forwardly inclined.

3. In a planter, a grain-tube provided with a longitudinal partition extending from the front to the rear of the tube, whereby two distinct delivery-openings are obtained for delivering the seed on the ground in parallel rows, a shovel secured to the forward face of the lower portion of the grain-tube, the point of the shovel extending beyond the lower edge of the grain-tube, a runner secured longitudinally to the central portion of the shovel, extending upward from its point, the said runner being provided with a lower upwardly and forwardly inclined working surface connecting with the point of the shovel, and means, substantially as described, for supporting the forward end of the shovel and connecting the grain-tube with the frame of a planter, as set forth.



659,546. RECEPTACLE FOR PLUGS OR PLUG-SWITCHES. CLARENCE D. PLATT, Bridgeport, Conn., assignor to the Bryant Electric Company, same place. Filed June 27, 1900. Serial No. 21,834. (No model.)

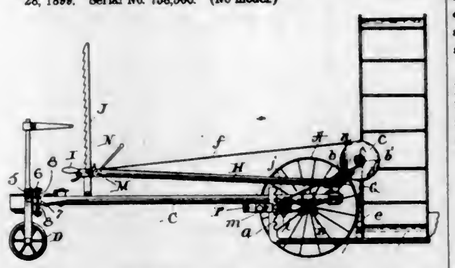


Claim.—1. An electrical receptacle comprising an insulating-box having contact-plates and securing-screws for the wires carried by said plates, the box having openings for the leading-in wires coming from the back of the box and openings in the end of the box for the passage of the said securing-screws, substantially as described.

2. An electrical receptacle, comprising an insulating-box having spring-contacts with metal cross-pieces and engaging screws for the latter to clamp said contacts to the end walls of the receptacles and means for connecting the leading-in wires to the said cross-pieces, substantially as described.

3. An electrical receptacle, comprising an insulating-box, having spring-contacts, with metal cross-pieces provided with end eyes or sockets for the wires, securing-screws for the wires and screws to secure the cross-pieces and clamp the contacts to the walls of the receptacle, substantially as described.

659,547. HEADER. ELZA M. PRING, Allerton, Iowa. Filed Nov. 28, 1899. Serial No. 738,560. (No model.)



Claim.—1. A header comprising a movable platform, a lever, a stationary platform, a rock-shaft mounted thereon and having outwardly-projecting arms, a rotatable shaft mounted in said arms and having a connection with the movable platform, a second rotatable shaft carried by the stationary platform and having a connection with the movable platform, a connection between the two rotatable shafts, and means carried by the lever for rotating the shaft carried by the said arms, substantially as described.

2. A header comprising a frame, a rock-shaft carried by said frame and having outwardly-projecting arms, a lever operatively connected to said rock-shaft, a rotary shaft carried by the arms carried by the said rock-shaft, a vertically-movable platform, a connection between the rotary shaft and the platform, a winding device, carried by the outer end of the lever, and a flexible actuating connection between the rotary shaft and the winding device carried by the outer end of the lever, substantially as described.

3. A header comprising a frame, a rock-shaft carried by said frame and having outwardly-projecting arms, a lever connected to the rock-shaft, a rotary shaft carried by the said arms, a vertically-movable platform having rearwardly-extending L-shaped rack-bars, a rotary shaft carried by the frame, a pinion at each end of said shaft and meshing with the L-shaped rack-bars, flexible connections between the rotary shaft carried by the arms and the platform, and flexible connections between the said shaft and the rotary shaft carried by the frame, and means for rotating said shaft, whereby the front and back of the platform is simultaneously raised, substantially as described.

4. A header comprising a frame, a rock-shaft carried by said frame and having outwardly-projecting arms, a lever connected to the rock-shaft, a rotary shaft connected to said arms, a platform having rearwardly-extending L-shaped rack-bars, a rotary shaft carried by the frame, pinions carried thereby, and meshing with the L-shaped rack-bars, flexible connections between the rotary shaft carried by the said arms and the platform, flexible connections between the said shaft and the rotary shaft carrying the pinions, a winding-drum mounted on the rotary shaft carried by the said arms, a winding means carried by the lever, and a flexible connection between the drum and the winding means, substantially as described.

5. A header comprising a supporting-frame, a vertically-movable platform, a horizontally-arranged rock-shaft having arms, a lever connected with the rock-shaft, a rotatable shaft supported by the arms carried by the rock-shaft, connections between the said rotatable shaft and the platform, a rotatable actuating member carried by the lever, and an operating connection between the actuating member and said rotatable shaft, substantially as described.

6. A header comprising a supporting-frame, a vertically-movable platform, a transversely-arranged rock-shaft, a lever connected with and adapted to actuate the said shaft, a rotatable shaft supported by arms carried by the rock-shaft, connections between the rotatable shaft and the platform, a wheel carried by the rotatable shaft, an actuating-shaft carried by the lever, and a flexible connection between the actuating-shaft and said wheel, substantially as described.

7. A header comprising a supporting-frame, a vertically-movable platform, a transversely-arranged rock-shaft supported by the supporting-frame, a lever connected to said rock-shaft, a rotatable shaft supported by arms carried by the rock-shaft, a connection between said shaft and platform, a second rotatable shaft carried by the supporting-frame, a connection between the said shaft and platform, a connection between the two rotatable shafts, and means for actuating the shaft carried by the arms carried by the rock-shaft, substantially as described.

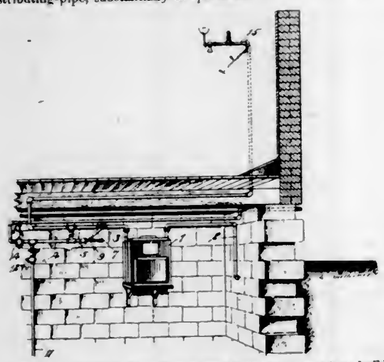
8. A header comprising a supporting-frame, a transversely-arranged rock-shaft, a rotatable shaft supported by arms carried thereby, a platform, connections between the rotatable shaft and the platform, a second rotatable shaft supported by the supporting-frame, the ends of said shaft provided with cog-wheels, the platform vertically-arranged cog members in engagement with the cog-wheels, a lever having one end attached to the rock-shafts, an operating member carried by the lever and operatively connected with the rotatable shaft supported by the arms carried by the said rock-shaft, and a connection between the said rotatable shafts, substantially as described.

9. A header comprising a supporting-frame, a vertically-movable platform, a horizontally-arranged rock-shaft, a lever connected with the rock-shaft, a rotatable shaft supported by bearings carried by the rock-shaft, connections between the said rotatable shaft and the platform, and means for rotating said shaft, substantially as described.

659,548. MEANS FOR DISCHARGING FIRE-EXTINGUISHING LIQUIDS THROUGH GAS-DISTRIBUTING PIPES. ALEXANDER REID, Jersey City, N. J. Filed Dec. 21, 1899. Serial No. 741,164. (No model.)

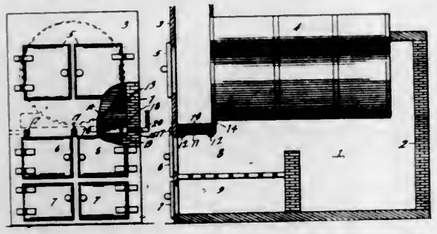
Claim.—1. The combination with a gas-pipe, of a liquid-supply pipe having connection with the gas-pipe, a valve in the gas-pipe, a piston in the liquid-supply pipe adapted to be operated by liquid-pressure, an arm extended from the stem of the valve, and a connection between said arm and the piston-rod, substantially as specified.

2. The combination with a distributing-pipe arranged in a building, of a liquid-supply pipe having connection with the distributing-pipe, a valve in the distributing-pipe, a piston in the liquid-supply pipe adapted to be operated by liquid-pressure, and a connection between said piston and the valve, the operation of said piston in one direction serving to close the valve and to open communication between the liquid-supply pipe and the distributing-pipe, substantially as specified.



3. The combination with a gas-supply pipe arranged in a building, of a water-supply pipe communicating with the gas-pipe, a piston operated by pressure in the water-supply pipe for shutting off the gas-supply, a pipe leading from the water-supply under pressure and connecting with the water-supply pipe, and another pipe leading from the water-supply pipe and adapted for connection with an engine or the like, substantially as specified.

659,549. **ARCH-PLATE FOR STEAM-BOILER FURNACES.** DANIEL U. RICHARDS, Danvers, Minn. Filed May 14, 1900. Serial No. 16,674. (No model.)



Claim.—1. An arch-plate for steam-boiler furnaces, comprising a shallow hollow box, having means for connecting its front edge to the front of a furnace, a longitudinal upstanding flange at the rear edge of the box, said flange having an intermediate concaved recess forming a seat for the front end of a boiler, and its opposite end portions forming closures for the space between the boiler and the respective side walls of the furnace, and the opposite ends of the box having openings for the circulation of air through the box.

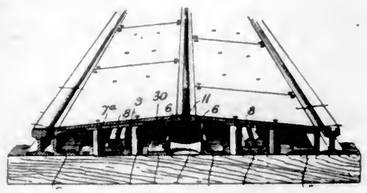
2. An arch-plate for steam-boiler furnaces, comprising a hollow box, having an open bottom, openings in its opposite ends, and bolt-openings in its front side or edge, pipes fitted to the respective end openings and extending outwardly therefrom, fastenings projecting outwardly through the bolt-openings, a removable bottom plate normally closing the open bottom of the box, and fastenings securing the bottom plate to the lower edges of the box.

659,550. **ELECTRIC RAILWAY.** JAMES D. ROBERTSON, La Salle, Ill. Filed Jan. 31, 1900. Serial No. 3,453. (No model.)

Claim.—1. In an electric railway, bed-plates supported between the rails, supports for the inner sides of said plates, the vertical walls of said supports forming walls for a conduit, and a conductor arranged in said conduit, substantially as specified.

2. In an electric railway, string-pieces arranged adjacent the inner sides of the rails, intermediate string-pieces spaced apart to provide a slot between them, the said intermediate string-pieces having openings through their vertical walls, bed-plates removably attached to the string-pieces, and a heat-supply pipe arranged between the intermediate string-pieces, substantially as specified.

3. In an electric railway, string-pieces arranged adjacent the inner sides of the railway-rails, intermediate string-pieces having a space between them, metal plates removably secured to the string-pieces, and supporting-posts for the plates between the string-pieces, substantially as specified.



4. In an electric railway, string-pieces arranged along the inner sides of the railway-rails, intermediate string-pieces, a heat-conducting pipe arranged between the intermediate string-pieces, bed-plates removably secured to the outer string-pieces and intermediate string-pieces, supporting-plates engaging with the under sides of the bed-plates, and posts upon which said supporting-plates rest, substantially as specified.

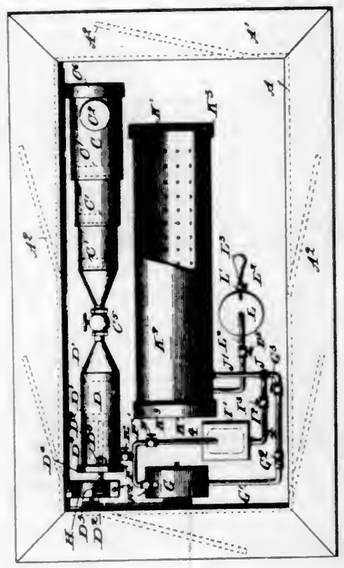
5. In an electric railway, bed-plates supported upon the cross-ties of the railway and between the track-rails, forming the upper walls of a conduit in which electric wires or cables may be placed, string-pieces supporting the inner edges of said plates and having openings through their vertical walls, and a pipe for conducting a heating medium arranged between said string-pieces, substantially as specified.

6. In an electric railway, a pipe serving as a conductor for a heating medium and also as a conductor for electricity, the said pipe being formed in sections, adjacent ends of certain sections being extended downward, a flexible joint between said downwardly-extended portions, and a bridge-piece rigidly connected to one section and having sliding connection with the other section, substantially as specified.

7. In an electric railway, a pipe serving to conduct a heating medium and also serving to conduct electricity, the said pipe being made in sections, certain of said sections being turned downward and connected together by a flexible joint, a discharge-pipe connecting with one of said downward extensions, and a bridge-piece secured to one of the sections and adapted to slide on the other section, substantially as specified.

8. In an electric railway, a conduit arranged between the rails, a pipe arranged in said conduit, said pipe being made in sections, certain of the sections being connected by a flexible joint, and rollers in the conduit on which said pipe rests, substantially as specified.

659,551. **VAPOR-TREATMENT APPARATUS.** FORTUNÉ R. RYAN, Memphis, Tenn. Filed May 25, 1900. Serial No. 17,959. (No model.)



Claim.—1. The combination with a porous vapor-evolving device adapted to contain a remedial agent and having an outer covering of porous sheet material, of a receptacle for the remedial agent and connections between the vapor device and receptacle, said connections communicating with a heating device; substantially as specified.

2. A vapor-evolving device consisting of a perforated cylinder of vitrified material or its described equivalent having removable caps, a porous covering surrounding the cylinder, and removable rings mounted on said caps for overlapping and securing the covering in position on the cylinder; substantially as specified.

3. The combination with a porous vapor-evolving device adapted to contain a remedial agent, of a receptacle for a remedial agent and connections between the vapor device and receptacle, said connections communicating respectively with a heating device and a cooling device; substantially as specified.

4. The combination with a vapor-evolving device adapted to contain a remedial agent and having a porous covering, of a separate air-pressure device, separated heating and cooling devices, and means for conducting a remedial agent at will through said heating and cooling devices; substantially as specified.

5. In an apparatus of the class described, a filtration-receptacle and a distributing-receptacle, an interposed valve, and a movable measuring filtering-disk in the latter receptacle; substantially as specified.

6. A distributing-receptacle provided with a movable filtering-disk and means extending from the receptacle and adapted to indicate the position of the disk; substantially as specified.

7. A distributing-receptacle provided with a thermometer, a discharge-pipe and branch pipes, a heating device and a cooling device connected one with each of said branch pipes and having discharge-pipes joining in a common discharge-pipe communicating with a vapor-evolving device adapted to contain a remedial agent, whereby the temperature of a remedial agent may be raised or lowered as desired before its application to use; substantially as specified.

659,552. **INSECTICIDE.** CHARLES H. W. SCHAMBACH, Nevada, Mo. Filed Aug. 2, 1900. Serial No. 25,688. (No specimens.)

Claim.—1. The herein-described composition of matter; consisting of soap-lye, sulphur, carbolic acid, and lime, substantially as described and for the purpose specified.

2. The herein-described composition of matter, consisting of soap-lye, sulphur, pine-tar, chenopodium, carbolic acid, and lime, substantially as described, and for the purpose specified.

3. The herein-described composition of matter for destroying insects and invigorating trees and plants and preserving the same against insects and rabbits and other animals, consisting of soap-lye fifty per cent., sulphur twenty per cent., pine-tar ten per cent., chenopodium ten per cent., carbolic acid two per cent., and lime eight per cent., substantially as described.

659,553. **GAS-GRATE.** GEORGE E. SHARPE, Steubenville, Ohio. Filed Oct. 13, 1898. Serial No. 693,410. (No model.)



Claim.—1. The combination with a one-piece face-plate formed from a single sheet of metal, flame-orifices punched therein, and a dished plate covering said flame-orifices and forming a chamber on one side of the face-plate, of a plate on the opposite side of the face-plate, having slots therein which register with the flame-orifices, means for clamping the slotted plate and the dished plate tightly against the face-plate to form a hermetic chamber, and suitable connections between said chamber and a source of gas-supply.

2. The combination with a face-plate made of sheet metal having flame-orifices punched therein, and arranged in rows, of a back plate secured to said face-plate to form a chamber and having a corresponding number of channels therein arranged each to register with a row of flame-orifices, intersecting channels connecting the aforesaid channels, a plate having slots therein to register with the flame-orifices, means for clamping the channeled and slotted plates against the intermediate face-plate, and suitable connections between said chamber and a source of gas-supply.

3. The combination with a one-piece face-plate formed from sheet metal and having rows of flame-orifices punched therein, of a back plate secured on said face-plate to form a chamber and having channels therein corresponding in number to the rows of flame-orifices with which they register, intersecting channels in the plate connecting the aforesaid channels, and suitable connections between said chamber and a source of gas-supply.

4. A gas-heater burner, having a back plate, and a face-plate fitted gas-tight to said back plate and provided with a series of rows of flame-orifices, a series of independent gas-compartments being formed between the back plate and face-plate equal in number to the number of rows of flame-orifices, and a gas-supply common to all such compartments, substantially as described.

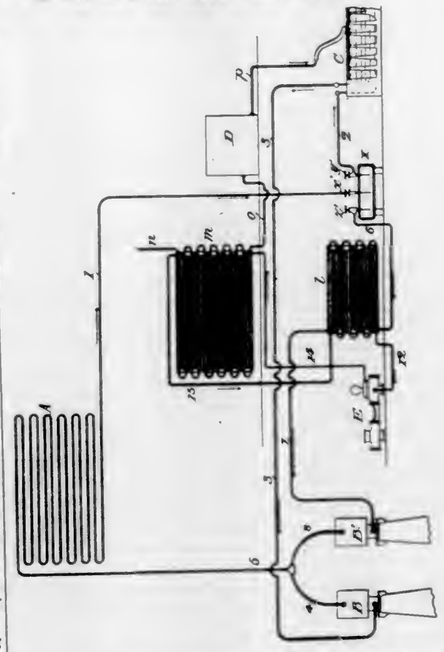
5. A gas-heater burner, having a back plate, provided with a series of compartments separated by horizontal ribs, a face-plate applied gas-tight to said back plate and against its ribs, and having a series of rows of flame-orifices, and a gas-channel communicating independently with the said compartments, substantially as described.

6. A gas-heater burner, having a face-plate provided with a series of rows of flame-orifices and also with applied refractory incandescent material or substance, and a back plate to which the face-plate is fitted gas-tight, supplied with as many independent gas-compartments as there are rows of flame-orifices and with a feed-channel common to all such compartments, substantially as described.

7. A gas-heater burner, comprising a back plate provided with an inlet-channel and end branches thereof, a series of compartments in said back plate, and a face-plate applied to the back plate and having flame-orifices, substantially as described.

8. A gas-heater burner, comprising a face-plate containing a series of flame-orifices, a back plate upon which the face-plate is supported, and a series of individual gas-compartments formed by and between the face-plate and the back plate, adapted to supply gas to the series of flame-orifices independently of one another, and a gas-supply common to the several compartments, substantially as described.

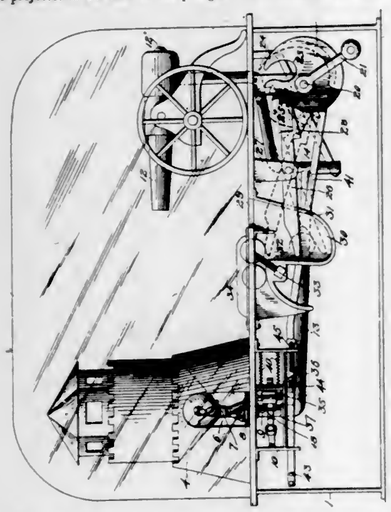
659,554. **ICE-MAKING MACHINERY.** THOMAS SHIPLEY, York, Pa. Filed June 2, 1900. Serial No. 18,866. (No model.)



Claim.—In machinery for making ice the combination, substantially as set forth of the following elements: a refrigerant-condenser; compressors; freezing appliances; brine-cooling appliances; two pipe-circuits from the condenser, the one a freezing-circuit including the freezing appliances and one of the compressors, the other a brine-cooling circuit including brine-cooling appliances and the other compressor; means for regulating the "back pressure" in each of said circuits independently of the other; and a brine-pipe circuit including means for causing the circulation of brine therein, and water-cooling appliances through which the water circulates and is preliminarily cooled by the brine, before entering the freezing appliances.

659,555. **TOY.** MARTIN SHUSTER, Great Falls, Mont., assignor of three-fifths to W. A. Keller and W. A. Wiegand, same place. Filed Mar. 15, 1900. Serial No. 8,783. (No model.)

Claim.—1. In a toy the combination with a charge-projector comprising a body formed with a bore and a reciprocatory plunger located in said bore, of a receptacle in which the charge is adapted to be projected, a tube establishing communication between the charge-projector and the receptacle, and means for forcing a charge within the tube into the bore of the projector in advance of the plunger, substantially as set forth.



2. In a toy the combination with a charge-projector comprising a body formed with a bore and a reciprocatory plunger located in said bore, of a receptacle into which the charge is adapted to be projected, a tube into which the charge after being projected into said receptacle is adapted to fall said tube leading back to the charge-projector, a spring catch or dog arranged within said tube, a block arranged under the lowermost charge within said tube, and means for elevating the block to force the uppermost charge contained within the tube into the charge-projector in advance of the plunger, substantially as set forth.

3. In a toy the combination with a charge-projector, of a receptacle into which the charge is adapted to be projected, a disk mounted within said receptacle, objects supported upon said disk and adapted to be moved past an opening in the receptacle, and means for simultaneously projecting a charge and rotating said disk, substantially as set forth.

4. In a toy the combination with a charge-projector, of a receptacle into which the charge is adapted to be projected, a funnel arranged within the receptacle, a disk journaled in the receptacle and supporting objects thereon which are adapted to move past an opening in the receptacle, a tube for conveying the charge from said receptacle back to the projector, means for forcing the charge into the projector, and means for rotating said disk, substantially as set forth.

5. In a toy the combination with a charge-projector, of a casing into which the charge is adapted to be hurled, said casing being provided with a funnel, a disk journaled in said casing and having a hollow axis, a toothed wheel fixed to said axis, an inclined tube leading from said axis to a second tube which latter tube leads to the charge-projector, means for elevating the charges in the second tube, a reciprocating spring-actuated trip-bar having a trip-dog, a spring-actuated knocker-dog frame, a knocker-dog pivoted to said frame, and a trip-toe secured to the knocker-dog frame and adapted to be engaged by the trip-dog, substantially as set forth.

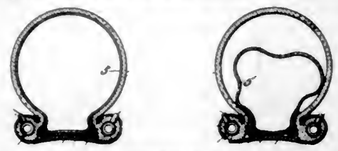
659,556. PROCESS OF DYEING. AUGUST SIEGMUND, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed July 24, 1900. Serial No. 24,712. (No specimens.)

Claim.—1. The process of dyeing wool, which consists in dyeing the material in a bath containing a dyestuff which is fast to stoving and sulfurous acid, all substantially as described.

2. The process of dyeing wool, which consists in dyeing the material in a bath containing rhodamin and sulfurous acid, all substantially as described.

659,557. PNEUMATIC TIRE FOR VEHICLES. UZZIEL P. SMITH, Chicago, Ill., assignor of one-half to Thomas Kane, same place. Filed Jan. 24, 1900. Serial No. 2,639. (No model.)

Claim.—1. A pneumatic tire, comprising an inner air-tube, and an outer separable casing therefor having an elastic, non-compressible, coiled-wire ring secured in each of its edges, substantially as described.



2. A pneumatic tire comprising an inner air-tube, and an outer separable casing therefor having an elastic coiled-wire ring secured in each of its edges, the coils of said ring being normally in contact, whereby to render said ring non-compressible, substantially as described.

3. A pneumatic tire, comprising an inner air-tube provided along its seat portion with two parallel elastic and extensible beads or ridges, in combination with an outer separable casing having each of its edges provided with an elastic bead, substantially as described.

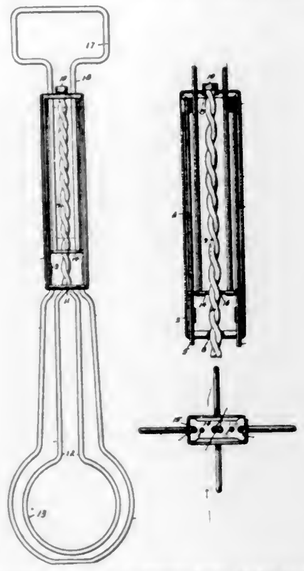
4. A pneumatic tire, comprising an inner air-tube provided along its seat portion with two parallel elastic and extensible beads or ridges, in combination with an outer separable casing having secured in each of its edges an elastic, non-compressible, coiled-wire ring, substantially as described.

5. In combination with a rim provided with annular flanged hooks, an inner air-tube and an outer separable casing therefor having secured in each of its edges an elastic, non-compressible, coiled-wire ring adapted to lie beneath said flange-hooks, substantially as described.

6. In combination with a rim having annular flanged hooks, an inner air-tube provided along its seat portion with two parallel elastic and extensible beads or ridges, and an outer separable casing therefor having each of its edges provided with an elastic bead adapted to seat under said flanged hooks, substantially as described.

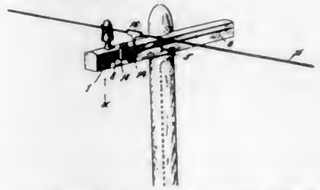
7. In combination with a rim having flanged hooks, an inner air-tube provided along its seat portion with two parallel beads or ridges located normally at a less distance apart than the distance between the edges of said flanged hooks, and an outer separable casing therefor having each of its edges provided with an elastic bead adapted to seat under said flanged hooks, whereby upon the inflation of the inner air-tube, said beads or ridges will be pressed apart and into contact with the beads of said outer casing, substantially as and for the purpose described.

659,558. EGG-BEATER. HERBERT M. STURGIS, Kansas City, Mo., assignor of three-fourths to Charles F. O'Brien, same place, and Annie L. Gartside, Chicago, Ill. Filed Dec. 4, 1899. Serial No. 739,131. (No model.)



Claim.—In an egg-beater, a retaining-frame, a wire formed into a loop and its ends twisted into a spiral, said wire being rotatably journaled in the said frame at top and bottom, a second wire formed into a loop and its ends rigidly secured to the sides of said frame, an apertured plate slidably retained within said frame and engaging the said spiral, a wire 18 rigidly secured to said plate and guided in said frame, and a handle formed integral with said wire beyond the end of the frame, substantially as specified.

659,559. LIGHTNING-ARRESTER. CHARLES M. TAYLOR, Georgetown, Ky. Filed June 12, 1900. Serial No. 20,012. (No model.)

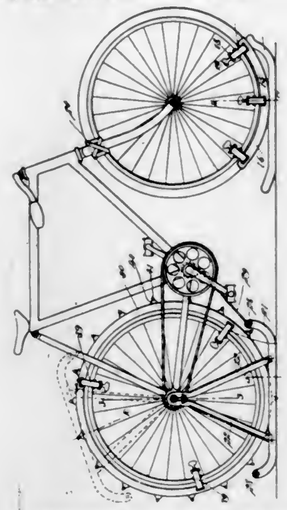


Claim.—1. A lightning-arrester, comprising a pair of grounding-plates, means for connecting one of said plates electrically with the line-wire, a frame of insulating material in which the other of said plates is arranged and spaced from the first-named plate, a protecting-cover for the plates, and means for electrically connecting the second-named plate with a grounding-wire, substantially as specified.

2. A lightning-arrester, comprising metal plates, means for electrically connecting one of said metal plates with a line-wire, means for connecting the other of said plates with a grounding-wire, carbon grounding-plates detachably secured to the metal plates, a frame in which one of the carbons and its metal plate are supported and electrically separating the carbon plates one from the other, and a protecting-cover for the several plates, substantially as specified.

3. A lightning-arrester, comprising vertically-extended grounding-plates insulated one from the other, a sleeve or collar for holding said plates in their proper relation to each other, a frame of insulating material in which one of the plates is arranged, and means for connecting the plates electrically with a line-wire and with a grounding-wire, substantially as specified.

659,560. ICE-CYCLE. DIETRICH W. TIETJEN, Milwaukee, Wis. Filed Dec. 4, 1899. Serial No. 739,142. (No model.)



Claim.—1. An attachment for velocipedes, having a runner, a socket-plate mounted rigidly thereon and formed with orifices in its side edges, and a clamp comprising links engaged with the orifices, a clamping-head to which the links are attached, and a thumb-screw working in the clamping-head, by which to hold the socket-plate in place.

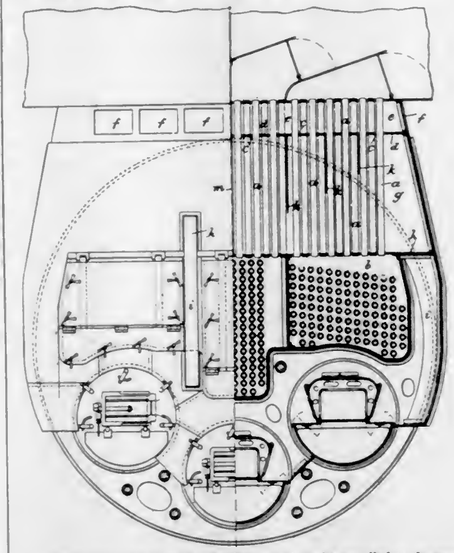
2. An attachment for velocipedes, comprising a nut adapted to be engaged with an axle of the velocipede and having an extension, a nut working on such extension, a stanchion having a loop mounted to slide between the nuts, a screw fitted on the extension of the first-named nut, an additional nut mounted to turn in the loop and engage with the screw to adjust the loop of the stanchion, and a runner carried by the stanchion.

3. A flexible rim adapted to encircle vehicle-wheels, one end of the rim being formed with an opening and the other end of the rim having a button to engage in such opening, the contiguous ends of the rim being also provided each with a lip to be engaged by a tool for drawing the ends of the rim together.

4. An attachment for wheels having yielding tires, the attachment comprising a strap adapted to encircle the tire of the wheel, and spurs mounted to slide in the strap radially of the wheel, the spurs engaging the tire of the wheel to be normally pressed outward thereby, and being capable of moving inward upon the yielding of the tire.

5. An attachment for wheels having flexible tires, the attachment comprising a strap adapted to encircle the tire, and spurs fitted to slide in the strap radially of the wheel and formed at their ends with heads lying against the tire, the tire normally throwing the spurs outward and the spurs being movable inward upon the yielding of the tire.

659,561. APPARATUS FOR HEATING AIR TO BE SUPPLIED TO FURNACES. WILLIAM C. WALLACE, Sheffield, England, assignor of one-half to the John Brown & Company, Limited, same place. Filed June 28, 1900. Serial No. 21,980. (No model.)



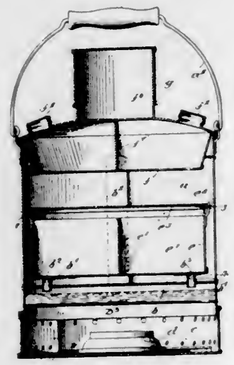
Claim.—1. In apparatus for heating air to be supplied to furnaces the combination with tubes through which the heated products from the furnace pass of an air-chamber the upper plate of which is provided with perforations through which the tubes pass the said perforations being of such a size as to leave spaces between the tubes and perforations for the inlet of air to the said air-chamber, an outlet from the said air-chamber to a passage leading to the furnace and depending plates extending down from the perforated plate between the tubes so arranged as to conduct the air downward and cause it to come into efficient contact with the tubes substantially as hereinbefore described.

2. In apparatus for heating air to be supplied to furnaces the combination with tubes through which the heated products from the furnace pass of an air-chamber the upper plate of which is provided with perforations through which the tubes pass the said perforations being of such a size as to leave spaces for the inlet of air to the said air-chamber and the tubes and perforations being arranged so that the spaces between the several transverse rows thereof are wider alternately at opposite sides, an outlet from the said air-chamber to a passage leading to the furnace and depending plates extending down from the perforated plate between the tubes so arranged as to conduct the air downward and cause it to come into efficient contact with the tubes all substantially as hereinbefore described.

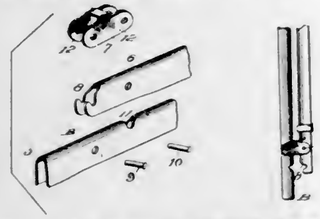
659,562. DINNER-PAIL. MAY WELKER, Oakland, Cal. Filed May 8, 1900. Serial No. 15,899. (No model.)

Claim.—A dinner-pail comprising the body-section provided near its bottom with the water vessel, the steam-outlet tubes projecting above

said water vessel and having lateral discharge-openings, and arranged in series of not less than three, such tubes being located on opposite sides of the center of the water vessel, and the food-receptacle resting upon the several said outlet-tubes, all substantially as described, whereby the food-receptacle will be firmly supported without any tendency to tilt from side to side, whereby to secure an even distribution of the steam below the food-receptacle, and to support the receptacle without endangering its bottom by its contact with the steam-outlet tubes, as and for the purpose specified.



659,563. FOLDING UMBRELLA. CHARLES A. WHITNEY, Stevensville, Pa. Filed Dec. 29, 1899. Serial No. 741,964. (No model.)



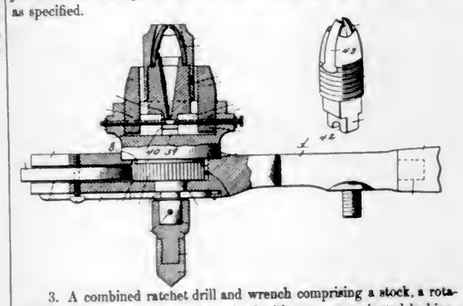
Claim.—1. In a folding umbrella, a rib comprising upper and lower sections pivoted together and having the pivoted ends extended and adapted to overlap when the sections are alined, a link jointing the sections and composed of parallel plates embracing the sides of the said sections and pivoted at their extremities thereto and a cross-bar connecting the outer edges of said plates midway of their ends and adapted to lie between the rib-sections when folded and to supplement the overlapping ends of the sections to brace the joint between them when extended, and means for holding said parts rigidly connected when the rib-sections are in alinement, substantially as described.

2. In a folding umbrella, a rib comprising upper and lower channeled sections, the lower section being notched transversely in its folded side at its upper end to form parallel hooks and the upper section similarly notched adjacent to its lower end to form a transverse seat-depression, a substantially H-shaped link composed of parallel side plates embracing the sides of the said sections and pivoted at their extremities by pins passing through the sides of the sections and adapted to be respectively engaged by said hooks and to rest in said seat-depression when the rib-sections are alined, and a cross-bar connecting the outer edges of the side plates intermediate of their ends and adapted to lie between the rib-sections when folded, and a slide adapted to embrace the link to rigidly hold the parts connected when the rib-sections are in alinement, substantially as described.

659,564. RATCHET WRENCH AND DRILL. CARL F. ANDERSON, West New York, N. J. Filed Jan. 17, 1900. Serial No. 1,817. (No model.)

Claim.—1. A combined ratchet drill and wrench comprising a stock, a rotatable head carried thereby and having a shank provided with an annular groove, a flat locking-plate pivotally mounted on one side of the stock and adapted to be swung into engagement with said groove to lock the head against endwise movement in both directions while leaving it free to rotate, and a fastener carried by the locking-plate and adapted to engage the stock, substantially as described.

2. A combined ratchet drill and wrench comprising a stock, a rotatable head, a locking-plate for holding the head in the stock, slidable jaws fitted in the head, a chuck having a notch in the end of its shank, and a combined jaw-setting screw and chuck-key passing through the head and jaws and also through the notch in the shank of the chuck, substantially as specified.



3. A combined ratchet drill and wrench comprising a stock, a rotatable head carried thereby and provided with a recess, a pivoted locking-plate on the stock for holding it therein, guide-ribs at opposite sides of the recess, jaws slidingly fitted to said ribs, a drill-chuck having a notched shank fitted in said recess, and a centrally-arranged combined jaw-setting screw and drill-chuck key passing through the head and extending across the recess and also entering the notch in the shank of the chuck, substantially as described.

659,565. VIOLET-RED DYE AND PROCESS OF MAKING SAME. OSCAR BALLY, Mannheim, Germany, assignor to the Badische Anilin und Soda Fabrik, Ludwigshafen, Germany. Filed June 24, 1899. Serial No. 721,761. (Specimens.)

Claim.—1. The violet-red coloring-matter which can be obtained from di-alphyl-di-amido-anthraquinone by treatment with concentrated sulfuric acid at a temperature below 100°, which is readily soluble in hot water, but can be readily precipitated from its solutions by common salt, and whose aqueous solution is red and remains unchanged in color by the addition of sodium carbonate or caustic soda, and which is soluble in alcohol and in warm aniline, all substantially as described.

2. The new violet-red coloring-matter which can be obtained from 1.5-di-anilido-anthraquinone by treatment with concentrated sulfuric acid, at a temperature below 100°, which is readily soluble in hot water giving a red solution, which is unchanged in color by the addition of sodium carbonate or caustic soda, but from which it can be readily precipitated by common salt, and which is soluble in alcohol and warm anilin giving cherry-red solutions, and which gives dirty-brown solutions in concentrated sulfuric acid, all substantially as described.

659,566. YELLOW-RED DYE AND PROCESS OF MAKING SAME. OSCAR BALLY, Mannheim, Germany, assignor to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed June 24, 1899. Serial No. 721,762. (Specimens.)

Claim.—1. The yellow-red coloring-matter which can be obtained by treating di-alphyl-diamido-anthraquinone with fuming sulfuric acid, which is easily soluble in water, giving yellow-red solutions which on the addition of caustic soda become cherry-red and which is practically insoluble in alcohol and anilin, substantially as described.

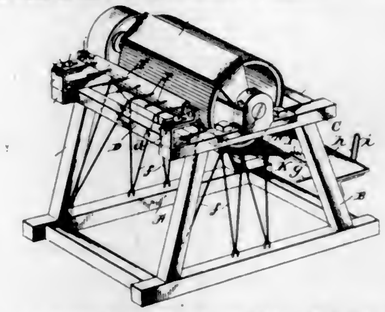
2. The new yellow-red coloring-matter which can be obtained from 1.5-di-anilido-anthraquinone by treatment with fuming sulfuric acid, which is easily soluble in water giving a yellow-red solution which becomes bluer in shade on the addition of caustic soda and which is practically insoluble in alcohol and anilin and dissolves in concentrated sulfuric acid giving a red color, substantially as described.

659,567. TUBE-MAKING MACHINE. WALTER C. BECKWITH, Fostoria, Ohio. Filed Feb. 20, 1899. Serial No. 706,190. (No model.)

Claim.—1. A tube-rolling machine comprising a roller having practically a rigid friction-surface, a segmental concaved surface extending partially around and adapted to receive between it and the roller a mandrel and rotate the latter under pressure for forming a tube, and a mandrel upon which the tube is rolled, substantially as described.

2. A tube-rolling machine comprising a perfectly-cylindrical roller having practically a rigid friction-surface, a segmental concaved surface coacting therewith and adapted to receive a mandrel between it and the roller and to rotate the mandrel under pressure to form a tube, and a mandrel upon which the tube is rolled as it passes between the concaved surface and the roller, substantially as described.

3. A machine for forming tubes comprising a roller having a practically-rigid friction-face, an apron supported adjacent thereto and provided on its outer side with transverse slats, a holding means between the slats and the machine-frame for holding the apron out of contact with the roller, a yielding member for holding the apron under tension, and a mandrel upon which the tube is formed, substantially as described.



4. A machine for forming tubes comprising a roller having a practically-rigid friction-face, an apron adapted to coact therewith, a mandrel upon which the tube is formed, and a guard extending across the roller at a point above the inlet end of the apron for the purpose described.

5. A machine for forming tubes comprising a roller having a practically-rigid friction-face, an apron supported at its upper and lower ends, the apron having between its ends transversely-extending slats, and lacings connecting the slats and the frame of the machine for supporting the apron out of contact with the roller, substantially as described.

659,568. MOTOR-VEHICLE. ENRICO BERNARDI, Padua, Italy. Filed July 11, 1898. Serial No. 685,654. (No model.)

Claim.—1. A motor-vehicle in which the steering mechanism and the speed-regulating mechanism are controlled by means of a single handle, the said handle being used: first, for operating the actuating-shaft of the steering mechanism, consisting preferably of another crank or lever rigidly fixed upon the said actuating-shaft and connected with the apex of a jointed quadrilateral opposite to that which is fixed to the frame of the vehicle, a device of any suitable kind for causing the two steering-wheels to describe respectively the same angles as are described by the two rods of the quadrilateral terminating at the fixed apex at the frame; and, second, as the movable cylinder of a pump for forcing a fluid into a conduit terminating at the motor and comprising one or more flexible portions in order that it may be able to adapt itself to any movement of the vehicle, by means of which conduit the driver, without turning round or releasing the handle by means of which he controls the steering, is able to actuate the parts serving to start, regulate and stop the movement of the vehicle.

2. The combination in a motor-vehicle in which the steering mechanism and the speed-changing mechanism are controlled by a single handle, of an air-receiving device consisting of a casing containing a flexible diaphragm or a cylinder provided with a piston connected to the motor regulator-valve or friction-clutch substantially as described.

3. The combination in a motor-vehicle in which the steering mechanism and the speed-changing mechanism are controlled by a single handle, of a suction and force valve arranged together in the same tube, and each consisting of a short length of rubber tube provided with one or two oblique cuts the outer case or tube being connected to the receiving device substantially as described.

659,569. MACHINERY FOR TWISTING YARNS OR THREADS. THOMAS A. BOYD, Glasgow, Scotland. Filed June 7, 1899. Serial No. 719,675. (No model.)

Claim.—1. In a twisting-frame, the combination of a spindle, a feed-roller, a balance-lever controlled by the twisted thread and means for automatically stopping the feed-roller by the balance-lever on the failure of the thread with mechanism by which the worker can thereafter brake and stop the spindle by hand and can start the feed-roller and spindle again simultaneously.

2. In a twisting-frame, the combination of an upright feed-roller having a cam and means for rotating the roller, with a balance-lever controlled by the thread and having a part adapted to move into the path of the cam, to lift the roller and support it in its lifted position, whereby the roller may descend to working position again on the movement of the balance-lever, substantially as described.

3. In a twisting-frame, a feed-roller and driving means therefor, in combination with a balance-lever controlled by the thread to disengage said roller, and driving means, a spindle, an upright rod and a spindle-brake controlled by the rod and a tumbler-lever adapted to be acted on by the balance-lever or by hand to control the brake-rod.

4. A roller for a twisting-frame, said roller being hollow with a tapered inside and having a longitudinal slit in the periphery, with a tapered pin to secure the covering, substantially as described.

659,570. MICROMETER OR SIMILAR GAGE. HENRY BROOKER and ALFRED J. BAXTER, London, England. Filed Mar. 13, 1900. Serial No. 8,474. (No model.)

Claim.—In devices of the character described, the combination of the frame, of approximately U shape having parallel obliquely-arranged arms, the spindle provided with a worm along a portion of its surface, a

peripherally-toothed disk geared up with said worm and having certain measuring data thereon, and mounted to suitably rotate, and lateral plates secured to said arms and having viewing-openings therethrough adapted to expose said data, substantially as specified.

659,571. CIGARETTE-ROLLER. ANTHONY W. BROWN, New York, N. Y., assignor, by mesne assignments, of one-half to John L. Lockwood, Jr., same place. Filed May 26, 1899. Serial No. 718,452. (No model.)



Claim.—1. In a cigarette-roller, the combination with two substantially-semicylindrical members hinged together on their adjacent edges, and formed so that the free edge of one semicylindrical member shall pass without and overlap the free edge of the other semicylindrical member, in combination with a piston slidably secured to one of said semicylindrical members.

2. In a cigarette-roller, the combination of two substantially-semicylindrical members hinged together at their adjacent edges and having shear-like bevels on their free edges adapted to cut and compress the contained tobacco, substantially as set forth.

3. In a cigarette-roller, the combination with two semicylindrical members hinged together so as to open and close, having their free edges beveled shear-like, and adapted to overlap one within the other, with a piston slidably connected with one of said semicylindrical members, and means for operating said piston when said semicylindrical members are closed.

4. In a cigarette-roller, the combination with two semicylindrical members provided with longitudinal slots and hinged together so as to open and close, the slot of one member having an enlarged opening at one of its ends, of a piston and studs, having enlarged heads, secured to said piston adapted to operate in said slots.

5. In a cigarette-roller, the combination with two semicylindrical members hinged together so as to open and close, having their free edges adapted to overlap and pass one within the other when closed and provided with longitudinal slots, the slot of one member having an enlarged opening at one of its ends, of a piston and studs having enlarged heads secured to said piston adapted to operate in said slots.

6. In a cigarette-roller the combination of two substantially-semicylindrical members hinged together on their adjacent edges and formed so that the free edge of one of said members shall overlap the free edge of the other when closed to cause the contained filler to be compressed and the protruding filaments thereof to be severed, with means for simultaneously removing said filler and the wrapper.

659,572. HOTEL-REGISTER. JOHN BULLOCK, Manvel, Cal. Filed June 6, 1900. Serial No. 19,268. (No model.)

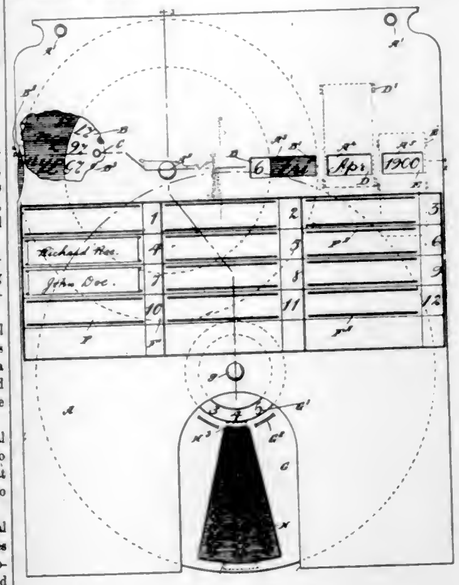
Claim.—1. The combination of the frame having a series of numbered spaces for the reception of names, and a sight-opening, a movable plate, a portion of which is adapted to show through said opening, and provided with a series of numerals corresponding to those of the numbered spaces, and tally-cards adapted to be secured to said plate, and each bearing a plurality of signs numbered according to the days of the month.

2. The combination of the frame having a series of numbered spaces for the reception of names, and a sight-opening, a movable plate, a portion of which is adapted to show through said opening, and provided with a series of numerals corresponding to those of the numbered spaces, and tally-cards adapted to be secured to said plate, and each bearing an indication for each day of the month.

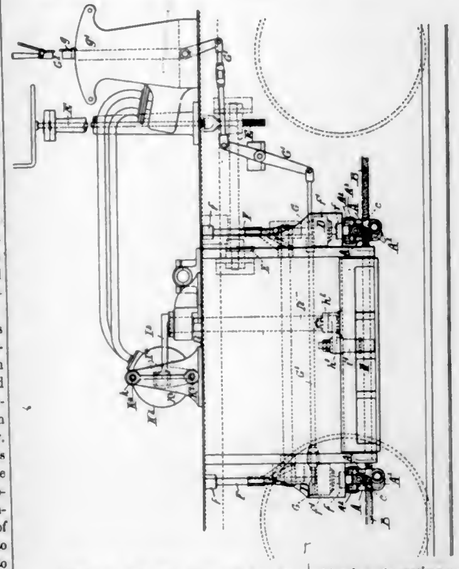
3. The combination of the frame having a series of numbered spaces for the reception of names, and a sight-opening, a movable plate, a portion of which is adapted to show through said opening, and provided with a series of numerals corresponding to those of the numbered spaces, and tally-cards adapted to be secured to said plate, and each bearing a plurality of signs numbered according to the days of the month, each sign having a plurality of arms adapted to be erased or blotted out separately.

4. The combination of the frame having a series of numbered spaces for the reception of names, and a sight-opening, a disk pivoted to the frame and exhibiting a portion of its surface through said opening, said disk being provided with a series of numerals corresponding to those of the numbered spaces, and being further provided with an inner and an outer series of segmental slits, and tally-cards adapted to have their ends inserted into said slits and each bearing a plurality of signs numbered according to the days of the month.

5. The combination of the frame having a series of spaces, numerals adjacent thereto, parallel slits at the top and bottom of said spaces for the reception of name-cards, and a sight-opening, a disk pivoted to the frame and exhibiting a portion of its surface through said opening, said disk being provided with a series of numerals corresponding to those of the numbered spaces, and being further provided with an inner and an outer series of segmental slits, and tally-cards adapted to have their ends inserted into said slits and each bearing a plurality of signs numbered according to the days of the month.



659,573. APPARATUS FOR LIFTING AND GRIPPING ROPES, CABLES, OR CHAINS OF ROPE OR SIMILAR RAILWAYS. WILLIAM P. BULLIVANT, London, England. Filed Mar. 13, 1900. Serial No. 8,503. (No model.)



Claim.—1. For use in cable traction the combination of a stationary frame, motor mechanism and two jaws thereon for gripping the cable, one jaw fixed and the other horizontally movable, radius-links connecting the movable jaw with the stationary frame, toggle-levers between and bearing against the said movable jaw and frame, a stud projecting laterally from the movable jaw, a vertical shaft pivoted in the frame, lever-arms on the vertical shaft, links connecting the said lever-arms with the motor mechanism and stud, a slide vertically movable on the stationary frame, operative devices for raising and lowering the slide, two jaws pivoted on, and vertically movable with, the slide, flanged rollers on the pivoted jaws, stops for limiting their inward movement, a roller on the under side of the vertically-movable slide, a vertical shaft movable with the slide, operative devices for turning, and a two-armed lever on, the said shaft, and links connecting the said lever with the pivoted jaws, substantially as set forth.

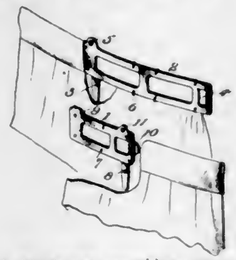
2. For use in cable traction, the combination with a stationary frame, motor mechanism and two jaws thereon for gripping the cable, one jaw fixed and the other horizontally movable, radius-links connecting the movable jaw with the stationary frame and toggle-levers between, and bearing against, the said movable jaw and frame, of a stud projecting laterally from the movable jaw, a vertical shaft pivoted in the frame, lever-arms on the vertical shaft and links connecting the said lever-arms with the motor mechanism and stud, substantially as set forth.

3. For use in cable traction, the combination with a stationary frame, of a slide vertically movable thereon, operative devices for raising and lowering the slide, two jaws pivoted on, and vertically movable with the slide, flanged rollers on the jaws and operative devices for opening and closing the said jaws, substantially as set forth.

4. For use in cable traction, the combination with a stationary frame, and a slide vertically movable thereon, operative devices for raising and lowering the slide, two jaws pivoted on and vertically movable with the slide, and operative devices for opening and closing the jaws, of stops on the jaws for limiting their inward movement, and abutments on the slide for the stops, substantially as set forth.

5. For use in cable traction, the combination with a stationary frame and a slide vertically movable thereon, operative devices for raising and lowering the slide and two jaws pivoted on and vertically movable with the slide, of a vertical shaft, bearings for the said shaft on the slide, a two-armed lever on the shaft, links connecting the said lever with the jaws, and operative devices for turning the shaft, substantially as set forth.

659,574. COMBINED SKIRT FASTENER AND SUPPORTER. HUGH H. BYRNE, La Crosse, Wis. Filed Feb. 12, 1900. Serial No. 4,976. (No model.)



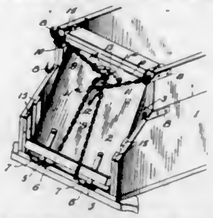
Claim.—1. A skirt-fastener, comprising corresponding members provided with interlocking means and having terminal eyes at their upper edges, and supporting devices adapted to engage said eyes, each supporting device consisting of a head adapted to be fitted over the edge of a belt and a hook to engage an eye of the fastener, the construction being such that the belt when applied lies between the head and the shank of said hook, substantially as described.

2. A skirt-fastener, comprising cooperating members provided with interlocking means and having terminal eyes at their upper edges, hooks pendent from the lower edges of the members to engage with loops applied to the waist or like body garment, and supporting devices detachably engaging said eyes and adapted to fit over the edge of a belt, substantially as described.

3. A skirt fastening and supporter, comprising oblong members or plates, one having an opening at its inner end and a pendent hook at or near its outer end, and the other a hook at its inner end to engage over the top edge of the first-mentioned member and at its outer end a pendent hook and also a catch-hook to engage the said opening at the inner end of the said first-mentioned member, substantially as described.

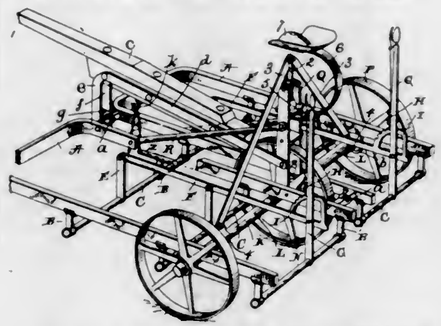
4. The herein-described skirt fastening and supporter, comprising oblong members or plates of different relative lengths, the longer member having an opening at one end and an eye and pendent hook at the opposite end, and the shorter member having a hook at one end to engage with the opening of the longer member and having a pendent hook and an eye at the same end with the engaging hook, and having a hook at the opposite end to engage over the top edge of the longer member, substantially as and for the purpose set forth.

659,575. END-GATE FOR WAGONS. WESLEY CARPENTER, Enterprise, Ohio. Filed Aug. 2, 1900. Serial No. 25,676. (No model.)



Claim.—The combination with a wagon-body provided with hooks on its sides and with hooks set into recesses at the rear end of the floor of the wagon-body, of an end-gate provided with eyes at its rear end to engage the last-named hooks, and with eye-plates at its upper end, chains connected to the eye-plates aforesaid and adapted to engage the hooks on the side pieces of the wagon-body, a lever pivoted to the rear side of the end-gate and provided with oppositely-directed hooks which are adapted to engage the free end of the chains, and a segmental rack-bar pivoted to the end-gate and adapted to hold the lever in adjusted position, substantially as set forth.

659,576. SULKY-HARROW. CHARLES D. CARTER, Spring Arbor, Mich. Filed Feb. 13, 1900. Serial No. 5,096. (No model.)



Claim.—1. A harrow comprising a plurality of harrow-sections, a combined support and riding attachment comprising a transversely-arranged shaft, supporting-wheels carried thereby, a vertically-arranged seat-standard connected with the said shaft, and longitudinally-arranged braces connected with the said seat-standard for supporting it in a vertical position, the said harrow-sections having a free and independent vertical movement in respect to the said supporting-shaft, and seat-support, substantially as described.

2. A harrow comprising a plurality of longitudinally-arranged harrow-sections situated side by side, a combined riding and supporting attachment comprising a shaft extending transversely of the said harrow-sections at a point intermediate of their ends, the ends of the said shaft projecting beyond the outer sides of the said harrow-sections, supporting-wheels carried by the projecting ends of the axle, and a supporting-wheel carried by the said supporting-axle at a point between the said harrow-sections, and a seat-support connected with the said axle independent of the harrow-sections, substantially as described.

3. A harrow comprising a plurality of independent vertically-movable harrow-sections, a supporting attachment comprising a transversely-arranged shaft, the said shaft composed of three independent portions, a supporting-wheel carried by each of the said independent portions, substantially as described.

4. A harrow comprising a plurality of harrow-sections, a combined supporting and riding attachment comprising a transversely-arranged sectional supporting-shaft, each section carrying a supporting-wheel, and a seat-support connected with the sections of the shaft to distribute the weight equally upon the several sections and consequently upon the supporting-wheels, substantially as described.

5. A harrow comprising a plurality of vertically-movable harrow-sections, a combined supporting and riding attachment comprising a transversely-arranged shaft divided into a central and end sections, the end and central sections carrying supporting-wheels, and a seat-support connected with the end sections and adapted to move therewith, substantially as described.

6. A harrow comprising a plurality of independently-movable har-

row-sections, a combined supporting and riding attachment comprising a transversely-arranged shaft divided into a central and end independently-movable sections, the said end and central sections having supporting-wheels, a vertically-movable seat-support, and connections between the vertically-movable seat-support and the end sections of the sectional supporting-shaft, substantially as described.

7. A harrow comprising a plurality of independently-movable vertical harrow-sections, and a combined riding and supporting attachment comprising a transversely-arranged shaft having supporting-wheels, a centrally and vertically disposed seat-standard connected with the said shaft, and longitudinally-arranged seat-support braces having their upper ends connected with the seat-standard and their lower ends connected with the harrow-sections, substantially as described.

8. A harrow comprising a plurality of independent vertically-movable harrow-sections, and a combined riding and supporting attachment comprising a transversely-arranged shaft having supporting-wheels, a vertically-disposed seat-standard attached to the said supporting-shaft, and longitudinally-arranged seat-support braces having their upper ends pivotally connected to the said seat-standard and extending forwardly and their forward ends pivotally connected with the forward ends of the harrow-sections, substantially as described.

9. A harrow comprising a plurality of harrow-sections, and a combined riding and supporting attachment comprising a transversely-arranged supporting-shaft carrying supporting-wheels, a vertically-arranged seat-standard connected to the said supporting-shaft, longitudinally-extending standard-braces, a seat-support vertically movable upon and guided by the said seat-standard, and transversely-extending braces connected with the vertically-movable seat-support and the said supporting-shaft, substantially as described.

10. A combined riding and supporting attachment for harrow-sections comprising a transversely-arranged shaft, a vertically-disposed seat-standard, the said standard connected with the supporting-shaft, and longitudinally-extending standard-braces, substantially as described.

11. A riding-harrow comprising a plurality of harrow-sections, a transversely-arranged shaft divided into independently-movable sections, each independent movable shaft-section having a supporting-wheel, a vertically-disposed seat-support, transversely-arranged flexibly-connected braces attached to the sections of the supporting-shaft and to the said seat-support, a seat-standard connected with the shaft, and longitudinally-arranged braces connected with the seat-standard, substantially as described.

12. A harrow supporting and riding attachment comprising a transversely-arranged shaft divided into a central and end sections, the central and end sections having supporting-wheels, the central section provided with a vertically-disposed seat-standard, a seat guided by the said standard, and connections between the seat and the end sections of the sectional shaft, substantially as described.

13. A riding-harrow comprising a plurality of harrow-sections, a transversely-arranged shaft divided into independently-movable central and end sections, each section carrying a supporting-wheel, the central section provided with a vertically-arranged seat-standard, a seat-support vertically movable upon and guided by the seat-standard, transversely-arranged rods having their upper ends connected with the seat-support and their outer ends connected with the end sections of the supporting-shaft, and longitudinally-arranged braces connected with the seat-standard and to said harrow-sections, substantially as described.

14. A combined riding and supporting attachment for harrows comprising a transversely-arranged shaft, a vertically-disposed seat-standard connected with the shaft, a vertically-disposed rod movable upon the upper end of the seat-standard, and a spring connected with the vertically-movable rod at its lower end, the upper end of the spring carrying a seat and braces connecting the shaft and the said rod, substantially as described.

15. A combined riding and supporting attachment for harrows comprising a transversely-arranged shaft divided into a central and end sections, each section carrying a supporting-wheel, a vertically-arranged seat-standard carried by the central section, a vertically-movable rod moving through the upper end of the said standard, the vertically-moving rod having a spring connected therewith at one end and a seat connected to the opposite end of the spring, and transversely-arranged brace-rods having their upper ends connected with the vertically-movable rod and their outer ends connected with the end sections of the supporting-shaft, substantially as described.

16. A combined riding and supporting attachment for harrows comprising a transversely-arranged supporting-shaft divided into a central and end sections, each section carrying a supporting-wheel, a U-shaped seat-support having its lower ends connected with the central section of the shaft at opposite sides of the central supporting-wheel, a vertically-disposed seat-supporting rod having its upper end moving through the doubled portion of the U-shaped seat-standard, a block sliding between the parallel portions of the seat-standard and receiving the lower end of the vertically-movable rod, and transversely-arranged weight-receiving braces having their lower ends connected with the end sections of the sectional shaft, and their upper ends connected with the vertically-movable rod, and a seat connected with the vertically-movable rod, substantially as described.

17. The combination with a plurality of independently vertically movable harrow-sections, of a supporting attachment comprising a transversely-arranged shaft carrying supporting-wheels, said harrow-sections being pivotally connected, a centrally-arranged tongue having its rear end connected with the said supporting-shaft, the said tongue provided with a depending guide, and the front pivotal point of the said harrow-sections moving in the said vertically-arranged tongue-guide, substantially as described.

18. The combination with a plurality of vertically-movable harrow-sections, of a supporting attachment comprising a transversely-arranged shaft carrying supporting-wheels, a centrally and forwardly extending tongue having its rear end connected with the supporting-shaft, the harrow-sections having their inner sides pivotally connected, the said tongue provided with a depending vertical guide at the forward ends of the said harrow-sections, the pivotal point of the front ends of the harrow-sections provided with a roller extending into the said vertically-arranged tongue-guide, substantially as described.

19. The combination with a plurality of vertically-movable harrows, of a supporting attachment comprising a transversely-arranged shaft, a tongue having its rear end connected with the said shaft, the harrows pivotally connected at their inner sides, the tongue provided with a depending guide, the front pivotal connection of the harrows extending into the said vertically-arranged guide, a vertically-arranged seat-standard carried by the shaft at its center, and guiding attachments between the inner rear portions of the harrows and the said vertically-disposed seat-standard, substantially as described.

20. The combination with a plurality of independently vertically movable harrow-sections, of a supporting attachment comprising a transversely-arranged shaft carrying supporting-wheels, the said harrows connected at their inner sides, a seat-standard connected with the said supporting-shaft at a point intermediate of its ends and between the said harrow-sections, the adjacent portions of the harrow-sections having guides engaging the said seat-standards, substantially as described.

21. A harrow comprising a plurality of independently-movable harrow-sections, a transversely-arranged supporting-shaft having supporting-wheels, a centrally-arranged seat-standard extending between the harrow-sections, the adjacent portions of the harrow-sections having guides with rollers at their rear sides engaging the rear edge of the seat-standard, substantially as described.

22. A harrow comprising a harrow-section, a transversely-arranged supporting-shaft, the harrow-section having an oscillating tooth-bar, teeth carried thereby, the rear portion of the harrow-section supported by the shaft, a tongue, one of the tooth-bars provided with a laterally-extending lever, a connection between the said lever and the tongue, whereby an oscillation of the tooth-bar will cause the forward end of the harrow-section to be raised and lowered and supported if desired, substantially as described.

23. A harrow comprising a plurality of independently vertically movable harrow-sections, a supporting attachment comprising a transversely-arranged sectional shaft, a supporting-wheel for the several sections of the shaft, and flexible connections between the adjacent ends of the several sections of said shaft, substantially as described.

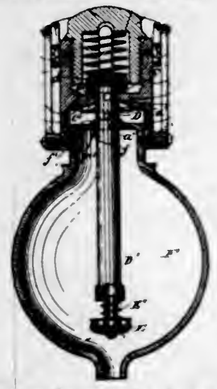
24. A harrow comprising a plurality of independently vertically movable harrow-sections, a supporting attachment comprising a transversely-arranged shaft, said shaft composed of three independent portions, a supporting-wheel carried by each of the said independent portions, the adjacent ends of the several independent portions hinged together, substantially as described.

659,577. DRAFT APPARATUS. JOHN CEDERSTROM, New York, N. Y., assignor to the United States Aerating Fountain Company, of New York. Filed Oct. 7, 1899. Serial No. 732,963. (No model.)

Claim.—1. In a draft apparatus, a chest communicating freely with the main reservoir and having a valve-controlled outlet, a vertically-reciprocating bulb located in the extension of said chest and open at the top and the bottom, in combination with means for lifting said bulb and thereby first closing it at both the top and bottom and then by its further traverse unseating the valve of said chest, substantially as described.

2. In a draft apparatus, the combination with a suitable chest and a valve located therein, of an operating-lever pivoted upon said chest, and a bulb or other vessel connected to said lever by links, the shifting of the lever serving to lift said bulb and to open said valve, substantially as described.

3. In a draft apparatus, a chest communicating freely with the main reservoir and having a valve controlling its outlet, a reciprocating bulb located in the extension of said chest and open at both ends, in combination with means for shifting said bulb and thereby closing it at both ends, and for opening said valve, substantially as described.



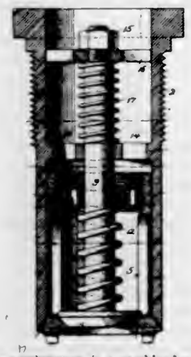
4. In a draft apparatus, the combination of a chest having an aperture in its floor, a plunger located in said aperture and provided with a longitudinal passage-way whose upper inlet is normally closed by the floor of the chest, a plug carried by the lower end of said plunger, a bulb surrounding the lower end of said plunger and having an outlet at its bottom and an opening at its top, mechanism for raising said bulb and thereby closing both its outlet and its opening, and means whereby the further traverse of said bulb lifts said plunger and thereby opens the upper inlet of said passage-way, substantially as described.

5. In apparatus for drawing off or delivering liquids either at high or low pressure or by gravitation an intermediate or measuring chamber having an inlet and outlet opening at the top and an outlet-opening at the bottom having an upward-and-downward movement.

6. In an apparatus for drawing off or delivering liquids either at high or low pressure or by gravitation an intermediate chamber having an inlet and outlet at the top and having an outlet-opening at the bottom in combination with a central rod having a valve at each end operated by the perpendicular movement of the chamber.

7. In an apparatus for drawing or delivering liquids either at high or low pressure or by gravitation an intermediate chamber having an inlet and outlet opening at the top and an outlet at the bottom in combination with a rod having a valve at its lower end within said chamber attached in a supplying vessel or tube, operated by the perpendicular movement of the chamber substantially as herein described and explained.

659,578. COMBINED VACUUM AND DISCHARGE VALVE. RICHARD U. CHADWICK, Philadelphia, Pa. Filed June 1, 1900. Serial No. 18,777. (No model.)



Claim.—1. The combination, in a combined vacuum and discharge valve, of a chest or casing, a vacuum-valve adapted to a seat thereon, a discharge-valve adapted to a seat on the outside of said vacuum-valve, and yielding means for maintaining said valves against their seats, the means for holding the relief-valve to its seat being disposed on the outside of the vacuum-valve and carried by and moving with the same, substantially as specified.

2. The combination, in a combined vacuum and discharge valve, of a chest or casing, a vacuum-valve adapted to a seat thereon, a discharge-valve adapted to a seat on the outside of said vacuum-valve, a bearing-ring carried by the outer portion of the vacuum-valve and adjustable longitudinally in respect thereto, a spring interposed between said bearing-ring and the pressure-valve, and yielding means for holding the vacuum-valve against its seat, substantially as specified.

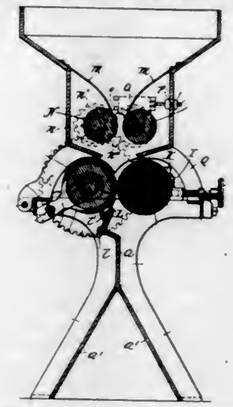
3. The combination, in a combined vacuum and discharge valve, of a chest or casing, a partition therein, a vacuum-valve adapted to a seat on said chest, a pressure-valve adapted to a seat on said vacuum-valve, a bearing-ring carried by the vacuum-valve and adjustable longitudinally in respect to the same, a spring interposed between said bearing-ring and the pressure-valve, a pressure-valve stem passing through said ring and through the partition in the chest or casing, a guide-bar carried by said stem, and a spring interposed between said guide-bar and the partition in the chest or casing, substantially as specified.

4. The combination in a combined vacuum and discharge valve of a chest or casing, a vacuum-valve adapted to a seat thereon, a discharge-valve adapted to a seat on said vacuum-valve, springs for holding the valves against their seats, and a single stem serving for both valves, substantially as specified.

5. The combination, in a combined vacuum and discharge valve, of a chest or casing having a straight longitudinal bore open at both ends for the direct passage of fluid through it, a vacuum-valve adapted to a seat on said chest, a discharge-valve adapted to a seat on said vacuum-valve, and yielding means for maintaining said valves against their seats, substantially as specified.

6. The combination, in a combined vacuum, relief, and automatic air-discharge valve, of the chest or casing, a valve seated thereon, a second valve seated on the first and having an opening through it and also a hollow stem, and an automatic expansion-valve contained in said hollow stem, and serving, when expanded, to close said opening, substantially as specified.

659,579. RAISIN-SEEDER. FRANK H. CHASE, Chicago, Ill., assignor to the Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Filed July 1, 1898. Serial No. 684,977. (No model.)



Claim.—1. In a feeding device, the combination of a pair of cylindrical feed-rolls journaled eccentrically and disposed side by side but out of contact with each other, so as to provide a feed-passage of predetermined width between the two rolls and with radii of equal length projecting in the same direction from their respective axes of motion, and means for revolving the rolls, whereby the feed-passage is caused to vibrate horizontally, substantially as set forth.

2. In a feeding device, the combination of a pair of eccentrically-journaled feed-rolls disposed side by side but out of contact with each other, so as to provide a feed-passage of predetermined width and with radii of equal length projecting in the same direction from their respective axes of motion, and means for revolving them so that their adjacent faces move upward, whereby the feed-passage is caused to vibrate horizontally, substantially as set forth.

3. In a feeding device, the combination of a pair of cylindrical feed-rolls journaled eccentrically and disposed side by side but out of contact with each other, so as to provide a feed-passage of predetermined width, means for revolving them so that their adjacent faces move upward, whereby the feed-passage is caused to vibrate horizontally, and a hopper having a bottom formed in movable sections bearing upon the feed-rolls so as to partake of their movement, substantially as set forth.

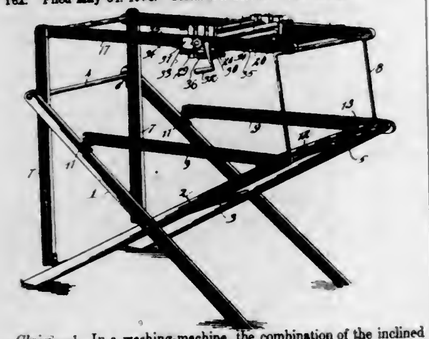
4. In a feeding device, the combination of a pair of cylindrical feed-rolls journaled eccentrically and disposed side by side but out of contact

with each other, so as to provide a feed-passage of predetermined width, means for revolving them whereby the feed-passage is caused to vibrate horizontally, and a hopper having a bottom formed of sheets of flexible material resting upon the feed-rolls so as to partake of their movement, substantially as set forth.

5. In a raisin-seeder the combination with a pulp-receiver consisting of a cylinder having circumferential grooves, of pulp-ejectors occupying the grooves, a shaft by which the pulp-ejectors are supported, said ejectors being notched at one end to straddle the shaft, and at the other end to straddle the cylinder, and hangers supporting the shaft and in turn supported by the shaft of the pulp-receiver substantially as set forth.

6. In a raisin-seeder, the combination of a cylinder provided with grooves disposed longitudinally, metallic strips occupying the grooves, and having teeth presented outwardly, means for confining the strips in the grooves, so that the teeth fall in circumferential rows, means for impaling the pulp upon the teeth, the interstices between the teeth being insufficient to admit the seeds, and means occupying the spaces between the circumferential rows of teeth for ejecting the pulp, substantially as set forth.

659,580. **WASHING-MACHINE.** JOSEPH C. CHURCHILL, Whitt, Tex. Filed May 31, 1900. Serial No. 18,609. (No model.)



Claim.—1. In a washing-machine, the combination of the inclined legs pivotally connected and crossing each other, the horizontal supporting-bars hinged at one end to the adjacent legs and detachably connected at the other end to the other legs, the rear standards hinged to the lower ends of the adjacent leg and detachably interlocked with the upper end of the other legs, the hinged frame connected at its back to the standards and adapted to support the washing mechanism, and means for supporting the front of the hinged frame, substantially as described.

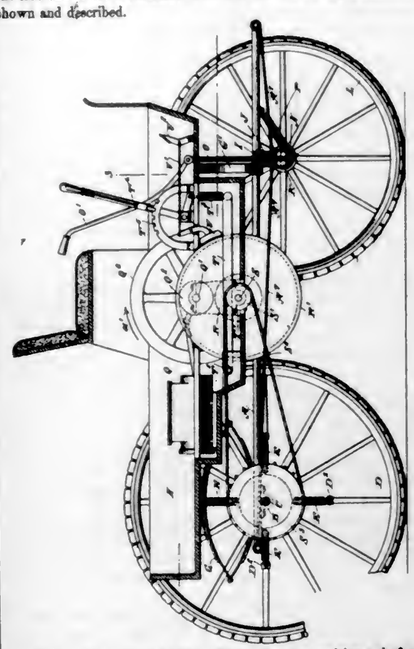
2. In a washing-machine, the combination of the inclined legs 1 and 2 pivotally connected between their ends, the rear standards hinged at their lower ends to the lower ends of the legs 2 and detachably connected with the upper ends of the legs 1 and extended above the same, the supporting-bars hinged to one set of legs and detachably interlocked with the other, the hinged frame adapted to support the washing mechanism, and connected with the upper ends of the standards, and a brace hinged to the legs 2 and adapted to fold against the same, and detachably interlocked with and supporting the front ends of the hinged frame, substantially as described.

3. In a washing-machine, the combination with the inclined legs 1 and 2 pivotally connected, the legs 2 being provided at their upper ends with hooks, the rear standards hinged to the lower ends of the legs 2 and provided at their upper portions with hooks, the transverse rod 4 connecting the legs 1 and engaging the hooks of the standards, the horizontal supporting-bars 9 hinged at their rear ends to the legs 1, the rod connecting the front portions of the bars 9 and engaging the hooks of the legs 2, the hinged frame disposed horizontally at the top of the rear standards and connected with the same, and the rectangular brace or support hinged to the legs 2 and interlocked with the front end of the hinged frame, substantially as described.

659,581. **MOTOR-VEHICLE.** AVON M. COBURN, Daunt, Cal. Filed Jan. 2, 1900. Serial No. 125. (No model.)

Claim.—1. A motor-vehicle having a driving-gear, comprising a shaft rotated from the motor, a driving-wheel thereon, a counter-shaft, two wheels on the counter-shaft and adapted to be driven in either direction from the said drive-wheel, said wheels being of different diameters and concentric to each other and a lever under the control of the operator and carrying the bearings for the said counter-shaft, to move the said wheels in or out of contact with the drive-wheel, substantially as shown and described.

2. A motor-vehicle having a driving-gear, comprising a shaft rotated from the motor, a driving-wheel thereon, a counter-shaft, two wheels on the counter-shaft and adapted to be driven in either direction from said drive-wheel, said wheels being of different diameters and concentric to each other, a lever under the control of the operator and carrying bearings for the said counter-shaft, to move the said wheels in or out of contact with the drive-wheel, a hand-lever, and a spring interposed between the free end of the first-named lever and the hand-lever, substantially as shown and described.



3. A motor-vehicle having a driving-gear, comprising a shaft rotated from the motor, a driving-wheel thereon, a counter-shaft, two wheels on the counter-shaft and adapted to be driven in either direction by said drive-wheel, said wheels being of different diameters and concentric to each other, a lever under the control of the operator and carrying bearings for the said counter-shaft, to move the said wheels in or out of contact with the drive-wheel, and a brake for engagement with the larger wheel, substantially as shown and described.

4. A motor-vehicle, comprising a frame, a rear axle journaled on the frame and carrying the rear or drive wheels, a front axle made in parts each carrying a wheel, a false axle on which the front-axle parts are fulcrumed, a steering-shaft mounted to turn in the false axle and provided at its lower end with an arm loosely connected with the inner ends of the said front-axle parts, and a bolster carried by the said false axle and connected with the said frame, substantially as shown and described.

5. A motor-vehicle, comprising a frame, a rear axle journaled on the frame and carrying the rear or drive wheels, a front axle made in parts each carrying a wheel, a false axle on which the front-axle parts are fulcrumed, a steering-shaft mounted to turn in the false axle and provided at its lower end with an arm loosely connected with the inner ends of the said front-axle parts, a bolster carried by the said false axle and connected with the said frame, and a spring connection between the false axle and said frame, substantially as shown and described.

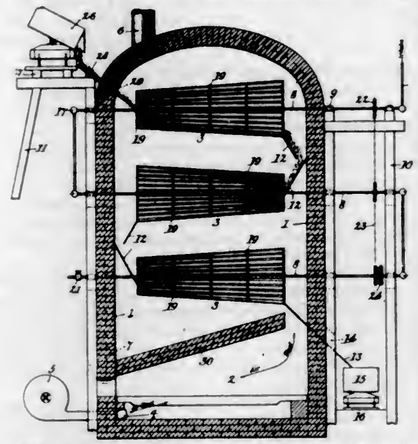
6. A motor-vehicle having a steering-gear comprising a steering-axle made in parts each carrying a wheel at its outer end and having their inner ends slotted, a false axle on which said axle parts are independently fulcrumed, and a steering-shaft under the control of the operator and having arms provided with pins engaging the slotted ends of the said axle parts, substantially as shown and described.

7. A motor-vehicle having a steering-gear comprising a steering-axle made in parts each carrying a wheel at its outer end, a false axle on which said axle parts are independently fulcrumed, a steering-shaft under the control of the operator and having arms connected with the inner ends of the said axle parts, and a bolster carried by the vehicle-frame, the bolster resting on said false axle, and said steering-shaft forming the king-bolt for the bolster, substantially as shown and described.

8. A motor-vehicle, comprising an axle, drive-wheels mounted loosely on the axle, provided with a sprocket-wheel, a motor, a shaft driven from the motor, a wheel on said shaft, a counter-shaft, two wheels on the counter-shaft, said wheels being of different diameters and concentric to each other, a sprocket-wheel on said counter-shaft, a pivoted lever carrying the bearings for the counter-shaft, an operating-lever connected with the free end of the said pivoted lever, and a belt passing over the sprocket-wheels of the axle and counter-shaft, substantially as described.

9. A motor-vehicle, comprising an axle, drive-wheels loosely mounted on the axle, a yielding connection between the drive-wheels and axle, a motor, a shaft driven from the motor, a wheel on said shaft, a counter-shaft, two wheels mounted on the counter-shaft, said wheels being of different diameters and concentric to each other, a pivoted lever carrying the bearings for the counter-shaft, means for swinging said lever on its pivot, and means for operating the axle from the counter-shaft, substantially as described.

659,582. **PHOSPHATE-ROCK DRIER.** ORVILLE COODY, Mount Pleasant, Tenn. Filed Mar. 14, 1900. Serial No. 8,634. (No model.)



Claim.—1. In a furnace for drying phosphate-rock, the combination of a chamber having a furnace in the lower portion thereof, one or more hollow shafts rotatably mounted in said chamber above the furnace, means for rotating said shaft or shafts, a water-supply pipe connecting said shafts with a source of water-supply, a frusto-conoidal screen, fixed to each shaft, constructed of pipes in communication with the hollow shaft, whereby a circulation of water may be maintained throughout the screen structure, and for feeding phosphate-rock into the small end of the screen, substantially as described.

2. In a furnace for drying phosphate-rock, the combination of a furnace-chamber having a furnace in the lower portion thereof, a plurality of hollow shafts mounted in the side walls of said furnace in different horizontal planes and communicating with one another, a pipe leading from a source of water-supply connected to the upper hollow shaft, a screen composed of pipes communicating with and fixed to each shaft, means for rotating the hollow shafts, means for successively directing the rock from the upper screens to the lower screens and for discharging the dried rock from the lowest screen through the wall of the furnace-chamber, and means for feeding the rock through the top of the furnace to the upper screen, substantially as described.

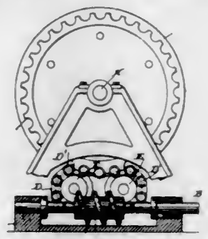
3. In a furnace for drying phosphate-rock, the combination of the furnace-chamber having a furnace in the bottom, a plurality of hollow shafts, rotatably mounted in said chamber, one above another, connected with a source of water-supply and communicating with one another, means for rotating said shafts, a frusto-conoidal screen composed of pipes fixed to, and communicating with, each shaft, the small end of each lower screen being directly below the large end of the screen above it, a chute for directing the rock through the top of the furnace into the small end of the upper screen, and chutes for directing the rock from the large end of each screen to the small end of the screen below, and a chute for directing the rock from the lowest screen through a discharge-opening in the wall of the chamber, substantially as described.

4. In a furnace for drying phosphate-rock, the combination of a chamber having a furnace in the bottom, an inclined crown-wall above said furnace adapted to direct the screenings through an opening in the chamber-wall, a plurality of hollow shafts rotatably mounted in bearings, one above another, in the walls of the chamber, and communicating with one another, a pipe connecting the upper shaft with a source of water-supply, a frusto-conoidal screen composed of pipes, fixed to, and communicating with, each hollow shaft, means for rotating said shafts, chutes connecting the discharge ends of the upper screens with the inlet end of the next lower screen, a chute for feeding the rock through the top of the furnace to the upper screen, and a chute for discharging the dried rock through the wall of the chamber, substantially as described.

5. In a furnace for drying phosphate-rock, the combination of a furnace-chamber, having a furnace at the bottom, a series of frusto-conoidal screens within the furnace-chamber composed of hollow pipes, hollow shafts mounted in bearings one above another in the chamber-walls, and communicating with the pipes of the screen structure, a pipe for conveying water to the hollow shafts, pipes connecting the hollow shafts, all having universal joints to permit the shafts to rotate, means for rotating the shafts, chutes connecting the discharge ends of the screens with the inlet ends of the screen next below, a chute for feeding the rock through the top of the furnace to the upper screen, a chute for directing the dried material through the wall of the chamber, and a chute for discharging the screened dust and dirt from said chamber, substantially as described.

6. The herein-described drier for phosphate-rock, consisting of a chamber having a furnace in the bottom, an inclined crown-wall above said furnace adapted to discharge screenings through an opening in the wall of the chamber, a series of frustro-conoidal screens composed of pipes rotatably mounted in different longitudinal planes above said crown-wall, the large ends of the said screens alternating with the small ends of the screens next below, hollow shafts supporting said screens and communicating with the pipes forming the same, chutes connecting the discharge of the screens with the inlet ends of the screens next below, pipes connecting the hollow shafts, universal joints between said pipes and shafts, means for rotating the shafts, a chute for feeding the rock through an opening in the top of the chamber to the small end of the upper screen, and a chute for directing the dried rock from the lower screen through an opening in the chamber-wall, substantially as described.

659,583. **WORM-AND-CHAIN DRIVING-GEAR.** DANIEL CORCORAN, Yonkers, N. Y. Filed Feb. 26, 1900. Serial No. 6,519. (No model.)

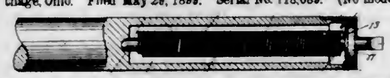


Claim.—1. The combination of the rotatable worm, the chain having on one side projections engaged by said worm, a driven wheel engaging the projections of the chain on the same side as the worm, and idlers for holding a portion of the chain adjacent to the driven wheel.

2. The combination of the chain having projections on both sides, a double driven wheel straddling the chain and engaging the projections on both sides thereof, the rotatable worm in driving engagement with the projections on one side of the chain, and idlers for holding a portion of the chain adjacent to the driven wheel.

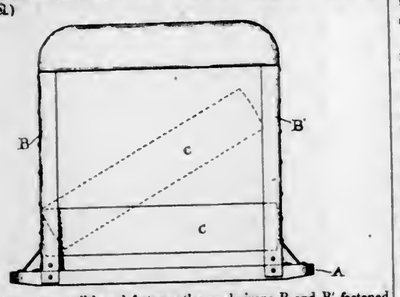
3. The combination of the chain having projections, idlers over which passes said chain, a driven wheel engaging one run of the chain centrally between the idlers, and a driving-worm engaging the other run of the chain centrally between the idlers.

659,584. **SPRING SHADE-ROLLER.** EDWARD C. CORDES, Carthage, Ohio. Filed May 29, 1899. Serial No. 718,689. (No model.)



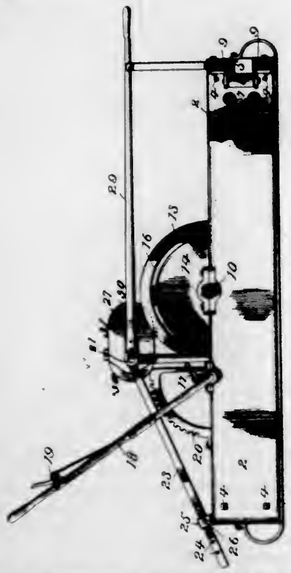
Claim.—In a shade-roller attachment, the combination of the shaft, the collar secured thereon and provided with pockets at its periphery, the flange secured to the shaft laterally of the collar and projecting outwardly beyond the same, the disk mounted to turn upon the shaft and having a spring connection therewith, said disk surrounding the collar and being provided upon its inner side with recesses adapted to register with said pockets, the walls of said recesses curving inward from a point of greatest depth, and balls of a diameter substantially equal to said greatest depth, movably located in the said pockets and recesses and in guiding engagement with said flange, for the purpose set forth.

659,585. TAIL-BOARD FASTENING FOR WAGONS. GEORGE R. DANIELS, Rowley, Mass. Filed Mar. 26, 1900. Serial No. 10,136. (No model.)



Claim.—In a tail-board fastener the angle-irons B and B' fastened to the shetlock A and to the standards D and D' and the separate boards C composing said tail-board, said separate boards C having rounded ends and fitting into, and held in place by the grooves E and E' formed by the angle-irons B and B' substantially as set forth.

659,586. HOISTING MECHANISM FOR WELL-TUBING. WILLIAM HECKART, Bradner, Ohio. Filed Feb. 12, 1900. Serial No. 4,969. (No model.)



Claim.—1. In apparatus for raising and lowering well-tubing and the like and in combination with the elevating-rope and actuating mechanism therefor, a lifting device disposed to deflect the elevating-rope from a normal position whereby the object attached thereto is elevated a short distance substantially as and for the purpose set forth.

2. In apparatus for raising and lowering well-tubing and the like and in combination with the elevating-rope, and actuating mechanism therefor, a rod disposed in the path of the elevating-rope, and operating means connected with said rod for moving it to cause a deflection of the elevating-rope from a normal position whereby the object attached thereto is lifted, substantially as and for the purpose specified.

3. In apparatus for raising and lowering well-tubing and the like and in combination with the elevating-rope, and actuating mechanism therefor, a shaft, a rod spaced from and connected with the said shaft and extending across the path of the elevating-rope, and means for turning the shaft in its bearings to cause the said rod to effect a deflection of the elevating-rope whereby the object attached thereto is lifted a short distance, substantially as specified.

4. In apparatus for raising and lowering well-tubing and the like and in combination with the elevating-rope, and actuating mechanism therefor, a lifting device for effecting a deflection of the elevating-rope to lift the object attached thereto, and adjustable mountings for said lifting device to adapt its position to the relative inclination of the elevating-rope, substantially as set forth.

5. In apparatus for raising and lowering well-tubing and the like and in combination with the elevating-rope, and actuating mechanism therefor, pivoted uprights, a lifting device, supported by means of said uprights and adapted to effect a deflection of the elevating-rope for the purposes stated, and means for turning the uprights upon their pivotal connections and holding them in an adjusted position, substantially as set forth.

6. In combination with the elevating-rope of a hoisting apparatus of the character described, means for effecting a deflection of said elevating-rope from a normal position for the purposes set forth, the same comprising a shaft, arms projecting from the shaft in the same direction, a rod attached to the outer ends of said arms and means applied to the shaft to effect a turning thereof and an arcuate movement of the rod, substantially as and for the purpose set forth.

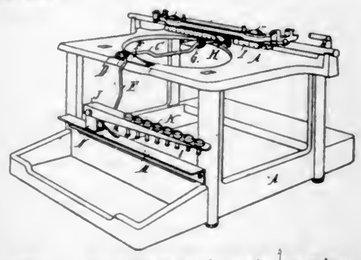
7. In combination with the elevating-rope of hoisting mechanism of the character described, a lifting device, the same comprising pivoted uprights, a shaft journaled to the free ends of the upright, a rod paralleling the shaft and connected therewith, a brace having bifurcated portions connected to the end portions of the aforesaid shaft, means adjustably connecting the said brace with the frame of the apparatus, and a lever applied to the shaft to effect a turning thereof in its bearings and a deflection of the elevating-rope from a normal position, substantially as and for the purpose specified.

8. In combination with the elevating-rope of a hoisting apparatus of the character specified, means for effecting a deflection of said elevating-rope from a normal position for the purpose described, the same comprising a shaft, a rod parallel with, spaced from and connected to the said shaft, and companion pulleys mounted to slide upon the shaft and rod and adapted to receive the aforementioned elevating-rope between them, substantially as described.

9. In combination with the elevating-rope of a hoisting apparatus of the character specified, means for effecting a deflection of said elevating-rope from a normal position for the purpose described, the same comprising a shaft, a rod parallel with, spaced from and connected to the said shaft, pulleys mounted to slide upon the shaft and rod, and a frame embracing the sides of the pulleys and slidable therewith upon the rod and shaft, substantially as specified.

10. In combination with the elevating-rope of a hoisting apparatus of the character specified, means for effecting a deflection of said elevating-rope from a normal position for the purpose described, the same comprising a shaft, a rod parallel with, spaced from and connected to the said shaft, pulleys mounted to slide upon the shaft and rod, and a frame embracing the sides of the pulleys and slidable therewith upon the rod and shaft, said frame being sectional and having the middle portion of its side pieces thickened and formed with tapering depressions, substantially as set forth.

659,587. TABULATING ATTACHMENT FOR TYPE-WRITERS. GILBERT H. IRISH, Dallas, Tex. Filed May 19, 1900. Serial No. 17,288. (No model.)



Claim.—1. In a tabulating attachment for type-writers, a key-bar pivotally supported and provided with a series of keys mounted to slide longitudinally and positioned above a base with which they are adapted to contact, in combination with a rock-shaft connected to said key-bar and carrying a pawl, and a stepped stop mounted on the scale of the type-writer and positioned to be engaged by said pawl, substantially as described.

2. In a tabulating attachment for type-writers, a key-bar pivotally supported, a series of keys having shanks of different lengths mounted to slide in apertures in said key-bar, and positioned above a base with which they are adapted to contact, a rock-shaft connected to said key-bar, a pawl keyed on said rock-shaft, a stepped stop adjustably mounted on the scale of the type-writer, and a friction device mounted on said rock-shaft and adapted to retard the movement of the carriage, substantially as described.

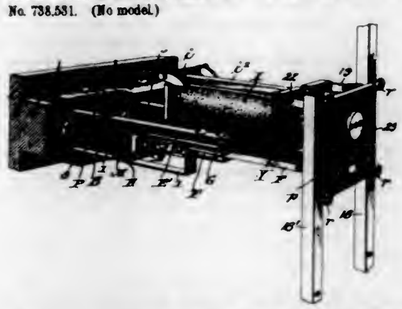
3. In a tabulating attachment for type-writers, a key-bar pivotally supported at one end, a number of keys of different lengths mounted in said key-bar, and positioned above a base with which they are adapted to contact, a rock-shaft, a connecting-rod connecting said rock-shaft and said key-bar, a pawl on the rock-shaft, a stepped stop adjustably mounted on the scale of the type-writer and positioned to be engaged by said pawl, and a friction device for retarding the movement of the carriage, said friction device comprising a cam having a plane face and secured to the rear end of the rock-shaft above the carriage-spring of the type-writer and a spring positioned beneath the cam and under the carriage-spring and provided with a set-screw, substantially as described.

4. In combination with a type-writer carriage adapted to be tilted up and disengaged from the feed mechanism, of a pivotally-supported key-bar, a series of keys mounted to slide in said key-bar and adapted to be actuated to throw the key-bar and to regulate the length of said throw, a rock-shaft connected to be actuated by operating said key-bar, a stepped stop mounted on said carriage, a pawl keyed to said rock-shaft and adapted to be actuated and engage said stepped stop, and means for tilting said carriage to disengage it from the feed mechanism, which is operated by the rock-shaft simultaneously with the pawl.

5. In combination with a type-writer carriage adapted to be tilted up and disengaged from the feed mechanism, of a pivotally-supported key-bar, a rock-shaft connected to be operated by actuating said key-bar, a cam having a flat face mounted on said rock-shaft and adapted to be actuated to tilt said carriage and disengage it from the feed mechanism, and a second cam mounted on said rock-shaft and adapted to be actuated to bear against the feed or carriage spring to retard the movement of the carriage after it has been released.

6. In combination with a type-writer carriage adapted to be tilted up and disengaged from its feed mechanism, of a rock-shaft, means for giving a series of throws of different lengths to said rock-shaft, corresponding to the different places of numeration, a stepped stop mounted on said carriage, a pawl keyed to said shaft and adapted to be actuated to engage the teeth on said stepped stop, and means for tilting the carriage to disengage it from the feed mechanism, which is actuated by said rock-shaft.

659,588. TELEPHONE-SWITCHBOARD ANNUNCIATOR AND JACK. CHARLES T. MASON, Sumter, S. C. Filed Nov. 28, 1899. Serial No. 738,531. (No model.)



Claim.—1. A combined telephone annunciator and jack, comprising a horizontal magnet and subjacent jack-throat, a drop-shutter arranged behind the face-plate and hinged below its center but above the jack-throat and adapted to fall inwardly, and having a projection below its hinged point adapted to extend into the throat of the jack when the shutter is down and be restored by the point of the plug coming in contact with said extension as the plug enters the jack substantially as described.

2. A combined telephone annunciator and jack, comprising a horizontal magnet and subjacent jack-throat, a drop-shutter arranged behind the face-plate and hinged below its center but above the jack-throat and adapted to fall inwardly, and having a projection below its hinged point adapted to extend into the throat of the jack when the shutter is down, in combination with a drop-magnet located behind it and having a shutter-support adapted to abut against the top edge of the shutter to hold it upright, substantially as described.

3. In a combined telephone annunciator and jack, an inwardly-falling drop-shutter hinged below its center and having on its front face a projection bearing an indication, in combination with an annunciator face-plate having a perforation through which the said projection protrudes to be visible from an oblique position substantially as described.

4. In a combined telephone annunciator and jack, a drop-shutter hinged below its center and above the jack-throat and arranged to fall inwardly, and having that portion below its hinged point reduced to enable the narrow portion of the shutter to fall into the subjacent jack-throat substantially as and for the purpose described.

5. In a combined telephone annunciator and jack, a drop-shutter located behind the face-plate of the annunciator, and pivoted below its center, with that portion below the pivoted point adapted to extend into the throat of the jack, said shutter having on its front face a projection bearing an indication, in combination with the face-plate having a perforation through which the said projection protrudes substantially as and for the purpose described.

6. In a telephone annunciator and jack, a series of metal supporting-bars, face-plates of non-conducting material of uniform size secured thereto by screws, an inwardly-dropping shutter behind the face-plates, night-bell terminal contacts behind each shutter arranged to be brought into contact by the fall of the shutter, the positive contacts of all the drops being connected to one set of supporting-bars, and the negative ones to the alternating set of said bars, and a battery and bell-circuit connected in multiple to said alternating bars as described.

7. The combination in a telephone-switchboard, of back supporting frame-bars for the jacks, two continuous terminal conductor-plates for the ringing-circuit, said plates being arranged to project one beyond the other and insulated from each other, two spring-bars of different lengths arranged on the jack to contact with these plates but normally out of electrical connection therewith, and means arranged on one side of said spring-bars to bring them simultaneously into contact with the ringing-terminals by the insertion of the plug substantially as described.

8. The combination in a telephone-switchboard, of back supporting frame-bars for the jacks, two continuous terminal conductor-plates for the talking-circuit of the central office, said plates being arranged to project one beyond the other and insulated from each other, two spring-bars of different lengths arranged on the jack to contact with these plates but normally out of connection therewith, and means arranged on one side of said spring-bars to bring them simultaneously into contact with said talking-terminals by the insertion of the plug substantially as described.

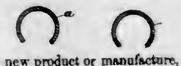
9. The combination with the back supporting frame-bars; of four continuous plates arranged two above and two below, and the plates of each pair projecting at different distances and insulated from each other, a jack having four spring-contacts with bearing-points reaching to said plates, and means for projecting them into contact by the insertion of the plug substantially as shown and described.

10. A telephone-jack having a spring-seated plunger in its throat bearing a cross-head at its rear end, jack-springs having bends in them arranged at different distances along their length to be struck by said cross-head to deflect said springs at different points in the travel of the plunger, and contact-plates mounted on the back support normally out of electrical connection with the jack-springs substantially as described.

11. A telephone-jack having two supporting-rods forming line-terminals, with helical springs about the same, a plunger having a cross-head bearing thereagainst, jack-springs arranged above and below the same, and terminal contact-plates for the ringing and talking circuits arranged above and below the jack-springs as described.

12. A telephone-jack having a spring-seated plunger arranged to be advanced by the insertion of the plug, two jack-springs arranged on the same side of said plunger to be deflected by the same and two continuous contact-plates insulated from each other normally out of contact with the jack-springs, and arranged to be touched by said jack-springs when the latter are deflected by the plunger substantially as described.

659,589. PNEUMATIC TIRE FOR WHEELS. ROBERT J. C. MITCHELL, Waterfoot, England. Filed June 15, 1900. Serial No. 20,438. (No model.)



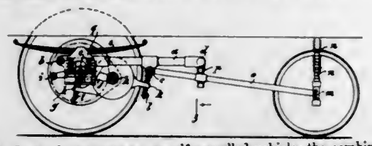
Claim.—1. As a new product or manufacture, a seamless and jointless removable outer cover or "tread" for pneumatic tires constructed from a single piece of hardened and milled felt of horseshoe cross-section, substantially as described.

2. As a new product or manufacture, a seamless or jointless removable outer cover or tread for pneumatic tires constructed of an endless ring of hardened and milled felt of horseshoe cross-section and with slit edges containing binding-wires, substantially as described.

659,590. TRUCK FOR AUTOCARS. ALBERT MÜHLBERG, Berlin, Germany. Filed June 30, 1900. Serial No. 22,180. (No model.)

Claim.—1. In trucks for autocars or self-propelled vehicles the combination with a motor-frame of a rear frame, a front frame, connecting-rods between the rear and front frames and springs securing said rods to the rear frame, substantially as and for the purpose described.

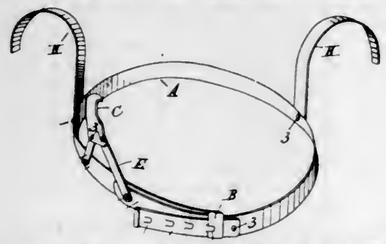
2. In trucks for autocars or self-propelled vehicles the combination with a motor-frame, of a rear frame, a front frame, connecting-rods flexibly jointed by means of springs to the rear frame and rigidly jointed to the front frame, substantially as and for the purpose described.



3. In trucks for autocars or self-propelled vehicles the combination with a motor-frame, of a rear frame, a front frame, connecting-rods one end of which is loosely movable on one of the transverse stays of the rear frame and flexibly jointed to the other transverse stay by means of springs, the other end of said connecting-rods being jointed to the front frame, substantially as and for the purpose described.

4. In trucks for autocars or self-propelled vehicles the combination with a motor-frame, of a rear frame, a front frame, means for flexibly connecting the front frame and the motor-frame to the rear frame whereby the motor-frame is formed into a rigid system by the connection of the wheel-gear casings by means of cross-stays and suspension-links, substantially as and for the purpose described.

659,591. **BUCKET-SUPPORT.** WILLIAM J. MUIR, Poowong East, Victoria. Filed July 19, 1900. Serial No. 24,247. (No model.)



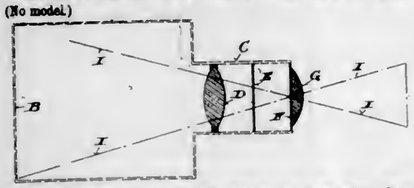
Claim.—1. In a bucket or pail holder the combination with an extensible band provided at one end with a loop, the other end of said band adapted to be passed through said loop and flexibly connected to the body of said band by means of rigid links, of means for adjusting the length of said band, substantially as described.

2. In a bucket or pail holder the combination with an extensible band provided at one end with a loop and at its other end flexibly secured to the body of the band, of a tongue, provided with lugs or ears, secured to said band and adapted to be passed through said loop for adjusting the length of said band, substantially as described.

3. In a bucket or pail holder the combination with an extensible band provided at one end with a loop, the other end of said band adapted to be passed through said loop, of rigid links pivotally secured to the body portion of said band and said last-mentioned end, a connection between said links, and a tongue, provided with lugs or ears, secured to said band and adapted to be passed through said loop for adjusting the length of the band, substantially as described.

4. In a bucket or pail holder the combination with an extensible band provided at one end with a loop, the other end of said band provided with a link and adapted to be passed through said loop, of a second link pivotally secured to the body of the band, a hook flexibly connecting said links, means for adjusting the length of said band, and means secured to said band for suspending the same, substantially as described.

659,592. **CAMERA ATTACHMENT.** LOUIS M. PIERRON and HERMANN R. MILLER, Milwaukee, Wis. Filed Oct. 9, 1899. Serial No. 732,994. (No model.)



Claim.—The combination of the double-convex lens of a photographic camera, a pair of centrally-slotted but otherwise opaque screens at intervals forward of said lens, the screen-slots being at right angles to each other, and a cylindrical lens opposing one of the screens crosswise of its slot.

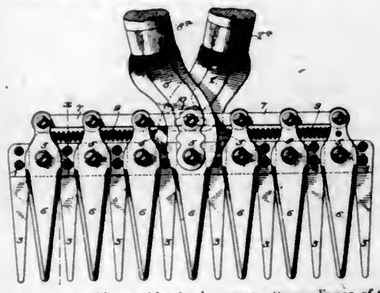
659,593. **TOOTH-BRUSH.** CHARLES W. RICHARDS, San Francisco, Cal. Filed Apr. 5, 1900. Serial No. 11,748. (No model.)



Claim.—1. A tooth-brush comprising a soft-rubber brush-head having integrally-formed cleansing-points, and integral webs of soft rubber connecting adjacent cleansing-points on substantially-transverse lines, substantially as and for the purpose set forth.

2. A tooth-brush comprising a soft-rubber brush-head, having rows of integrally-formed cleansing-points, the adjacent members of the outside adjacent rows being connected in pairs and transversely by integral webs of soft rubber.

659,594. **GRASS-CUTTER.** JOHN P. RIEDY, Williamsport, Pa., assignor of one-half to James W. Bowman, same place. Filed July 9, 1900. Serial No. 22,984. (No model.)



Claim.—1. The combination in a grass cutter or clipper, of the fixed plate having projecting teeth each of deep vertical cross-section, a series of cutting-levers pivoted to said plate, a bar connecting said levers, handles projecting rearwardly from the fixed plate and from one of said levers, and a coiled spring disposed in the rear of the fixed teeth and connected at one end to the fixed plate and at the other end to one of the pivoted levers, substantially as specified.

2. The combination in a grass cutter or clipper, of a fixed plate having projecting cutting-teeth and a rearwardly-projecting slotted stem or shank with handles thereon, a series of cutting-levers pivoted to said fixed plate, a bar connecting said levers, a handle projecting rearwardly from one of said levers, a bolt passing through the slot in the stem or shank of the fixed plate, and a plate covering said slot and secured to and moving with the connecting-bar of the series of levers, substantially as specified.

659,595. **BICYCLE.** JOSEPH P. SCHOOLER, Colorado, Tex. Filed Mar. 28, 1896. Serial No. 585,233. (No model.)



Claim.—1. In a bicycle substantially as described, the combination of the treadles and the supports therefor consisting of bars provided at their upper ends with lateral arms, bolts connecting said arms and adapted to clamp the same to the upright brace of a bicycle and means for securing the lower ends of said bars to the lower brace of the machine, substantially as shown and described.

2. The improvement in bicycles herein described, consisting of the treadle-supporting bars having at their upper ends lateral arms, bolts connecting said arms and adapted to clamp the same to the upright brace, bearing-boxes midway between the ends of said bars and clips for securing the lower ends of the bars to the lower brace, such bars being provided with a plurality of openings for the arms of said clips, the treadles pivoted in the box-bearing of the supporting-bars and having in rear of said pivots extensions provided with upwardly and forwardly projecting portions, the pawls pivoted to said portions, and pedals supported at the forward ends of the treadles and provided with laterally-extended foot-clasping springs substantially as shown and described.

3. In a bicycle the combination with the ratchet-wheel and the treadle-lever, of the pawl carried by said lever and having its point engaging the ratchet bifurcated forming guards projecting along the opposite sides of said ratchet-wheel substantially as shown and described.

4. In combination with the bicycle frame-bars, the ratchet-wheel, and the treadle having a pawl engaging said ratchet-wheel, the supporting-bars having bearings for the said treadles and clamps by which the said bars may be adjustably secured to the frame-bars of the bicycle substantially as shown and described.

659,596. **FURNACE.** DAVID E. SMITH, Oswayo, Pa. Filed Oct. 30, 1899. Serial No. 735,305. (No model.)



Claim.—1. The combination with the arch and grate of a furnace, of a feed-pot depending thereinto a suitable distance to prevent the accumulation of fuel at the sides of the grate, said feed-pot constituting a keystone for the arch and insuring an adequate space proportioned to its length inside of the arch between the arch and the fuel for the easy escape of the products of combustion.

2. The combination with the arch and grate of a furnace, of a feed-pot depending thereinto a suitable distance to prevent the accumulation of fuel at the sides of the grate, said feed-pot composed of fire-brick and made in sections and constituting a keystone for the arch and insuring an adequate space proportioned to its length inside of the arch between the arch and the fuel for the easy escape of the products of combustion.

659,597. **SEPARABLE CONE-BOBBIN.** WILLIAM P. WOOD and WILLIAM E. EMERY, Pawtucket, R. I. Filed July 30, 1900. Serial No. 25,348. (No model.)



Claim.—1. As a new article of manufacture, a cone-bobbin having its barrel and the hollow cone made separable from each other, whereby the bobbin is made adapted for return transportation.

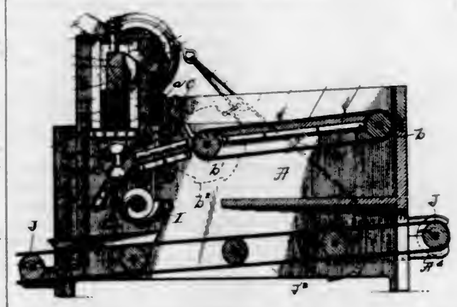
2. In a separable cone-bobbin, the combination of the barrel, and the hollow cone, by screw-threaded means, whereby the parts are made separable for reshipment, substantially as described.

3. In a separable cone-bobbin, the combination of the screw-threaded barrel, and the hollow cone, with the nut, for separably securing the barrel and cone together, substantially as described.

659,598. **MACHINE FOR PITTING FRUIT.** WILLIAM ANDERSON, Scappoose, Oreg. Filed Nov. 17, 1899. Serial No. 737,307. (No model.)

Claim.—1. In a machine of the class described, the combination of a rotating pitting-cylinder provided with fruit depressions and perforations extending therethrough adapted to permit the passage of the pits, reciprocating means for forcing the pits through said perforations, a trough disposed below said cylinder to receive the pits, means for rotating said cylinder to discharge the pitted fruit, and an angular plate arranged below said cylinder having diverging sides arranged to direct the pits into the trough on the one side, and to direct the pitted fruit away from said trough, as discharged, on the other, substantially as set forth.

2. The combination of a feeding-belt, a cross-bar arranged above said belt and having pins or rods projecting downward in rear thereof, a grooved distributing-plate arranged in rear of said pins, a pitting-block arranged in rear of said plate and having depressions therein adapted to receive the fruit corresponding to the grooves in said plate, a reciprocating member mounted above said pitting-block, and provided with means adapted to enter the depressions therein and remove the pits from the fruit contained in such depressions, substantially as set forth.



3. In a machine of the class described, the combination with a main drive-shaft, a pitting-cylinder, and a reciprocating member provided with means for removing the pits from the fruit held by the pitting-cylinder, of a pinion carried by the cylinder-shaft, a mutilated gear mounted on the main drive-shaft and adapted to intermittently operate the said pinion, and means carried by the main drive-shaft for actuating the reciprocating member whereby said reciprocating member is depressed while the pitting-cylinder is at rest, substantially as set forth.

4. In a machine of the class described, the combination with the frame, a main driving-shaft, a pitting-cylinder, and a reciprocating member provided with means for removing the pits from the fruit held by the pitting-cylinder of a pinion carried by the cylinder-shaft, a mutilated gear-wheel mounted on the main drive-shaft and intermittently operating said pinion, means carried by the main drive-shaft for actuating the reciprocating member whereby said reciprocating member is caused to descend while the pitting-cylinder is at rest, means for retracting said reciprocating member and means for positively locking the said cylinder during the operations of the reciprocating member, substantially as set forth.

5. In a machine of the class described, the combination of a rotating pitting-cylinder having perforations extending diametrically therethrough, a movable cross-head arranged above said cylinder and provided with a series of pins adapted to enter the perforations when they are in operative position, a driving-shaft, means carried by the driving-shaft and cross-head for causing the cross-head to descend at each revolution of the shaft, and mutilated gearing connecting the pitting-cylinder with the shaft, whereby the cylinder is caused to make a half-revolution to each revolution of the shaft, and present the opposite ends of the perforations alternately to the cross-head pins, substantially as set forth.

6. In a machine of the class described, the combination of a main drive-shaft, a pitting-cylinder having perforations extending diametrically therethrough, a reciprocating cross-head, mounted above said cylinder and provided with pins adapted to penetrate said perforations when the latter are in operative position, a pinion carried by the cylinder-shaft, a mutilated gear-wheel carried by the main drive-shaft gearing therewith for imparting to the cylinder a half-revolution after each reciprocation of the cross-head, whereby the opposite ends of the perforations are alternately presented to the pins, and means for locking the pitting-cylinder against movement during the operation of the cross-head, substantially as set forth.

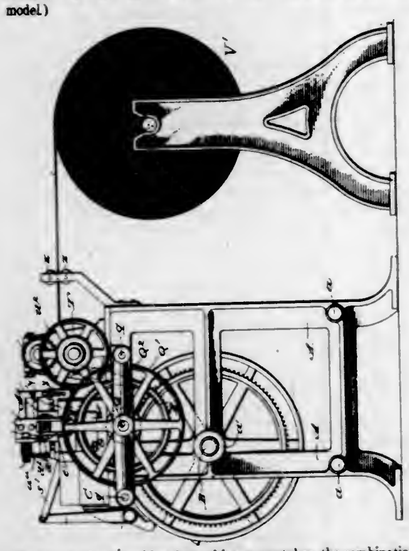
7. In a machine of the class described, the combination with a frame, a main driving-shaft, a pitting-cylinder and a reciprocating member provided with means for removing the pits from the fruit held by the cylinder, of a pinion carried by the cylinder-shaft, a gear-wheel carried by the main drive-shaft, and intermittently engaging the pinion, a projection carried by the pinion, and a locking-lever adapted to engage said projection to lock the pinion and cylinder against rotation, substantially as set forth.

8. In a machine of the class described, the combination with a pitting-cylinder, a reciprocatory cross-head provided with means for removing the pits from the fruit held by said cylinder, operating means for said cross-head including a main drive-shaft, and intermittent driving means for the cylinder including a pinion mounted on the cylinder-shaft, of means for securing the pitting-cylinder against rotation during the operation of the cross-head, comprising a locking-lever pivoted to the frame, and a projection upon the pinion with which said lever is adapted to have locking engagement, and means for releasing said lever from engagement with said projection after each reciprocation of the cross-head, substantially as set forth.

9. In a machine of the class described, the combination with a pitting-cylinder having depressions therein adapted to receive the fruit, a reciprocating cross-head having pins adapted to remove the pits from the fruit held by said cylinder and means for intermittently actuating said cross-head including a main drive-shaft, means for intermittently rotating the cylinder when the cross-head is at rest including a pinion carried by the cylinder-shaft and a mutilated gear-wheel upon the main drive-shaft, of means for locking the cylinder in position of rest comprising a pin carried by the pinion on the cylinder-shaft, a notched lever adapted to have locking engagement with said pin, and means for releasing said lever from such engagement after each reciprocation of the cross-head comprising a lever pivoted to the frame, a link connecting said lever and the locking-lever, and means carried by the gear-wheel upon the main shaft for actuating the releasing-lever, substantially as set forth.

10. In a machine of the class described, the combination with the pitting mechanism, of a feeding-belt mounted on rollers, a ratchet-wheel mounted on the shaft of one of said rollers, a driving-shaft, an eccentric secured thereto, a strap encircling said eccentric, and a pawl connected with said strap and engaging the ratchet-wheel, whereby the belt is given a step-by-step movement to feed the fruit, substantially as set forth.

659,599. **MACHINE FOR MAKING PAPER TUBES.** CHARLES A BAILEY, Cromwell, Conn. Filed July 7, 1900. Serial No. 22,869. (No model.)



Claim.—1. In a machine for making paper tubes, the combination, of a paste-supply, a reciprocating arbor, and means for revolving said arbor.

2. In a machine for making paper tubes, the combination, of a paste-supply, an arbor reciprocating laterally, and means for revolving said arbor intermittently, substantially as shown and described.

3. In a machine for making paper tubes, the combination, of a paste-supply, an arbor reciprocating laterally, and means for revolving said arbor when it is at the limit of its movement in one direction, substantially as shown and described.

4. In a machine for making paper tubes, the combination, of a paste-supply, and a revoluble arbor, one having a reciprocating motion laterally to and from the other, substantially as described.

5. In a machine for making paper tubes, the combination, of a revolving arbor upon which the paper is wound, a reciprocating stripper or tube-ejector adapted to remove the tube from the arbor, and a wiper through which the tube passes.

6. In a machine for making paper tubes, the combination, of a revolving arbor upon which the tube is wound, a reciprocating stripper or tube-ejector adapted to remove the tube from the arbor, and a rubber ring or gasket through which the tube passes, substantially as shown and described.

7. In a machine for making paper tubes, the combination, of a paste-pot, a revolving arbor movable vertically in and out of said paste-pot, and means for removing the tube from the arbor, substantially as shown and described.

8. In a machine for making paper tubes, the combination, of a paste-pan, an arbor movable vertically into and out of said pan, and a sleeve adapted to reciprocate upon the arbor to remove the tube therefrom.

9. In a machine for making paper tubes, the combination, of a paste-pan, a vertically-movable arbor, means for revolving said arbor when it is lowered into said pan, and means for removing the finished tube when the arbor is raised, substantially as shown and described.

10. In a machine for making paper tubes, the combination, of a paste-pan, an arbor movable into and out of said pan, means for revolving the arbor when lowered into the pan, and means for removing the finished tube when the arbor is raised, substantially as shown and described.

11. In a machine for making paper tubes, the combination, of a paste-supply, an arbor movable to and from the same, means for revolving the arbor, and means for removing the finished tube, substantially as shown and described.

12. In a machine for making paper tubes, the combination, of a paste pan or receptacle containing paste, a revolving arbor movable into and out of the paste, a pivoted plate adapted to fold the paper upon the arbor, and means for removing the finished tube, substantially as shown and described.

13. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, a revolving arbor movable into and out of the paste, a device for folding the end of the paper upon the arbor, and means for removing the finished tube, substantially as shown and described.

14. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, an arbor movable into and out of the paste, means for revolving the arbor, a device for folding the paper upon the arbor, means for removing the finished tube from the arbor, and a wiper through which the tube passes, substantially as shown and described.

15. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, an arbor movable into and out of the paste, means for revolving the arbor, mechanism for feeding paper under the arbor, and a tube-ejector for removing the finished tube, substantially as shown and described.

16. In a machine for making paper tubes, the combination, of a vertically-movable arbor, a swinging plate adapted to fold the paper upon the arbor, and means for removing the finished tube, substantially as shown and described.

17. In a machine for making paper tubes, the combination, of a revoluble arbor having a reciprocating motion in the machine, a pan into which the arbor reciprocates, and a swinging plate adapted to fold the paper upon the arbor, substantially as shown and described.

18. In a machine for making paper tubes, the combination, of a revoluble arbor movable in the machine, a pan or receptacle into which the arbor moves, mechanism for feeding the paper under the arbor, a swinging plate folding the paper upon the arbor, and a tube-ejector slidable upon the arbor, substantially as shown and for the purpose set forth.

19. In a machine for making paper tubes, the combination, of a revoluble arbor movable in the machine, a pan for holding paste, mechanism for feeding the paper under the arbor, a swinging plate adapted to fold the paper upon the arbor, a tube-ejector slidable upon the arbor, and a wiper through which the arbor passes from the machine, substantially as shown and described.

20. In a machine for making paper tubes, the combination, of a revoluble arbor movable in the machine, a pan for holding paste, feeding-rolls between which the paper is fed to the arbor, and a knife carried by one of said rolls; together with a tube-ejector slidable upon the arbor, substantially as shown and described.

21. In a machine for making paper tubes, the combination, of a revoluble arbor reciprocating laterally in the machine, a pan for holding paste into which the arbor moves, a folder, a tube-ejector, and a wiper, substantially as shown and described.

22. An arbor for a tube-making machine, comprising a hollow tube split longitudinally, and a flat strip rotatable within said tube.

23. An arbor for a tube-making machine, comprising a hollow tube split longitudinally, rubber strips let into the sides of the tube, and a flat strip rotatable in said arbor.

24. An arbor for a paper-tube-making machine, comprising a tube split longitudinally, and a spreader for expanding said tube laterally; combined with a sleeve slidable upon the tube, substantially as shown and described.

25. An arbor for paper-tube-making machines, comprising a tube split longitudinally, and a flat strip located in said tube and movable longitudinally therein, one of the parts having a spiral groove and the other a pin engaging said groove.

26. An arbor for paper-tube-making machines, comprising a tube split longitudinally, and a flat strip rotatable therein; in combination, with a reciprocating bearing for the arbor, and means for turning the strip as the arbor reciprocates, substantially as shown and described.

27. In a machine for making paper tubes, the combination, of a hollow arbor split longitudinally, a reciprocating bearing for the arbor, a flat strip extending through the arbor and provided with a spiral groove, a pin on the arbor engaging said groove, and a fixture imparting a longitudinal movement to the strip as the arbor reciprocates, substantially as shown and described.

28. In a machine for making paper tubes, the combination, of a hollow arbor split longitudinally, a reciprocating bearing for the arbor, a flat strip extending through the arbor and provided with a shank having a spiral groove, a pin on the arbor engaging said groove, and a depending arm or bracket having an inclined slot, the end of the strip engaging said slot, substantially as shown and for the purpose set forth.

29. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, an arbor, a vertically-movable bearing in which said arbor is supported, gearing mechanism meshing with the arbor when the latter is in its lowermost position, and a tube-ejector slidable upon said arbor, substantially as shown and described.

30. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, an arbor, a vertically-movable bearing in which said arbor is supported, a movable plate carrying an arm engaging the free end of the arbor, and a tube-ejector slidable upon said arbor, substantially as shown and described.

31. In a machine for making paper tubes, the combination, of a pan or receptacle containing paste, an arbor, a vertically-movable bearing in which said arbor is supported, gearing mechanism meshing with the arbor when it is in its lowermost position, a folder movable against the arbor to fold the paper thereon, and a tube-ejector slidable longitudinally upon said arbor, substantially as shown and described.

32. In a machine for making paper tubes, the combination, of a pan or receptacle, an arbor, a vertically-movable bearing in which said arbor is supported, gearing mechanism adapted to revolve the arbor, a tube-ejector slidable upon said arbor; together with slide-bars and gearing actuating the movable arbor-support and reciprocating tube-ejector, and a cam-wheel actuating said slide-bars, substantially as shown and for the purpose set forth.

33. In a machine for making paper tubes, the combination, of a pan or receptacle, a plate pivoted therein, an arbor, a vertically-movable bearing in which said arbor is supported, gearing mechanism adapted to revolve the arbor, a tube-ejector slidable upon the arbor, and a wiper or gasket disposed on a line with said arbor; together with slide-bars and interposed gearing actuating the movable arbor-support and reciprocating tube-ejector, and a cam-wheel actuating said slide-bars, said cam-wheel having a lug which actuates the pivoted plate, substantially as shown and described.

34. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion at the outer end of said arbor, and a driven pinion adapted to mesh with the aforesaid pinion when the arbor is in its lowermost position, substantially as shown and described.

35. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion on the arbor, and a driven pinion adapted to mesh with the aforesaid pinion when the arbor is in its lowermost position; together with a sleeve on the arbor, and means for reciprocating said sleeve, substantially as shown and described.

36. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion on the arbor, and a driven pinion adapted to mesh with the aforesaid pinion when the arbor is in its lowermost position; together with a sleeve on the arbor, a reciprocating slide adapted to engage the sleeve, and means for reciprocating said slide, substantially as shown and described.

37. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion on the arbor, and a gear-wheel with which said pinion meshes when the arbor is in its lowermost position; together with a curved plate or former into which the arbor moves, substantially as shown and described.

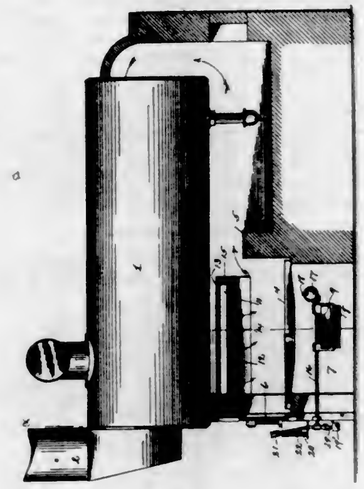
38. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion on the arbor, and a gear-wheel with which said pinion meshes when the arbor is in its lowermost position; together with a pivoted plate adapted to fold over the arbor, substantially as shown and described.

39. In a machine for making paper tubes, the combination, of an arbor, a vertically-movable support carrying said arbor, means for raising and lowering said support, a pinion on the arbor, and a gear-wheel with which said pinion meshes when the arbor is in its lowermost position; together with a curved plate or former into which the arbor moves, and a pivoted plate adapted to fold upon the arbor, substantially as shown and described.

40. In a machine for making paper tubes, the combination with a vertically-movable arbor upon which the paper is wound, of a curved plate or former into which the arbor moves and by which the paper is wrapped around said arbor, substantially as described.

41. In a machine for making paper tubes, the combination, of a rotatable and vertically-movable arbor, a receptacle containing paste, and a curved plate or former in the bottom of said receptacle, substantially as shown and described.

659,600. **SMOKE PREVENTER OR CONSUMER.** JOHN A. BECK, Pittsburg, Pa. Filed Dec. 29, 1899. Serial No. 741,939. (No model.)

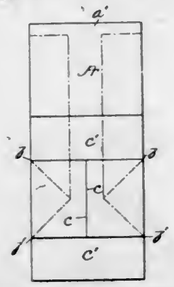


Claim.—1. In a furnace, the combination, with the combustion-chamber having a perforated cover and an air-space above said cover communicating with the ash-pit beneath the combustion-chamber at opposite sides thereof, of a pair of shafts arranged in the ash-pit, a swinging damper mounted on each of said shafts for closing the inlets to the air-space, an angular lever mounted on each of said shafts with its one arm arranged in a vertical position to be engaged by the fire-door of the furnace and its other arm extending normally in a horizontal position, cylinders mounted at the front of the furnace, pistons operating in said cylinders with their rods connected to the horizontal arms of the angular levers, and means whereby said pistons are operated in a manner to obtain a gradual closing of the dampers, as and for the purpose set forth and described.

2. In a furnace, the combination, with the combustion-chamber having an arched perforated cover with an air-space above the same and extending downwardly in the side walls of the furnace and communicating with the ash-pit beneath the combustion-chamber, of the shafts journaled within the ash-pit on opposite sides thereof, dampers mounted on said shafts for closing the inlets to the air-space, means mounted on the inner ends of said shafts for closing and retaining the dampers in the closed position, angular levers mounted on the outer ends of said shafts with one arm arranged vertically in proximity to the fire-doors and the other arm extending normally in a horizontal manner, rollers mounted on said vertical arms and adapted to be engaged by the fire-doors when the latter are opened, cylinders mounted at the front of the furnace, pistons operating in said cylinders with their rods connected to the horizontal arms of the angular levers, and means whereby said pistons are gradually operated when the fire-doors are closed to permit a gradual closing of the dampers, substantially as described.

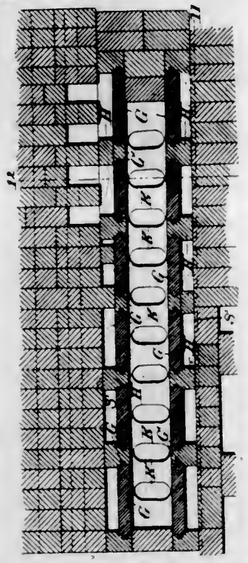
3. In combination, in a furnace, a combustion-chamber having a perforated cover and an air-space above said cover and in the side walls of the furnace communicating with the ash-pit underneath the combustion-chamber, shafts arranged within the ash-pit on opposite sides thereof, dampers mounted on the said shafts for closing the inlets to the air-space, weights mounted on the inner ends of said shafts for closing and retaining the dampers in the closed position, means mounted on the outer ends of the shafts and adapted to contact with the fire-doors of the furnace for automatically opening the dampers as the fire-doors are opened, and means connected to said shafts for resisting the pressure of their weights when the fire-doors are closed to cause a gradual closing of the dampers, as and for the purpose described and set forth.

659,601. PAPER BAG. LORENZO D. BENNER, Peoria, Ill., assignor to Lucius G. Fisher, Chicago, Ill. Filed May 29, 1899. Serial No. 718,696. (No model.)



Claim.—The herein-described bellows-sided bag-blank, having the bellows-sided extensions *a*, and the oppositely-protruding side extensions *a'*, the crease on the line a^2, the incisions or cuts in the corners of the inward bellows folds to a point as at *b*, *b'*, forming the overlapping extensions *c'*, *c'*, and the abutting extensions *a*, *a*, in the bellows and side portions, for the purpose described.

659,602. RECUPERATIVE FURNACE. FREDERICK BREDEL, Milwaukee, Wis. Filed Mar. 24, 1900. Serial No. 10,116. (No model.)

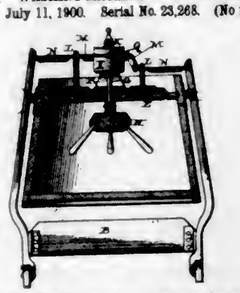


Claim.—1. In a recuperative furnace, a recuperator made up of superimposed recuperator-blocks, having vertical and transverse passage-ways through same, key-blocks engaging said recuperator-blocks and side supporting-strips interlocking with said key-blocks, and interposed with the latter between the rows of recuperator-blocks.

2. In a recuperative furnace, a recuperator made up of superimposed recuperator-blocks having horizontal and vertical passage-ways through same, key-blocks having flanged heads engaging the outer edges of the recuperator-blocks, the outer ends of said key-blocks bearing against the wall of the recuperator-chamber, the supporting-strips interlocking with the key-blocks and interposed with the latter between the tiers of recuperator-blocks, and suitable passage-ways leading to and from the recuperator, as set forth.

3. In a recuperative furnace, the combination with the recuperative blocks arranged in tiers, and having the usual vertical and horizontal passage-ways through same, the key-blocks having vertical grooves in their opposite faces, and having flanged heads, the supporting-strips having contracted ends seated in said grooves, and interposed with said key-blocks between the tiers of recuperator-blocks, the outer ends of the key-blocks held against the wall of the recuperator-chamber, as set forth.

659,603. WASHING-MACHINE. JOHN H. BURGER, Davenport, Iowa. Filed July 11, 1900. Serial No. 23,268. (No model.)

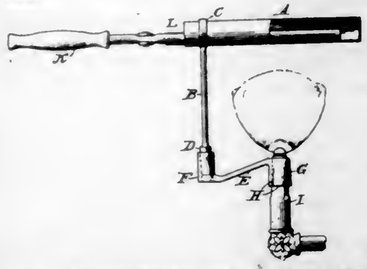


Claim.—1. In a washing-machine, a suitable framework, a tub pivoted therein, and suitable guides secured to the cover of the tub, combined with a yoke over which the guides move, cords secured to the yoke, and a stirrer-shaft provided with a pulley at its upper end and a stirrer at its lower one, substantially as shown.

2. In a washing-machine, a suitable framework, a tub pivoted therein, the cover of the tub, and the stirrer-shaft pivoted in the cover and provided with a pulley at its upper end and a stirrer at its lower one, combined with guides secured to the cover, a rising-and-falling yoke which extends through the guides and has its ends held in slots in the upper end of the framework, and a suitable cord or cords secured to opposite ends of the yoke and passing around the pulley upon the stirrer-shaft, substantially as set forth.

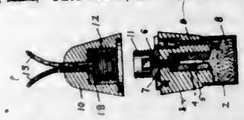
3. In a washing-machine, a suitable framework, a tub pivoted therein and provided with a cover, and a stirrer-shaft projecting through the cover of the tub, combined with guides secured to the cover, and a yoke having a rising-and-falling movement in relation to the frame, and which yoke is held in place by means of extensions upon its sides which pass through guides and loosely engage the upper end of the framework, and means connected to the yoke for causing the stirrer-shaft to revolve as the tub is rocked upon its pivots, substantially as specified.

659,604. CURLING-IRON-HEATING APPARATUS. JAMES M. CAMMACK, Newark, N. J. Filed Dec. 29, 1899. Serial No. 742,009. (No model.)



Claim.—The within-described apparatus for heating ladies' curling-tongs consisting of an arm E provided with a thimble G at its inner end, and a socket F at its outer end; upright rod B provided with pivot D at its lower end and adapted to rest and swing in socket F and at its upper end provided with a loop C, adapted to support a heating-tube A, all arranged constructed and combined when secured to a gas-tip as I to be swung over and away from the gas-flame from a point eccentric to the said gas tip or burner substantially as specified.

659,605. ELECTRIC THERMOSTAT. LEONARD H. DEE ISLES, Cambridge, Mass. Filed Jan. 10, 1900. Serial No. 1,018. (No model.)



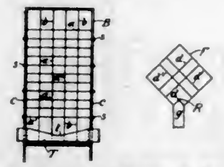
Claim.—1. A journal-alarm comprising in combination a metallic cup adapted to be secured to a journal-bearing in electrical contact therewith, a body portion of insulating material closing said cup and completely inclosing a metallic terminal, insulated connections permanently secured to said terminal and leading therefrom out through said body portion, and means contained within said cup adapted when sufficiently heated to establish electrical connection between said cup and terminal.

2. A journal-alarm comprising in combination a metallic cup adapted to be secured to a journal-bearing in electrical contact therewith, a body portion of insulating material closing said cup and made in two parts detachably secured together, a corresponding two-part metallic terminal contained and completely inclosed within said body portion, insulated connections leading from said terminal out through said body portion, and means contained within said cup adapted when sufficiently heated to establish electrical connection between said cup and terminal.

3. A journal-alarm comprising in combination a metallic cup, a body portion of insulating material closing said cup and completely inclosing a metallic terminal, two insulated conducting-wires independently connected to said terminal and leading therefrom out through said body portion, and means contained within said cup adapted when sufficiently heated to establish electrical connection between said cup and terminal.

4. A journal-alarm comprising in combination a metallic cup adapted to be secured to a journal-bearing, a plug 3 of insulating material closing said cup, a metallic terminal secured to said plug, an insulating-cap detachably secured to said terminal and completely enveloping the same, two insulated conducting-wires independently connected to said terminal and leading therefrom out through said cap, and means contained within said cup adapted when sufficiently heated to establish electrical connection between said cup and terminal.

659,606. MEANS FOR SIGHTING RIFLED FIREARMS. JOHN FORMBY, Formby, England. Filed Apr. 13, 1900. Serial No. 12,744. (No model.)



Claim.—1. Means for sighting firearms by the eye alone comprising a back sight divided by vertical and horizontal wires, said horizontal wires being so spaced that each corresponds to a known range, and a fore sight comprising wires extending in a different direction relatively to those of the back sight and arranged to subdivide the spaces in said back sight, substantially as described.

2. Means for sighting firearms by the eye alone, comprising a back sight divided by vertical and horizontal wires, said horizontal wires being so spaced that each corresponds with a known range, and a double fore sight, each portion of which has wires extending in a different direction relatively to those of the back sight and arranged to subdivide the spaces in said back sight, the lower part of the said double fore sight serving as a means for enabling the scale of the back sight to be used twice over and keeping the size of the back sight within reasonable limits, substantially as described.

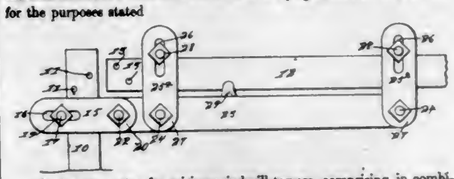
3. The means for sighting rifled firearms by the eye alone comprising a framed back sight divided by vertical and horizontal wires into spaces, said horizontal wires being so spaced that each corresponds with a known range, for use in conjunction with a single or double fore sight consisting of a frame mounted on the barrel and having wires diagonally stretched therein in such manner as to divide up the spaces of the back sight, substantially as and for the purpose herein described.

4. For sighting rifled firearms a back sight consisting of a folding frame having wires stretched vertically and horizontally across same, said horizontal wires being so spaced that each corresponds with a known range, and a sliding sight across same in combination with a fore sight consisting of a single or double folding frame having wires stretched diagonally across it or them and a bead-sight below same, the thickness of the metal forming the frames being in all cases presented to the eye and the breadth of the said metal being disposed longitudinally of the gun, substantially as described for the purpose stated.

659,607. APPARATUS FOR RAISING TOWERS. ABRON B. GIFFORD and EDWARD E. HULL, Jessup, Iowa. Filed Mar. 13, 1900. Serial No. 8,504. (No model.)

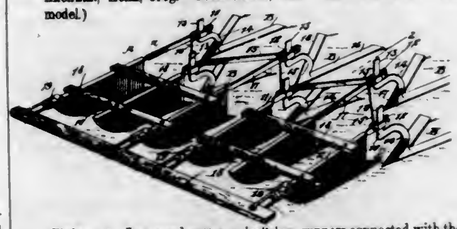
Claim.—1. An apparatus for raising windmill-towers, comprising in combination, a frame designed to be placed on an anchor-post, means for detachably clamping said frame to the post, a bar hinged to the said frame, and means connected with the bar for detachably securing the bar to a windmill-tower upright, substantially as, and for the purposes stated.

2. An apparatus for raising windmill-towers, comprising in combination, a frame designed to be placed on an anchor-post, a bar hinged to the said frame, a clamp near the upper end of the bar, designed for detachable connection with the windmill-tower upright, substantially as, and for the purposes stated



3. An apparatus for raising windmill-towers, comprising in combination, a frame composed of the parts 14 and 15 at right angles to each other, and having longitudinal slots near their outer ends, bolts having elongated heads, passed through said slots, perforated lugs at the corner of said frame, a bar 23 designed to enter between said perforated lugs and capable of slight lateral movement therein, a bolt for securing said bar to the lugs, two frames 25 and 25^a connected with the bar 23, and having longitudinal slots in their ends, bolts having elongated heads mounted in said slots, and wedge-shaped blocks 30, also having elongated slots, designed to lie parallel with the sides of the frames 25, and to have said bolts passed through them, and a guide 29 on the bar 23, substantially as, and for the purposes stated.

659,608. WEED-CUTTER. JAMES MCCORKELL and NEIL MCEACHERN, Helix, Oreg. Filed Feb. 6, 1900. Serial No. 4,165. (No model.)



Claim.—1. In a weed-cutter, a draft-bar, runners connected with the draft-bar, and blades adjustably connected with the runners, each blade being provided with a gooseneck-shank, for the purpose set forth.

2. In a weed-cutter, a draft-bar, runners pivotally connected with the draft-bar, extensions from the rear of said runners, gooseneck-shanks having straight upper sections adjustable in the extensions of the runners, and triangular blades, each blade comprising two members forming a point at their forward ends, their rear ends diverging, the said gooseneck-shank being attached to the blade rearward of its point, each blade being provided with a tapering offset at its point, extending from the extreme forward end to the said shank and having a side beveled in opposite directions from a center line as described.

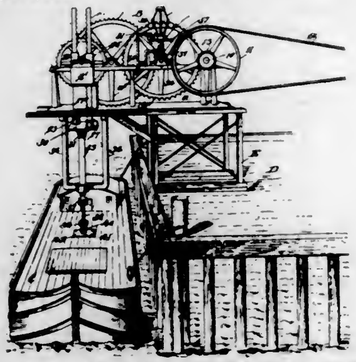
3. In a weed-cutter, the combination, with a draft-bar, runners pivotally connected with the draft-bar, the runners being provided with rear extensions in two lengths, the said runners being so arranged that the shorter extensions are between the longer ones, of triangular blades, each comprising side members brought to a point at their forward ends and diverging at their rear ends, gooseneck-shanks secured to the said blades rearward of their points, each gooseneck having an upper straight section adjustably connected with the rear extremity of the extension of a runner, each of the said blades being provided with an offset at its forward end, inclined from the point upward and rearward to the shank and inclined in direction of opposite sides of the share from a central longitudinal line, as described.

659,609. WAVE AND TIDAL ENGINE. JOSEPH J. MCINTYRE, New York, N. Y., assignor of one-half to Thomas A. Ennis, same place. Filed Nov. 7, 1899. Serial No. 736,160. (No model.)

Claim.—1. In a wave and tidal engine, a drive-shaft, gears loosely mounted upon the shaft, ratchet connections between the gears and shaft, and racks connected at their lower ends and engaging with different gears at opposite faces, a power-conducting rod connected with both racks, said rod being provided with telescopic and with swivel sections, and means for attaching the swivel-sections to an object capable of floating on the water, as described.

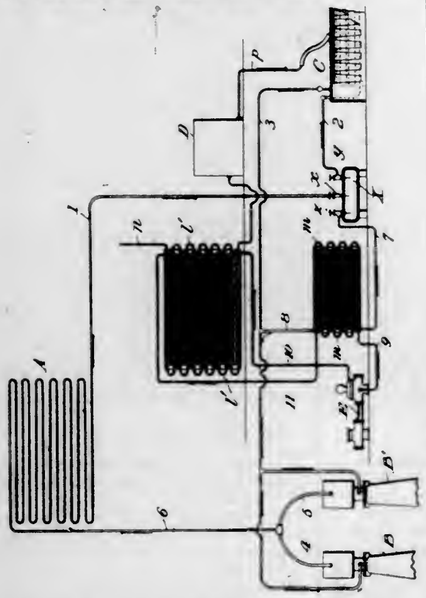
2. In a wave and tidal engine, a drive-shaft, gears loosely mounted on the shaft, means for operatively engaging the gears with the shaft, racks engaging with the gears, a float, a telescopic rod connecting with the racks, and spring yielding connections between said rod and the float, substantially as specified.

3. In a wave and tidal engine, a drive-shaft, pinions loosely mounted on the shaft, racks engaging with the pinions at opposite sides of the shaft, ratchet-wheels attached to the pinions, a crank-arm on the shaft between the ratchet-wheels, pawls carried by the crank-arm and engaging with the ratchet-wheels both on the same side of the shaft, a telescopic and swivel-section rod connecting with both racks, a float connected to the said rod, and a chain of gearing operated from the drive-shaft, substantially as specified.



4. In a wave and tidal engine, a drive-shaft, pinions loosely mounted on the shaft, racks engaging with the pinions at opposite sides of the shaft, ratchet-wheels attached to the pinions, a crank-arm on the shaft between the ratchet-wheels, pawls carried by the crank-arm and engaging with the ratchet-wheels both on the same side of the shaft, a telescopic rod having connection with both of the racks, a float, a spring connection between said rod and the float, a chain of gearing operated from the drive-shaft, and a governor for the chain of gearing, substantially as specified.

659,610. ICE-MAKING MACHINERY. THOMAS SHIPLEY, York, Pa. Filed Sept. 3, 1900. Serial No. 29,365. (No model.)



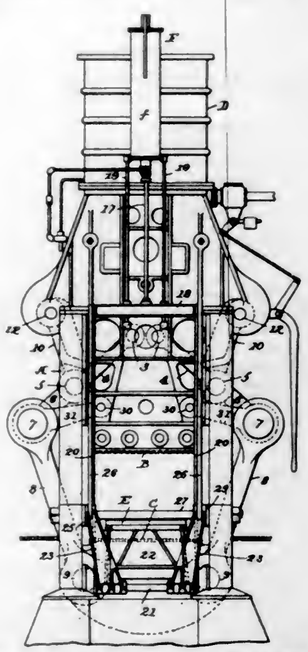
Claim.—In machinery for making ice, the combination substantially as hereinbefore set forth of the following elements: a refrigerant-condenser; compressors; freezing appliances; brine-cooling appliances; two pipe-lines from the condenser, the one to the freezing system the other to the brine-cooling system and means for regulating the pressure in each line; a return pipe-line common to both systems and to the compressors; and a brine-circuit including means for causing the circulation of brine therein, and water-cooling appliances through which the water circulates and is preliminarily cooled by the brine, before entering the freezing appliances.

659,611. CHECK-HOOK. FRANK G. SNOOK, Sacramento, Cal. Filed Aug. 6, 1900. Serial No. 26,030. (No model.)



Claim.—A check-hook comprising a post having at its upper portion a transverse slot or opening with a notch forming a depressed seat continuation of the upper wall thereof, and a ring or loop pivotally mounted to the base of the post and composed of spring material said ring or loop adapted to be passed into said slot and be compressed thereby, and spring into said notch.

659,612. METHOD OF COMPRESSING COTTON. SAMUEL J. WEBB, Minden, La. Filed June 23, 1900. Serial No. 21,964. (No model.)



Claim.—1. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which pressure is applied to compress the bale, and then compressing the bale by applying pressure to the reduced surface.

2. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which pressure is applied to compress the bale, then compressing the bale by applying pressure to the reduced surface, and securing the bale in such compressed form.

3. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which the pressure is applied, and then applying pressure to the reduced surface of the bale, without changing the position of the bale.

4. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in first changing the form of the bale to make it narrower without compressing it or increasing its density, and then compressing the bale by applying pressure to the narrowed surface of the bale.

5. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in first changing the form of the bale to make it narrower without compressing or increasing its density, then confining it in such narrowed form, and then compressing the bale by applying pressure to the narrowed surface of the bale.

6. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in reducing the area of the surface of said bale by changing its form without compressing it, confining it against lateral expansion, and then compressing the bale by applying pressure to the reduced surface.

7. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in reducing the area of the surface of said bale by changing its form without compressing it, confining it against lateral expansion, then compressing the bale by applying pressure to the reduced surface, and securing the bale in such compressed form.

659,613. MOLDING-MACHINE. GEORGE WEIS, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,788. (No model.)



Claim.—1. In a molding-machine, the combination of a supporting-base, upright rods or standards secured therein, a stripper-plate supported on said rods or standards, a pattern-carrying head or frame movable toward and from said stripper-plate, guides for said head or frame, said guides comprising a plurality of the stripper-plate-supporting rods or standards, said head or frame being provided with bearings fitted to said rods or standards and said guides comprising, also, rods or plungers secured in said head or frame, said rods or plungers being fitted to and longitudinally movable in suitable bearings formed in the supporting-base of the machine-frame and means to impart movement to said head or frame toward and from said stripper-plate, substantially as described.

2. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head movable toward and from said stripper-plate and means to impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of bell-cranks pivoted upon said stripper-plate and cam-plates secured to said pattern-carrying head or frame, the lower ends of said bell-cranks projecting into the path of travel of said cam-plates so that said bell-cranks will be moved pivotally so as to raise the upper ends thereof, as said pattern-carrying head or frame descends, thereby causing said upper ends of said bell-cranks to contact with rigid portions of a section of flask supported in operative adjustment on said stripper-plate and to raise said section of flask, substantially as described.

3. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the molding-machine, the ports of said cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, a secondary valve, means to impart movement thereto to close the open port to the cylinder at a predetermined point in the descent of said pattern-carrying head or frame and means to impart movement to said secondary valve, as said pattern-carrying head or frame ascends, to allow the opening of said port, substantially as described.

4. In a molding-machine, the combination with the stripper-plate, the pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, the ports of the motor-cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, stops to limit the movement of said valve, a secondary valve, means to impart movement to said secondary valve to close the open admission-port to the cylinder at a predetermined point in the descent of said pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to permit said port to be opened, substantially as described.

5. In a molding-machine, the combination with the stripper-plate and the pattern-carrying head or frame, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, means under the control of the operator, to move said valve, adjustable stops to limit the movement of said main valve, a secondary valve, means to impart movement to said secondary valve to close the open admission-port to the cylinder at a predetermined point in the descent of the pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to permit said port to be opened, substantially as described.

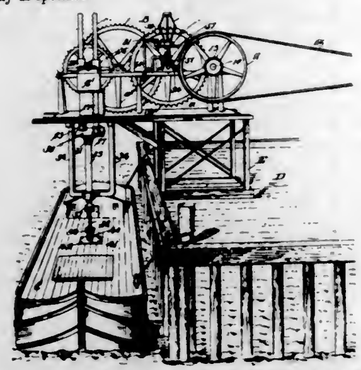
6. In a molding-machine, the combination with the stripper-plate and the pattern-carrying head or frame, an actuating-shaft and operative connection between said actuating-shaft and said head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, a hand-lever applied thereto to move the same, stop-screws which limit the movement of said hand-lever, a secondary valve, means to impart movement thereto to close the open admission-port to the cylinder at a desired point in the descent of the pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to allow the opening of said cylinder-port, substantially as described.

7. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, the ports of said cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, a secondary valve and operative connection between said secondary valve and the actuating-shaft of the machine, whereby said secondary valve will be moved to close the open port to the cylinder at a predetermined point in the descent of the pattern-carrying head or frame and to move said secondary valve, during the ascent of said pattern-carrying head or frame, to allow the opening of said port, substantially as described.

8. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said actuating-shaft will impart movement of said head toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, means, under the control of the operator, to impart movement to said valve, a secondary valve, a cam on the actuating-shaft of the machine upon which the stem of said secondary valve rides or rests and means to maintain said valve-stem in operative connection with said cam, substantially as described.

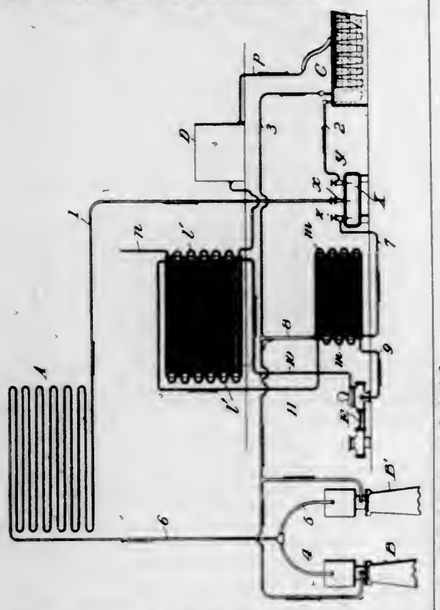
9. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism, which controls the ports of said cylinder, comprising a main valve, means, under the control of the operator, to impart movement to said main valve, a secondary valve, a cam on the actuating-shaft of the machine, upon which the stem of said valve rides or rests, said cam being adjustable circumferentially on said shaft, and means to maintain said valve-stem in operative engagement with said cam, substantially as described.

3. In a wave and tidal engine, a drive-shaft, pinions loosely mounted on the shaft, racks engaging with the pinions at opposite sides of the shaft, ratchet-wheels attached to the pinions, a crank-arm on the shaft between the ratchet-wheels, pawls carried by the crank-arm and engaging with the ratchet-wheels both on the same side of the shaft, a telescopic and swivel-section rod connecting with both racks, a float connected to the said rod, and a chain of gearing operated from the drive-shaft, substantially as specified.



4. In a wave and tidal engine, a drive-shaft, pinions loosely mounted on the shaft, racks engaging with the pinions at opposite sides of the shaft, ratchet-wheels attached to the pinions, a crank-arm on the shaft between the ratchet-wheels, pawls carried by the crank-arm and engaging with the ratchet-wheels both on the same side of the shaft, a telescopic rod having connection with both of the racks, a float, a spring connection between said rod and the float, a chain of gearing operated from the drive-shaft, and a governor for the chain of gearing, substantially as specified.

659,610. ICE-MAKING MACHINERY. THOMAS SHIPLEY, York, Pa. Filed Sept. 3, 1900. Serial No. 29,365. (No model.)



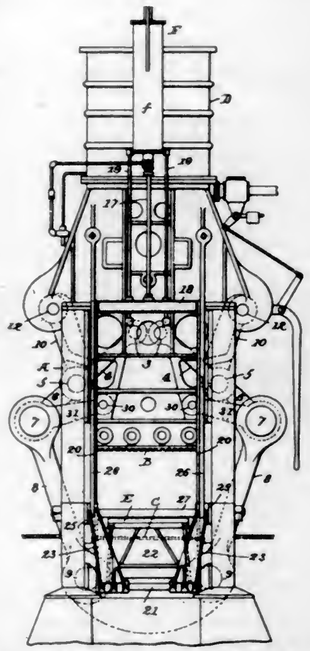
Claim.—In machinery for making ice, the combination substantially as hereinbefore set forth of the following elements: a refrigerant-condenser; compressors; freezing appliances; brine-cooling appliances; two pipe-lines from the condenser, the one to the freezing system the other to the brine-cooling system and means for regulating the pressure in each line; a return pipe-line common to both systems and to the compressors; and a brine-circuit including means for causing the circulation of brine therein, and water-cooling appliances through which the water circulates and is preliminarily cooled by the brine, before entering the freezing appliances.

659,611. CHECK-HOOK. FRANK G. SNOOK, Sacramento, Cal. Filed Aug. 6, 1900. Serial No. 26,030. (No model.)



Claim.—A check-hook comprising a post having at its upper portion a transverse slot or opening with a notch forming a depressed seat continuation of the upper wall thereof, and a ring or loop pivotally mounted to the base of the post and composed of spring material said ring or loop adapted to be passed into said slot and be compressed thereby, and spring into said notch.

659,612. METHOD OF COMPRESSING COTTON. SAMUEL J. WEBB, Minden, La. Filed June 28, 1900. Serial No. 21,964. (No model.)



Claim.—1. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which pressure is applied to compress the bale, and then compressing the bale by applying pressure to the reduced surface.

2. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which pressure is applied to compress the bale, then compressing the bale by applying pressure to the reduced surface, and securing the bale in such compressed form.

3. The method substantially as hereinbefore described of compressing country or plantation bales, which consists in changing the form of the plantation-bale without compressing it or increasing its density so as to reduce the area of the surface to which the pressure is applied, and then applying pressure to the reduced surface of the bale, without changing the position of the bale.

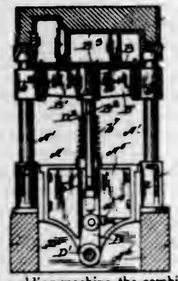
4. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in first changing the form of the bale to make it narrower without compressing it or increasing its density, and then compressing the bale by applying pressure to the narrowed surface of the bale.

5. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in first changing the form of the bale to make it narrower without compressing or increasing its density, then confining it in such narrowed form, and then compressing the bale by applying pressure to the narrowed surface of the bale.

6. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in reducing the area of the surface of said bale by changing its form without compressing it, confining it against lateral expansion, and then compressing the bale by applying pressure to the reduced surface.

7. The method substantially as hereinbefore described of compressing a country or plantation bale, which consists in reducing the area of the surface of said bale by changing its form without compressing it, confining it against lateral expansion, then compressing the bale by applying pressure to the reduced surface, and securing the bale in such compressed form.

659,613. MOLDING-MACHINE. GEORGE WEIM, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,783. (No model.)



Claim.—1. In a molding-machine, the combination of a supporting-base, upright rods or standards secured therein, a stripper-plate supported on said rods or standards, a pattern-carrying head or frame movable toward and from said stripper-plate, guides for said head or frame, said guides comprising a plurality of the stripper-plate-supporting rods or standards, said head or frame being provided with bearings fitted to said rods or standards and said guides comprising, also, rods or plungers secured in said head or frame, said rods or plungers being fitted to and longitudinally movable in suitable bearings formed in the supporting-base of the machine-frame and means to impart movement to said head or frame toward and from said stripper-plate, substantially as described.

2. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head movable toward and from said stripper-plate and means to impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of bell-cranks pivoted upon said stripper-plate and cam-plates secured to said pattern-carrying head or frame, the lower ends of said bell-cranks projecting into the path of travel of said cam-plates so that said bell-cranks will be moved pivotally so as to raise the upper ends thereof, as said pattern-carrying head or frame descends, thereby causing said upper ends of said bell-cranks to contact with rigid portions of a section of flask supported in operative adjustment on said stripper-plate and to raise said section of flask, substantially as described.

3. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the molding-machine, the ports of said cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, a secondary valve, means to impart movement thereto to close the open port to the cylinder at a predetermined point in the descent of said pattern-carrying head or frame and means to impart movement to said secondary valve, as said pattern-carrying head or frame ascends, to allow the opening of said port, substantially as described.

4. In a molding-machine, the combination with the stripper-plate, the pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, the ports of said cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, stops to limit the movement of said valve, a secondary valve, means to impart movement to said secondary valve to close the open admission-port to the cylinder at a predetermined point in the descent of said pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to permit said port to be opened, substantially as described.

5. In a molding-machine, the combination with the stripper-plate and the pattern-carrying head or frame, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, means under the control of the operator, to move said valve, adjustable stops to limit the movement of said main valve, a secondary valve, means to impart movement to said secondary valve to close the open admission-port to the cylinder at a predetermined point in the descent of the pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to permit said port to be opened, substantially as described.

6. In a molding-machine, the combination with the stripper-plate and the pattern-carrying head or frame, an actuating-shaft and operative connection between said actuating-shaft and said head or frame, whereby rotation of said shaft will impart movement to said head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, a hand-lever applied thereto to move the same, stop-screws which limit the movement of said hand-lever, a secondary valve, means to impart movement thereto to close the open admission-port to the cylinder at a desired point in the descent of the pattern-carrying head or frame and means to move said secondary valve, as said pattern-carrying head or frame ascends, to allow the opening of said cylinder-port, substantially as described.

7. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, the ports of said cylinder being controlled by a valve mechanism, comprising a main valve, means, under the control of the operator, to move said valve, a secondary valve and operative connection between said secondary valve and the actuating-shaft of the machine, whereby said secondary valve will be moved to close the open port to the cylinder at a predetermined point in the descent of the pattern-carrying head or frame and to move said secondary valve, during the ascent of said pattern-carrying head or frame, to allow the opening of said port, substantially as described.

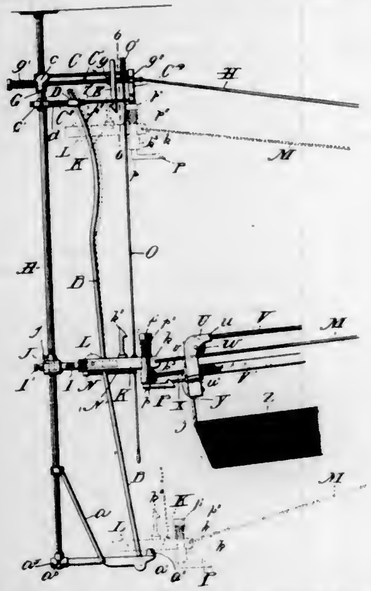
8. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said actuating-shaft will impart movement of said head toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said motor-cylinder, comprising a main valve, means, under the control of the operator, to impart movement to said valve, a secondary valve, a cam on the actuating-shaft of the machine upon which the stem of said secondary valve rides or rests and means to maintain said valve-stem in operative connection with said cam, substantially as described.

9. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, whereby rotation of said shaft will impart movement to said pattern-carrying head or frame toward and from said stripper-plate, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism, which controls the ports of said cylinder, comprising a main valve, means, under the control of the operator, to impart movement to said main valve, a secondary valve, a cam on the actuating-shaft of the machine, upon which the stem of said valve rides or rests, said cam being adjustable circumferentially on said shaft, and means to maintain said valve-stem in operative engagement with said cam, substantially as described.

10. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said head or frame, of a cylinder and piston motor, a crank and connecting-rod connection between the motor cross-head and the actuating-shaft of the machine, a valve mechanism which controls the ports of said cylinder comprising a main valve, a hand-lever applied thereto to move the same, adjustable stops which limit the movement of said main valve, a secondary valve, a cam on the actuating-shaft of the machine upon which the stem of said secondary valve rides or rests and means to maintain said valve-stem in operative connection with said cam, substantially as described.

11. In a molding-machine, the combination with a stripper-plate, a pattern-carrying head or frame, movable toward and from said stripper-plate, an actuating-shaft and operative connection between said actuating-shaft and said pattern-carrying head or frame, of a cylinder and piston motor, a crank and connecting-rod connection between the cross-head of said motor and the actuating-shaft of the machine, a valve mechanism which controls the ports of said cylinder, comprising a hollow main valve, the interior of which is in open communication with the source of supply of fluid under pressure, a port or opening in said main valve which is adapted to be brought into register with the admission-port to that end of the cylinder, the admission of steam to which will effect depression of the pattern-carrying head or frame, means, under the control of the operator, to move said valve, a secondary valve which controls the port or opening in the main valve, means to move said secondary valve to close said port at a predetermined point in the descent of the pattern-carrying head or frame, and means to move said secondary valve, as said pattern-carrying head or frame ascends, to allow said port in said main valve to be brought into open register with said cylinder-port, substantially as described.

659,614. **STORE-SERVICE APPARATUS.** HUBBARD D. R. WILLIAMS and DAVID LIPPT, Mansfield, Ohio, assignors of one-half to Thomas O. Stearns, same place. Filed Mar. 31, 1900. Serial No. 11,004. (No model.)



Claim.—1. In a store-service apparatus, the combination, of a rod or vertical track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and an intermediate support movable in and out of engagement with said line-wire support; together with means for raising and lowering the line-wire support, substantially as shown and for the purpose set forth.

2. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and an intermediate support movable in and out of engagement with the line-wire support; together with means for raising and lowering the line-wire support, said means being adapted to also operate the intermediate support or stop, substantially as shown and for the purpose set forth.

3. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and an intermediate support movable in and out of engagement with the line-wire support; together with a cord or flexible connection attached to the line-wire support passing therefrom over an elevated sheave or guide-pulley and depending through an eye of the intermediate support, substantially as shown and for the purpose set forth.

4. In a store-service apparatus, the combination, of a rod or vertical track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and a swinging hook adapted to support the line-wire support at an intermediate point on the rod or track, said hook having an eye through which the operating-cord passes, substantially as shown and for the purpose set forth.

5. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, means for supporting the line-wire support at upper and lower points on the rod or track, and a swinging hook adapted to arrest the downward movement of the line-wire support, the upper side of the hook being recessed while the under side is beveled; together with the operating-cord for the line-wire support, said cord being passed through an eye of the swinging hook, substantially as shown and for the purpose set forth.

6. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, a hook carried by the line-wire support and adapted to engage the carrier, and means for releasing the carrier from the hook; together with the carrier having a spring-bumper and loop or part which engages the aforesaid hook with the spring-bumper compressed, substantially as shown and for the purpose set forth.

7. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, a hook movably connected to the line-wire support, and a frame with which the hook contacts when the line-wire support is elevated; together with the carrier having a spring-bumper and part which engages the aforesaid hook, substantially as shown and for the purpose set forth.

8. In a store-service apparatus, the combination with the line-wire supports, of a carrier having spring-bumpers at its ends, and hooks or loops adapted to engage the line-wire supports when a spring-bumper is compressed, substantially as shown and for the purpose set forth.

9. In a store-service apparatus, the combination, with the line-wire supports and hooks carried thereby, of a carrier, spring-bumpers comprising a rod and springs compressed by a movement thereof, said rod extending longitudinally through the carrier and projecting beyond each end thereof, and hooks or loops at the ends of the carrier, said hooks or loops being shorter than the projecting ends of the bumpers and adapted to engage the aforesaid hooks when a bumper is compressed, substantially as shown and for the purpose set forth.

10. In a store-service apparatus, the combination with the line-wire supports and hooks carried thereby, of a carrier having a longitudinal channel-bar, a rod extending along the channel-bar and slidable in the carrier, the ends of said rod projecting beyond the ends of the carrier and terminating in heads, helical springs mounted on the rod and interposed between the end pieces of the carrier and stops on said rod, and hooks or loops at the ends of the carrier, said hooks or loops being shorter than the projecting ends of the rod and adapted to engage the aforesaid hooks when a spring-bumper is compressed, substantially as shown and for the purpose set forth.

11. In a store-service apparatus, the combination with the line-wire supports and hooks carried thereby, of a carrier having a longitudinal channel-bar, a rod extending along the channel-bar and slidable in the carrier, the ends of said rod projecting beyond the ends of the carrier and terminating in heads, springs compressed by a movement of the rod in either direction, and hooks or loops adjustably attached to the ends of the carrier, said hooks or loops being shorter than the projecting ends of the rod and adapted to engage the aforesaid hooks when the spring-actuated rod is retracted, the carrier having means for supporting a basket, substantially as shown and for the purpose set forth.

12. In a store-service apparatus, the combination, of a vertical rod or track, a line-wire support movable thereon, said line-wire support having a hook for engaging the carrier and a hook for engaging an upper support; a swinging hook for engagement with the hook on the carrier, a trip-wire connected to the swinging hook, and means for operating the trip-wire at the other end of the line-wire or track, substantially as shown and for the purpose set forth.

13. In a store-service apparatus, the combination, of the vertical rod or track, a line-wire support movable thereon, said line-wire support having a vertically-movable hook for engaging the carrier and a hook for engaging an upper support; an upper support having a part engaging the aforesaid movable hook; a swinging hook adapted to engage the upper hook of the line-wire support; a trip-wire connected to the swinging hook, and means operating the trip-wire from the other end of the line-wire or track; together with the carrier having a spring-bumper and a hook or loop adapted to engage the aforesaid movable hook of the line-wire support when the spring-bumper is compressed, substantially as shown and for the purpose set forth.

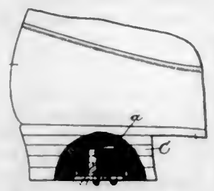
14. In a store-service apparatus, the combination, of a vertical rod or track having a yielding upper portion, a slide engaging the upper end of the rod, a line-wire support traveling on said rod or track, and an intermediate movable support adapted to arrest the downward movement of the line-wire support, means for engaging and supporting the line-wire support in an elevated position, a trip-wire connected to said supporting means, and means operating the trip-wire by the impact of the carrier; together with a cord or flexible connection attached to the movable line-wire support extending therefrom over a sheave or pulley and depending through an eye in the aforesaid intermediate support, substantially as shown and for the purpose set forth.

15. In a store-service apparatus, the combination, of a vertical spring-rod having a yielding upper portion, a line-wire support adapted to travel upon said rod, a swinging hook adapted to engage the line-wire support and support it in an elevated position, an operating-rod engaging the hook, a trip-wire connected to said rod, and a slide-bar to which the trip-wire is attached, the slide-bar being located at the other end of the line from the movable line-wire support and positioned to be struck by the carrier, substantially as shown and for the purpose set forth.

16. In a store-service apparatus, the combination, of a vertical rod having a yielding upper portion, a slide connected to the upper end of said rod and adapted to guide the same, a line-wire support traveling upon the rod, a swinging hook adapted to engage the line-wire support, a spring-actuated rod for moving the hook in one direction, a trip-wire connected to said spring-actuated rod, and a slide-bar to which the other end of said trip-wire is attached and which is adapted to be struck by the carrier, substantially as shown and for the purpose set forth.

17. In a store-service apparatus, the combination, of a vertical spring rod or track having a yielding upper portion, a frame, a slide supported in said frame and adapted to guide the upper end of the rod, a line-wire support adapted to travel upon the rod, a swinging hook mounted in the aforesaid frame and adapted to engage and support the line-wire support in an elevated position, a movable intermediate support for arresting the downward movement of the line-wire support, an operating-rod for the swinging hook, a trip-wire connected to said rod, a slide-bar to which the trip-wire is attached, said slide-bar being located at the other end of the line from the movable line-wire support, and a carrier traveling upon the line-wire and adapted to operate the slide-bar; together with a cord or flexible connection attached to the line-wire support and extending therefrom over a guide-pulley and through an eye on the intermediate support for the line-wire support, substantially as shown and for the purpose set forth.

659,615. **HOLDFAST FOR BOOTS OR SHOES.** CHARLES D. BOWEN, Boston, Mass., assignor of one-half to Frederick McGrath, same place. Filed Dec. 29, 1899. Serial No. 741,903. (No model.)

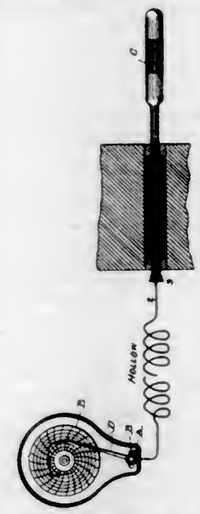


Claim.—1. A holdfast consisting of a bushing having a face-plate provided with a series of holes, an adjusting-screw mounted in said face-plate, a plate or washer adapted to be adjusted by said screw and provided with a series of prongs passing through the holes in the face-plate.

2. A holdfast consisting of a bushing having a face-plate provided with a series of holes, an adjusting-screw rotatably mounted centrally of said holes, a plate or washer adapted to be adjusted by said screw, and provided with a series of prongs passing through the said holes in the face-plate and distributed around the adjusting-screw.

3. A holdfast comprising a bushing having a face-plate extending over its exposed end and provided centrally thereof with an adjusting-screw rotatably mounted therein, a metallic plate or washer located entirely within the bushing above the face-plate and engaged by said adjusting-screw, said face-plate being provided with a series of prongs extending therefrom and passing through the face-plate.

659,616. **RECORDING AIR-PYROMETER.** WILLIAM H. BRISTOL, Hoboken, N. J., and EDGAR H. BRISTOL, Naugatuck, Conn., assignors to the Bristol Company, Waterbury, Conn., and New York, N. Y. Filed May 24, 1900. Serial No. 17,846. (No model.)



Claim.—1. An indicating or recording device for air-pyrometers comprising two tubes coiled in the same direction, of which the first tube is rigidly held at one end and has its other end attached to the adjacent end of the second tube; said tubes being thereby caused to turn axially in opposite directions by barometric or thermometric changes, an indicating or recording arm, and an operative connection between the free end of the second tube and said indicating or recording arm, substantially as described.

2. An indicating or recording device for air-pyrometers comprising a coiled indicating-tube, a compensating tube coiled in the same direction as the indicating-tube and placed in mechanical connection with the free end of the same; said tubes being thereby caused to turn axially in opposite directions by barometric or thermometric changes, a connection between the bulb and the indicating-tube, and an indicating or recording arm placed in connection with the free end of the compensating tube, substantially as described.

3. In an air-pyrometer, the combination with a coiled indicating-tube having one end rigidly secured, a compensating tube coiled in the same direction as the indicating-tube and having one end attached to the adjacent end of the latter and its other end attached to and holding one end of a shaft, a support for the opposite end of the shaft, an indicating or recording arm attached to the shaft, a bulb, and a tube placing said bulb in communication with the indicating-tube at its fast end, substantially as described.

4. In an air-pyrometer, the combination with a coiled indicating-tube having one end rigidly secured to a bracket, a compensating tube coiled in the same direction as the indicating-tube and having its adjacent end mechanically attached to the free end of the indicating-tube and its other end attached to and holding one end of a shaft extending through the tubes, an arm extending from the bracket and forming a bearing for the opposite end of the shaft, an indicating or recording arm attached to said shaft, a bulb, and a tube connecting the bulb with the fast end of the indicating-tube, substantially as described.

5. An indicating or recording device for air-pyrometers comprising two tubes coiled in the same direction and one coil placed within the other, the first of said tubes being rigidly held at one end and having its other end in mechanical connection with the adjacent end of the second tube; whereby the tubes are adapted to turn axially in opposite directions under barometric or thermometric changes, an indicating or recording arm, and an operative connection between the latter and the free end of the second tube, substantially as described.

6. An air-pyrometer comprising two connected hollow parts coiled in the same direction and adapted to be affected by barometric or thermometric changes to move in opposite directions for compensating for influence of such changes, a bulb placed in communication with one of the hollow parts, and an indicating or recording device influenced and operated by the movements of said parts, substantially as described.

7. An air-pyrometer comprising two connected hollow parts coiled

in the same direction and adapted to be affected by barometric or thermometric changes to move in opposite directions for the purpose of compensation, a bulb placed in communication with one of the hollow parts; said bulb and hollow parts being exhausted below atmospheric pressure, and an indicating or recording device influenced and operated by the movements of said parts, substantially as described.

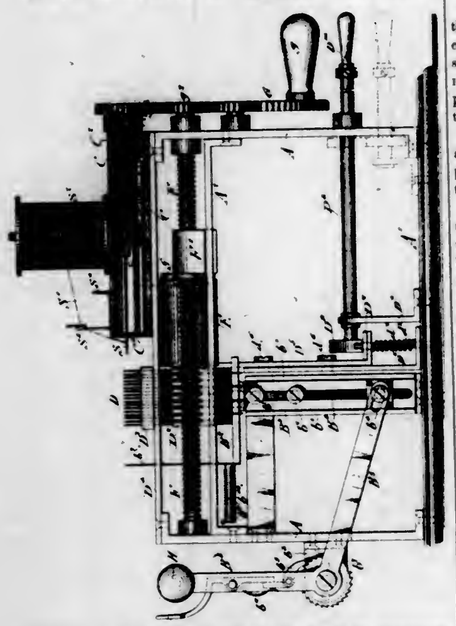
8. An air-pyrometer or the like having a bulb, an indicator, and a compensator formed by two connected hollow parts adapted to be affected by barometric or thermometric changes to move in opposite directions for the purpose of compensation, one of said hollow parts being placed in communication with the bulb, and the other hollow part being mechanically connected with the free end of the first hollow part and carried by the same, substantially as described.

9. An air-pyrometer or the like having a bulb, an indicator, and a compensator formed by two tubes coiled in the same direction; one of said tubes being in communication with the bulb and mechanically connected with and carrying the other tube, substantially as described.

10. An air-pyrometer or the like having a bulb, an indicator, and a compensator formed by two tubes helically coiled in the same direction; one of said tubes being in communication with the bulb and mechanically connected with and carrying the other tube, substantially as described.

11. An air-pyrometer or the like having a bulb, an indicator, and a compensator formed by two coiled tubes, of which the first tube is in communication with the bulb and the second tube is mechanically connected with the free end of the first tube and carried by said first tube, substantially as described.

659,617. **MEANS FOR INSERTING SHIRRING-STRINGS INTO INCANDESCENT MANTLES.** BRUNO VON BULTHINGSLÖWEN, New York, N. Y., assignor of one-third to Sarah von Auw, same place. Filed Aug. 27, 1898. Renewed Feb. 24, 1900. Serial No. 6,411. (No model.)



Claim.—1. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of central folders, of a set of parallel reciprocating side folders located intermediately with the central folders, longitudinally-reciprocating needles, and means for simultaneously operating said reciprocating side folders and advancing the needles for shirring the folds of the head of the mantle, substantially as set forth.

2. In means for inserting shirring-strings into incandescent mantles, the combination of a set of central folders, means for vertically reciprocating the same, a set of side folders at each side of said central folders, said side folders being arranged to alternate with the central folders, means for imparting reciprocating motion to said side folders successively one pair after the other, two needles arranged at right angles to the folders, and means for moving said needles forward simultaneously with the inward motion of said side folders, substantially as set forth.

3. In means for inserting shirring-strings into incandescent mantles, the combination with a set of central folders, of a platform for supporting said folders, a spring-actuated tension-blade arranged on said platform adjacent to said folders, means for guiding said tension-blade laterally to and from one end of said central folders, side folders cooperating with said central folders and needles for inserting a shirring-thread through the folded part of the mantle, substantially as set forth.

4. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of parallel central folders, of a platform for supporting the same, means for guiding the platform, an angular lever for raising or lowering said platform, a pawl-and-ratchet device for locking said angular lever in position, side folders and needles for inserting a shirring-thread, substantially as set forth.

5. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of central folders, of laterally-reciprocating side folders located intermediately to said central folders, carriers for supporting said side folders, means for guiding said carriers up and down, means for lowering said carriers and side folders when the head of the mantle is folded and shirred, and needles for inserting a shirring-thread, substantially as set forth.

6. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of central folders, of intermediate laterally-reciprocating side folders, cylindrical cams having segmentally-recessed faces engaging successively one pair of side folders after the other, means for imparting rotary motion to said cams, and needles for inserting a shirring-thread, substantially as set forth.

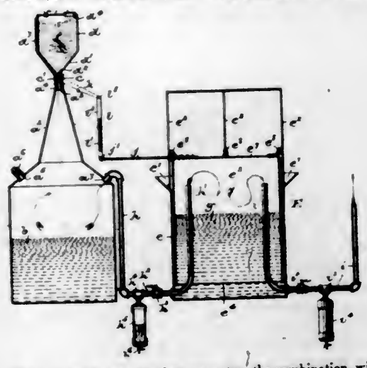
7. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of central folders, of sets of laterally-reciprocating side folders, said central and side folders being recessed at their upper parts, longitudinally-reciprocating needles, and means for imparting motion to said needles simultaneously with the reciprocating motion imparted to said side folders, substantially as set forth.

8. In means for inserting shirring-strings into incandescent mantles, the combination, with a set of central folders, of two sets of laterally-reciprocating and spring-actuated side folders, guide-combs for guiding said side folders, rotary and longitudinal traversing cam-sleeves having segmental faces for imparting successively motion toward each other to one pair of side folders after the other, and needles for inserting a shirring-thread, substantially as set forth.

9. In means for inserting shirring-strings into incandescent mantles, a side folder formed of an oblong lower part or shank and an angular upper part provided with a recess at its upper corner in combination with central folders, and a needle guided in said recess, substantially as set forth.

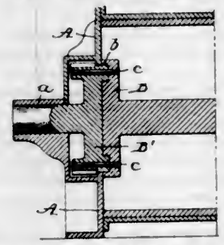
10. In means for inserting shirring-strings into incandescent mantles, the combination of a set of central folders, a guided and spring-actuated tension-blade parallel with said central folders for holding the mantle-blank in position on said folders, laterally-reciprocating side folders arranged intermediately to said central folders, said central and side folders being provided with needle-recesses in their upper ends, and a pair of longitudinally-reciprocating needles adapted to pierce successively the folds in the mantle-head, substantially as set forth.

659,618. **ACETYLENE-GAS GENERATOR.** FRITZ A. FELDKAMP, Newark, N. J. Filed Dec. 4, 1897. Serial No. 660,730. (No model.)



Claim.—In a gas-generating apparatus, the combination, with a gas-receiver, comprising a water-tank and a water-sealed gas-holder vertically movable in said water-tank, of a water-tank *a*, a receptacle containing powdered carbid arranged directly above said water-tank *a*, pipe connections between said carbid-receptacle and said tank *a*, a valve or cock between said receptacle and tank *a*, and mechanism connected with said valve or cock and controlled by the vertically-moving gas-holder to open and close said valve or cock and the communication between said tank *a* and the carbid-receptacle, consisting, essentially, of an arm on said gas-holder, a lever *k* connected with said valve or cock, and a link connection between said arm on the gas-holder and said lever *k*, said lever *k* comprising a pair of hinged arms, and means connected therewith for holding said hinged arms in a rigid position, substantially as and for the purposes set forth.

659,619. **ROTARY BLOWER.** THOMAS W. GREEN, Philadelphia, Pa., assignor to the Wilbraham Baker Blower Company, same place. Filed July 17, 1900. Serial No. 23,872. (No model.)

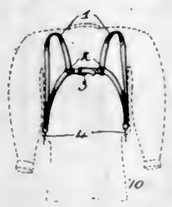


Claim.—1. A rotary blower or exhauster having the wing portion of the impellers cast separately and the ends thereof secured to separately-cast circular end or head pieces having driving-shafts cast integral therewith, two of said circular headpieces being provided with a series of cogs adapted to mesh into each other, substantially as shown and for the purpose described.

2. In a rotary blower or exhauster, the wing portion B, of the impeller cast separately, in combination with the two of the circular end or head pieces B', adapted to be secured to the wing portions and provided with suitable driving-shafts and having upon their outer periphery a series of cogs adapted to mesh into each other, substantially as shown.

3. In a rotary blower or exhauster the separately-cast wing portion B, in combination with circular end or head pieces B', each of said headpieces having on its outer periphery a series of cogs and provided with two of the projecting parts *b' b'*, turned to the arc of a circle that corresponds to the arc of the circle to which the depressions *b b*, in the wing portion of the impeller are turned, substantially as shown and for the purpose described.

659,620. **INVISIBLE SUSPENDERS.** EDWARD S. HALSEY, Chicago, Ill. Filed Aug. 13, 1900. Serial No. 26,891. (No model.)



Claim.—1. In a trousers-supporting device, a cam 9; a stem or needle 4; a frame or yoke for said parts binding said stem against said cam.

2. In a trousers-supporter, a device for penetrating the shirt and coupling the suspenders on the inside of the shirt to a garment on the outside thereof and consisting of the shaft or needle 4 and the clasp 5.

3. In a trousers-supporter, a device for penetrating a shirt and coupling the suspenders on the inside of the shirt to a garment on the outside thereof, consisting of the shaft 4 the cam 9; the spring 12; and an outer frame or yoke therefor.

4. In a trousers-supporter, a device for penetrating the shirt and coupling the suspenders on the inside of the shirt to a garment on the outside thereof, consisting of the shaft 4 the cam 9; the spring 12; an outer frame or yoke therefor and a device 11 for detachably connecting the device composed of the other parts, to an outer garment.

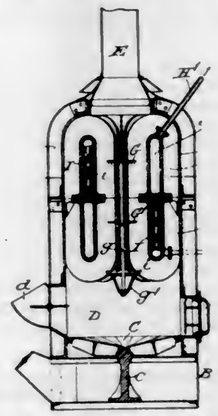
5. In a trousers-supporter, a device for penetrating the shirt and coupling the suspenders on the inside of the shirt to a garment on the outside thereof; a device 5 engaging the end of said penetrating device, that is protruded out of said shirt, thus preventing it from receding into said shirt when disengaged from the trousers.

6. In a trousers-supporter, a device for penetrating the shirt and coupling the suspenders on the inside of the shirt to a garment on the outside thereof, combined with a pair of shoulder-straps 1 and 1 being two loops one over each shoulder; a pair of garment-couplers 4 and 4, one under each arm and supported respectively by the two said loops and an adjustable cross-strap 3, joining said shoulder-loops together in such a manner as to adjust the angle of their pull.

659,621. **DISINFECTANT.** DAVID M. KELSEY, Saratoga Springs, N. Y., assignor to the Antiseptic Powder Company, same place. Filed Feb. 9, 1900. Serial No. 4,663. (No specimens.)

Claim.—The above-described composition of matter consisting of hydrated calcium sulfate, charcoal, dried peat, sulfur, ferric oxid, and crude phenic acid, in the proportions specified, substantially as described and for the purpose specified.

659,622. **STEAM-BOILER.** JUSTIN MALLET, Marseilles, France, and ARTHUR R. MOSLER, New York, N. Y.; said Mallet assignor to said Mosler. Filed Mar. 8, 1900. Serial No. 7,819. (No model.)



Claim.—1. A steam-boiler composed of annular half-sections closed at one end and open at the opposite end, the two half-sections being arranged to be united at their open ends to form a continuous interior annular chamber, the said half-sections being provided with radial flanges or wings extending continuously from the inner wall at the open end around to the outer wall at the open end, and suitable inlet and outlet pipes connected with the half-sections, substantially as set forth.

2. The combination with a boiler composed of a narrow annular chamber provided with flanges or wings radiating from its opposite walls, of baffle-plates intermediate of the inwardly-extending flanges for directing the products of combustion between the series of inner and outer flanges or wings, substantially as set forth

3. The combination with a boiler composed of a narrow annular chamber provided with radial wings projecting inwardly and outwardly from its walls, of series of perforated blocks arranged with the perforations in staggered order and means for directing the steam through the holes for laminating the steam, substantially as set forth.

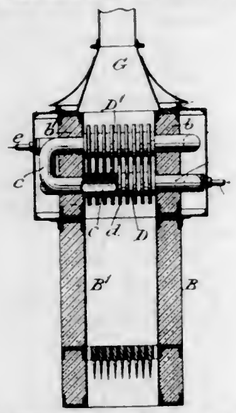
4. The combination with a furnace, of a boiler located within the furnace and consisting of a narrow annular chamber provided with wings or flanges radiating inwardly and outwardly from the walls of the chamber, the said winged annular chamber forming the crown-sheet of the fire-box of the furnace for admitting the products of combustion directly in contact with the opposite sides of said radial flanges, substantially as set forth.

659,623. **STEAM-BOILER.** JUSTIN MALLET, Marseilles, France, and ARTHUR R. MOSLER, New York, N. Y.; said Mallet assignor to said Mosler. Filed Mar. 22, 1900. Serial No. 9,725. (No model.)

Claim.—1. The combination with several tubular sections connected at their ends to form a continuous tube extending back and forth through the interior of a furnace, of tubular jackets embracing the said tubular sections within the furnace, the said tubular jackets being provided with series of annular flanges, substantially as set forth.

2. A boiler comprising connected tubular sections, one or more of said tubular sections being provided with steam-laminating means consisting of a central cylindrical core and layers of rods surrounding the core

and other tubular sections provided with steam-laminating means consisting of a sheet of metal coiled in convolute form, substantially as set forth.



3. A boiler comprising connected tubular sections, one or more of said sections being provided with means for laminating the steam within it, said laminating means consisting of a sheet of metal formed in a convolute coil, the coils being spaced apart to permit the stem to pass between them, substantially as set forth.

4. A boiler-tube provided with means for laminating the steam within it, said laminating means consisting of a sheet of metal formed in a convolute coil, the coils being spaced apart to permit the steam to pass between them, substantially as set forth.

5. A boiler-tube provided with means for laminating the steam within it, said laminating means consisting of a sheet of metal having one of its two opposite edges shorter than the other, the said sheet of metal being formed in a convolute coil and the coils spaced apart to permit the steam to pass between them, substantially as set forth.

659,624. EXTENSION-TABLE. GEORGE A. MYERS, Kalamazoo, Mich. Filed May 7, 1900. Serial No. 15,757. (No model.)



Claim.—1. In an extension-table, the combination of end frames, extension devices between the same, a series of transverse rails on the said extension devices, rods movably engaged by said rails, and a cover disposed over and adjustable proportionately to the movement of said rails.

2. In an extension-table, the combination of end frames, one of said frames having an opening in the top portion thereof, a series of adjustable transversely-extending rails between and connected to the said end frames, and a cover loosely mounted over the rails and automatically adjustable proportionately to the movement of the rails, the said cover being secured at one end to one of said frames and freely movable through the opening in the other to the under side of the latter.

3. In an extension-table, the combination of end frames, a series of self-adjustable transversely-extending rails between and connected to said end frames, and a plurality of adjustable and fixed rods extending transversely through and on which said rails are movable.

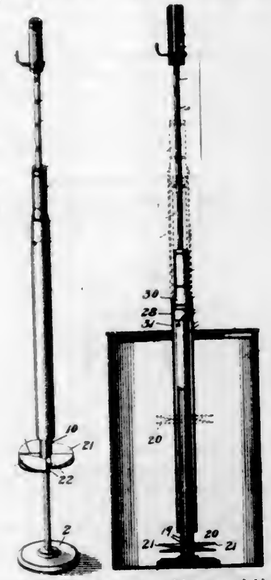
4. In an extension-table, the combination of end frames, a series of self-adjustable transversely-extending rails between and connected to said end frames, and a plurality of rods extending transversely through and on which said rails are movable.

5. In an extension-table, the combination of end frames, a series of self-adjustable transversely-extending rails having their opposite ends connected by flexible strips, means extending longitudinally through the series of rails for reinforcing the same, extension and sliding frames supporting the rails, said extension-frames being provided with ratchet-teeth, a central cross-brace having a depending leg, and ratchet-pawls to engage the ratchet-teeth of the extension-frames.

6. In an extension-table, the combination of end frames, horizontally-disposed extension-frames intermediate of the said frames, a transverse cross-brace on the central extension-frame and having a central depending leg, portions of the extension-frames having ratchet-teeth, and oppositely-extending ratchet-pawls carried by one end of said cross-brace to engage the ratchet-teeth.

7. In an extension-table, the combination of end frames, self-adjustable transversely-extending rails between said frames, opposite outer pairs of bracing devices fixed to the frames and on which the said rails are freely movable, and inner pairs of bracing devices connected to and movable through portions of the rails.

659,625. CHURNING DEVICE. GEORGE A. NORCROSS and ROBERT A. HOLLOWAY, Henderson, Ky. Filed Nov. 27, 1899. Serial No. 738,416. (No model.)



Claim.—1. A churning device comprising a revolnble dasher in the form of a screw-disk, air-supplying means, and mechanical means for imparting a positive rotation to the dasher and simultaneously reciprocating the same in a vertical direction, said dasher having an unobstructed vertical clearance therethrough at both the upper and lower sides of the same to permit of its passage through the liquid without displacement thereof, substantially as set forth.

2. A churning device comprising a revolving dasher in the form of a screw-disk and having hollow air-distributing blades in communication with the outer air, and mechanical means for imparting a positive rotation to the dasher and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

3. A churning device comprising a revolving dasher in the form of a split screw-disk having a pair of duplicate hollow air-distributing blades in communication with the outer air, and mechanical means for imparting a positive rotation to the dasher and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

4. A churning device comprising a revolving dasher in the form of a split screw-disk having a pair of duplicate hollow air-distributing blades in communication with the outer air, and mechanical means for imparting a positive rotation to the dasher alternately in reverse directions, and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

5. A churning device comprising a revolving dasher consisting of a split screw-disk having a pair of duplicate oppositely-located hollow blades, disposed obliquely and in reverse relation to each other, each of said blades having at their inner sides air-inlet ports in communication with the outer air and open at their peripheries, and mechanical means for imparting a positive rotation to the dasher alternately in reverse directions, and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

6. A churning device comprising a dasher consisting of a split screw-disk having a pair of duplicate oppositely-located hollow blades, disposed reversely to each other and oblique to a horizontal plane, each of said blades comprising upper and lower spaced walls unconnected at their outer edges, means for conducting air to each of said blades, and mechanical means for imparting a positive rotation to the dasher alternately in reverse directions, and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

7. A churning device comprising a dasher consisting of a split screw-disk having a pair of duplicate reversely-arranged blades disposed obliquely to a horizontal plane, each of said blades being open throughout and provided intermediate its ends at its upper and lower sides with transverse interior impact-shoulders, and with air-inlet ports at each side of said interior impact-shoulders, the upper and lower impact-shoulders of the blades being reversely arranged with relation to each other, means for conducting air to said ports, and mechanical means for imparting a positive rotation to the dasher alternately in reverse directions, and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

8. A churning device comprising a dasher consisting of a split screw-disk having a pair of reversely-arranged hollow air-distributing blades, each having intermediate the ends thereof and at its upper and lower sides, transverse deflected portions producing interior impact-shoulders and exterior agitating-shoulders, each of said blades having air-ports at each side of the shoulders thereof, and being open at their outer edges, means for conducting air to the ports of said blades, and mechanical means for imparting a positive rotation to the dasher alternately in reverse directions and simultaneously reciprocating the same in a vertical direction, substantially as set forth.

9. A churning device comprising an air-conducting tube, an air-distributing dasher carried by the tube and having hollow blades in communication therewith, a standard on which the tube and dasher are slidably and revolnbly fitted, and a reciprocative operating device engaging with the standard and with the tube for simultaneously rotating said tube and dasher and causing the latter to reciprocate vertically within the churn-receptacle, as set forth.

10. A churning device comprising a single upright supporting-standard, a reciprocative and revoluble dasher loosely mounted on said standard to work freely thereon, and a single operating means slidably supported by the standard and operatively related to the dasher for giving the reciprocative and rotative movements simultaneously thereto, as set forth.

11. A churning device comprising a single supporting-standard having a weighted base which is disconnected from the churn vessel and is adapted to sustain the standard in an upright position, a revoluble and reciprocative dasher mounted on the standard, and a dasher-operating means also mounted on the standard, as set forth.

12. A churning device comprising a single supporting-standard provided at the lower end thereof with a weighted base and at its upper end with a hand-grip, a reciprocative and revoluble dasher mounted for free movement on the standard between the base and the hand-grip thereof, and a dasher-operating means also supported by the standard, as set forth.

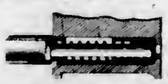
13. A churning device comprising a single upright standard provided at its lower end with a weight-base and at its upper end with a removable hand-grip, a bolt for detachably fastening the grip in place, said bolt being provided at one end with an offstanding rest-hook for the hand, and churning mechanism mounted upon the standard, substantially as set forth.

14. A churning device comprising a single upright supporting-standard provided therein with a spiral groove, an air-conducting tube having a lug slidably engaging in said groove, an air-distributing reciprocative and revoluble dasher carried by the air-conducting tube and in communication therewith, and a non-rotating operating-handle mounted to reciprocate upon the standard and having a swiveled connection with the upper end of said tube, substantially as set forth.

15. A churning device comprising an upright supporting-standard, a reciprocatory rotatable air-conducting tube carrying an air-distributing dasher, an operating-handle mounted to reciprocate upon the standard and having an operative connection with the tube, and a splash-guard, said splash-guard consisting of a sleeve detachably suspended at its upper end from the operating-handle to hang over the said air-conducting tube, substantially as set forth.

16. A churning device comprising a single upright supporting-standard, a reciprocatory, revolnble air-conducting tube working over the standard, an air-distributing dasher carried by the tube and in communication therewith, a non-rotating operating-handle mounted to reciprocate upon the standard, and having a flanged lower end loosely engaging within one end of the air-conducting tube, and antifriction-balls arranged above and below the flange at the lower end of said handle, substantially as set forth.

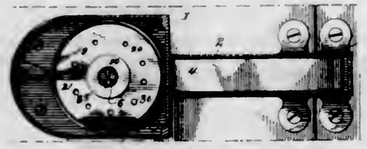
659,626. RIVETING-MACHINE. HENRY C. POMEROY, Chicago, Ill., assignor of one-fourth to Fred H. Smith, same place. Filed Dec. 11, 1899. Serial No. 739,984. (No model.)



Claim.—1. A rivet-holding pocket comprising a recessed block, a supporting-post secured within said block and recess and having a head at its upper end, a sleeve surrounding said head and provided with an interior flange to contact with said head, and a spring extending at one end into said sleeve and bearing against said flange and at its opposite end into the recess in the block surrounding said post; substantially as specified.

2. In a riveting-machine having a recessed base, the combination with a frame and plunger mounted above said base, of a rivet-supporting post having a flanged head, a block fitting said recess to removably support said post therein, a sleeve surrounding said post and having an interior flange adapted to engage beneath said head, a spring surrounding said post between said sleeve-flange and block, an extension carried by the sleeve below said flange and adapted to contact with said block in the downward movement of the sleeve; substantially as specified.

659,627. PERMUTATION-LOCK. GEORGE A. REDDICK, Nashville, Tenn. Filed Mar. 5, 1900. Serial No. 7,306. (No model.)



Claim.—1. In a permutation-lock, the bolt, a slotted ring connected to the bolt and forming a housing for the disks of the permutation device, a casing for the bolt and for the slotted ring, a fixed pillar within the casing in line of movement of the slot in the slotted ring, a spindle connected to slotted disks within the slotted ring, as described, and a cross-bar connected to the slotted ring and supporting one of the disks remote from the spindle.

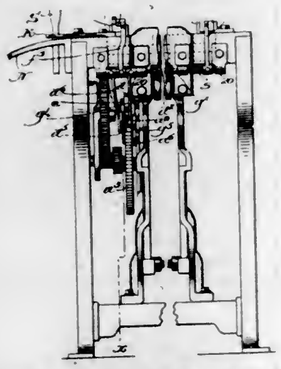
2. In a permutation-lock, the bolt, a slotted ring permanently connected thereto, a spider connected to said ring by resting in notches in the edge thereof, permutation-disks within the ring, one of the same being supported by the spider, a spindle connected to the disk at the side opposite the spider, and a pillar in the casing in the path of movement of the ring and disks and at the opposite side of the ring from the bolt, all combined substantially as described.

3. In a permutation-lock, the bolt and the slotted ring attached thereto, a bar or spider extending across the slotted ring and a slotted disk having its hub supported thereby, the spindle extending into the ring at the side opposite the spider and having a slotted disk connected thereto, and a pillar in the casing which may be embraced by the slots of the disks of the sliding bolt and ring, all combined substantially as described.

659,628. LOOM. CHARLES F. ROPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed June 7, 1900. Serial No. 19,371. (No model.)

Claim.—1. In a loom, stopping means, take-up mechanism, two filling-detectors, and independent connections between them and said mechanism, to arrest the operation of the latter upon detection of filling

failure, one of said detectors controlling the operation of the stopping means.



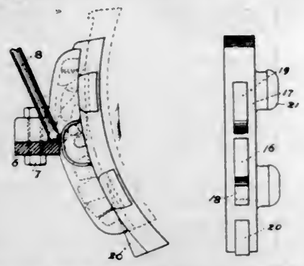
2. In a loom, stopping means, take-up mechanism, two filling-detectors located at opposite sides of the loom, connections between one of said detectors and the stopping means and the take-up mechanism, and independent connections between the other detector and said mechanism.

3. In a loom, take-up mechanism, let-back means therefor, two filling-detectors to detect the absence of filling, and independent connections between said mechanism and the detectors, to arrest the operation of the former upon detection of filling failure, the connections controlled by one of said detectors also effecting the operation of the let-back means.

4. In a loom, take-up mechanism, two filling-detectors to detect the absence of filling, connections between said mechanism and the detectors, to arrest the operation of the former by or through detecting action of either detector, and means to prevent control of the take-up by one of said detectors after its operation has been effected by the other.

5. In a loom, take-up mechanism, including an actuating-pawl, and let-back pawls, a main and an auxiliary filling-detector, to detect filling failure, means controlled by detecting operation of the main detector to render the actuating-pawl inoperative upon detection of filling failure, and means controlled by or through the auxiliary detector to render the actuating-pawl inoperative and also to permit the operation of the let-back pawls.

659,629. **AUTOMATIC BRAKE-BLOCK.** WILLIAM H. SAUVAGE, Denver, Colo., assignor of two-thirds to Henry Newton Wood and Charles C. Welch, same place. Filed Feb. 5, 1900. Serial No. 3,951. (No model.)



Claim.—1. In an automatic brake-block the combination with a suitable support, of a head, and a shoe movable thereon, the head being grooved longitudinally and provided with a cushion at each extremity of the groove, the shoe being provided with two separated lugs which enter the groove of the head and respectively engage the cushions of the head as the shoe reaches its limits of upward and downward movement, the said groove being open at the rear to permit the escape of dirt or other foreign material or substances, and suitable means for forcing the shoe against the tread of the wheel automatically as the shoe is actuated by the frictional contact of the wheel.

2. An automatic brake-block comprising a head, and a shoe movable thereon, the head being grooved longitudinally and provided with a cushion at each extremity of the groove, the shoe being provided with two separated lugs which enter the groove of the head and respectively engage the cushions of the head as the shoe reaches its limits of upward and downward movement, and means for forcing the shoe against the tread of the wheel automatically as the wheel actuates the shoe by frictional engagement.

3. The combination of a brake-head and a shoe movable thereon, the head being grooved longitudinally and provided with a cushion at each extremity of the groove, the shoe being provided with two separated lugs which enter the groove of the head and respectively engage the cushions of the head as the shoe reaches its limits of upward and downward movement, the groove of the head being open at the rear, one of the said members being provided with an inclined face and the other with a suitable bearing to engage said face, whereby the shoe is forced against the tread of the wheel automatically as the shoe is actuated by the frictional contact of the wheel.

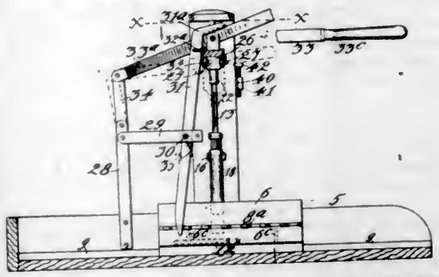
4. The combination of a brake-head and a shoe movable thereon, the head being grooved longitudinally and provided with a cushion at each extremity of the groove, the shoe being provided with two separated lugs which enter the groove of the head and respectively engage the cushions of the head as the shoe reaches its limits of upward and downward movement, the groove of the shoe being open at the rear, one of the said members being provided with two separated inclined faces and the other with bearings engaging said faces, whereby as the shoe is actuated by the frictional contact of the wheel the shoe is forced against the tread of the wheel automatically.

5. The combination of a brake-head and a shoe movable thereon, the head having a groove open at the rear, one of the said members being provided with two separated inclined faces and the other with bearings engaging said faces, the two inclined faces being arranged to act simultaneously to force the shoe against the tread of the wheel automatically.

6. The combination of a brake-head grooved to receive the shoe which is provided with two separated lugs adapted to enter the groove, the upper lug being hook-shaped, a stop located in the groove of the head and arranged to be engaged by the hooked lug of the shoe when the latter is at its downward limit of movement, an inclined face formed between the two lugs of the shoe and a similar inclined face formed on the lower extremity of the shoe, the head being provided with bearings to engage said inclined faces whereby as the shoe is actuated it is forced against the tread of the wheel automatically.

7. The combination of a brake-head grooved to receive the shoe which is provided with two separated lugs adapted to enter the groove, the upper lug being hook-shaped, a stop located in the groove of the head and arranged to be engaged by the hooked lug of the shoe when the latter is at the downward limit of movement, an inclined face formed between the two lugs of the shoe and a similar inclined face formed on the lower extremity of the shoe, the head being provided with bearings to engage said inclined faces, the shoe being provided with cushions located respectively above the one lug and below the other lug, and arranged to engage the lugs when the shoe is at its limits of upward and downward movement.

659,630. **WAD-SEATING MACHINE.** LEWIS B. SIMMONS, Denver, Colo., assignor of one-half to George Tritch, Jr., same place. Filed July 31, 1899. Serial No. 725,616. (No model.)



Claim.—1. In a wad-cutting machine, the combination with a shell-block and a suitable guide box or trough in which the block is located, of a reciprocating frame, one or more plungers attached to said frame, a lever for operating the plungers, and means actuated by the plunger-supporting frame for feeding the shell-block, said means comprising a spring-held lever fulcrumed to permit a lateral rocking movement as well as a fore-and-aft movement, the upper extremity of the lever being bent forwardly and provided with a cam, both the cam and the bent lever portions being adapted to be engaged by the plunger-frame.

2. The combination with a shell-block and a guide therefor, of a cross-head, a guide for the cross-head, a number of plungers attached to the cross-head, a lever for operating the cross-head, and means actuated by the cross-head for feeding the shell-block, said means comprising spring-held

levers fulcrumed to permit a lateral rocking movement as well as a fore-and-aft movement, the upper extremities of the levers being bent forwardly and provided with cams, both the cams and the bent lever portions being adapted to be engaged by the cross-head.

3. The combination with a suitable stationary frame and a shell-block, of a cross-head, a number of plungers attached thereto, and levers actuated by the cross-head and arranged to feed the shell-block, said levers being pivoted to permit a lateral as well as a fore-and-aft movement and bent forwardly and provided with cams, both the cams and the bent lever portions being adapted to be engaged by the cross-head.

4. The combination with a suitable stationary frame, of a shell-block provided with ratchet-teeth on opposite sides, a reciprocating cross-head, plungers supported thereon, spring-held levers actuated by the cross-head for engaging the teeth of the shell-block and feeding the latter, the said levers being fulcrumed to permit a lateral rocking movement as well as a fore-and-aft movement, the upper extremities of the levers being bent and provided with cams, both the cams and the bent lever portions being adapted to be engaged by the cross-head.

5. The combination with a suitable stationary frame, of a shell-block provided with ratchet-teeth, spring-held levers whose lower arms are normally held outside the plane of the ratchet-teeth on the block, the upper extremities of the levers being bent or inclined forwardly and provided with cams, a cross-head, plungers carried thereby, and means mounted on the cross-head for engaging the cams and actuating the levers to throw their lower arms inwardly to engagement with the ratchet-teeth of the shell-block, before the forward movement is imparted to the said arms by the engagement of the cross-head with the bent upper extremities of the plungers.

6. The combination of a box, a shell-block arranged to slide therein, springs attached to the box and engaging the shell-block on opposite sides, the said block being provided with ratchet-teeth, standards attached to the box and provided with vertical tongues, a cross-head frame grooved to receive said tongues, plungers carried by the cross-head frame, levers actuated by the cross-head frame and arranged to engage the ratchet-teeth of the shell-block, vertical bars attached to the box in the rear of the standards, links mounted on said bars, a lever fulcrumed on said links and connected with the cross-head for operating the latter.

7. The combination with a stationary frame and a reciprocating cross-head, of a reversible plunger engaging a socket formed in the cross-head with which it is detachably connected, said plunger having its extremities of different sizes, the cross-head socket being of a size to receive the larger extremity of the plunger, the smaller end being provided with a detachable bushing-sleeve to cause it to fit the socket of the cross-head.

659,631. **DEVICE FOR REMOVING AND REPLACING INCANDESCENT LAMPS.** ROCH CROTEAU and RICHARD J. MESSNER, Denver, Colo. Filed June 11, 1900. Serial No. 19,946. (No model.)



Claim.—1. In a lamp remover and replacer, the combination of a handle, a cone-shaped cam mounted on its upper extremity, a rod movable longitudinally on the handle, a collar connected with the upper extremity of the rod, levers fulcrumed thereon above the cam which the lower arms of the levers engage, springs whose tendency is to hold the lever-arms against the cam, and gripping-arms connected with the upper arms of the levers, the arrangement being such that as the rod is moved longitudinally in the handle, the gripping-arms are opened and closed through the action of the cam and the levers.

2. The combination with a handle and a rod movable longitudinally therein, of a hollow cam mounted on the upper extremity of the handle, a collar located above the cam, a device passing through the cam and connecting the collar with the upper extremity of the rod, and spring-held lever-arms fulcrumed on the collar and engaging the cam.

3. The combination with a handle and a rod movable longitudinally therein, of a hollow cam hinged to the upper extremity of the handle, means for locking the cam at any desired angle with the handle, a collar located above the cam, a flexible connection between the collar and the upper extremity of the rod said connection passing through the opening in the cam, and spring-held lever-arms fulcrumed on the collar.

4. The combination of a handle, a rod passing longitudinally therethrough and movable therein, a plunger attached to the upper extremity of the rod, a sleeve attached to the upper extremity of the handle, and surrounding the plunger, arms attached to the upper extremities of the sleeve on opposite sides, a hollow cone-shaped cam mounted on said arms and movably connected with the arms on the sleeve to permit the cam to be moved to occupy a position at an angle to the handle, a flexible device passing through the cam and projecting above the same, a collar fast thereon, and spring-held lever-arms fulcrumed on the collar and engaging the cam.

5. The combination of a handle provided with a longitudinal opening, a hollow cam hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and passing through the cam, a collar connected with the upper extremity of the flexible device and spring-held lever-arms fulcrumed on the collar.

6. The combination of a handle provided with a longitudinal opening, a hollow cam hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and passing through the cam, said device comprising springs coiled one within the other, a collar connected with the upper extremity of the springs, and spring-held lever-arms fulcrumed on the collar.

7. The combination of a handle provided with a longitudinal opening, a hollow cam hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and passing through the cam, said device comprising springs coiled one within the other, a collar connected with the upper extremity of the springs, and spring-held lever-arms fulcrumed on the collar, a flexible wire cable connected with the upper extremity of the rod, passing through the springs and protruding above the collar, and a button attached to the upper extremity of the cable.

8. The combination of a handle, a rod movable longitudinally therein, a hollow cam mounted on the upper extremity of the handle, a collar located above the cam, a connection between the rod and the collar, said connection passing through the opening in the cam, lever-arms fulcrumed on the handle, and coil-springs connecting the lever-arm extremities and having a tendency to hold them against the cam.

659,632. **EXCAVATOR.** OLAF HETLEBAKTER, Chicago, Ill. Filed Jan. 10, 1900. Serial No. 922. (No model.)

Claim.—1. In an excavator, the combination of a bucket-arm supported intermediate of its extremities and composed of a plurality of members, two of which are pivotally connected to a third member; said third member affording means for varying the configuration of said arm; and means for operating said arm, attached thereto on opposite sides of the point of support thereof.

2. In an excavator, the combination of a linkwork bucket-arm supported intermediate of its extremities, two of the links of said arm being articulately connected to a third link thereof; arm-operating mechanism attached to said third link on one side of the point of support of said arm, and other arm-operating mechanism attached to said arm upon the other side of said point of support.

3. In an excavator, the combination of a pivotally-supported bucket-arm composed of a plurality of members, two of which are articulately connected to a third member, said third member affording means for varying the configuration of said arm; and an excavator-bucket attached to said arm and having a port or mouth adapted for both receiving and discharging material into and from said bucket.

4. In an excavator, the combination of a crane; a bucket-arm supported on said crane and consisting of a plurality of members, two of which are pivoted to a third member, said third member constituting a thrust-link for varying the relative positions of the members of said arm; and a bucket wherein the charging and discharging are effected through the same portion of said bucket.



5. In an excavator, the combination of a linkwork bucket-arm, one of the links whereof is supported between its extremities and carries at one of its extremities a second link of said arm, said second link forming a thrust member for regulating the depth of cut; a bucket attached to one of the links of said arm other than said first-mentioned link said bucket having a single port or mouth for receiving and discharging material; and a door or cover adapted to close the port or mouth of said bucket.

6. In an excavator, the combination of a linkwork bucket-arm supported intermediate of its extremities; a bucket attached to said arm upon one side of the support thereof, and having a single aperture for charging and discharging; a digging-cable whereby said bucket may be forced into the bank to be excavated, and means attached to said arm upon the other side of the support thereof for hoisting said bucket.

7. In an excavator, the combination of a bucket-arm composed of a pair of longitudinal members connected at one end with the bucket-handle, and at the other connected by a transverse link; a bucket attached to said bucket-handle, and means for filling and discharging said bucket through the same port or aperture thereof.

8. In an excavator, the combination of a pivotally-supported bucket arm composed of connected members capable of motion relatively to each other, a hoisting-cable attached to said bucket-arm upon one side of the supporting-pivot, a digging-cable attached to said arm at the other side of said supporting-pivot, a bucket attached to said arm, and means for filling and discharging said bucket through a single port or aperture.

9. In an excavator, the combination of a bucket-arm pivotally supported upon the crane of the excavator and composed of a plurality of members, at least three of which are pivotally connected together, and afford means for regulating the depth of cut; a bucket attached to said arm; means for forcing said bucket into the bank to be excavated; and means for discharging the contents of said bucket through the port or entrance through which said contents entered said bucket.

10. In an excavator, the combination of a bucket-arm composed of a plurality of members, at least three of which are pivotally connected together, affording means for regulating the depth of cut; operating mechanism attached to said arm on opposite sides of the point of support thereof; and means for varying the configuration of said bucket-arm.

11. In an excavator, the combination of a pivotally-supported linkwork bucket-arm, a digging-cable attached to said arm upon one side of the point of support thereof, a hoisting-cable attached to said arm at the other side of said point of support, and a combined gas and hydraulic controlling device for governing the configuration of the bucket-arm.

12. In an excavator, the combination of a bucket-arm composed of a plurality of members, two of which are pivotally connected with a third member, said third member affording means for varying the configuration of said arm; and a bucket supported upon said arm and having its cutting or digging portion nearest the main supporting structure of the excavator when said bucket is in a position for taking a cut.

13. In an excavator, the combination, with a bucket and linkwork bucket-arm, of a bucket-handle constituting one of the links of said arm and forming a lever of the third class wherein the point of power of application lies between the fulcrum and the load, the fulcrum and point of power application being the points of attachment of said handle to the adjacent links of said arm, and said bucket constituting the load.

14. In an excavator, the combination of a bucket-arm supported intermediate of its extremities, and composed of a plurality of members, two of which are articulately connected to a third member; said third member affording means for varying the configuration of said arm; an operating-cable attached to said third member; a second cable attached to said arm at a point thereon opposite to said third link with reference to the point at which said arm is supported, and a bucket carried by said arm and adapted to cut in the direction of the main structure of the excavator.

15. In an excavator, a bucket-arm composed of links articulately connected together, one of said links forming the supporting-link of the arm, a second link being pivoted to said first link and constituting the controlling member of the arm, and a third link forming the bucket-handle; in combination with a pivotal support for said first-mentioned link; a bucket carried by said handle; mechanism connected with said second link for controlling the relative positions of the links of the bucket-arm; means for rotating said bucket in a vertical plane; and other means for forcing said bucket into the bank to be excavated.

16. In an excavator, a bucket-arm composed of links articulately connected together; means upon one of said links whereby said arm is supported, and a bucket-handle constituting one of said links and supporting an excavator-bucket; an excavator-bucket; a port or mouth adapted for both receiving and discharging material into and from said bucket; means for controlling the relative positions of the links of the bucket-arm; means for hoisting said bucket, and other means for forcing said bucket into the bank to be excavated.

17. In an excavator, the combination of a bucket-arm composed of members movable relatively to each other, a bucket upon said arm, a bucket-door, and a toggle mechanism for operating said door.

18. In an excavator, a bucket having a single port or opening for charging and discharging; a hinged door or cover for closing said port or aperture; an operating-cylinder having connections with said door, and means for operating said cylinder.

19. In an excavator, the combination of a bucket-arm composed of a plurality of members three of which are pivotally connected together and afford means for varying the configuration of said arm; a bucket attached to said arm; a door for said bucket, and a toggle mechanism for operating said door.

20. In an excavator, the combination of a linkwork bucket-arm, a bucket upon said arm, a door upon said bucket, a door-operating cylinder, and connections whereby said cylinder may operate said door.

21. In an excavator, the combination of an oscillating lever pivotally attached at a point between its extremities to the crane of the excavator; a thrust-link pivoted to said oscillating lever upon one side of the support thereof; a bucket-handle pivoted to said oscillating lever upon the other side of the point of support thereof; a bucket carried by said bucket-handle, connections between said handle and said thrust-link, the point of attachment of said connections on said handle lying between said bucket and said oscillating lever; and means for operating said oscillating lever, thrust-link and bucket-handle.

22. In an excavator, an articulating linkwork forming a bucket-arm, said linkwork comprising a pair of longitudinal members one of which is pivotally supported, said members being connected at one end with the excavator-bucket and at the other joined by a transverse link; in combination with a power device connected with said transverse link; a bucket; and a second power device applied to said arm at said bucket.

23. In an excavator, an articulating linkwork forming a bucket-arm, said linkwork comprising a pair of longitudinal members one of which is pivotally supported, said members being connected at one end with the excavator-bucket and at the other joined by a transverse link; in combination with a power device connected with said transverse link; a bucket; a second power device applied to said arm at said bucket; and mechanism for varying the relative positions of the members of said arm, said mechanism being connected to said pivotally-supported longitudinal member and also to said transverse member.

24. In an excavator, the combination of a bucket-arm suitably supported and composed of a plurality of members, one of said members constituting a thrust-segment and another of said members constituting a bucket-handle, said thrust-segment and bucket-handle lying on opposite sides of the support of said arm; a hoisting-cable attached to said thrust-segment; a digging-cable attached to said arm at a point thereon opposite to said thrust-segment; and a thrust-cylinder connected to said thrust-segment and also to another of the members of said bucket-arm.

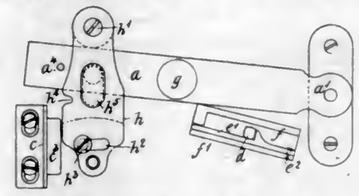
25. In an excavator having a bucket-arm composed of members movable relatively to each other, the combination of a bucket attached to said arm, a door for said bucket; and a door-operating device consisting of toggle-levers for operating said door, and a cylinder and piston-rod for operating said toggle-levers, said piston-rod constituting also the toggle-pitman.

26. In an excavator, a bucket-arm consisting of links, one of said links being pivotally supported between its extremities and having a point of power application at the upper extremity thereof and also having pivoted thereto at the lower extremity thereof a second link, said second link constituting the bucket-handle and also having a point of power application.

27. In an excavator, a bucket-arm consisting of links, one of said links being pivotally supported between its extremities and having a point of power application at the upper extremity thereof, and also having pivoted thereto at the lower extremity thereof a second link which constitutes the bucket-handle, said second link also having a point of power application; in combination with means for controlling the position of said second link relative said first link, and means for operating said arm.

28. In an excavator, a linkwork bucket-arm, consisting of a plurality of members; one of said members being pivotally supported between its extremities, a second of said members constituting a bucket-handle, said bucket-handle being articulately supported at the lower extremity of said first member; in combination with means for applying power to the upper extremity of said first member and means for applying power to said bucket-handle.

659,633. DOOR-LATCH. HENRY LOMAX and JOHN TOMLINSON, Darwen, England. Filed Aug. 12, 1899. Serial No. 727,002. (No model.)



Claim.—1. The combination with a hinged latch-bolt and a catch for the same of a latch-guard pivoted at one end, a pin fixed in the free end of said bolt and a notch in the edge of said latch-guard engaging with the pin when the free end of the guard is pushed sidewise while the bolt is engaged in the catch.

2. The combination with a hinged latch-bolt and a catch for the same, of a latch-guard pivoted at one end a pin fixed in the free end of said bolt, a notch in the edge of said latch-guard engaging with the pin when the free end of the guard is pushed sidewise while the bolt is engaged in the catch, and a lateral projection on said catch behind which the latch-guard fits when pushed, as aforesaid.

3. The combination with a hinged latch-bolt and a catch for the same, of a spindle capable of turning in the door, having a knob fixed to one end and screw-threaded at its other end, said latter end being formed with flat sides, a tapped oblong lifter flanged at one side and screwed upon said spindle, and a swivel-bar pivoted on the flange of the lifter, and fitting between the same and one of the flat sides on said spindle.

4. The combination with a hinged latch-bolt and a catch for the same, of a spindle which is capable of turning in the door, and has a knob fixed to one end and is screw-threaded at its other end, said latter end being formed with flat sides, a tapped oblong lifter flanged at one side and screwed upon said spindle, a swivel-bar pivoted on the flange of the lifter and fitting between the same and one of the flat sides on said spindle, a latch-guard pivoted at one end, a pin fixed in the free end of said latch-bolt, and a notch in the edge of said latch-guard engaging with the pin when the free end of the guard is pushed sidewise while the bolt is engaged in the catch.

5. The combination of a hinged latch-bolt having an inclined striking-face at its free end a catch for the same with an inclined striking edge, a latch-guard pivoted at one end and formed with a recess opposite to the latch-bolt, a ball inserted into said recess, a pin in the free end of the latch-bolt and a notch in the edge of the latch-guard engaging therewith when the free end of the latch-guard is pushed sidewise while the bolt is engaged in the catch, a lateral projection on said catch behind which the latch-guard fits when pushed as aforesaid, a spindle capable of turning in the door having a knob fixed to one end and a tapped oblong lifter screwed upon the other end, a flange on said lifter and a swivel-bar pivoted thereon, and flat sides on the end of the spindle fitting on said swivel-bar when it rests upon the flange of the lifter.

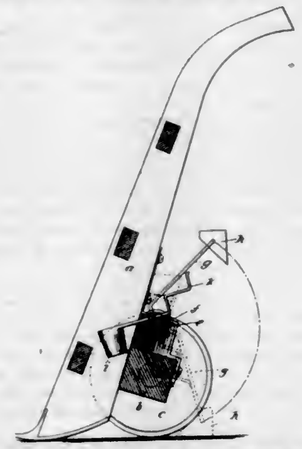
6. The combination with a hinged latch-bolt and a catch for the same, of a swinging latch-guard pivoted at one end and having a notch in its edge, means for holding the other end stationary within predetermined limits, and a pin fixed in the free end of said bolt and adapted to become engaged in the said notch when the free end of the guard is pushed sidewise while the bolt is engaged in the catch.

REISSUES.

11,862. ART OF MAKING OIL FABRICS. HENRY M. HART, Denver, Colo., assignee, by mesne assignments, from Alfred Napier Ford, deceased. Filed Apr. 4, 1900. Serial No. 12,079. Original No 574,793, dated Jan. 5, 1897.

Claim.—The improvement in the art of making oil fabrics consisting in loosely separating fibers or finely-divided particles of wool, flax, hemp, jute, cotton, silk, &c., repeatedly immersing the same in previously-heated oil so as to coat the separated fibers, in thoroughly oxidizing the oil adhering to the fibers after each immersion by subjecting the coated fibers to the action of air, the fibers being maintained in their loosely-separated condition during the steps of coating and oxidizing, and in grinding the coated fibers after oxidation to form a homogeneous mass, substantially as described.

11,863. TRUCK. JOHN MEANEY and JOHN STOEVER, Ridgefield Park, N. J.; said Stoever assignor to said Meaney. Filed May 15, 1900. Serial No. 16,788. Original No. 634,532, dated Oct. 10, 1899.



Claim.—1. In a hand-truck, the combination with the axle and wheels of a rock-shaft mounted on the truck rearward of the axle, a weight carried by the rock-shaft at one side of the axis thereof, the weight moving to each side of the axis of the rock-shaft to hold the rock-shaft in either one of two positions, and a chock carried by the rock-shaft.

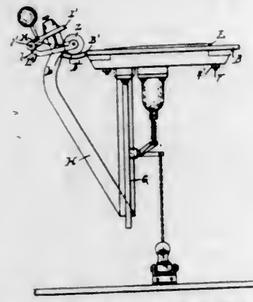
2. In a hand-truck, the combination with the wheels and axles thereof, of a rock-shaft mounted rearward of the axle, a wheel-chock carried by the rock-shaft, an arm attached to the rock-shaft and extending transversely thereof, and a weight carried by one end of the arm at one side of the rock-shaft, the other end of the arm forming a means for throwing the rock-shaft to either one of the two positions.

3. In a hand-truck, the combination with the wheels and axle, of a rock-shaft mounted on the truck rearward of the axle, an arm carried by the rock-shaft, a wheel-chock carried by the arm, an arm secured to the rock-shaft and extending transversely thereof, and a weight carried by one end of the arm.

11,864. MACHINE FOR CUTTING CIGAR-WRAPPERS. PETER E. SHIRK, Blue Ball, Pa., assignor to the John A. Peeples Manufacturing Company, Lancaster, Pa. Filed July 31, 1900. Serial No. 25,471. Original No. 633,162, dated Sept. 19, 1899.

Claim.—1. The combination of an exhaust-chamber, a continuous endless cutting-blade resting on the bottom of said chamber, a perforated platen in the space surrounded by the cutting-blade, a bed-plate covering the exhaust-chamber and through an opening in which the endless blade passes, said bed-plate having perforations therethrough and adjacent to the outer face of said blade, and a valve-chamber opening into the bottom of the exhaust-chamber beneath the space surrounded by said blade and beneath the space between the cutting-blade and the outer wall of the exhaust-chamber, for the purpose specified.

2. The combination of a bed-plate, a cutting-blade projecting above the bed-plate, a concave lip formed on an end of the bed-plate, a lever, and a pressure-roller carried by said lever, the upturned extremity of said lip being adapted to limit the return movement of said roller, for the purpose specified.



3. The combination of a bed-plate, a cutting-blade projecting above the bed-plate, a concave lip formed on an end of the bed-plate, a lever, and a pressure-roller carried by said lever and resting normally in said concave lip, the upturned extremity of said lip being adapted to limit the return movement of said roller, for the purpose specified.

4. The combination of a cigar-maker's bench, a bed-plate having its upper surface approximately flush with the top of said bench, an exhaust-chamber secured to the under side of the bed-plate, a continuous endless cutting-blade resting on the bottom of said chamber and extending up through a similarly-shaped opening in said bed-plate and slightly above the same, a perforated platen in the space surrounded by the cutting-blade, the bed-plate having perforations therein adjacent to an outer face of said cutting-blade, a valve-chamber opening into the bottom of the exhaust-chamber beneath the space surrounded by said blade and beneath the space between the cutting-blade and the outer wall of the exhaust-chamber, a concave lip formed on the end of the bed-plate, a lever, and a pressure-roller carried by said lever and resting normally in said concave lip, the upturned extremity of said lip being adapted to limit the return movement of said roller, for the purpose specified.

5. The combination of a bed-plate, a cutting-blade projecting above the bed-plate, a lever, a bracket on the swinging end of the lever, jaws extending outward from the bracket, a roller-carrying lever fulcrumed between said jaws and extending inward beneath said bracket, a pressure-roller journaled in the inner end of the roller-carrying lever, an upright rod on the roller-carrying lever and located between the pressure-roller and the fulcrum of said lever, said rod being inclined outward from the pressure-roller, and a spring on the upright rod, and bearing on the roller-carrying lever, for the purpose specified.

6. The combination of a bed-plate, a lever, a bracket on the swinging end of the lever, jaws extending outward from the bracket, a roller-carrying lever fulcrumed between said jaws and extending inward beneath said bracket, a pressure-roller journaled in the inner end of the roller-carrying lever, an upright rod on the roller-carrying lever and located between the pressure-roller and the fulcrum of said lever, said rod being inclined outward from the pressure-roller, a spring on the upright rod and bearing on the roller-carrying lever, and a cutting-blade projecting above the bed-plate and having the edge sloping downward from toward the center thereof to the end adjacent to the position normally occupied by the pressure-roller, for the purpose specified.

7. The combination of a bed-plate, a cutting-blade projecting above the bed-plate, a lever pivoted in a vertical transverse plane through the cutting-blade, a bracket on the swinging end of the lever, jaws extending outward from the bracket, a roller-carrying lever fulcrumed between said jaws and extending inward beneath said bracket, a pressure-roller journaled in the inner end of the roller-carrying lever, an upright rod on the roller-carrying lever and located between the pressure-roller and the fulcrum of said lever, said rod being inclined outward from the pressure-roller, and a spring on the upright rod and bearing on the roller-carrying lever, for the purpose specified.

8. The combination of a bed-plate having a concave lip on one end, a cutting-blade projecting above the bed-plate and having the edge sloping downward from toward the center thereof to the end adjacent to the concave lip, a lever pivoted in a vertical transverse plane through the cutting-blade, a bracket on the swinging end of the lever, jaws extending outward from the bracket, a roller-carrying lever fulcrumed between said jaws and extending inward beneath the bracket, a pressure-roller journaled in the inner end of the roller-carrying lever, an outwardly and upwardly inclined socket on said bracket, a rod passing through the socket and secured to the roller-carrying lever between the pressure-roller and the fulcrum of said lever, and a spring coiled around said rod and bearing against the top of said socket and on the roller-carrying lever, substantially as and for the purpose specified.

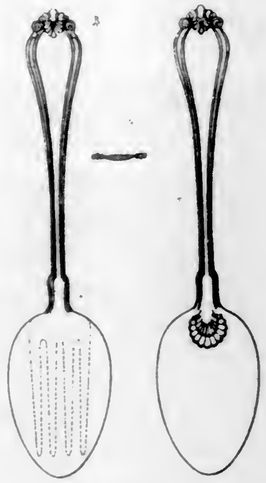
DESIGNS.

33,322. BADGE. MAGNE FORDE, Osage, Iowa. Filed Aug. 29, 1900. Serial No. 28,481. Term of patent 7 years.



Claim.—The design for a badge substantially as shown and described.

33,323. HANDLE FOR SPOONS OR SIMILAR ARTICLES. GILBERT L. CROWELL, Jr., Arlington, N. J. Filed Sept. 17, 1900. Serial No. 30,364. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork or other similar article, substantially as shown and described.

33,324. PENHOLDER AND ENVELOP-OPENER. HOWARD J. ATWELL, Washington, D. C. Filed Sept. 5, 1900. Serial No. 29,092. Term of patent 14 years.



Claim.—The design for a penholder and envelop-opener, herein shown and described.

33,325. PENCIL-HOLDER. JAMES A. SEAER, Augusta, Kans. Filed Sept. 11, 1900. Serial No. 29,731. Term of patent 7 years.



Claim.—The design for a pencil-holder, as herein shown and described.

33,326. BOTTLE. JAMES F. MCGUIRE, New York, N. Y. Filed Aug. 17, 1900. Serial No. 27,217. Term of patent 14 years.



Claim.—The design for a bottle, substantially as described and shown.

33,327. CORN-CUTTING SCOOP. FRED R. CRITTENDEN, New York, N. Y. Filed Sept. 14, 1900. Serial No. 30,076. Term of patent 14 years.



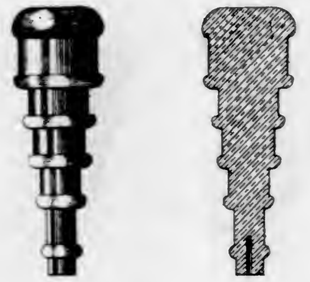
Claim.—The design for the corn-cutting scoop herein shown and described.

33,328. MEAT OR VEGETABLE CHOPPER. VIOLA E. KENT, Kalamazoo, Mich. Filed Aug. 29, 1900. Serial No. 28,479. Term of patent 7 years.



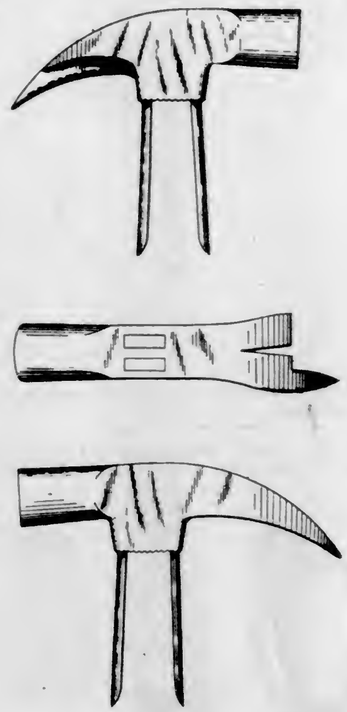
Claim.—The design for a meat or vegetable chopper as herein shown and described.

33,329. TOOL-SHARPENER. WILMOT H. DIGGS, Baltimore, Md. Filed Sept. 8, 1900. Serial No. 29,469. Term of patent 14 years.



Claim.—The design for a tool-sharpener herein shown and described.

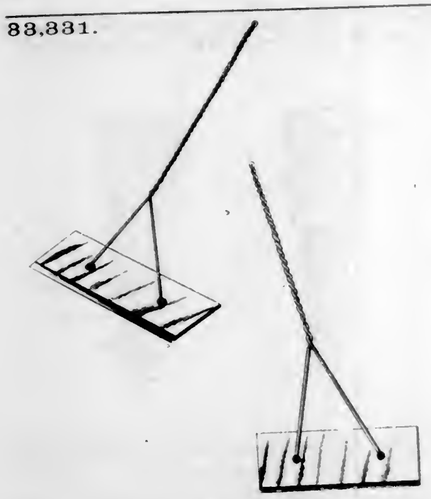
33,330. HAMMER. HANS RANSOM, Cattaraugus, N. Y., assignor of one-half to Peter Larsen, same place. Filed Sept. 12, 1900. Serial No. 29,852. Term of patent 14 years.



Claim.—The design for a hammer, as herein shown and described.

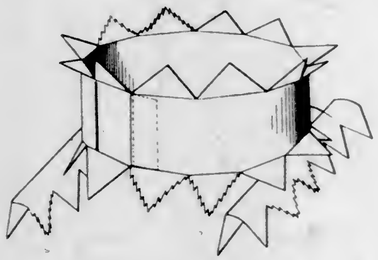
33,331. HOE. WILLIAM B. SMITH, Boise, Idaho, assignor of one-half to William A. Korts, same place. Filed Aug. 28, 1900. Serial No. 28,368. Term of patent 14 years.

33,331.



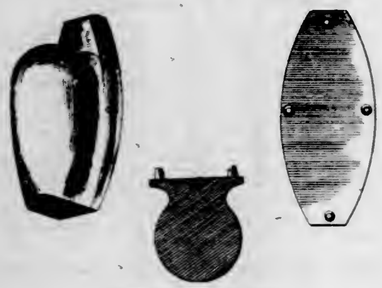
Claim.—The design for a hoe substantially as shown and described.

33,332. TREE-ROOT PROTECTOR. PETER J. WILSON, Ben Lomond, Cal. Filed Sept. 5, 1900. Serial No. 29,096. Term of patent 14 years.



Claim.—The design for the tree-root protector, substantially as herein shown and described.

33,333. SAW SET AND GAGE. LEWIS VALENTINE, Chaquato, Wash. Filed Aug. 29, 1900. Serial No. 28,480. Term of patent 7 years.



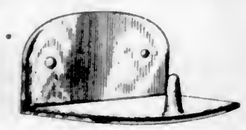
Claim.—The design for a saw set and gage, substantially as shown and described.

33,334. PUMP-STOCK. JULIUS H. SCHLAFLY, Canton, Ohio, assignor to the Berger Manufacturing Company, same place. Filed Aug. 11, 1900. Serial No. 26,654. Term of patent 7 years.



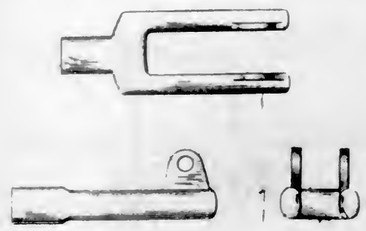
Claim.—The design for a pump-stock as herein shown and described.

33,335. BED-SLAT HOLDER. ROBERT V. GALLAWAY, Thornton, Tex. Filed Sept. 13, 1900. Serial No. 29,968. Term of patent 7 years.



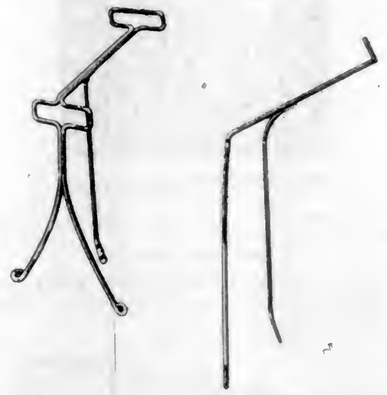
Claim.—The design for a bed-slat holder, herein shown and described.

33,336. BRACKET FOR ROTARY BRUSHES. ORA M. DERRER, Gilmore, Nebr. Filed July 23, 1900. Serial No. 24,609. Term of patent 7 years.



Claim.—The design for a bracket for rotary brushes as herein shown and described.

33,337. REIN-HOLDER. ALONZO F. SMITH, Bogard, Mo. Filed Sept. 1, 1900. Serial No. 28,850. Term of patent 7 years.



Claim.—The design for a rein-holder, herein shown and described.

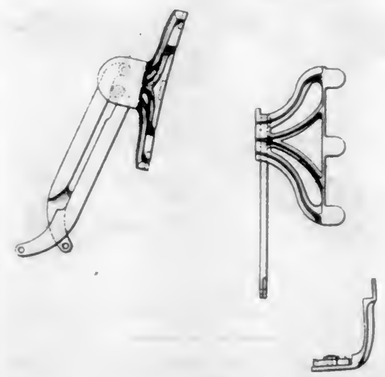
33,338. TIRE. ALFRED DUCASBLE, Paris, France. Filed Jan. 15, 1900. Serial No. 1,561. Term of patent 14 years.





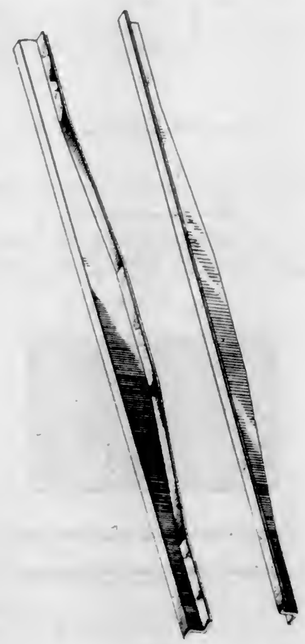
Claim.—The design for a tire, substantially as shown and described.

33,339. HINGE-ARM FOR CAR-SEAT BACKS. HENRY S. HALE, Philadelphia, Pa. Filed July 22, 1899. Serial No. 724,871. Term of patent 14 years.



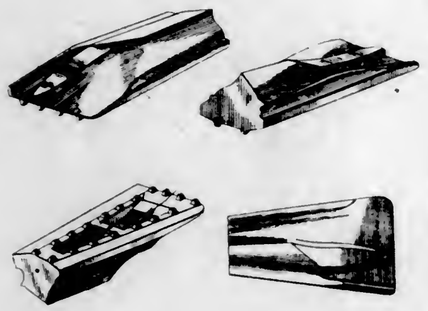
Claim.—The design for a car-seat-back hinge-arm substantially as herein described and shown.

33,340. RAILWAY-CAR SILL. HERBERT R. KEITELEY, Buffalo, N. Y. Filed Sept. 6, 1900. Serial No. 29,237. Term of patent 14 years.



Claim.—The design for a railway-car sill, substantially as herein shown and described.

33,341. RAILROAD-FROG. EDMUND S. WILGUS, Princeton, N. J. Filed Dec. 22, 1899. Serial No. 741,334. Term of patent 7 years.



Claim.—The design for a railroad-frog as herein shown and described.

33,342. WALL-TIE. PETER RIESECK, Allegheny, Pa. Filed June 11, 1900. Serial No. 19,970. Term of patent 14 years.



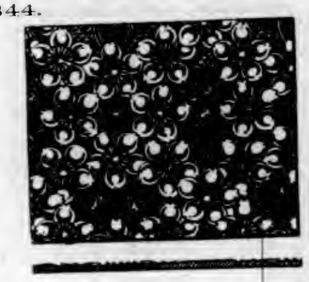
Claim.—The design for a wall-tie as herein shown and described.

33,343. ORNAMENTED SHEET OR PLATE OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed Sept. 7, 1900. Serial No. 29,345. Term of patent 14 years.



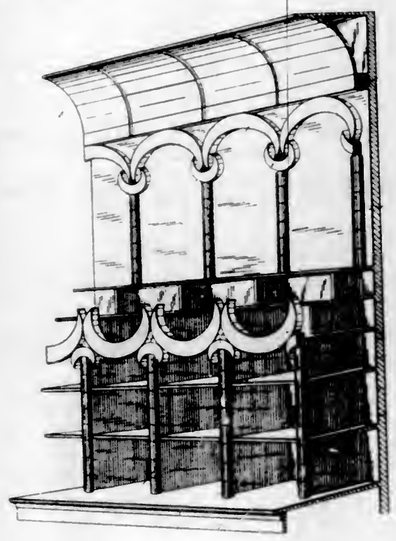
Claim.—The design for an ornamented sheet or plate of glass substantially as herein shown and described.

33,344. ORNAMENTED SHEET OR PLATE OF GLASS. ANTHONY DIXON BROGAN and ANDREW MURRAY MALLOCH, Glasgow, Scotland. Filed Sept. 7, 1900. Serial No. 29,346. Term of patent 14 years.



Claim.—The design for an ornamented sheet or plate of glass substantially as herein shown and described.

33,345. DISPLAY-FIXTURE FOR STORES. HENRY G. ROTH, Minneapolis, Minn. Filed July 30, 1900. Serial No. 25,352. Term of patent 14 years.



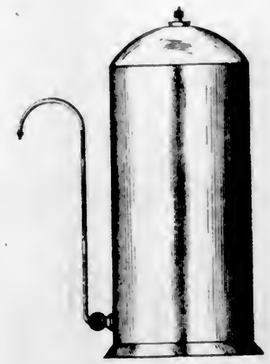
Claim.—The design for a display-fixture for stores, substantially as herein shown and described.

33,346. DISPLAY-CASE. JULIUS L. FELSENTHAL, Chicago, Ill. Filed Aug. 13, 1900. Serial No. 26,798. Term of patent 3½ years.



Claim.—The design for a display-case, substantially as herein shown and described.

33,347. SODA-WATER FOUNTAIN. ROBERT H. HEMPHILL, Hattiesburg, Miss. Filed May 15, 1900. Serial No. 16,828. Term of patent 14 years.



Claim.—The design for a soda-water fountain herein shown and described.

33,348. REFRIGERATOR. PETER J. VANDERLINDA, Grand Rapids, Mich., assignor of one-half to Edwin L. Bowring, same place. Filed July 16, 1900. Serial No. 23,839. Term of patent 14 years.



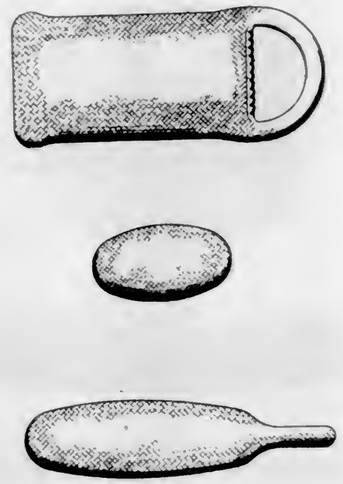
Claim.—The design for a refrigerator as herein shown and described.

33,349. NEBULIZER-FRAME. WILLIAM BOEKEL and JULIUS BOEKEL, Philadelphia, Pa. Filed Aug. 15, 1900. Serial No. 26,993. Term of patent 14 years.



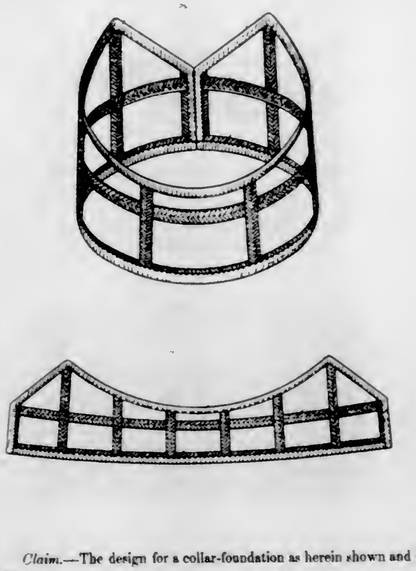
Claim.—The design for a nebulizer-frame, as herein shown and described.

33,350. BAG. ADAMIRON JUDSON GIBBS, Mena, Ark. Filed May 19, 1900. Serial No. 17,316. Term of patent 14 years.



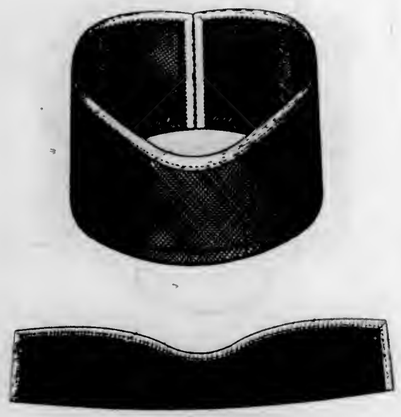
Claim.—The design for a sand-bag, as herein shown and described.

33,351. COLLAR-FOUNDATION. EDWARD K. WARREN, Three Oaks, Mich. Filed June 26, 1900. Serial No. 21,689. Term of patent 14 years.



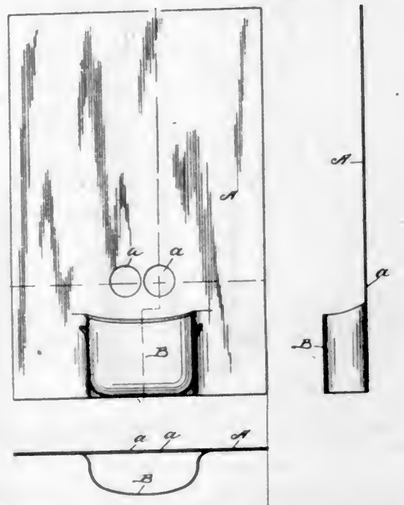
Claim.—The design for a collar-foundation as herein shown and described.

33,352. FOUNDATION FOR COLLARS. EDWARD K. WARREN, Three Oaks, Mich. Filed June 26, 1900. Serial No. 21,690. Term of patent 14 years.



Claim.—The design for a foundation for collars, as herein shown and described.

33,353. GAME-BOARD. MAURICE LAZARE, Chicago, Ill. Filed Aug. 27, 1900. Serial No. 28,263. Term of patent 3½ years.



Claim.—The design for a game-board, substantially as herein shown and described.

TRADE-MARKS

REGISTERED OCTOBER 9, 1900.

35,206. SILK. STIRLING SILK MANUFACTURING COMPANY, Stirling, N. J., and New York, N. Y. Filed Aug. 31, 1900.

IONSILK

Essential feature.—The word "IONSILK." Used since August 1, 1900.

35,207. BOOTS AND SHOES. GOTTFRIED D. SIEBEN, Allegheny, Pa. Filed June 26, 1900.

The CORONA

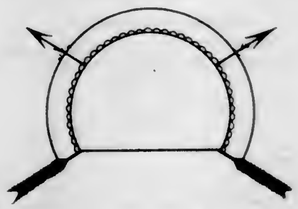
Essential feature.—The words "THE CORONA." Used since March 1, 1899.

35,208. HEADACHE-POWDERS. FRANK W. KLOCKE, St. Louis, Mo. Filed Aug. 13, 1900



Essential feature.—The representation of two men with clasped hands. Used since January 1, 1900.

35,209. MEDICINE FOR CERTAIN NAMED DISEASES. HENRY R. SUMMERS, Baltimore, Ohio. Filed Apr. 5, 1900.



Essential feature.—Two concentric arcs having arrow heads and tails extending therefrom. Used since September, 1868.

35,210. CERTAIN NAMED MEDICAL COMPOUNDS. GOLD CROWN MEDICINE CO., Utica, Mo. Filed Jan. 26, 1900.



Essential feature.—Two eccentric circles. Used since October 1, 1899.

35,211. CERTAIN NAMED MEDICAL COMPOUNDS. JOSEPH ALFRED MUSGROVE, Ottawa, Canada. Filed Aug. 11, 1900.

UWANTA

Essential feature.—The word "UWANTA." Used since July 1, 1900.

35,212. CONFECTIONERY. FOSS, HAYWARD & COMPANY, INCORPORATED, Boston, Mass. Filed Sept. 11, 1900.

Peach Blossoms

Essential feature.—The words "PEACH BLOSSOMS." Used since January 24, 1899.

35,213. MAPLE SYRUP AND MAPLE SUGAR. ABBOT AUGUSTUS LOW, New York, N. Y. Filed June 6, 1900.



Essential feature.—The representation of the natural bark of a maple tree with moss lichens adhering thereto. Used since May 8, 1900.

85,214. CERTAIN NAMED GROCERIES. C. H. CONDER & BRO., Cambridge, Mass. Filed Sept. 11, 1900.

CADONA

Essential feature.—The word "CADONA." Used since June 1, 1900.

85,215. CERTAIN NAMED DAIRY PRODUCTS. EDGAR L. MCSPARRAN, Goshen, Pa. Filed Sept. 7, 1900.

ELM

Essential feature.—The word "ELM." Used since September 1, 1892.

85,216. IRISH AND SWEET POTATOES. EASTERN SHORE OF VIRGINIA PRODUCE EXCHANGE, Onley, Va. Filed Sept. 8, 1900.

RED STAR

Essential feature.—The words "RED STAR." Used since June 15, 1900.

85,217. CERTAIN NAMED DOUGHWARE. VATER & CO., GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Biebrich, Germany. Filed Aug. 13, 1900.

Aleuronat

Essential feature.—The word "ALEURONAT." Used since April 1, 1900.

85,218. MEAL PREPARATION. THE H-O (HORNBY'S OATMEAL) COMPANY, New York, N. Y. Filed May 8, 1900.

INJUN

Essential feature.—The word "INJUN." Used since December 22, 1899.

85,219. WHEAT-FLOUR. DULUTH UNIVERSAL MILL COMPANY, Duluth, Minn. Filed Aug. 20, 1900.

UNIVERSAL

Essential feature.—The word "UNIVERSAL." Used since August 3, 1900.

85,220. FLOUR. JACOB MICHEL, Philadelphia, Pa. Filed May 5, 1900.

Big Injun

Essential feature.—The words "BIG INJUN." Used since April 15, 1884.

85,221. FLOUR. J. R. THOMAS' SONS, Youngstown, Ohio. Filed Aug. 30, 1900.



Essential feature.—The word "GLORIA." Used since June 15, 1900.

85,222. VEGETABLE AND CEREAL PREPARATIONS FOR FOOD DRINKS. NERVINE FOOD CO., Buffalo, N. Y. Filed Aug. 20, 1900.

CEL-GRAN

Essential feature.—The compound word "CEL-GRAN." Used since October 14, 1899.

85,223. TEA. WILLIAM HILL & SONS, Philadelphia, Pa. Filed Aug. 17, 1900.

EMERALD

Essential feature.—The word "EMERALD." Used since August 8, 1900.

85,224. TEA. WILLIAM HILL & SONS, Philadelphia, Pa. Filed Aug. 17, 1900.



Essential feature.—The representation of an emerald. Used since August 8, 1900.

85,225. LAGER-BEER. HUGH LATIMER HAUGHTON, Pittsburg, Pa. Filed Aug. 9, 1900.

BOER HEAD LAAGER

Essential feature.—The words "BOER HEAD LAAGER." Used since March 1, 1900.

85,226. SMOKING-TOBACCO AND CIGARETTES. THE AMERICAN TOBACCO COMPANY, Newark, N. J., and New York, N. Y. Filed June 7, 1900.

DUKE'S CAMEO

Essential feature.—The words "DUKE'S CAMEO." Used since 1885.

85,227. EXTERMINATORS FOR RATS, MICE, ROACHES, ANTS, AND BUGS. THE AMERICAN EXTERMINATING CO., Philadelphia, Pa. Filed Sept. 6, 1900.



Essential feature.—The representation of a globe, the representation of a scroll thereupon, and the representation of an eagle. Used since June 1, 1900.

85,228. CERTAIN NAMED CLEANING MATERIALS. LEVER BROTHERS, Limited, Port Sunlight, England. Filed Aug. 22, 1900.

LUX

Essential feature.—The word "LUX." Used since January 1, 1900.

85,229. CERTAIN NAMED CLEANING MATERIALS. LEVER BROTHERS, Limited, Port Sunlight, England. Filed Aug. 22, 1900.



Essential feature.—The figure of a woman, a tub, a childish figure, and a mirror, with rays of light proceeding therefrom. Used since January 1, 1900.

85,230. BOILER-CLEANING COMPOUND. THOMAS SMITH, Jr., New York, N. Y. Filed Aug. 11, 1900.

NONKORODA

Essential feature.—The word "NONKORODA." Used since July 19, 1900.

85,231. PASTE OR WAX FOR POLISHING SHOES. WHITTEMORE BROS. & CO., Boston, Mass. Filed Aug. 7, 1900.



Essential feature.—A face view of the upper portion of the figure of a bootblack flanked upon each side by curvilinear panels and below by a horizontal rectangular panel. Used since April 24, 1900.

85,232. COMPOUND FOR CURRYING LEATHER. VACUUM OIL COMPANY, Rochester, N. Y. Filed July 16, 1900.

MULSINE

Essential feature.—The word "MULSINE." Used since April 3, 1900.

85,233. CERTAIN NAMED VARNISH. THE CLEVELAND VARNISH COMPANY, Cleveland, Ohio. Filed Sept. 4, 1900.

Frelastic

Essential feature.—The word "FRELASTIC." Used since the latter part of March or 1st of April, 1900.

85,234. WATCH-MOVEMENTS. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed July 15, 1899.

Railway

Essential feature.—The word "RAILWAY." Used since April 1, 1875.

85,235. CERTAIN NAMED OPTICAL APPARATUS. GUNDLACH OPTICAL COMPANY, Rochester, N. Y. Filed Aug. 29, 1900.

KORONA

Essential feature.—The word "KORONA. Used since July 1, 1894.

85,236. CLINICAL THERMOMETERS. OELSCHLAEGER BROS., New York, N. Y. Filed Aug. 23, 1900.



Essential feature.—The representation of a crown. Used since September, 1899.

85,237. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed July 18, 1900.



KING PHILIP

Essential feature.—The words "KING PHILIP" and the representation of an Indian. Used since June, 1900.

35,288. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed July 18, 1900.



IROQUOIS

Essential feature.—The word "IROQUOIS" and the representation of a mounted Indian. Used since June, 1900.

35,289. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed July 18, 1900.



OSCEOLA

Essential feature.—The word "OSCEOLA" and the representation of an Indian. Used since June, 1900.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON D.C.

FOREIGN PATENT AND TRADE-MARK LAWS.

Translated in the Scientific Library, United States Patent Office.

PATENT LAW OF GUATEMALA.

(DECREE No. 550.)

I, José María Reina Barrios, General of Division and Constitutional President of the Republic of Guatemala, deeming that the legislative decree of May 20, 1896, is deficient in regard to the proceedings for obtaining patents of invention and in regard to the civil questions that may arise over the preferable right to a patent; and likewise that there has not been established the penal sanction necessary for guarantee of the rights acquired; by virtue of the authority (powers) with which I find myself invested by the National Assembly, decree the following law in regard to patents of invention:

CHAPTER I.

GENERAL PROVISIONS.

Article 1. Every discovery or invention in any kind of industry or art gives to its author the exclusive right to profit by his invention or improvement for the time and under the conditions established by this law.

Art. 2. Every citizen of Guatemala or foreigner domiciled in the Republic who invents any machine, instrument, or mechanical apparatus, manufacture of any kind, or method of process of useful application to the sciences or the arts may obtain from the Government a "patent of invention," which secures to him, for a term of five to fifteen years, the property of his invention. Likewise he who improves a patented discovery or invention will have the right to apply for an additional patent, which is never granted for a longer term than that which the principal patent lacks of maturity.

Art. 3. There shall be held as new discoveries or inventions: new industrial products, new means, and the new application of known means for the obtaining of an industrial result or product whether it be for a process completely original or for improvements on those already known.

Art. 4. Patents will not be grauted for discoveries or inventions that are known in the country or abroad as the whole or part of a process already used.

Art. 5. The grant of a patent requires the payment to the public treasury of a sum of thirty dollars annually while the patent lasts.

Art. 6. The payment of the annuities referred to will be made into the national treasury the first year on the grant of the patent and in the succeeding ones in the first ten days of January, under penalty of canceling the patent by the office that granted it.

Art. 7. Patents will not be granted when the invention or improvement is contrary to the rights previously acquired by a third party, to security, to public health or morality.

Art. 8. Patents will lapse—

1. By having been granted in prejudice of the rights of a third party, according to declaration or sentence of a competent court.
2. By a year having elapsed without the industry or enterprise for which the patent was authorized being put into practice.
3. By the abandonment for a year of the enterprise or industry after being started.
4. When the products produced are inferior to the samples presented because of adulteration.

The lapse is to be declared by the competent tribunal at the request of any citizen or the Fiscal Ministry.

Art. 9. The person who perfects the invention of another which is patented cannot use the principal invention without agreement with the inventor; neither can the latter use the improvement patented by the first without his authority.

Art. 10. Patents are understood as granted only for the process, not for the products that may be obtained by a different system of elaboration.

Art. 11. When the term prescribed in the patent is completed, the descriptions of the inventor or author will be published, copies of them may be had, and from that time the manufacture by the process that was patented will be free.

CHAPTER II.

FORMALITIES FOR THE GRANT OF PATENTS.

Art. 12. Every citizen of Guatemala or foreigner who has lived a year in the country who invents or improves a machine, instrument, apparatus, manufacture, industrial method, or process, may obtain from the Executive the patent corresponding. Inventions made abroad may be patented in this Republic when only by this means a new industry can be established in the country, or by the process for making it being secret, and in any case when there are international treaties or conventions that so declare.

Art. 13. The Government in granting a patent never takes away from third parties the right at law to priority that they may hold in conformity to the law.

Art. 14. The application to obtain a patent shall be presented at the Ministry of Interior (Secretaría de Fomento) on sealed paper of twenty centavos (twenty-four cents silver) each sheet. At the foot of such application the under secretary shall take care to note in the act under his signature the hour and day on which it was presented, giving a receipt to the applicant if requested.

Art. 15. The application shall be accompanied by the samples, drawings, or models, according to the nature of each case, and by a sworn declaration with the legalization signed before a notary, contalning the clear description of the invention and the declaration that previously there was no knowledge of it. There shall also accompany the application the liquidation of the payment of fees referred to in Art. 5.

Art. 16. The application having been presented, it shall be ordered published in the official periodical for the term of one month, and shall pass to the Direction of Public Works (Obras Públicas) in order that if the same have technical knowledge thereof it shall so report, and in the contrary case, by means of an expert, at the cost of the interested party, it shall report on the truth of the contents of the sworn declaration, apparatus, or part of apparatus for which a patent of invention or improvement shall be granted and what are its advantages or disadvantages, both with reference to industry and to safety or health. These formalities having been observed, there shall be a hearing before the Public Ministry before resolving definitely how to proceed.

Art. 17. If no opposition well founded have been presented and the reports or judgments of the said functionaries have not been adverse, there will be issued a governmental edict granting the patent in question.

Art. 18. The patent will consist of a certificate which shall contain the number that corresponds to it, the application, the sworn declaration or description, the notice in the official periodical, the expert judgment, and the corresponding governmental resolution, with a copy of the drawing of the machine or apparatus patented. These documents will be issued by the chief of the Patent Office on prepayment of the cost of the writing or copy.

Art. 19. All questions in contention between private parties in regard to the better right to a patent, to false sworn declaration, and to defrauding of third parties, are within the competency of the courts.

Art. 20. In the Patent Office there will be kept a book in which there will be noted by numbered items the patents that have been granted and the new ones that are going to be, taking care to indicate in each item the résumé of the points contained in Art. 18.

Art. 21. The edict in which the patent is granted will be published in the official periodical, and every year the same office will publish information of the patents granted in a printed pamphlet which contains the descriptions that are not of a reserved nature.

CHAPTER III.

ASSIGNMENT OF THE RIGHTS IN THE PATENT.

Art. 22. Every one who has obtained a patent of invention or improvement may transfer his rights under the conditions he considers proper, while it shall always be required that the person obliged to pay the annual tax shall make in writing a public registry in the book of patents and an announcement in the official periodical.

Art. 23. In the conveyance it shall be indicated whether only the right to manufacture is assigned or the patent as a whole and whether it refers to a definite territory or to the whole of the Republic.

CHAPTER IV.

PENAL ARRANGEMENTS.

Art. 24. There shall be punished with a penalty of six months to a year of summary arrest, commutable in all or in part, according to Art. 46 of the Penal Code—

1. Those who counterfeit patented machines, apparatus, or pieces of apparatus.
2. Those who knowing that they are counterfeit deal in the same in any manner.
3. Those who counterfeit patented products or manufactures.
4. Those who knowing they are counterfeit deal in the same in any way.
5. Those who have made a false declaration against the tenor of Art. 15.

6. Those who cause an object to appear as patented when it is not so legally.

Art. 25. Those who sell objects that imitate patented ones are under obligation to give the patentee notice of the name of the author or vendor of them and of the time they were delivered, being considered accomplices in case they do not give a satisfactory explanation of their proceedings.

Art. 26. In addition to the penalty fixed by Art. 24 there will be imposed that of the loss of the objects counterfeited and the indemnification of damages and prejudicial effects.

Art. 27. No civil or criminal action can be brought unless the objects of legitimate origin bear an indication of being patented and the number of the patent, whenever it is possible so to indicate. Neither can such actions be brought after a lapse of three years from the commission or repetition of the offense or after one year from the day the patentee had knowledge of the fact for the first time. The acts that interfere with bringing action are determined by common law.

Art. 28. Workmen who betray the secrets of factories in which they work, with reference to patented processes, are considered accomplices of the offenses expressed.

CHAPTER V.

TRANSITIONAL PROVISIONS.

Art. 29. The Patent Office will continue for the present in charge of the General Direction of Statistics.

Art. 30. Those who have previously obtained a patent of invention or improvement will be considered to have renewed their application in conformity with this law by the fact of proving to the Office that they have paid the fee referred to in Art. 5. In the contrary case the patent will be cancelled officially, the fact being announced in the official periodical.

Art. 31. The decree of May 20, 1886, remains in force only in so far as relates to grants to new industries.

Art. 32. The next Legislature will receive account of the present law.

Given at the Palace of the Executive Authority in Guatemala, December 17, 1897.

JOSÉ MARÍA REINA BARRIOS.
F. GARCÍA,
The Secretary of State in the Department of the Interior.

TRADE-MARK LAW OF GUATEMALA.

(DECREE No. 411.)

The National Legislative Assembly of the Republic of Guatemala decrees the following law of registration of marks of manufacture, trade, and industry, amending in these particulars governmental decree No. 539 of November 23, 1897.

Article 1. There are considered as marks of manufacture, trade, and industry the denominations of objects or the names of persons under a particular form, emblems, monograms, engravings or prints, seals, vignettes and rilievos, letters and numbers with special design, boxes or wrappers of objects, and any other sign by which it is desired to distinguish the manufactures of a factory or the objects of a business.

Art. 2. The inscription of a trade-mark has for effect to concede to the possessor alone the right to place it on the respective articles of merchandise and on his boxes and wrappers, as well as to print it on his announcements, prospectuses, business-cards, or other similar documents.

Art. 3. There shall not be considered as marks of manufacture, trade, and industry—

1. The letters, words, names, or distinctive signs that are or should be used by the State.
2. The form that is given to the product by the manufacturer.
3. The color of the products.
4. The terms or locutions that have passed into general use.
5. Designations usually employed to indicate the nature of the products or the class to which they belong.
6. Designs and expressions contrary to morality.

Art. 4. The absolute property in the mark, as well as the right to oppose the use of any other which might directly or indirectly produce confusion between the products, will belong to the manufacturer or merchant who shall have fulfilled the requirements demanded by this law.

Art. 5. The exclusive property of the mark is acquired only with reference to industries of the same kind.

Art. 6. The use of the mark is optional. Nevertheless it might be obligatory when necessities of public convenience require it.

Art. 7. The property in a mark passes to the heirs and may be transferred by contract or by disposition of last will and testament, provided always the formality is fulfilled that is referred to in Art. 10 of this law. Unless the transfer is noted in the register the successor cannot make valid the absolute right to which Art. 4 refers.

Art. 8. The cession or sale of the establishment includes that of the mark except in case of stipulation to the contrary, and the assignee has the right to use the mark that designates it, (the establishment,) even though it be a name, in the same manner as the assignor, without other restrictions than those that are expressly imposed in the contract of sale or cession.

Art. 9. The contract for assignment of a mark must be inscribed in the office in which it is registered to acquire the rights that this law confers for registered marks.

Art. 10. There will only be considered as a registered mark, for the effects of property that this law accords, one for which the office has made the corresponding inscription.

Art. 11. The protection of the rights of manufacturer, tradesman, or industrial with regard to the exclusive use of the mark shall last only ten years, which may be prolonged for other equal terms by again fulfilling the formalities established and paying in each case the fee fixed by Art. 22.

Art. 12. Private persons may adopt for the products of their factories or industries permitted by the law the marks and proper and distinctive names that they consider adequate, excepting only—

1. The coat-of-arms of the Republic or of any other country except by authority of the Government in question.
2. The portrait of any other person than the manufacturer, tradesman, or industrial without his previous consent.
3. Distinctive features that admit of confusion with other registered marks.

Art. 13. Every one who desires to obtain the property of a mark of manufacture, commerce, or industry must apply for it before the office of the Secretary of State in the Department of the Interior, (Fomento.)

Art. 14. The application for obtaining a mark will be drawn up on paper with the corresponding stamp and must be accompanied—

1. By two examples of the mark or of the distinctive sign of which use is to be made.
2. By a description in duplicate of the mark or sign if it is a question of figures or emblems, it being necessary to indicate the class of objects for which they are designed and whether it is to be applied to products of a factory or objects of commerce.
3. By a receipt to certify that there has been deposited in the national treasury the impost established by Art. 22, which will be returned in case the registry of the mark is declared void.
4. By a power of attorney in proper form, in case the interested party does not present himself in person.

Art. 15. If the mark should contain any countersign and the interested parties should desire to refer to it under reservation, they will certify it on a sheet of paper closed and sealed with a seal that only the judge can open in case of litigation or criminal accusation. Said sheet of paper will be deposited in the Trade-Mark Office.

Art. 16. At the foot of the applications there will be certified the date and hour at which they are presented by means of a memorandum signed and sealed by the under secretary of the branch, and the applicant will have the right to receive a receipt for the application, with notice of the hour at which he presented it.

Art. 17. The right of preference for the property in a mark will be decided by the day and hour at which the application was presented at the office, and if there is a coincidence in the hour attention will be paid, for the effect, to the date of the memorial, (brief.)

Art. 18. The application for property in a mark shall be published for the term of a month in the official periodical and will then pass on to the Office of Trade-Marks for it to obtain information. If no opposition has been presented and the information has not been unfavorable, a governmental edict will be issued ordering the registry of the mark. For this purpose there will be sent to the Trade-Mark Office the original application and the sample in order that the registration may be made in proper form, that note shall be made at the bottom of the proceedings of the number, page, and book of the registry, and that a permanent record shall be made of the operations of the transaction. The certificate of the inscription accompanied by one of the copies of the mark registered will serve the tradesman (industrial) as title of property in the mark in question.

Art. 19. In case of opposition or opinion unfavorable to the application for registry of a mark there will be a hearing before the Attorney-General, (Fiscal del Gobierno,) and in consequence the manner of proceeding will be determined if there are no new formalities to be performed.

Art. 20. All the questions in dispute between private parties on the right to the use of a mark or falsification or imitation of the same are of the exclusive competency of the courts.

Art. 21. The General Direction of Statistics will also have in its charge the "Registry of Marks." For this purpose care will be taken to keep this register in books conveniently arranged, numbered, and paged. Those of the inscriptions will contain three columns—one to locate or delineate the mark, another for the inscriptions, and the third for the cancellations. The registry of each mark will be by numerical and chronological order. Moreover, there will be kept an index-book, by alphabetical order, of surnames, expressing in what follows the industry to which the mark corresponds, the book, page, and number of the item. Every year there will be published a memorial of all the registries that have been made, with the description of each mark.

Art. 22. For the registry and certificate of the mark, whatever its origin, there shall be paid a fee of thirty dollars. (pesos.) For the registry and certificate of transfer there will be paid fifteen dollars. For evidences of certificate that shall be asked for in the future there shall be paid five dollars, besides the value of the stamped paper of the act on which they are written. These fees will be covered into the national treasury.

Art. 23. The marks, as well as their descriptions, will be in the office at the disposal of any one who desires to know them, excepting secret countersigns.

Art. 24. The factories of countries with which the Republic has treaties in regard to the subject may register their marks by the owners presenting them themselves or by means of attorneys, with the proof of the mark being registered in the other country, both documents having to be translated in case it is necessary and always legalized.

Art. 25. He who has inscribed his mark has the property in it as long as the courts do not order the item canceled. In consequence the permission to use it may be transmitted or authorized by announcing it in the official periodical and noting in the Office of Trade-Marks the deed of transfer or concession.

Those who hitherto have omitted these requirements will take care to fulfil them to legalize their rights.

Art. 26. The name of the merchant and that of the firm, that of the sample, or designation of a house that deals in determined articles constitutes an industrial for the purposes of this law.

Art. 27. If a merchant desires to carry on an industry already worked by another person with the same name or with the same conventional designation, he must adopt a modification to cause the name or designation to be visibly distinct from that used by the preëxisting house.

Art. 28. Joint-stock companies (limited-liability companies) have the right to the name that they bear, like any private party, and are subject to the same prescriptions.

Art. 29. The right to the exclusive use of the name as industrial property will terminate with the commercial house that carries it or with the exploitation of the branch of industry.

Art. 30. The registry of the name is not necessary to exercise the rights accorded by this law except in case it forms part of the mark.

Art. 31. The registry of marks is understood as granted without any responsibility on the part of the Government, leaving only to those who consider themselves prejudiced by a third party the right to have recourse to the courts to bring the civil or criminal action in question.

Art. 32. A third party can apply for the annulment of a mark—

1. When the possessor inscribed does not continue to exercise the industry to which the mark in question belongs within the term fixed by Art. 11.
2. When there are circumstances that lead to the belief that the tenor of the mark does not correspond to effective products, constituting danger of deceit. (division 3, Art. 34.)
3. The petition for annulment will be made by demand before the courts directed against the possessor inscribed or against his heirs if he be deceased.

Art. 33. If before or after the demand has been presented the mark has been transferred to another owner, the resolution of the matter will devolve and be accomplished equally against those who have succeeded to the right.

Art. 34. There will be punished in accordance with paragraph II, title III, book II of the Penal Code—

1. Those who counterfeit or imitate in any way a mark of manufacture, trade, or industry.
2. Those who place on their products or the articles of their business a mark belonging to another.
3. Those who knowingly sell, place on sale, offer to sell, or to circulate articles with counterfeited or fraudulently-applied marks.
4. Those who knowingly sell, place on sale, or offer to sell counterfeited marks and those who sell authentic marks without knowledge of their proprietor.
5. All those who with fraudulent intention place or cause to be placed on an article of merchandise an announcement or any other false designation with reference to the registry of the mark or to the nature, quality, quantity, number, weight or measure, or the place or country in which it has been made or prepared.
6. Those who knowingly sell, place on sale, or offer to sell merchandise with any of the false announcements mentioned in the preceding section.

Art. 35. In order for an offense to have been committed, it is not necessary that the falsification shall embrace all the objects that are to be marked, the application to one single object being sufficient.

Art. 36. Those who sell or place on sale merchandise with usurped or falsified marks in ignorance of the circumstance will be obliged to give to the merchant or manufacturer that is the owner of them when he so requires complete accounts in writing of the name and direction where the merchandise has been sold or procured, as well as the time when the business began, and in case of resistance they may be compelled judicially under penalty of being considered accomplices in the offense.

Art. 37. The articles of merchandise with false marks that are fonnd in the possession of the falsifier or his agents will be confiscated and sold, and the proceeds, after paying the costs and indemnities established by this law, will be adjudicated to the treasury of the houses of charity of the locality.

Art. 38. The falsified marks that are found in the possession of the falsifier or his agents will be invalidated, as well as the instruments that have served especially for the falsification.

Art. 39. In order that the Office of Trade-Marks shall be organized in form, industrials, tradesmen, or manufacturers who were in possession of a mark inscribed in the Republic will appear within three months at the said office for the express purpose of a renewal of the registry of their mark.

Art. 40. If previously to the promulgation of this law various industrials, tradesmen or manufacturers had made use of the same mark, the right to the exclusive use of it will belong to that one who shall prove himself to have made legitimate use of such mark before the others. If none of the interested parties can prove the priority in the use of the mark, the property in it will be granted to the one who has the most money invested in it.

Art. 41. The registry of a mark not having been made within the time fixed by Art. 39, nobody will be permitted on the ground of having used it before the sanction of the present law, to claim the right of priority.

Art. 42. In order that foreign trade-marks may enjoy the guarantees that this law grants, they must be registered in accordance with treaties for the purpose. The proprietors of them or their agents duly authorized are the only persons who may rebuest registration.

Art. 43. The General Direction of Statistics is charged with the suitable organization of the trade-mark section according to the present law and the regulations that the Department shall enounce.

This law shall pass to the Executive for publication and completion.

Given in the Palace of the Legislative Power in Guatemala April 28, 1899.

ARTHUR UBICO,
President.
RAFAEL SPÍNOLA,
J. A. MANDUJANO,
Secretaries.

Palace of the Executive Power, Guatemala, May 13, 1899. Let this be completed and published.

MANUEL ESTRADO.
RAFAEL D. PONCIANO,
The Under Secretary charged with the Portfolio of the Interior.

TRADE-MARK LAW OF THE REPUBLIC OF ECUADOR.

The Congress of the Republic of Ecuador decrees the following Law on Marks of Manufacture or Trade:

Article 1. There shall be created in the Ministry of the Interior a Register of Marks of Manufacture or Trade.

Art. 2. The application for the inscription shall be presented, with two copies of the mark, to the Minister of the Interior.

Art. 3. In the application shall be expressed—

1. The name and domicile of the person to whom the mark belongs.
2. The manufacture or article which is distinguished by it in trade.
3. The principal place or places where the factory or commercial establishment is.

If the applicant appears by attorney, the petition will include the power in question, with a special stipulation.

Art. 3. The application being presented, the Under Secretary of the Ministry will note the day and hour he received, paged, and signed with his peculiar mark (rubrica) each of the sheets and will communicate knowledge of the same to the ministry within three days. If he does not place it within their knowledge within this time, there will be imposed upon him a fine of one sucre (see Report of the Secretary of the Treasury, 1886, page 230) for every day of delay.

Art. 4. The minister will examine whether the application has been written on the proper stamped paper and whether the requirements specified in Arts. 2 and 3 have been fulfilled. If any requisite is lacking, the minister shall order the fault corrected, and the correction being made he shall decree the inscription, which will be published in the official periodical, the record shall be made of the proceedings, and the person interested may obtain a copy of the inscription. The decree of inscription will comprise the designations specified in Art. 2. The inscription will be preceded by the payment of twenty-five sucres, which will be consigned to the treasury. The decree will be copied literally in the register and the under secretary will certify that it is a copy of the decree issued by the minister, and will thus determine the date of the decree, as well as the number of the proceeding in which the original acts appear.

Art. 5. The inscription being made, the under secretary, at the verbal request of the applicant, will give him, on stamped paper of the fifth class, a copy of the inscription and will return to him, with notes, one of the copies of the mark.

Art. 6. The two copies specified in the preceding article will be published, at the expense of the applicant, in the official periodical, and if by negligence on the part of the applicant they are not published the inscription will lapse. The copies being published, the effects of the inscription will reach back to the date on which it was applied for.

Art. 7. A register will be formed each year of the inscriptions that have been made from the 1st of January to the 31st of December. The inscriptions will be made continuously, without leaving between one and another more space than that of one line and following the number that corresponds to the date of the decree over the inscription. At the end of each register there will be formed an alphabetical index of the applicants, showing the number of the inscription and the page on which it stands. Also the proceedings will be numbered, and the numbering will correspond to that of the inscription.

Art. 8. The under secretary must give, on the corresponding stamped paper and without demanding fees, the copies that are asked for.

Art. 9. The right to employ marks is considered transferable. Nevertheless the cession of such right must be proved by an instrument inscribed in the register. If the instrument of cession be denied, this will be recorded before the inscription. The cession will be published in the official periodical. If any of these requirements fail, the cession will be of no effect.

Art. 10. Civil controversies arising over trade-marks will be undertaken and decided by the respective judges. The offence will be punished according to the penal code.

Given in Quito, the capital of the Republic, October 22, 1899.

LUIS A. DILLON,
The President of the Chamber of the Senate.
JOSÉ LUIS TAMAYO,
The President of the Chamber of Deputies.
CELIANO MONGE,
The Secretary of the Chamber of the Senate.
DELFÍN B. TREVIÑO,
The Secretary of the Chamber of Deputies.

National Palace at Quito, October 31, 1899. Let it be executed.

ELOY ALFARO.
A. MONCAYO,
The Minister of the Interior.

This is a copy.

NICOLAS R. VEGA,
The Under Secretary.

PATENT LAW OF VENEZUELA.

Cipriano Castro, General in Chief of the Armies of Venezuela and Supreme Chief of the Republic, decrees:

Article 1. Any one who may have invented or discovered any new and useful art, machine, manufacture, or composition of material or any new and useful improvements on those objects may obtain a patent by the payment of the contribution fixed by this decree and in conformity with the additional proceedings established in the same, provided always that the invention, discovery, or improvement in industry is not yet known or in use in this country or has not been patented or described in a publication printed in the Republic or abroad or has not been in public use or on sale for more than two years before the application, unless it is proved that it has been abandoned.

Art. 2. The patents will be issued by the National Executive in the name of the United States of Venezuela and countersigned by the Minister of the Interior, (Fomento.)

Art. 3. The Government does not guarantee the exactness nor the utility nor the priority of the invention or discoveries patented.

Art. 4. Whoever claims to obtain a patent must accompany his application with a description of the invention or discovery, machine, manufacture, composition, or improvement in question, indicating correctly its nature and object. Also he will present the corresponding drawings or samples and the other documents or justifications that fulfil the requirements of Art. 1 of this decree.

Art. 5. The application for the patents will give assurance under oath that the applicant is really the inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he applies for it, and any controversy to which the inexactness of this assurance may give occasion will be discussed in ordinary action by the interested parties before the national courts.

Art. 6. Patents are granted for five, ten, and fifteen years, and they lapse in six months, one year, or two years after grant, respectively, if within these periods of time there has not been put in practice in the territory of Venezuela the invention or discovery for which they have been obtained. The patent will express the term within which it will lapse, and its duration will count from the day on which the said patent was granted.

Art. 7. The applications for patents shall be directed to the National Executive through intervention of the Ministry of the Interior, (Fomento.)

Art. 8. The requisites established by this decree being fulfilled, there will be granted to the applicant a patent that authorizes him to put into practice his invention, discovery, or improvement in the territory of the United States of Venezuela. The National Executive will grant this patent by agency of the Ministry of the Interior, according to the formula at the foot of this article, and it must contain a brief title or description of the invention or discovery, which shall indicate exactly its nature and object, and a concession to the patentee, his heirs or assignees, of the exclusive right to manufacture, use, and sell the invention or discovery.

"*The President of the Republic:*

"Inasmuch as N. N. has appeared before the National Executive applying for a patent for the exercise of, (here the industry), having fulfilled the requirements established by the law on the subject, of (the date of the law),

"Therefore, in conformity with Art. 8 of the law cited and in the name of the United States of Venezuela, I grant him the present patent for the exclusive exercise of the industry above described for the term of ——— years for the benefit of himself, his heirs or assignees, without the National Executive guaranteeing the utility, exactness, or priority of the discovery or invention patented.

"This patent will lapse after ——— counting from this date, if in that period the industry to which it refers has not been put into practice in the territory of Venezuela.

"Signed, sealed, and countersigned in the Federal Palace of Caracas, &c., ———."

Art. 9. The patents will be subject to the payment of a contribution of (250 B.) two hundred and fifty bolivars annually if it is a question of an invention or discovery and of (200 B.) two hundred bolivars if it is for improved processes. This contribution will be paid into the national treasury.

Art. 10. Everyone who appears before the Ministry of the Interior applying for a patent in accordance with Art. 7 must accompany the application with a certificate of having paid into the national treasury the contribution corresponding to half of the number of years for which he applies for the patent. If the patent applied for could not be granted by reason of non-fulfillment of all the prescriptions of this decree, the applicant will lose the sum consigned, which will be devoted to public instruction. If the patent be granted, the applicant before receiving it will deposit in the Ministry of the Interior the receipt from the national treasury, in which it is certified that he has paid for the second half of the number of years that he applies for.

Art. 11. He who has obtained a patent may express that circumstance in his advertisements and his trade-mark without this being a guarantee on the part of the Government in regard to the quality of the product or to the priority of the invention or discovery, nor does it have any validity as against superior rights of a third party.

Art. 12. He who has obtained a patent in a foreign country for an invention or discovery may obtain one in Venezuela, provided always that another party has not obtained it. In this case the patent will be granted only for the term remaining for the patent obtained in the other country to expire.

Art. 13. The term of a patent having expired, there will be published in the *Gaceta Oficial* the description of the discovery or invention to which it refers, and from that moment its exercise is free, as well as the manufacture or sale of the industrial products which the patent guaranteed.

Art. 14. Similar publication will be made in case of a patent being granted should it lapse without having been put into practice in conformity with Art. 6 of this decree, or when it is declared null or invalid before the expiration of the term of duration or of lapse, excepting in case 1 of Art. 18.

Art. 15. The descriptions, drawings, and samples accompanying the applications for patents may be deposited in the Ministry of the Interior.

Art. 16. There having been received by the Federal Executive an application for a patent, the publication of the same will be ordered in the *Gaceta Oficial*, and the patent, in case of being allowed, will not be issued until thirty days of the said publication.

Art. 17. Inventions, improvements, or new industries contrary to public health or safety, good customs, or previous rights cannot be patented. Likewise pharmaceutical compositions and remedies of any kind and form, which remain subjected to the special laws and regulations relating to material.

Art. 18. In addition to the cases of Art. 6 patents become invalid when by judgment of the federal courts they are declared to have been granted in prejudice of the rights of a third party and when the patented industry fails to be exercised in Venezuela for one consecutive year, except in case of accident or act of God, legally proven.

Art. 19. Crimes committed against the property guaranteed by a patent will be judged in accordance with the respective codes by the federal courts.

Art. 20. Hereby are repealed the law of June 2, 1882, the resolution of May 17, 1890, and all further regulative dispositions in respect to the said law.

Art. 21. The Ministry of the Interior will be charged with the execution of the present decree.

Given, signed by my hand, sealed with the seal of the National Executive, and countersigned by the Minister of the Interior in the Federal Palace at Caracas, March 19, 1900, year 89 of the independence and 42 of the federation.

CIPRIANO CASTRO.

[L. S.]

Countersigned.

[L. S.]

G. T. VILLEGAS-PULIDO,
Minister of the Interior.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 3. TUESDAY, OCTOBER 16, 1900. Price—$5 per year

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 8, 1900.

SIR: The Secretary of the Interior has ordered that Charles W. Johnson, of Natchez, Miss., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., October 5, 1900.

SIR: I am directed by the Secretary of the Interior to inform you that the order dated April 7, 1899, disbarring Rudolph Boege, of Milwaukee, Wis., from practice before this Department and its Bureaus has been rescinded.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Disclaimer.

546,071.—*Charles H. Metz*, Waltham, Mass. IMPROVEMENT IN BICYCLE-PEDALS. Patent dated September 10, 1895. Disclaimer filed October 6, 1900, by the patentee.

Enters his disclaimer:

"To that part of the claim in said specification which is in the following words, to wit:

"'In a bicycle-pedal, the combination, with a hub, of upwardly-extending stops located out of the vertical plane of the hub, and rigidly connected with the hub,' being section 2 of said claim."

Notice.

Hereafter coupons unless properly filled out will not be accepted in payment for copies of publications.

Roster of Attorneys.

A Roster of Attorneys registered and entitled to practice before the Patent Office, corrected to January 1, 1900, is ready for delivery. Price, 5 cents.

CERTIFICATES OF REGISTRATION ISSUED OCTOBER 16, 1900.

Labels.

7,822.—Title: "THE GLORIA MANTLE." (For Manties for Incandescent Gas-Lamps.) *The United Incandescent Light Company*, New York, N. Y. Application filed September 20, 1900.

7,823.—Title: "NUTRIOL EMULSION." (For a Medicine.) *Nutriol Chemical Company*, New York, N. Y. Application filed July 24, 1900.

7,824.—Title: "RED CROSS." (For Disinfectants.) *Charles E. Bennison*, Boston, Mass. Application filed September 22, 1900.

7,825.—Title: "U. P. SPECIAL." (For Cigars.) *Guenther & Mueller Co.*, St. Louis, Mo. Application filed September 1, 1900.

7,826.—Title: "SARACEN." (For Cigarettes.) *Knubel Tobacco Company*, New York, N. Y. Application filed September 19, 1900.

7,827.—Title: "CARBONATED CELERY." (For a Beverage.) *Schoneberger & Noble*, New York, N. Y. Application filed September 25, 1900.

7,828.—Title: "OLD PUGH." (For Whisky.) *Wilson P. Strader*, Lexington, Ky. Application filed September 22, 1900.

7,829.—Title: "TONIC PORT." (For Port-Wine.) *Flegenheimer Bros*, New York, N. Y. Application filed September 21, 1900.

7,830.—Title: "LOVELADY'S EGYPTIAN DAINTIES." (For Confectionery.) *Lovelady Brothers*, New York, N. Y. Application filed September 13, 1900.

7,831.—Title: "EGG FLAKE." (For Egg-Flake.) *The Pure Food Company*, Kansas City, Mo. Application filed September 12, 1900.

7,832.—Title: "BEST." (For Flour.) *H. Stanley Lesher*, Philadelphia, Pa. Application filed September 4, 1900.

Prints.

268.—Title: "THE INTRODUCTION." (For Clothing.) *Schloss Bros. & Co.*, Baltimore, Md. Application filed August 3, 1900.

269.—Title: "WE FEED THE WORLD." (For Flour.) *The Pillsbury-Washburn Flour Mills Company, Limited*, Minneapolis, Minn. Application filed September 22, 1900.

270.—Title: "ELIXIR GUAIACOL CO." (For a Pharmaceutical Preparation.) *William C. Alpers*, Bayonne, N. J. Application filed September 12, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 9, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
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217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Oct. 1	Oct. 2	18
106	II. Farm Stock, Products, etc.	Oct. 1	Oct. 1	93
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Sept. 25	Sept. 26	154
240	VII. Velocipedes, Games, and Toys.	Sept. 19	Sept. 28	110
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Sept. 17	Sept. 27	75
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Sept. 17	Sept. 25	120
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Sept. 14	Sept. 26	90
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Sept. 13	Sept. 27	143
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 12	Sept. 27	103
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 12	Sept. 27	91
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Sept. 11	Sept. 27	132
258	X. Carriages and Wagons.	Sept. 11	Sept. 25	104
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 11	Sept. 24	280
218	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 11	Sept. 4	147
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 10	Oct. 1	119
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 10	Sept. 26	112
246	I. Tillage and Fences.	Sept. 10	Sept. 26	132
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Sept. 10	Sept. 26	92
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 10	Sept. 25	147
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 10	Sept. 25	167
255	XII. Mechanical Engineering, Store-Service, etc.	Sept. 10	Sept. 25	139
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 10	Sept. 25	123
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258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Sept. 10	Sept. 25	315
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Sept. 10	Sept. 25	196
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Sept. 10	Sept. 25	144
248	XVIII. Steam-Engineering, etc.	Sept. 10	Sept. 24	160
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 10	Sept. 22	181
	Between one and two months.			
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Sept. 7	Sept. 19	159
98	XXI. Textiles, etc.	Sept. 4	Sept. 25	154
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Aug. 31	Aug. 23	204
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209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 16	Aug. 20	184
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127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 18	Aug. 20	153
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 18	Aug. 9	325
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Applications Under Examination—Continued.

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†Trade-Marks	Oct. 3	Oct. 6	22
‡Labels and Prints	Oct. 5	Oct. 9	3

ISSUE OF OCTOBER 16, 1900.

Patents	453—No. 659,634 to No. 660,086,	inclusive.
Designs	54—No. 33,354 to No. 33,407,	inclusive.
Trade-Marks	36—No. 35,240 to No. 35,275,	inclusive.
Labels	11—No. 7,822 to No. 7,832,	inclusive.
Prints	3—No. 268 to No. 270,	inclusive.
Reissues	None.	
Total issue	557	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	----	Nevada	1	----
Arizona Territory	----	----	New Hampshire	2	1
Arkansas	----	----	New Jersey	14	4
California	12	2	New Mexico Territ'y	1	----
Colorado	6	----	New York	81	11
Connecticut	16	----	North Carolina	4	----
Delaware	----	----	North Dakota	1	----
District of Columbia	3	----	Ohio	35	2
Florida	----	----	Oklahoma Terrt'y	----	----
Georgia	4	----	Oregon	2	----
Hawaii	----	----	Pennsylvania	40	3
Idaho	----	----	Rhode Island	9	----
Illinois	51	4	South Carolina	3	----
Indian Territory	2	----	South Dakota	5	----
Indiana	10	----	Tennessee	5	----
Iowa	8	1	Texas	2	----
Kansas	4	----	Utah	1	----
Kentucky	6	1	Vermont	2	----
Louisiana	3	----	Virginia	6	----
Maine	1	----	Washington	2	----
Maryland	5	1	West Virginia	12	3
Massachusetts	42	5	Wisconsin	----	----
Michigan	9	3	Wyoming	----	----
Minnesota	5	2	U. S. Army	----	----
Mississippi	1	----	U. S. Navy	----	----
Missouri	13	5	Total to citizens of the United States	447	48
Montana	2	----			
Nebraska	2	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	1	Italy	1	----
Australia	----	----	Japan	----	----
Austria-Hungary	2	----	Java	----	----
Barbadoes	----	----	Mexico	----	----
Belgium	3	----	Netherlands	1	----
Bermuda	----	----	New South Wales	----	----
Brazil	----	----	New Zealand	1	----
Canada	4	----	Norway	----	----
Chile	----	----	Queensland	----	----
China	----	----	Russia	----	----
Costa Rica	----	----	Scotland	----	----
Cuba	----	----	South African Republic	----	----
Denmark	----	----	South Australia	----	----
Egypt	----	----	Spain	----	----
England	22	----	Sweden	1	----
Finland	----	----	Switzerland	----	----
France	6	----	Venezuela	----	----
Germany	19	1	Victoria	----	----
Guatemala	----	----			
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	60	2
Ireland	----	----			

PATENTS

GRANTED OCTOBER 16, 1900.

659,634. **ENVELOP-FASTENING.** CHARLES W. ALLEN, Philadelphia, Pa. Filed Feb. 8, 1900. Serial No. 4,447. (No model.)

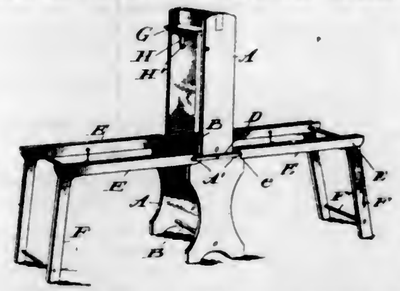


Claim.—1. A fastening device for envelops and similar articles composed of an upper plate having a solid soft-metal stud, combined with a lower plate having a perforated chamber adapted to receive said stud and permit its expansion within the chamber, substantially as specified.

2. A fastening device for envelops and similar articles composed of an upper plate having a solid soft-metal stud, combined with a lower plate slitted to form fastening-prongs, and having a chamber adapted to receive said stud and permit its expansion within the chamber, substantially as specified.

3. A fastening device for envelops and similar articles composed of an upper plate having a solid soft-metal stud and fastening-prongs, combined with a lower plate slitted to form fastening-prongs, and having a chamber adapted to receive said stud and permit its expansion within the chamber, substantially as specified.

659,635. **FOLDING WASHBENCH.** WALTER A. ARROWSMITH, Urbana, Ohio. Filed Mar. 31, 1900. Serial No. 10,994. (No model.)

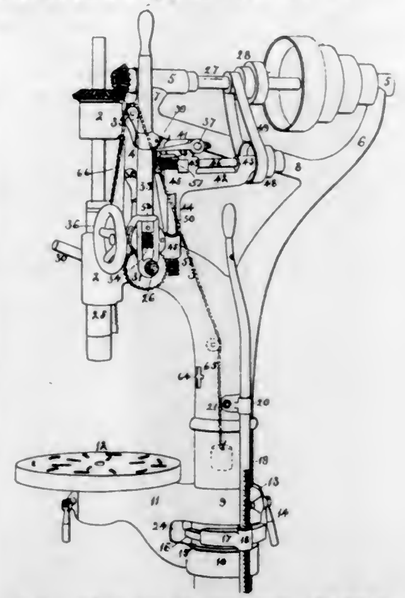


Claim.—A folding washbench comprising the two standards having concaved shoulders A' on opposite edges thereof, a bar D pivoted at its middle portion to each standard, and midway between said shoulders, the arms E pivoted to the ends of said bars and having rounded ends adapted to rest and turn upon said shoulders, and the folding supports for the outer ends of said arms, as set forth.

659,636. **DRILLING-MACHINE.** BENJAMIN F. BARNES, Rockford, Ill., assignor to the B. F. Barnes Company, same place. Filed May 24, 1900. Serial No. 17,857. (No model.)

Claim.—1. In a drilling-machine, the combination of a drill-spindle, a movable frame, two shafts supported by the frame having a driving connection, a belt connecting one of the shafts and the driving power of the drill and the other shaft adapted to have a connection with the drill-spindle.

2. In a drilling-machine, the combination of a drill-spindle, a shaft having a connection with the spindle, a worm-wheel connected with the shaft, a hand-lever supporting a worm, the worm adapted to engage the worm-wheel, a movable frame supporting two shafts having a driving connection, one shaft having a belt connection with the driving power of the drill, the other shaft supporting a worm, and means for moving the frame and moving the worm of the hand-lever, whereby the worms are movable into and out of engagement with the worm-wheel.



3. In a drilling-machine, the combination of a drill-spindle, a shaft having a connection with the spindle, a worm-wheel connected with the shaft, a hand-lever supported by the shaft and supporting a worm, a worm having a driving connection with the driving power of the drill, a lever having a connection with both worms whereby as one worm is thrown out of engagement with the worm-wheel the other is allowed to come into engagement therewith.

4. In a drilling-machine, the combination of a drill-spindle, a shaft having a connection with the spindle, a worm-wheel connected with the shaft, a hand-lever supported by the shaft and supporting a worm, a worm having a driving connection with the driving power of the drill, a lever having a connection with the worm connected to the driving power of the drill and a yoke connecting the lever with the worm supported by the hand-lever.

5. In a drilling-machine, a main frame formed with bearings for a drill-spindle and driving-shaft, an opening formed adjacent to the bearings and having guideways, and a roller having trunnions adapted to be guided and supported by the guideways.

6. In a drilling-machine, the combination of a column, a table-supporting bracket supported by the column, a screw having an engagement with the bracket for raising and lowering the table, the upper end of the screw supported by a bracket connected to the column, the connection consisting of an elongated opening having a central enlargement formed in the column, and two bolts located in the ends of the openings and passing through the bracket-receiving nuts on their outer ends.

7. In a drilling-machine, a main frame formed with bearings for a drill-spindle and driving-shaft, a column provided with an opening having guideways, and a roller having trunnions adapted to be guided and supported by the guideways.

8. In a drilling-machine, a main frame formed with bearings for the drill-spindle and driving-shaft, an opening formed adjacent to the bearings having guideways, a column provided with an opening having guideways, a roller for each opening supported by the guideways, a chain passing over the rollers having one end connected to the drill-spindle and its other end connected to a weight.

9. In a drilling-machine, a column, a table-support surrounding the column consisting of two branches, one branch having a vertical slit, a clamp for this branch, a concentric sleeve on the other branch, a projection on the sleeve, a shoe receiving the same and a screw-shaft supporting the shoe.

659,637. LAST-THIMBLE. FRANCIS E. BENTON, Stoughton, Mass. Filed July 7, 1900. Serial No. 22,841. (No model.)



Claim.—A last-hole thimble made with the two corresponding ears *a a* having central apertures *a' a'* and forming a double bottom to the thimble substantially as shown and described.

659,638. CREAM-SEPARATOR. CHARLES S. BIEHOFF, Maryville, Mo. Filed June 1, 1900. Serial No. 18,744. (No model.)



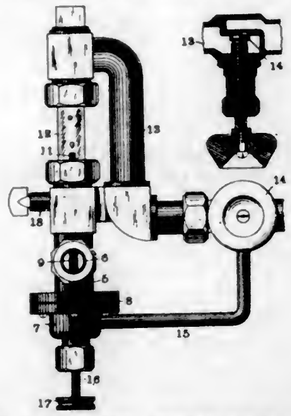
Claim.—1. A cream-separator comprising a separating-chamber having an inclined bottom extending in a uniform plane, and a vertically-disposed water-supply tube upon the exterior of the chamber and having a horizontal induction end communicating with the interior of the chamber through an opening in the side wall thereof immediately above the lowest point of the inclined bottom to cause the water supplied to said chamber to be projected horizontally therein directly from the end of the pipe in a direct line toward the side of the chamber at which the bottom attains its greatest elevation, whereby the water being projected directly across the chamber horizontally at the greatest depth of the liquid is intercepted by the inclined bottom to overcome the tendency of the inflowing water to agitate the contained body of milk and cream.

2. In a cream-separator, the combination with a receptacle provided with an inclined bottom extending in a uniform plane, a vertically-disposed water-supply tube upon the exterior of the receptacle and having a horizontal induction end communicating with the interior of the receptacle through an opening in the side wall thereof immediately above the lowest point of the inclined bottom, and a slide located over the opening upon the interior of the receptacle, said slide being provided with a regulating-screen, whereby the inflow of water from the exterior pipe to the interior of the receptacle may be regulated.

659,639. CYLINDER-LUBRICATOR. FREDERIC W. BITTMAN, St. Louis, Mo. Filed Mar. 30, 1898. Serial No. 675,551. (No model.)

Claim.—1. In a cylinder-lubricator, a sight-feed glass, an oil-chamber, means for feeding the oil to said chamber under pressure, a passage leading from said oil-chamber and discharging into the lower end of said sight-feed glass, a valve in said passage, a steam-pressure chamber, and a movable member between said steam-pressure and oil chambers for controlling said valve, said movable member being acted upon on one side by the steam-pressure and on the other side by the oil-pressure.

2. In a cylinder-lubricator, a suitable oil-chamber into which oil is fed under pressure, an outlet-passage for the oil, a suitable valve for said outlet-passage, a steam-pressure chamber, and a movable member between said steam-pressure and oil chambers and connected to said valve, and acted upon in opposing directions by the oil and steam pressure whereby the opening and closing of said outlet-passage will be automatically regulated by the relative pressure of the steam and oil.



3. In a cylinder-lubricator, a suitable oil-chamber into which oil is fed under-pressure, an outlet-passage for the oil, a suitable valve for said outlet-passage, a steam-pressure chamber, and a diaphragm between said steam-pressure and oil chambers and connected to said valve and acted upon in opposing directions by the steam and oil pressure whereby the opening and closing of said outlet-passage will be automatically regulated by the relative pressure of the steam and oil.

4. In a cylinder-lubricator, an oil-chamber, means for feeding oil into said chamber under pressure, an outlet-passage discharging the oil into steam-pipe connections, a valve in said outlet-passage, a steam-pressure chamber, and a diaphragm between said steam-pressure and oil chambers and controlling said valve, said diaphragm being acted upon on one side by the steam-pressure and on the other side by the oil-pressure, and a passage connecting said steam-pressure chamber with said steam-pipe connections.

659,640. DISINFECTING COMPOSITION. HENRY S. BLACKMORE, Mount Vernon, N. Y. Filed Aug. 28, 1899. Serial No. 728,654. (No specimens.)

Claim.—1. A new article of manufacture a mixture containing an essential oil and formic aldehyd.

2. A new article of manufacture camphor-oil containing formic aldehyd.

659,641. HAY-STACKER. CHARLES BLACKWELL, Vinita, Ind. Ter., assignor to George W. Blackwell, same place. Filed Mar. 6, 1900. Serial No. 7,581. (No model.)

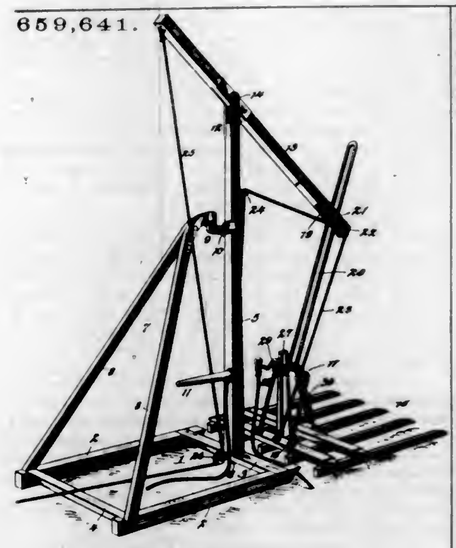
Claim.—1. In a hay-stacker, the combination of an elevating-lever, a carrier having a link connected to and movable with relation to said elevating-lever, a tackle connecting said carrier to said lever and adapted to be anchored, whereby said carrier, when said lever is operated, will move toward or from said lever, for the purpose set forth, substantially as described.

2. In a hay-stacker, the combination of an elevating-lever, a link connected thereto and adapted for movement thereon in the direction of the axis of the link, a carrier, pivoted or hinged to the link, means to lock the said carrier to said link against pivotal movement, a releasing device, a tackle connecting the carrier to the lever and adapted to be anchored, and means for operating the lever, substantially as described.

3. In a hay-stacker, the combination of an elevating-lever, a link connected thereto and adapted for movement thereon, in the direction of the axis of the link, a carrier pivoted or hinged to the link, a spring connecting said carrier to said link, for the purpose set forth, means to lock the said carrier to said link, against pivotal movement, and a releasing device, a tackle connecting the carrier to the lever and adapted to be anchored and means for operating the lever, substantially as described.

4. In a hay-stacker, the combination of the base-frame, the revoluble vertical standard thereon, an elevating-lever mounted on said standard, a carrier having a link connected to and movable with relation to said elevating-lever, a tackle connecting said carrier to said lever, and adapted to be anchored for the purpose set forth, and a tackle for operating the elevating-lever, substantially as described.

659,641.

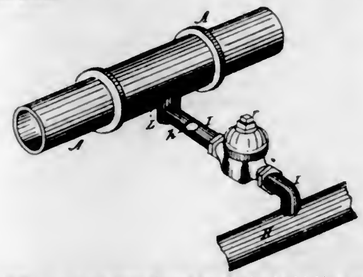


659,642. CLINICAL-THERMOMETER CASE. ALBERT F. BLAGDON-RICHARDS, Swansea, England. Filed Jan. 24, 1899. Serial No. 703,305. (No model.)



Claim.—In cases of medical thermometers in combination an outer casing closed by suitable lid or cap, an inner lining or casing formed of felt in two sections, one section being carried in the outer casing and the other in the cap or lid, said felt or inner lining carrying the required antiseptic material being bored or pierced for the reception of the thermometer, substantially as described and illustrated herein and for the purpose set forth.

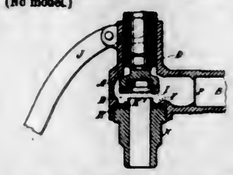
659,643. APPARATUS FOR CLEANSING WATER-PIPES. VINCENZO BONLAGHI, Boston, Mass. Filed July 11, 1900. Serial No. 23,269. (No model.)



Claim.—1. In a system of water distribution for drinking and other domestic and manufacturing purposes, the combination of the following elements: a series of water-distributing pipes comprised in said system, a series of gates for independently opening and closing the different lines of the same; a series of drain or sewer pipes, a series of straight flushing-pipes of sufficient diameter relative to that of the main, branch or service water-pipes, to insure a high degree of velocity of the water in the distributing-pipes, and leading directly from the bottoms of the water-pipes into the tops of the drain or sewer pipes and gates located in the flushing-pipes for opening and closing communication between the water-pipes and sewers; whereby the sediment accumulated in the water-pipes may be directly discharged (without obstruction) into their contiguous sewers or drain-pipes, in unbroken streams and with the maximum degree of pressure due to the fall of the water; all constructed to be operated substantially as described.

2. In a system of water distribution for cities and towns, &c., a flushing-pipe I, in combination with and interposed between the bottom of a water-distributing pipe A and the top of a sewer or drain pipe H, a means of opening and closing communication between them; an opening in the top of the flushing-pipe, an opening in its bottom directly thereunder, glass windows set within said openings; and, a manhole located thereat and extended down below the bottom thereof, to admit of the application of a light for viewing the interior of the flushing-pipe, as set forth.

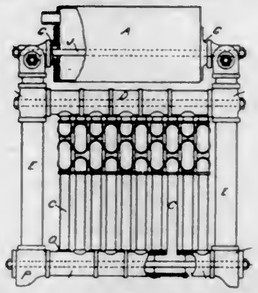
659,644. CONSTRUCTION OF HIGH-PRESSURE WATER-TAPS. WILLIAM BRADLEY, Sheffield, England. Filed Apr. 19, 1899. Serial No. 713,675. (No model.)



Claim.—1. A tap in which is comprised a valve sliding in a cylinder, the head of the valve being of larger area than that of the said cylinder, and the cylinder being of larger area than the outlet, the valve-face having a recess and the edge of the recess made to fit closely over a projecting part at the valve-seat before finally closing as described and shown.

2. A tap comprising a body or casing having an inlet for the water located at a right angle or thereabout to the valve, a valve having its stem provided with a hydraulic cup-leather, the valve-face having a recess to fit closely over an annular projection in the casing before its outer edge reaches the valve-seat, substantially as described and shown.

659,645. PIPE-BOILER. CHARLES D. CASAD, Seattle, Wash. Filed Oct. 31, 1899. Serial No. 735,412. (No model.)



Claim.—1. In a pipe-boiler, the combination with supporting down-flow pipes, of water-drums and steam-separating drums, connected to and supported by the said down-flow pipes, and each comprising a series of pipe-sections having interfitting ends, means for securing the pipe-sections of each drum together, and coil-pipes connecting such pipe-sections in pairs, so that each pair of pipe-sections with the connecting coil-pipe is independently removable.

2. In a pipe-boiler, the combination with supporting down-flow pipes, of water-drums and steam-separating drums, connected to and supported by the said down-flow tubes, and each comprising a series of pipe-sections having interfitting ends, stay-bolts for securing the pipe-sections of each drum together, coil-pipes connected to the respective pipe-sections, a steam-drum, pipes connected to the steam-separating drums and to the steam-drum by detachably-seated connections, and stay-bolts for holding such detachably-seated connections together, so as to enable separation of the parts.

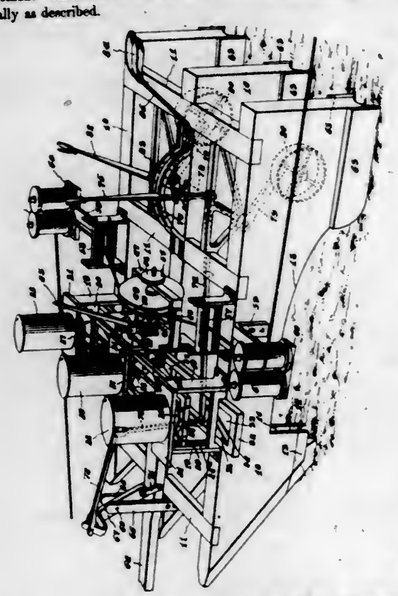
659,646. CORN-PLANTER. JOHN A. CHAMBERS, Newburg, Mo. Filed Jan. 10, 1900. Serial No. 941. (No model.)

Claim.—1. In a check-row corn-planter, the combination with a dropper mechanism, and a shaft to actuate said mechanism, of a check-wire spool or drum, means for reversing said check-wire spool, and clutch devices between the spool-shaft and the operating-shaft, substantially as described.

2. In a check-row corn-planter, the combination with a dropper mechanism, and a tappet-shaft in active relation to said dropper mechanism, of a reversible check-wire spool or reel, and clutch mechanism between the spool-shaft and the tappet-shaft, substantially as described.

3. In a check-row corn-planter, the combination with a dropper mechanism, and a tappet-shaft, of a reversible spool-frame contiguous to said shaft, a revoluble spool or reel journaled in said reversible frame and pro-

vided with clutch members adapted to be presented in operative relation to the tappet-shaft, and another clutch member on said tappet-shaft for engagement with either of the clutch members on the spool-shaft, substantially as described.



4. In a check-row corn-planter, the combination with a dropper mechanism, and a tappet-shaft, of a pivoted reversible spool-frame, a spool or reel having its shaft journaled in said frame and reversible therewith, clutch members fast with the respective ends of the spool-shaft and adapted to be presented successively into active relation with the tappet-shaft, and a shiftable clutch member on the tappet-shaft and arranged to engage with either of the clutch members on the spool-shaft, substantially as described.

5. In a check-row corn-planter, the combination with a dropper mechanism, of a tappet-shaft in active relation to said dropper mechanism, a spool or reel having its shaft provided with a clutch member, another clutch member slidably fitted on the tappet-shaft and adapted to engage with the clutch member on the spool-shaft, and a lever connected with the slidable clutch member to move the same into or out of engagement with the spool-shaft, substantially as described.

6. In a check-row corn-planter, the combination with a reel or spool, of a tappet-shaft actively connected with the spool-shaft, a series of dropper-shafts provided with a series of tappet-wheels, and a dropper-slide in active relation to the tappet-shaft and provided with means to operate the tappet-wheels simultaneously at each stroke of said slide, substantially as described.

7. In a check-row corn-planter, the combination with a series of hoppers having the dropper-shafts and disks, and a check-wire reel or spool, of a tappet-shaft connected operatively with said spool or reel and provided with an arm, a dropper-slide disposed in the path of the arm on the tappet-shaft, a tappet-wheel secured to each of the dropper-shafts and arranged contiguous to the dropper-slide, and a pair of studs for each tappet-wheel and secured to the dropper-slide to act against the tappet-wheel on each stroke of said slide, substantially as described.

8. In a check-row corn-planter, the combination with a dropper mechanism, and a valve mechanism, of a dropper-slide in active relation to the members of the dropper mechanism, a valve-slide connected with the valves of said valve mechanism, a tappet-shaft arranged between the dropper and valve slides and having means for acting alternately thereon, and a check-wire spool or reel connected with the tappet-shaft, substantially as described.

9. In a check-row corn-planter, the combination with a dropper mechanism, of the valve-levers, a cam-slotted valve-slide engaging with said valve-levers, a tappet-shaft adapted to operate said valve-slide, and a check-wire spool or reel connected with said tappet-shaft, substantially as described.

10. In a check-row corn-planter, the combination with a dropper mechanism and runners, of a valve-slide provided with cam-slots, a series of valve-levers fitted to said runners and engaging with the cam-slots in said slide, a tappet-shaft having an arm arranged to ride upon a projection on the valve-slide, means for guiding the said valve-slide to insure reciprocation thereof in a rectilinear path, a spring acting on the valve-slide in opposition to the impulses given thereto by the tappet-shaft, and means for rotating said tappet-shaft, substantially as described.

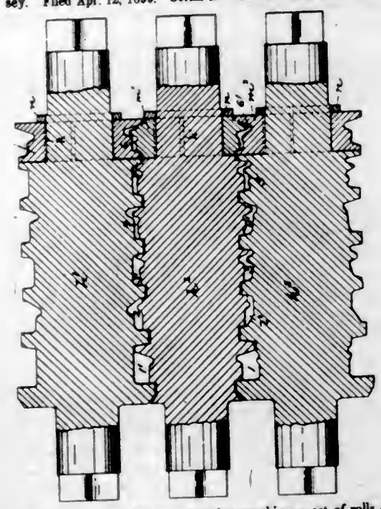
11. In a check-row corn-planter, the combination with a frame having shoes at its front end, of a tongue pivoted to said frame, a lever connected with said tongue and having means for locking the tongue in a depressed position, and a wheeled axle mounted on said frame and adapted to be locked in its depressed position, whereby the frame may be raised at its rear end and the weight of the frame be thrown upon the shoes, for the purpose described, substantially as set forth.

12. In a check-row corn-planter, the combination of the connected runners having the shoes, a tongue pivoted on said frame, an operating-lever mounted on the frame and having means for locking the same in its adjusted position, a train of connections from said lever to the pivoted tongue for holding the latter in a fixed depressed condition, a cranked axle connected to the rear part of the machine and provided with the ground-wheels, and a lever mounted on the machine and connected with said cranked axle to depress the wheels thereof and raise the rear part of the machine, substantially as described.

13. In a check-row corn-planter, the combination of the connected runners having the pointed shoes near their front ends, a draft-tongue pivoted on the central runner, a hand-lever fulcrumed on the frame near its rear end and having a link connected thereto, a lever supported on the machine over the tongue and linked thereto, an idle lever connected with the tongue-lever and the hand-lever, a cranked axle supported on the machine near its rear end and provided with the ground-wheels, and a lever connected with the cranked axle and having means for locking the same in place, substantially as described.

14. In a check-row corn-planter, the runners provided with the shoes, the vertical seed-passages and grooves in said shoes and arranged to register with said seed-passages, combined with the valve-levers pivoted within the seed-passages and arranged to form pockets therein, a cam-slotted valve-slide fitted to said valve-levers, a spring acting against said slide, means for directing the slide to rectilinear reciprocating play with relation to the levers, and means for reciprocating the slide positively, substantially as described.

659,647. **ROLLS.** RICHARD B. CHARLTON, Milwaukee, Wis., assignor to the Continuous Rail Joint Company of America, of New Jersey. Filed Apr. 12, 1899. Serial No. 712,735. (No model.)

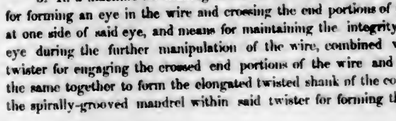


Claim.—1. In a fish-plate-forming machine, a set of rolls comprising upper and lower rolls each having annular pass-grooves opposite one another, and a middle roll having annular projections forming with the said grooves in the upper and lower roll passes for the metal in rolling, the opposite members of each pair of opposite passes being of forms adapted to the rolling of different fish-plates and each pass being in series with the next alternate one at the opposite side of the middle roll, whereby two independent series of alternating passes are produced which will roll distinctly different completed fish-plates, substantially as set forth.

2. In a fish-plate-forming machine, a plurality of sets of rolls each set comprising upper and lower rolls having annular pass-grooves directly opposite one another, and a middle roll having annular projections forming with said grooves passes for the metal, the opposite grooves of the upper and lower rolls differing in cross-section and the projections of the middle roll serving in common with said differently-formed grooves to provide two differing series of passes each adapted to roll fish-plates at some stage of formation, and the sets of rolls being independent of each other, and each adapted to carry the process of rolling a fish-plate through a different stage, whereby the sets cooperate to produce a complete fish-plate and either series of passes of any set can be used with any of the series of the other sets, substantially as set forth.

3. The herein-described fish-plate-forming machine, comprising a set of roughing-rolls and a set of finishing-rolls, each set having interchangeable top and bottom rolls with annular pass-grooves, those on the top roll being opposite those on the bottom roll, and a middle roll having annular projections each of which enters at its opposite edges a groove in the top roll and a groove in the bottom roll, said grooves being of different cross-sectional formation and producing with the common projection of the middle roll fish-plates of different construction, and the roughing-set and finishing-set of rolls being independent of each other whereby a series of passes of one set may be used in connection with either series of the other set, substantially as set forth.

659,648. **SHEET-METAL WHEEL.** RUDOLF CHILLINGWORTH, Nuremberg, Germany. Filed July 18, 1899. Serial No. 724,323. (No model.)



Claim.—1. A sheet-metal wheel having two halves, said wheel being divided in a plane perpendicular to the axis, each half comprising a rim, a nave-disk and half the number of spokes and means for connecting together the two halves in the manner and for the purpose substantially as described.

2. A sheet-metal wheel divided into two halves in a plane perpendicular to the axis, each half comprising integrally half the rim, half the spokes and one nave-disk in the manner and for the purpose substantially as described.

3. A sheet-metal wheel consisting of two halves divided in a plane perpendicular to the axis and exactly similar to each other each half having half the total number of spokes, the spokes of the one half alternating with those of the other and a series of lugs on each half to correspond with the spokes of the companion half and means for attaching the spokes of each half to the lugs of the other half, a nave-disk to each half and means for connecting up the disks of each wheel-half in the manner and for the purpose substantially as described.

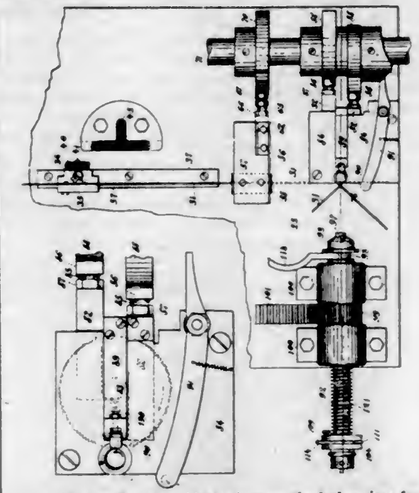
4. A divided wheel comprising two similar halves, said wheel being divided in a plane perpendicular to the axis, each having integral half the rim, half the number of spokes and a central nave-disk, a hub having flanges and protruding threaded ends and nuts to screw onto the said threaded ends and clamp the nave-disks of the two halves between the flanges and said nuts substantially as described and for the purpose specified.

659,649. **MACHINE FOR MAKING CORKSCREWS.** WILLIAM R. CLOUGH, Alton, N. H. Filed Mar. 5, 1900. Serial No. 7,328. (No model.)

Claim.—1. In a machine for making corkscrews from a rod of wire, a chuck for detachably receiving the handle for the corkscrew, and means for forming the said rod around said handle and crossing the ends of same at one side of said handle, combined with means for engaging the crossed ends of the rod of wire and acting upon the same to complete the corkscrew; substantially as set forth.

2. In a machine for making corkscrews from a rod of wire, a chuck for detachably receiving the handle for the corkscrew, and means for forming the said rod around said handle and crossing the ends of same, combined with means for engaging the crossed ends of the rod of wire and twisting same together to form the twisted shank of the corkscrew, and means for then forming the worm at the end of said shank; substantially as set forth.

3. In a machine for making corkscrews from a rod of wire, means for forming an eye in the wire and crossing the end portions of the wire at one side of said eye, and means for maintaining the integrity of said eye during the further manipulation of the wire, combined with the twister for engaging the crossed end portions of the wire and twisting the same together to form the elongated twisted shank of the corkscrew, the spirally-grooved mandrel within said twister for forming the worm at the end of said shank, and means for operating said twister and mandrel; substantially as set forth.



4. In a machine for making corkscrews, the feed-carriage for feeding inward a predetermined length of wire from a reel, means for detachably receiving the handle for the corkscrew, and means for forming the advanced length of the wire around the said handle and crossing the portions of same at one side of the said handle, combined with means for then severing the predetermined length of wire, means for then engaging the crossed ends of said length of wire and twisting the same together to form the twisted shank of the corkscrew, and means for then forming the worm at the end of said shank; substantially as set forth.

5. In a machine for making corkscrews, a feed-carriage for the wire, and a cutter for severing the lengths of wire, combined with the revoluble handle-chuck having a pinion thereon, a shaft having a gear-wheel in mesh with said pinion, a pinion on said shaft, sliding rack-bars meshing with the pinion on said shaft adapted to rotate said shaft and chuck as said rack-bars are moved and wrap the length of the wire about its handle, and rotatory twisting and coiling devices adapted to engage the ends of the length of wire to twist the same and form the worm or coil; substantially as specified.

6. In a machine for making corkscrews, a feed-carriage for the wire, a cutter for severing the lengths of wire, a frame, and a revoluble handle-chuck supported vertically therein having a pinion at its lower end, combined with a shaft vertically supported in said frame, a gear-wheel on said shaft in mesh with the pinion on the handle-chuck, a pinion on said shaft, sliding rack-bars having their teeth in mesh with the said pinion on said shaft and adapted to move alternately to rotate the shaft and handle-chuck and wrap the wire around the handle, a reciprocating rotatory worm-mandrel, and a twister loosely keyed to said mandrel and provided with grooves adapted to engage the ends of the wrapped length of wire to twist the same and finally form the coil; substantially as specified.

7. In a machine for making corkscrews, a cutting mechanism, comprising a guide for the wire, a bearing for said guide, a sliding bar arranged at right angles to the guide in a groove in said bearing, a cutter secured to said sliding bar, and a bell-crank supported in bearings below the sliding bar, having one member in engagement with the outer end of the sliding bar and the end of its other member free, combined with a cam adapted to contact with the outer end of said sliding bar and the free end of the bell-crank to reciprocate said sliding bar and cutter; substantially as specified.

8. In a machine for making corkscrews, the rotatory chuck having the stud to engage the advanced portion of the wire and carry the same around to form the eye therein, and means for then engaging said eye to hold the same stationary during the subsequent treatment of the wire, combined with means for then engaging the crossed ends of the wire and twisting the same together to form the shank, and a spirally-grooved mandrel for then forming the worm or coil of the corkscrew; substantially as set forth.

9. In a machine for making corkscrews, the feed-carriage for feeding inward a predetermined length of wire from a reel, and a hollow rotatory chuck to detachably receive the handle for the corkscrew and to engage the advanced length of the wire fed inward and form the same around the said handle, leaving said length of the wire crossed at one side

of said handle, combined with means for then severing the predetermined length of wire, and means for engaging the crossed ends of said length of wire and acting upon the same to complete the corkscrew; substantially as set forth.

10. In a machine for making corkscrews, the rotatory chuck for receiving the handle and wrapping the rod of wire around the same, leaving the ends of said rod of wire crossed, combined with the twisting and coiling devices to engage the said crossed ends of the wire and form therefrom the shank and worm of the corkscrew, said twisting and coiling devices comprising the reciprocatory and rotatory chuck, the sleeve keyed thereon and having the grooves to engage said crossed ends of the wire and form said shank, the spirally-grooved mandrel within said chuck to form the worm, the tail-stock secured to said mandrel and keyed to said chuck, and means for releasing the mandrel from its engagement with said chuck; substantially as set forth.

659,650. **TRACTION-WHEEL.** GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 6,968. (No model.)



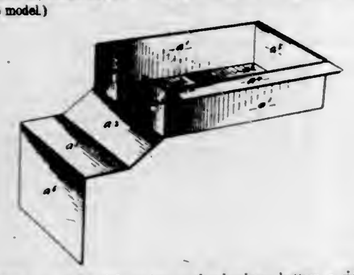
Claim.—1. In a traction-wheel, the combination with the hub and supporting member or spokes, of a rim having its outer face formed with a series of forwardly-inclined triangular ribs the apex of which is located centrally of the rim, and inwardly-curved faces between the ribs the curvature of which is increased from the rear faces of the ribs to the front faces of the companion rib, substantially as described.

2. In a traction-wheel, the combination with the hub and supporting member or spokes, of a rim having its outer face formed with a series of ribs, and inwardly-curved faces between the ribs the curvature of which is increased from the rear faces of the ribs to the front faces of the companion rib, substantially as described.

3. In a traction-wheel, the combination with the hub and supporting member or spokes, of a rim having its outer face formed with a series of ribs, and inwardly-curved faces between said ribs, concaved with reference to the outer periphery of said wheel.

4. In a traction-wheel, the combination with the hub and supporting member or spokes, of a rim having its outer face formed with a series of ribs, and inwardly-curved faces between said ribs, concaved with reference to the outer periphery of said wheel, and having the inner side of said rim shaped with curving spaces parallel to the configurations of the curved faces between the ribs on the outer surface of said rim.

659,651. **BOX FORMED OF PAPER, CARDBOARD, &c.** ARTHUR R. COWLES, Rochester, N. Y. Filed Nov. 19, 1897. Serial No. 659,081. (No model.)



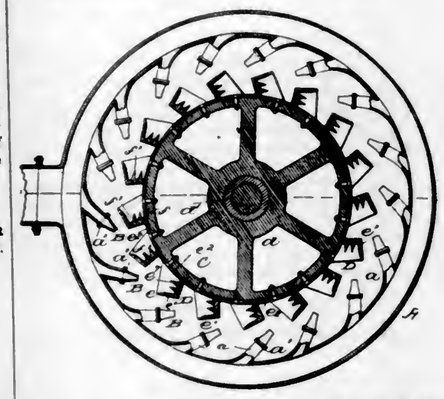
Claim.—1. A knockdown-box section having a bottom *a*, side-wall flaps *a' a'* provided with supplemental flaps a^3 a^3 forming part of the end walls of the box-section, and end-wall flaps a^3 a^3 each provided with supplemental flaps a^4 a^4, the flaps a^2 a^2 being folded upwardly against the outer faces of the flaps a^3 a^3, the flaps a^3 a^3 being folded inwardly and downwardly against the inner faces of the flaps a^3 a^3 and the flaps a^4 a^4 being lapped upon the bottom *a* and having their adjacent end edges arranged in substantially the same plane and normally engaged with each other, substantially as and for the purpose described.

2. A knockdown-box section having a bottom *a*, side-wall flaps *a' a'* provided with supplemental flaps a^3 a^3 forming part of the end walls of the box-section, one of said side-wall flaps being provided with a supplemental flap a^4 projecting from its upper longitudinal edge in a plane above the bottom and substantially parallel therewith, and end-wall flaps a^3 a^3 each provided with supplemental flaps a^4 a^4, the flaps a^2 a^2 being folded upwardly against the outer faces of the flaps a^3 a^3, the flaps a^3 a^3 being folded inwardly and downwardly against the inner faces of the flaps a^3 a^3 and the flaps a^4 a^4 being lapped upon the bottom *a* and having their adjacent end edges arranged in substantially the same plane and normally engaged with each other, substantially as and for the purpose specified.

3. A knockdown-box section having a top *b*, end-wall flaps *b' b'* provided with supplemental flaps b^3 b^3 forming part of the side walls of the box-section, and side-wall flaps b^2 b^2 each provided with supplemental flaps b^4 b^4, the flaps b^2 b^2 being folded downwardly against the outer faces of the flaps b^2 b^2, the flaps b^4 b^4 being folded inwardly and upwardly against the inner faces of the flaps b^2 b^2 and the flaps b^3 b^3 being lapped upon the top *b* and having their adjacent end edges arranged in substantially the same plane and normally engaged with each other, substantially as and for the purpose set forth.

4. In a knockdown box, the combination of a box-section A having a bottom *a*, side-wall flaps *a' a'* provided with supplemental flaps a^3 a^3 forming part of the end walls of the box-section, and end-wall flaps a^3 a^3 each provided with supplemental flaps a^4 a^4, the flaps a^3 a^3 being folded upwardly against the outer faces of the flaps a^2 a^2, the flaps a^3 a^3 being folded inwardly and downwardly against the inner faces of the flaps a^3 a^3 and the flaps a^4 a^4 being lapped upon the bottom *a* and having their adjacent end edges arranged in substantially the same plane and normally engaged with each other; with a box-section B having a top *b*, end-wall flaps *b' b'* provided with supplemental flaps b^3 b^3 forming part of the side walls of the box-section, and side-wall flaps b^2 b^2 each provided with supplemental flaps b^4 b^4, the flaps b^2 b^2 being folded downwardly against the outer faces of the flaps b^2 b^2, the flaps b^4 b^4 being folded inwardly and upwardly against the inner faces of the flaps b^2 b^2 and the flaps b^3 b^3 being lapped upon the top *b* and having their adjacent end edges arranged in substantially the same plane and normally engaged with each other, substantially as and for the purpose described.

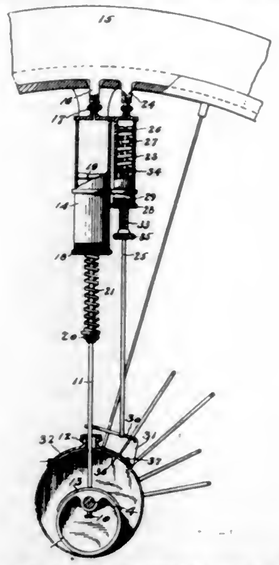
659,652. **IMPACT WATER-WHEEL.** JARED R. DE REMER, Glenwood Springs, Colo., assignor of one-third to H. D. Crippen, Denver, Colo. Filed Apr. 24, 1899. Serial No. 714,218. (No model.)



Claim.—1. The combination with a wheel, of a series of buckets mounted on the periphery thereof, having each an open end, said buckets being composed of inner and outer walls and a connecting-wall, said inner and outer walls being divergently arranged in relation to each other from their union to said connecting-wall, and ribs in said buckets, the inner sides of said ribs being substantially parallel with the outer wall of the bucket, while the outer sides of said ribs are substantially parallel with the inner wall thereof, substantially as set forth.

2. The combination with a wheel, of a series of buckets mounted on the periphery thereof, having each an open end, said buckets being composed of inner and outer walls and a curved connecting-wall, said inner and outer walls being divergently arranged in relation to each other from their union to the curved portion of said connecting-wall, said latter wall being flattened at the tops of said inner and outer walls, ribs formed with the curved portion of said connecting-wall, the inner sides of said ribs being substantially parallel with the outer wall, while the outer sides of said ribs are substantially parallel with the inner wall of the bucket, substantially as set forth.

659,653. **AUTOMATIC PUMP FOR BICYCLES.** CHARLES J. DOWLING, Chapman, Kans. Filed June 19, 1900. Serial No. 20,841. (No model.)



Claim.—1. The herein-described pump for bicycles or the like comprising a pumping-cylinder having a valve connection with the tire-tube; a piston-rod coöperating with said cylinder; means to hold the rod normally inwardly extended; an eccentric carried by the axle adapted to actuate said rod, in combination with an auxiliary cylinder directly connected with the tire-tube; a plunger coöperating with said auxiliary cylinder; a piston for said plunger and a pivoted arm connected to the lower end of said plunger and adapted by its free end to bear against said piston-rod whereby when the overflow of pressure from the tire-tube shall cause the inward movement of the piston upon said plunger, the latter will bear upon said arm and cause the same to engage the piston-rod and hold it out of engagement with the actuating means carried by the axle, substantially as specified and for the purpose set forth.

2. In automatic pumps for bicycles or the like, a suitable pumping-cylinder having valve connection with the tire; an eccentric carried by the hub and operatively connected with the piston; suitable valve connection between the said cylinder and tire, in combination with an auxiliary cylinder having direct connection with the tire; a plunger having a piston fitting said auxiliary cylinder; a compression-spring located in said cylinder and means to regulate said spring and an arm pivoted to the lower end of the plunger and to a contiguous portion of the hub, said arm being adapted to engage the piston-rod of the pumping-cylinder and hold it in a quiescent state when the pressure in the tire-tube shall have exceeded the desired point, all substantially as specified and for the purpose set forth.

659,654. **REVERSIBLE WINDOW-SASH.** FREDERICK C. DUNN, Chicago, Ill. Filed Sept. 18, 1899. Serial No. 730,912. (No model.)



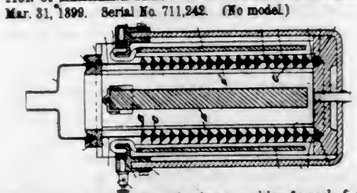
Claim.—1. The combination with the window-frame constructed as described, of a window-sash having grooved stiles and the weather-strips located in said grooves, said strips being provided with pins or knobs for operating the said strips, and the spring-plates adapted to engage the said knobs for the purpose of holding the strips in their adjusted position, substantially as shown and described.

2. The combination with the window-frame constructed as described, of a window-sash having grooved stiles, the strips arranged in said grooves and having knobs or pins for operating the same and the slotted spring-plates grooved as described, and adapted to hold the strips in their adjusted positions, substantially as shown and described.

3. The combination, with the window-frame constructed as described, of a window-sash having grooved stiles, the strips arranged in said grooves, slotted plates, the inner end of each of which is bent at an angle and secured to the edge of the stile and the outer end is curved outward to form a spring, and knobs secured to each strip in position to project through said plates, the head of each knob resting against the plate and being kept in position thereby, substantially as described.

4. The combination, with a plate provided with a circular series of holes, of a bar-plate pivotally secured thereto at the center of said series of holes, one end of which is provided with means for connecting it with the sash-cord and the other end is slotted longitudinally, and a spring secured in said slot, the free end of which is provided with a rounded head in position to engage with said holes, substantially as described.

659,655. **APPARATUS FOR THE ELECTROLYTIC DECOMPOSITION OF ALKALINE SALTS.** EDWIN EDSER, London, England. Filed Mar. 31, 1899. Serial No. 711,242. (No model.)



Claim.—1. An electric cell having a partition formed of a series of troughs dividing said cell into decomposing and combining compartments, said troughs containing mercury which has its surface exposed to each compartment, each of said troughs having a portion dipping into and below the level of the mercury in the adjoining trough, and electrodes in said compartments, substantially as described.

2. An electric cell having a vertical partition formed of a series of troughs dividing said cell into decomposing and combining compartments, said troughs containing mercury which has its surface exposed to each compartment, each of said troughs dipping below the level of the mercury in the trough below, and electrodes in said compartments, substantially as described.

3. A cell having a partition dividing the same into decomposing and combining compartments and formed of a series of superposed mercury-containing troughs of insulating material of substantially V-shaped cross-section, the apex of each trough dipping below the level of mercury in the trough below, and electrodes in said compartments, substantially as described.

4. A cell having a partition dividing the same into decomposing and combining compartments and formed of a series of superposed mercury-containing troughs of substantially V-shaped cross-section, the apex of each trough dipping below the level of mercury in the trough below, said troughs having alternate edges on each side extended to permit overflow of mercury into the trough beneath, and electrodes in said compartments, substantially as described.

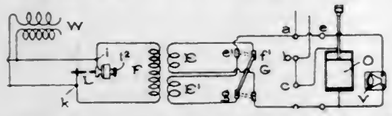
5. For the electrolytic decomposition of alkaline salts, a cell or vessel having a partition comprising a plurality of superposed troughs of substantially V-shaped cross-section having the alternate edges on each side provided respectively with a spout and lip, mercury in said troughs and electrodes in the compartments formed by said partition.

6. An electrolytic cell having a vertical partition dividing the same into decomposing and combining compartments and comprising a series of superposed troughs, mercury located in said troughs, each upper trough dipping below the mercury-level in the trough below, means for filling said troughs, and electrodes in said compartments, substantially as described.

7. In an electrolytic cell, a vessel, a vertical partition therein comprising a plurality of superposed troughs having metal ribs or flanges depending from the bottom of each trough into the trough below, said ribs or flanges being amalgamated, mercury in said troughs, and electrodes in the compartments formed by said partition, substantially as described.

8. In an electrolytic cell, a vessel, a vertical partition therein comprising a plurality of superposed troughs, an insulating-covering for the exposed surfaces of said troughs, mercury in the troughs and electrodes in the compartments formed by said partition, substantially as described.

659,656. TESTING TRANSFORMERS, &c. Augustine R. Everest, Lynn, Mass., assignor to the General Electric Company, of New York. Filed June 25, 1898. Serial No. 684,488. (No model.)



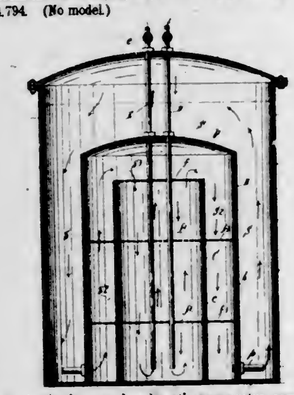
Claim.—1. An insulation-testing device comprising a step-up transformer, an adjustable spark-gap across the secondary terminals, and terminals for the device to be tested in parallel with the spark-gap, whereby the latter may short-circuit the dielectric medium of the device to be tested at a determinate potential and prevent discharge through the same.

2. The combination of spark-gap terminals of an inclosing case protecting the battery from contact with the terminals, connections for the terminals fixed to the case, and terminal contacts in the main circuit so arranged that removing the case from its support breaks the contact and cuts the spark-gap out of circuit.

3. A testing-set comprising a transformer with primary and secondary windings, a spark-gap across the high-potential leads in shunt to the apparatus to be tested, an inclosing box for the spark-gap terminals, and connections fixed to the box by which the spark-gap is cut out of circuit when the box is removed from the transformer-case.

4. The combination of a case, a transformer with primary and secondary windings in the case, terminals connecting the primary winding to the supply-leads, auxiliary binding-posts in circuit with the main terminals, secondary leads, a spark-gap in shunt to the secondary leads, an inclosing case for the spark-gap, and terminals upon the case registering with fixed terminals upon the transformer-case; the arrangement being such that the removal of the spark-gap and its inclosing case breaks the shunt-circuit.

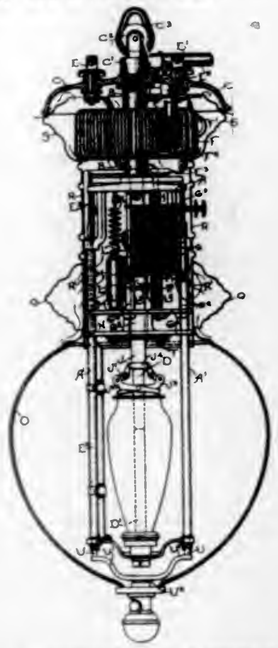
659,657. CARBONATING APPARATUS. Fred G. Felter, New York, N. Y., assignor of two-thirds to Arthur M. Gerow, same place, and Abram A. Demarest, Nyack, N. Y. Filed Oct. 26, 1899. Serial No. 734,794. (No model.)



Claim.—1. An improved carbonating apparatus, comprising a plurality of cylinders or casings arranged one within the other, the innermost casing having a foraminous top portion and the next inclosing casing having a closed top portion and the compartments or interior spaces of the respective casings being intersected by foraminous partitions extending across said interior spaces, in combination with an inlet-pipe extending vertically into and through the casing having the closed top portion and into the innermost casing and terminating at a point within the bottom portion of the innermost casing, an outlet-pipe extending vertically in a manner corresponding to the inlet-pipe and terminating within the lower portion of the innermost casing, and means of communication between two of said casings at their lower portions, whereby the course of the liquid in both the inlet and outlet passes through the plurality of casings and through said foraminous diaphragms and in and out at the lower portion of the inner casing.

2. An improved carbonating apparatus, comprising the closed outer casing, and a plurality of inner casings arranged within said outer casing and one within the other, the innermost one of said inner casings having a foraminous top portion and the casing inclosing said inner casing having a closed top portion and the interior compartments or spaces of said plurality of inclosed inner casings being intersected by foraminous diaphragms extending across said interior spaces, in combination with an inlet-pipe extending vertically through the outer casing and through the top portions of said inner casings to and within the bottom portion of the innermost casing, an outlet-pipe arranged in corresponding manner with respect to the inlet-pipe and extending to and within the lower portion of the innermost casing, and means of communication arranged at the lower portion of the outermost of the inner plurality of casings and communicating with the space or compartment of the outer casing at the bottom portion thereof, substantially as and for the purpose set forth.

659,658. ELECTRIC-ARC LAMP. Richard Fleming, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Apr. 4, 1898. Serial No. 676,332. (No model.)



Claim.—1. In an electric-arc lamp, the combination of an actuating-magnet with parallel supporting-rods, upon which the magnet is free to move in a vertical direction.

2. In an electric-arc lamp, the combination of the actuating-magnets, parallel supporting-rods, upon which the magnet is free to move in a vertical direction, and a spring for cushioning the movement of the magnet.

3. In an electric-arc lamp, the combination of a pair of actuating-magnets capable of vertical movement, parallel rods for supporting and maintaining the magnets in proper relation, and coiled springs surrounding the rods for cushioning the movement of the magnets.

4. In an electric-arc lamp, the combination of a pair of actuating-magnets, capable of a limited amount of vertical movement jointly or separately, vertically-extending rods for supporting the magnets, and maintaining them in parallel relation, and springs surrounding the rods, and set under the magnets, so that they are compressed when the magnets are energized.

5. In an alternating-current arc-lamp, the combination of a pair of actuating solenoid-magnets, spring-supports for the magnets, a U-shaped core movable within the magnets, a clutch mechanism, a spring connection between the core and the clutch, and a core which is supported by the lamp-frame for completing the magnetic circuit of the movable core.

6. In an electric-arc lamp, the combination of an actuating-magnet, a two-part core, the parts of which are movable with respect to each other, a clutch mechanism, a connection between one of the parts of the core and the clutch, and a compensating support for the said core and clutch, which is so arranged that as the power of the magnet increases its supporting effect on the core and clutch decreases.

7. In an electric-arc lamp, the combination of an actuating-magnet, a two-part core, the parts of which are movable with respect to each other, and a compensating support for one portion of the core, comprising an extension-spring which is supported by a fixed part of the lamp whereby

the supporting effect of the spring decreases as the parts of the core approach.

8. In an electric-arc lamp, the combination of an arc-regulating magnet, an armature, and a compensating device by which the armature is suspended, the compensating device and armature being so arranged that as the pull on the armature increases, due to the decrease in the air-gap, the effect of the compensating device is decreased.

9. The combination of a pair of actuating solenoid-magnets, a core comprising a stationary and movable part, the moving part being arranged to work within the magnets, a compensating spring-support for the moving part of the core, so arranged that as the power of the magnets increases its supporting effect decreases, and a dash-pot for checking the too-rapid movement of the core.

10. In an electric-arc lamp, the combination of a tube surrounding the carbon pencil, an actuating-magnet and core therefor, a support secured to the tube, a projection on the support to which the magnet-core is secured, a second projection or extension of the support, and a compensating spring which is secured to the second projection.

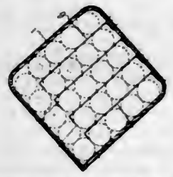
11. In an electric-arc lamp, the combination of an actuating-magnet, a spring-support therefor, a core for the magnet, a clutch mechanism, a spring connection between the clutch and the core, and a compensating spring-support connected to the core and stationary part of the lamp.

12. In an electric-arc lamp, the combination of a pair of metal pieces which are separated to form a dead-air space, a tubular casing which surrounds the pieces and practically prevents the air in the space from changing, and also forms the mechanism-chamber, the said casing being provided with ventilating-openings located above said pieces, and a cornice or ring which surrounds the casing and covers the ventilating-openings in that part of the casing which incloses the mechanism.

13. In an electric-arc lamp, the combination of two metal pieces which are separated to form an air-space, a casing which closely surrounds the pieces to prevent free changing of air in the space, and also incloses the lamp mechanism, the said casing being provided with ventilating-openings located above the metal pieces, a globe, a flange secured to the casing which rests upon the globe and prevents the free entrance and exit of air to the globe, and a cornice which is secured to the casing at its upper end and surrounds the ventilating-openings in said casing and has free communication with the external air at its lower end.

14. In an electric-arc lamp, the combination with the actuating-magnet and the armature thereof of a gravity-feeding carbon, a yoke or support, a clutch mechanism mechanically connected to the yoke or support, a device for retarding the upward movement of the clutch mechanism which is also connected to the yoke, and a resilient device interposed between the yoke or support and the armature of the magnet.

659,659. AMMUNITION-CASE. Frank M. Garland, New Haven, Conn., Filed Apr. 25, 1899. Serial No. 714,388. (No model.)



Claim.—1. An ammunition-case consisting of a receptacle having interior partitions with portions extending through one side wall, a portion engaging with that side wall and tending to throw upwardly the free end, the free end of said partition having downturned fingers, substantially as specified.

2. In an ammunition-case adapted to hold a plurality of cartridges, the combination with the outer case or receptacle having an outlet-opening therethrough; of a plurality of partitions yieldingly secured therein to one side thereof and provided with a downwardly-projecting finger at its free end to prevent the premature discharge of the cartridges below said partition, substantially as specified.

3. In an ammunition-case, adapted to hold a plurality of rows of cartridges, the combination with an outer case or receptacle, of partitions 9, having the sustaining portions 10 and spring portions 12 at one end and the lip portion 13 at the other end, all constructed and operating substantially as specified.

4. An ammunition-case adapted to hold a plurality of cartridges and consisting of a receptacle having interior partitions for separating said rows of cartridges, secured at one end to the wall of the receptacle and having a bent portion at the opposite end, which normally obstructs the passage through which one of the rows of cartridges is discharged, each of said partitions having a spring that tends to throw the free end of said partition upwardly and carry the said bent portion away from the said row of cartridges, substantially as specified.

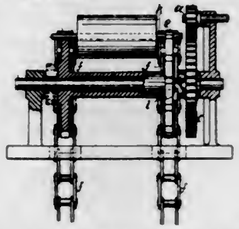
5. An ammunition-case adapted to hold a plurality of rows of cartridges and consisting of a receptacle having interior partitions for separating said rows of cartridges, which partitions have one free end formed with a bent portion, that normally obstructs the passage through which one of the rows of cartridges is discharged, and provided with portions extending through one side wall and other portions engaging with the interior of said side wall and tending to throw upwardly the said free end and carry the said bent portion away from the said row of cartridges, substantially as specified.

6. In an ammunition-case adapted to hold a plurality of rows of cartridges, the combination with an outer case or receptacle, of independent partitions yieldingly secured at one end within said case to one side thereof and extending nearly to the opposite side, each of said partitions having a bent portion at its free end which obstructs the outlet of the chamber beneath it, whereby a single unobstructed chamber is formed within two sides of said case, and a plurality of independent chambers formed between the said partitions and means, as springs, for throwing upward the free end of said partitions, substantially as specified.

7. In an ammunition-case adapted to hold a plurality of rows of cartridges, the combination with an outer case or receptacle having an outlet-opening therethrough, of independent partitions yieldingly secured within the said case to one side thereof, and extending nearly to the opposite side terminating in bent portions which close the outlet of the chambers beneath said partition, whereby a single chamber is formed above the said opening and a plurality of chambers at substantially right angles thereto, and means, as springs, for throwing upward the free end of said partitions substantially as specified.

8. An ammunition-case adapted to hold a plurality of rows of cartridges and consisting of a receptacle having interior partitions for separating said rows of cartridges, which partitions have one free end provided with a finger portion, which finger portion normally retains the row of cartridges beneath the partition against movement, and means, as springs, for throwing upward the free end of said partitions and lifting the said finger portions away from the said row of cartridges, when all of the cartridges have passed from above said partition, substantially as specified.

659,660. APPARATUS FOR PERIODICAL GENERATION OF ELECTRIC CURRENTS BY MOTORS OF IRREGULAR DRIVING POWER. Max Gehre, Rath, Germany. Filed Dec. 19, 1899. Serial No. 740,877. (No model.)

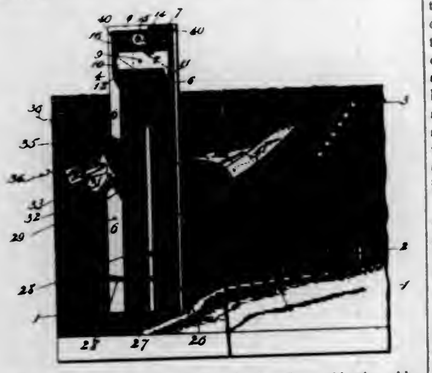


Claim.—1. A device for generating an electrical current or for other purposes by means of motors of variable driving power, comprising a motor-driven part, in combination with a power-storing device consisting of a chain-pulley, a chain having a weighted portion passing over said pulley, a separable driving connection between said motor-driven part and said pulley for transmitting the motion of said part to said pulley for lifting the weight, and for disconnecting said parts, to permit the weight to descend, and a shaft driven by said pulley during the descent of the weight.

2. In a device for generating an electrical current or for other purposes, the combination with a motor-driven part having a variable driving power, of a chain-pulley, a chain passing over the pulley, a weight fixed to the chain, a separable driving connection between said part and said pulley consisting of a catch on one of said parts, and a nose engaged by the catch on the other of said parts for driving the pulley to raise said weight, and releasing the pulley to permit falling of said weight, and a shaft driven by said pulley during the descent of said weight.

3. In a device for generating an electrical current, the combination with a motor-driven shaft of variable driving power, and the shaft of an electric generator, of a chain-pulley, a chain passing over said pulley, a weight fixed to said chain, and separable mechanism between said motor-driven shaft and said pulley for driving the pulley from the motor-driven shaft to raise said weight, and releasing the pulley from the motor-driven shaft to permit the falling of said weight, and a connection between the pulley and said generator-shaft driving the latter during the falling of the weight.

659,661. COIN-CONTROLLED MECHANISM FOR PHONOGRAPHS, &c. GEORGE W. GOMBER, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Mar. 18, 1899. Serial No. 709,611. (No model.)



Claim.—1. In a coin-controlled mechanism, the combination with a conveying-chute, of a pivoted actuating member having a depending portion carrying right-angled extensions, said extensions being adapted to extend into said chute, and a trigger designed to hold said member until released by the falling coin, as specified and for the purpose set forth.

2. In coin-controlled mechanism, the combination of the body-section, a pivotally-mounted coin-directing member, adjusting means entirely separate from said member to limit its movement, and a trigger actuated by the falling coin, all arranged as set forth.

3. In coin-controlled mechanism, the combination of the section provided with a chute, a vertical rib central of the chute, a pivoted actuating member having lateral extensions and a central depending end having means to receive and then release the coin, as set forth.

4. In a coin-controlled mechanism, the combination with a chute or body-section having a double throat, one of which is to receive the false coin, while the other is to receive the true coin, of a pivoted actuating member having a depending portion carrying right-angled extensions, which extend loosely through apertures provided in said chute and reach into and across said throats, whereby the falling true coin will be checked and held in plain view of the operator until said pivoted member is restored to the position ready for the reception of the next coin, as specified and for the purpose set forth.

5. In coin-controlled mechanism, the coin-directing counterpoised member 8 having an integral depending extension 11 and vertical opening 13, in combination with an adjustable guiding-finger 14 entirely separate from said member, all arranged as set forth.

6. In a coin-controlled mechanism for phonographs, the herein-described double throat 18 and 19, a pivoted counterpoised member 8 and a guiding-finger 14 so disposed in the path of the falling coin that the latter will be directed into the throat 18; a pivoted member having a depending portion carrying outwardly-extending fingers 26 and 27; a counterpoised extension 41 having a curved outer face adapted to be contacted by an arm of the diaphragm-carriage, and a trigger provided with a hook extension; a counterbalancing-section and a trigger extension proper, said hook being adapted to engage a pin carried by said pivoted member and thereby hold the weight of the end of said member in an elevated position until released by the falling coin, as specified and for the purpose set forth.

7. As an improvement in coin-controlled mechanism for phonographs, vending-machines or the like, a coin-chute having a double throat; a coin-directing pivoted member 8 and a guiding-finger 14 so mounted in said chute that the coin will be directed into the throat designed for its reception and a trigger mechanism so disposed in the path of the falling coin that it will be actuated thereby and incidentally release a pivoted member and thereby close an electric circuit controlling the motor of the phonograph, as specified and for the purpose set forth.

8. The herein-described coin-controlled mechanism for talking-machines consisting of a coin-chute having a double throat in its lower end, a pivoted coin-directing member mounted in the upper end of said chute; a pivoted member 22 having the lateral extensions 23 and 24 and the depending portion 25; outwardly-extending fingers 26 and 27 carried by said depending portion and a bracket 54 provided with a slot 53 and adapted to extend loosely through the wall of the supporting-casing; a series of buttons and levers therefor adapted to coöperate with the carrying-magazine: a crank-shaft in coöperation with said levers at one end, while the opposite end thereof is provided with the lever-section 51, a shaft pivotally connected to said lever-section and loosely fitting in said slot and a spring adapted to hold said extension normally upward, all combined in the manner specified and for the purpose set forth.

9. As an improvement in coin-controlled mechanism, the combination with a chute having a double throat in its lower portion and a pivoted actuating member having fingers 26 and 27 extending into said throats; a counterpoised trigger having a hook so disposed in the path of the falling coin that said hook will be released from engagement with said pivoted member and permit the same to move upon its pivot 21; a bracket secured to said pivoted member and extending loosely through an aperture in the casing; said bracket being formed with a slot 53 and a shaft, the upper end of which is adapted to loosely play in said slot whereby compensation is made for the movement of said shaft without disturbing the position of said bracket or the pivoted member to which it is secured, as specified and for the purpose set forth.

10. As an improvement in coin-controlled mechanism for phonographs or the like, a chute having a partition wall or rib 5 in its lower portion and a pivoted member 8 disposed in its upper portion; a guiding-finger 14 adapted to coöperate with said pivoted member whereby the coin will be checked until said member is moved downward by the weight of the coin, a pivoted actuating member having a depending portion carrying downwardly-extending members 26 and 27; slots formed in said chute through which said members may loosely extend, said members being so formed with respect to each other that they will rest upon either side of a vertical plane, whereby when the trigger is released by the falling coin the member 26 will move into position to hold said coin in plain view of the operator until the trigger has again been placed by the movement of the diaphragm-carriage in a set position ready for the next succeeding coin, as specified and for the purpose set forth.

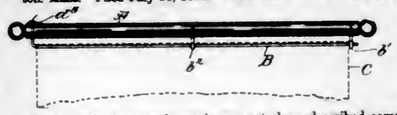
11. As an improvement in coin-controlled mechanism, the herein-described pivoted member having the weighted end 41 and the extension 24 and further provided with a depending portion 25 having separated right-angled extensions 26 and 27, the former being above the latter, said parts being so disposed that they will alternately rest in the path of a falling coin and temporarily check and then release said coin in its downward movement, as specified and for the purpose set forth.

12. In coin-controlled apparatus, the combination of a pivoted actuating member having an arm provided with a slotted bracket, a crank-shaft 47, a controlling-rod working in said slot and connected to the crank-shaft and levers carrying buttons controlled by said shaft, all arranged as set forth.

13. In coin-controlled apparatus, a pivoted actuating member provided with a slotted bracket, levers having buttons and means connecting said bracket and buttons, all operatively combined as set forth.

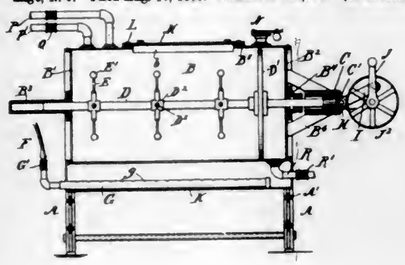
14. In coin-controlling apparatus, a pivoted actuating member provided with a slotted bracket, as set forth.

659,662. SUPPORT FOR CURTAINS. MARCEL GOUDREAU, Taunton, Mass. Filed July 21, 1899. Serial No. 724,673. (No model.)



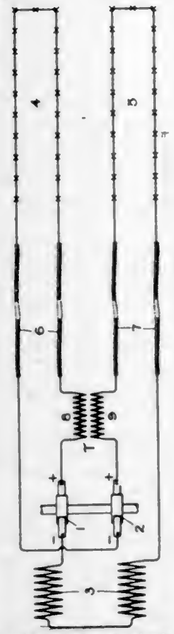
Claim.—The improved curtain-support above described comprising the rod A; brackets a', by which rod A is held in a fixed position; the movable wire rod B bent at one end only which bent end is pivotally secured to rod A; and hook b', fast to rod A adapted to receive and support the free end of wire rod B, and acting with the bent end of rod B to hold the main portion of rod B away from but parallel with rod A.

659,663. WASHING-MACHINE. WILLIAM A. GRANT, West Orange, N. J. Filed Aug. 17, 1899. Serial No. 727,508. (No model.)



Claim.—A washing apparatus comprising a stationary vessel equipped to endure steam-pressure, means for applying heat to generate and regulate such, a rod D carrying a disk D' and smoothly-knobbed arms E E' traversing the interior of the vessel, a stuffing-box B^4 in one end and a pocket B^3 in the opposite end coacting therewith to support and efficiently guide such rod, and the link I connected to such rod through a swivel-joint C operating at various angles to reciprocate the rod, combined and arranged to serve without other guiding means, all substantially as herein specified.

659,664. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES M. GREEN and JOHN G. CALLAN, Lynn, Mass., assignors to the General Electric Company, of New York. Filed June 30, 1900. Serial No. 22,104. (No model.)



Claim.—1. The combination of a series circuit, including underground cables, of an inductive connection between points in the length of said circuit.

2. The combination with a series circuit in which sources of electromotive force alternate with groups of translating devices, of an inductive connection between points in the circuit separated by translating devices.

3. The combination with the commutators of a multicircuit-generator, of a plurality of circuits leading therefrom, and an inductive connection between two of the circuits.

4. The combination with the commutators of a multicircuit-generator, of a plurality of circuits leading therefrom, and inductive connections between the circuits.

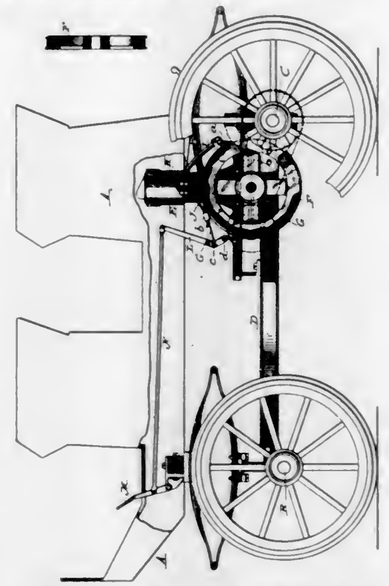
5. In a multicircuit system of distribution, the combination of sources of fluctuating electromotive force, a series system of distribution supplied thereby, and means for equalizing the resultant fluctuations of voltages.

6. The combination with a series circuit including sources of electromotive force separated by translating devices, of an inductive connection between non-adjacent points in the circuit.

659,665. BRAKE FOR VEHICLES. CHARLES R. GREUTER, Holyoke, Mass., assignor to the Holyoke Automobile Company, Jersey City, N. J. Filed Feb. 15, 1900. Serial No. 5,359. (No model.)

Claim.—1. In combination with a wheel or hub, and the frame in or by which it is supported; a bracket or support also carried by said frame; a flexible strap or band suspended from said support and passing about said wheel or hub; and a lever having said strap or band pivotally connected with it at different points in its length and supported by said band, whereby the strap or band is made to serve both as a brake and as a support for the actuating-lever.

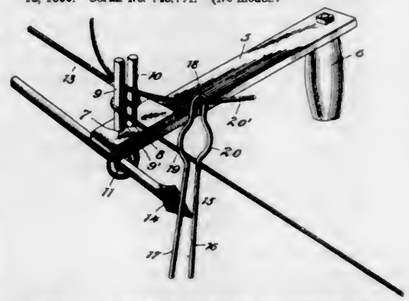
2. In combination with a wheel or hub F, a band or strap G passing about the same; a bracket or support H; a rod I extending downward from said support in the general direction of rotation of the wheel or hub; a clip or connection uniting the brake band or strap and said rod; and a lever having one extremity attached to one end of the strap or band, and pivoted at another point in its length to the other end of said strap or band, substantially as shown and described.



3. In combination with wheel or hub F, flexible strap or band G passing about the same; a stationary bracket or support H; rod I and arm J extending downward from said bracket; clip *a* connecting the strap or band with the rod I; loop *b* forming a loose connection between the strap or band G and the arm J; and lever L pin-jointed or pivotally connected to the ends of the strap or band G by pins or bolts, *c*, *d*.

4. The herein-described brake for vehicles, comprising a hub or wheel F; a band or strap G passing about said wheel; supports H, I, J, for said band; a lever L connected with the ends of said band by pins or bolts *c*, *d*; a second lever M; and a rod N connecting the levers L and M, substantially as and for the purpose set forth.

659,666. FENCE-TOOL. MOSES W. GUNN, La Salle, Ill. Filed Dec. 18, 1899. Serial No. 740,771. (No model.)

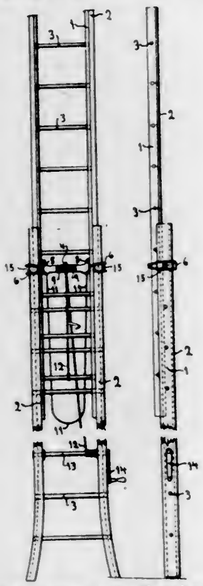


Claim.—1. A stretching and splicing tool consisting of a crank having communicating perforations and inwardly-turned portions intermediate the perforations and a rod bent upon itself to form an eye at the bight and to form two jaws, the jaws of the rod being passed through the said perforations and diverged to prevent withdrawal.

2. A wire tightening and splicing tool comprising a crank having communicating perforations therein, inwardly-directed portions lying between the perforations and jaws consisting of a spring-bar bent upon itself and having an eye at the bight, said jaws being passed through the perforations and diverged to prevent withdrawal.

3. A splicing and stretching tool consisting of a crank having communicating perforations, a spring-rod bent upon itself to form jaws and an eye at the bight, said jaws being passed through the perforations and diverged to prevent the withdrawal, and a supplemental crank having a pointed head and lying loosely in the said eye.

659,667. LADDER. JOHN HARMON and ALBERT T. FAY, Minneapolis, Minn. Filed Apr. 4, 1899. Serial No. 711,723. (No model.)



Claim.—1. In an extension-ladder, the tubes 5, the shoulders to which the outer ends of the tubes are secured, and which shoulders conform to the outer surfaces of the ladder-frame which they embrace, and the sleeves 7, combined with the round 3 provided with a loose sheave at its center, substantially as shown

2. In a ladder, the combination of a main ladder, an extension whose side frames are adapted to slide freely upon the frame of the main ladder, and means for securing the extension upon the main ladder, said means consisting of a head and a locking-cam, both secured to one section of the ladder, and a spring adapted to move the locking-cam to a position free from contact with the ladder-frame, when such cam is not tightly engaged, substantially as shown and described.

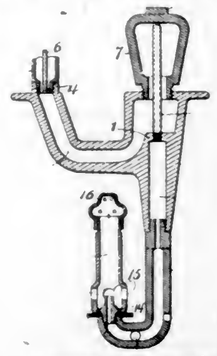
3. In a ladder, the combination of a main ladder, an extension whose side frames are adapted to slide freely upon the frame of the main ladder, and means for adjusting and securing the extension upon the main ladder, said means consisting of a head, a locking-cam, a spring adapted to move the locking-cam to a position free from contact with the ladder-frame when such cam is not tightly engaged, and a cord so secured to the cam as to be adapted for engaging the cam with the ladder-frame, substantially as described and shown.

4. In a ladder, the combination of a main ladder, an extension whose side frames are adapted to slide freely upon the frame of the main ladder, and means for adjusting and securing the extension upon the main ladder, said means consisting of a head, a locking-cam, a spring adapted to operate upon the locking-cam, a sheave and a windlass, substantially as specified.

5. In a ladder, the combination of a main ladder-section, an extension adapted to slide upon the frame of the main ladder, and means adapted for securing the extension in position, said means consisting of a tube adapted to be received upon a ladder-rung, a locking-cam pivoted to said tube, a spring adapted to operate upon the locking-cam, and a head secured to the outer end of said tube, substantially as set forth.

6. In a ladder, the combination of a main ladder E-shaped in cross-section, an extension which is L-shaped in cross-section and adapted to slide upon the main ladder, and means adapted for securing the extension in position, said means consisting of a head and pivoted locking-cam united together and adapted to grasp and hold the frames of the main ladder and extension between said head and cam, and a spring adapted to operate upon said cam, substantially as shown and described.

659,668. HYDROCARBON-BURNER. ALBERT E. HARTEL, Philadelphia, Pa., assignor of two-thirds to Gordon H. Mullin and Percy R. Metzger, same place. Filed July 3, 1900. Serial No. 22,443. (No model.)



Claim.—1. A hydrocarbon-burner comprising a retort, a dome supported upon and communicating therewith by a contracted opening, a vapor-pipe communicating with the upper portion of the dome, a burner under the retort and means for conducting vapor from said vapor-pipe to the burner.

2. A hydrocarbon-burner comprising a retort, a dome in communication therewith, a vapor-pipe communicating with the upper portion of said dome, and a burner arranged to discharge against said retort, said dome being situated in the path of the products of combustion from the burner.

3. A hydrocarbon-burner comprising a retort, a dome in communication therewith, a vapor-pipe communicating with the upper portion of said dome, and a burner arranged to discharge in the direction of the retort and the dome, said retort being situated between the burner and the dome.

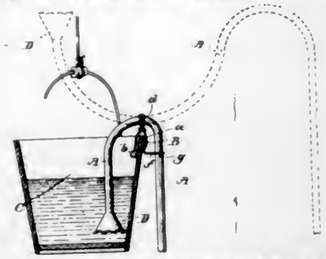
4. A hydrocarbon-burner, comprising a retort, a dome located over and communicating therewith by a contracted opening and a vapor-pipe communicating with the upper portion of the dome and passing through said contracted opening and the retort.

5. In a hydrocarbon-burner, the combination with a retort, of a hydrocarbon-supply pipe communicating with said retort and inclosed in an air-supply pipe, an inverted conical dome communicating with the retort, a vapor-pipe communicating with the upper portion of the dome and passing through the retort and adapted to supply vapor to a burner for heating the retort.

6. A hydrocarbon-burner, comprising a casting, a partition therein forming a vaporizing-chamber and an outlet-chamber for vapor, a dome communicating with the vaporizing-chamber and a pipe passing through the vaporizing-chamber and connecting the vapor-outlet chamber with the upper portion of the dome.

7. In a hydrocarbon-burner, the combination with a retort and a pipe communicating therewith, of a commingling-chamber screwed into said pipe, a disk of incombustible fibrous material held between the commingling-chamber and pipe, and the commingling-chamber provided with perforations through which oil is poured to saturate the disk, which latter, when ignited, is adapted to heat the retort and start vaporization therein.

659,669. SIPHON. CHARLES F. HAYNES, Boston, Mass. Filed Dec. 26, 1899. Serial No. 741,671. (No model.)



Claim.—1. In a siphon, the combination of a flexible tube, a holder for supporting the same over the edge of the liquid-containing receptacle without an angular bend, and an enlarged intake or funnel secured to the suction end of the tube for facilitating the filling of the same to start the flow of the liquid therethrough, substantially as described.

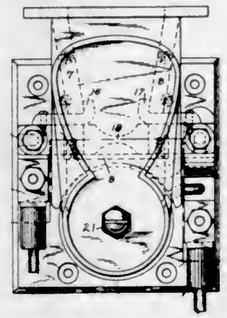
2. The combination with a flexible siphon, of a holder consisting of a single piece of wire doubled to form spring-jaws adapted to be hooked over the edge of the liquid-receptacle, and having a lateral extension *f* and eyes *d*, *g*, for holding the flexible tube in a curved position over the edge of the receptacle, substantially as described.

659,670. METHOD OF TREATING TELLURIDE ORES. CASIMIR J. HEAD and ROLAND C. WILD, London, England. Filed May 8, 1900. Serial No. 15,954. (No specimens.)

Claim.—1. A process for the extraction of tellurium from telluric ores consisting of the lixiviation and digestion of the ores for a lengthened period of time (two to six hours) in a solution containing about five per cent. of a caustic alkali; the removal of the filtrate; the acidifying of the filtrate; and the precipitation of the tellurium from the filtrate by protochlorid of tin, substantially as described.

2. A process for the extraction of tellurium from telluride auriferous ores, and the preparation thereby of said ores for the better extraction of the precious metal therefrom, consisting of a lixiviation and digestion of the said ores in a solution containing about five per cent. of caustic potash or soda for a lengthened period of two to six hours, the withdrawal of the solution after such digestion from the said ores; the recovery of the tellurium from the solution; substantially as described.

659,671. MAGNETIC BLOW-OUT OR FUSE-BOX. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Apr. 21, 1900. Serial No. 13,717. (No model.)



Claim.—1. An electric fuse provided with means for extinguishing the arc, and arcing tips electrically connected with the fuse-terminals.

2. An electric fuse provided with means for extinguishing the arc, and arcing tips electrically connected with the fuse-terminals, and separated by an air-gap of less length than the fuse.

3. A fuse-box provided with means for extinguishing the arc, a fuse connected with the terminals, and removable arcing tips electrically connected with the fuse-terminals and separated by an air-gap less than the distance between the fuse-terminals.

4. A fusible cut-out for an electric circuit, comprising a fuse mounted in a magnetic field, and arcing tips massive relatively to the fuse, electrically connected with the fuse-terminals, said arcing tips lying in the path of expulsion of the arc-gases.

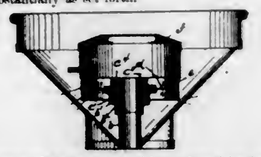
5. A cut-out for an electric circuit, comprising a magnetic blow-out and auxiliary removable arcing tips projecting in the path of expulsion of the arc-gases when the circuit is interrupted, said arcing tips being electrically connected with the circuit-terminals.

6. A thermal cut-out for an electric circuit, comprising means for establishing a magnetic field, a fuse within said field, a chute for the arc-gases, and arcing tips electrically connected with the fuse-terminals extending into the chute in the path of the gases expelled from the fuse when it blows.

659,672. MILK-STRAINER. FREDERICK HEYL, Irvington, N. J. Filed June 20, 1900. Serial No. 20,913. (No model.)

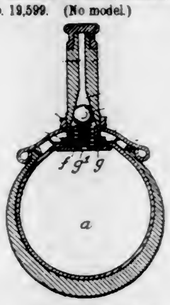
Claim.—1. The improved milk-strainer, comprising a funnel having a tube fixed to its bottom and extending into the interior thereof, a cup removably secured upon said tube and having an open bottom, a removable cover for the open top of said cup, and a straining-diaphragm removably fastened across the opening in the bottom of the cup, substantially as set forth.

2. The improved milk-strainer, comprising a funnel having a tube fixed to and extending up from the bottom of said funnel, an open frame *c*, having an upward flange c^3, a straining-diaphragm resting on said open frame, means for clamping said diaphragm upon said frame, and a cover, all arranged substantially as set forth.



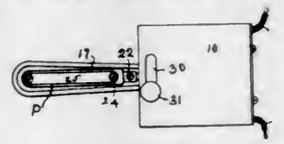
3. The improved strainer, comprising a funnel having a tube at the bottom, said tube having at its upper end a clamp in which a straining-diaphragm may be removably secured, said diaphragm being arranged around the open end of said tube, and a cover removably arranged over said diaphragm and open end of the tube and preventing a flow into said tube except through said straining-diaphragm, substantially as set forth.

659,673. AIR ADMISSION AND CHECK VALVE FOR PNEUMATIC TIRES. EDWARD W. HOLT, London, England. Filed June 8, 1900. Serial No. 19,599. (No model.)



Claim.—In combination with the inflation-tube and rim of a pneumatic tire a valve-casing, having a central passage and long conical chamber therein, a ball-valve in said conical chamber; a flanged recessed cover, having a central hole screwed into the base of said conical chamber; a spiral spring in the recess of said cover, pressing the valve into said coned chamber; a dust-cap closing central passage; and means for attachment of valve-casing both to tire-inflation tube, and to the metal rim, substantially as described.

659,674. MASSAGE APPARATUS. BENJAMIN F. HUTCHES, Jr., Chicago, Ill. Filed Nov. 7, 1898. Serial No. 695,675. (No model.)



Claim.—1. In a massage instrument, a lever, electrical devices for giving said lever rapid vibrations, a removable paddle attached to said lever, a guard through which said paddle operates, a case for inclosing said electrical devices, a second lever pivoted to said case and adapted to come into contact with the first-mentioned lever, and means whereby said second lever may be operated so as to control the vibrations of the first-mentioned lever.

2. In a massage instrument, a paddle and a guard therefor, electrical devices and connections for operating said paddle, a normally-open switch for said devices, a casing inclosing the electrical devices and their connections, a button located on the outside of said case and connected to said switch, and means whereby the movement of said button will serve to close said switch and also to regulate the movement of said paddle.

3. In a massage device a magnet adapted to give rapid vibrations to the armature thereof, a paddle secured to and vibrating with said armature, and a guard surrounding said paddle and serving as a guide for the proper placing of said paddle when making such vibrations.

4. In a massage device a magnet adapted to give rapid vibrations to the armature thereof, a paddle secured to and vibrating with said armature, means for limiting the length of the vibrations in one direction, and a guard located adjacent to said paddle and slightly above the limit of its vibrations in the opposite direction.

5. In a massage device a paddle, a magnet for moving it in one direction and a spring for moving it in the opposite direction, and an adjustable device adapted to vary the length of the paddle movement in one direction only.

6. In a massage device a paddle, a magnet and a spring for moving it alternately in opposite directions, and a lever adapted to be moved over said paddle so as to limit the length of movement in one direction while leaving it constant in the opposite direction.

7. In a massage device a paddle, a magnet and a spring for moving it alternately in opposite directions, a guard located near the extreme of movement in one direction and serving as a guide for locating blows caused by such movement, and a pivoted lever adapted to be moved over said paddle so as to limit the length of its movement in the opposite direction.

8. In a massage device, the combination with a lever and means for giving it rapid vibrations, of a U-shaped guard or loop, surrounding said paddle, substantially as described.

9. In a massage device, a paddle, a motor for moving said paddle in one direction and a spring for retracting it, a guard through which said paddle vibrates, and an adjustable stopping device for limiting the paddle movement in one direction.

10. In a massage device, a paddle and a motor for driving it, a guard for locating the position of blows delivered by said paddle, and an adjustable stopping device for limiting the paddle movement in one direction.

11. In a massage device, a paddle, a motor for moving said paddle in one direction and a spring for retracting it, a guard secured to said motor and serving as a means for locating blows delivered by said paddle, an adjustable stopping device for limiting the paddle movement in one direction, and a casing inclosing said motor and provided with an aperture through which said paddle projects.

659,675. ROTARY-PISTON MOTOR. FREDERICK W. JAEGER, New York, N. Y. Filed Nov. 18, 1897. Serial No. 658,945. (No model.)



Claim.—1. In combination with the casing of an engine, pump, or similar apparatus, a piston and heads having cam-shaped contacting surfaces and noses, the piston and heads being concentric with each other, and the adjacent cam-shaped surfaces and noses being adapted to contact and ride rotatably over each other, forming two or more pockets on each side of said piston adapted to receive live and exhausted fluid, substantially as described.

2. In combination with the casing of an engine, pump, or similar apparatus, a piston or pistons, reciprocating head or heads having adjacent cam-shaped contacting surfaces and noses adapted to rotatably ride over each other and form two series of pockets upon each side of said piston, one series being adapted to contain live fluid and the other being adapted to contain exhaustive fluid, and means for admitting and exhausting said fluid, substantially as described.

3. In combination with the casing of an engine, pump, or similar apparatus, a rotary reciprocating piston, and stationary heads provided with cam-shaped adjacent contacting surfaces and noses, the noses of cam-surface upon said piston being adapted to ride over adjacent surfaces and noses upon said stationary heads and form two series of one or more pockets upon each side of said piston, one series being adapted to contain live fluid and the other series being adapted to contain exhaustive fluid, and means for admitting and exhausting said fluid, substantially as described.

4. In combination with the casing of an engine, pump, or similar apparatus, a piston or pistons and reciprocating head or heads, having cam-shaped abutting surfaces, sliding vanes mounted in the abutting surfaces and adapted to engage and butt against the adjacent cam-surfaces, pockets formed upon each side of said piston and adapted to contain live and exhaustive fluid, and suitable means for admitting and exhausting fluid to and from said pockets, substantially as described.

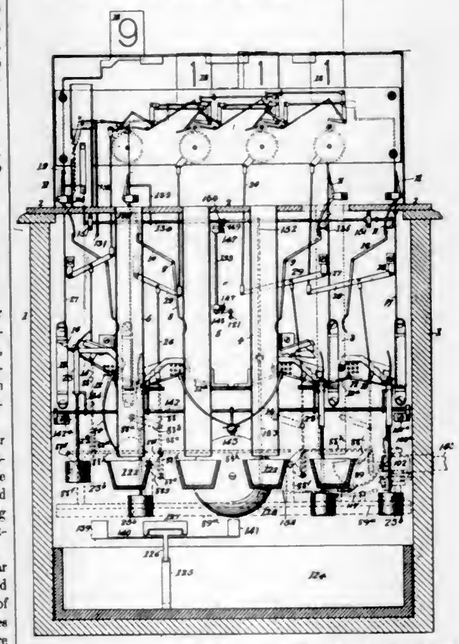
5. An engine comprising a piston having projecting abutting surfaces upon both sides and mounted upon a shaft, and heads having adjacent abutting cam-shaped surfaces and mounted within a casing, the said piston being adapted to rotate and form pockets or chambers on both sides of the piston for the admission of live fluid and also forming pockets upon each side of the said piston which are adapted to contain exhaustive fluid, the pressure of the fluid in said pockets acting to balance the said piston, substantially as described.

6. An engine comprising a piston having projecting abutting surfaces upon both sides and mounted upon a shaft, and heads having adjacent abutting yielding cam-shaped surfaces and mounted within a casing, the said piston being adapted to rotate and form pockets or chambers on both sides of the piston for the admission of live fluid and also forming pockets upon each side of the said piston which are adapted to contain exhaustive fluid, the pressure of the fluid in said pockets acting to balance the said piston, substantially as described.

7. In an engine comprising a piston and heads with abutting surfaces inclosed within a casing, said piston being adapted to rotate and form pockets on each side of said piston for admission of live and exhaustive fluid, the pressure of the fluid acting in opposite directions simultaneously on each side of said piston; thereby causing the suspension of the piston, substantially as described.

8. An engine comprising a piston mounted upon a shaft within a casing, said piston having projecting noses upon each side of said piston and rotatably riding over projecting abutments; thereby forming a set of two or more pockets or chambers upon each side of said piston, one or more pockets of each set being used for live fluid and the other of each set adapted to be used for exhaustive fluid; thereby tending to balance the piston by the action of the pressure of the fluid, substantially as described.

659,676. CASH-REGISTER. PATRICK KENNY, New York, N. Y., assignor to himself and Edward N. Dickerson, same place. Filed Oct. 25, 1897. Serial No. 656,273. (No model.)



Claim.—1. In a cash-register the combination with a series of gravity-chutes, of a registering device and means operated by the passage of a gravity-piece through any of said chutes, whereby a differential movement may be imparted to said registering device, substantially as specified.

2. In a cash-register the combination with a number of gravity-chutes segregated into series, of a registering device for each of said series and means operated by the passage of a gravity-piece through any chute of the corresponding series, whereby a differential movement may be imparted to said registering device, substantially as specified.

3. In a cash-register the combination with a number of gravity-chutes segregated into series, of a number of dials for registering amounts, and means operatively connecting each of said dials with the corresponding series of chutes, whereby the chutes of the series may register differential amounts on the dial, substantially as specified.

4. In a cash-register the combination with a series of gravity-chutes of a dial or other registering device in connection with said chutes, and means operated by the unaided passage of a gravity-piece through any of said chutes, whereby a differential movement may be imparted to said registering device, substantially as specified.

5. In a cash-register the combination of a series of chutes, a register, and means operated by the passage of a piece through a chute, whereby the series of chutes may effect a differential movement of said register.

6. In a cash-register the combination with a series of chutes for gravity-pieces, of arms within said chutes adapted to be actuated by the passage of said gravity-pieces, a registering device, and means whereby the movements of said arms may effect differential movements of said registering device, substantially as specified.

7. In a cash-register the combination with a number of gravity-chutes segregated into series, of a registering device for each of said series of chutes, means connecting said registering device with said chutes whereby the passage of a gravity-piece through any of said chutes actuates said registering device, and means for transferring registered amounts from one of said registering devices to another thereof, substantially as specified.

8. In a cash-register the combination of a number of gravity-chutes segregated into series, a counting device appurtenant to each series, and means for operatively connecting the several counting devices and transmitting motion from a counting device of low value to one of higher value, substantially as specified.

9. In a cash-register the combination of a number of gravity-chutes segregated into several series, a registering dial or index appurtenant to each of said series, means for transforming the complete revolutions of said dial or index into a partial revolution of the next higher dial or index, and means for operating said registering dials or indices by the unaided passage of a gravity-piece through any of said chutes, substantially as specified.

10. In a cash-register the combination of a number of gravity-chutes, registering devices operated by the unaided passage of a gravity-piece through any of said chutes, and means connecting the said registering devices, whereby a given amount of movement of one will be transferred, and transformed into a lesser amount of movement in another thereof, substantially as specified.

11. In a cash-register the combination with a series of registering dials or indices operated through the fall of a gravity-piece, of a mechanism connecting said dials or indices for transferring a given movement of one of said dials or indices to the next thereof, said mechanism comprising means for disconnecting one of said dials or indices, and advancing the same, substantially as specified.

12. In a cash-register the combination with a number of gravity-chutes, of a registering device operated by the passage of a gravity-piece through any of said chutes, said registering device comprising a number of counting devices, axles actuated through gear for operating said counting devices, and means for removing said axles from gear, substantially as specified.

13. In a cash-register the combination of a registering device, said registering device comprising a number of counting devices, axles for operating said counting devices actuated through gearing, means for taking said axles out of gear, means operated by the movement of another counting device for rotating said axle, while the axle is out of gear, and means for independently operating each of said counting devices, substantially as specified.

14. In a cash-register, a registering device comprising a number of counting devices, an axle for operating each of said counting devices, a series of gravity-chutes, a gear operated through said series of chutes for rotating said axle, a cam for taking said axle out of gear, and means operated by another of said counting devices for rotating said axle at given periods of the movement of said last-mentioned counting device, substantially as specified.

15. In a cash-register, a registering device comprising a number of counting dials or indices, an axle for operating each of said dials or indices, a connecting-rod for removing from gear said axle, said connecting-rod operated through a cam by the movement of the adjacent counting dial or index, a supplementary connecting-rod for operating a non-adjacent connecting-rod, and means for putting said supplementary connecting-rod into operation at given periods in the movement of the corresponding counting dial or index, substantially as specified.

16. In a cash-register the combination with a number of gravity-chutes, of a number of counting dials or indices, a mechanism operatively connecting said dials or indices with said chutes, a locking pawl and ratchet comprised in said mechanism for preventing an overmovement of the said dial or index, and a cam for permitting the engagement of said pawl and ratchet at the completion of the movement of said dial or index, substantially as specified.

17. In a cash-register, a series of indicating and registering devices operated by the fall of a gravity-piece, the one indicating the highest value comprising a sliding piece whose movement in one direction records, and in the other direction expunges the record, and means operated by the next device for moving said sliding piece, substantially as specified.

18. In a cash-register, a series of registering dials or indices, gravity-chutes for operating each thereof, means whereby each of said dials or indices is operated by a given movement of the next lower thereof, and a sliding piece operated by the highest of said dials or indices, for registering still higher amounts, substantially as specified.

19. In a cash-register having a registering device and a display device, the combination of a receptacle adapted to retain gravity-pieces, passages leading from elevated positions back to said receptacle, whereby when a gravity-piece is placed into any of said passages gravity will return it to said receptacle, means actuated by said gravity-piece in its said passage for operating said registering device, and means actuated by said gravity-piece for operating said display mechanism, substantially as specified.

20. In a cash-register, having a registering device, and a display device, the combination of a mechanism for operating said display device whereby any previous display is expunged and a new display substituted at the same operation, a mechanism for operating said registering device, a series of gravity-chutes, and means whereby the continuous passage of a gravity-piece through any chute may operate both the aforesaid mechanisms, substantially as specified.

21. In a cash-register the combination of a series of gravity-chutes, a receptacle for gravity-pieces from which a gravity-piece may be carried by hand and placed into one of said chutes, the said chutes being so arranged that the action of gravity may cause the gravity-piece to make a continuous passage through the chute and into the said receptacle, a display device, and means in connection with said chutes for operating said display device substantially as specified.

22. In a cash-register, the combination of a number of gravity-chutes segregated into series, a display device appurtenant to each series, and a mechanism operatively connecting the said chutes and the display device, whereby when a gravity-piece is passed through any chute of the series, the preceding display corresponding to the said series will be expunged, and the new display effected in the same operation, substantially as specified.

23. In a cash-register the combination with a series of gravity-chutes, of a corresponding series of display-disks operated by the unaided passage of a gravity-piece through any of said chutes, means for maintaining said disks in displaying position, and means for releasing the same operated by a subsequent passage of a gravity-piece, substantially as specified.

24. In a cash-register the combination of a gravity-chute, an arm projecting into said chute, and a display-disk in operative connection with said arm, whereby the unaided passage of a gravity-piece through said chute may actuate said arm to operate said display-disk, substantially as specified.

25. In a cash-register the combination of a number of gravity-chutes segregated into series, a series of display-disks for each of said series of chutes, and means for operating said disks by the unaided passage of a gravity-piece through any of said chutes, said means comprising arms fitted to intercept the said gravity-piece in the passage, and be forced out of the path thereof, substantially as specified.

26. In a cash-register the combination with a series of gravity-chutes, of a corresponding series of display-disks, a registering device, and means for operating the same by the unaided passage of a gravity-piece through any of said chutes, whereby the chutes of the series may impart a differential movement to said registering device, substantially as specified.

27. In a cash-register the combination with a number of series of gravity chutes, of a counting and recording device appurtenant to each series, a display device in operative connection with said chutes, and means connecting the several counting devices, whereby a given amount of movement of one of said counting devices will be transferred and transformed into a less amount in another thereof, substantially as specified.

28. In a cash-register the combination with a series of counting devices, of means for operating each thereof by the unaided descent of a gravity-piece, means whereby each of said devices is operated by a given movement of the next thereof, and a series of display devices corresponding to said counting devices, substantially as specified.

29. In a cash-register the combination with a series of gravity-chutes, of a registering device, and means for operating said device, said means comprising a stepped engaging piece, and arms operated by the fall of a gravity-piece in any of said chutes for engaging the steps of said engaging piece, whereby a movement corresponding to the value of the operating-chute is given said engaging piece, substantially as specified.

30. In a cash-register the combination with a number of gravity-chutes segregated into series, of a registering device appurtenant to each series, and means for operating said registering device, said means comprising a stepped engaging piece operated by the passage of a gravity-piece through any of said chutes, substantially as specified.

31. In a cash-register the combination with a registering device, of means for operating the same, a stepped engaging piece comprised in said means, and arms operated by gravity for engaging the steps thereof, whereby a variable movement may be imparted to said engaging piece, substantially as specified.

32. In a cash-register the combination with a registering device, of a number of arms for operating the same, means actuated by gravity for moving said arms, and means for rendering said arms operative or inoperative at different points in the movement thereof, whereby a variable movement is imparted to said registering device.

33. In a cash-register the combination with a display device, of a registering device, a stepped engaging piece for operating said devices, and means actuated by gravity for operating said engaging piece by engaging the steps thereof whereby a varying movement may be imparted to said engaging piece, substantially as specified.

34. In a cash-register the combination with a register, of a device for operating said register, and means operated by the fall of a gravity-piece for imparting a variable movement to said operating device, substantially as specified.

35. In a cash-register the combination of a number of gravity-chutes segregated into series, a registering device appurtenant to each series, a series of arms for operating said device, means for moving said arms, and means for rendering said arms operative for a variable portion of their movement, substantially as specified.

36. In a cash-register the combination with a series of gravity-chutes of a printing device and means operated by the passage of a gravity-piece through any chute of said series whereby a differential movement may be imparted to said printing device, substantially as specified.

37. In a cash-register the combination of a series of gravity-chutes, a type-disk, and means operatively connecting the two whereby the said chutes may effect differential movements of said type-disk.

38. In a cash-register the combination of a series of gravity-chutes, a type-disk in connection therewith whereby said type-disk may be adjusted by the passage of a gravity-piece through any chute of said series, means for maintaining said type-disk in printing position, and means for releasing the same, substantially as specified.

39. In a cash-register the combination with a series of gravity-chutes, of a registering device and a printing device, means operated by the unaided passage of a gravity-piece through any of said chutes whereby a differential movement may be imparted to both of said devices, and a strip-feeding mechanism.

40. In a cash-register the combination of a series of gravity-chutes, a printing device, means whereby the said chutes may effect a differential movement of said printing device, a strip-feeding mechanism, a platen, and means for pressing the strip between the platen and the printing device.

41. In a cash-register the combination of a series of gravity-chutes, a printing device, a stepped engaging piece, and a series of arms operated by the passage of a gravity-piece through any chute of said series, said arms being adapted to engage the step of said engaging piece whereby a variable movement may be imparted to said printing device.

42. In a cash-register the combination of a printing device, gravity-chutes representing different values, means operated from said chutes for adjusting said device to print the value represented by the chute from which it is operated, a strip for receiving an impression, and a single means adapted to feed said strip and effect the printing thereon.

43. In a cash-register the combination of a number of gravity-chutes segregated into series, a registering device, a printing device, and means operated by the unaided passage of a gravity-piece through any of said chutes, for giving to said registering and printing devices a movement corresponding to the number of the chutes.

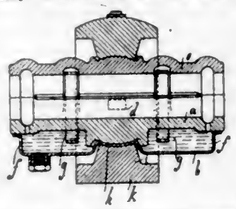
44. In a cash-register, the combination of a registering device having a constant tendency to return to zero position, of means for effecting registers upon said device, means for retaining the said device in registering position, and a contrivance for releasing the said device, whereby it will return to zero, to expunge the matter registered.

45. In a cash-register the combination of a registering device, the said device acted upon by gravity or an equivalent force to return to a zero position, means for retaining the said device in registering position, and a key-operated contrivance for releasing the said device.

46. In a cash-register the combination of a registering device, comprising a piece fitted to move upwardly and downwardly, means for moving said piece upwardly to effect registers upon said device, a pawl for retaining said piece in its elevated position, and a key-operated bolt for effecting the release of said piece, whereby the piece may descend to zero position to expunge the record or registers thereon.

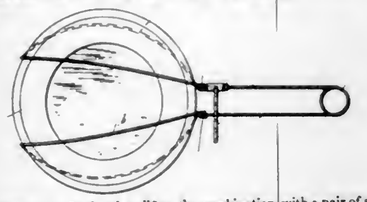
47. In a cash-register the combination of a sliding scale comprising the highest registering device of said cash-register, teeth provided upon said scale, a pawl engaging said teeth, and actuated by the next highest registering device, for effecting registers upon the said highest registering device, a second pawl engaging said scale to retain it in registering position, and a contrivance controlled by a key, and adapted to act upon both the said pawls to release the said scale, whereby the registered amount may be expunged.

659,677. LUBRICATING-BEARING. KARL KEYSSNER, Nuremberg, Germany. Filed Jan. 13, 1900. Serial No. 1,378. (No model.)



Claim.—In a lubricating device, the combination with the pillow or bearing *k* having upper and lower part-spherical bearing-surfaces and the axle-box having corresponding part-spherical bearing-surfaces, of a sheet-metal plate secured to the under side of said axle-box and forming a closed oil-chamber, said sheet-metal plate having a corresponding curved part passing between the lower contacting portions of the axle-box and pillow, substantially as described.

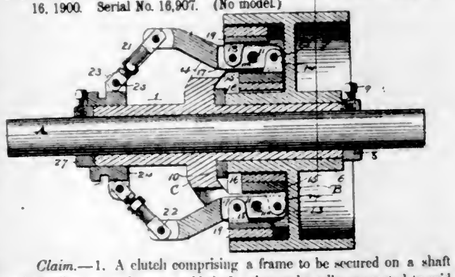
659,678. PLATE-LIFTER. JACOB KINDSCHUH, Little Cedar, Iowa. Filed Mar. 10, 1900. Serial No. 8,199. (No model.)



Claim.—1. In the plate-lifter, the combination, with a pair of spring-operated arms provided with means for engaging the plate, of a gravity-catch pivoted on one of the said arms and provided with teeth and a slot for engaging with the other said arm, and stops for preventing the said catch from sliding longitudinally on the arms, substantially as set forth.

2. In a plate-lifter, the combination, with a pair of spring-operated arms provided with means for engaging the plate, and two stops on one of the said arms; of a gravity-catch comprising a plate provided with teeth and a slot, pivoted on one of the said arms between the said two stops and engaging with the other said arm, said plate being arranged to oscillate in a vertical plane, substantially as set forth.

659,679. CLUTCH. FRANK KONLEY, St. Mary's, Ohio. Filed May 16, 1900. Serial No. 16,907. (No model.)



Claim.—1. A clutch comprising a frame to be secured on a shaft and a pulley to run loose on said shaft, a lever pivotally connected to said frame and carrying two shoes, and means connected with said lever for operating it positively in both directions.

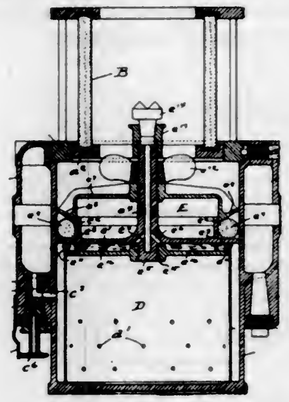
2. A friction-clutch comprising a frame to be secured on a shaft and a pulley to run loose thereon, a lever pivotally supported by said frame, two shoes connected to said lever and means connected directly with the lever for forcing one of said shoes in engagement with the hub of the pulley and the other in engagement with the rim thereof and for positively withdrawing said shoes simultaneously.

3. In a friction-clutch, the combination with a shaft and a pulley loosely mounted thereon and having an elongated hub and rim, of a frame secured to said shaft, levers pivotally supported by said frame, two shoes pivotally connected to each lever, one adapted to engage the rim and the other the hub of the pulley, a sliding collar on said shaft and links connecting one end of said levers with the collar, so that when the collar is moved it will simultaneously operate all of said levers and positively apply and release the shoes.

4. In a clutch, the combination with a frame to be secured to a shaft, of a series of levers pivotally attached to said frame, each lever being bifurcated where it is pivotally supported, oppositely-disposed shoes having lugs pivotally mounted in said bifurcated portion of the lever at respective sides of the pivotal support thereof and means for operating all of said levers simultaneously to force one half of the series of shoes against the rim of a pulley and force the other half of said series of shoes against the hub of said pulley.

5. In a friction-clutch, the combination with a shaft and a pulley loose thereon, of parallel arms secured to said shaft and having alining holes for the passage of a bolt, a lever having a hole therein for the passage of the bolt of appreciably-larger diameter than the diameter of the bolt, shoes disposed on opposite sides of the lever and pivotally connected thereto, and equidistant from the hole therein, one of said shoes adapted to engage the hub of the pulley and the other the rim, and means for operating said lever.

659,680. ACETYLENE-GAS GENERATOR. JAMES H. LANCASTER, New York, N. Y. Filed Oct. 9, 1899. Serial No. 732,984. (No model.)



Claim.—1. In an acetylene-gas generator the combination of a main body forming the generating-chamber, a water-tank surrounding said main body and formed integrally with same, a downwardly-projecting hollow extension from said tank adjacent to the wall of the main body, a passage-way formed in the wall separating the main body and the extension of the water-tank, a rotatable plug inserted in said extension, a passage-way formed in said plug for admitting water to the main body from the water-tank when in alinement with the passage-way of the wall of the main body, and a second downwardly-projecting extension from said water-tank provided with a removable plug forming an inverse water-sealed inlet for said water-tank, substantially as described.

2. A removable cover, comprising three superposed parts, mounted on a common hollow spindle closed at its lower end, substantially as described.

3. A removable cover comprising three superposed parts, a hollow spindle closed at its lower end formed integrally with the lower part, annular flanges on the upper and lower parts and a rubber gasket introduced between said flanges, substantially as described.

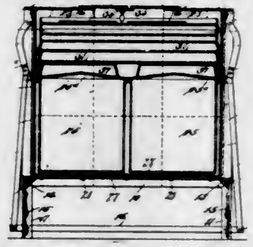
4. In a removable cover comprising three superposed parts, a hollow spindle closed at the bottom formed integrally with the lower part, a lowermost part containing filtering material, perforations in said lower part, and a plurality of passage-ways leading from said lower part to the tubular portion of the spindle, substantially as described.

5. In an acetylene-gas lamp a combined removable gas and water tight cover and filter, comprising three superposed parts, a hollow spindle closed at the bottom, and having a screw-cut extension, formed integrally with the lower part, a lowermost part comprising a shallow dish with a screw-cut bushing fitting into the screw-cut extension of the spindle, and having a perforation, and a plurality of passage-ways leading from the tubular portion of the spindle to the lowermost part, substantially as described.

6. In an acetylene-gas lamp comprising a main body, a water-tank surrounding said main body and an inverted water-sealed water-inlet, inverted water-sealed fluid-introducing means adapted to be actuated without disturbing the operation of the lamp, substantially as described.

7. In an acetylene-gas lamp, a removable threaded plug, having a fluid-valve inserted, substantially as described.

659,681. CAMP COOKING-STOVE. WILLIAM C. LANDY, New York, N. Y. Filed Oct. 10, 1899. Serial No. 733,142. (No model.)



Claim.—1. A camp-stove, comprising a central casing-section, and box-like oven-sections hinged to opposite sides of the casing-section to swing into vertical or horizontal positions, said oven-sections when swung into vertical positions having their ends overlying the top of the casing-section and their sides overlapping the sides of the casing-section, substantially as described.

2. In a camp-stove, the combination with a central body-section, of box-like oven-sections having a detachable swing connection with the body-section, the end sections being adapted to fold over the top and partly around the sides of the body-section or lie in substantially the same horizontal plane therewith.

3. In a camp-stove, a section adapted to receive boilers, and oven-sections pivoted to the boiler-section, said oven-sections being practically capable of inclosing the boiler-section or of exposing the same, and locking devices for the oven-sections.

4. A camp-stove, comprising a central casing-section, and oven-sections hinged to the casing-sections and having open inner ends, whereby the oven-sections can be swung up to partially inclose the casing-section, as set forth.

5. In a camp-stove, the combination with a central section provided with a casing, of end sections hinged to the central section and provided with ovens having open inner ends and removable covers, whereby when the covers are removed the end sections can be swung up at right angles to partially inclose the said central section, substantially as and for the purpose set forth.

6. In a camp-stove, the combination with a central section provided with a casing for supporting boilers, of end sections hinged to the central sections and provided with ovens having open inner ends and removable covers, and shelves removably secured to the ovens, substantially as described.

7. In a camp-stove, the combination with a central section provided with a casing, of oven-sections hinged to the casing-section and having open inner ends, shelves detachably secured to the outer ends of the ovens, and means for locking the shelves together after they have been carried by the ovens over the top of the casing-section, substantially as described.

8. In a camp-stove, a casing-section; and an oven hinged to the casing-section and having an open inner end, said oven being provided with a perforated removable false bottom, and with a cover having an upwardly-extending flange, as and for the purpose set forth.

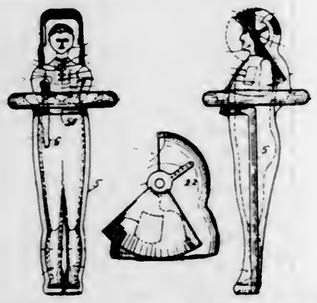
9. In a camp-stove, the combination, with a folding frame comprising a central section and end sections, a receptacle carried by the central section and adapted to receive cooking utensils, ovens carried by the end sections, provided with adjustable detachable shelves and with an elevated perforated inner bottom, and means for locking the oven-sections around the central section through the medium of said shelves, as described.

10. In a camp-stove, a frame comprising a central section and end sections arranged to fold perpendicularly at the end portions of the central section, a utensil-receiving casing supported by the central section of the frame, and ovens carried by the end sections of said frame said ovens having open inner ends and adapted when their sections are folded perpendicularly to partially inclose the utensil-receiving casing.

659,682. LIFE-SAVING SUIT. FELIX M. LEPORE, Denver, Colo., assignor of one-half to Dominic Pantanella, trustee, same place. Filed Apr. 26, 1900. Serial No. 14,460. (No model.)

Claim.—1. In a device for saving a person from drowning the combination of a waterproof suit of clothes or garment having leg portions closed at their foot ends, a waist, and chest, and back, and neck portion to said suit and having said neck and chest portion divided and arranged to be secured closely to the chest and neck of an occupant, armholes in said suit, a floating buoy secured to said suit above the waist portion of said suit, an air-channel along the leg and across the waist portion of said suit, a tube on the inside of said suit connected at one end with said air-channel and extending through one of said armholes, and an air-ball on the other end of said tube, substantially as described.

2. In a device for saving a person from drowning the combination of a non-sinkable waterproof suit of clothes comprising a pair of legs closed at the foot ends, a waist, chest and back portion integral with said legs and adapted to be closely secured to the neck or chest of a person, armholes in said suit, a floating buoy securely connected with said waist and chest portion of said suit and adapted to buoy up an occupant of the suit against sinking in water, a helmet portion extending upward from said back portion and arranged to partially inclose the head of an occupant, and a vizor secured to said helmet and arranged to keep the opening into said helmet open, or to close it at the will of an occupant, transparent eye-holes or windows of any suitable material in said helmet, a tube on the inside of said suit connected at one end with the air-channel and extending through one of said armholes, and an air-ball on the other end of said tube, substantially as described.

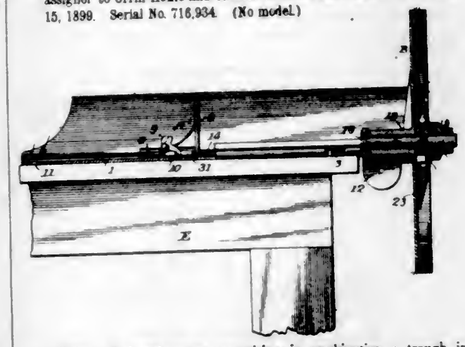


3. In a device for preventing a person from drowning the combination of a waterproof suit of clothes or garment having leg portions closed at their foot ends, a waist, chest, back and neck portion to said suit and having said neck and chest portion divided and arranged to be secured closely to the chest and neck of an occupant, armholes in said suit, a floating buoy secured to said suit above the waist portion of said suit, an air-channel along the leg and across the waist portion of said suit, a tube on the inside of said suit connected at one end with said air-channel and extending through one of said armholes, and an air-ball on the other end of said tube, a helmet extending from said back portion and comprising a floating-buoy portion adapted to buoy up the head and shoulders of an occupant floating on his back in the water and arranged to inclose a portion of the sides of the head, an open space in the front of said helmet, a pivotal joint at the central portion of said helmet, and a folding vizor pivotally attached to said joint and arranged to stand normally folded at the top of said opening and adapted to be unfolded to close the opening in said helmet, substantially as described.

4. In a device for preventing a person from drowning the combination of a waterproof suit of clothes or garment having leg portions closed at their foot ends, a waist, chest, back and neck portion to said suit and having said neck and chest portion divided and arranged to be secured closely to the chest and neck of an occupant, armholes in said suit, a floating buoy secured to said suit above the waist portion of said suit, an air-channel along the leg and across the waist portion of said suit, a tube on the inside of said suit connected at one end with said air-channel and extending through one of said armholes, and an air-ball on the other end of said tube, a helmet extending from said back portion and comprising a floating-buoy portion adapted to buoy up the head and shoulders of an occupant floating on his back in the water and arranged to inclose a portion of the sides of the head, an open space in front of said helmet, a pivotal hinge-eye at the central portion of said helmet, and a folding vizor pivotally attached to said hinge-eye and arranged to stand normally folded at the top of said opening and adapted to be unfolded to close the opening in said helmet, cloak members secured to the said hinge-eye on the opposite sides of said helmet and adapted to fold over the chest portion of said suit and means for securing said cloaks together over said chest portion by an occupant, substantially as described.

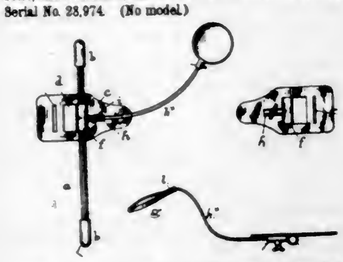
5. In a device for saving a person from drowning comprising a suit of waterproof floating clothes, consisting of a leg portion fitting loosely over the legs and feet of an occupant, a suitable weight in the foot portion of said leg portion of said suit, an air-holding channel extending along each leg and continuing across the waist portion of said suit from one leg to the other, means including a tube whereby an occupant of the suit may fill said air-channel with air, with an integral waist and shoulder, chest, back and neck portion formed integrally with said leg portion and adapted to fit an occupant loosely to the chest and neck, means including any suitable fastenings for clothes for securing said chest, neck and back portions securely and tightly to an occupant, a floating buoy adapted to keep a person from drowning integrally connected to said suit between said neck and waist portions, armholes in said chest and back portions of said suit, a helmet on said suit integrally connected to said back portion to partially cover the head of an occupant, a folding vizor pivotally connected to said helmet adapted to be folded or unfolded at the will of an occupant to open or to close said helmet, cloak portions of said suit secured to opposite sides of said helmet and arranged to fold over one another over the chest portion of said suit and means for fastening said cloaks together, a lamp-signal attached to said suit, and elastic pockets in said chest portion and in the cloaks of said suit, substantially as described.

659,683. BREAD-CUTTER. SAMUEL W. LONG, Rochester, N. Y., assignor to Orrin Hoxie and Charles H. Clark, same place. Filed May 15, 1899. Serial No. 716,934. (No model.)



Claim.—A bread-cutter comprising, in combination, a trough in which the loaf is guided, a follower operating in said trough, a bearing connected to the trough, a cutter-shaft rotating in said bearing, a hub fixed on said shaft, knife-supporting arms extending from said hub, knives connected to said arms, and a circular gage-plate adjustably connected to the outer end of said shaft, said gage-plate having openings through which the knife-supporting arms project, and being arranged to support said arms in the operation of cutting, substantially as described.

659,684. DENTAL RUBBER-DAM HOLDER. JOHN A. W. LUNBORG, San Francisco, Cal. Filed Oct. 14, 1899. Renewed Sept. 4, 1900. Serial No. 28,974. (No model.)



Claim.—1. In a rubber-dam holder, the combination of the check-piece having a means for attaching a neck-strap, and a socket on the outer face, with a cross-bar fitted to said socket extending above and below the line of the plate and movable longitudinally therein.

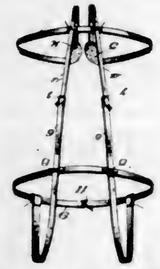
2. The combination with the check-plate having means for attaching to it a neck-strap, and provided with a socket for a cross-bar, of a socket on the outer face of the plate having means for clamping thereto a mirror-supporting rod.

659,685. TRUSS. WILLIAM S. MILLER, Maryville, Mo. Filed June 11, 1900. Serial No. 19,922. (No model.)

Claim.—1. The combination with a truss, of a pair of truss-retaining straps connected to the truss and designed to be passed under the body of the wearer, said straps having running engagement with the truss at its back, a body-band designed to encircle the body of the wearer above the truss, and a pair of shoulder-straps connected at one end to the truss-retaining straps at a point above the truss, having running engagement with the back of the body-band and having their opposite ends engaged by the body-band at the front to cause a downward pull to be exerted upon the truss when the upper ends of the shoulder-straps are drawn downwardly by the forward bending of the body of the wearer.

2. The combination with a truss, of a pair of truss-retaining straps

connected to the truss and designed to be passed under the body of the wearer, loops upon the truss at the back thereof for the reception of the truss-retaining straps, a body-band designed to encircle the body of the wearer above the truss and provided with loops at the back, and a pair of shoulder-straps connected at one end of the truss-retaining straps at a point above the truss, passed loosely through the loops at the back of the body-band and terminally engaged by said body-band at the front to cause a downward pull to be exerted upon the truss when the upper ends of the shoulder-straps are drawn downwardly by the forward bending of the body of the wearer.



3. The combination with a truss, of a pair of comparatively-narrow inelastic truss-retaining straps connected to the truss and designed to be passed under the body of the wearer, loops upon the truss at the back thereof, said truss-retaining straps being passed loosely through the loops of the truss, a body-band designed to encircle the body of the wearer above the truss and provided with loops at the back, and a pair of elastic shoulder-straps connected at one end to the truss-retaining straps at a point above the truss, passed loosely through the loops at the back of the body-band and provided with terminal loops engaged by said body-band at the front to cause a downward pull to be exerted upon the truss when the upper ends of the shoulder-straps are drawn downwardly hy the forward bending of the body of the wearer.

659,686. SNAP-HOOK. JOHN F. MITCHELL, Kneeland, Wis. Filed Mar. 10, 1900. Serial No. 8,170. (No model.)



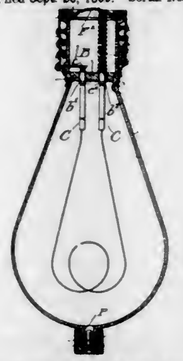
Claim.—1. In a snap-hook, the combination of a main part having a depressed portion, and said main portion also provided with slots in opposite edges thereof, and with a hook projecting from one end thereof, a pivoted locking device arranged in the depressed portion of the main part and having an outwardly-curved edge fitting in the slot of one of the side edges and covering said slot, a pivoted mousing or keeper also arranged in the depressed portion of the main part and filling the slot in the opposite side edge, said mousing provided with a projecting finger adapted normally to engage a shoulder of the locking device, and a spring acting against the locking device and against the mousing, and adapted to hold said parts in their normal outwardly-swung positions, with the finger of the mousing resting against the shoulder of the locking device, but permitting said parts to be pushed inwardly, so as to admit of the insertion of a ring or bail.

2. In a snap-hook, the combination of a main part having a depressed portion, and also having slots in opposite side edges, and further provided at one end with a projecting hook member, a pivoted locking device arranged in the depressed portion of the main part and having a lower rounded end fitting in a rounded recess in the main part and adapted to turn therein, said locking device also having an outwardly-curved edge fitting in the slot of one of the side edges and covering said slot, a mousing or keeper arranged in the depressed portion of the main part, and provided with a lower rounded end fiting a rounded recess in said main part, said mousing also fitting the opposite side slot, and provided with an inwardly-projecting finger adapted normally to engage a shoulder of the locking device, and a spring acting against the locking device and against the mousing and adapted to hold said parts in their normal outwardly-swung positions, with the finger of the mousing resting against the shoulder of the locking device, but permitting said parts to be pushed inwardly so as to admit of the insertion of a ring or bail.

3. In a snap-hook, the combination of a main part having a depressed portion, and also provided in opposite side edges with slots, and at one end with a projecting hook member, a pivoted locking device arranged in the depressed portion of the main part, and having an outwardly-curved edge fitting in the slot of one of the side edges and covering said slot, and also having an inward extension, the end thereof forming a shoulder, and the space between said inward extension and the main part of the locking device forming a recess (16,) a pivoted mousing or keeper also arranged in the depressed portion of the main part and filling the slot in the opposite side edge, said mousing provided with a projecting finger adapted to normally engage the shoulder at the end of the extension from the locking device, and a spring acting against the locking device and against the mousing and adapted to hold said parts in their normal outwardly-swung positions, with the finger of the mousing resting against the shoulder of the locking device, but permitting said parts to be pushed inwardly so as to admit of the insertion of a ring or bail, the finger of the mousing, when the parts are pushed inwardly, passing into the recess 16.

4. In a snap-hook, the combination, of a main part having a depressed portion, and thickened portions at its upper and lower ends, and also provided in its side edges with slots, a hook member projecting from one end of the main part, a pivoted locking device arranged in the depressed portion of the main part, and having an outwardly-curved edge fitting in the slot of one of the side edges and covering said slot, a pivoted mousing or keeper also arranged in the depressed portion of the main part and filling the slot in the opposite side edge, said mousing provided with a projecting finger adapted normally to engage a shoulder of the locking device, a spring acting against the locking device and against the mousing and adapted to hold said parts in their normal outwardly-swung positions, with the finger of the mousing resting against the shoulder of the locking device, but permitting said parts to be pushed inwardly so as to admit of the insertion of a ring or bail, and a plate fitted to one side of the main part and conforming to the shape thereof, and adapted to cover the interior parts, and to fit against the enlarged or thickened opposite ends of the snap-hook.

659,687. ELECTRIC INCANDESCENT LAMP. FREDERICK MYERS, New York, N. Y., assignor to Albert W. W. Miller, South Orange, N. J. Filed Sept. 26, 1899. Serial No. 731,706. (No model.)



Claim.—1. The combination with the globe of an incandescent electric lamp having a neck with an annular enlargement at or near its base end forming an annular seat and an annular groove of less diameter contiguous to the bulbous part of the globe, of a disk seated in said annular seat and hermetically closing the lamp and a radially-expansible threaded metallic sleeve contracted at its lower end to fit the said annular portion of the globe adjacent to the bulbous part thereof, and means for detachably securing the sleeve to the lamp, substantially as and for the purpose set forth.

2. The combination with the globe of an incandescent electric lamp having an annular enlargement at or near its base end forming an internal annular seat, of a disk with a washer embracing its edge and lying against the upper and lower faces thereof adjacent to the edge seated in said annular seat, a radially-expansible threaded metallic sleeve contracted at its lower end, the normal diameter thereof at its upper end being such as to closely embrace said annular enlargement and the normal diameter at its lower end being such as to embrace a part of the bulb of corresponding dimensions which sleeve is detachably secured to the neck and serves to clamp said disk in the annular seat in the neck, substantially as and for the purpose set forth.

3. The combination with the globe of an incandescent electric lamp, of a closing-washer applied to the open end of the neck thereof, a closing-disk bearing upon the washer, a radially-expansible metallic sleeve adapted to be slipped endwise over the neck without rotation and to be pressed

down to clamp the disk and means applied to the sleeve below its upper end for detachably clamping it in position, substantially as and for the purpose set forth.

4. The combination with the globe of an incandescent electric lamp having an annular sleeve-retaining portion contiguous to the bulbous part of the globe, of a disk and washer hermetically closing the open base end of the neck and a threaded metallic sleeve enveloping the neck and clamping the disk in position and having at its lower end a portion to engage the sleeve-retaining portion of the bulb, and means for detachably securing such lower end of the sleeve to such part of the bulb, substantially as and for the purpose set forth.

5. The combination of an electric incandescent lamp-globe of the longitudinally-slotted metallic sleeve, and the conductor fused in the side of the neck of the lamp, extending into the slot of the sleeve and electrically connected with the sleeve opposite or adjacent to the point where it passes through the neck.

6. The combination with the globe of an electric incandescent lamp having a shoulder, *a'*, within the neck thereof, of a button of insulating material carrying conductors to which the terminals of the filaments are connected and having exposed heads or ends at the top of the button, a disk closing hermetically the end of the neck and carrying a conductor, which is detachably electrically connected at its inner end to one of the ends of the conductor exposed at the top of the button and at its outer end is connected to a conductor forming one terminal of the lamp, another conductor extending through and fused in the neck of the lamp and electrically connected to the end of the remaining conductor exposed at the top of the button, and the threaded metallic sleeve surrounding the neck of the lamp and to which the conductor fused in the neck thereof is electrically connected.

7. The combination with the globe of an electric incandescent lamp having an annular shoulder within the neck thereof, of a button of non-conducting material seated on said shoulder and carrying conductors to the lower ends of which the terminals of the filament are connected, and the upper ends of which are exposed at the top of the button, a disk hermetically closing the neck of the lamp and carrying a conductor, one end of which bears against one of the conductors exposed at the top of the button and the other end of which is attached to an externally-exposed metallic part constituting one terminal of the lamp, a conductor passing through and fused in the side of the neck of the lamp and having its inner end electrically connected to the other conductor exposed at the top of the button, a detachable threaded metallic sleeve surrounding the neck of the lamp to which the other end of the conductor fused in the neck of the lamp is electrically connected.

8. The combination with the globe of an electric incandescent lamp of a detachable threaded metallic sleeve surrounding the neck thereof so that the neck of the lamp may be cut for the renewal of the filament, and a sleeve of suitable material located within the neck of the lamp and serving as a guide and support when the edges of the severed neck are reunited by fusion.

9. An electric incandescent lamp comprising a globe with a neck, a metallic sleeve enveloping the neck, a button of insulating material seated within the neck adjacent to its bulbous portion, conductors carried by this button to which the terminals of the filament are connected, and detachably connected to said conductors two other conductors, one passing through the wall of the lamp and electrically connected to the metallic sleeve, and the other also passing through the wall of the lamp and electrically connected to an external contact at the base end of the lamp.

10. An electric incandescent lamp comprising a globe with a neck, a metallic sleeve enveloping the neck, a button of insulating material seated within the neck adjacent to its bulbous portion, conductors carried by this button to which the terminals of the filament are connected, and detachably connected to said conductors two other conductors, one passing through the glass side wall of the neck of the lamp and electrically connected to the metallic sleeve, and detachably connected to one of said first-named conductors, and the other also passing through the wall of the lamp and electrically connected to an external contact at the base end of the lamp and to the other of said first-named conductors.

11. The combination with the globe of an electric incandescent lamp, of a button located within the neck thereof and adjacent to its bulbous portion, conductors carried by this button and each formed as a clamp or tweezers to grasp the terminals of the filament, and other conductors passing through the walls of the lamp, detachably electrically connected with the first-named conductors, and one of which is electrically connected with an external contact at the end of the lamp forming one terminal thereof and the other of which is electrically connected to a metallic threaded sleeve enveloping the neck of the lamp and detachably connected therewith.

12. The combination with the globe of an electric incandescent lamp, of a button of insulating material seated in the neck thereof adjacent to its bulbous portion, two conductors carried by this button to the lower ends of which the terminals of the filament are connected, and the upper ends of which are exposed at the top of the button, a metallic sleeve to which one of said conductors is electrically connected by a conductor passing through the wall of the lamp, and another conductor electrically connected to the other lamp-terminal and formed as a spring that bears upon the second of the first-named conductors and holds the button in place, the metal sleeve being detachably connected with the neck of the lamp to permit of its removal so that the neck of the lamp may be severed and reunited by fusion after the replacement of the filament.

13. The combination with the globe of an incandescent electric lamp, of a closing-washer applied to the open end of the neck thereof, a closing-disk bearing upon the washer, a metallic sleeve adapted to be slipped endwise over the neck without rotation and to be pressed down to clamp the disk and means applied to the sleeve below its upper end for detachably clamping it in position, substantially as and for the purpose set forth.

659,688. GRASS-SEEDER. NELSON MCPHERSON, Silverdale Station, Canada. Filed July 23, 1900. Serial No. 24,555. (No model.)



Claim.—1. The combination with a seed-bag having an opening at the bottom, of a tube extending through such opening and provided at the discharge end with a series of inwardly-extending deflecting-fingers as and for the purpose specified.

2. The combination with the tube having a circle of deflecting-fingers extending inwardly into the tube at one end, of a funnel extending outwardly from the opposite end as and for the purpose specified.

3. The combination with the tube having a circle of deflecting-fingers extending inwardly into the tube at one end, of a funnel extending outwardly from the opposite end and having a tubular portion extending into the feed end of the tube and means in such portion for regulating the feed as and for the purpose specified.

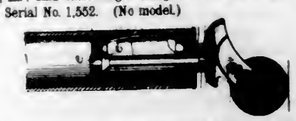
4. The combination with the tube having a circle of deflecting-fingers extending inwardly into the tube at one end, of a funnel extending outwardly from the opposite end and having a tubular portion extending into the feed end of the tube provided with a closing-plate having an opening in the same and a supplemental plate having a similar-sized opening to the closing-plate and rotatably held on same and clamped in position by a bolt and nut as and for the purpose specified.

5. A seeder comprising a tube having a series of inwardly-deflecting fingers extending into the tube and having the points of the fingers forward of the base and arranged in a circle as and for the purpose specified.

6. A seeder comprising a tube having a series of inwardly-deflecting fingers extending into the tube and having the points of the fingers forward of the base and arranged in a circle, such fingers being formed or stamped out of the tube as and for the purpose specified.

7. The combination with the tube having a circle of deflecting-fingers extending inwardly into the tube at one end, of a funnel extending outwardly from the opposite end and having a tubular portion extending into the feed end of the tube provided with a closing-plate having an opening in the same and a supplemental plate having a similar-sized opening to the closing-plate and rotatably held on same as and for the purpose specified.

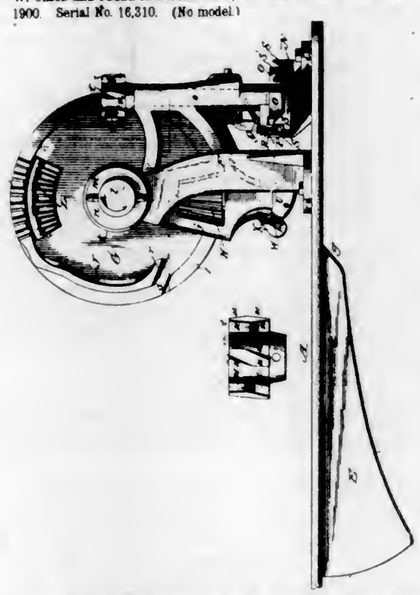
659,689. CASTER. DAVID NICKEL and EDWARD W WAINWRIGHT, Morris, Ill.; said Wainwright assignor to said Nickel. Filed Jan. 15, 1900. Serial No. 1,552. (No model.)



Claim.—1. In a caster, the combination of a caster-wheel, a bracket or support for the wheel, a pin or pintle carrying the bracket or support and having a shoulder and neck at its upper end, a retaining or binding spring through the top of which the neck of the pin or pintle passes leaving the depending sides contractible and expansible longitudinally for entering the caster and retaining it in place, an upper disk or plate encircling the pintle-neck and between which and the pin or pintle shoulder the spring is secured and held in place, with the pin or pintle free to turn and a lateral support for the pin or pintle at its lower end, substantially as described.

2. In a caster, the combination of a caster-wheel, a bracket or support for the wheel, a pin or pintle carrying the bracket or support and having a shoulder and neck at its upper end, a retaining or binding spring through the center of which the neck of the pin or pintle passes leaving the depending sides contractible and expansible longitudinally, an upper disk or plate encircling the pin or pintle neck and between which and the pin or pintle shoulder the spring is centrally secured, and a lower disk or plate encircling the lower portion of the pin or pintle and forming with the upper disk or plate and the depending sides of the spring, a guide for centering and holding the caster in place, substantially as described.

659,690. CORD-KNOTTING DEVICE FOR GRAIN-BINDERS. OLE W. OLSON and PETER A. MYLLENBECK, Ruthton, Minn. Filed May 11, 1900. Serial No. 16,310. (No model.)

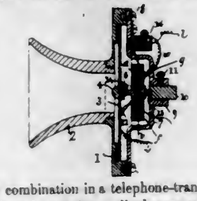


Claim.—1. A cord-knotting device for grain-binders comprising a breastplate, a frame constructed with a horizontal tubular bearing, an upright tubular bearing, and an upright housing, a disk-shaft mounted in the horizontal tubular bearing, a disk having a segmental rack, a segmental holding-flange extending from one end of the segmental rack, a segmental cam extending from the other end of the segmental rack, and having an inwardly-projecting extension providing a tooth space or passage between the extension and the adjacent end of the segmental holding-flange, a gripper-shaft mounted in the upright tubular bearing, a pinion secured to the upper end of the gripper-shaft between the teeth of which the extension, segmental cam, segmental holding-flange, and a part of the segmental rack are adapted to travel, a gripper secured to the lower end of the gripper-shaft, having concentric segmental ribs, between which the cord travels, a grooved guide-shoe through which the concentric segmental ribs travel, and a knotter-shaft, mounted in the housing and having a pinion with which the segmental rack engages.

2. A cord-knotting device for grain-binders comprising a breastplate, a frame constructed with a horizontal tubular bearing, an upright tubular bearing, and an upright housing, a disk-shaft mounted in the horizontal tubular bearing, a disk having a segmental rack, a segmental holding-flange extending from one end of the segmental rack, a segmental cam extending from the other end of the segmental rack, and having an inwardly-projecting extension providing a tooth space or passage between the extension and the adjacent end of the segmental holding-flange, a gripper-shaft mounted in the upright tubular bearing, a pinion secured to the upper end of the gripper-shaft between the teeth of which the extension, segmental cam, segmental holding-flange, and a part of the segmental rack are adapted to travel, a gripper secured to the lower end of the gripper-shaft, having concentric segmental ribs, between which the cord travels, and a series of peripheral blades, an adjustable knife against which the blades sever the cord, a grooved guide-shoe through which the concentric segmental ribs travel, and a knotter-shaft mounted in the housing and having a pinion with which the segmental rack engages.

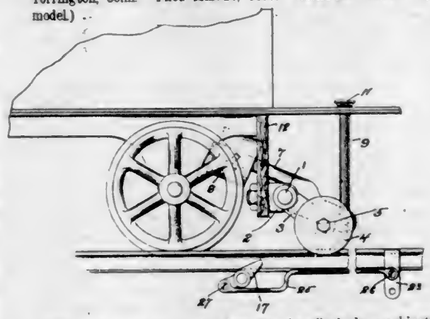
3. A cord-knotting device for grain-binders comprising a breastplate, a frame constructed with a horizontal tubular bearing, an upright tubular bearing, and an upright housing, a disk-shaft mounted in the horizontal tubular bearing, a disk having a segmental rack, provided with a dividing-groove through which the teeth of the gripper-pinion pass, a segmental holding-flange extending from one end of the segmental rack, a segmental cam extending from the other end of the segmental rack, and having an inwardly-projecting extension providing a tooth space or passage between the extension and the adjacent end of the segmental holding-flange, a gripper-shaft mounted in the upright tubular bearing, a pinion secured to the upper end of the gripper-shaft between the teeth of which the extension, segmental cam, segmental holding-flange, and a part of the segmental rack are adapted to travel, a gripper secured to the lower end of the gripper-shaft, having concentric segmental ribs, between which the cord travels, a grooved guide-shoe through which the concentric segmental ribs travel, and a knotter-shaft, mounted in the housing and having a pinion with which the segmental rack engages.

659,691. TELEPHONE-TRANSMITTER. GEORGE B. PERKINS, Medford, Mass. Filed Jan. 16, 1900. Serial No. 1,642. (No model.)



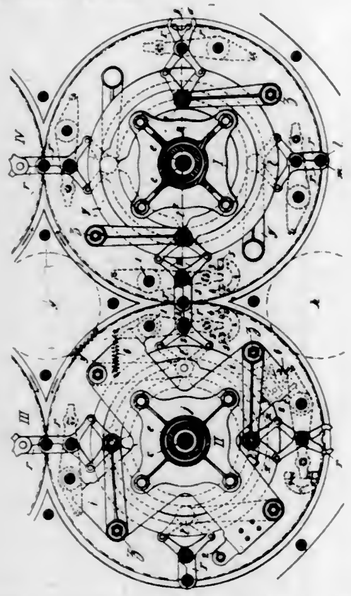
Claim.—The combination in a telephone-transmitter of a flat circular metal frame hollowed out to form a diaphragm-seat; a diaphragm having a bearing at its center, consisting of a pin whose shank extends through the diaphragm and is secured by a nut; a bridge extending across the rear of the frame and having an adjustable bearing and tension-regulator centrally thereof: with a button suspended between the said bearings, consisting of two thin metal disk electrodes with outwardly-projecting spindles, and faced with carbon plates, separated by and cemented to a porous resilient annulus having smooth faces, the said annulus containing granulated carbon in a loose and free state, as set forth.

659,692. SWITCH-OPERATING DEVICE. HENRY B. PIERCE, Torrington, Conn. Filed Mar. 27, 1899. Serial No. 710,567. (No model.)



Claim.—In a device of the character described, the combination with the switch-tongue; of mechanism for actuating the same, which mechanism comprises a rock-shaft 16; a cam 19 fixed thereto having an engagement with the said tongue; a trip-lever 17 fixed to said shaft and projecting upwardly by the side of the car-rail and having a downwardly-projecting arm; a pivotally-mounted release-lever 23; a connection-rod 25 joining said release-lever with the downwardly-projecting arm upon said trip-lever; and a spring 28 for moving said tongue in one direction; and mechanism for actuating said switch-tongue mechanism, which mechanism comprises a rock-shaft 1; a trip-arm 3 fixed thereto; a trip-wheel 4 adapted to move in the path of the said trip-lever 17 and release-lever 23; a rock-lever 7 and pressure-rod 9, all constructed and operating substantially described.

659,693. ROTARY TRANSPORTING DEVICE. GASTON POSSIEN and FRÉDÉRIC V. MAQUAIRE, Paris, France. Filed Aug. 2, 1899. Serial No. 725,837. (No model.)



Claim.—1. In a device of the character specified, the combination of a plurality of rotatable carriers, grasping devices carried by said carriers, an object having a stem that is adapted to be engaged by the grasping devices and means for automatically actuating said grasping devices to release one grasping device when another has been operated to grasp the object, whereby the object is caused to move continuously from one grasping device to another and in a curvilinear path of varying direction.

2. In a device of the character specified, the combination of a plurality of coöperating rotary carriers, means for rotating all of said carriers at the same rate of speed, a grasping device carried by each of said carriers, a two-part object one part of which is adapted to be engaged by each of said grasping devices and to prevent a movement of the portion of the object grasped by the grasping device with relation to the carrier and means independent of the carriers for automatically actuating one grasping device when another grasping device has been operated to grasp the object, whereby the object is caused to be moved by said grasping devices continuously from one grasping device to another and in a curvilinear path of varying direction.

3. In a device of the character specified, the combination of a plurality of coöperating rotatable carriers grasping devices carried by said carriers, an object-carrying device adapted to be grasped by the grasping devices, an object carried by the said object-carrying device and movable independently thereof and means independent of the carriers for automatically releasing one grasping device when another has been operated to grasp the object-carrying device, whereby the object is caused to be successively grasped by the grasping devices and to move continuously from one grasping device to another and caused by the grasping devices to move in a curvilinear path of varying directions and to permit a movement of the object in a direction different from that produced by the carriers.

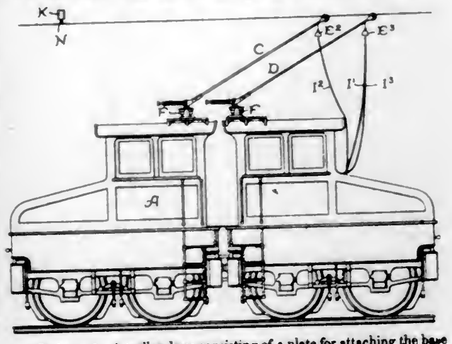
4. In a device of the character specified, the combination of a plurality of rotatable carriers, grasping devices carried by said carriers, an object-carrying device adapted to be grasped by the grasping devices, an object carried by the said object-carrying device and movable independently thereof, a cam-track upon which an extension of the object is adapted to bear in order to support the object and means independent of the carriers for automatically actuating the carriers to release one grasping device when another has been operated to grasp the object-carrying device, whereby the object is moved continuously from one grasping device to another and caused by said devices to move in a curvilinear path of varying directions and in a direction at right angles to the plane of movement of the carriers in a curvilinear path.

5. In a device of the character specified, the combination of a plurality of rotatable coöperating carriers, means for rotating said carriers, a gripping device carried by each of said carriers, the carriers being so related that the path of movement of the gripping device of one carrier intersects with the path of movement of the gripping device of another carrier, a spindle adapted to be grasped by the gripping devices, an object carried by and movable independently of said spindle, means for automatically releasing the gripping device of one carrier when said gripping device is coincident with the gripping device of another carrier and for automatically operating said second-named gripping device to grasp the spindle when the first-named gripping device has released it and means for automatically turning the object on the spindle during the translation of said spindle.

6. In a device of the character specified, the combination of a plurality of rotatable coöperating carriers, means for rotating said carriers and gripping devices carried by each of said carriers, the carriers being so related that the path of movement of the gripping device of one carrier intersects with the path of movement of the gripping device of another carrier, a spindle adapted to be grasped by the gripping devices, an object carried by and movable independently of said spindle, means for automatically releasing the gripping device of one carrier when said gripping device is coincident with the gripping device of another carrier and for automatically operating said second-named gripping device to grasp the spindle when the first-named gripping device has released it, means for automatically turning the object on the spindle during the translation of said spindle and means for automatically moving said object independently of its spindle in a vertical direction.

7. In a device of the character specified, the combination of a plurality of rotatable coöperating carriers, means for rotating said carriers and gripping devices carried by each of said carriers, the carriers being so related that the path of movement of the gripping device of one carrier intersects with the path of movement of the gripping device of another carrier, a spindle adapted to be grasped by the gripping devices, an object-supporting rod carried by and movable independently of said spindle, a lateral projection extending from said rod, a cam-track which coöperates with said lateral extension to effect a turning of the object with relation to the spindle, means for automatically releasing the gripping device of one carrier when said gripping device is coincident with the gripping device of another carrier and for automatically operating said second-named gripping device to grasp the spindle when the first-named gripping device has released it, a cam-track which supports the object-supporting rod and which automatically moves the object in a vertical direction without affecting the turning and curvilinear movement thereof.

659,694. HIGH-POTENTIAL TROLLEY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 11, 1898. Serial No. 666,328. (No model.)



Claim.—1. A trolley-base consisting of a plate for attaching the base to the car, a second plate carrying the trolley, and a body or bodies of insulating material separating the plates.

2. The combination, with a trolley-pole, of a conducting-cord, grounded at one end, and attached to and insulated from the pole at the other.

3. The combination, with a trolley-pole, of a conductor insulated from, but attached to the trolley-pole at one end, and grounded at the other.

4. The combination with a trolley-pole, of a grounded conducting-cord.

5. The combination with a trolley-pole, of a grounded conducting-cord connected to but insulated from the pole.

6. A trolley-base consisting of a base-plate, a cap-plate and insulators carried by the base-plate and supporting the cap-plate.

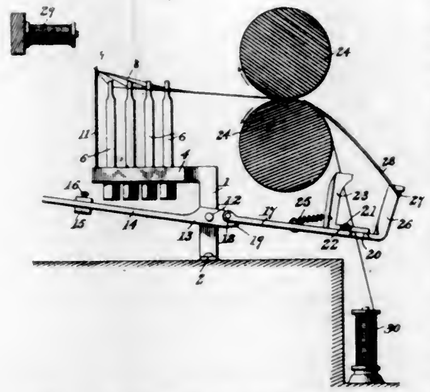
7. A trolley-base consisting of a base-plate, a cap-plate and petticoated insulators carried by the base-plate and supporting the cap-plate.

8. As an article of manufacture, a trolley-base consisting of a base-plate, a cap-plate and insulating material interposed between said plates and through the medium of which the said plates are secured together.

9. The combination of a trolley-pole, a conducting-cord carried by the trolley-pole, and a water-shedding device interposed between the cord and the pole.

10. The combination of a trolley-pole with an insulated conducting-cord.

659,695. DOUBLING-MACHINE. WILLIAM H. RAMSEUR and DAVID W. RAMSEY, Charlotte, N. C. Filed Dec. 18, 1899. Serial No. 740,750. (No model.)



Claim.—1. The combination with drawing-rolls of a thread-doubling machine, of a normally-inactive cutter, thread-sustained devices for giving an initial movement to said cutter, roll-actuated means operable to move the cutter subsequent to said initial impulse, and means for positively operating the cutter during the period of its supplemental movement, as set forth.

2. The combination with drawing-rolls of a thread-doubling machine, of a swinging cutter-carrying member, a normally-inactive cutter on said member, roll-actuated means connected with said swinging member, thread-sustained devices operable to initially move the member and bring the roll-actuated means into service for giving a supplemental movement to the member, and means for operating the cutter positively, as set forth.

3. The combination with a series of thread-sustained members, and drawing-rolls, of a jointed lever having an arm in the path of the members, a normally-inactive cutter mechanism on the other arm of the lever, means actuated by the drawing-rolls for giving a supplemental movement to the cutter mechanism subsequent to the impulse given thereto by a member engaging the lever, and means for actuating the cutter automatically during the period of movement due to the impulse of the roll-actuated means.

4. The combination with a series of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of said slides, a cutter operatively connected with said lever, and a pull-strap operatively associated with said lever and adapted to be operated upon by the opposing rolls.

5. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, a thread-cutter operatively connected with said lever and a flexible pull-strap connected to the lever and having its opposite end arranged adjacent to the guide-rolls of the machine.

6. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, a thread-cutter operatively connected with said lever, and means interposed between said lever and the guide-rolls for acting on the lever and throwing the cutter into operation.

7. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, a thread-cutter movable with said lever, means for counterpoising the lever, a hold-off spring connected to said cutter, and means in the path of the cutter to actuate the latter on the movement of the lever.

8. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, a pivoted lever-arm connected thereto, a cutter carried by said arm, and cutter-operating means actuated by the guide-rolls upon the breakage of the thread, substantially as described.

9. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, a pivoted arm connected to the lever by a knuckle-joint, a cutter carried by said arm, and means adapted to be operated upon by the guide-rolls for vibrating the lever-arm and operating the cutter.

10. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides, an arm having a jointed connection with the lever, a thread-cutter carried by the arm, means for counterpoising the lever against the weight of the arm and the cutter, and means for moving the arm and the cutter subsequently to the movement of the lever under the impulse of one of the slides.

11. The combination with a plurality of gravity-slides normally upheld by the threads of a doubling-machine, of a lever arranged in the path of the slides and provided at its extremity with a projecting finger, a pull-strap connected to said finger and having its extremity arranged to be operated upon by the guide-rolls, and the thread-cutter carried by said lever.

12. The combination of a table, a plurality of gravity-slides guided by the table and normally upheld by the threads of a doubling-machine, a counterpoised lever arranged in the path of the slides, a thread-cutter carried by said lever, means for automatically throwing the cutter into operative position on its movement with the lever, and a collecting-guide fixed to the table and arranged between the supply-spools and the gravity-slides.

13. The combination with drawing-rolls, and thread-sustained members, of a jointed lever having one of its arms provided with a cutter edge, a movable knife fitted to said lever-arm and provided with a finger arranged to impinge one of the rolls, and a retractor for the knife, substantially as described.

14. The combination with drawing-rolls, and thread-sustained members, of a lever having an arm jointed thereto for limited independent movement, a thread-cutter having its fixed and movable members carried by said jointed lever-arm, a finger on the movable cutter member, a retractor for said movable cutter member, and means for giving movement to the jointed arm and the thread-cutter subsequent to the movement of the lever under the action of one thread-sustained member.

659,696. FOUNTAIN-PEN. CARL J. RENZ, New York, N. Y. Filed Aug. 24, 1899. Serial No. 728,306. (No model.)



Claim.—1. In a fountain-pen, an internally-threaded barrel, an externally-threaded piston-stem, a piston on said stem, and a key mounted to rotate on the barrel and with which the end of the piston-stem has a sliding engagement, substantially as and for the purpose set forth.

2. The combination, with an internally-threaded barrel, of an exteriorly-threaded piston-stem, a piston on the stem, a pen-support carried by the stem, a key for operating the stem, mounted upon the barrel, and a detachable connection between the key and stem.

3. A pen barrel and nozzle, a piston having rotary and end movement in the barrel, means whereby the piston may be moved and a pen-support connected with the said piston and moving in the nozzle when the piston is operated.

4. In a fountain-pen, a barrel, a piston therein, a pen-support connected with the piston, a key forming a portion of the barrel and mounted to rotate thereon, means for connecting the key loosely with the piston to rotate the same, and means for causing the piston to advance as a result of its rotation.

5. In a fountain-pen, a barrel, a pen-support movably mounted in one end of the barrel, an ink-controlling mechanism connected with the pen-support, a key mounted to rotate on the barrel and loosely connected with the ink-controlling mechanism for rotating the same, and means

whereby the ink-controlling mechanism will be advanced when rotated, substantially as described.

6. In a fountain-pen, a barrel, a stem provided with a plunger longitudinally adjustable in the said barrel, a pen-support connected with the stem, a surface of the pen-support being arranged to close the said nozzle, a key constituting a portion of the barrel, a connection between the key and the stem and means whereby the plunger is adjusted when the key is operated.

7. In a fountain-pen, the combination, with a barrel interiorly threaded, a pen nozzle or socket, and a socketed key constituting one end of the barrel and mounted to turn on the body of the barrel, of a stem one end of which is capable of entering said key, the said stem being provided with an exteriorly-threaded surface adapted for engagement with the interiorly-threaded surface of the barrel, a piston carried by said stem, and a pen-support connected with said stem, and having movement in said pen socket or nozzle, a surface of the pen-support being adapted to close said nozzle.

8. In a fountain-pen, a barrel, a removable pen socket or nozzle at one end of the barrel, a pen-support movable in the socket or nozzle, a piston having a screw-threaded connection with the barrel, a stem connecting the piston and pen-support, and provided with lateral projections for engaging the end of the socket or nozzle, and a key mounted to rotate on the barrel and detachably connected with the said stem, substantially as described.

9. The combination with a pen-support, of a metal feed consisting of a wire rod of suitable gage secured at one of its ends to the outer surface of the said support and projecting beyond the outer end of the said support, said wire rod having its outer end curved to engage with the pen, the body of the rod or feed lying approximately parallel with and adjacent to one face of the pen, as described.

10. In a fountain-pen, a screw-threaded barrel, a screw-threaded piston in the barrel, a key for operating the piston, said key consisting of a body held to turn on the barrel and having a chamber polygonal in cross-section and an exterior annular flange, and a sleeve having an internal shoulder adapted to bear against the upper surface of the flange of the body of the key, and an interior thread below the said shoulder, whereby the said sleeve may be screwed upon the barrel to hold the body of the key in place and at the same time permit the said key to be readily turned in its seat, as set forth.

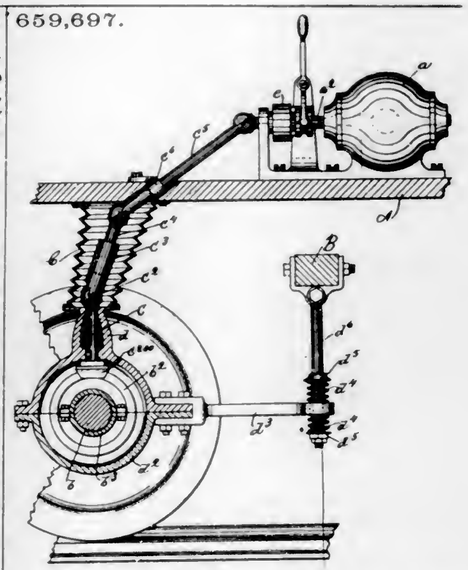
11. In a fountain-pen, the combination with a screw-threaded barrel, of a screw-threaded piston in the barrel, a stem, to which the piston is secured, the upper end of the stem being polygonal, and a key mounted to turn on the barrel and provided with a socket corresponding in shape to the shape of the end of the piston-stem and in which the end of the stem loosely fits, substantially as described.

12. In a fountain-pen, the combination with a barrel, and a socket or nozzle formed with a valve-seat, of a pen-supporting head adapted to be seated on said seat, a piston, a piston-stem on which the piston is secured, one end of the piston-stem being secured to the pen-head, and means whereby the piston and pen-head may be moved, substantially as described.

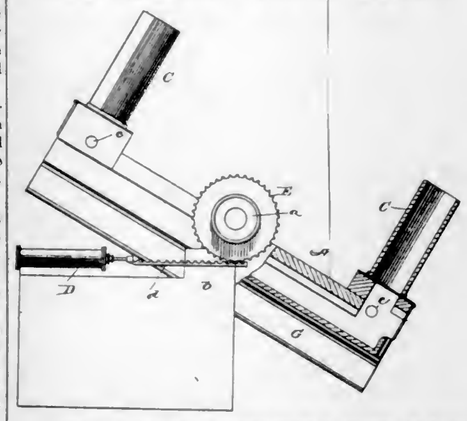
13. A fountain-pen, comprising a barrel, a socket or nozzle at one end of the barrel and formed with a valve-seat, a pen-supporting head formed with a conical surface and adapted to be seated on said seat, a piston-stem secured to the pen-head, a piston secured on the stem, and means whereby the piston-stem may be moved longitudinally, substantially as described.

14. A fountain-pen, comprising a barrel, a nozzle at one end of the barrel and having a valve-seat, a pen-supporting head formed with a valve, a piston-stem secured to the pen-head, a piston secured on the stem, means whereby the stem will be moved longitudinally when turned, and a key mounted to turn on the barrel and provided with a socket to receive an end of the piston-stem, substantially as described.

659,697.



659,698. PROCESS OF PUDDLING IRON. JAMES P. ROE, Pottstown, Pa. Filed Mar. 13, 1900. Serial No. 8,551. (No specimens.)



Claim.—The hereinbefore-described process of puddling iron which consists in causing a mixed charge of molten cast-iron and cinder to flow back and forth in the presence of hot gases and abruptly arresting the flow of the charge before each change in direction until the iron comes to nature, and then continuing the back-and-forth movement and abrupt stoppages of the charge until the particles of purified iron are compressed and solidified into a mass.

659,697. POWER-TRANSMITTING MECHANISM. CHARLES W. RICHARDS and WINTHROP M. CHAPMAN, Needham, Mass. Filed Aug. 17, 1899. Serial No. 727,492. (No model.)

Claim.—1. The combination with a dynamo supported on the body of a car; of gearing supported by and driven from the car-axle; a gear-case also supported upon the car-axle and affording a bearing for the driven member of said gearing; and shafting provided with universal and slip joints connecting said gearing with said dynamo substantially as described.

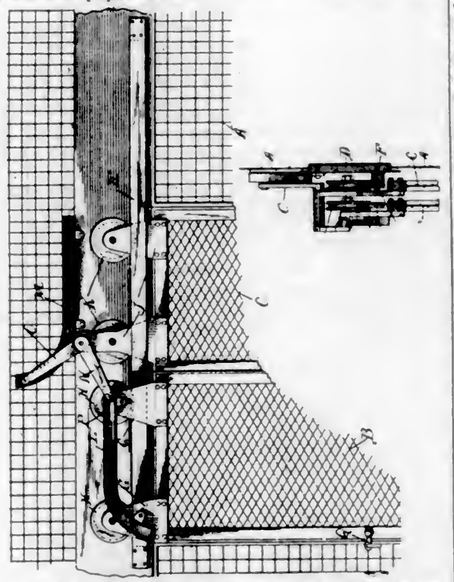
2. The combination with a dynamo supported on the body of a car; of gearing supported by and driven from the car-axle; a gear-case also supported upon the car-axle and affording a bearing for the driven member of said gearing; shafting provided with universal and slip joints connecting said gearing with said dynamo; and a flexible casing for said joints and shafting, substantially as described.

659,699. DOOR MECHANISM. HAROLD ROWNTREE, Chicago, Ill. Filed Jan. 29, 1900. Serial No. 3,077. (No model.)

Claim.—1. In a door mechanism, a slidable door composed of sections, in combination with means controlled by the movement of one section toward open position for gradually picking up the next adjacent section as said first section approaches a position coinciding with that of said adjacent section, as and for the purpose set forth.

2. In a door mechanism, a slidable door composed of sections, in combination with means controlled by the movement of one section toward open position for effecting a gradually-increasing movement of the next adjacent section until said sections are in approximately-coinciding positions, and thereafter causing said adjacent section to move in unison with said first section, as and for the purpose set forth.

3. In a door mechanism, a slidable door composed of sections, and means controlled by the movement of the door toward closed position for causing the sections to travel in unison until each section approaches its own normal position, said means operating to automatically stop said sections successively when they respectively arrive at their normal position, as and for the purpose set forth.



4. In a door mechanism, the combination with a slidable door composed of sections, of means controlled by one section when moved toward open position for locking the adjacent section against movement, said means operating to release said lock and cause said sections to move in unison when they arrive in coinciding position, as and for the purpose set forth.

5. In a door mechanism, a slidable door composed of sections, one of said sections being free to move until approximately opposite the adjacent section, said adjacent section being meanwhile locked, means controlled by the movement of said movable section and operating to release the adjacent section and cause the same to commence to move in the same direction with the first section when said first section approaches nearly opposite said adjacent section, said adjacent section increasing its speed until finally it travels in unison with the first section, as and for the purpose set forth.

6. In a door mechanism, the combination with a door composed of slidable sections which when the door is open will cover no more than the amount normally covered by one of them, and means controlled by the movement of one section toward open position for gradually picking up the next adjacent section in passing, as and for the purpose set forth.

7. In a door mechanism, the combination of a door composed of sections which when the door is open will cover no more than the amount normally covered by one of them, and means controlled by the movement of one section toward closed position for locking the same to the adjoining section, said means operating to automatically detach said adjoining section when it arrives at its normally-closed position, whereby the first section may continue its movement to its closed position, as and for the purpose set forth.

8. In a door mechanism, the combination of a door composed of sections which when the door is open will cover no more than the amount normally covered by one of them, and means controlled by the movement of one section toward open position for picking up the adjoining section while passing the latter, said means operating to detach said section in its normal position in closing, as and for the purpose set forth.

9. In a door mechanism, the combination with a door composed of sections which when the door is open will cover no more than the amount normally covered by one of them, and means controlled by the movement of one section toward open position for picking up the adjacent section while passing the latter, said means operating to gradually increase the speed movement of said picked-up section until it acquires the full speed of the first section, as and for the purpose set forth.

10. In a door mechanism, the combination of a door composed of sections which when the door is open will cover no more than the amount normally covered by one of them, and means controlled by the movement of one section toward closed position for locking the adjacent section to move therewith until said doors respectively approach their normally-closed positions, said means operating to gradually decrease the speed of movement of the adjacent section, and finally to cause the same to be detached, whereby said adjacent section will be stopped in its normally-closed position, while the first section continues its movement to its normally-closed position, as and for the purpose set forth.

11. In a door mechanism, a door composed of sections, and means for supporting the same, in combination with a track connected to one of said sections, a stationary track, and means carried by the other of said sections, arranged to engage said tracks, as and for the purpose set forth.

12. In a door mechanism, a door composed of sections, a track carried by one of said sections, a bell-crank lever connected to the other of said sections, one arm of said lever engaging said track, and a coöperating stationary track arranged to be engaged by the other arm of said lever, as and for the purpose set forth.

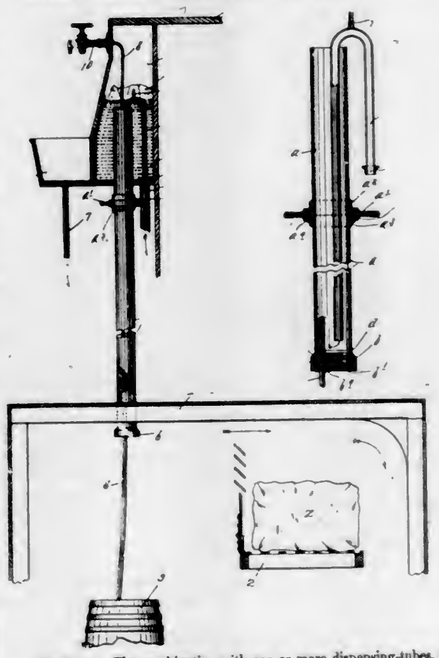
13. In a door mechanism, a door composed of sections, tracks, each having a rectilineal portion and a curved portion, one of said tracks being stationary and the other connected to one of said door-sections, and devices connected to the other of said door-sections arranged to engage said tracks, as and for the purpose set forth.

14. In a door mechanism, a door composed of sections, tracks, each having a rectilineal portion and a curved end portion, one of said tracks being stationary and the other connected to one of said door-sections, and a bell-crank lever connected to the other of said door-sections, having its arms respectively arranged to engage said tracks, as and for the purpose set forth.

15. In a door mechanism, a door composed of sections, grooved tracks, each having a rectilineal portion and a curved portion, one of said tracks being stationary and the other connected to one of said door-sections, and a bell-crank lever connected to the other of said door-sections, and having its arms respectively arranged to operate in the grooves of said tracks, as and for the purpose set forth.

16. In a door mechanism, a door composed of sections, a track connected to one of said sections, said track having a rectilineal portion and a downwardly-curved end portion, a stationary track having a rectilineal portion and an upwardly-curved end portion, and devices carried by the other of said door-sections arranged to engage said tracks, as and for the purpose set forth.

659,700. BEER-COOLER. JOHN A. SANDELL, Minneapolis, Minn. Filed Sept. 14, 1899. Serial No. 730,400. (No model.)



Claim.—1. The combination with one or more dispensing-tubes, of a cooling vessel adapted to contain the water or cooling medium through which said dispensing-tube is passed, and a siphon-like overflow-pipe extended from a point at or near the bottom of said vessel, first upward to

determine the level of the water, and then downward to a suitable point of discharge, the said overflow-pipe being provided at its upper bowed portion with a vent or air hole that is normally left open, substantially as described.

2. The combination with the ice-box 4, of the cooling column or stack *a* depending therefrom, the siphon-like overflow-pipe *f*, extended from at or near the bottom of said column upward through the same and then downward to a suitable point of discharge, said overflow-pipe *f* having the normally-open vent f^2 at its upper portion, and one or more dispensing-tubes 8 passed longitudinally through said column *a*, substantially as described.

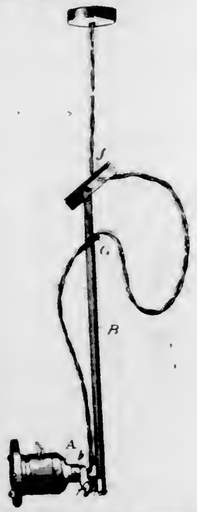
659,701. PNEUMATIC TIRE. ROBERT P. SCOTT, Cadiz, Ohio. Filed July 20, 1900. Serial No. 24,322. (No model.)



Claim.—1. An automatically-attachable pneumatic tire having primarily-flexible bands secured in its sides, and a series of catches secured to one of the bands and passing through apertures in the other band, said catches comprising a connecting-bar and a forwardly-projecting tongue in approximately-parallel planes, substantially as described.

2. An automatically-attachable pneumatic tire having primarily-flexible bands secured in its sides, a series of eyelets secured to one of the bands, and a series of catches secured to the other band and passing through the eyelets, said catches comprising a connecting-bar and a forwardly-projecting tongue in approximately parallel planes.

659,702. MEANS FOR SUSPENDING INCANDESCENT ELECTRIC LIGHTS. THEODORE SMITH, Georgetown, Ill. Filed Feb. 26, 1900. Serial No. 6,452. (No model.)



Claim.—1. In an incandescent-lamp support, the combination with a rigid member provided with means of attachment to and support by a flexible cord, of a lamp-socket connected with said rigid member by means permitting horizontal angular adjustment of the socket with reference to said rigid member.

2. In an incandescent-lamp support, the combination with a rigid member provided with means of attachment to and support by a flexible cord, of a lamp-socket connected with said rigid member by means permitting both horizontal and vertical angular adjustment of the socket with reference to said rigid member.

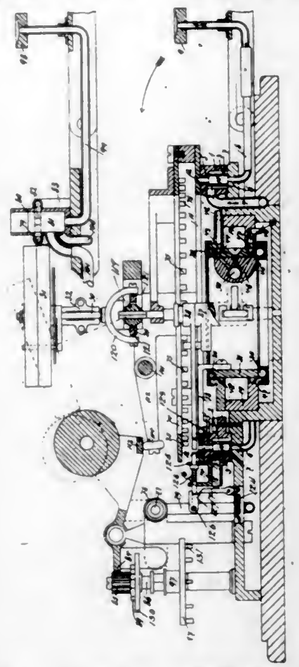
3. In an incandescent-lamp support, the combination with a rod provided at its upper end with means for attachment to and support by a flexible conducting-cord, of a lamp-socket connected with the lower end of said rod by means permitting vertical and horizontal adjustment of the socket with reference to said rod.

4. In an incandescent-lamp support, the combination with a rod, of a lamp-socket connected with the lower end of the rod by means permitting vertical and horizontal angular adjustment of the socket with reference to the rod, the upper end of the rod being provided with means for attaching it to and supporting it by a flexible conducting-cord, the lower end of which is connected with the lamp-socket, whereby slack is provided in the cord, between its point of attachment to the socket and its point of attachment to the rod.

5. In an incandescent-lamp support, the combination with a rod and a lamp-socket connected with the lower end thereof by means of a universal joint permitting vertical and horizontal angular adjustment of the socket, of a block pivoted to the upper end of the rod and formed with an oblique opening adapted to permit the passage through it of the usual conducting and supporting cord, whereby, when the rod and lamp hang freely, the block bends the conducting-cord in a short curve and thereby prevents the slipping of the block upon the cord.

6. The combination with a suspended flexible conducting-cord, of a rod passed between the strands of the cord and having its upper end connected with the cord, and a lamp-socket connected with the lower end of the rod by means of a universal joint, whereby it has vertical and horizontal angular adjustment with reference thereto, the lower end of the cord being connected with the lamp-socket in the usual manner and the cord being slack between said socket and the upper end of the rod.

659,703. PNEUMATIC TYPE-WRITER. MAXIMILIAN SOBLIK, Merxem, Belgium. Filed July 11, 1899. Serial No. 723,435. (No model.)



Claim.—1. In a type-writer, a perforated key, an air-compressor connected therewith, a type-wheel, and means for rotating the type-wheel by the compressed air when the key is closed, substantially as specified.

2. In a type-writer, a perforated key, an air-compressor connected therewith, a type-wheel, and means for rotating and inclining the type-wheel by the compressed air when the key is closed, substantially as specified.

3. In a type-writer, a perforated fixed key, an air-duct communicating therewith, a compressed-air pipe, and a piston between said pipe and the air-duct, all being so constructed that the piston is raised by the air-pressure when the perforated key is closed, substantially as specified.

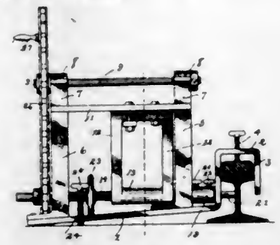
4. In a type-writer, a perforated fixed key, an air-duct communicating therewith, a compressed-air pipe, an intervening cylinder and piston, a second cylinder and piston, a compressed-air passage between the cylinders, a turbine, and releasing mechanism for the turbine which is actuated by the second piston, substantially as specified.

5. In a type-writer, a perforated key, and a compressed-air-inlet pipe combined with a turbine, actuated by the compressed air, a surrounding cylindrical case, a partition and air-ports in the working space between the turbine and the case, and a slide that traverses said space, substantially as specified.

6. In a type-writer, a perforated key, a compressed-air-inlet pipe, a turbine actuated by the compressed air, a surrounding case having compressed-air ports, a pivoted type-wheel, a cylinder and piston for oscillating the type-wheel, a fork pivoted on the turbine-shaft, and a piston actuated by the fork and adapted to admit compressed air to the cylinder, substantially as specified.

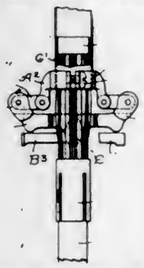
7. In a type-writer, a perforated key, a compressed-air-inlet pipe, a paper-carriage, a pair of compressed-air cylinders 78, 102, and inclosed pistons 77, 103, the cylinder 78, being in constant communication with the compressed-air inlet for advancing the carriage, and the cylinder 102, being adapted to be connected to said inlet for returning the carriage, substantially as specified.

659,704. DRILLING-MACHINE. JESSE B. SOLOMON, Jefferson, Madison County, Ohio, assignor of one-half to A. C. Milliken and T. C. Gregg, same place. Filed May 6, 1897. Renewed Aug. 17, 1900. Serial No. 27,231. (No model.)



Claim.—In a drilling-machine the combination with the parallel bars 1 having hook-shaped terminations 2, set-screws 4 passing therethrough as described, set-screws 24 passing through said bars as described, frames 5 and 6 rising from said bars, a hanger-frame depending from said frames, said hanger-frame having an internally-threaded arm 13, a shaft 9 journaled in said frames 5 and 6, and a sprocket-wheel on one end of said shaft, of a tubular feed-screw 14 passing through and engaging with the threads of the frame-arm 13, a hand-wheel on said screw, a shaft 15 passing through said screw, a sleeve connecting the outer end of said screw with a drill a smaller sprocket-wheel movably mounted on said shaft 15 and an endless chain connecting said sprocket-wheels 10 and 18, substantially as and for the purpose specified.

659,705. CLUTCH FOR ELECTRIC-ARC LAMPS. HENRY C. SPINNEY, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Apr. 4, 1898. Serial No. 676,322. (No model.)



Claim.—1. In a clutch for arc-lamps, the combination of a clamp consisting of two counterpart elements, counterpart jaws pivoted to each other each provided with angular gripping-faces, and counterpart links connecting the clamp with the jaws.

2. In a clutch for an arc-lamp, the combination of a collar which is secured to the actuating mechanism of the lamp, a pair of forked counterpart clamping-jaws loosely suspended from the collar, each fork being provided with a long and a short arm, the long arm acting to trip the clutch, and pivots passing through the long arm of one jaw and the short arm of the other jaw.

3. In a clutch for an arc-lamp, the combination of a collar which is secured to the actuating mechanism of the lamp, a pair of forked clamping-jaws suspended from the collar, two angular faces on each jaw for gripping the carbon, the faces on one jaw being adjustable laterally independent of the faces on the other jaw so that they will automatically adjust themselves to irregularities in the carbon, and means for tripping the clutch.

4. In an arc-lamp, the combination of a follower which rests on the top of the carbon pencil, and a clutch which normally gripe the carbon, but feeds it downward as it is consumed, the clutch being so arranged that it can be opened to permit the removal of the weighted follower.

5. In an arc-lamp, the combination of a follower to which the upper carbon is secured, a contact between the follower and a stationary part of the lamp, and a clutch which normally grips the carbon, but releases it when the lamp-magnet becomes weak, the arrangement of the clutch and the follower being such that under normal conditions the follower is prevented from passing through the clutch, but as soon as the clutch is manually lifted, the follower may be removed from the lamp for the purpose of retrimming.

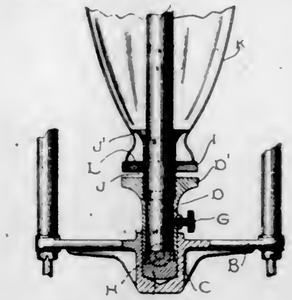
6. In an electric-arc lamp, the combination of an arc-inclosing globe, a support for the globe, a clutch for gripping the carbon, a cap for the inclosing globe, which acts as the floor of the clutch, and a releasing-arm for the clutch adapted to engage the cap to produce feed of the movable carbon.

7. In an electric-arc lamp, the combination of a chamber for the mechanism, a clutch which works directly on the carbon pencil, a frame depending from the frame of the lamp-chamber, an arc-inclosing globe supported by the frame, and a floor for the clutch, which is supported by the globe.

8. In a clutch for an arc-lamp, the combination of a pair of counterpart clutch members, each member comprising a pair of arms one of which is longer than the other and acts as a tripping device, a gripping-face between the arms, and pivotal connections between the long arm of one member and the short arm of the other member, the said connection permitting the members to move laterally with respect to each other for the purpose of adjusting themselves to irregularity in the carbon or in the alinement.

9. As an article of manufacture, a clutch member comprising a metal piece having long and short arms B^3, B^4, formed integrally therewith, with angular clamping-faces B^5, B^6, between them and extensions B^7 and B^7.

659,706. GLOBE-HOLDER. HENRY C. SPINNEY, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Mar. 23, 1899. Serial No. 710,172. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a yoke having an opening for receiving the globe-holder, a support for the yoke, and a globe-holding device which holds the globe independent of the yoke and comprises a clamp mounted in the socket and arranged to engage with the inner surface of the globe, a packing-ring, a nut for drawing the clamp into engagement with the globe so that the latter will rest on the packing-ring, and means independent of the globe-clamping nut for securing the clamp in the yoke.

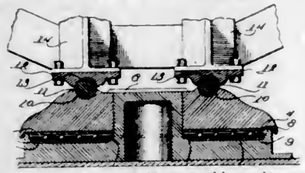
2. In an arc-lamp, the combination of a yoke having a socket, a combined carbon and globe holder mounted in the socket, means for retaining the holder in place, separate means for retaining the carbon in place, and adjustable means for clamping the globe in place.

3. In an electric-arc lamp, the combination of side rods, a yoke connecting the side rods provided with a central socket, a carbon-holder mounted in the socket and provided with an enlarged end or head and an opening, a globe-holder having an outwardly-flaring upper end arranged to engage with the inner wall of the globe and a screw-threaded lower end for entering the carbon-holder, and a nut which holds the globe against the end of the holder and also engages with the enlarged head to form a stop.

4. In an electric-arc lamp, the combination of a yoke containing a socket, a holder having a screw-threaded central opening, a screw-threaded globe-holder mounted in the opening, the globe-holder consisting of a tubular sleeve having an outwardly-flaring end which engages with the inner wall of the globe, means for forcing the end of the sleeve into en-

gagement with the globe, and other means for securing the holder in the socket.

659,707. RAILWAY TURN-TABLE. JAMES S. STEPHENS, Maywood, Ill., assignor to the Stephens & Westcott Company, same place. Filed Mar. 19, 1900. Serial No. 9,249. (No model.)



Claim.—1. A railway turn-table, comprising a base, a revoluble head mounted thereon, and a tilting platform supported on said head by a double fulcrum at independent axial points, for the purpose specified.

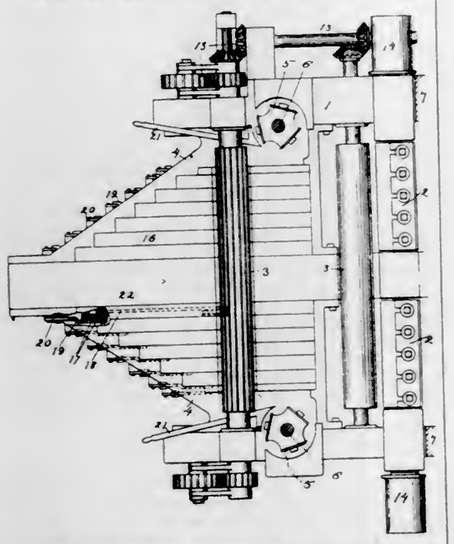
2. A railway turn-table, comprising a base, a revoluble head mounted thereon, and a tilting platform supported on said head by a double fulcrum at independent axial points, said fulcrum consisting essentially of a pair of ribs or ridges acting in depressions between the opposed surfaces of said head and platform, for the purpose specified.

3. A railway turn-table, comprising a base, a revoluble head mounted thereon, and a tilting platform, supported on said head by a double fulcrum at independent axial points, in combination with an abutment, having an inwardly-projecting ledge for limiting the tilt of said platform, substantially as described.

4. A railway turn-table comprising a base, a revoluble head mounted thereon, and a tilting platform, supported on said head by a double fulcrum at independent axial points, said fulcrum consisting essentially of two parallel sections of shafting each seated in opposed depressions in said head and platform, for the purpose specified.

5. A railway turn-table comprising a base, a revoluble head mounted thereon, a series of bearing-rollers between said base and head, and a revoluble spacing-plate having therein the spirally-arranged perforations for receiving and guiding said rollers, said spacing-plate being supported by an independent set of bearing-rollers.

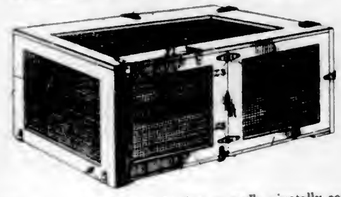
659,708. PLANER. GEORGE W. STETSON, Seattle, Wash. Filed June 29, 1900. Serial No. 22,085. (No model.)



Claim.—1. In a planer, the combination with the planer-bed and a cutter-head, of a plurality of gage devices arranged in the planer-bed and movable vertically but guided so as to maintain definite distances from the cutter-head, of lever devices supporting said gage devices and a handle connected to each lever device.

2. In a planer, the combination with the planer-bed and a cutter-head, of a plurality of gage devices arranged in the planer-bed and movable vertically but guided so as to maintain definite distances from the cutter-head, of toggle devices supporting said gage devices and a handle connected to each toggle device.

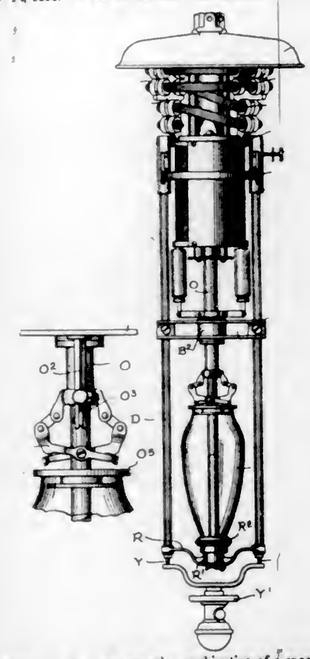
659,709. FOLDING CRATE. EDWIN W. STEVENS, Lake Carey, Pa. Filed Mar. 20, 1900. Serial No. 9,395. (No model.)



Claim.—1. A foldable crate having its walls pivotally connected, one of said walls being formed of two sections, one section being hinged to one side, means for fastening the free end to the opposite side, the other section hinged at right angles to the hinges of the first-named section and opening outwardly forming a door, and means for fastening the free end of the latter section to the meeting edge of the adjacent wall, substantially as described.

2. A foldable crate comprising the top, the bottom, the ends hinged to said top and bottom, a back hinged to the bottom and arranged to fit within the edges of the top, bottom, and ends, and a front made of two sections and arranged to fit within the edges of the top, bottom and ends, one of said sections being hinged directly to the top, and the other section being hinged to the first-named section at right angles to the hinges that unite said first section to the top, said latter section forming an outwardly-swinging door, and separate devices for individually fastening the respective sections to the bottom and ends of the crate, substantially as described.

659,710. ELECTRIC-ARC LAMP. GEORGE E. STEVENS, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Nov. 14, 1898. Serial No. 696,338. (No model.)



Claim.—1. In a magnet, the combination of a spool upon which a portion of the wire is wound, a flange for the spool having a ventilating-opening, a second spool arranged to be slipped over the first and receive a portion of the winding, and a detachable ring having a ventilating-opening which surrounds one of the flanges of the first-named spool and serves to center and retain the second spool in place, the ventilating-openings in the flange and ring communicating with each other so that a current of air can pass between the windings.

2. In an electromagnet, the combination of a spool upon which a portion of the wire is wound, a second spool arranged to receive a portion of the winding and to be slipped over the first-mentioned spool, and separated by an air-space therefrom, and a ring having an opening which communicates with the air-space, the said ring forming a part of the magnetic circuit for securing the spools in such a manner that they may be separated without disturbing the winding on either spool.

3. In an electromagnet, the combination of a pair of magnetic spool-flanges, each flange having a ventilating-opening, a tube connecting the flanges, a closed band of good conducting material which acts to damp the magnetic changes and also to separate the flanges, a coil wound on and insulated from the tube, a second coil wound on a spool which is slipped over the first, but separated from the first coil by an air-space, and magnetic material connecting the flanges of the spool and forming a part of the magnetic circuit.

4. In an electromagnet, the combination of a pair of magnetic spool-flanges, a non-magnetic tube arranged to hold the flanges together by being spun over shoulders formed on the flanges, a closed band of good conducting material for damping the effect of changes in strength of the magnet, a winding mounted on a spool and arranged to be slipped endwise over the tube and one of the flanges, a ring for retaining the spool in place, which forms a part of the magnetic circuit, and pieces of magnetic material which join one of the spool-flanges with the ring.

5. In a magnet structure, the combination of a pair of spool-flanges connected by a tube, each flange having a ventilating-opening, a spool arranged to be slipped over the first and to be separated therefrom by an air-space, and a magnetic ring for separating and centering the two spools with respect to each other.

6. In a magnet structure, the combination of a pair of spool-flanges made of magnetic material and connected by a tube of non-magnetic material, a second spool arranged to be slipped over the first and separated therefrom by an air-space, shoulders formed on the upper flange for centering the second spool, a ring for securing the second spool in place and forming a part of the magnetic circuit, lugs on the ring which engage corresponding lugs on the lower flange of the first-named spool, and strips of iron which connect one of the spool-flanges with the ring.

7. In a magnet for an electric-arc lamp, the combination of a spool-flange made of magnetic material and forming a part of the magnetic circuit and provided with ventilating-openings, a guide-plate secured to the flange for guiding the carbon-tube, a second spool-flange also made of magnetic material and provided with projections, a winding or section of winding mounted on the spool, a second spool containing a winding, arranged to be slipped endwise over the first and separated therefrom by an air-space, and a ring of magnetic material for holding the spool in place, and provided with lugs which engage with the lugs on the lower spool-flange.

8. In a magnet for an electric-arc lamp, the combination of a spool-flange made of magnetic material and forming a part of the magnetic circuit and provided with ventilating-openings, a guide-plate secured to the flange for guiding the carbon-tube, a second spool-flange also made of magnetic material and provided with projections, a winding or section of winding mounted on the spool, a second spool containing a winding, arranged to be slipped endwise over the first, and separated therefrom by an air-space, a ring of magnetic material for holding the spool in place, and provided with lugs which engage with the lugs on the lower spool-flange, and strips of magnetic material for completing the magnetic circuit.

9. In an electric-arc lamp, the combination of a support having an opening to receive the carbon, a friction-clutch mounted on the support, a globe, a globe-holder, and means for holding the globe and forcing it downward against the clutch to cause it to grip the carbon.

10. In an electric-arc lamp, the combination of a support, a friction-clutch mounted on the support, a tapered collar or ring operating the clutch, a globe, a globe-holder, and means for forcing the globe downward against the collar or ring to actuate the clutch.

11. In an electric-arc lamp, the combination of side rods, a yoke connecting the side rods, a cylindrical extension formed on the yoke, a friction-clutch for gripping the carbon, composed of separate individually-adjustable members, a ring having a conical bore arranged to fit down over the clutch members, a globe or cylinder arranged to be seated on the ring, and devices acting both to clamp the globe in place and to force it downward against the ring to actuate the clutch.

12. In an electric-arc lamp, the combination of a pair of side rods, a yoke connecting the rods, a cylindrical extension having a straight bore carried thereby, a friction-clutch composed of a number of individually-adjustable members, the members having a straight bore and a tapered periphery, a globe, a flexible medium between the globe and the clamping-nut, a clamping-nut for compressing the medium, actuating the clutch and securing the globe in place.

13. In an arc-lamp, the combination of a cylindrical extension having an opening in the bottom, a carbon-clutch mounted in the extension and composed of separately-adjustable pieces, means for causing the pieces to grip the carbon, means for causing the pieces to release the carbon, and a plate for covering up the opening in the bottom of the cylindrical extension.

14. In an electric-arc lamp, the combination of a clutch for controlling the feed of a carbon, means for tripping the clutch at the proper time, and an auxiliary support for suspending the clutch during trimming in a manner to grip the carbon, which support forms no part of the feeding mechanism.

15. In an electric-arc lamp, the combination of a carbon, means for supporting and feeding the carbon, and an auxiliary support which performs no function in the normal operation of the lamp, but is arranged to hold the carbon during trimming.

16. In an electric-arc lamp, the combination of a carbon, an auxiliary support for sustaining said carbon which is normally idle except when the lamp is retrimmed, and means for automatically moving the auxiliary support out of engagement with the carbon when current is admitted to the lamp.

17. In an electric-arc lamp, the combination of a carbon, a clutch for feeding the carbon, and an auxiliary support, which is normally idle, for engaging with and supporting the clutch in operative position when no current is flowing in the lamp.

18. In an electric-arc lamp, the combination of a carbon, a clutch for feeding the carbon, an auxiliary support, which is normally idle, for engaging with and supporting the clutch in operative position when no current is flowing in the lamp, and means for automatically removing the support from engagement with the clutch when current is admitted to the lamp.

19. In an arc-lamp, the combination of a carbon, a clutch therefor, a tripping device for the clutch, an auxiliary support for holding the clutch in operative position during the time when current is cut off from the lamp, and means for automatically releasing the clutch when current is admitted to the lamp, and permitting it to strike the tripping-floor for the purpose of regulating the length of the arc.

659,711. ELECTRIC-ARC LAMP. GEORGE E. STEVENS, Lynn, Mass., assignor to the General Electric Company, of New York. Filed May 31, 1899. Serial No. 718,797. (No model.)



Claim.—1. In an arc-lamp, a fixed guide for the movable electrode, a carbon-holder having an extension thereon, and a contact device carried thereby, provided with elastic arms shod with contact-rollers engaging the guide, the said extension being arranged to surround the arms and limit their outward movement.

2. In an arc-lamp, the combination of a fixed tubular guide for the movable electrode, a carbon-holder, elastic arms each carrying an outwardly-pressing contact, and a device for limiting the spread of the arms and contacts to permit insertion of the follower in the guide.

3. In an electric-arc lamp, the combination of a support, a spring-arm secured thereto, a tubular conductor, a rolling contact device carried by the end of the spring-arm and pressing outwardly against the inner wall of the tubular conductor to convey current therefrom to the support, and a tubular extension on the support for limiting the outward movement of the rolling contacts.

4. In an electric-arc lamp, the combination of a support, a number of spring-arms secured thereto, a rolling contact device mounted in each arm, a tubular sleeve for limiting the outward movement of the spring-arms and a tubular conductor which surrounds the contact devices the rolling contacts being pressed outwardly against the inner wall of the conductor.

5. In a contact device, the combination of a support, a number of spring-arms secured thereto, each arm provided with a contact, and a sleeve surrounding the arms and provided with openings through which the contacts project.

6. In a contact device, the combination of a support, a number of spring-arms arranged in such manner that they do not interfere as they move toward and away from each other, a roller-contact mounted on each spring-arm and a sleeve surrounding the contacts having openings therein through which the roller-contacts project.

7. In a contact device, the combination of a support, a pair of spring-arms secured thereto, each arm having a partial turn therein so that the contacts carried thereby occupy different planes, and contacts carried by the arms.

8. In a contact device, the combination of a support, a tube surround-

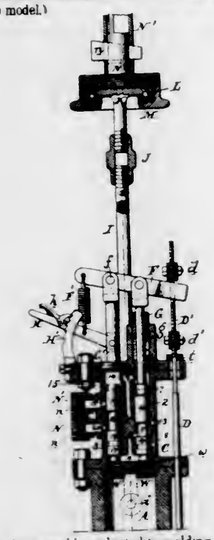
ing the support, the two uniting to form a carbon-holder, spring-arms secured to one end of the support by a single holding device, each arm having a partial turn or twist therein, and a holder formed integral therewith, and a rolling contact mounted in each arm, the contacts being arranged to occupy substantially-parallel planes.

9. In an electric-arc lamp, the combination of a side rod capable of vertical movement, guides for the rod, a yoke secured to the rod, a globe-holder mounted on the yoke, means for adjusting the holder, and a spring mounted on the yoke and arranged to press against the inner wall of the globe and hold the same in position.

10. In an electric-arc lamp, the combination of a yoke, a pair of side rods which are connected by the yoke, a spring-plate mounted on the under side of the yoke and provided with extensions which are bent over the yoke for holding it in position.

11. In an electric-arc lamp, the combination of a holder for a moving carbon, a spring-pressed contact-wheel mounted on the holder and arranged to make contact with the inside of a carbon-tube, a carbon-tube, and a stop for preventing the holder from being moved upward to a point where the wheel will engage with the top of the carbon-tube.

659,712. ENGINE ADAPTED FOR OPERATING RAMMERS. Linford S. Stiles, Philadelphia, Pa. Filed May 31, 1900. Serial No. 18,553. (No model.)



Claim.—1. In a machine adapted to molding, &c., the combination of a cylinder having a reciprocating piston and rod together with valves for regulating the action of the motive fluid upon the piston, said valves being under the control of the piston-rod, with a yoke in which said cylinder is journaled so as to move about a transverse axis, a suspension device for the yoke, and a joint between the suspension device and the yoke whereby the latter is movable about an upright axis.

2. In a machine adapted to molding, &c., the combination of a cylinder having a reciprocating piston and rod together with valves for regulating the action of the motive fluid upon the piston, said valves being under the control of the piston-rod, with a yoke in which said cylinder is journaled so as to move about a transverse axis, a suspension device for the yoke, and a joint between the suspension device and the yoke whereby the latter is movable about an upright axis consisting of a circular head secured to the suspension device, a turn-table plate secured to the yoke and ball-bearings between the head and turn-table plate.

3. In a machine adapted to molding, &c., the combination of a cylinder having a reciprocating piston and rod together with valves for regulating the action of the motive fluid upon the piston, said valves being under the control of the piston-rod, with a yoke in which said cylinder is journaled so as to move about a transverse axis, a suspension device for the yoke, a joint between the suspension device and the yoke whereby the latter is movable about an upright axis consisting of a circular head secured to the suspension device, a turn-table plate secured to the yoke and ball-bearings between the head and turn-table plate, and a detachable joint normally rigid in the yoke between the turn-table plate and cylinder for detaching the cylinder and lower part of the yoke from the turn-table plate.

4. In an engine adapted to operate a rammer for molding-machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston rod and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a separate exhaust to the atmosphere from each end of the cylinder, and separate throttling-valves in each of said exhausts.

5. In an engine adapted to operate a rammer for molding-machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a pilot-valve for controlling the movements of the main valve operated by the reciprocating piston and its rod, a separate exhaust to the atmosphere from each end of the cylinder, and separate throttling-valves in each of said exhausts.

6. In an engine adapted to operate a rammer for molding-machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a pilot-valve for controlling the movements of the main valve operated by the reciprocating piston and its rod, in one direction, and a spring in the other direction, a separate exhaust to the atmosphere from each end of the cylinder, and separate throttling-valves in each of said exhausts.

7. In an engine adapted to operate a rammer for molding-machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a pilot-valve to control the movements of the main valve, mechanical devices operated by the moving piston and its rod to move the pilot-valve in one direction, and spring devices to move it in the other direction.

8. In an engine adapted to operate a rammer for molding machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a pilot-valve to control the movements of the main valve, mechanical devices operated by the moving piston and its rod to move the pilot-valve in one direction, spring devices to move it in the other direction, and means for adjusting the tension of the spring devices.

9. In a reciprocating engine adapted for use in a molding-machine, the combination of the cylinder and air supply and exhaust independently arranged for each end, a valve to control the supply and exhaust of compressed air or other fluid to and from the cylinder, and separate throttling-valves for each of the exhaust-ports to control the speed of exhausting from each end of the cylinder independently.

10. In a reciprocating engine adapted for molding-machines, the combination of the cylinder, separate outlets from each end of the cylinder, separate throttling-valves for each exhaust-outlet to control the speed of exhausting from each end of the cylinder separately, and valve devices for controlling the supply and escape of the motive fluid to and from the cylinder.

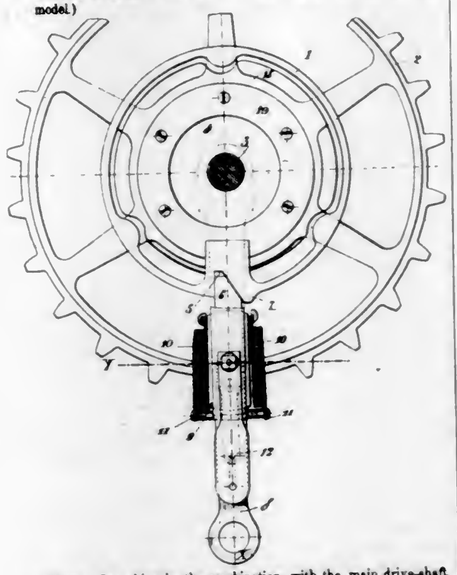
11. In a reciprocating engine adapted for molding-machines, the combination of the cylinder, separate throttling-valves for each exhaust-outlet to control the speed of exhausting from each end of the cylinder separately, consisting of a conical seat and a perforated cap having a conical plug adapted to the seat and held stationary, and valve devices for controlling the supply and escape of the motive fluid to and from the cylinder.

12. In an engine adapted to operate a rammer for molding-machines, &c., a cylinder, combined with a piston movable therein and having a rammer-head operated thereby, a valve-chest located at one end of said cylinder, a main sliding cylindrical valve adapted to control the supply and exhaust of the compressed air to or from each end of the cylinder, a cylindrical pilot-valve to control the supply of compressed air to the main valve at one end for delivery to the cylinder and the exhaust of the air in the main-valve chest at the other end to permit the main valve to shift its position, and means under the control of the piston for controlling the movements of the pilot-valve.

13. In a ramming-engine of a molding-machine, a valve-chest having induction-chamber 6 and chambers S and T adapted to respectively communicate with each end of the engine-cylinder and valve-cylinders 2 and 14, supply-ports 7 and 8 opening from chamber 6 to valve-cylinder 2, exhaust-ports 10 and 12 from the ends of both valve-cylinders to the middle part of valve-cylinder 2, exhaust-port 13 from central part of valve-cylinder 2 to atmosphere, supply-ports 9 and 11 connecting the respective ends of the two valve-cylinders, supply-ports 15 and 22 opening from valve-cylinder 14 into chamber T, supply-ports 16 and 23 opening from cylinder 14 into chamber S, exhaust-ports 19 and 20 opening from middle portion of the cylinder 14 to the atmosphere, a pilot-valve 4 having portion 5 fitted to cylinder 2, and main valve 17 having recessed portion 18 fitted to cylinder 14, and means to control the operation of the pilot-valve by the reciprocations of the piston of the engine-cylinder.

14. In an engine adapted to operate a rammer for molding-machines, &c., the combination of a cylinder, a piston working in said cylinder, a rammer piston rod and head secured to the piston, a main valve for supplying compressed air or other fluid to and from each end of the cylinder, a pilot-valve to control the operation of the main valve, a spring to move the pilot-valve in one direction, and a mechanical device to move it in the other direction consisting of a rod D having a nut *d* on its end, a lever F adapted to be operated by the nut and directly actuating the pilot-valve, a bar E carried and moving with the piston-rod, and springs *e*, *e* between the bar E and rod D to take up the jar.

659,713. CHANGE-SPEED GEAR FOR CYCLES. Léon Stilmant, Brussels, Belgium. Filed Nov. 13, 1899. Serial No. 736,755. (No model.)



Claim.—In a bicycle, the combination, with the main drive-shaft, of drive-wheels mounted thereon, the one loosely, cranks carried by said shaft and provided with pedals, a spring-controlled latch carried by one of said cranks, a disk secured to the loose wheel and having a peripheral recess adapted to be engaged by said latch to lock the crank and wheel together, said disk also having a peripheral projection adjoining the recess, a plate-spring carried by said latch, a pin carried by said plate-spring, an aperture penetrating said crank and adapted to receive said pin, another plate-spring carried by the crank, and another pin carried by said last-named plate-spring, projecting into said aperture and adapted to displace said first-named pin therefrom, substantially as described.

659,714. HOSE-NOZZLE. Charles W. Storm, Elgin, Ill. Filed Aug. 9, 1897. Renewed Feb. 24, 1900. Serial No. 6,413. (No model.)

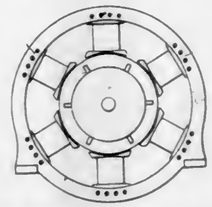


Claim.—The combination of a nozzle provided with an exteriorly-tapered head and having a discharge-orifice at the end thereof, said head being provided with a centrally-arranged threaded perforation, an interiorly-tapered rotary cap arranged on the head and provided with discharge-openings adapted to be brought into register with the discharge-orifice of the head of the nozzle, and a single screw passing centrally through the cap and engaging the threaded perforation of the head, and serving both as the securing means for the cap and the pivot for the same, whereby the cap is detachably secured to the head and is held sufficiently tight to form an effective joint, said cap being capable of adjustment without adjusting the screw, substantially as described.

659,715. PROCESS OF TREATING WORN-OUT HEDDLES. Bendix Themans, Enschede, Netherlands. Filed Apr. 26, 1898. Serial No. 678,891. (No specimens.)

Claim.—The process of converting worn-out heddles into pulp-stock which consists in treating them with a caustic alkali, washing them to separate the strings, drying and bleaching the strings, again washing and drying them, treating them with an acid, again washing and drying them, cooking them in a caustic lye, and again washing and drying them, substantially as specified.

659,716. ADJUSTING RELUCTANCE OF MAGNETIC CIRCUITS. Elihu Thomson, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed July 20, 1898. Serial No. 686,412. (No model.)



Claim.—1. The combination with a multipolar dynamo-electric machine, of adjustable means for producing a relative variation of the respective reluctances of two or more of the magnetic circuits of the machine.

2. The combination, with a multipolar dynamo-electric machine, of adjustable means for varying the reluctance of two or more of the magnetic circuits of the machine and thereby equalizing the fluxes in said circuits.

3. A reluctance-adjusting device consisting of intermingled plates of magnetic material of different permeability.

4. A reluctance-adjusting device composed of laminated magnetic material in the form of a solid of revolution, and with laminæ arranged parallel to the axis.

5. The combination of a body of magnetic material forming part of a magnetic circuit and having an opening therein, and a body of laminated magnetic material of the same cross-section as the opening adapted to assume different positions in said opening and with the laminæ arranged longitudinally of the opening for each position.

6. The combination of a body of laminated magnetic material having the configuration of a surface of revolution and with the laminæ parallel to the axis, and a body of magnetic material with an opening therein to receive said laminated body.

7. The combination of a body of magnetic material forming part of a magnetic circuit and having an opening therein, and a body of laminated magnetic material adapted to fill said opening in all positions and assume different positions therein, thereby varying the reluctance of the magnetic circuit.

8. The combination of a body of magnetic material forming part of a magnetic circuit and having an opening therein, and a body of laminated magnetic material of the same cross-section as the opening and adapted to assume different positions therein.

659,717. CONTACT DEVICE. Elihu Thomson, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed May 6, 1899. Serial No. 715,835. (No model.)

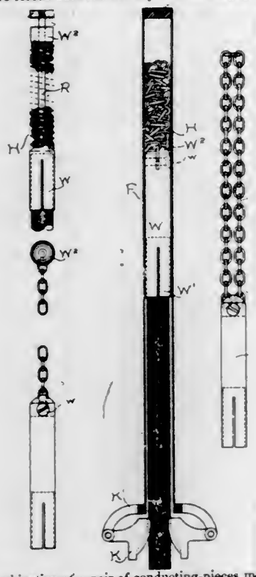
Claim.—1. In an electric-arc lamp, the combination of a carbon-tube, a holder mounted for movement within the tube, a carbon pencil carried by the holder, means for feeding the carbon, and a plurality of separately-acting interlinked contact devices piled upon each other for establishing electrical contact between the holder and the tube; the said contact devices also acting to assist the carbon-feeding means.

2. The combination of a conducting-tube, a device movable within the tube, and a plurality of interlinked contacts which are arranged in a coil and rest on the said device and establish contact between it and the tube.

3. In an electric-arc lamp, the combination of a carbon-tube, a holder arranged for movement within the tube, a carbon pencil mounted in the holder, a coiled chain composed of links which are of less diameter than the tube, for conveying current between the tube and the holder, the weight of said chain being utilized to force the carbon and its holder downward, and a carbon-feeding device which is carried by the tube.

4. The combination of a tube, a holder mounted therein having an end which is highest in the center and slopes toward the outer edges, and a coiled-chain contact device which rests on the top of the holder the

links of which are forced outward thereby and into engagement with the tube.



5. The combination of a pair of conducting-pieces movable with respect to each other, a coiled chain for conveying current between them, and means for coiling the chain.

6. In an electric-arc lamp, the combination of a carbon-tube, a holder mounted therein, a contact-chain, and a weight movable with respect to the holder for forcing the chain against the sides of the tube.

7. In an electric-arc lamp, the combination of a carbon-tube, a holder mounted therein, a contact-chain, a spindle around which the chain is coiled, a weight resting on the chain, and means for preventing the weight and chain from being slipped off of the spindle.

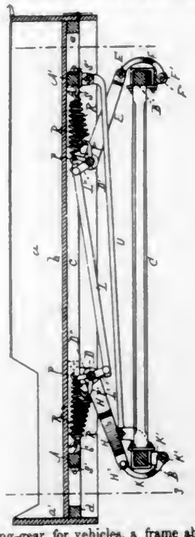
8. The combination of a pair of conductors which are movable with respect to each other, one of said conductors being located within the other, a chain which is secured to one of the conductors and conveys current between them, and means secured to one of the conductors for regulating the movement of the other, which means also acts in conjunction with the chain to convey current.

659,718. **SPRING-GEAR FOR VEHICLES.** DAVID TRUE, Amesbury, Mass. Filed Jan. 27, 1900. Serial No. 3,002. (No model.)

Claim.—1. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; a pair of rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts reverse rotation to the other; springs extending from said rods or shafts to said frame; the stationary portion of the running-gear comprising the rear axle, the portion over and supported by the front axle, and the connections between said portion and the rear axle; and arms rigid on said rods or shafts and pivotally connected at their lower ends with the stationary portion of the running-gear, substantially as and for the purpose set forth.

2. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; a pair of rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts reverse rotation to the other; springs extending from said rods or shafts to said frame; the stationary portion of the running-gear comprising the rear axle, the portion over and supported by the front axle and the connections between said portion and the rear axle; and jointed arms rigidly secured at their upper ends to the rods or shafts and pivotally secured at their lower ends to the stationary portion of the running-gear, substantially as described.

3. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; a pair of rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts reverse rotation to the other; springs extending from said rods or shafts to said frame; the stationary portion of the running-gear comprising the rear axle, the portion over and supported by the front axle and the connections between said portion and the rear axle; the arms E rigidly secured at their upper ends to the rear rod or shaft; and the curved shackles F pivotally secured at their opposite ends to the rear axle and to the lower ends of said arms, substantially as set forth.



4. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; a pair of rods or shafts supported by and having their bearings in said frame; mechanism connecting said rods or shafts whereby the rotation of one imparts reverse rotation to the other; springs extending from said rods or shafts to said frame; the stationary portion of the running-gear comprising the rear axle, the portion over and supported by the front axle and the connections between said portion and the rear axle; the bow-shaped frame H rigidly secured at its ends to the front rod or shaft; and the curved shackles K pivotally connected at their opposite ends to the bow-shaped frame and to the bar supported by the front axle, substantially as described.

5. In a spring-gear for vehicles, a frame above the axles for supporting the carriage-body; the shafts or rods D, D′ supported in bearings in the frame; mechanism connecting said rods or shafts whereby reverse rotation toward each other is communicated from one to the other; hooks P extending substantially radially from said rods or shafts; springs extending from said hooks to the frame; the rear axle B′; the portion of the running-gear supported by the front axle; and jointed arms pivotally connected at their opposite ends with the rods or shafts D, D′ and the axle B′ and portion supported by the front axle, substantially as set forth.

6. In a spring-gear of the character described, the frame above the axles for supporting the carriage-body; the rods or shafts D, D′ supported and having their bearings in the frame; a plurality of hooks or engaging projections P, P′ extending from said rods on such lines as to prevent the outer ends of said hooks from projecting below the rods; springs connecting said hooks with the frame; the frame for the running-gear; and mechanism intermediate with the running-gear frame and the frame supporting the body for rotating the shafts or rods D, D′ inwardly or toward each other when the carriage-body is depressed; whereby as the hooks P, P′ are swung down no portion of either of said hooks or springs is moved below the under side of the shafts D, D′, substantially as described.

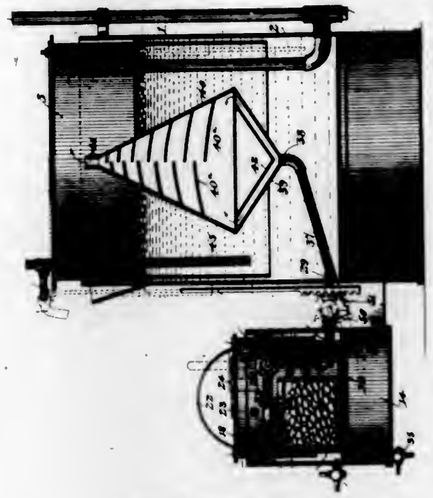
659,719. **BLEACHING COMPOUND.** HEINRICH WÄCHTER, Bielefeld, Germany. Filed Jan. 3, 1898. Serial No. 665,457. (No specimens.)

Claim.—As a new preparation of manufacture, a new substance for bleaching linen, cotton and the like articles, consisting in a solution of zinc in alkalies, to which potato-starch is added, for the purpose as set forth.

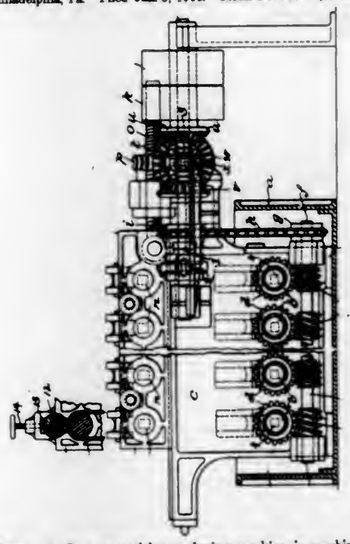
659,720. **ACETYLENE-GAS GENERATOR.** CHARLES A. WARD, Clark, S. D., assignor of two-thirds to Carl Jackson and Frank B. Grimshaw, same place. Filed Sept. 24, 1898. Serial No. 691,804. (No model.)

Claim.—1. In a gas-generator, the generating-tank provided with separate superposed generating and cooling chambers having communication, a carbid-receptacle arranged within the generating-chamber, a water-supply pipe leading into the generating-chamber, the gasometer, a condensing-retort supported in an elevated position within the gasometer, and an inclined gas-conducting pipe connecting the bottom of said condensing-retort with the cooling-chamber, substantially as set forth.

2. In a gas-generator, the combination with the generating-tank and the gasometer, of a conical condensing-retort supported in an elevated position within the gasometer, and an inclined conducting-pipe leading from the generator and connected with the retort at the lowermost point thereof, substantially as set forth.



659,721. **MERCERIZING-MACHINE.** CHARLES L. WEICHELT, Philadelphia, Pa. Filed Jan. 3, 1900. Serial No. 225. (No model.)



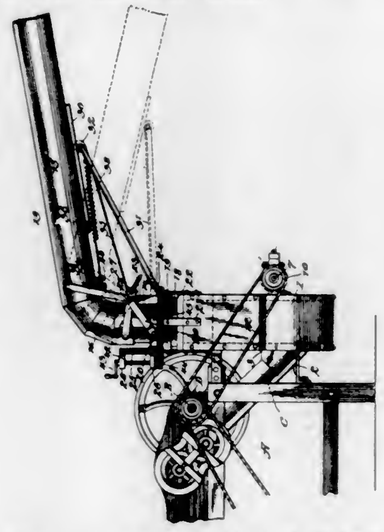
Claim.—1. In a mercerizing or dyeing machine, in combination, a tank adapted to contain a mercerizing or dyeing solution, rollers in said tank, frames in which said rollers are journaled, means for revolving said rollers, frames carried by and free to travel laterally on said first frames, rollers carried by said second frames, and means whereby said second frames may be moved to and fro on said first frames.

2. In a mercerizing or dyeing machine, in combination, a tank adapted to contain the fluid, rollers immersed in said fluid, frames in which said rollers are journaled, frames laterally movable on said first frames, rollers journaled in said second frames, threaded shafts secured to said second frames, threaded worm-wheels carried by said shafts, worms gearing with said wheels, a shaft upon which said worms are carried, and means whereby said shaft may be driven in either direction.

3. In a mercerizing-machine, in combination, a tank adapted to contain a mercerizing liquid, rollers immersed in said liquid, frames in which said rollers are journaled, frames laterally movable on said first frames, rollers journaled in said second frames, means whereby said second frames may be moved on said first frames, worm-wheels carried by said first rollers, worms gearing with said wheels, a shaft upon which said worms are carried, and means for revolving said shaft.

4. In a mercerizing-machine, in combination, a tank adapted to contain a mercerizing liquid, rollers immersed in said liquid, means for revolving said rollers, frames in which said rollers are journaled, frames carried by said first frames, and means for moving said second frames in a direction at right angles to the axes of said rollers.

659,722. **PNEUMATIC FEED-CONVEYER FOR FEED-CUTTERS.** EDWIN C. WILHARMS and ADOLPH J. WILHARMS, Greenleaf, Wis. Filed July 9, 1900. Serial No. 23,023. (No model.)



Claim.—1. In a pneumatic tube of the class described, the combination of the upper and lower sections flexibly connected together and adapted to be turned laterally in unison, a supporting-arm connected to one section and having a trolley-sheave operating in a guideway with which the other section is provided, a winch connected to one section and a rope connecting the said winch with the other section, said rope operating on said trolley-sheave, substantially as described.

2. In a pneumatic tube of the class described, the combination of the lower section, a suitable support therefor, said lower section being revoluble on said support, the upper section flexibly connected at its inner end to the upper end of the lower section, a supporting-arm pivotally connected to the lower section and having a trolley-sheave at its upper end, a guideway on the upper section in which said trolley-sheave operates, a cord or rope attached to the upper section and passed over said trolley-sheave, and a supporting-spring connecting said supporting-arm to said upper section, substantially as described.

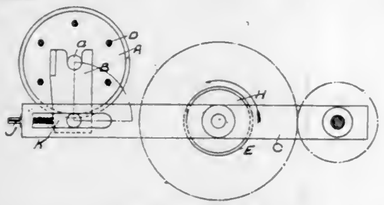
3. The combination of the lower pneumatic conveying-tube section, the supporting sprocket-ring in which the same turns, the turning-ring secured to said lower section and bearing on said sprocket-ring, a shaft carried by said turning-ring and having a sprocket-pinion, an endless sprocket-chain connecting said sprocket pinion and ring, the upper pneumatic-tube section flexibly connected to the lower tube-section, the supporting-arm pivotally connected to the turning-ring and carrying a trolley-sheave which operates under the upper tube-section, a rope attached to said upper tube-section and passing over said trolley-sheave, and means to operate said rope, for the purpose set forth, substantially as described.

659,723. **MACHINE FOR MANUFACTURING SHEET-METAL WHEELS.** EDWARD WILLIAMS, Birmingham, England. Filed Jan. 23, 1900. Serial No. 2,495. (No model.)

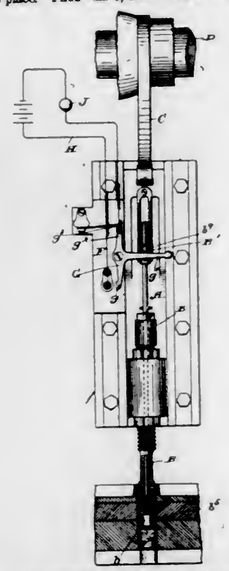
Claim.—1. In machines for the manufacture of sheet-metal wheels for chain and other driving gear, the combination with a positively-driven grooved roll E, of rotatable clamping-plates A A′ secured by bolts and nuts D to the opposite sides of the required wheel-blank, an arm B in which said plates are journaled and means for slidingly pivoting said arm to the frame C, substantially as described.

2. In machines for the manufacture of sheet-metal wheels for chain

and other driving gear, the combination with a positively-driven roll having a peripheral groove, of rotatable clamping-plates A A' secured by bolts and nuts D to the opposite sides of the required wheel-blank and having gudgeons *a* and *a'* respectively which are freely mounted on an arm B having a sliding pivotal connection to the frame C, substantially as described.



659,724. ALARM FOR CARTRIDGE-LOADING MACHINES. CASSIUS M. WILLS, Cleveland, Ohio, assignor to the Austin Cartridge Company, same place. Filed Jan. 9, 1900. Serial No. 832. (No model.)



Claim.—1. The combination of a reciprocable wad-rammer provided with a yielding member communicating with the ramming-face, an electrical circuit provided with a contact for opening and closing the circuit, said yielding member adapted to actuate said contact to close said circuit and a lock for locking it in such closed position, substantially as set forth.

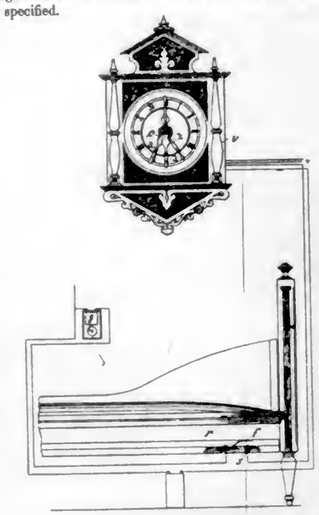
2. The combination of a reciprocable wad-rammer provided with a yielding plunger projecting from its ramming-face, a rod passing through the rammer, an electrical circuit, and a lever-contact adapted to open or close said circuit, and projecting into the path of said rod, whereby the latter may be caused to engage said contact to close said circuit, substantially as set forth.

3. The combination of a reciprocable wad-rammer provided with a yielding plunger projecting from its ramming-face, a rod passing through the rammer, an electrical circuit, a lever-contact adapted to open or close said circuit and projecting into the path of said rod, whereby the latter may be caused to engage said contact to close said circuit, and a lock for locking same in such closed position, substantially as set forth.

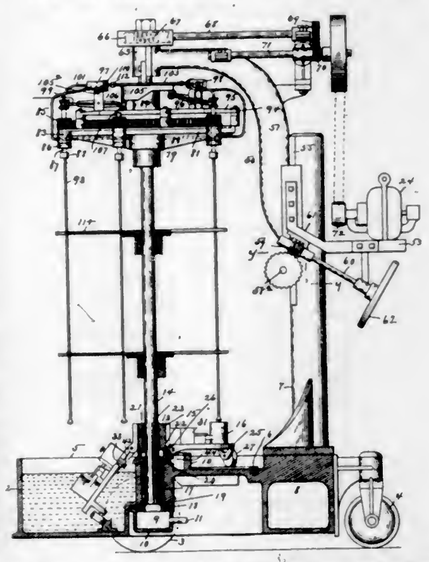
4. The combination of a reciprocable wad-rammer provided with a yielding plunger projecting from its ramming-face, a rod passing through the rammer, an electrical circuit, a lever-contact adapted to open and close said circuit and projecting into the path of said rod whereby the latter may be caused to engage said contact to close said circuit, and a spring engaging said lever and adapted to lock same in such closed position, substantially as set forth.

659,725. ELECTRIC TIME-ALARM. SIMON WOLF, Essen, Germany. Filed Feb. 7, 1900. Serial No. 4,310. (No model.)

Claim.—An alarm composed of a bed, a mattress-frame, a contact-spring for yieldingly supporting said frame, a contact on the bed beneath the spring, an alarm in circuit, and means for setting the alarm, substantially as specified.



659,726. GLASS-BLOWING MACHINE. WILLIAM E. BOCK, Toledo, Ohio, assignor to the Toledo Glass Company, same place. Filed Jan. 25, 1899. Renewed Apr. 30, 1900. Serial No. 14,917. (No model.)



Claim.—1. In a glass-blowing machine, the combination of a rotatable mold-carrier, a motor for rotating said carrier, a series of sectional molds on said carrier, a separate motor for operating each mold, and means, controlled by the rotary movement of the carrier, for actuating the motors to open and close the molds.

2. In a glass-blowing machine, the combination of a series of traveling mold-carriages and a motor therefor, a sectional mold upon each carriage, a motor for each mold fixedly secured to the carriage, and means for controlling the operation of the motors to open and close the molds.

3. In a glass-blowing machine, the combination of a rotatable mold-carrier having a storage-chamber formed therein, a motor for rotating the carrier, a series of sectional molds on said carrier, a separate fluid-motor for operating each mold, a fluid-supply connection between each motor and the storage-chamber, and means for automatically controlling the fluid-supply to the motors to open and close the molds.

4. In a glass-blowing machine, the combination of the main operating-shaft and a motor for rotating the same, a head upon the shaft having a storage-chamber formed therein, a series of mold-carriages hinged to the head, a sectional mold and a motor connected to the mold-sections upon each carriage, a flexible pipe connection between each motor and the storage-chamber, and means for controlling the discharge of air from the chamber to the motors.

5. In a glass-blowing machine, the combination of the sectional mold adapted to receive the article to be blown, an air-supply device communicating with the mold and adapted to supply air to the article therein, means for controlling the admission of air within the mold, a motor connected to the mold-sections, and means for controlling the operation of the motor to open and close the mold.

6. In a glass-blowing machine, the combination of the sectional mold, adapted to receive the article to be blown, an air-supply device communicating with the mold and adapted to supply air to the article therein, means for controlling the admission of air within the mold, a pneumatic piston-motor for opening and closing the mold, the piston being directly connected to the mold-sections, an independent air-supply mechanism for the motor, and means for controlling the said air-supply at stated periods to thereby control the opening and closing of the mold-section.

7. In a glass-blowing machine, the combination of a mold-carrier and a motor therefor, a series of sectional molds on said carrier adapted to receive the articles to be blown, an air-supply device communicating with each mold and adapted to supply air to the article therein, means for controlling the admission of air within the molds, a series of independent motors upon the carrier, one for each mold and connected to the mold-sections, and means for controlling the actuating agent of the motors to thereby control the opening and closing of the molds.

8. In a glass-blowing machine, the combination of a mold-carrier and a motor therefor, a series of sectional molds on said carrier adapted to receive the articles to be blown, an air-supply device communicating with each mold and adapted to supply air to the article therein, means for controlling the admission of air within the molds, a series of independent pneumatic piston-motors upon the carrier, one for each mold and having its piston connected to the mold-sections, an independent air-supply mechanism for the motors, and means for controlling the air-supply to thereby control the opening and closing of the molds.

9. In a glass-blowing machine, the combination of a standard, a movable section mounted thereon for vertical adjustment, and the blowpipe-couplers and motor for rotating said couplers, carried by said movable section.

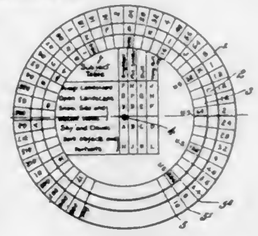
10. In a glass-blowing machine, the combination of a standard, a movable section mounted thereon for vertical adjustment, the blowpipe-couplers carried by the section, a supporting-bracket carried by and extending laterally from said section, a motor for rotating the couplers arranged on said bracket, and a drive connection between the motor and couplers also carried by the section.

11. In a glass-blowing machine, the combination of a standard, a movable section arranged thereon for vertical adjustment, an air-supply, a coupling-pipe and a valve controlling the air-supply thereto carried by said section, and means for maintaining the air-supply through the standard and movable section to the valve.

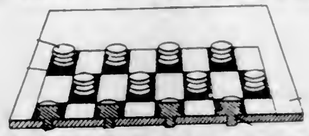
12. In a glass-blowing machine, the combination of the base having a storage-chamber for the air formed therein, a hollow standard upon the base communicating with the air-chamber, a hollow movable section adjustably arranged upon the standard, means for maintaining communication between the standard and the section in its various positions of adjustment, a coupling-pipe carried by the section, a valve controlling the air-supply to said pipe, and connections between the movable section and the valve.

659,727. PHOTOGRAPHIC-EXPOSURE METER. CHESTER W. BROWN, Jackson, Mich. Filed Oct. 5, 1899. Serial No. 732,742. (No model.)

Claim.—An instrument for calculating time for making photographic exposures according to rules applicable to varying conditions, comprising three disks, 1, 2 and 3, mounted to rotate one upon the other and each provided with a circumferential space on which are radial graduations, those on one adapted to coincide with those on the others—the radial graduations of disk, 1, having figures indicating seconds of time and fractions thereof, the radial graduations of disk, 2, having characters indicating the relative conditions of the sun and the subjects to be photographed and also containing a focal character, "F," and the radial graduations of the disk, 3, having two sets of characters, of which one set progresses in one direction and indicates different plate speeds, and the other set progresses in the opposite direction from the same initial point and indicates the focal value of the stop; and also provided with three tables, 6, 7 and 8, table, 6, designating the light value for different months and hours in seconds of time and fractions thereof corresponding to the aforesaid graduations of disk, 1, table, 7, designating the condition of the sunlight in its relation to the subject, corresponding to the graduations of disk, 2, and table, 8, designating the different speeds of plates corresponding to the graduations of disk, 3.



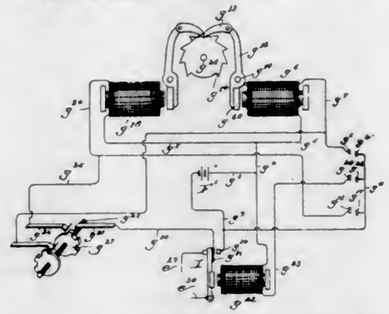
659,728. POCKET GAME-BOARD. WILLIAM T. CALL, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,668. (No model.)



Claim.—1. In a game, a board having spaces marked thereon for moving pieces of men, each space containing a socket, in combination with moving pieces or men each having a conical projection largest at its outer end and adapted to interlock with any of said sockets, substantially as described.

2. In a game, a board having spaces marked thereon for moving pieces or men, each space containing an opening extending entirely through the board, in combination with moving pieces or men having conical projections largest at their outer ends and adapted to pass through said openings to hold them in place, substantially as described.

659,729. CONTROL APPARATUS FOR ELECTRIC CARRIAGES. HOWARD F. EATON, Quincy, Mass. Filed Mar. 25, 1899. Serial No. 710,450. (No model.)



Claim.—1. The combination in an electrically-propelled vehicle, of a body, its running-gear, batteries and motor driving mechanism, with the electromechanically-operated motor speed-controlling drum and contact-keys for controlling the drum-operating circuits substantially as described.

2. In a motor-carriage of the class described the combination with the single-field, double-armature-motor driving mechanism, its batteries and supporting-frame, of the electromechanically-operated motor speed-controlling drum and contact-keys for controlling the drum-operating circuits substantially as and for the purpose described.

3. In a motor-carriage of the class described the combination with the single-field, double-armature-motor driving mechanism, its battery and supporting-frame, of the electromechanically-operated motor speed-controlling drum and contact-keys supported in a handle and connected by wires inclosed in a flexible cord for controlling the drum-operating circuits substantially as and for the purpose described.

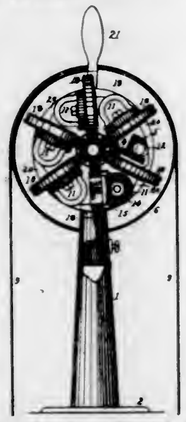
4. In a motor-carriage of the class described, the combination with the motor driving mechanism and its battery E. of the electromechanic-

ally-operated motor speed-controlling drum and contact-keys for controlling the drum-operating circuits, substantially as and for the purpose described.

5. In a motor-carriage of the class described, the combination with the single-field, double-armature-motor driving mechanism, its battery and supporting-frame, of the electromechanically-actuated motor speed-controller, and contact-keys for controlling the motor speed-controller-operating circuits, substantially as and for the purpose described.

6. In a motor-carriage of the class described, the combination with the motor driving mechanism and its battery E, of the electromechanically-actuated motor speed-controller, and contact-keys for controlling the motor speed-controller-operating circuits, substantially as and for the purpose described.

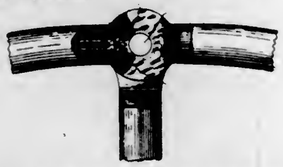
659,730. AIR-EXTRACTOR FOR PNEUMATIC TIRES IN CONSTRUCTION. AUGUSTUS E. ELLINWOOD, Akron, Ohio, assignor to the Goodyear Tire and Rubber Company, same place. Filed Mar. 7, 1900. Serial No. 7,653. (No model.)



Claim.—1. In a machine for expelling air from pneumatic tires supported on mandrels, the combination with a fixed head having like arms bearing trough-shaped ends, hollow cases resting in said ends, revoluble shafts in said cases bearing at one end pinions, a wheel having an internal gear adapted to mesh in said pinions at the opposite ends of said revoluble shafts, bevel-gears arranged to mesh in and to be driven by said bevel-pinions, and wheels having elastic grooved rims arranged to run with said bevel-gears, all arranged substantially as shown and described.

2. In a machine for expelling air from pneumatic tires supported on mandrels the combination with a fixed head having like arms bearing trough-shaped ends, hollow cases resting in said ends, revoluble shafts in said cases bearing at one end pinions, a wheel having an internal gear adapted to mesh in said pinions, bevel-pinions at the opposite ends of said revoluble shafts, bevel-gears arranged to mesh in and be driven by said bevel-pinions, wheels having elastic grooved rims arranged to run with said bevel-gears, and a cam-ring arranged to simultaneously press the ends of said revoluble shafts bearing the bevel-pinions toward a common center and to release them when desired, substantially as shown and described.

659,731. BICYCLE HANDLE-BAR. MICHAEL J. FLYNN, Hartford, Conn., assignor to Ann Flynn, same place. Filed June 1, 1900. Serial No. 18,722. (No model.)



Claim.—1. A standard, a handle-bar pivotally mounted on the standard, a pivotally-mounted lever connected with said handle-bar and having gear-teeth, a gear-wheel in engagement with said lever, and a second handle-bar pivotally mounted on the standard and operatively connected with said gear-wheel.

2. A standard, a lever having teeth and pivotally mounted on the standard, a handle-bar pivotally mounted on the standard and connected with said lever, a second handle-bar mounted on the standard, and a gear-wheel mounted on said last-mentioned handle-bar and in engagement with the teeth on said lever.

3. A standard, a pair of handle-bars pivotally mounted on the standard, a gear-wheel operatively connected with one of said bars, a lever having a lengthwise slot and pivoted to the standard and having teeth in mesh with said gear-wheel, and a pin projecting from the opposite handle-bar into said slot.

4. A standard, a pair of handle-bars pivotally mounted on the standard, a gear-wheel operatively connected with one of said bars, and a pivotally-mounted lever operatively connected with the opposite handle-bar and having teeth meshing with said gear-wheel, and means for partially revolving the end of the lever about the gear-wheel.

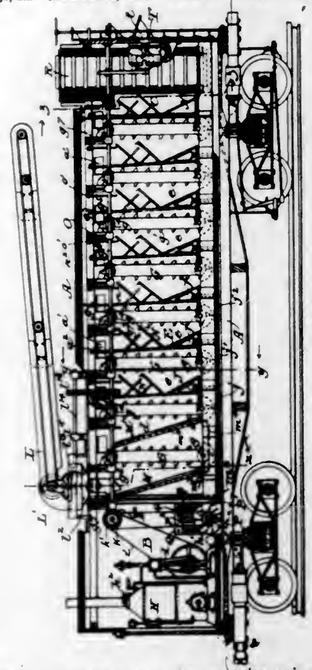
5. A standard, a handle-bar pivoted to the standard, a gear-wheel secured to the handle-bar, a second handle-bar pivotally mounted on the standard, and a lever having a pivot-pin extending through a slot in one part and operated by a pin secured to the opposite part.

6. A standard, a handle-bar pivotally mounted on the standard, a gear connected with said handle-bar having a slot, a pin projecting from the standard through said slot, and a lever mounted on said pin and having teeth in engagement with said gear, and also operatively connected with the last-mentioned handle-bar.

7. A standard, a pin projecting from the standard, a handle-bar mounted on said pin and having a gear-wheel, a second handle-bar mounted on said pin and having a slot, a pin projecting from the standard through said slot, a lever having teeth meshing with the teeth of the gear-wheel and pivotally mounted on said pin, and a pin from the last-mentioned handle-bar projecting through a slot in the lever.

8. A standard having a recessed end, a pair of handle-bars the end of each of which is located in the recess in the opposite handle-bar, both of said ends being located in the recess in the standard, a gear-wheel operatively connected with one of said handle-bars, and a lever connected with the opposite handle-bar and having teeth meshing with said gear-wheel.

659,732. PORTABLE APPARATUS FOR RENOVATING GRAIN. HARMON H. FRIENDLEY, Indianapolis, Ind., and FREDERICK C. CROWE, Chicago, Ill. Filed Feb. 2, 1899. Serial No. 704,322. (No model.)



Claim.—1. Traveling apparatus for renovating grain and the like purpose, comprising a railway-car with its running-gear, adjustable, external collecting apparatus carried by the car at one end, adjustable external discharging apparatus carried by the car at the other end, a power-compartment at the receiving end, a boiler and engine in said power-compartment an aisle running lengthwise of the car, a series of drying and screening apparatus with intermediate elevators arranged alongside of said aisle and partitioned off therefrom, means for inspecting each individual apparatus from the aisle, an elevator at the discharging end of the car, receiving from the last of said apparatus; and delivering to the external discharging apparatus, and a shaft running lengthwise of the car driven by the engine in the power-compartment and driving the successive apparatus.

2. Traveling apparatus for renovating grain and like purposes, comprising a railway-car with its running-gear, means at one end thereof for collecting and conveying into the car material collected from external sources to be operated upon by apparatus within the car means at the other end thereof for discharging and delivering the material operated upon to an external point, a power-compartment at the receiving end containing a boiler and engine, an aisle running lengthwise of the car, a series of drying and screening apparatus with intermediate elevators arranged alongside the aisle and partitioned off therefrom, spouts leading to the exterior for conducting away the tailings of the successive apparatus, an elevator at the discharge end of the car, delivering to the external discharging apparatus, and a line-shaft running lengthwise of the car, driven by the engine, and driving the successive apparatus, whereby material is received at one end of the car, dried, cleaned and discharged in one continuous operation.

3. Traveling apparatus for renovating grain and like purposes, comprising a railway-car with its running-gear, an external swingable and adjustable receiving or gathering conveyer on top and at one end thereof, an external swingable and adjustable discharging conveyer at the other end thereof, a steam boiler and engine located in a power-compartment at the receiving end of the car, a shaft running lengthwise of the car and driven by said engine, a series of drying and screening apparatus down one side of the car, with intermediate elevating-conveyers driven by said shaft, an aisle lengthwise of said car, communicating with each individual apparatus by doors, a cooling-apartment at the delivering end of the car, and an elevating-conveyer thereon, also driven by said shaft and receiving from the last of said apparatus and delivering to the discharging-conveyer.

4. Traveling apparatus for renovating grain and like purposes comprising a railway-car, with its running-gear, means at one end for collecting and conveying into the car material to be operated upon from external sources, means at the other end for discharging and delivering the material operated upon to an external point or points, a power-compartment at the receiving end, a cooling-compartment at the delivering end, a closed drying and cleaning compartment running longitudinally of the car, a passage-way alongside of said longitudinal compartment, means for inspecting each of said apparatus from the passage-way, a cold-air fan located in the cooling-compartment, a discharging apparatus, a steam boiler and engine located in the power-compartment, a line-shaft driven by said engine and driving the successive apparatuses, and a heater and hot-air fan also located in said power-compartment, and delivering a hot-air blast or blasts to the longitudinal drying-compartment and to the drying apparatus therein.

5. Traveling apparatus for renovating grain and like purposes comprising a railway-car with its running-gear, means at one end for collecting and conveying into the car material to be operated upon, means at the other end for discharging and delivering the material operated upon to an external point or points, a power-compartment at the receiving end, a cooling-compartment at the delivering end, a closed drying and cleaning compartment running longitudinally of the car and divided into transverse sections, a passage-way alongside of said longitudinal compartments, a series of drying and screening apparatuses, arranged in the successive sections of said compartments, and intermediate elevators delivering from one section to the other, doors to each of the sections, opening to the parallel passage-way, ventilators to each section opening to the top and exterior of the car, a cold-air fan located in the cooling-compartment, a discharging-elevator also located in said compartment and delivering to the external discharging apparatus, a heater and hot-air fan, located in the power-compartment, and delivering a hot-air blast or blasts to the longitudinal drying-compartment and to the drying apparatus therein, a steam boiler and engine also located in the power-compartment and driven by the engine and driving the successive apparatuses.

6. Traveling apparatus for renovating grain and the like purpose, comprising a railway-car with its running-gear, a conveyer at one end for collecting material from external sources, a power-compartment at said end, two longitudinal closed, drying and cleaning compartments, extending lengthwise of said car from said power-compartment, on each side of a central passage-way, series of drying and screening apparatus with intermediate elevators arranged in each of said longitudinal compartments, an elevator at the farther end of the car, receiving from the first series, an external conveyer to which said elevator delivers means whereby said conveyer may be caused to deliver to, the second series adjacent to the power-compartment, a second elevator receiving from second series at said farther end, an external conveyer receiving from said elevator, means whereby said conveyer may be swung to deliver to a suitable external point a boiler and engine in the power-compartment, and gearing whereby said engine drives the successive mechanisms.

7. Traveling apparatus for treating grain comprising a railway-car with its running-gear, a power-compartment at one end thereof, a boiler and engine therein, a longitudinal line-shaft driven from said engine, a series of grain-treating apparatuses with intermediate removable elevator-belts arranged longitudinally of the car, transverse overhead shafts driven by said line-shaft, and driving said apparatuses and elevator-belts a series of pendulous folding screen-supporting frames hung from said transverse shafts, and upon which said screen-supporting frames are adapted to be folded, and a series of removable box-sections whereby the screen-supporting frames may be swung up toward the roof of the car and the floor cleared when desired for other purposes.

8. An apparatus for drying material damaged by fire or wreckage, comprising a portable body having a power and heat generating apparatus located at one end thereof, a series of separate compartments and grain elevating and drying devices arranged in sets one following the other alternately therefrom, and having partitions between them a series of nozzles, one adapted for each compartment and separate valve-controlled pipes connecting said nozzles to the heat-supply at the end of the car, substantially as described.

9. An apparatus for drying grain damaged by water comprising a portable body having a heat and power supply, a series of separate drying chambers or compartments extending successively within said body, nozzles and separate valve-controlled pipe connections leading from the heat-supply to the bottom of each compartment, ventilators at the top of each compartment, drier-sections over which the material passes by gravity, an elevator operated by said power-supply for elevating the material from the foot of one of said drier-sections to the head of the next succeeding drier-section located in each of said compartments, substantially as described.

10. An apparatus for drying grain damaged by water comprising a portable car-body, compartments located at opposite ends thereof to receive the grain stored and delivered it at the other end of the car, drying-chambers between the end compartments the power-supply located in one of the end compartments, the receiving and delivering conveyers connected respectively within said drying-chambers and a passage-way between said chambers dividing the car into two oppositely-disposed sections extending from one end compartment to the other to allow access to any part of said drying-chambers from either end of the car, and a series of driers and conveyers for conducting the grain through the drying-chamber sections, substantially as described.

11. An apparatus for drying grain, a car comprising drying apparatus connected together in two series located upon opposite sides of the car-body, a receiving or gathering conveyer at one end of the car, external discharging-conveyer at the other end of the car, adapted to be connected to the opposite end of the car for conducting the grain to be dried from the discharge end of one series to the receiving end of the other series, substantially as described.

12. In apparatus for drying grain, the combination with inclined drier-pipes over which the grain passes, screens located above said pipes for separating coarse stuff from the grain and screen located below said pipes over which the grain passes to allow the fine refuse to pass from the grain substantially as described.

13. An apparatus for cleaning and drying grain comprising a drying-chamber, a series of pendulous vibratory upright back plates and a series of zigzag frames having screen-surfaces thereon secured to the back plate to provide a series of shaking-screens, a grain-receptacle at the foot of the back plates and screens, a conveyer connecting the said grain-receptacle and adapted to deliver the grain over the top of the next succeeding partition back plate and second set of screens, substantially as described.

14. An apparatus for cleaning and drying grain comprising a perpendicular frame supporting a back plate a series of zigzag screens projecting therefrom, and a blast-pipe located below the bottom screen having a fan-shaped discharge-nozzle for spreading the blast evenly beneath the lower screen, substantially as described.

15. In an apparatus for drying grain, the combination with the upright partition back plate pendulously supported at its upper end a series of shaking zigzag screens projecting laterally therefrom, a cam-shaft and means for connecting the pendulous partition back plate with the cam-shaft to support and vibrate said pendulous plate, substantially as described.

16. In an apparatus for drying grain, a car-body having drying-chambers, means for treating and conveying the grain through the same to the end of the car, a conveyer-lift to discharge the grain at the top of the car, and a conveyer supported to swing upon the car to receive the grain from the lift and rotate around the upper discharge end thereof and carry it in different directions therefrom, substantially as described.

17. In a car for treating grain, an apparatus for drying screening and conveying grain from the receiving end to the delivery end thereof, a hopper passing through the car-roof to said apparatus, a circular track surrounding the hopper secured to the car-roof, a revolving gear and gear-frame supported upon the track and a conveyer driven therefrom and pivotally supported thereon concentrically to the track, substantially as described.

18. A car for treating grain comprising an apparatus for drying and conveying the grain from the receiving to the delivery end, a longitudinal shaft for driving said apparatus, a hopper and circular track supported upon the roof of the car at the receiving end thereof, a conveyer supported upon said track, a gear concentric with the track connected to the conveyer for operating it, and a counter-shaft geared thereto and driven by the said longitudinal shaft, substantially as described.

19. The combination with a car for treating grain, of a hopper at one end and passing through the car-roof, a track encircling said hopper, and a vertical drive-shaft and a bevel-faced double gear-wheel supported thereon concentric therewith, a driving-pinion engaging the lower face of the bevel-wheel, and a planetary gear-wheel engaging with the upper face of the bevel-wheel, a conveyer pivotally supported upon and driven by the said planetary gear-wheel and a bracket-frame for supporting said shaft upon the track, substantially as described.

20. The combination with a car for treating grain of a series of pendulous frames supporting apparatus over which the grain is conducted pivotally supported near the roof of the car, and adapted to be folded up out of the way when not in use, substantially as described.

21. The combination with a car for treating grain of a series of grain-drying apparatus, a series of upright conveyers and box-sections each having a trough to receive the lower end of a conveyer, the said sections forming a continuous floor beneath the apparatus which may be conveniently removed and replaced, substantially as described.

22. The combination with a car for treating grain of a series of separate compartments, grain-drying apparatus located within said compartments, a heating apparatus at one end of the car, and a series of pipes communicating from the heating apparatus separately to each of the said compartments, the pipes being each provided with a nozzle at the terminus, and with a stop-cock suitably connected therewith, substantially as described.

659,733. **PROCESS OF MAKING OXALATES.** Martin Goldschmidt, Charlottenburg, Germany. Filed Dec. 24, 1897. Serial No. 663,404. (No specimens.)

Claim.—1. The process, which consists in first mixing a carbonate with a formate and then heating the mixture sufficiently to form monoxide of carbon and hydrogen, whereby the former combines with the carbonate to form the oxalate in a proportion nearly equal to the proportion of formate in the mixture, substantially as set forth.

2. The process which consists in first mixing a formic-acid salt with an alkali carbonate, then heating the mixture sufficiently to form monoxide of carbon and hydrogen, whereby the former combines with the carbonate to form oxalate in a proportion nearly equal to the proportion of formate in the mixture, substantially as set forth.

659,734. **PHONOGRAPH.** George W. Gomber, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed July 13, 1896. Serial No. 599,027. (No model.)

Claim.—1. In a talking-machine, a tablet-magazine having a shaft, a head fixed in relation to the shaft, a removable head and springs carrying spindles passing through the removable head and engaging the ends of the tablets, all combined as set forth.

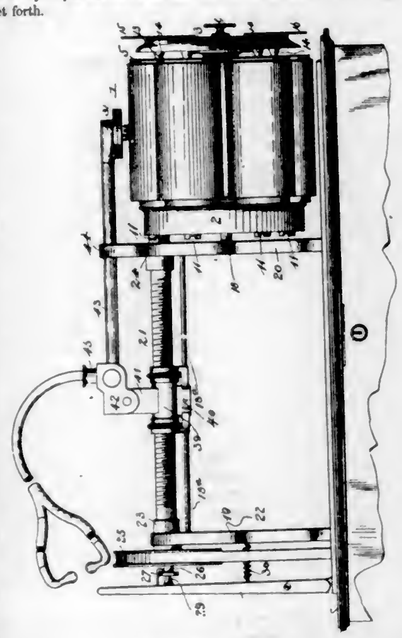
2. In a talking-machine, a tablet-magazine having mandrels and a removable head, springs carrying pointed spindles passing through said head and engaging an end of each mandrel, all combined as set forth.

3. In a talking-machine, a tablet-magazine having a removable head carrying spring-controlled spindles, as set forth.

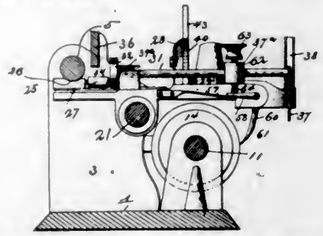
4. In a talking-machine provided with a removable and a non-removable head, mandrels having one end terminating in trunnions seated in the non-removable head, the removable head carrying spring-controlled spindles engaging the other end of the mandrel, all combined as set forth.

5. In a talking-machine, a tablet-magazine provided with a non-removable and a removable head, the latter carrying independent spring-controlled spindles engaging one end of a mandrel whereby any individual mandrel may be removed without disturbing the other mandrels, all combined as set forth.

6. In a talking-machine, a tablet-magazine provided with a shaft and having a non-removable and a removable head having an oblong aperture therein and carrying spring-controlled spindles, and a rod extending through the shaft and having a retaining-nut corresponding in form to the aperture, whereby a quarter-turn will lock said head in position, all combined as set forth.



659,735. **PHONOGRAPH.** George W. Gomber, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Aug. 18, 1896. Serial No. 603,128. (No model.)



Claim.—1. In a carriage-controlling device for phonographs, the combination with the carriage, of a shaft mounted thereon and provided with an operating-handle; an eccentrically-disposed arm secured to the end of said shaft and adapted to bear against a part of the frame of the machine, thereby causing the inner end of the carriage to be forced out of contact with the source of power and locked in such position when said handle moves said arm past the dead-center, as and for the purpose set forth.

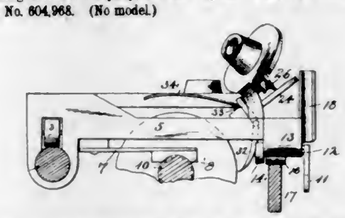
2. As an improvement in talking-machines, the herein-described carriage comprising a barrel 22 adapted to loosely receive the shaft 21 and the carriage-body secured to said barrel and extending rearwardly and forwardly therefrom and having on its interior extension the laterally-reaching arm 28 and the semicircular opening 30, and means for detachably connecting said carriage with the threaded driving-shaft, in combination with said threaded shaft and with a rocking shaft having an eccentric head mounted on said carriage and provided with an operating-lever adapted for simultaneously elevating the forward end and depressing the rear end of the carriage, as and for the purpose set forth.

3. As an improvement in talking-machines, the combination with a sound-box, of a stylus-carrying arm or holder 48 having the vertical extension 57 and the lip 52, and further having the stylus-carrying lever 53 pivoted on said lip, and means to limit the lateral movement of said lever, substantially as specified and for the purpose set forth.

4. As an improvement in talking-machines, the combination with a sound-box, of a link, a support pivoted at one end to said link and at the other to a suitable standard provided on the sound-box, said holder having the pivotal seat provided by the lip 52; a stylus-carrying arm pivoted on said lip, and suitable means for limiting the lateral movement of said arm, substantially as specified.

5. In a paring device for talking-machine tablets, the combination with the diaphragm-carriage, of a rock-shaft mounted thereon and provided with a knife and a lever; a set-screw bearing upon said lever and thereby adapted to throw the knife out of contact with the surface of the tablet, and means substantially as described for normally holding said lever in an elevated position, as and for the purpose set forth.

659,736. **TALKING-MACHINE.** George W. Gomber, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Sept. 5, 1896. Serial No. 604,968. (No model.)



Claim.—1. The combination with the carriage and the tablet-carrying cylinder, of a duplex diaphragm-holder, constructed substantially as described, and consisting of the frame, so formed that each end will rest in a different plane and having attached thereto the journal 22 and the operating-lever 24, as and for the purpose set forth.

2. In an elevating device for phonograph-carriages, the combination with the carriage of the lever 11, the shaft 12 connected thereto, the crank-arm attached to said shaft and antifriction-rollers mounted upon said arm, all arranged and operatively combined as and for the purpose set forth.

3. The combination with a phonograph-carriage and tablet-carrying cylinder, of a paring device mounted upon said carriage and consisting of the shaft 31; an operating-lever attached thereto; center bearing-points for holding said shaft; a depending knife attached to the shaft and adapted to contact with the tablet at a point in advance of the recorder or following transcriber; a spring for normally holding said knife into engagement with the tablet, and a set-screw adapted to overcome said spring and regulate the cutting depth of said knife, substantially as and for the purpose set forth.

4. In a talking-machine the combination with the tablet-carrying cylinder, of a carriage, constructed substantially as shown, and provided with the diaphragm-carrying arm disposed radially with respect to the cylinder and adapted to form a seat upon its outer end for the diaphragm-holder and the paring-shaft, and upon its inner end provided with the bearing-seat for the set-screw 26 and the bearing-points 28 and 30, and antifriction-rollers mounted upon the under side of said carriage, as and for the purpose set forth.

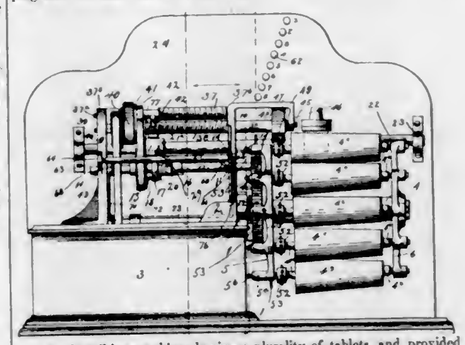
5. As an improvement in diaphragms the combination of the hollow plate-holding section; a suspended rim erected thereon; a terminal section having a collar or neck, substantially as described, adapted to bear against the diaphragm-plate mounted within said rim, and a housing adapted to partly inclose said terminal section and having a threaded connection with the hollow section and adapted to force the latter into close engagement with said terminal section, thus binding all the parts together, as and for the purpose set forth.

659,737. **TALKING-MACHINE.** George W. Gomber, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Nov. 9, 1896. Serial No. 611,562. (No model.)

Claim.—1. In a talking-machine, a sound reproducer or recorder, a series of sound-records, a carrier therefor, means for bringing any sound-record into coöperative relation with said sound reproducer or recorder, and stop mechanism for stopping any desired record when it is brought into coöperative relation with the sound reproducer or recorder, as set forth.

2. In a talking-machine, the combination with a frame, a recorder or reproducer, a series of tablets and a tablet-carrier, of automatic means for bringing any selected individual of the tablets into operative relation with the sound reproducer or recorder, and a push-button for releasing and mechanism for stopping said means, as set forth.

3. In a talking-machine, the combination with a frame, a recorder or reproducer, tablets and a tablet-carrier, of automatic means for bringing any selected individual tablet into operative relation with the sound reproducer or recorder, and a device for releasing and mechanism for stopping said automatic means, as set forth.



4. In talking-machines having a plurality of tablets, and provided with a recorder and reproducer and a series of buttons, automatic means for bringing any selected tablet into operative relation with the recorder or reproducer which are released by pushing one of said buttons corresponding to the selected tablet, as set forth.

5. In talking-machines, a series of tablets, a recorder and reproducer, a rotatable tablet-carrier, and automatic means for bringing any selected one of said series into operation and means for holding it until operated upon by the recorder or reproducer, as set forth.

6. In a talking-machine the combination with a frame, sound-receiver, tablet-magazine and magazine-driving mechanism, of a plurality of tablets carried in the magazine, and a corresponding plurality of magazine-stop mechanisms, adapted through manipulation thereof respectively to release the driving mechanism and stop any one of the tablets when in operative relation with the sound-receiver, substantially as set forth.

7. In talking-machines, the combination of a magazine of tablets, means to actuate the same, a diaphragm, a series of graduated stops carried by said magazine, and means coöperating with the stops for checking and holding the desired tablet when in coöperative relation with the diaphragm, as set forth.

8. In a talking-machine, the combination with a tablet-magazine having a fixed and a removable head, of a series of graduated stops so arranged in the periphery of the fixed head that they will coöperate with the stop mechanism, designed to hold any preferred tablet into coöperation with the recording-stylus, and means for automatically reversing the movement of the carriage and for sending it back to the initial point, substantially as described and for the purpose set forth.

9. As an improvement in talking-machines, the combination with the tablet-magazine and diaphragm-carriage; graduated stops on said magazine; a series of tumblers; a rocking shaft; a series of buttons; suitable connection between said tumblers and buttons and means mounted on said carriage for actuating said rocking shaft and thereby locking the tumblers, substantially as specified and for the purpose set forth.

10. As an improvement in talking-machines, the combination of a magazine of tablets; a diaphragm, means for bringing the tablets into coöperative relation with the diaphragm, a series of graduated stops carried by said magazine and means intermediate the carriage and stops for coöperating with said stops for checking the rotation of the magazine and holding the desired tablet thereon in coöperation with the diaphragm, substantially as specified and for the purpose set forth.

11. As an improvement in talking-machines, the combination with the tablet-magazine and diaphragm-carriage and a series of tumblers, of means, substantially as described, for automatically reversing and continuing the movement of the carriage and for locking the tumblers against upward movement, substantially as described and for the purpose set forth.

12. As an improvement in talking-machines, the herein-described diaphragm-carriage-reversing mechanism consisting of the cam-face rock-shaft, a spring-controlled lever for holding the inner edge of said shaft normally depressed, and means mounted upon the carriage for overcoming the tension of the spring in said spring-controlled lever, thereby elevating the inner edge of said shaft when the line of record has been transcribed, substantially as described and for the purpose set forth.

13. As an improvement in talking-machines, the combination with a plurality of tablets and a diaphragm-carriage, of a depending arm mounted on said carriage, a sleeve so disposed upon its shaft that it will rotate therewith and slide thereon when actuated by said arm, and an idler-pulley arranged to contact with said sleeve, and rotate therewith when they are forced together, and thereby reverse the movement of the magazine, as and for the purpose set forth.

14. In a reversing mechanism for tablet-magazines, the combination with the diaphragm-carriage, of a driving-shaft for said magazine having a sprocket fixedly secured to the inner end thereof designed to coact with the sprocket on the magazine-axle; an idler mounted on said shaft; a sleeve loosely keyed thereon and a depending arm connected to the carriage adapted to slide said sleeve into engagement with the idler when the carriage has moved back to its initial position, thereby causing said idler to rotate on its shaft, as and for the purpose set forth.

15. As an improvement in talking-machines, a tablet-magazine and means for checking the rotation of the same, consisting of a series of graduated stops secured to the outer side of the spindle-sockets, a series of tumblers for engagement therewith, a series of bars, each designed to act upon its respective tumbler, a series of buttons for actuating said bars, and individual springs for said bars disposed to normally withdraw each tumbler from the path of its stop as and for the purpose set forth.

16. The combination with a rotatable tablet-magazine of a series of stops carried thereby; a series of tumblers for engaging therewith; a series of bars, each designed to act upon its individual tumbler; a series of buttons for manipulating said bars and suitable means for disposing said buttons normally inward and thereby holding each tumbler out of the path of its individual stop, as and for the purpose set forth.

17. As an improvement in talking-machines, the combination with a recorder or reproducer and a tablet-magazine, of stop mechanism for said magazine, consisting of a series of graduated stops and tumblers therefor; a series of buttons corresponding to each individual tablet, and means intermediate said buttons and stops, whereby a pressure upon one of the buttons will hold one of the tumblers in such position that it will contact with the stop of the desired tablet and thereby hold said tablet into cooperation with the recorder or reproducer, substantially as specified and for the purpose set forth.

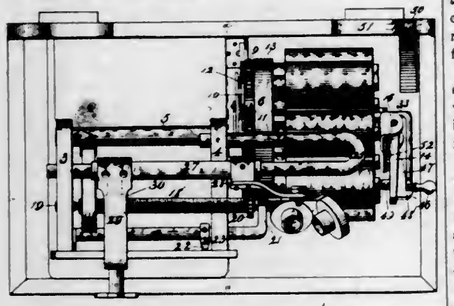
18. As an improvement in talking-machines, the combination with a transcribing-stylus a tablet-magazine, stop mechanism therefor, consisting of a series of graduated stops; a series of buttons referring respectively to an individual tablet, and means for so connecting said buttons and stops that a pressure upon one of the former will hold one of the latter in such position that the desired tablet will be locked in cooperation with the transcribing-stylus, substantially as described and for the purpose set forth.

19. In talking-machines, the combination with a tablet-magazine, means to actuate the same, a diaphragm-carriage and a series of tumblers, of means cooperating with said tumblers for checking the magazine and operating the diaphragm-carriage, as set forth.

20. In a talking-machine, a diaphragm-carriage a tablet-carrier, and means for operating the same, a series of tumblers, and means cooperating therewith for checking the tablet-carrier and means for operating the diaphragm-carriage, as set forth.

21. In a talking-machine, a sound reproducer or recorder; a magazine adapted to carry a plurality of tablets; automatic means for bringing, at will, any selected individual of the tablets into cooperation with the recorder or reproducer, and additional means for stopping and holding it until operated upon by said recorder or reproducer, as set forth.

659,738. TALKING-MACHINE. GEORGE W. GOMBER, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Feb. 24, 1897. Serial No. 624,823. (No model.)



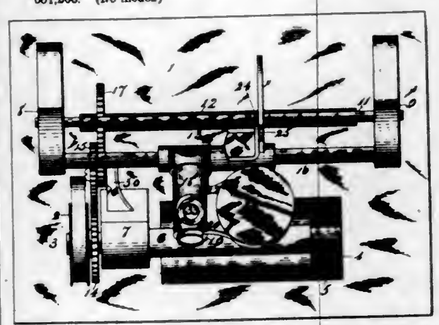
Claim.—1. In talking-machines, the combination of a rotatable magazine having a supporting-axle and means for operating the same consisting of a rock-shaft, a compound pawl attached to said shaft and to the axle of the magazine, an operating-lever connected to said shaft, and a pivoted arm secured to said axle and normally held in the path of the lever, all arranged as set forth.

2. In talking-machines, a rotatable magazine adapted to carry a plurality of tablets, each tablet-spindle on said magazine having a driving-gear, in combination with a driving-shaft having a transmitting-gear upon its free end adapted to coöperate with the spindle-gears, the outer end of said shaft being movably mounted upon a rocking arm 21 and suitable means to hold said arm normally downward whereby the transmitting-gear will be permitted to move out of the path of the spindle-gears, all substantially as specified and for the purpose set forth.

3. In talking-machines, a magazine having a plurality of tablet-spindles, each spindle having an actuating-gear, in combination with a driving-shaft having a transmitting-gear designed to coöperate with said spindle-gears, the end of said shaft carrying said transmitting-gear being mounted upon a movable arm, a spring adapted to so hold said arm that the transmitting-gear will be disposed in the path of the spindle-gears, though permitting it to have the power to move out of said path when it is desired to pass any one of the spindles without operating it, all substantially as specified and for the purpose set forth.

4. In talking-machines, a rotatable magazine having a plurality of tablets, a transmitting-gear secured to the shaft of each tablet; a driving-gear adapted to coöperate successively with said transmitting-gears and means substantially as described whereby said actuating-gear is automatically moved out of the path of the transmitting-gear though normally disposed in said path all arranged as set forth.

659,739. PHONOGRAPH. GEORGE W. GOMBER, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed Apr. 3, 1897. Serial No. 631,268. (No model.)



Claim.—1. As an improvement in talking-machines, the combination with a sound-box carriage, of a slotted power-transmitting spring, bent back upon itself, and a nut-section secured to the free end of said spring, the screws being opposite to and accessible through the slot in the spring, substantially as set forth.

2. In talking-machines, the combination of a sound-box, a supporting-post and a tubular holder open at its free end and having a longitudinal slot into which fits the neck of the sound-box, said holder being provided with a transmitting orifice or nozzle, all arranged as set forth.

3. As an improvement in talking-machines, the combination with the sound-box carriage, of a controlling-lever pivotally mounted on said carriage and having upon its enlarged end the cam-slot 26, and a guide-rod working in said slot, substantially as described and for the purpose set forth.

4. As an improvement in talking-machines, the combination with a supporting-post and tubular bearing extending through the same, a shaft working in said bearing which extends along and supports the shaft nearly its entire length, and a mandrel secured to the shaft, substantially as set forth.

5. As an improvement in talking-machines, the combination with a sound-box carriage, of a tubular sound-box mounted thereon open at its outer end and provided laterally with a longitudinal slot cutting said open end, a sound-box provided with a hollow head and diminished neck, the axis of the head being located at one side of and in a line parallel to a tangent of the sound-box, the head fitting within the holder and the neck entering the slot thereof, and sound-transmitting opening communicating through the head and neck with the interior of the sound-box, substantially as set forth.

6. As an improvement in talking-machines, the combination with a sound-box carriage, of a tubular holder mounted thereon, a sound-box having a hollow head located to one side of and its axis in a line parallel to a tangent of the sound-box, and a counterpoise upon the head adapted to counteract the weight of the sound-box, substantially as set forth.

7. As an improvement in talking-machines, the herein-described

tablet-paring knife, consisting of the base or body; a depending spring secured thereto and having its free end so bent and shaped as to provide a socket adapted to receive and retain the cutting-blade, and means for moving the knife in or out of the path of the tablet-surface, substantially as described and for the purpose set forth.

8. As an improvement in talking-machines, the combination with a sound-box having a bifurcated post secured directly to the lower surface thereof, of a pivoted lever mounted on said post, a link connecting the lever and sound-box, said lever having an aperture in its opposite end; a stylus-carrying arm mounted in said aperture and having its lateral movement circumscribed by the bifurcated ends of said standard and further designed to carry the stylus-point, all operatively combined and arranged in the manner and for the purpose set forth.

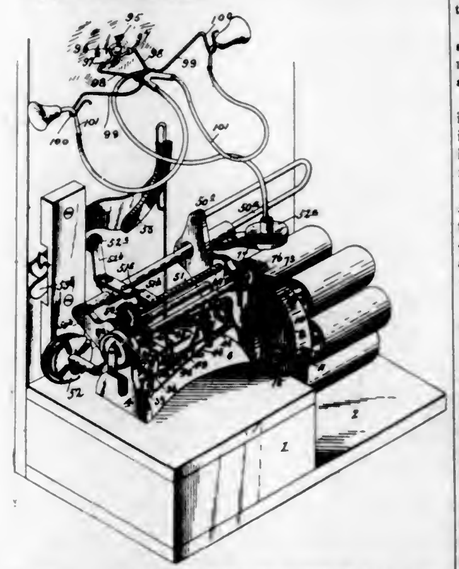
9. In talking-machines, a sound-box having a bifurcated standard and a depending link, a lever pivoted in said standard and connected with said link, and also having an aperture, a stylus having a lug seated in said aperture whereby the lateral swing of the stylus is controlled as set forth.

10. In phonographs, a sound-box having a head 21 and neck 22, a carriage having a slotted tubular projection, said neck fitting the slot and said head telescoping in the tubular projection, all combined as set forth.

11. In phonographs, a sound-box having a perforated flange, a carriage for said box having a nozzle and an air-passage connecting said box and nozzle, all arranged as set forth.

12. In phonographs, a sound-box carriage provided with a paring device having a spring, a knife supported by said spring and means to adjust the position of the knife, all arranged as set forth.

659,740. TALKING-MACHINE. GEORGE W. GOMBER, Conyngham, Pa., assignor, by mesne assignments, to the American Multiplex Talking Machine Company, of West Virginia. Filed May 13, 1899. Serial No. 716,671. (No model.)



Claim.—1. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, a diaphragm-carriage and carriage-driving mechanism, of a shaft connected with the magazine and with the carriage-driving mechanism, respectively, and means for making and breaking the connection with the carriage-driving mechanism at predetermined intervals, substantially as set forth.

2. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, a shaft operatively connected at one end with the tablet-magazine, and a lever movably supporting it at the other end, tablet-magazine-driving mechanism, a diaphragm-carriage and diaphragm-carriage-driving mechanism, of means upon the shaft adapted to connect and disconnect the two driving mechanisms, and means for operating the lever, substantially as set forth.

3. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, a shaft operatively connected at one end with the tablet-magazine, and a lever movably supporting it at the other end, tablet-magazine-driving mechanism, a diaphragm-carriage, and diaphragm-carriage-driving mechanism, of means upon the shaft adapted to connect and disconnect the two driving mechanisms, and means for automatically operating the lever to render the magazine intermittently operative, substantially as set forth.

4. In a talking-machine, the combination with a frame, tablet-magazine adapted to carry tablets, driving mechanism for the magazine including a shaft loosely journaled at one end and yieldingly supported at the other end, actuating mechanism for the diaphragm-carriage, of means on said shaft adapted to connect and disconnect the actuating and the driving mechanism, as set forth.

5. In a talking-machine, tablet-magazine and driving mechanism therefor including a shaft having a pinion, a pivoted lever in which the shaft is journaled at one end and means to elevate the free end of the lever, all arranged as set forth.

6. In a talking-machine, a tablet-magazine, a shaft having a pinion and supporting said magazine, driving mechanism therefor including a swinging shaft having a pinion and means to elevate said swinging shaft, all arranged as set forth.

7. In a talking-machine, a shaft, a tablet having a slot supported on said shaft, said tablet having a recessed disk, a retaining-spring having one end fitted into said recess and a curved section extending through said slot, as set forth.

8. In a talking-machine, means to operate the machine including a driving-shaft provided with a pinion, a lever in which one end of said shaft is journaled and a device to operate the free end of said lever whereby the pinion may be elevated or depressed, all combined substantially as set forth.

9. In a talking-machine, means to operate the machine including a driving-shaft provided with a pinion, a lever in which one end of said shaft is journaled, a threaded shaft provided with a pinion and operating the diaphragm-carriage and means to operate the free end of the lever whereby the pinion on the driving-shaft is thrown into and out of gear with the pinion on the threaded shaft, all combined as set forth.

10. In a talking-machine, tablet-magazines, a shaft rotating the same and pivoted at one end in an adjustable lever having a free outer end, a movable standard supporting said free end and a spring pressing the standard in an outward direction, all combined as set forth.

11. In a talking-machine, a driving-screw carrying a carriage having an arm coöperating with a crank-shaft, a spring 42 and a lug 47 locking said shaft in position, a device carried by the carriage to release the lug and means to elevate the cam-shaft and thereby disengage the carriage from the driving-screw, all combined as set forth.

12. In a talking-machine, a driving-disk carrying tablet-magazines and further provided with teeth, a driving-shaft having a gear adapted to engage said teeth, and also having a radially-slotted sleeve loosely secured on said shaft and rotating therewith, and a spring secured to the shaft and sleeve whereby the jar will be absorbed on the starting of the machine, all combined as set forth.

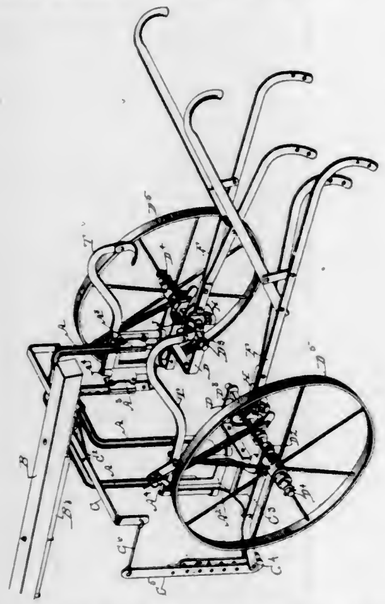
659,741. WHEEL-CULTIVATOR. MUCKERSIE G. GRAHAM, Ottumwa, Iowa. Filed June 8, 1900. Serial No. 19,645. (No model.)

Claim.—1. In a wheel-cultivator, an arched frame, auxiliary frames hinged to the ends of the arched frame and mounted upon wheels, a pole pivoted to the top and center of the arched frame to allow lateral motion of the free end of the pole relative to said arched frame and auxiliary frames and a spring for normally retaining the pole at right angles to the arched frame, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a wheel-cultivator, an arched frame, an auxiliary frame hinged to each end of the arched frame, axles fixed to said auxiliary frames, traction-wheels on the axles, a pole pivoted to the top and center of the arched frame, a device fixed to the arched axle to engage the free end of a spring, a leaf-spring fixed to the pole to engage said device, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a wheel-cultivator, an arched frame, a flat bar bent upward at its rear end and said rear end fixed to the rear end of a pole, a flat metal plate fixed to the under side of the pole, a cross-piece pivoted between the rear and parallel end portions of said flat bar and flat plate, the rear member of an arched frame composed of two mating parts fixed to said pivoted cross-piece, a metal frame fitted between the front end portions of said flat bar and flat plate, the front member of the arched frame fixed to said metal frame, a coupling-pin extended through coinciding holes in the pole, the flat bar and flat plate fixed to the under side of the pole and the frame fitted between the said flat bar and plate, a fulcrum fixed between said flat bar and plate to engage the front member of the arched frame and a leaf-spring fixed to the under side of the pole, to extend into an opening in the frame to which the front member of the arched frame is fixed, all arranged and combined to operate in the manner set forth for the purposes stated.

4. In a wheel-cultivator, a pole, two mating members of an arched frame, a plate or bar fixed at its rear end to the pole, a cross-piece pivoted on top of said bar and fixed to the center of the rear mating member of said arched frame, a fulcrum fixed on top of the said bar to engage the front mating member of the arched frame, a frame pivotally connected with the pole and provided at its front end with a slot to admit the end of a spring, the front member of the arched frame fixed to said pivoted frame and a leaf-spring fixed to the under side of the pole and its free end extended into the slot of said pivoted frame, all arranged and combined to operate in the manner set forth for the purposes stated.



5. In a wheel-cultivator, an arched frame composed of two mating members, a pole pivotally connected with the top and center of said frame, means for normally retaining the pole at right angles to the frame and an evener pivotally connected with the pole, to operate in the manner set forth for the purposes stated.

6. In a wheel-cultivator, an arched frame composed of two mating members, auxiliary frames hinged to the lower ends of said mating members of the arched frame, a pole pivotally connected with the center of the arched frame, means for normally retaining the pole at right angles to the arched frame, an evener pivoted to the under side of the pole and between the mating parallel members of the arched frame, levers pivoted to lateral extensions at the lower ends and fronts of the auxiliary frames and connected at their top ends with the ends of said evener, by means of straight links, and adapted to support singletrees, arranged and combined to operate in the manner set forth, for the purposes stated.

7. In a wheel-cultivator, an arched frame, an auxiliary frame hinged to each end of the arched frame, horizontal projections at the lower ends of the auxiliary frames extending rearward and adapted to support a rock-shaft, angular rock-shafts journaled to said horizontal projections and each rock-shaft terminating in an axle for a traction-wheel, and means for detachably and adjustably connecting a cultivator-beam with each rock-shaft, arranged and combined to operate in the manner set forth for the purposes stated.

8. In a wheel-cultivator, a rock-shaft in bearings fixed to the frame and terminating in an axle for a wheel, a clevis on the end of a beam, a pin extended vertically through the clevis, a knuckle adjustably hinged to the pin and provided with mating horizontal extensions that have inclined inside faces, a washer having mating horizontal extensions and their outside faces inclined and their inside faces fitted to an angular portion of the rock-shaft, and eyebolts connected with the pin and the washer-plate for clamping the rock-shaft to a knuckle on the pin and means for adjusting the knuckle on the pin and fastening it to the pin at different points of elevation relative to the clevis, all arranged and combined to operate in the manner set forth for the purposes stated.

9. A wheel-cultivator comprising an arched frame, auxiliary frames hinged to the lower ends of the arched frame, a pole pivoted to the center of the arched frame, an evener pivotally connected with the center of the arched frame, levers connected with the ends of the evener and the auxiliary frames to support singletrees, rock-shafts rigidly connected with the auxiliary frames and terminating in axles to support wheels, traction-wheels on said axles, cultivator-beams having fixed clevises on their ends and means for hinging the clevises to said rock-shafts, all arranged and combined to operate in the manner set forth for the purposes stated.

10. A wheel-cultivator comprising an arched frame, auxiliary frames hinged to the lower ends of the arched frame, a pole pivoted to the center of the arched frame, an evener pivotally connected with the center of the arched frame, levers connected with the ends of the evener and the auxiliary frames to support singletrees, rock-shafts rigidly connected with the auxiliary frames and terminating in axles to support wheels, traction-wheels on said axles, cultivator-beams having fixed clevises on their ends, pins fixed in the clevises, knuckles hinged to the pins and provided with extensions for clamping them to the rock-shafts, washer-plates having extensions to stride the axles, eyebolts for clamping the washer-plates to the knuckles and means for adjusting and fastening the knuckles on the pins, all arranged and combined to operate in the manner set forth for the purposes stated.

659,742. **WRITING-TABLET.** Michael J. Green, New York, N. Y., assignor to Blanche M. Green, same place. Filed July 27, 1900. Serial No. 25,003. (No model.)



Claim.—1. A writing-tablet, comprising a base having at one end longitudinal loops adapted to receive a "copy-slip," and a movable writing-sheet, substantially as described.

2. A writing-tablet, comprising a base having at one end longitudinally-arranged loops, a reinforcing-strip secured between said loops by its ends and left free between said ends, the loops being adapted to receive the "copy-slip," beneath which slip and the reinforcing-slip a writing-sheet may be movably applied, substantially as described.

3. A writing-tablet, for use in teaching writing, comprising a base having longitudinal loops at its ends which are adapted to receive a "copy-slip," beneath which slip and upon the base a writing-sheet may be placed and progressively moved as each line is filled, so as to present a fresh line immediately adjacent to the copy-slip, substantially as described.

659,743. **SHORT-TURNING GEAR FOR VEHICLES.** William R. Green, Ragsdale, Ky. Filed June 19, 1900. Serial No. 20,842. (No model.)

Claim.—1. In a running-gear for vehicles, the combination with front and rear axles and bolsters pivoted thereon, of a reach connecting the axles, segmental gears carried by and movable with said axles, a driving-shaft supported from said reach, and a pinion supported upon said shaft and connected with one of said bolsters to mesh with one of said movable gears and move therewith in the adjustment of the axle upon the reach; substantially as specified.

2. In a running-gear for vehicles, the combination with front and rear axles and bolsters pivoted thereon, of a reach connecting the axles, segmental racks carried by and movable with said axles, a driving-shaft supported from said reach, and pinions supported upon said shaft and connected with said bolsters to mesh with said racks, one of which pinions is adapted to be adjusted longitudinally of the driving-shaft and reach; substantially as specified.

3. In a running-gear for vehicles, the combination with front and rear axles provided with segmental racks, of a reach adjustably connected with one of said axles, bolsters pivoted upon each of said axles, collars supported from each of said bolsters and slidingly mounted upon said reach, a driving-shaft supported from said collars, and pinions upon said shaft held in constant relation to mesh with said racks by said collars; substantially as specified.

4. In a running-gear for vehicles, the combination with front and rear axles provided with segmental racks, of a reach adjustably connected with one of said axles, bolsters pivoted upon each of said axles, collars supported from each of said bolsters and slidingly mounted upon said reach, a driving-shaft supported from said collars, and pinions upon said shaft adapted to mesh with said racks, one of which is guided in its longitudinal movement upon the shaft by projections from one collar; substantially as specified.

5. In a running-gear for vehicles, the combination of front and rear axles provided with segmental racks, a reach adjustably connected with one of said axles, bolsters pivoted upon each of said axles, sliding collars secured to said bolsters and mounted upon said reach, depending hangers from said collars, a driving-shaft rotatably mounted in the lower portion of said hangers, and pinions located between the hangers of each collar and adapted to mesh with said racks and move therewith in the adjustment of the axle upon the reach; substantially as specified.



659,744. **NUT AND BOLT LOCK.** Estill C. Guerrant, Memphis, Tenn., assignor of one-fourth to Richard P. Woodson, same place. Filed Feb. 5, 1900. Serial No. 4,026. (No model.)

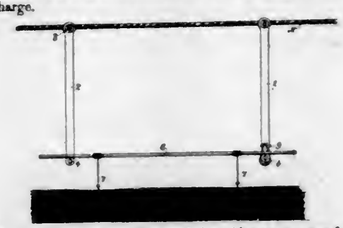


Claim.—1. In a nut and bolt lock, a washer, having rigid points or biting projections arranged in the bolt-opening at diagonally-opposite points and tapering inversely throughout their length at an oblique angle to the axis of said bolt-opening and having their sides beveled to a penetrating edge, said points being adapted to be forced into opposite sides of the bolt upon forcing the washer from an oblique to a right-angular position thereon simultaneously with the screwing home of the nut, substantially as described.

2. In combination with a bolt, and cooperating nut, an anchoring-washer having rigid points or biting projections arranged in the bolt-opening at diagonally-opposite points and tapering inversely throughout their length at an oblique angle to the axis of said bolt-opening and having their sides beveled to a penetrating edge, said points being adapted to be forced into opposite sides of the bolt upon forcing the washer from an oblique to a right-angular position thereon simultaneously with the screwing home of the nut, and a lock-washer adapted to be clamped between the anchoring-washer and nut and adapted to have portions reversely bent to engage with, respectively, the anchoring-washer and nut, substantially as described.

659,745. **CONVEYER FOR ROPEWAYS.** Andrew S. Hallidie, San Francisco, Cal.; Martha E. Hallidie executrix of said Andrew S. Hallidie, deceased. Filed Dec. 26, 1899. Serial No. 741,598. (No model.)

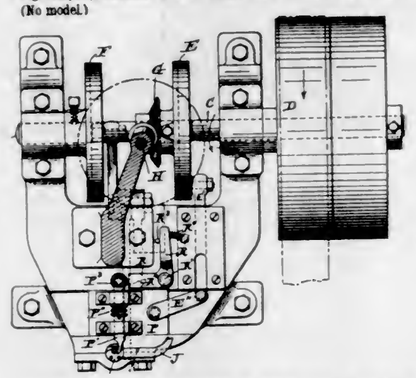
Claim.—1. A rope or tramway carrier consisting of hangers engaging a cable, arms projecting approximately horizontal from said hangers, a pole extending between and adapted to be supported upon the arms of said hangers, slings by which the bundle is suspended from the pole during transportation, and means for disengaging the pole and bundle at the point of discharge.



2. A rope-tramway carrier, consisting of hangers, means for connecting the hangers with the traveling rope, arms carried by the hangers and adapted to support a pole which extends from one hanger-arm to the other, slings fixed to said pole adapted to sustain and carry the bundle to be transported, and latch mechanism by which one or both of the arms are disengaged to drop the pole and bundle at the point of delivery.

3. An endless traveling rope-tramway carrier consisting of hangers, means for supporting and connecting said hangers with the traveling rope, hinged arms projecting approximately horizontal from one or both of the hangers, a pole adapted to rest upon and be supported by said arms, slings within which the bundles are maintained, means for securing said slings to the pole, and a latch mechanism by which one or both of the arms are disengaged so as to drop the bundle at the delivery-station.

659,746. **MACHINE FOR SETTING LACING-HOOKS.** Robert F. Hargraves, Providence, R. I., assignor to the Halkyard Manufacturing Company, of Rhode Island. Filed Feb. 21, 1900. Serial No. 6,074. (No model.)



Claim.—1. In a machine for setting lacing-hooks, the combination of a track along which the hooks may slide, and a device for separating the hooks one from another and placing them in position for setting, consisting of a carrier-block and mechanism to move it, a finger mounted to slide bodily on said block transversely thereof, mechanism by which the finger is removed from the path of the hooks when the carrier-block is moved in one direction, and mechanism which places it in the path of the hooks to move them when the carrier-block is moved in the opposite direction.

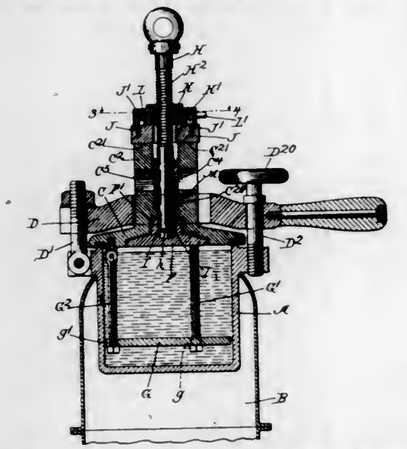
2. In a machine for setting lacing-hooks, the combination of a track along which the hooks may slide, and a device for separating the hooks one from another and placing them in position for setting, consisting of a finger, mechanism for moving the finger to and fro laterally in a straight line, and mechanism by which the finger is removed from the path of the hooks upon the track when moved laterally in one direction and means whereby it is returned and held in their path to move them when moved in the other direction.

3. In a machine for setting lacing-hooks, the combination of a track along which the hooks may slide, and a device for separating the hooks one from another and placing them in position for setting, consisting of a reciprocatory carrier-block, a finger mounted to slide bodily transversely thereof and a spring to keep the finger normally in the path of the hooks, mechanism to slide the finger bodily laterally in a straight line, and a double cam mounted upon a pivoted swinging lever normally in the path of a portion of the finger and constructed to withdraw said finger from the path of the hooks when it is moved laterally in one direction and to be swung out of the way by the lateral movement of the finger in the opposite direction.

4. In a machine for setting lacing-hooks, the combination of a track along which the hooks may slide, and a device for separating the hooks one from another and placing them in position for setting, consisting of a finger, a spring to control the finger, mechanism to move the finger to and fro laterally, a swinging bell-crank lever, a spring acting on one arm thereof, a device mounted on the under side of the other arm of said lever, said last-mentioned spring placing the latter device in the path of a portion of the finger when the latter is moved laterally in one direction but which permits it to be swung out of the way when the finger moves laterally in the other direction.

5. In a machine for setting lacing-hooks, the combination with a track along which the hooks may slide, and a device for separating the books one from another and placing them in position for setting, consisting of a reciprocatory carrier-block, a spring-actuated finger mounted to move in a straight line to traverse the block at right angles to the direction of travel of the latter, and means engaged by means on said finger for removing the finger from the path of the hooks when the carrier-block moves in one direction and means for placing it in the path of such hooks when the carrier-block is moved in the opposite direction, as set forth.

659,747. DENTAL VULCANIZER AND CELLULOID-PRESS. Henry Hartwig and Adam W. Feltmann, Chicago, Ill. Filed Nov. 4, 1899. Serial No. 735,852. (No model.)



Claim.—1. An apparatus for the purpose indicated, comprising a pot and a cover adapted to be secured thereon, having suspended on its lower side into the pot a support for the flask; a follower for closing up the flask having its stem extending through the cover and in position to be operated by hand; and means disengageably connected with the stem for holding it against withdrawal or advance under direct longitudinal pressure in either direction; whereby the condition of the material which is molded in the flask may be tested by direct hand-pressure on the stem, and mechanical power may be applied to compress it.

2. An apparatus for the purpose indicated, comprising a pot, a cover, and a flask-supporting cage suspended therefrom within the pot, a flask within the cage, a stem for operating the follower extending out through the cover and threaded, and a divided nut mounted on the cover and adapted to be closed up to engage the threaded portion of the stem and to be opened to release the same at will.

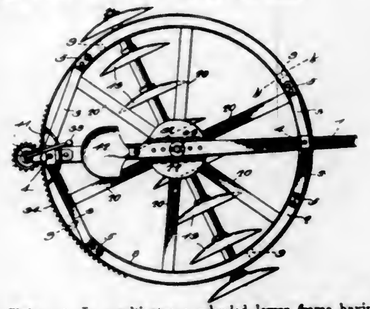
3. In an apparatus for the purpose stated in combination with the pot and means therein for supporting the flask, a follower adapted to be advanced upon the flask to close it up and having a stem which extends out through the cover and is threaded, and a divided nut mounted on the cover and stopped against movement longitudinally with respect to the stem, and adapted to be closed up to engage the latter and to be opened to release it, as well.

4. An apparatus for the purpose indicated, comprising the pot, means for supporting the flask therein, the follower within the pot and a stem for the same extending out therefrom; mechanical means for operating upon the stem for advancing the follower, adapted to be engaged therewith and released therefrom at will; whereby the follower may be advanced by the hand of the operator and then engaged with the mechanical devices and retained, or further advanced, at will.

5. In combination with the pot and the cover for the same, the follower having its stem extending out through the cover, the latter having a seat, C^{21}, extending transversely to the axis of the stem, the divided nut lodged in said seat, and the cam-plate L journaled about the stem and longitudinally stopped in respect to the axis of its journal-bearing, and having eccentric slots, L', L', the two parts of the nut having abutments which engage such slots, whereby the rotation of the plate opens and closes the nut.

6. In combination with the pot, the cover having the extended hub or turret, the follower having its stem extended through such hub and threaded on an upper portion of its length, a divided nut mounted in the turret, adapted, when closed up, to engage the threaded portion of the stem, and suitable means for closing it up, the hub, having a packing-cavity below the seat of the divided nut, and threaded below said seat; a nut to engage with such threaded portion to compress the packing, the hub being transversely apertured above the packing-seat and giving access to the packing-nut for the purpose of operating it.

659,748. DISK CULTIVATOR. Robert L. Hill, Saticoy, Cal. Filed July 13, 1900. Serial No. 23,498. (No model.)



Claim.—1. In a cultivator, a wheeled lower frame, having cultivator disks or shovels, an upper frame rotatably mounted upon the lower frame, and having a tongue or draft-bar, and means for adjustably turning the upper frame upon the lower frame.

2. In a cultivator, a circular wheeled lower frame, having cultivator disks or shovels, and an upper frame, comprising a diametrically-disposed tongue or draft-bar, hangers pendent therefrom, and a circular frame carried by the hangers and rotatably supported upon the lower circular frame.

3. In a cultivator, a wheeled lower frame, comprising a channeled ring, and cultivator disks or shovels, and an upper frame, comprising a ring rotatably mounted within the channeled ring, and having a tongue or draft-bar.

4. In a cultivator, a wheeled lower frame, comprising a channeled ring, having antifriction-rollers mounted therein, and cultivator disks or shovels, and an upper frame, comprising a ring rotatably mounted within the channeled ring and upon the antifriction-rollers, a diametrically-disposed tongue or draft-bar, and hangers connecting the tongue to the upper ring.

5. In a cultivator, a lower frame, comprising a ring, diametrically-opposite hangers pendent therefrom, a shaft journaled in the hangers, cultivator-disks mounted upon the shaft, and an upper frame comprising a ring rotatably mounted upon the lower ring, a diametrically-disposed tongue or draft-bar located above the rings, and hangers connecting the upper ring to the tongue.

6. In a cultivator, a relatively-fixed lower frame, having cultivator disks or shovels, and a segmental rack, and an upper frame rotatably mounted upon the lower frame, and having a tongue or draft-bar, a shaft carried by the upper frame, a pinion fixed upon the shaft and in mesh with the rack, and means for operating the shaft to travel the pinion upon the rack and thereby adjustably turn the upper frame upon the lower frame.

7. A cultivator, comprising upper and lower concentrically-swiveled frames, a draft-bar for the upper frame, cultivator disks or shovels for the lower frame, and adjusting means for turning the upper frame upon the lower frame, said means being carried by the upper frame and traveling upon the lower frame.

8. In a cultivator, a pair of upper and lower concentrically-swiveled frames, cultivator disks or shovels for the lower frame, a fixed and centrally-located upright standard rising from and carried by the lower frame, a tongue or draft-bar swiveled upon the upper end of the standard, and pendent brace connections between the tongue and the upper frame.

9. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, an upright standard rising from the lower frame and projecting above the upper frame, a tongue or draft-bar swiveled upon the upper end of the standard, braces between the tongue and the upper frame, and other braces between the upper end of the standard and the lower frame.

10. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, a standard rising from the center of the lower frame, and provided at its upper end with a plate or head, a tongue disposed diametrically of the frames, a bearing-plate carried by the tongue and resting upon the head of the standard, a swivel pin or bolt connecting the bearing-plate and the head, and braces between the tongue and the upper frame.

11. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, an upright standard rising centrally from the lower faame, and provided at its upper end with a circular head, a diametrically-disposed tongue or draft-bar, a flanged bearing-plate fixed to the tongue and loosely embracing the head of the standard, antifriction-rollers interposed between the bearing-plate and the head, and a swivel bolt or pin connecting said plate and head.

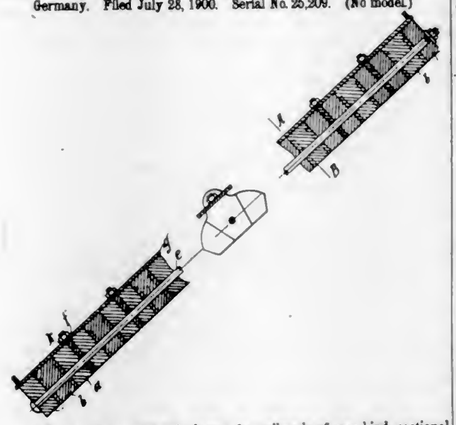
12. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, an upright tubular standard rising centrally from the lower frame, and provided at its upper end with a head, a tongue or draft-bar arranged diametrically across the upper end of the standard, and a swivel pin or bolt passing through the tongue and the head of the standard and into the interior of the latter.

13. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, an upright tubular standard rising centrally from the lower frame, and provided with a circular head having a central perforation, a tongue arranged diametrically across the upper end of the standard, a bearing-plate secured to the tongue, and provided with a pendent marginal flange loosely embracing the head, antifriction-rollers carried by the bearing-plate and traveling upon the head, and a swivel pin or bolt passing loosely through the tongue, the bearing-plate and the head, the lower end of the pin being received within the standard, and both ends having nuts or the like.

14. In a cultivator, a pair of superposed concentrically-swiveled frames, cultivator disks or shovels for the lower frame, a segmental rack thereon, a diametrically-disposed tongue or draft-bar located above the frames, connections between the tongue and the upper frame, a vertically-disposed shaft carried by the upper frame, a pinion at the lower end of the shaft and in mesh with the rack, a crank-handle hingedly or pivotally connected to the upper end of the shaft, and a segmental rack carried by the upper frame and arranged for engagement by the crank-handle.

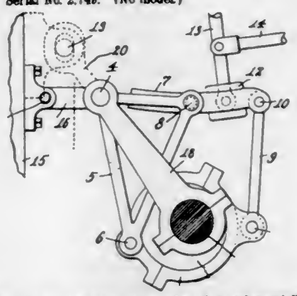
15. In a cultivator, a lowering-frame, having one or more diametric braces, hangers pendent from the ring, a shaft mounted upon the hangers, cultivator disks or shovels carried by the shaft, an upright standard rising centrally from the diametric brace, outwardly and downwardly inclined braces between the upper end of the standard and the lower side of the ring, an upper ring rotatably mounted upon the lower ring, a tongue or draft-bar arranged diametrically across the upper end of the standard, front and rear braces betwen the tongue and the upper ring, a head for the upper end of the standard, a bearing-plate carried by the tongue and cooperating with the head, and a pivot pin or bolt forming a swiveled connection between the plate and the head.

659,749. RAILROAD-SLEEPER. Heinrich Jassoy, Stuttgart, Germany. Filed July 28, 1900. Serial No. 25,209. (No model.)



Claim.—In a sectional sleeper for railroads of any kind sectional pieces, *a*, *b*, having tongues or projections *d*, and corresponding recesses *c*, and a bolt *e*, for effecting their union in combination with a top plate or rail *g*, secured to the top of the sectional sleeper by locking plates or bolts *f*, thereby preventing change of rail distance and causing an even distribution of weight upon the road-bed, substantially as described.

659,750. VALVE-GEAR. Lincoln A. Lang, Yule, N. D., assignor to the Lang Radial Valve Gear Company, St. Paul, Minn. Filed Jan. 25, 1900. Serial No. 2,749. (No model.)



Claim.—In a valve-gear, the combination, substantially as set forth, of a shaft, an eccentric thereon, a rodless eccentric-strap carrying a pair of pivots, a stretcher engaging the shaft, a guide for the outer end of the stretcher, a pivot carried by the stretcher, a bell-crank lever mounted on said pivot and capable of pivotal motion only with reference to said stretcher and having one of its arms engaging one of the pivots of the eccentric-strap, a link pivoted to the other extremity of said bell-crank lever, and a connecting-bar connecting the other pivot of the eccentric-strap with the link.

659,751. COFFIN-SUPPORT. Fred E. Meehler, Canton, Ill. Filed Mar. 15, 1900. Serial No. 8,809. (No model.)



Claim.—1. In a device of the character set forth, a bar made up of two sections which are connected by a hinge so that when the sections are in alinement the adjacent ends will abut, rollers journaled in said bars to project beyond one side of the sections, a rigid stop attached adjacent to the end of one of the sections and a spring-catch attached to the other section, substantially as shown.

2. In a device of the character described, a bar or support made up of two sections, one section being longer than the other, the shorter section having attached thereto a projecting portion or stop, a plurality of rollers, journaled to project beyond the face of the sections of the bar, and a spring-catch, substantially as shown, and for the purpose set forth.

3. In a device of the character described, a bar made up of two sections which are hinged to each other so that the ends will abut when the sections are in alinement, a series of projecting rollers journaled in the sections, plates attached to the bar to retain the rollers in place, a stop or projection on one of the sections and a depressible spring-catch on the other section, substantially as shown.

4. In a device of the character described, a bar or grave-stick made up of two sections which are hinged together in such a manner that they will be rigid when brought in alinement, antislipping devices on the under side of the ends of the sections, rollers and stops attached to the upper sides of the sections so as to project above the plane thereof, substantially as shown.

659,752. PNEUMATIC COTTON-PICKER. William H. Meyers, Sturgis, Ky., assignor of one-half to Green W. Pritchett, Corydon, Ky. Filed Mar. 28, 1900. Serial No. 10,525. (No model.)

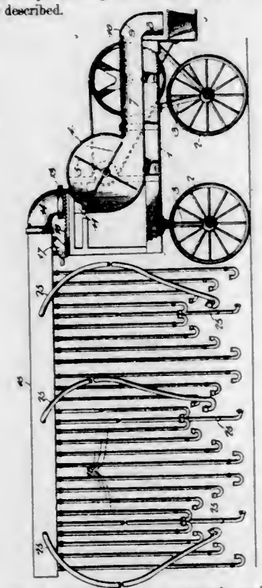
Claim.—1. In a cotton-picking machine, a fan-casing, a pneumatic trunk pivotally connected thereto and flexible pneumatic picker-tubes attached to said trunk, substantially as described.

2. In a cotton-picking machine, the combination with a fan-casing, a pneumatic trunk pivotally connected thereto, means to secure said trunk at any desired adjustment, and flexible pneumatic picker-tubes attached to said trunk, substantially as described.

3. In a pneumatic cotton-picker, a flexible pneumatic picking and conveying tube having an upturned mouthpiece, and means to create an exhaust-air current through said tube, the said mouthpiece being the intake of said exhaust-air current, substantially as described.

4. In a pneumatic cotton-picker, a flexible pneumatic picking and conveying tube having an upturned mouthpiece, said mouthpiece being flared upwardly, and means to create an exhaust-air current through said

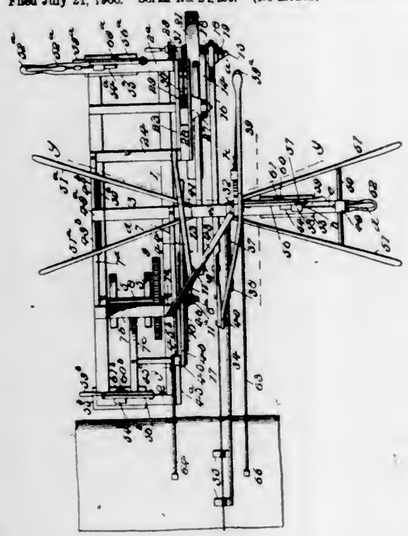
tube, the said mouthpiece being the intake of said exhaust-air current, substantially as described.



5. In a pneumatic cotton-picker, a pneumatic trunk, flexible pneumatic picker-tubes communicating therewith and depending therefrom, said picker-tubes having upturned mouthpieces at their lower ends forming air-intakes and means to create exhaust-air currents through said flexible depending picker-tubes and said pneumatic trunk, substantially as described.

6. In a pneumatic cotton-picker, the combination with a fan-casing and an exhaust-fan therein, of a pneumatic trunk communicating with said casing, said trunk being pivotally supported and adapted to be swung to any desired angle to either side of the machine, and a series of flexible pneumatic picker-tubes attached to and depending from the said trunk, the said depending, flexible picker-tubes having the upturned mouthpieces at their lower ends forming air-intakes for the exhaust-air currents created by the fan, for the purpose set forth, substantially as described.

659,753. DRAG-SAW. William A. Miller, Wapinitia, Oreg. Filed July 21, 1900. Serial No. 24,429. (No model.)



Claim.—1. In a drag-saw, a fixed frame, a vertically-movable frame, means for adjusting the movable frame vertically and holding it in an adjusted position, a longitudinally-curved guideway horizontally disposed at the lower end of the movable frame, a swinging bar fulcrumed at its upper end to the top part of the movable frame, a saw, means for raising and lowering the saw independent of the movable frame, and attached to the fixed frame, a connection between the saw and the aforesaid guideway and directed in its movements thereby and having the lower end of the swinging bar connected therewith, and means for imparting an oscillatory movement to the said swinging bar, substantially as described.

2. In a drag-saw, a fixed frame, driving mechanism applied thereto, a vertically-movable frame, means for adjusting the frame vertically and holding it in an adjusted position, a curved guideway arranged horizontally at the lower end of the said movable frame and adjustable therewith, a saw, means for raising and lowering the saw and adapted to hold it at any desired elevation, a swinging bar fulcrumed to the upper end of the movable frame, an arm attached to the saw, means connecting the arm and lower end of the swinging bar and directed in its movements by the aforementioned guideway, and a connection between the driving mechanism and the swinging bar, substantially as specified.

3. In a drag-saw, a fixed frame, a movable frame mounted for vertical adjustment, a curved guideway attached to the said movable frame, a saw, an arm secured to the saw and directed in its reciprocating movements by the said curved guideway, a swinging bar fulcrumed to the movable frame and having connection with the arm of the saw, driving mechanism mounted upon the fixed frame, and a connecting-bar between the driving mechanism and the swinging bar, substantially as specified.

4. In a drag-saw, a frame projected vertically from the base portion of the main framework, a vertically-movable frame, means between the two frames for adjusting the movable frame to the required elevation, clips for connecting the two frames and provided with clamping means for securing the movable frame in an adjusted position, a swinging bar fulcrumed to the movable frame, a saw having connection with the swinging bar to be reciprocated thereby, and actuating mechanism for imparting a movement to the swinging bar, substantially as specified.

5. In a drag-saw, a curved guide, a swinging bar, a saw, an arm attached at one end to the saw, means for connecting the opposite end of the arm to the swinging bar and fitted to the said guideway to be directed in its movements thereby, driving mechanism including the crank-arm, and a pitman connection between said crank-arm and the swinging bar, as and for the purpose set forth.

6. In a drag-saw, a vertically-movable frame provided with a curved guide, a saw, an arm attached at one end to the saw, a swinging bar, means connecting the swinging bar with the arm of the saw and directed in its movements by the aforesaid curved guideway, driving mechanism including a crank-arm, and a pitman connection between said crank-arm and the swinging bar, substantially as set forth.

7. In combination, a vertically-disposed fixed frame, a vertically-movable frame, clips connecting the two frames, clamping means applied to certain of the clips for securing the movable frame in an adjusted position, a swinging bar fulcrumed to the movable frame, a saw having an arm extension connected with the swinging bar, a guideway for the connected end portion of the saw-arm and swinging bar and attached to the movable frame, means for raising and lowering the saw, and actuating mechanism for imparting an oscillatory movement to the swinging bar, substantially as specified.

8. In a drag-saw, and in combination with the saw-blade, actuating mechanism therefor, and means for raising and lowering the saw-blade, a pivoted bar, and guides applied to the outer end portion of the pivoted bar and spaced apart, each guide being slotted and having the free end portions bordering upon the slot oppositely deflected, as and for the purpose set forth.

9. In a drag-saw, and in combination with the frame comprising a transverse sill and vertical posts, actuating mechanism mounted on the frame, a saw, and connections between said saw and the actuating mechanism, bars disposed lengthwise of the machine and secured to the outermost vertical posts, and pairs of handles secured at their inner ends to the innermost vertical posts and intermediate of their ends to the extremities of the said bars, substantially as set forth.

10. In a drag-saw, and in combination with the saw-blade, and actuating mechanism therefor including a shaft having a tapering portion, a crank-arm mounted upon the tapering portion of the said shaft and caused to revolve therewith by frictional engagement, and connecting means between said crank-arm and the saw, as and for the purpose set forth.

11. In a drag-saw, and in combination with the saw-blade, and actuating mechanism therefor including a shaft having a tapering portion, a crank-arm mounted upon the tapering portion of the shaft, a clamp-nut threaded upon the said shaft and adapted to bear against the crank-arm and cause it to engage frictionally with the shaft so as to rotate therewith, and means connecting the crank-arm with the said saw, substantially as specified.

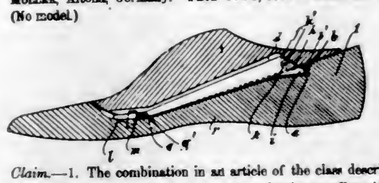
12. In a drag-saw, and in combination with the saw-blade, and actuating mechanism therefor including a shaft having a tapering portion, a crank-arm mounted upon the tapering portion of the shaft and operatively connected with the saw-blade, a clamp-nut threaded upon the said shaft and adapted to force the crank-arm upon the tapering portion thereof, and a stop applied to the said shaft a short distance from the nut to admit of the latter having a limited play whereby the crank-arm is automatically loosened in the event of the saw being subjected to abnormal strain, substantially as set forth.

13. In combination with the frame of a drag-saw bearing the saw-blade and actuating mechanism, vertically-adjustable standards provided with feet, anchoring-pins carried by said standards, and means for operating the anchoring-pins, as and for the purpose set forth.

14. In a drag-saw, and in combination with the frame bearing the saw-blade and actuating mechanism therefor, vertically-adjustable standards provided with feet, anchoring-pins adapted to operate through openings provided in the said feet, and operating means for the said anchoring-pins, substantially as set forth.

15. In a drag-saw, and in combination with the frame bearing the saw-blade, and actuating mechanism, vertically-adjustable standards provided with feet, anchoring-pins adapted to operate through openings provided in the said feet, levers fulcrumed to the said standards and having connection with the anchoring-pins for operating the latter, and means for securing said levers in an adjusted position and carried by the respective standards, substantially as set forth.

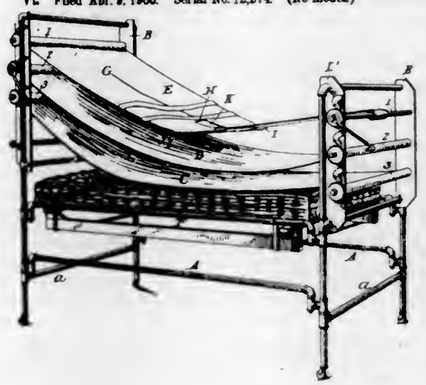
659,754. LAST FOR BOOTS OR SHOES. Ferdinand C. H. C. Möller, Altona, Germany. Filed Oct. 5, 1899. Serial No. 732,658. (No model.)



Claim.—1. The combination in an article of the class described, of the upper and lower last-sections, a depression *a* having an offset *a'* formed in the lower section, a striker-plate *b* having a flange *b'* secured to the lower section at one side of the offset, a groove *d* formed in the upper section, a plate *f* disposed in said groove, a pin *h* secured to the upper section and traversing the groove *d* and on which the end of the plate can move laterally, a nose *i* formed on the end of the plate and adapted to engage the flange of the striker-plate, and means for securing the front end of the plate to the lower section, substantially as described.

2. In an article of the class described, the combination with the upper and lower sections, the upper section having a longitudinal groove *d*, a spring-plate *f* disposed in said groove, a depression 3 in the lower section, the staple *m* over said depression, a stop-plate *g* secured to the upper section and traversing the groove *d*, a recess *g'* in the end of the spring-plate over the stop-plate, the finger *l* of the spring-plate being adapted to be passed under the staple, means on the upper section for movably supporting the rear end of the spring-plate, and further means on the lower section for detachably engaging said rear end, substantially as described.

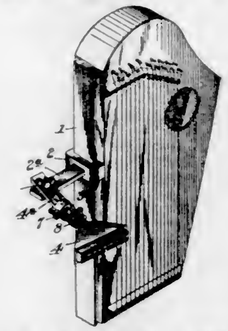
659,755. INVALID-BEDSTEAD. Dustin Moulton, Montpelier, Vt. Filed Apr. 9, 1900. Serial No. 12,274. (No model.)



Claim.—1. The divided canvas E, secured to roll 1, at the head of the bedstead, slitted for a portion of its length, a rod J, uniting the divided parts, said canvas provided with a bed-pan opening, and a narrow strip of canvas secured to rod J, and to roll 1, at the foot of the bedstead, in combination with an invalid-bedstead having posts B' B' B' B' carrying rolls 1, 2 and 3, side rails A A, end supports *a a*, all held together in the usual manner, as and for the purpose set forth and described.

2. Canvases C and D, secured to rolls 2 and 3, at either end of the bedstead-frame and having a pillow or head-rest, located, at the head of the bed and between said canvases, in combination with an invalid-bedstead having posts B' B' B' B', carrying rolls 1, 2 and 3, side rails A A, end supports *a a*, all held together in the usual manner, as and for the purpose set forth and described.

659,756. MUSICAL INSTRUMENT. William W. McCallip, Columbus, Ohio. Filed Jan. 13, 1900. Serial No. 1,337. (No model.)



Claim.—1. In combination, a cithern, a standard attached thereto, a holder for a mouth-harp, and means connecting the mouth-harp with the standard constructed to support the mouth-harp in this position, to wit: beyond and within view of the strung side of the cithern with the plane of the mouth-harp lying in a plane at, or approximately at right angles to the plane of said strung side of the cithern, substantially as and for the purpose specified.

2. In combination, a cithern, an independent rail 1 on the edge thereof, a standard adjustably attached to said rail, and a mouth-harp holder on said standard, substantially as described.

3. In combination, a cithern, a standard, a shank on said standard, said shank and standard being both longitudinally and angularly adjustable with respect to each other, a mouth-harp holder on said shank and means for varying the position of said harp-holder with respect to said shank.

4. In combination, a cithern, a standard, a shank on said standard, a mouth-harp holder rotatable axially on said shank, means for varying the angular position of said shank with respect to said standard, and means for varying the angular position of said harp-holder with respect to said shank, substantially as described.

5. In combination, a cithern, a standard, a shank longitudinally adjustable on said standard, a mouth-harp holder rotatable axially on said shank, means for varying the angular position of said shank with respect to said standard, and means for varying the angular position of said harp-holder with respect to said shank, substantially as described.

659,757. MUSICAL INSTRUMENT. William W. McCallip, Columbus, Ohio. Filed Mar. 31, 1900. Serial No. 10,884. (No model.)

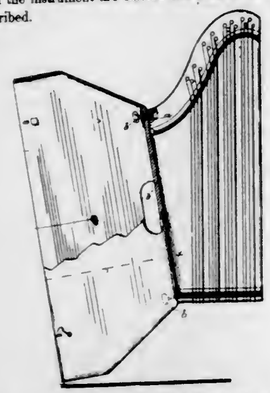
Claim.—1. A resonator for a stringed instrument of the cithern kind consisting of a hollow body or chamber open at one end, means on the opposite end for attaching the chamber to the cithern, and means whereby the cithern can be secured within the chamber when removed from the end thereof, substantially as described.

2. A resonator for a stringed instrument of the cithern kind consisting of a hollow flared body or chamber open at the larger end, and means on the other end for attaching the chamber to the cithern, and a movable cover for the open end of the chamber, substantially as described.

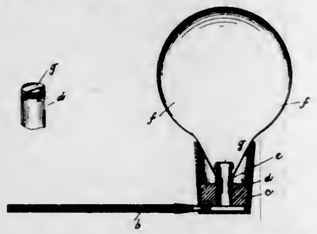
3. A resonator for a stringed instrument of the cithern kind, consisting of a hollow body or chamber open at one end, means on the opposite end for attaching the chamber to the cithern, and a bar *d* subtending the sides of the chamber to give rigidity to the sides thereof and improve the resonating properties thereof, substantially as described.

4. A resonator for a stringed instrument of the cithern kind consisting of a hollow body or chamber of resonant material, and means for at-

taching the same to the edge of the body of the cithern, so that the strings of the latter can be picked upon one or both sides thereof while both the resonator and the instrument are carried and held in the hands, substantially as described.



659,758. COMBINED BUBBLE-BLOWING AND WHISTLING DEVICE. WILLIAM MCGIVEN, Grove City, Ohio. Filed Feb. 28, 1898. Serial No. 671,965. (No model.)



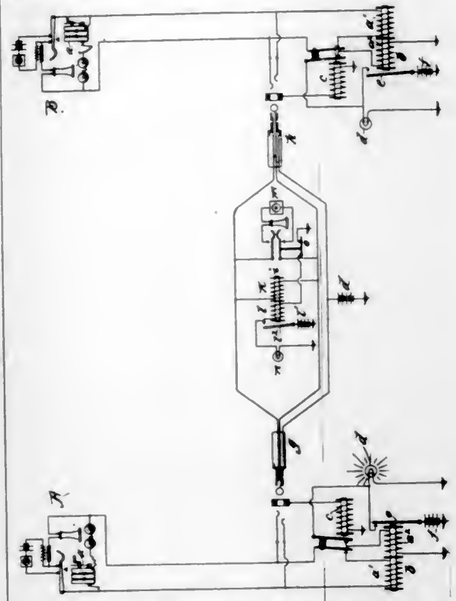
Claim.—In a combined bubble-blowing and whistling device, the combination with a body consisting of a pipe-bowl *a*, a stem *b* leading outward therefrom and communicating therewith, of a plug *c* supported and fitting in the lower portion of said bowl as described, a tube *d* extending within a central opening in said plug, a chamber or space between the lower side of the plug and bottom of the pipe-bowl, through which communication between the tube *d* and stem *b* is formed, a whistling device in the outer end of said tube and an expansible sack secured about said tube, substantially as and for the purpose specified.

659,759. TELEPHONE-EXCHANGE SYSTEM. JAMES L. MCQUARRIE, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 10, 1898. Serial No. 696,029. (No model.)

Claim.—1. The combination with a telephone-line extending from a subscriber's station to a central office, of a relay device at the central office having two windings, means at the subscriber's station for determining the flow of current through one of the said windings, a local circuit having two branches in parallel with one another, each of said branches being controlled by the relay-switch, one of the branches being connected with the other winding of said relay device, an indicator connected with the other branch, and a source of current, substantially as described.

2. In a telephone-exchange system, the combination with a telephone-line extending from a subscriber's station to a central office, of a relay device at the central station having a helix included in a circuit controllable by apparatus at the subscriber's station, a local circuit including a second helix of the relay device controlled by the relay-switch, a visual indicator in parallel with said local circuit, and a source of current, said source of current and the relay-switch forming parts of a conductor common to both of said parallel circuits, substantially as described.

3. In a telephone-exchange system, the combination with a relay associated with a telephone-line at the exchange and having a retaining-helix included in a circuit, of a visual indicator connected in parallel with said circuit, a source of current, a relay-switch adapted to open and close the parallel circuits including the said helix and visual indicator, said relay-switch and source of current forming parts of a conductor common to both of said parallel circuits, means controlled at a subscriber's station for energizing the core of said helix to operate said relay-switch to close circuit through the helix and visual indicator, a cut-off relay controlling contacts included in series with said helix, and line-connecting apparatus adapted to operate said cut-off relay to open circuit through the retaining-helix of the first aforesaid relay to release the switch controlled thereby and thereby open the circuit including the visual indicator, substantially, as described.



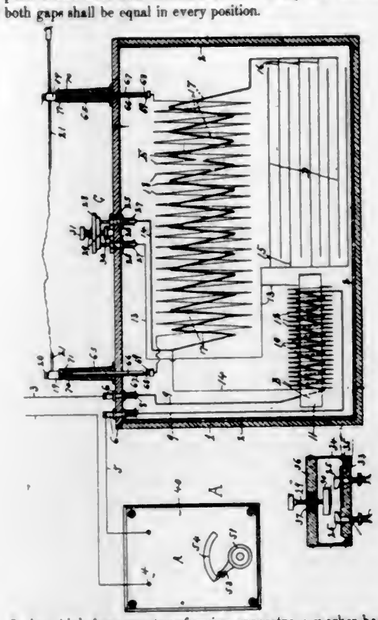
4. In a telephone-exchange system, the combination with a relay associated with a telephone-line at the exchange and having a retaining-helix included in a circuit, of a visual indicator connected in parallel with said circuit, a source of current, a relay-switch adapted to open and close the parallel circuits including the said helix and visual indicator, said relay-switch and source of current forming parts of a conductor common to both of said parallel circuits, a second helix upon said relay in circuit with the telephone-line, a magneto-generator at the substation of said line adapted when being operated to send current through said second helix, a cut-off relay controlling contacts included in series with said retaining-helix, and line-connecting apparatus adapted to operate said cut-off relay to open circuit through the retaining-helix of the first aforesaid relay to release the switch controlled thereby and thereby open the circuit including the visual indicator, substantially as described.

5. In a telephone-exchange system, the combination with a relay associated with a telephone-line at the exchange and having a retaining-helix included in a circuit, of a visual indicator connected in parallel with said circuit, a source of current, a relay-switch forming a part of said relay adapted to open and close the parallel circuits including the said helix and visual indicator, said relay-switch and source of current forming parts of a conductor common to both of said parallel circuits, a second helix upon said relay in circuit with the telephone-line, a magneto-generator at the substation of said line adapted when being operated to send current through said second helix, and means controlled by the line-connecting apparatus for opening the circuit including the retaining-helix, substantially as described.

6. In a telephone-exchange system, the combination with two telephone-lines united for conversation at the central office, of a relay having a retaining-helix associated with the united telephone-lines, a second helix also provided upon the core of the relay and connected with the united telephone-lines, a magneto-generator at a subscriber's station for directing current through the latter helix to energize the relay, a visual signal, a switch controlled by said relay for connecting the visual signal and the retaining-helix in parallel circuits with a source of current, said switch and source of current forming parts of a conductor common to said parallel circuits, and means controlled by the operator for opening the circuit including the retaining-helix, substantially as described.

659,760. HIGH-FREQUENCY TRANSFORMER. CHARLES P. L. NOXON, Syracuse, N. Y. Filed Feb. 20, 1899. Serial No. 706,185. (No model.)

Claim.—1. In combination with the coils of a high-frequency transforming apparatus, a sparker having in combination insulated terminals, connections thereto, a discharge-surface piece suitably supported at equal distances from both terminals, and means for moving said discharge-surface piece to and from both terminals simultaneously and uniformly, so that both gaps shall be equal in every position.



2. In a high-frequency transforming apparatus, a sparker having in combination insulated terminals separated by a sufficient space, and connected to the secondary coil of the low-frequency transformer, a metallic discharge-surface piece arranged adjacent to said terminals with a sparking-gap between it and each of them, and having its discharge-surfaces arranged at equal distances from the respective terminals, a shaft secured to said discharge-surface piece rotatably supported so that the discharge-surface may be moved to and from said terminals.

3. In combination, in the sparker of a high-frequency transforming apparatus, terminals secured to an insulating-support, a cover fitted to said support and carrying an insulating-plate, a threaded shaft fitted to turn in said plate having the discharge-surface piece secured to its lower end and arranged at an equal distance from said terminals and an insulating-handle secured to the opposite end of the shaft to rotate the same and move the discharge-piece to or from said terminals simultaneously and uniformly.

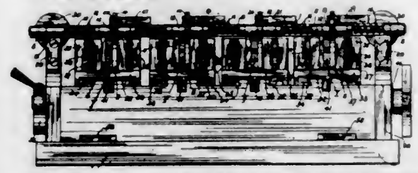
4. In combination, in the sparker of a high-frequency transforming apparatus, terminals secured on a disk of insulating material, connections therefrom to the secondary coil of the low-frequency transformer, a cylindrical metallic cover fitted to said disk and having an inner shoulder adapted to engage therewith, an upper insulating-disk secured to said cylindrical cover, a metallic bushing centrally arranged in said upper disk, a metallic shaft threaded to fit said bushing, a metallic discharge-surface piece secured to the lower end of said shaft and arranged at equal distances from said terminals, and an insulating-handle secured to the upper end of said shaft to rotate said discharge-surface piece, moving it uniformly toward and from said terminals.

5. In combination, in the inductive controller of a high-frequency transforming apparatus, upper and lower plates of insulating material, posts sustaining those plates, cores supported thereon carrying coils connected to the line-wire and to the primary coil of the low-frequency transformer, a connection between said cores at one end, arms secured to the opposite ends of said cores having their adjacent faces cut in the arc of a circle to form polar surfaces, a magnetic plug journaled concentrically therewith having a larger semicircular half adapted to make contact with said surfaces, and a smaller semicircular half not making contact with said surfaces when turned adjacent thereto, means for rotating said plug, and a spring for forcing the larger portion thereof into contact with said polar surfaces.

6. In combination with the case of a high-frequency transformer, a cover carrying the following parts: terminals for the line-wires and connecting-contacts therefor on its under surface: a sparker with connecting-contacts therefor on its under surface; main spark-terminals with connecting-contacts therefor on its under surface; which three pairs of contacts automatically and simultaneously make connection respectively with the terminals of the primary coil of the low-frequency transformer, with the terminals of the secondary coil of the low-frequency transformer, and with the terminals of the secondary coil of the high-frequency transformer.

7. In combination with the parts of the high-frequency transforming apparatus, hollow posts with supports on their ends for the adjustable rods of the main spark-gap, connections between said supports and the interior of said posts, springs secured to said connections within said posts, glass rods fitted to the interior of said posts having longitudinally-extending connecting-wires in their interior adapted to make permanent contact with said springs at their upper ends and having springs connected to their lower ends for making temporary yielding contact with the terminals of the secondary coil of the high-frequency transformer.

659,761. CHUCK AND VISE FOR ENGRAVING-MACHINES. CHARLES W. PASHLEY, Broadheath, England, assignor to The Linotype Company, Limited, London, England. Filed Apr. 24, 1899. Serial No. 714,286. (No model.)

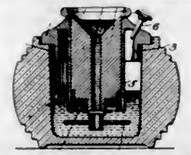


Claim.—1. The combination of chuck having pairs of plates adapted to hold matrix-blanks between them, a vise-block having frames movable transversely of it, vise-jaws standing outside the respective pairs of plates above mentioned and engaged by side plates on the said frames to move them up to and away from each other, mechanism for moving all the pairs of vise-jaws together, and a clutch to each pair adapted to disengage as soon as the respective pair of jaws is properly closed upon the pair of plates and matrix-blank between them.

2. The hereinbefore-described improved series matrix-chuck consisting of flat plate 1 having plates 4 depending therefrom, plates 11 pivoted upon a rod 10, spring-detents 21 and matrix-holding springs 23 and projections 17.

3. The hereinbefore-described improved series vise consisting of vise-block 28, frames 33 having side pieces 35 fast thereupon and capable of to-and-fro motion transversely upon the said block in guides, a pair of vise-jaws capable of motion to and from each other in a direction at right angles with that of the motion of the frame, tapered grooves in the side pieces and dovetailed pieces in the vise-jaws engaging therein; a rack fast upon each frame, a spur-pinion engaging with each rack, a spindle carrying all the spur-pinions loose on it, a clutch for each pinion in the spindle, half fast to the respective pinion and half engaging loosely with the said spindle and a spring adapted to close the clutch and to allow the clutch to open when the vise-jaws are properly closed.

659,762. INKSTAND. GEORGE PELLINGER, Weehawken, N. J. Filed May 5, 1900. Serial No. 15,582. (No model.)



Claim.—1. In combination with an ink-well, a cylinder extending into said well and having free communication with the cavity thereof, and a piston having a dip-aperture therethrough movable within said cylinder, said piston being fitted fluid-tight within said cylinder and held by frictional contact in operative or inoperative position, substantially as specified.

2. In combination with an ink-well, a cylinder extending into said well and having free communication with the cavity thereof, a piston having a dip-aperture therethrough movable within said cylinder, said piston being fitted fluid-tight within said cylinder and held by frictional contact in operative or inoperative position, and means for limiting the movements of said piston, substantially as specified.

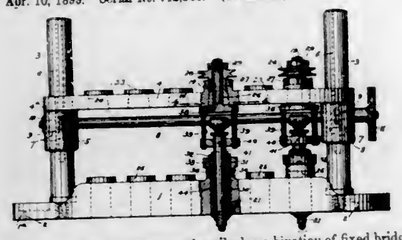
3. In combination with an ink-well, a cylinder extending into said well and having free communication with the cavity thereof, a piston having a dip-aperture therethrough movable within said cylinder, said

piston being provided with a packing for forming a fluid-tight connection with said cylinder and by frictional contact holding said piston in depressed or elevated position, substantially as specified.

4. In an inkstand, a well, a cap for closing the mouth thereof, a cylinder extending into said well, a vent through said cap, in combination with a piston having a dipping-cup and an aperture leading therefrom to said well, and means for regulating and limiting the extent of the movement of said piston within said cylinder, substantially as specified.

5. In an inkstand, a well, a cap for closing the mouth thereof, a cylinder extending into said well, in combination with a piston having a dipping-cup therein and an aperture leading therefrom to said well, a screw-threaded projection depending from said piston, and a cross-bar thereon, substantially as specified.

659,763. DRIVING MECHANISM FOR ENGRAVING-MACHINES. JOHN PLACE and CHARLES W. PASHLEY, Broadheath, England, assignors to The Linotype Company, Limited, London, England. Filed Apr. 10, 1899. Serial No. 712,586. (No model.)



Claim.—1. The hereinbefore-described combination of fixed bridge-piece; a quill adapted to turn in a bearing therein; a movable bridge-piece parallel with the said fixed bridge-piece; fixed supports on which it can be moved away from or toward the said fixed bridge-piece; mechanism for so moving it; a driving-spindle adapted to turn in a bearing on the said movable bridge; and a connecting device having a transverse sectional area smaller and a superficial area larger than the transverse sectional area of the driving-spindle and adapted to hold the quill in or out of gear with the spindle.

2. The hereinbefore-described combination of fixed bridge-piece; a quill adapted to turn in a bearing therein; a movable top bridge-piece parallel with the said fixed bridge-piece; fixed supports on which it can be moved away from or toward the said fixed bridge-piece; mechanism for moving it; a driving-spindle adapted to turn in a bearing in the said movable bridge; a connecting device having a transverse sectional area smaller than, and a superficial area larger than the transverse sectional area of the driving-spindle; and means for engaging that device from or engaging it with the quill.

3. The hereinbefore-described combination of fixed bridge-piece; a series of quills adapted to turn in bearings therein; a movable bridge-piece parallel with the said fixed bridge-piece; fixed supports on which it can be moved away from or toward the said fixed bridge-piece; mechanism for so moving it; a series of driving-spindles each one coaxial with its respective quill and adapted to turn in bearings in the said movable bridge; and a connecting device between each driving-spindle and its quill adapted to hold the latter either in gear or out of gear with the former, such connecting device having a transverse sectional area smaller, and a superficial area larger than the transverse sectional area of the driving-spindle.

659,764. BED-WARMER. WILLIAM G. RALSTON, Evansville, Ind. Filed Nov. 2, 1898. Serial No. 695,303. (No model.)



Claim.—1. In a bed-warmer, the combination of the sheet-metal receptacle of elongated form with rounded top having a screw-threaded nipple thereon, a correspondingly-threaded cap having a reëntrant-tube, and a gasket surrounding the latter, substantially as and for the purpose described.

2. As a new article of manufacture, a bed-warmer comprising an oblong metallic receptacle having a flat bottom and oval or rounded top and sides and substantially-semicircular ends, the top, bottom and sides thereof being formed in a single piece, an open-ended nipple on said top having a detachable cap or cover provided with a pendent air-inlet or reentrant tube, and a handle attached to one of said ends, the whole constructed and adapted to operate substantially as and for the purpose described.

659,765. TOY. JOHN J. REED, Lyons, Iowa. Filed Feb. 16, 1900. Serial No. 5,510. (No model.)



Claim.—1. A toy, comprising a standard, and a seesaw device extending transversely at opposite sides of the standard, and provided with opposite independent fulcrums located at opposite sides of the standard, and having alternate automatic engagements with the respective sides of the standard.

2. A toy, comprising a standard, having staggered fulcrum-bearings upon opposite edges thereof, and a seesaw device, provided with opposite fulcrums, which have alternate automatic engagements with respective fulcrum-bearings of the standard.

3. A toy, comprising a standard, and a seesaw device, having opposite intermediate fulcrums for alternate engagement with the standard, to impart a rocking motion to the seesaw.

4. A toy, comprising a standard, having a series of projections upon opposite longitudinal edges thereof, and a seesaw device, having opposite intermediate fulcrums for alternate engagement with the respective projections upon the respective edges of the standard, to impart a rocking motion to the seesaw.

5. A toy, comprising a standard, having a series of projections upon opposite longitudinal edges thereof, the projections of one series being staggered with relation to the projections of the other series, and a seesaw device having a pair of opposite intermediate fulcrums for alternate engagement with the projections of the respective series.

6. A toy, comprising a standard, having a series of segmental projections upon opposite longitudinal edges thereof, and a seesaw device, having a pair of opposite fulcrums for alternate engagement with the projections of the respective series.

7. A toy, comprising a standard, having a series of segmental projections upon opposite longitudinal edges, the adjacent projections intersecting to form notches, and a seesaw device, having a pair of opposite fulcrums for alternate engagement with the notches of the respective series of projections.

8. A toy, comprising a standard, having a series of segmental intersecting projections upon opposite longitudinal edges thereof, the projections of one series being staggered with relation to the projections of the other series, and each segmental projection being struck from the center formed by the intersection of the adjacent opposite projections, and a seesaw device, having a pair of opposite fulcrums for alternate engagement with the projections of the respective series.

9. A toy, comprising an invertible standard, having a base at each of its opposite ends, and a seesaw device, which is freely slidable longitudinally of the standard.

10. A toy, comprising a standard, and a seesaw device, having an intermediate slot or opening slidably embracing the standard, opposite ends of the slot forming fulcrums, which have automatic alternate engagements with the standard.

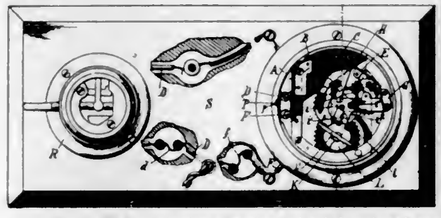
11. A toy, comprising a standard, and a seesaw device, having an intermediate slot or opening loosely embracing the standard, the opposite ends of the slot or opening forming fulcrums for alternate engagement with the respective edges of the standard, forks at the opposite free ends of the seesaw, and figures or other objects pivotally mounted between the members of the respective forks.

12. A toy, comprising a standard, and a seesaw having opposite substantially-parallel members, the outer ends of which are deflected to form forks, and opposite intermediate shoulders connecting the opposite members, and forming an intermediate slot or opening to loosely embrace the standard, said shoulders also forming fulcrums for alternately engaging the adjacent edges of the standard.

13. A toy, comprising a standard, and a seesaw device, having opposite side members, opposite shoulders connecting the members and forming an intermediate slot, each shoulder being formed from a single strip of sheet metal which is folded intermediate of its ends to form a tongue or flange, the opposite ends of the strip being bent outwardly to form the shoulder proper, the standard being loosely embraced by the slot in the seesaw, and the tongues or flanges forming opposite fulcrums for alternate engagement with the respective edges of the standard.

14. A toy, comprising an invertible standard, having a series of segmental intersecting projections upon opposite longitudinal edges thereof, the projections of one series being staggered with relation to those of the other series, and each projection being struck from the center formed by the intersection of the adjacent opposite projections, and a seesaw, consisting of a lever, having an intermediate slot or opening loosely embracing the standard, and of slightly-greater length than the radius of the respective projections, but shorter than the combined width of any pair of opposite projections, the opposite ends of the slot forming fulcrums for alternate engagement with the intersections of the respective series of projections, and figures or other objects pivotally mounted at the outer ends of the seesaw.

659,766. AUTOMATIC ELECTRIC CUT-OUT. JOHN H. ROBERTSON, Morrison, Ill. Filed June 22, 1899. Serial No. 721,434. (No model.)



Claim.—1. The combination of an electrical switch, a pivoted arm for making and breaking the circuit, and having a slot therein, mechanism for operating said arm comprising a part having a finger working in said slot, a rotatable device for operating said part, and a motor set into operation by the turning of said rotatable device for turning the same in the reverse direction, substantially as and for the purpose described.

2. The combination of an electrical switch, a turn-button and connections adapted upon turning in one direction to close said switch, a motor adapted to turn said turn-button and connections in the opposite direction to open said switch, and means adapted to open said switch independently of said motor, substantially as described.

3. The combination of a pivoted electrical switch, an arm for making and breaking the circuit, a wheel for operating said arm, a disk for turning said wheel, means for turning said disk in one direction, and a motor set into operation by the turning of said disk for turning said disk in a reverse direction, substantially as and for the purpose set forth.

4. The combination of a contact, a spring-actuated contact-finger, a turn-button and connections for moving said finger in one direction to make contact with said contact, and a motor set into operation by the turning of said turn-button for permitting the return movement of said contact-finger, the switch being adapted to remain closed for different periods of time dependent upon the amount of movement given said device, substantially as described.

5. The combination of a contact, a spring-actuated contact-finger, an arm for moving said finger in one direction, a wheel for moving said arm, a disk for turning said wheel, means for turning said disk in one direction, and a motor set into operation by the turning of said disk for turning said disk in a reverse direction, substantially as described.

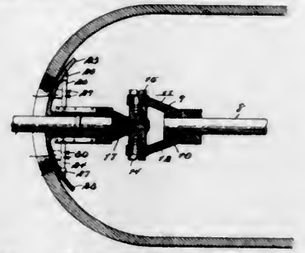
6. The combination of a contact, a spring-actuated contact-finger, a pivoted arm engaging said finger, a star-wheel having a finger engaging in the slot in said arm, a disk having a projection adapted to engage in slots of said star-wheel, means for turning said disk in one direction, and a motor for turning said disk in the opposite direction, substantially as described.

7. The combination of a contact, a spring-actuated contact-finger, a pivoted arm engaging said contact-finger, and having a slot therein, a star-wheel having a finger engaging in said slot for actuating said arm, and having peripheral concaved faces, a disk located adjacent said wheel and having a projection adapted to engage in the slots of said star-wheel, means for turning said disk in one direction, and a motor for turning said disk in the opposite direction, substantially as described.

8. The combination of an electrical switch, a device and connections for moving one member of said switch in one direction, a motor set in operation by the actuation of said device for moving said switch member in the opposite direction, said device being free to be turned in the opposite direction independently of said motor, substantially as described.

9. The combination of an electrical switch, a two-part shaft, means adapted upon turning said shaft in one direction to close said switch, a motor adapted to turn said shaft in the opposite direction to open said switch, one part of said shaft bbing adapted to be turned to open said switch independently of said motor, subtantially as described.

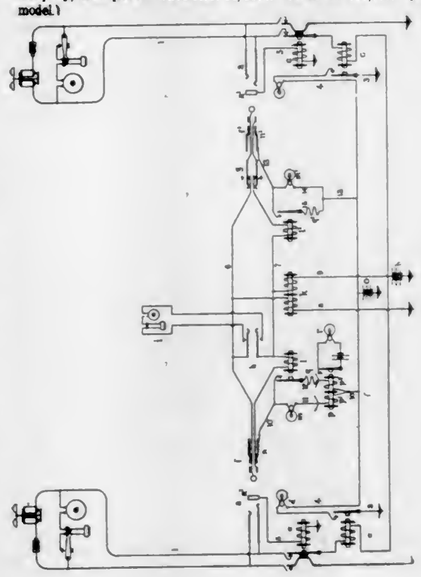
659,767. STEERING APPARATUS. CHRISTOPHER L. ROGERS, Helena, Mont. Filed Jan. 30, 1900. Serial No. 3,344. (No model.)



Claim.—1. The combination with a vessel having an elongated opening in its stern, of a propeller-carrying shaft projecting therethrough, a driving-shaft coupled to the first-named shaft, and means for adjusting the angle of the first-named shaft independently of the drive-shaft, and a flexible plate carried by the propeller-shaft, the outer surface of which is adapted to be forced against the edges of the opening to close the same.

2. The combination with a vessel having an elongated opening in its stern, a propeller-carrying shaft secured in said vessel and projecting through said opening, a flexible plate carried by said shaft and adapted to close the opening, and means for forcing the outer surface of the plate against the edges of said opening, substantially as described.

659,768. PILOT-SIGNAL FOR TELEPHONE-SWITCHBOARDS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 11, 1897. Serial No. 626,955. (No model.)



Claim.—1. The combination with a signal-circuit and a visible supervisory signal contained therein, a shunt about the signal and a switch controlling the shunt, of an electromagnet and a pilot-signal controlled thereby, said electromagnet having two differential windings, one of which is interposed in said shunt and the other of which is included in a circuit of the said supervisory signal, substantially as described.

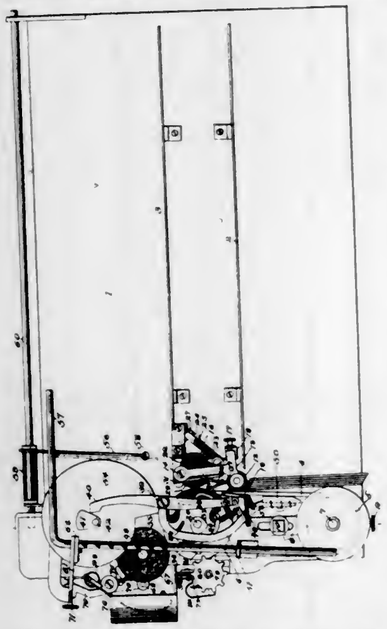
2. The combination with a group of signal-circuits, a supervisory visible signal in each circuit, a shunt-circuit about each signal and a switch controlling the shunt, of an electromagnet and a pilot-signal controlled thereby, said electromagnet having differential windings, one of said windings being interposed in a conductor common to said shunts and the other winding being interposed in a conductor common to the said supervisory signals, substantially as described.

3. The combination with the plug-circuits of a telephone-switchboard, a relay in each plug-circuit responsive to current in the plug-circuit determined in the use of a station-telephone, of a line with which the plug is connected, a local signaling-circuit for each plug including a supervisory signal, and a shunt about each lamp controlled by the switch-contacts of the relay in the corresponding plug-circuit, of an electromagnet and a signal controlled thereby, said electromagnet having differential windings, one of said windings being interposed in a conductor common to said shunts and the other winding being included in a conductor common to said lamps within the shunts, substantially as described.

4. The combination with telephone-lines and link conductors for uniting them, of a signal-controlling magnet in the circuit of the link conductors adapted to be brought into association with the calling-line, means for preventing the control of said signal-controlling magnet from the called line, a signal controlled by the magnet, a local circuit common to all link conductors controlled by one of the magnets, and a common pilot-signal in the local circuit, substantially as described.

5. The combination with pairs of plugs and their plug-circuits adapted for uniting lines having means for determining the flow of current in the lines during the use of the telephones, a supervisory relay in each plug-circuit responsive to such current, a supervisory signal in a local circuit and a shunt of the signal controlled by the relay, of a pilot-signal-controlling electromagnet in a conductor common to several local circuits, and circuit connections of the shunts and the signals adapted to cause the excitement of the pilot-signal-controlling magnet when either is closed but to render it inert when both are closed, as described.

659,769. MAIL-MARKING MACHINE. MICHAEL J. SHEA, New York, N. Y. Filed Aug. 28, 1899. Serial No. 728,774. (No model.)



Claim.—1. In a mail-marking machine, the combination with a letter separating and feeding belt, of a non-rotatable roller having a periphery of felt said roller being yieldingly mounted, and means for adjusting the roller with relation to the belt, as and for the purpose set forth.

2. In a mail-marking machine, the combination with a letter separating and feeding belt, of a separating and feeding roller against which the letters are presented endwise, said roller having yielding contact with the belt, and means for limiting the pressure between the roller and belt.

3. In a mail-marking machine, the combination with a letter separating and feeding belt, of a pivoted arm carrying at its free end a friction-shoe, a spring operating to press the shoe against the stack of letters to move them away from the belt, and means for retracting the shoe in advance of the separation of a letter.

4. In a mail-marking machine, the combination with a letter separating and feeding belt, of a pivoted arm carrying at its free end a friction-shoe and normally moved by the action of a spring to press said shoe against the stack of letters to move them away from the belt and a cam operating in its rotation to move the arm and disengage the shoe from the stack in advance of the separation of a letter.

5. In a mail-marking machine, the combination with a die-roller carrying a die, of a compression-roller, and means for shunting the compression-roller from the die in the absence of a letter consisting of a cam on the compression-roller spindle, a stop-arm movable into the path of the cam, and a finger operated in the movement of the die-roller to actuate the stop-arm.

6. In a mail-marking machine, the combination with a die-roller a portion of the periphery of which is occupied by the die, of a compression-roller supported to have yielding contact with the die-roller, and means operating in the absence of a letter to shunt the compression-roller from the die consisting of a cam on the compression-roller spindle a spring-retained stop-arm adapted to be brought into the path of the cam, a spring-actuated rock-arm to move the stop-arm and a finger operated in the rotation of the die-roller to actuate the rock-arm.

7. In a mail-marking machine the combination with a die-roller a portion of the periphery of which is occupied by the die, of a compression-roller mounted on a spring-pressed arm and held in yielding contact with the die-roller, and means for shunting the compression-roller from the die in the absence of a letter consisting of a cam on the compression-roller spindle, a pivoted spring-retained stop-arm adapted to be brought into the path of the cam, a pivoted spring-actuated rock-arm to move the stop-arm, and a finger rigid with the rock-arm adapted in the rotation of the die-roller to enter a recess therein and permit the spring to actuate the rock-arm.

8. In a mail-marking machine, the combination with a die-roller a portion of the periphery of which is occupied by the die and provided in its upper edge with a recess, of a compression-roller, shunting mechanism operating in the absence of a letter to prevent contact between the compression roller and die, and a finger actuating the shunting mechanism said finger being in the path of the recess.

9. In a mail-marking machine, in combination with the stacking-roller of a guide-bar for the stacked letters, said bar having an extension forming the guide and provided with means for its adjustment to accommodate letters of different lengths.

10. In a mail-marking machine, in combination with the stacking-roller, of an adjustable guide-bar for the stacked letters, said bar being supported in brackets one of which is provided with a spring-controlled dog for maintaining the adjusted position of the bar.

11. In a mail-marking machine, in combination with the stacking-roller, of a rod having a right-angle extension forming a stop and guide for the marked letters, said rod being provided in its under side with a horizontal groove and in its upper side with transverse notches, supports for the rod, and spring-controlled dogs one of which engages the groove in one direction to support the extension and the other one of which engages any one of the notches in one direction, whereby the rod may be adjusted in position in the manner and for the purpose set forth.

12. In a mail-marking machine, the combination with the die-roller a portion of the periphery of which is occupied by the die, an inking-roller normally held out of contact with the die-roller, and a cam in constant contact with the periphery of the inking-roller the wide portion of the cam operating to press the roller in contact with the die in the revolution of the latter.

13. In a mail-marking machine, the combination with a die-roller a portion of the periphery of which is occupied by the die, a cam-roller geared to the die-roller, an inking-roller mounted to have lateral movement and interposed between the die-roller and cam, a spring operating to move the inking-roller against the cam and away from the die-roller the wide portion of the cam operating to press the inking-roller against the die in the revolution of the latter.

14. In a mail-marking machine, the combination with the die-roller, of a letter-register, a pawl on the die-roller operating in the presence of a letter to actuate the register, and means for retracting the pawl in the absence of a letter consisting of a spring-impelled finger arranged in the path of a cam-arm connected with the pawl.

15. In a mail-marking machine, the combination with the die-roller and with a letter-registering device having a toothed wheel, a pawl on the die-roller in the path of the wheel, a link connection between the pawl and a fixed pivot, one of the arms of the link being adjacent to a recess in the roller and having an offset, and a spring-impelled finger operating in the absence of a letter to enter the recess and engage the link-arm to retract the pawl from the path of the wheel.

16. In a mail-marking machine, in combination with a die-inking roller and with a letter-registering device of a pivoted arm carrying an inking-finger, and a connection between the registering device and finger whereby the operating of the registering device moves the finger between the inking-roller and an ink-receptacle.

17. In a mail-marking machine, the combination with a die-inking roller and with a letter-registering device, of a shaft adapted to be rocked through connection with the registering device, and an arm pivoted to the rock-shaft and carrying an inking-finger and adapted in the movement of the rock-shaft to cause the finger to enter an ink-receptacle and to deposit the ink upon the roller.

18. In a mail-marking machine, the combination of a worm gear-wheel carried by the shaft of a letter-registering device, a crank gear-wheel meshing with the worm-wheel, a vertical rock-shaft journaled in a fixed bearing-sleeve, a rod connecting the crank gear-wheel with a pin on the rock-shaft, a spring connected with the shaft to retract it, an ink-receptacle, a die-inking roller, a spring-arm carrying an inking-finger in the form of a roller, said arm being pivoted to the rock-shaft above the sleeve and provided with a projection, and a cam-slot in the upper end of the sleeve operating in the rotation of the shaft to impart a lateral movement to the arm and finger between the ink-receptacle and inking-roller.

19. In a mail-marking machine, the combination of an inking-roller and an inking device therefor, of means for actuating the inking device, consisting of a worm gear-wheel and a connection between the crank-wheel and device, a toothed wheel on the shaft of the worm-wheel, and a pawl carried by the die-roller operating in the presence of a letter to engage and move the toothed wheel.

20. In a mail-marking machine, the combination with a die-roller, a stacking-roller geared to the die-roller, a cam on the shaft of the stacking-roller, and an inking-roller in constant contact with the cam and adapted in the movement of the latter to be carried against the die.

659,770. FIREPLACE. WILLIAM H. SLAPPEY, East End, Ga. Filed Jan. 10, 1900. Serial No. 933. (No model.)



Claim.—1. The combination with a chimney having a fireplace-opening, of a grate, which is movably located within the fireplace-opening, an imperforate back secured to the grate, inclining upwardly and forwardly over the latter, and having its upper end projected into the chimney and above the top or crown of the fireplace-opening, forming a choked or contracted smoke-passage between the front side of the back and the front wall of the chimney, the grate being movable outwardly and inwardly to adjust the size of the choked smoke-passage.

2. A portable fireplace, comprising a basket-grate having feet, an integral imperforate back projecting upwardly and inclined over the top of the grate, and provided at its lower end with a draft-opening located below the grate, and a plate secured to the back at its opposite longitudinal edges, its intermediate portion being spaced rearwardly from the back forming a flue, which is open at its opposite ends and is in communication with the draft-opening of the back.

659,771. DRYING-CONVEYER. JOHN C. W. STANLEY, London, England, assignor to the Cotton Seed Oil Syndicate, Limited, same place. Filed June 11, 1900. Serial No. 19,941. (No model.)

Claim.—1. In a drying-conveyer, the combination of an inclosing casing, a shaft journaled in one end of the casing, means to rotate the shaft slowly, a series of pulleys secured to said shaft to turn with it, a corresponding series of independently-movable pulleys at the other end of the casing, a series of forks in which the independently-movable pulleys are respectively journaled, each fork having a threaded stem slidably supported in the casing, an adjustable nut on each threaded stem, endless wires carried by and between the two series of pulleys, and spaced series of heating-pipes between which the upper layers of the wires and the material to be dried travel, substantially as set forth.



2. In a drying-conveyer the combination of a casing, a shaft journaled at one end of the casing, means for causing the shaft to revolve slowly, a series of grooved pulleys keyed to the shaft, a second series of grooved pulleys at the other end of the casing, a separate adjusting device for each of the pulleys in the second series, endless wires carried between the pulleys at opposite ends of the casing, guide-pulleys at intervals along the length of the casing serving to support the wires, steam-pipes in close proximity to the top and bottom sides of the upper layer of wires, a hood forming the top of the casing and covering the pipes and the wires and a pipe leading from the hood through which the moisture expelled from the material being dried escapes, substantially as set forth.

659,772. BOX-FORMING MACHINE. WILLIAM S. STUCKENBERG, Indianapolis, Ind., assignor to the Metal Bound Package Company, of Illinois. Filed Feb. 19, 1900. Serial No. 5,731. (No model.)

Claim.—1. In a box-forming machine the combination of a series of rolls over which the metal strips are fed; anvil-plates supporting the slats while the lugs of the metal strips are being driven; and a series of clenching-rolls in the rear of said plates for bending the ends of the lugs, substantially as specified.

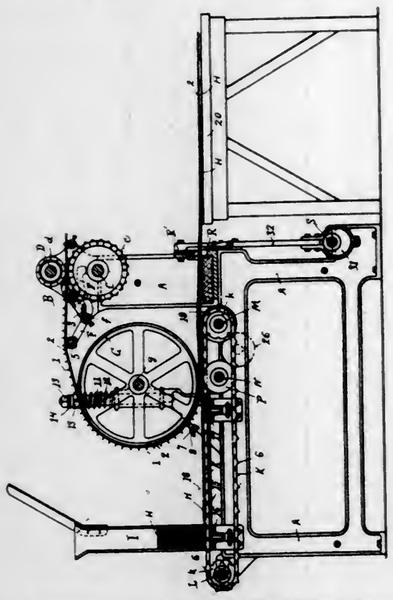
2. In a box-forming machine the combination of a slat-hopper; chain belts for feeding the slats therefrom; a series of rolls for driving the projecting lugs of the binding-strips through the slats; and a series of clenching-rolls upon the opposite side of the slats for bending over the ends of the lugs, substantially as specified.

3. In a box-forming machine, the combination of a slat-hopper; chain belts for feeding the slats consecutively therefrom; a series of spring-cushioned rolls for driving the lugs of the binding-strips through the slats; and a series of clenching-rolls for bending over the ends of the lugs, substantially as specified.

4. In a box-forming machine the combination of a slat-hopper; chain belts for feeding the slats therefrom; a series of rolls for driving the lugs projecting from the binding-strips through the slats; anvil-plates supporting the slats while the lugs are being driven; and a series of clenching-rolls for bending over the ends of the lugs, substantially as specified.

5. In a box-forming machine the combination of a series of driving-rolls for driving the lugs projecting from the binding-strips through the wood; anvil-plates supporting the wood while the lugs are being driven; a series of clenching-rolls for bending over the ends of the lugs; and intermeshing gears causing the driving and clenching rolls to move in unison with each other, substantially as specified.

6. In a box-forming machine the combination of mechanism for stamping up projecting lugs from a series of metal binding-strips; a series of rolls adapted to force the lugs through slats; and a series of clenching-rolls on the opposite side of the slats for bending over the ends of the lugs, substantially as specified.



7. In combination with a series of rolls adapted to drive the projecting lugs of the binding-strips through the slats; and a series of clenching-rolls for bending over the ends of the lugs; means substantially as shown for stamping the lugs from the binding-strips, and a tripping mechanism actuated by the tension on the binding-strips to automatically stop and start the stamping mechanism, substantially as specified.

8. In combination with a slat-hopper, chain belts for feeding the slats therefrom; a series of driving-rolls for driving the lugs projecting from the binding-strips through the slats; and clenching-rolls for bending over the ends of the lugs; means substantially as described for stamping the lugs from the binding-strips; and a tripping mechanism actuated by the tension on the binding-strips to automatically stop and start the stamping mechanism, substantially as specified.

9. In combination with a slat-hopper; chain belts for feeding the slats therefrom; a series of driving-rolls for driving the lugs projecting from the binding-strips through the slats; and clenching-rolls for bending over the ends of the lugs; an independently-driven stamping mechanism for stamping the lugs from the binding-strips; and a tripping mechanism actuated by the tension of the binding-strips to automatically stop and start the stamping mechanism, substantially as specified.

10. In a box-forming machine the combination of a series of rolls adapted to drive the projections of the binding-strips through the slats; clenching-rolls adapted to bend the ends of the lugs over; and intermittently-operated shears adapted to sever the sheet of boxing material into sections of the required length, substantially as specified.

11. In a box-forming machine the combination of a series of rolls adapted to drive the projections of the binding-strips through the slats; clenching-rolls adapted to bend the ends of the lugs over; independently-driven, and intermittently-operated shears; and means substantially as described for tripping and operating the shears in unison with the movements of the driving and clenching rolls, substantially as specified.

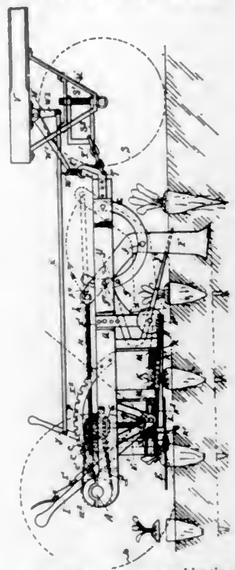
12. In a box-forming machine the combination of a slat-hopper; chain belts for feeding the slats therefrom; a series of rolls for driving the lugs projecting from the binding-strips through the slats; clenching-rolls for bending over the ends of the lugs; shears adapted to sever the boxing material into sections of predetermined length; and means substantially as shown and described for tripping the shears in unison with the movements of the driving and clenching rolls, substantially as specified.

13. In a box-forming machine the combination of mechanism for stamping up lugs from the binding-strips; a series of rolls adapted to drive the lugs through the wood of the slats or sheets; a series of clenching-rolls adapted to bend over the ends of the lugs; and means substantially as described for severing the sheet of boxing material into sections, substantially as specified.

14. In a box-forming machine the combination of mechanism for stamping up lugs from the binding-strips; a slat-hopper; chain belts for feeding the slats therefrom; a series of rolls for driving the lugs through the slats; a series of clenching-rolls adapted to bend over the ends of the lugs; and means substantially as described for severing the sheet of boxing material into sections, substantially as specified.

15. In a box-forming machine the combination of independently-driven mechanism for stamping up lugs from the binding-strips; tripping mechanism actuated by the tension of the binding-strips to automatically stop and start the stamping mechanism; a slat-hopper; chain belts for feeding the slats therefrom, a series of driving-rolls for driving the lugs through the slats; a series of clenching-rolls for bending over the ends of the lugs; independently-driven shears for severing the sheet of boxing material into sections of predetermined length; and means substantially as specified for automatically tripping the shears in unison with the movement of the driving and clenching rolls, substantially as specified.

659,773. SUGAR-BEET HARVESTER. IRETT F. TUCKER, Sumner, Mich., assignor of one-half to Edward L. Alvord, Detroit, Mich. Filed Apr. 13, 1900. Serial No. 12,719. (No model.)



Claim.—1. In a beet-harvester, the combination with a supporting-frame, of a cutter to enter the soil and cut the roots extending transversely from side to side of the frame, means to swing said cutter upward and downward on the arc of a circle, and means to the rear of said cutter to sever the tops of the beets.

2. In a beet-harvester, the combination with a frame, of a cutter to enter the soil and cut the roots extending transversely from side to side of the frame, means to swing said cutter upward and downward, converging forks movable with said cutter, and means to the rear of said cutter to sever the tops of the beets.

3. In a beet-harvester, the combination with a frame, of a cutter to enter the soil and cut the roots extending transversely from side to side of the frame, means to swing said cutter upward and downward, and means to the rear of said cutter to sever the tops of the beets, said cutter being vertically adjustable.

4. In a beet-harvester, the combination with a frame, of a cutter to enter the soil and cut the roots, said cutter provided with upwardly-projecting arms, means connected with said arms to swing said cutter upward and downward, and means to the rear of said cutter to sever the tops of the beets.

5. In a beet-harvester, the combination with a frame, of a cutter, rotatable rollers to the rear of the cutter, and converging forks to direct the tops of the beets between said rolls.

6. In a beet-harvester, the combination with a frame, of a cutter, rotatable rolls, means to direct the tops of the beets between said rolls and means to prevent the tops of the beets being drawn forward as the rolls advance.

7. In a beet-harvester, the combination with a frame, of a cutter, rolls to engage the tops of the beets therebetween, and a sprocket-chain rotatable adjacent to said rolls, said chain provided with projecting arms.

8. In a beet-harvester, the combination with a cutter, rotatable rolls to the rear of the cutter inclined upward toward their rear extremities, and an additional cutter adjacent to the rear extremities of said rolls.

9. In a beet-harverster, the combination with a frame, of a cutter to enter the soil, rotatable rolls to the rear of said cutter arranged to engage and lift the tops of the beets, a rotatable cutter toward the rear extremities of said rolls, means to prevent the tops of the beets being drawn forward when engaged by the rolls, and means to rotate one of said rolls.

10. In a beet-harvester, the combination with a frame, of a cutter to sever the beets in the ground, means to partially lift the beets out of the ground, and mechanism to sever the tops of the beets when the beets are partially lifted from the ground.

11. In a beet-harvester, the combination with a frame, trucks to support the forward end of the frame, wheels at the front of the frame having a flexible connection therewith, wheels supporting the rear end of the frame, a cutter to enter the soil having an oscillatory engagement with the frame, mechanism to grasp the tops of the beets and lift the beets partially from the ground, mechanism to sever the tops of the beets when lifted from the ground, and means driven from the axle of the rear wheels to operate said mechanism.

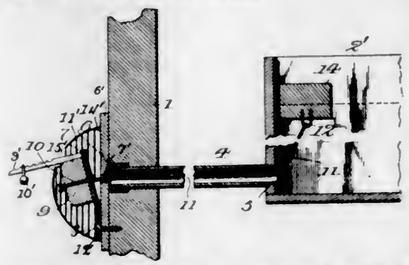
12. In a beet-harvester, the combination with a frame, a transverse cutter to enter the soil, rotatable rolls to the rear of the cutter to grasp the tops of the beets and lift the beets partially from the soil, means to direct the tops of the beets between said rolls, and means to sever the tops of the beets when partially lifted from the soil.

13. In a beet-harvester, the combination with a frame, of a cutter extending transversely from side to side of the frame to enter the soil, and provided with an inclined blade having a forward cutting edge, means to remove said cutter from the soil, and an additional cutter to sever the tops of the beets.

14. In a beet-harvester, the combination with a cutter to enter the soil, of rotatable rolls to engage the tops of the beets, said rolls inclined upward toward their rear ends, and an additional cutter to sever the tops of the beets.

15. In a beet-harvester, the combination with a frame provided with a cutter extending transversely from side to side of the frame to enter the soil, of the rotatable rolls to the rear of said cutter to engage the tops of the beets, said rolls inclined upward toward their rear ends, and means to direct the tops of the beets between said rolls.

659,774. ANIMAL AND FOWL WATER-TROUGH. JAMES C. TUCKER, Near Smith Centre, Kans. Filed June 23, 1899. Renewed Mar. 1, 1900. Serial No. 7,019. (No model.)

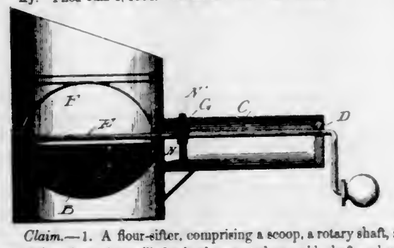


Claim.—1. In an animal and fowl water-trough, the combination with a supply-tank and a watering-trough, of a pipe or tube communicating with said tank and trough, a sleeve or collar secured to the end of the pipe or tube engaging the tank, a plate secured to the inner face of the tank adjacent the end of the tube or pipe and provided with an aperture of less diameter than the opening in the tube or pipe, a flap-valve secured to said plate, a block attached to the outer face of said flap-valve, a cord or cable connected to said block and extending through the pipe or tube into the trough, a float within the said trough to which said cord or cable is attached, and a hinged screen-cup surrounding said flap-valve within the tank, substantially as described.

2. In an animal and fowl water-trough, a supply-tank, a watering-trough, a pipe or tube communicating with said tank and trough, and a plate secured to the inner face of the tank and provided with an aperture registering with the opening in the tube, combined with a flap-valve secured to said plate, a block secured to the outer face of said flap-valve, a float within the trough, a screen-cup arranged around the flap-valve, a notched beam or bar connected to said block, a weight carried by said beam or bar, and a flexible wire or cable connecting said block with the float whereby the flap-valve is drawn into sealing engagement with the plate by the rising of the float within the trough, substantially as described.

3. In an animal and fowl water-trough, the combination with a supply-tank and a watering-trough, of a pipe or tube communicating with said tank and trough, a flap-valve connected to the inner face of the tank and adapted to seal the inlet to said tube or pipe, a float within the trough, a flexible wire or cable connecting said float and flap-valve, a notched bar or beam carrying a weight attached to said flap-valve to assist in opening the same, and a hinged screen-cup surrounding said flap-valve, substantially as described.

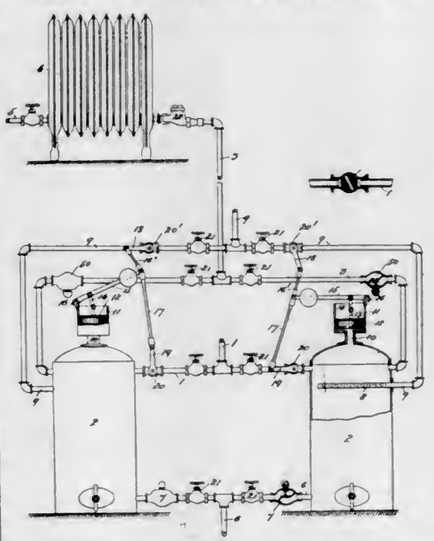
659,775. FLOUR-SIFTER. WILLIAM M. VISER, Harrodsburg, Ky. Filed Jan. 6, 1900. Serial No. 570. (No model.)



Claim.—1. A flour-sifter, comprising a scoop, a rotary shaft, an agitator, a handle, and a milled wheel mounted on said shaft and adapted to rock the agitator by the thumb of the hand of the operator holding the sifter, as set forth.

2. A flour-sifter, comprising a scoop, a handle secured thereto a shaft mounted in said handle and wall of the scoop, and a wheel with milled circumference mounted on a squared portion of the shaft, and disposed in a slot of the handle, and designed to be actuated by the thumb of the hand of the operator holding the sifter, as set forth.

659,776. STEAM-HEATING SYSTEM. JAMES R. WADE, St. Louis, Mo. Filed Oct. 16, 1899. Serial No. 733,806. (No model.)



Claim.—1. In a heating system, one or more tanks, having connections with a steam-supply, a water-supply, and with a radiator-heating system respectively, valves simultaneously controlling the steam and water connections to alternately inject steam and water into the tanks and produce a vacuum, thereby permitting the air of the radiator system to be intermittently drawn into the tank, the parts operating substantially as and for the purpose set forth.

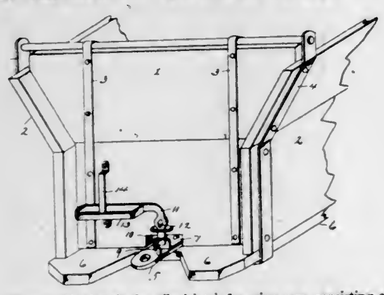
2. In a heating system, one or more tanks or vessels adapted to be connected with the radiator of a steam-heating system, a source of steam-supply and water-supply communicating with said tank or tanks, and devices interposed between such sources and the tank or tanks for automat-

ically and intermittently reducing the pressure in said tank or tanks, and correspondingly exhausting the air and condensation-waters from the radiator, substantially as set forth.

3. In a steam-heating system, a radiator, a tank, a pipe connecting the upper portion of the tank with the discharge end of the radiator, a water-pipe terminating in a spray-pipe within the tank, a steam-pipe leading to the upper portion of the tank, a cylinder mounted on top of the tank, a piston in said cylinder, a weighted pivoted lever coöperatively connected to said piston, rock valves or faucets mounted in the steam and water pipes respectively, linked connections between the stems of said valves and the weighted lever, and a check-valve leading from the bottom of the tank, the parts operating substantially as and for the purpose set forth.

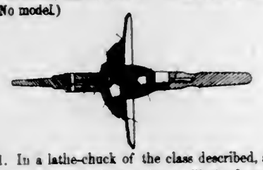
4. In a heating system, one or more tanks having connections with a steam-supply, a water-supply, and with a radiator-heating system respectively, valves simultaneously controlling the steam and water connections to alternately inject steam and water into the tanks and produce a vacuum, thereby permitting the air and steam of the radiator system and the waters of condensation to be intermittently drawn into the tank, a valve at the outlet end of the radiator adapted to permit of the free passage of the air and steam within the radiator, and also the free passage of the waters of condensation into the tank upon the formation of a vacuum in the latter, the same valve being adapted to drain the radiator of waters of condensation in excess of those drawn into the tank by the vacuum, substantially as set forth.

659,777. **MINE-CAR LATCH.** ALFRED C. WALTERS, Uniontown, Pa. Filed June 28, 1900. Serial No. 21,963. (No model.)



Claim.—The herein-described latch for mine-cars, consisting of the keeper, formed from a plate 7, and attached to the coupling-bar 5 of the car, the said keeper having a portion bent at a right angle and an inclined part 9, the latch-bar 11, pivoted to the end-gate, adapted to engage with the keeper, and provided with a handle portion 13, and the strap 14 for guiding and holding the bar in position, all arranged and combined for service, substantially as and for purpose described.

659,778. **LATHE-CHUCK FOR GRINDING WATCH-CRYSTALS.** AMASA R. WEAVER, Harvard, Nebr. Filed Apr. 2, 1900. Serial No. 11,171. (No model.)



Claim.—1. In a lathe-chuck of the class described, a friction-head comprising concavo-convex washers and a similiarly-shaped friction-disk of greater diameter clamped between said washers, said friction-disk being elastic, substantially as described.

2. In a lathe-chuck of the class described, the combination of a friction-disk, washers on opposite sides thereof and a compression-screw to clamp said washers on said disk, one of said washers being of less diameter than said disk and the latter having an annular bearing-surface projecting beyond the plane of said washer.

3. In a lathe-chuck of the class described, a friction-head comprising a friction-disk having an annular engaging surface projecting beyond the plane of said disk, and means to secure and rotate said disk, substantially as described.

659,779. **MEANS FOR SCRAPING HULLS OF VESSELS.** PHILIP WIRDOM, Chicago, Ill. Filed Nov. 23, 1899. Serial No. 737,994. (No model.)

Claim.—1. In a device for scraping vessel-hulls the combination of a vertical rope or cable on the side of the hull, a log having eyes through which said cable passes, means for raising and lowering said log, a hull-scraping device, a block and tackle having one member connected with said hull-scraping device and the other member connected with the log, substantially as set forth.



2. In a device for scraping vessel-hulls the combination of a revolving scraper adapted to be suspended over the side of the vessel, means for actuating said scraper and raising and lowering it and a rotary cutter bearing against the side of the hull and arranged to cut in a vertical plane in advance of said scraper, substantially as set forth.

3. In a device for scraping vessel-hulls the combination of a scraper, a motor for actuating said scraper adapted to be suspended over the side of the vessel and a buoyant rudder adapted to guide said scraper and motor and serve to buoy them up, substantially as set forth.

4. In a device for scraping vessel-hulls the combination of a scraper, a motor for actuating said scraper consisting of a wheel or disk having hinged wings on both sides thereof adapted to float against said wheel or disk when moving in one direction and to catch the water when moving in the other direction, and adjusting means for limiting the movement of said wings upon their hinges, substantially as set forth.

5. In a device for scraping vessel-hulls the combination of a shaft adapted to be suspended transversely of the vessel over the side thereof, a scraper on the inner end of said shaft adapted to contact with the hull of the vessel and a water-wheel and propeller on the other end of the shaft, substantially as set forth.

6. In a device for scraping vessel-hulls the combination of a motor adapted to be suspended in the water over the side of the vessel, a scraper actuated by said motor, vertical guide-ropes up and down which said motor slides, a second guide-rope fixed to the side of the vessel, a slide running vertically on said second guide-rope, means for raising and lowering said slide and tackle connection between said slide and motor, substantially as set forth.

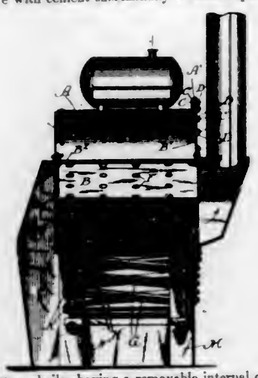
7. In a device for scraping vessel-hulls the combination of a scraper adapted to be suspended over the side of the vessel, a water-wheel for actuating said scraper having wings hinged on axes radiating from said wheel and on both sides thereof and means for adjusting the angle of said wings, substantially as set forth.

659,780. **STEAM-BOILER.** DENIS AHERN, New York, N. Y. Filed Apr. 13, 1900. Serial No. 12,661. (No model.)

Claim.—1. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes E F set therein, the large head B' on one end of such casing having a diameter in excess of that of the cylindrical shell, in combination with the cylindrical shell A having an outwardly-set flange A', and provisions for releasably securing these parts together, arranged to serve substantially as herein specified.

2. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes set therein, the large head B' on one end

of such casing, in combination with a corresponding outwardly-curved flange A' on the shell, and removable fastenings comprising each a bolt C C having an annular recess *c* and a nut D having an annular recess *d*, adapted to serve with cement substantially as herein specified.



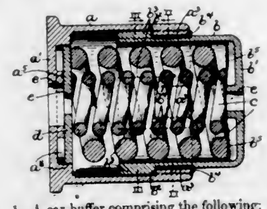
3. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes set therein, the shell A, water-legs or headers M N connected thereto, and the two series of oppositely-inclined side tubes G H combined and arranged to serve substantially as herein specified.

4. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes set therein, the shell A water-tubes or headers M N connected thereto and the two series of oppositely-inclined side tubes G H, the headers having access-holes *m* in line with the several tubes, and closing means for such holes comprising the internal heads W contracted portion W' threaded shank W^2 yielding gasket X, and nut Y all adapted to serve substantially as herein specified.

5. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes set therein the shell A water-legs or headers M N connected thereto and the two series of oppositely-inclined side tubes G H and partial partitions I combined and arranged to serve substantially as herein specified.

6. In a steam-boiler having a removable internal casing B of rectangular section with cross-tubes set therein, the shell A, water-legs or headers M N connected thereto, and the two series of oppositely-inclined side tubes G H, the longitudinal grooved rails L' L^2 the uppermost grooved the deeper, and the non-conducting plate J mounted detachably in such grooves, all arranged to serve substantially as herein specified.

659,781. **CAR-BUFFER.** HERMAN F. BALL, Cleveland, Ohio. Filed May 7, 1900. Serial No. 15,730. (No model.)

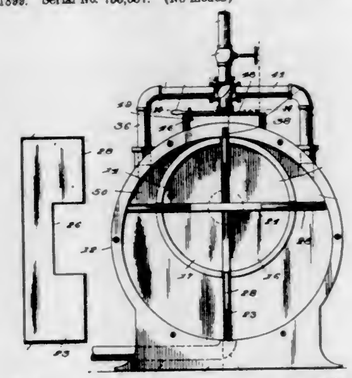


Claim.—1. A car-buffer comprising the following: a case composed of a stationary section and another section movable endwise of the stationary section; lugs formed upon the outer end portion of the stationary section at suitable intervals circumferentially of the said section; lugs formed upon the inner end portion of the movable section at suitable intervals circumferentially of the said section and overlapping the inner ends of the lugs of the stationary section; a spring contained within the case and acting to push the movable section outwardly and thereby cause the aforesaid lugs of the movable section to bear against the inner ends of the lugs of the stationary section, and other lugs formed upon the movable section and arranged as required, relative to the lugs of the stationary section, to prevent circumferential displacement of the movable section.

2. A car-buffer comprising the following: a case composed of a stationary section and another section movable endwise of the stationary section; lugs formed upon the inner side of the outer end portion of the stationary section at suitable intervals circumferentially of the movable section; lugs formed upon the outer side of the inner end portion of the movable section and overlapping the inner ends of the lugs upon the stationary section; a spring contained within the buffer-case and acting to push the movable section outwardly and thereby cause the aforesaid lugs of the movable section to bear against the inner ends of the lugs of the stationary section, and other lugs formed upon the movable section and having such arrangement, relative to the lugs of the stationary section, as will prevent turning of the movable section in either direction.

3. A car-buffer comprising the following: a case consisting of a stationary section open at its outer end and having its inner end provided with a head having a centrally-located bolt-hole, and another section that is movable endwise of the stationary section, which movable section has its inner end open and has its outer end provided with a head that has a centrally-located bolt-hole in registry with the first-mentioned bolt-hole; springs confined within the case between the aforesaid heads and arranged to be compressed upon the inward movement of the aforesaid movable section; a plate or washer interposed between the inner side of the head of the stationary section and the adjacent ends of the springs, and provided with a centrally-located bolt-hole that registers with the bolt-holes in the aforesaid heads, and lugs formed upon the aforesaid sections of the case and arranged as required to prevent outwardly endwise displacement of the movable section, substantially as and for the purpose set forth.

659,782. **ROTARY ENGINE.** JAMES P. BAXTER, Millsap, Tex., assignor of one-half to Harvey H. Dick, same place. Filed Oct. 28, 1899. Serial No. 735,057. (No model.)



Claim.—1. In a rotary engine, the combination, with a cylinder, the head of which is perforated above the center and recessed upon its inner face, concentrically to said perforation, of a shaft projecting through said perforation and provided upon its inner end with a series of sector-shaped sections forming a substantially cup-shaped piston, the sections being at a distance apart and the inner end of the shaft being provided with intersecting grooves to register with the spaces between the sections, reciprocatory blades between the sections and in said grooves, and inlet and exhaust ports in the cylinder.

2. In a rotary engine, the combination, with a cylinder, each head of which is perforated above the center and is recessed upon its inner face concentrically with said perforation, a shaft projecting through each perforation, and provided upon its inner end with a series of sector-shaped sections forming a substantially cup-shaped piston, the sections being at a distance from each other and the inner end of the shaft being provided with intersecting grooves to register with the spaces between the sections, and the sections upon the two shafts being located opposite to each other, bolts through the opposite sections, reciprocating blades in the spaces between the sections, and inlet and exhaust ports in the cylinder.

659,783. **ANIMAL-TRAP.** GEORGE BELL, Abingdon, Ill. Filed Feb. 6, 1900. Serial No. 4,243. (No model.)



Claim.—A trap comprising a base-plate constructed of a single piece of sheet metal and provided at opposite sides with ears 2 and having side and end flanges extending around the front portion, said base-plate being also provided with front and rear ears 21 and 15, a transverse pintle arranged in the ears 2, a jaw hinged to the base-plate by the pintle, a coiled spring disposed on the pintle and connected with the base-plate and the

jaw, the approximately U-shaped lever having its terminals bent outward and extending through the ears 15, and a bait-platform or trigger constructed of a single piece of sheet metal and composed of a body portion having side and end flanges and provided with the integral outwardly-extending pintles 22, located at the inner ends of the side flanges and arranged in the ears 21, and the upwardly-extending arms 17 forming the rear wall of the bait-receptacle and provided with a rearwardly-extending lip, substantially as described.

659,784. PROCESS OF MANUFACTURING PAPER FROM STRAW. LUDWIG K. BÖHM, New York, N. Y., assignor to William S. MacClyment, same place. Filed Mar. 2, 1900. Serial No. 7,066. (No specimens.)

Claim.—1. The process of making paper-pulp from straw, consisting in first treating the straw in a boiling solution of diluted acetic acid, then washing out the straw, then treating it in a boiling solution of caustic soda, removing the caustic lye, by washing with water, then washing it with a very dilute solution of acetic acid, then disintegrating the straw for the purpose of obtaining the pulp and then bleaching same as specified.

2. The process of making paper-pulp from straw, consisting in treating the straw in a boiling solution of dilute acetic acid, then washing it out, then treating it in a boiling solution of caustic soda, removing the caustic lye, then reducing the straw in order to obtain so-called half-stuff, bleaching it, beating it for the purpose of producing fine pulp, then bleaching it again, and then working the pulp up into paper, as specified.

659,785. PULP WASHING AND STRAINING MACHINE. LUDWIG K. BÖHM, New York, N. Y., assignor to William S. MacClymont, same place. Filed June 2, 1900. Serial No. 18,822. (No model.)



Claim.—1. A paper-pulp washing and straining machine consisting of a hollow revolving cylinder, curved paddles provided on the cylinder, slits in the base part of the paddles, rubber wipers secured in these slits, and openings in the revolving cylinder, a trough in which the revolving cylinder is mounted, a wire screen forming the bottom of the trough on which the rubber wipers act, a large box surrounding the trough, a stationary water-pipe secured in suitable packing and extending into the cylinder which revolves at one end around the stationary water-pipe and means for revolving the cylinder, substantially as specified.

2. In a paper-pulp washing and straining machine a revolving hollow cylinder provided with curved paddles, slits in the base part of the paddles, rubber wipers secured in these slits and extending beyond the circumference of the paddles and openings in the revolving cylinder provided so that the water issues against the curved paddles, substantially as specified.

3. In a paper-pulp washing and straining machine a revolving hollow cylinder provided with curved paddles, slits in the base part of the paddles, rubber wipers secured in these slits and extending beyond the circumference of the paddles and openings in the revolving cylinder provided so that the water issues against the curved paddles, in combination with a stationary water-pipe extending into the cylinder which revolves at one end around the same, substantially as specified.

4. In a paper-pulp washing and straining machine a revolving hollow cylinder provided with curved paddles, slits in the base part of the paddles, rubber wipers secured in these slits and extending beyond the circumference of the paddles and openings in the revolving cylinder provided so that the water issues against the curved paddles in combination with a stationary water-pipe extending into the cylinder which revolves at one end around the same and a trough in which the revolving cylinder is mounted, substantially as specified.

659,786. RECOIL-OPERATED FIREARM. JOHN M. BROWNING, Ogden, Utah. Filed June 6, 1900. Serial No. 19,260. (No model.)

Claim.—1. In an automatic gun as described, the combination of a receiver in which the barrel moves as described, a barrel, bolt, and bolt-carrier, and means for locking the bolt to the barrel by a partial rotation of the bolt, and for holding back the bolt and unlocking the bolt from the barrel by a reverse rotary movement of the bolt and an extension bolt-lock for holding the bolt in forward position relatively to the bolt-carrier, when the barrel moves forward from its recoiled position, substantially as described.

2. In an automatic gun, the combination of the receiver, barrel, bolt, and bolt-carrier, spiral wing-and-groove connection between the bolt and bolt-carrier as described, locking-ribs on the bolt engaging corresponding grooves in the barrel, the pivoted extension bolt-lock operating as described and engaging the frame to release the bolt and permit its spiral telescopic movement as the bolt-carrier moves forward, all substantially as described.



3. In an automatic gun, the combination of the receiver in which the barrel may move longitudinally, the barrel, bolt-carrier, and bolt, the latter moving telescopically and spirally in the carrier, means for holding the barrel forward when the bolt-carrier is drawn to the rear, and an action-rod and connections to the bolt-carrier within the rear stock, by which the bolt-carrier and bolt may be manually retracted, the barrel remaining forward, substantially as described.

4. In an automatic gun, the combination of the receiver, bolt-carrier reciprocating therein, bolt having spiral telescopic connection to the bolt-carrier, and barrel to which the bolt may be locked by partial rotation as described, a link connected to the bolt-carrier and a reciprocating action-rod within the rear stock, connected to said link, and a spring bearing said rod forward, substantially as described.

5. In an automatic gun, the combination of the receiver, the barrel constructed to reciprocate therein, a spring acting to press the barrel forward, a bolt-carrier and bolt having telescopic spiral connection as described whereby the bolt may be partially rotated and thereby locked or unlocked from the barrel as described, an action-spring carried by a slide-piece in the stock, said slide-piece having a link connection to the bolt-carrier to move said carrier forward, all substantially as described.

6. In an automatic gun, the combination of the receiver, barrel, bolt-carrier reciprocating in the receiver, and bolt reciprocating in the bolt-carrier, and an extension bolt-lock engaging the bolt and bolt-carrier to retain the bolt in its forward position relatively to its carrier, and in position to make first locking engagement with the barrel by direct forward movement, substantially as described.

7. In an automatic gun, the combination of the receiver, the barrel, bolt-carrier, and bolt, constructed to reciprocate in the receiver substantially as described, a spiral telescopic connection between the bolt-carrier and bolt, and a pivoted extension bolt-lock, automatically holding the bolt forward when the bolt-carrier is in rearmost position, and automatically disengaged by the forward movement of the bolt-carrier, substantially as described.

8. In an automatic gun, the combination of the bolt-carrier, action-rod connected thereto and extending backward in the rear stock, the slide connected to said action-rod and having a finger-piece extending outside the stock, and the slideway having a slot therein, and serving as a longitudinal guide for said slide, substantially as described.

9. In a gun of the character described, the receiver, the bolt-carrier and bolt having spiral telescopic connection, and the extractor having a lug engaging slots or openings in the bolt-carrier and bolt, whereby the longitudinal and rotary movements of the bolt relatively to its carrier are limited, all combined substantially as described.

10. In a gun of the character described, the combination of the receiver, barrel, bolt-carrier and bolt, a sliding action-piece and a link connecting the carrier thereto for moving the bolt-carrier rearwardly, and a spring pressing the carrier forward, and a carrier-latch, engaging the bolt-carrier to lock it in its rearmost position, substantially as described.

11. In a gun of the character described, the receiver, barrel reciprocating therein, and pressed forward by a spring, bolt-carrier and bolt having spiral telescopic engagement, substantially as described, a sliding action-piece in the stock and a link connecting the same to the bolt-carrier and a carrier-latch engaging the bolt-carrier at its rearmost position, to hold the carrier back while the barrel by its engagement with the bolt moves the same spirally forward, substantially as described.

12. The combination of the receiver, bolt-carrier reciprocating therein and bolt having spiral telescopic connection to the carrier, of the carrier-latch pivoted in the frame in position to engage the carrier and hold it in rear position, the reciprocating barrel, and means connecting to the barrel by which the carrier-latch is released by the forward movement of the barrel, substantially as described.

13. The combination with the receiver, bolt-carrier and barrel reciprocating in the receiver, and bolt having telescopic connection to its carrier and locking engagement as described with the barrel, of a carrier-latch engaging said carrier to hold it back as the barrel moves forward, and the bolt extension-lock engaging the bolt to hold the same forward relatively to its carrier, as the barrel engagement moves the bolt forward from the latched carrier, substantially as described.

14. The combination of the receiver, bolt-carrier reciprocating therein, bolt having spiral telescopic connection with carrier, and the barrel sliding in the receiver and having locking engagement with the bolt as described, of the bolt-carrier latch engaging the bolt-carrier to hold it in open position, and the carrier-latch lever engaged by the barrel in its forward movement, and acting on the carrier-latch to disengage the same, substantially as described.

15. The combination of the receiver, bolt-carrier and barrel reciprocating in the receiver, and bolt telescoping in its carrier substantially as described, of the carrier-latch lever, a lug on the carrier in proximity to the barrel when the parts are in locked relation, and a lug on the barrel with which the latch-lever engages to hold the barrel forward when not released by the action of the carrier-lug, all substantially as described.

16. In a gun of the character described, the combination with the receiver and bolt-carrier reciprocating therein, the magazine having a spring-actuated follower, and the bolt-stop pivoted in the frame and having a projection in line of movement of the magazine-follower, and actuated thereby to stop the forward bolt movement when the magazine is empty, and a finger-piece by which said stop may be manually released, substantially as described.

17. In a gun of the character described, the pivoted hammer, the notched trigger, and a slide in the frame having a tang which comes under the heel of the hammer while the slide enters the notch in the trigger, whereby the hammer is locked at full-cock and the trigger separately locked by the same slide-piece.

659,787. PROCESS OF ORNAMENTAL STAINING. BASEL BURRIS, Portsmouth, Ohio. Filed Mar. 27, 1900. Serial No. 10,350. (No specimens.)



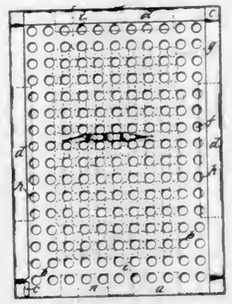
Claim.—1. The method of decorating wood which consists in forming grooves therein transversely of the grain of the wood, then soaking the wood in a liquid to fill the pores of the wood at the ends of the grain exposed by the grooves, then applying a coating of coloring-matter which is insoluble in the filling liquid and allowing it to dry and evaporating out the filling liquid, and then removing the coated surface of the stock exterior to the grooves.

2. The method of decorating wood which consists in forming grooves therein to expose the ends of the grain of the wood, then filling the exposed ends with water, then applying a coating which is insoluble in water, subsequently drying out the water and finally removing the coated surface of the wood exterior to the grooves.

3. The method of decorating wood which consists in forming grooves therein, then applying a coloring-coating, and then removing the surface of the wood exterior to the grooves, to remove the coating thereon.

659,788. MAILING DEVICE. EARLE H. CALLAHAN, Chicago, Ill. Filed July 22, 1899. Serial No. 724,735. (No model.)

Claim.—1. As a new article of manufacture, an envelop formed in part of a board provided with holes arranged longitudinally and transversely, and a second board to be disposed within the envelop having holes arranged longitudinally and transversely, but displaced with relation to the holes in the board of the envelop, to be covered by the material between the holes of the board of the envelop, substantially as described.



2. As a new article of manufacture, an envelop formed in part of a board provided with holes arranged longitudinally and transversely, a sheet of paper fastened at three of its edges to edges of the board, and a second board to be disposed within the envelop, having holes arranged longitudinally and transversely, but displaced with relation to the holes in the board of the envelop, to be covered by the material between the holes of the board of the envelop, substantially as described.

3. As a new article of manufacture, an envelop formed in part of a board provided with holes, and a second board to be disposed within the envelop having holes displaced with relation to the holes in the board of the envelop, to be covered by the material between the holes of the board of the envelop, substantially as described.

4. As a new article of manufacture, an envelop formed in part of a board provided with holes, a sheet of paper fastened at three of its edges to edges of the board, and a second board to be disposed within the envelop, having holes displaced with relation to the holes in the board of the envelop, to be covered by the material between the holes of the board of the envelop, substantially as described.

5. As a new article of manufacture, a board provided with marginal recesses, corner projections, flaps *m m* at the marginal recesses, and a projecting portion *n*, whereby the board may be readily grasped to be withdrawn from an envelop, said board being provided with longitudinal and transverse holes, substantially as described.

6. As a new article of manufacture, an envelop formed in part of a board having perforations forming characters or symbols therein, and additional perforations for further lightening the board, and a card *f* for insertion within the envelop, and colored differently from the outer face of the cardboard, the color having an outline which incloses the characters and which does not inclose the said additional perforations, substantially as described.

7. As a complete new article of manufacture, an envelop comprising a stiff, rectangular board provided with holes therethrough, arranged longitudinally and transversely thereof, said board forming one side of the envelop, and a sheet of thin paper secured to three edges of the board and being free from the fourth edge of the board, to permit of the insertion of contents, a space intervening between the paper and board to receive said contents, substantially as described.

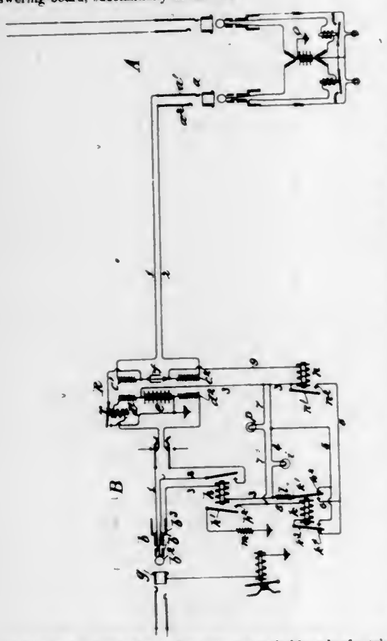
8. As a complete new article of manufacture, an envelop comprising a stiff board provided with holes therethrough arranged longitudinally and transversely thereof, said board forming one side of the envelop, and a portion of paper engaged by three edges of the board and forming the other side of the envelop, a space intervening between the board and paper for the reception of contents, substantially as described.

9. As a complete new article of manufacture, an envelop comprising a stiff, rectangular board provided with holes therethrough, arranged longitudinally and transversely thereof, said board forming one side of the envelop, and a sheet of thin paper secured to three edges of the board and being free from the fourth edge of the board, to permit of the insertion of contents, a space intervening between the paper and one face of the board to receive said contents, said board being free of covering upon its other face, the perforations being exposed, substantially as described.

659,789. SIGNAL FOR TELEPHONE TRUNK-LINES. HENRY M. CRANE, New York, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed Jan. 10, 1900. Serial No. 920. (No model.)

Claim.—1. The combination with a telephone trunk-line extending from a spring-jack at an answering-board to a terminal plug at a receiving-board, of a clearing-out signal *i* and a circuit 3 including the same with a source of current, said circuit being closed in registering contacts of the terminal plug and the spring-jack of the called-subscriber's line, two re-

lays *k n* controlling said clearing-out signal, a circuit through relay *k* controlled by the relay *n* and forming a shunt for the clearing-out signal, a circuit 5 adapted to be closed by the relay *k* when the same is energized, said circuit 5 including the winding of relay *k* to establish an independent circuit through said relay, the circuit 5 being in shunt with the clearing-out signal, and a circuit for the relay *n* completed by connection with the trunk-line spring-jack at the answering-board, whereby the clearing-out signal is continuously shunted while the terminal plug of the trunk-line is connected, the shunt about said clearing-out signal being removed and the signal displayed when the connection with the trunk-line is removed at the answering-board, substantially as set forth.



2. In a system of trunk-circuits between two switchboards of a telephone-exchange, a guard lamp or signal *p* and a clearing-out lamp or signal *i* combined with circuits with which said signals are connected, electrical apparatus, said apparatus including shunting apparatus or circuit-controllers, and a source of current brought into action by the plug and switch connections of the trunk-line, whereby on making connection with the called line the guard-signal is displayed, said display of the guard-signal being caused to cease on inserting the connecting-plug in the trunk-line switch at the answering-board by a shunt-circuit controlled through the agency of said plug, the clearing-out signal being at this time also shunted, said shunt being adapted to be removed from about the clearing-out signal to display the clearing-out signal by the removal of the said plug from its switch at the said answering-switchboard, substantially as described.

3. The combination with a telephone trunk-line extending from an answering-board to a receiving-board, of a signaling system for the trunk-line comprising a clearing-out signal *i* and a guard-signal *p*, and circuits and a source of current associated therewith for operating said signals, means for effecting the display of the guard-signal when connection is made at the receiving-board from the trunk-line to the called-subscriber's line, a relay *n* and switching mechanism operated thereby for effecting the concealment of the guard-signal, means, controlled by said relay, for bringing the clearing-out signal into action, the said clearing-out signal being controlled by said relay, and a circuit 9 for controlling said relay, said circuit 9 being controlled by connection with the trunk-line at the answering-board, whereby the guard-signal is displayed when connection is made between the trunk-line and the called-subscriber's line at the receiving-board and is concealed when connection is made with the line at the answering-board, and whereby the clearing-out signal-circuit is brought into action when connection is made with the trunk-line at the answering-board, the clearing-out signal being displayed when such connection is removed, substantially as set forth.

4. The combination with a telephone trunk-line extending from an answering-board to a receiving-board, of a guard-signal *p* and a clearing-out signal *i* at the receiving-board, a source of current *e*, a circuit 3, 4 including the clearing-out signal and a circuit 7 including the guard-signal, said circuits being closed when connection is made from the trunk-line to the called-subscriber's line at the receiving-board, shunt-circuits about said signals, relay mechanism controlling said shunt-circuits, and a circuit 9 controlling said relay mechanism, said circuit 9 being closed by connection with the trunk-line at the answering-board, whereby the guard-signal and clearing-out signal are shunted when the last-mentioned connection is made, and whereby the shunt about the clearing-out signal is removed when such connection is taken down, substantially as set forth.

5. The combination with a telephone trunk-line extending between an answering-board A and a receiving-board B, of a clearing-out signal *i* at the board B for indicating the condition of the trunk-line at the answering-board, a circuit 3 including the signal with a source of current, said circuit being closed by connection from the trunk-line to the called-subscriber's line at board B, a relay *k* and a circuit including the same with a source of current, said last-mentioned circuit being adapted to be completed by connection with the trunk-line at the board A, two shunt-circuits for the clearing-out signal controlled by said relay, one of said shunts 5 being closed by the relay when the same is inert, and the other of said shunts 6 being closed by the relay when it is excited, a circuit, including the winding of the relay, closed when the relay is excited, whereby said relay is rendered independent of the apparatus at board A, and means controlled by the removal of the connection with the trunk-line at board A, for opening the shunt 6, substantially as set forth.

6. The combination with a telephone trunk-line, of a clearing-out signal therefor at the receiving-terminal of the line and a circuit including the signal, a relay *k* and means controlled by connection with the trunk-line at both terminals thereof for exciting said relay, two shunts 5 6 for the clearing-out signal, one of said shunts 5 being normally closed by the relay, and a relay *n* controlled by connection with the trunk-line at the distant terminal thereof, the shunt 6 about the clearing-out signal being controlled at switch-contacts of both relays and being closed at the contacts of relay *k* when the same is excited, whereby the clearing-out signal is continuously shunted until connection with the trunk-line has been made and removed at the distant terminal, the signal being displayed on the removal of such connection, substantially as described.

7. The combination with a telephone trunk-line, of a clearing-out signal therefor at the receiving-terminal of the line and a circuit including the signal, a relay *k* and means controlled by connection with the trunk-line at both terminals thereof, for exciting said relay, two shunts 5, 6 for the clearing-out signal, one of said shunts 5 being normally closed by the relay, a relay *n* controlled by connection with the trunk-line at the distant terminal thereof, the shunt 6 about the clearing-out signal being controlled at switch-contacts of both relays and being closed at the contacts of relay *k* when the same is excited, whereby the clearing-out signal is continuously shunted until connection with the trunk-line has been made and removed at the distant terminal, the clearing-out signal being displayed on the removal of such connection, and a guard-signal *p* controlled by connection with the trunk-line at both terminals thereof, said guard-signal being displayed when connection is made with the trunk-line at the same switchboard and being shunted by a circuit controlled by the relay *n* when connection is made with the trunk-line at the distant terminal, substantially as described.

8. The combination with a telephone trunk-line, of a clearing-out signal at one terminal thereof, and a circuit for exciting the signal, two relays *k n* controlled by connection with the trunk-line at the distant terminal, an independent circuit through relay *k* closed when the same is excited, a shunt for the signal normally closed by relay *k* and opened when the same is excited, and a second shunt for the signal controlled by the relay *n*, whereby the signal is displayed only when the connection is removed at the distant terminal of the trunk-line, substantially as described.

659,790. ROTARY MOTOR. WILLIAM J. CRUTY, Brussels, Belgium. Filed Apr. 24, 1899. Serial No. 714,284. (No model.)



Claim.—In rotary motors the combination with a fixed steam-distributing body, and a casing capable of rotating around the said body, of inwardly-widening valve-chambers formed in the casing, of reciprocating valves or pistons with rounded-off outer edges, working in the chamber and adapted to be forced back with their faces flush with the interior of the casing, of the valve-shaft, the spring-pressed bars operating on the shafts to press the valves against the distributing-body, sliding packing-pieces mounted in the valves, and springs forcing the packing-pieces against the side walls of the valve-chamber.

659,791. EXHAUST-NOZZLE. EDA DEATHERAGE, Ric, Ill. Filed Nov. 28, 1899. Serial No. 738,606. (No model.)



Claim.—1. In a steam-exhaust nozzle, the combination with the body and a guide connected therewith, of a valve mounted on the guide, said valve being so constructed and arranged as to be operated vertically and revolubly by the escaping steam.

2. In a steam-exhaust nozzle, the combination with a body and a spirally-threaded guide, of a valve adapted to be moved vertically and revolubly on the guide by the escaping steam to vary the escape-opening, substantially as described.

3. In a steam-exhaust nozzle, the combination with a body and a guide, of a valve adapted to be adjusted vertically on the guide by the escaping steam and means for imparting a revoluble movement to the valve coincident with its adjustment on the guide.

4. In a steam-exhaust nozzle, the combination of a body, a guide mounted therein and provided with a spiral thread and a valve mounted on the body and provided with a thread to receive the thread of the guide, whereby the valve is vertically and revolubly adjusted by the escaping steam, substantially as and for the purpose described.

5. In a steam-exhaust nozzle, the combination with a body, of a spirally-threaded guide mounted therein, a valve operating vertically on said guide and a cap carried by the valve to receive the upper end of the guide, substantially as described.

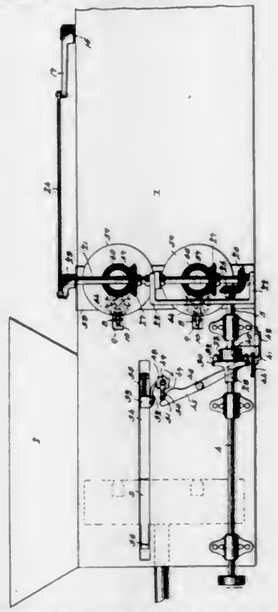
6. A steam-exhaust nozzle provided with a spirally-threaded guide mounted therein and having a spirally-threaded valve provided with exterior wings, said wings being disposed around the valve so that the pressure of the escaping steam thereon will retard the upward movement of the valve.

7. In a steam-exhaust nozzle, the combination with a body, of a guide mounted therein and provided with a spiral thread, a valve operating on the guide and wings on said valve, substantially as and for the purpose described.

659,792. BALING-PRESS. GEORGE H. DENNY, Chickasha, Ind. Ter. Filed June 19, 1900. Serial No. 20,865. (No model.)

Claim.—1. In a baling-press, the combination with a press-box, and means to form a bale therein, of a reciprocatory wire-carrier arm or needle adapted to operate transversely of the press-box, a revoluble wire-disk having peripheral openings adapted to be successively disposed in the path of the wire-carrier arm, and twisting devices revoluble independently of said wire-disk and comprising a pair of jaws, of unequal lengths, one projecting beyond the outer end of the other, said jaws having angularly-disposed coacting edges, conducting to a wire-receiving opening, substantially as described.

2. In a baling-press, the combination with a press-box and means to form a bale therein, of a reciprocatory wire-carrier arm or needle adapted to operate transversely of the press-box, a revoluble wire-disk having peripheral openings adapted to be successively disposed in the path of the wire-carrier arm, twisting devices, revoluble independently of said wire-disk, and comprising a pair of jaws of unequal lengths, one projecting beyond the outer end of the other, said jaws having angularly-disposed coacting edges conducting to a wire-receiving opening formed between them, and a stationary shearing-shoulder, said shoulder and one of said jaws coacting to cut the wires, substantially as described



3. The combination of a baling-press and means to pass a wire around a bale therein and form a loop in the wire on one side of the bale, a revoluble wire disk having peripheral openings adapted for the attachment thereto of the sides of said loop and an independently-revoluble wire-twister comprising a pair of jaws having angularly-disposed coacting edges conducting to a wire-receiving opening formed between them and extending to the axis of the disk, and a stationary shearing-shoulder, said shoulder and one of said jaws coacting to cut the wires on the initial movement of said independently-revoluble twisting device, substantially as described.

4. In a baling-press, the combination with a press-box and means to form a bale therein, of a reciprocatory wire-carrier arm adapted on one movement in one direction to dispose a bight of wire transversely across the press-box, a revoluble disk disposed on one side of the press-box and having peripheral openings successively disposed in the path of said wire-carrier arm and adapted to engage one side of the wire bight, and independently-revoluble twisting devices having a jaw adapted to sweep past said openings, engage the wires, draw the same to the axis of the disk and subsequently twist the wires, substantially as described.

5. In a baling-press, the combination with a press-box and means to form a bale therein, of a reciprocatory wire-carrier arm adapted on one movement in one direction to dispose a bight of wire transversely across the press-box, a revoluble disk disposed on one side of the press-box and having peripheral openings, means to rotate said disk by a step-by-step movement and dispose the said openings successively in the path of the wire-carrier arm, an independently-revoluble jaw to sweep past said openings, engage the wires, draw the same to the axis of the disk, means to rotate said jaw and a shearing-shoulder, the latter and said jaw coacting to cut the wires, and means to twist the wires after they have been thus cut, substantially as described.

6. In a baling-press, the combination with a press-box and means to form a bale therein, of a reciprocatory wire-carrier arm adapted on one movement in one direction to dispose a bight of wire transversely across the press-box, a revoluble disk disposed on one side of the press-box and having peripheral openings adapted to be successively disposed in the path of the wire-carrier arm, said disk having a tubular shaft provided with a gear-wheel, a shaft in said tubular shaft, having a wire-twister device at its inner end, and a pinion at its outer end, said wire-twisting device comprising a pair of jaws of unequal lengths, one projecting beyond the outer end of the other, said jaws having angularly-disposed coacting edges conducting to a wire-receiving opening formed between them, and one of said

jaws adapted to sweep past the peripheral opening in said disk, for the purpose set forth, and a master-wheel having gear-sections adapted to successively engage the said gears of said tubular shaft and the said pinion of said wire-twister shaft, substantially as described.

7. In a baling-press, the combination of a press-box and means to form a bale therein, reciprocatory wire-carrier arms, independently-revoluble wire cutting and twisting devices, a master-wheel geared thereto, an intermittently-revoluble shaft geared to said master-wheel, connections between said intermittently-revoluble shaft and said rock-shaft to actuate the latter and thereby operate the wire-carrier arms, a continuously-revoluble power-shaft, a clutch mechanism to lock said intermittently-revoluble shaft to said continuously-revoluble power-shaft, a lever to operate said clutch mechanism, and a step-by-step mechanism, actuated by the press-follower, to operate said lever, for the purpose set forth, substantially as described.

8. In a baling-press, the combination with a press-box and means to form a bale therein, reciprocating wire-carrier arms, operating transversely through the press-box, a rock-shaft and connections to actuate said wire-carrier arms, means to actuate said rock-shaft, independently-revoluble wire twisting and cutting devices, a master-wheel geared thereto, an intermittently-revoluble shaft, power connections between the same and the master-wheel, a continuously-revoluble power-shaft, a clutch mechanism to lock said intermittently-revoluble shaft to said continuously-revoluble shaft, a lever to operate said clutch, and a step-by-step mechanism, actuated by the press-follower, to operate said lever, for the purpose set forth, substantially as described.

9. In a baling-press, the combination with a press-box and means to form a bail therein, reciprocating wire-carrier arms, operating transversely through the press-box, a rock-shaft and connections to actuate said wire-carrier arms, independently-revoluble wire twisting and cutting devices, a master-wheel geared thereto, a shaft geared to said master-wheel and having a crank, a crank on said rock-shaft, a pitman connecting said cranks, an intermittently-revoluble shaft geared to said crank-shaft, a continuously-revoluble power-shaft, a clutch mechanism to lock said intermittently-revoluble shaft to said continuously-revoluble shaft, a lever to operate said clutch, and a step-by-step mechanism, actuated by the press-follower, to operate said lever, for the purpose set forth, substantially as described.

10. In a baling-press, the combination with a press-box, a reciprocating follower, wire-carrier devices, wire cutting and twisting devices, of a continuously-revoluble power-shaft, an intermittently-revoluble shaft, the latter actuating said wire carrier, cutting and twisting devices, a clutch member on the intermittently-revoluble shaft, said clutch member having a trip-lever, a clutch member on the continuously-revoluble power-shaft having a revoluble element in the path of which said trip-lever is disposed, a shifting lever adapted to be disposed in the path of said trip-lever to arrest the rotation of the intermittently-revoluble shaft and withdraw said trip-lever from the path of the revoluble clutch member of the power-shaft, a spring to move said shifting lever in one direction, a lever to move said shifting lever in the reverse direction and a step-by-step mechanism actuated by the follower to operate said lever, for the purpose set forth, substantially as described.

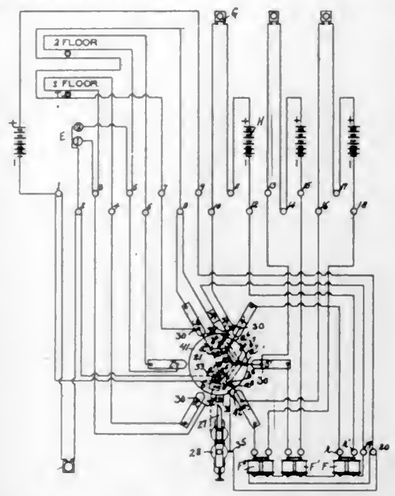
659,793. ELECTRIC ALARM SYSTEM AND TESTING APPARATUS. LEONARD H. DES ISLES, Cambridge, Mass., assignor to Roscoe F. Hersey, St. Paul, Minn. Filed Jan. 10, 1900. Serial No. 1,017. (No model.)

Claim.—1. In an apparatus of the character described, the combination with one or more circuits each comprising two parallel branch circuits, of a test-indicating device, connections distinct from said circuits between said test-indicating device and one terminal of a battery, and means for electrically connecting said device with the other terminal of said battery through each of said branch circuits separately.

2. In an apparatus of the character described, the combination of one or more circuits each comprising two parallel branch circuits, a separate testing-terminal for each of said branch circuits, a test-indicating device connected to one terminal of a battery independently of said circuits, connections between the other terminal of said battery and said branch circuits respectively, a movable contact-piece in circuit with said test-indicating device, and means for making contact between the contact-piece and said testing-terminals successively.

3. In an apparatus of the character described, the combination with a circuit comprising two parallel branches normally connected respectively to the terminals of a battery, of a test-indicating device independently connected to one terminal of said battery, means for interrupting the connections between the latter terminal and that branch circuit to which it is normally connected, and for establishing a connection between said branch circuit and the other battery-terminal, while said branch circuit is being tested, and means for connecting the test-indicating device with each of said branch circuits, independently of the other.

4. In an apparatus of the character described, the combination of two contact-pins a^3 b^3, connections between one of said pins and one terminal of a battery, a floor-circuit connected to the other pin, and also connected through a circuit-breaker to the other terminal of the battery, a recording-magnet independently connected to the latter battery-terminal, means for electrically connecting said circuit and recording-magnet, and means for short-circuiting said pins and for operating the circuit-breaker while said circuit is being tested.



5. In an apparatus of the character described, the combination of a test-indicating device adapted to be operated by a vibratory current, a vibrator or buzzer, and means for throwing said buzzer into circuit with said test-indicating device prior to the operation of the latter.

6. In an apparatus of the character described, the combination of an internal or floor circuit, a vibrator or buzzer, connections leading from said circuit through said buzzer to one terminal of a battery, a normally-closed short-circuiting connection between said circuit and battery-terminal, a test-indicating device electrically connected to the other terminal of said battery, and means for opening said short-circuiting connection and subsequently establishing a circuit from said internal circuit to said test-indicating device.

7. In an apparatus of the character described, the combination of a series of circuits comprising one or more floor-circuits and one or more relay-circuits, connections between said circuits respectively and one terminal of their respective batteries, a test-indicating device connected to the other terminals of said batteries, and means for electrically connecting said device with said circuits separately.

8. In an apparatus of the character described, the combination of a series of normally-open internal and external circuits severally connected to their respective batteries, a vibratory bell included in each of the external circuits, a test-indicating device adapted to be operated by a vibratory or intermittent current, means for establishing a testing-circuit through said device and said internal and external circuits successively, a vibrator or buzzer, and means for throwing the latter into the testing-circuits through said internal circuits and for throwing said vibrator out of circuit while the external circuits are being tested.

9. In an apparatus of the character described, the combination of an internal or floor circuit, a circuit-breaker, one or more relay-magnets, connections leading from said floor-circuit through said circuit-breaker and relay-magnets to one terminal of a battery, a test-indicating device one terminal of which is in circuit with said connections between said relay-magnets and battery-terminal, and means for operating said circuit-breaker and subsequently establishing a testing-circuit through said test-indicating device and floor-circuit to the other terminal of said battery.

10. In an apparatus of the character described, the combination of a rotating disk adapted to carry a record-blank, a series of springs surrounding the same and each connected to a circuit to be tested, a recording-magnet, a contact-piece carried by said disk, electric connections from said contact-piece through the recording-magnet to one terminal of a battery, and connections between the other terminal of said battery and said circuit to be tested.

11. In an apparatus of the character described, the combination of a rotating disk adapted to carry a record-blank, a series of springs surrounding the same, a pin under the free end of each spring and normally in contact therewith, a loop-circuit normally completed through each of said springs and its corresponding pin, a recording-magnet, a contact-piece carried by said disk and in circuit with said magnet, and battery connections for said magnet and loop-circuit.

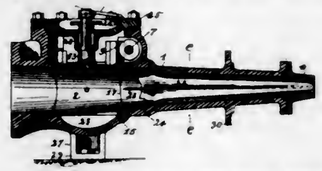
12. In an apparatus of the character described, the combination of a rotating disk adapted to carry a record-blank, a series of springs surrounding the same, internal or floor circuits respectively connected to some of said springs, external or relay circuits connected respectively to the remainder of said springs, a contact-piece carried by said disk, main battery connections for the internal circuits, relay-magnets included in said connections, equal in number to the external circuits and adapted to close the same when energized, a recording-magnet the coils of which are connected at one end with said contact-piece and at the other end with both the internal-circuit battery and the external circuits, and means for closing the circuit through said relay-magnets while said contact-piece is in contact with the respective springs to which the external circuits are connected.

13. The combination of two fixed contact-pins a' b', a disk 21 carrying a double contact 33 normally short-circuiting said pins, a series of springs each connected to a floor-circuit, a magnet 28, a contact-piece 31 carried by said disk and connected to the coils of said magnet, a battery, connections leading from the terminals thereof to said floor-circuits and magnet-coils respectively, a vibrator or buzzer connected in parallel with a circuit leading through said pins a' b', said parallel circuits being included between said battery and said floor-circuits, and means for rotating said disk.

14. The combination of a battery, a vibrator or buzzer, two contact-pins a' a^3 connected to each other and to one terminal of said battery through said buzzer, a floor-circuit connected to a spring 3′ and to a contact-pin b^3, a circuit-breaker and connections through the same from said floor-circuit to the other terminal of said battery, a magnet 28 connected to said latter terminal, a disk 21 provided with a contact-piece 31 connected to said magnet and with a double-contact piece 33, a cam-face on said disk adapted to operate said circuit-breaker prior to the testing of said floor-circuit, and means for rotating said disk.

15. The combination of a disk 21 carrying a contact-piece 31 and two double spring-contacts 32 and 33, a series of contact-pins a^3 b^3 a^4 b^4 a^5 b^5 a^6 b^6 a^7 b^7 a^8 b^8 arranged in pairs as shown, connections between the pins b^3 b^4 b^5 and one terminal of a battery, three relay-magnets included in said connections, a relay-circuit adapted to be closed by each of said magnets and including a spring, a pin 30 beneath each spring and connected respectively to the pins a^6 a^7 a^8, a vibrating bell in each of said relay-circuits, a vibratory magnet and connections leading through the same from the contact-piece 31 to the pins b^6 b^7 b^8, connections between pins a^3 a^4 a^5 and the other terminal of said battery, a record-blank adapted to be carried by said disk, and means for rotating the latter.

659,794. HYDRAULIC NOZZLE. WILLIAM A. DOBLE, San Francisco, Cal. Filed Oct. 17, 1899. Serial No. 733,855. (No model.)



Claim.—1. In a hydraulic nozzle, a main tube of tapering bore, a transverse circular chamber formed integral therewith adapted to receive a revoluble valve, the latter chambered or out of contact at its sides and ends, provided with removable faces to fit upon and close the bore of the nozzle toward the discharge end thereof and adapted to receive a lubricant around its exterior, in the manner substantially as described.

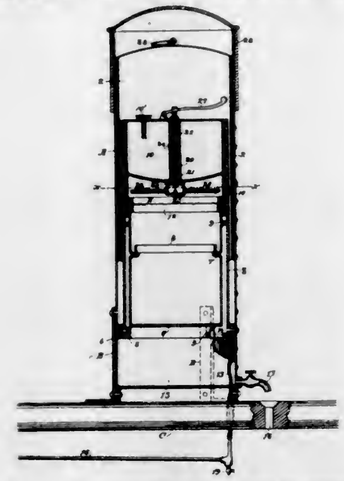
2. In a hydraulic nozzle, a main body or tube, a recessed cylindrical chamber transverse thereto and adapted to receive a revoluble valve, the latter provided with removable faces that open and close the bore of the waterways and confine a lubricant at the sides and ends of the valve, in the manner substantially as described.

3. In a hydraulic valve or cock, detachable faces adapted to open and close the issues to and from the valve, segmental or annular chambers at the sides of the valve communicating with chambers at its top and bottom adapted to contain a liquid lubricant out of contact with the fluid passing through the valve, substantially as specified.

4. In a hydraulic nozzle, a main tube with a tapering bore, a member 22 mounted concentrically therein, provided with thin radial vanes extending toward but not reaching the inner surface of the nozzle, and extending longitudinally near to or beyond the tip or point of issue, whereby the retarding-surface in the core approximates that of the surface surrounding the stream, substantially as specified.

5. In a hydraulic nozzle, a main tube having a tapering bore, the member 22 mounted concentrically therein provided with radial vanes of thin section and a cylindrical shell at the rear, the latter fitting into the main tube, said shell having an internal passage symmetrical with the bore of the main tube, substantially as specified.

659,795. ACETYLENE-GAS APPARATUS. MCDONALD ELLIOTT, Santa Rosa, Cal. Filed July 12, 1900. Serial No. 23,346. (No model.)



Claim.—1. The combination in an acetylene-gas generator, of an exterior casing, a cylinder interior to the same, an annular water-containing chamber interior to the cylinder and separated from the inner walls thereof to form a gas-passage, means for admitting gas to said passage, an open-bottomed gasometer-bell movably fitted in the space between the outer casing and said cylinder, and a gas-generating mechanism within said cylinder in line with the water-containing chamber.

2. The combination in an acetylene-gas apparatus of an exterior casing, a cylinder of smaller diameter interior thereto having a ring interposed between the two around the bottom of the interior chamber and forming a bottom to the annular channel thus produced whereby said channel is adapted to contain a limited amount of water, an open-bottomed gasometer-bell, fitting said channel and submerged in the water therein, the walls of the channel serving as a guide for the rise and fall of the bell, a water-containing chamber within the cylinder and separated from the walls thereof to form a gas-passage, a gas-generating mechanism, means for admitting gas to said passage, and a cap slidable upon the top of the casing and adapted to move in unison with the rising of the bell without disengagement from the casing.

3. The combination in an acetylene-gas generator of an exterior casing, an interior cylinder of smaller diameter having a closed bottom adapted to contain water, an open-bottomed gasometer-bell fitting and movable in said annular chamber, a chamber movably fitted to the interior of the inner cylinder, lugs upon which it is supported, said chamber having an outwardly-turned bead to guide it within the cylinder, an inwardly-turned bead to form a support for the carbid-basket, and means for supplying water to the carbid.

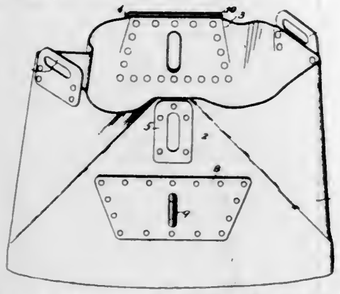
4. The combination in an acetylene-gas generator of the exterior casing, an interior cylinder of smaller diameter forming an annular water-chamber between the two, a gasometer-bell guided and movable within said annular chamber, a beaded close-bottomed chamber fitting within the inner cylinder, a carbid-basket supported therein and a removable water-chamber slidable within the interior cylinder, and having a rib or lugs by which it rests upon the top of the carbid-containing chamber.

5. The combination in an acetylene-gas apparatus of an exterior casing, an annular water-chamber interior thereto, a gasometer-bell guided and adapted to rise and fall within said annular space, a chamber interior to the cylinder which forms the inner wall of the gasometer-well, the lower part of said chamber serving as an ash-receiver, a carbid-basket removably supported within said chamber, a water-chamber and means for supporting it upon the top of the carbid-chamber, a spring-closed valve and a controlling-lever by which the valve is automatically opened when the gasometer sinks, and closed when it rises.

6. The combination in an acetylene-gas apparatus of an exterior casing, an annular water-chamber, and a rising and falling gasometer interior thereto, a carbid-containing and ash chamber and a water-tank within the gasometer, a spring-closed valve controlling the flow of water, and distributers through which the water is delivered upon the carbid below, a lever fulcrumed and connected with the valve-stem with its free end in the line of movement of the gasometer whereby the sinking of the latter depresses the lever and opens the valve and the rising of the gasometer allows it to close.

7. The combination in an acetylene-gas generator of an exterior casing with an internal water seal and rising and falling gasometer, a carbid-containing and ash chamber removably located within the gasometer having a roughened rim at the top, a water-chamber having extensions and a correspondingly-roughened interior rib resting upon the top of the carbid-chamber, said roughened surfaces providing for the passage of the gas between them and into the annular space surrounding the carbid and water chambers whereby the gas is brought into contact with the surrounding water seal of the gasometer and condensation takes place in said exterior annular channel.

659,796. MAIL-POUCH CLOSURE AND FASTENING. GEORGE GAVIN, Eureka, and WATSON E. GRIFFIN, Reno, Nev., assignors to the Safety Mail Pouch Fastener Company, Eureka, Nev. Filed May 8, 1900. Serial No. 15,934. (No model.)



Claim.—A mail-pouch having the outer upper angles of the open end folded inwardly and downwardly to meet at the center, slotted plates fixed to said angles adapted to overlap, with the slots registering, a staple fixed to the central portion of the front of the pouch over which the slotted plates are passed, other slotted plates fixed to the center and top of the pouch and foldable over the previously-folded portions whereby the slots in said plates are also passed over the staple in position to be secured by a lock, the rear central top plate having its edge projecting beyond the back section of the pouch and bent over whereby when said section is folded into position the bent edge of the plate passes below and covers and protects the edges of the other plate and the edges of the folded portion of the pouch.

659,797. PRESS COPYING-MACHINE. JOHN A. JONES, New York, N. Y. Filed Jan. 10, 1900. Serial No. 1,016. (No model.)

Claim.—1. The combination of an intermittently-rotating drum, an absorbent material carried by the drum, an intermittently-operating pressure-plate actuated during the time the drum is at rest, means to introduce the tissue-paper and the letter-paper between said parts, and means to moisten the absorbent material, for the purposes set forth.

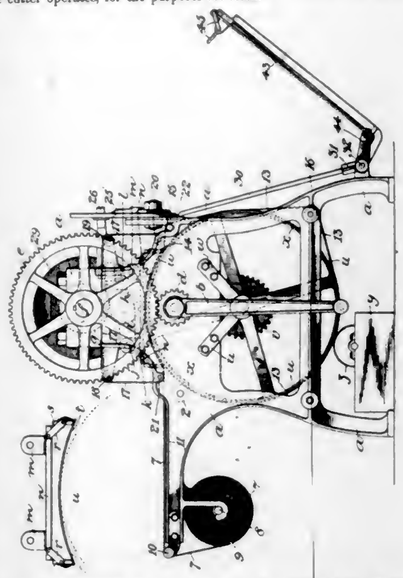
2. The combination of an intermittently-rotating drum, an intermittently-operating pressure-plate actuated during the time the drum is at rest, absorbent material permanently attached to the drum, and means to moisten said material, for the purposes set forth.

3. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate actuated during the time the drum is at rest, and tapes to guide the papers, for the purposes set forth.

4. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, and means for lifting the tissue-paper and the letter-paper from the drum after the impression is made, for the purposes set forth.

5. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, means for lifting the tissue-paper and the letter-paper from the drum and to deposit the same upon the cutting device, and the cutting apparatus itself, for the purposes set forth.

6. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, severing devices for cutting the paper, and means to guide the paper between the drum and the pressure-plate combined and arranged in such manner as that when the drum is at rest the pressure-plate operates, the drum then moves and then the cutter operates, for the purposes set forth.



7. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, an intermittently-operating cutter, and an intermittently-operating sheet-delivery device, the said devices being so timed that they successively operate in the order named, for the purposes set forth.

8. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, and means to conduct the end of a coil of tissue-paper between the drum and the pressure-plate, for the purposes set forth.

9. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, an intermittently-operating pressure-plate, a table over which the tissue-paper is fed, and means to conduct the tissue-paper, in conjunction with letter-paper, between the drum and the pressure-plate, for the purposes set forth.

10. The combination of an intermittently-rotating drum, absorbent material permanently attached to the drum, means to moisten said material, means to expel the excess of moisture from the absorbent material, an intermittently-operating pressure-plate, and means to lift the tissue and the letter papers from the drum after the impression is made, for the purposes set forth.

11. The combination of an intermittently-rotating drum, absorbent material on the drum, means to moisten said material, means to expel the excess of moisture from the absorbent material, an intermittently-operating pressure-plate, means to grasp and feed the tissue and letter papers into the machine and to lift them from the drum after the impression is made and to conduct them between the blades of a cutting device, and said cutting device itself, for the purposes set forth.

12. In a copying-press a pressure-plate made of flexible material means which yieldingly support the pressure-plate whereby it is adapted to automatic adjustment to the surface which resists the pressure, for the purposes set forth.

13. In a copying-press a pressure-plate composed of yielding material, means which yieldingly support the pressure-plate whereby it is adapted to engage with the surface that resists the pressure at its central portion first and then automatically adjusts itself at its ends, for the purposes set forth.

14. In a copying-press a rotating drum, an arc of which constitutes the pressure-resisting surface, a pressure-plate made of yielding material, means to yieldingly support the pressure-plate whereby it may adapt itself to the contour of the pressure-resisting surface, and means to reciprocate the pressure-plate, for the purposes set forth.

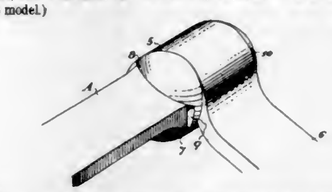
15. In a copying-press, a rotating drum, an arc of which constitutes the pressure-resisting surface, a yielding pressure-plate formed of resilient material which normally describes the arc of a circle larger than that of the drum, means to yieldingly support the pressure-plate, and means to reciprocate the same, for the purposes set forth.

16. In a copying-press a pressure-plate, adapted to coact with a curved resisting-surface, made of resilient material yieldingly supported at two edges, whereby it may when under pressure automatically adjust itself to the contour of the pressure-resisting surface, for the purposes set forth.

17. In a press copying-machine, endless tapes or belts arranged in pairs adapted to receive and hold the tissue-paper between them, means to intermittently move said belts so that they will guide and feed the tissue-paper between the pressure-applying surfaces, said belts being adapted to separate the tissue-paper from the pressure-applying surfaces after the impression is made, for the purposes set forth.

18. In a press copying-machine, endless tapes or belts arranged in pairs adapted to receive and hold the tissue-paper between them, and means to move said belts so that they will guide and feed the tissue-paper between the pressure-applying surfaces, for the purposes set forth.

659,798. SPRING CONNECTION FOR VEHICLES. PETER L. JONES, San Francisco, Cal. Filed July 24, 1900. Serial No. 24,660. (No model.)

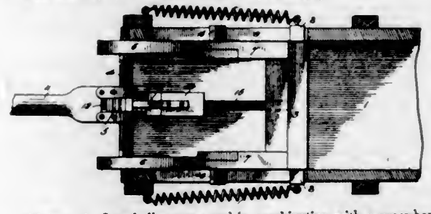


Claim.—1. The improvement in the construction of vehicle-springs, consisting in cutting away an intermediate portion upon each side of the leaf near the end, leaving the extreme end the full width, then folding and welding the cut-away portion upon itself, with the end part overlapping and welded upon the end of the spring, and rounding the folded smaller portion to form a cylindrical spindle.

2. A flat vehicle-spring having the end cut away folded upon itself, and formed into a cylindrical spindle with a shoulder at the inner end thereof, an independent collar fitting over the spindle having a transverse channel adapted to clasp and fit the shoulder upon the spring, a second spring meeting the first at right angles having the end bent into cylindrical form, a rubber bushing fitting into said end and abutting against the collar of the first-named spring, a metal sleeve centrally fitting said bushing and turnable upon the spindle of the first-named spring, and a nut and collar fitting upon the end of the spring and abutting against the outer end of the elastic bushing.

3. An improved vehicle-spring consisting of an extension beyond the ends proper of the spring, said extension having the sides cut away to near the outer end, and bent back and welded upon itself, and formed into a spindle, the extreme end being welded to the spring end contiguous to the inner end of the spindle.

659,799. BALING-PRESS. LUTHER MATTHEWS, Paris, Tenn. Filed Jan. 29, 1900. Serial No. 3,199. (No model.)



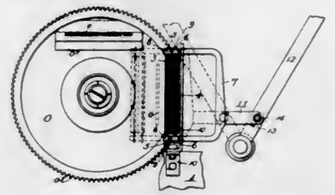
Claim.—1. In a baling-press and in combination with a press-box and a reciprocating pressing-follower having an arm projecting from the rear side at each end, of a shaft having on each end an eccentric of circular form engaging the follower-arms a ratchet-wheel on the shaft between the eccentrics, a hand-lever loose on the shaft having a pawl engaging the ratchet-wheel, and coil-springs connecting the follower and box-frame whereby the said circular eccentrics are caused to force the follower inward by a direct uniform pressure upon its arms.

2. In a baling-press and in combination with a press-box and a reciprocating pressing-follower having an arm at each end terminating in a concave bearing, of a shaft having at each end an eccentric of circular form, engaging the concave arms, a ratchet-wheel on the shaft, a hand-lever loose on the shaft having a pawl engaging the ratchet-wheel, coil-springs connecting the follower and box-frame and studs on the ends of the follower and at the ends of the arms slidable in slots in the box-frame.

3. In a baling-press and in combination with a press-box and a reciprocating pressing-follower having an arm at each end terminating in a concave bearing, of a shaft having at each end an eccentric of circular form engaging the concave arms, a ratchet-wheel on the shaft, a hand-lever loose on the shaft having a pawl engaging the ratchet-wheel, a guide-rod fixed central in the follower, and a fixed pillar forming a guide-support for the follower-rod, and coil-springs connecting the follower and box-frame.

4. In a baling-press and in combination with a press-box and a reciprocating pressing-follower having an arm at each end of the shaft having at each end an eccentric of circular form engaging the arms, a ratchet-wheel on the shaft, a hand-lever loose on the shaft, having a pawl engaging the ratchet-wheel, studs on the ends of the follower and at the ends of the arms slidable in slots in the box-frame, a guide-rod central in the follower, a fixed pillar forming a guide-support for the follower-rod and coil-springs connecting the follower and the box-frame.

659,800. WIPER MECHANISM FOR LINOTYPE-MACHINES. WILLIAM C. PRITCHARD, Bristol, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed May 23, 1900. Serial No. 17,696. (No model.)



Claim.—1. An improved wiper for the trimming-knife of a linotype-machine, consisting of a vertical brush equal in length to the knife, a frame to guide the same transversely of the knife, and a connecting-rod from said frame to a reciprocating member of the machine.

2. In a linotype-machine and in combination with a knife to trim the side of the slug, one or more brushes lying parallel with the length of the knife, a frame to guide the same transversely of the knife, and a connecting-rod from said frame to a vibrating lever forming part of the machine, substantially as described and shown.

3. In a linotype-machine, in combination with a knife for trimming the side face of the slug, a wiper acting transversely past the edge of the knife, substantially as described.

4. In a linotype-machine, the combination of a knife for trimming the side face of the slug, a wiper having a length equal to that of the operative portion of the knife, and means for reciprocating said wiper across the edge of the knife.

5. In a linotype-machine, and in combination with a knife for trimming the side face of the slug, a cylindrical wiper lying parallel with the edge of the knife and arranged to act across the same.

6. In a linotype-machine, the combination of a knife for trimming the side face of the slug, a cylindrical wiper lying parallel therewith, and mechanism for moving said wiper across the edge of the knife.

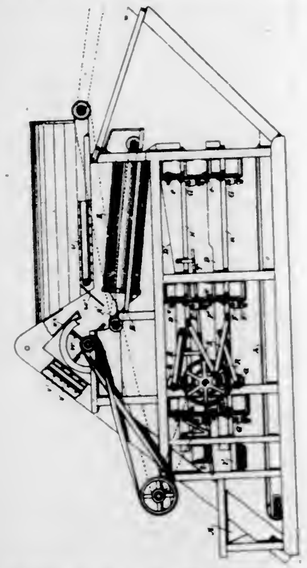
7. In a linotype-machine, the combination of the two trimming-knives, the two cylindrical wipers, and mechanism substantially as shown for carrying said wipers across the edges of the knives.

8. In a linotype-machine, a slug-trimming knife, a wiper of cylindrical form lying parallel with the edge of the knife, means for reciprocating said wiper across the edge of the knife, and means for permitting rotary adjustment of the wiper and securing the same against rotation.

659,801. ALMOND HULLER AND SEPARATOR. WALTER G. READ, Colusa, Cal. Filed July 17, 1899. Serial No. 724,167. (No model.)

Claim.—1. In an almond hulling and separating machine, the combination of a cylinder or drum, a longitudinally-journaled rotary shaft extending therethrough, means for delivering unhulled almonds into the drum, beater-arms fixed upon the shaft within the drum, and radial braces or arms fixed in the receiving end of the drum and having their outer ends twisted or turned to present their edges toward the nuts whereby the feed of the nuts into and through the drum is facilitated.

2. In an almond hulling and separating machine, a suspended shoe and means for oscillating the same, a screen-surface composed of wires extending transversely of the shoe and bent alternately in opposite directions to form wavy outlines of approximately the curvature of the almond-hulls, said wires having their ends bent at an angle and fitted in grooves or channels in the inner faces of the shoe, and end and intermediate plates having grooves or channels for the wires whereby the latter are spaced and held.



3. In an almond hulling and separating machine, a suspended oscillating shoe, a screen-surface formed of wires extending transversely and segmentally curved in opposite directions, grooves or channels formed in the inner faces of the shoe sides, angular bends made in the ends of the wires adapted to fit in said grooves whereby the wires are held with their plane of curvature in a common plane longitudinally of the screen, rubbing-frames below and parallel with relation to the screens and means whereby the rubbing-frames are reciprocated alternately with the reciprocation of the screens.

4. In an almond hulling and separating machine, a suspended oscillating shoe, a screen-surface composed of wires bent alternately in opposite directions to form segmental or wavy outlines of approximately the curvature of the almond-hulls, the ends of said wires being bent at right angles and fitted in longitudinal grooves or channels in the inner faces of the shoe side, whereby the plane of curvature of the wires is maintained in a common longitudinal plane from end to end of the shoe, spacing-plates fixed to the sides of the shoe within which the wires fit by which the distances between them are maintained, and similar spacing-plates clasping the intermediate portions of the wires between the sides of the shoe.

5. In an almond hulling and separating machine, a suspended oscillating shoe, a screen-bottom formed of wires having wavy curved outlines from side to side, means by which the said wires are maintained with their plane of curvature in a common plane longitudinally of the screen, spacing-plates fixed upon the side of the shoe in which the ends of the wire lie, other spacing-plates intermediate between the sides of the shoe having the upper edges between the slots set alternately in opposite directions in the manner of saw-teeth, bars extending longitudinally above the wire screens having dovetailed grooves in the lower faces in which said divergent edges of the spacing-plates fit, hook-bolts extending through the bars clasping the lower edges of the plates and nuts by which they are secured to the bars.

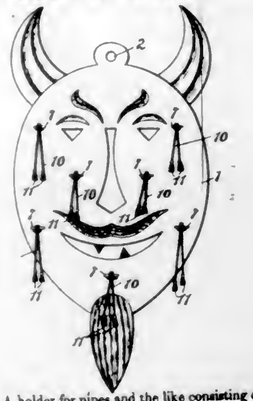
6. In an almond hulling and separating machine, a main frame, brackets secured upon opposite sides, hangers having one end journaled in the brackets, a shoe having separating-screens fixed therein and suspended from said brackets, journal-boxes adjustably connected with the brackets, rollers journaled in said boxes extending transversely across beneath the screen-shoe, a rubbing-frame, of longitudinal and transverse bars mounted upon said rollers and adjustable vertically therewith beneath the screen-frame, and means by which the screen and rubbing-frames are oscillated independently and the rubbing-frame oscillated alternately with the reciprocation of the screens.

7. In an almond hulling and separating machine, a suspended shoe having a screen fixed therein, means for delivering the nuts to be separated upon the screen, means for oscillating the screen, consisting of a pinion-shaft, crank-pins, pitmen connecting said crank-pins with the screen-frame and a revoluble mutilated gear, the teeth of which engage the teeth of the pinion once during each revolution, whereby the pinion is given a single revolution and the shoe a double reciprocation.

8. In an almond hulling and separating machine, suspended shoes having separating-screens fixed therein, crank-shafts, pitmen connecting the shafts with the screens, pinions mounted upon the crank-shafts and a mutilated gear, the teeth of which are adapted to engage the pinions once during each revolution of the gear whereby the screens are given a double reciprocation, rubbing-frames supported and movable beneath the screens, cranks upon the gear-shaft, and pitmen connecting said cranks with the rubbing-shoe.

9. In an almond hulling and separating machine, one or more suspended shoes with screens therein, rubbing-frames below and parallel with relation to said screens, mechanism by which the screens are independently and intermittently moved forward and back, mechanism by which the rubbing-shoes are intermittently reciprocated alternately with the reciprocation of the screens, a receiving-pan beneath the screens into which the separate hulls are delivered and means by which the hulls are carried away from the receiving-pan, and a discharge by which the nuts remaining upon the screens are delivered therefrom.

659,802. PIPE-HOLDER. Charles Roehlk, Buffalo, N. Y. Filed Aug. 24, 1900. Serial No. 27,950. (No model.)



Claim.—1. A holder for pipes and the like consisting of a relatively-thick body having a suspension device at its upper end and provided in its rear face with a number of cavities with a pair of holes continuing each cavity through the body to the front face of the latter; combined with a bent elastic whose center stands over said front face and whose arms pass through said holes and are knotted within said cavity, and a handle attached to the bend of the elastic.

2. A holder for pipes and the like consisting of a relatively-thick body having a suspension device at its upper end and provided in its rear face with a number of cavities with a pair of holes continuing each cavity through the body to the front face of the latter; combined with a bent elastic whose center stands over said front face and whose arms pass through said holes and are knotted within said cavity, a handle attached to the bend of the elastic, and a backing secured to the rear face of the body and closing all the cavities therein.

3. A holder for pipes and the like consisting of a relatively-thick body having a suspension device at its upper end and provided in its rear face with a number of cavities with a pair of holes continuing each cavity through the body to the front face of the latter; combined with a bent elastic whose center stands over said front face and whose arms pass through said holes and are knotted within said cavity, a backing covering the rear face of the body and closing all the cavities, and for each elastic a handle consisting of an inelastic silk braid looped at its center to the bend of the elastic.

659,803. SOAP-HOLDER ATTACHMENT. Chester A. Weller, White Plains, N. Y. Filed Jan. 3, 1900. Serial No. 224. (No model.)

Claim.—1. In combination with a soap-dish, a removable holder for supporting the soap adapted to be inserted in said dish, and means for raising the holder while maintaining it in a horizontal position, for the purposes as set forth.

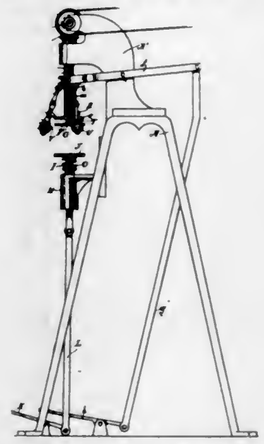
2. In combination with a soap-dish, a soap-holder attachment comprising a rack for supporting the soap adapted to rest in its normal position on the bottom of the soap-dish, a lifting member pivoted on the side wall of the soap-dish and adapted upon a downward pressure to lift said rack and at the same time to maintain it in a horizontal position, for the purposes as set forth.



3. In combination with a soap-dish, a soap-holder attachment comprising a rack formed at one end on either side with an elongated slot and a lateral lug, and a lifting member formed with two arms adapted to rest upon the lateral lugs of the rack, and further provided with lateral lugs adapted to slide in the elongated slots of the rack, for the purposes as set forth, substantially as described.

4. In combination with a soap-dish, a soap-holder attachment comprising a rack for holding the soap adapted to be inserted in said soap-dish and normally to rest horizontally upon the bottom of same, a lifting member pivoted on the wall of said dish and adapted to be tilted by a pressure of the hand, and coöperative means formed between the rack and the lifting member whereby the tilting of the latter causes the elevation of the former and at the same time maintains it in its horizontal position, for the purposes as set forth, substantially as described.

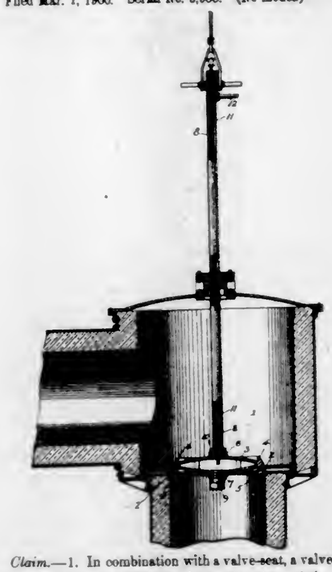
659,804. CAN-HEADING MACHINE. Ernest C. Atwood, Goldengate, Cal., assignor to the Pacific Coast Syrup Company, San Francisco, Cal. Filed Oct. 17, 1899. Serial No. 733,856. (No model.)



Claim.—1. A device for applying heads upon the ends of cans in which the heads rest upon the can ends, and are inclosed by annular rings extending over the head and down the side of the can, said device comprising a frame having upper and lower guides, vertical shafts mounted in said guides one of said shafts having a spring-seated table to support the can and the other shaft having an encircling sleeve provided with a disk to rest upon the can-head, a collar splined on the sleeve, and a treadle and connections for raising the lower shaft, fulcrum-arms projecting from the disk and the collar, arms fulcrumed between their ends to the arms on the disk and having their lower ends provided with semiglobular beaded heads, links having one end connected with the arms on the collar and their opposite ends pivotally connected with the upper ends of the arms which carry the beaded heads, a lever connected with the collar and a treadle and connection for operating the same whereby the beaded heads are moved into and out of contact with the securing-rings of the can, and means for rotating the upper shaft.

2. In a machine of the character described, the combination of means for supporting the can, a vertical shaft and means for rotating the same, a sleeve surrounding the shaft and a collar splined on said sleeve, arms fulcrumed to the sleeve at points between their ends and having their lower portions threaded, semiglobular heads fitted to the lower ends of the arms and having beaded peripheries, nuts engaging the threaded ends of the arms and securing the heads in place and links fulcrumed to the collar and having their lower ends pivotally connected to the upper ends of the arms.

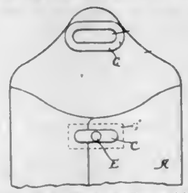
659,805. HOT-BLAST VALVE. David Baker, Chicago, Ill. Filed Mar. 1, 1900. Serial No. 6,933. (No model.)



Claim.—1. In combination with a valve-seat, a valve-body movable to and from the seat at right angles to the plane of the valve-seat and provided on opposite sides with valve-surfaces either adapted to rest on the seat, an operating-stem extending at right angles to the plane of the valve-seat, and means for connecting the stem detachably with either side of the valve-body as desired.

2. In combination with a valve-seat, a hollow valve-body provided on opposite sides with valve-surfaces, either adapted to rest on the valve-seat, and formed in opposite sides with openings, a hollow detachable stem adapted to fit in either opening, means for closing one of said openings when the valve-stem is fitted to the other, and means for circulating a cooling medium through the valve-body.

659,806. ENVELOP-FASTENER. William Barnard, Philadelphia, Pa. Filed Feb. 16, 1900. Serial No. 5,467. (No model.)



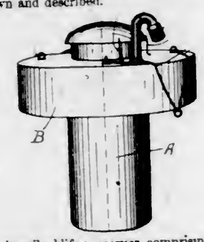
Claim.—In combination with an envelop and its flap provided with an approximately-oblong opening, a button formed of a thin piece of stiffening material, an eyelet passed through the button and overlapping edges of the body of the envelop and clenched to form a pivot and a fastening means for the edges of the body, a reinforcing-strip secured on the under surface of the flap around the opening and a second reinforcing-strip on the surface of that portion of the body of the envelop where the eyelet or pivot passes through, as and for the purpose set forth.

659,807. LIFE-PRESERVER. Jessie Barton, Metheringham, England. Filed Mar. 27, 1900. Serial No. 10,314. (No model.)

Claim.—1. The herein-described life-preserver, comprising a buoyant tubular body embodying a relatively-large top portion, said body portion consisting of a base-plate, and a plurality of annular members and body-strips rigidly connected together, the entirety being covered by a skin of canvas or other impervious material, and a detachable closure for said body portion, substantially as shown and described.

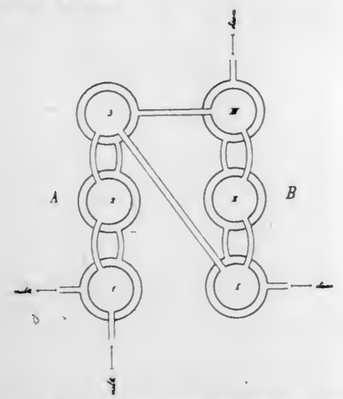
2. The herein-described life-preserver, comprising a buoyant tubular body, and means for permitting the ingress of air thereto and for automatically cutting off said ingress, consisting of a tube connected with said tubular body, and provided with a downwardly-directed perforated head

in which is mounted a valve, whereby when said valve is floated by the element in which said life-preserver operates said ingress will be cut off, substantially as shown and described.



3. The herein-described life-preserver, comprising a buoyant tubular body embodying a relatively-large top portion, the said body portion consisting of a base-plate, and a plurality of annular members and body-strips rigidly connected together, the entirety being covered by a skin of canvas or other impervious material, substantially as shown and described.

659,808. **STERILIZING OR PASTEURIZING APPARATUS.** EMIL VON BÜHLER, Charlottenburg, Germany. Filed Dec. 29, 1899. Serial No. 741,990. (No model.)



Claim.—A device for pasteurizing or sterilizing liquids consisting of two batteries joined to each other, each battery formed of a plurality of double receptacles connected one to another, the whole so arranged that the liquid may be gradually heated on the counter-current principle, one of the batteries serving to complete the heating of the liquid by an independent heating medium and the other battery serving to preliminarily heat the liquid by means of the liquid heated in the first-named battery.

659,809. **GAME-BOARD.** EDWARD T. BURROWES, Portland, Me. Filed May 19, 1900. Serial No. 17,271. (No model.)



Claim.—1. In a game-board, the combination with the body and frame extending above the same, of a cushion comprising a thin flexible strip arranged at an angle and having its outer edge inserted and secured in the frame at a point above the body leaving an intervening space, substantially as described.

2. In a game-board, the combination with a body, of a rigid frame projecting above the same, and a thin flexible cushion-strip projecting over the body below the plane of the upper edge of the frame and located beyond the surface of the body to leave an intervening space, substantially as described.

3. In a game-board, the combination with a body, of a rigid frame projecting above the same, and a thin flexible cushion-strip secured in a groove in the frame and projecting over the body, substantially as described.

4. In a game-board, the combination with the body and frame having a groove therein intermediate the outer edge and the surface of the body, of a cushion consisting of a narrow thin strip inserted and secured in the groove and having an inclined portion, substantially as described.

5. In a game-board, the combination with a body having pockets, of a frame and an inclined thin flexible strip secured to the frame at a point above the body leaving an intervening space extending around the board and projecting over the pocket-openings, substantially as described.

6. In a game-board, the combination with the body having pockets, of a frame and upwardly and inwardly inclined thin flexible cushion-strips overhanging the pocket-openings, their lower edges being secured at points intermediate the outer edge of the frame and the surface of the body, substantially as described.

7. In a game-board, the combination with the body having a pocket-opening therein, of a closure for the opening consisting of independent removable closing-sections fitted in the openings, substantially as described.

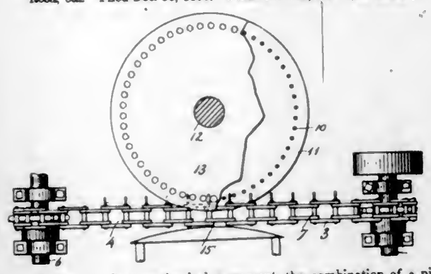
8. In a game-board having a body formed with a pocket-opening therein and a frame surrounding the body, of a closure for the opening consisting of a detached block corresponding in shape to that of the opening and adapted to be inserted from above and projections at the edge of the openings for supporting the block, substantially as described.

9. In a game-board, the combination with the body having a pocket-opening therein, and a surrounding frame, of a closure for the opening formed of independent, curved, removable closing-sections fitting in the opening, substantially as described.

10. In a game-board, the combination with the body having a pocket-opening therein, and a surrounding frame, of a pocket, laterally-protruding means for securing the pocket to the walls of the opening, and a removable closing member inserted in the opening resting on the securing means, substantially as described.

11. In a game-board, the combination with the body and surrounding frame, of a flexible cushion-strip secured to the frame, and a curved abutment adjacent the secured portion of the strip and against which the strip bends, substantially as described.

659,810. **MECHANICAL MOVEMENT.** EDGAR CHERRY, Santa Rosa, Cal. Filed Dec. 30, 1899. Serial No. 742,106. (No model.)



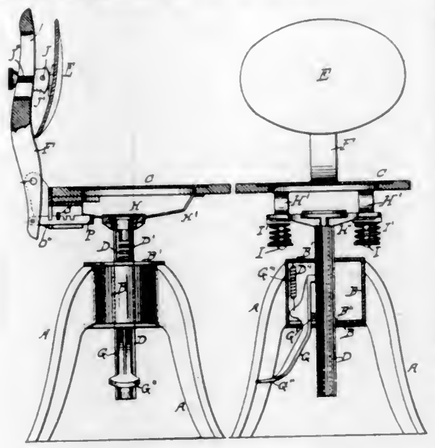
Claim.—1. In a mechanical movement, the combination of a pin-wheel, a sprocket-wheel and a sprocket-chain traveling around the latter and tangentially to the former wheel, the chain having hollow rivets and pins removably secured in said rivets, which pins engage the pins of the pin-wheel, substantially as described.

2. In a mechanical movement, the combination of a shaft, two circular series of pins carried on said shaft as an axis, a sprocket-wheel and a sprocket-chain traveling around the latter and passing tangentially to each series of pins in opposite directions, said chain having pins removably mounted in the axes of certain of its links and projecting therefrom, which pins engage alternately the pins on the two series, substantially as described.

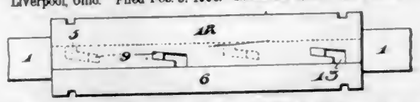
3. In a mechanical movement, the combination of a shaft, two circular series of pins carried on said shaft as an axis, a sprocket-wheel and a sprocket-chain traveling around the latter and passing tangentially to each series in opposite directions, said chain having pins removably mounted in the axes of certain of its links and projecting therefrom, which pins engage alternately the pins on the two series, and a clutch for throwing one or the other of the series into revolvable engagement with the shaft, substantially as described.

659,811. **TYPE-WRITER'S CHAIR.** FRANKLIN CHICHESTER, New York, N. Y. Filed Apr. 26, 1899. Serial No. 714,616. (No model.)

Claim.—In a type-writer's chair, the combination with the chair-seat and devices for adjusting its height, of the back-supporting arm F having a longitudinal slot, the chair-back E, the movable head on the supporting-arm having the chair-back pivoted thereto, a set-screw fitted in the slot of the supporting-arm to adjust the height of the movable head and chair-back on the arm, the sliding rack P, and adjusting devices under the chair-seat for regulating the angle of position of the arm in relation to the seat, substantially as shown and described.

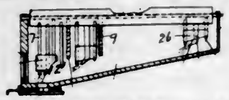


659,812. **RAIL-JOINT.** JOSEPH CRITES and JOHN WEBB, East Liverpool, Ohio. Filed Feb. 5, 1900. Serial No. 4,015. (No model.)



Claim.—A rail-joint composed of a male and female section having formed therein L-shaped recesses inclined toward the center, fish-plates formed integral with said sections, reduced portions formed in said sections adapted to overlap each other, and lugs formed on each of said sections adapted to engage the L-shaped recesses of the opposite section, substantially as described.

659,813. **ORE WASHER AND SEPARATOR.** ETHAN W. EATON, Socorro, N. Mex. Filed Jan. 31, 1900. Serial No. 3,510. (No model.)



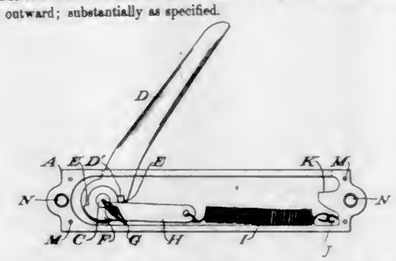
Claim.—1. In an ore washer and separator, a tank having an overflow-opening and a lower discharge-opening, a water-supply vessel mounted on the tank and provided on its under side with pulp-stirring arms, and mechanism to rock the vessel and stir the pulp, part of said arms being hollow to convey water from the vessel to near the bottom of the tank and having their discharge ends bent to project at all times toward the concentrate-discharge end of the tank.

2. In an ore washer and separator, a tank having an overflow-opening and a lower discharge-opening, a water-supply vessel mounted on the tank and provided on its under side with pulp-stirring arms, and mechanism to rock the vessel and stir the pulp, part of said arms being hollow to convey water from the vessel to near the bottom of the tank, said arms having their discharge ends reduced in size and bent to project at all times toward the concentrate-discharge end of the tank.

3. In an ore washer and separator, a tank having an overflow-opening and a lower discharge-opening, a water-supply vessel mounted on the tank and provided on its under side with pulp-stirring arms, and mechanism to rock the vessel and stir the pulp, part of said arms being hollow to convey water from the vessel to near the bottom of the tank and having their discharge ends bent toward the concentrate-discharge end of the tank, and partitions extending from the top of the tank to a level below the overflow-opening.

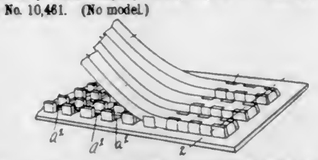
659,814. **LADDER.** HERBERT L. PRISELL, Boston, Mass. Filed June 12, 1900. Serial No. 20,000. (No model.)

Claim.—1. A ladder-hook comprising a metallic case; a grappling-arm, pivoted within the case, provided with a projecting stop, and arranged to swing outward and inward through an opening in the case; a plate arranged to turn on the pivot of the arm, and having shoulders which alternately act on the stop on the arm as the plate is turned; and an actuating-spring so connected with the case and plate that it may be made to actuate the arm from either side of its pivot, to swing it inward or outward; substantially as specified.



2. A ladder-hook embodying the combination of a case or box A, provided with a cover A' having a curved slot B therein; a grappling-arm D, provided with a stop D', and pivoted within the case, and arranged to swing outward and inward through a slot L, in the side of the case; an adjusting-plate F, arranged to turn on the pivot of arm D, and having shoulders E, E', which act against stop D': an eccentric-pin G, arranged to project from plate F, through slot B; a strap H, connecting an actuating-spring with the pin G; and an actuating-spring I, arranged to operate on either side of its pivot to move arm D, all substantially as and for the purposes specified.

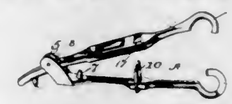
659,815. **METHOD OF MAKING NON-SLIPPING TREADS, PAVING, &c.** FREDERICK W. HUESTIS, Newton, Mass., assignor to the Universal Safety Tread Company, Jersey City, N. J. Filed Mar. 28, 1900. Serial No. 10,461. (No model.)



Claim.—1. The herein-described improvement in the art of making non-slipping treads, paving and the like, said improvement consisting in the method of first assembling a plurality of pliable strips in parallelism and in line with spaces between rows of tread-surfaces which project from a base-plate; and secondly, in simultaneously transforming and homing the strips in said spaces and canting the opposing wear-surfaces upon intermediate strips.

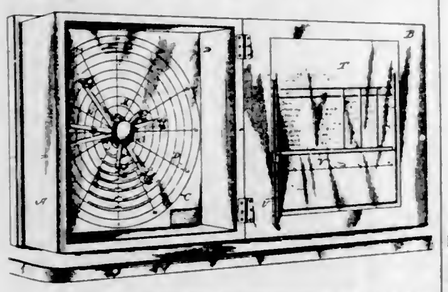
2. The herein-described improvement in the art of making non-slipping treads, paving and the like, said improvement consisting in the method of first assembling a plurality of pliable strips in parallelism and in line with spaces between rows of tread-surfaces which project from a base-plate; and, secondly, in simultaneously transforming and homing the strips in said spaces.

659,816. **HAME AND TRACE CONNECTOR.** JAMES A. JAMISON, Russellville, Ark. Filed Jan. 11, 1900. Serial No. 1,170. (No model.)



Claim.—A combined hame tug and buckle consisting of an inner part, having a half-eye on its front end; a cross-groove in its inner face; a pin projecting from its front face, and near its rear end; two arms rising outwardly from its rear end at each edge; a rod passing from one arm to the other, and through the extreme ends of said arms; an outer part, having a half-eye corresponding to the half-eye of the inner part; the two half-eyes constructed to form a lap-eye when brought together; a cross-slot immediately opposite the cross-groove of the inner part; a longitudinal slot in the rear of said cross-slot; a tail, having its rear end turned slightly inward, and also having a pin extending from its inner face; said tail provided on its outer side with a shoulder adapted to rest against the rod, to keep the said outer part from slipping backward; said tail end adapted to be passed under the rod and between the arms; a loop having one side resting in the cross-groove of the inner part, its upper side adapted to pass out through the cross-slot in the outer part, substantially as shown and described and for the purposes set forth.

659,817. PLANETARIUM. JOHN M. JONES, Palmyra, N. Y. Filed Dec. 12, 1899. Serial No. 740,094. (No model.)



Claim.—1. In a planetarium, the combination of a suitable vertically-disposed base; a series of arms pivotally mounted thereon carrying planet representations; and pendent plates pivotally attached to the planet representations, substantially as and for the purpose described.

2. A planetarium provided with an arm movable in a substantially-vertical plane, said arm carrying a planet representation; and a pendent plate pivotally secured thereto, said plate having notations thereon, substantially as and for the purpose described.

3. In a planetarium, the combination of a suitable base; a central shaft or spindle secured thereto and provided with a groove or channel in its face; a series of arms journaled upon said spindle; washers interposed intermediate said arms, said washers being provided with lugs or fingers adapted to enter the groove in the face of the shaft or spindle; and means for securing said arms and washers in place upon the shaft.

4. In a planetarium, the combination of a suitable base; a shaft or spindle secured thereto and provided with a channel or groove F in its face; a series of arms G journaled upon said shaft, each arm carrying a planet representation at its outer end; a series of washers I mounted upon said shaft or spindle intermediate said arms, each washer being provided with a finger or projection *j* adapted to enter the groove; and a suitable locking-nut adapted to be secured upon the outer end of the shaft holding the parts in position, substantially as described.

5. In a planetarium, the combination of a suitable base; a shaft or spindle secured thereto and provided with a groove or channel F in its face; a series of arms G journaled upon said shaft, each of said arms carrying at its outer end a planet representation; a pendent plate also carried at the outer end of each of said arms; washers I placed upon the shaft intermediate the arms G, each of said washers being provided with a finger or projection adapted to enter the groove F; and means for securing the arms and washers in place upon the shaft.

6. In a planetarium, the combination of a suitable base; a shaft or spindle secured thereto and provided with a groove or channel F on one face thereof; a series of arms G journaled upon said shaft or spindle; a planet representation removably secured to the outer end of each arm; a pendent plate likewise carried by the outer end of each of said arms; washers I placed upon the shaft intermediate said arms G and provided with a finger or projection adapted to enter the groove F; a disk M secured upon the outer end of the shaft by a nut N; and a rounded nut O secured upon the end of the shaft or spindle over the nut N, substantially as and for the purpose described.

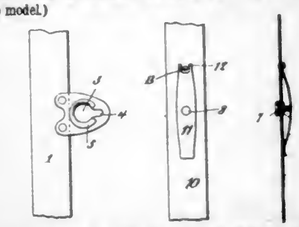
7. In a planetarium, the combination of a suitable casing; a series of planet representations pivotally mounted thereon; a chart or diagram independent of the planet representations, and also carried by the casing; and an arm movably secured upon the casing over said chart or diagram and adapted to be brought into proper position thereover to indicate the movement of a particular planet representation, substantially as and for the purpose described.

8. In a planetarium, the combination of a suitable shaft or spindle; a series of arms G journaled thereon; a socket-piece P carried at the outer end of each of said arms; a planet representation provided with a shaft Q adapted to enter said socket P; means for securing said shaft in place; and a plate S pivotally mounted upon said shaft Q.

9. In a planetarium, the combination of a planet representation, and a sphere or rounded body carried by said representation, said sphere or rounded body being made of a size designed to show the comparative diameters of the planet and the sun.

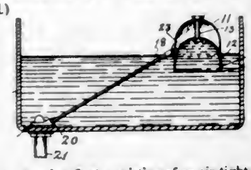
10. In a planetarium, the combination of a suitable shaft or spindle; a series of arms journaled thereon; a sun representation carried by said spindle; a planet representation carried by each of said arms; and a sphere or body attached to and carried by said planet representations, said sphere or body being so proportioned as to indicate the comparative diameter of the planet to the sun.

659,818. GARMENT-FASTENER. ALFREDO LEBLANC, Stamford, Conn. Filed Dec. 29, 1897. Renewed Feb. 14, 1900. Serial No. 5,212 (No model.)



Claim.—A two-part corset-fastener, the same consisting of an eyelet portion fastened to one busk of a corset and having an opening of sufficient size to permit of the passage of the head of an engaging stud, said opening having a contracted portion, an outwardly-beveled lip extending from the edge of the enlarged portion and around the same to the contracted portion, said lip extending above the plane of the top of said contracted portion and constituting by its ends an abutment for preventing lateral movement of the head of the engaging stud; in combination with a headed stud secured to the opposite busk, said stud passing through an opening formed in the busk and being movable in a straight line at right angles to said busk, a spring secured to the base of said stud and bearing upon the busk at opposite sides of the stud, a guide-slot in said spring, a guide-pin projecting from the rear side of the busk and into said slot in the spring, and a bushing in the opening in the busk whereby an extended guiding-surface is provided for the shank of the stud.

659,819. VALVE-FLOAT FOR FLUSH-TANKS. BENJAMIN F. LOCKWOOD, Jamestown, N. Y. Filed May 28, 1900. Serial No. 18,291. (No model.)



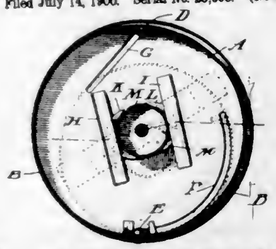
Claim.—1. A valve-float consisting of an air-tight chamber, a chamber on said air-tight chamber open on its lower side, an outwardly-opening air-operated check-valve to control the air and water in said lower chamber, as shown and described.

2. A valve-float consisting of two cup-shaped pieces fitted together to form an air-tight chamber and a cup-shaped chamber as shown, an outwardly-opening air-operated check-valve attached to said cup-shaped chamber to control the air and water therein, as shown and for the purpose specified.

659,820. PROCESS OF MAKING PERSULFATE OF SODIUM. AUGUSTE LUMIÈRE and LOUIS LUMIÈRE, Lyons, France. Filed Jan. 31, 1900. Serial No. 3,497. (No specimens.)

Claim.—The preparation of persulfate of sodium by means of persulfate of barium, by treating this body in very concentrated solution by the sulfate of sodium, after a preliminary treatment by sulfuric acid; the solutions of persulfate of sodium thus formed being filtered and evaporated at a slightly-elevated temperature, substantially as herein set forth.

659,821. CAKE-CUTTER. CLEMENT J. MATHYS, Mount Victory, Ohio. Filed July 14, 1900. Serial No. 23,695. (No model.)



Claim.—1. In a cake-cutter, the top plate, the adjustable rim B, secured permanently at one end to said top plate and secured adjustably at other points to said plate, as and for the purpose set forth.

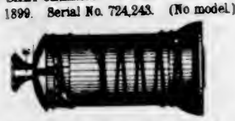
2. In a cake-cutter a top plate having slots F and G therein, the rim attached permanently thereto at one point, the adjustable screw-clamp, the sliding clamp engaging said slots F and G respectively, as and for the purpose set forth.

3. In a cake-cutter the top plate, an adjustable rim or cutting edge secured thereto, and an adjustable cutting-center, as and for the purpose set forth.

4. In a cake-cutter, the top plate A, having the slots F, G, the cutting edge attached permanently to said top plate at one point, the adjustable screw-clamp, the sliding clamp, and the adjustable center-cutter as and for the purpose set forth.

5. In a cake-cutter having an adjustable rim, the top plate, the adjustable and removable center-cutter, having cam-flanges thereon, and the mortised cleats in said top plate, as and for the purpose set forth.

659,822. SALT-CELLAR. WILLIAM H. MOORE, Deadwood, S. D. Filed July 18, 1899. Serial No. 724,243. (No model.)



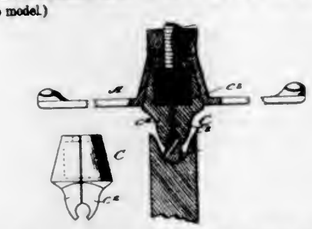
Claim.—1. A salt-cellar consisting of a cap and body portions, said cap having perforations in its sides, a rotary bur with its shaft journaled in said cap and having teeth adjacent said perforations, and a spring-actuated follower within said body portion adapted in connection with said bur to force the material between and through said perforations.

2. A salt-cellar consisting of a main body portion a bottom and cap portions detachably connected with said main body, a spring-actuated follower movable within said body portion and a bur with rotary shaft journaled in said cap, said cap having perforations in its sides adjacent to said outer edge of said bur, said parts being combined substantially as described.

3. A salt-cellar consisting of a main body portion, bottom and cap portions detachably connected with said body portions, a follower with actuating-spring in said body portion and a bur with rotary shaft having a bearing in said cap portion and provided with a head, said cap having a closed top and provided with openings in its sides adjacent to the outer edge of said bur, said parts being combined substantially as described.

4. In a salt-cellar, a body portion with a follower having an actuating-spring, and a cap portion having openings in its sides with a rotatable bur having teeth on its under face diverging toward said openings in the sides of said cap, said parts being combined substantially as described.

659,823. SUSPENDING DEVICE FOR TROLLEY-WIRES. WILLIAM A. MCCALLUM, Cincinnati, Ohio. Filed Feb. 5, 1900. Serial No. 4,113 (No model.)



Claim.—1. In a suspending device of the character indicated, a pair of similar clamping members having converging sides forming reduced upper ends and clamping-terminals, a retaining-socket having outwardly-flaring walls shaped to receive the converging sides of the clamping members, and means carried by the latter for drawing the clamping members upward within the socket, substantially as described.

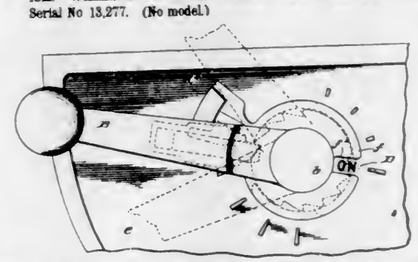
2. In a suspending device of the character indicated, a pair of similar clamping members having converging sides forming reduced upper ends, and clamping means at the lower ends of said members, a retaining-socket having outwardly-flaring walls shaped to receive the converging sides of the said clamping members, and a bolt or holding device embraced by and carrying the clamping members and adapted to draw the latter upward within the socket, substantially as described.

3. In a trolley-wire-supporting device, a two-part clamp, consisting of clamp members each having a semicircular conical shoulder and a clamping-terminal, and formed with a corresponding recess to receive the head or nut of a retaining-bolt, as set forth.

4. A trolley-wire-supporting device, embodying a brace or "ear" formed with one or more compression-cups, the two-part clamp adapted to fit and coöperate with the same as described, and a suspending-bolt uniting the parts, constructed and operating as set forth.

5. In a trolley-wire-supporting device, a two-part clamp, consisting of clamp members each having converging sides, a clamping-terminal, and a recessed face, a retaining-socket shaped to receive the said converging sides of the clamp members, a bolt passed through said socket and having its head arranged in said recesses in the faces of the clamp members, and a nut tapped on the end of said bolt and acting to draw the clamp members upward within the socket, substantially as described.

659,824. CIRCUIT-CONTROLLER FOR ELECTRICAL MECHANISM. WILLIAM A. MCCALLUM, Cincinnati, Ohio. Filed Apr. 17, 1900. Serial No. 13,277. (No model.)



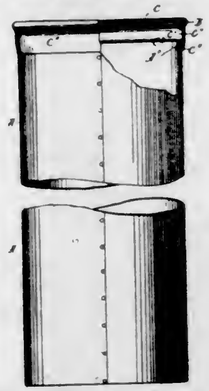
Claim.—1. In a circuit-controller, the combination with a switch-spindle, of a cylindrical hub adapted to removably fit over and engage the same and provided with ratchet-teeth spaced apart correspondingly with the resistance-contacts of the switch apparatus, and a rotating handle seated on said hub and engaging therewith by one or more yielding pawls, substantially as set forth.

2. A circuit-controller embodying in combination a cylindrical toothed hub adapted to fit over and engage with the switch-spindle, a rotating handle seated on said hub and engaging therewith by one or more yielding pawls, and a stop limiting the movement of the handle, substantially as set forth.

3. A circuit-controller embodying in combination a cylindrical toothed hub adapted to fit over and engage with the switch-spindle, a rotating handle seated on said hub and engaging therewith by one or more yielding pawls, a stop limiting the movement of the handle, and a fixed circular shield partially embracing the hub circumferentially and co-operating to cause the pawls to engage only in a predetermined order with the teeth of the hub, substantially as set forth.

4. A removable controlling device embodying the hub, adapted to fit and engage removably, with the switch-spindle, the circumferential shield adapted to engage a projection of the switch-box cover, and the ratchet-handle pivotally seated on the hub, combined and arranged to operate as described and be removable as a self-contained circuit-controller, substantially as set forth.

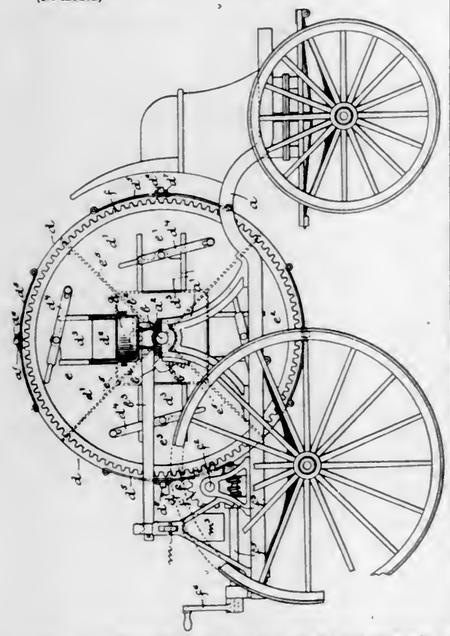
659,825. ROVING CAN, BASKET, OR BOX. GUY S. PERKINS, Medford, Mass. Filed Aug. 25, 1900. Serial No. 28,039. (No model.)



Claim.—In combination with a roving can, basket or box, a metal reinforcer as hereinabove described, the same consisting of a metal ring B, supported on the upper edge of the can-body and a U-shaped metal

plate C, having downwardly-projecting portions C', C'', the inner one being made somewhat shorter than the outer one, said parts C', C'', having lower rounded edges C^3, C^4, adapted to be compressed and closed against the interior and exterior portions of the beaded or recessed portion A', of the can-body substantially as and for the purpose set forth.

659,826. **COAL-DELIVERY WAGON.** DANIEL M. PFAUTS, Philadelphia, Pa., assignor of two-thirds to Harmon B. Amerling and Henry W. Amerling, same place. Filed Aug. 31, 1900. Serial No. 28,634. (No model.)



Claim.—1. In a coal-delivery wagon, a cylindrical receptacle or drum, a truck in which said receptacle is mounted, the longitudinal axis of said drum being arranged parallel to the axles of the vehicle, means for revolving said drum in said truck and a series of compartments arranged longitudinally in the interior of the drum, each compartment having an inlet at the periphery of the drum and an outlet at one of the sides of the drum, substantially as and for the purposes described.

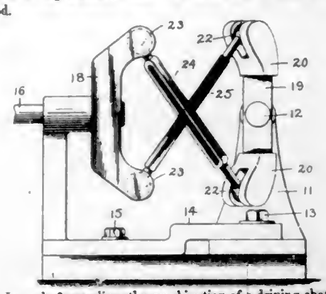
2. In a coal-delivery wagon, a cylindrical receptacle or drum, divided into a series of compartments by trough-shaped partitions inclined toward one side of the receptacle or drum, a series of inlets arranged along the periphery of the receptacle and communicating respectively with each compartment, a series of outlet-openings arranged in one side of the receptacle at the base of each compartment, and means for revolving the receptacle to bring each compartment successively uppermost, substantially as and for the purposes described.

3. In a coal-delivery wagon, a truck, a stationary mouth or pocket supported by said truck at one side of the wagon, a drum mounted in the truck, the longitudinal axis of said drum being parallel to the axle of the vehicle, said drum having its interior divided into a series of longitudinally-disposed compartments, each compartment having an outlet-opening in one of the sides of the drum adjacent to the mouth or pocket, and means for revolving the drum to bring the outlet-opening of each compartment successively in alinement with the mouth or pocket, substantially as and for the purposes described.

4. In a coal-delivery wagon, a truck, a revoluble shaft having its ends supported by said truck and having a vertical movement therein, a drum secured to said shaft and adapted to receive the coal, and a weighing mechanism adapted at one end to support the shaft and drum, substantially as and for the purposes described.

659,827. **SHAFT-COUPLING.** CHARLES W. B. PUTNAM, Fitchburg, Mass. Filed May 14, 1900. Serial No. 16,564. (No model.)

Claim.—1. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces or crank-arms secured on the ends of the shafts, and links connecting diagonally-opposite ends of said cross-pieces and having a sliding connection with each other, substantially as described.



2. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces secured on the ends of the shafts, two diagonal links having a sliding connection with each other, and universal joints connecting the links and cross-pieces, substantially as described.

3. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces secured on the ends of the shafts, diagonal links having a sliding connection with each other and universal joints connecting the links and cross-pieces, said joints being constructed so that each link may have a longitudinal movement through one of said universal joints, substantially as described.

4. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces or crank-arms secured on the ends of the shafts, and the pair of diagonal links connecting said cross-pieces, one of said links having a longitudinal slot through which the other link passes, substantially as described.

5. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces or crank-arms secured on the ends of the shafts, bearing-pieces, the yokes pivotally mounted on said cross-pieces, boxes supported on trunnions in the yokes, and a pair of diagonal links mounted in said boxes, each of said links having a longitudinal movement through one box, substantially as described.

6. In a shaft-coupling, the combination of a driving-shaft, a shaft to be driven, cross-pieces secured on the ends of said shafts, and having end sections offset at an angle of forty-five degrees from the line of said shafts, bearing pieces or yokes journaled in said offset portions, boxes mounted on trunnions in said yokes, a pair of diagonal links connecting said boxes, one link being provided with a longitudinal slot through which the other link passes, and nuts for holding said links from longitudinal movement with respect to the box at one end of said links, while leaving them free to move longitudinally through the other box, substantially as described.

659,828. **SYSTEM OF ELECTRICAL DISTRIBUTION.** EDWIN W. RICE, Jr., Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 13, 1899. Serial No. 727,348. (No model.)

Claim.—1. The combination of a multiphase source of supply, single-phase rotary converters fed from different phases of said source, and direct-current mains fed by said rotary converters.

2. The combination of a multiphase source of supply, single-phase rotary converters differently connected to said source, and a multiple conductor, direct-current system fed by said rotary converters.

3. The combination of a multiphase source of supply, single-phase rotary converters fed one from one phase and another from another phase of said source, and a multiple-conductor direct-current system fed by said rotary converters.

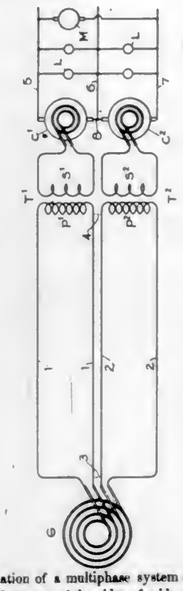
4. The combination with a source of multiphase current, single-phase rotary converters fed one from one phase and another from another phase of said source, and a direct-current system fed jointly by said rotary converters.

5. The combination with the conductors of a multiphase system, of a plurality of secondary coils supplied with energy transmitted over said conductors, and a plurality of rotary converters one of which is supplied with energy solely from one of said secondary coils.

6. The combination with a multiphase system, of a plurality of independent secondary coils supplied with energy from said system, and a plurality of rotary converters each fed solely from one of said secondary coils.

7. The combination of a quarter-phase system of distribution and rotary converters fed one from one of the sides of said system and another from another side of said system.

8. The combination of a quarter-phase system of distribution, rotary converters fed one from one side of said system and another from another side of said system and a multiple-wire direct-current system fed by said converters.

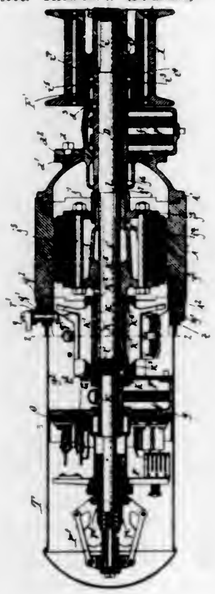


9. The combination of a multiphase system of distribution, rotary converters each fed from one of the sides of said system, and a multiple-wire direct-current system fed by said converters.

10. The combination of a multiphase system, and means for separately transforming into direct current the current derived from each side of said system.

11. The combination of a plurality of rotary converters, a multiphase distribution system, and means for supplying one rotary converter with current derived from said system and of a phase different from that supplied to another rotary converter.

659,829. **DYNAMO-ELECTRIC MACHINE.** WILLARD F. RICHARDS, Buffalo, N. Y., assignor to Charles M. Gould, New York, N. Y. Filed Jan. 2, 1900. Serial No. 7. (No model.)



Claim.—1. The combination with the body of a dynamo and the armature-shaft, of a driving-pulley secured to the shaft at a distance from the dynamo-body and having its hub provided in its inner end with a recess, and a shaft-bearing arranged between said pulley and the opposing head of the dynamo-body and extending into the recess of the pulley-hub, substantially as set forth.

2. The combination with the body of a dynamo and the armature-shaft, of a driving-pulley secured to the shaft at a distance from the dynamo-body and having its hub provided in its inner end with a recess, and a shaft-bearing arranged between said pulley and the opposing head of the dynamo-body and extending into the recess of the pulley-hub, and provided at its outer end with a packing which bears against the bottom of the peripheral wall of said pulley-recess, substantially as set forth.

3. The combination with the body of a dynamo and the armature-shaft, of a driving-pulley secured to the shaft at a distance from the dynamo-body, a shaft-bearing arranged between said pulley and the dynamo-body and provided near its outer end with an internal web or abutment, and a thrust-collar surrounding the shaft between the pulley and said web or abutment, substantially as set forth.

4. The combination with the armature-shaft and an armature-hub mounted thereon and having an extension, of a clamping-nut engaging with a screw-thread of the armature-shaft and confining the armature-hub on the shaft, a commutator-hub mounted on said extension and having a flange or shoulder at one end and a clamping-nut at its opposite end, commutator-segments which are clamped against said flange or shoulder by the last-named clamping-nut, and a locking screw or bolt engaging with both of said clamping-nuts, substantially as set forth.

5. The combination with the body or main casing of the dynamo, the armature and its shaft, of a removable supporting-frame arranged at one end of the body and composed of an outer head, an inner head secured to the adjacent end of the dynamo-body and longitudinal bars connecting said inner and outer heads, and a bearing for the armature-shaft supported on said outer head, substantially as set forth.

6. The combination with the body or main casing of the dynamo, the armature and its shaft and the commutator, of an open supporting-frame surrounding the commutator and composed of inner and outer heads or rings and longitudinal bars connecting the same, and brush-holders mounted on said connecting-bars, substantially as set forth.

7. In a dynamo, the combination with a support, of a brush-holder having a cylindrical stud arranged in a corresponding opening of said support and a stop or teat arranged on one side of said stud and engaging in an opening formed in said support, whereby the brush-holder is held against turning, substantially as set forth.

8. In a dynamo, the combination with a support, of a terminal socket having a clamping-bolt for securing the same to said support and a stop or teat arranged on one side of said socket, and engaging in an opening or recess formed in said support, substantially as set forth.

9. In a dynamo, the combination with a support, of a terminal socket having a clamping-bolt for securing the same to said support and a stop-teat arranged on one side of said socket and engaging in an opening formed in said support, said bolt being provided with upper and lower nuts between which said socket is clamped and said socket being provided in its under side with a recess constructed to fit the lower clamping-nut of said bolt, substantially as set forth.

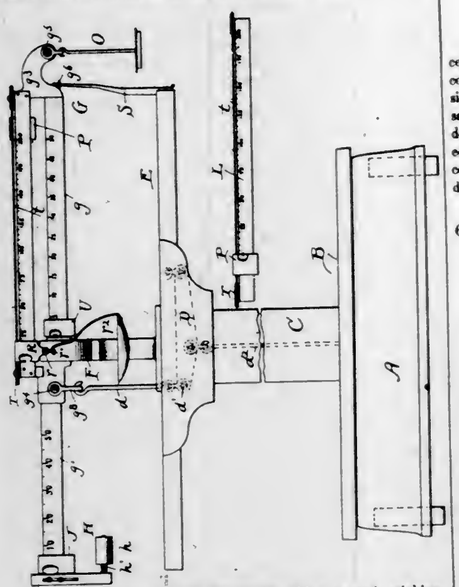
659,830. **WEIGHING AND COUNTING MACHINE.** WILLIAM H. SANDERSON, Cleveland, Ohio, assignor to the National Computing Scale Company, same place. Filed Feb. 26, 1900. Serial No. 6,481. (No model.)

Claim.—1. In a scale, the combination of a pivoted weighing-beam having two parallel bars which are similarly but oppositely graduated, the zero of graduation of one bar being at its inner end and the zero of graduation of the other bar being at its outer end, with a movable poise on the former bar, means for suspending a weight from said poise, a movable poise upon the other bar, and mechanism connecting said two poises whereby the movement of one poise is necessarily accompanied by an equal movement of the other poise in the opposite direction, substantially as and for the purpose specified.

2. In a scale, the combination of a pivoted weighing-beam having two parallel bars which are similarly but oppositely graduated, the zero of graduation of one bar being at its inner end and the zero of graduation of the other bar being at its outer end, with a movable poise on the former bar, a pan suspended from said poise, a movable poise upon the other bar, four sheaves mounted on vertical axes on said weighing-beam near the ends of said bars, and cords connecting said two poises and passing around said sheaves, substantially as and for the purpose specified.

3. In a scale, the combination of a pivoted weighing-beam having on one side of its fulcrum means for supporting the load and having upon the other side of its fulcrum two parallel bars which are similarly but oppositely graduated, the zero of graduation of one bar being at its inner

end and of the other bar at its outer end, with two movable poises upon said two bars, a pan suspended from the poise upon the first-named bar, and mechanism connecting said poises whereby the movement of one is necessarily accompanied by an equal movement of the other in the opposite direction, substantially as and for the purpose specified.



4. In a platform-scale, the combination with a pivoted weighing-beam and two parallel bars fixed thereto and similarly but oppositely graduated, the zero of graduation of one bar being at its inner end and of the other bar at its outer end, a sliding poise on the first-named bar which when at the zero of graduation is over the beam-fulcrum, means for suspending a weight from said poise, a second poise on the other graduated bar, which poise when at the zero-point is balanced up with the beam, and means for connecting said poises whereby the movement of one causes the equal opposite movement of the other to the end that both poises will register with corresponding indications on their respective bars, substantially as and for the purpose specified.

5. In a platform-scale, the combination with a weighing-beam having a centrally-placed bar graduated to indicate weights, and a poise adapted to slide thereon, with two transverse bracket-arms forming a part of said beam and extending on opposite sides of the weighing-bar, two oppositely-graduated bars secured respectively to the ends of said bracket-arms, sheaves mounted on vertical axes in the outer ends of said bracket-arms, two poises movable respectively on said two oppositely-graduated bars, the flexible connection connecting said two poises and passing around said sheaves, and means for suspending a weight from the poise which is at zero at the inner end of its bar, substantially as and for the purpose specified.

6. In a scale the combination of a pivoted beam having, on one side of the fulcrum, means for supporting the load, and having, upon the other side of the fulcrum, two parallel bars, of which one is graduated substantially as described, with two poises movable upon said two bars respectively and adapted to balance up with the beam when one of them is at the inner end of its bar and the other at the outer end of its bar, a weight-holder suspended from and forming a part of the poise which is at the inner end of its bar when the poise on the graduated bar is at the zero of graduation, and mechanism connecting said two poises whereby the movement of one poise is necessarily accompanied by the equal movement of the other poise in the opposite direction, substantially as and for the purpose specified.

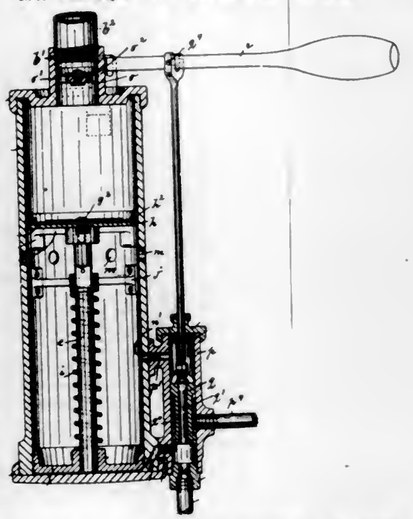
659,831. SURFACE STEAM-CONDENSER. William A. Schmid, Cincinnati, Ohio. Filed Feb. 16, 1900. Serial No. 5,436. (No model.)

Claim.—1. A surface condenser for steam, consisting of a narrow steam-receptacle, provided with a bottom and with broadly-extending sides, acutely converging at the top, with angle-plates secured within to the sloping sides, and inclining inward and downward to prevent the water of condensation following the sides to the bottom, and causing it to flow on the edges of such angle-plates, and means for distributing an even flow of cold water from the outside of the condenser, substantially as shown and described.



2. A surface condenser for steam, consisting of a narrow steam-receptacle, provided with a bottom and with broadly extending sides, acutely converging at the top, with angle-plates secured within to the sloping sides, and inclining inward and downward, and cross-braces connecting same, to give rigidity to the receptacle, and to prevent the water of condensation following the sides to the bottom, and causing it to flow off the edges of such angle-plates, and means for distributing an even flow of cold water from the outside of the condenser, substantially as shown and described.

659,832. AIR PUMP AND COMPRESSOR. Grant Sipp, Paterson, N. J. Filed May 8, 1900. Serial No. 15,898. (No model.)

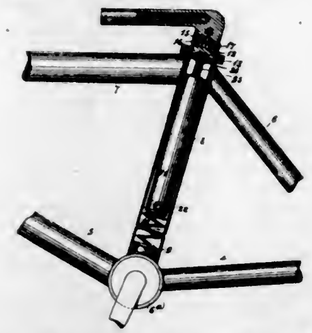


Claim.—1. In a fluid-pumping, compressing or other similar apparatus, the combination, with a cylinder having a valve-controlled discharge for the compressed fluid at one end, of spaced operatively-connected pistons arranged in said cylinder, the piston adjoining the discharge end of said cylinder having a valve opening toward said discharge end of the cylinder, a supply for an actuating fluid, an exhaust for said actuating fluid, said cylinder having a port at its other end affording common communication for the supply and exhaust with said cylinder, and a valve controlling the communication between said port and the supply and exhaust, said valve being adapted to simultaneously close the supply and open the exhaust and vice versa and said cylinder having another fluid-inlet opening for the fluid to be compressed between the last-named end thereof and the valve-carrying piston, substantially as described.

2. In a fluid-pumping, compressing or other similar apparatus, the combination, with a cylinder having a valve-controlled discharge for the compressed fluid, of spaced operatively-connected pistons arranged in said cylinder, the piston adjoining the discharge end of said cylinder having a valve opening toward said discharge end of the cylinder, a valve-chest, a supply and an exhaust for an actuating fluid connected to said valve-chest, said cylinder and the valve-chest having a port of communication entering the former at the other end thereof, and a valve arranged in said valve-chest and controlling the communication between said port and the supply and exhaust, said valve being adapted to simultaneously close the supply and open the exhaust and vice versa and having a port penetrating it, said cylinder and valve-chest having another port of communication controlled by said valve, and said last-named port and the exhaust being adapted to have communication through the port of said valve, substantially as described.

3. In a fluid-pumping, compressing or other similar apparatus, the combination, with a cylinder having a valve-controlled discharge for the compressed fluid at one end, of spaced operatively-connected pistons arranged in said cylinder, the piston adjoining the discharge end of said cylinder having a valve opening toward said discharge end of the cylinder, means for normally forcing said pistons away from the discharge end of said cylinder, a valve-chest, a supply for an actuating fluid and an exhaust for said actuating fluid connected to said valve-chest, said cylinder and the valve-chest having a port of communication entering the cylinder at the other end thereof, and a valve arranged in said valve-chest and controlling the communication between said port and the supply and exhaust, said valve being adapted to simultaneously close the supply and open the exhaust and vice versa and having a port penetrating it, said cylinder and valve-chest having another port of communication controlled by said valve, and said last-named port and the exhaust being adapted to have communication through the port of said valve, substantially as described.

659,833. BICYCLE. Harry J. Smith, New York, N. Y. Filed Sept. 12, 1899. Serial No. 730,233. (No model.)



Claim.—1. The combination with a tubular member of the frame of a bicycle or similar vehicle, of a tubular support adjustably mounted in said member and open at both ends, a seat-support detachably connected with said tubular support and forming a closure for the upper end thereof, said support being adapted to receive an air-pump which when in position therein, projects from the lower end thereof, substantially as shown and described.

2. The combination with a tubular member of the frame of a bicycle or similar vehicle, of a tubular support adjustably mounted therein and open at both ends, a seat-support provided with a shank adapted to enter the upper end of said tubular support, and a spring-operated locking device for connecting the shank of the seat-support with said tubular support, said tubular member being adapted to receive a tension device, and said tubular support an air-pump, which when in position projects through the lower end thereof and bears on said tension device, substantially as shown and described.

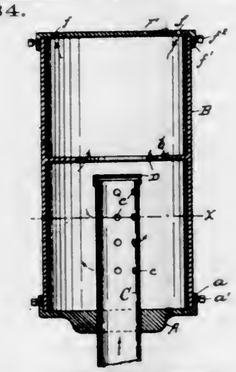
3. The combination with a tubular member of the frame of a bicycle or similar vehicle, of a tension device in the inner end of said member, an adjustable tubular support mounted in said member and projecting therefrom and open at both ends, and a seat-support which is adapted to be detachably connected with and to close the outer end of said tubular support, said tubular support being adapted to receive an air-pump, one end of which projects through the lower open end thereof, whereby when said tubular support is in position the lower end of the air-pump will rest on the tension device, substantially as shown and described.

4. The combination with a tubular member of the frame of a bicycle or similar vehicle, of a tension device located in the inner end thereof, an adjustable tubular support mounted therein and projecting therefrom and open at both ends, a seat-support provided with a shank which is adapted to enter the outer end of the tubular support and to close the same, and means for detachably connecting the shank of the seat-support with said tubular support, said tubular member and said tubular support being adapted to receive an air-pump, one end of which is pressed upon said tension device by the shank of the seat-support, substantially as shown and described.

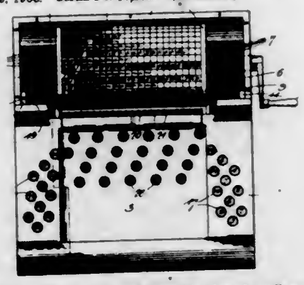
659,834. MUFFLER. Harry C. Thamsen, Hamburg, Pa., assignor of two-thirds to Alexander Murdoch, same place, and Adam H. Leader, Reading, Pa. Filed Apr. 17, 1900. Serial No. 13,199. (No model.)

Claim.—In a muffler, a perforated exhaust-pipe C inclosed in a tubular, metal casing B, said casing secured in a closed base and having an internal flange *b* located immediately above the top of the pipe C, and a removable cover F having perforations equal in area to the area of the perforations in the exhaust-pipe C, all arranged substantially as and for the purpose set forth.

659,834.



659,835. CALCULATOR. Luther B. Thomas, Ringgold, La. Filed May 19, 1900. Serial No. 17,286. (No model.)



Claim.—1. In a calculator, the combination of a roll provided with a series of annular grooves and having stops arranged at different points, key-operated devices for engaging the stops for setting the roll, and a series of key-operated devices for exposing different portions of the roll, substantially as described.

2. In a calculator, the combination of a rotary roll provided with a series of annular grooves and having stops, key-operated levers arranged to engage the stops to set the roll, and key-operated devices for exposing different portions of the roll, substantially as described.

3. In a calculator, the combination of a casing having a sight-aperture, a rotary roll, stops carried by the roll and arranged at intervals, key-operated devices for engaging the stops to set the roll, a series of movable slides normally covering the sight-aperture, and keys connected with and adapted to actuate the slides to uncover portions of the roll, substantially as described.

4. In a calculator, the combination of a casing having a sight-aperture, a roll, means for engaging and holding the roll, a series of movable slides normally covering the sight-aperture, a series of levers connected with and adapted to move the slides to open and close the same, and keys connected with the levers, substantially as described.

5. In a calculator, the combination of a casing having a sight-aperture and provided thereat with ways or guides, a roll, means for operating the roll, a series of slides mounted in the guides or ways and normally covering the sight-aperture, spring-actuated keys connected with the slide, and key-operated devices for limiting the rotation of the roll to set the same, substantially as described.

6. In a calculator, the combination of a casing having a sight-aperture, a rotary roll provided with annular grooves and having stops therein, key-operated setting-levers arranged to extend into the groove for engaging the stops, a series of movable slides normally covering the sight-aperture and key-operated levers connected with the slides, substantially as described.

7. In a calculator, the combination of a casing having a sight-aperture, a roll provided with reduced portions having annular grooves, said reduced portions being also provided with slots located in the grooves, a device located at one end of the roll for rotating the same, setting-levers arranged adjacent to the reduced portions of the roll and provided with means for engaging the stops, a series of vertically-movable slides normally covering the sight-aperture and depressible key-operated levers carrying the slides, substantially as described.

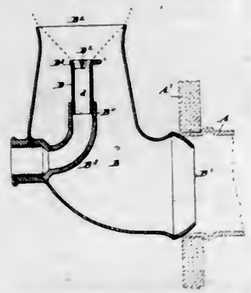
8. In a calculator, the combination of a casing, a roll, setting-levers

for engaging the roll, slides adapted to be operated to expose a portion of the roll, levers connected with the slides, and the grooved supports receiving the levers, substantially as described.

9. In a calculator, the combination of a casing having a central sight-aperture, a roll provided at its ends with annular grooves and having stops therein, the side supports provided with grooves, the setting-levers located at opposite sides of the casing and fulcrumed in the grooves of the said supports, the rear ends of the setting-levers being adapted to engage the said stops, keys connected with the front ends of the setting-levers, slides normally covering the aperture, a central support provided with grooves, levers connected with the slides and fulcrumed at their front ends in the grooves of the central support, keys connected with the central levers, at points between the ends thereof, and springs for engaging the levers, substantially as described.

10. In a calculator, the combination of a roll provided with a series of stops arranged at intervals, key-operated devices for engaging the stops for setting the roll, and a series of devices for exposing different portions of the roll, substantially as described.

659,836. **BOILER-TUBE CLEANER.** RICHARD THOMPSON, New York, N. Y. Filed Aug. 6, 1900. Serial No. 25,995. (No model.)



Claim.—1. In a tube-cleaner comprising a portable hollow shell open at each end, and adapted to be applied to the tube ends and a connection adapted to bring steam to be discharged therein to induce thereby a strong movement of the air through the tubes successively, a small spreading-nozzle receiving such steam and directing it longitudinally in the center of the shell and provisions by the central spreading-cone D^2 for spreading such steam to fill the delivery end of the shell therewith and act upon the entire current of air therein, all substantially as herein specified.

2. In a tube-cleaner comprising a portable hollow shell open at each end, and adapted to be applied to the tube ends and a connection adapted to bring steam to be discharged therein to induce thereby a strong movement of the air through the tubes successively, a small pipe receiving such steam and directing it longitudinally in the center of the shell and a separately-formed tip through which such steam is delivered, adapted to spread the steam and also capable of easy removal and emptying if clogged, and of being exchanged to give greater or less steam-delivery, all substantially as herein specified.

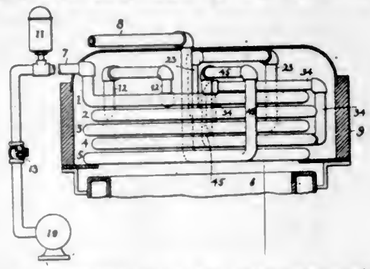
3. In a tube-cleaner comprising a portable hollow shell open at each end, and adapted to be applied to the tube ends and a connection adapted to bring steam to be discharged therein, to induce thereby a strong movement of the air through the tubes successively, a small pipe receiving such steam and directing it longitudinally in the center of the shell, such pipe having a straight terminal portion interiorly screw-threaded in combination with a corresponding tip adjustable axially and also exchangeable, all adapted to serve substantially as herein specified.

659,837. **STEAM-GENERATOR.** ROLLIN H. WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Dec. 28, 1899. Serial No. 741,798. (No model.)

Claim.—1. A tubular boiler consisting of a plurality of convolutions of pipe arranged one above another and connected in series, and adapted to take water into the upper convolution and to discharge the steam from the lower convolution—at least one of the connections between said convolutions being a riser-tube which extends above the upper convolution, substantially as and for the purpose specified.

2. A tubular boiler consisting of a plurality of spiral coils of pipe arranged one above another, a plurality of riser-tubes which extend over the upper coil and connect said coils in series, and are connected to the inner end of one coil and to the outer end of the coil next below it, a water-inlet pipe connected to the upper coil, and a steam-outlet pipe connected with the lower coil, substantially as and for the purpose specified.

3. In a steam-generator, the combination of a tubular boiler consisting of a plurality of convolutions of pipe arranged one above another and connected in series, with a steam-outlet pipe connected with the lower convolution, a pump, an inlet-pipe connecting said pump with the upper convolution, an air-chamber connected in said inlet-pipe, a check-valve in said pipe on the pump side of said air-chamber, and a heat-generator below the lowest convolution, substantially as and for the purpose specified.

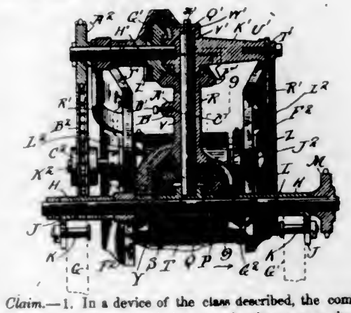


4. A steam-generator whose heating-surface consists of a plurality of pipe-coils connected in series and approaching a source of heat whereby the water is heated progressively, combined with means for preventing the gravitation of the water to the lowest coil, substantially as specified.

5. A steam-generator whose heating-surface consists of a plurality of pipe-coils connected in series and approaching a source of heat whereby the water is progressively heated, combined with means for preventing the gravitation of the water to the most heated coils whereby said latter coils become superheaters for the steam generated, substantially as specified.

6. A steam-generator consisting of a plurality of convolutions of pipes arranged one above another, pipes connecting said convolutions in series from the upper to the lowest convolution and adapted to prevent the gravitation of the water to the lowest convolution, a water-inlet pipe connected with the upper convolution, means for forcing water into the generator through said inlet-pipe, a steam-outlet pipe connected with the lowest convolution, and a heater located below said generator, substantially as specified.

659,838. **CONVEYER.** JOHN Q. ADAMS, Marseilles, Ill. Filed Dec. 18, 1899. Serial No. 740,664. (No model.)



Claim.—1. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each of said sections, a drag chain or belt in each section coöperating with said shafts, with universal-joint connections between said shafts of the adjacent ends of said sections for transmitting the power from one of said shafts to the other in any position of adjustment between said sections.

2. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each of said sections, a drag chain or belt in each section coöperating with said shafts, with universal-joint connections between said shafts in the adjacent ends of said sections for transmitting the power from one of said shafts to the other in any position of adjustment between said sections, said connections comprising intermediate shafts to which said shafts in the adjacent ends of the sections are geared, and a cross-shaft geared to said intermediate shafts.

3. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each of said sections, a drag chain or belt in each section coöperating with said shafts; with universal-joint connections between said shafts in the adjacent ends of said sections for transmitting the power from one of said shafts to the other in any position of adjustment between said sections, said connections comprising intermediate shafts to which said shafts in the adjacent ends of the sections are geared, and a cross-shaft geared to said intermediate shafts; and a support for the lower end of the receiving-section arranged beneath said end, the universal-joint connections being carried by said support, and the upper end of the discharging-section resting on the top of said universal-joint connections.

4. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each section, an endless drag chain or belt in each section coöperating with the shafts therein, with universal-joint connections between the shafts in the adjacent ends for transmitting the power from one of said shafts to the other in any position of adjustment between said sections, said connections comprising a bevel-gear on each of two intermediate shafts geared to the shafts in the adjacent ends of the sections, a cross-shaft carrying bevel-gears meshing with the bevel-gears on said intermediate shafts, and a suitable support for said cross-shaft consisting of a sleeve surrounding the lower intermediate shaft and having an arm Y supporting the vertical bearing V for said cross-shaft, substantially as and for the purpose described.

5. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each of said sections, a drag chain or belt in each section coöperating with the shafts therein, a support for the lower end of the receiving-section, and universal swiveling connections resting on said support for connecting the shafts in the adjacent ends of the sections, the upper end of the discharging-section resting on said universal swiveling connections, substantially as and for the purpose described.

6. In a device of the class described, the combination of the two sections adjustable relative to each other to vary the horizontal angle between them, a shaft journaled in each end of each of said sections, a drag chain or belt in each section coöperating with the shafts therein, a support for the lower end of the receiving-section, and universal swiveling connections carried by said support for connecting the shafts in the adjacent ends of the sections, said swiveling connections consisting of a frame in which are journaled the two intermediate shafts geared to the shafts in the adjacent ends of the sections and each carrying a bevel-gear, and a cross-shaft also mounted in said frame carrying bevel-gears meshing with the bevel-gears on said intermediate shafts, substantially as and for the purpose described.

7. The combination of the sections B and C adjustable relative to each other to vary the angle between them, and having the shafts L and H′ respectively journaled therein, with universal-joint connections for transmitting power from the shaft L to the shaft H′, said connections comprising the bevel-gears P and G′ secured thereon respectively, the intermediate shaft R having the bevel-pinions Q and F′ thereon meshing with the bevel-pinions P and G′ respectively, and a suitable support for the shaft R consisting of the sleeve T surrounding the shaft L and having the arm Y supporting the vertical bearing V for said intermediate shaft and the shield Z covering the bevel-gears P and Q.

8. In a device of the class described, the combination of the bearings H, the shaft L journaled therein and having the bevel-gear P secured thereto, the sleeve T surrounding said shaft and having the bearing S therein, the arm Y secured to said sleeve T and having the vertical bearing V supported thereby, the shaft R mounted in said bearings S and V and having the bevel-gear Q meshing with the bevel-gear P and the bevel-gear F secured near the upper end thereof, the shaft H′ having the bearing consisting of the member J′ secured to the member K′, the member K′ having a bearing therein for the shaft R which supports it, and the bevel-gear G′ upon the shaft H′ meshing with the bevel-gear F′, substantially as and for the purpose described.

9. In a device of the class described, the combination of the bearings H, the shaft L journaled therein and having the bevel-gear P secured thereto, the sleeve T surrounding said shaft and having the bearing S therein, the arm Y secured to said sleeve T and having the vertical bearing V supported thereby and the shield Z, the shaft R mounted in said bearings S and V and having the bevel-gear Q meshing with the bevel-gear P and the bevel-gear F′ secured near the upper end thereof, the shaft H′ having the bearing consisting of the member J′ secured to the member K′, the member K′ having a bearing therein for the shaft R which supports it and carrying the shield Z′, and the bevel-gear G′ upon the shaft H meshing with the bevel-gear F′, substantially as and for the purpose described.

10. In a device of the class described, the combination with an end section, a conveying-shaft journaled in its outer end, of another end section, a conveying-shaft journaled in its outer end, said sections being adapted to be joined directly to each other at their inner ends, a removable intermediate section adapted to be interposed between said end sections and joined directly to their inner ends, a single adjustable endless drag chain or belt coöperating with said shafts and with the bottoms of said sections, and connections for joining the ends of said sections in the manner described, said connections being adapted to yield vertically to automatically adjust the sections to uneven ground upon which they may be placed.

11. In a device of the class described, the combination with an inclined end section, a conveying-shaft journaled in the upper end thereof, of a substantially-horizontal end section, a conveying-shaft journaled in the outer end thereof, said sections being adapted to be joined directly together at their inner ends, a removable intermediate section adapted to be interposed between said end sections and joined directly thereto at their inner ends, a single adjustable endless drag chain or belt coöperating with said shafts and with the bottoms of said sections, a guide located on the lower end of said inclined section and adapted to hold the drag-chain adjacent to the bottom of the sections throughout their length, and connections for joining the ends of said sections in the manner described, said connections being adapted to yield to automatically adjust the sections to uneven ground upon which they may be placed, substantially as and for the purpose described.

12. In a device of the class described, a trough comprising the end sections consisting of the sides and the bottom pieces secured between the top and bottom of said sides, said sections being adapted to be joined directly together at their inner ends, the conveying-shafts journaled in the outer ends of said sections, the removable intermediate section similarly constructed, but without any shafts and adapted to be inserted between said end sections, the coöperating ends of said sections being jointed in the plane of the bottom pieces and having their sides cut away at an angle above and below said bottom pieces to permit changes in the angles between said sections to accommodate them to irregular ground without opening the bottoms thereof, and an endless drag chain or belt coöperating with said conveying-shafts, substantially as and for the purpose described.

13. In a device of the class described, the trough comprising the end sections each consisting of the sides and the bottom piece secured between the top and bottom of said sides, said sections being adapted to be joined directly together at their inner ends, the conveying-shafts journaled in the outer ends of said sections, the removable intermediate section constructed similarly to the end sections, but without the conveying-shafts, and adapted to be inserted between them, the coöperating ends of said sections being joined by a pivot-rod passing therethrough at the plane of the bottom pieces, and having their sides cut away at each end at an angle above and below said rod so as to permit the changes in the angles between said sections to accommodate them to irregular ground without separating the bottom pieces, and an endless drag chain or belt coöperating with said shafts.

659,839. **CORN-SHELLER.** JOHN Q. ADAMS, Marseilles, Ill. Filed Dec. 18, 1899. Serial No. 740,665. (No model.)

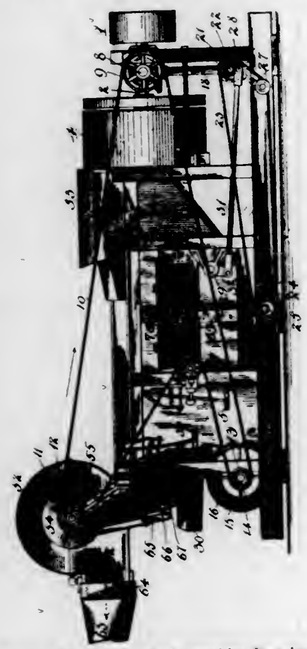
Claim.—1. A machine of the class described, comprising the casing, a shelling mechanism located therein, a cob-riddle located beneath said shelling mechanism, a suction-fan for drawing the shucks, &c., from said cob-riddle, apertures in the casing adjacent to the shelling mechanism and located above the bottom of the cob-riddle and adapted to supply air to the shuck suction-fan, a grain-riddle located beneath said cob-riddle, a suction-fan for drawing the chaff, &c., from the grain-riddle, and connections for operating the shelling mechanism, shaking the riddles, and rotating said fans.

2. A machine of the class described, comprising the casing, a shelling mechanism located therein, a cob-riddle located beneath said shelling mechanism, a suction-fan for drawing the shucks, &c., from said cob-riddle, apertures in the casing adjacent to the shelling mechanism and located above the bottom of the cob-riddle and adapted to supply air to the shuck suction-fan, a grain-riddle located beneath said cob-riddle, a suction-fan for drawing the chaff, &c., from the grain-riddle, the blast-fan for driving a blast of air through and under the grain-riddle and to the chaff suction-fan, and connections for operating the shelling mechanism, shaking the riddles, and rotating said fans.

3. A machine of the class described, comprising the casing, a shelling mechanism located therein, a riddle located beneath said shelling mechanism, a suction-fan adjacent to one end of said riddle and adapted to draw shucks therefrom, and apertures in the sides of said casing above said riddle near the other end thereof and adjacent to the shelling mechanism so the air is drawn therethrough on either side of the shelling mechanism, over the surface of the riddle and to the suction-fan.

4. A machine of the class described, comprising the casing, a shelling mechanism centrally located therein, a riddle located beneath said shelling mechanism, a suction-trunk leading upward from one end of said riddle, a fan-casing located at the upper end of said suction-trunk, a suction-fan located in said casing and adapted to draw the shucks from said rid-

dle, and apertures in the sides of said casing above said riddle at the other end thereof and adjacent to the shelling mechanism, so that air is drawn therethrough, over the surface of the riddle, and to the suction-fan.



5. A machine of the class described, comprising the casing, a shelling mechanism located therein, a riddle located beneath said shelling mechanism, a substantially-vertical suction-trunk leading upward from one end of said riddle and having its sides diverging in horizontal section from the far end toward the fan, but with its lower end as large as its upper end, a suction-fan casing located at the upper end of said trunk adjacent to the larger side, a suction-fan mounted in said suction-fan casing and adapted to draw the shucks from said riddle, and means for admitting the air to said casing adjacent to the shelling mechanism furnishing a supply for the suction-fan.

6. In a machine of the class described, the combination with the casing, of the shelling mechanism located therein, a riddle located beneath said shelling mechanism, a suction-trunk leading upward from the upper side of one end of the riddle, a suction-fan casing located at the upper end of said trunk, and a suction-fan mounted in said suction-fan casing and adapted to draw the shucks from said riddle, said suction-trunk having its capacity increased as it approaches the fan by having its sides diverging in horizontal section from the far end toward the fan but with its bottom end as large as its upper end.

7. In a machine of the class described the combination of the shaft 2, having the shelling-cylinder thereon, the sleeve 37 surrounding a portion of said shaft adjacent to the shelling-cylinder, and secured thereon by the disk 42 having the recess 45 with the set-screw 44 in said recess passing through the collar 43 to which the disk 42 is secured.

8. In a device of the class described the combination of the shaft 2 having the shelling-cylinder 6 mounted thereon and composed of the sections 39, the outermost of said sections being provided with the annular channel 38, the collar 43 secured on said shaft by the set-screw, and having the disk 42 thereon, and the sleeve 37 secured to the periphery of said disk, and extending into the channel 38, substantially as and for the purpose described.

9. In a device of the class described, the suction-trunk located at the end of the cob-riddle, and composed of the ends, and the sides or plates 50 and 51 extending upward at the same angle, and diverging from one side to the other, a conical hood covering the top of said trunk, a fan-casing located at the larger end of the hood, and a fan in said casing.

10. In a device of the class described, the suction-trunk located at the end of the cob-riddle, and composed of the ends and the sides or plates 50 and 51 extending upward at the same angle, and diverging from one side to the other, a conical hood covering the top of said trunk, a fan-casing located at the larger end of the hood, and a fan in said casing, said fan consisting of the hub 57, the disk 58, and the fan 59, all coöperating substantially as and for the purpose described.

11. In a device of the class described, the suction-trunk terminating in the conical hood, the fan-casing located at the larger end of said hood, the shaft extending through said fan-casing and said hood and suitably journaled therein, the fan mounted in said fan-casing, and a sleeve surrounding said shaft throughout its length in said hood and to the fan, and means for supporting said sleeve and preventing its rotation.

12. In a device of the class described, the combination of the fan-casing, the hood adjacent thereto, a shaft extending through said hood and casing, a fan secured upon said shaft and occupying the fan-casing, and a sleeve 71 surrounding said shaft from the fan to the opposite end of the hood, and means for supporting the tabe 71 consisting of the piece 72 connected therewith and secured to the under side of the top of the hood, substantially as shown and described.

13. In a device of the class described, the combination with the suction-fan and casing therefor, of the suction-trunk leading thereto at an angle to the vertical, and having the pivoted portion 65 of the outer side, provided with the strap 66 coöperating with the clamp 67, substantially as and for the purpose described.

14. A machine of the class described, comprising the shelling mechanism, a riddle located adjacent to said shelling mechanism, and a suction-fan for drawing a current of air over the surface of said riddle and from one end thereof to carry off the shucks, &c.; a grain-riddle located beneath said cob-riddle, and a suction-fan for drawing a current of air through and over said grain-riddle, and beneath said cob-riddle and in an opposite direction from the other current to draw off the chaff, &c.; and connections for operating the shelling mechanism, shaking the riddles and rotating said fans.

15. A machine of the class described, comprising a casing in which is located shelling mechanism, a cob-riddle located adjacent to said shelling mechanism, and a suction-fan at one end of the machine for drawing the shucks, &c., along the surface of said cob-riddle and raising them from one end thereof; a grain-riddle located beneath said cob-riddle, and a suction-fan located at the other end of the machine for drawing the chaff, &c., from the grain-riddle by a current of air beneath the other current and flowing in an opposite direction; and connections for operating the shelling mechanism, shaking the riddles and rotating said fans.

16. A machine of the class described, comprising the casing in the upper part of which the shelling mechanism is located; a cob-riddle located adjacent to said shelling mechanism, apertures in the upper portion of said casing near one end, and a suction-fan for a current of air through said aperture and over the riddle, for raising the shucks from one end thereof; a grain-riddle located beneath said cob-riddle, an aperture in the lower portion of the casing adjacent to the end opposite the one in which the upper apertures are located, and a suction-fan for drawing a current of air through said lower aperture to carry the chaff, &c., from the grain-riddle; and connections for operating the shelling mechanism, shaking the riddles, and rotating said fans.

17. A machine of the class described, comprising the casing in the upper part of which the shelling mechanism is located; a cob-riddle located adjacent to said shelling mechanism, apertures in the upper portion of said casing near one end, and a suction-fan for drawing a current of air through said apertures and over the riddle for raising the shucks from one end thereof; a grain-riddle located beneath said cob-riddle, an aperture in the lower portion of the casing adjacent to the end opposite the one in which the upper apertures are located, a blast-fan in connection with said aperture; and a suction-fan for drawing the current of air from said blast-fan through and beneath the grain-riddle to carry the chaff therefrom; and connections for operating the shelling mechanism, shaking the riddles, and rotating said fans.

18. A machine of the class described, comprising a casing, in the upper portion of which a shelling mechanism is located, a cob-riddle located adjacent to said shelling mechanism, apertures located in the side of the casing and slightly beyond the shelling mechanism in the direction of the feed-hopper therefor, and a suction-fan for drawing a current of air through the hopper-opening and said side openings, and over the surface of the riddle to carry the shucks, &c., from the opposite end thereof; a grain-riddle located beneath said cob-riddle, a blast-fan adjacent to the end of said riddle farthest from the hopper, and a suction-fan at the end of the machine adjacent to the hopper for drawing a current of air carrying the chaff, &c., from the grain-riddle; and connections for operating the shelling mechanism, shaking the riddles, and rotating said fans.

659,840. COTTON-SEED DELINTER. WILLIAM C. BAXTER, East Bridgewater, Mass., assignor to the Planters' Cotton Company, Vicksburg, Miss. Filed Dec. 8, 1898. Serial No. 698,666. (No model.)

Claim.—1. In a delinter, a rotating drum and a perforated cylinder surrounding it, said drum and cylinder being shaped with relation to each other as shown and described, whereby a chamber is formed surrounding said drum tapering in size from the inlet to the outlet, in combination with means for creating suction about said chamber, and feed and delivery devices, substantially as set forth.



2. In a delinter, a rotating drum, and a perforated cylinder surrounding it, the perforations in said cylinder being larger at the inlet than at the outlet, and said drum and cylinder being shaped with relation to each other as shown and described whereby a chamber is formed surrounding said drum and tapering in size from the inlet to the outlet, in combination with means for creating suction about said chamber, and feed and delivery devices, substantially as set forth.

3. In a delinter, a rotating drum and a perforated cylinder surrounding it, the parts being so proportioned that the seed-space between them decreases from the feed to the delivery end; combined with a chamber surrounding the cylinder, means for creating suction therein, and means for forcing the seed while in transit against said drum, substantially as and for the purpose set forth.

4. In a delinter, a horizontal rotating drum, and a perforated cylinder surrounding it and having its perforations decreasing in size from the feed toward the delivery end; combined with a chamber surrounding the cylinder, and means for creating a suction therein, substantially as and for the purpose set forth.

5. In a delinter, a rotating drum, and a cylinder surrounding the same and provided with perforations decreasing in size toward the delivery end, the parts being so proportioned that the seed-space between the drum and cylinder also decreases in size from the feed end toward the delivery end; combined with a chamber surrounding the cylinder, and means for creating a suction therein, substantially as and for the purpose set forth.

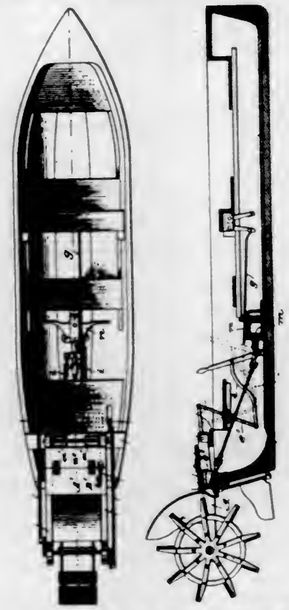
6. In a delinter a rotating delinting-drum, a fixed perforated cylinder surrounding said drum, a headpiece as E^2 having a dust-opening as H provided with a scraper adapted to remove dust from the end of the delinting-drum, substantially as and for the purpose set forth.

7. In a delinter, a delinting-drum consisting of a series of corundum wheels and disks having teeth, said teeth having the form of irregular hexahedrons the working faces of which are inclined to the line of their motion whereby they act as stirrers, rubbers and feeders, substantially as and for the purpose set forth.

8. In a delinter, a horizontal, self-feeding, delinting-drum inclosed in a perforated cylinder; and a seed-escape passage arranged tangentially to the said perforated cylinder; and a regulating-valve swinging upon an axis parallel to the axis of the said cylinder, and having its free end adjustably held; and mechanism for adjusting the said valve, substantially as and for the purpose set forth.

9. In a delinter, a rotating delinting-roll, consisting of a series of grinding-wheels, and a series of stirrers, each stirrer having one or more teeth, one or more faces of each tooth being inclined with relation to the axis of the roll, as described, and a perforated cylinder surrounding said roll, said roll and said cylinder being shaped with relation to each other, as shown, whereby a chamber is formed surrounding said roll and tapering in size from the inlet to the outlet, and the seed in process of delinting is forced during said process toward said outlet, in combination with feed and delivering devices, as set forth.

659,841. PROPELLING MECHANISM FOR BOATS. ALBERT BELL, Appleton, Wis., assignor to the Appleton Boat Propulsion Manufacturing Company, same place. Filed Feb. 15, 1900. Serial No. 5,273. (No model.)



Claim.—1. In a propulsion mechanism for boats, the combination with a stern-wheel-supporting frame which is pivotally attached at its forward end to the hull of a boat, of a hand-lever connected to the supporting-frame and to the hull of the boat, and means for locking the hand-lever to prevent the raising or lowering of the wheel-supporting frame.

2. In a propulsion mechanism for boats, the combination with a wheel-supporting frame which is pivotally attached to the hull of a boat, a hand-lever pivotally attached to the supporting-frame and provided with a forwardly-projecting arm, a link connected to said arm and to the bull of the boat, and means for locking the lever to prevent movement of the frame, substantially as shown.

3. In a propulsion mechanism for boats, the combination with a supporting-frame for a stern-wheel, means for movably connecting the frame with the hull of a boat, a cross-bar or shaft carried by the frame and provided with forwardly-projecting arms, a lever for actuating the shaft and arms, links pivoted to the arms and to brackets which are secured to the hull of the boat, a segmental locking-plate pivoted to the operating-lever and adapted to engage with a catch-plate carried by the wheel-supporting frame, substantially as shown and for the purpose set forth.

659,842. COMPOSITION FOR BLASTING-POWDER. GEORGE BENNET, Southport, England. Filed Jan. 31, 1899. Serial No. 704,015. (No specimens.)

Claim.—1. As a new article of manufacture for use as an ingredient in the subsequent manufacture of nitrate explosives, the carbon carrier composed of resin, a chromium oxidizing agent and carbon, all incorporated coherently together as and for the purposes set forth.

2. As a new article of manufacture for use as an ingredient in the subsequent manufacture of nitrate explosives, the carbon carrier composed of ten to sixteen parts resin, one to two and one-half parts chromium oxidizing agent and five parts carbon all incorporated coherently together, as and for the purposes set forth.

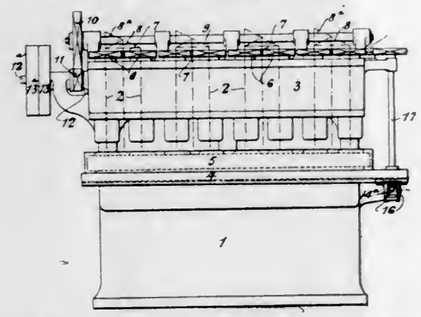
659,843. CONSTRUCTION OF GAS-BURNERS. GEORGE BRAY, Leeds, England. Filed Apr. 26, 1900. Serial No. 14,484. (No model.)

Claim.—In combination with the burner-socket A, threaded to en-

gage with a gas-fitting, the opposite end of said socket provided with a tip C, a "diminisher" F, placed within a cap D of yielding material applied within the socket A, substantially in the manner as shown and described and for the purpose set forth.



659,844. **BORING AND TURNING MACHINE.** CHARLES M. CATLIN, Washington, D. C., administrator of William Wilson Hulse, deceased, assignor to the E. Green & Son, Limited, Wakefield, England. Filed Dec. 31, 1897. Serial No. 665,149. (No model.)



Claim.—1. A boring or turning machine comprising a frame provided with a bed at the front, a work-table mounted on said bed, a series of vertical cutter-spindles 2 mounted to rotate in said frame above said bed and each provided with a toothed driving-wheel, a horizontal shaft extending longitudinally of said frame and common to said spindles, means for rotating said shaft, toothed gear arranged to be operated by said shaft and in gear with the toothed wheels on said spindles, means for reciprocating said work-table and spindles relatively and at right angles to each other while said spindles are rotating to operate the cutters to work on a body on said work-table, and means for advancing the spindles in the direction of their length, substantially as described.

2. A boring or turning machine comprising a frame carrying a slide-bed, a work-table mounted to reciprocate thereon, a series of vertical rotary cutter-spindles mounted in said frame above said table, a cam adapted to reciprocate said table, a horizontal shaft common to said spindles and cam, driving mechanism between said shaft and said spindles and cam, and means for driving said shaft, substantially as described.

3. A boring and turning machine comprising a frame carrying a slide-bed, work-table mounted thereon, a series of vertical rotary cutter-spindles mounted in said frame above said table, an upper horizontal driving-shaft, mechanism for rotating said spindles from said shaft, a rotary cam adapted to reciprocate said table, a lower horizontal shaft having bearings in the frame below the work-table and from which said cam is driven, and a vertical driving-shaft in gear with the upper and lower horizontal shafts, substantially as described.

4. A multiple boring or turning machine comprising a frame, a work-table, a series of rotary tool-spindles and tools placed close together, and two shafts 9 for driving said spindles, the shafts driving alternate spindles, a cam for reciprocating the work-table, and a working connection between one shaft 9 and said cam.

5. In a boring or turning machine, the combination of a frame, a work-table common to the spindles, means for reciprocating the work-table during operation of the tools, a series of spindles and tools, a shaft with means for driving said series of spindles, and means for separately connecting and disconnecting said spindles from the driving-shafts.

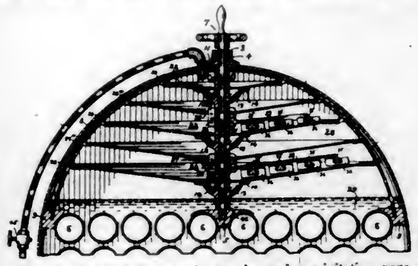
659,845. **STEAM-BOILER.** LOUIS CHARMOIS, Canton, Ohio. Filed July 9, 1900. Serial No. 22,903. (No model.)

Claim.—1. In a steam-boiler, circular pans having central depressions with blow-off passages from the bottoms thereof, and means for supporting the same in the steam-space, substantially as specified.

2. In a steam-boiler, heating and precipitating pans having descending rim-flanges, and means for supporting the same, substantially as specified.

3. In a steam-boiler, circular pans having central depressions with blow-off passages from the bottoms thereof, alternating with relatively-larger similar pans having central apertures, and means for supporting the same in the steam-space, substantially as specified.

4. In a steam-boiler, circular heating and precipitating pans, with centrally-acting agitating-scrapers, and means for supporting and operating the same respectively in the steam-space, substantially as specified.



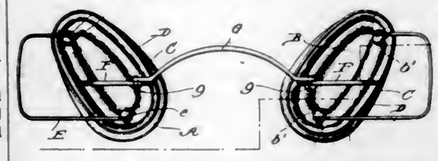
5. In a steam-boiler, circular heating and precipitating pans, with centripetal scrapers, and means for supporting and operating the same respectively in the steam-space, substantially as specified.

6. In a steam-boiler, circular pans having central depressions with blow-off passages from the bottoms thereof, and centripetal scrapers having descending parts to fit said depressions, with means for supporting and operating the same respectively in the steam-space, substantially as specified.

7. In a steam-boiler, a vertical shaft, with means for rotating the same from without, having thereon loosely-mounted thimbles for carrying heating and precipitating pans, and alternating adjustably-attached collars for supporting the same and for attaching scrapers, with means for supporting the same in the steam-space, substantially as specified.

8. In a steam-boiler, heating and precipitating pans having depressions with blow-off openings in the bottoms thereof, blow-off pipes respectively attached at one end in said openings and at the other end attached to and entering a common exit-pipe, and an exit-pipe passing out of the boiler and provided with a valve, substantially as specified.

659,846. **TRUSS.** DECATUR D. DENNIS, Chicago, Ill. Filed Aug. 2, 1900. Serial No. 25,607. (No model.)



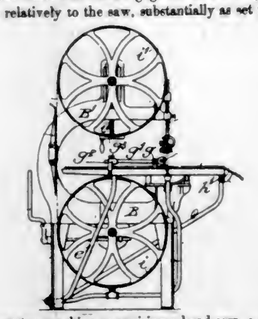
Claim.—1. In a truss, the combination of two pneumatic rings, with a diaphragm located on the surface of each adjacent to the body of the wearer, a plate located on the opposite surface of each of said rings and having a peripheral groove, a slotted rib and bosses on its outer surface, a metallic ring located in each of said grooves to hold the diaphragms in position, a connecting-bar adjustably secured at its ends in the slots of the ribs, and a belt-attaching piece adjustably secured to the bosses on each of the plates, substantially as described.

2. In a truss, the combination of two pneumatic rings substantially ovoidal in shape, and having their lower portions enlarged, a diaphragm located on the surface of each adjacent to the body of the wearer, a plate located on the opposite surface of each of said rings, and having a peripheral groove, a slotted rib and bosses on its outer surface, a metallic ring located in each of said grooves to hold the diaphragm in position, a connecting-bar adjustably secured at its ends in the slots of the ribs, and a belt-attaching piece adjustably secured to the bosses on each of the plates, substantially as described.

3. In a truss, the combination of two pneumatic rings, with a diaphragm located on the surface of each adjacent to the body of the wearer, a plate located on the opposite surface of each of said rings and having a peripheral groove, a slotted rib and bosses with flattened portions, a metallic ring located in each of said grooves, to hold the diaphragms in position, a connecting-bar having its ends serrated and made of material harder than the ribs on the plates, means to secure the said bar to the ribs, a belt-attaching piece having its ends serrated and made of material harder than the bosses on the plates and pivotally secured to the bosses of each plate, substantially as described.

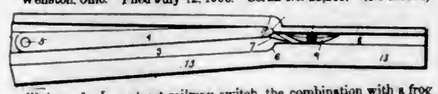
659,847. **ICE-CUTTING MACHINE.** MAX H. DETTE, New York, N. Y., assignor to The Firm of P. Pryibil, same place. Filed May 4, 1900. Serial No. 15,477. (No model.)

Claim.—1. An ice-cutting machine comprising a band-saw, a table of some suitable non-oxidizable material for supporting the cake in proximity to the saw, the said table being provided with a trough at its margin for conveying away the waste water and a gage for determining the position of the cake of ice relatively to the saw, substantially as set forth.



2. An ice-cutting machine comprising a band-saw, a table of some suitable non-oxidizable material for supporting the cake of ice in proximity to the saw, the said table being provided with a marginal trough, a common waste-pipe, branch pipes leading from the common waste-pipe to the said trough, and a gage for determining the position of the cake of ice relatively to the saw, substantially as set forth.

659,848. **SWITCH-SHIFTING MECHANISM.** WILLIAM HAMILTON, National Military Home, Ohio, assignor of one-third to C. W. Swan, Wellston, Ohio. Filed July 12, 1900. Serial No. 23,285. (No model.)



Claim.—1. In a street-railway switch, the combination with a frog having a recess which terminates at its reduced end in rounded surfaces or pockets 6, of a switch-tongue having its reduced end rounded and adapted to fit in said pockets 6, a shifting tongue 7 pivoted solely to said rounded end of the switch-tongue and projecting beyond the pockets 6, and a crescent-shaped shifting bar 9 adapted to be lowered to a position to engage the said shifting tongue 7 with the rounded side of said shifting bar to throw the switch-tongue in opposite directions, substantially as specified.

2. In a street-railway switch, the combination with a frog, the reduced end of the recessed portion thereof terminating in rounded surfaces or pockets 6, a switch-tongue 4 having its reduced end rounded and adapted to fit in said pockets 6, a shifting tongue 7 pivoted solely to said switch-tongue and occupying a position above the lower surface of said switch-tongue, a crescent-shaped shifting bar 9, the rounded surface of which is adapted to engage with said shifting tongue 7, to throw the switch-tongue in opposite directions, and an elevated surface 13 on the rails adjacent to the shifting tongue 7 all arranged and operating, substantially as shown and described.

659,849. **LACING-BLANK.** HUGO L. HILLER, New York, N. Y. Filed Nov. 28, 1899. Serial No. 738,521. (No model.)



Claim.—1. A lacing-blank having intermediate its ends, a thread-wound portion, the winds of the thread being locked to prevent the unwinding of the thread-wound portion and forming, when severed, lacing-tips, substantially as set forth.

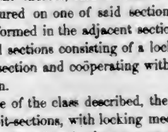
2. A lacing-blank having intermediate its ends, a thread-wound portion adapted, when severed, to form lacing-tips, the said thread-wound portion comprising a series of half-hitches for locking the thread against unwinding when the wound portion is severed, substantially as set forth.

3. A lacing having thread-wound tips provided with means for preventing unwinding of the thread, substantially as set forth.

659,850. **MACHINE FOR ROLLING IRON.** THOMAS J. JONES, Chicago, Ill. Filed Apr. 10, 1899. Serial No. 712,413. (No model.)

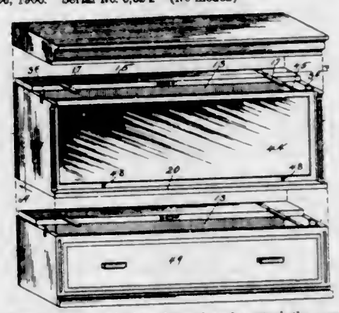
Claim.—1. In a machine for rolling metal in one operation to a required form and dimensions from billets, the combination with a pair of rolls of large diameter journaled with their axes parallel with each other, and having circumferential registering grooves, and guides extending between the rolls and fitting in said grooves, said guides having their working faces inwardly inclined from their receiving ends to a point in the plane of the axis of the rolls.

2. In a machine for rolling metal in one operation to a required form and dimensions from billets, the combination with a pair of rolls of large diameter journaled with their axes parallel with each other, and having circumferential registering grooves, reducing-guides extending through and fitting in said grooves, said guides having their working faces inwardly inclined from their receiving ends to a point in the plane of the axes of the rolls, and top and bottom plates secured to said guides acting to confine the metal between the same.



3. In a machine of the class described, the combination with rolls having registering grooves, of a guide-bar having a straight back and sides, the thickness thereof at the ends equal to the width of said grooves, and of a width greater than twice the depth of the grooves, the thickness of said guides increasing from one end to near the middle of the guide, and the thickened part of said guide being cut away at its upper and lower edges to conform to the curvature of the roll.

659,851. **BOOKCASE.** JOHN E. KNOBEL, Chicago, Ill. Filed Feb. 26, 1900. Serial No. 6,624. (No model.)



Claim.—1. In a device of the class described, the combination of a series of interchangeable unit-sections for forming a vertical column, each section having fractional top and bottom pieces which coöperate with the similar bottom and top pieces of the adjacent sections to form the shelves, with locking mechanism wholly inclosed within said fractional top and bottom pieces operating to prevent the accidental separation of sections in the same vertical column by movement in any direction.

2. In a device of the class described, the combination of a series of interchangeable unit-sections, with locking mechanism to prevent the accidental separations of sections in the same vertical column by vertical or horizontal movement thereof, said mechanism comprising the series of tongues rigidly secured on one of said sections coöperating with corresponding grooves formed in the adjacent section and a spring-catch wholly inclosed in the top and bottom pieces constituting the shelves.

3. In a device of the class described, the combination of a series of interchangeable unit-sections, with locking mechanism to prevent the accidental separation of sections in the same vertical column by vertical or horizontal movement thereof, said mechanism comprising the series of tongues rigidly secured on one of said sections coöperating with corresponding grooves formed in the adjacent section, and a spring-lock interposed between said sections consisting of a locking-tongue carried within the bottom of the section and coöperating with a catch within the top of the adjacent section.

4. In a device of the class described, the combination of a series of interchangeable unit-sections, with locking mechanism to prevent the accidental separation of sections in the same vertical column by vertical or horizontal movement thereof, said mechanism comprising a spring locking-tongue carried within the bottom of one of said sections coöperating with a catch within the top of the section beneath it.

5. In a device of the class described, the combination with the section having the top piece 15 extending across the rear portion thereof and provided with the straps 17 on the upper side thereof, of the section having the bottom piece 21 with the channels 18 formed in the upper side thereof.

6. In a device of the class described, the combination with the section having the top piece 15 extending across the rear portion thereof and provided with the straps 17 on the upper side thereof, of the section having the bottom piece 21 with the channels 18 formed in the upper side thereof, and locking mechanism interposed between said top and bottom pieces to prevent their separation.

7. In a device of the class described, the combination with the section having the top piece 15 extending across the rear portion thereof and provided with the straps 17 on the upper side thereof, of the section having the bottom piece 21 with the channels 18 formed in the upper side thereof, and locking mechanism interposed between said top and bottom pieces to prevent their separation, said locking mechanism consisting of a spring locking-tongue carried by the bottom piece 21 to coöperate with a catch carried by the top piece 15.

8. In a device of the class described, the combination with the section having a top piece 15 extending across the rear portion thereof and provided with the recess 27, and the angle-iron 28 covering said recess and having the aperture 29 therein, of the section having the bottom piece 21 with the recess 23 therein, the angle-iron 24 covering said recess 23 and having an aperture 26 therein, the spring-catch 31 extending through said aperture 26 and adapted to pass through and coöperate with the aperture 29, substantially as and for the purpose described.

9. In a device of the class described, the combination with the section having a top piece 15 extending across the rear portion thereof and provided with the recess 27, the angle-iron 28 covering said recess and having the aperture 29 therein, of the section having the bottom piece 21 provided with the recess 23 therein, the angle-piece 24 covering said recess 23 and having the apertures 25 and 26 therein, and the spring-tongue 31 secured in the recess 23 and having the button 33 coöperating with the aperture 25 and the head 32 projecting through the aperture 26 and adapted to coöperate with the aperture 29.

10. In a device of the class described, the combination with the interchangeable unit-sections, of mechanism attached to each of said sections for locking them end to end, said mechanism consisting of a locking-plate flush with the outer surface of the end of the section and having an aperture therein, a recess formed on the inside of each end of each section on which the locking-plate is located, and a catch inclosed in said recesses in all positions and adapted to be passed through the apertures of two adjacent plates to connect them, substantially as and for the purpose described.

11. In a device of the class described, the combination with the interchangeable unit-sections, of mechanism attached to each of said sections for locking them end to end, said mechanism consisting of a locking-plate flush with the outer surface of the end of the section and having an aperture therein, with an inner plate parallel thereto at a slight distance therefrom and provided with a bearing-aperture, and a U-shaped catch passing through said bearing-aperture in the interior plate and adapted to be turned into position to pass through the aperture of the two adjacent outer plates to connect them.

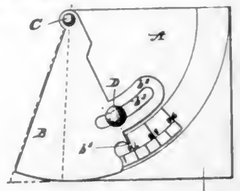
12. In a device of the class described, the combination with the interchangeable unit-sections, each consisting of a casing having a recess in the end thereof, of mechanism attached to each of said sections for locking them together, said mechanism consisting of an angular locking-plate secured in the recess of the casing and having its surface flush with the outer surface thereof and provided with an elongated aperture, a second angular plate inserted in the longer recess parallel to the first angular plate and having the bearing-aperture through its flange corresponding to the other apertured flange, and a U-shaped hook passing through said bearing-aperture and adapted to be turned from normal position so as to pass through the aperture in adjacent outer plates and then to be turned to normal position to lock said sections from separation.

13. In a device of the class described, the combination with the interchangeable unit-sections, of mechanism attached to each of said sections for locking them together, said mechanism comprising the angular locking-plate 36 having the vertical flange with the elongated aperture 37 therein, with the angular plate 38 having the bearing-aperture 39, and the U-shaped hook 41 having the end 42 adapted to be passed through the apertures 37 of adjacent plates and to be turned so as to engage said plates and prevent their separation.

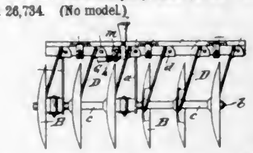
14. In a device of the class described, the combination of a series of interchangeable unit-sections for forming vertical columns and horizontal rows, each section having fractional top and bottom pieces, which coöperate with the similar bottom and top pieces of the adjacent sections to form the shelves, and the vertical end pieces, with locking mechanism wholly inclosed within said fractional top and bottom pieces operating to prevent the accidental separation of sections in the same vertical column by movement in any direction, and a second locking mechanism located in said end pieces for securing said sections in the horizontal rows from accidental separation by movement in any direction, said second locking mechanism being entirely inclosed within the end pieces of the adjacent sections.

659,852. HORSESHOE-GAGE. Albert F. Libby, Northwood N. H. Filed Oct. 29, 1898. Serial No. 694,921. (No model.)

Claim.—As a means of determining the proper amount to thicken the shoe of a horse so as to raise his hoof to throw the bearing directly in center of the frog, a gage composed of a movable and stationary member pivotally connected, the stationary member being substantially rectangular and provided with graduations as shown, said gage being adapted to be inverted for use on either quarter, when the distance to the ground from the outer corner of the movable member will determine the amount said quarter should be raised.



659,853. DISK HARROW. Peter E. Little, Dayton, Ohio, assignor to the Ohio Rake Company, same place. Filed Aug. 13, 1900. Serial No. 26,734. (No model.)

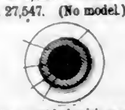


Claim.—1. In a disk harrow, the combination with the gang-beam, of castings secured thereto, provided with openings wider at one side than at the other, a scraper-bar loosely mounted in said castings, means for rocking said bar, and spring connecting said scraper-bar and gang-beam, said spring bearing on said scraper-bar at an oblique angle thereto, substantially as shown and described.

2. In a disk harrow, the combination with the gang-beam, of castings secured thereto, provided with substantially-triangular openings, a scraper-bar loosely mounted in said castings, means for rocking said bar, a coiled spring connecting said scraper-bar and gang-beam, said spring bearing on said scraper-bar at an oblique angle thereto, substantially as shown and described.

3. In a disk harrow, the combination with the gang-beam, of castings secured thereto, provided with substantially-triangular openings, a scraper-bar loosely mounted in said castings, means for rocking said bar, a box or housing secured obliquely to the gang-beam, a bolt mounted in said housing and connected at an oblique angle to said scraper-bar, with a coiled spring bearing between said bolt and housing, to draw said scraper-bar laterally when oscillated and set-screws to limit the oscillation of said scraper-bar, substantially as shown and described.

659,854. STEAM-BOILER. Justin Mallet, Marseilles, France, and Arthur R. Mosler, New York, N. Y. Original application filed Mar. 22, 1900, Serial No. 9,226. Divided and this application filed Aug. 21, 1900. Serial No. 27,547. (No model.)



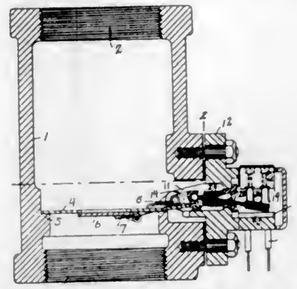
Claim.—A boiler-tube provided with means for laminating the steam within it, said laminating means comprising a cylindrical core and layers of rods surrounding the core, the rods of each layer being made of such diameter that each will touch the adjacent rods of its own layer and the two adjacent rods of an adjacent layer, substantially as set forth.

659,855. ALARM MECHANISM. Jonathan C. Meloon, Providence, R. I., assignor to the General Fire Extinguisher Company, New York, N. Y. Filed June 5, 1900. Serial No. 19,098. (No model.)

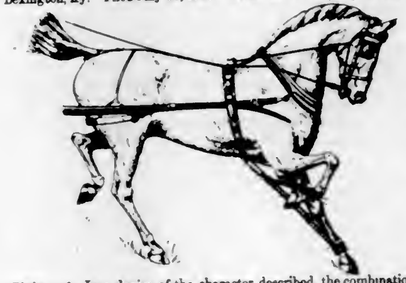
Claim.—1. The combination with a casing, a pivoted valve therein, an arm independently pivoted to turn about the same axis, a spring connecting said arm and valve, circuit-controlling devices outside the casing, a lever connected with said arm for operating said devices, and a flexible sleeve surrounding said lever and connected with the wall of the casing.

2. The combination with a casing, a valve 5 pivoted on a rod 8, an arm 14 pivoted on said rod independently of the valve, a spring 15 connecting said valve and arm, a lever 27 connected with said arm and extending through the wall of said casing, a flexible sleeve 29 surrounding said lever and connected with the wall of the casing, and circuit-controlling devices operated by said rod.

3. The combination with a non-conducting block 19, a U-shaped plate 26 mounted thereon, wire 17 connected with plate 26, a spring 24 mounted on block 19, wire 17′ connected with spring 24, non-conducting clamping-blocks between which wires 17, 17′ are held, a lever 27 for operating the spring 24 and a member moved by a flow of water in a system of pipes for operating said lever.



659,856. HOBBLE FOR DRIVING-HORSES. Thomas F. Neagle, Lexington, Ky. Filed July 21, 1900. Serial No. 24,389. (No model.)



Claim.—1. In a device of the character described, the combination with the ankle-bands designed to be secured to the fore feet of a horse, of an elastic cord connected to said ankle-bands, and a device carried by some suitable support located between and to the rear of the fore legs, through which device said elastic cord is free to pass to accommodate the movement of the front feet and exert a lifting tension upon the fore feet by being connected to said ankle-bands; substantially as described.

2. In a device of the character described, the combination with the ankle-bands designed to be secured to the fore feet of a horse, of elastic cords connected to the inner and outer sides of said bands, a girth-strap, and a pulley-block secured to said girth-strap and through which said bands freely pass; substantially as described.

3. In a device of the character described, the combination with ankle-bands designed to be secured to the fore feet of a horse, of adjustable straps secured to the inner and outer edges of one of said bands, elastic cords connecting said straps to the ankle-band of the other foot, a girth-strap, a pulley-block through which said elastic bands freely pass, and an adjustable strap connected to the girth-strap for supporting said pulley-block; substantially as described.

4. In a device of the character described, the combination with padded ankle-bands designed to be secured to the fore feet of the horse, elastic straps connecting said bands together, means for adjusting the tension of said straps, the girth-strap carrying a device through which said elastic straps pass, and means for adjusting the position of said device relative to the girth-strap; substantially as described.

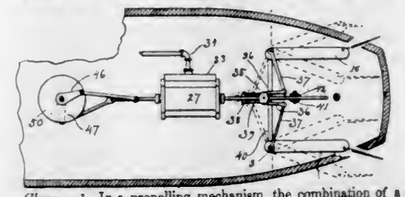
659,857. CASTER. David Nickel and Edward W. Wainwright, Morris, Ill.; said Wainwright assignor to said Nickel. Filed May 11, 1900. Serial No. 16,269. (No model.)



Claim.—1. In a caster, the combination of a caster-wheel, a bracket or support for the wheel, a pin or pintle carrying the bracket or support, a sleeve surrounding the pin or pintle, a guide or support encircling the sleeve and having longitudinal grooves on its opposite sides, a base-plate and a retaining or binding spring having its sides contractible and expansible longitudinally for entering the caster and retaining it in place, and extending longitudinally of the guide or support and means for securing the spring in position, substantially as described.

2. In a caster, the combination of a caster-wheel, a bracket or support for the wheel, a pin or pintle carrying the bracket or support, a sleeve or bushing surrounding the pin or pintle, a guide or support encircling the sleeve or bushing and provided on its opposite sides with grooves longitudinally thereof, a cap or base plate on which the guide or support rests and having slots or openings therein, and a retaining or binding spring having side arms passing through the slots or openings of the cap or base plate and entered into the longitudinal grooves of the guide or support, substantially as described.

659,858. PROPELLING MECHANISM. Charles M. Palmer, Chicago, Ill. Filed Aug. 1, 1900. Serial No. 25,517. (No model.)



Claim.—1. In a propelling mechanism, the combination of a propeller-blade pivotally mounted to oscillate on an axis extending coincident with or parallel to its plane, mechanism for imparting a bodily vibratory movement to said blade in a direction transversely of its plane and mechanism for simultaneously imparting oscillatory movement thereto upon its pivotal axis, substantially as described.

2. In a propelling mechanism, the combination of a propeller-blade pivotally mounted to oscillate on an axis extending coincident with or parallel to its plane and located within the longitudinal limits of its length, mechanism for imparting a bodily movement to said blade in a direction transversely of its plane and mechanism for simultaneously imparting oscillatory movement thereto upon its pivotal axis, substantially as described.

3. In a propelling mechanism, the combination of a propeller-blade pivotally mounted to oscillate on an axis extending coincident with or parallel to its plane, mechanism for imparting a bodily vibratory movement to said blade in a direction transversely of its plane and mechanism for simultaneously imparting an oscillatory movement thereto upon its pivotal axis, said actuating mechanisms being arranged to operate synchronously, but so timed as to bring the reversals of direction of bodily movement and pivotal movement at different periods, as and for the purpose set forth.

4. In a propelling mechanism, the combination of a propeller-blade pivotally mounted to oscillate on an axis extending coincident with or parallel to its plane, mechanism for imparting a bodily vibratory movement to said blade in a direction transversely of its plane and mechanism for simultaneously imparting an oscillatory movement thereto upon its pivotal axis, said actuating mechanisms each comprising a rotary element with which the respective operating devices have cranked or equivalent connection, said rotary elements being actuated to perform synchronous revolutions and said cranked connections being arranged in angular relation to each other, substantially as and for the purpose described.

5. In a propelling mechanism, the combination of a propeller-blade, a swinging arm pivotally mounted at one end and with the outer end of which said propeller-blade has pivotal connection upon an axis extending coincident with or parallel to its plane, mechanism for imparting a vibratory movement to said arm upon its pivotal axis and mechanism for imparting a synchronous oscillatory movement to said propeller-blade, as and for the purpose set forth.

6. In a propelling mechanism, the combination of a propeller-blade, a swinging arm pivotally mounted at one end, with the outer end of which said propeller-blade has pivotal connection upon an axis extending coincident with or parallel to its plane, mechanism for imparting a vibratory movement to said arm upon its pivotal axis, comprising a crank-arm connected with the pivot of the arm and a reciprocatory member imparting movement to said crank-arm and mechanism for oscillating said propeller-blade upon its own pivotal axis synchronously with the vibrations of the swinging arm, comprising a crank-arm connected with the pivot of the propeller-blade, a second crank-arm connected with a shaft arranged concentric with the pivotal axis of the swinging arm, a link connecting said crank-arms in parallel relation, a second cranked arm upon said last-mentioned shaft and a reciprocatory member acting upon the latter crank-arm, substantially as described.

7. In a propelling mechanism, the combination of a propeller-blade, a swinging arm pivotally mounted at one end with the outer end of which said propeller-blade has pivotal connection upon an axis extending coincident with or parallel to its plane, mechanism for imparting a vibratory movement to said arm upon its pivotal axis, comprising a crank-arm connected with the pivot of the arm and a reciprocatory member imparting movement to said crank-arm and mechanism for oscillating said propeller-blade upon its own pivotal axis synchronously with the vibrations of the swinging arm, comprising a crank-arm connected with the pivot of the propeller-blade, a second crank-arm connected with a shaft arranged concentric with the pivotal axis of the swinging arm, a link connecting said crank-arms in parallel relation, a second crank upon said last-mentioned shaft and a reciprocatory member acting upon the latter crank-arm, said two reciprocatory members being each connected with a common crank-shaft, the cranks whereof are arranged in angular relation to each other, as and for the purpose set forth.

8. In a propelling mechanism, the combination of a propeller-blade, a swinging arm pivotally mounted at one end with the outer end of which said propeller-blade has pivotal connection upon an axis extending coincident with or parallel to its plane, mechanism for imparting a vibratory movement to said arm upon its pivotal axis, comprising a crank-arm connected with the pivot of the arm and a reciprocatory member imparting movement to said crank-arm and mechanism for oscillating said propeller-blade upon its own pivotal axis synchronously with the vibrations of the swinging arm, comprising a crank-arm connected with the pivot of the propeller-blade, a second crank-arm connected with a shaft arranged concentric with the pivotal axis of the swinging arm, a link connecting said crank-arms in parallel relation, a second crank upon said last-mentioned shaft and a reciprocatory member acting upon the latter crank-arm, said two reciprocatory members comprising a pair of pistons arranged within individual power-cylinders and means for controlling the relative movement of said pistons, comprising a cranked shaft provided with a pair of cranks arranged at an angle with each other and connecting-links connecting said pistons with the respective cranks, as and for the purpose set forth.

9. In a mechanism of the character described, the combination with a boat-hull of a hollow propeller-blade arm having pivotal connection at one end with said hull upon a vertical axis, a propeller-blade pivotally mounted upon the swinging end of said arm upon a vertical axis and arranged to stand in a vertical plane, the pivot of said propeller-blade being arranged to extend through the hollow portion of the arm, a rock-shaft arranged to extend through the hollow portion of the opposite end of said arm, coincident with the pivotal axis of the arm, crank-arms upon said rock-shaft mounted upon the pivot of the propeller-blade at points within the hollow arm, a connecting-link uniting said crank-arms in parallel relation, means for oscillating said rock-shaft and means for imparting a vibratory movement to the arm, substantially as described.

10. In a mechanism of the character described, the combination with a boat-hull of a pair of propeller-blade arms pivotally mounted upon said hull in laterally-opposite direction to each other and upon parallel axes so as to oscillate toward and from each other, a propeller-blade pivotally mounted upon the swinging end of each arm upon parallel axes arranged at right angles to the plane of movement of the swinging arms, means for imparting vibratory movement to said swinging arms whereby they are caused to simultaneously approach and recede from each other and means for imparting a synchronous movement to each propeller-blade, whereby the latter are caused to assume a forwardly-convergent angle with relation to each other during the principal part of their bodily approaching movement and a forwardly-divergent angle with relation to each other during the principal part of their bodily movement in a direction away from each other, as and for the purpose set forth.

659,859. COMBINED STUD AND SCARF-HOLDER. JOHANNES PANCKE, Berlin, Germany. Filed Aug. 11, 1899. Renewed Aug. 1, 1900. Serial No. 25,590. (No model.)

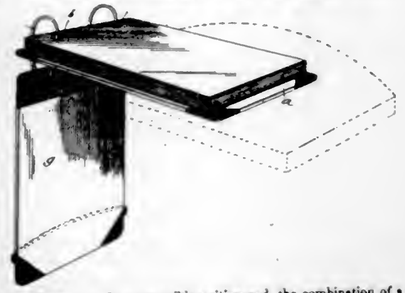


Claim.—1. The combination with a collar-button, of a bent and recurved bail or bow hinged to its stem, and a shorter bail or bow also hinged to said stem, both bails being adapted to be brought into line with said stem for insertion through the buttonhole, and the shorter bail to be closed down toward the return-bend of the other to confine the scarf.

2. The combination with a collar-button, of a bail or bow hinged to its stem to swing through an arc of ninety degrees and having a return-bend at its free end, and a second and shorter bail or bow also hinged to said stem to swing through an arc of one hundred and eighty degrees and past the other, said second bail being adapted to fold toward the return-bend of the first and form therewith a closed pocket for the scarf-band.

3. The combination of the head *a*, the stem *b*, the bail or bow *f g* hinged thereto intermediate of its length, and the shorter bail or bow *e* hinged to said stem at or adjacent to its end, said bails being adapted to be turned down and inclose the scarf-band between them when the button is in position on the collar.

659,860. WRITING-PAD. EDWARD H. SCHILD, Baltimore, Md. Filed June 22, 1900. Serial No. 21,227. (No model.)



Claim.—1. In a reversible writing-pad, the combination of a base-board having opposite writing-surfaces, and transfer-wires carried by said base-board, each transfer-wire being curved to form a transfer-arch for each writing-surface of the board, the upper arches being directly above and adjacent to the upper writing-surface and the lower arches being directly below and adjacent to the lower writing-surface, substantially as and for the purpose set forth.

2. In a reversible writing-pad, a base-board provided with opposite writing-surfaces and carrying elastic transfer-wires, each transfer-wire presenting an arch or loop above and adjacent to the upper writing-surface and also an arch or loop directly below and adjacent to the lower writing-surface and each transfer-wire being separable at some point and being kept closed at this separable point by the elasticity of the arches, for the purposes set forth.

3. In a reversible writing-pad, the combination of a base-board having its opposite sides forming writing-surfaces and means for temporarily attaching thereto a package of sheets of paper, said means consisting of a pair of transfer-wires attached to the board at its upper edge, each transfer-wire looping or extending underneath and adjacent to the lower writing-surface of the board and from there curving up and over upon the upper writing-surface of the board, and means for separably connecting the upper ends of the transfer-wires to the board.

4. In a reversible writing-pad, the combination of a base-board having writing-surfaces on its opposite sides, a plate attached to the upper end of said board and carrying a pair of rigid posts, located below the upper edge of the board, a pair of connected transfer-wires pivotally connected to said plate and looping downward from their point of attachment and curving forward and upward and then inward over the base-board and terminating near the upper edges of said posts, for the purpose set forth.

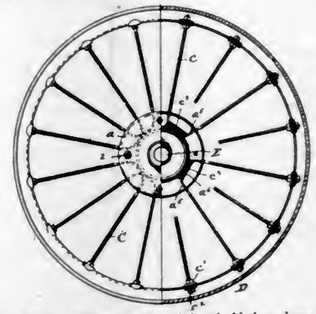
5. In a writing-pad, the combination of a reversible base-board having flat opposite writing-surfaces, and transfer-wires carried by said base-board and each being curved to form a transfer-arch for each writing-surface of the base-board, for the purposes set forth.

6. In combination, a reversible writing-pad, consisting of a reversible base-board, a plate attached to the under side thereof at the upper edge of the board, said plate carrying posts extending up through the board, a pair of transfer-wires pivotally attached to the under side of the board by said plate, the point of pivotal attachment being below the upper edge of the board and the transfer-wires looping downward from said point of attachment and curving upward and forward and inward or over upon the upper surface of the board and terminating adjacent to the upper ends of said posts, the extremities of the wires being adapted for attachment to the upper ends of said posts.

659,861. VEHICLE-WHEEL. WILLIAM H. SCHOFIELD, Chicago, Ill. Filed Mar. 6, 1900. Serial No. 7,518. (No model.)

Claim.—1. In a wheel, a hub formed of plates adapted to be adjusted relatively to each other, and having formed therein radial grooves and grooves connecting said radial grooves, and spokes fitting said radial and connecting grooves, as set forth.

2. In a wheel, a hub formed of plates adapted to be adjusted relatively to each other and having formed in their inner faces radial grooves and grooves connecting said radial grooves, and spokes each of which is formed of a single rod bent to fit said radial and connecting grooves substantially in the manner and for the purpose set forth.



3. In a wheel, a hub having formed therein U-shaped ways or channels adapted to receive a plurality of spokes having longitudinal ribs thereon, each of said spokes being formed of a single rod bent upon itself in substantially U-shape form, as set forth.

4. In a wheel, rings or collars arranged within the hub and having annular grooves in their faces, and spokes having ribs adapted to fit said grooves substantially in the manner described.

5. In a wheel, rings or collars arranged within the hub and having annular grooves in their faces, and spokes bent in substantially U shape and having ribs adapted to fit said grooves, as set forth.

6. In a wheel, rings or collars loosely arranged within the hub, and U-shaped spokes arranged to bear on the peripheries of said rings, whereby the rings are supported in the hub and a yielding bearing furnished for the spokes.

7. In a wheel, rings or collars loosely arranged in the hub and having peripheral grooves formed in the outer face, and spokes having bent portions adapted to bear on the peripheries of said rings, and said bent portions having a projecting rib adapted to fit said peripheral grooves, substantially in the manner and for the purpose set forth.

8. In a wheel, a hub composed of two plates having ways or channels provided therein to receive the spokes, rings or collars arranged loosely within the hub, and spokes having bent portions fitting said ways or channels and bearing against the peripheries of said rings or collars, substantially as set forth.

9. In a wheel, a hub composed of two plates having ways or channels provided therein to receive the spokes, rings or collars arranged loosely within the hub and having their outer face grooved, and spokes having bent portions fitting said ways or channels and bearing against the peripheries of said rings or collars, said spokes being formed with ribs adapted to fit the grooves in said rings, substantially as set forth.

10. In a wheel, a hub formed by plates adjustable relatively to each other and having ways or channels to receive the spokes, and means loosely arranged within the hub having lateral bearings for the spokes and forming resilient end bearings for the spokes, substantially as described.

11. In a wheel, spokes, each formed from a single bar bent in substantially U shape, and means whereby a resilient support is furnished said spokes within the hub, said means being loosely arranged within the hub and held in position by the pressure of the several spokes bearing thereon, substantially in the manner and for the purpose set forth.

12. In a wheel, a resilient felly, resilient rings loosely arranged within the hub, and spokes having adjustable bearings on said felly, and with end and lateral bearings on said rings, as set forth.

13. In a wheel, a resilient felly, resilient rings loosely arranged within the hub, spokes having bearings on said felly and rings, said spokes arranged on opposite sides of the peripheral center of the hub, as set forth.

14. In a wheel, a resilient felly, resilient rings loosely arranged within the hub, spokes having adjustable bearings on said felly and having bent portions bearing on said rings, said spokes arranged on opposite sides of the peripheral center of the hub, as set forth.

15. In a wheel, a resilient felly, resilient rings loosely arranged within the hub, spokes bearing on said rings and felly and arranged on opposite sides of the peripheral center of the hub, and means forming the hub, whereby the spokes may be wedged and tightened between their bearing-points, substantially as set forth.

16. In a wheel, a resilient felly, a hub formed of plates adjustable relatively to each other and having ways therein to receive the spokes, means for adjusting said plates, resilient rings loosely arranged within the hub, spokes bearing on said felly and rings and passing through the ways in said plates on opposite sides of the peripheral center of the hub, as set forth.

17. In a wheel, a resilient felly, a hub formed of plates adjustable relatively to each other and having ways therein to receive the spokes, rings arranged within the hub, and spokes having adjustable bearings in said felly, passing through said plates and having bent portions bearing on said rings, as set forth.

18. In a wheel, the combination of a resilient ring loosely arranged within the hub, and U-shaped spokes arranged in intersecting lines around the periphery of said ring, the latter furnishing a resilient bearing for said spokes, all substantially in the manner and for the purpose set forth.

19. In a wheel, the combination of a resilient ring loosely arranged within the hub, and U-shaped spokes arranged in intersecting lines around the periphery of said ring and on opposite sides of the peripheral center of said hub, said ring furnishing a resilient bearing for said spokes, substantially as described.

20. In a wheel, the combination of U-shaped felly, U-shaped spokes having their ends adjustably secured in said felly, hub-plates having ways provided therein for the spokes, and being adjustable relatively to each other, means for adjusting said plates, rings loosely arranged within the hub and adapted to furnish resilient bearings for the bent portions of the spokes, and said spokes arranged in intersecting lines around the peripheral center of said rings and on opposite sides of the hub formed by the hub-plates, and means for inclosing the space between the two lines of spokes, substantially as set forth.

21. As a new article of manufacture a metal wheel having a flexible felly, spokes having bent portions within the hub and arranged on opposite sides of the peripheral center of the hub, flexible bearing-rings for the bent portions of the spokes, means for increasing the tension of the spokes, and means for drawing the oppositely-arranged spokes toward each other whereby the tension of the wheel is effected in its entirety, thereby producing a resilient wheel.

22. As a new article of manufacture, a metal wheel having a flexible felly, bent spokes, a flexible bearing within the hub for the spokes, and means for tightening said spokes between the hub-bearing and the felly, as described.

659,862. FUEL-GAS BURNER. GEORGE C. STONE, Jersey City, N. J. Filed Aug. 6, 1898. Serial No. 687,897. (No model.)



Claim.—1. A fuel-gas burner, comprising side plates, a movable slide constituting a front plate, and relatively-broad top and bottom plates assembled together to form a broad shallow gas-delivery chamber, a gas-inlet opening in the top plate, and a corresponding opening in the bottom plate and slides for said openings; whereby on closing the gas-inlet slide and opening the front slide and bottom-plate slide the interior of the chamber may be readily cleaned, substantially as described.

2. A fuel-gas burner, comprising side plates, a front plate, and top and bottom plates having longitudinal guide-flanges along their outer surfaces and having respectively a gas-inlet opening and a cleaning-opening corresponding with each other, slides governing said openings, said top and bottom plates having also grooved longitudinal beads or ridges on their inner surfaces into which the side plates fit, and like grooved transverse beads or ridges within which the front plate is movable.

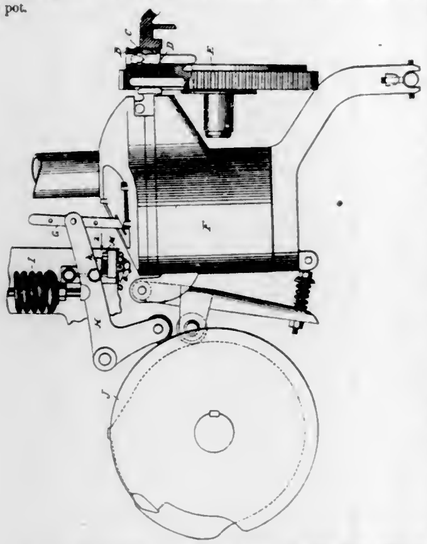
3. A fuel-gas burner comprising side plates, homologous top and bottom plates having on their opposed faces near their longitudinal edges grooved beads or ridges into which the edges of the side plates fit, and on their transverse edges guiding-grooves, a removable front plate adapted to be moved transversely of the top and bottom plates in said guiding grooves, guide-flanges on the outer surfaces of the top and bottom plates, gas-inlet and cleaning openings in said top and bottom plates between the said guide-flanges and slides movable between said guide-flanges to govern the said openings.

4. A fuel-gas burner comprising side plates, a front plate homologous top and bottom plates having on their inner surface near their longitudinal edges grooved beads or ridges into which the side plates fit, similar grooved transverse beads within which the front plate is movable, guide-flanges on their outer surfaces, a gas-inlet opening, a cleaning-opening, and slides governing said openings, and outlying screw-bolts, beyond the longitudinal beads, for assembling the parts together; substantially as described.

659,863. LINOTYPE-MACHINE. GUSTAF A. VARENBERG, Stockholm, Sweden, assignor to the Mergenthaler Linotype Company, of New York. Filed May 3, 1900. Serial No. 15,340. (No model.)

Claim.—1. In a linotype-machine, the combination of the pump mechanism, a stop device therefor, and a melting-pot directly and positively controlling the stop device to prevent the action of the pump in

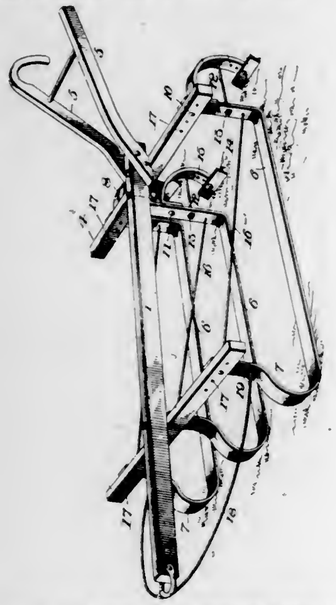
the event of the mold failing to properly contact with the matrices or with the pot.



2. In a linotype-machine, the combination of the pump-lever, the movable stop therefor, and the movable pot arranged to directly operate said stop whereby the pump is prevented from acting unless the mold is in intimate contact with the matrices and the pot.

3. In a linotype-machine, the combination of a line of matrices, a mold, movable to and from said line, a metal-pot movable to and from the mold and provided with a metal-delivering pump, and a pump-controlling device, actuated by the pot to arrest the pump in the event of the failure of the mold or the pot to move forward to the proper position.

659,864. COTTON-CHOPPER. William R. White, Troy, Ala. Filed Aug. 27, 1900. Serial No. 28,213. (No model.)



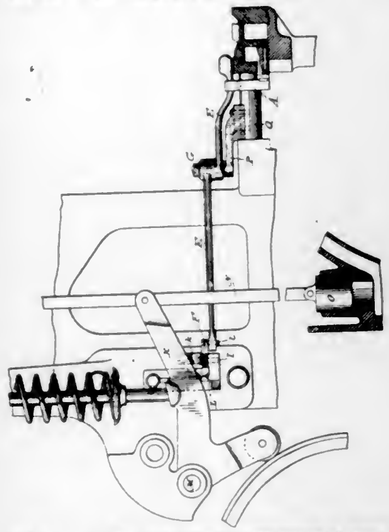
Claim.—1. A cotton-chopper, comprising a beam, a runner having an upwardly-extending rear portion and a swan's-breast upwardly-extending front portion, a brace-rod connecting the front and rear upwardly-extending portions, a standard at the rear of the runner, and a brace-rod connecting said standard and the upwardly-extending rear portion of the runner, substantially as described.

2. A cotton-chopper, comprising a beam and cross-bars, a number of runners secured to the cross-bars, each of said runners consisting of a strip of metal having upwardly-extending rear portions and upwardly-extending swan's-breast front portions, said runners being each in one continuous piece from front to rear and adapted to extend from one row or bed to another and rest thereon, said runners being of different lengths, and standards at the rear of said runners and carrying blades or hoes, said standards being out of line with each other, substantially as and for the purposes described.

3. A cotton-chopper, comprising a longitudinal beam and cross-beams, runners extending lengthwise of the longitudinal beam and each formed of a strip of metal having an upwardly-extending rear portion and a swan's-breast upwardly-extending front portion, one of said runners terminating at its rear in advance of the other runners, curved standards at the rear of the runners and provided each with a hoe or blade, brace-rods connecting said standards with the upwardly-extending rear portions of the runners, and brace-rods connecting the front and the rear of each runner, substantially as and for the purposes described.

4. A cotton-chopper, comprising a longitudinal beam and cross-beams, a number of runners extending lengthwise of the longitudinal beam and each formed with an upwardly-extending rear portion and a swan's-breast upwardly-extending front portion, one of the runners terminating at its rear in advance of the other runners, brace-rods connecting the front and rear portions of the runners, standards at the rear of the runners and provided each with a hoe or blade, a brace-rod connecting the rear of each runner with one of the standards, and an equalizer in the form of a bail having its ends connected to the outer runners and its front portion lying next to the clevis, substantially as and for the purposes described.

659,865. LINOTYPE-MACHINE. George A. Bates, New York, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed Feb. 17, 1900. Serial No. 5,582. (No model.)



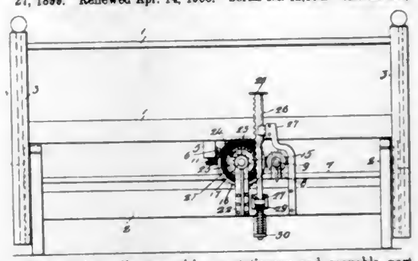
Claim.—1. In a linotype-machine, the combination of a pump mechanism, a stop device therefor, a matrix-confining jaw arranged to move under the influence of the matrix-line, and an intermediate mechanism arranged to impart motion from the moving jaw to the stop device, whereby the stop device is actuated by the movement of the jaw, irrespective of the movement of the other parts of the machine.

2. In a linotype-machine, the combination of the yielding matrix-confining jaw A, lever E, mounted on a fixed support, and actuated by the moving-jaw stop-lever F; pump-lever K, and a spring to hold the parts normally in a locked position.

3. The pump-stop attachment for a linotype-machine, consisting of a lever E, adapted for coöperation with the matrix-confining jaw, a support for said lever, a second lever F connecting with the first and adapted to engage the pump-lever, and a support for said second lever, said parts being constructed and adapted for operation in connection with each other and with a linotype-machine, substantially as described.

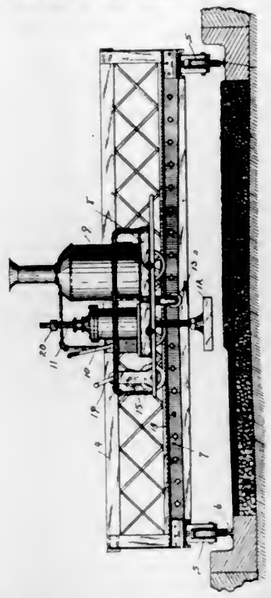
4. In a pump-stopping attachment for linotype-machines, the combination of the stop-lever F, actuating-lever E, jaw A, and intermediate adjusting device H.

659,866. MECHANICALLY-OPERATED CRADLE. Jacob Cytron, Gustav Cytron, and Julius Cytron, St. Louis, Mo. Filed Mar. 27, 1899. Renewed Apr. 14, 1900. Serial No. 12,894. (No model.)



Claim.—A cradle, comprising a stationary and movable part, a transverse beam forming a part of the latter, a rack-bar secured to said beam, suitable power-transmitting mechanism, a worm-pinion comprising a part of the same, a worm-gear coöperating with the same, a plate forming a rigid part of said gear having three sets of teeth formed on the edge of the same and adapted to coöperate with the said rack-bar, and suitable means for winding the power-transmitting mechanism, as and for the purpose described.

659,867. PAVING-TOOL. Frederick A. Hetherington, Indianapolis, Ind. Filed Sept. 29, 1898. Serial No. 692,154. (No model.)



Claim.—1. In a paving-tool, the combination with a templet-track, of means for supporting said track above the roadway, and tamping or compressing mechanism mounted upon said templet-track and adapted to operate upon the roadway.

2. In a paving-tool, the combination with a templet-track, of means for supporting said track above the roadway, tamping or compressing mechanism mounted upon said templet-track and adapted to operate upon the roadway, and means for moving said compressing mechanism along the templet-track.

3. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch or grade of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

4. In a paving-tool, the combination with a suitable truss, means for supporting said truss across a roadway, a templet track or tracks removably mounted upon said truss and conforming to the transverse arch of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

5. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway and longitudinally movable along said roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, and tamping or compressing mechanism mounted upon said templet track or tracks and adapted to operate upon the roadway.

6. In a paving-tool, the combination with a suitable truss, means for supporting said truss across a roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, a carriage mounted upon and movable along said templet track or tracks, and tamping or compressing mechanism carried by said carriage and adapted to operate upon the roadway.

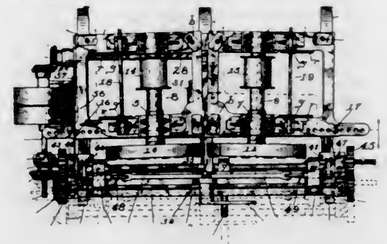
7. In a paving-tool, the combination with a suitable truss, means for supporting said truss across the roadway and longitudinally movable along said roadway, a templet track or tracks mounted upon said truss and conforming to the transverse arch of the roadway, a carriage mounted upon and movable along said templet track or tracks, and tamping or compressing mechanism carried by said carriage and adapted to operate upon the roadway.

8. In a paving-tool, the combination with a templet track or tracks, means for supporting said track or tracks above a roadway, a carriage mounted upon said track or tracks, and a tool carried by said carriage and adapted to operate upon the roadway.

9. In a paving-tool, the combination with tamping or compressing mechanism, of means for supporting said mechanism above a roadway, and a templet for limiting the downward movement of said mechanism.

10. In a paving-tool, the combination with a tamping or compressing mechanism, of means for supporting said mechanism above a roadway in position to operate thereupon, and a templet for limiting the downward movement of said tamping or compressing mechanism.

659,868. SINGLETREE AND NECK-YOKE LATHE. Christopher C. Hickel, Muncie, Ind. Filed June 19, 1900. Serial No. 20,837. (No model.)



Claim.—1. The combination, in a wood-turning lathe, of a suitable framework, two cutter-head carriages mounted thereon, cutter-heads mounted in said carriages, means whereby said cutter-head carriages may be simultaneously swung from pivotal points, a suitable chuck, means for driving said chuck and thus revolving the blank adjacent to the cutter-heads, and mechanism connecting the chuck-driving means with the cutter-carriage-reciprocating means whereby the same are caused to move in a fixed relation to each other.

2. The combination, in a wood-turning lathe, of a suitable frame, two cutter-head carriages mounted thereon and secured thereto by pivots at opposite points, means for swinging said cutter-head carriages on said pivots and thus moving the adjacent edges of the cutter-heads simultaneously to and from the work, a chuck for holding said work, a carriage for said chuck, means for moving said carriage toward and away from the cutter-heads, and means for imparting simultaneous motion to the chuck and to the cutter-head-carriage-operating mechanism.

3. The combination, in a wood-turning lathe, of a frame, cutter-heads mounted thereon, said cutter-heads being in the form of large disks with a series of cutters in their faces, a chuck-carriage also mounted on said framework, means for moving said chuck-carriage toward and from the cutter-heads, gears for driving the chucks mounted to rotate in bearings in the carriage, the chuck-shafts being mounted therein and having a free longitudinal movement in respect thereto as described, plungers

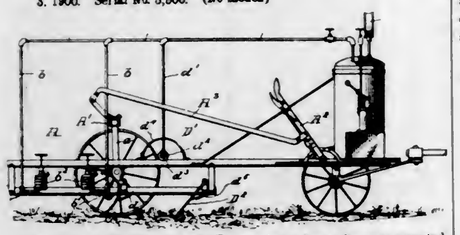
having forked or bifurcated arms engaging with said chuck-shafts and adapted to move them longitudinally, a central disk, links connecting the same to said plungers, and a handle or lever for operating said disk.

4. The combination, in a wood-turning lathe, of a frame, a chuck-carriage, appropriate chucks therein, cutter-head carriages also mounted on the said frame, pivots securing said cutter-head carriages to said frame at opposite points, a cam operating against a projection on one of said cutter-head carriages to drive the same and its fellow in one direction, and a spring connected to the main frame and to one end of said carriages for driving said carriages in the opposite direction to that in which they are driven by said cam, and means whereby said carriages are united and caused to move together.

5. The combination, in a wood-turning lathe, of a framework, a suitable work-holding chuck, two cutter-head carriages adjustably secured to said framework, cutter-heads provided with shafts mounted on said carriages, boxes by which the same are so mounted, and means whereby each pair of boxes may be simultaneously adjusted longitudinally of said carriages, whereby the cutter-heads may be adjusted toward or from each other.

6. The combination, in a wood-turning lathe, of a frame, a movable chuck-carriage thereon, a driving-shaft, a tight and a loose pulley on said driving-shaft, and a belt-shifter connected to the chuck-carriage and adapted to shift the belt from the tight to the loose pulley as the chuck-carriage is moved away from the cutter-heads, said belt-shifter being provided with a projection adapted to engage with and stop said tight pulley, substantially as set forth.

659,869. STUBBLE-BURNER. Robert Ireland, Arthur L. Ashdown, and Morris S. Holmes, Portage La Prairie, Canada. Filed Feb. 3, 1900. Serial No. 3,800. (No model.)



Claim.—1. A stubble-burner comprising a frame, burners mounted thereon, a fuel-distributing mechanism also carried by the frame and arranged to freely discharge liquid fuel over the ground traversed by the machine, and means for supplying liquid fuel to said burners and to the distributing mechanism, substantially as described.

2. A stubble-burner comprising a frame, burners mounted thereon, a fuel-distributing mechanism carried by the frame adjacent to the burners and arranged to freely discharge liquid fuel over the ground traversed by the machine, and a shield arranged in a plane between the burners and the distributing mechanism, substantially as described.

3. An apparatus for burning stubble, comprising a frame; a reservoir for fluid fuel mounted upon said frame; a plurality of burners carried by said frame; a spraying device arranged on said frame in front of said burners; and feed-pipes connecting said reservoir with said burners and said spraying device, substantially as described.

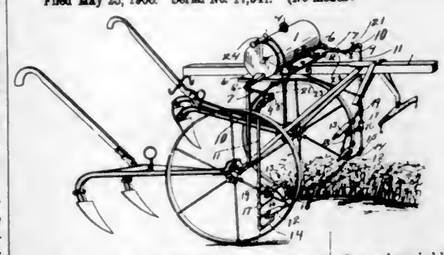
4. An apparatus for burning stubble, comprising a frame; a reservoir for fluid fuel mounted upon said frame; a plurality of burners carried by said frame; a spraying device mounted upon said frame in front of said burners; feed-pipes connecting said burners and said spraying device with the reservoir; and guards pivotally connected to said frame and located in front of said burners and said spraying device, substantially as described.

5. A stubble-burner comprising suitable carrying-wheels, vertically-disposed levers hung on said wheels, a frame supported by the lower ends of said levers, a cross-beam connected to upper ends of said levers, burners mounted on the frame and adjustable therewith, an adjusting-lever connected with the cross-beam and adapted to turn the vertically-disposed levers for raising or lowering the burner-carrying frame, and a reservoir having pipe connections with the burners, substantially as described.

6. A stubble-burner comprising a frame, a fuel-distributing pipe on said frame and provided with the spray-nozzles, a hood over the distributing-pipe, burners arranged in series and in rear of the distributing-pipe, and means for supplying liquid fuel to the burners and the distributing-pipe, substantially as described.

7. A stubble-burner comprising a frame, a yieldable shield D^3 thereon, a fuel-distributing device arranged transversely on the frame and in rear of said shield, burners on the rear part of the frame, and another shield hung on the frame in a plane between the liquid-fuel-distributing device and the burners, substantially as described.

659,870. INSECT-DESTROYER. Sidney R. Jones, Fidelity, Ill. Filed May 23, 1900. Serial No. 17,641. (No model.)

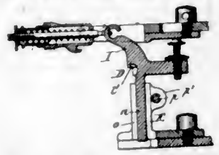


Claim.—1. The combination of a fount connected to and carried by a traveling vehicle, pipes connected to the fount and down-pipes pivotally connected at their upper ends or portions, and provided with the burners 12 and 13, the burners 13 located above the burners 12 and blast-pipes connected to the down-pipes, substantially as and for the purpose specified.

2. In an insect-destroyer a fuel-fount provided with an air pump or injector, a relief-valve, pipes leading from the fuel-tank and extending downward below the fount, and pivotal connections of the pipes located above the burners, and burners connected to the bottom or free ends of the down-pipes, substantially as and for the purpose specified.

3. The combination of a fount fixed to a base and the base and fount supported upon a vehicle, pipes extending laterally from the fount and provided with forward-extending pipes, down-pipes pivotally connected and the down-pipes provided with burners, one set located above the other, and blast-pipes, all arranged, substantially as and for the purpose specified.

659,871. DENTAL ARTICULATOR. Theodore G. Lewis, Buffalo, N. Y., assignor to the Buffalo Dental Manufacturing Company, same place. Filed July 9, 1900. Serial No. 22,945. (No model.)



Claim.—1. The combination with the base or lower jaw-plate, of the upper jaw-plate and its yoke or bracket capable of a combined vertical and forward-and-backward movement, a guide confined against longitudinal movement on the lower jaw-plate and provided at its rear end with an abutment, a spring-casing rigidly mounted on said yoke or bracket and sliding upon said guide, and a spring arranged in said casing and bearing at its rear end against said abutment, substantially as set forth.

2. The combination with the base or lower jaw-plate, of the upper jaw-plate and its yoke or bracket capable of a combined vertical and forward-and-backward movement, a guide-rod confined against longitudinal movement on the lower jaw-plate, a spring-casing sliding on said guide-rod, an adjusting-nut mounted on the rear portion of said rod and having a tubular extension which enters said casing, and a spring arranged in said casing between said nut and the head of the casing, substantially as set forth.

3. The combination with the base or lower jaw-plate, having a bracket and an arm extending upwardly from said bracket and provided with a hook, of an upper jaw-plate and its yoke or bracket capable of a combined endwise and lateral movement on said base-bracket and carrying a rigid spring-casing, a guide-rod passing loosely through said casing and provided at its front end with an eye which engages with said hook and at its projecting rear end with an adjusting-nut, and a spring arranged in said casing and abutting at its rear end against said nut, substantially as set forth.

4. The combination with the base or lower jaw-plate, of the upper jaw-plate capable of swinging vertically on the lower plate, and a catch whereby the upper plate is locked in its raised position, substantially as set forth.

5. The combination with the base or lower jaw-plate, of the upper jaw-plate capable of a combined vertical and forward-and-backward movement on the lower plate and provided with a catch which is arranged to interlock with the base or lower plate when the upper plate is raised, and a spring which tends to shift the upper plate forwardly, substantially as set forth.

6. The combination with the base or lower jaw-plate, of the upper jaw-plate capable of a combined lateral and endwise movement and having a yoke or bracket which is provided adjacent to its hinge with projecting thumb-pieces, substantially as set forth.

659,872. HARNESS-SADDLE. Samuel P. Martin, Louisville, and Wyatt H. Morris, Mortonsville, Ky. Filed June 27, 1900. Serial No. 21,813. (No model.)



Claim.—1. The combination with a harness-saddle, of a pneumatic pad, having a casing, the edges of which are folded upon the inner side of the pad, laces connecting the opposite edges of the casing, an attaching-plate held between the pad, the edges of the casing and the laces, and fastenings connecting the plate to the saddle.

2. The combination with a harness-saddle, of a pneumatic pad, having a casing, the edges of which are folded upon the inner side of the pad, a lace connecting said edges, an attaching-plate held between the pad, the edges of the casing and the lace, means for connecting the plate to the saddle, and opposite straps, having their intermediate portions connected to the portions of the plate, which are exposed by the lace, and also buckled around the saddle.

3. A cushioned pad for harness-saddles, comprising a pneumatic tube, having an intermediate inflation-valve, a casing the edges of which are folded upon the side of the tube from which the valve projects, opposite laces connecting the opposite edges of the casing and terminating adjacent to opposite sides of the valve, and attaching-plates located at opposite sides of the valve and held between the tube, the edges of the casing and the respective laces, and having transverse straps secured intermediate of their ends to the outer ends of the respective plates, and provided with buckles.

4. A cushioned pad for harness-saddles, comprising a pneumatic tube, having an intermediate inflation-valve, a casing enveloping the tube, and having its edges folded upon the upper side thereof, opposite laces connecting the opposite edges of the casing and located at opposite sides of the valve, opposite attaching-plates located at opposite sides of the valve and held between the tube, the edges of the casing and the respective laces, each plate having a plurality of openings formed therein, a housing secured to the inner side thereof and embracing the openings, a nut loosely held within the housing and to correspond with the respective openings, and a strap secured intermediate of its ends to the outer end of the plate, and having a buckle at one end.

659,873. SNAP-SWITCH COMMUTATOR. Charles G. Perkins, Hartford, Conn., assignor to the Perkins Electric Switch Manufacturing Company, same place. Filed June 28, 1900. Serial No. 21,962 (No model.)



Claim.—1. A snap-switch commutator-block composed of an insulating-disk having in both faces depressions with a socket adjacent to and each side of each depression, and a conducting-piece with an end lying in each depression, each conducting-piece having an ear projecting from each side into a socket, substantially as specified.

2. A snap-switch commutator-block composed of an insulating-disk having recesses in its periphery, depressions in its faces adjacent to the recesses and sockets adjacent to the depressions, and conducting-pieces occupying the recesses, lying in the depressions and having ears projecting into the sockets, substantially as specified.

659,874. CUSHIONED BEARING. Francis J. Rabbeth, Boston, Mass. Filed Nov. 9, 1898. Serial No. 695,968. (No model.)



Claim.—1. A high-speed bearing comprising a bearing member to afford the direct lateral bearing-support for the rotary member; a tubular support for said bearing member; and a cushion interposed between the outer wall of said bearing member and the inner wall of said support, said cushion comprising a spiral spring having continuous coils of varying diameter, those of least diameter being in contact with said bearing and those of greatest diameter in contact with said support, substantially as described.

2. A lateral cushion for high-speed bearings which have an inner support or bearing member, and an outer support, said cushion comprising a spiral spring having a plurality of coils of one diameter and a plurality of coils of another diameter, said coils being arranged respectively to engage the outer wall of said inner support and the inner wall of said outer support, the said spring being continuous from end to end so that the parts which connect the coils aforesaid extend from one of the parts to be cushioned to the other and thereby afford the cushioning means, substantially as described.

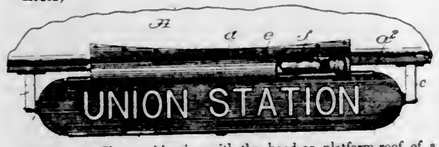
3. A high-speed bearing comprising a bearing member to afford the direct lateral bearing-support for the rotary member; a tubular support for said bearing member; and a cushion interposed between the outer wall of said bearing member and the inner wall of said support, said cushion comprising a spiral spring having coils of such diameter as to engage the bearing member, and coils of such diameter as to engage the support, the said coils being arranged so as respectively to engage said parts at a number of points, substantially as described.

4. In a high-speed bearing, the combination with a lateral bearing-support; of the lateral bearing member; and means for cushioning said bearing member in said support and preventing rotation thereof relative to said support, said means consisting of a spiral spring interposed between said support and said bearing, the said spring having coils of such diameter as to conform to and frictionally engage the outer wall of the bearing member and coils of such diameter as to conform to and frictionally engage the inner wall of the support, the said coils being arranged so as respectively to engage said parts at a number of points, substantially as described.

5. In a high-speed bearing, the combination with the bearing proper; of a tubular support therefor; a cushion interposed between said bearing and said support comprising a spiral spring having coils of such diameter as to conform to and fit the outer wall of the bearing member, and coils of such diameter as to conform to and fit the inner wall of the support, the said coils being arranged so as respectively to engage said parts at a number of points; intermediate coils to afford the cushion proper; and means for connecting one end of said spring with the bearing proper, and the other end with the tubular support, substantially as described.

6. In a spindle, the combination with the tapered spindle-blade, of the correspondingly-tapered bolster; the bolster-support; the spindle-step non-rotatably secured in said bolster-support and provided with a screw-threaded portion cooperating with a corresponding screw-thread in the bolster; a cushion-spring interposed between the outer wall of said bolster and the inner wall of said bolster-support; and an extended portion continuous with said spring, the cushioning portion of said spring frictionally engaging said bolster and the extended portion thereof frictionally engaging said step, substantially as described.

659,875. SIGN. CHARLES S. SERGEANT, Brookline, and HARRY L. LIBBY, Boston, Mass. Filed Dec. 11, 1899. Serial No. 739,940. (No model.)



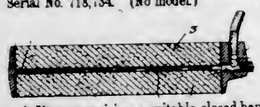
Claim.—1. The combination with the hood or platform-roof of a car; of a reversible sign mounted in supports secured to the under side of said hood; and a spring locking device also secured to and projecting from the hood and overlying the sign to engage either edge thereof which is uppermost, as set forth.

2. The combination with the hood or platform-roof of a car; of hook-shaped supports, one member of each support being secured to and projecting down from the said hood, and the hooked end of the other member being separated from the under side of the hood by a distance greater than the thickness of the sign; bearing projections at the ends of the sign adapted to lie in the throats of the said hook-shaped supports; and a locking-spring also secured to the hood and projecting over the sign whereby it is adapted to engage the side of the sign which is uppermost, substantially as described.

3. A street-car sign comprising a reversible supporting-frame; supports for the said frame secured to and projecting downward from the under side of the hood of the car at the rear of the edge thereof; a locking device adapted to engage the side of the said frame which is uppermost, the said locking device also being secured to the under side of the hood; and sign slides fitting the said frame, substantially as described.

4. The combination with the sign mounted below the roof of the car; of a reflector in front of the sign; and lamps between said reflector and sign, said lamps and reflector being below the roof of the car but far enough above the sign not to obscure the same from view, as set forth.

659,876. FILTER. CHARLES SHUMAN, St. Louis, Mo. Filed May 29, 1899. Serial No. 718,734. (No model.)



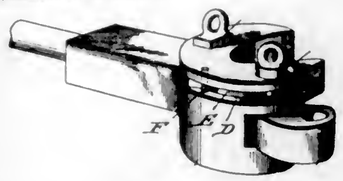
Claim.—1. A filter comprising a suitable closed band or frame having a rib or ledge disposed along the inner surface thereof, the whole being cast as a single piece, the rib having opposite plane surfaces for the support of suitable porous diaphragms, a perforated nozzle projecting from the periphery of the band and communicating with the space between the diaphragms, a perforated supporting plate or board adapted to receive said nozzle and hold the filter in an upright position, whereby the faces thereof are readily accessible for purposes of cleaning, substantially as set forth.

2. As an article of manufacture, a filter-cell comprising a closed band or frame cast in a single piece, and having a rib or ledge disposed along the inner surface thereof for the support of suitable porous diaphragms, a perforated nozzle projecting from the periphery of the band and communicating with the space between the diaphragms, the band being of such a dimension as to insure a specific gravity therefor to enable the cell to sink in water by its own weight, substantially as set forth.

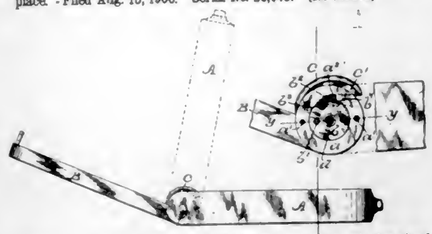
659,877. CAR-COUPLING ATTACHMENT. JACOB A. SHUPING, Morgantown, N. C. Filed June 12, 1900. Serial No. 20,067. (No model.)

Claim.—1. In a car-coupler, the combination with the draw-head formed with a groove, and the knuckle and pivotal bolt thereof, of a spring attached to said bolt and positioned in said groove, and a pin extending transversely of said groove and confining said spring therein, substantially as described.

2. In a car-coupler, the combination with a draw-head formed with a longitudinally-extending groove, and the knuckle and pivotal bolt thereof, of a leaf-spring positioned in said groove and secured at one end to the bolt, substantially as described.



659,878. PORTMANTEAU-FRAME. WILLIAM F. SMITH, Providence, R. I., assignor to the Gorham Manufacturing Company, same place. Filed Aug. 15, 1900. Serial No. 26,975. (No model.)



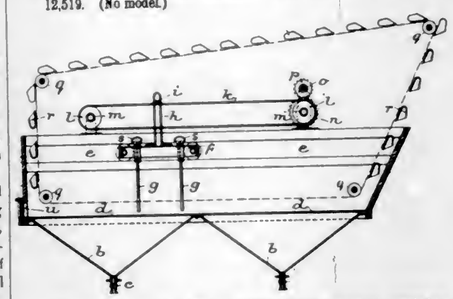
Claim.—1. In the frame of an article of the nature herein described, a hinge formed of two concentric rings in the adjacent edges of one of which rings a pawl is placed and in the other a recess formed; whereby the frame may be secured in a predetermined open position, as described.

2. In the frame of bags, the combination with the arms of the frame, of two concentric rings one of each of which is secured to one and one to the other of the two adjoining ends of the arms of the frame, a pivot in the center of the concentric rings, a pawl on one, and a recess on the other of the concentric rings; whereby the folding frame may be locked in the open position, as described.

3. In a frame of the nature described, the combination with the hinge connecting the arms of the frame, of two concentric circular members, a recess on one member, a pawl on the other member, and a latch, whereby the frame may be locked in the open position and unlocked, as described.

4. In a bag-frame, the combination with the arms A and B, of the rings *a* and *b*, the pivot *d*, the recess a^2 in the ring *a*, the pawl b^2 in the ring *b*, the spring b^4 acting on the pawl, and the latch pivoted on the ring *a* and engaging with the pawl, whereby the frame may be locked and unlocked, as described.

659,879. APPARATUS FOR CLEANSING FIBROUS MATERIALS. AMELIA UBBELOHDE, Celle, Germany. Filed Apr. 12, 1900. Serial No. 12,519. (No model.)



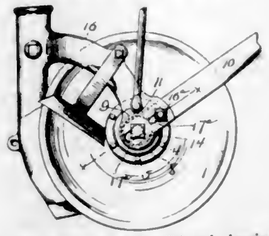
Claim.—1. Apparatus for cleansing fibrous materials consisting of a receptacle provided with a sieve-bottom in combination with a stirring apparatus and a chain-bucket device which are alternately put in action.

2. Apparatus for cleansing fibrous materials consisting of a receptacle provided with a sieve-bottom in combination with a stirring apparatus and a chain-bucket device, which is so arranged that a part of the chain is without buckets, such part being situated within the receptacle at the time when the stirring apparatus is being moved to and fro for the purpose not to disturb the action of the latter.

3. In an apparatus for cleansing fibrous material, a receptacle for the material, a conveyer for removing the material from said receptacle, a stirring device normally in the path of said conveyer, and means for moving said stirring device out of the path of said conveyer.

4. In an apparatus for cleaning fibrous material, a receptacle provided with a sieve-bottom, a conveyer for removing the fibrous material, a stirrer-blade normally in the path of said conveyer, means for reciprocating said blade and means for raising and lowering said blade.

659,880. GRAIN-DRILL. WILLARD A. VAN BRUNT, Horicon, Wis. Filed Aug. 1, 1900. Serial No. 25,572. (No model.)



Claim.—1. The combination with a disk and a bearing-box secured thereto, of a hub seated within the box, and a spring-pressed dust-cap mounted on the hub and bearing against the box.

2. The combination with a disk and a bearing-box secured thereto, of a hub seated within the box and having a reduced end which passes through the opening in the box, and a spring-pressed dust-cap mounted on the hub and bearing against the box.

3. The combination with a disk and a bearing-box secured thereto, of a hub secured to a drag-bar and seated within the box, and a spring-pressed dust-cap mounted on the hub and bearing against the box.

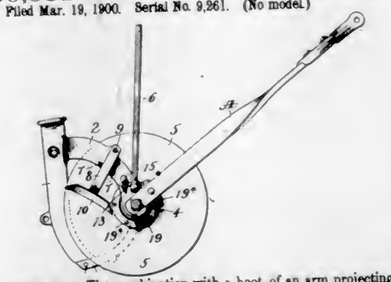
4. The combination with a disk and a bearing-box secured thereto, of a drag-bar, a hub carried thereby and seated in the box, a saucer-shaped dust-cap mounted on the hub and bearing against the box and a spring for yieldingly holding the cap in contact with the box.

5. The combination with a disk and a bearing-box secured thereto, of a drag-bar, a hub carried thereby and seated in the box, a saucer-shaped dust-cap mounted on the hub and bearing against the box, a spring for yieldingly holding the edge of the cap against the box and means for preventing the cap from rotating with the disk.

6. The combination with a disk and a bearing-box secured thereto, of a drag-bar, a hub carried thereby and seated in the box, a spring-pressed cap for preventing the entrance of dust to the inside of the box, and a bracket carrying a boot, the said bracket being adjustably secured to the drag-bar.

7. The combination with a disk having a central screw-threaded opening, a screw-plug for closing said opening and a bearing-box secured to the concave side of the disk, of a drag-bar, a hub carried thereby and provided with a recess the latter coinciding with the opening in the disk, and a yielding dust-cap interposed between the drag-bar and box and bearing against the latter.

659,881. GRAIN-DRILL. WILLARD A. VAN BRUNT, Horicon, Wis. Filed Mar. 19, 1900. Serial No. 9,261. (No model.)



Claim.—1. The combination with a boot, of an arm projecting forwardly and downwardly from the upper portion of said boot and offset laterally therefrom, and a disk mounted at the end of said arm so as to be disposed between the arm and the boot.

2. The combination with a boot, of an arm projecting forwardly and downwardly from the upper portion of said boot and offset laterally therefrom, and a disk mounted at the end of said arm so as to be disposed between the arm and the boot and a scraper attached to said arm and engaging the concave face of the disk.

3. The combination with a concavo-convex disk and a boot disposed adjacent to the convex face of the disk, of an arm projecting forwardly and downwardly from the upper portion of the boot and offset therefrom so as to be disposed adjacent to the concave face of the disk, a bearing for the disk at the end of said arm, and a scraper for the convex face of the disk secured to the toe of the boot.

4. The combination with a boot, an arm projecting therefrom, a concavo-convex disk and a bearing for said disk at the end of the arm, of a scraper carried by said arm and engaging the concave face of the disk, and a scraper secured to the toe of the boot and engaging the convex face of the disk.

5. The combination with a boot, and a disk disposed to one side and having its bearing forwardly of the boot, of a scraper secured to the toe of the boot and projecting forwardly and upwardly therefrom and in engagement with the convex face of the disk.

6. In a drill, the combination with a disk, of a cup-shaped casing secured to the disk, a circular bearing-block disposed between the disk and said cup and inclosed by the latter and means for holding said circular bearing-block against movement.

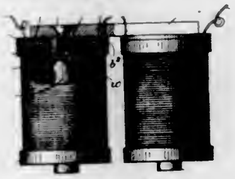
7. In a drill, the combination with a disk having an opening therein, of a cup-shaped casing secured to the disk, a circular bearing-block in the casing, and a spring-pressed button inclosed in the casing and adapted to close the opening in the disk.

8. In a drill, the combination with a concavo-convex disk having a central opening, of a casing secured centrally to the concave side of the disk, a circular bearing-block in said casing, a button of larger diameter than the hole in the disk, and a spring disposed between the block and button to hold the latter in position to close the opening in the disk.

9. The combination with a drag-bar, a boot and an arm on said boot secured to the drag-bar, of a disk, a cup-shaped casing secured to said disk and having the chamber therein extending below the axial support of the disk, a circular bearing-block inclosed within said casing and means for retaining lubricant in said casing and excluding dirt and grit.

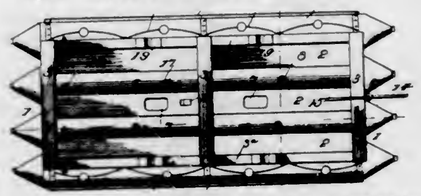
10. In a grain-drill, the combination with a boot, rearwardly-extending bars pivoted at their forward ends to the upper portion of said boot and a press-wheel mounted between said bars, of a tube pivotally mounted at its upper end between said bars, a rod passing freely through said tube and attached at its lower end to the lower portion of the boot, and a spring having a bearing at one end in the bottom of the tube and a bearing at the upper end of the rod for the other end of said spring.

659,882. SPOOL FOR ELECTROMAGNETS. GEORGE L. WEAVER, Boston, Mass., assignor to Horace E. Harriman, Georgetown, Mass. Filed Apr. 30, 1900. Serial No. 14,800. (No model.)



Claim.—As an article of manufacture, a spool for electromagnets, comprising a barrel and heads, one of the heads having an external annular recess in its outer end surrounding the end of the barrel extended through the head, and presenting an outwardly-extended annular flange, said recess being adapted to receive a reserve portion of the inside wire wound upon the barrel, the flange forming the side wall of the recess, and a removable cap centrally apertured to receive the end of the barrel and adapted to rest on the external wall to cover and protect the reserve portion of the wire in the recess.

659,883. LIFE-SAVING APPARATUS. DEAN S. WEBSTER, Chicago, Ill. Filed Apr. 30, 1900. Serial No. 14,991. (No model.)



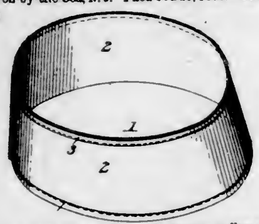
Claim.—1. In life-saving apparatus of the character described, a connected series of hollow floats constituting storage-chambers, sister keel-

sons filling the upper portion of the spaces formed between adjacent floats and of hollow construction and adapted to provide additional storage-chambers, and beams connecting the sister keelsons and forming therewith a supporting-frame, substantially as set forth.

2. In life-saving apparatus, a hollow float adapted to be charged with air under pressure, and a collapsible storage-chamber located within the float and adapted to have its liquid contents expelled by the expansive action of the compressed air, substantially as set forth.

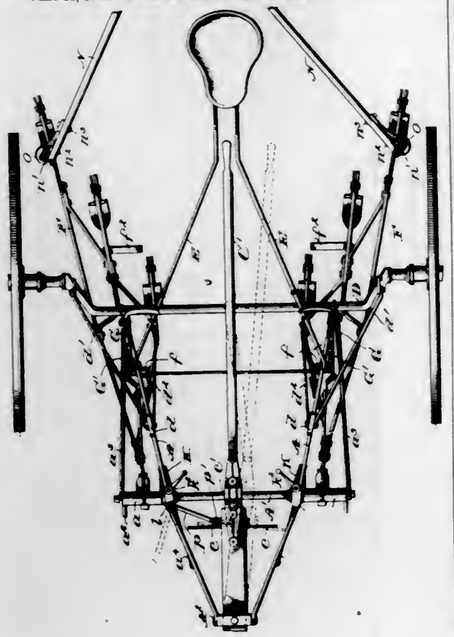
3. In life-saving apparatus, a hollow float, an inner tube or inflatable device located within the float and adapted to be charged with air under pressure, and a collapsible reservoir for containing a liquid located in the float and normally under pressure by the action of the air confined in the aforesaid inflatable device, as and for the purpose set forth.

659,884. APPAREL-SHIRT-COLLAR SUPPORTER. Edgar W. Balding, Avon-by-the-Sea, N. J. Filed Oct. 25, 1899. Serial No. 734,769. (No model.)



Claim.—As a new article of manufacture, a collar-support having its lower edge longer than its upper edge and comprising a pair of segmental layers connected only at their edges and defining a sheath, one of said layers being stiffened, a spring-band located within said sheath and having a permanent connection at its ends to the ends of the collar-support midway between the upper and lower edges of the latter, the said spring being entirely disconnected except at its ends and having free and independent movement toward the top and bottom edges of the sheath, except at its secured extremities, whereby as the relative circumferential dimensions of the top and bottom edges of the support are varied to conform to the neck of the wearer, said spring will assume a position within the sheath which will cause it to conform, with the least resistance, to the contour of the neck.

659,885. WHEEL-CULTIVATOR. William L. Beall, Albion, Mich., assignor to the Gale Manufacturing Company, same place. Filed June 22, 1900. Serial No. 21,224. (No model.)



Claim.—1. The combination with the side frame-bars, of the tongue pivoted for lateral movement between the said bars and bumpers secured to said tongue for impinging against said side bars and limiting the movement of said tongue in either direction, substantially as described.

2. In combination with the tongue pivoted for lateral movement, the cultivator-sections pivoted for a like movement, devices connecting the sections for maintaining them an equal distance apart and the tongue guide-bar combined with said connecting devices for communicating the movement of the pole to the sections, substantially as described.

3. In combination with the tongue pivoted for lateral movement, the cultivator-sections pivoted for a like movement, devices for maintaining the sections an equal distance apart, the tongue guide-bar combined with said connecting devices and the hand guide-bar, substantially as described.

4. In combination with the cultivator-sections pivoted for vertical and horizontal movement, devices for moving said sections vertically, including the lifting arm or lever and devices for moving said sections laterally connected with and controlled by the tongue, substantially as described.

5. The combination with the cultivator-sections pivoted for vertical and horizontal movement, devices for moving said sections vertically, including the lifting bar or lever, the tongue, devices for moving the said sections laterally, without changing their vertical position connected with and controlled by said tongue, and the hand guide-bar for controlling said tongue, substantially as described.

6. The combination with the cultivator-sections pivoted for vertical and horizontal movement, each of said sections having a guide-eye, of the vertically-disposed guiding-bars engaging said guide-eyes, a device connecting said guiding-bars, and a pivoted tongue connected with said device, substantially as described.

7. In a wheel-cultivator the combination with the pivoted arched axle of the pivoted seat and connections between the two whereby the movement of the seat on its point of pivoting will communicate motion to the axle, substantially as described.

8. The combination with the pivoted arched axle of the pivoted seat, the slides on the frame side bars and links connecting said seat and axle with said slide, substantially as described.

9. The combination with the pivoted arched axle, of the pivoted seat, slides on the frame-bars, links connecting said slides and said axle, links connecting said slides and said seat, the connections with the seat being such that the seat-links assume a nearly-horizontal position when the seat is at its extremes of movement whereby it is locked in position against strain from the axle, substantially as described.

10. The combination with the sections provided with the guiding-eyes of the vertically-disposed guiding-bars on the supporting-catches on said bars, substantially as described.

11. The supporting-catches for the cultivator-sections having the hook and the inclined or cam side, substantially as described.

12. The combination with the sections provided with the guiding-eyes, of pivoted supporting-catches, adapted to be engaged and disengaged by the movement of the eyes against them, substantially as described.

13. The combination with the side frame-bars of the arched draft-bar, the clip connecting the same, the cultivator-sections, the lifting-spring and connecting-rod passing through said clip, substantially as described.

14. The combination with the toothed sectors, of the lifting-levers, the securing-pawls, having provision for carrying the limit of the downward movement of said pawl whereby the pawl may be permitted to engage the teeth of the sector and be held out of contact with the same, substantially as described.

15. The combination with the lifting-lever, the pawl and means for controlling the pawl of the toothed sector having teeth with the cam-faced tops, substantially as described.

16. The combination with the cultivator-frame, of the sections pivoted for vertical and horizontal movement and having the lifting-springs, the lifting-levers having a spring connection to lift said sections and the seat, whereby the operator can control the said sections by his feet, substantially as described.

659,886. DENTAL CERVICAL CLAMP. Courtland G. Capwell, Boston, Mass. Filed Aug. 13, 1900. Serial No. 26,676. (No model.)



Claim.—1. A cervical clamp comprising separable clamping-jaws, and a locking-lever pivotally mounted on one jaw, to engage the other jaw and hold the jaws closed.

2. A cervical clamp comprising separable clamping-jaws, one of which has an upturned inner end, and a locking-lever pivotally mounted on the said jaw and adapted to bear against the other jaw between its ends and the upturned end of the one jaw serving as a fulcrum for the other jaw.

3. A cervical clamp comprising separable jaws having inturned projections to engage the front and back of the tooth, a spring to separate the jaws, one of which is fulcrumed on the other, and a locking-lever pivotally mounted on one jaw and adapted to bear against and hold the other in clamped position, the lever being automatically retained in locked or unlocked position.

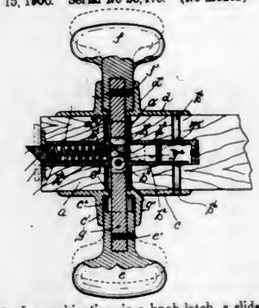
4. A cervical clamp comprising two separable clamping-jaws one of which is movable longitudinally relatively to the other, means to hold the jaws in adjusted position, and a locking-lever to press the jaws together and hold them closed.

5. A cervical clamp comprising two separable clamping-jaws, one of which has a plurality of notches at its inner end, a supporting projection on the other jaw, to enter a notch, whereby the jaws can be adjusted longitudinally to teeth of different sizes, and a locking device to maintain the jaws in closed position.

6. A cervical clamp comprising a jaw having engaging prongs at one end, a projection at its other end, and intermediate ears, a cooperating jaw having side recesses to receive the ears and adapted to fulcrum on the projection of the other jaw, and a spring to separate the jaws, combined with a locking-lever pivoted in said ears and adapted to engage the outer side of the other jaw and draw the jaws together upon the tooth.

7. A cervical clamp comprising a rigid jaw, a spring-jaw fulcrumed thereupon and having a limited longitudinal movement relative thereto, and a locking-lever pivoted on the rigid jaw and having a cam to engage the outer side of the spring-jaw, to press the jaws together and hold them in closed position.

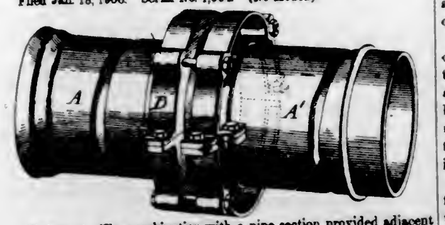
659,887. KNOB-LATCH. Walter A. Crouch, Groton, Conn. Filed June 15, 1900. Serial No. 20,470. (No model.)



Claim.—1. In combination, in a knob-latch, a slidable bolt having an inclined portion A^4, a spindle movable transversely to the movement of the said bolt, and a roll pivoted in said spindle and lying within the cross-sectional outline of the bolt, in engagement with said inclined portion A^4; the said bolt being adapted for reversal in its seat for use with either right-hand or left-hand doors.

2. In combination, in a knob-latch, a slidable bolt with inclined portion A^4, a knob-spindle with threaded end, as set forth, a roll pivoted in the said spindle, in engagement with the said inclined portion A^4, an internally-threaded knob-shank that is angular in cross-section, an angularly-chambered escutcheon adapted to receive the said knob-shank, and means for securing said escutcheon in desired position, all substantially as herein specified.

659,888. PIPE-COUPLING. Solomon R. Dresser, Bradford, Pa. Filed Jan. 18, 1900. Serial No. 1,904. (No model.)



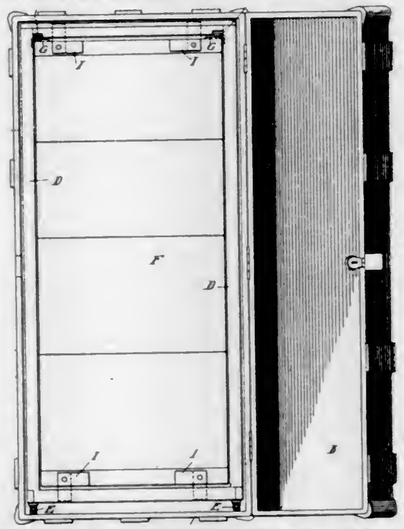
Claim.—1. The combination with a pipe-section provided adjacent to but a short distance back from its end with an exterior projecting portion, and a coupling-ring provided with a shoulder to engage said projecting portion, on the side opposite the end of the said pipe-section, and an annular packing-recess between said projecting portions and the end of the pipe-section, substantially as described.

2. The combination with a pipe-section, provided adjacent to, but a short distance back from its end with an exterior projecting annular bead, and a coupling-ring provided with a shoulder to engage said projecting annular bead, on the side opposite the end of the said pipe-section, and an annular packing-recess between said projecting bead and the end of the pipe-section, substantially as described.

3. The combination with a pipe-section provided adjacent to but a short distance back from its end with an exterior projecting annular bead, and a coupling-ring provided interiorly with an annular groove to engage said bead, and with an annular packing-recess, a packing-ring in said packing-recess, a second pipe-section provided with an annular exterior projecting portion, a coupling-ring for engaging said projecting portion, an annular part extending from said second pipe-section over the end of said first pipe-section and engaging said packing-ring and coupling-bolts uniting said rings, substantially as described.

4. The combination with a pipe-section having adjacent to but a short distance back from its end an external projecting annular bead, a coupling-ring surrounding said section, provided interiorly with an annular groove engaging said bead, and with a packing-recess, a packing-ring in said packing-recess, a second pipe-section provided at its end with a flaring portion adapted to enter said packing-recess, engage said packing-ring and surround the end of the first pipe-section, and forming an annular shoulder, a second coupling-ring surrounding said second pipe-section for engaging said shoulder, and coupling-bolts for drawing said rings together, substantially as described.

659,889. WARDROBE-TRUNK. Louis Goldsmith, New York, N. Y. Filed Aug. 13, 1900. Serial No. 26,690. (No model.)



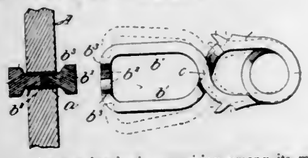
Claim.—1. In a wardrobe-trunk, a box or body, a frame corresponding substantially in external dimensions to the internal dimensions of the box, a track at one end of the frame, slide-bars movable upon said track, follow-boards and apparel-hangers mounted upon said slide-bars, and means for engaging said follow-boards to draw them toward each other.

2. In a wardrobe-trunk in combination, a box or body, a frame independent of the trunk box or body but corresponding substantially in external dimensions to the internal dimensions of said box or body, casters at one end of said frame, a track at the opposite end of said frame, slide-bars mounted upon said track, follow-boards and apparel-hangers mounted upon said slide-bars and means for engaging said follow-boards to draw them toward each other, and a tray having devices at one end for engaging a track at the end of the frame.

3. In a device of the character described, an independent rack or frame mounted at its lower end upon casters, said rack being of substantially rectangular skeleton form, a track at the upper end of said rack, slide-bars mounted upon said track, apparel-hangers carried by said slide-bars and follow-boards carried by said slide-bars and means to engage

said follow-boards to draw them toward each other, the said rack or frame being of a size adapted to closely approximate the interior of a trunk box or body.

659,890. EYEGLASS-HOOK. EDWIN B. HOWITT, New Brunswick, N. J., assignor of one-half to Otto O. Stillman, same place. Filed June 18, 1900. Serial No. 20,723. (No model.)



Claim.—1. An eyeglass-hook comprising among its members, a pair of spring-arms united at one end and crossing each other between their ends, said arms having parallel portions adjacent to their outer ends, and reduced inwardly-extending and meeting gripping-lugs at their outer ends, each arm being provided with a finger-nail-engaging notch between the point where the arms cross and their united portions, substantially as described.

2. An eyeglass-hook comprising among its members, a pair of spring-arms united at one end and crossing each other between their ends and their outer ends provided with inwardly-extending gripping-lugs, each of said arms being provided with a finger-nail notch, one wall of said notch constituting a stop to limit the inward movement of said arms under pressure, substantially as described.

659,891. ADJUSTING DEVICE FOR VACUUM-TUBES. THOMAS R. KINRAIDE, Boston, Mass. Filed Dec. 26, 1899. Serial No. 741,501. (No model.)



Claim.—1. In a vacuum-tube having an electrode adjustable therein means for adjusting said electrode, said means being operable by gravity, substantially as described.

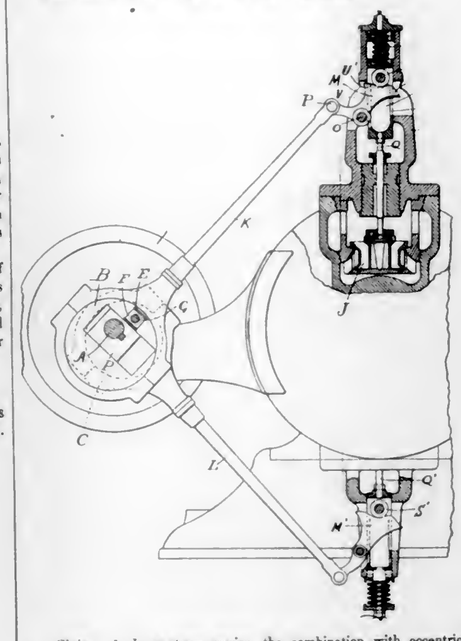
2. In a vacuum-tube, an electric conductor, an electrode, connections between said conductor and said electrode including a device slidingly mounted in said tube and normally retarded frictionally from movement, and means contained within the vacuum-tube for moving said sliding device and thereby adjusting the electrode, substantially as described.

3. In a vacuum-tube, the combination with an adjustable electrode thereof, of means within the vacuum-tube and controlled by the position of said vacuum-tube for adjusting the position of said electrode, substantially as described.

4. In a vacuum-tube, an electrode slidingly mounted in the tube and having a recessed connection, and a gravity device movable in said recess for shifting the electrode in one direction or the other, substantially as described.

5. In a vacuum-tube, the combination with an electrode movably mounted therein, of a gravity-hammer for shifting said electrode, substantially as described.

659,892. VALVE-GEAR. HUGO LENTZ, Brünn, Austria-Hungary. Filed June 19, 1899. Serial No. 721,156. (No model.)



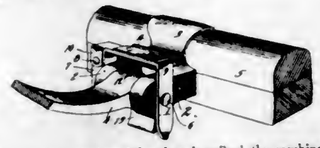
Claim.—1. In a steam-engine, the combination with eccentrics mounted upon a revoluble member, inlet and exhaust valves on said engine, stems on said valves and springs engaging said valve-stems to hold said valves normally closed, of cams pivotally mounted on rigid parts of the engine and connected with said eccentrics, adapted to engage said valve-stems to open said valves, each of said cams being provided with a curved portion having the pivot as a center, and a projecting portion, substantially as described.

2. In a steam-engine, the combination with eccentrics mounted upon a revoluble member, inlet and exhaust valves on said engine, stems on said valves and springs engaging said valve-stems to hold same normally closed, of cams pivotally mounted on rigid parts of the engine and connected directly with said eccentrics, and each provided with a face curved partially on an arc having the pivot of said cam as a center, and a projecting thumb, said cams being adapted to engage said valve-stems to open said valves when said thumb portions of said eccentrics are brought into contact with said valves, substantially as described.

3. In a steam-engine, the combination with eccentrics slidingly mounted on a rotating part of the engine, a regulator connected with and adapted to shift said eccentrics, of inlet-valves, valve-stems thereon, cams pivotally mounted on rigid parts of the engine and adapted to project into the paths of the valve-stems, devices carried by said valve-stems adapted to be engaged by said cams to open said valves, a spring bearing on said valve-stems to hold said valves normally closed, and direct connection between said cams and said eccentrics to operate said cams to open said valves, the shifting of said eccentrics being adapted to vary the degree of motion of said cams to vary the admission of steam, substantially as described.

4. In a steam-engine, the combination with inlet and exhaust valves, valve-stems carried thereby, springs engaging said valve-stems to hold said valves normally closed, recesses in said valve-stems, and antifriction-rollers pivotally mounted in said recesses, of cams pivotally mounted upon rigid parts of said engine and projecting into said recesses in said valve-stems and engaging said antifriction-rollers, said cams being adapted to open said valves against the action of said springs, and connection between said cams and a moving part of the engine to impart motion to said cams.

659,893. THILL-COUPLING. JOHN MARVIN, Marengo, Ill., assignor, by mesne assignments, to F. Earle Fay, same place. Filed Feb. 15, 1900. Serial No. 5,311. (No model.)



Claim.—1. In a device of the class described, the combination with an axle-clip provided with a pair of perforated ears, and a coupling-iron having an eye arranged between the ears, of a pivot passing through the eye and through the perforations of the ears, a resilient locking device hingedly connected with one end of the pivot and extending over the ears and detachably engaging the other end of the pivot, and the spring arranged between the eye and the axle-clip and forming an antirattler and pivoted to the locking device and retaining the same in an upright position, the pivot of the spring permitting the locking device and the spring to be arranged at an angle to each other in unlocking the pivot, substantially as described.

2. In a device of the class described, the combination with an axle-clip having perforated ears, and a coupling-iron having an eye, of a pivot passing through the eye and through the perforations of the ears, a resilient locking device provided with ears connected with one end of the pivot, said locking device extending over the perforated ears of the axle-clip and detachably engaging the other end of the pivot, a flange depending from the upper portion of the locking device, and a spring arranged between the eye and the axle-clip and pivotally connected with the said flange and adapted to be arranged at an angle to the locking device, said spring serving as an antirattler and also retaining the locking device in an upright position, substantially as described.

659,894. DISH-DRAINER. MARY A. OSBURN, Auburn, N. Y. Filed Mar. 22, 1900. Serial No. 9,766. (No model.)



Claim.—The combination with a dish-receiving receptacle, of a supporting-frame therefor, comprising end rods bent downward to form legs, and side rods having their ends bent upward and then inward to engage the receptacle, the bends of said sides resting upon the horizontal portions of the end rods and secured thereto.

659,895. BOTTLE ATTACHMENT. JACOB H. PETERS, New York, N. Y. Filed Nov. 28, 1899. Serial No. 738,533. (No model.)



Claim.—1. The combination with a bottle, of a guard, a gas-charging device and a siphoning device, located between the gas-charging device and the bottle, the said siphoning device forming a permanent part of the guard, substantially as set forth.

2. The combination with a bottle, of a guard extended upwardly beyond the top of the bottle, a gas-charging device surmounting the guard and a siphon interposed between the gas-charging device and the top of the bottle, substantially as set forth.

3. The combination with a bottle and its guard, of a gas-charging device forming a permanent extension of the guard, substantially as set forth.

4. The combination with a bottle and its guard, of a gas-charging device forming a permanent extension of the guard and a siphon interposed between the gas-charging device and the bottle, substantially as set forth.

5. The combination with a bottle, of a guard comprising a body portion and a ring surrounding the neck of the bottle, the said ring being extended upwardly beyond the top of the bottle and a gas-charging device forming a permanent part of the said ring, substantially as set forth.

6. The combination with a bottle and a guard comprising a body portion and a ring surrounding the neck of the bottle, of a siphoning device and a gas-charging device forming permanent extensions of the said ring, substantially as set forth.

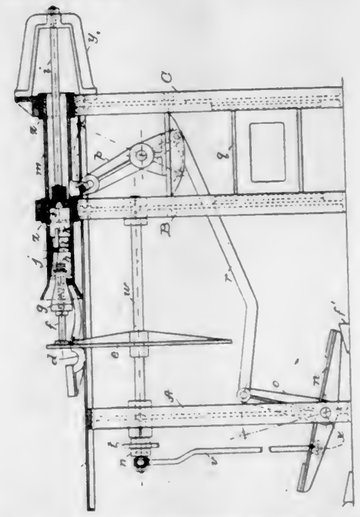
7. The combination with a bottle, of a guard for embracing the bottle having an open bottom whereby the bottle may be inserted into and removed from the guard and means for removably securing the neck of the bottle to the said guard when the bottle is in position therein, substantially as set forth.

8. The combination with a bottle, of a guard comprising a body portion and a ring surrounding the neck of the bottle and means for removably securing the neck of the bottle to the said ring, substantially as set forth.

9. The combination with a bottle, of a guard having its body portion developed into a plurality of spring-clips arranged to snugly engage the bottle for removably securing it within the guard, substantially as set forth.

10. A siphoning device comprising a tubular portion having a lateral projection and a downwardly-extended inner tube opening to the exterior through the said projection, a nozzle removably secured to said projection, a valve within the nozzle fitted to seat in the open end of the said projection, and means for opening and closing the valve, substantially as set forth.

659,896. CIGAR-BUNCH SHAPER. CHARLES PHILLIPS and JOSEPH LACROIX, New Orleans, La. Filed June 28, 1897. Serial No. 642,651. (No model.)



Claim.—1. In a cigar-bunch-shaping machine, an elastic mold consisting of a seamless cigar-shaped pocket open at both ends; radially-projecting longitudinal fins being provided at the outer surface of said mold, the fins having longitudinal beads at outer edges, a longitudinal hole in each bead; the mold and fins being formed in one, seamless piece, and composed of a suitable elastic material to permit of distention of mold: substantially as described.

2. In a cigar-bunch-shaping machine, the combination of a cigar-shaped mold of elastic material with open ends, longitudinal fins having

hollow beaded edges being provided at the outer surface of said mold; the mold being inclosed by sectional blocks, suitably recessed to fit around mold, the fins outside of the mold fitting into corresponding grooves in the recesses in said sectional blocks; wire rods driven into the hollow beads serving to swell out and lock the fins into said sectional blocks: substantially as described.

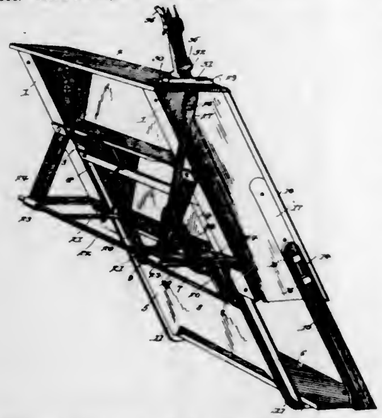
3. In a cigar-bunch-shaping machine, the combination of sectional blocks recessed to fit around and inclosing an elastic cigar-shaped mold having longitudinally-projecting fins at its outer surface, fitting and locked into grooves in the recesses of said sectional blocks, with finger-bars pivoted at their middle, one end of bars being flattened out and attached to said sectional blocks; said elastic mold being opened and closed respectively by drawing together, or spreading apart the other ends of finger-bars: substantially as described.

4. In a cigar-bunch-shaping machine, the combination of centrally-pivoted finger-bars; sectional blocks to which the fingers are attached recessed to receive a mold; an elastic mold provided with projecting fins on its outer surface fitting grooves in the recesses of said blocks; a fork at the end of the finger-bars; a roller journaled in said fork; a funnel-ended cylinder around which said fingers are grouped; and means for sliding the cylinder for the purpose set forth.

5. In a cigar-bunch-shaping machine, the combination of centrally-pivoted finger-bars; sectional blocks to which one end of said fingers are attached; an elastic cigar-shaped mold provided with radially-disposed projecting fins fitting grooves in the recesses of said blocks; a fork formed at the opposite end of the fingers; a roller journaled in said fork; a slidable cone-shaped device for moving said fingers; a slidable hollow cylinder having a funnel-shaped end cooperating with said cone; clutch-bars within said cylinder, adapted to grasp the cone-shaped device; and mechanism for sliding the cylinder.

6. In a cigar-bunch-shaping machine, the combination of a flat disk having a central hub and formed with oblong slots: a pair of lugs adjacent to each of said slots: finger-bars arranged in said slots and pivotally secured between said lugs; sectional blocks recessed to receive a mold; an elastic cigar-shaped mold having radially-arranged fins on its outer surface which fit grooves in the recesses of said blocks; a spindle upon which the disk is mounted; means for holding the disk stationary; and means for progressively rotating said disk.

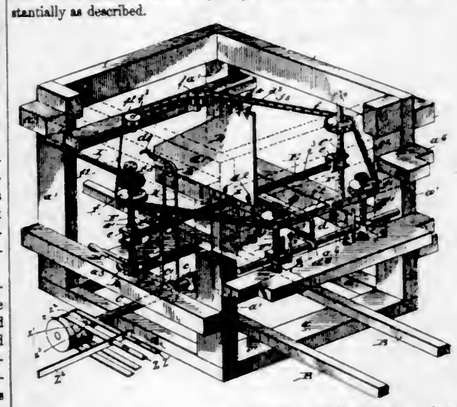
659,897. **EXTENSION CAR-STEP.** Burke E. Pines, Newport, Pa., assignor of one-half to William H. Minick, same place. Filed Aug. 2, 1900. Serial No. 25,687. (No model.)



Claim.—The combination with the stationary steps of a car provided at the top with a slot and having a flange surrounding the opening and provided at opposite sides with shoulders, of ways arranged at the back of the steps at opposite sides thereof, the sliding frame mounted in the ways, the extension-step carried by the sliding frame, a rock-shaft journaled in suitable bearings and provided with arms 21 and 25, a link connecting the arm 21 with the sliding frame, a lever fulcrumed on the car-steps and extending through the slot and provided with a locking device for engaging the said shoulders, and a link connecting the lever with the arm 25, substantially as described.

659,898. **MACHINE FOR CUTTING OR SAWING, &c.** William J. Read, Elkins, W. Va. Filed Jan. 26, 1900. Serial No. 2,910. (No model.)

Claim.—1. In a machine of the nature indicated, a shaft adapted to be turned about its axis, a back secured thereto and extending oppositely therefrom, and cutting-tools reversely mounted upon the oppositely-extending portions of the back, said tools extending upon opposite sides of the longitudinal axis of the back, whereby said tools can, by the movement of the shaft, be alternately brought into operative position; substantially as described.



2. In a machine of the nature indicated, a shaft, a plurality of cutting-tools secured thereto to turn therewith, means for limiting the movement of said shaft, a second shaft adapted to be reversed, and friction connection between said shafts, whereby the said tool-supporting shaft is reversed by the action of said second shaft to cause the tools to be alternately presented in operative position, the said friction connection permitting slipping of the parts when the limit of movement of the tool-supporting shaft has been reached; substantially as described.

3. In a machine of the nature indicated, a shaft, a plurality of cutting-tools secured thereto to turn therewith, means for limiting the movement of said shaft, a second shaft adapted to be reversed, and belt connection between said shafts, whereby the said tool-supporting shaft is reversed by the action of said second shaft to cause the tools to be alternately presented in operative position, the said belt connection permitting slipping of the parts when the limit of movement of the tool-supporting shaft has been reached; substantially as described.

4. In a machine of the nature indicated, a shaft, a plurality of cutting-tools secured thereto to turn therewith, a second shaft adapted to be reversed, one of said shafts being movable toward and away from the other, a suitably-supported pulley, and a belt carried thereby and in frictional engagement with said shafts, whereby said second shaft serves to oscillate said first-mentioned shaft from the movement of said second shaft, whereby the cutting-tools are alternately presented in operative position; substantially as described.

5. In a machine of the nature indicated, a shaft, a plurality of cutting-tools secured thereto to turn therewith, a second shaft adapted to be reversed, said first-mentioned shaft having movement toward and away from said second shaft, a suitably-supported pulley, and a belt between said pulley and said second-mentioned shaft and connecting said shaft and pulley, said belt also engaging the said tool-supporting shaft, whereby it serves to oscillate said first-mentioned shaft from the movement of said second shaft, whereby the cutting-tools are alternately presented in operative position; substantially as described.

6. In a machine of the nature indicated, a shaft, a plurality of cutting-tools secured thereto to turn therewith, a second shaft adapted to be reversed, one of said shafts being movable toward and away from the other, a suitably-supported pulley, and a belt carried thereby and in frictional engagement with said shafts and having a portion wound about said first-mentioned shaft, whereby said second shaft serves to oscillate said first-mentioned shaft from the movement of said second shaft, whereby the cutting-tools are alternately presented in operative position; substantially as described.

7. In a machine of the nature indicated, a cutting-tool supported to turn on its axis, a bar, and means for temporarily connecting said tool and bar, whereby said bar braces the tool-support during the action of cutting; substantially as described.

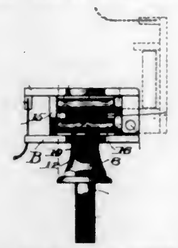
8. In a machine of the nature indicated, a cutting-tool supported to turn on its axis, a bar, and a member upon said tool adapted to engage the bar and thus temporarily connect the said tool and bar, whereby said bar braces the tool-support during the action of cutting; substantially as described.

9. In a machine of the nature indicated, a cutting-tool supported to turn on its axis, a bar, and a hook upon said tool adapted to engage the bar to limit the movement of the tool toward its operative position and also grasp the bar to temporarily connect the bar and tool and thus cause said bar to brace the tool during the operation of cutting; substantially as described.

10. In a machine of the nature indicated, a tool-supporting back mounted to turn upon its axis, and balanced tools reversely mounted thereon on opposite sides of said axis, said tool-supporting back and tools being balanced upon said axis; substantially as described.

11. In a machine of the nature indicated, a threaded shaft, a tool-supporting member engaging said shaft and adapted to be fed thereby toward and away from its work, a tool having axial movement upon said tool-supporting member, a second threaded shaft, a stop member in engagement therewith and adapted to be correspondingly fed thereby, a member upon said tool adapted to engage the stop member to limit the movement of said tool toward its operative position, and operative connection between said shafts, whereby rotation of one shaft causes corresponding rotation of the other, and the tool and stop member are correspondingly fed; substantially as described.

659,899. **REIN-GUIDE.** William A. Rhodes, Boston, Mass. Filed June 21, 1899. Serial No. 721,346. (No model.)



Claim.—1. A rein-guide having two members hinged together, each member having bearings, a pair of rolls supported by the bearings upon one of said members, a single roll supported by the bearings upon the other member, said rolls being arranged to be freely rotative and mounted in a triangular order, and each of said members being projected beyond the bearings that support the rolls at one end, and a spring-latch rigidly secured to one of said projecting portions and having a shoulder, and the other projecting portion having a catch to be engaged by said shoulder.

2. A rein-guide having two members hinged together, each member having bearings, a pair of rolls supported by the bearings upon one of said members, a single roll supported by the bearings upon the other member, said rolls being arranged to be freely rotative and mounted in a triangular order, and each of said members being projected beyond the bearings that support the rolls at one end, and a spring-latch rigidly secured to one of said projecting portions and having a shoulder, and the other projecting portion having a catch to be engaged by said shoulder, in combination with a carrier to which one of said members is pivoted, whereby the rein-guide can turn.

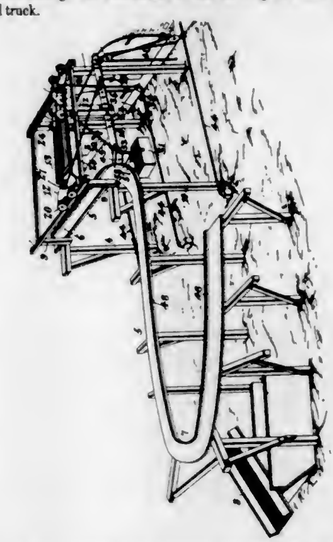
659,900. **COKE-HANDLING APPARATUS.** James R. Risheberger, Wooddale, Pa. Filed May 31, 1900. Serial No. 18,619. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a track and a carrier designed to move thereon, of a duplex traveler arranged in a plane above the track, hoisting mechanism supported by the traveler, and means for detachably connecting the hoisting mechanism to the carrier to lift said carriage to or from the track.

2. In an apparatus of the character described, the combination with an inclined track, of a duplex traveler arranged in a plane above the track, a swiveled pendant supported by the traveler, a hoisting-beam carried by the pendant, a carrier designed to move upon the track and provided with means of attachment to a conveyer, and means for detachably connecting the carrier to the hoisting-beam.

3. In an apparatus of the character described, the combination with an inclined track and a duplex traveler, said traveler comprising a movable primary truck, and a secondary truck movable upon the primary truck, of a pendant swiveled in the secondary truck, a hoisting-beam pivoted on the pendant, a carrier designed for movement upon the track and provided with means of attachment to a conveyer, means for operating the hoisting-beam, and means for effecting the attachment of said beam to the carrier.

4. The combination with an inclined track, of a duplex traveler comprising a primary truck movable above the track and a secondary truck movable upon the primary truck in a direction at right angles to the movement of said primary truck, a swiveled pendant supported by the secondary truck, a hoisting-beam pivotally supported by the pendant, means for shifting the position of the secopdary truck, means for operating the hoisting-beam, and a carrier designed for movement upon the inclined track and provided with means for attachment to the hoisting-beam and to a conveyer, whereby said carrier may be attached to a conveyer or receptacle at a point removed from the track and may be deposited upon said track through the movements of the hoisting-beam and the supplemental truck.



5. In an apparatus of the character described, the combination with an inclined track, a carrier designed to move thereon and provided with a hook, of a laterally-movable supporting-post, a hoisting-lever pivotally mounted upon said post and provided with a socket for engagement with the hook upon the carrier, and means for operating the hoisting-beam.

6. The combination with an inclined track, of a traveler-supporting frame mounted to one side of the track and in a higher plane, a primary truck movable upon the frame in a direction parallel to the track, a secondary truck movable upon the primary truck toward or from the track, a swiveled pendant carried by the truck and extending through and below the primary truck, a hoisting-beam having an adjustable pivotal connection with the lower end of the pendant, a pair of shifting-cables connected to the secondary truck and extending therefrom in opposite directions to permit the truck to be shifted toward or from the track, a rail extending substantially parallel with the direction of movement of the secondary truck, a block having a sliding engagement with said rail, a block secured to the rear end of the hoisting-beam, a hauling-cable reeved through said blocks and designed for the actuation of the beam, a carrier designed for movement upon the inclined track, and means for detachably connecting the carriage to the front end of the hoisting-beam.

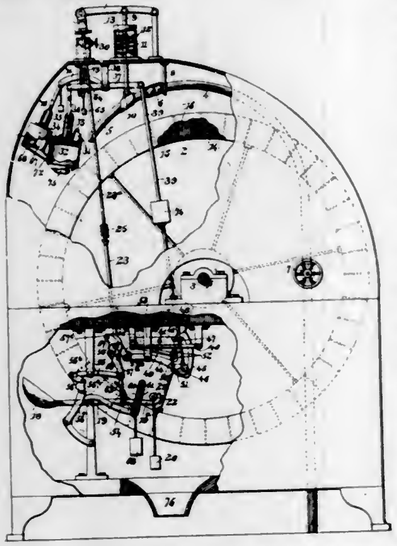
7. A carriage designed for use in an apparatus of the character described comprising a frame and wheels and a pivoted member having a downwardly-disposed hook above its pivot and provided with a second hook at its extremity, said hooks being designed for the purpose of effecting the attachment of the carriage to a supporting part and to a conveyer or receptacle.

659,901. **WATER-MOTOR.** John Sands, Seattle, Wash. Filed Mar. 27, 1897. Renewed Mar. 28, 1900. Serial No. 10,549. (No model.)

Claim.—1. In combination, a motor-wheel, means for delivering a motive agent upon the peripheral portion of the wheel, a pressure-plate about in line with the jet and impact portion of the wheel with said impact portion between the jet and pressure-plate, and speed-controlling means actuated by the movement of the pressure-plate, substantially as set forth.

2. In combination, a motor-wheel, means for delivering a motive agent upon the peripheral portion of the wheel, a counterbalance pressure-plate about in line with the jet and impact portion of the wheel with said impact portion between the jet and pressure-plate, and means for controlling the speed of the motor-wheel actuated by the movement of said pressure-plate, substantially as specified.

3. In a water-wheel governor, the combination with a pressure-plate yieldingly mounted in the discharge-stream of the water-wheel and arranged to be moved by a change in the rapidity of flow of the water, said plate having yielding counterbalancing devices adapted to exert less resistance as the plate recedes from its normal position, of means for regulating the speed of the wheel, operated by the movement of said plate, substantially as specified.



4. In a water-wheel governor, the combination with a pressure-plate movably mounted in the discharge-stream of the water-wheel and adapted to be moved by a change in the rapidity of flow of the water, and yielding counterbalancing devices for the plate, to exert a variable resistance to the movement of the plate, of means for regulating the speed of the wheel, operated by the movement of said plate, substantially as specified.

5. A motor-wheel, means for delivering a motive agent upon the peripheral portion of the wheel including a nozzle mounted for movement toward and from the periphery of the wheel to vary the effective application of the motive agent thereto, a pressure-plate located about in line with the nozzle and impact portion of the wheel with said impact portion between the nozzle and pressure-plate, and connections between said pressure-plate and nozzle for varying the position of the latter in accordance with the movement of the former, substantially as set forth.

6. A motor-wheel of the overshot type, means for delivering the motive agent against the outer extreme edge portions of the buckets, including a nozzle adapted to move toward and from the periphery of the wheel to vary the effective application of the jet against the buckets, a counterbalanced pressure-plate located about in line with the nozzle and impact portion of the wheel with said impact portion between the nozzle and pressure-plate, and connections between said pressure-plate and nozzle for varying the position of the latter, substantially as specified.

7. A motor of the class described, having a wheel of the overshot type, a liquid-conveyer having a nozzle capable of movement toward and from the periphery of the wheel to vary the point of application of motive liquid to the blades or wings thereof, a tilting lever carrying a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, an intermediate lever connected with the nozzle, and a link connecting the tilting and intermediate levers, whereby the depression of the pan or cup causes the movement of the discharge end of the nozzle outwardly or from the periphery of the wheel, substantially as specified.

8. A motor of the class described, having a wheel of the overshot type, a liquid-conveyer having a nozzle capable of movement toward and from the periphery of the wheel to vary the point of application of motive liquid to the blades or wings thereof, a tilting lever carrying a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, an intermediate lever connected with the nozzle, and a link connecting the tilting and intermediate levers, whereby the depression of the pan or cup causes the movement of the discharge end of the nozzle outwardly or from the periphery of the wheel, said link being of extensible construction and including an adjustable member, whereby the normal position of the nozzle may be varied to cause the application of motive liquid to the blades or wings at different distances from the outer edges of the latter, substantially as specified.

9. A motor of the class described, having a wheel of the overshot type, a liquid-conveyer having a nozzle capable of movement toward and from the periphery of the wheel to vary the point of application of motive liquid to the blades or wings thereof, a tilting lever carrying a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, an intermediate lever connected with the nozzle, and a link connecting the tilting and intermediate levers, whereby the depression of the pan or cup causes the movement of the discharge end of the nozzle outwardly or from the periphery of the wheel, said link being of extensible construction and including a rotatable member having a threaded connection with the supplemental member, and fitted with an exposed nut whereby it may be adjusted to vary the efficient length of the link, substantially as specified.

10. A motor of the class described, having a wheel of the overshot type, a liquid-conveyer provided with a nozzle capable of movement toward and from the periphery of the wheel to vary the point of application of motive liquid to the blades or wings thereof, yielding means for supporting the nozzle in its normal position, a tilting lever having a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, and connections between the tilting lever and the nozzle, including an extensible link, and means for relatively adjusting the members of the link, substantially as specified.

11. A motor of the class described, having a wheel of the overshot type, a liquid-conveyer having a nozzle mounted for movement toward and from the periphery of the wheel to vary the point of application of motive liquid to the blades or wings thereof, a tilting lever having a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, a weight for counterbalancing the pressure pan or cup having a traveling connection with the tilting lever and adapted to normally occupy a position at a point remote from the fulcrum thereof, and to move toward the fulcrum to diminish its leverage when the pressure pan or cup has passed beyond the predetermined limit, and connections between the tilting lever and the nozzle, substantially as specified.

12. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever having a pressure pan or cup adapted to receive waste liquid discharged from the wheel, variable means connected with the tilting lever for counterbalancing the pan or cup and adapted to be reduced in efficiency when the pan or cup is depressed beyond a predetermined limit, and connections between the tilting lever and the nozzle, of a returning-lever for restoring the pressure pan or cup to its normal position after excessive depression, and means adapted to be actuated by the motive liquid for controlling the position of the returning-lever, substantially as specified.

13. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever having a pressure pan or cup arranged in the path of waste liquid discharged from the wheel, variable means for yieldingly maintaining the pressure-cup in its normal position and adapted to be diminished in efficiency when the depression of the cup exceeds a predetermined limit, and connections between the tilting lever and the nozzle, of a returning-lever operatively connected with the tilting lever and adapted when released to restore the pressure-cup to its normal position after excessive depression, retaining devices for normally holding the returning-lever in its inoperative position, and means adapted to be actuated by motive liquid discharged by said nozzle, for releasing said retaining devices to allow the returning-lever to actuate the tilting lever, substantially as specified.

14. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with the nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the pressure-cup in its normal position and adapted to be reduced in efficiency when the depression of said cup exceeds a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, retaining devices including a lever and an engaging latch for maintaining said returning-lever in its normal position, a trip arranged in operative relation with the latch and adapted when actuated to disengage the latch from the retaining-lever to release the returning-lever, and means adapted to be actuated by motive liquid discharged from the nozzle, for actuating said trip, when the pressure-cup has been depressed beyond said predetermined limit, substantially as specified.

15. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retaining-lever operatively connected with the returning-lever, a latch normally engaged with the returning-lever and adapted when disengaged to release the returning-lever, a trip arranged in operative relation with the latch, a movable member, as a piston, adapted to be actuated by the impact of motive liquid when the nozzle is deflected by the depression of the pressure-cup beyond said predetermined limit, and operating connections between said movable member and the trip, substantially as specified.

16. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retaining-lever operatively connected with the returning-lever, a latch normally engaged with the retaining-lever and adapted when disengaged to release the returning-lever, a trip arranged in operative relation with the latch, a movable member arranged in a cylinder adapted to receive motive liquid discharged by the nozzle when the latter is deflected by the depression of said pressure-cup beyond the predetermined limit, a stop to limit the said movement of the nozzle, and connections between the piston and the trip, substantially as specified.

17. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retainiug-lever operatively connected with the returning-lever, a latch normally engaged with the retaining-lever and adapted when disengaged to release the returning-lever, a trip arranged in operative relation with the latch, a movable member, as a piston, adapted to be actuated by motive liquid when the nozzle is deflected by the depression of the pressure-cup beyond said predetermined limit, and connections between the piston and the trip, said connections including a counterbalancing-weight, whereby the retaining-lever is returned to its normal position for engagement by the latch, after the pressure-cup has been moved to relieve said movable member from the impact of the motive liquid, substantially as specified.

18. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retaining-lever operatively connected with the returning-lever, a latch normally engaged with the retaining-lever and adapted when disengaged to release the returning-lever, a trip arranged in operative relation with the latch, a movable member, as a piston, adapted to be actuated by motive liquid when the nozzle is moved by the depression of the pressure-cup beyond said predetermined limit, and connections between said movable member and the trip, said connections including a rocking lever, a weighted pitman, a connecting-lever, to an intermediate point of which the trip is pivoted, and adjustable means for communicating motion from said link to the connecting-lever to vary the position of the trip with relation to the latch, substantially as specified.

19. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retaining-lever operatively connected with the returning-lever, a latch normally engaged with the retaining-lever and adapted when disengaged to release the returning-lever, a trip arranged in operative relation with the latch, a movable member, as a piston, adapted to be actuated by the impact of motive liquid when the nozzle is deflected by the depression of the pressure-cup beyond said predetermined limit, and operating connections between said movable member and the trip, said connections including a rocking lever, a weighted link, a connecting-lever to which one end of the trip is fulcrumed, and an intermediate link for connecting the weighted link with the connecting-lever, said intermediate link having an adjustable connection, as by nuts, with the connecting-lever, substantially as specified.

20. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, and variable means for yieldingly holding the tilting lever in its normal position and adapted to be diminished in efficiency when the pressure-cup has been depressed beyond a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to return the pressure-cup to its normal position after excessive depression, a retaining-lever operatively connected with the returning-lever and having a terminal slotted segment, a latch normally engaged with the retaining-lever to secure the returning-lever in its normal position, a trip for disengaging the latch from the retaining-lever, a movable part, as a piston, adapted to be actuated by motive liquid when the nozzle is deflected by the excessive depression of the pressure-cup, and connections between said movable part and the trip, including a rocking lever, a link having a terminal pin arranged to operate in the slotted segment of the retaining-lever, yielding means for actuating said pitman to return the retaining-lever to its normal position after release by the latch, and means for communicating motion from said link to the trip, substantially as specified.

21. In a motor of the class described, the combination with a wheel, a liquid-conveyer provided with a movable nozzle, a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged by the wheel, yielding means for normally maintaining the pressure-cup in its operative position and adapted to be diminished in efficiency when said cup is depressed beyond a predetermined limit, a returning-lever operatively connected with the tilting lever and adapted when released to restore the pressure-cup to its normal position, and a retaining-lever operatively connected with the returning-lever and having a segmental slotted extension, of a latch adapted to engage and secure the retaining-lever in its normal position and having a cam, a trip-lever arranged in operative relation with said cam, a movable part, as a piston, adapted to be actuated by motive liquid when the nozzle is deflected by the excessive depression of the pressure-cup, yielding means for maintaining said movable part in its normal position, and connections between the movable part and the trip, substantially as specified.

22. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, and a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, of a counterbalancing-weight having a traveling connection with the tilting lever and adapted to be diminished in efficiency, by the transfer thereof toward the fulcrum of the lever, when the pressure-cup is depressed beyond a predetermined limit, and means, adapted to be actuated by the motive liquid when the nozzle is deflected by the excessive depression of the pressure-cup, for returning the tilting lever and counterbalancing-weight to their normal positions, substantially as specified.

23. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, and a tilting lever operatively connected with said nozzle and having a pressure-cup arranged in the path of waste liquid discharged from the wheel, of a counterbalancing-weight having a traveling connection with the tilting lever and adapted to be diminished in efficiency, by the transfer thereof toward the fulcrum of the lever, when the pressure-cup is depressed beyond a predetermined limit, a returning-lever having a loose connection with the tilting lever and adapted when released to restore the pressure-cup to its normal position, a finger carried by the returning-lever for imparting movement to the counterbalancing-weight toward the extremity of the tilting lever, retaining devices connected with the returning-lever for securing the latter in its normal position, and means, adapted to be actuated by motive liquid when the nozzle is deflected by the excessive depression of the pressure-cup, for releasing said retaining devices, substantially as specified.

24. In a motor of the class described, the combination with a wheel, a liquid-conveyer having a movable nozzle, a tilting lever operatively connected with said nozzle and provided with a pressure-cup arranged in the path of waste liquid discharged from the wheel, and yielding means for normally holding the pressure-cup in its normal position and adapted to be diminished in efficiency when the depression of the pressure-cup exceeds a predetermined limit, of a returning-lever operatively connected with the tilting lever and adapted when released to restore the cup to its normal position after excessive depression, a retaining-lever, a latch for securing the retaining-lever in its normal position, connections between the retaining and returning levers, including a rocking lever and toggle-jointed links, each link having a knuckle and means for limiting the relative movement of the link members, a trip for disengaging the latch from the retaining-lever, and means adapted to be actuated by motive

liquid, when the nozzle is deflected by the excessive depression of the pressure-cup, for operating the trip, substantially as specified.

25. In a motor of the class described, having a wheel, a liquid-conveyer provided with a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, and connections between the pressure-cup and the nozzle, including a connecting-rod, and locking devices for securing the connecting-rod, and hence the pressure-cup, against movement, substantially as specified.

26. In a motor, the combination with a wheel, a liquid-conveyer having a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, connections between the pressure-cup and the nozzle, a returning-lever adapted when released to restore the pressure-cup to its normal position, and means for retaining the returning-lever in its normal position and including a trip for releasing the retaining means, of a movable part adapted to be actuated by motive liquid when the nozzle is deflected by depression of the pressure-cup, said movable part being operatively connected with the trip, locking means for securing said movable part in its adjusted position for actuation by the motive liquid, and releasing devices actuated by the overflow of motive liquid applied to said movable part, for disengaging the locking means, substantially as specified.

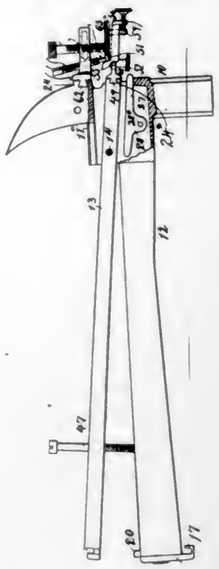
27. In a motor, the combination with a wheel, a liquid-conveyer having a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, connections between the pressure-cup and the nozzle, a returning-lever adapted when released to restore the pressure-cup to its normal position, and means for retaining the returning-lever in its normal position and including a trip for releasing the retaining means, of a movable part adapted to be actuated by motive liquid when the nozzle is deflected by the excessive depression of the pressure-cup, said movable part being operatively connected with the trip, a latch yieldingly held in operative relation with a lever, forming a part of said connections between the movable part and the trip, and adapted to engage and maintain the lever in its adjusted position, and releasing devices, adapted to be actuated by the overflow of motive liquid from said movable part, for disengaging the latch from the lever, substantially as specified.

28. In a motor, the combination with a wheel, a liquid-conveyer having a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, connections between the pressure-cup and the nozzle, a returning-lever adapted when released to restore the pressure-cup to its normal position, and means for retaining the returning-lever in its normal position, and including a trip for releasing the retaining means, of a piston having its cylinder arranged to receive motive liquid from the nozzle when the latter is deflected by the depression of the pressure-cup, connections between the piston and said trip, a latch for maintaining the piston in the position to which it is moved by the pressure of motive liquid admitted to the cylinder, a releasing-arm arranged in operative relation with the latch and normally held in its retracted or inoperative position, and means, as a plunger, arranged in a chamber in communication with said piston-cylinder, for actuation by motive liquid overflowing from the cylinder, substantially as specified.

29. In a motor, the combination with a wheel, a liquid-conveyer having a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, connections between the pressure-cup and the nozzle, a returning-lever adapted when released to restore the pressure-cup to its normal position, and including a trip for releasing the retaining means, of a piston having its cylinder arranged to receive motive liquid from the nozzle when the latter is deflected by the depression of the pressure-cup, connections between the piston and the trip, a latch for securing the piston in its adjusted position, to which it has been moved by the pressure of the motive liquid, a releasing device arranged in operative relation with the latch and normally held in its inoperative position, and a plunger connected with said releasing means and arranged to operate in a chamber in communication with the piston-cylinder, the port whereby communication is had between said chamber and cylinder being exposed only when the piston reaches the limit of its movement under the pressure of the motive liquid, substantially as specified.

30. In a motor, the combination with a wheel, a liquid-conveyer having a movable nozzle, a pressure-cup arranged in the path of waste liquid discharged from the wheel, connections between the pressure-cup and the nozzle, a returning-lever adapted when released to restore the pressure-cup to its normal position, and means for retaining the returning-lever in its normal position, and including a trip for releasing the retaining means, of a piston operatively connected with the trip and having its cylinder arranged to receive motive liquid from said nozzle, when deflected by the depression of the pressure-cup, said cylinder being provided at its lower end with an outlet, a latch for locking the piston at the limit of its depression, yielding means for holding the piston in its normal or elevated position, releasing means adapted to disengage the latch, a chamber arranged in communication with the cylinder at a point near its discharge-opening, and a plunger operating in said chamber and operatively connected with the releasing means, the port of communication between the cylinder and said chamber being arranged in communication with the portion of the cylinder above the piston, to allow motive liquid to pass from the cylinder to the chamber, when the piston has been depressed to the limit of its movement by the motive liquid, and said chamber being adapted to exhaust through the outlet-opening of the cylinder when the piston is elevated by the yielding means provided for its actuation, substantially as specified.

659,902. COMBINATION-TOOL. CHARLES I. STILL and ISAAC F. STILL, Sing Sing, and EDWARD L. STILL, New York, N. Y. Filed Aug. 12, 1899. Serial No. 726,993. (No model.)

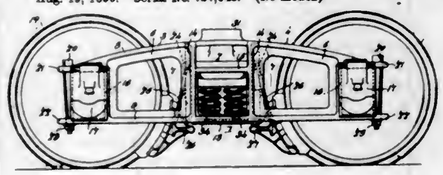


Claim.—1. A combination-tool comprising a head, a movable handle member pivoted in the head, and a two-part saw-set attached to the said head and movable member, the first part carrying a setting-screw to fit a saw-tooth, and the second part comprising a bracket, an anvil slidable on the bracket and having means for fixing it in position, the inner end of the anvil being inclined, a guide-flange sliding in and out on the inclined end of the anvil, and an adjusting-screw connecting the anvil and flange so that by turning the screw the anvil and flange may be adjusted in relation to each other.

2. The combination with a tool having a head and a movable handle member pivoted in the head of a two-part saw-set, the parts being carried respectively by the head and the handle member, one part carrying a setting-screw and the other part carrying an anvil having a reduced and inclined inner end, a guide-flange straddling said reduced end of the anvil and means for adjusting the flange on the anvil.

3. The combination with the tool having a head and a separable handle, the members of which are movable in relation to each other, and opposed brackets detachably secured to the head and the movable member of the handle, one bracket carrying an abutment, and the other being longitudinally slotted and having adjustably secured in the slot an impinging tool, substantially as described.

659,903. CAR-TRUCK. WILSON E. SYMONS, Savannah, Ga. Filed Aug. 19, 1899. Serial No. 727,845. (No model.)



Claim.—1. In a boltless car-truck, a side member having open jaws or seats, each provided in its top and bottom with alined key-seat openings, combined with an axle-box fitted to said seat, and vertical tapered keys confined in the key-seat openings and engaging directly with the axle-boxes, each key being free to work itself by gravity in a downward direction and to urge the axle-box into firm engagement with said seat.

2. In a boltless car-truck, the combination of a side member having an open jaw or seat, an axle-box, and a vertical gravity-actuated and tapered key provided with a curved outer face and a flat inner face, the latter engaging directly with the axle-box, substantially as described, for the purpose set forth.

3. In a truck, the combination with a side bar and an open-ended journal-box seat, of a journal-box located in the seat, openings in the sides of the seat, and a closure for the seat comprising a tapered key disposed in said openings and adapted to be drawn therethrough to directly impinge the journal-box.

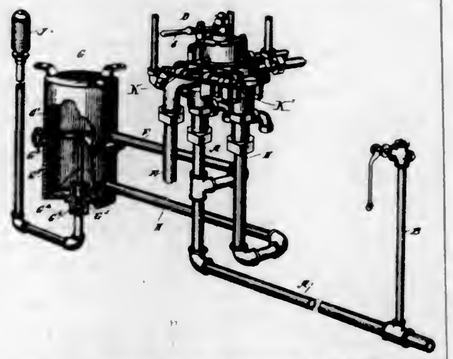
4. In a truck, the combination with a side bar, and a journal-box seat opening longitudinally through the end of the bar, the sides of the seat having openings therein, of a journal-box located in the seat and adapted to rest upon the lower side thereof, and a tapered key passed vertically through the openings in the side of the seat and adapted to be drawn therethrough to directly impinge the journal-box and clamp it laterally against the vertical face of the seat.

5. A cast-steel car-truck frame comprising the side members formed of arched bars and lower binders, and an open-top transom, the sides of the latter uniting the arched bars and lower binders of the side members and said side members having the webs 6, transverse upper and lower flanges 8, transverse, vertically-disposed reinforce connecting-flanges 14, on their outer sides, in line with the sides of the transom, the horizontally-disposed transverse flanges 15 intermediate of flanges 8 and connecting said reinforce-flanges 14, openings being formed between said flanges 8, 14 and 15, and said flanges 15 serving to sustain the end thrusts of the car-truck bolster, and drop spring-seats uniting the lower binders of the side members with the sides of the transom, substantially as described.

6. A cast-steel car-truck frame comprised of side members and an open-top transom, said side members having reinforce vertically-disposed flanges 14 on their outer sides, in line with the sides of the transom, openings at the ends of the transom, and horizontally-disposed transverse flanges 15, extending across said openings and connecting said reinforce-flanges 14, said flanges 15 serving to sustain the end thrusts of the bolster, substantially as described.

7. A complete boltless car-truck frame cast in a single piece of metal and comprising a transom and side members, said side members being formed for the reception and retention of the axle journal-boxes, and said frame having drop-seats for the supporting-springs of the bolster, formed at the unions between the ends of the transom and the centers of the side members, and said spring-seats strengthening the said connections between the transom and the side members, substantially as described.

659,904. TRAIN AIR-SIGNALING APPARATUS. JAMES H. TURNER, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,705. (No model.)



Claim.—1. In a train air-signaling apparatus in which the train-pipe is used as a signaling-pipe, a duplex engineer's valve provided with duplicate pistons and a duplex valve controlling said pistons, and a signal-actuating mechanism connected with the whistle and including a pneumatically-operated valve, the pistons operating upon opposite sides of said pneumatically-operated valve as set forth.

2. In a train air-signaling system in which the train-pipe is used as a signaling-pipe, a signal-actuating mechanism consisting of a casing connected with the whistle and a diaphragm-valve in said casing and controlling said whistle, and an engineer's brake-valve provided with duplicate pistons and a duplex valve controlling said pistons, the latter operating upon opposite sides of the diaphragm-valve as set forth.

3. In a train air-signaling apparatus in which the car discharge-valve is connected with the train-pipe and the latter is used as a signaling-pipe, a signal-actuating mechanism consisting of a casing and a diaphragm-valve dividing said casing into two compartments, one of said compartments being connected with the whistle and the diaphragm-valve controlling the operation of the whistle, a duplex engineer's brake-valve having two pistons, a connection between the lower compartment of the casing and one part of the engineer's valve, and a connection between the other compartment and the train-pipe through the other part of the engineer's valve, as set forth.

4. A fluid-pressure brake and train air-signaling apparatus having a duplex engineer's valve arranged to connect the main reservoir with the signal-valve, said engineer's valve comprising two piston-valves, and a rotary valve under the control of the engineer, substantially as shown and described.

659,905. BUTTON. JOHN P. C. WEIR, Providence, R. I. Filed Dec. 29, 1899. Serial No. 741,936. (No model.)

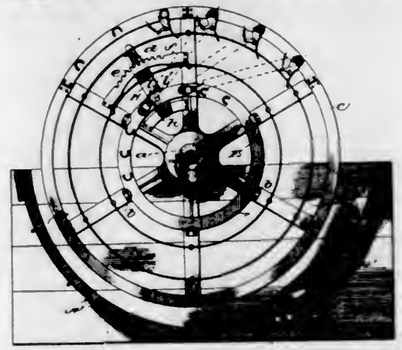


Claim.—1. In a pearl, shell or similar button, a metal shank having a dovetail end, and a metal ring expanded into the undercut recess and onto the dovetail end of the metal shank; whereby the metal shank is secured to the button, as described.

2. In a pearl, shell or similar button, the combination with the button and the two concentric undercut recesses *e* and *f*, of the shank-wire *c* having the dovetail end *d*, the metal ring *g* compressed to fill the space between the dovetail end of the shank and the undercut margin of the recess *e*, and the washer *h* compressed to fill the space in the recess *f* between the undercut margin and the shank, as described.

3. In a pearl, shell or similar button, two undercut concentric recesses one below the other, and a shank having a dovetail end secured in the recesses by metal forced into the recesses and expanded to secure the shank, as described.

659,906. YARN-DYEING MACHINE. LEONARD WELDON, Amsterdam, N. Y. Filed Sept. 18, 1899. Serial No. 730,836. (No model.)

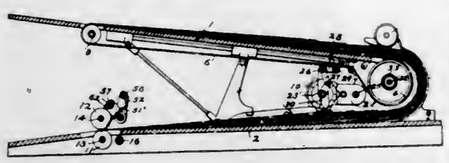


Claim.—1. In a rotary dyeing-machine, the combination with the dye-tub, of a pair of wheels mounted on a shaft to turn in bearings on the dye-tub, an outer and inner circular series of sticks to hold the skeins, the inner series of sticks having bearings for their ends in revoluble adjustable parts, a lever connected with each of the parts to revolve the same, a bolt on the lever, and a rack to engage the bolt secured upon each of the wheels, as set forth.

2. In a rotary dyeing-machine, the combination with the dye-tub, of a pair of wheels mounted on a shaft to turn in bearings on the dye-tub, an outer and inner series of removable, revoluble yarn-sticks, revoluble adjustable rings concentric with the rims of the wheels, a lever having a slot therein fulcrumed on each of the said wheels and provided with

a spring-bolt to engage a curved rack, the curved rack secured upon each of the wheels, and a pin projecting from the ring and entering the slot, substantially as and for the purpose described.

659,907. SHEET-FEEDER. Samuel K. White, Mystic, Conn., assignor to the Standard Machinery Company, same place. Filed Sept. 6, 1899. Serial No. 729,576. (No model.)



Claim.—1. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into action, a latching device for holding said feeding device in action, and mechanical devices for controlling said latching device by the sheet.

2. In a sheet-feeder, the combination of a combing device, means for throwing said device into action, a latching device for holding said comber in action, and mechanical devices for controlling said latching device by the sheet.

3. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a latching device for holding said combing-roll in action, and devices controlled by the sheet for operating said latching device.

4. In a sheet-feeder the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said combing-roll in action, and mechanical devices for controlling said latching device by the sheet.

5. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into and out of action, a latching device for holding said feeding device in action, means for operating said latching device, and a sheet-operated catch arranged in the path of the sheet for restraining said means.

6. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said combing-roll in action, and a tripping device operated by the sheet for releasing said latching device.

7. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said combing-roll in action, means for operating said latching device, and a sheet-operated catch for restraining said means.

8. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into and out of action, a latching device for holding said feeding device in action, means for operating said latching device, a sheet-operated catch for restraining said means, and mechanism for resetting said operating means and catch.

9. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said roll in action, a tripping device operated by the sheet for releasing said latching device, and mechanism for resetting said tripping device.

10. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said roll in action, means for operating said latching device, a sheet-operated catch for restraining said means, and mechanism for resetting said operating means and catch.

11. In a sheet-feeder, the combination of a sheet-feeding device, a latching device for holding said feeding device in action, a spring-operated lever for operating said latching device, and a trip or catch arranged in the path of and operated by the sheet for restraining said spring.

12. In a sheet-feeder, the combination of a sheet-feeding device, a latching device for holding said feeding device in action, and a hammer arranged to strike said latching device a blow in releasing the same.

13. In a sheet-feeder, the combination of a sheet-feeding device, a latching device for holding said feeder in action, a hammer arranged to strike said latching device a blow in releasing the same, and sheet-controlled devices for operating said hammer.

14. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into and out of action, a latching device for holding said feeding device in action, a spring-operated device for releasing said latching device, a sheet-operated trip arranged in the path of the sheets for restraining said spring, and mechanism for resetting said operating device and trip.

15. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into and out of action, a latching device for holding said roll in action, a spring-operated device for releasing said latching device, a sheet-operated trip for restraining said spring, and mechanism for resetting said operating device and trip.

16. In a sheet-feeder the combination of a sheet-feeding device, means for throwing said device into action, a spring for throwing said device out of action, a latching device for restraining said spring, a spring-operated device for releasing said latching device, and a sheet-operated trip arranged in the path of the sheets for restraining said latter spring.

17. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a spring for throwing said roll out of action, and a sheet-controlled latching device for restraining said spring.

18. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a spring for throwing said roll out of action, a latching device for restraining said spring, and devices controlled by the sheet for releasing said latching device.

19. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a spring for throwing said roll out of action, a latching device for restraining said spring, a spring-operated device for releasing said latching device, and a sheet-operated trip controlling the operation of said releasing device.

20. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a spring for throwing said roll out of action, a latching device for restraining said spring, a spring-operated device for releasing said latching device, and a sheet-operated trip for restraining said latter spring.

21. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into action, a latching device for holding said feeding device in action, a trip operated by the sheet, and mechanical connections between said trip and latching device whereby the releasing of said latching device is controlled by the sheet, substantially as described.

22. In a sheet-feeder, the combination of a combing device, means for throwing said device into action, a latching device for holding said combing device in action, a trip operated by the sheet, and mechanical connections between said trip and latching device whereby the releasing of said latching device is controlled by the sheet.

23. In a sheet-feeder, the combination of a combing-roll, means for throwing said roll into action, a latching device for holding said combing-roll in action, a trip operated by the sheet, and mechanical connections between said trip and latching device whereby the releasing of said latching device is controlled by the sheet.

24. In a sheet-feeder, the combination of a sheet-feeding device, means for throwing said device into action, a latching device for holding said device in action, means for controlling the release of said latching device by the sheet, and an independent means for releasing said latching device.

25. In a sheet-feeder, the combination of a sheet-feeding device, intermittently-operating forwarding devices, means for throwing said feeding device into action, a latching device for holding said device in action, means for controlling the release of said latching device by the sheet, and an independent means for releasing said latching device prior to the operation of the forwarding devices.

26. In a sheet-feeder, the combination of a combing-roll, intermittently-operating forwarding-rolls, means for throwing said combing-roll into action, a latching device for holding said combing-roll in action, means for controlling the release of said latching device by the sheet, and an independent means for releasing said latching device prior to the operation of said forwarding-rolls.

27. In a sheet-feeder, the combination of a spring-operated rock-shaft, a trip-lever for restraining said spring, and means for resetting said spring and trip comprising a shoulder on said shaft and a reciprocating pawl arranged to engage said shoulder.

28. In a sheet-feeder, the combination of a spring-operated rock-shaft, an arm on said shaft, a trip-lever engaging said arm to hold said shaft against the tension of said spring, a shoulder on said shaft, and a reciprocating pawl for engaging said shoulder to put said spring under tension and bring said arm into position to be engaged by said trip-lever.

29. In a sheet-feeder, the combination of a rock-shaft, a spring for operating the same, an arm on said shaft, a trip-lever for engaging said arm to hold said shaft against the tension of said spring, a shoulder on said shaft, a pawl for engaging said shoulder, a rock-arm carrying said pawl, and means for intermittently operating said rock-arm.

30. In a sheet-feeder, the combination of a sheet-feeding device, means for controlling the operation of said device embodying a spring operated rock-shaft, a trip-lever for restraining said rock-shaft and having its end in the path of the sheet, a shoulder on said shaft, and a reciprocating pawl for engaging said shoulder to reset said spring and trip-lever.

31. In a sheet-feeder, the combination of a sheet-feeding device, means for controlling the operation of said device, embodying a spring-operated rock-shaft, an arm on said shaft, a trip-lever for engaging said arm and having its end in the path of the sheets, a shoulder on said shaft, a pawl for engaging said shoulder, and an intermittently-operated rock-arm carrying said pawl.

32. In a sheet-feeder, the combination of a sheet-feeding device, forwarding-rolls, a rock-shaft for raising and lowering the upper forwarding-rolls, means for controlling the action of the feeding device embodying a spring-operated rock-shaft, a trip-lever in the path of the sheet for restraining said spring, a shoulder on said latter shaft, and a reciprocating pawl for engaging said shoulder and operated from the shaft for raising and lowering the forward rolls.

33. In a sheet-feeder, the combination of a combing device, of a slide connected therewith, a cam for moving said slide to throw the combing device into action, a spring for returning said slide, a latching device for holding said slide advanced, a trip-lever in the path of the sheet, and mechanical devices between the latching device and trip for operating said trip.

34. In a sheet-feeder, the combination of a combing device, of a slide for operating the same, a cam for advancing said slide, a spring for returning said slide, a lever connected with said slide, a latch engaging said lever, and devices controlled by the sheet for operating said latch.

35. In a sheet-feeder, the combination of a combing device, a latch for holding said device in action, a rock arm or plate for operating said latch, and means controlled by the sheet for operating said rock-arm.

36. In a sheet-feeder, the combination of a combing device, a latch for holding said device in action, an arm or plate for operating said latch, a rock-shaft extending in the direction of the travel of the sheet carrying said arm or plate, and means controlled by the sheet for operating said rock-shaft.

37. In a sheet-feeder, the combination of a combing device, a latch for holding said device in action, a rock-shaft carrying an arm for operating said latch, a spring for operating said rock-shaft, a trip-lever for restraining said spring, and means for resetting said spring and trip-lever.

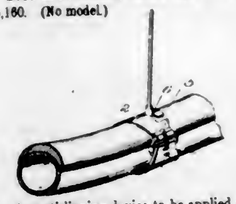
38. In a sheet-feeder, the combination of a combing-roll, a slide 35 connected therewith, a cam 31 for operating said slide, spring 38 for retracting said slide, lever 40 connected to said slide, latch-lever 43 for engaging lever 40, and means controlled by the sheet for operating lever 43.

39. In a sheet-feeder, the combination of a combing-roll, a slide 35 connected therewith, a cam 31, a spring 38, a lever 40, a latch-lever 43, a rock-arm 46, a spring 51 for operating said arm, a shaft 50, and a trip-lever 51′ for restraining spring 51.

40. In a sheet-feeder, the combination of a combing-roll, a slide 35, a cam 31, a spring 38, a lever 40, a latch-lever 43, means controlled by the sheet for operating lever 43, a lever 66, and a cam 67.

41. In a sheet-feeder, the combination of a combing-roll, intermittently-operating forwarding-rolls, a slide 35, a cam 31, a spring 38, a lever 40, a latch-lever 43, means controlled by the sheet for operating lever 43, a lever 66 and a cam 67.

659,908. ANTISLIPPING ATTACHMENT FOR VEHICLE-WHEELS. Boyd K. Appleman, Rohrsburg, Pa. Filed Feb. 14, 1900. Serial No. 5,160. (No model.)



Claim.—1. An antislipping device to be applied to the rims of mechanically-propelled vehicles, the same consisting of a metallic rim-engaging portion having a spoke-receiving opening and a bayonet-slot leading from said opening through an edge thereof, a flexible tread portion attached at one end to the rim portion and having a calk or engaging device, and means for adjustably connecting the outer ends of the rim and tread portions, substantially as specified.

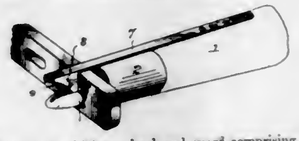
2. An antislipping device for the purpose described, comprising a flexible tread portion provided with an engaging device, and an inflexible rim portion rigidly connected at one end to one terminal of the flexible portion, and provided at its opposite end with means for adjustably engaging the free terminal of said tread portion, and having intermediate means for engaging a spoke to hold the binder against lateral and longitudinal displacement, substantially as described.

3. An antislipping device for the purpose described, comprising a tread portion of textile having a calk or engaging device, and a metallic portion rigidly connected at one end to a terminal portion of the textile and provided at its opposite ends with means for making positive and adjustable connection with the other or free end of said textile, substantially as described.

4. An antislipping device for the purpose described, comprising a tread portion of textile, a calk or engaging device connected thereto, a lining upon the inner side of said tread portion to frictionally bear upon the tread of the tire, and a metallic rim portion rigidly connected at one end to one terminal of the flexible portion, and provided at its opposite end with means for adjustably engaging the free terminal of said tread portion, and having intermediate means for engaging a spoke to hold the binder against lateral and longitudinal displacement, substantially as described.

5. An antislipping device, comprising a binder, plates fitted against opposite sides of the binder, and a calk having a threaded stem passing through the outermost plate and binder and making screw-thread connection with the inner plate and having a base portion to overlap the outer plate, substantially as and for the purpose set forth.

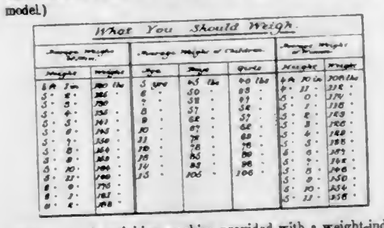
659,909. TRACE HOOK AND GUARD. Thore A. Bakken, De Soto, Wis., assignor of one-half to Otto M. Gilbertson, La Crosse, Wis. Filed Mar. 14, 1900. Serial No. 8,631. (No model.)



Claim.—1. A whiffletree hook and guard comprising a hooked or engaging end provided on the end of the whiffletree in combination with a spring lock or guard consisting of a single flat spring-strip secured at its inner end to the whiffletree, and its outer end left free and provided with a comparatively large solid head which is beveled inwardly on its under side so as to leave a comparatively large entrance-space for the introduction and passage of a trace, the construction and arrangement being such that the spring lock or guard will be automatically lifted as the trace is applied over the engaging end of the whiffletree and will automatically return to a locked condition in front of the trace, the trace bearing upon the rear side of the head of the guard, substantially as described.

2. A whiffletree hook and guard comprising a hooked or engaging end provided on the whiffletree, and formed with a depression, in combination with a spring lock or guard consisting of a single flat strip secured at its inner end to the whiffletree, and its outer end left free and provided with an engaging head which is beveled inwardly on its under side, the construction and arrangement being such that the lower end of the head of the spring-lock will rest in the depression of the hook or engaging end of the whiffletree, which lock will be automatically raised in the act of applying the trace and will automatically return to a locked condition after the trace is in position on the end of the whiffletree, substantially as described.

659,910. DIAL-FACE FOR WEIGHING-MACHINES. Leroy W. Baldwin, New York, N. Y. Filed Jan. 19, 1900. Serial No. 1,965. (No model.)



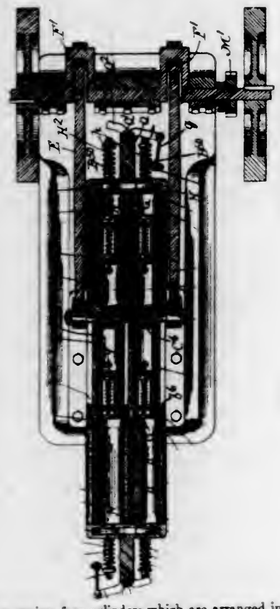
Claim.—1. A weighing-machine provided with a weight-indicator and with a table of the normal weights of persons of different stature exposed on its exterior, adjacent to the weight-indicator, whereby both the indicator and the table can be seen at substantially the same time.

2. A coin-operated weighing-machine having an index-hand and dial with the numbers for indicating the weight on the platform printed thereon, and also a table showing the normal weights of persons of different stature.

659,911. GAS-ENGINE. De Lorson E. Barnard, Beloit, Wis. Filed June 11, 1898. Serial No. 683,156. (No model.)

Claim.—1. In a gas-engine, four cylinders in each of which the action is of the four-cycle type which are coaxial two and two, the two axes being parallel; four pistons for said four cylinders respectively, the cylinders and pistons so arranged that the pistons enter the cylinders at the proximate ends of the latter, the pistons being chambered and pro-

vided with valved passages from such chambers at the heads of the piston into the cylinders respectively, the outer surfaces of the two pistons of each longitudinal pair being continuous and being provided with a continuous seat between the cylinders; and a gas-inlet passage leading through such seat to the piston-surface and through the piston-wall into their chambers respectively.



2. In a gas-engine, four cylinders which are arranged in two pairs, the individuals of each pair being side by side, the two pairs having their corresponding individuals conaxial and longitudinally separated; four pistons rigidly united and moving as one and adapted to reciprocate in said four cylinders respectively, their path of reciprocation extending into the interval of such longitudinal separation of the cylinders, a fixed bearing-surface adjacent to the path of reciprocation of each longitudinal pair of pistons at said interval, each said pair having a surface of suitable longitudinal extent to maintain continuous contact with said bearing-surface throughout the entire range of reciprocation of the pistons, the pistons being chambered and having communication through their heads with the cylinder-chambers; respectively; and ducts from their chambers leading to said continuous contact-surface, the gas-supply duct leading through said fixed bearing-surface and adapted to register thereat with said piston-ducts.

3. In a gas-engine, four cylinders arranged in two pairs, individuals of which are side by side, the two pairs having their corresponding individuals conaxial and longitudinally separated; four pistons united together and moving as one in said four cylinders respectively, their path of reciprocation extending into said interval of separation of the cylinders; a fixed bearing-surface adjacent to the path of reciprocation of each longitudinal pair of pistons, each such pair having a bearing-surface of suitable extent to maintain continuous contact with said bearing-surface throughout the entire range of reciprocation of the pistons, the pistons being chambered and having communication at their inner ends with the cylinder-chambers respectively, and having ducts from their chambers leading to such extended bearing-surface; a gas-supply duct leading through said fixed bearing-surface and adapted to register with the mouth of the piston-duct; a governing device comprising an air-passage and an oil-inlet leading thereinto; gas-passages therefrom leading to the said fixed bearings respectively; a valve in said air-passage beyond the oil-inlet; and a centrifugal governing device which operates said valve.

4. In a gas-engine, four cylinders formed integrally in two longitudinal pairs, the individuals of each pair being conaxial, and formed by one continuous bore of uniform diameter throughout; four pistons for said four cylinders connected and adapted to move as one, the longitudinal middle portion of the cylinder-casting having longitudinal slots all at the plane in which the axes of all the cylinders are located; a cross-head which connects the two longitudinal pairs of pistons, extending through said slots, the two pistons of each longitudinal pair having their cylindrical surfaces continuous, and having a continuous internal chamber; a gas-duct leading through the bearing-surface of the pistons at the middle point of their path of reciprocation; and a duct leading from the piston-chambers to corresponding point in the bearing-surfaces of the piston, the pistons having communication through their heads respectively with the cylinder-chambers.

5. In a gas-engine, in combination with the four cylinders arranged as described, the pistons therefor, and the driving connections from the piston to the main shaft; a shaft driven by connection with the main shaft at half the speed of the latter; exhaust-valves at the opposite ends of the cylinders; lever connections for operating them; eccentrics on the driven shaft and links which connect them to the levers, said eccentrics being timed to open the valves respectively during the portion of the rotation of the eccentric which corresponds to the movement in one direction of the pistons respectively, the two valves at each end being controlled by one and the same eccentric, and operated at opposite ends of a lever which is actuated by the eccentric, the two eccentrics for the two ends respectively being oppositely mounted on the shaft.

659,912. **BUCKLE.** JOHN W. BOWMAN, Union Star, Mo. Filed May 29, 1900. Serial No. 18,428. (No model.)



Claim.—1. A buckle comprising a rectangular frame; a tongue pivotally secured thereto; a bail pivotally attached to the frame; and means for locking the bail in engagement with the sides of the frame.

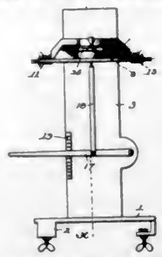
2. A buckle, comprising a rectangular frame; a tongue pivotally secured thereto; a bail pivotally attached to the frame and means for locking the sides of the bail in engagement with the outer sides of the frame.

3. A buckle consisting of a suitable frame having side bars formed with bearings adjacent to their rear portions and longitudinal grooves in their outer faces, leading from the bearings to the rear ends thereof; and a bail pivotally supported in the bearings of the frame and adapted to be turned down and snapped into the grooves in the said side bars.

4. A buckle consisting of a frame having side bars formed with bearings and grooves extending longitudinally in their outer faces from said bearings to the rear end of the frame, and having cam-surfaces leading to said grooves, and a bail pivotally supported in said bearings and adapted to swing down over the cam-surfaces and lodge in the longitudinal grooves.

5. A buckle, comprising a frame having side bars, formed with bearings, grooves extending longitudinally in their outer faces from said bearings to the rear end of the frame, adapted to receive and retain the bail when turned down over the strap, cam-surfaces leading to said grooves, grooves in the outer faces of the side bars adapted to receive and retain the bail when turned over upon the buckle, and a bail pivotally supported in the bearings in the frame.

659,913. **CAN-OPENER.** JOHN G. BROWN, Brookside, Colo. Filed Apr. 5, 1900. Serial No. 11,584. (No model.)

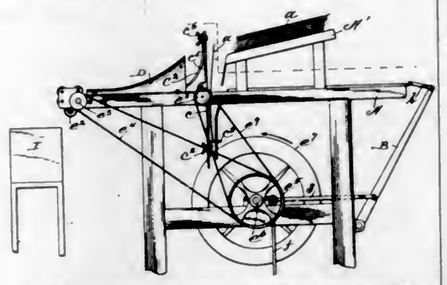


Claim.—1. In a can-opener the combination, with a base and standard, of an arm slidably mounted thereon, a grooved cylindrical portion to said arm, prongs projecting therefrom, a sleeve revoluble upon said portion, a disk secured to the sleeve, adjustable cutting-wheels mounted therein, a forked handle inclosing said sleeve, and means for clamping the handle to the sleeve and engaging the groove of the cylindrical portion.

2. In a can-opener the combination, with the base and standard, of a disk-carrying arm slidably mounted on the standard, cutting-wheels on the disk, a lever pivoted to the standard, a link connection between the lever and arm, and teeth in the standard for engagement with the lever.

659,914. **CIRCULAR-FOLDING MACHINE.** ARTHUR R. CLARKE and ALFRED W. RASMUSSEN, Chicago, Ill. Filed Dec. 28, 1899. Serial No. 741,778. (No model.)

Claim.—1. The combination with a main or supporting frame, of a deflector comprising two curved sections adjustably secured thereto, the curvature of one of said sections being shorter than the other, and means to pass a sheet through the deflector, substantially as described.



2. The combination with a main or supporting frame, of a deflector comprising two curved sections adjustably secured thereto, the curvature of one of said sections being shorter than the other, a forming-piece extending into the deflector, and means to pass a sheet through the deflector, substantially as described.

3. The combination with a main or supporting frame, of a deflector mounted thereon, a pair of rollers transversely journaled near the receiving end of the deflector, a pair of rollers having recesses in their middle portions, and transversely journaled near the discharging end of the deflector, another pair of rollers near the last-named ones, and means to drive all of said rollers and to force a sheet between the first-named pair of rollers, then through the deflector, and then through the rollers having the recesses, substantially as described.

4. The combination with a main frame having about its middle a transverse opening for the reception of the piece to be folded, of a rest adjustably secured below said opening, a deflector mounted on the main frame near the said opening, a pair of rollers transversely journaled near the receiving end of the deflector, a pair of rollers having recesses in their middle portions and transversely journaled near the discharging end of the deflector, another pair of rollers near the last-named ones, a sliding piece movably secured on the main frame, means to drive all of said rollers and to cause the sliding piece to pass between the first-named rollers, the deflector and the recesses of the recessed rollers, substantially as described.

659,915. **WATCHCASE-SPRING.** WILLIAM COLLEY and CHARLES NOBS, Jr., Newark, N. J., assignors to Charles Nobs & Son, same place. Filed May 21, 1900. Serial No. 17,324. (No model.)



Claim.—1. A watchcase-spring made of a single piece of sheet metal bent into the proper curvature and provided with an engaging spur at one end, and formed with an aperture for the holding-pin extending to a point about half-way down from the upper edge of the spring, said aperture having one side wall missing and being formed with a closed bottom for the purposes as set forth, substantially as described.

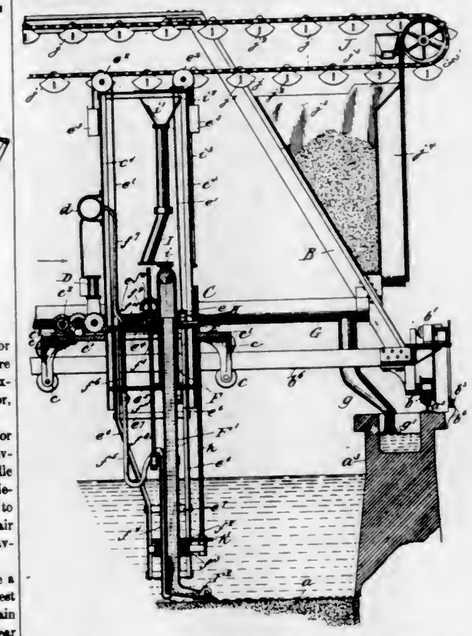
2. A watchcase-spring made of a single piece of sheet metal bent into the proper curvature and provided with an engaging spur at one end, and formed with the recess 7 having a closed bottom for the purposes as set forth, substantially as described.

659,916. **DEVICE FOR CLEANING AND REPLENISHING SAND FILTER-BEDS.** LEWIS K. DAVIS, New York, N. Y., assignor to Grace P. Davis, same place. Filed Apr. 17, 1899. Serial No. 713,246. (No model.)

Claim.—1. In a device for cleaning and replenishing sand filtration-beds, the combination of a scoop or shovel traveling over the same, a discharge-pipe connected with said scoop or shovel, means connected with said discharge-pipe for forcing matter out of said pipe and devices adapted to be connected to said scoop or shovel for supplying a filtering medium thereto.

2. In a device for replenishing the top layer of sand filtration-beds, the combination of a scoop or shovel traveling over the same, a chute connected therewith into which sand is emptied, and a conveyer for conveying and discharging sand into said chute.

3. In a device for replenishing the top layer of sand filtration-beds, the combination of a scoop or shovel traveling over the same, a device carried thereby for producing a uniform discharge therefrom, a chute connected therewith into which sand is emptied, and a conveyer for conveying and discharging sand into said chute.



4. In a device for cleaning sand filtration-beds the combination of a carriage movable along the bed, a second carriage movable along the first-mentioned carriage, means for producing a blast carried by said second carriage, a third carriage carried by said second carriage and movable vertically thereon, a discharge-pipe carried by said third carriage and with which the blast is connected, and a scoop or shovel carried by said discharge-pipe.

5. In a device for cleaning sand filtration-beds, the combination of a scoop or shovel traveling over said bed, means for turning or rotating said scoop or shovel, a discharge-pipe connected with said scoop or shovel, and a blast connected with said discharge-pipe.

6. In a device for cleaning sand filtration-beds, the combination of a scoop or shovel, traveling over said bed, means for adjusting said scoop or shovel vertically, means for rotating or turning said scoop or shovel, a discharge-pipe connected with said scoop or shovel and a blast connected with said discharge-pipe.

7. In a device for cleaning and replenishing sand filtration-beds, the combination of a main carriage traveling along the bed, a second carriage traveling transversely of the direction of travel of the first carriage, means carried by said carriages for cleaning the filtration-bed and other means carried by said carriages for supplying new filtration material to said bed.

8. In a device for cleaning and replenishing sand filtration-beds, the combination of a main carriage traveling along the bed, a second carriage movable on said main carriage, a device and means connected therewith for raising sand and other matter from said bed, a device movable along said main carriage for carrying new filtration material, and means for causing said device to discharge its contents onto the bed.

9. In a device for cleaning and replenishing sand filtration-beds, the combination of a main carriage traveling along the bed, a second carriage movable along said main carriage, means carried by said carriages for raising sand and other matter from said bed, a device movable along the main carriage for carrying filtering material, and means carried by said second carriage for supplying filtering material to said bed, said means being adapted to coact with said device to cause the device to discharge the filtering material carried thereby into said means.

10. In a device for cleaning and replenishing sand filtration-beds, the combination of a main carriage, traveling along the bed, a second carriage movable along the main carriage, means carried by said second carriage for raising sand and other matter from the filtering-bed, said means being also adapted to discharge filtering material onto the bed, a conveyer movable along the main carriage and carrying filtering material, which is adapted to be discharged into said means and a device carried by said

carriage for causing said conveyer to discharge its contents as the second carriage is moved along the first.

11. In a device for replenishing sand filtration-beds, the combination of a main carriage movable along the bed, a device movable along said carriage and carrying filtering material, a second carriage movable longitudinally of said main carriage and means carried by said second carriage, stopping mechanism when impinged upon by the entering weft-carrier, into which said device is adapted to discharge the filtering material, for conducting the filtering material onto the bed.

12. In a device for cleaning sand filtration-beds, the combination of a main carriage traveling along the bed, a second carriage movable longitudinally of the main carriage means for cleaning the filtration-bed carried by said second carriage, a movable support for said cleaning means, and means for moving said support vertically.

659,917. SAFETY-RAZOR. ELIJAH E. DEPUTY, Millville, N. J., assignor of one-half to Eugene B. Goodwin, same place. Filed Mar. 13, 1900. Serial No. 8,469. (No model.)



Claim.—1. A safety-razor comprising a blade, a back or holder extending along and receiving the back of the blade and engaging the blade at both of its side faces, and a guard located at one side of the blade and extending from the cutting edge thereof to the adjacent side edge of the back or holder, said guard being detachably interlocked with the blade and with the back or holder and retaining the former in the latter, substantially as described.

2. A safety-razor comprising a back or holder, a blade fitted within the same, and a guard extending from the back or holder to the cutting edge of the blade and provided with a resilient tongue detachably engaging the blade and the back or holder, and securing the former within the latter and retaining the guard in place, substantially as described.

3. A safety-razor comprising a back or holder, a blade fitted within the same, and a guard arranged against the blade at one side thereof and extending from the back or holder to the cutting edge of the blade and provided at its ends with lugs engaging the ends of the said blade, said guard being provided at its inner edge with a tongue detachably interlocked with the blade and with the back or holder, substantially as described.

4. A safety-razor comprising a back or holder, a blade fitted within the back or holder and provided with a groove, and a guard provided with a tongue interposed between the back or holder and the blade and engaging the groove of the latter, whereby the guard is retained in place and the blade held against longitudinal movement, substantially as described.

5. A safety-razor comprising a back or holder provided at opposite sides with notches, a blade fitted within the back or holder and provided at opposite sides with grooves registering with the notches, and a reversible guard provided with resilient tongues or arms engaging the notches of the back or holder and the grooves of the blade, substantially as and for the purpose described

6. A safety-razor comprising a blade, a back or holder conforming to the configuration of the back of the blade and receiving and embracing the same, said back or holder being provided with a shank or extension, a handle pivoted to the shank or extension, and a guard located at one side of the blade and detachably interlocked with the same and with the back or holder and retaining the former in the latter, substantially as described.

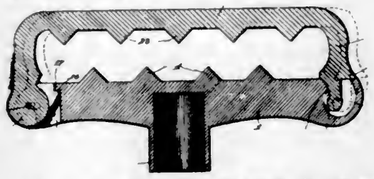
7. A safety-razor comprising a blade, a back or holder approximately U-shaped in cross-section conforming to the configuration of and receiving the back of the blade and terminating short of the cutting edges thereof, and a guard arranged at one side of the blade and extending from the adjacent side edge of the back or holder to the cutting edge of the blade and forming a continuation of the adjacent side of the back or holder and engaging the said blade and the back or holder, whereby the blade is retained in the back or holder, substantially as described.

8. A safety-razor comprising a back or holder substantially U-shaped in cross-section, a blade arranged within the back or holder and projecting beyond both sides thereof, and a reversible guard extending from the back or holder to the cutting edge of the blade and forming a continuation of the adjacent side of the back or holder and interlocked with the latter and the blade and capable of engaging the said back or holder at either side of the blade, substantially as described.

9. A safety-razor comprising a blade, a back or holder receiving the back of the blade and engaging both of the side faces thereof and provided at opposite sides with notches, a reversible guard adapted to be arranged at either side of the blade and extending from the adjacent edge of the back or holder to the cutting edge of the blade and forming a continuation of the side of the back or holder, said guard being provided with arms or tongues extending through the notches, and holding the blade against longitudinal movement in the back or holder, substantially as described.

10. A safety-razor comprising a back or holder provided at opposite sides with notches, a reversible blade provided at opposite sides with transverse grooves located equidistant of the ends of the blade at the thickened rear portion thereof, said blade being arranged within the back or holder with the grooves registering with the said notches, and the reversible guard engaging the ends of the blade and provided at its inner edge with arms or tongues extending through the said notches and arranged in grooves of the blade, substantially as and for the purpose described.

659,918. MOP-HEAD. JOHAN R. FROBERG, Grass Valley, Cal., assignor of two-thirds to C. E. Clinch and A. Hall, same place. Filed May 15, 1900. Serial No. 16,799. (No model.)



Claim.—1. A mop-head, comprising opposite jaws or members, which are hingedly or pivotally connected at one end of the head, the opposite free ends of the members being provided with a latch and a catch, respectively, one of the members being longitudinally slidable upon the other to engage and disengage the latch and catch, and means for yieldingly holding the movable member at its interlocked limit.

2. A mop-head, comprising a fixed jaw or member, a substantially U-shaped movable jaw or member, which has one end pivotally or hingedly connected to the adjacent end of the fixed member, and also slidable longitudinally thereof, a latch carried by the free end of one of the members, a catch carried by the adjacent end of the other member and arranged for engagement with the latch, and a spring engaging both members and yieldingly holding the movable member at its interlocked limit.

3. A mop-head, comprising a fixed jaw, having a longitudinal bifurcation or slot at one end thereof, and a catch at the opposite end, a movable jaw, having one end pivoted or hinged within the slot, and also mounted to slide longitudinally therein, the free end of the jaw having a latch to engage the catch, and a spring to normally hold the movable jaw at one limit of its slidable movement, to interlock the latch and catch.

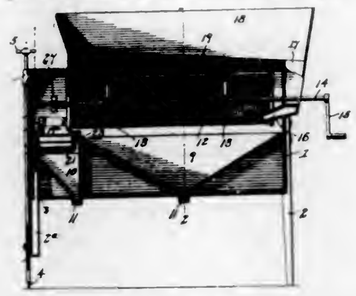
4. A mop-head, comprising a fixed jaw, having a longitudinal bifurcation or slot in one end, the opposite sides of the slot being provided with corresponding longitudinally-disposed slots, and a catch at the opposite end of the jaw, a movable jaw, having one end located within the longitudinal bifurcation or slot, and provided with a pivot-pin, which is slidably mounted in the slots in the opposite sides of the longitudinal slot, a latch at the free end of the movable jaw, and a spring to hold the movable jaw at its inward limit.

5. A mop-head, comprising a fixed jaw, having a longitudinal bifurcation at one end, corresponding slots in the opposite sides of the bifurcation, and a catch-socket at the opposite end of the jaw, a substantially U-shaped jaw, having one end provided with a rounded head, which is slidable within the bifurcation, a transverse pivot-pin carried by the head and slidable within the corresponding slots, a bowed leaf-spring embracing the rounded head, having its inner end bearing against the inner end wall of the bifurcation, and its opposite end connected to the outer side of the U-shaped jaw, to normally hold the latter at one limit thereof, and a latch at the free end of the U-shaped jaw, to interlock with the catch-socket.

659,919. WHEAT-SEPARATOR. RICHMOND B. GENTLE, Yadkin College, N. C. Filed Jan. 30, 1900. Serial No. 3,347. (No model.)

Claim.—1. The combination with a supporting-frame and a rotary screen mounted on a revolving shaft, of a cam on said shaft, a riddle receiving the overtail from the rotary screen, means for movably supporting one end of said riddle, a bent arm rigidly connected to the other end of the riddle and formed with a contact-shoe in operative proximity to the cam, and a reactive spring-link rigidly secured to the riddle by means which serve to secure the bent arm, said spring-link being secured at its upper end to the frame.

2. The combination with a narrow casing, of a screenings-pocket and a smaller grain-pocket located within the casing, a longitudinally-disposed rotary screen extending over the screenings-pocket, a transversely-disposed riddle located beyond and under one end of the rotary screen and over the grain-pocket, a narrow hopper located above the casing and extending nearly its entire length, a feed-spout located beyond one end of the casing and having its upper end in communication with the hopper and its lower end extending into the end of the rotary screen, a reactive spring rigidly connected at its opposite ends to the transverse riddle and to the casing, means for rotating the shaft of the rotary screen, and means carried by said shaft for urging the transverse riddle intermittently against the resistance of its reactive supporting-spring.



659,920. RUBBER TIRE. ARTHUR W. GRANT, Springfield, Ohio, assignor to the Consolidated Rubber Tire Company, New York, N. Y. Filed Mar. 23, 1900. Serial No. 9,945. (No model.)



Claim.—1. In a carriage-tire, the combination with the metal supporting-band having a central depression or groove, and the plain side supports rounding into said groove, a rubber band having a tongue or projection to fit said groove and fitted at the sides to the plain supports, and independent retaining-bands extending through the rubber rib or projection so as to lie substantially within said groove when the tire is in place, substantially as specified.

2. The combination, in a carriage-tire, of a metallic band having a central groove and inclined or concave supporting-faces on each side thereof, a rubber tire having a longitudinal rib to fit said groove and provided on each side thereof with seating-surfaces to fit said supports, and independent retaining-wires passing through said rubber, substantially within said tongue or groove, substantially as specified.

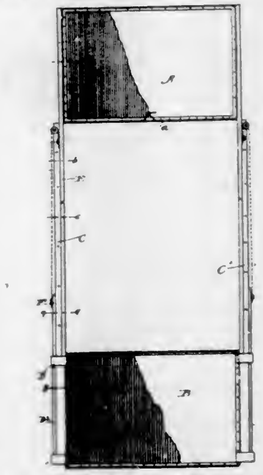
659,921. ROTARY WASHING-MACHINE. LYMAN C. HARTSOUGH, Cleveland, Ohio. Filed Jan. 27, 1900. Serial No. 3,030. (No model.)



Claim.—1. In a rotary washing-machine, a cylinder having closed ends and a transversely-ribbed periphery, and a hinged door in its periphery overlapping said ends, and a removable lift-blade set into said cylinder in the opening provided for the door and confined by the door, substantially as described.

2. In washing-machines, an exteriorly-ribbed cylinder with a doorway in its periphery and radial slots oppositely arranged in its ends open through said doorway, a removable lift-blade seated in said slots and having recesses in its outer edge, and a door overlapping said blade and confining the same having cleats notched to match said recesses, substantially as described.

659,922. HATCHWAY-DOOR. MARSELIUS HEGBOM, Chicago, Ill., assignor to Frederick Voss, same place. Filed Mar. 6, 1899. Serial No. 707,986. (No model.)



Claim.—1. The combination with two oppositely-moving half-doors, of a track for opposite edges of each half-door, having a length approximating one of the dimensions of the door, hooked arms on opposite sides of each half-door extending into and adapted to travel in said track.

2. In a hatchway-door, the combination with two vertically and oppositely moving half-doors, of a double track adjacent to each vertical edge of said door, a hooked arm on each vertical side of each half-door and projecting beyond the horizontal edge of the same, said hooked arms adapted to travel each in one of the tracks and to engage with its hooked part a complemental rib or flange therein.

3. In a hatchway-door, the combination with two vertically and oppositely moving half-doors, of a double track adjacent to each vertical edge of said door, a hooked arm on each vertical side of each half-door, and projecting beyond the horizontal edge of the same, said hooked arms being adapted to travel each in one of the tracks and to engage with its hooked part a complemental rib or flange therein, a pulley located adjacent to said tracks and a chain or the like engaged to each of said arms and on opposite sides of the pulley.

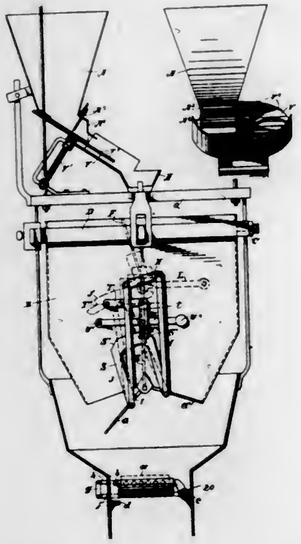
4. In a hatchway-door, the combination with two vertically and oppositely moving half-doors, of a double track of a length not greater than, and adjacent to each vertical edge of the door, an arm on the vertical edge of each half-door adapted to travel in one of the tracks, each arm having a hooked part and each track being provided with a flange adapted to engage said hooked part of the arm and acting to prevent the same from being pulled out of the track.

5. In a hatchway-door the combination with two vertically and oppositely moving half-doors, of a double track of a length not greater than and adjacent to each vertical edge of the door, an arm on each vertical edge of each half-door, said arms adapted to travel in the tracks each having a hooked part, each track being provided with a flange adapted to engage said hooked part of the arm and adapted to prevent the same from being pulled out of its track and means whereby vertical movement of one of said half-doors produces an opposite movement in the other.

659,923. AUTOMATIC WEIGHING-MACHINE. GEORGE HOEFNER, San Francisco, Cal., assignor to the Union Scale and Manufacturing Company, Sacramento, Cal. Filed Oct. 2, 1899. Serial No. 732,306. (No model.)

Claim.—1. In a weighing-receptacle, the combination of a compartment weighing-bucket having pivoted bottoms controlling the discharge

of material, an oscillating member at one side of the receptacle having locking-surfaces, locking means engaging one of said surfaces at the completion of each oscillation of the member, means dependent upon the sinking of the receptacle for automatically releasing the locking devices, a second oscillating member on the opposite side of the receptacle and connected with the bottoms, and a retarding device for this second member released by the member itself as it oscillates from one position to another in unison with the oscillation of the first-named member.



2. A weighing-receptacle having compartments and swinging bottoms controlling the discharge thereof, an oscillating member connected with the bottoms and having retarding-surfaces, and a weighted device adapted to rest on one of said surfaces at the completion of each oscillation of the member, and to be released from the engaged surface by the movement of the member itself when the opening of the bottom causes the member to oscillate.

3. The combination of a compartment weighing-receptacle, swinging bottoms controlling the discharge from each compartment, an oscillating member connected with said bottoms and having inclined surfaces at its upper angles, and a weighted lever having a link or arm to engage one of said inclined surfaces at the completion of each oscillation of the member, whereby when the member oscillates in unison with the opening of a bottom the engaged inclined surface rides under the link or arm and raises the weighted lever to enable said surface to become disengaged from said link or arm, and the oscillating member to be released from its position.

4. The combination of a weighing-receptacle having compartments with swinging bottoms, an oscillating segment connected with said bottoms and having notches at its upper angles, a lever pivoted at one end and having its free end to engage one of said notches at the completion of each oscillation of the segment, a second lever fulcrumed between its ends, having one end lying in the path of the free end of the first-named lever and having a weight upon its opposite end normally approximately in line above the fulcrum of said second lever, and means connecting the second lever with a stationary part whereby the sinking of the receptacle tilts the second lever to enable the weight thereon to throw the lever into contact with the free end of the first-named lever and thereby release the segment from its locked position.

5. In a weighing apparatus, a weighing-receptacle, a yoke from which it is suspended having a scale-beam projecting from it, a source of supply, means for delivering the material from the source of supply into the weighing-receptacle, a tilting diaphragm movable to form receiving-chambers alternately upon opposite sides, fulcrumed bottoms connected and movable with the diaphragm, a notched segment fulcrumed on the axes of the bottoms, a latch adapted to engage the notches in the segment and thereby hold the latter and the bottoms in either position to which they are moved, said latch having a bent projecting arm, a lever fulcrumed to the weighing-receptacle having its free end adapted to engage the bent arm and disengage the latch and a fixed suspending-rod by which said lever is actuated when the receptacle sinks.

6. In a weighing apparatus, a weighing-receptacle, a yoke from which it is suspended having a scale-beam projecting from it, a source of supply, means for delivering the material from the source of supply to the weighing-receptacle, a tilting diaphragm and fulcrumed bottoms connected and movable in unison therewith, a notched segment fulcrumed and turnable in unison with the movement of the bottoms, a latch adapted to engage the notches in the segment and thereby hold the bottoms in either position to which they are moved, a disengaging arm fulcrumed to the receptacle with its free end adapted to engage and raise the latch, a fixed rod having one end adapted to engage the swinging arm when the weighing-receptacle sinks whereby the arm is moved to disengage the latch and allow the position of the bottoms to reverse and a weight carried by said arm, and movable to either side of the vertical plane of its fulcrum-point by the tilting of the arm.

7. In a weighing apparatus, a weighing-receptacle, a yoke and scale-beam, a source of supply, a tilting diaphragm movable to form receiving-chambers alternately upon opposite sides, and fulcrumed bottoms movable in unison therewith whereby one chamber is closed and the other is opened, a notched segment fulcrumed and movable in unison with the bottoms, and a latch adapted to engage the notches in the segment and thereby hold the latter and the bottoms in either position to which they are moved, said latch having a bent arm projecting from its movable end, an arm fulcrumed to the receptacle having its free end adapted to engage the bent arm of the latch, and lift the latter when the receptacle sinks, fixed rods engaging the arm and the latch and a tilting weight connected with the arm whereby the sinking of the receptacle disengages the latch and allows the bottoms to reverse their positions, and a spring connecting with the arm contacting with the latch whereby the rising of the receptacle acts to engage the latch with the notched segment.

8. In a weighing apparatus, a vertically-movable weighing-bucket with dividing-partition, a suspended yoke from which the receptacle is hung having a scale-beam projecting from it, a fulcrumed tilting and directing top section, bottoms connected and movable in unison therewith to alternately close and open the chambers, a swinging segment fulcrumed on the axes of the bottoms, having its upper surface notched, a retaining-latch adapted to engage said notches to hold the segments and bottoms locked in either position, and a supplemental rectangular frame having diagonal surfaces at the upper angles movable with the bottoms, and a fulcrumed weighted arm having its end adapted to rest upon said angles when the parts are locked in either position.

9. In a weighing apparatus, a vertically-movable weighing-bucket, a yoke from which it is suspended with a scale-beam projecting from it, a source of supply and means for delivering the material from the source of supply into the weighing-receptacle, consisting of an inclined disk having radial curved projections over which the material passes and by which it is prevented from clogging.

10. In a weighing apparatus, the compartment weighing-bucket, tilting bottoms, and rocking directing-gate whereby the compartments are alternately filled and emptied, mechanism by which the gate and bottoms are automatically changed upon the filling of either compartment, main and supplemental locking devices one on one side and the other on the opposite side of the weighing-bucket and both acting in unison to retain the parts in position until either compartment has received its full weight, one of said devices including a member having locking-surfaces at its upper angles and a weighted arm adapted to engage one of said surfaces at the completion of each movement of the member, and mechanism actuated by the sinking of the bucket when the compartment has been filled, whereby the locking devices are disengaged.

11. The combination with a suspended-compartment weighing-bucket having alternately opening and closing bottoms, a tilting directing-gate and connections by which the gate and bottoms are moved in unison, a segment concentric and movable in unison with the bottoms, a lever fulcrumed at one end and having the opposite end to engage the segment at the completion of each oscillation thereof, and having a hook-shaped member, rods projecting from a stationary part, one of which rods engages the said hook-shaped member, and a weighted lever fulcrumed to the receptacle and connected with the other stationary rod, and having an end adapted to strike the hook-shaped member of the other lever and release said last-named lever from the segment.

12. The combination in a weighing apparatus of a compartment weighing-bucket, having pivoted bottoms, a tilting diaphragm and mechanism by which it is turned to alternately supply material to be weighed to the compartments, and to open the bottoms after the weight is completed, a discharge-chute common to both compartments, an arm extending across the interior of the chute having one end fixed to a rocking shaft, a stop to limit the movement of the arm, a registering device carried by the chute, an arm and link connecting the movable part of the register with the shaft, and a spring by which the parts are returned to their normal position after the flow from the bucket has ceased.

659,924. CYLINDRICAL CIGAR-BOX. Charles Hoffritz, Dayton, Ohio. Filed Mar. 26, 1900. Serial No. 10,206. (No model.)



Claim.—1. A cylindrical-shaped box, adapted to contain cigars and the like, the walls of which are formed of a fabric consisting of thin veneer sheets of cedar-wood with an intervening sheet of textile fabric; said veneering and sheet being united by means of an adhesive substance which is applied over a portion of the surface of one of said sheets only, so that air will not be retarded in its passage to the interior of the box, substantially as shown and described.

2. The herein-described cylindrical cigar-box the sides of which are constructed of a thin fabric consisting of cedar veneering and an interposed sheet of thin textile fabric; the said veneering and textile fabric being united into a single sheet by means of an adhesive substance which is placed adjacent to the edges thereof, so that the passage of air through the fabric will not be materially impeded, and the top and bottom of said box being of material of greater strength than the walls in order that suitable supports are provided for said walls, substantially as shown and described.

659,925. FOUNTAIN-PEN. Le Roy Hooker, Chicago, Ill., assignor to the Rand, McNally & Company, same place. Filed Aug. 31, 1899. Serial No. 729,141. (No model.)



Claim.—1. A fountain-pen having, in combination, a reservoir, a throat, and a pen, said pen having a shank occupying the throat, nibs separated by a slit, and a pair of tongues joining the pen at a point where it is practically inflexible so that they do not partake of the movement of the nibs, said tongues being bent inward so that they lie immediately beneath the upper portions of the nibs and form a pocket or barrier, the pen being so disposed that said pocket or barrier partially closes the throat, substantially as set forth.

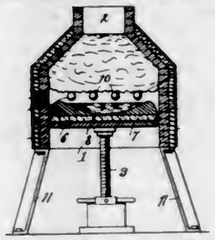
2. A fountain-pen having, in combination, a reservoir, a throat, and a pen, said pen having a shank occupying the throat, nibs separated by a slit, and a pair of tongues joining the shank above the slit and extending downward past the upper end of the slit, said tongues being bent inward so that they lie immediately beneath the upper portions of the nibs and form a pocket or barrier, the pen being so disposed that said pocket or barrier partially closes the throat, substantially as set forth.

3. A fountain-pen having, in combination, a reservoir, a throat, and a pen, said pen having a shank occupying the throat, nibs separated by a slit, and a pair of tongues joining the shank above the slit at practically diametrically-opposite points and extending downward past the upper end of the slit, said tongues being bent inward beneath the upper portions of the nibs so as to form a pocket or barrier, the pen being so disposed that said pocket or barrier partially closes the throat, substantially as set forth.

4. A fountain-pen having, in combination, a reservoir, a throat, and a pen, said pen having a shank occupying and conforming closely to the throat, nibs separated by a slit, and a pair of tongues joining the shank above the slit and extending downward past the upper end of the slit, said tongues being bent inward beneath the upper portions of the nibs so as to form a pocket or barrier, the pen being so disposed that the said pocket or barrier partially closes the throat, substantially as set forth.

5. A fountain-pen having, in combination, a reservoir, a throat, and a pen, said pen having a shank occupying the throat and conforming closely to the inner wall thereof, and embracing at least one hundred and eighty degrees of a circle, nibs separated by a slit, and a pair of tongues joining the shank above the slit at practically diametrically-opposite points and extending downward past the upper end of the slit, said tongues being bent inward beneath the upper portions of the nibs so as to form a pocket or barrier, the pen being so disposed that the said pocket or barrier partially closes the throat, substantially as set forth.

659,926. PROCESS OF MANUFACTURING ABRASIVE MATERIAL. Charles B. Jacobs, East Orange, N. J., assignor, by mesne assignments, to the General Electro-Chemical Company, Jersey City, N. J. Filed May 4, 1900. Serial No. 15,507. (No specimens.)



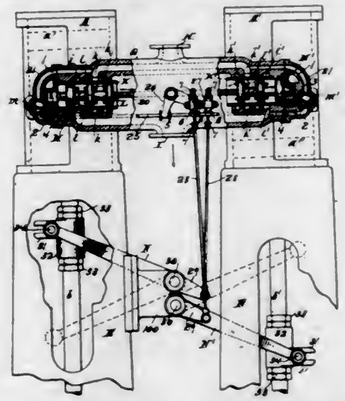
Claim.—1. The process of making a crystalline abrasive from amorphous aluminium hydrate which consists in heating the hydrate to a state of quiet fusion in an electric furnace and allowing it to cool slowly into a solid mass of crystalline form and a degree of hardness which makes the material suitable as an abrasive.

2. The process of transforming aluminium hydrate into hard material suitable for abrasives, consisting in calcining the hydrate and fusing it in an electric furnace and allowing it to cool slowly.

3. The process of transforming natural aluminium hydrate into a hard material suitable for abrasives, consisting in first heating the same to drive off the water and thereafter fusing it in the electric furnace and allowing it to cool.

4. The process of transforming soft amorphous hydrous oxid of aluminium into a hard material suitable for abrasives, consisting in fusing the material in the electric furnace and allowing it to cool slowly while in a state of agitation.

659,927. STEAM-ENGINE. Herman Jensenius, New York, N. Y., assignor to the Henry R. Worthington, Elizabeth, N. J. Filed Sept. 19, 1899. Serial No. 730,988. (No model.)



Claim.—1. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons, and means for controlling said valve mechanism including an actuating member and connections between said member and each of said pistons comprising lost-motion devices whereby the lost motion is taken up and the actuating member moved for the operation of the valve mechanism only when both pistons have reached a determined position, substantially as described.

2. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons, and means for controlling said valve mechanism including an actuating member, a lever pivoted on said member, and connections between said lever and each of the pistons whereby the lever will be rocked by the motor-pistons on its pivot on the actuating member, or moved with the actuating member for the

operation of the valve mechanism according to the position of the two pistons, substantially as described.

3. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons, and means for controlling said valve mechanism including an actuating member, a lever pivoted on said member, and separate connections between said lever on opposite sides of its pivot on the actuating member and each of the pistons whereby the lever will be rocked on the actuating member by the movement of either of the pistons in advance of the other until the other reaches a determined position, or the lever will be moved with the actuating member for the operation of the valve mechanism by one or both of the pistons when both pistons have reached a determined position, substantially as described.

4. The combination with two motor-cylinders, and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons, and means for controlling said valve mechanism including an actuating member, a lever pivoted on said member, and separate connections between said lever on opposite sides of its pivot on the actuating member and each of the pistons including lost-motion devices between the pistons and said lever whereby the lever will be rocked on the actuating member by the movement of either of the pistons after the lost motion between said piston and the lever has been taken up until the lost motion between the lever and the other piston has been taken up, or the lever will be moved with the actuating member for the operation of the valve mechanism by one or both of the pistons after the lost motion between both of the pistons and the lever has been taken up, substantially as described.

5. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons, auxiliary valve mechanism controlling the fluid operating said main valve mechanism, means for controlling said auxiliary valve mechanism including an actuating member and connections between said member and each of said pistons comprising lost-motion devices whereby the lost motion is taken up and the actuating member moved for the operation of the auxiliary valve mechanism only when both pistons have reached a determined position, substantially as described.

6. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons, auxiliary valve mechanism controlling the fluid operating said main valve mechanism and means for controlling said auxiliary valve mechanism including an actuating member, a lever pivoted on said member, and connections between said lever and each of the pistons whereby the lever will be rocked by the motor-pistons on its pivot on the actuating member, or moved with the actuating member for the operation of the auxiliary valve mechanism according to the position of the two pistons, substantially as described.

7. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism having separate valves for admitting the fluid operating the main valves for the movement of the valves in opposite directions, whereby the main valves are moved in opposite directions by the admission movement of one auxiliary valve and the exhaust movement of the other auxiliary valve, an actuating member connected to both of the auxiliary valves, a lever pivoted on said member, and connections between said lever and each of the pistons whereby the lever will be rocked by the motor-pistons on its pivot on the actuating member or moved with the actuating member for the operation of the auxiliary valves according to the position of the two pistons, substantially as described.

8. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons in opposite directions simultaneously, and means for controlling said valve mechanism including an actuating member, and connections between said member and each of said pistons comprising lost-motion devices whereby the lost motion is taken up and the actuating member moved for the operation of the valve mechanism only when both pistons have reached a determined position, substantially as described

9. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons in opposite directions simultaneously, and means for controlling said valve mechanism including an actuating member, a lever pivoted on said member, and connections between said lever and each of the pistons whereby the lever will be rocked by the motor-pistons on the actuating member, or moved with the actuating member for the operation of the valve mechanism according to the position of the two pistons, substantially as described.

10. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons in opposite directions simultaneously, auxiliary valve mechanism controlling the fluid operating said main valve mechanism, and means for controlling said auxiliary valve mechanism including an actuating member and connections between said member and each of said pistons comprising lost-motion devices whereby the lost motion is taken up and the actuating member moved for the operation of the auxiliary valve mechanism only when both pistons have reached a determined position, substantially as described.

11. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons in opposite directions simultaneously, auxiliary valve mechanism controlling the fluid operating said main valve mechanism including an actuating member, a lever pivoted on said member, and connections between said lever and each of the pistons whereby the lever will be rocked by the motor-pistons on the actuating member, or moved with the actuating member for the operation of the auxiliary valve mechanism according to the position of the two pistons, substantially as described.

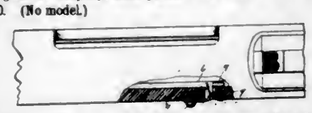
12. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons in opposite directions simultaneously, auxiliary valve mechanism controlling the fluid operating said main valve mechanism including an actuating member, a lever pivoted on said member, and separate connections between said lever on opposite sides of its pivot on the actuating member and each of the pistons including lost-motion devices between the pistons and said lever whereby the lever will be rocked on the actuating member by the movement of either of the pistons after the lost motion between said piston and the lever has been taken up until the lost motion between the lever and the other piston has been taken up, or the lever will be moved with the actuating member for the operation of the auxiliary valve mechanism by one or both of the pistons after the lost motion between both of the pistons and the lever has been taken up, substantially as described.

13. The combination with pistons a, a' and a valve mechanism, of an actuating member connected to said valve mechanism, lever 27 pivoted on said member, connecting-rods 28 having a pivotal connection with said lever on opposite sides of its pivot, connections between said rods 28 and the pistons for operating the connecting-rods and reversing the movement of one of the connecting-rods relatively to the piston by which it is operated, and lost-motion devices between the lever and pistons, substantially as described.

14. The combination with pistons a, a', and a valve mechanism, of an actuating member connected to said valve mechanism, lever 27 pivoted on said member, and connections between said lever on opposite sides of its pivot and the respective pistons with lost motion between each piston and the lever, substantially as described.

659,928. EJECTOR FOR BREECH-LOADING FIREARMS.

THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed July 30, 1900. Serial No 25,220. (No model.)



Claim.—1. The combination with a gun-frame, of an ejector-spring fixed thereto and standing at a right angle to the path in which the cartridge-shell is extracted, and in position to be engaged and placed under tension by the said shell which it ejects in its recovery, and means located to the rear of the spring for limiting the rearward excursion of the cartridge, and preventing the excessive bending of the spring.

2. The combination with a gun-frame, of an ejector-spring secured to the gun-frame and having one end passed through an opening formed in the gun-frame into position to be engaged by the head of a cartridge-shell when the same is being extracted from the gun-barrel, and a fixed abutment-head located directly to the rear of the projecting end of the said spring which is forced against the head when the gun is opened and the cartridge extracted, but which recovers to eject the cartridge.

3. In a breech-loading magazine-gun, the combination with the gun-frame, of a breech-bolt provided with extractors, an ejector-spring bent between its ends, secured by its outer end to the outer face of the left-hand wall of the gun-frame, and having its inner end passed through an opening in the said wall so as to project into the receiver-chamber thereof, an abutment-head mounted upon a stem entered into an opening in the gun-frame and located to the rear of the projecting inner end of the said spring, which is forced against the abutment-head when the gun is opened and the cartridge extracted, but which recovers to eject the cartridge.

659,929. ADJUSTABLE REAR SIGHT.

THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Aug. 2, 1900. Serial No. 25,651. (No model.)



Claim.—1. In an adjustable rear sight for guns, the combination with a sight proper comprising a horn and a spring-shank, the lower face of which latter is formed with transversely-arranged teeth, of an elevator arranged to engage with the said teeth, and adapted to be moved back and forth for raising and lowering the horn of the sight proper.

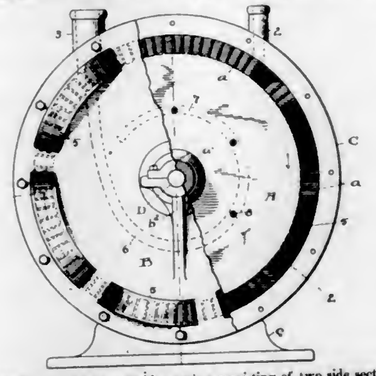
2. In an adjustable rear sight for guns, the combination with a sight proper comprising a horn and a spring-shank, the lower face of which latter is formed with transversely-arranged teeth, of a transversely-arranged elevator located beneath the said shank and comprising two finger-pieces and a retaining edge which joins the said finger-pieces and which engages with the teeth of the shank.

3. In an adjustable rear sight for guns, the combination with the sight proper comprising a horn and a spring-shank, the lower face of which latter is formed with transversely-arranged teeth, of an elevator arranged to engage with the said teeth, and adapted to be moved back and forth for raising and lowering the horn of the sight proper and to be stopped at the limit of its forward and rearward excursions.

4. In an adjustable rear sight for guns, the combination with a sight proper comprising a horn and a spring-shank, the lower face of which latter is formed with an inclined series of transversely-arranged teeth decreasing in depth from the rear to the forward end of the series; of a transversely-arranged elevator riding upon the upper edge of the gun-barrel, located beneath the toothed portion of the shank, and comprising a retaining edge coacting with the said teeth, and two finger-pieces located at the ends of the said edge.

659,930. STEAM-TURBINE.

DUSTON KEMBLE, Cleveland, Ohio. Filed Nov. 17, 1898. Serial No. 696,686. (No model.)



Claim.—1. A steam-turbine casing consisting of two side sections provided each with a series of opposite curved depressions having smooth surfaces and arranged in respect to each other to form a sinuous circular channel for the steam, in combination with a single wheel having on its periphery a series of radial vanes extending into said channel, the curved depressions constituting the channel being of such length as to each cover a series of said vanes, substantially as described.

2. The turbine-casing having a sinuous circular channel for the steam formed by a series of complementary ducts in both sides of the casing, said ducts curved lengthwise and each overlapping the ends of two opposite ducts, so as to carry the steam around in a circle, and a wheel in the casing having vanes running in said channel, said ducts having such length as to overlap a series of the said vanes both at their entrance to the duct and at their exit therefrom, substantially as described.

3. A steam-turbine casing having two sides and a series of ducts successively in each side curved in the direction of their length and arranged successively to form a sinuous circular channel, in combination with a single disk-shaped wheel having a series of radially-disposed vanes on its periphery the full width of the wheel and the full depth of the said channel, the length of curvature of the said ducts constituting the steam-channel being such that at each point where the steam traverses the periphery of the wheel it will strike a series of the vanes, substantially as described.

659,931. PACKAGE.

FRANK KNOBELOCH, Dayton, Ohio, assignor to the Kinnard Manufacturing Company, same place. Filed Feb. 18, 1899. Serial No. 706,043. (No model.)



Claim.—1. In a package for holding fragile articles, a brace in the form of a truncated pyramid or its equivalent, whose base rests upon the top or bottom of the package, and whose faces bear against the feet or other projections of the article to be packed, and thus serve to hold it securely in place, substantially as shown and described.

2. In a package for holding fragile articles, a brace in the form of a truncated pyramid or its equivalent, whose base rests upon and is the size and shape of the top or bottom of the package, and whose faces bear against the feet or other projections of the article to be packed, and a rectangular tube which fits within the truncated pyramid and bears at one end against the top or bottom of the package and at the other, against the body of the article to be packed, substantially as and for the purpose described.

3. In a package for holding fragile articles, a brace consisting of a main flat portion arranged to fit upon the article to be packed, provided with sides at an angle to the bottom, the edges of which press against the outer wall of the package, and a tube designed to fit within an opening in said brace, and bear at one end against the top or bottom of the package, and at the other against the article itself, the two together thus serving to hold the article in place, substantially as and for the purpose described.

4. In a package for shipping fragile articles, a brace having a base resting against the ends and walls of the package, and sides or faces at an angle to said base, said brace also bearing against the article to be shipped, and a tube designed to fit within an opening in said brace, said tube bearing against the article to be packed at one end and at the other against the top or bottom of the package, the tube and brace together serving to hold the article in place, substantially as and for the purpose described.

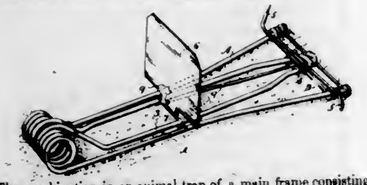
5. In a package for holding lamps, a brace consisting of a main flat portion with a hole for the burner, and sides at an angle with said main flat portion, said sides bearing against the walls and top of said package; a hollow cylinder which fits within the gallery of the burner and bears against the top of the box, a brace in the form of a hollow truncated pyramid, whose base bears against the walls and bottom of said package and whose faces support the feet of the lamp, and a hollow rectangular tube which fits snugly within the truncated pyramid and bears at one end upon the bottom of the package, and at the other against the under side of the foot of the lamp, substantially as and for the purpose described.

659,932. GOPHER-TRAP.

ZEPHYR A. MACABEE, Los Gatos, Cal. Filed June 21, 1900. Serial No. 21,051. (No model.)

Claim.—1. The combination in an animal-trap of wires forming a base at the rear, from the outside toward the center, thence carried forward and upward toward the front having loops attached near the bight of this portion, and other wires coiled and turnable upon the base, said wires extending through the guide-loops upon the upper portion and having their upper ends pointed, crossing each other and interlocked so that they may be separated or brought together by the action of the spring portion of

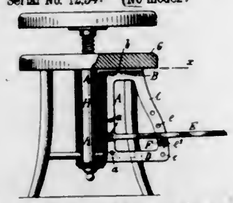
the main frame, a plate fulcrumed on the forwardly-extending arms and a trigger-lever turnable on the base, having a portion to engage the bight of said arms and a second portion to engage said plate.



2. The combination in an animal-trap of a main frame consisting of a wire bent to form a base, spring-coils at one end and an operative loop extending upwardly and forwardly above the base and nearer together than the base portion, loops carried by the front end or bight of this second portion, wires extending through the loop coiled or pivoted upon the base having the upper ends sharpened, interlocked and turned outwardly so as to be separated when the trap is set and brought together when it is sprung, a plate fulcrumed transversely across the upwardly and forwardly extending arms, a trigger-lever turnable about a supporting-bar at the front of the base having a short arm adapted to engage the bight of the spring portion of the frame when the latter is depressed, and the long arm to engage a holding device upon the plate.

3. The combination in an animal-trap of a base, and an upwardly and forwardly extending portion, with an interposed coiled spring at the rear, all formed of a single wire, interlocking arms pivoted to the base, guides upon the spring-actuated portion through which said wires pass, having the upper ends interlocking, turned outwardly and pointed, a latch-plate pivoted upon the spring-pressed arms of the trap and movable therewith, and a latch-lever fulcrumed at the front having one arm adapted to engage the bight of the spring-pressed portion, and the other to engage the latching-plate.

659,933. **FOOT-REST.** WILSON MARKS, New York, N. Y. Filed Apr. 12, 1900. Serial No. 12,547. (No model.)



Claim.—1. A foot-rest for music-stools consisting of a main post or support connected with said stool, a downwardly-projecting supporting-arm, means for securing said arm to the stool, and a platform extending between said main post and said supporting-arm and adjustably supported thereby, substantially as and for the purpose set forth.

2. In a foot-rest for music-stools, a main post, means for attaching the same to the central post of the stool, a flanged top for said main post whereby said post may be secured to the under side of the seat of the stool or to a false platform, a supporting-arm, means for securing said arm to the under side of the seat of the stool or to a false platform, and a platform adjustably supported by said post and arm, substantially as and for the purpose set forth.

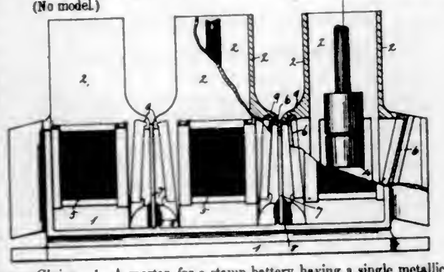
3. In a foot-rest for music-stools, a main post having pins on the sides thereof, a flanged top, and means for attaching the said post to the stool; a supporting-arm having perforations therein; a platform having a central slot and having its inner end adapted removably to engage with and be supported on the pins of the main post, and having lugs with perforations corresponding to the perforations in the arm; and a pin adapted to be thrust through the perforations in the lugs and in the arm, substantially as and for the purpose set forth.

4. A foot-rest for music-stools comprising a main post, a false platform adapted to be attached to the top of the main post of said stool and consisting of a plate having near one end a hole to receive the screw of the music-stool, a downwardly-projecting supporting-arm and means for connecting the same with the outer end of said false platform, and a platform removably connected with and extending between the main post of the stool and the supporting-arm, and adjustably supported thereby, substantially as and for the purpose set forth.

5. A foot-rest for music-stools comprising a main post, a false platform, as K, having a large opening as K′ near one end, screw-holes, as *k*, near said large opening, and at the opposite end thereof having longitudinal slots as k^2, and adapted to be fastened to the top of the main post of the stool, a downwardly-projecting supporting-arm and means for connecting the same with the outer end of said false platform, and a platform removably connected with and extending between the main post of the stool and the supporting-arm, and adjustably supported thereby, substantially as and for the purpose set forth.

6. In a foot-rest for music-stools, a main post, means for attaching it to the central post of the music-stool, a supporting-arm, a false platform and means for attaching the same to the top of the central post, means for attaching said main post and the supporting-arm of the foot-rest to said false platform, and a platform removably and adjustably connected with and supported by the main post and the supporting-arm, substantially as and for the purpose set forth.

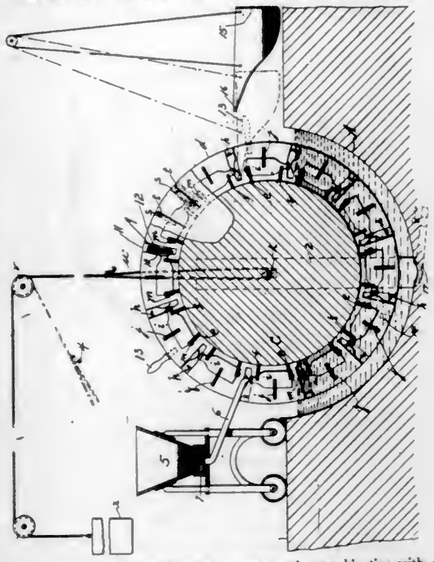
659,934. **MORTAR FOR STAMP-BATTERIES.** WILLIAM A. MERRALLS, San Francisco, Cal. Filed July 11, 1900. Serial No. 23,265. (No model.)



Claim.—1. A mortar for a stamp-battery having a single metallic base and a plurality of chambers thereon for the stamps, each chamber having four individual walls cast integral with the base, and each chamber being formed with spaces for the reception of discharge-screens on three sides, substantially as described.

2. A mortar for a stamp-battery having a single metallic base and a plurality of chambers thereon for the stamps, each chamber having four individual walls cast integral with the base, and each chamber being formed with spaces for the reception of discharge-screens on three sides, each chamber having also formed upon it extensions from adjacent sides of the adjacent chambers, said extensions being sufficiently near each other to form a guide for the upper edge of a partition between adjacent side screens, substantially as described.

659,935. **BOTTLE-WASHING APPARATUS.** WATTS T. MILLER, New York, N. Y. Filed Feb. 7, 1900. Serial No. 4,320. (No model.)



Claim.—1. In bottle-washing apparatus, the combination with a water-holding tank, of a rotatory drum located in said tank and having radially-projecting longitudinal ribs on its face provided with bottle-retaining seats, said ribs arranged in pairs to seat the bottles at points suitably distant from the middle parts for stability, clamping-bars having bottle-retaining notches corresponding with the notches of the seat-ribs, and means for detachably securing said bars at the ends between each pair of seat-ribs with their notches bearing on the bottles intermediately of the bearing-points of the bottles in the seats.

2. In bottle-washing apparatus, the combination with a water-holding tank, of a rotatory drum located in said tank and having bottle-retaining seats on its face, and clamping-bars adapted for securing the bottles placed lengthwise in circumferential lines of the drum, also bars carrying stoppers for a row of bottles and means for detachably securing said bars at their ends with the stoppers bearing on the mouth ends of the bottles with yielding pressure.

3. In bottle-washing apparatus, the combination with a water-holding tank, of a rotatory drum located in said tank and having radial longitudinal ribs provided with bottle-retaining seats on its face, and clamping-bars adapted for securing the bottles placed lengthwise in circumferential lines of the drum, also bars for closing the mouths of the bottles, each bar adapted to close the mouths of a series or row of bottles and being arranged lengthwise of the drum and detachably secured at its ends so as to bear on the bottles intermediately of their bearings in the seat-ribs.

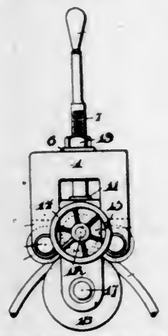
4. In bottle-washing apparatus, the combination with a water-holding tank, of a rotatory drum located in said tank, and having seats on its face and clamping-bars adapted for securing the bottles placed lengthwise in circumferential lines of the drum, also bars for closing the months of the bottles, each bar adapted to close the mouths of a series or row of bottles, and having an individual spring-pressed stopper for each bottle, said stopper-bars extending lengthwise of the drum and detachably secured at the ends for closing and opening the bottles.

5. In bottle-washing apparatus, the combination with a water-holding tank, of a rotatory drum located in said tank and having seats on its face and clamping means adapted for securing the bottles placed lengthwise in circumferential lines of the drum, also having flanges adapted for the drum charged with the bottles to roll along the floor, said drum being removable into and out of the water-holding tank and rotatable therein on its journals.

6. In bottle-washing apparatus, the combination with a water-holding tank and a rotatory drum located in said tank and having seats on its face and clamping means adapted for securing the bottles placed lengthwise in circumferential lines, of means for charging the bottles clamped on the face of the drum with readily-movable articles as shot, consisting of a magazine having a series of spouts adapted to be set to register with a row of bottles, and a gate for simultaneously discharging the charges of said articles into the bottles.

7. In bottle-washing apparatus, the combination with a water-holding tank and a rotatory drum located in said tank and having seats on its face and clamping means adapted for securing the bottles placed lengthwise in circumferential lines, of means for charging the bottles clamped on the face of the drum with readily-movable articles as shot, gate-bars for closing and opening the mouths of the charged bottles and a pan for recovering said articles when the bottles are opened, said pan supported by means adapted for presenting the pan for receiving the said articles and retiring it for unobstructed further movement of the drum.

659,936. **PIPE-BENDING MACHINE.** WILLIAM E. MORRIS, South Connellsville, Pa. Filed June 18, 1900. Serial No. 20,749. (No model.)



Claim.—In a device of the character described, the combination with the supporting-yoke having bifurcated ends, and a grooved bending-roll journaled in each of said ends, of a hanger mounted within the supporting-yoke, a screw-rod mounted in said yoke and connected to said hanger, a nut engaging said rod for adjusting the hanger, a shaft journaled in the hanger with its one end extending beyond the hanger, means connected to the extended end of said shaft for rotating the same, a grooved drive-roll mounted upon the shaft within the hanger, and a grooved straightening-roll journaled in the hanger beneath the drive-roll, substantially as shown and described.

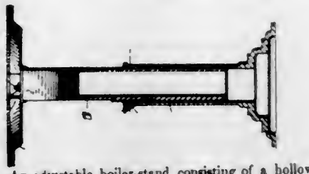
659,937. **FLORAL ORNAMENT.** LOUISE J. OLDEN, Boston, MASS., assignor of one-fourth to George S. Moynahan, same place. Filed June 9, 1900. Serial No. 19,663. (No model.)



Claim.—1. An article of manufacture for decorative purposes, comprising a strip or ribbon of light material folded lengthwise along its middle around a straight metallic core which is adapted to be bent and to remain so, said strip having its edges cut or gathered to present a fluffed appearance and secured to said core with both edges brought together to intermingle with each other, whereby the cored edge of the completed article may be attached to a support and said cored edge entirely concealed by the combined fluffed edges.

2. An article of manufacture for decorative purposes, comprising a plurality of strips or ribbons of light material folded lengthwise around a straight metallic core which is adapted to be bent and to remain so, said strips having their edges cut or gathered to present a fluffed appearance and secured to the core by stitching extending through the folded strips adjacent to the core, the fluffed edges of the strips intermingling with each other.

659,938. **ADJUSTABLE RANGE-BOILER STAND.** WILLIAM H. SHEPARD, Allegheny, Pa. Filed Mar. 20, 1900. Serial No. 9,401. (No model.)



Claim.—An adjustable boiler-stand consisting of a hollow base, a hollow standard formed integral with said base and provided in one side at its upper end with a pocket, an adjustable hollow standard 6 mounted in said rigid standard, said standard provided on one face with transversely-extending teeth, a segmental-shaped yoke formed integral with the upper end of said standard 6, a flat supporting-plate formed integral with each end of said yoke, an annular supporting-ring having apertured lugs for securing the same to said supporting-plates, and a locking-pin arranged within said pocket for supporting the adjustable standard in the desired position, substantially as shown and described.

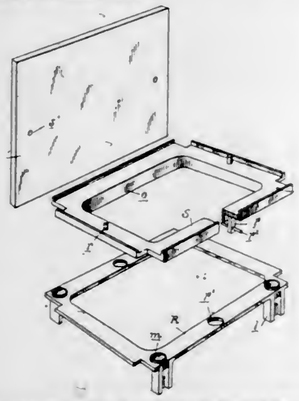
659,939. **SCALE.** WALTER F. STIMPSON, Detroit, Mich. Filed Dec. 18, 1899. Serial No. 740,677. (No model.)

Claim.—1. A scale-bearing, comprising a bearing-block, a member having a recess into which said block is adapted to be laterally inserted lateral retaining means with which said block is adapted to be engaged by a vertical movement within said recess, and a block detachably secured within said recess adapted to hold said bearing-block in its working position in engagement with said lateral retaining means.

2. A scale-bearing, comprising a block horizontally grooved to form a bearing for the knife-edge pivot and vertically grooved upon opposite sides, a member having a recess into which said block is adapted to be laterally inserted, vertical ribs upon said member adapted to be loosely engaged with said vertical grooves in said block by a vertical movement of the latter within said recess, and a second block detachably secured within said recess having a V-shaped bearing-ridge for said first-mentioned block retaining the same in engagement with said ribs and extending at right angles to said knife-edge bearing.

3. In a scale, the combination with a platform of a supporting-frame

therefor, comprising a lower section having bearings resting upon the platform-levers, and an upper section said sections having corresponding concave sockets formed on the adjacent faces thereof, balls in said sockets and retaining devices for holding said sections together permitting of a limited free lateral movement thereof.

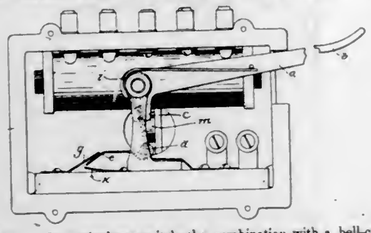


4. In a scale, the combination with a platform, of supporting-base therefor comprising a lower section having bearings for resting on the platform-levers, and an upper section having a retaining connection with said lower section permitting of a limited free lateral movement of the former in relation to the latter.

5. In a scale, the combination with the platform of a supporting-frame therefor comprising a lower section having bearings for resting on the platform-levers, an upper section, balls between said sections, and a connection between said sections consisting of a headed pin secured to one section passing through an aperture in the opposite section, the head of said pin being larger than said aperture and located in a countersink in the aperture-frame.

6. In a scale, a platform-supporting frame comprising an upper and a lower member having cylindrical sockets formed in their adjacent faces, concave cups having cylindrical flanges fitting in said cylindrical sockets, and balls between said members having bearings in said cups.

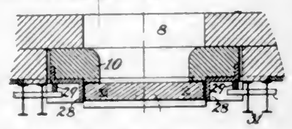
659,940. TELEPHONE-SWITCH. Alfred Stromberg, Chicago, Ill. Filed June 13, 1900. Serial No. 20,129. (No model.)



Claim.—In a telephone-switch, the combination with a bell-crank lever, provided with a long arm having a hook for holding the receiver and a short arm, of a roller provided upon the free end of the short arm, contact-springs *e* and *f* provided with sloping portions for engagement with the roller, one of said contact-springs being connected with one side of the telephone-line, while the other constitutes a terminal of a transmitter-circuit, contacts *g* and *h* located above the contact-springs *e* and *f*, one of said contacts constituting a terminal of the branch including the receiver, while the other constitutes the remaining terminal of the transmitter-circuit, and a lower contact *k* adapted for engagement with the contact-spring that is connected with the line when the said spring is depressed through the agency of the receiver, the latter spring also engaging the contact-terminal of the receiver when elevated upon the removal of the telephone-receiver, substantially as described.

659,941. METALLURGICAL FURNACE. William Swindell, Allegheny, Pa. Filed Nov. 21, 1899. Serial No. 737,789. (No model.)

Claim.—1. In a metallurgical furnace, the combination of a combustion-chamber having a charging-opening in its wall, a door-frame formed of a body of refractory material and metallic facing-strips secured thereto, the whole connected removably to the wall of the combustion-chamber around the charging-opening, and a door fitted to traverse in the door-frame and control the charging-opening.

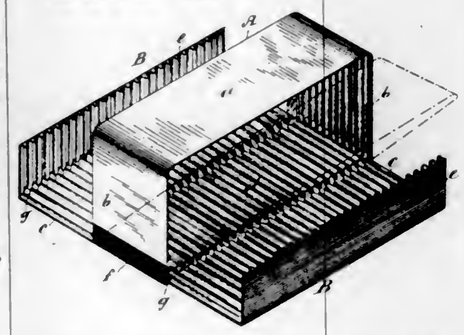


2. In a metallurgical furnace, the combination of a combustion-chamber having a charging-opening in its wall, stay-bars fixed to the walls, a door-frame having a body of refractory material fitting in a recess of the wall of the combustion-chamber around the charging-opening and metallic facing-strips connected to the body, keys bearing on the facing-strips and on the stay-bars of the wall, and securing the door-frame removably to the combustion-chamber, and a door fitted to traverse between the facing-strips and control the charging-opening.

659,942. PLASTIC COMPOSITION FOR PLASTERING WALLS. Wesly G. Thatcher, Buffalo, N. Y., assignor of one-half to James V. R. Ferris, New York, N. Y. Filed May 29, 1899. Renewed Mar. 7, 1900. Serial No. 7,748. (No specimens.)

Claim.—A plastic composition, composed of pulp, cement, plaster-of-paris, salt and wheat-bran, in the proportions substantially as set forth.

659,943. KNOCKDOWN PAPER BOX. Asa F. Warner, Boston, Mass., assignor to the Thompson & Norris Company, of New Jersey. Filed May 26, 1900. Serial No. 18,025. (No model.)



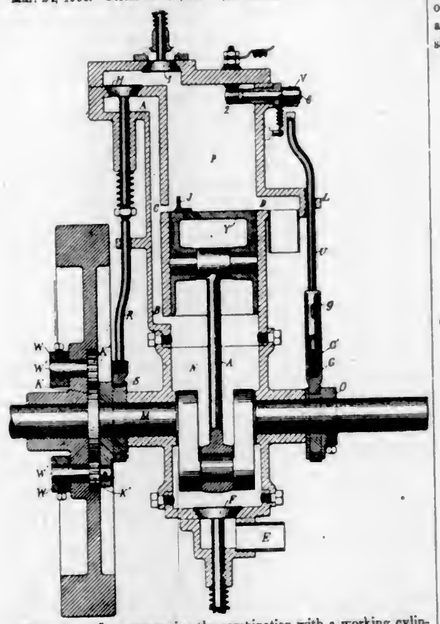
Claim.—1. A knockdown box composed of two pieces of corrugated paper fabric, one of said pieces forming a side and the two ends of the box-body, and the other piece forming one side of the body, the two covers, and the tucks thereon, said tucks, taken together, being of substantially the same width as the side, the corrugations of one of said pieces being at right angles to those of the other piece, and the folding-creases being formed transversely of and in the ribs of the corrugated fabric.

2. A knockdown box composed of two pieces of corrugated paper fabric, one piece, A, comprising the side *a*, and ends *b*, *b*, of the box-body, and the other piece, B, comprising the other side, *d*, of the box-body, the covers *c*, *c*, and the flaps or tucks *e*, *e*, on the respective covers, the ends *b*, *b*, being hinged flexibly to the respective ends of the side *d*, the corrugations on respective pieces A and B being at right angles, and the hinging or folding creases of both pieces extending transversely of the corrugations and formed therein.

3. A knockdown box of corrugated paper fabric, comprising the side *a* and ends *b*, *b*, in one piece, the covers *c*, *c*, the side *d* between said covers, and the flaps or tucks, *e*, *e*, on the free edges of the respective covers and having a width, taken together, equal to the width of the side *d*, said ends *b* being hinged to the respective ends of the side *d*, substantially as set forth.

4. A knockdown box of corrugated paper fabric, composed of two pieces, one of said pieces forming a side and the two ends of the box-body, and the other piece forming one side of the body, the two covers, and the abutting tucks on said covers, the corrugations of one of said pieces being at right angles to those of the other piece, and one of said covers being provided with an address-blank having a sealing-flap which extends beyond the margin of the cover, substantially as and for the purpose set forth.

659,944. GAS-ENGINE. Harry D. Weed, Syracuse, N. Y. Filed Mar. 24, 1900. Serial No. 10,108. (No model.)



Claim.—1. In a gas-engine the combination with a working cylinder, a gas-chamber communicating with said cylinder and a piston common to both said cylinder and said chamber, of means for admitting to the working cylinder full charges of explosive gas from the gas-chamber and means whereby a portion of the admitted charge of gas proportionate to the amount of work the engine is called upon to perform is withdrawn from the working cylinder prior to ignition, substantially as and for the purposes hereinbefore set forth.

2. In a gas-engine, the combination with the working cylinder, the gas-chamber and the piston, the working cylinder being connected with the gas-chamber through ports controlled by the piston, and also through a by-pass from its upper or rear end, of a valve in said by-pass for permitting a portion of an admitted charge, prior to ignition, to pass from the working cylinder back to the gas-chamber, as set forth.

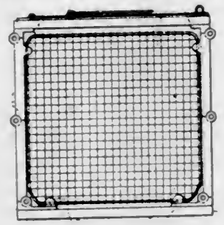
3. In a gas-engine the combination with a working cylinder, a gas-chamber, and a piston which in its forward movement compresses the explosive mixture in the gas-chamber, and in its return movement, the charge admitted to the working cylinder, the latter and the gas-chamber being connected through ports controlled by the piston, and also by a by-pass, of a valve in said by-pass, and means for controlling the action of the same for permitting a portion of the charge admitted to the working cylinder to pass back to the gas-chamber, as and for the purpose set forth.

4. In a gas-engine the combination with an extended cylinder one end of which constitutes the working cylinder or combustion-chamber, and the other a chamber for the explosive mixture, the two being connected by a direct passage and by a by-pass, of a piston working in the cylinder, and controlling in its movement the exhaust-port and also the inlet-port for admitting an explosive charge from the gas-chamber to the working cylinder, a valve in the by-pass and an automatic governor for operating the same, to permit portions of the compressed charges in the working cylinder, before ignition, to pass back to the gas-chamber, as set forth.

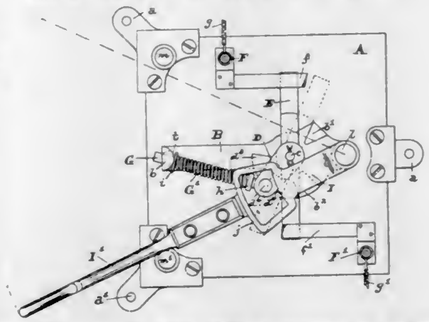
659,945. FOLDING CRATE. Thomas B. Whalen, Clayton, Md. Filed June 8, 1900. Serial No. 19,517. (No model.)

Claim.—1. In a folding crate, the combination of a bottom provided with a standard-base at each corner having a hinge member, a top having at each corner a standard-cap having a hinge member, standard-bars in two sections hinged together, hinged to the bases and caps, the said standards having double lugs to hold the sectional wirework sides of the crate, substantially as specified.

2. In a folding crate, the combination of a bottom having at each corner, a standard-base with double lugs and a hinge member on its upper surface, a top having at each corner a standard-cap with a hinge member, standards in two hinged sections to connect the bases and caps and provided with single lugs, a wire-bound end for the crate the lower edge of which is situated between the two parts of the double lugs on the standard-bases and adapted when in an elevated position to rest against the single lugs to prevent their outward movement, substantially as specified.



659,946. ELECTRIC SWITCH. George H. Whittingham, Baltimore, Md. Filed Feb. 5, 1900. Serial No. 3,961. (No model.)



Claim.—1. In an electric switch, the combination with the base-plate and its terminals, of a switch-blade pivoted loosely between said terminals; a tappet pivotally mounted on the pivot-pin of said blade and movable independently of said blade, said tappet being provided with a pin and a stud projecting above said pin; a spring-pressed rod pivotally and slidably mounted at one end on said base-plate and having a bifurcated head engaging said pin; and a lever pivotally mounted on said base-plate and formed with an open frame in which the said stud is located and has movement, as and for the purpose set forth.

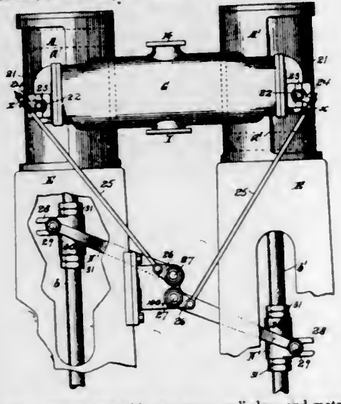
2. In an electric switch, the combination with a base-plate and its terminals, of a switch-blade pivoted between said terminals; a tappet having spaced-apart ears loosely embracing said switch-blade and pivotally mounted on the pivot-pin of said blade, said tappet being also formed at its free end with oppositely-extending lugs adapted to strike against said blade, a pin, and a stud projecting above said pin; a spring-pressed rod pivotally and slidably mounted at one end on said base-plate and having a bifurcated head engaging the said pin on the free end of said tappet; and a lever pivoted independent of the switch-blade and tappet and arranged for loose engagement with the stud on said tappet, whereby to move the tappet in either direction, as and for the purpose set forth.

3. A quick-acting electric switch, having in combination a base-plate; two terminals on said base-plate; a switch-blade pivoted between and adapted to engage both of said terminals; a pivoted tappet having two oppositely-extending striking-lugs adapted to strike against the switch-blade to throw the latter either way; a spring-pressed bar operating directly against said tappet; and a lever having provision for loosely engaging said tappet and pivoted on said base-plate at such a point different from said tappet that said loose engagement will be farther from the pivot of the lever than from the pivot of the tappet, as set forth.

659,947. STEAM-ENGINE. Charles C. Worthington, Dunnfield, N. J. Filed Sept. 19, 1899. Serial No. 730,996. (No model.)

Claim.—1. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons, and connections between each of said pistons and the valve mechanism for controlling said valve mechanism by both said pistons and constructed and arranged to secure the reversal of the admission and exhaust in either of said cylinders only when both pistons have reached a determined position, substantially as described.

2. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons, and auxiliary valve mechanism controlling the fluid operating said main valve mechanism, and connections between each of said pistons and the auxiliary valve mechanism for controlling said auxiliary valve mechanism by both said pistons, said valve mechanisms and connections being constructed and arranged to secure the reversal of the admission and exhaust in either of said cylinders only when both pistons have reached a determined position, substantially as described.



3. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism controlling the fluid operating said main valves, and connections between each of said pistons and the auxiliary valve mechanism for controlling said auxiliary valve mechanism by both said pistons to secure the reversal of the admission and exhaust in either of said cylinders only when both pistons have reached a determined position, substantially as described.

4. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism having separate valves for admitting the fluid operating the main valves for the movement of the valves in opposite directions, whereby the main valves are moved in opposite directions by the admission movement of one auxiliary valve and the exhaust movement of the other auxiliary valve, and connections between said auxiliary valve mechanism and both said motor-pistons whereby the admission and exhaust of motor fluid for each of said cylinders are controlled by the movement of both motor-pistons, substantially as described.

5. The combination with two motor-cylinders and motor-pistons therein movable independently of each other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism having separate valves for admitting the fluid operating the main valves for the movement of the valves in opposite directions, whereby the main valves are moved in opposite directions by the admission movement of one auxiliary valve and the exhaust movement of the other auxiliary valve, and independent connections between each of said auxiliary valves and one of the pistons, substantially as described.

6. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons, and connections between each of said pistons and the valve mechanism for controlling said valve mechanism by both said pistons and constructed and arranged to secure the reversal of the admission and exhaust in said cylinders simultaneously when both pistons have reached a determined position to move the pistons simultaneously in opposite directions, substantially as described.

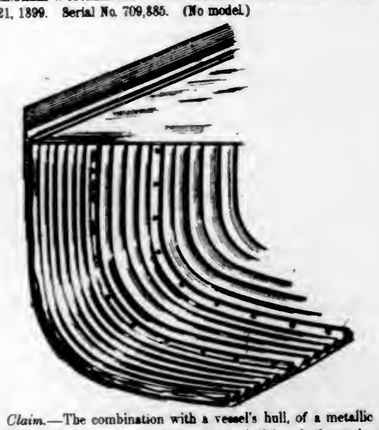
7. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of fluid-operated main valve mechanism controlling the motor fluid for actuating said pistons, and auxiliary valve mechanism controlling the fluid operating said main valve mechanism, and connections between each of said pistons and the auxiliary valve mechanism for controlling said auxiliary valve mechanism by both said pistons, said valve mechanisms and connections being constructed and arranged to secure the reversal of the admission and exhaust in said cylinders simultaneously when both pistons have reached a determined position to move the pistons simultaneously in opposite directions, substantially as described.

8. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism controlling the fluid operating said main valves, and connections between each of said pistons and the auxiliary valve mechanism for controlling said auxiliary valve mechanism by both pistons, said valve mechanisms and connections being constructed and arranged to secure the reversal of the admission and exhaust in said cylinders simultaneously when both pistons have reached a determined position to move the pistons simultaneously in opposite directions, substantially as described.

9. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism having separate valves for admitting the fluid operating the main valves for the movement of the valves in opposite directions, whereby the main valves are moved in opposite directions by the admission movement of one auxiliary valve and the exhaust movement of the other auxiliary valve, and connections between said auxiliary valve mechanism and both said motor-pistons whereby the admission and exhaust of motor fluid for each of said cylinders are controlled by the movement of both motor-pistons, substantially as described.

10. In a direct-acting pumping-engine, the combination with two motor-cylinders and motor-pistons therein connected to their corresponding pumping devices and each movable independently of the other, of valve mechanism controlling the motor fluid for actuating said pistons and comprising separate fluid-operated main valves for the two cylinders connected to move together, auxiliary valve mechanism having separate valves for admitting the fluid operating the main valves for the movement of the valves in opposite directions, whereby the main valves are moved in opposite directions by the admission movement of one auxiliary valve and the exhaust movement of the other auxiliary valve, and independent connections between each of said auxiliary valves and one of the pistons, substantially as described.

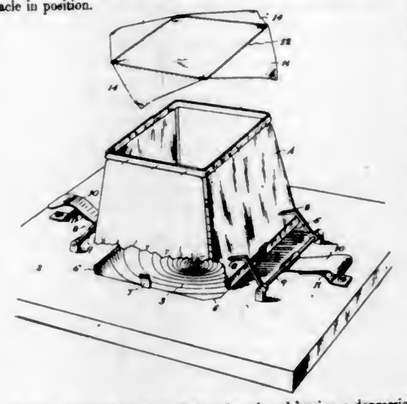
659,948. **MEANS FOR PREVENTING SHIPS FROM SINKING.** ANDREAS WISGALLA and FRANZ ENGEL, Breslau, Germany. Filed Mar. 21, 1899. Serial No. 709,885. (No model.)



Claim.—The combination with a vessel's hull, of a metallic lining arranged in folds or plaits, said lining being stiff and of a resistance to withstand and hold its own against water-pressure, substantially as set forth.

659,949. **RECEPTACLE FOR PACKING FRUIT.** CHARLES W. ARRASMITH, Courtland, Cal. Filed June 14, 1900. Serial No. 20,224. (No model.)

Claim.—1. In a device for packing fruit, a base-board having a depression, the bottom of said depression being concaved with vertical sides having also projecting corners to permit a receptacle to rest upon it, and spring-pressed clamps on opposite sides of the depression to retain the receptacle in position.

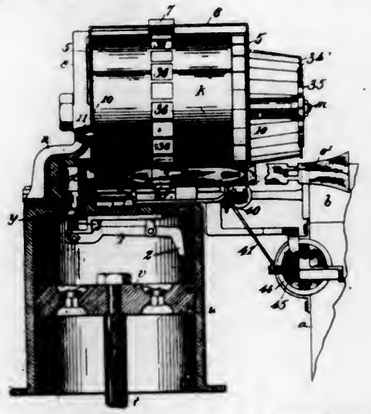


2. In a device for packing fruit, a base-board having a depression and clamps upon opposite sides of the depression, and consisting of hook-shaped arms, a rock-shaft upon which the arms are mounted, and spring-pressed handle-pieces fixed to the shaft and operating the clamps.

3. A device for packing fruit comprising a base with a concavity substantially corresponding with the shape of the basket, and having supports upon which the inverted basket rests, guides, and spring-pressed clamps for holding the basket while being filled.

4. In a device for packing fruit, the combination with a base-board having a depression adapted to receive the open end of a receptacle, of means including a rock-shaft having devices to engage and hold the basket while being filled.

659,950. **LOOM.** WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC E. KIP, Montclair, N. J. Filed Nov. 3, 1899. Serial No. 735,647. (No model.)



Claim.—1. In a loom, the combination with means for automatically supplying weft or filling to the loom as required, and means for picking or driving the shuttle, of the said shuttle, means controlled by the weft or filling therein for determining the extend to which the shuttle shall enter its box, and means adapted to be actuated by the shuttle when it enters its box to the maximum extent for setting in motion said supplying mechanism.

2. In a loom, the combination with means for automatically supplying weft or filling to the loom as required, and means for picking or driving the shuttle, of the said shuttle, means controlled by the weft or filling therein for determining the extent to which the shuttle shall enter its box, and means extending into the shuttle-box and so situated as to be actuated by the shuttle when it enters its box to the maximum extent for setting in motion said supplying mechanism.

3. In a loom, the combination with an automatic weft or filling changing or supplying mechanism, an intermediate mechanism between said supplying mechanism and the shuttle-box of the loom, of a shuttle or weft-carrier, and means within the latter, controlled by the weft or filling therein, which governs the extent to which the shuttle shall enter the box, said means permitting the shuttle, when the weft therein is substantially exhausted, to enter the box to an extent greater than the normal and to actuate said intermediate mechanism.

4. A loom having an automatic weft or filling changing or supplying mechanism, a shuttle-box, an intermediate mechanism between the shuttle-box and said supplying mechanism, a shuttle, and means for bringing said shuttle to rest in its box at one point normally, or when the weft therein is not exhausted, and for bringing same to rest at another point in the box when the weft therein is substantially exhausted, whereby said shuttle may be made to actuate said intermediate mechanism.

5. A loom having an automatic weft or filling changing or supplying mechanism, a shuttle-box, an intermediate mechanism between the shuttle-box and said supplying mechanism, a shuttle, means for picking or driving said shuttle, and means for bringing said shuttle to rest in its box at one point normally, or when the weft therein is not exhausted, and for bringing same to rest at another point in the box when the weft therein is substantially exhausted, whereby said shuttle may be made to actuate said intermediate mechanism.

6. In a loom, the combination with a weft-supplying mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the supplying mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, means for applying to said shuttle an aeriform fluid for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to supply weft or filling to the loom.

7. In a loom, the combination with a weft or filling supplying mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the supplying mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and a valve which permits the air to flow in one direction only through said passage, means for applying to said shuttle an aeriform fluid for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to supply weft to the loom.

8. In a loom, the combination with a vibrating or going part, a weft or filling supplying mechanism, and an intermediate mechanism between said supplying mechanism and going part and adapted for operatively connecting the same at proper times, of a shuttle-box, means for admitting thereto an aeriform fluid for picking or driving the shuttle, the said shuttle, having a passage through it for air, a bobbin or weft-holder having in it an aperture normally closed by the weft thereon, and means extending into the path of the shuttle in the shuttle-box and connecting with the said intermediate mechanism, whereby the shuttle is adapted to operate the latter when the weft is nearly exhausted.

9. In a loom, the combination with a shuttle-box adapted for incarcerating air, of a shuttle or weft-carrier having an air-passage through it which is normally closed by the weft or filling in said weft-carrier.

10. In a loom, the combination with a shuttle-box adapted for incarcerating air, of a shuttle or weft-carrier having through it a passage for air, and a bobbin in and closing the air-passage through said shuttle, said bobbin having through it an air-passage which is normally closed by the weft thereon.

11. A shuttle or weft-carrier for a loom having an air-passage through it which is adapted to be closed by the weft or filling within the said carrier and to be opened by the substantial exhaustion of said weft or filling.

12. The combination with a hollow shuttle or weft-carrier, having apertures near its respective ends for the entry and escape of air, of a bobbin or holder for the weft in the carrier, said bobbin having an aperture or apertures in it which are closed by the weft wound thereon.

13. A bobbin 19, having an aperture or apertures 26, and an exterior, annular, circumferential recess 27, into which said aperture or apertures open, the weft being adapted to fill said recess.

14. In a loom, the combination with a weft-carrier to traverse the warp-shed, means for applying to said weft-carrier an aeriform fluid for picking or driving it, a shuttle-box, and a weft-supplying mechanism, of means extending from said box and adapted when actuated by the incoming shuttle to operate to supply weft or filling to the loom, and means within the shuttle and controlled by the presence or absence of weft thereon, which governs the extent to which the shuttle shall enter the shuttle-box.

15. A loom having the following instrumentalities, namely: a weft or filling changing or supplying mechanism, a shuttle or weft-carrier, means

for picking the same, a shuttle-box, and intermediate mechanism between the supplying mechanism and the shuttle-box and extending into the path of the body of the incoming, substantially-exhausted shuttle, for setting in operation the supplying mechanism through the direct impact of the shuttle-body thereon.

16. A loom having the following instrumentalities, namely: a weft or filling changing or supplying mechanism, a shuttle or weft-carrier, means for picking the same, a shuttle-box, means for arresting the movements of the reciprocating part or parts of the loom used for beating up the filling, while the shuttle is traversing the shed, and intermediate mechanism between the supplying mechanism and the shuttle-box and extending into the path of the body of the incoming, substantially-exhausted shuttle, for setting in operation the supplying mechanism through the direct impact of the shuttle-body thereon.

17. In a loom, the combination with a weft-supplying mechanism, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

18. In a loom, the combination with a weft-supplying mechanism, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having a bobbin or weft-holder within it, the weft or filling on said bobbin normally closing a vent or passage within the weft-carrier, which passage is opened by the substantial exhaustion of the weft or filling on said holder.

19. In a loom, the combination with a weft-supplying mechanism, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling, and means for arresting the movement of the beating-up portion of the loom at about the time the weft-carrier is traversing the warp-shed.

20. In a loom, the combination with a weft-supplying mechanism, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having a bobbin or weft-holder within it, the weft or filling on said bobbin normally closing a vent or passage within the weft-carries, which passage is opened by the substantial exhaustion of the weft or filling on said holder, and means for arresting the movement of the reed of the loom at about the time the weft-carrier is traversing the warp-shed.

21. In a loom, the combination with a weft-supplying mechanism, a shuttle-box, and coöperating connecting mechanism between said box and the mechanism for supplying weft to the loom, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

22. In a loom, the combination with a weft-supplying mechanism, a shuttle-box, and means extending therefrom to coöperate and connect with the mechanism for supplying weft to the loom, of means for controlling the times of operation of said supply mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

23. In a loom, the combination with a weft-supplying mechanism, a shuttle-box, and means extending into the latter for coöperation with the said weft-supplying mechanism, of a shuttle or weft-carrier adapted to impinge upon said means within the box for supplying the loom when the weft or filling in the shuttle is nearly or quite exhausted, said shuttle having within it an air passage or vent which is normally closed by the weft or filling therein, and which is opened by the substantial exhaustion of said weft or filling.

24. In a loom, the combination with a weft-supplying mechanism, a shuttle-box, and means extending into the latter for coöperation with the said weft-supplying mechanism, of a shuttle or weft-carrier adapted to impinge upon said means within the box for supplying the loom when the weft or filling in the shuttle is nearly or quite exhausted, said shuttle having within it a bobbin carrying weft or filling which latter normally closes an air-passage through the shuttle, said passage being opened by the substantial exhaustion of the said weft or filling.

25. In a loom, the combination with a weft-supplying mechanism, of a tubular, laterally-closed shuttle-box adapted for incarcerating air, mechanism extending into said box and adapted to coöperate with the weft-supplying mechanism when impinged upon by the entering weft-carrier, and a piston-like weft-carrier having extending through it an air-passage which is normally closed by the weft or filling in the carrier and opened by the partial exhaustion of said weft or filling so that the tension of the air-cushion in the box is relieved.

26. In a loom, the combination with a weft-supplying mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the said supplying mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to supply weft or filling to the loom.

27. In a loom, the combination with a weft-supplying mechanism, a going or vibrating part of the loom, and an intermediate mechanism between said supplying mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and a valve which permits the air to flow in one direction only through said passage, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to supply weft or filling to the loom.

28. In a loom, the combination with a vibrating or going part, a weft-supplying mechanism, and an intermediate mechanism between said supplying mechanism and going part and adapted for operatively connecting the same at proper times, of a shuttle-box adapted to incarcerate air for a cushion, a bobbin or weft-holder having in it an aperture normally closed by the weft thereon, and means extending into the path of the shuttle in the shuttle-box and connecting with the said intermediate mechanism, whereby the shuttle is adapted to operate the latter by impact when the weft is nearly exhausted.

29. In a loom, the combination with a weft or filling supplying mechanism, a vibratively-mounted reed, a shuttle box or cell, means for imparting movement to said reed, and means for arresting the movement of the reed while the shuttle is traversing the warp-shed, of means for controlling the times of operation of said supply mechanism, said means comprising a weft-carrier or shuttle having in it a vent or air-passage which is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

30. In a loom, the combination with a weft or filling supplying mechanism, a vibratively-mounted reed, a shuttle box or cell, and means for imparting movement to said reed, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier or shuttle having in it a vent or air-passage which is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

31. In a loom, the combination with a weft or filling supplying mechanism, a vibratively-mounted reed, a shuttle box or cell capable of incarcerating air, means for imparting movement to said reed, and means for arresting the movement of the reed while the shuttle is traversing the warp-shed, of means for controlling the times of operation of said supplying mechanism, said means comprising a weft-carrier having a bobbin or weft-holder within it, the weft or filling on said bobbin normally closing a vent or passage within the weft-carrier, which passage is opened by the substantial exhaustion of the weft and intermediate mechanism actuated by the impact of the exhausted weft-carrier for setting said supplying mechanism in operation.

32. In a loom, the combination with a weft or filling supplying mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the supplying mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and a valve which permits the air to flow in one direction only through said passage, pneumatic means for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to supply weft to the loom.

33. In a loom, the combination with a rotatably-mounted magazine having in it a plurality of shuttle-cells, of means for imparting rotary impulses to said magazine, and pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play, for setting in motion said rotating means.

34. In a loom, the combination with a rotatively-mounted magazine having in it cells to receive weft-carriers, and mechanism for imparting rotative impulses to said magazine, of pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play for setting in operation said magazine-rotating mechanism, and said weft-carriers, adapted to fit snugly into the said cells.

35. In a loom, the combination with a rotatively-mounted magazine having in it cells of rectangular cross-section to receive weft-carriers, and mechanism for imparting rotative impulses to said magazine, of pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play for setting in operation said magazine-rotating mechanism, and said weft-carriers, adapted to fit snugly into the said cells.

36. In a loom, the combination with a rotatively-mounted magazine having in it cells to receive weft-carriers, and mechanism for imparting rotative impulses to said magazine, of pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play for setting in operation said magazine-rotating mechanism, said weft-carriers, and protecting means, substantially as described, to stop the loom in case the weft-carrier does not properly enter its cell.

37. In a loom, the combination with a rotatably-mounted magazine having a plurality of concentrically-arranged shuttle-cells and a weft-end holder which rotates with it, of means for imparting rotary impulses to said magazine, and pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play, for setting in motion said rotating means.

38. In a loom, the combination with the vibrating reed, and a non-vibrating, rotatively-mounted magazine having a plurality of cells to contain weft-carriers, of means for imparting intermittent rotative impulses to said magazine, and pneumatic mechanical means controlled by the weft or filling on the weft-carrier in play for setting in motion at proper times said magazine-rotating mechanism.

39. The combination with the rotary, multiple-celled magazine having a director o', of movable means, substantially as described, for closing the ends of the upper cells thereof.

40. The combination with a rotary, multiple-celled magazine having a cushion, a bobbin or weft-holder, of the connected, movable end plates 5, and the lever for operating same.

41. The combination with the rotary, multiple-celled magazine, of the shuttle-director, situated in alinement with the working cell of the magazine.

42. The combination with the non-vibrating, rotary, multiple-celled magazine, of the shuttle-director, situated in alinement with the working cell of the magazine.

43. The combination with the magazine, having in it a plurality of cells for the weft-carriers, of the side springs 28, mounted in the respective cells and projecting through the walls of same, the lever 30, having its arm in operative position with respect to said side spring, the slide-rod 16, projecting through the pawl-bar 14, the said bar and its spring, the pawl thereon, engaging teeth on the rotatable magazine, the vibrating part of the loom, and a tappet thereon adapted to impinge upon the rod 16 when the latter is protruded, substantially as set forth.

44. In a protection device for stopping a loom when the shuttle or weft-carrier in play fails to enter the shuttle-box, properly, the combination with a protecting-finger 37, which enters the shuttle-box at its side, its spring, the cylinder 44, the piston fitting therein, the movable arm 42, coupled to said piston, and means coupling the protecting-finger with the arm 42, whereby the former operates the latter, of the vibrating or going part of the loom, and the dagger or tappet carried thereby and adapted to impinge upon the arm 42 and move the piston when the shuttle fails to enter the shuttle-box properly.

45. In a loom, the combination with a rotatively-mounted magazine shuttle-box, of means for supplying thereto compressed air for picking or driving the shuttle, said means comprising a cylinder *u*, having a passage *x* leading to the shuttle-box, a piston *v* in said cylinder, mechanism for imparting reciprocatory movements to said piston, a valve *y* controlling the passage leading to the shuttle-box from the cylinder, the spring behind said valve, and the lever which operates said valve, said lever being adapted to be operated by the piston on its compressing stroke, substantially as set forth.

46. In a loom, the combination with a rotatively-mounted magazine shuttle-box, and pneumatic mechanical means for controlling its rotation when the weft or filling in the weft-carrier is nearly or quite exhausted, of means for supplying thereto compressed air for picking or driving the shuttle, said means comprising a cylinder *u*, having a passage *x* leading to the shuttle-box, a piston *v* in said cylinder, mechanism for imparting reciprocatory movements to said piston, a valve *y* controlling the passage leading to the shuttle-box from the cylinder, the spring behind said valve, and the lever which operates said valve, said lever being adapted to be operated by the piston on its compressing stroke, substantially as set forth.

47. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it for air which is normally closed by the weft or filling, means for applying to said shuttle an aeriform fluid for picking or driving it, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

48. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it for air which is normally closed by the weft or filling, and a valve which permits the air to flow in one direction only through said passage, means for applying to said shuttle an aeriform fluid for picking or driving it, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

49. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it for air which is normally closed by the weft or filling, and a valve which permits the air to flow in one direction only through said passage, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

50. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it, a bobbin or weft-holder having in it an aperture for air which is normally closed by the weft or filling, means for applying to said shuttle an aeriform fluid for picking or driving it, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

51. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it, a bobbin or weft-holder having in it an aperture for air which is normally closed by the weft or filling, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

52. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it, a bobbin or weft-holder having in it an aperture for air which is normally closed by the weft or filling, and a valve which permits the air to flow in one direction only through said passage, means for applying to said shuttle an aeriform fluid for picking or driving it, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

53. In a loom having a shuttle-box, the combination with a weft or filling supplying mechanism, and an intermediate mechanism between the supplying mechanism and said shuttle-box, of a shuttle having a passage through it, a bobbin or weft-holder having in it an aperture for air which is normally closed by the weft or filling, and means connected with said intermediate mechanism whereby when the substantial exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate said intermediate mechanism to supply weft or filling to the loom.

54. A shuttle or weft-carrier for a loom having an air-passage through it which is adapted to be closed by the weft or filling within the said carrier and to be opened by the substantial exhaustion of said weft or filling, and having also a valve for allowing the air to flow through same in one direction.

55. The combination with a hollow shuttle or weft-carrier, having apertures near its respective ends for the entry and escape of air, of a bobbin or holder for the weft in the carrier, said bobbin having an aperture or apertures in it which are closed by the weft wound thereon, and a valve for permitting the flow of air through same in one direction only.

56. As a new article of manufacture, a hollow bobbin or weft-holder having a flared or laterally-enlarged butt and a lateral aperture or apertures in said enlarged butt for the escape of air.

57. The combination with a shuttle or weft-carrier, of a bobbin or weft-holder adapted to go into said shuttle and having a laterally-enlarged end or butt which closes the passage for air through the shuttle, said bobbin having in its enlarged butt a laterally-disposed air-aperture opening to its interior and normally closed by the weft or filling on the holder.

58. In a loom, the combination with a rotatively-mounted magazine having in it cells to receive weft-carriers, and a weft-end holder, which rotates therewith, and mechanism for imparting rotative impulses to said magazine, of pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play for setting in operation said magazine-rotating mechanism, and said weft-carriers, adapted to fit snugly into the said cells.

59. In a loom, the combination with a rotatively-mounted magazine having in it concentrically-arranged, cellular shuttle-boxes, each provided with an aperture in its side for the entry of a protection finger or device, and the said device adapted to enter the cell when the latter is in position to receive the shuttle in play, of mechanism for imparting rotative im-

pulses to said magazine, a weft-carrier or shuttle adapted to fit snugly into the said boxes, and pneumatic mechanical means controlled by the weft or filling in said shuttle for setting in operation said magazine-rotating mechanism.

60. In a loom, the combination with a rotatably-mounted magazine having in it a plurality of shuttle-cells, each provided with an aperture in its side adapted to receive a protection device, and said protection device, adapted to enter said aperture when the cell is in position to receive the shuttle in play, of means for imparting rotary impulses to said magazine, and pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play, for setting in motion said rotating means.

61. In a loom, the combination with a rotatably-mounted magazine having a weft-end holder and in it a pluraliky of shuttle-cells, each provided with an aperture in its side adapted to receive a protection device, and said protection device, adapted to enter said aperture when the cell is in position to receive the shuttle in play, of means for imparting rotary impulses to said magazine, and pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play, for setting in motion said rotating means.

62. A tubular shuttle, comprising a body of thin material, one of the conical ends of which is removable and has an internal shoulder, and the flange in the open end of the body.

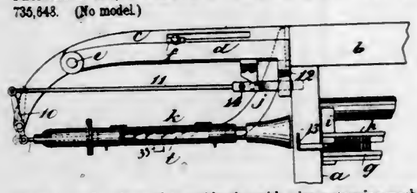
63. The combination of the tubular shuttle, having a removable end piece and shoulders to embrace the head of the bobbin, and the said bobbin, substantially as set forth.

64. A loom having an automatically-operating weft or filling changing or supplying mechanism, the operation of which is controlled by pneumatic mechanical means and made inoperative and operative, respectively, by the presence or absence of weft or filling in the shuttle or weft-carrier.

65. A loom having automatically-operating means for furnishing a fresh supply of weft or filling in place of that substantially exhausted, said means comprising a rotary magazine and pneumatic mechanical controlling means, made inoperative and operative, respectively, by the presence or absence of weft or filling in the shuttle in play, for operating said magazine.

66. A loom having automatically-operating means for furnishing a fresh supply of weft or filling in place of that substantially exhausted, said means comprising a rotary, non-vibrating magazine and pneumatic mechanical controlling means, made inoperative and operative, respectively, by the presence or absence of weft or filling in the shuttle in play, for operating said magazine.

659,951. LOOM. William H. Baker, Central Falls, R. I., and Frederic E. Kip, Montclair, N. J. Filed Nov. 3, 1899. Serial No. 735,843. (No model.)



Claim.—1. In a loom, the combination with a loom-stopping mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the stopping mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, means for applying to said shuttle an aeriform fluid for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to stop the loom.

2. In a loom, the combination with a loom-stopping mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the stopping mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and a valve which permits the air to flow in one direction only through said passage, means for applying to said shuttle an aeriform fluid for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to stop the loom.

3. In a loom, the combination with a loom-stopping mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the stopping mechanism and said going part, said intermediate mechanism comprising the swing-rod 11, and lever 10, a shuttle-box, having mounted in its outer end the slide-rod 8, coupled to the lever 10, a shuttle having an air-passage through it which is normally closed by the weft, means for applying to said shuttle an aeriform fluid for picking or driving it, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to stop the loom.

4. In a loom, the combination with a vibrating or going part, a stopping mechanism, and an intermediate mechanism between said stopping mechanism and going part and adapted for operatively connecting the same at proper times, of a shuttle-box, means for admitting thereto an aeriform fluid for picking or driving the shuttle, the said shuttle, having a passage through it for air, a bobbin or weft-holder having in it an aperture normally closed by the weft thereon, and means extending into the path of the shuttle in the shuttle-box and connecting with the said intermediate mechanism, whereby the shuttle is adapted to operate the latter when the weft is nearly exhausted.

5. In a loom, the combination with a shuttle-box, and means for introducing an aeriform fluid under tension thereto for picking or driving the shuttle or weft-carrier, of auxiliary means for introducing said fluid to said shuttle-box for displacing the shuttle, whereby the shuttle may be displaced when the beating-up portion of the loom is not running.

6. In a loom, the combination with a shuttle-box, and means for introducing an aeriform fluid under tension thereto for picking or driving the shuttle, of an auxiliary pipe for leading the compressed fluid to said box, and a valve or cock in and controlling said pipe, whereby the operator may displace the shuttle with a jet at will.

7. In a loom, the combination with means for picking or driving the shuttle with compressed air, of the shuttle, having a passage through it for air, and a bobbin, having in it an aperture for air which is normally closed by the weft on the bobbin, and a flat spring 17, which closes said aperture when overwrapped by the weft, whereby the said passage is opened when the spring 17 is relieved by the exhaustion of the weft.

8. The combination with a shuttle having an air-passage through it, of a bobbin which fits in said shuttle and is provided with an aperture 16, and a spring-closer 17, which tends by its own resiliency to spring outward and leave said aperture open.

9. The combination with a shuttle-box of tubular form adapted to incarcerate air in front of the incoming shuttle, and having a hermetically-closable cover at its top, of a shuttle adapted to fit piston-like into said box, means for admitting a compressed aeriform fluid thereto for picking the shuttle, and means, governed by the presence or absence of weft or filling in the shuttle controlling the extent to which the shuttle enters the shuttle-box.

10. The combination with a shuttle-box of tubular form, adapted to incarcerate air in front of the incoming shuttle and having a hermetically-closable, hinged cover, and means for admitting a charge of compressed air thereto for picking or driving the shuttle, of the said shuttle adapted to fit piston-like in said box and having means controlled by the presence or absence of weft or filling therein for modifying the tension of the air incarcerated in the box.

11. A cylindrical shuttle or weft-carrier, provided with ballast at the bottom, and having a passage through it for air, which passage is closed by the weft or filling therein.

12. A cylindrical shuttle or weft-carrier, provided with ballast at the bottom, having a passage through it for air, which passage is closed by the weft or filling therein, and a valve to prevent the flow of air through said shuttle in one direction.

13. A loom having the following instrumentalities, namely: a weft-carrier or shuttle, a shuttle-box, means for applying an aeriform fluid to pick or drive said weft-carrier, the latter having an air passage or vent which is normally closed by the weft and adapted to be opened by the substantial exhaustion of the weft, thereby allowing said shuttle to set in motion mechanism for stopping the loom, and said loom-stopping mechanism.

14. A loom having the following instrumentalities, namely: a weft-carrier or shuttle, a shuttle-box, means for applying an aeriform fluid to pick or drive said weft-carrier, the latter having an air passage or vent which is normally closed by the weft and adapted to be opened by the substantial exhaustion of the weft, thereby allowing said shuttle to set in motion mechanism for stopping the loom, said loom-stopping mechanism, and means for arresting the reciprocating portions of the loom at the time of picking the shuttle.

15. In a loom, the combination with a loom-stopping mechanism, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

16. In a loom, the combination with a loom-stopping mechanism, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier having a bobbin or weft-holder within it, the weft or filling on said bobbin normally closing a vent or passage within the weft-carrier, which passage is opened by the substantial exhaustion of the weft or filling on said holder.

17. In a loom, the combination with a loom-stopping mechanism, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling, and means for arresting the movement of the beating-up portion of the loom at about the time the weft-carrier is traversing the warp-shed.

18. In a loom, the combination with a loom-stopping mechanism, a shuttle-box, and coöperating connecting mechanism between said box and the mechanism for stopping the loom, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

19. In a loom, the combination with a loom-stopping mechanism, a shuttle-box, and means extending therefrom to coöperate and connect with the mechanism for stopping the loom, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier having an air passage or vent, which passage is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

20. In a loom, the combination with a loom-stopping mechanism, a shuttle-box, and means extending into the latter for coöperation with the said stopping mechanism, of a shuttle or weft-carrier adapted to impinge upon said means withiu the box for stopping the loom when the weft or filling in the shuttle is nearly or quite exhausted, said shuttle having within it an air passage or vent which is normally closed by the weft or filling therein, and which is opened by the substantial exhaustion of said weft or filling.

21. In a loom, the combination with a loom-stopping mechanism, of a tubular, laterally-closed shuttle-box adapted for incarcerating air, mechanism extending into said box and adapted to coöperate with the loom-stopping mechanism when impinged upon by the entering weft-carrier, and a piston-like weft-carrier having extending through it an air-passage which is normally closed by the weft or filling in the carrier and opened by the partial exhaustion of said weft or filling so that the tension of the air-cushion in the box is relieved.

22. In a loom, the combination with a loom-stopping mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the stopping mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to stop the loom.

23. In a loom, the combination with a loom-stopping mechanism, a going or vibrating part of the loom, and an intermediate mechanism between the stopping mechanism and said going part, of a shuttle-box, a shuttle having an air-passage through it which is normally closed by the weft, and a valve which permits the air to flow in one direction only through said passage, and means extending into the shuttle-box and connected with said intermediate mechanism, whereby when the exhaustion of the weft opens said passage through the shuttle the latter is permitted to actuate the said intermediate mechanism to stop the loom.

24. In a loom, the combination with a vibrating or going part, a stopping mechanism, and an intermediate mechanism between said stopping mechanism and going part and adapted for operatively connecting the same at proper times, of a shuttle-box, a bobbin or weft-holder having in it an aperture normally closed by the weft thereon, and means extending into the path of the shuttle in the shuttle-box and connecting with the said intermediate mechanism, whereby the shuttle is adapted to operate the latter when the weft is nearly exhausted.

25. In a loom, the combination with a loom-stopping mechanism, a vibratively-mounted reed, a shuttle box or cell, means for imparting movement to said reed, and means for arresting the movement of the reed while the shuttle is traversing the warp-shed, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier or shuttle having in it a vent or air-passage which is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

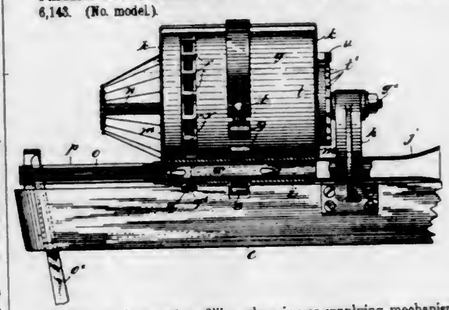
26. In a loom, the combination with a loom-stopping mechanism, a vibratively-mounted reed, a shuttle box or cell, and means for imparting movement to said reed, of means for controlling the times of operation of said stopping mechanism, said means comprising a weft-carrier or shuttle having in it a vent or air-passage which is normally closed by the weft or filling in said carrier and opened by the substantial exhaustion of said weft or filling.

27. In a loom, the combination with a shuttle box or cell capable of incarcerating air in front of the incoming shuttle, and the shuttle, having through it a passage for air, of a bobbin, having in it an aperture for air which is normally closed by the weft on the bobbin, and having a flat spring 17, which closes said aperture when overwrapped by the weft, said spring being adapted, when relieved, to spring outward and open said aperture.

28. In a loom, the combination with a loom-stopping mechanism, a shuttle-box, and an intermediate mechanism between said stopping mechanism and box for setting the former in operation at proper times, of a weft-carrier or shuttle adapted to act by impact on said intermediate mechanism when it enters said box to the proper extent, and means, governed by the presence or absence of weft or filling in the carrier, which controls the extent of entry of the latter into its box.

29. In a loom, the combination with a weft-carrier or shuttle, means for picking or driving said shuttle, a shuttle-box, and a loom-stopping mechanism, of intermediate mechanism between said stopping mechanism and shuttle-box and extending into the path within the box of the body of an incoming substantially-exhausted shuttle, whereby the impact of the shuttle-body directly upon the said intermediate mechanism operates to stop the loom.

659,952. LOOM. William H. Baker, Central Falls, R. I., and Frederic E. Kip, Montclair, N. J. Filed Feb. 23, 1900. Serial No. 6,143. (No. model.)



Claim.—1. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the practically air-tight cells of which form shuttle-boxes, means tending constantly to shift said magazine so as to bring a fresh shuttle into line with the raceway, and a detent which normally holds the magazine from rotating, of means for picking the shuttle, and a shuttle having in it an air-passage controlled by the weft or filling, the substantially-exhausted shuttle being adapted, on entering its cell, to release the magazine from its detent and permit it to shift.

2. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the practically air-tight cells of which form shuttle-boxes, a spring tending to rotate said magazine, means for winding said spring by increments until it reaches a predetermined tension, and a detent which normally prevents rotation of the magazine, of means for picking the shuttle, and the said shuttle having an air-passage through it that is controlled by the weft or filling, the substantially-exhausted shuttle being adapted, when it enters its cell, to release the magazine from its detent and permit it to shift.

3. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatively-mounted magazine having in it concentrically-arranged cells forming shuttle-boxes, having also teeth or shoulders *r*, one for each cell, and having in the respective cell-walls apertures for the entry of a detent, of the said detent *q*, situated so as to engage the teeth *r* and so as to project into the cell for the active shuttle, means for rotating the magazine when it is freed from said detent, and means within the shuttle for controlling its entry into the cell to an extent sufficient to free the magazine from said detent.

4. In a weft or filling changing or supplying mechanism for looms, the combination with the rotatively-mounted magazine having concentrically-arranged cells forming shuttle-boxes, of the spring-barrel *t*, having ratchet-teeth, the pawl *u* on the magazine engaging said teeth, the spring *s*, a yielding device to impinge on the teeth of said band for intermittently rotating the spring-barrel for winding up said spring, and a detent which resists the rotation of the magazine.

5. In a weft or filling changing or supplying mechanism for looms, the combination with the rotatively-mounted magazine having concentrically-arranged cells forming shuttle-boxes, of a spring for driving said magazine, a ratchet device connected with said spring, and a cushioned pawl for operating said mechanism, whereby said pawl is permitted to yield when the resistance to winding is too great.

6. In a weft or filling changing or supplying mechanism for looms, the combination with the rotatively-mounted magazine having concentrically-arranged cells forming shuttle-boxes, of the spring for driving the magazine, a ratchet-winding device connected with said spring, the pawl, mounted in a guide on the loom-frame and adapted to operate said winding device, the guide for said pawl, and a spring behind said pawl, substantially as and for the purposes set forth.

7. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the practically air-tight cells of which form shuttle-boxes, means tending constantly to shift said magazine so as to bring a fresh shuttle into line with the raceway, and a detent which normally holds the magazine from rotating, of mechanical means for picking the shuttle, and a shuttle having in it an air-passage controlled by the weft or filling, the substantially-exhausted shuttle being adapted, on entering its cell, to release the magazine from its detent and permit it to shift.

8. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the practically air-tight cells of which form shuttle-boxes, a spring tending to rotate said magazine, means for winding said spring by increments until it reaches a predetermined tension, and a detent which normally prevents rotation of the magazine, of mechanical means for picking the shuttle, and the said shuttle having an air-passage through it that is controlled by the weft or filling, the substantially-exhausted shuttle being adapted, when it enters its cell, to release the magazine from its detent and permit it to shift.

9. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled, magazine shuttle-box, means tending constantly to rotate said magazine so as to bring the shuttles or weft-carriers therein one by one, as required, to the raceway, means for picking said shuttle through the warp-shed, and means within said shuttle, controlled by the weft or filling therein, for determining the extent to which the shuttle shall enter its box, of means adapted to be actuated by the shuttle when it enters the box to the maximum extent for setting in motion the magazine.

10. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the cells of which form shuttle-boxes, means tending constantly to rotate said magazine so as to bring the shuttles therein successively into position to be picked, a detent which restrains the rotation of said magazine, means for picking the shuttle or weft-carrier, and pneumatic mechanical means for operating said detent, made inoperative and operative, respectively, by the presence or absence of weft or filling in the shuttle in play.

11. In a weft or filling changing or supplying mechanism for looms, the combination with a rotatable, celled magazine, the cells of which form shuttle-boxes, means tending constantly to rotate said magazine so as to bring the shuttles therein successively into position to be picked, means for picking the shuttle or weft-carrier, and a movable mechanism which arrests the rotation of the magazine and extends into the path of the body of the incoming, substantially-exhausted shuttle for releasing the magazine through the direct impact of the shuttle-body thereon.

12. In a loom, the combination with the rotary, multiple-celled, magazine shuttle-box, having a weft-end holder which rotates therewith, means tending constantly to rotate said magazine, and a detent mechanism which prevents said magazine from rotating during predetermined periods, and means which automatically restrains said detent mechanism while the magazine is carrying to the operative position a cell containing a full weft-carrier to replace that exhausted, substantially as set forth.

13. In a loom, the combination with the rotary, multiple-celled, magazine shuttle-box, having a weft-end holder which rotates therewith, means tending constantly to rotate said magazine, and a detent mechanism which prevents said magazine from rotating during predetermined periods, of means which automatically restrains said detent mechanism while a cell containing a full weft-carrier is being moved into position for picking the latter, substantially as set forth.

14. In a loom, the combination with a rotatively-mounted magazine having in it concentrically-arranged shuttle boxes or cells, means tending constantly to rotate said magazine, and restraining mechanism which normally prevents the rotation of said magazine, and which is rendered inoperative when another cell of the magazine is required to be brought into line with the raceway, of pneumatic mechanical means controlled by the weft or filling of the shuttle in play for rendering said restraining means inoperative.

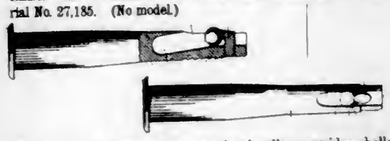
15. In a loom, the combination with a rotatively-mounted magazine having in it cells to receive weft-carriers, and a weft-end holder, which rotates therewith, means tending constantly to rotate said magazine, and a detent device which prevents said magazine from rotating at predetermined periods, of pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play for setting in operation said magazine-rotating mechanism, and said weft-carriers, adapted to fit snugly into the said cells.

16. In a loom, the combination with a rotatively-mounted magazine having in it concentrically-arranged, cellular shuttle-boxes, each provided with an aperture in its side for the entry of a protection finger or device, and the said device adapted to enter the cell when the latter is in position to receive the shuttle in play, means tending to constantly rotate said magazine, a restraining device which prevents the magazine from rotating periodically, said restraining device being operative normally and made inoperative when one of the shuttle-cells is required to be shifted in line with the raceway, and pneumatic mechanical means controlled by the weft or filling in the shuttle or weft-carrier in play for setting in operation said mechanism.

17. In a loom, the combination with a rotatively-mounted magazine having in it a plurality of shuttle-cells, each provided with an aperture in its side adapted to receive a protection device, and said protection device, adapted to enter said aperture when the cell is in position to receive the shuttle in play, means tending constantly to rotate said magazine, a restraining device which prevents said rotation of the magazine at predetermined periods, and pneumatic mechanical means controlled by the weft or filling in the weft-carrier in play, for setting in motion said rotating means.

18. In a loom, the combination with a rotatably-mounted magazine having a weft-end holder and in it a plurality of shuttle-cells, each provided with an aperture in its side adapted to receive a protection device, and said protection device, adapted to enter said aperture when the cell is in position to receive the shuttle in play, of a shuttle-director situated in alinement with the working shuttle box or cell of the magazine, means tending constantly to rotate said magazine, a restraining device which prevents the magazine periodically from rotating, said restraining device made operative normally and inoperative when one of the shuttle boxes or cells is to be shifted in line with the raceway, and pneumatic mechanical means for setting in operation said mechanism.

659,953. DEVICE FOR EXTRACTING SHELLS FROM GUN-BARRELS. JOHN H. BARLOW, New Haven, Conn. Filed Aug. 17, 1900. Serial No. 27,185. (No model.)



Claim.—1. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a laterally opening groove or chamber, of a freely-movable shell-grip located in the said groove or chamber and projecting beyond the outer periphery of the body when in the outer portion of the said groove or chamber, whereby the shell is gripped for extraction.

2. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a laterally-opening groove or chamber arranged at an acute angle with respect to the longitudinal axis of the body, of a freely-movable shell-grip confined within the said groove or chamber, and projecting laterally therefrom when near the outer end thereof.

3. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a laterally-opening groove or chamber, of a freely-movable shell-grip located in the said groove or chamber from which it projects laterally when near the outer end thereof, and means located in the outer end of the said groove or chamber for confining the movable shell-grip therein.

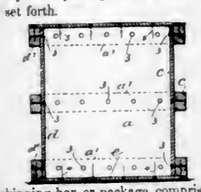
4. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a laterally-opening groove or chamber, of a freely-movable shell-grip located in the said groove or chamber from which it laterally projects when near the outer end thereof, and gripping means located upon the exterior surface of the body at a point opposite the bottom of the said groove or chamber.

5. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a flange and at its opposite end with a laterally-opening groove or chamber, of a freely-movable shell-grip located within the said groove or chamber in which it is movable back and forth, and from which it laterally projects when near the outer end thereof.

6. In a device for extracting headless cartridge-shells from gun-barrels, the combination with a body formed at one end with a laterally-opening groove or chamber, of a ball constituting a movable shell-grip confined within the said groove from which it laterally projects when near the outer end thereof so as to grip the shell.

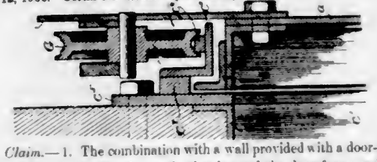
659,954. WOODEN SHIPPING-BOX. ERASTUS H. BARNES, New York, N. Y. Filed May 28, 1900. Serial No. 18,199. (No model.)

Claim.—1. A wooden shipping box or package, comprising similar side and end sections each composed of a slab of wood veneer and parallel battens upon one surface thereof, with the grain of the veneer running at right angles to the battens, and the battens secured to the slab by nails passing first through the slab and then through the battens and clenched on the surface of the battens with the ends of the battens projecting interlocked and secured at the respective corners, and the vertical ends of opposite slabs overlapping the edges of adjacent slabs, and a bottom and top each composed of thin slabs of wood veneer extending over and connected to the battens by nails passing through the veneer into the battens, substantially as set forth.



2. A wooden shipping box or package, comprising similar side and end sections each composed of thin slabs of wood veneer with parallel battens along the respective opposite edges and with a center batten, the battens being secured to the slabs by nails passing first through the slabs and then through the battens and clenched on the surface of the battens, the grain of the wood veneer running at right angles to the length of the battens, and the ends of the various battens projecting and notched and firmly interlocked, the one with the other at the respective corners and held together securely by glue, and the top and bottom each composed of thin slabs of wood veneer extending over and secured to the various edge battens of the end and side sections by nails passing through the veneer into the battens, substantially as set forth.

659,955. DOOR. ALBERT D. CAYWOOD, Chicago, Ill. Filed Feb. 12, 1900. Serial No. 4,922. (No model.)



Claim.—1. The combination with a wall provided with a door-opening, of a threshold extension projecting beyond the door-frame and provided with a guide-groove having a sloping inner wall, and a sliding door provided at its bottom with a guide-piece projecting into said groove, substantially as and for the purpose set forth.

2. The combination with a wall provided with a door-opening, of a sliding door mounted at one side of said wall and provided with a bottom guide-piece, a threshold-plate in said opening, and a threshold extension provided at its inner edge with a seat for the edge of said plate, and at its outer edge with a groove for said guide-piece, substantially as and for the purpose set forth.

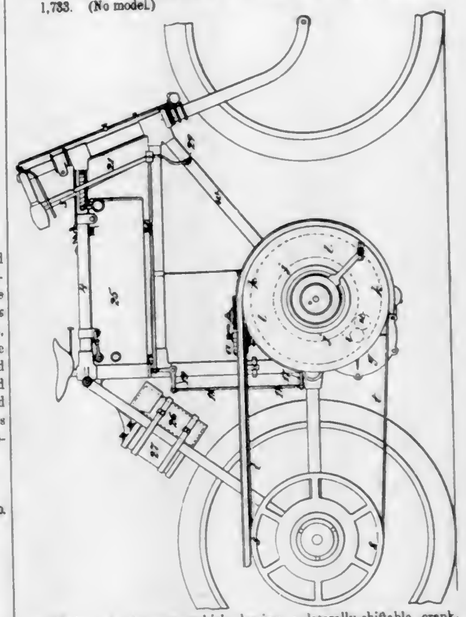
3. The combination with a wall provided with a door-opening, of a sliding door mounted at one side of said wall and provided with a bottom guide-piece, a threshold-plate in said opening, a cast-metal threshold extension member provided at its inner edge with a seat for said plate and having a sloping top surface, and a plate d' secured to the outer edge of said member and forming with said sloping surface a groove for said guide-piece, substantially as and for the purpose set forth.

4. The combination with a wall provided with a door-opening, of a sliding door provided at its top with an angle-iron b' having an upturned wing at the inner side of the door, a spacing-strip c' above said angle-iron, a track-supporting angle-iron secured to said spacing-strip and projecting downward to form a groove for said first-named angle-iron, a track c^6 on the upper surface of the horizontal wing of the track-bearing angle-iron, blocks secured to said door and wheels journaled in said blocks and running on said track, substantially as and for the purpose set forth.

5. The combination of a wall provided with a door-opening, of a sliding door, means for securing said sliding door at its front edge, an angle-iron secured to said door at its rear edge and having one wing flush with the inner side of the door and projecting toward the front edge of the door, and a yoke secured to said wall at the rear side of the door-opening and serving to receive the projecting wing of said angle-iron and thereby secure the rear edge of the door, substantially as and for the purpose set forth.

6. The combination of a wall provided with a door-opening, of a sliding door comprising a plate a, edge angles a' a^3 and a^3, guide-angles b b' secured to the front edge and the top edge of the door respectively, a guide for the top guide-angle, and a groove for receiving the front guide-angle when the door is closed, substantially as and for the purpose set forth.

659,956. MOTOR-CYCLE. LOUIS CHAPELLE and AUGUSTE CHAPELLE, St. Ouen l'Aumône, France. Filed Jan. 17, 1900. Serial No. 1,733. (No model.)

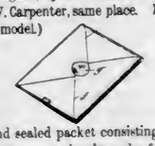


Claim.—1. A motor-vehicle having a laterally-shiftable crank-hanger, means operatable by the rider for shifting said hanger, a main driving-shaft and gear-wheel, and a gear-wheel rotatable on said hanger and shiftable therewith and adapted to be put into and out of gear with the main driving-shaft by shifting said hanger.

2. A motor-vehicle having a laterally-shiftable crank-hanger, means operatable by the rider for shifting said hanger, a main gear-wheel rotatable with a shaft having bearings in said hanger and having two concentric sets of gear-teeth, j and k, a pinion i on the motor-shaft and adapted to be moved into and out of gear with the teeth k by the shifting of the said hanger, and an intermediate pinion n, always in gear with the pinion i, and adapted to be put into and out of gear with the shifting of the hanger, substantially as set forth.

3. In a motor-cycle, the combination with the wheel l and its tubular shaft, said wheel having an annular, concentric recess in its face, the crank-shaft extending through said tubular shaft, the cranks thereon, and the annulus fixed to one of the cranks and occupying said recess, of the clutch-spring 7 carried by the annulus and also occupying said recess, and the spring-toggle 9 carried by the free end of said spring, substantially as and for the purposes set forth.

659,957. FOLDED AND SEALED PACKET. LUTHER C. CROWELL, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Sept. 20, 1898. Serial No. 691,410. (No model.)



Claim.—1. A folded and sealed packet consisting of a sheet folded twice longitudinally and twice transversely, the ends of the longitudinally-folded sheet being turned toward and overlying each other, and means for securing each ply to the adjoining ply whereby the folds may be cut to form a book, all the leaves of which are secured together, substantially as described.

2. A folded and sealed packet consisting of a sheet folded twice longitudinally, the sides of the sheet being turned toward and overlapping each other, and twice transversely, the ends of the sheet being turned toward and overlapping each other, and means for securing each ply to

the adjoining ply whereby the folds may be cut to form a book, all the leaves of which are secured together, substantially as described.

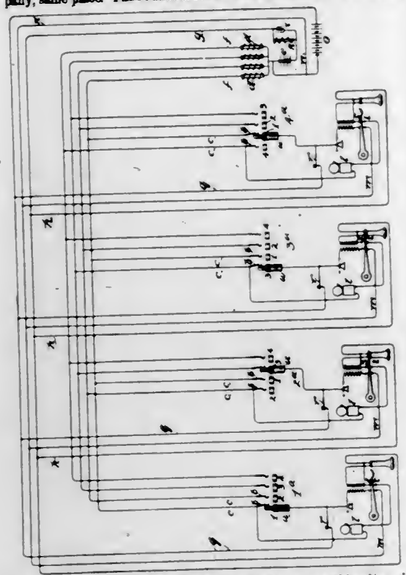
3. A folded and sealed packet consisting of a blank folded twice longitudinally and twice transversely, the transverse folds being turned toward and overlapping each other, and a wire staple for securing the folds, substantially as described.

4. A folded and sealed packet consisting of a blank folded twice longitudinally, the longitudinal folds being turned toward and overlapping each other, and twice transversely, the transverse folds being turned toward and overlapping each other, and a wire staple for securing the various plies together, substantially as described.

5. A folded and sealed packet consisting of a blank having two lines of perforations longitudinally thereof, and a line of perforations transversely thereof, the said blank being first folded on the longitudinal lines and then on a line parallel to the transverse line and on the transverse line, the several folds overlapping each other, and means located substantially at the end of the folded packet thus produced for securing the folds together in such a manner that the folds may be cut to form a book, substantially as described.

6. A folded and sealed packet formed from a blank which is provided with two longitudinal lines of perforations and a transverse line of perforations, the blank being first folded on the longitudinal lines of perforations and then on a line parallel to the transverse line and on said line so as to produce a folded packet the several folds of which overlie each other, and a wire staple for securing the folds together, said staple being located at or near one end, whereby the folded packet may be opened on the lines of perforations and a book formed, substantially as described.

659,958. **TELEPHONE SYSTEM.** WILLIAM M. DAVIS, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, same place. Filed June 28, 1900. Serial No. 21,898. (No model.)



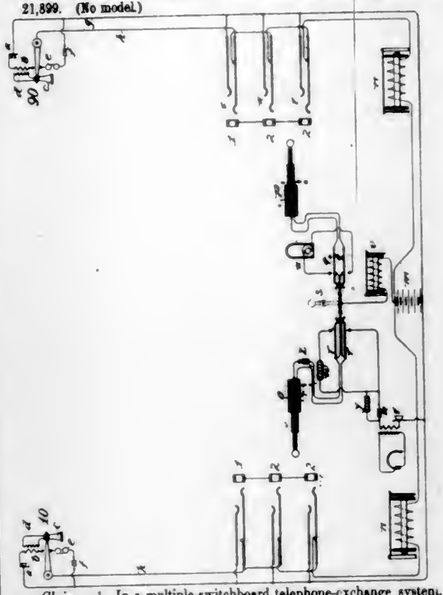
Claim.—1. In an interior telephone system, the combination with a plurality of telephone-lines extending between the stations of the system, of a source of calling-current connected, or adapted for connection, with the said telephone-lines, line-contacts connected with the said telephone-lines, a signal at each station included between its corresponding telephone-line and one terminal of said source of calling-current, one terminal of each signal being permanently connected with its corresponding line-contact, line-connecting switch mechanism at each station to enable each subscriber to connect his station with another, and a normally-open key or switch r included in a conductor uniting the said line-connecting apparatus and the other terminal of said source of signaling-current, substantially as described.

2. In an interior telephone system, the combination with a plurality of telephone-lines extending between stations provided with branches, of signals in said branches, telephone switch-hooks at said stations adapted to be connected with normal contacts constituting terminals of said branches, a transmitter provided at each station, a conductor including the said transmitter, provided with an alternate contact for the said switch-hook, switching means at each station for connecting the transmitter thereat in circuit with a telephone-line, a second alternate contact for the switch-hook, said switch-hook, upon the removal of the receiver, serving to connect the alternate contacts, a common battery included through the agency of the line-connecting apparatus in circuit with the transmitters of the connected stations and the said alternate contacts, signals at the subscribers' stations being disconnected from the telephone-lines when the receivers are removed by the disengagement of the switch-hooks from their normal contacts, whereby leakage of the common battery is prevented, and means for including the said signals in circuit with a source of suitable calling-current, substantially as described.

3. In a telephone system, the combination with a plurality of subscribers' stations, of a common battery serving to supply transmitters at the subscribers' stations with current, signals at each of the subscribers' stations adapted for inclusion in the telephonic circuits and thereby being included in circuit with the said common battery, a winding included in the said telephonic circuit of sufficiently-high resistance to prevent the battery from operating the signals, and a condenser connected in parallel with the said winding, substantially as described.

4. In a telephone system, the combination with a plurality of telephone-lines extending to subscribers' stations, of a common battery, a conductor common to all the telephonic circuits, the battery being included in circuit with the said conductor, signals at each of the telephone-stations adapted for inclusion with the telephonic circuits and thereby being adapted for inclusion in circuit with the common battery, a winding of sufficiently-high resistance to prevent the common battery from operating the signals, and a coodenser in shunt of the said winding, substantially as described.

659,959. **TELEPHONE-EXCHANGE SYSTEM.** WILLIAM M. DAVIS, Chicago, Ill., assignor to the Stromberg-Carlson Telephone Manufacturing Company, same place. Filed June 28, 1900. Serial No. 21,899. (No model.)



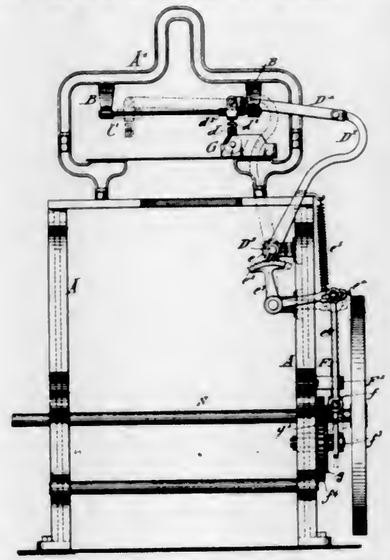
Claim.—1. In a multiple-switchboard telephone-exchange system, the combination with telephone-lines, each extending from a subscriber's station to a plurality of sections of multiple switchboard, sides of the telephone-circuits being connected with tip-contacts of jack-switches, a common battery having one terminal also connected with the said sides, a cord-circuit having sleeve and tip strands, the sleeve-strands being connected with the remaining terminal of the said common battery, the jacks of the switchboard being provided with electrically-connected test thimbles or contacts adapted for electrical connection with the sleeve-strand through the agency of the inserted plugs, an operator's telephone set, and a telephone-key adapted to include the operator's telephone set in circuit between the tip-strand and the terminal of the battery connected with the tip-contacts of the jacks, the tip-strand being continuous to battery-current between said telephone-key and the tip of the connecting-plug, but discontinuous to said current between the telephone-key and the answering-plug, substantially as described.

2. In a multiple-switchboard telephone-exchange system, the combination with telephone-lines, each extending from a subscriber's station to a plurality of sections of multiple switchboard, sides of the telephone-circuits being connected with tip-contacts of jack-switches, a common battery having one terminal also connected with the said sides, a cord-circuit having sleeve and tip strands, the sleeve-strands being connected with the remaining terminal of the said common battery, the jacks of the switchboard being provided with electrically-connected test thimbles or contacts adapted for electrical connection with the sleeve-strand through the agency of the inserted plugs, a testing appliance, and a key adapted to include the testing appliance in circuit between the tip-strand and the terminal of the battery connected with the tip-contacts of the jacks, the tip-strand being continuous to battery-current between said key and the tip of the connecting-plug, but discontinuous to said current between the key and the answering-plug, substantially as described.

3. In a multiple-switchboard telephone-exchange system, the combination with telephone-lines each extending from a subscriber's station to a plurality of sections of multiple switchboard, sides of the telephone-circuits being connected with tip-contacts of jack-switches, a common battery having one terminal also connected with the said sides, a cord-circuit, electrically-connected test-thimbles for the jacks, the plugs of the cord-circuit serving to connect the test-thimbles with the remaining terminal of said battery, an operator's telephone set and a telephone-key adapted to include the operator's telephone set in circuit between the tip-strand and the terminal of the battery connected with tip-contacts of the jacks, the tip-strand being continuous to battery-current between said telephone-key and the tip of the connecting-plug, but discontinuous to said current between the telephone-key and the answering-plug, substantially as described.

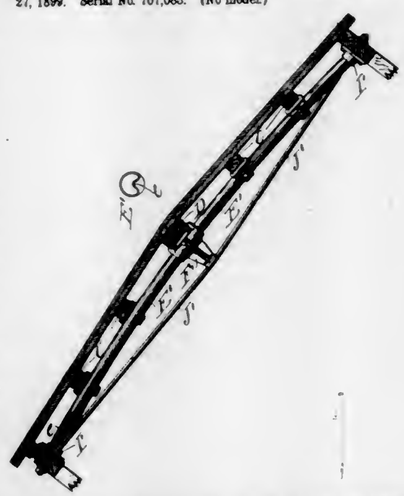
4. In a multiple-switchboard telephone-exchange system, the combination with telephone-lines each extending from a subscriber's station to a plurality of sections of multiple switchboard, sides of the telephone-circuits being connected with tip-contacts of jack-switches, a common battery having one terminal also connected with the said sides, a cord-circuit, electrically-connected test-thimbles for the jacks, the plugs of the cord-circuit serving to connect the test-thimbles with the remaining terminal of said battery, a testing appliance, and a key adapted to include the testing appliance in circuit between the tip-strand and the terminal of the battery connected with tip-contacts of the jacks, the tip-strand being continuous to battery-current between said key and the tip of the connecting-plug, but discontinuous to said current between the key and the answering-plug, substantially as described.

659,960. **ENVELOP-MACHINE.** EDWARD ERNOLD, New York, N. Y. Filed Jan. 18, 1900. Serial No. 1,875. (No model.)



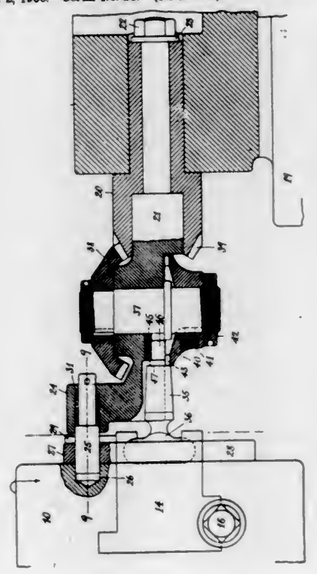
Claim.—In an envelop-machine, the combination, with the gum-supply fountain, and gumming-rollers, of stationary transverse guide-rods at the upper part of the machine, means for guiding said rollers on said rods, a driving-shaft, a pinion on said driving-shaft, a gear-wheel meshing with said pinion and provided with a cam-groove, a vertically-guided rod provided with a roller engaged by said cam-groove, and with a lateral arm, a pivot-link connected with said arm, a fulcrumed and spring-actuated elbow-lever connected with said link, the upper arm of said elbow-lever being provided with a toothed segment, a pinion meshing with said segment, and lever connections between the shaft of said pinion and the means for guiding the gumming-rollers, substantially as set forth.

659,961. **CARLINE.** HENRY W. GAYE, St. Louis, Mo. Filed Feb. 27, 1899. Serial No. 707,083. (No model.)



Claim.—The combination with a tubular compression member, of castings arranged at its ends, and against which the same abuts, said tubular compression member having a superficial longitudinal recess bent therein open at both ends, a truss-rod passing through said castings and seated in said recessed ends of the compression member, and a strut.

659,962. **TURRET-TOOL.** CLARENCE L. GOODRICH, Hartford, Conn., assignor to the Pratt & Whitney Company, same place. Filed Jan. 2, 1900. Serial No. 20. (No model.)



Claim.—1. The combination of a rotatable tool-carrying frame, a rotatable cutting-tool journaled thereon, and operatively connected with a non-rotating driver.

2. The combination of a rotatable tool-frame, a non-rotating driver located concentrically therewith, a rotatable tool mounted in the frame and operatively geared with the non-rotating driver.

3. The combination of a rotatable tool-frame, a fixed gear located concentric therewith, a rotatable tool-spindle journaled in the frame and operatively connected with the fixed gear, and a milling-cutter mounted upon the tool-spindle.

4. In combination with a rotating work-carrier, a rotatable tool-carrying frame adapted to be engaged by and be rotated synchronously with and by the work-carrier.

5. In combination with a rotating work-carrier, a rotatable tool-carrying frame adapted to be engaged by and be rotated synchronously with the work-carrier, a tool-spindle rotatably journaled in the frame, and a non-rotating driver connected with the rotatable spindle.

6. In combination with a rotating work-carrier, a rotatable tool-carrying frame, a rotatable cutting-tool journaled thereon, and operatively connected with a non-rotating driver, with means for automatically coupling the work-carrier and the tool-frame, whereby the tool-frame is rotated synchronously with and by the carrier.

7. In combination with a rotatable work-carrier and a tool-holding turret, a tool-frame rotatably journaled on the turret, and arranged to be brought by the operation of the turret into concentric relation with the work-carrier, a tool-spindle journaled on the frame, and operatively connected with a non-rotating driver on the turret.

8. In combination with a rotating work-carrier, and with a tool-holding turret, a tool-carrying frame rotatably journaled on the turret and arranged to be brought by the operation thereof into concentric relation to and rotative engagement by the work-carrier, a tool-spindle rotatably journaled upon the frame, and a non-rotating driver fixed upon the turret and operatively connected with the tool-spindle for rotating the latter when the frame is rotated by the work-carrier.

9. The combination of a rotating work-carrier, and a rotatable tool-carrying frame, provided with coengaging abutments whereby one is rotated synchronously with and by the other.

10. In combination with a rotating work-carrier and a rotatable tool-carrying frame, a coupling-pin located on the frame and a projecting abutment on the carrier for engaging with the pin and rotating the frame synchronously with the carrier.

11. In combination with a rotating work-carrier, and a rotatable tool-frame, a coupling projection carried by the frame, a driving-seat therefor on the work-carrier and a projecting abutment for engaging with and guiding the coupling projection into its driving-seat in the carrier.

12. In combination with a rotating work-carrier, and a rotatable tool-frame, a coupling-pin resiliently mounted for longitudinal movement upon the frame, and a projecting abutment upon the carrier, the abutment being beveled back from its face for the purpose specified.

13. In combination with a rotating work-carrier and with a rotatable tool-carrying frame, a plurality of driving and indexing abutments upon the tool-frame, the carrier being provided with means for engaging alternately with the abutments of the frame for indexing it into different positions relative to the work-carrier.

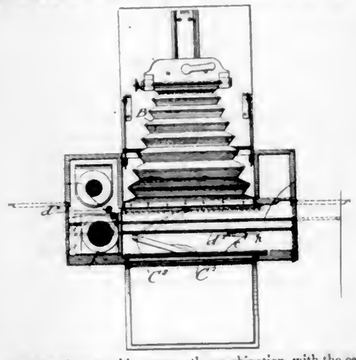
14. In combination with a rotating work-carrier, and with a rotatable tool-carrying frame, a plurality of driving and indexing abutments located in coengaging pairs upon the carrier and the tool-frame respectively at different radial distances from their common axis of rotation, the abutments upon one of the rotatable members being operatively connected, whereby the coengagement of one pair of abutments brings another pair of abutments into engaging relation.

15. In combination with a rotating work-carrier and with a rotatable tool-carrying frame, a plurality of indexing-abutments located upon the tool-frame at different radial distances from its axis of rotation, and a dog pivotally mounted upon the carrier, having its ends located in engaging relation to the abutments upon the tool-frame, whereby the engagement of one indexing-abutment with its end of the dog brings the other end of the dog into engaging relation to the other indexing-abutment.

659,963. ROLL-HOLDING CAMERA. ADOLF O. GRAF, Demarest, N. J. Filed Mar. 20, 1900. Serial No. 9,371. (No model.)

Claim.—1. In a photographic camera, the combination, with the casing provided with a ground glass, of means for shifting the ground glass forward and backward in the camera, a roll-holder arranged at one side of the camera, a winding-up roller adjacent to the roll-holder at the same side of the camera, and means for moving the roll-holder across the camera to the opposite side of the same so as to unwind the required length of film, and hold it in position for exposure, substantially as set forth.

2. In a photographic camera, the combination, with the casing provided with a ground glass, of means for moving the ground glass into forward and backward position, a film-carrying roll-holder located at one side of the camera, a winding-up roller adjacent the roll-holder, a guide-roller between said roll-holder and winding-up roller, means for moving the roll-holder across the casing to the opposite side thereof, and means for locking the roll-holder in the second position so as to permit exposure of the film stretched across the casing, substantially as set forth.



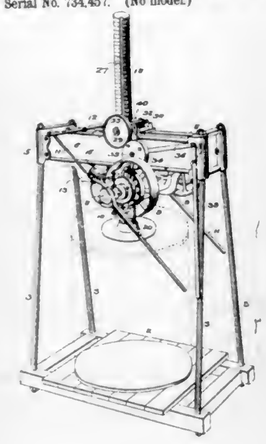
3. In a photographic camera, the combination, with the casing, provided with a ground glass, of means for shifting the ground glass forwardly or backwardly, a roll-holder at one side of the casing, means for locking the roll-holder in its position, a slide-frame adapted to release the roll-holder and move it transversely across the casing, a winding-up roller adjacent to the normal position of the roll-holder, and a guide-roller between the roll-holder and winding-up roller, so that by the transverse motion of the roll-holder a film is stretched across the casing, substantially as set forth.

4. In a photographic camera, the combination, with the casing, of a film-carrying roll-holder supported at one side of the same, a pawl-and-ratchet mechanism for locking the roll-holder, a guide-roller on the supporting-frame of the roll-holder, a guide-roller in the casing, a winding-up roller adjacent to the roll-holder and guide-roller, and means for moving the roll-holder across the casing, substantially as set forth.

5. In a photographic camera, the combination, with a casing provided with guideways, of a roll-holder supported at one corner of said casing, means for guiding said roll-holder in the guideways of the casing, a pawl-and-ratchet mechanism for locking the roll-holder, a guide-roller adjacent to the roll-holder, a second guide-roller in the casing, a winding-up roller adjacent to the normal position of the roll-holder, and a slide-frame guided in grooves of the casing and adapted to release the pawl from the ratchet mechanism so as to unlock the roll-holder, said slide-frame being provided with a handle at the outside of the casing, substantially as set forth.

6. In a photographic camera, the combination of the casing, a roll-holder carrying one end of a sensitized film, means for moving the said roll-holder transversely of the camera, and a ground-glass plate movable across the path of movement of the roll-holder, substantially as set forth.

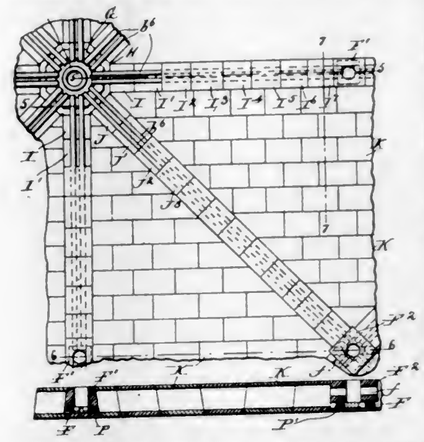
659,964. PRESS. FERDINAND GROTE, Evansville, Ind. Filed Oct. 23, 1899. Serial No. 734,457. (No model.)



Claim.—1. In a press, the combination of a platen, a driving-pulley, an upper and a lower worm-gear, means cooperating with each of said gears, and devices whereby either of said worm-gears may be connected or disconnected alternately with the driving-pulley, as set forth.

2. In a press, a threaded stem, a presser-plate at one end thereof, a toothed gear threaded on said stem, a pinion keyed to said stem to slide thereon, a worm meshing with said gear, and another worm meshing with said pinion, a driving-pulley on the shaft of the first-mentioned worm, a clutch between said pulley and worm-shaft, and a shiftable device for connecting or disconnecting the said driving-pulley to or from said worm that drives the sliding pinion, as set forth.

659,965. FIREPROOF FLOORING. LAWRENCE G. HALLBERG, Chicago, Ill. Filed Mar. 5, 1896. Serial No. 581,902. (No model.)



Claim.—1. In a tile flooring, two or more systems of tension-rods; suitable supports for the ends thereof; skewback tile carried by the said tension-rods; and flat-arch tile having the operative surfaces of their sides and ends slanting convergingly downward so as to form a flat arch of each panel, arranged to transmit downward stress thereon horizontally in three or more directions to the skewback-tile systems between which it is located and by which it is supported.

2. In a tile flooring, the columns D; two or more systems of tension-rods attached thereto and supported thereby; skewback tile supported upon the said tension-rods; and flat-arch tile having the operative surfaces of their sides and ends slanting convergingly downward so as to form a flat arch of each panel, arranged to transmit downward stress thereon horizontally in three or more directions to the skewback-tile systems between which it is located and by which it is supported.

3. In a fireproof flooring, a series of suspension-rods; suitable supports for the ends thereof; skewback tile carried by the said suspension-rods, and disposed longitudinally in a flat-arch form; and suitable flooring material filling in between the skewback tile.

4. In a fireproof flooring, a series of suspension-rods; suitable supports for the ends thereof; skewback tile carried by the said suspension-rods, and disposed longitudinally in a flat-arch form; and flat-arch tile filling in between the skewback tile.

5. In a fireproof flooring, two or more systems of suspension-rods; suitable supports for the ends thereof; skewback tile carried by the said suspension-rods, and disposed longitudinally in flat-arch form; and flat-arch tile arched in two directions filling in between the skewback-tile systems and forming panels which are supported from all the surrounding skewback tile.

6. In a fireproof flooring, the columns D; two or more systems of suspension-rods attached thereto and supported thereby; skewback tile supported upon the said suspension-rods, and disposed longitudinally in a flat-arch form; and flat-arch tile arched in two directions filling in the panels between the systems of skewback tile and supported by all the surrounding skewback tile.

7. In a tile flooring, the column D; the bracket H; the collar G directly superimposed over and supported from the said bracket; and the suspension-rods hooked at one end over the said collar G.

8. In a fireproof flooring, the columns D; suspension-rods secured at one end thereto; and the collars F, to which the remaining ends of the said suspension-rods are secured.

9. In a fireproof flooring, the columns D; brackets H mounted upon the said columns; collars G directly superimposed over and supported from said brackets; suspension-rods hooked at one end over the collars G; and the collars F to which the remaining ends of the said suspension-rods are secured.

10. In a fireproof flooring, the columns D; brackets H mounted upon the said columns; the collars G directly superimposed over and supported from the said brackets; suspension-rods hooked at one end over the said collars G; collars F to which the remaining ends of the said suspension-rods are secured; skewback tile carried by the said suspension-rods; and suitable filling material filling in the panels between the skewback systems, so formed.

11. In a fireproof flooring, the column D; skewback bracket H mounted on the said column; the suspension-rods; and a series of tile carried by the said rods and contacting with the skewback bracket H.

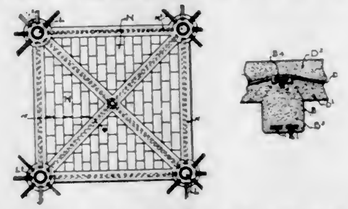
12. In a fireproof flooring, the columns D; the skewback bracket H mounted thereon; the suspension-rods secured to the said columns; and a series of skewback tile disposed longitudinally in the form of a flat arch, carried by each said suspension-rod and contacting with the skewback bracket H.

13. In a fireproof flooring, the columns D; skewback brackets mounted on the said columns; suspension-rods secured to the said columns; skewback tile carried by the said suspension-rods and disposed longitudinally in the form of a flat arch, and contacting with the said skewback brackets; and a flat-arch tile filling in between the skewback-tile systems.

14. In a fireproof flooring, the columns D; skewback brackets H mounted on the said columns; the suspension-rods secured to the said columns; the central tile F' carried and supported from the said suspension-rods; and a series of skewback tile carried by the said suspension-rods disposed longitudinally in a flat-arch form and contacting with the bracket H and the central tile F'.

15. In a tile flooring, suspension-rods; suitable supports for the ends thereof; skewback tile carried by the said suspension-rods and disposed in an arched form; and flat-arch tile filling in the panels between the said skewback tile, and secured thereto, the said arch tile being less in depth than the said skewback tile, whereby a paneled and vaulted effect is produced in the ceiling below.

659,966. FIREPROOF FLOORING. LAWRENCE G. HALLBERG, Chicago, Ill. Filed Mar. 26, 1896. Serial No. 585,026. (No model.)



Claim.—1. In a flooring, the combination with suitable carrying-supports, of sagged suspension-rods having their ends secured to said supports, cementitious material filled in about said suspension-rods to form a concrete girder carried thereby, and suitable flooring material filling in between the said concrete girders.

2. In a flooring, the combination with suitable carrying-supports, of sagged suspension-rods having their ends anchored to said supports, cementitious material filled in about said suspension-rods to form a concrete girder carried thereby, said girder being formed skewback in cross-section, and flat-arched tile keyed to and supported between concrete girders so formed.

3. In a flooring, the combination with suitable carrying-supports, of sagged suspension-rods anchored to said supports, cementitious material filled in about said suspension-rods to form a concrete girder carried thereby, an anchor-strip partially embedded in said concrete girder, suspension-rods secured at one end to said anchor-strip and having their other ends suitably supported, and flooring material held in position by said suspension-rods and concrete girders, substantially as described.

4. In a flooring, the combination with suitable carrying-supports, of sagged suspension-rods anchored to said supports to form a concrete girder, an anchor-strip partially embedded in said concrete girder above the said suspension-rods, a series of similar suspension-rods D, each having one end looped over the edge of said anchor-strip, and their opposite ends suitably supported, and cementitious material filled in and about said latter-named suspension-rods to form a flooring.

5. The suspension-rod anchor comprising the vertical pieces E', strengthening-flanges e, cross-piece E^2, and the horizontal piece E^3, substantially as shown and described.

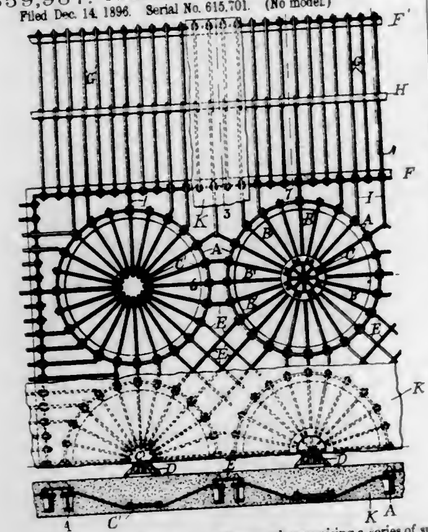
6. In a flooring, the column L; the skewback bracket L'; the suspension-rods M² anchored to the column; the concrete body M surrounding the said suspension-rod M² and bearing against the skewback bracket L'; and suitable filling material filling in between the beams so formed.

7. In a flooring, the stationary suspension-rod anchor comprising the vertical pieces E', having lateral strengthening-flanges e, pin e', cross-piece E², and forwardly-extending horizontal piece E³, in combination with the suspension-rod B', having its end hooked over the said pin e', substantially as described.

8. In a flooring, the column C, the skewback bracket C², the suspension-rods B', anchored to the column, the concrete body B³, surrounding the said suspension-rods and bearing against the said skewback bracket C², and suitable filling material filling in the space between the beams so formed.

9. In a flooring, the columns C, having skewback brackets C² secured thereto, suspension-rods B' anchored to the columns, and the concrete body B³ surrounding the said suspension-rods and bearing against the skewback brackets to form a concrete girder, an anchor-strip B⁴ partially embedded in the said concrete girder above the rods B', suspension-rods D, having their ends attached to the said anchor-strips and to other anchors in the wall or adjacent girder, and a suitable filling material, filling in the space between the beams so formed.

659,967. FOUNDATION. LAWRENCE G. HALLBERG, Chicago, Ill. Filed Dec. 14, 1896. Serial No. 615,701. (No model.)



Claim.—1. In a foundation, a framework comprising a series of suspension-rods, extending outwardly from the point of load; a central base supported by said framework; and anchors to which the outer ends of said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

2. In a foundation, a framework comprising a series of suspension-rods, extending outwardly from the point of load; a central base at the said point of load to which the inner ends of a portion of said suspension-rods are secured; and anchors to which the outer ends of the said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

3. In a foundation, a framework comprising a series of sagged suspension-rods extending outwardly and upwardly from the point of load; a central base located at the said point of load to which the inner ends of the said suspension-rods are secured; and anchors to which the outer ends of the said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

4. In a foundation, a framework comprising a series of suspension-rods radiating outwardly from the point of load; a central base; and anchors to which the outer ends of said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

5. In a foundation, a framework comprising a series of suspension-rods, radiating outwardly from the point of load; a central base at the said point of load to which the inner ends of a portion of said suspension-rods are secured; and anchors to which the outer ends of the said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

6. In a foundation, a framework comprising a series of sagged suspension-rods radiating outwardly and upwardly from the point of load; a central base located at the said point of load to which the inner ends of the said suspension-rods are secured; and anchors to which the outer ends of the said suspension-rods are secured; in combination with a cementitious mass in which the said framework is embedded.

7. In a foundation, a framework comprising a series of sagged suspension-rods B B'; a central base C to which the inner ends of a portion of the said rods are secured; and a surrounding anchor A to which the outer ends of the suspension-rods are secured.

8. In a foundation, a framework comprising a central base C; suspension-rods B B'; and a surrounding circular anchor A, consisting of the segmental parts A^6.

9. In a foundation, an anchor A comprising a series of segmental parts A^6, each consisting of flanges A', A^2, A^3 and provided with ribs A^5 and slots *a* adapted to receive the ends of suspension-rods B.

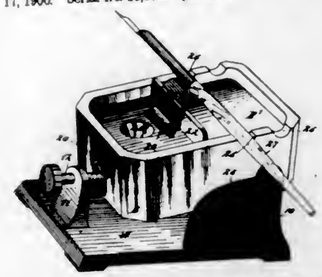
10. In a foundation, an anchor A comprising the flanges A', A^2, A^3 and provided with the slots *a* and the ribs A^5 formed with notches *a'*; in combination with a suspension-rod B, looped as at *b*, and held by the pin b^2 seated in the notches *a'*.

11. In a foundation, piers for column-supports each comprising a series of suspension-rods radiating outwardly from the point of load, and inclosing anchors to which the outer ends of the suspension-rods are secured; in combination with the piers for the walls each comprising a series of suspension-rods disposed in parallel order, extending outwardly and upwardly from the point of load, and anchors to which the outer ends of the said suspension-rods are secured.

12. In a foundation, piers for column-supports each comprising a series of suspension-rods radiating outwardly from the point of load, and inclosing anchors to which the outer ends of the suspension-rods are secured; in combination with the piers for the walls each comprising a series of suspension-rods disposed in parallel order, extending outwardly and upwardly from the point of load, and anchors to which the outer ends of the said suspension-rods are secured; tie-rods interconnecting the several pier frameworks; and a cementitious mass in which the entire foundation is embedded.

13. In a foundation, a framework comprising a series of suspension-rods extending outwardly from the point of load; a central base located at the said point of load, to which the inner ends of the said suspension-rods are secured; anchors to which the outer ends of the said suspension-rods are secured; and horizontally-disposed brace-rods connecting the base with the lower edges of the anchors, in combination with a cementitious mass in which the said framework is embedded.

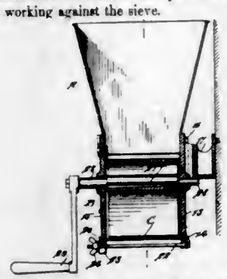
659,968. INKSTAND. CHARLES W. HANSHAW, Lamar, Mo. Filed July 17, 1900. Serial No. 23,833. (No model.)



Claim.—An inkstand, having a base formed at its front with a standard and at its rear with side standards joined by a transverse member forming a pivoting edge, an ink-receiver having its rear portion pivotally mounted on said transverse member and having its front portion formed with an inclined surface, a screw carried in the standard at the front of the base and working on the inclined surface of the ink-receiver to adjustably sustain the same, a cover carried on the ink-receiver to close the top thereof, and formed with a downwardly-projected dip-cup, and an auxiliary cover or lid carried on the main cover and closing the dip-cup, substantially as described.

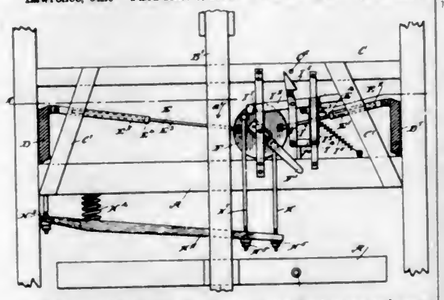
659,969. CULINARY MASHER AND STRAINER. RICHARD F. HAYES, New York, N. Y., assignor of one-half to George A. Griffin, same place. Filed Jan. 2, 1900. Serial No. 107. (No model.)

Claim.—1. An apparatus for mashing and straining food, comprising a feed-hopper, a body joined thereto and comprising a back joined rigidly to the feed-hopper and a front removably connected thereto, the front and back having grooves therein, outwardly and inwardly turned flanges attached to opposite edges of the feed-hopper, a sieve with flanges at its ends engaged with the side flanges of the feed-hopper, the side edges of the sieve being fitted in the grooves of the front and back sections of the body, a tie-rod extending between the front and back sections of the body, to hold the sieve and front section in place, and a beater mounted in the body and working against the sieve.



2. A vegetable mashing and straining device, comprising a hopper having an enlargement or rim at its bottom portion, a body comprising front and back sections, the back section being rigidly joined to the rim of the hopper and the front section being removably engaged therewith, a sieve having its ends engaged with the rim of the hopper and having its side edges engaged with the front and back of the body, a tie-rod extending between the front and back of the body, and a beater mounted in the body and working with the sieve.

659,970. AUTOMATIC CAGE-REST. MARTIN HORST, North Lawrence, Ohio. Filed Mar. 1, 1900. Serial No. 6,935. (No model.)



Claim.—1. A cage-rest, comprising supports for the cage, and means controlled by the cage and connected with the said supports, to hold the latter normally in an open position for the passage of the cage in its ascent, said supports immediately moving into a closed position when the cage has risen above the supports.

2. A cage-rest, comprising self-closing supports for the cage, means controlled by the cage and connected with the said supports, to hold the latter normally in an open position, and to allow the supports to close as soon as the cage has risen above the supports, and a releasing device for the said means and controlled by the cage, to allow the said means to again open the supports for the cage to descend, as set forth.

3. A cage-rest, comprising a spring-pressed arm mounted to turn and adapted to be engaged by a rising cage, and self-closing supports normally held in an open position from the said arm, and adapted to close upon the arm receiving a swinging motion from the cage, substantially as shown and described.

4. A cage-rest, comprising a spring-pressed arm mounted to turn and adapted to be engaged by a rising cage, self-closing supports normally held in an open position from the said arm, and adapted to close upon the arm receiving a swinging motion from the cage, and a locking device for locking the arm in an uppermost position after the supports have moved into a closed position, substantially as shown and described.

5. A cage-rest, comprising a spring-pressed arm mounted to turn and adapted to be engaged by a rising cage, self-closing supports normally held in an open position from the said arm, and adapted to close upon the arm receiving a swinging motion from the cage, a locking device for locking the arm in an uppermost position after the supports have moved into a closed position, and a releasing device for the said locking device and controlled by the cage, substantially as shown and described.

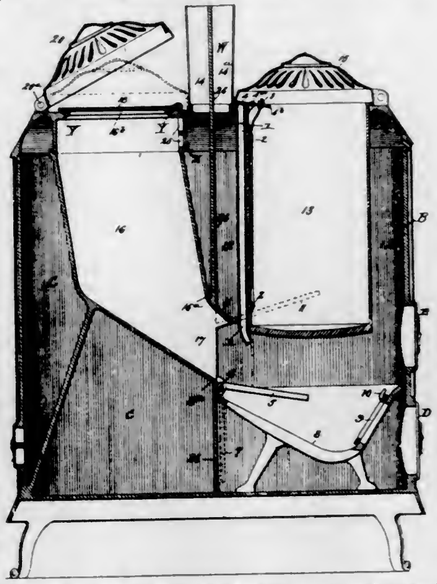
6. A cage-rest, comprising a disk mounted to turn, a spring-pressed lever connected by links with said disk, an arm on said disk and adapted to be engaged by a projection on the cage, links pivotally connected with said disk, and self-closing supports pivotally connected with said links, substantially as shown and described.

7. A cage-rest, comprising a disk mounted to turn, a spring-pressed lever connected by links with said disk, an arm on said disk and adapted to be engaged by a projection on the cage, links pivotally connected with said disk, self-closing supports pivotally connected with said links, and a locking device for said disk, and comprising a pin on the disk, and a spring-pressed arm having a notch engaging said pin, as set forth.

8. A cage-rest, comprising a disk mounted to turn, a spring-pressed lever connected by links with said disk, an arm on said disk and adapted to be engaged by a projection on the cage, links pivotally connected with said disk, self-closing supports pivotally connected with said links, and a locking device for said disk, and comprising a pin on the disk, a spring-pressed arm having a notch engaging said pin, and a releasing device for the said locking device, and comprising a hook-lever connected with said notched arm, and adapted to be engaged by a projection on the cage, as set forth.

9. A cage-rest, comprising a disk mounted to turn, a spring-pressed lever connected by links with said disk, an arm on said disk and adapted to be engaged by a projection on the cage, links pivotally connected with said disk, self-closing supports pivotally connected with said links, a locking device for said disk, and comprising a pin on the disk, a spring-pressed arm having a notch engaging said pin, and a releasing device for the said locking device, and comprising a hook-lever connected with said notched arm, and adapted to be engaged by a projection on the cage, the said hook-lever being adapted to engage a fixed pin, to impart a swinging motion to the lever, as set forth.

659,971. HEATING-STOVE. ATEN B. HOWER, Logan, Utah, assignor of one-half to William Worth Teter, Bellington, W. Va. Filed Sept. 1, 1899. Serial No. 729,159. (No model.)



Claim.—1. A stove, comprising a casing provided with a central transverse partition extending from top to bottom and dividing it into cold-air and hot-air compartments, said partition being formed with an opening near its lower end, a fuel-magazine in the cold-air compartment, said magazine being spaced from the casing and having a contracted lower end connected to the partition at the opening therein, an adjustable fire-plate hinged to the partition at the lower wall of said opening, a fire-pot below said plate, a heating-drum in the hot-air compartment and spaced from the partition and the walls of the casing, and a deflector-plate extending outwardly and upwardly from the partition at the upper wall of said opening on both sides of the heating-drum, as set forth.

2. A stove, comprising a casing having a transverse partition dividing it into cold-air and hot-air compartments, said partition being formed

with an opening near its lower end, a fuel-magazine in the cold-air compartment, said magazine having its lower end connecting with the partition at the opening therein, a fire-pot in the hot-air compartment below said opening, a heating-drum above said fire-pot, and a deflector-plate extending from the partition at the upper wall of the opening, said plate partially surrounding the heating-drum, as set forth.

3. A stove, comprising a casing having a transverse partition dividing it into cold-air and hot-air compartments, said partition being provided with an opening near its lower end, a fuel-magazine in the cold-air compartment connected with the partition at the said opening, a fire-plate hinged to said partition at the lower wall of said opening, a fire-pot in the hot-air compartment below said plate, a heating-drum above said fire-pot, a deflector-plate extending from the upper wall of said partition and partially surrounding said drum, and a draft-tube extending vertically from the upper end of the casing down through said deflector-plate and terminating above the fire-plate, as set forth.

659,972. OVERDRAW-CHECKREIN. JAMES W. HOWLAND, Cohoes, N. Y. Filed May 4, 1900. Serial No. 15,503. (No model.)



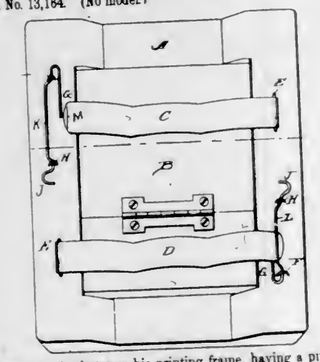
Claim.—1. An overdraw-checkrein comprising a face-piece having straps which are passed through the rings of a bit, a nose-band adapted to completely encircle the nose or muzzle of a horse immediately above the bit, and means for connecting the face-piece with a check-hook, substantially as shown.

2. In an overdraw-checkrein, the combination with a bit, of a face-piece having diverging straps, a strap B connected to the face-piece, to the diverging straps and to a nose-band A which nose-band encircles the nose or muzzle of the horse above the bit, and a guard carried by the nose-band, substantially as shown and for the purpose set forth.

3. The improved checkrein herein described consisting of a face-piece C, means for connecting one end thereof to a check-hook, the face-piece having straps $c\ c$, $c'\ c'$, a strap B connected to the straps $c\ c$ and to a nose-band A, the strap B engaging the rings of the bit and the straps $c\ c'$ of the face-piece, the nose-band having on its side opposite to where it is connected to the strap B adjusting means and a guard, substantially as shown.

4. In an overdraw-checkrein, the combination with a face-piece C and its straps or members $c\ c$, $c'\ c'$, of a strap B connected thereto, and a nose-band A attached to the strap B, of a part E connected to members c^2, c^2, of the face-piece C and a strap which extends from the check-hook to the part E and from thence to the driving-reins, substantially as shown.

659,973. PHOTOGRAPHIC-PRINTING FRAME. WILLIAM HUDSON and LAWRENCE HUDSON, Burnley, England. Filed Apr. 16, 1900. Serial No. 13,164. (No model.)

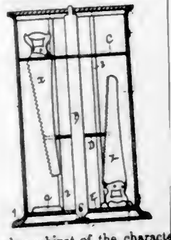


Claim.—1. A photographic-printing frame, having a pivoted bail-like main portion and a loop at one end with the free end portion thereof normally inclined outward to adapt it for engagement with the part to be secured, such engagement bringing said bail-like main portion over said part, substantially as described.

2. A photographic-printing frame, having a pivoted bail-like main portion and end loops, one loop having a normally outward inclined free end portion and the other loop being arranged about in alinement with said main portion to provide for the disengagement of the latter from the secured part as pressure is applied to said latter loop, substantially as set forth.

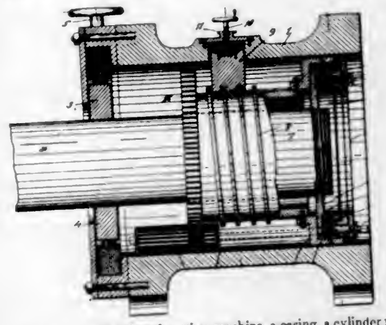
3. A photographic-printing frame having a pivoted bail-like main portion and end loops, one loop having a normally outward inclined free end portion adapted as it is engaged by the part to be secured to bring said bail-like portion over said part, and the other loop arranged about in alinement with said bail-like portion to provide for the disengagement of the first-referred-to loop from the secured part, and staples confining said fastening in place, substantially as set forth.

659,974. SAW-CABINET. JOHN H. HUSSEY, Omaha, Nebr. Filed June 21, 1897. Serial No. 641,711. (No model.)



Claim.—In a display-cabinet of the character described, having a removable top, of a post revolubly held within the bottom of the cabinet and said removable top, a table secured to the lower end of said post, provided with a series of pockets each adapted to hold a saw-handle, a second table secured to the upper end of said post having a series of incisions, and an intermediate incised disk secured to said post, said lower table being adapted to support a plurality of saws in an upright and the upper table a series of saws in a pendent position, all of said saws having their blades resting within openings of said incised disk.

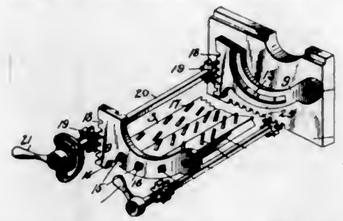
659,975. THREAD-CUTTER. DUJAREL N. JERAULD, Buffalo, N. Y. Filed Apr. 23, 1900. Serial No. 13,922. (No model.)



Claim.—1. In a thread-cutting machine, a casing, a cylinder mounted in the casing, means for imparting a lengthwise movement to said cylinder, means for imparting rotary movement to the cylinder, a die-carrier attached to the forward end of said cylinder, consisting of an outwardly-extended portion and inner and outer forwardly-extended flanges, dies movable through openings in the inner flange, worm-wheels engaging with said dies, pinions on the shafts of the worm-wheels, a ring-shaped rack engaging with the several pinions, the said rack being mounted to rotate on the said inner flange, a stop-ring attached to the outer flange, and a pin or the like extended from said rack through an arc slot in the stop-ring, substantially as specified.

2. In a thread-cutting machine, a casing, a cylinder mounted in the casing and having an exterior thread, a feed-block for engaging with said thread, a gear attached to the rear end of said cylinder, an elongated pinion with which said gear engages, a die-carrier attached to the forward end of said cylinder, consisting of an outwardly-extended portion and inner and outer forwardly-extended flanges, dies movable through openings in the interior flange, worm-wheels engaging with said dies, pinions on the shafts of the worm-wheels, a ring-shaped rack engaging with the several pinions, said rack being mounted to rotate on the said inner flange, and a stop-ring attached to the outer flange, substantially as specified.

659,976. GRAIN-SEPARATOR. FREDERICK M. KELLER, York, Pa. Filed Apr. 27, 1900. Serial No. 14,581. (No model.)

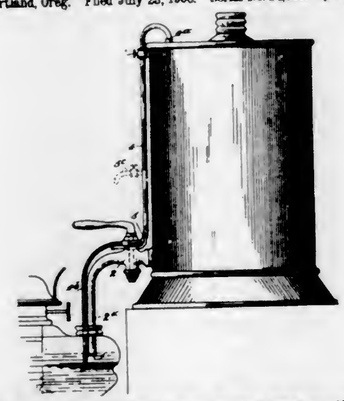


Claim.—1. In a grain-separator, a threshing-cylinder, a concave below the cylinder, said concave comprising curved arms hinged at one end to a horizontally-sliding frame, curved grooves in the arms, concaves seated in the grooves, and means for adjusting the concaves laterally and vertically, and means for adjusting the sliding frame back and forth under the cylinder, substantially as described.

2. In a grain-separator, a threshing-cylinder, a concave below the cylinder, said concave comprising curved arms hinged to a horizontally-sliding frame, curved grooves in the arms, concaves seated in the grooves, bolts passing through the arms for engaging the ends of the concaves, lock-nuts on the bolts, pinions engaging rack-teeth on the ends of the curved arms, for adjusting the concave vertically, and teeth on the edge of the sliding frame engaged by pinions for adjusting said frame and concave back and forth under the cylinder, substantially as described.

3. In a grain-separator, a threshing-cylinder, journaled to revolve in a supplemental frame detachable from the main frame of the separator, a concave pivoted to a sliding frame fitted to guideways in the supplemental frame, and means for adjusting the concave laterally, vertically and longitudinally, substantially as described.

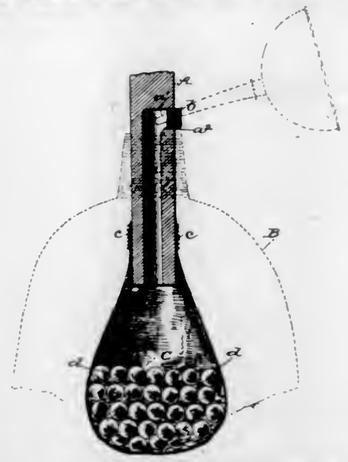
659,977. LAMP-FILLING OIL-CAN. ALEXANDER KITTERMAN, Portland, Oreg. Filed July 23, 1900. Serial No. 24,585. (No model.)



Claim.—1. A liquid-holding vessel, having a faucet provided with an air-vent passage in its body, and a similar passage in its valve, the valve-vent passage having such relation with the main or discharge passage therein that the air-vent passage can be turned in line with the air-passage of the faucet-body for cutting off the discharge-passage therein; and a main vent or air-tube connection to the can having its entrant end projected below the faucet-nozzle and having a member in communication with the air-passage in the faucet, as specified.

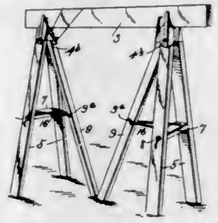
2. The combination with the oil-can having a main air-vent and a discharge-faucet having a transverse air vent or passage communicating with the main air-vent and a valve having in addition to its discharge-passage a supplemental passage adapted to be brought either in or out of line with the supplemental air-passage without cutting off the fluid-discharge substantially as described.

659,978. ANTISEPTIC BROOM. OSCAR S. KULMAN, Savannah, Ga. Filed May 31, 1900. Serial No. 18,555. (No model.)



Claim.—A wooden broom-handle formed at its lower end with a longitudinal and transverse intersecting channel with closing device for its transverse opening; combined with and rigidly attached to a broom, and a central antiseptic-retainer whose mouth is made to inclose the channeled lower end of the broom-handle, and a wrapping of wire securing the bag to the handle substantially as described and for the purpose set forth.

659,979. TRESTLE. MICHAEL MILLER, Glenwood, Iowa. Filed July 13, 1900. Serial No. 23,482. (No model.)



Claim.—A trestle comprising the metallic heads each having three inclined sockets in the under sides and a slot in the upper ends, inclined legs fitted into said sockets and secured by bolts, braces for holding said legs in relatively-inclined positions, a put-log seated in the slots in the upper ends of the metallic heads, and dogs pivoted one to each metallic head and provided each with a prong driven into the put-log, substantially as described.

659,980. TYPE-WRITER. ROBERT J. MINER, Greenwich, Conn., and WILLIS E. MINER, Roselle, N. J. Filed Oct. 31, 1899. Serial No. 735,365. (No model.)

Claim.—1. In a type-writing machine, two sets of type-levers, draw-rods extended from the levers, connections between the opposite draw-rods, key-levers, and shiftable connections between the key-levers and the draw-rod connections.

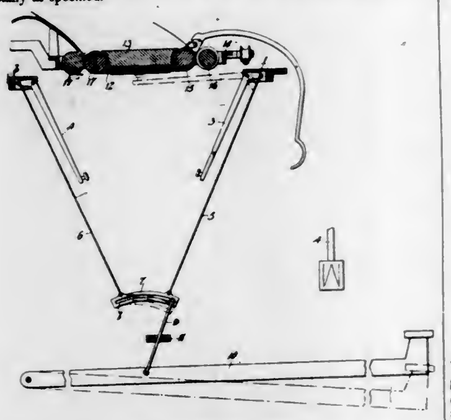
2. In a type-writing machine, two sets of type-levers, draw-rods extended downward from said type-levers, link connections between opposite draw-rods, key-levers, and links connected with said key-levers and shiftable on the first-named links, substantially as specified.

3. In a type-writing-machine carriage, a flat impression-bed, and feed-rollers at the opposite sides of the impression-bed, the said bed and rollers being mounted on the carriage, substantially as specified.

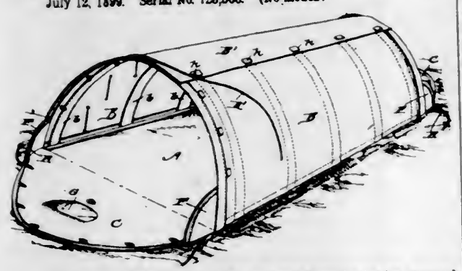
4. In a type-writing machine, type-levers pivoted on the machine-frame, draw-rods extended downward from the type-levers, segmental links connecting opposing draw-rods, key-levers, links extended from the key-levers to shifting connection with the segmental links, and a shifting bar for simultaneously moving all of the last-named links, substantially as specified.

5. In a type-writing machine, two sets of type-levers, perforating

type carried by one of said sets of levers, draw-rods extended from the levers, connections between opposite draw-rods, key-levers, and shiftable connections between the key-levers and draw-rod connections, substantially as specified.



659,981. TENT. THADDEUS D. MCCALL, Wichita, Kans. Filed July 12, 1899. Serial No. 723,568. (No model.)



Claim.—1. A floor-tent consisting of a middle section having attached along each of its longitudinal edges a separate rectangular side piece, each side piece having a series of parallel and transversely-arranged pockets or keepers with spring-stays in them, and the stays having locking devices at their outer ends and adapted to be alined and joined in pairs when the side pieces are turned up to form the tent-inclosure as set forth.

2. A floor-tent consisting of a middle section, two attached side pieces with flexible transverse rib-stays, detachable locking devices for connecting the stays in pairs, one side of the tent having a flap extension B substantially as and for the purpose described.

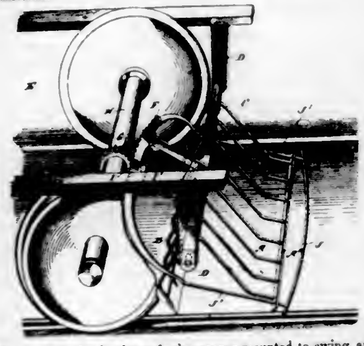
3. A floor-tent consisting of a middle section having attached along each of its longitudinal edges a separate rectangular side piece, each side piece having a series of parallel and transversely-arranged pockets or keepers with spring-stays in them, the stays having locking devices at their outer ends and adapted to be alined and joined in pairs when the side pieces are turned up to form the tent-inclosure, and a ridge-pole arranged at right angles to the series of stays and detachably connected to each pair of stays at their joined or lapped ends substantially as described.

4. A floor-tent consisting of a middle section, and two attached side pieces with longitudinal suspending-ropes incorporated at the side edges of the middle section, means for distending the side section, a ridge-pole, and means for suspending the tent at its ends substantially as described.

659,982. CAR-FENDER. JOSEPH W. MCKEAN, Charleroi, Pa. Filed Feb. 26, 1900. Serial No. 6,565. (No model.)

Claim.—1. A car-fender, having a fender proper mounted to swing, a gear-wheel on the car-axle, and a movable tooth for engaging said gear-wheel and means brought into action by the movement of said tooth for imparting a positive swinging motion to the fender proper, substantially as shown and described.

2. A car-fender, having a fender proper mounted to swing, and having a front and a rear section, said sections standing at an angle to each other, the front section being normally in an active position over the track, and the rear section being normally in an inactive rearward position, and means for imparting a forward swinging motion to the fender proper, to swing the front section upward and the rear section downward and forward into an active position over the track, substantially as shown and described.



3. A car-fender having a fender proper mounted to swing, and provided with a rack, a guard mounted to slide, and means carried by the guard and arranged for engagement with a movable part carried by the car-truck, to move the rack in engagement with said movable part, and impart a positive swinging motion to the fender proper, substantially as shown and described.

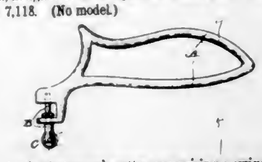
4. A car-fender, having a fender proper mounted to swing, and having front and rear sections standing at an angle to each other, a rack on said fender proper, a gear-wheel rotating with the car-axle and normally out of mesh with said rack, and a guard movable on the front fender-section, and provided with means adapted to mesh with the gear-wheel on the axle to throw the said rack in mesh with the gear-wheel, substantially as shown and described.

5. A car-fender, comprising a fender proper mounted to swing, and having a front and a rear section, the sections standing at an angle to each other, a rack on the fender proper, a gear-wheel on the car-axle and adapted to mesh with said rack, and a guard mounted to slide on the front fender-section, and carrying a movable tooth for said rack, to move the said tooth in mesh with said gear-wheel and bring the rack into mesh with the gear-wheel, substantially as shown and described.

6. A car-fender, comprising a fender proper mounted to swing and having a front and a rear section arranged at an angle to each other, the front section being normally in an active position over the track and the rear section normally in an inactive position, a guard mounted to slide on the fender, and means controlled by the movement of the guard for imparting a swinging motion to the fender proper, to move the rear section of the fender into an active position and the front section into an inactive position, substantially as described.

7. A car-fender, comprising a bar journaled at its ends in hangers on the car-truck, a fender proper secured to the bar and having a front and a rear section, the sections standing at an angle to each other, a rearwardly-extending rack secured on the bar, a gear-wheel secured on the car-axle, the rack and gear-wheel being normally out of mesh, a guard mounted to slide on the front fender-section and carrying a tooth at its rear end in the form of a blade, the said movable tooth constituting the lowermost tooth in the rack and adapted, when the guard is moved rearwardly, to mesh with the rotating gear-wheel, whereby the said rack is carried downward to bring the fixed teeth of the rack in mesh with the gear-wheel, to impart a swinging motion to the bar and the sections of the fender, substantially as described.

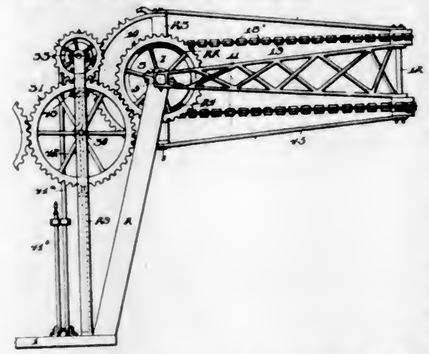
659,983. PHOTOGRAPH-CUTTER. EDWARD B. NICHOLSON, Oshkosh, Wis., assignor to H. A. Hyatt, St. Louis, Mo. Filed Mar. 2, 1900. Serial No. 7,118. (No model.)



Claim.—1. A photograph-cutter comprising a swiveled shank having bifurcated jaws at its lower end, a cutting-wheel mounted between the said jaws and having its cutting edge arranged to one side of the center, whereby the cutter will more easily follow the edge of a pattern, a draw-handle carrying the swiveled shank, said handle extending to one side thereof, whereby the cutter can be readily drawn along the guiding edge of a pattern, substantially as described.

2. A cutter for cutting irregular figures or openings, comprising a vertical shank having an enlarged lower end bifurcated at the bottom, a rotary cutter pivotally mounted in the bifurcated portion and having its cutting edge arranged to one side of the center, a reduced portion upon the shank, a handle having projecting lugs for engaging the said reduced shank, means for loosely holding the shank in place, the said handle extending to one side of the shank, whereby sufficient pressure can be brought to bear upon the cutter, the mounting of the cutter being such that it will readily follow the pattern in cutting figures or apertures.

659,984. MINING-MACHINE. EDWARD O'TOOLE, Leisenring, Pa. Filed Feb. 17, 1900. Serial No. 5,604. (No model.)



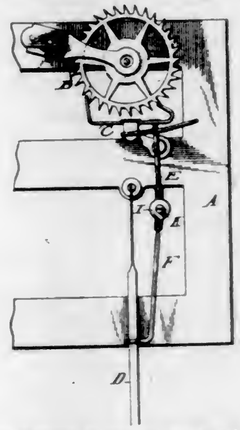
Claim.—1. In a coal-mining machine, the combination with the base and inclined supporting-standards, of a rock-shaft mounted in said standards, a vertically-disposed shaft 23 connected centrally of the ends of said rock-shaft, miter-gears 22, 24 loosely mounted on said shaft 23, miter-gears 6, 7, loosely mounted on the rock-shaft for engagement with the gears 22, 24, a frame mounted on the ends of the rock-shaft, guides carried by said frame, endless cutter-chains disposed one above the other, said chains operating through said guides and engaging the gears 22, 24, means connected to said miter-gear 7 for driving the train of miter-gears and operating said chains, a vertically-disposed rotating worm, a segmental rack connected to the shaft 23 and engaging said worm, and means for shifting the rotation of said worm to impart an oscillatory movement to the cutter-chains simultaneously with their endless travel, substantially as described.

2. In a coal-mining machine, the combination with the base and supporting-standards 2, of a rock-shaft carried by said standards, a vertically-disposed shaft connected to the rock-shaft centrally of its ends, a train of miter-gears loosely mounted on said shafts, a frame mounted on the ends of the rock-shaft, guides carried by said frame, a pair of endless cutter-chains operating through said guides and engaging the miter-gears on the vertically-disposed shaft, a segment-shaped rack carried by said vertically-disposed shaft, a rotating worm engaging said rack, and means for shifting the rotation of said worm to impart an oscillatory movement to said cutter-chains simultaneously with their endless travel, substantially as described.

3. In a coal-mining machine, the combination with the base, the inclined supporting-standards 2, and the vertical standards 29, of the rock-shaft mounted on said standards 2, the vertically-disposed shaft 23 connected to said rock-shaft, the train of intermeshing miter-gears loosely mounted on said shafts, means connected to one of said gears for driving the train, the frame mounted on the ends of said rock-shaft, the guides carried by said frame, the cutter-chains operating through said guides and engaging the miter-gears on the vertical shaft 23, the rack connected to the ends of said vertical shaft 23, the vertical shaft 42 mounted on the base, the rotatable worm carried by said shaft and engaging said rack, and means for shifting the rotation of said worm to impart an oscillatory movement to the cutter-chains simultaneously with their endless travel, substantially as described.

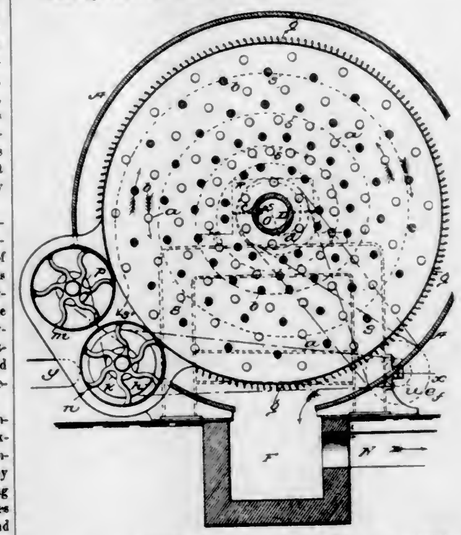
659,985. PENDULUM-BEAT ADJUSTER. SIMON B. PARKER, Springfield, Mass. Filed Aug. 2, 1900. Serial No. 25,691. (No model.)

Claim.—1. A device for adjustably connecting the two inner ends of the sections of a pallet-rod for clock-movements, consisting of two separable metal disks provided with means for securing them to the ends of the rod, one of said disks formed with a central opening and its fellow disk having an interiorly-screw-threaded collar adapted to enter and engage said opening, and a removable clamping-screw engaging the collar, whereby the two disks may be separated, substantially as and for the purpose set forth.



2. A sectional pallet-rod for clock-movements, and means for connecting the inner ends of the rod, consisting of two separable metal disks, one of which has a central opening and its fellow disk provided with an interiorly-screw-threaded collar adapted to engage the opening, and a removable clamping-screw engaging the collar, substantially as and for the purpose described.

659,986. COTTON-OPENER. GUGLIELMO RAETI, Pordenone, Italy. Filed Apr. 29, 1898. Serial No. 679,231. (No model.)

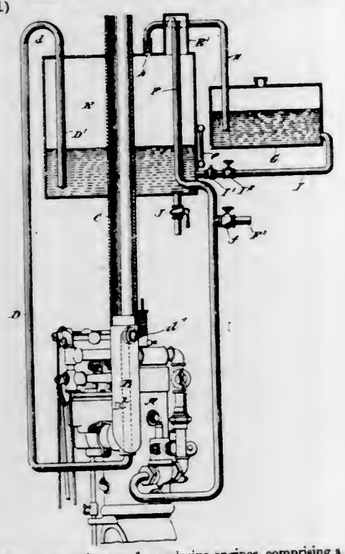


Claim.—1. A machine for opening and cleansing cotton, consisting of two circular plates journaled vertically in parallelism on a central hollow sleeve having an opening on one side between the plates, said plates on their inner adjacent faces being provided with concentric rows of teeth, the teeth of one plate passing between the teeth of the other plate, a cage surrounding the peripheries of said plates and closed on its sides and circumference and provided with a discharge-opening at its bottom, a grating arranged between the inner edges of the sides of said cage, and means for rotating said plates in opposite directions at different speeds, substantially as described.

2. A machine for opening and cleansing cotton, consisting of two circular plates journaled vertically in parallelism on a central hollow sleeve having an opening on one side between the plates, said plates on their

inner adjacent faces being provided with concentric rows of teeth, the teeth of one plate passing between the teeth of the other plate, a cage surrounding the peripheries of said plates and closed on its sides and circumference and provided with a discharge-opening at its bottom, an air-exhaust conduit communicating with said discharge-opening, a grating arranged between the inner edges of the sides of said cage and having an opening at one side, and two rotatable drums arranged opposite said opening for leading away the opened and cleansed cotton, and means for rotating the said plates in opposite directions and at different speeds, substantially as described.

659,987. CARBURETER FOR EXPLOSIVE-ENGINES. HUBERT C. RAY, Visalia, Cal. Filed Aug. 2, 1899. Serial No. 725,885. (No model.)



Claim.—1. A carbureter for explosive-engines, comprising a carbureting-tank, means for heating said tank, an oil-supply tank connected with said carbureting-tank, and a pipe leading from the gas-space of the carbureting-tank to the oil-supply tank, said pipe being provided with a safety-valve, substantially as set forth.

2. A carbureter for explosion-engines, comprising an oil-tank having passages therein for receiving the engine exhaust whereby its contents are heated, an air-supply pipe having its discharge end projecting beneath the oil in the tank and its other end drawing air through passages heated by the engine, an engine-supply pipe extending from the top of said tank, and an oil-supply tank having an oil-feeding pipe connected with the carbureter and provided with a back-pressure valve, and a pipe leading from the top of the carbureter to beneath the oil in the supply-tank and provided with a safety-valve, substantially as described.

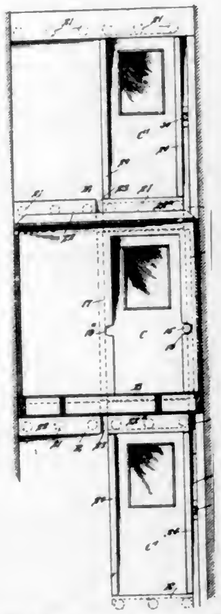
3. A carbureter for explosion-engines, comprising an exhaust-heated carbureting-tank, and engine-heated air-supply discharging beneath the oil in the carbureter, an engine-supply pipe connecting carbureter, and engine, and a combined oil-supply and surplus-gas condenser, consisting of a tank having a pipe for conveying oil to the carbureter, and a pipe leading from the gas-space of the carbureter to beneath the oil-level in the supply-tank and provided with a safety-valve, substantially as specified.

4. A carbureter for explosive-engines, comprising a carbureting-tank arranged to be heated by the products of combustion of the engine, an oil-supply tank and condenser connected with the lower part of said carbureting-tank, and a pipe leading from the top of the carbureting-tank to beneath the oil in the supply-tank and condenser and provided with a safety-valve, as set forth.

659,988. ELEVATOR. PARLEY D. ROOT, Wakefield, R. I. Filed Apr. 26, 1900. Serial No. 14,440. (No model.)

Claim.—1. In an elevator, a shaft provided with horizontal tracks, a door for the shaft, slidable in said tracks, a car, and a slidable door for the car, said car-door having an interlocking engagement with the shaft-door when brought opposite the said door and adapted to slide therewith between and into engagement with the tracks of the shaft-door, substantially as and for the purposes set forth.

2. In an elevator, a shaft provided with horizontal tracks, a door for the shaft, slidable in said tracks, a car, and a door for the car, the said doors each being provided with longitudinal ribs of less length than the doors and adapted to interlock when the doors are brought opposite each other, to permit the doors to slide together with the ribs of the car-door between the said tracks, whereby the car will be locked against movement, as set forth.



3. In an elevator, the combination of a shaft having horizontal tracks, a door for the shaft slidable in said tracks, a spring-latch for the door, a car, a door for the car, said door having an interlocking engagement with the door of the shaft when brought opposite it and adapted to slide therewith between and into engagement with the said tracks, and a projection on the car-door for engaging the latch of the shaft-door to release the latch, substantially as described.

4. In elevators, a shaft, a slidable door for the shaft, having ribs formed upon its inner face, the tracks for the door having spaces between them and between their ends and the jamb of the door-opening, a car provided with a slidable door, having ribs upon its outer face, which ribs are adapted to extend at each side of the outer surfaces of the ribs on the shaft-door, the ribs on the car-door being so placed that when the car-door is closed the said ribs will be in vertical alinement with the said spaces, and when the car-door is opened the ribs will engage with the said tracks, as described.

5. In elevators, a shaft, a slidable door for the said shaft, having ribs formed upon its inner face, the tracks for the door having spaces between them and between their ends and the jamb of the door-opening, a car provided with a slidable door, having ribs upon its outer face, which ribs are adapted to extend at each side of the outer surface of the ribs on the shaft-door, the ribs on the car-door being so placed that when the car-door is closed the ribs will be in vertical alinement with the said spaces, and when the car-door is opened the ribs will engage with the said tracks, a concealed latch for the shaft-door, and a trip carried by the elevator-car and adapted for engagement with the said latch, as and for the purpose set forth.

6. In an elevator, the combination with a shaft-door, and a car-door, said doors having interlocking ribs to permit them to move together, of a spring-latch for locking the shaft-door, and a projection on a rib of the car-door for engaging the latch to release it, substantially as described.

7. In an elevator, the combination with a shaft having horizontal tracks, a door for the shaft adapted to slide in the tracks and having longitudinal ribs, and a spring-latch for the said door provided with a projection, of a car, and a door for the car, provided with longitudinal ribs adapted to interlock with the ribs of the shaft-door when brought opposite said door, one of the ribs of the car-door being provided with a projection adapted to engage the projection of the spring-latch, substantially as and for the purpose set forth.

659,989. FOUNTAIN-PENHOLDER. SENECA M. SALISBURY and ELMER E. SALISBURY, Aberdeen, S. D. Filed Nov. 23, 1899. Serial No. 738,019. (No model.)



Claim.—1. In a fountain-penholder, a barrel having an opening in its outer end and provided with an internal nipple, a compressible ink-reservoir within the barrel and connected with the said nipple, and means located within the barrel and operated through the opening in the end thereof to compress the said reservoir to force the ink therefrom.

2. In a fountain-penholder, a barrel, a pen-head connected with one end of the barrel, the said barrel having an opening in the other end, a compressible ink-reservoir within the barrel having communication with the pen-head, and a compressing device held within the barrel and engaging the end of the reservoir, the said device being operated through the opening in the end of the barrel.

3. In a fountain-penholder, a barrel provided with a neck, a nipple held within the barrel at or near the point where the neck connects with the body of the barrel, a compressible ink-reservoir located within the barrel and connected at its open end with the said nipple, a compressing device connected with the extreme end of the reservoir and engaging an opening in the outer end of the barrel, and a pen-head connected with the neck of the barrel and in communication with the opening in the nipple, substantially as described.

4. In a fountain-penholder, a pen-head having a stepped exterior surface, forming shoulders, an opening at each end of the head, and a bore connecting the openings, a spring-feeder located within the said bore, extending from one end opening to the other and a clamping-band located upon the exterior of the pen-head and having its inner portion of greater diameter than the body portion and fitting over the space between the shoulders of the head, the outer end of the body portion of the band having a downwardly-extending nose, substantially as described.

5. In a fountain-penholder, a pen-head open at its ends and adapted for connection with a source of ink-supply the head being provided with a bore connecting its end portions, a cavity in its upper surface near its outlet end, and exterior spaced annular shoulders between the cavity and the inlet end, a clamping-band located upon the said pen-head having a downwardly-extending nose at its end located over the said cavity in the upper surface of the head, and a spring-feeder located within the pen-head and capable of end movement as and for the purpose specified.

6. In a fountain-penholder, a pen-head open at its ends and adapted for connection with a source of ink-supply, the head being provided with a bore connecting its end portions, a cavity in its upper surface near its outlet end and spaced shoulders between the cavity and the inlet end, a clamping-band located upon the said pen-head and having its inner end of greater diameter than the outer or body portion, the said inner end fitting over the space between the shoulders, the outer end of the clamping-band being formed with a nose extending over the upper cavity in the pen-head, and a spring-feeder located within the pen-head and capable of end movement, the outer end portion of the feeder extending through the outlet of the said head, the inner portion of the feeder being enlarged and fitting within an enlarged portion of the bore, to maintain the feeder in position, substantially as described.

7. In a fountain-penholder, a pen-head open at its ends and adapted for connection with a source of ink-supply, the head being provided with a bore connecting its end portions, a cavity in its upper surface near its outlet end and exterior shoulders between the cavity and inlet end, a clamping-band located upon the said pen-head, the outer end of said clamping-band being beveled downward and rearward forming a nose extending over the upper cavity in the pen-head therein, and a spring-feeder located within the pen-head and capable of end movement, the outer end portion of the said feeder having bearing against the bottom wall of the bore of the pen-head, the said end portion of the feeder extending through the outlet of the said head and having its outer extremity convexed and its inner end flattened, the flattened portion of the feeder being adapted to be located adjacent to the source of ink-supply.

8. In a fountain-penholder, the combination, with a source of ink-supply, a pen-head connected with the source of supply, a spring-feeder located within the said head, extending beyond the ends thereof, the head having a cavity near its outlet, a rounded upper surface back of the cavity, and a longitudinal shoulder at each side below the rounded surface, of a clamping-band carried by the pen-head, extending over the rounded surface on the head, being provided with a downwardly-extending nose at its forward or outer end, located over the cavity in the upper portion of the pen-head, as set forth.

9. In a fountain-penholder, a barrel provided with an elongated neck having an interior thread and an internal nipple located at or near the point where the neck connects with the body of the barrel, an ink-reservoir located within the barrel and connected at its mouth with the said nipple, and a pen-head provided with an exterior thread for screwing into the neck of the body, the inner end of the said head when in position being spaced from the nipple, substantially as shown and described.

10. In a fountain-penholder, a barrel constructed in detachable sections and having an elongated neck at one end and an opening in the other or outer end, the said barrel also being provided with an internal nipple located at or near the point where the neck connects with the body of the barrel, a flexible ink-receptacle located within the said barrel and connected at its mouth with the said nipple, and means located within the barrel at the outer end thereof and adapted to be operated through the opening in the end of the barrel to compress said receptacle, as described.

11. In a fountain-penholder, a barrel having a contracted neck, a broad body portion of larger circumference and one side long and straight, said barrel being likewise provided with a nipple located within the barrel at or near the point where the neck connects with the body, a flexible receptacle conforming to the shape of said barrel and located therein, the mouth of the receptacle being arranged for engagement with the nipple in the barrel, the said receptacle having a projection at its closed end, and a compressible disk capable of being operated from the exterior of the barrel of the penholder, which disk is connected with the projection from the closed end of the ink-receptacle, as described.

12. In a fountain-penholder, the combination with a barrel having an opening in its outer end, and a compressible ink-reservoir within the barrel, and having a projection at its closed end, of a device located within the barrel and engaging the projection on the end of the compressible receptacle, the said device being adapted to be operated through the opening in the end of the barrel to compress the said receptacle, substantially as described.

13. In a fountain-penholder, a barrel having a neck at one end, the outer end of the barrel being formed with an opening, a nipple within the barrel at or near the point where the neck connects with the body, a flexible ink-receptacle within the barrel, the mouth of said receptacle being arranged for engagement with the nipple in the barrel, the said receptacle having a projection at its closed end, a disk located within the barrel at the outer end thereof and provided with an extension adapted to fit within the opening in the outer end of the barrel, the said disk being formed on its inner face with a socket adapted to receive the projection at the closed end of the flexible ink-receptacle, substantially as described.

14. In a fountain-penholder, a pen-head having a longitudinal bore enlarged at its inner end, a feeder located within said bore and having an enlarged flattened portion fitting within the enlarged portion of the bore, and a clamping-band carried by the head, substantially as described.

15. In a fountain-penholder, an ink-reservoir, a pen-head formed with a longitudinal bore having a mouth at its outer end and an enlarged portion at its inner end, and a feeder located within the said head, one end of the feeder extending through the outlet end opening of the pen-head, the other or inner end of said feeder being enlarged and fitting within the enlarged portion of the bore of the head, the extreme inner end of said enlarged portion of the feeder being adjacent to the outlet of the ink-reservoir, substantially as described.

16. In a fountain-penholder, a barrel, an ink-reservoir within the barrel, means for forcing ink from the reservoir, a pen-head connected with the barrel, and having a longitudinal bore enlarged at its inner end and communicating with the outlet of the ink-reservoir, and a feeder located within the said bore and having an enlarged portion fitting within the enlarged portion of the bore, substantially as set forth.

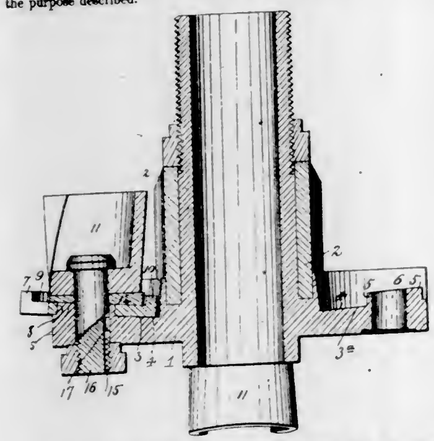
659,990. CUTTER-HEAD. SAMUEL J. SHIMER, Milton, Pa. Filed July 24, 1900. Serial No. 24,740. (No model.)

Claim.—1. A cutter-head having a series of bit-seats thereon, said seats each having a concentric boss, an eccentric bolt-hole formed in each of said bosses, in combination with a cutter having a central aperture to fit the boss, and a superposed cutter seated upon said first-mentioned cutter and held in place by a bolt passing through the hole in the boss, substantially as described.

2. A cutter-head provided with a series of inclined bit-seats thereon, a concentric boss rising from each seat, an inclined bolt-hole formed in each boss, a cutter having a central aperture to fit the boss, and a companion cutter superposed upon the first-mentioned cutter and held in place by a bolt passed through the inclined bolt-hole in the boss, substantially as described.

3. A cutter-head having a series of bits secured to seats thereon, said seats being inclined to the plane of revolution of the cutter-head, and each seat provided with a concentric boss having an eccentric and inclined bolt-hole therein, two bits superposed in each seat and secured in place by a single bolt passing through the bolt-hole in said boss, substantially as described.

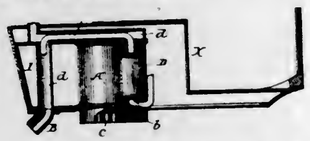
4. A cutter-head having a series of bits secured to seats thereon, said seats being inclined to the plane of revolution of the cutter-head, and each provided with a concentric boss having an eccentric and inclined bolt-hole therein, two bits superposed in each seat and secured in place by a single bolt passing through the bolt-hole in said boss, and a beveled washer interposed between said two bits to give the bits opposite inclinations, for the purpose described.



5. A cutter-head provided with inwardly-inclined bit-seats, a pair of bits superposed in each seat and secured by a single bolt, and an intermediate beveled washer between the bits to give said bits opposite inclinations, substantially as described.

6. A cutter-head provided with inwardly-inclined bit-seats thereon, a concentric boss rising from each seat, an inclined bolt-hole formed in each boss, a cutter having a central aperture to fit the boss, and a companion cutter superposed upon the first-mentioned cutter and held in place by a bolt passed through the inclined bolt-hole in the boss, substantially as described.

659,991. **STEAM-GENERATOR.** FRANCIS E. STANLEY and FREELAN O. STANLEY, Newton, Mass., assignors to the Locomobile Company of America, Wheeling, W. Va. Filed Dec. 29, 1899. Renewed Sept. 13, 1900. Serial No. 29,922. (No model.)



Claim.—1. The combination with a steam-boiler and burner below the same having a bottom plate with openings for the upward passage of air, of a flue extending downward, means for discharging the products of combustion downward through said flue, and means for deflecting the gases so discharged, substantially as set forth.

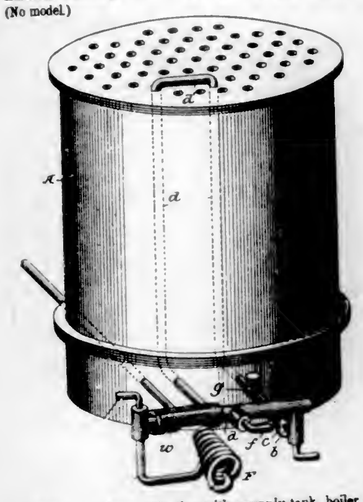
2. The combination with a boiler and burner below the same having a bottom plate with openings for the upward passage of air, of a flue extending downward adjacent to the burner, means for discharging the products of combustion downward through said flue, and means for deflecting the gases so discharged, substantially as set forth.

3. The combination with a boiler, a burner below the same having air-inlets at the bottom for the upward passage of air, of a flue extending downward, means for discharging the products of combustion downward through said flue, and means for deflecting the gases so discharged, substantially as set forth.

4. The combination of a boiler, a burner having openings for the upward flow of air, two discharge-flues, one for the upward passage of the products of combustion, the other extending downward, means for forcibly discharging the gases downward through the latter flue, and means for deflecting the gases so discharged, substantially as set forth.

5. The combination with a steam-boiler and a burner having openings for the upward flow of air, of a flue extending downward, means for discharging the products of combustion downward through said flue, and a deflector arranged below the descending flue, substantially as set forth.

659,992. **VAPOR-BURNER FOR STEAM-GENERATORS.** FRANCIS E. STANLEY, Newton, Mass., assignor to the Locomobile Company of America, Wheeling, W. Va. Filed Mar. 16, 1900. Serial No. 8,936. (No model.)



Claim.—1. The combination with a supply-tank, boiler and vapor-burner for heating the same, of a nozzle for supplying vapor to the burner, and a supply-pipe in permanent communication with the tank, one part arranged to be directly heated by the burner and another succeeding part to be heated by the contents of the boiler, substantially as set forth.

2. The combination with a boiler and vapor-burner for heating the same, of a nozzle for supplying vapor to the burner, a supply-pipe communicating with the nozzle, one part arranged to be heated directly by the burner and another succeeding part to be heated by the contents of the boiler, and means for temporarily putting out of action the part heated by the contents of the boiler, substantially as set forth.

3. The combination with the supply-tank, a boiler and vapor-burner for heating the same, of a nozzle for supplying vapor to the burner, a supply-pipe communicating with the nozzle, one part arranged to be heated directly by the burner and another succeeding part to be heated by the contents of the boiler, and an auxiliary means for heating a portion of said pipe between the tank and the part extending through the boiler, substantially as set forth.

4. The combination with a boiler and vapor-burner below the same provided with a nozzle, of a supply-tank communicating with said nozzle through a pipe arranged to be heated in part by the burner, and another succeeding part arranged to be heated by the contents of the boiler, and means for directing the oil either through the part heated by the burner and directly to the nozzle or first through the part heated by the burner and then through that part of the pipe arranged to be heated by the contents of the boiler and then to the nozzle, substantially as set forth.

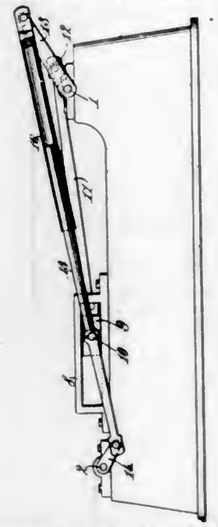
5. The combination with a boiler and vapor-burner below the same provided with a nozzle, of a supply-tank communicating with said nozzle through a pipe arranged to be heated in part by the burner, and another succeeding part arranged to be heated by the contents of the boiler, means for directing the oil first through the part exposed to the burner and then either directly to the nozzle or through that part of the pipe arranged to be heated by the contents of the boiler, and an auxiliary heater for a part of the pipe beyond that heated by the burner, substantially as set forth.

6. The combination of a boiler, vapor-burner below the same and nozzle therefor, an oil-tank, and a tube extending therefrom to the nozzle and arranged to be heated in part directly by the burner and a succeeding part by the contents of the boiler, substantially as set forth.

659,993. **MECHANICAL MOVEMENT.** ELISHA T. STEWART, Poetry, Tex. Filed Apr. 24, 1900. Serial No. 14,118. (No model.)

Claim.—1. The combination with a cranked drive-shaft and a cranked driven shaft, and means for rotating the drive-shaft, of a telescopic lever journaled at its opposite ends on the cranks of the drive and driven shafts, and pivoted intermediate its ends on a shifting fulcrum, substantially as described.

2. The combination with a cranked drive-shaft and a cranked driven shaft, of a telescopic lever journaled at its opposite ends on the cranks of the drive and driven shafts and pivoted intermediate its ends on a shifting fulcrum, and means for shifting the fulcrum synchronously with the movement of the crank on the drive-shaft, substantially as described.



3. The combination with a cranked drive-shaft, a reciprocating carriage and a connecting-rod connecting said crank and carriage, of an auxiliary crank on the drive-shaft, a cranked driven shaft, and a telescopic lever pivoted intermediate its ends on a fulcrum on the carriage and journaled at its opposite ends respectively on the crank of the driven shaft and the said auxiliary crank, substantially as described.

659,994. **CANVAS-STRETCHER.** ARTHUR F. TAIT, Yonkers, N. Y. Filed Mar. 17, 1900. Serial No. 9,064. (No model.)



Claim.—1. In a stretcher for artists' canvas, a key, comprising a body and a wedge-shank the body being at the top of the shank and wider than the same, the outer or contracted end of which shank is concaved, terminating in a point, and teeth formed upon a side surface of the shank, which teeth incline in direction of the heel portion of the key, the said teeth at the lower portion of the shank extending beyond the plane of their upper portion, for the purpose set forth.

2. In a stretcher for artists' canvas, a key comprising a body, and a wedge-shaped shank narrower than the body and projecting from the lower face of the same, the shank being provided with teeth upon one side face, said teeth being inclined in direction of the heel of the shank, and extending at the lower portion of the shank beyond the plane of the upper portion, substantially as described.

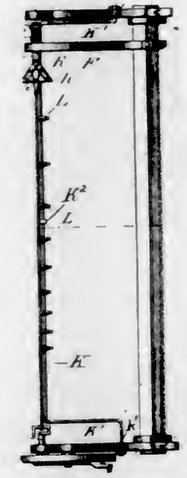
3. In a stretcher for artists' canvas, a key comprising a body, and a wedge-shaped shank narrower than the body and projecting from the lower face of the same, the shank having its lower portion enlarged and provided with teeth on the side faces thereof, said teeth being inclined in direction of the heel of the shank, substantially as described.

4. In a stretcher for artists' canvas, a key consisting of a body, and a wedge-shaped shank narrower than the body and projecting from the lower face thereof, the shank having its lower portion enlarged and its front end at the lower portion pointed and provided with teeth on its side faces, the teeth being staggered and inclined in direction of the heel of the shank, substantially as described.

5. A stretcher for artists' canvas, comprising side and end members having mitered ends separably connected together, and keys, each comprising a body, and a wedge-shaped shank having its lower portion enlarged narrower than the body and projecting from the lower face thereof, the shank being provided with teeth on its side faces, said teeth being inclined in direction of the heel of the shank, substantially as described.

659,995. **MACHINE FOR MAKING WIRE-FENCE STAYS.** CHARLES E. WINTRODE, Huntington, Ind. Filed June 6, 1900. Serial No. 19,284. (No model.)

Claim.—1. In a machine for forming wire-fence stays, the combination with a longitudinal support; a laterally-extending arm adjustably mounted upon said longitudinal support; a headpiece non-rotatably mounted in said arm, and means thereon for the engagement of the head of the stay; of a rotatable tailpiece provided with means for engaging the foot of the stay; means for rotating said tailpiece; a swinging frame; loop-formers carried by said frame; and means for retaining said swinging frame in position for the engagement of said loop-formers by the stay, substantially as described.



2. In a machine for forming wire-fence stays, the combination with a longitudinal support; a laterally-extending arm mounted upon said longitudinal support; a longitudinally-movable headpiece non-rotatably mounted in said arm, and means thereon for the engagement of the head of the stay; a spring tending to retract said headpiece; of a rotatable tailpiece provided with means for engaging the foot of the stay; means for rotating said tailpiece; a swinging frame; loop-formers carried by said frame; and means for retaining said swinging frame in position for the engagement of said loop-formers by the stay, substantially as described.

3. In a machine for forming wire-fence stays, the combination with a longitudinal support; a laterally-extending arm adjustably mounted upon said longitudinal support; a headpiece non-rotatably mounted in said arm, and means thereon for the engagement of the head of the stay; of a rotatable tailpiece provided with means for engaging the foot of the stay; means for rotating said tailpiece; a swinging frame; loop-formers separately and adjustably carried by said frame; and means for retaining said swinging frame in position for the engagement of said loop-formers by the stay, substantially as described.

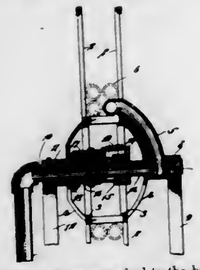
4. In a machine for forming wire-fence stays, the combination with a longitudinal support; a laterally-extending arm adjustably mounted upon said longitudinal support; a headpiece non-rotatably mounted in said arm, and means thereon for the engagement of the head of the stay; of a rotatable tailpiece provided with means for engaging the foot of the stay; means for rotating said tailpiece; a swinging frame; loop-formers carried by said frame; and a catch on said frame for retaining said swinging frame in position for the engagement of said loop-formers by the stay, substantially as described.

5. The combination with the adjustable supporting-arm; of the headpiece having an elongated shank non-rotatably mounted thereon; a spring inclosing said shank, and confined against said arm; and a rotatable tailpiece or twister, substantially as described.

6. The combination with the adjustable supporting-arm; of the headpiece having an elongated shank non-rotatably mounted thereon; a spring inclosing said shank, and confined against said arm; a tailpiece or twister having a shank journaled in a fixed bearing; a pinion on said shank; and a gear meshing with said pinion for rotating the latter, substantially as described.

7. The combination with the adjustable supporting-arm; of the headpiece having an elongated shank non-rotatably mounted thereon; a spring inclosing said shank, and confined against said arm; a tailpiece or twister having a shank journaled in a fixed bearing; a pinion on said shank; and an internal gear meshing with said pinion for rotating the latter, substantially as described.

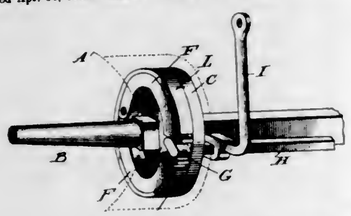
659,996. HOSE-REEL. GEORGE R. YOUNG, Memphis, Tenn. Filed Feb. 12, 1900. Serial No. 4,993. (No model.)



Claim.—1. A hose-reel, a pipe attached to the hub portion of said reel and adapted for connection with a hose, a tube connected to the hub portion of the reel and communicating with said pipe, a fixed pipe for discharging water into said tube, a valve in the fixed pipe, a segment-rack attached to the stem of said valve, a bevel-gear attached to the hub of the reel, and adapted for engagement with said rack, and a spring extended from said rack to a stationary support, substantially as specified.

2. A hose-reel, comprising outer rims, a hub to which said rims are attached, a pipe attached to one side of the hub and having its end extended into the reel for connection with a hose, a tube extended axially of the hub and communicating with the pipe, another tube communicating with the first-named tube and upon which the hub is mounted to rotate, a valve in said other tube, and means operated by a rotation of the reel for opening and closing said valve, substantially as specified.

659,997. BRAKE. MATHIAS ALTMEYER, Wheeling, W. Va., assignor of one-half to Florentz Freismuth and John F. Heil, same place. Filed Apr. 16, 1900. Serial No. 13,022. (No model.)



Claim.—1. In a vehicle-brake, the combination of the friction-band attached to the wheel, a stationary disk, dogs pivoted on the disk and adapted to bear against the friction-band, and having their free ends expanded laterally to form bearing-surfaces, a double cam arranged between the free ends of the dogs in contact with said bearing-surfaces and adapted to force the dogs apart and against the friction-band, and means for holding the dogs normally away from the friction-band.

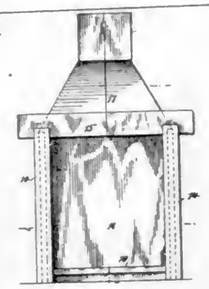
2. In a vehicle-brake, the combination of a band projecting from the hub, a disk secured on the axle, dogs pivotally secured on said disk and adapted to bear against the said band, the free ends of the dogs being expanded laterally and provided with shoulders, a spring or springs bearing against the said shoulders, a rock-shaft journaled in the disk and carrying a cam arranged between and bearing on the ends of the dogs, and means for oscillating the rock-shaft.

659,998. FIREPLACE. NATHANIEL BATES, Dubbs, Miss. Filed Apr. 28, 1900. Serial No. 14,718. (No model.)

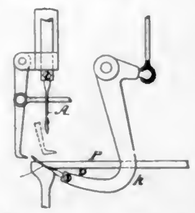
Claim.—1. The improved fireplace comprising the back piece A having battens 11, the vertical side pieces 13, tie-bar 15, the breastplate 17, top side sections 12, which rest on the battens and side body-sections, the body of the structure being rectangular and the top contracted and sloping on front and sides, as shown and described.

2. A back provided with a support for a hearthstone, the upper side edges of the back being upwardly inclined in direction of the center, battens secured to the front face of the back at its inclined edges, side sections extending from the bottom portion of the back to the commencement of its upper inclined surfaces, a tie-bar secured to the main side sections at the top and extending beyond the same, upper side sections supported by the said batten, an inclined breastplate connected with the upper side sections and arranged for engagement with the tie-bar, and a collar located at the upper portion of the fireplace, for the purpose described.

659,998.



659,999. SEWING-MACHINE NEEDLE. HELEN A. BLANCHARD, Philadelphia, Pa. Filed May 27, 1899. Serial No. 718,602. (No model.)



Claim.—1. A sewing-machine needle having a point, a section first increasing and then decreasing and contiguous to said point, a notch cut in one side of said needle, above said section, both walls of the said notch running upward and toward the shank and obliquely to the shaft of said needle, substantially as and for the purposes set forth.

2. A sewing-machine needle having a point, a section first increasing and then decreasing on both the front and rear side of the body of the needle and contiguous to said point, a notch cut in one side of said needle obliquely to the shaft and upwardly toward the shank of said needle and a thread-groove in the rear and front side of said needle, substantially as and for the purposes set forth.

3. A sewing-machine needle having a point, a section first increasing and then decreasing on both the front and rear side of the body of said needle and contiguous to said point, a notch cut upwardly toward the shank and in one side of said needle obliquely to the shaft of said needle, the body of the needle on the opposite side of the notch bulging out contiguous to the point, a thread-groove in the rear and front side and a cavity or depression on the rear side, substantially as and for the purposes set forth.

4. A sewing-machine needle having a thread-engaging notch lying in a plane oblique to the longitudinal axis of the needle and having its mouth opening downwardly, said needle having a point-section below the notch, one wall of which section beginning at the bottom of the notch passes in a curvilinear path to the needle-point, and a thread-groove passing out of the bottom of the notch and upwardly along the body of the needle, substantially as and for the purposes set forth.

660,000. RAIL-CONNECTOR. EMERY H. BRYANT, Boston, Mass. Filed Dec. 22, 1899. Serial No. 741,322. (No model.)

Claim.—1. The combination with a fixed rail and a movable point-rail disposed end to end and a rail alongside of said fixed and point rails, of a rigid connector disposed between the joint of the fixed and point rails and the rail alongside the same, bolts passing through the connector and said rails for tying said fixed and pointed rails together and also for tying both of said rails to the rail alongside the same, the connection between the connector and the fixed and point rails being such as to permit the point-rail to have a pivotal movement relatively to the fixed rail and prevent longitudinal movement of the point-rail.

2. The combination with a fixed rail, a movable point-rail in line therewith and a rail alongside of said fixed and point rails, of a connector disposed alongside of said rails and between the point and fixed rails and the rail alongside the same for tying all of said rails together, a single bolt passing loosely through the connector and fixed rail and a single bolt passing loosely through the connector and movable point-rail whereby said rails will be tied together against longitudinal displacement and at the same time be permitted to have a pivotal movement relatively to each other, and bolts passing through said connector and the rail alongside of the fixed and point rails.

3. In a railroad-switch, the combination with a fixed rail and a fixed knuckle-rail, of point-rails at the respective ends of the knuckle-rail and in line therewith, and connectors at respective ends of the knuckle-rail and overlapping the same and the point-rails, said connectors secured to the fixed rail and bolts passing through each connector and the knuckle and point rails and pivotally connecting point-rails to the ends of the knuckle-rail.



4. In a rail connection, the combination with two rail-sections disposed side by side, of a connector disposed between said rail-sections, upright side sections on said connector having holes therein in alinement with holes in the rail-sections, fish-plates on the respective sides of one rail-section, a tube disposed in an opening in the rail-section and having its ends abutting against the inner faces of the fish-plates and a bolt passing through said fish-plates, tube and side section of the connector and secured in place, said bolt being appreciably smaller in diameter than the internal diameter of the tube.

5. The combination with alining rail-sections, one adapted to have pivotal movement, of a connector overlapping the sides of said rail-sections, tubes passing through the webs of the respective rail-sections, and bolts, each having a diameter appreciably less than the internal diameter of said tubes, passing through said connector and tubes.

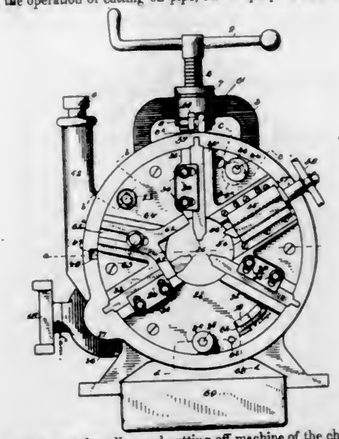
6. The combination with alining rail-sections, one movable relatively to the other each provided with a hole in its web, of a connector overlapping the webs of the two rail-sections, bolts of a diameter appreciably less than the diameter of the holes in the rail-sections, passing through said holes and the connector to pivotally connect the movable rail-section with the other rail-section, a rail alongside said rail-sections and bolts passing through said last-mentioned rail and said connector for tying said rail to both of said rail-sections.

660,001. PIPE-THREADING MACHINE. LARS F. CARSTENSEN, Bridgeport, Conn. Filed Feb. 7, 1900. Serial No. 4,422. (No model.)

Claim.—1. The combination, in a pipe-threading machine of the character described, of a rotatable cam-plate having a recess therein, a segment adapted to be temporarily secured thereto but shorter than such recess so that, the ends of such segment engaging the end walls of such recess, will limit the rotatable movement of said cam-plate in either direction, for the purpose set forth.

2. In a pipe-threading machine, the combination with a rotatable cam-plate adapted to engage and operate threading-dies, of a segment adapted to be recessed in the periphery of said cam-plate, means for rotating said segment and means for locking it against rotation whenever the said cutting-dies are being operated through the medium of the said cam-plate, means on said cam-plate for engaging said segment so as to limit the degree of opening and closing of said dies, for the purpose set forth.

3. In a pipe-threading machine of the character described, the combination with the outer shell and a barrel adapted to have both a rotative and a longitudinal movement therein, of a rack connected to said barrel in such a manner as not to interfere with its rotary movement, a pinion adapted to register with said rack whereby the longitudinal movement of said barrel is effected, means whereby said pinion is operated, means whereby said pinion is locked against rotation when the said barrel is revolving during the operation of cutting off pipe, for the purpose set forth.

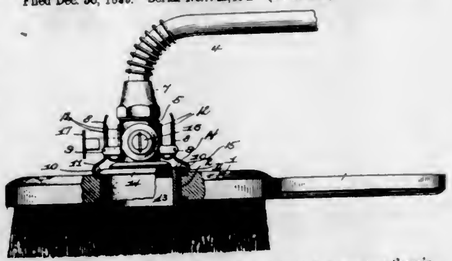


4. In a pipe threading and cutting-off machine of the character described, the arm 59 pivotally supported on the outer surface of the shell 1, combined with the star-wheel 58 of the cutting-off tool, the stop 61 to support said arm when engaged by said star-wheel, for the purpose set forth.

5. The combination with an outer shell and a longitudinally-movable barrel having the hub 10^b, of the receptacle 65^a attached to said shell and adapted to receive the chips and oil passing through the bore of said hub, said receptacle extending under said hub and embracing or partially embracing the same so that, the said receptacle is always in position to receive oil and chips passing through said hub whatever the position said barrel may be in, for the purpose set forth.

6. The combination, in a pipe-threading machine of the character described, consisting of a shell having a barrel portion operatively mounted therein, of a receptacle located within said barrel and adapted to receive the chips and oil, and means whereby such chips and oil are carried outside of the machine, for the purpose set forth.

660,002. FOUNTAIN-BRUSH. JACOB S. CASEY, St. Joseph, Mo. Filed Dec. 30, 1899. Serial No. 742,134. (No model.)

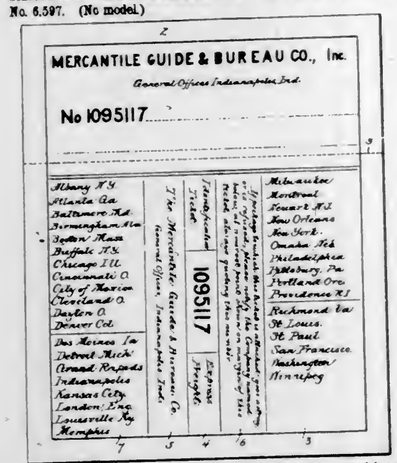


Claim.—1. The combination with a brush having an aperture therein, of a fountain apparatus consisting of a supply-tube, a casting to which said supply-tube is detachably connected, and a spraying-chamber detachably connected to said casting and adapted to enter the aperture in the brush, a rim on said fountain apparatus adapted to bear against the brush-back for limiting the movement of said spraying-chamber in said brush, and means independent of said spraying apparatus for detachably connecting together said brush and fountain apparatus, substantially as set forth.

2. The combination with a brush having an aperture therein, and a fountain apparatus adapted to be inserted in said aperture, of engaging devices adapted to connect the two parts together, and means for causing said devices to engage with each other and for releasing the same, substantially as set forth.

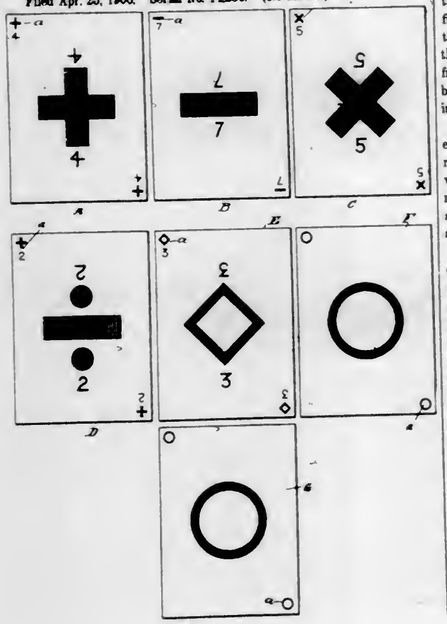
3. The combination with a brush having an aperture therein, and a fountain apparatus adapted to be inserted in said aperture, of spring-pressed hooked arms pivoted on opposite sides of one of said parts and adapted to detachably engage projections on the other part to retain the two together, substantially as set forth.

660,003. IDENTIFICATION-TICKET. JOSEPH R. CAVANAGH and SAMUEL A. TOWNSEND, Indianapolis, Ind. Filed Feb. 26, 1900. Serial No. 6,597. (No model.)



Claim.—An identification-ticket for use by shippers, comprising two parts only, a ticket proper and a coupon, each bearing the same number, the ticket and coupon each containing the name of the party issuing the ticket, the ticket only containing a list of the places where the issuing party may be found, and directions for notifying said party in case of necessity by reference to the number appearing on the ticket, the coupon to be retained by the shipper and the ticket to be affixed to the goods shipped, substantially as described.

660,004. GAME APPARATUS. EDWARD CHRISTIE, Corning, N. Y. Filed Apr. 25, 1900. Serial No. 14,250. (No model.)

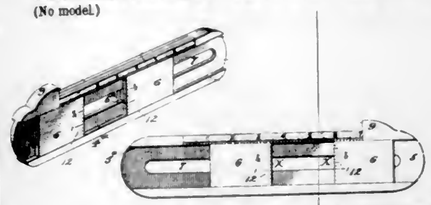


Claim.—1. A game apparatus comprising four suits of numbered cards, the cards of one suit all bearing the addition sign, those of the second suit the subtraction sign, and the others the multiplication and division signs respectively.

2. A game apparatus comprising a series of suits of numbered cards, the cards of each suit bearing the same mathemetical sign, and an additional suit of cards numbered like those of the other suits, but bearing (instead of the mathematical sign) an arbitrary distinguishing-figure.

3. A game apparatus comprising a series of suits of numbered cards, the cards of each suit bearing the same mathematical sign, one half of said suits being of one color and the other half of a different color, two single unnumbered cards, each of one of the colors of said suits, and an additional suit of cards numbered like those of the other suits, but bearing (instead of the mathematical sign) an arbitrary distinguishing-figure.

660,005. CUTTER-SETTING GAGE. WALTER E. DAVIS and JAMES L. SAMSON, Elizabeth, N. J. Filed Feb. 8, 1900. Serial No. 4,480. (No model.)



Claim.—1. A gage for cutter-heads, having an edge adapted to be held squarely against the different faces of the cutter-heads; slide members independently adjustable on the body of the gage, said slide members having graduations running parallel with the squaring edge of the gage-body, as specified.

2. A gage for cutter-heads, comprising a body portion having an edge adapted to be held squarely against the different faces of the cutter-head; slide members independently adjustable upon the body of the gage, said slide members having graduations running parallel with the squaring edge of the said body, one face of the gage-body having a scale running in the direction at right angles to the line of graduations on the slides, substantially as shown and for the purposes described.

3. A gage for cutter-heads, comprising a body portion having an edge adapted to be held squarely against the different faces of the cutter; slide members, independently adjustable upon the body of the gage, having graduations running parallel with the squaring edge of the body portion; the body portion having a stop or abutment projecting upwardly from and at right angles to the squaring edge, one face of the body portion having a scale running from the projection toward the outer end of the body, the reverse face of the said body having a similar scale running from the outer edge toward the projection, and a second set of slide members having their faces in a plane with the back faces of the body all being arranged substantially as shown and for the purposes described.

4. A gage for the purposes described, comprising a body having an edge adapted to bear squarely against the cutter-head and having its face recessed its length to form a slideway, said slideway extending parallel with the bearing edge of the said body; a pair of slides independently movable in the said slideway, said slides having graduations running parallel with the bearing edge of the body, all being arranged substantially as shown and described.

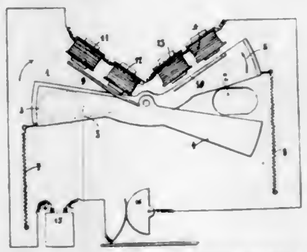
5. A gage for the purposes described, comprising a body having an edge adapted to bear squarely against the cutter-head and having its opposite faces recessed its length to form independent slideways, extending parallel with the bearing edge, said body having a slot extended lengthwise thereof, parallel with its bearing edge; a pair of slides each slide comprising a pair of graduated members, one for each slideway, such members being connected by a connecting-block slidable within the slot of the gage-body, said gage-body having an abutment member projected vertically from its bearing edge and having a scale on each face running in the direction at right angles to the directions of the graduations on the slides, all being arranged substantially as shown and for the purposes described.

6. The herein-described improved gage for the purposes specified, comprising a single body member, the opposite faces of which are recessed the entire length whereby to form a slideway upon each side; an integrally-formed abutment projecting upwardly from the upper edge of the body, said edge running parallel with the grooves in the side faces; a longitudinally-extending slot running parallel with the upper bearing-surface of the body; a scale on one side beginning at the abutment member and numbered therefrom; a similar scale upon the opposite face of the body and beginning at the outer end and numbered at such end toward the abutment member; slide members independently adjustable on the body of the gage, said slide members having graduations running parallel with the squaring edge of the body; a pair of slides adjustably held on the body, each slide consisting of a plate having horizontally-arranged graduations, and a transverse member connecting the two plates of each slide movable within the slot of the body portion, all being arranged substantially as shown and for the purposes described.

7. A gage for cutter-heads comprising a portion having an edge adapted to be held squarely against the different faces of the cutter-head, the gage having a scale running in a direction at right angles to the length of the body; and slide members having graduations running parallel with the squaring edge of the said body, said slide members having their edges running at right angles to the length of the body, whereby said edges when properly adjusted form continuations of the graduations of the scale on the body, all being arranged substantially as shown and for the purposes described.

8. A gage for cutter-heads having an edge adapted to be held squarely against the different faces of the cutter-heads, the body of the gage having a slideway extending parallel with the squaring edge, the end of the slideway being open, and a slide member detachably held within the slideway and adjustable therein, said slideway having graduations running parallel with the squaring edge of the body, all being arranged substantially as shown and for the purposes described.

660,006. SHUTTER ADAPTED FOR USE IN APPARATUS FOR EXHIBITING OR VIEWING ANIMATED PICTURES. EUGÈNE L. DOYEN, Paris, France. Filed July 18, 1900. Serial No. 24,096. (No model.)



Claim.—1. In an apparatus of the character described, a pair of pivoted shutters adapted to alternately open and close viewing-openings, means for effecting the alternate shifting movement of each of said shutters and means for automatically returning said shutters to their initial position, substantially as described.

2. In an apparatus of the character described, a pair of pivoted shutters adapted to alternately open and close viewing-openings, means for electrically effecting the alternate shifting movement of each of said shutters, and means for automatically returning said shutters to their initial position, substantially as set forth.

3. In an apparatus of the character described, a pair of pivoted shutters adapted to alternately open and close viewing-openings, means for effecting the alternate shifting movement of each of said shutters, and a spring for automatically returning said shutters to their initial position, substantially as described.

4. In an apparatus of the character described, a pair of pivoted shutters, adapted to alternately open and close viewing-openings, means to effect the alternate shifting movement of each of said shutters, means to automatically return each of said shutters to its initial position, and means to secure the effective retention of each of said shutters in said initial position, substantially as set forth.

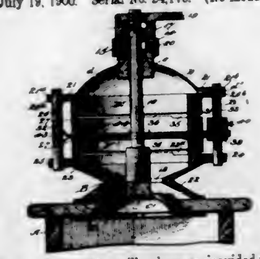
5. In an apparatus of the character described, a pair of pivoted shutters adapted to alternately open and close viewing-openings and equipped as an armature, means to electrically effect the alternate shifting movement of each of said shutters, and means to automatically return said shutters to their initial position, substantially as described.

6. In an apparatus of the character described, pivoted shutters, arranged in pairs, and an electrical means for oscillating the shutters of each pair toward each other to alternately open and close said viewing-openings, and for effecting the movement of one pair of said shutters alternately with that of the other pair of shutters, substantially as set forth.

7. In an apparatus of the character described, pivoted shutters, arranged in pairs, an electrical means for oscillating the shutters of each pair toward each other to alternately open and close said viewing-openings, and for effecting the movement of one pair of said shutters alternately with that of the other pair of shutters, and means for automatically returning the shutters to their initial position, substantially as set forth.

8. In an apparatus of the character described, a pair of pivoted spring-actuated shutters adapted to alternately open and close viewing-openings, and equipped as armatures, and electromagnets adapted to energize said armatures, the whole connected up in an electrical circuit, substantially as set forth.

660,007. COFFEE-MILL. GEORGE H. DEORGE, New York, N. Y. Filed July 19, 1900. Serial No. 24,176. (No model.)



Claim.—1. In a coffee-mill, a hopper provided with a series of circumferential openings, a pivot-pin located at the exterior of the hopper, a sleeve adjustable on said pin, and cut-off blades pivotally attached to said sleeve, the blades being arranged to cross one another and to enter an opening in the hopper from opposite sides, substantially as specified.

2. In a coffee-mill, a hopper provided with a series of circumferential openings, a pivot-pin located at the exterior of the hopper, a sleeve adjustable upon the said pin, and cut-off blades pivotally attached to the said sleeve, the blades being arranged to cross one another and to enter an opening in the hopper from opposite sides, the opposing edges of the blades having an opposite bevel, for the purpose specified.

3. In a coffee-mill, the combination, with a fixed grinder, a rotary grinder, a shaft attached to the rotary grinder, means for raising and lowering the said shaft, and a handle for the said shaft, the said adjusting means being adjacent to said handle, of a hopper comprising a bottom section and a cover-section, and intermediate ring-sections, the said ring-sections having front and rear projections from their lower edges and corresponding depressions in their upper edges, whereby a series of openings is formed between the ring-sections and the lowermost ring-section and the base of the hopper, cut-off blades, a pivotal support for the said blades located at the exterior of the hopper, the said blades having adjustment upon their pivotal support, said blades being arranged to enter either one of the openings in the hopper formed by the rings, the blades entering an opening from opposite sides and being arranged to pass at such time one over the other, the said blades having opposing cutting edges oppositely inclined, and recesses in their cutting edges adapted to receive the shaft connected with the movable grinder, the walls of the said recesses being adapted to closely fit to the shaft when the blades have fully entered an opening, for the purpose set forth.

660,008. MANUFACTURE OF FOOD FROM YEAST. GEORG EICHELBAUM, Berlin, Germany. Filed Jan. 19, 1900. Serial No. 2,032. (No specimens.)

Claim.—1. The process for the manufacture from yeast of a food similar to meat extract which consists in sowing and mixing with killed yeast the spores of a culture of aspergillus and then subjecting the mass to a breeding temperature, substantially as described.

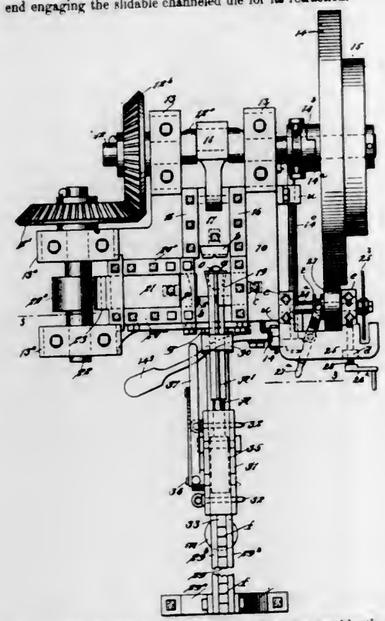
2. The process for the manufacture from yeast of a food similar to meat extract, which consists in heating and thereby killing the yeast, sowing and mixing therewith the spores of a culture of aspergillus, subjecting the mass to a breeding temperature of from 32° to 38° centigrade for a period of from eight to ten days, adding salt to the mass equivalent in weight to five per cent. of the weight of the yeast employed, allowing the mass to stand for about two days and finally extracting, filtering and evaporating the solution to the consistency of syrup, substantially as described.

3. The process for the manufacture from yeast of a food similar to meat extract which consists in sowing and mixing with killed yeast the spores of a culture of aspergillus oryzae, and afterward subjecting the mass to a breeding temperature, substantially as described.

660,009. DRILL FORGING AND SHARPENING MACHINE. WILLIAM J. EVANS, Butte, Mont. Filed Dec. 21, 1899. Serial No. 741,173. (No model.)

Claim.—1. In a drill forging and sharpening machine, the combination with a supported shaft having a double crank intermediate of its ends, a slidably-supported edge-forming die, and a pitman connecting this slidable die with the double crank, of a stationary channeled die held at a right angle to the edge-forming die, an opposite channeled die slidably

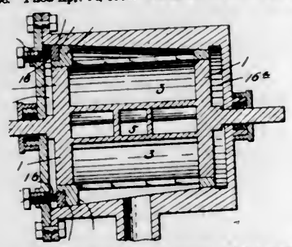
held in the same plane with the fixed channeled die, a wear-block secured on the rear end of the slidable channeled die, a cam fast on a rotatable shaft and adapted to press upon the wear-block, and a bow-spring, one end of which is secured on the support of the channeled dies, and the other end engaging the slidable channeled die for its retraction.



2. In a drill forging and sharpening machine, the combination with a plurality of dies adapted to upset and sharpen the cutting edges of a four-winged drill, of a drill-supporting device comprising a horizontal guideway, a carriage movable on the guideway, means to hold the carriage at different points on the guideway, a cam-head held to rock on a pivot-shaft between uprights on the carriage, and handle-arms on the pivot-shaft of the cam-head adapted by manipulation to rock the cam toward an end of a drill-shank to feed it up against the impact of the edge-sharpening die.

3. In a drill forging and sharpening machine, a drill-supporting device, comprising a supported guideway having a series of ratchet-teeth on its upper side, a carriage mounted to travel on the guideway, a pawl on the carriage engaging the ratchet-teeth, a weighted lever pivoted upon the carriage and having a serrated cam-head which normally contacts with the guideway, a cam-head supported to rock on the carriage for engagement with the end of a drill, and means to rock said cam toward and from the drill.

660,010. **ROCKING VALVE FOR STEAM-ENGINES.** FRANCIS L. EXELL, Wilkerson, Tenn., assignor of one-fifth to Elwin D. Martin, same place. Filed Apr. 14, 1900. Serial No. 12,871. (No model.)

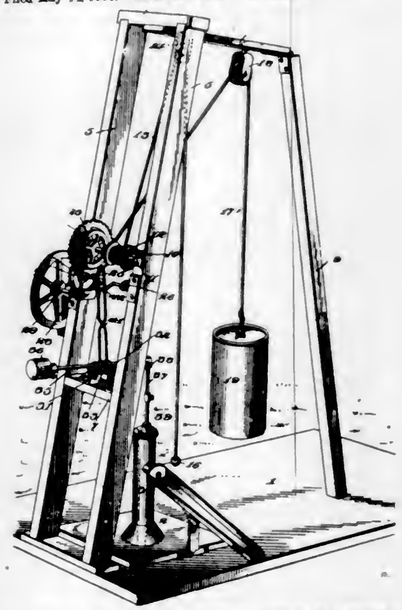


Claim.—1. In combination with a rocking valve having four compartments two of which communicate by means of a transverse passage, a longitudinally-grooved packing-ring fitting the valve and being conical on the outside, a packing-ring seated in a recess in the larger end of the said grooved packing-ring, this latter packing-ring being held by set-screws secured in the valve-casing, and a valve-casing, substantially as described.

2. In combination with a rocking valve, a longitudinally-grooved packing-ring fitting said valve and conically shaped on the outer side to fit a valve-casing, a second packing-ring seated in a recess in the larger end of the said grooved packing-ring, set-screws mounted in the valve-casing and bearing against said second packing-ring, and a valve-casing, substantially as described.

3. In combination with a rocking valve having longitudinal perforations traversing its end portions and communicating with a compartment of said valve, a packing-ring fitting said valve which is conically shaped on the outside, a valve-casing fitting said packing-ring with intervening spaces at both ends between said packing-ring and the valve-casing, a second packing-ring mounted in the intervening space at the larger end of said packing-ring and bearing against it, and set-screws bearing against the said second packing-ring, substantially as described.

660,011. **WEIGHT-MOTOR.** U J. FUHRMAN, West Salem, Ohio. Filed May 14, 1900. Serial No 16,645. (No model.)



Claim.—1. The combination with a platform, of a superstructure composed of parallel standards, an upstanding inclined brace, and a horizontal head-beam supported adjacent to the upper ends of the standards and brace, a pair of separate and independent sheaves carried by the head-beam, a cable-drum journaled between the standards, a balance-lever mounted between the standards below the drum and provided with an upstanding loop, a crank-shaft engaging said loop and geared to the drum, a shiftable bracket upon one end of the lever, a pump-piston connected to said bracket, a weight-cable wound upon the drum and passed over one of the sheaves, a weight carried by the weight-cable, and a rewinding-cable wound upon the drum in the reverse direction and passed over the other sheave, the free end of said rewinding-cable being extended into proximity to the platform.

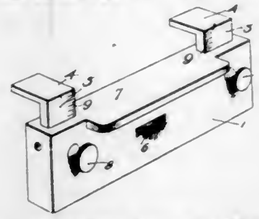
2. The combination with a crank-shaft, and means for actuating said shaft, of a rock-shaft, an angle-sleeve carried by the rock-shaft, a balance-lever carried by the angle-sleeve, and a loop engaged by the crank-shaft and having its ends detachably connected to the rock-shaft at opposite sides of the angle-sleeve.

3. In a motor, the combination with a driving-shaft and means for actuating said shaft, of a rock-shaft, an angle-sleeve carried by said shaft, a balance-lever passed through the sleeve at right angles to the shaft to effect the oscillation of the lever when the shaft is rocked, and a twisted loop engaged by the crank-shaft and having its ends screw-threaded and passed through threaded openings in the rock-shaft, and nuts screwed upon the lower ends of the loop.

4. In a weight-motor, the combination with a cable-shaft, a weight-cable wound upon said shaft, a drum movable with the cable-shaft, and a winding-cable wound upon the drum in a direction the reverse of the direction of winding of the cable-drum, sheaves located above the shaft

for the guidance of the cable, a weight suspended from the weight-cable, a spring-guard adjacent to the sheave of the winding-cable and engaging said cable to keep it taut, motion-transmitting mechanism designed to transmit motion from the motor to the mechanism to be operated, gearing intermediate of the cable-shaft and the transmitting mechanism, and means for automatically disconnecting the cable-shaft from the gearing when the said shaft is operated by the winding-cable to effect the rewinding of the weight-cable and the elevation of the weight.

660,012. **CHISEL-GAGE.** CARL E. HARLING, New York, N.Y. Filed Oct. 10, 1899. Renewed Aug. 9, 1900. Serial No. 26,447. (No model.)



Claim.—1. In a chisel-gage, the combination with the casing having a tool-supporting face, of parallel arms mounted in said casing and provided with angular supporting-toes, means for vertically adjusting said arms simultaneously, and means for clamping said arms in their adjusted position, substantially as and for the purpose set forth.

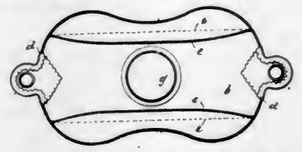
2. The casing, 1, formed with the flanged face, 7, the cross-head, 2, having a sliding engagement with said casing and formed with the parallel arms, 3 3, terminating at their outer ends in the right-angular toes, 4, means for vertically adjusting said toes, and the clamp, 10, pivoted to said casing, substantially as shown and described.

660,013. **METHOD OF TREATING TELLURIDE ORES.** CASIMIR J. HEAD and ROLAND C. WILD, London, England. Original application filed May 8, 1900, Serial No. 15,954. Divided and this application filed Aug. 25, 1900. Serial No. 28,070. (No specimens.)

Claim.—1. A process for the extraction of tellurium from telluric ores, consisting of the lixiviation and digestion of the ores for a lengthened period of time (two to six hours) in a solution, containing about five per cent. of an alkaline carbonate; the removal of the filtrate; the acidifying of the filtrate and the precipitation of the tellurium from the filtrate by known means, substantially as described.

2. A process for the extraction of tellurium from telluride auriferous ores, and the preparation thereby of said ores for the better extraction of the precious metal therefrom consisting of a lixiviation and digestion of the said ores in a solution, containing about five per cent. of carbonate of sodium or potassium for a lengthened period of two to six hours; the withdrawal of the filtrate, and the recovery of the tellurium from the solution, substantially as described.

660,014. **ICE-BAG.** DANIEL HOGAN, New York, N. Y., assignor to the Meinecke & Company, same place. Filed July 19, 1900. Serial No. 24,235. (No model.)



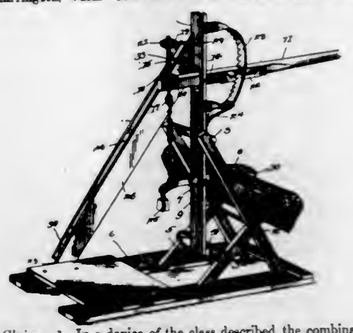
Claim.—1. As a new article of manufacture, the water, &c., bag, having an extended top and bottom, with the top portion adapted, when the bag is collapsed, to reversely fold one portion under the other, substantially as set forth.

2. As a new article of manufacture, the water, &c., bag having an extended top and bottom, said top provided with lateral plaits on forming-lines extending approximately parallel in horizontal planes and adapted to provide for the reverse infolding of said top, from a common or single point at each side, substantially as set forth.

3. As a new article of manufacture, the water, &c., bag having an extended top and bottom, said top provided with lateral plaits on forming-lines extending approximately parallel, in horizontal planes and adapted to provide for the reverse infolding of said top, from a common or single point at each end, said bag having inwardly-bent or concaved sides, substantially as set forth.

4. As a new article of manufacture, the water, &c., bag having an extended top and bottom, and a filling-opening in said top, said top provided with lateral plaits on forming-lines extending approximately parallel, in horizontal planes, upon opposite sides of said filling-opening, and adapted to provide for the reverse infolding of said top from a common or single point, at each end, said bag having inbent or concaved portions, substantially as set forth.

660,015. **ATTACHMENT FOR SAWBUCKS.** THOMAS J. JOHNSON, Harrington, Wash. Filed Jan. 5, 1900. Serial No. 494. (No model.)



Claim.—1. In a device of the class described, the combination of a sawbuck provided at its back with a vertical support extending above it, the lower horizontal clamping-lever fulcrumed between its ends at the back of the sawbuck on the said support and having one arm extending forward over the sawbuck in position for clamping a stick of wood, its other arm extending rearward from the support, the approximately horizontal operating-lever located above the clamping-lever and fulcrumed between its ends on the support at a point above the fulcrum of the clamping-lever and extending in advance and in rear of the sawbuck, the front arm of the operating-lever being provided with a handle portion located a considerable distance in advance of the sawbuck and adapted to be readily grasped without stooping, the ratchet located at the front of the support, a device carried by the operating-lever for engaging the ratchet, and the vertically-disposed yielding connections arranged approximately parallel with the support and extending from the rear end of the clamping-lever to the rear end of the operating-lever, substantially as described.

2. The combination with a sawbuck, having a base, of a saw-case extending between the base and the buck, and also forming a brace for the latter.

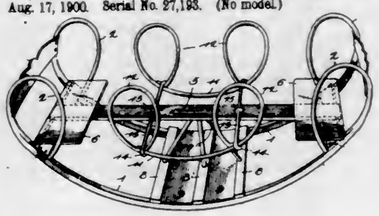
3. The combination with a sawbuck, having a base, of a saw-case, comprising a box, having an open longitudinal edge, said box being connected at opposite ends to the base and the buck, and also forming a brace for the latter.

4. The combination with a sawbuck, having a base, of a saw-case, connected at opposite ends to the base and the buck, and comprising a box, having an open outer longitudinal edge, and a filling piece or shoulder located within the lower end of the open edge of the box.

5. The combination with a sawbuck, having a base, of a saw-case, connected at opposite ends to the base and the buck, and comprising a box, having a door for gaining access to the saw.

6. The combination with a sawbuck, having a base, of a saw-case, connected at opposite ends to the base and the buck, and comprising a substantially-oblong box, having an open outer longitudinal edge, a filling piece or shoulder located within the lower end of the open edge, and a door located at the opposite upper end of the box and upon the outer side thereof.

660,016. **TOY ROCKER.** GEORGE S. KERR, Morton, Pa. Filed Aug. 17, 1900. Serial No. 27,193. (No model.)



Claim.—1. In a toy rocker, the combination of oppositely-disposed rockers with the ends reduced and turned inwardly in the form of holding-loops, a central longitudinally-extending bridge terminally connected to said rockers, transverse seats on the ends of the bridge, backs above the seats extending transversely from one loop to the other, and guards at opposite sides of the intermediate portions of the bridge also having inturned looped ends extending above the plane of the said bridge.

2. In a toy rocker, the combination of oppositely-disposed rockers having rubber tires and the ends reduced and turned inwardly in the form of holding-loops, cross-strips connecting the rockers within the planes of the loops, a central longitudinally-extending bridge terminally connected to said strips, transverse backs connecting the loops above the strips, transverse seats on the ends of the bridge, guards on opposite sides of the central portion of the bridge and standing outwardly from the latter, said guards having the opposite ends inturned in the form of loops extending above the plane of said bridge, and cross-rods connected to the opposite extremities of the guards and to the bridge, the central portions of the rockers being attached by cross-strips with intermediate thin coverings.

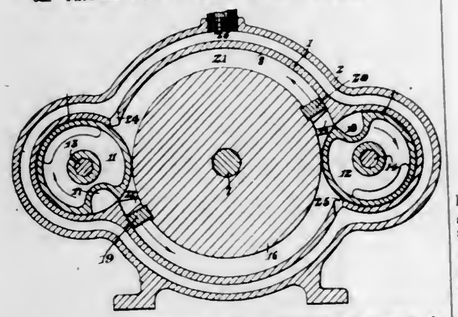
3. In a toy rocker, the combination of oppositely-disposed rockers having the ends reduced and turned inwardly in the form of holding-loops, transverse strips connecting the rockers within the plane of the loops, a central longitudinally-extending bridge terminally connected to said strips, cross-strips connecting the lower central portions of the rockers, upright brace-rods extending from said latter cross-strips to the under central portion of the bridge, the outer rods converging inwardly in an upward direction toward the central one, and guards at opposite sides of the center of the bridge and having inturned ends forming loops above the plane of the bridge.

4. In a toy rocker, the combination with an elongated bridge, of rockers having reduced inturned ends to form loops, and guards at opposite sides of the intermediate portion of the bridge also having inturned looped extremities projecting above the plane of said bridge.

5. A toy rocker comprising a longitudinal bridge with transverse end seats, and rockers having reduced end portions inturned in the form of loops above the plane of the bridge and seats.

6. A toy rocker having a longitudinal bridge, rockers connected to the same, and elongated guards at opposite sides of the central portion thereof extending in a longitudinal direction and having inturned ends to form holding-loops rising above the plane of the said device.

660,017. ROTARY ENGINE. WILLIAM LAMBERT, Los Angeles, Cal. Filed Mar. 26, 1900. Serial No. 10,309. (No model.)



Claim.—1. In a rotary engine, the combination with a casing, of a rotary piston and a pair of rotary abutments within the casing, abutment-gearing upon the exterior of the casing, controlling-valves likewise mounted upon the outside of the casing, and a governor intermediate of the piston and controlling-valves.

2. In a rotary engine, the combination with a casing provided with induction-ports in one head, of a rotary piston provided with heads, a pair of rotary recessed abutments designed to be engaged by the piston-heads and geared to the piston, valve-chests upon the exterior of the ported casing-head, rotary valves within the valve-chests and controlling the induction-ports, gearing operatively connecting the valves with the piston, and means for leading a motive fluid to the valve-chests.

3. In a rotary engine, the combination with a casing provided with induction-ports piercing one head thereof, of a piston having radial piston-heads, a pair of recessed rotary abutments, abutment-gearing exterior to the casing, a pair of valve-chests mounted upon one head of the casing and inclosing the induction-ports, a pair of rotary valves within the valve-chest, each of said valves being provided with a plurality of chambers, and means for operating said valves.

4. In a rotary engine, the combination with a casing, a rotary piston, and abutments, said casing being provided with induction-ports in one head, valve-chests mounted upon the head of the casing and covering the induction-ports, a rotary valve in each valve-chest and provided with diametrically-opposed peripheral chambers, gearing for said valves, and a governor comprising an element of said gearing.

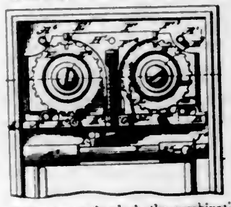
5. In a rotary engine, the combination with a casing, of a shaft, a rotary piston thereon, and rotary abutments in operative relation to the piston, valve-chests upon the exterior of the casing, rotary valves in the valve-chests, a governor-wheel carried by the shaft, gearing intermediate of the valves and governor-wheel, and means carried by the governor-wheel and operated by centrifugal force to accelerate the movement of the valves.

6. In an engine, the combination with a casing, piston and a pair of rotary controlling-valves, of valve-pinions, an engine-shaft, a governor-wheel mounted on said shaft and provided with an extended hub, a governor-pinion revolubly mounted on said hub and meshing with the valve-pinion, and counterweighted levers carried by the governor-wheel and operatively connected with the governor-pinion to accelerate the movement of the latter under the impulse of centrifugal force.

7. In a rotary engine, the combination with a casing, piston and shaft, of a pair of rotary controlling-valves, valve-pinions movable therewith, a governor-wheel mounted on the shaft and having an extended hub, a governor-pinion loosely mounted upon said hub in coöperative relation with the valve-pinions and provided with lugs extending from one face, spring-retained counterweighted bell-crank levers mounted on the governor-wheel and having one arm in engagement with the lugs upon the governor-pinion, whereby the movement of said levers under the impulse of centrifugal force and against the tension of said springs will accelerate the movement of the governor-pinion to effect the early closing of the controlling-valves.

8. In an engine, the combination with a casing, a rotary piston and shaft, of a pair of valve-chests mounted upon one head of the casing, rotary valves within said chests and provided with stud-shafts at one side exclusively of said valves and journaled in the end walls of the valve-chests, valve-pinions carried by said stud-shafts, a governor-pinion meshing with the valve-pinions, and a governor mounted upon the engine-shaft and operatively connected with the governor-pinion to effect the acceleration of the latter for the purpose of effecting an automatic cut-off.

660,018. PERMUTATION-LOCK. JOSEPH H. LIVINGSTONE, Washington, D. C. Filed Aug. 15, 1900. Serial No. 26,927. (No model.)



Claim.—1. In a permutation-lock, the combination with a tumbler having peripheral teeth and bolt-operating mechanism coöperating with said tumbler, of a throw-off slide having one of its ends normally projecting beyond the lock-casing and adapted to engage the door-casing, a pawl carried by said slide and adapted to engage a tooth on said tumbler, and means for yieldingly projecting said slide in one direction; substantially as specified.

2. In a permutation-lock, the combination with a rotating tumbler provided with peripheral teeth, of bolt-operating mechanism coöperating with said tumbler, a throw-off slide mounted beneath said tumbler and normally projected at one end beyond the lock-casing and adapted to engage the door-casing, a pawl pivotally mounted upon said throw-off slide, and a spring for normally projecting said slide in one direction; substantially as specified.

3. In a permutation-lock, the combination with a face-plate provided with posts extending from its inner face, rotating tumblers supported by said plate and provided with peripheral teeth, bolt-operating mechanism carried by said plate and adapted to coöperate with said tumblers, a throw-off slide provided with slotted ways adapted to rest upon said posts, a pawl carried by said slide and adapted to engage a tooth in said tumblers, and a spring adapted to normally project said slide in one direction beyond the lock-casing whereby the bolt may be engaged by the door-casing within which said face-plate is pivoted; substantially as specified.

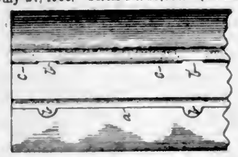
4. In a permutation-lock, the combination with a front plate, of a back plate supported thereby and provided with a lug having a guide-aperture, rotatable tumblers carried by said front plate, a fence-plate having a single shank adapted to pass through the aperture in said lug and coöperating with said tumblers, a pin supported by a lug from said fence-plate and passed through an aperture in the lug upon the back plate, a spring surrounding said pin and resting upon said lugs, and a locking-bolt operatively connected with said pin; substantially as specified.

5. In a permutation-lock, the combination with a front plate, of a back plate supported thereby and provided with a lug having a guide-aperture, rotatable tumblers carried by said front plate, a fence-plate having a single shank adapted to pass through the aperture in said lug and coöperating with said tumblers, a pin supported by a lug from said fence-plate and passed through an aperture in the lug upon the back plate, a spring surrounding said pin and resting upon said lugs, a locking-bolt operatively connected with said pin, a throw-off slide provided with a central offset portion adapted to bridge the shank of said fence-plate, pawls carried by said throw-off slide and adapted to rotate said tumblers, and a yielding device for projecting one end of said slide beyond the casing thereof whereby it is adapted to engage the door-casing; substantially as specified.

6. In a permutation-lock, the combination of a door-casing, a supporting-plate pivoted therein, rotating tumblers carried by said plate and provided with toothed peripheries, bolt-operating mechanism coöperating with said tumblers, a throw-off slide supported by said plate and provided with pawls adapted to engage and move said tumblers in the movement of the slide, and a yielding device adapted to normally project one end of the throw-off slide beyond the edge of said supporting-plate whereby the slide may engage the door-casing and be forced inward to rotate the tumblers; substantially as specified.

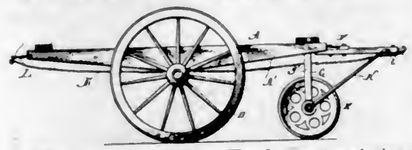
7. In a permutation-lock, the combination with a tumbler and bolt-operating mechanism coöperating therewith, of a throw-off slide having one of its ends normally projecting beyond the edge of a lock-casing and adapted to engage the door-casing, means carried by said slide to operatively engage said tumbler when the slide is moved in one direction and to be inoperative in the return movement of the slide, and means for restoring said slide to its normal position; substantially as specified.

660,019. SHEET-METAL PIPE. HENRY A. MARLIN, Pittsburg, Pa. Filed July 27, 1900. Serial No. 25,011. (No model.)



Claim.—A joint or section of sheet-metal pipe provided with a seam formed by a flange having integral lugs on the edge thereof, and an opposite flange having parts thereof opposite the lugs removed so as to form notches, and said lugs extending through the notches and adapted to be bent back upon the edge of the pipe having the notches, to lock the two flanges together.

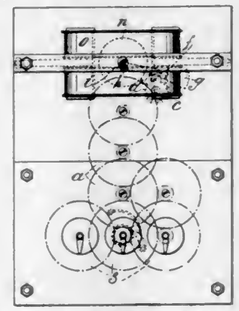
660,020. LUMBER-CART. WILLIAM A. MARSHALL, Washburn, Wis. Filed June 19, 1900. Serial No. 20,847. (No model.)



Claim.—1. A lumber-cart, comprising a body or frame having an axle extending across the central portion thereof, wheels mounted upon said axle; a pivoted guide-wheel at the forward end of the body, a tongue projecting from the supporting-frame of said guide-wheel, and a chain extending across the rear end of the cart; together with a draft-chain connected to the end of the tongue and to the central part of the chain at the rear end of the cart, substantially as shown and for the purpose set forth.

2. A lumber-cart, comprising a body or frame supported centrally upon an axle having wheels mounted upon the ends thereof, a pivoted wheel-frame at the forward end of the body presenting depending bars supporting an axle extended beyond said bars, a casting to which the depending bars are bolted, a tongue bolted to the casting, and brace-rods extending from the ends of the extended axle to the outer end of the tongue; a hook attached to the end of the tongue; a chain fastened to the end of the body and extending from one side to the other, and a hook attached to the center of said chain; together with a draft-chain adapted to be attached to the aforesaid hooks, substantially as shown and for the purpose set forth.

660,021. ELECTRICITY-METER. WILLIAM M. MORDEY and GUY C. FRICKER, London, England. Filed May 19, 1900. Serial No. 17,215. (No model.)



Claim.—1. An electricity-meter comprising a pivoted armature, a coil or winding adapted to be traversed by the electric current, or a proportion thereof, to be measured and arranged to directly magnetize and operate said armature so as to tend to bring the axis thereof into the same plane as the axis of the coil or winding, and means for mechanically imparting a sufficient auxiliary impulse to said armature in each direction of its stroke or throw to carry it past the said axial plane of the coil or winding.

2. An electricity-meter comprising a pivoted armature, a coil or winding adapted to be traversed by the electric current, or a proportion thereof, to be measured and to surround said armature, and means for mechanically imparting a forward impulse to said armature as it approaches the mid-position of its stroke or throw in each direction.

3. An electricity-meter comprising an arbor, escapement mechanism arranged to operate and control said arbor, an armature connected to said arbor so as to move therewith, and a coil or winding adapted to be traversed by the electric current, or a proportion thereof, to be measured, and arranged to directly magnetize and operate said armature so as to tend to bring the axis of the armature into the same plane as the axis of the coil or winding, and counting mechanism adapted to record the number of oscillations of said armature.

4. An electricity-meter comprising an arbor, an escapement device arranged to operate and control the same, an armature connected to said arbor, a coil surrounding or inclosing said armature and adapted to be traversed by the current to be measured, and counting mechanism adapted to record the number of oscillations of said armature.

5. In an electricity-meter, the combination of an armature mounted to oscillate, means for mechanically imparting a forward impulse to said armature as the same approaches the middle position of its stroke or throw in each direction, a coil adapted to be traversed by current, or a proportion thereof, to be measured and arranged to surround and inclose said armature and magnetic material arranged external to said coil so as to improve the magnetic circuit thereof.

6. In an electricity-meter, the combination of an armature mounted to oscillate, means for mechanically imparting a forward impulse to said armature as the same approaches the mid-position of its stroke or throw in each direction, a coil adapted to be traversed by current, or a proportion thereof, to be measured and arranged to move said armature into its mid-position, and magnetic poles arranged to repel said armature from each of its extreme positions.

7. The combination with an electricity-meter of means adapted to temporarily short-circuit said meter in the event of its being stopped by a momentary increase of current or overload.

8. In an electricity-meter, the combination of an armature mounted to oscillate, means for mechanically imparting a forward impulse to said armature as the same approaches the mid-position of its stroke or throw in each direction, a coil adapted to be traversed by current to be measured and arranged to move said armature into its mid-position, and a short-circuiting device adapted to short-circuit said coil in the event of its overcoming the means used for imparting a forward impulse to said armature.

9. In an electricity-meter, the combination of an armature mounted to oscillate, means for mechanically imparting a forward impulse to said armature as the same approaches the mid-position of its stroke or throw in each direction, a coil adapted to be traversed by current to be measured and arranged to move said armature into its mid-position, and a thermo-electric device adapted under predetermined conditions to temporarily short-circuit said coil, substantially as described.

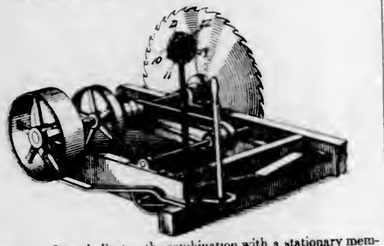
10. In an electricity-meter, the combination of an arbor, an escapement device arranged to operate and control the same, a coil traversed by current to be measured, and an armature connected to said arbor, ar-

ranged to be operated by said coil and composed of iron wires arranged parallel to one another, substantially as described.

11. In an electricity-meter, the combination with the arbor and escapement mechanism of a clockwork-movement, of an armature fixed to the arbor, a coil inclosing said armature and arranged to be traversed by current, or a proportion thereof, to be measured, and counting mechanism driven from the clockwork-movement, substantially as described.

12. In an electricity-meter, the combination with the balance-wheel and escapement mechanism of a clockwork-movement, of an armature fixed to the balance-wheel arbor and composed of parallel iron wires or strips, a coil inclosing said armature and arranged to be traversed by current, or a proportion thereof, to be measured, and counting mechanism driven from the clockwork-movement, substantially as described.

660,022. SAWMILL ATTACHMENT. HUGH M. MCCASKILL, Antler, N. C., assignor of one-half to John W. McCaskill, same place. Filed Mar. 7, 1900. Serial No. 7,701. (No model.)

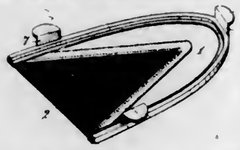


Claim.—1. In an indicator, the combination with a stationary member having an opening, of a movable member mounted upon the stationary member and carrying a plurality of display characters adapted to be exposed through said opening, said stationary member being also provided with a projecting rim, one edge of which has series of locking-notches, and a locking device carried by the movable member and adapted to engage said notches, said locking device forming an operating-handle for the movable member, substantially as described.

2. In an indicator, the combination with a casing having an opening, of an indicator-disk rotatably mounted in said casing and carrying a series of indicating characters adapted to be exposed through the opening in the casing, a retaining-ring arranged at one side of the casing and projecting over the edge of the indicator-disk, said ring carrying a series of indicating characters, and a pointer carried by the indicator-disk, said pointer having means for locking the indicator-disk at any display character desired, substantially as described.

3. In an indicator, the combination with a casing provided with an opening having an annular ring, of a supporting-staff for said casing, an indicator-disk rotatably mounted within said casing and carrying a series of indicating characters upon its inner face, said characters being adapted to be exposed through the casing-opening, means for holding the face of the indicator-disk carrying said display characters away from the adjacent face of the casing, a retaining-ring fastened to the annular rim and projecting over the edge of the indicator-disk, said retaining-ring carrying a series of display characters and having a series of notches corresponding in number to the display characters, and a spring-pressed bolt, carried by the indicator-disk and adapted to lock in the notches of the retaining-ring, substantially as described.

660,023. HOOF-PAD. ANDREW D. NICHOLS, Everett, Mass. Filed Sept. 22, 1899. Serial No. 731,337. (No model.)



Claim.—1. In a bandage for horses' hoofs, an expanding spring conforming substantially to the contour of the inner edges of the horse's shoe, a flexible bandage covering said spring, shanks attached to said spring extending at right angles to the surface of said flexible bandage, and clips on said shanks to enter the space between the shoe and hoof extending outward from the contour of said bandage in a plane parallel to the surface of said flexible bandage, thereby forming a chamber between the bandage and the under surface of the hoof, for the purpose set forth.

2. In a bandage for horses' hoofs, a spring to expand said bandage and clips on said spring to retain the bandage in position on the hoof, combined with an elastic gusset in the bandage whereby the bandage is automatically adjusted to fit hoofs of different sizes and will remain flat when in position on the hoof, for the purpose set forth.

660,024. PROCESS OF MANUFACTURING COLORED OR SIMILAR FILMS. ERNST DESER, Berlin, Germany. Filed Dec. 20, 1899. Serial No. 741,058. (No specimens.)

Claim.—1. The process of manufacturing films which consists in mixing isinglass with glycerin and boiling the mixture in water, adding color thereto, stirring the ingredients together, adding albumen while keeping the whole at a moderate heat, laying out the mixture and leaving it to dry.

2. The process of manufacturing films which consists in mixing from five to ten grams of isinglass with ten to fifteen grams of glycerin and boiling the mixture in a one-fourth to one-half liter of water, adding from four hundred to five hundred grams of color thereto, stirring the ingredients together, adding about thirty grams of albumen while keeping the whole at a moderate heat, laying out the mixture and leaving it to dry.

3. As a new article of manufacture, a film consisting of isinglass, glycerin, albumen and a color.

660,025. TOY. ALBERT PEMBERTON, Emporia, Kans. Filed Mar. 29, 1900. Serial No. 10,660. (No model.)

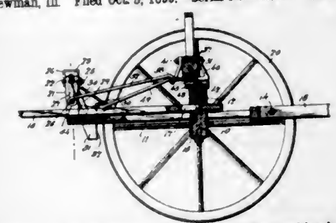


Claim.—1. In a toy, the combination with an inclosing case, provided with apertures fitted with plates of glass, and being open at one end, of a frame fitting within said open end of the case and arranged to slide into and out of said case and a surface having a normally-invisible image thereon made visible by moist vapor, mounted in said frame, substantially as described.

2. In a toy, the combination with a hollow case simulating in exterior appearance a hand-camera, said case being open at one end, and a device mounted upon the exterior of said case adapted to be caused to snap against the side thereof; of a frame fitting the open end of said case and a transparency having thereon a normally-invisible image which may be made to appear by the application of moist vapor to the surface thereof, substantially as described.

3. In an optical toy, the combination with an inclosing case, of a frame arranged to be slid into and out of said case, a transparency having an image thereon, normally invisible but may be made to appear by the application of moist vapor, and a mat mounted upon the face of the said transparency and surrounding the said image, substantially as described.

660,026. AUTOMATIC WAGON-BRAKE. JOHN H. POULTER, Newman, Ill. Filed Oct. 5, 1899. Serial No. 732,677. (No model.)



Claim.—1. In an automatic wagon-brake, the combination with an axle, a coupling-pole and a brake-shaft, of a pivoted bearing-plate provided with roller-bearings, a bolster, slides fast with the bolster and confined in guides on the bearing-plate to ride upon the roller-bearings and turn with said bearing-plate, and connections between the coupling-pole, the bolster and the brake-shaft, substantially as described.

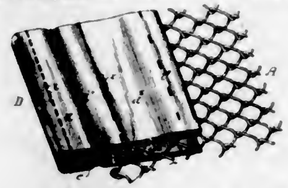
2. In an automatic wagon-brake, the combination with a front axle, a coupling-pole, and a brake-shaft, of a bearing-plate having the flanges forming the guideways and the bearing-rollers in said guideways, each guideway provided with an overhanging flange, a bolster, slide-straps secured to the bolster and fitted in the guideways to ride upon the rollers and retained by the overhanging flanges, and connections between the coupling-pole, the bolster and the brake-shaft, substantially as described

3. In an automatic wagon-brake, the combination with an axle, a coupling-pole, and a brake-shaft, of a bolster mounted slidably upon said axle, a draft-link pivoted to the coupling-pole and the bolster, and another link pivoted to the draft-link and connected with the brake-shaft, substantially as described.

4. In an automatic wagon-brake, the combination with a front axle, and a brake-shaft, of a king-bolt, a slotted coupling-pole fitted slidably on the king-bolt, a bearing-plate pivoted on said king-bolt, a bolster having slides fitted to said bearing-plate, a draft-link between the pole and bolster, and connections from the bolster to the brake-shaft, as set forth.

5. In an automatic vehicle-brake, the combination with an axle, and a coupling-pole, of a brake-shaft, a bolster slidably mounted on the axle, and a pair of links connected with the bolster and extending rearward therefrom to the brake-shaft and to the coupling-pole, substantially as described.

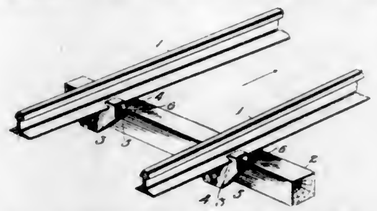
660,027. CONVEYER-BELT. JOSIAH K. PROCTOR, Philadelphia, Pa., assignor to the Philadelphia Textile Machinery Company, same place. Filed Apr. 25, 1900. Serial No. 14,335. (No model.)



Claim.—1. The combination of a wire belt, an edging consisting of a filled body-section *d*, flaps *d'* on each side of the belt and secured to the belt by stitching, the said filled body-section being of the same thickness as the main portion of the edging, so that the bearing will be upon the flaps as well as upon the body-section, substantially as described.

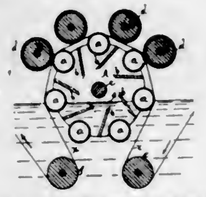
2. The combination of a wire belt, an edging consisting of a filled body-section and flaps on each side of the belt secured thereto by stitching, and a row of stitches passing through the body-section and the filling material, substantially as described.

660,028. RAILROAD-RAIL ANCHOR. CHARLES RAHNGERN, Charlton, Iowa. Filed July 26, 1900. Serial No. 24,901. (No model.)



Claim.—A rail-anchor comprising two jaws formed with opposing grooves to receive the base of the rail and with bolt-apertures below said grooves, said jaws being provided at their lower ends, one with a vertically-disposed stud and the other with a corresponding recess to be engaged by said stud, and a bolt passed through said apertures and provided with a clamping-nut, substantially as set forth.

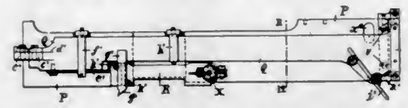
660,029. APPARATUS FOR WASHING PIECE GOODS. EMILE REMY, Mulhouse, Germany. Filed Dec. 7, 1897. Serial No. 661,064. (No model.)



Claim.—1. In an apparatus for washing and soaping printed fabrics, the combination of a rotary barrel, carrying a series of rollers adapted to turn on their own axes, with another set of rollers arranged concentrically around the first set and at such distance apart as to be adapted to be successively struck by the rollers upon the rotary barrel, paddles carried by the barrel and a vat or trough adapted to contain the liquid, as and for the purpose set forth.

2. In an apparatus for washing and soaping printed fabrics, a rotary barrel having a series of hinged arms and rollers mounted to turn in said hinged arms and adapted to be thrown outward by centrifugal force, in combination with another set of rollers mounted concentrically about the first set and adapted to be successively struck by the rollers of said first set and a trough or vat containing the liquid, substantially as described.

660,030. ENGRAVING-MACHINE. AUGUSTIN SARTIRANA, Lyons, France. Filed July 27, 1896. Serial No. 600,663. (No model.)



Claim.—1. In an engraving-machine, the combination with a bar Q having a tracing-point at one end, of a bar R carrying a graving-tool, a cross-head O, a support on which the cross-head is movable, a controlling-bar P lying parallel with and pivotally connected to the bar R, a box upon one end of the cross-head provided with a stud lying in an opening in the controlling-bar P, a flexible connection between the bar Q and the controlling-bar P, and a slide on the bar Q resting on the edge of the bar R, substantially as described.

2. In an engraving-machine, the combination with a bar Q having a tracing-point, of a bar R lying beneath the bar Q and carrying a graving-tool, a controlling-bar P lying against the bars Q and R, and having a pivotal connection with the latter, a cross-head O movable on a suitable support, one end of said cross-head having a fixed stud to engage an opening in one end of the controlling-bar P, a flexible connection between the latter and the bar Q at the end farthest from the tracer, and a slide on the bar Q resting on the edge of the bar R, substantially as described.

3. In an engraving-machine, the combination with a bar Q having a tracing-point at one end, of a controlling-bar P parallel with said bar Q and flexibly connected to it at the other end, a bar R pivotally connected to the controlling-bar P between the ends of the latter and lying beneath the bar Q, a graving-tool carried by the end of said bar R, an adjustable slide on the bar Q to rest on said bar R between its pivotal point and the end carrying the graver, and a cross-head parallel with the controlling-bar P and having at one end a loose connection with the same, substantially as described.

4. In an engraving-machine, the combination with a cross-head O, movable on a support N and having at one end a fixed stud, of a controlling-bar P provided with an opening near one end to receive said stud and having at the same end a blunt point *a'* projecting below its lower edge, a bar Q having a tracing-point lying beneath the blunt point *a'* and flexibly connected to the controlling-bar P at its other end, a bar R having one end pivotally connected to the controlling-bar P near the middle of the latter and carrying a graving-tool on its other end, a slide on the bar Q resting on the edge of the bar R, a support for a gelatin print, and a bridge V having its ends movable on said support and spanning the print, substantially as described.

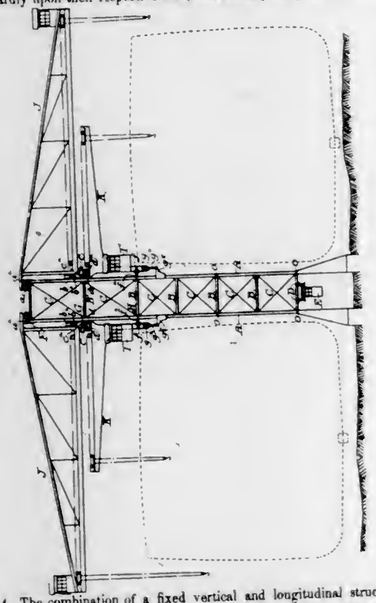
660,031. CRANE STRUCTURE. JOHN W. SEAVER, Cleveland, Ohio, assignor to the Wellman-Seaver Engineering Company, same place. Filed May 31, 1899. Serial No. 718,859. (No model.)

Claim.—1. The combination of a fixed longitudinal structure composed of parallel rows or posts, longitudinal girders and diagonal braces connecting the posts of each row, and transverse horizontal and diagonal braces connecting the posts of one row to those of the other row, with a traveling crane mounted so as to move longitudinally on runways carried by one of the rows of posts, said crane projecting laterally outward beyond said row of posts, substantially as specified.

2. The combination of a fixed longitudinal structure composed of parallel rows of posts, the longitudinal girders and diagonal braces connecting the posts of each row, and transverse horizontal and diagonal braces connecting the posts of one row to those of the other row, with traveling cranes mounted so as to move longitudinally on said longitudinal structure, one of said cranes being mounted on runways carried by one row of posts and the other crane being mounted on runways carried by the other row of posts, and each crane projecting laterally outward from the row of posts upon which it is mounted, substantially as specified.

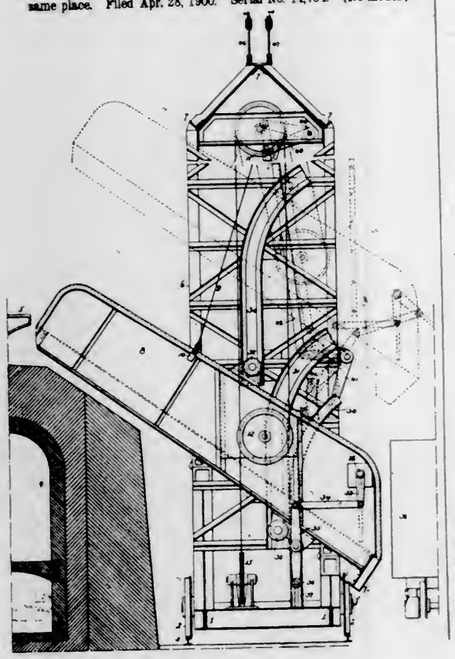
3. The combination of a fixed longitudinal supporting structure having three lines of longitudinal rails, with a laterally-projecting crane having three sets of wheels running upon said rails, one set of wheels press-

ing outwardly, a second set pressing inwardly, and a third set pressing downwardly upon their respective rails, substantially as specified.



4. The combination of a fixed vertical and longitudinal structure having a contracted or pyramidal top with a laterally-projecting traveling crane having wheels adapted to runways on said fixed structure, the upper runways being mounted upon the contracted top of said structure, substantially as specified.

660,032. COKE-LOADING MACHINE. JOHN W. SEAVER, Cleveland, Ohio, assignor to the Wellman-Seaver Engineering Company, same place. Filed Apr. 28, 1900. Serial No. 14,734. (No model.)



Claim.—1. The combination in apparatus for loading cars, of a suitable framework, a loading-pan, normally inclined so as to discharge its load, hoisting mechanism for said pan and controlling devices whereby the pan, as it is lifted is projected bodily forward so as to carry its delivery end over the top of the car, substantially as specified.

2. The combination in apparatus for loading cars, of a suitable framework, a loading-pan, normally inclined so as to discharge its load, hoisting mechanism for said pan, and controlling devices for the pan, whereby during the first portion of its rising movement the pan travels vertically and during the latter portion of said rising movement is projected bodily forward, substantially as specified.

3. In apparatus for loading cars, the combination of a suitable framework, a loading-pan normally inclined so as to discharge its load, hoisting mechanism for said pan and guides for the pan carried by said framework, the lower portions of said guides being substantially vertical and the upper portions forwardly bent or inclined, substantially as specified.

4. The combination in apparatus for loading cars, of a suitable framework, a loading-pan normally inclined so as to discharge its load, hoisting mechanism for raising said pan without tilting the same, a gate closing the lower end of said loading-pan, and manually-operated devices for controlling said gate, substantially as specified.

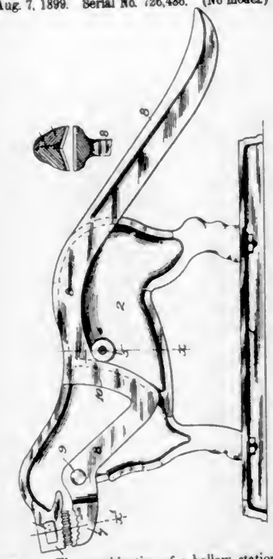
5. The combination in apparatus for loading cars, of a suitable framework, a loading-pan, hoisting mechanism therefor, a gate closing the lower end of the pan, a guide on the framework having a movable portion whereby said guide controls the position of the gate, and means for shifting the movable portion of the guide, substantially as specified.

6. The combination in apparatus for loading cars, of a suitable framework, a loading-pan, hoisting mechanism therefor, a gate at the lower end of the pan, a guide on the framework, said guide having a swinging section, means whereby said guide is caused to control the position of the gate, a shaft on the fixed structure, and connections between said shaft and the swinging section of the guide, substantially as specified.

7. The combination in a loading-pan, of the longitudinal and transverse beams or girders, and end frames, with a sectional bottom composed of plates supported by said transverse girders, substantially as specified.

8. The combination of the loading-pan with a retaining-gate consisting of a longitudinal shaft having blocks strung or threaded thereon, said blocks carrying the bars of the gate, substantially as specified.

660,033. NUT-CRACKER. EARL P. SEDGWICK, Chicago, Ill. Filed Aug. 7, 1899. Serial No. 726,486. (No model.)



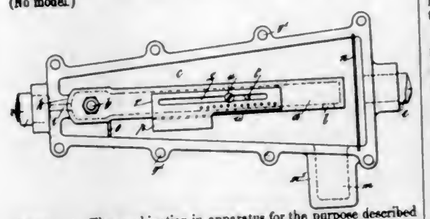
Claim.—1. The combination of a hollow stationary body portion, formed with a stationary upper jaw at front a longitudinal opening in its upper portion extending rearwardly from midway of the body portion and a stop formed by the wall of the body portion forward of said opening, and a movable lower jaw having an integrally-formed lever extension pivoted within the stationary body portion and extending rearwardly to constitute an operating-handle, said lever being formed with an indented or curved portion a distance to the rear of the pivot-axis, and adapted in an opening movement to contact with the stop of the stationary body portion, substantially as set forth.

2. The combination of a hollow stationary body portion, formed with a stationary upper jaw at front, a longitudinal opening in its upper portion extending rearwardly from midway of the body portion and a stop formed by the wall of the body portion forward of said opening, said body portion consisting of two longitudinally-joined halves, a transverse rivet-stud attaching the halves together and constituting a stop for the lever portion of the movable jaw in its closing movement, and a movable lower jaw having an integrally-formed lever extension pivoted within the stationary body portion and extending rearwardly to constitute an operating-handle, substantially as set forth.

3. A nut-cracker, comprising a hollow stationary portion formed at front with a stationary upper jaw and consisting of two longitudinally-joined halves, that are formed with a longitudinal opening extending rearwardly from midway their length, the forward end of said opening constituting a stop, a transverse rivet-stud attaching the halves together and constitutting a stop for the lever portion of the movable jaw, a movable lower jaw having an integrally-formed lever extension pivoted within said stationary portion and extended rearwardly to constitute an operating-handle, said lever being formed with an indented or curved portion a distance to the rear of and concentric with its pivot-axis, substantially as set forth.

4. A nut-cracker, comprising a hollow stationary portion formed at front with a stationary upper jaw and consisting of two longitudinally-joined halves, a transverse rivet-stud attaching the halves together and constituting a stop for the lever portion of the movable jaw, one half being provided with a projection engaging in a corresponding recess in the other section, a movable lower jaw having an integrally-formed lever extension pivoted within said stationary portion and extended rearwardly to constitute an operating-handle, substantially as set forth.

660,034. AUTOMATIC VALVE-GOVERNOR. DAVID C. STREETER, Christchurch, New Zealand. Filed June 6, 1900. Serial No. 19,314. (No model.)



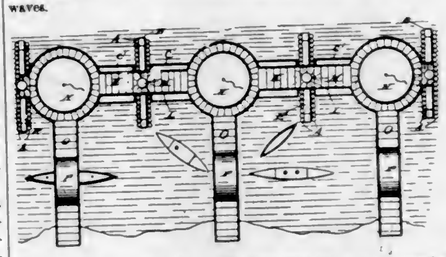
Claim.—1. The combination in apparatus for the purpose described of a tubular arm pivoted within a steam-casing and having one end formed to fit a curved face upon the inside of said steam-casing, a port through said curved face leading from a steam-pipe and a corresponding port in the end of the arm said arm having a hole for the exit of steam near the end opposite to that in which the port is formed and at an angle to the pin upon which it is pivoted, and a pipe upon the casing to conduct steam therefrom substantially as specified and illustrated.

2. The combination in apparatus for the purpose described of a tubular arm pivoted within a steam-casing and having one end formed to fit a curved face upon the inside of said steam-casing a port through said curved face leading from a steam-pipe and a corresponding port in the end of the arm said arm having a hole for the exit of steam near the end opposite to that in which the port is formed and at an angle to the pin upon which it is pivoted, and a pipe upon the casing to conduct steam therefrom a balance-weight adjustable upon the arm and means for adjusting same substantially as and for the purposes herein specified and illustrated.

3. In apparatus for the purpose described the combination of a tubular arm pivoted upon a pin within a steam-casing the end of said arm being curved to correspond with a curved face upon the inside of the steam-casing with which it continues in contact as the arm vibrates the end of the arm and the steam-casing having corresponding parts through which steam is admitted to the interior of the arm from a steam-pipe and said arm having a hole for discharge of steam near the end opposite to the port and at an angle to the pivot-pin, a pocket or recess in the steam-casing opposite to the hole in the arm, a pipe to conduct steam from the casing and a shield-plate to check the flow of steam thereto substantially as and for the purposes herein specified and illustrated.

660,035. WAVE-MOTOR. GEORGE N. TODD, Los Angeles, Cal. Filed May 24, 1899. Serial No. 718,115. (No model.)

Claim.—1. A rotatable ocean-wall or breakwater, consisting of a series of endless chains or troughs or water-buckets, connected together and forming a rotatable ocean-wall or breakwater, rotated by the ocean-waves.



2. Two end supports for a wave-motor, each end support consisting of a row of piles, A, driven in an ocean bed or bottom, secured to a joint tie-timber B; an upright timber C, and braces E; all arranged and adapted to form an end support for an endless chain of troughs or water-buckets; each of said end supports being connected and tied together by longitudinal girders G over the top of said trough-chain, and by timbers b' and F within said trough-chain.

3. A rotatable wave-motor consisting of an endless chain of troughs or water-buckets; a drive-shaft and sprockets; a roller-anchor or weight-spool.

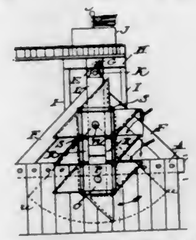
4. A rotatable wave-motor consisting of an endless chain of troughs or water-buckets; a drive-shaft and sprockets; a roller-anchor or weight-spool, consisting of a metal wheel or disk secured on each end of an iron pipe.

5. A rotatable wave-motor consisting of an endless chain of troughs or water-buckets, each trough being formed of two board sides S bolted to metallic end pieces R and secured to a chain; arranged and adapted to be rotated by the ocean-waves.

6. A rotatable wave-motor, consisting of an endless chain of links, provided with rollers forming carriages; troughs or water-buckets secured to said links.

7. A support or supports secured to the ocean bed or bottom, a wave-motor consisting of a series of troughs arranged to form a series of endless chains secured to said support, being arranged and adapted to be actuated by the ocean-waves and to form an ocean-wall or breakwater.

660,036. WAVE-MOTOR. GEORGE N. TODD, Los Angeles, Cal. Filed June 8, 1899. Serial No. 719,821. (No model.)



Claim.—1. A wave-motor consisting of a series of troughs arranged around one or more centers and mounted upon a pendulum-frame to catch the overflow waves or ocean-rollers; said rollers thereby causing said troughs to travel around said center or centers.

2. A wave-motor consisting of a series of troughs linked together in an endless chain, journaled to rotate upon a pendulum-frame; and adapted to be rotated by the ocean-waves.

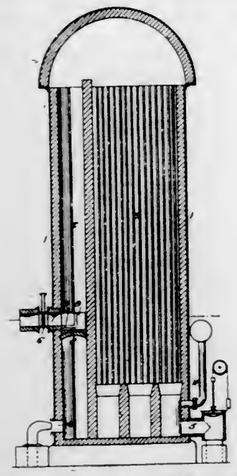
3. A wave-motor consisting of a support pivoting a pendulum-frame; a series of troughs journaled to rotate on said frame; and adapted to be rotated by the ocean-waves.

4. A support or supports secured to an ocean bed or bottom; a pendulum-frame pivoted to said support; a series of troughs journaled to rotate on said pendulum-frame; and adapted to be rotated by wave-power.

5. A series of piles driven into an ocean bed or bottom; timbers secured thereto forming supports; a swinging or pendulum frame, pivoted between said supports; a series of troughs journaled to rotate on said pendulum-frame; and adapted to be rotated by wave-power.

6. A wave-motor consisting of a support or supports pivoting a pendulum-frame; a crank-shaft journaled on said frame, and provided with chains and sprockets, and idlers for said chains journaled on a rod or shaft on the lower end of said frame; a series of troughs bolted to said chains; and adapted to be rotated by wave-power.

660,037. HOT-BLAST STOVE. Emil Vorbach, Kladno, Austria-Hungary, assignor to the Wellman-Seaver Engineering Company, Cleveland, Ohio. Filed May 1, 1899. Serial No. 715,214. (No model.)

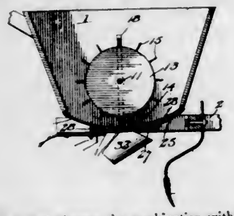


Claim.—1. The combination of a hot-blast stove having a checker-work chamber and a combined ascending gas-flue and descending air-flue at one side of the same, a valved hot-air-discharge pipe communicating with said flue, and a screen located in said flue below the mouth of the pipe so as to protect said pipe and its valve from the action of the ascending hot gases, said screen being less in width than the flue so as to provide passages for the upward flow of the gases on each side of the same.

2. The combination of a hot-blast stove having a combined ascending gas-flue and descending air-flue, a valved hot-air-discharge pipe communicating with said flue, and a screen located in the flue adjacent to the mouth of said hot-air-discharge pipe, said screen consisting of an arch crossing the flue, and vertical screen-walls rising from said arch, one on each side of the mouth of the pipe.

3. The combination of a hot-blast stove having a combined ascending gas-flue and descending air-flue, a valved hot-air-discharge pipe communicating with said flue, and a screen located in the flue adjacent to the mouth of said pipe, said screen having vertical walls disposed one on each side of the mouth of the pipe and having internal recesses in those portions adjacent to said mouth.

660,038. SEED-PLANTER. William L. Wright and Andrew J. Hackler, Bettie, Tex. Filed Apr. 27, 1900. Serial No. 14,633. (No model.)



Claim.—In a seed-planter, the combination with a frame, supporting-wheel, a hopper carried by the frame, feed mechanism within the hopper, and a crank-and-pitman connection intermediate of the feed mechanism and supporting-wheel, of a pair of transverse cleats secured to the under face of the hopper and provided with recesses in their upper sides, a curved regulating-slide received within the recesses of the cleats and provided with an angular end and with a series of feed-openings, a set-screw passed through one of the cleats and engaging the slide, and an inclined feed-chute straddling the regulating-slide, and divergent arms connected to the feed-chute at opposite sides of the slide and secured to the bottom of the hopper.

660,039. COLLAR-BUTTON. Willard S. Yost, New York, N. Y. Filed May 18, 1900. Serial No. 17,143. (No model.)

Claim.—A collar-button consisting of a back, a stem projecting therefrom, a head on said stem, a lever pivoted to said head and adapted to be turned on its pivot to the extent of about a half a circle, the said lever having at its end a finger projecting outwardly when the lever is open and adapted to pass through and engage with the buttonhole of a collar end, whereby said buttonhole may be readily slipped over the finger onto the lever when the latter is open and the movement of said lever about its pivot to the opposite side of the stem will draw the buttonhole over the head of the button and into position on the stem thereof, substantially as described.



660,040. PUMP. John G. Baker, Philadelphia, Pa. Filed Nov. 9, 1898. Serial No. 695,953. (No model.)



Claim.—1. The combination in a pump, of a casing, a rotatable stem, two plungers mounted within the casing, the two plungers being arranged to slide on but turn with the stem, an inlet-valve at the bottom of the pump, valved passages independent of said plungers communicating with the space between and above the plungers through which the liquid pumped passes successively, a discharge-opening at the top of the pump, and a handle by which the stem is turned, and means for causing the plungers to move toward and from each other as the stem is rotated, substantially as described.

2. The combination in a pump, of a casing, a rotatable tubular stem, two plungers constructed to act between the casing and stem, turning with, but sliding on said stem, means for reciprocating said plungers, passages and valves in the casing and in the stem so arranged that when said stem is rotated, the liquid alternately enters the interior of the stem, and the space between said stem and the casing, until it is finally discharged, substantially as described.

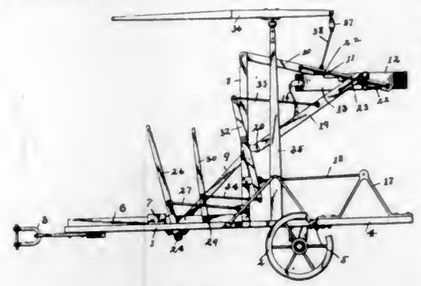
3. The combination of a casing, a tubular stem within the casing, two plungers connected to the stem so as to turn with but slide thereon, said plungers having double spiral grooves, projections on the casing adapted to the grooves whereby the plungers are moved toward and from each other as the stem is rotated, openings in the stem communicating with the space between the plungers and with the spaces above and below the plungers, two valves in the stem and an inlet-valve at the base of the pump, substantially as described.

4. The combination of the casing, a check-valve at the lower end of the casing, a tubular stem, means for turning said stem, three openings at given distances apart in the stem, check-valves between the several openings, two plungers adapted to the space between the casing and the stem and adapted to turn with the stem but slide thereon, double spiral grooves in the periphery of each plunger, blocks adapted to the grooves and mounted on the casing so that as the shaft is turned the plungers will be reciprocated, substantially as described.

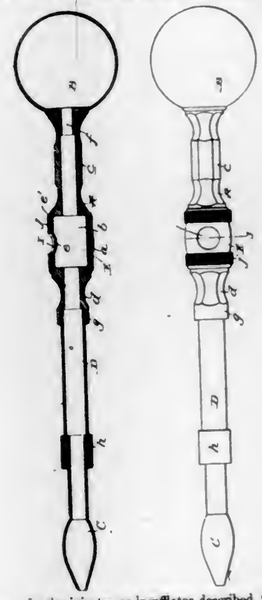
660,041. SHOCKING ATTACHMENT FOR CORN-HARVESTERS. Frank Ball, Brickner, Ohio. Filed Sept. 7, 1899. Serial No. 729,673. (No model.)

Claim.—In a shocking attachment for corn-harvesters, the combination with a platform, a pair of ground-wheels thereunder and a platform-section 4 hinged to the main platform, of a sliding frame on said main platform, a corn-shock holder supported by said frame and consisting of a fixed and hinged section, rods 18 connecting said platform extension with said frame and means for sliding said frame on said platform, substantially as specified.

660,041.



660,042. POWDER-INSUFFLATOR. William F. Barry, Woonsocket, R. I., assignor of one-half to William B. Lincoln, same place. Filed July 12, 1900. Serial No. 23,402. (No model.)

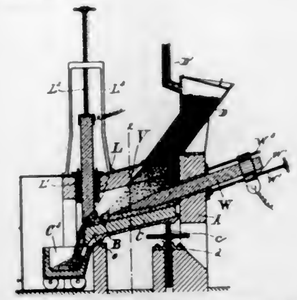


Claim.—In the injector or insufflator described, the body formed in one piece and comprising the intermediate, diametrically-enlarged portion having the chamber formed therein, and also having the filling-aperture in the wall of the chamber, and the exterior flanges e', and the tubular portions communicating with opposite ends of the chamber, the rotatable band mounted on and snugly fiting the body between the flanges e' thereof and having an aperture adapted to coincide with the aperture in the wall of the chamber or reservoir, and also having the roughened end portions, the elastic bulb connected to one tubular portion of the body, the nozzle, and the rubber tube interposed between and connected to the other tubular portion of the body and the nozzle, substantially as specified.

660,043. ELECTRICAL FURNACE. Wilhelm Borchers, Aachen, Germany. Filed Dec. 22, 1898. Serial No. 700,018. (No model.)

Claim.—1. In an electric furnace, the combination of a furnace structure, a feed-chute for the material operated upon, two electrodes adjustably arranged in the furnace to form an arc, one of said electrodes being disposed between the feed-chute and the other electrode and gradually tapered to a point, and means for feeding the material from the chute in a mass gradually decreasing in cross-sectional area over and past the tapered electrode to the arc, substantially as and for the purpose specified.

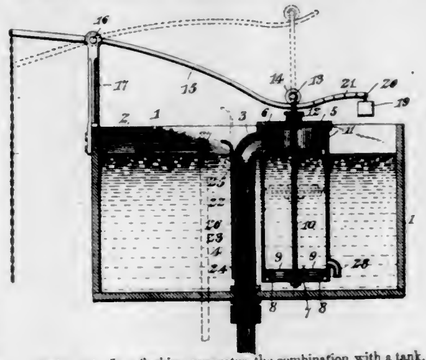
2. In an electric furnace, the combination of a furnace structure, a pivoted hearth therein, means for tilting the hearth to vary its angle of inclination, an electrode disposed over the lower end of the hearth, a tapered electrode disposed longitudinally over the hearth and adjustable toward and from the other electrode, means for feeding the material to be heated onto the hearth and over and past the tapered electrode, and electrical connections for establishing an arc between the electrodes, substantially as described.



3. The combination, in an electric heating-furnace, of a furnace structure, an inclined pivoted hearth therein, means for adjusting the hearth to vary its angle of inclination, an inclined, gradually-tapering electrode over the hearth, a vertically-adjustable electrode above the lower end of the hearth, and means for feeding the material onto the inclined electrode and hearth, and electrical connections, substantially as described.

4. A furnace for the purpose described, comprising a furnace structure, with hearth pivotally mounted and having means for its adjustment, a vertically-adjustable electrode, an electrode disposed at an angle to the said electrode and adjustable in the direction of its length, a hopper arranged above the last-mentioned electrode and electrical connections substantially as described.

660,044. WATER-CLOSET FLUSH. Jonathan Bowman, San Antonio, Tex. Filed Oct. 7, 1899. Serial No. 732,943. (No model.)

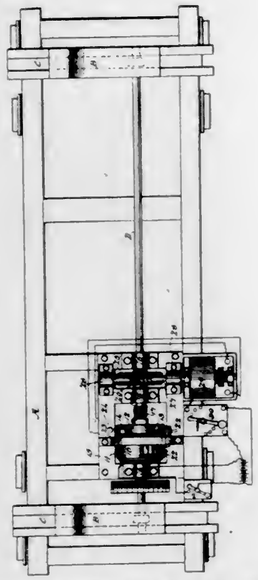


Claim.—1. In a flushing apparatus, the combination with a tank, of a cylinder disposed vertically therein having a siphon attachment, one of the latter parts being provided with a longitudinal slot and a longitudinal concavity coextensive with the inside of the slot closed at its bottom and open at its top and constituting a regulating means, and an adjustable covering device for regulating the said slot and establish adjustable communication between the same and the part in which it is located to control the flush.

2. In a flushing apparatus, the combination with a tank, of a siphon-including a vertical cylinder, a piston movably mounted in the cylinder, mechanism above the tank to operate the piston, a regulator-tube extending inside the siphon and open at its upper extremity, and a vertically-adjustable closure for said tube to control the ingress of air to the siphon through said tube at any desired water-level.

3. In a flushing apparatus, the combination with a tank and siphon, of a pump in the short branch of the siphon, means for operating the pump, a longitudinal slot in one branch of the siphon, a longitudinal concavity coextensive with the inside of the slot, closed at its bottom and open at its top and constituting a regulating-slot, and a regulator-shutter adjustably fixed over the slot and designed to determine the water-lever at which air will be admitted to the interior of the siphon.

660,045. ELECTRICALLY-ACTUATED SAWMILL SET-WORKS. WILLIAM M. CARROLL, Beaumont, Tex. Filed May 12, 1900. Serial No. 16,500. (No model.)



Claim.—1. The combination with sawmill set-works, having a set-shaft and means to actuate the same, of an electromagnetic clutch having one member fast on said shaft and one member loose thereon, means for magnetizing said clutch and thus carrying the loose member therewith, means for demagnetizing the clutch, means to move said loose member in one direction independently of said set-shaft when the clutch is demagnetized, means to arrest the movement of said loose member with the shaft, and means to predetermine the extent of the rotary movement of said loose member, substantially as described.

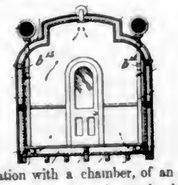
2. The combination with sawmill set-works, having a set-shaft and means to actuate the same, of an electromagnetic clutch having one member fast on the set-shaft, the other member affected by the electromagnetic action, being loose on said shaft, engaging devices forming, with said loose member, a stop to limit the rotation of said set-shaft, means to move said loose member independently of said set-shaft in one direction when the clutch is demagnetized and means to predetermine the extent of the rotary movement of said loose member, substantially as described.

3. The combination with sawmill set-works having a set-shaft, and means to actuate the same, of an electromagnetic clutch member fast on said shaft, a clutch member loose on said shaft, forming an armature, and engaging devices forming, with said loose member, a stop to limit the rotation of the set-shaft in one direction, a spring to move said loose clutch member in one direction independently of the set-shaft when the electromagnetic clutch member is demagnetized, means to arrest the movement of the loose member with the shaft and means to limit and predetermine the extent of the rotary movement of said loose member, substantially as described.

4. The combination with sawmill set-works, having a set-shaft, and means to actuate the same of an electromagnetic clutch member fast on said shaft, a clutch member loose on said shaft, forming an armature, engaging devices forming, with said loose member, a stop to limit the rotation of the set-shaft in one direction, a spring to move said loose clutch member in one direction independently of the set-shaft when the electromagnetic clutch member is demagnetized means to arrest the rotary movement of said loose member with said shaft and electromagnetic member when the latter is magnetized and to predetermine the range of movement of said loose member, and a make and break operable by said loose clutch member at one limit of the rotary movement thereof, to break the electric circuit, substantially as described.

660,046. CAR-VENTILATOR. JOHN CLARKE, Orangeville, Canada. Filed Mar. 21, 1900. Serial No. 9,546. (No model.)

Claim.—1. The combination with a chamber, of an air-intake device and an air-outtake device, the capacity of the intake being greater than that of the outtake, and causing pressure within the chamber, and the intake being constructed always to mouth toward outside air impinged against or impinging, and the outtake being constructed always to mouth in diametrically the opposite direction to the intake, that is to say, away from the air impinged against or impinging, all substantially as and for the purpose set forth.



2. The combination with a chamber, of an air-intake device discharging into the lower part and an air-outtake device discharging from the upper part of the chamber, the capacity of the intake being greater than that of the outtake, causing pressure within the chamber, the intake being constructed always to mouth toward outside air impinged against or impinging, and the outtake being constructed always to mouth in diametrically the opposite direction to the intake, that is to say, away from the air impinged against or impinging, all substantially as and for the purpose set forth.

3. The combination with a chamber, of an air-intake device and an air-outtake device, the intake device being of capacity greater than that of the outtake device, and the intake device consisting of an air-supply pipe or of air-supply pipes, having the upper extremity provided with a revoluble, vaned cowl, or with revoluble, vaned cowls, causing the intake, in operation, to mouth, at all times, toward outside air impinged against or impinging, and the outtake device consisting of a pipe, or of pipes, having the upper extremity provided with a revoluble cowl, or with revoluble cowls, in operation mouthing, at all times, in direction opposite to that taken by the intake, substantially as and for the purpose set forth.

4. The combination with a chamber having a double floor, with openings in the upper portion thereof, of an air-intake device and an air-outtake device, the intake device being of capacity greater than that of the outtake device, the intake device consisting of an air-supply pipe, or of air-supply pipes, having the upper extremity provided with a revoluble, vaned cowl, or with revoluble, vaned cowls, causing the intake, in operation, to mouth, at all times, toward outside air impinged against or impinging, and having its lower extremity projecting into the space between the two floors, and the outtake device consisting of a pipe, or pipes, having the upper extremity provided with a revoluble cowl, or with revoluble cowls, in operation mouthing, at all times, in direction opposite to that assumed by the intake and having its lower extremity leading from the top of the chamber, all substantially as and for the purpose set forth.

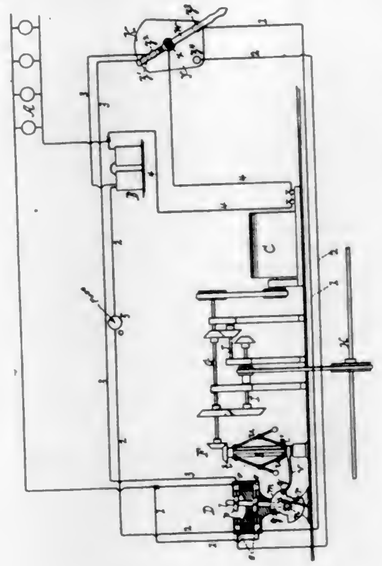
5. The combination with a chamber, of an air-intake and an air-outtake device, the intake device being of capacity greater than that of the outtake device, mouthing, at all times toward outside air impinged against or impinging, discharging into the lower part of the chamber, and having an automatically-operating valve to prevent back draft, and the air-outtake device mouthing, at all times, in a direction diametrically opposite to that of the intake device and discharging from the upper part of the chamber, all substantially as and for the purpose set forth.

660,047. ELECTRIC-LIGHTING SYSTEM. JOSEPH I. CONKLIN, New York, N. Y. Filed Mar. 28, 1900. Serial No. 10,457. (No model.)

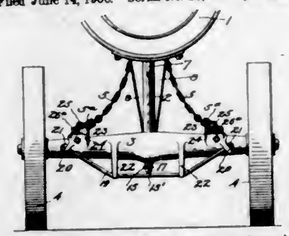
Claim.—1. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft, three circuits, one connecting the storage battery and lamps, the other the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits, an automatic circuit-closing switch independent of the governor and in conjunction with the manual switch controlling all three circuits, and a contact device carried by the governor for operating said independent circuit-closer, substantially as described.

2. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft, three circuits, one connecting the storage battery and lamps, the other the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits and a circuit-closing switch operated by the governor and cooperating with the manual switch to control all three circuits, the same comprising a switch-lever and a reversing-cam carrying tappets to operate the lever and adapt it to be oscillated by the governor, substantially as described.

3. In an electric-lighting system for railway-cars, the combination, with a dynamo, storage battery, and lamps, of a drive-shaft connected with the dynamo, a governor operated by said shaft and carrying a movable finger, three circuits, one connecting the storage battery and lamps, the second the dynamo and lamps, and the third the dynamo and storage battery, a manual switch included in said circuits, and a circuit-closing switch comprising a switch-lever, a cam adapted to be moved in one direction by the governor-finger and carrying tappets to operate the lever, and a spring to hold the cam in either of two positions, substantially as described.



660,048. TRACTION-ENGINE. GEORGE F. CONNER, Port Huron, Mich. Filed June 14, 1900. Serial No. 20,301. (No model.)



Claim.—1. The combination with an axle having a ball-seat, of a pillar-post provided with a ball-head to engage said seat, and cap-plates bolted to said axle and embracing said ball-head and provided with longitudinal lugs which engage said pillar-post at a point above the ball-head and prevent forward and rearward rocking of the axle, substantially as set forth.

2. The combination with an axle having a ball-seat and a longitudinal slot communicating therewith, of a pillar-post provided with a ball-head to engage said seat, a core projecting from said ball-head through said longitudinal slot, cap-plates bolted to said axle and embracing said ball-head and provided with longitudinal lugs which engage said pillar-post at a point above said head, and a rod secured to the lower end of the core and extending rearward and secured to the under side of the boiler of the engine, substantially as set forth.

3. The combination with an axle, of a pillar-post, the latter being provided with a ball-head and the former with a ball-seat and a communicating longitudinal slot, a rod projecting from said head through said slot, and a nut screwed upon the lower end of said rod, substantially as set forth.

4. The combination with an axle, of a pillar-post, the latter being provided with a ball-head and the former with a ball-seat and a communicating longitudinal slot, a rod projecting from said head through said slot and provided with a nut, and cap-plates secured to said axle and embracing said ball-head, substantially as set forth.

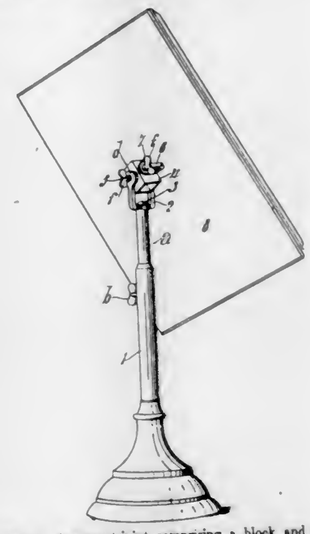
5. The combination with a pillar-post consisting of a cylindrical body portion, of a core extending through the cylindrical body portion and having an offset to form an attaching means, substantially as set forth.

6. The combination with an axle, of a pillar-post connected thereto, and a rod extending vertically through the pillar-post and axle and provided with a nut at its lower end, the upper end of said rod projecting through the side of the pillar-post and forming an attaching-plate, substantially as set forth.

7. The combination with an axle having arms projecting from it at a point adjacent to the ends of the axle and arranged at an angle to the length of the axle, of steering-chains attached to said arms, substantially as set forth.

8. The combination with an axle having lugs cast upon it near its ends, each lug being formed of a curved web projecting forwardly and rearwardly of the axle, of steering-chains attached to the forward end of each lug and bearing against the rear end, substantially as set forth.

660,049. UNIVERSAL SUPPORT. CALEB E. COOK, Whittier, Cal. Filed Feb. 5, 1900. Serial No. 4,108. (No model.)



Claim.—1. A support-joint comprising a block provided with two pairs of oppositely-arranged plane faces; a vertical supporting-clevis to fit upon the block and engaging the opposite faces of said block and being perforated and having a screw-threaded perforation in one of the arms of said clevises; a screw inserted through the other arm of said clevis and through the block and playing freely therein and screwed into the screw-threaded hole in the other arm; a second clevis fitted upon two other opposite faces of said block and perforated and provided with a screw-threaded hole in one of its arms; a screw inserted through the other arm and through the block and screwed into said screw-threaded hole; a post; and a screw for swiveling said second clevis upon said post, substantially as hereinbefore set forth.

660,050. APPARATUS FOR INDICATING VARIATIONS IN TERRESTRIAL GRAVITATION. LEONARD E. COWEY, London, England. Filed Mar. 29, 1900. Serial No. 10,657. (No model.)

Claim.—1. Apparatus of the character described, comprising a fixed vessel containing liquid isolated from atmospheric pressure, a vacuum or low-pressure chamber communicating with the upper-end portion of said vessel, an aeriform-fluid chamber communicating with the lower-end portion of said vessel, a fine-bore index-tube, through which the aeriform fluid

within the said chamber exerts its pressure to support the liquid in the aforesaid vessel and a liquid index in said tube, the said tube serving to amplify the indications of the movement of the liquid resulting from variations in the weight of the latter, substantially as and for the purpose set forth.



2. Apparatus of the character described comprising, an upright fixed tubular vessel containing liquid isolated from atmospheric pressure said vessel having at the upper end a space constituting a vacuum or low-pressure chamber, an aeriform-fluid chamber inclosing the said tubular vessel, a fine-bore index-tube located within the said aeriform-fluid chamber and through which the aeriform fluid within the said chamber exerts its pressure to support the liquid in the aforesaid vessel, and a liquid index contained in said tube, between the fluid in the aeriform-fluid chamber and the liquid in the vessel, substantially as and for the purpose set forth.

3. Apparatus of the character described comprising an upright fixed tubular vessel containing liquid isolated from atmospheric pressure and having its lower end formed with an upturned leg and also having at its upper end a space constituting a vacuum or low-pressure chamber, a fluid-jacket surrounding the greater portion of said tubular vessel, a sealed chamber containing aeriform fluid and inclosing the said tubular vessel and its surrounding jacket, a fluid-jacket surrounding the aeriform-fluid chamber, and a graduated capillary tube containing an index, said capillary tube being spirally disposed within said aeriform-fluid chamber and communicating with the latter and with the upturned leg of the tubular vessel, substantially as and for the purpose set forth.

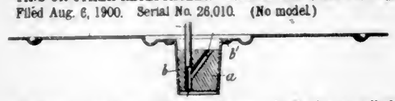
4. Apparatus of the character described comprising the upright fixed tubular vessel, the vacuum or low-pressure chamber, the aeriform-fluid chamber and the fine-bore index-tube, and its index in combination with means for compensating for the variations in the pressure of the aeriform fluid on the liquid in the tubular vessel, due to variations in temperature.

5. Apparatus of the character described comprising the upright fixed tubular vessel, the vacuum or low-pressure chamber, the aeriform-fluid chamber and the fine-bore index-tube and its index, in combination with a small chamber communicating with the lower part of said tubular vessel so that the liquid in the latter vessel can have access to the said chamber, and of a receptacle from which fluid is supplied to the upper part of said small chamber, substantially as described and for the purpose set forth.

6. Apparatus of the character described, comprising the upright fixed tubular vessel containing liquid, the vacuum or low-pressure chamber, the aeriform-fluid chamber, and the fine-bore index-tube and its index, in combination with means for varying the capacity of said aeriform-fluid chamber for the purpose set forth.

7. Apparatus of the character described comprising the upright fixed tubular vessel containing liquid, the vacuum or low-pressure chamber, the aeriform-fluid chamber and the fine-bore index-tube and its index, in combination with a cylindrical extension on said aeriform-fluid chamber, of a piston in said cylindrical extension and of means for adjusting from the exterior of the apparatus the position of said piston, substantially as and for the purpose described.

660,051. MEANS FOR FACILITATING HERMETIC SEALING OF TINS OR OTHER RECEPTACLES. JOHN R. CROFT, London, England. Filed Aug. 6, 1900. Serial No. 26,010. (No model.)



Claim.—1. The herein-described means of effecting a preliminary hermetic closure of tins or other receptacles, consisting essentially of a bush or bung seated in the top or cover of the receptacle and having one or more straight through-passages and one or more branch passages each leading into a straight passage, and of one or more plugs each fitted into a straight through-passage and adapted to be driven therein so as to close the communication through the corresponding branch passage with the vessel, substantially as described.

2. The combination with the herein-described means of effecting a preliminary hermetic closure of tins or other receptacles, consisting of a bush or bung seated in the top or cover of the vessel and having one or more straight through-passages and one or more branch passages each leading into a straight through-passage and one or more plugs each driven in to close the corresponding branch passage as described, of a layer of impermeable material, such as paraffin-wax or melted solder, applied upon and covering the bush, as described.

660,052. ICE-PICK. HARRISON A. DIGGS, Norfolk, Va. Filed Aug. 31, 1899. Serial No. 729,103. (No model.)



Claim.—In an ice-pick, a three-piece handle adapted for interchangeable pick-points comprising a single-piece metallic head having an unbroken curved striking-poll, 11, an annular integral sleeve, 14, extending from the other end thereof, a seated cavity or socket in the solid portion of said head and opening through the inner flat face thereof, and the external knurled grip, 12, formed by a series of flanges located between the curved striking-poll and the extended sleeve; a hollow cylindrical body having an open end which fits snugly within the sleeve of the head and bears against the flat face thereof and provided at its other end with a flared socket, 4, and a shank, 5, extending longitudinally through the handle and having a threaded end, 10, screwed into the socket of the head, the other end of this shank being provided with the longitudinal incisions, 7, forming a series of jaws and said divided end of the shank being flared to fit the socket in the end of the handle, whereby the head may be rotated on the body to draw the stem endwise within the socket, and the jaws may be compressed and the head seated firmly upon the end of the body, as set forth.

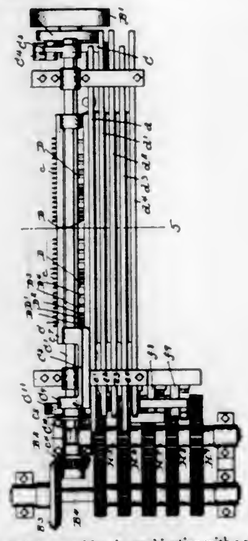
660,053. LACE-KNITTING MACHINE. CHARLES E. DREW, Philadelphia, Pa., assignor to the Friedberger Manufacturing Company, of Pennsylvania. Filed June 4, 1900. Serial No. 18,980. (No model.)

Claim.—1. In a fancy-knitting machine, in combination with the thread-guides and frame for the same, of a shaft, upon which said frame is sleeved so as to move with and upon said shaft, a sleeve connected with said frame, there being a groove in said sleeve a bell-crank pivoted lever, one end resting in said groove, a rotating cam having high and low points and connection between said bell-crank lever and said cam.

2. In a fancy-knitting machine, in combination with the thread-guides and frame for the same, of a shaft upon which said frame is sleeved so as to move with and upon said shaft a sleeve connected with said frame, there being a groove in said sleeve a bell-crank pivoted lever, one end resting in said groove, a link connected to the other end of said bell-crank, a rotating cam having high and low points, said link resting upon and being operated by said rotating crank.

3. In a fancy-knitting machine, in combination with the thread-guides and frame for the same, of a shaft upon which said frame is sleeved so as to move with and upon said shaft a sleeve connected with said frame, there being a groove in said sleeve a bell-crank pivoted lever, one end resting in said groove, a rotating cam having high and low points and connection between said bell-crank lever and said cam a lever connected with the guide-frame shaft, a rotating cam having high and low points, a pivoted lever operated by said cam, and a link connecting said last-mentioned lever and the lever connected with the shaft the high and low points on said two rotating cams being respectively oppositely placed.

4. In a fancy-knitting machine, in combination with the thread-guides and frame for the same, of a shaft upon which said frame is sleeved so as to move with and upon said shaft a sleeve connected with said frame, there being a groove in said sleeve a bell-crank pivoted lever, one end resting in said groove, a rotating cam having high and low points and connection between said bell-crank lever and said cam a lever connected with the guide-frame shaft, a rotating cam having high and low points, a pivoted lever operated by said cam, and a link connecting said last-mentioned lever and the lever connected with the shaft the high and low points on said two rotating cams being respectively oppositely placed, and said two cams rotating in unison.



5. In a fancy-knitting machine, in combination with a pattern-thread guide and sliding bar for the same, of a lever pivotally connected with said bar, a rotating cam having high and low points operating said lever, a removable gear operating said cam, a second removable gear meshing with the first-mentioned gear, a main driving-shaft and connection between said main driving-shaft and the second removable gear.

6. In a fancy-knitting machine, in combination with a pattern-thread guide and sliding bar for the same, of a lever pivotally connected with said bar and adjustably fulcrumed, a rotating cam having high and low points operating said lever, a removable gear operating said cam, a second removable gear meshing with the first-mentioned gear, a main driving-shaft and connection between said main driving-shaft and the second removable gear.

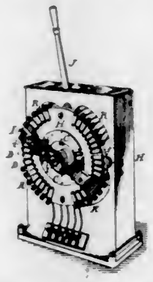
7. In a fancy-knitting machine, in combination with a pattern-thread guide and sliding bar for the same, of a lever pivotally connected with said bar, a slot in said lever, a pivot-block adjustably secured in said slot, a cam having high and low points, a removable gear operating said cam, a second removable gear meshing with the first-mentioned gear, a main driving-shaft and connection between said main driving-shaft and the second removable gear.

8. In a fancy-knitting machine, in combination with a plurality of pattern-thread guides and sliding bars for the same, of a plurality of levers equal in number to said bars, one lever being pivotally connected to each bar, rotating cams equal in number to said levers each bar having high and low points, each cam operating a lever, removable gears equal in number to said cams, each cam being operated by a gear, each first-mentioned gear having a corresponding second-mentioned gear, a main driving-shaft and connection between the main driving-shaft and the second set of gears.

9. In a fancy-knitting machine, in combination with a plurality of pattern-thread guides and sliding bars for the same, of a plurality of levers equal in number to said bars, one lever being pivotally connected to each bar, and each lever being adjustably fulcrumed, rotating cams equal in number to said levers each bar having high and low points, each cam operating a lever, removable gears equal in number to said cams, each cam being operated by a gear, each first-mentioned gear having a corresponding second-mentioned gear, a main driving-shaft and connection between the main driving-shaft and the second set of gears.

10. In a fancy-knitting machine, in combination with a plurality of pattern-thread guides and sliding bars for the same, of a plurality of levers equal in number to said bars, one lever being pivotally connected to each bar, there being a slot in each lever and a pivot-block adjustably secured in said slot, rotating cams equal in number to said levers each bar having high and low points, each cam operating a lever, removable gears equal in number to said cams, each cam being operated by a gear, each first-mentioned gear having a corresponding second-mentioned gear, a main driving-shaft and connection between the main driving-shaft and the second set of gears.

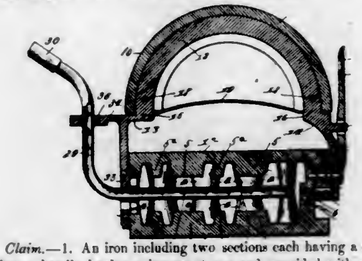
660,054. CONTROLLING-BRAKE FOR MOTORS. ARTHUR C. EASTWOOD, Ensley, Ala., assignor to the Electric Controller and Supply Company, Cleveland, Ohio. Filed May 14, 1900. Serial No. 16,635 (No model.)



Claim.—1. The combination in a motor-controller, of two series of concentrically-placed resistance-blocks, a contact-arm having four sets of fingers thereon constructed to bear on said blocks, two series of brake-blocks placed similarly to the resistance-blocks in the path of the contact-arm, connected to the motor-circuit and disconnected from the line, whereby the motor is made to act as a series generator when running under its own momentum, thus retarding the motion of the armature without using current from the line, substantially as described.

2. The combination in a motor-controller of two concentrically-arranged series of contact-pieces, a contact-arm and two sets of contact-fingers thereon, movable over the contact-pieces, said pieces consisting of resistance points or blocks, brake-blocks and dead-blocks, the dead-blocks intervening between the resistance and the brake blocks and the brake-blocks being connected to the motor-circuit and not to the line, thereby short-circuiting the motor on itself when the said contact-arm rests on the brake-blocks, substantially as described.

660,055. SAD-IRON. THOMAS C. EDWARDS, Philadelphia, Pa. Filed Aug. 25, 1898. Serial No. 689,475. (No model.)



Claim.—1. An iron including two sections each having a smoothing-face, a handle having a hanger at one end provided with a ring, a journal in two parts rigid with the respective sections of the iron to receive said ring for turning movement, a hanger at the other end of the handle provided with a hub, and a pivot-screw extending through the hub and uniting the two sections of the iron.

2. An iron including two sections each having a smoothing-face, a handle having a hanger at one end provided with a ring, a journal in two parts rigid with the respective sections of the iron to receive said ring for turning movement, a hanger at the other end of the handle provided with a hub, a pivot-screw extending through the hub and uniting the two sections of the iron, a lock upon said hub, and means upon the hanger that carries said lock to actuate the latter.

3. In a self-heating sad-iron, the combination of a suitable burner and a body portion provided with an outer series of lugs arranged with air-spaces between them, an inner series of lugs located in staggered relation to the outer series to bring them opposite to the air-spaces thereof, and a central series of lugs terminated in planes to leave a central space for the burner of the iron; substantially as herein explained.

4. In combination with a self-heating sad-iron having a suitable han-

dle, a burner for heating the iron having an upwardly-projecting portion, a bracket carried by the handle and formed with a recess which receives the upwardly-projecting portion of the burner, and a spring-clip within the recess of said bracket for holding the burner in place; substantially as herein described.

660,056. TYPE-HOLDER. ALEXANDER ELLIOTT and MICHAEL SHAEN, Washington, D. C. Filed July 19, 1900. Serial No. 24,236. (No model.)



Claim.—1. In a holder for pages and other bodies of assembled types, a rectangular sectional frame presenting a smooth exterior, and having loose beveled joints between its sections; the joints at opposite ends of the frame being disposed obliquely in opposite directions, whereby, when one of the frame-sections is moved in a direction away from a page or body of type in the frame by a pressing device interposed between it and said page or body of types, the other sections of the frame will be drawn inwardly against the page or body of type and all four sides thereof will be subjected to pressure, substantially as specified.

2. A holder for pages and other bodies of assembled types, comprising a rectangular sectional frame presenting a smooth exterior, and having loose beveled joints between its sections; the joints at opposite ends of the frame being disposed obliquely in opposite directions, and a pressing device arranged in the frame for moving one of the sections thereof in a direction away from the page or body of types, substantially as specified.

3. In a holder for pages and other bodies of assembled types, a sectional frame having loose beveled joints between its sections; the said joints respectively comprising a tongue and a complementary groove arranged entirely within the frame, and those at one end of the frame being disposed obliquely in a direction opposite to those at the other end of the frame, substantially as specified.

4. In a holder for pages and other bodies of assembled types, a frame comprising side sections having upright grooves in their inner sides at points adjacent to their ends, and end sections having tongues at their ends of a size to take into the grooves of the side sections; the tongues and grooves at one end of the frame being disposed in the opposite direction to those at the other end thereof and all being arranged entirely within the frame, substantially as specified.

5. A holder for pages and other bodies of assembled types, comprising a sectional frame having beveled joints between its sections; the said joints respectively made up of a tongue and a complementary groove, arranged entirely within the frame, and those at one end of the frame being disposed obliquely in a direction opposite to those at the other end of the frame, and means for bearing against one side of the body or page of type and pressing one of the frame-sections in a direction away from the same, substantially as specified.

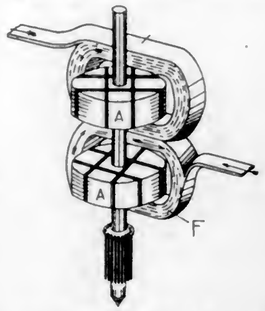
6. In a holder for pages and other bodies of assembled types, the combination with a frame comprising side sections having upright grooves in their inner sides at points adjacent to their ends and end sections having tongues at their ends of a size to take into the grooves of the side sections; the tongues and grooves at one end of the frame being disposed in the opposite direction to those at the other end thereof, and all being arranged entirely within the frame; of a follower arranged within the frame adjacent to one of the end sections thereof, and a threaded spindle bearing in a threaded aperture in the said end section and having a finger-piece fixed thereon and interposed between the end frame-section and the follower, substantially as specified.

7. In a holder for pages and other bodies of assembled types, a sectional frame having coacting means on its sections at its opposite ends, whereby, when pressure is exerted between one of the frame-sections and the page or other bodies of types, the four sides of said page or body will be subjected to pressure; the said coacting means on the sections being arranged entirely within the frame, substantially as and for the purpose set forth.

8. A holder for pages and other bodies of assembled types, comprising a rectangular, sectional frame presenting a smooth exterior and having loose beveled joints between its sections; the joints at one end of the frame being disposed obliquely in an opposite direction to those at the opposite end thereof, a follower arranged within the frame, and means for moving the follower interposed between the same and a frame-section, substantially as specified.

9. In a holder for pages and other bodies of assembled types, a frame comprising side sections having upright grooves in their inner sides at points adjacent to their ends, and end sections having tongues at their ends of a size to take into the grooves of the side sections; the tongues and grooves at one end of the frame being disposed in the opposite direction to those at the other end thereof, a follower-bar arranged in the frame, and threaded spindles bearing in one end section of the frame at opposite sides of the longitudinal center thereof, and arranged to move the follower; said spindles having finger portions interposed between the follower and the end section of the frame, substantially as specified.

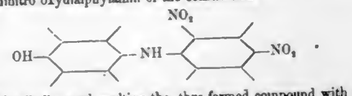
660,057. ASTATIC ARMATURE FOR ELECTRIC-SUPPLY METERS. SYDNEY EVERSHED, London, England, assignor to himself and the Evershed & Vignoles, Limited, same place. Filed July 21, 1900. Serial No. 24,420. (No model.)



Claim.—In an electric-supply meter of the motor type, an astatic armature, consisting of coils coupled in succession in the usual order and in the usual relative angular positions as regards azimuth, but having alternate coils wound upon the upper and lower of two "formers" upon the motor-axle, the coils on the upper former being so connected as to cause the current in them to flow in the opposite sense to that flowing in the lower coils, substantially as described.

660,058. BROWN SULFUR DYE. MEINHARD HOFFMANN and GEORG KALISCHER, Frankfort-on-the-Main, Germany, assignors to Leopold Cassella & Co., same place. Filed June 16, 1900. Serial No. 20,597. (Specimens.)

Claim.—1. The process of producing brown coloring-matters by heating a dinitro oxydialphylamin of the constitution



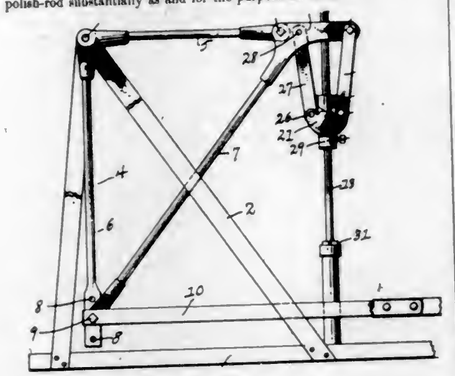
with caustic alkalies, and melting the thus-formed compound with sulfur and alkaline sulfids substantially as described.

2. The new brown dyestuff derived from dinitro oxydialphylamin hereinbefore described, which forms a blackish-brown powder easily soluble in water in presence of caustic alkalies or of alkaline sulfids, being precipitated from its solution by organic or mineral acids, dyeing cotton directly a deep brown fast to washing, to acids and oxidizing agents.

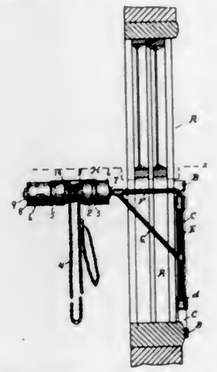
660,059. OIL-WELL JACK. RICHARD W. HUDSON, Toledo, Ohio assignor of one-third to the Kirk Manufacturing Company, same place. Filed Mar. 3, 1900. Serial No. 7,150. (No model.)

Claim.—In a pumping-jack the three-part frame suitably supported upon standards, the surface rod connected therewith, hinges formed at

two angular points of the frame, and means for disconnecting the frame at a third point, a bifurcated extension on the frame having an inwardly-extending recess, a cradle formed with an inwardly-extending recess, straps pivotally attached to the forward sides of the cradle and to the forward sides of the bifurcated extension, a strap pivotally attached to the rear of the cradle and also to the rear of the bifurcated extension, a reciprocating polish-rod adapted to occupy the recesses in the cradle and the bifurcated extension, a collar on said polish-rod having lower bearing-points adapted to fit into recesses in the top of the cradle whereby the working parts of the jack are capable of being removed from proximity to the polish-rod substantially as and for the purpose set forth.



660,060. FIRE-ESCAPE. TIMOTHY KELLY, Watertown, Mass. Filed Dec. 8, 1899. Serial No. 739,594. (No model.)



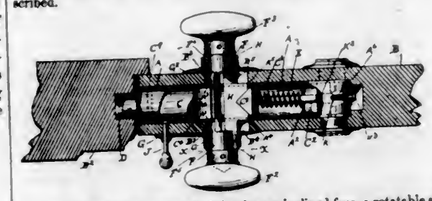
Claim.—1. A fire-escape, comprising an upright post, eyes or sockets secured to the inner wall of a room for carrying said post, an arm secured at each end of said upright post, and each having at its outer end a socket, an upright rod mounted in said sockets, the upper end of said rod being bent at right angles, a friction-drum mounted on the outer end of said rod, all arranged and operated substantially as and for the purposes set forth.

2. In a fire-escape, a frame, comprising an upright post, eyes or sockets secured to the inside of the wall in which said post is journaled, horizontal arms secured to said post, and having sockets at their outer ends, an upright rod mounted in said sockets, the upper end of which is bent at right angles, and supported by an inclined rod or brace-bar, a friction-drum on the outer end of the projecting arm of said upright rod, as and for the purpose set forth.

660,061. LOCK AND LATCH COMBINED. JOHN B. E. MACNAMARA, San Francisco, Cal., assignor of one-half to R. H. Warfield, same place. Filed Nov. 4, 1899. Serial No. 735,829. (No model.)

Claim.—1. A combined lock and latch comprising an apertured bolt formed with an inside wedge, a non-rotating double wedge passed through the aperture in said bolt and engaging the sides of said first-named wedge, and a rotary spindle also passed through said aperture and longitudinally slidable through the bolt with said double wedge, substantially as set forth.

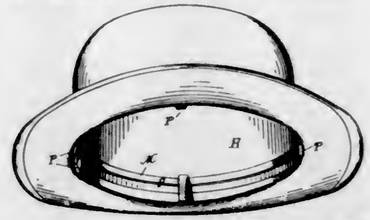
2. A latch comprising a bolt provided with a wedge, a non-rotatable wedge engaging said first-mentioned wedge, and a rotary spindle longitudinally slidable with said non-rotatable wedge, substantially as described.



3. A latch comprising a bolt having an inclined face, a rotatable spindle having a segment-shaped portion adapted upon the rotation of the spindle, to engage said inclined face and operate the bolt, and a non-rotatable wedge adapted upon a longitudinal movement of the spindle, to engage an inclined face on the bolt and operate the same, substantially as described.

4. A combined lock and latch comprising a tube inserted in a suitable hole or recess in the edge of a door, a spring-pressed bolt therein, said bolt having a central aperture and slot with a wedge in said slot, a non-rotating longitudinally-slidable double wedge passing through said aperture and slot and through corresponding openings in said tube and door and engaging the sides of said first-named wedge, a spindle also passing through the apertured bolt, tube, and door, and controlling the longitudinal movements of said double wedge, said spindle having its middle portion formed into a segment the edges of which bear on inclined sides of the bolt-aperture, and suitable knobs or handles whereby said spindle can either be pushed or pulled or turned in either direction, substantially as set forth.

660,062. APPAREL-HAT. THOMAS L. MAHONEY, San Francisco, Cal. Filed Oct. 19, 1898. Serial No. 694,028. (No model.)



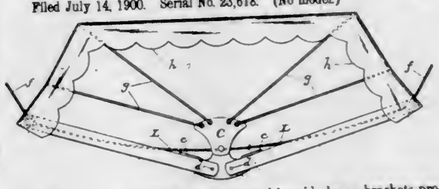
Claim.—1. An anatomical hat provided with a plurality of separate supporting-pads therein independently adjustable circumferentially of the hat, substantially as described.

2. An anatomical hat provided with a pad-supporting band, a plurality of supporting-pads, and means for securing the pads in adjusted position circumferentially of the hat on said band, substantially as described.

3. An anatomical hat provided with a flanged pad-supporting band, and a two-part supporting-pad adapted to clamp between the parts thereof said flange of said band, substantially as described.

4. A hat provided with a pad-supporting band, and a two-part pad adapted to be clamped on said band in circumferentially-adjusted positions substantially as described.

660,063. HAMMOCK. JACOB H. NICHOLSON, Baltimore, Md., assignor to Edward D. Lamdin and Francis W. Jones, Perryville, Md. Filed July 14, 1900. Serial No. 23,618. (No model.)

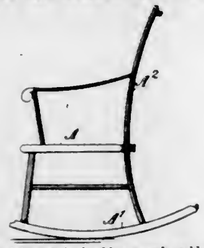


Claim.—1. A hammock-frame comprising side bars; brackets provided with oppositely-projecting wings to which said side bars are hinged and also provided with flanges or shoulders above the hinged points and adapted to engage and limit the upward movement of said hinged bars; and cross-bars connecting the free ends of said side bars.

2. A hammock comprising a frame provided with side bars; brackets provided with oppositely-projecting wings to which said side bars are hinged and each having a head above said wings; a suitable hammock fabric stretched between said frame-bars; plates jointed to said bracket-heads; canopy frame-bars pivoted to said plates; and a canopy attached to said last-named frame-bars.

3. A hammock comprising a frame provided with side bars; brackets to which one end of said side bars are hinged; cross-bars, *e*, connecting the free ends of said side bars; plates jointed to said brackets; canopy frame-bars pivoted to said jointed plates; and a canopy-cover attached to said last-named frame-bars, one end of said cover being permanently secured to one cross-bar and the other end being provided with fastening devices whereby it may be detachably secured to the other cross-bar.

660,064. **FURNITURE-PAD.** CELINDA P. ROBERSON, New York, N. Y. Filed Feb. 3, 1899. Serial No. 704,999. (No model.)



Claim.—1. A pad for cushioning blows, such pad being made of flexible and elastic material and provided with an air-chamber and with a vent extending from said air-chamber to a striking-face of the pad, substantially as set forth.

2. A pad for cushioning blows having a protruding part of flexible material with an air-chamber therein and with a vent extending from said air-chamber to a striking-face of such protruding part, and provided with a base for attachment to the article to be protected, substantially as set forth.

3. A pad for cushioning blows made of flexible and elastic material and having a knob with an air-chamber therein and with a vent extending from said air-chamber to a striking-face of the knob, and provided with a base having a perforation to receive a fastening device, such perforation extending from said air-chamber to said base, substantially as set forth.

4. The combination with an article of furniture or other article, of a pad for cushioning blows having a compressible knob with an air-chamber therein and with a vent extending from said air-chamber to a striking-face of the knob and provided with a base, and a fastening device extending from said air-chamber through said base to said article, substantially as set forth.

5. The combination with an article of furniture or other article, of the pad B having the knob B^2 with the air-chamber B^3 therein and the vent B^4, such vent B^4 extending from said air-chamber to the outer face of said knob, and such pad having the base B^5, and a fastening device adapted to be entered through the vent B^4 and extending from said base to said article, substantially as set forth.

6. The pad for cushioning blows having the knob B^2 with the air-chamber B^3 therein and the vent B^4, such vent B^4 extending from said air-chamber to the outer face of said knob, and such pad having the base B^5 provided with a perforation therein extending from said air-chamber, substantially as set forth.

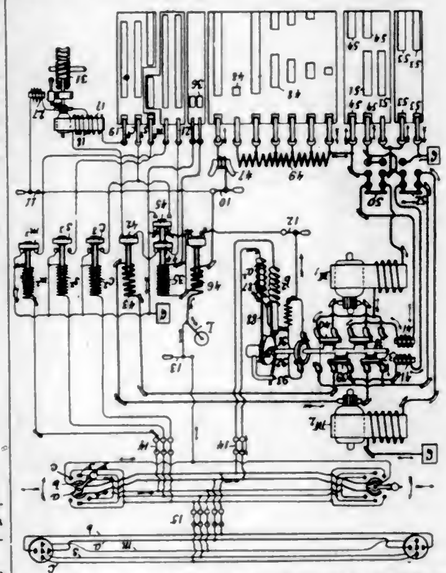
660,065. **TRACTION SYSTEM.** FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Company, of New Jersey. Filed Apr. 30, 1898. Serial No. 679,239. (No model.)

Claim.—1. In an electrical train system, the combination of translating devices and circuits therefor in parallel relation with each other, and a governing train-line independent of the other circuits, substantially as described.

2. In an electrical train system, the combination of translating devices, circuits therefor, and a governing train-line independent of the other circuits provided with sets of controlling-wires, substantially as described.

3. In an electrical train system, the combination of motors, circuits therefor, an independent governing train-line consisting of two sets of train-wires, one set for determining direction and one set for speed regulation, substantially as described.

4. In an electrical train system, the combination of motors, circuits therefor, an independent governing train-line consisting of two sets of train-wires, one set for determining direction and one set for speed regulation, suitable contacts controlled by these wires, and means for holding closed the direction-controlling contacts, and means for opening and closing the contacts for regulation at will, substantially as described.



5. In an electrical train system, the combination of translating devices and circuits therefor in parallel relation with each other, a governing train-line independent of the other circuits, and relays connected with the governing train-line in parallel circuit with each other, substantially as described.

6. In an electrical train system, the combination of motors, circuits therefor, controllers therefor, and an independent governing train-line with relays for operating the controllers, substantially as described.

7. A train with cars each equipped with a motor or motors to drive it, controllers for the motors, a relay-circuit, and one or more operator's switches included therein for actuating the controllers, substantially as described.

8. In an electrical train system, the combination of motor equipments, a controller for each equipment, relays for determining definite positions of the controllers, a train-line, and means at one or more points connected with the train-line for operating like relays simultaneously, substantially as described.

9. A car equipped with a motor to drive it, a controller for the motor, a relay-circuit including a train-line for operating the controller, and one or more operator's switches connected with the train-line, substantially as described.

10. In an electrical train system, the combination of motors, circuits therefor, controllers for the motors, and a governing train-line which is independent of the motor-circuits, relays connected with the governing train-line in parallel with each other for operating the controllers, and means for energizing the governing train-line, substantially as described.

11. In an electrical train system, the combination of translating devices and circuits therefor, a governing train-line consisting of independent sets of train-wires, and means at one or more points for energizing a wire in one set or a wire in each set of the train-wires at will, substantially as described.

12. A car equipped with a translating device, a circuit therefor, an independent governing or relay circuit with branches therefrom which are grounded, one or more operator's switches in the relay-circuits, a source of supply, and connections to the source of supply at each operator's switch, substantially as described.

13. The combination of motors, motor-circuits, an independent governing relay-circuit with grounded branches, one or more operator's switches connected with the governing-circuit, and connection to the source of supply at each operator's switch, substantially as described.

14. In a train system, a plurality of motors, controllers and circuits therefor, a governing train-line, relays on the equipped cars connected to the train-line in multiple, one or more operator's switches connected with the relays by the train-line, a source of supply, connection to the source of supply at each operator's switch, and grounding connections for the relays, substantially as described.

15. A train with a plurality of cars, a governing train-line through the cars, one or more operator's switches connected to the train-line, and motors on one or more of the cars connected with the source of supply through contacts controlled through the train-line, but otherwise independently thereof, substantially as described.

16. A train with a plurality of cars, a governing train-line through the cars, one or more operator's switches connected to the train-line, and motors on one or more of the cars connected with the source of supply through reversing-contacts controlled through the train-line but otherwise independently thereof, substantially as described.

17. A train with a plurality of cars, a governing train-line through the cars, one or more operator's switches connected to the train-line, and motors on one or more of the cars connected with the source of supply through reversing-contacts controlled through the train-line but otherwise independently thereof, and independent means for controlling the speed of the motors, substantially as described.

18. A train with a plurality of cars, a governing train-line through the cars, one or more operator's switches connected to the train-line, and motors on one or more of the cars connected with the source of supply through reversing-contacts controlled through the train-line but otherwise independently thereof, and independent means for connecting the motors in series and multiple, substantially as described.

19. A train with a plurality of cars, a governing train-line through the cars, one or more operator's switches connected to the train-line, and motors on one or more of the cars connected with the source of supply through reversing-contacts controlled through the train-line but otherwise independently thereof, and independent means for connecting the motors in series and multiple and for varying the resistance in circuit therewith, substantially as described.

20. A train with a plurality of equipped cars, a source of supply, a governing train-line, relays on the equipped cars, one or more operator's switches connected with the relays through the train-line, and translating devices on the equipped cars connected with the source of supply through contacts operated by the relays but otherwise independently of the train-line, substantially as described.

21. A car, a driving motor or motors thereon, a circuit therefor, a plurality of separately-actuated contacts for effecting changes in the motor-circuits, means for operating said contacts, and an operator's switch connected therewith independently of the circuit of the motors, substantially as described.

22. A train with cars, driving-motors on a plurality of cars, a plurality of separately-actuated contacts for effecting changes in the circuits of the motors, means for operating the contacts, and operator's switches on the different cars connected with the contact-operating means independently of the motor connections, substantially as described.

23. A train with cars, driving-motors on a plurality of cars, a plurality of separately-actuated contacts for reversing the motors, means for operating the contacts, and operator's switches on equipped cars connected therewith independently of the motor connections, substantially as described.

24. A train with cars, driving-motors on a plurality of cars, a plurality of separately-actuated contacts for reversing the motors, means for operating the contacts and operator's switches on equipped cars connected therewith independently of the motor connections, and independent means for varying the speed of the motors, substantially as described.

25. A train with cars, driving-motors on a plurality of cars, a plurality of separately-actuated contacts for reversing the motors, means for operating the contacts and operator's switches on equipped cars connected therewith, and independent means for connecting the motors in series and multiple, substantially as described.

26. A train with cars, driving-motors on a plurality of cars, a plurality of separately-actuated contacts for reversing the motors, means for operating the contacts and operator's switches on equipped cars connected therewith, and independent means for connecting the motors in series and multiple and for varying the resistance in circuit therewith, substantially as described.

27. In an electrical train system, the combination of two or more motor equipments, relays individual to each equipment through which it is controlled, and means at one or more points for operating one or more of the relays on each equipment simultaneously, substantially as described.

28. In an electrical train system, the combination of two or more motor equipments, speed-determining contacts for each equipment, relays individual to each equipment for determining the position of these contacts, a train-line, and means at one or more points for operating simultaneously like relays of each equipment, substantially as described.

29. In an electrical train system, the combination of motor equipments, speed-determining contacts for each equipment, relays individual to each equipment for determining the position of these contacts, a train-line, and means at one or more points for operating successively various groups of like relays on all of the cars, substantially as described.

30. In an electrical train system, the combination of two or more motor equipments, direction-controlling contacts for each equipment, a rheostat for each equipment for varying the motor speed, relays for effecting variations in the resistance, a train-line connected with these relays, and one or more master-controllers or operator's switches connected with the train-line, substantially as described.

31. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, a rheostat for effecting speed variations for each equipment, relays for effecting like rheostat conditions for all the motor equipments, a train-line connected with the relays, one or more master-controllers or operator's switches connected with the train-line, and means for operating like relays simultaneously through the train-line and operator's switch, substantially as described.

32. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, speed-determining contacts for each equipment, and relays for determining definite positions of these speed-contacts, substantially as described.

33. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, speed-determining contacts for each equipment, relay-magnets for determining definite positions of the speed-contacts, a train-line connected with relays, and one or more master-controllers or operator's switches connected with the train-line, substantially as described.

34. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, speed-determining contacts for each equipment, relays for operating the direction-controlling contacts, and independent relays for operating the speed-contacts, substantially as described.

35. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, speed-determining contacts for each equipment, relay-magnets for operating the direction-controlling contacts, independent relays for operating the speed-contacts, a train-line connected with the relays, and one or more master-controllers or operator's switches connected with the train-line, substantially as described.

36. In an electrical train system, the combination of motor equipments, direction-controlling contacts for each equipment, speed-determining contacts for each equipment, relays for operating the speed-determining contacts, a train-line, and means at one or more points connected therewith for operating like relays simultaneously, and means for opening the relays automatically when the train-line circuit is interrupted, substantially as described.

37. In an electrical train system, the combination of two or more cars, one or more of the cars being equipped with a motor or motors, a controller or controllers therefor and means for operating each controller, the car or cars so equipped and one or more additional cars being provided with an independent governing train-line, substantially as described.

38. In an electrical train system, the combination of two or more cars, one or more of the cars being equipped with a motor or motors, a controller or controllers therefor, and means for operating each controller, the car or cars so equipped and one or more additional cars being also provided with an independent governing train-line, and an operator's switch connected with the train-line, substantially as described.

39. In an electrical train system, the combination of two or more cars, one or more of the cars being equipped with a motor or motors, a controller or controllers therefor, means for operating each controller, and an operator's switch or switches, the car or cars so equipped and one or more additional cars being also provided with an independent governing train-line, substantially as described.

40. In an electrical train system, the combination of two or more cars, one or more of which is equipped with a motor or motors, a controller or controllers therefor, and means for operating each controller, the car or cars so equipped and one or more additional cars being also provided with an independent governing train-line and one or more operator's switches, substantially as described.

41. The combination of motors, circuits therefor, an independent train-line, one or more operator's switches or master-controllers connected to the train-line, and separately-actuated contacts operated or controlled from the master-controllers for reversing the motors, substantially as described.

42. The combination of motors, circuits therefor, an independent train-line, one or more operator's switches or master-controllers connected to the train-line, separately-actuated contacts operated or controlled from the master-controllers for reversing the motors, and independent means for controlling the speed of the motors, substantially as described.

43. The combination of motors, circuits therefor, an independent train-line, one or more operator's switches or master-controllers connected to the train-line, separately-actuated contacts operated or controlled from the master-controllers for reversing the motors, and independent means for connecting the motors in series and multiple, substantially as described.

44. The combination of motors, circuits therefor, an independent train-line, one or more operator's switches or master-controllers connected to the train-line, separately-actuated contacts operated or controlled from the master-controllers for reversing the motors, and independent means for connecting the motors in series and multiple and for varying resistance in circuit therewith, substantially as described.

45. The combination of motors, an independent governing train-line, one or more operator's switches or master-controllers connected to the governing train-line, and separately-actuated contacts operated from the master-controllers for reversing the motors and for connecting them in series and parallel, substantially as described.

46. The combination of a source of supply, a train with cars each provided with an operator's switch, a train-line, the operator's switches being connected to the source of supply in multiple and to the train-line in multiple, a relay or relays on each car, the relays being connected to the train-line in multiple and each relay being connected with the operator's switch upon its car, a translating device on each car, and connections for the translating devices to the source of supply in multiple, each connection for a translating device being through a contact controlled by a relay upon its car, and being independent of the train-line, substantially as described.

47. The combination of a source of supply, a train with cars each provided with an operator's switch, a train-line, the operator's switches being connected to the source of supply in multiple and to the train-line in multiple, a relay or relays on each car, the relays being connected to the train-line in multiple and each relay being connected with the operator's switch upon its car, a motor on each car, and connections for the motors to the source of supply in multiple, each connection for a motor being through a contact controlled by a relay upon its car, and being independent of the train-line, substantially as described.

48. A train with a plurality of equipped cars, one or more operator's switches, a train-line, relays connected with the train-line, a source of supply, and motors connected with the source of supply independently of the train-line through contacts controlled by the relays, the contacts being so arranged that the motors can be reversed from each operator's switch by the operation of the relays, substantially as described.

49. The combination of a source of supply, one or more operator's switches, a train-line connected to each of the operator's switches, relays connected in multiple to the train-line, motors and connections therefor to the source of supply independently of the train-line through reversing-contacts controlled by the relays, substantially as described.

50. The combination of a source of supply, a train of cars, an operator's switch, a train-line connected with the operator's switch, relays on each car connected to the train-line in multiple and with the operator's switch, a motor upon each car, and a connection for each motor with the source of supply through reverser-contacts controlled by relays on the same car, the connections of the motors with the source of supply being independent of the train-line, substantially as described.

51. The combination of a plurality of motors or motor equipments, controllers for varying the speed thereof, and means electrically controlled for actuating the controllers from a single point simultaneously but independently of each other, substantially as described.

52. The combination of sets of motors or motor equipments, series-parallel grouping-switches therefor, one or more operator's switches or master-controllers, and means electrically controlled thereby for actuating the grouping-switches from a single point simultaneously but independently of each other, substantially as described.

53. The combination of sets of motors or motor equipments, controllers therefor, one or more operator's switches, means electrically controlled for operating the controllers from a single point simultaneously but independently of each other, and automatic means for securing similar operation of the individual controllers independently of their synchronism, substantially as described.

54. The combination of sets of motors or motor equipments, series-parallel controllers therefor, one or more operator's switches, means electrically controlled for operating the controllers from a single point simultaneously but independently of each other, and automatic means for securing similar operation of the controllers individually independently of their synchronism, substantially as described.

55. The combination of cars with sets of motors or motor equipments, controllers therefor, one or more operator's switches, means electrically controlled thereby for operating the controllers from a single point simultaneously but independently of each other, and automatic means local to the different cars for securing similar operation of the controllers individually independently of their synchronism, substantially as described.

56. The combination of a plurality of motors or motor equipments, controllers therefor, means for operating the controllers, one or more operator's switches, a train-line and connections from the operator's switches to the train-line and with it to the controller-operating means, whereby their may be operated from the operator's switch or switches, substantially as described.

57. The combination of a plurality of motors or motor equipments, controllers therefor, means electrically controlled for operating the controllers, an independent governing train-line, and circuits for the controller-operating means connected with the train-line in parallel with each other, substantially as described.

58. The combination of a plurality of motors or motor equipments, controllers therefor, means electrically controlled for operating the controllers, an independent governing train-line, circuits connected therewith in parallel with each other and with the various controller-operative means, and one or more operator's switches connected with the train-line, substantially as described.

59. The combination of a plurality of motors or motor equipments, controllers therefor, an independent governing train-line, means for operating all of the controllers from a single point, and means for disconnecting or rendering inoperative one or more of the controller-operative means, leaving the others operative, substantially as described.

60. The combination of a plurality of motors or motor equipments, controllers therefor, means electrically controlled for operating the controllers, an independent governing train-line, circuits for the controller-operative means connected with the train-line, and means for disconnecting or rendering inoperative one or more of the controller-operating means, leaving the others operative, substantially as described.

61. In an electrical train system, the combination of motors and circuits therefor, one or more circuit breakers or reversers and one or more current-varying controllers in such circuits, and a governing train-line having two sets of train-wires, one for controlling the circuit breakers or reversers, and the other for controlling the current-varying controllers, substantially as described.

62. The combination of cars, motors on the cars, reversers and current-varying controllers for the motors, circuits which include the motors, reversers and controllers, and an independent train-line for operating the reversers and controllers, substantially as described.

63. The combination of a plurality of cars, a source of supply, one or more operator's switches and a train-line connected therewith, motors, reversers and current-varying controllers for the motors, relays connected with the train-line and with each operator's switch, which relays operate the reversers and controllers, and connections between the motors and the source of supply through the reversers and controllers, substantially as described.

64. The combination of a train with equipped cars, a source of supply, an operator's switch, a train-line connected with the operator's switch, a reverser and current-varying controller on each equipped car operated by relays connected to the train-line in multiple and with the operator's switch, a motor on each car controlled by the reverser and controller on the same car, and connections for the motors with the source of supply, each being connected through its reverser and controller, and independently of the train-line, substantially as described.

65. A car equipped with a motor or motors to drive it, a controller therefor, pilot mechanism for operating the controller, one or more operator's switches, connections between each operator's switch and the pilot mechanism, and a train-line to which the pilot mechanism and each operator's switch are connected, substantially as described.

66. A car equipped with a motor to drive it, a current-varying controller for the motor and a pilot mechanism for operating the controller, one or more operator's switches, relays for operating the pilot mechanism through the operator's switch, and a train-line with which the relays are connected, each operator's switch being connected with the relays and the train-line, substantially as described.

67. A train with cars each equipped with a motor or motors to drive it, controllers for the motors, and a relay-circuit with a train-line for operating the controllers, substantially as described.

68. A train with cars equipped with electric motors to drive them, controllers for the motors, a relay-circuit for operating the controllers, independent circuits for supplying the driving-motors which are connected to them through the controllers, and a train-line for the relay-circuit, substantially as described.

69. In an electrical train system, the combination of motor equipments, controllers for the motor equipments each provided with relays for effecting various motor groupings or rheostat variations, a train-line connected with relays, one or more master-controllers or operator's switches connected with the train-line, and means for operating one or more of the relays of all of the equipments simultaneously, substantially as described.

70. A train with cars each provided with a motor to drive it, a controller therefor, pilot mechanisms for operating the controllers, a train-line for controlling the pilot mechanisms, and one or more operator's switches connected with the train-line, substantially as described.

71. A train with cars, each provided with a motor to drive it, a current-varying controller for the motors individualized with respect to the cars, pilot mechanism for the controllers, one or more operator's switches, relays through which the pilot mechanisms are controlled by an operator's switch, and a train-line for the relays with which each operator's switch is also connected, substantially as described.

72. A system comprising motors or sets of motors, individual current-varying controllers for the motors, pilot mechanisms for the controllers, means for operating the controllers simultaneously, and means for preventing cross connections of the circuits controlling the pilot mechanisms upon the different cars, substantially as described.

73. In a train system, the combination of driving-motors, current-varying controllers for the motors, a pilot mechanism for operating each controller, relays, an operator's switch connected with the relays, and relay-circuits through which the pilot mechanism can be operated, substantially as described.

74. An electrically-equipped car provided with the combination of three circuits, one of which includes one or more driving-motors and a reverser and current-varying controller therefor, another of which includes a pilot mechanism and limit-contacts for the pilot mechanism, and a third of which includes train-wires, an operator's switch, and relays for operating the relay-contacts in the circuit of the pilot mechanism, substantially as described.

75. The combination of motors, a plurality of separately-actuated contacts, means controlled thereby for changing the grouping of the motors from series to parallel and vice versa, and electromagnets for controlling the contacts, substantially as described.

76. The combination of motors, a plurality of separately-actuated contacts, means controlled thereby for reversing the motors and for changing the grouping of the motors from series to parallel and vice versa, and electromagnets for controlling the contacts, substantially as described.

77. A train of cars, driving-motors upon a plurality of cars, separate electrically-controlled contacts for effecting the grouping of the motors in series and parallel, and one or more operator's switches for controlling the contacts, substantially as described.

78. A train of cars, driving-motors upon a plurality of the cars, separate electrically-controlled contacts for effecting the grouping of the motors in series and parallel and for reversing the motors, and one or more operator's switches for controlling the contacts, substantially as described.

79. The combination of motors, a main switch provided with contacts for varying the relation of the motors with each other and for varying the resistance in circuit with the motors, a pilot mechanism for moving the main switch, and contacts moving with the main switch for limiting the movement thereof, substantially as described.

80. The combination of motors, a main switch provided with contacts for changing the relation of the motors from series to multiple, or vice versa, and for varying the resistance, pilot mechanism for moving the main switch, and contacts moving with the main switch for limiting the movement thereof so as to stop the main switch at the open circuit or the series or the multiple relation of the motors, substantially as described.

81. The combination of motors, a main switch provided with contacts for varying the relation of the motors with each other and for varying the resistance, pilot mechanism for moving the main switch, and contacts moving with the main switch for limiting the movement of the pilot mechanism, substantially as described.

82. The combination of motors, a main switch provided with contacts for changing the relation of the motors from series to multiple, or vice versa, and for varying the resistance, pilot mechanism for moving the main switch, and contacts moving with the main switch for limiting the movement of the pilot mechanism so as to stop the main switch at open circuit, or series or multiple relation of the motors, substantially as described.

83. A train with cars each equipped with a motor or motors to drive it, controllers for the motors, a train-line for the controllers, and automatic stops for the controllers, substantially as described.

84. A train with cars, each equipped with a motor or motors to drive it, controllers for the motors, pilot mechanism for the controllers, a train-line for the controllers, and automatic stops for the pilot mechanism, substantially as described.

85. A train with cars, each equipped with a motor or motors to drive it, controllers for the motors, a pilot mechanism for each of the controllers, train connections for the controllers, and automatic stops for each of the pilot mechanisms, substantially as described.

86. The combination of one or more operator's switches each provided with a plurality of contacts, one or more motors and a controller therefor, a plurality of sets of contacts on the controller, and means for bringing the controller to one set of contacts by closing an operator's switch at one of its contacts, substantially as described.

87. The combination of one or more operator's switches each provided with a plurality of contacts, one or more motors and a controller therefor, a plurality of sets of contacts on the controller, and means for bringing the controller to one set of contacts by closing an operator's switch at one of its contacts, and for bringing the controller to another set of contacts by closing an operator's switch at another of its contacts, substantially as described.

88. A train with cars each provided with a driving motor or motors, controllers for the motors, a pilot mechanism for operating the controllers, relays, one or more operator's switches connected with the relays, relay-circuits through which the pilot mechanisms can be operated, and means for automatically stopping each controller at certain definite positions, substantially as described.

89. A train with cars each equipped with a motor, controllers for the motors, a train-line for the controllers, an operator's switch connected with the train-line and the controllers, and automatic stop-switches connected with the operator's switch for controlling the operation of the controllers, substantially as described.

90. A train with cars each equipped with a motor, a controller for each of the motors, a train-line for the controllers, an operator's switch connected with the train-line and the controllers, and an automatic stop-switch for each of the controllers by which in cooperation with the operator's switch the operation of each controller is effected, substantially as described.

91. A train with cars each equipped with a motor, controllers for the motors, pilot mechanisms for the controllers, a train-line for the pilot mechanisms, an operator's switch connected with the train-line and the pilot mechanisms, and automatic stop-switches connected with the operator's switch for controlling the operation of the pilot mechanisms, substantially as described.

92. A train with cars, each equipped with a motor, a controller for each of the motors, a pilot mechanism for each of the controllers, a train-line for the pilot mechanisms, an operator's switch connected with the train-line and the pilot mechanisms, and an automatic stop-switch for each of the pilot mechanisms by which in cooperation with the operator's switch the operation of each pilot mechanism is effected, substantially as described.

93. In a system of electric-motor control, the combination of a current-varying controller, electromagnetic means for actuating the controller in a step-by-step manner, and switches for interrupting the actuating-circuit after the controller has advanced definite amounts, substantially as described.

94. In a system of electric-motor control, the combination of a current-varying controller, a pilot-motor for actuating the controller in a step-by-step manner, and switches for interrupting the circuit of the pilot-motor each time the controller advances a definite amount, substantially as described.

95. The combination of a circuit, two unlike switches therein, one automatically retracted, to a definite position, and the other inert in its circuit-closing position, and means electrically controlled to operate the latter switch, substantially as described.

96. The combination of a circuit, two unlike switches in series therein, one automatically retracted to open the circuit, and the other inert in its circuit-closing position, and means electrically controlled to operate the latter switch to open the circuit, substantially as described.

97. The combination of a circuit, two unlike switches in series therein, one held closed by the current and automatically operated to open the circuit, and the other inert in its circuit-closing position, and means electrically controlled to operate the latter switch, substantially as described.

98. The combination of a circuit, two switches in series therein, one held closed by the current and automatically operated to open the circuit, and means electrically controlled to operate the other to change the circuit connections, substantially as described.

99. The combination of a circuit, two switches in series therein, one held in closed position by the current and automatically retracted to open circuit, the other moved by the current but remaining in position when the current is withdrawn, and a master-controller or operator's switch for operating the two switches, substantially as described.

100. The combination of an electrical circuit, a pair of motors included therein, two switches for effecting the reversal of the motors and their connection in series and multiple, one switch being operated and held in closed position by the current, the other switch being operated by the current but being left in position when the current is withdrawn, and a master-controller for operating the two switches, substantially as described.

101. The combination of a circuit, two switches in series, one a direct-throw device and automatically retracted, the other graded, means electrically controlled for setting both switches, and means electrically controlled for restoring the graded switch to off position, substantially as described.

102. In a system of control for electric motors, the combination of a current-varying controller, electromagnetic means for operating or controlling the same, an operator's switch or master-controller having speed-determining and reversing contacts for operating such electromagnetic means, a plurality of contacts on the operator's switch arranged to produce movement of the controller to limiting and intermediate positions respectively, and means for maintaining the controller in position when the speed-determining contacts of the master-controller are broken, substantially as described.

103. In a system of control for electric motors, the combination of a current-varying controller, electromagnetic means for operating it, an operator's switch or master-controller having reversing and speed-determining contacts for operating the electromagnetic means, a plurality of contacts on the operator's switch arranged to produce progression of the controller to definite positions when the operator's switch is closed at the speed-contacts, substantially as described.

104. In a train system, the combination of a plurality of motor-cars each equipped with a motor or motors, a current-varying controller therefor, and a pilot-motor for driving the current-varying controller, one or more operator's switches or master-controllers situated on the train, and electrical means controlled by each master-controller for interrupting the supply of current to the pilot-motors in such a way that the current-varying controllers shall stop in the off position or on some definite running position, substantially as described.

105. The combination of a controller having resistance and series-parallel contacts, pilot mechanism for operating the controller, means for operating the pilot mechanism, and means for stopping the controller automatically at the open circuit and full multiple contacts of the controller, substantially as described.

106. The combination of a controller having resistance and series-parallel contacts, a pilot-motor for operating the controller, means for operating the pilot-motor, and means for stopping the controller automatically at the open circuit, full series, and full multiple contacts of the controller, substantially as described.

107. In a system of control for electric motors, the combination of a motor-controller, a pilot-motor for driving the motor-controller, a set of contacts for regulating the pilot-motor which are so arranged that the circuit of the armature of the pilot-motor is automatically interrupted only after it has made a predetermined number of revolutions, and a second set of contacts which are in operative relation when the first set is interrupted, substantially as described.

108. A car equipped with a motor to drive it, a driving-circuit therefor, a controller for the motor, electrically-controlled pilot mechanism for the controller, and an independent circuit for controlling the pilot mechanism, substantially as described.

109. A car equipped with a motor to drive it, a driving-circuit therefor, a controller therefor, electrically-controlled pilot mechanism for the controller, an independent circuit for controlling the pilot mechanism, and automatic stops for the pilot mechanism, substantially as described.

110. A train with cars, each equipped with a motor to drive it, controllers for the motors, electrically-controlled pilot mechanisms for operating the controllers, a train-line for controlling the pilot mechanisms, and automatic stops for the pilot mechanisms, substantially as described.

111. The combination of a current-varying controller, a pilot-motor therefor, a switch for starting the controller, means independent of the switch for interrupting the movement of the controller at a definite point, means for starting the controller again in the same direction by operation of the switch, and means independent of the switch for again interrupting the movement of the controller at another definite point, substantially as described.

112. The combination of the source of supply, a current-varying controller, a pilot mechanism therefor, means independent of the current in the controller for moving the controller at will from one limit to another, means for moving the controller to a definite intermediate position and automatically stopping it there, and means for continuing the movement of the controller in the same direction to its limit, substantially as described.

113. The combination of a plurality of motors or motor equipments, current-varying controllers therefor, there being several possible definite positions to which the controllers may be brought, and means for bringing all of the controllers to any one of the definite positions irrespective of any differences in the positions in which the various controllers may be, substantially as described.

114. The combination of a plurality of motors or motor equipments, current-varying controllers therefor, there being several possible definite positions to which the controllers may be brought, one or more operator's switches, a governing train-line, and means connected therewith for bringing all of the controllers to any one of the definite positions irrespective of any differences of the positions in which the controllers may be, substantially as described.

115. A plurality of motors or motor equipments, a controller for each motor or motor equipment, a circuit for operating the controllers, and an independent circuit for each controller for resetting the controllers, substantially as described.

116. A train with cars each provided with one or more motors or motor equipments, a controller for each motor or motor equipment, circuits local to the cars for operating the controllers, a train-line with relays and one or more operator's switches for operating the local circuits, and a local circuit for resetting each controller, substantially as described.

117. The combination of a plurality of motors or motor equipments, current-varying controllers therefor, a circuit independent of the controllers, means electrically controlled thereby for effecting progression of the controllers, and means for effecting interrupted retrogression of the controllers, substantially as described.

118. The combination of a plurality of motors or motor equipments, current-varying controllers therefor, a circuit independent of the controllers, means electrically controlled thereby for effecting progression of the controllers, and means for effecting a continuous retrogression of the controllers toward release or off position and to an intermediate running position, substantially as described.

119. The combination of a plurality of motors or motor equipments, series-parallel switches therefor, a circuit independent of these switches, means electrically controlled thereby for effecting progression of the controllers to parallel position, and means for effecting retrogression of the controllers from the parallel to the series position, substantially as described.

120. The combination of a plurality of motors or motor equipments, independent current-varying controllers therefor, means electrically controlled for effecting interrupted progression of the controllers, and means for effecting continuous retrogression of the controllers, substantially as described.

121. The combination of a main circuit, a current-varying controller therein, means independent of the main circuit for moving the controller at will from one limit to another, means independent of the main circuit for moving the controller to different intermediate positions and stopping it at such intermediate positions, and means independent of the main circuit for continuing the progression of the controller to its limit, substantially as described.

122. The combination of a current-varying controller, means electrically controlled and independent of the current through the controller for producing an interrupted progression thereof, and means for producing a continuous retrogression of the controller, substantially as described.

123. The combination of a current-varying controller, a circuit therethrough, means independent of the circuit through the controller for producing progression thereof, means for stopping the progression automatically at a plurality of definite points, and means for producing a continuous retrogression of the controller, substantially as described.

124. The combination of a current-varying controller, a switch for operating the controller provided with suitable contacts and circuit connections, means for moving the controller, and means independent of the switch for giving to the controller a step-by-step movement, substantially as described.

125. The combination of a motor or motors, an independently-operated reverser or reversers therefor, a current-varying controller or controllers therefor, and means controlled by an independent circuit for effecting step-by-step or periodic or interrupted progression of each controller, substantially as described.

126. The combination of a motor or motors, independently-operated reverser or reversers therefor, a current-varying controller or controllers therefor, and means controlled by an independent circuit for effecting a step-by-step or periodic or interrupted progression of each controller, and means for effecting a continuous retrogression of each controller, substantially as described.

127. A train with cars each provided with a motor or motor equipment, a controller and a circuit therefor, a step-by-step actuating device for each controller, an operator's switch and train-line for controlling all of the actuating devices simultaneously, and means for cutting out each actuator and thereby any controller without affecting the operation of the others, substantially as described.

128. A car equipped with one or more operator's switches and branch lines from these switches; a train-line terminating in couplers; local relay-circuits; and connections between these three systems, substantially as described.

129. A car equipped with one or more operator's switches and branch lines from these switches; a train-line terminating in couplers; local relay-circuits; connections between these three systems, and disconnecting-switches between pairs of systems, substantially as described.

130. A car equipped with an operator's switch at each end thereof, a cable between the operator's switches, a controller system, branches from the cable between the operator's switches to the controller system, a train-line, and branches from the cable between the operator's switches to the train-line, substantially as described.

131. A train equipped with a train-line, operator's switches, a cable between the operator's switches, a controller system, the cable between the operator's switch being connected to the train-line and to the controller system, means for breaking the connection to the train-line, and means for breaking the connection to the controller system, substantially as described.

132. A train with cars equipped with motors to drive them, a train-line, an operator's switch, means for connecting the operator's switch to the train-line, a car system and independent means for connecting the operator's switch to the car system whereby the operator's switch can be connected to the car system, or to the train-line, or to both the train-line and the car system, substantially as described.

133. A train with cars each equipped with a motor to drive it, a controller for each of the motors, a pilot mechanism for each of the controllers, a train-line for controlling the pilot mechanisms, and an operator's switch connected with the train-line and with all of the pilot mechanisms, substantially as described.

134. A car equipped with an operator's switch, a train-line speed-controller circuit, a train-line reverser-circuit, a motor to drive the car, an independent circuit for the motor, and a current-varying controller and reverser in the motor-circuit, substantially as described.

135. A train with cars equipped with an operator's switch, a train-line speed-controller circuit and a train-line reverser-circuit, motors to drive the cars, independent circuits for these motors, and controllers and reversers in the motor-circuits, substantially as described.

136. The combination of an operator's switch, a train-line connected therewith, branches from the train-line forming therewith speed-controller and reverser circuits, a motor, an independent circuit for the motor, and a current-varying controller and reverser in the motor-circuit operated by means of the operator's switch through the speed-controller and reverser circuits, substantially as described.

137. A train with cars equipped with an operator's switch, a train-line connected thereto, branches from the train-line on each of the cars forming therewith speed-controller and reverser circuits, motors to drive the cars, independent circuits for the motors, and current-varying controllers and reversers in the motor-circuits operated by means of the operator's switch through the speed-controller and reverser circuits, substantially as described.

138. The combination of a plurality of cars, driving-motors therefor and circuits for the motors, a relay train-circuit for controlling the motor-circuits, and means for opening the motor-circuits upon the current being cut off from the relay-circuit, substantially as described.

139. The combination of a plurality of cars, driving-motors therefor, and circuits for the motors, a relay train-circuit, reversers for the motors operated through the relay-circuit, and means for opening the motor-circuits at the reversers upon the current being cut off from the relay-circuit, substantially as described.

140. A train with cars each equipped with a motor to drive it, a common control for the motors, and means external to the motors for equalizing their operation, substantially as described.

141. A train with cars each equipped with a motor or motors to drive it, controllers therefor, a common control for the motors, and means external to the motors for automatically delaying or interrupting the progression of the controllers, substantially as described.

142. A train with cars each individually equipped with a driving motor or motors and a current-varying controller therefor, a common control for the controllers, and one or more throttles on the train for automatically delaying or interrupting the progression of the controllers, substantially as described.

143. A train with cars each individually equipped with a driving motor or motors and a current-varying controller therefor, a common control for the controllers, and one or more throttles on the train operated by an abnormal increase of current for automatically delaying or interrupting the progression of the controllers, substantially as described.

144. A train with cars each individually equipped with a driving-motor and a current-varying controller therefor, the motor and controller on each car being connected in multiple with respect to those on the other cars, and means for controlling the movement of the controllers to equalize the consumption of energy by the different motors, substantially as described.

145. A motor-control system comprising a motor, a current-varying controller therefor, and means dependent upon the increase of the motor-current beyond a predetermined limit for reducing or removing the power provided for moving the controller in one direction only, substantially as described.

146. A train with cars individually equipped with motors and controllers therefor, a common control for the controllers, and means on each car for independently regulating the progression of the controllers, substantially as described.

147. A train with cars individually equipped with motors and controllers therefor, a common control for the controllers, and means on each car for independently and automatically regulating the progression of the controllers, substantially as described.

148. A train with cars individually equipped with driving-motors, controllers for the motors, means for moving all of said controllers simultaneously, and means individual to each car for automatically arresting the movement of the controller thereon, substantially as described.

149. A train with cars individually equipped with a driving motor or motors, a controller therefor, a pilot mechanism for the controller, and means for equalizing the consumption of energy by the different motors by control of the movement of the pilot mechanism, substantially as described.

150. In a system of motor control, the combination of motors or motor equipments, controllers therefor, means for operating all of the controllers, and throttles independently actuated by the current in each controller for arresting the progression of such controller when the current through it exceeds a predetermined limit, substantially as described.

151. A train of cars, motors or motor equipments on the cars, a controller for each motor or motor equipment, an operator's switch, means connected therewith for operating the controllers from and toward off position, means for automatically bringing the operator's switch into position to restore the controllers to off position, and means local to each car for restoring the controllers to off position, substantially as described.

152. In a controller, the combination of electrically-controlled reversing-contacts, separate electrically-controlled speed-determining contacts, and means operating on failure of the line-current for restoring one set of contacts to off position without movement of the other set of contacts, substantially as described.

153. The combination of a motor to drive a car, a suitable system of circuits for operating the motor, including a pilot mechanism for controlling the speed of the motor, connections for operating the pilot mechanism to cause increase or decrease in speed of the motor, and a safety automatic reverser which opens the increased-speed connections of the pilot mechanism and closes its decreased-speed connections, substantially as described.

154. The combination of a motor, a controller therefor, an operator's switch, means connected therewith for operating the controller toward or from its initial position, and means independent of the operator's switch for restoring the controller to initial position, substantially as described.

155. A train with cars individually equipped with motors and controllers, an operator's switch for controlling the same, and means for restoring the controller on each car to the initial position independently of the operator's switch, substantially as described.

156. The combination of cars with a motor or motors and a controller therefor with several definite positions, located on each of the cars, one or more operator's switches with a plurality of positions, and a governing train-line for the controllers, the arrangement being such that movement of an operator's switch in either "on" or "off" direction through any number of steps causes corresponding movement of all of the controllers, substantially as described.

157. The combination of a motor or motors, a speed-controller and a reverser therefor, the speed-controller having different speed-contacts, an operator's switch and governing train-lines for the speed-controller and reverser, the operator's switch having an open position, and speed and direction contacts on opposite sides of open position for movement of the motor in both directions, means for moving the speed-controller from initial position to any speed-contact on closure of the operator's switch at the corresponding speed-contact, and means for restoring the controller to initial position if the operator's switch is opened, substantially as described.

158. A train with cars each provided with a motor or motors and a speed-controller and reverser therefor, the speed-controllers having different speed-contacts, one or more operator's switches and a governing train-line for the speed-controller and reverser, the operator's switch having an open position and speed and reverser contacts on opposite sides of the open position for effecting movement of the motors in both directions, and means for moving the speed-controllers from initial position to any speed-contact on closure of the operator's switch at the corresponding speed-contact, and means for restoring the controllers to initial position if the operator's switch is opened, substantially as described.

159. The combination of a motor or motors, a speed-controller and a reverser therefor, the speed-controllers having different speed-contacts, one or more operator's switches and a governing train-line for the reverser and speed-controller, the operator's switch having an open position and speed and reverser contacts on opposite sides of the open position for movement of the motor in both directions, means for moving the speed-controller from initial position to any speed-contact on closure of the operator's switch at the corresponding speed-contact, means for restoring the speed-controller to initial position if the operator's switch is opened, and a throttle for regulating the movement of the speed-controller independently of the operator's switch, substantially as described.

160. A train with cars each provided with a motor or motors and a speed-controller and reverser therefor, the speed-controllers having different speed-contacts, one or more operator's switches and a governing train-line for the controller and reverser, the operator's switch having an open position and speed and reverser contacts on opposite sides of the open

position for effecting movement of the motors in both directions, means for moving the speed-controllers from initial position to any speed-contact on closure of the operator's switch at the corresponding speed-contact, means for restoring the speed-controllers to initial position if the operator's switch is opened, and a throttle for each of the speed-controllers for regulating the movement thereof independently of the operator's switch, substantially as described.

161. The combination of a motor and a circuit therefor, a controller in the circuit, an operator's switch and means connected therewith for operating the controller, a throttle which varies the operation of the controller independently of the operator's switch, and means for restoring the controller to initial position independently of the operator's switch, substantially as described.

162. The combination of a motor and a circuit therefor, a controller in the circuit, a pilot mechanism for operating the controller, an operator's switch and means connected therewith for operating the pilot mechanism, a throttle which varies the operation of the pilot mechanism and of the controller independently of the operator's switch, and means for restoring the controller to initial position independently of the operator's switch, substantially as described.

163. The combination of a plurality of motors, a series-parallel controller therefor, means for operating the controller, and a throttle which varies the operation of the controller, the throttle being connected in the branch with one motor only when the motors are in parallel arrangement, substantially as described.

164. A train with two or more cars individually equipped, means on each car for controlling all cars simultaneously, and a reverser and automatic circuit-breaker for restoring the controlling means to a determined position, substantially as described.

165. A controller system consisting of an electrically controlled or operated reversing-switch, an independent series-multiple controller, a pilot mechanism for operating the controller, an operator's switch and means connected therewith for operating the pilot mechanism, and means for independently restoring the controller to open position, substantially as described.

166. The combination of main circuits, a governing train-line, an operator's switch or switches connected with the train-line, means for opening the train-line, and relay mechanisms connected with the train-line operating upon the opening thereof to open the main circuits, substantially as described.

167. The combination of main circuits, controllers therein, a governing train-line, one or more operator's switches connected therewith, means for opening the train-line circuit, relay mechanisms connected therewith for opening the main circuits, and means for automatically restoring the controllers to off position, substantially as described.

168. The combination of a circuit-closer and a speed-controlling device, a governing-circuit for actuating one device, and a contact in the governing-circuit the closure of which is controlled by the position of the other device, substantially as described.

169. The combination of two circuit-controlling devices, a governing-circuit for actuating them, and a contact in the governing-circuit the closure of which is controlled by the position of one of the circuit-controlling devices, substantially as described.

170. The combination of a main circuit, a circuit-closer and a speed-controller in series therein, a governing-circuit for actuating the circuit-closer, and a contact in the governing-circuit the closure of which is controlled by the position of the speed-controller, substantially as described.

171. The combination of a reverser and a speed-controller, a governing-circuit for actuating the reverser, and a contact in the governing-circuit the closure of which is controlled by the position of the speed-controller, substantially as described.

172. The combination of a main circuit, a circuit-closer and a controller in series therein, a governing-circuit for the circuit-closer, and a contact in the governing-circuit the closure of which is controlled by the position of the controller, substantially as described.

173. The combination of a main circuit, a reverser and a speed-controller in series therein, a governing-circuit for the reverser, and a contact in the governing-circuit the closure of which is controlled by the position of the speed-controller, substantially as described.

174. The combination of a main circuit, a circuit-closer and a motor-grouping switch in series therein, a governing-circuit for the circuit-closer, and a contact in the governing-circuit the closure of which is controlled by the position of the motor-grouping switch, substantially as described.

175. The combination of a main circuit, a reverser and a motor-grouping switch in series therein, a governing-circuit for the reverser, and a contact in the governing-circuit the closure of which is controlled by the position of the motor-grouping switch, substantially as described.

176. The combination of a main circuit, a circuit-closer and a combined motor-grouping switch and rheostat in series therein, a governing-circuit for the circuit-closer, and a contact in the governing-circuit the closure of which is controlled by the position of the combined motor-grouping switch and rheostat, substantially as described.

177. The combination of a main circuit, a reverser, and combined motor-grouping switch and rheostat in series therein, a governing-circuit for the reverser, and a contact in the governing-circuit the closure of which is controlled by the position of the combined motor-grouping switch and rheostat, substantially as described.

178. The combination of two circuit-controlling devices, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of one of the circuit-closing devices, a shunt around the cut-out contact, and means for closing the shunt when the governing-circuit is energized, substantially as described.

179. The combination of a main circuit, a circuit-opener and current-varying controller in series therein, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of the current-varying controller, a shunt around the cut-out contact, and means for closing the shunt when the governing-circuit is energized, substantially as described.

180. The combination of a reverser, and a current-varying controller, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of the current-varying controller, a shunt around the cut-out contact, and means for closing the shunt when the governing-circuit is energized, substantially as described.

181. The combination of a main circuit, a controller and a circuit-closer in series therewith, a governing-circuit for actuating the circuit-closer, means for closing the governing-circuit in a certain position of the controller, and means actuated by the governing-circuit for maintaining the circuit when the controller is moved out of said position, substantially as described.

182. The combination of a main circuit, a circuit-closer and a controller in series therein, a governing-circuit for the circuit-closer having an actuating branch and a maintaining branch, means for closing the maintaining branch when the actuating branch is closed, and means for opening the actuating branch by movement of the controller, substantially as described.

183. The combination of a main circuit, a reverser and a current-varying controller, a governing-circuit for the reverser having an actuating branch and a maintaining branch, means for closing the maintaining branch when the actuating branch is closed, and means for opening the actuating branch by movement of the controller, substantially as described.

184. The combination of a main circuit, a circuit-closer and a controller in series therein, a governing-circuit for the circuit-closer including a contact which is opened by movement of the controller, a shunting-contact around the controller-contact, and electro-magnetic means in the governing-circuit for closing the shunting-contact and holding it closed, substantially as described.

185. The combination of a main circuit, a reverser and a controller, a governing-circuit for the reverser including a contact which is opened by movement of the controller, a shunting-contact around the controller-contact, and electromagnetic means in the governing-circuit for closing the shunting-contact and holding it closed, substantially as described.

186. The combination of a main circuit, a circuit-closer and a controller in series therewith, a governing-circuit for actuating the circuit-closer, there being two contacts in parallel in the governing-circuit, one of which is opened by movement of the controller and the other upon failure of the line-current, substantially as described.

187. The combination of a reverser and a controller, a governing-circuit for actuating the reverser, there being two contacts in parallel in the governing-circuit, one of which is opened by movement of the controller and the other on failure of the line-current, substantially as described.

188. In a circuit, the combination of an initial or master circuit-closer, a second circuit-closer normally closed, and a third circuit-closer which can be operated to close only when the other two are both closed, substantially as described.

189. In a circuit, the combination of two circuit-closers in parallel, means for closing one of the said circuit-closers which can be operated only when the other is closed, and an initial or master circuit-closer in series with each of the other two, substantially as described.

190. The combination of a controller, a circuit for operating the controller, a master circuit-closer and two auxiliary circuit-closers therein, the auxiliary circuit-closers being in parallel with each other and each in series with the master circuit-closer, means for closing the circuit through the master circuit-closer and both of the auxiliary circuit-closers in a certain position of the controller, and means for opening one of the auxiliary circuit-closers by moving the controller and for opening the other auxiliary circuit-closer on failure of the line-current, substantially as described.

191. The combination of a circuit, an initial or master circuit-closer, two auxiliary circuit-closers in parallel relation with each other and each in series with the master circuit-closer in the said circuit, a controller, means for closing the circuit through the master circuit-closer and each of the auxiliary circuit-closers in a certain position of the controller, and means for opening one of the auxiliary circuit-closers by moving the controller and for opening the other of the auxiliary circuit-closers on failure of the line-current, substantially as described.

192. The combination of a circuit, an initial or master circuit-closer, two auxiliary circuit-closers in parallel relation with each other and each in series with the master circuit-closer in the said circuit, a reverser and a controller operated through the said circuit, means for closing the circuit through the master circuit-closer and each of the auxiliary circuit-closers in a certain position of the controller, and means for opening one of the auxiliary circuit-closers by movement of the controller and for opening the other of the auxiliary circuit-closers on failure of the line-current, substantially as described.

193. The combination of a controller, means for operating it, a governing-circuit therefor, a circuit-changer operating to bring the controller to definite position, and means for automatically operating the circuit-changer on failure of the line-current, substantially as described.

194. The combination of a controller, means for operating it, a governing-circuit therefor, a circuit-changer operating to restore the controller to initial position, and means for automatically operating the circuit-changer on failure of the line-current, substantially as described.

195. The combination of two circuit-controlling devices, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of one of the circuit-closing devices, a shunt around the cut-out contact, means for closing the shunt when the governing-circuit is energized, a restoring-circuit provided with means for actuating the second-named circuit-controlling device to close the cut-out contact, and means for closing the restoring-circuit when the current fails in the governing-circuit, substantially as described.

196. The combination of a main circuit, a circuit-closer and a current-varying controller in series therein, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of the current-varying controller, a shunt around the cut-out contact, means for closing the shunt when the governing-circuit is energized, a restoring-circuit provided with means for actuating the current-varying controller to close the cut-out contact, and means for closing the restoring-circuit when the current fails in the governing-circuit, substantially as described.

197. The combination of a reverser and a current-varying controller, a governing-circuit for actuating them, a cut-out contact in the governing-circuit the closure of which is controlled by the position of the current-varying controller, a shunt around the cut-out contact, means for closing the shunt when the governing-circuit is energized, a restoring-circuit provided with means for actuating the current-varying controller to close the cut-out contact, and means for closing the restoring-circuit when the current fails in the governing-circuit, substantially as described.

198. The combination of a motor, a controller therefor, a cut-out switch, and a circuit through which the controller is operated, the cut-out switch being included in the circuit in a definite position of the controller, substantially as described.

199. The combination of a plurality of motors, a controller for each motor or set of motors, and a circuit through which the controllers are operated, a cut-out switch for each controller, the cut-out switches being all connected in multiple and each cut-out switch being included in the circuit in a definite position of the appropriate controller, substantially as described.

200. The combination of a main circuit, two circuit-controlling devices, a governing-circuit for actuating one of them, a local circuit controlled by the governing-circuit for actuating the other, means for opening the local circuit when the current in the main circuit becomes too large, and means for opening the governing-circuit when the current fails, substantially as described.

201. The combination of a main circuit, a circuit-closer and a current-varying controller in series therein, a governing-circuit for actuating the circuit-closer, a local circuit controlled by the governing-circuit for actuating the controller, means for opening the local circuit when the current in the main circuit becomes too large, and means for opening the governing-circuit when the current fails, substantially as described.

202. The combination of a main circuit, a reverser and a current-varying controller, a governing-circuit for actuating the reverser, a local circuit controlled by the governing-circuit for actuating the controller, means for opening the local circuit when the current in the main circuit becomes too large, and means for opening the governing-circuit when the current fails, substantially as described.

203. The combination of main circuits, controllers therein, a governing train-line, an operator's switch or switches connected with the train-line, means for opening the train-line, relay mechanism connected with the train-line operating on the opening thereof to open the main circuit, and means for preventing the closure of the main circuits until the controller has been moved toward or to off position, substantially as described.

204. The combination of main circuits, controllers therein, a governing train-line, an operator's switch or switches connected with the train-line, means for opening the train-line, relay mechanisms connected with the train-line operating on the opening thereof to open the main circuit, and means to prevent closure of the main circuits or any progression of the controllers until the controllers have been moved toward or to off position, substantially as described.

205. The combination of main circuits, controllers therein, a governing train-line, one or more operator's switches connected therewith, means for opening the train-line, relay mechanisms connected therewith for opening the main circuits, means for automatically restoring the controllers toward or to the off position, and means for preventing the closure of the main circuits after the opening thereof until the controllers are moved toward or to the off position, substantially as described.

206. The combination of main circuits, controllers therein, a governing train-line, one or more operator's switches connected therewith, means for opening the train-line, relay mechanisms connected therewith for opening the main circuits, means for automatically restoring the controllers toward or to the off position, and means for preventing the closure of the main circuits and the further advance of the controllers until the controllers are moved toward or to the off positions, substantially as described.

207. The combination of a motor, a motor-circuit, a current-varying controller for the motor, a master-controller operating the current-varying controller through an independent governing-circuit, means automatically operated for opening the motor-circuit independently of the current-varying controller, and means for moving the current-varying controller toward or to the off position independently of the master-controller, substantially as described.

208. The combination of motors, motor-circuits, current-varying controllers for the motors, one or more operator's switches or master-controllers for operating the current-varying controllers through an independent governing-circuit, means automatically operated for opening the motor-circuits independently of the current-varying controllers, and means for moving the current-varying controllers toward or to the off positions independently of each other and of the master-controllers, substantially as described.

209. The combination of a motor, a motor-circuit, a current-varying controller for the motor, an operator's switch and circuit for operating the controller, means for opening the motor-circuit independently of the controller, means for restoring the controller independently of the operator's switch, and a cut-out switch connected with the controller and closed in certain positions thereof, which when it is closed restores control of the controller to the operator's switch, substantially as described.

210. The combination of a plurality of motors, or motor equipments, speed-controllers therefor, reversers independent of the speed-controllers, one or more operator's switches or master-controllers, means electrically controlled for producing interrupted progression of the controllers, and means for producing continuous retrogression of the controllers, substantially as described.

211. The combination of a plurality of motors or motor equipments, speed-controllers therefor, reversers independent of the speed-controllers, operator's switches or master-controllers, connections between the operator's switches, and means electrically controlled from the operator's switches through such connections for producing interrupted progression of the controllers, substantially as described.

212. The combination of a plurality of motors or motor equipments, speed-controllers therefor, reversers independent of the speed-controllers, master-controllers or operator's switches, connections between such operator's switches, means electrically controlled from the operator's switches through such connections for producing interrupted progression of the speed-controllers, and means for producing a continuous retrogression of the controllers, substantially as described.

213. The combination of a plurality of motors or motor equipments, speed-controllers therefor, reversers independent of the speed-controllers, means electrically controlled for operating the speed-controllers, means for producing interrupted progression of the speed-controllers, means for producing continuous retrogression of the speed-controllers, and a governing train-line through which the means for operating the speed-controllers and reversers are connected, substantially as described.

214. The combination of a car, a source of supply, one or more operator's switches, a train-line connected with the operator's switches, couplings for the train-line at the ends of the cars, a motor or motors, a reverser and current-varying controller therefor operated by relays connected with the train-line and with each operator's switch, and connections for the motor or motors with the source of supply through the reverser and controller, substantially as described.

215. An electrically-equipped car provided with one or more motors, a controller and circuit therefor, an independent governing-circuit, and an operator's switch at each end of the car connected to the govern-

ing-circuit, the forward contacts of one operator's switch being connected with the back contacts of the other operator's switch, substantially as described.

216. An electrically-equipped car provided with one or more motors, a controller and circuits therefor, an independent governing-circuit and an operator's switch at each end of the car connected to the governing-circuit, the forward contacts of one operator's switch being connected with the back contacts of the other operator's switch, a train-line connected to the operator's switches, and couplings in the train-line for connecting the cars into a train, substantially as described.

217. A plurality of equipped cars each having an operator's switch at each end, the forward contacts of all the switches at either end of the cars being connected with the back contacts of all the switches at the other end of the cars, a train-line, and couplings properly paired to secure like track movement with like hand movement at any operator's switch, irrespective of the sequence of the cars, substantially as described.

218. A plurality of equipped cars each having an operator's switch at each end, the forward contacts of all the switches at either end of the cars being connected with the back contacts of all the switches at the other end of the cars, a train-line, and couplings properly paired to secure like track movement with like hand movement at any operator's switch, irrespective of the sequence or end relation of the cars, substantially as described.

219. A plurality of equipped cars each having an operator's switch at each end, the switches each being provided with a forward and a back contact, two train-wires, each connecting the forward contact of an operator's switch on any car with the back contact of the other switch on the same car, and connections for the train-wires properly paired to secure alternation of these contacts in each train-wire and an opposite order of alternation of contacts in the two train-wires, irrespective of the sequence of the cars, substantially as described.

220. A plurality of equipped cars each having an operator's switch at each end, the switches each being provided with a forward and a back contact, two train-wires, each connecting the forward contact of an operator's switch on any car with the back contact of the other switch on the same car, and connections for the train-wires properly paired to secure alternation of these contacts in each train-wire, and an opposite order of alternation of contacts in the two train-wires, irrespective of the sequence or end relation of the cars, substantially as described.

221. An electrically-equipped car having one or more driving-motors and a current-varying controller, means for operating the controller, a reverser-switch and means for operating it, an independent governing train-line, two master-switches connected therewith, the forward operative contacts of each master-switch being connected with the back operative contacts of the other master-switch, substantially as described.

222. A car provided with a motor-equipment, a reverser, two similar master-switches provided with reverser-contacts, the forward contact of each switch and the back contact of the other switch being connected similarly to the reverser, whereby like track movement of the car is secured by like hand movement at either switch, substantially as described.

223. A plurality of cars, a motor equipment on one or more of the cars, a master-switch and means of operating the cars therefrom, an independent governing-circuit for electrically connecting the several cars independently of sequence of the cars, and means for securing like track movement of the cars with like hand movement at the switch in all relations of the cars, substantially as described.

224. A plurality of cars, a motor equipment on one or more of the cars, a master-switch and means for operating the cars therefrom, an independent governing-circuit for electrically connecting the several cars independently of sequence or end relation of the cars, and means for securing like track movement of the cars with like hand movement at the switch in all relations of the cars, substantially as described.

225. A plurality of cars, a motor equipment on one or more of the cars, master-switches, means for operating the cars from any one of the several master-switches, an independent governing-circuit for electrically connecting the several cars independently of the sequence of the cars, and means for securing like track movement of the cars with like hand movement at any switch in all relations of the cars, substantially as described.

226. A plurality of cars, a motor equipment on one or more of the cars, master-switches, means for operating the cars from any one of the several switches, an independent governing-circuit for electrically connecting the several cars independently of sequence or end relation of the cars, and means for securing like track movement of the cars with like hand movement at any switch in all relations of the cars, substantially as described.

227. A plurality of cars, a motor or motor equipment on one or more of the cars, master-switches, means for operating the cars from any one of the several switches, a governing-circuit for electrically connecting the several cars independently of sequence of the cars, there being direction-controlling wires and speed-controlling wires in the governing-circuit, and means for securing like track movement and like speed and acceleration of the train with like hand movement at any switch in all relations of the cars, substantially as described.

228. A plurality of cars, a motor equipment on one or more of the cars, master-switches, means for operating the cars from any one of the several switches, a governing-circuit for electrically connecting the several cars independently of sequence or end relations of the cars, there being direction-controlling wires and speed-controlling wires in the governing-circuit, and means for securing like track movement and like speed and acceleration of the train with like hand movement at any switch in all relations of the cars, substantially as described.

229. A car equipped with a motor to drive it, a reverser for the motor, a current-varying controller for the motor, and a reverser-switch for the controller, reversible train connections for the motor-reverser, and non-reversible connections for the said reverser-switch, substantially as described.

230. A train of cars equipped with a governing train-line, a motor or motor equipment and a reverser therefor on one or more of the cars, connections for each reverser to the train-line, and means for exchanging the connection of the reverser on any car with the train-line on the other cars when the car considered is turned end for end in the train, substantially as described.

231. A train of cars equipped with a governing train-line, one or more operator's switches provided with reverser-contacts, and means for exchanging the connection of the reverser-contacts of any operator's switch on any car with the train-line on the other cars when the car considered is turned end for end, substantially as described.

232. A train of cars equipped with a governing train-line, a motor or motor equipment and a reverser therefor on a plurality of the cars, an operator's switch or switches on one or more of the cars equipped with a motor, connections between the reverser and operator's switch or switches on any car equipped with both, the reverser and operator's switch forming a part of the car system, and means for exchanging the reverser connections of such car system with the train-line on the other cars when the car considered is turned end for end, without disturbing the connection of the reverser and operator's switch of the car system, substantially as described.

233. A car provided with driving mechanism and with direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the wires in the group at one end being exchanged as compared with their terminals in the group at the other end, and reversing mechanism for the driving mechanism actuated by the controlling-wires, substantially as described.

234. A car provided with driving mechanism and with an independent governing-line containing direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the wires in the group at one end being exchanged as compared with their terminals in the group at the other end, and reversing mechanism for the driving mechanism actuated by the controlling-wires, substantially as described.

235. A car provided with a motor or motors, a controller therefor, a relay or governing-circuit for said controller having direction-controlling and speed-controlling wires, said wires terminating in similar groups at each end of the car, the terminals of the direction-controlling wires in the group at one end being exchanged as compared with their terminals in the group at the other end, substantially as described.

236. A car provided with speed-controlling wires and direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the direction-controlling wires in the group at one end being exchanged as compared with their terminals in the group at the other end, and the terminals of the speed-controlling wires corresponding at both ends, substantially as described.

237. A train consisting of interchangeable cars each of which is provided with direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the wires in the group at one end being exchanged as compared with the terminals in the group at the other end, and means for pairing like direction-controlling wires at the abutting ends of the cars, substantially as described.

238. In an electrical train system, the combination of two or more motor equipments, reverser-relays for each equipment, speed-controlling relays for each equipment, a train-line having direction-controlling and speed-controlling wires connected with these relays, and couplers for effecting reversal of connection of the direction-controlling wires and like pairing of the speed-controlling wires when a car is turned end for end, substantially as described.

239. A train consisting of interchangeable cars each of which is provided with speed-controlling wires and direction-controlling wires which terminate in similar groups at each end of the car, the terminals of the direction-controlling wires in the group at one end being exchanged as compared with their terminals in the group at the other end, and the terminals of the speed-controlling wires corresponding at both ends, means for pairing like direction-controlling wires and corresponding speed-controlling wires at the abutting ends of the cars, substantially as described.

240. A train consisting of interchangeable cars each provided with direction-controlling wires and speed-controlling wires, the wires being so disposed and grouped that when the cars are reversed in end relations the direction-controlling wires are differently paired and the speed-controlling wires are similarly paired in connection, substantially as described.

241. A car equipped with a motor to drive it, a controller for the motor, an independent governing train-line for controlling or operating the controller, and reversible connections for the train-line, substantially as described.

242. A train-line comprising two or more reversible cables terminating in couplers at each end, provided with means for insuring proper pairing of reversing and speed-controlling circuits, substantially as described.

243. Two or more cars, one or more of the cars having driving mechanism, train-cables on the several cars having direction and speed controlling wires, and reversible jumpers having a like number of wires similarly disposed for securing proper connections between the like sets of wires upon the cars, substantially as described.

244. A train-line having speed and direction controlling wires, and comprising two or more cables, each having like couplings at each end, the couplings of alternate cables being different and complementary, substantially as described.

245. Train-cables having direction and speed controlling wires, reversible jumpers for connecting them, and means for insuring proper connections of the direction and speed controlling wires, substantially as described.

246. A train-controlling line having speed and direction controlling wires, and comprising two or more reversible cables each having like couplings at each end, the couplings of alternate cables being different and complementary, and means for insuring proper connections of the direction and speed controlling wires, substantially as described.

247. A car equipped with a motor or motors, a controller therefor, an independent governing train-line terminating in couplings at the ends of the car, an operator's switch at each end of the car, and branches from the train-line to the operator's switches, substantially as described.

248. A car equipped with a motor or motors, a controller therefor, an independent governing train-line terminating in couplings at the ends of the car, an operator's switch at each end of the car, branches from the train-line to the operator's switch, and means for disconnecting the operator's switches from the train-line, substantially as described.

249. A car equipped with operator's switches and a train-line terminating at each end of the car in two fixed couplings, and branches from the train-line to the operator's switches, substantially as described.

250. On an electrically-equipped car, train connections including two sets of coupler-contacts, one for determining the direction of motion and the other for determining the speed of motion, substantially as described.

251. On an electrically-equipped car, the combination of a motor, a reverser and a current-varying controller therefor, and train connections with two sets of coupler-contacts at each end of each car, one for determining the movement of the reverser, and the other for determining the movement of the controller, substantially as described.

252. In an electrical car system, the combination of a motor equipment, a controller therefor for reversing and grouping the motors and changing the resistance in circuit therewith, a governing-circuit and a master-switch connected therewith for operating the controller, substantially as described.

253. In an electrical car system, the combination of a motor equipment, a controller therefor for reversing and grouping the motors and changing the resistance in circuit therewith, a governing-circuit and a master-switch connected therewith for operating the controller by a single handle, substantially as described.

254. In an electrical car system, the combination of a motor equipment, a controller therefor for reversing the motors, grouping them in series and parallel arrangement and for changing the resistance in circuit with them, a governing-line, and a master-switch connected therewith for operating the controller, substantially as described.

255. In an electrical car system, the combination of a motor equipment, a controller therefor for reversing the motors, grouping them in series and parallel arrangement and for changing the resistance in circuit with them, a governing-line, and a master-switch connected therewith for operating the controller by a single handle, substantially as described.

256. In an electrical train system, the combination of a plurality of motor equipments, controllers therefor for reversing and grouping the motors and changing the resistance in circuit therewith, an independent governing train-line, and a master-switch connected therewith for operating the controllers, substantially as described.

257. In an electrical train system, the combination of a plurality of motor equipments, controllers therefor for reversing and grouping the motors and changing the resistance in circuit therewith, an independent governing train-line, and a master-switch connected therewith for operating the controllers by a single handle, substantially as described.

258. In an electrical train system, the combination of a plurality of motor equipments, controllers therefor for reversing the motors, grouping them in series and parallel arrangement and changing the resistance in circuit with them, an independent governing train-line, and a master-switch connected therewith for operating the controllers, substantially as described.

259. In an electrical train system, the combination of a plurality of motor equipments, controllers therefor for reversing the motors, grouping them in series and parallel arrangement and changing the resistance in circuit with them, an independent governing train-line, and a master-switch connected therewith for operating the controllers by a single handle, substantially as described.

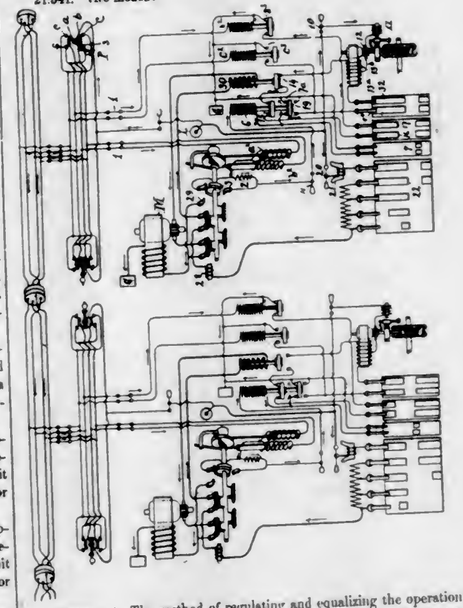
260. An electrically-equipped car provided with one or more motors, a controller therefor, a controlling-circuit for the controller, and an operator's switch having a plurality of speed-controlling contacts on one side and a less number of speed-controlling contacts on the other side, substantially as described.

261. An electrically-equipped car having one or more driving-motors, a controller, a pilot mechanism for operating the controller, and a switch for operating the motors having a plurality of speed-controlling contacts on one side and a less number of speed-controlling contacts on the other side, substantially as described.

262. A controller consisting of a pilot-motor and a cylinder driven thereby provided with current-varying or current-varying and motor-grouping contacts, and limit-contacts for the pilot-motor and a loose connection with limited movement between the pilot-motor and the controller, means for holding the cylinder fast until the pilot-motor has advanced definite amounts, and means for centering and holding the cylinder at definite points of its advance, substantially as described.

263. An electrically-equipped train having independent direction and speed controlling circuits, substantially as described.

660,066. METHOD OF REGULATING MOTORS. FRANK J. SPRAGUE, New York, N. Y., assignor to the Sprague Electric Company, of New Jersey. Original application filed Apr. 30, 1898, Serial No. 679,239. Divided and this application filed June 23, 1900. Serial No. 21,341. (No model.)



Claim.—1. The method of regulating and equalizing the operation of a number of motors in a system, each provided with a controller, which consists in varying the operation of each of the controllers with the current in the motor controlled thereby, substantially as described.

2. The method of preventing any motor of a system of motors connected in multiple, each provided with a controller, from consuming more than its due proportion of the energy delivered to the system, which consists in checking the operation of any controller when the current in the motor controlled thereby exceeds a predetermined limit, substantially as described.

3. The method of regulating and equalizing the operation of a number of motors in a system, under common control or working on a common load, and each provided with a controller, which consists in varying the operation of each of the controllers with the current in the motor controlled thereby, substantially as described.

4. The method of preventing any motor of a system of motors connected in multiple, and under common control or working on a common load, and each provided with a controller, from consuming more than its due proportion of the energy delivered to the system, which consists in checking the operation of any controller when the current in the motor controlled thereby exceeds a predetermined limit, substantially as described.

5. The method of regulating and preventing undue excess of current in the individual motors or motor equipments of a system under common control, or working on a common load, each motor or motor equipment being provided with a controller, which consists in varying the operation of each of the controllers with the current in the motor controlled thereby, substantially as described.

6. The method of governing the operation of each controller of a number of motors in a system in which each motor is provided with a controller, and all the controllers are governed by a master-controller, which consists in retarding the operation of each of the controllers by the current in the motor controlled thereby, substantially as described.

7. The method of regulating and equalizing the operation of a number of motors in a system under common control and working on a common load, where each motor is provided with a controller, which consists in varying the operation of each of the controllers with the current in the motor controlled thereby, substantially as described.

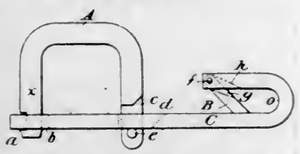
8. The method of preventing any motor of a system of motors connected in multiple and under common control and working under a common load, where each is provided with a controller, from consuming more than its due proportion of the energy delivered to the system, which consists in checking the operation of any controller when the current in the motor controlled thereby exceeds the predetermined limit, substantially as described.

660,067. **BROWN SULFUR DYE AND PROCESS OF MAKING SAME.** ARTHUR WEINBERG, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed Aug. 29, 1899. Serial No. 728,864. (Specimens.)

Claim.—1. The new substantive brown dyestuff which is obtained in the form of black lumps or black powder, by heating polynitro-oxyphenyl-tolyl-amin with sulfids and sulfur, which dissolves easily in water with a dark-brown color, being precipitated from this solution by acids, dyeing unmordanted cotton brown shades, which can be diazotized and developed on the fiber, substantially as described.

2. The herein-described process for the manufacture of a substantive brown dyestuff which process consists in heating amido-cresol with dinitro-chlorbenzene, treating the product with nitric acid and melting the polynitro compound thus produced together with sulfids and sulfur substantially as described.

660,068. **CLEVIS.** HENRY G. ATWELL, Fox Lake, Ill. Filed July 11, 1900. Serial No. 23,204. (No model.)



Claim.—A combination in a clevis of the part A, the bar C, and the tongue B, said parts being connected with each other, substantially as above set forth and described.

660,069. **PROCESS OF DYEING SULFUR COLORS.** FRIEDRICH BREUNINGER, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., same place. Filed Aug. 7, 1900. Serial No. 26,162. (No specimens.)

Claim.—The method of increasing the intensity and fastness of dyeings done with sulfur dyestuffs by treating the dyed fiber with solutions of chromous salts substantially as described.

660,070. **AIR-RIFLE.** WILLIAM J. BURROW, Plymouth, Mich., assignor to the Daisy Manufacturing Company, same place. Filed Jan. 4, 1900. Serial No. 300. (No model.)

Claim.—1. In an air-gun, the combination of the stock, the stock extension pivoted thereto and having a forwardly-projecting portion, the false barrel having an opening in its under side at its rear end, said extension of the stock lying in and closing said opening, the forward end of said extension having means for engagement with the wall of said barrel on its under side so as to lock said parts when forced together.

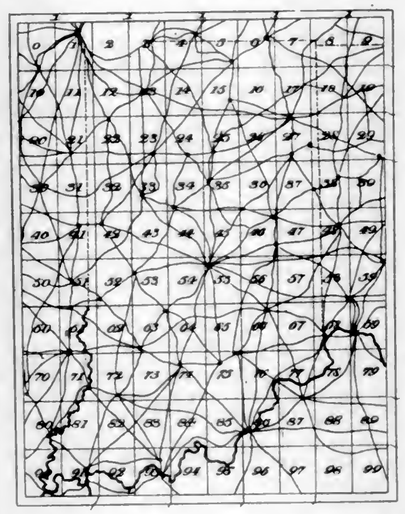


2. In an air-gun, the combination of the stock, the stock extension pivoted thereto, the false barrel adapted to embrace the upper portion of said extension of the stock and having an opening in its under wall, said extension lying in an opening in the under side of said barrel and forming a complementary portion of the wall thereof, a shoulder upon the rear end of said extension and a projection upon the inner face of the barrel, adapted to engage said shoulder.

3. In an air-gun, the combination of the stock having side plates, the extension of the stock pivoted between said plates, the barrel mounted upon said extension, a recess formed in the rear end of the extension and a reinforcing-plate upon the inner wall of the rear end of the barrel adapted to lie in said recess.

4. In an air-gun, the combination of the stock, the stock extension pivoted thereto, said extension having at its forward end means for attachment to the barrel and having a vertical shoulder projecting within the barrel, the piston-projecting spring having its rear end bearing against said shoulder and means for compressing and releasing said spring.

660,071. **MAP.** JOSEPH R. CAVANAGH, Indianapolis, Ind., assignor to the Merchantile Guide and Bureau Company, same place. Filed Feb. 26, 1900. Serial No. 6,598. (No model.)



Claim.—1. A map-index divided by parallel vertical lines and parallel horizontal lines into sections of equal area, said sections being numbered consecutively from left to right in transverse rows from the top to the bottom, beginning at the upper left-hand corner and terminating at the lower right-hand corner of the map, and being so arranged as that in any given vertical column or row of sections the numerals in the units place in all the numbers designating the sections composing such column shall be identical throughout, and the numerals in the tens place in said designating-numbers reading downward, shall run consecutively from "1" to "9."

2. A map-index divided by parallel vertical lines and parallel horizontal lines into sections of equal area, said sections being numbered consecutively from left to right in transverse rows from the top to the bottom, beginning at the upper left-hand corner and terminating at the lower right-hand corner of the map, and being so arranged as that in any given transverse or horizontal row of sections the numerals in the units place in all the numbers designating the sections composing such row, reading from left to right, shall run consecutively from "0" to "9," and the numerals in the tens place in said designating-numbers shall be identical throughout.

660,072. **COMBINATION ERASER AND PENCIL-SHARPENER.** ALBERT H. CLARK and JOHN J. DYLER, Louisville, Ky. Filed Jan. 4, 1900. Serial No. 406. (No model.)



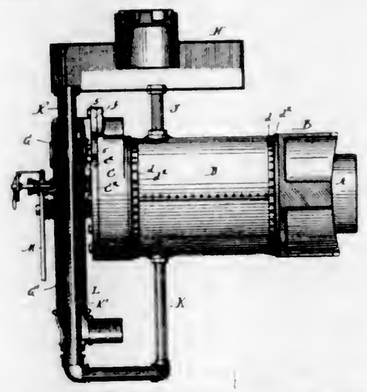
Claim.—1. A device of the class described consisting of a base-plate, arms extending radially therefrom, a burnisher and abrading-sections secured at the free ends of said arms, a cutting-blade secured to the base plate with cutting edges exposed between said radial arms, and stops secured at the opposite side of the base-plate and extending across the openings between said radial arms, all constructed and arranged substantially as described.

2. In a device of the class described a base-plate, radial arms integral therewith terminating in abrading and smoothing surfaces in combination with a hexiform knife-blade connected at its central portion by a securing-screw to the central portion of said base-plate and provided with multiple cutting-faces adapted to be adjustably secured in position on said base-plate all substantially as described and shown.

3. A device of the class described consisting of a base-plate, radial arms extending therefrom, sockets at the ends of said outer arms, abrading and burnishing devices secured in said cups and a cutting-blade removably attached to said base-plate presenting cutting edges between said several arms all combined substantially as described.

4. In a device of the character described, a base-plate, radial arms extending therefrom, a cutting-blade provided with multiple cutting-faces lying severally next said arms and between the same and adjustable thereon to present different sets of cutting edges for use all constructed and combined substantially as shown and described.

660,073. **MEANS FOR COOLING EXPLOSIVE-ENGINES.** WILLIAM F. DAVIS, Milwaukee, Wis. Filed Jan. 2, 1900. Serial No. 100. (No model.)



Claim.—1. An explosive-engine, the cylinder of which is provided with a water-jacket forming a water-space around the cylinder, in combination with the cylinder-head chambered to form a water-space and an annular channel intermediate the water-spaces of said cylinder and said head, and connected by ports with each of said spaces.

2. An explosive-engine, the cylinder of which is provided with a water-jacket forming an annular space around the cylinder and which is provided also at its front end with an annular flange having an annular groove in its outer face, in combination with a cylinder-head having an annular groove in its inner face coincident with the annular groove in the outer face of the flange at the end of the cylinder, said flange being formed with suitable ports for the passage of water from the water-space to the annular grooves in the cylinder-head and flange.

3. An explosive-engine, the cylinder of which is provided with a water-jacket forming a water-space around the cylinder, in combination with the cylinder-head having inner and outer walls with a water-circulating space between them, and having partitions between said walls forming lateral admission and exhaust channels extending through the periphery of the cylinder-head, the inner wall of said channels having ports opening into said cylinder and provided with puppet-valves, openings in the outer wall opposite said ports for supporting the bushings of said valves, and openings connecting the water-space of said head with the water-jacket of the cylinder.

4. An explosive-engine, the cylinder of which is provided with a water-jacket forming a water-space around the cylinder, in combination with the cylinder-head having inner and outer walls with a water-circulating space between them, and having partitions between said walls forming lateral admission and exhaust channels extending through the periphery of the cylinder-head, the inner wall of said channels having ports opening into said cylinder and provided with puppet-valves, openings in the outer wall opposite said ports for supporting the bushings of said valves, openings in the inner wall of said head connecting the water-space therein with the water-jacket of the cylinder, and an opening in the outer wall of said cylinder-head for exposing said water-space, and a removable cap-plate for closing the opening.

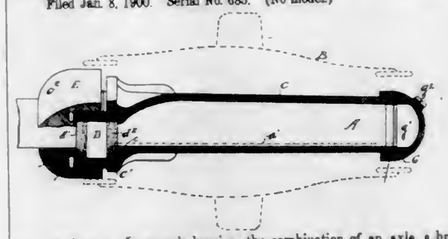
5. The combination with an engine-cylinder having raised annular flanges at its inner and outer ends and having at its inner end a raised part extending laterally beyond the adjacent annular flange, and having at its outer end a cylinder-head extending laterally beyond the adjacent annular flange, of a water-jacket having its ends extending outside and around said annular flanges of the cylinder and provided with annular shouldered flanges, the outer faces of which flanges extend at substantially right angles to the axis of the cylinder, and abut against said raised part and the ends of the said cylinder-head to form recesses for the packing material.

6. The combination with an engine-cylinder having raised annular flanges at its inner and outer ends and having at its inner end a raised part extending laterally beyond the adjacent end of the flange, and having at its outer end a cylinder-head extending laterally beyond the adjacent annular flange, of a removable water-jacket surrounding said cylinder and resting on the annular flanges thereof, said jacket being provided at each end with an annular flange, each flange having a bearing-surface to engage packing material placed between said flange and said raised part, and between said flange and said cylinder-head, said bearing-surface extending substantially at right angles to the length of the jacket.

7. The combination with the cylinder of an explosive-engine, of a separable jacketing-cylinder, the ends whereof are provided with outwardly-facing grooves adapted to receive packing material, and bearing-surfaces for the ends of said jacketing-cylinder secured to but extending laterally beyond the ends of said engine-cylinder.

8. A water-jacket for an explosive-engine comprising a cylindrical body D of sheet metal provided at its ends with rings formed separate therefrom and connected thereto, said rings having outwardly-facing grooves to receive packing.

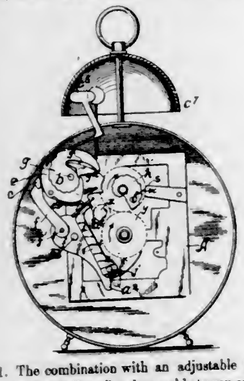
660,074. **CARRIAGE AXLE.** CHARLES H. FULLER, Oxford, Mich. Filed Jan. 8, 1900. Serial No. 685. (No model.)



Claim.—1. In an axle-bearing, the combination of an axle, a hub carrying a box, said box being provided with external screw-threads at its inner end, a collar D, securely attached to the axle at the inner end of the bearing, a shoulder c, upon the inner wall of the box adapted to lie against the outer side of said collar, or the washer thereon, said box extending over said collar, and a retaining-collar having internal screw-threads adapted to engage with the screw-threads upon the inner end of the box, said retaining-collar being provided with an annular groove F, and an annular projection F', said groove being adapted to permit the entrance thereinto of the inner end of the box, and said projection being adapted to extend within said box and lie against the inner side of the collar D, or the washer thereon, substantially as described.

2. In an axle-bearing, the combination of an axle, a hub carrying a box, said box being provided with external screw-threads at its inner end, a removable collar D, securely attached to the axle at the inner end of the bearing, a shoulder c, upon the inner wall of the box adapted to lie against the outer side of said collar, or the washer thereon, said box extending over said collar, and a retaining-collar, E, having internal screw-threads adapted to engage with the screw-threads upon the inner end of the box, said retaining collar being provided with an annular groove F, and an annular projection F', said groove being adapted to permit the entrance thereinto of the inner end of the box, and said projection being adapted to extend within said box and lie against the inner side of the collar D, or the washer thereon, substantially as described.

660,075. REPEATING CLOCK. WILLIAM JENSEN, Chicago, Ill. Filed Aug. 2, 1899. Serial No. 725,834. (No model.)



Claim.—1. The combination with an adjustable hour-snail and a striking mechanism, of a bell-snail and a pawl between said hour-snail and bell-snail, actuated by said bell-snail and stopped by said hour-snail substantially as specified.

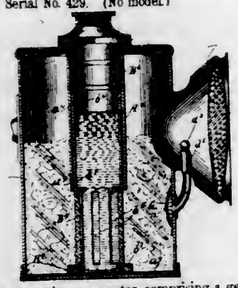
2. The combination with a time mechanism an hour-snail and a bell-snail and striking mechanism, of a pawl between said snails reciprocated by said bell-snail and stopped by said hour-snail, substantially as specified.

3. The combination with a time mechanism and a striking mechanism, of an hour-snail and a bell-snail provided with a wiper-face and a wiper-faced reciprocable pawl between said snails, substantially as specified.

4. The combination with a time mechanism and a striking mechanism, of an hour-snail and a bell-snail and mechanism to actuate said bell-snail in one direction and means to return said snail, automatically, to its starting-point, substantially as specified.

5. The combination with a time mechanism and a striking mechanism and time-dials whereof one is provided with the common time-hands, of a dial-hand synchronous with the minute-hand of said common time-hands to, palpably, indicate the fractional parts of an hour in its complete revolution, substantially as specified.

660,076. ACETYLENE-GAS GENERATOR. LAWRENCE MAMMEN, Chicago, Ill., assignor of one-half to William Luense, same place. Filed Jan. 5, 1900. Serial No. 429. (No model.)



Claim.—1. An acetylene-generator comprising a generating-chamber and a movable liquid-receptacle therein connected by a passage with the chamber, which, when in its operative position, is adapted to be partially surrounded by the calcium carbid contained within the generating-chamber, and which is constructed to be moved away from its operative position to discontinue the operation of the generator.

2. An acetylene-generator comprising a generating-chamber and a movable liquid-receptacle therein which, when in its operative position, is adapted to be partially surrounded by the calcium carbid contained within the generating-chamber, and which is constructed to be moved away from its operative position to discontinue the operation of the generator, said liquid-receptacle being provided in its part adjacent to part of the generating-chamber which receives the calcium carbid with one or more openings and the wall of said part covered by a lining of porous material.

3. An acetylene-generator comprising a generating-chamber, a liquid-receptacle connected by a passage with said chamber one end of which is contained within the chamber and the other end of which projects outside of the chamber, said receptacle being movable whereby it may be moved outwardly away from the portion of the generating-chamber adapted to contain the calcium carbid and a removable closure on the outer end of the liquid-receptacle.

4. An acetylene-generator comprising a generating-chamber, a liquid-receptacle the lower end of which is contained within the generating-chamber and the upper end of which projects outside of the chamber, said tube being vertically movable and being provided at its lower end with a plurality of circumferentially-separated slits and a lining covering the walls of the receptacle in its part containing the slits, said lining being made of a rigid material.

5. An acetylene-generator comprising a generating-chamber, a movable liquid-receptacle therein connected by a passage with the chamber which, when in its operative position, is adapted to be partially surrounded by the calcium carbid contained in the generating-chamber, and which is constructed to be moved away from its operative position to discontinue the operation of the generator, and a tube within which the liquid-receptacle is withdrawn when moved into its inoperative position.

6. An acetylene-generator comprising a generating-chamber, a liquid-receptacle connected by a passage with the chamber, which, when in its operative position is adapted to be partially surrounded by the calcium carbid contained within the generating-chamber, and which is constructed to be moved away from its operative position to discontinue the operation of the generator, an inclosure within which said liquid-receptacle is withdrawn when moved into its inoperative position, and means for holding said liquid-receptacle from movement with respect to said inclosure.

7. An acetylene-generator comprising a generating-chamber, a movable liquid-receptacle therein connected by a passage with the chamber which, when in its operative position is adapted to be partially surrounded by the calcium carbid contained within the generating-chamber, and which is constructed to be moved away from its operative position to discontinue the operation of the burner, said generator being supported in a manner permitting it to be inverted.

8. An acetylene-generator comprising a generating-chamber, having a tube depending from the upper wall thereof and open at its upper and lower ends, a liquid-receptacle connected by a passage with the chamber, the upper end of which is contained within said tube, and the lower end of which extends below the tube into the generating-chamber said liquid-receptacle being adapted to be moved upwardly with the lower end thereof contained in said tube.

9. An acetylene-generator comprising a generating-chamber, having a tube depending from the upper wall thereof and open at its upper and lower ends, a liquid-receptacle connected by a passage with the chamber, the upper end of which is contained within said tube, and the lower end of which extends below the tube into the generating-chamber, said liquid-receptacle being adapted to be moved upwardly with the lower end thereof contained in said tube, and means on the tube and receptacle for holding said receptacle in its lowermost position and means on said parts for holding said receptacle in its withdrawn position.

10. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof, and open at its uppe. and lower ends, a liquid-receptacle, the upper part of which is contained within said tube, and the lower part of which projects below said tube into the generating-chamber, said lower part of the receptacle being provided with one or more openings and being covered with a lining through which the liquid passes to the generating-chamber and the receptacle being vertically movable whereby the lower end thereof may be withdrawn into said tube.

11. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof, which is open at its upper and lower ends, a liquid-receptacle, the upper end of which is contained within said tube and the lower end of which projects below the tube into the generating-chamber, the walls of the lower end of the receptacle being constructed to permit the passage of liquid therethrough and a flange on the lower end of said receptacle, said receptacle being vertically movable whereby the lower end thereof may be withdrawn into said tube, and the flange on the lower end of said receptacle when the receptacle is in its upper position bearing against the lower end of the tube to provide a fluid-tight joint.

12. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof, which is open at its upper and lower ends, a vertically-movable liquid-receptacle connected by a passage with the chamber, the upper end of which is contained within said tube and the lower end of which projects beyond the tube into the generating-chamber, screw-threads on said liquid-receptacle which engage corresponding screw-threads on the tube to hold the same in its lowermost position, and screw-threads on the liquid-receptacle, adapted to engage corresponding threads on the tube when the receptacle is in its elevated position to hold it in such position.

13. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof which is open at both ends, a vertically-movable liquid-receptacle, the upper part of which is normally contained within said tube and the lower part of which projects beyond the tube into the generating-chamber, said receptacle being adapted to be withdrawn with its lower end in the tube, means permitting the passage of liquid from the liquid-receptacle to the generating-chamber, a packing inserted between said liquid-receptacle and the said tube and means for holding the receptacle stationary with respect to said tube in both its vertical positions.

14. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof, which is open at its upper and lower ends, a liquid-receptacle the upper end of which is contained within said tube and the lower end of which projects beyond the tube into the generating-chamber, and constructed to permit the passage of liquid from the receptacle to the generating-chamber, said receptacle being adapted to be withdrawn with its lower end in the tube, screw-threads on the tube and liquid-receptacle for holding said receptacle stationary with respect to said generating-chamber, one of said screw-threaded parts being made slightly tapering to afford a tight fit between said screw-threads.

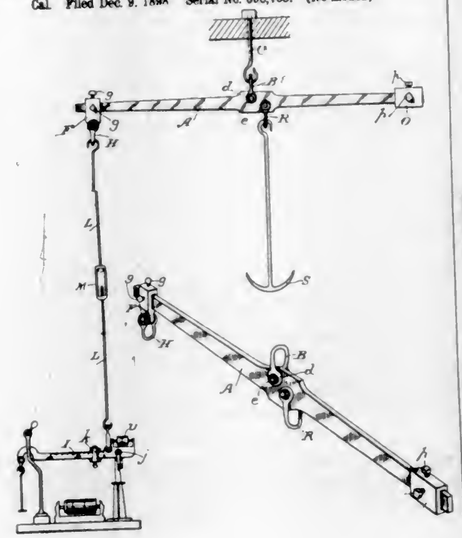
15. An acetylene-generator comprising a generating-chamber, a liquid-receptacle which is partially surrounded by the calcium carbid contained within said generating-chamber, a part of said receptacle which is surrounded by said calcium carbid being provided with a plurality of circumferentially-separated slits, a rigid lining covering the slitted portion of the receptacle, and a tube attached to said generating-chamber within which slitted portion of the receptacle is adapted to be withdrawn when the operation of the generator is to be discontinued.

16. An acetylene-generator comprising a generating-chamber, a liquid-receptacle which when in its operative position is adapted to be partially surrounded by the calcium carbid contained within the generating-chamber, and which is movable to permit it to be moved away from said calcium carbid to discontinue the operation of the generator, means of permitting the passage of the liquid from said liquid-receptacle to the said generating-chamber, a plate constituting the bottom of the chamber provided with an annular flange which fits outside of and has screw-threaded engagement with the wall of said chamber, one of said screw-threaded parts being made slightly tapering.

17. An acetylene-generator comprising a generating-chamber and a movable liquid-receptacle therein connected by a passage with the chamber which when in its operative position is adapted to be partially surrounded by the calcium carbid within the generating-chamber and which is constructed to be moved away from its operative position to discontinue the operation of the burner and means for entirely removing the receptacle from the generating-chamber.

18. An acetylene-generator comprising a generating-chamber, a tube depending from the upper wall thereof which is open at its upper and lower ends, a liquid-receptacle the upper end of which is contained within said tube and the lower end of which projects below the tube and into the generating-chamber and connected by a passage with the chamber, and a removable flange on the lower end of said receptacle limiting the upward movement thereof.

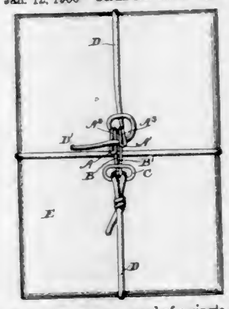
660,077. WEIGHING-MACHINE. JOHN MANES, San Francisco, Cal. Filed Dec. 9, 1898. Serial No. 698,765. (No model.)



Claim.—1. A weighing-machine, comprising an overhead suspension balancing-beam, supported at or near its middle, a weighing-stirrup suspended from said beam upon one side of the point of support, a connecting-rod adjustably secured to the said beam upon the other side of the point of support and a small graduated scale-beam, mounted below one end of said scale-beam and connected therewith by said rod; the construction being such that a small graduated scale-beam of ordinary construction may be used for weighing bulky and heavy articles, substantially as described.

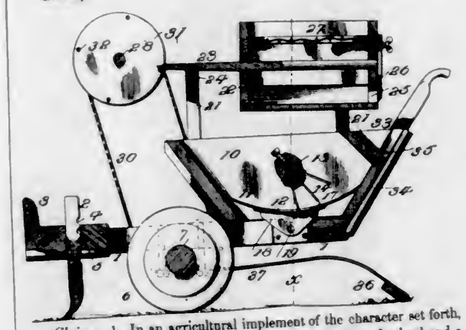
2. A weighing-machine, comprising an overhead suspension balancing-beam, a support for pivotally suspending the said beam at or near its middle point, a weighing-stirrup suspended from said beam from one side of the said support, an adjustable clip secured to the said beam upon the other side of the said support, a connecting-rod suspended therefrom, a counterbalance-weight mounted upon the extended free end of the said beam, a small graduated scale-beam mounted beneath one end of the balancing-beam and connected therewith by means of the said connecting-rod; the construction being such that the balancing-beam in weighing large and heavy articles may be connected and operated by a small graduated scale-beam of ordinary construction, substantially as described.

660,078. STRING-FASTENER. CHARLES E. MOORE, Somerville, Mass. Filed Jan. 12, 1900. Serial No. 1,235. (No model.)



Claim.—A string-fastener composed of a single wire bent to form a loop, or eye, C; two parallel shanks B, B', extended from the eye; and two hooks A, A', formed by doubling the outer ends of the wire and then bending them back over the shanks, so that the parallel edges of the hooks will serve to hold the string around and between them in the manner and for the purpose specified.

660,079. COMBINED PLANTER AND FERTILIZER-DISTRIBUTER. GEORGE W. SNIPES, Condor, Ga., assignor of one-half to L. C. Beacham, Dublin, Ga. Filed Feb. 20, 1900. Serial No. 5,951. (No model.)

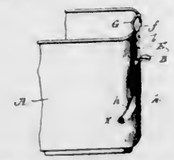


Claim.—1. In an agricultural implement of the character set forth, the combination with a frame, of a shaft carrying a ground-wheel and a sprocket-wheel, a vibratory hopper having a limited tilting movement and provided at its rear with a discharge-opening and at its front with a forwardly-projecting arm, a second shaft arranged in advance of said hopper and carrying a sprocket-wheel and a tappet-wheel having a series of spaced pins to engage said arm and vibrate the hopper, and a chain connecting the two sprocket-wheels to communicate motion from the ground-wheel shaft to the tappet-wheel, substantially as described.

2. In an agricultural implement of the character set forth, the combination, with a main frame, of a supplementary frame rising therefrom,

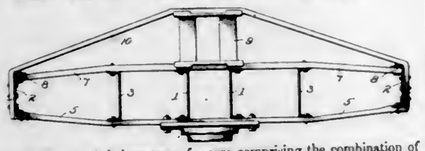
a seed-hopper mounted upon the rear of the main frame, a shaft passing through the hopper and carrying an agitator and having at one end a crank, a shaft journaled at the front of the main frame and carrying a ground-wheel and having at one end a crank-shaft and at the other end a sprocket-wheel, a fertilizer-hopper mounted above the seed-hopper on said supplementary frame to have a limited vibratory movement and provided with a rear discharge and a forwardly-projecting arm, a shaft journaled at the front of said supplementary frame and carrying a sprocket-wheel and a tappet-wheel having spaced pins to engage said arm and vibrate the hopper, a rod connecting the cranks of the agitator and ground-wheel shafts, and a chain connecting the sprocket-wheels of the ground and tappet wheel shafts, substantially as described.

660,080. ATTACHMENT FOR WASHBOILERS, KETTLES, &c. DANIEL E. ANTHONY, Akron, Iowa. Filed Nov. 20, 1899. Serial No. 737,624. (No model.)



Claim.—The herein-described attachment for washboilers, &c., comprising the combination with the vertical end brace E riveted to the boiler and having its upper extremity bent into an eye, and its lower end portion formed into two diverging branches riveted to the boiler at their extremities, of the hook-lug B secured to said end brace, and having the arched upper wall provided with a central stiffening-rib, together with the handle pivoted in said eye, the space between said hook-lug and eye being sufficient to allow said handle to turn down against said brace out of the way of clothes being poured from the boiler, substantially as specified.

660,081. CAR CONSTRUCTION. HENRY S. BRYAN, Two Harbors, Minn. Filed Feb. 15, 1900. Serial No. 5,272. (No model.)



Claim.—1. A bolster-truss for cars comprising the combination of bottom, top, and intermediate members, having car-sills between the intermediate and bottom members, and a compression-block between the intermediate and top members, substantially as described.

2. A bolster-truss for cars comprising the combination of bottom, top, and intermediate members, having intermediate sills between the intermediate and bottom members, and a compression-block between the intermediate and top members, said several members being connected at their ends to the car side sills, substantially as described.

3. A bolster-truss for cars, comprising the combination of compression and tension members united at their extremities to the car side sills and spaced apart intermediate their ends by intermediate car-sills, and a compression-block, substantially as described.

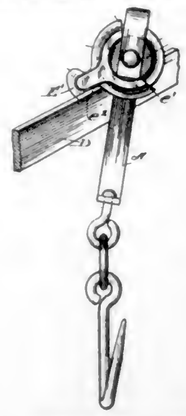
4. A car structure having a center bearing-bolster provided with a compression member, a tension member, a third member intermediate said compression and tension members and connections for said several members whereby said intermediate member forms a tension member for said compression member, and a compression member for said tension member, substantially as described.

5. A construction of car-frame comprising car-sills, a compression member below said sills, a tension member above said sills spaced apart therefrom near its middle by a compression-block, and an intermediate member between said compression and tension members, substantially as described.

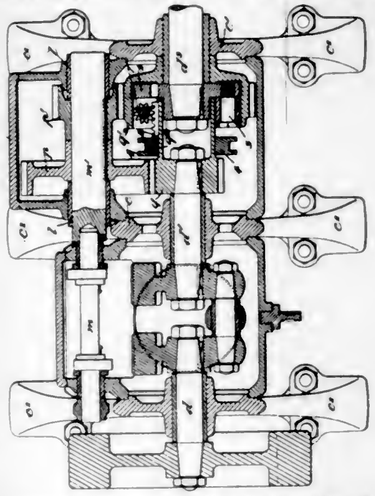
660,082. TRUCK-GUARD. THEODORE PROULX, Chicago, Ill. Filed Dec. 21, 1899. Serial No. 741,122. (No model.)

Claim.—1. A truck-guard comprising a piece having an opening in its upper portion and shoulders on each side of said opening, and a downward extension provided with projections, substantially as described.

2. The combination with a truck-frame, of a wheel journaled thereon and having an annular recess on one of its sides, and a guard or protector movably mounted around the axle of the wheel and having an enlargement to fit in said recess, and shoulders in its upper portion, and a downward extension provided with projections, substantially as described.



660,083. VARIABLE-SPEED GEARING. WILLIAM E. SIMPSON, London, England. Filed May 23, 1900. Serial No. 17,744. (No model.)

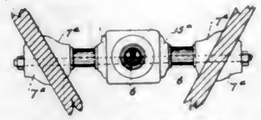


Claim.—1. In combination, a motor-shaft, a gear mounted thereon having a flanged extension, a coaxial driving-shaft, a disk mounted thereon, a gear loosely mounted upon the driving-shaft and having an internal clutch-face, a third shaft parallel with the motor and driving shafts, gears mounted thereon meshing with the gears on the motor and driving shafts, clutch members carried by the disk, and means for moving said members into engagement either with the said internal clutch-face or the flanged extension, substantially as described.

2. In combination a motor-shaft, a gear mounted thereon having a flanged extension, racks mounted upon the flanged extension, a coaxial driving-shaft, a disk mounted upon the coaxial driving-shaft and segmental parts of a ring carried thereby, right and left handed screws engaging in the opposite extremities of the said segmental parts having pinions thereon which engage with the racks aforesaid, a gear loosely mounted upon the driving-shaft having an annular portion covering the segmental ring, a third shaft parallel with the motor and driving shafts, gears mounted thereon and meshing respectively with the gears mounted upon the motor and driving shafts, for the purpose and substantially as described.

660,084. FRAMING DEVICE. FREDERICK H. SMITH, Denver, Colo., assignor of nine-sixteenths to John P. Ibson, same place. Filed Feb. 5, 1900. Serial No. 3,953. (No model.)

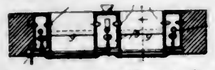
Claim.—1. A framing device comprising a rod, a tube and washers, the latter being provided with sockets to receive and anchor the tube extremities, the rod being passed through the tube and registering openings formed in the washers and the parts to be connected, the extremities of the rods being suitably fastened.



2. The combination of tubes, anchor-washers and tie-rods, the washer-openings being elongated to allow the rods to pass and cross each other in one of the connected parts, the opening in the tubes being made considerably larger than the rods to allow the tubes and washers to occupy the same plane when the rods are in different planes.

3. The combination with tubes and tie-rods, of a supporting-block having a number of anchor-washers formed integral therewith and located on different sides thereof, the block being bored in line with the washer-openings to allow the rods to cross, the rods passing through the tubes and through the block forming angles with each other and occupying different planes.

660,085. AUTOMATIC SMOKELESS FURNACE. FRED WILD, Denver, Colo. Filed Mar. 31, 1899. Serial No. 711,226. (No model.)



Claim.—1. A furnace provided with an air-chamber located in front of the fire-box and having a perforated rear wall adjacent the fire-box and perforated walls surrounding the fuel-openings on three sides, and openings in the bottom of the air-chamber communicating with the ash-pit, in combination with dampers for controlling said openings.

2. A furnace provided with an air-chamber located in front of the fire-box and having a perforated rear wall adjacent the fire-box and perforated walls adjacent the fuel-openings, and openings in the bottom of the air-chamber communicating with the ash-pit, in combination with dampers controlling said openings, a door adapted to close one of the fuel-openings, and means operated from said door for automatically controlling said dampers.

3. A furnace provided with an air-chamber located in front of the fire-box and having perforated walls adjacent the fire-box and the fuel-opening, and a damper controlling an opening formed in the bottom of the air-chamber, in combination with a steam-pipe located in the said air-chamber and having branches directed toward openings formed in the rear wall of the air-chamber adjacent the fire-box.

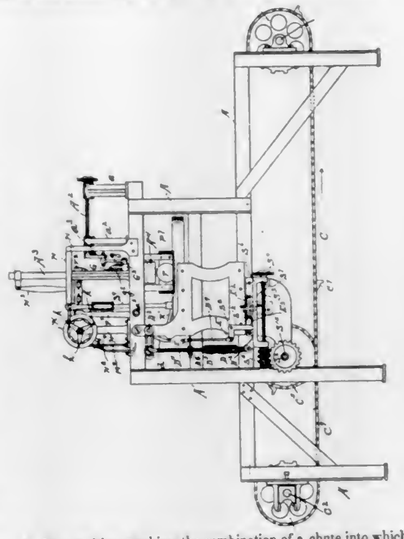
4. A furnace provided with an air-chamber located in front of the fire-box and having perforated walls adjacent the fire-box and the fuel-opening, and a damper-controlled opening formed in the bottom of the air-chamber, in combination with a steam-pipe located in the said air-chamber and having branches directed toward openings formed in the rear wall of the air-chamber adjacent the fire-box, said openings being surrounded by funnel-shaped mouths.

5. A furnace provided with an air-chamber located in front of the fire-box and having perforated walls adjacent the fire-box and the fuel-opening, and a damper-controlled opening formed in the bottom wall thereof, in combination with a steam-pipe located in the said air-chamber having branches directed toward openings formed in the rear wall of the air-chamber adjacent the fire-box, a door controlling the opening to the fire-box, and means operated from said door for automatically controlling the supply of steam to the fire-box through said steam-pipe.

6. A furnace provided with an air-chamber located in front of the fire-box and having openings in its wall communicating therewith and an opening in its bottom wall communicating with the ash-pit, in combination with a hinged damper controlling said opening, a door adapted to close the fuel-opening to the fire-box, and means initially operated from the said door for controlling said damper, said means comprising a water-cylinder, a piston located therein and provided with a suitable rod, a rock-shaft having a crank connected with said piston-rod, another rock-shaft connected with the damper and provided with a crank, a rod connecting the crank on the last-named shaft with another crank on the first-named rock-shaft, a water-pipe communicating with the bottom of the piston-cylinder and provided with a three-way valve, a waste-pipe connected with the chamber of said valve, a crank-arm attached to the valve, and a link connecting the furnace-door with said arm.

660,086. PACKING-MACHINE. THEODORE L. CAMP, Chicago, Ill., assignor to James H. Peirce, trustee, same place. Filed Jan. 22, 1900. Serial No. 2,260. (No model.)

Claim.—1. In a packing-machine, the combination of a continuously-rotating shaft, a plunger adapted to force articles to be packed into a packing-box, means for intermittently connecting the said shaft with the plunger, means actuated by the articles to be packed when a predetermined and proper number thereof arrive at the packing position whereby said intermittent action of the plunger is permitted, means for receiving the articles in a packing-box, and means compelling the packing-box to travel intermittently as fast as filled, substantially as described.



2. In a packing-machine, the combination of a chute into which the articles to be packed are fed, said chute consisting of two side walls, means whereby the articles to be packed are held between the walls, a plunger actuated by a stem adapted to enter the chute from above and force the articles to be packed downward, and means operated by the longitudinal advancing articles in the chute whereby the plunger is set in motion at the proper time, substantially as described.

3. In a packing-machine, the combination of an endless chain or chains, lugs thereon, means for driving the chains, ways in which the chains move, and means governing the intermittent action of the chains, which means are operated by the advancing box on the chain when the box arrives at the proper position to receive articles to be packed, substantially as described.

4. In a packing-machine, an endless chain having thereon lugs to compel the forward movement of a packing-box, a packing-box carrying a honeycomb box located thereon said honeycomb box carrying at its upper edge means for engaging mechanism for stopping the advancing of a chain whereby when the box advances to the proper position its further advance is stopped, substantially as described.

5. In a packing-machine, an endless chain having thereon lugs to compel the forward movement of a packing-box, a packing-box carrying a honeycomb box located thereon said honeycomb box carrying at its upper edge means for engaging mechanism for stopping the advancing of a chain whereby, when the box advances, to the proper position, its further advance is stopped, means for automatically operating the chain and advancing the box when filled with articles to be packed, substantially as described.

6. The combination of a skeleton box having spring walls for grasping and holding articles in process of packing and adapted to be inserted in a packing-box and then filled as described with articles to be packed, and adapted to be removed therefrom without removing the articles, substantially as described.

7. The combination with a packing-box of a skeleton box adapted to be inserted therein and having spring-partitions in the skeleton box adapted to hold the articles to be packed in the position in which they are left by a retreating plunger, and means upon the skeleton box whereby mechanism is set in operation to stop the forward movement of the box in a registering position, means to cause the boxes to travel and be stopped, means for retaining the articles to be packed over the box to be operated upon by a plunger, said plunger and means for intermittently moving the plunger, substantially as described.

8. In a machine of the character described, a continuously-rotating shaft, a gear adapted to be operated thereby, means for intermittently

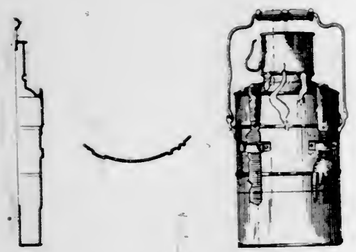
bringing the gears into operative relation, which means is operated by advancing the articles operated on into the machine and means governing the intervals at which the gears shall be brought into operative relation, relative to the introduction of the articles operated upon, substantially as described.

9. The combination of a pair of side walls in a chute, each having at their lower edges spring-controlled ledges adapted to support articles, a plunger adapted to be operated to force the articles through below the side walls opening the spring-supports, means whereby the plunger is operated, means governed by the articles for setting the plunger into operative connection with the means for operating it, and means for returning the plunger to its original position, substantially as described.

10. The combination of a continuously-rotating shaft, a crank thereon, a cross-head operating on ways, a connecting-rod, a rod slidably operating in ways and in proximity to the cross-head, means on the cross-head adapted to engage a spur on the rod, means in proximity to the rod to prevent said engagement, and means for withdrawing the inhibitory element at predetermined intervals, substantially as described.

DESIGNS.

33,354. BADGE. GEORGE P. AITCHESON, Alexandria, Va. Filed Sept. 17, 1900. Serial No. 30,360. Term of patent 3½ years.



Claim.—The design for a badge, substantially as shown and described.

33,355. CLAMP FOR EYEGLASSES OR SIMILAR ARTICLES. BERNARD H. BLANK, New York, N. Y. Filed Sept. 14, 1900. Serial No. 30,078. Term of patent 14 years.



Claim.—The design for a clamp for eyeglasses, or similar articles substantially as herein shown and described.

33,356. SLEEVE-BUTTON AND CUFF-HOLDER. IRVIN Y. BARINGER, Perkasie, Pa. Filed Sept. 1, 1900. Serial No. 28,851. Term of patent 7 years.



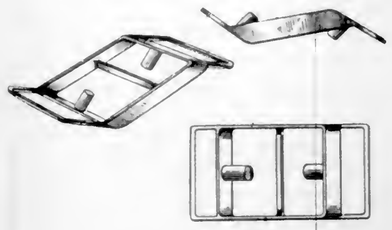
Claim.—The design for a sleeve-button and cuff-holder substantially as shown and described.

33,357. GARMENT-SUPPORTING LOOP. LUTHER V. MOULTON, Grand Rapids, Mich. Filed Mar. 19, 1900. Serial No. 9,341. Term of patent 14 years.



Claim.—The design for a garment-supporting loop, as herein shown and described.

33,358. BUCKLE. SAMUEL P. FOSTER, Sherman Heights, Tenn., assignor of one-half to F. H. Hellman, same place. Filed Aug. 31, 1900. Serial No. 28,719. Term of patent 7 years.



Claim.—The design for a buckle as herein shown and described.

33,359. SHOE-LACE FASTENER. ELIZABETH R. DIENST, Kansas City, Mo. Filed Sept. 13, 1900. Serial No. 29,973. Term of patent 14 year.



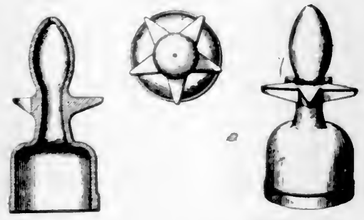
Claim.—The design for a shoe-lace fastener as herein shown and described.

33,360. GUARD FOR HOOKS. JAMES C. COVERT, Watervliet, N. Y., assignor to the Covert Manufacturing Company, same place. Filed Sept. 20, 1900. Serial No. 30,629. Term of patent 14 years.



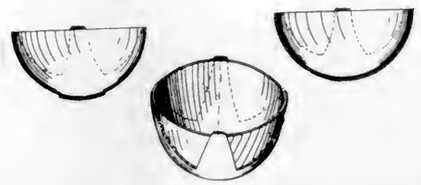
Claim.—The design for a hook-guard, substantially as shown and described.

33,361. NURSING-NIPPLE. PHILIP F. HOFFMAN, Newburg, N. Y. Filed Sept. 18, 1900. Serial No. 30,361. Term of patent 7 years.



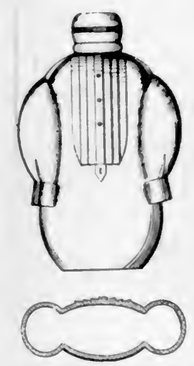
Claim.—The design for a nursing-nipple, as herein shown and described.

33,362. PESSARY. RICHARD H. VESEY, Denver, Colo. Filed Sept. 1, 1900. Serial No. 28,847. Term of patent 14 years.



Claim.—The design for a pessary as herein shown and described.

33,363. FLASK. JEREMIAH QUINLAN, New York, N. Y. Filed Aug. 4, 1900. Serial No. 25,953. Term of patent 3½ years.



Claim.—The design for a flask herein shown and described.

33,364. BOTTLE. PHILIP LINDEMEYR, Baltimore, Md., assignor to the Maryland Stopper Company, same place. Filed Sept. 20, 1900. Serial No. 30,631. Term of patent 7 years.



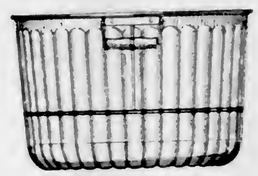
Claim.—The design for a bottle, as herein shown and described.

33,365. TEAPOT. AUSTIN F. JACKSON, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Sept. 13, 1900. Serial No. 29,966. Term of patent 14 years.



Claim.—The design for a teapot, as herein shown and described.

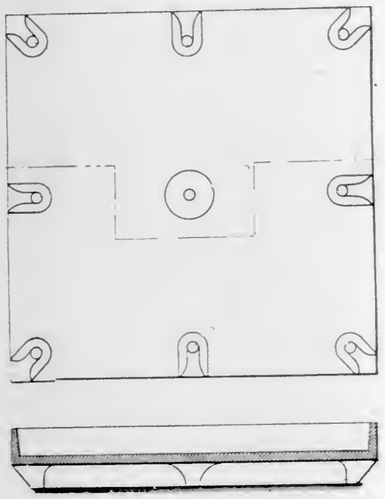
33,366. SHEET-METAL VESSEL. WILLIAM GENDER, Milwaukee, Wis. Filed Sept. 16, 1899. Serial No. 730,777. Term of patent 7 years.





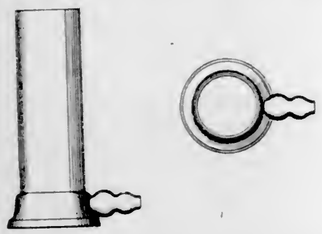
Claim.—The design for a sheet-metal vessel, substantially as herein shown and described.

33,367. ANNEALING-BOX BOTTOM. WILLIAM S. BUMBAUGH, Monessen, Pa. Filed Aug. 21, 1900. Serial No. 27,625. Term of patent 14 years.



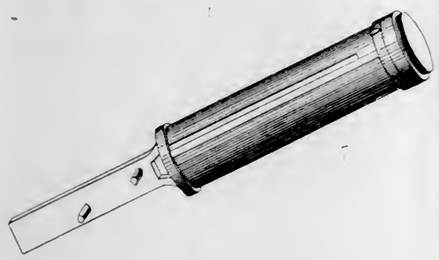
Claim.—The design for an annealing-box bottom, as herein shown and described.

33,368. SPRAYER-BODY. CHARLES L. SICARDI, New York, N. Y. Filed Sept. 4, 1900. Serial No. 29,011. Term of patent 3½ years.



Claim.—The design for a sprayer-body as herein shown and described.

33,369. SCALE-BEAM. LEWIS P. HALLADAY, Marion, Ind., assignor to Philip Matter, same place. Filed Apr. 24, 1899. Serial No. 714,319. Term of patent 7 years.



Claim.—The design for a scale-beam as herein shown and described.

33,370. PIPE-COUPLING. HENRY G. THOMPSON, New Haven, Conn., assignor to the New Haven Novelty Machine Company, same place. Filed July 28, 1900. Serial No. 25,202. Term of patent 14 years.



Claim.—The design for a pipe-coupling, substantially as herein shown and described.

33,371. PIPE-COUPLING. HENRY G. THOMPSON, New Haven, Conn., assignor to the New Haven Novelty Machine Company, same place. Filed July 28, 1900. Serial No. 25,203. Term of patent 14 years.



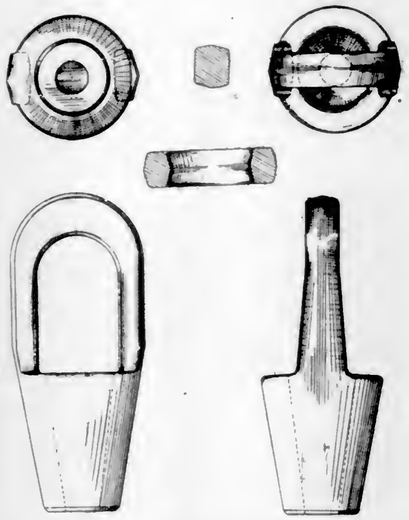
Claim.—The design for a pipe-coupling, substantially as herein shown and described.

33,372. PIPE-COUPLING. HENRY G. THOMPSON, New Haven, Conn., assignor to the New Haven Novelty Machine Company, same place. Filed July 28, 1900. Serial No. 25,204. Term of patent 14 years.



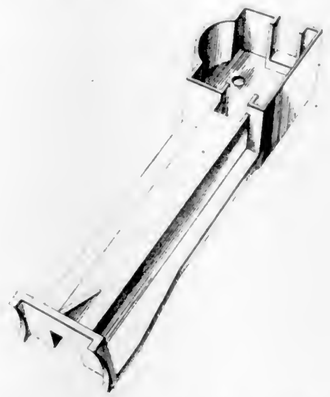
Claim.—The design for a pipe-coupling, substantially as herein shown and described.

33,373. WIRE-ROPE SOCKET. WILLIAM S. BIDLE, Cleveland, Ohio. Filed Aug. 27, 1900. Serial No. 28,262. Term of patent 14 years.



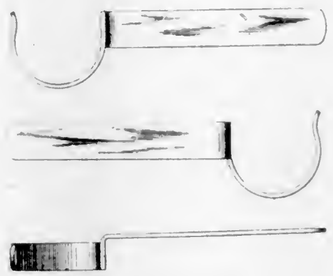
Claim.—The design for a wire-rope socket, as herein shown and described.

33,374. LIFTING-JACK CASING. EMIL R. KLEMM, Chicago, Ill. Filed Sept. 5, 1899. Serial No. 729,559. Term of patent 14 years.



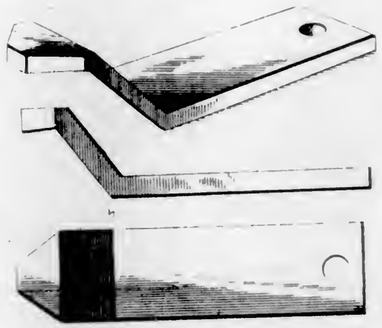
Claim.—The design for a lifting-jack casing, substantially as herein shown and described.

33,375. CURTAIN-POLE HOLDER. RUDOLPH H. BECK, Philadelphia, Pa. Filed Sept. 14, 1900. Serial No. 30,073. Term of patent 7 years.



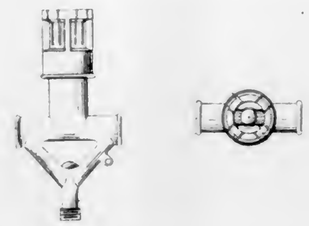
Claim.—The design for a curtain-pole holder, substantially as illustrated and described.

33,376. WHEEL-CLAMPING FOOT FOR LIFTING-JACKS. MARTIN PAULSON, Missouri Valley, Iowa. Filed Sept. 22, 1900. Serial No. 30,861. Term of patent 7 years.



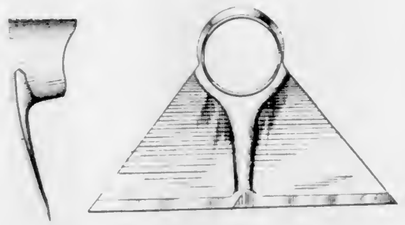
Claim.—The design for the wheel-clamping foot for lifting-jacks herein shown and described.

33,377. HYDROCARBON-BURNER. HERMANN MERKEL, St. Louis, Mo. Filed July 30, 1900. Serial No. 25,357. Term of patent 14 years.



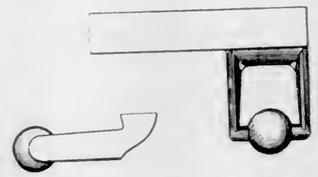
Claim.—The design for a hydrocarbon-burner substantially as herein shown and described.

33,378. HOE. CLEOPHAS A. TOUPS, Houma, La. Filed Sept. 25, 1900. Serial No. 31,107. Term of patent 14 years.



Claim.—The design for a hoe, as herein shown and described.

33,379. DRAFT-EYE FOR VEHICLE-SHACKLES. CHRISTOPHER C. BRADLEY, Syracuse, N. Y. Filed Sept. 24, 1900. Serial No 31,006. Term of patent 14 years.



Claim.—The design for a draft-eye for shifting vehicle-shackles as herein described and shown.

33,380. BUGGY-TOP SPRING. JAMES A. JANISON, Russellville, Ark. Filed Sept. 6, 1900. Serial No. 29,236. Term of patent 7 years.



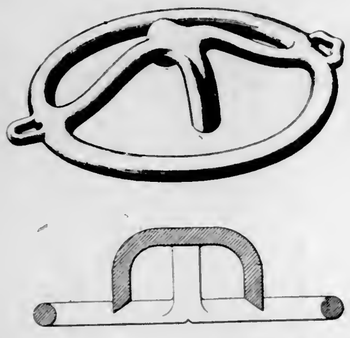
Claim.—The design for a buggy-top spring, herein shown and described.

33,381. AXLE. CHRISTOPHER C. BRADLEY, Syracuse, N. Y. Filed Aug. 24, 1900. Serial No. 27,959. Term of patent 14 years.



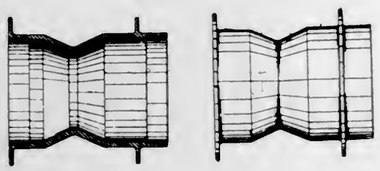
Claim.—The design for an axle substantially as herein described and shown.

33,382. TRACE-CARRIER. WILLIAM E. DIPPERT, Des Moines, Iowa. Filed May 12, 1900. Serial No. 16,527. Term of patent 14 years.



Claim.—The design for a trace-carrier, substantially as herein shown and described.

33,383. BICYCLE-HUB. GEORGE H. CHENEY, Rochester, N. Y. Filed Sept. 14, 1900. Serial No. 30,075. Term of patent 7 years.



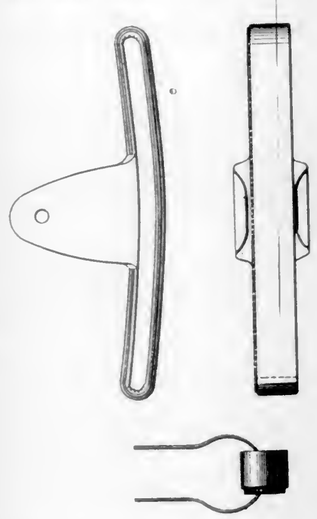
Claim.—The design for a hub as herein shown and described.

33,384. GUN-CARRYING ATTACHMENT FOR CYCLES. OLIVER THORN, London, England. Filed Aug. 11, 1900. Serial No. 26,656. Term of patent 7 years.



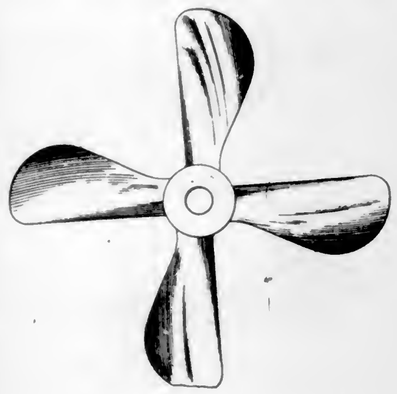
Claim.—The design for a gun-carrying attachment for cycles substantially as herein shown and described.

33,385. SPADE-CARRYING ATTACHMENT FOR CYCLES. OLIVER THORN, London, England. Filed Aug. 11, 1900. Serial No. 26,657. Term of patent 7 years.

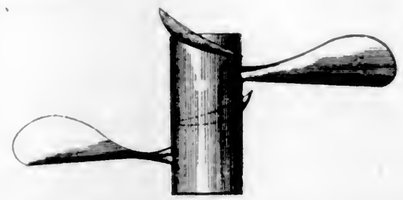


Claim.—The design for a spade-carrying attachment for cycles, as herein shown and described.

33,386. MARINE PROPELLER. CARL RONDELL, Stillwater, Minn. Filed June 7, 1900. Serial No. 19,472. Term of patent 14 years.

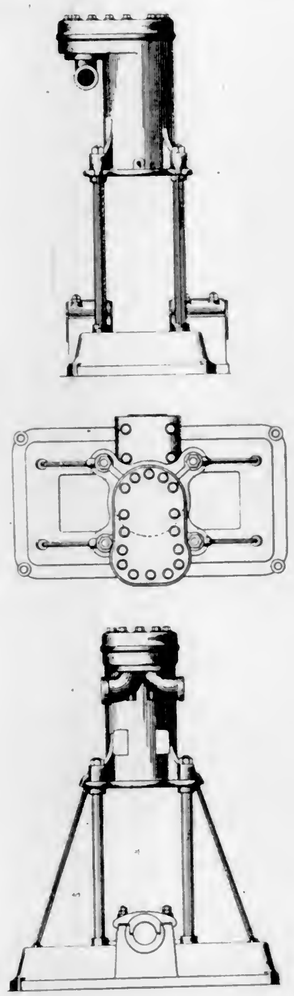


33,386.



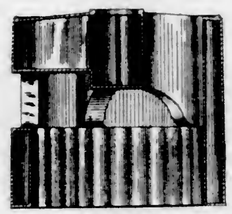
Claim.—The design for a marine propeller, as shown and described.

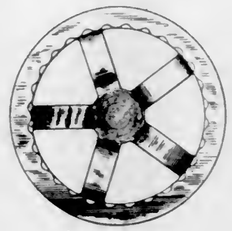
33,387. ENGINE-FRAME. JOHN A. SEGOR, New York, N. Y., assignor to the General Power Company, of New Jersey. Filed Sept. 11, 1900. Serial No. 29,729. Term of patent 14 years.

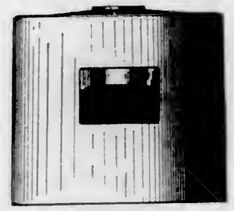


Claim.—The design for an engine-frame as herein shown and described.

33,388. FIRE-POT FOR HEATERS. GEORGE E. DOWNE, Chicago, Ill., assignor to the American Radiator Company, of New Jersey. Filed Aug. 13, 1900. Serial No. 26,791. Term of patent 14 years.







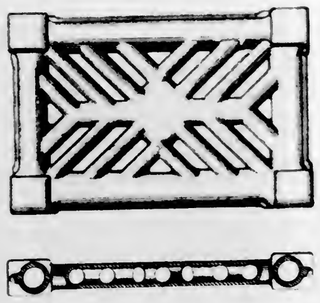
Claim.—The design for a fire-pot for heaters, as herein shown and described.

33,389. FIRE-POT. DWIGHT S. RICHARDSON, New York, N. Y. Filed Sept. 15, 1900. Serial No. 30,180. Term of patent 14 years.



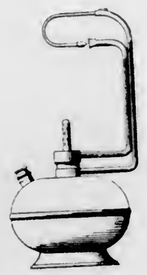
Claim.—The design for a fire-pot herein shown and described.

33,390. RADIATOR. HOSFORD D. KELLOGG, Philadelphia, Pa. Filed Sept. 25, 1900. Serial No. 31,103. Term of patent 7 years.



Claim.—The design for a radiator substantially as shown and described.

33,391. LAMP. CHARLES H. DE VOLL, Seattle, Wash., assignor of one-half to Marcel Beaudry, Anacortes, Wash. Filed July 24, 1900. Serial No. 24,722. Term of patent 7 years.



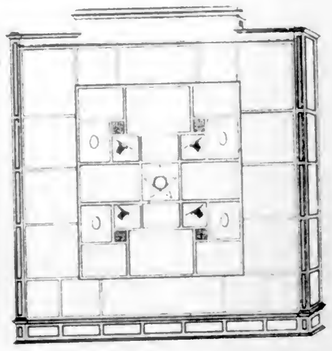
Claim.—The design for a lamp, substantially as herein shown and described.

33,392. CHANDELIER. GEORGE GRAY, New York, N. Y. Filed July 25, 1900. Serial No. 24,825. Term of patent 7 years.



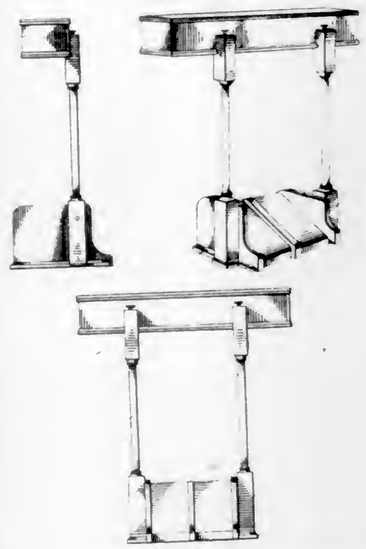
Claim.—The design for a chandelier as herein shown and described.

33,393. ADVERTISING-CABINET. EDGAR L. BROWNE, Cleveland, Ohio. Filed Sept. 12, 1900. Serial No. 29,814. Term of patent 3½ years.



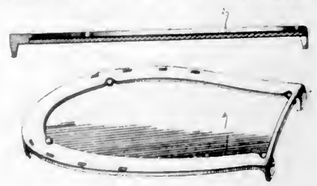
Claim.—The design for an advertising-cabinet substantially as herein shown and described.

33,394. CASE OR STAND FOR MECHANICAL MUSICAL INSTRUMENTS. ROBERT A. GALLY, New York, N. Y. Filed Sept. 15, 1900. Serial No. 30,182. Term of patent 14 years.



Claim.—The design for a case or stand for automatic musical instruments, as herein shown and described.

33,395. GAME-TABLE. GEORGE FRANCIS PURSER, Sarnia, Canada. Filed June 18, 1900. Serial No. 20,776. Term of patent 7 years.



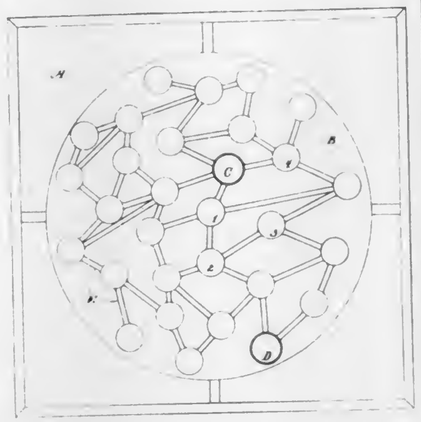
Claim.—The design for a game-table, substantially as shown and described.

33,396. GAME-BOARD. EDGAR L. WILLIAMS, Peoria, Ill., assignor to the Archarena Company, same place. Filed July 14, 1900. Serial No. 23,679. Term of patent 14 years.



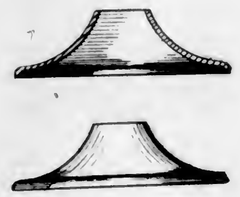
Claim.—The design for a game-board substantially as herein illustrated and described.

33,397. GAME-BOARD OR SIMILAR ARTICLE. JACOB W. BROWN, Boston, Mass. Filed May 3, 1900. Serial No. 15,422. Term of patent 3½ years.



Claim.—The design for a game-board or similar article, substantially as shown and described.

33,398. GOLF-TEE. WILLIAM HERRICK, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Dec. 14, 1899. Serial No. 740,360. Term of patent 14 years.

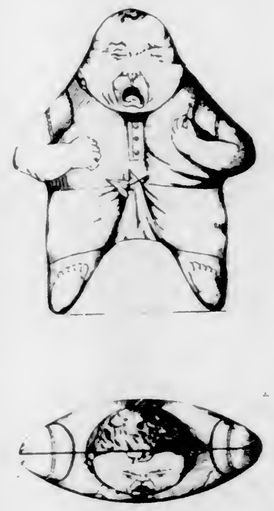


33,398.



Claim.—The design for a golf-tee, substantially as herein shown and described.

33,399. PINCUSHION. ALBERT H. WHITMORE, New York, N. Y. Filed Sept. 25, 1900. Serial No. 31,106. Term of patent 7 years.



Claim.—The design for a pincushion, substantially as shown and described.

33,400. THIMBLE. ROVA E. ALEXANDER, Garfield, Wash. Filed Aug. 14, 1900. Serial No. 26,899. Term of patent 14 years.



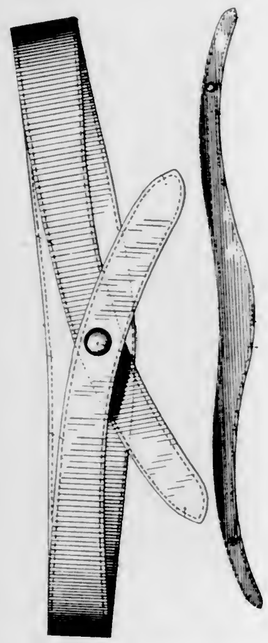
Claim.—The design for a thimble herein shown and described.

33,401. BELT ATTACHMENT. JULIUS HILDER, New York, N. Y. Filed June 11, 1900. Serial No. 19,966. Term of patent 3½ years.



Claim.—The design for a belt attachment, as herein shown and described.

33,402. BELT. WILLIAM VITZTHUM, Hoboken, N. J., assignor to MAX KATZENBERG, G. GARSON FREUND, and MAX FREUND, New York, N. Y. Filed Sept. 13, 1900. Serial No. 29,969. Term of patent 3½ years.



Claim.—The design for a belt substantially as herein shown and described.

33,403. SKIRT-PROTECTOR. HENRY A. SCHAEFER, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Apr. 24, 1900. Serial No. 14,190. Term of patent 7 years



Claim.—The design for a skirt-protector substantially as herein shown and described.

33,404. SKIRT-PROTECTOR. CHRISTOPHER E. HERTLEIN, New York, N. Y. Filed Aug. 10, 1900. Serial No. 26,532. Term of patent 14 years.



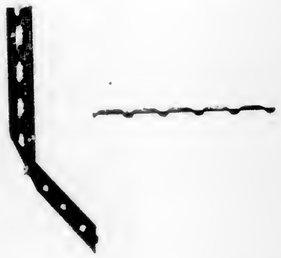
Claim.—The design for a skirt-protector, as shown and described.

33,405. SKIRT-BINDING. HENRY A. SCHAEFER, Rochester, N. Y., assignor to Schaefer & Schlegel, same place. Filed Apr. 24, 1900. Serial No. 14,191. Term of patent 7 years.



Claim.—The design for a skirt-binding, substantially as shown and described.

33,406. BRAID. JOSEPH WILLIAM SCHLOSS, New York, N. Y. Filed Sept. 20, 1900. Serial No. 30,633. Term of patent 7 years.



Claim.—The design for a braid substantially as herein shown and described.

33,407. CARPET. LOUIS H. BROWN, Worcester, Mass., assignor to Matthew J. Whittall, same place. Filed Sept. 13, 1900. Serial No. 29,967. Term of patent 3½ years.



Claim.—The design for a carpet, as herein described and shown.

TRADE-MARKS

REGISTERED OCTOBER 16, 1900.

35,240. CERTAIN NAMED SHOES. JOHANSEN BROS., St. Louis, Mo. Filed Sept. 17, 1900.

UNO

Essential feature.—The word "UNO." Used since March 1, 1898.

35,241. CERTAIN NAMED BOOTS AND SHOES. L. C. BLISS & CO., Boston and Whitman, Mass. Filed Sept. 18, 1900.

REGAL

Essential feature.—The word "REGAL." Used since July 1, 1900.

35,242. BOOTS AND SHOES AND LEATHER FOR SAME. L. C. BLISS & Co., Boston and Whitman, Mass. Filed Sept. 18, 1900.

STRAND

Essential feature.—The word "STRAND." Used since July 1, 1900.

35,243. BOOTS AND SHOES AND LEATHER FOR SAME. L. C. BLISS & Co., Boston and Whitman, Mass. Filed Sept. 18, 1900.

DUKE

Essential feature.—The word "DUKE." Used since August 1, 1900.

35,244. SHOES. LA PRELLE-WILLIAMS SHOE COMPANY, St. Louis, Mo. Filed Aug. 31, 1900.



Essential feature.—The representation of a heart and an arrow, the heart being pierced by the arrow. Used since August 4, 1900.

35,245. SHEETINGS AND DRILLS. HERMANN NORDER, New York, N. Y. Filed Mar. 17, 1900.



Essential feature.—The representation of an animal in a walking position, with the body of a deer having two horns resembling those of an antelope, and having three stars beneath the animal. Used since June 29, 1898.

35,246. STUB-PENS. C. HOWARD HUNT PEN MANUFACTURING COMPANY, Camden, N. J. Filed May 4, 1900.

COURIER

Essential feature.—The word "COURIER." Used since April 27, 1900.

35,247. CERTAIN PENS. C. HOWARD HUNT PEN MANUFACTURING COMPANY, Camden, N. J. Filed June 22, 1900.

WORLD

Essential feature.—The word "WORLD." Used since June 18, 1900.

35,248. CERTAIN NAMED PROPRIETARY MEDICINES AND REMEDIES. IMAN WISSE, Grand Rapids, Mich. Filed Feb. 14, 1900.

35,248.

IMAN

Essential feature.—The word "IMAN." Used since January, 1898.

35,249. CERTAIN NAMED MEDICINES. DAVID R. WOLFE, Coldwater, Mich. Filed Sept. 10, 1900.

U-NEED-A

Essential feature.—The hyphenated word "U-NEED-A." Used since August 20, 1900.

35,250. REMEDY FOR CERTAIN NAMED DISEASES. SIMEON SEIJAS, New York, N. Y. Filed July 26, 1900.

Essential feature.—The letters "SS" in monogram. Used since May 1, 1900.

35,251. REMEDIES FOR CERTAIN NAMED DISEASES. SMITH-GARDNER CO., New York, N. Y. Filed Mar. 28, 1900.

EUCA

Essential feature.—The word "EUCA." Used since January 1, 1899.

35,252. THROAT-TABLETS. ROBERT W. GARDNER, New York, N. Y. Filed May 25, 1898.

PHOSPHAMOL PTT

Essential feature.—The word "PHOSPHAMOL" and the letters "P. T. T." Used since January 1, 1898.

35,253. CANDY. THEODOR E. BREYER, Peoria, Ill. Filed Aug. 18, 1900.

SICCALBOL

Essential feature.—The word "SICCALBOL." Used since February 15, 1899.

35,254. CHOCOLATES. TRUMAN M. SWETLAND, Cleveland, Ohio. Filed Aug. 27, 1900.

SHINGLES

Essential feature.—The word "SHINGLES." Used since December 1, 1899.

35,255. CIGARS. JACOB HENRY BATH, Columbus Junction, Iowa. Filed Aug. 29, 1900.

SILVER TOM

Essential feature.—The words "SILVER TOM." Used since December 1, 1897.

35,256. CIGARS. G. J. JOHNSON CIGAR COMPANY, Grand Rapids, Mich. Filed Aug. 17, 1900.

EXEMPLAR

Essential feature.—The word "EXEMPLAR." Used since February 14, 1900.

35,257. CERTAIN NAMED BEVERAGES. THE FIRM OF ROBERT STEEL, Philadelphia, Pa. Filed June 19, 1900.

Essential feature.—The representation of a shield and the monogram "R S" appearing upon the face of the same. Used since April 28, 1900.

35,258. EXTRACT OF MALT. THE HEISSLER & JUNGE COMPANY, Chicago, Ill. Filed Sept. 17, 1900.

XXXX

Essential feature.—Four "X's." Used since January 15, 1896.

35,259. BOTTLED MILK. SIDNEY WANZER & SONS, Chicago, Ill. Filed Aug. 11, 1899.

Germ-no

Essential feature.—A wreath inclosing the initial letter of the compound word "GERM-NO" and a torch having its stem extended vertically and centrally through the wreath and also through the initial letter of said word. Used since June 15, 1899.

35,260. MILK PRODUCTS AND PRODUCTS CONTAINING MILK. NATIONAL NUTRIENT COMPANY, Jersey City, N. J. Filed Sept. 12, 1900.

NUTRIUM

Essential feature.—The word "NUTRIUM." Used since February 1, 1899.

35,261. CERTAIN NAMED FOODS AND RELISHES. THE M. A. GEDNEY PICKLING COMPANY, Minneapolis, Minn. Filed Sept. 17, 1900.

MIN NE HA HA

Essential feature.—The word "MINNEHAHA." Used since September 1, 1892.

35,262. CERTAIN NAMED ARTICLES OF FOOD. CATTON BELL & CO., San Francisco, Cal. Filed Sept. 20, 1900.

Essential feature.—The representation of the ace of spades bearing on its face the monogram "C B & Co." Used since July 1, 1900.

35,263. KEROSENE. GANDOLFI, MOSS, PELLERANO & CO., Buenos Ayres, Argentina; Paris, France, and Genoa, Italy. Filed Sept. 19, 1900.

LUCILINA

Essential feature.—The word "LUCILINA." Used since May 22, 1900.

35,264. ILLUMINATING-OIL. WILBURINE OIL WORKS, LIMITED, New York, N. Y. Filed Aug. 24, 1900.

MAGIC

Essential feature.—The word "MAGIC." Used since April 1, 1900.

35,265. POLISH-PASTE FOR SILVER. "NOVAL" GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Berlin, Germany. Filed Aug. 30, 1900.

35,255.

NOVAL

Essential feature.—The word "NOVAL." Used since June 20, 1900.

35,266. METAL-POLISH. J. A. WRIGHT & COMPANY, Keene, N. H. Filed Aug. 17, 1900.



Essential feature.—The words "NEW CENTURY" and the pictorial representation of a knight on horseback. Used since July 20, 1900.

35,267. KITCHEN-CABINETS. THE GLOBE CABINET COMPANY, Kansas City, Mo. Filed Sept. 15, 1900.

GLOBE

Essential feature.—The word "GLOBE." Used since July 1, 1900.

35,268. BELLS. FRANK MOSSBERG CO., Attleborough, Mass. Filed June 8, 1900.



Essential feature.—A diamond-shaped figure. Used since January 25, 1899.

35,269. STOVEPIPE. SCOTT & CO., Cincinnati, Ohio. Filed Sept. 4, 1900.

EZ

Essential feature.—The word "EZ." Used since June 1, 1900.

35,270. FLASH-LAMPS AND FLASH-LIGHT POWDER THEREFOR. HARRY B. SHARPER, Altoona, Pa. Filed Aug. 31, 1900.

SUN-O

Essential feature.—The compound word "SUN-O." Used since August 8, 1900.

35,271. CERTAIN METAL CASTINGS. ARTHUR O. FOX, Madison, Wis. Filed Dec. 4, 1899.



Essential feature.—The word "HERCULES" and the pictorial representation of Hercules supporting the world. Used since September 11, 1899.

35,272. CERTAIN METAL CASTINGS. ARTHUR O. FOX, Madison, Wis. Filed Dec. 4, 1899.

HERCULES

Essential feature.—The word "HERCULES." Used since September 11, 1899.

35,273. CERTAIN NAMED GEARING AND MACHINERY. CHAIN BELT COMPANY, Milwaukee, Wis. Filed May 21, 1900.



Essential feature.—A conventional sign or mark consisting of a four-sided diamond-shaped geometrical figure, as shown in the accompanying facsimile. Used since January, 1899.

35,274. VENTILATORS FOR CHIMNEYS AND OTHER PARTS OF BUILDINGS. BRANDES & KREUTZBERG, Marine, Ill. Filed Aug. 20, 1900.

20TH CENTURY

Essential feature.—The words "20TH CENTURY." Used since August 7, 1900.

35,275. COIL-PACKING. THE BAY CITY MANUFACTURING AND RUBBER COMPANY, San Francisco, Cal. Filed Aug. 24, 1900.



Essential feature.—A rectangular border inclosing a perspective view of a short section of packing of the coil type divided longitudinally and obliquely. Used since May 1, 1900.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

IN RE CONDICT.

Decided June 21, 1900.

1. PATENT, ERROR IN—CHANGING TITLE OF INVENTION—CORRECTING PATENT BY CERTIFICATE OF CORRECTION.

Where the Office failed to change the title of invention as requested by applicant and the patent was returned to the Office for correction, *Held* that it was proper to correct the error in the patent by a certificate of correction and that the Office should not be put to the expense of reissuing the patent.

2. SAME—SAME—RULE 170.

Rule 170 provides for correcting a patent by a certificate of correction, and it is believed that the rule is valid and that the Commissioner has authority to correct such a mistake as was made in the printing of this patent by certificate of correction.

IN the matter of the request for the reissue of Letters Patent No. 647,475, issued April 17, 1900, on the application of George H. Condict.

Mr. Frankland Jannus for Condict.

DURELL, *Commissioner:*

Patent No. 647,475, granted April 17, 1900, to the Columbia and Electric Vehicle Company, assignee of George H. Condict, has been returned to the Office with the request that it be reissued without expense to the applicant. The ground for this request is that there is an error in the title of the invention as given in the patent and that the error arose through the fault of the Office.

The record shows that when the application was filed the title of the invention was stated to be "Battery-handling attachment for motor-vehicles" and that this was the title given to the invention by the Examiner when he passed the case to issue on January 30, 1900. On February 19, 1900, the applicant filed a request that the title be changed to "Battery apparatus for electric-motor vehicles." This request was granted, and the Examiner changed the title in the preamble to the specification without withdrawing the application from issue. It seems, however, that the title was not changed on the drawings nor on the back of the file-wrapper, and when the patent was printed the title "Battery-handling attachment for motor-vehicles" appeared in the grant and also at the head of the different sheets of the drawings accompanying the grant and in the heading of the specification.

On April 28, 1900, the patent was returned to the Office, and attention was called to the discrepancy in the title, and it was suggested that—

apparently the proper method of correction is that the patent be reissued with the proper title and without expense to the patentee, and the matter is submitted for judicial consideration.

As it appeared that the title of the invention had not been printed as directed and that there was error on the part of the Office in not printing it as requested by applicant in the amendment of February 19, 1900, which had been approved by the Commissioner, a certificate of correction was issued on May 8, 1900, as is usual in such cases.

The patentee now contends that the patent should not be corrected by a certificate of correction and that by the letter received on April 28, 1900, it was requested that the patent be corrected by a reissue.

I cannot agree with the patentee that the said letter requested that the patent be corrected by reissue. That letter simply suggested that—

the proper method of correction is that the patent be reissued.

The Office did not follow this suggestion because, as before stated, in such a case as this it has been the uniform practice to make the correction by a certificate. Rule 170 provides for correcting a patent in this manner, and it is believed that the rule is valid and that the Commissioner has authority to correct such a mistake as was made in the printing of this patent by a certificate of correction and I think that the Office should not be put to the expense of reissuing this patent.

The request is denied.

EX PARTE DIESCHER.

Decided October 2, 1900.

1. DRAWINGS—EXCESSIVE NUMBER OF SHEETS.

Upon a petition from the requirement of the Examiner that the number of sheets of drawings in an application be reduced, *Held* that the Examiner and draftsman are experts, and when they agree the well-established rule that the proper illustration is largely within the judgment and discretion of the Examiner should be followed.

2. SAME—SAME.

The practice of unnecessarily multiplying the number of sheets of drawings filed with applications is open to severe condemnation. To file unnecessary sheets of drawings is to increase the cost of photolithographing and to multiply the records, thereby delaying the Office in its searches and placing an unnecessary burden upon applicants.

ON petition.

FEED MECHANISM FOR FURNACES.

Application of Samuel E. Diescher and Alfred J. Diescher filed March 1, 1900, Serial No. 6,908.

Mr. Darwin S. Wolcott for the applicants.

DUELL, *Commissioner:*

This is a petition from the requirement of the Examiner that the number of sheets of drawings in the application be reduced from ten to six. The petitioners urge that this requirement would necessitate that the figures be so reduced in size that the construction illustrated would be unintelligible and especially so when further reduced for the printed copies of the patent and the GAZETTE.

After a careful examination of the drawings I am satisfied that by a slight reduction of the scale of the figures they can all be clearly illustrated upon six sheets. The Examiner and draftsman are experts, and when they agree, as in the present instance, the well-established rule that the proper illustration is largely within the judgment and discretion of the Examiner should be followed. (*Ex parte Soden*, 45 MS. Dec., 267; *ex parte Griffin*, 64 MS. Dec., 488; *ex parte Krause*, 56 O. G., 1718.)

This petition could have been disposed of by indorsement and would have been had I not deemed it a favorable opportunity to comment on the growing practice of unnecessarily multiplying the number of sheets of drawings filed with applications. The practice is one open to severe condemnation. To file unnecessary sheets of drawings is to increase the cost of photolithographing and to multiply the records, thereby delaying the Office in its searches and placing an unnecessary burden upon applicants.

I recognize that in a great many instances there may be, as there is in the present case, an honest difference of opinion between the Examiner and the attorney; but the practice of the Office has been in such cases not to interfere with the action of the Examiner unless it is manifestly erroneous.

The petition is denied.

Revision of Classification.

(ORDER No. 1,372.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 3, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division V, class 11, Bookbinding, abolish subclass 5, Book-cutting.

In Division XI abolish class 219, Punches.

In Division XV, class 30, Cutlery, abolish subclass 2, Button-hole-cutters.

In Division XVII, class 101, Printing, abolish subclass 151, Feeding, sheet-cutters.

In Division XXIV, class 223, Apparel Apparatus, abolish the following subclasses:

5. Cutters—
6. Die,
7. Overboard—
8. Rotary,
9. Reciprocating—
10. Notchers,
11. Rotary—
12. Band-knife,
13. Traveling.

In Division XIV, class 81, Metal-Working Tools, establish subclass 82, Nut-lock tools.

In Division XIV abolish class 164, Metal Punching and Shearing, and all the subclasses thereof and establish in lieu of the same the following:

(Note.—Most of the patents in the groups of Cutters and Perforators in the former Class 93, PAPER MANUFACTURES, are included in the new Class 164, CUTTING AND PUNCHING SHEETS AND BARS.)

CLASS 164.—CUTTING AND PUNCHING SHEETS AND BARS.

1. Buttonholes—
3. Knives,
2. Machines,
4. Pliers—
5. Modified scissors,
6. Scissors attachments.
11. Combined machines—
13. Die cutting and punching,
14. Pivoted knife-carrier,
15. Reciprocating knife-carrier,
16. Roller-cutter and punch,
12. Work-feeding.
17. Cutting—
18. Die—
29. Dies—
31. Adjustable-face,
33. Blank-ejecting,
32. Multiple concentric,
30. Spiral-strip-cutting,
19. Machines—
23. Reciprocating cross-head—
24. Shifting dies,
25. Reciprocating plunger—
26. Lever-operated,
27. Screw-operated,
28. Roller-die,
20. Work-feeding—
21. Reciprocating feeder,
22. Roller-feed,
80. Implements—
81. Pliers,
82. Sweep,
83. Traveling—
84. Roller-cutter,
34. Machines—
35. Band-knife,
78. Cutting-tables—
79. Work-clamping,
36. Fixed-cutter—
38. Work-feeding—
39. Roller-feed,
37. Spiral-strip,
40. Oscillating apertured cutters,
41. Pivoted-cutter—
44. Lever-operated—
46. Compound-leverage,
45. Work-clamping,
43. Transverse,
42. Work-feeding,
47. Reciprocating-cutter—
51. Automatic-clamp,
58. Cutters and bed-blocks,
53. Draw-cut—
54. Automatic-clamp,
55. Separately-operated clamp,
56. Fluid-operated,
59. Gages,
57. Lever-operated,
50. Notched-work,
52. Separately-operated clamp,
48. Work-feeding—
49. Roller-feed,
60. Rotary-cutter—
63. Curved plate work,
70. Cutting—
64. Rotary-cutter—
69. Cutters,
65. Notched-work,
66. Rotary work-mandrel,
68. Slitters and winders,
67. Transverse—
61. Work-feeding—
62. Printing-press attachments,
71. Reciprocating feeder,
72. Sweep-cutter—
73. Elliptical work,
74. Traveling-cutter carriage—
75. Motor-driven cutter—
76. Reciprocating,
77. Rotary,
7. Roller-knife.
8. Fence-barbs—
9. Cutters and dies—
10. Roller,
85. Processes.
119. Punching—
120. Implements—
121. Pivoted handles—
122. Pliers—
123. Turret,
86. Traveling-roller.
118. Machines—
87. Dies and die-holders,
88. Feeding and punching—
89. Reciprocating-feed,
116. Roller-feed.
117. Feed mechanisms—
90. Reciprocating,
91. Gang—
92. Lever-operated—
93. Foot,
94. Pattern,
95. Hammer,
96. Hydraulic,
97. Lever-operated—
98. Foot,
111. Printers' rules,
112. Punch-selector—
113. Keyboard-controlled—
114. Electrically-operated,
115. Pattern-controlled—
99. Electrically-operated,
100. Roller—
101. Printing-press attachments,
102. Screw-operated,
107. Shaft-driven—
104. Safety devices,
105. Stop devices—
106. Shaft-clutch,
103. Stroke adjustments.
110. Tilting-frame,
109. Strippers and hold-downs,
108. Tie-band tongue,
125. Tube,
124. Processes,
Punches.

C. H. DUELL,
Commissioner.

CLASS 164.—CUTTING AND PUNCHING SHEETS AND BARS.

DEFINITIONS.

Class.

This class embraces machines and processes for cutting, including die cutting and punching sheets, plates, or bars of metal, cloth, rubber, leather, paper, etc.

Patents for splitting and skiving of leather are classified in 69, LEATHER-WORKING.

Patents for machines especially designed for working on boots and shoes, except die-cutting, are in the class of BOOT AND SHOE MAKING.

Subclasses.

1. BUTTONHOLES. Devices for cutting buttonholes, usually in cloth or leather.

2. BUTTONHOLES, MACHINES. Machines for cutting buttonholes.

3. BUTTONHOLES, KNIVES. Those having a knife form of cutter.

4. BUTTONHOLES, PLIERS. Those having a plier form.
(Note.—Search should also be made in Cutting, implements, pliers, and Punching, implements, pivoted handles, pliers, in this class.)

5. BUTTONHOLES, PLIERS, MODIFIED SCISSORS. Those in which an ordinary pair of scissors is modified to cut the buttonholes.

6. BUTTONHOLES, PLIERS, SCISSORS ATTACHMENTS. Devices adapted to be secured to ordinary scissors to cut the buttonholes.

7. FENCE-BARBS. Miscellaneous subclass of apparatus for cutting fence-barbs in strips of metal.

8. FENCE-BARBS, CUTTERS AND DIES. Those in which the novelty lies in the shape of the cutter or the die.
(Note.—Search should also be made in the following subclasses under the group of Cutting, this class: Die, machines, reciprocating-plunger; Machines, reciprocating-cutter; also, in Punching, machines, in this class.)

9. FENCE-BARBS, CUTTERS AND DIES, ROLLER. Those in which the strip is passed between rollers carrying the cutters or dies.
(Note.—Search should also be made in the following subclasses under Cutting:—Die, machines, roller-die; Machines, rotary-cutter; Machines, traveling-cutter-carriage, roller-knife; also, in Punching, machines, roller, and Combined machines, roller-cutter and punch, this class.)

10. FENCE-BARBS, PROCESSES. Processes of cutting out the fence-barbs.

11. COMBINED MACHINES. Miscellaneous subclass of machines each adapted to perform both the operations of cutting and punching.

12. COMBINED MACHINES, WORK-FEEDING. Those combined machines which also have novelty in the mechanism for feeding the work to the operating parts.
(Note.—Search also under Cutting, die, machines:—Work-feeding; Work-feeding, reciprocating-feeder; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-cutter; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; also, Punching, machines, feeding and punching, and Punching, machines, feed mechanisms, all in this class.)

13. COMBINED MACHINES, DIE CUTTING AND PUNCHING. Each machine is adapted to both die cut and punch.

14. COMBINED MACHINES, PIVOTED KNIFE-CARRIER. Those combined machines in which the cutter or part to which it is attached is pivoted. The punch is usually either directly attached to this pivoted carrier or is actuated directly by it.

15. COMBINED MACHINES, RECIPROCATING KNIFE-CARRIER. The knife or its carrier has a reciprocating movement. The punch is usually a separate plunger; but sometimes both cutter and punch are attached to the same plunger or head.

16. COMBINED MACHINES, ROLLER CUTTER AND PUNCH. A roller or cylinder carries cutters and punches upon its periphery.

17. CUTTING. Miscellaneous subclass of cutting apparatus or processes.

18. CUTTING, DIE. Miscellaneous subclass of machines or processes for stamping out articles by dies.

19. CUTTING, DIE, MACHINES. Miscellaneous subclass of die-cutting machines.

20. CUTTING, DIE, MACHINES, WORK-FEEDING. Those machines having also feeding mechanism attached.
(Note.—Search also Combined machines, work-feeding, and under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; Rotary-cutter, work-feeding; also, Punching, machines, feeding and punching, and Punching, machines, feed mechanisms, all in this class.)

21. CUTTING, DIE, MACHINES, WORK-FEEDING, RECIPROCATING-FEEDER. The feeding device has a reciprocating movement.
(Note.—Search also under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; also, under Punching, machines:—Feeding and punching; Feed mechanisms, reciprocating; also, Combined machines, work-feeding, all in this class.)

22. CUTTING, DIE, MACHINES, WORK-FEEDING, ROLLER-FEED. Work is fed to the machine by rolls.
(Note.—Search should also be made in Combined machines, working-feeding; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments, and under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms, all in this class.)

23. CUTTING, DIE, MACHINES, RECIPROCATING CROSS-HEAD. That type of machine having a cross head or bar, with guides at its ends, adapted to reciprocate with the attached die.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, and in Punching, machines, and Punching, machines, shaft-driven, in this class, and in Punching, cutters, and Punching, cutters, fixed-die, in class 144, WOOD-WORKING.)

24. CUTTING, DIE, MACHINES, RECIPROCATING CROSS-HEAD, SHIFTING DIES. Several dies, as right and left dies for shoe-soles, are adapted to be alternately or successively brought to operative position.

25. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER. The die is carried at the end of a simple plunger.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter; Punching, machines, and Punching, machines, shaft-driven, in this class; and Punching, cutters, and Punching, cutters, fixed-die, in class 144, WOOD-WORKING.)

26. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER, LEVER-OPERATED. Those in which the plunger is operated by a lever or system of levers.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

27. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER, SCREW-OPERATED. The die-carrying plunger is adapted to be forced down by a screw.
(Note.—Search should also be made in Punching, machines, screw-operated, in this class.)

28. CUTTING, DIE, MACHINES, ROLLER-DIE. Those in which the cutting-die is secured to the periphery of a cylinder.
(Note.—Search should also be made in Fence-barbs, cutters and dies, roller; Cutting, machines, rotary-cutter, and in Punching, machines, roller, in this class.)

29. CUTTING, DIE, DIES. Various structures of dies for dieing or stamping out articles.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, cutters and bed-blocks, and Punching, machines, dies and die-holders, in this class.)

30. CUTTING, DIE, DIES, SPIRAL-STRIP CUTTING. The die is spiral on its face, so that a coiled strip or string can be stamped out at one operation.

31. CUTTING, DIE, DIES, ADJUSTABLE-FACE. The face of the die can be adjusted to vary its size or its contour.

32. CUTTING, DIE, DIES, MULTIPLE CONCENTRIC. Two or more dies are placed one within the other. Sometimes, as in stamping out washers, both or all dies are used simultaneously, while in other cases any one of the dies can be used alone.

33. CUTTING, DIE, DIES, BLANK-EJECTING. The die has means for ejecting the blank or piece from the die after the blank is stamped out.

34. CUTTING, MACHINES. Miscellaneous subclass of cutting-machines.

35. CUTTING, MACHINES, BAND-KNIFE. Those in which the cutter is of band or belt form and travels over pulleys or sheaves.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, motor-driven cutter, in this class.)

36. CUTTING, MACHINES, FIXED-CUTTER. Machines having a stationary cutter or cutters, the work usually being fed or drawn along against the knife; usually strap and string trimmers and arrangements for slitting various fabrics.

37. CUTTING, MACHINES, FIXED-CUTTER, SPIRAL STRIPS. Those which are adapted to cut strings from disks, usually of leather. The disk is made to turn upon its center, while the string is continuously cut by the knife at the edge of the disk.

38. CUTTING, MACHINES, FIXED-CUTTER, WORK-FEEDING. Those having also a mechanism for feeding the work to or past the cutters.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, reciprocating-feeder; under Cutting, machines:—Pivoted-cutter, work-feeding, and Reciprocating-cutter, work-feeding; under Cutting, machines, rotary-cutter:—Transverse, work-feeding; Transverse, work feeding, printing-press attachments; Work-feeding, and Work-feeding, reciprocating-feeder, and under Punching machines:—Feeding and punching, and Feeding and punching, reciprocating-feed; Feed mechanisms, and Feed mechanisms, reciprocating, all in this class.)

39. CUTTING, MACHINES, FIXED-CUTTER, WORK-FEEDING, ROLLER-FEED. Those in which the work is fed by rolls.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; Cutting, machines, pivoted-cutter, work-feeding, and Cutting, machines, reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines rotary-cutter:—Transverse, work-feeding, and Transverse, work-feeding, printing-press attachments; Work-feeding; and Punching, machines, feeding and punching, roller-feed; also, Punching, machines, feed mechanisms, all in this class.)

40. CUTTING, MACHINES, OSCILLATING APERTURED CUTTERS. Those having two apertured plates or disks, the apertures being

shaped to fit the material to be cut and placed coincident, and one or both plates are rotated to shear off the inserted bar or rail.

41. CUTTING, MACHINES, PIVOTED-CUTTER. Those in which the cutter or the part to which it is attached is pivoted.

42. CUTTING, MACHINES, PIVOTED-CUTTER, WORK-FEEDING. Those having mechanism for feeding the work to the cutter.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, transverse, work-feeding, Rotary-cutter, transverse, work-feeding, printing-press attachments; Rotary-cutter, work-feeding, Rotary-cutter, work-feeding, reciprocating-feeder, and under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed, roller-feed; Feed mechanisms, and Feed mechanisms, reciprocating, all in this class.)

43. CUTTING, MACHINES, PIVOTED-CUTTER, TRANSVERSE. Those in which the cutter lies parallel to the pivot or axis and operates, like the jaws of a pair of nippers, to cut transversely or across the length of the material.

44. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED. Those in which the pivoted cutter is operated by a lever.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, reciprocating-cutter, lever-operated, and under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

45. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED, WORK-CLAMPING. Those in which mechanism is provided for clamping the work while the pivoted cutter shears the material.
Note.—Search also under Cutting, machines:—Cutting-tables, work-clamping; Reciprocating-cutter, draw-cut, separately-operated clamp, and Reciprocating-cutter, separately-operated clamp, in this class, and Clamps, in class 144, WOODWORKING.)

46. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED, COMPOUND-LEVERAGE. Those in which the cutter is operated by a system of levers.
(Note.—Search also Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

47. CUTTING, MACHINES, RECIPROCATING-CUTTER. Miscellaneous subclass of machines having a reciprocating cutter.
(Note.—Search also Combined machines, reciprocating knife-carrier; under Cutting, die, machines:—Reciprocating cross-head, and Reciprocating-plunger, and Cutting, machines, traveling cutter-carriage, motor-driven cutter, reciprocating; under Punching, Machines:—Machines, gang; Machines, shaft-driven, and Machines, tie-band tongue, all in this class. Also 93, PAPER MANUFACTURES, Bag-machines, cutting; 144, WOODWORKING, Punching, cutters, and Punching, cutters, fixed-die; 144, WOODWORKING, Slicers, and 144, WOODWORKING, Splitting.)

48. CUTTING, MACHINES, RECIPROCATING-CUTTER, WORK-FEEDING. Those also having mechanism for feeding the work to the cutter.
(Note.—Search also Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, reciprocating-feeder; under Cutting, machines:—Pivoted-cutter, work-feeding; Fixed-cutter, work-feeding; under Cutting, machines, rotary-cutter:—Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; Work-feeding; Work-feeding, reciprocating-feeder; under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed; Feed mechanisms; Feed mechanisms, reciprocating, all in this class.)

49. CUTTING, MACHINES, RECIPROCATING-CUTTER, WORK-FEEDING, ROLLER-FEED. Those in which the work is fed by rolls.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding, and Rotary-cutter, transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms, all in this class.)

50. CUTTING, MACHINES, RECIPROCATING-CUTTER, NOTCHED-WORK. Those adapted to cut notches or scallops in the edges of materials, such as cloth for garments, leather for the button-flies of shoes, metal for currycomb-teeth, etc. Edge-pinking machines are here included.
(Note.—Search should also be made in Cutting, machines, rotary-cutter, notched-work, in this class.)

51. CUTTING, MACHINES, RECIPROCATING-CUTTER, AUTOMATIC-CLAMP. Those having clamping mechanism for holding the material, which mechanism is automatic in its action as distinguished from those machines in which the work-clamp is set up by hand.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, draw-cut, automatic-clamp, and Punching, machines, strippers, and hold-downs, in this class.)

52. CUTTING, MACHINES, RECIPROCATING-CUTTER, SEPARATELY-OPERATED CLAMP. Those in which the work-clamp is set up by hand.
(Note.—Search should also be made in Cutting, machines, pivoted-cutter, lever-operated, work-clamping; Cutting, machines, reciprocating-cutter, draw-cut, separately-operated clamp, and Cutting, machines, cutting-tables, work-clamping, all in this class.)

53. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT. Those in which the reciprocating knife has also an endwise-shearing movement, usually in machines for cutting piles of paper.

54. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT, AUTOMATIC-CLAMP. Those having an automatic mechanism for clamping the work as distinguished from a hand-operated clamp.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, automatic-clamp, and Punching, machines, strippers, and holddowns, in this class.)

55. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT, SEPARATELY-OPERATED CLAMP. Those in which the work-clamp is set up by hand.
(Note.—Search should also be made in the following subclasses under Cutting, machines:—Cutting-tables, work-clamping; Pivoted-cutter, lever-operated, work-clamping, and Reciprocating-cutter, separately-operated clamp, in this class.)

56. CUTTING, MACHINES, RECIPROCATING-CUTTER, FLUID-OPERATED. Those in which some fluid, as water, steam, etc., is employed to operate them.
(Note.—Search should also be made in Punching, machines, hydraulic, in this class.)

57. CUTTING, MACHINES, RECIPROCATING-CUTTER, LEVER-OPERATED. Those in which the cutter is actuated by lever movement.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, pivoted-cutter, lever-operated; Cutting, machines, pivoted-cutter, lever-operated, compound-leverage; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

58. CUTTING, MACHINES, RECIPROCATING-CUTTER, CUTTERS, AND BED-BLOCKS. Those patents in which the novelty lies in the cutter or the block which opposes or receives the thrust of the cutter.
(Note.—Search also Punching, machines, dies, and die-holders, in this class.)

59. CUTTING, MACHINES, RECIPROCATING-CUTTER, GAGES. Those in which the novelty lies in the gage or guide for determining the position of the cut with respect to the work; usually regulates the length of part cut off.

60. CUTTING, MACHINES, ROTARY-CUTTER. Those having a cutter which when in operation is rotated.
(Note.—Search should also be made in Punching, machines, roller, in this class, and in Bag-machines, cutting, in class 93, PAPER MANUFACTURES.)

61. CUTTING, MACHINES, ROTARY-CUTTER, WORK-FEEDING. Those machines which include mechanism for feeding the work to the cutter.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, and Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching; Feeding and punching, roller-feed; Feed mechanisms, all in this class.)

62. CUTTING, MACHINES, ROTARY-CUTTER, WORK-FEEDING, RECIPROCATING-FEEDER. Those in which the feeder has a reciprocating motion.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines;—Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; under Cutting, machines, rotary-cutter: Transverse, work-feeding; under Punching, machines:—Feeding and punching, reciprocating-feed; Feed mechanisms, reciprocating, all in this class.)

63. CUTTING, MACHINES, ROTARY-CUTTER, CURVED-PLATE-WORK. Those for cutting disks or elliptical shapes. Usually the material is rotated about its center and a pair of opposed cutting-disks engage, one above and one below, the work near its edge and trim it to shape. Sometimes the work is stationary and the cutters travel around the edge.

64. CUTTING, MACHINES, ROTARY-CUTTER, NOTCHED-WORK. Those machines which pink, notch, or scallop the edges of various materials.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, notched-work, in this class.)

65. CUTTING, MACHINES, ROTARY-CUTTER, SLITTERS AND WINDERS. Those adapted to trim or cut into strips continuous webs and wind them up upon spools or drums. Many wall-paper-trimming machines are here included.

66. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE. Those in which the plane of the knife is parallel to the axis of rotation, as in an ordinary lawn-mower, and which cut the web of material transversely of its length.
(Note.—Search should also be made in class 144, WOODWORKING, Cutters, rotary, cylindrical, slotted bit-seat, and in Cutters, rotary, cylindrical, spiral-bit.)

67. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE, WORK-FEEDING, PRINTING-PRESS ATTACHMENTS. Those machines adapted to be attached to printing-presses to feed and cut the paper into lengths.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms; Cutting, machines, rotary-cutter, work-feeding; Cutting, machines, rotary-cutter, work-feeding, reciprocating-feeder, this class.)

68. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE, WORK-FEEDING. Those machines which have also feeding mechanism for the work.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding; Work-feeding, reciprocating-feeder; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter;—Transverse, work-feeding, printing-press attachments; Work-feeding; and Work-feeding, reciprocating-feeder; under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed; Feeding and punching, roller-feed; Feed mechanisms; Feed mechanisms, reciprocating, all in this class.)

69. CUTTING, MACHINES, ROTARY-CUTTER, ROTARY WORK-MANDREL. Those in which the work is carried upon a rotary work-mandrel while being cut, as in cutting paper or other tubes into lengths, cutting rubber, leather or leather-board strings, rings, etc.

70. CUTTING, MACHINES, ROTARY-CUTTER, CUTTERS. Those patents in which the novelty resides in the cutter.

71. CUTTING, MACHINES, SWEEP-CUTTER. Those for cutting disks and curved shapes by a knife which is carried at the end of a sweep-arm.
(Note.—Search should also be made in Cutting, implements, sweep, in this class.)

72. CUTTING, MACHINES, SWEEP-CUTTER, ELLIPTICAL WORK. Those in which means is provided to move the knife or the work so as to make elliptical shapes.
(Note.—Search should also be made in Cutting, implements, sweep, in this class.)

73. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE. Miscellaneous subclass of those machines in which the cutter is moved about over the stationary work. Machines for cutting out garments, picture-mats, trimming cardboard, paper, etc., are here included.
(Note.—Search should also be made in Cutting, implements, traveling, and Punching, implements, traveling-roller, in this class.)

74. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER. Those in which the cutter is given a separate cutting movement by a motor, in addition to such motion as is imparted to it by being moved by hand. The garment "overboard" cutters are here included.
(Note.—Search should also be made in Cutting, implements, traveling, in this class.)

75. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER, RECIPROCATING. Those in which the motor gives a reciprocating movement to the cutter.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; Cutting, die, machines, reciprocating-plunger; Cutting, machines, reciprocating-cutter; Punching, machines, and Punching, machines, shaft-driven, all in this class.)

76. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER, ROTARY. Those in which the motor gives a rotary movement to the cutter.
(Note.—Search should also be made in Cutting, implements, traveling, roller-cutter, and Punching, implements, traveling-roller, in this class.)

77. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, ROLLER-KNIFE. Those in which the cutter rolls along as the carriage is moved over the board by hand.
(Note.—Search also Combined machines, roller-cutter and punch; Cutting, die, machines, roller-die; Cutting, implements, traveling, roller-cutter; Cutting, machines, rotary-cutter; Punching, implements, traveling-roller, and Punching, machines, roller, this class.)

78. CUTTING, MACHINES, CUTTING-TABLES. Tables or boards on which material is laid while being cut; tailors' cutting-boards, tables on which photograph and other cards are trimmed; also some die-blocks.

79. CUTTING, MACHINES, CUTTING-TABLES, WORK-CLAMPING. Those work-tables supplied with means for clamping the material.
(Note.—Search should also be made in Cutting, machines, pivoted-cutter, lever-operated, work-clamping; Cutting, machines, reciprocating-cutter, separately-operated clamp, and Cutting, machines, reciprocating-cutter, draw-cut, separately-operated clamp, in this class, and Clamps, in class 144, WOODWORKING.)

80. CUTTING, IMPLEMENTS. Miscellaneous subclass of hand implements for cutting sheet materials.
(Note.—Search should also be made in Punching, implements, in this class.)

81. CUTTING, IMPLEMENTS, PLIERS. The hand implement is in the form of a plier.
(Note.—Search should also be made in Punching, implements, pivoted handles, pliers, and Buttonholes, pliers, in this class.)

82. CUTTING, IMPLEMENTS, SWEEP. The implement has a sweep action, as in cutting rings, disks, and segments; includes bits for either the usual hand-brace or a machine.
(Note.—Search should also be made in Cutting, machines, sweep-cutter, and Cutting, machines, sweep-cutter, elliptical-work, in this class, and in Augers, sweeps, in class 145, WOODWORKING TOOLS; also, in Special-work machines, single or combined, disk-cutting, sweep-cutter, in class 144, WOODWORKING.

83. CUTTING, IMPLEMENTS, TRAVELING. Hand implements adapted to be moved generally in a straight line over the material in cutting it to shape, usually to trim or cut into lengths or strips, as leather-cutting gages, wall-paper trimmers, etc.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, and Cutting, machines, traveling cutter-carriage, motor-driven cutter, in this class.)

84. CUTTING, IMPLEMENTS, TRAVELING, ROLLER-CUTTER. Those in which the cutter is a disk.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, motor-driven cutter, rotary; and Cutting, machines, traveling cutter-carriage, roller-knife; also, in Punching, implements, traveling-roller, in this class.)

85. PUNCHING. Miscellaneous subclass of apparatus and processes for punching holes in sheets and bars. Under Cutting, die, will be found those machines which punch out blanks when the object is to secure the blank, while those machines which punch holes, when the object is to get a perforated strip, sheet, or bar, are here included in the subclasses of Punching.

86. PUNCHING, MACHINES. Miscellaneous subclass of machines for punching holes.
(Note.—Search should also be made in Cutting, die, machines; Cutting, machines; Cutting, machines, reciprocating-cutter, and Fence-barbs, cutters, and dies, in this class.)

87. PUNCHING, MACHINES, FEEDING AND PUNCHING. Those adapted to feed the material as well as punch it.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding; under Cutting, machines: Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, transverse, work-feeding, and Punching, machines, feed mechanisms, in this class.)

88. PUNCHING, MACHINES, FEEDING AND PUNCHING, RECIPROCATING-FEED. Those in which the feeding mechanism has a reciprocating movement.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding, and Punching, machines, feed mechanisms, reciprocating, in this class.)

89. PUNCHING, MACHINES, FEEDING AND PUNCHING, ROLLER-FEED. Those having the work fed by rolls.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments, and Punching, machines, feed mechanisms, all in this class.)

90. PUNCHING, MACHINES, GANG. Those having a series of punches.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, in this class.)

91. PUNCHING, MACHINES, GANG, LEVER-OPERATED. Those in which the punch is operated by lever action.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; Punching, machines, lever-operated, and Punching, machines, lever-operated, foot, all in this class.)

92. PUNCHING, MACHINES, GANG, LEVER-OPERATED, FOOT. The lever is operated by foot.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Lever-operated, and Lever-operated, foot, all in this class.)

93. PUNCHING, MACHINES, GANG, PATTERN. Those in which the punches are so arranged as to punch out some pattern or design. Some permit of varying the design by rearranging the punches or leaving out some.

94. PUNCHING, MACHINES, HAMMER. Those machines in which a separate implement or the operator's hand is used to strike the punching-plunger.

95. PUNCHING, MACHINES, HYDRAULIC. Those in which the punch is operated by water.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, fluid-operated, in this class.)

96. PUNCHING, MACHINES, LEVER-OPERATED. Those in which the punch is operated by lever action.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines: Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines: Gang, lever-operated, and Gang, lever-operated, foot, all in this class.)

97. PUNCHING, MACHINES, LEVER-OPERATED, FOOT. The operating-lever is moved by foot.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated, and Gang, lever-operated, foot, all in this class.)

98. PUNCHING, MACHINES, PRINTERS' RULES. Small rules adapted to be placed in printing-presses to mark the paper sheets.

99. PUNCHING, MACHINES, ROLLER. Those having the punches on the periphery of a disk, cylinder, or other roller.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, roller-die; Cutting, machines, rotary-cutter; Cutting, machines, traveling cutter-carriage, roller-knife, and Punching, implements, traveling-roller, all in this class.)

100. PUNCHING, MACHINES, ROLLER, PRINTING-PRESS ATTACHMENTS. Attachments for printing-presses in which a rotary perforator contacts, usually with the cylinder of the press, to perforate the paper along certain lines either for pointing or for separation of the paper into sheets.

101. PUNCHING, MACHINES, SCREW-OPERATED. Those in which the punch is forced down by a screw.
(Note.—Search should also be made in Cutting, die, machines, reciprocating-plunger, screw-operated, in this class.)

102. PUNCHING, MACHINES, SHAFT-DRIVEN. Those in which the plunger, gate, or head is actuated by a rotary power-shaft, usually by cam or crank connection; principally machines for heavy work.
(Note.—Search should also be made in Buttonholes, machines; Cutting, die, machines, reciprocating cross-head; Cutting, die, machines, reciprocating plunger; Cutting, machines, reciprocating-cutter; Cutting, machines, traveling cutter-carriage, motor-driven cutter, reciprocating, all in this class.)

103. PUNCHING, MACHINES, SHAFT-DRIVEN, TILTING-FRAME. Those in which the frame carrying the punch can be tilted so as to work at any angle desired.

104. PUNCHING, MACHINES, SHAFT-DRIVEN, STOP DEVICES. Gags or other arrangements for disengaging the punch from the operating mechanism so as to avoid stopping the entire machine while the punch is inoperative.

105. PUNCHING, MACHINES, SHAFT-DRIVEN, STOP DEVICES, SHAFT-CLUTCH. Clutches for disengaging the rotating shaft from the other parts of the machine to permit the punch to remain stationary.

106. PUNCHING, MACHINES, SHAFT-DRIVEN, STROKE ADJUSTMENTS. Arrangements for adjusting the descent of the punch.

107. PUNCHING, MACHINES, SHAFT-DRIVEN, SAFETY DEVICES. Devices for automatically pushing away the operator's hands before the punch descends or which otherwise operate to prevent injury to the operator.

108. PUNCHING, MACHINES, TUBE. Those adapted to punch holes in tubes, usually thin-metal tubes.
(Note.—Search should also be made in Punching, machines, dies and die-holders, in this class.)

109. PUNCHING, MACHINES, TIE-BAND TONGUE. Those adapted to punch locking-tongues in tie-bands.
(Note.—Search also should be made in Punching, punches, in this class.)

110. PUNCHING, MACHINES, STRIPPERS AND HOLD-DOWNS. Attachments for stripping the material off the punch as the latter rises or for holding the material firmly while the punch is descending.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, automatic-clamp, and Cutting, machines, reciprocating-cutter, draw-cut, automatic-clamp, in this class.)

111. PUNCHING, MACHINES, PUNCH-SELECTOR. Machines, usually for perforating paper, in which a series or gang of punches is employed and from which series any number or set may be selected by the operator to perforate a design, pattern, or character. In some cases the entire design is selected by locking into operative position the desired punches, and all are then simultaneously forced through the material. In other cases each punch is made to perforate as it is selected. These perforated strips or carus are used for operating self-playing instruments, for Jacquard looms, type-setting machines, printing-telegraphs, etc. Strips which are perforated in a telegraphic circuit where they act as receivers are not here included.

112. PUNCHING, MACHINES, PUNCH-SELECTOR, KEYBOARD-CONTROLLED. Those in which a keyboard is used by operating the keys of which the pattern is selected.

113. PUNCHING, MACHINES, PUNCH-SELECTOR, KEYBOARD-CONTROLLED, ELECTRICALLY-OPERATED. Those in which by depressing the selected key a circuit is closed and one or more punches actuated.

114. PUNCHING, MACHINES, PUNCH-SELECTOR, PATTERN-CONTROLLED. Those in which the selection of the punches is controlled by a pattern card or strip, so as to duplicate the pattern.

115. PUNCHING, MACHINES, PUNCH-SELECTOR, PATTERN-CONTROLLED, ELECTRICALLY-OPERATED. Those in which the pattern permits through its perforations the closing of the punch-actuating circuits to duplicate the pattern.

116. PUNCHING, MACHINES, FEED MECHANISMS. Those in which the only novelty lies in the mechanism for feeding the work.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Work-feeding; Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching; Feeding and punching, roller-feed, all in this class.)

117. PUNCHING, MACHINES, FEED MECHANISMS, RECIPROCATING. Those in which the only novelty lies in a reciprocating feed device.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding, and Punching, machines, feeding and punching, reciprocating-feed, all in this class.)

118. PUNCHING, MACHINES, DIES AND DIE-HOLDERS. Those in which the novelty lies in the die which receives the thrust of the punch or in the means for holding the die.
(Note.—Search should also be made in Cutting, die, dies; Cutting, machines, reciprocating-cutter, cutters and bed-blocks, and Punching, machines, tube, all in this class.)

119. PUNCHING, IMPLEMENTS. Miscellaneous subclass of hand implements.
(Note.—Search should be made in Buttonholes, and in Cutting, implements, in this class.)

120. PUNCHING, IMPLEMENTS, PIVOTED HANDLES. Those in which the handles of the implements are pivoted together, as in conductors' punches.

121. PUNCHING, IMPLEMENTS, PIVOTED HANDLES, PLIERS. Those hand implements which take the form of pliers.
(Note.—Search should also be made in Buttonholes, pliers, and in Cutting, implements, pliers, in this class.)

122. PUNCHING, IMPLEMENTS, PIVOTED HANDLES, PLIERS, TURRET. One member of the pliers carries a turret which may be rotated to bring any one of several different punches into operative position.

123. PUNCHING, IMPLEMENTS, TRAVELING-ROLLER. Hand implements to be run over a stationary surface to perforate it, as in marking, etc.
(Note.—Search should also be made in Cutting, implements, traveling, roller-cutter; Cutting, machines, traveling cutter-carriage, roller-knife, both in this class.)

124. PUNCHING, PUNCHES. Those in which the novelty lies in the punch.
(Note.—Search should also be made in Punching, machines, tie-band tongue, in this class.)

125. PUNCHING, PROCESSES. Various methods or processes of punching.

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OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 4. TUESDAY, OCTOBER 23, 1900. Price—$5 per year.

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Non-Withdrawal of Allowed Cases for the Purpose of Suggesting Claims for Interference.

(ORDER NO. 1,365.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 25, 1900.

Hereafter applications will not be withdrawn from the issue for the purpose of suggesting claims for interference. When an application is pending before the Examiner which contains a claim which may be made in a case in issue, the Examiner may write a letter suggesting such claim to the applicant whose application is in issue, stating that if such claim is made within a certain specified time the case will be withdrawn from issue, the amendment embodied, and the interference declared. Such letter must have the approval of the Commissioner.

When the Examiner suggests a claim appearing in a case in issue to an applicant whose application is pending before him, the case in issue will not be withdrawn for the purpose of interference unless the suggested claim shall be made in the pending application within the time specified by the Examiner.

In either of the above cases the Issue and Gazette Division should be notified when the claim is suggested, so that in case the final fee is paid during the time in which the suggested claim may be made proper steps may be taken to prevent the final fee from being applied.

WALTER H. CHAMBERLIN,
Acting Commissioner.

Disclaimer.

478,218.—*George Martin Brill*, Philadelphia, Pa. IMPROVEMENT IN CAR-TRUCKS. Patent dated July 5, 1892. Disclaimer filed October 13, 1900, by John A. Brill, assignee, and the J. G. Brill Company, licensee.

Enter their disclaimer—

"Of claim seventeen (17) thereof, which is in the following words:

"'17. The upper chord having the depending cap 45, with downwardly-extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described.'"

CERTIFICATES OF REGISTRATION ISSUED OCTOBER 23, 1900.

Labels.

7,833.—Title: "THE NEW GAME OF PRESIDENTS." (For a Game.) *Philip Jackson*, Rochester, N. Y. Application filed September 6, 1900.

7,834.—Title: "NON-SWEAT-SHOP-MAKE." (For Garments.) *Gallaud Brothers*, New York, N. Y. Application filed September 26, 1900.

7,835.—Title: "PICKANINNY." (For Stockings.) *Lewis E. Taubel*, Norristown, Pa. Application filed September 29, 1900.

7,836.—Title: "LIGHTNING PARLOR MATCH." (For Matches.) *Atlantic Match Company*, Philadelphia, Pa. Application filed September 22, 1900.

7,837.—Title: "LA FLOR DE VICTORIUS." (For Cigars.) *Joseph R. Isaacson*, Chicago, Ill. Application filed September 22, 1900.

7,838.—Title: "LIBERTY CLUB." (For Whisky.) *Emanuel Gross*, Jersey City, N. J. Application filed September 26, 1900.

7,839.—Title: "OLD BARTON." (For Whisky.) *Wilson P. Strader*, Lexington, Ky. Application filed October 2, 1900.

7,840.—Title: "SMALL STRINGLESS BEANS." (For Canned Beans.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 26, 1900.

7,841.—Title: "GREEN GAGES." (For Canned Green Gages.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,842.—Title: "PEACHES." (For Canned Peaches.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,843.—Title: "GRAPES." (For Canned Grapes.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,844.—Title: "APRICOTS." (For Canned Apricots.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,845.—Title: "BARTLETT PEARS." (For Canned Bartlett Pears.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,846.—Title: "STRAWBERRIES." (For Canned Strawberries.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,847.—Title: "CHERRIES." (For Canned Cherries.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed September 27, 1900.

7,848.—Title: "SWEET CLOVER PURE BUTTER." (For Butter.) *Gleason & Lansing*, Buffalo, N. Y. Application filed September 26, 1900.

7,849.—Title: "LITCHFIELD COUNTY PRINT BUTTER." (For Butter.) *Gleason & Lansing*, Buffalo, N. Y. Application filed September 26, 1900.

7,850.—Title: "UNCLE SAM BRAND." (For Figs.) *Henry Markarian*, Fresno, Cal. Application filed April 30, 1900.

7,851.—Title: "ROCKY BRACER." (For a Medicine.) *Emil Krafft*, New York, N. Y. Application filed September 29, 1900.

7,852.—Title: "GALLAGHER'S HAIR ELIXIR." (For Hair-Elixir.) *Edward J. Gallagher*, Boston, Mass. Application filed September 27, 1900.

7,853.—Title: "PARIDE'S ODONTALE." (For a Preparation for Treatment of the Teeth.) *Grasso Paride*, Philadelphia, Pa. Application filed August 31, 1900.

7,854.—Title: "CHAPPENE." (For a Lotion.) *Filer & Wolf*, Philadelphia, Pa. Application filed September 29, 1900.

7,855.—Title: "A. B. C. METAL POLISH." (For a Metal-Polish.) *Marcus Stern*, New York, N. Y. Application filed September 28, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 16, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Oct. 10	Oct. 9	33
106	II. Farm Stock, Products, etc	Oct. 5	Oct. 5	120
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Oct. 2	Oct. 3	180
240	VII. Velocipedes, Games, and Toys.	Oct. 1	Oct. 3	101
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Sept. 25	Oct. 4	72
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Sept. 22	Oct. 2	130
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Sept. 21	Oct. 4	81
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Sept. 20	Oct. 5	78
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 20	Oct. 2	105
255	XII. Mechanical Engineering, Store-Service, etc.	Sept. 20	Oct. 2	142
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 19	Oct. 1	277
219	XXIII. Registers, Fluid-Meters, and Accustics, etc.	Sept. 18	Oct. 4	103
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Sept. 18	Oct. 4	130
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 18	Oct. 4	120
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Sept. 18	Oct. 3	146
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 18	Oct. 2	130
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 18	Oct. 2	154
246	I. Tillage and Fences	Sept. 17	Oct. 4	117
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Sept. 17	Oct. 3	145
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 17	Oct. 3	107
248	XVIII. Steam-Engineering, etc	Sept. 17	Oct. 3	180
253	X. Carriages and Wagons	Sept. 17	Oct. 2	109
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 17	Oct. 2	127
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 17	Oct. 2	177
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Sept. 17	Oct. 2	202
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Sept. 17	Oct. 2	186
98	XXI. Textiles, etc	Sept. 17	Oct. 2	152
102	XIX. Stoves and Furnaces	Sept. 17	Oct. 2	177
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 17	Sept. 28	141
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 17	Sept. 26	192
	Between one and two months.			
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Sept. 7	Sept. 19	143
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Sept. 5	Aug. 28	225
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Aug. 29	Aug. 29	166
	Between two and three months.			
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Aug. 13	Oct. 4	126
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 30	Sept. 4	348
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	July 18	Aug. 20	154

Total number of applications awaiting action.....5,336

Applications Under Examination—Continued.

Under one month.			
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†Trade-Marks	Oct. 5	Oct. 12	36
‡Labels and Prints	Oct. 13	Oct. 15	7

ISSUE OF OCTOBER 23, 1900.

Patents	461	No. 660,087 to No. 660,547, inclusive.
Designs	41	No. 33,408 to No. 33,448, inclusive.
Trade-Marks	41	No. 35,276 to No. 35,316, inclusive.
Labels	23	No. 7,833 to No. 7,855, inclusive.
Prints	None.	
Reissues	1	No. 11,865.
Total issue	567	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	.....	Nevada	.....	.....
Arizona Territory	2	.....	New Hampshire	.....	.....
Arkansas	3	.....	New Jersey	26	4
California	9	1	New Mexico Territ'y	.....	.....
Colorado	5	.....	New York	80	18
Connecticut	14	1	North Carolina	2	.....
Delaware	.....	.....	North Dakota	.....	.....
District of Columbia	6	.....	Ohio	35	8
Florida	2	.....	Oklahoma Territ'y	3	.....
Georgia	1	.....	Oregon	3	.....
Hawaii	.....	.....	Pennsylvania	43	7
Idaho	.....	.....	Rhode Island	4	.....
Illinois	59	4	South Carolina	.....	.....
Indian Territory	1	1	South Dakota	2	.....
Indiana	19	1	Tennessee	6	1
Iowa	3	1	Texas	7	.....
Kansas	4	.....	Utah	2	.....
Kentucky	4	2	Vermont	.....	.....
Louisiana	.....	.....	Virginia	4	.....
Maine	1	.....	Washington	4	.....
Maryland	6	.....	West Virginia	4	.....
Massachusetts	30	5	Wisconsin	7	1
Michigan	6	.....	Wyoming	1	.....
Minnesota	11	.....	U. S. Army	.....	.....
Mississippi	.....	.....	U. S. Navy	2	.....
Missouri	15	5	Total to citizens of the United States	450	60
Montana	3	.....			
Nebraska	4	.....			

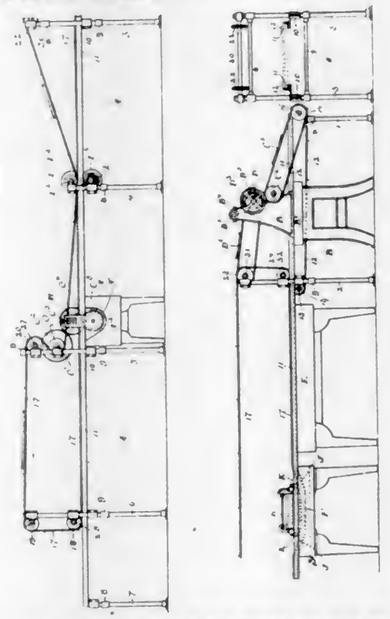
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	2	.....	Italy	3	.....
Australia	.....	.....	Japan	.....	.....
Austria-Hungary	1	.....	Java	.....	.....
Barbadoes	.....	.....	Mexico	1	.....
Belgium	1	.....	Netherlands	1	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	10	.....	Norway	.....	.....
Chile	.....	.....	Queensland	.....	.....
China	.....	.....	Russia	.....	.....
Costa Rica	.....	.....	Scotland	2	.....
Cuba	.....	.....	South African Republic	1	.....
Denmark	.....	.....	South Australia	.....	.....
Egypt	.....	.....	Spain	.....	.....
England	16	2	Sweden	1	.....
Finland	.....	.....	Switzerland	1	.....
France	3	2	Venezuela	.....	.....
Germany	6	.....	Victoria	2	.....
Guatemala	.....	.....	Total to citizens of foreign countries	52	4
Haiti	.....	.....			
India	.....	.....			
Ireland	1	.....			

PATENTS

GRANTED OCTOBER 23, 1900.

660,087. **MACHINE FOR DIPPING MATCHES.** CHARLIE J. ANDERSON and GEORGE EVERSON, Detroit, Mich. Filed July 11, 1900. Serial No. 23,205. (No model.)



Claim.—1. In a machine for dipping matches, two sets of endless-chain carriers coöperating with each other to carry the dipping-frames in combination with guides in which said dipping-frames are supported, one of the carriers having an intermittent motion and operating below the guides and the other having a continuous motion and operating above the gudies substantially as set forth.

2. In a machine for dipping matches, two sets of endless-chain carriers coöperating with each other to carry the dipping-frames in combination with the guides in which said dipping-frames are supported, one of the carriers having an intermittent motion and operating below the guides and the other having a continuous motion and operating above the guides and a reciprocating platen operating in the path of the intermittently-moving carrier-chains and in unison therewith substantially as described.

3. In a machine for dipping matches, two sets of endless-chain carriers coöperating with each other to carry the dipping-frames in combination with the guides in which said dipping-frames are supported, one of the carriers having an intermittent motion and operating below the guides and the other having a continuous motion and operating above the guides and the equalizing device B having the fixed platen B^2 in the bed of the intermittently-operated carrier-chains on which the match-frames are supported and the intermittently-reciprocating platen B^2 above it cooperating with the carrier.

4. In a machine for dipping matches the combination with a supporting-frame provided with guide-rails throughout its entire length, of two sets of endless carrier-chains driven from the same common shaft, comprising an intermittently-operated pair of chains traveling in line with the lower edge of the guide-rails and a continuously-operated pair of chains coöperating therewith and traveling in line with the upper edge of the guide-rails, cross-bars 36 spaced at suitable intervals along said chains and adapted to slide the dipping-frames along the guide-rails substantially as set forth.

5. A machine for dipping matches, comprising essentially a frame provided with guide-rails throughout its entire length, two sets of endless drag-chains traveling in line with said rails and adjacent thereto, both sets being driven from the same common shaft one set traveling in line with the lower edge of the guide-rails and being intermittently driven and the other set traveling in line with the upper edge of the guide-rails and being continuously driven both sets coöperating with each other to slide the dipping-frames along the guide-rails, a reciprocating platen in the path of the intermittently-operated carrier and operating in conjunction therewith, a rotary brush in the path of the continuously-operated carrier and means for applying the igniting and fulminating composition to the splints.

6. In a machine for dipping matches, the combination with the frame and the guide-rails, of the endless carrier-belts 12 and 17, coöperating with each other, the cross-bars 36 spaced at intervals along said carriers and adapted to engage with the rear edge of the dipping-frame and slide the same along the guide-rails, the equalizer B located in the path of the carriers 12 and carrying the drive-shaft, the transverse shafts B^3, C carrying pinions adapted to mesh with segmental gears on the drive-shaft and thereby impart an intermittent motion to the reciprocating platen and carrier-chains 12 respectively and means for driving the carriers 17 continuously from said drive-shaft.

7. In a machine for dipping matches, the equalizer B supported upon a suitable base to which the vertical uprights or guides B' are secured, the platen B^2 reciprocating in said guides, the drive-shaft D mounted in bearings on said uprights and carrying the loose and tight pulleys D' D^2 and segmental gears D^3 at one end and the segmental gear D^4 and sprocket-wheel D^5 on the other end, the horizontal shafts B^3 and C mounted in bearings on said uprights parallel with the drive-shaft and carrying the pinions C' and B^4 meshing with said gears respectively and adapted to drive the chains 12 and platen B^2 intermittently to coöperate with each other.

8. In a machine for dipping matches, two sets of endless drag-chains 12 and 17 coöperating with each other and united at intervals by cross-bars, an evener in the path of one of the chains, a rotary brush L and composition-rollers M, N, in the path of the other pair of chains all coöperating with each other and driven from the same common shaft.

660,088. **SWELL FRONT FOR FURNITURE.** FRANK O. ANDERSON, Jamestown, N. Y. Filed May 23, 1898. Serial No. 681,405. (No model.)



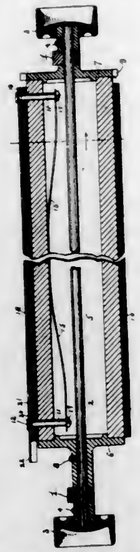
Claim.—1. A swell front for dressers, commodes, &c., consisting of boards of suitable thickness for drawer-fronts having slots cut across the back of each board at a given point, the boards bent at said slots to the desired angle, strips over said slots to hold the boards at the said angle, the face of said boards cut away in gradually-deepening curves on each side of the bend to relieve said angle, as shown and described.

2. A drawer-front consisting of, a board of suitable thickness having its face cut in gradually-deepening curves each side of a given point, slots cut across the back of said board at said point, the board bent at said slots to a desired angle of swell, substantially as shown and described.

660,089. **TYPE-WRITING MACHINE.** WALTER J. BARRON, New York, N. Y., assignor to the Densmore Typewriter Company, Syracuse, N. Y. Filed Apr. 4, 1898. Serial No. 676,374. (No model.)

Claim.—1. In a type-writing machine, the combination of a platen having two catches, one of which at least is mounted to slide radially and is provided with a spring, and an endwise-slidable card-holder constructed

to be engaged with and disengaged from said catches and provided with a lifting finger-piece.



2. In a type-writing machine, the combination of a platen having at each end a spring-pressed catch, and a slotted card-holder adapted to be engaged with and disengaged from said catches by endwise movements.

3. In a type-writing machine, the combination of a platen having at each end a spring-pressed headed bolt, and a card-holder having longitudinal slots to engage with said bolts.

4. In a type-writing machine, the combination of a platen having at each end a radial perforation, a bolt extending therethrough to the inside of the platen, a spring tending to pull said bolt inwardly, and a card-holder having slots to engage with the heads of said bolts.

5. In a type-writing machine, the combination of a platen provided with a hollow core and a sheath or cover, a radial hole at each end of said platen, a shoulder or seat at each hole, a bolt extending through said hole and formed with a collar and a head and an intervening neck, a spring for said bolt, and a card-holder constructed to be engaged by the heads of said bolts.

6. In a type-writing machine, the combination of platen, a radially-arranged bolt at each end thereof, a spring for said bolt, and a card-holder having longitudinal slots for engagement by said bolts and also having a finger-piece.

7. In a type-writing machine, the combination of a platen having a radially-arranged bolt at each end comprising a head, a collar and an intervening neck, the bar-spring 15 forked at each end for embracing the inner ends of said bolts, nuts for holding said spring in place, and a card-holder having longitudinal slots and a finger-piece.

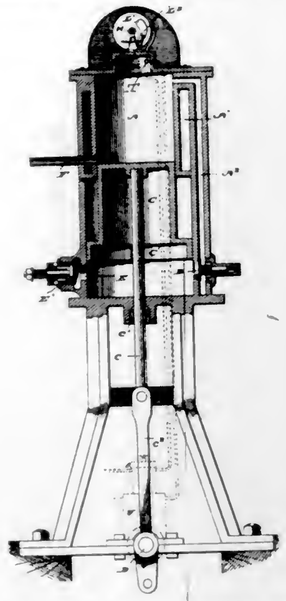
8. In a type-writing machine, the combination of a platen having a headed catch at each end and a card-holder slotted at each end to enable the card-holder to be attached to and detached from the platen.

660,090. **VALVE-GEAR FOR EXPLOSIVE-ENGINES.** CHARLES P. BLAKE, Chester, Pa. Filed July 24, 1899. Serial No. 724,985. (No model.)

Claim.—1. In an explosive-engine, the combination with the cylinder, piston and crank-shaft, of a cam-shaft, a valve-controlling cam carried by said shaft, a circumferential groove in said cam said governor-lever being pivoted on an axis parallel with the axis of the cam, and a branch groove into which the controlling-lever may be deflected, a governor-lever carried by the cam and a longitudinally-movable slide connected with the governor-lever and projecting into the circumferential groove for deflecting the controlling-lever into the branch groove; substantially as described.

2. In an explosive-engine, the combination with the cylinder, piston, valve for admitting explosive and driven cam-shaft, of the cam for controlling the valve having a circumferential groove and two branch grooves whereby when the engine is driven in one direction one of said branches will control the valve and when driven in the other direction, the other one of said branches will control the valve; substantially as described.

3. In an explosive-engine, the combination with the cylinder, piston, valve for admitting explosive and driven cam-shaft, of the cam for controlling the valve having a circumferential groove, two branch grooves and a detlector between the entrance ends of said branches, whereby, when rotating in one direction, one of said branches will control the valve-lever and when rotating in the opposite direction, the other one of said branches will control the valve-lever; substantially as described.



4. In an explosive-engine, the combination with the cylinder, piston, valve for admitting explosive and driven cam-shaft, of the cam for controlling the valve having a circumferential groove, two branch grooves, a movable deflector between the entrance ends of said branches and a governor-arm connected with said deflector, whereby when the cam is rotated in opposite directions, different branches will control the valve and when the governor acts the circumferential groove will be opened past the branches; substantially as described.

5. In an explosive-engine, the combination with the cylinder, piston, crank-shaft and cam-shaft, of the admission-cam and drive-wheel for the cam-shaft movable in unison independently of said shaft, the igniter-cam keyed on the shaft, an intermediate wheel also keyed on the shaft and a loose connection between the drive and intermediate wheels with means for controlling said connection whereby the engine may be reversed; substantially as described.

6. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft and drive-wheel loosely connected with the cam-shaft, of the admission-cam movable in unison with the drive-wheel independently of the cam-shaft, the igniter-cam and intermediate wheel keyed on the cam-shaft, a hand-wheel journaled on the cam-shaft and gearing interposed between the hand-wheel, intermediate wheel and drive-wheel for reversing the engine; substantially as described.

7. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft, igniter-cam keyed on the cam-shaft and hand-wheel, of a sleeve on the cam-shaft, the admission-cam and the drive-wheel on the said sleeve, an intermediate wheel on the cam-shaft, a stop interposed between the drive-wheel and intermediate wheel and gearing interposed between the hand and intermediate wheels; substantially as described.

8. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft, and igniter-cam keyed on the cam-shaft, of a drive-wheel for the cam-shaft, a loose connection between the drive-wheel and cam-shaft and an adjustable stop for limiting the relative movements of the drive-wheel and cam-shaft; substantially as described.

9. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft and igniter-cam keyed on the cam-shaft, of a drive-wheel loosely mounted on the cam-shaft, a slotted intermediate wheel keyed on the cam-shaft, an adjustable stop carried by the drive-wheel and working in said slot to limit the relative movement of the drive-wheel and igniter-cam, a hand-wheel and gearing interposed between the hand-wheel and intermediate wheel for reversing the engine; substantially as described.

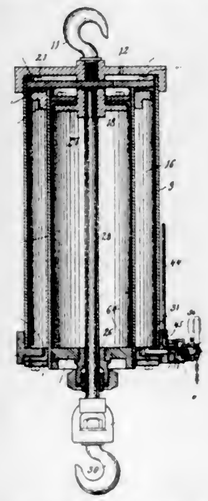
10. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft, igniter-cam and drive-wheel having a limited movement independent of the igniter-cam for reversing the engine, of a stop for limiting the independent movement of the drive-wheel, a sparking-circuit and contacts controlled by the stop for establishing said circuit, whereby sparking during reversal is prevented; substantially as described.

11. In an explosive-engine, the combination with the cylinder, piston, crank-shaft, cam-shaft, igniter-cam and drive-wheel having a limited movement independent of the igniter-cam for reversing the engine, of a stop for limiting the independent movement of the drive-wheel, a sparking-circuit and spring-pins forming contacts with which the stop coöperates to establish the sparking-circuit, whereby sparking during reversal is prevented; substantially as described.

12. In a reversing mechanism for explosive-engines, a cam-shaft and a driven wheel loosely connected therewith combined with a stop for limiting the independent movement of the drive-wheel, having oppositely-adjustable sections and a handpiece controlling the adjustment of said sections; substantially as described.

13. In a reversing mechanism for explosive-engines, a cam-shaft and a drive-wheel loosely connected therewith combined with a stop for limiting the independent movement of the driven wheel, and having oppositely-adjustable sections, screw-shafts controlling said sections, a handpiece and gearing connecting said handpiece and shafts for simultaneously adjusting the sections; substantially as described.

660,091. **TELESCOPIC LIFT.** CHARLES O. BULOCK and BERTRAM C. DONNELLY, Milwaukee, Wis. Filed Feb. 5, 1900. Serial No. 3,931. (No model.)



Claim.—1. In a telescopic lift, the combination of an outer casing provided with an opening through one of its end pieces, an inner casing movable through the open end of the outer casing, and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication therewith when said inner casing is pulled outwardly, a piston-head adapted to work in the inner casing and provided with a piston-rod extending through the end of the inner casing, and means for introducing an actuating agent into the interior of the outer casing and for exhausting said actuating agent therefrom.

2. In a telescopic lift, the combination of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening, and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with the space when said inner casing is pulled outwardly, a piston-head adapted to work in the inner casing and of less area than the area of the outer piston-head, said inner piston-head having a piston-rod extending therefrom and through the end piece of the inner casing, and means for introducing an actuating agent into the interior of the outer casing and for exhausting said actuating agent therefrom.

3. In a telescopic lift, the combination of an outer casing provided with an opening through one of its end pieces and having a hook connected to its opposite end piece, an inner casing movable through the opening in the end piece of the outer casing and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said inner piston-head having a piston-rod extending therefrom and through the end piece of the inner casing, and means for introducing an actuating agent into the interior of the outer casing and for exhausting said actuating agent therefrom.

4. In a telescopic lift, the combination of an outer casing provided with an opening through one of its end pieces, an inner casing movable through the opening in the end piece and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and provided near its opposite end with a port in communication with the interior space of the outer casing when said inner casing is telescoped into the outer casing, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending therefrom through the end piece of the inner casing, and means for introducing an actuating agent into the interior of the outer casing and for exhausting said actuating agent therefrom.

5. The combination of inner and outer parts, the outer part having its end piece provided with an opening into which the inner part extends, and said inner part being of such less transverse area than the outer part as to leave a space between the two parts, a packing arranged beneath the end piece of the outer part, said packing provided with an opening surrounding the inner part, the bordering edge of said packing being upturned, and said upturned edge being arranged between the inner part and the bordering edge of the opening of the end piece, and a plate bearing against the packing and clamping the same to the end piece.

6. In a telescopic lift, the combination of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening, and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the interior casing, said piston-head having a piston-rod extending therefrom and through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with an inlet-channel leading to the interior space of the outer casing and with an exhaust-channel leading to the external atmosphere, a valve fitting in the valve-chamber of the valve-casing, and provided with a channel which is normally out of register with both the inlet and exhaust channels, and means for turning the valve, whereby when turned in one direction the channel thereof connects the inlet-channel with the channel leading to the interior space of the outer casing, and when turned in the opposite direction the channel thereof connects the channel leading to the interior space of the outer casing with the exhaust-channel.

7. In a telescopic lift, the combination of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening, and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with two leads, one larger than the other and communicating with the inlet-channel leading to the interior space of the outer casing, and said valve-seat also provided with an exhaust-channel leading to the external atmosphere, a valve fitting in the valve-chamber of the valve-casing, and provided with a channel which is normally out of register with both the inlet and exhaust channels, and means for turning the valve, whereby when turned in one direction the channel thereof connects the inlet-channel with the channel leading to the interior space of the outer casing, and when turned in the opposite direction the channel thereof connects the channel leading to the interior space of the outer casing with the exhaust-channel.

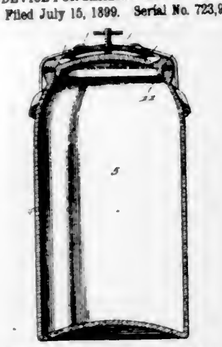
8. In a telescopic lift, the combination, of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with an inlet-channel leading to the interior space of the outer casing, and also provided with an exhaust-channel leading to the external atmosphere, said exhaust-channel having two leads leading thereto, one being larger than the other, a valve fitting in the valve-chamber of the valve-casing and provided with a channel which is normally out of register with both the inlet and exhaust channels, and means for turning the valve, whereby when turned in one direction the channel thereof connects the inlet-channel with the channel leading to the interior space of the outer casing, and when turned in the opposite direction the channel thereof connects the channel leading to the interior space of the outer casing with the exhaust-channel.

9. In a telescopic lift, the combination, of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending therefrom and through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with an inlet-channel leading to the interior space of the outer casing and with an exhaust-channel leading to the external atmosphere, a valve fitting in the valve-chamber of the valve-casing, a stem projecting from the valve through the outer end of the valve-casing, arms extending from the outer end of the valve-stem, one of said arms carrying a spring-actuated dog, a quadrant over which the dog is adapted to work, said quadrant provided with shoulders with which the dog is adapted to contact, the arms being normally in such position as to have the channel of the valve out of register with either the inlet or exhaust channels, but adapted when operated, and when the dog contacts with one of the shoulders, to bring the channel of the valve into register with the inlet-channels, or when operated in the opposite direction to bring the dog into contact with the other shoulder and thereby cause the channel of the valve to register with the exhaust-channels.

10. In a telescopic lift, the combination of an outer casing provided with an opening through one of its ends, an inner casing movable through said openings, and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with two lead-ports one larger than the other, and both ports registering with the channel leading to the interior space of the outer casing, and said valve-seat also provided with two lead-ports one larger than the other registering with the exhaust-channel leading to the external atmosphere, a valve fitting in the valve-chamber, a stem projecting from the valve through the outer end of the valve-casing, arms extending from the outer end of the valve-stem, one of said arms carrying a spring-actuated dog, and a quadrant over which the dog is adapted to work, said quadrant provided with end shoulders and with intermediate shoulders, the arms being normally in such position as to have the channel of the valve out of register with either the inlet or exhaust channels, but adapted when operated, and when the dog contacts with one of the intermediate shoulders to bring its channel into register with the small inlet lead-port of the valve-seat, and when operated farther in the same direction to contact with the end shoulder and bring the valve-channel into register with the large inlet lead-port of the valve-seat, and when the arms are turned in the opposite direction the contact of the dog with the other intermediate shoulder adapted to bring the channel of the valve into register with the small exhaust lead-port, and when turned farther until the dog contacts with the other end shoulder to bring the channel of the valve into register with the large exhaust lead-port.

11. In a telescopic lift, the combination of an outer casing provided with an opening through one of its ends, an inner casing movable through said opening and of such less transverse area than the outer casing as to leave a space between the two casings, said inner casing provided at one end with a piston-head fitting against the wall of the outer casing, and the interior of the inner casing being normally in communication with the space between it and the outer casing, but out of communication with said space when the inner casing is pulled outwardly, a piston-head adapted to work in the inner casing, said piston-head having a piston-rod extending through the end piece of the inner casing, a valve-casing having an inlet-channel for the actuating medium leading thereto, a valve-seat provided with an inlet-channel leading to the interior space of the outer casing, and also provided with an exhaust-channel leading to the external atmosphere, a valve fitting in the valve-chamber of the valve-casing, a stem projecting from the valve through the outer end of the valve-casing, arms extending from the outer end of the valve-stem, one of said arms carrying a spring-actuated dog, a quadrant over which the dog is adapted to work, said quadrant provided with shoulders with which the dog is adapted to contact, the arm being normally in such position as to have the channel of the valve out of register with both the inlet and exhaust channels, but adapted when operated, and when the dog contacts with one of the shoulders, to bring the channel of the valve into register with the inlet-channels, but when operated in the opposite direction to bring the dog into contact with the other shoulder and thereby cause the channel of the valve to register with the exhaust-channels, and a spring adapted to act on the arms to return said arms, after being released, to normal position.

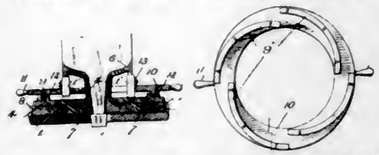
660,092. DEVICE FOR SEALING FRUIT-JARS. WILLIE BURCH, Lowell, Mich. Filed July 15, 1899. Serial No. 723,971. (No model.)



Claim.—1. In a closure of the class described, the combination with a vessel provided at its sides with oppositely-arranged ears, of a cover, a locking-plate arranged above said cover, said plate being provided with radially-extending lugs or projections arranged in oppositely-disposed pairs, a locking-bail hingedly connected to each pair of said lugs or projections and adapted to engage the ears at the sides of the vessel, and a screw carried by the locking-plate and bearing against the cover of the vessel for binding the said locking-bails in engagement with said ears.

2. In a closure of the class described, the combination with a jar provided with oppositely-arranged ears, of a cover provided with an annular groove, a locking-plate arranged above said cover, and having its edges fitting in the groove thereof, locking-bails carried by said plate and adapted to engage the ears of the jar, and a screw also carried by the locking-plate, and bearing against the cover for binding the locking-bails in engagement with said ears.

660,093. MACHINE FOR APPLYING WOOD PULP OR FIBER TO BOTTLES, &c. WILLIAM BURKE and WILLIAM H. THOMPSON, East Stroudsburg, Pa. Filed Mar. 17, 1899. Serial No. 709,416. (No model.)



Claim.—1. In combination in a machine for applying wood pulp or fiber to bottles and the like, a series of chuck-jaws, with means for operating them and the saucer for supporting the bottle, said saucer being arranged above the chuck-jaws, substantially as described.

2. In combination in a machine for applying wood-pulp to bottles, a series of chuck-jaws having perforations, means for operating the jaws, a saucer or support for the bottle above the jaws, said saucer also having perforations, substantially as described.

3. In combination, the base-plate having the guides, the jaws having the stems moving in said guides, the cam-ring above the stems and engaging portions thereof, the posts extending up from the base-plate and the saucer supported by said posts above the chuck-jaws, substantially as described.

660,094. PROCESS OF TREATING KRYOLITH. CHARLES A. DOREMUS, New York, N. Y. Filed Dec. 27, 1899. Serial No. 741,710. (No specimens.)

Claim.—1. The process of treating kryolith which consists in heating the kryolith, in the presence of steam, to a temperature below a white heat, substantially as described.

2. The process of converting kryolith into sodium aluminate and hydrofluoric acid, which consists in passing steam through or over and into contact with the kryolith at a temperature below a white heat, substantially as described.

3. The process of treating kryolith to obtain hydrofluoric acid, sodium fluorid and alumina, which consists in heating the kryolith in the presence of steam, and at a temperature below the melting-point of kryolith, substantially as described.

660,095. WEEDER. JAMES M. ESSIG, Poe, Ind. Filed July 5, 1900. Serial No. 22,569. (No model.)

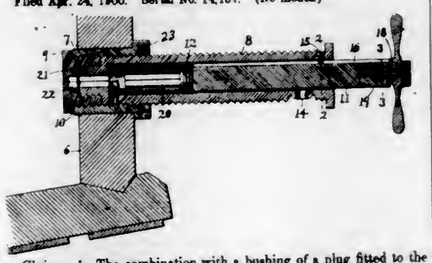


Claim.—1. In a weeder or cultivator a pendent spring-finger bent, angled, and apertured at its upper end for the purpose specified, and provided at its lower end with an apertured lateral lug adapted to contain the upper end of a reversible tooth; in combination with a reversible tooth having a laterally-apertured upper end adapted to be detachably secured in said lug as described.

2. The combination of a pendent spring-finger provided upon its lower end with a vertically-apertured lateral lug; and a reversible tooth whose upper end is adapted to be arranged in said lug and rigidly secured therein by a proper holding-bolt.

3. In a weeder a reversible tooth having its angular upper end apertured to receive a holding-bolt by which it is rigidly secured to a suitable spring-finger.

660,096. FAUCET. NINA H. P. FRANCIS, New Rochelle, N. Y. Filed Apr. 24, 1900. Serial No. 14,137. (No model.)



Claim.—1. The combination with a bushing of a plug fitted to the inner end thereof, a faucet adapted to be secured to said plug through the outer end of the bushing, and a piston-plug in the faucet provided with a projection for locking the faucet and plug together to prevent the movement of one upon the other.

2. The combination with a plug fitted to the inner end of a bung-hole and provided with a screw-threaded socket, of a faucet provided with a screw-threaded projection to fit the socket in the plug and means for locking the plug to the faucet at will to prevent either moving without the other and for unlocking them when desired.

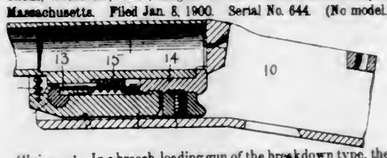
3. The combination with a bushing, of a faucet adapted to be screwed into the bushing and when not in use to be screwed still farther into the bushing and projected into the barrel or other receptacle to which the bushing is attached, whereby the outer end of the faucet will not project beyond the surface of the receptacle.

4. A faucet adapted, when not in use, to be entered into the barrel until no part thereof projects beyond the barrel, and a key for moving the faucet out and in.

5. A faucet adapted to be screwed into a bung-hole and provided with a piston-plug, in combination with a key detachably connected to said piston and a projection extending from the faucet into a groove in the piston to prevent the piston from turning within the faucet.

6. The combination with an internally-screw-threaded bung-hole, of a plug fitted to its inner end and provided with a screw-threaded socket, a faucet fitted to the bung-hole and provided with a screw-threaded projection to fit the socket of the plug, and a piston-plug in the faucet provided with an angular projection adapted to pass through the end of the faucet into an angular socket in said plug, for the purpose set forth.

660,097. SHELL EXTRACTOR AND EJECTOR. WILLIAM H. GATES, Worcester, Mass., assignor to the Forehand Arms Company, of Massachusetts. Filed Jan. 8, 1900. Serial No. 644. (No model.)

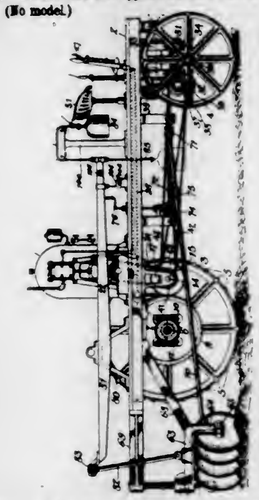


Claim.—1. In a breech-loading gun of the breakdown type, the combination of the frame, the barrel having a barrel-lug pivoted to the frame by a hinge-pin, an ejector-bolt longitudinally movable in the barrel-lug, a spring normally tending to move back the ejector-bolt, and a holding-lever consisting of a single piece having an integral catch engaging the recess in the ejector-bolt and pivoted in the barrel-lug substantially in the line of movement of the ejector-bolt, said parts being combined and arranged so that the complete backward movement of the ejector-bolt will be restrained until the catch of the lever is released from the recess in the ejector-bolt, substantially as described.

2. In a breech-loading gun of the breakdown type, the combination of the frame, the barrel having a barrel-lug pivoted to the frame by a hinge-pin, an ejector-bolt movable longitudinally in the barrel-lug, so that its line of movement substantially intersects the hinge-pin, a spring normally tending to move back the ejector-bolt, and a holding-lever pivoted on the hinge-pin, and consisting of a single piece having an integral catch engaging a recess in the ejector-bolt, said lever extending forward in front of the hinge-pin in position to engage the forward end of the frame and be released thereby when the gun is opened, substantially as described.

3. In a gun, the combination of a frame, a barrel, a hinge-pin connecting said parts, a spring-pressed ejector-bolt, a lever pivoted on the hinge-pin and arranged to prevent the ejector-bolt from flying completely back until after the gun is opened, and a retaining-wire engaging a notch in the lever to prevent the lever from dropping out of place when the pivot-screw is removed, and the gun taken apart, substantially as described.

660,098. MOTOR-DRIVEN VEHICLE. RICHARD J. GATLING, New York, N. Y. Original application filed Sept. 15, 1899, Serial No. 730,552. Divided and this application filed Mar. 2, 1900. Serial No. 7,062. (No model.)



Claim.—1. In a motor-driven vehicle, the combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a pair of fifth-wheels, one in connection with each of said steering-wheels

and having a part of its periphery formed as a worm-wheel; a pair of worms in mesh with said worm-wheels; and means for rotating said worms in either direction to steer the vehicle.

2. In a motor-driven vehicle, the combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a parti-formed worm-wheel in connection with each of said wheels; a pair of worms in mesh with said worm-wheels; and clutch mechanism for rotating said worms in either direction thereby to steer the vehicle.

3. In a motor-driven vehicle, the combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a pair of fifth-wheels one in connection with each of said steering-wheels and having a part of its periphery formed as a worm-wheel; means for carrying said fifth-wheels and comprising a pivotally-mounted bolster; a pair of worms in mesh with said worm-wheels; and means for rotating said worms in either direction to steer the vehicle.

4. In a motor-driven vehicle, the combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a pair of fifth-wheels one in connection with each of said steering-wheels and having a part of its periphery formed as a worm-wheel; means for carrying said fifth-wheels and comprising a pivotally-mounted bolster; a motor; clutch mechanism in operative connection with said motor and operative to rotate said worms in either direction to steer the vehicle.

5. In a motor-driven vehicle, the combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a parti-formed worm-wheel in connection with each of said wheels; a shaft mounted on said body and carrying worms in engagement with said worm-wheels; a pair of clutch members loosely mounted on said shaft; a shiftable clutch member splined to said shaft and adapted to independently engage each of said loosely-mounted clutch members; means for shifting said clutch member into engagement with one or the other of said loosely-mounted clutch members; and a motor carried by said vehicle and in operative connection with said loosely-mounted clutch members.

6. In a motor-driven vehicle, the combination, with a vehicle-body and with running-gear therefor comprising driving-wheels and steering-wheels, of a motor carried by the vehicle and in operative connection with the driving-wheels for driving the vehicle; equalizing means for permitting the operation of one of said driving-wheels when the other is thrown out of operation; a parti-formed worm-wheel in connection with each of said steering-wheels; a pair of worms in mesh with said worm-wheel; and means for rotating said worms in either direction to steer the vehicle.

7. In a motor-driven vehicle, the combination, with a vehicle-body and with running-gear therefor comprising driving-wheels and steering-wheels, of a motor carried by the vehicle and in operative connection with the driving-wheels for driving the vehicle; equalizing means for permitting the operation of one of said driving-wheels when the other is thrown out of operation; a parti-formed worm-wheel in connection with each of said steering-wheels; a shaft mounted on said body and carrying worms in engagement with said worm-wheels; and clutch mechanism carried by said shaft and in operative connection with said motor for rotating said worms in either direction to steer the vehicle.

8. The combination of a vehicle-body; running-gear therefor including a pair of steering-wheels; a parti-formed worm-wheel in connection with each of said wheels; a shaft mounted on said body and carrying worms in engagement with said worm-wheels; a pair of clutch members loosely mounted on said shaft; a shiftable clutch member splined to said shaft and adapted independently to engage each of said loosely-mounted clutch members; means for shifting said clutch member into engagement with one or the other of said loosely-mounted clutch members; a driving-shaft mounted on said vehicle; means connecting said driving-shaft with said loosely-mounted clutch members, to effect the rotation thereof in opposite directions; and a motor carried by said vehicle and in operative connection with said driving-shaft.

9. The combination of a vehicle-body; running-gear therefor, including a pair of steering-wheels; a two-part axle for carrying said wheels, each having in connection therewith a parti-formed worm-wheel; means pivotally secured to the body for supporting said axles; a shaft mounted on said vehicle-body and having a pair of worms for engagement with said parti-formed worm-wheels; a pair of loosely-mounted clutch members mounted on said shaft; a shiftable clutch member shiftably secured to said shaft for rotation therewith and adapted independently to engage each of said loosely-mounted clutch members; means for shifting said clutch member; and a motor carried by said vehicle and effective to drive said loosely-mounted clutch members.

10. The combination of a vehicle-body; running-gear therefor, including a pair of steering-wheels; a pair of fifth-wheels one in connection with each of said steering-wheels and having a part of its periphery provided with a worm-wheel; means for carrying said fifth-wheels and comprising a pivotally-mounted bolster; a shaft mounted on said vehicle-body and provided with a pair of worms in engagement with said fifth-wheels; a pair of loosely-mounted clutch members mounted on said shaft and carrying pulleys; a shiftable clutch member also mounted on said shaft for rotary movement therewith and adapted to engage one or the other of said loosely-mounted clutch members; a lever for shifting said clutch member; a motor carried by said vehicle; a driving-shaft mounted on the vehicle and in operative connection with said motor and carrying a pair of pulleys; and belts connecting the driving-shaft pulleys with the loosely-mounted clutch-member pulleys, one of said belts being crossed thereby to operate one of said clutch members in one direction while its companion clutch member is rotated in the opposite direction.

11. In a motor-driven vehicle, the combination, with a vehicle-body and with running-gear therefor comprising a two-part driving-axle, a driving-wheel carried by each part of said axle, and steering-wheels, of a motor carried by the vehicle and in operative connection with the driving-wheels for driving the vehicle; equalizing means carried by said two-part driving-axle for permitting the operation of one of said driving-wheels when the other is thrown out of operation; a pair of fifth-wheels one in connection with each of said steering-wheels and having a part of its periphery formed as a worm-wheel; a pivotally-mounted bolster carrying said fifth-wheels; a pair of worms in mesh with said worm-wheels; and means for rotating said worms in either direction to steer the vehicle, and comprising clutch mechanism in operative connection with said motor.

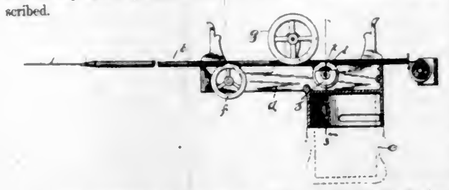
12. In a motor-driven vehicle, the combination, with a vehicle-body and with running-gear therefor comprising driving-wheels, and steering-wheels, of a motor carried by the vehicle and in operative connection with the driving-wheels for driving said vehicle; equalizing means for permitting the operation of one of said driving-wheels when the other is thrown out of operation; a parti-formed worm-wheel in connection with each of said steering-wheels; a shaft mounted on said body and carrying worms in engagement with said worm-wheel; a pair of clutch members loosely mounted on said shaft; a shiftable clutch member splined to said shaft and adapted to independently engage each of said loosely-mounted clutch members; means for shifting said clutch member into engagement with one or the other of said loosely-mounted clutch members; and means connecting said loosely-mounted clutch members with said motor.

13. The combination of a vehicle-body; a pair of driving-wheels; a two-part driving-axle each member thereof carrying a bevel-gear; a spur-gear loosely mounted on said driving-axle and carrying a bevel-gear in engagement with the axle bevel-gears; a driving-shaft mounted on said body; a loosely-mounted clutch member carried by said driving-shaft and provided with a spur-gear in engagement with the spur-gear of the driving-axle; a shiftable clutch member splined to said driving-shaft; means for shifting said clutch member into and out of engagement with the loosely-mounted clutch member; a motor carried by said vehicle; means connecting said motor with said driving-shaft; a pair of steering-wheels; a pair of fifth-wheels in connection with said steering-wheels and each having a part of its periphery formed as a worm-wheel; means pivotally secured to the vehicle-body for supporting said fifth-wheels; a shaft mounted on said body and having a pair of worms in engagement with said fifth-wheels; a pair of loosely-mounted clutch members mounted on said shaft, each carrying a pulley; means connecting said pulleys with the driving-shaft to effect the rotation of said pulleys in opposite directions; a shiftable clutch member mounted on said shaft for rotation therewith; and means for shifting said clutch member into engagement with one or the other of said loosely-mounted clutch members.

14. The combination of a vehicle-body; a pair of driving-wheels; a two-part driving-axle, each member thereof carrying a bevel-gear; a spur-gear loosely mounted on said driving-axle and carrying a bevel-gear in engagement with the axle bevel-gears; a driving-shaft mounted on said body; a loosely-mounted clutch member carried by said driving-shaft and provided with a spur-gear in engagement with the spur-gear of the driving-axle; a shiftable clutch member splined to said driving-axle; means for shifting said clutch member into and out of engagement with the loosely-mounted clutch member; a motor carried by said vehicle; means connecting said motor with said driving-axle; a pair of steering-wheels; a pair of fifth-wheels in connection with said steering-wheels, and each having a part of its periphery formed as a worm-wheel; means pivotally secured to the vehicle-body for supporting said fifth-wheels; a shaft mounted on said body and having a pair of worms in engagement with said fifth-wheels; a pair of loosely-mounted clutch members mounted on said shaft, each carrying a pulley; means connecting said pulleys with the driving-shaft and effective to rotate said pulleys in opposite directions; a shiftable clutch member mounted on said shaft for rotation therewith; means for shifting said clutch member into engagement with one or the other of said loosely-mounted clutch members; means for starting and stopping the motor; and means for reversing said motor, thereby to reverse the vehicle.

660,099. STORE-SERVICE APPARATUS. EMANUEL C. GIPE, Chicago, Ill., assignor of three-fourths to Felix J. Griffen, same place, Henry Gloe, Elmhurst, Ill., and George W. Tassell, Waukesha, Wis. Filed Feb. 26, 1900. Serial No. 6,521. (No model.)

Claim.—1. In a store-service apparatus, the combination with a wireway having a portion thereof diametrically enlarged at and from the end, of a car having suitable carrying-wheels, a brake-wheel having a rim or tread movable eccentrically to its axis, and a yielding or elastic support for normally retaining said rim concentric to its axis, substantially as described.

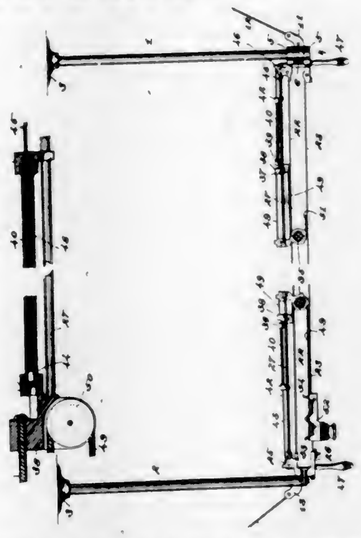


2. The combination of a car having suitable carrying-wheels, a wireway the diameter of which is enlarged for a short distance from the end, and a brake-wheel having a movable rim or tread and a yielding resilient support or member interposed between said rim and its axis, said rim being adjusted to engage said diametrically-enlarged portion of said wireway, substantially as described.

3. The combination with a car of the class described and a way having an enlarged diameter extending a short distance from its end, of a brake or retarding wheel consisting of parallel side supports mounted upon a suitable bearing, a ring placed loosely between said supports, and a yielding elastic material arranged in the plane of said ring and interposed between the same and the axis of said wheel, whereby said ring may be held normally concentric with said axis while being free to yield eccentrically thereto when pressure is placed thereon, substantially as described.

4. The combination of the wireway *a* and the enlarged portion *b*, of a car having wheels adapted to run upon said way and a brake-wheel consisting of a ring of suitable material mounted upon a yielding elastic member interposed between it and its axis, substantially as described.

660,100. STORE-SERVICE APPARATUS. EMANUEL C. GIPE, Chicago, Ill., assignor of three-fourths to Felix J. Griffen, same place, Henry Gloe, Elmhurst, Ill., and George W. Tassell, Waukesha, Wis. Filed Feb. 26, 1900. Serial No. 6,522. (No model.)



Claim.—1. In a device of the class described, the combination with a car and wireway, of the supporting-wire arranged parallel to said wireway, a propelling-cord having a loop adapted to be engaged by said car, a series of pulleys over which said propelling-cord is trained, an actuating-cord and a sliding spring-controlled take-up interposed between said propelling and actuating cords respectively, and in operative connection therewith, whereby the slack in the propelling-cord may be taken up and the handle of the actuating-cord held normally in a predetermined position, substantially as described.

2. In a device of the class described, the combination with a car, and wireway, of a supporting-wire arranged parallel with said wireway, parallel rods extending forward from the supporting-hanger, stationary pulleys attached to the forward end of said rods, a sliding take-up mounted upon said rods, a pulley upon the forward end of said take-up, a propelling-cord attached to the end of said take-up, thence carried forward over said pulleys, thence back over a pulley upon said take-up, thence forward over the remainiug stationary pulleys behind which said cord is looped in the path of the car, a coiled spring arranged within a guide in said sliding take-up and an actuating-cord attached to the forward end of said spring and trained over a suitable pulley, substantially as described

3. In a device of the class described, the combination of a wireway, rigid supports for sustaining said wireway, a sliding take-up, means for supporting the same in operative proximity to one of said supports, a propelling-cord attached to said sliding take-up, a series of multiplying-pulleys interposed between the same and said car, a coiled spring mounted upon said take-up, and an actuating-cord connected with the forward end of said coiled spring, whereby the latter may act simultaneously upon said propelling and actuating cords to take up the slack in the one and to maintain the other in a predetermined normal position, substantially as described.

4. In a cash-car system, the combination of a car, a wireway stretched between rigid supports, a stretched supplemental wire arranged above and parallel with said wireway, parallel rods having their rear ends attached to one of said rigid supports while the forward ends thereof are supported by said supplemental wire, multiplying-pulleys secured to the forward end of said rods, a sliding take-up loosely mounted upon said rods, a double grooved pulley upon said take-up, a propelling-cord attached to said take-up and trained back and forth over said multiplying-pulleys and said take-up pulley, said propelling-cord having a loop lying in the path of movement of the car, a coiled spring in operative connection with said take-up, a pull or actuating cord connected with the forward end of said coiled spring, and a suitable stop for limiting the movement of said pull-cord, substantially as described.

5. In a device of the class described, the combination with a car and wireway, of a supporting-wire arranged parallel to said wireway, rods placed parallel to said supporting-wire, a sliding take-up mounted upon said rods, propelling and actuating cords respectively in operative connection with said take-up, a coiled spring mounted upon said take-up and connected directly with one of said cords for the purpose of taking up the slack in both, pulleys 34, 50, and the obliquely-disposed pulleys 36, over which the propelling-cord is trained in the manner and for the purpose substantially as shown and described.

6. The combination with a wireway, a parallel supporting-wire and parallel rods 27, of a sliding take-up loosely mounted upon said rods, coiled spring 48 disposed within a tube forming a part of said take-up, cords 45, 49, extending in opposite directions, one connected with said spring and the other with the body of said take-up, pulley 46 at the rear of said parallel rods, pulley 34 mounted in bearings at the forward end of said rods, pulley 50 upon the forward end of said take-up, and the obliquely-disposed pulleys 36, the grooves in the top of which are in alinement with those in the pulley 50, while the bottoms of said pulleys are arranged to straddle the wireway to permit the body of the car to pass between and engage the loop of the propelling-cord, substantially as described.

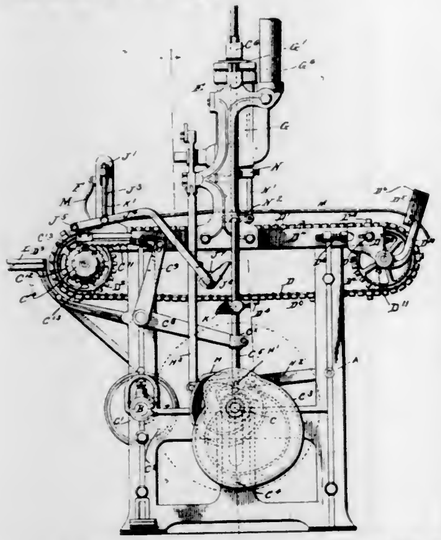
7. The combination in a device of the class described, of a wireway, a parallel supporting-wire arranged above said wireway, parallel rods for supporting a sliding take-up, a sliding take-up, pull and propelling cords respectively, arranged to oppose each other at opposite ends of said take-up, suitable pulleys for mounting said cords, and independent pivotal supports at the respective ends for each of said wires, whereby the wires may be disposed in any desired position, inclined or horizontal, while parallelism may be maintained between the wires and the take-up rods, and the grooves of the coacting pulleys kept in alinement, substantially as described.

660,101. AUTOMATIC CAN-FILLING MACHINE. JOSEPH E. J. GOODLETT, Memphis, Tenn. Filed Aug. 19, 1899. Serial No. 727,781. (No model.)

Claim.—1. A cylinder for a can-filling machine constructed with an inlet and an outlet at its lower end, a channel having a discharge-spout and extending beneath the inlet and outlet, and a valve, for opening and closing the inlet and the outlet, alternately, having a right-angle port providing communication between the inlet and the channel, and also a through-port providing communication between the outlet and the discharge-spout.

2. A cylinder for a can-filling machine constructed with an inlet and an outlet at its lower end, a chamber near its upper end, a channel having a discharge-spout and extending from the chamber and beneath the inlet and outlet, an opening providing communication between the cylinder and the chamber, and a valve located in the channel and controlling the inlet, the outlet, and the discharge-spout.

3. A cylinder for a can-filling machine constructed with an inlet and an outlet at its lower end, a chamber near its upper end, a channel having a discharge-spout and extending from the chamber and beneath the inlet and outlet, an opening providing communication between the cylinder and the chamber and a valve, for opening and closing the inlet and the outlet alternately, having a port providing communication between the inlet and the channel, and also a port providing communication between the outlet and the discharge-spout.



4. A can-filling machine comprising a cylinder constructed with an inlet and an outlet at its lower end, a channel having a discharge-spout, a valve controlling the discharge-spout, a long closely-fitting plunger working in the cylinder, vertical guide-rods, a cross-head, by which the plunger is carried, sliding on the guide-rods, vertical rods, to which the cross-head is attached, having slotted lower ends, a cam-shaft extending through the slotted lower ends of the vertical rods, and cams secured to the cam-shaft and connected with the lower ends of the vertical rods for driving the latter.

5. A can-filling machine comprising a cylinder constructed with an inlet and an outlet at its lower end, a channel having a discharge-spout, a valve controlling the discharge-spout, a crank-arm secured to the valve-stem, a valve-rod pivoted to the crank-arm, a drive-rod, a bell-crank lever connecting the valve-rod with the drive-rod, a pivoted lever with which the drive-rod is connected, a cam-shaft, and a cam-wheel secured to the cam-shaft and connected with the pivoted lever.

6. A can-filling machine comprising a cylinder constructed with a discharge-spout, a valve controlling the discharge-spout, a reciprocating bar, a drip-pan secured to the bar, and having an elongated opening in its bottom, a flange surrounding the opening, and a discharge-spout, a receptacle having an outlet, and means for operating the valve and bar, alternately.

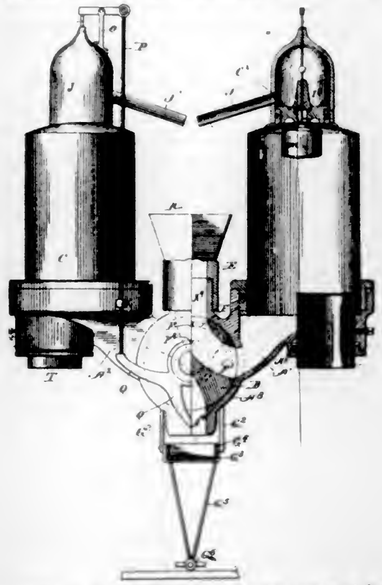
7. A can-filling machine comprising a cylinder constructed with a discharge-spout, a valve controlling the discharge-spout, a valve-arm secured to the valve-stem, a valve-rod pivoted to the crank-arm, a drive-rod, a bell-crank lever, connecting the valve-rod with the drive-rod, a pivoted lever with which the drive-rod is connected, a cam-shaft, a cam-wheel secured to the cam-shaft and connected with the pivoted lever, a reciprocating bar, a drip-pan secured to the bar, and having an elongated opening in its bottom, a flange surrounding the opening, and a discharge-spout, and a link connecting the bar with the bell-crank lever.

8. A can-filling machine comprising a table provided with means to engage the cans placed thereon and force them to advance therewith, means for imparting a step-by-step movement to the table, a rigid bar located over the table, adjustable rods depending from the bar and the clasping-springs secured to the rods in pairs and curved inward and outward centrally, and inward and outward at their ends.

9. A can-filling machine compsising an endless-belt table having cleats for advancing the cans, an inclined cross-bar having depressions in which the cans rest, brackets having adjustable arms on which the cross-bar is supported, and means for advancing the table with the cans in series, step by step.

10. A can-filling machine comprising an endless belt having cleats for advancing the cans, an inclined cross-bar having depressions in which the cans rest, and the guide-bars between which the cans pass extending from end to end of the machine.

660,102. CAN-FILLING MACHINE. JOSEPH E. J. GOODLETT, Memphis, Tenn. Filed Aug. 31, 1899. Serial No. 729,105. (No model.)



Claim.—1. A can-filling machine comprising a reservoir having a top opening, a body formed with a valve-chamber and with an inlet-port and an outlet-port, and having a branch containing a passage through which the reservoir is filled and emptied, a valve having a way adapted to connect the inlet-port with the branch passage in one position of the valve and the branch passage with the outlet-port in another position of the valve, a float for closing the top opening, means whereby the float is suspended in the reservoir, and means connecting the valve with the means whereby the float is suspended to lower the float when the reservoir is emptied.

2. The combination with two reservoirs each having a vent-opening, of a valve arranged to admit material to one reservoir while opening the other for discharge, a vent-closing float-valve in each reservoir, and mechanical means connecting the valve with the float whereby the setting of the valve for discharging either reservoir forcibly opens the corresponding vent-closing float-valve.

3. A can-filling machine comprising a reservoir having a top opening, a body formed with a valve-chamber and with an inlet-port and an outlet-port, and having a branch containing a passage through which the reservoir is filled and emptied, a valve having a way adapted to connect the inlet-port with the branch passage in one position of the valve and the branch passage with the outlet-port in another position of the valve, a projection on the valve, a lever supported on the reservoir, a float, within the reservoir, having a rod whereby it is guided beneath one end of the lever, and a rod pivoted to the other end of the lever and adapted to be lifted by the projection on the valve when the reservoir is discharged.

4. A can-filling machine comprising a pair of reservoirs, a body formed with a valve-chamber and with an inlet-port and an outlet-port, and having branches each containing a passage through which the reservoirs are filled and emptied, a valve having independent ways adapted to connect alternately, the inlet-port with the branch passages in one position of the valve and the branch passages and the outlet-port in another position of the valve, projections on the valve, levers supported on the reservoirs, floats within the reservoirs, having rods whereby they are guided beneath one end of the levers, and rods pivoted to the other ends of the levers and adapted to be lifted by the projections on the valve when the reservoirs are discharged.

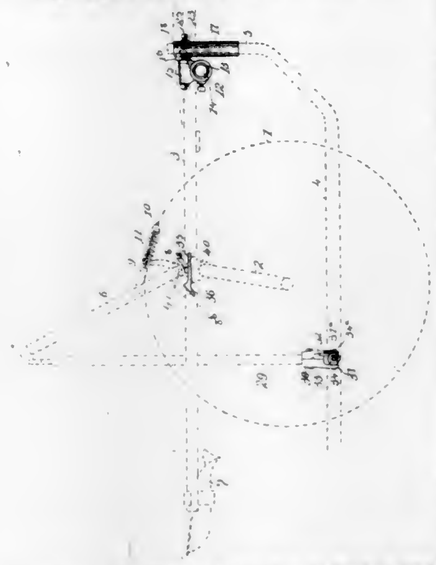
5. The combination, with a reservoir having a vent-opening at the top, of a plug, surmounting the vent-opening, and having a vent-passage therethrough, a float having a guide-rod extending through the plug and formed with an enlargement above the plug, and a removable cup having a discharge-spout and covering the vent-opening.

6. A can-filling machine comprising a reservoir having a top opening, a neck secured around the top opening, a plug having a central recess and vent-passage leading from the recess and located within the neck above the top opening, a float having a guide-rod extending through the plug, and a removable cup having a discharge-spout, and fitted over the neck.

7. A can-filling machine comprising an outlet-port, drip-pan, means whereby the drip-pan is mounted so as to reciprocate horizontally beneath the outlet-port, an arm depending from the drip-pan, and a stop secured to the arm, with which the can to be filled engages to move the drip-pan from beneath the outlet-port and to permit the drip-pan to return automatically to normal position when the can is withdrawn.

8. A can-filling machine comprising a frame adapted to be supported thereon, depending arms pivoted in pairs to the frame, cross-bars pivoted to the lower ends of the depending arms, a drip-pan mounted on the cross-bars, a rigid arm depending from the drip-pan, and a stop supported in the lower end of the rigid arm.

660,103. CULTIVATOR. WILLIAM S. GRAHAM, Canton, Ill., assignor to the Parlin & Orendorff Company, same place. Filed July 17, 1900. Serial No. 23,926. (No model.)



Claim.—1. In a convertible horizontal pivot and vertical pivot for the front end of a cultivator-beam, the combination of a cross-shaft on the front end of the cultivator-frame, a collar on the cross-shaft having an extension bored from front to back, a vertical sleeve in which a vertical extension of the beam journals, a stud on the sleeve journaled in the front-to-back bore of the collar and means for holding the stud from turning in its bearing, substantially as described.

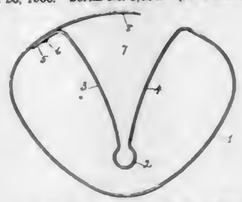
2. In a convertible horizontal pivot and vertical pivot for the front end of a cultivator-beam, the combination of a cross-shaft on the front end of the cultivator-frame, a collar on the cross-shaft having an upward extension bored from front to back, a sleeve in front of the shaft, forming a bearing for a vertical extension of the beam, a stud on the sleeve journaled in the front-to-back bore of the collar, lugs on the collar, lugs on the sleeve coinciding with the lugs on the collar when the sleeve is vertical and means for fastening the lugs of the sleeve to lugs of the collar, substantially as described.

3. In a convertible horizontal pivot and vertical pivot for the front end of a cultivator-beam, the combination of a cross-shaft on the front end of the cultivator-frame, a collar on the cross-shaft having an upward extension bored from front to back, a sleeve in front of the shaft cut away in one of its sides and having a stud journaled in the front-to-back bore of the collar, a clamp-collar in the cut-away part of the sleeve holding a vertical extension of the cultivator-beam, and means preventing the stud of the sleeve from turning in the collar on the cross-shaft, substantially as described.

4. In a cultivator, the combination of a beam, a horizontal strut-sleeve fastened between members of the beam, a pendulous rod for supporting the beam, a hanger on the lower end of the rod straddling the strut-sleeve and connecting pivotally therewith between the ends thereof, lugs on the strut-sleeve off the center thereof, arms on the hanger corresponding with the lugs on the sleeve, and means for fastening the arms to the lugs, substantially as described.

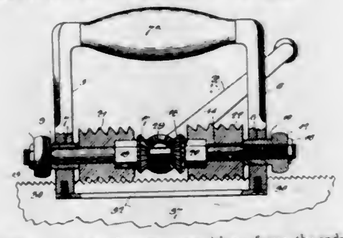
5. In a cultivator, the combination with a beam, a beam-sustaining rock-arm, a lever swingable with the rock-arm and connecting with the arm through a cushion-spring, of a slidable stop-plate to limit the swing of the lever and control the action of the spring, substantially as described.

660,104. NECKBAND-SHAPER. ALBERT E. GRANT, Troy, N. Y. Filed Feb. 20, 1900. Serial No. 5,884. (No model.)



Claim.—A neckband-shaper formed of a single strip of resilient sheet metal having its middle portion bent to the form of a neckband, and having near one end a reëntrant bend, said end being attached to the inner side of the strip near its other end and said other end projecting beyond said attached end and adapted to overlap the body of the strip on the opposite side of said reëntrant bend, substantially as described.

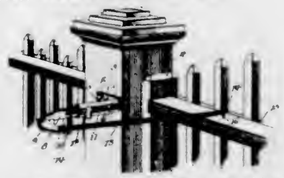
660,105. SAW-SHARPENER. JAMES W. GREEN, Portland, Oreg. Filed Dec. 23, 1899. Serial No. 741,429. (No model.)



Claim.—1. A saw-sharpener comprising a frame, the ends of which are bifurcated, guide-plates connecting corresponding bifurcations and separated by an interspace, sleeves removably engaged with the frame, a shaft passed through the sleeves, bevel-gears mounted loosely upon the shaft and having cross-sectional angular hubs, cutters disposed upon the shaft and having recesses in which the hubs of the bevel-gears are fitted, a bracket, a shaft journaled in the bracket and having a bevel-gear meshing with the first-named gears, and means for rotating the shaft.

2. A saw-sharpening device, comprising a frame which is U-shaped and the ends of which are bifurcated, plates secured to the corresponding bifurcations and separated by an interspace forming a guideway, abrading elements mounted in the frame above the guideway for engagement with a saw-blade in its passage into the guideway, and means for rotating the abrading elements.

660,106. GATE-SPRING. JAMES L. GROSS, Blackwell, Okla. Filed Aug. 14, 1900. Serial No. 26,872. (No model.)



Claim.—A device of the class described, comprising an attaching-bracket, having a sheath, an adjustable slide mounted therein, and provided with a longitudinal slot, and a lateral arm, an adjusting-screw carried by the sheath and loosely entering the slot of the slide, and a spring, having

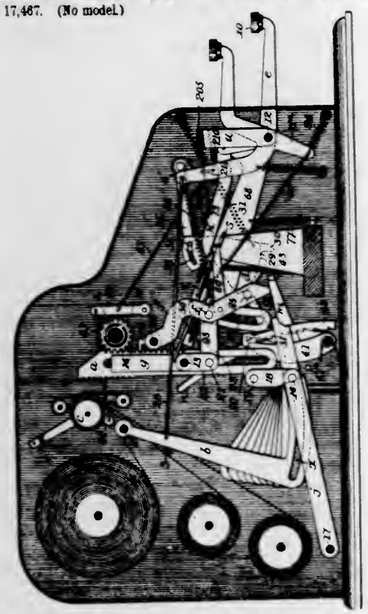
one end connected to the lateral arm, and its opposite end provided with a fastening for application to a gate.

660,107. RECEPTACLE. CHARLES R. HARRIS, Williamsport, Pa. Filed Apr. 25, 1899. Serial No. 714,420. (No model.)



Claim.—As a new article of manufacture, a receptacle comprising two sheet-metal sections each larger at one end than at the other and having their smaller ends closed, each section made angular in cross-section and each having longitudinal corrugations in each side and extending from the larger ends to points inwardly removed from their smaller ends, the larger ends of the sections overlapping with the corrugations intermeshing and permanently secured, and one of said sections having depressions near one end at diametrically-opposite sides to form handholds.

660,108. ADDING-MACHINE. ADAM HOCH, Alameda, Cal., assignor to MAX BLUM, San Francisco, Cal. Filed May 21, 1900. Serial No. 17,467. (No model.)



Claim.—1. In machines of the general class described, a recording mechanism one part of which is movable relatively to the other, combined with keys, and mechanism controlled by the keys to effect a step-by-step movement of said movable part, and another mechanism also controlled by the same keys to shift said movable part to position to begin the record of a number at its highest order, the extent of the latter movement varying according to the key struck, substantially as set forth.

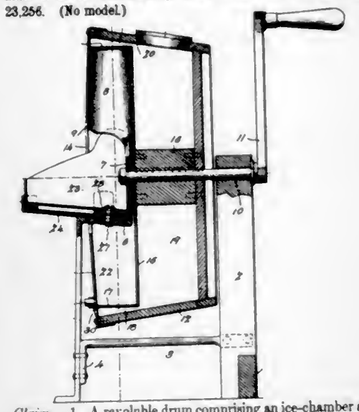
2. In machines of the general class described, a recording mechanism one part of which is movable laterally with respect to the other, mechanism to effect a step-by-step movement of said movable part in one direction, mechanism to effect a direct movement of said movable part to a predetermined point in the opposite direction, and a set of independently-operating keys common to both mechanisms, the respective keys determining respective degrees of the latter movement, substantially as set forth.

3. In machines of the general class described, a recording mechanism, one part of which is movable laterally with respect to the other, operating-keys, mechanism controlled by said keys to effect a step-by-step movement of the movable part, another mechanism also controlled by said keys to effect a reverse movement of said movable part varying in extent according to the key struck, and devices to automatically put the last-named mechanism under control of the said operating-keys, substantially as set forth.

4. In a machine of the general class described, a single set of operating-keys, a recording mechanism one part of which is movable relatively to the other part, and two independent mechanisms both controllable by the said keys, one to move the said movable part in one direction and the other to move it in the opposite direction, the extent of movement in one direction varying according to the key struck, substantially as set forth.

5. In a machine of the class described, a recording mechanism one part of which is movable relatively to the other and designed to have a variable starting-point and a fixed stopping-point, combined with a single set of keys, and mechanism controlled by each of said keys independently to effect a step-by-step movement of the movable part from its starting to its stopping point, and another mechanism also controlled by a plurality of the same keys to effect the movement of the movable part from its stopping to its starting point, the extent of such movement varying according to the key struck, substantially as set forth.

660,109. ICE-CREAM FREEZER. SCHOOLER C. HORN and WILLIAM S. SMITH, Bladensburg, Ohio. Filed July 11, 1900. Serial No. 23,256. (No model.)



Claim.—1. A revoluble drum comprising an ice-chamber and a milk or cream chamber therein and revoluble therewith, said milk or cream chamber having a freezing-disk forming one side thereof, in combination with a stationary knife impinging against said freezing-disk, substantially as described.

2. A revoluble drum comprising an ice-chamber and a milk or cream chamber therein and revoluble therewith, said milk or cream chamber having a freezing-disk forming one side thereof, in combination with a stationary knife impinging against said disk, said knife having a deflecting-lip, substantially as described.

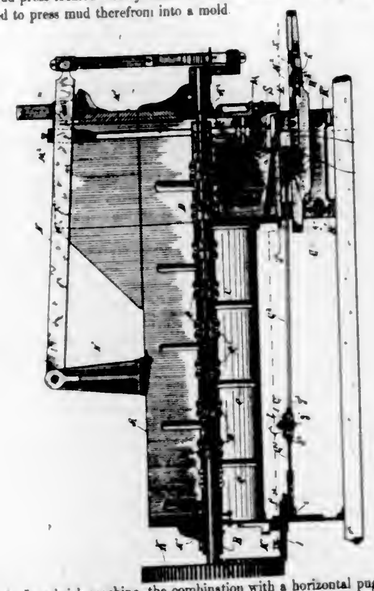
3. A revoluble drum comprising an ice-chamber and a milk or cream chamber therein and revoluble therewith, said milk or cream chamber having a freezing-disk forming one side thereof, in combination with a stationary knife impinging against said disk, and a receiving-tray, substantially as described.

4. The combination of a revoluble drum having an ice-chamber and milk or cream chamber divided by a freezing-disk, a standard forming one of the bearings for said drum and having a knife impinging against said freezing-disk, and a tray supported on said standard, substantially as described.

5. The combination of a revolubie drum having an ice-chamber and a milk or cream chamber divided by a freezing-disk, said milk or cream chamber having a central opening in its outer side, a knife, impinging against said freezing-disk, an ice-cream-receiving tray, extending through the opening in the outer side of said milk or cream chamber, and a support for said tray, substantially as described.

660,110. BRICK-PRESS. CHARLES H. HORTON, Painesville, Ohio, assignor to the Horton Manufacturing Company, same place. Filed Dec. 28, 1898. Serial No. 700,504. (No model.)

Claim.—1. In a brick-machine, the combination with a pug-mill, of a mud-press located wholly inside of the chamber of the pug-mill and adapted to press mud therefrom into a mold.



2. In a brick-machine, the combination with a horizontal pugging-chamber having an outlet at its bottom at one end, of a plunger located inside of said pugging-chamber, said plunger constructed and arranged to operate in the mud in the pugging-chamber and force it out through said outlet into a mold.

3. In a brick-machine, the combination with the chamber of a pug-mill having an outlet-opening, of a plunger located within the chamber of the pug-mill and adapted to operate in the mud therein and force it, through said outlet, into a mold, and a yielding device located at the inner edge of said outlet and projecting into said chamber, substantially as and for the purpose set forth.

4. In a brick-machine, the combination with a pugging-chamber having an outlet in its bottom at its front end, of a plunger located in the pugging-chamber and adapted to operate in the mud therein and force it, through said outlet, into a mold, a part of the front end of the pugging-chamber forming one side of a press-box for said plunger, and a yielding device located at the inner edge of the outlet and projecting up into the said chamber so as to form the opposite side of the press-box.

5. In a brick-machine, the combination of a pugging-chamber having an outlet in its bottom at or near one end, a die in said outlet, a mold-support under the die, a vertically-movable plunger disposed within the pugging-chamber over said outlet and adapted to operate in the mud in said chamber and means for operating said plunger.

6. In a brick-machine of the character indicated, a pugging-chamber, a pugging-mill operating in said chamber, a vertical mold-filling plunger operating in the front end of said chamber, a die located beneath said plunger, and a pocket formed in the bottom of the pugging-chamber behind the said die and adapted to receive and retain deposits of heavy substances contained in the mud, preventing the same from being carried onto the surface of the die, substantially as described, for the purpose set forth.

7. In a brick-machine of the character indicated, a pugging-chamber having a portion of its bottom, near its front end, inclined to the front and below the general level of the said bottom, a mold-filling plunger operating in the front end of said chamber, a die located in the bottom of said chamber beneath the said mold-filling plunger, a division-gate extending transversely of the said pugging-chamber in the interior thereof and immediately behind the said die, and means for holding said gate in a vertical position, substantially as described and for the purpose set forth.

8. In a brick-machine of the character indicated, a pugging-chamber, a pugging-mill operating in said chamber, a vertical mold-filling plunger operatively supported in the front end of said chamber, a die located beneath said plunger, a press-box surrounding said die, the rear end of said press-box being yieldingly supported in its vertical position, and adapted to open toward the interior of the pugging-chamber so as to allow the surplus mud, under the plunger, to escape back into the pugging-chamber, substantially as and for the purpose set forth.

9. The combination with a pugging-chamber, a pugging-shaft having bearings in said chamber, and means for operating said pugging-shaft, of a mold-filling plunger operating in said pugging-chamber, and means for operating said mold-filling plunger, comprising a crank-arm keyed to the said pugging-shaft, a vertical adjustable pitman having its lower end operatively connected with the said crank-arm and provided, at its other end, with a socket, a lever pivoted at one end to a rigid support and provided with a ball at its other end adapted to fit into the said socket in the end of the said pitman, and pivotal connection between the said lever and the shaft of the said mold-filling plunger, substantially as described, for the purpose set forth.

10. In a brick-machine of the type set forth, the combination with a pugging-shaft, of a gear-wheel for operating the said shaft, said gear-wheel being provided, on one of its faces, with a segmental bevel-gear, which intermittently engages a bevel-pinion, a wrist-pin connected to said bevel-pinion, an adjustable pitman connected to said wrist-pin, and a mold-filling device operated by said pitman, substantially as and for the purpose set forth.

11. In a brick-machine of the type set forth, the combination with a plugging-shaft, of a crank located at its forward end, a pitman connected to said crank, said pitman, in turn, adjusted so as to have a positive predetermined downward throw when operated by said crank, and being provided with means whereby the upward movement of the pitman may be varied or adjusted, a rocking beam having ball-and-socket connection with said pitman, and a plunger pivotally connected to said rocking beam, substantially as described, for the purpose set forth.

12. A brick-machine of the type set forth, comprising a platen or table; a mold-feeder head reciprocating thereon so as to feed the molds to proper position; a pitman connected to said mold-feeder head, said pitman being formed in two parts and pivoted together; the pivotal connection between the parts being such as to feed the molds under normal conditions and to buckle or compensate under abnormal strain, substantially as and for the purpose set forth.

13. In a brick-machine of the type set forth, a mold-feeding device comprising a feeding-head, a pitman pivotally attached thereto, said pitman being formed in two parts, said parts being out of alinement and pivotally connected, and means, substantially such as set forth, for retaining said pitman in normal position under normal strain and permitting said pitman to buckle or compensate under abnormal strain, substantially as and for the purpose set forth.

14. In a brick-machine of the type set forth, a mold-feeding device comprising a feeder-head, a pitman connected to said head, said pitman being operatively connected and adjustably connected with a crank bevel-gear, in combination with a segmental bevel-gear for intermittently operating the mold-feeder through said crank bevel-gear, substantially as and for the purpose set forth.

15. In a brick-machine of the type set forth, a plunger-operating device consisting essentially of a rocking beam pivotally connected at one end, and an adjustable pitman connection located at the opposite end, and a crank for operating said pitman and through it the rocking beam, the connection between the pitman and the rocking beam being a ball-and-socket connection, substantially as and for the purpose set forth.

16. In a brick-machine of the type set forth, a mold-feeding device comprising a suitable head for contacting with and feeding said molds; a pitman connection connected to said head, and means or mechanism intermittently operated for intermittently operating said mold-feeder head, said means comprising a bevel-pinion provided with a wrist-pin for connecting and operating the pitman, and a driving bevel-gear of segmental form, substantially as and for the purpose set forth.

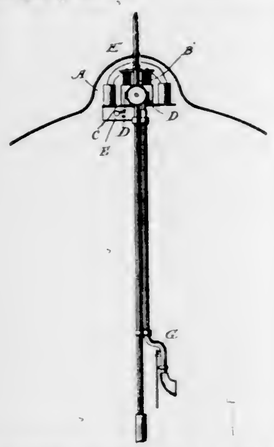
17. In a brick-machine of the type set forth, mechanism for intermittently operating the mold-feeder, said mechanism comprising a segmental driving-gear; a pinion operated thereby; starters for properly meshing the segmental gear and the pinion, and a wrist-pin connected to said pinion, in combination with a pitman connected to said wrist-pin, and a suitable feeder-head connected to and operated by said pitman, substantially as and for the purpose set forth.

660,111. UMBRELLA ATTACHMENT. THOMAS HOWIE, Vinita, Ind. Ter. Filed June 5, 1899. Serial No. 719,473. (No model.)

Claim.—1. The combination of an umbrella, a motor supported thereon, a blower mounted upon the shaft of said motor, a source of electricity in circuit with the motor and a tube leading from said blower and extending downwardly of the stick of the umbrella and having a discharge-piece rotatably connected with the stick.

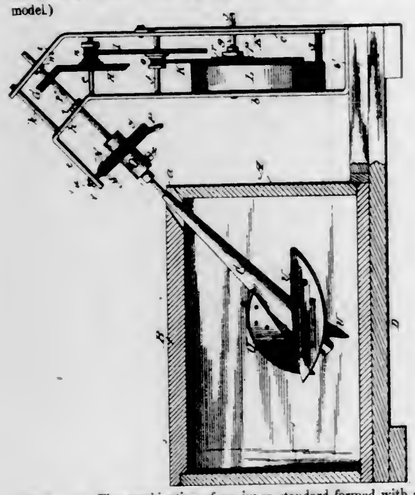
2. The combination with an umbrella and the stick thereof, of a motor supported upon the stick, a blower mounted upon the shaft of said motor, a source of electricity in circuit with the motor a push-button at the lower end of the stick and in the motor-circuit, a flexible tube connected with the blower and leading downwardly of the umbrella-stick, a

discharge-piece connected with said tube and mounted revolubly with respect to the umbrella-stick, and a valve in the discharge-piece and adapted to regulate the discharge therefrom.



3. The combination with an umbrella and the stick thereof, of a motor supported upon the stick, a blower mounted upon the shaft and having its casing connected with the pole-pieces of the motor, a source of electricity in circuit with the motor a push-button mounted adjacent the lower end of the stick and in the motor-circuit, a flexible tube connected with the blower and leading downwardly of the umbrella-stick, a discharge-piece connected with the lower end of the tube and having a bell rotatably connected therewith, a valve in the discharge-piece adapted to regulate the discharge therefrom, and a clamp connected with the discharge-piece and revolubly connected with the umbrella-stick.

660,112. **CHURN.** WILLIAM A. JOHNSTON and EVERETT I. MCDONALD, Buckland, Ohio. Filed Apr. 26, 1900. Serial No. 14,426. (No model.)

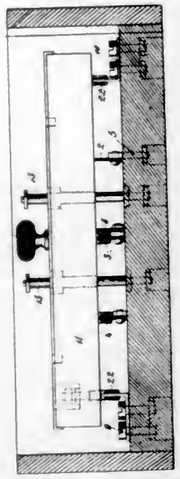


Claim.—1. The combination of an inner standard formed with an obtuse-angle part at its upper end, an outer standard formed with an obtuse-angle part at its upper end, a brace for the outer standard, the lower brace-rod for the standards, the upper brace-rod for the obtuse-angle parts of the standards, the spindle journaled in the obtuse-angle parts, having supporting-collars and carrying a bevel gear-wheel located between the obtuse-angle parts, the lower winding-shaft carrying a gear-wheel, a spring connected with the lower brace-rod and with the lower winding-shaft, the intermediate shaft carrying a pinion and gear-wheel, and the upper shaft carrying a pinion and bevel gear-wheel.

2. The combination of an inner standard formed with an obtuse-angle part at its upper end, having a right-angle part, an outer standard formed with an obtuse-angle part at its upper end, a spindle journaled in the obtuse-angle parts, means for operating the spindle, the fixed clamping-arm having an extension and a screw-threaded shank, a nut whereby the screw-threaded shank is locked to the right-angle part, the movable clamping-arm having an extension and pivoted to the fixed clamping-arm, the screw-threaded crank-rod, extending through the extensions of the clamping-arms beneath the spindle-coupling, a nut for locking the crank-rod to the extension of the fixed clamping-arm, a spring coiled around the crank-rod between the extensions of the clamping-arms, and a spring coiled around the crank-rod between the extension of the movable clamping-rod and the crank end of the crank-rod.

3. The combination of an inner standard formed with an obtuse-angle part at its upper end having a right-angle part, an outer standard formed with an obtuse-angle part at its upper end, a brace for the outer standard, the lower brace-rod for the standards, the upper brace-rod for the obtuse-angle parts of the standards, the spindle, journaled in the obtuse-angle parts having supporting-collars and carrying a bevel gear-wheel located between the obtuse-angle parts, the spindle-coupling, the lower winding-shaft carrying a gear-wheel, a spring connected with the lower brace-rod and with the lower winding-shaft, the intermediate shaft carrying a pinion and gear-wheel, the upper shaft carrying a pinion and bevel gear-wheel, the fixed clamping-arm having an extension and a screw-threaded shank, a nut whereby the screw-threaded shank is located to the right-angle part, the movable clamping-arm having an extension and pivoted to the fixed clamping-arm, the screw-threaded crank-rod extending through the extensions of the clamping-arms beneath the spindle-coupling, a nut for locking the crank-rod to the extension of the fixed clamping-arm, a spring coiled around the crank-rod between the extensions, a spring coiled around the extension of the movable clamping-arm and the crank end of the crank-rod.

660,113. **PANEL-BOARD AND FUSE-HOLDER.** CHARLES J. KLEIN, New York, N. Y., assignor to the General Incandescent Arc Light Company, same place. Filed Mar. 14, 1900. Serial No. 8,602. (No model.)



Claim.—1. In a panel-board, the combination of bus-bars having edgewise-mounted portions adapted to be engaged by a clip and a device for bridging and connecting the bus-bars in circuit consisting of a body carrying clips adapted for engagement with the edges presented by the bus-bars.

2. In a panel-board, the combination of an insulating-base, bus-bars mounted edgewise thereon, and a movable circuit-connector consisting of a body provided with clips adapted to removably engage the edges of the said bus-bars to make electrical connection therewith.

3. In a panel-board, the combination of bus-bars comprising metallic strips mounted edgewise on the panel-board and circuit-terminals likewise mounted upon the said panel-board on opposite sides of the group of bus-bars, and a circuit-connector having clips adapted for engagement with the bus-bars, bridging the said bus-bars and connecting the same to the appropriate branch-circuit terminals on opposite sides thereof.

4. In a panel-board, the combination of an insulating-base, bus-bars mounted edgewise thereon, one of the said bars having a reinforcing-strip 8 also mounted edgewise and in electrical connection with the said bus-bar and a movable circuit-connector provided with clips adapted for engagement with the bus-bars.

5. In a panel-board, the combination of an insulating-base, a plurality of bus-bars mounted edgewise thereon and a movable fuse-carrier provided with clips adapted for engagement with the bus-bars.

6. In a panel-board, the combination of an insulating-base, a plurality of bus-bars mounted edgewise thereon, a movable fuse-carrier provided with clips adapted for engagement with the bus-bars, and branch-circuit terminals likewise mounted upon the insulating-base and adapted for connection with the fuse-carrier.

7. The combination of a suitable panel-board provided with bus-bars mounted edgewise thereon, a movable fuse-carrier provided with clips adapted to engage the said bus-bars and means for imparting a snap switch action to the said movable fuse-carrier.

8. In a fuse-carrier, the combination of a block provided with fuses and clips electrically connected to the said fuses carried by the said fuse-block and adapted for engagement with edgewise-mounted bus-bars.

9. In a fuse-carrier, the combination of a recessed fuse-block and a removable cover therefor provided with panels for a directory and clips adapted to engage edgewise-mounted bus-bars.

10. In a panel-board structure, the combination of bus-bars consisting of metallic strips mounted edgewise, a branch-circuit terminal on each side of the said group of bus-bars and a movable fuse-carrier provided with clips adapted to engage the bus-bars and the branch-circuit terminals and to bridge all the bus-bars.

11. In a panel-board structure, the combination of a group of bus-bars, branch-circuit terminals in close proximity to the said group of bus-bars and a circuit-connector bridging all of the bus-bars and provided with clips adapted to make electrical connection with two or more of the bus-bars and the branch-circuit terminals.

12. The combination of a panel-board, a group of bus-bars mounted thereon and comprising in their structure circuit-terminals adapted for engagement by a clip, branch-circuit terminals on each side of the group of bus-bars and also adapted for engagement by a clip and a rigid body extending across the bus-bars and provided with clips and conductors adapted to bridge the bus-bars and complete the circuit between two or more of the bus-bars and the branch-circuit terminals.

13. The combination of a base, a group of metallic strips mounted edgewise on said base, a branch-circuit terminal, on each side of the group of strips, and a movable fuse-carrier, provided with clips adapted to engage with the strips and circuit-terminals; the said fuse-carrier bridging all the strips.

14. In combination a base carrying edgewise-mounted strips, and a bodily-sliding fuse-carrier having clips adapted to engage the edges of the strips.

15. In combination, a base carrying edgewise-set strips, a bodily-sliding fuse-carrier having clips to engage the strips and a guide for guiding the fuse-carrier.

16. In combination, a base carrying edgewise-set strips, and a fuse-carrier having clips embracing the edges of the said strips.

17. In combination, a base carrying edgwise-set strips, and a sliding fuse-carrier having clips embracing the said strips.

18. A panel-board comprising a base, two or more bus-bars, a series of circuit-terminals on opposite sides of said group of bus-bars and means for simultaneously bridging said bus-bars and circuit-terminals.

19. A panel-board comprising a base, two or more bus-bars, a series of circuit-terminals on opposite sides of said group of bus-bars and means for simultaneously bridging said bus-bars and circuit-terminals through fusible conductors.

20. A panel-board comprising a base, two or more longitudinally-arranged bus-bars, a series of circuit-terminals on opposite sides of said group of bus-bars and means for simultaneously bridging said bus-bars and circuit-terminals, comprising a holder carrying a number of resilient contacts corresponding in number and position with the bus-bars and contact-terminals.

21. A panel-board comprising a base, two or more longitudinally-arranged bus-bars, a series of circuit-terminals on opposite sides of said group of bus-bars and means for simultaneously bridging the said bus-bars and circuit-terminals comprising a holder carrying a number of resilient contacts corresponding in number and position with the bus-bars and contact-terminals, and such contacts suitably connected through fusible conductors.

660,114. **PROCESS OF MANUFACTURING INCANDESCENT BODIES.** RUDOLF LANGHANS, Berlin, Germany. Filed Feb. 13, 1900. Serial No. 5,062. (No specimens.)

Claim.—1. The process of manufacturing incandescent bodies which consists in impregnating a combustible fibrous structure with a fluid containing silicic acid and compounds reducible by heat to oxids of thorium, cerium, zirconium and an alkaline metal in such proportion that there are eight molecular weights at least of thorium, one molecular weight of silicon, one molecular weight of zirconium and so much cerium that the proportion of ceria present in the mixture of oxids left behind on burning the fiber is close to one per cent. of the proportion of thoria then present, drying the impregnated fabric, burning the fiber, and exposing the mineral structure obtained to the action of a flame fed with gas under pressure, substantially as described.

2. The process of manufacturing incandescent bodies which consists in impregnating a combustible fibrous structure with a fluid containing silicic acid and compounds reducible by heat to oxids of thorium, cerium, zirconium, an alkaline metal and cobalt in such proportions that there are eight molecular weights at least of thorium, one molecular weight of silicon, one molecular weight of zirconium, one molecular weight of protoxid of cobalt and so much cerium that the proportion of ceria present in the mixture of oxids left behind on burning the fiber is close to one per cent. of the proportion of thoria then present, drying the impregnated fabric, burning the fiber, and exposing the mineral structure obtained to the action of a flame fed with gas under pressure, substantially as described.

3. The process of manufacturing incandescent bodies which consists in impregnating a combustible fibrous structure with a fluid containing silicic acid and compounds reducible by heat to oxids of thorium, cerium, zirconium, an alkaline metal, cobalt and an alkaline-earth metal of the series R O (including thallium) in such proportions that there are eight molecular weights at least of thorium, one molecular weight of silicon, one molecular weight of zirconium, one molecular weight of protoxid of cobalt, from one to two molecular weights of said alkaline earth metal and so much cerium that the proportion of ceria present in the mixture of oxids left behind on burning the fiber is close to one per cent. of the proportion of thoria then present, drying the impregnated fabric, burning the fiber, and exposing the mineral structure obtained to the action of a flame fed with gas under pressure, substantially as described.

4. The process of manufacturing incandescent bodies which consists in preparing a fluid by adding nitric acid to a watery solution of sodium silicate and then adding nitrates of thorium, cerium, zirconium, cobalt and beryllium as also boric acid in such proportions that there are eight molecular weights at least of thorium, one molecular weight of silicon, one molecular weight of zirconium, one molecular weight of protoxid of cobalt, from one to two molecular weights of beryllium, from one to two molecular weights of boron, and so much cerium that the proportion of ceria present in the mixture of oxids left behind on burning the fiber is close to one per cent. of the proportion of thoria then present, drying the impregnated fabric, burning the fiber, and exposing the mineral structure obtained to the action of a flame fed with gas under pressure, substantially as described.

5. An incandescent structure composed of a thoria-zirconia-silica glass poor in alkaline-metal oxid and combined with ceria, and beryllium oxid, substantially as described.

6. An incandescent structure composed of a cobaltic thoria-zirconia-silica glass poor in alkaline-metal oxid and combined with ceria and beryllium oxid, substantially as described.

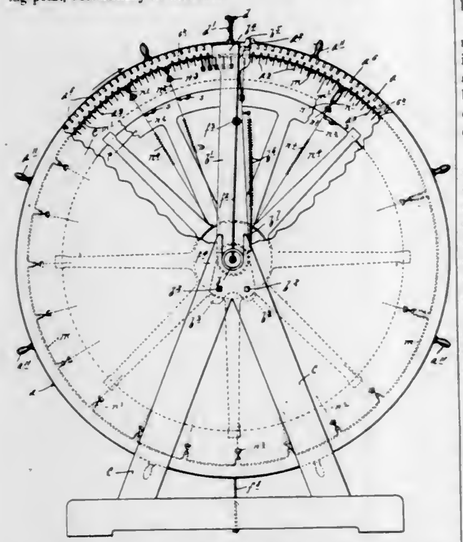
660,115. **VOTING-MACHINE.** SYVER LOK, Minneapolis, Minn., assignor to the American Voting Machine Company, same place. Filed Dec. 18, 1899. Serial No. 740,629. (No model.)

Claim.—1. In a voting-machine, the combination with a single local key and a rotary support, of a circular series of registers and register-actuators carried by said rotary support, which registers and actuators are grouped to correspond to a plurality of political tickets, such as the State ticket, county ticket, &c., each group including the registers and actuators appropriated to the candidates of the several political parties represented, and are subgrouped to correspond to the several different party candidates for the same offices, substantially as described.

2. In a voting-machine, the combination with a plurality of registers and register-actuators arranged in a single circular series and grouped to correspond to a plurality of political tickets, such as the State ticket, the county ticket, &c., each group including registers and actuators appropriated to the several political parties represented, and subgrouped to correspond to the several different party candidates for the same offices, a single key operative in succession on the said series of actuators, in the selected order, and a flexible limiting-band extended circumferentially of said circular series of actuators and secured between the subgroups for cooperation with said actuators to limit the number of actuators possible to be operated in the various subgroups, substantially as described.

3. The combination with a rotary drum or cylindrical support, of a plurality of registers, a corresponding plurality of register-actuators projecting through one head or end of the said drum or support, a relatively-fixed shield disk or head inclosing all of the said projecting portions of the register-actuators, and a local key at the voting-point projecting within said shield or head for operation in succession on said register-actuators, as they are brought to the voting-point, substantially as described.

4. The combination with a rotary drum or cylindrical support having an annular lock flange or shoulder, of a plurality of registers mounted in an annular series within said drum, a plurality of register-actuators with latches for locking them when operated, to said lock-flange, a protecting head or disk inclosing the key-engaging portions of said actuator, and a local key working through said protecting head or disk for operation upon said actuators, one at a time, as they are brought to the voting-point, substantially as described.



5. The combination with the rotary drum or cylindrical support *a* having the annular lock-flange a^{10}, of a plurality of registers, mounted in an annular series on said drum *a*, the plurality of actuating-levers *k* having pawls k^3 and k^4 coöperating, respectively, with said lock-flange 10 and said registers, the springs k^5 applied to said pawls k^3, the protecting head or disk inclosing the ends of said levers *k*, and the single local key *d* operative on the levers *k*, as they are brought to the voting position, substantially as described.

6. In a voting-machine, the combination with a rotary drum, of a series of registers mounted in a circular series thereon, a corresponding series of register-actuating levers projecting through one end or head of said drum or support, a disk or head inclosing the projecting portions of said actuating-levers, a pawl or dog, mounted in said head or disk and operating on said drum or support to permit the step-by-step movement thereof, and a local key working through said head or disk for action on the said register-actuators in succession as they are brought to the voting-point, substantially as described.

7. In a voting-machine, the combination with a rotary drum or support and a local key, of a series of registers and register-actuators, carried by said drum, in circular arrangement, latches for holding said actuators locked after operation, a pawl or dog operating on said drum to prevent return movements thereof, a yielding device putting said drum under strain to return to normal position, and trip mechanism for releasing said actuator-latches and said ratchet pawl or dog, substantially as described.

8. In a voting-machine, the combination with a rotary drum or support, of a series of registers and register-actuators, said actuators having a series of latches, of a relatively-fixed head or disk cutting off access to said register-actuators, a single local key working through said head for action in succession upon said register-actuators, a device with which said actuator-latches are engageable to hold said actuators in their operated positions, and means for simultaneously, or by a single action, releasing all of said actuators, substantially as described.

9. In a voting-machine, the combination with a local key and a rotary drum or support, of a series of registers and register-actuators mounted on said drum in a circular series, an annular lock flange or shoulder on said drum or support, latches on said register-actuators engageable with said annular lock-flange to hold said actuators in their operated positions, and a circular head or trip disk movable to release the engaged latches from said lock-flange, substantially as described.

10. In a voting-machine, the combination with several groups of registers and register-actuators, of a single flexible limiting-band or stop-chain coöperating with said actuators of the several groups, and securing devices applicable to the chain or band at any of several different points, whereby the chain may first be properly adjusted and then secured at the various points between the groups, substantially as described.

11. In a voting-machine, the combination with a drum or cylindrical support and a single operating-key, of a series of registers and register-actuators in circular arrangement on said drum, a flexible limiting-band or stop-chain coöperating with the entire series of actuators, and clamps or fastenings for securing the ends and intermediate portions of the said band or chain, substantially as described.

12. In a voting-machine, the combination with a local key and a rotary drum or support, of a circularly-arranged series of registers and register-actuating levers on said drum, latches for locking down the actuator, when operated, a trip for releasing said latches, a flexible limiting-band or stop-chain running over suitable guides on said drum, and coöperating with said actuating-levers, and means for securing said stop band or chain at its ends and intermediate portions, substantially as described.

13. In a voting-machine, the combination with a series of registers and register-actuators, of a flexible limiting-band or stop-chain working over suitable guides and secured at intervals as a means for limiting the number of actuators possible to operate in a particular group or subgroup, and a yielding loop-retainer subject to a stop that normally holds the said retainer in position to maintain the loop of said chain but which prevents said retainer from normally putting said chain under tension, whereby said chain is normally loose but is put under tension by the said loop-retainers as it is drawn taut, substantially as described.

14. In a voting-machine, the combination with a rotary drum or support, of a series of registers and register-actuators carried thereby and appropriated individually to various candidates represented on the ballot, and a straight-vote recording mechanism comprising a register, a register-actuator and a lock for locking said drum or carrier against rotation, which lock is actuated by or with the actuator for the straight-vote recorder, substantially as described.

15. In a voting-machine, the combination with a rotary drum or support, of a series of registers and register-actuators mounted thereon and appropriated individually to the candidates, of a protecting head or disk inclosing said actuators, a local key working through said head or disk for action in succession upon said actuators, and a straight-vote recording device comprising a register, a register-actuator and a lock, which lock is engageable with said head when actuated by the said straight-vote-register actuator, to lock the entire drum or carrier against rotation, substantially as described.

16. In a voting-machine, the combination with mechanism for recording individually votes for candidates represented on the ballot, of a "straight-vote" recording mechanism, comprising a register, the register-actuating lever *k*, having the spring-held latch k^3, and the lock dog or tumbler *t*, subject to the actuating-lever *k* and adapted to be thereby forced into engagement with a coöperating detent, to lock the machine, substantially as described.

17. In a voting-machine, the combination with a group of registers and actuators and means for limiting the number of actuators possible to be operated, of an independent-vote registering mechanism comprising two or more of the actuators of said group, and a single or common independent-vote limiting device operated by the said two or more actuators appropriated to the independent-vote registering mechanism, substantially as described.

18. In a voting-machine, the combination with a group of registers and actuators and means for limiting the number of actuators possible to be operated, of an independent-vote registering mechanism, comprising two or more of the actuators of said group, a recording-strip, a cut-off movable to afford access to said recording-strip, a latch for holding said cut-off in its opened position, a trip for said latch, a pawl-and-ratchet feed device for said recording-strip, which device is subject to the action of the two independent actuators, and is adapted to be given its second movement while said cut-off is held open, substantially as described.

19. In a voting-machine, the combination with a drum or cylinder having detachable or adjustable peripheral sections, of a series of registers and register-actuators spaced to correspond to the detachable peripheral sections of the drum, and detachable and adjustable "independent-vote recording devices" adapted to be interposed in the said series of registers, substantially as described.

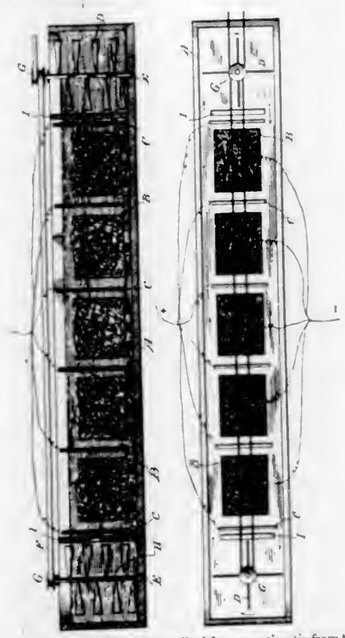
20. In a voting-machine, the combination with a plurality of registers and register-actuators in circular arrangement, and a single actuating-key operating in the selected order of succession, on said actuators, of latches for securing said actuators in operative positions, a releasing device for said latches, and a total-vote register connected for one operation for each complete releasing action of said releasing device, substantially as described.

21. In a voting-machine, the combination with a rotary drum or carrier and a single local key, of a plurality of registers and register-actuators mounted in circular arrangement on said rotary support, latches for securing said actuators in their operated positions, a common trip device for releasing all of said latches, and a total-vote recording device comprising a register, a spring-held lever and a part subject to the action of the releasing device, having connections to the said total-vote recorder, and operating substantially as described.

22. In a voting-machine, the combination with a drum or cylindrical support, of a series of registers and register-actuating levers in circular arrangement on said drum, a series of latches coöperating with an annular flange to hold said levers in operated positions, a reciprocating trip or releasing head for said latches, and a total-vote recorder having a part subject to the action of said trip or releasing head, substantially as described.

660,116. PROCESS OF SEPARATING TIN FROM TIN-SCRAP.

OTTO MEYER, Richmond, Va., assignor of three-fourths to Simon M. Block and Henry Froehling, same place. Filed Nov. 20, 1899. Serial No. 737,619. (No specimens.)



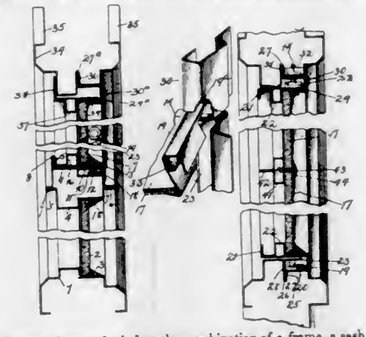
Claim.—The process herein described for separating tin from tin scrap or plate, which consists in subjecting the scrap or plate to a strong bath composed of muriatic acid in about the proportions of two parts water to one part acid, which acts as an electrolyte, but which in itself does not appreciably attack the tin of the scrap but does appreciably attack the iron of the scrap after the tin is removed forming protochlorid of iron, which forms an electrolyte in itself, and connecting the tin-scrap in bulk with the positive pole of an electric generator and forming an anode, and connecting a sheet of metal with the negative pole of the electric generator and forming the cathode, and subjecting the scrap to an electric current which is maintained at such uniform and high degree of amperage, as to continuously deposit the tin on the cathode in the condition of a dense sponge, and cutting off the current after the tin is removed from the scrap and removing the remaining iron of the scrap, and introducing new lots of tin-scrap without having to replenish the bath by the addition of muriatic acid at the end of each operation.

660,117. FIREPROOF WINDOW.

JOHN C. MCFARLAND and WILLIAM J. LARKIN, Chicago, Ill.; said Larkin assignor to said McFarland. Filed July 7, 1899. Serial No. 723,035. (No model.)

Claim.—1. In a fireproof window the combination of a window-frame and a sash pivoted therein and one of said parts having a socket formed longitudinally therein, and a flange member and a hood member carried by said sash and frame and interlocking with each other for forming a tight joint between the frame and sash, one of said members having a tongue fitting in said socket for holding such member in place, substantially as set forth.

2. In a fireproof window the combination of a frame, a sash pivoted therein, flanges carried by the sash from the pivotal point upward, hoods carried by the frame from said pivotal point upward for receiving said flanges, hoods carried by the sash from the pivotal point downward and flanges carried by the frame from the pivotal point downward for engaging in the last said hoods, while the sash is closed, the lower hood extending within and lapping with the upper hood, substantially as set forth.



3. In a fireproof window the combination of a frame, a sash pivoted therein, a hood carried by the frame from the pivotal point upward, a flange carried by the sash from the pivotal point upward for engaging in said hood, a hood carried by the sash from the pivotal point downward and a flange carried by the frame from the pivotal point downward for engaging in the last said hood, the last said hood being provided with a projection at its upper end extending above and lapping with the lower end of the first said hood for making said hoods practically continuous when the sash is closed, substantially as set forth.

4. In a fireproof window the combination of a window-frame, a sash pivoted therein, said sash on one side from the pivotal point being provided with a flange and on the same side from the pivotal point with a hood and said window-frame being provided on one side at a point opposite said flange with a hood for receiving said flange and on the same side opposite the first said hood with a flange for receiving the latter, substantially as set forth.

5. In a fireproof window the combination of a window-frame having vertical slits or sockets formed therein, the tongues or flanges 28 31 engaging in said slits or sockets, weather-strip members carried by said flanges or tongues 28 31, and a sash pivoted in said frame and having weather-strip members overlapping and coöperating with said first weather-strip members, substantially as set forth.

6. In a fireproof window the combination of a window-frame having the vertical sockets 27 in the sides thereof, the flanges 28 31 engaging in said sockets, one of said flanges being secured to and carrying the flange 23 and the other having the hood 30, a sash pivoted in said frame and having a hood for engaging over said flange 23 and a flange for engaging in the said hood 30, substantially as set forth.

7. In a fireproof window the combination of a window-frame constructed of sheet metal and lapped inwardly upon itself to form a narrow socket, a weather-strip member having a tongue or flange fitted in and secured by said socket, a pivoted window-sash and a weather-strip member carried by said sash and coöperating with said first weather-strip member, substantially as set forth.

8. In a fireproof window the combination of a window-frame having its side members constructed with the vertical sockets 27, a window-sash pivoted in said frame, the flange 23 having the tongue or flange 28 and the flange 31 having the hood 30 inserted end to end in each of said vertical sockets and terminating at the pivotal point of said sash, a hood carried by the sash for engaging over the flange 23 and a flange carried by the sash for engaging in said hood 30, substantially as set forth.

9. In a fireproof window the combination of a window-sash having one of its members constructed of a single strip of sheet metal bent to form the flanges 21 22 and the hood 19 and having its edges lapped to form a flange 20, and a window-frame provided with a flange adapted to engage in said hood, substantially as set forth.

10. In a fireproof window the combination of a pivotal sash having its side members constructed of a strip of sheet metal which from the pivotal point toward one end is folded upon itself to form the glass abutment-flange 22 and the hood 19 20 and from the pivotal point to the other end to form the glass abutment-flange 22 and a straight flange 29 and a window-frame having weather-strip members for coöperating with said hood and flange, substantially as set forth.

11. In a fireproof window the combination of a window-frame, a sash pivoted therein, said sash and frame having overlapping weather-

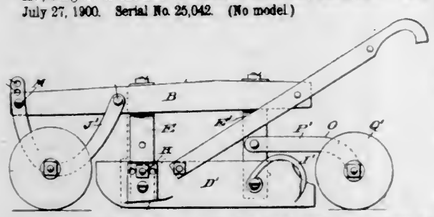
strips extending past the pivotal point of the sash and overlapping one another and the pivotal point of the sash arranged to one side of its vertical central line, substantially as and for the purpose set forth.

12. In a fireproof window the combination of a window-frame, a pivotal sash therein, a division member connecting the side members of said frame together and being composed of two strips of sheet metal, one of which is bent to form the flange 4 for the abutment of the glass below and the other of which has its edges lapped around the edges of the first said strip and bent upwardly and thence inwardly at 11, then upwardly and again outwardly to form the flange 10, thence back upon itself to form the top 9 of the division-bar, and a weather-strip member carried by the sash and coöperating with said flange 10, substantially as set forth.

13. In a fireproof window the combination of a window-frame, a division-bar connecting the sides of said frame together and being composed of two sheets or strips of metal, one of which is bent to form the glass abutment 4 and has its edges turned outwardly to form lateral flanges 5 6, and the other of which has its edges lapped around said flanges 5 6 and thence carried upwardly on one side and inwardly to form the bend 11 and thence upwardly and outwardly and again inwardly to form the flange 10 and top 9 of the division-bar and thence upwardly and downwardly to form the flange 8, and a pivotal sash having a weather-strip member coöperating with said flange 10, substantially as set forth.

14. In a fireproof window the combination of a window-sash, a plurality of panes of glass therein, the division-bar 40 for supporting said panes consisting of a single strip of metal bent to form the box-like body 41 and squeezed together to form the flange 42 on one side of said box and squeezed together on the opposite side of said box to form the flange 43, the edges of said strip being lapped one around the other and projecting between the panes of glass, substantially as set forth.

660,118. **CORN-CULTIVATOR.** SQUIRE D. MCGUIRE, Guilford, Mo., assignor of one-half to Jefferson C. Hocker, same place. Filed July 27, 1900. Serial No. 25,042. (No model.)



Claim.—1. A cultivator provided with a beam having front and rear arches attached to its under side, runners attached to the ends of said arches provided with knives and spring-teeth, and arms pivoted to said rear arch and provided with gravity-rollers, substantially as shown and described.

2. A cultivator comprising in combination a beam provided with rollers and front and rear arches, runners attached to the ends of said arches provided with knives and spring-teeth, and arms pivoted to said rear arch and provided with conical-shaped gravity-rollers, substantially as shown and described.

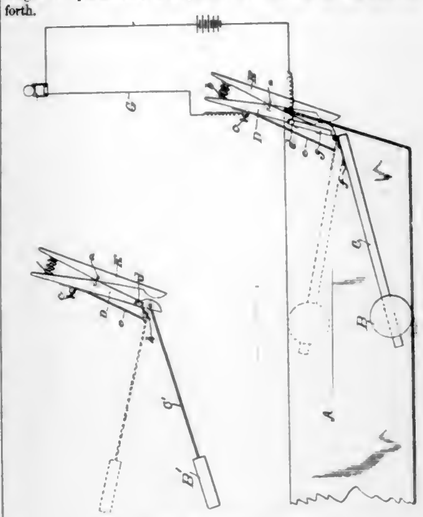
3. A cultivator provided with a beam having adjustable brackets carrying rollers and front and rear arches, runners attached to said arches provided with knives and spring-teeth, and arms one end pivoted to said rear arch and the opposite end bent downward and provided with conical-shaped gravity-rollers, substantially as shown and described.

660,119. **ALARM APPLIANCE FOR REFRIGERATOR-PANS.** JAMES H. MCGURTY, Jersey City, N. J. Filed June 14, 1900. Serial No. 20,269. (No model.)

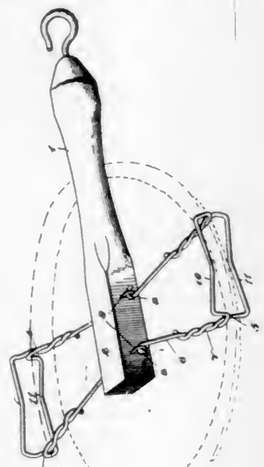
Claim.—1. In an alarm appliance for refrigerator-pans, the combination with the pan of a detachable clamp composed of two members hinged together and having an intervening spring, a float-arm hinged to said clamp, two metallic plates on the clamp, and an electric alarm arranged to be sounded upon the rise of the float-arm which carries one of the said plates into contact with the other, substantially as and for the purposes explained.

2. In an alarm appliance for refrigerator-pans, the combination with the pan of a detachable clamp, a float-arm hinged to said clamp, two metallic plates on the clamp, and an electric alarm arranged to be sounded upon the rise of the float-arm, the conductors being connected with the metallic plates, one of which plates is brought into contact with the other by the float-arm, substantially as shown and described.

3. In an alarm appliance for refrigerator-pans, the combination with the pan of the clamp composed of two members hinged together and having an intervening spring, the binding-posts for the electric conductors applied upon one of the members of the clamp, the contacting pieces connected with said posts, and the float-arm hinged to the clamp and arranged to operate substantially in the manner and for the purposes set forth.



660,120. **PLATE OR PAN LIFTER.** JOHN F. NEAL, Kokomo, Ind. Filed Mar. 21, 1900. Serial No. 9,555. (No model.)

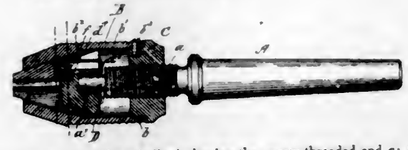


Claim.—1. A pan and plate lifter, comprising a handle, and a pair of swinging jaws carried by the handle, and reversible to operate at opposite sides of the handle.

2. A pan and plate lifter, comprising a handle, and a pair of opposite swinging jaws carried by the handle and reversible to opposite sides of the handle, each jaw having a pair of oppositely-extending lips for engagement with the rim of a pan or plate.

3. A pan and plate lifter, comprising a handle, and a pair of opposite swinging jaws carried by the handle and reversible to opposite sides of the handle, each jaw comprising a substantially U-shaped wire, having its transverse portion bent laterally to form a lip, and a second substantially U-shaped wire, having its opposite side portions intertwisted with the respective side portions of the former wire, and its transverse portion bent laterally outward opposite to the similar portion of the other wire.

660,121. **CHUCK.** WILLIAM J. PARSONS, Montague, Mass., assignor to the Millers Falls Company, Miller's Falls, Mass. Filed Apr. 2, 1900. Serial No. 11,059. (No model.)



Claim.—1. The spindle A, having the screw-threaded end *a;* the shell B, provided with the cap C; the movable truncated cone-follower D, provided with the slots *d;* the jaws E, suitably formed to be held in the said slots *d*, and the springs *f*, all arranged, combined and adapted to operate substantially as described.

2. In a chuck the movable truncated cone-follower D, having the slots *d;* in combination with the jaws E, and the springs *f*, substantially as set forth.

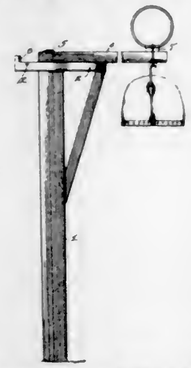
3. The combination, in a chuck, of the shell B, formed interiorly as described, with the movable truncated cone-follower D, having the slots *d*, the jaws E, adapted to fit and be held in position by the action of said slots and the interior of said shell substantially as specified.

4. The combination, in a chuck, of the shell B, a suitable movable follower, having suitable slots for the jaws; suitable jaws adapted to fit into the said slots and springs arranged to rest in said slots underneath the said jaws and, in connection with the said shell to close and open said jaws by the action of a suitable spindle operating upon the inner end of the follower, all arranged and adapted to operate, substantially as and for the purposes set forth.

5. In a chuck, the combination, of a movable truncated cone-follower, provided with suitable slots; jaws formed to fit into and be held in place by said slots; springs beneath the jaws and near the smaller end of said cone and within said slots; and a suitable shell adapted to coöperate with the said cone and jaws, substantially as and for the purposes herein set forth.

6. In a chuck, the combination of the movable truncated cone-follower D, having suitable slots d^2, and a hole d^4, to each slot greater in diameter than the width of the slot; the springs *f*, supported in said holes d^4, and jaws E, consisting of the part *e*, adapted to rest on the small end of said cone and to extend outwardly therefrom and having the piece e^2, adapted to enter said slots and provided with the end piece e^3, all substantially as and for the purposes set forth.

660,122. **MAIL-BAG CATCHER AND DELIVERER.** SOUTH G. PRESTON, Catlettsburg, and IRA F. J. MCKINSTER, Grayson, Ky. Filed Mar. 29, 1900. Serial No. 10,632. (No model.)



Claim.—1. In combination, a standard, a support and guide, lugs on each end of the support and guide, an arm pivotally connected to the standard and an auxiliary arm pivoted to the first-named arm, as and for the purpose described.

2. In combination, a standard, a support and guide, an arm pivotally connected to the standard, lugs on each end of the support and guide, an auxiliary arm pivoted to the first-named arm, and means for preventing the accidental displacement of both the arms.

3. A mail-bag catcher and deliverer comprising a standard, a support and guide approximately the shape of a horseshoe secured to the standard on a plane with the upper surface thereof, upturned lugs at each end of the support and guide, an arm having one end pivoted to the standard and having a second arm pivoted on its free end, as and for the purpose described.

4. A mail-bag catcher and deliverer comprising a standard, a support and guide approximately the shape of a horseshoe secured to the standard on a plane with the upper surface thereof, upturned lugs at each end of the support and guide, an arm having one end pivoted to the standard and having a second arm pivoted to its free end, and means for preventing the accidental displacement of both the arms.

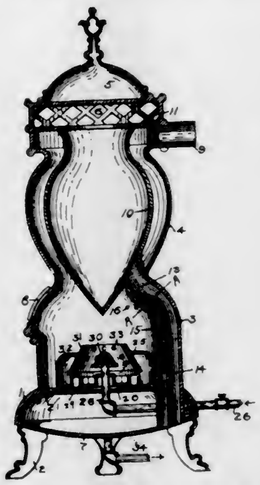
5. In combination, a standard, a support and guide, upturned lugs on each end of the support and guide, a facing of rubber or other suitable material on the lugs, an arm having one end pivoted to the standard and having a second arm pivoted to its free end, and means for preventing the accidental displacement of both the arms.

6. In combination, a standard, a suitably-shaped support and guide secured thereto on a plane with the upper surface of the standard, said support and guide having notches in its upper surface, lugs on each end of the support and guide, an arm having one end pivoted to the standard, a spring-pressed catch on the under surface of said arm adapted to engage one of the notches of the support, the nose of said catch being beveled, an auxiliary arm pivoted to the free end of the first-named arm, and a spring-pressed bolt seated in said auxiliary arm adapted to engage the said first-named arm, as and for the purpose described.

7. A mail-catcher comprising an arm, a cross-beam attached to the outer end thereof, and springs on either end of the cross-beam, said springs comprising a single piece of wire bent on itself to form an approximately V shape, the free ends being embedded in the catcher.

8. In combination with a device of the character described, supporting-rings consisting of an upper solid ring and a lower ring in two sections interlocking therewith; the sections of the lower ring having their ends connected by looping the wire to form a hinge-joint on one side while the opposite ends are hooked together and the lower section of the lower ring being V-shaped, as and for the purpose set forth.

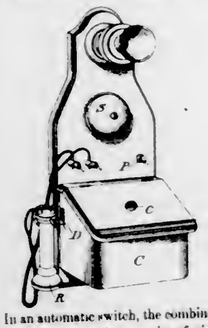
660,123. **HEATING-STOVE.** FRANKLIN M. REED, Indianapolis, and CORNELIUS R. UHLENHOWER, Pendleton, Ind. Filed Nov. 17, 1899. Serial No. 737,348. (No model.)



Claim.—1. A stove including an outer shell centrally contracted and also contracted near its upper end, a smoke-outlet above the upper contraction, an inner casing located in the upper part of the stove with the body of it between the contracted portions of the outer shell and parallel therewith, the upper end of said casing being open and secured to the stove above the smoke-outlet and the lower end being tapering centrally over the fire-pot, and an air-inlet to the lower end of said inner chamber that leads from the bottom of the stove.

2. A stove including an outer shell with a fuel-chamber in its lower end, an inner casing forming an inner air-heating chamber occupying the central portion of the upper end of the stove, an outlet opening from the upper end of said inner chamber, an air-inlet opening from the bottom of the stove to the lower end of said inner chamber, and an air-inlet into the fuel-chamber just below said inner casing.

660,124. TELEPHONE SYSTEM. LAMBERT SCHMIDT, Weehawken, N. J. Filed Mar. 8, 1900. Serial No. 7,785. (No model.)



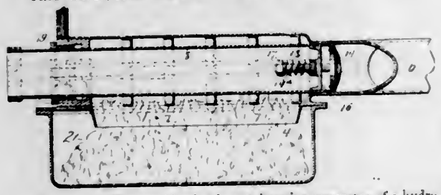
Claim.—1. In an automatic switch, the combination with a supporting-frame, of a shaft or drum, having a series of circuit-closers arranged thereon, journaled in the ends of said frame, a series of pairs of contacts carried by the sides of said frame, one of the contacts of each of said pairs extending into the path of the circuit-closers, alternate pairs of contacts being carried by opposite sides of the frame, means for rotating the shaft or drum in one direction, a detent engaging the shaft or drum to hold it with one of said circuit-closers in position to press together one of the pairs of contacts, and means for releasing the detent; substantially as described.

2. In an automatic switch, the combination with a supporting-frame of a shaft or drum, having a series of circuit-closers arranged thereon, journaled in the ends of said frame, a series of pairs of contacts each consisting of two terminals carried by the sides of said frame, the terminals of one of the contacts of each of said pairs extending into the path of the circuit-closers, alternate pairs of contacts being carried by opposite sides of the frame, means for rotating the shaft or drum in one direction, a detent engaging the shaft or drum to hold it with the terminals of each of one of said circuit-closers in position to press together a pair of contacts, and means for releasing the detent; substantially as described.

3. In an automatic switch, the combination with a supporting-frame, of a shaft or drum having a series of circuit-closers arranged thereon, journaled in the ends of said frame, a series of contacts carried by the sides of said frame and extending into the path of the circuit-closers, alternate contacts being carried by opposite sides of the frame, an indicator-wheel carried by said shaft or drum between the ends of the supporting-frame and provided with a stop, means for rotating the shaft or drum in one direction, a detent engaging the shaft or drum to hold it with one of said circuit-closers against one of said contacts, means for releasing the detent and a fixed stop on the supporting-frame in the path of the stop carried by the indicator-wheel; substantially as described.

4. In an automatic switch, the combination with a supporting-frame, of a shaft or drum having a series of circuit-closers arranged thereon, a series of contacts carried by the sides of said frame and extending into the path of the circuit-closers, an indicator-wheel having a rim adapted to bear designating characters, a stop extending inward from said rim, means for rotating the shaft or drum in one direction, a detent engaging the shaft or drum to hold it with one of said circuit-closers against one of said contacts, means for releasing the detent, and a fixed stop in the path of the stop carried by the indicator-wheel; substantially as described.

660,125. CARBURETER. WILLIAM A. SCHMIDT, Ilion, N. Y., assignor to the Remington Automobile and Motor Company, same place. Filed Dec. 28, 1899. Serial No. 741,863. (No model.)



Claim.—1. The combination in a carbureting apparatus, of a hydrocarbon-chamber, means for passing air over the hydrocarbon-chamber and means for regulating the extent of the hydrocarbon-chamber exposed to the air passing over it.

2. A carbureting apparatus having a hydrocarbon-chamber and a chamber above and communicating therewith and an adjustable tube disposed in said upper chamber and adapted to communicate therewith and regulate the extent of the hydrocarbon-chamber exposed to the air passing through said tube.

3. In a carbureting apparatus, the combination of a hydrocarbon-chamber and an air-chamber having an elongated opening communicating with the hydrocarbon-chamber, a longitudinally-adjustable tube in the air-chamber and constituting a valve to close communication between the air and hydrocarbon chamber, and a check-valve controlling the outlet of air from said tube.

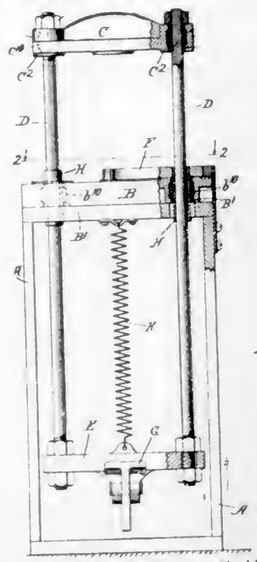
4. In a carbureter, the combination with a tank or receptacle for hydrocarbon and a pipe or tube communicating with the upper portion of said tank or receptacle at one end thereof, of an air-inlet tube in alinement with said first-mentioned tube or pipe, and means for adjusting said air-inlet tube longitudinally.

5. In a carbureter, the combination with a tank or receptacle for hydrocarbon and a pipe or tube communicating with said tank or receptacle at one end thereof, of an air-inlet tube in said tank or receptacle in alinement with said first-mentioned tube or pipe, means for adjusting said air-inlet tube longitudinally, a check-valve in said air-inlet tube and packing-rings between said air-inlet tube and the tank or receptacle.

6. In a carbureter, the combination with a tank or receptacle adapted to contain hydrocarbon and a wick filling or packing in said receptacle or tank, of a cover for said tank or receptacle, a cylindrical chamber on said cover communicating with the tank throughout the greater portion of its length, a pipe into which said chamber converges at one end, rings secured in said chamber and spaced apart, an air-inlet tube disposed in said rings, packing-rings between said tube and chamber at one end, a rack connected with said tube and a pinion meshing with said rack and adapted to operate the same and the air-inlet tube to move the latter longitudinally in the cylindrical chamber.

7. In a carbureter, the combination with a tank or receptacle adapted to contain hydrocarbon and a wick-filling, of a cover for said tank or receptacle, parallel chambers on said cover communicating with said tank or receptacle, a pipe at one end of said receptacle into which both of said chambers converge, an air-inlet tube in each chamber having one end projecting therefrom, a cross-head connecting the outer ends of said tubes, a rack connected to said cross-head and a pinion meshing with said rack and adapted to move the tubes longitudinally, substantially as and for the purpose set forth.

660,126. DIE-PRESS. EUGENE W. SILSBY, La Grange, Ill. Filed Jan. 5, 1900. Serial No. 461. (No model.)



Claim.—1. In a press, a reciprocating cast-metal head having parallel draft-bars inserted through apertures cast in the head larger than the draft-bars and fixed therein as to direction by Babbitt metal run into the space in the apertures around the draft-bars; stops on the ends of the draft-bars, beyond the head, taking the draft strain off the Babbitt metal; the fixed base having guide-bearings for the draft-bars; and means operating on the draft-bars below the base to reciprocate the head.

2. In a press a reciprocating head having parallel draft-bars rigid with it; a fixed base having guide-bearings for the draft-bars, and means operating the draft-bars below the base to reciprocate the head, the base being cast with apertures for the guide-bearings, such bearings being metal tubes or sleeves of less outer diameter than the apertures, and being fixed in the apertures by Babbitt metal occupying the space of the apertures around such sleeves.

3. In a press a reciprocating head having parallel draft-bars; a fixed bed having guide-bearings for the draft-bars; a cross-bar connecting the draft-bars at the opposite side of the fixed bed from the reciprocating head; and means operating on such cross-bar to reciprocate the head.

4. A press, comprising a fixed bed having parallel vertical tubes or sleeves extending through it and secured in it by Babbitt metal; an upper head having parallel draft-rods which are longitudinally guided in the tubes of the bed, and are fixed in such head as to direction by such Babbitt metal; a cross-bar connecting the draft-rods below the head; and means operating on the cross-bar to reciprocate the head.

5. A press, comprising a cast-metal bed having vertical apertures made in casting; metal tubes or sleeves of suitable cross-section to pass loosely through the apertures of the cast-metal bed and fixed therein, as to direction, by Babbitt metal surrounding the same within the apertures of the casting; a cast-metal head having apertures formed in casting corresponding to those of the bed and draft-rods which are guided in the tubes, respectively, and are of suitable cross-section to pass loosely into the apertures of the head; such draft-rods being fixed in the head, as to direction, by Babbitt metal occupying the space in the apertures around such rods; a cross-bar connecting the ends of the draft-bars below the head; and means operating on the cross-bar to reciprocate the head.

6. A press comprising a fixed bed; a reciprocating head above the bed, and an oscillating die-carrier on the bed, the head having two parallel draft-bars rigidly extending downward from it through the bed, the latter having suitable guide-bearings for such draft-bars; means operating below the bed to reciprocate the bars through their bearings and thereby reciprocate the head; the bearing of one of the bars consisting of a tube secured in the bed and protruding above the same, the protruding portion of such tube constituting a journal-bearing for the oscillating carrier.

7. A die-press comprising a fixed cast-iron bed having two vertical apertures formed through it in casting; tubes extending through such apertures of suitable diameter to be loose therein, such tubes being fixed in the bed by Babbitt metal filling the apertures around the tubes; a reciprocating head above the bed, having parallel draft-bars which extend through and are afforded guide-bearings in the tubes, one of said tubes being extended above the upper surface of the bed; and an oscillating die-carrier pivoted about such protruding portion.

8. A die-press comprising a fixed bed, a reciprocating head above the same, both made of cast-iron and formed in casting with substantially-alined vertical apertures; metal tubes extending through the apertures of the bed and of suitable diameter to be loose therein; parallel draft-bars which obtain guide-bearings in the tubes, and of suitable diameter to extend loosely through the cast apertures in the head; such draft-bars being fixed to the head, as to direction, by Babbitt metal occupying the space around them in the apertures of the head; means operating on the draft-bars below the base to reciprocate the head; the tube which forms one of the guide-bearings of the rods being protruded above the upper surface of the bed, and an oscillating die-carrier pivoted on such protruding tube.

660,127. BUTTON. EUGENE W. SILSBY, La Grange, Ill. Filed Apr. 16, 1900. Serial No. 12,985. (No model.)



Claim.—1. A button, consisting of a cupped or flanged and apertured back shell; a face element of non-metallic plastic sheet material which is extended to form a peripheral binder encompassing the flange of the back shell and clenched onto the latter, and depressed within the flange of the back shell; in combination with a tuft disk, lodged between the back shell and the face, protruded at the aperture to form a tuft and in contact with both the shell and the face at the depressed portion of the latter and the immediately-opposed portion of the former; whereby said tuft is gripped and held directly between said back shell and face.

2. A button, consisting of a cupped or flanged and apertured back shell, a tuft disk lodged therein and adapted to protrude the tuft at the aperture; a face element covering the tuft disk; and a peripheral binder of non-metallic plastic sheet material which extends from the face element over the flange of the back shell, forming a hollow bead over the edge of such flange and which is clenched onto the back of the shell, the tuft disk being extended to cover said edge of the flange within the hollow bead, to fortify the same and guard the plastic sheet material of the binder from the edge of the flange.

3. A button, comprising an apertured back shell; a tuft disk adapted to protrude at the aperture; a face element which is depressed opposite the aperture to bind the tuft disk at the margin of such aperture to the shell; and a peripheral binder which secures the face and back shell together.

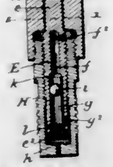
4. A button, comprising an apertured back shell; a face element which has a depression opposite the aperture in the back shell; a tuft disk interposed between the back shell and the face element and in contact with both said parts at the margin of the aperture; and a peripheral binder which secures the face and back shell together.

5. A button, comprising an apertured back shell; a tuft disk, adapted to protrude the tuft at the aperture; a face element of non-metallic plastic sheet material which is extended integrally over the periphery of the back shell and clenched onto the back thereof, forming a peripheral binder securing the parts together, such element being depressed abruptly within the margin of the face side of the button forming an upraised peripheral bead and an angular junction of such bead with the face, the tuft disk being extended so as to be gripped between such angular feature and the inner surface of the back shell.

6. A button, comprising an apertured back shell, a tuft disk, and a face element of non-metallic plastic sheet material between which and the back shell the tuft disk is inclosed, the face element being extended to form a peripheral binder encompassing the edge of the back shell and clenched onto the back thereof, such element being depressed abruptly within the margin of the face, forming an angular feature substantially opposite the edge which is clenched on the back, the tuft disk being extended between said angular feature and the clenched edge of the binder.

7. A button, comprising an apertured back shell; and a face element of non-metallic plastic sheet material which is extended to form a peripheral binder encompassing the edge of the back shell and clenched onto the back thereof; said face element being depressed angularly within the margin of the face, forming an angular feature substantially opposite the edge which is clenched on the back; and a tuft disk inclosed between the back shell and said face element, and in contact with both said parts at said angular feature of the face element and the opposed surface of the back shell.

660,128. VALVE FOR INFLATION. FREDERICK L. SOWLE, New Bedford, Mass. Filed Mar. 2, 1900. Serial No. 7,101. (No model.)



Claim.—1. In a valve for inflation the combination of a tube having a valve-seat in its lower end with a casing engaging the upper end of said tube, and within said tube a partly-hollow screw-valve having an angular stem engaging in an angular perforation in said casing, the plug of the screw-valve having two superposed chambers of different diameters and a valve-seat between them, with a ball check-valve in the widest chamber above the lower valve substantially as described.

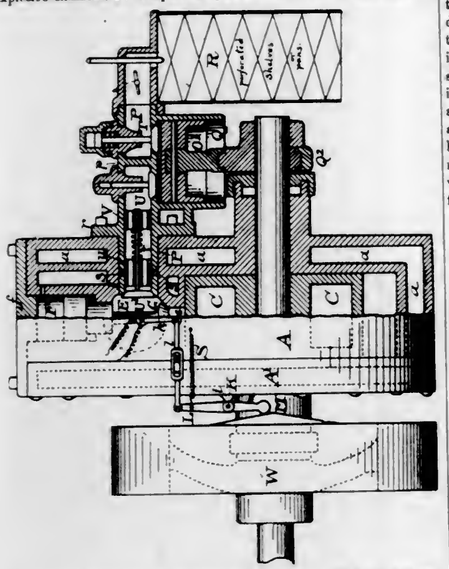
2. The combination of a casing having internally a polygonal socket, with the tube H, having externally a screw-thread inclined in one direction and internally a screw-thread inclined in the opposite direction said tube having a valve-seat in its lower end with a valve-plug E, externally screw-threaded to fit the interior screw-thread of the tube H, said valve-plug having a polygonal head and internal chambers, with a ball check-valve in the lower chamber above its lower closure and its yielding washer substantially as described.

660,129. ROTARY EXPLOSIVE-MOTOR. PHILANDER H. STANDISH, Cleveland, Ohio. Filed Nov. 29, 1899. Serial No. 738,693. (No model.)

Claim.—1. The combination with the working cylinder and piston, of an explosion-chamber, a port connecting the cylinder and chamber, a valve for said port, a cushioning-chamber above the valve, a head on the valve-stem located in the cushioning-chamber and having a lower face exposed to the explosion-chamber, whereby the explosions lift the valve, substantially as described.

2. In a gas-motor, the combination with the working cylinder and piston, an explosion-chamber, a port connecting the cylinder and cham-

ber, a valve for said port, a cushioning-chamber above the valve, a head on the valve-stem located in the cushioning-chamber and having a lower face exposed to the explosion-chamber, and an igniter connected with the explosion-chamber, and adapted to operate substantially as described.



3. In a gas-motor, in combination, a working cylinder and piston, an explosion-chamber, a port connecting the cylinder and chamber, a valve for said port, a cushioning-chamber above and for said valve, a pipe connecting the explosion-chamber with a carbureter, valves in said pipe, and a pump connected with said pipe and having its piston operatively connected with the main shaft for forcing carbureted air into the explosion-chamber, substantially as described.

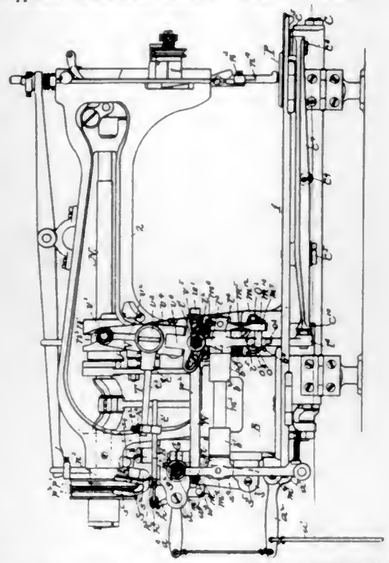
4. In a gas-motor, the combination with the working cylinder and piston, an explosion-chamber, a port connecting the cylinder and chamber, a valve for said port, and a cushioning-chamber above the valve, and a head on the valve-stem located in the cushioning-chamber; of a lubricator consisting of a valve-box O attached to the side of the casing, a passage N connecting said valve-box with the cushioning-chamber F, a valve-chamber z', a passage z connecting said chamber with chamber F, and controlled by valve z^2, and a passage x connecting chamber z^2 with the cavity d', and regulated by screw-plug z^3, substantially as described.

660,130. **THREAD-CUTTER FOR SEWING-MACHINES.** ROBERT W. THOMSON, Lynn, Mass., assignor to the Morley Button Sewing Machine Company, Saco, Me., and Boston, Mass. Filed June 25, 1900. Serial No. 21,427. (No model.)

Claim.—1. The combination, in a sewing-machine, of a knife for cutting the threads, mechanism for operating said knife by a two-stage movement, said mechanism including a vibrator synchronized with the reciprocations of the needle-bar, a power-shipper constantly controllable by the operator, and devices intervening between the power-shipper and the vibrator whereby when the power-shipper moves to a position of power disengagement, the first stage of movement is imparted to the knife by the vibrator, and a stop whereby the knife is prevented from exceeding its predetermined initial movement.

2. The combination, in a sewing-machine, of a knife for cutting the threads, mechanism for imparting to the knife an initial movement, said initial-movement mechanism comprising a vibrator synchronized with the reciprocations of the needle-bar, a power-shipper constantly controllable by the operator, and devices intervening between the power-shipper and the vibrator whereby when the power-shipper moves to a position of power disengagement the initial stage of movement is imparted to the knife by the vibrator, mechanism for imparting the final stage of movement to the knife, said final-movement mechanism comprising cutter connections, a cam connected with the needle-shaft, and a movable block carried by the power-shipper, which when the power-shipper assumes a position of power disengagement with the cam, is moved thereby, and transmits the final movement to the knife through the cutter connections.

3. The combination, in a sewing-machine, of a knife for cutting the threads, mechanism for imparting to the knife an initial movement, said initial-movement mechanism comprising a vibrator synchronized with the reciprocations of the needle-bar, a power-shipper constantly controllable by the operator, and devices intervening between the power-shipper and the vibrator whereby when the power-shipper moves to a position of power disengagement the initial stage of movement is imparted to the knife by the vibrator, and a stop whereby the knife is prevented from exceeding its predetermined initial movement, mechanism for imparting the final stage of movement to the knife, said final-movement mechanism comprising cutter connections, a cam connected with the needle-shaft, and a movable block carried by the power-shipper, which when the power-shipper assumes a position of power disengagement with the cam, is moved thereby, and transmits the final movement to the knife through the cutter connections, and connections between the said movable arm and the stop whereby the initial movement is controlled whereby the stop is removed from opposition in advance of the final movement of the knife.



4. In a sewing-machine, the combination of a needle-shaft, power connections thereto, a stop-motion therefor comprising a power-shipper, devices at all times controllable by the operator, whereby the power-shipper is movable into or out of position of power engagement, a thread-cutter, movably mounted adjacent to the throat-plate of the machine, cutter-operating connections provided with a contact-piece located in juxtaposition to a vibrator, the vibrator movably mounted and provided with connections to the machine-shaft whereby the vibrator is given a vibratory movement synchronous with the reciprocations of the needle-bar, a cutter-actuating toe, carried by the vibrator, and normally vibrating clear of the cutter-connection contact-piece, a shifter, movable with relation to the path of the vibrator, into conjunction with the vibrator-toe whereby the vibrator is brought into coactive relationship with the cutter-connection contact-piece, connections between the shifter and the power-shipper whereby, when the power-shipper is moved to a position of power disengagement the shifter is moved into conjunction with the vibrator-toe, and vice versa, when the power-shipper is moved to a position of power engagement, substantially as described and for the purposes set forth.

5. In a sewing-machine, the combination of a needle-shaft, power connections thereto, a stop-motion therefor comprising a power-shipper, devices at all times controllable by the operator, whereby the power-shipper is movable into or out of position of power engagement, a thread-cutter, movably mounted adjacent to the throat-plate of the machine, cutter-operating connections provided with a contact-piece located in juxtaposition to the vibrator, the vibrator movably mounted and provided with connections to the machine-shaft whereby the vibrator is given a vibratory movement synchronous with the reciprocations of the needle-bar, a cutter-actuating toe, carried by the vibrator, and normally vibrating clear of the cutter-connection contact-piece, a shifter, movable with relation to the path of the vibrator, into conjunction with the vibrator-toe whereby the vibrator is brought into coactive relationship with the center-connection contact-piece, connections between the shifter and the power-

shipper whereby, when the power-shipper is moved to a position of power disengagement the shifter is moved into conjunction with the vibrator-toe, and vice versa when the power-shipper is moved to a position of power engagement, a shipper-detent, movable into and out of engagement with the shipper and adapted to coact therewith when the shipper is in position of power engagement, a shipper-detent tripper movably mounted and connected with the machine-shaft in such manner as to move synchronously with the vibrations of the vibrator into coactive relationship with the detent to move the same out of engagement with the shipper, substantially as described and for the purposes set forth.

6. In a sewing-machine, the combination of a needle-shaft, power connections thereto, a stop-motion therefor comprising a power-shipper, devices at all times controllable by the operator, whereby the power-shipper is movable into or out of position of power engagement, a thread-cutter, movably mounted adjacent to the throat-plate of the machine and provided with a thread-engaging horn in advance of the cutting edges, cutter-operating connections provided with a contact-piece located in juxtaposition to a vibrator, the vibrator movably mounted and provided with connections to the machine-shaft whereby the vibrator is given a movement synchronous with the reciprocations of the needle-bar, a cutter-actuating toe carried by the vibrator and normally vibrating clear of the cutter-connection contact-piece, a shifter, movable with relation to the path of the vibrator into conjunction with the vibrator-toe, whereby the vibrator is brought into coactive relationship with the cutter-connection contact-piece, connections between the shifter and the power-shipper whereby, when the power-shipper is moved to a position of power disengagement the shifter is moved into conjunction with the vibrator-toe and vice versa, when the power-shipper is moved to a position of power engagement, the vibrator-toe, shipper and contact-piece being so proportioned that movement of the cutter connections in response to the vibrator advances the thread-hook into engagement with the thread; a wiper carried by the needle-shaft, a shipper-block movable into the path of the wiper as the power-shipper is moved to position of power disengagement, the said shipper-block being also movable in the direction of movement of the wiper, a supplemental cutter-actuator operatively joined to the cutter connections, provided with a contact member, connections between the latter and the shipper whereby, when the shipper-block moves into the path of the wiper the cutter connections are further operated to move the cutting edges of the cutter across the thread and sever the same, substantially as described.

7. In a sewing-machine, the combination of a needle-shaft, power connections thereto, a stop-motion therefor comprising a power-shipper, devices at all times controllable by the operator, whereby the power-shipper is movable into or out of position of power engagement, a thread-cutter, movably mounted adjacent to the throat-plate of the machine and provided with a thread-engaging horn in advance of the cutting edges, cutter-operating connections provided with a contact-piece located in juxtaposition to a vibrator, the vibrator movably mounted and provided with connections to the machine-shaft whereby the vibrator is given a movement synchronous with the reciprocations of the needle-bar, a cutter-actuating toe carried by the vibrator and normally vibrating clear of the cutter-connection contact-piece, a shifter, movable with relation to the path of the vibrator into conjunction with the vibrator-toe, whereby the vibrator is brought into coactive relationship with the cutter-connection contact-piece, connections between the shifter and the power-shipper whereby, when the power-shipper is moved to a position of power disengagement the shifter is moved into conjunction with the vibrator-toe and vice versa, when the power-shipper is moved to a position of power engagement, the vibrator-toe, shipper and contact-piece being so proportioned that movement of the cutter connections in response to the vibrator advances the thread-hook into engagement with the thread; a shipper-detent, movable into and out of engagement with the shipper and adapted to coact therewith when the shipper is in position of power engagement, a shipper-detent tripper, movably mounted and connected with the machine-shaft in such manner as to move synchronously with the vibrations of the vibrator into coactive relationship with the detent to move the same out of engagement with the shipper; a wiper carried by the needle-shaft, a shipper-block movable into the path of the wiper as the power-shipper is moved to position of power disengagement the said shipper-block being also movable in the direction of movement of the wiper, a supplemental cutter-actuator operatively joined to the cutter connections, provided with a contact member, connections between the latter and the shipper whereby, when the shipper-block is moved into the path of the wiper the cutter connections are further operated to move the cutting edges of the cutter across the thread and sever the same, substantially as described.

8. In a sewing-machine, the combination of the needle-shaft, power-shipper, power-actuating devices at all times controllable by the operator, the thread-cutter, mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, the shifter and connections therewith to the shipper, substantially as described.

9. In a sewing-machine, the combination of the needle-shaft, power-shipper, power-actuating devices at all times controllable by the operator, the thread-cutter, mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, the shifter and connections therewith to the shipper, the shipper-detent and its tripper, movable and synchronized with the vibrator, substantially as described.

10. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, the shifter, connections therewith to the shipper, the wiper carried by the needle-shaft, the shipper-block movable into the path of the wiper and also movable in the direction of the movement of the wiper, the supplemental cutter-actuator, operatively joined to the cutter connections, connections between the supplemental cutter-actuator and the movable shipper-block, substantially as described, and for the purposes set forth.

11. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, the shipper-detent, its tripper, movable and synchronized with the vibrator, the wiper carried by the needle-shaft, the shipper-block movable into the path of the wiper and also movable in the direction of the movement of the wiper, the supplemental cutter-actuator, operatively joined to the cutter connections, connections between the supplemental cutter-actuator and the movable shipper-block, substantially as described, and for the purposes set forth.

12. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter, pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe hinged to the vibrator, the shifter, consisting of a wedge, and connections therewith to the shipper, substantially as described and for the purposes set forth.

13. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter, pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe hinged to the vibrator, the shifter, consisting of a wedge and connections therewith to the shipper, the shipper-detent, its tripper, carried by the vibrator, substantially as described and for the purposes set forth.

14. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe, hinged to the vibrator, the shifter, consisting of a wedge, connections therewith to the shipper; the wiper carried by the needle-shaft, the shipper-block pivoted on two axes, movable on one axis into the path of movement of the wiper and in the other in the path of movement of the wiper, the supplemental cutter-actuator operatively joined to the cutter connection, connections between the cutter-actuator and the movable shipper-block, substantially as described and for the purposes set forth.

15. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe, hinged to the vibrator, the shifter, consisting of a wedge, connections therewith to the shipper; the shipper-detent, its tripper, carried by the vibrator, the wiper carried by the needle-shaft, the shipper-block pivoted on two axes, movable on one axis into the path of movement of the wiper, and in the other in the path of movement of the wiper, the supplemental cutter-actuator operatively joined to the cutter connection, connections between the cutter-actuator and the movable shipper-block, substantially as described and for the purposes set forth

16. In a sewing-machine, the combination of the needle-shaft, stop-motion, shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter movably mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe movably mounted on the vibrator and playing between a stationary base and the cutter-connection contact member, the shifter, movable into and out of the space between the vibratory-toe and the stationary base, connections between the shifter and the shipper, whereby the shifter is moved, substantially as described and for the purposes set forth.

17. In a sewing-machine, the combinaton of the needle-shaft, stop-motion, shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter movably mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe movably monnted on the vibrator and playing between a stationary base and the cutter-connection contact member, the shifter, movable into and out of the space between the vibrator-toe and the stationary base, connections between the shifter and the shipper, whereby the shifter is moved, the shipper-detent, and its tripper, movable and synchronized with the vibrator, substantially as described and for the purposes set forth.

18. In a sewing-machine, the combination of the needle-shaft, stop-motion, shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe, hinged to the vibrator and moving in a path between the cutter-connection contact-piece and the machine-frame, the shifter consisting of a wedge movable into the space between the vibrator-toe and the machine-frame, and connections between the shifter and the shipper, substantially as described and for the purposes set forth.

19. In a sewing-machine, the combination of the needle-shaft, stop-motion, shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe, hinged to the vibrator and moving in a path between the cutter-connection contact-piece and the machine-frame, the shifter consisting of a wedge movable into the space between the vibrator-toe and the machine-frame, connections between the shifter and the shipper, the shipper-detent movably mounted, and a tripper therefor carried by the vib ator, substantially as described and for the purposes set forth.

20. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, a contact-shoe mounted adjustably thereon, the shifter and connections therewith to the shipper. substantially as described.

21. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, a contact-shoe mounted adjustably thereon, the shifter and connections therewith to the shipper, the shipper-detent and its tripper, movable and synchronized with the vibrator, substantially as described.

22. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, a contact-shoe mounted adjustably thereon, the shifter, connections therewith to the shipper, the wiper carried by the needle-shaft, the shipper-block movable into the path of the wiper and also movable in the direction of the movement of the wiper, the supplemental cutter-actuator, operatively joined to the cutter connections, connections between the supplemental cutter-actuator and the movable shipper-block, substantially as described and for the purposes set forth.

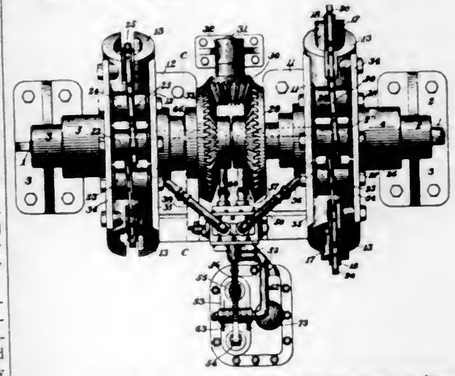
23. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-actuating devices at all times controllable by the operator, the thread-cutter mounted adjacent to the throat-plate, its thread-horn in advance of the cutting edges, cutter connections, the contact-piece therefor, the vibrator, movable and synchronized with the needle-bar, the vibrator-toe, a contact-shoe mounted adjustably thereon, the shifter, connections therewith to the shipper, the shipper-detent, its tripper, movable and synchronized with the vibrator, the wiper carried hy the needle-shaft, the shipper-block movable into the path of the wiper and also movable in the direction of the movement of the wiper, the supplemental cutter-actuator, operatively joined to the cutter connections, connections between the supplemental cutter-actuator and the movable shipper-block, substantially as described and for the purposes set forth.

24. In a sewing-machine the conbination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe hinged to the vibrator, a contact-shoe mounted adjustably thereon, the shifter, consisting of a wedge, and connections therewith to the shipper, substantially as described and for the purposes set forth.

25. In a sewing-machine, the combination of the needle-shaft, power-shipper, shipper-spring, devices at all times controllable by the operator whereby the shipper is movable against the stress of the shipper-spring, the thread-cutter pivotally mounted adjacent to the throat-plate, cutter connections, a contact-piece therefor, the vibrator, pivoted and provided with connections to the machine-shaft whereby it is vibrated synchronously with the needle-bar, the vibrator-toe hinged to the vibrator, a contact-shoe mounted adjustably thereon, the shifter, consisting of a wedge, connections therewith to the shipper, the shipper-detent, its tripper, carried by the vibrator, substantially as described and for the purposes set forth.

26. In a sewing-machine, the combination of the needle-shaft, power-shipper, cutter, cutter connections, shipper-detent, tripper, vibrator, vibrator-shifter, initial-movement lever, final-movement lever, and means, constantly controllable by the operator whereby the movement of the power-shipper, through the aforesaid devices actuates the initial-movement lever and final-movement lever in succession, substantially as described.

660,131. HYDRAULIC MOTOR. WILBERT C. TRUSSELL, Boston, and HENRY F. SAWTELLE, Leominster, Mass. Filed Feb. 8, 1900. Serial No. 4,498. (No model.)



Claim.—1. The combination of a shaft to be revolved; a sleeve mounted upon and revoluble about said shaft; a clutch mechanism constructed and arranged to automatically couple said sleeve to said shaft when moving in one direction, and to uncouple the same when moving in the opposite direction; a hydraulic-jack mechanism arranged in a fixed position radial to said shaft; a sheave carried by the outer end of the piston of said jack mechanism; a plurality of guide-pulleys arranged outside of said sleeve; a flexible connection extending about and bearing upon said sheave and pulleys and firmly connected to and wound about said sleeve; and means for forcing liquid into the cylinder of said jack mechanism to force said piston outward and thereby unwind said flexible connection from said sleeve and rotate said sleeve and shaft.

2. In a hydraulic motor, the combination with the shaft to be revolved, of a sleeve mounted upon and revoluble about said shaft; a clutch mechanism constructed and arranged to automatically couple said sleeve to said shaft when moving in one direction, and to uncouple the same when moving in the opposite direction; a plurality of hydraulic cylinders arranged in fixed positions radial to the axis of said shaft, with open outer ends; a piston fitted to and movable endwise in each of said cylinders; a sheave mounted upon a suitable journal-pin carried by each of said pistons; a plurality of guide-pulleys; a flexible connection extending about and bearing upon said several sheaves and guide-pulleys and firmly connected to said sleeve and adapted to be wound upon and unwound from said sleeve; a curved chamber connecting the inner ends of said cylinders; and means for forcing a liquid into said curved chamber, and thence to said cylinders to move said pistons outward and thus unwind said flexible connection from said sleeve and rotate said sleeve and shaft.

3. The combination with a shaft to be rotated, of a sleeve mounted upon and revoluble about said shaft, a clutch mechanism constructed and arranged to automatically couple said sleeve to said shaft when moving in one direction, and to uncouple the same when moving in the opposite direction; a fixed frame provided with an opening for said sleeve, a chamber surrounding said sleeve with an outlet at one side, a plurality of cylinders arranged radially to the axis of said shaft with open outer ends, and a segmental chamber connecting the interiors of all of said cylinders at their inner ends; a piston fitted to and movable endwise in each of said cylinders; a sheave mounted in the outer end of each of said pistons; a plurality of guide-pulleys between two of said cylinders; a flexible connection, as a chain, extending about and bearing upon said sheaves and guide-pulleys and firmly connected to, and adapted to be wound upon said sleeve; a double-acting force-pump for forcing a liquid into said cylinders to move said pistons outward; a pipe connecting said pump with said segmental chamber; a discharge-pipe leading from said segmental chamber; and suitable valves for controlling the inlet and discharge of said liquid.

4. The combination of a shaft to be revolved; a pair of sleeves mounted end to end upon said shaft and revolable thereon; a clutch mechanism carried by each of said sleeves and constructed and arranged to automatically couple its sleeve to said shaft to move it in one and the same direction, and uncouple the same when moving in the opposite direction; a train of gearing connecting said two sleeves, so that when one revolves in one direction the other will revolve in the opposite direction; a plurality of cylinders arranged around each of said sleeves in fixed positions and radial to the axis of said shaft and having open outer ends; a piston mounted in each of said cylinders and movable endwise therein; a sheave carried by the outer end of each piston; a plurality of guide-pulleys arranged between two of each set of said cylinders; a flexible connection, as a chain firmly secured to one of said sleeves and extending about and bearing upon the sheaves and pulleys surrounding said sleeve; a similar flexible connection firmly secured to the other of said sleeves and extending about and bearing upon the sheaves and pulleys surrounding its sleeve; segmental chambers connecting the inner end of each set of cylinders; a double-acting force-pump provided with a supply-reservoir; supply-pipes connecting the discharge of said pump with each of said segmental chambers suitable discharge-pipes connecting each of said segmental chambers with said reservoir; suitable valves for controlling the inlet and discharge of said liquid; and means for automatically operating said valves to change the flow of said liquid from a direction to and from one set of cylinders to a direction toward and from the other set of cylinders.

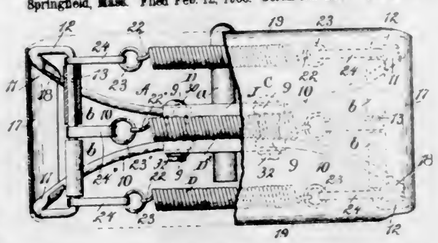
5. In combination with a shaft to be revolved continuously in the same direction, a pair of sleeves mounted thereon end to end and geared together to revolve in opposite directions, clutch mechanisms constructed and arranged to automatically couple said sleeves to said shaft when moving in one direction, and to uncouple the same when moving in the opposite direction; two sets of hydraulic cylinders arranged one set around and radial to the axis of each of said sleeves, pistons fitted to and movable endwise in said cylinders, a flexible connection, as a chain, firmly attached to each of said sleeves and each arranged to be acted upon by one set of pistons to rotate its sleeve in one direction, a double-acting force-pump, a supply-reservoir, pipes and passages connecting the discharge of said pump with the inner ends of each set of cylinders, and pipes and passages connecting the inner ends of each set of cylinders with said reservoir, of a valve-casing set in a fixed position between said pump and two sets of cylinders and connected to said supply and discharge pipes, and having formed therein two ports upon each of its four sides, the two ports upon one of its sides being in axial line with the ports upon its opposite side; a plug-valve fitted to the bore of said casing and movable about its axis therein and having four transverse passages formed therethrough at right angles to its axis and at different angles to each other, and so arranged that when said plug is at one extreme of its movement about its axis two of said passages that are at right angles to each other will register with two pairs of ports in said casing while the other two pairs of ports are closed, and when said plug is moved about its axis to the other extreme of its movement, the two pairs of ports previously closed will be opened, and those before opened will be closed, whereby the liquid discharged from the pump is alternately forced into the two sets of cylinders and discharged from the opposite set of cylinders; and means for automatically moving said plug-valve about its axis when either sleeve has moved a sufficient distance about its axis in a forward direction.

6. In combination with a shaft to be revolved, a pair of sleeves mounted end to end on said shaft; a clutch mechanism carried by each of said sleeves and adapted to automatically couple its sleeve to said shaft when moved in one direction and to uncouple the same when moved in the opposite; gearing connecting said sleeves together to cause them to revolve in opposite directions the two frames 11 and 12 provided with the chambers 14 and 15 and opening 16; a plurality of cylinders 13 carried by each of said frames and communicating at their inner ends with the segmental chamber 14; a plurality of pistons 17 in the cylinders on each frame; a sheave 18 carried by each piston; the pulleys 22, 23, and 24 mounted on each of the frames 11 and 12; the chain 20 mounted upon the sheaves 18 and pulleys 22, 23, and 24 carried by the frame 11, and firmly attached at its ends to the sleeve 4; the chain 25 similarly mounted on the sheaves and pulleys on the frame 12; the valve-casing 38 mounted in a fixed position and provided with the ports 41, 42, 43, and 44; the plug-valve 45 provided with the transverse passages 46, 47, 48, and 49; the pin 72 set in said valve 45; the disk 66 provided with the tooth 67; and mounted upon and revoluble with one of said sleeves; the lever 70 engaging at one end the pin 72 and pivoted at its other end to one end of the rod 69, provided with the tooth 68 at its other end and mounted on a suitable guide-bearing beneath the axis of said disk 66; chambered castings 50 and 61 secured to the bottom and front sides respectively of said valve-casing; the pump 53 provided with a reservoir; the pipe 52 connecting said pump to the chambered casting 50; the pipe 62 connecting said reservoir to the chambered casting 61; the pipes 36 and 39 leading respectively from the right and left hand chambers 14 to the upper ports 43 and 42 respectively; and the pipes 57 and 64 leading respectively from the chamber 14 in the right and left hand frames 11 and 12 to the ports 44 and 41 respectively in the rear face of said casing 38.

7. In combination with a shaft to be revolved, a pair of hydraulic-jack mechanisms arranged at different distances from the end of said shaft, and connecting devices between said mechanisms and said shaft, all constructed, arranged and operating to intermittently and alternately act upon said shaft to move it about its axis a given distance in the same direction; a double-acting force-pump; pipes leading from said pump to both of said hydraulic-jack mechanisms; a reservoir from which said pump draws its supply of liquid; return-pipes leading from each of said jack mechanisms to said reservoir; a single valve in communication with each of said pipes and constructed and arranged to be moved into two different positions, and when in one position to cause the liquid from said pump to be forced into the left jack mechanism and the liquid discharged from the right jack mechanism to flow into said reservoir, and when moved into its other position, to cause the liquid to be forced by said pump in the right jack mechanism and the liquid discharged from the left jack mechanism to flow into said reservoir; and means for automatically changing the position of said valve at predetermined intervals.

8. In a hydraulic mechanism, the combination with two jack mechanisms; a force-pump; a reservoir; pipes connecting said pump and said reservoir to each of said jack mechanisms; the valve-casing 38 provided with the four pairs of ports 41, 42, 43 and 44, and the chambers 51, 37, 40, 58, 65, and 60, communicating with said pipes; and the single plug-valve 45 provided with the transverse passages 46, 47, 48, and 49, each arranged to register with one pair of said ports when said valve is in one or the other of its two positions; and means for automatically changing the position of said valve.

660,132. SEAT FOR BICYCLES, &c. EVERETT W. WALKER, Springfield, Mass. Filed Feb. 12, 1900. Serial No. 4,867. (No model.)



Claim.—1. A seat for bicycles, or other vehicles consisting of a bowed and upwardly-open seat-frame, the opposite portions 11, 11, thereof being upwardly and outwardly inclined and composed of duplicated halves, the lower portions of which are pivotally supported, and a seat-top having the downturned portions 17, 17, in bearing on the said seat-frame portions 11, 11, and provided with the engaging ears 18, 18, said top being supported on the opposite upper portion of said frame and spanning the space therebetween, substantially as described.

2. A seat for bicycles or other vehicles consisting of a bowed and upwardly-open seat-frame, the opposite portions 11, 11, thereof being upwardly and outwardly inclined, and a seat-top having the downturned

portions 17, 17, bearing on the portions 11, 11, and provided with the engaging ears 18, 18, said top being supported on the extremities of said frame, and extending across or spanning the space between said extremities, substantially as described.

3. In a seat for vehicles, the seat-frame composed of duplicated halves, each consisting of a single length of wire comprising the intermediate section 13, the sections 12, 12, the under-turned portions 11, 11, and the bowed extremities 10, 10, terminating in the eyes 9, a common support with which the eyes have pivotal connection as described, one or more spiral springs between and connected to the oppositely-arranged parts 13, 13, of both the seat-frame counterparts and the seat-top, substantially as described.

660,133. NECKTIE-RETAINER. JOSEPH C. WATSON, Bentonville, Ark. Filed Sept. 25, 1899. Serial No. 731,611. (No model.)



Claim.—A necktie-retainer comprising a substantially-rectangular loop of wire, the rear side of which is provided with an upwardly-extending bend forming an eye, the mouth of which is downward and contracted, and the front side, at its center, is provided with a depending finger.

660,134. AUTOMATIC CIRCUIT BREAKER AND CLOSER. WILLIAM B. WATKEL and FORREST L. SHEKELL, Washington, D. C. Filed Jan. 4, 1900. Serial No. 393. (No model.)

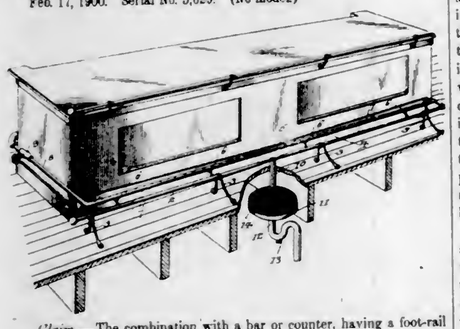


Claim.—1. In an electric-circuit breaker and closer of the character described, the double bulb having an intermediate contracted neck, an armature upon the lower part of said bulb, and the loosely-coiled wires entering said bulb upon opposite sides; said bulb inclosing a suitable charge of electrical conveying fluid and adapted to be suspended within a yoke pivoted to the spark-coil of an electric circuit.

2. In an electric-circuit breaker and closer, the double tube having a charge of electrical conveying fluid, and provided at its lower end with an armature, the loosely-coiled wires projecting into said bulb on opposite sides thereof, in combination with the pivoted yoke upon the spark-coil, and an electric circuit.

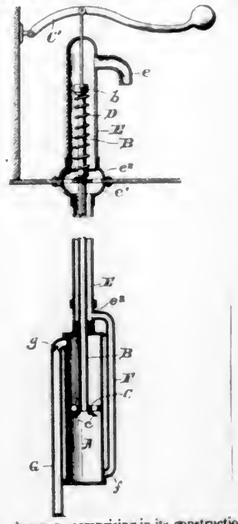
3. In an electric-circuit breaker and closer, the double bulb having an intermediate contracted neck, an armature upon the lower part of said bulb, the loosely-coiled wires entering said bulb upon opposite sides, and said bulb inclosing a charge of electrical conveying fluid, in combination with the pivoted yoke of the spark-coil, an electric circuit, and the electrodes of a gas-burner.

660,135. CUSPIDOR. MOR WEINBERGER, Guthrie, Okla. Filed Feb. 17, 1900. Serial No. 5,629. (No model.)



Claim.—The combination with a bar or counter, having a foot-rail in front thereof, of a trough-shaped cuspidor located between the rail and the bar and having its respective longitudinal edges connected thereto, a spray tube or pipe located intermediate of the opposite longitudinal sides of the cuspidor and perforated at opposite sides and in the top thereof, and opposite inwardly-inclined braces extending from the respective inner sides of the cuspidor to the tube.

660,136. PUMP. HERMANN WELCH, Osceola, Nebr. Filed Jan. 16, 1900. Serial No. 1,669. (No model.)



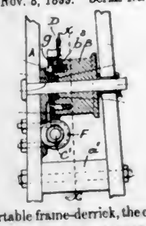
Claim.—1. A pump, comprising in its construction a suitable cylinder closed at its bottom and top and located above the water in the bottom of the well, said cylinder being provided with an aperture at or near its top for the inlet of water, a hollow piston-rod carrying a solid piston disk or head which works in said cylinder, said piston-rod being also open at the bottom so that no water will be caught therein and required to be lifted on the upstroke thereof, one or more suitable valves provided in said piston-rod or piston, a suction-pipe provided with an upwardly-opening valve, said valve in the suction-pipe, when closed, supporting a column of water above it, the construction and arrangement being such that upon the descent of the piston, the valve or valves in said piston or rod will be closed and the valve in the section-pipe opened and the water in the section below the piston forced into the piston-rod, and when the piston rises, the valve or valves in said piston or rod will be opened and the valve in the suction-pipe closed, and water will be admitted below the piston through the valve in said piston or rod, whereby no water will be lifted or forced upwardly on the upstroke of the piston, and water will be raised on the downstroke only, the weight of the piston and rod assisting in raising the water, substantially as described.

2. A pump, comprising a cylinder closed at top and bottom and provided with an opening at or near its upper end for the admission of water, means for fixedly supporting the said cylinder above the water in the well, a hollow piston-rod adapted to work in said cylinder the full length thereof and which is always open at the bottom so that no water will be held in the piston-rod and required to be lifted on the upstroke thereof, said rod being provided on its lower end with a piston, outwardly-opening valves hinged to the said piston, said valves being adapted to close the openings in the said piston upon the downstroke of the piston, and to be opened upon the upstroke thereof, a suction-pipe entering the opening in the side of the cylinder, provided with an upwardly-opening valve which opens as the piston descends and closes as it rises, and supports a column of water above it, a stuffing-box secured in the head of the cylinder, said stuffing-box being provided with an opening through which the piston-rod passes, a collar on said piston-rod, a handle connected to the piston-rod, and a spring interposed between the collar and the pump-platform, the construction being such that no water will be lifted on the upstroke but only on the downstroke, and the water-lifting operation will be assisted by the weight of the piston and rod, substantially as described.

3. A pump, comprising in its construction a suitable cylinder closed at its bottom and top and located above the water in the bottom of the well, said cylinder being provided with an aperture at or near its top for the inlet of water, a hollow piston-rod carrying a solid piston disk or head which works in said cylinder, said piston-rod being also open at the bottom so that no water will be caught therein and required to be lifted on the upstroke thereof, one or more suitable valves provided in said piston-rod or piston, a casing or pipe surrounding the hollow piston-rod above the cylinder and provided with a spout, a suction-pipe provided with an upwardly-opening valve, said valve in the suction-pipe, when closed, supporting a column of water above it, a discharge-pipe outside the cylinder leading from the lower end of the cylinder to the casing of the hollow

piston-rod above the cylinder, the construction and arrangement being such that upon the descent of the piston, the valve or valves in said piston or rod will be closed and the valve in the suction-pipe opened and the water in the section below the piston forced into the piston-rod and discharge-pipe, and, when the piston rises, the valve or valves in said piston or rod will be opened and the valve in the suction-pipe closed, and water will be admitted below the piston through the valve in said piston or rod, whereby no water will be lifted or forced upwardly on the upstroke of the piston, and water will be raised on the downstroke only, the weight of the piston and rod assisting in raising the water, substantially as described.

660,137. PORTABLE FARM-DERRICK. GUSTAVE WENTELMANN, Streator, Ill. Filed Nov. 8, 1899. Serial No. 736,249. (No model.)

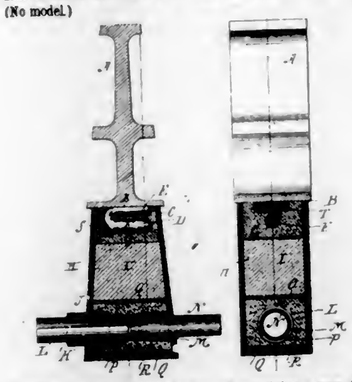


Claim.—1. In a portable frame-derrick, the combination with the two frame-strips of the drum having a worm-gear secured to the end thereof, a crank-shaft and worm thereon, and a gear-plate having pillow-blocks to receive the said crank-shaft and staples to fit over said pillow-blocks and pass through the gear-plate and upright, and nuts thereon to clamp the said parts together, substantially as described.

2. In a winding-gear for portable farm-derricks, the combination of the roller-block having a radial and an intersecting end hole therein, a knotted rope secured therein and a worm-gear plate secured to the end thereof by means of screws and stud projections, substantially as described.

3. In a portable farm-derrick, the combination with the frame-strip having a loop secured to the upper end thereof, of a drum at the lower end thereof, a pulley located at the upper end thereof, a rope secured to the drum and a supporting-bar having a zigzag plate at the upper end thereof to interlock with the loop at the upper end of the frame, substantially as described.

660,138. THERMO-ELECTRIC CELL. ERNEST F. YOST and WILLIAM H. SMITH, New York, N. Y. Filed June 28, 1900. Serial No. 21,902. (No model.)



Claim.—1. In a thermo-electric cell containing a mass forming one element of the thermo-electric couple, a tube in electrical connection with said mass and adapted to convey a current of refrigerating fluid through the body thereof, substantially as described.

2. In a thermo-electric cell containing a mass of metal forming one element of the thermo-electric couple, a joint to be cooled formed by embedding a tube within said mass, the said tube being adapted to convey a current of refrigerating fluid for cooling said joint by conduction through the wall of said tube, substantially as described.

3. In a thermo-electric cell containing a joint to be heated, a joint to be cooled, and two tubes of conducting material electrically connected respectively with said joints but insulated from one another and adapted to convey a current of refrigerating liquid in proximity to said joint to be cooled, substantially as described.

4. A thermo-electric cell having one element of the thermo-electric coupler inclosed within the other element of said couple, a tube electrically connected with the inclosing element and insulated from the element inclosed and a tube electrically connected with the inclosed element and insulated from the inclosing element; the said tubes being insulated from one another and mechanically connected to convey fluid through said cell, substantially as described.

5. In a thermo-electric cell having a joint between the elements of the thermo-electric couple, whereat temperature differences produce differences in electrical potential, a shield interposed between said elements at said joint and constructed of electrically-conducting material incapable of attacking either of said elements, substantially as described.

6. In a thermo-electric cell, an electropositive element, an electronegative element capable of attacking the same, and a mass of electronegative metal incapable of attacking said electropositive element; the said mass being interposed between and in contact with said elements, substantially as described.

7. In a thermo-electric cell, an element of copper, a mass of conducting metal incapable of attacking said element, and an element of antimony-zinc alloy; the said mass being interposed between and in contact with said elements, substantially as described.

8. In a thermo-electric cell, an element of copper, a mass of antimony and an element of antimony-zinc alloy; the said antimony being interposed between and in contact with said elements, substantially as described.

9. The combination in a thermo-electric cell of an electropositive element, an electronegative element and a bent contact-piece having substantially-parallel arms, one of said arms being united to said positive element and the other to said negative element, substantially as described.

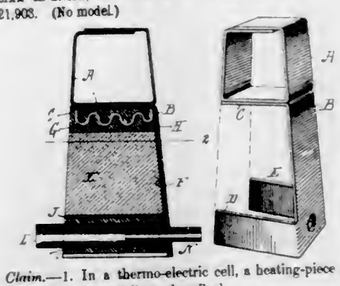
10. The combination in a thermo-electric cell of an electropositive element, an electronegative element and a bent contact-piece having substantially-parallel arms, one of said arms being united to said positive element and the other united to and embedded in said negative element, substantially as described.

11. The combination in a thermo-electric cell of the inclosing electropositive element A, C, Q internal electronegative element, insulated tube L electrically connected with said negative element and insulated tube N electrically connected with said positive element, substantially as described.

12. In a thermo-electric cell, having an outer electropositive shell and an inner electronegative solid mass, circulating-tubes for a refrigerating fluid embedded in metal within said shell, and a conducting-plate O between said metal and said electronegative mass, substantially as described.

13. A thermo-electric cell having a shell or envelop containing forty-two per cent. of copper, 0.08 per cent. of iron and fifty-seven per cent. of nickel, substantially as described.

660,139. THERMO-ELECTRIC CELL. ERNEST F. YOST and WILLIAM H. SMITH, New York, N. Y. Filed June 28, 1900. Serial No. 21,903. (No model.)



Claim.—1. In a thermo-electric cell, a heating-piece A in hollow polygonal form, substantially as described.

2. In a thermo-electric cell, a heating-piece A formed by bending a strip of metal in polygonal form, substantially as described.

3. In a thermo-electric cell, a body of electronegative metal, an outer covering of electropositive metal, and a contact-piece of electropositive metal embedded in said negative metal and electrically connected at its ends to said electropositive metal, substantially as described.

4. In a thermo-electric cell, a body of electronegative metal, an outer covering of electropositive metal and a corrugated contact-piece of electropositive metal embedded in said electronegative metal and electrically connected to said electropositive metal, substantially as described.

5. A thermo-electric cell containing a mass of electronegative metal, a tube of electrically-conducting material for leading a refrigerating fluid through said mass and disposed near one end thereof, a body of electro-

positive metal secured in or in direct contact with said mass of electro-negative metal at the other end thereof, and a plate of electropositive metal electrically connecting said body and said tube, substantially as described.

660,140. INSULATOR. CASSIUS ALLEY, Pendleton, Ind., assignor of one-third to Charles Henry Miller and Henry Wagner, Anderson, Ind. Filed Apr. 9, 1900. Serial No. 12,083. (No model.)

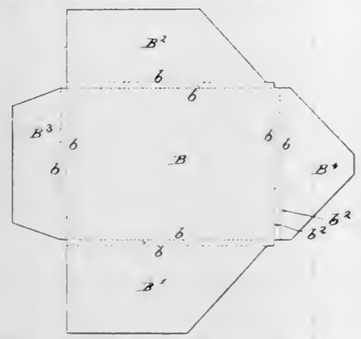


Claim.—1. An insulator provided with a passage-way through it, a conductor extending through said passage-way and a tie-wire extending through said passage-way with its ends coiled about the conductor near the ends of the insulator.

2. An insulator provided with a passage-way through it that is elliptical in cross-section, a conductor extending through the passage-way with its ends coiled about the conductor near the ends of the insulator whereby the tie-wire cannot revolve around the conductor.

3. An insulator provided with a passage-way through it that is elliptical in cross-section in its middle portion with its ends flaring, a conductor extending through the passage-way, and a tie-wire extending through said passage-way with its ends coiled about the conductor near the ends of the insulator and turned at their extremities.

660,141. PACKAGE. FRANZ A. BARTELMEZ, New York, N. Y. Filed Apr. 12, 1900. Serial No. 12,553. (No model.)

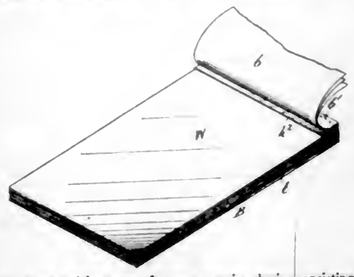


Claim.—1. A package for containing carbon manifold-sheets without subjecting the same to pressure, consisting of a blank B of comparatively-stiff material folded on the lines *b*, *b*, to create a space *p*, of parallelepipedal form, in combination with flexible sliding stiffeners S, S, fitting in said space *p*, and adapted to protect and preserve the alinement of carbon manifold-sheets placed between them, and to act in conjunction to facilitate the insertion or withdrawal of the same as set forth, said stiffeners S, S, having sufficient flexibility to admit of their being bent outward to give access to the carbon-manifolds when the latter are partially withdrawn from the package as herein described.

2. A package for containing carbon manifold-sheets without subjecting the same to pressure, consisting of a blank B, of comparatively-stiff material folded on the lines *b*, *b*, to create a space *p*, of parallelepipedal form, in combination with sliding stiffeners S, S, fitting in said space *p*, and adapted to protect and preserve the alinement of carbon manifold-sheets placed between them and to act in conjunction to facilitate the insertion or withdrawal of the same as set forth, said stiffeners S, S, being made non-absorbent for the purpose of retarding the drying out and deterioration of the carbon-manifolds as herein described.

660,142. CARBON-SHEET HOLDER. FRANZ A. BARTELMEZ, New York, N. Y. Filed June 25, 1900. Serial No. 21,452. (No model.)

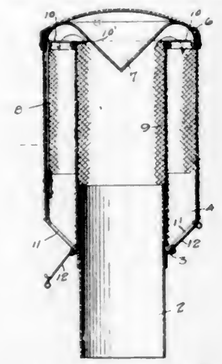
Claim.—1. As an article of manufacture a copying device consisting of a strip of stiff material having a paper-retaining clip formed integral therewith by cutting the body of the strip, a coupling-strip of flexible material attached to said strip of stiff material, a sheet of carbon-paper fastened at one of its ends to said flexible coupling-strip, and a protecting-sheet also fastened at one of its ends to said flexible coupling-strip substantially in the manner and for the purpose described.



2. As an article of manufacture a copying device consisting of a strip of stiff material having a paper-retaining clip formed integral therewith by cutting the body of the strip, a sheet of carbon-paper connected at one of its ends to said strip of stiff material and a protecting-sheet also connected at one of its ends to said strip of stiff material above the connected edge of the carbon-sheet for the purpose and substantially in the manner set forth.

3. As an article of manufacture a copying device consisting of a strip of stiff material having a paper-retaining clip formed integral therewith by cutting the body of the strip, said strip of stiffening material being also formed with rearwardly-projecting tongues for insertion between the sheets of a book or pad as set forth, in combination with a sheet of carbon-paper fastened at one of its ends to said strip of stiff material, as and for the purpose described.

660,143. SPARK-ARRESTER. JOSEPH BLANCHETTE, Dayton, Minn. Filed Mar. 13, 1900. Serial No. 8,441. (No model.)



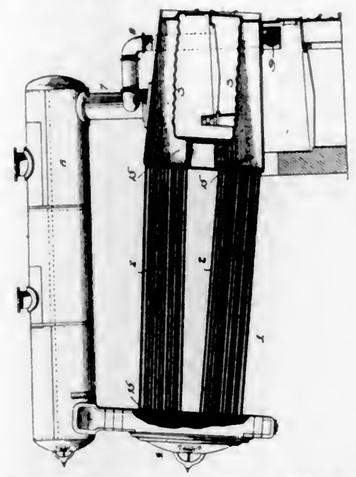
Claim.—A spark-arrester, comprising a base adapted to telescope with the top of a smoke-stack and having flaring walls provided with discharge-openings 11, doors 12 normally closing said openings, a flange 4 forming a vertical continuation of said flaring walls, a cylindrical screen 5 fitting over said flange, a closed cap 6 covering and inclosing the top of said screen, an imperforate deflector within said cap having a gutter-shaped base adapted to clamp the upper edge of said screen between its edge and the edge of said cap, said deflector having also a conical depending portion adapted to deflect the products of combustion toward its curved base, brace-rods 8 connecting the base of said deflector and said cap with said flange 4, a screen 9 concentric with said screen 5 and having a lower end adapted to telescope with the top of the stack, and an open upper end wherein the conical portion of said deflector depends and stay-rods 10 connecting the top of said screen 9 and the base of said deflector, substantially as described.

660,144. ADHESIVE COMPOSITION AND METHOD OF MAKING SAME. WILLIAM V. CARTER, Astor, Fla., assignor to the Palmetto Company, Philadelphia, Pa. Filed Mar. 23, 1899. Serial No. 710,175. (No specimens.)

Claim.—1. A vegetable glue consisting principally of soluble pectose material obtained from palmetto-roots, substantially as described.

2. The process of making glue which consists in treating palmetto-roots with moisture and heat to bring about a chemical reaction which forms a soluble glue and then leaching out the glue from the mass by washing with water, substantially as described.

660,145. STEAM-BOILER. FRANK J. CHAMROD, Lima, Ohio. Filed May 12, 1900. Serial No. 16,481. (No model.)



Claim.—1. In a steam-boiler, the combination, with the main portion, the rear end of which is provided with a self-supporting head, joined thereto in the manner of a cylinder-head, of a steam-drum connected to the rear end thereof, and a branch pipe communicating with the front end of the drum and with the lower forward end of the boiler, substantially as described.

2. In a steam-boiler, the combination, with the main portion, of a steam-drum connected with the rear end thereof, a branch pipe communicating with the forward end of the drum, a mud-drum communicating with the lower end of said pipe, and a pipe leading from the upper end of the mud-drum to the bottom of the boiler, substantially as described.

3. In a steam-boiler, the combination, with the main portion thereof, of a steam-drum connected with the rear end of the main portion, a branch pipe communicating with the forward end of said drum, a mud-drum connected with the lower end of the branch pipe, said mud-drum being provided with two cones, the upper one of which is inverted and provided with an opening directly above the apex of the other one, and a pipe leading from the upper end of the mud-drum to the boiler, substantially as described.

4. In a steam-boiler, the combination, with the main portion provided with heat-circulating flues, of a regulator in the forward end of each of said flues, a steam-drum connected with the rear end of the main portion of the boiler, and a branch pipe communicating with the forward end of the steam-drum and with the boiler, substantially as described.

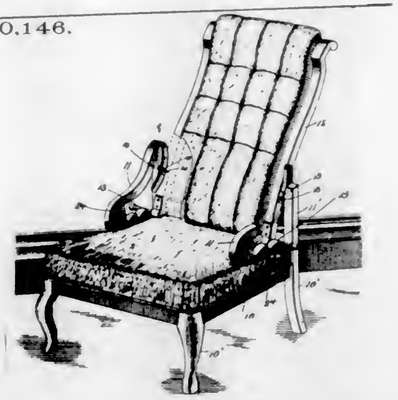
5. In a steam-boiler, the combination, with the main portion provided with circulating-flues, of a regulator in each of said flues, each of said regulators consisting of a cylindrical body of less diameter than the flues, radial wings upon said body of a sufficient width to engage with the interior of the flues, and the outer end of each wing being provided with a shoulder, a steam-drum connected with rear end of the main portion, and a branch pipe communicating with the forward end of the drum and with the boiler, substantially as described.

660,146. RECLINING-CHAIR. PHILIAS CHARBONNEAU, Montreal, Canada. Filed Mar. 29, 1900. Serial No. 10,600. (No model.)

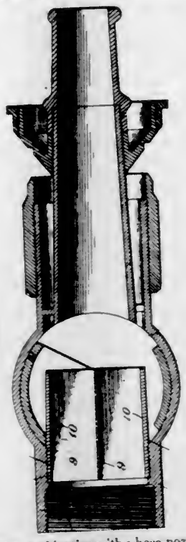
Claim.—1. In a reclining-chair, the combination with a base or seat-frame provided with the racks, of the curved guides fixed on the base or seat-frame above the racks, a back having the studs fitted slidably in the guides, and the handle-pins fast with the lower end of the back and arranged to engage with the racks, substantially as described.

2. In a reclining-chair, the combination of a seat-frame provided with the side arms, the curved guide-castings secured firmly to said arms the racks on the seat-frame and below the guide-castings, a back, the studs secured to the back and fitted slidably in the guide-castings, and the elongated pins secured to the lower end of the back and arranged for engagement with the racks, substantially as described.

660,146.



660,147. FIRE-HOSE NOZZLE. BENJAMIN C. CRANK, Montesano, Wash. Filed Dec. 27, 1899. Serial No. 741,743. (No model.)



Claim.—1. The combination with a hose-nozzle provided with a cock or valve and having screw-threads in rear of the same, of a detachable device comprising a tube exteriorly threaded to engage the said screw-threads and located in rear of the cock or valve, and removable partitions arranged within the tube, said partitions being adapted to arrest the rotary motion of a stream of water and forming a guard or strainer to protect the cock or valve, substantially as described.

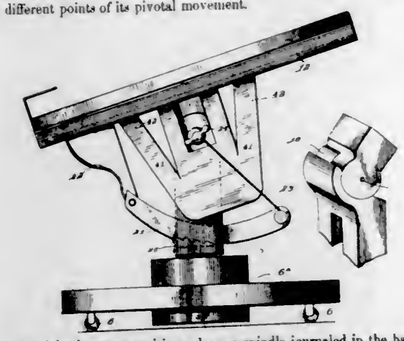
2. The combination of a hose-nozzle having a valve and provided with interior screw-threads and having a shoulder in rear of the screw-threads, a tube exteriorly threaded to engage the screw-threads and fitting against the said shoulder, said tube being located in rear of the valve, and partitions arranged within the tubes, substantially as described.

3. The combination of a nozzle having a cock or valve, a tube detachably secured within the nozzle and located at a point in rear of the cock or valve, said tube being provided with a tapering interior, and the partitions having tapered or convergent edges and fitting within the tube to arrest the rotary motion of a stream of water and forming a guard or strainer to prevent the valve or cock from becoming clogged, substantially as described.

660,148. ADJUSTABLE BOOK-REST. CHARLES W. DAVIS and HUGH M. HALL, Columbia, Mo. Filed Feb. 6, 1900. Serial No. 4,271. (No model.)

Claim.—1. A book-rest comprising a base, a spindle upon the base, a book-support pivoted to the spindle, plates comprising arms attached to

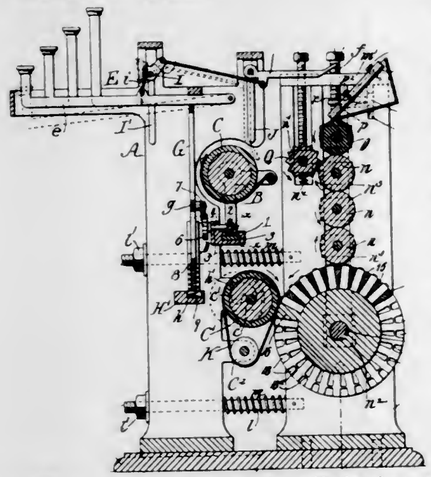
the support at different points thereof and lying with their body portions in sliding contact with the spindle to brace the book-support at different points of its pivotal movement, and means for holding the book-support at different points of its pivotal movement.



2. A book-rest comprising a base, a spindle journaled in the base, a book-support, a pivot-screw connecting the spindle and support and adapted for rotation, a knife-edge carried by the spindle, a rack carried by the support and adapted for engagement with the knife-edge to hold the support at different points of its pivotal movement, and a cord connected with the rack and with the pivot-screw for raising the rack from the knife-edge.

3. A book-rest comprising a base, a spindle upon the base, a book-support pivoted to the spindle, and plates comprising arms attached to the support at different points thereof and lying with their body portions in slidable contact with the spindle to brace the book-support at different points of its pivotal adjustment.

660,149. **COMBINED TYPE-WRITING AND PRINTING MACHINE.** ERNEST J. DEUTSCH, New York, N. Y. Filed Nov. 13, 1899. Serial No. 736,765. (No model.)



Claim.—1. As a printing apparatus, the combination of a type-writing machine and a rotary printing mechanism, and a corrugated roll rotated between the printing-press and the type-writing machine to supply ink to the type-bars of the type-writing machine, and means supporting the two structures, substantially as shown and described.

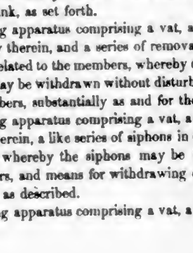
2. A printing-machine comprising a type-cylinder, ink-carrying rolls an ink-fountain and a corrugated roll for supplying ink to a type-writer, substantially as shown and described.

3. In a printing-machine, the combination of a type-cylinder, removable type therefor and means for securing the same, a series of ink-carrying rolls, a vertically-adjustable ink-fountain communicating with said rolls, and a corrugated roll for supplying ink to the type-bars of a type-writer, substantially as shown and described.

4. As a combined printing-machine and type-writer, the combination of a revolable cylinder having a segmental recess therein, removable type engaging said recess and means for securing said type, a series of ink-carrying rolls, a vertically-adjustable ink-fountain, an adjustable lid thereon, a corrugated roll, and a type-writing machine in such relative arrangement with said roll as to take ink therefrom automatically during the process of operating said type-writing machine, substantially as shown and described.

5. The combination of a type-writing machine embodying type-bars, a keyboard, a sliding carriage and roll, feed mechanism and an auxiliary roll, all mounted upon a sliding frame, with a rotary printing mechanism embodying a revoluble cylinder, movable type therefor and means for fastening said type, a series of ink-carrying rolls, a vertically-adjustable ink-fountain for feeding said rolls and a vertically-adjustable corrugated roll engaging said rolls and located between them and the type-writing machine, whereby the type-bars of the type-writing machine engage said corrugated roll to take ink therefrom during the process of operating the type-writing machine, substantially as shown and described.

660,150. **BOTTLE-STOPPER.** JOHN R. DICK, Allegheny, Pa., assignor of one-third to John Pappert, same place. Filed Aug. 19, 1899. Serial No. 727,776. (No model.)



Claim.—1. A non-refillable bottle provided with a neck having a seat at its base, an annular groove above the same and longitudinal grooves leading downwardly and upwardly therefrom but out of line with each other, in combination with a stopper movable into and out of said seat, a non-removable stopper of unyielding material, and a compressible sheath covering the sides and top of said unyielding stopper and adapted to expand into the annular groove sufficiently to lock the stopper in position.

2. A non-refillable bottle provided with a neck having a seat at its base, an annular groove above the same and longitudinal grooves leading downwardly and upwardly therefrom but out of line with each other, in combination with a stopper movable into and out of said seat, a non-removable stopper of unyielding material covering said annular groove, a sheath of compressible material covering the sides and top of said unyielding stopper and adapted to expand into the annular groove to lock the stopper in position, and a spring between the two stoppers.

3. A non-refillable bottle provided with a neck having a seat at its base, an annular groove above the same and longitudinal grooves leading downwardly and upwardly therefrom but out of line with each other, in combination with a stopper movable into and out of said seat, a non-removable stopper of unyielding material covering said annular groove and provided with a metal cap, a compressible sheath of yielding material covering the sides of the unyielding stopper and the cap thereon and adapted to expand into the annular groove, and a spring interposed between the two stoppers.

660,151. **FILTER.** WILBROD DORVAL, Binghamton, N. Y. Filed Apr. 23, 1900. Serial No. 13,861. (No model.)

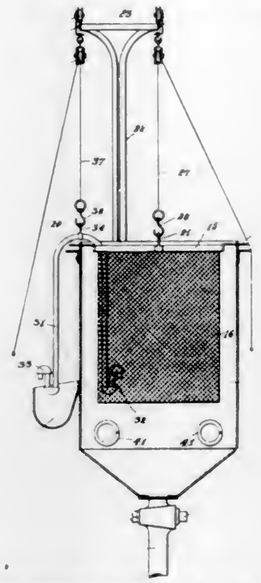
Claim.—1. A filtering apparatus substantially such as described, comprising a vat, a series of hollow packed filtering members within said vat, a collecting-tank, and a series of siphons, each siphon being associated with one of said filtering members and with said tank, whereby the filtered contents of the filtering members may be discharged into the tank, as set forth.

2. A filtering apparatus substantially such as described, comprising a vat, a series of members therein, a collecting-tank, and a series of siphons operatively and individually related to the members and arranged to discharge into the tank, as set forth.

3. A filtering apparatus comprising a vat, a series of members suspended removably therein, and a series of removable siphons operatively and individually related to the members, whereby each siphon and its companion member may be withdrawn without disturbing the relation of other siphons and members, substantially as and for the purposes set forth.

4. A filtering apparatus comprising a vat, a series of filtering members suspended therein, a like series of siphons in operative relation to the members, means whereby the siphons may be individually withdrawn from said members, and means for withdrawing either member from the vat, substantially as described.

5. A filtering apparatus comprising a vat, a series of filtering members suspended therein, an overhead track, a trolley adapted to said track and a hoisting-cable guided on the trolley and adapted to be connected detachably to either of said members, substantially as described.



6. A filtering apparatus comprising a vat, a series of members suspended therein and provided with loops or eyes arranged in a common plane longitudinally of the vat, an elevated track in the vertical plane of said loops or eyes on the members, a trolley on said track and a cable guided on the trolley and having a hook adapted for engagement with the eye of either member, substantially as described.

7. In a filtering apparatus, a member comprising a loop-shaped frame, a foraminous receptacle attached to said frame and having a lower closed end and an open upper end, and filtering media within said receptacle and forming a chamber for the reception of the clear liquid, as and for the purposes set forth.

8. In a filtering apparatus, a filtering member comprising a frame provided with suspension devices, a foraminous receptacle attached to said frame and open at its upper end, a packed filtering-lining within said receptacle and forming a chamber, and a suspension-loop connected to the frame, substantially as described.

9. In a filtering apparatus, a filtering member comprising a foraminous receptacle closed at its bottom and open at its top, and a filtering layer within said receptacle and forming a chamber for the free accumulation of the clear liquid, substantially as set forth.

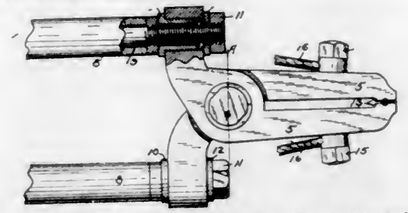
10. A filtering apparatus comprising a vat, an external collecting-tank, a series of filtering members within said vat, a series of siphons fitted removably in said members, a shiftable trolley, a track therefor, and a cable fitted to the trolley and arranged to have detachable connection with either of said siphons, substantially as described.

11. A filtering apparatus comprising a vat, a collecting-tank, a series of members suspended in the vat, a series of siphons arranged to straddle the vat and for each siphon to have one leg fit removably in a member and its other leg overhang the tank, a series of eyes on the siphons and arranged in a common plane longitudinally of the vat, an elevated track in the vertical plane of said loops, a trolley and a cable connected to the trolley and having a hook to engage with the loop of either siphon, substantially as described.

12. A filtering apparatus comprising a vat having the sloping bottom, a valved drain-pipe connected to said vat, filtering members suspended in the vat, heating-coils within the vat below said members, an external tank, siphons removably fitted to the members, and means for separately removing the members and siphons, as set forth.

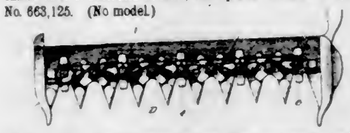
660,152. **ELECTRIC WELDING-TONGS.** JOHN R. DUNCAN, Indianapolis, Ind., assignor of five-eighths to Calvin F. Darnell and C. Augustus Schmidt, same place. Filed May 17, 1900. Serial No. 16,981. (No model.)

Claim.—1. An electric welder comprising a pair of jaws and a pair of handles connected to the same, a washer insulating said jaws at their joint, and a sleeve insulating said handles at said points of connection, substantially as set forth.



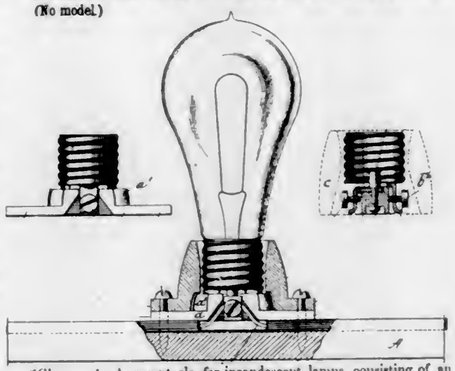
2. An electric welder comprising a pair of tongs having a pair of jaws and a pair of handles connected to the same, a washer insulating said jaws at their joint, a sleeve insulating said handles at said points of connection, and an electrical connection with said jaws whereby the current will pass from one to the other transversely through the articles to be welded.

660,153. **MOWER.** OSCAR L. ERVIN, Plano, Ill., assignor of two-thirds to E. J. Cook and D. Cook, same place. Filed Dec. 23, 1897. Serial No. 663,125. (No model.)



Claim.—In a cutter-bar for mowers, the combination, with a bar, of a runner secured to each end thereof, fingers secured to the intermediate portion of the under side of the bar, bolts through the bar, one between each finger, one of which at one end is longer than the others, the heads of the bolts being upon the under side of the bar, a rotary disk upon each bolt above the bar provided with a plurality of radially-arranged double-edged cutting-blades, the blades of the different disks intermeshing with each other, a sprocket-wheel upon each disk, the ones at the ends being larger than the others, a chain on the wheels in position to rotate the alternate wheels in opposite directions, a curved shield secured to the bar at its rear edge to the rear of and extending forwardly over the disks, one end of which is perforated for the passage of the long bolt, and a bevel-wheel on top of said bolt above the shield, substantially as described.

660,154. **RECEPTACLE FOR INCANDESCENT LAMPS.** PHILIP H. FIELDING, New York, N. Y. Filed Apr. 2, 1900. Serial No. 11,121 (No model.)

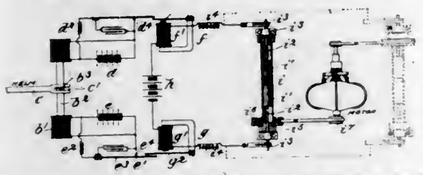


Claim.—1. A receptacle for incandescent lamps, consisting of an elongated block carrying at its middle a lamp-socket, and binding-screws exposed on each side thereof, the extremities of the block being perforated for fastening-screws in combination with a cap or cover of insulating material having a cylindrical portion surrounding the lamp-socket and the binding-screws, and extensions or ears covering the ends of the block, said ears being perforated in line with the perforations in the ends of the block, for the purpose set forth.

2. A receptacle for incandescent lamps, consisting of an elongated block carrying at its middle a lamp-socket and binding-screws exposed on each side thereof, the extremities of the block being perforated for fastening-screws in combination with a cap or cover of insulating material having a cylindrical portion surrounding the lamp-socket and the binding-

screws and extensions or ears covering the ends of the block said ears being perforated in line with the perforations in the ends of the block, and a pair of line-wires engaged by the binding-screws and running parallel to the said extensions and between which wires the fastening-screws pass for the purpose set forth.

660,155. APPARATUS FOR CONTROLLING MECHANISM OF MOVING VESSELS OR VEHICLES. BRADLEY A. FISKE, U. S. Navy, assignor to the Western Electric Company, Chicago, Ill. Filed Sept. 7, 1898. Serial No. 690,433. (No model.)



Claim.—1. The combination with a source of electrical waves or disturbances, of a moving vessel or vehicle and mechanism thereon for steering or operating the same, and controlling apparatus adapted to be actuated by the influence of the said waves or disturbances at a distance from the source, as set forth.

2. The combination with a source of electrical waves or disturbances, of a moving vessel or vehicle, mechanism thereon for steering or operating the same, a circuit and means therein for controlling said mechanism, and means for rendering said circuit active or inactive through the influence of the said waves or disturbances exerted at a distance from the source, as set forth.

3. The combination with a source of electrical waves or disturbances and means for starting or stopping the same, of a vessel or vehicle, steering mechanism carried thereby, a circuit containing or connected with means for controlling the operation of said mechanism and adjusted or rendered sensitive to the waves or disturbances of the source, as set forth.

4. The combination with a source of electrical waves or disturbances and means for starting or stopping the operation of the same, of a vessel or vehicle, mechanism carried thereby for steering or operating the vessel, local circuits controlling said mechanism, a circuit sensitive to the waves or disturbances of the source, and means therein adapted to control the said local circuits, as and for the purposes set forth.

5. The combination with an automobile vessel or vehicle, of electromagnetic motor mechanism for controlling the operating mechanism of the vessel, a responsive device adapted to be actuated by etheric waves or disturbances, means controlled by said responsive device, for actuating said motor mechanism, a distant source of etheric waves or disturbances adapted to send out wave-signals of a distinctive character, and means for controlling said source, whereby the mechanism of the vessel or vehicle may be controlled from the source of said waves or disturbances, substantially as set forth.

6. The combination with a moving vessel or vehicle, of electromagnetic motor mechanism, as *b b'*, for controlling the operating mechanism of the vessel, an electric circuit adjusted or rendered responsive to etheric waves or disturbances, a source of current in the circuit and means actuated by the flow of current in the circuit for controlling the said motor mechanism, and means for propagating etheric waves or disturbances of a character to which said circuit is responsive, whereby the electromagnetic motor mechanism and consequently the operating mechanism of the vessel may be controlled, substantially as set forth.

7. The combination with a moving vessel or vehicle, of electromagnetic motor devices *b b'* for controlling the operating mechanism of the vessel, a circuit adjusted or rendered sensitive to electrical waves or vibrations, a source of current in the circuit, signal-receiving instruments *f g* controlling the said electromagnetic motor devices, each of said instruments being adapted to select and respond to electric signals of distinctive character received by the circuit, and means at a distant point for transmitting such signals by electrical waves or vibrations, whereby the operation of said electromagnetic motor devices may be effected from such distant point, as described.

8. The combination with an automobile torpedo, of a rudder therefor, electromagnetic steering mechanism adapted to control the position of said rubber, a plurality of selective signal-receiving devices adapted each to respond to electrical impulses of distinctive character, said signal-receiving devices serving to control said electromagnetic steering mechanism, an electric circuit including said signal-receiving devices, a responsive device located in said circuit and adapted to receive Hertzian-wave signals and to set up electrical signals corresponding thereto in the circuit which includes said signal-receiving devices, a radiator at a transmitting-station for sending out Hertzian waves, and means for causing said radiator to transmit signals of any distinctive character to which any of said signal-receiving devices is adapted to respond, substantially as and for the purpose set forth.

9. The combination with an automobile torpedo, of electrically-operated steering mechanism therefor, a plurality of electromagnetic signal-receivers controlling corresponding parts of said steering mechanism, an electric circuit including said signal-receivers with a source of electric current, each of said signal-receivers being adapted to respond to electrical impulses of a characteristic periodicity, a responsive device controlling said circuit and adapted to receive intermittent Hertzian-wave signals, a radiator at a distant station for transmitting Hertzian waves, and means for causing said radiator to transmit-intermittent Hertzian waves in impulses of a periodicity corresponding to the periodicity to which any one of said signal-receivers is adapted to respond, whereby said responsive device is caused to set up electrical impulses of the same periodicity in the circuit which includes the several signal-receivers, substantially as and for the purpose set forth.

10. The combination with an automobile vessel or vehicle, of a rudder therefor, electromagnetic steering mechanism for controlling the position of said rudder, a responsive device adapted to be actuated by electrical waves or disturbances, means controlled by said responsive device for actuating said electromagnetic steering mechanism, a distant source of electrical waves or disturbances adapted to send out wave-signals of a distinctive character, and means for controlling said source, whereby the course of the vessel or vehicle may be directed from the source of said waves or disturbances, substantially as described.

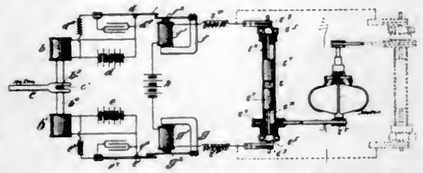
11. The combination with an automobile torpedo, of a rudder therefor, electromagnetic steering mechanism for controlling the position of said rudder, a circuit associated with said steering mechanism and including a source of electric current, a responsive device adapted to be actuated by waves, radiations or etheric disturbances for controlling the electrical condition of said circuit, a distant source of radiations, waves or disturbances, and means for stopping and starting the same, substantially as described.

12. The combination with an automobile vessel or vehicle, of steering mechanism therefor, a plurality of circuit-controlling devices and circuits associating the same each with a particular part of said steering mechanism whereby the operation of such part may be controlled, means, adapted to be actuated by electrical waves or disturbances for throwing into action either of said circuit-controlling devices, each of such circuit-controlling devices being adapted to respond only to signals of a distinctive character, and a source of electrical waves or disturbances of a character to actuate either of said circuit-controlling devices, whereby different operations of said steering mechanism may be controlled from said source, substantially as described.

13. The combination with an electric circuit adjusted or rendered responsive to electrical waves, radiations or disturbances, of a plurality of signal-receiving instruments in the circuit, each adapted to select and respond to signals of a peculiar and distinctive character, electromagnetic motor devices controlled by said instruments, and a radiator which may be located at a distant point for propagating the waves or radiations and so for transmitting signals to which either of said instruments will respond, whereby the electromagnetic motor devices can be controlled from the distant point, substantially as set forth.

14. The combination with an automobile vessel or vehicle, of electromotor devices for controlling the operating mechanism thereof, a plurality of signal-receiving instruments controlling said electromotor devices, means, actuated by electrical waves or radiations, for throwing into action either of said signal-receiving instruments, and a radiator at a distant point for transmitting waves or radiations of suitable character for operating either of said signal-receiving instruments, substantially as set forth.

660,156. METHOD OF CONTROLLING MOVING VESSELS OR VEHICLES. BRADLEY A. FISKE, U. S. Navy, assignor to the Western Electric Company, Chicago, Ill. Original application filed Sept. 7, 1898, Serial No. 690,433. Divided and this application filed Apr. 2, 1900. Serial No. 11,043. (No model.)



Claim.—1. The herein-described improvement in the art of controlling the movements or operation of a vessel or vehicle, which consists in producing etheric waves or disturbances which are conveyed to the vessel by the natural media, and controlling by their influence exerted at a distance electromagnetic motor devices on the vessel or vehicle, which control the operating mechanism thereof, as set forth.

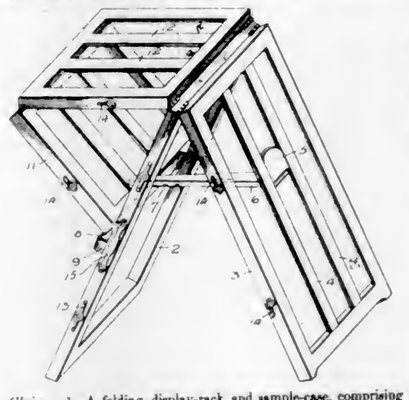
2. The herein-described improvement in the art of controlling the movements or operation of a vessel or vehicle, which consists in establishing a region of waves or disturbances and actuating by their influence exerted at a distance, electromagnetic motor devices on such vessel which control the operating mechanism thereof, as set forth.

3. The herein-described improvement in the art of controlling the movements or operation of a vessel or vehicle, which consists in establishing a region of electrical waves or disturbances and actuating by their influence exerted at a distance the devices on said vessel or vehicle which control the operating mechanism thereof, as set forth.

4. The herein-described improvement in the art of controlling the movements or operation of a vessel or vehicle, which consists in providing on the vessel a circuit controlling the operating mechanism of the vessel, adjusting or rendering such circuit sensitive to waves or disturbances of a definite character, establishing a region of such waves or disturbances, and rendering by their influence the controlling circuit active or inactive, as set forth.

5. The herein-described improvement in the art of controlling the movements or operation of a vessel or vehicle, which consists in providing in the vessel an electric circuit controlling electromagnetic motor devices for operating the mechanism of the vessel, adjusting or rendering such circuit sensitive to etheric waves or disturbances, establishing a region of such waves or disturbances, and rendering by their influence the controlling circuit active or inactive, substantially as set forth.

660,157. COMBINED WALL-PAPER DISPLAY-RACK AND SAMPLE-CASE. EDWARD C. FITHIAN, St. Paul, Minn. Filed Jan. 20, 1900. Serial No. 2,090. (No model.)



Claim.—1. A folding display-rack and sample-case, comprising a middle or intermediate member, outer members hinged thereon, one of said outer members being inclined with respect to said intermediate member when the device is in use to form a surface over which articles such as wall-paper may be displayed, the other outer member being supported horizontally when set up to form a table or shelf, and said outer members being separated when the device is folded forming a pocket or receptacle included by said intermediate member wherein articles may be placed.

2. A folding display-rack and sample-case, comprising an intermediate leg member, outer members hinged thereon, one of said outer members forming the other leg of the rack and being inclined with respect to said intermediate member, forming therewith an inverted V, the other outer member being adapted to be supported in a substantially-horizontal plane when the device is set up, and the walls of said outer members being separated when the device is folded forming a pocket or receptacle wherein articles may be placed.

3. A folding display-rack and sample-case, comprising a rectangular frame forming one leg or member of the rack, a second member or frame hinged on said first member, a third member also hinged to said first-named member, said second and third members having rabbeted inner edges and intermediate slats, whereby when said rack is folded a pocket or receptacle will be formed between said second and third members, for the purpose specified.

4. As a new article of manufacture, a folding display-rack comprising an intermediate member forming a leg of the rack, outer members hinged thereon, one of said outer members forming the other leg of the rack, a hinged brace connecting said leg members, the second outer member being divided transversely into sections hinged together, the lower section forming a brace to support the upper in a substantially-horizontal position and having a lower end subetantially the width of said leg members and resting upon one end of said brace and said intermediate member, subetantially as described.

5. A folding display-rack and sample-case, comprising an intermediate member, and two outer members hinged thereon, one of said outer members forming a leg of the rack, the other outer member being divided transversely into two sections hinged together the lower section forming a brace to support the upper in a horizontal position, means provided on said intermediate member to support said lower section, and a space being provided within said intermediate member and between said outer members forming a pocket or receptacle, for the purpose specified.

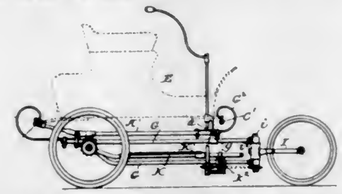
6. The combination, with an open intermediate frame, of two outer frames or members hinged thereon, said outer frames having rabbeted inner edges, slats of less thickness than said outer frames provided therein, whereby when said members are folded one upon the other a space or pocket will be formed between them, substantially as described.

7. The combination, with an intermediate frame or member, of outer members hinged thereon, one of said outer members forming a leg of the rack, the other outer member being transversely divided into two sections hinged together, the lower section supporting the upper in a horizontal position, and a brace provided on said intermediate member and supporting said lower section, and said brace having offsets near its ends, for the purpose specified.

8. A folding stand and case, comprising an intermediate member forming a leg of the stand, outer members pivoted thereon, one of said outer members being divided transversely into sections pivoted together, the lower section forming a brace to support the upper section at an angle to said intermediate member, and a space being provided between said outer members when the device is folded forming a pocket or receptacle, for the purpose specified.

9. A folding display-rack and sample-case, comprising an intermediate member or frame, outer members hinged thereon, a hinged brace having a series of notches provided on one of said outer members, a bar provided on said intermediate member in position to engage one of said notches, the other outer member being divided horizontally into sections hinged together, the lower section forming a brace to support the upper, and said lower section having its lower end resting upon the free end of said brace, subetantially as described.

660,158. VEHICLE. BOEN C. HICKS, Chicago, Ill., assignor to the Hicks Motor Cycle Company, same place. Filed Nov. 10, 1899. Serial No. 736,493. (No model.)



Claim.—1. In a vehicle, a frame having independent rolling supports operatively attached thereto and supporting said frame throughout its longitudinal extent, a frame supported at one end by independent rolling supports operatively attached thereto and supported at its other end by and flexibly connected with said independently-supported frame, connections flexibly connected with the free ends of said frames respectively and operatively connecting the frames; whereby said frames are permitted independent movements and said connections at the free ends of said frames partake partly of the movements of both frames.

2. In a vehicle, a frame having independent rolling supports operatively attached thereto and supporting said frame throughout its longitudinal extent, a frame supported at one end by independent rolling supports operatively attached thereto and supported at its other end by and flexibly connected with said independently-supported frame, connecting parts between and flexibly connected with the free ends of said frames respectively and operatively connecting said frames, a vehicle-body, means connected with said body and operatively connecting the same with said connecting parts for the partial support of said body, and means connected with said body operatively connecting said body with said frames for the remaining support of said body.

3. In a vehicle, a frame having independent rolling supports operatively attached thereto and supporting said frame throughout its longitudinal extent, a frame supported at one end by independent rolling supports operatively attached thereto and supported at its other end by and

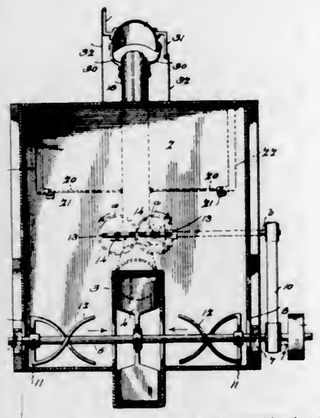
operatively flexibly connected with said independently-supported frame, an auxiliary frame upon one of said independent frames for the support of motive mechanism for the propulsion of said vehicle to prevent the transmission of shocks and vibrations from the motive mechanism to the other of said frames.

4. In a vehicle, a frame having independent rolling supports operatively attached thereto and supporting said frame throughout its longitudinal extent, a frame supported at one end by independent rolling supports operatively attached thereto and supported at its other end by and operatively flexibly connected with said independently-supported frame, an auxiliary frame upon one of said independent frames for the support of motive mechanism for the propulsion of said vehicle, in combination with a vehicle-body partially supported by both said frames; whereby shocks and vibration from said motive mechanism are partially counteracted and diminished in transmission to said body.

5. In a vehicle, a frame having independent rolling supports operatively attached thereto and supporting said frame throughout its longitudinal extent, means for turning the supports at one end of said frame in planes at right angles to the revolution of said supports for steering said frame, in combination with a coöperating frame supported at one end by independent rolling supports operatively attached thereto and supported at its other end by said independently-supported frame, means operatively flexibly connecting said frames to cause said coöperating frame to follow and coöperate with the movements of said independently-supported frame, and a vehicle-body operatively connected with and supported by said frames; whereby independent movement is permitted to said frames while coöperating to support said body.

6. In a vehicle of the class described, the combination of an outside main frame provided with supporting-wheels, a supplementary frame pivotally connected on the front portion to the main frame and flexibly to the rear portion and provided with a driving-wheel, a supporting-platform pivotally connected to the supplemental frame at or near the axis of the driving-wheel and yieldingly supported on the supplementary frame at or near its front portion, substantially as described.

660,159. PNEUMATIC STACKER. CLARENCE B. HIXSON, CHARLES T. HIXSON, and ASA L. TARRANT, Holt, Okla. Filed Feb. 2, 1900. Serial No. 3,696. (No model.)

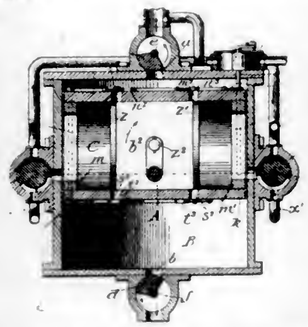


Claim.—1. In a pneumatic straw-stacker, the combination with a stacker-tube and a fan, of feeders to mechanically direct the straw to the fan, and beaters disposed above said fan, and adapted to toss and loosen the straw before it falls upon the feeders, substantially as described.

2. In a pneumatic straw-stacker, the combination with a stacker-tube and a fan, of feeders to mechanically direct the straw to the fan, and the pair of open or skeleton oppositely-revoluble beaters disposed above the fan and adapted to toss and loosen the straw before it falls upon the feeders, substantially as described.

660,160. ENGINE. LYMAN S. HOLMES, Schoharie, N. Y. Filed Feb. 5, 1900. Serial No. 4,037. (No model.)

Claim.—1. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, the inner cylinder being provided with two pairs of ports, each coöperating pair leading through the walls of the outer cylinder from opposite sides of the engine-shaft, and reversing valves and valve-gear for closing one pair of ports and opening the other; substantially as described.



2. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, the inner cylinder being provided with two pairs of ports, each coöperating pair leading through the walls of the outer cylinder from opposite sides of the engine-shaft, and reversing valves and valve-gear for closing one pair of ports and opening the other; substantially as described.

3. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, the inner cylinder exhausting into the outer, and the outer cylinder exhausting into the air, valves governing said exhausts, admission-ports for the inner cylinder, valves governing said admission-ports, a main distributing-box governing the flow of motive fluid to said admission-ports, a reversing valve within said box and a reversing-lever operatively connected to reverse said valves; substantially as described.

4. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, admission-ports at opposite ends of the inner cylinder, supply-chests for said ports, a main distributing-box governing the flow of motive fluid to said admission-ports, said box having pipe connections with said chests, a reversing valve within said box, and a reversing-lever operatively connected to reverse said valve; substantially as described.

5. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, admission-ports at opposite ends of the inner cylinder, exhaust-ports at opposite ends of the outer cylinder, valves for said admission and exhaust ports, and eccentrics on the engine-shaft for operating said valves; substantially as described.

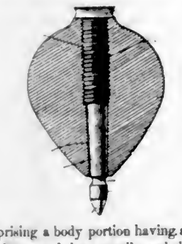
6. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, cylinders within which the pistons move, admission-ports at opposite ends of the inner cylinder, supply-chests for said ports, a main distributing-box governing the supply of motive fluid through said chests and ports to the inner cylinder and receiving the partial exhaust therefrom, an exhaust-pipe into which the exhaust received by the distributing-box discharges, and a reversing valve for said box; substantially as described.

7. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, the inner piston being connected to a crank on the shaft by means of a web of the inner piston, said web being provided with means to permit of its adjustment to take up wear; substantially as described.

8. An engine, comprising a shaft, two pistons located one within the other and having paths of movement transverse to each other, said pistons being operatively connected to the shaft, and cylinders within which the pistons move, the inner cylinder being adapted to exhaust directly into the outer cylinder through ports leading through the walls of the inner cylinder from opposite sides of the engine-shaft, substantially as described.

660,161. SPINNING-TOP. JUSTUS W. LOBB, Des Moines, Iowa. Filed Dec. 21, 1899. Serial No. 741,163. (No model.)

Claim.—1. A top comprising a body portion having an axial passage therethrough, threads in the passage, and a plug passed entirely through the passage and having threads engaged with the threads in the passage, said plug having a head engaging the upper end of the body and said plug projecting at its opposite end from the lower end of the body, whereby the material of the central portion of the upper end of the top will be protected to prevent splitting when struck by another top.

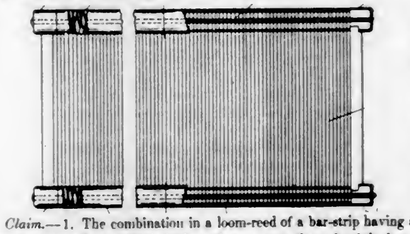


2. A top comprising a body portion having a passage therethrough, a portion of which is tapered downwardly and the remaining portion of which is threaded, and a plug having a tapered portion and a threaded portion adapted to engage the corresponding portions of the body, said plug having a head to lie against the head of the body.

3. A top comprising a body portion having a passage therethrough, the upper portion of which is threaded and the lower portion unthreaded, and a plug lying in the passage and extending therefrom, said plug having a threaded portion and an unthreaded portion engaging the corresponding portions of the passage.

4. A plug comprising a body portion having a passage therethrough, the lower portion of which passage is tapered downwardly and the upper portion of which passage is provided with threads, and a plug lying in the passage and extending therefrom, said plug having a tapered portion fitting the tapered portion of the passage and having threads engaging the threads of the passage.

660,162. LOOM-REED. WILLIAM F. LUTHER, Fall River, Mass. Filed Apr. 3, 1900. Serial No. 11,309. (No model.)



Claim.—1. The combination in a loom-reed of a bar-strip having a groove made lengthwise of it in its inner face, caps on the ends of the bars, dents held in said bars, a wire held in said groove and extending out through the caps and fastened thereto, substantially as described.

2. As an article of manufacture a loom-reed consisting of the bars, the dents confined in said bars, the caps covering the ends of said bars, in combination with a wire extending through the middle of each bar lengthwise and having its ends fastened to said caps, substantially as described.

660,163. TYPE-SETTING MACHINE. PATRICK H. MCGRATH, Boston, Mass. Filed Jan. 4, 1900. Serial No. 389. (No model.)

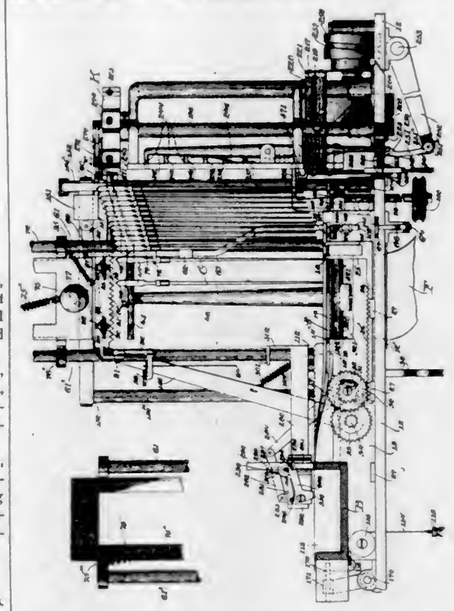
Claim.—1. In a type-setting machine, a line-receiver, and a space-holder movable independently of the line-receiver with the type as the line is being composed, and in the direction of the length of the line said space-holder carrying a series of spaces of different widths.

2. In a type-setting machine, a line-receiver, and a space-holder carrying a series of spaces of different widths and movable independently of the line-receiver and with the type as the line is being composed, said space-holder being detachably mounted upon its support and being movable in the direction of the length of the line.

3. In a type-setting machine, a line-receiver, a space-holder having a series of superposed spaces, each of a different width, and means for introducing said spaces one after the other into the line until the line is justified.

4. In a type-setting machine, a line-receiver, a space-holder supported over the line and carrying a plurality of endwise-abutting spaces of different widths, and means to move the space-holder in the direction of the line as the line is being composed.

5. In a type-setting machine, a line-receiver, a plurality of space-holders supported over the line and each space-holder having a plurality of spaces of different widths arranged in the order of their sizes, and means for ejecting spaces from the several space-holders into the line and from said line in succession to obtain justification.



6. In a type-setting machine, a space-holder provided with a series of spaces of different sizes arranged one behind the other in the direction of their lengths, said spaces being frictionally sustained by said space-holder.

7. In a type-setting machine, a line-receiver, a support, a space-holder movable along said support in the direction of the length of the line, having a plurality of endwise-abutting spaces, and means for introducing the spaces successively into the line until said line is justified.

8. In a type-setting machine, a line-receiver, a plurality of independently-movable space-holders supported over the line for movement in the direction of the length of said line, and each containing a column of spaces of different widths, the narrowest space being at the bottom, and means for ejecting the spaces from the space-holders into the line successively to obtain justification thereof, each space serving to force the preceding one from the line.

9. In a type-setting machine, a line-receiver, a plurality of space-holders mounted for movement in the direction of the length of the line and each having a space, and means for introducing the spaces into the line singly or a series of them simultaneously.

10. In a type-setting machine, a line-receiver, a plurality of space-holders mounted for movement in the direction of the length of the line, and each having a plurality of spaces of different widths arranged one behind the other in the direction of their length, and means for introducing the spaces into the line singly or a series of them simultaneously.

11. In a type-setting machine, a line-receiver and a space-holder movable with the type as the line is made up, and having a plurality of abutting spaces arranged one behind the other in the direction of their length and in accordance with their size.

12. In a type-setting machine, a line-receiver, a support, a plurality of space-holders movably carried by said support and each having a plurality of spaces arranged in abutting relation, and means for introducing the foremost spaces of the space-holders into the line in series or singly.

13. In a type-setting machine, a line-receiver, a space-holder having a plurality of spaces, means for introducing the spaces in succession into the line, each space serving to force the preceding space from the line.

14. In a type-setting machine, a line-receiver, a space-holder having a column of spaces of progressively-increased widths from the first one to the last, means for introducing said spaces in succession into the line, each space serving to force the preceding space from the line.

15. In a type-setting machine, a line-receiver, a support, a space-holder having a plurality of spaces, carried by said support for movement with the type in the direction of the line, means for introducing the spaces

in succession into the line, each space serving to force the preceding space from the line.

16. In a type-setting machine, a line-receiver, a support, a series of independently-movable space-holders on said support each having a plurality of spaces and means for forcing the spaces in succession into the line from each space-holder until the line is justified.

17. In a type-setting machine, a line-receiver a space-holder having a space, means for effecting the release of said space and introducing it into the line, and means for moving the type and space-holder before the space is fully freed both in the same direction.

18. In a type-setting machine, a line-receiver, a space-holder having a space, means for introducing said space into the line, and means for simultaneously feeding the space-holder and type both in the same direction.

19. In a type-setting machine, a plurality of space-holders each provided with a series of spaces of different sizes, means for introducing said spaces into the line, and means for positively moving the space-holders and the line both in the same direction and simultaneously.

20. In a type-setting machine, a support, a plurality of space-holders each provided with a space and carried by said support, and means for simultaneously advancing said space-holders in the direction of the length of the line while they are upon said support and during the movement of the type which are to compose the line.

21. In a type-setting machine, a line-receiver, a plurality of space-holders movable in the direction of the length of the line, and each provided with a plurality of spaces of different sizes, and a reciprocatory member adapted to engage the space-holders and positively move the same in unison.

22. In a type-setting machine, a line-receiver, a support, a plurality of space-holders carried by said support, each having spaces and beveled heads, and a serrated operating member the serrated portion of which is adapted to engage the beveled heads.

23. In a type-setting machine, a line-receiver, a support, a plurality of space-holders shiftable on said support, a member adapted to operate said space-holders in series and having triangular slots, pivoted switches in said slots, fixed studs extending through the slots, and means for actuating said operating member.

24. In a type-setting machine, a space recessed at one end, and having a correspondingly-shaped salient portion at the other end.

25. In a type-setting machine, a space presenting a wedge at one end, and a wedge-recess at the other end.

26. In a type-setting machine, a space-holder having a plurality of spaces, each space having a recess to receive the leading end of the space behind it.

27. In a type-setting machine, a space recessed at one end, and having a correspondingly-shaped salient portion at the other end, said space having its side walls longitudinally grooved.

28. In a type-setting machine, a space-holder provided with a series of spaces, each space having a recess to receive the space behind it, and being longitudinally grooved in its opposite side walls, and the space-holder having longitudinal tongues to fit into the grooves.

29. In a type-setting machine, a line-receiver, and a space-holder mounted for movement in the direction of the length of the line, said space-holder having a space and being provided with means to hold the space normally in its place in the line of type being set up.

30. In a type-setting machine, a line-receiver, and a space-holder mounted for movement in the direction of the length of the line, said space-holder having a space and being provided with means to hold the space normally in its place in the line of type being composed, and means to effect the release of said space.

31. In a type-setting machine, a line-receiver, a shiftably-mounted space-holder provided with a space and with a resilient catch to hold said space normally in place, and means to effect the release of said space.

32. In a type-setting machine, a space-holder having a plurality of spaces and provided with a resilient catch having an offset beveled upon its opposite sides.

33. In a type-setting machine, a line-receiver, a support situated directly over the line, and a space-holder suspended from said support, provided with a space.

34. In a type-setting machine, a line-receiver, a space-holder having a space, a support to hold the space-holder to permit the introduction of said space into the line, and the space-holder being shiftable on said support, a second support, and means for transferring the space-holder from the first-mentioned support to the second support.

35. In a type-setting machine, a line-receiver, a support shiftable in a direction at right angles to the line-receiver, and a movable space-holder carried by said support.

36. In a type-setting machine, a line-receiver, a shiftable support, a movable space-holder carried by said shiftable support, and a second support adapted to receive the space-holder from said shiftable support.

37. In a type-setting machine, a line-receiver, primary and secondary supports, a shiftable support adapted to coöperate with either of the first-mentioned supports, space-holders each provided with a space, and means to move the space-holders from the primary support to the shiftable support, and from the shiftable support to the secondary support.

38. In a type-setting machine, a line-receiver, a plurality of space-holders each having a space, means for entering the space-holders partially into the line, and means for subsequently entering said spaces simultaneously fully into the line.

39. In a type-setting machine, a line-receiver a space-holder shiftably mounted and having a space, means for ejecting said space from the space-holder and for entering said space partially into the line as the latter is being composed, means for advancing the space-holder and the type both in the same direction while said space is partially freed from the space-holder, and means for subsequently fully entering said space into the line.

40. In a type-setting machine, a line-receiver, a plurality of space-holders mounted for movement in the direction of the length of the line and each having a plurality of spaces, means for entering the foremost spaces into the line, and means for subsequently entering said foremost spaces fully into the line, and for afterward introducing the succeeding spaces from one or more of the space-holders into said line.

41. In a type-setting machine, a line-receiver, and a space-holder movable in the direction of the length of the line with the type as the line is being composed, said space-holder carrying a space and a space-driver.

42. In a type-setting machine, a space-holder having a plurality of spaces of different widths arranged in the order of their sizes and one behind the other in the direction of their lengths, said space-holder having means to retain the spaces normally in place.

43. In a type-setting machine, a movable space-holder having a space, carrying a space-driver to introduce said space, and a second and independently-supported driver movable into position to engage the first-mentioned driver.

44. In a type-setting machine, a line-receiver, a plurality of space-holders, individual drivers adapted to act upon the spaces in the respective space-holders, and means to act upon said drivers in series, whereby a plurality of spaces can be simultaneously discharged.

45. In a type-setting machine, a line-receiver, a plurality of space-holders each having a series of spaces, said space-holders being mounted over the line and for movement in the direction of the length of said line, a plurality of individual space-drivers carried by the respective space-holders, and means to simultaneously operate several of said individual space-drivers.

46. In a type-setting machine, a line-receiver, two line-stops shiftable relatively to each other and adapted to be engaged by the front and rear ends of the line, the front line-stop having a shoulder adapted to be engaged by an abutment for maintaining the said stop in its operative position, automatic means for removing the front line-stop and means for subsequently advancing the rear line-stop in the direction of the length of the line to shift the line.

47. In a type-setting machine, a line-receiver, a front line-stop held from sliding longitudinally, means to normally maintain said stop in its operative position, a rear line-stop, a traveling carrier to shiftably support said rear line-stop and automatic means for transversely removing the front line-stop, said means being rendered operative by the line as it expands during justification, and means for moving the carrier and rear line-stop in the direction of the length of the line after the front line-stop has been removed.

48. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the front and rear ends of the line, one of the stops being laterally movable directly by the line as it expands during justification, and automatic means for removing said laterally-movable stop when it has reached the limit of its expansive movement, a carrier detachably holding the other line-stop, and means to move the carrier in the direction of the length of the line after the first-named stop has been removed from in front of the line.

49. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the front and rear ends of the line, one of the stops in its operative position being fixed with reference to the line-receiver, means to hold said stop in its operative position while the line is being composed, said means being rendered inoperative by the line as it expands during justification, automatic means for removing the last-named stop when it is released by the expanding line, a galley and means for transferring the line to the galley after the release of said stop.

50. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the line and one of them being laterally movable solely by the action of the line as it expands during justification, automatic means for withdrawing said stop when the line is properly justified, and means for introducing spaces into the line.

51. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the line and one of them being laterally movable by the action of the line as it expands during justification, automatic means for withdrawing said laterally-movable stop when the line is properly justified, and means for introducing spaces of progressively-increased thickness one after the other into the line and afterward discharging said spaces from the line.

52. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the ends of a line, means for removing the front line-stop, a rack-bar for carrying the other line-stop, and the latter serving to advance the line, a pinion for engaging the teeth of the rack-bar, and means for operating said pinion.

53. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the ends of a line, means for removing the front line-stop, a galley, means for subsequently moving the rear end stop to shift the line with the front end stop removed, for a predetermined distance, toward the galley, and means for moving the line the rest of the distance and into the galley.

54. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the ends of a line, means for removing the front line-stop, a galley, means for subsequently moving the rear end stop to shift the line with the front end stop removed, for a predetermined distance, toward the galley, a slide, means for reciprocating said slide, and a line-engaging device.

55. In a type-setting machine, a line-receiver, two line-stops adapted to be engaged by the ends of a line, means for removing the front line-stop, a galley, means for subsequently moving the rear end stop to shift the line with the front end stop removed, for a predetermined distance, toward the galley, a reciprocatory slide, means for actuating the same, and a spring-controlled line-engaging device carried by the slide.

56. In a type-setting machine, a channel having a tortuous portion, a line consisting of a series of type, and a series of spaces transverse thereto, and means to aline the type and spaces by forcing one of the two series through said tortuous portion of the channel.

57. In a type-setting machine, a line-receiver having a channel to receive the type as the line is being composed, means to insert spaces transversely into said line and means to aline the type and spaces by turning the type on the central longitudinal axis of the line.

58. In a type-setting machine, a line-receiver, having a channel arranged to receive the type as the line is composed, a second channel intersecting the first-named channel at an angle and arranged to receive spaces, one of said channels having a tortuous portion and merging into the other channel, and means to force the composed line along said channels to thereby aline the type and spaces.

59. In a type-setting machine, a line-receiver, having a channel arranged to receive the type as the line is being composed, a second channel intersecting the first-named channel at an angle and arranged to receive spaces, the type-receiving channel having a tortuous portion and merging into the space-receiving channel, and means to force the composed line along said channels to thereby bring the type and spaces into alinement.

60. In a type-setting machine, a line-receiver, having two channels extending in the same direction, said channels being arranged at an angle to each other at one end, and coinciding at the opposite end, one of the channels having a twisted or tortuous portion, means to insert type in one channel, means to insert spaces at proper intervals in the other channel, and means to advance the composed line whereby the type and spaces moving along their respective channels are alined by passing into the portion of the line-receiver where the two channels merge or coincide.

61. In a type-setting machine, a space-holder and a magazine, one shiftable relatively to the other, and the space-magazine being adapted to contain spaces of different sizes, and means to automatically discharge from the magazine a series of spaces said series composed of spaces of progressively-decreasing size and to deliver the spaces of said series to the space-holder in the order of their sizes.

62. In a type-setting machine, a space-holder and a magazine one movable relatively to the other, and the magazine being adapted to contain spaces of different widths, and means to automatically discharge from the magazine a series of spaces, said series composed of spaces of progressively-varying size and to deliver the spaces of the series in the order of their sizes, and one behind the other in the direction of their lengths to the space-holder.

63. In a type-setting machine, a space-holder and a magazine, one shiftable relatively to the other, the space-magazine being adapted to contain spaces of different sizes, and means to automatically discharge from the magazine a series of spaces, said series composed of spaces of progressively-varying size and to deliver the spaces of the series to the space-holder in the order of their sizes, a line-receiver, and means for transferring the space-holder from the magazine to a position where the spaces can be introduced into the line.

64. In a type-setting machine, a space-holder and a magazine, one shiftable relatively to the other, the space-magazine being adapted to contain spaces of different sizes, and means to automatically discharge from the magazine spaces and to deliver them to the space-holder in the order of their sizes, a line-receiver, and means for transferring the space-holder from the magazine to a position where the spaces can be introduced into the line, and means for returning the empty or partially-empty space-holder to the magazine.

65. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a space-holder, means for moving the space-holder step by step past said channels, and means for supplying said space-holder with spaces when opposite the respective channels.

66. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a space-holder, means for moving the space-holder past the magazine, means for supplying said space-holder with spaces in different sizes from the respective channels, and means to hold the space-holder against oscillation while being supplied with spaces.

67. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a space-holder, means for moving the space-holder past the magazine, means for supplying said space-holder with spaces in different sizes from the respective channels, a line-receiver, a support, and means for transferring the filled space-holder from the magazine to the support.

68. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a space-holder, means for moving the space-holder past the magazine, means for supplying said space-holder with spaces in different sizes from the respective channels, a line-receiver, a support, means for transferring the filled space-holder from the magazine to the support, and means for ejecting a space or spaces from the space-holder into the line.

69. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a space-holder, means for moving the space-holder past the magazine, and means for supplying said space-holder with spaces in different sizes from the respective channels, a shiftable support, means for transferring the space-holder from the magazine to said shiftable support, means for ejecting a space or spaces from the space-holder while on said shiftable support, and means for transferring the empty or partially-empty space-holder from said shiftable support to the space-magazine.

70. In a type-setting machine, a space-magazine, a support, a space-holder having a plurality of spaces, carried by said support, a line-receiver, means for introducing a space or spaces into the line, means for transferring the space-holder from said support to said line whereby the space-holder is moved with the line as it is being composed, means for determining the removal of one or more of the spaces from the space-holder, and means for furnishing from the magazine to the space-holder a space or spaces for that or those removed.

71. In a type-setting machine, a space-magazine, a feeding device, means for operating the feeding device, a space-holder having a movable projection adapted to be engaged by said feeding device, and said projection serving to interrupt the movement of the feeding device, and space-supplying means controlled by said feeding device.

72. In a type-setting machine, a space-magazine, a conveyer, means for supplying a plurality of space-holders to said conveyer, means for imparting a step-by-step movement to said conveyer, means for preventing oscillation of the space-holders while upon the conveyer, and means to supply spaces to the space-holders when the conveyer stops.

73. In a type-setting machine, a space-magazine, a conveyer, a space-holder carried by said conveyer and provided with a movable projection, a feeling device, means for operating the feeling device, and the latter being adapted to engage said movable projection, and said movable projection being adapted to interrupt the action of the feeling device, a space-supplying device adapted to push a space from the magazine into the space-holder, and a member controlled by the feeling device and adapted when the movement of the latter is interrupted to actuate the space-supplying device.

74. In a type-setting machine, a space-magazine, a space-holder, a conveyer to support the space-holder and move the same past the space-magazine, means for supplying said space-holder with a space from the magazine, a support, and means for moving the space-holder from the conveyer onto said support.

75. In a type-setting machine, a space-magazine, a space-holder, a conveyer to support a space-holder and move the same past the space-magazine, means for supplying said space-holder with a space from said magazine, a support, and means controlled by the conveyer for moving the space-holder from the conveyer onto said support.

76. In a type-setting machine, a space-magazine, a space-holder, two shafts, wheels one loose and the other fixed on its said shaft, a chain passed around the wheels and provided with means to support said space-holder, a hammer fixedly connected with the shaft that loosely carries one of said wheels, to eject said space-holder from the chain, and means upon the loose wheel to operate the hammer.

77. In a type-setting machine, a space-magazine, a space-holder, a conveyer to support a space-holder and move the same past the space-magazine, means for supplying said space-holder with a space from the magazine, a support, a hammer to force said space-holder from the conveyer to the support, a spring for moving the hammer in one direction, and means controlled by the conveyer for moving the hammer in the other direction.

78. In a type-setting machine, a space-magazine, a space-holder, a line-receiver, a shiftable support for the space-holder, a conveyer to support a space-holder and move the same past the space-magazine, and means to transfer the space-holder from said support onto the conveyer, and means for supplying said space-holder with a space from the magazine.

79. In a type-setting machine, a primary and a secondary stationary support, a shiftable support adapted to cooperate with either of said first-mentioned supports, a space-magazine, a space-holder, a conveyer to support said space-holder and to move it past the space-magazine, means for supplying said space-holder with a space while on the conveyer, means for forcing the space-holder from the conveyer to the primary support, and from the latter to the shiftable support, a line-receiver, means to introduce the space from the space-holder into the line, and means for moving the space-holder from the shiftable support onto the secondary support, and from the latter onto the conveyer.

80. In a type-setting machine, two supports, a series of space-holders movably carried by the first support, a detent normally holding the space-holders on the first support, and means to operate the detent to release the primary space-holder, whereby the same can be passed to the second support.

81. In a type-setting machine, two supports, a series of space-holders movably carried by the first support, a detent normally holding the space-holders on the first support, and means to operate the detent to release the primary space-holder, and for simultaneously feeding said primary space-holder onto the second support.

82. In a type-setting machine, a space-magazine having a plurality of channels containing spaces of different sizes, a plurality of feeling devices corresponding in number with the channels, a series of space-holders, means to move the space-holders successively past the channels, and space-supplying means controlled by the feeling devices.

83. A line-receiver, means to introduce spaces into the line to justify the same; and means shiftable relatively to the line-receiver to engage the lower ends of the spaces after justification and before the justified line is shifted.

84. A line-receiver, means to introduce spaces into the line to justify the same; and a swinging manually-operable device to engage the lower ends of the spaces after justification and before the justified line is shifted.

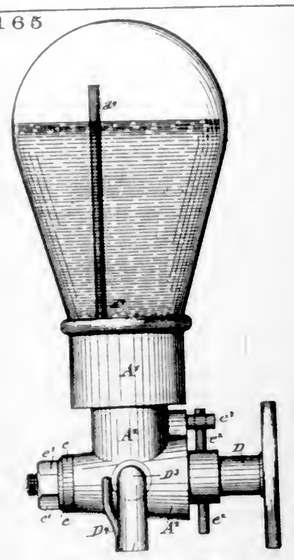
85. A space-holder having a series of abutting spaces disposed in progressively-increased sizes from the first to the last.

86. A space-holder having a series of abutting spaces disposed in progressively-increased sizes from the first to the last, a line-receiver; and means for introducing one or more of said spaces into the line commencing with the first or smallest one.

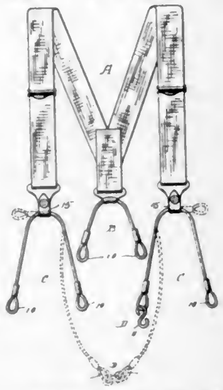
660,164. APPARATUS FOR DRAWING EFFERVESCENT LIQUIDS. JOHN NAGELDINGER, New York, N. Y. Filed Mar. 1, 1899. Serial No. 707,487. (No model.)

Claim.—An apparatus for drawing off effervescent liquids, consisting of a pressure-relieving chamber, a socket for supporting said chamber, said socket being provided with a supply-channel, a discharge-channel and a pressure-relieving channel, a gas-escape pipe in the pressure-relieving chamber connected with the pressure-relieving channel of the socket, a stop-cock below said socket, composed of a casing and a spigot, said casing being provided with a supply-pipe, a main spout and an auxiliary spout and the spigot with a supply-channel, a discharge-channel and a T-shaped pressure-relieving channel, said channel serving to connect successively the supply-pipe with the pressure-relieving chamber and the latter with the main and auxiliary spouts, said casing being further provided with an interior semicircular groove opposite the pressure-relieving channel of the spigot, and the spigot with a quadrantal groove connecting two adjacent ends of its T-shaped channel, and stop-pins on said socket and spigot for arresting the latter after making a half-turn in either direction, substantially as set forth.

660,165



660,165. SUSPENDERS. FREELAND W. OSTROM, Bridgeport, Conn., assignor of one-half to Stephen C. Osborne, same place. Filed Feb. 6, 1900. Serial No. 4,173. (No model.)



Claim.—1. In a suspender the combination with the two front suspender-ends each having two attaching eyes or loops, of a cross connection for the portions of the suspender-ends which carry the eyes or loops for the two front buttons of a nether garment, said connection being adjacent to said front eyes or loops.

2. In a suspender the combination with the two front suspender-ends each having two attaching eyes or loops, of a detachable connection between the portions of the suspender-ends which carry the eyes or loops for the two front buttons of a nether garment, said connection being adjacent to said front eyes or loops.

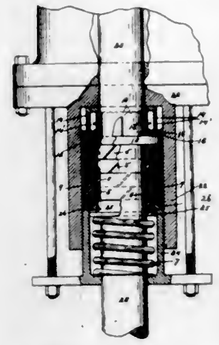
660,166. REACH CONNECTION FOR VEHICLES. OSCAR PATTACK, Mandan, N. D. Filed Mar. 7, 1900. Serial No. 7,707. (No model.)



Claim.—1. In combination with a reach for vehicles, irons clamped against opposite sides of the reach and having their end portions longitudinally flanged to embrace the sides of the reach and unitedly forming sectional cuffs, substantially as described.

2. In combination with a reach for vehicles, irons clamped against opposite sides of the reach and having their end portions widened and longitudinally flanged to embrace the four sides of the reach, and having the front ends inwardly curved to overlap the terminal of the reach and secured together, substantially as described.

660,167. PISTON-PACKING. CLARK F. RIGBY, Mannington, W. Va. Filed Aug. 8, 1899. Serial No. 726,579. (No model.)



Claim.—1. The combination of a fluid-container, a stuffing-box, a piston, a succession of split metallic rings embracing the piston and adapted to contract radially thereon, soft packing closely fitting the space between said rings and the wall of the box and compressible longitudinally for the purpose of contracting the split metallic rings, one end of the soft packing being subjected to longitudinal pressure of the steam or other fluid in the container, substantially as shown and described.

2. In an improved packing, the combination with a cylinder or other fluid-container, a stuffing-box, a piston, radially-compressible metallic packing embracing the rod, longitudinally-compressible packing inclosing the metallic packing and tightly fitting the box, said longitudinally-compressible packing being exposed at one end to the pressure or weight of the fluid in the cylinder or other container, substantially as shown and described.

3. In an improved packing, the combination with a stuffing-box, and a piston, of a radially-compressible metallic packing embracing the piston, a longitudinally-compressible packing inclosing the metallic packing and tightly fitting the stuffing-box, means for positively holding one end of the outer packing against longitudinal movement, and a spring for yieldingly holding the corresponding end of the metallic packing, and means for exerting longitudinal pressure on the opposite end of the metallic and longitudinally-compressible packings by the action of a fluid, substantially as shown and described.

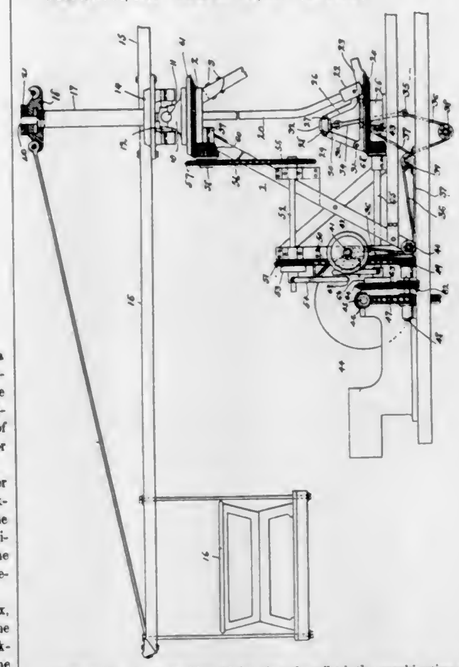
4. In an improved packing, the combination with a cylinder, a stuffing-box, and a piston, of radially-compressible metallic packing embracing the piston, longitudinally-compressible packing inclosing the metallic packing and tightly fitting the box, a non-yielding gland abutting against the outer end of the longitudinally-compressible packing, a spring between the gland and metallic packing for yieldingly holding the latter, the inner ends of the packing being subjected uniformly to the pressure of fluid in the cylinder, substantially as shown and described.

5. An improved piston-packing comprising a stuffing-box, a contractile metal packing embracing the piston, a soft packing inclosing the metal packing, the soft and metal packing being each positively held at one end against longitudinal movement and yieldingly held at the other end, means for longitudinally compressing the soft packing, a metallic ring 12 covering the inner ends of both packings, split ring 13 embracing the piston and bearing on ring 12, gasket 16 encircling ring 13 and bearing on ring 12, the gasket having inwardly and outwardly flaring edges on the side opposite ring 12, and flanged collar 14 confined at its inner end between the inner extremity of ring 13 and the fluid-container, and at its outer end bearing centrally on gasket 16 between its flaring edges, substantially as shown and described.

6. An improved piston-packing comprising a contractile metallic packing encircling the piston, soft packing inclosing the contractile packing, means for holding and adjusting the metal and soft packings longitudinally, gasket 16, ring 12 interposed between the gasket and said soft and metal packings, split ring 13 within the gasket, and collar 14 confined at one end between ring 13 and the fluid-container, said collar at its opposite end bearing on gasket 16, substantially as shown and described.

7. An improved piston-packing comprising a contractile metallic packing encircling the piston, soft packing inclosing the contractile packing, means for holding and adjusting the metal and soft packings longitudinally, gasket 16, ring 12 interposed between the gasket and the said soft and metal packings, split ring 13 apertured at its inner end, and the apertured collar 14 confined at its inner end between ring 13 and the fluid-container, said collar at its outer end bearing on gasket 16, substantially as shown and described.

660,168 MERRY-GO-ROUND. EDMUND P. SCHMITT, Chicago, Ill. Filed Mar. 11, 1899. Serial No. 708,702. (No model.)



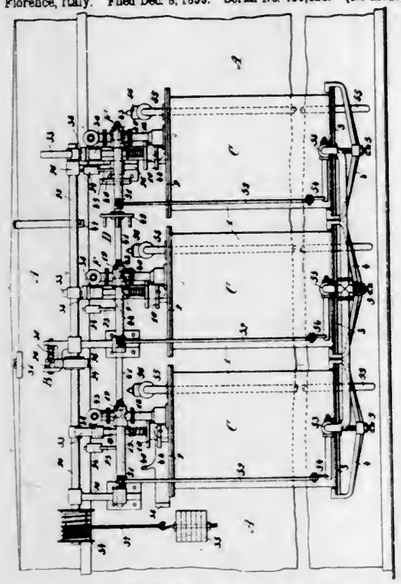
Claim.—1. In a machine of the class described, the combination of a revoluble passenger-carrying frame, a central universal-jointed support, a revoluble pillow-block maintained upon a rigid frame, means for rotating said pillow-block, a central vertical mast extending above said central jointed support, said mast having inclined rods extending radially therefrom to support the radiating arms of the carrying-frame, a central vertical shaft journaled within said mast and extending downwardly through and below the pillow-block and means for moving the lower end of said shaft laterally, substantially as described.

2. In a machine of the class described, the combination of a revoluble passenger-carrying frame, a central universal-jointed support, a revoluble pillow-block maintained upon a rigid frame, means for rotating said pillow-block, a central vertical mast extending above said central jointed support, said mast having inclined rods extending radially therefrom to support the radiating arms of the carrying-frame, a central vertical shaft journaled within said mast and extending downwardly through and below the pillow-block, means for moving the lower end of said shaft laterally while the machine or main frame is in motion, and means for rotating the lower end of said depending shaft around a common center at a different rate of speed than that imparted to the main frame, whereby an undulatory movement may be imparted to the arms of the latter during each revolution thereof, substantially as described.

3. The combination of a revoluble frame having radial arms from which seats are suspended, said frame being supported upon a central revoluble pillow-block, a double-trunnioned connection, interposed between the frame and pillow-block whereby the axis of said frame may be tilted obliquely to that of said block, means for rotating said pillow-block upon roller-bearings, a central shaft swiveled within said frame and arranged to extend below said pillow-block, a gear-wheel at the lower end of said shaft, the axis of which coincides with that of the pillow-block, a toggle-joint connecting the lower end of said shaft with a lug upon the periphery of said gear-wheel, means for actuating said toggle-joint to tilt said shaft, and means for simultaneously rotating said gear-wheel, substantially as described.

4. The combination of a revoluble seat-carrying frame pivotally mounted upon a central revoluble pillow-block having a vertical axis of a motor in operative connection with said revoluble pillow-block, shaft 20, gear 24 having its axis coincident with that of the pillow-block, guide-flange 23 in sliding engagement with the lower end of said shaft, a toggle-joint connecting the lower end of said shaft with said gear, link 34, cords 36 37, in operative connection with a windlass and pulleys whereby they may be simultaneously moved in opposite directions, and means for actuating the gear-wheel 24 independently of said revoluble pillow-block, substantially as described.

660,169. ACETYLENE-GAS GENERATOR. GEORGE G. SMITH, Florence, Italy. Filed Dec. 8, 1899. Serial No. 739,628. (No model.)



Claim.—1. In a gas-generator, the combination, with a gas-holder having a movable part, of a closed receptacle adjacent to and independent from said gas-holder and adapted to contain water; a conduit between said gas-holder and receptacle; a case, containing the gas-producing agent, within the receptacle; means for forming an opening in the case; a conduit for supplying the receptacle with water; a valve in said conduit; and devices controlled by the movable part of the gas-holder for operating the means for forming an opening in the case and for opening the valve in said water-supply conduit.

2. In a gas-generator, the combination, with a gas-holder having a movable part, of a closed receptacle independently mounted adjacent to said holder; a conduit between the gas-holder and receptacle; means for supplying said receptacle with water; a case for containing the gas-producing agent and mounted within the receptacle; a tool for puncturing said case; and a device controlled by the movable part of the gas-holder for operating said tool; and means controlled by the tool for turning on the water-supply to the receptacle.

3. In an acetylene-gas generator, the combination, with a gas-holder and its bell, of a closed receptacle; a case containing carbid located within the receptacle; means controlled by the bell for puncturing said case; and means also controlled by the bell as it descends for supplying said receptacle with water.

4. In an acetylene-gas generator, the combination, with the bell of a gas-holder, of a closed receptacle; a case containing carbid located within the receptacle; a water-tank in communication with said receptacle; a valve in the conduit between said tank and receptacle; means controlled by the bell for actuating said valve; a tool for punching said carbid-case; and means controlled by the bell for actuating said tool.

5. In a gas-generator, the combination, with a gas-holder, of a series of closed receptacles; cases containing the gas-producing agent and located within the receptacles; means for forming openings in said cases; and mechanism for successively actuating said means.

6. In an acetylene-gas generator, the combination, with the bell of a gas-holder, of a closed receptacle located adjacent to and independent of the gas-holder; a carbid-case within the receptacle; a tool working through a wall of the receptacle and serving to perforate the carbid-case; and means for actuating said tool.

7. In a gas-generator, the combination, with a gas-holder, of a closed receptacle; a case containing the gas-producing agent and located in said receptacle; a punch for forming an opening in said case; a movable shaft; and means carried by said shaft for actuating the punch.

8. In a gas-generator, the combination, with a receptacle, of a case containing the gas-producing agent, said case being located in said receptacle; a punch operating through a wall of the receptacle and serving to perforate the case; a shaft carrying a device for actuating the punch; a gas-holder; and a conduit for conveying the gas generated in the receptacle to said gas-holder.

9. In a gas-generator, the combination, with a receptacle, of a case containing the gas-producing agent, said case being located in the receptacle; a punch for perforating the case; a shaft carrying a wiper and normally locked against rotation; means for locking said shaft; a gas-holder having a bell; a device carried by said bell and adapted to operate the shaft-locking means to release the shaft; and means for actuating said shaft when released.

10. The combination, with a receptacle, of a case containing a gas-producing agent; a punch; a protector for preventing the punch from being operated except at the proper time; means for actuating the protector; and means for actuating the punch.

11. The combination, with a receptacle, of a case containing a gas-producing agent; a punch; means for actuating said punch; a protecting-cap for the punch; and means for withdrawing said cap prior to the operation of the punch.

12. The combination, with a receptacle, of a case containing a gas-producing agent; a punch; a swinging protector; means for withdrawing said protector; and means for actuating the punch.

13. The combination, with a receptacle, of a case containing a gas-producing agent; a tool working through a wall of the receptacle and adapted to perforate said case; means for actuating said tool; and a movable protector for preventing the operation of said tool except at the proper time.

14. The combination, with a receptacle, carrying a punch, of a case; means for normally elevating said case above the punch; and means for forcing said case upon the punch.

15. The combination, with a receptacle, of a punch located therein; a case containing a gas-producing agent and located within the receptacle; a spring normally holding said case out of contact with the punch; and means for forcing the case upon the punch.

16. The combination, with a receptacle, of a punch in the bottom thereof; a case containing a gas-producing agent; a spring for normally elevating the case out of contact with the punch; and means for forcing said case upon the punch.

17. The combination, with a receptacle, of a punch in the bottom thereof; a case containing carbid; means for forcing said case against the punch; and means for introducing water into the receptacle.

18. The combination, with a receptacle, of a stationary punch located therein; a case containing a gas-producing agent; a movable punch working through a wall of the receptacle; means for forcing the case against the stationary punch; and means for actuating the movable punch.

19. The combination, with a receptacle, of a case containing a gas-producing agent; a device for perforating said case; a water-supply pipe; means for controlling the supply of water to said receptacle; and a device actuated by the receptacle-perforating device for operating said means for controlling the supply of water.

20. The combination, with a gas-holder, of a receptacle independent of said holder; a conduit connecting said holder and receptacle; a case containing a gas-producing agent; means for simultaneously perforating said case at different points; and means for supplying water to the receptacle at the time the case is perforated.

21. The combination, with a gas-holder, of a closed receptacle; a conduit between the receptacle and gas-holder; a case containing carbid and located in said receptacle; a stationary punch within the receptacle; a reciprocating punch working through a wall of the receptacle; and means for introducing water to the receptacle.

22. The combination, with a gas-holder, of a receptacle; a case containing carbid and located in said receptacle; means for perforating said case; means for introducing water into the receptacle; a valve in the water-supply means and controlled by the means for perforating the case; and a conduit for conveying the generated gas to the gas-holder.

23. The combination, with a gas-holder, of a receptacle; a conduit between said gas-holder and receptacle; a case containing carbid located in the receptacle; means for supplying water to the receptacle; means for perforating the receptacle; and means for turning on the water simultaneously with the perforating operation.

24. The combination, with a closed receptacle, of a case containing carbid located therein; a punch working through one end of the receptacle; means for actuating said punch; a lever actuated by the punch; a water-supply pipe leading to the receptacle; and a valve in the water-supply pipe actuated by said lever.

25. The combination, with a receptacle, of a water-supply pipe communicating therewith; a carbid-case located in the receptacle; a punch for perforating said case; and a valve in the water-supply pipe controlled by the punch.

26. The combination, with a receptacle, of a carbid-case contained therein; a punch for perforating said case; a pivoted lever actuated by the punch; a water-supply pipe communicating with the receptacle; a valve in said pipe and actuated by the pivoted lever; and a weighted lever carried by the valve.

27. The combination, with the bell of a gas-holder, of a receptacle communicating with said holder; a case containing a charge of carbid, the gas from which will fill the gas-holder; a punch for perforating the carbid-case; means for actuating the punch; a water-supply conduit leading to the receptacle; and means carried by the bell for controlling the movement of the punch-actuating means.

28. The combination, with a gas-holder, of a series of receptacles in communication therewith; a series of punches; mechanism for actuating said punches; a carbid-case in each receptacle; and means controlled by the bell of the gas-holder for setting in operation a punch for perforating a carbid-case in one of the receptacles communicating with said gas-holder.

29. The combination, with a series of punches, of a shaft having a series of wipers differently disposed thereon; a gas-holder communicating with each respective receptacle; a series of receptacles; and a series of carbid-cases contained in the receptacles and adapted to be successively perforated by the punches.

30. The combination, with a rotary shaft carrying a wiper, of means normally tending to rotate said shaft; a stop for restraining the movement of the shaft; means for withdrawing the stop; a punch actuated by the wiper; and a receptacle containing a case adapted to be perforated by the punch.

31. The combination, with a rotary shaft carrying a wiper, of means the tendency of which is normally to rotate said shaft; a ratchet carried by the shaft; a pawl engaging the ratchet; means for releasing the pawl; a punch actuated by the wiper when the shaft is released; and a receptacle containing a case adapted to be perforated by the punch.

32. The combination, with a rotary shaft carrying a wiper, of a drum secured to said shaft; a rope, carrying a weight, coiled on the drum; a ratchet secured to the shaft; a pawl in engagement with said ratchet; means for releasing said pawl; a punch operated by the wiper; a spring for returning said punch to its normal position; a receptacle through a wall of which the punch operates; and a case containing a gas-producing agent located in the receptacle.

33. The combination, with a punch, of means for actuating said punch; a hinged protector normally located over the punch; and a shaft carrying a wiper for withdrawing said protector.

34. In an acetylene-gas generator, the combination, with the bell of a gas-holder, of a gas-tight receptacle; a tank to supply the same with water; a sealed carbid-containing case within said receptacle; means within the receptacle and outside the gas-holder for puncturing the case when the latter is to be developed; and means released by the fall of the bell for operating the puncturing device of the receptacle and for establishing communication between the said water-tank and the receptacle as the bell sinks below a certain level.

35. In an acetylene-gas generator, the combination, with a gas-holder, of a series of receptacles each containing a case of carbid; and means in connection with each receptacle and controlled by the bell of the gas-holder for consecutively punching the carbid-case therein and feeding water to said receptacles.

36. In an acetylene-gas generator, the combination, with a gas-holder and bell, of a series of separate carbid-receptacles to contain hermetically-sealed carbid-cases; means for puncturing the carbid-cases; a separate water-tank for each receptacle to contain the proper quantity of water to develop the carbid therein; and means actuated by each fall of the bell of the gas-holder below a certain point to puncture the carbid-case in and supply water to the next consecutive carbid-receptacle.

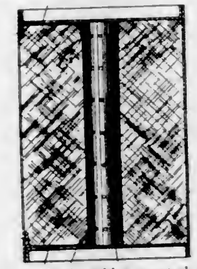
37. In an acetylene-gas generator, the combination, with a gas-holder and bell, of separate receptacles adapted to contain sufficient hermetically-sealed carbid to fill the bell with gas when the carbid is developed; a removable bottom plate for each of said receptacles having a punch; a spring adapted normally to hold a carbid-case above the punch; a movable punch; a stuffing-box to guide the same through the cover of the receptacle; a flange supported on the movable punch above the carbid-case; means for supplying water to each receptacle; and means operated at each fall of the bell below a certain level and serving to actuate the movable punch and to turn on the water-supply to said receptacle.

38. In an acetylene-gas generator, the combination, with a gas-holder and bell, of a row of complete carbid-receptacles mounted in proximity thereto; a rotary shaft mounted along the row of receptacles; a puncturing device for each receptacle; a series of striker-arms radially equidistant from each other on the shaft; means for rotating said shaft a part of a turn at each descent of the bell and thereby imparting a blow to the next consecutive puncturing device; means for supplying water to the receptacles; and means operating in connection with the puncturing devices for opening the water-supply to said carbid-receptacles.

39. The combination, with a gas-holder and bell, of a series of separate carbid-receptacles; sealed carbid-cases therein; means actuated by the bell for puncturing said cases in each receptacle consecutively; protecting-caps to cover the puncturing device; and means for consecutively withdrawing said caps before the puncturing mechanism is operated.

40. In an acetylene-gas generator, the combination, with a gas-holder and bell, of a series of carbid-receptacles having sealed carbid-cases; a puncturing device for each receptacle; a separate water-tank for each receptacle; means for consecutively operating each receptacle at each fall of the bell beyond a certain point; a petcock at the bottom of each receptacle; and means controlled by the puncturing device for closing said petcock as soon as the puncturing device is operated.

660,170. CALCIUM-CARBID CARTRIDGE. GEORGE G. SMITH, Florence, Italy. Original application filed Dec. 8, 1899, Serial No. 739,628. Divided and this application filed May 17, 1900. Serial No. 17,054. (No model.)

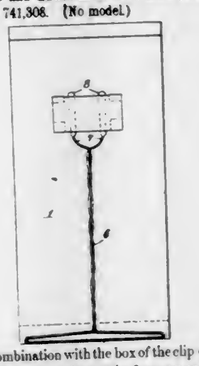


Claim.—1. In combination with a receptacle for containing calcium carbid, a perforated tube located in said receptacle and having free longitudinal overlapping edges.

2. In combination with a receptacle for containing calcium carbid, guides secured to the inner wall of said receptacle; and a perforated tube having free longitudinal overlapping edges inserted between said guides.

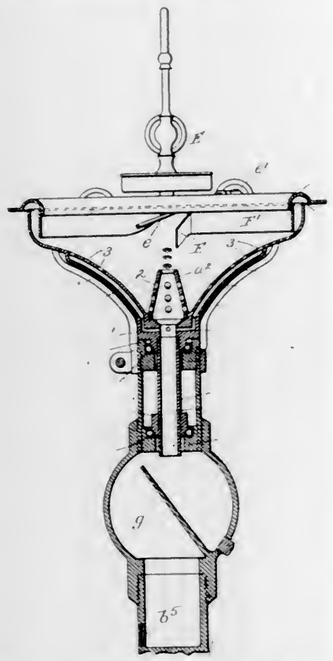
3. In combination with a receptacle for containing calcium carbid, radial arms secured to the inner wall of said receptacle adjacent to the top and bottom thereof, said arms having guiding-flanges; and a perforated tube having free longitudinal overlapping edges inserted between said guiding-flanges.

660,171. SUPPORT FOR BOXES, CARDS, OR SIMILAR ARTICLES. GEORGE D. SNELL, Denver, Colo., assignor of two-thirds to Arthur M. Whaples and Edwin A. Kistler, same place. Filed Dec. 22, 1899. Serial No. 741,306. (No model.)



Claim.—The combination with the box of the clip comprising a square, thin flat body of metal having wings at its four corners, with a rod twisted out of a length of wire first into a loop, then from the center of said loop into a rod, then having its free ends spread out from the twisted-rod portion but arranged substantially parallel with it, then having its ends formed into thin wedges, substantially as described.

660,172. DENTAL CUSPIDOR. HERBERT J. TARR, Chicago, Ill. Filed Dec. 3, 1898. Serial No. 698,209. (No model.)



Claim.—1. In a cuspidor, a rotary bowl having its lower portion provided with a tubular discharge stem or spindle the bore of which extends downwardly and centrally from the lowest point in the bowl, the latter being also constructed with inner and outer walls having between them space affording an overflow-chamber which is arranged to receive the overflow from the interior of the bowl and discharge the same into the rotary and tubular stem depending from the bottom of the bowl; suitable bearings upon which the bowl is arranged to rotate; and means for forcing a jet of water tangentially against the interior of the bowl to both rotate and cleanse the same, the water being discharged from the bowl by way of the said rotary and tubular stem.

2. In a cuspidor, a rotary bowl having its lower portion provided with a tubular discharge stem or spindle the bore of which extends downwardly from the lowest point in the bowl; ball-bearings arranged lateral to the said tubular and rotary discharge-stem and upon which the bowl rotates; the said bowl being constructed with inner and outer walls providing an overflow-chamber arranged to receive the overflow from the bowl and discharge the same into the rotary and tubular stem depending from the bottom of the bowl; and means for forcing a jet of water tangentially against the inner surface of the bowl to both rotate and cleanse the same, the water being discharged from the bowl by way of the latter's rotary and depending stem.

3. In a cuspidor, a rotary bowl adapted and arranged for continuous rotation and constructed and provided with inner and outer walls, the space between said walls being adapted to provide an overflow-chamber; said chamber being provided with suitable inlet and outlet openings, the former leading from the interior of the rotary bowl to the upper part of the said overflow-chamber, and the latter leading from the lower portion of said chamber to the main discharge-passage; and means for maintaining a jet of water for rotating the said bowl.

4. In a cuspidor, a rotary bowl having a downwardly-extending tubular discharge stem or spindle, and also provided with an overflow-chamber having suitable inlet and outlet passages, the latter leading to the bore of said stem or spindle; a removable perforated cap covering the upper end of the bore of the tubular stem or spindle, and means for maintaining a jet of water for rotating the bowl.

5. A cuspidor comprising a rotary bowl adapted and arranged for continuous rotation, and provided with a downwardly-extending tubular or hollow discharge stem or spindle; a tubular support or standard adapted to receive the said tubular and rotary stem or spindle, a stationary guard arranged above the perimeter of said bowl and means for maintaining a jet of water for rotating the bowl.

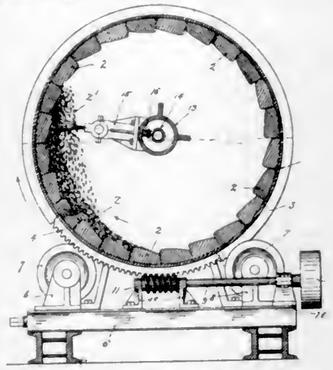
6. A cuspidor comprising a rotary bowl adapted and arranged for continuous rotation and provided with a downwardly-extending tubular or hollow discharge stem or spindle, a tubular support or standard adapted at its upper end to receive and form a bearing for the said rotary stem or spindle, a guard arranged above the perimeter of the bowl and supported upon arms which radiate or extend upwardly from the upper end of said tubular support or standard, and means for maintaining a jet of water for rotating and cleansing the bowl in the manner described.

7. A cuspidor comprising a rotary bowl adapted and arranged for continuous rotation and provided with a downwardly-extending tubular discharge stem or spindle; a tubular support or standard adapted at its upper end portion to receive and form a bearing for the said tubular and rotary stem or spindle, an annular guard arranged above the bowl and provided on its under side with an annular groove adapted to receive the perimeter or edge of the bowl, the said guard being supported upon arms which radiate or extend upwardly from the upper end of said support or standard; and means for maintaining a jet or stream of water for rotating the bowl.

8. A cuspidor comprising a rotary bowl adapted and arranged for continuous rotation, and provided with a downwardly-extending and hollow discharge stem or spindle; a support or standard adapted at its upper end to receive the said rotary discharge stem or spindle, a split collar clamped on the upper end of said support or standard and provided with upwardly-divergent supporting-arms, a guard arranged above the perimeter of the bowl and supported upon said arms, and means for maintaining a jet of water for rotating said bowl.

9. A cuspidor comprising a single rotary bowl constructed with double walls, the space between said walls being adapted to provide an overflow-chamber, the bowl being provided with a principal discharge-opening and also with one or more supplemental discharge-openings, the latter leading from the interior of the bowl to the said space between the said walls of the bowl, and the said overflow-chamber being provided with one or more ducts or channels whereby the overflow will be discharged into the said principal discharge-channel leading from the interior of the bowl; and means for maintaining a jet of water for rotating the said bowl.

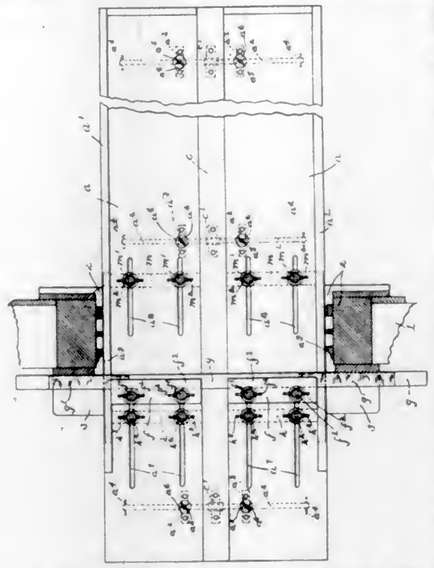
660,173. METHOD OF TREATING REFRACTORY ORES. JOHN C. TELLER, Minneapolis, Minn., assignor to the Minnesota Ore Reduction Company, same place. Original application filed July 22, 1898, Serial No. 686,566. Divided and this application filed Sept. 28, 1899 Serial No. 731,909. (No specimens.)



Claim.—The method of treating refractory ores, which consists in placing a body of pulverized ore within a tubular shell, rotating the shell with such velocity as to cause successive portions of the ore to be carried upward past the horizontal plane, passing through the axis of the shell, whence they fall in a free shower of separate particles, and projecting a flame through the falling particles, substantially as and for the purposes set forth.

660,174. PORTABLE WINDOW-PLATFORM. ALFRED H. TISCHER, Minneapolis, Minn. Filed Mar. 22, 1900. Serial No. 9,657. (No model.)

Claim.—1. The combination with the platform having the slots a^1 and a^3, of the stop-block m adjustably secured to the under side of said platform by nutted bolts passed through said slots a^3, the adjustable stop f provided with a projection or ledge f^3 secured to the upper side of said platform by the nutted bolts passed through said slots a^1, and the loose lock-bar g mounted on said platform coöperating with said stop f and projection or ledge f^3 to lock the platform of the window, substantially as described.

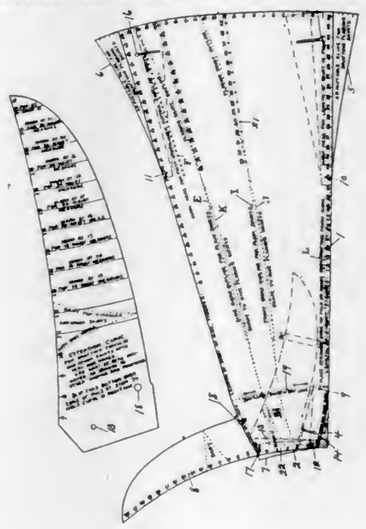


2. The combination with the laterally-adjustable platform comprising the sections a and having the keeper-brackets a^3, of the rods a^2 working through said keepers, and means for securing said platform to a window, substantially as described.

3. The combination with the platform comprising the sections a having the keeper-brackets a^3 and connected by the rods a^2, of the spacing-board b having the pronged brackets b' engageable with said rods a^2, substantially as described.

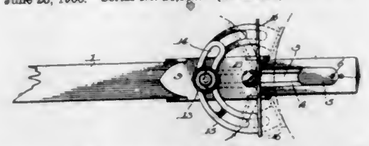
4. The combination with a platform provided with a depending stop-block m, of the block f adjustably secured on said platform, the stop-block k provided with the ledge or projection k' and adjustably secured on the said platform, and the loose lock-bar g coöperating with said stop f, substantially as described.

660,175. ADJUSTABLE CHART. WILLIAM R. WILLIAMS, Lawrence, Kans. Filed Mar. 15, 1900. Serial No. 8,747. (No model.)



Claim.—A skirt-cutting chart having the shape of one of the gores of a skirt, the bottom edge thereof having the correct curvature for drafting the bottom of the gore, the pivoted extensions 5 and 6 for drafting flaring skirts, the pivoted extension 8 having one edge thereof, when extended, a continuation of the curve of the waist-line, the pivoted extension 4 for drafting front gores, and the scales E, F, I, J, K, and L, all substantially as shown and described.

660,176. GAGE. CHARLES F. WINSLOW, Pawtucket, R. I. Filed June 25, 1900. Serial No. 21,566. (No model.)



Claim.—1. The combination with a slotted bar; of a plate slidably mounted therein and having a marking-pin secured thereto, means for locking the plate in adjusted position, a sleeve upon the bar, a bolt thereon, face-plates hinged to the bolt, and means for locking said plates upon the bolt.

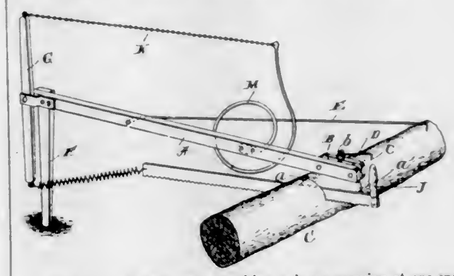
2. The combination with a slotted bar; of a plate slidably mounted therein, a marking-pin secured to the plate, means for locking the plate in adjusted position, an adjustable sleeve upon the bar, a bolt projecting from the sleeve, face-plates hinged to the bolt, slotted segments to the face-plates, and means for binding said segments in adjusted position.

3. The combination with a slotted bar; of a plate slidably mounted within the slot, a marking-pin secured to the plate, means for locking the plate in adjusted position, an adjustable sleeve upon the bar, a bolt secured to the sleeve, face-plates hinged to the bolt at opposite sides thereof, slotted segments secured to the face-plates, and a set-screw within said slots and engaging the sleeve, said screw adapted to lock the plates and segments in adjusted position.

4. The combination with a slotted bar having a marking-pin therein; of a plate slidably mounted within the slot, a marking-pin secured to the plate, means for locking the plate in adjusted position, an adjustable sleeve upon the bar, a bolt secured to the sleeve, face-plates hinged to the bolt at opposite sides thereof, slotted segments secured to the face-plates, and a set-screw within said slots and engaging the sleeve, said screw adapted to lock the plates and segments in adjusted position.

5. The combination with a slotted bar having an adjustable marking-pin thereon; of a slidable sleeve upon the bar, hinged face-plates thereon, and means for locking the plates in adjusted position.

660,177. DRAG-SAW. DAVID ADKINS and GOTTHILF F. JOHN, Pond, Ark. Filed Feb. 7, 1900. Serial No. 4,915. (No model.)

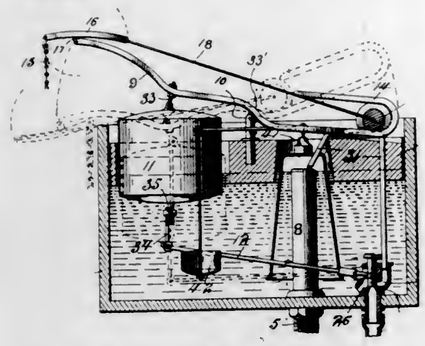


Claim.—1. A drag-saw comprising a beam carrying at one end means for attaching it to the object to be sawed, and at its opposite end a supporting member, a lever arranged transverse the said beam, and intermediately pivoted to its outer end, one end of the lever projecting beyond the beam, and a downwardly-extending spring having one end connected to the projecting end of the lever and its opposite end connected to the said saw, and a spring connected to the opposite end of the said intermediately-pivoted lever, substantially as described.

2. A drag-saw comprising a beam A having one end resting directly upon the object to be sawed, the said end of the beam having separated downwardly-extending hooks, and a horizontally-extending hook situated at a point intermediate the said downwardly-extending hooks, a rod E having one end connected to the beam intermediate its ends, and extending diagonally therefrom, and having a hook at its free end for attachment to the object being sawed, a saw, the outer end of the beam carry-

ing a movable member connected with one end of the saw, and the opposite end of the saw having a handle, substantially as described.

660,178. FLUSHING-TANK FOR WATER-CLOSETS. CHARLES J. BALL, Los Angeles, Cal. Filed May 11, 1900. Serial No. 16,325. (No model.)



Claim.—1. The combination with a flushing-tank, of an inlet water-valve, a casing therefor having two separate chambers communicating when said valve is open and separated by the inlet-valve when the latter is closed, and means automatically opening and closing said valve.

2. The combination with a flushing tank and pipe, of an inlet-valve casing having two separate chambers, a valve simultaneously admitting water to both chambers when open but separating the chambers when closed, an outlet from one chamber to the tank, and an outlet from the other chamber to the flushing-pipe.

3. The combination with a flushing tank and pipe, of an inlet-valve casing having two chambers therein, an inlet-pipe communicating with said chambers, an inlet-valve controlling the admission of water from said pipe and preventing communication between said chambers when the valve is closed, means automatically opening and closing said valve, and a discharge-opening from one of said chambers into the tank and from the other chamber into the flushing-pipe.

4. The combination with a flushing-tank, of means discharging water therefrom, devices admitting water thereto, a main operating-lever controlling said means and devices, a shifting weight on said lever, an auxiliary lever fulcrumed on said main lever and connections between said weight and auxiliary lever.

5. The combination with the flushing tank and pipe, of an inlet-valve casing, a spout leading therefrom to the tank, an afterflow-pipe leading from said casing to the flushing-pipe, an inlet-valve in said casing, a lever connected to said valve, a plunger-float connected to said lever, a main operating-lever connected to said plunger-float, a shifting weight on one arm of said main lever and an auxiliary lever fulcrumed on the other arm, connections between said weight and auxiliary lever, and a pull-chain also connected to said auxiliary lever.

6. The combination with a flushing-tank, and its operating mechanism, of a main operating-lever having a shifting weight on one arm, an auxiliary lever fulcrumed on the other arm, and connections between said weight and auxiliary lever.

7. In a flushing-tank the combination with the main operating-lever, of a shifting weight on one arm of said lever, means for tilting said lever, and means controlling the shifting movements of said weight when the lever is tilted.

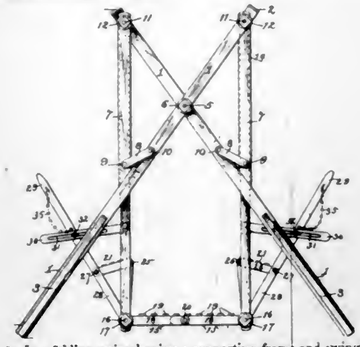
8. The combination with the main operating-lever, of a shifting weight on one arm of said lever, a rod connected to said weight and means controlling the shifting movements of said rod and weight.

9. The combination with the main operating-lever, of a shifting weight on one arm of said lever, an auxiliary lever fulcrumed on the other arm thereof, and a bifurcated rod connected to said auxiliary lever and embracing said weight.

10. The combination with the main operating-lever, of a shifting weight on one arm of said lever, an auxiliary lever pivoted on the other arm thereof so as to lie above or below the same, a rigid connection between the weight and auxiliary lever, and a pull-chain connected to the auxiliary lever.

660,179. FOLDING SWING. WILLIAM H. BOGGS, Covington, Ohio. Filed Apr. 21, 1900. Serial No. 13,677. (No model.)

Claim.—1. The combination in a folding swing, with the supporting-frame thereof; of the swinging arms pivotally connected to said supporting-frame; a platform pivotally connected to said swinging arms, and formed of sections or foot-rests, pivotally connected or hinged together so as to break joints one with the other; the folding seats, each provided with a suitable back portion and legs or standards pivotally and detachably supported, so as to permit said swing to fold without the removal or disconnection of any of the parts.



2. In a folding swing having a supporting-frame and swinging arms; the chairs or settees each comprising the following elements, viz: the seat portion 21; the legs or supports 22 connected by a brace 23, said legs formed with slotted ends 24 and pivotally connected to, and supporting the forward end of said seat portion; the back portion, provided with the side members 28, which have a pivotal connection with the rear end of said seat portion, and depend and form the legs or standards having slotted ends; both forward and rear sets of legs having their slotted ends detachably meeting at one point; the straight and slotted side arms 30, adjustably connected to said back portion so as to incline said chairs or settees; all adapted to be knocked down and folded together, substantially as and for the purpose described.

3. The combination in a folding swing with the chairs or seats thereof of the inclined cross-bars, which support the swing, and intersect or cross each other in the form of a "sawbuck;" the central brace-rod which pivotally connects said cross-bars, in the manner of a hinge; the vertical standards pivotally supported at their tops, and having a bearing and resting at their lower ends on said cross-bars; the links which connect said cross-bars and vertical standards; the swinging or hanging arms, so pivotally connected at their tops with the supporting cross-bars, as to oscillate or swing; the platform or foot-rests, formed of hinged sections and pivotally supported at each end; the whole being suitably braced and adapted to fold up without the removal of any of the parts; substantially as and for the purposes specified.

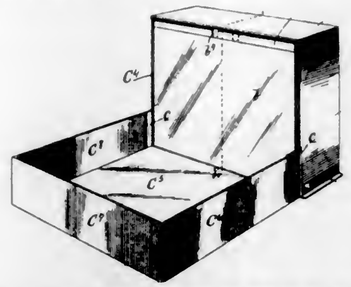
4. The combination in a swing, of the supporting cross-bars, which intersect or cross each other in the form of a "sawbuck;" the transverse braces connecting each set of cross-bars at their lower ends or base; the short upright braces which extend up a suitable distance from the base, and connect with each of the cross-bars; the central brace-rod which pivotally connects each set of cross-bars; the vertical standards pivotally supported and connected at their tops by a brace-rod, and having a bearing, and resting at their lower ends on said cross-bars; the links which connect said cross-bars and vertical standards; the swinging or hanging arms so pivotally supported and connected at their tops by the brace-rods and the cross-bars, as to oscillate or swing; said brace-rods which pass through near the tops of, and pivotally support and connect the cross-bars, vertical standards and swinging arms; the platform or foot-rests, pivotally supported at each end to the swinging arms, and formed of hinged sections; the folding chairs or settees pivotally connected to said swinging arms having straight side arms, and legs or standards formed with slotted ends; all adapted to knock down and fold together without the removal of any of the parts; substantially in the manner and for the purpose described.

660,180. MAGAZINE PLATE-HOLDER. CHARLES L. BOUTON, Chicago, Ill., assignor of one-half to William S. Kenny, same place. Filed Jan. 9, 1899. Serial No. 701,571. (No model.)

Claim.—1. The combination of a plurality of flexibly-connected plate-carriers and an inclosure for the said plate-carriers made larger than and adapted to surround the carriers adapted to exclude light therefrom during transportation and handling and to be opened to expose the plates after the plates with the inclosure have been inserted in a camera.

2. The combination of a plurality of plate-carriers and a two-part inclosure for the same made larger than and adapted to surround the carriers; said plate-carriers and the parts of the inclosure being flexibly connected at their bottom edges.

3. A plate-holder comprising a plurality of plate-carriers, front and rear walls having flanges at their side and top edges which extend over the side edges of the carriers and overlap to form an inclosure for the plates and a flexible section secured to and connecting the lower edges of the plate-carriers and the said front and rear walls.



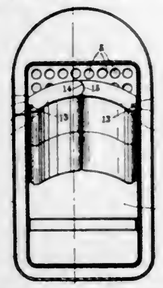
4. A plate-holder comprising a plurality of plate-carriers, front and rear wall flanges at their side and top edges to form an inclosure for the plate-carriers and a flexible section joining the lower edges of the plate-carriers and of said front and rear walls, the flanges of one of said walls and the ends of the flexible section being provided with flaps of flexible material adapted when the front and rear walls are closed, to meet for the purpose of excluding light from the plates.

5. The combination of a plurality of plate-carriers, plates permanently secured thereto, flanged front and rear walls adapted to surround and to form an inclosure for the plate-carriers and plates, and a flexible section adjoining the lower edges of the said plate-carriers with the lower edges of said front and rear walls.

6. The combination of a plurality of plates, plate-carriers to which said plates are attached, said plate-carriers being extended beyond the plates at their upper margins, and front and rear walls flanged to form an inclosure for the plates said plate-carriers and the front and rear walls being flexibly joined to each other at their lower edges.

7. The combination of a plurality of plate-carriers, flanged front and rear walls forming an inclosure adapted to completely surround the plate-carriers, said plate-carriers and front and rear walls being flexibly joined to each other, and a spring interposed between the said rear wall and said plate-carriers.

660,181. STRAW-BURNING FURNACE. HARRY C. CLAY, Columbus, Ind., assignor to the Reeves & Company, same place. Filed Mar. 19, 1900. Serial No. 9,190. (No model.)



Claim.—1. In a furnace having fire-arch supports projecting therein, a fire-arch consisting of a pair of tiles having mating adjacent edges arranged to allow a relative angular movement without breaking the joint, and so formed upon their outer edges as to receive and protect the projecting supports.

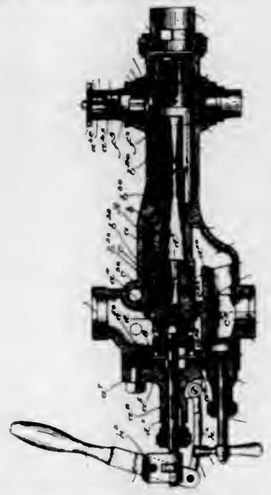
2. In a furnace having fire-arch supports projecting therein, a fire-arch consisting of a pair of tiles the inner edge of one of which is convex in cross-section, and the inner edge of the other of which is correspondingly concave in cross-section, and means carried by the outer edges of each of said tiles for receiving and protecting the projecting supports.

3. In a furnace, the combination with the fire-box, of an angle-iron detachably hung upon each side of its fire-box, and a fire-arch consisting of two tiles hinged together at their adjacent edges and adapted to rest at their outer edges upon said angle-irons, the arrangement being such that said angle-irons are held in position by the normal tendency of elongation of the arch.

4. In a furnace, the combination with the fire-box, of one or more pins extending into said box from opposite sides thereof, an angle-iron hung upon each side of pins, and a fire-arch consisting of two tiles hinged together at their adjacent edges and adapted to rest at their outer edges upon said angle-irons, the arrangement being such that said angle-irons are held in position on their pins by the normal tendency of elongation of the arch.

5. In a furnace, the combination with the fire-box, of a flange projecting into the fire-box from each side thereof, and a fire-arch consisting of two tiles hinged together at their adjacent edges and each provided on its outer edge with a groove adapted to receive the adjacent flange, the arrangement being such that said flanges are protected from the heat of the furnace.

660,182. INJECTOR. NATHANIEL B. DODGE, Fitchburg, Mass. Filed Apr. 27, 1900. Serial No. 14,568. (Model.)



Claim.—1. In an injector, a casing having an opening at the steam end and provided with a threaded seat for and to fixedly position the steam-cone and a non-threaded seat for the combining-cone, the cones being adapted to be inserted through the said opening of the casing, means to detachably connect the cones, and a detachable closure for the steam end of the casing.

2. In an injector, a one-piece casing having integral seats for the steam and combining cones, one of said seats being threaded to fixedly position the engaged cone, said casing having an opening at the steam end, detachably-connected steam and combining cones adapted to be inserted or removed together through said opening in the casing, and a detachable closure for the steam end of the casing.

3. In an injector, a one-piece casing having a threaded and a non-threaded seat, integral therewith, said casing having an opening at the steam end, the steam and combining cones, the former having a threaded portion to engage and be rigidly held by its seat and the latter having a shoulder to butt against the end of the non-threaded seat, means to maintain the combining-cone in position by the steam-cone, said cones being adapted to be inserted and removed through said opening in the casing, and a closure for said opening.

4. In an injector, the casing having an internal heating-chamber, the combining-cone the base of which extends into said chamber, the water-valve, and a deflector to direct the water admitted by the valve to the forward part of the chamber before it enters the cone.

5. In an injector, the casing having an internal, threaded seat and an annular beveled opening at one end, a steam-cone screwed into said seat and having a rigidly-attached combining-cone, and a removable gland provided with a beveled flange to enter and tightly close said beveled opening of the casing.

6. In an injector, the casing having a water-inlet, the rotatable water-valve having an end outlet, and an elongated cylindrical seat therefor.

7. In an injector, the casing having a water-inlet, an elongated, cylindrical valve-seat, and a tubular water-valve closed at its rear end and open at its opposite end, and having a side opening adapted to register with the inlet.

8. In an injector, the casing having an internal heating-chamber,

and a water-inlet, an elongated, cylindrical valve-seat at the rear end and open at its opposite end, of the chamber, and a tubular water-valve movable in said seat and closed at its rear end and having a side opening adapted to register with the inlet.

9. In an injector, the casing having a water-inlet, a rotatable, tubular water-valve closed at its rear end and having a side opening adapted to register with the inlet, the valve-stem, and a gland or sleeve through which it passes.

10. In an injector, the casing having a cylindrical chamber provided with a water-inlet, an elongated, tubular water-valve closed at its rear end and rotatably mounted in the chamber, said valve having a lateral opening to register with the inlet, and means to operate the valve.

11. In an injector, a tubular water-valve closed at one end and having a lateral inlet-opening, and an elongated, cylindrical seat forming a continuous support for the valve.

12. In an injector, the casing having a cylindrical chamber open at one end to receive the valve and provided with a water-inlet, a tubular water-valve closed at its outer end and having a lateral inlet, rotatably mounted in said chamber and supported thereby throughout its length, and a gland to close the open end of the chamber.

13. In an injector, the casing having an internal heating-chamber and a communicating cylindrical chamber or valve-seat open at its outer end and provided with a water-inlet, a tubular water-valve closed at its outer end and having a lateral opening adapted to register with said inlet, a gland to close the open end of the said valve-seat, and means to move the valve to regulate the entrance of water to the heating-chamber.

14. In an injector, a casing made as a single casting having integral seats for the steam and combining cones, a cylindrical chamber or valve-seat forming an integral part of the casing and opening thereinto, and a tubular water-valve located within said chamber or seat, the valve being centered and supported thereby throughout its entire length.

15. In a boiler-feeding injector, the check-valve, and a guard interposed between the said valve and the boiler connection.

16. In a boiler-feeding injector, the casing, a check-valve at its delivery end, and a tailpiece connected with the casing beyond said valve and provided with a guard.

17. A tubular tailpiece for boiler-feeding injectors, having an internal guard, for the purpose set forth.

18. The combination, with the casing having the water-inlet, of a water-supply valve having a lateral inlet and longitudinal delivery-passage therein, opening at it forward end, and means to actuate the valve to regulate the passage of water therethrough from the water-inlet.

19. In an injector, an overflow-valve, a spring-actuated seating device to maintain said valve seated when using the injector as a heater, and a detent to normally retain said device inoperative.

20. In an injector, an overflow-valve, an inclosing chamber, a spring-actuated plunger therein to engage said valve and maintain it seated, and means to normally maintain the plunger out of engagement with the valve.

21. In an injector, an overflow-valve, an inclosing chamber, a sliding plunger therein, and its attached stem extended through the chamber, a spring to force the plunger against the valve and maintain it seated, an external means coöperating with the stem to normally maintain the plunger retracted against the stress of the spring and out of engagement with the valve.

22. In an injector, an overflow-valve, an inclosing chamber, a spring-actuated device mounted therein, to engage and maintain the valve seated, said device including a stem projecting through the chamber and having a lateral lug, and a notched ear on the exterior of the chamber, to normally engage the lug and maintain the said spring-actuated device inoperative.

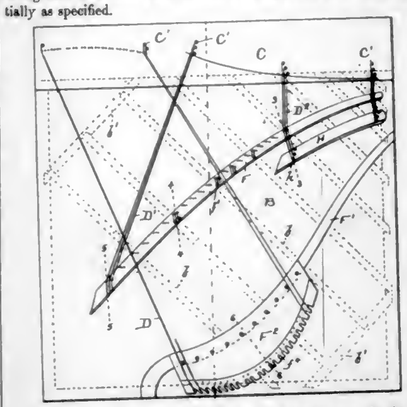
23. In an injector, an overflow-valve, an inclosing chamber, a sliding, spring-actuated plunger therein adapted to engage and maintain the valve seated when using the injector for heating, a projecting stem secured to the plunger and provided with external lateral lugs, and oppositely-located ears on the end of the chamber, notched to normally receive the lugs and hold the stem retracted, disengagement of said lugs and ears by partial rotation of the stem releasing the plunger.

24. In an injector, the combining-cone, the delivery check-valve, an elongated, flaring supporting-shell therefor having its mouth of greater area than the outlet of said cone and adjacent thereto, and the overflow check-valve located substantially opposite the rear end of said shell.

25. In a boiler-feeding injector, the check-valve, and means located beyond the latter to prevent the passage of any broken or detached part of the injector to the boiler connection.

660,183. PIANO. George B. Durker, Chicago, Ill. Filed Jan. 19, 1900. Serial No. 1,974. (No model.)

Claim.—1. A piano having no string-frame or metal plate to resist the tension of the strings, and comprising in combination a thick sounding-board, strings strung on the board itself on one side thereof and exerting their tension or strain thereon in the direction of its plane, substantially as specified.



2. A piano having no string-frame or metal plate to resist the tension of the strings, and comprising in combination a piano pin-block, a thick sounding-board abutting at one edge against the pin-block, and provided with bridges, and strings secured at one end to the pin-block and at their other ends to the bridges on the sounding-board, said strings exerting their strain and tension directly on the sounding-board in the direction of its plane, substantially as specified.

3. A piano having no string-frame or metal plate to resist the tension of the strings, and comprising in combination a thick, heavily-ribbed, sounding-board, strings strung directly upon the board itself and exerting their tension thereon in the direction of its plane, one part or series of said strings extending across the board at an angle to another part or series thereof, substantially as specified.

4. In a piano the combination with a thick sounding-board having parallel ribs extending diagonally across the board, of a series of strings D strung across the board at an angle to said ribs, and a series of strings D′ D^2 strung across the board at an angle to said strings D, all of said strings exerting their strain or tension upon the board itself, substantially as specified.

5. The combination with a pin-block, of a thick, heavily-ribbed sounding-board abutting at one edge against the pin-block, and provided with bridges F, F′, and spring-bridge F^2, of a series of strings D secured at one end to the pin-block and at the other end to said spring-bridge, and a series of strings D′ secured at one end to the pin-block and at the other to said bridge F, and a series of strings D^2 secured at one end to the pin-block extending over said bridge F, and secured at their opposite ends to strips H H′ secured to the sounding-board, substantially as specified.

6. The combination with a pin-block, of a thick, heavily-ribbed sounding-board abutting at one edge against the pin-block, and provided with bridges F, F′, and spring-bridge F^2, of a series of strings D secured at one end to the pin-block and at the other to said spring-bridge, and a series of strings D′ secured at one end to the pin-block and at the other to said bridge F, and a series of strings D^2 secured at one end to the pin-block extending over said bridge F, and secured at their opposite ends to strips H H′ secured to the sounding-board, said strings D′ passing through holes in the sounding-board, substantially as specified.

7. In a piano, the combination with a thick, heavily-ribbed sounding-board, of a pin-block abutting against the sounding-board at one edge, a central bridge F, an outer bridge F′ having spring-bridge F^2 secured thereto by inclined bolts or screws, and a series of strings D secured at one end to the pin-blocks passing over the central bridge F, and secured at their opposite ends to said spring-bridge, substantially as specified.

8. In a piano, the combination with the pin-block, of a thick, heavily-ribbed sounding-board, a bridge F secured to the sounding-board, and strings D′ secured at one end to the pin-block and at their opposite ends passing over said bridge and through holes in the sounding-board, and provided with eyes, and pins passing through the eyes, substantially as specified.

9. A piano having no string-frame or metal plate to resist the tension of the strings, and comprising in combination a piano pin-block, a thick, heavily-ribbed, sounding-board under the compression strain in the direction of its plane of the tension of its strings, a bridge F secured thereto, and strings D^2, secured at one end to the pin-block and at their other ends passing over said bridge and secured to wood strips H H′ on opposite sides of the sounding-board by screws passing through said strips and the sounding-board, substantially as specified.

10. A piano having no string-frame or metal plate to resist the tension of the strings, and comprising in combination the strings, a sounding-board under the compression strain of the tension of the strings in the direction of the plane of the board, the strings being in different series extending across the board at an angle to each other, substantially as specified.

660,184. TIRE. Albert E. Flatter, Greenville, Ohio. Filed Sept. 7, 1900. Serial No. 29,292. (No model.)



Claim.—1. The combination with a vehicle-wheel, of a pair of rings embracing the peripheral edge of the wheel, the inner sides of the rings being recessed and forming a marginal groove next to the wheel, means for clamping the rings together, a cushioning-strip held between the rings, and headed fastenings carried by the rim of the wheel and having their heads received within the groove.

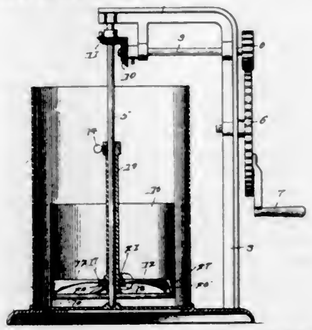
2. The combination with a vehicle-wheel, of a pair of rings embracing the peripheral edge of the wheel, and provided with inner opposite recesses forming a groove next to the rim of the wheel, and also having outwardly-directed marginal flanges, fastening devices clamping the rings together, a cushioned-tire strip clamped between the flanges, and headed fastenings carried by the rim of the wheel, the heads being received within the groove of the combined rings.

3. The combination with a vehicle-wheel, of a ring embracing the periphery of the wheel and provided in its inner face with a marginal groove next to the rim of the wheel, a cushioned-tire strip secured to the outer marginal edge of the ring, headed fastenings carried by the rim of the wheel and having their heads received within the groove, and pairs of lateral fastenings carried by the ring and located at opposite sides of the heads of the fastenings.

4. The combination with a vehicle-wheel, of a pair of opposite rings embracing the rim of the wheel, and having their inner sides recessed and forming a continuous groove next to the rim of the wheel, and also provided with outer marginal flanges, headed fastenings carried by the rim of the wheel and having their heads fitted in the groove, lateral fastenings extending through the rings and arranged adjacent to the opposite sides of the respective heads of the fastenings, and a cushioned-tire strip clamped between the flanges of the rings.

5. A removable cushioned tire for vehicle-wheels, comprising opposite rings, having their inner faces recessed and forming an inner marginal groove, and also provided with outer marginal flanges, a cushioned-tire strip clamped between the flanges, lateral fastenings connecting the rings and passing transversely through the groove, and headed fastenings having their heads received within the groove and between adjacent lateral fastenings.

660,185. CHURN-DASHER. Edward R. Franklin, Austin, Tex., assignor to the Franklin Churn Company, Chicago, Ill. Filed June 11, 1900. Serial No. 19,928. (No model.)

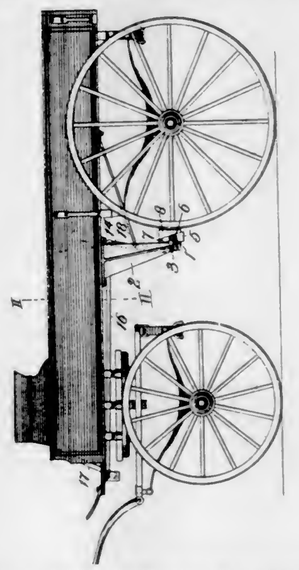


Claim.—1. A rotary churn-dasher, comprising radial blades, laterally-opposite and downwardly-divergent lips provided at the outer ends of the blades, and an upstanding marginal rim surrounding the ends of the blades and connected to the lips, said rim being provided with perforations located between the lips of the respective blades, and other perforations located adjacent to the outer faces of those lips which are in advance of the respective blades, with respect to the rotary motion of the dasher.

2. A rotary churn-dasher, comprising radial blades, which have their lower faces beveled or inclined downwardly and rearwardly with respect to the rotary motion of the dasher and the pitch of said lower faces decreasing toward the center of the dasher, laterally-opposite lips diverging downwardly from the outer ends of the blades, and an upstanding marginal rim surrounding the ends of the blades and connected thereto, said rim also being provided with perforations, which are located between the lips of the respective blades, and other perforations located adjacent to the outer faces of those lips which are upon the advance sides of the blades.

3. A churn-dasher having a central opening, and diametrically-opposite slots intersecting the opening, opposite cam-faces located upon the under side of the dasher and extending in opposite directions between the outer ends of the slots, a stem inserted through the opening from the upper side of the dasher, and provided with diametrically-opposite lugs or projections passed through the slots and lying in frictional engagement with the respective cam-faces, an annular outwardly-directed shoulder upon the stem and above the lugs and bearing against the upper side of the dasher, and a stop-shoulder provided upon one of the cam-faces and in engagement with that side of the adjacent lug which is next to the lower end of the cam-face, whereby disconnection of the parts is prevented.

660,186. BRAKE FOR VEHICLES. Frederick G. Goettmann, Sr., Allegheny, Pa. Filed Aug. 31, 1900. Serial No. 28,644. (No model.)



Claim.—1. A brake for wagons, &c., having in combination a beam, abutments pivotally mounted on the beam, shoes movably mounted on the abutments or blocks, and a shaft mounted on the beam and provided with arms engaging the shoes, substantially as set forth.

2. A brake for wagons, &c., having in combination a beam, plates adjustably mounted on the beam, blocks or abutments pivotally mounted on the plates, shoes movably mounted on the blocks or abutments and a shaft mounted on the beam and provided with arms engaging the shoes, substantially as set forth.

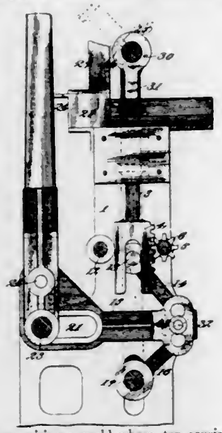
3. A brake for wagons, &c., having in combination a beam, abutments pivotally mounted on the beam, shoes movably mounted on the blocks or abutments, a shaft mounted on the beam and provided with arms engaging the shoes, a lever for rotating said shaft and a brace extending from the pivot-pin of the lever to a portion of the wagon, substantially as set forth.

660,187. BRICK-MACHINE. Walter P. Grate, St. Louis, Mo. Filed Nov. 1, 1899. Serial No. 735,486. (No model.)

Claim.—1. A brick-machine comprising a framework, a mold having movable plungers constituting the top and the bottom thereof, a horizontally-guided draw-bar and vertically-guided links pivotally connected to said draw-bar and constituting a toggle for operating said plungers, one of said links being operatively connected to one plunger and the other being connected to side bars connected to the other plunger, and a lever fulcrumed in said framework and arranged to actuate said draw-bar, substantially as described.

2. A brick-machine comprising a framework, a mold having mov-

able plungers constituting the top and the bottom thereof, a horizontally-guided draw-bar and vertically-guided links and connecting-bars constituting a toggle for operating said plungers, and a lever fulcrumed in said framework, said draw-bar having a cam formed near its outer end and said lever having a piece to coöperate with said cam, substantially as described.



3. A press comprising a mold whose top consists of a vertically-movable plunger, said plunger being pivotally suspended from a transverse cross-head and adapted to be swung up past the vertical plane, substantially as and for the purpose described.

4. A press comprising a mold whose top consists of a vertically-movable plunger pivotally mounted from a cross-piece and adapted to be swung up past the vertical plane, and a stop arranged to hold said plunger in elevated position when swung up past the vertical plane, substantially as described.

5. A press comprising a mold whose top consists of a vertically-movable plunger, and a gravity-pawl mounted to move with said plunger and arranged to slide along the top of the framework, substantially as described.

6. A press comprising a mold whose bottom consists of a vertically-movable plunger, means for exerting pressure thereon said means being normally out of operative relation to said plunger to permit said plunger to move independently thereof in either direction, and an independently-acting ejecting device for elevating said plunger, substantially as described.

7. A press comprising a mold whose bottom consists of a vertically-movable plunger, a toggle for exerting pressure on said plunger, a rack formed on said plunger and a pinion engaging therewith, and means for holding said plunger out of contact with the toggle device when said toggle device is retracted, substantially as described.

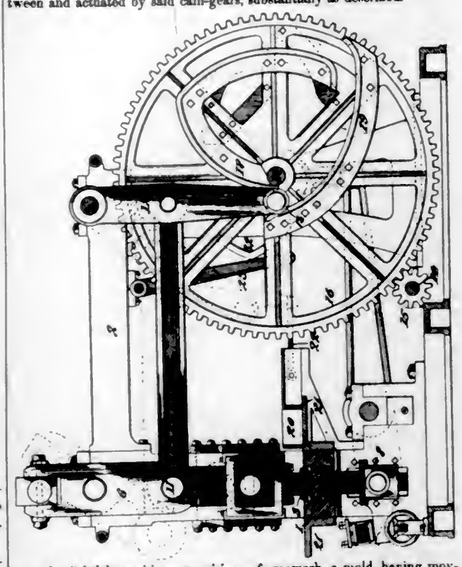
8. A press comprising a mold whose top and bottom each consists of a vertically-movable plunger, means normally out of operative relation to the lower plunger for exerting pressure thereon and an independently-acting ejecting device consisting of an axle, a hand-lever and a pinion thereon, and a rack on said lower plunger and engaging said pinion, and an automatically-yielding stop in the path of said hand-lever, substantially as described.

9. A press comprising a mold having movable plungers constituting the top and the bottom thereof, a toggle for actuating the same, side bars connecting the upper plunger with the lower toggle-link, and a yielding device for supporting the lower plunger out of operative relation to the upper toggle-link when said upper link is retracted, substantially as described.

660,188. **BRICK-MACHINE.** WALTER P. GRATH, St. Louis, Mo. Filed Dec. 20, 1899. Serial No. 740,967. (No model.)

Claim.—1. A brick-machine comprising a framework, a mold having movable plungers constituting the top and the bottom thereof, a lever pivoted in the framework, links connecting the respective ends of said lever to said plungers, a draw-bar coöperating with said lever and links to constitute a toggle for operating said plungers, a lever or levers fulcrumed in said framework and pivotally connected to said draw-bar, a cam or cams of increasing power for operating said lever and means for actuating said cam or cams, substantially as described.

2. A brick-machine comprising a framework, a mold having movable plungers constituting the top and the bottom thereof, a lever pivoted in the framework, links connecting the respective ends of said lever to said plungers, a draw-bar coöperating with said lever and links to constitute a toggle for operating said plungers, a lever or levers fulcrumed in said framework and pivotally connected to said draw-bar, and cam-gears of increasing power journaled in said framework, said draw-bar being between and actuated by said cam-gears, substantially as described.



3. A brick-machine comprising a framework, a mold having movable plungers constituting the top and the bottom thereof, a lever pivoted in the framework, links connecting the respective ends of said lever to said plungers, a draw-bar coöperating with said lever and links to constitute a toggle for operating said plungers, a lever or levers fulcrumed in said framework and pivotally connected to said draw-bar, and gears journaled in said framework and carrying cams for actuating the draw-bar lever, said cams being on opposite sides of said draw-bar lever and extending inwardly to bear against said lever simultaneously with increasing power, substantially as described.

4. A press comprising a mold having movable plungers constituting the top and the bottom thereof, means for exerting pressure on said plungers, said means being normally out of operative relation to the lower plunger, a lever for supporting said lower plunger, means operated by the driving-gearing to actuate said lever periodically and a yielding back-stop for limiting the position of said lever, substantially as described.

5. A press comprising a mold having movable plungers constituting the top and the bottom thereof, means for exerting pressure on said plungers, a spring-pressed lever or levers for yieldingly supporting the lower plunger, a shaft and a cam carried thereby for actuating said lever periodically independently of the pressure-exerting means, substantially as described.

6. A press comprising a mold having movable plungers constituting the top and the bottom thereof, means for exerting pressure on said plungers, a spring-pressed lever or levers for yieldingly supporting the lower plunger, a shaft, a cam thereon for actuating said lever periodically independently of the pressure-exerting means, said lever having a roller or bearing-piece adjustable with reference to said cam, substantially as described.

7. A press comprising a framework, a mold having movable plungers constituting the top and the bottom thereof, a lever connected by links to said plungers, a draw-bar connected to the lever and shorter link for operating said plungers, a second lever fulcrumed in the framework and having the draw-bar connected thereto, a cam of gradually-increasing power operating on said lever, a third lever for supporting the lower plunger, a cam for actuating said lever and an adjustable spring for supporting said lever, substantially as described.

660,189. **PENCIL-HOLDER.** FRANK HAYS and WILLIAM H. C. MCKESSON, Chicago, Ill. Filed Feb. 24, 1900. Serial No. 6,430. (No model.)



Claim.—A holder for pencils consisting of a flat piece of rubber formed with a hole in the center and pointed projections, which are provided with metal tips, substantially as described.

660,190. **INTERCHANGEABLE-LETTER SIGN.** ROBERT B. HOLLEY, Chicago, Ill., assignor of one-half to Henry S. W. Foreman, same place. Filed Apr. 9, 1900. Serial No. 12,152. (No model.)



Claim.—1. Sliced letters or characters for interchangeable-letter signs, composed of plates containing vertical slices or sections produced by vertical subdivision of the characters, respectively, each plate having on its two opposite sides the same section or portion of the same letter or character, arranged to be read from the opposite edges of the slice on the opposite side.

2. Sliced letters or characters for interchangeable-letter signs, composed of plates containing vertical slices or sections produced by vertical subdivision of the characters, respectively, each plate having on its two opposite sides the same section or portion of the same letter or character, arranged to be read from the opposite edges of the slice on the opposite side, the initial plate or slice in each letter having at the left hand a clear space to separate the consecutive characters when assembled.

3. Sliced letters or characters for interchangeable-letter signs, composed of plates containing vertical slices or sections produced by vertical subdivision of the characters, respectively, each plate having on its two opposite sides the same section or portion of the same letter or character, arranged to be read from the opposite edges on the opposite side, the final plate or slice in each letter having at the right hand a clear space to separate the consecutive characters when assembled.

4. Sliced letters or characters for interchangeable-letter signs, composed of plates containing vertical slices or sections produced by vertical subdivision of the characters, respectively, each plate having on its two opposite sides the same section or portion of the same letter or character, arranged to be read from the opposite edges on the opposite side, each plate or slice having an identifying-mark denoting of what character or letter it is a part and its order in the same.

5. An interchangeable-letter sign, comprising a multiplicity of letter-slices, a plate or flat frame to which they are disengageably and interchangeably attached, said slices having each on the opposite surfaces the same slice, section, or portion of the same letter, disposed to be read from the opposite edge of the slice, at the opposite side.

6. An interchangeable-letter sign, comprising a plate or flat frame, and means for engaging at short intervals in the length a multiplicity of letter-slices; in combination with such letter-slices, arranged to be mounted transversely on the plate or frame erect from the plane of the latter, with substantially the entire width projecting clear thereof each of said letter-slices having on the opposite surfaces the same fraction of the same letter or character, arranged to read from the opposite edges of the slices at the opposite side.

7. An interchangeable-letter sign, comprising a supporting element in the nature of a flat frame or plate, having arranged in parallel longitudinal lines engagements for letter slices or plates of sheet material, in combination with such letter slices or plates disengageably engaged at their back edges with the plate or frame, and extending erect forward edgewise therefrom, with substantially their entire width clear thereof.

8. An interchangeable-letter sign, comprising a supporting element in the nature of a flat frame or plate, having arranged in parallel longitudinal lines engagements for letter slices or plates of sheet material, in combination with such letter slices or plates disengageably engaged at their back edges with the plate or frame, and extending erect forward edgewise therefrom with substantially their entire width clear thereof, such slices having, each on the opposite surfaces, the same section or portion of the same letter or character, disposed on such surfaces so as to read from opposite edges of the slice at its opposite sides.

9. An interchangeable-letter sign, comprising a supporting element in the nature of a plate or frame having arranged in parallel longitudinal lines engagements for letter or character plates, in combination with two sets of such plates disengageably engaged at their back edges with the plate or frame and held thereto extending erect edgewise off therefrom, one set from one side and the other set from the opposite side.

10. A sign, comprising a supporting open frame, having arranged in longitudinal parallel lines engagements for letter or character plates, in combination with two sets of such plates disengageably engaged at their back edges with the plate or frame and held by such engagement extending rigidly edgewise off therefrom in opposite directions.

11. A sign, comprising a supporting element of the nature of an open frame, having arranged in parallel longitudinal lines engagements for letter or character plates, in combination with two sets of such plates disengageably engaged at their back edges with the plate or frame, and held thereto extending erect edgewise off therefrom, one set from one side and the other from the opposite side, whereby either set may be illuminated from the opposite side of the frame from which it is arranged to be read by light admitted through the open frame.

12. An interchangeable-letter sign comprising a sheet-metal frame having longitudinal parallel flanges standing toward each other to form facing parallel channels, such flanges having struck up from them, outward, engagements for letter-plates, in combination with such letter-plates adapted to be held by such engagements extending rigidly off edgewise from the plane of the flanges.

13. An interchangeable-letter sign, comprising a frame having near its lateral edges, respectively, rows of upstanding lugs or fingers, in combination with letter-slices of sheet material erected across the frame and adapted to be engaged at both ends by such fingers or lugs and held thereby projecting transversely from the plane of the frame.

14. An interchangeable-letter sign, comprising a frame having near its lateral edges, respectively, parallel rows of fingers in pairs, in combination with letter-slices of sheet material engaged between the fingers and thereby held projecting transversely from the plane of the frame.

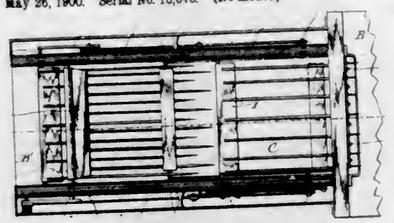
15. An interchangeable-letter sign, comprising a sheet-metal frame formed with flanges at the opposite longitudinal sides, inturned to form grooves or channels at said sides which face each other; said flanges having struck up therefrom at short intervals engagements for letter plates or slices; in combination with a multiplicity of such letter plates or slices, adapted to be held by such engagements of the flanges erect from the plane of the frame, and other letter-plates adapted to slide into the channels formed by the flanges and be retained therein in the frame.

16. A letter for an interchangeable-letter sign, comprising a plurality of narrow strips or slices of sheet material, erected edgewise parallel, and non-integral strips or straps uniting them extending across their edges at one side at the end, and projecting beyond the ends, substantially as and for the purpose set forth.

17. An interchangeable-letter sign, comprising a frame having opposite parallel longitudinal sides provided with longitudinal grooves facing each other, in combination with interchangeable letters or characters each consisting of a plurality of slices erected edgewise parallel, and non-integral strips or straps uniting them, extending across their edges, at one side at the end, such strips or straps projecting beyond the edges, and being adapted to engage said grooves or channels in the frame.

18. A frame or supporting element for an interchangeable-letter sign consisting of a sheet-metal frame having longitudinal flanges inturned toward each other at the opposite sides to form facing channels at such opposite sides, adapted to receive the edges of interchangeable-letter plates or parts of letter-plates, such flanges having formed in and of their substance engagements for holding transverse plates erected edgewise on the flanges.

660,191. **RAT-TRAP.** JOSEPH W. HOLMES, Joplin, Mo. Filed May 26, 1900. Serial No. 18,070. (No model.)



Claim.—1. In an animal-trap, the combination, of a passage-way, gates pivoted to the forward end of said passage-way, one above the other, a gate pivoted in the rear of the aforesaid gates, and a pivoted platform connected to the gates for operating the same, substantially as shown and described.

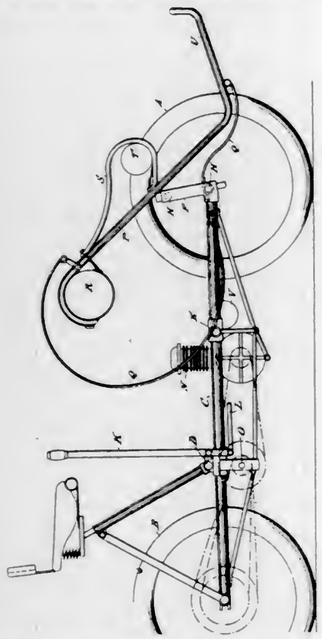
2. In an animal-trap, the combination, of a passage-way, gates pivoted to the forward end of said passage-way, one above the other, a gate pivoted in the rear of the aforesaid gates and adapted to normally close the opening leading into the cage, and a pivoted platform connected to all the gates, substantially as shown and for the purpose set forth.

3. In an animal-trap, the combination, of a passage-way having a raised platform at its forward end, a pivoted platform in the rear of said raised platform, a gate resting normally upon the raised platform, a lever connecting said gate to the pivoted platform, a gate pivoted above the aforesaid gate, a weighted rod and lever connecting said second gate to

the pivoted platform, the free ends of said gates being adapted to interlock, substantially as shown and for the purpose set forth.

4. In an animal-trap, the combination, of a passage-way, a pivoted gate resting normally upon the bottom of said passage-way, a pivoted platform, a lever connecting said gate to said platform, a gate pivoted in the passage-way above the other gate, a weighted rod and lever connecting said second gate to the pivoted platform, a gate pivoted above the platform and adapted to normally close the opening leading into the cage, and rods connected to the gate and platform for operating the former, substantially as shown and described.

660,192. SELF-PROPELLED VEHICLE. RALPH JACKSON, Altrincham, England. Filed June 4, 1900. Serial No. 19,031. (No model.)

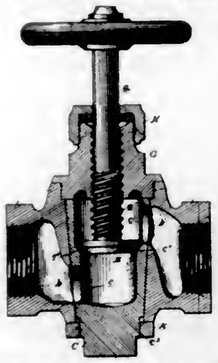


Claim.—1. In combination a primary frame comprising the tubes C connected by cross-tubes D, E, and disposed parallel with each other from the rear wheel to the tube E from whence they diverge to the steering-heads F which are braced by stays H, a frame for the back seat being carried on the cross-tube D and on the rear ends of the tubes C, and a frame for the front seat comprising the tubes P, arms S, reservoirs R, T, said seat-frame being supported on springs carried on the cross-tube E and on one of the stays H, substantially as described.

2. The front seat-frame, consisting of a pair of bent tubes P having their upper ends attached to the reservoir R and linked to the upper ends of springs Q, and having their lower parts carried on the lower ends of the springs Q, a pair of seat-arms S attached to the tubes P and carrying a reservoir T which with the reservoir R supports the upholstery of the seat proper, substantially as described.

660,193. GLOBE AND CHECK VALVE. CHRISTIAN E. LOETZER, Sayre, Pa. Filed Apr. 6, 1900. Serial No. 11,834. (No model.)

Claim.—1. A globe or check valve comprising a casing having oppositely-disposed openings at its top and bottom, open end portions extending transversely of said openings, and an intermediate valve-chamber having an inlet at one side and an outlet at the other side thereof arranged above the plane of the inlet, the opening at the top of said casing being of larger bore than said valve-chamber thereby forming an annular shoulder around the top of said chamber, a cup-like plug revolubly fitted in said valve-chamber having one end protruding through the opening at the bottom of the casing adapted to receive a tool for turning the plug; said plug having inlet and outlet ports which register with the inlet and outlet orifices of the valve-chamber and adapted to close the same when the plug is given a partial revolution, a reciprocatory valve seated within said cup-like plug in a plane dividing the inlet from the outlet ports therein, and a cap removably fixed within the opening at the top of the casing so as to close the same; said cap being adapted to rest on said plug and on said annular shoulder above the valve-chamber, so as to tightly confine the plug and prevent leakage between the same and the walls of said chamber, and also serving as a guide for the valve-stem in its reciprocatory movements in establishing communication between the inlet and outlet ports of the plug, substantially as described.



2. In combination with the valve-casing open at top and bottom, and having oppositely-disposed open end portions, and an intermediate valve-chamber, the opening at the top of the casing being of greater bore than said valve-chamber and thus forming a shoulder above the same, a tapered cup-like plug fitted within said valve-chamber having a valve-seat about midway of the interior of the cup, an inlet-port below said seat and an outlet-port at the opposite side thereof above said seat, together with a cap removably fixed within the opening at the top of the casing so as to close the same and confine the plug within the valve-chamber, said cap bearing on the plug and also the shoulder formed at the top of the valve-chamber so as to prevent leakage between said plug and chamber, and a reciprocating valve on said seat having its stem fitted and guided in an aperture in said cap; said plug having a polygonal projection protruding through the opening in the bottom of the casing for the application of a suitable tool for turning the plug, and a nut screwed on said projection for securing the plug within the casing; substantially as described.

3. The valve-casing having a centrally-disposed chamber and oppositely-disposed end portions and top and bottom openings communicating with said chamber; the upper opening of the casing having a greater diameter than the intermediate portion, to provide an annular shoulder at its junction with the latter; in combination with a cup-like turn-plug fitting the aforesaid chamber and having its upper end substantially flush with said annular shoulder, together with a detachable cap or part fitting the upper opening of the casing, constructed to guide and limit the movements of the valve-stem or like part, and having a bearing upon said turn-plug and annular shoulder, substantially as described.

660,194. TOOTH-STRAIGHTENING APPLIANCE. CLARENCE D. LUKENS, St. Louis, Mo. Filed July 3, 1900. Serial No. 22,407. (No model.)



Claim.—1. A tooth-straightening appliance comprising a band adapted to encircle a tooth and having tubular sleeves mounted on its ends, and one of said sleeves being screw-threaded, and a tubular bolt threaded to coöperate with said threaded sleeve, and attached means for operating on another tooth substantially as described.

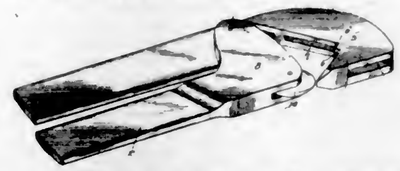
2. A tooth-straightening appliance comprising a band to encircle a tooth, a tubular bolt adapted to clamp the ends of said band, a threaded bar extending through said bolt and having a nut working thereon to abut against the end of said bolt, and means for operatively connecting said bar to another tooth, substantially as described.

3. A tooth-straightening appliance comprising a band adapted to encircle a tooth, a hollow bolt adapted to clamp the ends of said band, a threaded draw-bar extending through said bolt and having a nut working thereon, a second band adapted to encircle the tooth undergoing operation and provided with a stud thereon, the end of said draw-bar having a lateral projection provided with a socket adapted to fit over said stud, substantially as described.

4. A tooth-straightening appliance comprising a tubular member and a screw adapted to be inserted therein, and a nut working on said screw, said screw having a socket-piece at its end adapted to fit over a stud on the tooth-band, substantially as described.

5. A tooth-straightening appliance comprising a tubular member, a screw adapted to be inserted therein, and a socket-piece at the end of said screw and adapted to fit over a stud on a tooth-band, substantially as described.

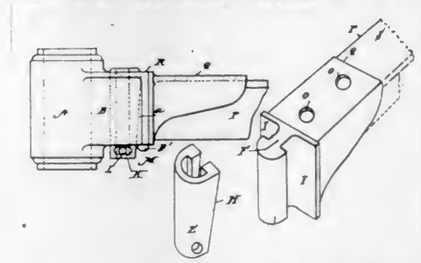
660,195. BAND-CUTTER. JAMES S. MANLY, Taylor, Tex. Filed Jan. 18, 1900. Serial No. 1,933. (No model.)



Claim.—1. A band-cutter, comprising pivotally-connected handles, a jaw carried by one of the handles, and having a bill projecting from the inner face of the jaw, and a shoulder located at the vertex of the angle between the inner faces of the jaw and the bill, and providing opposite notches, and a cutting-disk carried by the other handle and coöperating with the inner faces of the jaw and the bill and also with the notches.

2. A band-cutter, comprising pivotally-connected handles, a jaw carried by one of the handles, and provided with a longitudinal slot opening through the inner face of the jaw, and also one or more notches formed in the inner face of the jaw and extending transversely of the slot, and a cutting-disk carried by the other handle and entering the slot and notches of the jaw.

660,196. FASTENING FOR BEDSTEADS. ABRAM S. MYERS, Springfield, Ohio, assignor of one-half to John T. Ricks, same place. Filed Oct. 9, 1899. Serial No. 732,985. (No model.)



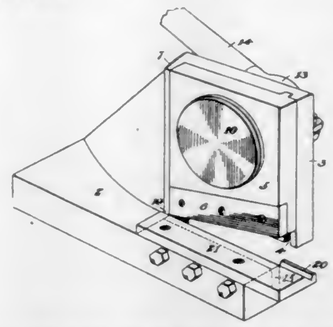
Claim.—1. In a bedstead-fastening, the combination with a post-head, of an extension projecting therefrom, having a slot therein, said slot being open at its upper end, a side-rail fitting secured thereto, said fitting having a projection adapted to extend within said slot, a locking-wedge which fits within the slot in the post extension and which binds against the projection on the rail-fitting, said location of said wedge acting to rigidly bind together said post extension and said rail-fitting.

2. In a bedstead-fastening, the combination with a post-head, of a side-rail fitting adapted to be rigidly secured to a side rail, a projection extending from said fitting and adapted to extend within said head, a longitudinally-slotted wedge adapted to fit over and engage with said extension and within said head, whereby the more the wedge is driven down in the head the tighter the side-rail fitting will be drawn in contact with said head, all substantially as shown and described.

3. In a bedstead-fastening, the combination with a post-head, having a slotted opening therein, projections extending within said slot, of a side-rail fitting having an extension formed from the end thereof, a head on the outer end of said extension, a tapering wedge longitudinally slotted, adapted to fit said head and abut against said projections in the slot in said post-head, and also adapted to be driven downward to draw the side-rail fitting into rigid contact with said head, all substantially as shown and described.

660,197. SHEARS. CHARLES MCSHERRY, Pittsburg, Pa. Filed May 3, 1900. Serial No. 15,338. (No model.)

Claim.—1. A shear having a vertical support provided on one side with a guide, a vertically-moving slide in the guide, and having a hole containing a cam or eccentric, a shear-blade secured to the slide, and a block arranged to slide horizontally in guideways on the support, and having a hole receiving the shaft carrying the cam or eccentric; substantially as described



2. A shear having a vertically-reciprocating slide carrying the shear-blade, and a circular hole in the slide containing a cam or eccentric; substantially as described.

3. A shear having a vertical side support with a slot or hole therein, a squared bushing arranged to slide horizontally in said hole, and forming a bearing for a short shaft, and a slide arranged to move vertically on the support and having a hole receiving an eccentric on the said shaft; substantially as described.

4. A shear having a vertical side support, with a guideway on one side, a vertically-movable slide in the guideway having a shear-blade secured thereto, said slide having a hole receiving an eccentric or cam, a horizontal guideway in the support, a squared block movable in said horizontal guideway, and containing a bearing for the eccentric-carrying shaft, and an adjustable handle secured to said shaft; substantially as described.

5. A shear having a vertical support, a shaft extending through a bushing therein, and provided with an eccentric, a vertically-movable slide guided on the standard, and a flange on the eccentric arranged to hold the slide in place; substantially as described.

6. A shear having a lower stationary shear-blade provided with a front extension having a groove therein arranged to support a sheet at an angle in a shear-blade; substantially as described.

660,198. TOOL FOR CHARGING PLATES INTO FURNACES. PETER C. PATTERSON, McKeesport, Pa., assignor to the National Tube Company, New York, N. Y. Filed June 28, 1900. Serial No. 21,888. (No model.)



Claim.—1. A tool for forcing plates from furnaces, having at its front end a tongue to pass under the plate, a shoulder to bear against its rear edge and another shoulder back of the same to engage with a pushing device.

2. In a tool for forcing plates from furnaces, having at its front end a tongue to pass under the plate, a receding shoulder to bear against its rear edge and another shoulder back of the same to engage with the pushing device.

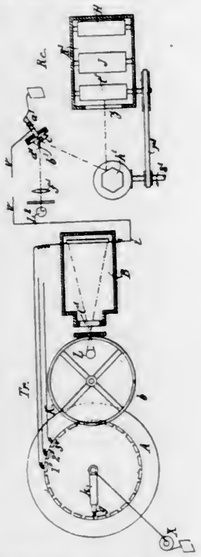
3. A tool for forcing plates from furnaces, having at its forward end a tongue to pass under the plate, a shoulder to bear against its rear edge, and a receding shoulder back of the same to engage with a pushing device.

4. A tool for forcing plates from furnaces, having at its front end a head provided with a tongue to pass under the plate, a shoulder to bear against its rear edge and another shoulder back of the same to engage with the pushing device, the body of the tool being connected with side portions of said head by inclines.

660,199. TELAUTOGRAPH OR FACSIMILE-TELEGRAPH. ANTON POLLAK, Szentes, Austria-Hungary, assignor of one-half to Friedrich Silberstein, Vienna, Austria-Hungary. Filed May 25, 1898. Serial No. 681,729. (No model.)

Claim.—1. A facsimile-telegraph comprising a plurality of selenium cells, means for projecting an image on such cells, thereby varying their degree of illumination and electrical resistance, a conductor in circuit with said cells, means for sending current impulses over said conductor through

said cells successively, and a receiving instrument comprising means for causing said current impulses to affect a ray of light, and means for recording variations in such ray corresponding to the variations in electrical resistance of such cells.



2. A facsimile-telegraph comprising a plurality of selenium cells, means for projecting an image on said cells, thereby varying their degree of illumination and electrical resistance, a conductor in circuit with each of said cells and the receiving-station, means for sending current impulses over said conductor through said cells successively, an electromagnet at the receiving-station adapted to be energized by such impulses, a reflector vibrated by said magnet, by means of which the direction of a ray of light is varied, and means for recording such variations.

3. The combination with means for varying a beam of light, a sensitive sheet, and means for advancing the sheet, of means for directing said beam across the sheet continuously in one direction so as to generate successive disconnected lines.

4. In receiving apparatus for facsimile-telegraphing, a source of light, means controlled by the transmitted current, for reflecting a ray of light vertically and means independent of the current for reflecting said ray horizontally.

5. In receiving apparatus for facsimile-telegraphing, a source of light, an electromagnet, a reflector vibrated by said magnet, and a rotating mirror, said reflector and mirror adapted to vary the direction of a ray of light vertically and horizontally.

6. In receiving apparatus for facsimile-telegraphing, a source of light, a box having a narrow opening, and carrying a sensitized film, a mirror reflecting a pencil of light in horizontal direction along said opening, a reflector vibrated by current impulses from the transmitting-station, and reflecting said pencil in vertical direction, whereby said beam enters said opening and strikes said film at intervals varying with the said current impulses.

7. In facsimile-telegraphs, a transmitting apparatus comprising a moving despatch-carrier, a plurality of selenium cells, and a commutator having contact-pieces in connection with the respective cells, in combination with a receiving apparatus comprising a sensitized film moving in synchronism with said despatch-carrier, a mirror moving in synchronism with said commutator, an electromagnet energized by the current from said transmitting apparatus, and a reflector vibrated by said magnet, adapted to reflect a ray of light on said mirror, which in turn reflects said ray upon and off said strip, as said mirror is vibrated.

8. In facsimile-telegraphs, a transmitting apparatus comprising a moving despatch-carrier, a plurality of selenium cells, a line conductor, a commutator having contact-pieces each of which is in connection with one of said cells, and which acts to direct current impulses through said cells in succession, in combination with a receiving instrument, comprising means for moving a sensitive strip, a mirror moving in synchronism with said commutator, an electromagnet energized by said impulses, and a reflector vibrated by said magnet which throws a ray of light on said mirror, said mirror and reflector being adapted to vary the direction of said ray of light vertically and horizontally, whereby said ray of light is directed on said strip during vibration of said reflector, and when so directed it strikes said sensitive strip, whereby upon continuous movement of the apparatus the successive dots will produce on said strip a tracing in exact accordance with the despatch carried by said carrier.

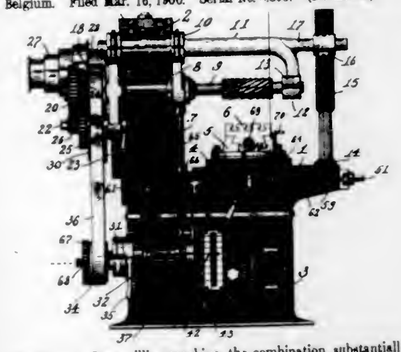
9. A transmitting instrument for a facsimile-telegraph, comprising a series of parallel elongated selenium cells, a source of light, means for moving the matter to be transmitted between said source of light and said cells, and an interposed cylinder-lens arranged to concentrate the light upon said cells in the form of elongated lines of light extending parallel with the cells.

10. In facsimile-telegraphs, a transmitting apparatus comprising a moving despatch-carrier, a plurality of selenium cells, a line conductor, and means for directing current impulses through said cells in succession.

11. In facsimile-telegraphs, a transmitting apparatus comprising a moving despatch-carrier, a plurality of selenium cells, a line conductor, and a commutator having contact-pieces each of which is in connection with one of said cells, and which acts to direct current impulses through said cells in succession.

12. A transmitting instrument for a facsimile-telegraph comprising a series of parallel elongated selenium cells, a line conductor connected to each of said cells, a source of light, means for moving the matter to be transmitted between said source of light and said cells, and means for directing current impulses through said cells in succession.

660,200. MILLING-MACHINE. GEORGE RICHARDS, Brussels, Belgium. Filed Mar. 16, 1900. Serial No. 8,895. (No model.)



Claim.—1. In a milling-machine, the combination, substantially as set forth, of a vertical column, a vertical saddle fitted for sliding motion on the column, a spindle journaled in said vertical saddle, a pulley on said spindle, an idle pulley carried by said saddle below said spindle-pulley, a pulley supported below said idle pulley, a driving-pulley supported by said column, and a belt engaging all said pulleys

2. In a milling-machine, the combination, substantially as set forth, of a bed, a column at one end thereof, a vertical saddle to slide on the column, a horizontal saddle to slide on the bed, a spindle journaled in the vertical saddle, a pulley on said spindle, a belt engaging said pulley, a main feed-shaft actuated by said driving-belt, independent feed devices for said two saddles, a train of transmitting mechanism between said main feed-shaft and said feed devices, and a disk and bush-wheel in said train of transmitting mechanism.

3. In a milling-machine, the combination, substantially as set forth, of a bed, a column at one end thereof, a vertical saddle to slide on said column, a horizontal saddle to slide on said bed, a spindle journaled in the vertical saddle, a second column adjustably mounted on said bed, a cylindrical bearing carried by said second column, a steady-bar carried by said vertical saddle, an arm projecting from said steady-bar and having an eye adapted for alinement with said spindle, and an outward cylindrical prolongation from said steady-bar adapted for engagement with said bearing.

4. In a milling-machine, the combination, substantially as set forth, of a bed, a column at one end thereof, a vertical saddle to slide on said column, a horizontal saddle to slide on said bed, a spindle journaled in the vertical saddle, a clamp adapted to be secured adjustably along said bed, a column rising from said clamp, a bearing vertically adjustable on said clamp-column, a socket carried by said vertical saddle above and parallel with said spindle, a steady-bar having alining ends engaging said socket and said bearing respectively, and an arm projecting from said steady-bar and having an eye adapted for alinement with said spindle.

5. In a milling-machine, the combination, substantially as set forth, of a bed, a column at one end thereof, a vertical saddle to slide on said column, a horizontal saddle to slide on said bed, a spindle journaled in the vertical saddle, a cylindrical socket carried by said vertical saddle above and parallel with said spindle, a steady-bar engaging said socket, and an arm projecting from said steady-bar and carrying a plurality of eyes adapted for alternative alinement with said spindle.

6. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, an adjustable eccentric spindle supported below said idle pulley, a pulley on said eccentric spindle, and a belt engaging all said pulleys.

7. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, an adjustable eccentric spindle supported below said idle pulley, a pulley on said eccentric spindle, a gear fast with said last-mentioned pulley, a main feed-shaft parallel with said eccentric spindle, a gear on said main feed-shaft and engaging the before-mentioned gear, and a belt engaging all said pulleys.

8. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, a swinging arm mounted on a horizontal axis below said idle pulley, a clamp for securing said arm in adjusted position, a pulley carried by the free portion of said arm, and a belt engaging all said pulleys.

9. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, a swinging arm mounted on a horizontal axis below said idle pulley, a clamp for securing said arm in adjusted position, a main feed-shaft at the axis of said arm, a gear on said main feed-shaft, a pulley carried by the free portion of said arm, a gear carried by said last-mentioned pulley engaging the before-mentioned gear, and a belt engaging all said pulleys.

10. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, a swinging arm mounted on a horizontal axis below said idle pulley, a clamp for securing said arm in adjusted position, an eccentric spindle carried by the free portion of said arm, a pulley on said eccentric spindle, a gear on said last-mentioned pulley, a feed-shaft at the axis of said arm, a gear on said feed-shaft and engaging the before-mentioned gear, and a belt engaging all said pulleys.

11. In a milling-machine, the combination, substantially as set forth, of a horizontal bed, a column at one end thereof, a horizontal saddle to slide upon the bed, a vertical saddle to slide upon the column, a spindle journaled in the vertical saddle, a pulley on said spindle, an idle pulley carried by the vertical saddle below said spindle-pulley, a driving-pulley supported by said column, a swinging arm mounted on a horizontal axis below said idle pulley, a clamp for securing said arm in adjusted position, a feed-shaft at the axis of said arm, a pulley mounted on the free portion of said arm, interchangeable gears on said feed-shaft and said last-mentioned pulley, and a belt engaging all said pulleys.

12. In a milling-machine, the combination, substantially as set forth, of a bed, a column thereon, a horizontal saddle to slide on the bed, a vertical saddle to slide on the column, a screw in the column for adjusting the vertical saddle, a screw in the bed for adjusting the horizontal saddle, a bed-shaft journaled in the bed, means for rotating said bed-shaft, a pair of clutch-gears loose on said bed-shaft and facing each other, gearing connecting one of said clutch-gears with the bed-screw, gearing connecting the other of said clutch-gears with the column-screw, a single clutch splined to the bed-shaft and adapted to engage either of said clutch-gears, and a lever for shifting said clutch.

13. In a milling-machine, the combination, substantially as set forth, of a bed, a column thereon, a horizontal saddle to slide on the bed, a vertical saddle to slide on the column, a screw in the column for adjusting the vertical saddle, a screw in the bed for adjusting the horizontal saddle, a bed-shaft journaled in the bed, means for rotating said bed-shaft, a pair of clutch-gears loose on said bed-shaft and facing each other, gearing connecting one of said clutch-gears with the bed-screw, gearing connecting the other of said clutch-gears with the column-screw, a single clutch splined to the bed-shaft and adapted to engage either of said clutch-gears, a lever for shifting said clutch, a horizontal trip-rod mounted on the bed and engaging said lever, and a tappet carried by said horizontal saddle and engaging said trip-rod.

14. In a milling-machine, the combination, substantially as set forth, of a bed, a column thereon, a horizontal saddle to slide on the bed, a vertical saddle to slide on the column, a screw in the column for adjusting the vertical saddle, a screw in the bed for adjusting the horizontal saddle, a bed-shaft journaled in the bed, means for rotating said bed-shaft, a pair of clutch-gears loose on said bed-shaft, gearing connecting one of said clutch-gears with the bed-screw, gearing connecting the other of said clutch-gears with the column-screw, a clutch splined to the bed-shaft and adapted to engage either of said clutch-gears, a lever for shifting said clutch, a horizontal trip-rod mounted on the bed and engaging said lever, a tappet carried by said horizontal saddle and engaging said trip-rod, a vertical trip-rod carried by said vertical saddle, and a dog carried by said vertical trip-rod and adapted to engage said horizontal rod.

15. In a milling-machine, the combination, substantially as set forth, of a bed, a column thereon, a horizontal saddle to slide on the bed, a vertical saddle to slide on the column, a screw in the column for the adjustment of the vertical saddle, a screw in the bed for the adjustment of the horizontal saddle and fitted for a crank at its outer end, a back shaft journaled in the bed and fitted for a crank at its outer end, gearing connecting the inner end of said back shaft with the column-screw, a bed-shaft mounted in the bed, means for rotating said bed-shaft, and gearing connecting said bed-screw and bed-shaft and back shaft.

16. In a milling-machine, the combination, substantially as set forth, of a column, a vertical saddle sliding thereon, a spindle journaled in said saddle and projecting endwise therefrom, a gear fast on the projecting end of said spindle, a locking-bolt carried by said gear, a pulley loose on said spindle, a pinion and notched plate fast together and mounted on the axis of said spindle between said gear and pulley, an eccentric stud carried by said saddle parallel with said spindle, and a gear and pinion fast together and mounted on said eccentric stud.

660,201. MOP-WRINGER. LIONEL W. RICHARDSON, Roscoe, Ill. Filed Mar. 17, 1900. Serial No. 9,042. (No model.)

Claim.—1. In a mop-wringer, the combination of a support, a guide supported thereby, a pair of jaws supported by the guide forming a receptacle to receive a mop, and means forming a connection between the jaws and support whereby the downward movement of the mop located between the jaws will cause the jaws to press against it.

2. In a mop-wringer, the combination of a support, a guide supported thereby, a pair of jaws pivotally supported by the guide, links connecting the jaws and support, and a spring connection between the guide and support.

3. In a mop-wringer, the combination of a support, a guide movable in the support, a pair of jaws pivotally supported by the guide, links connecting the jaws and support, and crossing each other and a spring connection between the guide and support.

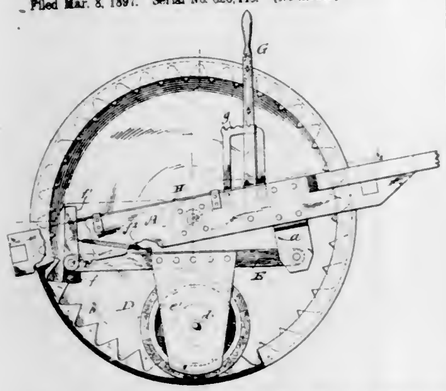
660,202. PHOTOGRAPHIC OBJECTIVE. PAUL RUDOLPH, Jena, Germany, assignor to The Firm Carl Zeiss, same place. Filed Jan. 2, 1900. Serial No. 160. (No model.)

Claim.—A spherically and chromatically corrected objective having

an anastigmatically-flattened field and consisting of at least three separate lenses so as to include at least two air-spaces, in which objective two of the air-spaces are separated from the diaphragm each by at least one lens and confined one by a pair of glass surfaces the power of which is positive and the other by a pair of glass surfaces the power of which is negative, essentially as described.



660,203. ROAD-ROLLER. MAX G. SCHINKE, Milwaukee, Wis. Filed Mar. 8, 1897. Serial No. 626,448. (No model.)



Claim.—1. The combination with a hollow roller of a weight contained in said roller and arranged to strike against its rim and produce a tamping action upon the ground or surface over which the roller passes, substantially as and for the purposes set forth.

2. The combination with a hollow roller, of a vertically-movable weight contained therein, and means of alternately lifting and dropping said weight against the working side of said roller, substantially as and for the purposes set forth.

3. The combination with a hollow roller, of a tamping-weight contained therein and arranged to impart blows thereto, and means of regulating the force of said blows, substantially as and for the purposes set forth.

4. The combination with a hollow roller, of a rotary cylindrical weight contained therein, and having its axis substantially parallel therewith, and means of alternately lifting and dropping said weight, substantially as and for the purposes set forth.

5. The combination with a hollow roller, of a rolling weight guided therein with its axis parallel with the axis of the roller, means of alternately lifting and dropping said weight, and means of varying the distance that the weight is lifted, substantially as and for the purposes set forth.

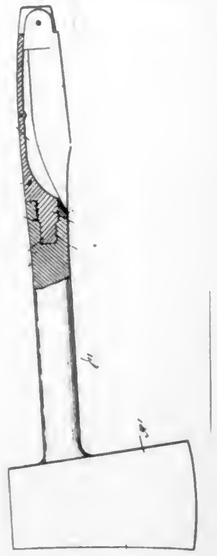
6. The combination of a hollow roller and a rotary cylindrical weight adapted to impart blows against the interior thereof and provided with a covering of elastic or non-resonant material, substantially as and for the purposes set forth.

7. The combination with a suitable frame, of a hollow roller journaled therein, a support pivotally connected with said frame, a weight attached to said support inside of the roller, and teeth or projections on the inside of said roller arranged to engage with said support and alternately lift and drop said weight when the roller is turned, substantially as and for the purposes set forth.

8. The combination with a suitable frame, of a hollow roller journaled therein and provided inside with teeth or projections, a support pivotally connected with said frame, a weight attached to said support opposite the working side of the roller, and a dog adjustably connected with said support so as to engage more or less with said teeth or projections, substantially as and for the purposes set forth.

9. The combination with a suitable frame, of a hollow roller journaled therein and provided inside with a circular series of teeth or projections, a support pivotally connected with said frame, a weight attached to said support within said roller, a dog pivotally connected with said support, and means of projecting said dog more or less into the path of said teeth, substantially as and for the purposes set forth.

660,204. COMBINATION-TOOL. WILLIAM E. SEELYE, Brainerd, Minn. Filed Sept. 12, 1899. Serial No. 730,231. (No model.)



Claim.—1. A combination-tool, comprising an ax and a knife, with a handle common to both and made in sections removably connected with each other, one section being for the ax and the other for the knife, the blade of the knife when closed, serving to lock the sections against accidental disconnection, substantially as shown and described.

2. A combination-tool, comprising an ax and a knife, with a handle common to both and made in sections removably connected with each other, one section being for the ax and the other for the knife, the sections being locked against accidental disconnection by the free end of the knife-blade, when the latter is in a closed position, substantially as shown and described.

3. A combination-tool, comprising an ax and a knife, with a handle common to both and made in sections removably connected with each other by a rotary connection, one section being for the ax and the other for the knife, the free end of the knife-blade being adapted to engage a recess in the ax-handle section to lock the knife against accidental disconnection from the ax, as set forth.

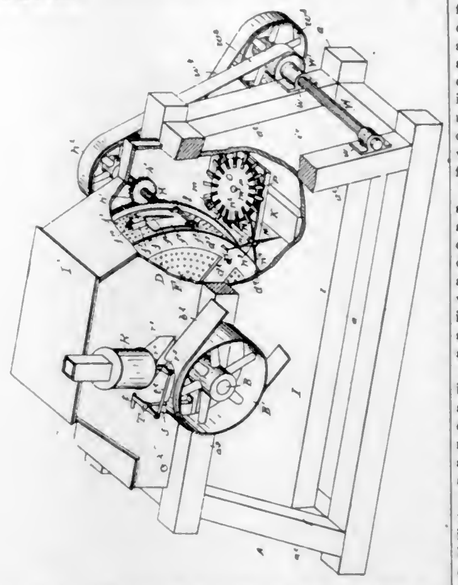
4. A combination-tool, comprising an ax-head, a knife-blade, an ax-handle, a knife-handle, a casing screwing in the end of the ax-handle, the knife-blade being adapted to engage with its free end a lined recess in the ax-handle, substantially as shown and described.

5. The combination with the handle of an ax or the like, of a knife handle or casing removably connected with the ax-handle by a rotary connection and provided with a blade, the end of which is adapted to engage the end of the ax-handle to lock the parts together, substantially as described.

6. The combination with the handle of an ax or the like having a threaded socket and a recess in its end, of a knife handle or casing provided at one end with a pivoted blade and at its other end with a screw-threaded rod screwing into the socket of the ax-handle, the end of the blade of the knife normally engaging the recess of the ax-handle and locking the parts together, substantially as described.

660,205. GRAIN-SCOURER. OKE A. SHONBECK, Kansas City, Mo., assignor of one-half to Lysander R. Moore, Jr., same place. Filed Apr. 23, 1897. Renewed Mar. 29, 1900. Serial No. 10,702. (No model.)

Claim.—1. In a grain-scourer comprising a grain-scouring rotary wheel and its driven shaft, an independently-rotating grain-scouring, perforate case extending around said grain-scouring wheel, having an opening for the reception of the uncleaned grain in the end of said case, and a separate opening for the discharge of the scoured grain in the side of said case, a door to said latter opening hinged to the said case, a self-fastening device for said door upon said case, a cam on said door, and a door-closing device upon a suitable fixed support in the path of the cam on said door.



2. In a grain-scourer, the combination with the main frame of a grain-scouring wheel and its driven shaft, an independently-rotating grain-receiving case extending around said scouring-wheel, having an opening for the reception of the uncleaned grain, and a separate discharge-opening, a door to said latter opening hinged to said case, a self-fastening device to said door upon said case, means substantially as described for rotating said scouring-wheel and case at different degrees of speed, and mechanism substantially as described upon said frame controlling the unfastening automatically of the fastening device to said door.

3. In a grain-scourer, the combination with the main frame of a grain-scouring wheel and its driven shaft, an independently-rotating grain-receiving case extending around said scouring-wheel, having an opening for the reception of the uncleaned grain, and a separate discharge-opening, a door to said latter opening hinged to said case, and a self-fastening device for said door upon said case, means for rotating said scouring-wheel and case simultaneously and at different degrees of speed, mechanism substantially as described upon said frame controlling the unfastening automatically of the fastening device to the door, a door-closing device upon said frame in the path of the said door when in an open position, and a cam on said door in the path of the said door-closing device.

4. In a grain-scourer, the combination with the main frame of a grain-scouring wheel and its driven shaft, and an independently-rotating grain-receiving case, extending around said scouring-wheel, having an opening for the reception of the uncleaned grain, and a separate discharge-opening, a door to said latter opening hinged to said case, a latch-bolt upon said case, and a tripping device upon said frame in the path of the latch-bolt.

5. The combination with a suitable frame of a rotary case journaled thereon, having a suitable discharge-opening, and a door thereto, hinged to said case, a self-acting door-fastening latch secured to said case, a shaft near the periphery of said case, a worm-gear on said shaft, a worm-wheel actuated by the worm-gear, power-conveyers connecting the said case with the said shaft, and latch-operating devices upon the worm-wheel in the path of and intermittently releasing the said latch, and means substantially as described for rotating said case.

6. The combination with a suitable frame, of a rotary case having a suitable frame, of a rotary case having a suitable discharge-opening and a door thereto, hinged to said case, a self-acting door-fastening device secured to the said case, means for rotating said case, a shaft near the periphery of said case, power-conveyers connecting said shaft and case adapted to impart intermittent rotation to the shaft, a worm upon said shaft, a worm gear-wheel actuated by said worm-gear and adjustable radial plates upon said worm-wheel, in the path of and adapted to contact with and release the fastening device to the door upon said rotary case.

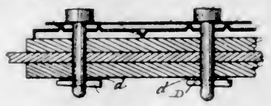
7. In a grain-scourer, a suitable frame, a rotary, perforate case, and a grain-scouring device within said case, said case having a suitable opening for the reception of the uncleaned grain, and a discharge-opening, a door to said latter opening hinged to said case, a latch-bolt on said case for said door, a lever operating said bolt, a cam on said door, a power-driven shaft near the periphery of said case, power-conveyers connecting said shaft and case, a separate shaft near the said periphery of said case, a hub on said shaft, radial arms on said hub, and pins on the side of said case, adapted to contact with said radial arms, a worm on said shaft having said radial arms, a worm gear-wheel actuated by said worm, plates upon the said worm-wheel adapted to come into contact with the lever operating the latch-bolt on said door, in the circle of rotation of the worm-wheel, and a stationary door-closing device upon the other side of the frame, in the path of the cam on said door.

8. The combination with a suitable frame of a rotary case having a suitable discharge-opening and a door thereto hinged to said case, a self-acting door-fastening device secured to said case, means for rotating said case, a shaft near the periphery of said case, a hub on said shaft, and radial arms on said hub, a worm upon said shaft and a worm gear-wheel actuated by said worm-gear, adjustable radial plates upon the said worm-wheel in the path of and adapted to contact with and release the fastening device to the door upon said rotary case, and pins upon the side of said case adapted to come into contact with the radial arms on said shaft and communicate an intermittent rotary motion to said shaft.

9. The combination with a rotary case having an annular opening in its side and at its axis, for the reception of the material to be treated and a valve discharge-opening, a hopper, a valve in said hopper, a conductor leading from said hopper to the said annular opening, a lever connected at one end with said valve, and cams upon one side of said case, adapted to come into contact with the other end of said lever alternately and also alternately open and close the valve in said hopper.

10. The combination with a rotary grain-scouring case, provided with axial annular flanges and its supporting-frame, of disks secured to the inner sides of said frame, and provided with annular flanges serving as bearings for the flanges on the said case, a hopper a valve in said hopper, a conductor connected with said hopper and extending through one of the said disks, a crank-shaft connected with said valve in said hopper, a support upon said frame, a pivoted lever upon said support having one end extending in the direction of the side of said rotary case and a link connecting said crank-shaft and the other end of said lever and curved guides upon the side of said case opposite in position, in eccentric planes adapted to contact alternately with the end of the said lever.

660,206. SPRING-FASTENER FOR BOLTS. SAMUEL C. BALL, Chicago, Ill. Filed Nov. 7, 1898. Serial No. 695,700. (No model.)



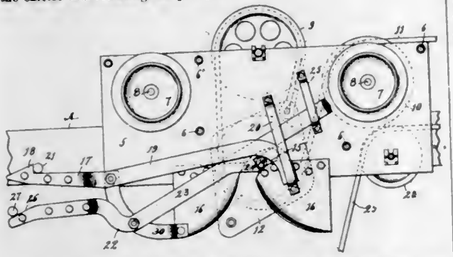
Claim.—1. In a spring-fastener for bolts, the combination of the pieces to be secured together provided with openings, a metal spring-plate extending from one bolt to the other and provided with openings and having projections and located on the outer surface of one of said pieces, another plate extending from one bolt to the other and provided with openings and located on the outer surface of the said spring-plate, bolts passing through the openings of said plates and the pieces to be secured together and having near one of their ends a slot, and a key located in said slot, substantially as described.

2. In a spring-fastener for bolts, the combination with the pieces to be secured together provided with openings, of a spring-plate provided with projections on each of its sides and having openings and located on one of the said pieces, another plate provided with openings and located on the outer projections of the spring-plate, bolts passing through openings in said plate and the pieces to be secured together and having near one of their ends a slot, and a key located in said slot, substantially as described.

660,207. ELEVATOR AND CARRIER. EDWARD C. BERGHOEFER, Milwaukee, Wis. Filed Dec. 23, 1899. Serial No. 741,352. (No model.)

Claim.—1. In an elevator and carrier, a carrier-frame having substantially parallel side plates provided with oppositely-disposed medial recesses extending upwardly and forwardly from the lower edges of the plates, a hoisting-pulley, a movable pulley-block and a pulley therein having an axle projecting laterally beyond the sides of the block, the axle being adapted to contact with and rest on the recess edges of the carrier-plates and be supported thereby, a cable running under the pulley of the block and over the hoisting-pulley, a releasable pulley-block latch pivoted on the carrier and provided with a catch adapted by the gravity of the latch to fall behind and across the path of the laterally-projecting axle on

the pulley-block, and means for uptilting the lever by the movement of the carrier and releasing the pulley-block.

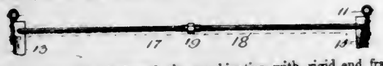


2. In an elevator and carrier, the combination of the carrier-frame having side plates with recesses extending inwardly upwardly from the lower edges of the plates, an independent movable pulley-block and pulley, a pulley-axle projecting laterally beyond the pulley-block adapted to enter the recesses in the side plates of the carrier and to engage said plates, means for raising and letting down the pulley-block, a furcate gravity-tilting carrier-latch the furcate members of the latch being exterior to and pivoted on the carrier and adapted by gravity to engage a permanent stop and to be lifted by the rising pulley-block and released from the stop, a furcate gravity-tilting pulley-block latch pivoted on the carrier adapted by gravity to engage releasably portions of the pulley-axle projecting laterally from the pulley-block, and means adapted by the rearward movement of the carrier to engage and tilt the pulley-block latch releasing the pulley-block.

3. In an elevator and carrier, a carrier-frame having substantially parallel side plates with upwardly-extending recesses, medially a pulley-block suspended from and movable toward and from the carrier, a pulley in the pulley-block, said pulley having an axle projecting laterally beyond the walls of the block, and a carrier-latch and a pulley-block latch, both latches being pivoted on the carrier so as by gravity to fall across the path of the projecting extremities of the block-pulley axle in said recesses.

4. In an elevator and carrier, a carrier-frame having substantially parallel side plates and plate-connecting cross-rods, a cable-supporting pulley and a hoisting-pulley mounted in the frame, an independent movable pulley-block and pulley, said pulley having an axle projecting laterally beyond the walls of the pulley-block, a hoisting-cable attached to the pulley-block and running about the cable-supporting pulley and under the block-pulley and over the hoisting-pulley, and means adapted automatically to engage the projecting extremities of the axle and hold the pulley-block to the carrier, and other means adapted automatically to engage a stop and hold the carrier in place on its track, and to be engaged by the axle on the pulley-block and by the movement of the pulley-block to release the carrier from the stop.

660,208. **BEDSTEAD.** BYRON R. BLAISDELL, Chicago, Ill. Filed Feb. 1, 1900. Serial No. 3,558. (No model.)

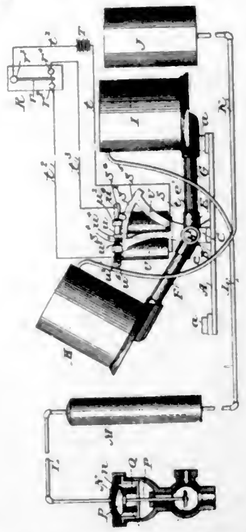


Claim.—1. In a bedstead, the combination with rigid end frames having pillars, of side rails having hook-form brackets engaging the pillars, an extensible tie-rod having hooks for engaging the side rails, and a turnbuckle for extending and contracting the rod.

2. In a bedstead, in combination, rigid end frames having pillars, side rails having instanding flanges and being provided at their ends with brackets in hook form for engaging the pillars, an extensible tie-rod for clamping the hooks of the pillars and having at its ends hooks for engaging the side rails, and a turnbuckle for extending and contracting the rod.

660,209. **APPARATUS FOR REGULATING TEMPERATURE IN STEAM-HEATED BUILDINGS.** ALBERT M. BUTZ, Chicago, Ill. Filed Feb. 1, 1899. Serial No. 704,073. (No model.)

Claim.—1. Oscillating receptacles, a valve controlled thereby, a latch for holding such receptacles in a determined position, a magnetic releasing device for operating said latch, a diaphragm-controlled steam-valve, a pipe from one of such receptacles to above such diaphragm, a pipe from the other of such oscillating receptacles to an additional receptacle, and an additional receptacle; the arrangement of the several parts being such that the pressure obtaining in the oscillating receptacles, when such receptacles are, respectively, in communication with the water-supply, is obtained above the diaphragm and in the additional receptacle, respectively, and when such oscillating receptacles, respectively, are not in communication with the water-supply, is applied to force the water in such oscillating receptacles, respectively, to waste; substantially as described.

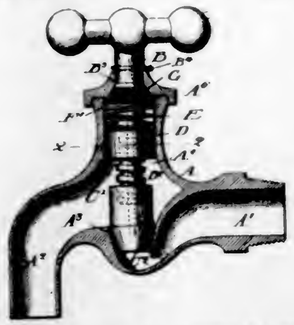


2. Oscillating receptacles, a valve controlled thereby, a latch for holding such receptacles in a determined position, means for yieldingly holding the latch in engagement, a diaphragm-controlled steam-valve, a pipe from one of the oscillating receptacles to above the diaphragm, an additional receptacle, a pipe from such additional receptacle to one of the oscillating receptacles, the arrangement of the several parts being such that the pressure obtaining in the oscillating receptacles, when such receptacles are, respectively, in communication with the water-supply, is obtained above the diaphragm and in the additional receptacle, respectively, and when such oscillating receptacles, respectively, are not in communication with the water-supply, the pressure obtaining above the diaphragm and in the additional receptacle, respectively, is applied to force the water in such oscillating receptacles, respectively, to waste; an electromagnet, an armature and a connection between the armature and the latch, a thermostat device, electric circuits in which the coils of the electromagnet, the thermostat device and an electric generator are placed, and means for making and breaking the circuits alternately by the change in position of the oscillating receptacles; substantially as described.

3. Oscillating receptacles, a valve controlled thereby, a latch for holding such receptacles in a determined position, means for yieldingly holding the latch in engagement, a diaphragm-controlled steam-valve, a pipe from one of the oscillating receptacles to above the diaphragm, an additional receptacle, a pipe from such additional receptacle to one of the oscillating receptacles, the arrangement of the several parts being such that the pressure obtaining in the oscillating receptacles, when such receptacles are, respectively, in communication with the water-supply, is obtained above the diaphragm and in the additional receptacle, respectively, and when such oscillating receptacles, respectively, are not in communication with the water-supply, the pressure obtaining above the diaphragm and in the additional receptacle, respectively, is applied to force the water in such oscillating receptacles, respectively, to waste, an electric magnet, an armature and a connection between the armature and the latch, a thermostat device, electric circuits in which the coils of the electric magnet, the thermostat device and an electric generator are placed, and means for making and breaking the circuits alternately by the change in position of the oscillating receptacles; substantially as described.

4. Oscillating receptacles, a valve controlled thereby, a latch for holding such receptacles in a determined position, means for yieldingly holding the latch in engagement, a diaphragm-controlled steam-valve, a pipe from one of the oscillating receptacles to above the diaphragm, a receptacle interposed in the pipe between the oscillating receptacle and the diaphragm, an additional receptacle, a pipe from such additional receptacle to one of the oscillating receptacles, the arrangement of the several parts being such that the pressure obtaining in the oscillating receptacles, when such receptacles are, respectively, in communication with the water-supply, is obtained above the diaphragm and in the additional receptacle, respectively, and when such oscillating receptacles, respectively, are not in communication with the water-supply, the pressure obtaining above the diaphragm and in the additional receptacle, respectively, is applied to force the water in such oscillating receptacles, respectively, to waste, an electromagnet, an armature and a connection between the armature and the latch, and electric circuits in which the coils of the electromagnet are placed, a thermostat device also placed in such circuits, and means for making and breaking the circuits alternately by the relative change in position of the oscillating receptacles; substantially as described.

660,210. **SPIGOT.** JAMES M. CARRICO and WILLIAM G. CARRICO, Towson, Md. Filed Jan. 22, 1900. Serial No. 2,392. (No model.)

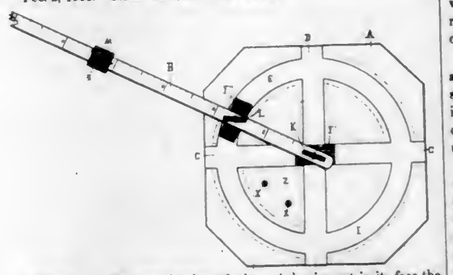


Claim.—1. In a valve-casing, the combination of a reciprocating valve held against rotation, a threaded stem for operating the same, a compressor threaded upon said stem and held against rotation, a conical packing-block surrounding said stem and expanded laterally in the reciprocation of said compressor, and a cap surrounding said packing; substantially as specified.

2. In a valve-casing, the combination of a cap therefor, a reciprocating valve held against rotation, a threaded stem for operating the same, a compressor threaded upon said stem and held against rotation, a packing-block surrounding said stem and expanded into contact with said stem and cap in the reciprocation of said compressor, and a spring interposed between said packing and compressor; substantially as specified.

3. In a valve-casing provided with a vertical way, the combination of a valve-holder having wings operating in said way and interiorly threaded, an independent interiorly-threaded compressor provided with wings traveling in said way, a threaded stem passing through said compressor and entering said valve-holder, a compressible conical packing-block surrounding said stem above said compressor, a spring interposed between said packing and compressor, and a cap fitting said packing and secured to said valve-casing; substantially as specified.

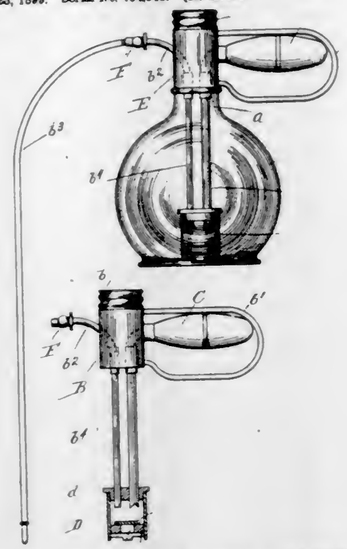
660,211. **MAT-CUTTER.** CARL C. DURKEE, Richmond, Ind. Filed Feb. 2, 1900. Serial No. 3,658. (No model.)



Claim.—1. The combination, of a base A having cut in its face the circular undercut groove E and also two straight undercut grooves along lines diametrical to the circular groove and at right angles to each other, a cutting-knife 2 secured to an arm B and adapted to rotate around the base A, blocks F' and F'' pivoted to said arm and adapted to cause the knife to describe a circle or an ellipse around the base A, all as described and set forth.

2. In a cardboard-cutter, the combination of a base A with undercut grooves C and D, at right angles to each other, a circular groove E around the face of A and uniting with the grooves C and D, blocks F' and F'' of a triangular form adapted to slide in said grooves, an arm B connecting said blocks and extending out to any desired length, a knife-holder 3 and a knife 2, as shown, adapted to be secured at any point on the arm B, all as described and for the purposes set forth.

660,212. **SYRINGE.** EMANUEL E. ERTSMAN, Chicago, Ill. Filed Oct. 23, 1899. Serial No. 734,515. (No model.)



Claim.—1. The combination of a receptacle provided with a neck, a sleeve removably fitted upon said neck, a removable cap fitted upon the upper end of said sleeve, a bulb projecting laterally from the side of said sleeve, a spout or nozzle projecting laterally from the side of said sleeve, a passage which connects said bulb with said spout or nozzle, said passage extending downward into the receptacle and having at its lowest point a lateral opening, a check-valve for said lateral opening, said valve opening to permit fluid to enter the said passage and closing to prevent backflow therefrom, and a handle secured to the side of said sleeve and arranged in such manner that the bulb can be compressed against its under surface, substantially as and for the purpose set forth.

2. The combination of a suitable receptacle provided with a neck, a sleeve removably fitted upon said neck and provided with a bulb and a spout or nozzle, means for connecting said bulb with said spout or nozzle whereby the contents of the receptacle can be drawn into the bulb and then ejected therefrom by way of said spout or nozzle, and a cap which is adapted to screw upon the upper end of said sleeve and which is provided with a flexible tube through which liquid can be drawn into the receptacle by the action of the bulb and then ejected therefrom by way of said spout or nozzle, substantially as and for the purpose set forth.

3. A fluid-ejector comprising a receptacle provided with a nozzle and a laterally-extending bulb and having also a laterally-extending loop-shaped handle which incloses and forms a guard for said bulb and which is arranged in such manner that its upper horizontal portion and the bulb can be grasped together and the latter thereby compressed against the under surface of such portion.

4. A fluid-ejector comprising a glass bottle provided with a neck, a metal sleeve fitted upon said neck, a spout secured to said sleeve, a loop-shaped handle extending laterally from said sleeve, a bulb arranged horizontally within said handle, and in such manner that the handle serves as a guard for the bulb, and glass tubing which connects the spout with the bulb and which extends downwardly into the interior of the bottle, the tubing being provided at its lower portion with a valved opening, and a compression of the bulb against the under surface of the upper horizontal portion of the handle operating to eject the fluid from the bulb by way of said tubing and spout.

5. A fluid-ejector comprising a receptacle provided with a neck, a sleeve fitted upon said neck, a spout secured to said sleeve, a bulb secured to said sleeve, a loop-shaped handle secured to said sleeve and arranged to inclose and form a guard for said bulb, the arrangement being such that the bulb and handle can be grasped together and the bulb thereby compressed against the inner surface of said handle, and means for con-

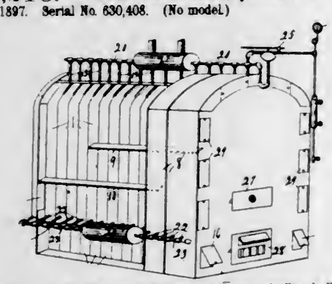
necting the bulb and spout with the interior of said receptacle, so as to permit the liquid to be first drawn into said bulb and then ejected therefrom by way of said spout.

6. The combination of a receptacle, a compressible bulb, a siphon, suitable valves and connecting-passages whereby the contents of the receptacle can be first drawn into the bulb and then ejected therefrom by way of said siphon, the liquid entering and leaving the bulb through one and the same passage, and means for admitting air to the interior of said receptacle; the siphon and bulb passages leading downward to a point near the bottom of the said receptacle, and the two passages being connected at such point by a suitable check-valve device; and a metal sleeve which is fitted upon the neck of said receptacle, and to which are secured the said bulb, siphon and tubes providing the aforesaid passages, substantially as described.

7. The combination of a receptacle, a siphon, a compressible bulb, a handle arranged to inclose and form a guard for the said bulb, and suitable valves and passages whereby the liquid can be first drawn into the bulb and then ejected therefrom by way of said spout, the liquid entering and leaving the bulb by one and the same passage.

8. The combination of a glass receptacle, a metal sleeve fitted upon the neck of said receptacle, a spout secured to said sleeve, a bulb secured to said sleeve, a handle arranged to inclose and form a guard for said bulb, suitable passages whereby the liquid can be first drawn into the bulb and then ejected therefrom by way of said spout, and a flexible tube having its end adapted for attachment to the said sleeve, substantially as and for the purpose set forth.

660,213. **HEATER.** JOHN E. FROST, Watkins, N. Y. Filed Apr. 2, 1897. Serial No. 630,408. (No model.)



Claim.—1. In a steam or hot-water heater, similar boiler-sections having in combination vertical side water-spaces, an upper water-space or steam-space, connecting the side spaces and of the same thickness, a central water-space of less thickness, extending between the side spaces and communicating therewith and with the steam-space, forming when the sections are assembled outlets for the products of combustion, substantially as described and shown.

2. In a steam or hot-water heater similar boiler-sections having in combination vertical side water-spaces, an upper water-space or steam-space connecting the side spaces and of the same thickness, a central water-space of less thickness extending between the side spaces and communicating therewith and with the steam-space, recesses in the side walls of said steam-space, forming when the sections are assembled outlets for the products of combustion, and recesses in the said side water-spaces forming jet-flues for the introduction of air into the combustion-chamber.

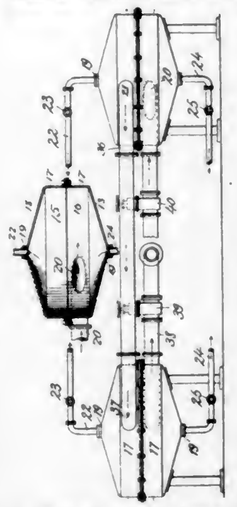
3. In a hot-water or steam heater, a series of boiler-sections having in combination vertical water-spaces on each side, an upper water space or crown, a wedge-shaped water-space, communicating with said side spaces and said upper space and extending downwardly from said upper space toward the fire; recesses in said crown, and recesses in the sides of said vertical water-spaces, forming when the sections are assembled respectively outlets for the products of combustion and inlets for air.

4. In a heater, the combination of a metallic casing, similar boiler-sections having solid legs and outwardly-overhanging water-spaces, and plates arranged horizontally in combination with said overhang to form a hot-air flue within the casing, and upwardly-inclining jet-tubes leading from said hot-air flue to the combustion-chamber for the introduction of hot air.

5. In a steam or hot-water heater, similar boiler-sections having in combination vertical side water-spaces, a superior water-space or steam-space connecting the side spaces and of the same thickness, a central water-space of less thickness, extending between the side spaces and communicating therewith and with the steam-space, recesses in the side walls of said steam-space, forming when the sections are assembled outlets for the products of combustion, and recesses in the front and rear walls of the lower ends of said side spaces forming upwardly and inwardly inclined jet-flues for conducting hot air from a hot-air flue within the jacket to the combustion-chamber.

6. In a heater, the combination of a metallic casing, horizontal baffle-plates arranged on each side between the boiler and the casing, a lower horizontal plate forming a hot-air flue between the legs of the boiler and the casing; similar boiler-sections comprising solid legs, vertical side water-spaces, and a steam space or crown connecting said side spaces, all of the same width, and a central water-space extending downwardly from said steam-space toward the fire and communicating therewith and with said side spaces; elongated recesses in front and rear walls of said steam-space, and upwardly-inclined recesses in the front and rear faces of said side spaces, said recesses forming when the sections are assembled respectively outlets for the products of combustion above and inlets for the admission of hot air from said hot-air flue to the combustion-chamber, substantially as described and shown.

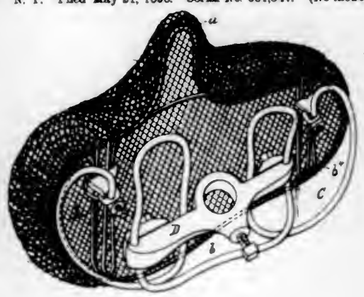
660,214. **PROCESS OF PURIFYING WATER.** LOUIS GATHMANN, Washington, D. C., assignor to George Whitman McMullen, Picton, Canada. Filed Sept. 16, 1899. Serial No. 730,723. (No specimens.)



Claim.—1. The herein-described treatment of water for removing impurities therefrom, which consists in passing a body of water through a closed chamber whereby a vortical action is developed therein, and the impurities separated therefrom and drawing off the separated impurities at each end of the axis of the vortex while the purified water escapes from the periphery thereof, substantially as described.

2. The herein-described treatment of water for the separation of impurities therefrom which consists in delivering the same tangentially under pressure into a vessel provided with circular side walls whereby a vortical action is developed in the body of water and the impurities are separated therefrom and drawing off the separated impurities at the ends of the axis of the vortex and the purified water from the periphery, substantially as described.

660,215. **BICYCLE-SADDLE.** ORVILLE S. HARMON, New York, N. Y. Filed May 21, 1898. Serial No. 681,347. (No model.)



Claim.—1. In a bicycle-saddle the combination of a suitable frame, and a seat portion of tempered wire, curved protuberantly between the upper and lower portions, said seat portion being made thicker at the front than at the rear portion.

2. In a bicycle-saddle, the combination of a suitable frame, and a seat portion of tempered wire, curved protuberantly between the upper and lower portions, said seat portion being more protuberant at the front than at the rear portion.

3. In a bicycle-saddle, the combination of a suitable frame, and a seat portion of tempered wire curved protuberantly between the upper and lower portions, said seat portion being made thicker and more protuberant at the front than at the rear portion.

4. In a bicycle-saddle the combination of a suitable frame, a seat portion of woven wire fastened to said frame and curved protuberantly between the upper and lower portions, the said wire being tempered so that its resilience will tend to preserve the normal shape of the seat while it is not in use.

5. In a bicycle-saddle the combination of a suitable frame, a seat portion of wire curved protuberantly at its front and sides between the upper and lower portions of said frame, the wire of the seat being tempered so that its resilience will tend to preserve the normal shape of the seat while it is not in use.

6. In a bicycle-saddle, the combination of a frame formed from a single piece of wire that is bent to have two layers of wire at all parts of the frame, and a seat portion of woven wire, the edge of which is curved inwardly and held between the two layers of wire of the frame, whereby the frame will take up the strain put upon the seat portion, substantially as described.

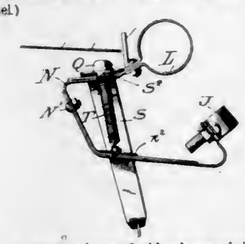
7. In a bicycle-saddle, the combination of a frame formed from a single piece of wire that is bent to have two layers of wire arranged one above the other at all parts of the frame, and a seat portion of woven wire, the edge of which is curved inwardly so as to have it held between the two layers of wire, whereby the frame will take up the strain put upon the seat portion, substantially as described.

8. In a bicycle-saddle, the combination of a frame made from a single piece of wire that is bent to have two layers of wire at all parts and loops which extend across the frame on each side of the front and rear middle line thereof, a resilient seat portion having its edge held between the two layers of wire of said frame, and a supporting-spring, said supporting-spring being attached at its end to said loops, substantially as described.

9. In a bicycle-saddle, the combination of a suitable frame, and a seat portion of tempered woven wire having a continuous periphery which is secured to said frame at all points of its periphery, said seat portion being curved upwardly and outwardly from the frame at the sides and front thereof, and said curve having a gradually-increasing radius beginning from the rear of the frame and ending at the front, and then gradually decreasing along the horn of the saddle.

10. In a bicycle-saddle, the combination of a suitable frame, and a seat portion of tempered woven wire having a continuous periphery which is secured to said frame at all points of its periphery, said seat portion being curved upwardly and outwardly from the frame from its periphery, and said curve having a gradually-increasing radius beginning at the rear of the frame and ending at the front thereof, substantially as described.

660,216. **CYCLIST'S BRACE AND BACK-SUPPORT.** WILLIAM C. HUMPHREY, Jamestown, N. D. Filed Dec. 22, 1899. Serial No. 741,303. (No model.)



Claim.—1. An attachment for bicycles, consisting of a lug-carrying member designed to be secured to the head or post and handle-bar of a bicycle, a spring-actuated lever mounted on said member and engaging over the lug, means for tilting said lever, and a link engaging said lug and a body-brace connected to said link, as shown and described.

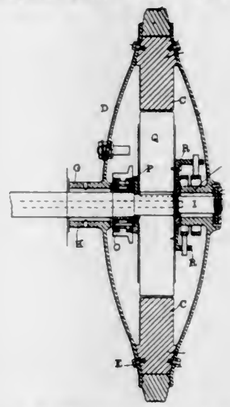
2. In combination with a bicycle, a member secured to the handle-bar and post thereof, the casting secured to said member having a right-angled upwardly-projecting portion, a lug on said casting and a recessed portion in the upright portion thereof, a spring secured to the upright portion and a link adapted to engage over said lug and held in engagement therewith by means of said spring, and means for disengaging the link from the lug, as set forth.

3. In combination with a bicycle, the member secured to the handle-bar and post thereof, a casting having an integral lug and an angled extension secured to said member, the angled portion of said casting being recessed, a spring secured to the face of said angled extension over the recess, and a spring-actuated angle-lever having an apertured end seated over said lug and loosely mounted on said member, means for tilting said lever, and a link and body-brace, as shown and described.

4. In combination with a bicycle, the member N secured to the handle-bar and post thereof, an apertured plate R, a right-angled casting fastened to said member, a lug on said casting, a link adapted to engage said lug, the body-brace secured to the link, a spring-plate mounted over a recess in the upright portion of the casting, a spring-actuated lever loosely mounted in an elongated aperture in the plate R, a lug on said lever adjacent to its fulcrumed point, the lower end of the lever being apertured and a chain secured thereto, and the plate R^2 having an elongated aperture through which said lever passes and is guided, as set forth.

5. In combination, a member having two parts held together, one of which has a clip adapted to be secured to the post of a bicycle, the other having pivoted straps designed to be attached to the handle-bar, a casting, a lug thereon, a link adapted to engage over said lug, and a body-brace secured to the link, as shown and described.

660,217. **ELECTRIC-MOTOR WHEEL.** CHARLES E. ISBILLS, Passaic, N. J. Filed Dec. 13, 1899. Serial No. 740,202. (No model.)



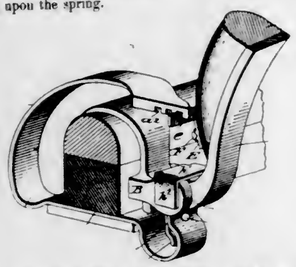
Claim.—1. In an electric-motor wheel, the combination with the tire, of a field-magnet ring, webs extending in a single piece beyond said ring, a tire surrounding said ring and located between the extensions of said webs, an axle, and bearings formed respectively in a single piece with said webs and surrounding said axle.

2. An electric-motor wheel consisting of the combination of a field-magnet ring having internally-radiating cores and a circular contour, a tire mounted at the circumference upon said ring, webs having central bearings respectively formed thereon, secured to said ring and projecting beyond the same for the purposes described of holding said tire upon said ring, and an axle having the armature and commutator of the motor fixed thereon, brush-holders for the commutator carried upon one of the webs, and collector-rings mounted upon the bearing of the other web, and a brush-holder for the collector-rings screwed upon said axle against said armature.

3. In an electric-motor wheel, the combination with a field-magnet ring, a dished web fastened to said ring on one side and having a bearing formed in a single piece with said web and extending away from the armature of said motor, a commutator on the axle of the motor between said bearing and said armature, a second dished web secured to the other side of said ring and having a bearing formed in a single piece with said web and extending toward said armature, and carrying collector-rings, suitable brushes being provided for said commutator and said rings, and the field-magnet, armature, commutator, collector and brushes being completely inclosed in a dust-proof manner within said webs.

660,218. **COMBINED SHAFT-SUPPORT AND COUPLING.** WILLIAM E. MURRARGER, Indianapolis, Ind. Filed Feb. 7, 1900. Serial No. 4,378. (No model.)

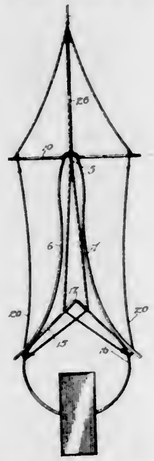
Claim.—1. In combination with a thill-coupling, of a flat spring secured thereto and extending upward between the ears of the thill-coupling, a plate slidably connected to said flat spring and having a depending member or members adapted to retain the bolt or pin of the thill-coupling in place, and means substantially as shown for holding said plate in position upon the spring.



2. In combination with a thill-coupling, of a flat spring secured to the thill-coupling and extending upward between the ears thereof to engage the thill-eye, said flat spring having a straight portion at the lower end of which the spring is curved abruptly outward, forming a shoulder; a plate slidably connected to the straight portion of the spring and provided at its upper end with depending members extending over the ears of the thill-coupling; and an outwardly-curved spring portion at the lower end of the slidable plate adapted to engage the shoulder of the spring and hold said plate in position, substantially as shown and for the purpose set forth.

3. The combination with the thill-coupling and shaft, of a combined shaft-support, antirattler and bolt-retainer, comprising a flat spring secured to the lower end of the thill-coupling, said spring having a rear member extending upward over the thill-coupling to engage and support the shaft and a forward member curved upward between the ears of the thill-coupling to engage the thill-eye; a plate slidably mounted on the forward member of the spring, and a projection on said plate adapted to engage a shoulder on said spring, substantially as shown and for the purpose set forth.

660,219. GRAPPLING-IRON. PEARSON F. MCCLINTICK, Brookfield, Mo. Filed Feb. 13, 1900. Serial No. 5,069. (No model.)



Claim.—1. A grapple comprising hinged jaws having perforations adjacent their mutual connection, and a cord passed through the perforation of each jaw and connected with the opposite jaw between the perforations and the grip edge of the jaw, whereby the jaws may be suspended in a closed position.

2. A grapple comprising jaws having a hinged connection, a guide in each jaw adjacent the hinge, a cord passed through the guide of each jaw and connected with the opposite jaw between the guide and the gripping edge thereof whereby the jaws may be suspended in a closed position and means connected with the jaws for holding them in their open position.

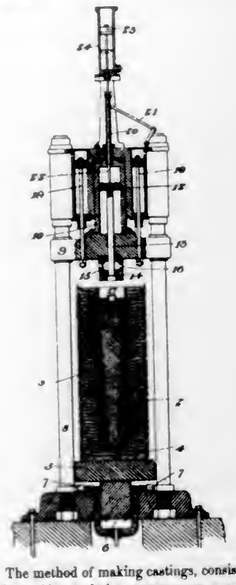
3. A grapple comprising a carrier including converging members having openings in their outer extremities, a cross-head connected with the carrier, jaws having a hinged connection and adapted to fold and enter between members of the carrier to close them, means for raising the jaws to enter between the converging members of the carrier to close the jaws and means for raising the carrier from the jaws to permit them to open.

660,220. FUSE-IGNITER. JOHN T. NAGLE, Butte, Mont. Filed June 7, 1899. Serial No. 719,671. (No model.)



Claim.—An igniting device for fuses, consisting of a suitable tube, a composite combustible filling therein extending beyond one end of the tube to form an exposed portion, a friction-match tip embedded in the composite filling, and a waterproof coating covering the exposed portions of the filling and the match-tip, substantially as and for the purpose set forth.

660,221. MANUFACTURE OF ORDNANCE AND PROJECTILES. JOHN A. POTTER, Cleveland, Ohio. Filed Apr. 15, 1898. Serial No. 677,660. (No model.)



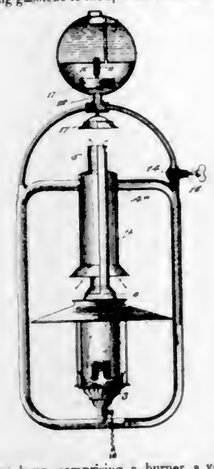
Claim.—1. The method of making castings, consisting in subjecting molten metal in the mold to endwise pressure over a major portion of its area, keeping the central end portion hot, and then compressing this central portion alone by further localized pressure after the hardening of the outer shell; substantially as described.

2. The method of making castings, consisting in subjecting molten metal in the mold to endwise pressure over substantially the entire end portion; keeping the central end portion hot, and then compressing this central portion alone after the compression of the entire end portion; substantially as described.

660,222. CARBURETING-LAMP. JOSEPH C. PEDEN, New Albany, Ind., assignor to the Aladdin Incandescent Gas Lamp Company, same place. Filed Feb. 6, 1900. Serial No. 4,175. (No model.)

Claim.—1. A carbureting-lamp, comprising a burner, a vapor-pipe having communication with the burner, a heating-tube arranged above the burner and supported on the burner-chimney, an air-drum for receiving heat from the heating-tube and having communication with the vapor-pipe, a spreader extended downward in the vapor-pipe, and means for supplying gasolene to the spreader, substantially as specified.

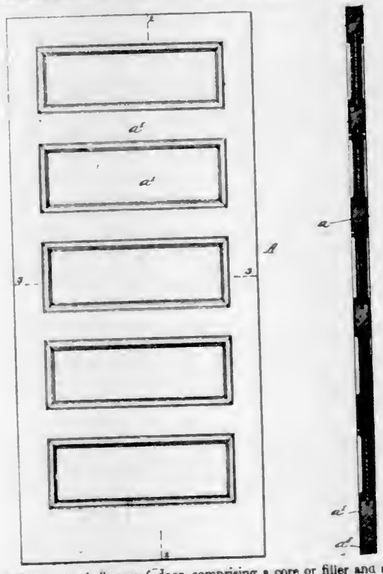
2. A carbureting-lamp, comprising a burner, a vapor-pipe having communication with the burner, a heating-tube arranged above the burner and supported on the burner-chimney, an air-drum surrounding the heating-tube and in which the heating-tube is movable vertically, the said drum having communication with the vapor-pipe, a spreader in the vapor-pipe, and means for supplying gasolene to the spreader, substantially as specified.



3. A carbureting-lamp, comprising a burner, a vapor-pipe having communication with the burner, a heating-drum having communication with said pipe, a spreader, and means for moving said spreader into and out of the vapor-pipe, substantially as specified.

4. In a carbureting-lamp, a gasolene-container having upper and lower chambers, a valve-casing extended through the partition dividing said chambers, the said tube being extended above and below the partition, a valve operating in the valve-casing, a float connected to the valve, a pipe or nipple extended through the bottom of the lower chamber, and slightly above the wall thereof, a tube leading from said nipple, a vapor-pipe with which said tube communicates, a valve in said tube, and means for supplying air to the vapor-pipe, substantially as specified.

660,223. FIREPROOF DOOR. JOHN W. RAPP, New York, N. Y. Filed Dec. 18, 1899. Serial No. 740,655. (No model.)

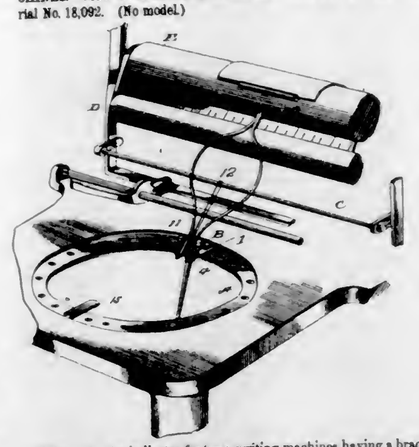


Claim.—1. A fireproof door comprising a core or filler and a metallic casing, said casing being without a seam or joint.

2. The combination in a fireproof door, of a core or filler, a metallic front and back for said core flanges provided on said front and back, which flanges extend onto the top, bottom, and side edges of the core and are fused together.

3. The combination in a fireproof door, of a core or filler, having a groove in its top, bottom, and side edges, a metallic front and back for said core, a flange provided on said front and back, which flanges extend onto the top, bottom, and side edges of the core and are fused together, and an extension on each flange which extends into the said groove.

660,224. INDICATOR ATTACHMENT FOR TYPE-WRITING MACHINES. JOHN W. SHINHOLSER, Macon, Ga. Filed May 26, 1900. Serial No. 18,092. (No model.)



Claim.—1. An indicator for type-writing machines having a bracket secured to the frame, a hinged pointer connected to said bracket, a spring bearing on the pointer and tending to hold it down, and a loose connection from the pointer to the carriage by which the pointer is lifted as the carriage is lifted.

2. An indicator attachment for type-writing machines, having a forked bracket for attachment to a screw of the machine proper, a pointer hinged to said bracket and a spring for retaining said pointer in depressed position, an attachment to the frame by which said pointer is supported when depressed, and a link connecting the pointer to the carriage, in combination with the machine-frame and carriage, substantially as described.

3. An indicator for type-writers having a support which in operation is attached to the rear part of the frame, a pointer yieldingly connected to the support and normally projecting forward beyond the printing-center and passing around said center, and a link extending from said pointer and loosely embracing a longitudinal rod of the type-writer carriage, whereby the elevation of the carriage draws on the link and lifts the pointer, substantially as described.

4. In combination with the ring or basket of a type-writing machine, an indicator-pointer pivotally supported and connected to the rear portion of said basket, means connected to the carriage for lifting said pointer when the carriage is lifted, and means for holding the pointer down when the carriage is down, and a shelf at the front of the basket on which the pointer rests in its down position, whereby the pointer serves as a ribbon-guard, substantially as described.

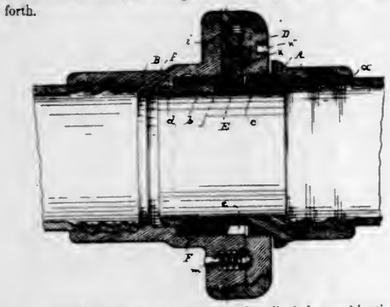
5. In an indicator for type-writing machines, a forked bracket to embrace a screw-head on a type-basket, a pointer consisting of a bow having its rear ends pivoted in said bracket, a spring bearing on the bracket and on the pointer to press the pointer down as described, and a link connected to said pointer and having an opening through which the bar of the type-writer carriage may pass loosely, substantially as described.

660,225. HOSE-COUPLING. DAVID SMITH, Cleveland, Ohio. Filed Aug. 12, 1899. Serial No. 727,026. (No model.)

Claim.—1. A hose-coupling comprising the members A B, one having a groove-gland with reduced terminal, the other having a screw-threaded recessed head and recessed bore, blocks sliding in the recesses of the head, a ring in suitable engagement with said blocks, to enable locking and unlocking of the coupling and a flanged nut screwing over said head to retain the ring and blocks in operative connection, all constructed and arranged substantially as and for the purpose set forth.

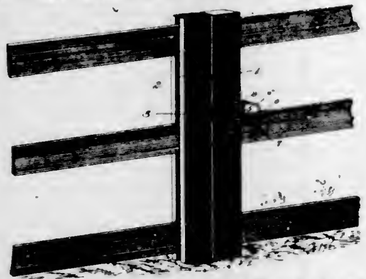
2. In a hose-coupling the combination of the metallic hose members A B one serving in the capacity of a stuffing-box, the other as a gland for said stuffing-box, a jam-ring, jam-blocks and a flange-nut, the said jam-ring containing eccentric grooves and the blocks being adapted for engagement in said grooves and a tapering circular groove of the gland, for

connection of the members A B and compression of the packing contained therein all constructed and arranged substantially as and for the purpose set forth.



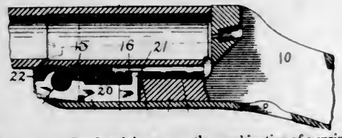
3. In a hose-coupling of the kind as described the combination with the head of one of its members, the jam-blocks, the jam-ring and a flange-nut of spring-actuated pins engaging said ring substantially in the manner as and for the purpose set forth.

660,226. GATE-LATCH. LEWIS M. SMYTH, Uvalde, Tex. Filed Dec. 2, 1899. Serial No. 739,001. (No model.)



Claim.—In a gate-latch, the combination with a post, of a gate movable toward and from the same, a catch in the post consisting of a substantially U-shaped piece of resilient material, the ends of which are passed through the post and secured, and each leg is provided with a coil, the axis of which is at right angles to the leg and parallel with the axis of the other coil, said coils being at the same distance from the end and extending toward each other, the outer and inner portions of the leg being in parallel planes, the outer portion being farther from the gate than the inner portion, and a catch upon the gate in position to pass between the coils when the gate is closed said catch being of a greater width than the normal distance between the coils with which it is adapted to engage.

660,227. SHELL EXTRACTOR AND EJECTOR FOR BREAK-DOWN GUNS. PHILIP W. SOUTHGATE, Worcester, Mass., assignor to the Forehand Arms Company, same place. Filed Apr. 6, 1900. Serial No. 11,820. (No model.)



Claim.—1. In a breakdown gun, the combination of a spring-pressed ejector-bolt, and a detent for preventing the ejector-bolt from flying back until the gun is substantially wide open, said parts having engaging cam-faces for imparting a positive motion to the ejector-bolt as the detent is withdrawn, substantially as described.

2. In a breakdown gun, the combination of a spring-pressed ejector-bolt having a recess with an incline or cam face at the end thereof, and a detent fitting into said recess so as to prevent the ejector-bolt from flying back until the gun is substantially wide open, and having a cam-face for imparting a positive motion to the ejector-bolt when the detent is withdrawn, substantially as described.

3. In a breakdown gun, the combination of a spring-pressed ejector-bolt having a recess with an incline or cam face, and a spring-pressed detent-lever pivoted substantially in the line of motion of the ejector-bolt, and having an integral detent-head fitting into the recess in the ejector-bolt and having an incline or cam face engaging the inclined face of the ejector-bolt to impart a positive motion to the ejector-bolt when the detent-lever is turned, substantially as described.

4. In a breakdown gun, the combination of the frame, a barrel having a lug fitting therein, a hinge-pin pivotally connecting said parts, an ejector-bolt fitting into a hole bored longitudinally in the barrel-lug, said ejector-bolt having a recess with an incline or cam face at the end thereof, a spring normally tending to move back the ejector-bolt, a detent-lever mounted in a longitudinal slot in the barrel-lug and pivoted on the hinge-pin substantially in the line of motion of the ejector-bolt, the front end of said detent-lever extending forward in front of the hinge-pin, and the rear end of said detent-lever having an integral detent-head with an incline or cam face corresponding with the incline or cam face of the ejector-bolt, and a spring normally holding the parts in engagement so that when the gun is opened a positive motion will be imparted to the ejector-bolt as the detent-head is withdrawn from the recess in said ejector-bolt, substantially as described.

5. In a breakdown gun, the combination with an ejector-bolt which is transversely notched to form a recess having parts of different depths, one side of said recess being formed by an incline or cam face, and a detent engaging said recess and having a corresponding incline or cam face for imparting a positive motion to the ejector-bolt when withdrawn from the deeper part of said recess and acting as a stop or key for limiting the motion and preventing the withdrawal of the ejector-bolt while in engagement with the shallower part of said recess, substantially as described.

660,228. PLATE OR ELEMENT FOR STORAGE BATTERIES. ELMER A. SPERRY, Cleveland, Ohio. Filed Mar. 26, 1900. Serial No. 10,197. (No specimens.)

Claim.—1. The material herein described for the plates or elements of storage batteries consisting of a set mass, composed of an intimate mixture of an alkali-metal salt, lead oxid, and finely-divided lead, moistened with a solution of a hydroxid of the alkali metals.

2. A storage-battery element consisting of a supporting grid or plate having a coating attached thereto, said coating primarily composed of finely-divided metallic lead, lead oxid and an alkali-metal salt, moistened with a solution of a hydroxid of the alkali metals, substantially as set forth.

3. As an article of manufacture, an element for batteries consisting of a supporting grid or plate upon and into which is pressed active material consisting of a set mass composed of an intimate mixture of alkali-metal salt, lead oxid and finely-divided lead, moistened with a solution of a hydroxid of the alkali metals.

660,229. ALARM. EUGENE STRATTON and FRED A. COLE, New York, N. Y. Filed Dec. 23, 1899. Serial No. 741,458. (No model.)



Claim.—1. The combination with a bicycle-frame, of a clip, a bracket adjustably secured to said clip, a sound-box hinged to said bracket, a spring alarm-blade upon the outside of said box, a toothed wheel journaled outside said box for engagement with said blade, and means for effecting the engagement and the disengagement of said wheel with the bicycle-wheel, substantially as specified.

2. The combination with a bicycle-frame, of a clip, a bracket adjustably secured to said clip, a sound-box hinged to said bracket, a spring alarm-blade upon the outside of said box, a toothed wheel journaled outside said box in extensions of side pieces thereof, and adapted for engagement with said blade, and means for effecting the engagement and the disengagement of said wheel with the bicycle-wheel, substantially as specified.

3. The combination with a bicycle-frame, of a clip, a bracket secured to said clip, a sound-box hinged to said bracket, a spring alarm-blade upon the outside of said box, a toothed wheel journaled outside said box in extensions of side pieces thereof, engaging said blade, and adapted for engagement with the bicycle-wheel, a spring secured to the outside of said bracket, and having an arm overlapping and bearing upon the frame of said sound-box at a point beyond its pivot, to normally hold said wheel and sound-box away from the bicycle-wheel, together with means for temporarily maintaining said toothed wheel in engagement with the bicycle-wheel, substantially as specified.

4. The combination with a bicycle-frame, of a clip, a bracket secured to said clip, a sound-box hinged to said bracket, a spring alarm-blade upon the outside of said box, a toothed wheel journaled in extensions of side pieces of said box, and engaging said blade, and means for effecting

the engagement and disengagement of said wheel with the bicycle-wheel, substantially as specified.

660,230. LOCK. JOHN J. TREAT, New Britain, Conn. Filed Apr. 6, 1900. Serial No. 11,835. (No model.)

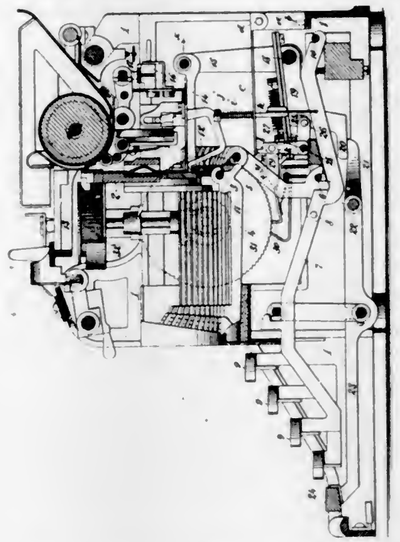


Claim.—1. A lock-bolt controlled by a single set of tumblers, in combination with a plurality of independent keys operative simultaneously side by side, the operative bittings of all of which aggregate in number the number of tumblers in the lock.

2. The combination in a lock with the bolt and the tumblers controlling said bolt, of a plurality of independent rotatable keys operative simultaneously side by side, the bittings of all of which aggregate in number the number of tumblers in the lock.

3. A lock-bolt controlled by a single set of tumblers mounted upon the same pivot in combination with a plurality of independent keys operative simultaneously side by side, the bittings of all of which together aggregate in number the number of tumblers in the lock whereby it is necessary to use the keys together to operate the lock.

660,231. TYPE-WRITING MACHINE. FRANZ X. WAGNER, New York, N. Y., assignor to the Wagner Typewriter Company, same place. Filed Jan. 25, 1900. Serial No. 2,737. (No model.)



Claim.—1. In a device of the character specified, the combination of a carriage, feed mechanism for effecting a movement of the carriage in the direction of its feed, a "blank" key and means controlled by the operation of said "blank" key for automatically locking the feed mechanism out of operation and for maintaining the carriage against movement in the direction of its feed when the "blank" key is operated.

2. In a device of the character specified, the combination of type-carriers, keys for operating said type-carriers, a carriage, feed mechanism for said carriage, a "blank" key and means controlled by the operation of said "blank" key for automatically locking the feed mechanism out of operation when the "blank" key is operated, the feed mechanism and locking means cooperating to effect a release of the locking means when any of the keys of the type-carriers are operated.

3. In a device of the character specified, the combination of type-carriers, keys for operating said type-carriers, a carriage, feed mechanism for said carriage, a spacing-key for operating said spacing mechanism, a "blank" key, means controlled by the operation of said "blank" key for automatically locking the feed mechanism out of operation when the "blank" key is operated and mechanism for automatically effecting the release of the locking means by a depression of any of the keys of the type-carriers or by the depression of the spacing-key.

4. In a type-writing machine, the combination of a detachable locking-dog support, a locking-dog carried thereby, means for operatively connecting said dog to a writing-key, and a locking-abutment coöperating with the locking-dog and adapted to be moved at each operation of the finger or spacing key.

5. In a type-writing machine, the combination of spacing mechanism, a movable spring-pressed locking-dog, means for operatively connecting said dog to a writing-key, and a locking-abutment coöperating with the locking-dog, said locking-abutment being adapted to be operatively connected to the spacing mechanism and adapted to be moved at each operation of said spacing mechanism.

6. In a type-writing machine, the combination of spacing mechanism, a movable spring-pressed locking-dog, yielding means for operatively connecting said dog to a writing-key, the tension of said yielding means being sufficient to overcome the tension of the spring of the locking-dog, and a locking-abutment coöperating with the locking-dog, said locking-abutment being adapted to be operatively connected to the spacing mechanism and adapted to be moved at each operation of said spacing mechanism.

7. In a type-writing machine, the combination of a movable spring-pressed locking-dog, a spring-pressed connection between said locking-dog and a writing-key, a locking-abutment with which said locking-dog coöperates, means for moving the locking-abutment at each operation of a writing or spacing key, and means carried by the locking-abutment to retain the locking-dog against movement.

8. The combination of a feed-dog, a rack, means for moving one of said elements laterally with relation to the other, a plurality of writing-keys and locking means operatively connected to one of said writing-keys for automatically locking the movable feed element against movement when the key to which the locking means are connected is operated.

9. The combination of a feed-dog and rack, means for moving one of said elements laterally with relation to the other, a plurality of writing-keys, a spacing-key, locking means operatively connected to one of said writing-keys for automatically locking the movable feed elements against movement in one direction when the key to which the locking means are connected is operated and means for automatically releasing said locking means upon the operation of any of the other keys.

660,232. OAT-GRADER. FRANCIS E. WALSH, Cedar Rapids, Iowa. Filed Mar. 9, 1900. Serial No. 8,041. (No model.)



Claim.—1. In an oat-grader, an apron-skeleton, comprising a series of rectangular frames adapted to inclose a grader-plate, each frame having a rounded edge on one side and a concave edge on the opposite side, and having lateral pivot-lugs and hooks concentric with said rounded and concave edges, substantially as and for the purpose set forth.

2. In an oat-grader, an apron-skeleton, comprising a series of interlinking rectangular frames adapted to inclose a grader-plate, each frame having one rounded edge and a concave edge opposite thereto, a portion of the inner concave edge being removed to allow the frames to turn at an angle to each other, substantially as described.

3. In an oat-grader, the described plate-inclosing frame, having one of its longer sides rounded outwardly and the opposite side concave, lateral lugs and hooks concentric with said rounded and concave edges, and inwardly-projecting lugs to serve for the attachment of, and as a support for, a grader-plate.

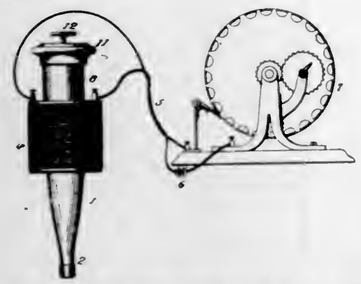
660,233. APPARATUS FOR TREATING DISEASES OF THE EAR. ROBERT WATSON, Washington, D. C., assignor of one-half to Charles A. Kram, same place. Filed Oct. 19, 1898. Serial No. 694,032. (No model.)

Claim.—1. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber, open at its forward end, said chamber having a vent, of a reciprocating plunger adapted to compress the air within the chamber, and means for automatically opening the vent to equalize the air-pressures within and without said chamber after compression has been effected.

2. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, said chamber having an inlet, of a reciprocating plunger adapted to rarefy the air within the chamber, and means for automatically opening the inlet to equalize the air-pressures within and without said chamber after rarefaction has taken place.

3. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, of a recip-

rocating plunger adapted to alternately compress and rarefy the air within the chamber, and means for automatically equalizing the air-pressures within and without said chamber after each operation of compression and rarefaction.



4. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, said chamber having a vent, of a reciprocating plunger adapted to compress the air within the chamber, said plunger being adapted to open the vent after compression has been effected, to equalize the air-pressures within and without said chamber.

5. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, said chamber having an inlet, of a reciprocating plunger adapted to rarefy the air within the chamber, said plunger also being adapted to open the inlet after rarefaction has been effected to equalize the air-pressures within and without said chamber.

6. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, said chamber having a vent and an inlet, of a reciprocating plunger adapted to alternately compress and rarefy the air within the chamber, said plunger being adapted to open the vent and inlet after each operation of compression and rarefaction respectively, so as to equalize the air-pressures within and without the chamber.

7. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, of a reciprocating plunger adapted to compress the air within the chamber, said plunger having a vent therein, and means for opening said vent after compression to equalize the air-pressures within and without said chamber.

8. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, of a reciprocating plunger adapted to rarefy the air within the chamber, said plunger having an inlet therein, and means for opening said inlet after rarefaction to equalize the air-pressures within and without said chamber.

9. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, of a reciprocating plunger adapted to alternately compress and rarefy the air within the chamber, said plunger having a vent and an inlet, and means for opening said vent and inlet after each operation of compression and rarefaction respectively, to equalize the air-pressures within and without said chamber.

10. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, and means for alternately compressing and rarefying the air within said chamber, said chamber having a vent adapted to release the air after compression and an inlet adapted to admit air after rarefaction, of means for regulating the degree of compression or rarefaction within the chamber.

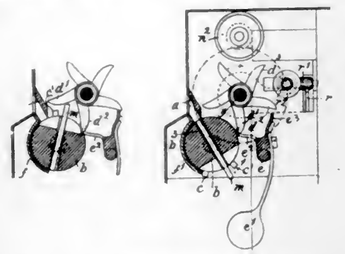
11. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, and a reciprocating plunger adapted to alternately compress and rarefy the air within the chamber, said chamber having a vent adapted to release the air after compression and an inlet adapted to admit air to the chamber after rarefaction to equalize the air-pressures within and without said chamber after each of said operations, of means for adjusting and limiting the movement of the plunger.

12. In an apparatus for treating diseases of the ear, the combination with a laterally-inclosed air-chamber open at its forward end, and means for alternately compressing and rarefying the air within said chamber, said chamber having a vent and an inlet normally closed during the operations of compression and rarefaction, of automatic means for opening said vent after compression has been effected and for opening said inlet after rarefaction has been effected.

13. In an apparatus for treating diseases of the ear, the combination with the laterally-inclosed air-chamber open at its forward end, said air-chamber having a vent, of means for compressing the air within the chamber and for automatically opening said vent after compression to equalize the internal and external air-pressures.

14. In an apparatus for treating diseases of the ear, the combination with the laterally-inclosed air-chamber open at its forward end, said chamber having an inlet, of means for automatically rarefying the air within the chamber and for automatically opening said inlet to equalize the internal and external air-pressures after rarefaction has been effected.

660,284. PREPAYMENT GAS-METER. Challenger Whitham and Edward Large, Oldham, England. Filed July 25, 1899. Serial No. 725,043. (No model.)



Claim.—1. In a prepayment-meter, the combination of a horizontal coin-carrier slotted so as to retain the coin protruding at the under side of the carrier, means for oscillating the carrier from the outside, a spider-wheel actuated by the projecting coin and advanced by one arm for each oscillation of the carrier, a pawl engaging directly with and adapted to arrest the spider-wheel in a position to press the coin partly out of the slot during the oscillation of the carrier, and a segmental shield for retaining the coin in its position in the carrier while actuating said spider-wheel, the protruding coin being adapted to release the pawl from the spider-wheel slightly in advance of the rotation of the spider-wheel by the coin.

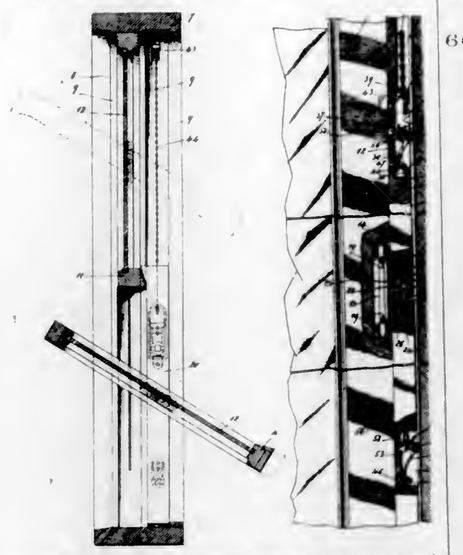
2. In a prepayment-meter the combination of a spider-wheel and an oscillating coin-carrier slotted so as to retain the coin level with one side and protruding at the other, and notched out at the sides of the protruding coin for allowing the coin to drive the spider-wheel, the carrier and spider-wheel being so placed that when the coin has advanced one arm of the spider the next following arm has entered the notch and is pushed back by the return oscillation of the carrier.

3. In a prepayment-meter the combination of a screw-spindle rotated for an equal angle by each coin inserted, a cylindrical nut thereon, a gas-inlet valve fixed to the nut at one end so as to rotate with the same, a spur-wheel fixed to the nut and gearing with a long pinion which is rotated from the index-driving shaft of the meter in such a direction that the nut is rotated in the same direction as the screw-spindle is rotated by the coin.

4. The combination with a gas-meter of a casing having a slot for the insertion of a coin, a horizontal coin-carrier slotted so as to retain the coin level with the top side and protruding at the under side of the carrier, a knob for oscillating the coin-carrier from the outside of the casing, stops for limiting the oscillation, a spider-wheel mounted upon a screw-spindle and actuated by the projecting coin so as to be advanced by one arm for each oscillation of the carrier, a pawl arresting the movement of the spider and disengaged by the coin, a segmental shield for retaining the coin in its position in the carrier while actuating said pawl and spider-wheel, a cylindrical nut mounted on the said screw-spindle, a gas-inlet valve immovably fixed to the end of the nut, a spur-wheel fixed on the nut, and gearing with a long pinion rotated from the index-driving shaft of the gas-meter in such a direction that the said nut is rotated in the same direction as the said screw-spindle is rotated by the coin.

5. In a prepayment-meter, the combination of a horizontal coin-carrier slotted so as to retain the coin protruding at the under side of the carrier, means for oscillating the carrier from the outside, a spider-wheel actuated by the projecting coin and advanced by one arm for each oscillation of the carrier, a forked pawl adapted to arrest, by one prong, the spider-wheel in such a position that the coin is pressed partly out of the slot during the oscillation of the carrier, and by the other prong to prevent the coin being turned backward after passing the same, a segmental shield for retaining the coin in its position in the carrier while actuating said spider-wheel, the protruding coin being adapted to release the pawl from the spider-wheel slightly in advance of the rotation of the spider-wheel by the coin, and a stop for stopping the rotation of the carrier before the slot therein is in line with the entrance-slot provided in the casing of the device.

660,235. WINDOW. George Worth, New York, N. Y. Filed Dec. 7, 1899. Serial No. 739,478. (No model.)



Claim.—1. The herein-described window-sash which operates in connection with a window-frame provided with stop-beads, comprising a main sash portion provided at the sides with chambers in which are sunk slotted plates; and supplemental sash members, comprising strips which fit between said stop-beads and are chambered to receive bearing-casings, other plates adjustably connected with said first-named plates and provided with bearing devices which operate in connection with the bearing-casings in said supplemental strips, said bearing devices being provided with spring-projected extensions which operate within said chambers in said strips, said strips being further chambered and provided therein with pivotally-mounted devices with which the sash cords or chains are pivotally connected and with loosely-mounted tensional devices which bear upon the window-frame, substantially as shown and described.

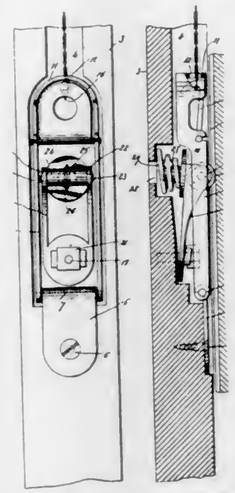
2. The herein-described window-sash which operates in connection with a window-frame provided with stop-beads, comprising a main sash portion provided centrally of the sides thereof with chambers, slotted plates sunk into said chambers and other plates adjustably connected therewith by means of adjusting devices which operate within said slots, said second-named plates being provided with lateral bearing devices, supplemental sash members comprising strips which operate between said stop-beads, and are chambered and provided with flanged casings within which said projecting bearing devices operate, studs connected with said bearing devices and coiled springs imposed upon said studs, and bearing upon said flanged casings and upon heads with which said studs are provided, substantially as shown and described.

3. In a window, a tension device which is mounted within a chamber formed in a sash member, and comprising a frame, a turnable roller carried thereby and provided with an edged periphery which is arranged to operate in connection with the window-frame, said frame being provided with a stud, a spring imposed thereon, and between said frame and the window-sash, whereby said roller is normally forced into engagement with the window-frame to positively and firmly hold said sash against vibration, substantially as shown and described.

4. A window-sash which operates in connection with a window-frame provided with stop-beads, said sash comprising a main sash portion provided at its sides with chambers in which are slotted plates, and supplemental sash members comprising strips which fit between said stop-beads and are chambered to receive bearing-casings, and plates adjustably connected with said first-named plates and provided with bearing devices which operate in connection with the bearing-casings in said supplemental strips, said bearing devices being provided with spring-projected extensions which operate within said chambers in said strips, substantially as shown and described.

5. A window-sash, provided at the sides with slotted fixed plates, other plates provided with pivotal bearings and adjustably connected with said sash by means of fastening devices which operate in connection with said slotted plates and through the slots therein, and supplemental sash members comprising strips which are operatively mounted in the window-frame and provided with bearing devices in connection with which said pivotal bearings operate, substantially as shown and described.

660,236. SASH-CORD FASTENER. George Worth, New York, N. Y. Original application filed Dec. 7, 1899, Serial No. 739,478. Divided and this application filed Apr. 27, 1900. Serial No. 14,525. (No model.)



Claim.—1. In an improved window-sash, means for connecting the sash cords or chains with the sashes consisting of link members which are pivotally connected at their lower ends in chambers formed in the sides of said sash, the sides of said link members being provided adjacent their upper ends with heads, plates pivoted between said heads by means of end bearings and provided at their upper ends with hooks with which the sash cords or chains are directly connected, and the upper ends of said link members being slotted to allow the passage therethrough of said sash cords or chains, substantially as shown and described.

2. In an improved window-sash, means for connecting the sash cords or chains with the sashes, consisting of link members which are pivotally connected at their lower ends in chambers formed in the sides of said sash, plates pivotally connected with said link members, and provided at their upper ends with hooks with which the sash cords or chains are directly connected, the upper ends of said link members being slotted to allow the passage therethrough of said cords or chains, substantially as shown and described.

660,237. TYPE-CASTING MACHINE. George H. Ziegler, Philadelphia, Pa., assignor to the American Type Founders Company, Newark, N. J. Filed Jan. 18, 1896. Serial No. 576,036. (No model.)

Claim.—1. The combination in a type-casting machine, of the mold, the matrix, a box therefor having slotted arms, pins extending into the slots of the arms, a spring-bar adapted to force the matrix against the mold, substantially as described.

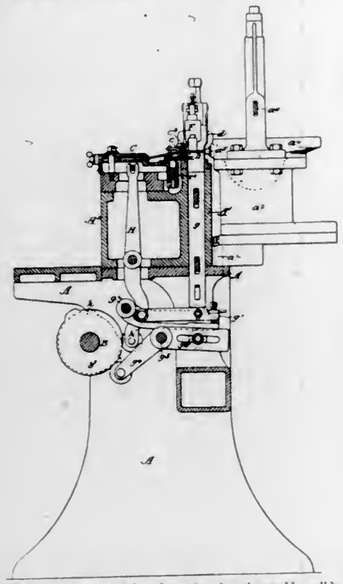
2. The combination of the mold, the slide C, a block mounted in said slide, a box resting on the block, a matrix carried thereby, slotted arms on the box, a plate c^6 carried by the block, pins on said plate adapted to the slots in the arms, said plate being laterally adjustable, substantially as described.

3. The combination in a type-casting machine having a mold and a channel for the type, a reciprocating slide F forming one side of the mold, a slide K′ in front of the slide F, a spring K carried by the slide K′ and adapted to confine the cast type in front of the slide F so that the type will be rigidly held until it reaches the channel and an adjustable stop k on the slide K′ bearing against the slide F, substantially as described.

4. The combination of the mold for the type having projections forming a nick in the side of the type, a channel through which the type passes after leaving the mold, a nick-guide in said channel narrower than the nick formed in the type so that it will bear only against the base of the nick thereby preventing the burring of the type at the nick, substantially as described.

5. The combination of the plates forming the mold, the slide F, a body-piece, a matrix, a block pivoted in the slide F, and screws for shift-

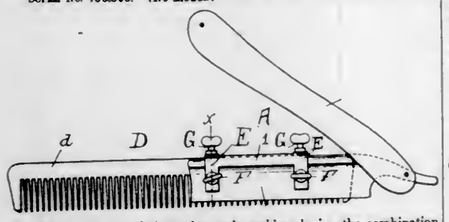
ing the block on the pivot so that the edge of the block will be kept parallel with the matrix, substantially as described.



6. The combination of the plates forming the mold, a slide, a body-piece, a matrix, a block mounted on said slide, screws bearing against each corner of the block and adapted to the slide so as to adjust the block to make its face coincide with the matrix, substantially as described.

7. The combination of plates forming a mold, a channel for the type, a body-piece, a reciprocating slide, a series of cutters L L′ which dress the upper and lower edges of the type as it is held in front of the slide and while it passes to the channel, a bracket carrying the cutter L, said bracket adapted to ways in the frame, a set-screw for vertically adjusting the bracket, a binding-screw adapted to a slot in the bracket, the lower cutter L′ having a tapered base, an inclined seat on the frame on which the cutter rests, and a clamp-screw for holding the cutter in the adjusted position.

660,238. **COMBINATION HAIR CUTTING AND COMBING DEVICE.** GEORGE W. ANDERSON, Hinton, W. Va. Filed Sept. 15, 1899. Serial No. 730,593. (No model.)

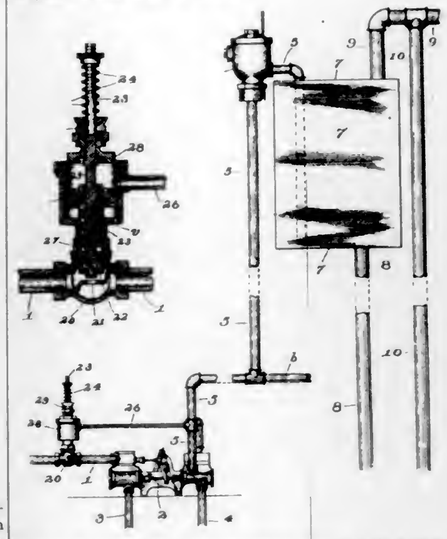


Claim.—1. As a hair cutting and combing device, the combination of a razor-blade and a comb of greater length than the blade, metallic clamps with lugs engaging between the teeth of the comb, adjusting-screws to adjust the razor-blade vertically and clamping-screws with flexible caps on their ends to maintain secure connection between the comb and razor-blade, substantially as shown and described.

2. As a hair cutting and combing device, the combination of the razor-blade B and the comb D, the connected clamps E having lugs e, the clamping-screws F and the adjusting-screws G, substantially as shown and described.

660,239. **WATER-PUMPING APPARATUS.** CHARLES ANESHANSEL, Jr., Indianapolis, Ind. Filed Mar. 5, 1900. Serial No. 7,332. (No model.)

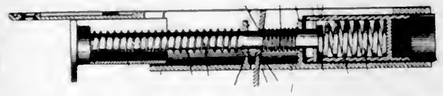
Claim.—1. The combination, in a water-pumping apparatus, with a water-motor pump, and pipes leading to and from the same, of an automatic stop-valve interposed in the pipe supplying the water for driving the motor, a casing extending upward surrounding the stem of said valve, a surface, as 27, above and opposing the top surface of said valve and balancing the same, a cup or piston on said valve-stem in an enlarged portion of said casing, a spring on an extended upper portion of said stem arranged to normally hold said valve open, and a connection leading from above the piston or disk to pipe through which the water is forced from the pump, all substantially as set forth.



2. The combination in a water-pumping apparatus, with the water-motor pump and the pipes leading thereto and therefrom, of an automatic single-seat stop-valve interposed in the pipe supplying the water for driving the pump, a casing surrounding the stem of said valve and containing an enlarged chamber, a piston in said chamber of a size larger than the valve and located above it, a pipe leading from said chamber above said piston to the pipe through which the water is forced by the pump, and a surface opposed to and balancing the valve mounted on the valve-stem and free from any seat, substantially as set forth.

3. The combination, in a water-pumping apparatus, with the motor-pump, and the pipes leading thereto and therefrom, of an automatic stop-valve interposed in the pipe supplying the water for driving the motor, said valve being mounted in a casing extending upwardly from the top of said pipe, and having a stem which extends through said casing to outside the water-chamber, a spring surrounding the top of said stem arranged to act against the pressure of the water and normally hold said valve open, a disk opposed to and balancing said valve mounted on said stem free from any seat, a piston or cup above said disk in an enlarged portion of said casing, an air-vent below said piston, and a pipe connecting the chamber above said piston with the pipe through which the water is forced by the pump, substantially as set forth.

660,240. **DOOR-CHECK.** AUGUST ARENS, New Britain, Conn., assignor to the P. & F. Corbin, same place. Filed Apr. 25, 1900. Serial No. 14,247. (No model.)



Claim.—In a door-holder, a bolt made up of telescoping members consisting of a cylindrical part adapted to bear upon the floor and an upper part connected to the lower part to permit of its having a relative movement with relation thereto; a footpiece on the upper section, a casing within which said bolt moves, a guide for the bolt attached to the footpiece and extending down into the casing; a spring normally holding the bolt in its raised position, a frictional clutch-plate fulcrumed in the casing and normally held in such a position with respect to the bolt that it is permitted to move through the plate in one direction only, a hole in a wall of the casing and a lever attached to the clutch-plate and extending through said opening, substantially as set forth.

660,241. **SHOE-LACE TIP.** GEORGE L. BENSON, HARRY K. LOGAN, and JOHN LOGAN, Jr., Hannibal, Mo. Filed June 14, 1900. Serial No. 20,348. (No model.)

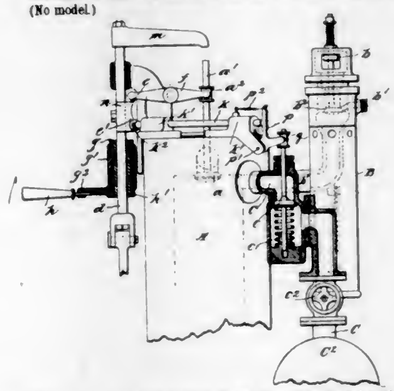


Claim.—1. A shoe-lace tip formed from a rectangular blank having a plurality of fastening-teeth extending completely over one side edge, the opposite side edge being unbroken and straight, combined with a lace extremity into which the said teeth are rolled in planes at right angles to the direction of the same, the unbroken side edge of the blank covering the toothed edge of the same when the tip is completed and fully incloses the lace extremity.

2. The combination with a lace extremity, of a tip therefor having transversely-extending fastening devices formed exclusively in one side edge which bite into the lace at angles to the length of the latter and inclosed by rolling the remaining portion of the tip in the direction of the same.

3. The combination with a lace extremity, of a tip therefor having a plurality of fastening devices along one side edge exclusively which are bent inward transversely of the tip-blank partially over the lace to engage the latter in planes at right angles to the length thereof.

660,242. **VALVE-GEAR FOR EXPLOSIVE-ENGINES.** HENRIK A. BERTHEAU, Stockholm, Sweden. Filed Jan. 14, 1898. Serial No. 666,730. (No model.)



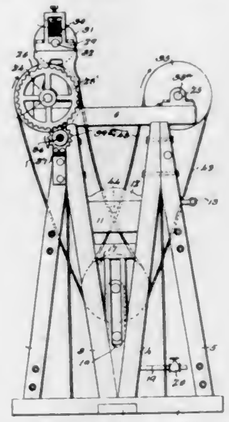
Claim.—1. In a hydrocarbon or like motive-fluid engine, the combination with the cylinder, its explosive-fluid inlet, a valve organized to control gas under pressure, devices to actuate the same, and an exhaust-valve in the end of the cylinder; of a rod revoluble on its axis, a tappet thereon arranged to strike the exhaust-valve, a lever also arranged to operate the exhaust-valve, a cam on said rod arranged to operate the devices to actuate the valve to control gas under pressure and the lever, and means for rotating the rod to cause the said cam and tappet to run idle, substantially as and for the purpose set forth.

2. In a hydrocarbon or like motive-fluid engine, the combination with the exhaust-valve stem and its operating-rod *d* having endwise and rotary motion in its bearings, the radial arm *m* and the cam-faced block *n* on said rod; of the lever *f* connected with the aforesaid valve-stem and extending into the path of said cam-faced block and a lever *h* for turning the rod in its bearings, substantially as and for the purpose set forth.

3. In a hydrocarbon or like motive-fluid engine, the combination with the valve-stems *a′* and *q*, the operating-rod *d* having endwise and rotary motion in its bearings and carrying the radial arm *m* and cam-faced block *n*, adapted to actuate the aforesaid lever *f*, and the lever *h* for turning said rod in its bearings; of the lever *f* connected with the valve-stem *a′*, the spring-controlled bell-crank lever *p* having one of its arms connected with the valve-stem *q*, and the rod *k* having bearing on the other arm of said bell-crank lever, said lever *f* and rod *k* extending into the path of the aforesaid cam-faced block, substantially as and for the purpose set forth.

4. In a hydrocarbon or like motive-fluid motor, the combination with the power-cylinder having two passages leading from the combustion-chamber of said cylinder, a valve in each of said passages opening respectively toward and from said chamber, the bell-crank lever *p* one arm of which is connected with the stem of the valve-opening from said combustion-chamber, the actuating-rod *k* connected with the other arm of said lever, the exhaust-valve *a*, and the lever *f* connected with the stem of said valve; of the rod *d* carrying the radial arm *m* and the cam-faced block *n*, adapted to actuate the aforesaid rod *k* and lever *f*, and means for imparting a partial rotation to said rod in opposite directions, substantially as and for the purpose set forth.

660,243. **COTTON-PRESS.** WILLIAM T. BESSONETTE, Temple, Tex., assignor of five-eighths to W. A. Barclay, same place. Filed Jan. 11, 1900. Serial No. 1,079. (No model.)



Claim.—1. A cotton-press having movable compressing-cords crossed or disposed in intersecting lines, and between which the bale is formed, substantially as described.

2. In a press, the series of endless traveling compressing-cords having their opposing plies between which the bale is formed traveling in opposite directions, crossed, or disposed in intersecting lines, substantially as described.

3. In a press, the combination, with the two series of endless traveling compressing-cords having their opposing sides, which travel in opposite directions, crossed, or disposed in intersecting lines, of the core-roller located at the intersection of said series of endless traveling cords, substantially as described.

4. The combination, with the series of endless traveling compressing-cords, having their opposing sides, which travel in opposite directions, crossed, or disposed in intersecting lines, of the sheave-rollers in fixed bearings for the upper portions of said series of endless traveling compressing-cords, and the follower sheave-roller, in movable bearings, for the lower portions of said series of endless traveling compressing-cords and common to both of said series of said cords, and the core-roller located at the point of intersection of the opposing sides of said series of cords, substantially as described.

5. In a press, the combination with the series of endless traveling compressing-cords having their opposing plies which travel in opposite directions and between which the bale is formed, crossed, or disposed in intersecting lines, of means to regulate the tension of said cords, substantially as described.

6. The combination, in a cotton-press, of the series of traveling compressing-cords, having their opposing sides which move in opposite directions crossed or disposed in intersecting lines, the core-roller disposed between said oppositely-moving series of cords, and means to regulate the tension of said cords, substantially as described.

7. A cotton-press comprising sheave-rollers, a follower-roller and series of endless traveling compressing-cords whereby said sheave-rollers are each independently connected directly to said follower-roller, substantially as described.

8. The combination, in a cotton-press, of the pair of sheave-rollers, in fixed bearings, the follower sheave-roller in movable bearings, the two series of endless traveling cords on said rollers, and having their opposing inner sides crossed, or disposed in intersecting lines, the core-roller disposed between said series of compressing-cords, and means to move the

follower-roller, and thereby regulate the tension of said endless compressing-cords, substantially as described.

9. In a cotton-press, the combination with the two series of crossed endless traveling compressing-cords, the follower sheave-roller therefor, and the pressure-cylinder having the piston connected to said follower sheave-roller, substantially as described.

10. In a cotton-press, the combination with the two series of crossed endless traveling compressing-cords, the follower sheave-roller therefor, the pressure-cylinder, having the piston connected to said follower sheave-roller, and the pressure-chamber or cushion for said piston, for the purpose set forth, substantially as described.

11. In a cotton-press, the combination with the two series of crossed endless traveling compressing-cords, of the follower sheave-roller, common to the cords of both series, the independent supporting sheave-rollers for said cords, and means to actuate one of said rollers, substantially as described.

12. In a cotton-press, the combination with the two series of crossed endless traveling compressing-cords of the follower-roller common to the cords of both series, the independent supporting sheave-rollers for said cords, a condenser-roll bearing on one of said supporting sheave-rollers, and means to actuate the latter, substantially as described.

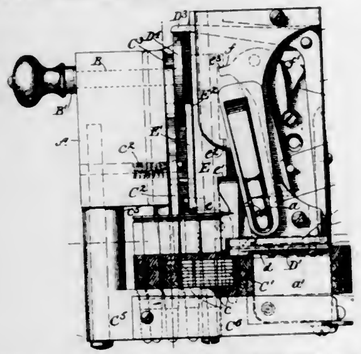
13. A cotton-press, comprising a pair of sheave-rollers in fixed bearings, a follower-roller, series of endless traveling compressing-cords connecting said sheave-rollers and said follower-roller and means to vary the tension of said compressing-cords, substantially as described.

14. The combination, in a cotton-press, of the core-roller in non-movable bearings, the series of crossed endless traveling compressing-cords contacting with said core-roller, and the sheave-rollers for said endless traveling cords, and means to rotate one of said rollers, and thereby communicate motion to all of said sheave-rollers, said endless traveling cords and said core-roller, substantially as described.

15. In a cotton-press, the combination with the series of slack crossed endless traveling compressing-cords, the core-roller, disposed between the opposing sides of said traveling compressing-cords, and so arranged with reference thereto, that the bat, rolled upon said core-roller, by contact with said cords, will take up the slack of said cords as the diameter of its roll enlarges, for the purpose set forth, substantially as described.

16. A cotton-press having initially-slack movable carrier and compressing elements crossed or disposed in intersecting lines for contact with sides of a bale formed between said movable carrier and compressing elements, and capable of separation as the bale increases in size, and means to tighten and vary the tension of said carrier and compressing elements, substantially as described.

660,244. **MACHINE FOR LOADING FEED-BELTS FOR MACHINE-GUNS.** JOHN M. BROWNING, Ogden, Utah. Filed Nov. 15, 1899. Serial No. 737,068. (No model.)



Claim.—1. In a machine for loading pocketed belts, an opener adapted to engage the pocket-wall and means to move said opener away from the plane of the belt.

2. In a machine for loading pocketed belts, an arm or jaw having a point to engage the pocket-wall and means to move said arm or jaw away from the plane of the belt.

3. In a machine for loading pocketed belts, a carrier, an arm or jaw mounted on said carrier and adapted to engage the pocket-wall, means to move the carrier to and fro and means to move said arm or jaw away from the plane of the belt.

4. In a machine for loading pocketed belts, the combination of a belt-guide, a carrier mounted in proximity to said guide, means to move said carrier to and fro, an arm or jaw mounted on said carrier and having a point to engage the pocket-wall, and means to move said arm or jaw away from the plane of the belt.

5. In a machine for loading pocketed belts, the combination of a belt-guide, a carrier mounted in proximity to said guide, arms or jaws mounted on said carrier on opposite sides of the plane of the guides and adapted to engage the opposite pocket-walls, and means to separate said arms or jaws.

6. In a machine for loading pocketed belts, the combination of a belt-guide, a carrier mounted in proximity to said guide, means to move said carrier to and fro, arms or jaws pivoted upon said carrier and having each a point projecting forwardly and toward the plane of the guide, a spring acting upon said arms or jaws to press said points yieldingly toward each other, and means to separate said arms or jaws.

7. In a machine for loading pocketed belts, the combination of an opener adapted to engage the pocket-wall, and means to press a cartridge forward in line with the pocket and against the opener to move the same from the plane of the belt.

8. In a machine for loading pocketed belts, the combination of an arm or jaw having a point to engage the pocket-wall and means to press a cartridge forward in line with the pocket and against the arm or jaw to move the same from the plane of the belt.

9. In a machine for loading pocketed belts, the combination of a carrier, an arm or jaw mounted on said carrier and adapted to engage the pocket-wall, means to move the carrier to and fro, and means to press a cartridge forward in line with the pocket and against the opener to move the same from the plane of the belt.

10. In a machine for loading pocketed belts the combination of a belt-guide, a carrier mounted in proximity to said guide, arms or jaws mounted on said carrier on opposite sides of the plane of the guide and adapted to engage the opposite pocket-walls, and means to press a cartridge forward in line with the pocket and against said arms or jaws to separate them.

11. In a machine for loading pocketed belts, the combination of a fluted feed-wheel, means to actuate the same, a second fluted feed-wheel, and means to press the last-named wheel yieldingly toward the first-named wheel.

12. In a machine for loading pocketed belts, the combination of a fluted feed-wheel, means to actuate the same, a second fluted feed-wheel, a pivoted, rigid arm carrying said last-named wheel and having a stop to limit the movement of the last-named wheel toward the first-named wheel, and means to hold the last-named wheel toward the first-named wheel.

13. In a machine for loading pocketed belts, the combination of a fluted feed-wheel, means to actuate the same, a second fluted feed-wheel, a pivoted, rigid arm carrying said last-named wheel and having a stop to limit the movement of the last-named wheel toward the first-named wheel, a spring extension from said arm, and a latch to engage said spring extension.

14. In a machine for loading pocketed belts, the combination of a fluted feed-wheel, an actuating-pawl adapted to engage the ridges between the flutings, and a flat spring engaging the ridges of the wheel with its edge in rear of one of such ridges.

15. In a machine for loading pocketed belts with cartridges, the combination with a pocket-opener, and means to hold the belt while the cartridge is thrust home, of a cartridge-feeding mechanism having a head or shoulder in line with the opened pocket to insert the cartridge and a head or shoulder in line with the belt-holding means to thrust the cartridge home.

16. In a machine for loading pocketed belts with cartridges, the combination with a pocket-opener, and means to hold the belt while the cartridge is thrust home, of a reciprocating plunger having a head or shoulder in line with the opening pocket and a head or shoulder in advance of the first-named head or shoulder and in line with the belt-holding means.

17. In a machine for loading pocketed belts with cartridges, the combination with means for holding the belt, of a cartridge-feeding mechanism having a head or shoulder to insert the cartridge into a pocket and a second head or shoulder in advance of the first-named head or shoulder and in line with the next pocket to thrust the cartridge home.

18. In a machine for loading pocketed belts with cartridges, the combination with means for holding the belt, of a reciprocating plunger having a head or shoulder in line with one pocket and a head or shoulder in advance of the first-named head or shoulder and in line with the next pocket.

19. In a machine for loading pocketed belts with cartridges, the combination of fluted, belt feeding and holding wheels, means to advance said wheels step by step, an opener adapted to engage the pocket-wall, and a reciprocating plunger having a head or shoulder to thrust a cartridge against the opener to move the same away from the plane of the belt and to insert the cartridge in the opened pocket, said plunger having also a head or shoulder in line with the belt feeding and holding wheels to thrust the cartridge home.

20. In a machine for loading pocketed belts with cartridges, the combination with means for holding the belt, of a reciprocating plunger having a head or shoulder in line with one pocket and a head or shoulder in advance of the first-named head or shoulder and in line with the next pocket, said plunger being longitudinally grooved between said heads or shoulders to receive the cartridge, and means to press the cartridge against said grooved portion of the plunger.

21. In a machine for loading pocketed belts with cartridges, the combination with a horizontal bed-plate, and a cartridge-chute above the bed-plate and adapted to receive the cartridges horizontally, one upon another, said chute having sufficient clearance above the bed-plate to permit the passage of a cartridge in a horizontal position, of an arm pivoted upon the bed-plate to swing across the mouth of the chute in contact with a cartridge, means to operate said arm, and means to push the cartridge forward horizontally in the direction of its length.

22. In a machine for loading pocketed belts with cartridges, the combination with a horizontal bed-plate, and a cartridge-chute above the bed-plate and adapted to receive the cartridges horizontally, one upon another, said chute having sufficient clearance above the bed-plate to permit the passage of a cartridge in a horizontal position, of an arm pivoted upon the bed-plate to swing across the mouth of the chute in contact with a cartridge, means to operate said arm, and a reciprocating plunger to push the cartridge forward horizontally in the direction of its length.

23. In a machine for loading pocketed belts with cartridges, the combination of a reciprocating plunger, a horizontal bed-plate, a cartridge-chute above the bed-plate and adapted to receive the cartridges horizontally, one upon another said chute having a sufficient clearance above the bed-plate to permit the passage of a cartridge in a horizontal position, an arm pivoted upon the bed-plate to swing across the mouth of the chute in contact with a cartridge, said arm having a longitudinal groove to center the cartridge, and means to operate said arm to transfer the cartridge from the chute to the path of said plunger.

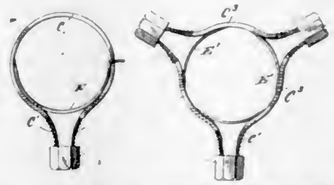
24. In a machine for loading pocketed belts with cartridges, the combination of a horizontal bed-plate, a reciprocating plunger, a cartridge-chute mounted above the bed-plate and adapted to receive the cartridges horizontally, one upon another, an arm pivoted upon the bed-plate to swing between the bed-plate and the chute across the mouth of the chute, and operative connections between said plunger and said arm to cause the latter to transfer the cartridge from the chute to the path of the plunger.

25. In a machine for loading pocketed belts with cartridges, the combination of a bed-plate, a reciprocating plunger, a cartridge-chute mounted upon the bed-plate, an arm mounted to move between the bed-plate and the chute across the mouth of the chute, means to operate said arm to transfer the cartridge from the chute to the path of the plunger, and a friction-stop in the bed-plate in the path of the cartridge.

26. In a machine of the character described, the combination of a reciprocating plunger, a cartridge-chute, and a pivoted arm mounted to move across the mouth of said chute to transfer the cartridge from the chute to the path of the plunger, said arm having a toe engaged by a shoulder or projection on the plunger to be operated thereby.

27. In a machine of the character described, the combination of a reciprocating plunger, a cartridge-chute, a pivoted arm mounted to move across the mouth of said chute to transfer the cartridge from the chute to the path of the plunger, said arm having a toe engaged by a shoulder or projection on the plunger to be operated thereby and having a second toe, and a spring adapted to engage said second toe on one side and on the other as the arm is moved.

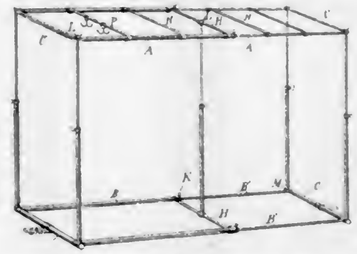
660,245. **HOSE-CLAMP.** JOHN BUNTE and WILLIAM SCRIMGEOUR, Jr., Portsmouth, Va. Filed July 26, 1900. Serial No. 24,915. (No model.)



Claim.—1. A hose-clamp consisting of a metallic band having screw-segments on its end portions, a nut engaging such end portions, and a bushing extending across the opening below the nut.

2. A hose-clamp consisting essentially of a metallic band with threaded end portions, a bushing having a hole through which one end of the band passes, and a nut with tapered thread engaging the threaded ends of the band, all substantially as described.

660,246. **COLLAPSIBLE CLOSET.** HARRY M. FESSENDEN, New York, N. Y. Filed July 12, 1900. Serial No. 23,340. (No model.)



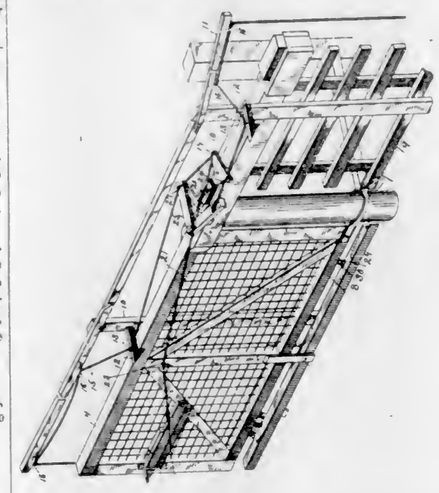
Claim.—1. A knockdown or collapsible closet-frame, composed of sectional side bars, one section being adapted to telescope into the other, sectional uprights similarly adapted to be telescoped, and end bars, all detachably connected together in substantially the manner herein shown.

2. A knockdown or collapsible closet-frame composed of top and bottom frames with telescoping side bars, and end bars detachably connected thereto, and telescoping uprights detachably connected to the top and bottom frames, the telescoping bars being provided with means for fixing them in any length to which they may be adjusted, as set forth.

3. A knockdown or collapsible closet-frame composed of telescoping side bars and uprights, end bars, and corner-pieces to which the said side and end bars and uprights are detachably connected, as herein set forth.

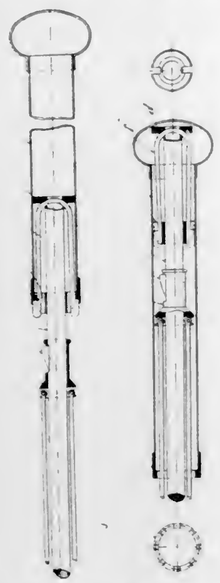
4. A knockdown or collapsible closet-frame composed of telescoping side bars and uprights, end bars and a central telescoping upright, all of said parts being detachably connected as herein set forth.

660,247. **FARM-GATE.** BEVLY A. FISHER, Hamilton, Mont. Filed Jan. 25, 1900. Serial No. 2,705. (No model.)



Claim.—1. The combination with the hinge-post and latch-post; of a gate hinged to the hinge-post and having a vane or equalizing-panel, a latch pivoted to said gate, a lever pivoted to said gate, a connection between said lever and latch, operating-cords connected to said lever, a bell-crank lever pivoted to said gate, posts, arms secured to the upper ends of said posts, latches pivoted to said posts, and operating-cords strung along the arms and connected to said latches and passed through the eyes of the bell-crank lever and connected to the outer ends of the first-named lever, substantially as and for the purpose set forth.

660,248. UMBRELLA-STICK. NELSON FOLEY, Naples, Italy. Filed Mar. 22, 1899. Serial No. 710,210. (No model.)



Claim.—1. In an umbrella or the like, the combination with a stick, of a U-shaped catch secured at its middle to the outer end thereof and having spring-arms lying on opposite sides of said stick, an inner washer adjacent to the ends of said arms and a tubular handle having on its inner end a ferrule provided with notches with which one or more of said arms can engage when the handle is drawn out.

2. In an umbrella or the like, the combination with a stick, of a washer secured to its outer end, a U-shaped catch secured to the stick adjacent to the washer and having spring-arms lying on opposite sides of the stick and extending inwardly along the same, an inner washer adjacent to the ends of said arms and a tubular handle fitted to slide over the washer and having a ferrule on its inner end projecting inwardly to engage with the ends of said arms and with said inner washer.

3. In an umbrella or the like, the combination with a stick, having an outer washer on its end, and a slotted inner washer a short distance therefrom, of a U-shaped spring-catch secured to the outer end of the stick and projecting through the slots in the inner washer, and a tubular handle fitted to slide over the washers, and to engage with the spring-catch and with the inner washer.

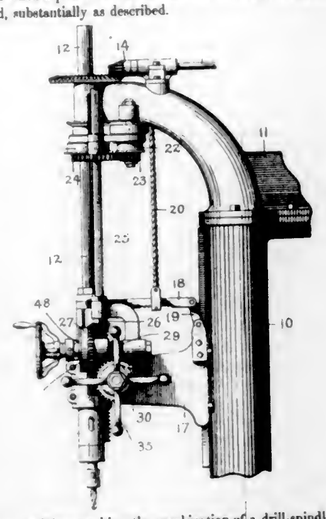
660,249. DRILLING-MACHINE. ALBERT J. GIFFORD, Worcester, Mass. Filed Jan. 3, 1900. Serial No. 695. (No model.)

Claim.—1. In a drilling-machine the combination of a drill-spindle, a power-feed train therefor, and a single handle connected so that said handle may be rotated to effect a hand-fed drilling operation, the raising or lowering of the drill-spindle, and the throwing in or out of the power-feed train, substantially as described.

2. In a drilling-machine, the combination of a drill-spindle, a power-feed train therefor, a roller-clutch, and a single handle connected to transmit by rotation in the same or parallel planes direct motion to the clutch-rolls when it is desired to raise or lower the drill-spindle, and to secure a hand-fed drilling operation, and to wedge or unwedge the clutch-rolls when it is desired to throw in or out the power-feed train, substantially as described.

3. In a drilling-machine, the combination of a drill-spindle, a roller-clutch comprising a power-driven clutch-section, a notched cam-piece, and rolls interposed between the cam-piece and clutch-section, and a single handle connected so that by rotation it may transmit direct motion to the clutch-rolls when it is desired to secure a hand-fed drilling operation, and may wedge or unwedge the clutch-rolls to throw in or out the power-feed train, substantially as described.

4. In a drilling-machine, the combination of a drill-spindle, a power-feed train therefor, a roller-clutch, and a single operating-handle having fingers interposed between the clutch-rolls so that by turning the handle a direct motion may be transmitted to the clutch-rolls when it is desired to secure a hand-fed drilling operation, and so that the clutch-rolls may be wedged when a power feed is desired, and unwedged to disconnect the power-feed, substantially as described.



5. In a drilling-machine, the combination of a drill-spindle, a roller-clutch comprising a power-driven clutch-section, a notched cam-piece, and rolls interposed between the cam-piece and clutch-section, and a single handle having operating-fingers interposed between the clutch-rolls so that by turning said handle a direct motion may be transmitted to the clutch-rolls when a hand-fed drilling operation is desired, and the rolls may be wedged when a power-feed is desired, and unwedged to release the power-feed, substantially as described.

6. In a drilling-machine, the combination of a drill-spindle, a shaft geared to raise and lower the same, a roller-clutch comprising a power-driven clutch-section journaled loosely on the raising and lowering shaft, a notched cam-piece, rolls interposed between the cam-piece and clutch-section, and a single handle connected so that by turning said handle a direct motion may be transmitted to the clutch-rolls when a hand-fed drilling operation is desired, and the clutch-rolls may be wedged when a power-feed is desired, and unwedged to release the power-feed, substantially as described.

7. In a drilling-machine, the combination of a drill-spindle, a shaft geared to raise and lower the same, a roller-clutch comprising a power-driven clutch-section journaled loosely on the raising and lowering shaft, a notched cam-piece secured rigidly on the raising and lowering shaft, rolls interposed between the cam-piece and clutch-section, and a handle having operating-fingers interposed between the clutch-rolls, whereby a direct motion may be transmitted through the clutch-rolls to secure a hand-fed drilling operation, and the clutch-rolls may be wedged to secure a power-fed drilling operation, and unwedged to release the power-feed all by turning or rotating said handle, substantially as described.

8. In a drilling-machine, the combination of a drill-spindle, a power-feed train therefor, a single handle connected so that a hand-fed drilling operation, a power-fed drilling operation, and a release of the power-feed train may all be secured by rotating said handle, and an adjustable stop mechanism for automatically throwing the power-feed train out of operation, substantially as described.

9. In a drilling-machine, the combination of a drill-spindle, a power-feed train comprising a clutch, a spring connection for setting and releasing the clutch, and an adjustable stop mechanism for causing the spring connection to yield to throw the power-feed out of operation, substantially as described.

10. In a drilling-machine, the combination of a drill-spindle, a power-feed train, a friction-clutch comprising two clutch-sections, a normally-contracted spring-ring for connecting the clutch-sections, an expanding-pin, a spring connection for operating the expanding-pin to set or release the clutch, and an adjustable stop mechanism for causing the spring connection to yield, to throw the power-feed out of operation, substantially as described.

11. In a drilling-machine the combination of a drill-spindle, extending through a quill, a power-feed train for raising and lowering the quill, a clutch, a spring connection for setting and releasing the clutch, and a stop-pin adjustably mounted in the quill and operating through intermediate connections to cause the spring connection for the clutch to yield to throw the power-feed out of operation, substantially as described.

12. In a drilling-machine, the combination of a drill-spindle, extending through a quill, a power-feed train for raising and lowering the quill, a clutch comprising two clutch-sections, a normally-contracted spring-ring for connecting the clutch-sections, an expanding-pin, a spring connection for operating the expanding-pin to set or release the clutch, a stop-pin adjustably mounted in the quill, and a swinging yoke arranged to be engaged by the stop-pin to cause the spring connection to yield to throw the power-feed out of operation, substantially as described.

13. In a drilling-machine, the combination of a drill-spindle, a shaft geared to raise and lower the drill-spindle a roller-clutch comprising an outer ring or clutch-section, a cam or second clutch-section secured on the shaft and having oppositely-facing inclines or cams, and rolls interposed between said clutch-sections, a slow-feed handle geared to turn the outer ring or clutch-section, and a single operating-handle arranged to transmit by rotation in the same or parallel planes direct motion to the clutch-rolls when it is desired to raise or lower the drill-spindle, and to wedge said rolls in either direction when it is desired to raise or lower the drill-spindle from the slow-feed handle, substantially as described.

660,250. WORKMAN'S TIME-RECORDER. PETER G. GIROUD, Newark, N. J., assignor to James S. MacCoy, New York, N. Y. Filed Nov. 13, 1899. Renewed Sept. 6, 1900. Serial No. 29,241. (No model.)

Claim.—1. In a time-recorder, the combination of a conduit for the card or slip, a movable detent for retaining the card in position to be printed, and means for simultaneously printing the card and cutting its edge, substantially as and for the purposes described.

2. A stop or detent for holding the card in a time-recorder, having a projection adapted to engage with a cut or nick in the edge of the card, in combination with means for operatively connecting said stop or detent with the actuating device of the recorder, substantially as described.

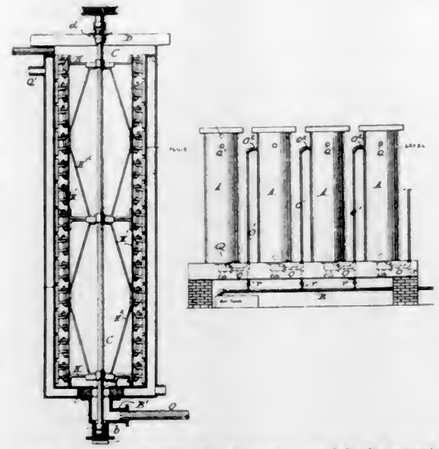
3. In a time-recorder the combination of a card notched or cut upon one edge, a detent adapted to engage with said notch or cut, and means for automatically releasing said detent, said means being actuated by the reverse movement of the actuating-shaft of the mechanism, substantially as described.

4. In a time-recorder of the character specified, the combination of a platen operatively connected to the operating-shaft of the mechanism, a cutting-die operatively connected to the platen, a detent situated immediately below the line of the cutting-die, and means for automatically releasing the detent after the stroke of the platen, substantially as and for the purposes described.

5. In a time-recorder, the combination of a conduit for the card or slip, a detent for retaining the card in position to be printed, and means for simultaneously printing the card and cutting its edge, substantially as and for the purposes described.

6. In a time-recorder, the combination of a conduit for the card or slip, a stop for retaining the card in position to be printed, means normally operated by the reverse stroke of the actuating-shaft of the machine for automatically releasing the card, and means for rendering the stop-releasing mechanism inoperative, substantially as and for the purposes described.

660,251. APPARATUS FOR SEPARATING WAX FROM PARAFFIN-OIL. PHILANDER R. GRAY, Elizabeth, N. J. Filed Dec. 2, 1899. Serial No. 739,032. (No model.)



Claim.—1. The combination of two or more vessels having separate jackets for the circulation of cooling medium, means for circulating a cooling medium in the jacket or jackets of the first or earlier vessels in the series, means for circulating a cooling medium of lower temperature in the jacket of the final or later vessels of the series, scrapers for removing solidified matter from the inner walls of the vessels and mixing it with the oil therein to form a slush, suitable connections between the vessels for the passage of the slush from one vessel to another and an outlet for the discharge of the slush from the last vessel.

2. The combination of two or more vertical cylindrical vessels having jackets for the circulation of a cooling medium, a connection from the bottom of the interior of one first or earlier in the series to the upper part of the interior of the next one and a discharge-outlet from the last one of the series, scrapers operated in each vessel to remove solidified matter from the interior faces thereof, a source of compressed-air supply and connections for admitting compressed air to the pipe or connection through which a column of liquid passes from the bottom of one vessel to the upper part of the next one.

3. The combination of a cylindrical vessel, a scraper-frame rotated therein, a series of scraper-blades carried by the frame and each capable of rocking on an axis in the plane of but inclined to the edge of the scraper.

4. The combination of a cylindrical vessel, and a scraper rotating therein in contact with its interior surface and capable of rocking on an axis in the same plane as the axis of rotation of the scraper but inclined to said axis of rotation.

5. The combination of a cylindrical vessel, a scraper-frame rotating therein, and a series of scrapers hinged to the edges of the frame and acting on the interior surface of the vessel, the axis of each scraper being at one end nearer to the edge of the scraper than to the axis of rotation of the frame and at the other end nearer to the axis of rotation of the frame than to the edge of the scraper.

6. The combination of a cylindrical vessel, a scraper-frame rotating therein, and scrapers rotating with the frame and against the surface of the vessel with their edges inclined to the axis of the vessel, one end of the scraping edge being in advance of the other.

7. The combination of the cylindrical vessel, the scraper-frame rotating therein, eyebolts attached to the edge of the frame and forming bearings for hinged scrapers, one of a pair of eyebolts forming the bearings for a scraper being nearer to the axis of the cylinder, and a scraper having a shaft or trunnions correspondingly at different distances from its scraping edge and mounted in said eyebolt-bearings.

8. The combination of a series of two or more vertical cylindrical vessels having jackets for the circulation of a cooling medium, the bottom of the interior of a vessel first or earlier in the series being connected to the upper part of the interior of the vessel next in the series and the last vessel having a discharge-outlet at its bottom, and scrapers rotating in each vessel against the surface thereof with their edges inclined to the axis of the vessel so that one end of the scraping edge of a scraper is in advance of the other end.

9. The combination of a series of two or more vertical cylindrical vessels, having jackets for the circulation of a cooling medium, the bottom of the interior of a vessel first or earlier in the series being connected to

the upper part of the interior of the vessel next in the series and the last vessel having a discharge-outlet at its bottom, scrapers rotating in each vessel against the surface thereof with their edges inclined to the axis of the vessel so that one end of the scraping edge of a scraper is in advance of the other end, and one or more scrapers acting upon the bottom of the vessel to direct the contents thereof to the outlet in the bottom thereof.

10. The combination of a vertical cylindrical vessel having an opening in the bottom thereof, hinged scrapers rotating in the vessel and against the surface thereof with their edges at an angle to the axis of the vessel so that one end of the edge of each scraper is in advance of the other, and one or more rotating scrapers acting upon the bottom of the vessel and arranged at an angle to its radius so as to direct the contents of the vessel to the opening in the bottom thereof.

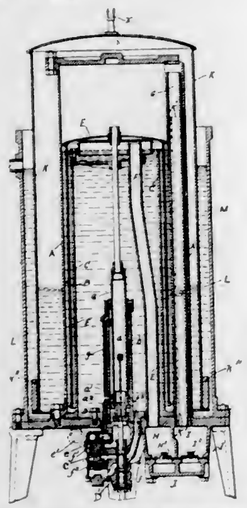
660,252. COLLAPSIBLE BOAT OR FLOATING DEVICE. JOHANN GUTKNECHT, Zurich, Switzerland. Filed Aug. 6, 1900. Serial No. 26,052. (No model.)



Claim.—1. A collapsible boat or floating device adapted to be used as a life-saving apparatus, which consists of two frames pivotally connected with one another and inserted one in the other, which are capable of being retained at right angles to one another, and which are so inclosed by a cover that when the frames are placed at right angles the cover is held taut by them and forms a space adapted to contain a person, substantially as described.

2. A collapsible boat or floating device, applicable also as a life-saving apparatus which has two pivotally-connected frames inserted one in the other, and which are adapted to be fixed at right angles to one another, and are inclosed by a cover in such a way that the latter is held taut when the frames are placed at right angles to one another, and forms a space for receiving a person, the said cover being formed of waterproof material or the like and having a contractible opening which may be water-tightly secured around the body of the person seated beneath the cover, substantially as described.

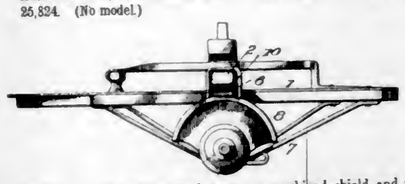
660,253. APPARATUS FOR PUMPING OR COMPRESSING GAS AND AIR. JAMES KEITH, London, England. Filed Jan. 12, 1899. Serial No. 701,854. (No model.)



Claim.—1. A double-acting gas-compressing pump comprising a cylinder, a pump-plunger moving therein having gas-pipes for the inlet and discharge of the gas to and from the upper and lower sides of the plunger, a loaded gas holder or receiver surrounding the pump plunger and cylinder, a fluid-pressure motor for operating the pump-plunger, a cock controlling the supply of fluid to said motor and a connection between said cock and loaded gas-holder, substantially as described.

2. A double-acting gas and air compressing and mixing apparatus comprising a motor, a pump-plunger comprising a double cylinder, a water seal into which the double cylinder dips, means for admitting water automatically to the water seal, an open-ended cylinder dipping into a water seal carried by the double cylinder, a pump-cylinder A, air and gas pipes leading to the separated spaces formed by the double cylinder of the pump-plunger and the open-ended cylinder, a loaded gas-receiver surrounding the pump and means for controlling the water-supply connected with the said loaded receiver, substantially as described.

660,254. SAND-SHIELD AND TRUSS FOR VEHICLE-AXLES. HENRY KELLER, Sauk Centre, Minn. Filed Aug. 3, 1900. Serial No. 25,824. (No model.)



Claim.—1. In vehicle running-gear, a combined shield and truss mounted upon the axle between it and the sand-board or bolster and comprising a perpendicular wall to sustain the vertical stress and a curved shield projected laterally from the said wall to extend over the upper portion of the inner end of the hub, substantially as set forth.

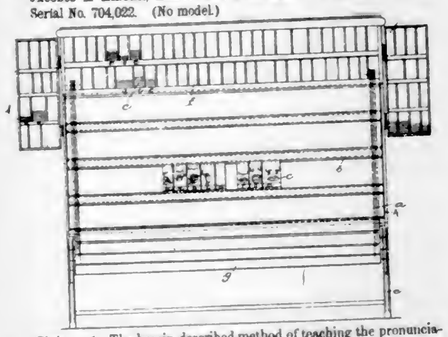
2. In vehicle running-gear, a combined shield and truss consisting of a perpendicular wall depressed in its lower edge to fit over the axle and a curved guard projected laterally from the upper edge of the said wall to extend over the inner end of the hub, substantially as specified.

3. In vehicle running-gear, a combined shield and truss consisting of a curved guard surmounted by a seat to which the sand-board or bolster is secured, and a wall pendent from the inner edge of the guard and depressed in its lower edge to receive the axle, substantially as described.

4. In vehicle running-gear, a combined shield and truss consisting of a perpendicular wall depressed in its lower edge a curved guard projected laterally from the wall to extend over the inner end of the hub, and lugs extended laterally from the ends of the said wall adjacent to the depression therein to bear against the shoulder of the axle, substantially as specified.

5. The herein shown and described combined shield and truss consisting of an approximately-semicircular guard surmounted by a block forming a seat, a perpendicular wall pendent from the inner edge of the guard and having a depression in its lower edge, and lugs at the ends of the wall projected laterally therefrom in the same direction as the guard and adjacent to the depression in the lower edge of the wall, substantially as specified.

660,255. MEANS FOR TEACHING SPEAKING AND READING. JACOBUS L. KINGMA, Amsterdam, Netherlands. Filed Jan. 31, 1899. Serial No. 704,022. (No model.)



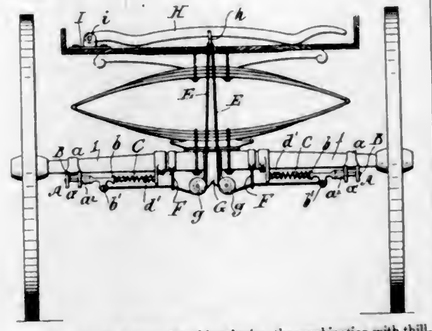
Claim.—1. The herein-described method of teaching the pronunciation of letters and words consisting in providing pictorial representations of the speaking-organs in the various positions corresponding to the various letters, and arranging said pictorial representations in various combinations, substantially as described.

2. An apparatus for teaching persons to speak and read, comprising a stand, bars fixed thereon, tablets arranged between said bars and on which are marked the letters and above them the positions assumed by the speaking-organs in pronouncing such letters, and movable strips or bars

of wood by means of which the letters painted on said tablets can be concealed, substantially as hereinbefore described.

3. Means for teaching the art of speech comprising a plurality of tablets, said tablets having thereon pictorial representations of the positions of the mouth and other organs, said tablets being lettered to correspond with the character they represent, substantially as described.

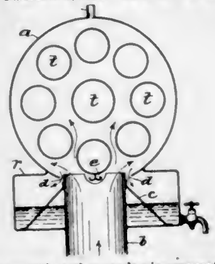
660,256. THILL OR POLE COUPLING FOR VEHICLES. JAMES G. LANE, Johnstown, Pa. Filed Jan. 20, 1900. Serial No. 2,105. (No model.)



Claim.—1. As a horse-detaching device, the combination with thill-couplings having spring-actuated bolts, of a lever having a chain or rope attached which is secured at its respective ends to the spring-actuated bolts of the thill-couplings, and pulleys guiding the said rope; the said lever adapted to be fulcrumed to the floor of a vehicle and the rope extending downwardly therefrom.

2. As a horse-detaching device the combination with a vehicle provided with thill-couplings having normally-closed spring-actuated bolts, of a rope or chain secured at its respective ends to the bolts of the said thill-couplings and looped upwardly through the floor of the vehicle, and pulleys guiding the said rope, and an arched lever fulcrumed to the floor of the vehicle and connected to the loop of the said rope, whereby swinging movement of the lever will simultaneously draw the bolts and release the thills, substantially as shown and described.

660,257. PORTABLE CONDENSING APPARATUS. JOHN D. LANGE, Providence, R. I. Filed Nov. 2, 1899. Serial No. 735,576. (No model.)

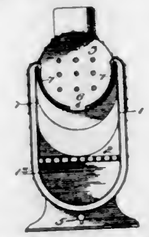


Claim.—1. The portable surface condensing apparatus, substantially as hereinbefore described, the same consisting of the condenser *a* having air-circulating tubes *t* mounted therein, the reservoir *r* secured to the under side of the condenser, the stayed open-ended nozzle *b* extending upwardly through the reservoir having its lower end adapted to communicate with a hot-water boiler or holder, and a space or opening *d* formed in the lower portion of the condenser, through which opening communication is maintained with the reservoir, for the purpose set forth.

2. The portable surface condensing apparatus hereinbefore described, consisting of the condenser-shell *a*, the air-circulating tubes *t* mounted in the shell, the reservoir *r* secured to the lower side of and in continuous communication with the interior of the shell, an open inlet-nozzle *b* extending through the reservoir, and a trough or conductor adapted to prevent water from dripping back into the nozzle, substantially as set forth.

660,258. BOILER. STEPHEN LANCESKUS, Louisville, Ky., assignor of one-half to Edward C. Campbell, same place. Filed Jan. 5, 1900. Serial No. 498. (No model.)

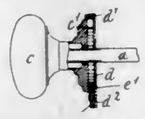
Claim.—1. In a steam-boiler, the combination, with a boiler and fire-box, of a water jacket or chamber and a series of pipes, connecting the water-jacket with the boiler, extending downwardly within the boiler, for the purpose set forth.



2. In a steam-boiler, the combination, with a boiler and fire-box, of a water jacket or chamber having communication with the boiler, and a series of pipes arranged in said boiler and communicating with said jacket or chamber and discharging at the bottom of said boiler, substantially as set forth.

3. The combination of a steam-boiler, a fire-box, a water jacket or chamber, and a series of pipes opening through said boiler into said water jacket or chamber and discharging into said boiler, at the bottom, said boiler and jacket having circulation-pipe connection at the rear and said jacket having water-inlet-pipe connection near its bottom, substantially as specified.

660,259. KNOB ATTACHMENT. HENRY LOMAX and JOHN TOMLINSON, Darwen, England. Filed Aug. 12, 1899. Serial No. 727,001. (No model.)



Claim.—1. The combination of a spindle for a door-fastening which spindle is screw-threaded and squared at its end, a locking-plate sliding on said squared end, a tapped knob screwed onto said spindle and formed with notches in its base, a catch hinged to said locking-plate and formed with a tongue engaging with any one of said notches, and a screw for fixing the catch when engaged.

2. The combination of a spindle for a door-fastening, a screw-thread formed on the end of said spindle, a locking-plate capable of sliding on said end but prevented from turning thereon and having a rim with a cut-away portion around its periphery, a tapped knob provided with notches at that portion which is within said rim screwed onto said spindle, a projection upon said locking-plate, a catch pivoted on said projection and adapted to engage with said notch, and means for holding the catch engaged with said locking-plate.

660,260. CRANK-PADDLE. HENRY A. A. MARTENS, New York, N. Y. Filed Mar. 6, 1900. Serial No. 7,472. (No model.)

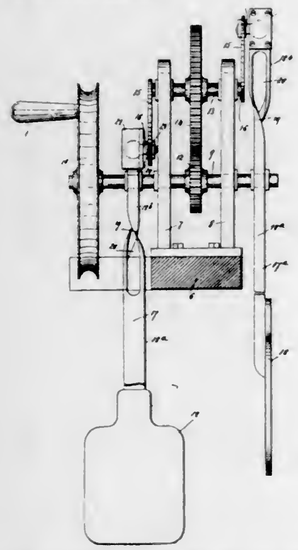
Claim.—1. The herein-described oar mechanism, comprising a slidably-fulcrumed oar, a blade connected with one end thereof, said oar being provided with an elongated slot, and being longitudinally twisted in the portion thereof in which said elongated slot is formed, a device which is passed through said elongated slot and upon which said rod is slidably fulcrumed and means for operating said oar, substantially as shown and described.

2. The herein-described oar mechanism, comprising a slidably-fulcrumed oar, a blade connected with one end thereof, a relatively-stationary device, said oar being provided with an elongated slot through which said relatively-stationary device passes, and said oar being longitudinally twisted in the portion thereof in which said elongated slot is formed, and means for operating said oar, substantially as shown and described.

3. The herein-described oar mechanism, comprising a slidably-fulcrumed oar, a blade connected with one end thereof, a relatively-stationary device, said oar being provided with an elongated slot through which said relatively-stationary device passes, and said oar being longitudinally twisted in the portion thereof in which said elongated slot is formed, and means for circularly operating the end of said oar, said means for operating said oar being loosely connected therewith, substantially as shown and described.

4. The herein-described oar mechanism, comprising a power-shaft, a supplemental shaft arranged adjacent thereto and operatively connected

therewith, said supplemental shaft being provided with a crank device, an oar operatively connected with said power-shaft by means of a longitudinal slot through which said power-shaft passes, said oar being loosely operatively connected with said crank device and being longitudinally twisted in the portion thereof in which said longitudinal slot is formed, substantially as shown and described.



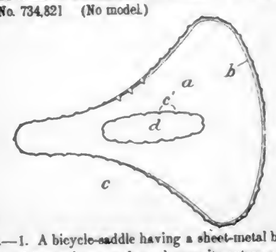
5. An oar mechanism of the class described, comprising a suitably-supported power-shaft, a supplemental shaft arranged adjacent thereto and operatively connected therewith, said supplemental shaft being provided with oppositely-directed crank devices, two oars each of which is operatively connected with said power-shaft by means of a longitudinal slot through which said power-shaft passes, each of said oars being operatively and loosely connected with one of said crank devices and being twisted in the portion thereof in which the respective longitudinal slot is formed, substantially as shown and described.

6. The herein-described oar mechanism, comprising a suitable support which is adapted to be connected with the gunwale or other part of a boat, said support being provided with a standard, a power-shaft passed through said standard, and a supplemental shaft journaled in said standard, each of said shafts being provided with a gear-wheel, which gear-wheels intermesh, said supplemental shaft being provided with eccentrics which are set at angles relatively of approximately one hundred and eighty degrees, two oars operatively connected with said power-shaft by means of longitudinal slots through which said power-shaft passes, and each of said oars being operatively and loosely connected with one of said eccentrics, and provided with a longitudinally-twisted portion, in the portion of the respective oar in which the respective longitudinal slot is formed, substantially as shown and described.

7. An oar mechanism of the class described, comprising a suitably-supported power-shaft, a supplemental shaft operatively connected therewith and provided with oppositely-directed crank devices, two oars operatively and loosely connected with said crank devices, and reciprocally and pivotally connected with said power-shaft, and each of said oars being longitudinally twisted in the portion thereof which is operatively connected with said drive-shaft, the relative construction and arrangement of parts being such that upon the revolution of said drive-shaft said oars are caused to execute successively curved stroke movements and succeeding return movements, each of which latter is executed approximately in a straight line, and that each of said oars at a predetermined phase of its movement shall be axially oscillated, substantially as shown and described.

8. In an oar mechanism of the class described, a crank device, means for operating the same, an oar provided with a chambered block or head, and with two communicating slots which also communicate with the chamber in said block or head, said crank device being provided with a crank-pin having a ball-head which operates within the chamber in said block or head, and a relatively-fixed device which passes through an elongated slot formed in said oar, said oar being longitudinally twisted in the portion thereof in which said elongated slot is formed.

660,261. BODY FOR BICYCLE-SADDLES. AUGUST F. MEISSELBACH and WILLIAM MEISSELBACH, Jr., Newark, N. J. Filed Oct. 26, 1899. Serial No. 734,821 (No model.)



Claim.—1. A bicycle-saddle having a sheet-metal body with a continuous series of integral prongs formed upon its extreme edge, a flexible covering in one piece having holes applied directly to the said prongs, the edge of the flexible covering bent abruptly over the edge of the body and the prongs bent inwardly to retain the edge of the flexible covering in such position, whereby the flexible covering is secured upon the body without any seam or projections at the edge of the body.

2. A bicycle-saddle having a sheet-metal body with a depending flange around its margin, a leather covering in one piece having its margin bent inwardly and upwardly from the edge of such flange forming a smooth unbroken leather periphery upon the saddle, a series of integral prongs upon the body turned inwardly from the edge of the body and having their points bent upwardly to retain the leather, and the leather having its extreme edge pierced by such prongs to hold the edge of the leather upon the inner side of such flange.

660,262. PROCESS OF ETCHING METAL. CHARLES MUELLER, New Britain, Conn. Filed July 27, 1900. Serial No. 24,970. (No specimens.)



Claim.—1. The process of etching designs in metal, which consists in first coating the metal with a material adapted to act as a base for the design; then printing the design on such coat; then flowing the metal with an acid-resisting material adapted to protect all parts of the metal except the design; and then etching such design in the metal.

2. The process of etching designs in metal, which consists in first coating the metal with a material adapted to act as a base for the design; then printing the design on such coat; then flowing the metal with an acid-resisting material adapted to protect all parts of the metal except the design; then washing out such design to bare the metal corresponding therewith; and then etching the same.

3. The process of etching designs in metal, which consists in first coating the metal with a material adapted to act as a base for the design; then printing the design on such coat with a material adapted to combine with the material of such coat; then flowing the metal with an acid-resisting material adapted to protect all parts of the metal except the design; then washing out such design to bare the metal corresponding therewith; and then etching the same.

4. The process of etching designs in metal, which consists in coating the metal with a gum-guaiac varnish; then stamping the design therein by the use of an alkali composition; then protecting all parts of the metal except the design by an acid-resisting varnish; then washing out the design to bare the plate corresponding therewith; and then etching the design in the plate.

5. The process of etching designs in metal, which consists in coating the metal with a gum-guaiac varnish; then stamping the design thereon by the use of an alkali composition; then protecting all parts of the metal except the design by an acid-resisting varnish comprising bitumen, rosin, and balsam-fir dissolved in turpentine and benzol; then washing out the design; and then etching the bared metal by the use of an acid.

6. The process of etching designs in metal, which consists in first coating the metal with a thin layer of varnish having an antidrier incorporated therein; then stamping thereon the design; then applying a protecting-coating to such article thereby to protect all parts thereof except the design; then washing out the design; and then etching the bared metal.

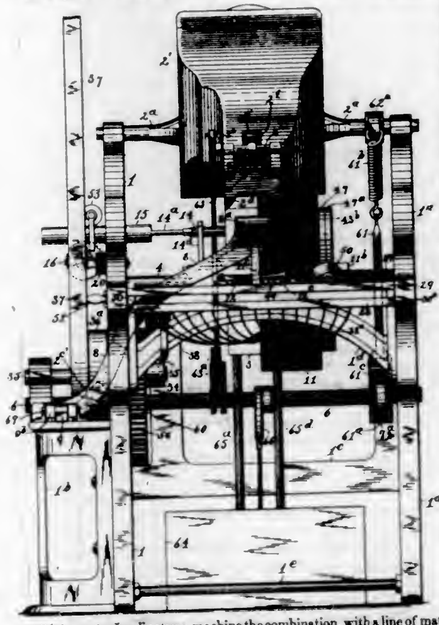
7. The process of etching designs in metal, which consists in first coating the metal with a varnish having fusel-oil incorporated therein; then stamping thereon the design by the use of an alkali composition; then protecting all parts of the article except the design by a second varnish coating; then washing out the design; and then etching the bared metal.

8. The process of etching designs in metal, which consists in first coating the metal with gum-guaiac varnish having fusel-oil incorporated therein; then stamping the design thereon by the use of an alkali composition; then protecting all parts of the metal except the design by a second varnish coating; then washing out the design; and then etching the bared metal.

9. The process of etching designs in metal, which consists of applying thereto a coating of gum-guaiac varnish having fusel-oil incorporated therein; then stamping thereon the design by the application of a potash solution; then protecting the metal around such design by the application of a varnish coating comprising bitumen, rosin, and balsam-fir dissolved in turpentine and benzol; then washing out such design; and then etching the metal to correspond with such design.

10. The process of etching designs in metal, which consists in coating the metal with gum-guaiac varnish having fusel-oil incorporated therein; then stamping the design thereon with an alkali solution; then protecting the metal around such design by a varnish consisting of bitumen, rosin, and balsam-fir dissolved in benzol and turpentine; then washing out such design; then drying the metal; and then etching the metal to correspond with such design.

660,263. ELECTRIC LINOTYPE-MACHINE. ALFRED W. STORM, Ramsey, N. J. Filed Sept. 22, 1897. Serial No. 652,654. (No model.)



Claim.—1. In a linotype-machine the combination, with a line of matrices, of an oscillating melting-pot with a nozzle carried thereby through an arc of a circle to and from the line of matrices, and a mold formed upon the nozzle and adapted, with the matrices, to form a linotype-casting thereon.

2. In a linotype-machine, the combination, with a line of matrices, of a melting-pot with a nozzle, a mold formed integral with the nozzle, and an ejector movable through the mold-cavity and operating to force the metal into the mold and form the base of the casting therein.

3. In a linotype-machine, the combination, with a line of matrices, of a melting-pot with a nozzle, a mold formed integral with the nozzle, and an ejector with means for moving it through the mold across the nozzle, the ejector operating to control the flow of the molten metal, to compress the metal in the mold and to force the linotype out of the mold.

4. In a linotype-machine, the combination, with a line of matrices, of a melting-pot having a mold attached thereto and provided with an ejector and movable to and from the line of matrices to make a casting thereon, the mold having a water-chamber about the same with inlet and outlet water-pipes, a tank below the level of the mold with pump and connection to such inlet-pipe, an inwardly-opening valve near the top of the inlet-pipe, and an extension of the outlet-pipe to the tank for siphoning out the water in the mold when the supply is stopped, substantially as herein set forth.

5. In a linotype-machine, the combination, with a line of matrices, of an oscillating melting-pot with a nozzle carried thereby through an arc of a circle, a mold formed integral with the nozzle, means for oscillating the melting-pot to move the mold to and from the line of matrices, an ejector movable through the mold, and means operated by the movement of the melting-pot to actuate the ejector.

6. In a linotype-machine having a line of matrices and a receiver, adjacent to one another in substantially a horizontal plane, the combination, with such matrices and receiver, of a pivoted melting-pot having a nozzle at one side adapted to oscillate over the receiver to and from the matrices, a mold attached to the nozzle, an ejector movable through the mold with means for operating it to discharge the linotype when the nozzle is raised and the mold is above the receiver, and the receiver having reversely-inclined planes to reverse the linotype, and a chute for delivering the linotype in a reverse position to the galley.

7. In a linotype-machine, the combination, with a line of matrices with upwardly-projecting impression-faces, of a mold movable downwardly and upwardly to and from such line of matrices, an ejector operated to discharge the linotype from the mold when raised, a receiver having reversely-inclined planes to reverse the linotype, a chute extended from the inclined planes to the horizontal bed of a galley, and a reciprocating plunger to shift the linotypes in succession laterally from the chute, substantially as herein set forth.

8. In a linotype-machine, the combination, with a line of matrices with upwardly-projecting impression-faces, of a mold movable downwardly and upwardly to and from such line of matrices, an ejector operated to discharge the linotype from the mold when raised, and a receiver having an inclined plane to receive the linotype with reversely-inclined plane to reverse the same, both planes being sloped laterally and having a lateral chute connected with their lower sides to deliver the linotype to a galley.

9. In a linotype-machine, the combination, with a line of matrices with upwardly-projecting impression-faces, of a mold movable downwardly and upwardly to and from such line of matrices, a chute below the position assumed by the mold when elevated, an ejector operated to discharge the linotype to the chute, a movable galley-bar having a transverse head to support the linotypes, and a plunger provided with a cam to force the linotype from the chute toward such head at each casting operation, a weight to press the head normally toward the chute, and spring catches to engage the ends of the linotype when pressed from the chute, substantially as herein set forth.

10. In a linotype-machine having matrices and a melting-pot carrying a mold and operating to supply the same with fluid metal, the combination, with such matrices, melting-pot and mold, of a stationary mandrel, a series of matrix-bearing spiders rotatable upon such mandrel, means for rotating the spiders to set the desired matrices at a given casting-line, and means for moving the melting-pot to support the mold in contact with the matrices upon such casting-line, substantially as herein set forth.

11. In a linotype-machine having matrices and a pivoted melting-pot with nozzle at one side bearing a mold, the combination, with such matrices, melting-pot and mold, of a stationary mandrel, a series of matrix-bearing spiders rotatable thereon, means for rotating the spiders to set the desired matrices at a given casting-line, means for oscillating the melting-pot to support the mold in contact with the matrices, a gas-furnace attached to the bottom of such melting-pot and provided with gas-burners, and flexible connections for supplying gas to such burners, whereby the connection may be unbroken as the pot is oscillated.

12. In a linotype-machine employing a series of rotatable matrix-bearing spiders and means for compressing the ends of the same when assembled in given order, a spider having arms transversely flexible most of which bear upon their ends diverse matrices, with one of said arms shortened to form a blank in the line when the matrices are assembled, as and for the purpose set forth.

13. In a linotype-machine, a matrix-bearing spider having flexible arms provided upon their ends with matrices having tapering sides, the tapering sides of such matrices being adapted to form a joint and make alinement with a mold having flaring lips and jaws 2^d to bring the matrices into lateral contact.

14. In a linotype-machine, a matrix-bearing spider having arms transversely flexible provided severally upon their ends with diverse matrices and with a compressible justifier comprising two flexible strips attached at their ends and formed with parallel sides intermediate to the ends, substantially as herein set forth.

15. In a linotype-machine, the combination, with a stationary mandrel, of a series of matrix-bearing spiders having arms transversely flexible, provided severally upon their ends with diverse matrices, means for rotating the spiders to set the desired matrices at a given casting-line, and a mold having the flaring jaws 2^d to bring the matrices into lateral contact.

16. In a linotype-machine, the combination, with a stationary mandrel, of a series of matrix-bearing spiders having arms transversely flexible and provided upon their ends with matrices having tapering sides, means for rotating the spiders to set the desired matrices at a given casting-line,

and a melting-pot having an integral mold with the flaring jaws 2^d to bring the matrices into lateral contact, and the flaring lips 2^e fitted accurately to the tapered sides of the matrices, and means for moving the melting-pot to press the mold upon the matrices, substantially as herein set forth.

17. In a linotype-machine, the combination, with a mandrel, of a rotatable matrix-bearing spider having arms transversely flexible, one of such arms having upon the end a compressible justifier, and the greater number of the arms having diverse matrices upon the ends, and the spider having a weight at one side to turn it normally into a given position upon the mandrel, substantially as herein set forth.

18. In a linotype-machine, the combination, with a mandrel, of a rotatable matrix-bearing spider having arms transversely flexible, one of said arms being provided with a compressible justifier, one with a solid spacer, and one shortened to form a blank, the greater part of the arms having diverse characters upon the ends and the spider having a weight at one side to turn it normally into a given position upon the mandrel, as and for the purpose set forth.

19. In a linotype-machine, the combination, with a mandrel, of a series of rotatable matrix-bearing spiders having arms provided with matrices bearing diverse characters, a melting-pot provided with trunnions and with a mold moved by the melting-pot to and from a casting-line across the peripheries of the spiders, the pot having a rocker-arm and being so adjusted upon the trunnions that the weight of the pot retracts the mold normally from the spiders, and the linotype-machine having a rotary shaft with reciprocating connection to the rocker-arm to move the pot with the mold into contact with the spider-arms when required, substantially as herein set forth.

20. In a linotype-machine, the combination, with a mandrel, of a series of rotatable matrix-bearing spiders having arms provided with matrices bearing diverse characters, a melting-pot provided with trunnions and with a mold moved by the melting-pot to and from a casting-line across the peripheries of the spiders, the pot having a rocker-arm and being so adjusted upon the trunnions that the weight of the pot retracts the mold normally from the spiders, and the linotype-machine having a shaft carrying a rotary cam and a spring connection between such cam and the rocker-arm to move the pot with the mold into contact with the spider-arms when required, substantially as herein set forth.

21. In a linotype-machine, the combination, with a mandrel, of a series of rotatable matrix-bearing spiders having arms provided with matrices bearing diverse characters, a melting-pot provided with trunnions and with a mold moved by the melting-pot to and from a casting-line across the peripheries of the spiders, the pot having a rocker-arm and being so adjusted upon the trunnions that the weight of the pot retracts the mold normally from the spiders, and the linotype-machine having a shaft connected by clutch with a continuously-rotating driver, a connection to the rocker-arm reciprocated by the shaft when rotated, a lever adjacent to the melting-pot for detaching the clutch, and a hinged dog upon the melting-pot for actuating such lever to disengage the clutch and stop the shaft when the mold is retracted from the spider-arms, substantially as herein set forth.

22. In a linotype-machine, the combination, with a mandrel, of a series of spiders having each a hub with ball-bearing fitted to turn freely upon the mandrel, a slot in each hub to engage a driving-blade, transversely-flexible arms having diverse characters upon the ends, a driving-blade movable longitudinally to fit the slots, a weight upon each spider to bring the slots normally into alinement, means for rotating the blade around the mandrel to adjust the matrices, and a mold fitted to the matrices when adjusted, substantially as herein set forth.

23. In a linotype-machine, the combination, with a series of spiders having flexible arms carrying a series of matrices, a spacer, a compressible justifier, and one arm abbreviated to form a blank, of a mold and means for moving it to and from a casting-line across the peripheries of the spiders, means for setting the desired matrices, spaces, blanks or justifiers at such casting-line, and means for compressing the line to the required length.

24. In a linotype-machine, the combination, with a series of spiders having flexible arms carrying a series of matrices, a spacer, a compressible justifier, and one arm abbreviated to form a blank, of a mold and means for moving it to and from a casting-line across the peripheries of the spiders, means for setting the desired matrices, spaces, blanks and justifiers at such casting-line, means for locking the adjusted spider-arms, and means for compressing the line to the required length.

25. In a linotype-machine, the combination, with a mandrel, of a yielding spider-core about such mandrel, a series of annular ball-seats upon such core, a series of hubs with balls rotatable upon such seats, spider-arms projected from each hub with matrices upon their ends, and a mold movable to and from the periphery of the spiders, and provided with inclined horns at its ends to compress the line of matrices, substantially as herein set forth.

26. In a linotype-machine, the combination, with a mandrel, of a yielding spider-core about such mandrel, a series of annular ball-seats upon such core, a series of hubs with balls rotatable upon such seats, spider-arms projected from each hub with matrices upon their ends, a slotted lock-bar embracing the adjusted arm, and a pivoted melting-pot carrying a mold to and from the matrices, the mold having at its ends inclined horns curved to pass through the slotted lock-bar, substantially as herein set forth.

27. In a linotype-machine, the combination, with a mandrel, of a yielding spider-core about such mandrel, a series of annular ball-seats upon such core, a series of hubs with balls rotatable upon such seats, spider-arms projected from each hub carrying a series of matrices, a spacer, and a compressible justifier, and one arm abbreviated to form a blank, and a mold movable to and from the peripheries of the spiders with inclined horns to compress the line of arms to the same length as the mold.

28. In a linotype-machine, the combination, with a line of matrices, of a melting pot having a nozzle with mold integral therewith and provided with an ejector and movable to and from the line of matrices to make a casting thereon, the mold having a water-chamber about the same with inlet and outlet pipes, and the interior of the melting-pot adjacent to the mold having a non-conductive lining to prevent the conduction of heat from the melted metal to the mold.

29. In a linotype-machine, the combination, with a line of matrices, of a melting-pot having a nozzle with mold integral therewith, and provided with an ejector and movable to and from the line of matrices to make a casting thereon, the mold having a water-chamber about the same with inlet and outlet pipes, and the interior of the melting-pot adjacent to the mold having a non-conductive lining to prevent the conduction of heat from the melted metal to the mold, the said lining having notches 2^r expanded toward the mold, to clear the metal therefrom if chilled, substantially as herein set forth.

30. In a linotype-machine having a mold attached to the melting-pot, the combination, with the melting-pot having bottom sloping toward a nozzle as set forth, of a mold integral therewith, a line of matrices fitted to the mold when casting a linotype, an ejector movable through the melting-pot and operating as a gate to the mold, means for holding the ejector normally within the mold, means for withdrawing it wholly from the mold to admit the metal thereto, means for replacing it partially in the mold to compress the congealing metal and form the back of the linotype, and means for forcing it through the mold to eject the linotype when cast, substantially as herein set forth.

31. In a linotype-machine, a melting-pot having a sloping bottom and integral nozzle having a mold-cavity with mold-plate to cover such cavity, and formed with guides for an ejector, an ejector fitted to such guides and extended outside of the nozzle, and gearing upon the pot for reciprocating the ejector through the mold, as and for the purpose set forth.

32. In a linotype-machine, the combination, with a series of matrix-bearing spiders mounted side by side upon a mandrel and having a driving-blade fitted thereto, of a mold with means for moving it to and from a casting-line across the peripheries of the spiders, means for rotating the blade around the mandrel to successively adjust the spiders, means for locking each spider when adjusted, and means for retracting the blade from each spider as it is locked, substantially as herein set forth.

33. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, of a mold movable to and from the periphery of the spiders, a blade movable parallel with the mandrel, and fitted to the slots through the spiders, a registering-magnet rotatable upon the mandrel for carrying such blade and adjusting the spiders, a multipolar motor-magnet with pole-pieces at intervals about its circumference corresponding to the matrices upon the spiders, an annular core carrying a series of coils, between the pole-pieces, and an electric circuit for energizing said core and pole-pieces, and creating "consequent poles" in the motor-magnet as desired, substantially as herein set forth.

34. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, of a mold movable to and from the periphery of the spiders, a blade movable parallel with the mandrel and fitted to the slots through the spiders, a registering-magnet rotatable upon the mandrel for carrying such blade and adjusting the spiders, a multipolar motor-magnet surrounding such registering-magnet, and an electric circuit, and connections and finger-keys in said circuit for connecting it to shift the "consequent poles" of such motor-magnet, substantially as herein set forth.

35. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, of a mold movable to and from the periphery of the spiders, a blade movable parallel with the mandrel and fitted to the slots through the spiders, a registering-magnet rotatable upon the mandrel for carrying such blade and adjusting the spiders, a multipolar motor-magnet with pole-pieces corresponding with the matrices upon the spiders, a core and coils for energizing such pole-pieces, an electric circuit, connections and finger-keys in said circuit for shifting the "consequent poles" as desired, and means for locking the spiders and retracting the blade from the same successively, substantially as herein set forth.

36. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, of a mold movable to and from the periphery of the spiders, a registering-magnet rotatable upon the mandrel with a connection, as the blade 13, for adjusting the spiders, a multipolar motor-magnet in ring form surrounding such registering-magnet, with bridges 11^a and 11^b at its ends fitted to the mandrel, pole pieces and coils upon the motor-magnet corresponding to the spider-arms, a commutator carried by said magnet, with concentric rows of contact-bars corresponding in number to the magnet-coils, a hub upon the mandrel adjacent to the registering-magnet, having a spring connection with said magnet, and provided with rolls to bear upon the commutator-contacts and closed circuits therethrough, and an electric circuit through the motor-magnet and connections with finger-keys, directed by the finger-keys to shift the consequent poles of the magnet at pleasure, substantially as herein set forth.

37. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, of a mold movable to and from the periphery of the spiders, a registering-magnet rotatable upon the mandrel with a connection, as the blade 13, for adjusting the spiders, a multipolar motor-magnet in ring form surrounding such registering-magnet, with bridges 11^a and 11^b at its ends fitted to the mandrel, pole-pieces and coils upon the motor-magnet corresponding to such spider-arms, a commutator carried by said magnet, with concentric rows of contact-bars corresponding to such coils, a hub upon the mandrel adjacent to the registering-magnet having a spring connection thereto, and provided with rolls to bear upon the commutator-contacts, an iron brake-ring attached to the motor-magnet, an arm carried by the registering-magnet and having a brake-magnet movable thereon, a spring to normally retract such magnet, and electric circuits, and connections and finger-keys, for energizing the motor-magnet and shifting its "consequent poles" at pleasure, and for energizing the brake-magnet when the registering-magnet is exactly adjusted, as and for the purpose set forth.

38. In a linotype-machine, the combination, with a series of slotted matrix-bearing spiders mounted side by side upon a mandrel, and a mold to coöperate with the same when adjusted, of a registering-magnet rotatable upon the mandrel, with a connection as the blade 13, for adjusting the spiders, and a multipolar motor-magnet comprising the annular core 11^d with pole-pieces 11^f and intermediate coils 11^e corresponding with the spider-arms, the coils having connections with finger-keys, for closing an electric circuit through the coils to shift the "consequent poles" of the motor-magnet, and adjust the registering magnet and spiders, substantially as herein set forth.

39. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of matrix-bearing spiders rotatable thereon between fixed collars, an annular multipolar motor-magnet having pole-pieces corresponding with the spider-arms, bridges to support it movably upon the mandrel, and means for moving it step by step over the spiders, a registering-magnet movable with the motor-magnet and having the blade 13 fitted to coincident slots in the spiders, a coil upon the motor-magnet for each pole-piece, a finger-key for each pole-piece in connection with the opposite coils, and an electric circuit embracing said coils, connections and a finger-key for energizing said motor-magnet to shift its "consequent poles," substantially as herein set forth.

40. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of slotted matrix-bearing spiders rotatable thereon between fixed collars, an annular motor-magnet having pole-pieces corresponding with the spider-arms, bridges to support it movably upon the mandrel, a registering-magnet movable with the motor-magnet and having the blade 13 fitted to coincident slots in the spiders, a spring operated to move the motor and registering magnets with such blade and press it normally into the spider-slots, ratchet mechanism to retract the motor-magnet, registering-magnet, and blade, step by step from the spiders, a coil upon the motor-magnet for each pole-piece, a finger-key for each pole-piece in connection with two opposite coils and with means for initiating said retraction and two circuits one embracing such coils, connections and finger-keys, for energizing the motor-magnet, to adjust the registering-magnet and a spider and the other embracing said key, connections and means for initiating the retraction of the blade from the spider when adjusted, substantially as herein set forth.

41. In a linotype-machine, the combination, with a suitable frame, of a mandrel 4 having a series of slotted matrix-bearing spiders rotatable thereon between fixed collars, an annular motor-magnet having pole-pieces corresponding with the spider-arms, bridges to support it movably upon the mandrel, a registering-magnet movable with the motor-magnet and having the blade 13 fitted to coincident slots in the spiders, a spring upon the mandrel to move the motor and registering magnets to press such blade normally into the spider-slots, ratchet mechanism to retract the motor-magnet, registering-magnet, and blade, step by step from the spiders, a coil upon the motor-magnet for each pole-piece, a key for each pole-piece in connection with two opposite coils, and an electric circuit embracing said coils, connections and key, to actuate the registering-magnet and adjust characters upon each spider in the desired position, a locking-bar advanced step by step to secure each of the spiders when adjusted, a melting-pot with mold operated to make a casting when all the spiders are adjusted, a lock-releasing magnet connected with the ratchet mechanism of the lock-bar and means for closing a circuit through such lock-releasing magnet when the mold is retracted from the spiders, substantially as herein set forth.

42. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of slotted matrix-bearing spiders rotatable thereon between fixed collars, an annular motor-magnet having pole-pieces corresponding with the spider-arms, bridges to support it movably upon the mandrel, a registering-magnet movable with the motor-magnet and having the blade 13 fitted to coincident slots in the spiders, a returning-spring upon the mandrel to move the motor and registering magnets to press such blade normally into the spider-slots, ratchet mechanism to retract the motor-magnet, registering-magnet, and blade, step by step from the spiders, a coil upon the motor-magnet for each pole-piece, a key for each pole-piece in connection with two opposite coils, and an electric circuit embracing said coils, connections and key, to actuate the registering-magnet and adjust the matrices upon each spider in the desired position, a locking-bar advanced step by step to secure each of the spiders when adjusted, a melting-pot with mold operated to make a casting when all the spiders are adjusted, means for retracting the lock-bar from the spiders when the linotype is cast, a detent for holding the motor-magnet when adjusted step by step, a returning-magnet for withdrawing such detent, and means actuated by the final movement of the lock-bar for closing a circuit through such returning-magnet and thus withdrawing the detent from the motor-magnet to permit the operation of the returning-spring, substantially as herein set forth.

43. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of matrix-bearing spiders rotatable thereon between fixed collars, an annular motor-magnet movable over such spiders with pole-pieces and coils corresponding with the spider-arms and carrying a registering-magnet to adjust the spiders, a keyboard with keys connected with a source of electricity, a movable hook-board with hooks having circuit connections with said coils and adapted to engage hooks upon the keys when a key is depressed to close a circuit through the coils, a rack and pinion for shifting the motor-magnet step by step when adjusting the spiders, a spring and rotating catch for reciprocating the hook-board after each actuation of the registering-magnet, a ratchet-wheel connected with the pinion and actuated by a pawl upon the hook-board, and a detent for retaining the pinion in its advanced position, substantially as herein set forth.

44. In a linotype-machine having a series of matrices assembled and adjusted by the operation of keys and electric circuits controlled by the keys, the combination, with a keyboard composed of conductive plates each insulated from the other and in connection with one of the terminals of a source of electricity, of a series of elastic, metallic keys mounted on said keyboard in electrical connection with one of its plates, said keyboard being pierced beneath the keys and each key having a key-hook projected downward through the keyboard and adapted to engage one of a series of detachable hooks arranged below such keyboard, in correspondence with the key-hooks, and to close circuits therethrough, connections between said hook and a coil on a motor-magnet, connection between a second coil on the motor-magnet wound opposite the first, and the other terminal of the source of electricity and means for disengaging said hook when the matrix corresponding to a given key is adjusted, substantially as herein set forth.

45. In a linotype-machine having a series of matrices assembled, adjusted and locked by the operation of keys and electric circuits controlled by the keys, the combination, with a keyboard composed of conductive plates, each insulated from the other, one of said plates being in connection with one terminal of a source of electricity, of a series of elastic metallic keys mounted on said keyboard in electrical connection with one of its plates, said keyboard being pierced beneath the keys and each key having a key-hook projected downward through the keyboard and adapted to engage one of a series of detachable hooks arranged below such keyboard in correspondence with the key-hooks to close circuits therethrough, connection between each hook and electric locking devices joined to the other terminal of the source of electricity and means for disengaging said key-hook when the matrix corresponding to a given key is locked, substantially as shown and described.

46. In a linotype-machine having a series of matrices assembled and adjusted by the operation of keys controlling electric circuits, the combination, with a keyboard bearing keys having key-hooks, each key-hook insulated from the other and connected with one of the terminals of a source of electricity, of a hook-board, and a series of hooks mounted

thereon in correspondence with the key-hooks and in connection with a motor-magnet and adapted to engage the key-hooks and close circuits through the source of electricity, the keys, and the motor-magnet to assemble and adjust the matrices, substantially as shown and described.

47. In a linotype-machine having a series of matrices assembled, adjusted and locked by the operation of keys and electric circuits controlled by the keys, the combination, with a keyboard bearing keys having key-hooks connected with one of the terminals of a source of electricity, of a hook-board and a series of hooks mounted thereon in correspondence with the key-hooks and connected with electrical locking devices joined to the other terminal of the source of electricity, and adapted to engage the key-hooks and close a circuit therethrough to actuate the locking devices to lock the matrices when adjusted, substantially as shown and described.

48. In a linotype-machine having a series of rotatable matrix-bearing spiders, with a registering-magnet to adjust the same, and a motor-magnet with coils and circuit-wires to produce "consequent poles" corresponding to the arms upon the spiders, the combination, with the opposed terminals of such circuit-wires, of a series of hooks mounted upon a reciprocating hook-board and adapted to engage the key-hooks on keys when depressed to them, and a keyboard having a series of keys mounted thereon in connection with the terminals of a source of electricity and adapted to close circuits through said source and coils, and means for shifting the hook-board to break the connections formed by such hooks, as and for the purpose set forth.

49. In a linotype-machine having a series of matrices assembled and adjusted by the operation of keys controlling electric circuits corresponding to the said matrices, the combination, with the circuit-wires, of a keyboard having a series of keys mounted thereon by means of elastic metallic springs, the keyboard being composed of conductive plates insulated from each other, each of said plates being in connection with one of the terminals, of a source of electricity and with one of the said keys, the keyboard being pierced beneath the keys, and each key having a key-hook projected downward through the keyboard, and a hook-board of non-conductive material arranged movably below such keyboard and having a series of hooks connected with electrically-operated devices for assembling and adjusting the matrices and adapted to engage the key-hooks when depressed and close circuits through said devices, a spring actuating the hook-board to hold the hooks normally disengaged, a latch-lever pivotally connected with the hook-board and having a hinged tailpiece to engage a stop, a revolving catch, and a tooth upon the latch-lever to engage the same to retract the hook-board to render the hooks operative, a releasing-magnet, and an armature upon such latch-lever adapted when said magnet is energized to detach the tailpiece from the stop and permit the spring to return the hook-board to its normal position, substantially as herein set forth.

50. In a linotype-machine having a series of matrices assembled, adjusted and locked by the operation of keys controlling electric circuits corresponding to the matrices, the combination, with the circuit-wires, of a keyboard bearing a conductive plate connected with one of the terminals of a source of electricity and having mounted upon it a series of elastic metallic keys with downwardly-projecting key-hooks, said keyboard being pierced beneath the keys to permit the key-hooks to project downward through the keyboard, and a hook-board of non-conductive material arranged movably below such keyboard bearing a series of hooks connected with electrically-operated devices joined to the other terminal of said source of electricity and operating to lock the matrices, said hooks being adapted to engage the key-hooks when depressed and close circuits through said devices, a spring actuating the hook-board to hold the hooks normally disengaged, a latch-lever pivotally connected with the hook-board and having a hinged tailpiece to engage a stop, a revolving catch and a tooth upon the latch-lever to engage the same to retract the hook-board to render the hooks operative, a releasing-magnet and an armature upon such latch-lever, adapted when said magnet is energized to detach the tailpiece from the stop and permit the spring to return the hook-board to its normal inoperative position, substantially as shown and described.

51. In a linotype-machine having a series of matrices assembled, adjusted and locked by the operation of keys and electric circuits corresponding to the said matrices, the combination, with the circuit-wires, of a keyboard having a series of keys mounted thereon by means of elastic metallic springs, of conductive plates insulated from each other, each of said plates being in connection with one of the terminals of a source of electricity and with one of the said keys, the keyboard being pierced beneath the keys, and each key having key-hooks projected downward through the keyboard, and a hook-board of non-conductive material arranged movably below such keyboard and having a series of hooks adapted to engage the key-hooks when depressed, to close said circuits through electrical devices for assembling, adjusting and locking the matrices; a spring actuating the hook-board to hold the hooks normally disengaged, a revolving catch with connections to the hook-board to retract it against the spring, a latch to lock the hook-board in an operative position, and releasing mechanism to release the hook-board to the operation of the spring, substantially as herein set forth.

52. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of matrix-bearing spiders rotatable thereon between fixed collars, means for adjusting the spiders successively, a registering-magnet with connection to the said spiders, a motor-magnet surrounding such registering-magnet and provided with coils corresponding to the spider-arms, circuit connections and keys for changing the "consequent poles" of such motor-magnet, a lock-bar with slot adapted to embrace the spider-arms when alined, gearing for advancing the lock-bar step by step, as the spiders are adjusted, an armature and pawl to operate such gearing, a lock-magnet to actuate the armature and pawl, and a circuit closed upon each actuation of the motor-magnet to energize such magnet and actuate the lock-bar gearing, substantially as herein set forth.

53. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of matrix-bearing spiders rotatable thereon between fixed collars, means for adjusting the spiders successively, a registering-magnet with connection to the said spiders, a motor-magnet surrounding such registering-magnet and provided with coils corresponding to the spider-arms, circuit connections and keys for changing the "consequent poles" of such motor-magnet, a lock-bar with slot adapted to embrace the spider-arms when alined, gearing for advancing the lock-bar step by step as the spiders are adjusted, an armature and pawl coöperating with a ratchet to operate such gearing, a lock-magnet to actuate the armature and pawl, a circuit closed upon each actuation of the motor-magnet to energize the lock-magnet, a ratchet with detent to hold the lock-bar when advancing step by step, and a lock-releasing magnet with key and circuit adapted to withdraw the pawl and detent when required to retract the lock-bar from the spiders, substantially as herein set forth.

54. In a linotype-machine, the combination, with a suitable frame, of the mandrel 4 having a series of matrix-bearing spiders rotatable thereon between fixed collars, means for adjusting the spiders successively, a registering-magnet with connection to the said spiders, a motor-magnet surrounding such registering-magnet and provided with coils corresponding to the spider-arms, circuit connections and keys for changing the "consequent poles" of such motor-magnet, a lock-bar with slot adapted to embrace the spider-arms when alined, gearing for advancing the lock-bar step by step as the spiders are adjusted, an armature and pawl to coöperate with a ratchet to operate such gearing, a lock-magnet to actuate the armature and pawl, a circuit closed upon each actuation of the motor-magnet to energize the lock-magnet, a ratchet with detent to hold the rack-bar when advanced step by step, a lock-releasing magnet with a circuit and key to withdraw the pawl and detent, a spring to retract the lock-bar, and a piston and air-check cylinder connected with the lock-bar to effect its retraction gradually.

55. In a linotype-machine, the combination, with a pivotally-mounted melting-pot having a mold integral with its nozzle, of means for pressing the mold upon a line of matrices, a suitable frame supporting a mandrel with a series of slotted matrix-spiders mounted rotatably thereon, a registering-magnet carrying a driving-blade adapted to engage with the slotted spiders to rotate the same, an annular motor-magnet surrounding the registering-magnet and supported movably upon the mandrel by bridges 11^a and 11^b and having a stop, as a rack-bar attached to its periphery, to prevent revolution upon its axis, a slotted lock-bar successively advanced to retain each adjusted spider in adjustment and adapted to support the adjusted matrices against the mold, and supports 14^d and 11^c the one affixed to the bridge 11^b and the other to the motor-magnet, adapted to sustain said lock-bar against the pressure of the mold.

56. In a linotype-machine, the combination, with a pivotally-mounted melting-pot having a mold integral with its nozzle, of means for pressing the mold upon the line of matrices, a suitable frame supporting a mandrel with a series of slotted matrix-spiders mounted rotatably thereon, a registering-magnet carrying a driving-blade adapted to engage with the slotted spiders to rotate the same, an annular motor-magnet surrounding the registering-magnet and supported movably upon the mandrel by bridges and having a stop, as a rack-bar 100 attached to its periphery, to prevent revolution upon its axis, a slotted lock-bar successively advanced to retain each adjusted spider in adjustment and adapted to sustain the adjusted matrices against the mold, the lock-bar having a cross-brace 14^c at its free end, adapted to clear the matrices when advanced, and a lock-support upon the inner side of the annular motor-magnet with ribs adapted to engage the brace upon the lock-bar, and operating to sustain it against the pressure of the mold.

57. In a linotype-machine, the combination, with a pivotally-mounted melting-pot, having a mold integral with its nozzle, of means for pressing the mold upon a line of matrices, a suitable frame supporting a mandrel with a series of slotted matrix-spiders mounted rotatably thereon, a registering-magnet carrying a driving-blade adapted to engage with the slotted spiders to rotate the same, an annular motor-magnet surrounding the registering-magnet and supported movably upon the mandrel by bridges and having a stop, as a rack-bar 100 attached to its periphery to prevent

revolution upon its axis, a slotted lock-bar 14 successively advanced to retain each adjusted spider in adjustment and adapted to support the adjusted matrices against the mold, a lock-support 11^e adapted to sustain said lock-bar against the pressure of the mold, a lock-bar-feed mechanism operated step by step by a lock-magnet and electric circuit after the adjustment of each spider, electrical connections from the lock-magnet to circuit-closing brushes and contact-plates with means for moving them automatically in coöperation with said brushes, to successively close said circuit, and thereby advance the lock-bar into engagement with the lock-support after the spiders are adjusted.

58. In a linotype-machine having slotted matrix-spiders, the combination, with a suitable frame, of a mandrel supporting said spiders rotatably, a registering-magnet carrying a driving-blade for engaging and rotating the spiders into adjustment, an annular motor-magnet surrounding the registering-magnet and having coils on its core for shifting its "consequent poles" and operating to rotate the registering-magnet, a lock-bar 14 advanced to retain each adjusted spider in adjustment, a lock-magnet 20 actuating feeding devices for advancing the lock-bar, a releasing-magnet 32 in circuit with the lock-magnet, suitable electric connections and two independent sources of electricity having separate circuits, the one through the coils on the motor-magnet and the other through the lock and releasing magnets, a keyboard carrying a series of keys adapted to direct said circuits each key having three movable metallic parts, two in electrical connection with the terminals of one source the third in electrical connection with one of the terminals of the other source, the free ends of said movable part terminating in key-hooks to make contacts, and a hook-board arranged below the keyboard and provided with hooks adapted to engage the key-hooks to close and direct the said circuits through the motor-magnet coils, and releasing-magnet, substantially as herein set forth.

59. In a linotype-machine having slotted matrix-spiders, the combination, with a suitable frame, of a mandrel supporting said spiders rotatably, a registering-magnet 10 carrying a driving-blade 13 for engaging and rotating the spiders, and a motor-magnet 11 surrounding the registering-magnet and having coils on its core for shifting its "consequent poles," a lock-bar 14 advanced to retain the adjusted spider, a lock-magnet 20 with feeding devices for advancing the lock-bar, a releasing-magnet in circuit with the lock-magnet, suitable electric connections and two independent circuits, the one through the coils on the motor-magnet and the other through the lock and releasing magnets, a keyboard carrying a series of keys to direct the said circuits and provided with key-hooks, a movable hook-board with hooks to engage the key-hooks, a spring to move the hook-board to disengage the hooks, means to reciprocate the hook-board in opposition to the spring and a latch to retain the hook-board when thus shifted, the latch being controlled by the releasing-magnet, a commutator attached to the motor-magnet having contact-bars each in connection with its respective hook, and a rolling contact operating with one of the bars and keys to close the circuit through the releasing-magnet after the adjustment of each spider, substantially as shown and described.

60. In a linotype-machine having magnetically-moved spiders, a motor-magnet, a brake-magnet, a lock-magnet, and a releasing-magnet operated by electric circuits directed and controlled by keys, the combination with a keyboard of a series of keys supported each by a strip of elastic metal movably upon such keyboard, said strip being electrically connected to one of the terminals of a source of electricity and provided with a key-hook adapted to make a contact when depressed, a hook supported free to reciprocate below the key-hook in connection with the other terminal of the source of electricity to engage the key-hook when depressed and operating to direct a current from said source through the lock-magnet and releasing-magnet, and said key having two other movable strips, each connected with one of the terminals of a second source of electricity and likewise terminating in key-hooks adapted to make contacts when depressed, reciprocated hooks to engage with the same when depressed and direct a current from said second source through the motor-magnet, the said primary strip having attached to it a key-head marked with one of the characters employed in composition and operating to retain the other two strips in proper relation to their corresponding hooks, substantially as shown and described.

61. In a linotype-machine, having slotted matrix-bearing spiders rotatably supported upon a mandrel, the combination, with such spiders, of a registering-magnet 10 carrying a driving-blade 13 for engaging the spiders, a motor-magnet 11 actuating the registering-magnet, an iron brake-ring 47^a fixed to the motor-magnet a brake-magnet 44^b coöperating with the brake-ring to check the inertia of the registering-magnet and spiders, a commutator fixed to said brake-ring, having contact-bars and a contact moving coincidently with the brake-magnet and adapted to close the circuit through one of the contact-bars and the brake-magnet, substantially as herein set forth.

62. In an electric linotype-machine having matrix-spiders rotatably supported upon a mandrel, the combination with such spiders, of a motor-magnet, a registering-magnet, the brake-maguet, a locking device with lock-magnet, a releasing-magnet and appropriate circuit connections with a source of electricity and finger-keys for directing the circuits, a commutator, having two sets of contact-bars arranged in concentric circles, and two moving contacts the one bearing upon the outer set of bars and the other upon the inner set of bars and adapted to finally close circuits through and properly direct the current to the electrically-operated braking, locking and releasing mechanism of said linotype-machine, substantially as herein set forth.

63. In an electric linotype-machine having matrix-bearing spiders rotatably supported upon a mandrel, the combination with the motor-magnet 11 mounted movably upon the mandrel, of a returning-spring for returning the magnet to a normal position, a rack and pinion to advance the motor-magnet against the returning-spring, means for actuating the pinion, a detent, operating to retain the motor-magnet when advanced, a returning-magnet 54 for lifting the detent to an inoperative position, a circuit for energizing the returning-magnet, a returning-switch adapted to close said circuit actuated by means moved with the motor-magnet, the said means operating to close the switch when the motor-magnet is at one extreme of its movement to render the detent inoperative, and to open it at the other extreme that the detent may become operative, substantially as shown and described.

64. In an electric linotype-machine having matrix-bearing spiders supported rotatably upon a mandrel, the combination, with the motor-magnet 11 longitodinally movable upon the mandrel, of a returning-spring for returning the motor-magnet to a normal position, a rack and pinion to advance the motor-magnet against the returning-spring, means for actuating the pinion, a detent operating to retain the motor-magnet when advanced, a returning-magnet 54 for lifting the detent to an inoperative position, an air-check cylinder 15 with contacts and a circuit for energizing the returning-magnet, a spring-moved piston 15^a to connect the contacts, and a switch in the said circuit adapted to render the motor-magnet-returning mechanism operative or inoperative when required, comprising a non-conductive base with a contact-point 72^a near one extremity a transversely-flexible switch-bar 72^c pivotally mounted upon such base and having ends 72^a 72^a slanted toward such pivot, and a dog-pin 11^e reciprocated by the motor-magnet into contact with such slanted ends, and operating to shift the switch-bar into or out of contact with the contact-point to close or open the said circuit, as and for the purpose set forth.

65. In an electric linotype-machine having matrix-bearing spiders supported rotatably upon a mandrel, the combination, with the motor-magnet 11 longitudinally movable upon the mandrel, of a returning-spring for returning the motor-magnet to a normal position, a rack and pinion to advance the motor-magnet against the returning-spring, means for actuating the pinion, a detent operating to retain the motor-magnet when advanced a returning-magnet 54 for lifting the detent to an inoperative position an air-check cylinder 15 with contacts and a circuit for energizing the returning-magnet, a spring-moved piston 15 to connect the contacts, and a switch in the said circuit adapted to render the motor-magnet-returning mechanism operative or inoperative when required, means reciprocated by the motor-magnet to close the switch, brushes, as 71, in the circuit of the returning-magnet, and means, as the contact 70, operating to finally close the circuit of the returning-magnet, as and for the purpose set forth.

66. In an electric linotype-machine, the combination, with a pile of matrix-bearing spiders mounted rotatably upon a mandrel, of an annular motor-magnet mounted movably upon the mandrel, carrying rotatably attached a registering-magnet 10 bearing a blade 13 adapted to engage the spiders and rotate the same, a lock-bar 14 with electrically-operated lock-feed for advancing it to successively engage the spiders, a brake-ring 47^a attached to the motor-magnet, a commutator having contact-bars and attached to the brake-ring, a brake-magnet 44 coöperating with the brake-ring and supported by a hub, an arm 42^c fixed to said hub bearing a contact coöperating with the commutator-bars, and a leaf-spring 46 attached at one end to the hub and at the other end connected with the registering-magnet to check the inertia of the same and of the pile of spiders, when the brake-magnet engages the brake-ring, and a contact-spring 42^b on the arm of the rolling contact, adapted when coinciding with the leaf-spring to close the circuit therethrough and through the electrical lock-feed mechanism, the said springs jointly operating to secure the proper registry and locking of the desired matrix, substantially as herein set forth.

67. In a linotype-machine having a series of rotatable matrix-bearing spiders with a registering-magnet to adjust the same, and a multipolar motor-magnet for producing consequent poles corresponding to the arms on the spiders, the combination, of the said elements with a keyboard and a series of keys mounted thereon and connected with the terminals of a source of electricity for closing the circuit, the wires 5^a and 5^b

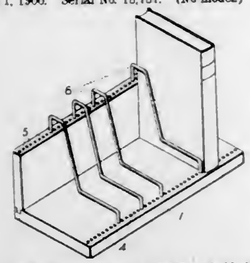
forming part of such circuit and united in a single conductor, as b^4, for extending around the periphery of the motor-magnet, and such conductor b^4 being joined to terminals of the motor-magnet coils 11^a, substantially as herein set forth.

68. In a linotype-machine, an annular multipolar motor-magnet having pole-pieces at intervals about its circumference and an annular commutator at one end, an annular core carrying a series of coils between the pole-pieces, a series of keys, and conductors a', b', and b^2 to close the circuit through the magnet-coils, the conductors b' and b^2 united to form a single conductor, as b^4, extended about the periphery of the multipolar motor-magnet, and connected each with one of the magnet-coils 11^a by terminals 11^l, and the conductors a' extended about the multipolar magnet intermediate to the conductors b^4, and carried laterally at right angles beneath the same for union with the commutator-sections, substantially as herein set forth.

69. In a linotype-machine having an annular multipolar motor-magnet with pole-pieces at intervals about its circumference, an annular core carrying a series of coils between the pole-pieces, a ring upon the end of the multipolar magnet having insulated commutator-sections upon its side, a series of keys, and conductors a', b', and b^2 to close the circuit through the magnet-coils with the conductors a' disposed longitudinally at intervals upon the periphery of the motor-magnet, the combination, with the aforesaid elements, of the branches a'' extended partially across the commutator's supporting-ring, and then at right angles about the same in opposite directions, to reach the opposed commutator-bars 43 and 43^a, the outer half of such branches extending around the periphery of the ring over the inner half, substantially as shown and described.

70. In a linotype-machine, an annular multipolar motor-magnet having pole-pieces at intervals about its circumference, an annular core carrying a series of coils between the pole-pieces, a ring upon the end of the multipolar magnet with insulated commutator-sections upon its side, a series of keys, and conductors a', b' and b^2 to close the circuit through the magnet-coils, the conductors b' and b^2 united to form a single conductor, as b^4, extended about the periphery of the multipolar magnet, and connected each with one of the magnet-coils 11^a by terminals 11^l, and the conductors a' extended about the multipolar magnet intermediate to the conductors b^4, and carried laterally at right angles beneath the same to the ring supporting the commutator-sections, each of such conductors a' having two branches disposed upon the periphery of such ring similarly to the conductors a' and b^4 upon the motor-magnet, and connected thereby to the required commutator-sections, substantially as herein set forth.

660,264. DIVISIBLE SHELF. EDWIN R. STORM, New York, N. Y. Filed June 1, 1900. Serial No. 18,787. (No model.)



Claim.—1. The combination in a divisible shelf of a base having a series of holes, a back-piece joined to the base, having a series of holes registering with the holes in the base, and movable partitions having ends adapted to enter and be held by the holes in the base and back-piece.

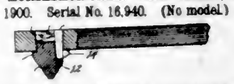
2. The combination in a divisible shelf of a base having a series of holes a back-piece joined to the base, having a series of holes registering with the holes in the base, and movable partitions having an edge extending away from the base and inclined toward the back-piece and ends adapted to enter the holes.

3. In a divisible shelf a movable partition having a portion extending from the front toward the back of the shelf, a portion extending away from the base-shelf, and inclined toward the back, a portion extending to the back and ends adapted to hold the partition in place.

4. The combination in a divisible shelf of a base having a series of holes parallel to its front edge, a back-piece having a series of holes in its upper edge, said series being parallel to and registering with the series of holes in the base, and movable partitions each having an end adapted to enter a hole in the base, a portion parallel to the base extending from said end toward the back, a portion inclined from the front toward the back, a portion extending to the back-piece and an end adapted to enter a hole in the back-piece.

5. The combination in a divisible shelf of a base 1 having a series of holes 4 a back-piece 2 having a series of holes 5 registering with the holes 4 a movable partition 6 having an end *a* adapted to enter and be held by the hole 4 a portion *c* extending from the front toward the back of the base 1, a portion *d* extending away from the base 1 and inclined toward the back-piece 2 a portion *e* extending to the back-piece 2 and an end *b* adapted to enter and be held by the hole 5.

660,265. HORSESHOE-CALK. JOHN THANEY, Milwaukee, Wis. Filed May 16, 1900. Serial No. 16,940. (No model.)



Claim.—1. A horseshoe-calk having a recess or keyway extending longitudinally of the side thereof, the bottom or inner edge of said recess being tapered inwardly and upwardly.

2. A horseshoe-calk having a recess or keyway extending longitudinally of the side thereof, the bottom or inner edge of said recess being tapered inwardly and upwardly, and the upper portion of said calk being bifurcated or slitted.

3. The combination with a calk having a recess or keyway extending longitudinally of the side thereof, the bottom of said recess being tapered inwardly and upwardly, of a key adapted to fit said recess, and having its inner edge tapered or beveled to register with the tapered bottom of the recess.

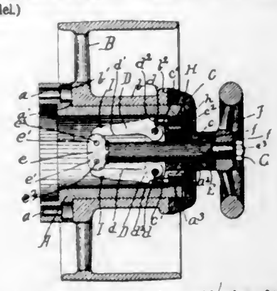
4. The combination with a calk having a recess or keyway extending longitudinally of the side thereof, the sides of said recess being tapered outwardly and upwardly, and said calk being bifurcated or slitted from its upper end downwardly for a desired distance, of a key having its side edges tapered or beveled to register with the tapered sides of the recess.

5. The combination, with a calk having a recess or keyway extending longitudinally of the side thereof, the bottom of said recess being tapered inwardly and upwardly, and the sides of said recess being tapered outwardly and upwardly, and said calk being bifurcated or slitted from its upper end downwardly for a desired distance, of a key having its inner edge tapered or beveled to register with the tapered bottom of the recess, and its side edges also tapered or beveled to register with the tapered sides of the recess.

6. The combination with a calk having a recess or keyway extending longitudinally of the side thereof, the bottom or inner edge of said recess being tapered inwardly and upwardly, of a key adapted to fit the recess, said key having its inner edge tapered to register with the tapered inner side or bottom of the recess, and said key also provided with a projecting lug or shoulder.

7. The combination with a calk having a recess extending longitudinally of the side thereof, the inner portion of said recess being conical and inclining inwardly and upwardly, the taper of the cone gradually increasing upwardly, of a conical pin fitting the inclined inner portion of the recess.

660,266. CLUTCH. BERT C. BALL, Plainfield, N. J., and WILLIAM H. CORBETT, New York, N. Y. Filed Oct. 2, 1899. Serial No. 732,309. (No model.)



Claim.—1. In a friction-clutch, the combination of the driving and driven elements; a friction device for locking said elements together; an actuating cam-lever having its cam-surface disposed to be actuated by a setting mechanism having movement in an axial direction; and a setting mechanism arranged to be moved in an axial direction in contact with said cam-surface.

2. In a friction-clutch, the combination of the driving and driven elements; a friction device for locking said elements together; a bell-crank lever having an axially and a radially extending arm, said axially-extending arm being provided with a cam-surface disposed to be acted upon by a setting mechanism having movement in an axial direction; connecting mechanism arranged to actuate the clutch device and to be actuated by

the radial arm of said lever; and a setting mechanism arranged to be moved in an axial direction and to operate upon said cam-surface to move said bell-crank lever by said movement.

3. In a friction-clutch, the combination of the driving and driven elements; a friction device for locking said elements together; a bell-crank lever having an axially and a radially extending arm, said axially-extending arm being provided with a cam-surface disposed to be acted upon by a setting mechanism having movement in an axial direction; connecting mechanism arranged to actuate the clutch device and to be actuated by the radial arm of said lever; and a setting mechanism arranged to be moved in an axial direction and provided with a roller disposed in the path of said cam-surface.

4. In a friction-clutch, the combination of the driving and driven elements; a friction device for locking said elements together; actuating cam-levers oppositely placed at opposite sides of the axis of said clutch having their cam-surfaces disposed to be actuated by a setting mechanism having movement in an axial direction; and a setting mechanism arranged to be moved in an axial direction, in contact with said cam-surfaces.

5. In a friction-clutch, the combination of the driving and driven elements; a friction device for locking said elements together; bell-crank levers placed at opposite sides of the axis of said clutch and having radially-extending arms and axially-extending arms respectively, said axially-extending arms being provided with cam-surfaces disposed to be acted upon by a setting mechanism having movement in an axial direction; connecting mechanism arranged to actuate the clutch device, and to be actuated by the radial arm of said lever; and a setting mechanism arranged to be moved in an axial direction and to operate upon said cam-surfaces to move said bell-crank lever by said movement.

6. In a friction-clutch the combination of the driving and driven elements; the bell-crank levers, D D, having the radial arms, d^2 d^2, and the axially-extending arms having the cam-surfaces, d' d'; a connecting mechanism actuated by the radial arms of said bell-crank levers for actuating said clutch device; the head, *e*, having a short contacting portion relatively to the axially-extending arm and arranged to move axially between said axial arms, and to actuate by said movement said bell-crank levers.

7. In a friction-clutch, the combination of the driving and driven elements; the bell-crank levers, D D, having the radial arms, d^2 d^2, and the axially-extending arms having the cam-surfaces, d' d'; a connecting mechanism actuated by the radial arms of said bell-crank levers for actuating said clutch device; the head, *e*, having a short contacting portion relatively to the axially-extending arm and arranged to move axially between said axial arms, and to actuate by said movement said bell-crank levers; and springs for pressing said bell-crank levers against said head.

8. In a friction-clutch the combination of the driving and driven elements; the bell-crank levers, D D, having the radial arms, d^2 d^2, and the axially-extending arms having the cam-surfaces, d' d'; a connecting mechanism actuated by the radial arms of said bell-crank levers for actuating said clutch device; the head, *e*, arranged to move axially between said axial arms, and to actuate by said movement said bell-crank levers, said head being provided with the rollers, *e'*, for the purposes described.

9. In a friction-clutch, the combination of one element having a central opening therein; a second element journaled with the axis of the first element as a center; a friction device for locking said elements together, said friction device comprising shoes arranged to be moved to and from the locking position by movement in an axial direction; and the actuating mechanism of said friction device arranged within the central opening of the element having said opening.

10. In a friction-clutch, the combination of one element having the central opening therein; a second element of the clutch being journaled with the axis of the first element as a center; a clutch device for locking said elements together; cam-levers arranged within the central opening of the element having said opening, said levers being provided with cam-surfaces arranged to be operated upon by a setting mechanism moved in an axial direction; connecting mechanism actuated by said levers for setting said clutch mechanism; and a setting mechanism arranged to be moved in an axial direction, in contact with said cam-surfaces.

11. In a friction-clutch, the combination of one element having the central opening therein; a second element of the clutch being journaled with the axis of the first element as a center; a clutch device for locking said elements together; a bell-crank lever arranged in the opening of the element having said opening, said bell-crank lever being provided with a radial arm and an axial arm, said axial arm having a cam-surface arranged to be operated upon by a setting mechanism moved in an axial direction; a connecting mechanism arranged to be actuated by said lever and to set when actuated the clutch device; and a setting mechanism arranged to be moved in an axial direction and to operate upon said cam-surfaces to move said bell-crank lever by said movement.

12. In a friction-clutch, the combination of one element having the central opening therein; a second element of the clutch being journaled with the axis of the first element as a center; a clutch device for locking said elements together, said clutch device comprising friction-shoes arranged to be moved toward and from locking position by movement in an axial direction; levers arranged within the central opening; connecting mechanism between said levers and said clutch device; and means for actuating said levers by a movement in an axial direction.

13. In a friction-clutch, the combination of one element having the central opening therein; a second element of the clutch being journaled with the axis of the first element as a center; a clutch device for locking said elements together, said clutch device comprising friction-shoes arranged to be moved toward and from locking position by movement in axial direction; a bell-crank lever arranged within the opening of the element having said opening, said lever being provided with a radial arm and an axial arm; connecting mechanism actuated by the radial arm and actuating by its movement the clutch device; and means operating upon the axial arm of the lever for actuating said lever.

14. In a friction-clutch, the combination of the driving element, A, having the central opening therein; the driven element, B, journaled on the driving element; the shoe-plate, C, arranged to have axial movement on the driving element; the adjusting-studs, H, arranged on the driving element; bell-crank levers, D, pivoted on the hub of the shoe-plate, C; the operating-head, *e*; shaft, E, for operating said head, and extending through the hub of the shoe-plate, C; and means for operating the shaft E.

15. In a friction-clutch, the combination of the hollow carrier forming an element of the clutch and having a central opening therein, which at one point is reduced in size and made oblong in form; a clutch mechanism forming an oblong mass in cross-section, said mass being larger in its greater dimension in cross-section than the smaller dimension of the oblong opening in the carrier, and said mass also being of such size and shape as to enter the oblong opening when brought into register therewith and to be brought to operative position in said carrier by a rotative movement after the entry of the oblong mass through the oblong opening in the carrier.

16. In a friction-clutch, the combination with the hollow element, A, having the oblong opening, a^3, therein; the friction shoe-plate, C, having the clutch-levers, D D, arranged on the hub of said shoe-plate, forming a mass oblong in cross-section adapted to enter the opening, a^3, when brought into register therewith; said mass being of a size in its larger dimension to prevent its removal when turned out of register with said opening.

17. In a friction-clutch, the combination with the element, A, having the oblong opening, a^3, forming the segmental lugs or projection, a^3; the adjusting-studs, H, arranged in said projection; a friction shoe-plate, C, arranged over the end of said driving element, and having the perforation, c^3, therein; and jam-nuts on the studs, H, arranged in said perforations for locking said shoe-plate with said element A.

18. In a friction-clutch, the combination with the element, A, having the central opening therein; having the projections a^3 extending into said opening and forming the oblong opening a^3, said element A being provided with a shoe-shoulder, a'; the element, B, journaled on said element A; the shoe-plate, C, arranged to operate upon the end of said element B and having a head, C, thereon; ears, c', on said head; perforation, c^3, therethrough; the bell-crank levers, D D, pivoted to the ears, c', said bell-crank levers being provided with the cam-surfaces, d', and the radial arm, d^2; springs, I, for pressing said bell-crank levers inwardly; adjusting-studs, H, arranged in the projection, a^3, and having the jam-nuts, h, thereon, arranged in the perforation, c^3; the head, *e*, arranged between the bell-crank levers, D D, and having the rollers, *e'*, thereon; the shaft, E, extending from said head; and a hand-lever, F, arranged on said shaft.

660,267. FENCE-MACHINE. GEORGE W. S. BELL, Tallula, Ill., assignor to Bell & Dawson, same place. Filed Feb. 16, 1900. Serial No. 5,500. (No model.)

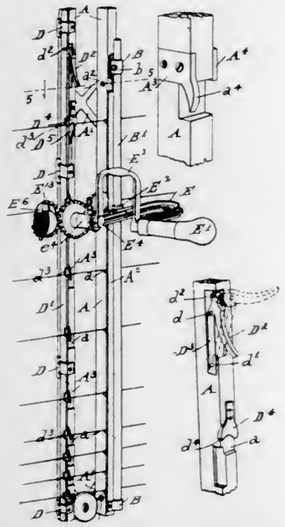
Claim.—1. In a fence-machine, the combination of a main frame having transversely-notched side pieces, one of said side pieces having a longitudinal channel, and a notched T-bar pivotally connected with said last-named side piece and fitting in the channel therein, as set forth.

2. In a fence-machine, the combination of a main frame having transversely-notched side pieces, guides secured to one of said side pieces, guard-plates secured to said last-named side piece contiguous to the notches therein, a notched slide slidable in said guides, and means for reciprocating said slide, as set forth.

3. In a fence-machine, the combination of a main frame having transversely-notched side pieces, guard-plates on one of said side pieces, a slide slidable on said last-named side piece and having notches contiguous to said guard-plates, and a longitudinal bar having a hinge connection with one of said side pieces, as set forth.

4. In a fence-machine, the combination of a main frame, a longitudinal bar detachably connected with the main frame, and a twister-frame slidable on said bar, as set forth.

5. In a fence-machine, the combination of an arch-shaped twister-frame having a projecting handle, a brace-handle mounted to turn within the arch of said twister-frame, and twisting devices operated by said brace-handle, as set forth.



6. In a fence-machine, the combination of a twister-frame, a brace-handle mounted to turn on said twister-frame and provided with a stop, a toothed wheel turning with said brace-handle, twisting mechanism actuated by said brace-handle, and a notched wheel intermeshing with said toothed wheel and provided with lugs adapted to engage with the stop on said brace-handle, as set forth.

7. In a fence-machine, the combination of a twister-frame, a rotatable brace-handle provided with a stop, a toothed wheel and a cog-wheel turning with said brace-handle, jaws on the twister-frame, a slotted tubular shaft turning in a bearing on the twister-frame, a cog-pinion on said tubular shaft intermeshing with the cog-wheel on the brace-handle, and a rotatable notched wheel meshing with said toothed wheel and having lugs adapted to engage with a stop on the brace-handle, as set forth.

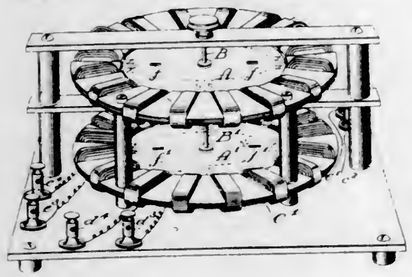
8. In a fence-machine, a spool having a tubular stem, a spring housed in said spool, and a pin slidable in said spool, in combination with a twisting mechanism in coöperative relation to said spool, as set forth.

9. In a fence-machine, the combination of a main frame, a guard-plate and a crimping-plate on said frame, and a notched slide slidable on the main frame in juxtaposition to said guard-plate, as set forth.

10. In a fence-machine, the combination of a notched side piece, a clamp-plate secured to said side piece contiguous to the notches therein, and a notched slide slidable on said side piece and coöperative with the clamp-plate thereon, as set forth.

11. In a fence-machine, the combination of a notched side piece, a link pivotally connected with said side piece, a lever pivotally connected with said link, and a notched slide pivotally connected with said lever, as set forth.

660,268. INDICATOR. CHARLES L. CLARKE, Mount Vernon, N. Y. Filed Jan. 17, 1900. Serial No. 1,717. (No model.)



Claim.—1. In an electrical indicating apparatus, the combination of a stroboscopic system having independent elements and means actuated by alternating currents for independently operating said elements.

2. In an electrical indicating apparatus, the combination of an alternating-current motor and an object rotated thereby and means independently actuated by alternating currents for causing said object to be periodically visible.

3. In an electrical indicating apparatus, the combination of two alternating-current motors and means for producing optical images, said means having its elements independently operated by said motors.

4. In an electrical indicating apparatus, the combination of a plurality of alternating-current motors and means for producing stroboscopic images operated thereby.

5. In an electrical indicating apparatus the combination of two synchronous alternating-current motors and means for producing stroboscopic images operated thereby, said motors having terminals whereby they can be connected to conductors supplying alternating currents.

6. In an indicator for electrical apparatus, the combination of alternating-current motors and stroboscopic disks driven by said motors.

7. The combination in an indicating apparatus of a shutter-disk, an alternating-current motor for rotating said shutter-disk in one direction, a target-disk, and a second alternating-current motor for rotating said target-disk in the opposite direction.

8. The combination with two alternating-current generators, of two alternating-current motors, each energized by one of said generators, and means for producing stroboscopic images operated by said motors.

660,269. OVERFLOW-ALARM DEVICE. ALBERT FASIG, Jersey City, N. J. Filed Mar. 20, 1900. Serial No. 9,366. (No model.)

Claim.—1. An overflow-alarm device, an alarm proper and a movable alarm-sounding member arranged to operate in connection therewith, said alarm-sounding member being formed to receive and temporarily hold and discharge a portion of the overflowing substance, whereby upon said discharge of the overflowing substance said alarm-sounding member will be freed to engage said alarm proper, substantially as shown and described.

2. In an overflow-alarm device, an alarm proper, and a movable alarm-sounding member normally in engagement therewith, said alarm-sounding member being formed to receive a quantity of the overflowing substance and to temporarily hold and discharge the same, whereby a predetermined quantity of the overflowing substance received and held by said alarm-sounding member will cause the disengagement of said alarm-sounding member and said alarm proper, and whereby the discharge of said overflowing substance from said alarm-sounding member will cause the operative engagement thereof and said alarm proper, substantially as shown and described.

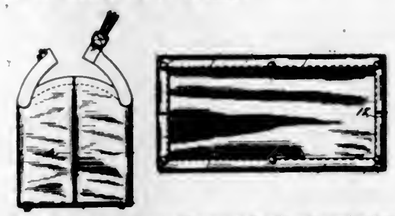
3. An overflow-alarm device, comprising a drip-pan or other receptacle provided with a transverse partition whereby said drip-pan or receptacle is divided into two compartments, an alarm proper mounted in one of said compartments, a pivoted striker-arm mounted adjacent thereto and arranged to engage the same, said striker-arm being provided with a receptacle, and said partition with a spout which projects above said receptacle, whereby a substance discharged from said spout will be initially stored within said receptacle and will secondarily cause the depression thereof and will, tertiarially, upon escape from said receptacle, free said striker-arm whereby the same will be operatively engaged with said alarm proper, substantially as shown and described.

4. An overflow-alarm device, comprising a drip-pan or other receptacle provided with a transverse partition whereby two compartments, a drip-compartment and an overflow-compartment, are formed therein, an alarm proper secured to said partition, a pivoted striker-arm also secured to said partition and provided with a head which operates in connection with said alarm proper, said striker-arm being provided at the end opposite said head with a receptacle, and said partition being provided with a spout which projects over said receptacle, and whereby a substance passing over said spout from said drip-compartment will be collected in and subsequently discharged from said receptacle, causing respectively the elevation and depression of said head and said striker-arm, and whereby said alarm is sounded, substantially as shown and described.

5. An overflow-alarm device, embodying an alarm proper, and a single pivoted alarm-sounding member formed to receive and temporarily hold a quantity of the overflowing substance, whereby upon the discharge of said temporarily-held quantity of the overflowing substance said alarm-sounding member will be freed to engage said alarm proper, substantially as shown and described.

6. An overflow-alarm device, comprising a drip-pan or other receptacle provided with an overflow-compartment, said overflow-compartment and drip-pan being separated by a partition or wall, an alarm proper secured to said partition or wall, and an alarm-sounding member also mounted upon said partition or wall and arranged to operate in connection with said alarm, the relative arrangement of parts being such that the overflow substance passing said partition or wall into said overflow-compartment engages said alarm-sounding member and actuates the same to sound an alarm, substantially as shown and described.

660,270. SATCHEL. HUGO B. HEMPE, Chicago, Ill. Filed July 30, 1900. Serial No. 25,316. (No model.)



Claim.—1. A satchel having the side walls of its outer casing formed of two pieces seamed together only at the ends of the bag and intermediate of its side corners, and each underlapping the bottom of the bag, and being secured thereto at a distance from its side and end edges.

2. A satchel having the side walls of its outer casing formed of two pieces seamed together only at the ends of the bag and intermediate of its side corners, and each underlapping the bottom of the bag and being secured thereto at a distance from its side and end edges, and having its side walls reinforced by a stiffening formed of two pieces, each extending from one vertical seam thereof to the other.

660,271. INSULATING-KNOB FOR ELECTRIC-LIGHT WIRING. ROBERT H. HENDERSON and JOHN G. HENDERSON, Chicago, Ill. Filed Dec. 10, 1897. Serial No. 661,467. (No model.)



Claim.—1. An insulating-knob with a groove for a wire like an ordinary knob, with a hook curved over from its outer end, forming a cavity underneath, large enough to receive the required wire, in such proximity to the groove that when the end of a wire is placed underneath this hook and the wire wrapped around the knob in the groove it effectually shuts in the end of the wire, so that it cannot be pulled out.

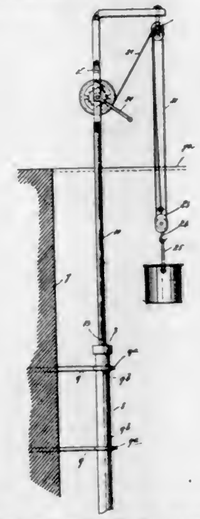
2. An insulated knob with a groove for a wire like an ordinary knob with a hook curved over from its outer end forming a cavity underneath, large enough to receive the required wire, in such proximity to the groove that when a wire is brought from another knob and wrapped around this knob and placed under the hook it holds the wire so it cannot slip, while the knob is being turned to tighten up the line-wire between the knobs.

660,272. HOISTING APPARATUS. FREDERICK E. HERZOG and FRANK L. MARTIN, New York, N. Y., assignors to the Household Hoisting Apparatus Company, same place. Filed Mar. 13, 1900. Serial No. 8,455. (No model.)

Claim.—1. In a hoisting apparatus of the class described, a support consisting of two telescoping members, the first of which is provided at one end with a cap having a bore through which the second member passes, said cap being slotted to communicate with said bore, and said second member being provided with a laterally-directed shoulder which may be passed through said slot but which, when said members are suitably relatively adjusted, may serve as a stop in connection with said cap to maintain said second member in fixed position.

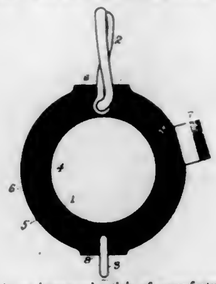
2. In a hoisting apparatus of the class described, a support consisting of two telescoping members, the first of which is provided at one end with a detachable cap having a bore through which the second member passes, said detachable cap being slotted to communicate with said bore, and said second member being provided with a laterally-directed shoulder which may be passed through said slot, but which, when said members are suitably relatively adjusted, may serve as a stop in connection with said cap to maintain said second member in fixed position.

3. In a hoisting apparatus of the class described, a main support and a supplemental support telescopically connected therewith, crank-operated devices connected with said supplemental support adjacent the upper end thereof, said upper end of said supplemental support being angularly directed therefrom, and a handle connected with said supplemental support at the point of angular divergence therefrom of the upper end portion of said supplemental support.



4. In a hoisting apparatus of the class described, a support provided at a predetermined point with a frame-shaped portion, a shaft passed therethrough, a pulley and a ratchet each fixed to said shaft, a pawl pivoted to said frame-shaped portion and operating in connection with said ratchet, said shaft being provided with a crank, and said support being angularly directed at its upper end, hoisting devices connected with the said angularly-directed upper end portion of said support, and a rope or cord which operates in connection therewith and in connection with said pulley, said support being provided at the point of angular divergence of said upper end portion therefrom with a handle.

660,273. SHAFT-TUG. GEORGE C. KLEIN, Akron, Ohio. Filed May 28, 1900. Serial No. 18,247. (No model.)

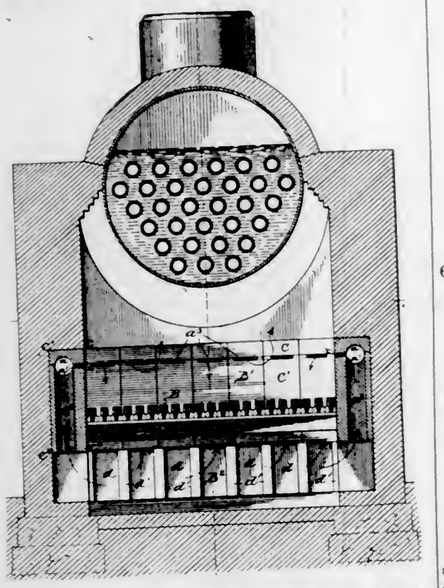


Claim.—As an improved article of manufacture, a thill-loop, having a lining of fabric and a surrounding ring of rubber extending beyond its peripheral line at the top and bottom to form projections, of a buckle-bar and girth-loop-bar respectively inclosed by said projections, a series of layers of fabric surrounding the outer line of said rubber ring excepting the outer face of said projection, and an inclosing case of rubber terminating similarly with said layers of fabric, and caps of rubber-caturated fabric to cover the outside of said projections and the ends of said layers of fabric, the whole arranged to be simultaneously united by vulcanization.

660,274. FURNACE. JAMES MURPHY, Chicago, Ill. Filed Mar. 13, 1900. Serial No. 8,448. (No model.)

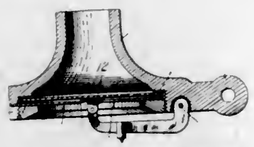
Claim.—1. In a furnace, the combination with a combustion-chamber, ash-pit and grate, of tiles set into the walls at the grate edges and

provided with vertical passages and horizontal discharge-orifices, and columns beneath said grate supporting said tiles and affording air-intakes between them, substantially as and for the purpose set forth.



2. In a furnace, the combination with a combustion-chamber, ash-pit and grate, of tiles set into the walls at the grate edges, each comprising a top section provided on its lower surface with a channel, a lower section having a vertical channel and at its top a channel registering with the channel of said top section and crossing said vertical channel, one of said tile-sections being provided with a discharge-orifice, substantially as and for the purpose set forth.

660,275. PHONOGRAPH SOUND-BOX. FREDERICK MYERS, New York, N. Y., assignor, by direct and mesne assignments, to the Stylophone Company, same place. Filed Mar. 22, 1900. Serial No. 9,758. (No model.)



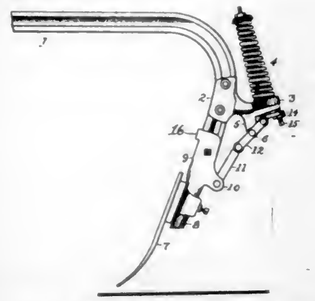
Claim.—1. A sound-box for sound-producing instruments, comprising a hollow box, a diaphragm therein, a thin metal disk held in a plane parallel to the diaphragm, a bifurcated spring-tongue integral with the disk, a sounder held in contact with the diaphragm by the spring-tongue, and a cover on the disk.

2. A diaphragm, comprising a disk of flexible material, a thin metal disk secured parallel to the diaphragm, an aperture in the metal disk, a spring-tongue formed on the disk, said spring-tongue being bifurcated at its free end, a sounder held in contact with the diaphragm by the spring-tongue, and means for holding the diaphragm and metal disk in a sound-box.

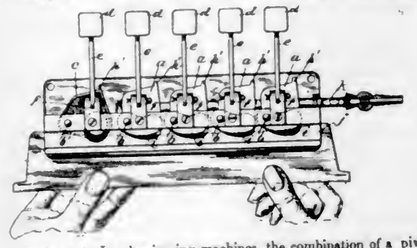
660,276. SPRING CULTIVATOR-HOE. MILTON K. NOAKER, Akron, Ohio, assignor to the Akron Cultivator Company, same place. Filed July 13, 1900. Serial No. 23,992. (No model.)

Claim.—In a spring cultivator-hoe, the combination with the draw-bar, of a rearwardly-extending arm adapted to support a coiled spring, a spring mounted thereon a rod within said spring adapted to compress the same and connected with one end of a pivoted lever, a shovel-bearing extension pivoted to rock backward, a rod connecting said extension and the opposite end of said lever, and an adjusting-screw to regulate the angle between said lever and rod, substantially as shown and described.

660,276.



660,277. EDGE-IRONING MACHINE. WILLIAM H. RICKEY, East Orange, N. J. Filed Dec. 1, 1899. Serial No. 738,761. (No model.)



Claim.—1. In edge-ironing machines, the combination of a pivotally-swinging dampener, one or more pivotally-swinging irons having an edge-ironing groove, and means for causing the dampener and iron to follow the edge of the article operated upon, substantially as set forth.

2. In edge-ironing machines, the combination of a dampener pivotally mounted, a grooved iron or irons similarly mounted, and weighted levers for controlling the movement and pressure of said dampener and irons, substantially as set forth.

3. In edge-ironing machines, the combination of a pivotally-mounted iron having an ironing-groove on its outer surface, a weighted lever resting by one arm against the opposite surface of said iron and a stop operating in conjunction with said lever-arm to limit the swing of the pivotally-mounted iron, substantially as set forth.

4. In edge-ironing machines, a pivotally-mounted dampener, one or more irons similarly mounted and having a roughened ironing-groove, in combination with one or more pivotally-mounted irons having a smooth ironing-groove, and means for controlling the pressure and motion of said dampener and irons, substantially as set forth.

5. In edge-ironing machines, the combination of a dampener swinging so as to follow the edge of the article being ironed, grooved irons similarly mounted, projecting guides adapted to iron the surfaces of the article adjacent to the edge and provided with means for preventing the article catching on the edges of the projecting guides, substantially as set forth.

6. In edge-ironing machines, the combination of a swinging dampener so mounted as to recede under pressure and follow the edge of the article being ironed, and guides for directing the course of the articles operated upon, substantially as described.

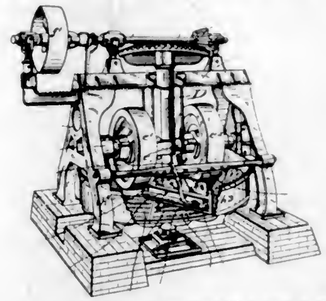
7. In edge-ironing machines, the combination of a dampener so mounted as to recede under pressure and follow the edge of the article being ironed, one or more irons similarly mounted, and guides for directing the course of the articles operated upon, substantially as described.

660,278. DRY-PAN. EDWARD SMITH, Canton, Ohio, assignor of one-half to William Frey, same place. Filed Apr. 16, 1900. Serial No. 12,994. (No model.)

Claim.—1. The combination in a dry-pan, of a plow with a steam or water chest attached thereto, and provided with discharge-orifices, and a flexible connection between the supply-pipe and said water-chest, substantially as described and for the purpose set forth.

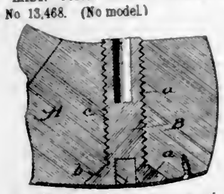
2. A plow for dry-pans, consisting of a plowshare, a steam or water chest attached thereto, and provided with discharge-orifices, and a flexible coupling connecting the steam or water chest with the supply-pipe, substantially as described and for the purpose set forth.

3. A plow for dry-pans, consisting of an adjustable swivel-plate carrying a plowshare, a steam or water chest attached to the plowshare, and provided with discharge-orifices, and a flexible steam or water-supply pipe, substantially as described and for the purpose set forth.



4. A plowshare for dry-pans, provided with a steam or water chest having discharge-orifices, substantially as described and for the purpose set forth.

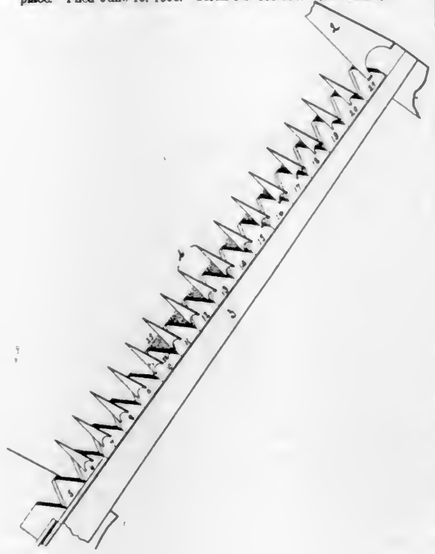
660,279. LAST. JOSEPH E. TILT, Chicago, Ill. Filed Apr. 19, 1900. Serial No. 13,468. (No model.)



Claim.—1. A last having an internally-screw-threaded socket in its heel portion, and a reinforcing socket-piece provided with a continuous coarse screw-thread of comparatively-slight spiral inclination screwed into the socket and held therein against longitudinal movement by the engagement of the threads, said socket-piece having means for engagement with an inserting-tool.

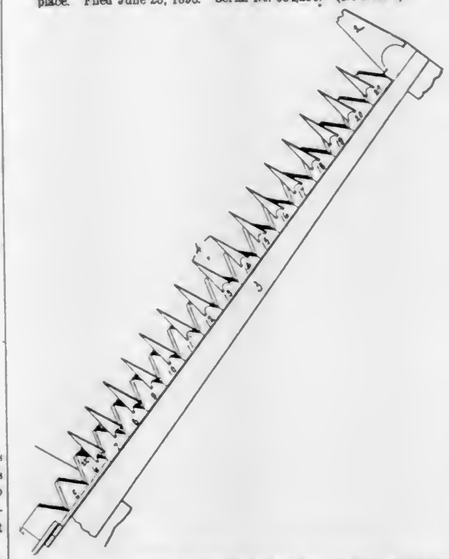
2. A last having the reinforcing socket-piece provided along its shank with a coarse screw-thread, of comparatively-slight spiral inclination, extending continuously about and substantially throughout the length of the shank and fitting an internally-threaded socket in the heel portion, and provided with a head portion resting in contact with the heel-plate.

660,280. HARVESTING-MACHINE. WILLIAM H. TRAPHAGEN, Rockford, Ill., assignor to the Emerson Manufacturing Company, same place. Filed June 16, 1898. Serial No. 683,657. (No model.)



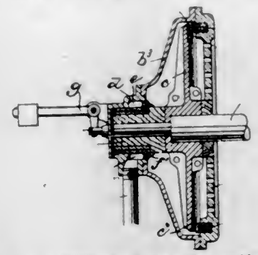
Claim.—A cutting apparatus having the distance from center to center of guards different from distance from center to center of sections, and the guards of such number the relative positions of the sections and guards at the beginning of the stroke being such and the stroke being of such length that less sections will be cutting at the middle of the stroke of the knife than the ends of the stroke.

660,281. HARVESTING-MACHINE. WILLIAM H. TRAPHAGEN, Rockford, Ill., assignor to the Emerson Manufacturing Company, same place. Filed June 23, 1898. Serial No. 684,259. (No model.)



Claim.—In a cutting apparatus, a series of equidistant guards and a cooperating series of cutting-sections equidistantly attached to a bar reciprocating through a distance approximately equal to the distance between the guards, the distance between the centers of the sections being slightly different from the distance between the centers of the guards, whereby the sections will come into action in succession instead of simultaneously; said bar being so adjusted longitudinally that at the beginning of the outward stroke only a few sections at one end of the bar shall be in action; and the number of sections being such that near the end of said stroke only a few of the sections at the other end of the bar shall be in action, while in intermediate parts of the stroke the intermediate sections shall be in action.

660,282. WATER-WHEEL. FULLER TRUMP, Springfield, Ohio. Filed Apr. 13, 1900. Serial No. 12,685. (No model.)



Claim.—1. In a water-wheel balance, the combination with a water-wheel of a diaphragm rigidly connected thereto, but free to move therewith, a housing of which said diaphragm forms one side, an inlet and outlet valve in said housing adapted to be antomatically regulated by the pressure of the water on said diaphragm, substantially as specified.

2. In a water-wheel balance, the conbination with a water-wheel rigidly mounted upon a shaft, of a diaphragm also rigidly mounted upon said shaft, the combination being free to move slightly in a longitudinal direction, a housing surrounding said diaphragm, a valve-seat in said hous-

ing formed in connection with said diaphragm, an inlet-valve, an outlet-valve and an exhaust-pipe communicating therewith, substantially as and for the purpose specified.

3. In a water-wheel balance, a diaphragm rigidly mounted on the water-wheel shaft, said diaphragm forming one side of a water-tight compartment, an inlet and outlet valve in said compartment, the one opening as the other closes, substantially as and for the purpose specified.

4. In a water-wheel balance, the combination with a water-wheel and its shaft of a diaphragm mounted thereon, the said combination being permitted a slight longitudinal movement, a housing provided with a seat or bearing for said diaphragm, the diaphragm forming one side of said housing and in connection with said seat or bearing an inlet-valve to said chamber, a recess in said housing a flanged collar forming therewith an outlet-valve, means by which said valve is operated by the horizontal movement of the shaft, and an exhaust-pipe leading from outlet-valve, substantially as specified.

5. The combination of a water-wheel and a shaft, a diaphragm connected to said shaft, and means including a valve for varying the pressure on the diaphragm by the longitudinal movement of the shaft, substantially as specified.

6. In a penstock, the combination with a water-wheel and its shaft, of a diaphragm mounted rigidly on said shaft, a metal seat or bearing on said diaphragm adjacent to the periphery thereof, a housing for said diaphragm, a chamber in said housing, a perforated disk on the seat side of said diaphragm forming the bottom of said housing, a seat or bearing in said perforated disk to contact with and receive the pressure of the metal seat or bearing of said diaphragm, forming therewith an inlet-valve for the chamber of said housing, an outlet-valve in the chamber of said housing and means for operating the same, substantially as and for the purpose specified.

7. In a penstock, the combination with a water-wheel and its shaft, of a diaphragm rigidly attached to said shaft, a bell-shaped housing for said diaphragm, a chamber in said housing, an inlet-valve formed by said diaphragm and a seat in the bottom of said housing, a loose wooden bearing in said chamber for said shaft, one end of which rests against the inner side of said diaphragm and having a shoulder thereon, a plain metal collar with a flange at its inner end adapted to fit said wooden bearing and rest against the shoulder on same, a metal collar with a perforated flange at its inner end adapted to fit said plain collar and rest against and to be covered by the flange of said plain collar, a recess in the head of said housing forming with said plain and perforated flanged collars an outlet-valve for the chamber of said housing, a weighted lever outside of said housing with pins adapted to extend through the wall of said housing and press against the outer ends of said plain collar and wooden bearing and an exhaust-pipe leading from said outlet-valve into the casing of said water-wheel, substantially as and for the purpose specified.

8. The combination with a water-wheel, a shaft on which said wheel is mounted, a diaphragm connected to said shaft, subject to the water-pressure, a valve to control the pressure on said diaphragm for the purpose of maintaining the longitudinal balance of said diaphragm and wheel to relieve said wheel from end thrust, by the longitudinal movement of the shaft on which said diaphragm and wheel are mounted, substantially as specified.

660,283. **ADVERTISING-SIGN AND ART OF MAKING SAME.** FRANK TOCHTARRER, Cincinnati, Ohio. Filed Aug. 11, 1900. Serial No. 26,563. (No model.)



Claim.—1. The herein-described process of making signs which consists in first producing upon the sheet or piece upon which the sign is to be formed, alternate surfaces of a smooth or polished and of a dull or mat nature, then applying a coat of varnish over said polished and dull surfaces, and upon the front face of the sign and finally, before said varnish has thoroughly dried, laying metal leaf upon it, substantially as set forth.

2. The herein-described improved sign comprising a body portion having alternating smooth or polished and dull or mat surfaces, a coat of varnish or the like applied over said polished and mat surfaces and a layer of metal leaf applied on said varnish and upon the front face of the sign, substantially as set forth.

660,284. **SHOE.** GEORGE S. WEBBER, Chicago, Ill. Filed July 23, 1900. Serial No. 24,513. (No model.)



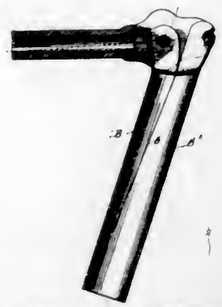
Claim.—1. In a shoe, the combination with an upper provided with a slit, of a guide located on the upper on one side of said slit, a flap provided with a guide engaging said first-named guide, means for securing said flap to the upper on the opposite side of said slit and permitting a turning movement of the flap to cause the flap-guide to traverse the upper guide, and means for securing the flap in its closed position, substantially as and for the purpose set forth.

2. In a shoe, the combination of an upper provided with a slit, a guide secured to said upper on one side of said slit, a flap adjustably secured to said upper on the opposite side of said slit, and a guide secured to said flap and engaging said first-named guide, substantially as and for the purpose set forth.

3. In a shoe, the combination of an upper provided with a slit, a guide secured to said upper on one side of said slit, a web secured near its lower portion to said upper on the opposite side of said slit, a guide on said web engaging said first-named guide, and means for securing the free upper corner of the web after the web is in its closed position, substantially as and for the purpose set forth.

4. In a shoe, the combination of an upper provided with a slit, a curved guide secured to said upper on one side of said slit, a web secured near its lower portion to said upper on the opposite side of said slit and having movement about its point of fastening, a curved guide on said web engaging and traversing said first-named guide, and means for securing the free upper corner of the web after the web is in its closed position, substantially as and for the purpose set forth.

660,285. **SEAT-POST FOR BICYCLES.** JOHN B. WEIR, Chicago, Ill., assignor, by mesne assignments, to Thomas A. Banning, same place. Filed Sept. 9, 1899. Serial No. 729,908. (No model.)

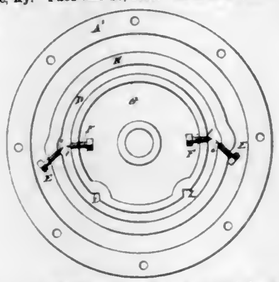


Claim.—1. In a seat-post for bicycles, the combination of two tapering members forming wedges, and a seat-supporting lever having a slotted head pivotally mounted on one member of the post and exteriorly encircling the upper end of both members with its outer cross end entered into the outer face of the wall of the other member of the post, substantially as described.

2. In a seat-post for bicycles, the combination of two tapering members forming wedges, a seat-supporting lever having a rearwardly-extending portion encircling the post, pivotally secured to one member and provided with a part entering a recess in the outer face of the other member, the inner faces at the upper ends of the two members being sufficiently separated to permit the assembling and disassembling of two of the parts while the seat-supporting lever is pivotally secured in place, substantially as described.

3. In a seat-post for bicycles, the combination of two tapering members forming wedges, and a seat-supporting lever having a rearwardly-extending portion encircling the post and open at top and bottom and pivotally secured by a removable pin to one member and engaging the outer face of the other member and being inclined with reference to a horizontal plane so that it is reversible to change the inclination from the horizontal plane, substantially as described.

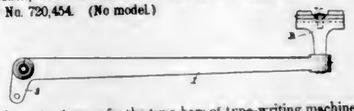
660,286. **DIE FOR MOLDING CLAY PIPES.** MARTIN J. BANNON, Louisville, Ky. Filed Jan. 27, 1900. Serial No. 2,935. (No model.)



Claim.—1. A die for forming clay pipes, consisting of an inner and an outer ring spaced apart, recesses in the inside of the outer ring, knife-blades in the inner ring opposite to said recesses, and knife-blades in the outer ring located in said recesses and set obliquely to the inner knife-blades with a narrow space between the ends of the said inner and outer knife-blades.

2. A die for forming clay pipes consisting of an inner and outer ring spaced apart, having two square recesses in the outside of the inner ring, recesses in the inside of the outer ring, knife-blades in the inner ring opposite to said last-mentioned recesses, and knife-blades in the outer ring located in said recesses and set obliquely to the inner knife-blades with a narrow space between the ends of the said inner and outer knife-blades.

660,287. **TYPE-BAR FOR TYPE-WRITING MACHINES.** DANIEL BRIGGS and WILLIAM H. SHEPARD, New York, N. Y., assignors to The Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed June 14, 1899. Serial No. 720,454. (No model.)



Claim.—1. A type for the type-bars of type-writing machines, consisting of two parts, one adapted to be permanently attached to the type-bar in the proper position to secure alinement, and the other to be detachably attached in one invariable position to the permanently-fixed part.

2. A type for the type-bars of type-writing machines consisting of two parts, one adapted to be attached to the type-bar permanently to secure alinement and the other part carrying the type face or faces and detachably mounted in one invariable position thereon by means of one or more tongues and grooves.

3. A type for the type-bars of type-writing machines, consisting of two parts, one adapted to be permanently attached to the type-bar to secure alinement and the other part carrying a type face or faces and detachably mounted thereon by means of a screw passing through a perforation in the part carrying the type character or characters and engaging a threaded hole in the permanently-fixed part.

4. A type for the type-bars of type-writing machines, consisting of two parts, one adapted to be attached to the type-bar permanently to secure alinement and the other part carrying a type face or faces, one part having one or more tongues and the other part one or more grooves, and a screw for connecting the said parts together and mechanically determining their relative positions.

5. A type-bar provided with a compound type one part of which is permanently fixed thereto in proper position to secure alinement and the other part of which is formed or provided with a type character or characters and is detachably connected in one invariable position to the permanently-fixed part.

6. A type-bar provided with a compound type one part of which is permanently fixed thereto in proper position to secure alinement and the other part of which is formed or provided with a type character or characters, said parts having intermatching tongues and grooves, and a screw for holding and mechanically positioning the type-bearing part upon the permanently-fixed part.

7. A type-bar provided with an eye or bearing, a part B secured therein in proper position for alinement and consisting of a shank 10, a head 9, and a part A consisting of a plate 5 having one or more characters formed thereon and detachably connected in one invariable position to the part B.

8. A type-bar having an eye or bearing, a part B fixed thereon in proper position for alinement of the type and comprising a shank and a grooved head having a threaded hole; a part A comprising a plate having one or more characters formed thereon and having a perforation and a tongue, and a screw passing through said perforation and engaging said threaded hole.

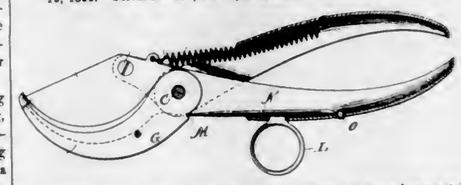
9. The combination of a type-support, a type, one of said parts having a tongue and the other of said parts having a groove, and means for drawing said tongue into said groove.

10. The combination of a type-support, a type, and coöperating means provided upon said devices for bringing the type to one invariable position upon said support.

11. The combination of a type-support, a type having a plurality of characters thereon, and means placed between said characters for securing the type to the support.

12. The combination of a type, a support therefor, a pin or screw for positioning the type upon the support, and means for preventing the type from turning upon said pin or screw.

660,288. **PRUNING-SHEARS.** PETER BROADBROOKS, Batavia, N. Y., assignor of one-half to John H. Ward, same place. Filed Sept. 19, 1899. Serial No. 731,004. (No model.)



Claim.—1. A pair of pruning-shears consisting of two sheet-metal handles pivoted together each having an extension, a hook, and a cutter-blade pivoted together at the fulcrum of the handles each being attached to one of the extensions, as specified.

2. A pair of pruning-shears consisting of two handles formed of sheet metal each having an extension, said handles being pivoted together by the screw-bolt, a hook and a cutter-blade pivoted upon said screw-bolt and rigidly attached to the extension, and a spring connected with one of the handles and with the cutter-blade, as and for the purpose set forth.

3. In combination, two sheet-metal handles pivoted together by the screw-bolt, an extension formed with each of the handles, a hook rigidly secured to one of the extensions and pivoted upon said screw-bolt, a cutter-blade rigidly secured to the opposite extension and pivoted upon said screw-bolt, a spring one end of which is attached to the cutter-blade, the other being attached to one of the handles, and a pawl pivoted to the opposite handle and adapted to enter into engagement with the notch formed upon the rear of the hook whereby the shears may be held closed, as specified.

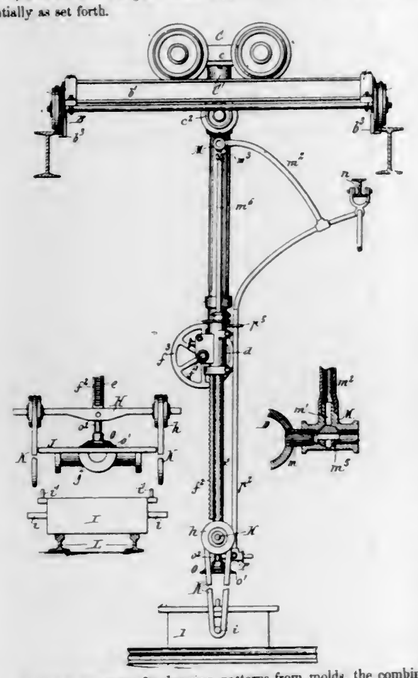
4. In combination, two sheet-metal handles pivoted together, an extension formed with each handle, a hook having a notch in the back thereof rigidly secured to one of the extensions, a cutter-blade rigidly secured to the opposite extension, and a transversely-swinging pawl pivoted to one of the handles and adapted to enter into engagement with the notch formed upon the hook, as and for the purpose set forth.

660,289. **APPARATUS FOR DRAWING PATTERNS FROM MOLDS.** JOHN H. R. BRYAN, Buffalo, N. Y. Filed Jan. 24, 1900. Serial No. 2,648. (No model.)

Claim.—1. In an apparatus for drawing patterns from molds, the combination with a bridge movably mounted on a longitudinal overhead track, of a carriage which is transversely movable on said bridge, a vertically-movable lifting device secured to said carriage and depending therefrom, and a suction-holder arranged at the lower end of said lifting device and adapted to be attached to a pattern, substantially as set forth.

2. In an apparatus for drawing patterns from molds, the combination with a horizontally-movable carriage, of a vertically-movable suc-

tion-holder mounted on said carriage, an exhaust-tube connected with said holder, and movable hangers which support said tube at intervals, substantially as set forth.



3. In an apparatus for drawing patterns from molds, the combination with a cylinder, and the lifting piston and rod arranged therein, of a suction-holder attached to said lifting-rod, and exhaust-tubes connected with said lifting-cylinder and suction-holder, substantially as set forth.

4. In an apparatus for drawing patterns from molds, the combination with a vertical cylinder, a piston arranged in the cylinder, and a suction-holder connected with said piston by a lifting-rod, of a main exhaust-tube having branches which connect with said cylinder and said holder, and controlling-valves arranged in said branches, substantially as set forth.

5. In an apparatus for drawing patterns from molds, the combination with a lifting-rod provided with a suction-holder, of a pneumatic means and a manual means for operating said rod, whereby the rod can be raised by the pneumatic means for drawing the pattern and can be lowered by manual means, substantially as set forth.

6. In an apparatus for drawing patterns from molds, the combination with a support having a vertical rectilinear guide, of a lifting-rod provided at its lower end with a suction-holder, a vertical gear-rack attached to said rod and arranged to move vertically in said guide, and a gear-pinion mounted in said support and meshing with said rack, substantially as set forth.

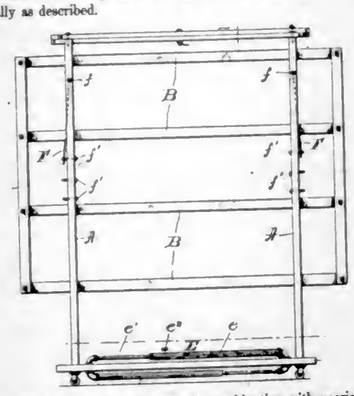
7. In an apparatus for drawing patterns from molds, the combination with a cylinder, a lifting piston and rod arranged therein, a suction-holder attached to said rod and an exhaust-tube connected with said cylinder, of a gear-rack arranged on said rod, and a gear-pinion meshing with said rack, substantially as set forth.

8. The combination with a lifting-rod, of a suction-holder attached to said rod and adapted to be attached to a pattern, rollers supported upon said rod, and loops hung upon said rollers and adapted to be engaged with the trunnions of a molding-flask, substantially as set forth.

9. The combination with a lifting-rod, of a suction-holder arranged on the lower end of said rod and adapted to be attached to a pattern, a cross-head connected with said rod, rollers arranged on opposite ends of said head, and loops hung upon said rollers and adapted to be engaged with the trunnions of a molding-flask, substantially as set forth.

660,290. TOBACCO RACK AND TRUCK. FRANK CORBIN, Lexington, Ky. Filed Apr. 17, 1900. Serial No. 13,237. (No model.)

Claim.—1. A tobacco rack and truck combined, consisting of a framework having at each side thereof a series of horizontally-disposed bars and supporting-standards therefor and a base-piece or runner with casters or rollers supporting the same, together with diagonally-disposed tie bars or rods adjustably connecting said sides at diagonally-opposite points at or near both the upper and the lower portions of the frame; said tie-bars having their ends pivotally secured to the sides of the frame, and means for adjusting and securing the tie-rods so as to adapt said sides to be moved toward each other or spread apart and secured in a fixed position; substantially as described.



2. In a tobacco rack and truck, the combination with a series of horizontally-disposed bars and supporting-standards therefor and a roller-supported base-piece or runner at each side of the device, of tie bars or rods connecting said sides at diagonally-opposite points at or near both the upper and the lower portions thereof; the ends of said tie-bars being pivotally connected to said sides and means for adjusting and securing said tie-bars so as to permit the sides of the device to be moved toward or from each other and maintained in different positions, or folded into compact form for storage or transportation, substantially as described.

3. In a tobacco rack and truck, the combination with a series of horizontally-disposed bars and supporting-standards therefor and a roller-supported base-piece or runner at each side of the device, of tie bars or rods connecting said sides at diagonally-opposite points at or near both the upper and the lower portions thereof; the ends of said tie-bars being pivotally connected to said sides, and means for adjusting and securing said tie-bars so as to permit the sides of the device to be moved toward or from each other and maintained in different positions, or folded into compact form for storage or transportation, together with inclined braces at or near one or both ends, each of said braces having one end hinged or pivoted to one of said sides and the other end thereof detachably connected to the other side, substantially as described.

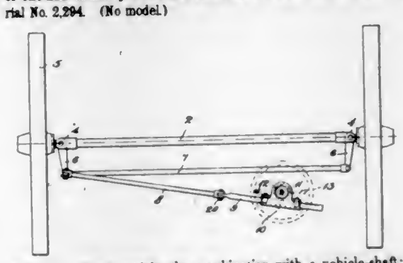
4. A tobacco rack and truck, comprising a framework having a series of horizontally-disposed bars and supporting-standards therefor at each side of the frame, horizontally-disposed sills or runners on which said standards are mounted, casters or rollers supporting said standards, tie rods or bars connecting the side portions of the frame at diagonally-opposite points at or near both the upper and the lower ends thereof; one set of said tie-bars being formed in sections each of which is pivotally connected at one end to one side of the frame and has its free end telescopically connected with another similarly-disposed section; the other set of said tie-bars being pivotally connected together where they cross each other, and having elongated slots in the ends thereof to receive the fastening-bolts by which they are pivotally secured to the side portions of the frame, substantially as described.

5. A tobacco rack and truck, comprising a framework having a series of horizontally-disposed bars and supporting-standards therefor at each side of the frame, horizontally-disposed sills or runners on which said standards are mounted, casters or rollers supporting said standards, tie-rods or bars connecting the side portions of the frame at diagonally-opposite points at or near the upper and the lower ends thereof; one set of said tie-bars being formed in sections each of which is pivotally connected at one end to one side of the frame and has its free end telescopically connected with another similarly-disposed section; the other set of said tie-bars being pivotally connected together where they cross each other, and having elongated slots in the ends thereof to receive the fastening-bolts by which they are pivotally secured to the side portions of the frame, together with inclined braces at one or both ends of the frame; each brace having one end hinged or pivoted at one side of the frame and the other end thereof detachably connected with the opposite side of the frame, whereby the sides of the frame may be spread apart and maintained in the desired position for use, or folded into compact form for storage or transportation, substantially as described.

6. In a tobacco rack and truck, the roller-supported sills or runners, the uprights thereon and the horizontally-disposed bars secured to said uprights, in combination with the sectional telescopically-connected extensible tie-rods, having their outer ends pivotally connected to said runners and means for binding their inner ends together; tie-bars extending diagonally across and connecting the four upper corners of the frame at diagonally-opposite points; said tie-bars having their intermediate portions pivotally connected together and having elongated slots in the ends thereof in which are slidingly fitted the fastening-bolts by which they are secured to the frame, substantially as described.

7. In a tobacco rack and truck, the roller-supported sills or runners, the uprights thereon and the horizontally-disposed bars secured to said uprights, in combination with the sectional telescopically-connected extensible tie-rods having their outer ends pivotally connected to said runners and means for binding their inner ends together; tie-bars extending diagonally across and connecting the four upper corners of the frame at diagonally-opposite points; said tie-bars having their intermediate portions pivotally connected together, and having elongated slots in the ends thereof in which are slidingly fitted the fastening-bolts by which they are secured to the frame, together with inclined braces at one or both ends of the frame, each having an eye at one end engaging an eyebolt attached to one side of the frame, and a hook at its free end engaging an eyebolt at the opposite side of the frame, substantially as described.

660,291. VEHICLE. THOMPSON A. DULL, Chicago, Ill., assignor of one-half to Harry S. Fischer, same place. Filed Jan. 22, 1900. Serial No. 2,294. (No model.)



Claim.—1. In a vehicle, the combination with a vehicle-shaft; of knuckles pivotally connected thereto, and each comprising a shaft and a stem or arm extending laterally therefrom; vehicle-wheels arranged upon the knuckle-shafts; a link connecting the ends of the knuckle stems or arms; an operating-shaft having a pinion located near said connecting-link; a rack gearing with said pinion; and a link or rod connecting said rack with one of said stems or arms.

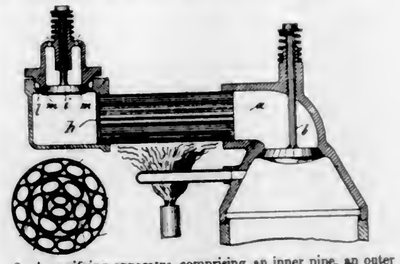
2. In a vehicle, the combination with a vehicle-shaft; of knuckles pivotally connected thereto, and each consisting of a shaft and an arm extending laterally therefrom; vehicle-wheels arranged upon the knuckle-shafts; a link connecting the ends of said arms; an operating-shaft having a pinion located near said connecting-link; a rack gearing with said pinion; a guide for holding the rack in mesh with the pinion, and pivotally connected so as to allow of a swinging movement as well as a lateral movement on the part of the rack; and a link connecting the rod with one of said arms.

3. In a vehicle, the combination with the vehicle-shaft; of knuckles pivotally connected thereto, and each comprising a shaft and a stem or arm extending laterally therefrom; vehicle-wheels arranged upon the knuckle-shafts; a link connecting the ends of said arms; an operating-shaft having a pinion located near the connecting-link; a guide for holding the rack in mesh with the pinion, said guide being fitted upon the operating-shaft so that the latter serves as a pivot therefor; and a jointed link connecting the rack with one of said arms.

4. In a vehicle, the combination with the vehicle-shaft; of the knuckles pivotally connected thereto, and each comprising a shaft and a laterally-extending stem or arm; vehicle-wheels arranged upon the knuckle-shafts; a link connecting the ends of the knuckle-arms; a link for operating said arms, having its end provided with a rack; a pinion meshing with said rack; and a guide for the rack comprising plates arranged upon opposite sides of the rack, and provided with lugs which confine the pinion, and guard-plates secured to said oppositely-disposed plates, and arranged to maintain the rack at proper distance from the pinion.

660,292. GASIFYING APPARATUS FOR EXPLOSIVE-ENGINES. FRITZ DÜRR, Berlin, Germany. Filed Apr. 17, 1900. Serial No. 13,221. (No model.)

Claim.—1. A vaporizer for hydrocarbon-machines consisting of a number of pipes and distinguished in that the pipes are arranged in groups or in any other desired manner in a main pipe and pressed or squeezed within the main pipe in such a manner that the pipes contact one with another as well as with the internal surface of the main pipe, in order that heat applied from without will be conducted from opposite sides, so that the outer surfaces, as well as the inner surfaces of the pipes, will serve as heating-surfaces for the mixture conducted through the vaporizer.



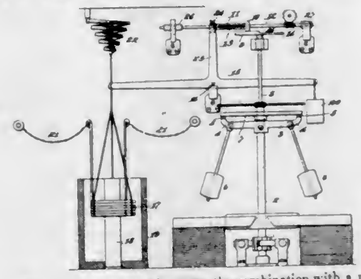
2. A gasifying apparatus comprising an inner pipe, an outer pipe and two concentric series of pipes located between and pressed or squeezed into the inner and outer pipes and having their surfaces in contact with each other and with the inner and outer pipes respectively; the inner and outer surfaces of the pipes combining to provide series of concentric channels or passages for the mixture interior and exterior of the pipes.

3. A gasifying apparatus comprising an inner cylindrical pipe, an outer cylindrical pipe, a concentric series of cylindrical pipes and a concentric series of alternating cylindrical and elliptical pipes located between the inner and outer cylindrical pipes and having their surfaces in contact with each other and with the inner and outer cylindrical pipes respectively; the concentric series of pipes being pressed or squeezed into position and the inner and outer surfaces of the pipes combining to provide series of concentric channels or passages for the mixture interior and exterior of the pipes.

4. A gasifying apparatus comprising an inner pipe, an outer pipe, an intermediate pipe, pipes within the inner pipe having their surfaces in contact with each other and with the inner pipe, concentric series of pipes between the inner and intermediate pipes, having their surfaces in contact with each other and with the inner and intermediate pipes and concentric series of pipes between the intermediate and outer pipes, having their surfaces in contact with each other and with the intermediate and outer pipes; the concentric series of pipes being pressed or squeezed into position and the inner and outer surfaces of the pipes combining to provide series of concentric channels or passages for the mixture interior and exterior of the pipes.

5. A gasifying apparatus comprising an inner cylindrical pipe, an outer cylindrical pipe, an intermediate cylindrical pipe, elliptical pipes within the inner cylindrical pipe, having their surfaces in contact with each other and with the inner cylindrical pipe, concentric series of elliptical pipes between the inner and intermediate cylindrical pipes, having their surfaces in contact with each other and with the inner and intermediate cylindrical pipes, and concentric series of elliptical pipes between the intermediate and outer cylindrical pipes, having their surfaces in contact with each other and with the intermediate and outer cylindrical pipes; the concentric series of pipes being pressed or squeezed into position, and the inner and outer surfaces of the pipes combining to provide series of concentric channels or passages for the mixture interior and exterior of the pipes.

660,293. ELECTRIC METER. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Sept. 16, 1899. Serial No. 730,657. (No model.)



Claim.—1. In an electric meter, the combination with a register, of a motor, a centrifugal device carried by the motor and arranged to produce a retardation to the rotative effect varying with the speed of rota-

tion, a variable-speed connection between the motor and the registor, and a device influenced by the current to be measured for varying the speed of the intermediate mechanism, substantially as set forth.

2. In an electric meter, the combination with a register, of an electric motor, a centrifugal device carried by the motor and arranged to produce a retardation to the rotative effect varying with the speed of rotation, a variable-speed connection between the motor and the register, and a device influenced by the current to be measured for varying the speed of the intermediate mechanism, substantially as set forth.

3. In an electric meter, the combination with a motor, of an arm carried by the motor-shaft, a plurality of bell-crank levers suspended from said arm, brake-shoes carried by the short arms of said levers, centrifugal weights carried by the long arms thereof, a friction-surface with which said brake-shoes coöperate, and a register operated by said motor, substantially as set forth.

4. In an electric meter, the combination with an electric motor, of an arm carried by the motor-shaft, a plurality of bell-crank levers suspended from said arm, brake-shoes carried by the short arms of said levers, centrifugal weights carried by the long arms thereof, a friction-surface with which said brake-shoes coöperate, and a register operated by said motor, substantially as set forth.

5. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a balanced scale-beam, an element moved by the current to be metered, and a resisting device connected to said scale-beam for opposing its entire movement under the effect of that element, substantially as set forth.

6. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a balanced scale-beam, an element moved by the current to be metered, and a convolute spring connected to said scale-beam for opposing its movement under the effect of that element, substantially as set forth.

7. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a scale-beam, a coil connected to said scale-beam, means for balancing said coil, a stationary element with which said coil coöperates, and a resisting device connected to the scale-beam for opposing the attraction of said coil, substantially as set forth.

8. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a scale-beam, a coil connected to said scale-beam, means for balancing said coil, a stationary element with which said coil coöperates, and a convolute spring connected to the scale-beam for opposing the attraction of said coil, substantially as set forth.

9. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a scale-beam, a coil connected to said scale-beam, means for balancing said coil, a stationary core with which said coil coöperates, and a resisting device connected to the scale-beam for opposing the attraction of said coil, substantially as set forth.

10. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a scale-beam, a coil connected to said scale-beam, means for balancing said coil, a stationary core with which said coil coöperates, a magnetic sheath for said core, and a resisting device connected to the scale-beam for opposing the attraction of said coil, substantially as set forth.

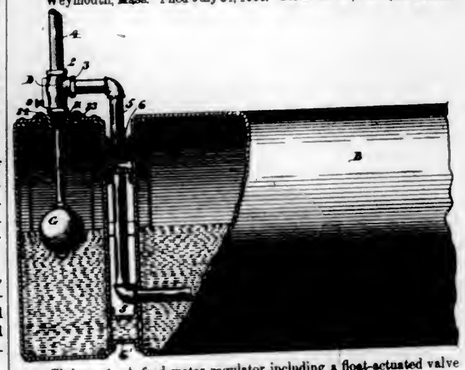
11. In an electric meter, the combination with a motor and a register, of an ampere-indicator the position of which controls the speed of registration, said indicator comprising a scale-beam, a coil connected to said scale-beam, a device with which said coil coöperates, means for opposing the attraction of said coil, and a non-elastic metallic connection to said coil, substantially as set forth.

12. In an electric meter, the combination with an electric motor having a centrifugal friction-governor, a register and a variable-speed mechanism between the motor and register, of a balanced scale-beam the position of which is altered by the current to be measured, a resisting device for opposing the said movement, and means for periodically connecting and disconnecting the scale-beam with the variable-speed mechanism, substantially as set forth.

13. In an electric meter, the combination with a constant-speed motor, of a disk rotated by said motor and having a cut-away section, a roller coöperating with said disk, a weight for engaging the roller frictionally with the uncut-away section of the disk, a register, an ampere-indicator, connections between the roller and register, and connections between the roller and ampere-indicator, substantially as set forth.

14. In an electric meter, the combination with a constant-speed motor, of a disk rotated by said motor, a roller coöperating with said disk, a recess coincident with the geometrical center of the disk normally receiving said roller, a register, an ampere-indicator, connections between the roller and register, and connections between the roller and ampere-indicator, substantially as set forth.

660,294. FEED-WATER REGULATOR. CHARLES B. EDWARDS, Weymouth, Mass. Filed July 31, 1900. Serial No. 25,374. (No model.)



Claim.—1. A feed-water regulator including a float-actuated valve having the opposite end faces thereof of different areas; means supplying fluid to opposite ends of said valve whereby the valve will normally be retained in a closed position by the fluid at the large end thereof; means including a float-actuated tube-valve in concentric relation with the fluid-actuated valve for alternately nullifying and establishing the effective pressure at the larger end of the valve whereby alternately to effect opening and closing movements to said valve.

2. The combination with a receiver, of a valve-body having an inlet and an outlet with an intermediate valve-seat; a puppet-valve in coöperative relation with the valve-seat and having a tubular stem with ports leading therefrom to the outlet; means for supplying fluid to opposite ends of the valve whereby normally to retain the valve seated; and a float-actuated valve extending into the stem of the puppet-valve and having ports disposed to relieve the pressure at one end of said valve on the descent of the float to effect an opening movement of the puppet-valve.

3. A feed-water regulator embodying a fluid-actuated valve having a piston of different effective surface area in fixed connection therewith; means for admitting fluid above the valve and below the piston; a concentrically-disposed tube-valve having ports disposed to conduct fluid from below the piston to a point above said piston; and float-actuated means for operating the last-mentioned valve.

4. A feed-water regulator embodying a valve-body having an inlet and an outlet chamber disposed with their axes in intersecting planes and having a piston-chamber of greater diameter than, and in substantial alinement with, the inlet-chamber; means for supplying fluid to the inlet and piston chambers; a puppet-valve for establishing communication between the inlet and outlet chambers and having a tubular stem with ports opening from the interior thereof to the outlet-chamber; a piston on the valve-stem working in the piston-chamber; a tube-valve extending into the puppet-valve and having exhaust-ports adapted, on one movement thereof, for establishing communication between the piston-chamber and outlet through the ports in the valve-stem whereby to reduce the pressure of the piston end of the valve to effect an opening movement thereof; and float-actuated means in connection with the tube-valve.

5. In an apparatus of the class specified a valve-body having an inlet-chamber and a piston-chamber of different diameters in substantial axial alinement and also having an exhaust or outlet chamber intermediate said inlet and piston chambers and disposed at right angles thereto; a valve-seat between the inlet and outlet chambers; a constantly-open fluid-passage leading from the inlet-chamber to the piston-chamber; a main valve coöperating with the valve-seat, and having a tubular stem with ports in constant communication with the intermediate chamber; a hollow piston at the end of the valve-stem seated in the piston-chamber; a tube-valve extending through the piston and into the valve-stem and having ports for admitting fluid from the piston-chamber to the outlet-chamber; and a valve-actuating float in connection with the tube-valve whereby on the gravitation of the float the tube-valve will be moved to reduce the excess pressure at one end and effect an opening movement of the main valve.

6. In an apparatus of the class specified, the combination with a feed-conduit of automatically-operative valve mechanism including a main and a supplemental valve disposed in concentric relation, the former of which is fluid-operated in its movements and is normally subjected to fluid-pressure at both ends, and the latter of which is in the nature of a tube-valve and extends into and controls the movement of, the former; and a float in adjustable connection with the supplemental valve.

7. A feed-water regulator including a valve-body having two alined pressure-fluid chambers of different diameters, an intermediate exhaust-chamber, and a conduit leading from one pressure-fluid chamber around the intermediate chamber to the other pressure-fluid chamber; a main valve disposed between the two pressure-fluid chambers and controlling the admission of fluid from one pressure-fluid chamber to the intermediate chamber; a supplemental tube-valve disposed, concentrically, within the main valve and effective on one operation thereof for admitting fluid from the other pressure-fluid chamber of largest diameter to the intermediate chamber whereby to relieve the pressure at one end of the valve and cause the fluid in the chamber of smallest diameter to effect an opening movement thereof; supply means in connection with one pressure-fluid chamber; and automatically-operative means including a float in adjustable connection with the supplemental valve.

8. In a feed-water-supply apparatus, a valve-body having an inlet and outlet opening; a valve-seat between said openings; a piston-chamber in alinement with the inlet-opening; a fluid-actuated main valve coöperative with the valve-seat and having a tubular stem provided with a piston located in the piston-chamber and also having ports disposed between the piston and valve and leading from the interior of the stem to the outlet-opening; a concentrically-disposed float-actuated valve extending into the stem of the main valve and having ports for establishing communication between the pistor.-chamber and outlet-opening of the valve-body through the ports in the main valve.

9. In an apparatus of the class specified, the combination of a boiler or main receiver; a supplemental receiver or float-chamber having a communicating connection with said main receiver; a float disposed in said supplemental receiver; a valve body or casing disposed outside of said supplemental receiver and having inlet and outlet openings separated by a valve-seat; a pipe leading to the inlet-opening; a pipe leading from the outlet-opening to the main receiver; two concentrically-disposed reciprocatory valves, one of which is in the nature of a puppet-valve, is operated by fluid-pressure in both directions, and controls the supply to the main receiver, and the other of which is in the nature of a tube-valve and controls the operations of the puppet-valve; and an actuating-connector between the tube-valve and the float.

10. The combination of a valve-body having a high and a low pressure fluid chamber and an intermediate outlet-chamber; a conduit extending around the intermediate chamber and maintaining constant communication between the two pressure-fluid chambers; supply means in connection with the low-pressure-fluid chamber; a puppet-valve normally cutting off communication between the low-pressure-fluid chamber and the outlet-chamber; a tube-valve extending into the puppet-valve and normally cutting off communication between the high-pressure-fluid chamber and the outlet-chamber; ports in said tube-valve disposed to establish communication between the high-pressure-fluid chamber and outlet-chamber on the descending movement of said tube-valve whereby to permit the pressure in the low-pressure-fluid chamber to effect an opening movement of the puppet-valve; and means for actuating the tube-valve.

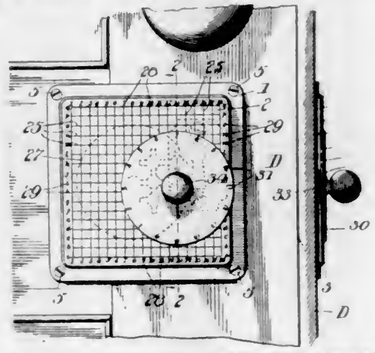
11. The combination with the valve-body having an inlet and an outlet opening separated by a valve-seat, and having a piston-chamber in alinement with the inlet-opening, of two relatively-concentric valves supported in said body and one of which is controlled in its movements by the other; a valve-actuating float in adjustable connection with one valve; and a conduit leading from the inlet-opening at a point above one valve around the outlet to the piston-chamber at a point below said valve.

12. The combination with the valve-body having an inlet and an outlet opening separated by a valve-seat, and having a piston-chamber in alinement with the inlet-opening, of two relatively-concentric valves supported in said body and one of which is controlled in its movements by the other; a valve-actuating float in adjustable connection with one valve; a conduit leading from the inlet-opening at a point above one valve around the outlet to the piston-chamber at a point below said valve; and adjustable means for varying the effective area of the conduit.

13. An apparatus of the class specified comprising two communicating receivers; a float disposed in one of said receivers; feed-water-supply means in connection with one of said receivers and including a valve-body, and two concentrically-disposed valves, one of which is subjected to fluid-pressure at both ends and the other valve of which has ports for controlling the effective pressure of the fluid at opposite ends of the first valve to effect an opening and closing movement of said valve and has an operative connection with the float.

660,295. COMBINATION KEYHOLE-GUARD. CHARLES R. FLINDER, Washington, D. C. Filed Mar. 14, 1900. Serial No. 8,659. (No model.)

Claim.—1. A keyhole-guard comprising a plate formed with a maze, and a disk secured slidably on said plate and adapted to cover a keyhole and having a shank adapted to travel in the maze, the shifting of the disk in proper relation to the maze exposing or concealing the keyhole of the lock.



2. A keyhole-guard comprising a plate formed with a maze and adapted to be secured in front of a lock having a keyhole, and a disk secured in slidable relation to the plate and having a shank adapted to travel in the maze, and a knob or handle whereby the disk is manipulated to expose or conceal the keyhole of the lock.

3. A keyhole-guard comprising a back plate formed with the inner part of a key-opening, and adapted to be secured in front of a lock having a keyhole, a face-plate formed with the outer part of the key-opening, and a maze, and secured to the back plate, and a slidable disk having a shank adapted to travel in the maze, and a head whereby the disk is secured to the face-plate; the shifting of the disk in proper relation to the maze exposing or concealing the keyhole of the lock.

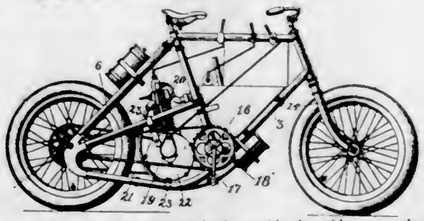
4. A combination keyhole-guard comprising a face-plate formed with a maze, and having crossed lines dividing the surface into squares, and designating-marks associated with the lines, and a slidable disk having a shank adapted to travel in the maze, a head whereby it is secured to the face-plate, points on the surface of the disk, and designating-marks associated with the points.

5. A keyhole-guard comprising a face-plate formed with a maze having enlargements or circles, and a slidable disk having a shank oblong in cross-section and adapted to travel in the maze, and a head whereby the disk is secured to the face-plate.

6. A keyhole-guard comprising a face-plate formed with a maze having blind passages or ways and adapted to be secured in front of a lock having a keyhole and a slidable disk having a shank, adapted to travel in the maze, and a head whereby the disk is secured to the face-plate.

7. A keyhole-guard comprising a back plate formed with a maze having parallel longitudinal and transverse through passages or ways, and blind passages or ways, and enlargements or circles connecting the through and blind passages or ways, and a slidable shank oblong in cross-section and adapted to travel in the maze, and a head whereby the disk is secured to the face-plate.

660,296. MOTOR-CYCLE. GEORGE D. GREEN, Rochester, N. Y., assignor to James Henry Sager, same place. Filed July 9, 1900. Serial No. 23,025. (No model.)



Claim.—1. In a motor-cycle, the combination with a rear axle and a driving-wheel, a frame embodying the seat-post, the lower fork extending downwardly and rearwardly from the lower end of said post and then upwardly to the supporting-axle, the two side braces extending from the rear axle to the post between its ends, and the upper fork extending from the axle to the upper end of the seat-post of a motor connected to the driving-wheel and located between the forks and the seat-post and the axle and between the side braces.

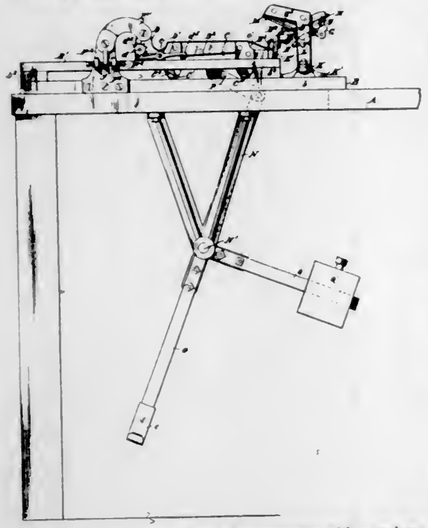
2. In a motor-cycle, the frame embodying the upper horizontal member, the front member, the seat-post, the lower inclined member connected to the front member extending downwardly below the end of the seat-post, a lower rear fork forming a continuation of the inclined member and then extending upwardly to the rear axle, the upper rear fork extending from the rear axle to the top of the seat-post, and the side braces extending from the rear axle to the seat-post intermediate its ends, in combination with the rear axle, and a driving-wheel, a driving-motor connected thereto and located between the seat-post and rear axle, above the lower rear fork and between the side braces.

3. In a motor-cycle, the frame embodying the upper horizontal member, the front member, the downwardly and rearwardly extending member connected to the lower end of the latter, the seat-post, the crank-hanger at the lower end of the latter, the lower fork extending below the crank-hanger and rearwardly and upwardly, the upper rear fork connected to the top of the seat-post and to the rear end of the lower fork, the side braces extending from the rear end of the lower fork to the seat-post intermediate its ends, in combination with a rear axle, a rear driving-wheel, a driving-motor having an operating-shaft connected to the rear wheel, said motor located between the rear forks and between the side braces, a crank-shaft having pedals thereon and located in the crank-hanger in the frame, and a connection between said crank-shaft and the rear driving-wheel.

4. In a motor-bicycle, the frame composed of the upper horizontal member, the front tube, the seat-post, the crank-hanger at the lower end thereof, the lower inclined front member extending from the front tube to the crank-hanger, the lower rear fork extending from the end of the last-mentioned member downwardly, rearwardly and upwardly, the upper fork extending from the end of the last-mentioned fork to the upper end of the seat-post, the side braces extending from the end of the lower fork to the post intermediate its ends, in combination with a rear axle, a driving-wheel on the axle between the rear forks, a driving-motor located between the side braces having an operating-shaft connected to the driving-wheel, a crank-shaft in the hanger connected to the driving-wheel, and a front fork, and a steering-wheel mounted thereon.

5. In a motor-bicycle, the combination with the front and rear axles, a frame having the upper rear fork and the lower rear forks, the seat-post and side braces extending from the rear ends of the forks to the seat-post intermediate the ends of the latter, said lower rear forks curving downwardly from the lower end of the seat-post, then extending rearwardly and upwardly to the rear axle, of a driving-motor located between the side braces having an operating-shaft arranged below the front and rear axles and connected to the rear wheel, and the rear driving-wheel on the rear axle.

660,297. CIGAR-MAKING MACHINE. GEORGE W. A. HANKEY, York, Pa. Filed June 28, 1900. Serial No. 21,935. (No model.)



Claim.—1. In a cigar-machine, the combination with a carriage, of a support for the carriage having parallel separated strips forming tracks, bearings on said carriage, shafts loose in said bearings, rollers on said shafts and rolling on said tracks, said shafts extending beyond said rollers, and retaining-strips parallel with and above said tracks, with which retaining-strips the ends of said shafts extending beyond said rollers are adapted to engage in case of the tilting of the carriage, substantially as described.

2. In a cigar-machine, the combination with a carriage, of a support for the carriage having parallel separated strips forming tracks, bearings on said carriage, shafts loose in said bearings, rollers on said shafts and rolling on said tracks, said shafts extending beyond said rollers, retaining-strips narrower than parallel with and above said tracks, with which retaining-strips the ends of said shafts extending beyond said rollers are adapted to engage in case of the tilting of the carriage, and antifriction-rollers on the carriage engaging said retaining-strips, substantially as described.

3. In a cigar-machine, the combination with a carriage, of standards at the sides thereof, curved arms pivoted to said standards, a bunching-roller journaled in the free ends of said arms, each arm having a lateral lug extending between lugs formed on the said standards, and adjusting-screws working in said lugs on the standards and engaging said lateral lugs on the arms, substantially as described.

4. In a cigar-machine, the combination with a movable rolling-carriage, of a cutting-off mechanism comprising a movable and a stationary member, the movable member being carried by said movable rolling-carriage, substantially as described.

5. In a cigar-machine, the combination with a cigar-rolling means, of a cutting-off mechanism comprising knives, a receiver carried by said rolling means and means for causing the receiver to approach the knives upon the movement of the rolling means, substantially as described.

6. In a cigar-machine, the combination with a reciprocating carriage, of a receiver carried thereby, and stationary knives arranged to coact with the receiver for severing the end of the cigar, substantially as described.

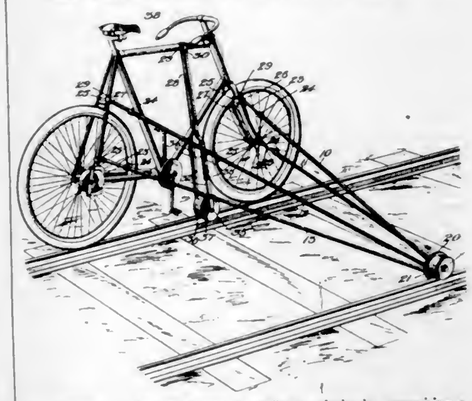
7. In a cigar-machine, the combination with a rolling-carriage and its apron, of an adjustable receiver carried thereby and a stationary knife arranged in position to engage the protruding end of the cigar into the receiver as the carriage is advanced, substantially as described.

8. In a cigar-machine, the combination with a reciprocating rolling member, of a cutting-off mechanism comprising two members, a receiver and a knife, one of which is carried by the rolling device and means for ejecting the cigar from the receiver upon the completion of the cut, substantially as described.

9. In a cigar-bunching machine, the combination with a reciprocating carrier or table, of arms carried by the same having receiving-depressions therein, pivoted ejectors, a knife stationarily supported, and means for actuating the ejectors upon the final movement of the carriage, substantially as described.

10. The combination with a bunch-rolling carriage, of a plate carried thereby, arms adjustably secured to the plate having receiving-depressions, a standard in advance of the carriage, a knife carried by the standard, means for adjusting the standard and means for ejecting the cigar, substantially as described.

660,298. RAILWAY-VELOCIPEDE. JOSEPH E. JOHNSON, Paris, Tenn. Filed Jan. 24, 1900. Serial No. 2,659. (No model.)



Claim.—1. An attachment for railway-velocipedes comprising a fitting or coupling, two pairs of rods converging toward said coupling and having means for attachment to the front and rear forks of a bicycle-frame, a wheel mounted on said fitting or coupling, and a wheeled hanger attachable to the bicycle-frame between the attachment of the respective pairs of rods, substantially as described.

2. An attachment for railway-velocipedes comprising two pairs of rods converging toward each other and each having means for attachment to the front and rear forks of a bicycle, a fitting to which said rods are individually secured, a wheel revoluble on said fitting, and a hanger also adapted for attachment to a bicycle-frame and carrying a steadying-wheel, substantially as described.

3. An attachment for railway-velocipedes compriring two pairs of tubular converging rods provided with means for fastening the same to the front and rear forks, respectively, of a bicycle-frame, a fitting adjustably fastened to said rods at one end thereof, attaching-clips connected adjustably to the rods at the other ends thereof, and a wheeled hanger attachable to the bicycle-frame between the attachment of the respective pairs of rods, substantially as described.

4. An attachment for railway-velocipedes, comprising two pairs of tubular rods, a series of clips each clamped to one of said rods and having an eye adapted to be clamped to a bicycle-frame, said series of eye-clips arranged to fasten the respective pairs of rods to the front and rear forks of said bicycle-frame, and a wheel revolubly supported at the outer ends of said rod, substantially as described.

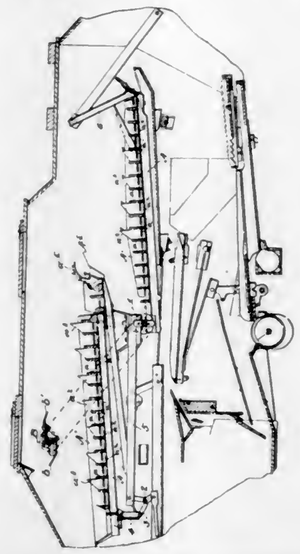
5. An attachment for railway-velocipedes comprising a vertical hanger having means for engagement with the reach-bars of a bicycle-frame between the wheels thereof, a steadying-wheel, and means for adjustably supporting said wheel on said hanger, substantially as described.

6. An attachment for railway-velocipedes comprising a hanger, extension-straps clamped to the hanger and adjustable lengthwise thereon, an axle mounted in the extension-straps, and a steadying-wheel on said axle, substantially as described.

7. In a railway-velocipede, the combination with a bicycle, of a series of rods clamped to the front and rear forks of said bicycle and converging toward each other, a spindle supported by said rods at their convergent ends, a guide-wheel revoluble on said spindle, a hanger clamped on the frame of said bicycle between the front and rear wheels thereof, and a steadying-wheel supported by the hanger between the front and rear bicycle-wheels, substantially as described.

8. In a railway-velocipede, the combination with a bicycle, of pairs of converging bars clamped to the front and rear bicycle-forks and converging at their outer ends, a guide-wheel supported at said outer ends of the bars and provided on its inner side with a rail-flange, a hanger clamped to the reach-bars of the bicycle-frame, and a steadying-wheel journaled in the hanger between the bicycle-wheels and likewise provided on its inner side with a rail-flange, substantially as described.

660,299. STRAW-BOTTOM FOR THRESHING-MACHINES. FRANK F. LANDIS, Waynesborough, Pa. Filed May 5, 1899. Serial No. 715,711. (No model.)



Claim.—1. A straw-bottom for threshing-machines mounted to have an upward and forward and downward and rearward movement and provided with vertical transverse partitions dividing the same into chambers, said chambers being provided with bottoms and having narrow transverse openings in their bottoms, substantially as set forth.

2. A straw-bottom for threshing-machines mounted on a crank-shaft to partake of its motion and formed of a series of chambers with narrow openings in their bottoms, substantially as set forth.

3. A straw-bottom for threshing-machines mounted on a crank-shaft to partake of its motion and divided by vertical transverse partitions into chambers having discharge-openings in their bottoms, the height of said partitions being substantially equal to the motion of the bottom at its position between longitudinal lines, and the width of the chamber, in the direction of the length of the machine, being substantially equal to the motion of the bottom, between vertical lines, substantially as set forth.

4. In a threshing-machine, the combination, of a straw-bottom formed into chambers having a cross-area substantially equal in both directions to the motion of said straw-bottom in the corresponding direction, and means for imparting both a vertical and a longitudinal motion to said straw-bottom, substantially as set forth.

5. A straw-bottom for threshing-machines divided by vertical transverse partitions, and mounted to have a longitudinal and up-and-down motion, said up-and-down motion varying in extent at different points, and said partitions being of a height to correspond with said up-and-down motion at the point of its location, substantially as set forth.

6. The combination with a straw-bottom for threshing-machines mounted to have an up-and-down motion, of an eccentric picker, having teeth or arms of different lengths on different sides, geared to bring its short arm into operation during the up motion, and its long arm during the down motion of said bottom, substantially as set forth.

7. A straw-bottom for threshing-machines mounted to reciprocate and provided with transverse partitions dividing the same into chambers having openings in their bottoms, and a second bottom to said chambers beneath said openings, substantially as set forth.

8. A straw-bottom for threshing-machines mounted to reciprocate, and divided by transverse partitions into chambers, each chamber being provided with a double bottom with its two parts in different planes with a discharge-opening between them, substantially as set forth.

9. A reciprocating straw-bottom for threshing-machines substantially as described having the adjustable detaining-board A^5 hinged at its tail end and provided with the curved notched fingers a^5, substantially as set forth.

10. A straw-bottom for threshing-machines comprising a frame divided into chambers by cross-partitions, which chambers are provided with bottoms adapted to support and carry a body of chaff and grain during the operation, which bottoms are provided with narrow openings through which the grain may be discharged when moved across the bottom thereto by the throw of the structure, substantially as set forth.

660,300. FASTENING-EYE FOR GARMENTS. ELIZABETH M. LESSER, Warren, Pa. Filed Apr. 14, 1900. Serial No. 12,798. (No model.)



Claim.—1. An improved fastening device of the class described, comprising a rear socket embodying a cross-bar or engaging member, an intermediate hump or raised portion projecting with relation to the mouth of said socket, and a front insertion portion extending forwardly from said intermediate raised portion, substantially as and for the purpose set forth.

2. An improved fastening device of the class described, comprising a rear socket embodying segmental or curved portions and a cross-bar or engaging member, internediate humps or raised portions which project with relation to the mouth of said socket and form the front part of the latter, and insertion portions or ends extending forwardly from said intermediate raised portions, substantially as and for the purpose set forth.

3. An improved fastening device of the class described, formed of a single piece of wire bent to provide a rear socket portion embodying a cross-bar or engaging means, an intermediate hump or raised portion projecting with relation to the mouth of said socket portion, and insertion portions or ends extending forwardly from said intermediate raised portion, substantially as and for the purpose set forth.

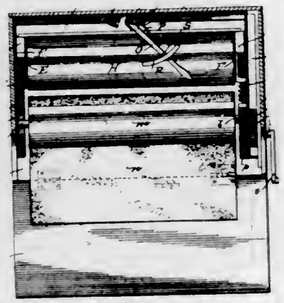
4. An improved fastening device of the class described, formed of a single piece of bent wire and comprising a socket portion embodying the segmental or curved sides connected at the top by a cross-bar or engaging member, the upwardly and downwardly curved intermediate humps or raised portions projecting at their apex with relation to the mouth of said socket portion, and the insertion portions or ends extended from said curved intermediate raised portions, substantially as and for the purpose set forth.

5. An improved fastening device of the class described, comprising a rear socket portion embodying a cross-bar or engaging member from the ends of which project segmental or curved portions forming side members, a middle or intermediate curved portion comprised in said side portions and projecting with relation to the mouth of said socket portion, and a front portion extended from said intermediate portion and forming an insertion means whereby the device may be inserted into position through the fabric of the garment.

6. An improved fastening device of the class described, comprising a segmental or curved socket portion, embodying a cross-bar or engaging member from the ends of which extend curved side members which are continued to form a curved or humped intermediate portion projecting with relation to the mouth of said socket portion, the side members being extended from said intermediate portion to form insertion ends, substantially as and for the purpose set forth.

7. The combination, with the face or outer fabric and the lining of a garment, of a fastening device insertible within said fabrics and comprising a segmental or curved socket portion embodying a cross-bar or engaging member and curved side members, said curved side members passing through both the face and lining fabrics and the upper part of said socket portion being exposed at the face of the front or face fabric, a bump or raised portion comprised in the side members of the device and inclosed between the face fabric and the lining, the lining being engaged with said bump or raised portion and the latter being arranged to project with relation to the mouth of the front socket portion, and insertion ends comprised in the side members of the device and extending from the intermediate humped portion and inclosed between the face and lining fabrics.

660,301. MANGLE. LARS J. LINDBECK, Bishop Hill, Ill. Filed June 1, 1899. Serial No. 719,029. (No model.)



Claim.—1. A mangle comprising a roller mounted in stationary bearings, journal-blocks, a roller mounted in the journal-blocks, said journal-blocks being adapted for reciprocation to move the second roller toward and away from the first roller, a cross-bar engaged with the journal-blocks, a shaft adjacent to the cross-bar, an eccentric upon the shaft and adapted to engage the cross-bar to move it to shift the journal-blocks, a lever mounted loosely on the shaft of the eccentric, and a spring having one end connected with the lever and the other end connected with the shaft of the eccentric to form a yielding connection therewith.

2. A mangle comprising a roller mounted in stationary bearings, journal-blocks mounted for reciprocation with respect to the roller, a second roller mounted in the journal-blocks, a cross-bar engaging said blocks, a shaft journaled adjacent to the cross-bar, an eccentric upon the shaft and adapted to engage the cross-bar to move the journal-blocks, a lever mounted loosely on the said shaft, a spring connected at one end with the lever and at the opposite end with the shaft to form a yielding connection therebetween, and means for holding the lever at different points of its movement.

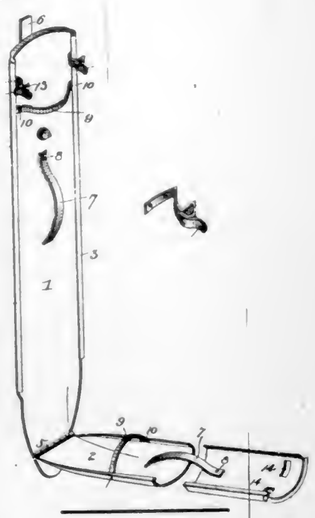
660,302. SCABBARD. GEORGE E. LOWMAN, Virginia City, Mont. Filed July 19, 1900. Serial No. 24,212. (No model.)

Claim.—1. A bayonet-scabbard made in sections, hinged together, and latches for holding the sections closed, substantially as described.

2. A bayonet-scabbard comprising two sections hinged together, latches for holding the sections closed, and springs for separating the sections when the latches are released, substantially as described.

3. A scabbard comprising two sheet-metal sections hinged together, latches for holding the sections together, springs for throwing the sections apart, and a supporting-hook for engagement with a belt, substantially as described.

660,303.



660,303. VESSEL FOR CONTAINING AND TRANSFERRING LIQUIDS. CHARLES MARTIN, Tiffin, Ohio. Filed Nov. 7, 1898. Serial No. 695,707. (No model.)



Claim.—1. A vessel for containing and transferring liquids, comprising a suitable body portion, provided with a pouring lip or flange at or near the upper edge or brim, extending downwardly and outwardly at an acute angle to the body of the vessel, the upper edge of said lip extending a substantial distance circumferentially around the pouring edge of the vessel to receive a broad flow or sheet of liquid when the vessel is slightly tilted, and the lower edge of the lip being located at a sufficient distance from the body of the vessel to conduct liquids over its outer surface into a vessel placed to receive the same, substantially as described.

2. A vessel for containing and transferring liquids, comprising a suitable body whose upper edge or brim occupies substantially a horizontal plane when the body is in its upright position, provided with an outer pouring-lip at, or near, the pouring edge of the vessel, extending downwardly and outwardly at an acute angle to the body of the vessel around the body for a considerable distance, and having its lower edge located at a distance horizontally from the body of the vessel, sufficient to permit of the placing of a receiving vessel thereunder, substantially as described.

3. A vessel for containing and transferring liquids comprising a suitable body portion whose upper edge or brim occupies substantially a horizontal plane when the body is in its upright position, and provided with a tapering pouring lip or flange which is widest at its point of discharge, said lip extending downwardly and outwardly at an acute angle to the body of the vessel, the upper edge of said lip extending circumferentially partially around the pouring edge of the vessel to receive a broad flow or sheet of liquid when the vessel is slightly tilted, and the lower edge of the lip being located at a sufficient distance horizontally from the body of the vessel to permit of the placing of a receiving vessel thereunder, substantially as described.

4. As an improved article of manufacture, a vessel for containing and transferring liquids and especially designed for pouring liquids therefrom when filled to the brim, without the liquid trickling down the outside of the vessel, said vessel being provided with a tapering pouring lip or flange located at or near the upper edge of the vessel and extending from the outer surface thereof downwardly and outwardly at an acute angle, the upper edge of said lip extending circumferentially partially around the edge of the vessel to receive a broad flow or sheet of liquid when the vessel is slightly tilted, and the lower edge of the lip being located at a sufficient distance from the body of the vessel to conduct the liquid over its outer surface into a vessel placed to receive the same, substantially as described.

660,304. BINDING FOR BOOKS. JAMES MCGRAW, West Almond, N. Y. Filed July 10, 1900. Serial No. 23,135. (No model.)



Claim.—1. A binding for books having retaining-rivets each consisting of a helical spring and rivet-heads each consisting of a plate having a struck-up portion provided with perforations with which the ends of the helical spring are engaged.

2. A rivet for binding books comprising a helical spring having heads, at its ends, each head consisting of a metallic plate having a central struck-up portion provided with alining perforations, the ends of the spring being engaged with the perforations of the heads and lying transversely of the depressions resultant from the struck-up portions, said ends of the spring being held in the perforations by solder deposited in the depressions and clinging to the heads and the ends of the spring.

660,305. THERMO-ELECTRIC BATTERY. JESSE OLIVER, Memphis, Tenn., assignor to Thomas B. Turley and West J. Crawford, trustees, same place. Filed Feb. 8, 1900. Serial No. 4,546. (No model.)



Claim.—1. A thermo-electric battery having the elements extending substantially radially and with the positive elements located in one plane and the negative elements in a different but substantially parallel plane, substantially as described.

2. A thermo-electric battery embodying couples of positive and negative elements and a metallic screen interposed between the elements, substantially as described.

3. A thermo-electric battery embodying couples of positive and negative elements and an insulated metallic screen arranged between the elements to overcome the effects of induction between the elements, substantially as described.

4. A thermo-electric battery having a series of positive elements located in one plane and a series of negative elements in a different and parallel plane and a metallic screen insulated from and located between the positive and negative elements, substantially as described.

5. A thermo-electric battery having a series of radially-arranged alloy elements of relatively large cross-sectional area and insulated from each other and a series of elements of opposite polarity therefrom one connecting each adjacent pair of alloy elements, all of the elements of one polarity being located in one plane and all of the elements of opposite polarity in a different plane, substantially as described.

6. A thermo-electric battery embodying a series of elements of relatively large cross-sectional area and a plurality of independent elements of opposite polarity therefrom connecting the adjacent elements first mentioned, the arrangement being such that the elements of large cross-sectional area are connected by a number of independently-acting elements of opposite polarity each serving in its individual capacity independently of the others and one of which might be severed without destroying the operativeness of the battery; substantially as described.

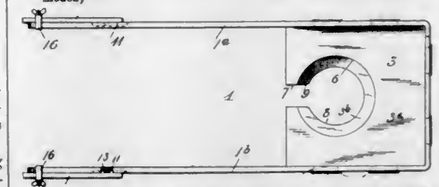
7. A thermo-electric battery embodying a series of elements of relatively large cross-sectional area and a plurality of parallel elements of opposite polarity therefrom each relatively small in cross-sectional area connecting the adjacent elements first mentioned, substantially as described.

8. In a thermo-electric battery the combination with a series of elements of relatively large cross-sectional area arranged in a single plane, of a series of elements of opposite polarity arranged in a different plane therefrom with their ends connected with the ends of the former and having bends or loops extending beyond the ends of the former, substantially as described.

9. A thermo-electric battery embodying a series of radially-arranged positive elements of relatively large cross-sectional area arranged in compact form and each insulated from the other, a series of negative elements of relatively small cross-sectional area also arranged radially but arranged in a plane above the positive elements and having a reverse loop extending inwardly beyond the ends of the positive elements, a laminated metallic screen interposed between the positive and negative elements and insulation between the screen and elements and over the inner ends of the positive elements, substantially as described.

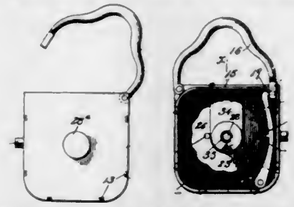
10. In a thermo-electric battery an element composed of an alloy of antimony, zinc and aluminium, substantially as described.

660,306. MUD-GUARD FOR BICYCLES. AARON B. OLMSTED, Oneida Castle, N. Y. Filed June 7, 1900. Serial No. 19,434. (No model.)



Claim.—In a cleaner for bicycles, the combination, substantially as described, of a thick stiff flexible membrane provided with means for securing it in a frame and having an aperture therein adapted to fit the tire with a small intervening space, a thin flexible membrane secured to said thick membrane and having an aperture therein of smaller size than the aperture in said thick membrane and adapted to fit more snugly the tire, and said frame which is provided with means for securing it to a bicycle.

660,307. COMBINATION-PADLOCK. THOMAS P. OWEN, York, Nebr. Filed Feb. 26, 1900. Serial No. 6,628. (No model.)



Claim.—1. In a permutation-lock, the combination with a latch of a locking mechanism for said latch, and means whereby when said locking mechanism is operated indicating pulsations are imparted to the latch, substantially as described.

2. In a permutation-lock, the combination with a latch, of locking mechanism for said latch, said locking mechanism having means for imparting indicating pulsations to the latch, substantially as described.

3. In a permutation-lock, the combination with a latch, of locking mechanism for said latch, said locking mechanism having means for imparting indicating pulsations to the latch, and means for operating the latch, said operating means also constituting an indicator for the pulsations, substantially as described

4. A permutation-lock comprising a latch having a tumbler-engaging projection, and a locking mechanism consisting of a plurality of rotatable tumblers, each having notches to receive the projection of the latch, said locking mechanism also presenting a corrugated edge for the said tumbler-engaging projection to ride upon, substantially as described.

5. In a permutation-lock, the combination with a pivoted latch having a tumbler-engaging projection, of a series of rotatory tumblers provided with notches which when in alinement receive the tumbler-engaging projection of the latch, certain of said tumblers being also provided with corrugated edges, whereby, when they are rotated, indicating pulsations are imparted to the latch, substantially as described.

6. In a permutation-lock, the combination with a pivoted latch having a tumbler-engaging projection, of a series of rotatory tumblers provided with notches which when in alinement receive the tumbler-engaging projection of the latch, certain of said tumblers being also provided with corrugated edges, whereby, when they are rotated, indicating pulsations are imparted to the latch, and a combination-changing device carried by one of the corrugated tumblers, substantially as described.

7. In a permutation-lock, the combination with an operating-shaft, of a rotatory locking-tumbler loosely mounted upon the operating-shaft and having its peripheral edge corrugated, an indicator normally in engagement with the peripheral corrugated edge whereby when the tumbler is rotated, indicating pulsations are imparted to the indicator, and a plate carried by said tumbler and extending over a portion of the corrugated peripheral edge and presenting a smooth edge arranged flush with the plane of the outer edges of the corrugations, said plate being mov-

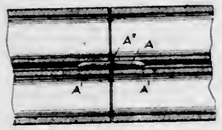
able to cover different portions of the corrugations, substantially as described.

8. In a permutation-lock, the combination with a pivoted latch having a tumbler-engaging projection, of a series of rotatory tumblers provided with notches which when in alinement are adapted to receive the tumbler-engaging projection, certain of said tumblers being provided with corrugated edges, one of said latter tumblers carrying a plate which covers a portion of the corrugated edge, said plate being movable to cover different portions of said corrugated edge, substantially as described.

9. In a permutation-lock, the combination with a pivoted hasp, of a pivoted latch adapted to engage the hasp and carrying a tumbler-engaging projection, a tumbler-shaft carrying a plurality of rotatable tumblers which are provided with notches adapted when alined to receive the tumbler-engaging projections of the latch, certain of said tumblers being also provided with corrugated edges, over which the stud and the latch are adapted to ride when the tumblers are rotated, and thereby impart indicating pulsations to the latch, and a push-pin arranged to operate the latch and indicate the pulsations of the same, substantially as described.

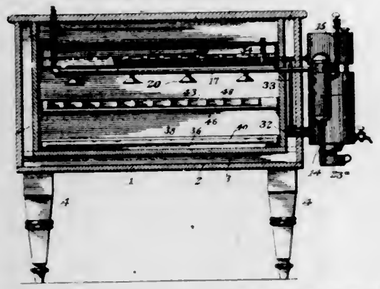
10. In a permutation-padlock, the combination with a casing, of a hasp pivoted to the casing, a pivoted latch arranged within the casing and adapted to engage the free end of the hasp, said pivoted latch being also provided with a tumbler-engaging projection, a tumbler-shaft carrying a plurality of rotatable tumblers which are provided with notches, adapted when alined to receive the tumbler-engaging projection of the pivoted latch, certain of said tumblers being provided with corrugated edges over which the tumbler-engaging projection is adapted to ride when the tumblers are rotated, one of said corrugated tumblers carrying a plate which covers a portion of the corrugated edge of said tumbler, said plate being movable to cover different portions of said corrugations, and a push-pin arranged to operate the latch and indicate the pulsations of the same, substantially as described.

660,308. DOWEL-PIN FOR TILES OR BRICKS. ORLA C. PIXLEY, Chicago, Ill. Filed June 27, 1900. Serial No. 21,722. (No model.)



Claim.—The combination, with a series of tiles or bricks placed end to end, each of said tiles or bricks being provided with a longitudinal opening extending therethrough, of a dowel-pin having a body portion with tapered ends and an integral, peripheral flange intermediate its ends.

660,309. INCUBATOR. OLIVER W. RANDOLPH, McClure, Ohio. Filed Jan. 4, 1900. Serial No. 359. (No model.)



Claim.—1. The combination with an incubator having an egg-tray, and a heater situated exteriorly of the incubator, of a mixer having a steam-pipe connection with the heater, a fresh-air inlet to the mixer at one side of the steam connection, and a moisture-delivery tube connected to the mixer at a point to receive an admixture of steam and air, said delivery-tube arranged partly in the incubator and having a number of delivery-ports at points intermediate of its length, as set forth.

2. The combination of an incubator having an egg-tray and a water-tank, a heater having water connection with the tank, a mixer provided with a fresh-air inlet and with a steam connection with the heater, and a moisture-delivery pipe connected to the mixer and arranged between the tank and the egg-tray, said delivery-pipe provided at points intermediate of its length with a number of ports which face toward the egg-tray, as set forth.

3. The combination with an incubator, of an exteriorly-arranged heater, an exteriorly-arranged mixing-chamber, a steam-pipe affording communication between the heater and mixing-chamber, a cut-off valve in said pipe, a moistener-tube leading from the mixing-chamber to the interior of the incubator, and having orifices located above the egg-tray, and a vent-pipe forming an extension of said moistener-tube, provided with a stopper, substantially as and for the purpose specified.

4. The combination with an incubator, of an exteriorly-arranged heater, a mixing-chamber at one side of the heater, a pipe leading from the top of the heater to the mixing-chamber and communicating with the latter at a point intermediate its height, an air-supply tube communicating with the lower end of the mixing-chamber, and a moistener-tube communicating with the mixing-chamber above the entrance of the pipe which communicates with the heater, said moistener-tube leading to the interior of the incubator, and provided with discharge-orifices, substantially as described.

5. The combination with an incubator, of a tank arranged in the upper portion thereof, an exteriorly-arranged heater comprising upper and lower sections placed in communication by connecting-tubes, the lower section having an upwardly-contracting coniocylindrical inner flue-wall arranged to form a water-chamber which increases in transverse area from the bottom upwardly, and the upper section having a cylindrical inner wall which extends downward into the flue of the lower section, a lateral extension near the bottom of the heater, upwardly-diverging return-tubes leading from said extension to the hot-water tank, and supply-pipes leading from the upper section of the heater to the interior of the hot-water tank, substantially as and for the purpose specified.

6. The combination with an incubator, of an egg-tray comprising a frame, a plurality of parallel troughs arranged therein to leave intervening spaces, and an egg-separating frame supported on said troughs and adapted to slide thereon, said egg-separating frame being divided into individual egg-compartments open at top and bottom, substantially as described.

7. The combination with an incubator, of an egg-tray comprising a plurality of parallel troughs spaced apart and having upturned and obliquely-disposed flanges along their longitudinal edges, and an egg-separating frame resting and adapted to slide thereon and having individual egg-compartments, the said egg-separating frame being removable from the egg-tray, substantially as described.

8. As a new article of manufacture, a nursery-tray for incubators comprising a rectangular frame provided with vertical flanges around its outer edges and with inclined flanges substantially parallel with the vertical flanges but located at the inner edges of the frame, a flexible bottom having its edges extended over the inclined flanges of the frame and across the face of said frame between the flanges, and retaining-strips disposed upon the edges of the flexible bottom between the flanges of the frame, said retaining-strips being provided with inclined flanges in contact with the flexible bottom where it conforms to the inclined flanges of the tray-frame.

660,310. SAW-SETTING DEVICE. JACOB RANZ, St. Louis, Mo. Filed Nov. 11, 1899. Serial No. 736,583. (No model.)



Claim.—1. In a saw-setting machine, the combination with a frame, of the setting mechanism mounted in said frame, said frame being provided with a groove in its lower face, across which the setting mechanism operates, face-plates arranged in said groove and extending on each side of the setting mechanism, said face-plates forming substantially a T-shaped groove, in the vertical member of which the body of the saw-blade is located, while the set teeth traverse the enlarged space, and means for adjusting one of said face-plates to accommodate different thicknesses of saw-blades; substantially as described.

2. In a saw-setting machine, the combination with a frame, of a rocking shaft mounted therein and provided with projections extending from opposite sides of the end of said shaft, the working faces of said projections being substantially parallel to the axis of rotation of said shaft, and a handle for rocking said shaft; substantially as described.

3. In a saw-setting machine, the combination with a grooved frame, of a rocking shaft mounted in said frame, projections d' extending from the end of said shaft and adapted to traverse the grooves to set the saw-teeth, means for adjustably limiting the travel of said setting device across such groove, and a handle for operating said shaft; substantially as described.

4. In a saw-setting machine, the combination with a grooved frame, of a rocking shaft mounted therein and carrying setting projections d' on its end, which projections are arranged diametrically opposite each other, and partially traverse the groove in operation, means for arresting and adjustably limiting the motion of said shaft to control the throw of said projections, and a feeding mechanism operated by said shaft; substantially as described.

5. In a saw-setting machine, the combination with a grooved frame, of a shaft mounted in said frame in axial alinement with the groove in said frame, setting devices arranged at one end of said shaft, a cam on the other end of said shaft, and a feeding mechanism operated by said cam; substantially as described.

6. In a saw-setting machine, the combination with a frame provided with a groove in its under side, of a rocking shaft mounted in the front end of said frame and in axial alinement with said groove, setting devices on the inner end of said shaft which partially traverse the groove in the frame, a cam arranged on said rocking shaft, a sliding bar mounted in the frame and cooperating with said cam, a spring for holding said bar forwardly against the cam, and a yielding tooth arranged on the rear end of the bar and projecting into the path of the teeth of the saw received by the groove in the frame, substantially as described.

7. In a saw-setting machine, the combination with a frame, of a shaft or spindle carrying setting devices, a cam arranged on said shaft, a sliding bar provided with a projection in the path of said cam, a yielding tooth carried by said bar, and means for adjusting the distance between said tooth and the projection in the path of said cam; substantially as described.

8. In a saw-setting machine, the combination with a shaft carrying saw-setting devices, a cam on said shaft, a sliding bar provided with a projection in the path of said cam, a spring for forcing said bar inwardly toward the shaft, a bolt having a threaded connection with said bar, and a spring-pressed tooth carried by said bolt; substantially as described.

9. In a saw-setting machine, the combination with a setting device, of a cam which is operated in connection therewith, a feeding mechanism actuated by said cam, said feeding mechanism including the projection in the path of the cam, a spring-pressed tooth, means for adjusting the distance between said tooth and the projection in the path of the cam, and means for bodily adjusting the tooth and said projection; substantially as described.

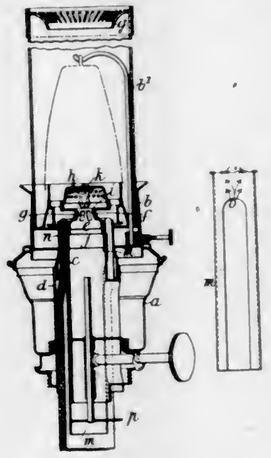
10. In a saw-setting machine, the combination with setting devices, of a cam operated in connection therewith, a feeding mechanism cooperating with said cam, said mechanism comprising a projection in the path of movement of the cam, a tooth, means for adjusting said tooth toward or from the saw-setting device, and means for adjusting the projection toward or from its operating-cam; substantially as described.

11. In a saw-setting machine, the combination with a grooved frame for receiving the saw to be set, of a shaft mounted in said frame and carrying projections for alternately engaging the different teeth of the saw to be set, an operating-handle attached to said shaft, means for adjustably limiting the rotary movement of said shaft, a cam carried by said shaft, a spring-pressed rod having a projection in the path of movement of said cam, a box adjustably carried on the outer end of said rod, means for adjusting said box relative to the frame, and a spring-pressed feeding-tooth mounted in said box; substantially as described.

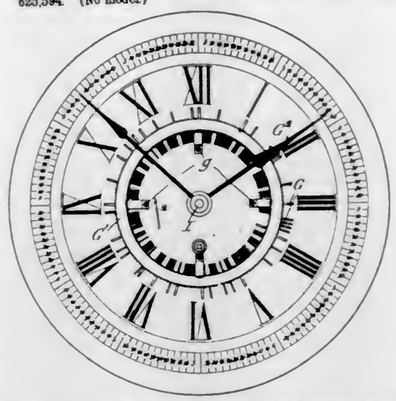
660,311. INCANDESCENT OIL-LAMP. JOHN C. C. READ, London, England. Filed Dec. 2, 1899. Serial No. 738,999. (No model.)

Claim.—1. In an incandescent oil-burner, the combination with the central wick-tube, of a hollow spreader having a lower tubular portion engaging said wick-tube, a contracted neck above said lower portion provided with lateral apertures, a cap or chamber above said neck broader than the said contracted neck, provided with a closed top and having lateral discharge-apertures and a baffle secured to the top of said cap provided with ports communicating with a central opening in said baffle, and projecting downward into said cap or chamber to a point adjacent to said contracted neck, substantially as described.

2. In an incandescent oil-burner, the combination with the central wick-tube, of a hollow spreader having a lower tubular portion engaging said wick-tube, a contracted neck above said lower portion provided with lateral apertures, a cap or chamber above said neck broader than the said contracted neck, provided with a closed top, and having lateral discharge-apertures, and a baffle consisting of a hollow stud extending through the top of said cap, and projecting downward therefrom to a point in said cap just above said contracted neck, whereby the current of air ascending through the wick-tube and the lower tubular part of the spreader will be forced by said contracted neck to divide, part escaping through the apertures in said neck, the rest ascending and being forced by said stud or baffle to divide, part passing through said stud and part escaping through the lateral walls of the cap, substantially as described.



660,312. PROGRAM-CLOCK. ANDREW J. REAMS, Chicago, Ill., assignor to Slyvo Reams, same place. Filed Mar. 1, 1897. Serial No. 625,594. (No model.)



Claim.—1. In an automatic program-clock system, the combination of a regulator, a motor for operating a rotating circuit maker and breaker, a rotating dial or plate bearing devices to represent the days of the week arranged to be operated in a step-by-step manner by the movements of the regulator, a main electric circuit embracing an annunciator a source of electric energy and a pair of contacts arranged to be opened and closed by the movements of said dial-plate, and means interposed between the dial-plate and arranged to be operated thereby and the motor for holding positively such motor against operation and permitting it to be operated at desired times, substantially as described.

2. In an automatic program-clock system, the combination of a regulator, a motor for operating a rotating circuit maker and breaker, a rotating dial or plate bearing devices to represent the days of the week arranged to be operated in a step-by-step manner by the movements of the regulator, a main electric circuit embracing an annunciator a source of

electric energy and a pair of contacts arranged to be opened and closed by the movements of said dial-plate, means interposed between the dial-plate and the motor for holding such motor against operation and permitting it to be operated at desired times, and supplementary means interposed between the regulator and the motor to permit such motor to operate at predetermined periods of time, substantially as described.

3. In an automatic program-clock system, the combination of a regulator, a motor for operating a rotating circuit maker and breaker, a rotating dial or plate bearing devices to represent the days of the week or fractions thereof arranged to be operated in a step-by-step manner by the movements of the regulator, a main electric circuit embracing a pair of contacts arranged to be opened and closed by the movements of said dial-plate and an annunciator or annunciators and two or more sources of electric energy, contact mechanism operated by the motor for switching the batteries into and out of the main circuit successively, means interposed between the rotating dial-plate and the motor to permit and prevent the operation of the motor when desired, and means arranged to be operated by the regulator to permit the motor to operate at predetermined periods of time, substantially as described.

4. In an automatic program-clock, the combination of a regulator, a rotatable shaft, a dial on the shaft, spaced to designate periods of time, a series of pin-holes dividing the spaces of the disk or dial into short periods of time, a series of pins for the pin-holes for the insertion of a pin in a predetermined hole of the dial, a stationary ring on the frame back of the spaced disk or dial, a stop-lever pivoted to the ring and having two arms, a plug on one of the lever-arms arranged to be contacted by the pins on the dial in its rotation, a fan normally engaged by the other arm of the stop-lever and a motor controlled by the fan, for the motor at predetermined periods of time to make and break an electric circuit, substantially as described.

5. In an automatic program-clock, the combination of a regulator, a rotatable shaft, a dial on the shaft spaced to designate periods of time, a series of pin-holes dividing the spaces of the dial into shorter periods of time, a series of pins for the pin-holes for the insertion of a pin in a hole of the dial for a predetermined period of time, a stationary support on the frame back of the spaced dial, a stop-lever pivoted on the support and having two arms, a block on one arm of the lever arranged to be contacted by the pins of the dial as the dial is rotated, a fly or fan normally engaged by the other arm of the lever, said lever moved out of engagement by contact of the block with a pin, a spring returning the arm of the lever to normally engage the fly or fan and a motor controlled by the fly or fan, for the motor at predetermined periods of time governed by the pins of the disk to make and break an electric circuit, substantially as described.

6. In an automatic program-clock system, the combination of an annunciator provided with characters to denote periods of time, hour and minute pointers on such annunciator to indicate the periods of time—the hour-hand being connected with a source of electric energy, radially-movable contact-pieces mounted on the dial of the annunciator and corresponding to the divisions of time thereon and adapted to be moved in or out to close contact with the hour-hand and thereby close a local circuit, a ring provided with radial slots for holding the movable contacts in position, a contact-point on the hour-hand arranged to contact the movable contacts when brought into the desired position, a local circuit embracing a source of electric energy, a signal connected to the hour-hand and movable contacts so that when the circuit is closed by the contact on the hour-hand contacting one of the movable contacts the signal is operated, a motor in the annunciator for operating the hand mechanism, and means for releasing the motor of the annunciator at predetermined periods of time, substantially as described.

7. In an automatic program-clock, the combination of a regulator, a rotatable shaft, a dial on the shaft spaced to designate days of the week, a series of pin-holes dividing the spaces of the dial into a predetermined number of hours, a series of pins for the pin-holes, a stationary ring mounted on the frame back of the spaced disk, a spring-arm attached to the ring on each side of the disk, a contact on each spring-arm located centrally over the disk and arranged for one contact to be engaged successively by the pins on the spaced disk, a wire leading from each spring-arm to the main circuit, and a main circuit comprising an annunciator, a make-and-break mechanism and a source of electric energy, substantially as described.

8. In an automatic program-clock, the combination of a regulator, a rotatable shaft, a dial on the shaft spaced to designate periods of time, a series of pin-holes dividing the spaces of the dial into other periods of time, a series of pins for the pin-holes for the insertion of a pin in a predetermined hole of the dial, a disk on the shaft provided with a series of notches corresponding to the number of pin-holes of the spaced dial, a compound lever independently mounted on the shaft, an arm connected with the hour-wheel of the regulator and contacting the compound lever at stated periods of time, a pawl engaging the notched disk at predetermined periods of time, a dog engaging a notch of the disk and means actuating the pawl and dog and releasing the notched disk for advancement one notch and movement of the spaced dial forward the distance of a pin-hole, substantially as described.

9. In an automatic program-clock, the combination of a regulator, a rotatable shaft, a spaced divisioned dial, a stationary ring around the dial, a disk on the shaft provided with a desired number of notches, a compound lever independently mounted on the shaft and having a front and rear member, a dog on the front member engaging the notches of the disk, an arm connected with the hour-wheel of the regulator and contacting the rear member of the compound lever at stated intervals of time, a pawl on the stationary ring engaging the notched disk at predetermined times, and a trip striking the pawl and disengaging it from the notched disk, for the advance of the dog to rotate the disk one notch and position the spaced dial thereby, substantially as described.

10. In an automatic program-clock, the combination with a regulator on a series of electric circuits each circuit carrying a number of the annunciators, of a contact-shaft, a train of wheels driving and rotating the contact-shaft, a two-armed contact on the shaft, a series of terminals arranged upon the two-armed contact in the path of travel thereof and successively engaged thereby, and a wire leading from each of the terminals to a main circuit for energizing such circuit, substantially as described.

11. In an automatic program-clock, the combination with a regulator on a series of electric circuits each circuit carrying a number of the annunciators, of a contact-shaft, a driving-train for the shaft consisting of two shafts, a power-spring for each shaft and a driving-wheel for each shaft, a shaft rotated from the driving-wheels, a bearing-wheel on the shaft, a two-armed contact on the contact-shaft, a series of terminals in the path of travel of the contact-arms, arranged to be successively engaged by the arms and a wire leading from each one of the several terminals to a main circuit for energizing such circuit, substantially as described.

12. In an automatic program-clock, the combination of a shaft having a cam-contact, a gear-wheel on such shaft, a fly or fan operated from the gear-wheel, a notched disk on the contact-shaft, a movable stop-arm engaging the notched disk and a second stop-arm engaging the fly or fan and holding the fly or fan from revolving thereby stopping the operation of the motor, substantially as described.

13. In an automatic program-clock, the combination of a regulator, a main arbor of the regulator, a pin-wheel on the arbor having a series of pins one for every five minutes, a vibrating releasing-lever engaged at its free end by a pin on the wheel, a notched disk, a fly or fan, stop-levers for the notched disk and the fly or fan and a rod connecting the stop-arms and the vibrating releasing-lever, substantially as described.

14. In an automatic program-clock, the combination of a regulator, a main arbor for the regulator, a contact-shaft, a pin-wheel on the main arbor having a series of pins one for every five minutes of time, a vibrating releasing-lever engaged at its free end by a pin on the wheel, a fly or fan, a wheel from which the fly or fan is operated, a pin on such wheel, a stop-arm engaging the pin on the wheel for preventing a complete operation of the motor until the releasing-lever has assumed its normal position and permitting a partial operation of the stop-arm for the notched disk, a notched disk on the contact-shaft and a motor, substantially as described.

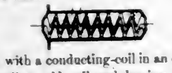
15. In an automatic program-clock, the combination of a regulator having three distinct and separate means for stopping and starting a motor and making and breaking the operations consisting first of a spaced and divisioned dial, contacts coacting with the dial, a two-armed oscillating lever actuated by the dial and stopping the fly or fan of the motor, second, a vibrating lever contacting and stopping the drive-wheel of the fly or fan and actuated from the regulator-clock, and third, a stop-arm engaging the fly or fan and actuated from the movements of the regulator-clock, each mechanism having its own action and all the mechanisms having a conjoined union of action, substantially as described.

16. In an automatic program-clock, the combination of three sets of batteries, three wires leading thereto, a spring-terminal for each wire, a contact-collar on which the terminals bear, a rotating shaft for the contact-collar, an insulated portion on the contact-collar preventing at any one time contact of more than one terminal, a disk or plate on the contact-collar shaft, a series of notches in the periphery of the disk or plate, a compound vibrating lever on the contact-collar shaft and means coacting between the compound lever and the notched disk for giving each set of batteries a period of work and a period of rest and restoration, substantially as described.

660,313. LIGHTNING-ARRESTER. CHARLES J. REED, Philadelphia, Pa. Filed Feb. 17, 1899. Serial No. 705,844. (No model.)

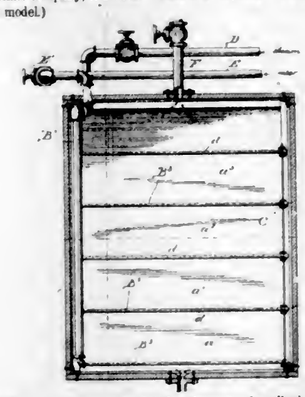
Claim.—1. In a lightning-arrester, a spark-gap comprising a coiled or bent portion of an electric conductor and a conducting-tube surrounding the said portion and having internal ribs or projections between the turns of the coil but not in contact therewith.

2. The combination with a coiled or bent conductor in an electric circuit, and a conducting-tube surrounding said conductor but insulated therefrom, of an electrolytic cell or a series of such cells one terminal of which is connected to said tube.



3. The combination with a conducting-coil in an electric circuit, and a conducting-tube surrounding said coil and having ribs or projections between the turns of the coil, of an electrolytic cell or a series of such cells having one terminal connected to said tube and the other terminal connected to ground.

660,314. DISH-CLEANSING APPARATUS. ADOLPH ROSEDALE, Tallahassee, Fla., assignor to the Rosedale Automatic Dish-Washing Machine Company, of Illinois. Filed Dec. 18, 1899. Serial No. 740,788. (No model.)



Claim.—1. In apparatus of the character described, the combination with a hot-water-supply source, of a plurality of spraying-heads lying in different horizontal planes and forming a plurality of superimposed spraying-compartments, substantially as and for the purpose set forth.

2. In apparatus of the character described, the combination with a hot-water-supply source, of a plurality of spraying-heads lying in different planes and forming a tray-receiving compartment, said heads being provided on adjacent sides with a large number of perforations disposed close to each other throughout the planes of said heads, and serving to simultaneously project sheets of water-jets, substantially as and for the purpose set forth.

3. In apparatus of the character described, the combination with a hot-water-supply source, and a supply-pipe leading from said source, of a plurality of spraying-heads lying in different horizontal planes and forming a series of spraying-compartments, each of said spraying-heads comprising a plurality of pipe-sections connected with each other, said pipe-sections being disposed in close relation to each other and provided with perforations, substantially as and for the purpose set forth.

4. In apparatus of the character described, the combination with a hot-water-supply source, a supply-pipe leading therefrom, a cabinet, a stand-pipe therein connected with said supply-pipe, and a plurality of spraying-heads connected with said stand-pipe and forming tray-receiving compartments, each of said spraying-heads comprising a series of perforated pipe-sections connected together, substantially as and for the purpose set forth.

5. The combination with a hot-water-supply source and a steam-supply source, of a plurality of spraying-heads located in different planes to afford a tray-receiving compartment, a steam-pipe connecting the source of steam-supply with said spraying-heads, and a hot-water pipe connecting the source of hot-water supply with said spraying-heads, substantially as and for the purpose set forth.

6. The combination with a steam-supply source and a hot-water-supply source, of a cabinet, a steam stand-pipe in said cabinet, a hot-water stand-pipe in said cabinet, and a plurality of spraying-heads connected with both said stand-pipes and dividing the cabinet into tray-receiving compartments, substantially as and for the purpose set forth.

7. The combination with a steam-supply source and a hot-water-supply source, of a cabinet, a steam stand-pipe in said cabinet and a hot-water stand-pipe in said cabinet, and a plurality of spraying-heads connected with both said stand-pipes and dividing the cabinet into tray-receiving compartments, each spraying-head comprising perforated pipe-sections connected together, substantially as and for the purpose set forth.

8. The combination with a steam-supply source and a hot-water-supply source, of a cabinet, a steam stand-pipe in said cabinet, and a hot-water stand-pipe in said cabinet, a plurality of spraying-heads connected with both said stand-pipes and dividing the cabinet into tray-receiving compartments, each spraying-head comprising a sinuous perforated pipe of less diameter than the stand-pipes, substantially as and for the purpose set forth.

9. The combination of a boiler, a steam-supply pipe connected with the steam-dome of said boiler, a hot-water-supply pipe connected with said boiler below the water-level thereof, and a plurality of spraying-heads located in different planes and connected with said supply-pipes, substantially as and for the purpose set forth.

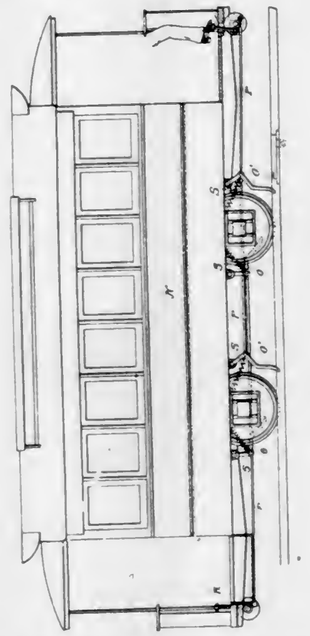
10. The combination with a boiler, of a hot-water-supply pipe connected therewith below the water level thereof, a cabinet, and a plurality of spraying-heads within said cabinet, said spraying-heads being supplied with water under steam-pressure from the boiler, substantially as and for the purpose set forth.

11. The combination of a steam-supply source, a hot-water-supply source, a cabinet, steam and hot-water spraying-heads in said cabinet in communication with said steam and hot-water supply sources, valves controlling the flow of steam and water into said heads, an eduction-port for said cabinet, and a valve controlling the eduction-port.

12. The combination of a steam-supply source, a hot-water-supply source, a cabinet, steam and hot-water spraying-heads in said cabinet in communication with said steam and hot-water supply sources, valves controlling the flow of steam and water into said heads, and a valved water-eduction port and a valved vapor-eduction pipe for the cabinet.

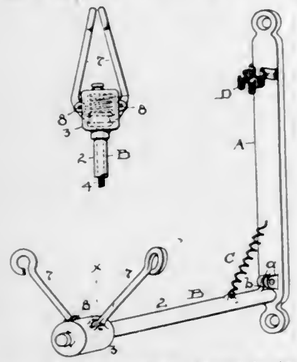
13. The combination of a cabinet, stand-pipes B' B^3 therein, spraying-heads B^3 comprising perforated sinuous pipes connecting said stand-pipes, and supports for said perforated pipes at the loop ends thereof, substantially as and for the purpose set forth.

660,315. AUTOMATIC RAILWAY-SWITCH. WILLIAM SCHOENEWALD, Philadelphia, Pa. Filed Oct. 17, 1899. Serial No. 733,907. (No model.)



Claim.—In combination with a switch-rod carried by and operated from a car, a switch-point pivoted within a frog, a lug projecting downwardly from said point, a lever, a lug formed upon said lever, a threaded rod run through apertures of the lugs of the switch-point and lever, means on the rods for adjusting the relative positions of the switch-point with relation to the lever and a spring having one end secured to an eye of the rod and its opposite end secured to a stationary object under the road bed, substantially as described.

660,316. GARMENT-HANGER. JEANNETTE SHOENBERG, Cleveland, Ohio. Filed May 26, 1900. Serial No. 18,082. (No model.)



Claim.—1. In a garment-hanger, a suitable bracket, an arm pivoted thereon at its lower end and means to support said arm in a vertical position against the bracket, a spindle in said arm and a pair of fingers operatively connected with said spindle at its top, substantially as described.

2. A garment-hanger consisting of a bracket adapted to be fixed to the back of a seat, an arm pivoted thereon to stand vertically when out of use and means to hold said arm in raised position, a set of carrying-fingers pivoted in the top of said arm, a spindle extending longitudinally through said arm and means at the top thereof to throw the fingers out when the arm is lowered and the spindle is pressed upward, substantially as described.

3. The bracket, the arm pivoted thereon at its end, a set of fingers pivoted on the upper end of said arm and a spindle operatively connected with said fingers through said arm and extending through the lower end of the arm, substantially as described.

4. The bracket and the arm pivoted thereon and having a head, fingers pivoted in said head and a spindle operatively engaged with the said fingers inward from their pivots and a spring to assist in throwing the fingers into folded position, substantially as described.

5. In garment-hangers, a pivoted arm adapted to swing into substantially horizontal and vertical positions respectively, a set of fingers pivoted in the outer free end of said arm at such angles as will throw them toward each other when in closed position and a bolt in the arm operatively connected with said fingers, substantially as described.

660,317. VALVE-REGULATING DEVICE FOR WATER-MOTORS. DAVID P. SIMS, Lincoln, Nebr. Filed Feb. 1, 1900. Serial No. 3,625. (No model.)

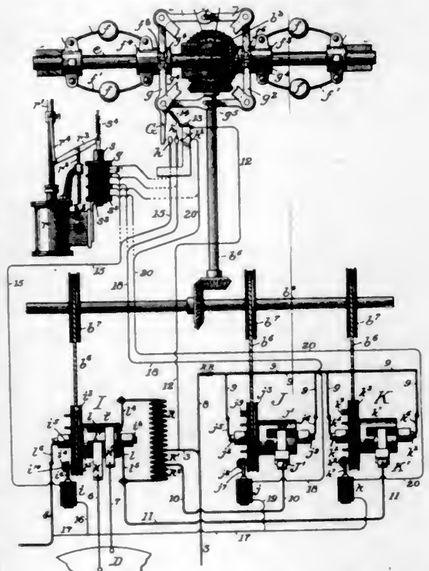


Claim.—1. A valve-regulating device for rotary impact water-motors, comprising in combination with the casing the supply and exit pipes communicating therewith, loosely-mounted slide-valves controlling the entrance to said exit-pipes, a rock-shaft having a cam loosely held in enlarged apertures in the stems of said valves, and a shelf on which the inner flattened ends of said valve-stems rest and slide, as set forth.

2. A valve-regulating device for rotary impact water-motors, comprising in combination with the casing of the valve-chamber, feeding and exit pipes communicating therewith, the valves for regulating the flow of water through said exit-pipes, a bracket on which the inner flattened ends of the stems of said valves rest and slide, a rock-shaft and cam thereon, which latter turns loosely in cam-shaped apertures in said flattened ends, a pulley-wheel mounted on said rock-shaft, a tread and connections between the latter and said pulley, whereby said shaft may be rocked, as set forth.

3. A valve-regulating device for rotary impact water-motors, comprising, in combination with the water-chamber with a removable screw-threaded face, pipes leading from the chamber, an angled bracket secured to the inner wall of the chamber, the valves seating against the ends of said pipes, and sliding on said bracket, the shaft having a bearing at one end, in the bracket, its other end in the screw-threaded face, the cam turning with the shaft, and working in irregular outlined apertures in the valve-stems, and means for rocking the shaft whereby, as the shaft is rocked, the valves will be alternately closed and opened.

660,318. APPARATUS FOR GOVERNING AND CONTROLLING MARINE OR OTHER ENGINES. ELMER A. SPERRY, Cleveland, Ohio. Filed Sept. 11, 1899. Serial No. 730,196. (No model.)



Claim.—1. In apparatus for governing and controlling engines or prime movers, the combination of a non-rotatable brake movable to and from a rotating part of the engine or prime mover, means for moving said brake into contact with said rotating part, and means whereby the pressure of said brake on the rotating part will be automatically varied in inverse proportion to variations in the working load carried by the engine, substantially as described.

2. In apparatus for governing and controlling engines or prime movers, the combination with a rotating part of the engine, of a non-rotatable brake movable to and from said rotating part, means for moving said brake into frictional contact therewith, and means for automatically varying the pressure of said brake upon said rotating part in proportion to variations in the speed of the engine, substantially as described.

3. In apparatus for governing and controlling engines or prime movers, the combination of a non-rotatable brake movable to and from a rotating part of the engine, and means for automatically varying the action of said brake in proportion to variations in the speed of the engine, substantially as described.

4. In apparatus for governing and controlling engines or prime movers, the combination with a rotating brake member driven by the engine and presenting a braking-face, of a non-rotating brake member movable to and from said rotating member and coöperating therewith to retard the speed of the engine, and electrically-actuated means for varying the action of the non-rotating member in proportion to variations in the speed of the engine, substantially as described.

5. In apparatus for governing and controlling engines or prime movers, the combination with a moving part of the engine presenting a braking-face, of a non-rotatable electrically-actuated brake movable to and from said moving part, electric circuits for controlling the movements and power of said brake, and a mechanical governor driven by the engine for controlling said circuits, substantially as described.

6. In apparatus for governing and controlling engines or prime movers, the combination with a moving portion of the engine, of a brake adapted to be moved into contact therewith for retarding the speed thereof, one or more electromagnets for controlling the application and power of said brake, a plurality of electric circuits controlling said magnets, and means for automatically making and breaking said circuits for energizing and varying the power of the brake, substantially as described.

7. In apparatus for governing and controlling engines or prime movers, the combination with a rotating part of the engine, of a metallic braking-face rotating therewith, a non-rotating electromagnetic brake movable to and from said braking-face, means for moving said brake into frictional engagement with said face for retarding the speed of the engine, and means for automatically varying the magnetic power thereof, substantially as described.

8. In apparatus for governing and controlling engines or prime movers, the combination with a rotating part of the engine, of a metallic braking-face rotating therewith, a non-rotating electromagnetic brake movable to and from said braking-face, and means for varying the magnetic energy of said brake in proportion to variations in the speed of the engine, substantially as described.

9. In apparatus for governing and controlling engines or prime movers, the combination with a rotating part of the engine, of a metallic braking-face rotating therewith, a non-rotating electromagnetic brake movable to and from said face, and means for automatically reversing the electric energy supplied to the brake, substantially as described.

10. In apparatus for governing and controlling engines or prime movers, the combination of an electromagnetic brake, a plurality of electric circuits for controlling the operation and power thereof, mechanically-driven rotating switches for controlling said circuits and a mechanical governor driven by the engine for controlling the operation of the switches, substantially as described.

11. In apparatus for governing and controlling engines or prime movers, the combination with a rotating braking-face, of a non-rotatable brake movable to and from said face, and means whereby the power of said brake will be automatically varied in proportion to variations in the speed of the engine or prime mover, substantially as described.

12. In apparatus for governing and controlling engines or prime movers, the combination of an electric brake adapted to be moved to and from a braking-face, a source of electric supply, a system of electric circuits between the source of supply and said brake adapted to be opened and closed for varying the power of the brake, switches for opening and closing said circuits, and means whereby said switches will be automatically operated by variations in the speed of the engine, substantially as described.

13. In apparatus for governing and controlling engines or prime movers, the combination with a rotating braking-face, of a non-rotatable brake movable to and from said face, and means for automatically applying, varying the pressure of, and removing said brake from contact with said face, substantially as described.

14. In apparatus for governing and controlling engines or prime movers, the combination of a centrifugal or other mechanical governor, a non-rotatable brake movable to and from a rotating part of the engine, and means controlled by said governor for applying, varying the power of and withdrawing said brake, substantially as described.

15. In apparatus for governing and controlling engines or prime movers, the combination of an electromagnetic brake, a source of electric supply, a system of connecting-circuits, switches in said circuits for making and breaking and reversing the current supplied to the brake, and a mechanical governor driven by the engine for controlling the action of said switches, substantially as described.

16. In apparatus for governing and controlling engines or prime movers, the combination of an electromagnetic brake, a source of electric supply, connecting-circuits between the brake and source of supply, mechanically-driven rotating switches in said circuits for making and breaking the current, devices for starting and stopping the rotation of said switches, and a mechanical governor driven by the engine for controlling said starting and stopping devices, substantially as described.

17. In apparatus for governing and controlling engines or prime movers, the combination of an electromagnetic brake, a source of electric supply, a system of connecting-circuits, mechanically-driven rotating switches in said circuits for making, breaking and reversing the current supplied to the brake, devices for starting and stopping the rotation of the switches, and a mechanical governor for controlling said starting and stopping devices, substantially as described.

18. In apparatus for governing and controlling engines or prime movers, the combination of an electromagnetic brake, a source of electric supply, a system of electric circuits between the brake and source of supply, switches in said circuits for making, breaking and reversing the current to the brake, electrically-actuated devices for controlling the operation of said switches, auxiliary circuits for controlling said devices, and a mechanical governor driven by the engine for making and breaking said auxiliary circuits, substantially as described.

19. In apparatus for governing and controlling engines or prime movers, the combination of an electrically-actuated brake movable to and from a rotating braking-face, a source of electric energy, a connecting-circuit, and means for automatically varying the resistance of said circuit, substantially as described.

20. In apparatus for governing and controlling engines or prime movers, the combination with a driving-shaft which is practically immovable longitudinally, and its load, of means for automatically applying, varying and removing an artificial load in inverse proportion to variations in the working load, substantially as described.

21. In apparatus for governing and controlling engines or prime movers, the combination with a moving part of the engine, of an electrically-actuated brake adapted to engage therewith for retarding the speed of the engine, electric circuits for controlling the application and power of the brake, and means for automatically sending current to the operating-coils of the brake in a reverse direction to the normal braking-current for quickly demagnetizing and reversing them, substantially as described.

22. In apparatus for governing and controlling engines or prime movers, the combination with a rotating braking-face, of an electrically-actuated brake movable to and from said face, electric circuits for controlling the movements and power of said brake, and means responsive to variations in the load carried by the engine for controlling and reversing the current in said circuits, substantially as described.

23. In apparatus for governing and controlling engines or prime movers, the combination with an electromagnetic brake, of means for sending current through the coils thereof, and a device for automatically making and breaking and reversing the normal braking-current, substantially as described.

24. As a governor for prime movers, the combination of a water-jacketed electromagnetic brake, means for automatically actuating said brake, and means for circulating water through the water-jacket of the brake, substantially as described.

25. As a governor for prime movers, a disk rotatably connected with the shaft of the mover, presenting a moving face, an electromagnet movable to and from the face of the disk, and a plurality of means for varying the electrical supply to the magnet, substantially as described.

26. As a governor for prime movers, a disk rotatably connected with the shaft of the mover, presenting a moving face, an electromagnetic system, presenting a magnetic surface movable to and from the face of such disk, means for varying the electrical supply to the magnet, responsive to the speed changes of the prime mover, and an independent manually-actuated means for controlling the strength of the current, substantially as described.

27. In a governor for engines or prime movers, a disk rotatively connected to the shaft of the mover presenting a braking-face, an electromagnetic system presenting a non-rotatable magnetic surface movable to and from the face of said disk, and means actuated by a centrifugal or other mechanical governor for varying the electrical energy supplied to the magnet, substantially as described.

28. As a governor for prime movers, a disk rotatably connected with the shaft of the mover presenting a moving face, an electromagnetic system presenting a magnetic surface movable to and from the face of such disk, and means for automatically reversing the direction of the current in the magnet, substantially as described.

29. As a governor for prime movers, a disk rotatably connected with the shaft of the mover presenting a moving face, an electromagnetic system presenting a magnetic surface movable to and from the face of such disk, means for varying the electrical supply to the magnet, and an automatically-operated step-by-step controller for the electrical circuits of the magnet, substantially as described.

30. As a governor for prime movers, a disk rotatably connected with the shaft of the mover presenting a moving face, an electromagnetic system presenting a magnetic surface movable to and from the face of such disk, means for varying the electrical supply to the magnet, and means called into action by the motion of one of the braking members for reversing the direction of current to the brake, substantially as described.

31. In apparatus for governing and controlling engines or prime movers, the combination with an engine-driving shaft, of a rotatable and a non-rotatable brake element, and means for moving one of said elements into frictional contact with the other independently of any movement of said shaft for retarding the speed thereof, substantially as described.

32. In apparatus for governing and controlling engines or prime movers, an electrical braking device and a centrifugal governor, both rotatably connected with a moving part, a source of electrical supply, rotating switches driven by the engine for handling the electrical energy to the brake, devices for holding said switches against rotation and operating connections between said devices and the governor, substantially as described.

33. In an electrical braking system for movers, a power-driven rotatable electrical switch for controlling the electrical energy to the brake, a catch for holding the switch against rotation, and means for automatically releasing the catch.

34. In an electrical braking system for movers, a power-driven elec-

trical switch for controlling the electrical energy to the brake, a catch for holding the switch out of action, and means operated by a centrifugal governor for actuating the catch.

35. As a governor for marine engines, a pair of centrifugal governors, oppositely-moving parts, one actuated by each of said governors, and means for mechanically coupling the parts, substantially as described.

36. In an electric brake for engines or prime movers, a braking-face constituted of a plurality of electromagnetic poles, and a plurality of conductors suitably disposed with reference to the poles, each adapted to be independently excited, substantially as described.

37. In an electromagnetic friction device, a disk having circular grooves in its face, transverse grooves connecting the circular grooves leaving sector-like projections, and windings disposed within the grooves, wound upon three sides only of the said projections, substantially as described.

660,319. APPARATUS FOR MAKING SEAMLESS TOOTH-CROWNS. JOSEPH F. TWIST, San Francisco, Cal. Filed Jan. 9, 1900. Serial No. 877. (No model.)



Claim.—1. In an apparatus for forming seamless tooth-crowns, a device for primarily shaping the crowns consisting of a series of dies, and a supporting-stand, a guide fitting said stand concentrically with the dies and punches, each punch conforming in diameter to a corresponding die, and all the punches slidable through said guide and adapted to shape the crown by passing through the die upon which the crown has been laid, and means by which the guide is adjustable to punches of different diameters.

2. A device for forming seamless tooth-crowns consisting of a die-supporting stand, a series of dies, punches movable through the dies, a guide of variable diameter supported upon the stand concentric with the dies and means adapted to fit said guide to any size of punch.

3. In a device for forming seamless tooth-crowns, a die-supporting stand, a series of dies, punches corresponding in diameter with the dies, a variable guide fitting the stand concentrically with the dies, consisting of radially-slidable guide-wings between which the punch is movable and means for varying the distances of said wings from the center.

4. A device for forming seamless tooth-crowns consisting of a die-supporting stand, a series of dies, punches fitting the dies, a guide consisting of radially-movable wings slidable in grooves or channels in a casing, springs by which said wings are normally retracted, and cams by which the wings may be advanced to fit and guide any size of punch.

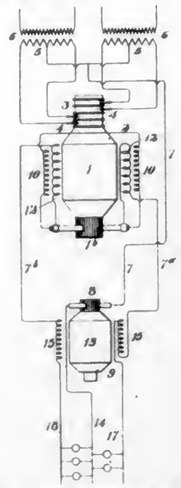
5. In a device for forming seamless tooth-crowns, a die-supporting stand, a series of dies, punches fitting the various-sized dies, a casing having a radially-slotted central portion, wings slidable in said slots and springs by which they are normally retracted, heads fitting the upper and lower ends of the casing having cam-shaped chambers into which the upper and lower ends of the wings project, and means for turning the wing-carrying center with relation to said cams, so that the wings are advanced or retracted.

6. In a device for forming seamless tooth-crowns, a die-supporting stand, a series of dies, a punch-guide consisting of an exterior casing fitting the stand concentrically with the dies, the central portion turnable within the casing, a pin projecting through a slot in the casing by which it is turned, radial slots formed in said center, and wings slidable therein heads at each end of the casing having cam-shaped depressions into which the ends of the wings project whereby the turning of the center with relation thereto will advance or retract the wings and adjust them to guide any-sized punch.

7. The combination with a punch, of a guide therefor having radially-movable wings or parts whereby it may be adjusted to operatively receive punches of different diameters.

660,320. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES I. YOUNG, Philadelphia, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Mar. 6, 1900. Serial No. 7,587. (No model.)

Claim.—1. In a three-wire system of electrical distribution, the combination with a dynamo-electric machine having direct-current connections to the positive and negative wires of the system and alternating-current connections to a transformer-winding, of a regulating-generator having its armature connected in circuit between the middle point of said transformer-winding and the neutral or balancing conductor of the system and having field-magnet coils the magnetizing effect of which varies as the difference between the loads on the two sides of the circuit varies.



2. In a three-wire system of electrical distribution, the combination with a dynamo-electric machine having direct-current connections to the positive and negative wires of the system and alternating-current connections to a transformer-winding, of a regulating-generator having its armature connected in circuit between the middle point of said transformer-winding and the neutral or balancing conductor of the system and having field-magnet coils which have no magnetizing effect when the two sides of the circuit are equally loaded but which produce a field that corresponds in direction and amount to an extra load on either side of the circuit.

3. In a three-wire system of electrical distribution having its compensating conductor connected to the generator through a transformer-winding, a dynamo-electric voltage-regulator having its armature and field-magnet windings connected in circuit with the compensating conductor and serving to automatically adjust the voltage of either side of the circuit in accordance with changes of load thereon.

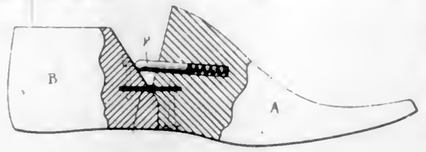
4. A three-wire system of electrical distribution comprising a compound-wound dynamo-electric machine having direct-current connections with the positive and negative conductors of the system and alternating-current connections through a transformer-winding with the neutral conductor of the system, in combination with a dynamo-electric voltage-regulator having windings which constitute parts of the distributing-circuit and serving to automatically adjust the voltage of either side independently, of the other as may be required by variations in load.

5. A three-wire system of distribution comprising a compound-wound dynamo-electric machine having one half of its series-field-magnet winding symmetrically disposed around the armature and connected between one commutator-brush or set of brushes and the positive conductor of the system and having the other half of said winding symmetrically disposed and connected between the other brush or set of brushes and the negative conductor, in combination with a transformer-winding having its terminals connected to the armature-winding of said dynamo-electric machine and its middle point to the neutral conductor of the system, and a dynamo-electric regulator having windings which constitute parts of the distributing-circuit.

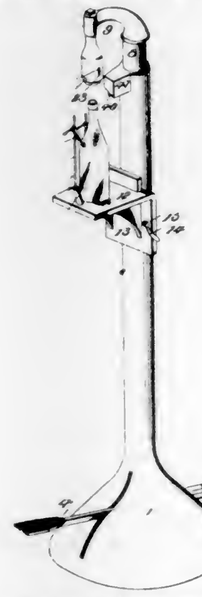
6. A three-wire system of distribution comprising a compound-wound dynamo-electric machine having one half of its series-field-magnet winding symmetrically disposed around the armature and connected between one commutator-brush or set of brushes and the positive conductor of the system and having the other half of said winding symmetrically disposed and connected between the other brush or set of brushes and the negative conductor, in combination with a transformer-winding having its terminals connected to the armature-winding of said dynamo-electric machine and its middle point to the neutral conductor of the system, and a dynamo-electric regulator having its armature and field-magnet windings interposed in the neutral conductor in series with each other.

660,321. LAST. FREDERIC B. ABBOTT, Lynn, Mass., assignor to Samuel Porter & Co., Worcester, Mass. Filed Jan. 17, 1899. Serial No. 702,385. (No model.)

Claim.—In a last, the combination of a body part, a heel part, a hinge connecting the body and heel parts, said parts having inclined faces leaving an open angular space above the hinge, and a coiled spring and pin mounted in a socket in one of said parts to exert a constant pressure tending to hold the parts of the last in line with each other, said pin being arranged to extend across the open angular space and normally bearing on the inclined face of the other part at an oblique angle thereto, substantially as described.



660,322. BOTTLE-CAPPING MACHINE. CHARLES G. BAUER, New York, N. Y., assignor to the American Stopper Company, same place. Filed Apr. 26, 1900. Serial No. 14,451. (No model.)



Claim.—1. In a machine for capping bottles, the combination of a plunger comprising a cup to embrace a cap and seat it upon the bottle, and devices to rotate the cup and turn the cap transversely after it is seated on said bottle.

2. In a machine for capping bottles, the combination of a plunger comprising a cup to embrace a cap and seat it upon the bottle, and devices to rotate the cup and turn the cap transversely after it is seated on said bottle, and a clutch to prevent the independent rotation of the cap.

3. In a machine for capping bottles, the combination of a plunger comprising a cup to embrace a cap and seat it upon the bottle, devices to rotate the cup and turn the cap transversely after it is seated on said bottle, and a clutch to prevent the independent rotation of the cap, said clutch being automatically releasable by gravity.

4. In a machine for capping bottles, the combination of a plunger comprising a cup to embrace a cap and force it upon the bottle, and devices to rotate the cup and turn the cap seated on said bottle, said devices consisting of pins fixed to the cup and means for suitably moving them along cam-faces formed in the plunger-shell.

5. In a machine for capping bottles, the combination of a plunger comprising a cup to embrace a cap and force it upon the bottle, and devices to rotate the cup and turn the cap seated on said bottle, said devices consisting of pins fixed to the cup and means for suitably moving them along cam-faces formed in the plunger-shell, and a guide movable out of the rotary path of one of the pins to permit its engagement with its cam-face and automatically returnable to said path to guide and hold the pin away from the cam, and mechanism for returning the pins to their initial situation, said mechanism comprising a distinct cam in the path of one of the pins.

6. In a machine for capping bottles, the vertically-movable plunger-shell, the plunger-cup rotatable independently of said shell and also independently movable vertically, and an antifriction-ball housing vertically movable in the shell a part of said housing being held non-rotatably by the shell and a part fixed to the rotatable plunger-cup stem.

7. In a machine for capping bottles, the vertically-movable plunger-shell, the rotatable cup movable with said shell and also independently movable vertically, antifriction-balls between the cup and shell, and a ball-housing fixed against rotation and movable lengthwise the plunger, said housing including a ring fitting the exterior of the cup.

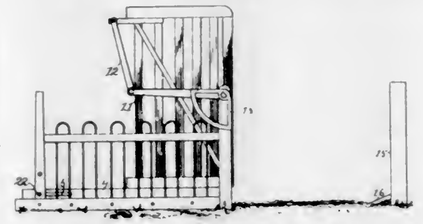
8. In a machine for capping bottles, a plunger-shell, a cap-seating cup carried by the plunger-shell and movable both lengthwise and circumferentially, a spring to return the cup lengthwise, and a cam situated in the path of a cup projection to return the cup rotatably.

9. In a machine for securing caps upon bottles, mechanism to force a cap upon a bottle in a right line and devices to subsequently rotate the cap to lock it to the bottle, said mechanism comprising a plunger, a cap-holder, and an inclined bearing between the plunger and holder whereby when the cap in the holder is forced on the bottle it is relatively rotated to engage the cap and bottle.

10. In a machine for securing caps upon bottles, a member to hold the cap, and a member to push the holding member and cap upon the bottle, said members being adapted to rotate the cap after it is forced upon the bottle, a clutch to prevent the independent rotation of the cap, said clutch comprising devices pivoted in the cap-holding member, a part movable in the cap-holder to turn said devices on their pivots, said movable part bearing on the cap when seated on the bottle, and a spring to move the said part and free the clutch devices after the cap is fastened upon the bottle.

11. In a machine for capping bottles, the combination of the plunger-shell, the cup having a stem, the spring to press the cup downwardly, the plug movable in said stem, the spring to move the plug downwardly in the stem, and a cap-clutch operative within the cup, said plug when it is forced upon the cap being adapted to render the clutch operative, the clutch being inoperative when the plug is withdrawn.

660,323. FARM-GATE. WADE BRADEN, Maroa, Ill. Filed July 3, 1900. Serial No. 22,391. (No model.)



Claim.—1. In a gate, the combination of a gate, a slide-rail in line with the gate and hinged to the lower, inner corner thereof, a shaft at right angles with the gate, an arm on the shaft, a stiff link connecting the swinging end of the arm with the outer end of the gate and means for controlling endwise motion of the slide-rail, substantially as described.

2. In a gate, the combination of a gate, a slide-rail hinged to the inner, lower corner of the gate at one end and slotted lengthwise at the other end, a post adjacent to the slot of the rail, when the gate is closed, a pin to engage the slot of the rail and connect with the post, a shaft at right angles with the gate, an arm on the shaft and a stiff link connecting the swinging end of the arm with the outer end of the gate, substantially as described.

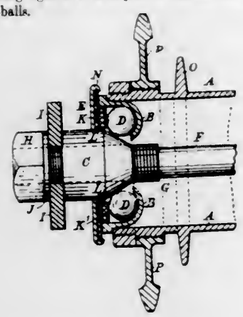
660,324. BALL-BEARING. SCHUYLER W. BULL, Rochester, N. Y., assignor of one-half to Lewis C. Tower, same place. Filed Oct. 6, 1899. Serial No. 732,787. (No model.)

Claim.—1. The combination in a ball-bearing, of the adjustable cone having a flattened side, and a longitudinally-adjustable washer having a flange fitting the contour of said cone and secured thereto through frictional contact therewith.

2. In a ball-bearing, a cone flattened on two sides, and a longitudinally-adjustable washer having a perforation fitting the contour of the cone and secured thereto through frictional contact.

3. In a ball-bearing, a cup having antifriction-balls, a cone adapted to coact with said balls, a longitudinally-adjustable washer frictionally secured to the cone, and a facing of absorptive material for said washer.

said facing bearing against a fixed part of the ball-bearing and against the antifriction-balls.



660,325. RIB-CLASP FOR UMBRELLA-COVERS. CHARLES F. BURNETT, Newburg, N. Y. Filed May 3,1900. Serial No. 15,372. (No model.)

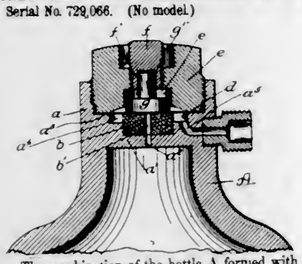


Claim.—1. A rib-clasp for umbrella-covers consisting of a main body adapted to extend longitudinally of a rib, and provided at two isolated points in its length and on opposite sides of said main body, with a rib-engaging lug whereby said lugs will engage the rib from opposite sides, substantially as described.

2. A rib-clasp for umbrella-covers consisting of a main body adapted to extend longitudinally of a rib, and provided at isolated points in its length and on opposite sides, with a downwardly and inwardly extending rib-engaging lug, substantially as described.

3. A rib-clasp for umbrella-covers consisting of a plate adapted to extend longitudinally of a rib, and provided at each end with a downwardly and inwardly extending rib-engaging lug, said lugs being located on opposite sides of said plate and having their inwardly-extending portions in line with each other longitudinally of the plate, substantially as described.

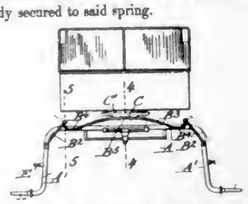
660,326. BOTTLE FOR CONTAINING LIQUIDS OR GASES UNDER HIGH PRESSURE. GRAHAM CLARKE, Cleveland, Ohio. Filed Aug. 31, 1899. Serial No. 729,066. (No model.)



Claim.—The combination of the bottle A formed with the integral transverse wall a' formed with a central opening, the valve-seat b formed with the opening b' registering with said central opening, the diaphragm d supported by the shoulder a^3 formed in the bottle-neck, the jam-nut e for securing said diaphragm upon said shoulder and formed with the bore e', the set-screw f communicating with said bore formed with the bore f', and the plunger g located in bore e' and formed with the teat g' projecting into bore f', said neck formed with the opening a^4 communicating with the annular space intermediate of said raised valve-seat and said shoulder, substantially as set forth.

660,327. RUNNING-GEAR FOR VEHICLES. FRANKLIN COPELAND, New York, N. Y. Filed Dec. 9, 1899. Serial No. 739,794. (No model.)

Claim.—1. In a running-gear for vehicles, an arched axle having its crown projecting upwardly and provided with elongated rises, a spring attached to the crown of said axle and normally projecting above the same, and a body secured to said spring.



2. In a running-gear for vehicles, an arched axle having its crown projecting upwardly and provided with elongated rises, side-bars mounted on the crown of said axle at its opposite ends, a spring attached to said side-bars and normally projecting above the crown of the axle, and a body secured to said spring.

3. In a running-gear for vehicles, an arched axle having its crown projecting upwardly and provided with elongated rises, supports secured on said axle near the ends of its crown and projecting upwardly from the same, side-bars carried by said supports above the crown of the axle, a spring secured at its ends to said side-bars and normally projecting above the crown of said axle, and a body secured to said spring.

4. In a running-gear for vehicles, an arched axle having its crown projecting upwardly and provided with elongated rises, a spring attached to said axle and normally projecting above the crown of the same, a body, and a fifth-wheel mechanism interposed between said spring and said body.

5. In a running-gear for vehicles, arched front and rear axles having their crowns projecting upwardly and provided with elongated rises, springs attached to said axles and normally projecting above the crowns of the same, a body mounted on said springs, a fifth-wheel mechanism interposed between said body and the spring secured to the front axle, perches extending from the rear axle to the front axle, and a second fifth-wheel mechanism connecting the front end of said perches with the crown of the front axle.

6. In a running-gear for vehicles, arched front and rear axles having their crowns projecting upwardly and provided with elongated rises, supports projecting upwardly from each axle near the ends of the crown, side-bars carried by said supports, springs connected at their ends to said side-bars and normally projecting above the crowns of the axles, a body mounted on said springs, a fifth-wheel mechanism interposed between said body and the spring secured to the front axle, perches extending from the rear axle to the front axle, and a second fifth-wheel mechanism connecting the front end of said perches with the crown of the front axle.

7. In a running-gear for vehicles, an arched axle having its crown projecting upwardly and provided with elongated rises, supports secured on said axle near the ends of its crown and projecting upwardly from the same, side-bars carried by said supports above the crown of said axle, a spring secured at its ends to said side-bars and normally projecting above said crown, a body, and a fifth-wheel mechanism interposed between said body and said spring.

8. In a running-gear for vehicles, an arched axle having a bifurcated crown, a spring hung between the members of the bifurcation, and a body attached to said spring.

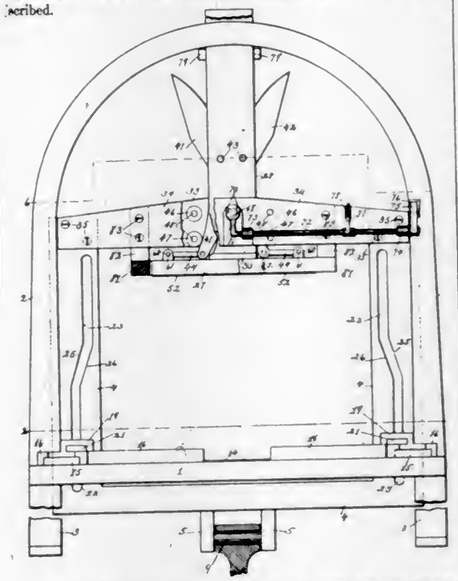
9. In a running-gear for vehicles, an arched axle having a bifurcated crown, side-bars secured between the members of the bifurcation, a spring carried by said side-bars, and a body attached to said spring.

10. In a running-gear for vehicles, an arched front axle having a bifurcated crown, a spring hung between the members of the bifurcation, a rear axle, a spring mounted on said rear axle, a body carried by said springs, a fifth-wheel mechanism interposed between said spring carried by the front axle and the body, a cross-piece secured between the members of the bifurcation of the crown, and perches connected with said rear axle and pivoted to said cross-pieces directly beneath the pivotal point in said fifth-wheel mechanism.

11. In a running-gear for vehicles, an arched front axle having a bifurcated crown, side-bars attached at their ends to the members of the bifurcation of said crown, a spring carried by said side-bars, a cross-piece secured between the members of the bifurcation of said crown, a rear axle, a spring carried by said rear axle, a body mounted on said springs, a fifth-wheel mechanism interposed between said body and the spring carried by the front axle, and perches connected with said rear axle and pivoted to said cross-piece directly beneath the pivotal point in said fifth-wheel mechanism.

660,328. FOLDING-MACHINE. ARTHUR M. FLETCHER, Troy, N. Y., assignor of one-half to Patrick J. Landrigan, same place. Filed Sept. 11, 1899. Serial No. 730,070. (No model.)

Claim.—1. In a machine for folding and pressing the edges of collar and cuff blanks, the combination with a blank-supporting bed; and collapsible former; of a reciprocatory frame movable perpendicularly to the bed; and means for continuously imparting to the frame reciprocating movements; connections, having releasing mechanism, between the frame and former, whereby the former is raised by the frame from the bed and allowed a partial return drop toward the bed; means for expanding and contracting the former during the relative movements of the frame and former; movable folding-plates on the bed; operating connections between the folding-plates and the reciprocatory frame; and presser-bars, on the frame, engageable with the folder-plates after the former-plates have been withdrawn from beneath the folder-plates, substantially as described.



2. In a folding-machine, having a fabric-supporting bed, former-plates and folder-plates coöperatively movable on such bed, the combination with a reciprocatory frame, movable perpendicularly to the bed; and means for continuously imparting to the frame reciprocating movements; of a cam connnection between the frame and the folding-plates which forces the plates inwardly during a reciprocating movement of the frame in one direction, and outwardly during the oppositely-reciprocating movements; and a cam connection between the former-plates and the reciprocatory frame which forces the former-plates outwardly when the folding-plates are in their outward position, and inwardly after the folder-plates have been forced inwardly over such former-plates, substantially as described.

3. In a folding-machine having a fabric-supporting bed, former-plates and folder-plates coöperatively movable on such bed, the combination with a reciprocatory frame movable perpendicularly to the bed; means for continuously imparting to the frame reciprocating movements; and means for actuating the folder-plates; of a head on which the former-plates are movable horizontally; a slide-stem movable vertically in the frame and centrally secured at its lower end to the former-head; means for securing relative vertical movements of stem and frame; cam-levers in the stem; actuating connections between the levers and the former-plates; and lever-actuating cam-followers on the frame, substantially as described.

4. In a machine for folding and pressing the edges of collar and cuff blanks, the combination with a blank-supporting bed; folder-plates; and former-plates movable on such bed; of a reciprocatory frame; and presser-bars thereon movable perpendicularly to the bed to and from the folder-plates; actuating mechanism on the movable frame engageable with the operating mechanism of the various former-plates and folder-plates whereby a reciprocating movement of the frame will successively raise the presser-bars and former-plates and open the folder-plates for the reception of a blank, expand the former-plates to the size and shape of the finished product, move the expanded former down upon the blank, force the folder-plates inwardly over the former-plates to fold the edges of the blank, contract the former to withdraw its plates from the fabric folds, and force the presser-bars down upon the folded edge to fix the fold, substantially as described.

5. In a folding-machine. the combination with a horizontally-disposed fabric-supporting bed; and folder-plates movable horizontally on the bed; of a former-head vertically movable to and from the bed and having horizontally-movable former-plates coöperative with the folder-plates: a vertically-movable frame; catch and release connections between the frame and former-head; means for imparting to the frame reciprocating movements; actuating cam connections between the frame and the former-plates and folder-plates; whereby the reciprocating movements of the frame serve to impart coöperative movements to the former-plates and folder-plates and carry the former-head to and from the bed, substantially as described.

6. In a folding-machine, having a horizontal bed, folder-plates movable horizontally on the bed, and a vertically-movable frame adapted to operate the folder-plates, the combination with a former; and former-supporting stem movable lengthwise in a vertical slideway in the frame; a catch; and means for bringing it into action at the end of the downward movement of the frame, which prevents the relative movement of the stem during the upward movement of the frame; a releasing-trip which frees the stem from the catch at the end of the upward movement of the frame; and a stop for limiting the relative downward movement of the stem, substantially as described.

7. In a folding-machine of the class described, and in combination, folder-plates; a vertically-movable frame adapted to operate the folder-plates; a former-head; former-plates contractible and expansible on the former-head; a former-supporting stem movable lengthwise in a vertical slideway in the frame; a pair of cam-levers pivoted upon the stem; actuating connections between the former-plates and the levers; lever-actuating cam-followers on the frame; means for holding the stem fast upon the frame during its upward movement; means for allowing the stem to drop until the upper end of each lever engages a cam-follower on the frame and expands the former-plates; and means for supporting the former mechanism at a lower level and on a blank while the folder-plates fold the edges of the blank over onto the former-plates and until a cam-follower on the frame engages the lower end of each lever and contracts the former-plates, substantially as described.

8. In a folding-machine, having a fabric-supporting bed, a collapsible former, folder-plates coöperative with the former-plates and a reciprocatory frame for actuating the various movable parts, the combination with a former-supporting stem vertically movable in the frame; cam-levers pivoted on the stem, having a cam-surface on one end for contracting the former and on the other end a cam-surface for expanding the former and an approximately-plane follower-engaging surface for holding the former-plates in an expanded position while the folder-plates are being forced inwardly over the former-plates, and actuating cam-followers, substantially as described.

9. In a folding-machine, a collapsible former, comprising a head-block having elongated diagonal openings therethrough; slide-blocks in and movable lengthwise of such openings; former-plates on the under side of such movable blocks capable of being extended beyond the edges of the head-block; and guides on the upper side of the movable blocks; a pair of slide-plates movable on parallel lines in slideways on the upper side of the head-block and containing transverse slideways for the guides on the movable blocks; and means for moving the slide-plates to and from each other, substantially as described.

10. In a collapsible former for collar and cuff folding machines, the combination with a head-block having elongated diagonal openings therethrough; and slide-blocks movable lengthwise of such openings; of detachable guide-plates secured to the head-block on opposite sides of the diagonal openings with their neighboring edges parallel to each other; a slide-top on each slide-block movable between, and guided by, such edges; a former-plate on the bottom of each slide-block; and means for actuating the slide-blocks, substantially as described.

11. In a folding-machine having a horizontal bed, a collapsible former and means for operating the former, the combination with folder-plates movable in guideways on the bed; of a frame adapted to be reciprocated perpendicularly to the bed; means for reciprocating the frame; cams; and cam-grooves in the frame; a cam-follower operatively connected with the folder-plates, and locked in place by the cams and cam-grooves in the frame, substantially as described.

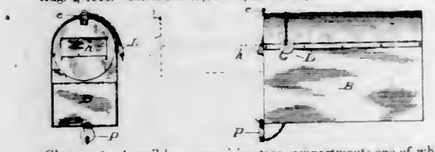
12. In a folding-machine, the combination with a supporting-bed; of a former movable toward and from the bed; folding mechanism coöperative with the former; pressing mechanism movable independently of the folding mechanism toward and from the bed and folders; a motor common to said former, folding and pressing mechanisms; and actuating connections whereby said former, folding and pressing mechanisms are automatically and successively operated by said common motor, substantially as described.

13. In a folding-machine, the combination with a supporting-bed of folding mechanism movable along the bed; a former-head; former-plates contractible and expansible on the former-head and coöperative

with the folding mechanism; pressing mechanism movable toward and from the bed independently of the movements of the folding mechanism; a motor common to said former, folding and pressing mechanisms; and actuating connections whereby said former, folding and pressing mechanisms are automatically and successively operated by said motor, substantially as described.

14. In a folding-machine, the combination with a supporting-bed; of folding mechanism movable along the bed; a former-head, former-plates contractible and expansible on the former-head and coöperative with the folding mechanism; pressing mechanism movable toward and from the bed independently of the folding mechanism; a continuous motor common to said former, folding and pressing mechanisms; and actuating connections whereby said former, folding and pressing mechanisms are automatically and successively operated by said motor at regular and approximately-uniform intervals, substantially as described.

660,329. LETTER-BOX. ANDREW L. HENRY, Ladoga, Ind. Filed Aug. 4, 1900. Serial No. 25,917. (No model.)



Claim.—1. A mail-box comprising two compartments one of which is provided with an ordinary door adapted to be independently locked and the other of which consists of a receptacle adapted to be pulled out but provided with means whereby it is prevented from being entirely separated from the box and adapted when pushed in to be rotated whereby its contents can be dumped into the bottom of the box, said drawer also being adapted to be secured by an independent lock.

2. The combination, in a mail-box, of the box proper, a cylindrical structure mounted therein adapted to be pulled out and pushed in after the manner of a drawer, flanges constituting the drawer-slides, the flanges upon one side being of such length that when the drawer is pushed in completely they will pass each other, whereby said structure is adapted to be rotated, substantially as set forth.

3. The combination, in a mail-box, of the main box structure, a door thereto, a drawer positioned above said door and adapted to be independently locked, said drawer being pivotally mounted whereby it is adapted to be rotated, and a strike whereby excessive rotation of the same is prevented.

4. The combination, in a mail-box, of the box proper provided with a door, a rotatable drawer mounted therein above said door and adapted to be independently locked, said rotatable drawer being provided with an arm, as *a*, whereby it is sustained in position and excessive tipping prevented, substantially as set forth.

5. The combination of a box provided with a door, a rotatable sliding-drawer structure therein, said door and said structure being adapted to be independently locked, and said rotatable structure having a slit in its end through which mail may be inserted after the same is locked, and a hood over said slit, substantially as set forth.

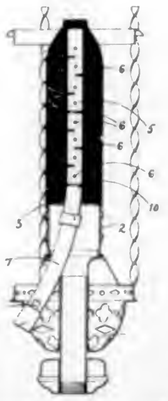
6. A mail-box, the bottom portion whereof constitutes a main receiving-compartment the same being provided with an ordinary door, and a receiving and delivering compartment slidably and rotatably mounted in the upper portion of said box adapted to discharge mail into the main compartment in delivering, and to receive and hold mail for collection, substantially as set forth.

7. The combination, in a mail-box, of the main box structure containing a suitable ordinary drawer-support along one side and a short drawer-support along the other side, and a rotatable drawer mounted on said supports which support said drawer in right-side-up position when pulled out but permit the rotation thereof when pushed in, substantially as and for the purposes set forth.

660,330. MANTLE-SUPPORT. GEORGE O. MILLER, North Tonawanda, N. Y. Filed June 12, 1899. Serial No. 720,152. (No model.)

Claim.—1. A gas-burner comprising a body, a mantle-support, an incandescent mantle mounted upon said support; said support being tubular in form and having its upper portion extending into the interior of the mantle and provided with perforations through which air escapes above the burner-body and its lower portion curving through the body and a regulating device upon the lower exterior end of the support, as set forth.

2. A gas-burner comprising a body, a mantle-support and an incandescent mantle mounted upon said support; said support being tubular in form and extending into the interior of the mantle and having perforations through which air escapes above the burner-body and an exterior device for regulating and controlling the admission of air to said tube, as set forth.



3. A gas-burner comprising a body, a lower tube mounted in said body with the lower end extending below and curving outwardly through the exterior of the body and its upper end extending above, an upper tube provided with openings or perforations and having its lower end mounted on the upper extreme of the lower tube, a mantle placed around and supported upon the upper tube and a regulating device mounted upon the lower end of the lower tube, as set forth.

4. A gas-burner comprising a body, a tubular center mantle-support having perforations, a supplementary mantle of closely-woven refractory material encircling said support, a main mantle of larger circumference mounted upon the support and encircling said support and the supplementary mantle and a device for regulating the admission of air to said tubular center mantle-support.

5. A gas-burner comprising a body, a lower tube mounted in said body with its upper end extending above and its lower end projecting below and having a slot or opening, a cap mounted upon the lower end and longitudinally adjustable thereon to close or partially close the slot or opening.

6. The combination with a heating-burner and an incandescent mantle or hood heated therefrom, of a tubular support for said mantle or hood located centrally therein and extending throughout the entire length thereof, and means for preventing the overheating of said support, substantially as set forth.

7. The combination with a heating-burner and an incandescent mantle or hood heated therefrom, of a perforated tubular support for said mantle or hood located centrally therein and extending throughout the entire length thereof, and means affording air circulation through said tubular support for preventing overheating of said support, substantially as set forth.

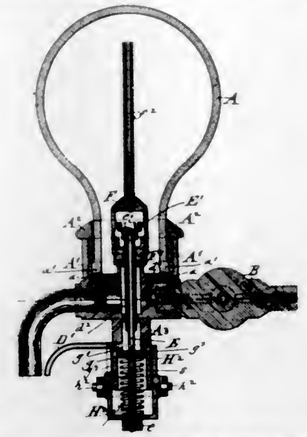
8. The combination with a heating-burner and an incandescent mantle or hood heated therefrom, of a tubular support for said mantle or hood located centrally therein and extending throughout the entire length thereof, with its lower end extending through the burner-body into communication with the surrounding atmosphere.

9. A gas-burner comprising a body, a tubular center mantle-support, a supplementary mantle encircling said support with its upper end upon the top thereof, a main mantle of larger circumference mounted upon the support and encircling said support and the supplementary mantle and means for preventing overheating of said support.

10. A gas-burner comprising a body, a supplementary mantle, a main mantle loosely encircling the supplementary mantle and a tubular mantle-support located centrally within the supplementary mantle and extending throughout its length; the lower end of the support extending into communication with the surrounding atmosphere, as set forth.

660,331. DEVICE FOR DRAWING EFFERVESCENT LIQUIDS. JOHN NAGELDINGER, New York, N. Y. Filed May 12, 1900. Serial No. 16,410. (No model.)

Claim.—1. The combination, of a pressure-relieving chamber, a socket for supporting the same, said socket being provided with a liquid-supply channel and a liquid-discharge channel, a valved liquid-supply pipe connected with the supply-channel, a valve-chamber in said pressure-relieving chamber provided with a discharge-tube, a liquid-discharge valve at the lower end of said valve-chamber, a gas-relief valve in said valve-chamber, a spring-actuated spindle having longitudinal and transverse openings, connected with the gas-relief valve and means for successively operating the liquid-supply valve, the gas-relief valve and liquid-discharge valve, substantially as set forth.



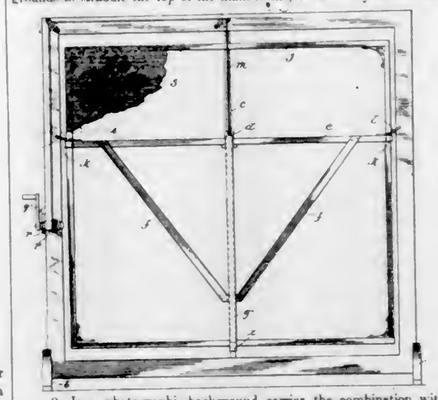
2. The combination, of a pressure-relieving chamber, a socket for supporting the neck of said chamber, said socket being provided with a liquid-supply channel and a liquid-discharge channel, a valved liquid-supply pipe, connected with the supply-channel, a valve-chamber in said pressure-relieving chamber provided with a gas-relief tube, a liquid-discharge valve at the lower end of said valve-chamber, a gas-relief valve in the valve-chamber, a spring-actuated spindle having a longitudinal bore and transverse openings, attached to said relief-valve, a liquid-discharge spout, a gas-relief spout on the neck of the supporting-sockets and means for successively operating the liquid-supply valve, gas-relief valve and liquid-discharge valve, substantially as set forth.

3. The combination, with a pressure-relieving valve, a socket for supporting the same, said socket being provided with a liquid-supply channel and a liquid-discharge channel, a valved liquid-supply pipe connected with the liquid-supply channel of the socket, a liquid-discharge valve for opening or closing the liquid-discharge channel, a valve-chamber above the liquid-discharge valve, a gas-discharge tube extending from said valve-chamber to the upper part of the pressure-relieving chamber, a gas-relief valve in said valve-chamber, a spring-actuated spindle attached to the gas-discharge valve, the spindle being provided with a longitudinal bore and openings at the upper and lower ends of said bore connecting the valve-chamber and the gas-relief channel, a stationary handle on the sockets, a fulcrumed handle on the valve supply-pipe, and a fulcrumed auxiliary handle connected with the valve-operating spindle, so as to first supply the pressure-relieving chamber with liquid, then blow off the surplus gas in the same, establish atmospheric pressure in the pressure-relieving chamber and then discharge the carbonated liquid from the same, substantially as set forth.

4. The combination, of a pressure-relieving chamber, a socket for the same, said socket being provided with a liquid-supply channel and a liquid-discharge channel, a valved liquid-supply pipe connected with the supply-channel, a discharge-spout connected with the liquid-discharge channel, a liquid-discharge valve for the liquid-discharge channel, a valve-chamber in the pressure-relieving chamber, a gas-relief valve in the same, a spring-actuated spindle connected with the gas-relief valve, a gas-discharge tube at the apex of the valve-chamber connecting the upper end of the valve-chamber with the upper part of the pressure-relieving chamber, a liquid-discharge spout on the neck of the socket, a gas-discharge spout also on the neck of the socket, communicating with a longitudinal bore and openings in the valve-spindle, a sliding casing in the neck of the socket, a stationary handle on the socket, a handle below said stationary handle fulcrumed to the casing of the valve-spindle and a handle for operating the supply-valve of the liquid-supply pipe, so that by successively operating the handles of the liquid supply and discharge valves, the pressure-relieving chamber is filled with carbonated liquid, relieved of its surplus gas and the liquid then discharged, substantially as set forth.

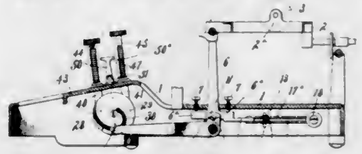
660,332. PHOTOGRAPHIC-BACKGROUND CARRIER. JOHN F. NEWELL, Chicago, Ill., assignor to James H. Smith, same place. Filed Jan. 16, 1899. Serial No. 702,310. (No model.)

Claim.—1. In a photographic-background carrier, the combination with a stationary frame having a central vertical guide-post, of an inner revoluble supplemental frame fitted to slide up and down upon said guide-post, a suspending-cord trained over a pulley at the top of said guide-post, removably-adjustable background-frames, and means upon said suspended frame for supporting said background-frames upon opposite sides of the main frame and normally parallel therewith, whereby said supplemental frame when lowered may be rotated with the backgrounds while supported by the suspending-cord and raised to permit the backgrounds to straddle the top of the main frame, substantially as described.



2. In a photographic-background carrier, the combination with a stationary rectangular frame having a central vertical guide-post extending from the top to the bottom thereof, of an inner revoluble supplemental frame fitted to slide up and down upon said guide-post, removably-adjustable backgrouud-frames, means upon said supplemental frames for supporting said background-frames upon opposite sides of the main frame and normally parallel therewith, whereby said supplemental frames are free to be raised above the top of said main frame when parallel therewith, catches *l*, suspending-cord *m* trained over pulleys at the top of the main frame, and a crank and windlass for winding and unwinding said cord, substantially as described.

660,333. CARRIAGE-SHIFTING DEVICE. HALBERT E. PAYNE, New York, N. Y. Filed Jan. 21, 1899. Serial No. 702,933. (No model.)



Claim.—1. In a type-writing machine, the combination of a shiftable carriage, the carriage supporting and guiding devices, a carriage-shifting arm suitably connected with the carriage, an oscillatory cam engaging the carriage-shifting arm, and adapted thereby to move the carriage in either direction, and shift-keys constructed and arranged to operate the cam, substantially as set forth.

2. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm suitably connected with the carriage, a spiral cam engaging the shifting-arm, and shift-keys operating the cam, substantially as set forth.

3. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a shifting-cam engaging said arm and formed with a central locking portion and oppositely-extending shifting portions, said cam being capable of locking the carriage in central position and shifting it either forward or backward, and shift-keys operating the cam, substantially as set forth.

4. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a spiral cam formed with a central concentric portion, said cam engaging the shifting-arm and the central concentric portion normally locking the shifting-arm in central position, and shift-keys operating the cam, substantially as set forth.

5. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a centering-spring, an adjustable centering-stop for determining the normal central position of rest of the carriage, a cam engaging the shifting-arm, and shift-keys operating the cam, substantially as set forth.

6. In a type-writing machine, the combination of a shiftable carriage

a shifting-arm connected with the carriage, a centering-spring, an adjustable centering-stop engaging and controlling the centering-spring and determining the normal central position of rest of the carriage, a cam engaging the shifting-arm, and shift-keys operating the cam, substantially as set forth.

7. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a disk formed with a spiral cam-groove, a part on the shifting-arm engaging said cam-groove, and shift-keys operating the cam-disk, substantially as set forth.

8. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a cam device engaging the shifting-arm, a gear connected with the shifting-cam, and shift-keys provided with racks adapted to engage the gear, substantially as set forth.

9. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a shifting-cam engaging the arm, a gear secured to the cam, and shift-keys provided with mutilated racks adapted to operate the gear, each of said shift-key racks having a tooth which engages the gear and prevents movement of the gear in one direction, substantially as set forth.

10. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, a shifting-cam engaging the shifting-arm, a gear secured to the shifting-cam, and a pair of shift-keys provided with racks having cut-away portions, each of said shift-keys being adapted to move the gear and cam in one direction when depressed and prevent movement in the same direction when in elevated position, substantially as set forth.

11. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm connected with the carriage, and means for operating the shifting-arm including a cam device and a pair of shift-keys, each of the shift-keys being adapted to move the cam device in one direction and lock it against movement in the same direction, substantially as and for the purpose set forth.

12. In a type-writing machine, the combination of a shiftable carriage, a shifting-arm suitably connected with the carriage, a cam engaging the shifting-arm, means for adjusting the shifting-arm with relation to the carriage, and shift-keys adapted to operate the cam, substantially as set forth.

660,334. STRIPPER FOR PUNCHES. FREDERIC A. PERSO, Philadelphia, Pa. Filed Mar. 9, 1900. Serial No. 7,970. (No model.)

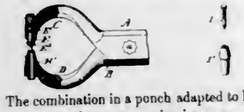


Claim.—1. A detachable stripper for hand plate-punches consisting of a base having an opening through which the jaw of a punch may pass, means other than said base for engaging said jaw for detachably holding the attachment in place, and a stripper-tongue, substantially as and for the purpose set forth.

2. A detachable stripper for hand plate-punches, consisting of the base having an opening through which the jaw of a punch may pass, a brace-arm for engaging said punch-jaw, and a stripper-tongue, substantially as and for the purpose set forth.

3. A detachable stripper for hand plate-punches consisting of a base, a curved arm connected to said base and extended to form a bifurcated stripper-tongue, and a brace-arm for engaging the jaw of a punch and located between said base and said stripper-tongue, substantially as and for the purpose set forth.

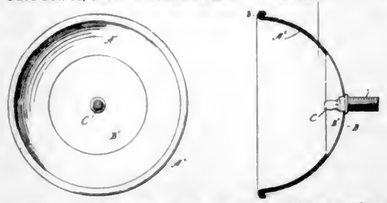
660,335. PUNCH. FREDERIC A. PERSO, Philadelphia, Pa. Filed Mar. 9, 1900. Serial No. 7,971. (No model.)



Claim.—1. The combination in a punch adapted to hold detachable or interchangeable tools, of the two opposite jaws or members each of which is provided with a socket or seat in alinement one with the other, a tubular tool-holder having adjustable connection with the socket or seat of one of said jaws, a tool adapted to be removably held by said tool-holder, means for securing said tool-holder in any position to which it may be adjusted, and another tool held in the socket or seat of the opposite jaw, whereby the first-mentioned tool may be adjusted toward or away from the opposing tool and firmly locked in position, substantially as described.

2. The combination in a hand plate-punch provided with detachable or interchangeable tools, of a jaw having an internally-threaded seat, a tubular tool-holder having an exteriorly-threaded portion for screwing into said seat, a headed tool adapted to fit in said tool-holder, and a set-screw or plug for screwing into said seat for locking said tool-holder and tool in place, substantially as and for the purpose described.

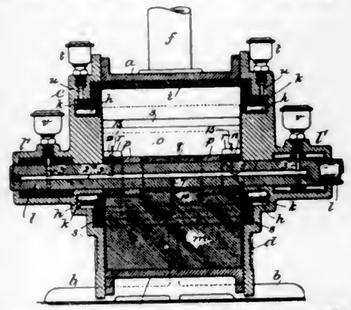
660,336. COMPOSITE REFLECTOR. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Dec. 11, 1899. Serial No. 739,860. (No model.)



Claim.—1. In a composite reflector, the combination with a sheet-metal cup-like body having the inner portion of its inner surface adapted to collect light, of a sheet-metal cup-like ring shaped to set within the outer portion of the said cup-like body, having its inner surface provided with a non-metallic, light-diffusing surface, and adapted to be secured to the said body by its outer edge and therefore independently of its inner edge, whereby the line of demarcation between the light-collecting and light-diffusing surfaces of the reflector is reduced to the simplest form.

2. In a composite reflector, the combination with a sheet-metal cup-like body, having the inner portion of its inner surface adapted to collect light, of a sheet-metal cup-like ring shaped to set within the outer portion of the said cup-like body, having its outer edge constructed with a flange by means of which it is connected with the edge of the said cup-like body, and having its inner face provided with a non-metallic light-diffusing surface, whereby the line of demarcation between the light-collecting and light-diffusing surfaces of the reflector is reduced to the simplest form.

660,337. ROTARY BLOWER. EDWARD P. REICHHELM, Bayonne, N. J. Filed June 24, 1899. Serial No. 721,718. (No model.)



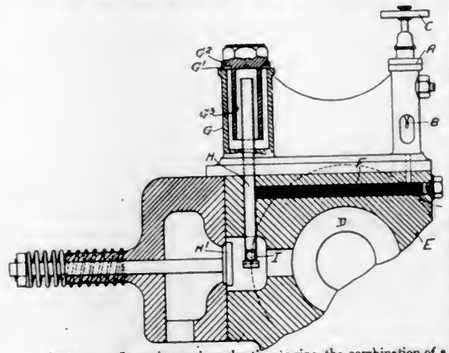
Claim.—1. In a rotary blower, a main shaft passing centrally through the case, bearings therefor in opposite heads of the case, a piston within the case placed eccentric to the driving-shaft and having laterally-projecting heads, runways formed in annular recesses in the inner faces of the heads of the case and rollers therein forming bearings between the respective heads of the eccentric piston and the heads of the case, substantially as set forth.

2. In a rotary blower, a main shaft passing centrally through the case, bearings therefor in opposite heads of the case, a piston within the case placed eccentric to the driving-shaft and having laterally-projecting heads, runways formed in annular recesses in the inner faces of the heads of the case and rollers therein forming bearings between the respective heads of the eccentric piston and the heads of the case, circular oscillating joints passing through the said eccentric piston at equal distances apart, fan-blades passing through said joints sleeves connected to said fan-blades and mounted on the main driving-shaft, one of said sleeves being permanently connected to the shaft for transmitting the power of the shaft through the fan-blade to rotate the eccentric piston, substantially as set forth.

3. In a rotary blower, a main shaft passing centrally through the case, bearings therefor in opposite heads of the case, a piston within the case placed eccentric to the driving-shaft and having laterally-projecting heads, bearings for the eccentric piston, circular oscillating joints passing through the said eccentric piston at equal distances apart, fan-blades passing through said joints, sleeves connected to said fan-blades and mounted on the main driving-shaft, one of said sleeves being permanently connected to the shaft for transmitting the power of the shaft through the fan-blade to rotate the eccentric piston, substantially as set forth.

4. In a rotary blower, the combination with a main driving-shaft passing through the blower, suitable bearings in the heads in which the same is mounted, a piston having laterally-projecting heads within the case mounted eccentric to the shaft and suitable bearings therefor, oscillating joints placed at equal distances apart through the eccentric piston, fan-blades passing through said joints, sleeves to which the fan-blades are connected mounted upon said shaft, said main shaft having a longitudinal hole through the center and transverse holes at the ends for supplying oil from suitable cups and also having transverse holes through the shaft at the places where the respective sleeves are mounted thereon, the said sleeves and blades having holes therein in line with the transverse holes of the shaft and having lateral holes at the ends of the direct holes and the oscillating joints having transverse holes and channels and the eccentric piston having channels longitudinally and outside of the said joints whereby the oil for lubricating the joints passes through the center hole of the main shaft and is communicated through the various transverse holes to the surfaces of the fan-blades and the surfaces of the oscillating joints to lubricate the parts, substantially as set forth.

660,338. PETROLEUM OR LIKE INTERNAL-COMBUSTION ENGINE. GEORGE H. ROGERS, Pretoria, South African Republic. Filed July 7, 1899. Serial No. 723,067. (No model.)



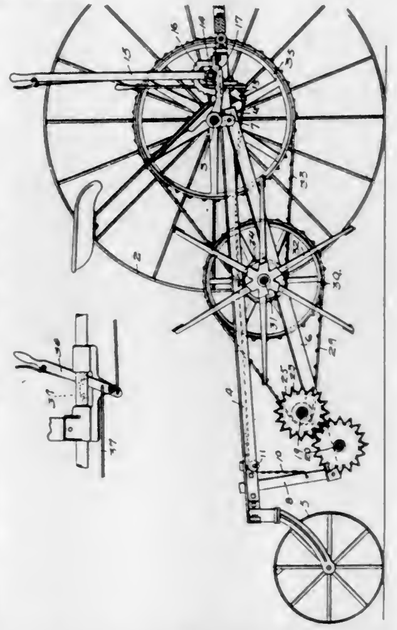
Claim.—1. In an internal-combustion engine, the combination of a cylinder, a piston therein, a combustion-chamber, an inlet-passage for liquid fuel, a passage communicating with the inlet in which the fuel is gasified, a passage leading therefrom to the combustion-chamber, a tortuous passage also extending therefrom to a safety or pressure-regulating outlet G', an exhaust valve, a shaft, a loose cam thereon and a governor operating said cam and delaying closing of the exhaust-valve during a variable portion of the induction-stroke.

2. In an internal-combustion engine, the combination of a cylinder, a piston therein, a combustion-chamber, an inlet-passage for liquid fuel, a passage communicating with the inlet in which the fuel is gasified, a roll of gauze therein, a passage leading therefrom to the combustion-chamber, an automatic valve therein opened by the induction-stroke of the engine, a tortuous passage also extending therefrom to a safety or pressure regulating outlet G', an exhaust-valve, a shaft, a loose cam thereon and a governor operating said cam and delaying closing of the exhaust-valve during a variable portion of the induction-stroke.

3. In an internal-combustion engine, the combination of a cylinder, combustion-chamber, air-inlet valve H', piston, fuel-inlet valve A, a passage controlled thereby, a wire-gauze roll F therein, tube H extending in one direction to the combustion-chamber, valve I therein, said tube communicating also by a tortuous passage with an outlet G' to the air, whereby a uniform pressure of the ignition charge is obtained, an igniting device, an exhaust-valve, a governor and devices operated thereby to control the exhaust-valve and igniting device.

660,339. WEED-PULLER. RICHARD RUSSELL, Stephen, Minn. Filed Nov. 27, 1899. Serial No. 738,257. (No model.)

Claim.—1. In a machine of the class described, the combination, with an axle and its wheels, of a frame supported thereon, caster-wheels provided at the rear end of said frame, the bars 6 pivotally supported on said axle and forming a pivoted frame, guide-links provided at the rear of said bars slidable in guides on said machine-frame, rolls carried by said bars, and means for revolving the same, and means for raising and lowering the rear ends of said bars to elevate or depress said rolls, substantially as described.



2. In a machine of the class described, the combination, with a wheeled frame, of a pivoted auxiliary frame supported beneath said wheeled frame, guides for the rear end of said auxiliary frame, means for raising or lowering the rear ends of said auxiliary frame, a roll mounted in fixed bearings on said auxiliary frame, a reel in advance of said roll, means for driving said reel and said roll, a second roll supported in swinging bearings in the rear of said first-named roll, both of said rolls having corrugated surfaces, and means for holding the rear roll in yielding contact with the forward roll, whereby it is driven by the revolution of said forward roll, substantially as described.

3. In a machine of the class described, two rolls having coacting corrugated surfaces and each roll comprising a series of toothed disks arranged at intervals upon a shaft, said teeth having slotted bases and metal sections triangular in cross-section, having inwardly-turned edges to enter the slots in the bases of said teeth and be locked therein by engagement with the adjoining sections and said sections together forming the corrugated surfaces of said rolls, substantially as described.

4. A roll for weed-pulling machines, comprising a shaft, a series of disks secured at intervals thereon, said disks having toothed peripheries provided with slots in their bases, and metal sections triangular in cross-section having their edges inwardly turned to enter said slots, the base of each section being in engagement with the bases of the adjoining sections, whereby the edges of each section are locked in the slots against lateral movement, substantially as described.

5. A corrugated roll for weed-pulling machines, comprising a shaft, a series of disks mounted at intervals thereon, said disks having toothed or corrugated peripheries, and metal sections substantially triangular in cross-section fitting the teeth of said disk and removably secured over the same, substantially as described.

6. In a machine of the class described, the combination, with an axle and its wheels, of a frame supported at its forward end thereon, caster-wheels supporting the rear end of said frame, an auxiliary frame supported at its forward end on said axle and extending back beneath said first-named frame, means within control of the operator on the machine for raising and lowering the rear end of said auxiliary frame, rolls mounted in bearings near the rear end of said auxiliary frame, one of said rolls being connected with the axle-wheels to be driven thereby and the other roll but yieldingly mounted and having its surface in contact with the surface of said first-named roll, whereby said second roll is driven also, substantially as described.

7. In a machine of the class described, the combination, with an axle and its wheels, of a frame supported at its forward end thereon, suitable means supporting the rear end of said frame, an auxiliary frame pivotally supported at its forward end on said axle and extending back beneath said first-named frame, means within control of the operator on the machine for raising or lowering said auxiliary frame, a roll mounted in bearings on said auxiliary frame and having a series of corrugations in its surface and driven from said axle-wheels, a second roll also mounted in bearings on said auxiliary frame and having a series of corrugations in its surface in engagement with the corrugations of said first-named roll, whereby said second-named roll is driven by the revolution of said first-named roll, substantially as described.

8. In a machine of the class described, the combination, with an axle and its wheels, of a frame supported at its forward end thereon, means supporting the rear end of said frame, an auxiliary frame pivotally supported at its forward end on said axle and extending beneath said machine-frame, a reel mounted in bearings on said auxiliary frame and connected with the axle-wheels to be driven thereby, a roll mounted in bearings on said auxiliary frame in the rear of said reel, means connecting said roll and said reel, whereby said roll is driven by the operation of said reel, and a second roll mounted in yielding bearings on said auxiliary frame in the rear of said first-named roll and having its peripheral surface in contact with the surface of said first-named roll, whereby said rolls are operated, simultaneously, substantially as described.

9. In a machine of the class described, the combination, with a wheeled frame, of an auxiliary frame pivotally supported and extending back beneath said wheeled frame, rolls having corrugated surfaces mounted in bearings near the rear end of said auxiliary frame, a reel mounted in said auxiliary frame in front of said rolls, means connecting said rolls and said reel with the axle-wheels, and means within control of the operator stationed on the machine for raising or lowering the rear end of said auxiliary frame to adjust said rolls and reel at different heights from the ground, substantially as described.

660,340. SAFETY CUT-OUT FOR ELECTRIC CIRCUITS. JOSEPH SACHS, Hartford, Conn. Filed July 10, 1899. Serial No. 723,279. (No model.)



Claim.—1. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of such casing, and means connected with said opening for effecting a discoloration of the walls of the opening for visually indicating the disrupted condition of the fuse-wire, substantially as set forth.

2. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of such casing, and means connected with said opening adapted to be disrupted for thus visually indicating the condition of the fuse-wire, and a means for closing the ends of the tubular casing so that the disruption of the fuse-wire will be manifested at the opening in the side of the casing, substantially as set forth.

3. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of such casing, and means connected with said opening for effecting a discoloration of the walls of the opening for visually indicating the disrupted condition of the fuse-wire, and a filling material inside the tubular casing and between the fuse-wire and the inner walls thereof, substantially as set forth.

4. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of the casing, and a covering to said opening upon the outer surface of the tubular casing arranged to be disrupted by and with the disruption of the fuse-wire, so that said disruption may be visually indicated, substantially as set forth.

5. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of the casing, and means connected with the said opening for visually indicating the disrupted condition of the fuse-wire, means for closing the ends of the casing and holding the fuse-wire in a permanently-fixed position, terminals projecting from the fuse-wire through the ends of the casing, and flat contact-blades connected thereto on each side of the casing at or near the ends, but not projecting beyond the ends of the casing, and stationary clips and an insulating-base on which the same are mounted for receiving the said flat blades, substantially as specified.

6. The combination in a safety-fuse for electric devices with the fuse-wire, of a tubular casing entirely surrounding and inclosing such fuse-wire and having an opening through the side of such casing, and means connected with said opening for visually indicating the disrupted condition of the fuse-wire, closed ends for said casing which engage and hold the fuse-wire in approximately a central position, and parallel flat contact-blades on each side of the casing at or near the respective closed ends to which the fuse-wire is connected, substantially as set forth.

7. The combination in a safety cut-out with a base and rigid holders secured thereon and conductors extending therefrom, of a tubular case, a fusible strip passing longitudinally therethrough and a non-conducting filling material within the case, end caps to the said case and sheet-metal ends to the said caps each formed from pieces having three faces at right angles and an end piece connected to the caps and adapted to spring into engagement with the rigid holders of the base and to be removable therefrom, substantially as set forth.

8. The combination in a safety cut-out with a base and rigid holders secured thereon and conductors extending therefrom, of a tubular case, a fusible strip passing longitudinally therethrough and a non-conducting filling material within the case, end closures to the said case and sheet-metal ends to said closures forming flat spring-blades at each side of the casing adapted to spring into engagement with the rigid holders of the base and to be removable therefrom, substantially as set forth.

9. A safety-fuse having a metallic strip adapted to be disrupted by an excess of electric current, in combination with a tubular inclosing casing having a hole through the side at about the middle of its length and a filling material entirely surrounding the fusible strip, and ends or caps covering and secured to the casing and confining the filling material and a material closing the mouth of said hole that is disrupted with the fusible strip so as to give a visual surface indication that the safety-fuse has been destroyed, substantially as set forth.

10. A safety-fuse having a metallic strip adapted to be disrupted by an excess of electric current, in combination with a tubular inclosing casing having a hole through the side at about the middle of its length and a filling material surrounding the fusible strip but not entirely filling the central portion of the case, and ends or caps covering and secured to the casing and confining the filling material and a material closing the mouth of said hole that is disrupted with the fusible strip so as to give a visual surface indication that the safety-fuse has been destroyed, and devices secured to the ends of the fusible strip and adapted for connection with circuit-engaging devices, substantially as set forth.

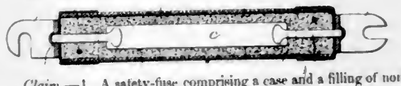
11. The combination with a fusible conductor, of a surrounding casing and end closures therefor, terminals to the conductor at or near the ends of the casing, flat blades on each side of the casing at or near the ends and stationary clips adapted to receive the flat blades and a base for holding the same, substantially as specified.

12. The combination with a fusible conductor, of the surrounding casing and the end closures therefor, terminals to the conductor at or near the ends of the casing, flat blades at each side of the casing at or near but not projecting beyond the ends and stationary clips and a base for holding the same, substantially as specified.

13. The combination with a fusible conductor, of the surrounding casing and means for closing the ends of the casing, flat blade-contacts on each side of the casing at or near but not projecting beyond the ends thereof electrically connected to the respective ends of the fusible conductor, and stationary clips into which the flat blades are received, and a base for holding the same, substantially as specified.

14. The combination with a fusible conductor, of the surrounding casing, flat contact-blades on each side of the casing at or near but not projecting beyond the ends thereof electrically connected to the respective ends of the fusible conductor and stationary clips into which the flat blades are received and a base for holding the same, substantially as specified.

660,341. SAFETY-FUSE. JOSEPH SACHS, Hartford, Conn. Filed Nov. 24, 1899. Serial No. 738,119. (No model.)



Claim.—1. A safety-fuse comprising a case and a filling of non-conducting material and a fuse-strip therein of thin flat metal of extended area, substantially as and for the purposes set forth.

2. The combination in a safety-fuse with a tubular case and a non-conducting filling material, of end terminals within the case of relatively ample conductivity, and a fuse-strip of thin flat metal of extended area connected to and between the said terminals, substantially as and for the purposes set forth.

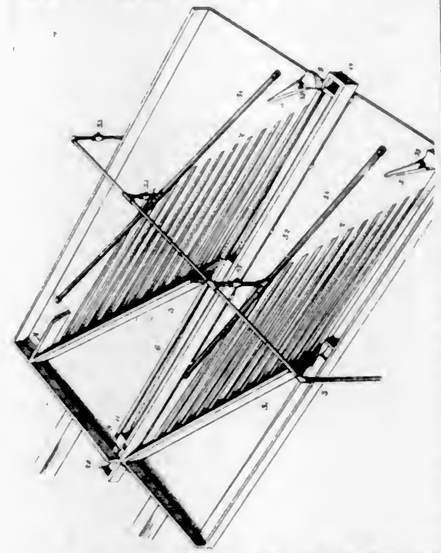
3. The combination in a safety-fuse with a tubular case and a non-conducting filling material, of end terminals within the case of relatively large area and ample conductivity, and a fuse-strip of thin flat metal of extended area connected to and extending between the said terminals, metal ends to the case and through which the terminals pass, and external terminals or connections outside of the said ends and connected to the inner terminals, substantially as and for the purposes set forth.

4. The combination in a safety-fuse with a tubular case and a filling of non-conducting material, of a fuse and terminals within and extending through the case, the fuse being of thin flat metal of extended area with the ends thereof wider than the central portion, substantially as and for the purposes set forth.

5. A safety-fuse comprising a case and a filling of non-conducting material and a single flat fuse-strip therein, of thin metal of extended area and maximum contact with the filling material and terminals at the ends of the fuse-strip and case, substantially as set forth.

6. The combination in a safety-fuse with a tubular case and ends for closing the same and a non-conducting filling within the same, of a thin fine fuse in a flat plane consisting of a rapidly-oxidizing metal and terminals of relatively better conductivity connected to the respective ends of the flat fuse at the ends of the case, substantially as and for the purposes set forth.

660,342. ORE-SEPARATOR. JONATHAN P. SMITH, Denver, Colo., assignor of one-half to Alexander H. B. Harenc and John A. Lehrritter, Salida, Colo. Filed Jan. 2, 1900. Serial No. 60. (No model.)



Claim.—1. In an ore-separator, inclined tables having the longitudinally-disposed guides, the diagonally-disposed slime-conveyers arranged with reference to the guides as shown, and an independent return-conveyer.

2. An ore-separator consisting of an inclined shaking-table having longitudinally-disposed guides terminating at points in a diagonal line across the table, a turnable separating-point pivoted upon the table beyond the guides, and a diagonally-disposed slime-conveyer having a screen surface or covering.

3. In an ore-separator, a transversely-inclined shaking-table having longitudinally-fixed guides terminating successively upon a line diagonal to the table, a turnable separating-point pivoted upon the table near the end of the lowermost guides, a screen-covered slime-conveyer, and a return-conveyer which receives the pulp substantially as described.

4. In an ore-separator, a plurality of shaking-tables having longitudinally-disposed parallel guides, the terminal ends of which are in a line diagonally across the table, a movable separating-point pivoted upon the table near the lowermost of said guides, a diagonally-disposed slime-conveyer having a screen-covering, a return-conveyer into which the pulp is discharged, having a motion the reverse of that of the table, and discharging upon the upper end of the second table.

5. In an ore-separator, a plurality of tables having longitudinally-disposed parallel guides and turnable separating-points at the ends of the tables, diagonally-placed screen-covered slime-conveyers, a return-conveyer intermediate of the two tables receiving from the uppermost at one end and discharging upon the lowermost at the opposite end, and mechanism by which the tables are given a longitudinal shaking movement.

6. The combination with tables having longitudinal guides, diagonally-disposed screen-covered slime-conveyers and a return-conveyer, of a mechanism whereby a longitudinal shaking movement is effected, said mechanism consisting of a horizontal revoluble shaft having a disk cam carried thereby, a guided shaft subtantially in line with the first-named shaft and upon the end of which the cam operates whereby motion is transmitted to the table, and return-springs connected therewith.

7. A mechanism for producing a longitudinal shaking movement of an ore-separating table, consisting of a horizontal rotary shaft, a disk cam fixed to one end of said shaft and revoluble therewith, a longitudinally-guided slidable shaft, one end of which is acted upon by the cam-disk, springs surrounding said slidable shaft with plates whereby the springs are compressed by the movement of the shaft in one direction, and act to return the shaft when the cam passes it, and means including an externally-threaded sleeve surrounding the shaft, a slotted bed and a hand-wheel engaging the threads of the sleeve and working against the walls of the slot for adjusting the shaft with relation to the cam-disk so as to increase or diminish the length of the stroke.

8. In an ore-separator, transversely-inclined tables having longitudinally-disposed guides, diagonal slime-conveyers extending across the tables near the receiving ends of the guides, an independent return-conveyer suspended to receive the slimes from the conveyer of the first table, and the heavier portions from the discharge end, and to transmit them separately to the second table.

9. In an ore-separator, transversely-inclined tables with longitudinally-disposed guides, slime-conveyers arranged diagonally to the guides and an intermediate return-conveyer, and mechanism by which a gradual forward movment and a quick return movement of the tables are effected.

10. In an ore-separator, transversely-inclined tables with longitudinally-disposed guides, diagonal slime-conveyers, an intermediate independently-supported return-conveyer by which the slimes and the heavier separated material are transferred independently from the first to the second table, and a mechanism consisting of a cam by which a forward movement of the tables is effected, a return-spring, and a second spring interposed between said mechanism and the table, said spring yielding when the tables are advanced to produce a gradual forward movement without disturbing the pulp.

11. In an ore-separator, transversely-inclined tables with longitudinally-disposed guides, diagonally-disposed slime-conveyers, an intermediate return-conveyer by which the slimes and the heavier separated material are transferred from the first to the second table, a mechanism consisting of an advancing cam and a return-spring by which the tables and conveyer are reciprocated, a second spring interposed between said mechanism and the tables, and compressible by the inertia of the tables during their forward movement, and a plane section of the cam just previous to the offset which allows the return movement of the tables, whereby the forward movement of the tables ceases and the second spring is allowed to expand just before the return of the tables.

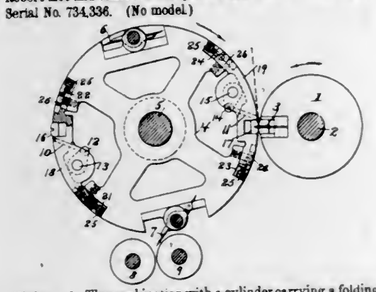
12. In an ore-separator, transversely-inclined tables with longitudinally-disposed guides, diagonal slime-conveyers, an intermediate independently-supported return-conveyer by which the slimes and heavier separated material are transferred from the first to the second table, a mechanism consisting of an advancing cam, and a return-spring by which the tables and the return-conveyer are reciprocated, and springs interposed between the return-conveyer and its support carried by the tables, said springs yielding during the return movement of the tables, and expanding after said movement is completed to produce a subsequent movement of the return-conveyer.

13. In an ore-separator, transversely-inclined tables with longitudinal guides, diagonal slime-conveyers, and a return-conveyer adapted to receive the slimes and heavier substances and transfer them separately to the second table, said conveyer being independently supported with relation to the tables, a cam and return-spring whereby the tables are reciprocated and the material advanced in one direction thereon, and other springs acting against the conveyer whereby an impulse is given it to move the material carried by it in a direction opposite to the movement of material upon the tables.

14. An ore-separator consisting of transversely-inclined tables with longitudinal guides, diagonal slime-conveyers, and a return-conveyer intermediate between the two tables, and a reciprocating mechanism, in combination with a supporting device and mechanism whereby the angle of inclination of the tables may be adjusted.

15. An ore-separator consisting of transversely-inclined tables with longitudinal guides, slime-conveyers arranged diagonally to the guides, and a return-conveyer intermediate between the two tables, and a reciprocating mechanism, in combination with an adjusting device consisting of transverse shafts with eccentrics connected with the table, pinions upon the shafts, and a rack-bar engaging the pinions, whereby the shafts may be turned and the eccentrics act to change the angle of the table.

660,343. ROTARY FOLDING-MACHINE. WILLIAM SPALCKHAVER, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Oct. 21, 1899. Serial No. 734,336. (No model.)



Claim.—1. The combination with a cylinder carrying a folding mechanism and provided with sheet-taking devices, and one member of a cutting mechanism, of means for giving the sheet-taking devices and the member of the cutting mechanism a simultaneous circumferential adjustment with respect to the folding mechanism, substantially as described.

2. The combination with a cylinder carrying a folding-blade and provided with a set of sheet-taking pins and one member of a cutting mechanism, of means for simultaneously adjusting the pins and cutting member with relation to the folding-blade, substantially as described.

3. The combination with a cylinder provided with a folding-blade and having sheet-taking devices and one member of a cutting mechanism, of means for adjusting the member of the cutting mechanism with relation to the folding-blade, substantially as described.

4. The combination with a cylinder carrying a plurality of folding mechanisms, and provided with a plurality of sets of sheet-taking devices and a plurality of cutting members, of means for simultaneously effecting an adjustment between each set of sheet-taking devices and cutting members and its cooperating folding mechanism, substantially as described.

5. The combination with a cylinder provided with a folding-blade, of a plate mounted therein, sheet-taking devices and a cutting member carried by the plate, and means for circumferentially adjusting the plate, substantially as described.

6. The combination with a cylinder provided with a plurality of folding-blades, of a plurality of plates, sheet-taking devices carried by each plate, a cutting member carried by each plate, and means for circumferentially adjusting the plates, substantially as described.

7. The combination with a cylinder provided with a plurality of rotary folding-blades, of a plurality of plates, sheet-taking devices, and a cutting member carried by each plate, and means for circumferentially adjusting the plates, substantially as described.

8. The combination with a cylinder provided with a plurality of folding-blades, of a plurality of plates, a set of sheet-taking pins carried by each plate, a cutting member carried by each plate, and means for circumferentially adjusting the plates, substantially as described.

9. The combination with a cylinder provided with a plurality of rotary folding-blades, of a plurality of plates, a set of sheet-taking pins carried by each plate, a cutting member carried by each plate, and means for circumferentially adjusting the plates, substantially as described.

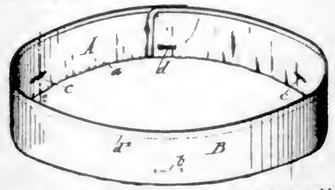
10. The combination with a cylinder provided with a plurality of folding-blades and having recesses therein, of a plurality of segmental plates seated in the recesses, each of said plates carrying sheet-taking pins and a cutting-block, means for circumferentially adjusting each plate, and means for locking each plate in its adjusted position, substantially as described.

11. The combination with a cylinder provided with a plurality of rotary folding-blades and having recesses therein, of a plurality of segmental plates seated in the recesses each of said plates carrying sheet-taking pins and a cutting-block, means for circumferentially adjusting each plate, and means for locking each plate in its adjusted position, substantially as described.

12. The combination with a cylinder provided with a plurality of folding-blades and having a plurality of recesses, of a plurality of segmental plates seated in the recesses, each plate carrying a set of sheet-taking pins and a cutting-block, of two sets of adjusting-screws for each plate, and screws for locking each plate in position, substantially as described.

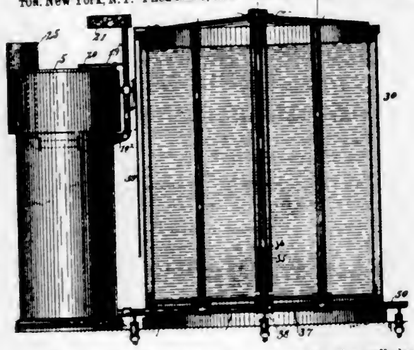
13. The combination with a cylinder provided with a plurality of rotary folding-blades and having a plurality of recesses, of a plurality of segmental plates seated in the recesses, each plate carrying a set of sheet-taking pins and a cutting-block, of two sets of adjusting-screws for each plate, and screws for locking each plate in position, substantially as described.

660,344. APPAREL-COLLAR. HUBERT J. STRATEN, Jersey City, N. J., assignor to Erwin Steinback, New York, N. Y. Filed May 19, 1900. Serial No. 17,283. (No model.)



Claim.—A collar for clergymen, consisting of a neckband and a main band, both bands being free from each other at their lower edges and provided with turned-over upper edges placed adjacent to each other, a line of stitches connecting said turned-over edges, a line of stitches passing through the bodies of the neckband and main band and said turned-over edges, both of said lines of stitches being continued from the upper edge down each end of the collar to the lower edge of the same, front and side buttonholes in the neckband, and buttonholes at the ends of the neck and main bands, the edges of said end buttonholes being connected by stitches passing through both bands, said bands being separable up to said buttonholes, substantially as set forth.

660,345. ACETYLENE-GAS GENERATOR. JAMES F. SWINNERTON, New York, N. Y. Filed Jan. 6, 1899. Serial No. 701,366. (No model.)



Claim.—1. In a gas-generator, the combination of a cylinder for containing carbid, a water-inlet for the same, a tank on said cylinder, through the bottom of which said cylinder extends, a cover for said cylinder, said cover having a downwardly-projecting flange, and a gas-washer in said tank, substantially as described.

2. In a gas-generator, the combination of a cylinder for containing carbid, a water-inlet for the same, a tank on said cylinder, through the bottom of which said cylinder extends, a cover for said cylinder, said cover having a downwardly-projecting flange, said cover having also an annular chamber to contain water, substantially as described.

3. In a gas-generator, the combination of an outer cylinder, a tank on top of same, a gas-washer in said tank, an inner cylinder for containing carbid, said cylinder projecting through the bottom of the tank, a cover for said inner cylinder, said cover having a downwardly-projecting flange whereby the top of the cylinder is sealed, and means for introducing water into the carbid-cylinder, substantially as described.

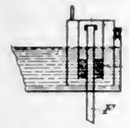
4. The combination of an outer cylinder, a tank on top of same, an inner cylinder for containing carbid, said cylinder projecting through the bottom of the tank, a cover for said inner cylinder, said cover having a downwardly-projecting flange whereby the top of the cylinder is sealed, and means for introducing water into the carbid-cylinder, and a passage connecting the space between the cylinders with the space above the water seal of the cover, substantially as described.

5. In a gas-generator, the combination of the outer cylinder having tank on top of the same, an inner cylinder for containing carbid, said inner cylinder projecting through the bottom of said tank, a cover for said inner cylinder, said cover having a downwardly-projecting flange, said cover having also an annular water-chamber, a valve at the center of the bottom of said cover, and handles on the inner side of said annular chamber.

6. In a gas-generator, the combination of inner and outer cylinders, the inner cylinders adapted to contain carbid, a water-supply pipe connecting with the annular spaces between the cylinders, adapted to supply water to either cylinder, and means to prevent the opening of the cylinder into which water is flowing without positively diverting the flow to the other cylinder, substantially as described.

7. In a gas-generator, the combination of generating-chambers, a water-supply pipe connected thereto, a valve in said pipe adapted to divert the flow to either chamber, a device actuated by said valve for locking the cover of the chamber into which water is flowing, said locking device being so placed that in order to open one chamber the valve must be moved to divert the flow of water into the other chamber, substantially as described.

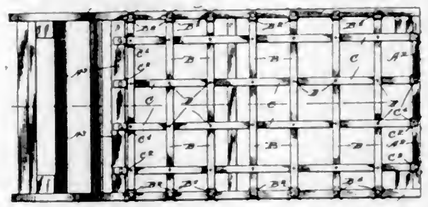
660,346. GAS-WASHER. JAMES F. SWINNERTON, New York, N. Y. Original application filed Jan. 6, 1899, Serial No. 701,366. Divided and this application filed June 28, 1900. Serial No. 21,901. (No model.)



Claim.—1. A gas-washer consisting of a receptacle containing water, a cylinder closed at the top and open at the bottom extending below the level of said water, a tube attached to the top of said cylinder and extending down to near the bottom thereof, the lower part of the sides of said tube being provided with perforations, a gas-inlet tube extending into the said last-mentioned tube to near the top thereof and a gas-outlet from said washer, substantially as described.

2. A gas-washer consisting of a receptacle containing water, a cylinder closed at the top and open at the bottom and extending below the level of said water, a tube attached to the top of said cylinder and extending down to near the bottom thereof, the lower part of the sides of said tube being provided with perforations, a gas-inlet tube extending into the said first-mentioned tube to near the top thereof, and a loose cap on top of said inlet-tube, and a gas-outlet from said washer, substantially as described.

660,347. COUCH. CLARK F. THAYER, Joliet, Ill. Filed Feb. 28, 1900. Serial No. 6,883. (No model.)



Claim.—1. In a bottom for a couch or similar article, in combination, a supporting-frame; flexible pieces for forming said bottom, which pieces are supported upon the top of the supporting-frame and, extending downward on the inner sides of the frame, are drawn taut by means for securing them permanently to each of the inner sides of said supporting-frame; and said securing means.

2. In a bottom for a couch or similar article, in combination, a supporting-frame; flexible pieces for forming said bottom, which pieces are arranged transversely and longitudinally of said couch, the transverse pieces being supported upon the top of the supporting-frame and, extending downward on the inner sides thereof, are drawn taut by means for securing them permanently to each of the inner sides of said supporting-frame; and said securing means.

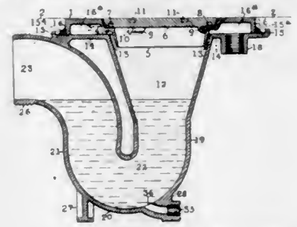
3. In a bottom for a couch or similar article, in combination, a supporting-frame; flexible pieces for forming said bottom, which pieces are arranged transversely and longitudinally of said couch, the transverse pieces being secured near their ends upon the top of the supporting-frame and, extending downward on the inner sides of the supporting-frame, are drawn taut by staples extending through the sides of the supporting-frame; and said staples.

4. In a bottom for a couch or similar article, in combination, a supporting-frame; flexible pieces for forming said bottom, which pieces are arranged transversely and longitudinally of said couch, said longitudinal pieces being supported upon fixed transverse portions of said supporting-frame and, extending downward on the inner sides of said transverse portions, are drawn taut by means for securing them permanently to the inner sides of said transverse portions; and said securing means.

5. In a bottom for a couch or similar article, in combination, a supporting-frame; metallic strips for forming said bottom, which strips are arranged transversely and longitudinally of said couch, said transverse strips being secured to the top of the supporting-frame and, extending downward on the inner sides of the frame, are drawn tant by staples extending through said side portions, and which longitudinal strips are drawn taut in a similar manner; and said staples.

6. In a bottom for a couch or similar article, in combination, a supporting-frame; metallic strips for forming said bottom, which strips are arranged transversely and longitudinally of said couch, said transverse strips being secured near their ends upon the top of the supporting-frame and, extending downward on the inner sides of said supporting-frame, are drawn taut by staples extending through said supporting-frame; staples for said transverse strips and means for securing said longitudinal strips in position, said longitudinal and transverse strips being provided with coinciding openings at the crossing-points of said strips.

660,348. FLOOR CESSPOOL OR DRAIN. JOHN TUCKER, New York, N. Y. Filed May 31, 1900. Serial No. 18,492. (No model.)



Claim.—1. A floor-drain comprising, in combination, a floor-plate, a cover fitted therein, a trap arranged below said floor-plate and cover and extending first downwardly and then upwardly, a horizontal flange upon said trap, a downwardly-turned outer rim upon said floor-plate, the edge of said rim being firmly united to said horizontal flange, and the construction and arrangement being such that an annular chamber is left between said floor-plate and said flange, and means for supplying water to said annular chamber.

2. A floor-drain comprising, in combination, a floor-plate, an inner downwardly-extending stepped flange upon said plate, a cover substantially flush with the upper surface of said plate, and having a yielding packing upon its under side to rest upon said stepped flange, means for binding said cover in its seat so as to prevent the escape of gas, a trap arranged below said floor-plate and cover and constructed to contain a water seal, a horizontal flange upon said trap and attached to said floor-plate, the construction and arrangement being such that a chamber is formed between said floor-plate and said flange, and means for supplying water to said chamber.

3. A floor-drain comprising, in combination, a floor-plate, an inner downwardly-extending stepped flange upon said plate, a cover substantially flush with the upper surface of said plate and having an annular depression in its under side, a gasket arranged in said annular depression, hooks extending downwardly from said cover, lugs upon said flange adapted to engage said hooks, the working faces of said hooks and said lugs being inclined, a trap below said floor-plate and cover, a horizontal flange upon said trap, and attached to said floor-plate, the construction and arrangement being such that a chamber is formed between said floor-plate and said flange, and means for supplying water to said chamber.

4. A floor-drain comprising, in combination, floor-plate 1 having inner flanges 3, 4 and 5 and an outer rim 16, a trap having flange 14 to which the rim 16 is secured, water-supply inlet 18, and gas-tight cover 6.

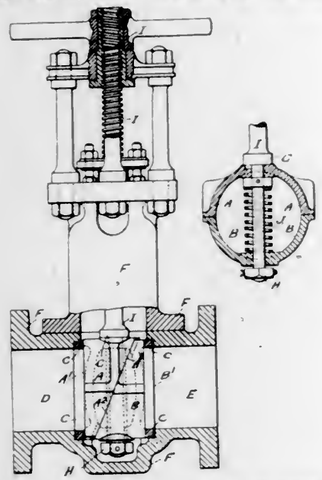
5. A floor-drain comprising, in combination, a trap provided at its mouth with a floor-plate, a depressed seat, and an annular water-chamber, and bent at its lower portion to contain a water seal, a cover for said depressed seat, a water-supply for said annular water-chamber, a jet-opening at the bend of said trap, and a water-supply therefor.

6. A floor-drain comprising, in combination, floor-plate 1, cover 6 substantially flush therewith, a trap having flange 14 and rim 15, a flushing-chamber formed between the flange 14 and the floor-plate, and legs 27 and 28.

7. A floor-drain comprising, in combination, a trap, an integral floor-plate thereabove provided with an opening, a cap for said opening, a flushing-chamber between said floor-plate and the upper end of the trap, and a jet for the bend of the trap.

8. A floor-trap comprising, in combination, a flushing-rim, substantially level with the floor and having a seat, a removable cap fitting tightly in said seat, so as to prevent escape of gas from the trap, and an upwardly-directed jet-inlet at the lower end of the trap.

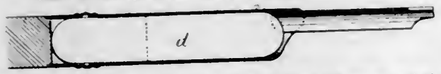
660,349. STOP-VALVE. ALEXANDER TURNBULL, Bishopbriggs, Scotland. Filed July 24, 1900. Serial No. 24,702. (No model.)



Claim.—1. A sluice or stop valve composed of two separate wedge-blocks having inclined meeting faces and parallel or approximately-parallel acting faces, a valve spindle or bolt upon which the blocks are strung in proximity to each other, means consisting of collars or the like by which the upper block is secured to and caused to move with the spindle so that during the closing action the blocks may be forced against their respective valve-seats, and a collar on the lower end of the spindle or bolt so placed that during the opening movement the blocks are allowed to spread apart in the line of the spindle so as to relieve the pressure upon the valve-faces when the closing pressure upon the blocks is relieved.

2. In a sluice or stop valve the combination with two separate wedge-blocks having their acting faces parallel or approximately so, and their meeting faces inclined, of a spring or springs situated between the blocks and adapted to spread them apart in the line of the spindle so as to relieve the pressure upon the valve-faces when the closing pressure upon the blocks is relieved.

660,350. PENHOLDER. JAMES V. WASHBURNE, Waterbury, Conn. Filed May 14, 1900. Serial No. 16,558. (No model.)



Claim.—1. The combination with the handle and tubular end of a penholder, of a longitudinally-arranged and relatively thin gripping member occupying a plane which substantially divides the tubular end into two equal parts, substantially as described.

2. A penholder-handle having a lengthwise slot at one end and a tubular end surrounding the same, and a longitudinally-arranged and relatively thin gripping member secured at one end within the said slot, and extending centrally and longitudinally of the tubular end, substantially as described.

3. A penholder-handle having a lengthwise slot at one end and a tubular end surrounding the same and a longitudinally-arranged metal plate occupying a plane substantially dividing the tubular end into two equal parts, one end of the said plate being secured within the said slot, substantially as described.

4. The combination with the handle and tubular end of a penholder, of a gripping member comprising a relatively narrow form of metal occupying a position within the tubular metal end and extending centrally across and longitudinally of the same, means for holding the same in place so that the pen is held between the inner surface of the tubular end and an edge of the gripping member, substantially as set forth.

5. The combination with the tubular metal end in a penholder, of a handle having a reduced end longitudinally and centrally divided or slotted and adapted to fit into the said tubular end and a gripping member comprising a form of metal adapted to be received into the slotted reduced end of the handle, the same extending centrally across the tubular metal end and received in the slotted portion of the reduced end and held thereby, substantially as and for the purposes set forth.

6. The combination with the tubular metal end in a pendholder, of a handle reduced at one end to fit within the tubular metal end and said reduced end being longitudinally and centrally slotted and a plate of metal fitting within and held by the said slotted reduced end of the handle and extending lengthwise and centrally of the tubular metal end with the edges closely adjacent to the inner surfaces of the tubular metal end whereby the pen is received between the inner surface of the tubular metal end and one longitudinal edge of the said plate, and is held thereby in place, substantially as set forth.

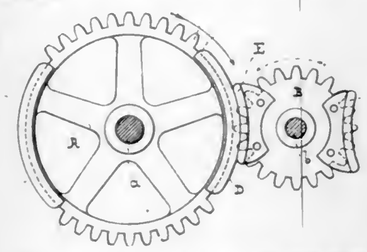
7. The combination with the handle and tubular end of a penholder, of a substantially-flat gripping member arranged edgewise within and extending longitudinally of the tubular end, and means for holding the same in place, so that the pen is held between the inner surface of the tubular end and an edge of the gripping member, substantially as set forth.

8. The combination with the handle and tubular end of a penholder, of a substantially-flat gripping member arranged edgewise within and extending longitudinally of the tubular end so that the pen is held between the inner surface of the tubular end and an edge of the gripping member, substantially as set forth.

9. A penholder-handle having a lengthwise slot at one end and a tubular end surrounding the same, a longitudinally-arranged plate secured at one end in said slot and extending longitudinally within the tubular end to hold the pen between the inner surface of the tubular end and an edge of the said plate, substantially as specified.

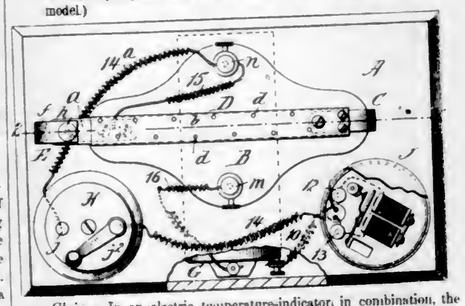
10. A penholder-handle having a lengthwise slot at one end and a tubular end surrounding the same and a longitudinally-arranged gripping member secured at one end in said slot, and extending longitudinally within the tubular end to hold the pen between the inner surface of the tubular end and an edge of the said gripping member, substantially as specified.

660,351. STOP MECHANISM FOR SPUR-GEARING. WALTER I. WHITEHURST, Baltimore, Md. Filed June 30, 1900. Serial No. 22,110. (No model.)



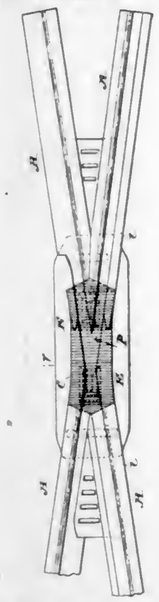
Claim.—In combination with a mutilated gear-wheel having a flange projecting laterally from its end, and which in position is coincident with that portion of rim of said wheel which is devoid of teeth, a full-toothed gear-wheel driven from the first wheel and having a flange which projects laterally from its end and adapted to bear against the flanged portion of the driving-wheel, substantially as and for the purpose specified.

660,352. ELECTRIC TEMPERATURE-INDICATOR. LESLIE S. WILDER, Springfield, Mass. Filed Feb. 17, 1900. Serial No. 5,563. (No model.)



Claim.—In an electric temperature-indicator, in combination, the metallic base-plate B having a U shape as shown, a thermostat-bar D, the extremity of which rests on the top member of said support C, the screw *i* passing through the thermostat-bar and loosely through the top member of the support and with a screw engagement into the bottom member, the upright or riser having the base thereof supported by, but insulated from, the base-plate B, and having the U-shaped extremity *f* provided with the adjustable contact-screws *h* and h^2 threading through opposite portions of said part *f*, and between the ends of which the extremity of the thermostat-bar is extended, circuit connections normally open and adapted to be closed by the movement of the bar against one of said contact-screws, having connected therein a battery and an electromagnetic audible signaling device, substantially as described.

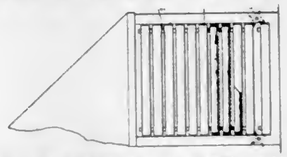
660,353. RAILWAY-CROSSING STRUCTURE. WILLIAM C. WOOD, New York, N. Y. Filed May 9, 1900. Serial No. 16,102. (No model.)



Claim.—1. In a railway-crossing and like structures, a main frame formed of converging rails, and having a recess at the intersection of the lines of the rails containing a special wearing-piece, a floor of cast-iron applied directly to the seat of the wearing-piece in a molten state forming a support therefor, leaving the wearing-piece removable, and which molten metal is at the same operation cast around the main frame as a binding-body therefor, in combination with removable means of adjustably securing and maintaining the wearing-piece in place.

2. The wearing-piece described, provided with depending loops affording place for removable keys or other fastenings, and the seating portion made tapering in form for the purposes specified, in combination with corresponding sockets therefor in the supporting-floor.

660,354. DRYING-KILN. ANDREW ANDERSON, Detroit, Mich. Filed Oct. 23, 1899. Serial No. 734,484. (No model.)



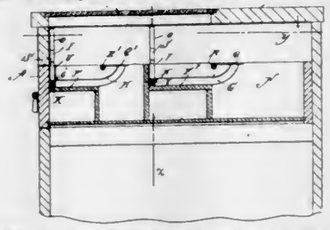
Claim.—1. In a dry-kiln for match-splints, the combination of a drying-chamber, a series of independent trays superimposed upon each other within the walls of said chamber and forming open intervals between the sides, transverse shafts mounted in the side walls of the chamber near the base thereof, wheels upon said shafts having radial sprocket-teeth at substantially right angles to each other adapted to engage into the intervals between the trays to support the same in position and release the bottom tray and a drive-shaft having interlocking drive-gear with the transverse shafts.

2. In a dry-kiln, the combination of two drying-compartments B adjacent to each other, the hot-air heating-duct A communicating into the base of said compartments, a hood C at the top of said compartments, a suction-fan D communicating therewith, a hot-air heating-duct communicating with the base of the drying-compartments, a vertical series of superimposed trays G provided with perforated bottoms, the sprocket-wheels *f* having the radial arms *f'* adapted to movably support the trays within the drying-chamber, and the doors *a b* in the drying-chamber for the insertion of fresh trays on top and the removal of the lowest tray at the bottom respectively.

3. In a dry-kiln, the combination with a drying-compartment, having suitable receiving and discharging doors at the top and bottom thereof, and a vertical series of superimposed trays contained therein, of the supporting-wheels mounted on shafts on opposite sides of the drying-compartment near the bottom thereof, said wheels having radial arms adapted to movably support all the trays above the bottom of the drying-chamber and to release the bottom tray.

4. In a dry-kiln, the combination with a drying-compartment and a series of superimposed trays contained therein, the sprocket-wheels *f* mounted on the shafts E E and having the radial arms *f'* adapted to engage into the intervals between the trays to support the same in position and to release the bottom tray.

660,355. MONEY-DRAWER. SAMUEL C. ANDERSON, Springfield, Ohio. Filed May 2, 1900. Serial No. 15,185. (No model.)



Claim.—1. The combination with a receptacle, of a money-discharger engaging therewith, a money-drawer mounted in said receptacle, one or more money-supports therein, said discharger acting to discharge the money from its supports when the drawer is opened, all substantially as shown and described.

2. The combination with a money-drawer receptacle, of a money-drawer mounted therein having a slot in each side thereof, a money-discharger projecting within said slots and adapted to ride out of them upon the upper edges of said money-drawer, and means connected with said receptacle for holding said money-discharger from longitudinal movement, all substantially as shown and described.

3. The combination with a receptacle, of a drawer having compartments therein and one or more slots in each of its sides, mounted within said receptacle, a support in each of said compartments, a money-discharger projecting into said slots and normally resting upon or slightly above said supports, said receptacle also having one or more vertical slots therein, one or more projections extending from said discharger into said slots, the slots in said receptacle acting to hold said discharger from moving with the drawer, while said slots in said drawer act to hold said discharger in wiping contact with money on said supports and also to elevate it on pulling out said drawer, said discharger returning to normal position by gravity on again closing said drawer.

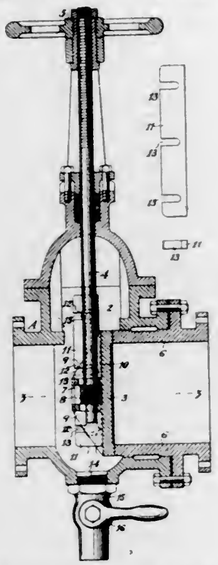
4. The combination with a money-drawer receptacle, of a money-drawer having money-compartments therein and having its sides slotted, mounted in said receptacle, said slots at each end extending to the upper edges of said drawer, a spring for closing one end of each of said slots, said compartments each having a table or support therein, a money-discharger extending into said slots and normally resting upon or in close proximity to said supports, means for holding said discharger from movement in the direction of movement of the money-drawer when the drawer is opened and closed, said discharger riding out of said slots past said springs when the drawer is being pulled out and dropping into said slots into close contact with said supports, all substantially as shown and described.

5. The combination with a receptacle, of a money-drawer divided into compartments and mounted therein, a table or support in each of said compartments, a money-discharger normally substantially resting upon said supports, and means to hold said discharger from moving with said drawer, yet permit of up-and-down movement of said discharger when said drawer is withdrawn from and inserted within said receptacle.

6. The combination with a receptacle, of a money-drawer having compartments therein mounted in said receptacle, partitions for forming said compartments, a table or support in each of said compartments below the upper edges of said partitions, a money-discharger extending over the top of a portion of said partitions and bent to contact with said sup-

ports, and means to elevate said discharger above said tables after withdrawing them from beneath the discharger.

660,356. WATER-GATE. CHARLES H. BAKER, Topia, Mexico. Filed June 14, 1900. Serial No. 20,223. (No model.)



Claim.—1. The combination of a water-gate having a chamber and a valve-seat therein, of a valve to engage said seat, and guides for the valve said guides adjustable to compensate for wear of the face of the valve.

2. The combination in a water-gate, of a gate-chamber, a section formed therewith adapted to connect with the adjacent pipe-line, an independent seat-section, with means for securing it to the gate-section, with its inner end forming a seat against which the gate is closable, vertical guides adjustably fixed in line with the back of the gate, and slide-surfaces formed upon the gate to travel against the guides.

3. The combination in a water-gate of a chamber, a section formed therewith adapted to be interposed in the line of the conducting-pipe, an independent removable section fitting into the gate-section having its inner end adapted to form a seat for the gate, a gate having vertical slide-surfaces formed upon its opposite edges, guides against which the gate is slidable, said guides having horizontal slots and securing bolts and nuts whereby they may be advanced to maintain the gate in contact with the seat.

4. The combination in a water-gate of a chamber, a section formed therewith, and means for securing it in the line of conducting-pipe, an independent seat-section, a means for removably securing it to the gate-section, a box or housing formed on the back of the gate having a slotted opening for the reception of the valve-stem, and a nut by which the latter is adjustably secured to the gate to allow the latter to be advanced transversely, vertical slide-surfaces formed upon the back of the gate, transversely-adjustable guides over which said slide-surfaces are movable in the opening and closing of the gate.

5. The combination in a water-gate of a chamber, a section formed therewith adapted to be interposed in the conducting-pipe, a supplemental removable seat-section fitting one end of the gate-section, a valve and means whereby it is movable transversely over the end of the seat-section to open and close, adjustable guides for the valve to compensate for the wear of the valve-face, and a depression made in the lower part of the gate-chamber for the reception of sediment and a pipe and discharge-cock in line therewith.

660,357. HEATING-STOVE. HIRAM BARBER, Chicago, Ill. Filed Jan. 9, 1899. Serial No. 701,652. (No model.)

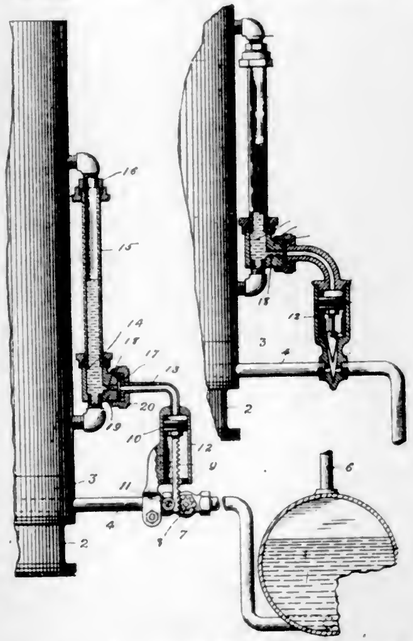
Claim.—1. In a stove, the combination with the casing of a combined register and cross-partition above the grate, a door in said casing below said cross-partition, means for opening and closing said register, and an air-shaft extending downward from said cross-partition and forming a safety-duct for the escape of excessive accumulation of gases from the coal-combustion chamber and adapted to moderate the combustion of fuel by inducing an indirect or oblique draft, substantially as described.



2. The combination with the casing K, of the register formed of the plates P and R which are provided with the openings *o* and *o'*, the handle *h* to operate said register, and the air-shaft A, substantially as and for the purpose described.

3. The combination with the casing K, of the grate G, a cross-partition above the grate and formed of the plates P and R which are provided with the openings *o* and *o'* and adapted to be used as a register, the handle *h* to operate said register and the air-shaft A, substantially as described.

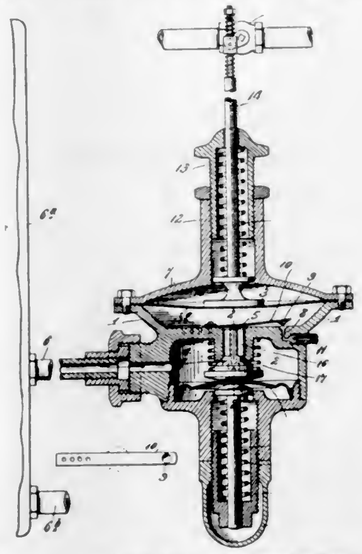
660,358. SAFETY DEVICE FOR STEAM-BOILERS. JAMES H. BULLARD, Springfield, Mass. Filed Feb. 3, 1900. Serial No. 3,872. (No model.)



Claim.—1. The combination with a steam-boiler, a gas or hydrocarbon burner therefor, and a source of supply for the latter, of a pipe from said source to said burner, a valve in said pipe, valve-operating mechanism actuated by the boiler-pressure, a passage through the shell of the boiler below the normal water-level therein leading to said mechanism, and means for closing said passage consisting of a piece of metal fusible by contact of steam therewith, but normally protected from such contact by the immersion of a part thereof in the water of the boiler, substantially as described.

2. A steam-boiler and a gas or liquid fuel burner therefor, a source of fuel-supply for the latter, a pipe from said source to the burner, a valve in said pipe, and means for closing said valve consisting of a cylinder, a pipe therefrom entering the boiler below the water-level, a piece of metal fusible in the presence of steam normally closing the passage in said pipe, and normally protected from contact with steam by the water of the boiler, a piston in the cylinder adapted to be operated by the boiler-pressure, and a connection between said piston and said valve whereby the movements of the piston in opposite directions will close and open the valve, substantially as described.

660,359. PRESSURE-REGULATOR. JAMES H. BULLARD, Springfield, Mass. Filed Apr. 2, 1900. Serial No. 11,079. (No model.)



Claim.—1. In a pressure-regulator, two separate chambers, a diaphragm in each, a passage between said two chambers, a valve in said passage supported on one of said diaphragms, whereby pressure against the latter will effect the opening of said valve, and permit said pressure to enter the other of said chambers, whereby the other of said diaphragms will be operated; an outlet from said last-named chamber, and means for controlling said outlet, substantially as described.

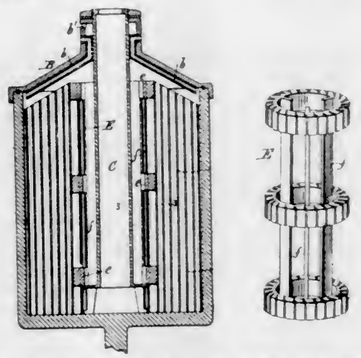
2. In a pressure-regulator, a suitable case, a diaphragm and means connected therewith for operating a device outside of said regulator, a spring for controlling the movements of said diaphragm; a second diaphragm, a spring for controlling the latter; a partition between said diaphragms; a passage therethrough, a valve supported on said second diaphragm and adapted normally to close said passage; an outlet through the wall of the case on that side of said partition on which said first-named diaphragm is located, and means operated by the valve for opening or closing said outlet, substantially as described.

3. In a pressure-regulator, a suitable case, two chambers therein, a diaphragm in one of said chambers, and means connected therewith for operating a valve; another diaphragm in said second chamber adapted to be operated by pressure from an outside source, a passage between said chambers, a valve in said passage supported on said second diaphragm whereby the deflection of the latter will effect the unseating of said valve and permit the actuation of said first-named diaphragm; an outlet from said first-named chamber to the open air, and means for opening said outlet by the closing movements of said valve, substantially as described.

4. The combination with a reservoir, of a regulator adapted to maintain a normal average air-pressure therein, comprising a chamber in direct communication with said reservoir, and a diaphragm in said chamber; a second chamber, a diaphragm therein and means connected with said diaphragm adapted to regulate the admission of pressure to said reservoir; a passage between said chambers, and a valve in said passage supported in closed position by the diaphragm of said first-named chamber, whereby, upon the deflection of said first-named diaphragm, said valve is adapted to open said passage whereby the operation of said second diaphragm is effected; an outlet from said first-named chamber adapted to be opened and closed by the movements of said valve, substantially as described.

5. In a pressure-regulator, two separate chambers, a movable partition in each, a passage between said two chambers, a valve in said passage, supported on one of said partitions, whereby pressure against the latter will effect the opening of said valve and permit said pressure to enter the other of said chambers, whereby the other of said partitions will be operated; an outlet from said last-named chamber and means for controlling said outlet; combined with means operated by the movement of one of said partitions for imparting movement to a member outside of said regulator, substantially as described.

660,360. CENTRIFUGAL LIQUID-SEPARATOR. DAVID H. BURRELL, Little Falls, N. Y. Filed Nov. 6, 1899. Serial No. 736,033. (No model.)

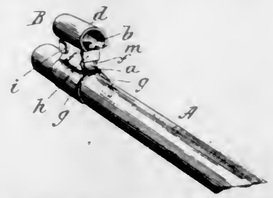


Claim.—1. In a skimming device for centrifugal liquid-separators, the combination with a core provided in its outer face with slots which are arranged obliquely to the radial line, of an annular series of tangential or eccentric skimming-blades provided at their inner ends with lips which are removably seated in the slots of the core, substantially as set forth.

2. In a skimming device for centrifugal liquid-separators, the combination with externally-slotted rings arranged one above the other, and connecting means whereby said rings are rigidly connected and held apart in alinement one above the other, of an annular series of skimming-blades which are arranged around said wings and have their inner ends removably inserted in the slots of the same, substantially as set forth.

3. In a skimming device for centrifugal liquid-separators, the combination with a core, composed of superposed, externally-slotted rings and upright connecting-plates arranged within said rings and secured thereto, of an annular series of skimming-blades which are arranged around said rings and have their inner ends removably inserted in the slots of the same, substantially as set forth.

660,361. COVER OR SIGHT-GUARD FOR FIREARMS. CHRISTIAN CANDRIAN, Springfield, Mass. Filed Feb 17, 1900. Serial No. 5,561. (No model.)

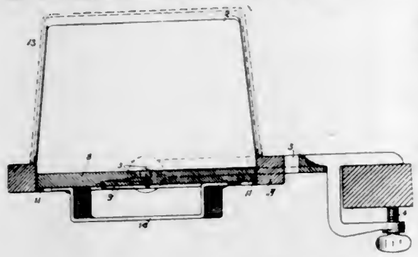


Claim.—1. A sight cover or protector for firearms consisting of the approximately-tubular top portion or hood having the downward continuation constituting the opposite side cheeks *f f*, and the arc-formed spring-clips *g g*, and having the extensions *h h*, integrally formed as portions of the front and rear edges of the said cheeks *f*, extending right-angularly to said cheeks each crosewise from the one toward the other, substantially as described.

2. A sight-cover for firearms, consisting of the approximately-tubular top portion or hood, the lower portions of which are downwardly con-

tinued in the opposite parallel cheeks having therebelow the outwardly-curving clips *g g* and each cheek having at its end the right-angularly-turned and crosswise extension *h* having the right-angularly-turned lip or ing arranged for a limiting engagement ot the outer face of the cheek opposite that from which the extension is projected, substantially as and for the purposes set forth.

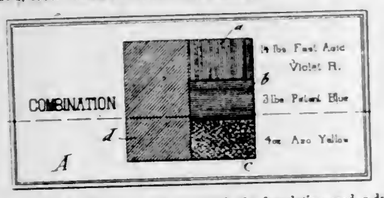
660,362. FRUIT-PACKING FORM. SECUNDO L. CASELLA, Alma, Cal. Filed Aug. 23, 1900. Serial No. 27,818. (No model.)



Claim.—1. An apparatus or form for packing fruit, consisting of a centrally-pivoted reversible frame having elastic plates projecting from one side, corresponding in shape with the form of the package to be filled, said plates separated at the angles, a follower movable between said plates adapted to form a bottom while the space above is being filled and to discharge the fruit into the basket when the frame has been reversed.

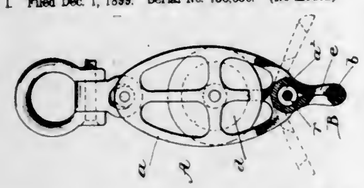
2. An apparatus or form for packing fruit, consisting of a frame, a yoke in which said frame is horizontally journaled and turnable, latching devices by which the frame is held in horizontal position with either face uppermost, elastic plates projecting from one side of said frame, and having a form corresponding with that of the package to be filled, a follower, links by which said follower is suspended between said plates and movable from top to bottom thereof whereby the space between the plates may first be filled, a basket or package placed over the space, and the device reversed, and the fruit pressed into the basket as the latter is removed from the form.

660,363. DYER'S COLOR-CARD. PHILIP S. CLARKSON, Beverly, N. J., assignor to Victor Koechl & Company, New York, N. Y. Filed June 2, 1900. Serial No. 18,817. (No model.)



Claim.—A dyer's color-card, composed of a foundation-card, a dye-sample secured to said card and dyed in part in a combination shade and in part in the individual colors composing said shade, and printed matter indicating the name and quantity of the dyestuffs for each of the individual colors, the printed matter for each color respectively being arranged adjacent to that part of the dye-sample showing such color, substantially as set forth.

660,364. PULLEY-BLOCK. EDWARD J. F. COLEMAN, Barrington, R. I. Filed Dec. 1, 1899. Serial No. 738,830. (No model.)



Claim.—In a pulley-block, the combination of the two-part frame *a*, provided at the bottom with a connecting transverse tie or stud a^2, a rivet *r* passing through said tie and securing the frame together, and the link becket B bent loosely around the tie, the two end portions of the becket, which are considerably thicker than the center portion, being pressed snugly together below the tie and provided with a transversely-arranged eye *e* to receive a rope, the axis of the said eye being at right angles to that of the tie a^2, whereby the rope, becket and pulley are adapted to move in a common plane, substantially as described.

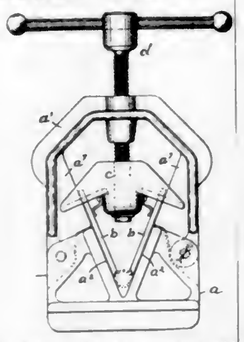
660,365. IGNITING COMPOSITION FOR MATCHES. JUAN CRAVERI, Buenos Ayres, Argentina. Filed Aug. 20, 1897. Serial No. 648,973. (No specimens.)

Claim.—A composition for matches ignitible by friction, containing persulfocyanic acid, cyanogen persulfid, nitronaphthalene, xanthate of potassium, peroxid of lead, trisulfid of antimony, charcoal, chlorate of potassium, and glue.

660,366. MATCH COMPOSITION. JUAN CRAVERI, Buenos Ayres, Argentina. Filed Dec. 13, 1897. Serial No. 661,695. (No specimens.)

Claim.—A safety-match-igniting material containing cyanogen persulfid, persulfo-cyanic acid, xanthate of potassium, sulfid of antimony, and gelatin.

660,367. PIPE-VISE. THOMAS DAVIS, Orange, N. J. Filed Feb. 27, 1900. Serial No. 6,671. (No model.)



Claim.—1. In a pipe-vise, the combination with the frame having oppositely-inclined bearings, of a pair of biting-blades arranged to slide on said bearings and maintain a parallel relation thereto, each blade having at its lower end two or more biting edges, and means for raising and lowering said blades, substantially as set forth.

2. In a pipe-vise, the combination with a frame providing oppositely-inclined bearings, of biting-blades arranged to slide on said bearings and maintain a parallel relation thereto, each blade having at its lower end a plurality of biting edges at different distances from the extremity of the blade, and means for operating said blades, substantially as set forth.

3. In a pipe-vise, the herein-described biting-blade, having a stepped end and the extreme step increasing in thickness toward the body of the blade, substantially as set forth.

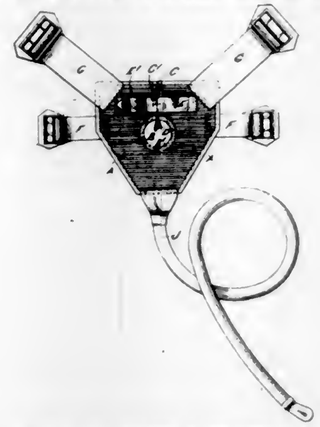
4. As an article of manufacture, the improved biting-blade for pipe-vises having at one side edge of its end a longitudinal recess b^2, having curved walls in cross-section and opening at both the side and end of the blade, said recess forming an extreme biting edge b', whose walls thicken toward its base, and a second biting edge b^3, substantially as set forth.

660,368. HERNIAL TRUSS. JAMES D. DAY, London, England. Filed Oct. 11, 1899. Serial No. 733,308. (No model.)

Claim.—1. A surgical truss comprising a truss-body of flexible material having a central aperture, and having a vertical central division, means for connecting the edges of said division, devices forming an independent positive connection to the truss-body across said division, and means for holding the truss to the wearer, substantially as and for the purposes set forth.

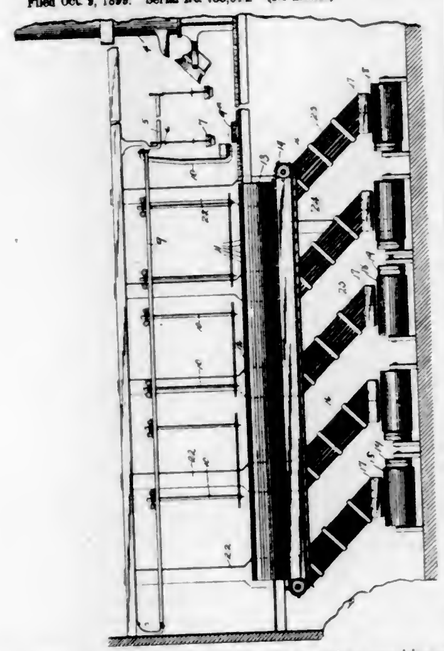
2. A surgical truss comprising an approximately triangular-shaped truss-body, having a central aperture, a vertically-disposed division extending from the top, centrally through the body and at the center of said aperture, to the bottom of said truss, means for connecting the edges of said division, means for strengthening the truss-body across said division, a strap connected to the lower part of the truss-body at the lower edge, and means for holding the truss to the wearer substantially as and for the purposes set forth.

3. A surgical truss comprising an approximately-triangular truss-body A, of flexible material, having a central aperture B, a division at C, devices for connecting the edges of said division, the strap E to strengthen the truss at said division, and straps G G and F F in pairs, and the strap J to hold the truss to the body of the wearer, substantially as shown.



4. A surgical truss comprising an approximately-triangular truss-body A, of flexible material, having a central aperture B, a division at C, devices for connecting the edges of said division, the straps E E to strengthen the truss at said division, straps H H, G G, and F F in pairs, and the strap J to hold the truss to the body of the wearer, substantially as shown.

660,369. APPARATUS FOR MAKING CASTINGS. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Oct. 9, 1899. Serial No. 733,014. (No model.)



Claim.—1. An apparatus for manufacturing castings comprising an endless mold-carrier track, mold-carriers thereon, means for moving said mold-carriers, an elongated screen arranged adjacent to said mold-carrier track for a portion of its length, adapted to receive the molds directly from the mold-carriers, and a series of sorting-chutes arranged adjacent to the screen.

2. An apparatus for manufacturing castings comprising an endless mold-carrier track, mold-carriers thereon means for moving said mold-carriers, a screen arranged adjacent to said mold-carrier track for a portion of its length, adapted to receive the molds directly from the mold-carriers, and means for sorting the castings arranged adjacent to the screen.

3. An apparatus for manufacturing castings comprising an endless mold-carrier track, mold-carriers thereon, means for moving the said mold-carriers, a screen arranged beneath said mold-carrier track for a portion of its length adapted to receive the molds directly from the mold-carriers and separate the castings and sand, a chute at the side of said screen to receive the castings, a sand-conveyer beneath said screen to receive the sand, and a cage for receiving and cooling the castings, constructed to permit the free circulation of air therethrough, substantially as described.

4. An apparatus for manufacturing castings comprising an endless mold-carrier track, mold-carriers thereon, means for moving the said mold-carriers, a screen arranged beneath said mold-carrier track for a portion of its length adapted to receive the molds directly from the mold-carriers and separate the castings and sand, a chute at the side of said screen to receive the castings, a sand-conveyer beneath said screen to receive the sand, and a cage for receiving and cooling the castings, said cage being provided with a ventilating-flue, substantially as described.

5. An apparatus for manufacturing castings comprising an endless mold-carrier track, mold-carriers thereon, means for moving the said mold-carriers, a screen arranged beneath said mold-carrier track for a portion of its length adapted to receive the molds directly from the mold-carriers and separate the castings and sand, a chute at the side of said screen to receive the castings, a sand-conveyer beneath said screen to receive the sand, and a cage for receiving and cooling the castings, said cage arranged in inclined position whereby the force of the fall of the castings is broken, substantially as described.

660,370. REMOVABLE VENTILATING PITCHER-COVER. ALEXANDER DRENNAN, ANDREW SMITH, and ARCHIE GRAHAM, Bodie, Cal. Filed July 2, 1900. Serial No. 22,294. (No model.)



Claim.—1. The combination with a pitcher, of a cover therefor, a wire ring surrounding the neck of the pitcher and extending over the rear of the cover said ring having laterally-expansible bends at the rear to enable it to be removed from the pitcher, and springs having one member secured to the cover and having another member connecting with the ring at a point between the rear bends thereof and the portion which passes over the cover.

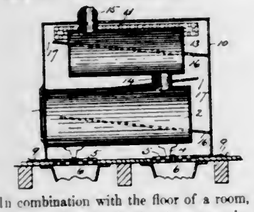
2. The combination with a pitcher, of a cover, a wire ring surrounding the pitcher between the swell of the body and the outer curve at the top, said wire formed with angular rear bends and thence carried over the rear of the cover, and said bends separated from each other to allow them to expand to remove the ring, and springs having coils encircling the portion of wire which extends over the rear of the cover, and each having one member secured to the cover and another member secured to the ring at a point between said rear portion and the angular bends, for normally closing the cover.

3. The combination with a pitcher of a screen or perforated cover curved to fit the outline of the top of the pitcher, having a dependent surrounding flange, a wire ring surrounding the smaller part of the pitcher between the swell of the body and the outward curve of the top, a loop formed by a continuation of the ring turned upwardly upon each side of the handle having a bar extending across above the handle, to which the

cover is hinged, said loop and ring being elastic and capable of being spread at the point where it clasps the pitcher whereby the device can be entirely removed therefrom.

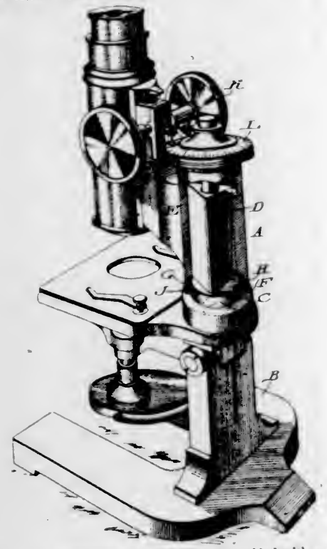
4. The combination with a pitcher of a cover of screen or perforated material having a depending flange, and curved to fit the upper edge of the pitcher, a ring surrounding the smaller part of the pitcher below the divergent upper edge, said ring being continuous around the body of the pitcher to points where it approaches interior to the handle, thence turned upwardly and divergent upon each side of the handle, thence forming a cross bar or rod above the handle, coiled springs surrounding said bar having one end attached to the cover and the other to the upturned portions of the loop and a thumb-piece attached to the cover and curved upwardly with relation to the cover and transverse rod.

660,371. HEATER. KATE J. FOLEY, Berryessa, Cal. Filed Feb. 12, 1900. Serial No. 5,006. (No model.)



Claim.—In combination with the floor of a room, two registers in said floor, two air-inlet pipes conducting from opposite directions to the respective registers, a stove standing on legs on said floor above said registers, a drum extending longitudinally above said stove, a short vertical pipe connecting said drum with said stove, a stovepipe leading from said drum and a casing fitting snugly to the floor and surrounding the stove at a distance on all sides except that having the feed-door, and fitting snugly to said latter side, said casing having secured to its internal walls zigzag sheets of metal fitting snugly against the stove and having openings between said sheets and casing to provide a circuitous path for the heated air, and having also discharge-registers in the upper portion of opposite sides of the casing, substantially as described.

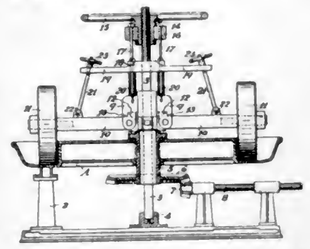
660,372. MICROSCOPE. RUDOLPH L. FUERLE, Philadelphia, Pa., assignor to the Queen & Company, of Pennsylvania. Filed May 5, 1900. Serial No. 15,561. (No model.)



Claim.—1. A microscope having a sleeve provided with a counterbore, a bed, a neck arising therefrom, said counterbore freely encircling said neck and a closure interposed between said neck and counterbore.

2. In a microscope, a bed, a neck rising therefrom, a prism above said neck, a sleeve movable upon said prism, the lower portion of said sleeve having an internal counterbore freely encircling said neck, and a guard intermediate of said neck and counterbore.

660,373. POWDER MIXING AND INCORPORATING MILL. FRANCIS A. HALSEY, San Rafael, Cal. Filed Apr. 11, 1900. Serial No. 12,421. (No model.)



Claim.—1. In a powder-mill and in combination with a bed-plate having an annular peripheral channel and runners mounted upon radial arms and adapted to travel in said channel, a vertical centrally-disposed shaft, a sleeve fixed to said shaft, mechanism by which motion is communicated to rotate said sleeve, a driver fixed to the sleeve above the bed-plate, pivot-pins by which the inner ends of the runner-arms are connected with said driver, lugs upon the arms and shoulders upon the driver with which said lugs engage substantially as described.

2. The combination in a powder-mill of a bed-plate having an annular peripheral channel, vertical runners adapted to travel in said channel, radial arms upon the outer ends of which the runners are journaled, a driver to which the inner ends of said arms are pivoted, a centrally-disposed sleeve to which said driver is fixed and through which power is communicated to drive the driver and runners, a central vertical shaft with a supporting-step at the lower end, said shaft keyed to the sleeve and having its upper end screw-threaded, a nut fitting said screw-threads and hangers connecting the nut with the driver.

3. In a powder-mill and in combination with the bed-plate, runners, radial arms and a central driver to which they are hinged, a shaft, a supporting-step at the bottom, said shaft extending up through the driver having screw-threads at the upper end, a nut turnable upon said screw-threads and a ring carried by the nut, and hangers extending downwardly from the ring and connecting with the driver.

4. The combination in a powder-mixing mill of an annularly-channeled bed, runners journaled upon the outer ends of radial arms adapted to travel in the channel, a driver fixed to the vertical driving-shaft having shoulders formed thereon, pivots by which the inner ends of the runner-arms are connected with the driver, and lugs upon the inner ends of said arms engageable with the shoulders of the driver to limit the depression of the outer ends of the arms.

5. The combination in a powder-mill of an annularly-channeled bed-plate, runners journaled upon the outer ends of radial arms and adapted to travel in the channel, a driver fixed to the driving-shaft to which the inner ends of the runner-arms are horizontally pivoted, a vertical central shaft having a step-support at the bottom, screw-threads upon the upper end, a nut turnable upon said screw-threads, a ring carried by the nut, hangers extending downwardly from the nut and having their lower ends fixed in the driver, a hub fitting the screw-stem having radial arms, through which hub the hangers pass, and sleeves surrounding the hangers between the driver and the hub, and serving to support the latter.

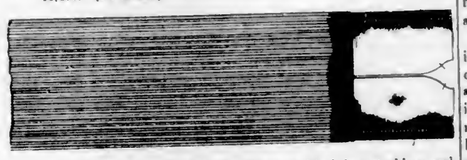
6. The combination in a powder-mill of the annularly-channeled bed, runners carried upon radial arms hinged to a central driver, a vertical central shaft screw-threaded at the upper end, a nut turnable upon said screw-threads with an actuating hand-wheel, hangers supported from said nut, extending downwardly having their lower ends fixed to the driver, a hub supported intermediate of the driver and nut and having radial arms, suspending-rods passing through said arms pivotally connected with the runner-arms at the bottom and having nuts turnable upon their screw-threaded upper ends whereby the runner-arms may be independently turned upwardly about their hinge-joints.

7. In combination in a powder mixing and incorporating machine, an annularly-channeled bed, radially-journaled runners, and means for revolving them within the bed, and lug-and-shoulder connections between the runner-arms and driver adapted to hold the runners out of direct contact with the bed, plows carried in unison with and behind the runners, and cutters or disintegrators mounted to travel in rear of the plows.

8. The combination of an annular channeled bed, radially-journaled runners and a driver and connections for revolving the same, lug-and-shoulder connections between the inner ends of the runner-arms and the driver adapted to hold the runners out of direct contact with the bed, a radial arm connected with the driver, plows supported from said last-named arm and traveling behind the runners, and disintegrators consisting of central disks or hubs having radial arms and means for connecting the disintegrators with the radial plow-carrying arm.

9. In a powder mixing and incorporating machine, an annularly-channeled bed, runners and plows and mechanism by which they are caused to travel around said bed, means for holding the runner out of direct contact with the bed, disintegrators adapted to travel with the runners and consisting of a series of disks or hubs mounted side by side upon a revoluble shaft having radial arms, the ends of which are disposed in spiral lines from side to side of the disintegrator, arms in which the shaft is journaled and turnable, a shaft to one end of which the opposite ends of said arms are adjustably fixed, hangers connected with the propelling mechanism in which said shaft is journaled, a lever-arm fixed upon the shaft having a slidable adjustable weight whereby a varying pressure may be brought upon the disintegrating-arms as they pass over the material on the bed.

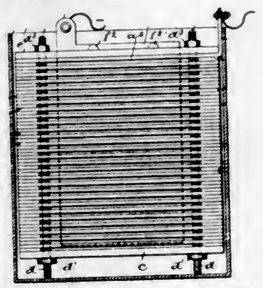
660,374. ART OF KNITTING STOCKINGS. HUGO G. HUETTIG and PAUL SCHLOSSMANN, Philadelphia, Pa. Filed May 29, 1900. Serial No. 18,406. (No model.)



Claim.—1. An improvement in the art of knitting stockings and the like by machinery, which consists in forming at or adjacent to the edges or margins of the heel portion of the stocking, a transverse row of open meshes adapted when the heel portion is transferred to the machine for completing the stocking to readily receive the needles of said machine, said open meshes being formed in the heel fabric during the knitting of the same and without removing the fabric from the needles, substantially as and for the purposes described.

2. An improvement in the art of knitting the heel portions of stockings upon straight-knitting machines, which consists in forming adjacent to the edges or margins of the heel portion a series of alined, transversely-arranged open meshes, said open meshes being formed in the heel fabric during the knitting of the same and without removing the fabric from the needles, substantially as and for the purposes described.

660,375. ELECTRIC BATTERY. FRANK K. IRVING, Newark, N. J., assignor of one-half to Andrew G. Vogt, same place. Filed Mar. 19, 1900. Serial No. 9,193. (No model.)



Claim.—1. A battery-electrode consisting of metallic strips or bands, arranged upon each other "log-cabin" fashion, and forming a central open space, substantially as and for the purposes set forth.

2. A battery-electrode consisting of metallic strips or bands, arranged upon each other "log-cabin" fashion, and forming a central open space, said strips having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, substantially as and for the purposes set forth.

3. A battery-electrode consisting of longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, substantially as and for the purposes set forth.

4. A battery-electrode consisting of longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, said strips having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, substantially as and for the purposes set forth.

5. A battery-electrode consisting of a lower and an upper supporting-plate, both of a non-conducting material, and metallic strips or bands between said plates, arranged upon each other "log-cabin" fashion, and forming a central open space, and connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, substantially as and for the purposes set forth.

6. A battery-electrode consisting of a lower and an upper supporting-plate, both of a non-conducting material, and metallic strips or bands between said plates, arranged upon each other "log-cabin" fashion, and forming a central open space, and connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, said strips or bands having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, substantially as and for the purposes set forth.

7. A battery-electrode consisting of a lower and an upper supporting-plate of a non-conducting material, said upper plate having a central opening, longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, and connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, substantially as and for the purposes set forth.

8. A battery-electrode consisting of a lower and an upper supporting-plate of a non-conducting material, said upper plate having a central opening, longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, and connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, said strips having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, substantially as and for the purposes set forth.

9. In a battery-electrode, a negative electrode, consisting, essentially, of metallic strips or bands arranged upon each other "log-cabin" fashion, and forming an open space, and a positive electrode in said open space, substantially as and for the purposes set forth.

10. In an electric battery, a negative electrode, consisting, essentially, of metallic strips or bands arranged upon each other "log-cabin" fashion, and forming a central space, said strips having contacting portions forming solid connections, and intermediate spaces between their non-contacting portions, and a positive electrode in said central open space, substantially as and for the purposes set forth.

11. In an electric battery, a negative electrode, consisting, essentially, of longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, and a positive electrode in said space, substantially as and for the purposes set forth.

12. In an electric battery, a negative electrode, consisting, essentially, of longitudinally-arranged metallic strips or bands and intermediately-placed lateral strips or bands, arranged "log-cabin" fashion and forming a central open space, and a positive electrode in said space, said strips having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, and a positive electrode in said central open space, substantially as and for the purposes set forth.

13. In an electric battery, a negative electrode, consisting, essentially, of a lower and an upper plate, both plates of a non-conducting material, and metallic strips or bands between said plates, arranged upon each other "log-cabin" fashion, and forming an open space, connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, and a positive electrode in said central open space, substantially as and for the purposes set forth.

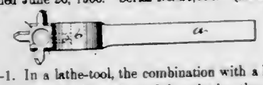
14. In an electric battery, a negative electrode, consisting, essentially, of a lower and an upper plate, both plates of a non-conducting material, and metallic strips or bands between said plates, arranged upon each other "log-cabin" fashion, and forming an open space, connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, said strips or bands having contacting portions forming solid conductors, and intermediate spaces between their non-contacting portions, and a positive electrode in said central open space, substantially as and for the purposes set forth.

15. In an electric battery, a negative electrode, consisting, essentially, of a lower and an upper supporting-plate of a non-conducting material, said upper plate having a central opening, longitudinally-arranged metallic strips or bands and intermediately-placed strips or bands, arranged "log-cabin" fashion and forming a main central open space, connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, and a positive electrode in said main central open space, substantially as and for the purposes set forth.

16. In an electric battery, a negative electrode, consisting, essentially, of a lower and an upper supporting-plate of a non-conducting material, said upper plate having a central opening, longitudinally-arranged metallic strips or bands and intermediately-placed strips or bands, arranged "log-cabin" fashion and forming a main central open space, connecting rods or bolts operatively connecting said upper and lower plates and said strips or bands, said strips or bands having contacting portions forming

solid conductors, and intermediate spaces between their non-contacting portions, and a positive electrode in said main central open space, substantially as and for the purposes set forth.

660,376. LATHE-TOOL. FERNANDO O. JAQUES, Jr., Providence, R. I. Filed June 20, 1900. Serial No. 20,956. (No model.)



Claim.—1. In a lathe-tool, the combination with a holder, of a tool having a square central body perforated lengthwise through the center, cutters projecting from the four flat sides of the central body, and a screw-post for securing the tool to the post, as described.

2. A lathe-tool having a square, central body perforated lengthwise through the center, and cutters projecting from the flat sides of the central body, whereby both ends of all the cutters may be used successively, as described.

3. In a lathe-tool, the combination with a tool-holder having a projecting tool-supporting arm and a slot in the vertical end of the holder, of a tool having a central, longitudinally-grooved body, cutters extending radially from the whole length of the central body, and a screw-post for securing the tool to the tool-supporting arm, whereby one of the cutters may be inserted into the slot in the vertical end of the holder and the tool secured to the supporting-arm of the holder close to the vertical end, as described.

4. A lathe-tool having a longitudinally-perforated, central body and radially-projecting ribs extending the length of the central body, the ends of which form the cutting edges of the tool, whereby the cutters on both ends may be successively used and reground, as described.

660,377. TEMPORARY CARTRIDGE-CLIP. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Company, same place. Filed Apr. 2, 1900. Serial No. 11,058. (No model.)



Claim.—1. A sheet-metal, cross-sectionally trough-shaped cartridge-clip, comprising a body portion, and two side flanges extending throughout the length of the said body portion, and each provided not at but near one end with a single shoulder, the shoulders of the respective flanges being located diagonally opposite each other, and the ends of the body portion of the clip and the ends of its side flanges, being adapted to be inserted into the frame or receiver of a gun for a sufficient distance to support the clip in a vertical position unaided by the hand until after the cartridges have been stripped from the clip which must then be withdrawn by manual effort, whereby the clip is prevented from falling forward into the gun and fouling the same.

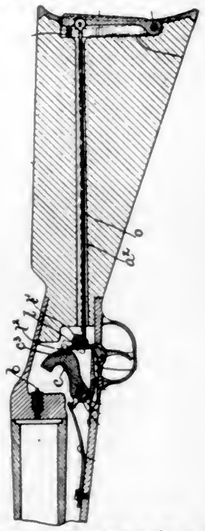
2. A sheet-metal, cross-sectionally trough-shaped cartridge-clip comprising a body portion, and two side flanges extending throughout the length of the said body portion, and each formed not at but near one of its ends with a single shoulder formed by contracting the flanges, the said shoulders being located diagonally opposite each other, and the ends of the body portion of the clip and the ends of the side flanges thereof being adapted to be inserted into the frame or receiver of a gun for a sufficient distance to support the clip in a vertical position unaided by the hand until after the cartridges have been stripped from the clip which must then be withdrawn by manual effort, whereby the clip is prevented from falling forward into the gun and fouling the same.

3. A sheet-metal, cross-sectionally trough-shaped cartridge-clip, comprising a body portion, and two side flanges extending throughout the length thereof, and each formed with a shoulder produced by contracting or constricting the flanges the ends of the body portion of the clip and the ends of its side flanges being adapted to be inserted into the frame or receiver of the gun.

660,378. SAFETY DEVICE FOR TRIGGERS AND HAMMERS OF FIREARMS. JOSEF KALINA, Cleveland, Ohio. Filed June 30, 1900. Serial No. 22,216. (No model.)

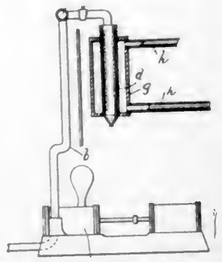
Claim.—1. The combination, with the stock, the suitably-applied trigger, and the hammer for operating the firing-pin, of mechanism for locking the trigger in its normal position and adapted to lock the hammer in its cocked position, means acting to retain the said locking mechanism operative, and means for actuating the said locking mechanism as required to effect the release of the hammer and the trigger.

2. The combination, with the stock having a recess formed in its butt, the suitably-supported trigger, and the hammer for operating the firing-pin, of mechanism for locking the trigger in its normal position and adapted to lock the hammer in its cocked position, a rod that extends easily within and longitudinally of the stock and coacting with the aforesaid locking mechanism to release the hammer and the trigger, a movable plate arranged within and normally projecting outside of the aforesaid recess, and means acting to retain the said mechanism in its operative position.



3. The combination, with the stock having a recess formed in its butt, the suitably-supported trigger, the spring acting to retain the trigger in its normal position, the firing-pin-operating hammer provided with two notches or recesses, the hammer-spring, the sear engaging one of the said notches or recesses and extending over the trigger, and the spring acting to retain the sear in engagement with the hammer, of a suitably-supported latch having a tooth or member engaging the other of the aforesaid notches or recesses in the hammer and engaging the upper side of the sear, a rod operatively connected with the said latch and extending longitudinally of the stock, a movable plate within the aforesaid stock's recess and operatively connected with the rod and normally projecting outside of the said recess, and a suitably-applied spring acting to retain the latch-operating mechanism in its normal position.

660,379. PROCESS OF MAKING GLUE AND PRODUCTS RESULTING THEREFROM. LOVELL L. KELSEY, Guilford, Conn., assignor of three-fifths to Cornelius Blakeslee, Rutherford, N. J., and Clarence E. Fairbanks, Wallingford, Conn. Filed Apr. 25, 1900. Serial No. 14,206. (No specimens.)



Claim.—1. The improvement in the art of manufacturing glue and other gelatinous substances, which consists in reducing a mass of hot liquid stock to jelly-like or semimobile consistency under pressure, then minutely subdividing the mass under the same pressure, into pencil-like strips, and finally dry-finishing the same, substantially as and for the purpose set forth.

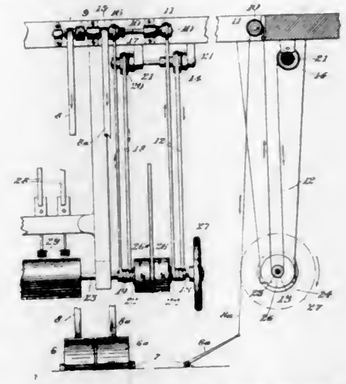
2. The improvement in the art of manufacturing glue and other gelatinous substances, which consists in reducing a mass of hot liquid stock to jelly-like or semimobile consistency, under pressure, the said reduction being performed by subjecting the hot liquid stock to low thermal conditions, then minutely subdividing the mass under the same pressure, into pencil-like strips, and finally dry-finishing the same, substantially as and for the purpose set forth.

3. As an improved article of manufacture, glue in a pencil-like form, substantially as shown and described.

4. As an improved article of manufacture, glue in a pencil-like form of approximately uniform cross-sectional area, substantially as shown and described.

5. As an improved article of manufacture, glue in a pencil-like form having a roughened or serrated surface, substantially as shown and described.

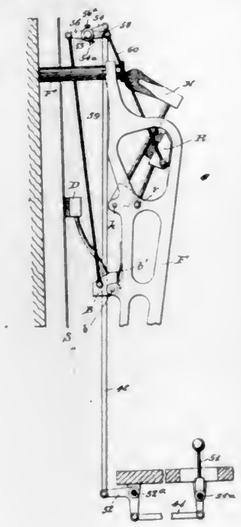
660,380. PEDAL-CLUTCH MECHANISM. EMILE KLABER, New York, N. Y. Filed Mar. 6, 1900. Serial No. 7,507. (No model.)



Claim.—1. In a mechanically-played musical instrument the combination of an operating-pedal, means for transmitting reciprocating motion therefrom, friction clutch mechanism converting the reciprocating motion into continuous rotary motion the power-drum 24 deriving continuous rotation from said clutch mechanism and friction-toes 29 actuated by the drum 24, substantially as set forth.

2. A pedal-clutch mechanism for driving the motor-drum of a mechanically-operated musical instrument, comprising pedals 6, 6ª, pull-straps 8, 8ª, pulleys 9, 11, 15, 16, shaft 10, belts 12, 18, clutch-sleeves 13, 19, eccentric clutches 22, and clutch-pulleys 26, 26ª on the shaft 23 of motor-drum 24, substantially as described.

660,381. TONE-MODULATING DEVICE FOR MUSICAL INSTRUMENTS. EMILE KLABER, New York, N. Y. Filed Mar. 6, 1900. Serial No. 7,509. (No model.)



Claim.—1. The combination with the rocking fulcrum-bar B on which the dampers are mounted and the hinged rest-bar R on which the hammers are supported; of an oscillating device as 56, 58, connected at its opposite ends by flexible ties 59, 60 to the damper fulcrum-bar B and hammer-rest R respectively, so as to retract the dampers when oscillated in one direction and advance the hammers when oscillated in the other direction, as explained.

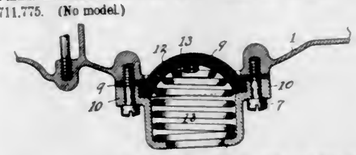
2. The combination of the rocking levers 51, and 56, 58, suitable connections 41, 52, 42, 54, 55; flexible ties 59, 60 damper fulcrum-bar B and hammer-rest R for retracting the dampers or advancing the hammers by the reverse movement of the lever 51 as explained.

3. The combination of the rocking levers 51, 52 connecting-rods 41, 42, lever-arms 54, 56, 58, rock-shaft 55, flexible ties 59 60 rocking damper fulcrum-bar B and hinged hammer-rest R, substantially as and for the purpose set forth.

4. In combination with the damper-lifting mechanism and hammer-rest mechanism of a piano, a rocking lever 51 and connections between said lever and the damper-lift and hammer-rest mechanism respectively serving to lift the dampers in one movement of the lever and advance the hammer-rest in the other movement, as explained.

5. In combination with the damper-lifting mechanism and hammer-rest mechanism of a piano, an operating-handle and connections between said handle and the damper-lift and hammer-rest mechanism respectively serving to lift the dampers in one movement of the handle and advance the hammer-rest in the other movement.

660,382. SAFETY DEVICE FOR HYDRAULIC APPARATUS. FRANK LAMBERT, New York, N. Y. Filed Apr. 5, 1899. Serial No. 711,775. (No model.)



Claim.—1. In a water-meter, a pressure-shell, the said shell being provided with an aperture, a reversible safety-piece closing said aperture and adapted to yield under a water-pressure less than that necessary to deform the shell.

2. In a water-meter, a pressure-shell, the said shell being provided with an aperture, and a reversible safety-piece closing said aperture and provided with a bowl-shaped portion protruding into the interior of the meter and adapted to be inverted by a water-pressure that will not deform the other parts of the meter.

3. In a water apparatus, a shell having an aperture, a reversible safety-piece closing the said aperture and normally protruding into the interior of the apparatus, but capable of having its form reversed by an internal pressure that will not deform the shell, and means to limit the diameter of the outward bend given the said safety-piece by the excessive pressure to a size less than the diameter of the said aperture.

4. In a water apparatus, a shell having an aperture, and a safety-piece closing said aperture and adapted to yield under pressure less than the one required to deform the said shell the said safety-piece decreasing in resistance from the circumference toward the center.

5. In a water apparatus, a shell, having an aperture, and a safety-piece closing said aperture and adapted to yield under a water-pressure less than the one required to deform the said shell, the said safety-piece decreasing in thickness toward the center.

660,383. DISK FOR WATER-METERS. FRANK LAMBERT, New York, N. Y. Filed May 11, 1899. Serial No. 716,354. (No model.)



Claim.—1. In a water-meter, a disk-chamber provided with a diaphragm, a disk-piston having an opening for the diaphragm, and a slotted intermediate piece against which the walls of said opening bear, whereby pressure on the piston at one side of the said opening is resisted by the piston at both sides of the opening.

2. In a water-meter, a disk-chamber, a diaphragm, a nutating disk-piston having an opening for the diaphragm, and provided with an intermediate piece in the opening, the said piece having a contact-face of any desired width, the width of contact between the face of the intermediate piece and the face of the diaphragm remaining constant in all angular positions of the piston.

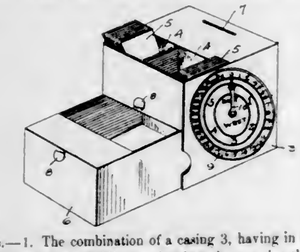
3. In a water-meter, a diaphragm, a nutating disk-piston provided with an opening for the diaphragm and a slotted intermediate piece in the said opening, the said intermediate piece and the rest of the piston being rotatively mounted together.

4. In a water-meter, a disk-chamber, a diaphragm, a nutating disk-piston having an opening and an intermediate piece in the said opening, the said piece being prevented by the diaphragm from turning on its own axis, the rest of the disk-piston when nutating having a movement of rotation around said piece.

5. In a water-meter, a disk-chamber, a diaphragm, a nutating disk-piston having a radial opening and a central ball and an intermediate piece rotatively mounted in the said opening, the bearing for said piece being partly in the said opening and partly in the central ball.

6. In a water-meter, a disk-chamber, a diaphragm, and a nutating piston having a radial opening, each wall of which is provided with a circular concave radial groove.

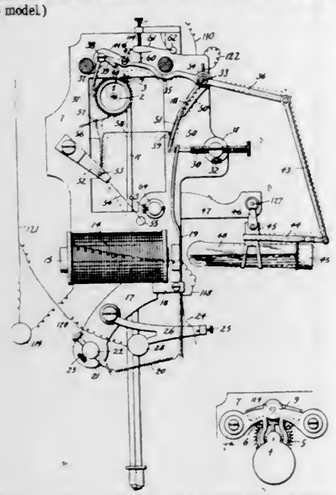
660,384. GAME-RECORDER. WILLIAM H. LEVINGS, Minneapolis, Minn. Filed Feb. 20, 1900. Serial No. 5,885. (No model.)



Claim.—1. The combination of a casing 3, having in its top a slot 7, and receptacles 4, for holding cards adapted to receive the number of the player and the games won by such player, a tablet or button having the number of the player thereon, a drawer beneath the slot in the casing for receiving the marked cards deposited in the casing, and a register or registers attached to the casing for keeping count of the points in the game, substantially as described.

2. The combination of a casing 3, having in its top a slot 7, and receptacles 4, for holding cards adapted to receive the number of the player and the games won by such player, a drawer beneath the slot in the casing for receiving the marked cards deposited in the casing, and a register attached to the casing for keeping count of the points in the game for each pair of players, substantially as described.

660,385. SELF-WINDING ELECTRIC CLOCK. AUGUSTINE J. MADDEN, Prahran, Victoria. Filed Dec. 23, 1899. Serial No. 741,422. (No model.)



Claim.—1. The combination of a master-clock pendulum, wheel 1, pawl 37, a lever 35 to which the pawl is pivoted, arm 50, arm 36, link 43, a tilting mercury-holder 48, a connection between link 43 and said holder for moving the latter, wires 110, 121, of a clock-circuit, magnet 14 connected between said wires, armature 19, connected in the circuit and extending into the path of arm 50 so as to move it and in contact therewith before the clock-circuit is closed, whereby attraction of the armature moves arm 50, arm 35, pawl 37, arm 36, link 43, and the mercury-holder, a cut-out for the magnet closed by movement of the armature, and means for retracting the armature.

2. The combination of the clock-magnet 14, armature 19 forming a part of the circuit of the magnet, an arm 50 in cooperative relation with said armature, the clock-wheel 1, pawl 37, arm 35 to which the pawl is connected, pivot 33 common to arms 50 and 35, mercury-tube 48, and means connecting pivot 33 with the mercury-tube for tilting it, and a cut-out for the magnet.

3. The combination of arms 35, 36, 50 connected in the form of a T-lever, pivot 33, magnet 14 for a clock-circuit, armature 19 adapted to make and break contact with arm 50 when magnet 14 is energized and deënergized, a cut-out for the magnet, toothed wheel 1, pawl 37 pivotally connected to arm 35, a pivoted click 57 engaging wheel 1, a weight for said click, arm 56, staff 53 supporting arm 56, arm 58 also supported by staff 53, roller 59 carried by arm 58 and bearing against arm 50, arm 54 fixed on the staff 53, and a weight 55 thereon.

4. The combination of magnet 14, armature 19, arms 35, 36, 50 forming a T-lever, a spring 51 carried by arm 50, said arm and the armature being arranged to make and break contact with each other, link 43, the pivoted mercury-tube 48, means connecting said tube and arm 36, adjustable spring 61 operating on arm 35, pawl 37, a spring therefor, stop 39, wheel 1, staff 53, arm 56, pivoted click 57, arm 54, weight 55, and arm 58 also supported on staff 53 and extending to and bearing against said spring 51.

5. The combination of the clock-frame, a stud 33 insulated therefrom, the T-lever 34 having arms 35, 36, 50, spring 51 on the latter arm, magnet 14, armature 19 adapted to make and break contact with arm 50, mercury-tube 40, means connecting said mercury-tube and arm 36 for moving the tube, spring 61 bearing upon arm 35, pawl 37 pivoted to arm 35, wheel 1, stop 39 for the pawl, staff 53, arm 56, arm 54 on said staff, weight 55, arm 58 also connected to said staff and bearing against spring 51, adjustable stops for the armature, a clock-circuit including magnet 14, armature 19 and arm 50, and one or more secondary clocks with controlling-magnets in the same circuit.

6. The combination with a clock-circuit, of a magnet therein, an armature for the magnet, clock-wheel 1, pawl 37, arm 35 supporting the pawl, arm 36, link 43, mercury-tube 48 operated through link 43, arm 50, pivot 33 electrically connected with arm 50, a clock-circuit connected to said pivot, and a sleeve for the pivot connected to the lever, as set forth.

7. The combination of a clock-magnet 14, armature 19, a T-lever 34 having arms 35, 36, 50, the latter arm making and breaking contact with the armature, a mercury-containing tube, a connection between arm 36 and said tube, clock-wheel 1, pawl 37 therefor pivoted to arm 35, a pendulum having a semicircular tube 66, a straight central tube 67 meeting tube 66 at its center but not communicating with tube 66, mercury in both tubes, a pendulum-rod, means for securing the tubes to the pendulum-rod, and an escape mechanism and gear between the pendulum and wheel 1.

8. The combination of a mercury-containing tube elliptical or elongated oval in cross-section, a pivot for the tube, a magnet, an armature therefor, and a lever connected with said tube and which makes and breaks contact with the armature.

9. The combination of a mercury-containing tube elliptical or elongated oval in cross-section and having a globular end, a pivot for the tube out of its center, a magnet, an armature therefor, and a lever connected with said tube and which makes and breaks contact with the armature.

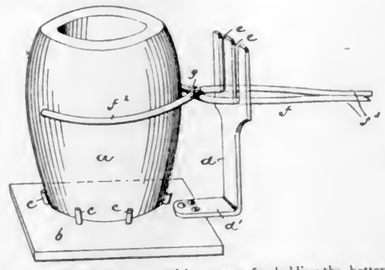
10. The combination of a mercury-containing tube elliptical or elongated oval in cross-section, a pivot for the tube, the pivot being above the tube and slightly farther from the globular end than from the other end, a magnet, an armature therefor, and a lever connected with said tube and which makes and breaks contact with the armature.

660,386. CRUCIBLE-SHAKER. WILLIAM S. MATHER, Newark, N. J. Filed Apr. 26, 1900. Serial No. 14,389. (No model.)

Claim.—1. A crucible-shaker, comprising a seat for the base of the crucible, means for preventing lateral displacement of the bottom of the crucible, fulcrumal bearings fixed with respect to said seat, and a shaking-lever fulcrumed in said bearings and having bent arms adapted to grasp the crucible, substantially as set forth.

2. A crucible-shaker, comprising a base-plate adapted to support the crucible, means on said base-plate for preventing lateral displacement of the crucible-bottom, a standard at one side of the base-plate, and a lever fulcrumed upon said standard and having arms to grasp the crucible, substantially as set forth.

3. A crucible-shaker, comprising means for preventing lateral displacement of the bottom of the crucible, a fulcrumal support, and a shaking-lever fulcrumed upon said support and having arms for grasping the crucible, substantially as set forth.



4. A crucible-shaker, comprising means for holding the bottom of the crucible against lateral movement but permitting a rocking of the crucible, a fulcrumal standard, and a shaking-lever fulcrumed upon said standard and swinging in a horizontal or approximately-horizontal plane, said lever having means for grasping the crucible, substantially as set forth.

5. A crucible-shaker, comprising a seat or receptacle for the base of the crucible and preventing lateral movement of the said base, and a shaking-lever provided with fulcrumal bearings upon said seat or receptacle and having bent arms for grasping the crucible, substantially as set forth.

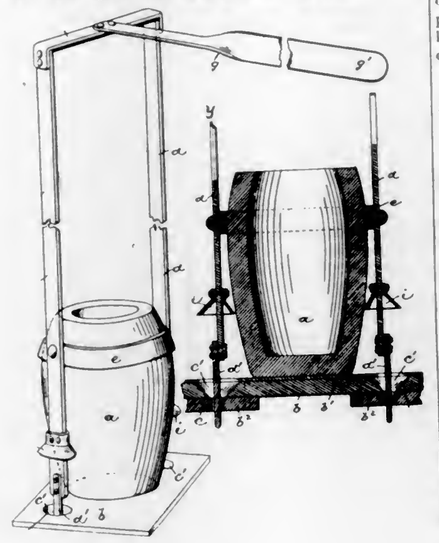
6. A crucible-shaker, comprising a seat preventing lateral movement of the base of the crucible, a fulcrum fixed with respect to said seat and a shaking-lever having adjustable arms for grasping the crucible, substantially as set forth.

7. A crucible-shaker, comprising a seat or receptacle for the base of the crucible, a fulcrumal standard stationed near said seat and slotted at its upper end, and a shaking-lever fulcrumed in the slot having means for grasping the said crucible, substantially as set forth.

8. A crucible-shaker, comprising a base-plate upon which the crucible may stand, a fulcrumal standard stationed near the point of the base-plate on which the crucible may stand and having parallel slots at its upper end, and a shaking-lever having approximately-parallel members each of which lies in a slot and having means for grasping the crucible, substantially as set forth.

9. In a crucible-shaker, the combination of a base-plate having a circular row of upwardly-projecting pins, a slotted standard near said pins, and a shaking-lever fulcrumed in said slotted standard and having means for grasping the crucible, substantially as set forth.

660,387. CRUCIBLE-SHAKER. WILLIAM S. MATHER, Newark, N. J. Filed Apr. 26, 1900. Serial No. 14,390. (No model.)



Claim.—1. A crucible-shaker, comprising a base-plate, a shaking-lever having upright legs at opposite sides of the crucible, said legs being fulcrumed at their lower ends on said base-plate and being provided between said legs with means for grasping the crucible, substantially as set forth.

2. A crucible-shaker, comprising a base-plate, a shaking-lever having opposite legs fulcrumed upon said base-plate and adapted to swing in parallel planes tangent to the crucible, and means upon said legs for grasping the crucible, substantially as set forth.

3. A crucible-shaker, comprising a base-plate, a shaking-lever having legs at opposite sides of the crucible, and a ring connecting said legs for encircling the crucible, and said legs being fulcrumed at a distance from said ring, substantially as set forth.

4. A crucible-shaker, comprising a supporting-surface having sockets, and a shaking-lever having a normally-horizontal ring for encircling the crucible, and upright legs pivoted to said ring at opposite sides and adapted to be inserted at their ends into the sockets of the supporting-surface, substantially as set forth.

5. A crucible-shaker, comprising a socketed supporting-surface, and a shaking-lever having opposite legs adapted to be seated at their ends in said sockets, and means carried by said legs for grasping the crucible, substantially as set forth.

6. A crucible-shaker, comprising a base-plate and means thereon for preventing the crucible from slipping, a ring or band for encircling the crucible, upright legs connected to opposite points of said ring, and being pivoted to swing in planes tangent to the crucible, and means for connecting said legs and operating them, substantially as set forth.

7. A crucible-shaker, comprising a base-plate having sockets therein, a shaking-lever comprising opposite legs seated in said sockets, a cross-piece and a handle, and means carried by said legs for grasping the crucible, substantially as set forth.

8. A crucible-shaker, comprising a base-plate having conical sockets and having pins for preventing lateral movement of the crucible, a shaking-lever having legs seated in said sockets, stops at the ends of said legs preventing their complete withdrawal from the sockets, and means upon said legs for grasping the crucible, substantially as set forth.

9. A crucible-shaker, comprising a base-plate for supporting the crucible, a ring adapted to encircle the crucible, and a shaking-lever having legs at opposite sides of said ring and pivoted thereto by oval pins working loosely in similarly-shaped sockets, whereby the said ring normally assumes a given angular relation to said legs, substantially as set forth.

10. In a crucible-shaker, the combination of a socketed base-plate, a shaking-lever having means for grasping the crucible and legs adapted to loosely enter at their ends the sockets in said base-plate and a shield or guard protecting the mouths of said sockets, substantially as set forth.

11. In a crucible-shaker, the combination of a supporting-surface for the crucible, upright legs at the sides of the crucible, said legs carrying between themselves means for grasping the crucible and being pivoted at a point away from said grasping means, and a jointed handle connected to said legs for oscillating them, substantially as set forth.

12. In a crucible-shaker, the combination with a socketed base-plate, of a shaking-lever having legs fitting at their ends into said sockets, stops preventing the complete withdrawal of said legs, means carried by said legs for grasping the crucible, and means for connecting and pivotally oscillating said legs, substantially as set forth.

660,388. CATAMENIAL APPLIANCE. CHARLES A. MOBERG and JAMES E. BRADY, Portland, Me. Filed May 23, 1900. Serial No. 17,683. (No model.)

Claim.—1. The improved catamenial appliance, comprising the two rods arranged opposite and curved inward directly toward each other, as shown, devices connecting the ends of said rods, and composed of two parts hinged together and adapted to lock in extended position, and the fabric secured at its side edges to said rods, and made of such form that it is duly stretched when the said devices are extended, as shown and described.

2. A catamenial appliance, comprising a skeleton frame adapted to be opened and closed, a fabric attached to said frame and stretched thereon when the frame is opened, and folding with the frame when the latter is folded, a receiver integral with and depending from said fabric, a spout leading from the lower portion of the receiver, a flexible pipe leading from the spout, and a receptacle connected with the pipe, substantially as shown and described.

3. A catamenial appliance, comprising a skeleton frame adapted to be opened and closed, a fabric attached to said frame and stretched thereon when the frame is opened, and folding with the frame when the latter is folded, a receiver integral with and depending from said fabric, a spout leading from the lower portion of the receiver, a flexible pipe leading from the spout, a receptacle connected with the pipe, and a valved connection in said pipe, as set forth.

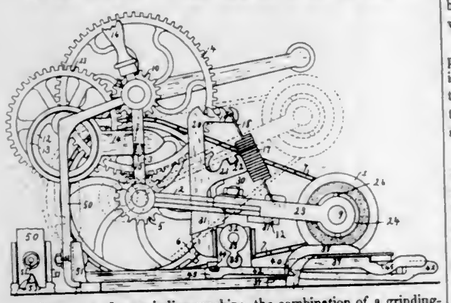
4. A catamenial appliance, comprising a frame consisting of curved side rods and transverse stop-hinge connections for connecting the ends of the rods with each other, a fabric secured at its sides to said rods and narrow at the middle and gradually widening toward the connected ends of the rods, and an elongated receiver integral with the fabric at the lowest portion thereof and depending from the fabric, substantially as shown and described.



5. A catamenial appliance, comprising a frame consisting of curved side rods and transverse stop-hinge connections for connecting the ends of the rods with each other, a fabric secured at its sides to said rods and narrow at the middle and gradually widening toward the connected ends of the rods, an elongated receiver integral with the fabric at the lowest portion thereof and depending from the fabric, and a discharge-spout depending from the lowest portion of the receiver, as set forth.

6. A catamenial appliance, comprising a frame consisting of curved side rods and transverse stop-hinge connections for connecting the ends of the rods with each other, a fabric secured at its sides to said rods and narrow at the middle and gradually widening toward the connected ends of the rods, an elongated receiver integral with the fabric at the lowest portion thereof and depending from the fabric, and buttons on the said hinge connections, to attach the appliance to a belt or straps, substantially as shown and described.

660,389. GRINDING-MACHINE. MICHAEL W. NEUENS, Milwaukee, Wis. Filed Dec. 22, 1899. Serial No. 741,234. (No model.)



Claim.—1. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from an oscillatory support mounted in a stationary frame or standard; driving mechanism mounted in suitable bearings in said stationary frame or standard; connections adapted to communicate motion therefrom to rotate the wheel; and detachable connections adapted to communicate motion from the driving mechanism to oscillate said support.

2. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from an oscillatory support mounted in a stationary frame or standard; driving mechanism mounted in suitable bearings in said stationary frame or standard; connections adapted to communicate motion therefrom to rotate the wheel; and connections adapted to communicate motion from the driving mechanism to oscillate said support; together with means for lifting the carrier and wheel from the work at each extremity of the surface to be ground.

3. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from an oscillatory support mounted in a stationary frame or standard; driving mechanism mounted in suitable bearings in said stationary frame or standard; connections adapted to communicate motion therefrom to rotate the wheels; and connections adapted to communicate motion from the driving mechanism to oscillate said support; together with an elastic connection between the carrier and a fixed point on the machine-frame, adapted to relieve the pressure of the wheel upon the work.

4. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from an oscillatory support mounted in a stationary frame or standard; driving mechanism mounted in suitable bearings in said stationary frame or standard; connections adapted to communicate motion therefrom to rotate the wheels; and connections adapted to communicate motion from the driving mechanism to oscillate said support; together with a yielding connection adjustably secured to the machine-frame, and adapted to relieve the pressure of the wheel upon the work.

5. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from an oscillatory support mounted in a stationary frame or standard; driving mechanism mounted in suitable bearings in said stationary frame or standard; connections adapted to communicate motion therefrom to rotate the wheel; and connections adapted to communicate motion from the driving mechanism to oscillate said support; together with one or more suitable guides located on the carrier, and one or more adjustable conical bearings located in the path of the guides, whereby said carrier is lifted as the guides impinge on said bearings.

6. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from a swinging support; suitable actuating mechanism for rotating the wheel; automatic mechanism, coöperative with the wheel-rotating mechanism, for reciprocating the carrier and the wheel; together with means for disengaging the reciprocating mechanism; and means for supporting the carrier and wheel in a raised position, said carrier being provided with a laterally-swinging bearing-arm, adapted to be adjusted to release the shaft of the grinding-wheel.

7. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from a swinging support; suitable actuating mechanism for rotating the wheel; automatic mechanism, coöperative with the wheel-rotating mechanism, for reciprocating the carrier and the wheel; together with means for disengaging the reciprocating mechanism; and means for supporting the carrier and wheel in a raised position, said carrier being provided with a laterally-swinging bearing-arm, adapted to be adjusted to release the shaft of the grinding-wheel; and said grinding-wheel being clamped upon the shaft by end binding-plates, and a wedge-shaped key coöperative therewith.

8. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from a swinging support; suitable actuating mechanism for rotating the wheel; and automatic mechanism, coöperative with the wheel-rotating mechanism, for reciprocating the carrier and the wheel; the wheel and carrier being supported by a single standard, adapted to be swung laterally, and adjusted to regulate the grinding-bevel of the wheel.

9. In a grinding-machine, the combination of a grinding-wheel supported by a carrier from a swinging support; suitable actuating mechanism for rotating the wheel; and automatic mechanism, coöperative with the wheel-rotating mechanism, for reciprocating the carrier and the wheel; together with means for securing grinding-wheels of various linear dimensions in position with a single binding-key.

10. In a grinding-machine, the combination with the base-frame; of a stationary bracket, provided with rigid arms; a clamping-frame pivotally secured to the bracket, and having one of its elements diagonally faced laterally; and a clamping-lever hinged to the base-frame, and extended under the diagonally-faced element of the clamping-frame; said lever being arranged to swing laterally, and push the clamping-frame toward the arms of the stationary bracket, when the lever passes under the lower portion of the diagonally-faced element.

11. In a grinding-machine, the combination with the base-frame; of a stationary bracket, provided with rigid arms; a clamping-frame pivotally secured to the bracket, with its side bars extending under the arms of the stationary bracket, and having one of its elements diagonally faced laterally; and a clamping-lever hinged to the base-frame and extended under the diagonally-faced element of the clamping-frame; said lever being arranged to swing laterally, and push the clamping-frame toward the arms of the stationary bracket, when the lever passes under the lower portion of the diagonally-faced element.

12. In a grinding-machine, the combination with the base-frame; of a stationary bracket provided with rigid arms; a clamping-frame arranged with its side bars extending under said arms, and adapted to receive a sickle-bar with the sickle-sections interposed between the frame and said rigid arms; a diagonally-faced element in said frame; and a swinging lever, coöperative with said element, to move the frame into clamping engagement with the arms of the stationary bracket.

13. In a grinding-machine, the combination with the base-frame; of a stationary bracket provided with rigid arms; a clamping-frame arranged with its side bars extending under said arms, and adapted to receive a sickle-bar with the sickle-sections interposed between the frame and said rigid arms; a diagonally-faced element in said frame; and a swinging lever, coöperative with said element, to move the frame into clamping engagement with the arms of the stationary bracket; together with means for reciprocating a rotary grinding-wheel over the cutting edges of the knife-sections engaged by said frame.

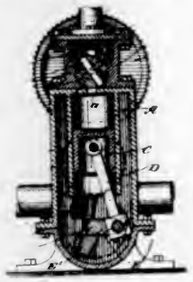
14. In a grinding-machine, having a reciprocating grinding-wheel, the combination with the wheel-supporting carrier; of one or more guides carried thereby; and adjustable conical nuts adapted to engage the guides and support the carrier, at the completion of its movement.

15. In a grinding-machine, having a reciprocating grinding-wheel, the combination, with the wheel-supporting carrier; of one or more diagonally-faced guides carried thereby; and conical nuts supported on screw-threaded bearings, and adapted to be adjusted thereon across the path of the guides.

16. In a grinding-machine, having a reciprocating grinding-wheel, the combination, with the wheel-supporting carrier; of one or more diagonally-faced guides carried thereby; and conical nuts supported on screw-threaded bearings, and adapted to be adjusted thereon, across the path of the guides, said nuts being provided with depending weights, adapted to prevent their accidental rotation.

17. In a grinding-machine, the combination with the base-frame; of a stationary bracket provided with rigid arms; a clamping-frame arranged to oppose said arms, and adapted to receive a sickle-bar with the sickle-sections interposed between the frame and said rigid arms; and a swinging lever operative to move said frame into clamping position with respect to the arms of the stationary bracket.

660,390. REVERSIBLE ENGINE. HERMAN B. OGDEN, New York, N. Y. Filed June 14, 1900. Serial No. 20,273. (No model.)



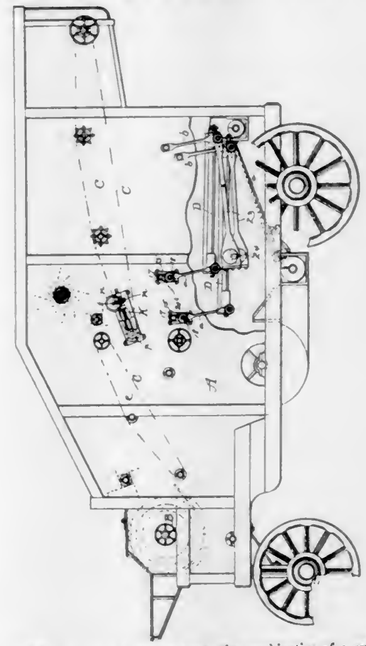
Claim.—1. A reversible engine, comprising a cylinder having an inlet-port and an exhaust-port, a piston reciprocating in said cylinder and controlling the opening and closing of said exhaust-port, a valve-chamber into which opens said inlet-port, the chamber having a port diametrically opposite said inlet-port of the cylinder and in communication with a motive-agent supply, a valve mounted to turn and to slide in said valve-chamber and having spaced diametrical ports standing at right angles to one another, means for rotating the valve in one direction from the engine-shaft, and manually-controlled means for sliding the valve in said chamber, to bring either valve-port in register with said inlet-port and said valve-chamber port, as set forth.

2. A reversible engine, comprising a plurality of cylinders each having an inlet-port and an exhaust-port, pistons reciprocating in said cylinders and controlling the opening and closing of said exhaust-ports, a valve-chamber into which open said inlet-ports and having ports diametrically opposite said inlet-ports of the cylinders, a distributing-chamber into which open said valve-chamber ports, the distributing-chamber being connected with a motive-agent supply, a valve mounted to turn and to slide in said valve-chamber, and having sets of ports, of which the ports in each set are spaced apart and disposed approximately at right angles to one another, said sets of ports being adapted to register successively with said cylinder inlet-ports and the valve-chamber ports, means for rotating said valve from the engine-shaft, and manually-controlled means for sliding the valve lengthwise in said valve-chamber, to bring one port in each set of ports in register with the cylinder and valve-chamber ports, substantially as shown and described.

3. In a reversing engine, the combination of a cylinder having an inlet-port at one end and an exhaust-port in its side wall, a piston, means for reciprocating the piston in the cylinder, said piston opening and closing the exhaust-port as it is reciprocated, a valve-chamber at one end of the cylinder and having a port directly opposite the inlet-port of the cylinder, and in communication with the motive-agent supply, a cylindrical valve mounted to turn and slide in the chamber, and provided with ports approximately at right angles with each other, means for rotating the valve from the piston-operating means, and means for sliding the valve, substantially as described.

4. In a reversing engine, the combination of a plurality of cylinders, each having an inlet-port and an exhaust-port, pistons in the cylinders and opening and closing the exhaust-ports, a driving-shaft having cranks standing at angles to each other and to which cranks the pistons are connected, a valve-chamber into which the inlet-ports of the cylinders open, said chamber having ports directly opposite the inlet-ports of the cylinder and in communication with the motive-agent supply, a cylindrical valve mounted to slide and turn in the said chamber and provided with sets of ports, the ports of each set being approximately at right angles to each other, and the sets of ports being arranged at angles to each other corresponding to the angles of the cranks of the driving-shaft, means for rotating the valve from the driving-shaft, and a lever for sliding said valve, substantially as described.

660,391. GRAIN-SEPARATOR. JOSEPH B. PEDRICK, Columbus, Ind. Filed July 1, 1898. Serial No. 684,968. (No model.)



Claim.—1. In a grain-separator, the combination of a series of angular brackets adapted to receive a riddle, rods connecting said brackets, two of said rods passing through each bracket and disposed at right angles to each other, and an adjusting device on one end of each rod, whereby to accommodate said brackets to riddles differing in dimensions.

2. In a grain-separator, the combination of a series or angular brackets adapted to receive a riddle, a cylindrical projection on each bracket, hangers connected with said projections, a pitman connected with one of said projections, rods passing through said brackets and projections, two of said rods passing at an angle to each other through each bracket, and adjusting devices on one end of each rod.

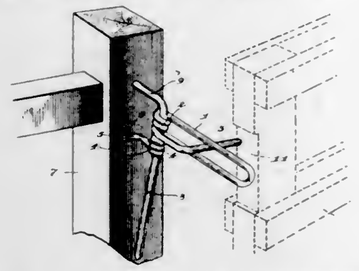
3. In a grain-separator, the combination with a framework, of a riddle-frame, hangers pivoted to the framework and to the riddle, a crank-shaft, a pitman connected with said crank-shaft and riddle, and a housing inclosing said crank-shaft and pitman, said housing having a hinged cover, and a slide in said cover.

4. In a grain-separator the combination with a framework and a riddle, of a slotted bracket secured to the framework and having rack-teeth, a shaft projecting through said slotted bracket, a pinion on said shaft meshing with the rack-teeth, a plate loosely mounted on the shaft, a nut on the shaft and a hanger confined at its upper end between said plate and nut and pivoted at its lower end to the riddle, substantially as set forth.

5. In a grain-separator, the combination with framework and a riddle, of a bracket, a plate adapted to slide in said bracket, a pivoted plate

connected with the first-mentioned plate, means for moving said plates vertically, and a hanger connected at one end to said pivoted plate and pivoted at the other end to the riddle, substantially as set forth.

660,392. GATE-LATCH. GEORGE W. RANDALL, Springdale, Ark. Filed June 4, 1900. Serial No. 19,010. (No model.)



Claim.—1. The combination with a post, of an upright latch-support carried by the post and disposed outwardly therefrom, and a horizontal latch-bar, having an intermediate horizontally-swinging pivotal connection with the latch-support, and said pivotal connection also being slidably mounted upon the latch-support, the portions of the latch-bar at opposite sides of the pivot thereof forming gate-engaging and post-engaging portions, respectively, the gate-engaging portion projecting laterally at the gate side of the post, and the opposite portion extending transversely across and in engagement with the post, at the lowermost limit of the latch-bar, and the latter being free to swing upon its pivot at the uppermost limit of the bar.

2. A gate-latch, comprising an upright latch-support for application to a post, and a latch-bar having a horizontally-swinging and vertically-slidable pivotal connection with the support, and a post-engaging locking-arm projecting from the pivotal connection of the latch and located longitudinally opposite the latter, the latch-bar being free to swing at its upper limit and locked against swinging movement at its lower limit, and its free and locked positions being substantially at right angles to each other.

3. A gate-latch, comprising an upright latch-support, a horizontal latch-bar, having a vertically-slidable and horizontally-swinging pivotal connection with the support, a post-engaging locking-arm projecting from he pivotal connection and located longitudinally opposite the latch-bar, and a lateral trip projection located intermediate of the free end of the latch-bar and its pivotal connection with the support.

4. In a gate or door latch, the combination with a post, of a vertically-disposed supporting-rod disposed outwardly from the post, and a latch-bar, which is mounted to swing laterally and to slide vertically upon the support, and also provided with a longitudinal arm projecting at the inner end of the latch, said arm having a frictional supporting engagement with the post at the upper limit of the latch and a locking engagement with said post at the lower limit of the latch.

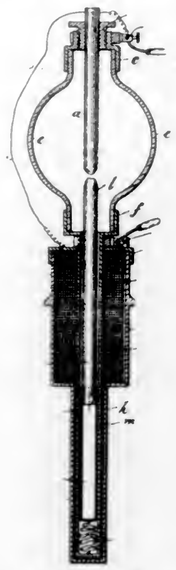
5. In a gate or door latch, the combination with a post, of a supporting-rod carried thereby and inclined upwardly and outwardly therefrom, and a latch-bar, which is mounted to swing laterally and to slide vertically upon the rod, and also provided with a longitudinal arm projecting at the inner end of the latch-bar, said arm having a frictional supporting engagement with the post, when the latch is at its uppermost limit and disposed outwardly at substantially right angles to the post, and also having a locking engagement transversely across the post, at the lowermost limit of the latch.

6. A gate or door latch, comprising a vertically-inclined supporting-rod, and a latch-bar, having a sleeve located at its inner end and slidably and pivotally embracing the supporting-rod, an intermediate transverse trip-rod, and a combined supporting and locking projection extending longitudinally at the opposite side of the sleeve.

7. A gate or door latch, comprising a vertically-disposed supporting-rod, and a latch formed from a single length of stiff wire, which is bent intermediate of its ends into a substantially U-shaped latch-bar, one end of the wire portion being twisted into coils or eyes, and then bent transversely through the U-shaped bar to form an intermediate trip projection, the opposite portion of the wire being bent into eyes corresponding and alined with the other eyes to form a sleeve slidably and pivotally embracing the supporting-rod, and then bent into a longitudinally-disposed and substantially L-shaped combined supporting and locking arm.

8. A gate-latch, comprising a vertically-inclined supporting spindle or rod, having lateral terminal attaching devices for connection with a post, and a horizontally-swinging latch-bar, having its inner end provided with a vertically-slidable pivotal connection with the spindle, a lateral intermediate horizontal trip projection at the inner side of the latch-bar, and a longitudinal locking projection extending from the pivotal connection of the latch-bar and in a direction opposite to the latter.

660,393. ELECTRIC-ARC LAMP. JOHN J. RATHBONE, London, England, assignor of two-thirds to Eric Rivers Smith and Charles Bean King, Jr., same place. Filed Feb. 24, 1900. Serial No. 6,395. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a guide-tube surrounded by a shunt-coil and carrying a suitable liquid, a lower-carbon holder in the form of a central core, a solenoid arranged in said tube and partly supported by said liquid, an air-tight globe carried by said guide, an air-tight capping fitted with a screw-socket connected to the said globe and the lower-carbon holder carried by said capping.

2. In an electric-arc lamp, a lower-carbon holder in the form of a central core of a solenoid, supported in mercury and provided with an opening to permit of the mercury acting in the manner as a dash-pot, substantially as described.

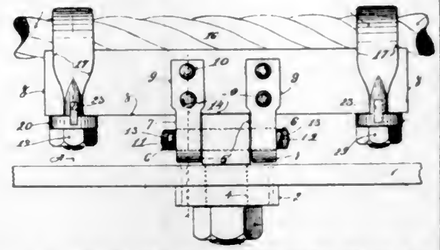
660,394. PHOTOGRAPHIC-PLATE HOLDER. ROBERT E. REARDON, Ottawa, Canada. Filed Nov. 13, 1899. Serial No. 736,844. (No model.)



Claim.—A photographic-plate holder consisting of a one-piece envelop of material impervious to light, having a stamped depression 3 to receive the photographic plate, said envelop having an opening or entrance at one end provided with a scored reinforcing-margin c, a cardboard closure 4 sliding in said opening and in guide-grooves in the envelop, the envelop being provided with grooves 5 impressed therein to coincide within said opening or entrance, a cushion 6, cemented to the envelop in one of said grooves, and a flexible strip 7 of textile material cemented along one edge to the envelop, so that the opposite edge of said strip will loosely overlie said cushion, for exclusion of light, as set forth.

660,395. WIRE-ROPE AND BUCKET CLIP. BYRON C. RIBLET, Nelson, Canada. Filed Mar. 24, 1900. Serial No. 10,028. (No model.)

Claim.—1. In a rope and bucket clip, the combination with the rope, of a flat bar concaved at one edge to fit against the rope, clips folded around said rope at each end of said bar, and arranged to lie against the opposite sides of said bar, threaded ends on said clips, nuts on said threaded ends, a strap on said threaded ends, a dowel-pin in said strap and bar adapted to hold it against displacement and a bolt pivotally secured to the opposite edge of said bar from said rope to swing vertically and having stop projections arranged to define its vertical movement to about an angle of forty-five degrees above and below its horizontal center, a round threaded end and a nut on the end of said bolt, and a shoulder adjacent to said nut, substantially as described.

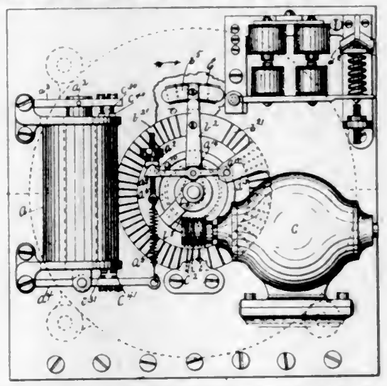


2. In a rope and bucket clip, the combination with the rope, of the rope-bar, the rope and rope-bar clips, the straps and the pins adapted to hold the strap to the bar, with two lugs spaced a short distance apart and projecting from the opposite edge of said rope-bar from said rope at the central portion of said rope-bar, a pin extending through said lugs, a bolt pivoted to said pin and having a concentric portion adjacent to the edge of said bar, stops on said concentric portion adapted to define the pivotal movement of said bolt, and a round stud end to said bolt having a shoulder at one end and a nut threaded to its outer end, substantially as described.

3. In a rope and bucket clip for aerial tramways the combination of a rope and the cross-bar of a bucket, the rope-bar, the clips, the straps, and the dowel-pins, with two lugs provided with strap portions adapted to be secured to said bar, a pin extending through said lugs and secured thereto, and a bolt pivotally mounted on said pin and arranged to swing in a vertical plane, stops on said bolt arranged to engage said bar and adapted to define the vertical movement of said bolt above and below the horizontal center of its pivotal pin, a shoulder on said bolt, a round portion adjacent to said shoulder, the bucket cross-bar pivotally mounted on said round portion and a nut threaded to the end of said round portion and adapted to secure said cross-bar to said bolt, substantially as described.

4. In a rope-clip, the combination of the rope, the bar fitted to rest against said rope, the clip surrounding said rope and the opposite sides of said bar, the straps on the ends of said clips, the nuts for clamping said rope and bar between said clip and strap and the dowel-pins in said straps and bar, with the lugs secured to the opposite edge of said bar from said rope, the pin secured in said lugs, the bolt pivotally mounted on said pin and the cross-bar mounted on said bolt, substantially as described.

660,396. ELECTRIC REGULATOR. CHARLES W. RICHARDS, Needham, Mass., assignor of one-half to Winthrop M. Chapman, same place. Filed Aug. 21, 1899. Serial No. 728,003. (No model.)



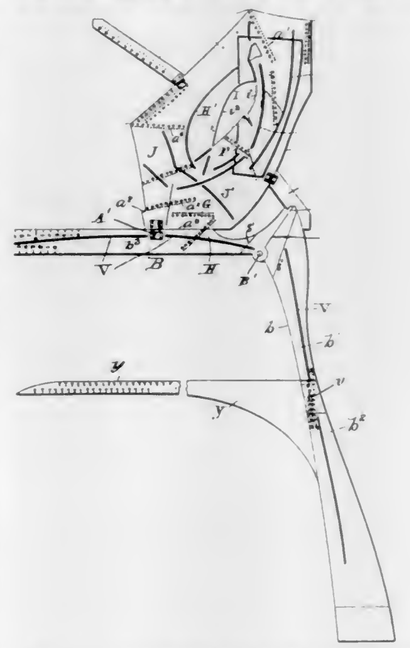
Claim.—1. In a regulator for electric currents, a solenoid in the circuit of the current to be regulated; two circuit-controllers; a spring whereby the solenoid-core is normally balanced between said circuit-controllers and adapted to operate one of said circuit-controllers when the tension of the spring is overcome by the attractive force of the current flowing through the solenoid; a motor controlled by said circuit-controllers; a rheostat operated by said motor; and a device for increasing the tension of said spring, said device being connected with and operated by said rheostat, as set forth.

2. In a regulator for electric currents, an electrically-operated governor traversed and controlled by the current to be regulated; two sets of contact-pieces and a movable member for said governor balanced between said sets of contact-pieces when the governor is not electrically energized; and means for also so balancing said movable member when said governor is traversed by a predetermined current.

3. In a regulator for electric currents, a solenoid having its core provided with a spring whereby said core is normally balanced in a position between two circuit-closers, said solenoid being traversed by the current which is to be regulated, a motor adapted to be started in one direction by the action of one of said circuit-closers and in the other direction by the action of the other, a rheostat operated by said motor, and means for increasing the tension of the solenoid-core spring in response to the initial movement of the rheostat, as set forth.

4. The combination with a storage battery, of a dynamo, a circuit-closer to connect said dynamo with said battery, a switch member provided with electromagnets in circuit with the dynamo, a second switch member provided with other electromagnets in the circuit controlled by said circuit-closer, and a coil in series with said first electromagnet but oppositely wound, said coil surrounding the pole-pieces of said second electromagnet, as and for the purpose described.

660,397. TAILOR'S DRAFTING IMPLEMENT. ABE N. ROSENBLOOM, Boston, Mass. Filed Jan. 11, 1900. Serial No. 1,120. (No model.)



Claim.—1. A tailor's drafting device for marking out patterns for garments, comprising in its construction a body portion having a suitably-shaped outline to form the pattern for the back and shoulder of the garment and having in it suitably located and arranged series of graduated and numbered apertures or pin-holes, a series of marking-slots having a definite relation to said series of apertures or pin-holes, a lower portion or extension removably secured to the main body, and a vertical limb pivoted to said extension and provided with graduated apertures arranged to indicate the vertical lengths of waists for coats, substantially as described.

2. A tailor's drafting device for marking out patterns for garments, comprising in its construction a body portion having a suitably-shaped outline to form the pattern for the back and shoulder of the garment and having in it suitably located and arranged series of graduated and numbered apertures or pin-holes, a series of marking-slots having a definite relation to said series of apertures or pin-holes, a lower portion or extension removably secured to the main body, a vertical limb pivoted to said extension and provided with graduated apertures arranged to indicate the vertical lengths of waists for coats, and a stop-arm hinged to the main

body to prevent the extension and its limb from moving too far on their pivot or hinge, substantially as described.

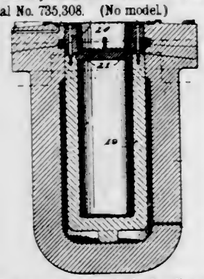
3. A tailor's drafting device for marking out patterns for garments, comprising in its construction a body portion having a suitably-shaped outline to form the pattern for the back and shoulder of the garment and having in it suitably located and arranged series of graduated and numbered apertures or pin-holes, a series of marking-slots having a definite relation to said series of apertures or pin-holes, a lower portion or extension removably secured to the main body, and a vertical limb pivoted to the extension and provided with graduated apertures arranged to indicate the vertical lengths of waists for coats, the extension lying in a horizontal position and being provided with graduated apertures arranged to indicate the girth or waist measures of coats, substantially as described.

4. A tailor's drafting device for marking out patterns for garments, comprising in its construction a body portion having a suitably-shaped outline to form the pattern for the back and shoulder of the garment and having upon it suitably located and arranged series of graduated and numbered apertures or pin-holes, a series of marking-slots having a definite relation to said series of apertures or pin-holes, a lower portion or extension removably secured to the main body, a vertical limb pivoted to the extension and provided with graduated apertures arranged to indicate the vertical lengths of waists for coats, the extension being horizontal and provided with graduated apertures arranged to indicate the girth or waist measures of coats, and a lower, horizontal arm attached to the vertical arm parallel with the extension and provided with graduated apertures arranged to indicate the girth measurement for coats at the junction with the skirts, substantially as described.

5. A tailor's drafting device for marking out patterns for garments, comprising in its construction a body portion having a suitably-shaped outline to form the pattern for the back and shoulder of the garment and having upon it suitably located and arranged series of graduated and numbered apertures or pin-holes, a series of marking-slots having a definite relation to said series of apertures or pin-holes, a horizontal, lower portion or extension removably secured to the main body, a vertical limb pivoted to the extension and provided with graduated apertures arranged to indicate the girth or waist measures of coats, and a lower horizontal arm provided with apertures arranged to indicate the girth measurement for coats at the junction with the skirts, said lower arm being curved on its lower edge, the curve disappearing at and continued along the inner edge of the vertical limb of the extension and serving as a rule for marking out the back curve for cut-away coats, substantially as described.

6. A tailor's drafting device for marking out the various parts of the bodies of coats or similar garments, provided with a removable extension having graduated apertures for marking girths or waist measures, a vertical limb for marking out the skirt portions thereof pivoted to the extension, a lower horizontal arm secured to the vertical limb and a catch for removably securing the extension to the main body portion, substantially as described.

660,398. HYDRAULIC PRESS. GEORGE A. SAUER, Dayton, Ohio, assignor to the Buckeye Iron and Brass Works, same place. Filed Oct. 30, 1899. Serial No. 735,308. (No model.)



Claim.—A ram adapted for use in hydraulic presses, consisting of a hollow body portion provided with a pair of recesses, an annular seat in the top thereof, and having the peripheral edge of the top beveled, a cap for said body portion of the same relative diameter, formed with a recess in its upper side and having the peripheral edge of the bottom beveled, a rabbet carried by said cap and adapted to engage the seat of the body portion, means extending through said cap and engaging in the said recesses for detachably securing the cap to the body portion, and a lifting-lug formed integral with said cap and arranged within the recess thereof, substantially as herein shown and described.

660,399. PROPELLER-SHAFT BEARING. JOHN T. SHEPARD, Evansville, Ind., assignor of one-half to Frank Tardy, same place. Filed Apr. 6, 1900. Serial No. 11,829. (No model.)

Claim.—1. A propeller-shaft combined with a surrounding tube, and springs whereby it is made yielding and spring-seated against strain in longitudinal direction substantially as described.

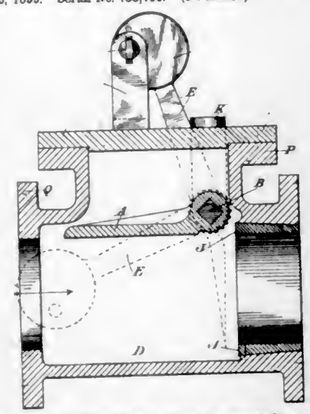


2. A propeller-shaft having a collar or shoulder, and an inclosing tube having another collar or shoulder bearing against the same, springs to render it yielding against endwise movement, and a stuffing-box arranged outside of the tube substantially as described.

3. A propeller-shaft having a collar or shoulder, an inclosing tube having another collar or shoulder bearing against the same, springs to render it yielding against endwise movement, a second tube encompassing the first and bearing at its end a stuffing-box fitting the inner tube substantially as described.

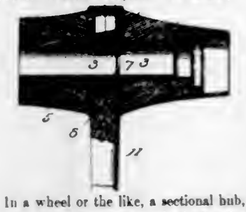
4. A propeller-shaft having a collar or shoulder, an inclosing tube having another collar or shoulder bearing against the same, and a rigidly-attached plate at the other end, a second tube inclosing the first a stuffing-box with parallel studs projecting beyond it, a gland fitting the inner tube and guided on the said studs, and springs arranged on both sides of the end plate of the inner tube substantially as described.

660,400. VALVE. RALPH J. SMITH, Sunderland, England. Filed Oct. 16, 1899. Serial No. 733,799. (No model.)



Claim.—The combination with a pipe or passage for a working fluid, a swinging valve arranged therein, and a rocking axle carrying the valve and projecting to the exterior of the pipe or passage, of a lever secured to the projecting end of the axle and having a weight at its outer end constructed with an orifice or recess, a bolt-supporting bracket, a spring-pressed bolt supported by and movable lengthwise in said bracket to engage and disengage the orifice or recess in the weight, a strap attached to the pipe or passage and projecting in proximity to one end of said axle, and an adjustable pivot carried by said strap and pivotally engaging one end of the axle, substantially as described.

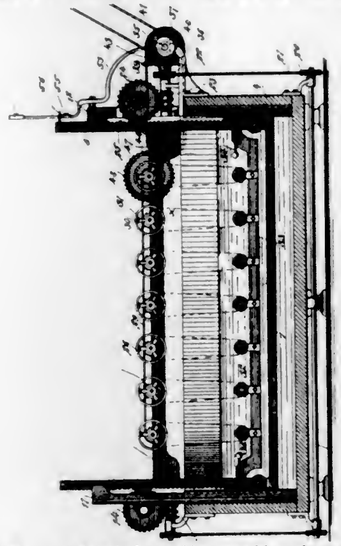
660,401. VEHICLE-WHEEL. JOHN C. SMITH, Massapeag, Conn. Filed Aug. 6, 1900. Serial No. 26,066. (No model.)



Claim.—1. In a wheel or the like, a sectional hub, means for connecting the parts of the hub, a conical spreader in the plane of the spokes, and a spoke-annulus composed of rings formed of segment-sections disposed to break joint, each segment-section being composed of a plate and spaced wedge-shaped lugs or projections, the segment-sections of the rings being disposed with the plates outermost and the lugs or projections facing inward and the spaces between the said lugs unitedly forming sockets to receive the tenons of the spokes, substantially as set forth.

2. The herein-described hub composed of similarly-formed sections, each consisting of a box portion having a flange at its inner end and a wooden sleeve fitted upon its outer end portion, an exteriorly-threaded tubular extension at the inner end of one box portion, and a conical spreader at the inner end of the other box portion and interiorly threaded to receive the exteriorly-threaded tubular extension, and a sectional spoke-annulus adapted to be clamped between the flanges of the box portions of the hub-sections and to be expanded by the aforementioned conical spreader, as and for the purpose set forth.

660,402. APPARATUS FOR DYEING. NORBURY L. SMITH, Waterford, N. Y. Filed Feb. 28, 1900. Serial No. 6,844. (No model.)



Claim.—1. A skein-dyeing machine, comprising a dye-vat, a frame movable vertically in the vat, reels mounted to rotate on the frame, sprocket-wheels having engagement with the reels, a sprocket chain engaging with the several sprocket-wheels, a gear-wheel attached to the shaft of one of said sprocket-wheels, a pinion having bearings in a bracket attached to the vat and adapted to be engaged by said gear-wheel when in its lowermost position, the gear-wheel and pinion being disengaged when the gear-wheel with the frame is moved upward and means for rotating said pinion, substantially as specified.

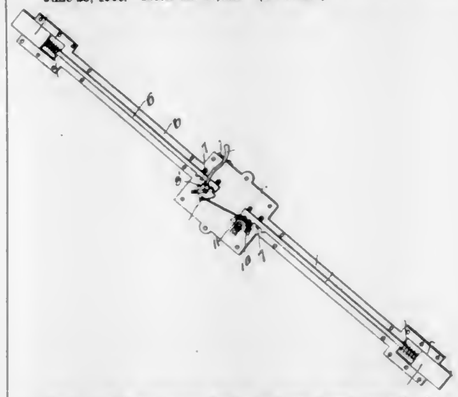
2. A dyeing-machine, comprising a dye-vat, a frame for carrying the material to be dyed, a driving-shaft, gear-wheels loosely mounted on said shaft, a shaft for causing vertical movements of the frame, a gear-wheel rigidly attached to said shaft, and meshing with both of the first-named gear-wheels, a clutch-section slidable on the driving-shaft, and means for moving said clutch-section to lock either one of the gear-wheels in rotary connection with the driving-shaft, substantially as specified.

3. A skein-dyeing machine, comprising a dye-vat, a frame movable in said dye-vat and consisting of upright end portions each provided with rack-bars, two bars connecting the upper portions of said uprights, sprocket-wheels supported to rotate between said two bars, reels attached to the sprocket-wheels, a chain connecting with the several sprocket-wheels, means for moving said chain to rotate the sprocket-wheels, gear-wheels engaging with the rack portions of the frame, and means for rotating said gear-wheels alternately in opposite directions, substantially as specified.

4. In a dyeing-machine, a dye-vat, guides arranged vertically in said dye-vat, a frame movable in said guides and adapted to carry the material to be dyed, gear-wheels engaging with rack portions of the frame, a driving-shaft, gear-wheels loosely mounted on said driving-shaft, a worm-shaft engaging with the first-named gear-wheels, a gear-wheel on one of said worm-shafts and engaging with the gear-wheels on the driving-shaft, a driving connection between the two worm-shafts, a clutch-section on the driving-shaft and adapted for engagement with either one of the gear-wheels thereon, a shifting-lever pivoted to one of the guides, and cam-lugs on said lever adapted for engagement with pins on one of the uprights of the frame for moving the clutch-section, substantially as specified.

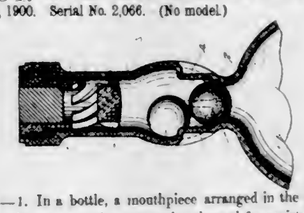
5. A dyeing-machine, comprising a dye-vat, a frame for carrying the material to be dyed, racks on said frame, gear-wheels connected with said racks at opposite ends of the vat, worm-shafts engaging with the gear-wheels, sprocket-wheels on said worm-shafts, a counter-shaft extended underneath the vat, sprocket-wheels on said counter-shaft, sprocket-chains connecting the sprocket-wheels of an end, and means for imparting motion to the worm-shafts, substantially as specified.

660,403. LATCH. MAXWELL SUTTON, Welch Glade, W. Va. Filed June 23, 1900. Serial No. 21,305. (No model.)



Claim.—The combination with an inclosing frame adapted to be secured to a door; of two toothed segments pivoted within said frame, spring-actuated bolts having a sliding engagement through the opposite ends of said frame, rack-bars extending from said bolts and having their racked portions in engagement with the toothed segments, a rope-guide secured to the face of one of the toothed segments, a rope connecting said toothed segments, and a lever connected to one of said toothed segments and extending out through a slot in the frame, substantially as and for the purpose set forth.

660,404. BOTTLE. JEAN B. TAUVERON, New York, N. Y. Filed Jan. 19, 1900. Serial No. 2,066. (No model.)

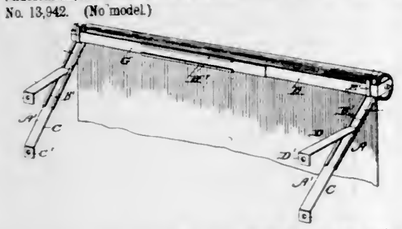


Claim.—1. In a bottle, a mouthpiece arranged in the bottle-neck and having at its upper portion an annular channel for registering with a channel formed in the bottle-neck for receiving cement, an annular channel below the channel of the mouthpiece and communicating therewith through notches through which cement may pass, a block at the lower

end of the mouthpiece and having inclined channels communicating with oppositely-inclined ports between the block and upper portion of the mouthpiece, and a valve in the neck below the mouthpiece, substantially as specified.

2. In a bottle, a tubular mouthpiece having inclined ports registering with oppositely-inclined channels in the periphery of a block at the lower end of and integral with the mouthpiece, a valve-casing into which the lower portion of the mouthpiece extends, a valve in said casing, and a weight for the valve, substantially as specified.

660,405. CURTAIN-FIXTURE. CHARLEY B. TITUS and MONTFORD C. MCMAINS, Little River, Kans., assignors to themselves, William D. Middlekauff, and John Moll, same place. Filed Apr. 23, 1900. Serial No. 13,942. (No model.)

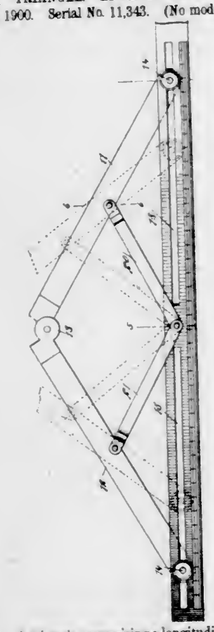


Claim.—1. The bracket having an inclined or strut brace and a top plate bracing the upper end of the strut-brace and provided with a curtain-supporting section having a plate sliding along said strut-brace and arranged at its edges to embrace the same substantially as set forth.

2. The bracket herein described having an inclined or strut brace plate and a top plate connected with the upper end of the strut-brace and notched at the juncture of such parts, and the adjustable section having inturned flanges overlapping and sliding along the edges of the strut-brace and operating in the notches of the top plate and compressed or indented above the upper end of the strut-brace whereby to lock the sliding section in any desired adjustment substantially as set forth.

3. The bracket having a strut-brace plate and an edge notch, substantially as described, and the adjustable section having inturned flanges overlapping and sliding along the edges of the strut-brace and indented above the notch substantially as set forth.

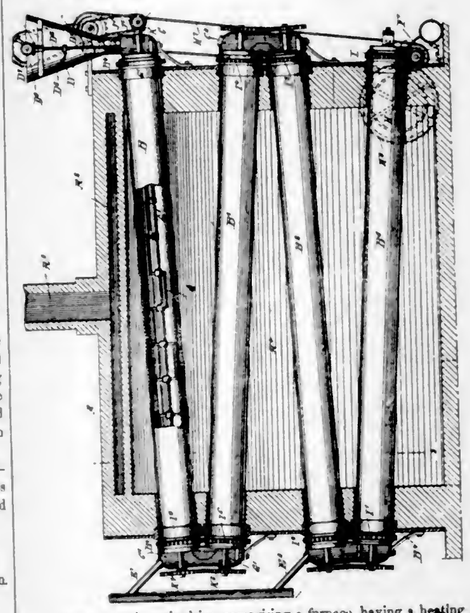
660,406. TRIANGLE. EDWIN H. WATERBURY, Stamford, Conn. Filed Apr. 3, 1900. Serial No. 11,343. (No model.)



Claim.—1. A triangle, comprising a longitudinally-slotted base-rule, angle-rules pivotally connected together, set-screws engaging with said angle-rules and passing through the slots in the base, and braces pivotally connected to the base and to the angle-rules, substantially as specified.

2. In a triangle, a longitudinally-slotted base-rule, angle-rules pivotally connected together, washers having block portions extended into the slots in the base-rule, screws passing through said washers and engaging with the angle-rules, thumb-nuts on the screws, and braces pivoted at one end to the base-rule and at the other end to the angle-rules, substantially as specified.

660,407. GRAIN-DRIER. GEORGE WERNER and JOHN H. HILLKER, New York, N. Y. Filed Apr. 18, 1900. Serial No. 13,333. (No model.)



Claim.—1. A grain-drier, comprising a furnace having a heating chamber, drums mounted to revolve in the chamber of the furnace, the drums being alternately inclined in opposite directions and geared together at their converging ends, boxes arranged on the ends of the furnace over the projecting ends of the drums, stirrers arranged in the drums and having their shafts projecting through the said boxes and geared together, means for operating the drums and beaters, a hopper discharging into one of the said boxes, a rotary feed device in the hopper, and means for operating the feed device from the stirrer-operating means, substantially as described.

2. A grain-drier, comprising a furnace having a heating-chamber, drums mounted to revolve in the chamber of the furnace and inclined alternately in opposite directions, each drum being provided with gear-wheels at its ends, the gear-wheels of adjacent drums at their converging ends meshing with each other, boxes on the ends of the furnace over the projecting ends of the drums, stirrers arranged in the drums and having their shafts projecting through the said boxes and provided with gear-wheels thereon, the gear-wheels at the converging ends of the shafts meshing with each other, a drive-shaft, gearing between the drive-shaft and one end of the lowermost drum, a shaft geared with the stirrer of the uppermost drum, and means for operating said shaft from the drive-shaft, substantially as described.

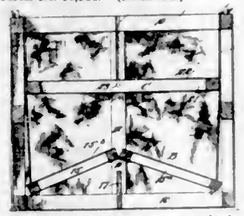
3. A grain-drier, comprising a furnace having an interior chamber around which the products of combustion pass, drums mounted in the said chamber and having their ends extending through the end walls of the furnace, the drums being alternately inclined in opposite directions and having their converging ends outside of the furnace geared together, boxes on the outside of the furnace over the ends of the drums, stirrers mounted in the drums and having their shafts projecting through the said boxes and geared together, and means for operating the drums and stirrers, substantially as described.

4. In a grain-drier, the combination with a furnace having a heating-chamber, drums mounted to revolve in the said chamber and inclined alternately in opposite directions, the converging ends of the drums being geared together, stirrers in the drums and having their converging ends

geared together, and means for operating the drums and stirrers, of a hopper for feeding the grain to the uppermost drum, a feed-screw in the hopper, an agitating-arm secured upon the shaft of the feed-screw above the same, and means for operating the feed-screw shaft from the drum and stirrer operating means, substantially as described.

5. In a grain-drier, the combination with a revolving drum, of a shaft mounted in the drum, a series of oppositely-projecting arms secured to the shaft, and wings carried by the outer ends of the arms, the wings being secured alternately to two oppositely-projecting arms, substantially as herein shown and described.

660,408. HOP-DRIER. ADOLF WOLF, Silverton, Oreg. Filed May 22, 1900. Serial No. 17,561. (No model.)



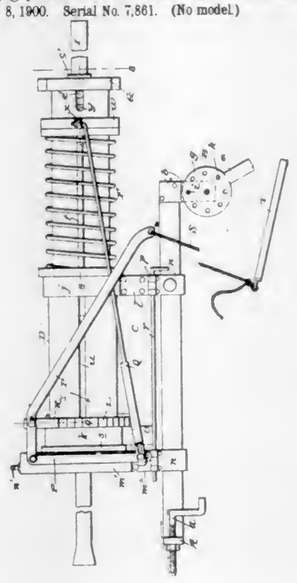
Claim.—1. In a hop-drier, a box open at the bottom, a reticulated bottom consisting of two sections hinged together at their inner edges, and supporting devices for the outer portions of the bottom.

2. In a hop-drier, a main skeleton frame provided with end and side coverings of a reticulated or perforated material, a bottom for the main frame independent thereof, supporting devices for the said bottom, and a tray located above the bottom and having pivotal connection with the main frame, as set forth.

3. In a hop-drier, a main skeleton frame, a reticulated or perforated covering for the sides and ends of the said main frame, a division-board extending from end to end at the bottom portion of the main frame, a bottom consisting of skeleton frames having a hinged connection and located above the division-board, a reticulated or perforated covering for said frames of the bottom, means for supporting the bottom and permitting a dumping action, and a tray removable from the main frame and located above the bottom, which tray has pivotal connection with the main frame of the drier, as described.

4. In a hop-drier, a box open at the bottom and provided with a vertical partition at its lower portion, a reticulated bottom consisting of two sections hinged together at their inner edges above said partition, and supporting devices for the outer portions of the bottom.

660,409. ROCK-DRILL. CHARLES E. YOUNG, Fremont, Wash. Filed Mar. 8, 1900. Serial No. 7,861. (No model.)



Claim.—1. In a rock-drill, the combination of a suitable support, a drill-rod holder mounted on the support and movable endwise with respect thereto, a spring interposed between the holder and support for cushioning the forward movement of the former and returning it to its normal position subsequent to such movement, and a drill-rod arranged in the holder and having a limited endwise movement with respect thereto, whereby it is enabled to move endwise in the holder precedent to the movement of said holder against the tension of the spring, substantially as set forth.

2. In a rock-drill, the combination of a suitable support, a rotatable and endwise-movable drill-rod holder, a spring interposed between the holder and support, and a drill-rod arranged in said holder so as to turn therewith and having a limited endwise movement with respect thereto, whereby it is enabled to move endwise in the holder precedent to the movement of said holder against the tension of the spring.

3. In a rock-drill, the combination with a rotatable drill-rod holder comprising a tubular section held against endwise movement, an endwise-movable tubular section arranged in and connected to the first-named section so as to turn therewith and move endwise with respect thereto and having longitudinal slots; and a coiled spring surrounding the endwise-movable section and interposed between an abutment thereon and the first-named section; of a drill-rod arranged in the holder and having lateral arms arranged in the slots in the endwise-movable section thereof, substantially as specified.

4. In a rock-drill, the combination with a rotatable drill-rod holder comprising a tubular section held against endwise movement, an endwise-movable tubular section arranged in and connected to the first-named section so as to turn therewith and move endwise with respect thereto and having longitudinal slots, slotted guide-pieces connected to said endwise-movable section of the holder and having inwardly-directed and recessed arms at their inner ends and outwardly-directed arms at their outer ends, and a collar loosely mounted on said endwise-movable section and having offsets, of a drill-rod arranged in the holder and having lateral arms arranged in the slots in the endwise-movable section thereof and also in the slots of the guide-pieces, substantially as specified.

5. In a rock-drill, the combination with a rotatable drill-rod holder comprising a tubular section held against endwise movement, an endwise-movable tubular section arranged in and connected to the first-named section so as to turn therewith and move endwise with respect thereto and having longitudinal slots, slotted guide-pieces connected to said endwise-movable section of the holder and having inwardly-directed and recessed arms at their inner ends and outwardly-directed arms at their outer ends, a collar loosely mounted on said endwise-movable section and having offsets, a guide arranged in advance of the drill-rod holder and comprising a fixed section, a pivoted section and means for securing the pivoted section; of a drill-rod arranged in the holder and the guide in advance of the same and having lateral arms arranged in the slots in the endwise-movable section of the holder, substantially as specified.

6. In a rock-drill, the combination of a drill-rod holder, a frame arranged in advance of the holder, a guide arranged in said frame and comprising a member fixed thereto and having a slot, a pivoted member, and a fastener consisting of a rock-shaft journaled in a bearing on the pivoted member and extending through an opening in one of the bars of the frame and having an angular arm adapted to enter the slot of the fixed member; and an endwise-movable drill-rod held in the holder and extending through the guide, substantially as specified.

7. In a rock-drill, the combination of a horizontal bar, a carriage comprising one or more inner portions mounted on the bar and having lugs at their opposite sides, provided with apertures disposed in the direction of the length of the bar, an outer portion having corresponding apertured lugs at its opposite sides, and removable longitudinal rods extending through the apertured lugs of the inner and outer portions at opposite sides of the bar so as to hold the outer portion against swinging on the inner portion, and a drill-rod holder arranged in the outer portion of the carriage, substantially as specified.

8. In a rock-drill, the combination of a rotatable drill-rod holder comprising a section held against endwise movement and provided with a ratchet, a section connected with the first-named section so as to turn therewith and move endwise with respect thereto, and a spring interposed between the two sections, a drill-rod movable with the endwise-movable section of the holder, a lever, a pawl carried by the lever and adapted to engage the ratchet of the drill-rod holder, a rod connecting the lever and the endwise-movable section of the drill-rod holder and suitable means for operating the lever, substantially as specified.

9. In a rock-drill, the combination of a rotatable drill-rod holder comprising a section held against endwise movement and provided with a ratchet, a section connected with the first-named section so as to turn therewith and move endwise with respect thereto, and a spring interposed between the two sections, a drill-rod movable with the endwise-movable section of the holder, a lever, a pawl carried by the lever and adapted to engage the ratchet of the drill-rod holder, a rod connected to the endwise-

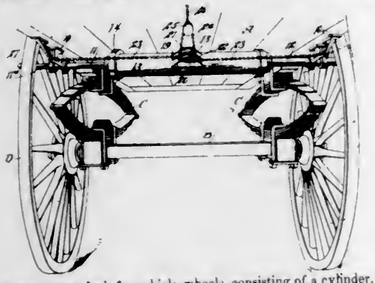
movable section of a drill-rod holder and loosely connected to the lever, a spring for moving the lever independent of the endwise-movable section of the holder, and suitable means for rocking the lever, substantially as specified.

10. In a rock-drill, the combination of a suitable support, a rotatable drill-rod holder comprising a tubular section held against endwise movement in the support and having a ratchet, an endwise-movable, tubular section arranged in the first-named section so as to turn therewith and move endwise with respect thereto, a coiled spring surrounding the endwise-movable section and interposed between the two sections, a drill-rod arranged in the holder, a frame fixed on the support, a rock-shaft journaled in said frame, a coiled spring surrounding said shaft and connected at one end thereto and at its opposite end to the frame, a lever fixed on said shaft, a rod loosely connected to the lever and interposed between the same and the endwise-movable section of the holder, a pawl carried by the lever and arranged to engage the ratchet of the holder, and a pedal-lever connected with the said lever, substantially as specified.

11. In a rock-drill, the combination of a rotatable drill-rod holder comprising a section held against endwise movement and provided with a ratchet, a section connected with the first-named section so as to turn therewith and move endwise with respect thereto, and a spring interposed between the two sections, a drill-rod movable with the endwise-movable section of the holder, an angular lever having a depending arm and a rearwardly-extending arm equipped with a pawl, a rod connected to the endwise-movable section of the drill-rod holder and loosely connected to the lever, a spring for moving the lever independent of the endwise-movable section of the holder, a lever mounted on and adjustably connected to the rearwardly-extending arm of the angle-lever, and means connected to said adjustably-connected lever for rocking the angle-lever, substantially as specified.

12. In a rock-drill, the combination of a rotatable drill-rod holder provided with a ratchet, the rock-shaft M, the spring N, a lever fixed on the rock-shaft equipped with a pawl for engaging the ratchet and having lateral, apertured branches, a second lever fulcrumed on the first-named lever and adjustably connected by means of a removable pin to one of the apertured branches thereof; said second lever being adapted to be connected to a pedal-lever, substantially as specified.

660,410. LOCK FOR VEHICLE-WHEELS. GEORGE BECKER, New York, N. Y. Filed May 2, 1900. Serial No. 15,198. (No model.)



Claim.—1. A lock for vehicle-wheels, consisting of a cylinder, locking-bars having sliding movement in the cylinder and extending beyond the ends of said cylinder, means within the cylinder, for normally forcing the locking-bars outward in opposite directions, and means for drawing the locking-bars in direction of each other, as described.

2. A locking device for vehicle-wheels, consisting of telescopic locking devices adapted to enter spaces between the spokes of a wheel, a spring exerting outward pressure on the locking devices, and a mechanism, substantially as described, for controlling the movement of the said locking devices.

3. A lock for vehicle-wheels, consisting of a cylinder, locking-bars whien extend through and slide in the ends of the cylinder, the inner ends of the locking-bars having a telescopic connection, offsets located on the said locking-bars within the cylinder, a spring exerting outward pressure on the said offsets, and means for drawing the locking-bars in direction of each other, as set forth.

4. In a lock for vehicle-wheels, a cylinder, locking-bars having sliding movement in the ends of said cylinder and extending beyond said ends, the inner ends of the locking-bars having telescopic connection, a spring exerting pressure on the locking-bars in an outward direction, arms connected with the locking-bars, pulleys supported upon the exterior of the cylinder, a chain or like device attached to the said arms and passed around the said pulleys, the chain having a loop formed in its central portion adjacent to the pulleys, and a roller-bearing for the loop portion of the chain, as described.

660,411. DENTAL PLUGGER. ROBERT BLUM, Corpus Christi, Tex. Filed Apr. 13, 1900. Serial No. 12,718. (No model.)



Claim.—1. A dental plugger, having a casing, a movable cylinder therein, the cylinder having connection with the dental tool, and a piston-like mallet working in the cylinder and adapted to strike the same, to impart movement to the dental tool through the medium of the cylinder.

2. A dental plugger, having a casing, a hollow member fitted to move therein and having connection with the dental tool, and a mallet working within said member and adapted to strike the member to impart movement to the dental tool through the medium of the said member.

3. A dental plugger having a casing, a cylinder movably fitted therein, a piston-like mallet working in the cylinder, and a plugger-rod connected with the outer portion of the cylinder, the mallet serving to strike a forward blow directly on the plugger-rod and to strike a backward blow upon a part of the cylinder, which cylinder transmits such backward blow to the plugger-rod.

4. A dental plugger having a casing, a hollow member movably fitted therein, a plugger-rod connected with the member, and a piston-like mallet working within said member, the mallet striking directly upon the plugger-rod on its outward movement and on the said member upon its backward movement, the member transmitting the backward blow to the plugger-rod.

5. A dental plugger, having a plugger-rod or other element transmitting the blow to the dental tool, a mallet to strike the plugger-rod, and a yieldingly-sustained buffer-finger arranged alongside of the plugger-rod, for the purpose described.

6. A dental plugger, having a plugger-rod or other element to communicate the blow to the dental tool, a mallet to strike the plugger-rod, and two buffer-fingers lying on opposite sides of the plugger-rod and spring-sustained in position, the buffer-fingers being engaged by the mallet, for the purpose described.

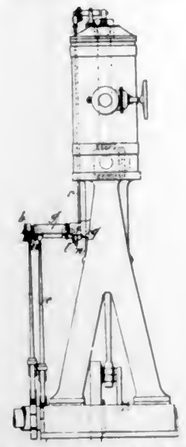
7. A pneumatic or other fluid-operated dental plugger, having a casing and valve devices placing the interior of the casing normally in communication with the atmosphere, such valve devices having connection with the dental tool to be actuated by pressure communicated thereto.

8. A dental plugger, having a casing with an orifice therein, a cylinder mounted to slide in the casing and also having an orifice, means for yieldingly holding the two orifices in registry, a plugger-rod or other element carrying the dental tool, said rod having connection with the cylinder, and a piston-like mallet sliding in the cylinder.

9. A dental plugger, having a casing with an orifice therein, a cylinder mounted to slide in the casing and having an orifice capable of registering with the orifice in the casing, a piston-like mallet working in the cylinder, and a plugger-rod or like element having connection with the outer end of the cylinder.

660,412. DISTRIBUTING MECHANISM FOR STEAM OR OTHER FLUID-PRESSURE ENGINES. CLAUDE BONJOUR, Paris, France. Filed Aug. 5, 1899. Serial No. 726,314. (No model.)

Claim.—1. The combination of the valve of a steam or other motor with a driving-shaft therefor and two connecting means between the driving-shaft and the valve, one such means being in variable connection with the shaft and the other in invariable connection with it and unification mechanism coupling said two connecting means together, whereby the duration of admission may be varied, while keeping the advances and compressions constant, all substantially as described.



2. The combination of the valve of a steam or other motor with a driving-shaft and two eccentrics, one having a fixed relation to the said shaft and the other adjustable as to its angle of connection, means connecting each eccentric with the valve and unification mechanism coupling said two connecting means together, as and for the purpose described.

3. The combination of the valve of a steam or other motor with a driving-shaft, two eccentrics thereon, one fixed and the other adjustable as to its angle of connection, means connecting each eccentric with the valve and unification mechanism coupling said two connecting means together, as and for the purpose described.

4. The combination of the valve of a steam or other motor with a driving-shaft and two eccentrics one having a fixed relation to the said shaft and the other variable as to angle of connection and slideway connections between the eccentrics and the valves, as and for the purpose described.

5. The combination of the valve of a steam or other motor with a driving-shaft and two eccentrics, one having an invariable and the other a variable connection with the shaft, two levers, one oscillating upon a fixed center and connected with the said invariable eccentric, while the other lever, is pivoted to the first one and connected with the variable eccentric and a slideway and a crank operated by said levers and controlling the valve, substantially as and for the purpose described.

6. The combination of the valve of a stem or other motor with a driving-shaft and two eccentrics one having an invariable and the other a variable connection with the shaft, two levers one oscillating upon a fixed center and connected with said invariable eccentric, while the other lever is pivoted to the first one, and connected with the variable eccentric and two slides and a crank operated by said levers and controlling the valve, all substantially as described.

660,413. SEWING-AWL. HARRY U. BRADT, Barnes, Kans., assignor of one-half to William Grant Weaver, same place. Filed Mar. 24, 1898. Serial No. 674,953. (No model.)



Claim.—A sewing implement comprising a hollow handle A having a longitudinal slot *a* extending inwardly from one end thereof and provided at one end with a removable end cap A^2 closing the open end of the slot and an end piece closing the opposite end of the handle and provided with a bit or awl socket, and a bobbin divided for different threads and provided with projecting spindle ends *c c'* turning in bearings in the end pieces of the handle; substantially as described.

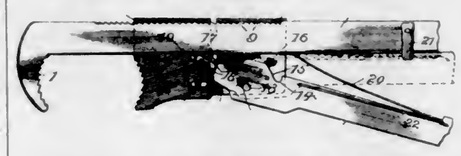
660,414. HORSE-BLANKET. CHRISTOPHER H. CARLL, Stillwater, Minn. Filed Jan. 31, 1900. Serial No. 3,443. (No model.)

Claim.—1. An animal-blanket, having flaps at its forward end adapted to overlap over the chest of an animal, a surcingle, a fastening-strap extended from said surcingle through an opening in one of the flaps, a loop on the other flap through which said strap is also designed to pass, a fastening device for said strap, and another fastening-strap extended from the opposite side of the surcingle and adapted to project across the other of the overlapped flaps to a connection with the blanket, substantially as specified.



2. An animal-blanket, comprising a body portion having flaps at its forward end, adapted to overlap over the animal's chest, a surcingle having removable connection with the blanket, fastening-straps connected at one end to said surcingle, and adapted to pass over the flaps, and fastening devices for the ends of said straps, substantially as specified.

660,415. WRENCH. GEORGE B. CARTER, Petersburg, Va. Filed Apr. 18, 1900. Serial No. 13,331. (No model.)



Claim.—1. In a wrench, the combination with a stationary jaw and a toothed or notched handle, of a slidable jaw provided with a slot, a toothed or notched follower provided with ears and connected to the slidable jaw by a pin passing through said ears and the slot, an operating-lever loosely pivoted in the follower and provided with an inclined recess, and a pin or lug secured to the follower and adapted to be engaged by the inclined recess when the handle is operated, to give a forward movement to said handle.

2. In a wrench, the combination with a stationary jaw and a toothed or notched handle, of a slidable jaw loosely connected to a toothed or notched follower slidable on the handle, an operating-lever loosely pivoted to the follower, means for giving the lever a slight movement, and a slidable pin in the slidable jaw adapted to be engaged by the end of the lever in its forward movement, whereby a frictional contact is caused to be made between the slidable jaw and handle.

3. In a wrench, the combination with a stationary jaw and a toothed or notched handle, of a slidable jaw loosely connected to a toothed or notched follower slidable on the handle, an operating-lever loosely pivoted to the follower, means for giving the lever a slight forward movement, a pin slidable in the sliding jaw and adapted to be engaged by the end of the lever, and a spring adapted to maintain the follower, and thereby the sliding jaw into engagement with the handle.

660,416. MANUFACTURE OF REFLECTORS. SHERARD O. COWPER-COLES, London, England, assignor of one-half to the Reflector Syndicate, Limited, same place. Filed Nov. 7, 1898. Serial No. 695,782. (No specimens.)

Claim.—1. A process for manufacturing a reflector by electrodeposition, consisting in coating the surface of a metal mold with a film of wax which is so thin that it does not act as an insulator, electrolytically depositing the metal body of the reflector on said coated surface, separating the mold and body by varying the temperature, chemically cleaning the surface of the body that was in contact with the mold, and then electrolytically depositing a reflecting and protecting surface on said cleansed surface, substantially as described.

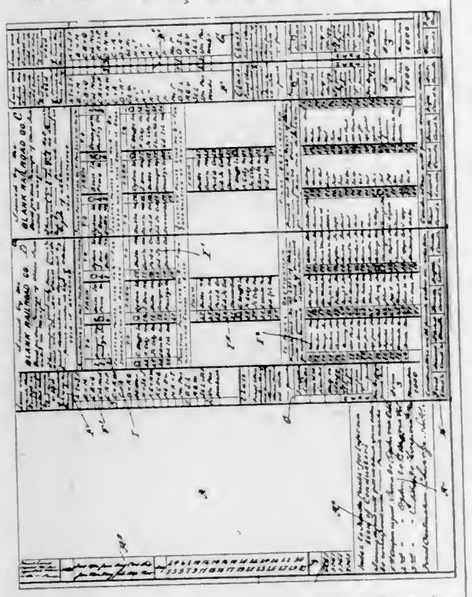
2. A process for manufacturing a reflector by electrodeposition, consisting in coating the surface of a speculum-metal mold with a film of

wax which is so thin that it does not act as an insulator, electrolytically depositing the metal body of the reflector on said coated surface, separating the mold and body by immersing them in hot water, chemically cleaning the surface of the body that was in contact with the mold, and then electrolytically depositing a reflecting and protecting surface on said cleansed surface, substantially as described.

3. A process for manufacturing a reflector by electrodeposition, consisting in coating the surface of a speculum-metal mold with a film of wax which is so thin that it does not act as an insulator, electrolytically depositing the metal body of the reflector on said coated surface, separating the mold and body by immersing them in hot water, chemically cleansing the surface of the body that was in contact with the mold, and then electrolytically depositing a reflecting and protecting surface of platinum on said cleansed surface, substantially as described.

4. A process for manufacturing a reflector by electrodeposition, consisting in coating the surface of a speculum-metal mold with a film of wax which is so thin that it does not act as an insulator, electrolytically depositing the metal body of the reflector on said coated surface, separating the mold and body by immersing them in hot water, chemically cleansing the surface of the body that was in contact with the mold, and then electrolytically depositing a reflecting and protecting surface of platinum from a solution of freshly-precipitated double chlorid of platinum and ammonium in a concentrated solution of neutral citrate of sodium on said cleansed surface, substantially as described.

660,417. RAILROAD-TICKET. GEORGE W. CRAIG, Provo City, Utah. Filed Oct. 26, 1899. Serial No. 734,792. (No model.)



Claim.—1. A coupon-ticket, comprising a plurality of sections having marks indicating the order in which said sections are to be used, each section also having a list of starting-points, a list of destination-points, a list of intermediate or junction points, and a separate list of the lines available for travel between such starting, junction and destination points, so that, by appropriately punching stations in said lists, the same form of ticket may be used for travel between any starting-point and any destination-point, over any one of the available lines.

2. A coupon-ticket, comprising a plurality of sections having marks indicating the order in which said sections are to be used, each section having a space for the indication of the starting-point, a list of destination-points, a list of intermediate or junction points, and a separate list of the lines available for travel between the starting, junction, and destination points.

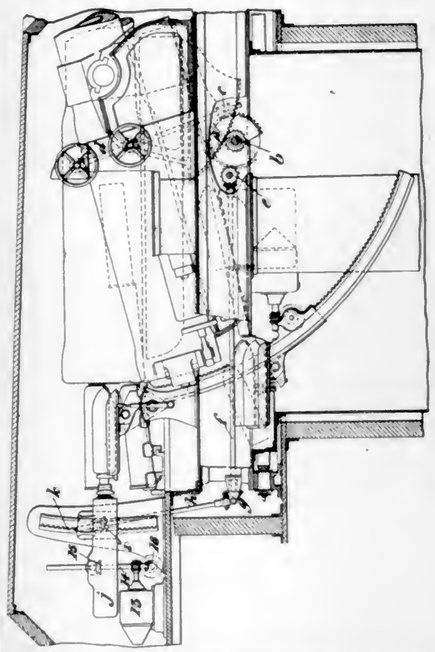
3. A coupon-ticket, comprising a plurality of sections having marks indicating the order in which said sections are to be used, each section having a space for the indication of the starting-point, another space for the indication of the destination-point, a list of intermediate or junction points, and a separate list of the lines available for travel between the starting, junction, and destination points.

4. A coupon-ticket, comprising a plurality of sections having marks indicating the order in which said sections are to be used, each section having a space for the indication of the starting-point, another space for the indication of the destination-point, a list of intermediate or junction points, a separate list of the lines available for travel between the starting, junction and destination points, and another section provided with an index having blank spaces for the insertion of the names of the terminal stations of each coupon and of the lines for which the ticket is issued.

5. A coupon-ticket, comprising a plurality of adjacent sections adapted to be folded one over the other, each section having spaces for the indication of the starting-point and destination-point respectively, a list of intermediate or junction points, and a separate list of the lines available for travel between such starting, junction, and destination points, the relative arrangement of such spaces and lists being reversed, as regards right and left, in adjacent sections so that corresponding spaces of the sections will be in registry or superposition when the ticket is folded, to enable the several sections to be punched simultaneously

6. A coupon-ticket, comprising a plurality of sections each having a list of the lines available for travel, and a list of stations, said lists being entirely independent from each other so that any element of one list may be combined by an appropriate mark with any element of the other list, the list of stations being in a plurality of groups, one of which contains starting-points, another junction-points, and yet another destination-points.

660,418. ELEVATING AND RAMMING APPARATUS FOR TURRET OR BARBETTE GUNS. ARTHUR T. DAWSON, London, and JAMES HORNE, Barrow-in-Furness, England, assignors to the Vickers, Sons & Maxim, Limited, Sheffield, England. Original application filed Mar. 26, 1900, Serial No. 10,252. Divided and this application filed Aug. 28, 1900. Serial No. 28,347. (No model.)

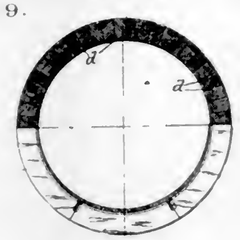


Claim.—In combination with the elevating-gear of a turret or barbette gun, a rammer, a pinion mounted thereon and gearing with a segmental rack concentric with the gun-trunnions, bevel-gear and shafting connecting the said pinion to a segmental rack on the axis of the elevating-gear, substantially as and for the purpose set forth.

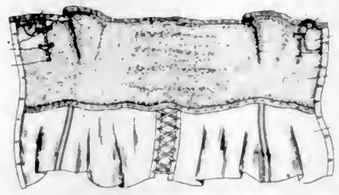
660,419. BUILDING-BLOCK. ANDREW J. DELKE, Chicago, Ill. Filed Apr. 30, 1900. Serial No. 14,959. (No model.)

Claim.—As an improved article, a segmental or curved brick, having its respective sides and corners cut away downwardly, but stopping short of the lower edge, to provide cement-holding recesses between courses, substantially as described.

660,419.

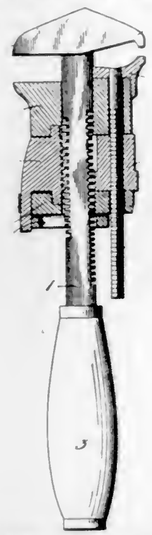


660,420. LIFE-SAVING CORSET. CHARLES O. DUTTON, Lachine, Canada. Filed Apr. 5, 1900. Serial No. 11,750. (No model.)



Claim.—In a corset the combination with the body thereof of an elongated rubber bag, as a lining with a tube from one corner, having a screw-top attached to a retaining-chain, and a receptacle in an upper corner fitted with a tube from its mouth, and a second tube intermediate of the length of the first tube and attached thereto, as and for the purpose specified.

660,421. SLIDING-JAW WRENCH. JOSEPH H. FLANIGAN, Leighton, Ala. Filed May 3, 1900. Serial No. 15,400. (No model.)

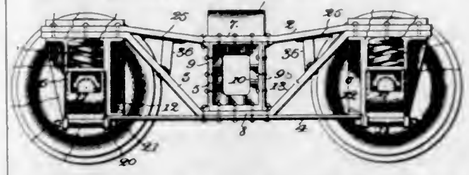


Claim.—1. In a wrench, the combination, with a shank having two fixed jaws at its outer end, of a sliding jaw movable upon said shank and adapted to coact with one of the fixed jaws, means for locking the sliding jaw in adjustment, a supplemental jaw carried by the sliding jaw and cooperating with the other fixed jaw, and means for adjusting said supplemental jaw independent of the sliding jaw, said means also serving to lock the supplemental jaw in its advanced or retracted position of adjustment independent of the locking means of said sliding jaw, substantially as set forth.

2. In a wrench, the combination, with a shank having two fixed jaws at its outer end, of a sliding jaw movable upon said shank and adapted to coact with one of the fixed jaws, means for locking the sliding jaw in adjustment, a supplemental jaw carried by the sliding jaw and coöperating with the other fixed jaw, a screw applied to the supplemental jaw, and a nut upon the screw for adjusting said jaw independent of the sliding jaw and serving to hold said supplemental jaw in its advanced or retracted position of adjustment independent of the locking means of the sliding jaw, substantially as set forth.

3. In a wrench, the combination with a shank having two fixed jaws at its outer end, of a yoke or collar slidably mounted on the shank and carrying at one side a main jaw coöperating with one of said fixed jaws, means for locking the yoke and main jaw in adjusted position, a supplemental jaw slidably mounted upon the inner face of the main jaw on the opposite side of the yoke and coöperating with the other fixed jaw, a screw mounted in the yoke and carrying the supplemental jaw, and an adjusting-nut on said screw, substantially as set forth.

660,422. CAR-TRUCK. JOHN S. FRANCIS, Bloomington, Ill. Filed May 18, 1899. Serial No. 717,315. (No model.)



Claim.—1. A pedestal for car-trucks consisting of a single casting having a horizontal top flange, a vertical top flange, a central cap-bearing and pedestal-horns, one of which is cast with an inclined vertical flange gradually decreasing in width toward the lower end of the horn and formed with an opening and the other horn having a straight vertical flange.

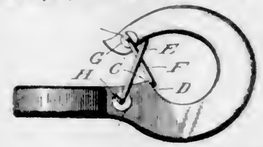
2. A metal frame for car-trucks comprising a centrally-depressed top arch-bar, a pedestal tie-bar, a transom-casting arranged between said arch-bars and riveted thereto and to the transom, diagonal brace-bars connecting said transom and the arch-bars, and pedestals formed of one piece and riveted to said arch-bars and tie-bar.

3. A metal frame for car-trucks comprising a centrally-depressed top arch-bar, an inverted arch-bar, a transom, a transom-casting, and a tie-bar, all riveted together, pedestals formed in one piece and having integral cap-bearings, riveted to said arch-bars and connected by said tie-bar, and a tubular jaw-bit bolted in the pedestal-jaw mouth.

4. The combination, with the transom, of a cast center plate riveted to the top of the transom, and a reinforcing-iron of rolled metal having its ends bent at right angles interposed between the transom-bars and riveted thereto and forming a support for the center plate from side to side of the transom-bars and stiffening the latter.

5. A side bearing for car-trucks comprising a metal box having vertical bottom flanges, horizontal end flanges, a cap having pockets cast therewith, and a series of graduated springs in nested form, adapted to rest in said box and to be inclosed by said pockets.

660,423. WHIFFLETREE-HOOK. NICHOLAS GLOCK, Jr., Kenton, Ohio. Filed Sept. 7, 1900. Serial No. 29,270. (No model.)



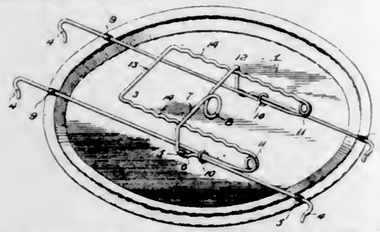
Claim.—1. The combination with a whiffletree-hook having sockets in its sides and provided with bosses around said sockets having notches in their rear edges, of links having their ends passed through said notches and sprung into the sockets.

2. The combination with a whiffletree-hook having sockets in its sides at or near its end and at a point opposite its end, of links pivoted in said sockets, both said links being greater in length than the opening of the hook.

660,424. COVER-HOLDER FOR VESSELS. GEORGE GORDON, Luther, Mich. Filed June 28, 1900. Serial No. 21,918. (No model.)

Claim.—1. In combination with a lid or cover for a vessel, a holding device, said device comprising two sections secured to the cover and having sliding engagement with each other, one of said sections being composed of resilient material and having its free end bent upon itself,

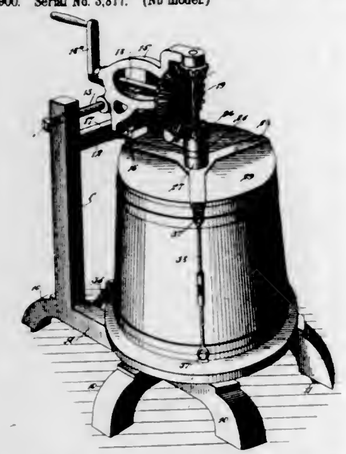
said end adapted to engage frictionally the other section, whereby the two sections are held in adjusted position, substantially as set forth.



2. In combination with a lid or cover for a vessel, a holding device, said device comprising two sections secured to the cover and having sliding engagement with each other, one of said sections being composed of resilient material and having its free end bent upon itself to form a spring-actuated locking member, said member adapted to engage frictionally the other section, whereby the two sections are held in adjusted position, substantially as set forth.

3. In combination with a lid or cover for a vessel, a holding device, said device comprising two sections secured to the cover and having sliding engagement with each other, one of said sections having its inner end bent to form a keeper and the other having its inner end bent upon itself to form an outwardly-projecting locking device having spring-coils and adapted to frictionally engage said keeper, whereby the sections are held in adjusted position, and guides upon the keeper-section for said locking-section, substantially as set forth.

660,425. CHURN. JAMES M. GOSS, Pekin, Ind. Filed Feb. 3, 1900. Serial No. 3,817. (No model.)



Claim.—1. The combination with a vertically-movable support, a plate having a pin mounted to turn in said support, a churn the bottom of which bears on the said plate, the churn being provided with a cover and a revolving dash, an upper plate located on the cover and having a clutch projection, an adjustable connection between the top and bottom plates, and a driving mechanism adapted for connection with the dash and with the clutch projection on the said upper plate, substantially as described.

2. The combination with a vertically-movable support comprising a stud having a socket in its upper end, a lifting-lever fulcrumed between its ends and carrying said stud at one end, and a lever pivoted at one end and provided at said end with a cam-head adapted to engage the free end of the lifting-lever to actuate the same, of a churn, a plate receiving the bottom portion of the churn and carrying at its bottom a pin adapted to turn in the socket in the upper end of said stud, a dash for said churn, a cover for said churn, a removable plate on said cover provided with a clutch, a connection between the top and bottom plates, and a driving mechanism for the churn and dash, the clutch on the said top plate being adapted to engage with a clutch carired by the driving mechanism when the churn is lifted, substantially as described.

3. The combination with a support, a churn, a plate on which the bottom of the churn bears, the said plate being mounted to turn on said support and provided with arms having hooks at their extremities, a cover for the churn, a plate located on the cover and having arms provided with hooks similar to those of the bottom plate, and an adjustable connection between the hooks of the top and bottom plates, substantially as described.

660,426. MANUFACTURE OF ARTIFICIAL STONES. SAMUEL GROSSIORD, Aux Moussieres, France. Filed Oct. 6, 1898. Serial No. 692,837. (No specimens.)



Claim.—1. As a new article of manufacture, an artificial stone for use in jewelry, consisting of clear transparent window-glass and "paste" welded together into a single piece, substantially as described.

2. As a new article of manufacture, an artificial stone for use in jewelry, consisting of a top and bottom piece of "paste" and an intermediate layer of clear transparent window-glass welded together into a single piece, substantially as described.

660,427. HOOF-PAD. MICHAEL HALLANAN, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,799. (No model.)



Claim.—1. A hoof-pad, comprising a pad proper of rubber, and a backing-plate of leather, formed with interengaging ribs and grooves on their opposing faces, and being cemented at such ribs and grooves, the ribs and grooves of the heel portions of the pad and back-plate being disposed transversely and extending substantially throughout the width thereof, and the ribs and grooves at the front portions of the pad and backing-plate being disposed in an essentially radial position from the center of such front portions.

2. A hoof-pad, formed in two parts cemented together and having interengaging formations including a marginal sealing rib and groove.

3. A hoof-pad, formed of a rubber pad proper, and a leather backing-plate, provided with interlocking ribs and grooves, and being cemented together at such points, and the pad and back-plate having their margins formed with additional interlocking ribs and grooves producing a seal at the edges of the pad, for the purpose specified.

4. A hoof-pad, comprising a backing-plate, and a pad proper held thereto, said parts having mating ribs and grooves ranging transversely, and additional ribs and grooves at different angles to the first-named ribs and grooves.

5. A hoof-pad, comprising a front or main portion adapted to lie firmly against the hoof, and a rear or heel portion set away from the hoof normally out of contact therewith, such portion extending throughout the width of the pad, and being yielding to cushion the tread of a horse.

6. A hoof-pad, having a main or front portion, and a rear or heel portion, the upper surface of which latter portion is situated in a plane below that of the main or front portion and extends throughout the width of the pad so that when the main or front portion of the pad is engaged with the hoof the heel portion will be set away therefrom, for the purpose specified.

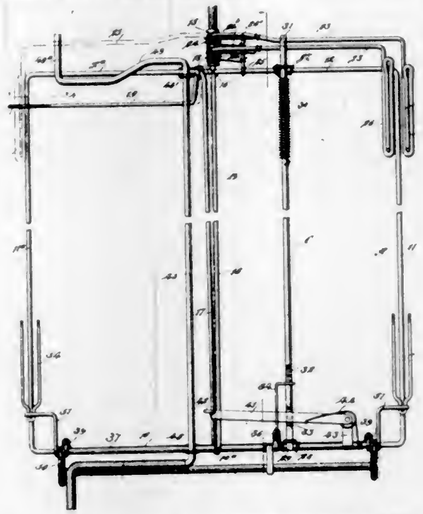
7. A hoof-pad, comprising a pad proper, and a stiff backing-plate laid thereon and to which the pad is secured, the backing-plate being adapted to be attached to the hoof, and the backing-plate and pad being provided with interengaging formations on their engaging faces, by means of which formations independent edgewise movement of the pad and plate is prevented.

8. A pad comprising a stiff upper or back plate and a yielding pad proper on the under surface thereof, and the back-plate and pad proper having interengaging formations preventing relative edgewise movement of the parts.

660,428. MUSIC-LEAF TURNER. ROBERT HAMMOND, Caldwell N. Y., assignor to Harry C. Noyes, Edwin R. Ziebach, and Chandler A West, same place. Filed Jan. 16, 1900. Serial No. 1,644. (No model.)

Claim.—1. In a music-leaf turner, a frame, spring-retaining bars for the binding of music located between the top and bottom members of the frame, one of the said bars being stationary and the other movable to and from the stationary one, and an arm connected with the movable retaining-bar, the said arm being adapted to engage with the frame and lock the movable retaining-bar in open or in closed position.

2. In a music-leaf turner, a frame constructed of spring material, retaining-bars for the binding of music, located between the top and bottom of the frame, forming a continuation thereof, the said bars being substantially parallel and one of them stationary and the other movable, a shifting arm connected with the movable bar, which arm is provided with an end section adapted to engage with a side member of the frame, the said section having recesses therein arranged to receive said side member of the frame and hold the movable retaining-bar in open or in closed position.



3. In a music-leaf turner, a frame constructed of spring material, retaining-bars for the binding of music, located between the top and bottom of the frame, forming a continuation thereof, the said bars being substantially parallel and one of them stationary and the other movable, a shifting arm connected with the movable bar, which arm is provided with an end section adapted to engage with a side member of the frame, the said section having recesses therein arranged to receive said side member of the frame and hold the movable retaining bar in open or in closed position, and forks located upon the side members of the frame near their lower ends, adapted to receive the covers of the music held by the retaining-bars.

4. In a music-leaf turner, the combination, with a frame having an extension at its upper portion, spring-controlled sheet-carrying arms mounted on the said extension, a keeper-bar held to slide on the said frame, the upper end whereof is adapted to retain the sheet-carrying arms in their normal position, a spring exerting upward tension on the keeper-bar, and a double series of teeth produced upon the lower portion of said keeper-bar, of a spring-controlled pawl arranged for engagement with the upper series of teeth of the keeper-bar, said pawl being provided with a downward extension, a trip-lever arranged for engagement with the lower series of teeth on the keeper-bar, and a reversing-bar provided with a reversing-arm at the top, adapted to convey the sheet-carrying arms from their shifted to their normal position, the said reversing-bar being provided with a handle adapted for engagement with the extension of the said pawl when the reversing-bar is operated, as described.

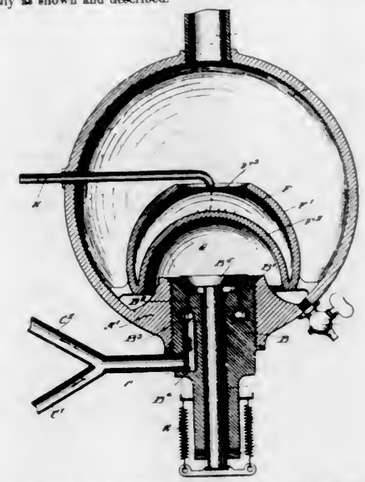
5. In a music-leaf turner, the combination, with a frame provided with an arched rearwardly-extending retaining-bar secured to its lower portion, and a clamping-bar at the rear of the retaining-bar, the clamping-bar being pivoted on the bottom of the frame and provided at the front with limiting-arms, as set forth.

660,429. BOILER. PERCY W. HANFORD, Oakesdale, Wash. Filed Feb. 14, 1900. Serial No. 5,207. (No model.)

Claim.—1. A boiler comprising a vessel, a burner in said vessel, and a chamber located over said burner and connected with a liquid-supply, the said chamber having an opening in its top and the bottom of the chamber being concaved to form a combustion-chamber for said burner, substantially as shown and described.

2. A boiler comprising a vessel, a burner in said vessel, and a chamber connected with a liquid-supply and located over said burner, the top of said chamber having an opening for the admission of liquid to said chamber and the escape of vapors therefrom, and the bottom of said chamber forming a combustion-chamber for said burner, the said combustion-chamber opening into said vessel, substantially as set forth.

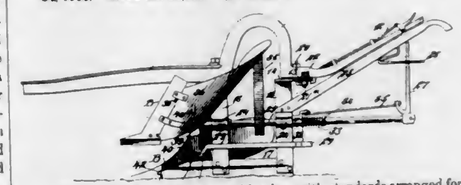
3. A boiler, comprising a vessel, a burner in said vessel and having a regulating-valve controlled by the pressure in said vessel, and a water-chamber connected with a water-supply and located over said burner and having an opening at the top for the water to pass into the chamber, the opening also serving for the escape of the vapors, the bottom of the chamber being concaved to form a combustion-chamber for said burner, substantially as shown and described.



4. A boiler, comprising a vessel, a burner in said vessel and having a regulating-valve controlled by the pressure in said vessel, a water-chamber connected with a water-supply and located over said burner and having an opening at the top for the water to pass into the chamber, the opening also serving for the escape of the vapors, the bottom of the chamber being concaved to form a combustion-chamber for said burner, and a water-supply pipe discharging into the water-chamber, as set forth.

5. A boiler comprising a vessel having an outlet-pipe at its top, a burner inserted in the bottom of said vessel and having a regulating-valve controlled by the pressure in said vessel, a chamber located within said vessel over said burner and having an opening in its top, a liquid-supply pipe extending through the wall of the vessel and discharging into the said chamber, and a valve-controlled outlet in the bottom of said vessel, substantially as described.

660,430. PLOW. JOHN N. HANNA, Del Norte, Colo. Filed July 24, 1900. Serial No. 24,635. (No model.)



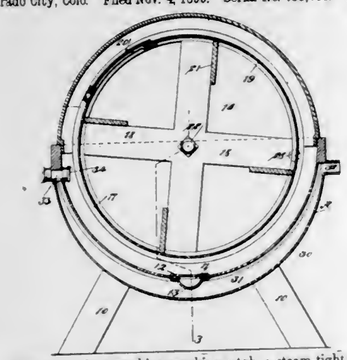
Claim.—1. In a plow, the combination, with standards arranged for connection with a beam and a landside secured to the lower ends of the standards, of a shaft mounted to revolve upon the standards above the landside, extending forward and rearward from the standards, two combined plowshares and moldboards, straps connecting the moldboards, which straps are secured at their centers to said shaft, a locking device arranged to lock the moldboards to the landside, and a lever connected with the shaft, which lever is likewise connected with the locking device and serves to operate both, as described.

2. In a plow, the combination, with standards arranged for connection with a beam and a landside secured at the lower ends of the standards, of a shaft mounted to revolve in said standards above the landside, extending beyond the front and rear portions of the standards, handles attached to the rear standard, a lever pivoted to the rear end of the shaft, a guide with which the lever is connected, a slotted projection formed upon the upper surface of the landside near its forward end, a locking device consisting of a slotted bar having sliding movement on the standards and an arm which passes through the slotted projection from the landside, an extension from the rear of the bar, held to slide on the shaft, a spring mounted on the shaft and acting to force the slotted bar forward, and a

connection between the extension from the slotted bar and the lever pivoted on the shaft, combined plowshares and moldboards located one at each side of the shaft, straps connecting the moldboards, which straps are secured at their centers to the shaft, and eyes carried by the moldboards, adapted to enter the space between the members of the slotted projection on the landside and receive the arm carried by the slotted bar of the locking device, for the purpose set forth.

3. In a plow, the combination, with standards, handles attached to the rear standard, a table secured upon the upper surface of the rear standard, having a longitudinal guide-slot therein and teeth at its rear edge, of a beam pivoted upon the forward standard, a roller engaging with the under surface of the table, a support for the said roller, adjustably attached to the beam and passed through the guide-slot in the table, a second roller carried by the beam and arranged for engagement with the upper surface of said table, and a thumb-latch located at the rear end portion of the beam, the forward end of which latch is adapted to engage with the toothed surface of said table, for the purpose specified.

660,431. **WASHING-MACHINE.** PENTON A. HARDWICK, Colorado City, Colo. Filed Nov. 4, 1899. Serial No. 735,788. (No model.)



Claim.—1. In a washing-machine, a tub, a steam-tight cover therefor, the said tub being provided with a double bottom and an outlet and a grating adjacent to the outlet, the outer section of the bottom being eccentric to the inner section, a nozzle leading into the upper portion of the chamber formed by the double bottom of the tub, a double nozzle communicating with the said chamber and with the exterior and interior of the tub, plugs for the inner and outer ends of the double nozzle, and a third nozzle connected directly with the interior of the tub and located at one side of the same, substantially as specified.

2. In a washing-machine, a tub provided with a double bottom having an outlet, a grating adjacent to the outlet, the outer section of the bottom being eccentric to the inner section, a nozzle leading into the upper portion of a chamber formed by the double bottom of the tub, a double nozzle communicating with the said chamber and with the exterior and interior of the tub, means for closing said double nozzle, and a third nozzle connected directly with the interior of the tub, substantially as specified.

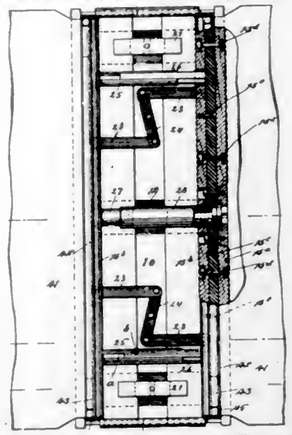
660,432. **PERPETUAL LEDGER.** CHARLES V. HENKEL, New York, N. Y. Filed Oct. 23, 1899. Serial No. 734,487. (No model.)

Claim.—1. In a perpetual ledger, the combination of a back or body portion, clamping-sections mounted to slide thereon toward and from each other by direct hand-pressure on the sections, a lever mounted on a constant fulcrum on the back or body portion, and links pivotally connected with the respective ends of the lever and with the respective clamping-sections whereby the movement of one section imparts a like movement to the other.

2. In a perpetual ledger, the combination of a back or body portion formed of a strip of material bent transversely to form channels therein extending throughout its width, and clamping-sections mounted on the back or body portion and formed with ribs on their rear surfaces, the ribs sliding in the channels.

3. In a perpetual ledger, the combination with two clamping-sections, of telescopic tubes respectively secured thereto, a head carried rigidly in the inner tube, a spring-prong attached to such head, and a bolt or bar attached to one of the clamping-sections, and engaged by the spring-prong, and having a plane side and a side with ratchet-teeth, the bolt or bar being mounted to turn.

4. In a perpetual ledger, the combination with two clamping-sections, of telescopic tubes respectively secured thereto, a spring-prong held by one tube, and a bolt or bar held by one of the clamping-sections and capable of turning thereon, the bolt or bar having a plane side and a side with ratchet-teeth and being engaged by the spring-prong.



5. In a perpetual ledger, the combination with two clamping-sections, of tubes secured to the clamping-sections and sliding one in the other, a spring-prong secured to the inner surface of the inner tube, and a bolt or bar secured to the clamping-section carrying the outer tube and projecting into the said tubes, the said bolt or bar having two plane sides and two sides with ratchet-teeth with which the said spring-prongs engage, substantially as described.

6. A leaf for perpetual ledgers, the leaf having an inner portion adapted to be engaged by the ledger, an outer portion forming the leaf proper and an intermediate portion formed with rounding corrugations produced permanently therein so that the leaves when superimposed, will lie intermeshed at the corrugations, for the purpose specified.

7. A leaf for perpetual binders, the leaf having permanent corrugations formed thereon and disposed vertically with respect to the leaf so that the leaves when superimposed will lie intermeshed at the corrugations.

8. A perpetual ledger, having a clamping-section comprising an outer side plate, a backbone or frame-bar, and an inner side plate, the three elements being rigidly fastened together, and a filing-pin extending through the inner side plate and fastened rigidly to the backbone or frame-bar.

9. In a perpetual ledger, the combination of a back or body portion formed of a strip of material bent transversely to form channels therein extending throughout its width, clamping-sections mounted on the back or body portion and formed with ribs on their rear surfaces, the ribs sliding in the channels, transversely-disposed guide-plates bearing loosely on the inner faces of the clamping-sections, and pins attached to the guide-plates and to the back or body portion at the channels thereof to support the guide-plates rigidly on the back or body portion.

660,433. **LOCOMOTIVE.** WILLIAM P. HENSZEY, Philadelphia, Pa., assignor to Burnham, Williams & Co., same place. Filed Jan. 4, 1900. Serial No. 377. (No model.)

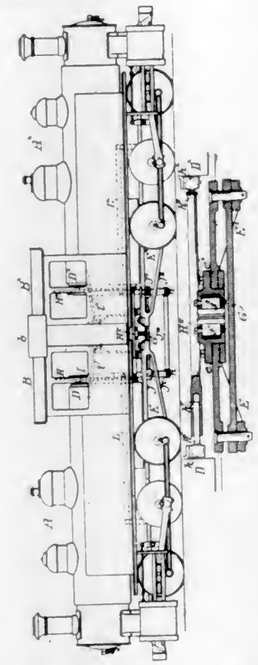
Claim.—1. The combination of two complete and independent locomotives flexibly coupled back to back, the operating mechanism of one locomotive flexibly connected to the operating mechanism of the other locomotive, whereby one engine-driver can control the two locomotives, substantially as described.

2. The combination of two complete and independent locomotives flexibly coupled back to back, reversing mechanism on each locomotive, means whereby the two reversing mechanisms are flexibly connected so that when the reversing mechanism of one locomotive is moved in one direction the reversing mechanism on the other locomotive is reversed, substantially as described.

3. The combination of two complete and independent locomotives flexibly coupled back to back, throttle-valves on each locomotive, a connecting-bar flexibly connected to the two throttle-valve levers, so that both throttle-valves will be under the control of one engine-driver, substantially as described.

4. The combination of two complete and independent locomotives flexibly coupled back to back, throttle-valves on each locomotive, levers therefor, a connecting-bar adapted to swivel-joints on each locomotive and having arms connected to the two levers, substantially as described.

5. The combination of two locomotives coupled back to back, a shaft adapted to bearings on each locomotive, an arm on each shaft, one arm connected to the reversing mechanism of one locomotive, the arm of the other shaft connected to the reversing mechanism of the other locomotive, independent reversing-levers on each locomotive, and means for coupling one or other of the reversing-levers to their respective arms, so that when the engine-driver is at his post on one locomotive the reversing-lever of the other locomotive can be thrown out of engagement with the arm connected to the reversing mechanism, substantially as described.



6. The combination of two locomotives arranged back to back, a long coupling-link connecting the two locomotives, bent shafts pivoted to their respective locomotives on a line with the coupling-pins, extensions on said shafts, a rod coupling the two extensions together, said rod being swiveled to the extensions, reversing-levers connected to the said shafts, an extensible bar having heads adapted to sockets on each locomotive, and throttle-valve levers connected to the bar, substantially as described.

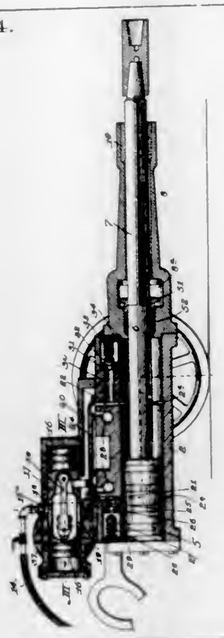
660,434. **MINING-MACHINE.** JOHN HERZLER, HENRY HENNINGER, and WILLIAM FENNER, Belleville, Ill. Filed Apr. 21, 1900. Serial No. 13,679. (No model.)

Claim.—1. In a mining-machine, the combination with the main cylinder, of a piston and rod operating therein, a valve-operating engine-cylinder having communication with said main cylinder and having connection with a source of air-supply, a slide-valve arranged to control the communication between said cylinders, and a double-headed piston located in said valve-operating engine-cylinder arranged in engagement with said slide-valve and provided with a port through which air is admitted from the source of supply through the piston, substantially as described.

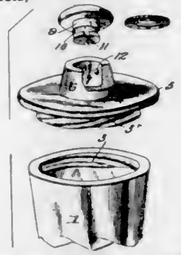
2. In a mining-machine, the combination with the main cylinder, of a piston and rod operating therein, a valve-operating engine-cylinder having communication with said main cylinder and having connection with a source of air-supply, a slide-valve arranged to control the communication between said cylinders, a double-headed piston located in said valve-operating engine-cylinder and connected with said slide-valve, said double-headed piston being provided with a port adapted to register with the inlet from said source of air-supply a valve for controlling the inlet of air to said valve-operating engine-cylinder, and means connected to said double-headed piston arranged to operate said controlling-valve, substantially as described.

3. In a mining-machine, the combination with the cylinder and piston therein of a piston-rod carried by said piston, a sleeve having a split outer end and in which said piston-rod operates, and a bushing located in said outer end of the sleeve, said bushing comprising a single member provided with ribs containing notches, and bolts arranged in said sleeve at the location of said notches, substantially as described.

660,434.



660,435. **DENTIFRICE-BOTTLE.** CARL G. HILGENBERG and HENRY R. LOPER, Baltimore, Md., assignors to the Carr-Lowrey Glass Company, same place and New York, N. Y. Filed Feb. 3, 1900. Serial No. 3,864. (No model.)



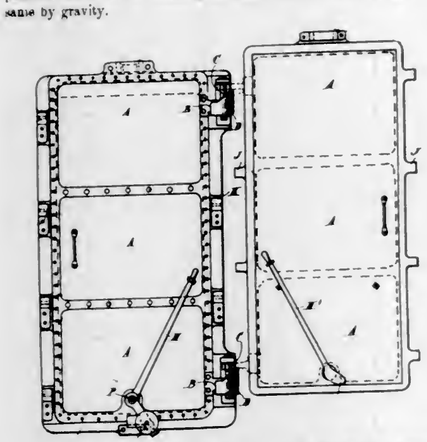
Claim.—1. As an improved article of manufacture, the dentifrice holder or bottle comprising the glass body having a neck with a cylindrical opening, the glass cap or stopper attached thereto by a screw-thread, and having a lateral flange, and provided with a central cylindrical discharge-opening having a conical projection, and the plug or valve having an enlarged head, and a cylindrical body adapted to fit in the discharge-passage, and provided with a circumferential groove and a vertical notch communicating therewith, the same being adapted to receive and engage with said projection, as shown and described.

2. In a dentifrice-holder, the combination, with the stopper 4, having the vertical cylindrical passage 7, with conical projection 12, of the valve 8, having a cylindrical body adapted to fit in said passage, and a circumferential groove 10 extending completely around it, and a notch 11 leading out and downward from said groove, as shown and described.

660,436. **BULKHEAD AND DOOR.** JOHN H. HIND, Barrow-in-Furness, England. Filed July 2, 1900. Serial No. 22,326. (No model.)

Claim.—1. In a door for bulkheads, strong rooms and the like, the combination with the door provided with a pair of hinged eyes, hinge-gudgeons secured to the bulkhead or door-frame, pins C fixed in said gudgeons and adapted to be mounted in said eyes for hinging the door thereto, an arm connected to said hinged eyes and resting within said gudgeons when the door is closed and riding upon the same when the door is opened, a series of wedge-pieces connected to the door, a series of clips secured to the bulkhead or frame and adapted to receive said pieces when the door is closed, means when operated adapted to release the door from the bulkhead or frame, means for automatically locking the door in an open

position, and means for releasing said door to permit of the closing of the same by gravity.



2. In a door for bulkheads, strong rooms or the like, the combination with the door, of a hinged connection for obtaining a vertical and lateral movement of said door suitably secured thereto and to the bulkhead or door-frame, means connected to said door and adapted when operated to permit of said vertical and lateral movement, means carried by said door for locking the same in an opened position, and means for releasing the door to permit of the closing of the same by gravity.

3. In a door for bulkheads, strong rooms or the like, the combination with the door, of a hinged connection for obtaining a vertical and lateral movement of the door suitably connected thereto and to the bulkhead or a door-frame, a pair of levers connected to said door and adapted when operated to permit of said vertical and lateral movement, a lug carried by the door, means engaging the same and adapted to lock the door in an open position, and means for releasing said door to permit of the latter closing by gravity.

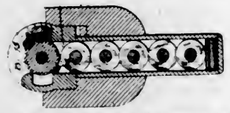
4. In a door for bulkheads, strong rooms or the like, hinge-gudgeons, hinge-arms operating therein, a tumbler-catch, a lug adapted to engage said catch, and a lever for releasing said catch from its engagement with said lug.

5. In a door for bulkheads, strong rooms and the like, hinge-gudgeons, hinge-arms operating therein, a weighted tumbler-catch, a lug, a lever adapted to bring said catch into locking engagement with said lug, and means for operating said lever for releasing said catch from its engagement with said lug.

6. In a door for bulkheads, strong rooms and the like, hinge-gudgeons, hinge-arms operating therein, a tumbler-catch, a lug, a lever adapted to bring said catch into locking engagement with said lug, an arm engaging said lever, and means connected to said lever for operating the same causing the release of said catch.

7. The combination with a bulkhead or door-frame, of a door, a series of wedge-pieces carried thereby and adapted to be seated in clips carried by the bulkhead or door-frame, hinge-gudgeons connected to the bulkhead or door-frame, means connected to said gudgeons and said door to permit of a vertical and lateral movement of the latter, a pair of levers suitably connected to said door and adapted when operated to permit of said vertical and lateral movement, a tumbler-catch, a lug carried by said door and adapted to engage said catch for retaining the door in an open position, automatic means for operating said catch, and means for releasing said catch.

660,437. **BREECH-LOADING FIREARM.** FREDERICK HOCHBRUNN, New York, N. Y. Filed Feb. 23, 1900. Serial No. 6,275. (No model.)



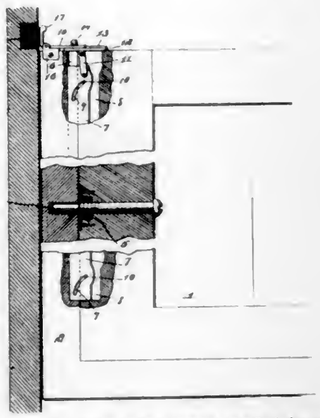
Claim.—1. In a firearm, a bolt, and a controlling-ring or cut-off mounted to turn on the bolt, the said cut-off having means for engagement with an extractor and means for engagement with a cartridge in the magazine.

2. In a firearm, a bolt-head, a controlling-ring or cut-off mounted to turn on the bolt-head and provided with an offset adapted for engagement with an extractor, and means for turning the said controlling device so as to engage or disengage the extractor, as described.

3. A controlling-ring or cut-off for magazine-firearms, consisting of a ring-body adapted to be loosely mounted on the head of the bolt, said ring-body being provided with an exterior offset to engage or disengage the extractor of the firearm and an exterior thumb or finger piece, and a projection from the said ring-body at a point below the thumb or finger piece, as described.

4. In a magazine-firearm, the combination, with the bolt-casing, the bolt and extractor, the extractor having a groove in its inner face, of a controlling-ring or cut-off mounted to turn on the bolt-head, said controlling-ring or cut-off having an exterior offset adapted to enter the groove in the magazine, and a thumb or finger piece together with a projection at a point below the thumb or finger piece, whereby the said controlling-ring or cut-off may be turned upon the bolt-head and the offset be made to fully enter or partially enter the groove in the extractor, or be carried away from the said groove, and whereby also the projection from the controlling-ring or cut-off may be carried to either side of the uppermost cartridge in the magazine or be brought into position to force the cartridge from the magazine.

660,438. **WINDOW-SASH.** GEORGE W. HOLLY, Palo Alto, Cal., assignor of one-half to Abby A. Vallette, Harriett C. Briggs, and Frederick A. Dinsmore, same place. Filed Mar. 22, 1900. Serial No. 9,755. (No model.)



Claim.—1. In a device of the character described the combination with a slotted subsash, of a recessed sash pivotally mounted therein, a tongue slidably mounted within the sash, and having slots therein, guide-pins within the slots, a slide, and a link connection between the slide and tongue, whereby said tongue may be moved into or out of engagement with the subsash.

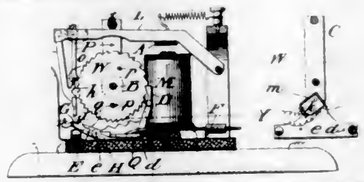
2. In a device of the character described the combination with the subsash, of a sash pivotally mounted therein, a tongue for locking the same in closed position, a slide for operating the tongue, and a lever pivoted to the subsash and adapted to engage said slide and the window-casing alternately.

3. In a device of the character described the combination with a subsash, of a sash pivotally secured therein, a tongue slidably mounted within the sash and adapted to engage said subsash, curved slots within the tongue, guide-pins therein, a slide upon the sash having a link connection with the tongue, a knob to said slide, and a bell-crank lever having an opening therein adapted to receive the knob, whereby the slide is locked in position.

4. In a device of the character described the combination with a window-casing having a recess therein, of a subsash slidably mounted within the casing, a sash pivotally secured within the subsash, a slotted tongue slidably mounted within the sash and adapted to engage the subsash, guide-pins in said slots, a slide, a link connection between the tongue and slide, a knob to the slide, and a bell-crank lever having an opening in one arm thereof adapted to receive the knob, said lever normally engaging either the knob or the recess in the window-casing.

660,439. **INDIVIDUAL CALLING APPARATUS.** GRACE B. HOMMAN, Colorado Springs, Colo., administratrix of William F. Homman, deceased. Filed Sept. 11, 1899. Serial No. 730,114. (No model.)

Claim.—1. An electromagnet and reciprocating armature-lever in combination with a wheel having a series of long and short notches in its periphery and turned in one direction by a spring, an actuating-pawl carried by the armature-lever of the magnet and arranged to engage with the notches in the wheel and turn it in the other direction when the armature-lever is reciprocated, a detent for restraining the wheel from backward movement, and a tripping-pawl pivoted to the armature-lever and arranged to trip the detent when unrestrained, but restrained from acting on the same by the actuating-pawl when the latter engages with a tooth of the wheel, substantially as described.



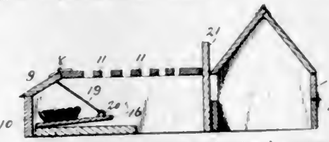
2. An electromagnet and reciprocating armature-lever in combination with a wheel having a series of long and short notches in its periphery and turned in one direction by a spring, an actuating-pawl carried by the armature-lever and arranged to engage with the notches in the wheel and turn it in the other direction when the armature-lever is reciprocated, a detent for restraining the wheel from backward movement, an inertia-stop, a releasing-lever for the detent, and a tripping-pawl carried by the armature-lever and arranged to be brought into engagement with the inertia-stop or the releasing-lever according as the point of the actuating-pawl drops into a notch in the wheel or rests upon the outer part of a tooth at the end of its previous upward movement, substantially as described.

3. In an individual calling apparatus, a wheel having a series of notches in its periphery corresponding to the call, a spring for restoring the wheel to its normal position, an actuating-pawl carried by the armature-lever of the instrument for turning the wheel forward, a detent for restraining the wheel from backward movement, a local circuit operating an alarm or signal and adapted to be closed by the wheel upon the completion of its forward movement corresponding to the call, and a tripping-pawl carried by the armature-lever and controlled by the actuating-pawl, an inertia-stop and a releasing device for the detent adapted to be operated by the tripping-pawl, substantially as described.

4. In an individual calling apparatus, the combination with a station instrument, including an electromagnet and its armature-lever, of a wheel W, a pawl P for actuating the wheel W carried by the armature-lever, a pivoted tripping-pawl T also carried by the armature-lever, interlocking lugs carried by the said pawls P and T, respectively, a detent D for the wheel, a releasing-lever G arranged to operate the tripping-pawl, and means for releasing the detent upon the operation of the lever G, substantially as described.

5. In an individual calling apparatus, the combination with a station instrument, including an electromagnet and its armature-lever, of the notched wheel W, the operating-pawl P for the wheel and a tripping-pawl T also carried by the armature-lever, the pawls P and T being connected by interengaging lugs, an inertia-stop with which one of the pawls engages, and a releasing-lever G arranged to be engaged by the tripping-pawl and to actuate the latter, substantially as set forth.

660,440. **HOUSING FOR POULTRY.** JOSH INGRAM, Chambersburg, Ill. Filed July 6, 1900. Serial No. 22,743. (No model.)

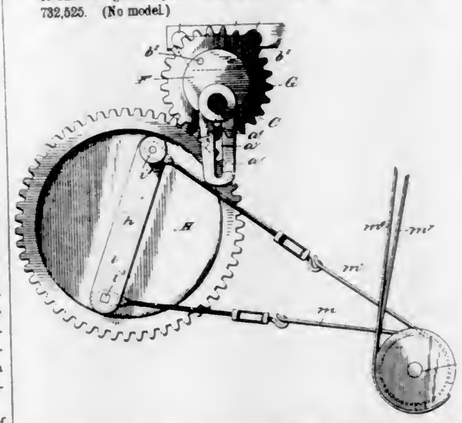


Claim.—1. The herein-described poultry-housing comprising a gable-section 2 and an end section, in combination with movable nest-sections 16 and suitable means to connect said sections with the door whereby said sections will be moved outward when the door is opened and withdrawn when the door is closed, all combined as specified and for the purpose set forth.

2. In a poultry-housing a movable nest-supporting section, a door, and suitable means to connect the door with said movable section whereby said section will be moved outward when the door is opened and will be withdrawn within the housing when the door is closed all substantially as specified and for the purpose set forth.

3. A poultry-housing comprising a gable-section having a roof and an end section provided with a slatted cover and a suitable door in the end thereof, in combination with movable nest-sections 16 and a controlling-rod 19 operatively connecting said door with said nest-section whereby said section will be moved outward when the door is opened and will be withdrawn within the housing when said door is closed all operatively combined substantially as specified and for the purpose set forth.

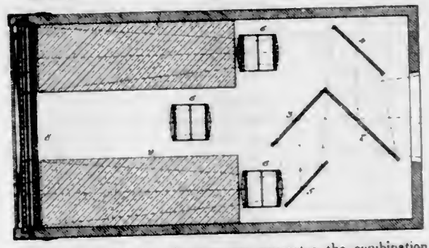
660,441. **LOOM.** ALFRED INSINGER, Philadelphia, Pa., assignor to The Insinger Company, same place. Filed Oct. 4, 1899. Serial No. 732,525. (No model.)



Claim.—1. In a narrow-fabric loom, the combination of a crank-shaft, a circular pinion mounted on a stationary bearing eccentric to the said shaft, a circular gear provided with twice the number of teeth as the said pinion and in mesh therewith, a slotted arm carried by said shaft, and a pin fast to the pinion and entering the slot, whereby the speed of the gear is successively increased and decreased twice during each revolution thereof.

2. In a loom, the combination of the lay, the shuttle-operating rack-bar mounted thereon and means for reciprocating said bar at a variable speed, comprising a crank-shaft, a pinion eccentric thereto, a stationary bearing for said pinion, a pin-and-slot connection between the pinion and shaft, a motion-transmitting gear in mesh with said pinion, and connections between said gear and rack-bar.

660,442. **PHOTOCHROMOSCOPIC APPARATUS.** FREDERIC E. IVES, Philadelphia, Pa. Filed Mar. 9, 1900. Serial No. 8,093. (No model.)



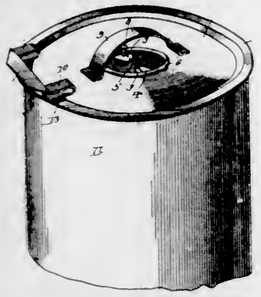
Claim.—1. In photochromoscopic apparatus, the combination of means for dividing the rays from the view-point or collecting the divided rays at the view-point, with transparent bodies of more high y refractive substance than air interposed in the path of the longer rays to equalize images which are in the same plane, but at different distances from the view-point.

2. In photochromoscopic apparatus, the combination of means for dividing the rays from the view-point or for collecting the divided rays at such view-point, with bodies of more highly refractory substance than air interposed in the path of the longer rays to equalize images which are in one plane but at different distances from the view-point, said transparent refractive bodies having portions which also serve as reflectors, substantially as specified.

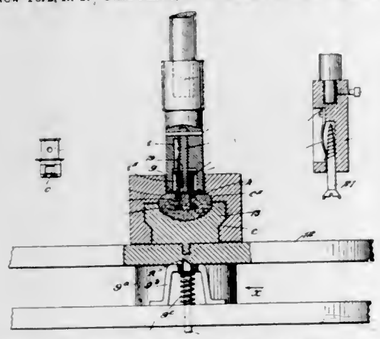
660,443. **LID FOR COOKING UTENSILS.** MARY E. KONKLE, Montoursville, Pa. Filed May 10, 1900. Serial No. 16,240. (No model.)

Claim.—In combination, a lid for cooking utensils, and a supporting-clip therefor, which is formed from a single strip having its opposite

ends folded transversely across the intermediate portion thereof and projecting at the same side of said intermediate portion, the end portions being rebent in the opposite direction and forming slots for the reception of the edge of a cooking utensil, and the terminals of the strip being rebent upon the outer side thereof and fixedly secured to the outer side of the lid and adjacent to the marginal edge thereof.



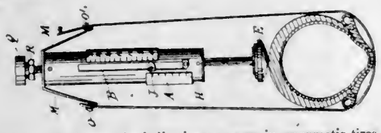
660,444. DEVICE FOR FIXING SHANKS OR SCREW-STEMS IN HANDLE-KNOBS OR PICTURE-HANGING NAILS. SERAPHIN KRIES, New York, N. Y. Filed June 8, 1900. Serial No. 19,525. (No model.)



Claim.—1. In a device of the character described, the chuck for holding a screw-stem or knob-shank depending from the chuck, comprising a cylindrical block attachable at the upper end to a reciprocating presser-bar, and having a longitudinal socket therein, a spindle held in said socket concentric therewith, and a detent-spring of plate metal held by one end depending from the spindle and adapted to engage with a knob-shank or stem which is to be held depending from and detachably connected with the chuck.

2. In a device of the character described, the device for holding two hinged mold-sections folded together and clamped upon a mold-base, comprising two handle-bars on the mold-sections, a rockable hook pivoted on one handle-bar and adapted to hook on a projection on the other handle-bar when said bars are folded toward each other, a sleeve slidable on one handle-bar, and a limb pivoted by one end to the sleeve and by the opposite end upon an outer end of the hook.

660,445. PNEUMATIC-TIRE PRESSURE-GAGE. CHARLES LILLICRAP, Swansea, England. Filed Jan. 16, 1900. Serial No. 1,820. (No model.)



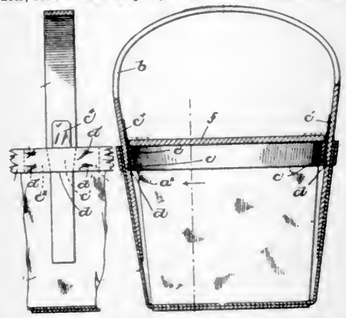
Claim.—1. A gage for indicating pressure in pneumatic tires said gage comprising a slotted case or shell having covers C C' and scales at the slot, a sliding spring-pressed stem extended through the covers and having a shoe to sit against the tire and pointers to travel along the scales, and lugs or buttons for securing a strap about the tire to hold the shoe in contact with such tire, substantially as described.

2. A gage for indicating pressure in pneumatic tires said gage comprising a slotted case or shell having covers C C' and scales at the slot, a sliding spring-pressed stem extended through the covers and having a shoe to sit against the tire and pointers to travel along the scales, a disk I and brace J' for arresting the pointers, and lugs or buttons for securing a strap about the tire to hold the shoe in contact with such tire, substantially as described.

3. A slotted case or shell and a screw-stem guided by or slidable through the case, a shoe on the stem, a pointer-carrying grooved disk F and a second pointer-carrying disk I on the stem, a nut F' and brace J' for the disks, a spring made to press against disk I to move the stem, and a strap and loop M P for the case, substantially as described.

4. A slotted case or cylinder A having a scale and covers C C', a screw-stem D guided through the covers, a loose or swiveling shoe at the bottom of the stem, pointer-carrying disks F I on the stem, a spring L braced between a disk and a cover, a strap M secured to the case, a strap P adapted to be looped or secured to the first-named strap, a handle-nut Q on the stem, and a lock or jam nut R for the handle-nut, substantially as described.

660,446. FRUIT BOX OR BASKET. HENRY O. LITTLE, Bridgewater, Mass. Filed May 19, 1900. Serial No. 17,237. (No model.)



Claim.—1. A fruit box or basket having a thickened rim, and handle-sockets extending through the rim, each socket having its lower end offset from the adjacent side piece of the basket and provided with a locking-shoulder at one side of said lower end, to engage a complemental locking-shoulder on a handle inserted in the socket.

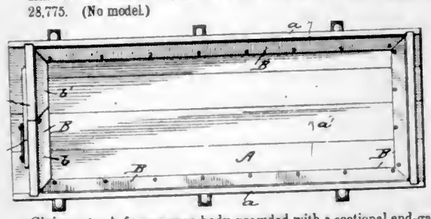
2. A fruit box or basket having a thickened rim, and handle-sockets extending through the rim, each socket having its lower end offset from the adjacent side piece of the basket and provided with a locking-shoulder, and a handle having complemental locking-shoulders on its end portions, adapted to engage the shoulders of the sockets.

3. A fruit box or basket having a thickened rim, and handle-sockets extending through the rim, each socket having its lower end located at the inner side of the adjacent side piece of the basket, and provided with a locking-shoulder, and a handle having complemental locking-shoulders on its end portions engaged with the shoulders of the sockets, said end portions being extended below the sockets and bearing against the inner surfaces of the side pieces of the basket.

4. A fruit box or basket having flexible side pieces, flexible rim-strips attached to said side pieces, and metallic socket-pieces interposed between said side pieces and rim-strips, said socket-pieces having socket-walls and also having handle-engaging shoulders at their lower edges.

5. A fruit box or basket having flexible side pieces, flexible rim-strips attached to said side pieces, and metallic socket-pieces interposed between said side pieces and rim-strips, said socket-pieces having socket-walls, handle-engaging shoulders at their lower edges, and cover-engaging ears at their upper edges.

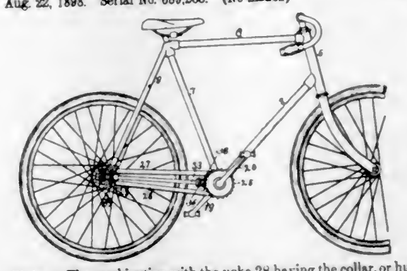
660,447. WAGON-BODY AND END-GATE THEREFOR. WILLIAM F. MARQUARDT, Dysart, Iowa. Filed Sept. 1, 1900. Serial No 28,775. (No model.)



Claim.—1. A farm-wagon body provided with a sectional end-gate and right-angular metal guard-strips secured interiorly at the junction of sides and ends with the bottom, the portion attached to the hinged end-gate sections being in two parts or sections, one having a horizontal flange of rhomboidal shape, and the other flange being an obtuse-angled quadrilateral, as shown and described.

2. The combination with the wagon-body, of a removable end-gate which is made in halves or sections hinged together and adapted to fold outward, and guard-strips secured to such sections, one having a horizontal flange that is acute-angled, and the other flange having an obtuse angle, the acute-angled flange being raised sufficiently to allow it to slide over the other, as shown and described.

660,448. BICYCLE. CHARLES H. METZ, Waltham, Mass. Filed Aug. 22, 1898. Serial No. 689,205. (No model.)



Claim.—The combination with the yoke 28 having the collar, or hub, 29, and the screw-cone mounted in the collar, of the shaft 40 furnished with the clamping-frame 42 having the lateral ears 43, the pendent ears 48, and the member 45, the screw 44 working in the ears 43 to secure said frame to the cone, the bolt 46 working through a perforation in the member 45 and engaging with the yoke 28, the adjusting-screw 49 engaged between the ears 48, and the sliding cone 51 on the shaft 40 against which the screw 49 bears, as and for the purpose described.

660,449. BICYCLE-GEARING. CHARLES H. METZ, Waltham, Mass. Filed Mar. 2, 1899. Serial No. 707,560. (No model.)



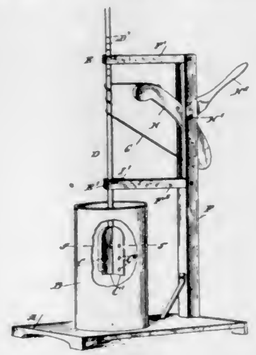
Claim.—1. In a bicycle, the combination with the crank-hanger sleeve having a rearwardly-extending hub, of a gear-case comprising an open-sided compartment provided with a disk for closing the same and adapted to be secured to the hanger-sleeve, and a second compartment open at its end and having a wall which partially embraces said hub whereby the secondary case is secured only by its connection with the main case and the engagement with the hub, and the combined cases are removable by the release of the securing devices for the main case, and a closure for the open end of said second compartment.

2. In a bicycle, the combination with a side drive-shaft frame having at its rear end an enlarged gear-frame furnished with a sleeve projection on said frame, of the rear shaft having means for engaging said projection, means for adjusting the shaft with respect to the frame, a gear-case embracing the shaft at one side of the adjusting and securing devices and fitting against the gear-frame, whereby said devices are exposed for ready access, a cap fitting against the outer surface of the gear-frame, and releasable securing devices for the gear-case and the cap.

3. The combination with the hub 7 having the ears 9 and 10 10 and furnished with the hub 15, of the gear-case comprising the chamber 33 having the bottom 34 secured to said ears, and the chamber 35 having the end 36 adapted to embrace the hub 15 as and for the purpose described.

4. The combination with the hub 7 having the ears 9 and 10 10 and furnished with the hub 15, a crank-shaft rotatable in the hub 7 and having the washer 18, and a side shaft journaled at one end in the hub 15, of the gear-case comprising the chamber 33 having the bottom 34 secured to the ears 9 and 10 10 and the chamber 35 having the end 36 adapted to partially embrace the hub 15, the disk 37 having the lip 38 frictionally engaged with the inner surface of the chamber 33 and the central opening for embracing the outer portion of the crank-shaft, said disk bearing against the washer 18, and the cap 39 mounted on the side shaft and having the inwardly-turned lip adapted to be frictionally engaged with the inner surface of the chamber 35, as and for the purpose described.

660,450. CHURN. WICKLIFF B. MITCHELL, Owensburg, Ind. Filed June 12, 1900. Serial No. 19,994. (No model.)



Claim.—In a churn, a frame comprising a standard, arms extended outward from the standard and having forked ends forming bearings for the dasher-rod, a dasher-rod having a series of annular channels formed in it, and flanges on the forked members of one of the arms for engaging in either one of said channels to support the rod as adjusted vertically, substantially as specified.

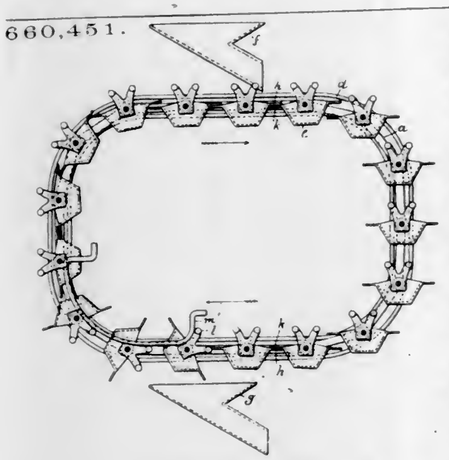
660,451. CONVEYER. GEORGE W. MCCASLIN, Hoboken, N. J. Filed Dec. 30, 1897. Renewed Apr. 20, 1900. Serial No. 13,649. (No model.)

Claim.—1. In a conveyer an endless chain and buckets pivotally suspended therefrom and provided with overlapping lips, and means to effect the change in the lapping of the lips by tilting the buckets backward only, substantially as described.

2. In a conveyer, an endless chain and buckets pivotally hung therefrom and provided with overlapping lips, and means for tilting the buckets backward sufficiently to turn them end for end to effect the change in the lapping of the lips, substantially as described.

3. In a conveyer comprising horizontal and vertical runs, an endless chain, gravity-buckets pivotally suspended from the chain and provided with overlapping lips, a lug on each bucket extending above the pivot of the bucket, and a fixed cam so located as to be engaged by the lugs while the buckets are passing from the lower horizontal run to the ascending vertical run, whereby the buckets are tilted backward sufficiently to turn them end for end to effect the change in the lapping of the lips, substantially as described.

660,451.



660,452. CUSHION-TIRE FOR VEHICLES. JOHN F. MCGUIRK, Akron, Ohio. Filed Apr. 20, 1900. Serial No. 13,630. (No model.)

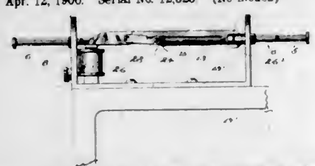


Claim.—In a tire of the character described, the combination with a channeled rim, of a rubber tire having embedded therein two narrow flat metal bands spaced apart and united at remote intervals by flat narrow integral webs, the rubber of the tire passing between the bands substantially as described.

660,453. PLASTERING COMPOSITION. HENRY C. MCMILLIN, Marietta, Ohio. Filed July 11, 1900. Serial No. 23,270. (No specimens.)

Claim.—A composition of matter to be used to form a coating on walls, consisting of calcined plaster, vulcanite cement, sand, powdered glue, acid phosphate, hair and water, and combined in the proportions and manner substantially as hereinbefore specified.

660,454. SHIFTER FOR BELTS, &c. GEORGE W. PEIRCE, Abington, Mass., assignor of one-half to C. D. Gilman, Weymouth, Mass. Filed Apr. 12, 1900. Serial No. 12,525. (No model.)



Claim.—1. In an apparatus of the class described, a shifter, means to move the same positively forward, a device to hold the shifter in its retracted position, and a closed circuit having a magnet, the armature of which coacts with said device, and the magnet normally attracting its armature to maintain said device in its effective position.

2. In an apparatus of the class described, a shifter, means to move the same positively forward, a toggle to hold the shifter in its retracted position, and a closed circuit having a magnet, the armature of which coacts with one of the toggle members, and the magnet normally attracting its armature to maintain the toggle in its effective position to hold the shifter back.

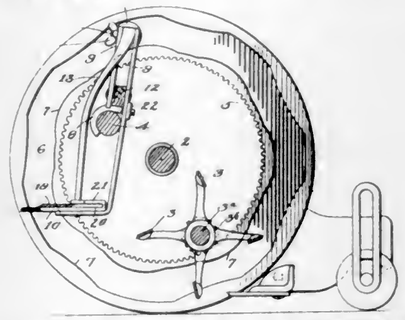
3. In an apparatus of the class described, a spring-advanced shifter, a device to hold the shifter in its retracted position, and a closed circuit having a magnet, the armature of which coacts with said device, and the magnet normally attracting its armature to maintain said device in its effective position.

4. In an apparatus of the class described, a plurality of parallel rods, cross-pieces uniting the same, springs fitted around said rods and bearing against one of the cross-pieces and against a bearing for the rods, a device connected with said rods to hold the same in a backward position with the springs under compression, and a closed circuit having a magnet, the armature of which coacts with said device, and the magnet normally attracting its armature to maintain said device in its effective position.

5. In an apparatus of the class described, a shifter, means to move the same positively forward, a toggle connected with the shifter, and means cooperating with the toggle to hold the same with the centers thereof approximately in line.

6. In an apparatus of the class described, a shifter, means to move the same positively forward, a toggle connected with the shifter, means cooperating with the toggle to hold the same with the centers thereof approximately in line, and means to effect the release of said toggle.

660,455. ATTACHMENT FOR LAWN-MOWERS. LE GRAND W. PELLETREAU, East Moriches, N. Y. Filed May 28, 1900. Serial No. 18,272. (No model.)



Claim.—1. The combination with a lawn-mower provided with rotary cutting-knives and a front bar, of a reciprocating cutter arranged in front of said knives, and means for detachably hanging said reciprocating cutter on said bar, substantially as described.

2. An attachment for lawn-mowers having front bars consisting of a reciprocating cutter, and means for detachably hanging the same to the front bar of the mower, substantially as described.

3. In an attachment for lawn-mowers provided with front bars, the combination with a reciprocating cutter, of means for detachably hanging the same on the front bar, and means for engaging a wheel of the lawn-mower and said reciprocating cutter for operating the latter, substantially as described.

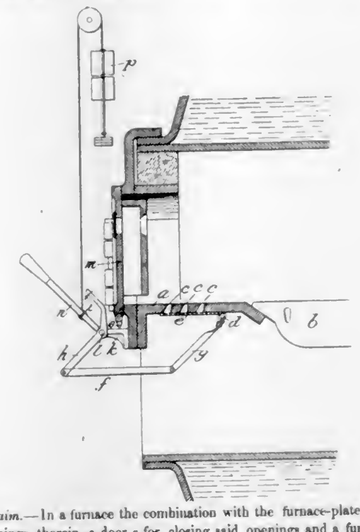
4. The combination with a lawn-mower provided with rotary cutting-knives and a front bar, of standards supporting a reciprocating cutter, devices for detachably hanging said standards on the front bar of the mower, and means for reciprocating the cutter supported thereby, substantially as described.

5. In an attachment for lawn-mowers, the combination with a guard-plate, a reciprocating knife moving thereover, standards supporting said guard-plate and cutter, and devices for detachably hanging said standards to a front bar of the mower, substantially as described.

6. In an attachment for lawn-mowers, the combination with standards, of hooks for detachably hanging said standards on the front bar of the mower, a reciprocating cutting mechanism supported by said standards, a lever pivoted to one of the standards and engaging the reciprocating cutting mechanism at one end, and a wheel provided with a runway in which the other end of the lever is received, substantially as described.

7. The combination with a lawn-mower provided with rotary cutters, of standards detachably connected with the mower, a reciprocating cutting mechanism supported by said standards in front of the rotary cutters, and a lever pivoted to one of the standards and engaging the reciprocating cutting mechanism at one end, and a wheel provided with a runway in which the other end of the lever is received, substantially as described.

660,456. AUTOMATIC AIR-FEEDING APPARATUS FOR FURNACES. FELIX PINTHER, Berlin, Germany. Filed Dec. 19, 1899. Serial No. 740,917. (No model.)



Claim.—In a furnace the combination with the furnace-plate having openings therein, a door *e* for closing said openings and a furnace-door, of a rock-shaft having connections leading to the door *e* for controlling the same, a projection from the shaft extending in the path of the furnace-door and adapted to be operated thereby, an arm extending from the rock-shaft and means for automatically moving said arm whereby said door *e* is closed through the said connections, substantially as described.

660,457. NUT-LOCK. EDWARD R. POST and EDWARD S. GRISE, Ottawa, Ohio. Filed Feb. 20, 1900. Serial No. 5,958. (No model.)



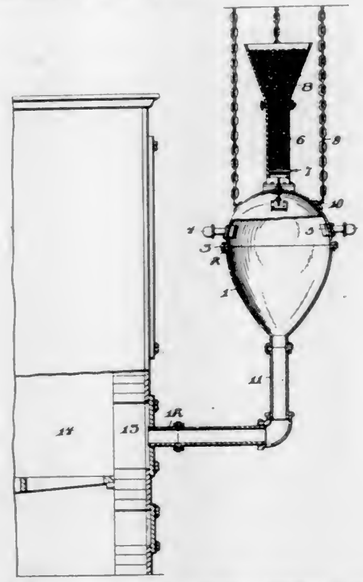
Claim.—1. The combination with a bolt, of an unthreaded washer thereon, means for preventing revolution of said washer, a nut on the bolt and a spring-fastener having its ends turned inward toward each other and engaged in corresponding openings in the adjacent faces of diametrically-opposite sides of the said nut and washer to lock the nut against movement, as set forth.

2. The combination with a bolt, of a nut having depressions in its inner face, a washer having depressions in its outer face and upon its opposite face provided with means to prevent its turning, and a spring-fastener engaged in the coincident openings in the nut and washer, as and for the purpose specified.

3. The combination with a bolt, of an unthreaded washer thereon, means for locking said washer against revolution, a nut engaging the threads of said bolt, said washer and nut having upon their adjacent faces corresponding openings extending toward the center, and a spring-bow having projections on its ends engaging in the openings in the nut and washer upon diametrically-opposite sides thereof, to lock them against movement, substantially as set forth.

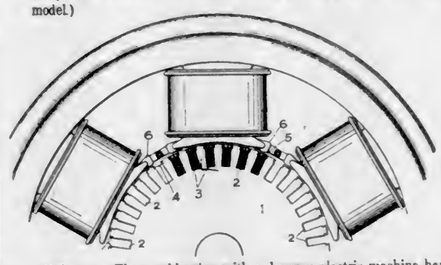
660,458. APPARATUS FOR FEEDING FINE FUEL. HARRY B. PRUDEN, Pittsburg, Pa. Filed Jan. 27, 1900. Serial No. 2,987. (No model.)

Claim.—1. The combination with the combustion-chamber, of an egg-shaped receptacle, chains connected to said receptacle and to a suitable support, air-supply pipes connected to said receptacle at different sides thereof, deflecting-plates secured to the inner face of the receptacle at the discharge of each of said pipes for projecting the air from each pipe in the same path of travel within the receptacle, a feed-pipe having a hopper mounted on said receptacle, a feed-regulating valve in said feed-pipe, and a discharge-pipe connected at its one end to the receptacle and at its other end provided with a bell-shaped mouth communicating with the combustion-chamber, substantially as described.



2. The combination with the combustion-chamber, of a receptacle, chains connected to said receptacle for supporting the same, a feed-pipe provided with a hopper for feeding fine fuel to said receptacle, a controlling-valve arranged in said feed-pipe, air-supply pipes connected to said receptacle at different sides thereof and to a common conrse of air-supply, deflecting-plates arranged within the receptacle at the discharge of each of said air-supply pipes and adapted to project the air from each of said pipes in a common path of travel, and a discharge-pipe connected at its one end to said receptacle and at its other end terminating in a bell-shaped mouth communicating with the combustion-chamber, substantially as described.

660,459. SLOT-WEDGE FOR DYNAMO-ELECTRIC MACHINES. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 21, 1900. Serial No. 27,575. (No model.)



Claim.—1. The combination with a dynamo-electric machine having coil-retaining slots, of slot-closing devices of laminated magnetic material.

2. The combination with a dynamo-electric machine having coil-retaining slots, of self-retaining slot-closing devices of laminated magnetic material.

3. As an article of manufacture, a slot-closing device for dynamo-electric machines, consisting of a laminated bar of magnetic material.

4. As an article of manufacture, a slot-wedge for dynamo-electric machines, consisting of a transversely-laminated bar of magnetic material.

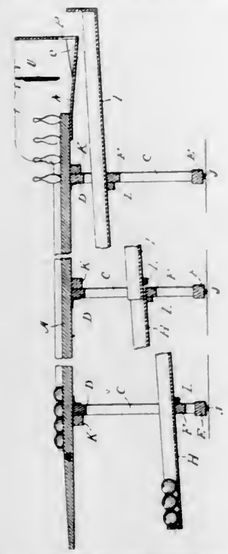
5. The combination with a slotted armature, of laminated slot-wedges therefor.

6. The combination with a slotted armature, of laminated slot-wedges of magnetic material.

7. A slot-closing device for dynamo-electric machines consisting of laminæ assembled upon and held together by rods.

8. The combination in a dynamo-electric machine, of antihunting conductors, with an armature having its periphery composed of a substantially-continuous ring of magnetic material.

660,460. PORTABLE BOWLING-ALLEY. ANTON J. ROLLERT, Chicago, Ill. Filed Feb. 14, 1900. Serial No. 5,168. (No model.)



Claim.—1. In a bowling-alley, the combination with an alley provided with hinged supports, and adapted to receive and support a ball-return trough, of said trough, and stops on said trough adapted to engage said supports to hold same rigid with relation to each other and to said alley.

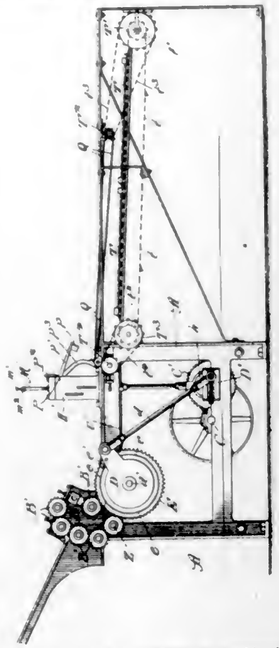
2. In a bowling-alley, the combination with an alley provided at its rear end with a receptacle for balls and pins, of a swinging apron extending transversely across said receptacle between the ends of the latter and adapted to divide said receptacle into two chambers, one of which is adapted to receive pins and the other of which is adapted to receive the balls, said apron being of less length than the depth of said receptacle to provide a free space below the same for the passage of balls, said apron being adapted to act as a buffer against which said pins are thrown and from which they recoil and fall into one of said chambers.

3. In a bowling-alley, the combination with an alley provided at its rear end with a receptacle for balls, said receptacle having an inclined bottom and an opening in its rear wall to which balls are adapted to be guided by said inclined bottom, of supports for said alley, an inclined ball-return trough carried by said supports underneath said alley and adapted to receive balls passing through said opening and return same to a point below the forward end of said alley and stops on said return-trough adapted to engage said supports to hold the latter rigidly in position with relation to said alley.

4. In a bowling-alley, the combination with an alley provided at its rear end with a receptacle for balls, said receptacle having an inclined bottom and an opening in its rear wall to which balls are adapted to be guided by said inclined bottom, and a swinging apron pivoted in the side walls of said receptacle between the ends of the latter and adapted to divide said receptacle into two chambers, one of which receives the pins and the other of which receives the balls, of supports for said alley, and an inclined ball-return trough carried by said supports underneath said alley and adapted to receive balls passing through said opening and return same to a point adjacent the forward end of same.

660,461. MACHINE FOR CUTTING LOZENGES. FREDERICK P. ROSBACK, Chicago, Ill., assignor to the Pan Confection Company, of Illinois. Filed Dec 5, 1898. Serial No. 698,340. (No model.)

Claim.—1. In a machine of the class described, the combination of a set of hollow punches to cut and form lozenges, a cross-bar upon which such punches are mounted, a pair of slides for such cross-bar, an ejector formed of an ejecting-piston in each punch, a cross-bar for supporting and moving the ejector, a pair of slides for such ejector cross-bar, a pair of main slides in which the punch and ejector cross-bar slides are independently and movably mounted, means for giving the slides upward and downward movements, and means for giving the ejector cross-bar slides an independent and accelerated downward movement to move the ejector and discharge the lozenges, substantially as described.



2. In a machine of the class described, the combination of a set of hollow punches to cut and form lozenges, a cross-bar upon which such punches are mounted, a pair of slides for such cross-bar, an ejector formed of an ejecting-piston in each punch, a cross-bar for supporting and moving the ejector, a pair of slides for such ejector cross-bar, a pair of main slides in which the punch and ejector cross-bar slides are independently and movably mounted, means for giving the slides upward and downward movements, and means for giving the ejector cross-bar slides an independent and accelerated downward movement to move the ejector and discharge the lozenges, substantially as described.

3. In a machine of the class described, the combination of a set of hollow punches to cut and form lozenges, a cross-bar upon which such punches are mounted, a pair of slides for such cross-bar, an ejector formed of an ejecting-piston in each punch, a cross-bar for supporting and moving the ejector, a pair of slides for such ejector cross-bar, a pair of main slides in which the punch and ejector cross-bar slides are independently and movably mounted, springs for holding the independent cross-bar slides in their normal positions, means for moving the main slides upwardly and downwardly, means for limiting the upward movement of the punch cross-bar slides, and means for giving the ejector cross-bar slides an independent downward movement to discharge the cut lozenges, substantially as described.

4. In a machine of a class described, the combination of a set of hollow punches to cut and form lozenges, a cross-bar upon which such punches are mounted, a pair of slides for such cross-bar, an ejector formed of an ejecting-piston in each punch, a cross-bar for supporting and moving the ejector, a pair of slides for such ejector cross-bar, a pair of main slides in which the punch and ejector cross-bar slides are independently and movably mounted, means for giving the main slides an upward-and-downward movement, means for adjusting the relation of the independent cross-bar slides, means for limiting the upward movement of the punch cross-bar slides, and lever mechanism arranged to be contacted by the main slide and strike the ejector cross-bar slides and give the ejector cross-bar slides an independent downward movement to eject the cut lozenges, substantially as described.

5. In a machine of the class described, the combination of a set of hollow punches to cut and form lozenges, a cross-bar upon which such punches are mounted, a pair of slides for such cross bar, an ejector formed of an ejecting-piston in each punch, a cross-bar for supporting and moving the ejector, a pair of slides for such ejector cross-bar, a pair of main slides in which the punch and ejector cross-bar slides are independently and movably mounted, means for moving the main slides upwardly and downwardly, spring mechanism located between the independent slides and the main slides to hold the independent slides in their normal positions, stop mechanism to limit the upward movement of the punch cross-bar slides, adjusting mechanism for regulationg the position of the cross-bar slides with each other, and means for giving the ejector cross-bar slides an independent accelerated downward movement when the main slide is at or near the upper limit of its motion consisting of a lever arranged to be contacted by the main slide or slides and to strike the ejector and cross-bar slide or slides, substantially as described.

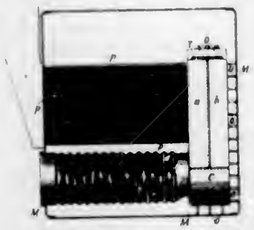
6. In a machine of the class described, the combination of means for feeding and cutting lozenges, means for catching and dumping the cut lozenges which consists of a tilting plate and hollow box-like scraper, and means for holding such parts in a closed box-like condition to receive the cut lozenges, and means for moving and separating the same to discharge the lozenges, substantially as described.

7. In a machine of the class described, the combination of means for cutting and forming lozenges, means for catching and dumping the cut lozenges consisting of a rock-shaft, a tilting dumping-plate connected therewith, a hollow box-like scraper mounted on such shaft and means for moving such parts in a closed condition under the cutting mechanism to receive the cut lozenge, and means for moving such mechanism away from the catching-point, separating the same and discharging the lozenge, substantially as described.

8. In a machine of the class described, the combination of means for cutting and forming lozenges, and dumping mechanism consisting of a rock-shaft, a dumping-plate connected with such rock-shaft and adapted to be brought under the cutting mechanism to receive the discharged lozenge, a hollow box-like scraper loosely mounted on the rock-shaft and adapted to be moved in one direction by the tilting plate, spring mechanism to move the scraper in the opposite direction, means for limiting the movement of the scraper in the discharging direction so arranged that the dumping mechanism is brought under the cutting mechanism in a closed condition and separated as it moves from such position, substantially as described.

9. In a machine of the class described, the combination of a pair of main slides, means for giving such slides an upward-and-downward movement, cutting and discharging mechanism mounted in such slides for cutting and forming lozenges, mechanism for receiving and dumping cut lozenges as they are ejected consisting of a rock-shaft, means connecting such rock-shaft with the vertical movable slides, a dumping-plate mounted on such rock-shaft and arranged to be brought under the cutting mechanism and be moved away from such cutting mechanism, a box-like scraper loosely mounted on the rock-shaft and adapted to be moved forward by the dumping-plate and form in connection therewith a receiving-box to receive the cut and discharged lozenges, springs connected with the scraper mechanism and with the rock-shaft to move the scrapers in the opposite manner and means for limiting the backward-discharging movement of the scraper so as to separate it from the dumping-plate and discharge the cut lozenge, substantially as described.

660,462. COMBUSTION-CHAMBER FOR STEAM-GENERATORS. THOMAS F. ROWLAND, WARREN E. HILL, and ANGUS MCLACHLAN, New York, N. Y.; said Hill and McLachlan assignors to said Rowland. Filed Feb. 7, 1900. Serial No. 4,324. (No model.)



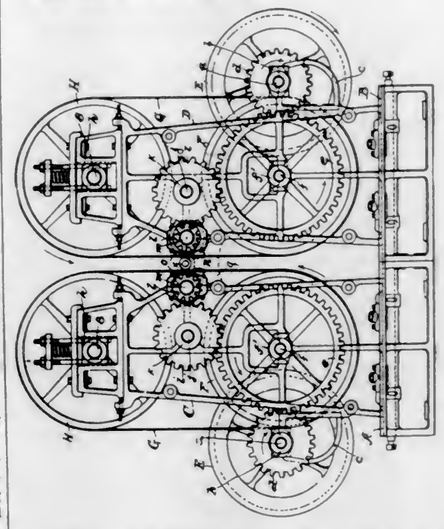
Claim.—1. A combustion-chamber having the upper part thereof composed of one or more integrally-flanged front plates, one or more integrally-flanged back plates, having the edges of said flanges joined, substantially as and for the purposes above set forth.

2. A combustion-chamber composed of front and back plates having integral flanges and having said flanges joined at their edges, substantially as and for the purposes above set forth.

3. A combustion-chamber composed of front and back plates having integral flanges and having said flanges joined at their edges, top flanges integral with the front and back plates and the flanges thereof and joined to form a top to said combustion-chamber with an aperture therein, and a cover-plate joined to the top flanges, substantially as and for the purposes above set forth.

4. A combustion-chamber composed of an integrally-flanged front plate, an integrally-flanged back plate having a lobe at its lower end, and having said flanges joined at the edges, a wrapper-plate joined at its edges to the lower edges of the front and back plates and their united flanges; and a top plate for said combustion-chamber and joined thereto in any suitable manner; substantially as and for the purposes above set forth.

660,463. APPARATUS FOR PRODUCING TUBING FROM HOLLOW BILLETS. JOHN T. ROWLEY, Beaver Falls, Pa. Filed Apr. 7, 1898. Serial No. 676,839. (No model.)



Claim.—1. In an apparatus for rolling and finishing tubing from hollow billets, the combination of two oppositely-moving steel bands, the said bands being angularly disposed, means to operate the same and support guides or rollers to keep the bands operatively against the billet fed between said bands, substantially as set forth.

2. In an apparatus for rolling and finishing tubing from hollow billets, the combination of two oppositely-moving steel bands, the said bands being angularly disposed, means to operate the same, support guides or rollers to keep the bands operatively against the billet fed between said bands, and a mandrel in alinement with said billet, substantially as set forth.

3. In an apparatus for rolling and finishing tubing from hollow billets, the combination of two angularly-disposed oppositely-moving steel bands adapted to operate over drums or pulleys, means to operate the same, guide pulleys or rolls to keep said bands up to the billet fed between them, means to operate the same, and means to adjust the angularity of the bands, substantially as set forth.

4. In an apparatus for rolling and finishing tubing from hollow billets, the combination of two angularly-disposed oppositely-moving steel bands, means to operate the same, supports or rolls to keep the bands up to the billet passing between them, and means to operate the same, substantially as set forth.

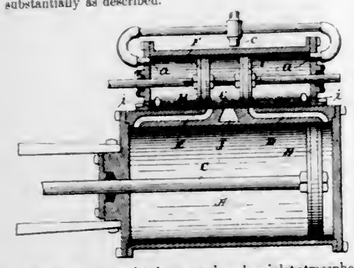
5. In an apparatus for rolling and finishing tubing from hollow billets, the combination of two angularly-disposed oppositely-moving steel bands, means to operate the same, supports or rolls to maintain the bands against the billet fed between them, means to operate the same, means to support the billet in its passage between said bands, and a mandrel in alinement with said billet, substantially as set forth.

660,464. STEAM-ENGINE. EDWARD SARVER, Deadwood, S. D. Filed Dec. 29, 1899. Serial No. 741,982. (No model.)

Claim.—1. A piston-valve steam-chest having at each end an inlet atmospheric or external communication, and a valve adapted to control the said communications, substantially as described.

2. A piston-valve steam-chest provided at each end with an opening, a passage-way establishing communication between the said openings, the said passage-way having an atmospheric communication, and an in-

wardly-opening valve adapted to control the said atmospheric communication, substantially as described.



3. A piston-valve chest having at each end an inlet atmospheric communication, and a valve for said communication, said valve constructed to open when the steam-pressure is relieved, and adapted to close when the steam-pressure is admitted to the piston-chest, substantially as described.

4. A piston-valve chest having at each end an inlet atmospheric communication independent of the steam-ports and an inwardly-opening valve for said communication adapted to close the same under steam-pressure and to permit the opening thereof under vacuum or suction pressure, substantially as described.

5. A piston-valve chest having at each end an opening, a passage-way establishing communication between the said openings, the openings and passage-way being independent of the steam-ports of the said chest, the said passage-way having an inlet atmospheric opening, and an inwardly-opening valve controlling the said atmospheric openings, substantially as described.

6. A piston-valve chest provided at each end with an opening, a pipe having its ends in communication with the said openings and establishing communication between opposite ends of the piston-chest, said pipe situated outside of the chest and provided with an opening, and a valve adapted to open said pipe-opening when the steam-pressure is removed and to close the said openings when the steam-pressure is applied, substantially as described.

7. The combination with a piston-valve steam-chest having openings at each end, and a passage-way connecting the said openings, the passage-way having an opening establishing atmospheric communication to the said passage-way, the said opening having independently inwardly and outwardly opening valves, one adapted to release the pressure, and the other to relieve the suction-pressure, substantially as described.

8. The combination with a piston-valve steam-chest having at each end an opening and a passage-way connecting the said openings, the passage-way having an atmospheric opening establishing atmospheric communication therewith, the said opening having an inwardly spring-closed relief-valve, and an inwardly-opening suction relief-valve, substantially as described.

9. A piston-valve steam-chest having atmospheric communication at each end, and separate inwardly and outwardly opening relief-valves for the said openings, substantially as and for the purpose described.

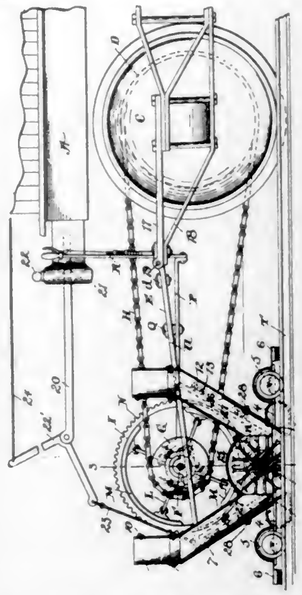
660,465. **TRACK-CLEANER.** EDWARD SARVER, Deadwood, S. D. Filed Jan. 20, 1900. Serial No. 2,200. (No model.)

Claim.—1. In a track-cleaner the combination of a car-truck, its shaft and its supporting-wheels, of forwardly-extending bars connected with the said truck, a cutting mechanism including a supporting-frame pivoted at its rear end to the forwardly-extending bars, a cutting mechanism carried by the said frame, operative connections between the car and axle-shaft and the cutting mechanism, a detachable forwardly-extending supporting-bar connected at its rear end to the car, and a lifting-lever connected to the outer end of the supporting-bar and in turn connected with the forward end of the said hinged cutter-supporting frame, substantially as described.

2. A track-cleaner comprising a frame connected to the car, journals carried by the said frame directly above the rail, a shaft in said journal and having its ends extending beyond the said journal, and cutters mounted on said shaft on both sides of the journal and extending on both sides of the rail below the tread thereof, whereby the snow is cleared from both sides of the rail, substantially as described.

3. A track-cleaner comprising a forwardly-extending frame having its rear end connected with a car, depending U-shaped brackets connected with the forward end of the frame, a transversely-arranged cutter-shaft supported by the lower ends of the U-shaped brackets, cutters carried by the said cutter-shaft, and an operating mechanism for the cutter-shaft, substantially as described.

4. A track-cleaner comprising a frame connected at its rear end to a car, the said frame having a transversely-arranged cutter-shaft, cutters carried thereby, a loose gear operatively connected with the cutter-shaft, in combination with the car-wheel shaft having a driving-gear, a gear rigid upon the said loose gear-shaft, an operative connection between the rigid gear and the car-axle gear, and a friction-clutch between the loose gear and its said shaft, and means for operating the said clutch, substantially as described.



5. A track-cleaner comprising a supporting-frame connected with a car, a transversely-extending cutter-shaft carried by the said frame, cutters carried by the said shaft, the said shaft having its ends extending beyond the outer side of the track, said cutter situated at the inner and outer side of the track, upwardly-extending separate chutes communicating at their lower ends with the said cutters, each of said chutes having separate independently pivotally connected swinging upper ends whereby they are adapted to be swung outward for the purpose described.

6. A track-cleaner comprising a supporting-frame adapted to be connected with a car, a cutter carried thereby, and independent upwardly-extending forwardly and rearwardly arranged chutes in communication at their lower ends with the said cutter, substantially as described.

7. A track-cleaner comprising a cutter, an upwardly-extending chute, and a vertically-movable lower end for and connected with the said chute, and in communication with the cutter, substantially as described.

8. A track-cleaner comprising a supporting-frame, a cutter carried thereby, upwardly-extending forward and rearward chutes in communication with the said cutter, the lower ends of the said chutes being vertically movable and having oppositely-extending inclined lower ends to form runners for engaging the packed snow or ice, substantially as described.

9. A track-cleaner comprising a truck pivotally connected to a car and carrying cutters, operative connections between the cutters and the car-axle, a removable arm having one end within the car-coupler and an operating-lever pivoted to said arm and connected to the truck, substantially as described.

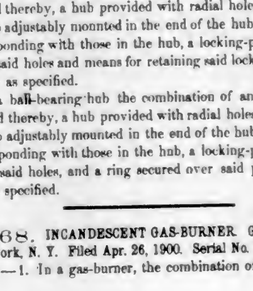
10. A track-cleaner comprising a truck adapted to run on the rails and having its rear end connected to the car, a shaft carried thereby, cutters carried by the said shaft and adapted to engage both sides of the rail and having operative connection with the car-axle, a removable arm having one end within the coupler carried by the car, an operating-lever connected to the opposite end of said arm, and a connection between said lever and the outer end of the truck, substantially as described.

11. A track-cleaner comprising a truck having its rear end pivotally connected to the car and adapted to run on the rails, vertically-adjustable bearings on said truck, a shaft mounted in said bearings, cutters carried by said shaft and adapted to engage both sides of the rail, said shaft having operative connection with the car-axle, forwardly and rearwardly extending spouts from each cutter and each chute having separate independently pivotally connected upper ends, a removable arm attached to the car-coupler, an operating-lever pivoted to said arm, and a flexible connection between the lever and the outer end of the truck, substantially as described.

12. A cutter for the purpose described comprising a plurality of bars arranged and connected in pairs, transversely-arranged bolts passing through the said bars and clamping them to the said shaft, the outer ends of the bars having cutting edges, substantially as described.

13. A cutter for the purpose described comprising a plurality of separate bars having their ends turned laterally in the same direction, the bars being arranged in pairs and connecting-bolts therefor situated at opposite sides of the cutter-shaft, substantially as described.

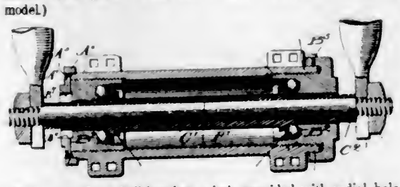
660,466. **AIR MATTRESS OR CUSHION.** ALBERT H. SAWTELL, Malden, Mass., assignor to The Pneumatic Goods Company, Boston, Mass. Filed Dec. 7, 1899. Serial No. 739,497. (No model.)



Claim.—1. An air mattress or cushion comprising imperforate flexible side pieces, and tubular fabric stays having integral end flanges cemented directly to the inner surfaces of the side pieces.

2. An air mattress or cushion comprising imperforate flexible side pieces, tubular fabric stays having integral end flanges cemented directly to the inner surfaces of the side pieces, and reinforcing-pieces of greater area than the flanges secured to the inner surfaces of the flanges and to the side pieces.

660,467. **BALL-BEARING HUB.** PHILIP F. SCHAFFER, Philadelphia, Pa., assignor of one-half to William Scatchard, Jr., and John J. Morris, same place. Filed Apr. 5, 1899. Serial No. 711,861. (No model.)



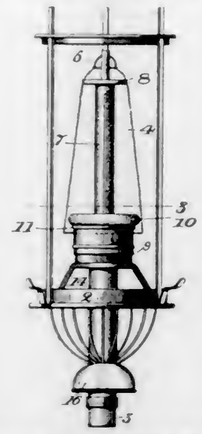
Claim.—1. In a ball-bearing a hub provided with radial holes at one end, a threadless hollow axle-sleeve having rigid, integral, inwardly-inclined cones thereon and adapted to project from a hub at each end and bear against the forks or fixed part of the frame, a hub interiorly threaded at its ends, exteriorly-threaded caps provided with holes corresponding with those in the hub, balls arranged within the caps and upon the cone, an axle slidably fitting said sleeve and projecting through said forks or fixed part of the frame, nuts on the ends of said axle to bind the forks against the ends of said sleeve; a locking-pin adapted to enter any one of said holes, and means for retaining said locking-pin in position, substantially as specified.

2. In a ball-bearing hub, the combination of an axle and bearing-cones carried thereby, a hub provided with radial holes at one end, a ball-carrying cap adjustably mounted in the end of the hub and provided with holes corresponding with those in the hub, a locking-pin adapted to enter any one of said holes and means for retaining said locking-pin in position, substantially as specified.

3. In a ball-bearing hub the combination of an axle and bearing-cones carried thereby, a hub provided with radial holes at one end, a ball-carrying cap adjustably mounted in the end of the hub and provided with holes corresponding with those in the hub, a locking-pin adapted to enter any one of said holes, and a ring secured over said pin and holes; substantially as specified.

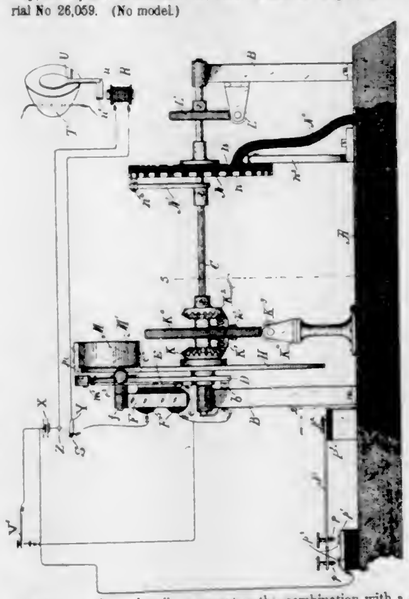
660,468. **INCANDESCENT GAS-BURNER.** GEORGE W. SEEBACH, New York, N. Y. Filed Apr. 26, 1900. Serial No. 14,487. (No model.)

Claim.—1. In a gas-burner, the combination of the mixing-chamber having air-openings, the gas-pipe to which such chamber is connected, and a loose pressure-reducing tip at the end of the gas-pipe, the same being of rivet shape with its flange or head closing the end of the gas-pipe and having its stem perforated and extending into the mixing-chamber to a position above the lower ends of the air-openings, substantially as set forth.



2. In a gas-burner, the combination of a mixing-chamber having an enlarged upper portion 9, and a tube or pipe 14, extending therefrom, the said tube or pipe being provided near the end opposite the said upper portion with air-openings 15, a valve for such openings, a gas-pipe connected with the lower end of the pipe or tube 14, and a loose pressure-reducing tip consisting of a head or flange 18, closing the end of the gas-pipe and a perforated stem 17 extending into the mixing-chamber to a point above the lower portions of the openings 15, substantially as set forth.

660,469. **SIGNALING SYSTEM.** EDWARD J. SILKMAN, Baltimore, Md., assignor of one-third to Charles Selden and Edgar Wesley Day, same place. Filed Mar. 25, 1898. Renewed Aug. 6, 1900. Serial No. 26,059. (No model.)



Claim.—1. In a signaling apparatus, the combination with a sunflower-and-trailer device, of keys electrically connected with said sunflower and trailer; an electromagnet in the circuit with said keys and sunflower and trailer; a signaling device operated by said electromagnet, a receiver-circuit and device for making and breaking the same, and a receiver in

said circuit and in synchronism with said sunflower-and-trailer device, and adapted to make the signals thus sent visually manifest, the said receiver being disconnected from the transmitter, substantially as described.

2. In a signaling apparatus, the combination with the sunflower device, its trailer and segment-circuits; of a plurality of keys adapted to complete the said segment-circuits; an electromagnet connected in the circuit with said keys, sunflower and trailer; a semaphore operated by said electromagnet, a receiver-circuit and device for making and breaking the same, and a receiver in said circuit and in synchronism with the sunflower-and-trailer device, and adapted to make the signals from the semaphore manifest in visual characters, substantially as described.

3. In a signaling apparatus, the combination with a rotary body having characters thereon, of a fixed body mounted near said rotary body, the said fixed body having apertures which are adapted to register with the characters of said rotary body; an electromagnet; means operated by said electromagnet for opening and closing the apertures of said fixed body; means for energizing said magnet whereby the characters on the rotary body are displayed, and a shutter independently operated shutting off all but a predetermined number of said apertures, substantially as described.

4. In a signaling apparatus, the combination with a rotary body having characters thereon, of a fixed body mounted near said rotary body, the said fixed body having openings therethrough and registering with the said characters; a shutter adapted to close and open said openings, and an electromagnet and magnet-circuit adapted to operate said shutter, and thereby display the characters, and a second shutter independently operated and shutting off a predetermined number of said openings, substantially as described.

5. In a signaling apparatus, the combination with a rotary plate having characters thereon, of a fixed body mounted near said plate, the said fixed body having openings registering with the said characters; a shutter adapted to open and close the said openings; an electromagnet and circuit operating said shutter, and means for adjusting the angular position of said rotary plate while the same is in motion, substantially as described.

6. In a signaling apparatus, the combination with a revoluble shaft, of a disk mounted fast thereon, the said disk being provided with a plurality of openings arranged in circular form; translucent material secured to said plate and covering said openings; characters printed on the translucent material in front of the said openings; a fixed plate mounted near the rotary plate and covering a plurality of the characters thereon, the said fixed plate being provided with openings adapted to register with those of the rotary plate; a radial shutter adapted to open and close the openings of said fixed plate; an electromagnet actuating said shutter with means for exciting said magnet, and a second shutter independently operated and adapted to shut off all but a predetermined number of said openings, substantially as described.

7. In a signaling apparatus, the combination with a sunflower-and-trailer device, of a plurality of keys connected in the segment-circuits of the sunflower and trailer; an electromagnet connected in said circuit, a semaphore signaling device operated by said magnet; a plate having characters upon it and adapted to rotate in synchronism with the said trailer, and means for exhibiting said characters simultaneously with the operation of said semaphore, substantially as described.

8. In a signaling apparatus, the combination with a revoluble shaft, of a sunflower-and-trailer device mounted on said shaft; an electromagnet located in the circuit of the said trailer; a semaphore operated by said magnet; keys connected in the segment-circuits of said sunflower; a plate mounted to rotate with said shaft and provided with a plurality of characters; a fixed plate mounted near the rotary plate and having openings thereon adapted to register with the characters on the rotary plate; a shutter adapted to open and close said openings; an electromagnet operating said shutter, and means for exciting said magnet simultaneously with the excitation of the magnet which operates said semaphore, substantially as described.

9. In a signaling apparatus, the combination with a rotary disk provided with a plurality of circular rows of characters, an opaque body provided with openings registering with each one of said circular rows of characters, a shutter adapted to close or open all of said openings, and a second shutter independently operated and adapted to shut off all but one of said openings, substantially as described.

10. In a signaling apparatus, the combination with a rotary disk provided with a plurality of circular rows of characters, an opaque body provided with openings registering with each one of said circular rows of characters, a radial shutter adapted to close or open all of said openings, and a transverse shutter operated by hand adapted to shut off all but one of said openings, substantially as described.

11. In a signaling apparatus, the combination with a rotary plate having characters thereon, of a fixed body mounted near said plate, the said fixed body having openings registering with the said characters; a shutter adapted to open and close the said openings; an electromagnet and circuit operating said shutter; a bevel-gear secured to said rotary plate; a second bevel-gear meshing with the first, and a third bevel-gear meshing with the second gear and driving the second gear; a revoluble support carrying the intermediate gear, and a shaft carrying the said third bevel-gear, substantially as described.

12. The combination with a sunflower-and-trailer device, and means for signaling when the trailer has moved through any given angle relative to the sunflower, of a separately-operated disk rotating at the same speed with said trailer, and with characters on said disk corresponding to the various angles through which the trailer revolves, and means for adjusting the angular position of said disk relative to said trailer while both or either are in motion, substantially as described.

13. The combination with a sunflower-and-trailer device, and means for signaling when the trailer has moved through any given angle relative to the sunflower, of a separately-operated disk rotating at the same speed with said trailer, and with characters on said disk corresponding to the various angles through which the trailer revolves, with means for rendering one of said characters visible when the signal is made, and means for adjusting the angular position of said disk relative to said trailer while both or either are in motion, substantially as described.

14. In a signaling apparatus, the combination with a sunflower-and-trailer device, of keys electrically connected with said sunflower and trailer; an electromagnet in the circuit with said keys and sunflower and trailer; a signaling device operated by said electromagnet; a receiver-circuit and device for making and breaking the same; a receiver located in said circuit having a separately-operated disk rotating at the same speed with said trailer, and with characters on the said disk corresponding to the various angles through which the trailer revolves, substantially as described.

15. In a signaling apparatus, the combination with a sunflower-and-trailer device, of keys electrically connected with said sunflower and trailer; an electromagnet in the circuit with said keys and sunflower and trailer; a signaling device operated by said electromagnet; a receiver-circuit and device for making and breaking the same; a receiver located in said circuit, having a separately-operated disk rotating at the same speed with said trailer, and with characters on said disk corresponding to the various angles through which the trailer revolves, with means for rendering one of said characters visible when the signal is made, substantially as described.

16. In a signaling apparatus, the combination with a sunflower-and-trailer device, of keys electrically connected with said sunflower and trailer; an electromagnet in the circuit with said keys and sunflower and trailer; a signaling device operated by said electromagnet; a receiver-circuit and device for making and breaking the same; a receiver located in said circuit, having a separately-operated disk rotating at the same speed with said trailer, and with characters on said disk corresponding to the various angles through which the trailer revolves, with means for rendering one of said characters visible when the signal is made, substantially as described.

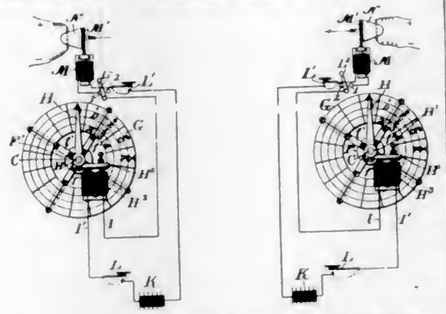
17. In a signaling apparatus, the combination with a rotary plate provided with a plurality of openings therein, of translucent material covering said openings; characters printed on said translucent material in front of each opening; a fixed plate mounted near said rotary plate and covering a plurality of the characters thereon, the said fixed plate being provided with openings which register with the characters of said rotary plate; a radial shutter adapted to close or open the openings in the fixed plate and electromagnet and circuit actuating said shutter with means for energizing said magnet when signals are set or received, and an independently-operated shutter adapted to cut off all but a predetermined number of said openings, substantially as described.

660,470. SYSTEM OF SIGNALING. EDWARD J. SILKMAN, Baltimore, Md., assignor of one-third to Charles Selden and Edgar Wesley Day, same place. Filed Mar. 13, 1899. Renewed Aug. 6, 1900. Serial No. 26,060. (No model.)

Claim.—1. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, means for rotating said disks approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

2. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, means for rotating each of said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

3. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, means for rotating said disks approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, and means for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.



4. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, means for rotating each of said disks, means for so adjusting the motion of said disks that they shall rotate approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, and means for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

5. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, clockwork mechanism at each station for rotating said disks approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

6. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, clockwork mechanism at each station for rotating said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

7. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, clockwork mechanism at each station for rotating said disks approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, and means for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

8. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, clockwork mechanism at each station for rotating each of said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, and means for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

9. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, clockwork mechanism at each station for rotating said disks approximately in synchronism, an electric battery, and means controlled by said battery for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

10. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, clockwork mechanism at each station for rotating said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, an electric battery, and means controlled by said battery for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

11. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, clockwork mechanism at each station for rotating said disks approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, an electric battery and means controlled by said battery for operating said pointer, and for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

12. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, clockwork mechanism at each station for rotating said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, an electric battery, and means controlled by said battery for operating said pointer, and for making a visual or audible signal when the proper symbol on one disk passes its pointer, substantially as described.

13. An apparatus for transmitting intelligence by means of signals which comprises two independently-driven disks bearing similar symbols similarly disposed thereon, and rotating at known relative speeds, and means for signaling at the time that either disk reaches any given angular distance from a fixed axis, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

14. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, mechanism at each station for rotating said disks by a step-by-step motion and approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

15. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, mechanism at each station for imparting a step-by-step motion to said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, and means for making a visual or audible signal when the proper symbol on one disk passes a given index, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

16. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, mechanism at each station for rotating said disks by a step-by-step motion and approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, and means for making a visual or audible signal when the proper symbol on one disk passes its pointer, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

17. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, mechanism at each station for rotating each of said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, means for making a visual or audible signal when the proper symbol on one disk passes its pointer, and means for marking at the other disk the moment when this signal is observed, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

18. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, mechanism at each station for rotating said disks approximately in synchronism, an electric battery at each station, and means operated by one of said batteries for making a visual or audible signal when the proper symbol on one disk passes a given index, with means operated by the other battery for marking the time that the said signal is observed, substantially as described.

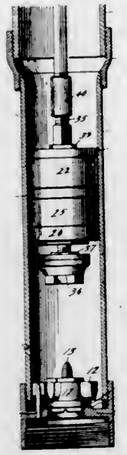
19. An apparatus for signaling, comprising two similar disks with symbols thereon, one disk at the sending-station and one at the receiving-station, mechanism at each station for rotating said disks, means for so adjusting the motion of said disks that they shall move approximately in synchronism, an electric battery at each station, and means operated by one of said batteries for making a visual or audible signal when the proper symbol on one disk passes a given index, with means operated by the other battery for marking the time that the said signal is observed, substantially as described.

20. An apparatus for signaling, comprising two disks with symbols similarly arranged thereon, mechanism at each station for rotating said disks approximately in synchronism, a pointer at each disk, means for setting the two disks in the same angular relation relative to their respective pointers, an electric battery at each station and means operated by one of said batteries for making a visual or audible signal when the proper symbol on the disk at the sending-station passes its pointer, with means operated by the battery at the receiving-station for moving its pointer when the signal is observed, substantially as described.

21. An apparatus for signaling, comprising at the sending-station and at the receiving-station two operated sending and receiving devices com-

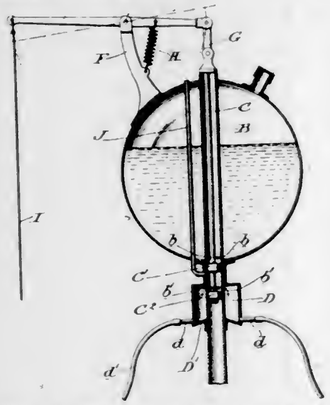
prising at each station the disk G, and independent means for rotating and adjusting the same, the pointer H, the battery K and its circuit, the key L and switch L', and an electrically-operated signal contained in said battery-circuit, each disk and its operating mechanism, being wholly unconnected from the other disk, substantially as described.

660,471. PUMP. JOHN M. STUKES, Snyder, Tex. Filed Mar. 30, 1900. Serial No. 10,815. (No model.)



Claim.—In a pump, the combination with a cylinder having a seat, and a plunger operating in the cylinder, of an upwardly-opening valve on the seat, comprising a central hub having radiating arms, interlocking elements consisting of a threaded stem and a threaded socket, one of which is carried by the plunger and the other by the valve, and a tapered pin at one side of the opening of the valve-seat to lie between two of the arms of the valve and prevent rotation of the valve on its seat, when the plunger is screwed into or out of engagement therewith, the arms of the valve being tapered downwardly to prevent lodgment of the arms upon the pin when the valve is lowered by the plunger.

660,472. LUBRICATOR FOR WINDMILLS. EDWARD E. SWETT, Philadelphia, Pa. Filed Apr. 30, 1900. Serial No. 14,847. (No model.)



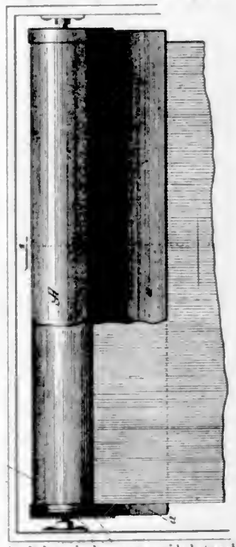
Claim.—1. A lubricator comprising a reservoir, a tube extending through the same provided with openings arranged respectively above and below the bottom of the reservoir, a carrier-valve composed of two pistons arranged upon a valve-stem and adapted to control said openings and means as shown for operating the valve.

2. A lubricator comprising a reservoir, a tube extending through the same provided with a series of openings communicating with the reservoir, a carrier-valve composed of two pistons arranged upon a valve-stem within said tube, the upper piston of which is adapted to control said openings, a second series of openings arranged below the reservoir adapted to be controlled by the lower piston of the valve and means as shown for operating the valve.

3. A lubricator comprising a reservoir, a tube provided with openings arranged above and below the bottom of the reservoir, a chamber communicating with the lower openings provided with branches, a carrier-valve composed of two pistons arranged upon a valve-stem within the tube to control the openings and means as shown for operating the valves.

4. A lubricator comprising in combination a reservoir, a tube extending through the same provided with openings arranged above and below the bottom of the reservoir, a chamber communicating with the lower openings, provided with a number of branches, an escape-pipe communicating with said tube between the openings, a valve in said tube composed of a pair of pistons, a valve-stem, and a pivoted lever for operating the valve-stem substantially as specified.

660,473. WINDOW-SHADE COVER. PAUL W. VANDENHOFF, Chicago, Ill. Filed Oct. 6, 1899. Serial No. 732,805. (No model.)



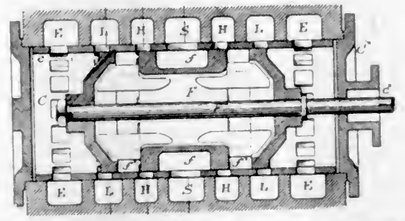
Claim.—1. A window-shade cover provided at each end with a cross-piece or support and having in its under face a longitudinal slot or opening, in combination with a shade-roller having at each end an extended journal projecting through the cover-end cross-piece or support for the attachment of the roller in the window-casing brackets independently and exteriorly of the cover, and on which journals at each end the shade-cover is mounted and fixedly held between the ends of the shade-roller and the sides of the window-casing free of other attachment and support, substantially as described.

2. A window-shade cover provided at each end with a cap or head having a hole or opening therein, in combination with a shade-roller having at each end an extended journal projecting through the cap or head of the cover for attachment of the roller in the window-casing brackets independently and exteriorly of the cover, each journal entering and passing through the end hole or opening of the adjacent cap or head of the cover for the two journals to serve as the sole support on which to mount and hold the cover in place around the roller, substantially as described.

3. A window-shade cover provided at each end with a cap or head having a hole or opening therein, in combination with a shade-roller having at each end an extended journal for attachment of the roller in the window-casing bracket independently and exteriorly of the cover, each journal entering and passing through the end hole or opening of the adjacent cap or head of the cover and one journal and one end hole or opening having a locking engagement with each other, for mounting, supporting, positioning and locking the cover in place around the roller, substantially as described.

4. A tubular window-shade cover having a slot in its under side with lips outwardly projected and inwardly inclined to form a narrow mouth or opening, and provided at each end with a cap or head having a hole or opening, in combination with a shade-roller provided at each end with an extended journal for attachment of the roller in the window-casing bracket independently and exteriorly of the cover, each journal entering and passing through the end hole or opening of the adjacent cap or head of the cover, one journal and one end hole having a rectangular formation in cross-section, for mounting, supporting, positioning and locking the cover in place around the roller, substantially as described.

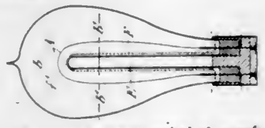
660,474. VALVE FOR COMPOUND ENGINES. SAMUEL M. VAUCLAIN, Philadelphia, Pa. Filed May 24, 1900. Serial No. 17,882. (No model.)



Claim.—1. The combination in a valve structure for compound engines, of a valve-chest having a port connected to the source of steam-supply at the center, ports connected to the exhaust at each end, and having intermediate ports leading to the high and low pressure cylinders, with a hollow valve having a central annular channel *f* and ports at each side of the channel communicating with each other through the valve, substantially as described.

2. The combination in a valve for compound engines, of the high and low pressure cylinders situated side by side, a valve-chest common to both cylinders, a steam-chest having a central supply-port communicating with the supply-passage in the cylinder-casting and exhaust-ports at each end communicating with the exhaust-passage of the cylinder-casting, and one set of high-pressure ports at each side of the central steam-inlet port communicating with the ends of the high-pressure cylinder, and low-pressure ports communicating with each end of the low-pressure cylinders, said low-pressure ports opening into the chest between the high-pressure ports and the exhaust-ports, with a hollow valve having a central annular steam-passage and ports at each end communicating with each other, substantially as described.

660,475. MANUFACTURE OF INCANDESCING ELECTRIC LAMPS. WILLIAM L. VOELKER, London, England, assignor to Theron Clark Crawford, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,670. (No model.)



Claim.—1. The herein-described method of manufacturing incandescing electric lamps, consisting in forming a bulbous body with two extensions having an air-space between them, then introducing a loop-shaped filament so that the legs thereof respectively occupy the said extensions and are sealed therein, and then closing the bulbous part of the chamber and exhausting the same.

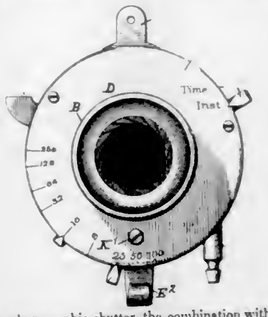
2. In an electric incandescing lamp, a vacuous chamber embracing the bend of the filament, two extensions to said chamber, an air-space between said extensions, each extension inclosing a leg of the filament, a socket, the extremities of said extensions being separately mounted in said socket.

3. For use in mounting a filament in an electric-lamp chamber of the character herein described, a U-shaped carrier formed with laterally-turned extremities wherein are fixed the leading-in wires, substantially as set forth.

660,476. PHOTOGRAPHIC SHUTTER. LOUIS J. VOGT, Rochester, N. Y., assignor to the Vogt Optical Company, same place. Filed Feb. 26, 1900. Serial No. 6,627. (Model.)

Claim.—1. In a photographic shutter, the combination of a casing, leaves pivoted within the casing, a lever also pivoted within the casing, links pivoted to the ends of said lever and to the said leaves, a spring connected with the said links for closing the leaves, and means for opening said leaves; substantially as described.

2. In a photographic shutter, the combination with a casing, leaves pivoted within the said casing, a lever also pivoted within the said casing links pivoted to the ends of said lever and to the said leaves, a stud on the said lever, and a spring connected with the said links for closing the said leaves; of an operating-lever pivoted in the casing, and a dog on the said operating-lever to engage the stud on the first-named lever; substantially as described



3. In a photographic shutter, the combination with a casing, leaves pivoted within the said casing, a lever also pivoted in the said casing links pivoted to the ends of said lever and to said leaves, a stud on the said lever, and a spring connected with the said links for closing the leaves; of an operating-lever also pivoted in the casing, a dog on said operating-lever to engage the said stud on the first-named lever a spring arranged to swing the operating-lever to open the leaves, and means for holding the operating-lever in its set position and for releasing it therefrom; substantially as described.

4. In a photographic shutter, the combination with a casing, leaves pivoted within the said casing, a lever also pivoted in the said casing links pivoted to the ends of said lever and to said leaves, a stud on the said lever, and a spring connected with the said links for closing the leaves; of an operating-lever also pivoted in the casing, a dog on said operating-lever to engage the said stud on the first-named lever a spring arranged to swing the operating-lever to open the leaves, a stud on the said operating-lever, a releasing-lever pivoted in the casing and having a catch to engage the stud on the operating-lever, and a spring for holding the releasing-lever in engagement with the stud on the operating-lever, substantially as described.

5. In a photographic shutter, the combination with a casing, leaves pivoted in the casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to the said leaves, a spring-actuated operating-lever also pivoted in the casing and engaging the aforesaid lever to open the said leaves, and means for holding said operating-lever in its set position and for releasing the same; of a pawl pivoted in the casing and arranged to engage said stud for holding the leaves open, and means for releasing the stud from the pawl; substantially as described.

6. In a photographic shutter, the combination with a casing, leaves pivoted in the casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to the said leaves, and having a stud thereon, a spring-actuated operating-lever also pivoted in the casing and having a dog engaging the said lever to open the said leaves, and means for holding said operating-lever in its set position and for releasing the same; of a pawl pivoted in the casing and arranged to engage said stud for holding the leaves open, and means for releasing the stud from the pawl; substantially as described.

7. In a photographic shutter, the combination with a casing, leaves pivoted in the casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to said leaves, and a spring-actuated operating-lever for opening the said leaves; of a pawl arranged to retain the leaves in their open position, and means for releasing the leaves from the pawl; substantially as described.

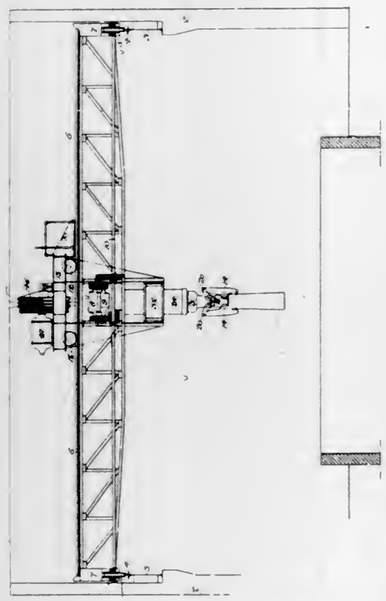
8. In a photographic shutter, the combination with a casing, leaves pivoted in the casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to said leaves, and a spring-actuated operating-lever for opening the said leaves; of a pawl arranged to retain the leaves in their open position, and a dog pivoted on the said operating-lever and arranged to engage the said pawl to release the same, substantially as described.

9. In a photographic shutter, the combination with a casing, leaves pivoted in the casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to said leaves, and a spring-actuated operating-lever for opening the said leaves, of a pawl arranged to retain the leaves in their open position, a changing-lever for setting the said pawl, and a dog pivoted on said operating-lever to release the pawl; substantially as described.

10. In a photographic shutter, the combination with a casing, leaves

pivoted in said casing, a spring-actuated lever also pivoted in the casing links pivoted to the ends of said lever and to said leaves, a spring-actuated operating-lever for opening the leaves, and a releasing-lever for retaining the operating-lever in its set position and for releasing it therefrom, of a pawl arranged to retain the leaves in their open position, a dog pivoted on the operating-lever to act on said pawl and a dog pivoted on the releasing-lever and engaging said dog on the operating-lever to release the said pawl; substantially as described.

660,477. SOAKING-PIT CRANE. SAMUEL T. WELLMAN, CHARLES H. WELLMAN, and JOHN W. SEAVER, Cleveland, Ohio. Filed Sept. 18, 1899. Serial No. 730,881. (No model.)



Claim.—1. The combination of the gripping-tongs comprising two elements movable in respect to each other to open and close the gripping-jaws, a raising and lowering device for the gripping-tongs also comprising two elements, one connected to one element of the gripping-tongs and the other to the other element of the same, a single drum having chains connected to the different elements of the said raising and lowering device, and means for pulling upon and slackening the chain of one element independently of the movement imparted to the chains by the drum, substantially as specified.

2. The combination of the gripping device with a crane having a depending telescopic leg carrying said gripping device, said telescopic leg having sliding sections and spring-buffers serving to arrest the movement of the sections of the leg as they are projected or retracted, substantially as specified.

3. The combination of the gripping device, a crane having a depending telescopic leg carrying said gripping device, and composed of sections capable of being projected and retracted, means for effecting such projection or retraction of the sections without opening or closing the tongs and provision for imparting turning movement to the leg and its gripping device independently of the projecting and retracting mechanism, substantially as specified.

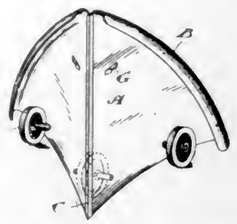
4. The combination of the gripping device having two elements movable in respect to each other so as to open and close the gripping-jaws, a telescopic leg carrying one of the elements of said gripping device, and a rod mounted in said leg and carrying the other element of the gripping device, said rod being capable of moving with or independently of the other sections of the telescopic leg, substantially as specified.

5. The combination of the gripping device having two elements movable in respect to each other so as to open and close the gripping-jaws, a telescopic leg carrying one of said elements and combined with means whereby it may be rotated, and a rod mounted on said telescopic leg and carrying the other element of the gripping device, said rod being composed of sections connected by a swivel-joint, whereby one may be rotated without imparting rotating movement to the other, substantially as specified.

6. The combination of the gripping device, a telescopic leg carrying the same and composed of sections capable of sliding one within another, a crane-trolley having a bearing in which the outer section of the leg is revolubly mounted, and a raising and lowering device having an element upon which the inner section of the leg is also revolubly mounted, substantially as specified.

7. The combination of the gripping device comprising two elements movable in respect to each other so as to open and close the gripping-jaws, a trolley having a depending support comprising two parts each carrying one of said elements of the gripping device, a single drum on the trolley having chains connected to one part of the depending support whereby the same may be raised and lowered, and another chain connected to the other part of said support, a sheave around which said latter chain passes, and means for projecting and retracting said sheave so as to slacken or tighten said chain, substantially as specified.

660,478. SHIELD FOR USE IN WARFARE. HENRY M. WELLS, Toronto, Canada. Filed Jan. 27, 1900. Serial No. 3,045. (No model.)



Claim.—1. A shield comprising two sides connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters, substantially as and for the purpose specified.

2. A shield comprising two sides connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters sloping downwardly and rearwardly toward the ground.

3. A shield comprising two sides curved in a concave from front to rear and connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters, substantially as and for the purpose specified.

4. A shield comprising two sides curved in a concave from front to rear and connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters sloping downwardly and rearwardly toward the ground, substantially as and for the purpose specified.

5. A shield comprising two sides connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters sloping downwardly and rearwardly in a concave curve toward the ground, substantially as and for the purpose specified.

6. A shield comprising two sides curved in a concave from front to rear and connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters sloping downwardly and rearwardly in a concave curve toward the ground, substantially as and for the purpose specified.

7. A shield provided in one side with a loophole and a guard immediately in front of the loophole set at a slight angle to the side so as to deflect a bullet traveling along the side over the loophole, substantially as and for the purpose specified.

8. A shield comprising two sides connected together at their forward edges to form a V open at the rear and provided at their rear sides with flanges forming gutters and a flange turned upwardly from one of the aforesaid flanges and provided with embrasures or loopholes, substantially as and for the purpose specified.

9. In a shield the combination of the front edge piece C provided with the sides or wings *a;* the studs *b;* the sides A provided with suitable holes to engage the studs *b* and a suitable removable brace to hold the sides apart, substantially as and for the purpose specified.

10. In a shield the combination of the front edge piece C provided with the rib *c;* the sides or wings *a;* the studs *b;* the sides A provided with suitable holes to engage the studs *b* and a suitable removable brace to hold the sides apart, substantially as and for the purpose specified.

11. A shield comprising two sides curved in a concave from front to rear and connected together at their forward edges to form a V open at the rear, substantially as and for the purpose specified.

660,479. END-GATE. CHARLES S. WRIGHT, Kansas City, Kans. Filed Aug. 6, 1900. Serial No. 26,011. (No model.)



Claim.—1. The combination of a box, an end-gate therefor, a locking-bar at one end of said end-gate, said locking-bar being connected with said end-gate and being pivotally mounted on said box, and a hook and a retaining device therefor carried by said box and locking-bar, adapted to interlock when the end-gate is moved into position to close the ends of the box and prevent the turning of said locking-bar on its pivot, substantially as described.

2. The combination of a box, an end-gate therefor, a locking-bar for said end-gate, said locking-bar having a slotted connection with the upper end of said end-gate and with the side of the box, whereby it may be moved longitudinally, a hook and a retaining device therefor, carried by said locking-bar and the side of the box, said hook and retaining device being adapted to interlock when said locking-bar is in its normal vertical position, substantially as described.

3. The combination of a box, an end-gate therefor, a locking-bar for said end-gate, said bar having a slotted connection with the upper end of said end-gate and with the side of the box, whereby it may be moved longitudinally, a hook at the upper end of said locking-bar, and a pin projecting from said box and adapted to be engaged by said hook when it is in its normal vertical position, substantially as described.

4. The combination of a box, an end-gate therefor, a locking-bar for said end-gate, said locking-bar having a slotted connection with the upper end of said end-gate and with the side of the box, whereby it may be moved longitudinally, a hook and a retaining device therefor, carried by said locking-bar and the side of the box, said hook and retaining device being adapted to interlock when said locking-bar is in its normal vertical position, and a retaining device adapted to engage the lower end of said bar when it is in such normal position and prevent swinging thereof, substantially as described.

5. The combination of a box, an end-gate therefor, a locking-bar for said end-gate, said bar having a slotted connection with the upper end of said end-gate and with the side of the box, whereby it may be moved longitudinally, a hook at the upper end of said locking-bar, a pin projecting from said box and adapted to be engaged by said hook when it is in its normal vertical position, and a slot adapted to receive the lower end of said locking-bar when in its normal vertical position, substantially as described.

6. The combination of a box, an end-gate therefor, a longitudinally-moving locking-bar at one end of said gate, said locking-bar being connected with said end-gate and being pivotally mounted on said box, a hook, and a retaining device therefor carried by said locking-bar and the side of the box, substantially as described.

660,480. COKE-OVEN. EDWIN A. BABBAGE, Cambria, Wyo. Filed Mar. 21, 1900. Serial No. 9,570. (No model.)



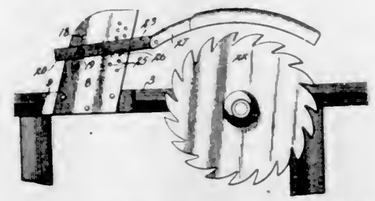
Claim.—1. In a battery of coke-ovens, parallel rows of ovens having the ovens of one row located opposite the spaces between the ovens of the adjacent row and having smoke-passages leading from the ovens of the respective rows into the spaces formed between adjacent ovens of the opposite row, substantially as set forth.

2. In combination, a row of coke-ovens having smoke-passages leading therefrom about horizontally in the same direction, thence vertically, a second row of coke-ovens located opposite the spaces between the first-mentioned row and having smoke-passages leading therefrom in an approximately-horizontal position, thence vertically, the vertical passages of one row of ovens coming opposite the spaces formed between adjacent ovens of the opposite row, substantially as specified.

3. A battery of coke-ovens, disposed in parallel rows having the ovens of one row opposite the spaces formed between the ovens of the other row, smoke-passages extending from the ovens of one row and located in the spaces formed between adjacent ovens of the other row, pillars located at the sides of the passages and projecting above the crowns of the ovens, and rails supported upon the pillars, substantially as described.

4. A battery of ovens, comprising parallel walls, two rows of ovens arranged between the walls with the ovens of one row opposite the spaces between the ovens of the other row, said ovens having door-openings leading through the aforesaid walls, smoke-passages leading from the rear walls of the ovens at a point about opposite the door-openings and in line with the top portions thereof and communicating with vertical passages or stacks located between adjacent ovens and in line with the openings formed in the crowns thereof, pillars at the sides of the horizontal portion of the passages and extending thereover and to a point above the crowns of the ovens, and rails supported upon said pillars, the spaces between the longitudinal walls and the ovens being filled with earth or the like, substantially as and for the purpose set forth.

660,481. SAW-GUARD. HERMAN J. BARNARD, Indianapolis, Ind. Filed Feb. 9, 1900. Serial No. 4,667. (No model.)



Claim.—1. A device of the class described comprising a horizontal plate provided at its outer end with oppositely-beveled lugs forming a dovetailed recess, an arm or standard provided with a lug beveled at its side edges and fitting between the said lugs, said standard being also provided with horizontal flanges engaging the upper faces of the lugs of the plate, and a locking device located at the upper face of the plate and engaging the upper face of the lug of the standard, substantially as described.

2. A device of the class described comprising a horizontal plate provided with a recess and having a groove at its upper face, a standard having a lug fitting in the recess, a sliding key arranged at the upper face of the plate and interlocked with the grooves thereof and engaging the upper face of the lug of the standard, and a support mounted on the standard and carrying a hood, substantially as described.

3. A device of the class described comprising a horizontal plate provided with a recess, a standard having a lug arranged in the recess of the plate and having its upper face beveled, a key arranged at the upper face of the plate and interlocked with the same and having its outer end beveled and engaging the beveled portion of the lug, whereby the latter is forced downward into the recess, and a hood, substantially as described.

4. A device of the class described comprising a plate provided with lugs forming a recess, a standard having a lug fitted in the recess, a locking device arranged at the upper faces of the plate and the lug of the standard and let into both of said parts, and a hood, substantially as described.

5. A device of the class described comprising a plate provided with lugs, a standard having a lug to fit between the lugs of the plate and provided with horizontal flanges located at opposite sides of the lug of the standard and engaging the upper faces of the lugs of the plate, and a locking device arranged at the upper faces of the plate and the lug of the standard and having its upper face flush with the upper faces of the same, substantially as described.

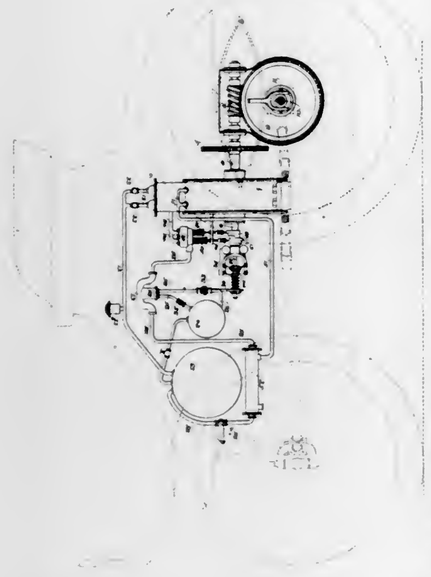
660,482. ROTARY EXPLOSIVE-ENGINE. FRANCIS G. BATES, Philadelphia, Pa. Filed Jan. 29, 1900. Serial No. 3,247. (No model.)

Claim.—1. The combination in a vapor-engine, of a reservoir for air under pressure, an oil-reservoir, means for exerting pressure of air on the oil, means for mixing a portion of said oil with the air to form a motive fluid, the engine-cylinder having an eccentric piston and reciprocating plunger having a bearing thereon, a casing for said plunger connected to the air-reservoir, and valves whereby said reciprocating plunger is caused to act as a pump or compressor, for supplying air under pressure to the reservoir.

2. The combination in a vapor-engine, of a reservoir for air under pressure, an oil-reservoir, means for exerting pressure of air on the oil, means for mixing a portion of said oil with the air to form a motive fluid, the two engine-cylinders having eccentric pistons occupying different circumferential positions on the shaft, reciprocating plungers having bearing on said pistons, casings for said plungers connected to the air-reservoir, and valves whereby each of said reciprocating plungers is caused to act as a pump or compressor and by alternate operation produce a continuous flow of air to the air-reservoir.

3. The combination in a vapor-engine, of a reservoir for air under

pressure, an oil-reservoir, means for exerting pressure of air on the oil, means for mixing a portion of said oil with the air to form a motive fluid, the engine-cylinder having an eccentric piston therein, a plunger having a circular portion cut away at the bottom, a flat-sided shoe adapted to said recessed portion of the plunger and bearing upon the piston, a casing for said plunger connected to the air-reservoir and recessed at the inner end for the reception of said shoe, and valves whereby the reciprocation of the circular portion of the plunger in the casing, effects the compression of the air-supply, substantially as specified.



4. The combination of a gas or vapor engine, a reservoir of air under pressure, an oil-reservoir, a pipe through which the air flows to the engine, and two passages leading from said pipe to the oil-reservoir, one of said passages terminating in the pipe in a direction opposed to the direction of flow of the air and serving to convey air from the pipe to the oil-reservoir, and the other passage terminating in the pipe in a direction corresponding with the direction of flow of the air, and serving to convey oil from the oil-reservoir to the pipe for admixture with the air.

5. The combination of a gas or vapor engine, a reservoir of air under pressure, an oil-reservoir, a pipe through which the air flows to the engine, and two passages leading from said pipe to the oil-reservoir, one of said passages terminating in the pipe in a direction opposed to the direction of flow of the air and serving to convey air from the pipe to the oil-reservoir, and the other passage terminating in the pipe in a direction corresponding with the direction of flow of the air, and serving to convey oil from the oil-reservoir to the pipe for admixture with the air, and a governor-actuated valve in the latter passage.

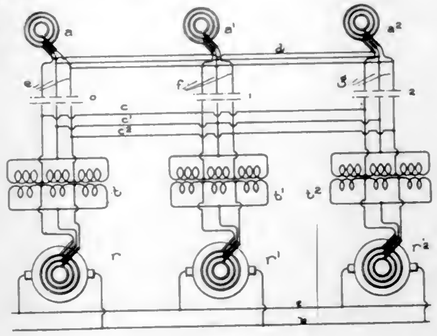
660,483. **TRANSMISSION OF POWER.** ERNST J. BERG, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 16, 1899. Serial No. 727,368. (No model.)

Claim.—1. The combination of a plurality of rotary converters, a transformer or transformers for supplying each converter, and conductors connecting together the alternating-current-supply conductors of the converters.

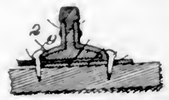
2. The combination of a source of alternating current, a plurality of rotary converters fed through separate transmission-lines running back to said source, conductors connecting together the direct-current terminals of the converters, and conductors connecting together the alternating-current terminals of the converters.

3. The combination of a plurality of rotary converters, conductors connecting together the direct-current terminals of the converters, conductors connecting together the alternating-current terminals of the converters, and separate transmission-lines for supplying alternating current to said converters.

4. The combination of a source of alternating current, a plurality of synchronous machines fed thereby over separate transmission-lines, and circuits of low resistance, connecting together the alternating-current terminals of said machines.



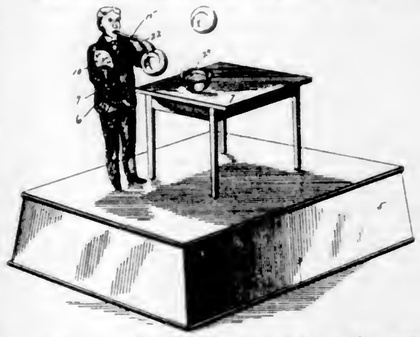
660,484. **RAIL-JOINT.** HENRY M. BOYD, Sierra Blanca, Tex., and HOPE REDMON, Cynthiana, Ky., assignors of one-tenth to John W. Renaker, Cynthiana, Ky. Filed Jan. 31, 1900. Serial No. 3,486. (No model.)



Claim.—1. In a rail-joint, complementary members of similar formation, each comprising a base, a vertical longitudinal extension and an intermediate folded portion, one of the members adapted to be placed upon the base portion of the other member and having a series of tongues provided with spike-openings, and the other member having openings in its folded portion to receive the aforementioned tongues and having its base portion of greater transverse extent than the superposed member and having the projecting base portion formed with a series of spike-openings, substantially as set forth.

2. In a rail-joint, complementary members adapted to be placed upon opposite sides of the rail and having overlapping base portions, the member having the lowermost base portion being provided at the side with openings, and the member having the uppermost base portion formed at the inner edge of its base portion with tongues to pass through said openings, substantially as described.

660,485. **ADVERTISING-AUTOMATON.** CHARLES T. BRADSHAW, Philadelphia, Pa. Filed Dec. 8, 1899. Serial No. 739,672. (No model.)



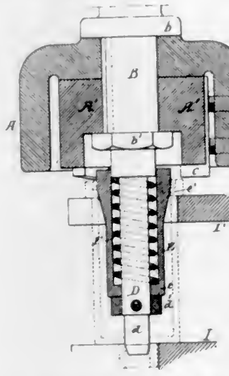
Claim.—1. An advertising-figure comprising a body having removable arms, a pipe carried by one of the arms, a source of air-pressure connected with the pipe means for admitting the air and for cutting it off from the said source to the pipe, and a fan adapted for operation after the air is cut off, and adapted to set up drafts in the direction of the pipe.

2. An advertising-figure comprising a body having movable members, means for raising and lowering the members, a pipe carried by one of the members, means for supplying air to said pipe intermittently and means for setting up a draft in the direction of the pipe after the air-supply has ceased.

3. A movable sign-figure comprising a body having movable members, a pipe carried by one of the members, means for supplying air to the pipe intermittently, a fan carried by the other member and adapted to set up air-currents in the direction of the pipe intermittently, and means for energizing the pipe.

4. A sign-figure comprising a body having movable arms a pipe carried by one of the arms, a bellows connected with the pipe, a cut-off between the bellows and the pipe adapted to open and close the supply of air from the bellows to the pipe, a fan carried by the second arm, and means for raising the pipe, means for subsequently opening the air-supply, means for subsequently operating the fan, and means for finally lowering the pipe-arm.

660,486. **WORK-HOLDER AND CENTERING DEVICE THEREFOR.** JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Nov. 16, 1899. Serial No. 737,197. (No model.)



Claim.—1. A cutter-head having a yielding extension or mandrel arranged to enter the work before the cutter engages the same, said mandrel bearing against the work at two or more points both before and during the time that the cutter is in operation and thereby holding the work in alinement, substantially as described.

2. The combination of a cutter-head, a spindle, an extension on the spindle centrally set in respect to the cutter, a sleeve mounted on the extension and adapted to engage the work, and a spring between the sleeve and the spindle, substantially as described.

3. The combination of a spindle, a cutter mounted thereon, a stem projecting beyond the cutters, a sleeve adapted to the stem and to the lower portion of the spindle, a spring between the spindle and an internal flange on the sleeve, and a stop to limit the outward movement of the sleeve, substantially as described.

4. The combination of a cutter-head, a spindle, an extension on the spindle, a sleeve mounted on the extension, a portion of the sleeve being tapered to fit the piece to be alined, substantially as described.

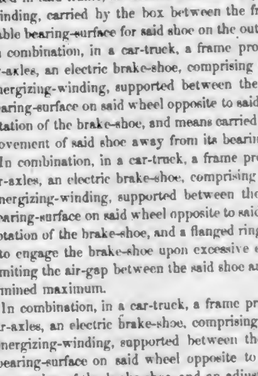
5. The combination of a cutter-head, a spindle, an extension on the spindle, a sleeve mounted on the extension, a collar or shoulder on the spindle, and an internal flange on the sleeve, a spring mounted between the collar and internal flange, and a guide for the upper end of the sleeve, substantially as described.

6. The combination of a spindle, a cutter-head mounted thereon, the spindle extending beyond the cutter-head, a collar or flange on the spindle, a sleeve adapted to slide upon the rod the collar limiting the outward movement of the sleeve, a spring between the internal flange of the sleeve and the spindle, the upper portion of the sleeve being tapered to fit the piece to be cut, and an extension adapted to center the lower portion of the piece, substantially as described.

660,487. **ELECTRIC BRAKE.** FRANK E. CASE, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 5, 1898. Serial No. 687,321. (No model.)

Claim.—1. In combination in a car-truck, a frame, for supporting the body of the car, provided with bearings for the car-axles, an electric brake-shoe slidingly supported from said frame outside of the wheel, and a suitable bearing-surface for said shoe on the outer face of the wheel.

2. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, comprising an annulus provided with an energizing-winding, slidingly supported from said frame outside of the wheel, and a suitable bearing-surface for said shoe on the outer face of the wheel.



3. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe slidingly supported from said frame outside of the wheel, and an annulus or disk, provided with a suitable bearing-surface for said shoe, fixed to the axle.

4. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, means carried by said frame for slidingly supporting said brake-shoe between the frame and the wheel, and a suitable bearing-surface on said wheel opposite to said shoe.

5. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, means carried by said frame for slidingly supporting said brake-shoe between the frame and the wheel, a suitable bearing-surface on said wheel opposite to said shoe, and means carried by the axle for limiting the movement of the shoe away from its bearing-surface.

6. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe supported between the frame and the wheel, a suitable bearing-surface on said wheel opposite to the shoe, and one or more lugs on the frame engaging said shoe to prevent rotation of the same.

7. In combination in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, comprising an annulus provided with an energizing-winding, supported between the frame and the wheel, a suitable bearing-surface on said wheel opposite to said shoe, and one or more lugs on the frame engaging said shoe to prevent rotation of the same.

8. In combination in a car-truck, a frame, boxes for the axle-bearings mounted in said frame, an electric brake-shoe, provided with an energizing-winding, carried by the box between the frame and the wheel, and a suitable bearing-surface for said shoe on the outer face of the wheel.

9. In combination, in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, comprising an annulus provided with an energizing-winding, supported between the frame and wheel, a suitable bearing-surface on said wheel opposite to said shoe, means for preventing rotation of the brake-shoe, and means carried by the axle for limiting the movement of said shoe away from its bearing-surface.

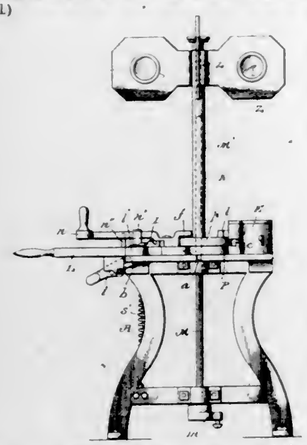
10. In combination, in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, comprising an annulus provided with an energizing-winding, supported between the frame and wheel, a suitable bearing-surface on said wheel opposite to said shoe, means for preventing rotation of the brake-shoe, and a flanged ring carried by the axle, arranged to engage the brake-shoe upon excessive end play of said axle thereby limiting the air-gap between the said shoe and its bearing-surface to a determined maximum.

11. In combination, in a car-truck, a frame provided with bearings for the car-axles, an electric brake-shoe, comprising an annulus provided with an energizing-winding, supported between the frame and wheel, a suitable bearing-surface on said wheel opposite to said shoe, means for preventing rotation of the brake-shoe, and an adjustable device for limiting the movement of said brake-shoe away from its bearing-surface.

12. In combination, in a car-truck, a frame, boxes provided with axle-bearings mounted in said frame, an electric brake-shoe, comprising an annulus provided with an energizing-winding, between the frame and the wheel, a support for said brake-shoe projecting from said journal-box, and a suitable bearing-surface on said wheel opposite to said shoe.

13. A brake-shoe comprising an integral annulus, a groove extending entirely around said annulus and disposed eccentrically thereto, and an energizing-coil in said groove.

660,488. SAFETY-SIGNAL RAILROAD-SWITCH STAND. JOHN B. COLVIN, Anderson, Ind. Filed June 2, 1900. Serial No. 18,858. (No model.)



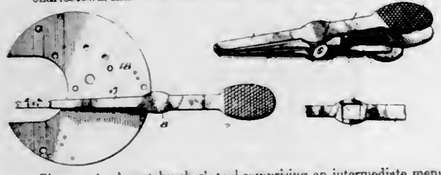
Claim.—1. A safety switch-stand, having a vertical switch-shaft secured to the switch-lever, a signal-carrying tube secured to a lever-arm, and pivoted on an extension of the switch-shaft, a compound lock, having front and rear spring-catches, catch-bolts of the switch-lever, and signal lever-arm, and a retracting-spring connected to said signal lever-arm, substantially as specified.

2. In a safety switch-stand, the combination with the switch-lever, and an independently-movable signal lever-arm, of a compound lock, and a retracting device for said signal lever-arm, substantially as specified.

3. In a safety switch-stand, the combination with a switch-lever and a slide-bolt thereon, of a signal lever-arm, having a catch-bolt, a compound lock for said switch-lever and signal lever-arm, and a retracting-spring for the latter, substantially as specified.

4. The safety switch-lock, consisting of the main spring-catch, the arm-catch pivoted thereto, and its spring attached to the main spring-catch, the spring-slide, the key-form, and the adjusting-screw in the tail of the main spring-catch, substantially as specified.

660,489. WATCHMAKER'S TWEEZERS. WILLIAM G. CONN, Charlestown, Ind. Filed Oct. 7, 1899. Serial No. 732,934. (No model.)

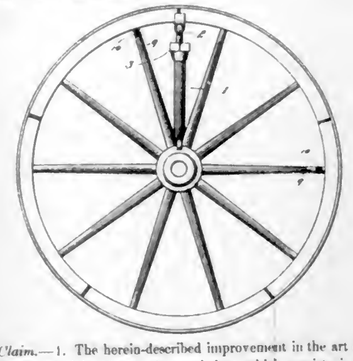


Claim.—1. A watchmaker's tool comprising an intermediate member having an outer engaging portion and an inner handle portion, and the oppositely-disposed spring-pressed outer members having inner handle portions and outer engaging portions, one of the outer members being shorter than the intermediate member, whereby the said outer members are adapted to be operated independently of each other to permit one of the plates and one of the other parts of a watch-movement to be independently gripped and simultaneously held and placed in position, substantially as described.

2. A watchmaker's tool, comprising opposite outer spring-pressed members, and an intermediate member, each outer member being located entirely at its respective side of the intermediate member, all of the members having a common intermediate pivotal connection, forming jaws normally in mutual engagement, and operating finger-pieces for the respective jaws, the intermediate finger-piece being longer than one of the outer finger-pieces, and the outer members being independently movable out of engagement with the intermediate member.

3. A watchmaker's tool, comprising opposite outer members, an intermediate member, each outer member being located entirely at its respective side of the intermediate member, a common pivotal connection for all of the members, forming jaws in mutual engagement, and finger-pieces for the respective jaws, the intermediate finger-piece being longer than one of the outer finger-pieces, and opposite springs interposed between the intermediate finger-piece and the respective outer finger-pieces.

660,490. TIRE-SETTER. WILLIAM DAUGHERTY, Lawrenceville, Ill., assignor of one-half to A. D. Sprinkell, same place. Filed Oct. 2, 1899. Serial No. 732,436. (No model.)



Claim.—1. The herein-described improvement in the art of repairing wheels and tightening spokes and tires, which consists in forcing a portion of the felly more or less from the end of the spoke, in applying paper or like material around the spoke, in applying a mold around such paper and the spoke, and in pouring molten metal into the mold to appropriately fill the space between the felly and the spoke, substantially as described.

2. The herein-described improvement in the art of repairing wheels and tightening the spokes and tire, which consists in forcing a portion of the felly more or less from the end of the spoke, in dressing or shaping the spoke, in applying paper or like material around the spoke, in applying a mold around such paper and the spoke, and in pouring molten metal into the mold to appropriately fill the space between the felly and the spoke, substantially as described.

3. The herein-described improvement in the art of repairing wheels and tightening the spokes and tire, which consists in forcing a portion of the felly more or less from the end of the spoke, in cutting a groove around the spoke, in applying paper or like material around the spoke, in applying a mold around such paper and the spoke, and in pouring molten metal into the mold, substantially as described.

660,491. CAR-COUPLING. CHARLES E. C. EDEY, Tacoma, Wash. Filed Feb. 19, 1900. Serial No. 5,761. (No model.)



Claim.—1. A car-coupler, comprising a suitable draw-head having a socket formed in one of its walls which is larger at the rear end than at the front, the said recess tapering from rear to front, a pivoted locking jaw mounted in said draw-head, a tapering strengthening projection formed upon said pivoted jaw adapted to fit into the socket in the draw-head when the jaw is closed, whereby strain will be removed from the pivot-pin of the jaw, substantially as described.

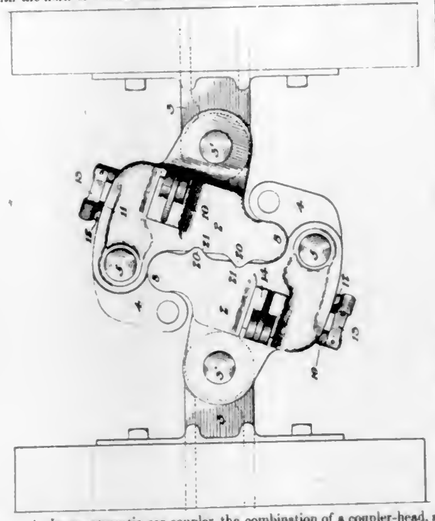
2. A car-coupler, comprising a draw-head, a pivoted jaw mounted therein, a rearwardly-extending locking-arm on the said jaw, a strengthening wedge-shaped projection formed upon the said jaw adapted to fit in a correspondingly-shaped socket formed in one of the walls of the draw-head, the said socket having a rear abutting face, and upper and lower limiting-faces, so that the projection on the pivoted jaw will be dovetailed therein, and so as to guard against front and back pressure and any rocking of the pivoted jaw upon its pivot-pin, substantially as described.

660,492. AUTOMATIC CAR-COUPLING. JOHN EDWARDS, Homestead, Pa., assignor of one-half to John Jarrett, Pittsburg, Pa. Filed Nov. 7, 1899. Serial No. 736,206. (No model.)

Claim.—1. In an automatic car-coupler, the combination of a head pivoted to the draw-bar, a swinging knuckle pivoted in the head, and a horn extending from the head, the knuckle being adapted to engage with the horn of a twin head or with the knuckle of a single coupler.

2. In an automatic car-coupler, the combination of a coupler-head, a swinging knuckle, a locking-block, and a locking-pin adapted to secure and loosen the block in the recess of the coupler-head.

3. In an automatic car-coupler, the combination of a head pivoted to the draw-bar, a knuckle having a tail and a shank, a horn extending from the head, and a locking device, the knuckle being adapted to engage with the horn of a twin head or with the knuckle of a single coupler.



4. In an automatic car-coupler, the combination of a coupler-head, a swinging knuckle, a separable locking-block, and a locking-pin adapted to separate the parts of the block.

5. In an automatic car-coupler, the combination of a coupler-head, a swinging knuckle, a separable locking-block, a locking-pin adapted to separate the parts of the block, and a latch connected with the block and adapted to hold it in a raised position.

6. In an automatic car-coupler, the combination of a coupler-head, a swinging knuckle, a separable locking-block, and a locking-pin adapted to separate the parts of the block, said pin having a notch adapted to engage with the coupler-head when the pin is in its lowered position.

7. In an automatic car-coupler, the combination of a coupler-head pivoted to the draw-bar, a swinging knuckle pivoted to the head, a horn extending from the coupler-head, and an arm and a recess, the knuckle being adapted to engage with the horn of a twin coupler-head or with the knuckle of a single coupler, and the arm being adapted to fit within the recess of a twin coupler or to engage with the back of the knuckle of a single coupler.

660,493. SOFT-TREAD HORSESHOE. ENOCH B. EVANS, Benning, D. C. Filed Feb. 14, 1900. Serial No. 5,237. (No model.)



Claim.—1. A horseshoe comprising a flanged body part of yielding material, adapted to rest against a hoof, a retaining member fitting the flange thereof, out of contact with the hoof, and a toe-plate upon the retaining member, extending across the body part and provided with forward and rearward projections engaging therewith, substantially as and for the purpose specified.

2. A horseshoe comprising a body part composed of yielding material, adapted to rest against a hoof without the intervention of any unyielding material between the tread of the body part and the hoof, and a toe-plate provided in front with a projection or calk, and in the rear opposite thereto with a retaining-flange, substantially as set forth.

3. A horseshoe comprising a flanged body part made entirely of yielding material, a toe-plate extending across the body part above the tread thereof, and provided with projections upon opposite sides, and a retaining member combined with the toe-plate and fitting the flanged portion of the body part, substantially as set forth.

4. A retaining member for a soft-tread horseshoe, comprising a metallic plate, shaped in the form of an ordinary horseshoe and provided at its forward end with a calk, a toe-plate and a retaining-flange, said metallic plate and toe-plate being in different planes, to retain a shoe of the kind specified, substantially in the manner and for the purpose set forth.

5. A horseshoe comprising a rubber body part, surmounted by a pair of leather plates extending beyond the body part to constitute a retaining-flange, and a metallic retaining member, fitting the flanged body part, and provided with a toe-plate extending across the body part between the leather plates, substantially as set forth.

660,494. HALTER. ENOCH B. EVANS, Washington, D. C. Filed Apr. 3, 1900. Serial No. 11,372. (No model.)



Claim.—1. A halter comprising an independent neck-loop adapted to reach from the top of the neck to a point underneath the lower end of the jaw of an animal, said neck-loop being open from its upper to its lower end, a runner fixed to the lower converging ends of the neck-loop, a nose-loop working loosely through the runner, and means for retaining the top of the neck-loop in place upon the neck, adjacent to the head of the animal.

2. A halter consisting of but four pieces, a neck-loop provided with a runner at its lower end and open from top to bottom, a nose-loop working loosely through the runner in close juxtaposition to the neck-loop, and a face-strap connecting the top of the neck-loop and the front of the nose-loop.

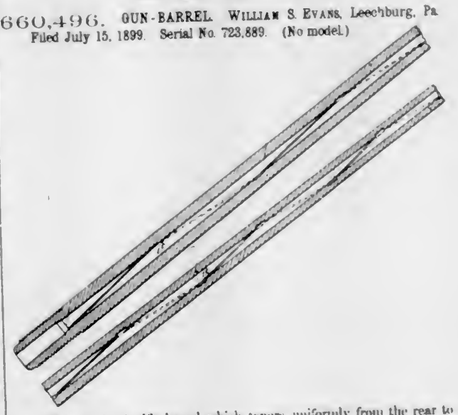
660,495. CATTLE-GUARD. WILLIAM EVANS and NEIL MCARTHUR, Sturgeon Falls, Canada. Filed Jan. 6, 1900. Serial No. 631. (No model.)



Claim.—1. A cattle-guard, comprising a pivoted platform; a pivoted guard adapted to be engaged by said platform and elevated by the downward movement of said platform; and straps loosely pivoted to a suitable support and pivotally connected to said guard, said straps being adapted to bear upon a suitable support under strain and provide a fulcrum for said guard, substantially as described.

2. A cattle-guard, comprising a platform pivoted at its rear end to a suitable support and having at its forward end curved fingers; a guard having a curved rock-plate at its rear end adapted to be operatively engaged by said curved fingers, a rod secured to the lower portion of said rock-plate; straps loosely secured to a suitable support and pivotally connected to said rod, substantially as described.

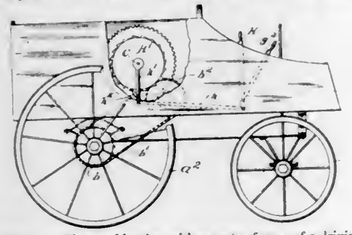
660,496. GUN-BARREL. WILLIAM S. EVANS, Leechburg, Pa. Filed July 15, 1899. Serial No. 723,889. (No model.)



Claim.—1. A rifle-barrel which tapers uniformly from the rear to the front end and in which the rifling is of uniform radial distance from the axis of the bore.

2. A choke rifle-barrel, the rifling whereof is of uniform radial distance from the axis of the bore, the bore tapering uniformly from the rear to the front end, the rifling being successively and gradually increased in the number of turns to an inch in the ratio of about one inch in each section of rifling, the least number of turns to the inch being at the breech of the barrel, a greater number of turns near the center and the greatest number of turns at the muzzle, and the lands of the rifling being parallel throughout the length of the barrel.

660,497. SPRING-PROPELLED VEHICLE. ALEXANDER R. FISCHER, Chicago, Ill., assignor of one-half to Sarah Agnes McDonald, same place. Filed Feb. 10, 1900. Serial No. 4,751. (No model.)



Claim.—1. The combination with a motor-frame, of a driving-shaft journaled thereon, said shaft being formed of two pieces, one of which is rotatable independent of the other, a casing mounted on the driving-shaft, a spring secured at one of its ends to the rotatable piece of the shaft and at its other end to the casing, another spring secured at one of its ends to the other piece of said shaft and at its other end to the casing, a governor-shaft journaled on the frame and geared to the driving-shaft, a friction-disk movably mounted on the governor-shaft, flexible pieces provided with weights secured at one of their ends to the said disk and connected at their other ends to the governor-shaft, a lever fulcrumed to the motor-frame and having one of its ends near the disk, a bell-crank lever fulcrumed on the motor-frame and having one of its arms in contact with the first-named lever, a hand-lever suitably fulcrumed and having connection with the bell-crank lever, substantially as described.

2. The combination with a governor-shaft suitably journaled, of a friction-disk movably mounted on said shaft, a number of flexible pieces secured at one of their ends to the said disk and connected at their other ends to the governor-shaft and each carrying a weight about its middle, a lever fulcrumed near the said disk and having one of its ends adapted to be brought in contact therewith, a bell-crank lever fulcrumed near the first-named lever and having one of its ends in contact therewith and means to operate the bell-crank lever, substantially as described.

660,498. APPARATUS FOR LEACHING ORES. JAMES A. FLEMING, Globe, Ariz. Filed Mar. 29, 1899. Serial No. 710,934. (No model.)

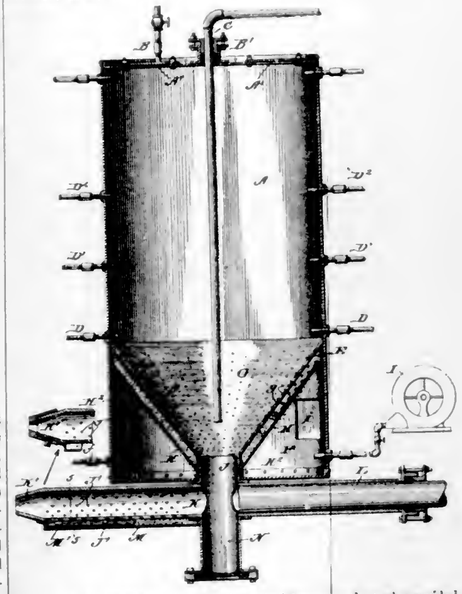
Claim.—1. In an apparatus for use in leaching ores the tank having nipples alongside and communicating with it at different heights, and a tube introduced through its top and movable up and down whereby it may be adjusted to different heights, and said tank having, at its top, nipples for the introduction of and withdrawal of chemicals all substantially as described whereby the solution may be introduced or withdrawn above the mass of ore or from any height at the interior or exterior of such mass of ore substantially as set forth.

2. An apparatus comprising a tank having an inlet and a discharge so the ore may pass in operation through the apparatus and means for compressing the pulp whereby to remove the surplus solution therefrom and means for withdrawing the main portion of the solution in advance of the compressing means substantially as set forth.

3. An apparatus substantially as described comprising the air and steam tight tank having a perforated diaphragm and an air-chamber below the same and means for introducing air under pressure into said chamber the tank being permanently closed at its top during the introduction of the air-pressure into said chamber substantially as set forth.

4. An apparatus for use in extracting metal from ore comprising the tank adapted to contain the pulverized ore, means for introducing and withdrawing the treating solutions at different heights through the side of the tank and a pipe inserted from without into the tank and movable vertically at its inner end whereby its said end may be set to different levels within the tank substantially as described.

5. In an apparatus, substantially as described, the combination of the air and steam tight tank having a perforated filtering-hopper having a central pulp-discharge and provided below the hopper and surrounding said pulp-discharge with an air-chamber, means for controlling the discharge of the pulp, and devices whereby to establish air-pressure in the air-chamber, the tank being constructed to be permanently closed above the hopper during the introduction of pressure to the chamber below the hopper substantially as set forth.



6. In an apparatus for extracting metal from ores the tank provided with the closed top having the stuffing-box and the nipple or nipples, the nipples arranged at different heights along its side, the pipe movable longitudinally through the stuffing-box, and the perforated diaphragm substantially as set forth.

7. In an apparatus substantially as described, the combination of the tank having the perforated diaphragm, and an air-chamber below the same, and an air-compressor by which to establish air-pressure in said chamber substantially as set forth.

8. An apparatus for extracting metal comprising the tank having a pulp-discharge and the perforated diaphragm and the air-chamber below the same, the perforated discharge-barrel connected with the pulp-discharge of the tank and having the contracted end, and the plunger operating in said barrel substantially as set forth.

9. In an apparatus substantially as described the discharge-barrel having perforations inclining rearwardly toward their outer ends as described and having the removable perforated underlying plate and the filling between said plates, and the plunger operating in the said barrel substantially as set forth.

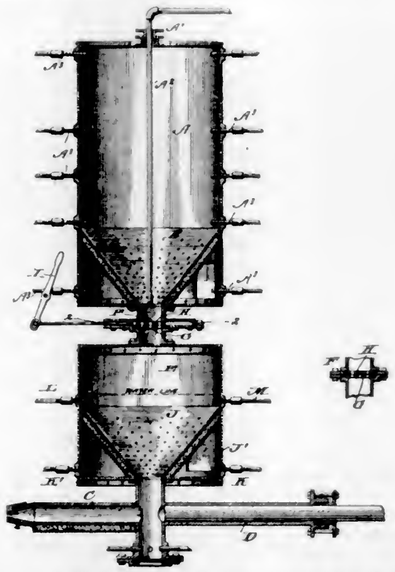
10. An apparatus substantially as described comprising the tank having the closed top, the stuffing-box, the pipe movable longitudinally through such stuffing-box whereby it may be adjusted within the tank, the nipples arranged at different heights along the side of the tank, the perforated diaphragm forming an air-space at the bottom of the tank, means for establishing air-pressure in said chamber, the discharge-barrel and the plunger operating therein substantially as set forth.

11. An ore-leaching apparatus comprising the tank having a pulp-discharge, a filtering-diaphragm in said tank, means for establishing pressure below said diaphragm whereby to control the passage of the solution through it, means by which to control the introduction of chemicals to and their withdrawal from that portion of the tank above the diaphragm, and mechanism connected with the tank whereby to extract the surplus solution from the pulp discharged from the tank substantially as set forth.

12. In an ore-leaching apparatus the combination with the leaching-tank having a pulp-discharge of the conical perforated filtering-hopper therein having the discharge for the pulp, means by which to maintain air-pressure below the diaphragm whereby to control the flow of solution through it, means for the introduction and withdrawal of chemicals to and from the body of the tank above the filtering-diaphragm, and devices for controlling the discharge of the pulp from the tank substantially as set forth.

660,499. APPARATUS FOR LEACHING ORES. JAMES A. FLEMING, Globe, Ariz. Filed July 18, 1899. Serial No. 724,251. (No model.)

Claim.—1. An apparatus for leaching ores comprising the leaching-tank, the washing-tank arranged below the leaching-tank, a pipe connection whereby the pulp is discharged from the leaching-tank into the washing-tank, a perforated diaphragm in such connection, a perforated feed-slide operating across such diaphragm, a hopper in the washing-tank, and a pipe or pipes opening into such tank above said hopper whereby to permit the introduction of heating mediums or suitable solutions, substantially as set forth.



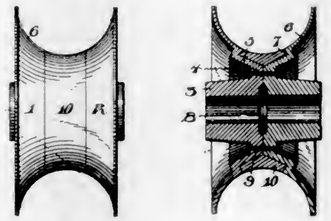
2. In an ore-leaching apparatus, the combination of the leaching-tank, the washing-tank below the leaching-tank, the pipe connection between such tanks, the perforated diaphragm in such pipe connection, and the perforated slide movable over the said diaphragm and cooperating therewith in controlling the passage of the pulp from the leaching-tank to the washing-tank, substantially as set forth.

3. In an ore-leaching apparatus, the combination of the leaching-tank, having a pulp-discharge and means for withdrawing the solution separately from the pulp, the washing-tank arranged to receive the pulp discharged from the leaching-tank, means for controlling the passage of the pulp from the leaching-tank to the washing-tank, and means whereby the water in the washing-tank may be heated, substantially as set forth.

4. An ore-leaching apparatus comprising the leaching-tank having a filtering-hopper, and a pulp-discharge, the solution-discharge below the hopper and independent of the pulp-discharge, the washing-tank, a pipe connecting the pulp-discharge of the leaching-tank with the washing-tank, and devices by which to control the passage of the pulp through said pipe from the leaching-tank to the washing-tank, substantially as set forth.

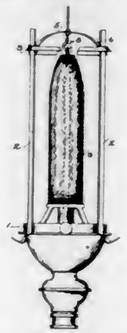
5. An ore-leaching apparatus consisting of the leaching-tank having a filtering-hopper, a solution-discharge below said hopper, and a pulp-discharge also below said hopper and independent of the solution-discharge, a washing-tank below the leaching-tank and in position to receive the pulp from the discharge thereof, and means for controlling the passage of the pulp from the leaching to the washing tank.

660,500. SHEAVE FOR CABLE-ROADS. LOUIS FROHNERT, Connellsville, Pa. Filed July 24, 1900. Serial No. 24,738. (No model.)



Claim.—A sheave comprising two equal rim portions having concave faces, a bearing-cone formed integral with each rim, a web formed integral with each of said con s, an outwardly-extending hub formed integral with each of said webs, said hubs being recessed on their inner ends, and tie-bolts engaging the webs of the two sections for securing the same together, combined with a bearing-band provided with beveled edges to engage shoulders provided therefor on the rim portions, said band having a concave outer face and a wedge-shaped inner face, as and for the purpose described.

660,501. INCANDESCENT-MANTLE SUPPORT. THOMAS S. FULLER, Mannington, W. Va., assignor of one-half to A. Frank Millan, same place. Filed Dec. 30, 1899. Serial No. 742,077. (No model.)



Claim.—1. In a gas-lamp of the character described, the combination of a metallic plate having rigid projecting arms, said arms being apertured vertically adjacent their extremities, a vertical frame or support including posts adapted to fit the arm-apertures, said plate adapted to sustain a pendent mantle, substantially as shown and described.

2. In a gas-lamp of the character described, the combination of a metallic plate having integral projecting arms, said arms being apertured vertically adjacent their extremities, a vertical frame or support including posts adapted to fit the plate-arm apertures, and a mantle-hanger arranged centrally on the plate, substantially as shown and described.

3. In a gas-lamp of the character described, the combination of a metallic plate having integral projecting arms, a vertical support for the arms, a mantle-hanger depending centrally from the plate, a rod raised from and supported by the plate, and a smoke-hood on the rod, substantially as shown and described.

4. In a gas-lamp of the character described, the combination of a metallic plate having integral projecting arms, a vertical support for the plate-arms, a vertical rod secured between its ends centrally in the plate and at its lower end adapted to sustain a mantle, and a smoke-hood at the upper end of the rod, substantially as shown and described.

660,502. SYSTEM OF MOTOR CONTROL. ALEXANDER S. GARFIELD, Paris, France, assignor to the General Electric Company, of New York. Filed Mar. 11, 1899. Serial No. 708,653. (No model.)

Claim.—1. In a system of motor control, the combination with a number of motors or sets of motors, and indicators near each motor or set of motors, one of said indicators being responsive only to current flowing in its adjacent motor or sets of motors, and another of said indicators responsive to current flowing in a non-adjacent motor or set of motors.

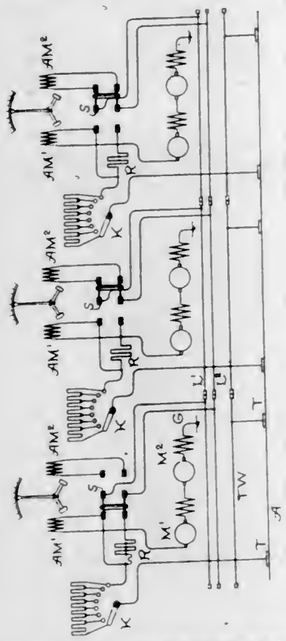
2. In an electric-railway system, the combination of a number of electrically-propelled cars, an indicator on one of the cars arranged to indicate only current flowing in circuits of said car, and an indicator on another car arranged to respond to flow of current in circuits of a car other than that on which it is placed.

3. In an electric-railway system, the combination of a number of cars each equipped with its own controller and a motor or motors regulated thereby, an indicator on one of the cars arranged to indicate only current flow in a motor or motors on that car, and an indicator on another car arranged to be responsive to the flow of current in the motor or motors of a car other than that on which it is placed.

4. In an electric-railway system, the combination of a number of cars each equipped with its own controller and motors regulated thereby, of a differential ammeter upon each car, with some of its coils connected to indicate the current-flow in the motors upon that car, and the other coils connected to record the current-flow in other motors upon another car.

5. In an electric-railway system, the combination of motors and controllers therefor upon a number of cars, an ammeter for registering the

current-flow in the leading car, and indicating devices upon the other cars in circuit with the ammeter and responsive to its indications.



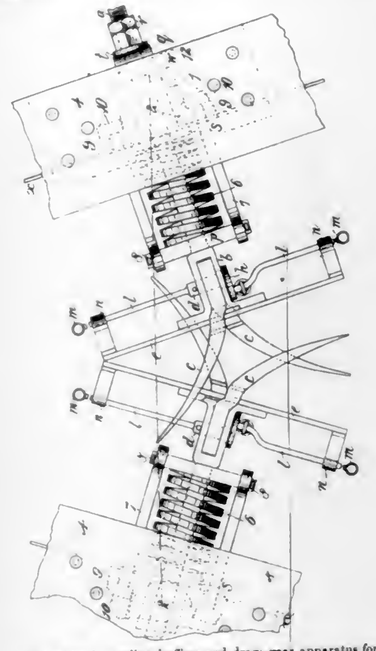
6. The combination with a number of motor-cars, each provided with its own controller and motors regulated thereby, of a shunt-ammeter upon the leading car of the train indicating the current-flow in the motors thereof, and differential ammeters upon the other cars of the train, each of which has some of its coils connected in multiple to the calibrating-shunt of the first-named ammeter and its other coils serving to indicate the current-flow in the motors of the car upon which they are situated.

7. In an electric-railway system, the combination with a plurality of motor-cars in a single train, of motor-controllers, one upon each of said motor-cars; an indicator located near one motor-controller to be within the presence of the motorman operating the latter controller, means governed by another of said motor-controllers for operating said indicator, an indicator located near another motor-controller, and means for cutting the latter indicator into or out of circuit.

660,503. CAR-COUPLING. SAMUEL GEOGHEGAN, Killiney, Ireland. Filed Mar. 12, 1900. Serial No. 8,334. (No model.)

Claim.—1. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles, comprising a buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a buffer-plate carried by said rod, and combined centering and coupling devices carried by said rod and plate and arranged above and below said buffer-plate and so as to extend away from the end of the vehicle to which said apparatus is applied and to diverge from each other in both vertical and lateral senses when in their operative positions, said buffer-plate and devices being each capable of acting against and cooperating with similar parts of like apparatus on an adjacent vehicle to bring the two buffer-rods of the two apparatus into line, if they be not so, when the two vehicles are brought together, and said combined coupling and centering devices then acting to become automatically coupled to such second apparatus, substantially as described.

2. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles, comprising a buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a buffer-plate carried by said rod, and adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer and attached parts, combined centering and coupling devices carried by said rod and plate and arranged above and below said buffer-plate and so as to extend away from the end of the vehicle to which said apparatus is applied and to diverge from each other in both vertical and lateral senses when in their operative positions, and means for moving said combined centering and coupling devices into their inoperative position, substantially as described.



3. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles, comprising a buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a buffer-plate carried by said buffer-rod, and adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod and attached parts, and a pair of coupling and centering horns that are carried by said buffer-rod, are arranged to project over and under said buffer-plate and to diverge from each other in both vertical and lateral senses when in their operative positions and are then capable of forming combined centering and coupling devices, substantially as described.

4. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles comprising a buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a buffer-plate carried by said buffer-rod, and adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod and attached parts, combined centering and coupling horns carried by said buffer-rod, arranged above and below said buffer-plate and to diverge from each other both vertically and laterally and each formed with a hook-like engaging part, and means whereby said horns can be moved into an operative or inoperative position at will, substantially as described.

5. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles comprising a rotary buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, and can also be partly rotated about its own axis, a buffer-plate carried by said buffer-rod, and adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod and attached parts, combined centering and coupling horns carried by said buffer-rod, arranged above and below said buffer-plate and to diverge from each other both vertically and laterally and each formed with a hook-like engaging part, and means whereby said buffer rod, plate and horns can be partly rotated about the axis of said rod, substantially as described for the purposes specified.

6. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, the combination of a rotary buffer-rod having a buffer-plate, adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod and attached parts, a pair of coupling and centering horns *c* carried by said rod and plate, arranged above and below said plate and to diverge from each other and formed with hook-like parts having abutment-surfaces *g*, means for supporting and carrying said rod in a normally-horizontal position but so that it can swivel in various directions and move endwise, and means capable of being operated from either side of the vehicle carrying said apparatus and of partly rotating said rod, plate and hooks, substantially as described for the purpose specified.

7. Combined coupling buffing and draw-gear apparatus for railway and similar vehicles comprising a buffer-rod, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a buffer-plate carried by said buffer-rod, and adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod and attached parts, vertically and laterally diverging horns *c* carried by said buffer rod and plate, arranged above and below the latter and having hook-like abutment-surfaces *g*, a holding device connected to said buffer-rod, buffer-plate and horns and adapted to be engaged with said carrying and supporting means in one or other of two positions corresponding to the operative and inoperative positions of said buffer-plate and horns, and means for operating said holding device and turning said buffer-plate and horns about the axis of said buffer-rod from either side of the vehicle, substantially as described.

8. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, the combination with a buffer-rod, a buffer-plate adapted by contact with a similar buffer-plate on an adjacent vehicle to center the buffer-rod, and combined centering and coupling devices carried thereby and extending over and under said buffer-plate, of means for carrying, supporting and controlling the movements of said buffer-rod and attached parts, said means comprising bearings through which said buffer-rod extends and against one of which said buffer-plate abuts, the inner of said bearings having an outwardly-flaring passage therethrough for said rod and being carried by the vehicle, one or more combined buffer and draw springs located between said bearings, an abutment device carried by the inner end of said buffer-rod and bearing against the inner end of said inner bearing, means for limiting the outward movement of the other bearing, and means adapted to normally hold said buffer-rod and attached parts in the mid or central position, substantially as described for the purposes specified.

9. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, the combination with a buffer-rod, buffer-head and combined centering and coupling devices carried thereby, of means for carrying, supporting and controlling the movements of said buffer-rod and attached parts, said means comprising inner and outer bearings through which said buffer-rod extends and against the outer of which said buffer-head abuts, said inner bearing having an outwardly-flaring hole therethrough for said rod, a combined buffer and draw spring located between said bearings and surrounding said rod, an abutment device carried by said rod and bearing against the inner end of said inner bearing, a third bearing arranged on the vehicle so as to turn about a vertical axis and through which said inner bearing can slide endwise but cannot rotate, means connecting said outer bearing to said third bearing and adapted to allow of inward, outward and angular movements of said outer bearing, and a spring device adapted to normally hold said third bearing and attached parts in the mid or central position, substantially as described.

10. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, the combination of a buffer-rod, a buffer-head and combined centering and coupling devices carried by the outer end of said rod, an abutment device carried by the inner end of said rod, inner and outer bearings through which said rod extends, against the outer of which said buffer-head abuts and against the inner of which said abutment bears, a coiled combined buffer and draw spring located between and connected at its ends to said inner and outer bearings and surrounding said buffer-rod, a third bearing through which said inner bearing can slide endwise but cannot rotate, means connecting said outer and third bearings so as to allow of limited inward, outward and angular movements of said outer bearing, upper and lower bearings carried by the vehicle to which the apparatus is applied and in which said third bearing is mounted to turn about a vertical axis, means adapted to normally hold or return said third bearing and attached parts in or to the mid or central position but capable of allowing said parts to move laterally, a pawl or catch mounted on said buffer-head and adapted to be engaged with either of two different parts of said outer bearing, and means adapted to disengage said pawl or catch from one part of said outer bearing, to partly rotate the buffer-head and horns about the axis of said buffer-rod, and to reengage said pawl or catch with another part of said outer bearing, substantially as described for the purposes specified.

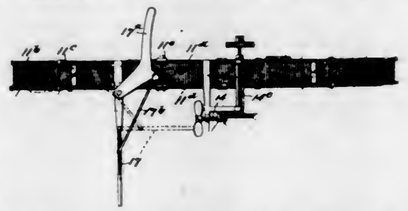
11. In a railway or like vehicle, combined coupling buffing and draw-gear apparatus comprising the outer bearing *p* with recesses 14 and 15, the inner bearing *q* having a flaring hole therethrough, the bearing *w* in which said bearing *q* can slide endwise but cannot rotate, upper and lower bearings carried by said vehicle and in which said bearing *w* is mounted to turn about a vertical axis, the tie-bolts 7 connecting said bearings *p* and *w* as described, the coiled spring 6 located between and connected at its ends to said bearings *p* and *q*, one or more springs controlling the movements of said bearing *w* and attached parts, a buffer-rod extending through said bearings *p*, *q* and spring 6, a buffer-head fixed to the outer end of said buffer-rod and acting against said bearing *p*, the diverging horns *c* carried by said buffer-head *b* and each formed with hook-like parts or shoulders *g*, an adjustable abutment carried by the inner end of said buffer-rod and bearing against said bearing *q*, a catch 13 mounted on said buffer-head *b* and adapted to enter either of the recesses 14 and 15 in said bearing *p*, and a handle *l* journaled in said buffer-head and to which said catch is fixed, substantially as described.

12. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, a hollow buffer-rod provided with a buffer-plate having a flat outer surface and with centering and coupling devices, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a train-pipe extending from the inner end of said hollow buffer-rod, and a pipe-coupling device that is carried by and projects beyond the outer end of said buffer-plate, is in communication with said train-pipe, and is adapted to make a close joint with an appropriate coupling device on the buffer-plate of an adjacent vehicle when the two vehicles carrying said devices are brought together, substantially as described for the purpose specified.

13. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, a hollow buffer-rod provided with a buffer-head having a flat outer surface and with centering and coupling devices, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, one or more train-pipes located within said hollow buffer-rod and extending from the inner end thereof, and one or more pipe-coupling devices carried by and projecting beyond the said buffer-plate, connected to the outer end or ends of the train pipe or pipes and adapted to make a close joint with an appropriate coupling device or devices on the buffer-plate of an adjacent vehicle when the two vehicles carrying said devices are brought together, substantially as described for the purpose specified.

14. In combined coupling buffing and draw-gear apparatus for railway and similar vehicles, a hollow buffer-rod provided with a buffer-plate having a flat outer surface, and with centering and coupling devices arranged above and below said plate, means for carrying and supporting said rod in a normally-horizontal position on a vehicle but so that it can move in horizontal and vertical directions and also in an endwise direction, a train-pipe extending from the inner end of said hollow buffer-rod, a pipe-coupling device that is carried by and projecting beyond the outer end of said buffer-plate, is in communication with said train-pipe, and is adapted to make a close joint with an appropriate coupling device on an adjacent vehicle when the two vehicles carrying said devices are brought together, and a valve adapted to close the outlet from said train-pipe when the corresponding pipe-coupling device is disengaged from that on another vehicle and having an outwardly-projecting part whereby it can be automatically opened when said pipe-coupling device becomes engaged with that on the second vehicle, substantially as described for the purposes specified.

660,504. LIFE-PRESERVING FLOAT. SOLOMON GERMAN, Davidsonville, Md. Filed Feb. 7, 1900. Serial No. 4,357. (No model.)



Claim.—1. A float of the character described comprising an inflatable body portion, a frame formed of top and bottom bow-sections, top and bottom stern-sections, rule-jointed braces connecting each top section with its respective bottom section, intermediate sections connecting the bow and stern sections, and means for securing all of said sections to said body portion whereby to form a rigid frame for the float, as set forth.

2. A float of the character described, comprising an inflatable body portion formed of waterproof fabric and having a central opening adapted to fit around a person's waist and a slit leading into said opening whereby access may be had to the latter, and a rigid frame constructed in bow and stern sections strapped to the body portion, and intermediate sections secured to the ends of the bow and stern sections as set forth.

3. A float of the character described, comprising a body portion formed of waterproof fabric and having a central opening and a side slit leading into said opening, and a rigid tubular frame formed in separably-connected sections, those sections located at the slit being divided and having interlocked members, as and for the purpose set forth.

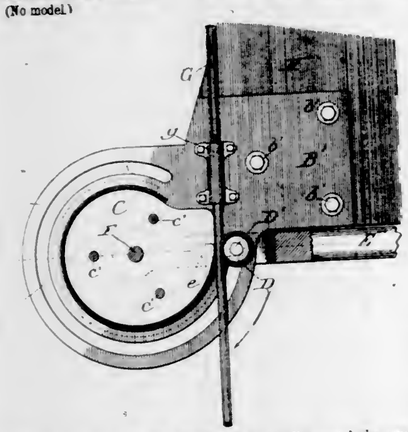
4. In a float of the character described, a body portion provided with a rigid tubular frame formed with sockets, hangers having dovetailed wedge-shaped flanges adapted to fit in said sockets, and propelling devices mounted in said hangers, as set forth.

5. In a float of the character described, a body portion provided with a frame having sockets thereon, seat-standards detachably fitted in said sockets, a seat hinged to said standards, and levers fulcrumed on said standards and having a link connection with the seat, as set forth.

6. In a float of the character described, a body portion formed with an opening adapted to fit around a person's waist, a seat hinged to swing in a vertical plane at one side of said opening, and means for holding said seat in a horizontal position, as set forth.

660,505. MACHINE FOR BENDING OR CURVING METAL.

JACOB N. GIBSON, Chicago, Ill. Filed June 27, 1900. Serial No. 21,730. (No model.)



Claim.—1. In a machine for curving or bending metal, the combination of two companion heads or plates each having in its body a curved slot, a section or half of a die or former on each head or plate each section or half having a peripheral face or wall of a curvature conforming to the curvature of the slots in the heads or plates, a forming-roller traveling around the peripheral face or wall of the die or former and having its journal or shaft ends projected into the slots of the heads or plates and means for forcing the roller to travel around the peripheral face or wall of the die or former and guided in its travel by the curved slots of the heads or plates and its journal or shaft, substantially as described.

2. In a machine for curving or bending metal rods or tubes, the combination of two companion heads or plates each having in its body a curved slot, a section or half of a die or former on each head or plate, each section or half having a peripheral corner a groove or recess, the two grooves or recesses forming a semicircular groove of a diameter corresponding to the diameter of the rod or tube, a forming-roller traveling around the peripheral face or wall of the die or former having its journal or shaft ends projected into the slots of the heads or plates and having in its body a semicircular groove or recess corresponding to and coinciding with the semicircular groove or recess of the die or former, and means for forcing the roller to travel around the peripheral face or wall of the die or former and guided in its travel by the curved slots of the heads or plates and its journal or shaft, substantially as described.

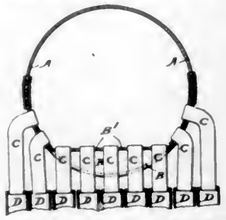
3. In a machine for curving or bending metal rods or tubes, the combination of two companion heads or plates each having in its body a curved slot with its initial or starting end outwardly deflected, a section or half of a die or former on each head or plate, each section or half having a peripheral face or wall conforming to the curvature of the slots in the heads or plates with its initial or starting end in alinement with the outwardly-deflected ends of the slots and each section or half having in its peripheral corner a groove or recess, the two grooves or recesses forming a semicircular groove or recess of a diameter corresponding to the diameter of the rod or tube, a forming-roller traveling around the peripheral face or wall of the die or former and having its journal or shaft ends projected into the slots of the heads or plates and having in its body a semicircular groove or recess corresponding to and coinciding with the semicircular grooves or recesses of the die or former, a lever pivotally mounted on the heads or plates and having in its head longitudinal slots receiving the projected ends of the roller journal or shaft for the movements of the lever to force the roller around the peripheral face or wall of the die or former and guided in its travel by the curved slots of the heads or plates and its journal or shaft, and a guide on one head or plate in line with the outwardly-deflected ends of the curved slots for entering and guiding the end of the rod or tube into position for bending or curving, substantially as described.

4. In a machine for curving or bending metal rods or tubes, the combination of two companion heads or plates each having in its body a curved slot with its initial or starting end outwardly deflected, a section or half of a die or former on each head or plate, each section or half having a peripheral face or wall conforming to the curvature of the slots of the heads or plates with its initial or starting end in alinement with the outwardly-deflected ends of the slots and each section or half having in its peripheral corner a groove or recess, the two grooves or recesses forming a semicircular groove or recess of a diameter corresponding to the diameter of the rod or tube, a forming-roller traveling around the peripheral face or wall of the die or former and having its journal or shaft ends projected into the slots of the heads or plates and having in its body a semicircular groove or recess corresponding to and coinciding with the semicircular grooves or recesses of the die or former and a lever engaging the projected ends of the roller journal or shaft for forcing the roller to travel around the peripheral face or wall of the die or former and guided in its travel by the curved slots of the heads or plates and its journal or shaft, substantially as described.

5. In a machine for curving or bending metal rods or tubes, the combination of two companion heads or plates each having in its body a curved slot with its initial or starting end outwardly deflected, a section or half of a die or former on each head or plate, each section or half having a peripheral face or wall conforming to the curvature of the slots of the heads or plates with its initial or starting end in alinement with the outwardly-deflected ends of the slots and each section or half having in its peripheral corner a groove or recess, the two grooves or recesses forming a semicircular groove or recess of a diameter corresponding to the diameter of the rod or tube, a forming-roller traveling around the peripheral face or wall of the die or former and having its journal or shaft ends projected into the slots of heads or plates and having in its body a semicircular groove or recess corresponding to and coinciding with the semicircular grooves or recesses of the die or former, a lever pivotally mounted on the heads or plates and having in its head longitudinal slots receiving the projected ends of the roller journal or shaft for the movements of the lever to force the roller around the peripheral face or wall of the die or former and guided in its travel by the curved slots of the heads or plates and its journal or shaft, and a guide on one head or plate in line with the outwardly-deflected ends of the curved slots for entering and guiding the end of the rod or tube into position for bending or curving, substantially as described.

660,506. WATER-TUBE BOILER.

WILLIAM D. HAMILTON, Bearsden, Scotland. Filed Feb. 16, 1900. Serial No. 5,494. (No model.)



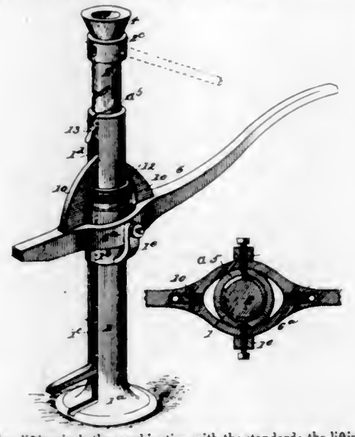
Claim.—In a boiler, the combination, with a steam-drum provided with a crease on its under side which projects wholly within the drum, of headers arranged under the drum, straight nipples secured in holes in the inner headers and in the bottom plate of the said crease, and nipples having curved portions at their upper ends and secured in holes in the outer headers and in the curved part of the shell of the drum at the ends of the said crease, substantially as set forth.

660,507. LIFTING-JACK.

JOSEPH T. HARBIN, Condon, Oreg. Filed Feb. 27, 1900. Serial No. 6,744. (No model.)

Claim.—1. A lifting-jack, comprising a hollow standard; a lift-bar vertically and rotatably movable within the standard, said bar having a spiral groove or threadway, and a lever mechanism, including a pair of clutch-pawls adapted to engage with the spiral groove and at opposite sides of the lifting-bar, as described.

2. A lifting-jack, comprising a standard; a lifting-bar rotatably and vertically movable within the standard; means for quickly elevating the standard, and clutch-pawls engaging the standard for holding it to its elevated position, said standard having an external spiral groove engaging the pawls and operatively connected therewith, whereby when the said lifting-bar is rotated it will move vertically as specified.



3. In a lifting-jack, the combination with the standard; the lifting-bar vertically movable therein, said bar having vertical rack-surfaces on opposite sides; a lever straddling the standard; a pair of pawls carried by the lever, said pawls being arranged to engage the rack-surfaces of the lifting-bar on the opposite sides; means for normally holding the pawls in engagement with the said surfaces, and a member vertically movable upon the standard for engaging with and shifting the pawls to an inoperative position as specified.

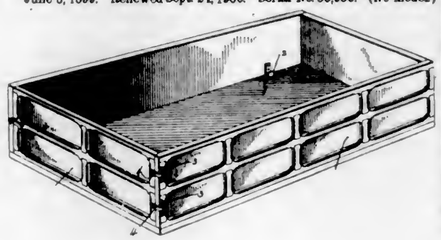
4. The combination with the hollow standard having vertical slots disposed diametrically opposite each other; the lifting-bar movable in the standard, said bar having an external spiral groove or threadway; a lever pivoted upon the standard below its slots to swing in a vertical plane; a pair of clutch-pawls secured on such lever, one at each side of the standard, said pawls projecting through the coincident slots of the standard to engage with the lift-bar, said pawls being also operatively arranged to alternate as a stop member and as a lift-pawl; and supplemental pawls supported on the standard and normally moved in position to engage the lift-bar at a point above the standard and serve as stop-pawls, as specified.

5. A lifting-jack, comprising a hollow standard having a vertical slot at one side near its bottom, and a pair of slots in its upper end, the upper slots being diametrically opposite each other; a lifting-bar having an external spiral groove and having at its upper end a head-piece formed with radial sockets; a laterally-projecting lift member secured to the lower end of the bar and projected through the bottom slot of the standard; and a lever horizontally pivoted to the standard to rock in a vertical plane, said lever having a portion straddling the standard; the pawls and the springs for operating them carried upon the said lever, said pawls being disposed at opposite sides of the standard and projected through the slots in the upper end thereof to engage with the spiral groove on the lifting-bar, all being arranged substantially as shown and described.

6. A lifting-jack, comprising a standard; a vertically and rotatably movable lifting-bar, and mechanism connecting with the bar and the standard, said mechanism being constructed to have a duplex action and including a lever device for lifting the lifting-bar quickly; and screw-operated means adapted to elevate the lifting-bar slowly as the said bar is rotated.

660,508. WAGON-BODY.

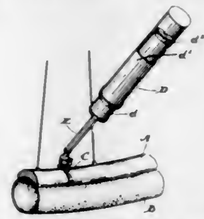
BARNY HARBOTH, Effingham, Ill. Filed June 8, 1899. Renewed Sept. 24, 1900. Serial No. 30,956. (No model.)



Claim.—The combination with a wagon-bottom having staples on its upper surface, of removable sides having inwardly-projecting upturned hooks on their inner surfaces at or near their lower edges, body ends having L-shaped hooks 4, 4 which extend around the corners of the sides into eyelets thereon and means for fastening the other ends of the body ends.

660,509. SELF-SUPPORTING BICYCLE-PUMP.

ROBERT N. HATCH, Woodstock, Canada. Filed Oct. 7, 1899. Serial No. 732,935. (No model.)



Claim.—1. An air-pump comprising a barrel and a hollow piston-rod adapted to reciprocate and rotate therein and having a coupling formed with a round or spherical metal conduit rigidly connected with the end of said piston-rod and a secondary section or supplementary conduit overlapping the said spherical conduit so as to give a flexible or universal movement in relation to the same and means for attaching the same to a pneumatic-tire valve.

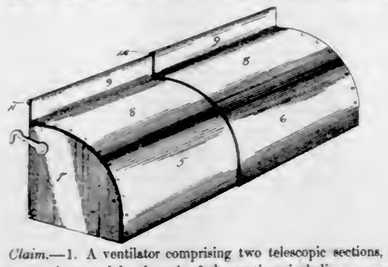
2. In a bicycle-pump coupling, the combination with the air-expelling tube, of a ball formed at the end thereof, a socket fitting on the ball and provided with a central passage-way and a downwardly-extending external flange fitting over the stem, and a grip pivoted on the socket and having an extension-clasp to fit the thread as and for the purpose specified.

3. In a bicycle-pump coupling, the combination with the air-expelling tube, and a connection fitting over the stem of the valve, of a grip pivoted on the connection and having an extension-clasp to fit the thread as and for the purpose specified.

4. In a device of the class described the combination with the valve-stem, of a bridge fitting on the rim of the bicycle and provided with a central orifice and a set-screw extending through a projection extending upwardly from the bridge and designed to clamp the stem firmly in position as and for the purpose specified.

660,510. VENTILATOR FOR WINDOWS.

SIDNEY HEPTINSTALL, Marion, Va. Filed July 15, 1899. Serial No. 723,952. (No model.)

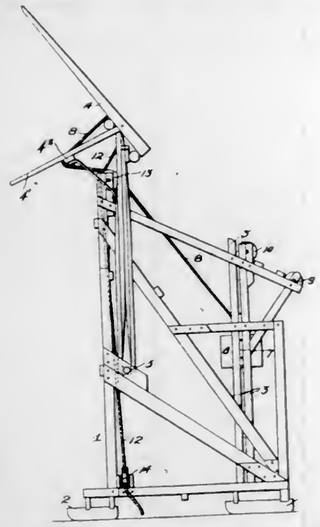


Claim.—1. A ventilator comprising two telescopic sections, forming an open-bottomed hood, each of the sections including a segmental end piece having a metallic plate fixed to the curved edge thereof, said plate being arc-shaped in cross-section, the plates being bent upwardly in the planes of the front edges of their respective end pieces and having the edges of their upwardly-bent portions bent upon themselves, one of said bent edges forming a guideway, which slidably receives the other bent edge, a second segmental end piece fixed to the innermost plate, closures hinged to the end pieces adjacent the upwardly-extending portions of the plates and adapted to swing into the inclosures of the plates and end pieces, whereby said ventilator may be placed upon a window-sill and receive the lower edge of a sash against the plates with the upwardly-extending portions thereof lying against the inner face of the sash to hold the ventilator in position.

2. A ventilator comprising two telescopic sections including segmental end pieces having arc-shaped plates attached thereto, and forming an open-bottomed hood, one section having an additional end piece dividing the space inclosed into the two compartments and the plates being bent upwardly at their front edges and having the upper edges of said up-

wardly-bent portions bent upon themselves to form intermeshing slides, said upwardly-extending portions being adapted to lie against the inner face of a window-sash to prevent outward displacement of the ventilator, a closure for each of the compartments hinged to the corresponding end pieces adjacent the upwardly-extending portion of its respective plate and adapted to swing into the inclosures of the telescopic sections, and means for holding these closures at various points of their swinging movements.

660,511. HAYSTACKER. DAVID W. HOOVER, Lyons, Nebr., assignor to Elisha Crowell, same place. Filed Apr. 19, 1900. Serial No. 13,497. (No model.)



Claim.—The combination with the supporting-frame provided with a vertical guideway, a weight mounted to slide in said guideway, a pulley journaled in the upper end of the guideway, a fork hinged to the frame and provided with vertical teeth, a cross-bar connected to the vertical teeth, a weight rove about said pulley and connecting the fork to the weight and engaging with said cross-bar, a pulley journaled in the upper and lower ends of the frame, and a draft-rope attached to the fork and passing over said pulleys, said weight being adapted to exert its influence to elevate the fork a certain distance in its upward movement and then retard the fork in its final upward movement, and then to start the fork on its return movement and finally to check the downward or return movement of the fork and prevent it crashing against the ground, substantially as set forth.

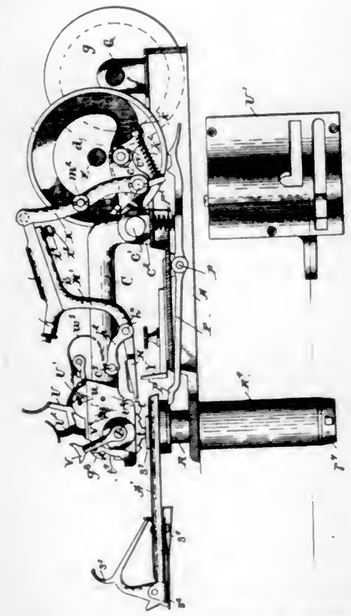
660,512. STAMPING AND NUMBERING MACHINE. JAMES D. HUMPHREY and JOSEPH FRENCH, Towanda, Pa. Filed June 15, 1898. Serial No. 683,498. (No model.)

Claim.—1. In a stamping and numbering machine, the combination of a plunging type-carrier, with independently-adjustable type, a continuously-operating driving mechanism and means to connect and disconnect said driving means and type-carrier, substantially as described.

2. In a stamping and numbering machine, the combination with a plunging type-carrier, of a continuously-operating driving mechanism, independently-adjustable type, a single handle for adjusting or setting said type, and means to connect and disconnect said driving means and type-carrier, substantially as described.

3. In a machine of the class described, in combination with a suitable frame, printing characters and their holder, a rocking lever-arm having a short arm and a long arm, said long arm carrying at its end said characters and holder, a cam engaging the end of said short arm, a shaft carrying the cam, and driving means connected with said shaft, whereby when said short arm reaches the reduced portion of said cam, the long arm and characters-holder will be thrown forcibly downward by their own weight and an intermittent plunging movement given thereto, substantially as described.

4. In combination with a swinging type-head, a platen to receive the impressions of said type-head, a vertically-adjustable standard supporting said platen, a spring for giving said platen and standard an automatic self-adjustment in either position of said standard, a driving mechanism, a clutch intermediate said type-head and driving mechanism and connections between said platen and clutch, whereby the vertical adjustment of the platen will control the operation of the clutch, substantially as described.



5. In a machine of the class described, in combination with type-disks rotatable in either direction, a type-head, a shaft on which said disks are mounted, means for separately setting said disks independently in printing position, and a presser member for each disk for holding it in position and yielding to the pressure of the disk when the latter is turned by the setting means, substantially as described.

6. In a stamping and numbering machine, in combination with a vibrating type-carrier, a series of type-disks, said disks having raised printing characters and recesses formed between said characters, a rotatable setting-shaft on which the disks are loosely mounted, a thumb-piece for turning said shaft, a sliding detent in said shaft, interior recesses in said disks with which said detent is adapted to engage, a separate spring-pressed retaining-pawl for each disk, the tooth of said pawl having double ends and adapted to engage the exterior recesses of the disk, whereby when the disk is turned by the shaft the pawl-tooth will ride over the characters and when the disk is at rest will be forced into the recesses to hold the disk in place, substantially as described.

7. In a stamping and numbering machine, in combination with a vibrating type-carrier, a series of type-disks, a hollow shaft on which they are mounted a rotatable and longitudinally-sliding barrel within said shaft, a spring-pressed detent in said barrel, means of engagement between said detent and disks, a rod on which said barrel is rotatably carried, a pointer secured to said rod and extending over the disks, yielding pressure means for holding the disks against loose movement, substantially as described.

8. The type-head and its carrying-arm, in combination with the inking-pad and an extensible carrying-arm therefor, connections between said arms and means for lengthening and shortening said pad-arm to adjust it to and from the type characters and in line with the type-head-carrying arm, substantially as described.

9. In combination with a platen, a rocking lever-bar, a drive-gear, a spring-controlled clutch-pawl held on said gear and with which pawl said lever-bar is adapted to engage, the operating-shaft to which said clutch is connected, means of connection between the lever-bar and the platen and means for raising said platen, whereby when the platen is raised the said rocking lever will be released from the clutch-pawl and the driving and printing mechanisms connected, substantially as described.

10. In combination with a gear-wheel, a spring-pressed clutch-pawl adapted to engage said wheel, a rocking lever adapted to engage said clutch to effect the disengagement of said clutch and gear-wheel, means to rock said lever, a continuously-operating driving mechanism connected with said gear-wheel, a printing mechanism, said clutch adapted to connect said driving and printing mechanisms, substantially as described.

11. The swinging and reciprocating inking-pad and its carrying-arm in combination with the plunging arm of the type-head, and the pivoted links connecting the said arm of the type-head and the arm of the pad, a shaft, cams on said shaft to engage said plunging arm and type-head and driving means engaging said shaft to rotate the same, substantially as described.

12. In combination with the slotted shaft, disks mounted loosely on said shaft and provided with printing characters on their peripheries, a pointer to indicate said character-disks, a knob to turn said shaft, said knob provided with index characters denoting the same characters as are on said disks, a pointer on the machine over said knob, each of said disks provided with a single interior slot, a barrel sliding in said shaft, said barrel provided with a spring-pressed detent engaging the slot in the said shaft and the slot in the disk, whereby on turning the knob to a certain index character, a disk will be turned to present the same character for printing, substantially as described.

13. In combination with type-disks, spring-pressed pawls engaging therewith, means of engagement between two adjacent pawls, said other pawls independent of each other, substantially as described.

14. In combination with type-disks and their support, means to adjust said disks, one of said disks provided with a single type and an adjusting-lever secured to said disk and independent of said other adjusting means, substantially as described.

15. The combination with a type-disk, of a spring-pressed pawl engaging therewith, a lever secured to said disk, a spring connected with said lever, and means to effect the disengagement of said disk and pawl, substantially as described.

16. In combination with a type-disk, provided with a single type, a spring-pressed pawl engaging therewith, means for giving said disk a limited rotation, an adjacent disk and its pawl, means of engagement between the two pawls, a sliding lever mounted in the frame of the machine and adapted to engage said latter disk, and spring secured to said lever, substantially as described.

17. The combination of the type-disks having the raised printing characters and the spaces between said characters, with the detaining-pawls adapted to engage said disks, spring-rods secured to said pawls, means to bring pressure on said rods, a rotatable setting-shaft on which said disks are mounted and means for engaging one of said disks with said shaft, substantially as described.

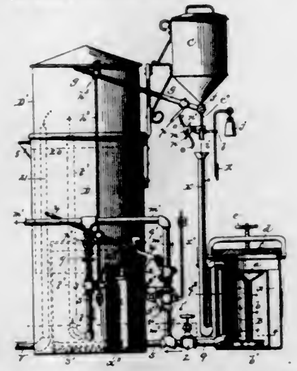
18. The type-head in combination with the type-disks and type thereon, the pawls engaging said disks at the bottom of the head, spring-rods secured to said pawls, the removable cover for said head, a bar secured to said cover and adapted to press against said pins, substantially as described.

19. The combination of the type-head and its pivoted arm, the inking-pad and its arm, the latter pivoted at its rear part to said type-head arm and having its front part pivotally connected by swinging links thereto, the gear-wheel, the shaft on which said gear-wheel is mounted, a cam-wheel on said shaft and cam carried thereby to engage the type-head arm, and the cam mounted on said shaft to engage the pivoted pad-arm, motive power and connections between said motive power and the gear-wheel, substantially as described.

660,513.



660,514. ACETYLENE-GAS GENERATOR. ANTHONY P. KELLER and ALBERT M. BEHM, Tiffin, Ohio. Filed Feb. 12, 1900. Serial No. 4,956. (No model.)



Claim.—1. In a gas-generator of the character described and in combination with a water-cylinder, a gas-holding float sealed therein, a gas-generator and a gas-purifier both external to the water-cylinder, a gas-cooling tank within the latter, and a water-reservoir, with a water-sealed supply-pipe connecting the generator, a gas-pipe connecting the latter with the bottom of the cooling-tank, a perforated pipe s' in the latter forming a continuation of said gas-pipe, the pipe x^3 connecting the bottom of the cooling-tank with the bottom of the purifying-tank, the pipe x^4 connecting the top of the latter with a diving pipe t entering the bottom of the water-cylinder and rising therein by a branch pipe t' opening into the gas-holding float, the gas downtake-pipe 21 and means for supplying water to the generator, substantially as described.

2. In a gas-generator, and in combination with a water-cylinder, a gas-holding float sealed therein, a pair of gas-generators, and means for connecting them with the gas-holding float, a pair of downtake-pipes side by side, open at their upper ends, each entering the gas-generator by a water seal, a water-reservoir having a depending nozzle, a lever g connecting said plug-valve and float and having a depending cam-arm, p, a bracket on the discharge end of the nozzle, a double-ended chute pivoted to said bracket and having oppositely-projecting pins l' l', a shaft m on said bracket at right angles to the tray-pivot adjacent to its pins, and having pins n n' adapted to engage the pivot-pins, and cam-arms o o adapted to be engaged by said cam-arm p, whereby the rising-and-falling movements of the float are caused to control the water-supply valve and to tilt

660,513. EGG-BEATER AND CHURN. JOHN M. C. JONES, Gibson City, Ill. Filed July 12, 1900. Serial No. 23,395. (No model.)

Claim.—1. In a beating and whipping appliance for attachment to jars closed by screw-caps, the combination, with a jar provided with a cap having a perforation therein, of a beating and whipping appliance comprising a frame, a ring or band embracing the screw-cap of the jar, radial arms bearing upon the cap and connecting the frame and ring, said ring and arms being provided with projections to engage the threads of the cap, beaters mounted in the frame, and means in connection with the beaters through the perforation in the cap for operating said beaters, substantially as set forth.

2. In a beating and whipping appliance for attachment to jars closed by screw-caps, the combination, with a jar provided with a cap having a perforation therein, of a beating and whipping appliance comprising a frame, a ring or band embracing the base of the flange of the cap, a series of horizontal arms projecting radially from the base of the frame and bearing upon the top of the cap and having downturned ends connected to the ring so as to bear upon the upper portion of the flange of the cap, said ring and downturned ends of the arms being provided with projections to engage the threads of the flange of the cap, beaters mounted in the frame, and means in connection with the beaters through the perforation in the cap for operating said beaters, substantially as set forth.

the chute to deliver into one or the other of the downtake-pipes, in the way and for the purpose stated.

3. In a machine for generating acetylene gas, and in combination with a water-cylinder, a gas-holding float sealed therein, and a generator external to the water-tank, a pipe q connecting the generator and the gas-holding float, and having a check-valve r between the tank and the generator, an uptake-pipe m^2 connecting the pipe q between the generator and the check-valve, and open to the air, a plug-valve i' in said pipe m^2, a lever y connecting said valve and having a depending cam-arm x, a rod h^2 connected to and depending from the gas-holding float, and connected to said lever y and means adapted to be engaged by the depending cam-arm x and to engage the said valve, whereby when the gas-producing substance is exhausted, the descent of the gas-holder caused thereby, will open said valve and allow the gas and fumes to pass from the generator to the air as a means of ventilating the generator before renewing the carbid.

4. In a gas-generator and in combination with a water-cylinder, a gas-holding float sealed therein, and a gas-generator external to the water-cylinder, a pipe q connecting the generator and the gas-holding float, of a check-valve to cut off said communication, by the back pressure from the gas-holder, and a pipe m^2 located in said pipe q, between the said check-valve and the generator, and open to the air, a valve controlling said open-air pipe, and means connecting said valve with the gas-holding float, whereby to open the generator, for ventilation to the outer air.

5. In a gas-generator and in combination a water-cylinder, a gas-holding float sealed therein and a gas-generator external to the cylinder, a pipe q connecting the generator and the gas-holding float, a gas-cooling tank within the water-cylinder, a gas-purifying tank external to the latter, and a pipe t connecting the purifying-tank with the water-cylinder, and gas-holding float, with a pipe 9 connecting the pipe t between the purifier and the water-cylinder, and open to the air, a valve p' in said pipe 9 and means connecting said valve with the gas-holding float, whereby when the float has reached its maximum height the said valve will be caused to be opened to divert the gas from the gas-holding float, into the open-air pipe to relieve the pressure in the gas-holder.

6. In a gas-generator, and in combination a water-cylinder, a gas-holder sealed therein and a gas-generator external to the cylinder, a gas-supply pipe connecting the generator the purifier and the gas-holder, and a pipe 9 external to the water-cylinder connected with the pipe which connects the generator and the purifier and open to the air, a safety-valve p' on the open-air pipe, a weighted arm on said valve normally closing it, and the rod h^2 connected to the float and having a pin y' adapted to engage the valve-arm whereby when the gas-holder is at its maximum height the valve is caused to be opened to divert the gas from the gas-holder into the open-air pipe in the way and for the purpose stated.

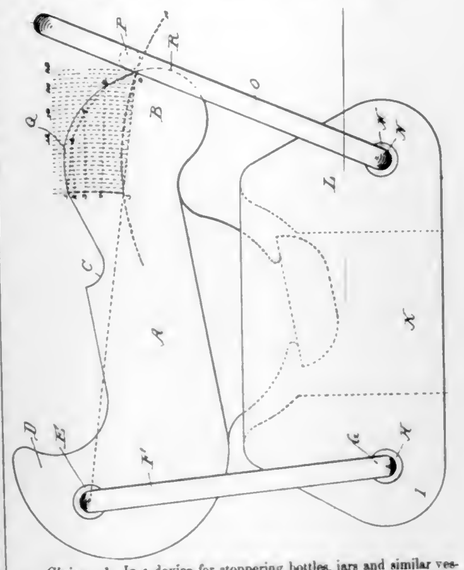
7. In a gas-generator, and in combination a water-cylinder, a gas-holder sealed therein and a gas-generator external to the cylinder, a gas-supply pipe connecting the generator and the gas-holder, a pipe m^2 between the generator and the cylinder open to the air and connected with the gas-supply pipe, a pipe 9 connecting the open-air pipe external to the cylinder and between it and the pipe m^2, a plug-valve i' on the latter pipe and means connecting it with the gas-holder whereby the valve is opened on the maximum descent of said gas-holder, a plug-valve p' on the pipe 9 and means whereby said valve is opened on the maximum height of the gas-holder substantially as and for the purpose specified.

8. In a gas-generator, and in combination a water-cylinder, a gas-holder sealed therein and a gas-generator external to the cylinder, a water-reservoir and a pipe delivering water therefrom to the generator, a gas-supply pipe connecting the generator and the gas-holder, a pipe m^2 open to the air arranged to communicate with the gas-pipe for ventilating the generator, a pipe 9 connecting the gas-pipe and the open-air pipe for diverting the gas from the gas-holder, a plug-valve controlling the water-supply, a plug-valve in the ventilating-pipe, a plug-valve in the gas-diverting pipe, and means including suitable connections whereby the said several valves are operated hy the raising and lowering of the gas-holder in the way and for the purpose stated.

9. In a gas-generator, and in combination a water-cylinder, a gas-holder sealed therein and a gas-generator external to the cylinder, a water-reservoir and a pipe delivering water therefrom to the generator, a gas-supply pipe connecting the generator and the gas-holder, a pipe open to the air arranged to communicate with the gas-pipe for ventilating the generator, a pipe connecting the gas-pipe and the open-air pipe for diverting the gas from the gas-holder, a plug-valve controlling the water-supply, a plug-valve in the ventilating-pipe, a plug-valve in the gas-diverting pipe, a rod connecting to and depending from the gas-holder and means including suitable connections whereby the said several valves are operated by the rising-and-falling movements of the depending rod of the gas-holder in the way and for the purpose stated.

10. In a gas-generator of the character described, and in combination a water-generator, a gas-holder sealed therein and a gas-generator external to the cylinder, a water-reservoir and a pipe delivering water therefrom to the generator, a gas-supply pipe connecting the generator and the holder, a check-valve in said pipe, a pipe open to the air arranged to communicate with the gas-pipe between the check-valve and the generator for ventilating the latter, a cut-off valve in the gas-pipe between the generator and the ventilating-pipe, a valve in the ventilator-pipe, and means including connections with the gas-holder whereby the ventilation is effected and controlled by its movements.

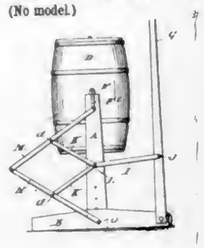
660,515. BOTTLE-STOPPER. JOHANNES KOWSKY, Berlin, Germany. Filed June 22, 1899. Serial No. 721,421. (No model.)



Claim.—1. In a device for stoppering bottles, jars and similar vessels, the combination with the neck thereof, of a link connection secured to said neck carrying the stopper proper, said stopper having an inclined front portion, which when the plug of the stopper rests lightly on the top of the neck and slopes downward from the upper front ridge Q of the plug toward the arc described by the loop P of the locking-lever, said locking-lever being adapted to operate over said inclined front portion, substantially as herein shown and described and for the purpose set forth.

2. In a device for stoppering bottles, jars and similar vessels, the combination with the neck thereof, of a lug projecting from the side of said neck having formed therein recesses, and a link connection engaging said recesses, said link connection carrying the stopper proper, said stopper having an upwardly-extending head and a downwardly-extending front portion, which when the plug of the stopper rests lightly on the top of the neck slopes downward from the upper front ridge of the plug toward the arc described by the loop P of the locking-lever, and of a second lug projecting from the opposite side of said neck having formed therein recesses which are adapted to receive a locking-lever carrying a downwardly-extending loop adapted to operate over said inclined front portion, all parts being arranged and operated substantially as herein shown and described.

660,516. MEANS FOR OPERATING CHURNS. WILLIAM H. LE SUER and FRED R. BASSETT, Paw Paw, Mich. Filed Apr. 2, 1900. Serial No. 11,223. (No model.)



Claim.—The combination of a suitable base with standards A, A, to each side thereof; a barrel or box with trunnions resting in suitable bearings on said standards, one of the said trunnions being provided with a crank; a toggle consisting of links M, N, one end of which is connected to said crank, and the opposite end pivoted to the frame; an actuating-lever G; a pitman therefrom; and links K, K, connecting the end of the pitman pivotally to the links M, N, of the toggle, all coacting substantially as described, for the purpose specified

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660,517. TOY REVOLVER. THOMAS H. LEWIS and GEORGE W. TERHORST, Pittsburg, Pa. Filed Mar. 23, 1900. Serial No. 9,840. (No model.)



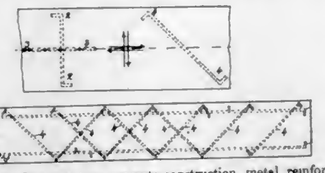
Claim.—1. In a magazine toy pistol, the combination with the integral handle and barrel portion forming the body which is provided with a suitable recess, of a magazine rotatably mounted within said recess and provided with a series of peripherally-arranged trip-lugs, a retaining-plate mounted within the recess for securing a series of caps upon the cylinder, said cylinder and plate being adapted to rotate in unison, a firing-pin carried by the body portion and adapted to be operated by the engagement therewith of the trip-lugs carried by the rotatable magazine, and a closure-plate pivotally connected to the handle and adapted to inclose said magazine-cylinder, substantially as described.

2. In a magazine toy pistol, the combination with the body portion, of a rotatable magazine-cylinder secured thereto and provided with peripherally-arranged trip-lugs, a retaining-plate adapted to rotate in unison with the cylinder and secure the charge of explosive caps thereon, means carried by the body portion for exploding said caps, a pivoted closure-plate carried by the body portion for inclosing said cylinder, and means for securing said closure-plate in the closed position, substantially as described.

3. In a toy pistol, the combination with the body portion having a recess, of a magazine-cylinder rotatably mounted within said recess and provided with a series of peripherally-arranged trip-lugs, said cylinder being adapted to have the explosive caps arranged on its periphery, one between each pair of trip-lugs, a retaining-plate mounted within the recess to rotate in unison with the cylinder, said retaining-plate provided with a series of circumferentially-arranged clamps extending at right angles to the plate to engage and hold the caps in position on the cylinder, and spring-actuated means carried by the body portion and adapted to be operated by the trip-lugs of the magazine-cylinder for exploding the caps carried by said cylinder, substantially as described.

4. In a magazine toy pistol, the combination with the integral handle and barrel portion forming the body which is provided with a suitable recess, of a circular magazine rotatably mounted within said recess and provided with a series of peripherally-arranged trip-lugs, a circular retaining-plate mounted within the recess to rotate in unison with the magazine-cylinder, said retaining-plate having a series of circumferentially-arranged clamps extending outwardly at right angles to the plate, one between each pair of trip-lugs and adapted to secure the explosive caps upon the periphery of said cylinder, and a spring-hammer carried by the body portion and adapted to be actuated by the trip-lugs of the magazine for exploding the caps carried on said cylinder, substantially as described.

660,518. CEMENT-AND-STEEL CONSTRUCTION. FREDERICK MELBER, Pittsburg, Pa. Filed Aug. 14, 1899. Serial No. 727,123. (No model.)



Claim.—1. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the calculated shearing strains.

2. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the resultant of the calculated shearing strains.

3. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the calculated shearing strains, and other metal reinforcing-bars embedded in said construction to resist the tension strains.

4. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the resultant of the calculated shearing strains, and other metal reinforcing-bars embedded in said construction to resist the tension strains.

5. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the calculated shearing strains, and other metal reinforcing-bars embedded in said construction through the point of application of the resultant of the tension strains.

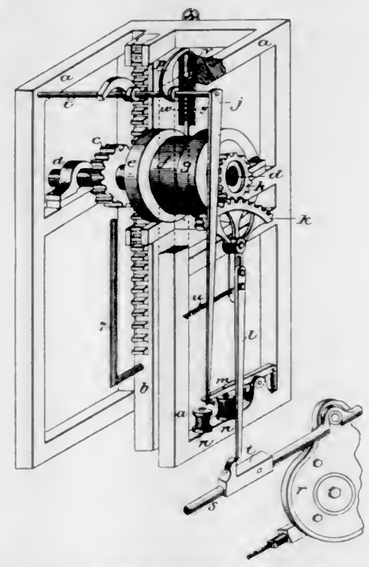
6. In cement or concrete construction, metal reinforcing-bars, unattached at their ends to other metal reinforcing-bars, embedded therein transversely to the resultant of the calculated shearing strains, and other metal reinforcing-bars embedded in said construction through the point of application of the resultant of the calculated tension strains.

7. In cement or concrete construction, metal reinforcing-bars, embedded therein to resist the calculated shearing strains, and other metal reinforcing-bars embedded in said construction to resist the calculated tension strains, all of said bars being mutually unconnected and two or more of said bars, resisting like strains, having their ends overlapping within the construction.

8. In cement or concrete roadways, metal reinforcing-bars embedded therein transversely to the calculated shearing strains and other metal reinforcing-bars embedded therein to resist the calculated tension strains all the said bars being mutually unconnected.

9. In cement or concrete roadways, metal reinforcing-bars embedded therein transversely to the resultants of the calculated shearing strains, and other metal reinforcing-bars embedded therein through the points of application of the resultants of the calculated tension strains.

660,519. SHUT-OFF MECHANISM FOR ENGINES. THOMAS D. MILLER, Springfield, Mass. Filed Dec. 12, 1896. Serial No. 615,457. (No model.)



Claim.—1. In a shut-off mechanism of the kind described; the combination of a suitable frame, a shaft suitably mounted therein; a clutch mechanism mounted upon the shaft, a part only of the clutch being fixed thereto; means to lock the parts of the clutch mechanism together; a segmental gear mounted on the frame and arranged to rotate a part of said clutch mechanism back and forth in unison with the motion of the motor, said segmental gear being operatively connected with a moving part of the motor; means to hold the clutch-locking mechanism out of

engagement normally, and means to release the locking mechanism and allow it to lock the clutch mechanism, and means to operate said releasing mechanism, substantially as and for the purposes stated.

2. In a device of the character described; the combination of a suitable frame; a shaft suitably mounted therein; a clutch mechanism mounted upon the shaft, a part only of such clutch mechanism being fixed thereto; means to lock the parts of the clutch mechanism together; a segmental gear mounted on the frame and arranged to rotate a part of said clutch mechanism, said segmental gear being operatively connected with a moving part of the motor; and moving therewith while the motor is in motion; means to hold the clutch-locking mechanism out of engagement normally; means to release the locking mechanism and allow it to lock the clutch mechanism, means to operate said releasing mechanism, and means to automatically return the locking mechanism to its normal position, substantially as shown.

3. In a device of the character described; the combination of a suitable frame, a shaft suitably mounted therein; a clutch mechanism mounted upon the shaft, a part only of such clutch mechanism being fixed thereto; means to lock the parts of the clutch mechanism together; a segmental gear mounted on the frame and arranged to rotate said clutch mechanism, said segmental gear being operatively connected with a moving part of the motor; and constantly moving therewith while the motor is in motion; means to hold the locking clutch mechanism out of engagement normally; means to release the locking mechanism and allow it to lock the clutch mechanism; means to operate said releasing mechanism; a source of electrical energy; suitable conductors; an armature arranged to hold the locking mechanism in its normal position and means to put the magnets in the circuit thereby moving the armature and releasing said mechanism, substantially as shown.

4. The combination in a device of the character described; of a suitable supporting-frame; a movable rack mounted therein; a shaft as *d*, a gear as *c* mounted on said shaft; a clutch mechanism mounted on said shaft, a part of which is fixed to said shaft and the other part loose thereon; a gear as *h* secured to the loosely-mounted portion of the clutch; means to lock the two parts of the clutch together; means to operate said locking mechanism at a predetermined time; an operative connection between the rack and the motor-valves by which the supply of motive force is shut off by the moving of the rack and an operative connection between the motor and the clutch whereby the same is operated by the motor, substantially as and for the purposes stated.

5. The combination in a shut-off mechanism; of a suitable supporting-frame; a shaft as *d* mounted therein; a gear as *c* mounted on the shaft and fixed thereto; a rack *b* arranged with its teeth to mesh with the teeth of the gear *c*; a clutch *f* fixed to said shaft; a clutch *g* and a gear *h* secured together, the two being loosely mounted on said shaft; means to lock the two parts of the clutch together; a pin as *v* arranged to release the locking mechanism; means to move said pin when free; a rock-shaft as *i* having a latch *p* mounted thereon and arranged to engage the pin *v*; means to hold the rock-shaft in fixed position; means to release it and allow it to rotate and set free the pin *v* thereby releasing the clutch-locking mechanism; operative connection between the gear *h* and the motor, and operative connection between the rack and the valves whereby the rotating of the rock-shaft will, when the releasing mechanism is operated, set free the locking mechanism, and the motion imparted by the motor will operate the rack and thereby shut off the supply of motive force to the motor, substantially as and for the purposes shown.

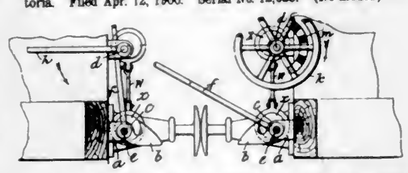
6. The combination in a shut-off mechanism for motors; of a suitable frame; a shaft *d* mounted therein and having a gear *e* mounted on said shaft; a rack *b* movably mounted in said frame with its teeth in engagement with the teeth on the gear *c*, a two-part clutch mechanism mounted on said shaft, one part being secured to the shaft and the other loosely mounted thereon; a gear *h* secured to the loosely-mounted part of the clutch mechanism; means to restrain the locking mechanism; a rock-shaft *i* having a latch *p* arranged to operate the restraining mechanism engaging the clutch-locking mechanism and having a latch 6 also mounted thereon, means to hold the rock-shaft in fixed position; means to release the same; a rod 7 connected to the rack and arranged to engage the latch 6; operative connection between the motor and the gear *h* and operative connection between the rack and the motor-valves, substantially as shown and described.

7. The combination in a shut-off mechanism of a rack, and means to move the same by the action of a motor, said rack being provided with a recess, a pin arranged to engage said recess when the rack is moved to bring the opening into registry with the pin, a spring arranged to force said pin into the recess whereby the rack is held in position, and operative mechanism between the rack and shut-off valve substantially as shown.

8. In a shut-off mechanism, a movable rack, operative mechanism between a motor and rack, a block arranged to bear against the rack, a set-screw arranged to bear against the block whereby friction may be produced between the block and rack, a clutch mechanism to move the rack and a lever in engagement with the motor and mechanism to operate the clutch, substantially as shown.

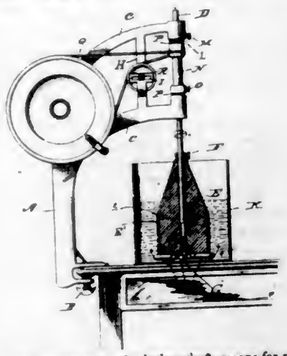
9. In a shut-off mechanism, a clutch mechanism consisting of a part *f* having a transverse opening, a clutch-block arranged therein and projecting beyond one face thereof, a spring arranged to move said clutch-bar, a part *g* provided with an annular recess *i* and a radial channel i^2, means to operate said clutch-block and a lever and latch arranged to hold the clutch-block in normal position, means to release the lever, and operative mechanism between the clutch and shut-off mechanism, substantially as shown.

660,520. CAR-COUPLING. ALBERT E. MILLS, Branxholme, Victoria. Filed Apr. 12, 1900. Serial No. 12,623. (No model.)
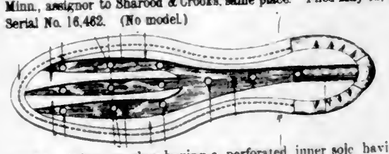


Claim.—In a car-coupler, the combination with a draw-head provided at one end with a hook, the front face of said hook being inclined; of a shaft passing transversely through said draw-head in rear of said hook, a link rigidly secured to said shaft, an eccentric mounted upon said shaft, a counter-shaft mounted adjacent to said transverse shaft also provided with an eccentric, means for operating said counter-shaft from both sides of the car, and a connection between the eccentric upon the transverse shaft and the eccentric upon the counter-shaft, substantially as described.

660,521. CHURN. OLIVER A. MORROW, White Hall, Ill. Filed Feb. 16, 1900. Serial No. 5,418. (No model.)



Claim.—The combination of a dasher-shaft, means for revolving said shaft, a dasher removably secured to said shaft and consisting of a cylindrical body with central passage therethrough through which the said dasher-shaft passes, a band encircling the lower end of said body and cylindrical tubes open at both ends and secured to the said band and bottom of the body, the said tubes being tangentially arranged with relation to the dasher-shaft with their inner ends beveled and held in contact with one another in a circle concentric with and at a distance from the lower end of the dasher-shaft and their outer ends projecting beyond the periphery of the dasher-body, substantially as herein shown and described.

660,522. VENTILATED SHOE. CHARLES K. SHAROOD, St. Paul, Minn., assignor to Sharood & Crooks, same place. Filed May 12, 1900. Serial No. 16,462. (No model.)



Claim.—A boot or shoe having a perforated inner sole having a sole-shaped piece of flexible material secured to the under side thereof, spacing-pieces comprising strips secured in a longitudinal position to said piece of flexible material, said spacing-pieces being interposed between the inner and outer soles and forming air-passages communicating with the perforations in the inner sole, and an air-tube communicating at one end with said air-passages and at the other end with an opening in the heel portion of the shoe.

660,523. GLAND-PACKING. JAMES WALKER, London, England. Filed Apr. 25, 1900. Serial No. 14,365. (No model.)



Claim.—1. A packing consisting of a number of rings, each ring being substantially cup shape in cross-section with a free central opening forming a fluid-pressure space, said rings being superposed so that the bottom of one wedges within the pressure-space of the next to force its top edges apart and into contact with the stationary and moving bodies respectively, substantially as described.

2. A packing consisting of a number of rings substantially cup shape in cross-section with a free central opening forming a fluid-pressure space, each ring having an angular bottom edge and flaring top edges, said rings being superposed so that the bottom angular edge of one wedges within the flaring top edges of the next to force its top flaring edges apart and into contact with the stationary and moving bodies respectively, substantially as described.

3. A packing consisting of a number of rings substantially cup shape in cross-section with a free central opening forming a fluid-pressure space, each ring comprising a filler contained within a casing and shaped to form an angular bottom edge and flaring top edges, said rings being superposed so that the bottom angular edge of one wedges within the flaring top edges of the next to force said top edges apart and into contact with the stationary and moving bodies respectively, substantially as described.

660,524. CONVERTIBLE CARRIAGE. EDWARD R. BRIGGS, Amesbury, Mass. Filed Aug. 24, 1900. Serial No. 27,903. (No model.)

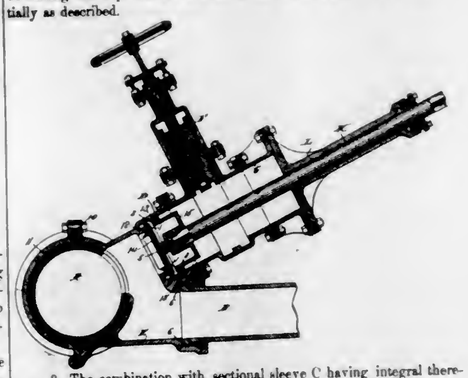
Claim.—1. In a vehicle, the combination of the vehicle-body, a seat having its risers supported on the said body and having its frame movable with respect to the said risers, so that the said frame may be shifted from its position of use to an inoperative position between the said risers, a second seat having its risers spaced wider apart than the risers of the first seat, and means for telescoping the second seat upon the first, with the space between the risers of the second seat receiving and protecting the said first seat, substantially as described.

2. In a vehicle, the combination of the vehicle-body, a pair of risers connected by a cross-piece, a seat-frame located above the cross-piece and pivoted so as to rotate into a position below the latter, a second seat having its risers spaced wider apart than the risers of the first seat, and means for telescoping the second seat upon the first, substantially as described.

660,525. METHOD OF AND MEANS FOR FORMING BRANCH CONNECTIONS WITH WATER-MAINS. HARVEY H. BURRITT, Belleville, N. J., assignor, by mesne assignments, to the A. P. Smith Manufacturing Company, Newark, N. J. Filed Feb. 12, 1892. Serial No. 421,200. (No model.)

Claim.—1. The combination with sectional sleeve C having integral therewith a hub consisting of straight pipe D having shoulder 12 and constructed to coact with a spiral cam-plug, and branch E, of a plug having head 14 seated on said shoulder and a spiral cam-cap 15, substantially as described.

2. The combination with sectional sleeve C having integral therewith a hub consisting of straight pipe D having shoulder 12 and lugs 13, and branch E, of a plug having head 14 seated on said shoulder and cap 15 having rim 3 provided with slots 4 and spiral cam-surfaces substantially as described.



3. The combination with sectional sleeve C having integral therewith a hub consisting of straight pipe D having shoulder 12 and constructed to coact with a spiral cam-plug, and branch E, of a plug having head 14 provided with a ring 1 of rubber, lead, or similar yielding material seated on said shoulder and a spiral cam-cap 15, substantially as described.

4. The combination with pipe D having shoulder 12 and constructed to coact with a spiral cam-plug, of a plug having head 14 seated on said shoulder and spiral cam-cap 15, substantially as described.

5. The combination with pipe D having shoulder 12 and lugs 13, of a plug having head 14 seated on said shoulder and cap 15 having rim 3 provided with slots 4 and spiral cam-surfaces, substantially as described.

6. A plug consisting of a head 14 and spiral cam-cap 15 pivotally connected thereto, so as to rotate independently of said head, substantially as described.

7. A plug consisting of a head 14 and cap 15 pivotally connected thereto, so as to rotate independently of said head, and having rim 3 provided with slots 4 and spiral cam-surfaces, substantially as described.

8. A plug consisting of the head 14 having ring 1 of rubber, lead, or similar yielding material, and spiral cam-cap 15 having a rotary pivotal connection therewith, substantially as described.

9. A plug consisting of the head 14 having ring 1 of rubber, lead, or similar yielding material, and cap 15 having a rotary pivotal connection therewith and having the rim 3 provided with slots 4 and spiral cam-surfaces, substantially as described.

660,526. BRANCH CONNECTION FOR WATER-MAINS AND MEANS FOR FORMING SAME. HARVEY H. BURRITT, Newark, N. J. Filed Mar. 16, 1898. Serial No. 466,223. (No model.)

Claim.—1. The combination with main A and sectional sleeve C having a hub consisting of straight pipe D having interior annular rib 13, and branch E, of a plug having sleeve 18, head 15 mounted to slide within said sleeve and adjustably secured therein by screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated upon the rib 13, and nut 1 on said stud 16, substantially as described.

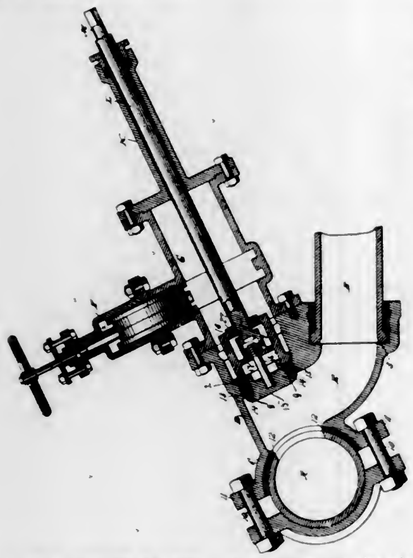
2. The combination with main A and sectional sleeve C having a hub consisting of straight pipe D having interior annular rib 13 having an inclined inner face, whereby the pipe-opening is contracted outwardly, and branch E, of a plug having sleeve 18, head 15 mounted to slide within said sleeve and adjustably secured therein by screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated upon the inclined face of the rib 13, and nut 1 on said stud 16, substantially as described.

3. The combination with pipe D having interior annular rib 13, of a plug having sleeve 18, head 15 mounted to slide within said sleeve and adjustably secured therein by screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated upon the rib 13, and nut 1 on said stud 16, substantially as described.

4. The combination with pipe D having interior annular rib 13 having an inclined inner face whereby the pipe-opening is contracted outwardly, of a plug having sleeve 18, head 15 mounted to slide within said sleeve and adjustably secured therein by screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated upon the inclined face of the rib 13, and nut 1 on said stud 16, substantially as described.

5. The combination with pipe D having interior annular rib 13, of a plug having sleeve 18 having cross-plate 17, head 15 mounted to slide in sleeve 18 and having flange 9, screw-threaded stud 16 carried by said head and passing through plate 17, nut 1 on said stud outside said plate 17, and elastic ring 14 held between flange 9 and the end of sleeve 18 and seated on rib 13, substantially as described.

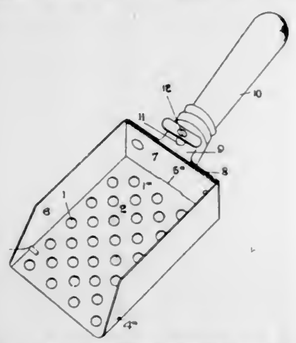
6. The combination with pipe D having interior annular rib 13 having an inclined inner face whereby the pipe-opening is contracted outwardly, of a plug having sleeve 18 having shoulder 2 resting on rib 13 and cross-plate 17, head 15 mounted to slide in sleeve 18 and having flange 9, screw-threaded stud 16 carried by said head and passing through plate 17, nut 1 on said stud outside said plate 17, and elastic ring 14 held between flange 9 and the end of sleeve 18 and seated on the inclined face of rib 13, substantially as described.



7. The combination with main A, sectional sleeve C having a hub consisting of a straight pipe D provided with internal annular rib 13 and branch E, of a plug having sleeve 18 having shoulder 2, head 15 mounted to slide within said sleeve 18 and connected thereto by screw-threaded stud 16, nut 1 on said screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated on said rib 13, gate-valve F, and a plugging device secured to said gate-valve consisting of cylinder K, sleeve L packed in said cylinder and removably secured to the plug, and wrench M in said sleeve L engaging the nut 1, substantially as described.

8. The combination with pipe D having internal annular rib 13, of a plug having the sleeve 18, head 15 mounted to slide in said sleeve 18 and held therein by screw-threaded stud 16, nut 1 on said screw-threaded stud 16, elastic ring 14 held between said head and sleeve and seated on the rib 13, sleeve L removably secured to said sleeve 18, and wrench M in said sleeve L, engaging the nut 1, substantially as described.

660,527. SHOVEL FOR FIRING. HENRY W. CROWTHER, Exeter, England. Filed Feb. 28, 1900. Serial No. 6,629. (No model.)



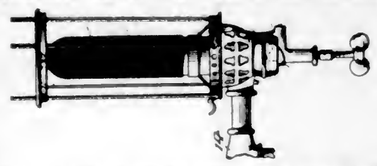
Claim.—1. A shovel having a perforated bottom, in combination with a handle, a sliding plate having registering perforations and a slotted protruding tailpiece, means for guiding the said plate over the said bottom, a cam turning in the slot of the said tailpiece and moving the said plate into opening or closing position at will, and a pin or shaft turning with the said cam and extending up through the said handle in order that it may be operated from a point above the same, substantially as set forth.

2. A shovel having a perforated bottom, in combination with a sliding plate having registering perforations and a slotted, protruding tailpiece, means for guiding the said plate over the said bottom, a cam turning in the slot of the said tailpiece and moving the said plate into opening or closing position at will, means for operating the said cam and a stop for limiting the turning of the said cam that it may lock the said plate in one position or the other when turned, substantially as set forth.

3. A shovel having a perforated bottom, in combination with a sliding plate having registering perforations and a slotted, protruding tailpiece, a cam turning in the slot of the said tailpiece and moving the said plate into opening or closing position at will, a stop for limiting the turning of the said cam that it may lock the said plate in one position or the other when turned, an axially-movable operating-pin for said cam, journaled in the handle of the shovel and a button for the upper end of the said pin above the said handle, for convenience of working by the operator's fingers, substantially as set forth.

4. A shovel having a perforated bottom in combination with a sliding plate having registering perforations and a slotted protruding tailpiece, means for guiding the said plate over the said bottom, a cam turning in the slot of the said tailpiece and moving the said plate into opening or closing position at will, a stop for limiting the turning of the said cam that it may lock the said plate in one position or the other when turned, an axially-movable operating-pin for said cam journaled in the handle of the shovel and a button on the upper end of the said pin above the said handle for convenience of working by the operator's fingers, substantially as set forth.

660,528. INCANDESCENT VAPOR-BURNER. JOHN J. DUNLAP, Canton, Ohio. Filed Mar. 7, 1900. Serial No. 7,654. (No model.)



Claim.—A body provided with a chamber at its upper end and having up and down passages formed in its lower portion, a convexo-concave gauze disk covering said chamber, bars projecting inwardly across said chamber and having passages formed therein which continue the up and down passages in the body, and a head formed at the meeting of the bars and lying above and below the gauze disk, the passages in the bars being below said disk and head, a feed-pipe connected to the body and opening into the up-passage, a pipe connected to the down-passage and provided with a vapor-vent, and a needle-valve controlling such vent, substantially as set forth.

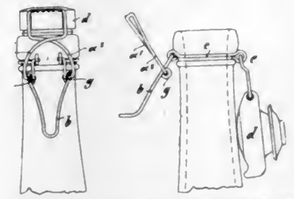
660,529. APPAREL-HAT. ARTHUR L. JOHNSON, Cleveland, Ohio, assignor to Comey & Johnson, same place. Filed July 12, 1900. Serial No. 23,300. (No model.)



Claim.—1. The hat herein described, the same consisting of a flexible plait secured within a strip of folded fabric, said strip of folded fabric formed into a series of convolutions each convolution being stitched to its preceding convolution.

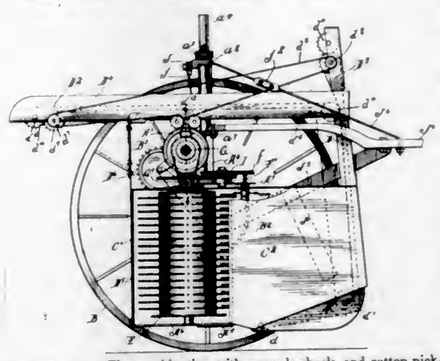
2. The hat herein described, the same consisting of a flexible foundation secured within a strip of folded fabric, said combined foundation and fabric formed into a series of convolutions each convolution being stitched to its preceding convolution.

660,530. VESSEL-CLOSING DEVICE. OTTO KRETSCHMER, Dresden, Germany, assignor to the Actiengesellschaft für Glasindustrie, vormals Friedr. Siemens, same place. Filed Aug. 18, 1900. Serial No. 27,283. (No model.)



Claim.—A closing device for vessels, bottles and the like, consisting in the combination with the neck or mouthpiece of the said vessels, bottles and the like, of a ring having on one side the stopper linked to it and being open at the other side where its extremities are shaped in the form of eyes, a V-shaped locking-lever provided with eyes in its prongs and having its ends bent inward and engaging the eyes of the ring and a bail of wire the legs of which are crossed and have their extremities bent inward so as to engage the eyes of the said locking-lever, substantially as and for the purpose described.

660,531. COTTON-HARVESTER. AXEL LEVEDAHL, Aurora, Ill. Filed Dec. 14, 1898. Serial No. 699,217. (No model.)



Claim.—1. The combination with ground-wheels and cotton-picking mechanism, embracing upright picker-drums, of a vertical duplex arched frame consisting of an upper member on which the ground-wheels are mounted, having vertical side parts and two horizontal cross-pieces, and a lower member carrying the picker-drums, consisting of vertical side parts arranged edge to edge with the vertical side parts of the upper frame member and provided with a top cross-bar offset from the side parts to extend beneath the cross-bars of the upper frame member, said lower frame member being adapted to slide vertically on the upper frame member, and screw-threaded rods and nuts engaging the cross-bars of the frame members and adjustably sustaining the lower from the upper frame member.

2. The combination of the frame member A' having the two elevated cross-bars a^2 and a^7 and also provided with spindles for ground-wheels, the arched frame member A^2 having sliding engagement with the member A', the suspending, screw-threaded rods A^4 secured to the member A^2 and passing through the cross-bars of the member A', and tubular struts a^8 placed about the rods A^4 between the cross-bars of the frame member A'.

3. In combination with the parts of the divided shaft G and the counter-shaft G^2 which rotates the picker-drums, a sleeve having ratcheted connection with both parts of the shaft G, a sprocket separate from and mounted on said sleeve, a friction device for rotating the sprocket with the sleeve, and a chain leading from said sprocket to a sprocket on a counter-shaft.

4. The combination with the divided driving-shaft G and the sleeve G' having ratchet connection with both parts of said shaft and provided with a flange g^8, of the driving-sprocket G^2 revoluble on the sleeve, an adjustable collar on the sleeve and a spring interposed between the collar and the sprocket on the side of the latter opposite the flange on the sleeve.

5. The combination with the frame of a cotton-harvester carrying a receptacle for the cotton, of an elevating-conveyer for the cotton composed of two endless belts each of which has a horizontal and a vertical part, the horizontal part of one of said belts forming the bottom of the receptacle and carrying the cotton forwardly, the vertical parts of the belts being arranged to elevate the cotton between them at the front of the machine, and the horizontal portion of the second belt being arranged at the top of the machine and extended to the rear thereof above the picking machinery.

6. In a cotton-picker containing a vertical drum or drums carrying radial picker-fingers, a guard-flange applied to the lower end of the drum for the purpose of guarding the adjacent picker-fingers from injury by the stalks of the cotton-plants.

7. In combination with a vertical picker-drum, a guard-flange at its lower end extending outwardly a part of the length of the picker-fingers on the drum and provided with notches between the fingers.

8. In combination with a screw-threaded shaft F', a series of screw-threaded hubs fitted thereto from which project radial arms carrying picker-finger cleaners, means for supporting said arms outside of the hubs, and means for securing the hubs from rotation on the shaft.

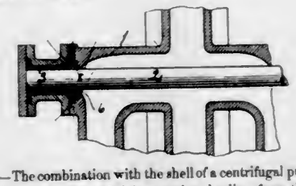
9. In combination with a screw-threaded shaft F' provided with one or more longitudinal grooves, a series of hubs threaded to fit said shaft and provided with radial openings, a series of cleaner-arms inserted in said openings, one or more of which arms project through the hub into the groove or grooves in the shaft.

10. The combination with a vertical shaft for carrying the cleaner-arms, a hub mounted to rotate on said shaft and having radial openings to receive the cleaner-arms, cleaner-arms the inner ends of which rest in said openings, some of which have screw-threaded engagement therewith, interlocking connections between the shaft and some of the arms, an outer ring also having radial apertures through which said arms pass to the hub, and means for locking said arms to the ring.

11. In combination with a screw-threaded shaft F' provided with a longitudinal groove, a hub threaded to fit the shaft and provided with radial sockets for cleaner-arms one or more of which sockets are through openings, a ring exterior to the hub having radial openings for cleaner-arms, cleaner-arms passing through the ring into the hub, one or more of said arms passing through the hub into the shaft groove or grooves, and a set screw or screws applied to the ring in position to engage the cleaner arm or arms which enter the shaft-groove.

12. The combination with the arched frame, the elevated tongue, the side braces J^3 and downwardly-directed arms J^3 in front of the axes of the ground-wheels, an evener pivoted to the upper part of the machine, a deflecting device carried by the arms J^3 and draft connections attached to the evener and passing beneath the deflecting device and proceeding upwardly to the team and also exerting an upward force against the machine-frame.

660,532. JOURNAL-BEARING. JOHN D. MCRAE, Oswego, N. Y., assignor to Thomson Kingsford, same place. Filed May 7, 1900. Serial No. 15,669. (No model.)

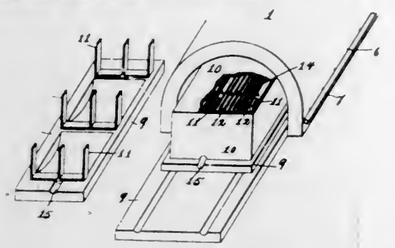


Claim.—The combination with the shell of a centrifugal pump having a journal-opening and a branch inlet-opening leading from the journal-opening to the exterior of the shell, of a ring having a shaft-opening and inner and outer annular grooves connected to each other and to the inlet-opening, said shaft-opening of the ring having a cut-away portion extending from the inner annular groove to one of the end faces of the ring, substantially as set forth.

660,533. METHOD OF ANNEALING AND OXIDIZING METAL SHEETS OR PLATES. BERNARD R. PARR and HARRY E. SHELDON, Leechburg, Pa.; said Parr assignor to said Sheldon. Filed Nov. 6, 1899. Serial No. 735,894. (No specimens.)

Claim.—1. The herein-described method of simultaneously annealing and oxidizing sheets or plates of metal, which consists in placing the sheets or plates in a closed vessel so disposed therein that intervening spaces are formed between the sheets or plates, then raising the sheets or plates to an annealing temperature and subsequently gradually cooling the said sheets or plates to a point at which oxidation ceases and during

said cooling and while the sheets or plates are still in the closed vessel, exposing them to the action of an oxidizing agent.



2. The herein-described method of simultaneously annealing and oxidizing sheets or plates of metal, which consists in placing the sheets or plates upon their edge in a closed vessel or annealing-box, then raising said sheets or plates to an annealing temperature and subsequently gradually cooling the said sheets or plates to a point at which oxidation ceases and during the cooling of said sheets or plates and while they are still in said closed annealing box or vessel exposing them to the action of superheated steam.

3. The herein-described method of simultaneously annealing and oxidizing sheets or plates of metal, which consists in placing the sheets or plates upon their edge in a closed annealing box or vessel, admitting to said annealing-box a gas to exclude the air, then raising said sheets or plates to an annealing temperature in a furnace and subsequently gradually cooling the said sheets or plates to a point at which oxidation ceases and during the cooling thereof and while they are still in said closed vessel exposing them to the action of superheated steam.

4. The herein-described method of simultaneously annealing and oxidizing sheets or plates of metal, which consists in placing the sheets or plates in a closed annealing box or vessel in the presence of a hygroscopic substance, the said sheets or plates being so disposed in said annealing-box that intervening spaces are formed between them, then raising said sheets or plates to an annealing temperature and subsequently gradually cooling them to a point at which oxidation ceases and during the cooling operation and while said sheets or plates are still in the sealed vessel exposing them to the action of an oxidizing agent.

5. The herein-described method of annealing and coloring or coating the surfaces of metal sheets or plates, which consists in heating the sheets or plates in a sealed vessel to approximately 1,200° Fahrenheit, then permitting the sheets or plates to become substantially cooler and then subjecting the same to the action of an oxidizing agent while said sheets or plates are still in the sealed vessel.

6. The herein-described method of annealing and coloring or coating sheets or plates of metal, which consists in charging the said sheets or plates into a sealed vessel disposing the same on their edge therein, then heating the sheets or plates above a dull cherry color, then permitting the sheets or plates to become a substantially dull cherry color, and then subjecting the same to the action of an oxidizing agent, until the said sheets come to a point at which oxidation ceases.

7. The herein-described method of annealing and oxidizing sheets or plates of metal, which consists in heating the sheets or plates to an annealing temperature in a sealed vessel in the presence of a hygroscopic substance, and finally subjecting the plates or sheets to the action of an oxidizing agent.

660,534. **REGULATING DYNAMO-ELECTRIC MACHINES.** CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 18, 1899. Serial No. 727,862. (No model.)

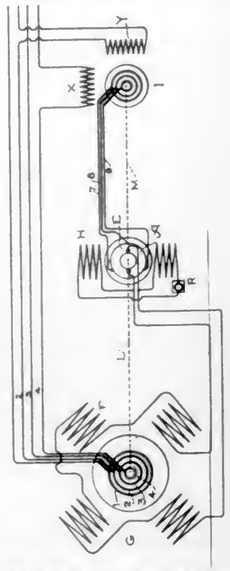
Claim.—1. The combination of an alternating current dynamo-electric machine, and means for regulating said machine by alternating current derived from circuits of said machine but of a frequency different from that of the current flowing in said circuits.

2. The combination of an alternating-current dynamo-electric machine, an exciter therefor, and means for controlling the voltage of the exciter by current derived from circuits of said machine but of a frequency different from that of current flowing in said circuits.

3. A dynamo-electric machine having an exciter, and a frequency-changer arranged to rotate synchronously therewith.

4. The combination of a dynamo-electric machine, an exciter therefor, and means for passing through the exciter-armature an alternating current of a frequency different from that flowing in the leads of said dynamo-electric machine.

5. The combination of a dynamo-electric machine, an exciter therefor, and means for passing through the exciter-armature an alternating current of a frequency and number of phases different from that flowing in the leads of said dynamo-electric machine.



6. An alternating-current dynamo-electric machine, a synchronously-driven exciter, and means for passing through the exciter alternating current of a frequency different from that flowing in the circuit of said dynamo-electric machine.

7. An alternating-current dynamo-electric machine, a synchronously-driven exciter, and means for passing through the exciter alternating current of a phase and frequency different from that flowing in the circuit of said dynamo-electric machine.

8. An alternating-current dynamo-electric machine, a synchronously-driven exciter, and means for passing through the exciter alternating current of a number of phases different from that flowing in the circuit of said dynamo-electric machine.

9. The combination of an alternating-current dynamo-electric machine, an exciter therefor, means for changing the frequency of current derived from the mains of said dynamo-electric machine, and means for regulating the exciter by the current of changed frequency.

10. The combination of a dynamo-electric machine, an exciter therefor and a frequency-changer having the same number of poles as the exciter.

11. The combination with an alternating-current dynamo-electric machine having a given number of poles, of a synchronously-driven exciter having a different number of poles, and means for conveying alternating current between said machine and the armature of said exciter.

12. The combination with an alternating-current dynamo-electric machine having a given number of poles, of a synchronously-driven exciter having a smaller number of poles, and means for conveying alternating current between said machine and the armature of said exciter.

13. The combination of a dynamo-electric machine, a frequency-changer and an exciter having a number of poles equal to the difference between the number of poles of the generator and of the frequency-changer.

14. The combination of a dynamo-electric machine, an exciter therefor, and means for passing through a winding on the exciter an alternating current of a frequency different from that flowing in said machine.

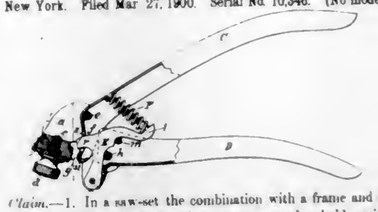
15. The combination of a dynamo-electric machine, an exciter therefor, and a frequency-changer, all driven at speeds bearing a definite relation to each other.

16. The combination of a dynamo-electric machine, an exciter therefor and a frequency-changer, and means for driving the rotating members of said machines at the same speed.

17. The combination of a multiphase-alternating-current dynamo-electric machine, an exciter therefor, a frequency-changer for producing current of a different frequency and a different number of phases from that flowing in said machine, and means controlled by said current for varying the voltage of the exciter.

18. The combination of an alternating-current dynamo-electric machine, an exciter therefor and means for regulating the exciter by alternating current having a different number of phases from that flowing in said machine.

660,535. **SAW-SETTING IMPLEMENT.** CHARLES C. TAINTOR, Elizabeth, N. J., assignor to the Taintor Manufacturing Company, of New York. Filed Mar. 27, 1900. Serial No. 10,346. (No model.)



Claim.—1. In a saw-set the combination with a frame and a handle pivoted in said frame with its short arm arranged to hold against the saw-blade, of a dog pivoted in the frame and having a punch extended toward the anvil and a shank extended in a direction opposite that of the punch, of a handle having a stud which bears against the shank of the dog, and a spring interposed between the shank and the handle which carries the stud, substantially as herein set forth.

2. In a saw-set the combination with a frame and an upper handle pivoted at the upper part of said frame with its short arm arranged to hold against the saw-blade, of a dog pivoted at its lower end in the lower part of the frame and constructed with a punch which extends toward the anvil and a shank which extends in an opposite direction, a lower handle having a stud which bears against the shank of the dog, and a spring between the said shank and the upper handle the whole arranged for joint operation, substantially as herein set forth.

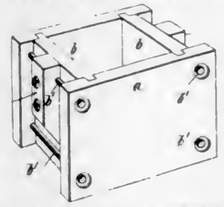
660,536. **HOOF-PAD RETAINER.** WILLIAM F. WAITE, Palmer, Mass., assignor to Wilbur F. Young, Springfield, Mass. Filed July 28, 1900. Serial No. 25,117. (No model.)



Claim.—1. In a hoof-pad retainer, the pad, combined with the U-shaped part of the retainer having its ends turned outwardly to catch under the inside edges of the shoe, and having its middle portion turned upwardly at substantially a right angle to hold the pad in contact with the heel, and the W-shaped part which catches both under and over the U-shaped part, and has its front ends to catch under the inside edge of the front of the shoe; the two parts of the retainer being made entirely separate from the pad and from each other, as shown and described.

2. In a hoof-pad retainer, the shoe, and the pad applied to the foot between the edges of the shoe, combined with the U-shaped part of the retainer having its ends flattened and turned outwardly to catch under the inner edges of the shoe, and the W-shaped part which catches both under and over the U-shaped part and has its flattened ends to catch under the inner edge of the front of the shoe, substantially as set forth.

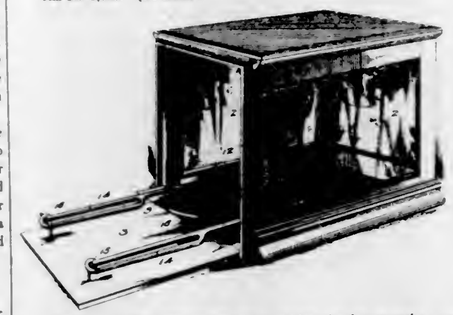
660,537. **CARRIER FOR PACKAGE-FILLING.** GEORGE R. WYMAN, Walpole, Mass., assignor to F. W. Bird & Son, same place. Filed July 26, 1900. Serial No. 24,921. (No model.)



Claim.—1. A carrier for the purpose described consisting of a hollow rectangular structure adapted to receive a container, supports on opposite sides of the upper end of said carrier for outwardly-extending end-closing sections of said container, and a ledge at the lower end of the carrier on which said container may be supported, which ledge extends inwardly beyond the inner wall of the carrier, substantially as described.

2. A carrier for the purpose described which consists of a hollow rectangular structure, adapted to receive a container, a metal plate secured to the lower end of said carrier, the edges of which project inwardly beyond the inner wall of said carrier on one or more sides, and outwardly-projecting supports on two opposite sides of the carrier at the upper end thereof, adapted to support end-closing sections of a container in said carrier in position for gumming, substantially as described.

660,538. **CHEESE-CABINET.** CHARLES C. BROWN, Lewisburg, Pa., assignor, by direct and mesne assignments, of two-thirds to W. F. Hoffa and S. H. Himmelreich, same place. Filed Feb. 15, 1900. Serial No. 5,363. (No model.)



Claim.—1. The combination with a cabinet having opposite ways and at one side a downwardly-opening door hinged to the bottom of the cabinet and adapted to lower into the same plane as and form a continuation of the bottom thereof; of connecting-rods loosely connected to the door near its upper free end; and a shelf mounted in the ways and loosely connected at its inner end to the free ends of said rods.

2. The combination with a cabinet having opposite ways in its side walls and a door hinged, at its lower edge, to the bottom of the cabinet; of a shelf mounted in the ways; hooks on the shelf and near the free edge of the door; said connecting-rods between the hooks, the outer ends of the connecting-rods being provided with slots, the upper sides of which are formed with notches located near the outer ends of the slots and adapted to normally engage the hooks of the door.

3. The combination with the cabinet having opposite ways and a downwardly-opening door hinged to and in the same plane with the bottom of the cabinet; of a sliding shelf carried by the ways, a caster on the under side of the shelf adapted to move over the bottom and the door, hooks projecting from the shelf and the door; and slotted connecting-rods provided with notches near their free ends, and loosely connected to the hooks of the shelf and door.

660,539. **COIN-CONTROLLED ELECTRIC-SHOCK MACHINE.** ETHRUEL M. DAVIS, Chicago, Ill., assignor to the Advance Machine Company, same place. Filed Feb. 12, 1900. Serial No. 4,856. (No model.)

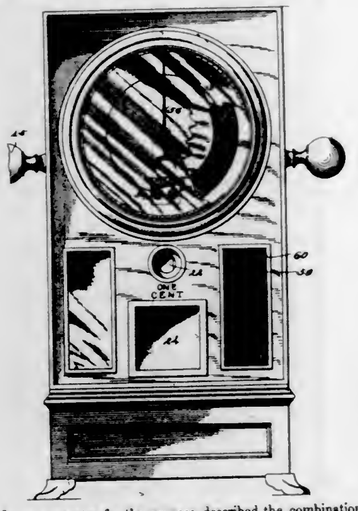
Claim.—1. In an apparatus for the purpose described the combination of a handle, means for closing a circuit through said handle when the latter is moved, a coin-slot, a plunger working through said slot and connected with said handle and a locking-dog for said plunger having a portion adapted to be engaged by the coin for releasing said dog from the plunger, substantially as set forth.

2. In an apparatus for the purpose described the combination of a handle, means for closing a circuit through said handle when the latter is moved, a coin-slot, a plunger working in said slot and connected with said handle and having a tooth in the side thereof, a dog engaging with said tooth and having a cam projecting into said slot in the path of the coin and adapted to support the coin in the slot preparatory to ejectment by the plunger, substantially as set forth.

3. In an apparatus for the purpose described the combination of a yieldingly-supported cross-head, a handle secured to each end thereof, vertical guide-rods on which said cross-head slides, a coin-actuated lock for holding said cross-head against movement and means for closing a circuit through said handles when the cross-head is moved, substantially as set forth.

4. In an apparatus for the purpose described the combination of a handle, a friction-hold movable in unison therewith, an electric circuit having one terminal connected with said friction-hold, an isolated contact

connected with the other terminal of said circuit, a switch carried by said friction-hold and adapted to engage said isolated contact, a catch fixed with relation to said switch and adapted to hold the same when separated from said isolated contact and a coin-controlled mechanism for locking said handle, substantially as set forth.



5. In an apparatus for the purpose described the combination of a handle, a friction-hold movable in unison therewith, an electric circuit having one terminal connected with said friction-hold, an isolated contact connected with the other terminal of said circuit, a switch carried by said friction-hold, a catch fixed with relation to said switch and adapted to engage and hold the same, a part movable in unison with said handle for disengaging said catch and a coin-controlled lock for said handle, substantially as set forth.

6. In an apparatus for the purpose described the combination of a sliding cross-head having handles thereon, a friction-hold on said cross-head, an electric circuit having one terminal connected with said friction-hold, an isolated contact connected with the other terminal of said friction-hold, a switch carried by said friction-hold and adapted to engage said isolated contact, and having a notch, the fixed catch 48 adapted to engage said notch and having a tailpiece adapted to be deflected by said cross-head and a coin-controlled mechanism for locking said friction-hold, substantially as set forth.

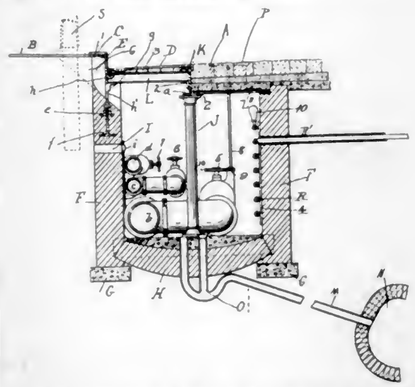
7. In an apparatus for the purpose described the combination of a handle, an isolated contact, an electric circuit with one terminal of which said contact is connected, a switch movable with said handle and connected with the other terminal of said circuit and adapted to connect with said isolated contact, means for holding said switch out of connection with said contact when separated therefrom, means for releasing the last said means and a coin-controlled mechanism for holding the last said releasing means against movement, substantially as set forth.

8. In an apparatus for the purpose described the combination of a handle, an electric circuit, an isolated contact connected with one terminal of said circuit, a switch connected with the other terminal of said circuit and movable in unison with said handle, said handle being also capable of movement independently of said switch, a catch for holding said switch while the handle moves in one direction, means for releasing said catch when the handle is restored to its normal position and a coin-controlled lock for holding said releasing means, substantially as set forth.

9. In an apparatus for the purpose described the combination of a handle, an electric circuit, an isolated contact connected with one terminal of said circuit, a switch connected with the other terminal of said circuit, means for moving said switch in unison with said handle toward said isolated contact, detaining means for holding said switch against movement toward said contact, means for rendering said detaining means inactive when the handle is locked and a coin-controlled means for locking the handle when said detaining means is inactive, substantially as set forth.

660,540. **STREET CONDUIT OR SUBWAY.** MATTHEW E. DUNNE, New York, N. Y. Filed May 10, 1899. Serial No. 716,324. (No model.)

Claim.—1. A conduit provided with a series of removable covers arranged longitudinally and joined end to end and with openings for gaining access to said conduit for the purpose of making repairs and for effecting the removal of the covers, combined with a curb or gutter provided with means for supporting said covers on one side, and a central beam supported by columns within said conduit and adapted to support the opposite sides of said covers substantially as described.



2. A conduit provided with a series of removable covers, arranged end to end and joined by suitable means and said conduit being provided with openings for gaining access to the same for the purpose of making repairs and for effecting the removal of the covers, combined with a curb or gutter provided with means for supporting said covers on one side, a central beam supported by columns within said conduit and adapted to support the opposite sides of said covers and cross-beams supported at opposite ends by the curb or gutter and by said central beam, substantially as described.

3. A conduit provided with a series of removable covers arranged longitudinally and joined end to end and provided with openings for gaining access to said conduit for the purpose of making repairs and for effecting the removal of the covers, combined with a curb or gutter provided with means for supporting said covers on one side, a central beam, supported by columns within said conduit, and adapted to support the opposite sides of said covers, cross-beams supported on opposite sides by the curb or gutter and by said central beam and a series of cross-beams supported by said central beam and by the outer wall of the conduit and carrying a portion of the street-pavement, substantially as described.

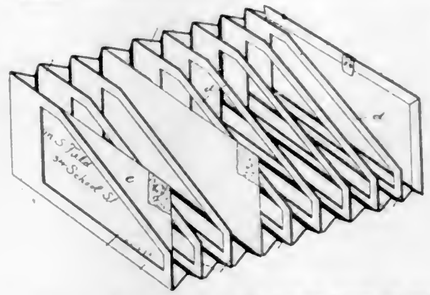
4. A conduit formed with inclosing side walls and bottom wall, having lateral openings or passages for connecting service with dwellings, &c., in the wall adjacent to the street-line and with ventilating-openings in the same wall combined with removable covers, extending from the street-line and a curb or gutter anchored in the same wall and provided with means for supporting one side of said covers, and with openings in line with the ventilating-openings, substantially as described.

5. A curb and gutter forming part of a conduit or subway and consisting of a rail having a horizontal flange substantially on a level with the sidewalk and a web at right angles to said flange and provided with brackets adapted to support the cover of the conduit and with brackets adapted to support the cross-beams of the latter; said curb-piece forming in conjunction with said covers a gutter for conducting away surface water, substantially as specified.

6. A combined curb, gutter and conduit or subway, consisting of a curb having its top or flange substantially at right angles with the web and on a level with the sidewalk and its web provided with a slot and flange, a rail engaging said slot in the web of the curb, and said curb and rail being inclosed in the masonry of the adjacent wall of the conduit as described, brackets formed on said curb and extending outwardly, removable plates forming the gutter and part of the roof of the conduit supported at their inner ends by the brackets on the curb and having their outer portions substantially flush with the surface of the street-pavement, a beam extending longitudinally of the conduit and supporting the opposite sides of the removable plates, columns or posts supporting said beams, beams supporting the street-pavement and supported by the longitudinal beams and by the outer wall of the conduit, manholes provided with suitable covers formed in the street-pavement at convenient distances on the outside of the central beam and columns or posts, openings formed in the inner wall of the conduit and in the curb as described for the ventilation of the conduit, a drain-pipe leading from the bottom of the conduit and suitably connected with a sewer or the like, and means for holding and carrying service pipes, wires, cables, &c., substantially as described.

7. A curb and gutter for streets and avenues in combination with a conduit or subway for receiving, carrying, holding and storing gas, water, steam and compressed-air pipes, pneumatic tubes, telegraph, telephone, electric and power wires, and cables, and all other pipes, tubes, wires and cables for general public use and service, or other purpose as described, consisting of the curb C, the removable cover forming the gutter-piece D, the chambers and passages in the curb and side wall through which the conduit is ventilated, the side walls F, the bottom H, the openings through the walls for service connections I with buildings, the columns or posts J, the cross-beams L and L^2, the beam K supporting said cross-beams, and sustained by the columns or posts J, the drain-pipe O suitably trapped, the manholes P, the tube or hollow pole S connecting with the conduit, devices for holding and carrying service pipes, tubes, wires and cables, and for separating high-tension electric or power wires or cables from telephone-wires so that the service of the latter will not be affected or impaired by the former, and means for lighting the interior of the conduit or subway; all constructed and arranged to operate substantially as described.

660,541. **PORTABLE AND COLLAPSIBLE ASSORTING-CASE.** MARCELLUS S. FIELD, Boston, Mass., assignor of one-third to James T. A. Lewis, same place. Filed Aug. 23, 1900. Serial No. 27,844. (No model.)



Claim.—1. An assorting-case having a bellows bottom and back, inflexible end pieces connected thereto, and partitions parallel with the end pieces, the top and front of the case being open.

2. An assorting-case, having a bellows bottom and back, end pieces connected thereto, partitions parallel with said end pieces and connected to the bottom and back, the top and front of the case being open, and a tying-strap rigidly fastened to one end piece and adapted to be folded around the case when collapsed and means for detachably fastening the free end of the strap to said end piece.

3. An assorting-case, having a bellows bottom and back, inflexible end pieces connected thereto, partitions parallel with the end pieces, and one end piece and the partitions being cut away at the upper front corner, the top and front of the case being open.

4. An assorting-case having a bellows bottom and back, inflexible end pieces connected thereto, the top and front of the case being open, partitions parallel with the end pieces, one end piece and the partitions being cut away on the front corner, a tying-strap rigidly fastened at one end to one end piece and adapted to be folded around the case when collapsed, and means for detachably securing the free end of the strap to the said end piece.

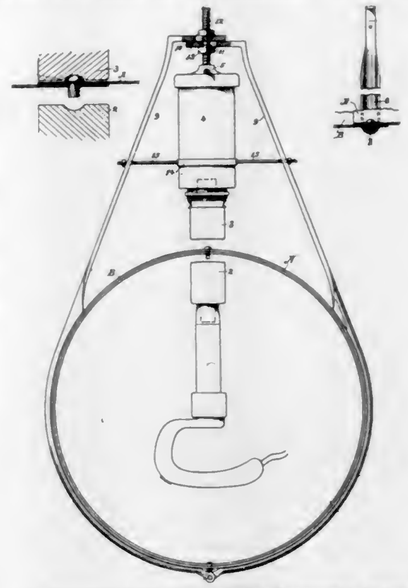
5. A portable assorting-case for letter-carriers having a bellows bottom and back, end pieces connected thereto and partitions parallel with the end pieces and connected to the bottom and back, one end piece and all the partitions having a portion thereof removed whereby the address of the letter next to be delivered may be seen without withdrawing it from the case.

6. A portable assorting-case for letter-carriers, having a bellows bottom and back, end pieces connected thereto, and partitions parallel with the end pieces and connected to the bottom and back, one end piece and the partitions being cut away at the upper front corner, and having a portion thereof removed whereby the address of the letter next to be delivered may be plainly visible, the top and front of the case being open.

7. A portable and collapsible assorting-case for letter-carriers, having a bellows bottom and back, the top and front being open, end pieces connected to said bottom and back, and partitions parallel with the end pieces, one of said end pieces and all the partitions having an aperture therein through which the address of the letter next to be delivered may be seen.

660,542. **PIPE-RIVETING MACHINE.** STANTON FOREMAN, Sacramento, Cal., assignor to the Schaw, Ingram, Batcher & Company, same place. Filed July 11, 1900. Serial No. 23,232. (No model.)

Claim.—1. In an apparatus for riveting pipe-sections together when laid, a hammer by which heads are formed upon the inner ends of rivets, a holder-on with an anvil carried thereby, and pressing against the exterior rivet-head, said anvil having a surface of contact exterior to the rivet-head socket, whereby the joint is simultaneously riveted and closed.



2. The combination in a riveting device of a pneumatic hammer and a heading-tool carried thereby adapted to form a head upon the inner end of a rivet, a holder and means for supporting the same exterior to the pipe and approximately in line with the rivet, an anvil carried thereby having the socket in the end to fit the outer head of the rivet, said socket being diverged to a greater diameter than the rivet-head, and a face upon the anvil exterior to the socket adapted to press upon the exterior pipe-surface and close the joint between the two sections when the riveting is completed.

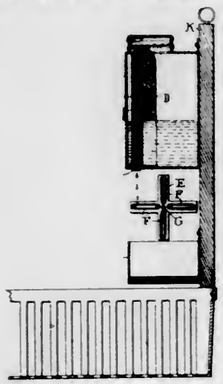
3. The combination in a device for riveting the overlapping ends of pipes when being laid, of a pneumatic riveting-hammer, a heading-tool carried thereby adapted to form heads upon the inner ends of rivets which pass through holes in the pipe ends, a holder exterior to the pipe having an anvil with a chambered end adapted to fit the outer head of the rivet, and a face to close the pipe-joint when the riveting is completed, a holding device for said holder and anvil, consisting of a channeled band designed to fit over the heads of the circular line of rivets with its edges resting upon the surfaces of the outer pipe only, said band being flattened and extending tangentially exterior to the pipe, and having its meeting ends adapted to support the holder-on between them.

4. The combination in a riveting device for pipe-sections when being laid, of a pneumatic hammer, a tool carried thereby adapted to form heads upon the ends of rivets interior to the tube, a holder exterior to the tube, an anvil carried thereby chambered to fit the exterior head of the rivet, a support for said holder consisting of a band, channeled to inclose the circular line of rivets around the joint, with the edges of the band resting upon the surface of the pipe, a joint whereby the band-sections may be opened or closed, converging extensions of the band opposite to the joint and tangential with the pipe, said extensions being bent and overlapped, having openings therethrough, a bolt passing through the opening and fixed to the holder, and locking-nuts by which it is adjustably secured to the ends through which it passes.

5. The combination in a device for riveting the ends of pipe-sections together when being laid, of a tool adapted to form heads upon the inner ends of rivets passing through holes in the overlapping pipe ends, and a hammer by which said tool is actuated from the interior, an exterior anvil chambered to fit the outer head of the rivet, a channeled two-part band hinged together at one side adapted to fit over the circular line of rivets, and the edges rest upon the surface of the pipe, said band-sections extending tangentially away from the pipe opposite to the hinge-joint and having the converging ends bent to overlap and slotted, a screw-threaded rod passing through said slot and fixed to the holder, with adjusting and locking nuts therefor, a band surrounding the cylinder of the holder with rods extending from each side through the convergent sides of the band.

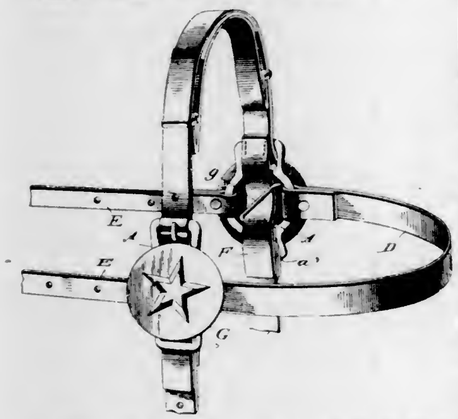
6. A support for a holder-on for pipe-riveting, consisting of a concavo-convex band partially inclosing the pipe and the circular line of rivets which join two contiguous pipe-sections, said band being hinged together at one side, and having the opposite ends flattened and extended tangentially and convergently from the pipe, and connections between said ends, and an anvil-holder in line with the rivets.

660,543. DISINFECTING AND DEODORIZING APPARATUS. CLAUS FREESE, New York, N. Y., assignor to James H. Marsh. Filed Dec. 21, 1899. Serial No. 741,174. (No model.)



Claim.—In a disinfecting and deodorizing apparatus, the combination of a reservoir, means for supplying a regulated quantity of liquid from said reservoir, a series of three or more absorbent vanes supported by and revolving about an axle, a drip-pan, and an inclosing ventilated cover.

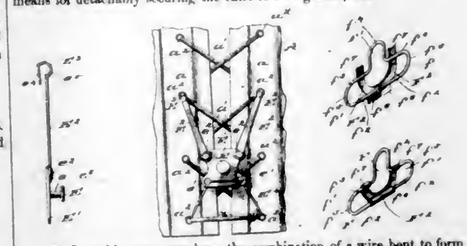
660,544. BUCKLE. WILLIAM P. GILBERT, Sweet Springs, Mo. Filed Oct. 12, 1899. Serial No. 733,407. (No model.)



Claim.—A buckle comprising among its members two side bars having their central portions bent outwardly out of line with their end portions to receive the loops of separate straps, cross-bars connecting said side bars at each side of the outwardly-bent portions of the side bars, one of said cross-bars being provided with a tongue, and the other adapted to receive the loop of another strap, and end bars connecting the side bars at their ends, the end bar farthest from the cross-bar provided with a tongue forming a loop to receive the end of a strap after it has been engaged by said tongue, substantially as described.

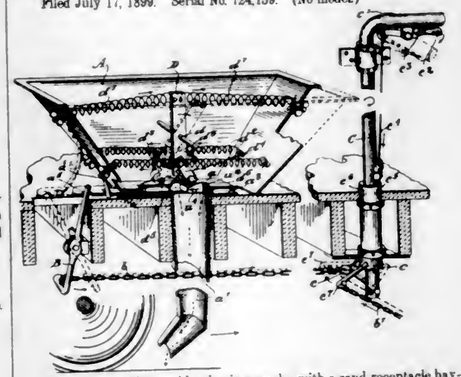
660,545. SKIRT-SUPPORTER. HARRY A. HEINEMAN, St. Louis, Mo. Filed Apr. 5, 1899. Serial No. 711,796. (No model.)

Claim.—1. In a skirt-supporter, the combination with a guard-plate, of two arms independently pivoted to the upper part of said guard-plate so as to allow it to swing laterally, but prevent it swinging outwardly, an opening or openings in the lower part of said guard-plate and adapted to receive a cord for securing the lower part of said plate to the corset, and means for detachably securing the skirt to said guard-plate.



2. In a skirt-supporter loop, the combination of a wire bent to form an upwardly-extending portion with the opening f^4, and the laterally-extending arms f^5; and the Y-shaped piece F^2 bent around the tops f^6 and the bases f^7, of said arms; substantially as shown and described.

660,546. SANDER. BENJAMIN B. JENKINS, Toronto, Canada. Filed July 17, 1899. Serial No. 724,159. (No model.)



Claim.—1. The combination in a sander with a sand-receptacle having an orifice at the bottom, normally closed by a movable valve, of a sand-stirrer located within the receptacle and adjusted to be moved by the valve when it moves and springs located within the receptacle and adjusted to be moved by the said sand-stirrer and means for moving the valve, as and for the purpose specified.

2. The combination in a sander, with a sand-receptacle having an orifice at the bottom, normally closed by a slide-valve, of a lug on the slide-valve, lever located and pivoted within the receptacle and adapted to be moved by contact with the lug on the slide-valve, springs located near the bottom of the receptacle on each side of the lever and attached at the ends to the sides of the receptacle, cross-bars joining the springs close to each side of the lever, and means for moving the slide-valve, as and for the purpose specified.

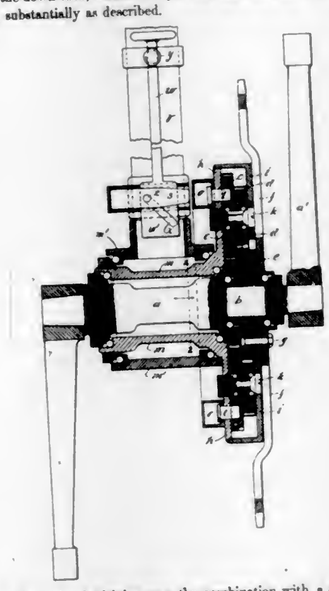
3. The combination in a sander, with a sand-receptacle, having an orifice at the bottom, normally closed by a slide-valve, of the lug a^4, the slide-valve a^2, the lever D, the dog d^4, the stop-pin d^5, springs connecting the lever D and the sides of the receptacle, and means for moving the slide-valve, as and for the purpose specified.

4. The combination with a sander of the class described, having an orifice at the bottom, of the slide-valve a^2, spring a^6, lever B, chain b, crank-shaft C suitably journaled, crank-arm c, and handle c', as and for the purpose specified.

5. The combination with two sanders located in proximity to the wheels of a car, each having an orifice in the bottom, normally closed by a slide-valve, the levers B, chains b and b', the crank-shaft C, crank-arm c and crank-handle c', adapted to operate the nearest slide-valve, of the sleeve c^6, the arm c^7, the chain b' connecting said arm with the lever operating the valve of the further sander, the slide-tooth c^4 adapted to engage with the notch c^5 in the sleeve c^6, the grip-lever c^2 and spring c^3.

660,547. COMPOUND BICYCLE GEAR. HENRY DYER, Chicago, Ill. Filed Oct. 14, 1899. Serial No. 733,665. (No model.)

Claim.—1. In a bicycle driving-gear, a driving-shaft, a driving and a driven sprocket-wheel, a sleeve on said driving-shaft, two facing disks integral with or secured to the end of said sleeve, two parallel shafts having bearings in said facing disks, a spur gear and pinion locked together on each of said shafts, a spur-gear on said driving-shaft and integral therewith, a spur-gear loose on said driving-shaft adjacent said driving-sprocket and secured thereto, said spur-gears on the driving-shaft adapted to engage the spur gears and pinions on said parallel shafts, a ring projecting from the face of the inner disk and having a limited rotary movement, posts on said inner disk within said ring, spiral springs horizontally in said ring to engage with said posts, said ring being provided with a hole and said disk having a similar hole adapted by the movement of said ring to come in line with each other, a slot at opposite poles in the under surface of said ring, a perforation in said disk under and in line with said slot in said ring, a pin having a flat head in said slot to engage with a hole in the spur-gear on said parallel shafts through said perforation in said disk, a wedge-shaped member on the under inner surface of said ring, a similar opposing wedge-shaped member on the upper inner surface of said ring adapted to engage the flat head of said pin, a down-tube of the frame, a pin mounted horizontally on the lower end of said tube on a plane with said ring adapted to engage in the hole in said ring and disk to lock said disk to the down-tube, means for operating said pin from the seat of the bicycle, substantially as described.



2. In a bicycle driving-gear the combination with a driving and a driven sprocket-wheel, of a driving-shaft, a spur-gear integral with or secured to said driving-shaft, a spur-gear loose on said driving-shaft and locked with said driving sprocket-wheel, a crank-hanger, a sleeve within said crank-hanger on said driving-shaft, two facing disks on the end of said sleeve, two shafts having bearings in said disks parallel with the driving-shaft, a spur gear and pinion on each of said parallel shafts, a ring projecting from the face of one of said disks having a limited rotary movement, posts on said disk and within said ring, spiral springs horizontally in said ring engaging said posts, slots in the under surface of said ring, a perforation in said disk underneath said ring and in line with said slots, a pin having a flat head in said slots adapted to engage normally in a hole in the spur-gear on the said parallel shafts through the perforation in said disk, said ring being provided with a hole and said disk having a similar hole adapted by the movement of said ring to come into alinement, a down-tube of the frame, a rod mounted vertically on said down-tube provided with a blade at its lower end, a slot diagonally in said blade, a pin mounted horizontally on the lower portion of said down-tube on a plane with said ring, a slot in said pin, a stud transversely through said slot adapted to engage the slot in the blade on said rod to move said pin outward by the upward movement of said rod.

REISSUES.

11,865. METHOD OF INSULATING ELECTRIC CONDUCTORS. NIKOLA TESLA, New York, N. Y. Filed Sept. 21, 1900. Serial No. 30,722. Original No. 655,838, dated Aug. 14, 1900.

Claim.—1. The method of insulating electric conductors herein described which consists in imparting insulating properties to material surrounding or contiguous to the said conductor by the continued action thereon of a gaseous cooling agent, as set forth.



2. The method of insulating electric conductors herein described which consists in reducing to and maintaining in a frozen or solidified condition the material surrounding or contiguous to the said conductor by the action thereon of a gaseous cooling agent maintained in circulation through one or more channels as set forth.

3. The method of insulating electric conductors herein described which consists in surrounding or supporting the conductor by material which acquires insulating properties when in a frozen or solidified state, and maintaining the material in such a state by the circulation through one or more channels extending through it of a gaseous cooling agent, as set forth.

4. The method of insulating an electric conductor which consists in surrounding or supporting said conductor by a material which acquires insulating properties when frozen or solidified, and maintaining the material in such state by passing a gaseous cooling agent continuously through a channel in said conductor, as set forth.

5. The method of insulating electric conductors, which consists in surrounding or supporting the said conductors by a material which acquires insulating properties when in a frozen or solidified state, and maintaining the material in such state by the continued application thereto of a gaseous cooling agent, as set forth.

6. The method of insulating conductors herein set forth which consists in surrounding or supporting the conductors by a material which acquires insulating properties when in a frozen or solidified state, and maintaining the material in such state by the circulation of a gaseous cooling agent through a circuit of pipes or tubes extending through the said material as set forth.

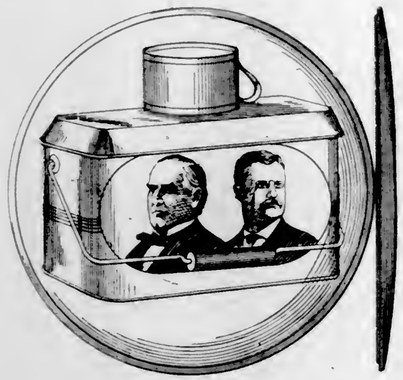
7. The method of insulating electric conductors which consists in laying or supporting the conductors in a trough or conduit filling the trough with a material which acquires insulating properties when frozen or solidified, and then causing a gaseous cooling agent to circulate through one or more channels extending through the material in the trough so as to freeze or solidify the material, as set forth.

8. The method of insulating electric conductors which consists in embedding the same in a moist or plastic compound which acquires insulating properties when in a frozen or solidified state, and maintaining the compound in such state by circulating a gaseous cooling agent through one or more channels extending through the compound, as set forth.

9. The method of insulating electric conductors which consists in laying or supporting the conductors in a trough or conduit, filling the trough with a material which acquires insulating properties when frozen or solidified, protecting the trough from the surrounding medium in which it is laid by an adiathermanous inclosure, and then freezing or solidifying the material surrounding the conductors and maintaining the same in such state by circulating a gaseous cooling agent through one or more channels extending through the same, as set forth.

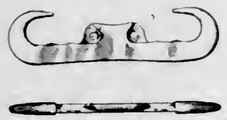
DESIGNS.

33,408. CAMPAIGN-BADGE. JOSEPH N. WILSON, Chicago, Ill. Filed Aug. 2, 1900. Serial No. 25,720. Term of patent 3½ years.



Claim.—The design for a campaign-badge herein shown and described.

30,409. HOOK. JAMES C. COVERT, Watervliet, N. Y., assignor to the Covert Manufacturing Company, same place. Filed Sept. 20, 1900. Serial No. 30,627. Term of patent 14 years.



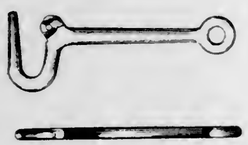
Claim.—The design for a hook, substantially as shown and described.

30,410. HOOK. JAMES C. COVERT, Watervliet, N. Y., assignor to the Covert Manufacturing Company, same place. Filed Sept. 20, 1900. Serial No. 30,628. Term of patent 14 years.



Claim.—The design for a hook, substantially as shown and described.

33,411. HOOK. FRED W. COVERT, Watervliet, N. Y., assignor to the Covert Manufacturing Company, same place. Filed Sept. 25, 1900. Serial No. 31,108. Term of patent 14 years.



Claim.—The design for a hook, substantially as shown and described.

33,412. MOUTHPIECE. AUGUST K. SCHULTE, Philadelphia, Pa., assignor of one-half to John J. Walter, same place. Filed Sept. 4, 1900. Serial No. 29,012. Term of patent 7 years.



Claim.—The design for a mouthpiece, substantially as herein shown and described.

33,413. SPOON OR SIMILAR ARTICLE. GEORGE D. MERRILL, East Orange, N. J. Filed Aug. 10, 1900. Serial No. 26,529. Term of patent 3½ years.



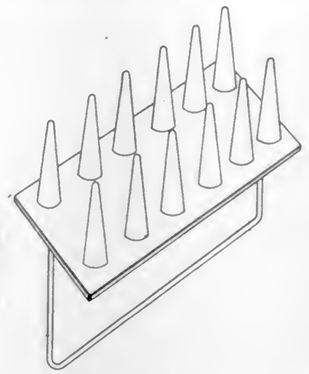
Claim.—The design for a spoon, substantially as shown and described.

33,414. SPOON OR SIMILAR ARTICLE. GEORGE D. MERRILL, East Orange, N. J. Filed Aug. 10, 1900. Serial No. 26,530. Term of patent 3½ years.



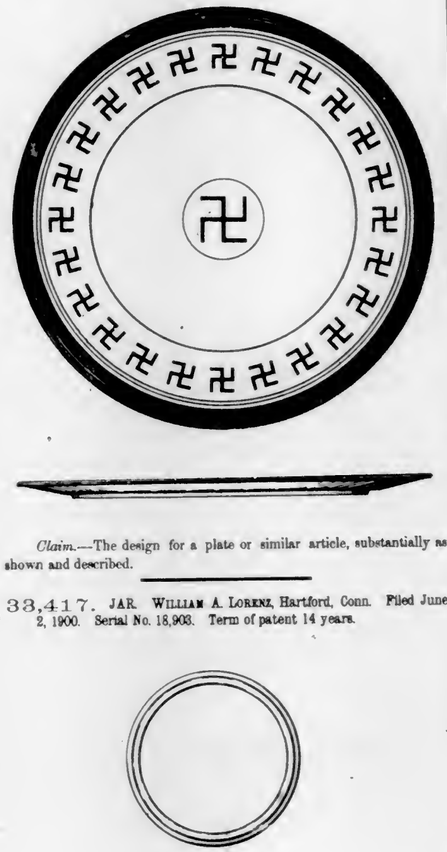
Claim.—The design for a spoon, substantially as described and shown.

33,415. JELLY-WAFFLE FORK. AARON H. BEDLE, Dayton, Ohio. Filed Sept. 27, 1900. Serial No. 31,332. Term of patent 7 years.



Claim.—The design for a jelly-waffle fork, substantially as shown and described.

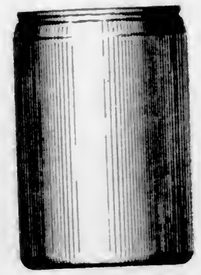
33,416. PLATE OR SIMILAR ARTICLE. ADDISON NORMAN, Davisville, Canada. Filed July 7, 1900. Serial No. 22,885. Term of patent 7 years.



Claim.—The design for a plate or similar article, substantially as shown and described.

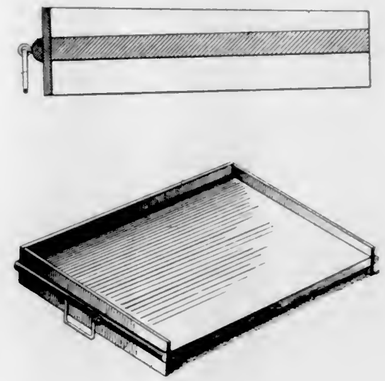
33,417. JAR. WILLIAM A. LORENZ, Hartford, Conn. Filed June 2, 1900. Serial No. 18,903. Term of patent 14 years.

33,417.



Claim.—The design for a jar, as herein shown and described.

33,418. BREAD-BOARD. ISRAEL S. THOMPSON, Ashland, Wis. Filed Oct. 1, 1900. Serial No. 31,723. Term of patent 7 years.



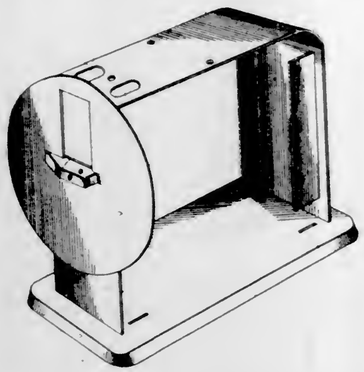
Claim.—The design for a bread-board herein shown and described.

33,419. ACCOMPANIMENT-INDICATOR. EDWIN L. KINGSLEY, Olyphant, Pa. Filed Aug. 4, 1900. Serial No. 25,952. Term of patent 14 years.



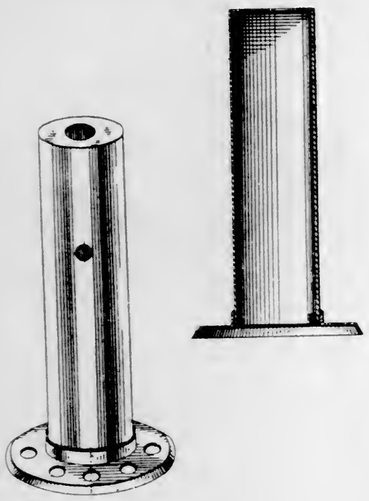
Claim.—The design for an accompaniment-indicator, as herein shown and described.

33,420. SCALE-FRAME. WILLIAM M. PELOUZE, Chicago, Ill. Filed Mar. 28, 1898. Serial No. 675,511. Term of patent 14 years.



Claim.—The design for a scale-frame substantially as herein shown and described.

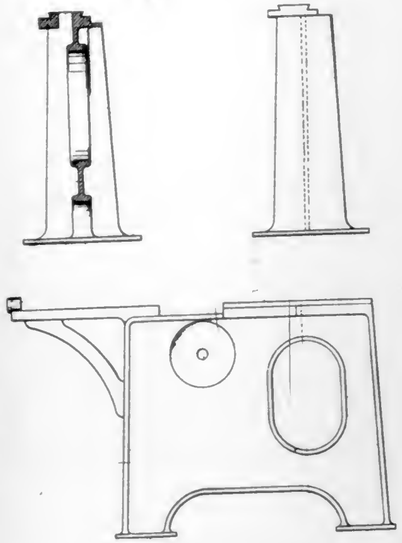
33,421. PUMP-BODY. ABRAHAM L. FOX, Danville, Ill. Filed Sept. 15, 1900. Serial No. 30,183. Term of patent 3½ years.





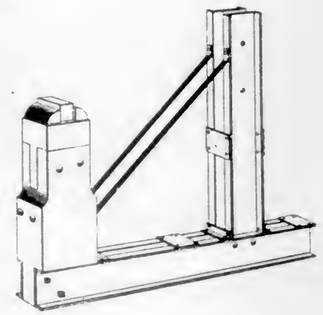
Claim.—The design for a pump-body, substantially as shown and described.

33,422. FRAME FOR HACKSAWS. CHRISTIAN J. WEINMAN, Dayton, Ohio. Filed Sept. 14, 1900. Serial No. 30,074. Term of patent 7 years.



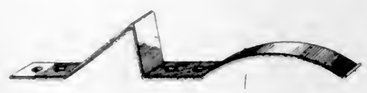
Claim.—The design for a frame for a hacksaw as herein shown and described.

33,423. FRAME FOR POWER-HAMMERS. JAMES W. STUART, Macomb, Ill. Filed May 10, 1900. Serial No. 16,238. Term of patent 7 years.



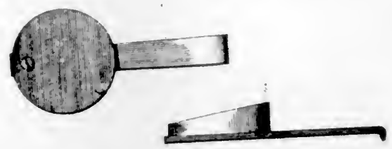
Claim.—The design for a frame for a "power-hammer" as herein shown and described.

33,424. DOOR-CHECK. GEORGE BALLARD, Philadelphia, Pa. Filed May 29, 1900. Serial No. 18,466. Term of patent 3½ years.



Claim.—The design for a door-check substantially as shown and described.

33,425. DOOR-SECURER. EDWARD B. EICHOLTZ, St. Louis, Mo. Filed Aug. 23, 1899. Serial No. 728,244. Term of patent 7 years.



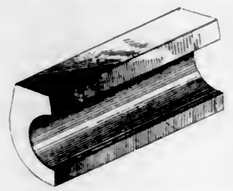
Claim.—The design for a door-securer as herein shown and described.

33,426. WALL-TIE. THOMAS EDWARD GRAFTON, New York, N. Y. Filed Oct. 1, 1900. Serial No. 31,724. Term of patent 3½ years.



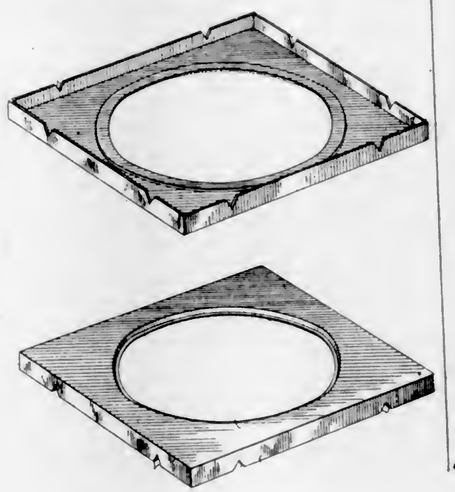
Claim.—The design for a wall-tie as herein shown and described.

33,427. FURNACE-TILE. HENRY G. TIDEMANN, St. Louis, Mo., assignor to the Heine Safety Boiler Company, same place. Filed May 28, 1900. Serial No. 18,332. Term of patent 14 years.



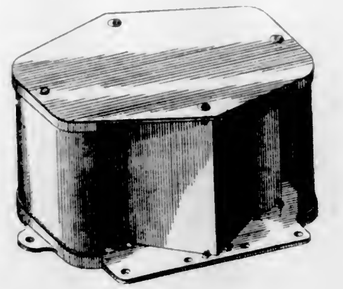
Claim.—The design for a furnace-tile substantially as herein shown and described.

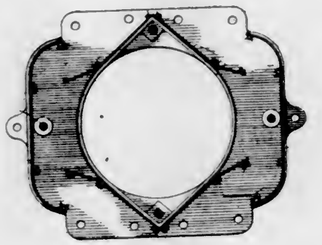
33,428. AUXILIARY STOVE-COVER. MATHEW HOFFMAN, Chicago, Ill. Filed Sept. 29, 1900. Serial No. 31,582. Term of patent 3½ years.



Claim.—The design for an auxiliary stove-cover, substantially as herein shown and described.

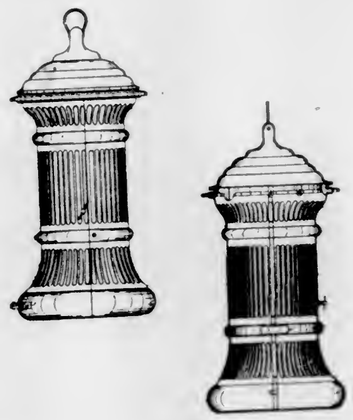
33,429. VENTILATOR. RICHARD M. PANCOAST, Camden, N. J. Filed Sept. 26, 1900. Serial No. 31,215. Term of patent 14 years.





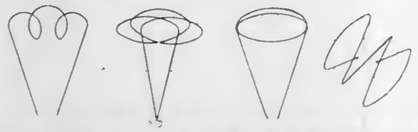
Claim.—The design for a ventilator, as herein shown and described

33,430. ELECTRIC-ARC-LAMP CASING. EDWARD H. BELDEN, Fort Wayne, Ind. Filed Aug. 13, 1900. Serial No. 26,799. Term of patent 14 years.



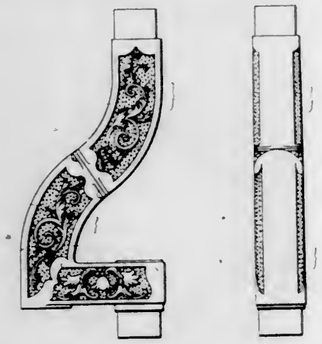
Claim.—The design for an electric-arc-lamp casing, as herein shown and described.

33,431. FILAMENT FOR INCANDESCENT ELECTRIC LAMPS. ADOLPHE A. CHAILLET, Shelby, Ohio, assignor to the Shelby Electric Company, same place. Filed June 11, 1900. Serial No. 19,964. Term of patent 14 years.



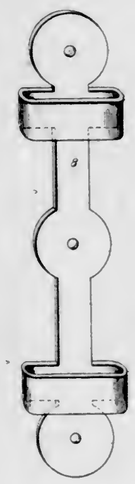
Claim.—The design for a filament for incandescent electric lamps, substantially as herein shown and described.

33,432. TUBULAR CONNECTION FOR PNEUMATIC-DESPATCH TUBES. ROBERT THOMAS JENNEY, London, England, assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Sept. 22, 1900. Serial No. 30,859. Term of patent 14 years.



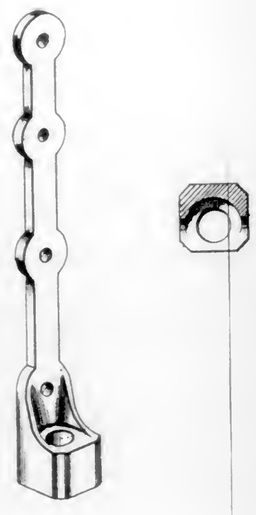
Claim.—The design for a tubular connection for pneumatic-despatch tubes, substantially as shown and described.

33,433. WAGON-BODY BOW-SOCKET. JEFFERSON D. MCCABE, Woodbury, Tenn. Filed Sept. 24, 1900. Serial No. 31,007. Term of patent 14 years.



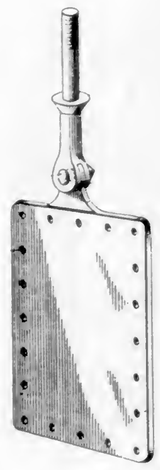
Claim.—The design for a wagon-body bow-socket herein shown and described.

33,434. WAGON-BODY BRACE. JEFFERSON D. MCCABE, Woodbury, Tenn. Filed Sept. 29, 1900. Serial No. 31,583. Term of patent 14 years.



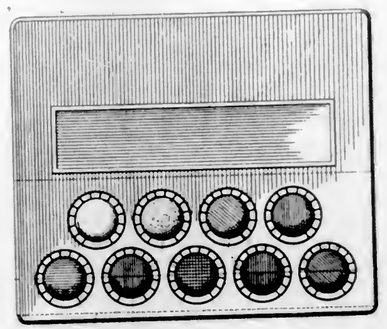
Claim.—The design for a wagon-body brace herein shown and described.

33,435. ENGINE CHEST PLATE AND SUPPORT. FRANK A. POWER, Marlborough, Mass. Filed June 6, 1900. Serial No. 19,333. Term of patent 14 years.



Claim.—The design for an engine chest-plate and support, substantially as shown and described.

33,436. DISPLAY-CARD. ALBERT GERSTENDORFER, New York, N. Y. Filed Sept. 4, 1900. Serial No. 29,010. Term of patent 7 years.



Claim.—The design for a display-card substantially as herein shown and described.

33,437. GAME-TABLE. HENRY L. HASKELL, Ludington, Mich. Filed Jan. 16, 1900. Serial No. 1,695. Term of patent 14 years.



Claim.—The design for a game-table substantially as shown and described.

33,438. BODY FOR BELTS. JOHN STEMBER, New York, N.Y. Filed Sept. 28, 1900. Serial No. 31,453. Term of patent 3½ years.



Claim.—The design for a body for belts, substantially as shown and described.

33,439. BODY FOR BELTS. JOHN STEMBER, New York, N.Y. Filed Sept. 28, 1900. Serial No. 31,454. Term of patent 3½ years.



Claim.—The design for a body for belts, substantially as shown and described.

33,440. BODY FOR BELTS. JOHN STEMBER, New York, N.Y. Filed Sept. 28, 1900. Serial No. 31,455. Term of patent 3½ years.



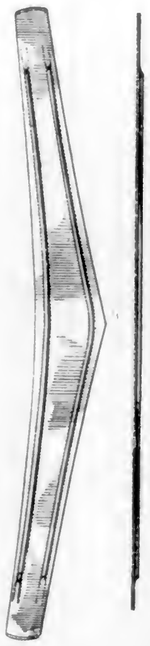
Claim.—The design for a body for belts, substantially as shown and described.

33,441. BODY FOR BELTS. JOHN STEMBER, New York, N. Y. Filed Sept. 28, 1900. Serial No. 31,456. Term of patent 3½ years.



Claim.—The design for a body for belts, substantially as shown and described.

33,442. BELT-BODY. HENRY J. GAISMAN, New York, N. Y. Filed July 30, 1900. Serial No. 25,251. Term of patent 7 years.



Claim.—The design for a belt-body, substantially as shown and described.

33,443. LOW SHOE. ADOLPHUS W. RICH, Milwaukee, Wis. Filed Sept. 24, 1900. Serial No. 31,004. Term of patent 7 years.



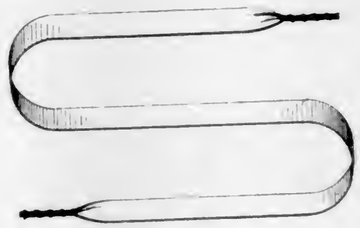
Claim.—The design for a low shoe, substantially as herein shown and described.

33,444. OVERSHOE. FREDERICK F. SCHAFFER, Naugatuck, Conn., assignor to the Goodyear's India Rubber Glove Manufacturing Company, New York, N. Y. Filed Sept. 25, 1900. Serial No. 31,105. Term of patent 7 years.



Claim.—The design for an overshoe, such as shown and described.

33,445. LACING. HUGO L. HILLER, New York, N. Y. Filed Sept. 29, 1900. Serial No. 31,584. Term of patent 14 years.



Claim.—The design for a lacing, substantially as herein shown and described.

33,446. HAT-BAND. WILLIAM KOENIGS, Paterson, N. J., assignor, by mesne assignments, to Edward M. Knox, New York, N. Y. Filed Aug. 21, 1900. Serial No. 27,631. Term of patent 3½ years.



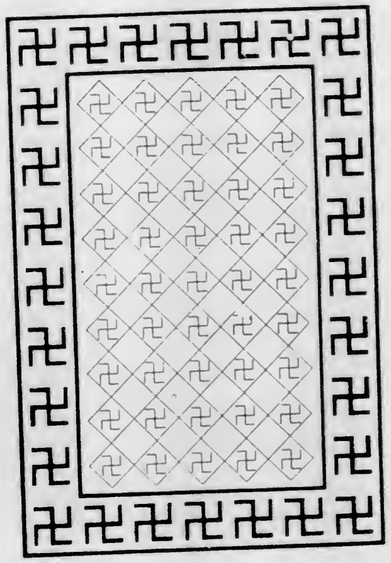
Claim.—The design for a hat-band, substantially as shown and described.

33,447. SURGICAL STOCKING. CHARLES J. SADLER, St. Louis, Mo., assignor to the Bleesmore Instrument Company, same place. Filed Aug. 20, 1900. Serial No. 27,502. Term of patent 14 years.



Claim.—The design for a surgical stocking, substantially as herein shown and described.

33,448. RUG OR SIMILAR ARTICLE. ADDISON NORMAN, Davisville, Canada. Filed July 7, 1900. Serial No. 22,884. Term of patent 7 years.



Claim.—The design for a rug or similar article, substantially such as shown and described.

TRADE-MARKS

REGISTERED OCTOBER 23, 1900.

35,276. CERTAIN NAMED JEWELRY. E. I. FRANKLIN & Co., North Attleborough, Mass. Filed Sept. 27, 1898.

CENTURY

Essential feature.—The word "CENTURY." Used since September, 1892.

35,277. MONTHLY MAGAZINE. THE CURTIS PUBLISHING COMPANY, Camden, N. J., and Philadelphia, Pa. Filed July 10, 1900.

COUNTRY LIFE

Essential feature.—The words "COUNTRY LIFE." Used since 1897.

35,278. VELVETS AND VELVETEENS. THE H. B. CLAFLIN COMPANY, New York, N. Y. Filed Sept. 12, 1900.

PRINCESS

Essential feature.—The word "PRINCESS." Used since January, 1895.

35,279. COTTON PIECE GOODS. SIR ELKANAH ARMITAGE & SONS, LIMITED, Manchester, England. Filed Sept. 11, 1900.



Essential feature.—The representation of a locust in motion and a man riding thereon. Used since July 13, 1883.

35,280. COTTON PIECE GOODS. SIR ELKANAH ARMITAGE & SONS, LIMITED, Manchester, England. Filed Sept. 11, 1900.



Essential feature.—The representation of a crocodile holding a fishing-rod. Used since March 8, 1886.

35,281. CUT SOLES. CHARLES W. ARNOLD & Co., Haverhill, Mass. Filed Oct. 1, 1900.

OKINOLE

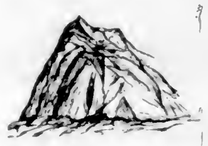
Essential feature.—The word "OKINOLE." Used since September 17, 1900.

35,282. BOOTS AND SHOES. L. C. BLISS & Co., Boston, Mass. Filed Sept. 24, 1900.

COURT

Essential feature.—The word "COURT." Used since July 1, 1900.

35,283. WELTED SHOES. THE E. E. HOGAN SHOE MANUFACTURING COMPANY, Newark, N. J. Filed July 28, 1900.



Essential feature.—A pictorial representation of the Rock of Gibraltar. Used since March 1, 1900.

35,284. CHILDREN'S SHOES. LA PRELLE-WILLIAMS SHOE COMPANY, St. Louis, Mo. Filed Sept. 27, 1900.

COMPANION

Essential feature.—The word "COMPANION." Used since August 4, 1900.

35,285. CERTAIN NAMED MEDICINE. FRED E. FRANCISCO, Lexington, Ky. Filed Sept. 7, 1900.

PRIVATINE

Essential feature.—The word "PRIVATINE" and a monogram formed of the letters "P C C." Used since July, 1898.

35,286. CERTAIN NAMED MEDICINAL COMPOUNDS. THE VAPO-CRESOLENE COMPANY, Stanley, N. J., and New York, N. Y. Filed Sept. 8, 1900.



Essential feature.—The representation of a censer or vaporizer giving off a cloud of vapor and of a reclining figure in connection therewith. Used since November 1, 1896.

35,287. CERTAIN NAMED LINIMENT. THOMAS F. LAING, Bound Brook, N. J. Filed Sept. 18, 1900.



Essential feature.—The letters "L M L" and the representation of an hour-glass. Used September 1, 1900.

35,288. OINTMENTS. THE COOK CHEMICAL CO., Milwaukee, Wis. Filed Sept. 4, 1900.

LANIKOL

Essential feature.—The word "LANIKOL." Used since December 20, 1899.

35,289. OINTMENT. EDWARD J. BREWER, Mullin's Station, Tenn. Filed Sept. 26, 1900.

MICROFUGE

Essential feature.—The word "MICROFUGE." Used since March 1, 1900.

35,290. WHISKY. ROSSKAM, GERSTLEY & Co., Philadelphia, Pa. Filed Sept. 29, 1900.

FAUST'S OWN

Essential feature.—The title "FAUST'S OWN." Used since April, 1891.

35,291. ALE. SPRINGFIELD BREWERIES COMPANY, Springfield, Mass. Filed Aug. 29, 1900.



Essential feature.—The representation of a monk's head surrounded by an annulus of black. Used since June 15, 1900.

35,292. TEAS, COFFEES, AND SPICES. JOHN B. BROWN & Co., New York, N. Y. Filed Sept. 26, 1900.

CARNIVAL

Essential feature.—The word "CARNIVAL." Used since July, 1899.

35,293. FLOUR. HEZEL MILLING COMPANY, East St. Louis, Ill. Filed July 5, 1900.

WHITE BIRD

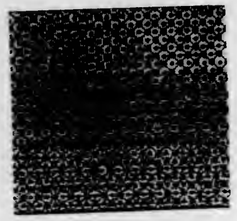
Essential feature.—The words "WHITE BIRD." Used since March 1, 1900.

35,294. WHEAT-FLOUR. ACME MILLING COMPANY, Indianapolis, Ind. Filed July 9, 1900.

WHITE PLUME

Essential feature.—The words "WHITE PLUME" and the representation of a feather or plume to form a background, across and over which are the words "White Plume." Used since January 1, 1882.

35,295. BUTTER. BARTRAM BROTHERS, New York, N. Y. Filed July 20, 1900.



Essential feature.—The representation of stripes arranged one alongside the other and the representation of a network on the stripes. Used since July 6, 1900.

35,296. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed Sept. 20, 1900.

SILVER MOON

Essential feature.—The words "SILVER MOON." Used since September 15, 1900.

35,297. CERTAIN NAMED OIL, GREASE, OR COMPOUND. SWAN & FINCH COMPANY, New York, N. Y. Filed Apr. 17, 1900.

LANO KOLO

Essential feature.—The word or words "LANO KOLO." Used since January 1, 1900.

35,298. CLEANING COMPOUNDS. JOHN FREDRICK SMITH, Palmer, Ind. Ter. Filed May 12, 1900.

LITTLE MAID'S CHOICE.

Essential feature.—The words "LITTLE MAID'S CHOICE." Used since March 5, 1900.

35,299. SOAP POWDER. J. G. HAAS SOAP COMPANY, St. Louis, Mo. Filed Sept. 25, 1900.

Brightlight.

Essential feature.—The word "BRIGHTLIGHT." Used since August 1, 1900.

35,300. SOAPS. MUNYON'S HOMEOPATHIC HOME REMEDY COMPANY, Philadelphia, Pa. Filed Sept. 22, 1900.



Essential feature.—The representation of a man, a woman, and a branch of leaves, which latter the woman is apparently in the act of presenting to the man. Used since September 1, 1900.

35,301. LAUNDRY SOAP. THE N. K. FAIRBANK COMPANY, Chicago, Ill. Filed Sept. 12, 1899.

RAINBOW

Essential feature.—The word "RAINBOW." Used since November, 1888.

35,302. PIANOS. DAVID T. PEEK, New York, N. Y. Filed Sept. 20, 1900.

OPERA

Essential feature.—The word "OPERA." Used since 1880.

35,303. PRESCRIPTION-BOTTLES. OBEAR-NESTER GLASS COMPANY, St. Louis, Mo., and East St. Louis, Ill. Filed Sept. 26, 1900.



Essential feature.—The word "REX" blown or cast in a bottle. Used since January 2, 1896.

35,304. PRESCRIPTION-BOTTLES. OBEAR-NESTER GLASS COMPANY, St. Louis, Mo., and East St. Louis, Ill. Filed Sept. 26, 1900.



Essential feature.—The word "BANNER" blown or cast in a bottle. Used since July 13, 1899.

35,305. PRESCRIPTION-BOTTLES. OBEAR-NESTER GLASS COMPANY, St. Louis, Mo., and East St. Louis, Ill. Filed Sept. 26, 1900.



Essential feature.—The word "VICTOR," blown or cast in a flask. Used since September 4, 1900.

35,306. CERTAIN NAMED HOUSEHOLD FURNISHINGS. GEORGE HEYMAN, New York, N. Y. Filed Aug. 4, 1900.

COCK A DOODLE DOO

Essential feature.—The phrase "COCK-A-DOODLE-DOO." Used since July, 1900.

35,307. CERTAIN NAMED WOODENWARE. E. B. ESTES & SONS, New York, N. Y. Filed Sept. 10, 1900.

EBE

Essential feature.—The letters "EBE." Used since August, 1900.

35,308. BRUSHES. J. J. ADAMS & CO., New York, N. Y. Filed Sept. 27, 1900.

DIANA

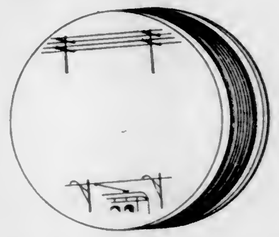
Essential feature.—The word "DIANA." Used since March 1, 1900.

35,309. WHIPS. LOUISA BAKER, Buffalo, N. Y. Filed Sept. 26, 1900.



Essential feature.—The representation of a rampant animal carrying a whip. Used since August 28, 1900.

35,310. WIRE FOR ELECTRIC CONDUCTION. BRIDGEPORT BRASS COMPANY, Bridgeport, Conn. Filed July 9, 1900.



Essential feature.—The representation of a reel bearing on its surface representations of telegraph or telephone and of trolley wires, with the necessary poles for supporting said wires in their useful position. Used since April 25, 1900.

35,311. INCANDESCENT MANTLES AND ATTACHMENTS THEREFOR. PEERLESS GAS LIGHT COMPANY, Chicago, Ill. Filed Sept. 4, 1900.

U-C-A-

Essential feature.—The letters "U-C-A-." Used since July, 1900.

35,312. IRON AND STEEL AND MANUFACTURES OF IRON AND STEEL. AMERICAN STEEL HOOP COMPANY, Jersey City, N. J.; New York, N. Y., and Pittsburg, Pa. Filed July 6, 1900.

ASHCO

Essential feature.—The word "ASHCO.". Used since December 15, 1899.

35,313. CERTAIN NAMED FANCY METALLIC ARTICLES. HUNT & LIGIER, Paris, France. Filed Aug. 24, 1900.



Essential feature.—The letters "J" and "H" and two key-rings. Used since 1883.

35,314. GRINDERS, SHOVELING-BOARDS, AND END-GATES. THE LITCHFIELD MANUFACTURING CO., Webster City, Iowa. Filed Sept. 22, 1900.

KING

Essential feature.—The word "KING." Used since 1895.

35,315. VEHICLES AND MOTORS THEREFOR. SOCIÉTÉ L'ASTER, St. Denis, France. Filed Sept. 13, 1900.



Essential feature.—The symbol of a star and the word "ASTER." Used since November 1, 1899.

35,316. MOTOR-DRIVEN VEHICLES. PNEUMATIC CARRIAGE COMPANY, New York, N. Y. Filed June 6, 1899.

AUTO-TRUCK

Essential feature.—The compound word "AUTO-TRUCK." Used since March, 1898.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ARNDT.

Decided June 23, 1900.

1. APPLICATION, CHANGING DATE OF—DRAWING NOT PROPERLY SIGNED.

Where application papers were received on January 17, 1898, but the drawing was returned because not properly signed, and on January 26, 1898, the drawing was again received properly signed, and the case was then given January 26, 1898, as the date of complete filing, a petition to change the date to January 17, 1898, when the papers were first filed, *denied*.

2. SAME—SAME—SECTION 4889.

Section 4889 of the Revised Statutes provides that an applicant must furnish a drawing signed by the inventor or by his attorney in fact. Unless a drawing is so signed it cannot be received by the Office and made a part of the application, and under the rules and the well-established practice of the Office, until all the parts of an application are received, the application cannot be given a serial number and date of filing as a complete application.

ON petition.

INSTRUMENT FOR INDICATING THE PRESSURE OF GAS.

Application of Max Arndt filed January 26, 1898, No. 668,085.

Mr. Heinrich Lade for the applicant.

DUELL, *Commissioner:*

This is a petition praying that the date of the application be changed to the date when the papers were first received in the Office. From the record it appears that on January 17, 1898, the application papers were received, the drawing, however, not being signed by the attorney, although the applicant's name had been written on the drawing in script in the usual manner. On the same day the Office wrote to applicant acknowledging the receipt of the papers and stating that the drawing was informal and was returned for signature and that the application would be taken up for examination upon the receipt of the drawing correctly signed. On January 26, 1898, the drawing was again received in this Office signed by the applicant, whereupon the application was given that date and forwarded for examination.

Section 4889 of the Revised Statutes provides that an applicant must furnish a drawing signed by the inventor or by his attorney in fact. Unless a drawing is so signed it cannot be received by the Office and made a part of the application, and under the rules and the well-established practice of the Office, until all the parts of an application are received, the application cannot be given a serial number and date of filing as a complete application.

I do not see my way clear to comply with the applicant's request to change the date of the application.

The petition is therefore denied.

EX PARTE MCTAMMANY.

Decided October 12, 1900.

1. ASSIGNEE PROSECUTING AN APPLICATION—CONFLICTING ASSIGNMENTS—OFFICE DECLINING TO DECIDE TITLE.

This Office must refuse to decide the question of the title to an invention when there are conflicting assignments of record or which one of two or more assignees is entitled to be recognized in the prosecution of the case, as it has no judicial power to try and determine such questions, and when there is such a dispute as in this case between assignees the Office will recognize the applicant, leaving the question of the right of the assignees to be settled by the courts.

2. SAME—SAME—REQUEST THAT PATENT ISSUE TO ASSIGNEE.

Where it appears that there are two or more assignments of record in which the whole right is transferred and in only one of the assignments is there a request that the patent issue to the assignee, that assignee should be recognized in the prosecution of the case to the exclusion of the other assignee.

3. SAME—SAME—SAME.

Where there are two or more assignments purporting to convey the exclusive right and in each there is a request that the patent issue to the assignee named therein, the Office should not determine which assignee has the right to the invention and to prosecute the case, but the applicant should be permitted to prosecute it and to appoint an attorney of his own selection, the question which assignee has the right to the invention being left to the courts.

4. SAME—SAME—SAME—ASSIGNEE HAVING ACCESS TO THE APPLICATION.

In any case where there is an assignment of a whole interest in an invention disclosed in an application or an undivided part thereof, whether accompanied by a request or not, the assignee may be permitted to be represented by an attorney of his own selection for the purpose of having access to the application, but not for prosecuting it, unless the applicant can show some good and sufficient reason why such assignee should not be permitted to have access to the case.

POWER of attorney.

MUSICAL INSTRUMENT.

Application of John McTammany filed January 14, 1898, No. 666,653.

Messrs. Wright, Brown & Quinby and *Church & Church* for applicant and Arthur H. Bellows.

Mr. William H. Honiss for the American Automusic Company.

DUELL, *Commissioner:*

The facts in this case, so far as they relate to the

matter under consideration, briefly stated, are these: When the above-entitled application was filed on January 14, 1898, it was accompanied by a power of attorney from the applicant to Wright, Brown & Quinby authorizing them to prosecute the case for applicant. On February 26, 1900, the American Automusic Company as assignee of the applicant filed a paper stating that it revoked all powers of attorney theretofore given in respect to the application and appointed William H. Honiss as its attorney. As the assignment records of this Office showed that the applicant had by an instrument dated July 19, 1899, and recorded February 19, 1900, transferred all his right, title, and interest in the application under consideration to the American Automusic Company and requested that the patent issue to said company as his assignee, the revocation of the power of attorney given by the applicant was accepted and the appointment of Honiss as attorney for the assignee was approved, it being the rule and the practice of the Office to permit an assignee of the whole interest where there is a request that the patent issue to the said assignee to appoint an attorney of his own selection.

On June 6, 1900, after Honiss had taken certain actions on the case, which need not be here specified, there was received in the Office a paper signed by the applicant stating that he appointed Wright, Brown & Quinby as his attorneys and that he revoked all powers of attorney theretofore given in the case. This action of the applicant was concurred in by Arthur H. Bellows and signed by him as the assignee of the applicant. Before any action was taken on this new power of attorney the Assignment Division was called upon for a statement of what was shown in the assignment records relating to the title of the invention disclosed in the application under consideration. This statement showed that since the date of record of the assignment of McTammany to the American Automusic Company there had been placed on record in this Office on March 23, 1900, an instrument dated December 27, 1898, wherein McTammany purported to transfer all his rights in the application under consideration to Bellows. This instrument did not contain a request that the patent be issued to Bellows.

In view of the conflicting assignments on record the interested parties were given notice that a hearing would be had before the Commissioner to determine the question whether the revocation by McTammany of the power of attorney to Honiss which had been given by the American Automusic Company should be approved and the appointment of Wright, Brown & Quinby be accepted. Both parties were represented at the hearing, and it was substantially contended on behalf of the American Automusic Company that as the instrument purporting to convey certain rights to Bellows did not contain a request that the patent issue to him said instrument should not be construed as giving him any right to be recognized in the case and that as McTammany had transferred all his rights to said company and requested that the patent be issued to it he had no further right in the prosecution of the case. To support this contention, reference was made to the case of *ex parte Hogeland*, (70 MS. Dec., 52.) In that case I said:

> Under the decision of Judge Blatchford in *Wright* v. *Randel*, (21 O. G., 493,) the record of an assignment of an unpatented invention is not required by section 4895 of the Revised Statutes, unless it is an assignment on which a patent is to be issued to an assignee, and the record of an assignment which does not direct the issue of the patent to the assignee is not constructive notice to a subsequent purchaser.
>
> I feel constrained to follow this decision and what I understand to be the practice of the Office. The assignment in this case does not direct that the patent issue to the assignee, and therefore the applicant, under the decision cited, by a subsequent assignment directing the issue of the patent to another party, would give that party a title under which he could prosecute the application as against both the applicant and any prior party claiming under an alleged assignment which did not provide for the issue of the patent to the alleged assignee. I appreciate the injustice that may often be done where the request that the patent be issued to a person other than the applicant is omitted, but if such omission be an oversight it will generally be corrected. If any dispute as to the intention arises it must necessarily be settled by the court and cannot be settled in this Office.

The contention of the American Automusic Company was well founded, and I see no reason for departing from the practice indicated in that decision. Where two instruments are recorded in this Office both of which purport to assign the invention disclosed in an application and only one contains a request that the patent issue to the assignee, the Office under the authorities should recognize only the right to prosecute the case of that assignee to whom it is requested that the patent issue, and this to the exclusion of the other assignee.

On October 4, 1900, since the hearing of this case, however, there has been placed on the assignment records of this Office an instrument dated September 21, 1900, signed by McTammany and acknowledged by him before a notary public, in which the assignment to Bellows, dated December 27, 1898, and recorded in this Office on March 23, 1900, is referred to, and in which there is a statement that—

> it was the intention at the time the assignment was executed to include in said assignment the customary authorization that the patent should issue to the assignee—

and there are also in this instrument an authorization and request that the Commissioner issue the Letters Patent that might be granted for the said invention upon said application to Bellows in accordance with the aforesaid assignment. This instrument of September 21, 1900, which contains a request that the patent issue to Bellows, taken in connection with the instrument of December 27, 1898, would be sufficient warrant to authorize the Commissioner to accept the power of attorney given by the applicant and Bellows were there no conflicting assignment on record. There being two assignments of record, however, each of which now contains a request that the patent issue to the assignee named therein, the question arises which one of the assignees should be recognized in the prosecution of the case or whether either should be recognized.

This Office has repeatedly refused to decide the question of the title to an invention when there are conflicting assignments on record or which one of two or more assignees is entitled to be recognized in the prosecution of the case. This Office

has no judicial power to try and determine such questions, and when there is such a dispute, as in this case, between the assignees it has been the uniform practice of the Office to recognize the applicant, leaving the question of the rights of the assignees to be settled by the courts. I see no reason for departing from this practice.

My conclusion, therefore, is that (1) where it appears that there are two or more assignments of record in which the whole right is transferred and in only one of the assignments is there a request that the patent issue to the assignee, that assignee should be recognized in the prosecution of the case to the exclusion of the other assignees of the application; (2) where there are two or more assignments purporting to convey the exclusive right and in each there is a request that the patent issue to the assignee named therein the Office should not investigate the question of title and decide which assignee has the right to the invention and to prosecute the case, but the applicant should be permitted to prosecute it and to appoint an attorney of his own selection, the question which assignee has the right to the invention being left to the courts, where it properly belongs, and (3) in any case where there is an assignment of a whole interest in an invention disclosed in an application or of an undivided part thereof, whether accompanied by a request or not, the assignee may be permitted to be represented by an attorney of his own selection for the purpose of having access to the application, but not of prosecuting it, unless the applicant can show some good and sufficient reason why such assignee should not be permitted to have access to the case.

In this case, as the applicant has appointed Wright, Brown & Quinby his attorneys, the power of attorney should be and is hereby approved. The revocation of the appointment of Honiss, however, is not approved, and he may appear as the attorney for the American Automusic Company for the purpose of keeping said company informed of the status of the case; but Honiss will not be permitted to prosecute the application, as this is to be done by the attorneys appointed by the applicant.

ANNAND *v.* SPALCKHAVER.

Decided October 12, 1900.

1. MOTION UNDER RULE 122 TO DISSOLVE AN INTERFERENCE—TRANSMITTING MOTION.

Where it appears that a party to an interference could and should have made a motion to dissolve the interference within the time allowed by Rule 122 and that he would not be deprived of any substantial rights by failing to have the Examiner again consider the state of facts known during the treatment of the two applications involved in the interference, the motion should not be transmitted to the Examiner.

2. SAME—SAME.

When a motion to dissolve an interference is not made within the time fixed by Rule 122, it is permissible to consider the probability of the grant of the motion to dissolve and whether substantial justice cannot be done without the delay incident to the transmission of the motion to dissolve, its decision by the Primary Examiner, and in proper cases an appeal to the Commissioner.

APPEAL from Examiner of Interferences.

WEB-PRINTING PRESS.

Application of Robert Cumming Annand filed December 10, 1897, Serial No. 661,349. Application of William Spalckhaver filed October 30, 1897, Serial No. 656,906.

Messrs. Arthur C. Fraser & Co. for Annand.

Messrs. Philipp, Phelps & Sawyer for Spalckhaver.

DUELL, *Commissioner:*

The record discloses that four claims, which afterward became four of the issues of the interference, were suggested to Annand, for the purposes of the interference, more than a year before the interference was declared and nearly a year after times were set for taking testimony and that the other issues were claims made by him. This of itself was sufficient to put Annand on his guard and a warning to him to prepare for compliance with all of the rules of the Office relating to the subject of interferences. Therefore it was the duty of Annand when the times were set for taking the testimony to comply with the terms of Rule 122 and make a motion, if he so desired, to dissolve the interference within the twenty days set forth in the rule. Had he done so the motion would have been transmitted as a matter of right to the Primary Examiner. Failing to comply with the rule, it is necessary for him to show good reasons for the delay. This in view of the circumstances of the case, as hereinbefore as well as hereinafter to be referred to, he has failed to do. He delayed for fourteen days to order a certified copy of the file-wrapper and contents of his adversary's application and in making the order failed to order a facsimile of the drawing, not ordering the latter until August 8, 1900. This drawing was received by him on the 19th; but it was not until the 24th that he wrote his client, who resides in England, advising him that a motion to dissolve should be made. Annand seems to have taken his time in which to answer his attorney's letter, and his instructions that a motion to dissolve be made do not appear to have been received until September 18. The motion papers appear to have been prepared on the 21st and were filed in this Office on the 27th.

To me there appears to have been an utter lack of diligence, and no sufficient excuse is made for the long delay.

The motion to transmit should not be granted in view of the delay, reinforced by the peculiar circumstances of the case.

When a motion to dissolve is not made within the time fixed by Rule 122, it is permissible to consider the probability of the grant of the motion to dissolve and whether substantial justice cannot be done without the delay incident to the transmission of a motion to dissolve, its decision by the Primary Examiner, and in proper cases an appeal to the Commissioner.

The motion to dissolve is based upon the ground that the subject-matter in issue is not patentable to Spalckhaver, and in support of the motion ref-

erence is made to various English patents, including several patents granted to the moving party, Annand. The record discloses that in the treatment of the two applications the Examiner considered all of these patents.

Furthermore, Annand is the junior party and sets forth in his preliminary statement that he made the invention in England and that patents for his invention were obtained in Great Britain, some of which are the same as those referred to in the moving papers. He also states that the specification of his present application was received in this country on December 9, 1897, which is nearly two months after Spalckhaver's application in interference was filed. In order to overcome Spalckhaver's record-date, Annand under his preliminary statement is obliged to prove the date of the introduction into the United States of some one or more of his patents and that one or more of them discloses the invention in controversy.

In view of the facts to transmit the motion to dissolve to the Primary Examiner would necessitate an additional delay, which is unwarranted under the circumstances.

The decision of the Acting Examiner of Interferences is reversed—first, because in view of the circumstances Annand could and should have made his motion within the time allowed by Rule 122, and, second, because under the facts disclosed by the record Annand will not be deprived of any substantial right by failing to have the Examiner again consider the state of facts known to him during the treatment of the two applications involved in the interference.

EX PARTE KENDALL.

Decided October 13, 1900.

FINAL REJECTION—FORM OF LETTER.

In the letter which is intended to close the consideration of a case before him and place it in condition for appeal the Examiner should state that the rejected claims are *finally* rejected.

ON petition.

COMPOSITION OF MATTER FOR EXTRACTING PRECIOUS METALS FROM ORES, ETC.

Application of Edward D. Kendall filed November 2, 1897, No. 657,196.

Mr. E. N. Dickerson for the applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner holding that the above-entitled application is abandoned.

It seems that the claims were rejected on December 11, 1897, and in response the applicant filed an amendment on February 7, 1898. On March 7, 1898, the Examiner wrote that "claims 1 and 2 are again rejected upon Montgomery and Moldenhauer of record" for certain reasons set forth. On August 22, 1898, the applicant filed an amendment to the specification and an argument, and on September 1, 1898, the Examiner wrote that "claims 1 and 2 are again rejected upon the references of record." In that letter a statement is made which seems to mean that if the applicant would amend his specification and show that he was the discoverer of a certain fact in regard to the invention the claims might be allowable. On August 20, 1900, the applicant filed an argument on this question, and on September 11, 1900, the Examiner held that the case became abandoned on September 1, 1900. He holds that the rejection of September 1, 1898, was a final rejection and that since the case was in condition for appeal the argument of August 20, 1900, was not such an action as the condition of the case required to save it from abandonment. It is from this action that the present petition is taken.

There is nothing about the letter of September 1, 1898, to indicate that the Examiner intended it as a final rejection, closing the consideration of the case before him. It is in substantially the same words as the letter of March 7, 1898, and it is not contended that that letter was or could properly have been made a final rejection. The Examiner takes the position that a rejection may be final although no words to that effect are used, and in this he is technically correct, for Rules 68 and 134 provide that a case is in condition for appeal after the claims have been "a second time" rejected on the same references and for the same reasons. The fact of a second rejection and not the statement to that effect is technically what closes the consideration of a case before the Examiner; but I believe that in fairness to applicants there should be something about the letter of rejection itself to indicate to them that it is intended as a final rejection or is considered as placing the case in condition for appeal. Otherwise confusion may result and a party may while acting in good faith be deprived of his rights through a misunderstanding as to what action is expected of him.

The Examiner being technically correct, the petition is denied.

However, in view of the fact that applicant was apparently acting in good faith I am disposed to revive the application for the purposes of appeal. If applicant within fifteen days from date files a petition to revive and with it an appeal to the Examiners-in-Chief and pays the necessary fee, the case will probably be revived.

In order to avoid confusion and to have uniformity in the treatment of cases, the Examiners are directed, in addition to observing the practice laid down in *ex parte Eastman*, (57 O. G., 410; C. D., 1891, 178,) to hereafter state in the letter which is intended as closing the consideration of the case before them that the claims are *finally* rejected. This direction is not retroactive, however, and does not mean that cases heretofore acted upon will not be considered properly finally rejected merely because the word "final" has not been used. Neither does it mean that after an Examiner has finally rejected claims in a case he cannot reopen the case for further action on those claims should he consider it advisable to do so.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 5. TUESDAY, OCTOBER 30, 1900. Price—$5 per year.

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Amendment to Rules of Court of Appeals of the District of Columbia.

That in addition to section 2 of Rule 21 the following provision shall be adopted, to wit:

If the petition for an appeal and the certified copies of papers and evidence on appeal mentioned in this and the preceding section of this rule shall not be filed and the case duly docketed in this court within forty days (exclusive of Sundays and legal holidays) from the day upon which notice of appeal is given to the Commissioner of Patents, the Commissioner, upon such facts being brought to his attention by motion of the appellee, duly served upon the appellant or his attorney, may take such further proceedings in the case as may be necessary to dispose of the same, as though no notice of appeal had ever been given. That this addition to said Rule 21 shall not go into effect and operation until and from the first Monday of December next; and that a copy of said Rule 21, as thus amended, be furnished by the clerk of this court to the Commissioner of Patents.

Per Curiam.

Test:

ROBERT WILLETT,
Clerk.

Promulgated October 19, 1900.

Changes in Classification.

(ORDER No 1,377.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 19, 1900.

The following change in the classifications of inventions is hereby directed, to take effect this day:

Transfer class 194, Coin-Controlled Apparatus, from Division XIV to Division VIII.

C. H. DUELL,
Commissioner.

Notice.

Hereafter coupons unless properly filled out will not be accepted in payment for copies of publications.

Notices of Disclaimers.

(ORDER No. 1,374.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 16, 1900.

It is directed that hereafter all notices of disclaimers to patents as published in the OFFICIAL GAZETTE be printed on slips similar to those on which corrections of Letters Patent are now printed and that one of these slips be pasted on each copy of the patent to which the disclaimer applies and one copy be sent to the party filing the disclaimer to be attached to the patent in his possession.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED OCTOBER 30, 1900.

Labels.

7,856.—Title: "RED CROSS LINIMENT." (For a Medicine.) *Red Cross Chemical Company*, Portland, Me., and Boston, Mass. Application filed October 9, 1900.

7,857.—Title: "NELSON'S HAIR RESTORER." (For a Hair-Restorer.) *Olaf Nelson*, New York, N. Y. Application filed August 24, 1900.

7,858.—Title: "CHERRY PEPSIN." (For Cherry-Pepsin.) *J. C. Buffum Company*, Pittsburg, Pa. Application filed October 2, 1900.

7,859.—Title: "ROCKAWAY BEACH COVE OYSTERS." (For Canned Goods.) *Stecher Lithographic Company*, Rochester, N. Y. Application filed October 3, 1900.

7,860.—Title: "LE ROI." (For Canned Goods.) *Stecher Lithographic Company*, Rochester, N. Y. Application filed October 3, 1900.

7,861.—Title: "BETTER BUY." (For Brooms.) *Lee Broom and Duster Company*, Davenport, Iowa, and Lincoln, Nebr. Application filed August 3, 1900.

Prints.

271.—Title: "PRINCE RUPERT." (For Cigars.) *Webb & Co.*, Newark, Ohio. Application filed October 4, 1900.

272.—Title: "FARMERS AND MARKET-GARDNERS UNION PRINT." (For Farm and Garden Produce.) *Farmers and Market-Gardners Union*, New York, N. Y. Application filed July 2, 1900.

273.—Title: "SALOON, STORE AND BARBER FIXTURES." (For Saloon, Store, and Barber-Shop Fixtures.) *Michael J. Bernhard*, Buffalo, N. Y. Application filed September 27, 1900.

274.—Title: "MCCORMICK." (For Harvesting-Machines.) *McCormick Harvesting Machine Company*, Chicago, Ill. Application filed September 29, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 23, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Oct. 17	Oct. 15	26
106	II. Farm Stock, Products, etc.	Oct. 11	Oct. 9	141
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Oct. 9	Oct. 12	152
240	VII. Velocipedes, Games, and Toys.	Oct. 4	Oct. 13	100
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Oct. 3	Oct. 10	151
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 2	Oct. 12	70
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Oct. 2	Oct. 8	141
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 1	Oct. 11	95
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Sept. 29	Oct. 9	84
253	X. Carriages and Wagons	Sept. 26	Oct. 13	107
246	I. Tillage and Fences	Sept. 26	Oct. 11	114
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Sept. 26	Oct. 9	114
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Sept. 26	Oct. 9	104
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Sept. 25	Oct. 12	134
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Sept. 25	Oct. 11	141
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Sept. 25	Oct. 11	147
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Sept. 24	Oct. 11	112
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Sept. 24	Oct. 10	149
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Sept. 24	Oct. 10	144
143	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Sept. 24	Oct. 10	203
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Sept. 24	Oct. 10	152
255	XII. Mechanical Engineering, Store-Service, etc.	Sept. 24	Oct. 9	158
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Sept. 24	Oct. 9	104
120	IX. Hydraulics, Fire-Extinguishers, etc.	Sept. 24	Oct. 9	119
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Sept. 24	Oct. 9	167
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 24	Oct. 9	100
248	XVIII. Steam-Engineering, etc	Sept. 24	Oct. 9	151
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Sept. 24	Oct. 9	271
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 24	Oct. 9	166
98	XXI. Textiles, etc	Sept. 24	Oct. 8	141
102	XIX. Stoves and Furnaces	Sept. 24	Oct. 8	196
	Between one and two months.			
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Sept. 17	Sept. 4	240
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Sept. 6	Oct. 9	109
250	VIII. Furniture, Beds, Store Furniture, etc.	Aug. 29	Aug. 30	306
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 30	Sept. 5	329
	Between three and four months.			
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 6	Aug. 20	189

Total number of applications awaiting action.....5,330

Applications Under Examination—Continued.

Under one month.			
*Designs	Oct. 15	Oct. 19	18
†Trade-Marks	Oct. 18	Oct. 20	26
‡Labels and Prints	Oct. 23	Oct. 22	1

ISSUE OF OCTOBER 30, 1900.

Patents	479—No. 660,548 to No. 661,026,	inclusive.
Designs	44—No. 33,449 to No. 33,492,	inclusive.
Trade-Marks	55—No. 35,317 to No. 35,371,	inclusive.
Labels	6—No. 7,856 to No. 7,861,	inclusive.
Prints	4—No. 271 to No. 274,	inclusive.
Reissues	2—No. 11,866 to No. 11,867,	inclusive.
Total issue	590	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Arizona Territory			New Hampshire	3	
Arkansas	1		New Jersey	20	4
California	13	2	New Mexico Territ'y		
Colorado	2		New York	78	28
Connecticut	11	2	North Carolina	3	
Delaware			North Dakota	1	
District of Columbia	6		Ohio	42	2
Florida	2		Oklahoma Territ'y	3	
Georgia	2		Oregon	2	
Hawaii	1		Pennsylvania	58	5
Idaho			Rhode Island	4	
Illinois	37	4	South Carolina		
Indian Territory			South Dakota	2	
Indiana	15		Tennessee	2	
Iowa	8	1	Texas	11	
Kansas	6		Utah	2	
Kentucky	3		Vermont		
Louisiana			Virginia	3	
Maine	1	6	Washington	5	
Maryland	4		West Virginia	3	
Massachusetts	41	5	Wisconsin	11	2
Michigan	18		Wyoming		
Minnesota	8		U. S. Army		
Mississippi	5		U. S. Navy		
Missouri	16	1			
Montana	2		Total to citizens of the United States	460	62
Nebraska	5				

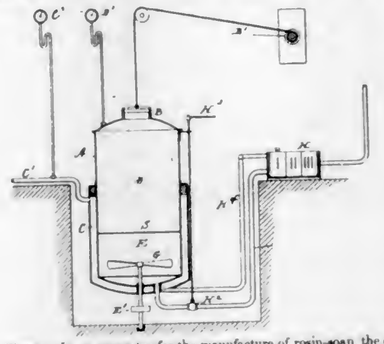
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	1	
Australia			Japan		
Austria-Hungary	3		Java		
Barbadoes			Mexico		
Belgium			Netherlands		
Bermuda			New South Wales		
Brazil			New Zealand	1	
Canada	4	1	Norway		
Chile			Queensland		
China			Russia	1	
Costa Rica			Scotland	1	
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Spain	1	
England	18		Sweden		
Finland			Switzerland		1
France	7		Venezuela		
Germany	25	1	Victoria		
Guatemala					
Haiti			Total to citizens of foreign countries	63	3
India					
Ireland	1				

PATENTS

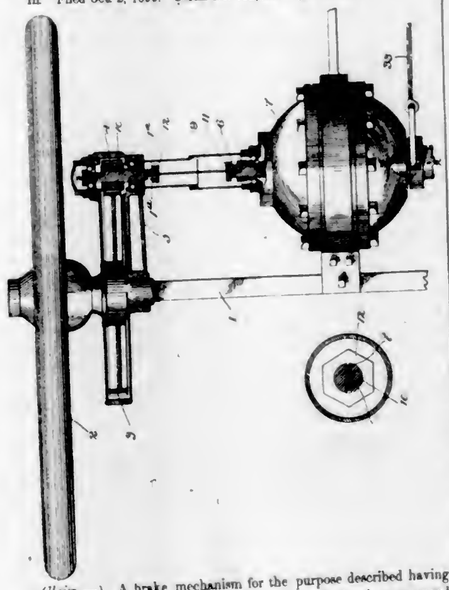
GRANTED OCTOBER 30, 1900.

660,548. APPARATUS FOR MAKING ROSIN-SOAP. FRITZ ARLEDTER, Berlin, Germany, assignor to Louis Keferstein, same place, Edward James Smith, Charlottenburg, Germany, and Georg Huth, London, England. Filed July 22, 1899. Serial No. 724,782. (No model.)



Claim.—In an apparatus for the manufacture of rosin-soap, the combination of a vessel with an inclosed sieve that divides the vessel into an upper and lower compartment, a mechanical mixer beneath the sieve, means for heating the vessel, a filter, and a pipe that connects the filter with the lowermost compartment, substantially as specified.

660,549. BRAKE FOR VEHICLES. OTTO V. BACHELLE, Chicago, Ill. Filed Oct. 2, 1899. Serial No. 732,298. (No model.)



Claim.—1. A brake mechanism for the purpose described having in combination a recessed or flanged hub, circular brake-shoes arranged within the recess or flange of said hub and adapted to impinge thereagainst, a ring around which said brake-shoes are arranged, wedging arms arranged between said brake-shoe and ring, means for holding said brake-shoes against rotation with said ring and means for rotating said ring relatively to said brake-shoes, substantially as set forth.

2. A brake mechanism for the purpose described having in combination a recessed or flanged hub on the member to be arrested, circular brake-shoes arranged within said recess or flange and adapted to impinge thereagainst, a ring around which said brake-shoes are located, wedging arms or levers arranged between said ring and brake-shoes, means for holding said brake-shoes against rotation with said ring, a segment having toothed connection with said ring for rotating it and flanges flanking said segment-ring and brake-shoes for holding them in place in said recessed hub, substantially as set forth.

3. A brake mechanism for the purpose described having in combination a flanged or recessed hub on the member to be arrested, the cap 13 in which said hub is journaled, having the flange 24, a bushing sleeved on said flange, a ring surrounding said bushing, the flanges 22 23 also surrounding said bushing, brake-shoes arranged between said flanges 22 23 and adapted to impinge against the flange of said hub, a ring arranged around said bushing between said flanges 22 23 and around which ring said shoes are located, wedging devices arranged between said shoes and ring, for rotating said ring independently of said shoes, and bolts or stops passing through said flanges 22 23 and also through said shoes for holding the latter against rotation, substantially as set forth.

4. A brake mechanism for the purpose described having in combination a flanged or recessed hub on the member to be arrested, the cap 13 in which said hub is journaled, an outwardly-movable brake-shoe supported on and carried by said cap and adapted to impinge the flange of said hub, a shaft journaled in said cap and carrying means for effecting the movement of said brake-shoe and means for rotating said shaft, substantially as set forth.

5. In a brake mechanism for the purpose described, a motor, driving-wheels and means for quickly checking the rotation of the motor in combination with means for imparting the motion of the motor to the drivers and permitting of a limited independent rotation of the drivers with a gradually-decreasing speed, substantially as set forth.

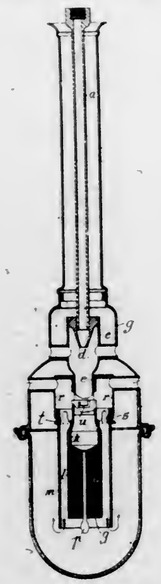
6. In a brake mechanism for the purpose described the combination of a hub having a flange or resistance-band, a member 24 independent of said hub and projecting into said band, a rotary member journaled around said member 24, brake-shoes arranged between said rotary member and band, inclined wedging arms arranged between said shoes and rotary member and means for rotating said rotary member relatively to said shoes, substantially as set forth.

7. In a brake mechanism for the purpose described the combination of a plurality of brake-shoes, a rotary member around which said brake-shoes are arranged, having teeth, wedging arms between said shoes and rotary member, a toothed segment engaging said teeth on the rotary member, a rocker-chaft for operating said segment and flanking-plates between which said shoes, rotary member and said segment are arranged and held and in which plates said shaft is journaled, said shoes, rotary member and segment being arranged in the same perpendicular plane, substantially as set forth.

8. In a brake mechanism for the purpose described the combination of a hub having a resistance-band, a brake-shoe fixed against rotation with said band, a rotary member between which and said band said shoe is located, wedging arms interposed between said shoe and rotary member and means for rotating said rotary member relatively to said shoe, substantially as set forth.

9. In a brake mechanism for the purpose described the combination of a hub having a resistance-band, a member in which said hub is journaled having the inwardly-projecting flange 24, a ring journaled around said flange 24, a brake-shoe interposed between said ring and band, wedging arms interposed between said brake-shoe and ring, a rocker-shaft journaled in said member and means on said shaft for rotating said ring relatively to said shoe, said member being fixed against rotation with said hub, substantially as set forth.

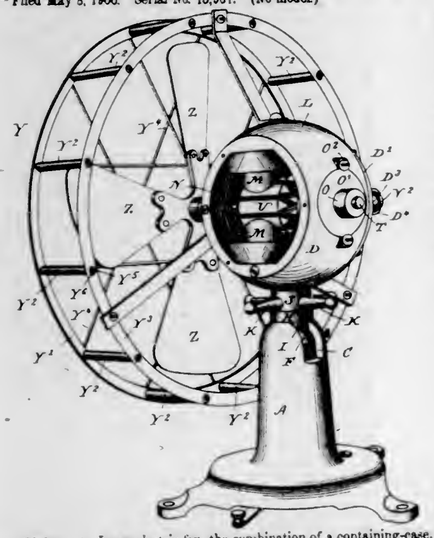
660,550. INCANDESCENT GAS-LAMP. RICHARD BREST, Dresden, Germany. Filed Apr. 4, 1900. Serial No. 11,511. (No model.)



Claim.—1. In an incandescent gas-lamp the combination of a downwardly-burning Bunsen flame, a stocking in connection therewith, a glass cylinder concentrically surrounding the same, a glass bell-jar inclosing said cylinder and being in air-tight connection with a waste-leading pipe for the burned gases, substantially as described.

2. In an incandescent gas-lamp the combination of a stocking *l* suspended with its narrowed end on the head of the burner, a supporting-rod attached to the center of the burner-head and a perforated disk of manganese fastened to said rod and closing the lower opening of the stocking as and for the purpose specified.

660,551. ELECTRIC FAN. JOHN T. BESWICK, New York, N. Y. Filed May 8, 1900. Serial No. 15,987. (No model.)



Claim.—1. In an electric fan, the combination of a containing-case, detachable side plates, and brush-holders mounted in said side plates.

2. In an electric fan, the combination of a containing-case, detachable side plates, and removable brush-holders mounted in said side plates.

3. In an electric fan, the combination of a containing-case, detachable side plates, and brush-holders, said brush-holders consisting of an insulated tube carrying a pivoted bail, an inner removable tube with a slotted head, and a helical spring in said inner tube.

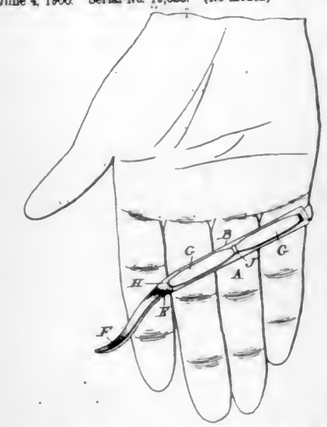
4. In an electric fan, the combination of a containing-case, a standard having a tubular vertical portion concave on its interior and slotted through one side near the top, a column provided with a convex head which conforms to the concavity of the standard and a cylindrical portion secured to the containing-case.

5. In an electric fan the combination of a containing-case, a standard the inner portion of the upper end of which is concave and slotted at one side, and a column connected at one end to the containing-case and provided at the other end with a convex head seated in the concavity of the standard and means for defining the position of the containing-case and column, relative to the standard.

6. In an electric fan, the combination of a containing-case, a standard having a tubular vertical portion concave on its interior and slotted through one side near the top, a column having a convex head which conforms to the concavity of the standard and a cylindrical threaded portion secured to the containing-case, a ring with a depending portion surrounding the standard, and a second threaded ring located over the first-named ring.

7. In an electric fan, the combination of the containing-case, the standard, the column E, ring H and threaded ring J.

660,552. HUSKING-PEG. LINCOLN BISHOP, Lyons, N. Y. Filed June 4, 1900. Serial No. 19,023. (No model.)

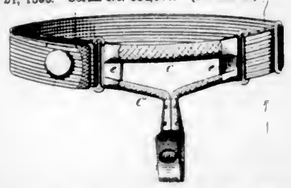


Claim.—1. A husking-peg having one end turned laterally to cross the second joint of the forefinger, and bent down over said finger to form a hook and present a bearing-surface for the thumb, substantially as described.

2. A husking-peg having one end turned laterally to cross the second joint of the forefinger, bent down over said finger to form a hook, and twisted to present the upper surface of said hook to the thumb, substantially as described.

3. A husking-peg having means for attaching it to the hand, one end of said husking-peg turned laterally to cross the second joint of the forefinger, bent down over said finger to form a hook, and twisted to present the upper surface of said hook to the thumb, substantially as described.

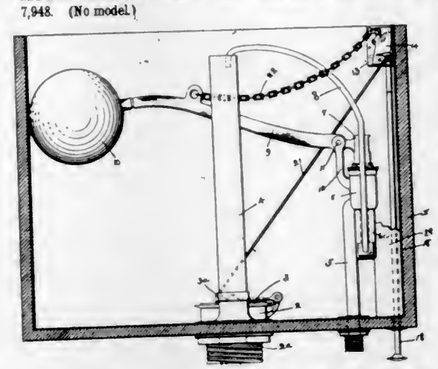
660,553. GARTER. GILBERT H. BLAKESLEY, Bristol, Conn. Filed June 21, 1898. Serial No. 684,077. (No model.)



Claim.—1. A garter comprising an inelastic leg-band, an elastic retaining-section and an independent elastic supporting-section connecting the ends of the leg-band, and a supporting-clasp supported by the supporting-section, substantially as described.

2. A garter comprising an inelastic leg-band, an elastic retaining-section connecting the ends of said band, and an elastic supporting-section supported by the ends of said band, the retaining-section being of relatively less elasticity than the supporting-section, substantially as described.

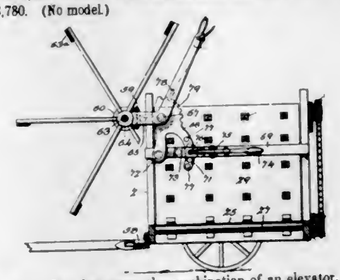
660,554. SANITARY FLUSHING DEVICE. AUGUST F. BLESCH and EDWARD PALMER, Columbus, Ohio. Filed Mar. 9, 1900. Serial No. 7,948. (No model.)



Claim.—1. In a flushing-tank and mechanism therefor, the combination with a tank 1, a water-inlet pipe 5, a valve controlling said water-inlet and a fulcrumed float-carrying arm 9 connected with said valve, of a swinging latch-plate 14 having a laterally-projecting pin, a chain connection between said latch-plate and float-arm, a vertically-movable arm 18 having a catch-head adapted when elevated to engage the laterally-projecting pin of said latch-plate and a connection between said catch-head and the outlet-valve whereby the raising of the former opens the latter, substantially as specified.

2. In a flushing-tank and mechanism therefor, the combination with a tank-body 1, a valve-controlled outlet for said tank and a valve-controlled inlet therefor, of a vertically-movable bar 18, a connection between said bar and outlet-valve, said bar having a projecting head, a swinging latch-plate 14 in the upper portion of said tank having a laterally-projecting pin, friction rings loosely mounted on said pin, the head of said push-bar adapted to contact with and engage the rings of said pin when said push-bar is elevated, substantially as specified.

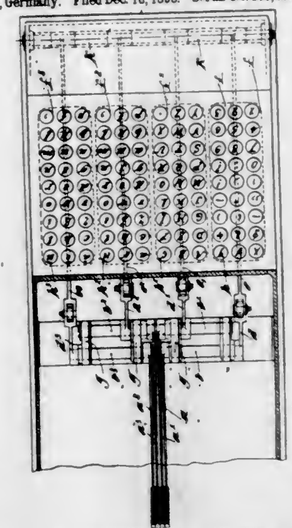
660,555. REEL FOR HARVESTING-MACHINES. HENRY BRACKBUSH, Packwaukee, Wis. Original application filed Mar. 20, 1900, Serial No 9,427. Divided and this application filed July 16, 1900. Serial No. 23,780. (No model.)



Claim.—1. In a harvester, the combination of an elevator, having a roller at its upper end, a shaft 61 in a bearing on the front side of the harvester and geared to said roller, a transverse beam 69 on the harvester-frame, a supporting-bracket pivoted to said beam, having a curved adjusting-arm on its rear lower side, and a rack-segment at its upper end, a locking device on said beam, to engage said adjusting-arm, a lever pivoted to said bracket, having a locking-dog to engage the rack-segment thereof, and provided further at its lower end, with a forward-extending arm, a reel having its shaft journaled in a bearing in said arm, and an extensible telescopic link and knuckle-joints connecting said reel-shaft to said shaft 61, substantially as described.

2. In a harvester, in combination with shaft 61 in a bearing on the front side thereof, and means to rotate said shaft, a supporting-bracket pivoted on the frame of the harvester, having a curved adjusting-arm on its rear side and a rack-segment at its upper end, a locking device for said adjusting-arm, a lever, pivoted to said bracket, having a locking-dog to engage the rack-segment thereof and provided further with a forward-extending arm, a reel having the shaft journaled in a bearing in said arm, and an extensible telescopic link and knuckle-joints connecting said reel-shaft to said shaft 61, substantially as described.

660,556. TYPE-WRITING MACHINE. ERNST W. BRACKELSBERG, Ohligs, Germany. Filed Dec. 16, 1898. Serial No. 699,489. (No model.)



Claim.—1. A type-writing machine comprising several wheels or segments bearing characters situated side by side, said wheels or segments being mounted on rotary axles corresponding in number to the number of the wheels or segments, said axles being arranged side by side and key mechanism for rotating said axles, substantially as set forth.

2. A type-writing machine comprising several wheels or segments bearing characters situated side by side, said wheels or segments being mounted on rotary axles corresponding in number to the number of wheels or segments, said axles being arranged side by side, and means for rotating said axles consisting of pivoted levers corresponding in number to the number of the axles and secured thereto by rods and levers, and means for depressing said first-named levers consisting of keys having characters indicated thereon, and each key having a limit to its vertical movement peculiar to itself, substantially as set forth.

3. A type-writing machine comprising several wheels or segments bearing characters situated side by side, said wheels or segments being mounted on rotary axles corresponding in number to the number of the wheels or segments, said axles being arranged side by side, key mechanism for rotating said axle, and each of said segments having notches on its inner side, a pivoted lever adapted to engage said notches, and means for operating said lever, substantially as described.

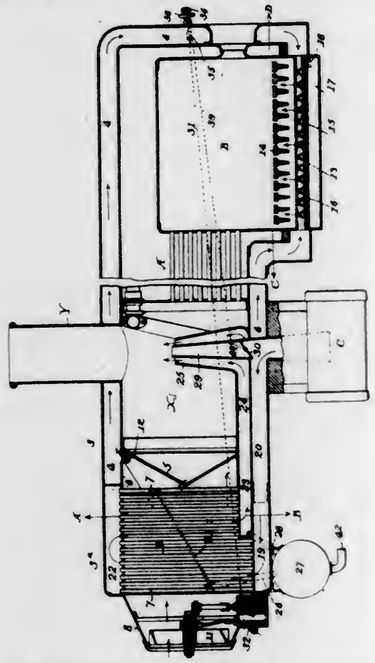
660,557. LOCOMOTIVE-BOILER. FRANZ BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed July 12, 1899. Renewed Mar. 31, 1900. Serial No. 11,019. (No model.)

Claim.—1. The combination with a locomotive-boiler and its smoke-box, of a surrounding lagging and an intermediate chamber, a chamber arranged in advance of the smoke-box and communicating with said intermediate chamber, and means to force air through the chamber in advance of the smoke-box to the intermediate chamber, substantially as set forth.

2. The combination with a locomotive-boiler and its smoke-box, of a surrounding lagging and intermediate chamber, a chamber in advance of the smoke-box, a conical deflecting-plate between said chamber and smoke-box, said chamber having openings 12 communicating with the said intermediate chamber, and means to force air against the deflecting-plate and through said openings, substantially as set forth.

3. The combination with a locomotive-boiler, its fire-box and grate, and its smoke-box, of a surrounding lagging and intermediate chamber 4, a chamber in advance of the smoke-box communicating with said cham-

ber 4, and means to force air through said chambers and between the grate-bars to the fire-box, substantially as set forth.



4. The combination with a locomotive-boiler, its smoke-box and fire-box, of a surrounding lagging and intermediate chamber 4, a chamber in advance of the smoke-box communicating with the chamber 4, a condenser in the chamber in advance of the smoke-box, and means for forcing a current of air over the condenser and through the chambers to the fire-box, substantially as set forth.

5. The combination with a locomotive-boiler and its smoke-box, of a surrounding lagging and an intermediate chamber 4, a conical plate 5 forming the forward end of the smoke-box, the casing of the latter being extended beyond the plate to form a chamber and having openings 12 therein communicating with the chamber 4, and means to force air against said plate and through the openings into the chamber 4, substantially as set forth.

6. The combination with a locomotive-boiler, of a condenser arranged beyond the end thereof, a channel leading from the exhaust to the tubes of the condenser and from the latter to a nozzle 25 below the stack, and means for forcing air over the exterior surface of the condenser-tubes, substantially as set forth.

7. The combination with a locomotive-boiler and its fire-box, of a chamber beyond the end of the boiler, a condenser within said chamber, a channel leading from the exhaust to the tubes of the condenser, and from the latter to a nozzle 25 below the stack, a passage leading from said chamber to the fire-box, and means to force air into said chamber over the exterior surface of the condenser-tubes and from the chamber to the fire-box, substantially as set forth.

8. The combination with a locomotive-boiler, of a condenser arranged beyond the end of said boiler, and a channel leading from the exhaust to the tubes of the condenser and from the latter to a nozzle 25 below the stack, substantially as set forth.

9. The combination with a locomotive-boiler and with a channel, 20, communicating with the exhaust, of a condenser having vertical tubes, chambers 19 and 22, an exhaust-nozzle 25, and channel 24 communicating with the lower ends of a portion of the condenser-tubes, substantially as set forth.

10. The combination with a locomotive-boiler, of the shells 3 and 6, partitions 21, vertical tubes 7, reservoir, and connections whereby the condensed water passing from the condenser is received by the reservoir, substantially as set forth.

11. The combination with a locomotive-boiler and with its exhaust and exhaust-valve 30, of a blower for forcing air below the grate-bars of the boiler, an engine for operating said blower and provided with a stopping and starting valve, and connections between the valve of the engine and exhaust-valve whereby one is closed as the other is opened, substantially as set forth.

12. The combination with a locomotive-boiler and with its exhaust and exhaust-valve 30, of a blower for forcing air below the grate-bars of the boiler, an engine for operating said blower and provided with a stopping and starting valve, connections between the valve of the engine and exhaust-valve whereby one is closed as the other is opened, and means for operating the exhaust-valve independently when required, substantially as set forth.

13. The combination with a locomotive-boiler, exhaust and exhaust-valve, of a condenser, a channel leading to the latter from below the exhaust-valve, and a nozzle surrounding the exhaust-valve and also communicating with the condenser, substantially as set forth.

660,558. **BUTTON.** DANIEL A. CARPENTER, New York, N. Y. Filed May 11, 1900. Serial No. 16,251. (No model.)



Claim.—1. A button composed of a shell and a die united, the shell comprising a hub 1′ containing a shoulder 11, and the die having the dome 2 and upturned portion 20 surrounding the dome, and the die being within the hub with its base next to the bottom of the hub, and with its upturned edge against the shoulder 11, substantially as described.

2. A button composed of a shell and a die or clenching device secured therein, the shell comprising a hub 1′ containing a shoulder 11, and the device in the shell having the upturned portion 20 surrounding its central portion, and confined in the hub by the shoulder 11 extending over it, substantially as described.

660,559. **EXPANSION-BOLT.** ISAAC CHURCH, Toledo, Ohio. Filed June 3, 1899. Serial No. 719,171. (No model.)



Claim.—1. In an expansion-bolt, a cylindrical shell having a longitudinal slot extending from its open end toward the middle of the shell, which slot has a recess or enlarged portion, combined with a conical expansion-piece adapted to enter the open end of the shell, and a radially-projecting portion upon said expansion-piece adapted to slide in said longitudinal slot and to engage said enlarged or recessed portion of the slot.

2. An expansion-bolt comprising a threaded bolt, a sleeve longitudinally slotted from each end inwardly to near its middle, a conical nut adapted to enter the open end of the sleeve, a conical expansion-piece adapted to enter the opposite end of the open sleeve, radial projections upon the nut and upon the expansion-piece, recesses in the longitudinal slots of the sleeve coinciding with and adapted to engage said radial projections, and deep channels or grooves upon the interior of the sleeve, whereby, when the conical pieces are forced inwardly, the sleeve is ruptured or bent on the lines of said channels or grooves.

3. In an expansion-bolt, an integral cylindrical sleeve longitudinally slotted from each end inwardly to near its middle, forming an uncut zone or ring at the middle of the sleeve, and deep channels or grooves in said zone or ring, substantially as and for the purpose specified.

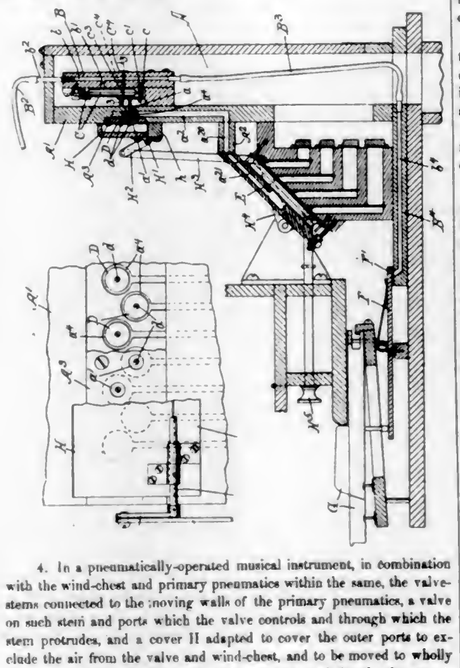
660,560. **PNEUMATICALLY-OPERATED MUSICAL INSTRUMENT.** MELVILLE CLARK, Chicago, Ill. Filed Jan. 30, 1899. Serial No. 703,836. (No model.)

Claim.—1. In a pneumatically-operated musical instrument, a primary pneumatic located within the wind-chest and having in its moving wall a vent or waste aperture and having a supplemental waste-aperture through its fixed wall, both apertures communicating with the interior of the wind-chest.

2. In a pneumatically-operated musical instrument, in combination with the wind-chest, the motor-pneumatics and ducts therefrom leading to the wind-chest and to the outer air, primary pneumatics located within the wind-chest, both terminals of said ducts respectively being in line opposite the moving wall of the corresponding primary pneumatics; the valve-chamber in the wall of the wind-chest between said terminals or ports; the valve-stem protruding rigidly from said moving wall and extending through both ports and having the valve fixed thereon between the ports, said stem being screwed into the moving wall of the primary pneumatic, having the outer end accessible through the outer port.

3. In combination with the wind-chest, the duct-board B therein and the primary pneumatic mounted thereon facing one wall of the wind-chest, the motor-pneumatics and ducts in said wall leading thereto, ports

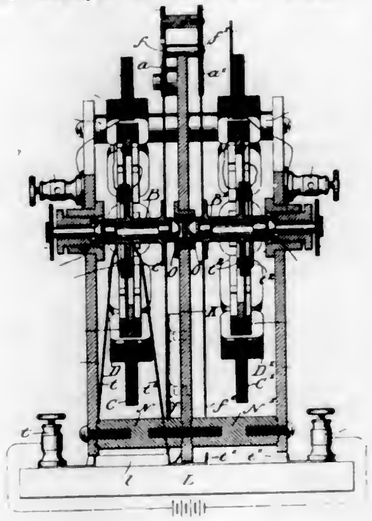
from said ducts respectively, opening into the wind-chest opposite the primary pneumatics respectively; valve-chambers formed as enlargements of said ducts respectively adjacent to said ports, and the removable plate or strip A^3 covering said valve-chambers on the opposite side of the wall and having the ports a' in line with the ports a.



4. In a pneumatically-operated musical instrument, in combination with the wind-chest and primary pneumatics within the same, the valve-stems connected to the moving walls of the primary pneumatics, a valve on such stem and ports which the valve controls and through which the stem protrudes, and a cover H adapted to cover the outer ports to exclude the air from the valve and wind-chest, and to be moved to wholly uncover said ports; a stop, and mechanism operated thereby for operating such cover.

5. In a pneumatically-operated musical instrument, in combination with the wind-chest, an interior primary pneumatic having a waste-port through its moving wall and a duct through its fixed wall, and a puncturable disk covering said duct.

660,561. **ELECTRIC INDICATOR.** CHARLES L. CLARKE, Rye, N. Y. Filed July 10, 1900. Serial No. 23,100. (No model.)



Claim.—1. In an electrical indicating apparatus the combination of two alternating-current motors and a magnetic shield located between them, substantially as described.

2. In an electrical indicating apparatus the combination of two alternating-current motors, a stroboscopic system having each of its elements independently operated by one of said motors and a magnetic shield located between said motors, substantially as described.

3. In an electrical indicating apparatus two alternating-current motors, having energizing-coils upon their armatures connected to a source of continuous-current supply, and a stroboscopic system having each of its elements independently operated by one of said motors, substantially as described.

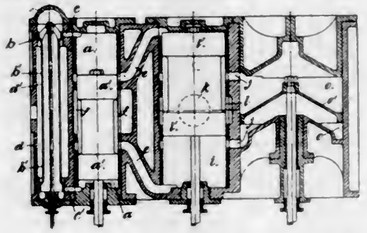
4. In an electrical indicating apparatus the combination of two alternating-current electric motors, two elements of a stroboscopic system each operated by one of said motors, and a screen behind said elements.

5. In an electrical indicating apparatus the combination of two alternating-current electric motors, stroboscopic disks operated independently thereby having slots in their peripheries and a screen behind said slots, substantially as described.

6. In an electrical indicating apparatus the combination of a stroboscopic system and means for independently operating the elements thereof by alternating currents and a scale located near the stroboscopic images, substantially as described.

7. In an electrical indicating apparatus the combination of a stroboscopic system two alternating-current motors for independently operating the elements thereof and a scale located near the stroboscopic image provided with means for avoiding parallactic error.

660,562. **STEAM-ENGINE.** JOHN DAVIDSON, Eccles, and THOMAS R. HAMPSON, Chester, England. Filed June 6, 1899. Serial No. 719,591. (No model.)



Claim.—In combination in a triple compound steam-engine, three cylinders, *a*, *i* and *o*, a valve-casing having a passage at each end leading to the cylinder *a*, a tabular valve having heads controlling said passages, a passage leading from the intermediate part of cylinder *a* to the opposite ends of cylinder *i*, a valve in cylinder *a* having heads for closing said passages, an intermediate portion to form a continuation of the said opening leading directly through the intermediate part of the walls of cylinder *i* into opposite end of cylinder *o*, a piston on said cylinder *i* having heads for closing said openings and an intermediate part adapted to put the same in communication with an exhaust-opening, a crank-shaft, a piston in cylinder *o*, and pitman connections between said piston and said crank-shaft.

660,563. **APPARATUS FOR PREVENTING FREEZING OF FILTERS.** LEWIS K. DAVIS, Indianapolis, Ind. Filed Mar. 5, 1900. Serial No. 7,274. (No model.)



Claim.—1. In combination in and with a filter or other liquid-holding receptacle wherein the liquid is exposed to freezing, a means for supplying heat beneath the surface of the liquid near the side and end walls of the said receptacle whereby a circulation may take place toward the center and from the walls, substantially as set forth.

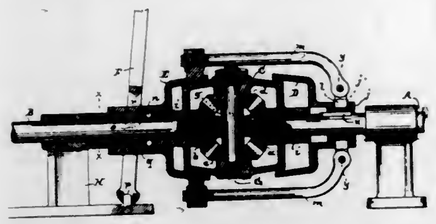
2. In combination in and with a filter or other liquid-holding receptacle wherein the liquid is exposed to freezing, a means for locally heating the marginal portions of the liquid near its surface, substantially as set forth.

3. In combination in and with a filter or other liquid-holding receptacle wherein the liquid is exposed to freezing, an annular pipe or fluid-

conductors for heated fluid supported in the immediate vicinity of the marginal portions of said liquid near its surface, substantially as set forth.

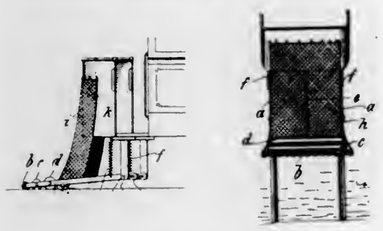
4. In combination in and with a filter or other liquid-holding receptacle wherein the liquid is exposed to freezing, steam-supply pipes exterior to the said receptacle and steam heating-pipes supported within said receptacle slightly below the normal liquid-level at which the receptacle operates and connected with said supply-pipes, substantially as set forth.

660,564. REVERSING-GEAR AND CLUTCH COMBINED. CHARLES W. DE MOOY, Cleveland, Ohio. Filed Sept. 28, 1899. Serial No. 731,987. (No model.)



Claim.—In a reversible driving mechanism the combination with a driving-shaft a driven shaft, a bevel-gear secured to the facing end of each shaft a set of miter-gears engaging the first-named gears, a spindle upon which said miter-gears are loosely mounted and a double cone-casing consisting of halves which are held in journaled connection with said shafts by said spindle, of a sleeve end thrust bearing, cone-cups adapted to clutch over said casing, adjustable links connecting said cups and a suitably-supported shifting lever for said cups, one of the latter having its hub fitting over the sleeve of said bearing to retain antifriction-balls for said cone-casing and also affording an outside connection with said shifting lever and the other cup having a feathered connection with its shaft, and said balls, all constructed and arranged substantially as and for the purpose set forth.

660,565. STREET-CAR FENDER. HERMANN FURSTENAU, Wandsbeck, Germany. Filed Mar. 3, 1899. Serial No. 707,641. (No model.)

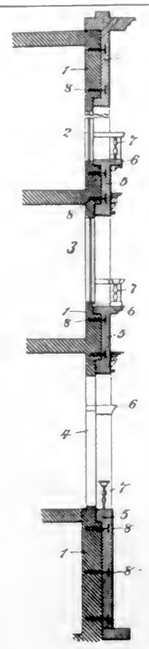


Claim.—In combination with a pair of brackets secured beneath the platform of a trolley, a pair of hinge-bars *a* terminating beyond the front of the car and supporting at their extremities a plurality of transverse rollers of elastic material gradually increasing in diameter toward the car and standing a short distance above the road-surface, a pair of guide-wheels pivoted to the hinge-bars adapted to run in the groove in the rails, means for counteracting the vibrations of the moving car and an apron secured behind the rearmost roller and attached to the car, the elastic rollers permitting the obstructing object to move backward into the apron, substantially as described and shown.

660,566. MEANS FOR RENEWING HOUSE-WALLS. SAMUEL E. GAGE, New York, N. Y. Filed June 19, 1900. Serial No. 20,817. (No model.)

Claim.—In combination with the wall of a house having non-circular cavities therein, a masking-wall supported upon its own base in front of said original wall, bolts having heads embedded in said masking-wall and extending into said cavities so as to abut upon the bottoms thereof expansion-pieces within said cavities and coöperating wedges threaded upon said bolts substantially as described.

660,566.

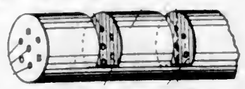


660,567. EXPLOSIVE CHARGE AND POWDER THEREFOR. EMIL GATHMANN, Washington, D. C., assignor to George W. McMullen, Picton, Canada. Filed Nov. 8, 1899. Serial No. 736,220. (No specimens.)



Claim.—A longitudinally-multiperforated powder rod having alternate cuts or grooves on its opposite sides, each pair of said cuts or grooves intercepting the several longitudinal perforations.

660,568. PERFORATED POWDER ROD FOR ORDNANCE. EMIL GATHMANN, Washington, D. C., assignor to George W. McMullen, Picton, Canada. Filed Feb. 10, 1900. Serial No. 4,737. (No specimens.)



Claim.—1. A powder rod provided with multilongitudinal perforations and with transverse cuts, each one such transverse cut intercepting all of the longitudinal perforations.

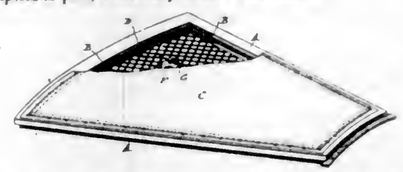
2. A colloid powder rod provided with multilongitudinal perforations and with transverse cuts, each one such transverse cut intercepting all of the longitudinal perforations.

3. A multilongitudinally-perforated rod of colloid explosive material of the character used as a propelling agent, in ordnance, provided with transverse cuts, each such cut intercepting all of the longitudinal perforations.

660,569. CLEANER FOR SHAKING-SIEVES. WILLIAM D. GRAY, Milwaukee, Wis., assignor to The Edward P. Allis Company, same place. Filed Dec. 1, 1899. Serial No. 738,906. (No model.)

Claim.—1. In a sieve for a sifting-machine and the like, the combination of a frame formed of a relatively soft wood; a wearing-surface of a relatively harder material for the inner face of the frame; a sieve-surface secured to the frame; and a cleaner for the sieve-surface working in the frame and adapted to contact with said relatively hard material as the brush is thrown or moved about in the frame, substantially as and for the purpose described.

2. A brush for cleaning the sieves of a sifting-machine and the like, comprising a main body portion of circular contour; and a series of distinct and separated tufts of bristles extending up therefrom, the tufts being disposed in pairs, substantially as shown and described.



3. A brush for cleaning the sieves of a sifting-machine and the like, comprising a main body portion of circular form having a series of separated and independent tufts of bristles extending up therefrom; and a metallic disk or washer secured to the under face of said body portion, said disk being formed with a rounded bearing-surface or projection J, substantially as described.

4. In a sieve for a sifting-machine and the like, the combination of a frame formed of a relatively soft wood, said frame having a groove or channel formed in its inner face; and a wearing-strip of harder material secured in said groove or channel.

5. In a sieve for a sifting-machine and the like, the combination of a suitable frame formed of relatively soft wood and having a channel or groove formed in its inner face; and a strip or strips of hard wood secured in said channel, substantially as described.

6. In a sieve for sifting-machines and the like, the combination of a suitable frame formed of a relatively soft wood and provided with a groove or channel in its inner face; strips of hard wood secured in said groove or channel; a bolting-surface secured upon one side of the frame; a foraminous surface secured upon the opposite side of the frame; and a cleaning-brush for said sieve, working intermediate said surfaces.

7. In a sieve for sifting-machines and the like, the combination of a suitable frame; bolting-cloth secured to one side thereof; a foraminous surface secured to the opposite side thereof; and a brush working intermediate said surfaces, said brush being provided with a rounding projection extending from that side next to the foraminous surface and adapted to work down into the openings in the foraminous surface, substantially as described, whereby a rocking or tilting motion is imparted to the brush as it is caused to travel intermediate the cloth and foraminous surface.

8. In a sieve for sifting-machines and the like, the combination of a suitable frame; bolting-cloth secured to one side thereof; a wire-netting secured to the opposite side thereof; and a cleaning-brush working intermediate said bolting-cloth and said wire-netting, said brush being provided with a rounding projection adapted to rest upon and work over and down between the wires composing the netting, substantially as and for the purpose described.

9. In a sieve for sifting-machines, the combination of a suitable frame; bolting-cloth secured to one side thereof; a wire-netting secured to the opposite side of said frame; and a brush working intermediate said bolting-cloth and the netting, said brush being provided upon that side next to the netting with a rounded projection and having its bristles arranged in a series of separated tufts, substantially as and for the purpose described.

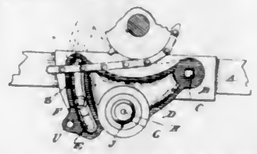
10. In a sieve for sifting-machines and the like, the combination of a suitable frame; bolting-cloth secured upon one side thereof; wire-netting secured upon the opposite side of said frame; a brush working intermediate said cloth and netting, said brush being provided with a rounded projection upon that side adjacent to the netting and having its bristles upon the opposite side arranged in separated tufts; and a hard wearing-surface for the sieve-frame with which the brush comes in contact during its course of travel, substantially as and for the purpose described.

11. In a sieve for sifting-machines and the like, the combination of a suitable frame provided with a hard wearing-surface upon its inner face; bolting-cloth secured upon one side of the frame; wire-netting secured upon the opposite side thereof; and a brush working intermediate said cloth and netting, said brush comprising a leather body portion having a series of separated tufts of bristles extending up therefrom and having secured to its under face a metallic disk or washer H provided with a cross-bar or member I, having formed integral therewith a rounded bearing-surface or projection J, substantially as described.

12. In a sieve for sifting-machines, the combination of a suitable framework; a sieve-surface; a brush for cleaning said surface; and means for imparting to said brush a constant tipping or tilting movement as it traverses the sieve-surface, whereby its bristles are protruded or projected through the meshes of the sieve-surface, substantially as and in the manner set forth.

13. In a sieve for sifting-machines and the like, the combination of a frame; a wearing-surface secured to the inner face of the frame; a sieve-surface secured to the frame; and a cleaner for the sieve-surface working in the frame and adapted to contact with the wearing-surface as the brush is thrown or moved about in the frame beneath the sieve-surface, substantially as and for the purpose described.

660,570. CHAIN-TIGHTENER. HENRY GREEN, Pekin, Ill., assignor to the Acme Harvesting Company, same place. Filed Nov. 27, 1899. Serial No. 738,276. (No model.)



Claim.—1. In a chain-tightener of the character described, a fixed arm secured to the machine-frame and adapted for vertical adjustment thereon and a spring-controlled arm pivoted to the first-mentioned arm and adapted to receive pressure of the chain of the machine for the purposes set forth.

2. In a chain-tightener of the character described, a fixed arm secured to the machine-frame but adapted for adjustment thereon in a vertical direction and a spring-controlled arm adapted to receive the pressure, or strain of the chain or belt of the machine for the purposes set forth.

3. In a chain-tightener of the character described, an arm rigidly attached to the machine-frame, when in actual use, but capable of vertical adjustment thereon, a spring-controlled vibrating arm pivoted to such rigid arm and adapted to withstand pressure of the driving-chain to give under undue or unexpected strains, and a rigid stop for limiting the movement of said arm in the direction in which it is forced by the tension of the spring, substantially as set forth.

4. In a chain-tightener of the character described, an arm D pivoted to the machine-frame, means for adjusting same vertically thereon, a vibrating or rocking arm thereon, a spring for controlling said arm and means for adjusting the tension thereof for imparting the desired pressure of the arm against the chain substantially as and for the purposes set forth.

5. In a chain-tightener, an arm, at one end, pivoted to the machine-frame, the other end adapted for vertical adjustment on said pivot, substantially as described, a vibrating, or rocking arm pivoted on said adjustable arm and an adjustable spring for controlling the rocking arm as against the pressure of the chain substantially as set forth.

6. In a chain-tightener of the character described, an arm D pivoted on the machine-frame at one end, there being a slot in its opposite end, means passing through said slot and the machine for permitting adjustment of said arm, a post, or wrist on the arm standing at right angles to the plane thereof, a spring surrounding the latter and secured at one end against movement, an arm having a hollow hub adapted to inclose the spring and post, a cap seated on said hub and adapted to receive the opposite end of the spring, and means for imparting tension to the spring through the cap and holding the same after adjustment whereby tension is given the said arm controlled thereby, substantially as set forth and means for locking the two arms rigidly together.

7. In a chain-tightener of the character described, an arm D pivoted at one end to the machine, there being a slot E in the opposite end thereof concentric with the pivot of said arm, a bolt F passing through said slot and secured to the machine-frame for adjusting the arm, a post, or wrist G at right angles to the face of the latter and a spring I surrounding the post and entered in an aperture J, an arm K having the hollow hub L; the latter surrounding said spring and post and permitted to swing thereon, there being teeth, or serrations on the outer end of the hub, a cap N having similar serrations on its face adapted to engage with those of the hub, and an aperture O in said cap for receiving the free end of the spring, a bolt P with its tightening-nut passing through the post, hub and cap for permitting the adjustment of the spring tension, a roller Q on the free end of said arm K, there being a bolt-hole through the arm, a lug U forming part of said arm D, there being a bolt-hole T in the lug, and means for locking the lug and arm together after bringing the said holes into register, all arranged substantially as and for the purpose herein set forth and described.

660,571. HASP-LOCK. PETER C. GREENAWALT, Reading, Pa. Filed July 13, 1900. Serial No. 23,522. (No model.)

Claim.—1. A hasp and staple lock comprising a hasp, a locking-bolt carried by the said hasp, and a movable staple adapted to be moved into one position to be engaged by the hasp, and into another position to be engaged by the said locking-bolt, substantially as described.

2. A lock comprising a hasp, a casing formed thereon, a reciprocat-

ing bolt carried by the said casing, means for holding the bolt normally in its outer position, a staple-engaging portion formed upon the said hasp, a revoluble staple formed with a contour adapted to register with the contour of the staple-engaging portion of the hasp, and means formed in the staple for engaging the locking-bolt, whereby the parts may be locked against separation.



3. A lock comprising a hasp, a clip or securing-plate inclosing a portion of the same for holding it pivotally in position, a lock secured to the hasp and having a bolt for engaging a staple, a staple-inclosing portion formed upon the hasp, a revoluble staple provided with a recess for engaging the end of the bolt, and lugs or shoulders formed upon the staple of such a contour that the hasp may be forced down over the same when the staple is in one position but cannot be moved therefrom when the staple is turned to another position.

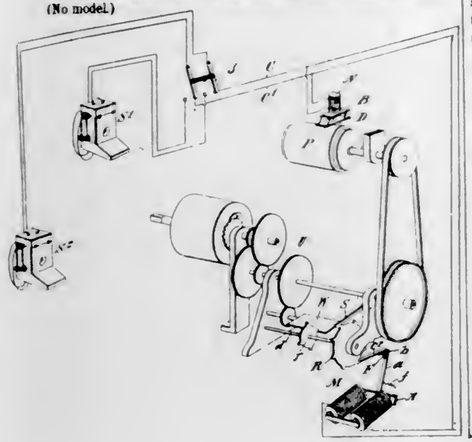
4. A lock comprising a hasp, a plate or strap adapted to inclose a portion of the hasp for holding it pivotally in position, a back plate arranged beneath the clip and fitting in the retaining-recess therein for receiving the wear of the hasp, a lock carried by the hasp, and a staple adapted to be engaged by the hasp and the lock, substantially as described.

5. A lock comprising a hasp and a locking-bolt carried thereby, a revoluble staple, a socket for holding the same in place, said socket having one or more lugs or shoulders formed therein, and a lug formed upon the staple, the structure being such that the staple may be turned within the limit of the lugs in the said socket so as to be engaged and locked by the hasp and locking-bolt, substantially as described.

6. A lock comprising a hasp, a locking-bolt carried thereby, a revoluble staple, a socket for receiving and holding the same in place, a washer adapted to hold the staple in the said socket, the said staple being also provided with a keeper-socket adapted to receive the end of the bolt carried by the hasp, lugs upon the said socket adapted to coincide with an aperture in the hasp when in one position only and an inclined surface formed upon the staple upon the opposite side thereof from the keeper-socket for forcing the bolt inwardly when the hasp is placed over the staple, the whole structure being such that when the staple is in one position the hasp may be forced down upon the same and when the staple is turned the keeper-socket will engage the end of the bolt on the hasp so as to prevent the staple from being turned and the hasp from being disengaged therefrom, substantially as described.

7. In a lock, the combination with a hinged hasp and a revoluble staple, of a casing formed upon the hasp, a slide-bolt mounted therein, the said bolt having a shoulder within the casing, a spring mounted behind the shoulder for holding the bolt normally in its outer position, and a lug formed upon the inner end of the bolt, the structure being such that a key may be used to engage the said lug and retract the bolt for unlocking the parts, substantially as described.

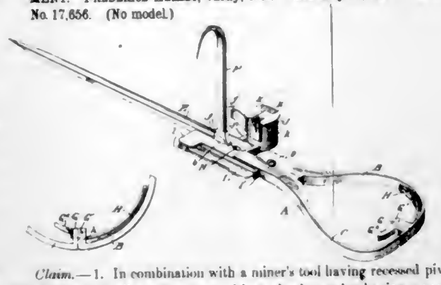
660,572. TELEPHONIC APPARATUS. RAIMUND GÜNTHER, Vienna, Austria-Hungary. Filed Nov. 18, 1898. Serial No. 696,820. (No model.)



Claim.—1. In a telephone-circuit, the combination with the receiver, transmitter and signaling device, of an auxiliary circuit, a switch for connecting the auxiliary circuit to line and simultaneously disconnecting the subscriber's station and signaling device, electromagnetic devices in parallel in said auxiliary circuit, one of said devices arranged to operate a phonographic recorder and the other organized to set in motion means for driving the phonogram-blank, substantially as and for the purpose set forth.

2. In a telephone-circuit, the combination with the receiver, transmitter and signaling device; of an auxiliary circuit, a switch for connecting the auxiliary circuit to line and simultaneously disconnecting the subscriber's station and signaling device, electromagnetic devices in parallel in said auxiliary circuit, one of said devices arranged to operate a phonographic recorder and the other organized to operate an armature for setting in motion and stopping a suitable motor for driving the phonogram-blank, said device responding only to signal-current impulses, substantially as and for the purpose set forth.

660,573. MINER'S CANDLESTICK AND COMBINATION IMPLEMENT. FREDERICK HERBST, Ouray, Colo. Filed May 23, 1900. Serial No. 17,656. (No model.)



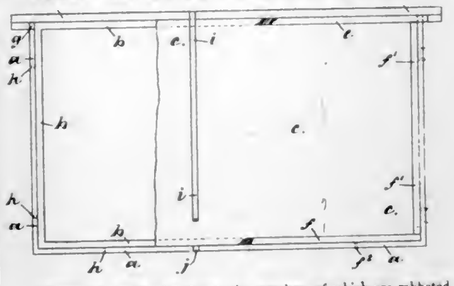
Claim.—1. In combination with a miner's tool having recessed pivoted jaws, of a candle-support, comprising a hook member having a neck adapted to be engaged by and clamped between the recessed portions of said jaws, means for supporting a candle on said hook portion, and means for locking the jaws together, substantially as described.

2. In combination with a miner's tool, a candle-support, comprising a hook member, a pocket thereon, a spring-pressed extinguisher pivotally secured to the upper edge of the pocket, and a shoulder or projection on the bottom of said extinguisher adapted to engage the surface of a candle to normally retain the same in the pocket, and the extinguisher away therefrom, substantially as described.

3. In combination with a miner's tool, having pivoted jaws, of a detachable candle-support adapted to be confined between said jaws, of handle portions on the jaws, a dog or catch pivoted to one member of the handle portion and adapted to engage the other member for locking the handle portions in closed positions, and a spring for retaining the dog or catch in closed or open position, substantially as described.

4. In combination with a miner's tool having pivoted jaws, of a detachable candle-support adapted to be confined in said jaws, handles on said jaws, and means for locking said jaws together comprising a dog having a squared bottom and end pivoted to one of said members and adapted to engage the opposite member, and a spring adapted to engage the bottom or end of the dog to hold the same in closed or open position, substantially as described.

660,574. BEEHIVE BAR-FRAME. WILLIAM HORNER, Liverpool, England. Filed Aug. 8, 1900. Serial No. 26,273. (No model.)



Claim.—A beehive bar-frame, the members of which are rabbeted on one side, and have ridges *b* for the wax to rest upon, and having hold-

ing-in bars *e f* along their edges above the ledges *b*, the said bar *e* being cut away at its ends at *e'*, and notches *g* being provided in the side frame members in which the ends *e'* fit, said notches opening to the edge of the frame members; substantially as set forth.

660,575. SAW. DANIEL B. JOHNSTON, Parkersburg, W. Va. Filed May 31, 1899. Serial No. 718,874. (No model.)



Claim.—1. A saw-handle having a recess in combination with a keeper-plate, a sliding spring-controlled bolt carried by the inner side of said plate, a saw-blade having a recess designed to receive the end of said bolt, and suitable means to secure the upper edge of the blade to the handle, as set forth.

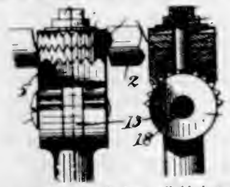
2. A saw-blade having an inclined recess 19 in its upper edge and, further, having that end thereof received by the handle proper, cut away to provide the convex extension 20 and the recess 16, in combination with the handle provided with a bolt 18 adapted to cooperate with the recess 19 and further having a spring-controlled bolt 5 adapted to engage the recess 16, all combined substantially as and for the purpose set forth.

3. In saws, a handle having a recess, a plate adapted to cover said recess and having the guiding-sections 6, 7, and 8; a bolt 5 received by said sections; a spring 11 designed to hold said bolt normally outward; a bolt 18 passing transversely through the handle, in combination with a saw-blade having recesses 16 and 19 and a convex section 20, whereby when said recesses are brought into engagement with said bolts 5 and 18, respectively, said convex section will guide the blade and handle into operative combination, as set forth.

4. As an improvement in saws, a detachable handle provided with a recess in its side and a keeper-plate to close the same, a sliding bolt carried by said plate and extending in said recess, in combination with a blade provided with a keeper-recess designed to cooperate with the end of said bolt, and suitable means for securing the upper edge of the blade to the handle, as specified and for the purpose set forth.

5. As an improvement in saws, the herein-described adjustable handle consisting of a sliding bolt carried thereby and a transversely-disposed bolt located in its upper and forward end, of a recess formed in the end of the blade near the teeth thereof and an obliquely-disposed recess formed in the upper edge of the blade, and a convex face formed upon the end of the saw near the upper edge thereof designed to cooperate with said inclined recess whereby the same will be directed into engagement with said transverse bolt, as specified and for the purpose set forth.

660,576. BICYCLE HANDLE-BAR. JOSEPH M. JUSTEN, Toledo, Ohio. Filed Jan. 23, 1899. Serial No. 703,019. (No model.)



Claim.—1. In a bicycle handle-bar, a divided standard, an eyebolt, secured in hinged relation thereto, a plate surmounting said standard, handle-bar sections upon said plate, said handle-bar sections and said plate having centrally thereof an opening through which said eyebolt passes, and a nut screwed upon the end of said eyebolt, substantially as shown and described and for the purpose set forth.

2. In a bicycle handle-bar, handle-bar sections, having lugs on the ends thereof, radial serrations upon the faces of said lugs, a plate having radial serrations on one side thereof to interlock with serrations on the lugs and parallel serrations on the other side thereof to interlock with like parallel serrations on the rounded part of a divided standard, an eyebolt in hinged relation with said standard, a centrally-disposed opening in said lugs and said plate to receive the shank of the eyebolt, and a nut screwed upon the end of said eyebolt, substantially as shown and for the purpose set forth.

3. In a handle-bar, the combination of the stem having an arc-shaped bearing-surface, whose axis is transverse to the vehicle with which it is to be used, a block movable upon said axis and having a complementary arc-shaped bearing-surface which engages with that on the stem, two handle-bar sections having disk-shaped ends which are pivotally connected with said block, and means for clamping said parts together in any of the positions relative to each other which they may assume, substantially as and for the purpose specified.

660,577. KNITTING-MACHINE. HERMANN A. KLEMM, New York, N. Y., assignor, by mesne assignments, to Julius Kayser, same place. Filed Feb. 7, 1900. Serial No. 4,321. (No model.)

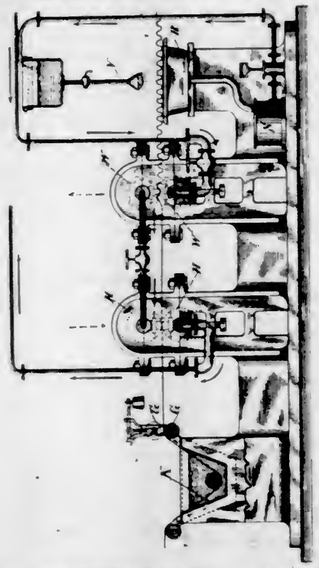


Claim.—1. The combination with a drawing-cam both sides of which are adapted for drawing the needles the full length of their movement for forming and casting off the stitches according as the cams are moved one way or the other, a lifting-cam to each side of the drawing-cam causing the full rise of the needle in both forward and backward movements, and cams for setting the needles in the intermediate position after the stitch-forming operations of the needles by shifting the needles from the uppermost position to the middle position.

2. The combination with a drawing-cam both sides of which are adapted for drawing the needles the full length of their movement for forming and casting off the stitches according as the cams are moved one way or the other, a lifting-cam to each side of the drawing-cams, said lifting-cams having the offsets in their working faces for momentary dwell of the needles, and cams for setting the needles in the intermediate position after the stitch-forming operations of the needles.

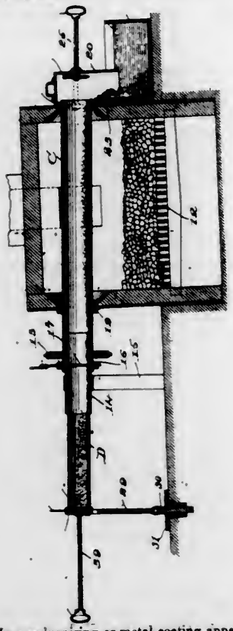
3. The combination of two drawing-cams both sides of which are adapted for drawing the needles the full range of their drawing movement, an intermediate lifting-cam adapted to lift the needles to and in advance of both drawing-cams, a lifting-cam to the outer side of each drawing-cam, said lifting-cams having the offsets in their working faces for momentary dwell of the needles, and cams for setting the needles in the intermediate position after the stitch-forming operations of the needles.

660,578. METHOD OF MANUFACTURING CORRUGATED ROOFING OR THE LIKE FROM FELT, CANVAS, &c. PAUL KNOCH, Berlin, Germany. Filed June 9, 1899. Serial No. 719,911. (No specimens.)



Claim.—The herein-described method of manufacturing corrugated plates for roofing and isolating purposes, consisting in saturating layers of suitable fabric with chrome-gelatin, partially drying said layers, simultaneously heating and pressing said layers into corrugated form, drying said layers or plates and finally treating them with acetate of alumina, substantially as described.

660,579. GALVANIZING OR METAL-COATING APPARATUS. WILLIAM A. LEONARD, Wareham, Mass. Filed Dec. 18, 1899. Serial No. 740,643. (No model.)



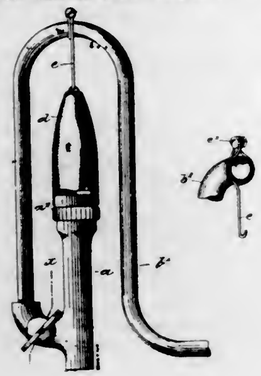
Claim.—1. In a galvanizing or metal-coating apparatus, a furnace, a container for the articles to be galvanized or metal-coated, adapted to be heated by said furnace, a water-tank, a casing surrounding the delivery end of the container and having its lower opening below the surface of the water in said tank, and a scraping device for the container.

2. In a galvanizing or metal-coating apparatus, a furnace, a container adapted to be heated by the furnace, means for rotating the container, a coupling device connected with the container and provided with a gate, and a charging device detachably connected with the coupling device.

3. In a galvanizing or metal-coating apparatus, a furnace, a container, adapted to receive the articles to be galvanized or metal-coated, a charging device for the container adapted to be detachably connected therewith, and a swiveled frame for sustaining the charging device.

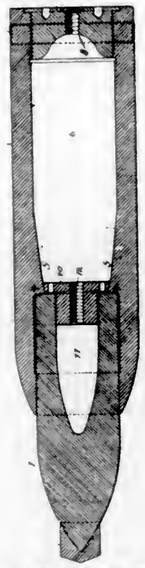
4. In a galvanizing or metal-coating apparatus, a furnace, a container adapted to receive the articles to be galvanized or metal-coated, a charging device for the container adapted to be detachably connected therewith, a movable frame for sustaining the charging device, and a plunger in said charging device serving to force the articles therefrom.

660,580. ATMOSPHERIC BURNER. THOMAS J. LITLE, Jr., Philadelphia, Pa. Filed Jan. 6, 1900. Serial No. 611. (No model.)



Claim.—An atmospheric burner, comprising a substantially J-shaped casting having a crooked or curved portion forming the inlet for air and a straight portion forming the inlet for gas, said straight portion having at its upper end an expanding portion, a tubing connected to and projecting upward from the crooked or curved portion and arching over the upper end of the straight portion of the casting, a mantle adapted to be supported by the arched portion of said tubing and a valve or key located on the crooked or curved portion of the casting and adapted to control the air-inlet, substantially as and for the purposes described.

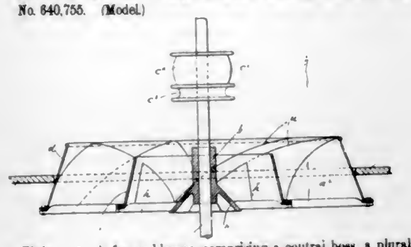
660,581. PROJECTILE FOR ORDNANCE. BALTHAR E. L. DE MARE, Philadelphia, Pa. Filed Apr. 24, 1899. Serial No. 714,240. (No model.)



Claim.—1. The combination in a projectile for ordnance, of an armor-piercing forward portion and an explosive rear portion detachably connected one to the other, the forward portion serving as a plug for closing the explosive-containing chamber in the rear portion and having a rigid bearing upon the rear portion to prevent movement of said forward portion into the rear portion, and an impact fuse for exploding the charge in the rear portion of the shell whereby the forward or armor-piercing portion will be given an additional impulse upon impact, substantially as specified.

2. A combined armor-piercing and explosive projectile consisting of a forward armor-piercing portion and a rear portion containing a chamber for explosive material and having a recess in which said forward portion of the projectile is seated, and a plug carried by said forward portion of the projectile and having a portion engaging with a contracted neck in the rear portion of the same, so as to retain the two portions of the projectile in proper relative position, substantially as specified.

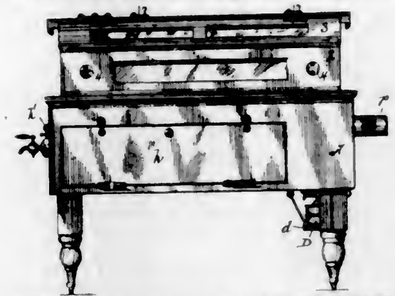
660,582. FAN OR BLOWER FOR VENTILATING PURPOSES. ARTHUR W. METCALFE, Belfast, Ireland. Filed June 14, 1897. Serial No. 640,755. (Model.)



Claim.—1. A fan or blower, comprising a central boss, a plurality of spirally-arranged blades, the inner ends of which are narrower than the outer ends, and secured to said boss, and the outer ends of which are secured to a conical outer rim, said boss and said rim being also connected on the delivery side of the propeller or blower by strips to which said blades are also secured, said propeller or blower being also provided with an inner supplemental conical rim placed centrally between the boss and the outer rim, and with supplemental blades arranged between the first-named blades and secured to the outer rim and extending inwardly to the supplemental rim, substantially as shown and described.

2. A propeller or blower, comprising a shaft, a central boss rigidly secured to said shaft which is conical in form at the delivery side of the propeller or blower, spirally-arranged blades, the inner ends of which are narrower than the outer ends and connected with said conical portion of said boss, and the outer ends of which are connected with a conical rim, said conical portion of the boss and the outer rim being also connected by strips to which said blades are secured, and an intermediate supplemental rim secured centrally between the boss and the outer rim, and supplemental blades arranged between the outer and supplemental rims, substantially as shown and described.

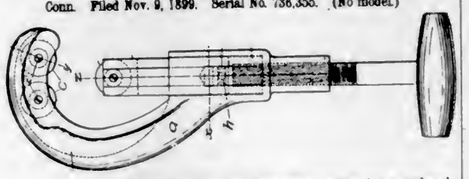
660,583. INCUBATOR. JOHN W. MYERS and CLARENCE A. MYERS, Quincy, Ill. Filed July 6, 1897. Serial No. 643,512. (No model.)



Claim.—1. In an incubator, a heater, a heat-circulating system extending therefrom having exit-openings controlled by outside dampers *p*, whereby the circulation through such system taken from the said heater may be controlled, and another circulating system controlled by a thermostat actuated by changes of heat in the first-mentioned system.

2. In an incubator, having a hatching-chamber and a brooder, a heater, a heat-circulating system for the hatching-chamber extending from the heater and provided with exit-openings controlled by external hand-operated dampers, a heating system for the brooder extending from said heater having heat-ingress openings controlled by a damper, and automatic means arranged in the hatching-chamber for controlling said damper.

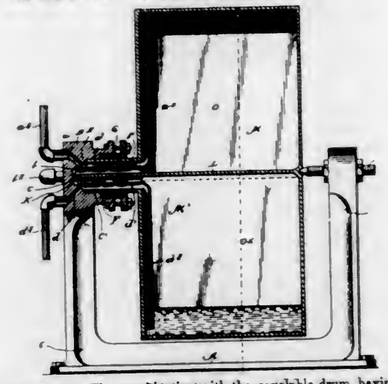
660,584. PIPE-CUTTER. WILLIAM F. NORMAN, Thompsonville, Conn. Filed Nov. 9, 1899. Serial No. 736,355. (No model.)



Claim.—1. In combination; the cast body-piece having cast therein the mortise for the two stationary cutters and the cylindrical socket for the sheath of the movable cutter-carrier; the two stationary cutters rotarily hung in the mortise therein: the movable polygonal-surfaced cutter-carrier considerably smaller exteriorly than the interior diameter of said socket; the cutter rotarily hung in the movable cutter-carrier; the sheath of soft metal cast within the socket in the body-piece and around the polygonal movable cutter-carrier while that carrier is held in alinement with a point between the two stationary cutters; and the screw-threaded operating-handle taking into a corresponding thread in the body-piece and made longitudinally, but not rotarily, fast to the movable cutter-carrier; all substantially as described and for the purposes set forth.

2. In combination, the cast body-piece having cast therein the mortise C-shaped in cross-section and the socket for the sheath of the movable cutter-carrier, said mortise being provided with flat cheeks surfaced by concussion or pressure; two wheel cutters with flat-ended hubs journaled in said mortise between the cheeks thereof; the cutter rotarily hung in the movable cutter-carrier; the sheath of soft metal within the socket and around the movable cutter-carrier; and the screw-threaded operating-handle taking into a corresponding thread in the body-piece and made longitudinally, but not rotarily, fast to the movable cutter-carrier; all substantially as described and for the purposes set forth.

660,585. STEAM-TRAP. EDWARD E. PARKER, Woburn, Mass. Filed Jan. 22, 1900. Serial No. 2,337. (No model.)

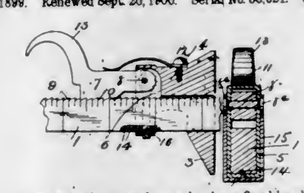


Claim.—1. The combination with the revoluble drum having the chambers M, N, oppositely-faced water-receivers M', N', and the pairs of ports *a'*, *b'*, and *c'*, *d'*, communicating with said chambers respectively at the inner and outer portions thereof, of the head forming the bearing for the drum and provided with the ports *a*, *b*, *c*, *d*, for the purpose set forth, substantially as described.

2. In a steam-trap of the class described, the combination with fixed high-pressure, low-pressure, exhaust, and feed-water passages, of twin interchangeable condensing and feed-water receptacles, mounted for simultaneous movement, adapted to successively occupy the same space, and capable of movement by a preponderance of weight in one of the receptacles, each receptacle having a port for successive communication with the high-pressure and low-pressure passages, and each receptacle also having a second port for alternate communication with said exhaust and feed-water passages, substantially as described.

3. The combination with the revoluble drum having the chambers M, N, oppositely-faced receivers M', N', the pairs of ports *a'*, *b'*, and *c'*, *d'*, communicating with said chambers, respectively, at the inner and outer portions thereof, and the partitions O, O', in said chambers, for the purpose set forth, of the head forming the bearing for the drum, and provided with the ports, *a*, *b*, *c*, *d*, substantially as described.

660,586. WRENCH. WILLIAM P. PHELPS, Lubbock, Tex. Filed Dec. 8, 1899. Renewed Sept. 20, 1900. Serial No. 30,621. (No model.)



Claim.—1. In wrenches, a main arm having a fixed head and means on opposite sides of said bar whereby it may be engaged; a movable jaw carrying mechanism adapted to cooperate with said means, and to simultaneously engage and disengage the same to lock or unlock said movable jaw, substantially as specified and for the purpose set forth.

2. In wrenches, a main arm having a fixed head and ratchet-teeth on one side of said arm and recesses on the other; a movable jaw having a locking-block adapted to engage the said teeth, and an eccentrically-mounted yoke having a pin, and operated by said block, whereby both sides of the arm will be simultaneously engaged or released, as specified and for the purpose set forth.

3. In wrenches, a main arm having ratchet-teeth and recesses and a fixed head; a movable jaw carrying a locking-block and a yoke operated by said block, said block and yoke cooperating respectively with said teeth and recesses to simultaneously lock or unlock the movable jaw, and a spring operating to hold said jaw normally in a locked position, substantially as specified and for the purpose set forth.

4. In wrenches, a main arm having a fixed head and cut-away portions, a movable jaw carrying a locking-lever; an eccentrically-mounted yoke operated by said lever and by a proper movement, brought into engagement with said cut-away portions, and a spring bearing upon said lever, to hold the yoke normally in engagement with one of the cut-away portions, whereby the movable jaw is normally held strongly locked in position, substantially as specified and for the purpose set forth.

5. In wrenches, the combination with a fixed and movable jaw, of a handle; a block 7, carried by said movable jaw and having eccentrics 8ª disposed on each side thereof; a yoke 15, mounted on said eccentrics and extending around the handle and having a pin 16, said handle having a series of apertures designed to receive said pin, as and for the purpose set forth.

6. In a wrench, a movable jaw; a fixed jaw having a graduated handle provided with teeth upon one edge, and with a series of apertures upon the other edge; an adjusting-block 7; a band 5 carried by said movable jaw; a yoke eccentrically mounted on said block, and having a pin 16, adapted to extend through an aperture in said band and into engagement with one of said apertures in the edge of the handle, as and for the purpose set forth.

7. In a wrench, a handle having a fixed and movable jaw, said handle having one edge provided with teeth 9, and the other edge having a series of apertures 14; a block having teeth adapted to coöperate with the teeth 9, and a yoke eccentrically mounted on said block, said yoke having a pin 16, whereby when the block is brought into engagement with said teeth, the pin 16 will be simultaneously forced into one of said apertures 14, as specified and for the purpose set forth.

660,587. **WINDOW-VENTILATOR.** JOHN K. PIERSON-HYSLOP, Philadelphia, Pa. Filed Apr. 6, 1899. Serial No. 711,980. (No model.)

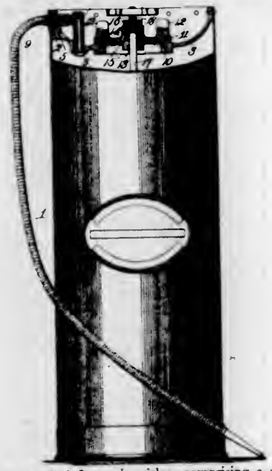


Claim.—1. A ventilator consisting of front and end sections, arms adapted to be pivoted to a window-casing, with the ventilator attached to their upper ends, the relative arrangement being such that the ventilator rests normally against the top of the sash and swings inward when the sash is lowered.

2. In combination, arms adapted to be pivoted to a window-casing, stops formed with the arms and a ventilator attached to the arms in such manner as to swing inwardly when the sash is lowered.

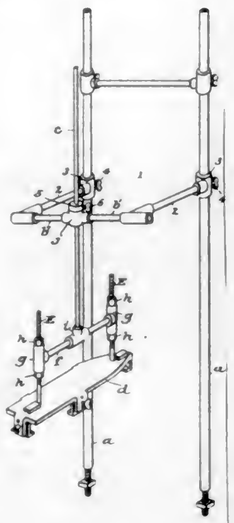
3. In combination, arms adapted to be pivoted to a window-casing, having stops at their lower ends below the pivots, a ventilator with front and end sections secured to the upper end of the arms at an angle, said arms and ventilator being so positioned as to cause the ventilator to rest normally on the window-sash and to move inward when the sash is lowered.

660,588. **CHEMICAL FIRE-EXTINGUISHER.** ARTHUR P. PRIER, Kansas City, Kans. Filed July 21, 1900. Serial No. 24,356. (No model.)



Claim.—A chemical fire-extinguisher, comprising a cylinder having a perforation near its upper end, a head of form in cross-section to provide an external chamber, secured in the upper end of and provided with a hole registering with the hole of the cylinder, a thimble fitting in said registering holes and upset at its ends against the outer side of the cylinder and the inner side of the head, a cap closing an opening in the head, a pipe within said external chamber and communicating with the interior of the cylinder, and a flexible hose extending through the thimble and connected to said pipe, substantially as described.

660,589. **HOLDING DEVICE FOR BRUSH-BLANKS.** WALTER C. READ, Newark, N. J. Filed May 25, 1899. Serial No. 718,273. (No model.)



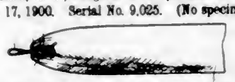
Claim.—1. In combination, the standards, the bracket vertically adjustable thereon, and the holder suspended from said bracket and capable of having a longitudinal reciprocating movement and a transverse swinging movement, substantially as described.

2. In combination, the standards, the bracket, the bearing suspended from said bracket and the holder having a rod slidably and rotatably mounted in said bearing whereby said holder may be reciprocated longitudinally and swing transversely in the arc of a circle, substantially as described.

3. In combination, the holder, the bearing *i*, the rod *f* turning therein, means connecting the rod with the holder, the rod *b'* extending in a plane at right angles to the rod *f*, the hanger *j'* turning about the rod *b*, the vertically-extending rod *c* held by the hanger *j'* and connected at its lower end to the bearing *i*, substantially as described.

4. In combination, the brush-holder, the bearing *i*, the rod *f* journaled therein and connected with the holder, the rod *c* extending upwardly from the bearing *i*, the hanger *j* for holding the rod *c*, the cross-rod *b'* about which the hanger may turn, the adjustable arms 2 and the standards *a* to which the arms are secured, substantially as described.

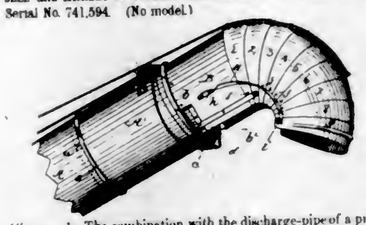
660,590. **INCANDESCIBLE ELEMENT.** CHARLES G. RICHARDSON, New York, N. Y., assignor to Joseph Blasco De Lery, same place. Filed Mar. 17, 1900. Serial No. 9,025. (No specimens.)



Claim.—1. The combination in an incandescible element, of a stocking of combustible fabric saturated with a solution of incandescible mineral, a loop of incombustible material provided with a knot which is within said stocking, and a filament of incombustible material binding said stocking on said loop above said knot, substantially as described.

2. The combination in an incandescible element, of a stocking of combustible fabric saturated with a solution of incandescible mineral, and having one end turned in, a loop of incombustible material provided with a knot which is within the turned-in end of said stocking, and a filament of incombustible material binding said turned-in end of the stocking on said loop above said knot, substantially as described.

660,591. **HOOD FOR PNEUMATIC STACKERS.** ALLEN A. RUSSELL and HARLEY A. RUSSELL, Indianapolis, Ind. Filed Dec. 26, 1899. Serial No. 741,594. (No model.)



Claim.—1. The combination with the discharge-pipe of a pneumatic stacker having an annular outwardly-projected bead near its outer end, of a hood-section mounted on said tube having an externally-projected annular bead to engage the head of the discharge-pipe, said hood-section being split longitudinally on one side to allow the walls to be spread for assembling and a two-part block each part having a base fastened to the wall of the hood-section, one on either side of the split and each base having an outwardly-projecting flange or plate and a bolt for uniting the plates, substantially as shown.

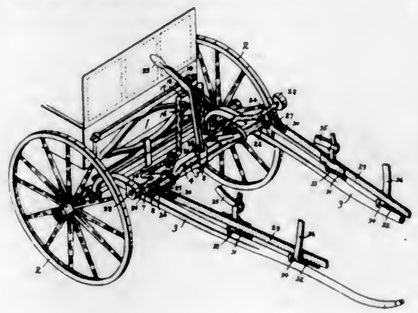
2. An adjustable hood for straw-stackers comprising a body-section split longitudinally on its under side and having its under walls partly cut away and straightened to plane surfaces and having a gore between the plane and adjacent cylindrical surfaces, a series of hollow spherical segments the first of which is secured to the body-section of the hood and each of the following segments to the segment immediately preceding it, some of said segments being pivotally attached to allow a folding adjustment thereof, the last segment having a longitudinal corrugation, said folding segments being connected by a flexible tie, all substantially as described and shown.

3. A hood for pneumatic straw-stackers having a body-section the inner end of which is cylindrical and the major outer portion of which has a semicylindrical top passing into sides which are plane surfaces, the bottom being open, a hollow spherical segment secured to the outer end of the body-section, a similar segment pivotally secured to it and a series of following segments each of which is secured by separate attachment to its adjacent segment some of them pivotally as shown, said pivotally-connected segments being also connected by a flexible tie as shown and a pair of normally-curved strap-springs fastened at one end to one of the outer segments and at the other to the body-section of the hood, said springs being always above the mouth of the hood and tending to separate the segments, as and for the purposes specified.

4. In a hood for stackers, the combination with a body-section and a series of adjustable pivotally-secured sections, of a pair of strap-steel springs attached to one of the outermost pivoted sections at one end and to the body-section at the other, said springs being normally curved to give the pivoted sections a maximum separation and being always above the mouth of the hood, substantially as described.

5. The combination with an inclined chute, of a hood in a plurality of sections, said sections being widest at their middles, pivots connecting the sections, the edge of each section near both of its ends being pivotally secured to the edge of the next adjacent section and not more than two sections being connected by the same pivot, said pivots from the middle to the outside sections being a gradually-lessening distance from the ends of the sections, substantially as described and specified.

660,592. **HORSE-DETACHER.** THEODORE SANDERA, Canton, Ohio. Filed Aug. 21, 1900. Serial No. 27,556. (No model.)

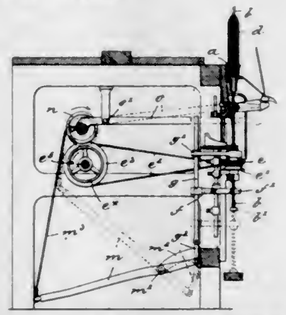


Claim.—1. In combination, a singletree with notched disks pivotally attached to the ends thereof, trace-rings adapted to enter said notches, a shaft having journal attachment to said singletree, crank-shaped end extensions to said shaft adapted to enter and close said notches, and a locking-lever pivotally attached to said singletree having a recess to engage the end of a lateral extension from said shaft, substantially as specified.

2. In combination, vehicle fore wheels, a singletree, a shaft having journal attachment to said singletree, crank-shaped end extensions to said shaft having brake-blocks attached thereto, and a lateral extension from said shaft, substantially as specified.

3. In combination, a singletree with notched disks pivotally attached to the ends thereof, trace-rings adapted to enter said notches, a rocker-shaft having journal attachment to said shaft and crank-shaped end extensions adapted to engage and close said notches, with means for rotating and locking said shaft, substantially as specified.

660,593. **COP-WINDING MACHINE.** AUGUST SCHOEN, Philadelphia, Pa., assignor to Samuel R. Stinson, Robert J. Stinson, Joseph C. Stinson, and Thomas Stinson, same place. Filed June 26, 1900. Serial No. 21,608. (No model.)

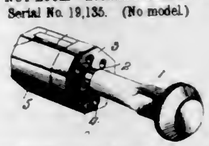


Claim.—1. In a cop-winding machine, a vertically-arranged spindle having at or near its lower end a head, means for rotating said spindle and mechanism, controlled by said means, adapted to impinge upon said head and to force said head and spindle vertically downward to withdraw the spindle from the cop, substantially as and for the purposes described.

2. In a cop-winding machine, a spindle whereon the cop is formed, said spindle being arranged vertically in the machine, a driving-pulley adapted to rotate said spindle, a head formed on said spindle, a bracket surrounding the spindle above said head, and means controlled by the driving-pulley for rapidly depressing said bracket to cause the bracket to strike upon the spindle-head, substantially as and for the purpose described.

3. In a cop-winding machine, a spindle, a driving mechanism adapted to rotate said spindle, a wheel arranged above and normally out of frictional contact with the driving mechanism, means for causing the wheel to frictionally contact with a portion of said driving mechanism, a strap secured to the periphery of the wheel and adapted to be wound up thereon when the wheel is frictionally in contact with the driving mechanism, and means controlled by said strap for depressing said spindle, substantially as and for the purposes described.

660,594. **NUT-LOCK.** LUTHER C. SHAMMO, Harrisburg, Pa. Filed June 5, 1900. Serial No. 19,135. (No model.)



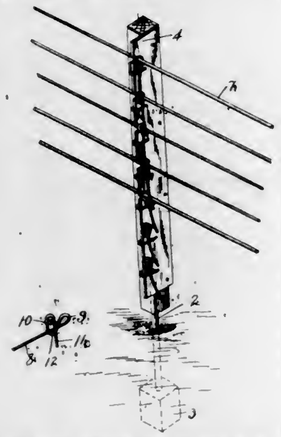
Claim.—1. The combination of a screw-threaded bolt and a washer slidingly secured thereto, the said bolt and washer being so shaped with respect to each other that the washer will not rotate on the bolt, and the latter having a perforation therein; of a nut threaded on said bolt and having a recess in one of the sides thereof, and a locking-pin adapted to enter said recess and having a lug arranged to enter the perforation in the aforesaid washer, substantially as described.

2. The combination with a screw-threaded bolt provided with a non-rotatable washer slidingly secured thereto, the washer having a perforation therein; of a nut threaded on said bolt and having a recess in one of the sides thereof, a locking-pin adapted to enter said recess and having a lug arranged to enter the perforation in the aforesaid washer, the

end of the recess being undercut and the end of the locking-pin shaped to engage with said undercut recess, substantially as described.

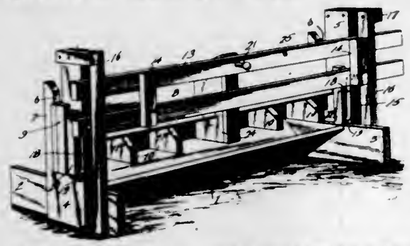
3. The combination with a screw-threaded bolt provided with a non-rotatable washer slidingly secured thereto, the washer having a plurality of perforations therein; of a nut threaded on said bolt and having a recess in one of the sides thereof, a locking-pin adapted to enter said recess and having a lug arranged to enter any of the perforations in the aforesaid washer, the end of the recess being undercut and the end of the locking-pin shaped to engage with said undercut recess, and a groove or opening by which the pin may be wedged off, substantially as described.

660,595. **FENCE.** David Sheets, Beard, Ind. Filed Mar. 3, 1900. Serial No. 7,215. (No model.)



Claim.—The herein-described post for fence-wires, comprising a plate having recesses for individual wires and further having an aperture designed to coöperate with each recess, in combination with a securing device consisting of a piece of wire passed through said aperture and the end thus passed bent around the edge of the plate and disposed parallel with and adjacent thereto, while the other end of the wire is bent upward around the fence-wire as it rests in said recess, the free end of the wire being disposed downward upon the outside of the next wire below in the manner specified and for the purpose set forth.

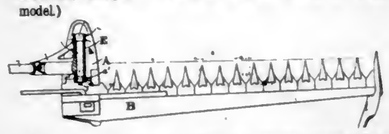
660,596. **STOCK-FEEDER.** Joseph J. Singley, El Dorado, Kans. Filed June 9, 1900. Serial No. 19,727. (No model.)



Claim.—1. A stock-feeder comprising a trough, uprights at the opposite ends thereof, a back supported by the uprights, a vertically and longitudinally swinging gate located at the front of the trough and having its opposite ends guided in vertical slots in the uprights, an intermediate post carried by the front side of the back and provided with upper and lower perforations, the gate also being provided with opposite perforations, which correspond with the respective perforations of the post in the opposite positions of the gate, and a removable fastening carried in one of the perforations of the gate and fitted in corresponding perforations of the gate and the post to lock the former at its opposite limits.

2. In a stock-feeder, a trough, uprights at the opposite ends thereof and provided with corresponding vertical slots opening upwardly, and a back having its opposite ends removably fitted within the respective slots, and carrying a plurality of vertical and forwardly-projecting partitions upon its front side and overhanging the trough.

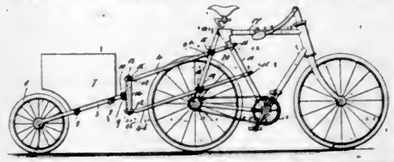
660,597. **HINGE-JOINT FOR MOWING-MACHINES.** John F. Steward, Chicago, Ill. Filed Mar. 26, 1900. Serial No. 10,224. (No model.)



Claim.—1. In a mowing-machine the coupling-frame, a swivel pivoted thereon, a shoe pivoted to said swivel by means of a pin having the axis of the portion within the sleeve of said swivel at an angle relative to the axis of the said pin in the said shoe, all combined substantially as described.

2. In a mowing-machine a coupling-frame, a finger-bar pivoted to said coupling-frame by means of a pin having the portion which has its bearing connected with the bar at an angle to the portion which has its bearing connected with the coupling-frame, all combined substantially as described.

660,598. **BICYCLE-TENDER.** Charles H. Stonebridge, New York, N. Y. Filed Jan. 29, 1900. Serial No. 3,106. (No model.)



Claim.—1. The herein-described tender for bicycles, comprising a main frame which supports the tender-body, a supplemental frame which is rigidly connected to the bicycle and two rigidly-connected connection devices, by means of which said main frame and said supplemental frame are connected and which respectively allow play of said tender-body vertically and laterally, substantially as shown and described.

2. The herein-described tender for bicycles, comprising a main frame which supports the tender-body, a supplemental frame, two connection devices by which said main frame and said supplemental frame are connected, each of said connection devices consisting of a sleeve, which sleeves are mutually rigidly connected at right angles relatively, and spindles turnably mounted in said sleeves and being fixed each to one of said frames whereby lateral and vertical play of said main frame are insured, substantially as shown and described.

3. The herein-described tender for bicycles, comprising a main frame which supports the tender-body, and a supplemental frame pivotally connected therewith, said supplemental frame comprising two loop-shaped members adapted to surround the rear wheel of a bicycle and provided with means for securing the same to the frame of the bicycle, substantially as shown and described.

4. The herein-described tender for bicycles comprising a main frame, which supports the tender-body, and a supplemental frame pivotally connected therewith, said supplemental frame being composed of two parallel loop-shaped members which surround the rear wheel of the bicycle, each of said members being provided at its forward end with a clamp, and at each side with a clamp whereby said supplemental frame may be rigidly secured to the bicycle, substantially as shown and described.

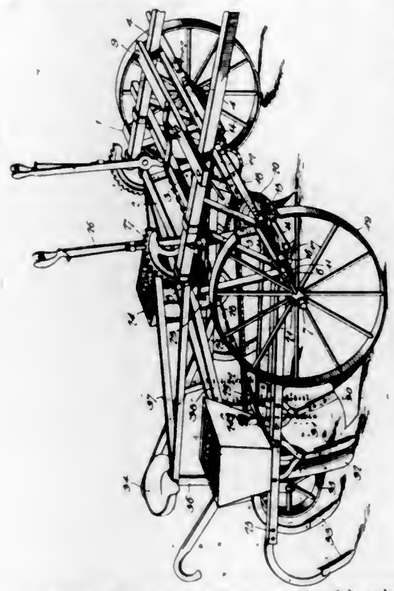
5. The herein-described tender for bicycles, comprising a main frame provided with a supporting-wheel, and a tender-body and a supplemental frame comprising two parallel loop-shaped members, said loop-shaped members being provided with means for detachably connecting the same with the frame of a bicycle, two sleeves rigidly connected together and arranged relatively at right angles, a spindle by which said members of said supplemental frame are connected at their rearmost ends, and which spindle is passed turnably through one of said sleeves, and said main frame being provided at its foremost end with a spindle which is passed turnably through the other of said sleeves, substantially as shown and described.

6. A tender for bicycles and similar vehicles, comprising a frame, a support-wheel journaled therein approximately centrally thereof, and a tender-body comprising a central casing within which said drive-wheel operates, and provided with an upwardly-directed partition, and side members pivoted to said frame and adjustably connected with said partition, substantially as shown and described.

660,599. **PLANTER AND CULTIVATOR.** Svend G. Svensen, Taylor, Tex. Filed June 27, 1899. Serial No. 722,038. (No model.)

Claim.—1. In a machine of the class described, the combination of

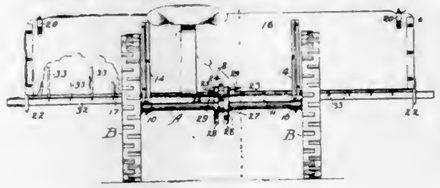
the arched frame having depending arms, axles journaled on the arms, carrying-wheels arranged at the outer ends of the axles and provided with means for engaging the same, whereby they may be arranged either fast or loose on the axles, rearwardly-extending frames hingedly connected with the axles, seed-hoppers mounted on the hinged frames and designed to be provided with suitable feed mechanism and having sprocket-wheels, sprocket-wheels mounted on the axles, sprocket-chains connecting the sprocket-wheels of the axles, and the seed-hoppers, and adjusting devices for raising and lowering the hinged frames, substantially as described.



2. In a machine of the class described, the combination of the arched frame having depending arms, axles journaled on the arms, carrying-wheels arranged at the outer ends of the axles and provided with means for engaging the same, whereby they may be arranged either fast or loose on the axles, rearwardly-extending frames hingedly connected with the axles, seed-hoppers mounted on the hinged frames and designed to be provided with suitable feed mechanism and having sprocket-wheels, sprocket-wheels mounted on the axles, sprocket-chains connecting the sprocket-wheels of the axles, and the seed-hoppers, adjusting devices for raising and lowering the hinged frames, a standard arranged between the hinged frames and located in rear of the arched frame and provided with a seat, a wheel supporting the standard, and braces connecting the standards with the arched frame, substantially as described.

3. In a machine of the class described, the combination of an arched frame, axles journaled on the arched frame, carrying-wheels arranged at the outer ends of the axles and provided with means for engaging the same, whereby they may be made fast or loose on the same, rearwardly-extending frames hingedly connected with the axles, hoppers mounted on the hinged frames and designed to be provided with suitable feed mechanism, gearing extending from the hoppers to the inner ends of the axles, adjusting devices for raising and lowering the hinged frames, a standard arranged between the hinged frames in rear of the arched frame, and provided with a seat, a wheel supporting the standard, and braces connecting the standard with the arched frame, substantially as described.

660,600. **FERTILIZER-DISTRIBUTER.** Alvin Taplin, Forestville, Conn. Filed July 28, 1900. Serial No. 25,180. (No model.)



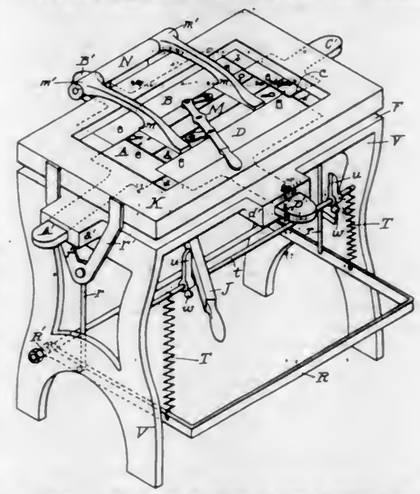
Claim.—1. The combination of the hopper having the continuous longitudinal slot at its bottom, with the agitator-bar underneath said slot, the lifting-lever 8, operatively connected with the said agitator-bar, whereby the said bar may be readily lifted by means of the said lever to raise the bar into a position for closing the slot in the bottom of the hopper when desired, substantially as described.

2. In a fertilizer-distributer, the combination of a double agitator-wheel both members of which are provided with radial lugs, with the agitator-lever having opposing pallets inclined in the longitudinal direction of the said lever, the said lever being mounted tangentially to the said wheel whereby the said radial lugs act on the inclined pallets in the longitudinal direction of the said lever, the agitator connected with the said lever, and the hopper within which the agitator is mounted, substantially as described.

3. The combination of the agitator wheel and lever with the pivotal bolt and bridge 25 for the said lever whereby the said lever may oscillate on said bolt and also move longitudinally thereto, and the lifting-lever 8 for raising the said lever out of action with the said wheel when desired, substantially as described.

4. The combination of the agitator wheel and lever, with the pivotal bolt for said lever upon which it is mounted to oscillate and for moving longitudinally to said bolt, the hopper having a slot at the bottom, the agitator-bar underneath the said hopper and connected by one end with the said agitator-lever, and means for lifting the said agitator lever and bar for throwing the agitator out of operation and closing the slot at the bottom of the hopper, substantially as described.

660,601. **MACHINE FOR FOLDING COLLARS, &c.** John Temple, Watervliet, N. Y. Filed Apr. 7, 1899. Serial No. 712,067. (No model.)



Claim.—1. In a device for folding the edges of fabrics, a plurality of slides, adapted to come in contact with the edges of the fabric, successively; a means for holding the work in position during the movement of said slides; a means for causing said slides to be operated, one after the other, during the work until it is completed; suitable springs arranged to cause all the slides, simultaneously, to return to their normal position when said slides are released, substantially as described.

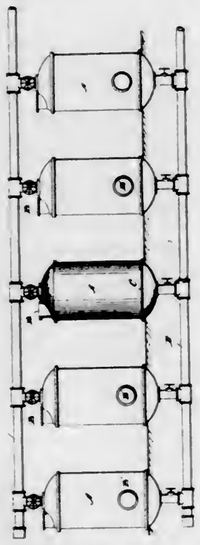
2. A device for folding the edges of fabrics, comprising a series of slides provided with projections thereon, and adapted to engage with cam-shaped blocks; cam-shaped engaging blocks; with a device for holding the work in position, consisting of a die provided with two or more blades and a lever, said lever connected with a plate, the operation of the lever tending to open and close the blades; with a pressure-plate adapted to hold the slides in contact with the fabric; a pedal adapted to operate said pressure-plate in such a manner that the plate shall be drawn into closer contact with the said slides, all substantially as described.

3. In a machine for folding the edges of fabrics, a series of slides arranged to move within the top of a table, each of said slides provided with a projection; a spider carrying a series of cam-shaped blocks adapted to engage with said projections on the slides; a series of springs connected with said projections, tending to draw the slides toward the edge of the table, with a pressure-plate; a pedal so adjusted that by pressing on the pedal the slides will be held in position; said spider so adjusted

that its movement and the releasing of the pedal will cause said springs to turn all the slides simultaneously, out of contact with the work, substantially as described.

4. In a device for folding the edges of fabrics, a spider pivoted to the machine, said spider provided with a plurality of arms; cam-blocks secured to said arms, said cam-blocks adapted to engage with a plurality of slides, successively, which slides are arranged to come in contact with the edges of the fabric, substantially as described.

660,602. METHOD OF RIPENING COFFEE. THEODORE R. TIMBY, New York, N. Y. Filed Feb. 9, 1900. Serial No. 4,595. (No specimens.)



Claim.—1. The process of ripening or seasoning raw coffee, which consists in subjecting the same in a closed chamber to dry air at a temperature which will ripen but not cook the coffee, and under pressure in excess of ordinary atmospheric pressure, then reducing such pressure, substantially as described.

2. The process of ripening or seasoning coffee, which consists in subjecting the berries for a given time in a closed chamber to dry and warm air at a temperature which will ripen but not cook the berries, and under pressure of two to three atmospheres, and then reducing the pressure to below the normal, substantially as described.

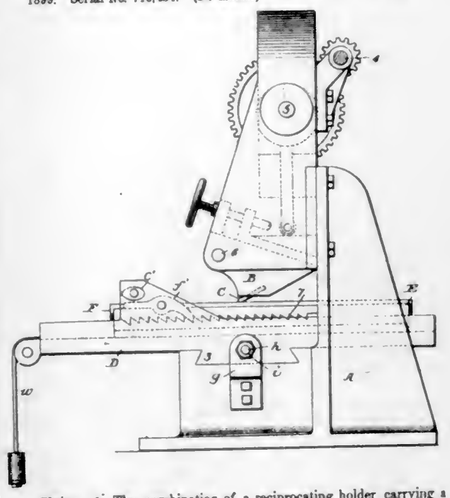
3. The process of ripening or seasoning coffee, which consists in exposing the same in a closed chamber to dry and warm air at a temperature which will ripen but not cook the coffee, and then to a partial vacuum, repeating the steps at determined intervals, until the desired degree of ripeness is attained, substantially as described.

660,603. VALVE. HARVEY H. TROXEL, Wooster, Ohio. Filed Aug. 9, 1899. Serial No. 726,716. (No model.)



Claim.—A valve for shoes, comprising a tubular or cylindrical casing having exterior screw-threads extending from the bottom flange fully to the top portion thereof, the interior of the casing having two diameters, the smaller diametrical portion being located at the lower extremity of the casing and having its interior wall screw-threaded, the upper larger diametrical portion being unscrew-threaded, and a plug having a lower head and a slot extending diametrically through the shank thereof, the said shank being screw-threaded from its upper extremity down to an unscrew-threaded neck to adjustably fit the lower interior screw-threaded portion of the casing, the upper portion of the screw-threads on the stem of the plug being mutilated to prevent separation or entire withdrawal of the plug from the casing, the neck of the plug being exteriorly exposed and the screw-threads thereof protected to prevent a collection of mud or grit thereon when said plug is projected to open the slot therethrough.

660,604. RASP-CUTTING MACHINE. JAMES TURNER, Paterson, N. J., assignor to James Dwight Foot, New York, N. Y. Filed May 11, 1899. Serial No. 716,431. (No model.)



Claim.—1. The combination of a reciprocating holder carrying a cutter with an operating end curved to coincide with the curvature of the blank to be cut, and a blank-carrying bed supported to rock upon an axis coincident with that of the curve of the blank, substantially as set forth.

2. The combination of a reciprocating holder carrying a cutter with an operating end curved to coincide with the curvature of the blank to be cut, a blank-carrying bed rocking upon a longitudinal axis, and means for tilting it after each operation of the cutter, substantially as set forth.

3. The combination of a reciprocating holder carrying a cutter with an operating end curved to coincide with the curvature of the blank to be cut, a blank-carrying bed rocking upon a longitudinal axis, and means for tilting it after each operation of the cutter and for holding it positively in its tilted position, substantially as set forth.

4. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step by step longitudinally after each reciprocation of the tool, a bed carried by said carrier, and means for tilting it to one side after each reciprocation of the tool, substantially as set forth.

5. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step by step longitudinally after each reciprocation of the tool, a bed carried by said carrier, and means for tilting it to one side after each reciprocation of the tool and for holding it in position after tilting, substantially as set forth.

6. The combination in a rasp-cutting machine, of a reciprocating gang punch or tool, a sliding carrier and means for moving it step by step longitudinally after each reciprocation of the tool, a bed carried by said carrier with a curved face adapted to a curved channel in the carrier, and means for tilting it to one side after each reciprocation of the tool, substantially as set forth.

7. The combination in a rasp-cutter, of a sliding carrier, a rocking bed supported thereby, a reciprocating tool-holder, means for acting on the bed to carry it in one direction, racks and pawls for securing a step-by-step movement of the bed, and cams arranged to act both on the pawls and on the rocking bed, substantially as set forth.

8. The combination with the bed for holding the blank, of bearings for the tang end of the blank and a retainer for the tip end consisting of a slide with a lip and a spring for pressing the lip against the blank, substantially as set forth.

660,605. SHEET-METAL CHAIN. FRANK E. VANDERCOOK, Waterbury, Conn., assignor of one-half to George E. Judd, same place. Filed Mar. 14, 1900. Serial No. 8,646. (No model.)



Claim.—1. A chain-link produced from a blank of sheet metal and comprising a loop of uniform width and thickness, a tang portion formed by the two adjoining ends of said blank, having an interior reinforcement formed by turning in the two parallel edges of the blank, an eye through said tang the edge of which is reinforced by passing the deflected edge of the eye of one end through that of the adjoining orifice and turning said deflected edge over in a manner to unite them together.

2. A chain-link produced from a sheet-metal strip of uniform width and thickness and consisting of a tang and loop portion, an eye in said tang which is reinforced by passing the deflected edge of the eye of one end through that of the other and turning said edge over, said loop being formed by the central bend in the blank, internal reinforcements of said loop portion produced by swaging inward the two central parallel edges of the blank, substantially as described.

3. A blank for a chain-link, produced from a strip of sheet metal of uniform width and thickness, a reinforcement in the central portion of said blank produced by turning in the central portion of the two straight parallel edges, eyes in the two ends of the blank, one of which is provided with a deflected edge to engage and overlap that of the other eye, substantially as described.

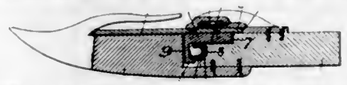
660,606. STENCIL-SHEET FOR AUTOGRAPHIC APPARATUS. KURT WALTER, Berlin, Germany. Filed Jan. 13, 1900. Serial No. 1,401. (No specimens.)

Claim.—1. A stencil-sheet for autographic apparatus, composed of external coats of the large intestine of cattle, as described.

2. A stencil-sheet for autographic apparatus, composed of intestinal membrane treated by being stretched in wet condition over a rack and dried, substantially as described.

3. A stencil-sheet for autographic apparatus, composed of external coats of the large intestine of cattle, prepared by being treated with water and acid, stretched in wet condition over a rack and dried, substantially as described.

660,607. MOWING AND REAPING MACHINE. CHARLES WHITNEY, Winnetka, Ill.; Orrilia Whitney administratrix of said Charles Whitney, deceased. Filed Dec. 2, 1898. Serial No. 698,048. (No model.)



Claim.—1. In a cutting apparatus for mowers and reapers, the combination of a finger-bar and an angle-iron cutter-bar, the former having a groove or channel along its front edge to form a raceway for antifriction-balls, and the latter working upon the top of the finger-bar and having its vertical flange depending in front of the groove to hold the balls in place.

2. In a cutting apparatus for mowers and reapers, the combination of a finger-bar rabbeted on its upper surface, a cutter-bar working in said rabbet, a groove or channel on the front edge of the finger-bar to form a supporting-race for antifriction-balls, and a flange on the cutter-bar to hold the balls in place.

3. In a cutting apparatus for mowers and reapers, the combination of a finger-bar rabbeted on its upper surface, a cutter-bar working in said rabbet, a guard-finger secured to the finger-bar, a groove or channel for antifriction-balls in the front edge of the finger-bar, and a flange depending from the cutter-bar between the guard-finger and the front edge of the cutter-bar, said flange operating to hold the balls in place, and the balls being adapted to receive the downward pressure and backward thrust of the cutter-bar.

660,608. LOW-DOWN SHORT-TURN GEAR FOR VEHICLES. MILTON O. WICKES, Holyoke, Mass. Filed Mar. 20, 1900. Serial No. 9,370. (No model.)



Claim.—1. In combination with the V-shaped brace E provided with springs at the axle-points of attachment, as shown—of binding-spring G, secured to a wall of the body above eyebolt *b*, and adapted to have its free end bear upon the end of the brace within the eyebolt, as and for the purpose set forth.

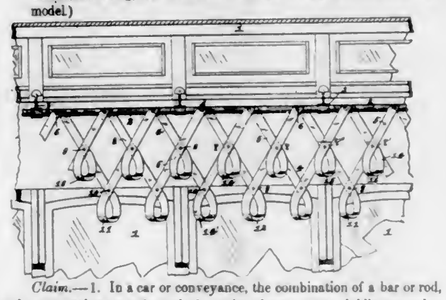
2. In a vehicle as described, the "fifth-wheel" or segment secured to the under part of the body, the segment C pivoted to the rear part of said fifth-wheel by the king-bolt, and connected to the spring in front of said king-bolt, the axle and spring mounted thereon as described, and the forked brace having each of its branching ends connected to the axle, and having its closed end pivoted to the downward extension of the body directly under the king-bolt, all combined substantially as described.

660,609. DRESS-STUD. GERALD WILSON, Leeds, England. Filed Apr. 10, 1900. Serial No. 12,292. (No model.)



Claim.—In a stud, the combination, with a plate A having a spring E struck up from it, of a plate F the edges of which inclose the edges of the plate A and protect the spring, a forked bracket having a base c' inclosed between the plates A and F with its arms projecting through openings in said plate A at the sides of the free end of the spring, and a bent tongue B pivoted between the said arms and engaging with the said spring, substantially as set forth.

660,610. SUPPORTING-STRAP FOR CARS, &c. LORENZO T. YODER, Pittsburg, Pa. Filed Nov. 27, 1899. Serial No. 738,262. (No model.)



Claim.—1. In a car or conveyance, the combination of a bar or rod, and a supporting-strap formed of a series of cross-straps rigidly secured to said bar or rod and to each other.

2. In a car or conveyance, the combination of a bar or rod, and a supporting-strap formed of a series of cross-straps rigidly secured to said bar or rod, and to each other, said cross-straps being provided with loops or handles at their lower ends.

3. In a car or conveyance, the combination of a bar or rod, and a supporting-strap formed of a series of cross-straps rigidly secured to said bar or rod and to each other at their crossings or intersections, said cross-straps being provided with loops or handles at such crossings or intersections.

4. In a car or conveyance, the combination of a bar or rod, and a supporting-strap formed of a series of cross-straps rigidly secured to said bar or rod and to each other at their crossings or intersections, said cross-straps being provided with loops or handles at their crossings and lower ends.

5. As a new article of manufacture, a supporting-strap for cars and conveyances, comprising a flexible strap formed of a series of cross-straps adapted to be rigidly secured to each other and to the supporting rod or bar of the car or conveyance.

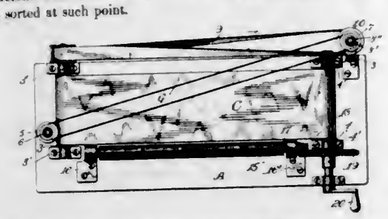
6. As a new article of manufacture, a supporting-strap for cars and conveyances, comprising a flexible strap formed of a series of straps adapted to cross each other at an angle and be rigidly secured to each other at their crossings or intersections, said cross-straps being adapted to be rigidly secured to the supporting bar or rod of the car or conveyance, and loops or handles formed on the lower ends of said cross-straps.

7. As a new article of manufacture, a supporting-strap for cars and conveyances, comprising a flexible strap formed of a series of straps adapted to cross each other at an angle and be rigidly secured to each other at their crossings or intersections, said cross-straps being adapted to be rigidly secured to the supporting bar or rod of the car or conveyance, and loops or handles formed at the crossings or intersections of said cross-straps.

660,611. SORTING MEANS. PETER J. ZEHNDER and BERNARD H. ZIEHLER, Dayton, Ohio. Filed Mar. 13, 1900. Serial No. 8,461. (No model.)

Claim.—1. Dimension-determining sorting means embodying a guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

2. Dimension-determining sorting means embodying a guide and a movable carrier having their guiding and carrying surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the carrier forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.



3. Dimension-determining supporting means embodying a guide and a movable endless carrier having guiding and carrying surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the carries forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

4. Dimension-determining sorting means embodying a movable guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

5. Dimension-determining sorting means embodying a movable endless guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

6. Dimension-determining sorting means embodying a movable endless guide and a movable endless carrier having their guiding and carrying surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the carrier forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

7. Dimension-determining sorting means embodying a guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a long sorting-path of progressively-varying widths, each width corresponding to a dimension of an article to be sorted at such point.

8. Dimension-determining sorting means embodying a guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support being disposed obliquely to each other and forming between them a sorting-path of progressively-varying widths, each width corresponding to a dimension of an article to be sorted at such point.

9. Dimension-determining sorting means embodying a guide and a support having juxtaposed guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

10. Dimension-determining sorting means embodying a support, and a guide movable in a path which is transverse to that of the support and which intersects that of the support to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point.

11. Dimension-determining sorting means embodying a guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point, and receiving means coöperating with the discharging portion of the support.

12. Dimension-determining sorting means embodying a guide and a support having their guiding and supporting surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the support forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point, and transferring means coöperating with the discharging portion of the support.

13. Dimension-determining supporting means embodying a guide and an endless carrier having their guiding and carrying surfaces, respectively, disposed in paths which intersect to form a guide-line, said guide-line and the discharging edge of the carrier forming between them a sorting-path of different widths, each width corresponding to a dimension of an article to be sorted at such point, and receiving means extending along and coöperating with the discharging edge of the carrier.

14. Sorting means embodying a guide and an endless carrier having their guiding and carrying surfaces respectively disposed in paths which intersect to form a guide-line, said guide-line and the discharging edge of the carrier forming between them a sorting-path of different widths, and a pair of transfer-rollers extending along and coöperating with said discharging edge of the carrier.

15. Sorting means embodying a carrier-belt, a guide-belt disposed transversely to, and having one edge thereof in juxtaposition with, the working surface of the carrier-belt, said edge of the guide-belt and the discharging edge of the carrier-belt forming between them a sorting-path of different widths, and means for actuating said belts in unison.

16. Sorting means embodying a carrier-belt; a guide-belt disposed transversely to, and having one edge thereof in juxtaposition with, the working surface of the carrier-belt, said edge of the guide-belt and the discharging edge of the carrier-belt forming between them a sorting-path of different widths; means for actuating said belts in unison; and a pair of transfer-rollers extending along the discharging edge of the carrier-belt and having their meeting line in the plane of the working run of said carrier-belt.

17. Sorting means embodying a guide and a movable carrier having their guiding and carrying surfaces respectively disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the carrier forming between them a sorting-path of different widths; transferring means coöperating with the discharging portion of the carrier; and means for actuating the carrier at one rate of speed and the transferring means at a high rate of speed relative to that of the carrier.

18. Sorting means embodying a guide and a movable carrier having their guiding and carrying surfaces respectively disposed in paths which intersect to form a guide-line, said guide-line and the discharging-line of the carrier forming between them a sorting-path of different widths; gripping transferring means coöperating with the discharging portion of the carrier; and means for actuating the carrier at one rate of speed and the transferring means at a high rate of speed relative to that of the carrier.

19. Sorting means embodying a guide and a carrier-belt having their guiding and carrying surfaces respectively disposed in paths which intersect to form a guide-line, said guide-line and the discharging edge of the carrier-belt forming between them a sorting-path of different widths; a pair of superimposed transfer-rollers coöperative with the discharging edge of the carrier-belt, the upper roller being freely movable vertically relatively to the lower; and means for actuating said carrier-belt and transfer-rollers.

20. Sorting means embodying a guide and a carrier-belt having their guiding and carrying surfaces respectively disposed in paths which intersect to form a guide-line, said guide-line and the discharging edge of the carrier-belt forming between them a sorting-path of different widths, and having elongated journal-openings; a pair of superimposed transfer-rollers coöperative with the discharging edge of the carrier-belt and journaled at their ends in said journal-openings; and means for actuating said carrier-belt and transfer-rollers.

660,612. **WEED-DESTROYER.** MILTON J. ANDERSON, Dufur, Oreg. Filed Jan. 5, 1900. Serial No. 508. (No model.)



Claim.—1. In a weed-destroyer, the combination with a seat-frame, and a cutter-carrying frame, of a wheeled axle extending across the seat-frame, frame-hangers sleeved on said axle and secured rigidly to the cutter-carrying frame, said hangers being mounted in the seat-frame to turn freely therein.

2. In a weed-destroyer, the combination with a seat-frame, and a cutter-carrying frame, of a polygonal wheeled axle extending across the seat-frame, frame-hangers sleeved on said axle and secured rigidly to the cutter-carrying frame, said hangers being mounted in the seat-frame to turn freely therein, and means for adjusting the cutter-carrying frame, substantially as described

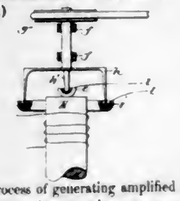
3. In a weed-destroyer, the frame-hanger cast in a single piece and comprising the shank and the sleeve arranged substantially at right angles one to the other, said sleeve having a polygonal axle-opening and the external annular collars, substantially as described.

4. In a weed-destroyer, a frame-hanger consisting of the right-angularly-arranged sleeve and shank, said shank provided with a longitudinal groove, and the sleeve having an annular groove bounded by the spaced collars, substantially as described.

5. In a weed-destroyer, the combination with a seat-frame, of the axle-boxes, the frame-hangers having grooved sleeves fitted loosely in said boxes, a cutter-carrying frame secured firmly to the hangers, an axle passing through the sleeve of said hangers, and means for adjusting said cutter-frame, substantially as described.

6. In a weed-destroyer, a double cutter consisting of blades meeting one another and united together at the center of the cutter, the meeting ends of said blades being beveled and inclined to form a sharpened prow, and the blades being formed to diverge rearwardly from a point in the rear of the sharpened front edge of the prow and one of the blades being continued upwardly at its front end to form a colter, and curved fingers attached to the colter with their upper ends extending away from and over the blade of which the colter forms a part.

660,613. **PROCESS OF AMPLIFYING ELECTRIC CURRENTS.** JOSEPH E. BAKER, Newton, Mass. Filed Nov. 23, 1899. Serial No. 738,066. (No model.)



Claim.—1. The process of generating amplified varying signaling-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by the varying signaling-current, that the electromotive force generated in the moving conductor is independent of the position of the conductor within the magnetic field, substantially as described.

2. The process of generating amplified varying signaling-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by the varying current, that the electromotive force generated in the conductor is determined solely by variations in the density or sign of the magnetic field, taken as a whole, and not by the position of the conductor within the field, substantially as described.

3. The process of generating amplified varying signaling-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by the varying signaling-current, that the conductor, its direction of motion and the line of force which is cut shall at all times be each at right angles to the others, substantially as described.

4. The process of generating amplified varying signaling-currents which consists in causing a conductor to so move in a unipolar magnetic field, generated in whole or in part by the varying currents that the conductor and its line of motion shall each be at all times at right angles to each other and the line of force which they cut, substantially as described.

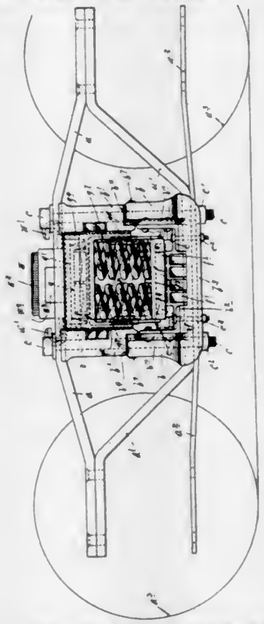
5. The process of generating amplified telephone-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by a telephone-current, that the electromotive force generated in the moving conductor is independent of the position of the conductor within the magnetic field, substantially as described.

6. The process of generating amplified telephone-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by a telephone-current, that the electromotive force generated in the conductor is determined solely by variations in the density or sign of the magnetic field, taken as a whole, and not by the position of the conductor within the field, substantially as described.

7. The process of generating amplified telephone-currents which consists in causing a conductor to so move in a magnetic field, which is generated in whole or in part by a telephone-current, that the conductor, its direction of motion and the line of force which is cut shall at all times be each at right angles to the others, substantially as described.

8. The process of generating amplified telephone-currents which consists in causing a conductor to so move in a unipolar magnetic field, generated in whole or in part by the telephone-currents that the conductor and its line of motion shall each be at all times at right angles to each other and the line of force which they cut, substantially as described.

660,614. **CAR-TRUCK.** JOHN C. BARBER, St. Paul, Minn. Filed Apr. 7, 1900. Serial No. 11,920. (No model.)



Claim.—1. In a car-truck a column incorporated in one of the side frames thereof, which column is formed in sections united by a lapped joint having an elongated or extended bearing transversely of the truck, substantially as described.

2. In a car-truck, a column constructed in sections, united by a lap-joint formed by an open channel in one section fitting a rib or head on the other section, substantially as described.

3. In a car-truck a pair of columns constructed in sections united by lap-joints, the lower column-sections being formed integral with a saddle or bridge that rests upon and embraces the side-frame truss-bar, substantially as described.

4. In a car-truck, the combination with the trussed side frames, of saddles or bridges reinforcing the truss-bar between the columns and provided with parallel hollow or channel-like girders b^3 embracing said truss-bar and columns, at least the lower parts of which are formed integral with said saddle or bridge, substantially as described.

5. In a car-truck, the combination with the trussed side frames, of columns therefor constructed in detachable sections, and transverse tie-bars connecting the corresponding lower column-sections of the opposite side frames, substantially as described.

6. In a car-truck, the combination with the trussed side frames of columns formed in sections, saddles or bridges formed integral with the lower column-sections and reinforcing the truss-bar between said columns, and transverse tie-bars rigidly connecting the lower column-sections of the opposite side frames, substantially as described.

7. In a car-truck, the combination with the trussed side frames, of the bolster-columns therefor formed in sections, the lower sections being formed integral with a saddle or bridge, resting upon and reinforcing the truss-bar between the columns, column-bolts passed through said sectional columns and the side-frame bars, and a transverse tie-bar rigidly connecting the lower column-sections, substantially as described.

8. The combination with a trussed side frame, of the saddle or bridge b^3, having the parallel girders b^3 embracing the truss-bar, and formed integral with the column-sections b, said columns being completed by the detachable sections b', said sections b projecting inward at b^3 to form chafing-surfaces, and column-bolts passed through said sectional columns and the bars of the trussed side frames, substantially as described.

9. The combination with the trussed side frames, of the sectional columns b, b', the saddles or bridges constructed integral with the column-sections b, and having the twin girders b^3 embracing the frame truss-bar, and the transverse tie-bars c' riveted to flanges of the column-sections b and secured by bolts c^3 to said twin girders b^3, substantially as described.

10. A truck-bolster comprising a pair of channel-bars interlapped at their ends and spaced apart at their centers, caps or hoods engaging over

the interlapped ends of said bars, and one or more keys each passed through both walls of said hood, and both flanges of both channel-bars, substantially as described.

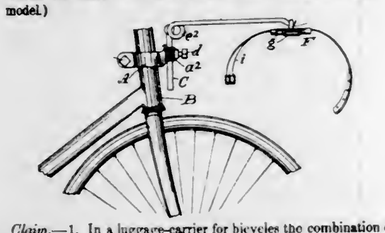
11. A truck-bolster comprising bars drawn together at their ends, caps fitting over the ends of said bars, and a hollow key having corner slits at one or more ends, said key being insertible through seats in said bars and cap and adapted to be expanded, to secure it in position, substantially as described.

12. In a truck-bolster, the combination with the channel-bars g and g' secured at their ends with their flanges interlapped as described, of the center column or strut m fitted between the flanges of the channel-bar g' and having the flanges m' embracing the channel-bar g and holding the same against lateral movements, substantially as described.

13. The combination with a truck-bolster of casting secured thereto, said casting having the brake-supporting hooks w', the pockets w^2 and the stop projections w^3, said parts operating substantially as described.

14. In a car-truck, the combination with trussed side frames involving vertical columns, of a pair of angle-irons tying together the lower portions of transversely-opposite columns, and spaced apart to permit dirt to pass between them, substantially as described.

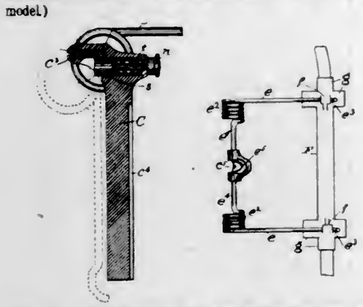
660,615. **LUGGAGE-CARRIER FOR BICYCLES, &c.** MARTIN BAUER, Cleveland, Ohio. Filed May 23, 1900. Serial No. 18,205. (No model.)



Claim.—1. In a luggage-carrier for bicycles the combination of the clamp secured to the bicycle, a stem vertically adjustable in said clamp, a rod or wire passing transversely through the stem and having at its extremities coils which terminate in forward-extending arms terminating in hooks, and a holder having eyes to engage said hooks and guides for the straps or cords by which the bundle is secured thereto, substantially as described.

2. In a luggage-carrier for bicycles the combination of a clamp secured to the bicycle, a detachable stem vertically adjustable in said clamp, a rod or wire passing transversely through the stem pivotally and having at its extremities coils which terminate in forward-projecting arms provided terminally with hooks, and a holder provided with eyes for engaging said hooks and with guides for receiving the cords or straps by which the bundle is secured thereto, substantially as described.

660,616. **LUGGAGE-CARRIER FOR BICYCLES, &c.** MARTIN BAUER, Cleveland, Ohio. Filed Aug. 30, 1900. Serial No. 28,490. (No model.)



Claim.—1. In a luggage-carrier for bicycles the combination of a clamp secured to the bicycle, a stem vertically adjustable in said clamp, a rod or wire passing transversely through the stem and having centrally a stop to limit its downward rotation and at its extremities coils which terminate in forward-projecting arms provided terminally with hooks, and a holder having eyes to engage said hooks and means for securing the bundle thereto, substantially as described.

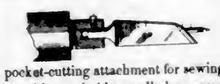
2. In a luggage-carrier for bicycles the combination of a clamp secured to the bicycle, an upright stem supported by said clamp, a rod or wire passing transversely through the stem pivotally and having centrally a stop to limit its downward rotation and at its extremities coils which terminate in forward-projecting arms provided terminally with hooks, a catch in said stem engaging said stop and supporting the arms in position for use, and a holder having eyes to engage said hooks and provided with means for securing the bundle thereto, substantially as described.

3. In a luggage-carrier for bicycles the combination of a clamp secured to the bicycle, an upright stem supported by said clamp, a rod or wire passing transversely through the stem pivotally and having centrally a stop to limit its downward rotation and at its extremities coils which terminate in forward-projecting arms provided terminally with hooks, a movable catch in said stem engaging said stop and supporting the arms in position for use, and a holder having eyes to engage said hooks and provided with means for securing the bundle thereto, substantially as described.

4. In a luggage carrier for bicycles the combination of a clamp secured to the bicycle, an upright stem supported by said clamp, a rod or wire passing transversely through the stem pivotally and having centrally a stop to limit its downward rotation and at its extremities coils which terminate in forward-projecting arms provided terminally with hooks, a spring-catch in said stem engaging said stop and supporting the arms in position for use, and a holder having eyes to engage said hooks and provided with means for securing the bundle thereto, substantially as described.

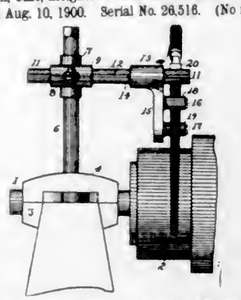
5. In a luggage-carrier for bicycles the combination of a clamp secured to the bicycle, a detachable stem vertically adjustable in said clamp, a rod or wire passing transversely through the stem pivotally and having centrally a stop to limit its downward rotation and at its extremities coils which terminate in forward-extending arms with terminal hooks, a spring-catch in said stem engaging said stop and supporting the arms in position for use, and a holder provided with eyes for engaging said hooks and with guides for receiving the cords or straps by which the bundle is secured thereto, substantially as described.

660,617. **SEWING AND CUTTING MACHINE.** BENJAMIN BISSINGER, Chattanooga, Tenn. Filed Sept. 7, 1897. Serial No. 650,868. (No model.)



Claim.—A pocket-cutting attachment for sewing-machines, comprising in combination with a suitable needle-bar, presser-foot, and throat-plate, a cross-head or support carried by the needle-bar, a pair of needles mounted in such support and arranged in a vertical plane which is at right angles to the line of feed of the material, and a removable cutter-blade mounted between the needles and having its cutting edge lying in a vertical plane at right angles to the plane of the needles and in position to be intersected by the vertical plane including the needles, whereby the said attachment is adapted to cut a longitudinal pocket-opening in the material being operated upon, and to form conterminous parallel lines of stitching on each side of the said opening, substantially as set forth.

660,618. **DEVICE FOR TRUING COMMUTATORS.** PERCY B. BOSWORTH, Akron, Ohio, assignor of one-half to Frank O. Carnahan, same place. Filed Aug. 10, 1900. Serial No. 26,516. (No model.)



Claim.—1. In a commutator-truing device, the combination with a supporting-post adapted to be secured to the dynamo-housing, of a transverse shaft adjustably secured to said post, and a radial arm adapted to slide on said shaft, secured against rotation thereon and provided with parallel rollers to form file-guides, substantially as shown and described.

2. In a commutator-truing device the combination of a post with a transverse shaft adjustably secured thereto bearing a sliding arm having parallel rollers to form file-guides, and means for adjustably securing said post to the dynamo-housing at determinate distances from the commutator, substantially as shown and described.

660,619. **BUTTON.** DANIEL A. CARPENTER, New York, N. Y. Filed May 19, 1899. Serial No. 717,435. (No model.)



Claim.—1. A button composed of a head, a stem and a cap 3; the head having in it a central perforation and containing a central recess in its face, and the stem containing a passage extending through it from end to end, the size of the passage adapting the stem to fit a tack-fastener; and the stem extending through the perforation in the head and having on it an outwardly-projecting lip in the recess in the head, and the cap being secured on the stem by the inturned edge of the cap extending between the lip of the stem and the head, and the button containing a cavity extending over the lip, and between the lip and the dome of the cap 3, and affording room in which a tack-fastener may be upset between the dome of the cap and the stem; substantially as described.

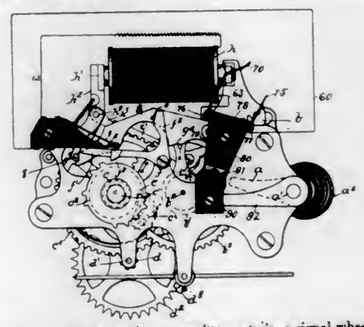
2. A button composed of a head, a stem and a cap 3; the head having in it a central perforation and containing a central recess in its face, and the stem comprising a neck 21; and the neck 21 extending into the head and having on it a lip 24 in the recess in the head, and the cap being secured to the stem by the inturned edge of the cap extending between the lip 24 and the head, and the button containing the cavity 31 extending over the lip, and between the lip and the dome of the cap, and affording room in which a tack-fastener may be upset between the dome of the cap and the neck 21 of the stem; substantially as described.

3. A button composed of a head, a stem and a cap 3; the head having in it a central perforation and containing a central recess in its face, and the stem comprising a neck 21 with an annular projection at the base of the neck; and the neck of the stem extending through the perforation in the head, and having on it a lip 24 in the recess in the head, the annular projection at the base of the neck being behind the head, and the cap being secured on the stem by the inturned edge of the cap extending between the lip 24 and the head, and the button containing the cavity 31 extending over the lip, and between the lip and the dome of the cap, and affording room in which a tack-fastener may be upset between the dome of the cap and the neck 21 of the stem; substantially as described.

4. A button composed of a head, a stem 2 and a cap 3; the head having in it a central perforation and containing a central recess in its face, and the neck 21 of the stem extending through the perforation in the head, and having on it a lip 24 in the recess in the head, the shoulder 22 of the stem being against the back of the head, and the cap being secured on the stem by the inturned edge of the cap extending between the lip 24 and the head, and the button containing the tack-holding cavity 31 at the inner end of the stem within the cap; substantially as described.

5. A button composed of a head, a stem and a cap 3; the head having in it a central perforation and containing a central recess in its face, and the stem comprising a body 20, a neck 21 on the body, and a shoulder at the base of the neck; and the neck of the stem extending through the perforation in the head, and having on it a lip 24 in the recess in the head, and the cap being secured on the stem by the inturned edge of the cap extending between the lip 24 and the head, and the button containing the tack-holding cavity 31 at the inner end of the stem within the cap, and the head being loose on the neck of the stem; substantially as described.

660,620. **NON-INTERFERENCE SIGNAL-BOX.** FREDERICK W. COLE, Newton, Mass., assignor to the United States Fire and Police Telegraph Company, Boston, Mass. Filed Nov. 13, 1899. Serial No. 736,760. (No model.)



Claim.—1. In a signal-box transmitter, a train, a signal-wheel, circuit-contacts 2, 3, a signaling-key adapted to be engaged and operated by said signal-wheel to in turn operate said contacts and transmit the signal, a locking-lever for said train constructed and arranged to engage said signaling-key and hold it with the circuit-contacts 2, 3 closed when the transmitter is at rest, substantially as described.

2. In a signal-box transmitter, a train, a signal-wheel, circuit-contacts 2, 3, a signaling-key comprising the arms f', f^2, one of said arms, as f', occupying a position between the signal-wheel and circuit-contacts to be engaged and operated by said signal-wheel, and a locking-lever for the train adapted to engage the other arm, as f^2, of said signaling-key when the transmitter is at rest and hold said signaling-key with the circuit-contacts 2, 3, closed, substantially as described.

3. In a signal-box transmitter, a signaling-train, a locking-lever for it and a device operated by the winding-arm for positively moving said locking-lever to allow the train to operate which is operated by the train in running to restore said locking-lever to its normal position, substantially as described.

4. In a signal-box transmitter, a signaling-train, a locking-lever for it having an engaging portion g^2 and a finger g^3, a device operated by the winding-arm which engages said finger g^3 and moves the locking-lever to allow the train to operate and which is operated by the train in running to restore said locking-lever, substantially as described.

5. In a signal-box transmitter, a signaling-train, a locking-lever for it, a device for normally holding said locking-lever in position to stop the train and means for moving said device to positively move said locking-lever into position to allow the train to operate, substantially as described.

6. In a signal-box transmitter, a signaling-train, a locking-lever for it, a device for normally holding said locking-lever in position to stop the train and means for moving said device to positively move said locking-lever into position to allow the train to operate, and means for also moving said device to positively restore the locking-lever to its normal position, substantially as described.

7. In a signal-box transmitter, a signaling-train having the reciprocating wheel b^2, a locking-lever for said train, a pinion on the shaft bearing said wheel b^2, a sector engaging said pinion which is connected with the actuating-spring, and a pin 6 on said wheel b^2 which restores said locking-lever and holds it in position to stop the train, substantially as described.

8. In a signal-box transmitter, a signaling-train having the reciprocating wheel b^2, a locking-lever for said train having a finger g^3, a pinion on the shaft bearing said wheel b^2, a sector engaging said pinion, the actuating-spring a^2 with which said sector is connected, and a pin 6 on said wheel b^2 which restores the locking-lever and holds it in position to stop the train and also engages said finger g^3 to thereby move the locking-lever into position to allow the train to operate, substantially as described.

9. In a non-interference signal-box, a non-interference magnet, its armature, a signaling-key adapted to coöperate with said armature as hereinafter stated, circuit-contact 2, 3, operated by said signaling-key, a signal-wheel, a train for operating said signal-wheel, a locking-lever for said train which when holding the train also holds the signaling-key with the circuit-contacts 2, 3 closed, and means for operating said locking-lever to first release the train and thereafter release the signaling-key to open said contacts 2, 3, said signaling-key when thus released and the circuit-contact 2, 3 thus opened locking the armature in its attracted position, substantially as described.

10. In a non-interference signal-box, a non-interference magnet, its armature, a signal-wheel, a signaling-key and circuit-contacts 2, 3, operated by it, a train for operating said signal-wheel to in turn operate said signaling-key, a locking-lever for said train which when holding the train also holds the signaling-key with the circuit-contacts 2, 3, closed and also holds the said armature in its attracted position, and means for operating said locking-lever to release the train and armature and after a predetermined length of time release the signaling-key, substantially as described.

11. In a non-interference signal-box, a signaling-train, a stop-pin carried by one of the moving members of said train, a locking-lever for said train having two engaging faces, one of which engages said stop-pin and thereby arrests the train and the other coöperates with said stop-pin to be held by it in an intermediate position for an interval of time longer than the longest closure in any signal, substantially as described.

12. In a non-interference signal-box, a signal-transmitter, a non-interference device, a disabling device for said non-interfering device and means for operating said disabling device during one complete round of the signal to prevent the said non-interfering device from performing its regular functions, substantially as described.

13. In a non-interference signal-box, a signal-transmitter, a non-interfering device, a disabling device for said non-interfering device and means for operating said disabling device during the final round of the signal to prevent the said non-interfering device from performing its regular functions, substantially as described.

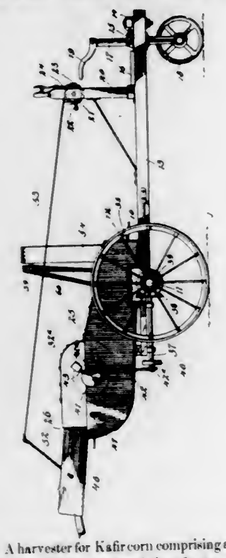
14. In a non-interference signal-box, a signal-transmitter, a non-in-

terfering device, means for permitting said non-interfering device to act freely for an interval of time longer than the longest closure in any signal prior to the transmission of the first impulse, means for disabling the non-interfering device during the intervals of time that the circuit-contacts 2, 3, of the transmitter are open, and means for also disabling the non-interfering device during one complete round of the signal, substantially as described.

15. In a non-interference signal-box, a signal-transmitter, a non-interfering device, and a device operated by one of the coöperating parts of the signaling-train for holding said non-interfering device disabled during a complete round of the signal, substantially as described.

16. In a non-interfering signal-box, a signal-transmitter, a non-interfering device, and a device operated by one of the coöperating parts of the signaling-train for restoring the non-interfering device and for holding it restored a complete round of the signal, substantially as described.

660,621. **COMBINED HEADER AND THRESHER.** CLARENCE L. CORRELL, Burns, Kans. Filed Dec. 2, 1899. Serial No. 739,008. (No model.)



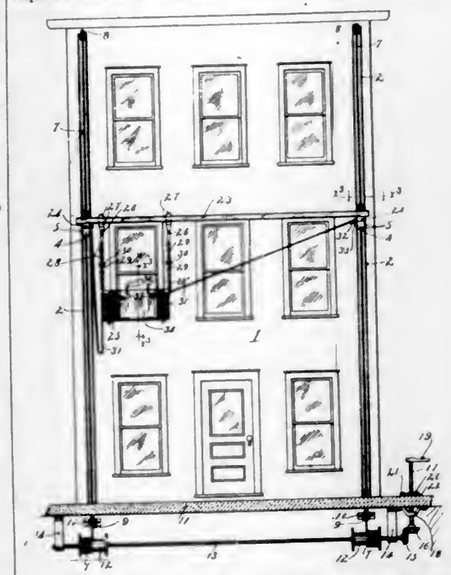
Claim.—1. A harvester for Kafir corn comprising a supporting-frame having a push-beam projecting rearward therefrom, a supporting-wheel in a steering-yoke mounted in the push-beam, the forward-extending harvesting-chute disposed in line with the push-beam and pivotally supported at its rear end, the bottom of the said harvesting-chute having rearward-converging cutter-plates at its front end and forward-projecting guide-fingers leading to said cutter-plates, a winch on the push-beam and connections between said winch and the front portion of the harvesting-chute, whereby the front end of the latter may be raised and lowered, in combination with a thresher mechanism at the rear lower end and on a lower plane than the bottom of the said rear end of the said chute, substantially as described.

2. In a harvester for Kafir corn, a harvesting-chute pivoted at its rear end and thereby adapted for vertical adjustment at its front end, the bottom of said chute having rearward-converging cutter-plates at its front end and forward-projecting guide-fingers leading to said cutter-plates, in combination with a thresher mechanism disposed at the rear end of said harvesting-chute and in a lower plane than the bottom of the rear end thereof, whereby the grain is discharged from said harvesting-chute to said thresher mechanism, substantially as described.

3. A combined header and thresher comprising a frame, a threshing mechanism thereon, the cylinder of which is provided with a crank-disk, the driving-shaft also provided with a crank-disk, a pitman having ball-and-socket connections with the crank-disks of the driving-shaft and the cylinder-shaft, a gathering-chute inclined toward the threshing mechanism for delivering its contents directly thereto, and a cutter mechanism carried by the gathering-chute, substantially as described.

660,622. **FIRE-ESCAPE.** JOHN DERUS, Minneapolis, Minn., assignor of one-third to John Gieriet, same place. Filed June 7, 1900. Serial No. 19,374. (No model.)

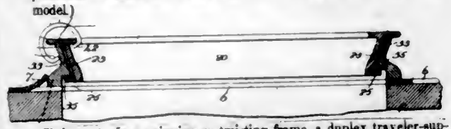
Claim.—1. The combination with a building having windows or openings at the different stories, of a fire-escape comprising a horizontal rail, a pair of windlasses operated from a common source and provided with flexible connections suspending said rail from the upper portion of the building with freedom for vertical movements always in a horizontal position, truck-wheels movable on said horizontal rail, and a car or basket suspended from said truck-wheels, substantially as described.



2. The combination with a building having windows or openings at the different stories, of a fire-escape comprising a vertically-movable horizontal rail, a pair of windlasses and flexible connections suspending said rail from the upper portion of the building, which windlasses are operated by a common device from near the ground, a pair of trucks movable on said rail, and a car or basket suspended from said trucks by a pair of flexible connections, substantially as described.

3. The combination with the vertical tracks or channels 2, of the trucks 4, 5, movable over said tracks 2, a horizontal rail 23 secured to said trucks, the windlass-shaft 13 with winding-drums 12, the flexible connections 7 connecting said drums to said vertically-movable trucks, the guide-sheaves over which said connections 7 run, the operating-shaft 17 with crank 19, the bevel-pinions 15 and 16 connecting said shafts 13 and 17, the trucks 26 27 movable on said horizontal rail 23, and the car or basket suspended from said trucks, substantially as described.

660,623. **YARN SPINNING OR TWISTING APPARATUS.** GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,286. (No model.)



Claim.—1. In a spinning or twisting frame, a duplex traveler-support composed of concentric fixed and movable members having frusto-conical adjacent faces, and a traveler to coöperate with both members.

2. In a spinning or twisting frame, a duplex traveler-support composed of concentric fixed and movable members having adjacent inverted frusto-conical faces, and a traveler to coöperate with both members.

3. In a spinning or twisting frame, a duplex traveler-support composed of concentric fixed and movable members having frusto-conical adjacent faces, and a circular flange at the upper end of each member, to retain a traveler upon the support.

4. The combination of a rotatable ring capable of radial and axial movement, a fixed ring concentric therewith, and a traveler coöperating with both rings, the adjacent faces of the latter being conical, whereby rise of the rotatable ring correspondingly increases the clearance between it and the fixed ring.

5. The combination of rotatable and fixed concentric rings having frusto-conical body portions, a traveler-race on each, a traveler in simultaneous engagement with both races, and means to limit upward movement of the rotatable ring.

6. The combination of a rotatable ring capable of radial and vertical movement under the stress of the yarn and having a traveler-race, of a concentric fixed ring, and means to increase automatically the lateral clearance between said rings as the rotatable ring rises.

7. In a spinning and twisting frame, a duplex ring composed of fixed and rotatable sections, each provided with a traveler-race, the adjacent faces of said sections being frusto-conical, a traveler to coöperate with both races, and means to limit axial movement of the rotatable section.

8. In a spinning and twisting frame, a rotatable, flanged ring having a conical external face, a surrounding fixed ring having a conical inner face and also provided with a flange, and a traveler in engagement with both rings and retained thereon by the flanges.

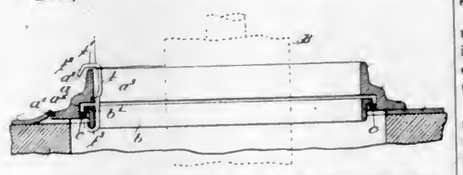
9. In a spinning and twisting frame, a duplex ring composed of fixed and rotatable sections, each provided with a traveler-race, the adjacent faces of said sections being frusto-conical, the movable section being weighted at its foot to prevent undue lifting movement.

10. In a spinning or twisting frame, a rotatable ring capable of radial and axial movement, a traveler coöperating therewith, and a conical support for and concentric with said ring and with which the traveler also coöperates.

11. The combination of a rotatable ring axially and radially movable relatively to the spindle, said ring having a race, a traveler revoluble about said race, and means for limiting the described movement of the ring, constructed and arranged to prevent a variable clearance between it and the ring proportional to the axial movement of the latter, the traveler being also in operative engagement with said means.

12. In a spinning and twisting frame, a duplex ring composed of fixed and rotatable sections, each provided with a traveler-race, the movable section being weighted at its foot to prevent undue lifting movement.

660,624. **YARN SPINNING OR TWISTING APPARATUS.** GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,287. (No model.)



Claim.—1. In a spinning or twisting frame, a duplex traveler-support composed of a fixed and a movable member arranged one above the other and each having a race for a traveler.

2. In a spinning or twisting frame, a duplex traveler-support comprising a fixed annular member having a traveler-race, a movable annular member also having a traveler-race and capable of gyratory movement under the stress of the yarn, said members being superposed one above the other.

3. The combination of a fixed ring having an upturned flange, and provided with an internal recess, a rotatable ring capable of gyratory movement and having a laterally-extended flange to loosely enter said recess, and a traveler to engage the depending web of the rotatable ring and the upturned flange of the fixed ring.

4. The combination of a fixed and a rotatable ring, the latter being capable of gyratory movement under the stress of the yarn, means to support the rotatable ring vertically by or through the fixed ring, and a traveler in operative engagement with both of said rings.

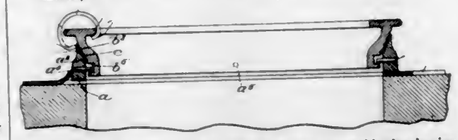
5. In a spinning or twisting frame, a fixed ring having a traveler-race, and a rotatable, radially and axially movable ring, also having a traveler-race, said races being located one above the other, and a traveler to simultaneously engage the races and revoluble between the rings and the bobbin.

6. The combination with a fixed ring having a traveler-race at its top, of a rotatable ring freely supported by and depending below the fixed ring and having a traveler-race at its lower end, means to limit gyratory movement of the rotatable ring due to stress of the yarn, and a traveler revoluble upon the races of the said rings.

7. The combination with a fixed ring having an upturned flange to form a race, said ring also having an integral, overhanging shoulder, a rotatable and radially-movable ring having a depending web and with a laterally-extended flange at its upper end, to extend beneath said shoulder, an annular retaining-rib on the fixed ring, beneath the flange of the rotatable ring, and a traveler to simultaneously engage the lower edge of the rotatable ring and the race of the fixed ring.

8. In a spinning or twisting frame, a fixed and a rotatable ring of substantially equal internal diameter and each provided with a traveler-race, said rings being arranged in axial alinement, and a traveler to simultaneously coöperate with the two races.

660,625. **YARN SPINNING OR TWISTING APPARATUS.** GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,288. (No model.)



Claim.—1. In a spinning or twisting frame, a rotatable ring having a traveler-race, a traveler, and means to exert automatically a drag on the traveler when the frame is running at speed.

2. In a spinning or twisting frame, a rotatable ring having a traveler-race, a traveler, and a fixed race, the traveler being moved by centrifugal force into engagement with the fixed race when the frame is running at speed.

3. In a spinning or twisting frame, a rotatable ring capable of radial and axial movement under the stress of the yarn, and provided with a traveler-race, means to limit radial movement of the ring, said means also having a traveler-race, and a traveler, the action of centrifugal force effecting engagement of the traveler with the latter race when the frame is running at speed.

4. The combination with a rotatable ring having outer and inner races for the traveler, of a surrounding fixed ring having a traveler-race adjacent the outer movable race.

5. The combination with a rotatable ring having a double flange for the traveler, of a fixed ring having a traveler-race, and the traveler, the latter being caused to engage the fixed race by or through centrifugal force.

6. The combination with concentric and relatively-movable annular members having inverted frusto-conical adjacent faces, each member having a traveler-race, of a traveler, said races being so located that the traveler is made to engage the race of one of the members by or through centrifugal action.

7. The combination with a rotatable ring capable of radial and axial movement, and a traveler in engagement with the ring, of fixed means for limiting radial and axial movement and provided with a bearing-surface onto which the traveler is moved by centrifugal action.

8. The combination with a rotatable ring having a double-flanged head, and a traveler revoluble upon said head, of a fixed traveler-race located below and adjacent one of said flanges, to at times be engaged by the traveler.

9. In a spinning or twisting frame, a traveler-support provided with fixed and rotatable traveler-races, and a traveler, the latter coöperating with one of the races when running at low speed and movable by or through centrifugal action into engagement also with the other race when running at high speed.

10. In a spinning or twisting frame, a rotatable ring capable of radial and axial movement under the stress of the yarn, and provided with a traveler-race, a traveler revoluble thereon, and fixed means for limiting radial and axial movement of the said ring, upward movement of the latter when running at high speed increasing the clearance between it and the said means, the traveler at such time being brought by centrifugal action into engagement with said means.

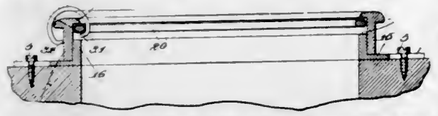
11. The combination with a rotatable ring having oppositely-extended, lateral flanges to form a traveler-race, of a concentric fixed ring having a substantially vertical traveler-race adjacent and below one of the flanges, and a traveler adapted to travel initially in engagement with the flanges and thereafter to also engage the fixed race.

12. The combination with a rotatable ring, and a traveler coöperating therewith, of a fixed race intermittingly coöperating with the traveler.

660,626. **YARN SPINNING OR TWISTING APPARATUS.** GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,289. (No model.)

Claim.—1. In a spinning or twisting frame, a traveler-support comprising a fixed annular member having an internal, overhanging annular projection, at or near its upper end, and an oppositely-extended flange, a

rotatable ring within the fixed member below the projection thereof and capable of radial and axial movement, means to support said ring when quiescent, and a traveler in engagement with said ring and also with the fixed member.



2. In a spinning or twisting frame, a traveler-support comprising a fixed ring having an internal flange or projection at or near its upper end, and an oppositely-extended flange, a loose, rotatable ring of substantially elliptical cross-section, means to support it when at rest, and a traveler in engagement with the fixed and rotatable rings.

3. In a spinning or twisting frame, a traveler-support comprising fixed annular retaining means provided with an internal annular recess and an external traveler-race, a rotatable, radially-movable ring loosely held in said recess, and a traveler coöperating with said traveler-race and the loose ring.

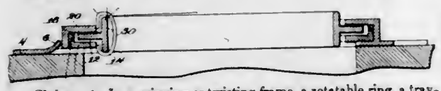
4. In a spinning or twisting frame, a loose, rotatable ring substantially elliptical in cross-section, supporting and retaining means for said ring, and a traveler adapted to engage said means and the ring, rotating and effecting axial movement of the latter when the frame is running at speed.

5. In a spinning or twisting frame, a fixed ring having an external flange and an internal flange, at its upper end, an annular projection within said ring, below its inner flange, a rotatable ring radially and axially movable in the annular recess between said flange and projection, and a traveler in engagement with said rotatable ring and the outer flange of the fixed ring.

6. The combination with a fixed member having a T-shaped head and an internal annular projection below the head, of a flattened rotatable ring radially and axially movable between said head and projection and adapted to be engaged by a traveler.

7. In a duplex-ring construction the combination, with the stationary flange, of a revolving portion of uniform section so shaped as to be reversible for double use or wear.

660,627. YARN SPINNING OR TWISTING APPARATUS. GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,290. (No model.)



Claim.—1. In a spinning or twisting frame, a rotatable ring, a traveler adapted to be engaged on its inner side by said ring, and a stationary bearing to coöperate with the outer side of the traveler.

2. In a spinning or twisting frame, a rotatable ring having a race to be engaged by the inner side of the traveler ends, and a stationary, annular race to engage the outer side of the traveler ends.

3. In a spinning or twisting frame, a rotatable ring, a traveler adapted when drawn inward to engage and rotate said ring, and a fixed, surrounding annular race adapted to be engaged by the traveler when moved outward by or through centrifugal action.

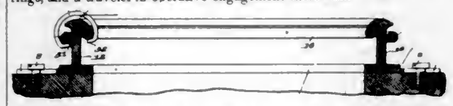
4. In a spinning or twisting frame, a rotatable ring having upper and lower external races, corresponding upper and lower fixed races surrounding the said ring, and a traveler having its ends inturned between said pairs of races, the inner sides of the said ends coöperating with the races on the rotatable ring.

5. The combination with the rotatable ring comprising a horizontal web and upper and lower flanges at its inner circumference, of fixed annular retaining means having an internal recess to loosely receive the web of the rotatable ring, and a traveler adapted to embrace the flanges of the rotatable ring.

6. The combination with a rotatable ring comprising a horizontal web and upper and lower flanges at its inner circumference, of concentric flanged rings in frictional engagement with each other and presenting an internal annular recess to loosely receive the web of the rotatable ring, a traveler in engagement with the flanges of the latter, and a holder for said frictionally-engaged rings.

660,628. YARN SPINNING OR TWISTING APPARATUS. GEO. O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed May 11, 1900. Serial No. 16,291. (No model.)

Claim.—1. In a spinning or twisting frame, a plurality of rotatable rings, and a traveler in operative engagement therewith.



2. In a spinning or twisting frame, a plurality of rotatable rings, a traveler in operative engagement therewith, and fixed means to limit the movement of the rings.

3. In a spinning or twisting frame, inner and outer rotatable rings, an annular, fixed guide interposed between the rings, and a traveler in operative engagement with said rings.

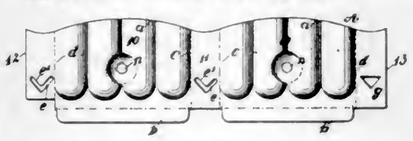
4. In a spinning or twisting frame, two concentric and rotatable rings capable of radial and axial movement under the stress of the yarn, and a traveler in engagement with both rings.

5. The combination with a fixed annular guide having a laterally-extended head, of two rotatable rings separated by the guide and limited in their axial movement by the head thereof, and a traveler straddling the guide and in operative engagement with the rings.

6. The combination with an upright, fixed annular guide, of two rotatable rings separated thereby and capable of gyratory movement, and a traveler in operative engagement with the rings and spanning the upper end of the guide.

7. In a spinning or twisting frame, two rotatable rings substantially circular in cross-section, and capable of gyratory movement, a traveler in operative engagement with the rings, and means to guide the latter.

660,629. SASH-PULLEY. JOHN DUFFY, Grand Rapids, Mich. Filed Nov. 24, 1897. Serial No. 659,654. (No model.)



Claim.—1. A pulley-casing formed of a sheet-metal plate bent into form with its ends overlapping each other at one end of the casing, one overlapping end being provided with an opening and the other with a tongue adapted to be bent outward through said opening and into engagement with the end wall of the mortise, after the casing has been inserted in said mortise, whereby the ends of the casing will be locked together and the casing secured in its mortise, as set forth.

2. A sheet-metal pulley-casing provided with side flanges and having overlapping portions at one end of the casing, one overlapping portion being provided with an opening and the other with a tongue, the other end of the casing being also provided with a tongue, said tongues being adapted to be bent outward into engagement with the end walls of the mortise after the casing has been inserted in said mortise, substantially as described.

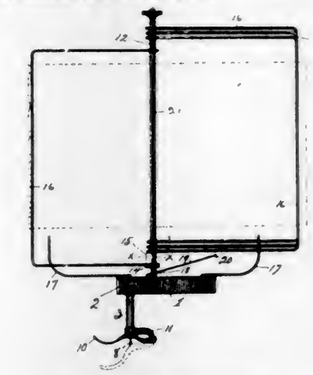
3. A blank for a pulley-casing, comprising an approximately rectangular plate provided on one longitudinal edge with extensions on the portions that are to form the sides of the casing, the plate being apertured in the portions to form the sides of the casing and provided at one end with an opening and at the other end with a tongue, said ends being adapted to be overlapped and secured together by the tongue of one overlapping portion entering the opening of the other portion, substantially as described.

4. A blank for a pulley-casing, consisting of an approximately rectangular plate, having two widened corrugated side portions 10 having extensions *b* at one end, a narrow portion 11 connecting the side portions and provided with a tongue *e'*, and end portions 12 and 13, the end portion 13 being provided with the opening *g* and the end portion 12 with the tongue *e'*, the end portions being adapted to be overlapped and secured together by the tongue entering the opening, substantially as described.

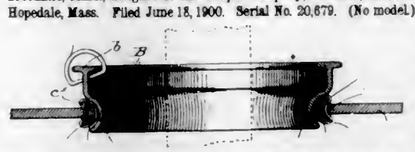
660,630. MUSIC-LEAF TURNER. JOSEPH M. DUPLANTI, Bellevue, Pa. Filed Feb. 6, 1900. Serial No. 4,152. (No model.)

Claim.—1. In a device of the class described, the combination with an upright rod to engage the music-leaves and the wire leaf-turning frames having eyes formed upon their ends to engage over said rod, of a means of supporting said rods in operative position and locking the same when position is reversed, which consists of a projection such as 15 upon the rod and the partially-formed eyes on the lower portion of the frames, as shown and set forth.

2. In a device of the class described, the combination of a rectangular box adapted to form a base-piece, a slightly-inclined rod or shaft secured upon the upper side of said case, wire frames loosely mounted upon said rod, a gear-pinion mounted within said box upon an independent shaft having one end projecting up through said box, a rod secured to the projecting end of said shaft and extending out therefrom, a hook-catch secured upon the end of said rod to engage the lower sides of said frames, a segmental gear-rack pivotally arranged within said box to engage said pinion, a key-lever pivotally attached to the under side of said box, a chain connecting said key with one side of said segmental gear, and a spring secured to the opposite side of said gear and the box, all arranged and combined as shown and set forth.



660,631. YARN-SPINNING APPARATUS. JOHN C. EDWARDS, Brookline, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed June 18, 1900. Serial No. 20,679. (No model.)



Claim.—1. The combination with the ring-rail having a circular spindle-aperture, of a revoluble ring movable radially and axially under the stress of the yarn and extended into said aperture, and a yielding means to retain the ring in operative position.

2. The combination with the ring-rail having a circular spindle-aperture, of a revoluble ring freely movable under unbalanced strains and having its base extended into the aperture and means to coöperate with the edge of the aperture and limit the radial and axial movements of the ring.

3. The combination with the ring-rail having a circular spindle-aperture, and a revoluble ring having a traveler-race and a base depending below the top of the rail, of yielding means interposed between the ring and the rail to limit movement of the ring under unbalanced strains of the yarn.

4. The combination with the ring-rail having a circular spindle-aperture, of a ring having an external annular recess in its lower portion, and yielding means coöperating with the rail and the recessed portion of the ring to retain the latter in operative position.

5. A sheet-metal ring-rail having a circular spindle-aperture, a revoluble ring capable of radial movement, and an annular yielding buffer interposed between the ring and the edge of the aperture in the rail to limit radial movements of the ring.

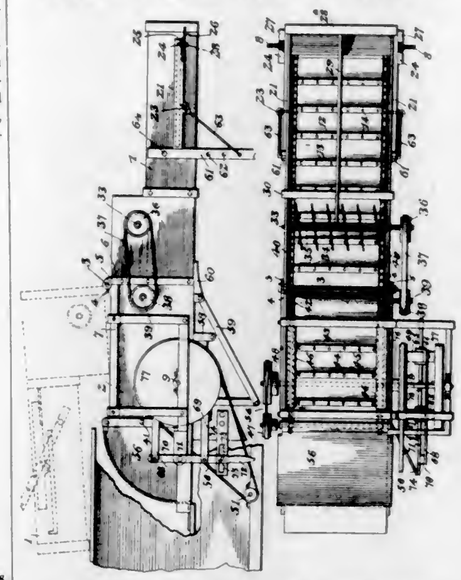
6. A sheet-metal ring-rail having a circular spindle-aperture, a revoluble ring capable of axial and radial movement, and an annular yielding buffer interposed between the ring and the rail and provided with means to limit axial movement of the ring.

7. A sheet-metal ring-rail having a circular spindle-aperture, a revoluble ring capable of radial movement and having an annular seat, and a spring mounted in said seat and in engagement with the edge of the spindle-aperture.

8. A sheet-metal ring-rail having a circular spindle-aperture, a revoluble ring capable of axial and radial movement and having an annular, external recess, and a spring seated in said recess and having peripheral projections extended above and below the edge of the spindle-aperture to limit the axial movement of the ring.

9. A sheet-metal ring-rail having a circular spindle-aperture, a revoluble ring, and yielding annular means coöperating with the edge of the spindle-aperture and connecting the ring operatively with the rail.

660,632. BAND-CUTTER AND FEEDER. THOMAS ELLIOTT, Dallas, Oreg. Filed Aug. 5, 1899. Serial No. 726,303. (No model.)



Claim.—1. In a band-cutter and feeder, the combination of two sections, one hinged to the other, a shaft in each section to operate a lower draper, the shaft in the hinged section being longitudinally movable in elongated slots in the opposite sides of the latter to regulate the tension of the draper, a horizontally-disposed shiftable partition secured to the said longitudinally-movable shaft and located between the upper and lower parts of the lower draper, arms attached to the opposite sides of the hinged section to close the slots therein and having caps to engage the opposite ends of the adjustable shaft, and a series of rotary disk cutters in the hinged section above the lower draper.

2. In a band-cutter and feeder, the combination of inner and outer sections pivotally connected to each other, a shaft in each section, the shaft in the outer section being adjustable longitudinally, a lower draper operated by said shafts, a horizontal partition between the upper and lower parts of the said draper having a rear longitudinally-shiftable portion attached to the adjustable shaft in the outer section, an upper draper completely located in the inner section which is fastened to the threshing-machine, a series of rotatable disk cutters in the outer section above the lower draper, said cutters being arranged diagonally to the direction of movement of the said lower draper and a longitudinally-disposed central guide in the hinged section extending from the rear portion of the latter to the disk cutters, the lower edge of the said guide being elevated above the plane of the upper portion of the lower draper.

3. In a band-cutter and feeder, the combination of two sections, one hinged to the other, a shaft in each section, the shaft in the hinged section being adjustable longitudinally, a lower draper operated by said shafts and extending longitudinally through the greater portion of the lower part of both sections, a horizontal partition between the upper and lower parts of the said lower draper having a shiftable portion attached to the longitudinally-adjustable shaft, means for slackening or tightening the said lower draper, a longitudinally-disposed central guide extending from the rear portion of the hinged section forwardly over and above a part of the draper, a series of rotatable disk cutters in the hinged section adjacent the front terminal of the said guide and disposed above the plane of the lower draper and operating diagonally of the direction of movement of the said draper, an upper draper situated completely within the section passing through the threshing-machine, located over the forward portion of and having a greater speed than the said lower draper, both drapers in operative position being in parallel planes, and means for regulating the speed of the drapers.

4. In a band-cutter and feeder, the combination of feeding-drapers arranged in parallel relation one above the other, driving power for said drapers, and friction mechanism connected to said driving power and one of the shafts of the lower draper and consisting of a pulley loose on the shaft of the draper, and a friction-disk fast on the same shaft, and friction-rollers interposed between the said pulley and disk.

5. In a band-cutter and feeder, the combination of upper and lower drapers, the lower draper having an extended shaft, a fixed shaft extending in a plane at right angles to the said extended shaft, friction-rollers shiftably mounted on the said shaft at an angle to the extended shaft, a pulley loose on the extended shaft, and a friction-disk fast on the same shaft, the said friction-rollers being interposed between the disk and pulley, and a driving device applied to the said pulley.

660,633. ELECTRIC-SNAP-SWITCH COVER. MONROE GUETT, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed June 27, 1900. Serial No. 21,842. (No model.)



Claim.—1. A cover for a rotary snap-switch consisting of an exterior metallic shell having a circular top portion with a central perforation and an annular side portion, and an interior shell formed of sheet insulating material with a circular top portion having a central perforation and an annular side portion formed of integral tongues projecting from the central portion, the side edges of each tongue being parallel and the end edge of each tongue being at right angles with the side edges, substantially as specified.

2. A cover for a rotary snap-switch consisting of an exterior metallic shell having a circular top portion with a central perforation and an annular side portion, and an interior insulating-shell having a circular top portion with a central perforation that is smaller in diameter than the central perforation through the circular top portion of the metallic shell, and an annular portion that is wider than the annular portion of the metallic shell, substantially as specified.

660,634. ROTARY SNAP ELECTRICAL SWITCH. MONROE GUETT, Hartford, Conn., assignor to the Hart & Hegeman Manufacturing Company, same place. Filed June 27, 1900. Serial No. 21,843. (No model.)



Claim.—1. In a snap-switch in combination with a rotary handle and its spindle, a rotatable spring-plate, a spring for throwing the spring-plate made tense by the turning of the handle, independent studs movable into and out of the path of the spring-plate, guides for directing the movement of the studs, and a cam engaging the studs and adapted to be rotated by the turning of the handle, substantially as specified.

2. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, a spring for throwing the spring-plate made tense by the turning of the handle, independent studs movable radially into and out of the path of the spring-plate, guides for directing the movement of the studs, and a cam engaging the studs and adapted to be rotated by the turning of the handle, substantially as specified.

3. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, independent studs movable into and out of the path of the spring-plate, guides for directing the movement of the studs, a cam engaging the studs and adapted to be rotated by the turning of the handle, and a spring with each end adapted to be engaged by a part movable with the handle and each end adapted to engage a part movable with the spring-plate, substantially as specified.

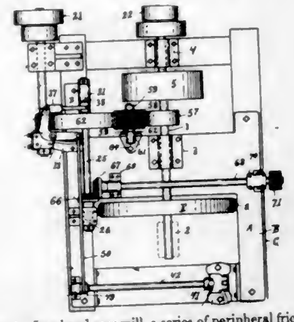
4. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, independent studs movable into and out of the path of the spring-plate on each side, guides for directing the movement of the studs, a spring for throwing the spring-plate made tense by the turning of the handle, and a cam for moving substantially simultaneously more than one stud into, and more than one stud out of the path of the spring-plate, adapted to be rotated by the handle, substantially as specified.

5. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, a spring for throwing the spring-plate made tense by the turning of the handle, independent studs movable into and out of the path of the spring-plate, guides for directing the movement of the studs, and a cam engaging the studs and adapted to be rotated by the turning of the handle, the cam being so shaped that the stud is not moved from in front of the spring-plate until the cam has been moved more than the throw of the spring-plate, substantially as specified.

6. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, a spring for throwing the spring-plate made tense by the turning of the handle, independent studs movable into and out of the path of the spring-plate, guides for directing the movement of the studs, and a cam for moving the stud adjacent to each side of the spring-plate out of its path and for moving the stud next in advance into the path of the spring-plate, at each turn of the handle, substantially as specified.

7. In a snap-switch in combination with the rotary handle and its spindle, a rotatable spring-plate, a spring for throwing the spring-plate made tense by the turning of the handle, independent studs movable into and out of the path of the spring-plate, guides for directing the movement of the studs, and a cam for moving the stud adjacent to each side of the spring-plate out of its path and for moving the stud next in advance into the path of the spring-plate, at each turn of the handle, and for moving the stud that was in advance and was drawn out of the path of the spring-plate back into the path of the spring-plate after each turn of the handle, substantially as specified.

660,635. FEEDING MECHANISM FOR BAND-SAW MILLS. LOUIS J. HANHART, Cincinnati, Ohio, assignor to the J. A. Fay & Egan Company, same place. Filed June 4, 1900. Serial No. 19,047. (No model.)



Claim.—1. In a band-saw mill, a series of peripheral friction-pulleys extending bodily successively in a plane at right angles to the main mandrel, and having faces extending operatively in planes parallel to the main mandrel and driven from main mandrel with a bevel-wheel for transmitting the feed and reversing power at right angles to the mandrel, substantially as described.

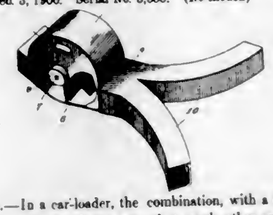
2. In a band-saw mill, the combination of a base and column supporting band-saw wheels and a series of parallel shafts two of which rotate unintermittingly, with mechanism for permitting the third shaft of the series to be rotated alternately in opposite directions at different speeds, with a transverse shaft supported by the base for transmitting the motion of the third shaft to a log-supporting carriage, and forming a self-contained band-saw mill and feedworks, substantially as described.

3. In a band-saw mill, with feeding mechanism self-contained with the band-saw-wheel-supporting frame, a saw-wheel shaft or mandrel supporting a lower band-saw wheel and a peripheral friction-pulley with face operatively parallel with the mandrel, a second shaft parallel with the mandrel and driven therefrom, a second peripheral friction-pulley mounted thereon and parallel to the first friction-pulley, with a pair of peripheral friction-pulleys swingingly mounted between the two first-mentioned friction-pulleys, with faces operatively parallel therewith, a third shaft parallel with the mandrel on which one of the same is mounted, and a fourth shaft at right angles to the mandrel, a driving connection between the third and fourth shafts, all mounted in the casting of the band-saw-wheel-supporting frame, a lever for rocking the third shaft, and means connecting the fourth shaft with the carriage, and constructed and arranged for alternately driving the carriage in opposite directions, substantially as described.

4. In a band-saw mill, the combination of a frame for the band-saw wheels, with a mandrel for the lower wheel and a second shaft journaled on the frame, a peripheral friction-pulley for the latter shaft, a third shaft journaled on the frame at one end and at its other in a bearing mounted on an upright arm, a pivot for the arm below its center of gravity, a pulley on the third shaft, a peripheral friction-pulley supported from a pivot, with a pulley on the saw-wheel shaft, a lever for rocking the third shaft, a fourth shaft journaled in the frame at right angles to the saw-wheel shaft, a driving connection between the third shaft and the fourth shaft, and means connecting the fourth shaft with the carriage, and constructed and arranged for alternately driving the carriage in opposite directions, substantially as described.

5. In a band-saw mill, the combination of a frame, a band-saw-wheel shaft or mandrel and a second parallel shaft, a belt taking power direct from said mandrel to said shaft, a third shaft, a peripheral friction-pulley on each of said mandrel and shafts, means for vibrating said third shaft, an additional peripheral friction-pulley mounted between the friction-pulleys on the mandrel and second shaft, means for adjusting the position of said additional friction-pulley with relation to the frame for accommodating for wear, a transverse shaft, a driving connection between it and the third shaft, means connecting the transverse shaft with the carriage, and constructed and arranged for imparting the feed to the carriage from the band-saw-wheel mandrel through the belt and peripheral friction-pulleys and imparting a return movement to the carriage from the band-saw-wheel mandrel through peripheral friction-pulleys, substantially as described.

660,636. CAR-LOADER. HENRY P. HARPSTRITE, Dalton City, Ill. Filed Feb. 3, 1900. Serial No. 3,855. (No model.)



Claim.—In a car-loader, the combination, with a casing provided with an inlet and an outlet at an angle to each other and the portion of the bottom therebetween being curved, the upper portion of the casing being formed into a hood and the end walls being perforated, of a fan journaled in said casing with its wings in position to pass close to the curved bottom and engage with the material that is passing from the inlet to the outlet, and a bifurcated spout detachably secured to the outlet of the casing, the legs of which spout are curved laterally in opposite directions, substantially as described.

660,637. DEVICE FOR MARKING BOOK-SIGNATURES. CHAS. T. HERRMANN, Northport, N. Y. Filed Aug. 11, 1900. Serial No. 26,621. (No model.)



Claim.—1. In a signature-marker, the combination, with a movable indicating-point, of means for moving the same so as to impress the outer fold of the signature.

2. In a signature-marker, the combination, with a base, of an indicating-point movably secured thereto, and means for moving said point.

3. In a signature-marker, the combination, with a base, of an indicating-point on top of the same, and means for adjusting said point laterally and longitudinally of the base.

4. In a signature-marker, the combination, with a base, of a shaft journaled therein, a block engaging with the shaft and provided with the indicating-point, and means for rotating the shaft.

5. In a signature-marker, the combination, with a base of a screw-threaded shaft journaled therein, a block engaging with the shaft, the top of which is provided with a transverse groove, an indicating-point, the base of which is slotted and fits within said groove, a screw through the slot into the block, and means for rotating the shaft.

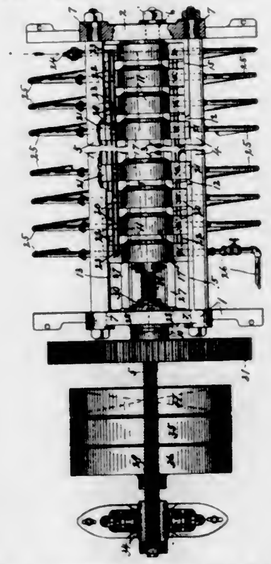
6. In a signature-marker, the combination, with a base, of a shaft journaled therein, an indicating-point in position to be moved by said shaft, a lock at one end of the shaft and an operating-shaft at the other.

7. In a signature-marker, the combination, with a base, of a shaft journaled therein, one end of which is provided with a notched collar and the other end is provided with a flanged and geared head, a lock for the collar a pinion in engagement with the head, and an indicating-point on the base in position to be moved by the shaft.

8. In a signature-marker, the combination, with a square trough-shaped base, of a block in each end thereof, one of which is recessed and slotted on top, a screw-threaded shaft journaled in said blocks, one end of which is provided with a notched collar, a spring-actuated locking-pin in the recess in one of the blocks provided with a catch and having its outer end adapted to enter the notch of the collar, means for rotating the shaft, and an indicating-point on the base in position to be moved back and forth by the shaft.

9. In a signature-marker, the combination, with a square trough-shaped base, of a block in each end thereof, a screw-threaded shaft journaled in said blocks, one end of which is provided with a flanged and geared head, a shaft journaled in said block provided with a pinion in engagement with said head, and an indicating-point on the base in position to be moved back and forth by the screw-threaded shaft.

660,638. MACHINE FOR FORMING PLATES. ROBERT G. HOLBROOK and ROBERT H. KING, Oswego, N. Y. Filed June 4, 1900. Serial No. 18,987. (No model.)



Claim.—1. In a machine for forming plates, the combination of a supporting-frame having a guide-rail composed of separable sections, one being removable from the other, and a plurality of dies movable lengthwise of the guide-rail and having portions thereof interposed between said sections.

2. In a machine for forming plates, the combination of a supporting-frame having oppositely-arranged grooves, one of the walls of one of the grooves being removable, and a plurality of dies supported by the walls of the grooves and movable lengthwise thereof.

3. In a machine for forming plates, the combination of parallel guide-rails having lengthwise grooves one of the guide-rails having a removable section forming one of the walls of its lengthwise groove, and a plurality of dies movable lengthwise of the guide-rails and having portions thereof projecting into said grooves.

4. In a machine for forming plates, the combination of a supporting-frame, dies mounted on the frame and each provided with a heating-chamber, one of said dies being movable toward and away from the other, and a flexible conduit connecting said chambers.

5. A machine for forming plates, comprising a supporting-frame, dies mounted on the frame and each provided with a heating-chamber, an inlet-conduit connected to one of the chambers, an outlet-conduit connected to the other chamber, and a flexible conduit connecting said chambers with each other.

6. A machine for forming plates, comprising a supporting-frame having separated guide-rails, a plurality of dies mounted on said guide-rails one in advance of the other and movable lengthwise thereof, each of said dies being provided with a heating-chamber and branch inlet and outlet passages, an inlet-conduit connected to the inlet-passage of the one end die, an outlet-conduit connected to the outlet-passage of the other end die, and a plurality of flexible conduits connecting the chambers of said dies with each other.

7. In a machine for forming plates, the combination of a supporting-frame, a plurality of hollow dies mounted on the frame one in advance of the other and movable toward and away from each other, and a plurality of flexible conduits each having its opposite ends communicating with the interior of adjacent dies.

8. In a machine for forming plates, the combination of a supporting-frame having parallel guide-rails provided with lengthwise grooves, one

of the guide-rails having a removable section forming one of the walls of the groove, a plurality of hollow dies supported one in advance of the other in said grooves and movable toward and away from each other, flexible conduits connecting the internal chambers of adjacent dies, and additional conduits communicating with the internal chambers of the end dies.

9. In a machine for forming plates, the combination of a supporting-frame, a plurality of dies mounted on the frame and movable toward and away from each other, means for moving one of the dies, and additional means connecting the remaining dies to said one of the dies for transmitting motion thereto and for limiting the separation of the dies one from the other as said one of the dies is moved away from the remaining dies.

10. In a machine for forming plates, the combination of a supporting-frame, a plurality of dies mounted on the frame and movable toward and away from each other, means connected to one of the end dies for moving the same, and links connecting the several dies with each other for moving the other dies and limiting their separation one from the other as said end die is moved away from the remaining dies.

11. In a machine for forming plates, the combination of a supporting-frame having separated substantially-parallel guide-rails provided with lengthwise grooves, one of the guide-rails having a removable section forming one of the walls of the groove, a plurality of dies supported one in advance of the other in said grooves and movable toward and away from each other, means for actuating one of the dies, and links connecting the several dies with each other for transmitting motion to the other dies and limiting their separation one from the other as said end die is moved away from the other dies.

12. In a machine for forming plates, the combination of a supporting-frame having separated substantially-parallel guide-rails provided with lengthwise grooves, one of the guide-rails having a removable section forming one of the walls of the groove, a plurality of hollow dies supported one in advance of the other in said grooves and movable toward and away from each other, means for actuating one of the end dies, links connecting the several dies with each other for transmitting motion to the other dies and limiting their separation one from the other as said end die is moved away from the remaining dies, flexible conduits connecting the internal chambers of adjacent dies, and additional conduits communicating with the internal chambers of the end dies.

13. In a machine for forming plates, the combination of a supporting-frame, a plurality of hollow dies mounted on the frame and movable toward and away from each other, flexible conduits connecting the internal chambers of the dies with each other, a screw fixed to one of the dies, a threaded revoluble sleeve journaled on the frame and engaged with the screw, and means for revolving the sleeve.

14. In a machine for forming plates, the combination of a supporting-frame, a plurality of dies mounted on the frame and movable toward and away from each other, a screw fixed to one of the end dies, links connecting the remaining dies with each other and with said end die, a threaded sleeve journaled in the frame and engaged with the screw, a gear fixed to the sleeve, and means for revolving the gear in opposite directions.

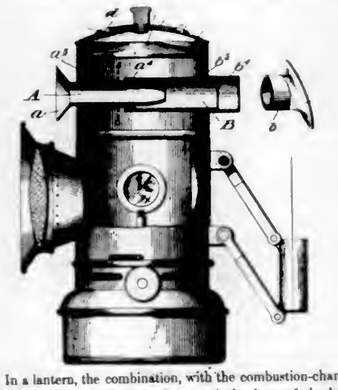
15. A machine for forming plates, comprising a supporting-frame having parallel guide-rails provided with lengthwise grooves, one of the rails having a removable section forming one of the walls of the groove, hollow dies guided in said grooves and movable toward and away from each other, an inlet-conduit communicating with the interior of one of the end dies, an outlet-conduit communicating with the interior of the other end die, flexible conduits having their opposite ends communicating with the interiors of adjacent dies for forming a continuous helical conduit through the dies from one end die to the other, a screw secured to one of the end dies, links connecting the remaining dies with each other and with the die to which the screw is secured, a revoluble threaded sleeve journaled on the frame and engaged with the screw, and means for rotating the sleeve in opposite directions.

16. In a machine for forming plates, the combination of a supporting-frame, dies mounted on the frame and movable toward and away from each other, centering-bars for supporting the plates in alinement with the dies, and means for moving the dies in opposite directions.

17. In a machine for forming plates, the combination of a supporting-frame, hollow dies mounted on the frame and movable toward and away from each other, separated substantially-parallel bars supported beneath the dies and arranged in planes substantially equidistant on opposite sides of a vertical plane through the centers of the dies, for centering the plates with the dies, means connected to one of the dies for moving the same in opposite directions, and links connecting the remaining dies to each other and to said one of the dies.

660,639. **BICYCLE-LAMP.** LOUIS C. JOHNSON, Washington, D. C. Filed July 26, 1899. Serial No. 725,210. (No model.)

Claim.—1. In a lantern, the combination, with a casing, of a draft-inducing device comprising a forced-draft flue and an induced-draft flue projecting through the casing at opposite sides, the inner end of the forced-draft flue extending into the inner end of the induced-draft flue, and the two flues being located immediately above and in vertical line with the flame of the lamp, the device causing a cross-draft from the front to the rear of the combustion-chamber and at right angles to the updraft, and operating, by suction, to augment the updraft while the lamp is in active use.



2. In a lantern, the combination, with the combustion-chamber, of a forced-draft flue extending outward beyond the front of the lantern, an induced-draft flue inclosing the inner end of the forced-draft flue and extending outward beyond the rear of the lantern, and means, substantially as specified, coacting with the two flues whereby to control the outtake from the combustion-chamber.

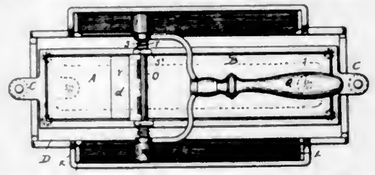
3. In a lantern, a top provided with openings and a disk adapted either to cover or to free the openings, a draft-regulator arranged below the lantern-top and provided with a screened escape-opening, in combination with a forced-draft flue extending outward beyond the front of the lantern, and an induced-draft flue of greater diameter than and inclosing the inner end of the forced-draft flue and extending outward beyond the rear of the lantern.

4. In a lantern, the combination with the combustion-chamber, of a forced-draft flue extending outward beyond the front of the lantern, a mouthpiece arranged on the outer end of the flue and adapted to carry a screen, an induced-draft flue inclosing the inner end of the forced-draft flue and extending beyond the rear of the lantern, and a deflector-plate carried by the projecting end of the latter flue.

5. In a lantern, the combination, with the combustion-chamber, of a forced-draft flue projecting beyond the front of the lantern, an induced-draft flue inclosing the inner end of the forced-draft flue and extending outward beyond the rear of the lantern, and an adjustable collar carried by the forced-draft flue for controlling the passage of air from the combustion-chamber between the two flues.

6. In a lantern, a top provided with openings, and a disk adapted to cover or to free the openings, a draft-regulator arranged below the lantern-top and provided with an escape-opening, in combination with a forced-draft flue extending outward beyond the front of the lantern and carrying a mouthpiece, and an induced-draft flue of greater diameter than and inclosing the inner end of the forced-draft flue and extending outward beyond the rear of the lantern, and an adjustable collar carried by the forced-draft flue for controlling the passage of air from the combustion-chamber between the two flues, substantially as and for the purpose specified.

660,640. **DEVICE FOR HONING SAFETY-RAZOR BLADES.** FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, New York, N. Y. Filed Sept. 22, 1899. Serial No. 731,319. (No model.)



Claim.—1. In a device for honing safety-razor blades, the combination with a base for receiving a honing-stone, of friction-tracks on the sides of said base, a reversible blade-holder and friction-rollers fixed on the ends of said reversible blade-holder, mounted to run on said tracks, substantially as set forth.

2. In a device for honing safety-razor blades, the combination with a base for receiving a honing-stone, of side wings on said base, friction-straps held on said wings, a reversible blade-holder and friction-rollers on the ends of said reversible blade-holder, to run on the surfaces of the straps, substantially as set forth.

3. In a honing device, the combination with a base for receiving a stone, of side wings on said base and having slots at the ends, straps resting on the wings and having their ends passed through said slots and means attached to the ends of the straps on the under sides of said wings for holding the straps taut, substantially as herein shown and described.

4. In a honing device, the combination with a base having side friction-tracks, of a stone-receptacle in said base and means for adjusting said receptacle in relation to the friction-tracks, substantially as herein shown and described.

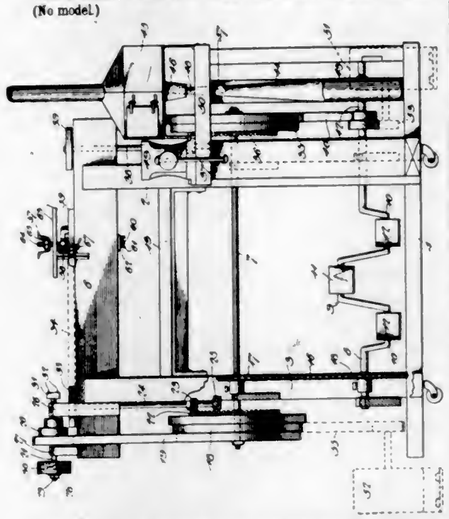
5. In a honing device, the combination with a base having side friction-tracks, of a stone-receptacle in said base, lugs on the ends of the receptacle wings on the ends of the base, and screws in said lugs and wings, substantially as herein shown and described.

6. In a honing device, a blade-holder composed of a U-shaped frame, shaft mounted in the ends of the prongs, friction-rollers on said shaft, a blade-holding socket and means for holding the socket on said shaft in line with the same, substantially as herein shown and described.

7. In a honing device, a blade-holder composed of a U-shaped frame, a shaft mounted in the ends of the prongs, friction-rollers on said shaft, a blade-holding socket swiveled on said shaft and means for holding it on the shaft in line with the same, substantially as herein shown and described.

8. In a honing device, a blade-holder composed of a U-shaped frame, a shaft mounted in the ends of the prongs, friction-rollers on said shaft, a blade-holding socket having end tongues, a sliding sleeve at each end of the shaft and a spring for pressing each sleeve from the adjacent prong of the fork, substantially as herein shown and described.

660,641. **MANUAL-TRAINING AND INDUSTRIAL APPARATUS.** JOHN E. KELLY, Victor, N. C. Filed May 10, 1900. Serial No. 16,227. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a frame, a crank-shaft arranged at the bottom of the frame, the horizontal shaft 7, located above and connected with the crank-shaft, a pulley mounted on the shaft 7 and provided at one of its faces with gears, the vertical shaft extending upward from a point above the horizontal shaft 7 and provided at its top with a pulley located at the top of the frame, and a vertically-adjustable pinion mounted on the vertical shaft and adapted to mesh with the said gears, substantially as described.

2. In an apparatus of the class described, the combination of a frame, a horizontal crank-shaft arranged at the bottom of the frame, the horizontal shaft 7, located above the crank-shaft and connected therewith, the vertical pulleys mounted on the shaft 7 and provided at their inner faces with gears, the vertical shafts located at opposite sides of the frame and extending to the top thereof and provided with horizontal pulleys, and the vertically-adjustable pinions mounted on the vertical shafts and adapted to mesh with the said gears, substantially as described.

3. In an apparatus of the class described, the combination of a frame, a horizontal crank-shaft arranged at the bottom of the frame, the horizontal shaft 7 located above and connected with the crank-shaft, the vertical shafts located above the shaft 7 and extending to the top of the frame and provided with horizontal pulleys, the vertical pulleys mounted on the shaft 7 and provided with gears, the vertically-adjustable pinions mounted on the vertical shafts and adapted to mesh with the gears, the vertical spindle adapted to hold a tool and located between the vertical shafts, a horizontal pulley mounted on the vertical spindle, and a belt adapted to connect the pulley of the spindle with either of the pulleys of the vertical shafts, substantially as described.

4. In an apparatus of the class described, the combination of a frame, the shaft 7 arranged horizontally, means for rotating the shaft 7, a pulley mounted on the shaft 7, and provided at one of its faces with gears, the vertical shaft having an adjustable pinion adapted to mesh with the said gears, a vertical spindle provided at its upper end with means for holding a tool, pulleys mounted on the vertical shaft and on the vertical spindle, and a belt connecting the pulleys, substantially as described.

5. In an apparatus of the class described, the combination of a frame, a crank-shaft arranged at the bottom of the frame, the horizontal shaft 7 located above and connected with the crank-shaft, a pulley mounted on the shaft 7 and provided at one of its faces with gears, the vertical shaft having an adjustable pinion adapted to mesh with the said gears, a vertical spindle provided with means for holding a tool, and means for connecting the spindle with the vertical shaft, substantially as described.

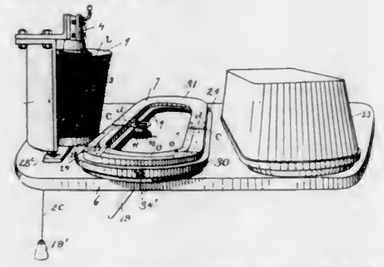
6. In an apparatus of the class described, the combination of a frame, a crank-shaft arranged at the bottom of the frame, the horizontal shaft 7 located above and connected with the crank-shaft, a pulley mounted on the shaft 7 and provided at one of its faces with gears, the vertical shaft having an adjustable pinion adapted to mesh with the said gears, a vertical spindle provided at its upper end with means for holding a tool, pulleys mounted on the vertical shaft and on the vertical spindle, and a belt connecting the pulleys, substantially as described.

7. In an apparatus of the class described, the combination of a frame provided with bars 6 spaced apart, a table adjustably mounted on the frame, and having an opening, a spindle extending vertically through the opening and provided at its upper end with means for holding a tool, the horizontal shaft 7, the vertical pulley mounted on the horizontal shaft and provided at one of its faces with gears, the vertical shaft having an adjustable pinion adapted to mesh with the said gears, horizontal pulleys mounted on the vertical shaft and on the spindle, a belt connecting the horizontal pulleys, and means for operating the horizontal shaft, substantially as described.

8. In an apparatus of the class described, the combination of a frame provided at the top with an opening, a plate extending across the opening, a substantially U-shaped frame secured to the plate and provided with bearings, a table adjustably mounted on the plate and having an opening, a shaft journaled in the bearings of the U-shaped frame and extending through the opening of the table and adapted to receive a tool, and means for driving the shaft, substantially as described.

9. In an apparatus of the class described, the combination of a supporting-frame having an opening, a plate extending across the opening of the supporting-frame, a clamping device connected with the plate and extending through the said opening and engaging the frame, a substantially U-shaped frame arranged in the opening of the supporting-frame and secured to the said plate, and a table having an opening and provided with an arm detachably secured to the plate, substantially as described.

660,642. **BURIAL-CASE MACHINE.** MARTIN L. KEYES, Carthage, N. Y., assignor to Franklin E. Robinson, same place. Filed Dec. 1, 1899. Serial No. 738,822. (No model.)



Claim.—1. In combination, a table, a vertically-disposed rotary smoothing-head above said table, a bearing-surface at the lower end of said head, a rotary extensible sectional former on the table bearing against and traveling in engagement with said surface, provided with adjusting

means whereby the former can be expanded within a burial-case and thereby lock the same thereto, a drive-shaft geared to said former for rotating the same, a movable carrier for said drive-shaft, whereby the former is normally held to said bearing-surface, and said shaft can be moved to permit lateral movement of said former from said surface, substantially as described.

2. In combination, a support, a shaft, a cutter-head on the shaft, a rotary bearing-surface concentric with the shaft and arranged at an end of said head, a rotary former traveling on said support, said former provided with a sliding section having adjusting means, whereby the former is rendered longitudinally adjustable, driving means for said former and mechanism holding the former laterally against said bearing-surface, substantially as described.

3. In combination, a table, a vertical shaft provided with a smoothing-head above the table, a bearing-surface between the table and lower end of said head, a rotary extensible former horizontally movable on said table and having an open center with a continuous internal rack and provided with adjusting means, a vertical drive-shaft extending into said open center and provided with a gear in mesh with said rack, and mechanism normally pressing the former to said bearing-surface and permitting lateral movement of the former therefrom, substantially as described.

4. In combination, a support, a shaft provided with a rotary smoothing-head, a rotary extensible former adapted to be extended within a burial-case and movable laterally toward and from the axial line of said head radially thereof, means limiting the lateral movement of said former toward said axial line, said former provided with a continuous internal rack, a driving-gear in mesh with said rack, and means pressing said gear to said former and toward and radially of the axial line of said head, substantially as described.

5. In combination, a table, a vertically-disposed rotary smoothing-head above the same, a rotary extensible former on said table and movable horizontally radially of the axial line of said head, means limiting the movement of the former toward said axial line, said former provided with a rack, a vertical drive-shaft provided with a gear meshing with the rack and rotating the former and a roll bearing against the former, a laterally-movable carrier for said drive-shaft provided with means yieldingly holding the carrier in one direction to press said former toward the axial line of said head, and manually-operated means for moving the carrier in the opposite direction and relieving the pressure on the former to permit lateral movement thereof away from said head, substantially as described.

6. In combination, a horizontal table, a vertical shaft, the vertically-disposed cutter-head rigid on the shaft, and above the table and composed of the independent spaced disks laterally-movable and rotating extensible former arranged horizontally on the table and provided with means yieldingly holding the same toward said shaft, and means for rotating said former, said former constructed and adapted to fit and clamp in the open top of a reversed burial-case, and thereby present the sides thereof extending upwardly therefrom to the action of the cutter-head, substantially as described.

7. In combination, a support, a vertically-disposed rotary smoothing-head arranged above the table and provided with a carrying and drive shaft, a horizontally-movable and rotary expansible former resting on said support and provided with a surrounding seat or rabbeted portion to receive the surrounding edge of a burial-case locked to the former by expanding the same within the case, means pressing the former and case carried thereby toward the smoothing-head, a bearing-surface engaging the former to limit the movement of the case toward the head, and driving means for rotating the former and case, substantially as described.

8. In combination, a horizontal table, a laterally-adjustable rotary vertical shaft extending above the table, a horizontally-adjustable plate through which said shaft passes, a block on the plate and concentric with the shaft, a rotary ring concentric with the shaft, the smoothing-head rigid with the shaft above said ring, and extensible means traveling against said ring and adapted to be expanded and locked within and carry and rotate a burial-case against said head, substantially as described.

9. In combination, a support, a smoothing-head, a rotary former having an internal rack, an extensible carrier adapted to be expanded and locked within a burial-case and movable toward and from the axial line of said smoothing-head, means yieldingly pressing the carrier toward said axial line, a hand-lever connected therewith for moving the carrier in the opposite direction, a vertical rotary shaft carried by said carrier and provided with a gear meshing with said rack to rotate the former, whereby the former is pressed toward said axial line, substantially as described.

10. In combination, a support, a rotary smoothing-head, a rotary bearing-surface at one end of the head, a rotary and laterally-movable extensible former provided with means for clamping a burial-case thereon, said former having an exterior bearing-track traveling in engagement with said rotary bearing-surface, and an internal rack, a rotary laterally-movable shaft extending into the former opposite said head and provided with a gear meshing with the rack and with a bearing-surface traveling against the inner face of the former beside the rack, and means for moving said shaft laterally to press the former to said rotary bearing-surface, and to permit movement of the shaft and former in the opposite direction, substantially as described.

11. In a machine of the character described, the laterally-movable rotary former, driving-gearing for rotating the same, means for moving the same laterally, said former provided with a sliding section and adjusting mechanism whereby the former can be expanded within a burial-casket, substantially as described.

12. In a machine of the character described, the combination of a support, a rotary former, driving-gearing therefor, said former provided with an exterior seat to receive the edge around the open end of a burial-casket, and the sliding section seated in the body portion of the former, and movable on said body portion to increase and diminish the external dimensions of the former, a screw for adjusting the sliding section, and plates projecting over and holding the sliding section to its seat, substantially as described.

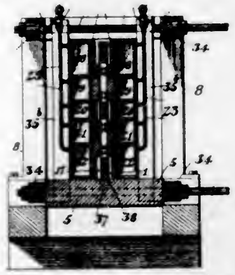
13. In a machine of the character described, a table, a rotary and laterally-movable former thereon having a central opening with an internal rack and bearing-surface parallel therewith, a sliding box supported by the table, a shaft, carried by said box and provided with a gear meshing with said rack, an idler-roll loose on the shaft and engaging said surface and having a projecting head extending over the same, a swinging arm on said shaft, a drive-shaft mounted in the free end of said arm and geared to said first-mentioned shaft and means for moving said box, substantially as described.

660,643. **SHOE-LACE FASTENER.** Augusta E. Kroeninger, San Antonio, Tex. Filed June 17, 1898. Serial No. 683,726. (No model.)



Claim.—A shoe-lace fastener comprising a pair of plates provided with inwardly-extending pivotally-connected ears near the upper extremities thereof and a coiled spring surrounding the pivotal device and operating to hold the lower portions of the plates normally in contact, the ears, pivotal device and spring being confined completely between the upper extremities of the plates and the latter having below the center thereof widely-separated distinct converging points with inturned lower terminals bearing against each other and adapted to catch and hold the loose ends of the lace after the knot is tied, pairs of spurs extending inwardly from each plate in a plane at right angles to the latter and located at the intersection of the edges of the points to provide holding means at an intermediate position to engage the knot which is inclosed by the plates.

660,644. **ART OF MANUFACTURING ARTICLES FROM PULP MATERIALS.** James M. Leaver, Bay Mills, Mich., assignor to Lewis A. Hall and Robert H. Munson, same place. Filed Nov. 8, 1899. Serial No. 736,278. (No specimens.)



Claim.—1. A process for making articles having a permanent interior core having openings and a body portion of pulp material, the same consisting in applying pressure of the same degree simultaneously to opposite sides of the pulp material, and forcing the opposite portions thereof into homogeneous union through the openings in the core and also upon the faces of the same, subjecting the pulp material to heat during the application of the pressure, and molding surface ornamentation upon both faces of the article simultaneously with the application of the heat and pressure.

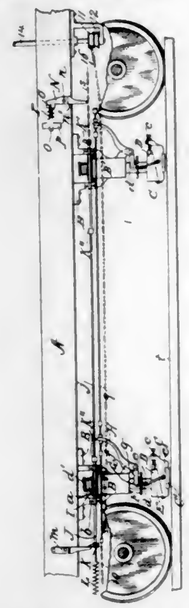
2. A process for making articles from pulp materials having thinner and denser portions which consists in applying pressure to the body of material to form the said article, and simultaneously applying heat successively from the denser to the thinner portions thereof.

3. A process for making articles having a permanent interior core and a body portion of pulp material having thinner and denser portions, the same consisting in simultaneously applying pressure of the same degree to opposite sides of the material to form the said article, successively applying heat from the denser to the thinner portions of the material, and molding and pressing the material upon its core during the successive application of the heat.

4. A process for making articles having a permanent interior core and a body portion of pulp material, the same consisting in applying pressure of the same degree simultaneously to opposite sides of the pulp material and forcing the opposite portions thereof compactly upon the faces of the core causing a positive and permanent adhesion of the pulp material to the core, subjecting the pulp material to heat during the application of the pressure, and molding surface ornamentation upon both faces of the article simultaneously with the application of the heat and pressure.

5. A process for making articles having a permanent interior core and a body portion of pulp material adhesively united thereto, the same consisting in applying pressure to the body of pulp material to press the same upon the core, and simultaneously applying heat successively from the central portion of the article toward the edges thereof.

660,645. **TRACK-BRAKE FOR RAILWAY-CARS.** Enoch L. Lowe, San Francisco, and James M. Meighan, Groveland, Cal. Filed Mar. 23, 1900. Serial No. 9,873. (No model.)



Claim.—1. A track-brake which may be operated in opposite directions, provided with a shoe having an inclined top for engagement with a brake-block which has a corresponding incline on the bottom thereof, and the means for holding said inclines in movable contact when operating the same on a railway-track, in combination with an adjusting-screw for regulating the forward movement of said brake-block, for the purpose as shown.

2. A track-brake which may be operated in opposite directions, provided with a shoe having an inclined top for engagement with a brake-block which has a corresponding incline on the bottom thereof, and the means for holding said block movably in contact with said shoe when operating the same on a railway-track, in combination with an adjusting-screw for regulating the forward movement of said brake-block, and a spring and plunger within said brake-block and contacting said adjusting-screw for the purpose as shown and described.

3. A track-brake which may be operated in opposite directions, consisting of two inclined surfaces in contact on a brake-block and shoe movably tied together by yielding links, in combination with an adjusting-screw and a plunger within said brake-block operating through the medium of a spring contacting said plunger, for the purpose as shown and described.

4. A track-brake provided with a shoe having an inclined top for engagement with a brake-block, which has a corresponding incline on the bottom thereof and the means for holding said inclines in movable contact when operating the same on a railroad-track in combination with an adjusting-screw for regulating the forward movement of said brake-block, and a plunger contacting said adjusting-screw located within a brake-block and having a standard secured to said brake-block for operating a track-brake for the purpose as shown and described.

5. In combination with a track-brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block, said brake-block having a corresponding incline on its lower surface for contacting the incline on said shoe, links secured to said shoe and brake-block by pins, the upper pin playing in an elongated opening and contacting a pin or plunger, said pin held in a movable position by a spring resting under said pin for allowing an elastic movement to the brake-shoe and brake-block when contacting a railway-track, for the purpose as specified.

6. In combination with a track-brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block having a corresponding inclined surface, and the means for holding said inclined surfaces in contact, a standard extending from said brake-block, and having a shoulder thereon for holding in position a collar, the upper end of said standard being screw-threaded for the engagement of a nut for adjusting the downward movement of said standard for contacting a railway-track as specified.

7. In combination with a track-brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block having a corresponding inclined surface, and the means for holding said inclined surfaces in elastic contact, a standard extending from said brake-block provided with a nut on its upper end, a spring supporting said nut and standard, said spring holding in position a spur gear-wheel located on the top of a hanger, and the means for operating said spur gear-wheel for the purpose as shown and described.

8. In combination with a track-brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block having a corresponding incline, and the means for holding said inclined surfaces in elastic contact, a standard extending from said brake-block provided with a collar for receiving the thrust of a pair of rollers secured to a bell-crank lever and a spring for holding said standard suspended for the purpose, as specified.

9. In combination with a track-brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block having a corresponding inclined surface, with friction-rollers between said inclined surfaces, and the means for holding said inclined surfaces in elastic contact with said friction-rollers, a standard extending from said brake-block which is provided with a collar for operating a brake-shoe through the medium of a pair of rollers secured to independent arms located on a spring-actuated shaft and on opposite sides of said standard, a curved lever for operating said rollers through the medium of appropriate rods and chains connected to the opposite ends of a railway-car, for the purpose as shown.

10. In combination with a brake, a shoe having an inclined upper surface for receiving the thrust of a brake-block having a corresponding inclined surface, a hole within said brake-block having a spring and a plug therein, a standard extending from said brake-block provided with a bearing for receiving a pair of rollers for operating said standard, a spring and nut on the upper extremity of said standard for suspending the brake mechanism as specified.

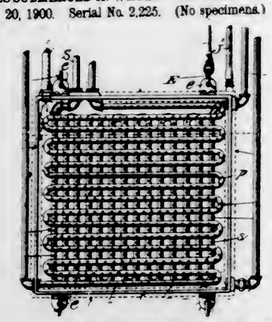
11. In combination with a track-brake, independent shoes having inclined surfaces for receiving the thrust of a brake-block having a double inclined surface one brake-shoe operating when the car is going in one direction, and the other shoe when the car is going in the opposite direction, and the means for holding said double inclined surfaces in an elastic contact, a standard extending from said brake-block provided with a bearing-surface for receiving the thrust of a pair of rollers secured to a bell-crank lever for the purpose of operating said brake mechanism on a railway-rail as specified.

12. In combination with a track-brake, a brake-block having a double inclined surface for contacting independent brake-shoes, some brake-shoes operating when the car is going in one direction, and the other shoes when the car is going in the opposite direction, said brake-shoes being connected to said brake-block by independent elastic connections, a standard extending from said brake-block provided with a bearing-surface for receiving the thrust of a pair of rollers secured to a bell-crank lever for operating said mechanism as specified.

13. In combination with a track-brake, independent shoes having inclined surfaces for engagement with a brake-block which also has inclined surfaces, said surfaces held in contact through the medium of links and springs, and the means for forcing said shoes in contact with a track; said shoes being adapted to operate when a car is moving in opposite directions, one brake-shoe operating when the car is going in one direction,

and the other shoe when the car is going in the opposite direction, without reversing said brake mechanism for the purpose as specified.

660,646. ART OF CLEANING AND PAINTING OR TREATING SURFACES SUBMERGED IN WATER. DAVID MASON, New York, N. Y. Filed Jan. 20, 1900. Serial No. 2,225. (No specimens.)



Claim.—1. The method of cleaning and treating a submerged surface with a protective agent, consisting in first subjecting the surface to the action of a cleansing medium, then subjecting it to a drying medium, then coating it with a protective agent and finally drying the latter, substantially as described.

2. The method of cleaning and treating a submerged surface with a protective agent, consisting in first subjecting the surface to the action of superheated steam, then subjecting it to a drying medium, as air, then coating the surface with a protective agent, as paint, and finally drying the paint, substantially as described.

3. The method of drying a submerged surface, consisting in subjecting the same to the spraying action of a drying medium under pressure, substantially as described.

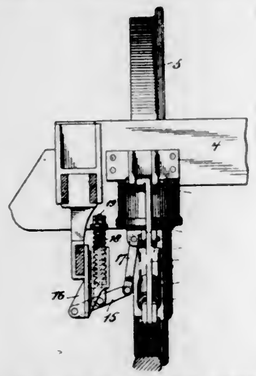
4. The method of treating a submerged surface with a liquid protective agent, consisting in subjecting the same to the spraying action of said liquid agent under pressure, substantially as described.

5. The method of treating a submerged surface with a liquid protective agent, consisting in subjecting the same to the spraying action of a liquid protective agent under pressure and then drying the surface thus treated, substantially as described.

6. The method of painting a submerged surface, consisting in subjecting the same to the spraying action of a liquid paint under pressure, substantially as described.

7. The method of painting a submerged surface, consisting in subjecting the same to the spraying action of a liquid paint under pressure, then drying the surface thereof by subjecting it to hot air under pressure, substantially as described.

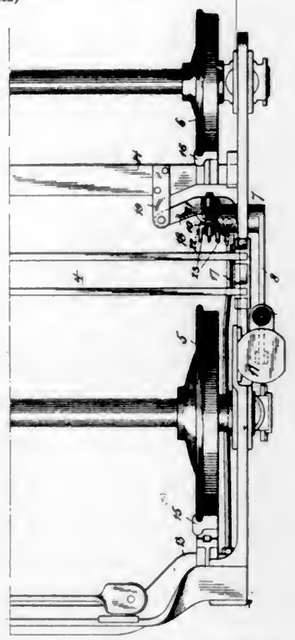
660,647. BRAKE-OPERATING MECHANISM. JOSEPH E. NORMAND, Watertown, N. Y. Filed July 29, 1899. Serial No. 725,452. (No model.)



Claim.—1. The combination with a brake mechanism comprising brake-shoes, brake-levers upon which said shoes are mounted, a cylinder and piston, toggle or cam lever operatively connected with said piston, and arranged between it and said brake-levers, of another lever independently pivoted to a fixed point of support, a spring operating to press the lever in one direction, and a link connecting the lever with the piston or the piston-operated parts.

2. The combination with a brake mechanism comprising brake-shoes, brake-levers upon which said shoes are mounted, a cylinder and piston, toggle or cam levers operatively connected with said piston and arranged between it and said brake-levers, of another lever independently pivoted to a fixed point of support, a rod pivotally secured to said lever, a spring-housing through which said rod paises, a spring arranged in said housing and surrounding said rod, said spring bearing at one end against said lever, an adjustable nut arranged upon the free end of the said rod and bearing against the opposite end of said spring, and a link pivotally connected to the piston or the piston-operated parts, and to the lever.

660,648. BRAKE-OPERATING MECHANISM. JOSEPH E. NORMAND, Watertown, N. Y. Filed July 29, 1899. Serial No. 725,453. (No model.)



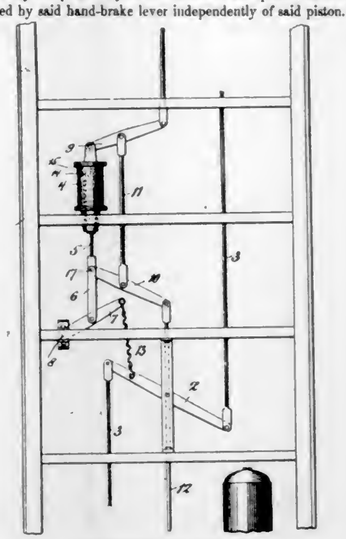
Claim.—1. In a brake mechanism, the combination with a plurality of brake-beams, an equalizing-lever connected to said beams, and an operating-lever adapted to apply pressure to said equalizing-lever, of a universal joint interposed between said equalizing-lever and said operating-lever, and means independent of the said universal joint for supporting the said equalizing-lever from the said operating-lever.

2. In a brake mechanism, the combination with a plurality of brake-beams, an equalizing-lever connected to said beams, and an operating-lever adapted to apply pressure to said equalizing-lever, of a ball-and-socket connection between said equalizing-lever and said operating-lever, and a pin-and-slot connection between said equalizing-lever and said operating-lever independent of the ball-and-socket connection, for the purpose of independently supporting said equalizing-lever from said operating-lever.

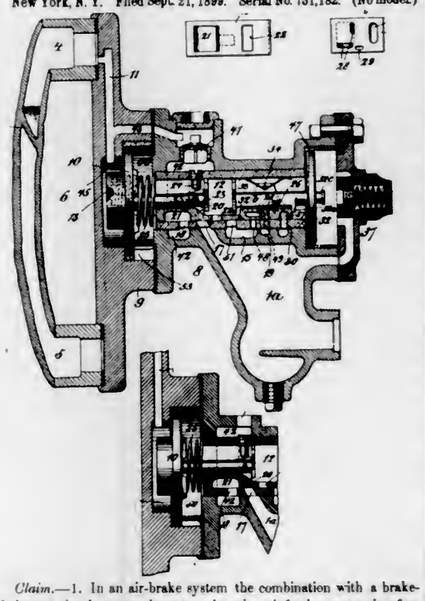
3. In a brake mechanism, the combination with a plurality of brake-beams, of an equalizing-lever connected to said beams and an operating-lever adapted to apply pressure directly to said equalizing-lever, the said equalizing-lever provided with a socket-piece rigidly secured thereto but capable of adjustment thereon, the said socket-piece having a spherical recess, and the said operating-lever having a spherical projection adapted to engage with the said spherical recess.

660,649. EQUALIZING-LEVER. JOSEPH E. NORMAND, Watertown, N. Y. Filed July 29, 1899. Serial No. 725,455. (No model.)

Claim.—In a brake-operating mechanism, the combination with a cylinder and piston mounted therein, two cylinder-levers, the one pivoted to a fixed point of support and the other constituting a floating lever, a link connecting the two levers together at points intermediate of their ends, and truck-lever connecting-rods pivoted to the ends of said cylinder-levers, of a hand-brake lever centrally pivoted to a fixed point of support, hand-brake connecting-rods connected to opposite ends of same, an intermediate lever pivoted at one end to a fixed point of support, a flexible connection between the opposite end thereof and the hand-brake lever, a connection between the power end of said floating cylinder-lever and the intermediate lever at a point intermediate of its length, and a connection between said piston and the power end of said floating lever, whereby said lever may be operated by the movement of said piston, but is free to be operated by said hand-brake lever independently of said piston.



660,650. AIR-BRAKE. JOSEPH E. NORMAND, Watertown, N. Y., assignor of one-half to Joseph R. Ellicott, Nyack, and Charles A. Ball, New York, N. Y. Filed Sept. 21, 1899. Serial No. 731,182. (No model.)



Claim.—1. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of an automatic valve mechanism, adapted under variations of pressure in the train-pipe, firstly, to permit free communication between said service-reservoir and said reinforcing-reservoir in either direction under normal or running conditions; secondly, to close communication to or from said reinforcing-reservoir and to open communication between said service-reservoir and said brake-cylinder, under ordinary service-stop conditions; and thirdly, to open communication between both said reservoirs and said brake-cylinder under full service-stop conditions.

2. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of an automatic valve mechanism, adapted under variations of pressure in the train-pipe, firstly, to permit free communication between said service-reservoir and said reinforcing-reservoir in either direction under normal or running conditions; secondly, to close communication to or from said reinforcing-reservoir and to open communication between said service-reservoir and said brake-cylinder, under ordinary service-stop conditions; thirdly, to open communication between both said reservoirs and said brake-cylinder under full service-stop conditions, and fourthly, to open communication between the service-reservoir and the brake-cylinder through a large or emergency port under emergency conditions.

3. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of a valve, a valve-chamber, ports leading from said valve-chamber to the service-reservoir, to the reinforcing-reservoir, to the brake-cylinder, and to an exhaust, said valve adapted, when in its position at one end of its stroke to open the ports leading from the valve-chamber to the service-reservoir, and to the reinforcing-reservoir, to close the port leading from the valve-chamber to the brake-cylinder, and to put in communication ports leading to the brake-cylinder and to the exhaust, when in an intermediate position, to open ports leading from the valve-chamber to the service-reservoir and to the brake-cylinder, to close the port leading from the reinforcing-reservoir and to close the port leading to the exhaust, and when in its position at the opposite end of its stroke to open in addition to the ports opened when in an intermediate position, the port leading from the interior of the valve-chamber to the reinforcing-reservoir, whereby the reinforcing-reservoir is put in communication with the brake-cylinder, and means for operating said valve.

4. In an air-brake system the combination with a brake-cylinder, of an outer casing surrounding same, the space between the outer casing and the brake-cylinder divided into two chambers by a diaphragm arranged longitudinally thereof, the said chambers being adapted to be used as reservoirs for air under pressure.

5. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir, a reinforcing-reservoir and a valve-chamber, ports leading from said valve-chamber to the service-reservoir and to the reinforcing-reservoir, a service-port leading from the valve-chamber to the brake-cylinder, an emergency-port of larger size leading from the valve-chamber to the brake-cylinder, and a port connecting the brake-cylinder with the exhaust, of a valve adapted, firstly, to put in communication the ports leading to the service-reservoir and to the reinforcing-reservoir, to close the service-port from the valve-chamber to the brake-cylinder and to open the port connecting the brake-cylinder with the exhaust; secondly, to put in communication the port leading to the service-reservoir and the service-port leading to the brake-cylinder, to close the port leading from the valve-chamber to the reinforcing-reservoir and to close the port connecting the brake-cylinder with the exhaust; and thirdly, to open, in addition to the ports opened by the said valve under said second conditions, the port leading from the valve-chamber to the reinforcing-reservoir, whereby the said port is put into communication with the brake-cylinder; and an emergency-valve, adapted to open the said emergency-port.

6. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of a valve mechanism arranged to govern communication between the service-reservoir, the reinforcing-reservoir and the brake-cylinder, and an emergency-valve arranged to govern communication between the service-reservoir and the brake-cylinder, and at the same time to govern communication between the train-pipe and a discharge-passage.

7. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of a valve mechanism arranged to govern communication between the service-reservoir, the reinforcing-reservoir and the brake-cylinder, and an emergency-valve arranged to govern communication between the service-reservoir and the brake-cylinder, and at the same time to govern communication between the train-pipe and a discharge-passage leading to the brake-cylinder.

8. In an air-brake system the combination with a brake-cylinder, a train-pipe, a service-reservoir and a reinforcing-reservoir, of a valve, a valve-chamber, ports leading from said valve-chamber to the service-reservoir, to the reinforcing-reservoir, to the brake-cylinder, and to an exhaust, said valve adapted, when in its position at one end of its stroke to open the ports leading from the valve-chamber to the service-reservoir, and to the reinforcing-reservoir, to close the port leading from the valve-

chamber to the brake-cylinder, and to put in communication ports leading to the brake-cylinder and to the exhaust, when in an intermediate position to open ports leading from the valve-chamber to the service-reservoir and to the brake-cylinder, to close the port leading from the reinforcing-reservoir and to close the port leading to the exhaust, and when in its position at the opposite end of its stroke to open, in addition to the ports opened when in an intermediate position, the port leading from the interior of the valve-chamber to the reinforcing-reservoir, whereby the reinforcing-reservoir is put in communication with the brake-cylinder, and an impositive stop, limiting, against spring-pressure, the movement of the valve beyond its intermediate position, and means for operating said valve.

9. The combination in a valve mechanism with a casing, a piston, and a graduating and releasing valve controlled by the movement of said piston, said valve arranged to govern communication between an air-reservoir and a brake-cylinder, and the brake-cylinder and an exhaust, respectively, of a piston, mounted and arranged to move independently of said first-mentioned piston and an emergency-valve controlled by the movement of said last-named piston, the movement of said emergency-valve being adapted, mechanically, to force the movement of said first-mentioned valve in one direction.

10. The combination in a valve mechanism with a casing, a piston and a graduating and releasing valve controlled by the movement of said piston, said valve arranged to govern communication between an air-reservoir and a brake-cylinder, and the brake-cylinder and an exhaust, respectively, of a piston mounted and arranged to move independently of said first-mentioned piston, an emergency-valve controlled by the movement of said last-named piston, the movement of said emergency-valve being adapted, mechanically, to force the movement of said mentioned valve in one direction, and a spring for returning the said last-named piston to its normal position.

11. The combination in a valve mechanism of a valve-casing, a valve-chamber, a graduating and releasing valve arranged in said chamber and controlling ports leading to an air-reservoir, a brake-cylinder and an exhaust, a graduation-piston open on one side to said chamber and on the other to a train-pipe, an emergency-valve, and an emergency-piston, adapted to control in its movements the movements of the said emergency-valve, said emergency-piston being open on one side to the said valve-chamber and on the other side to the said reservoir.

12. The combination in a valve mechanism of a valve-casing, a valve-chamber, a graduating and releasing valve arranged in said chamber and controlling ports leading to an air-reservoir, a brake-cylinder and an exhaust, a graduation-piston arranged at one end of said chamber and open on one side to said chamber and on the other to a train-pipe, an emergency-valve also mounted in said valve-chamber, and an emergency-piston arranged at the opposite end of said chamber and open on one side to the said chamber and on the other side to the said reservoir.

13. In an air-brake system the combination with a train-pipe, an air-reservoir and a brake-cylinder, of a valve mechanism including a valve-casing, a valve-chamber, a graduating and releasing valve arranged in said chamber and controlling ports leading to the air-reservoir, the brake-cylinder and an exhaust, a graduation-piston open on one side to said chamber, and on the other to the train-pipe, an emergency-valve also mounted in said chamber, and an emergency-piston mounted in a cylindrical bore in a head of the air-reservoir, and open on one side to said reservoir and on the other to said valve-chamber.

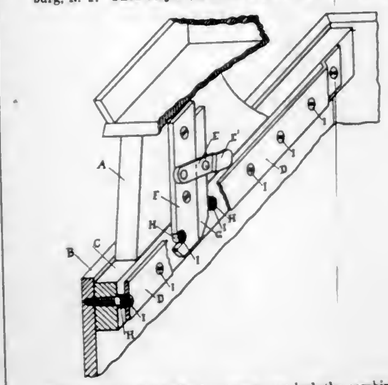
14. In an air-brake system the combination with a service-reservoir and a reinforcing-reservoir combined, a train-pipe and a brake-cylinder, of a triple-valve device including a valve-chamber, a graduating and releasing valve arranged in said valve-chamber, and controlling ports leading to the service-reservoir, the reinforcing-reservoir, the brake-cylinder and an exhaust, a graduation-piston, open on one side to said chamber and on the other to said train-pipe, an emergency-valve also mounted in said chamber, and an emergency-piston mounted in a cylindrical bore in a head of the combined service and reinforcing reservoirs, said emergency-piston being open on one side to the service-reservoir and on the other to the valve-chamber.

15. In an air-brake system the combination with a service-reservoir, a reinforcing-reservoir, a train-pipe and a brake-cylinder, of a valve mechanism including a valve-chamber, a graduating and releasing valve controlling ports leading to the service-reservoir, the reinforcing-reservoir the train-pipe and an exhaust, a graduation-piston open on one side to the said valve-chamber and on the other side to the train-pipe, an emergency-valve controlling an emergency-port and a communication between the train-pipe and a discharge-passage, and an emergency-piston open on one side to the said valve-chamber and on the other side to the service-reservoir.

16. In an air-brake system the combination with a service-reservoir, a reinforcing-reservoir, a train-pipe and a brake-cylinder, of a valve mechanism including a valve-chamber, a graduating and releasing valve controlling ports leading to the service-reservoir, the reinforcing-reservoir, the train-pipe and an exhaust, a graduation-piston open on one side to the said valve-chamber and on the other side to the train-pipe, an emergency-valve controlling an emergency-port and a communication between the train-pipe and a discharge-passage, an emergency-piston open on one side to the said valve-chamber and on the other side to the service-reservoir, and a communication between the said train-pipe discharge-passage and that side of the emergency-piston which is open to the service-reservoir.

17. In an air-brake system the combination with a service-reservoir, a reinforcing-reservoir, a train-pipe and a brake-cylinder, of a valve mechanism including a valve-chamber, a graduating and releasing valve controlling ports leading to the service-reservoir, the reinforcing-reservoir, the train-pipe and an exhaust, a graduation-piston open on one side to the said valve-chamber and on the other side to the train-pipe, an emergency-valve controlling an emergency-port and a communication between the train-pipe and a discharge-passage, an emergency-piston open on one side to the said valve-chamber and on the other side to the service-reservoir, and a non-return check-valve arranged in said last-named passage.

660,651. WAGON-SEAT LOCK. FRED A. OLMSTED, South Fallsburg, N. Y. Filed July 27, 1900. Serial No. 25,018. (No model.)



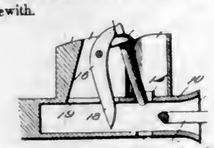
Claim.—1. In the rack of a wagon-seat lock the combination of a strap of iron or other suitable material pierced with a row of equidistant holes; screws, pins, or similar fastenings which may pass through said holes and become fastened to the side of the wagon-body; and rings or collars over said screws, pins, or similar fastenings which may lie between said strap and said wagon-body and prevent the nearer approach of said strap to said wagon-body.

2. In a wagon-seat lock the combination of a hook secured to the riser of the wagon-seat and projecting downward therefrom, a key secured to said hook by a link which may permit its free movement through a short space up and down behind said hook, an extension of said link beyond said key said extension being inclined or offset inwardly out of the plane of said link, and a toothed rack secured to the side of the wagon-body in such manner that when said wagon-seat is in operative position on said wagon-body said hook may be engaged with one of the teeth of said rack and said key may enter and nearly or quite fill the space between the back of said hook and the next tooth behind said hook.

3. In a wagon-seat lock the combination of a hook secured to the riser of a wagon-seat and projecting downwardly therefrom; a key secured to said hook by a link; a strap of iron or other suitable material secured to the side of the wagon-body by screws, pins or similar fastenings at equal distances from each other; and rings or collars over said screws, pins or similar fastenings which lie between said strap and said wagon-body and which may prevent the nearer approach of said strap to said body, said hook and said rings or collars being so situated that when said seat-riser is in operative position on said wagon-body said hook may be engaged with any one of the said rings or collars, and said key may enter and nearly or quite fill the space between the back of said hook and the next ring or collar behind said hook.

660,652. CAR-COUPLING. WILLIAM S. OWEN, Tyndall, S. D. Filed May 31, 1900. Serial No. 18,568. (No model.)

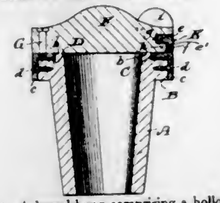
Claim.—1. In a pin-and-link car-coupler, the combination with a draw-head provided with a flared mouth, of a flanged pin-support projecting from the top of said draw-head, and having a restricted portion on which the head of the pin rests, and a pivoted dog carried by said support and normally resting against the pin, the lower end of said dog extending within the draw-head to be struck by a link to throw the pin in engagement therewith.



2. In a car-coupler, the combination with a draw-head, having two alining openings for the reception of a pin, of a pin-support projecting from said head, and having an enlarged portion and a restricted portion, a headed pin adapted to normally lie above the head with its head resting upon the walls of the restricted portion of the support, and a pivoted dog carried by support normally lying against the pin and adapted to unseat the same by contact with a link and allow the pin to drop in the above-mentioned openings.

3. In a car-coupler, the combination with a draw-head, having two alining openings for the reception of a pin, of a pin-support projecting from said head, and having an enlarged portion and a restricted portion, a headed pin adapted to normally lie above the head with its head resting upon the walls of the restricted portion of the support, a pivoted dog carried by support normally lying against the pin and adapted to unseat the same by contact with a link and allow the pin to drop in the above-mentioned openings, and means for raising the pin to its normal position.

660,653. BARREL-BUNG. FREDERICK W. PINGEL, Wayside, Wis., assignor to the Wayside Novelty Company, same place. Filed Apr. 10, 1899. Serial No. 712,361. (No model.)



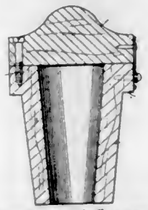
Claim.—1. A barrel-bung comprising a hollow bushing, and a flat ring on the top of the bushing provided with a depending annular flange secured to the bushing and formed with a keeper having a vertical wall, and an inwardly-projecting top which forms between the same and the ring a groove, in combination with a horizontally-movable pivoted cover having a groove formed in its vertical face in which groove said keeper-top engages, and having below said groove a part adapted to engage in the groove formed between the keeper-top and the flat ring and against the vertical wall of the keeper, substantially as described.

2. A barrel-bung comprising a hollow tapered bushing, having an upper annular flange formed with an inner annular shoulder on its upper surface, in combination with a flat ring having a downward-depending annular flange secured to the annular flange of the bushing, and a curved keeper rising from its upper edge and having an inwardly-projecting curved top; a flexible gasket interposed between the horizontal portion of said ring and the flange beneath, and a horizontally-movable cover, pivoted to said ring and having a curved groove in its outer vertical face for engagement with the curved top of the keeper and the lower wall of said groove being inset or cut away on a curved line to engage with the inner surface of the vertical wall of said keeper beneath the top of the latter.

3. In a bung, the combination with a keeper having a substantially wedge-shaped vertical wall *e'*, the inner face of which is eccentric to the outer face, and a horizontal inwardly-projecting substantially wedge-shaped top *e*, of a horizontally-movable pivoted cover having a groove *g* complementary to the top *e* and adapted to receive the same, and a part *h* adapted to engage beneath the top *e*, said part *h* having an eccentric outer face adapted to engage the eccentric inner face of the keeper-wall *e'*, substantially as described.

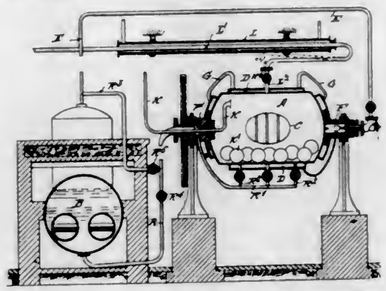
660,654. BARREL-BUNG. FREDERICK W. PINGEL, Wayside, Wis., assignor to the Wayside Novelty Company, same place. Filed Apr. 10, 1899. Serial No. 712,362. (No model.)

Claim.—1. In a barrel-bung, the combination of a hollow tapered bushing having an upper annular laterally-projecting integral flange B, the top of said bushing and flange forming an extended horizontal plane surface, a horizontally-movable cover having a horizontal plane under surface lying flat against the top plane surface of the bushing and flange, a vertical pivot connecting said top and cover at one side, a depending rigid hooked plate rigidly secured to said cover on the side diametrically opposite said pivot, and a headed pin projecting horizontally from the side of said flange with which pin the hook of said rigid plate engages between the head and the vertical side wall of said annular flange, whereby the said plate prevents injury to the pivot by a blow or the like on the cover and the headed pin prevents the bending of said plate, substantially as described.



2. A barrel-bung comprising a hollow tapered bushing having an upper annular flange integral therewith, the top of said bushing and flange forming a horizontal plane surface, in combination with a horizontally-movable cover, the under side of which forms a horizontal plane surface, a vertical pivot uniting said flange and cover, and having screw-threads in its lower part for increasing the frictional contact between the bung proper and cover, a headed pin projecting from said flange, and a depending rigid plate secured to the outer vertical face of the cover and projecting below the plane of the bottom thereof, said plate terminating in a hook or catch for engagement with said headed pin.

660,655. PROCESS OF RENDERING FATS. ADALBERT VON PODEWILS, Munich, Germany. Filed Oct. 20, 1899. Serial No. 734,179. (No specimens.)



Claim.—1. An improved method of sterilizing animal-carcasses and removing the fat therefrom consisting in exposing them to liquid heated to above 100° Celsius and kept during its contact with the carcass material at a higher pressure than that corresponding to its boiling temperature in order to prevent ebullition.

2. The improved process for sterilizing animal-carcasses and removing fat therefrom consisting in repeatedly immersing them in liquid heated to above 100° Celsius under pressure preventing ebullition.

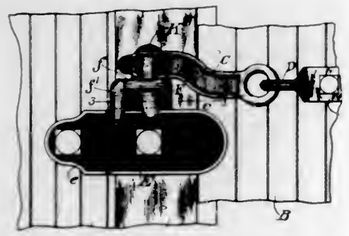
3. The improved process for sterilizing animal-carcasses and removing fat therefrom consisting in repeatedly immersing them in liquid heated to above 100° Celsius under pressure preventing ebullition and discharging the separated fat by further injection of liquid into the carcass vessel.

4. The improved process for sterilizing animal-carcasses, removing fat therefrom and separating the fat from the sterlizing liquid, consisting in repeatedly immersing the carcass in liquid heated to above 100° Celsius under pressure preventing ebullition, discharging the separated fat from the carcass vessel by further injection of liquid therein and passing said discharged fat directly into a cooler.

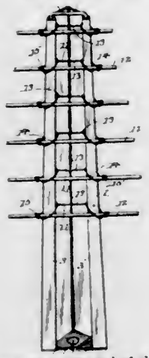
660,656. CAR-DOOR FASTENER. HERMAN PRIES and JOHN W. MEYER, Michigan City, Ind. Filed July 20, 1899. Serial No. 724,480. (No model.)

Claim.—In a car-door fastening, in combination, a hasp in hook form adapted to be attached to the door and having its hook transversely apertured, a plate adapted to be attached to the door-frame, and having an upwardly-projecting wing having a horizontal and a perpendicular transversely-apertured flange, such wing having a bolt-hole above its horizontal flange, whereby it may be secured to the car-body by a bolt covered by the hook of the hasp when the door is fastened.

660,656.



660,657. FENCE-POST. ANTHONY REITENOUR, Deerfield, Ind. Filed Mar. 28, 1900. Serial No. 10,520. (No model.)



Claim.—1. A fence-post constructed of sheet metal and composed of sides provided at their longitudinal edges with ribs formed by bending the sheet metal, and a connecting-piece extending across the post and having side portions arranged within the ribs, substantially as described.

2. A fence-post constructed of sheet metal and comprising sides arranged at an angle and having their longitudinal edges extended inward and forming ribs, a bottom composed of extensions of the sides bent inward, and a connecting-piece extending across the top of the post and having depending portions arranged within the ribs, substantially as described.

3. A fence-post composed of sides provided with longitudinal ribs converging toward one end of the post, and a removable core arranged within the post and detachably interlocked with the ribs or flanges and adapted to be engaged with and disengaged from the same by moving it longitudinally of the post, substantially as and for the purpose described.

4. A fence-post comprising sides arranged at an angle and provided with inwardly-extending ribs converging toward one end of the post, and a core having an enlarged inner portion arranged between the sides and interlocked with the ribs of the post, said core being shorter than the post, whereby it is adapted to be engaged with and disengaged from the same, by longitudinal movement, substantially as described.

5. A fence-post constructed of sheet metal and composed of sides arranged at an angle to each other and having their edges extended inward to form longitudinal ribs, said sides being provided in rear of the ribs with perforations, and the wire ties passing through the perforations of the sides of the post and encircling the ribs and adapted to engage fence-wires, substantially as described.

6. A fence-post constructed of sheet metal and composed of sides disposed at an angle and having their longitudinal edges extended inward to form ribs, said sides being perforated in rear of the ribs, and wire ties passing through the perforations and extending across the fence-post, the terminals of the ties being coiled around the ribs and around the fence-wires, substantially as described.

660,658. BUOYING MEANS FOR WATER-CRAFT. JOHN M. RICHENS, Fitzgerald, Ga. Filed Feb. 20, 1900. Serial No. 5,956. (No model.)

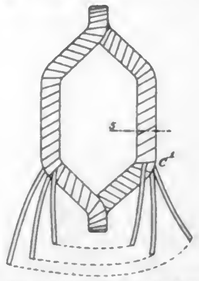
Claim.—1. In a water-craft, an end chamber, a series of tubes arranged exterior to the hull and having individual valved connection with the said end chamber, and a cover for said chamber having a valve, and means for inflating the said tubes separately, by application of the pump to each, or simultaneously by having the pump fitted to the valve of the cover, substantially as set forth.



2. Water-craft having inflatable tubes exterior to the hull and attached thereto, and ribs separating the tubes, substantially as described.

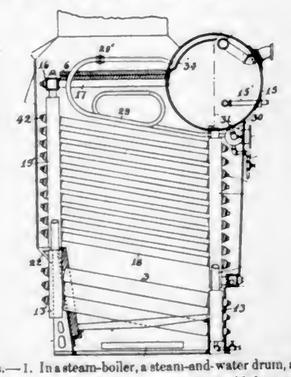
3. A boat provided exterior to its hull with a series of tubes, the tubes below the water-line being collapsible and inflatable and the tubes above the water-line constituting storage-chambers for compressed air, by means of which the collapsible tubes are adapted to be inflated, substantially as described.

660,659. SHAPED SPOOL FOR DRUM-ARMATURES. ALEXANDER ROTHERT, Riga, Russia. Filed Jan. 30, 1900. Serial No. 3,364. (No model.)



Claim.—A combined shaped coil for drum-armatures containing several elements having equal or unequal numbers of turns and having the armature-wire wound on suitable formers in sufficient number of turns for all the elements forming one coil or winding member, the said wire being of suitable cross-section and severed at suitable points, the whole coil being thus subdivided into several elements having each the number of turns comprised between two severed points, that is, between one of the said points and beginning or end of the wire, substantially as and for the purposes described.

660,660. STEAM-BOILER. JOHN A. STEVENS, Lowell, Mass. Filed Jan. 31, 1900. Serial No. 3,406. (No model.)



Claim.—1. In a steam-boiler, a steam-and-water drum, a superheater-drum, a series of superheating-tubes connecting said drums, and a valved flooding-pipe connecting said drums, substantially as specified.

2. In a steam-boiler, a steam-and-water drum, a superheater-drum substantially parallel thereto, a series of sectional superheating-tubes connecting said drums, and a valved flooding-pipe connecting said drums, substantially as specified.

3. In a steam-boiler, a steam-and-water drum, a superheater-drum, a series of superheating-tubes leading from said steam-and-water drum to said superheater-drum, and a baffle for compelling steam to travel to the top of said steam-and-water drum in passing to said superheating-tubes.

4. In a steam-boiler, a combustion-chamber, a roof-baffle therefor, a steam-and-water drum, a superheater-drum, and superheating-tubes passing through said roof-baffle and leading from said steam-and-water drum to said superheater-drum.

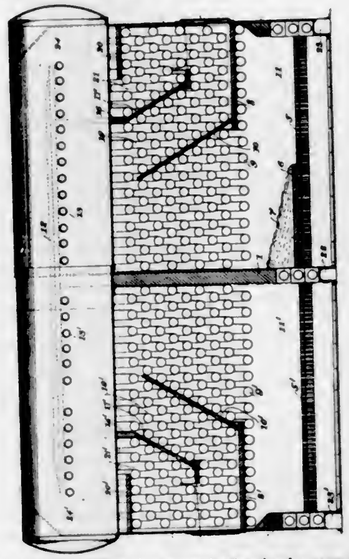
5. In a steam-boiler, a combustion-chamber, a roof-baffle therefor, a steam-and-water drum, a superheater-drum, a series of superheating-tubes passing through said roof-baffle and connecting said drums, a valved flooding-pipe connecting said drums, and a valved drain-pipe leading from said superheater-drum.

6. In a steam-boiler, a combustion-chamber, a roof-baffle therefor, a steam-and-water drum, a superheater-drum, and superheating-tubes connecting said drums, said tubes extending above and below said roof-baffle and having coils in said combustion-chamber.

7. In a steam-boiler, a combustion-chamber, a roof-baffle therefor, inclined baffles for said combustion-chamber, a steam-and water drum, a superheater-drum, and superheating-tubes connecting said drums, said tubes passing through said combustion-chamber and said baffles concentrating the gaseous products of combustion and directing the same transversely to said tubes, substantially as specified.

8. In a steam-boiler, a pair of combustion-chambers, a roof-baffle therefor, inclined baffles in each of said combustion-chambers for concentrating and directing the fuel products in passing therethrough, and superheating-tubes passing through each of said combustion-chambers, said baffles concentrating the gaseous products of combustion and directing the same transversely to said tubes, substantially as specified.

660,661. BOILER-FURNACE. JOHN A. STEVENS, Lowell, Mass. Filed May 8, 1900. Serial No. 15,882. (No model.)

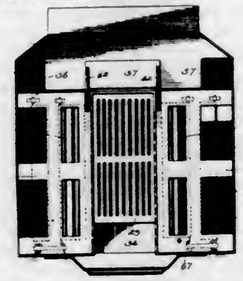


Claim.—1. In a boiler-furnace, a combustion-chamber comprising a primary pass having a horizontal baffle and an inclined baffle for confining and contracting the gaseous products passing therethrough, in combination with water-tubes arranged transversely to said combustion-chamber and so disposed as to support the baffles in both the horizontal and inclined positions, said baffles being adjustable and said horizontal baffle being adapted to support said inclined baffle, substantially as described.

2. In a boiler-furnace, a combustion-chamber comprising a primary pass, a secondary pass and a tertiary pass, a roof-baffle therefor, an adjustable horizontal baffle and an adjustable inclined baffle adapted to be supported thereby between said primary and secondary passes, an adjustable vertical baffle and an adjustable inclined baffle adapted to support said vertical baffle between said secondary and tertiary passes, in combination with water-tubes arranged transversely to said combustion-chamber and so disposed as to support said baffles, substantially as specified.

3. In a boiler-furnace, a combustion-chamber comprising a primary pass, a secondary pass and a tertiary pass, a grate extending beneath all of said passes, a roof-baffle for said passes, a horizontal baffle and an inclined baffle adapted to be supported thereby between said primary and secondary passes, a vertical baffle and an inclined baffle adapted to support said vertical baffle between said secondary and tertiary passes, in combination with water-tubes arranged transversely to the combustion-chamber and so disposed as to support said baffles and permit them to be adjusted, substantially as specified.

660,662. STOVE. PHILIP M. ST. LOUIS, Carmel, Wis. Filed Feb. 20, 1900. Serial No. 5,928. (No model.)



Claim.—1. The combination with a stove provided with a central fire-pot and an oven, of a separate series of flues on each side of the fire-pot and oven, and a single damper mechanism for opening and closing each series of said flues, substantially as described.

2. The combination with a stove-casing having a central fire-pot and a direct-draft flue leading therefrom, of a damper arranged in said flue provided with weighted depending arms, and projections extending through the top of the stove for operating said damper.

3. The combination with a stove-casing and its fire-pot of two independent flues on each side of said fire-pot, an auxiliary flue into which said flues empty, and a transverse flue at the top of the second-named flue communicating with the stovepipe-opening.

4. The combination with a stove-casing and a central fire-pot arranged therein, three parallel flues on each side of said fire-pot, and means for normally keeping two flues in each series closed while the remaining flues are open, substantially as described.

5. In a stove the combination with a casing and a fire-pot, of a steam heating-flue on each side of said fire-pot, secondary flues arranged vertically in said casing and communicating with the steam heating-flues, and a single damper mechanism for directing the products to and away from each of the said steam heating-flues.

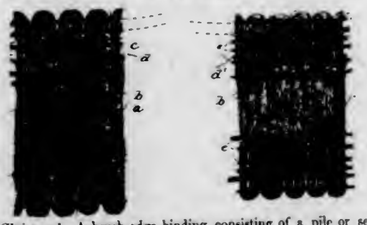
6. The combination with a stove-casing and a fire-pot, of a removable ash-pan secured to said casing by means of a bail having projecting ends which normally engage said casing, an ash-trough immediately below the fire-pot and emptying directly into the pan or receptacle at the rear end of said trough.

7. The combination with a stove-casing and a central fire-pot, a steam heating-flue on each side of said fire-pot, of a removable water-receptacle secured in a recess in said casing, two series of pipes projecting from said receptacle and into said flues and means for directing the products of combustion to or away from said pipes, substantially as described.

8. The combination in a stove, of a central fire-pot, an oven directly below said fire-pot and a plurality of vertical flues on each side of the fire-pot and oven.

9. In a stove, the combination with a central fire-pot, of a flue leading directly to the pipe-opening from the fire-pot, a damper therefor, a plurality of flues on each side of the fire-pot, and a removable oven below said fire-pot, the sides of said oven forming part of the sides of flues nearest the sides of the fire-pot.

660,663. BRUSH SKIRT-BINDING. ALFRED W. STOEKLEY, Philadelphia, Pa., assignor to Katherine Stoekley, same place. Filed June 20, 1900. Serial No. 21,013. (No model.)



Claim.—1. A brush-edge binding consisting of a pile or series of threads doubled upon itself and forming parallel tufts of a common length constituting a relatively heavy brush, a knitted heading of lighter texture

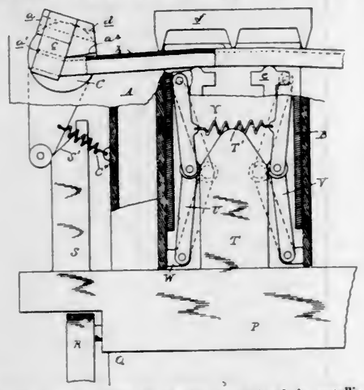
than the brush, and rows of chain-stitches which bind the tufts and tie the heading and of which some are tighter than others to impart a curved shape, substantially as described.

2. A brush-edge binding consisting of a pile or series of threads doubled upon itself and forming parallel tufts of a common length constituting a relatively heavy brush, a knitted heading having less threads than the brush, and rows of chain-stitches which bind the tufts and tie the heading and of which some are tighter than others to impart a curved shape, the filling of the heading extending from stitch to stitch, substantially as described.

3. As an article of manufacture, a skirt-binding consisting of a heavy brush composed of knitted doubled threads or tufts of worsted material, and a knitted heading of lighter textore than the brush, and rows of chain-stitches which tie the heading and bind the brush, and of which some are tighter than others to impart a curved shape, the filling of the heading extending from stitch to stitch and from end to end of the heading, substantially as described.

4. As an article of manufacture, a skirt-binding consisting of a heavy brush composed of knitted doubled threads or tufts of worsted material, and a knitted heading composed of undulating filling-threads extending from stitch to stitch and end to end of the heading and forming interstices to receive the ends of the tufts, and rows of chain-stitches which tie the heading and bind the brush, substantially as described.

660,664. **METAL-BENDING MACHINE.** WILLIAM E. S. STRONG, Detroit, Mich. Filed Oct. 23, 1899. Serial No. 734,509. (No model.)



Claim.—1. A machine for forming return-bends in metallic bars comprising a bed, a hook-shaped forming-head, having a transverse and longitudinal movement upon said bed and means for holding the bar to be bent with a free end projecting across the transverse path of said forming-head and in alinement with said hook in the longitudinal movement of said head.

2. In a machine for bending metallic bars the combination with a bed of a swinging arm thereon, a hook-shaped forming-head carried by said arm, means for holding the bar to be bent in the path of said swinging arm to be bent thereby and means for moving said hooked forming-head transversely and longitudinally in relation to said arm to form a return-bend in said bar.

3. In a machine for bending and assembling metallic bars, the combination with a bed, of a rotary head journaled therein having upwardly-extending jaws, a swinging forming-arm upon said bed, a hook-shaped forming-head carried by said forming-arm, means for holding two separated bars, with the free end of one in engagement with the jaws of said rotary head and the other extending in the path of said swinging arm, means for rotating said head to bend the end of the bar in engagement therewith, means for swinging said arm to carry the other bar into contact with said bent portion and with its end projecting therebeyond and means for moving said hook-shaped forming-head first laterally against said projecting end and then longitudinally to form a return-bend around the end of said bent bar.

4. In a machine for bending metallic bars the combination with a bed of a forming member thereon, a traveling connection between said bed and member guided to move in one direction in relation to said bed and having a cross sliding engagement with the forming member, a push-bar bearing upon said forming member, adapted to move the same and said sliding connection upon said bed, means for disengaging said bar from said member and a lever fulcrumed to said connection and connected to said forming member and push-bar adapted upon the further movement of the latter to impart a cross movement to said forming member transversely.

5. In a machine for bending metallic bars the combination with the bed of a rotary head journaled therein having arranged upon one side of its axis separated upwardly-projecting jaws, means upon the bed and arranged upon the opposite side of the axis of said head, for holding the bar to be bent with a free end projecting into engagement with said jaws and means for rotating said head to bend the engaged portion of said bar.

6. In a machine for bending metallic bars the combination with a bed of two rotary heads journaled therein having upwardly-projecting separated jaws arranged upon opposite sides of the axes of said heads and forming grooves or channels normally in alinement with each other adapted to receive the bar to be bent and means for rotating said heads to form a double bend in said bar.

7. In a machine for bending metallic bars the combination with the bed, of two rotary heads journaled therein having upwardly-projecting separated jaws arranged upon opposite sides of the axes of said heads, and forming normally-alined grooves or channels for receiving the bar to be bent, an abutment in said bed for bearing against the side of said bar centrally between said heads, means for rotating said heads to form a double bend in said bar, and means for moving said central abutment laterally to camber said bar between the heads.

8. In a machine for bending metallic bars the rotary bending-head C having the jaws or abutments *a* and *b* arranged on one side of the axis the former being of a height greater than the width of the bar to be bent and the abutment *b* being of a lesser height and adapted to engage with the lower edge of the bar, and a hook *c* pivoted to the lug *a* adapted to be turned over to engage with the upper edge of said bar.

9. In a machine for bending metallic bars the combination with a bed of a swinging forming-arm thereon, a second arm carried by said forming-arm having an independent swinging and longitudinal sliding movement thereon, a hook-shaped forming-head at the free end of said carried arm and beyond the end of said forming-arm, a push-bar having bearings upon both of said arms adapted to swing the same together, means for disengaging said push-bar first from said main arm to permit of the independent swing of said carried arm and forming-head, and subsequently from said carried arm, and a connection between said push-bar and carried arm adapted in the continued movement of the former to move said carried arm and hooked head longitudinally.

10. In a machine for bending metallic bars the combination with a bed, of the hollow swinging forming-arm D thereon, the hollow swinging arm E within the arm D and having the hook-shaped forming-head F projecting beyond the free end thereof, the pin *j* passing through cross-slots formed respectively longitudinally of the arm E and transversely of the arm D, the bell-crank lever G pivoted upon the pin *j* within the recess of the arm E, the link K connecting one arm of said bell-crank with the arm E, the arm H connected to the other end of said bell-crank and bearing upon the segmental bearings *o* on the arm E, the lug J on the arm D passing through a slot in the segmental bearing *o*, the trip-arm L and the push-rod B substantially as and for the purpose described.

11. In a machine for bending metallic bars the combination of a traveling forming member, a return-bend-forming device carried thereby and common actuating mechanism for operating said forming member and return-bend-forming device.

12. In a machine for bending metallic bars the combination of a swinging forming-arm, a return-bend-forming device carried by the free end of said arm and a common actuating connection for operating said forming-arm and return-bend-forming device.

13. In a machine for bending metallic bars the combination of a traveling forming member and a hook-shaped forming-head carried thereby adapted to have a relative transverse and longitudinal movement in relation to said forming member.

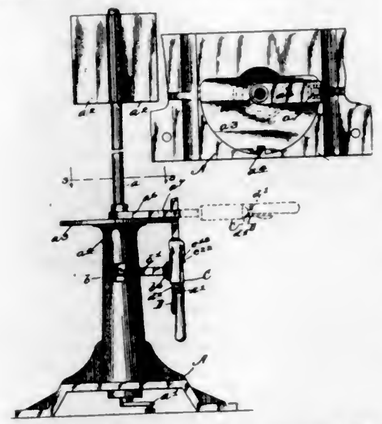
14. In a machine for bending metallic bars the combination of a traveling forming member, a hook-shaped forming-head carried thereby and a common actuating connection for successively operating said forming member and moving said hook-shaped head transversely and horizontally in relation thereto.

15. In a machine for forming metallic bars, the combination with a bed, of a work-holder thereon and a hook-shaped forming-head having a lateral and longitudinal movement upon said bed, the path of the former movement extending across the work and the latter longitudinally thereof.

660,665. **RAILWAY-SWITCH-LOCKING DEVICE.** CHARLES SULFER, San Antonio, Tex., assignor of one-half to John G. Peebles, Jr., Portsmouth, Ohio. Filed June 2, 1900. Serial No. 18,807. (No model.)

Claim.—1. A switch-locking device comprising a locking member fixed to a stationary part of a switch, another locking member fixed to the shifting part of the said switch, a lock in the shifting part of said switch, for locking the said parts together, and a safety-latch for engaging the two members, substantially as set forth.

2. A switch-locking device comprising a locking member fixed to the stationary part of a switch, a lever for moving the shifting part of said switch, a locking mechanism within the said lever, and a safety-latch for engaging the two members, substantially as set forth.



3. A switch-locking device comprising a locking member fixed to the stationary part of a switch, a vertical shaft for moving the operative parts thereof, a radial arm fixed to said shaft, a lever pivoted to said arm for rotating said shaft, a locking mechanism fixed to said arm and adapted to engage with the said stationary locking member, and a safety-latch for engaging the two members, substantially as set forth.

4. A switch-locking device comprising a locking member fixed to the stationary part of a switch, a lever for moving the switching mechanism, a lock within the said lever, adapted to engage the stationary member, and a safety-latch for engaging the two members, substantially as set forth.

5. A switch-locking device comprising a locking member fixed to the stationary part of a switch, a lever for moving the switching mechanism, a lock within the said lever, and a safety-latch adapted to engage the said stationary member, before the engagement of the said lock therewith, substantially as set forth.

6. A switch-locking device comprising a stud fixed to the stationary part of a switch, a lever for moving the switching mechanism, a lock within the said lever, an orifice in said lever for the entrance of said stud, and a safety-latch for engaging the two members, substantially as set forth.

7. A switch-locking device comprising a stud fixed to the stationary part of a switch, a lever for moving the switching mechanism, a perforation in said lever for the entrance of said stud, a spring latch-bolt in the path of said stud adapted to be raised by a key, a dog for holding said latch in a raised position and a notch in said stud with which said latch-bolt is adapted to engage, substantially as set forth.

8. A switch-locking device comprising a stud fixed to the stationary part of a switch, a lever for moving the switching mechanism, an orifice in said lever for the entrance of said stud, a notch in said stud, a spring latch-bolt in said lever in the path of said stud, adapted to engage with said notch, and adapted to be raised by a key, a dog for holding said latch in its raised position, a device for disengaging the said spring latch-bolt and dog, and an enlargement on the said stud adapted to operate the said disengaging device when the said lever is removed from said stud, substantially, as set forth.

9. A switch-locking device comprising a stud fixed to the stationary part of a switch, a lever for moving the switching mechanism, an orifice in said lever for the entrance of said stud, a lock in said lever adapted to engage with said stud and adapted to be disengaged by a key, a safety-latch on said lever adapted to engage with said stud when said stud is inserted in said orifice and before the engagement of said lock therewith, and a lever for disengaging said safety device, substantially as set forth.

10. A switch-locking device comprising a stud fixed to the stationary part of a switch, a lever for moving the switching mechanism, a chamber in said lever, a lock in said chamber for engaging with said stud, an orifice in said lever for the entrance of said stud, a plate for covering said chamber, a flange on said stud, and screws or the like for holding said plate, said screws covered by said flange when the said stud is inserted within said orifice, substantially as set forth.

660,666. **YARN SPINNING OR TWISTING APPARATUS.** MICHAEL E. SULLIVAN, New Bedford, and GEORGE O. DRAPER, Hopedale, Mass., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed May 9, 1900. Serial No. 16,043. (No model.)



Claim.—1. In a spinning or twisting frame, a duplex traveler-support composed of a fixed and a movable member each having a race for the traveler.

2. In a spinning or twisting frame, a duplex traveler-support comprising rotatable and non-rotatable members provided with races for a common traveler.

3. In a spinning or twisting frame, an annular traveler-support comprising a plurality of members one of which is fixed, each member having a bearing surface or race for a common traveler.

4. In a spinning or twisting frame, a traveler-support having a fixed race and a rotatable, radially-movable race for the traveler.

5. A drag for a spinning or twisting frame consisting of fixed and radially-movable rotatable races for a traveler.

6. A drag for a spinning or twisting frame, consisting of concentric fixed and rotatable annular members each having a race for a traveler.

7. The combination of a rotatable ring capable of radial and vertical movement, a fixed ring, and a traveler coöperating with both rings

8. The combination of a rotatable ring capable of radial and vertical movement, a fixed ring, oppositely-extended flanges on said rings, and a traveler coöperating with the rings and retained thereon by the flanges.

9. The combination of a rotatable, flanged ring-section with a non-rotatable, flanged and concentric section, and a traveler coöperating with the flanges of both sections.

10. The combination in a duplex spinning-ring, of a stationary flanged section and a movable, flanged section, each providing races for the traveler.

11. The combination of a rotatable ring capable of axial movement relatively to the spindle under the stress of the yarn, means for limiting the movement of the ring, and a traveler in engagement with said means and with the ring.

12. The combination, with a traveler, of fixed and movable annular bearings therefor.

13. In a spinning and twisting frame, a duplex ring composed of a fixed and a rotatable section, each provided with a bearing-race for the traveler, the movable section being weighted below its race.

14. In a spinning and twisting frame, a fixed outer member having a traveler-race, and a rotatable inner member also provided with a traveler-race.

15. A traveler-support for spinning and twisting frames, consisting of concentric, annular members one of which is rotatably and axially movable relative to the other and each having a traveler-race, and means to limit relative axial movement of said members.

16. In a spinning or twisting frame, a rotatable ring freely movable in any direction under unbalanced strains, a traveler coöperating therewith, and means to retard the rotation of the traveler independently of the ring.

17. The combination with relatively-movable traveler-supports, of a traveler coöperating with each.

18. The combination with relatively-movable traveler-supports, of a traveler coöperating with each, and means to retain the traveler in engagement therewith.

19. In a spinning or twisting frame, an annular traveler-support comprising two relatively-movable members each having a traveler-race, one of said members having a lateral projection to extend beneath an overhanging shoulder on the other member.

20. A drag for a spinning or twisting frame consisting of a rotatable, circularly-flanged member for the traveler, and a coöperating confining member provided with a flange, with which the traveler also coöperates.

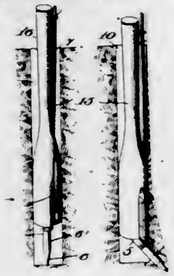
21. The combination of a rotatable ring axially and radially movable relatively to the spindle, said ring having a race, a traveler revoluble about the race, and means for limiting the described movement of said ring, said means also having a race for the traveler.

22. In combination, a rotatable ring and a relatively-fixed ring with a space between them to admit of radial movement of the rotatable ring relatively to the fixed ring, and a traveler-race on each ring.

23. The combination of a fixed guide, a rotatable ring capable of radial movement relatively to said guide, and a traveler revoluble about and in engagement with said ring and guide.

24. The combination of fixed and movable annular bearings for a traveler, with a common support or holder.

660,667. ANCHOR-SETTING TOOL. JAMES T. SWARTZ, Nebraska City, Nebr., assignor to Charles A. Van Pelt, same place. Filed June 16, 1900. Serial No. 20,577. (No model.)



Claim.—1. An anchor-setting tool of the character described formed at one end for engagement with an anchor, and a guide upon the exterior of the tool for guiding a wire employed for the deflection of an anchor.

2. An anchor-setting tool of the character described, having an anchor-receiving socket in one end and a guide located upon the exterior of the tool to guide an anchor-wire employed for the deflection of an anchor located within the socket of the tool.

3. An anchor-setting tool of the character described having a socket formed with a conical inner end, an open-ended slot in the wall of the socket, and an eyelet located at the upper end of the tool and in alinement with the slot.

4. An anchor-setting tool of the character described having an anchor-receiving socket, an open-ended slot in one wall of the socket for the passage of an anchor-wire employed for the deflection of an anchor, and means upon the exterior of the tool for guiding said wire.

5. An anchor-setting tool of the character described having an anchor-receiving socket and an open-ended slot in one wall of the socket, and means located upon the exterior of the tool above the slot to guide an anchor-wire.

6. An anchor-setting tool of the character described having an anchor-receiving socket in one end and an open-ended slot extending through one wall of the socket, and a guide device located upon the exterior of the tool adjacent to the end opposite the socket and designed for the reception of an anchor-wire employed for the deflection of an anchor located within the socket of the tool.

660,668. WIRE-STAY-WEAVING DEVICE. JAMES T. SWARTZ, Nebraska City, Nebr., assignor to Charles A. Van Pelt, same place. Filed June 30, 1900. Serial No. 22,224. (No model.)



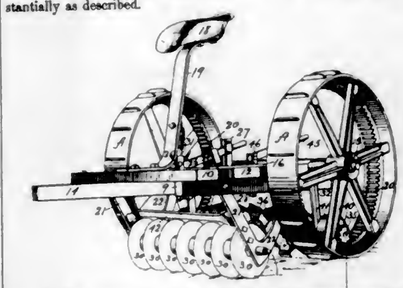
Claim.—1. A wire-stay-weaving device comprising a shank having a bifurcated end, and a handle extending at right angles to the shank from its opposite end, a spindle extending from the shank parallel with the handle, the bifurcated end of said shank being deflected beyond the side of the shank from which the spindle and handle extend, and said shank being provided with an eye having its axis parallel with the spindle and located between said spindle and the bifurcated end of the shank.

2. A wire-stay-weaving device comprising a shank having a bifurcated end, and a handle extending at right angles to the shank from its opposite end, a spindle extending from the shank parallel with the handle and having its outer end deflected toward the handle to form a guard, the bifurcated end of said shank being deflected beyond the side of the shank from which the spindle and handle extend, and said shank being provided with an eye having its axis parallel with the spindle and located between said spindle and the bifurcated end of the shank.

660,669. CULTIVATOR. ALVIN TAPLIN, Forestville, Conn. Filed Dec. 4, 1899. Serial No. 739,067. (No model.)

Claim.—1. The combination of the frame of the machine with the driving-wheels, the series of rotary hoes driven by said driving-wheels, the advance disk cutters on the shaft 29, the swinging angle-arms within which the said cutter-shaft is mounted, the said arms being pivoted to the side rails of the said frame upon which the said hoes are mounted, a cross-bar connecting the supplemental members of the said arms and the operating-lever 25, whereby the said disk cutters may be raised and lowered without raising and lowering the said hoes, substantially as described.

2. The combination of the frame, with the disk cutters mounted on angle-arms at the forward end of the said frame, the driving-wheels and the series of rotary hoes driven by the said driving-wheels mounted on swinging arms independently of the arms that carry the said disk cutters and arranged to hoe the ground traversed by the said disk cutters, substantially as described.



3. The combination of the frame with the driving-wheels and axle, a series of rotary hoes driven by the said driving-wheels, swinging arms within which the shaft for the said hoes is mounted, and a pivotal connection of said arms and frame that is eccentric to the said axle, substantially as described.

4. The combination with the frame and main wheels of the machine, of the rotary hoes driven by the said main wheels, the swinging arms and segments by which the said hoes are mounted for swinging on the said frame, a lifting-bar 43 connecting the said segments and the lifting-lever connected with the said lifting-bar, substantially as described.

5. The combination with the frame and main wheels of the machine of the rotary hoes driven by the said main wheels, the swinging arms 32 by which the said hoes are mounted for swinging on the frame, the segments 34 rigid with said arms and extending upwardly at the rear of said arms, the eyes 17 on the side rails at the rear of the axle and means for connecting the said segment with the said eyes, substantially as described.

6. The several hoes consisting each of a hub and oblique arms having seats for flat blades, the shoulders 51 at the inner ends of the said seats and the several blades having their flat sides secured to the said seats, and their inner ends against the said shoulders, substantially as described.

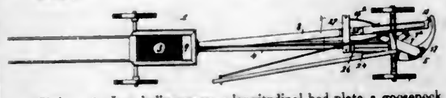
660,670. TROUSERS-GUARD. CHESTER L. TRIPP, New Bedford, Mass. Filed Apr. 23, 1900. Serial No. 14,778. (No model.)



Claim.—1. A trousers-guard, consisting of a spring-clasp to embrace the ankle; a metallic loop provided with a sliding thimble, adapted to closely embrace said clasp, adjustable thereon, and projecting at a right angle to the plane of said clasp; and a spring-wire secured to said loop and projecting upward, outward and downward, relative to the plane of said clasp, substantially as shown and described.

2. A trousers-guard, consisting of a spring-clasp, to embrace the ankle; a spring-wire secured to said clasp, and projecting upward, outward and downward, relative to the plane of said clasp, substantially as described.

660,671. BALING-PRESS. JOSIAH S. TUTTLE, Kansas City, Kans., assignor to J. M. Wilson, same place, and E. P. Ross and J. W. Lowe, Kansas City, Mo. Filed Dec. 15, 1899. Serial No. 740,397. (No model.)

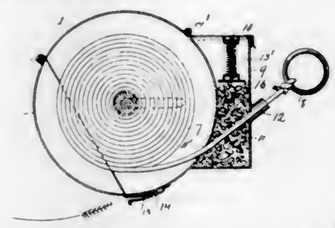


Claim.—1. In a baling-press, a longitudinal bed-plate, a gooseneck formed integral therewith, a power-shaft journaled at its lower end in the bed-plate and its upper end in the terminal of the gooseneck, a trip-lever rigidly mounted thereon, a lever fulcrumed on the forward portion of the gooseneck and adapted to be engaged and operated by the trip-lever, and a pitman adapted to be engaged by the opposite end of said lever and advanced on its power stroke, substantially as described.

2. In a baling-press, a longitudinal bed-plate, a gooseneck formed integral with the rear portion thereof, a lever fulcrumed on the gooseneck, and consisting of a short arm terminating in a curved vertical face portion, and a longer arm of suitable form, a trip-lever adapted to exert power on said shorter arm, and a reciprocatory pitman adapted to be engaged and advanced on its compression stroke by the longer arm of the lever, substantially as described.

3. In a baling-press, a longitudinal bed-plate, a gooseneck formed on the outer end thereof, a power-shaft journaled at its opposite terminals in the bed-plate and upper end of the gooseneck, a trip-lever rigidly mounted thereon, a reciprocatory pitman, and a lever of the first class fulcrumed on the gooseneck and adapted to receive power at its short arm from the trip-lever and transmit it through its longer arm to the rear wall of the pitman to advance it on its compression stroke, and a retractile spring secured at its opposite ends to the bed-plate and short arm of the lever, to return the latter to its normal position.

660,672. CHALK-LINE HOLDER. JOSEPH A. VERNON, Homestead, Pa. Filed Oct. 14, 1899. Serial No. 733,611. (No model.)



Claim.—1. In a chalk-line holder, the combination, with the box 1 having the hinged lid 2, the shaft journaled in the sides of said box and the reel mounted on said shaft within the box, of the chalk-receptacle secured to said box, a hinged lid or cover for said receptacle, and a spring-actuated compression-disk carried by said lid or cover and adapted to compress the chalk within the receptacle when the lid or cover is closed, as and for the purpose described.

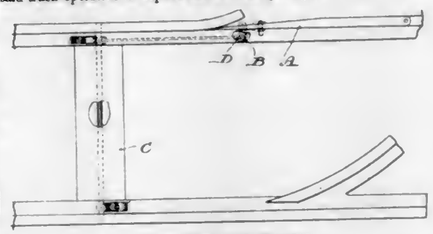
2. A chalk-line holder comprising a box provided with a hinged section forming a lid, a shaft journaled in the sides of said box with a crank secured on its one end, a reel mounted on said shaft within the box to receive the chalk-line, a chalk-receptacle connected to said box opposite to the hinged section thereof, said receptacle and box provided with openings to receive the chalk-line, a hinged lid or cover for said receptacle, and a spring-actuated compression-disk carried by said lid or cover, as and for the purpose specified.

3. In combination, a box having a reel mounted therein to receive the chalk-line, a chalk-receptacle secured to said box, said box and receptacle being provided with openings to receive the chalk-line, a lid or cover for said receptacle, and a spring-actuated compression-disk carried by said lid or cover, as and for the purpose specified.

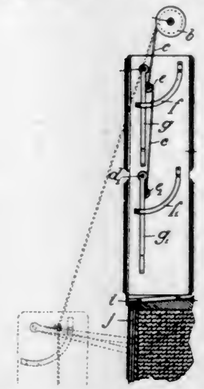
4. In combination, the box 1 having the hinged section 2 forming a lid, a chalk-receptacle secured to the box on the opposite side to the hinged section 2, a reel mounted within the box, said box being provided with an opening near the bottom of the chalk-receptacle and the chalk-receptacle having an opening in its outer wall above the opening in the box, and a hinged lid or cover for said receptacle, substantially as shown and described.

660,673. RAILWAY-SWITCH-OPERATING MECHANISM. WILLIAM WARNEKE, Milwaukee, Wis., assignor of three-fourths to Paul Krumbholz, John O. Krumbholz, and Bernhard Rosenow, same place. Filed July 2, 1900. Serial No. 22,256. (No model.)

Claim.—A pivotal switch-point at a track-junction of a railway, a lug depending from the switch-point through a slot in the adjacent frog, a bell-crank having an arm extremity thereof engaged by the switch-point lug, a rock-shaft below track-surface of the railway provided with a bell-crank having an arm thereof in link connection with the former bell-crank, a push-pin in connection with the other arm of the rock-shaft bell-crank extending through an opening in an adjacent track-rail, another crank on the rock-shaft, another push-pin in connection with the latter crank extending through an opening in the track-rail opposite the one aforesaid, the set of said rock-shaft cranks being such that said push-pins are alternately uppermost, and means in conjunction with a conveyance on said track operative to depress the elevated posh-pin.



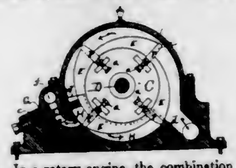
660,674. FIRE-ESCAPE. LOUIS WEBER, Uj-Verbász, Austria-Hungary. Filed Nov. 22, 1899. Serial No. 737,890. (No model.)



Claim.—1. The combination of a window having a window-frame detachably mounted in the wall, means for suspending said window-frame, and lateral lever-arms mounted at each side of the said frame and means for projecting them forward when the window is lowered, to retain the said frame the required distance from the front of the house substantially as described.

2. The combination of a window and frame detachably mounted in the wall, two pairs of arms pivotally mounted one above the other at each side of the said frame, cords at each side of the window and drums mounted above the window onto which said cords are wound, the said cords having their ends attached to the longer hooked arms of each pair at suitable distance from the pivot, and means at the front of the building to guide the said hooked arms, and a foot *k* to the shorter arms to serve as a strut substantially as described.

660,675. ROTARY ENGINE. CHARLES I. WILLIAMS, Dayton, Ohio. Filed Feb. 12, 1900. Serial No. 4,917. (No model.)



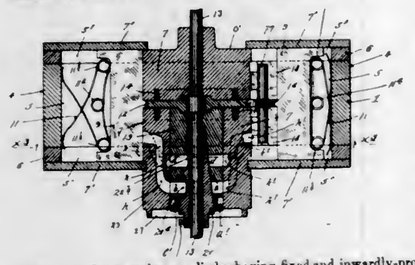
Claim.—1. In a rotary engine, the combination of a piston-wheel having cams, an inlet-valve controlled by said cams, an air-tight chamber within the casing, and pistons or flanges carried by said piston-wheel and which receive the pressure as they enter said air-tight chamber, said pistons or flanges projecting over the sides of the piston-wheels, and means for adjusting the said pistons or flanges, substantially as specified.

2. In a rotary engine, the combination with a casing, and an air-tight chamber formed therein, of a piston-wheel, cams on said wheel, an inlet-valve operated by said cams to admit pressure to said air-tight chamber, and pistons or flanges carried by said wheel, said pistons or flanges having extensions which project on each side of the piston-wheel, and the said pistons and wheel adapted to form air-tight inclosures for said chamber and the pistons receiving pressure from the admission-valve as

they enter said chamber and means for adjusting the positions of said pistons or flanges.

3. In a rotary engine, the combination with a casing, of a piston-wheel fitting within said casing closely for a portion of its circumference, and thereby forming an air-tight chamber between the supply and exhaust openings, an inlet-valve discharging into said air-tight chamber and forming a wall for one end of the air-tight chamber, cams on the piston-wheel controlling the position of said valve, and pistons carried on said wheel and receiving pressure as they enter the air-chamber said pistons having bifurcations or extensions which project on each side of the wheel, and means for adjusting said pistons, substantially as described.

660,676. ROTARY ENGINE. GEORG C. P. ANDERSSON, St. Paul, Minn. Filed Jan. 9, 1900. Serial No. 845. (No model.)



Claim.—1. In an engine, a cylinder having fixed and inwardly-projecting hub portions of equal diameter positioned concentric to the bore of said cylinder, to form an annular runway and terminated short of each other, to form a centrally-located piston-seat, in combination with a radially-movable and yieldingly-pressed abutment extended entirely across said runway, a rotary disk-like piston working in the seat between said hub portions, but formed or cut away to leave free communication from one to the other side of said runway, and oppositely-projecting propelling-blocks carried by said piston and filling said runway, said rotary piston having also a cam-surface which directly engages said abutment and causes the same to clear said propelling-block, substantially as described.

2. In a rotary engine, the combination with the cylinder 1 provided with the cylindrical bore 2, and the pair of seats 5, of the heads 6, having the inwardly-projected hubs 7, the rotary piston-disk 12 working between the adjacent ends of the hub 7 and provided with the cam-section 16, the propelling blocks or projections 18 carried by said piston-disk 12 and working in the annular runways formed between said hubs 7 and the cylinder-bore 2, the spring-pressed abutments 9 working in the seats 5 and subject to said cam 16, and valve mechanism controlled by said rotary piston, substantially as described.

3. In a rotary engine, the combination with a cylinder having one or more movable abutments, of a rotary piston within said cylinder having a propelling projection, and a tapered controlling-valve for the admission and exhaust, mounted to rotate with the said piston but free for both rotary and longitudinal adjustments, the former adjustment serving to vary the timed action of said valve and the latter adjustment serving to keep the said valve tightly seated, substantially as described.

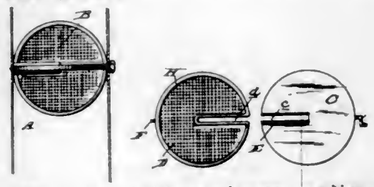
4. In a rotary engine, the combination with the cylinder and one or more movable abutments, of a rotary piston in said cylinder having a propelling projection and secured to the shaft 13, the tapered valve 21 having the ports 20^a and 20^b and adjustably secured on said shaft 13, and the removable bushing 19 having the ports *a*, *a'*, *c*, *c'*, *b* and *d*, the cylinder-casting having the ports *h*, *h'* and *k*, *k'*, the said parts operating substantially as described.

660,677. TOOTH-BRUSH. DAVID J. ARCHER, Toronto, Canada. Filed Dec. 9, 1899. Serial No. 739,858. (No model.)



Claim.—In a tooth-brush, the combination of a head provided with an externally-threaded short shank formed integral with the solid flat back thereof, a longitudinal passage-way in said shank opening directly into the said head, the enlarged discharging end of said passage-way being in the same plane as the inner surface of the solid back, and the enlarged receiving end of said passage-way being in a plane at right angles to the plane of the said discharging end, a tubular taper-ended reservoir screwing over said shank, the longitudinal axis of the reservoir being in a direct line with the center of the major portion of the passage-way in said shank, the upper inner end of said shank being reinforced near the discharging end of said passage-way, an enveloping revoluble feeding-sleeve for said tubular reservoir, a milled bearing-plug held in the large end of said reservoir, a threaded rod secured to said feeding-sleeve and screwing through said bearing-plug, a revoluble solid plunger-head rigidly secured to the inner end of said threaded rod and operating in the reservoir, the said plunger-head being actuated by the said revoluble feeding-sleeve to feed the dentifrice from the reservoir through the passage-way in the said shank into the head, substantially as set forth and for the purpose specified.

660,678. COMBINED DAMPER AND SPARK-ARRESTER. FREDERICK T. BOWLING, Hughesville, Md. Filed July 26, 1900. Serial No. 24,904. (No model.)

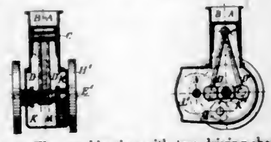


Claim.—1. A combined damper and arrester, comprising a perforate and an imperforate disk occupying positions at right angles to each other, and means for supporting and operating the same within a flue or pipe, substantially as described.

2. A damper and arrester combined, comprising perforate and imperforate disks capable of separation, means for retaining said disks at right angles when placed together, and means for supporting and operating the same within a flue or pipe, substantially as described.

3. A damper and arrester combined, comprising two slitted disks the one of perforate and the other of imperforate material, adapted to overlap, means for retaining the disks at right angles to each other when in operative position, and means for supporting and operating the same within a flue or pipe, substantially as described.

660,679. BALANCING ENGINE OR MOTOR. GUSTAVE L. V. CHAUVEAU, Paris, France. Filed June 5, 1900. Serial No. 19,125. (No model.)



Claim.—1. The combination with two driving-shafts journaled in alinement, means to rotate said shafts in opposite directions at the same speed, a counter-shaft, and gearing interposed between the driving-shafts and the counter-shaft to transmit the movement of the former to the latter to cause its rotation, substantially as set forth.

2. The combination with two driving-shafts journaled in alinement, piston-rods connected to said shafts to rotate them in opposite directions, a counter-shaft, spaced gears fast on the counter-shaft, a pinion on each driving-shaft, that on one driving-shaft being meshed with one of the gears on the counter-shaft, and a pinion M interposed between the other gear and the pinion, whereby the counter-shaft is driven in the same direction by both driving-shafts, substantially as set forth.

3. The combination with two driving-shafts journaled in alinement, means to rotate said shafts in opposite directions at the same speed, a counter-shaft, and gearing interposed between the driving-shafts and the counter-shaft to transmit the movement of the former to the latter to cause its rotation, and fly-wheels of equal couples on the driving-shafts, substantially as set forth.

660,680. FASTENING DEVICE. JULIUS T. CONN, Lansing, Mich. Filed July 7, 1900. Serial No. 22,791. (No model.)

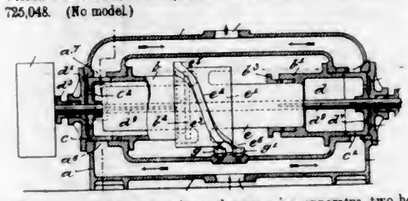
Claim.—1. In a fastening device, the combination of a member in the form of an elongated sheath having along one side thereof a series of holes, a second member having a long slender body portion telescoping in said sheath and having a long slender spring-tongue secured at or near one end of the body portion and extending substantially parallel with the body portion outside of said sheath, said tongue having a beak adapted to engage in one of said holes in the sheath, substantially as described.

2. In a fastening device, the combination of a member in the form of an elongated sheath having along one side thereof a series of holes, a second member having a long slender body portion telescoping in said sheath, and having a long slender tongue secured at or near one end of the body portion and extending substantially parallel with the body portion outside of the sheath, said tongue having a beak adapted to engage in one of said holes in the sheath, and said tongue having ears L projecting laterally beyond the sides of the sheath, substantially as described.



3. In a fastening device for shoes or the like, the combination of a member secured at one end to the shoe or the like, and being of tubular form provided along one side with a series of holes, a second fastening member secured at one end to the shoe or the like and having a body portion adapted to slidably engage in said tubular member, and a spring-tongue having at or near its end a beak adapted to extend into one of said holes and engage a hole in the body portion, substantially as described.

660,681. ROTARY RECIPROCATING PUMPING APPARATUS. VICTOR E. ENGARTH, Philadelphia, Pa. Filed July 25, 1899. Serial No. 725,048. (No model.)

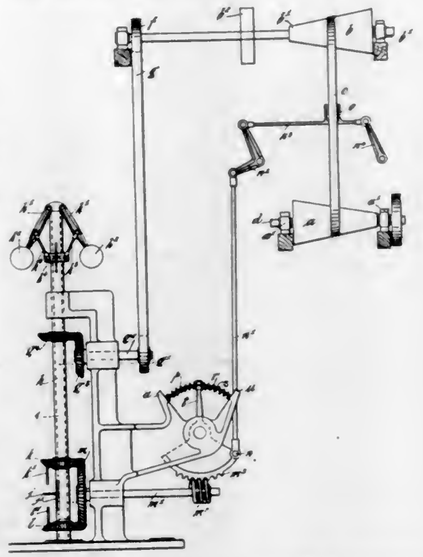


Claim.—1. In a rotary reciprocating pumping apparatus, two hollow standards united to each other by hollow casings provided with an inlet and an outlet registering with an inlet-port and an outlet-port provided in said standards, a splined shaft provided with cup-shaped valves rotatable with said shaft and having openings in communication with one end of each of two fixed cylinders supported by said standards, each of said cylinders at one of their ends being provided with a gland or stuffing-box, a plunger secured to said shaft but free to rotate therewith and provided with a cam having two thrust and two dwell portions, the former adapted to permit of the reciprocations of said plunger in said cylinders and the latter adapted to hold momentarily said plunger during alternate opening and closing of the openings of said rotary valves in communication with one end of each of said cylinders and anterior to further reciprocations of said plunger on said shaft and roller means engaging said cam, substantially as and for the purposes described.

2. In a rotary reciprocating pumping apparatus, two hollow standards united to each other by hollow casings provided with an inlet and with an outlet registering with an inlet-port and an outlet-port provided in said standards, a splined shaft provided with cup-shaped valves revoluble with said shaft and having openings in communication with one end of each of two fixed cylinders supported by said standards, each of said cylinders at one of their ends being provided with a gland or stuffing-box, said shaft journaled in end bearings and between said bearings and walls of said cup-shaped valves are provided recesses or ways and perforations in the walls of said valves to form a lubricating or antifriction-fluid packing between said valves and end bearings for said shaft, a plunger secured to said shaft but free to rotate therewith and provided with a cam having two thrust and two dwell portions, the former adapted to permit of the reciprocations of said plunger in said cylinders and the latter adapted to hold momentarily said plunger during alternate opening and closing of the openings of said rotary valves in communication with one end of each of said cylinders and anterior to further reciprocations of said plunger on said shaft and roller means engaging said cam, substantially as described.

660,682. AUTOMATIC BELT-SHIFTER. PERCY W. FRYER, Christchurch, New Zealand. Filed July 5, 1900. Serial No. 22,604. (No model.)

Claim.—1. In an apparatus for the purpose described the combination of a motor-driven conical pulley, a similar conical pulley having its small diameter opposite to the large diameter of the first pulley, a driving-belt connecting the two pulleys a governor driven from a pulley upon the axle of the second conical pulley, a vertically-sliding spindle operable by said governor a tubular spindle surrounding said vertical spindle, two bevel-wheels mounted loosely thereon, pins projecting from each, a pin projecting from said vertical spindle arranged to engage when said governor is driven above or below prearranged speeds with one or the other of the two pins on the bevel-wheels a horizontal axle, a bevel-wheel upon one end and a worm upon the other end of said axle said bevel-wheel being in mesh with each of the bevel-wheels before mentioned a quadrant of a worm-wheel engaged by the worm a bar parallel to the axes of the conical pulleys a belt-fork upon the bar for guiding the driving-belt, means for moving said bar from said quadrant as set forth.



2. In an apparatus for the purpose described the combination of a motor-driven conical pulley, a similar conical pulley having its small diameter opposite to the large diameter of the first pulley, a driving-belt connecting the two pulleys a governor driven from a pulley upon the axle of the second conical pulley, a vertically-sliding spindle operable by said governor a tubular spindle surrounding said vertical spindle two bevel-wheels mounted loosely thereon, pins projecting from each, a pin projecting from said vertical spindle arranged to engage when said governor is driven above or below prearranged speeds with one or the other of the two pins on the bevel-wheels a horizontal axle, a bevel-wheel upon one end and a worm upon the other end of said axle said bevel-wheel being in mesh with each of the bevel-wheels before mentioned a quadrant of a worm-wheel engaged by the worm a bar parallel to the axes of the conical pulleys a belt-fork upon the bar for guiding the driving-belt means for moving said bar from said quadrant a lever upon said quadrant springs actuating said lever to facilitate the reëngagement of the teeth of the worm-pinion with the teeth of the worm-quadrant as set forth.

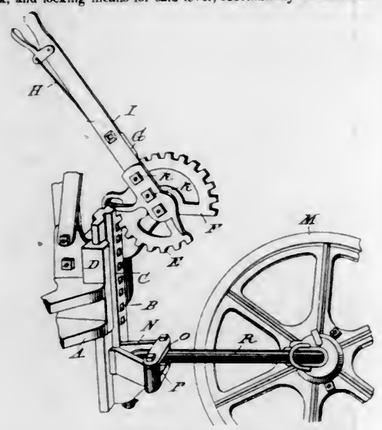
660,683. FRAME-LIFTING DEVICE FOR DISK PLOWS OR SIMILAR IMPLEMENTS. WALTER P. HENDON, Dallas, Tex., assignor to the E. Bement's Sons, Lansing, Mich. Filed Nov. 9, 1899. Serial No. 736,343. (No model.)

Claim.—1. The combination of a guide-bracket provided with a guide-channel for a lifting-slide, and also with an integral part at one side thereof extending at an angle thereto and having a toothed sector, a lifting-slide working in said channel and provided at its lower end with a bracket N and at the side thereof, adjacent said toothed sector with a rack, a lever pivoted on said sector part, a segmental rack carried by said lever coöperating with the rack on said slide, and a ratchet-dog carried by said lever, and adapted to engage said toothed sector, substantially as described.

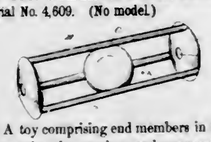
2. The combination of a guide-bracket, a slide working on said guide-bracket, a wheel-axle having a pivot, a bracket carried by the slide having a socket in which said pivot works and having means to limit the swing of said axle-arm, a rack on said slide, a lever having a gear coöperating with said rack, and locking means for said lever, substantially as described.

3. The combination of a guide-bracket having a guide-channel, a slide working in said channel, an axle-bracket on said slide having diverging side flanges, an axle having a pivot working in a socket in the axle-bracket and adapted to swing between said flanges, a rack on said slide

to one side of said wheel-bracket, a lever having a gear coöperating with said rack, and locking means for said lever, substantially as described.



660,684. TOY. FRANKLIN B. HOLDER, Lansing, Mich. Filed Feb. 9, 1900. Serial No. 4,609. (No model.)

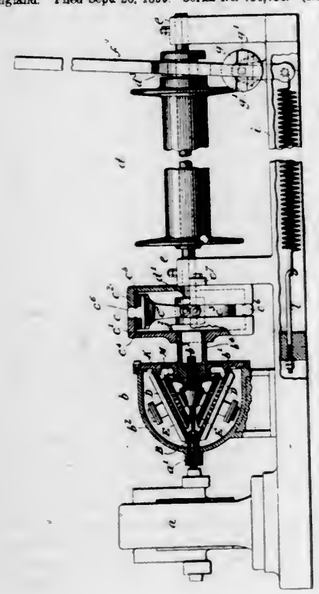


Claim.—1. A toy comprising end members in the form of whistles, separated bars connecting the members and arranged to form a cage, and a movable object secured between the bars, substantially as described.

2. The combination with two end members consisting of whistles, connecting-bars secured to the outer edges of the members and spaced apart, and a rotatable object located between the whistles and held in position by the bars, substantially as described.

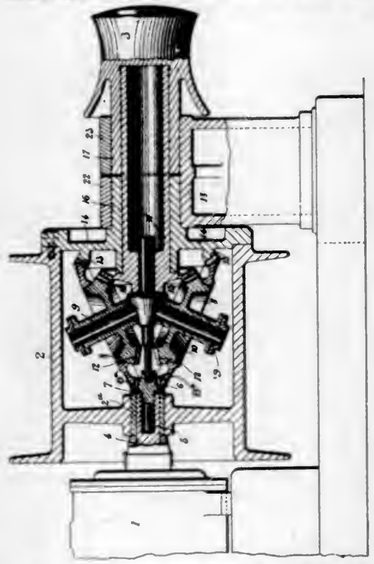
3. A toy comprising two end members, bars connecting the same spaced apart to form a cage-like structure between, and a movable object secured between the bars, substantially as described.

660,685. HOIST, WINDING-GEAR, &c. JOHN C. HOWELL, London, England. Filed Sept. 26, 1899. Serial No. 731,736. (No model.)



Claim.—In a hoist the combination with a reduction-gear and a drum of a part driven through the gear a fixed part separated from the first a shaft on which the drum is supported means for shifting said shaft longitudinally toggles carried by said shaft and friction-faces on said toggles adapted to be brought into contact alternately with the driven part and the fixed part substantially as described.

660,686. WINCH OR LIKE WINDING-GEAR. JOHN C. HOWELL, London, England. Filed Dec. 18, 1899. Serial No. 740,812. (No model.)



Claim.—1. In a winding-gear, and in combination, a motor, a drum, a gearing-train inside the same, one of the wheels of the train being driven directly from the motor, another of the wheels of such train being connected to such drum, a capstan-head driven through a further wheel of such train, a clutch adapted for holding the drum, and a clutch adapted for holding the capstan-head so that the gear will rotate one or other only, substantially as described.

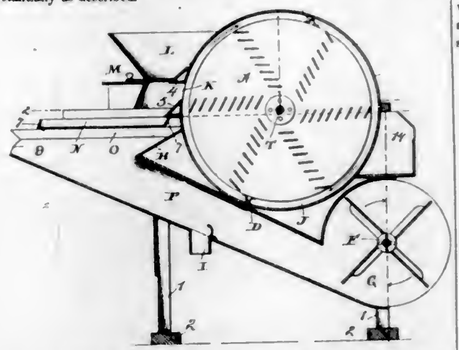
2. In a winding-gear, and in combination, a drum, a gearing-train inside same, one of the wheels of such train forming a part of the drum end, a sleeve connected to such end, a capstan-head, a shaft connecting it with another wheel of such train, means for holding and releasing such shaft and head, means for holding and releasing the sleeve of the drum, and means connecting such two holding and releasing means so that while one is operated to hold its part, the other is operated to release its part, substantially as described.

3. In a winding-gear, and in combination, a pair of winding-drums, a motor situated between same, a gearing-train in each drum, means connecting the trains with the motor, a capstan-head, connected to each train, means whereby a wheel of each train may be held to allow the capstan-heads only to be rotated, and means whereby another wheel of each train may be held to allow the drums only to be rotated, substantially as described.

660,687. PEA-THRESHER. ANDREW J. JOHNSON, Ethel, Miss. Filed Nov. 28, 1899. Serial No. 738,579. (No model.)

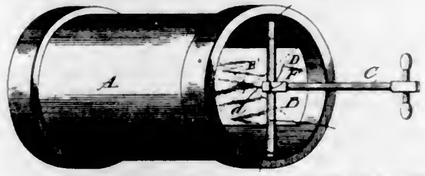
Claim.—1. A pea-huller comprising a threshing-chamber having an outlet above the bottom thereof, a threshing-disk situated therein, threshing-teeth attached to one side of said disk, threshing-teeth attached to the side of the chamber adjacent the teeth carried by the disk, elevating-cups attached to the outer periphery of the disk, a chamber surrounding the outlet of the threshing-chamber, a sieve below said chamber and a hopper situated on top of said chamber and discharging therein above the discharge-opening in the threshing-chamber, substantially as described.

2. A combined pea huller and separator comprising a threshing-chamber provided with a feed-opening in one side and an outlet in the end at a point above the bottom thereof, a threshing-disk within the said chamber, elevating-cups attached to the outer periphery of the threshing-disk, a reciprocating sieve below the outlet-opening, a hopper adjacent the outlet-opening and having a discharge-opening thereabove, a fan below the threshing-chamber, and a spout extending from the fan to the lower part of the sieve and provided with an outlet-opening in its lower face, substantially as described.



3. A combined pea huller and separator comprising a threshing-chamber provided with a feed-opening in one side, threshing-teeth attached to the inner face of said side, said chamber having an outlet at one end above the horizontal axis, a threshing-disk within said chamber and having threshing-teeth on one side adjacent the side carrying the threshing-teeth, elevating-cups attached to the outer periphery of the threshing-disk, a reciprocating sieve below the outlet-opening, a fan below the threshing-chamber, and a spout extending from the fan nearly to the outlet-opening and provided on its lower face with a discharge-opening, substantially as described.

660,688. SCRIBING-TOOL. WILLIAM LIPSY, Bozeman, Mont. Filed June 28, 1900. Serial No. 21,974. (No model.)



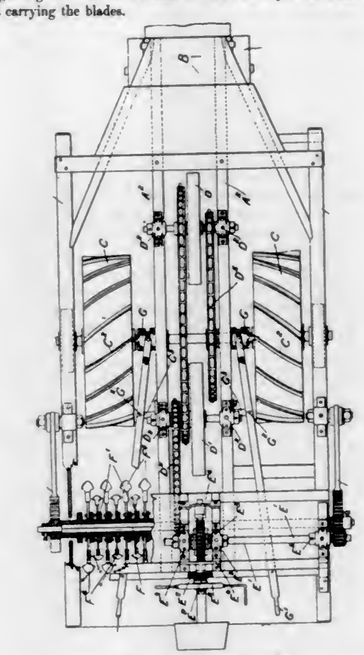
Claim.—A scribing-tool for determining the center and marking the inner circumference of a cylinder, consisting of the shank portion of the handle having one end pointed to form a pivot, and designed to be held against a board transversely placed across within the cylinder, combined with a graduated scale held in an aperture at right angles to said shank, one end of the scale being provided with a pointed extension in line with the length of the scale, its other end provided with a pointed arm or extension disposed at right angles to the scale, substantially as shown and described.

660,689. TILLAGE-MACHINE. FREDERICK H. P. P. ORAM, London, England. Filed June 11, 1900. Serial No. 19,806. (No model.)

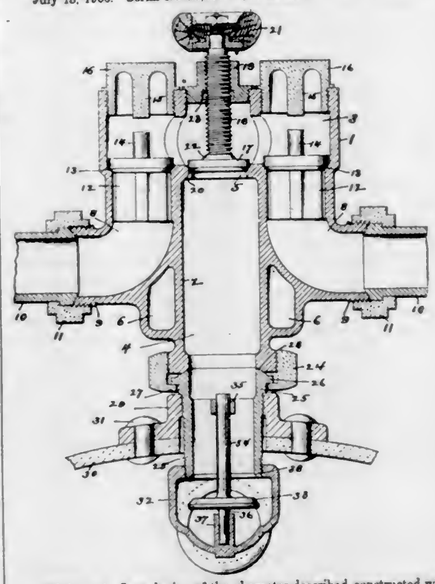
Claim.—1. In a tillage-machine, the combination with a rotatable shaft, of series of radially-extending blades carried thereby, the alternate series of blades being shorter than the remaining series, and said shorter blades being arranged along transverse lines approximately midway between the lines of the longer blades, and the blades of each two adjacent series being arranged slantingly whereby the earth thrown off by one series of blades will be projected into the path of that thrown off by the adjacent series.

2. In a tillage-machine, the combination with a supporting-frame, and a wheeled axle mounted therein, of a rotatable shaft, an adjustable support for the latter, series of blades carried by said shaft, the alternate series of blades being shorter than the remaining series, and said shorter blades being arranged along transverse lines approximately midway between the lines of the longer blades, a second rotatable shaft carried by the frame, a fly-wheel on the latter shaft and gearing between the wheeled axle and the said shafts.

3. In a tillage-machine, the combination with a supporting-frame, and a wheeled axle mounted therein, of a rotatable shaft, a second shaft rotatably mounted in the frame, a fly-wheel on said shaft, supports pivotally mounted in the frame at each side thereof and concentrically with the fly-wheel, a shaft rotatably mounted in the said supports, means for radially adjusting the supports, and the shaft carried thereby and holding said supports in adjusted positions, series of blades mounted on the shaft carried by the supports, the alternate series of blades being shorter than the remaining series and said shorter blades being arranged along transverse lines approximately midway between the lines of the longer blades and gearing between the wheeled axle and the fly-wheel shaft and the shaft carrying the blades.



660,690. BOILER ATTACHMENT. COLUMBUS PHILLIPS, Meridian, Miss., assignor of one-half to James E. Minor, New Haven, Conn. Filed July 13, 1900. Serial No. 23,588. (No model.)



Claim.—1. In a device of the character described constructed with a body member provided with separate inlet and outlet chambers having connection with each other by means of a suitable port, and inlet-passages

opening at one end through the said body member and at the other end into the said inlet-chamber; the combination therewith of a valve adapted in its movement to cover and uncover the said port; and check-valves operative within the said inlet-passages and normally closing the inner ends thereof, substantially as described.

2. In a device of the character described constructed with a body member provided with an outlet-chamber, an inlet-chamber above said outlet-chamber, the said chambers being connected by a suitable port, and inlet-passages opening into the said inlet-chamber, the combination therewith of a valve movable within the said inlet-chamber and adapted to cover and uncover the said port during its movement, and check-valves operative within the said inlet-passages and normally closing the opening thereof into the said inlet-chamber, substantially as described.

3. In a device of the character described, constructed with a body member provided with separate inlet and outlet chambers connected with each other by a suitable port; and inlet-passages opening into the said inlet-chamber; the combination therewith of a valve adapted to cover and uncover the said port and in its open position to be moved in a plane above the openings of the said inlet-passages into the said inlet-chamber, substantially as described.

4. In a device of the character described, constructed with a body member provided with separate inlet and outlet chambers connected with each other by a suitable port; and inlet-passages opening into the said inlet-chamber; the combination therewith of a valve adapted to cover and uncover the said port and in its open position to be moved in a plane above the openings of the said inlet-passages into the said inlet-chamber, said valve carrying upon its back a valve, adapted when wide open to engage with a valve-seat upon the nut through which the valve-stem passes, substantially as described.

5. In a device of the character described, a body member having an outlet-chamber, an inlet-chamber above said outlet-chamber and connected therewith by means of a suitable port, and a cooling-chamber surrounding the said outlet-chamber and opening into the said inlet-chamber; the combination therewith of a valve movable within the said inlet-chamber and adapted to cover and uncover the said port, substantially as described.

6. In a device of the character described, the combination with the body member having an inlet-chamber 3 therein; an outlet-chamber 4 below said inlet-chamber and connected by a port 5, a cooling-chamber 6 surrounding the said outlet-chamber and opening into the said inlet-chamber, and inlet-passages 8 8 opening into the said inlet-chamber; of a valve 17 adjustable within the said inlet-chamber and adapted to cover and uncover the port 5; and check-valves 12 12 operative within the said inlet-passages, substantially as described.

7. In a device of the character described, the combination with a body member having an outlet-chamber therein and a valve adapted to open and close the port into said chamber; of a bushing separably secured to the said body member, the bore of which forms an extension of the said outlet-chamber; and a safety-valve operative within the said bushing, and adapted in its movement to cover the lower end thereof and close the outlet from said chamber, substantially as described.

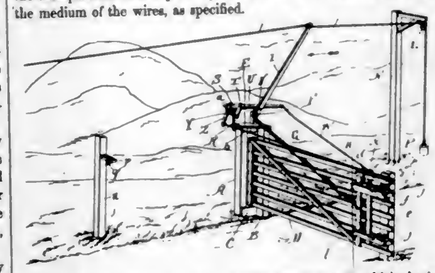
8. In a device of the character described, the combination with a body member having an outlet-chamber therein and a valve adapted to open and close the port into said chamber; of a bushing separably secured to the said body member, the bore of which forms an extension of said outlet-chamber, and a safety-valve, having a knife-edge rim, operative within the said bushing, and adapted in its movement to cover the lower end thereof and close the outlet from said chamber, substantially as described.

9. In a device of the character described, the combination with a body member having an outlet-chamber therein and a valve adapted to open and close the port into said chamber; of a bushing separably secured to the said body member, the bore of which forms an extension of the said outlet-chamber; an elbow or hood having connection with the said bushing; and a safety-valve loosely mounted in the said hood and bushing and adapted in its movement to cover the lower open end thereof and close the outlet from said outlet-chamber, substantially as described.

10. In a device of the character described, the combination with the body member, having the inlet-chamber 3 and outlet-chamber 4; of the bushing 25, the bore of which forms an extension of said outlet-chamber; means, as the nut 24, for separably securing the said bushing to the said body member; a hood or elbow 32 secured to the said bushing opposite to the said body member; and a safety-valve 33 mounted and operative within the said hood and bushing, substantially as described.

660,691. AUTOMATIC GATE. George E. Rigg, Mount Carmel, Ill. Filed Sept. 25, 1899. Serial No. 731,512. (No model.)

Claim.—1. A suitable hinge-post, a gate the lower end of which is hinged to said post, a stud projecting from the post, a wire attached to the forward portion of the gate and pivoted to the stud so as to form the top hinge of the gate, an operating-lever pivoted to the stud, a bell-crank lever pivoted to the post and loosely attached to the operating-lever, a wire attached to the long member of the bell-crank lever and to the forward end of the gate, a lever Z also pivoted to the post, a wire connecting the last-named lever with the forward end of the gate, and a link connecting the short member of the bell-crank lever with the lever Z whereby the manipulation of the operating-lever will open or close the gate through the medium of the wires, as specified.

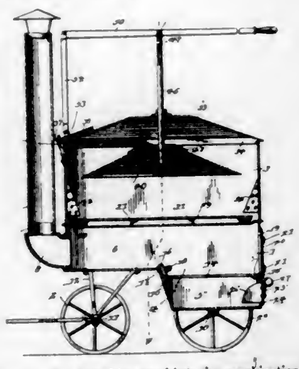


2. In combination, a gate, a double hinge-post to which the lower end of the gate is hinged, a cap secured to the top of the double post, a stud projecting from the cap, a wire G pivoted to the stud and attached to the front portion of the gate so as to serve as the top hinge, an angle-lever pivoted to the forward end of the gate, means connected with the last-named lever for operating the latch mechanism of the gate, two wires attached to the angle-lever, and mechanism to which the last-named wires are attached adapted to operate the angle-lever and swing the gate open or closed, as specified.

3. In combination with a gate of the character described, a latch mechanism consisting of a slotted block projecting from the latch-post, a ring held within the slot of the block by a pin, a slotted extension carried by the gate adapted to receive the ring, a latch-bar, an arm projecting from said bar and adapted to elevate the ring to unlatch the gate, an angle-lever from which said bar is suspended whereby the bar may be conveniently operated, two wires attached to the angle-lever, mechanism to which said last-named wires are attached, a lever for actuating the said mechanism, and wires or ropes secured to the end of the lever, substantially as described.

4. In combination with a gate of the character described, a latch-post, slotted blocks projecting therefrom, rings confined within said slots but having a free swinging movement, slotted extensions formed upon the gate and arranged to pass just beneath the blocks when the gate is closed, whereby the rings may be dropped within the slots of said extensions and latch the gate, a vertical latch-bar, short arms carried thereby, an angle-lever to which the bar is connected, levers on the hinge-posts, wires connecting the levers and angle-lever on opposite sides of the gate, and mechanism for operating the levers on the hinge-posts.

660,692. WASHING-MACHINE. Virgil D. Tinkelpaugh, Elzie L. Ridgway, and John A. Newton, Elreno, Okla. Filed Nov. 4, 1899. Serial No. 735,826. (No model.)



Claim.—1. In a washing-machine, the combination of a boiler, a perforated false bottom or diaphragm arranged within the boiler, the perforated triangular plates located within the boiler at the corners thereof and extending upward from the false bottom or diaphragm, and a vertically-reciprocating plunger, substantially as described.

2. In a washing-machine, the combination of a boiler provided with

ears, and having a lid, a substantially U-shaped plate or bar secured to the lid and provided at the terminals of its sides with projecting lugs detachably interlocked with the ears, the links or bars pivoted at their lower ends to the sides of the U-shaped bar or member, an operating-lever fulcrumed on the links or bars, and a plunger connected with the operating-lever, substantially as described.

660,693. ART OF MANUFACTURING CARBON. Heinrich Wartenberg, Chicago, Ill., assignor of one-fifth to Alice M. Miller, same place. Filed Dec. 16, 1899. Serial No. 740,584. (No specimens.)

Claim.—1. The improvement in the art of manufacturing carbon, which consists first, in saturating or impregnating a suitable fiber with a chemical mixture formed by combining water and a saccharine ingredient with sulfuric acid, tartaric acid and carbonate of ammonia, and then subjecting the fiber to heat.

2. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a chemical mixture of which tartaric acid and a saccharine matter as white syrup are ingredients.

3. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a chemical mixture of which carbonate of ammonia and a saccharine matter as white syrup are ingredients.

4. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a carboniferous and acidiferous chemical mixture of which carbonate of ammonia, tartaric acid and a saccharine matter as white syrup are ingredients.

5. That step in the process of making carbon, which consists in saturating a suitable fiber with an acidiferous and carboniferous chemical mixture of which carbonate of ammonia is an ingredient.

6. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a carboniferous and acidiferous chemical mixture of which sulfuric acid and tartaric acid are ingredients.

7. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a carboniferous and acidiferous chemical mixture of which sulfuric acid and carbonate of ammonia are ingredients.

8. The process of making carbon, which consists in first saturating a suitable fiber with a carboniferous and acidiferous chemical mixture of which tartaric acid and carbonate of ammonia are ingredients, and then subjecting the thus saturated or impregnated fiber to high temperature, substantially as and for the purpose described.

9. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a carboniferous mixture of which tartaric acid and carbonate of ammonia are two of the ingredients.

10. That step in the process of making carbon, which consists in saturating or impregnating wood with a carboniferous mixture of which tartaric acid and carbonate of ammonia are two of the ingredients.

11. That step in the process of making carbon, which consists in saturating or impregnating a suitable fiber with a carboniferous, acidiferous and ammoniacal liquid.

12. The process of carbonizing wood, which consists in subjecting the wood to a bath in an aciderferous and carboniferous liquid, drying the wood, and then subjecting the wood to high temperature while packed or embedded in graphite.

13. The improvement in the art of manufacturing carbon, which consists in first treating wood with a chemical mixture formed by combining water and a saccharine ingredient with sulfuric acid, tartaric acid and carbonate of ammonia, drying the wood, and then subjecting the same to high temperature for the purpose of carbonization.

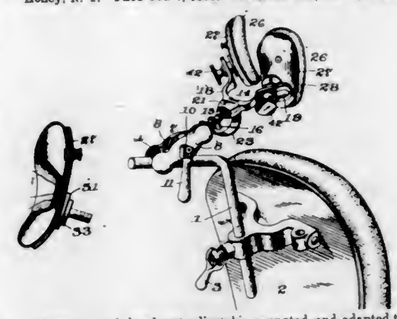
14. The improvement in the art of manufacturing carbon, which consists in first saturating wood with a chemical mixture formed by combining water and white syrup with sulfuric acid, tartaric acid and carbonate of ammonia, drying the wood, and then subjecting the same to high temperature while packed or embedded in graphite.

15. The improvement in the art of manufacturing carbon, which consists, first, in saturating wood with a chemical mixture formed by combining the following ingredients in the following proportions: thirteen and one-half ounces of water, two ounces of sulfuric acid, six ounces of white syrup, one ounce of tartaric acid and one ounce of carbonate of ammonia; second, drying the wood; and, third, subjecting the wood to high temperature while packed or embedded in graphite.

16. The process of making carbon, which consists, first, in saturating wood with a chemical mixture formed by combining certain ingredients as follows: thirteen and one-half ounces of water, two ounces of sulfuric acid, six ounces of saccharine matter, one ounce of tartaric acid and one ounce of carbonate of ammonia; second, drying the wood; and, third, subjecting the wood to high temperature while packed or embedded in graphite.

17. The improvement in the art of manufacturing arc-light carbons, which consists in forming rods of wood, saturating the said rods with a chemical mixture formed by combining carboniferous and acidiferous ingredients, drying the rods, and then subjecting them to high temperature while packed or embedded in graphite, substantially as described.

660,694. ADJUSTABLE HEAD-REST. James E. Watkebury, Holley, N. Y. Filed Oct. 7, 1899. Serial No. 732,896. (No model.)



Claim.—1. A head-rest adjustably mounted and adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position.

2. A head-rest adjustably mounted and adapted to follow the movements of the head, a spring for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position.

3. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom.

4. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and a nut for locking the rest in fixed position.

5. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position.

6. A head-rest, comprising a pad-support, a sectional clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom.

7. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and a spring for returning the rest to its normal position when pressure is removed therefrom.

8. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, said clamp comprising a pair of complementary members, and means for securing the same together, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom.

9. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, and a spring for returning the rest to its normal position when pressure is removed therefrom.

10. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, and means for returning the rest to its normal position when pressure is removed therefrom.

11. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, means for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position.

12. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, and a connector between said pad-support and the clamp, whereby the pad-support is adapted to follow the movements of the head, said connector comprising a shank, bearing-heads arranged at the ends thereof and suitably connected to the pad-support and the clamp, and a nut mounted on said shank and adapted to be brought into contact with the pad-support for locking the latter in fixed position.

13. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the pad-support is adapted to follow the movements of the head, said connector comprising a shank, bearing-heads arranged at the ends thereof and suitably connected to the pad-support and the clamp, and a nut mounted on said shank and adapted to be brought into contact with the pad-support for locking the latter in fixed position, and means for returning the pad-support to its normal position when pressure is removed therefrom.

14. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod, a clamp connected to said collar and adapted to bind the latter on said rod, and intermediate connections between said clamp and the pad-support, whereby the latter is adapted to follow the movements of the head.

15. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod, a clamp connected to said collar and adapted to bind the latter on said rod, intermediate connections between said clamp and the pad-support, whereby the latter is adapted to follow the movements of the head, and means for returning the pad-support to its normal position when pressure is removed therefrom.

16. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod and provided with bearing-surfaces, a sectional clamp connected to said collar and adapted to bind the latter on said rod, the members of said clamp being provided with recesses adapted to receive the bearing-surfaces of the binding-collar, and a connector between said clamp and the pad-support, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the clamp and the pad-support, whereby the latter is adapted to follow the movements of the head.

17. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod and provided with bearing-surfaces, a sectional clamp connected to said collar and adapted to bind the latter on said rod, the members of said clamp being provided with recesses adapted to receive the bearing-surfaces of the binding-collar, a connector between said clamp and the pad-support, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the clamp and the pad-support, whereby the latter is adapted to follow the movements of the head, and means for returning the pad-support to its normal position when pressure is removed therefrom.

18. The head-rest, comprising a support suitably secured in operative position, and a pad carried thereby and comprising a supporting-plate, a pneumatic cushion arranged thereon and having its center concaved, and an attaching-plate arranged in the concaved center of said cushion and suitably secured to the supporting-plate, whereby the cushion is clamped to said supporting-plate.

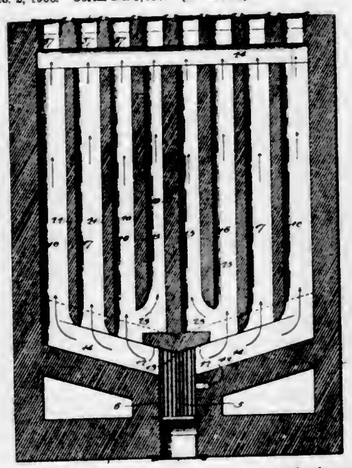
19. A head-rest, comprising a support suitably secured in operative position, and a pad carried thereby and comprising a supporting-plate of substantially oval outline and irregular concavity, a pneumatic cushion arranged on said plate, the air-containing portions of said cushion lying at the edges of the plate and sloping toward the center thereof, whereby a concavity is formed at the center of said cushion, and means arranged in said concavity and suitably connected to the supporting-plate for clamping the cushion to the latter.

20. A head-rest, comprising a support suitably secured in operative position and provided with a slot, a pad carried by said support, a bolt carried by said pad and passing through said slot, clamping-washers mounted on said bolt and arranged at opposite sides of the support, each of said washers being provided with a guide-rib fitting and working within said slot, and means for locking the washers against said support for retaining the pad in adjusted position on the support.

21. A head-rest, comprising a support suitably secured in operative position and provided with diverging arms having slots, a pad carried by each of said arms, a bolt carried by each of said pads and passing through the slot of the arm carrying said pad, clamping-washers mounted on said bolts and arranged at opposite sides of said arms, the clamping-washers of each bolt being provided with a guide-rib fitting and working within the slot through which said bolt passes, and means for locking the washers against the arms for retaining the pads in adjusted position thereon.

22. A pneumatic cushion for head-rests, the air-containing portion of which is thickest at the edges and slopes toward the center, said cushion being provided with a valve for inflation, a supporting-plate of irregular concavity and substantially oval outline for said cushion and upon which the latter fits, an attaching-plate for securing the cushion to the supporting-plate, said cushion lying between the supporting-plate and the attaching-plate, whereby the latter clamps the cushion to the supporting-plate, and means for also securing said attaching-plate to said supporting-plate.

660,695. **BAKE-OVEN.** JOSEPH BOUR, Princeton, Ind. Filed Feb. 2, 1900. Serial No. 3,700. (No model.)



Claim.—1. In a device of the character set forth, the combination of an oven proper, flues arranged above and below the same, the lower flues being inclined upwardly and separated by an intermediate partition, said lower flues on opposite sides of the partition being gradually widened from the innermost one of each series to the outermost one of the same, and the upper flues inclined upwardly from the rear toward the front to thereby gradually diminish the vertical extent of the oven proper toward the rear of the same, and a single furnace having a deflector at the rear portion thereof located opposite the inner narrowest lower flues.

2. In a device of the character set forth, the combination of an oven proper, flues arranged above and below the same and having reverse angles of inclination the lower flues being divided by an intermediate partition and gradually increasing in width from the innermost to the outermost in a transverse direction, a bed of sand interposed between the bottom of the oven proper and the lower flues and gradually decreasing in thickness toward the rear, a single furnace communicating with the lower flues and also having a covering of sand thereover, and a deflector at the rear of the furnace opposite the inner lower flues.

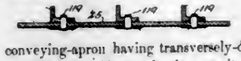
3. In a device of the character set forth, the combination of an oven proper, separate flues thereunder having an outlet, a single furnace, laterally-extending upwardly-inclined distributing-flues extending from the said furnace and communicating with the flues under the oven proper and a deflector at the rear part of the furnace.

4. In a device of the character set forth, the combination of a furnace, a deflector at the rear thereof, distributing-flues extending laterally from the furnace, a series of heating and conveying flues communicating with the said distributing-flues and gradually increasing in width from the center outermost, and an oven proper located over the said heating and conveying flues.

5. In a device of the character set forth, the combination of an oven proper, a single furnace located under the central front portion of the same, a deflector at the rear of said furnace, a series of flues under the oven proper and having communication with the furnace, and a series of flues over the oven proper and having communication with the said flues under the oven and with the exterior of the device.

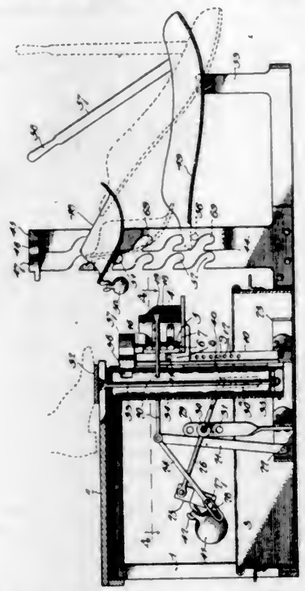
6. In a device of the character set forth, the combination of an oven proper, flues arranged above and below the same, and having communication with each other and with the atmosphere, a single furnace, distributing-flues extending laterally from opposite sides of the furnace and having communication with the lower flues, a deflector at the rear part of the furnace, the bottom of the oven proper and the flues thereunder as well as the distributing-flues having an upward inclination, and the upper flues reversely inclined toward the front, and means for permitting the furnace to be fired while the baking operation is carried on.

660,696. **CONVEYER FOR HARVESTERS.** HENRY BRACKEBUSH, Packwaukee, Wis. Original application filed Mar. 20, 1900, Serial No. 9,427. Divided and this application filed July 16, 1900. Serial No. 23,782. (No model.)



Claim.—A conveying-apron having transversely-disposed metallic strengthening-strips on its inner sides, angle-plates on its outer sides, projecting therefrom, and rivets, securing said angle-plates and strengthening-strips to said conveying-apron, substantially as described.

660,697. **GLASS-WORKING MACHINE.** JOHN J. BURKHARDT, Tiffin, Ohio. Filed May 19, 1900. Serial No. 17,284. (No model.)



Claim.—1. In a machine of the class described, the combination of a tank, a mold composed of sections, a pumping device extending upward from the tank and arranged to discharge water upon the sections of the mold, and means for operating the mold and the pumping device for opening and closing the former and for discharging a quantity of water upon the sections thereof, substantially as described.

2. In a machine of the class described, the combination of a mold composed of sections, a pumping device arranged to discharge a quantity of water upon the sections of the mold, and provided with a vertically-movable plunger, a foot-plate or treadle connected with the plunger and adapted to move the same in one direction when depressed by the foot of the operator, a weight for reciprocating the plunger in the opposite direction, and means for connecting the sections of the mold with the plunger, substantially as described.

3. In a machine of the class described, the combination of a mold having sections, a pumping device provided with a cylinder or barrel and having troughs extending from its upper portion and provided with perforated bottoms and adapted to discharge water upon the sections of the mold, and operating mechanism connected with the pumping device and with the mold to open and close the latter and to discharge a quantity of water on the same, substantially as described.

4. In a machine of the class described, the combination of a tank, a pumping device extending upward therefrom and arranged to discharge a quantity of water at its top, said tank extending beyond the pumping device and adapted to receive the discharged water to enable the latter to be continuously used, a mold composed of sections and arranged to have the water discharged upon it, and means for operating the pumping device and for opening and closing the mold, substantially as described.

5. In a machine of the class described, the combination of a pumping device having a reciprocating plunger, a treadle connected with the upper end of the plunger and arranged to be depressed by the foot of the operator, a mold composed of sections and arranged to receive the water from the pumping device, a lever 26 fulcrumed between its ends and connected at one end with the plunger of the pumping device, oscillating levers 21 connected with the lever 26, and means for connecting the sections of the mold with the oscillating levers, substantially as described.

6. In a machine of the class described, the combination of a pumping device provided with a vertically-reciprocating plunger, a depressible treadle or plate connected with the plunger, a mold composed of sections, an oscillating lever connected with the sections of the mold and adapted to open and close the same, and connections between the plunger and the oscillating lever, substantially as described.

7. In a machine of the class described, the combination of a pumping device having a plunger, a mold composed of sections and arranged to receive water from the pumping device, an oscillating lever connected with and adapted to open and close the sections of the mold, slotted links extending inward or rearward from the oscillating lever, a weighted transverse bar engaging the slots of the links, and a lever fulcrumed between its ends and connected with the transverse bar and with the plunger of the pumping device, substantially as described.

8. In a machine of the class described, the combination of a pumping device, a mold composed of sections, oscillating levers, rods connecting the oscillating levers with the sections of the mold, links extending rearward from the oscillating levers, a weighted transverse bar connecting the links, and a lever fulcrumed between its ends and connected with the transverse bar and with the pumping device, substantially as described.

9. In a machine of the class described, the combination of a pumping device provided with a plunger, a treadle or foot-plate connected with the plunger, a mold composed of sections, oscillating levers connected with the sections of the mold, links extending rearward from the oscillating levers, a weighted transverse bar connecting the links, a pair of levers 26 fulcrumed between their ends and connected at their rear ends with the transverse bar, and rods or bars extending from the front ends of the levers 26 to the foot-plate or treadle, substantially as described.

10. In a machine of the class described, the combination of a pumping device provided at its top with means for discharging water, a standard or support provided at its top with a bearing, a vertically-adjustable shelf mounted on the standard or support and having a lower bearing, a mold composed of hinged sections and having its pintle arranged in the said bearings, and means for operating the pumping device and for opening and closing the mold, substantially as described.

11. In a machine of the class described, the combination of a supporting-frame having a platform, a tank located beneath the platform, a pumping device extending upward from the tank and having a plunger, a foot-plate or treadle secured to the plunger and arranged adjacent to the platform, a mold composed of sections, means for connecting the mold with the foot-plate or treadle, whereby the sections will be closed by the foot of the operator, and a weight for opening the mold, substantially as described.

12. In a machine of the class described, the combination of an upright standard provided at the top with a bearing, a shelf having a bearing and provided with arms adjustably secured to the standard, a mold having a pintle arranged in the said bearings, and means for operating the mold, substantially as described.

13. In a machine of the class described, the combination of an upright standard provided at the top with a recess, an upper bearing detachably fitted in the recess, a shelf provided with a bearing and adjustably mounted on the standard, a mold composed of sections and having a pintle arranged in the said bearings, and means for operating the mold, substantially as described.

14. In a machine of the class described, the combination of a frame provided with means for engaging an article prior to its separation from a blowpipe, whereby the same may be readily separated, and an automatically-dumping cradle located beneath to receive the article from the said means and adapted to be operated by the weight of the article to discharge the latter into a suitable receptacle, substantially as described.

15. In a machine of the class described, the combination of a frame provided with an opening to receive a blowpipe and adapted to enable the article to be readily broken from the said pipe, and a pivoted automatically-dumping cradle located beneath the said opening and arranged to receive the article, substantially as described.

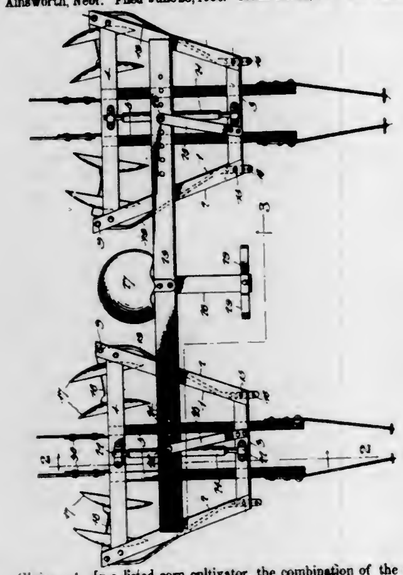
16. In a machine of the class described, the combination of a frame provided with side standards and having a connecting-bar provided with an opening, said standards being also provided with bearings arranged at intervals, and an automatically-dumping cradle mounted in the said bear-

ings and adapted to be arranged at different elevations, substantially as and for the purpose described.

17. In a machine of the class described, the combination of a frame, a tray pivotally mounted on the frame and adapted to be tilted to discharge its contents, and a pivotally-mounted cradle arranged to receive the articles as they are molded and adapted to be automatically tilted by the weight of the same to deliver the said articles into the tray, substantially as described.

18. In a machine of the class described, the combination of a frame provided with standards and having a connecting top piece, projections arranged at the outer faces of the standards, a pivoted tray supported by the projections and provided with a handle, and a cradle pivotally mounted between the standards and arranged to be automatically dumped by the weight of an article, substantially as described.

660,698. LISTED-CORN CULTIVATOR. EDWIN F. CHENEY, Ainsworth, Nebr. Filed June 23, 1900. Serial No. 21,362. (No model.)



Claim.—1. In a listed-corn cultivator, the combination of the cultivator-frames having the supporting-runners and cultivating-disks, the rollers mounted on said frames, the connecting-bar bearing on said rollers, and links secured to said cultivator-frames and adjustably secured to said connecting-bar, substantially as described.

2. In a listed-corn cultivator, a frame, a pair of supporting-runners disposed under the center of the frame, revoluble supporting-disks having the inner ends of their axles connected flexibly to said runners, hanging bars flexibly attached to said frame and to which the outer ends of said disk-axles are adjustably connected and brace-rods attached to said hanging bars and adjustably secured to said frame, substantially as described.

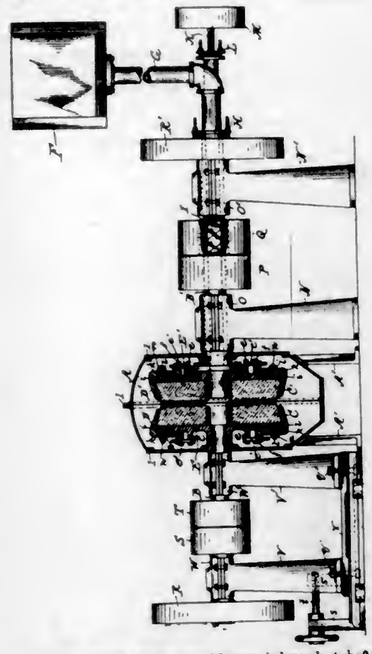
660,699. PULP-REFINING ENGINE. JOHN J. FOLEY, Jay, Me. Filed Mar. 25, 1899. Serial No. 710,439. (No model.)

Claim.—1. A pulp-refining engine, comprising two independent shafts, each shaft having a grinding-stone mounted on the inner end thereof, and independent means for revolving the said shafts and grinding-stones in the same direction and at different rates of speed.

2. A pulp-refining engine having two revoloble grinding-stones and two independent shafts, each stone having its entire peripheral face beveled or inclined, a face-plate secured to the inner end of each shaft, a clamping-ring secured to the back of each face-plate and constructed so as to fit flush against said beveled or inclined face of each stone, and means for adjustably securing said clamping-ring to the stone and the back or rear portion of the face-plate, respectively.

3. A pulp-refining engine comprising two independent shafts, one of said shafts being solid and the other hollow, a grinding-stone mounted on the inner end of each shaft, independent means for revolving each shaft in the same direction, and independent means within the hollow shaft for feeding the pulp or stock to the center of the grinding-stones from whence it is discharged by centrifugal force.

4. A pulp-refining engine comprising two independent shafts, one of said shafts being hollow and the other solid, a grinding-stone mounted on the inner end of each shaft, independent means for revolving each shaft in the same direction and at different rates of speed, means within said hollow shaft for feeding the pulp or stock to the center of the stones, and independent means for driving said feeding devices.



5. A pulp-refining engine comprising two independent shafts, a grinding-stone mounted on the inner end of each shaft, independent means for driving each shaft in the same direction, independent bearings and supports for each shaft, a fast and loose pulley carried by each shaft and a balance-wheel mounted at or near the outer end of each shaft, substantially as described and for the purpose set forth.

6. A pulp-refining engine comprising two grinding-stones, two independent shafts, one of said shafts being solid and the other hollow, means for revolving each shaft and its grinding-stone in the same direction, independent means for feeding the pulp or stock through said hollow shaft, and a pipe for feeding the stock from the tank or stuff-box to and within the outer end of the hollow shaft, substantially as shown and described.

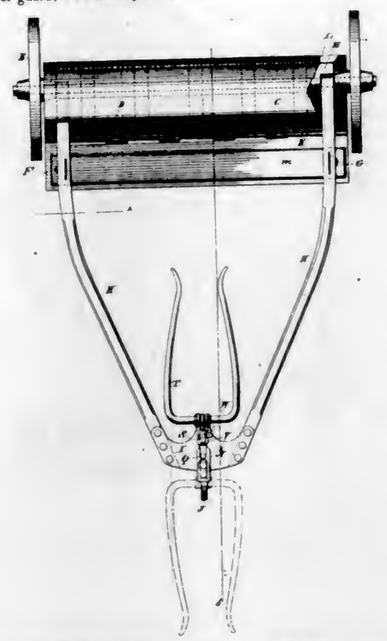
7. A stationary bed-plate for pulp-refining engines, said plate being recessed on its under side and provided with elongated slots, an adjustable plate adapted to rest on the upper surface of the bed-plate and provided with bolt holes or perforations, standards resting on said adjustable plate, headed bolts passing through the feet of the standards, the adjustable plate and the slots in the bed-plate, and means for shifting and regulating the adjustment of the bed-plate, adjustable plate and standards.

8. A pulp-refining engine having a solid shaft and a grinding-stone mounted on one end thereof, standards and bearings for supporting said shaft, a bed-plate provided with an upright post, an adjustable plate resting on said bed-plate and provided with an upright post, means for adjustably securing the standards and adjustable plate to the bed-plate, and means connected to both the bed-plate and adjustable plate for regulating the lateral movement of the stone, shaft, standards and adjustable plate.

660,700. SHIELD OR GUARD FOR PROTECTING SOLDIERS. ADRIAN HITT, Jersey City, N. J., assignor of two-thirds to Henry Berg, Orange Valley, N. J. Filed Apr. 18, 1898. Renewed Apr. 9, 1900. Serial No. 12,041. (No model.)

Claim.—1. The shield or guard comprising the inclined plates C, D, and having the port-holes, and the pivotally-mounted beam located at the junction of said plates and on which said plates are mounted, combined with the wheels at the ends of said beam and mounted on an axle, and the side bars H extending from the ends of said beam and forming an inclosure within which the soldiers and draft-horse may be protected; substantially as set forth.

2. The shield or guard comprising the inclined plates C, D, and having the port-holes, the pivotally-mounted beam located at the junction of said plates and on which said plates are mounted, and the plate F hinged to the lower edge of the plate D and adapted when turned downward to rest upon the ground and aid in preventing bullets from reaching the feet of the soldiers to be protected, combined with the wheels at the ends of said beam and mounted on an axle, and traction means for drawing the shield or guard; substantially as set forth.



3. The shield or guard comprising the inclined plates C, D, the wheels, the axle, and the traction-bars H, combined with means pivotally sustaining said plates relatively to said traction-bars H, whereby said plates may be given a limited oscillatory motion to adjust them into working position and may also be turned to elevate the plate D clear of the ground when the shield or guard is not in actual use; substantially as set forth.

4. The shield or guard comprising the inclined plates C, D, and having the port-holes, and the beam at the juncture of said plates with one another and on which said plates are mounted, combined with the axle passing freely through said beam and allowing the said beam and said plates to be turned axially thereon for adjustment when in use and for convenience of traveling when not in use, and the wheels mounted on said axle; substantially as set forth.

5. The shield or guard mounted on wheels and comprising the inclined plates C, D, and the plate F, the lower edge of the plate D substantially reaching the ground, and the plate F extending inward from the lower edge of the plate D in position along the ground to be stood upon by the soldiers during action; substantially as set forth.

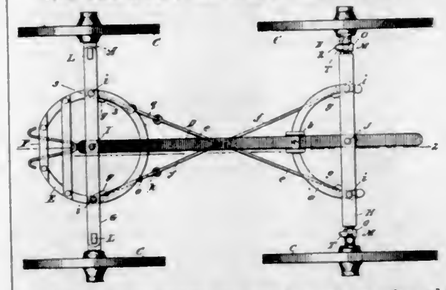
6. The shield or guard comprising the wheels, axle and plates C, D, combined with the side bars H, H, connected with said axle, the swivel-wheel at the front end of said bars, the shafts T, and means for connecting said shafts to said swivel-wheel from within the inclosure formed by said side bars; substantially as set forth.

7. The shield or guard comprising the wheels, axle and plates C, D, combined with the side bars H, H, connected with said axle, the swivel-wheel at the front end of said bars, the plate N on the stem of said swivel and having the slot P, the plate R having the pin Q in engagement with said slot, the shafts T, and means for connecting said shafts with said plate R; substantially as set forth.

8. The shield or guard comprising the wheels, axle and plates C, D, combined with the side bars H, H, connected with said axle, the swivel-wheel at the front end of said bars, the plate N on the stem of said swivel and having the head O and slot P, the plate R having the pin Q and head S, the shafts T, and the link V secured to said shafts and adapted to pass upon either the head O or head S; substantially as set forth.

9. The shield or guard comprising the wheels, axle and plates C, D, combined with the side bars H, H, connected with said axle, the swivel-wheel at the front end of said bars, the head O connected with the stem of said swivel, and the shafts T having the hinged link V adapted to pass upon said head; substantially as set forth.

660,701. WAGON RUNNING-GEAR. ADRIAN HITT, Jersey City, N. J., assignor to Henry Berg, Orange Valley, N. J. Filed Apr. 25, 1898. Renewed Apr. 9, 1900. Serial No. 12,042. (No model.)



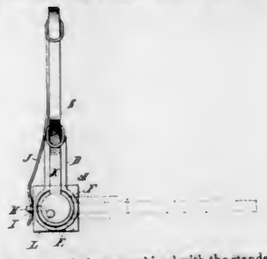
Claim.—1. In a wagon, the wheels, front and rear axles, and the reach connecting said axles, combined with the rear hound *a* of semicircular form and projecting forward from the rear axle, the loop slidable on said rear hound and connecting the latter and said reach, and the crossed rods *e*, *f*, connecting the said front and rear axles; substantially as set forth.

2. In a wagon, the wheels, the front and rear axles, the front and rear sand-boards, the front and rear bolsters, and the front and rear hounds, the latter being secured between the sand-boards and axles, combined with the reach extending between the said sand-boards and axles, the crossed rods *e*, *f*, connecting said axles, and the plates *g* swiveled on the lower sides of said axles in substantial alinement with the outer portions of said hounds and receiving the outer ends of said crossed rods; substantially as set forth.

3. In a wagon, the wheels, the front and rear axles, the front and rear sand-boards, the front and rear bolsters, and the bolts *i* which pass through said sand-boards and axles at opposite sides of the vertical center of the latter, combined with the plates *g* swiveled upon the lower ends of said bolts and below said axles, and the crossed rods *e*, *f*, hooked at their ends into the eyes at the outer ends of said plates *g*; substantially as set forth.

4. In a wagon, the wheels, the front and rear axles, and the plates *g* swiveled upon the lower side of said axles, combined with the crossed rods *e*, *f*, hooked at their ends into eyes at the outer ends of said plates, and one of said rods at one end having the link *k*, link *m*, pivoted hook *n*, and fastening-slide *o*; substantially as set forth.

660,702. WAGON-STANDARD. ADRIAN HITT, Jersey City, N. J., assignor to the Imperial Manufacturing Company, same place. Filed July 17, 1899. Renewed Apr. 9, 1900. Serial No. 12,043. (No model.)



Claim.—1. The wagon-bolster, combined with the standard thereon, the band D secured to said standard and passing around said bolster and having the slot G, the outwardly-projecting pin H secured to said bolster within the confines of said slot, and the plate-spring catch J secured to the exposed side of said standard and having the aperture at its lower portion to automatically engage said pin when said standard is turned to its upright position; substantially as set forth.

2. The wagon-bolster, the standard thereon, and the strap secured to said standard and passing around the end of said bolster and forming the means by which said standard is rendered capable of being turned downward, combined with means for automatically moving said standard

outward from the load so that said standard while being turned downward may pass free of said load; substantially as set forth.

3. The wagon-bolster, and the standard pivotally mounted thereon, combined with the strap K secured to said standard and to said bolster and eccentrically to the longitudinal center on which said standard turns, whereby during the downward motion of said standard its upper end is pulled outward from the load; substantially as set forth.

660,703. DISH-WASHER. FRANKLIN S. HOGG, New York, N. Y., assignor of one-half to Ada B. Hogg, same place. Filed Mar. 6, 1900. Serial No. 7,503. (No model.)

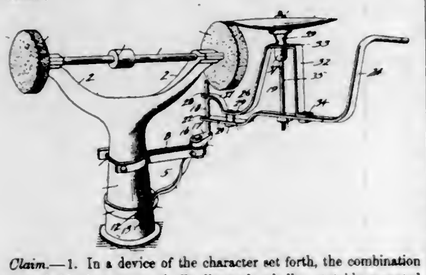


Claim.—1. A dish-washer, comprising a clamping-section, a cleaning-section and a connecting-section, the sections having universal and sliding connections, for the purpose set forth.

2. A dish-washer consisting of a clamping-section having jaws adapted to engage with an article, and a locking device for the jaws, a cleaning-section and a connecting-section, a swivel carried by the clamping-section and having sliding connection with the connecting-section, and a swivel carried by the connecting-section and having sliding engagement with the cleaning-section, for the purpose described.

3. A dish-washer consisting of a clamping-section having jaws adapted to engage with an article, a cleaning-section having a swab at one end, and a connecting-section, the said sections having universal and sliding connections, substantially as set forth.

660,704. DISK-SHARPENING ATTACHMENT. HOMER H. HUNNICUTT, Giltner, Nebr. Filed Mar. 17, 1900. Serial No. 9,068. (No model.)



Claim.—1. In a device of the character set forth, the combination of an attachable frame, a vertically-disposed spindle rotatably mounted on said frame, and a disk-support automatically adjustable in a vertical and a horizontal direction on the said spindle and carrying a fixed vertical rod for holding the disk.

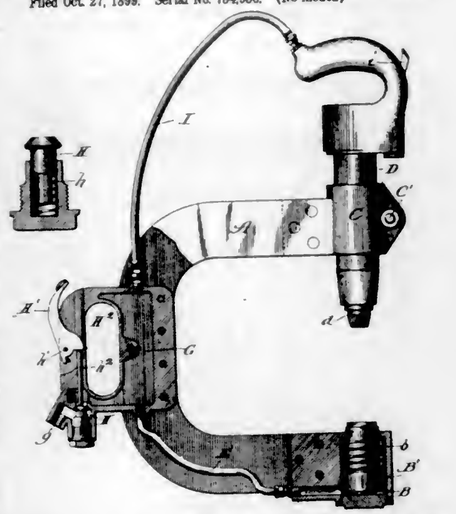
2. In a device of the character set forth, the combination with a sharpening-machine having a sharpening element, of a frame having a crank-arm mounted thereon and movable in a horizontal plane and provided with a vertical spindle at its free extremity, and a disk-support shiftable in a horizontal plane and having an automatic vertical movement on the said spindle.

3. In a device of the character set forth, the combination with a sharpening-machine, having a rotatable sharpening element, of a frame comprising upper and lower clamping members removably attached to a portion of said machine, a spindle movably mounted on the said frame, a support vertically adjustable on the said spindle and including an arcuate extension and a handle or grip, and a vertically-disposed rod mounted in the said arcuate extension and the portion of the support therennder and having an upper extremity to receive the disk to be ground, the said support having a vertical gravitating movement on the spindle.

4. In a device of the character set forth, the combination with a grinding-machine, having a rotatable grinding element, of a frame comprising upper and lower clamping devices, the upper clamping device having a horizontal arm as a part thereof, a diagonal brace extending from the lower member upwardly through the arm of the upper member and provided with a horizontal table, a crank-arm pivotally mounted on the said table and having a vertical spindle at its free end, and a disk-support having portions thereof engaging the said spindle and freely movable in a vertical direction.

5. A disk-grinding attachment comprising a frame and a disk-support, the said disk-support being horizontally shiftable and pivotally mounted on a part of the frame and also automatically adjustable in a vertical direction.

660,705. PNEUMATIC TOOL. HENRY J. KINMAN, Chicago, Ill. Filed Oct. 27, 1899. Serial No. 734,936. (No model.)



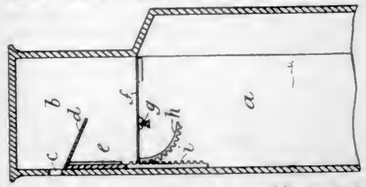
Claim.—1. In a tool of the class described, the combination of a bifurcated frame portion provided at one end with a movable clamping-plunger to contact the head of a rivet and the other end with means to receive and removably hold a portable pneumatic hammer, substantially as described.

2. In a tool of the class described, the combination of a bifurcated frame portion provided at one end with a movable clamping-plunger adapted to contact one end of a rivet and at the other end with a clamping portion adapted to receive a pneumatic hammer, substantially as described.

3. In a tool of the class described, the combination of a bifurcated frame portion provided at one end with a pressure-chamber having a movable clamping-plunger therein to contact the head of a rivet and at the other end with a pneumatic hammer and a main supply-chamber adapted to contain a supply of motive fluid and connected with the clamping-plunger chamber and with the pneumatic hammer, and a main throttle-valve in the inlet of such main supply-chamber adapted to open and close the inlet of such supply-chamber, substantially as described.

4. In a tool of the class described, a substantially C-shaped frame portion provided at one end with a pressure-chamber having a clamping counterbalancing reciprocating plunger therein and at the other end with a clamp adapted to removably hold a portable pneumatic hammer, a main inlet-chamber G connected with the pressure-chamber of the heading-plunger and arranged to be connected with the portable pneumatic hammer, and a main throttle-valve to control the supply of motive fluid to such inlet-chamber, substantially as described.

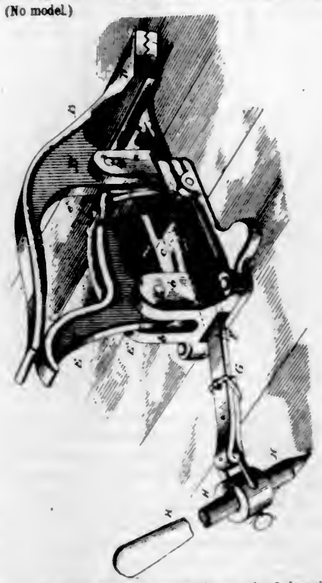
660,706. LETTER-BOX. CHARLES E. KNIGHT, London, England. Filed Dec. 4, 1899. Serial No. 739,196. (No model.)



Claim.—1. The improved letter-box comprising an upper chamber provided with a letter-slot and an inclined plate fixed behind the latter, a vertical plate sliding between the slot and the inclined plate, a pivoted horizontal plate separating the upper chamber from the lower part of the letter-box, and toothed sectors carried by the said plate and engaging with racks or teeth on the vertical sliding plate, substantially as described.

2. In an improved letter-box the combination with the box *a* of an upper chamber *b* having a letter-slot *c* and an inclined plate *d*, a plate *e* sliding vertically between the slot *c* and the plate *d*, a horizontal plate *f* pivoted on knife-edged bearings *g*, and separating the chamber *b* from the box *a*, toothed sectors *h* carried by the plate *f*, and teeth or racks *i* carried by the sliding plate *e* and engaging with the toothed sectors *h* for operating the plate *e* upon the plate *f* being tilted, substantially as described.

660,707. CARPET-STRETCHER. LEWIS M. LOWNES, Norristown, Pa. Filed Aug. 15, 1898. Renewed Sept. 4, 1900. Serial No. 28,957. (No model.)



Claim.—1. A carpet-stretcher, comprising a pair of clamping-jaws, the lower one having two sets of lugs, and an aperture or slot therethrough; the top curved member having a depending lug, pivoted between the front set of lugs; a third member with an upwardly-curved arm pivoted between the rear set of lugs and formed with a loop at its front end; and an adjustable strap, billet or chain, secured to the loop and passed through the slot and underneath the base or lower member to the rear thereof, substantially as described.

2. A carpet-stretcher, comprising a pair of clamping-jaws, the lower one having two sets of lugs and an aperture or slot therethrough; the top curved member having a depending lug pivoted between the front set of lugs; a third member with an upwardly-curved arm pivoted between the rear set of lugs and formed with a loop at its front end, and an adjustable strap, billet or chain secured to the loop and passed through the slot and underneath the base or lower member to the rear thereof in combination with a rod or lever, with a handle at the top, a sharpened or attenuated point and a vertically-adjustable ring and loop thereon, substantially as described.

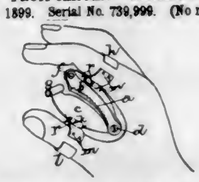
660,708. WASHBOARD. JAMES P. MARSHALL, Independence, Mo. Filed Dec. 2, 1899. Serial No. 738,991. (No model.)



Claim.—1. In a washboard, the combination with a transversely-grooved base-board, of parallel series of coiled wires secured therein, the coils being arranged transversely of the grooves with the bottom of each coil of each wire in a different groove and the top projecting beyond the surface of the board.

2. The combination with the base-board having the series of horizontal grooves produced in one face of the spirally-coiled wires, having portions of their coils seated in the grooves, the ends of said wires being located in the top and bottom grooves respectively, said wire coils being arranged side by side in vertical series, substantially as shown and described.

660,709. FRUIT-CLIPPER. NICHOLAS B. MCGHEE, Orange, Cal. Filed Dec. 11, 1899. Serial No. 739,999. (No model.)

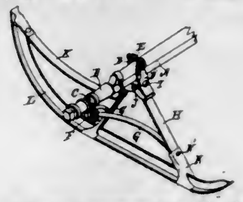


Claim.—1. In a fruit-clipper, the two blade-sections pivotally connected, the two collars *k*, *l*, secured to each of the blade-sections, each collar having a doubled or angle portion where it comes in contact with the blade-sections, and the screws by which the collars are fastened to the blade-sections, and which screws pass through the doubled or angle portions, whereby the collars are not only secured to the blade-sections, but are adapted to fit fingers of different thicknesses, substantially as shown.

2. In a fruit-clipper, the two members *a*, *b*, means for forcing these two members inwardly toward each other at their outer ends, and the blade *c* which has its edge to pass between the two members *a b*, combined with the collars *k*, *l* secured to the blade-sections, and which collars are provided with a doubled or angle portion where they come in contact with the blade-section, and the screws which are passed through the doubled or angle portions not only for securing the collars to the blade-sections, but for regulating the size of the collars, substantially as described.

3. In a fruit-clipper, the two blade-sections pivotally connected at one end, one of the sections consisting of the two members *a*, *b*, which are yieldingly connected at their outer ends, and the blade which has its edge to pass between the members *a b*, combined with the collars *k*, *l*, secured to the blade-sections, and means connected with each collar for enlarging or contracting its size, substantially as set forth.

660,710. RUNNER ATTACHMENT. WILLIAM C. OSWALD, Kalamazoo, Mich., assignor to the Kalamazoo Wagon Company, same place. Filed July 11, 1899. Serial No. 723,511. (No model.)



Claim.—1. In a runner attachment for vehicles, the combination of the runner L; an A-shaped brace or knees H, forming an angle M, at the top; a rave K, extending from the nose of the runner to the braces; a clamp consisting of a principal member D, having a seat M', in the under side, opening at a wider angle than the angle M, of the brace or knees; a second member D', with a tenon to fit in a mortise in the first member; bolts to secure the same to the axle; a transverse bolt J, extending through the angle M, of the braces H, to retain the same in the seat M'; braces G, G, pivoted at N', toward a sleeve B, on the axle-spindle A', the lower ends of the braces H, extending upwardly and outwardly; a bracket F, to which said braces G, are secured; a clip-plate C', with a pivot to engage and retain the bracket F; and a clip C, to attach plate C', to the sleeve B, all coacting together substantially as described for the purpose specified.

2. In a runner attachment for vehicles, the combination of a runner; an A-shaped brace or knee therefor; a clamp for the axle having a main member which has an integral portion extending beneath the said axle, containing a seat for the said A-shaped brace or knee opening at a wider angle than the angle of said brace or knee; and a pivot extending through the A-shaped brace or knee and an auxiliary second member for said clamp, which, with the said main member embraces the axle, for the purpose specified.

3. In a runner attachment for vehicles, the combination of a runner, a main clamp; a pivotal connection between the main clamp and the runner; a sleeve for the axle; lateral braces for the runner extending upwardly and outwardly and connected to a small bracket; a clip, the plate

of which has a pivot for the attachment of the bracket, all coacting as specified.

660,711. **IMPRESSION-CYLINDER.** OSCAR ROESEN, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Dec. 8, 1899. Serial No. 739,586. (No model.)



Claim.—1. An impression-cylinder having a plurality of impression-surfaces, and means whereby a circumferential adjustment may be effected between the surfaces, substantially as described.

2. An impression-cylinder having a plurality of impression-surfaces, means whereby a circumferential adjustment may be effected between the surfaces, and means for securing a tympan or blanket to each of the surfaces, substantially as described.

3. An impression-cylinder having a plurality of impression-surfaces, means whereby a circumferential adjustment may be effected between the surfaces, and means for securing a tympan or blanket to each of the surfaces, said means being arranged to secure each of the ends of said tympans or blankets, substantially as described.

4. An impression-cylinder having two sections, and means for adjusting one of the sections with relation to the other, substantially as described.

5. The combination with a shaft, of an impression-cylinder mounted thereon, said cylinder having a section which is secured to the shaft and a section which is movable about the shaft, and means whereby the movable section is secured in position, substantially as described.

6. The combination with a shaft, of an impression-cylinder mounted thereon, said cylinder having a section which is secured to the shaft and a section which is movable about the shaft, means whereby the movable section is secured in position, and means for securing a tympan or blanket to each of the sections, each of said tympans or blankets being fastened at each of its ends to the securing means, substantially as described.

7. The combination with a form-cylinder carrying staggered plates, of an impression-cylinder having a plurality of sections, and means whereby an angular adjustment may be effected between the sections, substantially as described.

8. The combination with a form-cylinder carrying staggered plates, of an impression-cylinder having a plurality of sections, means for effecting an angular adjustment between the sections, and means for securing a tympan or blanket to each of the sections, each of the ends of said tympans or blankets being fastened to the securing means, substantially as described.

9. The combination with a shaft, of an impression-cylinder having a section movable about the shaft, stops for limiting the movement of the movable section in each direction, and means for securing the movable section in its adjusted position, substantially as described.

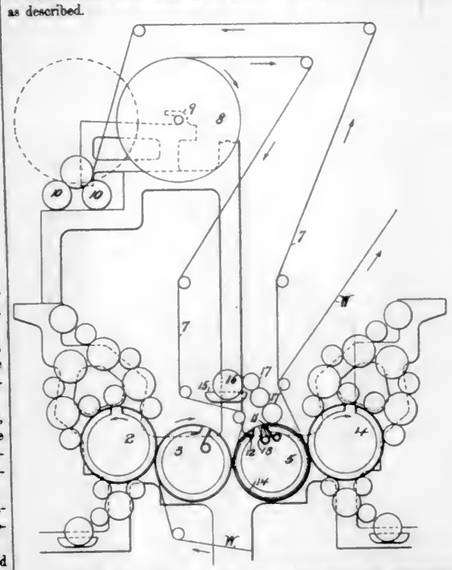
10. The combination with a shaft, of an impression-cylinder mounted thereon, said impression-cylinder having a section which is secured to the shaft, and a section which is movable about the shaft, tympan-securing devices for each section of the cylinders, brackets in which said tympan-securing devices are mounted, said brackets being arranged so as to form stops for the adjustable section of the cylinder, substantially as described.

11. The combination with a shaft, of an impression-cylinder mounted thereon, said impression-cylinder having a section fixed to the shaft and a section movable about the shaft, and bolts passing through one section and engaging sockets in the other section, substantially as described.

12. The combination with a form-cylinder carrying staggered plates, of a shaft, an impression-cylinder mounted on the shaft, said cylinder having a section fixed to the shaft, and a section movable thereon, bolts passing through one section and engaging sockets in the other section, tympan-securing devices for each section, and brackets in which said securing devices are mounted, said brackets serving as stops to limit the movement in each direction of the movable section, substantially as described.

660,712. **OFFSET DEVICE.** OSCAR ROESEN, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Dec. 8, 1899. Serial No. 739,588. (No model.)

Claim.—1. In an offset mechanism for printing-machines, the combination with a cylinder having a porous surface which when moistened becomes ink-repelling, of means for running an offset-web around the cylinder, and means for moistening the surface of the cylinder, substantially as described.



2. In an offset mechanism for printing-machines, the combination with a cylinder having a porous metallic surface which when moistened becomes ink-repelling, of means for running an offset-web around the cylinder, and means for moistening the surface of the cylinder, substantially as described.

3. In an offset mechanism for printing-machines, the combination with a cylinder having an aluminium surface, of means for running an offset-web around the cylinder, and means for applying moisture to said surface, substantially as described.

4. In an offset mechanism for printing-machines, the combination with a cylinder having a porous surface which when moistened becomes ink-repelling, of means for running an offset-web around the cylinder, and damping devices arranged to apply moisture directly to the cylinder, substantially as described.

5. In an offset mechanism for printing-machines, the combination with a cylinder having a porous metallic surface which when moistened becomes ink-repelling, of means for running an offset-web around the cylinder, and damping devices arranged to apply moisture directly to the cylinder, substantially as described.

6. In an offset mechanism for printing-machines, the combination with a cylinder having an aluminium surface, of means for running an offset-web around the cylinder, and damping devices arranged to apply moisture directly to the cylinder, substantially as described.

7. In an offset mechanism for printing-machines, the combination with a cylinder having a porous metallic surface which when moistened becomes ink-repelling, of a suitable elastic surface between the cylinder and the metallic surface, means for running an offset-web around the cylinder, and means for applying moisture to the cylinder, substantially as described.

8. In an offset mechanism for printing-machines, the combination with a cylinder having a surface of aluminium, of a suitable elastic surface between the cylinder and the aluminium surface, means for running an offset-web around the cylinder, and means for applying moisture to the aluminium surface, substantially as described.

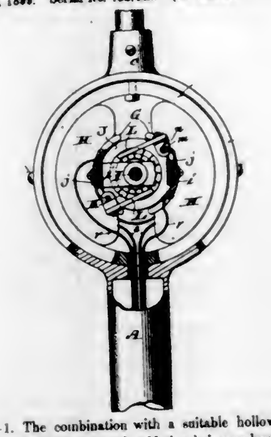
9. In an offset mechanism for printing-machines, the combination with a cylinder having a porous metallic surface which when moistened becomes ink-repelling, of means for running an offset-web around the cylinder, and means whereby moisture is applied to the cylinder, substantially as described.

10. In an offset mechanism for printing-machines, the combination with a cylinder having a surface of etched aluminium, of means for running an offset-web around the cylinder, and means whereby moisture is applied to the cylinder, substantially as described.

11. In an offset mechanism for printing-machines, the combination with a cylinder having a surface of etched and roughened aluminium, of means for running an offset-web around the cylinder, and means whereby moisture is applied to the cylinder, substantially as described.

12. In an offset mechanism for printing-machines, the combination with a cylinder having a suitable elastic covering, of a surface of roughened and etched aluminium stretched over the elastic surface, means for running an offset-web around the surface, and means whereby moisture is applied to the cylinder, substantially as described.

660,713. **ELECTRIC MOTOR.** THOMAS S. WATSON, Milwaukee, Wis., assignor to the Browning Manufacturing Company, same place. Filed Oct. 4, 1899. Serial No. 732,442. (No model.)



Claim.—1. The combination with a suitable hollow standard expanded into a ring at its upper end, said ring being undercut on each inner edge, of an annular magnet-frame, comprising a continuous metal ring having opposed inner shanks integral therewith, fitted within the said standard-ring, field-coils on said shanks, separate curved pole-pieces secured to said shanks by screws passing therethrough and through both of said rings; connecting-pieces uniting the opposed ends of said pole-pieces, a shaft journaled in said connecting-pieces, an armature and commutator on said shaft, insulated metallic strips secured to one of said connecting-pieces, spring-controlled commutator-brushes hinged to said strips, series of conducting-wires leading up through said hollow standard, and connected, respectively, to said strips, and to said field-coils, and semispherical shells clamped between the annular magnet-frame and the standard-ring, one of said shells having a central aperture for the passage of the armature-shaft therethrough.

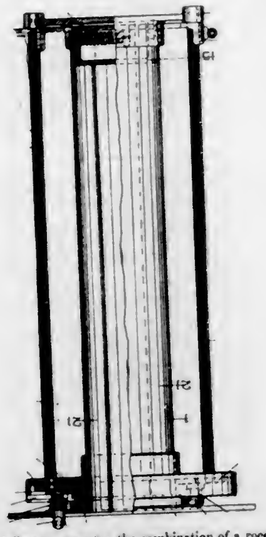
2. In an electric motor for rotary dental tools and the like, the combination with a hollow standard expanded into a ring at its upper end, a motor having an annular magnet-frame fitting within the ring of the standard, conducting-wires leading up through said hollow standard and connected to said motor, and semispherical shells fastened to said standard-ring and inclosing said motor, one of said shells having a central aperture for the passage of the shaft of the motor therethrough.

3. In an electric motor for rotary dental tools and the like, the combination with a motor-controlling device, of a hollow standard secured to and rising from said controlling device and expanded into a ring at its upper end, a motor having an annular magnet-frame fitting within the ring of the standard, conducting-wires leading up from said controlling device through the hollow standard and connected to said motor, and semispherical shells fastened to said standard-ring and inclosing said motor, one of said shells having a central aperture for the passage therethrough of the motor-shaft.

660,714. **DELIVERY MECHANISM.** SETH WHEELER, Castleton, N. Y. Filed June 29, 1898. Serial No. 684,736. (No model.)

Claim.—1. In a delivery apparatus the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a follower in said magazine, a discharge-opening at the top of said magazine of such size as shall permit the passage therethrough of one only of two articles set at such angle to each other, means for successively bringing the articles set at such angles opposite the discharge-opening, and means operated thereby for raising the follower in the magazine to compensate for the delivery of the articles substantially as specified.

2. In a delivery apparatus the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a follower in said magazine, a discharge-opening above said magazine of such size as shall permit the passage therethrough of one only of two articles set at such angle relatively to each other, means for rotating the magazine relatively to the discharge-opening to successively present the said articles set at such angle opposite the said discharge-opening, and means operated thereby for raising the follower in the magazine to compensate for the delivery of the articles substantially as specified.



3. In a delivery apparatus, the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a follower in said magazine, a discharge-opening of substantially the same size and shape as the end of one of the channels, means for rotating the magazine successively to bring the channels therein opposite the discharge-opening, and means operated by such rotation for raising the follower in the magazine to compensate for the delivery of the articles substantially as specified.

4. In a delivery apparatus the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a stationary plate having a discharge-opening above said magazine, said magazine being rotatably supported by said stationary plate, a gear stationary with said plate, a follower in said magazine, a feed-screw carried by said magazine for raising said follower, a gear-wheel on said feed-screw and gearing with said stationary gear-wheel, means for rotating the magazine step by step in one direction, whereby the channels are brought successively opposite the said discharge-opening and the follower is fed upwardly to compensate for the delivery of the articles substantially as specified.

5. In a delivery apparatus the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a stationary plate having a discharge-opening above said magazine, said magazine being rotatably supported by said stationary plate, a gear stationary with said plate, a follower in said magazine, a feed-screw carried by said magazine for raising said follower, a gear-wheel on said feed-screw and gearing with said stationary gear-wheel, an operating-plate, a pawl or dog carried by said operating-plate, and adapted to engage with and rotate the magazine and its appurtenances in one direction, but to disengage and run freely in the other direction substantially as specified.

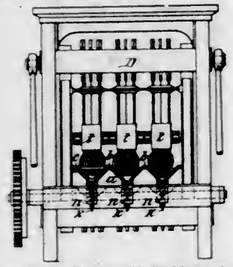
6. In a delivery apparatus the combination of a receptacle or magazine having a plurality of channels for the reception of articles to be delivered, the articles in one channel being so arranged that they shall overlap the articles in the next, a stationary plate having a discharge-opening above said magazine, said magazine being rotatably supported by said stationary plate, a gear stationary with said plate, a follower in said magazine, a feed-screw carried by said magazine for raising said follower, a gear-wheel on said feed-screw and gearing with said stationary gear-wheel, an operating-plate, a pawl or dog carried by said operating-plate, notches or lugs carried by the magazine for said dog or pawl to engage with, a stop for limiting the movement of the operating-plate in either

direction, and a spring for returning said plate to its normal position substantially as specified.

7. In a delivery apparatus, the combination of a stationary plate having a discharge-opening, a rotatable magazine below said plate adapted to carry articles to be delivered, a follower in the bottom of said magazine and means operated by the rotation of said magazine to cause the follower to move upward and deliver an article or articles from the magazine through the discharge-opening in the plate.

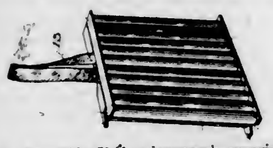
8. In a delivery apparatus, the combination of a plate having a discharge-opening, a magazine rotatably supported by said plate, said magazine being adapted to contain articles which are to be delivered through the said opening after a rotation of the magazine, means for rotating the magazine, and a follower within said magazine adapted when the magazine is rotated to deliver an article or articles from the magazine through said opening in the plate.

660,715. SAW-MACHINE. JULIUS WURSTER, Derendingen, Germany. Filed Aug. 25, 1899. Serial No. 728,440. (No model.)



Claim.—A sawing-machine provided with a pair of spaced tables, an intervening frame, oppositely-set saws reciprocating within said frame, longitudinal ribs on the tables, a series of feed-blocks adapted to engage the logs, a separate endless chain to which the logs of each table are respectively connected, and means for driving said chains in opposite directions, substantially as specified.

660,716. ROLLER SHIELD OR BREASTWORK. ROBERT S. ANDERSON, Tacoma, Wash. Filed Mar. 31, 1900. Serial No. 10,997. (No model.)



Claim.—1. A portable shield or breastwork, comprising leaves or members hinged together at one edge and adapted to be spread apart, and a series of vertical rollers pivotally mounted along the outer surfaces of the said leaves for turning aside bullets or other projectiles.

2. A shield or breastwork, comprising leaves hinged to each other at their edges, top and bottom plates secured to the said leaves, and a series of revoluble rollers mounted between said top and bottom plates for protecting the outer surface of the said leaves against projectiles.

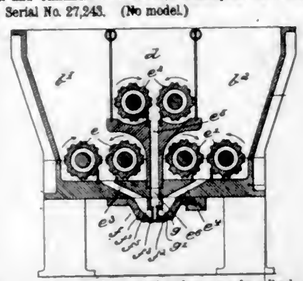
3. A shield or breastwork, comprising leaves formed of backs hinged together at their forward edges, top and bottom plates secured to the edges of the said leaves, offset portions in the top and bottom plates of one leaf, correspondingly-shaped head portions upon the top and bottom plates of the other leaf, whereby when the leaves are opened their movement will be properly limited, and a series of protecting-rollers mounted between the top and bottom plates, substantially as described.

4. A portable shield or breastwork comprising leaves hinged together, top and bottom plates secured thereto, and a series of vertical rollers rotatably mounted between the said plates, ball-bearings engaging the lower journaled ends of the said rollers, substantially as described.

5. A shield or breastwork, comprising leaves hinged together at one edge, top and bottom plates secured to the said leaves, a series of vertically-arranged rollers revolubly mounted between the said plates, a carrying-strap secured to the inner faces of the said leaves the upper and lower plates of one leaf being provided with cut-away portions to prevent discomfort to the person carrying the same, the construction being such that the shield may be folded and carried from place to place by means of the strap, and may be opened and set up where desired for protecting soldiers from projectiles, substantially as described.

6. A portable shield or breastwork, comprising leaves or members adapted to be spread apart, and a series of rollers carried by said members for turning aside bullets or other projectiles.

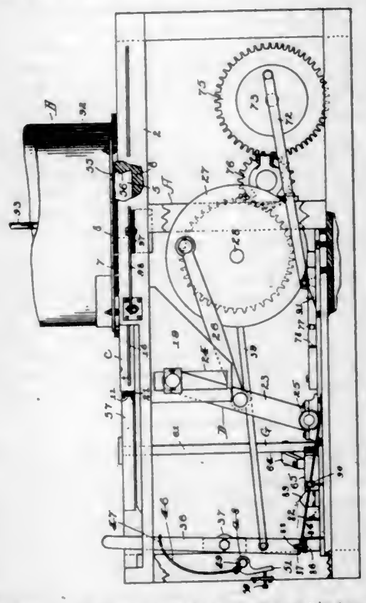
660,717. STRIPED-CAKE-MAKING MACHINE. WALTER C. BARBER and CHARLES W. TURNER, Philadelphia, Pa. Filed Aug. 18, 1900. Serial No. 27,243. (No model.)



Claim.—1. In a machine of the character described, a hopper divided into a plurality of compartments, a set of feed-rolls arranged in each compartment, a separate passage-way leading from each compartment, and a sheet-forming die communicating with each passage-way and adapted to successively separate the materials entering the die into strips arranged side by side and to form the strips into a striped sheet, substantially as and for the purposes described.

2. In a machine of the character described, in combination with a plurality of compartments adapted to receive doughs of varying color or material and means for feeding the doughs from said compartments in separate sheets, of a sheet-forming die consisting of two members, whereof one is adapted to receive certain of the sheets and the other the remaining sheets, both of said members coacting to first separate the various sheets into strips and to then form the strips into a striped sheet, substantially as and for the purposes described.

660,718. OIL-CAKE-FORMING APPARATUS. EDGAR C. BIEBER, St. Paul, Minn. Filed Feb. 17, 1899. Serial No. 705,862. (No model.)



Claim.—1. In a machine for the production of oil and meal cakes, a molding-pan, composed of shallow trays reversed upon each other and having an open end, and an ejector between said trays; whereby as the open end of said pan is plunged into the pomace, the pan is filled.

2. In a machine for the manufacture of oil and meal cakes, a molding-pan consisting of a frame formed with a suitable opening, an ejector positioned in said frame and means for sliding said ejector to and from

the opening; whereby as the open frame is plunged into the pomace the pan is filled.

3. In a machine for the manufacture of oil and meal cakes, from oleaginous seed, an open pan consisting of trays reversed upon each other and an ejector, having its exposed face substantially equal to the inner dimension of the transverse cross-section of the pan, positioned between said trays, in combination with the molding-machine consisting of the carrier having a head, mechanism for reciprocating said carrier and a guide to regulate the carrier in its travel, for the purposes specified.

4. In a machine for the manufacture of oil and meal cakes a molding-pan, consisting of trays connected to each other, and formed with an open end, an ejector between said trays and means for expanding said trays; whereby as the open end of the pan is plunged into the pomace, the pan is filled and as the trays are spread the cake is ejected, for the purposes specified.

5. In an apparatus to be used in the treatment of oleaginous seed, the combination of a forming-pan having a tongue and containing an ejector, of mechanism for reciprocating said ejector, a heater for containing the meal having an outlet, a guide to regulate the carrier and a carrier-head which is adapted to engage the tongue on the pan; means for plunging the pan under the outlet of said heater, means for automatically shifting said carrier mechanism and means for automatically throwing said shifting mechanism out of operation, as shown, and for the purposes specified.

6. In a machine for the production of oil-meal, a molding-pan, consisting of an open frame, an ejector positioned in said frame and provided with cams, in combination with a molding-machine A, consisting of frame 2, mechanism D for reciprocating said pan, mechanism G, for shifting said pan, and heater B, having a pocket, said pan being adapted to be passed into said pocket, as shown, and for the purposes specified.

7. A pan for molding the product of flax or other oleaginous seed into cakes, consisting of a hollow frame composed of lower and upper trays suitably connected and having an open end and an ejector, which is adapted to slide through the pan, for the purposes specified.

8. A pan for molding the product of flax or other oleaginous seed into cakes, consisting of lower and upper trays which are connected, so as to expand vertically, an end of the pan being open, and an ejector which is adapted to slide from end to end in the pan, for the purposes specified.

9. In a machine for the manufacture of oil and meal cakes from oleaginous seed, a molding-pan with an open end consisting of two trays, one reversed upon the other, said trays being movably connected by suitable means, in combination with an ejector, sliding through said pan substantially as, and for the purposes specified.

10. In combination with a molding-pan for forming meal cakes, consisting of a frame having a tongue and an ejector; a molding-machine consisting of a carrier and mechanism for reciprocating said carrier, a heater for containing the meal having an outlet, and a guide to regulate the carrier in its travel; said carrier having a carrier-head which is adapted to engage the tongue on the pan and plunge the pan under the outlet of said heater, for the purposes specified.

11. In a machine for the treatment of oleaginous seed the combination of a forming-pan, containing a sliding ejector with means for engaging, reciprocating and shifting said pan substantially as, and for the purposes specified.

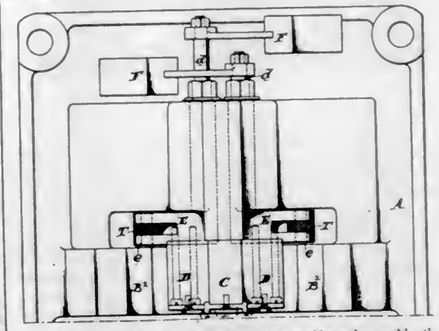
12. In a machine for the manufacture of oil and oil cake from oleaginous seed, a forming pan or frame with an open end, mechanism adapted to impart a reciprocating motion to said pan and plunge its open end into and withdraw it from a pocket or heater containing crushed seed, means for engaging said pan with said reciprocating mechanism and a sliding ejector within said pan, all substantially as specified.

660,719. DIE FOR FORMING SHEET METAL. EDWARD G. BUDD, Philadelphia, Pa., assignor to the American Pulley Company, of Pennsylvania. Filed June 2, 1900. Serial No. 18,814. (No model.)

Claim.—1. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, having a transverse slot *b* open at the front above the anvil proper B and a fixed guide above the slot consisting of two forward projections arranged at a distance apart with two pivoted or hinged dies arranged slightly above the anvil-die and adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die.

2. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies journaled upon fixed axes and arranged slightly above the anvil-die and adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die, a vertically-movable frame, and connecting-links between said movable frame and the pivoted or hinged dies whereby the latter are moved in the same direction upon moving the movable frame.

3. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies journaled upon fixed axes and arranged slightly above the anvil-die and adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die, a vertically-movable frame for applying power to depress the hinged dies, connecting-links between the said movable frame and the pivoted or hinged dies whereby the latter are moved in the same direction upon moving the movable frame, and automatic devices independent of the power-applying movable frame for raising the pivoted dies when downward pressure upon them is removed.



4. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies arranged slightly above the anvil-die and adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die, power devices for depressing the free ends of the pivoted or hinged dies, and automatic devices independent of the power devices for raising the said pivoted dies when the downward pressure is removed.

5. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies arranged slightly above the anvil-die adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die and in which the said pivoted or hinged dies are provided with lateral projections c adapted to operate upon the edges of the sheet-metal blank for turning the spoke-arms through a given arc simultaneously with the bending of the hub-flange by the pivoted dies.

6. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies arranged slightly above the anvil-die adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die and in which the said pivoted or hinged dies are provided with lateral projections c adapted to operate upon the edges of the sheet-metal blank for turning the spoke-arms through a given arc simultaneously with the bending of the hub-flange by the pivoted dies, and a fixed guide for holding the central tongue or spoke-arm of the blank during the bending operation above specified.

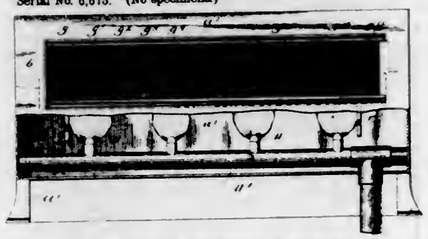
7. In dies for shaping sheet-metal spoke-spiders, the combination of an anvil-die, with two pivoted or hinged dies arranged slightly above the anvil-die and adapted to have their opposite and outer ends depressed for bending the metal over the anvil-die, and anvil-dies B^3 having oblique faces arranged upon opposite sides of the central anvil-die for receiving the spoke-arms and imparting thereto the proper set.

8. In dies for shaping sheet-metal spoke-spiders, a fixed die having a transverse slot and the metal immediately below the said slot formed into a central anvil-die having a flat top surface and two downward-extending oblique surfaces extending from the lateral edges of the top surface, combined with two pivoted or hinged dies having their axes of rotation in alinement with the lateral edges of the slot and adapted to fold down parallel to the oblique surfaces of the anvil-die.

9. In dies for shaping sheet-metal spoke-spiders, a fixed die having a transverse slot and the metal immediately below the said slot formed into a central anvil-die having a flat top surface and two downward-extending oblique surfaces extending from the lateral edges of the top surface, combined with two pivoted or hinged dies having their axes of rotation in alinement with the lateral edges of the slot and adapted to fold down parallel to the oblique surfaces of the anvil-die, and further provided with projecting ribs c arranged vertically above the axis of rotation, and power devices for rocking the pivoted or hinged dies.

10. In dies for shaping sheet-metal spoke-spiders, a fixed die having a transverse slot and the metal immediately below the said slot formed into a central anvil-die having a flat top surface and two downward-extending oblique surfaces extending from the lateral edges of the top surface, combined with two pivoted or hinged dies having their axes of rotation in alinement with the lateral edges of the slot and adapted to fold down parallel to the oblique surfaces of the anvil-die and further provided with projecting ribs c arranged vertically above the axis of rotation, and a central guide secured in fixed relation above the slot of the anvil-die.

660,720. PROCESS OF DETERMINING HARDENING HEAT FOR STEEL. EUGENE CHILDS, Boston, Mass. Filed Feb. 2", 1900. Serial No. 6,673. (No specimens.)

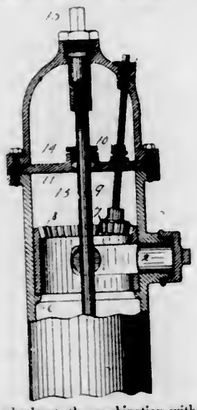


Claim.—1. The process of determining the hardening heat for metal, which consists in subjecting a portion of the metal to be tested to a graded heat ranging from minimum to above maximum temperature requisite to properly temper the same, comparing such heated portion of the metal with a test color-scale graded in color to correspond to the gradations in temperature; indexing the portions thus compared, and cooling; testing such cooled portion for the requisite hardness; determining from the relative position of the properly-hardened portion the corresponding color division of the test-scale, and adopting such color for subsequent heating.

2. The process of determining the hardening heat for metal, which consists in subjecting a portion of the metal to be tested to a graded heat ranging from minimum to above maximum temperature requisite to properly temper the same, comparing such heated portion of the metal with a transparent test color-scale graded in color to correspond to the gradations in temperature; illuminating the scale by transmitted light; indexing the portion of metal compared with the scale, and cooling the same; testing the cooled portion for the requisite hardness; determining therefrom the corresponding color division of the test-scale, and adopting such color for subsequent heating.

3. The process of determining the hardening heat for metal, which consists in heating a portion of the metal to be tested to a graded heat ranging from minimum to above maximum temperature requisite to properly temper the metal and comparing such heated portion with a test color-scale divided vertically in color-bands corresponding to the gradations in temperature; marking the portion of metal thus compared, and cooling the same; making successive fractures therein from the previously hottest portion, and determining from the relative position of the desired fracture the corresponding color division of the test-scale, and adopting such color as a guide for subsequent heating.

660,721. HYDRANT. ELIAS CRONSTEDT, St. Paul, Minn. Filed Mar. 31, 1900. Serial No. 10,876. (No model.)

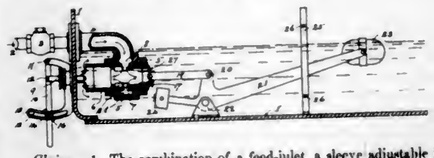


Claim.—1. In a hydrant, the combination with its outer wall or casing provided with discharge-openings, of a cut-off device arranged within said hydrant for opening and closing said openings, a wall arranged across the hydrant above said device, teeth carried by said device, a gear meshing with said teeth, and a shaft carried by said gear and extending upward through the said wall and through the top of the hydrant.

2. In a hydrant, the combination with its outer wall or casing provided with discharge-passages, of a rotatable cut-off device arranged within said casing for opening and closing said passages, a wall arranged across the casing above said device, gear-teeth arranged around the upper edge of said cut-off device, an internal gear meshing with said teeth, and a shaft carried by said gear, passing upward through said wall and through the top of the hydrant.

3. In a hydrant, the combination with its outer wall or casing having discharge-passages, of a rotary cut-off device arranged within said casing for opening and closing said passages, a transverse wall arranged above said cut-off device, preventing the passage of water to the space above said wall, teeth carried by said device, a gear meshing with said teeth, and a shaft carried by said gear and passing through a stuffing-box in said wall and projecting through the top of the hydrant.

660,722. FEED-WATER AND WATER-LEVEL REGULATOR. ALEXANDER CRUICKSHANKS and ARTHUR SCRIVENOR, Richmond, Va. Filed Mar. 3, 1900. Serial No. 7,202. (No model.)



Claim.—1. The combination of a feed-inlet, a sleeve adjustable in the feed-inlet and having a port or ports to allow the passage of the feed through the sleeve, a valve for controlling the flow of the feed through the port or ports in the sleeve, and means for automatically operating the valve.

2. In a feed and fluid-level regulator, the combination of a feed-inlet casing, a sleeve for controlling the position of the working level of the fluid, the said sleeve being adjustable in the inlet-casing and having a port or ports for the passage of the feed from the inlet-casing through the wall of the sleeve, a valve for controlling the flow of the feed through the sleeve to the interior of the receptacle, a float, and means for connecting the float with the valve so that the float may control the action of the said valve.

3. The combination of a feed-inlet, a sleeve adjustable in the feed-inlet and having a port or ports for the passage of the feed through the sleeve, a valve adapted to control the flow of the feed through the ports in the sleeve, the said sleeve and valve operating together to fully control the flow of the feed when working at different levels of fluid within the receptacle, and means for automatically operating the valve.

4. The combination in a fluid-feed and fluid-working-level regulator of a valve for controlling the flow of the feed through the regulator, and a sleeve having ports for the passage of the fluid through it, the said valve being automatically operated by the rise and fall of the fluid within the receptacle to control the flow of the fluid through the ports in the sleeve, and the sleeve being adjustable so as to alter the position of its ports to change the working level of the fluid within the receptacle.

5. The combination in a fluid-feed and fluid-working-level regulator of a valve for controlling the flow of the feed through the regulator, and a ported sleeve adjustable with regard to the valve to change the working level of the fluid within the receptacle.

6. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a valve for regulating the feed, and means located between the feed-inlet and the valve and adjustable in relation to the feed-inlet and the valve to change the operative relation of the valve of the feed-inlet.

7. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a valve for regulating the feed, and a ported sleeve located between the feed-inlet and the valve and adjustable in relation to the feed-inlet and the valve to change the operative relation of the valve of the feed-inlet.

8. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet for admitting fluid to or discharging fluid from a receptacle, an automatically-operated valve, means for automatically operating the valve, and a ported sleeve located between the feed-inlet and the valve and having a port or ports to allow the fluid to pass through it and adjustable in relation to the valve, and which together with the automatically-operated valve controls the flow of the fluid to or from the receptacle and also controls the position of the working level of the fluid within the receptacle.

9. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a sleeve having ports for the passage of the fluid through its wall and adjustable to change the relative position of its ports and of a valve so as to change the working level of the fluid within the receptacle, a valve controlling the passage of the fluid through the ports in the sleeve and arranged to be operated automatically by the rise and fall of the fluid within the receptacle, and means for automatically operating the valve.

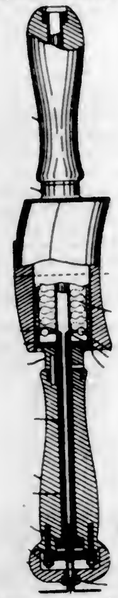
10. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a sleeve having ports for the passage of the fluid through its wall and adjustable to change the relative position of its ports and the ports of a valve so as to change the working level of the fluid within the receptacle, a balanced valve having ports and arranged to be operated automatically by the rise and fall of the fluid within the receptacle to control the flow of the fluid through the ports in the sleeve, and means for operating the valve automatically.

11. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a ported sleeve rotatable in the feed-inlet to change the working level of the fluid within the receptacle, and a ported valve rotatable in the sleeve and arranged to be operated automatically by the rise and fall of the fluid in the receptacle to control the flow of the fluid through the ports in the sleeve.

12. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet, a rotatable ported balanced valve, means for automatically rotating the said valve by the rise and fall of the fluid within the receptacle to control the flow of the fluid through the regulator, and a ported sleeve located between the feed-inlet and the valve and adjustable to change the relative position of the ports in the sleeve and in the valve so as to change the working level of the fluid within the receptacle.

13. In a fluid-feed and fluid-working-level regulator, the combination of a feed-inlet having an annular chamber 8, an adjustable sleeve 6 having ports 7 in communication with the annular chamber 8, a valve 17 having ports 18 and rotatable automatically by the rise and fall of the fluid within the receptacle to control the flow of the fluid through the ports 18 and 7, and which together with the sleeve 6 control the position of the working level of the fluid within the receptacle.

660,723. TREEING-IRON. WILLIAM E. DAVIS, Somerville, Mass., assignor to the Simplex Electrical Company, Boston, Mass. Filed Sept. 7, 1899. Serial No. 729,790. (No model.)



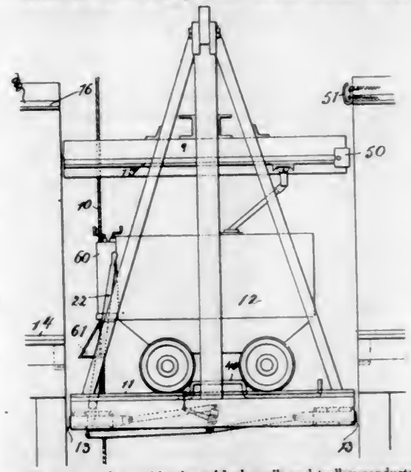
Claim.—1. The combination in an electrically-heated tool, of an electroheating-box, composed of separable sections, with electrical resistances disposed in the inner surfaces of the box, and a tool-body provided with a cavity adapted to the reception and retention of the said electroheating-box, substantially as described.

2. The combination, in an electrically-heated tool, of an electroheating-box, composed of separable thin metal sections having resistances disposed in enamel coatings on the inner surfaces of the box, and a tool-body provided with a cavity adapted to the reception of said box, the outer metal surfaces of the box-sections in heat-conductive contact with the inner surfaces of the cavity of the tool-body, substantially as described.

3. In a boot-treeing iron, the combination of an electroheating-box composed of separable sections with electrical resistances disposed on the inner surfaces of said box, an iron provided with a cavity adapted to the reception of the said electroheating-box, handles fitted to the ends of the iron, and a tubular backbone extending longitudinally through the handles and the electroheating-box, the said tubular backbone provided with lateral apertures wherethrough the feed-wires pass to the electrical resistances of the box, substantially as described.

4. In a treeing-iron, the combination of separable electroheating-plates, an iron provided with a cavity for the reception of the said plates, end blocks fitting the said cavity and a backbone passing through the end blocks and the cavity with means thereon for clamping the end blocks against the heating-plates thereby firmly securing the latter, substantially as described.

660,724. ELECTRIC CONVEYING AND ELEVATOR APPARATUS. GEORGE K. FISCHER, Salt Lake City, Utah, and FRANK KLEPETKO, Great Falls, Mont. Filed Aug. 23, 1899. Serial No. 728,182. (No model.)

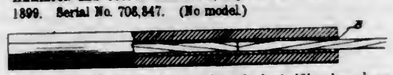


Claim.—1. In combination with the rails and trolley-conductors of an electric railway, an elevator-car therefor, car-rails and one or more trolley-conductors carried by the elevator-car and means for locking a tram-car when in position on the elevator-car, consisting of a blocking device, a crank-shaft, a crank-arm on said shaft, and a link connecting said crank-arm and blocking device, substantially as set forth.

2. In combination with the rails and trolley-conductors of an electric railway, an elevator-car therefor, car-rails and one or more trolley-conductors carried by the elevator-car, mechanism for locking a tram-car in place on the elevator-car, and mechanism for locking the elevator-car when its rails and conductors are in proper alinement, said mechanism consisting of landing-dogs, a lever and links and cranks for operating said dogs, and a manual controlling device common to both said locking mechanisms, substantially as set forth.

3. In combination with the rails and trolley-conductors, of an electric railway, an elevator-car having corresponding rails and trolley conductor or conductors, locking mechanism for the elevator-car and an electric tram-car having a manual controller and adapted to be run onto said elevator-car, the manual controlling devices for the said locking mechanism and for operating the elevator-car being set in juxtaposition to the normal position of the controller of the tram-car when the tram-car is in place on the elevator-car, substantially as set forth.

660,725. METHOD OF RIFLING GUN-BARRELS. CLARENCE J. HAMILTON and COELLO HAMILTON, Plymouth, Mich. Filed Mar. 13, 1899. Serial No. 708,847. (No model.)



Claim.—1. The herein-described method of rifling barrels consisting of compressing a plain tube onto a suitable mandrel of less diameter than the inside of the tube, substantially as described.

2. The herein-described method of rifling barrels consisting of compressing a plain tube onto a mandrel adapted to give to the interior of the barrel suitable rifling by applying pressure to the outside of said tube, substantially as described.

3. The herein-described method of rifling barrels consisting of compressing a plain tube of soft metal onto a suitable mandrel under sufficient pressure to harden the metal and form a tempered inner surface to the barrel, substantially as described.

4. The herein-described method of rifling gun-barrels consisting of first forming a tube from sheet metal around a suitable mandrel of less

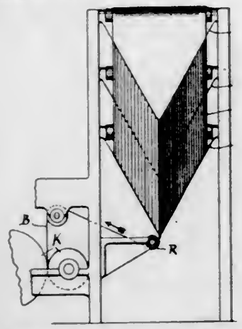
diameter than the inside of the tube, and then compressing the tube so formed to the mandrel by pressure applied to the outside of the tube, substantially as described.

5. The herein-described method of rifling barrels, consisting of compressing a portion of a plain tube onto a suitable mandrel, then moving the tube so as to bring another portion of the tube over the mandrel and repeating the operation, substantially as described.

6. The herein-described method of rifling barrels, consisting of compressing a plain tube onto a suitable mandrel of less diameter than the inside of the tube and then shrinking an outer tube or tubes over the first-named tube, substantially as described.

7. The herein-described method of rifling barrels, consisting of compressing a plain tube onto a suitable mandrel of less diameter than the inside of the tube and then placing the rifled tube so formed within an outer tube or tubes, substantially as described.

660,726. PROCESS OF LONGITUDINALLY FOLDING AND INSERTING PRINTED WEBS. HENRY HARTT, Chicago, Ill. Filed Feb. 9, 1900. Serial No. 4,587. (No model.)



Claim.—1. The process of completely inserting one longitudinally-folded web within another, which consists in beginning the fold of an inner web within the V-shaped space formed by a previously partially folded outer web.

2. The process of assembling two longitudinally-folded webs, which consists in beginning the folds of the two webs at points removed from each other, and in causing the outer and partially-folded web to join the inner web at the point where its folding begins.

3. The process of assembling by inserting a series of longitudinally-folded webs one within another, which consists in running said webs over a corresponding series of formers placed one above another, and in causing the webs from the upper formers to join the webs from the lower formers at the points where they bend over the corners of their respective formers.

660,727. GUNCOTTON-PRESS. ALFRED HOLLINGS, Chorlton-cum-Hardy, England. Filed Apr. 30, 1900. Serial No. 14,891. (No model.)

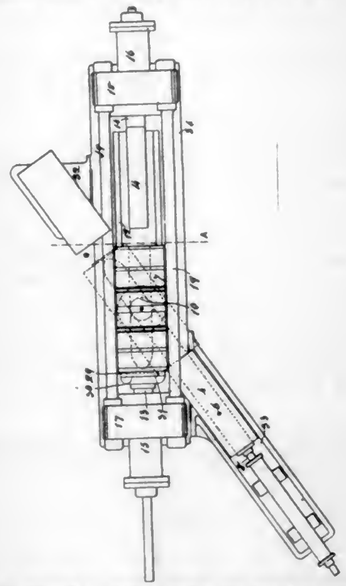
Claim.—1. In combination with apparatus for pressing guncotton into blocks, a perforated container for the guncotton, a holder for the container arranged with a space between the holder and the container, and a connection leading from said space to a source of liquid under pressure and arranged to maintain a fluid-pressure in said space; substantially as described.

2. In apparatus for pressing material into blocks, the combination with pressing mechanism, of a mold constructed with an outer casing coned internally and an inner jacket divided longitudinally into several pieces and coned externally to fit the cone of the outer casing; substantially as described.

3. In apparatus for pressing material into blocks, the combination with pressing mechanism, of a mold constructed with an outer casing coned internally, an inner jacket divided longitudinally into several pieces and coned externally to fit the cone of the outer casing, and an inner lining divided longitudinally into several pieces; substantially as described.

4. In apparatus for pressing material into blocks, the combination with pressing mechanism, of a mold constructed with an outer casing coned internally and an inner divided jacket coned externally, water-spaces between the casing and the jacket, and the jacket being provided with perforations leading from the water-spaces to the interior surface of the jacket; substantially as described.

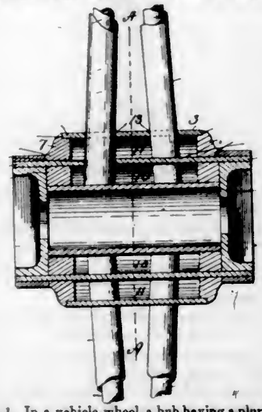
5. In apparatus for pressing material into blocks, the combination with pressing mechanism, of a mold constructed with an outer casing coned internally, an inner divided jacket coned externally, and an inner divided lining, water-spaces between the casing and the jacket, and the jacket and lining being provided with perforations leading from the water-spaces to the interior surface of the lining; substantially as described.



6. In apparatus for pressing material into blocks, the combination with pressing mechanism, of a mold constructed with an outer casing coned internally, an inner divided jacket coned externally, and an inner divided lining, water-spaces between the jacket and lining and the lining being provided with perforations leading from the water-spaces to the interior surface of the lining; substantially as described.

7. In combination with a press, a mold having a lining, the contacting faces of the mold and lining being shaped to slacken the lining when partially withdrawn, means for pressing the charge of guncotton in the mold, means for slackening the lining of the mold, and means for ejecting the lining and the finished charge; substantially as described.

660,728. METALLIC VEHICLE-WHEEL. THOMAS MIDGLEY, Columbus, Ohio. Filed July 7, 1900. Serial No. 22,845. (No model.)



Claim.—1. In a vehicle-wheel, a hub having a plurality of concentric tubular metallic sections brazed or soldered together and forming a homogeneous body, and provided with spoke-chambers.

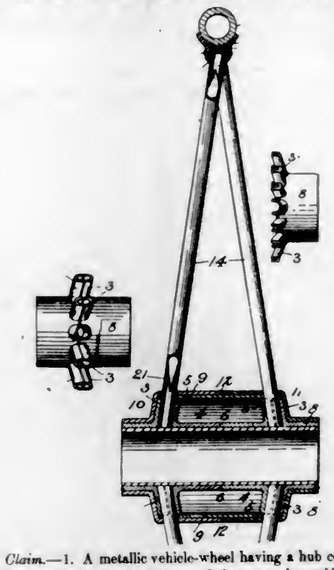
2. In a vehicle-wheel, a hub having a plurality of concentric tubular metallic sections and concentric rings between the sections brazed or soldered together and forming a homogeneous body, and provided with spoke-chambers.

3. In a vehicle-wheel, a hub having a plurality of concentric tubular metallic sections brazed or soldered together and forming a homogeneous body, and spokes brazed or soldered in the hub.

4. In a vehicle-wheel, a hub having a plurality of concentric tubular metallic sections and concentric metallic rings between the sections brazed or soldered together and forming a homogeneous body, and spokes brazed or soldered in the hub.

5. In a metallic vehicle-wheel, a hub having a plurality of concentric tubular metallic sections brazed or soldered together, and a rim having a plurality of concentric metallic sections brazed or soldered together, and spokes brazed or soldered in the hub and the rim.

660,729. METALLIC VEHICLE-WHEEL. THOMAS MIDGLEY, Columbus, Ohio. Filed July 9, 1900. Serial No. 22,978. (No model.)



Claim.—1. A metallic vehicle-wheel having a hub composed of an inner tubular section, sections mounted thereon and provided with tubular spoke-sockets, and an outer casing, the several parts metallically joined, brazed or soldered together.

2. A metallic vehicle-wheel having a hub composed of an inner tubular section, sections mounted thereon and provided with spoke-sockets, an outer casing, and a concentric section surrounding part of the sections having the spoke-sockets, the several parts metallically joined, brazed or soldered together.

3. A metallic vehicle-wheel having a hub composed of an inner tubular section, sections mounted thereon and provided with spoke-sockets and butt-joints at their adjacent ends, and a casing provided with a butt-joint at its adjacent ends, the several parts metallically joined, brazed or soldered together.

4. A metallic vehicle-wheel having a hub composed of an inner tubular section, a concentric section provided with tubular spoke-sockets, and an outer casing in combination with spokes extending through the sockets and resting upon the inner section.

5. A metallic vehicle-wheel provided with a rim having a channel on its inner side provided with spoke-holes, a plate between the sides of the rim and brazed or soldered thereto, and spokes soldered to the rim.

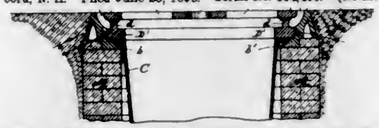
660,730. SHEET-METAL CAN OR BOX. GEORGE MILLER, Baltimore, Md. Filed June 3, 1900. Serial No. 19,580. (No model.)

Claim.—1. A metal can or box, comprising side walls forming a body portion having its edge at one end turned inwardly to form a supporting-shelf for the head or end of the can, an upwardly and inwardly extending hook portion formed on the inner edge of the said supporting-shelf, a head or cover adapted to be supported on said inwardly-turned shelf and having at its edge an upwardly-extending shouldered portion adapted to fit in the opening left by the inturned edge at the end of the can, the main body portion of said head lying flush with the inturned supporting edge of the can-body, and an outwardly-horizontally extended hook portion formed on the said head adapted to engage the hook portion formed on the inwardly-extending shelf of the body, the structure being such that the head is strongly held in place upon the inwardly-extending edge of the can-body, substantially as described.



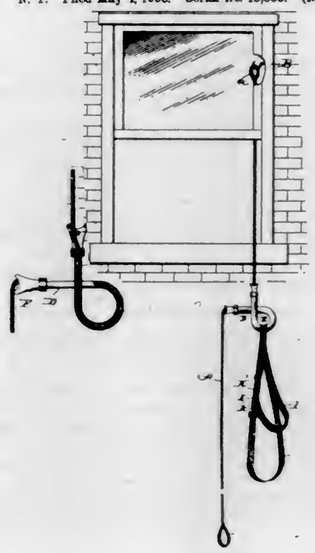
2. A metal can or box having a body portion formed of suitable walls, an inwardly-extending shelf formed at one end of said body portion for supporting the head of the can, an inwardly and backwardly extending hook formed on the inner edge of said shelf, the head adapted to fit in the opening formed by said shelf comprising a body portion, an upwardly-turned flange formed at the edge of said body portion and making a shoulder adapted to fit against the inner edge of the shelf on the body portion, an outwardly-projecting flange formed on said head and adapted to rest on top of the hook formed on the shelf, and a downwardly and inwardly extending hook formed on the edge of said head for engaging the hook formed upon the shelf, the structure being such that internal strain does not come directly upon the hooks but is largely supported by the said shelf on the body portion and the upwardly and outwardly extending flanges of the head, substantially as described.

660,731. SEWER-INLET GRATING. WALTER T. MCLAM, Concord, N. H. Filed June 25, 1898. Serial No. 684,461. (No model.)



Claim.—The combination with sewer-inlets, of a metal supporting-ring resting upon the top of the masonry and having its upper edge concaved on opposite sides, the lower portion being provided with two annular shoulders of different diameters and elevations, a trap-basin having a flange which rests on the smaller annular shoulder of said supporting-ring, a removable grate having its upper surface concaved on opposite sides corresponding with the upper edge of said supporting-ring, a bottom ring adapted to rest upon the larger annular shoulder of the supporting-ring, radial studs in the bottom ring detachably engaging grooves in the supporting-ring, and posts integrally connecting the grate and its bottom ring, the grate proper being considerably smaller in diameter than and flush with the top of said supporting-ring, substantially for the purpose set forth.

660,732. FIRE-ESCAPE. WILLIAM H. NEWMAN, Marlborough, N. Y. Filed May 4, 1900. Serial No. 15,533. (No model.)

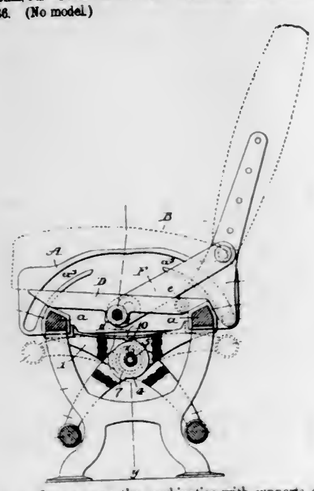


Claim.—1. In a fire-escape the combination with a flexible support or rope adapted to be attached at one end to the upper portion of a building or structure, of a controlling device consisting of a pipe having its ends extended at substantially right angles to each other, and its intermediate portion in the form of a loop projecting from the apex of the angle formed by the ends and through which pipe said flexible connection is passed, and a harness or sling suspended from said loop in rear of the crossing-point of the two ends of the pipe whereby when tension is applied to the lower end of the support the weight in the harness or sling is lifted thereby increasing the friction between the controlling device and rope; substantially as described.

2. In a fire-escape the combination with a flexible support or rope one end of which is adapted to be attached to the upper portion of a building or structure, of a controlling device consisting of a pipe having its two ends projected at substantially right angles, its intermediate portion in the form of a loop and heads secured to the ends of said pipe each having a cross-bar over which the rope is adapted to travel; substantially as described.

3. In a controlling device for fire-escapes, the combination with a pipe having its two ends projected at substantially right angles and its intermediate portion in the form of a loop with heads on each end of said pipe each having a central cross-bar and a guiding-bar; substantially as described.

660,733. **FOOT-REST FOR CAR-SEATS.** WILLIAM M. NORCROSS, Philadelphia, Pa. Filed Oct. 27, 1898. Renewed May 24, 1900. Serial No. 17,886. (No model.)



Claim.—1. In a car-seat, the combination with supports, of two oppositely-extending foot-rest frames having a common axis of oscillation, and friction-springs located adjacent to said axis and adapted to coact with the respective frames, substantially as described.

2. In a car-seat, the combination with supports, of two oppositely-extending foot-rest frames, common pivots for the adjacent ends of the respective frames, and friction-springs located adjacent to said pivots and adapted to coact with the respective frames, together with independent stops or abutments for said frames, substantially as described.

3. In a car-seat, the combination of the bridge-bars, pivots thereon, oppositely-extending foot-rest frames provided with hubs mounted on said pivots, said hubs being provided with annular spaces or grooves, and spring-bands secured to said bars and contained within said spaces or grooves to exert friction on the walls of the latter.

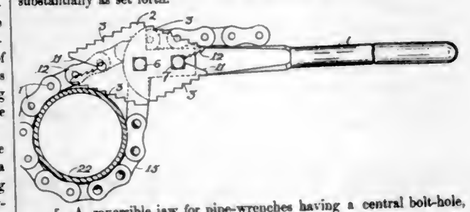
660,734. **REVERSIBLE PIPE-WRENCH.** ROBERT J. NORTHAM, Los Angeles, and ANDREW J. BRAMLETTE, Downey, Cal. Filed Jan. 22, 1900. Serial No. 2,372. (No model.)

Claim.—1. In a device of the kind described the combination of a lever, a chain, having projecting pins, reversible jaws and reversible lug-plates intermediate of the lever and the jaws; substantially as set forth.

2. In a device of the kind described the combination of a lever, a chain, reversible jaws having auxiliary alligator-jaws, and reversible lug-plates intermediate of the lever and jaws; substantially as set forth.

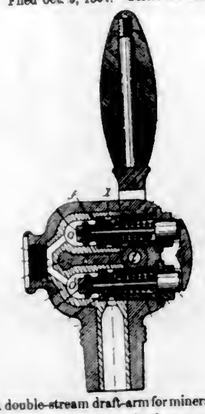
3. In a device of the kind described the combination of a lever having jaws, a chain, and reversible anchor-shaped lug-plates; substantially as set forth.

4. In a device of the kind described, the combination of a lever, a chain, lug-plates having lugs thereon with a slot and holes in said lug-plate for adjusting the same and jaws for engaging the article to be turned, substantially as set forth.



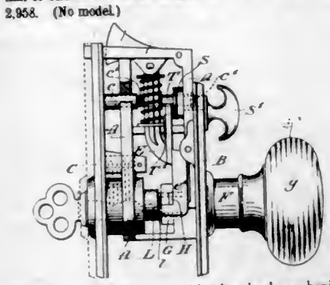
5. A reversible jaw for pipe-wrenches having a central bolt-hole, auxiliary alligator-jaws at the ends, and bolt-holes at the inner end of the auxiliary alligator-jaws, substantially as set forth.

660,735. **DOUBLE-STREAM DRAFT-ARM.** JOHN ORMEROD, New York, N. Y. Filed Oct. 9, 1897. Serial No. 654,636. (No model.)



Claim.—A double-stream draft-arm for mineral-water apparatus comprising a body containing two valves in the same vertical plane, at right angles to the discharge-nozzle, each valve having a separate and distinct outlet from said nozzle, the said body chambered and threaded to receive the shells containing said valves, the flanges of the said valve-shells seated upon the outer surface of the said body, the inner ends of said shells seated against the soft-metal lining within the said body the stems of the valves extending through the shells the heads on said stems lying partly within and partly without the spring-chambers in said shells, springs serving the double purpose of closing the valves and retaining the packing in the bottoms of said chambers, and a handle pivoted to the sides of said body and having a yoke extending forward and across the front of the body and having projections over and against the valve-heads whereby the valves may be independently operated by the handle, all substantially as herein shown and described.

660,736. **LOCK.** BYRON PHELPS, Seattle, Wash., assignor of one-half to Theodore Nelson, Chicago, Ill. Filed Jan. 27, 1900. Serial No. 2,958. (No model.)



Claim.—1. In a lock in combination, latch mechanism, a side plate at one side of said latch mechanism, a spindle passing through and rotatable in said side plate and connected with said latch mechanism to operate the same, a plate at the other side of said latch mechanism, said

plate being adjustable to and from said latch mechanism, a rotatable spindle carried by said adjustable plate and held from longitudinal movement therein and a latch-operating connection between said latch mechanism and latter spindle, parts of which connection are adjustable with relation to each other by the movement of said adjustable plate, whereby said latter spindle and plate may be adjusted to and from said latch mechanism.

2. In a lock in combination, a main frame, a side plate on one side of said frame, latch mechanism carried by said frame, a spindle passing through and rotatable in said side plate and connected with said latch mechanism to operate the same, a plate at the other side of said frame, said plate being adjustable to and from said main frame, a rotatable spindle carried by said adjustable plate and held from longitudinal movement therein, and a latch-operating connection between said latch mechanism and latter spindle, parts of which connection are adjustable with relation to each other by the movement of said adjustable plate, whereby said latter spindle and plate may be adjusted to and from said frame.

3. In a lock in combination, latch mechanism, a side plate at one side of said mechanism, a spindle passing through and rotatable in said plate and connected with said latch mechanism to operate the same, a plate at the other side of said latch mechanism, said latter plate being adjustable to and from said latch mechanism, key-operated means carried by said adjustable plate and having a rotatable part, and a latch-operating connection between said rotatable part and latch mechanism, parts of which connection are adjustable with relation to each other by the movement of said adjustable plate, whereby said plate and key-operated means may be adjusted to and from said latch mechanism.

4. In a lock in combination, a main frame, a side plate at one side of said frame, latch mechanism carried by said frame, a spindle passing through and rotatable in said plate and connected with said latch mechanism to operate the same, a plate at the other side of said frame, said latter plate being adjustable to and from said main frame, a key-operated lock carried by said adjustable plate and having a rotatable barrel, and a latch-operating connection between said barrel and latch mechanism parts of which connection are adjustable with relation to each other by the movement of said adjustable plate whereby said plate and lock may be adjusted to and from said frame.

5. In a lock in combination, latch mechanism, a side plate at one side of said latch mechanism, a spindle passing through and rotatable in said plate and connected with said latch mechanism to operate the same, a plate at the other side of said latch mechanism, said latter plate being adjustable to and from said latch mechanism, a key-operated lock carried by said adjustable plate having a rotatable barrel and a latch-operating connection between said barrel and latch mechanism including a forward projection on said barrel parts of which connection are adjustable with relation to each other by the movement of said adjustable plate whereby said plate and lock may be adjusted to and from said latch mechanism.

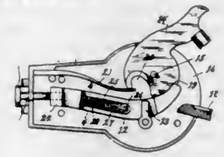
6. In a lock in combination, a latch mechanism including a roll-back, a side plate at one side of said latch mechanism, a spindle passing through and rotatable in said plate and connected with said latch mechanism to operate the same, a plate at the other side of said latch mechanism, said latter plate being adjustable to and from said latch mechanism, a key-operated lock carried by said adjustable plate and having a rotatable barrel, and a latch-operating connection between said barrel and latch mechanism including a fork on said barrel adapted to inclose said roll-back whereby said plate and lock may be adjustable to and from said latch mechanism.

7. In a lock in combination, a main frame, a side plate at one side of said frame, latch mechanism carried by said frame including a roll-back, a spindle passing through and rotatable in said plate and connected with said roll-back to operate the same, a plate at the other side of said frame, said plate being adjustable to and from said main frame, a guide for said plate between the same and said frame, a pin tumbler-lock carried by said adjustable plate and having a rotatable key-barrel, and a latch-operating connection between said barrel and latch mechanism, including a fork on said barrel adapted to loosely inclose said roll-back so as to allow for the rotation of said opposite spindle without moving said key-barrel, said connection allowing said plate and lock to be adjusted to and from said frame.

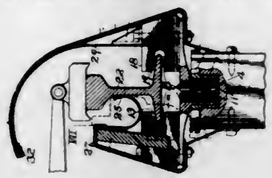
8. In a lock in combination, latch mechanism, a side plate at one side of said latch mechanism, a spindle passing through and rotatable in said side plate and connected with said latch mechanism to operate the same, a plate at the other side of said latch mechanism, said plate being adjustable to and from said latch mechanism, a rotatable spindle carried by said adjustable plate and held from longitudinal movement therein, and a latch-operating connection part of which is carried by the latter spindle whereby said latter spindle and plate may be adjusted to and from said latch mechanism.

660,737. **COMBINED LOCK AND BURGLAR-ALARM.** SAMUEL RITCHIE, Tomahawk Lake, Wis., assignor of one-third to Eugene R. Le Fevre, same place. Filed Feb. 26, 1900. Serial No. 6,553. (No model.)

Claim.—The combination of a casing or support adapted to be secured to a fixed part, a spring-retrieved slidable trigger within the casing, and provided with a projection in line to be engaged by a movable part, a hammer pivoted in the casing and projecting therefrom, the portion of the hammer within the casing provided on one edge with a shoulder which is adapted to be engaged by the end of the trigger when the hammer is cocked, and mechanism acting against the hammer and adapted, when the trigger is released from the shoulder of the hammer by reason of the actuation of said trigger through the movable part striking the projection of the trigger, to cause the hammer to be forcibly turned into contact with a suitable alarm device.



660,738. **THIRD RAIL FOR ELECTRIC RAILWAYS.** BENJAMIN C. SEATON, St. Louis, Mo., assignor of one-half to Benjamin Eiseman, same place. Filed Mar. 5, 1900. Serial No. 7,366. (No model.)



Claim.—1. In a third rail for electric railways, the combination with an insulated conductor of a continuous guard on one side of said conductor and a continuous shield on the opposite side of and extending over said conductor, substantially as described.

2. In a third rail for electric railways, the combination with an insulated conductor of a continuous guard on one side of said conductor, a continuous shield on the opposite side of and extending over said conductor, and a series of supports, substantially as described.

3. In a third rail for electric railways, the combination with a conductor, of a continuous guard on one side of said conductor, a continuous shield on the opposite side of and extending over said conductor, and a series of supports carrying said conductor, guard and shield and insulated from said conductor, substantially as described.

4. In a third rail for electric railways, the combination with an electric conductor of a series of supports below said conductor, a series of insulating-bearings between said conductor and said supports, a continuous guard on one side of said conductor, and a continuous shield on the opposite side of and extending over said conductor, substantially as described.

5. In a third rail for electric railways, the combination with a series of supports, of a conductor carried by and insulated from said supports, guards extending between the supports on one side of the conductor, shields extending between the supports on the opposite side of said conductor, and sheets of insulating material covering the meeting ends of the guards and shields; substantially as specified.

6. In a third rail for electric railways, a series of supports, a pair of blocks arranged on each support, a conductor held by and insulated from said blocks, guards extending between the blocks on one side of the conductor, shields extending between the blocks on the opposite side of the conductor, and sheets of insulating material covering said blocks and the meeting ends of said guards and shields; substantially as specified.

7. In a third rail for electric railways, the combination with a series of supports, of pairs of blocks carried by said supports, insulators held in said blocks, a conductor held between said insulators, a continuous insulating-guard on one side of the conductor, and a continuous shield on the opposite side of said conductor, substantially as described.

8. In a third rail for electric railways, the combination with a series of supports, of pairs of blocks carried by said supports, insulators held in said blocks, a conductor held between said insulators, insulating-guards between the blocks on one side of said conductor, and a shield between the blocks on the opposite side of the conductor, substantially as described.

9. In a third rail for electric railways, a series of supports, a pair of oppositely-arranged blocks carried by each support, in the adjacent faces of which blocks are formed grooves, insulators positioned in said blocks, in the exposed portions of which insulators are formed grooves, and a flanged conductor, the flanges of which occupy the grooves in the insulators, substantially as described.

10. In a third rail for electric railways, a series of supports, a pair of oppositely-arranged blocks carried by each support, in the adjacent faces of which blocks are formed grooves, insulators positioned in said blocks, in the exposed portions of which insulators are formed grooves, a flanged conductor, the flanges of which occupy the grooves in the insulators, a continuous insulating-guard on one side of the conductor, and a continuous shield on the opposite side of said conductor, substantially as described.

11. In a third rail for electric railways, a series of supports, a pair of brackets upon each support, a pair of oppositely-arranged blocks held by said brackets, insulators held in said blocks, a conductor held between said insulators, guards arranged between the blocks on one side of the conductor, a sheet of insulating material covering the meeting ends of said guards, shields arranged between the blocks on the opposite side of the conductor, and a sheet of insulating material covering the meeting ends of each pair of said shields, substantially as described.

12. In a third rail for electric railways, the combination with a block having a groove formed in one of its side faces and a recess in its under side, of a block of insulating material located in said recess, substantially as described.

660,739. SALVE-BOX. AUGUSTUS C. TAYLOR, Washington, D. C. Filed Sept. 17, 1900. Serial No. 30,303. (No model.)

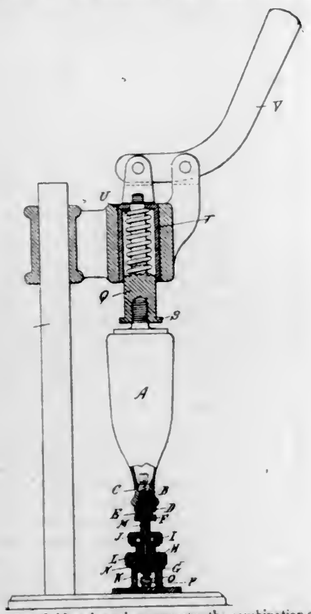


Claim.—1. The combination with a solid-topped cover having means for attachment to a box or other receptacle, of a label-holder, having means to engage the cover, and a flange to hold the label and other applied adjuncts on the cover.

2. The combination with a solid-topped cover having means for attachment to a box or other receptacle, of a label-holder having a rim to engage the cover and by frictional contact therewith to be held in place on the cover, and a flange to hold the label and other applied adjuncts on the cover.

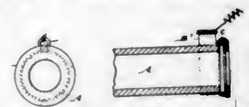
3. A cover for a salve-box comprising a solid-topped cap, having means for attachment to a box or other receptacle, a label, a disk of transparent material covering the label, and a label-holder having a rim to engage the outer walls of the top of the cap, and a flange to hold the label and disk in place.

660,740. APPARATUS FOR CARBONATING LIQUIDS. ALFRED WALL, Ramsey, England. Filed Oct. 6, 1899. Serial No. 732,799. (No model.)



Claim.—In a fluid-carbonating apparatus the combination of a frame, a reciprocating resilient bottle-carrying stem carried by the frame, a conical tubular cork for the bottle having a lateral inlet and provided with a flexible band surrounding the sides of said cork and lateral inlet, a spring-retracted reciprocating tube exteriorly coned at its outer end and having an elastic cone-washer adjacent thereto adapted to enter said tubular cork, a valve at the inner end of the tube, a valve-seat and housing for the tube and connections with a source of fluid-supply, whereby the bottle is held and filled by inserting the tube and cone within the bottle-neck.

660,741. APPLIANCE FOR MAKING METALLIC CONNECTIONS BETWEEN ELECTRIC CONDUITS. ALFRED W. WATKINS and RUDOLPH LENK, New York, N. Y. Filed Mar. 13, 1900. Serial No. 8,485. (No model.)



Claim.—1. In connection with a metallic conduit-pipe, the combination of the pipe, the collar adapted to fit onto the pipe, and the connecting-wire attached to the collar, substantially as shown and described.

2. In combination with a collar adapted to fit onto a metallic conduit and a connecting-wire attached to the collar, means for attaching an insulating-ring, substantially as described for purposes described.

660,742. COFFIN-HANDLE. MARSHALL G. WHEELER, Winsted, Conn. Filed Oct. 12, 1899. Serial No. 733,377. (No model.)



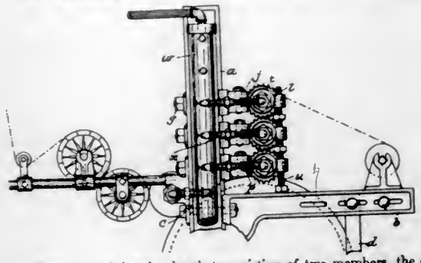
Claim.—1. In combination in a coffin-handle having a metallic covering and including arms and a handhold secured to the arms, a filling-piece located within the handhold and extending beyond the ends thereof, an end piece, a filling-piece located within the end piece and having a socket adapted to receive the end of the filling-piece in the handhold, and barbs for holding said parts in engagement.

2. In combination in a coffin-handle having a metallic covering and including arms and a handhold secured to the arms, an end piece, filling-pieces located within the handhold and end pieces and having sockets and dowels for engagement, and means for holding the end pieces in place.

3. In combination in a coffin-handle, the base-plates, the arms attached thereto, a handhold secured to the arms and comprising a tubular part with a filling-piece, end pieces, a socket in the one part and dowels on the other part, the dowel being provided with projecting barbs, all substantially as described.

4. In combination in a coffin-handle including a base-plate, arms attached thereto, and a metallic handhold secured to the arms, a filling-piece within the handhold and extending beyond the ends, metallic end pieces, filling-pieces within the end pieces and having sockets for the reception of the ends of the filling-piece of the handhold, and barbs located between said filling-pieces for securing the parts together.

660,743. ADJUSTABLE BEARING. JOSEPH WEITE, Paterson, N. J. Original application filed Mar. 20, 1900, Serial No. 9,374. Divided and this application filed May 21, 1900. Serial No. 17,347. (No model.)



Claim.—1. A bearing-bracket consisting of two members, the one of which is bifurcated and receives one end of the other, and a pin penetrating the engaging ends of said members and separably securing them together, one of said members constituting the bearing member and the other constituting the supporting member, substantially as described.

2. The combination, with a frame having slotted uprights, and with revoluble parts, of bifurcated supporting members adjustably mounted in said slotted uprights, other members projecting at one of their ends into the bifurcated ends of said first-named members, and means for separably securing said members together, said revoluble parts being journaled in said last-named members, substantially as described.

3. The combination, with a frame including uprights, and with revoluble parts, of pairs of bearing-brackets adjustably secured in said uprights, said pairs of brackets being disposed the one above the other, and threaded devices resting one upon the other and screwed into said bearing-brackets, said revoluble parts being journaled in the respective pairs of bearing-brackets, substantially as described.

4. The combination, with a revoluble part, of a pair of bearing-brackets therefor, each consisting of two members, of which one is the bearing member, and a pin pivotally and separably connecting said members, substantially as described.

5. The combination, with a frame, of a plurality of superposed parts adapted to be sustained at their ends, superposed bearing-brackets for said revoluble parts each being movable vertically in said frame, and alined and superposed adjusting devices supported the one upon the other and each having a threaded engagement with a bearing-bracket, substantially as described.

6. The combination, with a frame, of a plurality of superposed parts adapted to be sustained at their ends, superposed bearing-brackets for said parts each being movable vertically in said frame, alined and superposed adjusting devices supported the one upon the other and each having a threaded engagement with a bearing-bracket, and means for securing each bearing-bracket to said upright, substantially as described.

660,744. PARAXANTHIN AND PROCESS OF MAKING SAME. FRITZ ACH, Mannheim, Germany, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Filed Apr. 16, 1898. Serial No. 677,854. (Specimens.)

Claim.—1. The process which consists in treating a caffein with sufficient of a phosphorus-halogen compound to form a compound differing from caffein in having a halogen atom bound to the C in position 8 and one hydrogen of the methyl group bound to the N in position 3 replaced by a halogen atom.

2. The process which consists in treating a caffein with sufficient of a phosphorus-halogen compound to form a compound differing from caffein in having a halogen atom bound to the C in position 8 and one hydrogen of the methyl group bound to the N in position 3, replaced by a halogen atom, then submitting the latter compound to the action of water.

3. The process which consists in treating a caffein with sufficient of a phosphorus-halogen compound to form a compound differing from caffein in having a halogen atom bound to the C in the position 8 and one hydrogen of the methyl group bound to the N in the position 3 replaced by a halogen atom, then submitting the latter compound to the action of water, and isolating the resultant chloro-paraxanthin, and finally, submitting the same to a reducing agent.

4. The process which consists in treating caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid in the proportions of one molecule of the caffein to one molecule of the penta-chlorid.

5. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid under pressure in the proportions of one molecule of the caffein to one molecule of the penta-chlorid.

6. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid under pressure in the proportions, substantially as given, to the temperature and for the time, substantially as stated, then cooling and evaporating.

7. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid under pressure in the proportions, substantially as given, to the temperature and for the time substantially as stated, then cooling and evaporating, then dissolving the residue in ether and permitting it to stand, and, finally, triturating with benzene and drawing off the liquor and recrystallizing.

8. The process which consists in submitting 3-chloro-methyl-8-chloro-1.7-dimethylxanthin to the action of water.

9. The process which consists in treating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid in the proportions given, and then submitting the resultant compound to the action of water.

10. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid, under pressure, in the proportions and to the temperature substantially as given, then evaporating the same and then boiling the residue with water in the proportions substantially as stated until the evolution of formic-aldehyde has ceased.

11. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid, under pressure, in the proportions and to the temperature, substantially as given, then evaporating the same and boiling the residue with water in the proportion substantially as stated until the evolution of formic-aldehyde has ceased, then removing the liquor from the solid residue, evaporating and cooling.

12. The process which consists in heating chloro-caffein with phosphorus-penta-chlorid and phosphorus-oxy-chlorid, under pressure, in the proportions, and to the temperature, substantially as given, then evaporating the same and boiling the residue with water in the proportion substantially as stated until the evolution of formic-aldehyde has ceased, then removing the liquor from the solid residue, evaporating and cooling, then purifying by converting into the sodium-salt.

13. As a new chemical compound, a substitute xanthin having chlorin bound in the position 8 and two methyl groups in the positions 1 and 7, respectively.

14. As a new chemical compound, chloro-paraxanthin or 1.7-dimethyl-8-chloro-xanthin, which has the formula hereinabove given, and a melting-point of about 281°, centigrade, said compound crystallizing in the form of fine colorless needles, giving the murexid reaction with chlorin water or nitric acid, and being readily soluble in concentrated hydrochloric acid from which solution it is quickly precipitated by water, and is moderately soluble in boiling alcohol, in dilute alkalies, including ammonia.

15. The process of preparing paraxanthin which consists in submitting chloro-paraxanthin to the action of a reducing agent.

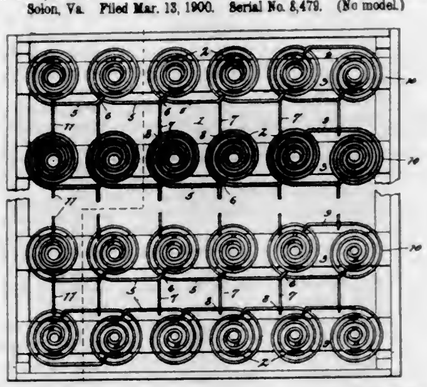
16. The process which consists in adding hydrochloric acid and phosphonium-iodid to chloro-paraxanthin in the proportions stated, and heating the mixture.

17. The process which consists in adding hydrochloric acid and phosphonium-iodid to chloro-paraxanthin in the proportion stated, and heating the mixture until an almost colorless solution results, then evaporating to dryness.

18. The process which consists in adding hydriodic acid and phosphonium-iodid to chloro-paraxanthin in the proportions stated and heating the mixture until an almost colorless solution results, then evaporating to dryness, then adding water and evaporating, then dissolving the residue with ammonia and again evaporating to dryness, and, finally, adding water to the residue, whereby the paraxanthin will be separated.

19. The process which consists in submitting 3-chloro-methyl-8-chloro-1.7-dimethylxanthin to the action of water and isolating the resultant chloro-paraxanthin and then submitting the same to a reducing agent.

660,745. SPRING BED-BOTTOM. THOMAS J. ANDERSON, Mount Soion, Va. Filed Mar. 13, 1900. Serial No. 8,479. (No model.)



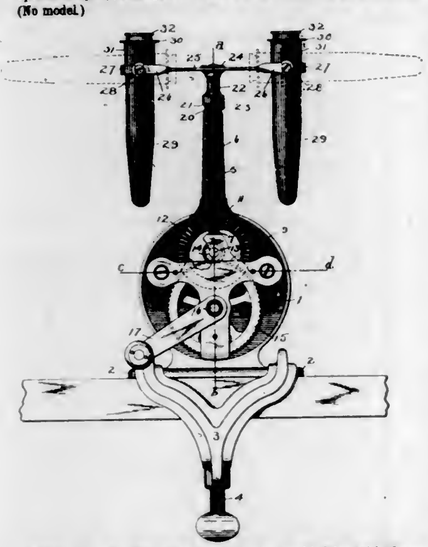
Claim.—1. A bed-bottom provided with springs having arms 5 and 7, arranged at right angles to each other and provided at their angle with an eye, the arm 5 being arranged parallel with the slat and extending to the adjacent spring thereof, and the arm 7 being arranged at right angles to the said slat and extending to the adjacent spring of the next slat, the said eye completely encircling the adjacent spring, whereby the arms are prevented from being forced into the coils of the said spring, substantially as and for the purpose described.

2. A bed-bottom provided with springs having straight arms 5 and 7 arranged at right angles to each other and forming longitudinal and transverse braces and provided at their angle with an outwardly-extending diagonally-arranged eye, the arm 5 extending parallel with the adjacent slat, to the adjacent spring thereof, the latter being received within the said eye whereby it is prevented from being forced into the coils of the spring, and the arm 7 extending across the space between the slats at right angles to the same and terminating in a hook for engaging the adjacent spring, substantially as described.

3. A bed-spring provided at its upper end with the arms 5 and 7, arranged at right angles with each other, and provided at their angle with an outwardly-extending eye adapted to receive the adjacent spring, whereby the arms 5 and 7 are prevented from being forced into the coils thereof, the arm 5 being straight and adapted to extend parallel with the slat to

the adjacent spring thereof, and the arm 7 being arranged to extend to the adjacent spring of the next slat, substantially as and for the purpose described.

660,746. CENTRIFUGAL TESTING-MACHINE. EDWARD BAUSCH and GEORGE HOMMEL, Rochester, N. Y., assignors to the Bausch & Lomb Optical Company, same place. Filed Mar. 26, 1898. Serial No. 675,331. (No model.)



Claim.—1. In a centrifugal machine, the combination with the vertical shaft, of the head on the shaft, the plate on the head having the bifurcated ends, the arms thus formed being turned with their edges projecting vertically, and the tube-holders hung loosely between said arms, substantially as described.

2. In a centrifugal testing-machine, the head for the tube-carriers embodying the plate formed with the twisted arms at the ends projecting edgewise vertically, the rings, the screws passing through the arms and engaging the rings and the removable tube-holders extending through the rings and having the flanges engaging the rings, substantially as described.

3. In a centrifugal testing-machine, the combination with the casing, having the gearing therein and the tubular extension, the vertical shaft in the extension, the head thereon having pairs of arms, and the rings hung loosely between them, of the tube-holders having the flanges at their upper ends, the test-tubes in the holders, and the removable collars 31 encircling the tubes and arranged between the flanges thereon and the rings, substantially as described.

4. In a centrifugal testing-machine, the combination with the vertical shaft, the head having the socket upon one extremity, the threaded projection upon the other, the nut on the projection and interlocking devices between the head and shaft, of the flat plate removably connected to the threaded projection on the head having the arms at the ends twisted or turned vertically, and the tube-holders pivoted between said arms, substantially as described.

5. In a testing-machine, the combination with a rotary spindle, and a head 22 removably secured thereto, having the threaded extension and the nut thereon, of a flat plate 25 mounted upon the extension and secured by the nut, having the arms 26 at the ends formed integral with the plate and bent to a plane at right angles to that of the latter, the projections 28 and the rings 27 carried thereby.

660,747. OBJECTIVE. EDWARD BAUSCH, Rochester, N. Y., assignor to the Bausch & Lomb Optical Company, same place. Filed May 31, 1900. Serial No. 18,604. (No model.)



Claim.—1. An objective composed of four lenses having different curvatures, three of said lenses being positive and each having different refractive indices, and the fourth lens being negative and having a refractive index lying between that of the positive lens having the lowest index and either of the other positive lenses.

2. An objective composed of four separated lenses having different curvatures, three of said lenses being positive and each having different refractive indices, and the fourth lens being negative and having a refractive index lying between that of the positive lens having the lowest index and either of the other positive lenses.

3. An objective composed of four lenses, one of which is negative, the other three being positive, the refractive index of one of the positive lenses being higher and that of another being lower than the index of the negative lens, and the refractive index of the third positive lens lying between that of the positive lens having the highest index and that of the negative lens.

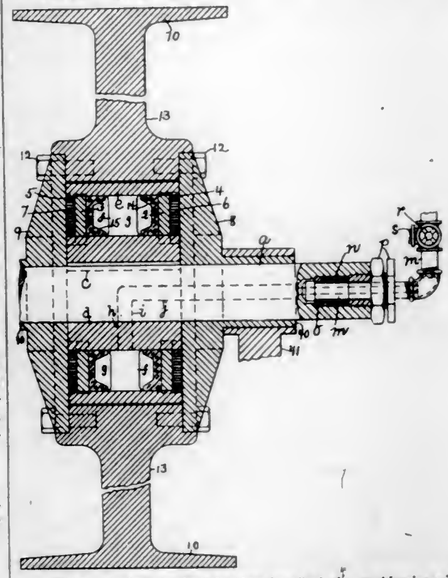
660,748. GAS-RELEASING BIT. WILBERN BUSH, Wichita Heights, Kans. Filed July 24, 1900. Serial No. 24,718. (No model.)



Claim.—1. The herein-described bit consisting of a hollow mouthpiece with openings in the sides thereof, springs yieldingly closing the ends of said hollow mouthpiece, and arms for holding said springs.

2. An animal-bit consisting of a mouthpiece, hollow from end to end, openings in the upper side of said mouthpiece, arms secured to each end of said mouthpiece with rings for holding said bit in the mouth through the medium of straps passing over the animal's head and secured to said rings, springs secured at one end to said arms, said springs having enlarged ends for yieldingly closing the open ends of said hollow mouthpiece, substantially as shown and for the purpose specified.

660,749. FLUID-CLUTCH. PATRICK CUNNINGHAM, New Bedford, Mass., assignor of three-fourths to Fred D. Stanley, same place, and William A. Whittlesey, Pittsfield, Mass. Filed Mar. 10, 1900. Serial No. 8,139. (No model.)



Claim.—1. In a clutch of the class described, the combination with a rotatable shaft provided with a fluid-inlet passage extended longitudinally and radially thereof, of a cylinder or casing fast on the said shaft, a disk or piston within said casing and keyed thereto to move bodily within the same and forming therewith a fluid-receiving chamber, a cooperating member normally loose on the said shaft and adapted to be rendered fast thereon by movement of the piston or disk in one direction, a supply-pipe communicating with the longitudinal passage in the rotatable shaft and provided with a valve controlling the admission of fluid into the said cylinder or casing, substantially as described.

2. In a clutch of the class described, the combination with a rotatable shaft provided with a fluid-passage extended longitudinally and radially thereof, of a cylinder or casing fast on the said shaft and provided with a slot or groove in its rim extended for a portion of the length of the same on the inner side thereof, a piston or disk within said casing provided with a lug or projection extended into said slot or groove, a clutch member normally loose on said shaft, a spider carrying non-metallic wearing-surfaces with which said piston coöperates to render the loose member fast on said shaft, a fluid-supply pipe communicating with the longitudinal passage in the rotatable shaft, and a valve in said supply-pipe, substantially as described.

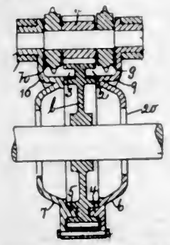
3. In a clutch of the class described, the combination with a rotatable shaft provided with a fluid-passage extended longitndinally and radially thereof, of a cylinder or casing fast on said shaft and provided with a hub and a rim connected to said hub, a piston or disk mounted on the hub of said casing to move longitudinally thereon, a non-metallic ring or washer fitted on said hub and engaging said piston and the rim of said casing to form a liquid-tight chamber within the casing, a hub normally loose on said shaft, wearing-surfaces interposed between said hub and piston, and means to control the inlet and outlet of fluid into and out of the chamber within the casing through the longitudinal passage in the said shaft, substantially as described.

4. In a clutch of the class described, the combination with a rotatable shaft provided with a fluid-passage extended longitudinally and radially thereof, a cylinder or casing comprising a hub keyed on said shaft and a rim connected with said hub and keyed to said casing, one or more disks or pistons movable on said hub, a washer of non-metallic material bearing against said piston and the rim of said casing to form a liquid-chamber within said casing, a loose member coöperating with said piston, a supply-pipe communicating with the passage in said shaft and with said liquid-chamber, and a valve in said supply-pipe, substantially as described.

5. In a clutch of the class described, the combination with a rotatable shaft, a cylinder or casing fast on it, a normally loose member provided with a hub extended into and supported by a bearing, the said bearing, a disk or piston within said cylinder or casing and keyed thereto and coöperating with said normally loose member, and means to control the supply of fluid into said cylinder or casing, substantially as described.

6. In a clutch of the class described, the combination with a rotatable shaft, a cylinder or casing fast on it, a clutch member normally loose on said shaft, a disk or piston within said casing and keyed to the inner side of its rim to move longitudinally thereof and engage said normally loose member, a fluid-supply extended longitudinally and radially of said shaft and communicating with the said cylinder or casing, and means to control the supply of fluid into said cylinder or casing, substantially as described.

660,750. DRIVING MECHANISM. PATRICK CUNNINGHAM, New Bedford, Mass., assignor of three-fourths to Fred D. Stanley, same place, and William A. Whittlesey, Pittsfield, Mass. Filed Mar. 10, 1900. Serial No. 8,140. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a main or driving shaft, a driven shaft, an intermediate shaft, means connecting the driving-shaft with the intermediate shaft, means connecting the intermediate shaft with the driven shaft, means disconnected from the driving-shaft to secure the intermediate shaft in a fixed relation to the driving-shaft, and means to permit bodily movement of the driving and intermediate shafts with relation to the driven shaft without disturbing the relative position of the driving and intermediate shafts, substantially as described.

2. In an apparatus of the character described, the combination with a main or driving shaft, a driven shaft, a gear mounted thereon and provided with a circular groove in one of its faces, an intermediate shaft, a pinion in mesh with said gear and mounted on said intermediate shaft, means to rotate the intermediate shaft from the driving-shaft, a support for the intermediate shaft having a flange extended into the circular groove in the said gear, and means to secure the intermediate shaft in a fixed position with relation to the main or driving shaft, substantially as described.

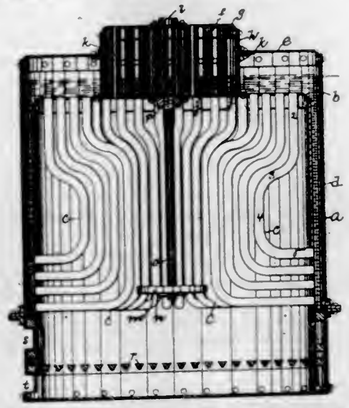
3. In an apparatus of the character described, the combination with a main or driving shaft, a driven shaft, a gear fast on said driven shaft and provided with circular grooves in its opposite sides or faces, an intermediate shaft, a pinion on said intermediate shaft in mesh with the gear on the driven shaft, means connecting the intermediate shaft with the driving-shaft, a two-part casing forming bearings for the intermediate shaft and provided with circular flanges which extend into the grooves on the gear fast on the driven shaft, and rods or links connected to said casing at one end and having their other end secured in a fixed position, substantially as described.

4. In an apparatus of the class described, the combination with a main or driving shaft, a driven shaft, an intermediate shaft, means to rotate the intermediate shaft from the driving-shaft, gearing connecting the intermediate shaft with the driven shaft, a support for the intermediate shaft comprising a casing provided with journals or bosses at its opposite sides and movable on said gearing, and links or rods having one end loosely mounted on said journals or bosses and their other end mounted in a fixed position, substantially as and for the purpose specified.

5. In an apparatus of the class described, the combination with a main or driving shaft, a driven shaft, a gear mounted on said driven shaft, an intermediate shaft, a pinion on said intermediate shaft in mesh with said gear, sprocket-wheels on the driving-shaft and intermediate shaft, link chains connecting said wheels, a support for the intermediate shaft, means to secure one end of said support in a fixed position with relation to the driving-shaft, and means to connect said support with the gear on the driven shaft to permit movement of said support independent of said gear, substantially as described.

6. In an apparatus of the class described, the combination with a main or driving shaft, a driven shaft, an intermediate shaft, means to rotate the intermediate shaft from the driving-shaft, gearing connecting the intermediate shaft with the driven shaft, a support for the intermediate shaft, means to secure one end of said support in a fixed position with relation to the driving-shaft, and means to connect said support with the said gearing to permit movement of the said support independent of said gearing, substantially as described.

660,751. BOILER. PATRICK CUNNINGHAM, New Bedford, Mass., assignor to the Cunningham Engineering Company, Boston, Mass. Filed May 28, 1900. Serial No. 18,211. (No model.)



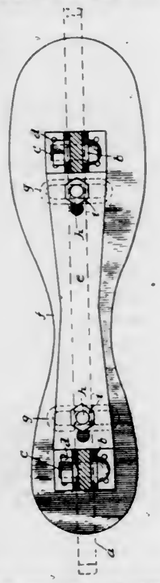
Claim.—1. In a boiler, the combination with an outer shell provided with a crown-sheet, an inner shell of smaller diameter provided with a crown-sheet and forming with the outer shell a water-space, a steam-dome extended through the crown-sheet of the outer shell and secured to the crown-sheet of the inner shell, of a series of substantially vertical water-circulating tubes within the inner shell and having their opposite ends connected with the crown-sheet and sides of the inner shell, and a series of substantially vertical fire-tubes located within the said steam-dome and secured to the crown-sheet of the inner shell and to the top of the steam-dome, the said steam-dome communicating with the said water-space, substantially as described.

2. In a boiler, the combination with an outer shell, an inner shell forming therewith a water space or chamber, of a series of substantially vertical water-circulating tubes having their upper ends communicating with the water-space between the tops of said shells and their lower ends

communicating with the water-space between the said walls of said shells and arranged to leave a substantially central space within the inner shell, and a series of substantially vertical fire-tubes communicating with said central space and extended through the top of the outer shell, and a spreader within said inner shell near the lower end of the water-circulating tubes, substantially as described.

3. In a boiler, the combination with an outer shell, an inner shell forming therewith a water space or chamber, a steam-dome extended through the outer shell and fastened to the inner shell, of a series of substantially vertical water-circulating tubes within the inner shell and composed of the substantially straight upper portion 2 connected with the top of the inner shell, the curved portion 3, the substantially straight portion 4 and the substantially horizontal portion 5 connected with the side of the inner shell, a series of substantially vertical fire-tubes extended through the steam-dome and communicating with the inner shell within the space formed by the water-circulating tubes, and a flame-spreader located between the water-circulating tubes near their lower ends, substantially as described.

660,752. SKATE. HERBERT S. EVANS, Boston, Mass. Filed Mar. 14, 1900. Serial No. 8,684. (No model.)



Claim.—1. A skate comprising in its construction a single runner extending from toe to heel, a base-plate and connections therebetween, and a sole-plate laterally adjustable to a limited extent on the base-plate.

2. The combination, with the single runner extending from toe to heel, a base-plate to which the runner is connected at the toe and heel, of a sole-plate laterally adjustable to a limited extent on the base-plate.

3. The combination, with the single runner extending from toe to heel, of a base-plate and connections connecting the runner therewith, and a sole-plate laterally adjustable to a limited extent on the base-plate.

660,753. ARTIFICIAL FUEL. FERDINAND-CHRISTOPH VON HEYDEBRAND UND DER LASA, New York, N. Y. Filed Nov. 27, 1899. Serial No. 738,443. (No specimens.)

Claim.—1. A composition of matter for artificial fuel consisting of earth and a sulfur-containing substance in the proportions substantially as described.

2. A composition of matter for artificial fuel consisting of earth and sulfur, in the proportions substantially as described.

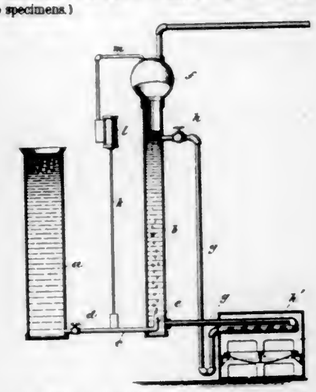
660,754. ACETYLENE-GAS LAMP. CHARLES W. JACKSON, Washington, D. C. Filed Dec. 29, 1899. Serial No. 741,927. (No model.)

Claim.—1. In an acetylene-gas lamp, the combination with a generating-chamber having a perforated bottom, of a centrally-disposed reticulated distributing-column held by a centrally-disposed collar on said bottom rising from said bottom and carried thereby, and an ash or residue receiver detachably secured to the chamber with a lateral offset at the junction of the two against which one part is tightly screwed, substantially as and for the purpose specified.



2. An acetylene-gas lamp, consisting of the generating-chamber having a perforated bottom and provided with external screw-threads adjacent to said bottom, a reticulated column rising from the center of said perforated bottom, and an ash-receiver provided with threads to engage the threads of the generating-chamber and further formed with a shoulder which abuts against the bottom of the generating-chamber and forms a gas-tight joint.

660,755. PROCESS OF UTILIZING LIQUEFIED GASES. ARNOLD KRUSLER, New York, N. Y. Filed Nov. 4, 1899. Serial No. 735,761. (No specimens.)



Claim.—The herein-described process of vaporizing liquid air to produce a gas-pressure which consists in leading the said liquefied air into physical contact with a body of liquid in a circulating system whereby the said liquid air will be expanded into gaseous form and will bubble through said liquid and initiate a circulation thereof, and heating a part of the said circulating system extraneous to the body of liquid through which the gas passes substantially as specified.

660,756. PROCESS OF PRESERVING WOOD. GEORG F. LEBIODA, Boulogne, France. Filed Nov. 14, 1899. Serial No. 736,968. (No specimens.)

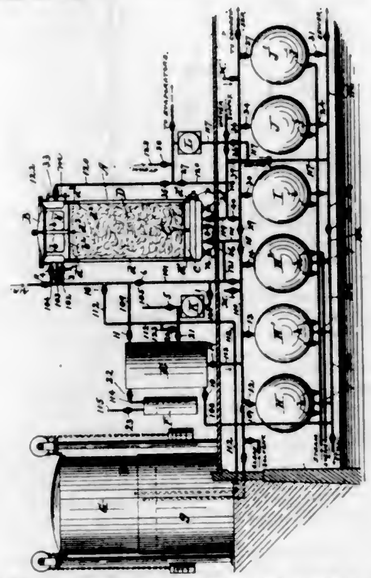
Claim.—The process for the preservation of wood by impregnation with a mixture of aqueous solutions of formaldehyde and gelose (agar-agar), substantially as described.

660,757. PROCESS OF EXTRACTING OIL. EMILE MAERTENS, Providence, R. I. Filed Apr. 2, 1900. Serial No. 11,066. (No specimens.)

Claim.—1. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein in one continuous treatment or to successive treatments with solvent or solvents until the wool-fat is removed therefrom, draining the excess of solvent from the wool, producing a vacuum in the digester, admitting gaseous fluid to the digester whereby the bulk of the solvent remaining in the wool is removed therefrom and finally exhausting or removing the gaseous fluid from the digester.

2. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent until the wool-fat is removed therefrom, producing a vacuum in the digester, admitting gaseous fluid to the digester to remove the bulk of the solvent from the wool and then exhausting or removing the gaseous fluid from the digester.

3. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting the wool to one continuous treatment or to successive treatments with solvent or solvents until the wool-fat is removed therefrom, allowing the excess of solvent to drain from the wool, producing a vacuum in the digester, admitting gaseous fluid under pressure to the digester, removing the gaseous fluid from the digester and finally removing the last traces of solvent from the wool.



4. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, removing the wool-fat from the wool by means of a solvent or solvents, producing a vacuum in the digester, admitting gaseous fluid to the digester while continuing the operation of the vacuum device, removing the solvent-vapors carried by the gaseous fluid thus exhausted and finally deodorizing the wool.

5. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, removing the wool-fat from the wool by means of a solvent or solvents, draining the excess of solvent from the wool, subjecting the wool to the action of a vacuum, removing the bulk of the adhering solvent therefrom by means of a gaseous agent, removing the residual solvent from the wool by means of a current of water or suitable aqueous solution and finally completing the depotashing of the wool.

6. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, removing the wool-fat from the wool, removing the bulk of the solvent remaining in the wool, floating the residual solvent to the top of the digester and draining it off, or (if heavier than water) precipitating it to the bottom of the digester and drawing it off, allowing the separating liquid to drain from the bottom of the digester and admitting water or water-carrying potash salts in solution at the top of the digester and continuing the operation until the wool is depotashed.

7. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, removing the wool-fat from the wool, allowing the surplus solvent to drain from the wool, floating the remaining solvent to the top of the digester or (if heavier than water) precipitating it to the bottom of the digester, by means of water or suitable aqueous solution, allowing the solvent and separating fluid to stratify, drawing off the solvent from the separating fluid, drawing off the separating fluid from the digester, continuing the treatment to remove the potash salts from the wool and finally removing the bulk of the fluid from the wool.

8. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, removing the wool-fat from the wool, removing the solvent from the wool, removing the potash salts from the wool by water or suitable aqueous solution, removing the bulk of the fluid from the wool and finally drawing air or steam or both through the wool.

9. The improved process of cleaning wool which consists in removing the wool-fat from the wool by means of a solvent or solvents, removing the solvent from the wool and finally treating the wool with aqueous solutions of potash salts of different degrees of saturation for the removal of the potash from the wool and the concentration of the potash liquor or liquors.

10. The improved process of cleaning wool which consists in removing the wool-fat from the wool by means of a solvent or solvents, removing the solvent from the wool, treating the wool with aqueous solution of potash salts of different degrees of saturation, removing the bulk of the fluid from the wool and finally drawing air or steam or both through the wool.

11. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent or solvents until the wool-fat is removed therefrom, draining the solvent therefrom, removing the bulk of the adhering solvent therefrom by the action of a vacuum and finally removing the residual solvent therefrom by heat and a vacuum.

12. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent or solvents until the wool-fat is removed therefrom, draining the solvent therefrom, removing the bulk of the adhering solvent therefrom, removing the residual solvent therefrom by heat and a vacuum and simultaneously dissolving out a part of the potash salts therefrom by water or suitable aqueous solutions and finally removing the bulk of the fluid from the wool.

13. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent or solvents until the wool-fat is removed therefrom, draining the solvent therefrom, removing the bulk of the adhering solvent therefrom, removing the residual solvent therefrom by heat and a vacuum and simultaneously dissolving out the potash salts therefrom by water or suitable aqueous solutions, removing the bulk of the fluid from the wool and finally drawing air or steam or both through the wool.

14. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent or solvents until the wool-fat is removed therefrom, draining the solvent therefrom, removing the bulk of the adhering solvent therefrom, removing the residual solvent therefrom by heat and a vacuum and simultaneously dissolving out the potash salts therefrom by water or suitable aqueous solutions, continuing the treatment to remove the potash salts from the wool and finally removing the bulk of the fluid from the wool.

15. The improved process of cleaning wool which consists in confining the wool in a cage or basket placed within a closed digester, subjecting it therein to the action of a solvent or solvents until the wool-fat is removed from the wool, draining the solvent therefrom, removing the bulk of the adhering solvent therefrom, removing the residual solvent therefrom, by heat and a vacuum and simultaneously dissolving out a part of the potash salts therefrom by water or suitable aqueous solutions, continuing the treatment to remove the potash salts from the wool, removing the bulk of the fluid from the wool and finally drawing air or steam or both through the wool.

660,758. APPARATUS FOR EXTRACTING OIL. EMILE MAERTENS, Providence, R. I. Filed Apr. 2, 1900. Serial No. 11,067. (No model.)

Claim.—1. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a digester, a surface condenser connected therewith, an oil-condenser, a gas-holder, a plurality of solvent-storage tanks and a solvent-separating tank, substantially as described.

2. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a digester, a surface condenser, an oil-condenser, a source of compressed gas, solvent-storage tanks, a solvent-separating tank and a potash-liquor tank, substantially as described.

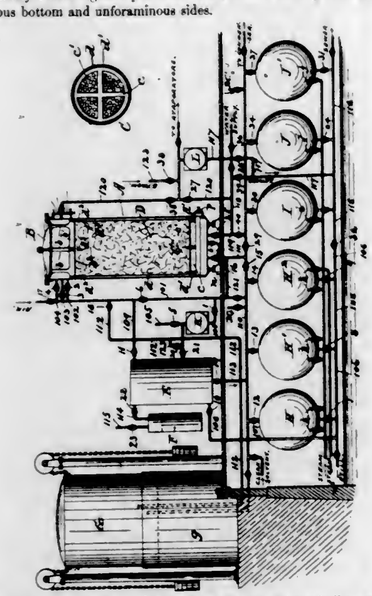
3. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a digester, a surface condenser, an oil-condenser, an air-inlet to the upper part or to the lower part of the digester or both, a vacuum-pump adapted for connection with both the upper and lower parts of the digester, solvent-storage tanks, a solvent-separating tank and a potash-liquor tank, substantially as described.

4. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a digester, a condenser, a source of compressed gas, a solvent-tank, a solvent-separating tank, a potash-liquor tank connected with the digester and means for conveying the contents of said tanks to the digester and from the digester to said tanks, substantially as described.

5. The combination of a digester, a cage supported therein, a cover to the digester, a foraminous plate suspended from said cover and adapted to form a closure for the top of the cage, substantially as described.

6. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein, a solvent inlet or inlets to the digester, a water or aqueous-solution inlet or inlets to the digester and draw-off pipes at the top or bottom of the digester or both, substantially as described.

7. In apparatus for use in extracting oil, fat and for similar purposes a nominally-closed digester provided with a removable cage having a foraminous bottom and unforaminous sides.



8. In apparatus for use in extracting oil, fat and for similar purposes a nominally-closed digester provided with a removable cage having a foraminous bottom, unforaminous sides and a foraminous closure for the top of the cage.

9. In apparatus for use in extracting oil, fat and for similar purposes a nominally-closed digester provided with a removable cage having unforaminous sides, a foraminous closure for the top of the cage and a foraminous closure for the bottom of said cage.

10. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable nominally-closed digester, a removable cage therein with unforaminous sides and a foraminous bottom and a solvent-storage tank.

11. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, and a surface condenser.

12. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, a surface condenser, and a vacuum-pump.

13. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, a surface condenser, a vacuum-pump, and means for circulating the solvent.

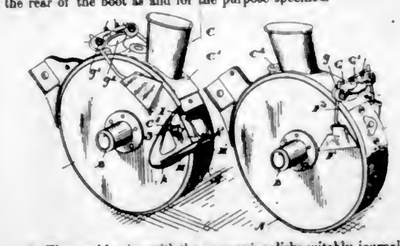
14. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, a surface condenser, a vacuum-pump, means for circulating the solvent, and a solvent-separating tank.

15. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, a surface condenser, a vacuum-pump, means for circulating the solvent, a solvent-separating tank, and a potash-liquor tank.

16. In apparatus for use in extracting oil, fat and for similar purposes, the combination of a suitable digester, a cage therein with unforaminous sides and a foraminous bottom, a solvent-storage tank, a surface condenser, a vacuum-pump, means for circulating the solvent, a solvent-separating tank, a potash-liquor tank, and means for circulating the potash liquor.

660,759. **DISK-SHOE FOR SEEDING-MACHINES.** JAMES MORPHY, Brantford, Canada, assignor to the Cockshutt Plow Company, Limited, same place. Filed Dec. 27, 1899. Serial No. 741,753. (No model.)

Claim.—1. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod and a clamping socket-arm through which such rod extends suitably secured to the rear of the boot as and for the purpose specified.



2. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod, a bracket secured to the boot, clamping-arms pivoted on the bracket and provided with sockets through which the rod extends as and for the purpose specified.

3. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the external scrapers each provided with a spring-holding rod, a bracket secured to the boot, clamping-arms pivoted on the bracket and provided with sockets through which the rod extends, and set-screws extending through the ends of the arms and designed to abut an offset in the bracket as and for the purpose specified.

4. The combination with the converging disks suitably journaled and the boot upon which such journal is supported or forms part of, of the scrapers, the holding-plates secured to the same and provided with a socket and stop underneath the same, the spring-rods having bent ends extending into the socket and abutting the stop and means attached to the boot for holding such spring-rods firmly in position as and for the purpose specified.

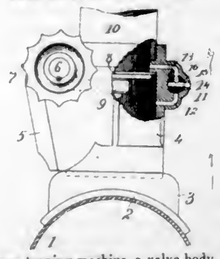
5. The combination with the grain-tube casting and rear extension thereof, of the inner scrapers comprising the blades pivoted in the bottom of the extension and having their inner edges abutting each other and the upper crank-shaped pins and the plate secured to the grain-tube casting or boot under which the crank-pins extend and the spiral spring connecting the outer ends of the crank-pins together as and for the purpose specified.

6. The combination with the grain-tube casting or boot and rear extension thereof, of the inner scrapers suitably journaled to the rear of the boot on the inside of the disks and provided at the bottom with a cut-away portion to permit of the dirt escaping as and for the purpose specified.

7. The combination with the grain-tube casting or boot and rear extension thereof, of the friction-rollers abutting each other and the disks and suitably journaled in the casting as and for the purpose specified.

8. In a disk-shoe for seeding-machines, in combination the converging disks, the hollow hubs provided with an internal taper, the grain-tube and boot and oil-duct leading downwardly therefrom, the trunnions extending laterally on both sides of the grain-tube, the passage-ways in the sides of the oil-duct and the longitudinal passage-ways in the trunnions, the hollow tapered bearings fitting the conical trunnions and provided with passage-ways for the oil opposite the passage-ways in the trunnions, means for connecting the parts together, recesses in the ends of the hubs, the shoulder in the internal periphery of each recess, the cap abutting such shoulder, the annular groove outside the shoulder and the spring-ring fitting within such groove and holding the parts together as and for the purpose specified.

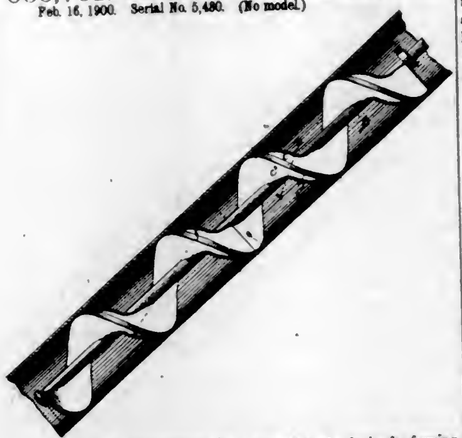
660,760. **TAPPING-MACHINE.** OSCAR MUELLER, Decatur, Ill., assignor to the H. Mueller Manufacturing Company, same place. Filed Aug. 30, 1900. Serial No. 28,607. (No model.)



Claim.—1. In a tapping-machine, a valve-body, a valve therefor, a by-pass establishing a communication between the divisions of the valve-body formed by closing the valve, an outlet-opening communicating with the by-pass, and a three-way plug in the by-pass and the outlet-passage, substantially as described.

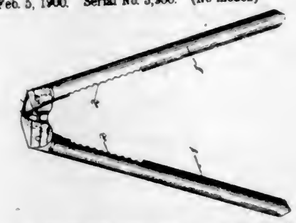
2. In a tapping-machine, a valve-body, a valve therefor, a by-pass establishing a communication between the divisions of the valve-body formed by closing the valve, an outlet-opening communicating with the by-pass, a three-way plug in the by-pass and the outlet-passage and stops to limit the turn of the plug, substantially as described.

660,761. **BOILER-FLUE.** EDWARD SEYFARTH, Chicago, Ill. Filed Feb. 16, 1900. Serial No. 5,480. (No model.)



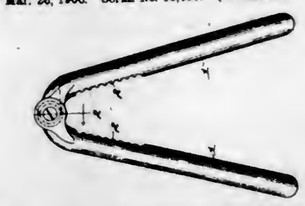
Claim.—The combination with a boiler-flue, of a device for forming a spiral channel for the gases, comprising a central rod of relatively small diameter and spiral sections thereon contacting at their spiral crests with the interior surface of the flue and provided with deflecting-surfaces which slope transversely of the spiral in a direction to widen the sinuous channel as the inner surface of the flue is approached, substantially as and for the purpose set forth.

660,762. **NUT-CRACKER.** GEORGE L. THOMPSON, Chicago, Ill. Filed Feb. 5, 1900. Serial No. 3,930. (No model.)



Claim.—A nut-cracker comprising a pair of levers having jaws on their inner faces, a link, U-shaped in cross-section, with its top and opposite walls inclosing the two ends of the levers, pivot-pins passing through the side walls and levers, and a spring between said levers, the link forming stops, bearings, and a housing for the upper ends of the levers and the spring.

660,763. **NUT-CRACKER.** GEORGE L. THOMPSON, Chicago, Ill. Filed Mar. 26, 1900. Serial No. 10,156. (No model.)



Claim.—1. A nut-cracker comprising a pair of levers each having formed on its upper end a cup-shaped knuckle, each knuckle having formed on its inner side a central inner annular flange and an outer continuous annular flange, a central pivot connecting these knuckles, this pivot extending through the tube formed by the two central flanges and serving to hold the central flanges in contact as well as the outer flanges, forming a broad unbroken bearing and a completely-closed housing, and a spring entirely inclosed in said housing and coiled around said central tubular flanges and having its respective ends connected to the respective parts of the housing, substantially as set forth.

2. A nut-cracker comprising a pair of levers each having formed on its upper end a cup-shaped knuckle, each knuckle having formed on its inner side an annular continuous flange or rim, a central pivot connecting said knuckles and holding said flanges in contact all around, thereby forming a broad, unbroken bearing and a completely-closed housing, and a spring coiled around the pivot and entirely inclosed in said housing and having its respective ends engaged in openings in the respective outer walls of the housing, the ends of the spring being turned outward, substantially parallel with the pivot, for said purpose.

660,764. **SCREEN-PLATE FOR STRAINING PAPER-PULP.** EDWARD J. WELCH, Fitchburg, Mass. Filed Mar. 20, 1900. Serial No. 9,383. (No model.)



Claim.—1. As an article of manufacture, a screen-plate for straining paper-stock comprising a main plate having a gridironed section, and having a recess in its upper surface over said gridironed section, arranged to leave raised side ribs at the edges of the plate, and a top plate fitting into said recess and soldered or sweated in place so that its surface will be flush with the top of the side ribs, substantially as described.

2. As an article of manufacture, a screen-plate for straining paper-stock, comprising a main plate 10 having coarsely-grooved gridironed sections, and having recesses above said gridironed sections, arranged to leave raised side ribs 12 at the edges of the plate, and raised intermediate ribs 13, the side ribs 12 being provided with perforations or screw-holes, and a top plate fitting into each recess in the main plate, and soldered or sweated in place so that its surface is flush with the top of the ribs, substantially as described.

660,765. **ACCOUNT-BOOK.** ALFRED L. BASTRESS, Shamokin, Pa. Filed June 26, 1900. Serial No. 21,628. (No model.)



Claim.—1. The combination with an account-book having a marginal index, of balance-indicating strips adjustably secured to the book and extending between the leaves thereof, said strips corresponding in number and arrangement to the divisions of the index, each strip consisting of a series of sections adapted to be successively withdrawn from between the leaves of the book and exposed in alinement with the corresponding division of the index.

2. The combination of an account-book having a stiff leaf bound therewith, an account-index secured to the surface of said leaf, and a series of balance-indicating strips detachably secured to said leaf to extend under the leaves of the book above said stiff leaf and longitudinally movable relative thereto whereby each strip can be adjusted to successively withdraw a series of sections from between the leaves and expose them in alinement with one of the divisions of said index.

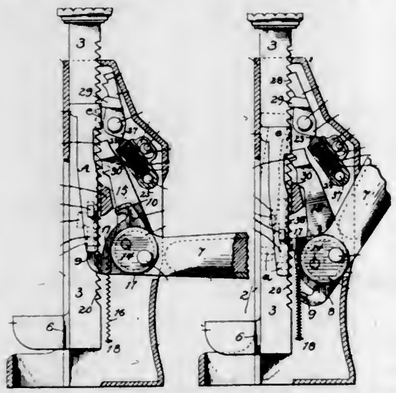
3. The combination of an account-book having a stiff leaf bound therewith, an account-index on said leaf, a series of pins or studs projecting from said leaf, one in alinement with each of the divisions of the index, and a series of balance-indicating strips extending beneath or behind said index and each adapted to be engaged at different points in its length with one of said studs or pins.

4. The combination of an account-book, a stiff leaf bound therewith, a series of flattened tubes or cells on said leaf, a series of balance-indicating strips adjustably contained in said tubes, a series of name-slip holders superposed upon said tubes, and a series of name-slips removably secured in said holders.

5. The combination with an account-book, of an index-card therefor comprising a series of holders G, and a series of name-slips H, said holders having tubular end portions which retain the ends of the name-cards and being slit at their inner ends to permit the weight of the book to clamp the card therein.

6. The herein-described holder or retainer for an index-card consisting of a slightly-flattened tubular blank having transverse slits formed in its outer face near its ends.

660,766. TRIPLE-ACTION JACK. EDITH E. L. BOYER, Dayton, Ohio. Filed July 13, 1900. Serial No. 23,466. (No model.)



Claim.—1. In a lifting-jack, the combination with a suitable casing, having a slot or guide and a notch at one side thereof, a lifting-bar, a lever provided with fingers, a lifting-pawl and a retaining-pawl, of a lowering device formed with a projection, adapted to move in said slot or guide and thus hold the lowering device in operation, or to be placed in said notch and thus hold the lowering device out of operation, said lowering device having a shoulder adapted to engage and disengage the lifting and retaining pawls alternately, and a lug adapted to be engaged by the fingers on the lever only when the lowering device is in position to operate, substantially as described.

2. In a lifting-jack the combination of the lifting-bar; the lifting and retaining pawls adapted to engage or disengage said lifting-bar; a projection on said lifting-pawl; a brace-bar adapted to engage said projection; a lowering device consisting of a single member so formed and constructed as to alternately disengage said lifting and retaining pawls from said lifting-bar; and means suitably arranged within its casing or body for operating said jack, all substantially as described.

3. In a jack with its lifting-bar; the combination of the lifting and retaining pawls; the lowering device consisting of a single piece formed with a lug; a handle or lever provided with a socket; an eccentric with its fulcrum-pin upon which said lever-socket turns; fingers formed on the end of said socket and adapted to engage said lug of said lowering device, for the purpose of raising and lowering said lowering device; said lowering device adapted to throw and hold said retaining and lifting pawls out of engagement with said lifting-bar; all substantially as described.

4. In a lifting-jack, a retaining-pawl adapted to pivotally move on bearings, and having an end suitably formed and adapted for engagement with the lifting-bar; in combination with a shell or casing, pivotally mounted and provided with a slotted portion, an eccentric turning within said slotted portion, a plunger and its actuating-spring within said casing, adapted to engage said retaining-pawl and press or throw it into or out of engagement with said lifting-bar, substantially as described..

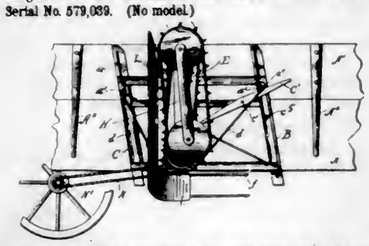
660,767. METHOD OF PRESERVING ROASTED COFFEE. SIEGMUND FEITLER, Ludwigshafen, Germany. Filed June 28, 1900. Serial No. 21,919. (No specimens.)

Claim.—1. The process of coating coffee with tasteless, insoluble and transparent resin coating which consists in roasting the coffee, lowering the temperature thereof and adding the resinous substance to the coffee in a dry condition, at that temperature at which the resin melts equally but does not decompose, so as to efficiently coat the coffee, and then cooling the coffee.

2. The herein-described process of coating coffee, which consists in roasting the coffee at a suitable roasting temperature and thereupon coating the said coffee with a resinous substance in a dry state while the coffee is at a temperature of between 100° and 130° centigrade and then cooling the coffee.

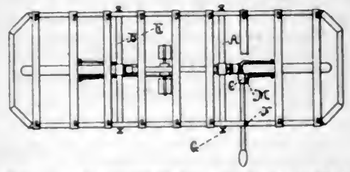
3. The process of coating coffee with a resinous substance, which consists in roasting the coffee and then coating the same with a resinous substance while at a temperature between the melting and decomposing temperature of the resinous substance.

660,768. CORN-HARVESTER. JOSEPH U. FRY, Grenola, Kans., assignor of one-half to James L. Hart, same place. Filed Feb. 12, 1896. Serial No. 579,039. (No model.)



Claim.—In a corn-harvester of the class described, the combination with a vertical supporting-frame provided with hooks for engaging the top edge of a wagon-box; a sliding frame connected with said supporting-frame; an inclined platform connected near its upper end with the upper end of said sliding frame and connected near its lower end with said sliding frame by an inclined removable brace-rod; a hand-lever connected with said sliding frame for raising, lowering or maintaining it in its adjusted positions; a stepped block mounted on said inclined platform, movable upward and rearward and downward and forward in a vertical plane with said sliding frame and platform and provided with upper and lower sets of different-sized pulleys; toothed belts mounted on said pulleys; a concave fender mounted on the inclined platform and provided with a cutter and guard-fingers; and a sprocket-chain belt, connecting a sprocket-pulley on said lower set of different-sized pulleys with a sprocket-wheel on the extreme outer end of the hub of one of the rear wheels of the wagon, substantially as set forth.

660,769. BICYCLE-AMBULANCE. HIRAM L. GETZ, Marshalltown, Iowa. Filed Oct. 21, 1899. Serial No. 734,399. (No model.)



Claim.—1. The combination with a bicycle, of a handle-bar having notches in its ends to receive the side rails of a stretcher, a cross-bar to be attached to the seat-support of a bicycle, also having notches in its ends, and means for detachably securing the side rails of the stretchers in said notches, for the purposes stated.

2. The combination with a bicycle, of a handle-bar having notches in its ends to receive the side rails of a stretcher, a cross-bar to be attached to the seat-support of a bicycle, also having notches in its ends, and means for detachably securing the side rails of the stretcher in said notches, and a handle detachably secured to the steering-frame of a bicycle to project laterally, for the purposes stated.

3. In a stretcher-supporting device for bicycles, the combination of a stem designed to be secured to the seat-support of a bicycle-frame, a cross-piece having notches in its ends, rotatably mounted in said stem, means for clamping the side rails of a stretcher in said notches, a clip designed to be detachably secured to the head of the said stem, and means for detachably securing a bicycle-saddle to said clip when the cross-piece is turned into the plane of the wheels, substantially as and for the purposes stated.

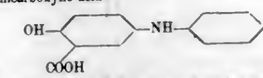
4. An improved bicycle-ambulance, comprising in combination, a bicycle-frame, a cross-bar connected with the steering-head thereof, another cross-bar connected with the frame, a stretcher-frame detachably secured to the said cross-bars, and means for steering the front wheel of the bicycle, substantially as set forth.

5. An improved bicycle-ambulance, comprising in combination, a bicycle-frame, a cross-bar rotatably mounted in the steering-head of the bicycle-frame, a cross-bar connected with the bicycle-frame, a stretcher having its side rails detachably connected with the said cross-bars and a handle clamped to the steering-fork of the bicycle-frame, substantially as set forth.

6. An improved bicycle-ambulance, comprising in combination a bicycle-frame, a cross-bar rotatably mounted in the steering-head of the bicycle-frame, means for clamping said cross-bar firmly in position in the steering-head, an upright, mounted in the seat-post support, a cross-bar in the top of said upright, and means for connecting the side rails of a stretcher with the ends of said cross-bars, for the purposes stated.

660,770. BLUE SULFUR DYE. HERMANN GOSSMANN, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed May 12, 1900. Serial No. 16,497. (Specimens.)

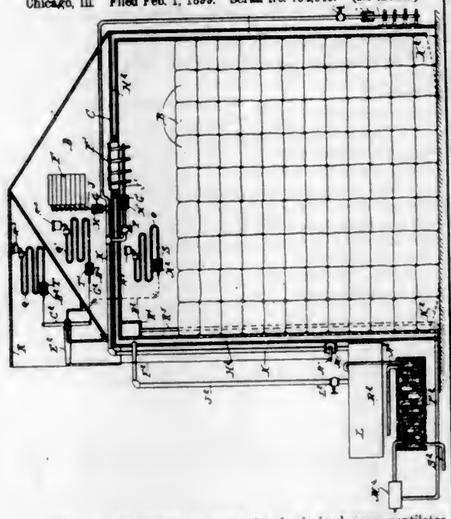
Claim.—1. The herein-described process for the manufacture of a blue sulfurized dyestuff, which consists in heating para-amido-para-oxydiphenylamincarboxylic acid



with sulfur and sulfids of alkali metals and oxidizing the leuco compound thus obtained, substantially as described.

2. As a new product, the blue sulfurized dyestuff as herein described, being, when dry and pulverized, a dark powder of metallic luster, soluble with difficulty in water, soluble in sulfuric acid with a blue coloration, reducing agents reconverting the dyestuff into its leuco compound, the dyestuff dyeing cotton blue, substantially as described.

660,771. REFRIGERATION APPARATUS. OSSIAN GUTHRIE, Chicago, Ill. Filed Feb. 1, 1899. Serial No. 704,115. (No model.)



Claim.—1. In a system for preserving ice in ice-houses, ventilator for opening communication between the interior of the ice-house and the outer air, and means actuated by the conjoint action of variations in the temperature of the outer air and the interior of the house for operating said ventilator, as and for the purpose set forth.

2. In a system for preserving ice, an ice-house having a ventilatort means for operating said ventilator, and means actuated by the conjoin, action of variations in the temperature of the outer air and the interior of the house for automatically controlling said operating means, as and for the purpose set forth.

3. In a system for preserving ice, an ice-house having a ventilator, an expansion-coil arranged within the house, to be acted upon by variations in temperature, an expansion-coil arranged outside the house, to be acted upon by variations in atmospheric temperature, and means actuated by the conjoint action of said coils for operating said ventilator, as and for the purpose set forth.

4. In a system for preserving ice, an ice-house having an ice-storage room, ventilators arranged in the roof of said house and in the ceiling of said room, means for opening and closing said ventilators, an expansion-coil arranged in the ice-room, an expansion-coil arranged outside of said house, and means actuated by the conjoint action of said expansion-coils for operating said opening and closing means, as and for the purpose set forth.

5. In a refrigeration system, a house, an expansion-coil arranged within the house and acted upon by the temperature on the inside of the house, an expansion-coil arranged on the outside of the house and acted upon by the atmospheric temperature, and means actuated by the conjoint action of said coils for opening communication between the outer air and the interior of the house, whereby the temperature in the house is reduced to that of the outer atmosphere, as and for the purpose set forth.

6. In a system for preserving ice, an ice-house, a ventilator for opening communication between the interior of the house and the outer air, means for actuating said ventilator, a rock-lever for controlling said actuating means, means connected to one end of said lever and actuated by variations in the temperature of the outer air, and means connected to the other end of said lever and actuated by variations in the temperature within the house, whereby said lever is rocked by the conjoint action of variations of temperature of the outer air and the interior of the house, as and for the purpose set forth.

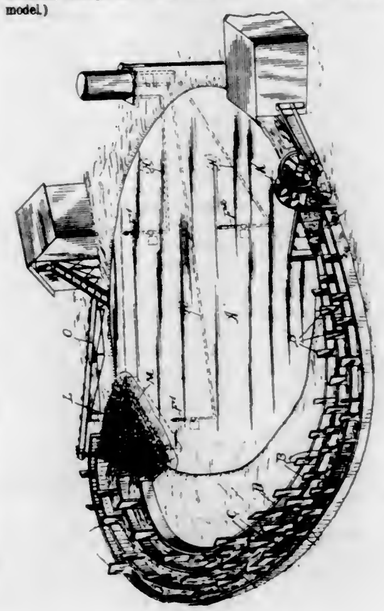
7. In a system for preserving ice, an ice-house having ventilators, a motor for operating each ventilator, an expansion-coil arranged within the house, a similar coil arranged outside of the house, said coils acted upon by the temperature to which they are respectively subjected, and means actuated by the conjoint action of said coils for controlling the operation of said motors, as and for the purpose set forth.

8. In a system for preserving ice, an ice-house having ventilators, an air-cylinder and piston for operating each ventilator, a compressed-air reservoir, a pipe connecting said reservoir with said cylinders, and a valve for controlling said pipe, in combination with an expansion-coil arranged within said house, a similar coil arranged outside of the house, said coils adapted to be affected by variations in the temperature to which they are respectively subjected, and means actuated by the conjoint action of said coils for operating said valve, as and for the purpose set forth.

9. In a system for preserving ice, an ice-house having ventilating-openings, an expansion-coil arranged within the house and adapted to contain a fluid influenced by variations in the temperature to which it is subjected, a similar coil arranged outside the house and adapted to contain a similar fluid influenced by variations in the atmospheric temperature, a cylinder communicating with one end of each coil, a piston for each cylinder, a rock-lever, to the opposite ends of which said pistons are respectively connected, and means actuated by the rocking of said lever for opening or closing said ventilating-openings, as and for the purpose set forth.

10. In a refrigerating system, a house, an air-compressor, a reservoir into which said compressor delivers, means for extracting the heat of compression of said compressed air, whereby said compressed air is delivered into said reservoir at a reduced temperature, a delivery-pipe for the compressed air, delivering from said reservoir and into said house, a valve for opening and closing said pipe, a rock-lever for actuating said valve, means connected to one end of said lever and actuated by variations in the temperature of the outer air, and means connected to the other end of said lever and actuated by variations in the temperature within the house, whereby said lever is rocked by the conjoint action of variations of temperature of the outer air and the interior of the house, as and for the purpose set forth.

660,772. FACILITATING CONGELATION OF WATER. OSSIAN GUTHRIE, Chicago, Ill. Filed June 5, 1899. Serial No. 719,409. (No model.)



Claim.—1. The combination with a pond or lake, of means for entirely withdrawing a portion of the water therefrom into which has been liberated the latent heat of that portion of the water which has previously passed into ice, and delivering said withdrawn water upon a cooling-surface separated from the lake or pond, whereby the temperature of such withdrawn water is reduced, and means for returning such cooled and withdrawn water to the lake or pond, as and for the purpose set forth.

2. The combination with a pond or lake, of one or more sluices or raceways separated from, but communicating at the ends thereof, with said lake or pond, means arranged at one end of said sluices or raceways for withdrawing water from the lake or pond during the formation of ice and delivering the same into the sluices or raceways in a thin sheet, whereby the temperature of such withdrawn water is reduced while passing through said sluices or raceways, and said water is returned to the lake or pond at a reduced temperature, as and for the purpose set forth.

3. The combination with a lake or pond, of one or more sluices or raceways separated from, but communicating at the ends thereof with, said lake or pond, a series of slabs or posts arranged in said sluices or raceways and projecting above the same, and means for withdrawing the water from the lake or pond during the formation of ice and delivering the same upon the surface of said sluices or raceways in a thin sheet, whereby the temperature of such withdrawn water is reduced while passing over the surface of said sluices or raceways, and such withdrawn water is returned to the lake or pond at a reduced temperature, as and for the purpose set forth.

4. The combination with a lake or pond and one or more signals arranged therein to indicate the temperature at various depths thereof, of a series of raceways or sluices communicating at their ends with said lake, a gate for controlling each raceway or sluice, and means for circulating a portion of the water of the lake or pond through such raceways or sluices, as and for the purpose set forth.

5. The combination with a lake or pond, and a cooling-surface adjacent to but separated from the lake or pond, of means for withdrawing a portion of the water from the lake or pond during the period of ice formation and delivering the same in a thin sheet upon said cooling-surface, whereby the temperature of such withdrawn water is reduced and such water of reduced temperature is returned to the lake or pond, as and for the purpose set forth.

6. The combination with a lake or pond, and a cooling-surface separated from but adjacent to the lake or pond, and communicating at each end with the lake or pond, of means arranged at the receiving end of said cooling-surface for withdrawing a portion of the water from the lake or pond during the period of ice formation and delivering the same in a thin sheet upon said cooling-surface, whereby the temperature of such withdrawn water is reduced, and a cooling-basin arranged at the delivery end of said cooling-surface to receive the cooled water therefrom, said basin delivering into the lake or pond, as and for the purpose set forth.

7. The combination with a lake or pond, and a basin communicating therewith, and a cooling-surface separated from but adjacent to the lake or pond, said cooling-surface delivering into said basin, of means for circulating a portion of the water from said lake or pond, during the formation of ice, over said cooling-surface and into said basin, and means whereby the temperature of the water in the basin may be cooled, as and for the purpose set forth.

8. The combination with a lake or pond and a cooling-basin, of means for circulating a portion of the water from such lake or pond into said basin, means for cooling the water while being circulated from said pond to said basin, and means whereby such water is returned to the lake from such basin in a thin sheet, as and for the purpose set forth.

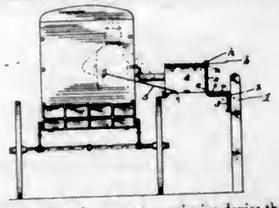
9. The combination with a lake or pond, of a cooling-basin, a dam separating the same, an apron arranged in said basin and resting upon said dam, and means for circulating a portion of the water from said lake or pond into said cooling-basin, as and for the purpose set forth.

10. The combination with a lake or pond, a cooling-surface separated from but adjacent to said lake or pond, means for delivering a sheet of water upon said cooling-surface to secure a solid frozen surface thereon, means for withdrawing a portion of the water from said lake or pond during the period of ice formation and delivering the same in a thin sheet over said frozen surface, whereby the temperature of such withdrawn water is reduced, and means for returning such water to the lake or pond from such frozen surface, as and for the purpose set forth.

660,773. **MAIL RECEIVING AND DELIVERING APPARATUS.** ANDREW L. HENRY, Ladoga, Ind. Filed Aug. 6, 1900. Serial No. 26,080. (No model.)

Claim.—1. A mail receiving and delivering apparatus consisting of a suitable support, a box-supporting device pivoted to said support, and a mail-box securely connected to said device, whereby said box may be manipulated into any desired position within the limit of its movement.

2. The combination of a support, a device secured to said support by a vertically-disposed hinge, and a mail-box securely connected to said hinge, whereby said box is caused to swing in a horizontal plane.



3. The combination of a support, a swinging device thereon, a mail-box secured to said swinging device, and a catch whereby said mail-box can be secured in its primary position.

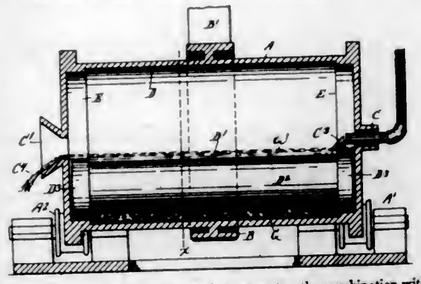
4. A mail receiving and delivering apparatus, consisting of a support, a swinging device pivoted to said support, a mail-box secured to said swinging device and provided with a handle, and a hook or handle for manipulating said box to the desired position, substantially as and for the purposes set forth.

5. The combination of a support, a frame-piece containing pivot-bearings rigidly secured to said support, a swinging device one member of which is mounted in said pivot-bearings a second member of which extends out horizontally therefrom and a third member which extends vertically from the end of the second member, and a mail-box pivoted on said third member and adapted to be swung thereon from one position to another, substantially as shown and described.

6. The combination of a support, a catch-arm extending out from said support, a swinging device securely pivoted to said support, and a mail-box pivoted to said swinging device being provided with the bearings *b* and *c* for that purpose, said swinging device being provided with an adjustable nut or collar *n*, whereby the vertical position of the box in relation to the other parts may be accurately adjusted and its proper engagement with the catch assured when returned to primary position, substantially as set forth.

7. The combination of a support, a mail-box, and a hinge device whereby said mail-box is securely connected to and carried from said support.

660,774. **AMALGAMATOR.** THOMAS H. HICKS, Fort Wayne, Ind. Filed Mar. 23, 1900. Serial No. 9,868. (No model.)



Claim.—1. In an amalgamating apparatus, the combination with a rotatable tank having a metallic lining coated with mercury, of means for rotating said tank, a rolling amalgamator arranged within said tank and spaced therefrom and caused to be set in rolling motion by the rotation of said tank, and mercury arranged within the space between said rolling amalgamator and said tank to supply said lining and rolling amalgamator with mercury during the rotation of said tank, substantially as described.

2. In an amalgamating apparatus, the combination with a rotatable tank having a surface coated with mercury, of means for rotating said tank, a rolling amalgamator having a surface coated with mercury arranged within said tank and spaced therefrom intermediate of its ends and caused to be set in rolling motion by the rotation of said tank, said rolling amalgamator constructed with annular laterally-projecting treads to raise the rolling amalgamator from contact with the inner surface of the tank, substantially as described.

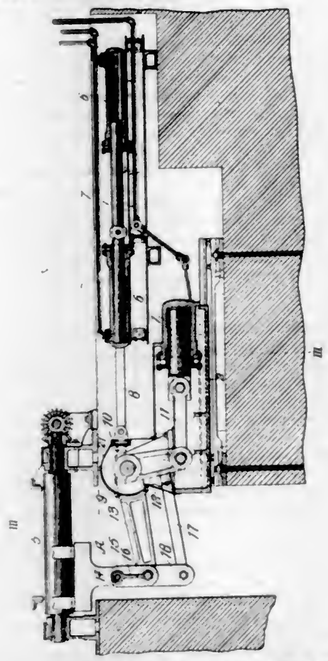
3. In an amalgamating apparatus, the combination with a rotatable tank, of means for rotating said tank, a rolling amalgamator arranged within said tank and having its surface coated with mercury, means for preventing said rolling amalgamator from having its amalgamating-surface come in contact with said tank, and a body of mercury placed in said tank, by which the amalgamating-surface of said rolling amalgamator is kept coated with mercury, substantially as described.

4. In an amalgamating apparatus, the combination of two rotatable cylinders, one of said cylinders arranged to rotate within the other, the inner surface of one of said cylinders and the outer surface of the other cylinder being composed of metal which has affinity for mercury, and a body of mercury arranged in the outer cylinder sufficient in quantity to permit a portion of the outer surface of the inner cylinder to dip therein, substantially as described.

5. In an amalgamating apparatus, the combination with two rotatable cylinders, one of said cylinders arranged to rotate within the other, and the outer surface of the inner cylinder, and the inner surface of the outer cylinder being formed of metal having an affinity for mercury, of a body of mercury arranged within said outer cylinder continually replenishing the amalgamating-surfaces of said cylinders with mercury during their rotation, and means for preventing the amalgamating-surfaces of said cylinders from rubbing together during their rotation, substantially as described.

6. In an amalgamating apparatus, the combination with two rotatable cylinders arranged to rotate one within the other, of means for forming a space between said cylinders, and having said space filled with mercury whereby the inner cylinder may dip therein during the rotation, substantially as described.

660,775. **INGOT-MANIPULATOR.** ALBERT T. KELLER, Wilkinsburg, Pa., assignor of one-half to Philip Keller, Edgewood Park, Pa. Filed Aug. 31, 1900. Serial No. 28,648. (No model.)

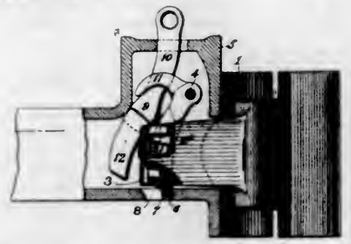


Claim.—1. The combination of a feed-table for rolling-mills, a lifting-head arranged under said table, a lifting mechanism arranged to one side of the feed-table or outside of the path of movement of the ingot on the table, a pivotal connection of the mechanism to the head, and means for holding the head in a vertical or approximately vertical position, substantially as set forth.

2. The combination of a feed-table for rolling-mills, a lifting-head arranged under the feed-table, a lifting mechanism arranged outside of the path of movement of the ingot on the table, pivotal connections from the lifting mechanism to the block, means for holding the head in a vertical or approximately vertical position, and means for shifting the lifting mechanism and head, substantially as set forth.

3. The combination of a feed-table for rolling-mills, a lifting-head arranged under said table, a carriage arranged at one side of the feed-table, a lifting mechanism mounted on the carriage, pivotal connections from the lifting mechanism to the head, a link pivotally connected to the head and carriage, and means for shifting the carriage, substantially as set forth.

660,776. **CAR-COUPLING.** JOSEPH KELSO, Pittsburg, Pa., assignor to the McConway & Torley Company, same place. Filed Feb. 23, 1900. Serial No. 6,236. (No model.)



Claim.—1. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a locking-block pivotally mounted in the head so as to swing into the path of movement of the tail of the knuckle, and a wedging-block automatically movable between the locking-block and the wall of the coupler-head for holding the locking-block in locking position, substantially as set forth.

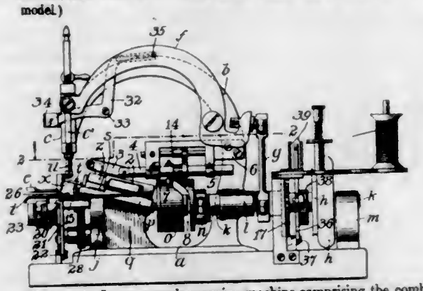
2. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a locking-block pivotally mounted in the head so as to swing into the path of movement of the tail of the knuckle, a shoulder or stop for limiting the forward swing of the locking-block and a wedging-block automatically movable between the locking-block and the wall of the coupler-head for holding the locking-block in locking position, substantially as set forth.

3. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a locking-block pivotally mounted in the coupler-head so as to swing into the path of movement of the tail of the knuckle, a wedging-block automatically movable between the locking-block and the wall of the coupler-head for holding the locking-block in locking position, and fingers on the locking-block projecting into the path of movement of the wedge or block, whereby the locking-block may be shifted to unlock position by the releasing movement of the wedge or block, substantially as set forth.

4. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a locking-block pivotally mounted in the coupler-head so as to swing into the path of movement of the tail of the knuckle, a wedge or block automatically movable between the locking-block and the wall of the coupler-head for holding the locking-block in locking position, fingers on the locking-block projecting into the path of movement of the wedge or block, whereby the locking-block may be shifted to unlock position by the releasing movement of the wedge or block and means for holding the wedge or block in release position, substantially as set forth.

5. In a car-coupler, the combination of a swinging hook provided with a tailpiece having at its rear end a seat or supporting portion, a locking-block pivotally mounted in the coupler-head so as to swing into the path of movement of the tail of the knuckle, a wedge or block for holding the locking-block in locking position, means whereby the locking-block may be swung to unlock position on the release movement of the wedge or block and an arm or prop on the wedge adapted to be swung onto the seat or supporting portion of the tail of the knuckle by the release movement of the wedge or block, substantially as set forth.

660,777. **OVERSEAMING SEWING-MACHINE.** HERMANN A. KLEMM, New York, N. Y. Filed Jan. 22, 1900. Serial No. 2,400. (No model.)

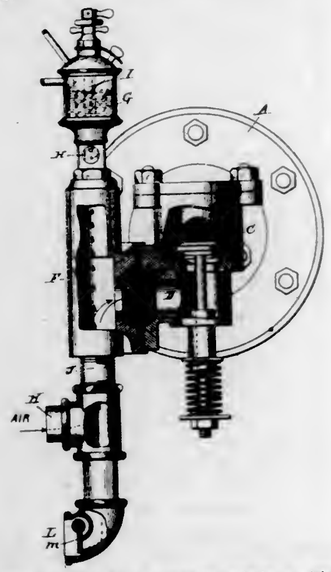


Claim.—1. In an overedge sewing-machine comprising the combination with a horizontal work-plate, vertically-operating needle, feed mechanism and means for operating said needle and feed mechanism, of a rotatory oscillating thread-carrying hook, and a reciprocating loop-spreader,

said hook arranged with its axis in an inclined plane in such relation to the work-plate that the hook works in a plane parallel to the feed-line and obliquely to the vertical plane for engaging the needle-thread loops and swinging upward past the edge of the work for engagement of its thread by the loop-spreader, said spreader consisting of a sliding bar having a notched end that engages the hook-thread and presents widely-spread loops thereof to the needle, said hook continuing the lateral movement of its thread relatively to the spreader after engagement of said thread by the spreader for so spreading the loops.

2. In an overedge sewing-machine comprising the combination with a horizontal work-plate, vertically-operating needle, feed mechanism and means for operating said needle and feed mechanism, of a rotatory oscillating thread-carrying hook, and a reciprocating loop-spreader, said hook arranged with its axis in an inclined plane in such relation to the work-plate that the hook works in a plane parallel to the feed-line and obliquely to the vertical plane for engaging the needle-thread loops and swinging upward past the edge of the work for engagement of its thread by the loop-spreader, said spreader consisting of a sliding bar having a notched end that engages the hook-thread and presents widely-spread loops thereof to the needle, said hook continuing the lateral movement of its thread relatively to the spreader after engagement of said thread by the spreader for so spreading the loops, also means for operating the loop-spreader consisting of the reciprocating sliding bar coupled with the loop-spreader stock, and the grooved cam on the main shaft, said cam coupled with the sliding bar.

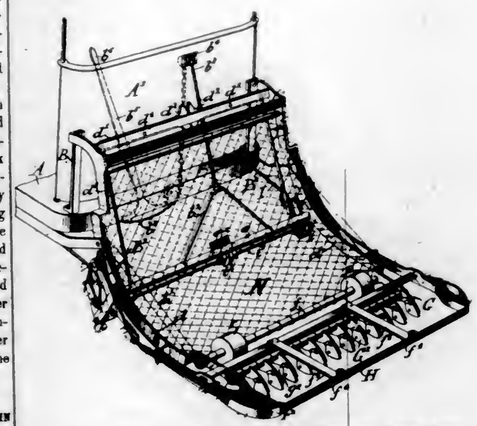
660,778. **MIXER AND VAPORIZER FOR GAS-ENGINES.** JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed Dec. 23, 1899. Serial No. 741,406. (No model.)



Claim.—In combination, a gas-engine cylinder, an inlet-valve, a mixing-chamber connected thereto by a lateral passage, a feed device adapted to feed gasolene into the upper end of said mixing-chamber so that the gasolene will fall unobstructively through the same, an air-inlet pipe connected to said mixing-chamber at its bottom, directly beneath the feed device, so that the inward current of air will be directed upward against the falling gasolene and the unvaporized gasolene will fall directly into said air-pipe, and a pipe to carry off the unvaporized gasolene provided with an outwardly-opening valve adapted to be held closed by the suction.

660,779. **FENDER FOR TROLLEY-CARS.** LAJOS MADAS, New York, N. Y., assignor of one-half to Adolf Stern, same place. Filed Aug. 17, 1900. Serial No. 27,133. (No model.)

Claim.—1. A car-fender, consisting of stationary bracket-arms, a main frame pivoted at its rear end to said bracket-arms, rollers at the front part of the main frame, guard-fingers on said main frame forward of said rollers, a net on said main frame, means for maintaining the main frame in a normal raised position, and means for automatically dropping said main frame, said dropping means extending forward of the main frame and guard-fingers and being actuated by impact with the obstruction, substantially as set forth.



2. A car-fender, consisting of stationary bracket-arms, a main frame pivoted at its rear end to said bracket-arms, rollers at the front part of the main frame, guard-fingers on said main frame forward of the rollers, a net on said main frame, means for maintaining the main frame in a normal raised position, means for automatically dropping said main frame, and an equalizing device for securing the dropping of the main frame evenly at both sides, substantially as set forth.

3. In a car-fender, the combination, with stationary bracket-arms, of a main frame pivoted to the same and provided with rollers and guard-fingers at the front end of the same, an auxiliary frame consisting of transversely-connected side members, a guard-strap extending transversely in front of the guard-fingers, mechanism for keeping the guard-strap taut, and means for dropping the main and auxiliary frames upon contact of the guard-strap or auxiliary frame with an obstruction, substantially as set forth.

4. In a car-fender, the combination, with stationary bracket-arms, of a main frame pivoted thereto and provided at its front end with rollers and guard-fingers, an auxiliary frame consisting of transversely-connected side members supported on the main frame, a guard-strap extending transversely in front of the guard-fingers, mechanism for keeping the guard-strap taut, means for automatically dropping the frames on contact of the strap or auxiliary frame with an obstruction, and means connected with the main frame for raising both frames against the dashboard of the car, substantially as set forth.

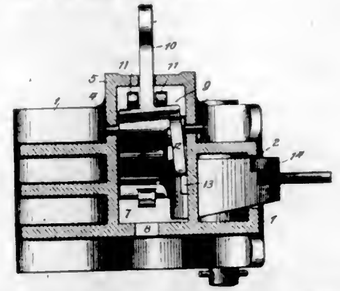
5. In a fender for trolley-cars, the combination, with stationary bracket-arms, of a main frame pivoted thereto and provided with rollers and guard-fingers at the front end of the same, an auxiliary frame consisting of transversely-connected side members supported on the main frame, a guard-strap extending transversely in front of the guard-fingers, mechanism for keeping the guard-strap taut, means for automatically dropping the frames on contact of the auxiliary frame or strap with an obstruction, means for equalizing the drop of both sides of the frames, and means connected with the main frame for raising both frames against the dashboard of the car, substantially as set forth.

6. In a fender for cars, the combination, with stationary bracket-arms, of a main frame, pivoted to said bracket-arms, an auxiliary frame guided along the sides of the main frame, a guard-strap supported upon the auxiliary frame, tension mechanism for keeping the guard-strap taut, and means interposed between the main frame and auxiliary frame for lowering both frames simultaneously when the guard-strap or auxiliary frame meets an obstruction, substantially as set forth.

7. In a fender for trolley-cars, the combination, with stationary bracket-arms, of an auxiliary frame supported on the main frame, a guard-strap supported on the auxiliary frame, fulcrumed equalizing-levers connected with the auxiliary frame, and spring-actuated mechanism connected with the stationary brackets, main and auxiliary frames, for keeping the guard-strap taut and the frames in a normal raised position, substantially as set forth.

8. In a car-fender, the combination, with stationary bracket-arms, of a main frame pivoted to said bracket-arms, rollers at the front end of said main frame, a series of guard-fingers arranged in front of said rollers and adapted to oscillate on said frame, and a net extending from the roller-shaft over the main frame and bracket-arms, substantially as set forth.

660,780. **CAR-COUPLING.** WILLIAM MCCONWAY, Pittsburg, Pa., assignor to the McConway & Torley Company, same place. Filed Apr 30, 1900. Serial No. 14,865. (No model.)



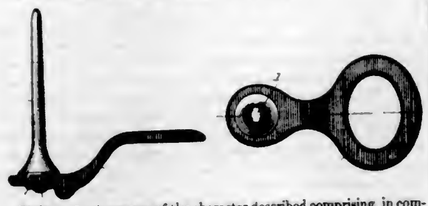
Claim.—1. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivotally-mounted locking-block adapted to move automatically into the path of movement of the tail of the knuckle, means for shifting the locking-block to inoperative position, a shoulder or step on the coupler-head, an arm or prop adapted to be supported by the step and hold the block in unlocked position and means for shifting the lower end of the arm or prop laterally with respect to the coupler-head onto the step, substantially as set forth.

2. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivotally-mounted locking-block adapted to move automatically into the path of movement of the tail of the knuckle, a shoulder or step in the coupler-head at one side of the path of movement of the tail of the knuckle, an arm or prop adapted to be supported by the step and hold the locking-block in unlocked position, and a shoulder projecting from the rear end of the tail of the knuckle and adapted to push the prop laterally with respect to the coupler-head off of the step, substantially as set forth.

3. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivotally-mounted locking-block adapted to move into the path of movement of the tail of the knuckle, a lifting-head adapted to shift the block to inoperative position, a step on the coupler-head, and an arm or prop on the lifting-head adapted to be shifted away from the locking-block onto the step when the head is raised, substantially as set forth.

4. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivotally-mounted locking-block provided with fingers, a lifting-head adapted to engage the fingers on the locking-block, a step on the coupler-head, an arm or prop on the lifting-head adapted to be shifted onto the step when the head is raised, and a projection on the tail of the knuckle adapted when the knuckle is opened to force the prop off of the step, substantially as set forth.

660,781. **PESSARY.** HORACE M. PAINE, Newton, Mass. Filed Aug. 5, 1899. Serial No. 726,315. (No model.)



Claim.—1. A pessary of the character described comprising, in combination, the base, the supporting-ring, the spring-hinge connecting the base and supporting-ring, the flexible envelop inclosing said hinge, and the stem fixed in said base.

2. A pessary of the character described comprising, in combination, the base having an angular socket, the stem of elliptical cross-section and having a shank of angular cross-section adapted to said socket, means for locking said shank in said socket, the supporting-ring, and the spring-hinge connecting said ring to said base.

3. A pessary of the character described comprising, in combination, the base having an angular socket, the supporting-ring, the spring-hinge connecting said base and ring, the soft-rubber envelop completely inclosing said base, ring, and hinge, the stem of elliptical cross-section and having an angular shank to fit the socket in the base, and the screw to retain said shank in said socket.

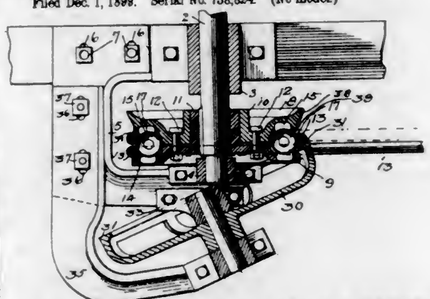
660,782. **MOUNT FOR NATURAL-HISTORY SPECIMENS.** OSCAR STRÜMPELL, New York, N. Y., assignor of one-half to William A. Schmidt, same place. Filed Jan. 21, 1899. Renewed Mar. 20, 1900. Serial No. 9,454. (No model.)



Claim.—1. A mount for natural-history specimens, consisting of a base-plate having a groove, a convex face-plate fitted in said groove and provided with a small aperture, a sealing-ring of cement for sealing the circumference of the face-plate into said groove, and a sealing-ping for the aperture, substantially as set forth.

2. A mount for natural-history specimens, comprising a flat base-plate and a rounded concave cover-plate adapted to be secured at its edges to the base-plate by cementation, said cover-plate having an aperture therein adapted to be closed by a cement, substantially as set forth.

660,783. **ROPE-PULLEY.** EMIL L. WAGNER, Aberdeen, S. D. Filed Dec. 1, 1899. Serial No. 738,824. (No model.)



Claim.—1. The combination, with a pulley, of an endless rope or cable having a loop or wrap about the peripheral face of the pulley, and adjustable means engaging said loop to direct it across without leaving the face of the pulley as it revolves.

2. The combination, with a pulley having an antifriction-surface in its peripheral face, of an endless rope or cable having a loop around said face and adjustably-supported means engaging said loop to direct it across the face of the pulley over the antifriction-surfaces therein as the pulley revolves.

3. The combination, with a pulley, of an endless rope or cable looped or wrapped about its peripheral face, and means revolving in a plane at an acute angle to the vertical plane of said pulley and engaging the loop thereon to direct it across without leaving said peripheral face as the pulley revolves.

4. The combination, with a pulley having an annular rib or ridge in its peripheral face, of an endless rope or cable looped or wrapped about said face, and means revolving in a plane at an acute angle to the vertical plane of said pulley and engaging the loop thereon to direct it across said peripheral face as the pulley revolves.

5. The combination, with a pulley having antifriction means in its peripheral face, of an endless rope or cable looped or wrapped about said face, and means revolving in a plane at an acute angle to the vertical plane of said pulley and engaging the loop thereon to direct it across without leaving said peripheral face as the pulley revolves.

6. The combination, with a pulley, having a series of antifriction devices in its periphery, the axes of said antifriction devices being substantially at right angles to the axis of said pulley and their circumferences projecting above the face of said pulley and forming an annular rib or ridge thereon, of an endless rope or cable looped or wrapped about said periphery, and means revolving in a plane at an acute angle to the plane of said pulley and engaging the loop thereon to direct it across without leaving said periphery as the pulley revolves.

7. The combination, with a pulley, of an endless rope or cable looped or wrapped about its peripheral face, means revolving in a plane at an acute angle to the vertical plane of said pulley and engaging the loop thereon to direct it across said peripheral face as the pulley revolves, and an inclined or beveled surface provided on said pulley and whereon said rope runs when the pulley is reversed, substantially as described.

8. The combination, with a pulley, of an endless rope or cable looped or wrapped about its peripheral face, means engaging the loop to direct it across the face of the pulley as it revolves and said pulley having an inclined or beveled face whereon said rope runs when the pulley is reversed, substantially as described.

9. The combination, with a pulley, of an endless rope or cable looped or wrapped about its peripheral face, means revolving in a plane at an acute angle to the vertical plane of said pulley and engaging the loop thereon to direct it across said peripheral face as the pulley revolves, an inclined or beveled face provided on said pulley, and an annular rib or ridge provided on said beveled face, for the purpose specified.

10. The combination, with a pulley, having antifriction devices in its peripheral face and an annular beveled or inclined surface at one end, of an endless rope or cable looped or wrapped around said face over the antifriction devices therein, means engaging the loop to direct it across said face over said antifriction devices as the pulley revolves, and said rope or cable being adapted to run upon said beveled or inclined surface when the pulley is reversed, substantially as described.

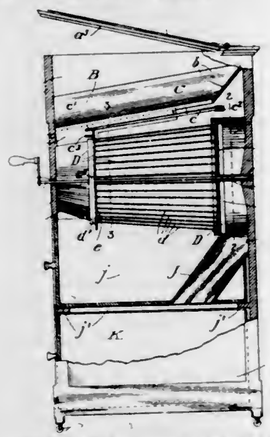
11. The combination, with a pulley, having an antifriction peripheral face, of a rope or cable having a loop or wrap around said face, said pulley being also provided on its face with an inclined or beveled surface whereon the rope or cable runs when the pulley is reversed, said beveled surface being separated from the antifriction-surface of the pulley by an annular rib or ridge, and a wheel 30 engaging said loop or wrap to direct it across said face, substantially as described.

12. A pulley, comprising two disk-shaped parts or members secured together and having hubs and central openings to receive a shaft and provided in their inner faces near their peripheries with a series of sockets, a series of blocks fitting within said sockets, antifriction devices supported by said blocks and forming an annular rib or ridge in the periphery of said pulley, the axes of said antifriction devices being substantially at right angles to the axis of said pulley.

13. A pulley, comprising two disk-shaped parts or members 8 and 9, means securing said parts together and both having central openings and concentric hubs, said part 8 having a beveled or inclined circumference, an annular space being formed between said beveled circumference and the circumference of said part 9 and antifriction means provided in said space and projecting above and forming a portion of the peripheral face of said pulley, for the purpose specified.

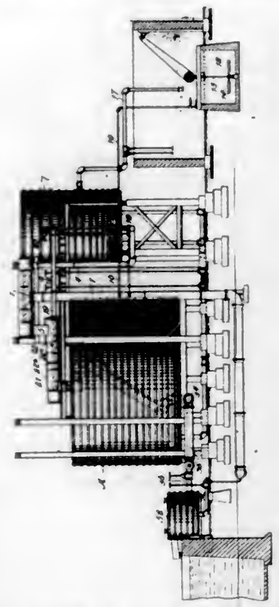
14. A pulley comprising two parts or members 8 and 9 having central openings and telescoping hubs, means securing said parts together, one of said parts having a beveled or inclined circumference, a space being provided between said beveled circumference and the circumference of the opposite part or member, a series of blocks arranged in a circle in said space transversely with respect to the face of the pulley, and antifriction wheels or rollers mounted in bearings in said blocks and having their circumferences projecting above and forming a portion of the periphery of said pulley, substantially as described.

660,784. **ASH-SIFTER.** CARL J. WOWRA, Chicago, Ill. Filed Nov. 22, 1899. Serial No. 737,867. (No model.)



Claim.—In an ash-sifter, the combination of a flat screen oscillating upon a horizontal axis and having a cross-strip upon the edge thereof opposite to said axis; a rotary screen below said flat screen; arms projecting radially beyond said rotary screen, said arms revolving in the plane wherein said cross-strip lies and being adapted to raise and lower said flat screen when said rotary screen is rotated; a shaft whereon said rotary screen is revolubly mounted; a casing inclosing said parts; a removable panel sliding in vertical guides in said casing, said panel supporting one extremity of said shaft and affording means whereby said rotary screen may be removed from said casing, and a drawer, which, when closed, serves to hold in place the panel and the screen.

660,785. **APPARATUS FOR PURIFYING WATER.** ARTHUR B. BELLOWS, Pittsburg, Pa., assignor to the Pittsburgh Testing Laboratory, Limited, same place. Filed Jan. 26, 1900. Serial No. 2,815. (No model.)



Claim.—1. In a plant for the treatment of water, the combination of means for dividing a stream of water into two or more fractional streams, a tank containing a supersaturated solution of the treating material, a pipe for delivering one of the fractional streams into the lower end of said tank, a mixing or baffle trough or channel connected to the upper portion of said tank and a pipe for conducting the other fractional stream to trough or channel, substantially as set forth.

2. In a plant for the treatment of water, the combination of a box or trough connected to a supply-pipe and provided with two or more outlets, weir-plates for effecting a proportional division of the inflowing stream interposed between the supply-pipe and the outlets, a mixing or baffle trough or channel connected to the outlets from the dividing-box and a take-up tank interposed between one of the outlets of the dividing-box and the mixing trough or channel, substantially as set forth.

3. In a plant for the treatment of water, the combination of means for dividing a stream of water into two or more fractional streams, a tank containing a supersaturated solution of the treating material, distributing-pipes having perforations in their under sides, arranged near the bottom of the tank, a pipe for conducting one of the fractional streams to the distributing-pipes, a mixing or baffle trough or channel connected to the upper portion of the tank and a pipe for conducting the other fractional stream to the trough or channel, substantially as set forth.

4. In a plant for the treatment of water, a saturating or "take-up tank" having discharge-outlets in its bottom and a series of pipes having perforations arranged in their under sides to direct streams of water at an acute angle onto the bottom of the tank, arranged around the outlets and connected to a supply-pipe, whereby the sediment in the tank can be driven toward the outlets, substantially as set forth.

5. In a plant for the treatment of water, the combination of means for dividing a stream of water into two or more fractional streams, a tank containing the treating material arranged to receive one of said streams, a trough or channel connected to said tank and adapted to receive the other stream, a series of baffle-plates arranged transversely of the trough or channel, two settling-tanks, arranged to receive the water from the mixing trough or channel, valves controlling the flow of water to the tanks and means operated by the water flowing into the tanks for opening and closing said valves, substantially as set forth.

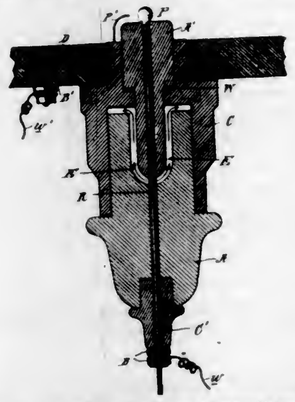
6. In a plant for the treatment of water, a settling-tank having a valved discharge-pipe and means operative automatically at a predetermined time after the filling and emptying of the tank to open and close the discharge-valve, substantially as set forth.

7. In a plant for treating water, the combination of a tank, a pivotally-mounted discharge-pipe, a float connected to the pipe, an auxiliary float carried by said pipe and connected to the pipe, and a siphoning-pipe connected to the auxiliary float, substantially as set forth.

8. In a plant for treating water, the combination of a tank having a valved outlet, a bucket or shell connected to the valve and having flexible tubular connections to the tank near its upper and lower ends, and valves controlling the flow of water to and from the buckets, substantially as set forth.

9. In a plant for treating water, the combination of a mixing trough or channel, a settling-tank arranged to receive the treated water from the trough or channel and means for adding sludge or previously-formed precipitate to the water as it flows through the mixing trough or channel, substantially as set forth.

660,786. **SPARKING-PLUG FOR EXPLOSIVE-ENGINES.** EDWARD T. BIRDSALL, New Rochelle, N. Y., assignor to Desberon Motor-Car Co., New York, N. Y. Filed May 9, 1900. Serial No. 16,040. (No model.)



Claim.—1. A sparking-plug consisting of a metallic supporting-plug and two or more insulating-tubes having their ends only "nested" the one within the other; in combination with an electrode-rod extending therethrough, and means for securing said parts together, substantially as described.

2. A sparking-plug consisting of an electrode-rod surrounded by two or more insulating-tubes having an elongated air-space between their adjacent ends only; in combination with a metallic supporting-plug adapted to support all of said parts, substantially as described.

3. A sparking-plug consisting of a metallic supporting-plug C; an electrode P' secured to the inner end thereof; an electrode-rod R having an electrode P at its inner end; two or more insulating-tubes A', A, "nested" the one within the other so as to constitute an elongated air-space; in combination with means for holding all of said parts together, the arrangement being such that the air-space between the electrode-rod R and the metallic supporting-plug C is greater than the air-space between the two electrodes P and P', substantially as described.

4. A sparking-plug consisting of a metallic supporting-plug C provided with means for securing it to the explosion-chamber of an engine; an electrode P' secured to the inner end thereof; an electrode-rod R provided with an electrode P; two insulating-tubes A', A, through which the electrode-rod R extends when in position, the outer end of the tube A' extending into an air space or chamber within the inner end of the tube A; in combination with a sealing-washer W between the tube A' and the plug C; together with a section C' and binding-nuts B and B' adapted to secure all of said parts together, substantially as described.

660,787. **TETHER-BALL.** LOUISE BISSELL, Arlington, Mass. Filed Feb. 5, 1900. Serial No. 3,980. (No model.)

Claim.—1. A tether-ball comprising a resilient ball, a cover of fibrous material inclosing the same, and a ring or loop attached to said cover and having a surface composed of a continuation of the threads of the cover.

2. A tether-ball comprising a resilient ball, a cover of fibrous material inclosing the same, and a flexible ring or loop attached to said cover and having a surface composed of a continuation of the threads of the cover.

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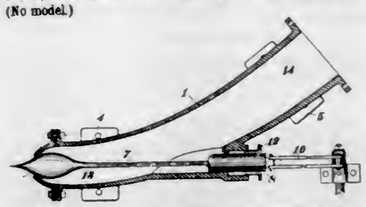


660,788. **SOFT-TREAD HORSESHOE.** WILLIAM J. CONWAY, Chicago, Ill. Filed Oct. 21, 1899. Serial No. 734,325. (No model.)



Claim.—A horseshoe comprising a hoof-plate provided upon its under side along the inner and outer edges throughout with inwardly-inclined walls forming a recess, a yielding or elastic tread-section for the recess, the walls of the recess having projecting from their inner surfaces toward the lower edges, integral inflexible lugs having inwardly-inclined surfaces and inner retaining-shoulders, the inclined surfaces of the lugs permitting ready insertion of the tread-section while the shoulders retain it in place.

660,789. **HYDRAULIC REGULATING-NOZZLE.** WILLIAM A. DOBLE, San Francisco, Cal. Filed Oct. 17, 1899. Serial No. 733,854. (No model.)



Claim.—1. A hydraulic regulating-nozzle gradually tapering from the bore of the main supply-pipe toward its discharge end, convergent at the tip in curved lines, a spindle-shaped core mounted therein, bounded by double reversed curves approximating wave-lines, pointed at its outer end, and projecting at said outer end through said convergent tip, leaving a conical annular space between said convergent tip and said core through which a convergent shell of water is discharged when the core is in position for discharge, substantially as specified.

2. In a hydraulic regulating-nozzle, a main tube having a tapering bore, convergent at the tip in curved lines, a spindle-shaped core centrally mounted therein, bounded by double reversed curves approximating wave-lines, projecting at its outer end through said convergent tip, the outer curves of said core being convergent in lines of similar convergency to the inner lines of the convergent tip, whereby when the core is in the medium position for discharge the inner and outer tangential lines of the cone of discharge between said core and tip are approximately parallel, substantially as specified.

3. In a hydraulic regulating-nozzle, a tapering main tube, a tip there-

on converging in curved lines, a spindle-shaped core centrally mounted therein, pointed at its end, and projecting through and beyond the converging tip, said core bounded by double reversed curves approximating wave-lines, of similar convergency to the curved inner lines of the converging tip at the place of emergency from said tip, whereby when the core is in the medium position for discharge a conical shell of discharge is formed having approximately parallel walls at the emergent point, substantially as specified.

4. In a hydraulic regulating-nozzle, a tapering main tube, a tip thereon converging in curved lines, a spindle-shaped core centrally mounted therein, pointed at the end, and projecting through and beyond the converging tip, said core bounded by double reversed curves approximating wave-lines, of similar convergency to the curved inner lines of the converging tip at the place of emergency from said tip, and gradually becoming less convergent beyond the tip up to the terminal point, substantially as specified.

5. In a hydraulic regulating-nozzle, a tapering main tube, a removable tip thereon converging in curved lines, a spindle-shaped core centrally mounted therein, bounded by double reversed curves approximating wave-lines, pointed at the end and projecting through and beyond said tip, with means external to said nozzle for moving said core back and forth to vary the discharge-aperture between said core and tip, substantially as specified.

6. A hydraulic regulating-nozzle converging at its discharge end, a spindle-shaped core bounded by double reversed curves approximating wave-lines mounted therein and projecting beyond said discharge end, a balancing piston connected to said core, and means external to the nozzle for moving both piston and core longitudinally within the nozzle, substantially as specified.

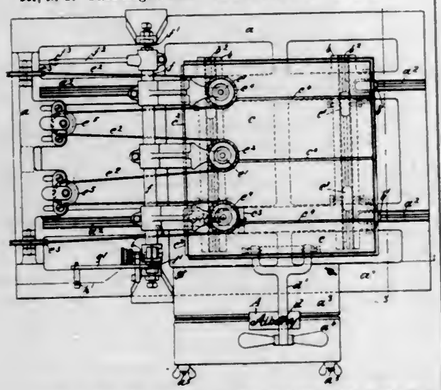
7. A hydraulic nozzle converging at its discharge end, having a spindle-shaped core centrally mounted therein by means of a flexible rod or stem permitting said core to assume a concentric position in said nozzle by the action of the water thereon, substantially as specified.

8. In a hydraulic regulating-nozzle having a discharge end converging on curved lines, a movable spindle-shaped core-piece mounted therein projecting through said discharge end, adapted to open and close the same and permit an annular discharge of water therefrom on lines tangential to the inner curved faces of the nozzle end and the anterior curved faces of the central core, in combination with a hydraulic balancing-piston connected to said core by a flexible rod or stem, and means to operate said piston and core, substantially as specified.

9. In a hydraulic regulating-nozzle, a spindle-shaped core-piece adapted to open and close the issue of the nozzle, or permit a variable annular discharge therefrom, a removable inwardly-converging tip for the nozzle and a spindle-formed core mounted on a flexible rod that permits it to assume automatically by action of the water a concentric position within the removable tip, substantially as specified.

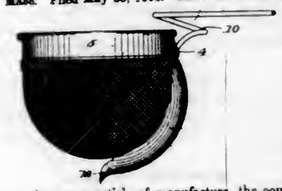
10. In a hydraulic regulating-nozzle, a removable converging nozzle-tip, a movable pointed core-piece therein tapering each way with curved surfaces over which the water flows, a flexible support for the core-piece attached to a piston to balance the thrust of the core-piece and external means to move the piston, all combined and operating substantially as described.

660,790. ENGRAVING-MACHINE. William S. Eaton, Sag Harbor, N. Y. Filed Aug. 8, 1900. Serial No. 26,232. (No model.)



Claim.—In an engraving-machine, the combination of a freely-movable table, with a tracer movable therewith, a rock-shaft extending across the table, a routing-tool having a bearing that is mounted upon the rock-shaft, a spring adapted to rock the shaft backward, an arm depending from the rock-shaft, a cam adapted to engage said arm and to rock the shaft forward, and a stop for limiting the movement of the rock-shaft, substantially as specified.

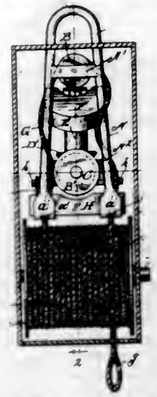
660,791. TEA OR COFFEE POT STRAINER. John P. Eustis, Newton, Mass. Filed May 23, 1898. Serial No. 681,436. (No model.)



Claim.—1. As a new article of manufacture, the combination of a concavo-convex straining-cup having a sheet-metal, brim-forming band with a sheet-metal drip-guard attached to the rear portion of said sheet-metal band and extending thence forwardly and also downwardly to near the bottom of the straining-cup; the opposed walls of the drip-guard and straining-cup being at a fixed distance apart; and a spring-clip which is attached to the rear side of said brim and has a spring-tang which extends rearwardly in parallelism with the top of said brim; the inner end of the spring-tang projecting inwardly over that portion of the strainer which is opposed to the drip-guard; and the tang being formed at said inner portions with abutments which are adapted to engage the mouth of the pot-nozzle, within which the spring-tang is inserted, to hold the drip-guard fixed under the mouth of said pot-nozzle.

2. The combination with a pot-strainer of a spring-clip composed of a bent wire whose ends are attached to the rear side of the strainer, and whose end portions thence extend rearwardly from the strainer, then forwardly and outwardly, and then inwardly, and which is formed into an angular-shaped tongue which passes rearwardly above the forwardly and outwardly bent portions of the wire.

660,792. FIRE-ESCAPE. Ernest S. Gail, Highland Park, Ill. Filed Jan. 9, 1899. Serial No. 701,615. (No model.)



Claim.—1. A fire-escape of the class mentioned comprising an inverted-U-shaped frame, a pulley mounted on the frame and arranged between the members thereof, a cable mounted between its ends on the frame by being passed around the pulley and coiled about the frame, a friction-piece mounted on the frame and adapted to bear upon the cable and a governor having gear connection with the pulley and lever connection with the friction-piece, substantially as specified.

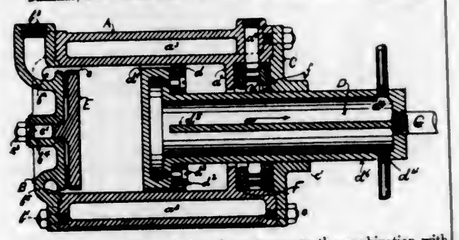
2. In a fire-escape of the class mentioned, the combination with a cable-support having vertical rods and intermediate pulleys, of a cable mounted between its ends upon the support, having a bight on the pulleys and being coiled about the vertical rods so as to slide back and forth thereon as specified.

3. In a fire-escape of the class mentioned, the combination with a cable-support having vertical rods and intermediate pulleys of a cable mounted between its ends upon the support, having a bight on the pulleys and being coiled about the vertical rods so as to slide back and forth thereon and a spring-pressed friction-piece adapted to bear upon the cable as specified.

4. In a fire-escape of the class mentioned, the combination with an inverted-U-shaped frame each of the members of the frame being provided with a slot, of pulleys mounted on the frame and arranged between the members thereof, a cable mounted between its ends on said frame by being passed through the slots, aroond the pulleys and coiled about the frame, a friction-piece mounted on the frame and adapted to bear upon the cable, a governor having gear connection with one of the pulleys and lever connection with the friction-piece substantially as specified.

5. In a fire-escape of the class mentioned, the combination with a cable-support having vertical rods and pulleys intermediate the rods, of a cable mounted between its ends upon the support and coiled about one of the rods with a bight upon the pulleys a spring-pressed friction-piece adapted to bear upon the cable and a governor connected by operating mechanism with one of the pulleys and connected by lever mechanism with the friction-piece as specified.

660,793. SINGLE-CYLINDER COMPOUND COMPRESSOR. Thos. Grant, New York, N. Y., assignor of one-half to Hartwig A. Cohen, Dalamar, Nev. Filed June 12, 1899. Serial No. 720,310. (No model.)



Claim.—1. In the cylinder of a compressor, the combination with an annular cup-shaped valve located with its turned-up edge at or near the cylindrical surface of the cylinder, of a retaining-plate E, facing the piston of the cylinder and bearing against the base of said valve, which in turn bears against the end of the cylinder, a spindle e' terminating the central portion of the retaining-plate E, and turned down to form a smaller portion e^3, for receiving a fastening-nut e^4, and a back cylinder-head B, having a boss b^4, through which passes said spindle e'.

2. A compressor consisting of the combination of a single cylinder of uniform internal diameter, having an inlet-valve at one end and an outlet-valve at the other end, a plunger whose diameter is less than said internal diameter and having an enlarged head whose forward compressing-surface faces the inlet-valve and is equal to the cross-sectional internal area of the cylinder, and whose rear compressing-surface faces the outlet-valve and is substantially equal to the difference of the cross-sectional cylinder area and the cross-sectional plunger area, and a valve carried by the enlarged head, between the spaces of the cylinder divided off by the said head, and forming an inlet from the larger area space to the smaller space.

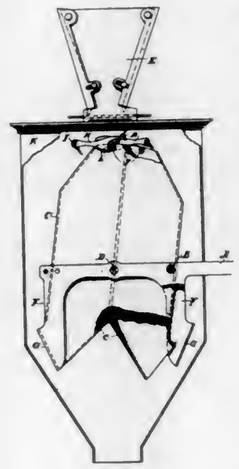
3. In a compressor, the combination with the front cylinder-head thereof, of an internal circular flange a^2, a piston passing within said flange and through the front cylinder-head C, a cage consisting of two parallel rings f', separated by separating-pieces f^3, and bearing upon the inner surface of said cylinder and located between said flange a^2, and said cylinder-head C, and packing-ring f, bearing upon said piston and located between said cage and said head, a cup-shaped valve a', having its base between said cage and said flange a^2, and having its edge between said cage and said piston to form a valve between the interior of the cylinder and the space between the rings f', the cylinder A, of the compressor having an outlet-port a^4, which opens into the space between the rings f.

660,794. AUTOMATIC WEIGHING-SCALE. Edward Hanak and George Hoepner, San Francisco, Cal., assignors to the Union Scale and Manufacturing Company, Sacramento, Cal. Filed Nov. 13, 1899. Serial No. 736,769. (No model.)

Claim.—1. In a weighing apparatus, a fulcrumed scale-beam, hangers and transversely-fixed abutments suspended therefrom and a compartment weighing-bucket pivoted and tiltable from side to side whereby the discharge-openings are alternately brought into contact with the corresponding abutments, or moved away from them.

2. The combination with a weighing apparatus of a fulcrumed scale-beam, a compartment weighing-bucket pivoted and tiltable upon one end of the beam and adapted to rise and fall therewith, said bucket having discharge-openings at opposite sides, and transversely-fixed abutments carried by the scale-beam and movable up and down in unison therewith and with the bucket, whereby the tilting of the bucket alternately closes the discharge-mouths against the abutments.

3. The combination in a weighing apparatus of a pivoted tilting weighing-bucket having a fixed central partition and a discharge-opening at the outer side of each compartment, a fulcrumed scale-beam upon which the bucket is carried and with which it is movable, a source of supply beneath which the receiving-mouths of the compartments are alternately placed by the tilting of the bucket, and transversely-fixed abutments carried by the scale-beam and movable up and down in unison with the beam and against which the discharge-mouths of the buckets are alternately closed.



4. The combination in a weighing apparatus of a tilting weighing-bucket having a central partition, a fulcrumed scale-beam upon which the bucket is carried, and with which it is movable, a stationary source of supply beneath which the mouth of one compartment is brought while the other is placed in position to discharge after being filled, abutments carried by the scale-beam against which the discharge-mouths are alternately closed by the tilting of the bucket, a latch mechanism by which the bucket is held in position until the compartment is filled and the scale-beam depressed, said mechanism comprising latch-levers fulcrumed at opposite ends to stationary supports, pins by which the depression of the inner end is limited, and stops or catches upon the sides of the bucket with which the latch-levers alternately engage when the bucket tilts.

5. The combination in a weighing apparatus of a tilting compartment-bucket, a fulcrumed rising and falling scale-beam upon which the bucket is tiltably supported, movable latch-levers having stationary fulcrum-points and latches at the movable ends, stationary stops by which the vertical movement of the latches is limited, other stops carried upon the bucket, one of which engages one of the latches when the bucket is tilted in one direction, and means to disengage the latches from the bucket-stops when the weight of the bucket causes it to sink whereby it is allowed to tilt to the opposite side.

6. The combination in a weighing apparatus of a fulcrumed tilting scale-beam, a compartment weighing-bucket carried by and tiltable upon the end of said beam, a source of supply beneath which the compartments are alternately brought to be filled, latch-levers having their outer ends fulcrumed upon stationary supports, and their inner ends adapted to engage stops upon the bucket whereby it is held in either position to which it may be tilted, said stops being disengaged by the sinking of the scale-beam and bucket when the latter has been filled, and supplemental levers so fulcrumed as to be engaged when the bucket sinks, said levers acting positively upon the latch-levers to disengage them from the bucket-stops.

7. In a weighing-machine, a fulcrumed tilting scale-beam, a compartment weighing-bucket carried upon one end and tiltable to present either compartment alternately to be filled, latch-levers by which the bucket is retained in position until the filling of the compartment is completed, a source of supply, and a hopper intermediate between said source and the weighing-bucket, said hopper having diagonally-disposed direction-boards slidably mounted therein to break the current and change the direction of the passing material.

8. The combination in a weighing-machine of a tilting compartment-bucket, mechanism by which it is locked in either position, a feed-hopper through which material is delivered into the bucket-compartments as they are presented beneath it, direction-boards diagonally disposed with the hopper and by which the current of material passing through the hopper

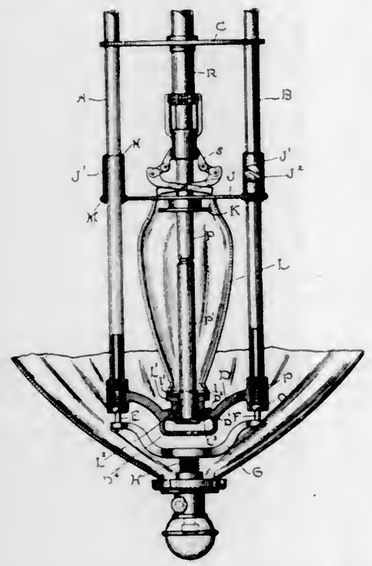
is changed, and means for slidably adjusting said boards to or from each other to vary the direction of the current.

9. The combination in a weighing-machine of a scale-beam, a compartment weighing-bucket tiltably carried upon one end of said beam, a source of supply beneath which the mouths of the bucket are alternately presented, a feed-hopper intermediate between the source of supply and the weighing-bucket, having diagonally-disposed direction-boards, and guides upon which they are slidable to and from each other whereby the material passing through the hopper is interrupted and its direction of motion changed.

10. The combination in a weighing-machine of a pivoted tilting scale-beam, a tilting compartment-bucket carried upon one end thereof, hangers rigid with the scale-beam and depending therefrom, and abutments carried by the hangers so as to be moved up and down with the scale-beam, to and from which abutments the discharge-mouths of the compartments are alternately moved, a source of supply beneath which the mouths of the bucket-compartments are alternately brought, and a slidable controlling-gate therefor, a horizontally-disposed receiver into which the compartments are emptied, said receiver being fulcrumed at one side, and a rod connecting said receiver with the discharge-gate, whereby a check in the flow of material through the receiver depresses it and acts to close the gate.

11. The combination in a weighing-machine of a fulcrumed scale-beam, a weighing-bucket pivoted and tiltable thereon, locking and disengaging mechanism whereby the bucket is alternately held with either compartment beneath the source of supply until filled, the said locking device being disengaged by the sinking of the bucket, and a percussive mechanism by which the holding latch or pawl is positively disengaged.

660,795. ELECTRIC-ARC LAMP. CHARLES E. HARTHAN and GEORGE E. STEVENS, Lynn, Mass., assignors to the General Electric Company, of New York. Filed Nov. 2, 1898. Serial No. 695,268. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a base, downwardly-extending side rods, a yoke, coiled springs for supporting the yoke on the ends of the rods in such a manner that it is vertically movable, an arc-inclosing cylinder, a holder therefor which is carried by the yoke, and a cap for closing one end of the cylinder, which cap is mounted on the side rods and is capable of being adjusted vertically thereon.

2. In an electric-arc lamp, the combination of a base, a pair of downwardly-extending side rods secured thereto, a yoke connecting the side rods at the lower ends, the said yoke being provided with an opening for receiving the cylinder-holder, an arc-inclosing cylinder, a holder therefor which fits into the opening in the yoke, a cap which is carried by the side rods and is adjustable thereon, and coiled springs which press the yoke upward at all times.

3. In an electric-arc lamp, the combination of a tubular side rod, a yoke which is movable thereon, an arc-inclosing cylinder, a cap therefor mounted on the side rod and capable of vertical adjustment, a holder for the cylinder, a seat in the yoke for the holder, and a coiled spring surrounding the side rod and tending at all times to press the cap and yoke together.

4. In an electric-arc lamp, the combination of a pair of tubular side rods, a yoke connecting the rods, which is provided with cup-shaped cavities on the upper side for receiving the ends of the rods and with similar cavities on the under side thereof, means for securing the yoke to the rods, and springs for permitting a slight movement of the yoke independent of the rods.

5. In a lamp, the combination of a pair of side rods rigidly fixed to the frame, a spring-supported yoke connecting the rods at the bottom and provided with a seat which has a lateral opening at one point, a fixed top or cap for the cylinder, and a holder for the cylinder which fits into the seat in the yoke and is removable by depressing the yoke and moving it through the lateral opening.

6. In a lamp, the combination of a pair of side rods, a spring-supported yoke connecting the rods and provided with a seat having a straight and conical bore, the said seat being laterally cut away at one point, a cylinder, and a holder therefor having a base formed to fit the seat in the yoke, which is removable by depressing the yoke and moving it through the lateral cut-away portion.

7. As an article of manufacture, a yoke for an electric-arc lamp, having top and bottom cup-shaped cavities at each end, a combined straight and conical bored seat which is cut away at one point, and a flat web situated below the seat and provided with an opening to permit a carbon to be passed upward through the yoke.

8. In an electric-arc lamp, the combination of a pair of tubular side rods, a yoke connecting the rods, screws threaded to the lower ends of the rods, and compression-springs surrounding the screws and arranged to force the yoke upward against the ends of the side rods.

9. In a lamp, the combination of a pair of side rods, a spring-supported yoke connecting the rods, a cylinder, a fixed cap, and a seat for the lower end of the cylinder, which is provided with an opening on one side, the arrangement of parts being such that the cylinder can be removed only by depressing the yoke and removing the lower end of the cylinder through the opening in the seat.

10. In an electric-arc lamp, the combination of an inner globe or cylinder which is open at both ends, a cap or cover for the top, side rods secured to the frame, a yielding yoke mounted on the side rods supporting the lower end of the cylinder-rests, and means for pressing the cap and holder against the ends of the cylinder to hold the latter in place.

11. In an electric-arc lamp, the combination of a pair of side rods, a yoke having a central opening with a conical surface and a laterally-extending slot communicating with said opening, which yoke connects the side rods, screw-threaded means for retaining the yoke in place, a combined globe and carbon-holder arranged to fit the conical surface on said yoke and be removable by a sidewise movement through the laterally-extending slot, and a spring for holding the said holder in place.

12. In an electric-arc lamp, the combination of side rods, a yoke for connecting the rods, the said yoke being provided with a central opening having a conical seat and a laterally-extending slot communicating with said opening, and a globe-holder which is arranged to fit into the conical seat and to be removable by moving it sidewise through the laterally-extending slot, the object of such arrangement being to center the globe and prevent its removal unless the holder is slightly raised.

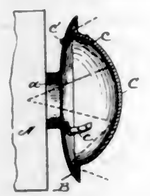
13. In an electric-arc lamp, the combination of side rods, a yoke connecting the rods which is provided with a conical seat and a slot or groove opening into the conical seat, a spring for pressing the yoke and holder toward each other and a holder mounted on the yoke and adapted to fit into the seat, the seat and groove being so arranged that by raising the holder slightly the latter may be removed by a lateral movement.

660,796. HYGIENIC RESONATOR FOR TELEPHONES OR OTHER SOUND-TRANSMITTING DEVICES. GUSTAVUS HOGLUND and CARL M. HEDMAN, Chicago, Ill., assignors of one-half to Charles Berg and Maurice Lundin, same place. Filed Dec. 18, 1899. Serial No. 740,663. (No model.)

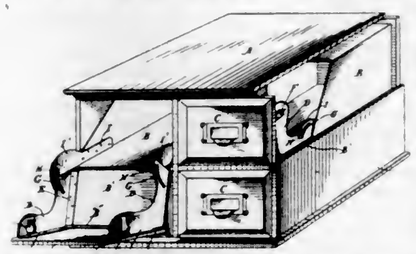
Claim.—1. A resonator for a sound-transmitting device comprising a concave piece, with its cavity circumscribing and adjacent to the opening of the transmitter, substantially as described.

2. The combination with a concave mouthpiece, of a piece concave on one side and convex on the other secured therein at a slight distance

thereform and with its cavity adjacent to the mouthpiece and circumscribing the opening of the transmitter, substantially as described.



660,797. FILE-BOX. WILLIAM W. HUKLESTER, Grand Rapids, Mich. Filed Apr. 26, 1900. Serial No. 14,424. (No model.)



Claim.—1. The combination of a box, a bottom extension hinged thereto, plates attached to the box and extension, and having overlapping portions, and means for slidably connecting said overlapping portions and limiting the turning of the extension, substantially as described.

2. The combination of a box having a hinged front extension, a plate having a segmental portion, and a plate having a hook slidably engaging the segmental portion of the other plate, said plates being respectively attached to the box and hinged extension, with said segmental portion concentric with the hinge of the front extension, substantially as described.

3. The combination of a box having a hinged bottom extension, plates attached to the box and extension and having overlapping segmental portions, one of said plates having a segmental slot and the other plate having a hook or stud engaging the slot and traversing the same, substantially as described.

4. In combination with a file-box having a hinged bottom extension and a front attached thereto, angle-plates connecting the front and the bottom extension and having segmental slots concentric with the hinge, plates attached to the sides of the box and extending outward therefrom, and hooks on the plates engaging the segmental slots, substantially as described.

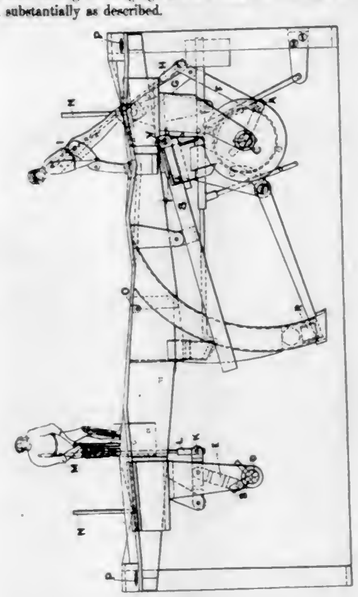
5. In combination with a file-box having a hinged bottom extension and a front, angle-plates having inwardly-turned flanges attached to the bottom extension and to the front, and also having segmental slots concentric with the hinge, plates attached to the sides of the box and projecting outward and engaging the bottom flanges on the angle-plates, and hooks on the said plates engaging the slots, substantially as described.

6. The combination of a file-box having a hinged bottom extension having its outer end turned upward at right angles, a front secured to the upwardly-turned outer end of the extension, angle-plates having recesses near the angle to receive the upwardly-turned end of the bottom, and inwardly-turned flanges secured to the bottom and to the front and also having outwardly-projecting elastic arms to engage the inner surface of a pigeonhole in the case, substantially as described.

7. The combination of an angle-plate for file-boxes having two rectangular sides and flanges on the said side and a segmental slot, and also having outwardly-projecting elastic arms, and adapted to be attached to the front and bottom of a file-box, and a plate adapted to be attached to the side of a file-box and having a hook adapted to traverse the slot and slidably engage the surface of the angle-plate, substantially as described.

660,798. COIN-FREED GAME. ERNEST G. MATTHEWSON, London, England. Filed Feb. 15, 1900. Serial No. 5,336. (No model.)

Claim.—In combination with a board having an undulating surface for causing a ball to roll in various directions, a figure of a bowler having a swinging arm, means for operating said arm to cause it to bowl a ball, a wicket at the opposite end of said field, a batsman in advance of said wicket having a swinging bat and means for causing said bat to swing, substantially as described.



660,799. ROTARY ENGINE. DAVID MORELL, Cassel, Germany. Filed June 5, 1899. Serial No. 719,386. (No model.)

Claim.—1. In combination, a casing with two rotating pistons having vanes and hubs with every here and there solid and elastic surfaces, these solid and elastic places upon the surfaces of the vanes and hubs being distributed in such a manner that intermittently a solid place of the one piston touches an elastic place of the second piston, substantially as described.

2. In combination, a casing with two rotating pistons, having vanes and hubs with every here and there solid and elastic surfaces, for tightening intermittently between both the pistons, the solid and elastic places being of different breadths for obtaining an elastic tightness in every moment during the rotation of the pistons in spite of the different velocity of the circumference of the vanes and hubs.

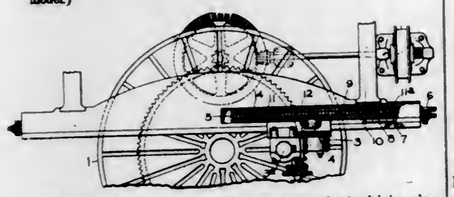
660,800. COTTON-SCRAPER ATTACHMENT FOR TURNING-PLOWS. JOHN W. PAGE, Como, Miss. Filed Aug. 18, 1900. Serial No. 27,327. (No model.)



Claim.—1. A cotton-scraper attachment having a bolt-hole near its inner lower corner, for the purpose set forth, and a rearward-extending lug near its upper inner corner adapted to engage the landside edges of the standard and moldboard of a plow, substantially as described.

2. In combination with a turning-plow having a moldboard, a cotton-scraper attachment curved to fit on the face of the moldboard and having a rearward-extending lug near its inner upper corner engaging the landside edges of the moldboard and standard, and a bolt to secure the lower portion of said cotton-scraper attachment to the foot of the plow, substantially as described.

660,801. ELECTRICALLY-OPERATED MACHINE-TOOL. JOHN RIDDELL, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 30, 1900. Serial No. 28,572. (No model.)



Claim.—1. The combination with a machine-tool, of a driving electric motor and means for automatically varying the speed of the motor to control the speed of the tool.

2. The combination with a machine-tool, of a driving electric motor, a speed-controller for the motor, and mechanical connections with the machine for operating the controller.

3. The combination with a machine-tool, of a driving electric motor, a speed-controller for the motor, and connections for operating the controller to vary the motor speed as the cutting shifts to or from the center of the work.

4. The combination with a turning-mill or similar machine-tool, of a driving electric motor, a speed-controller for the motor, and mechanical connections for operating the controller as the cutter moves to and from the center of the work.

5. The combination with a turning-mill or similar machine-tool, of a driving electric motor, a speed-controller, and connections for varying the voltage on the field-magnet and armature of the motor as the cutting-tool shifts to and from the center of the work.

6. The combination with a turning-mill or similar machine-tool, of a driving electric motor, a speed-controller for the motor, and connections for raising the voltage on the motor as the cutting-tool shifts toward the center of the work.

7. The combination with a turning-mill or similar machine-tool, of a driving electric motor, a resistance in the motor-circuit, and a contact device to automatically reduce the resistance as the cutting-tool moves toward the center of the work.

8. The combination with a turning-mill or similar machine-tool, of a driving electric motor, a speed-controller therefor comprising a variable resistance and connections for cutting out resistance to raise the motor speed and maintain a uniform rate of cutting as the tool shifts toward the center of the work, and vice versa.

9. The combination with a turning-mill or similar machine-tool, of a driving electric motor, speed-controlling resistance in the field-magnet and armature-circuit of the motor, and contacts governed by the mill for varying said resistance to maintain a uniform cutting rate as the cutting-tool shifts to different parts of the work.

10. The combination of a turning-mill or similar machine-tool, of an electric motor, a supply-circuit delivering different voltages, and connections for automatically charging the leads connecting the motor and mains as the cutting-tool shifts to or from the center of the work.

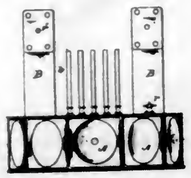
11. The combination of a turning-mill or similar machine-tool, of a driving electric motor, fixed speed-controlling contacts mounted on a stationary part of the mill, and a movable contact device operated by the mill to vary the speed of the motor.

12. The combination of a turning-mill or similar machine-tool, of a driving electric motor, a range of speed-controlling contacts, a relatively-movable contact device operated by the mill to vary the speed of the motor, and means for adjusting the starting-point of the contact device relatively to the range of contacts.

13. The combination of a turning-mill or similar machine-tool, of a driving electric motor, a range of speed-controlling contacts for the motor, connections with the field-magnet and armature-circuits of the motor, a supply-circuit for delivering a plurality of voltages, and a contact device operated by the mill for gradually varying the voltages on the armature and field to accelerate the motor speed as the cutting-tool moves toward the center of the work.

14. The combination of a turning-mill or other machine-tool, of a driving electric motor, rheostatic contacts mounted on the cross-slide connecting respectively with the field-magnet and armature-circuits of the motor, and insulated contacts carried by the cutter-head for engaging the rheostatic contacts consecutively and varying the motor speed as the cutting-tool shifts over the work to maintain uniform the rate of cutting.

660,802. TELEPHONIC APPARATUS FOR USE ON VESSELS, &c. MARIO R. D'ASAR, Genoa, Italy. Filed Feb. 28, 1899. Serial No. 707,154. (No model.)



Claim.—1. In an apparatus of the character described the combination of a box adapted to be applied to a submerged part of a ship, the box having several sides at different angles, concave collectors in several such sides, and a separate sound-transmitting tube extending from each collector.

2. The combination of submerged collectors A, sound-transmitting tubes *b* extending therefrom, and a direction-indicator to which tubes *b* connect, as and for the purposes set forth.

3. In a telephonic apparatus for ships two concentric cylinders, the interior one of which is provided with openings and can be rotated, while the exterior one is fixed and is provided with openings and tubes, which are connected to submerged collectors, substantially as and for the purpose described.

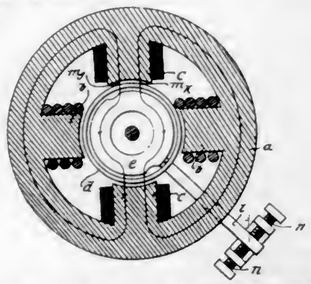
4. In a telephonic apparatus for ships an inner and an outer cylinder each provided with a series of holes all of which can be in correspondence with each other at the same time the inner one having in addition another series of holes arranged so that at each turn or partial turn of the inner cylinder one of them corresponds with one of the openings of the outer cylinder, substantially as and for the purpose described.

5. The combination of a direction-indicating device, submerged collectors, tubes from the collectors to said indicating device, a microphone, a pipe from the indicating device to said microphone, and a telephone-receiver.

6. The combination of several submerged collectors, electric telephone apparatus at a distance from the collectors, and sound-transmitting tubes for connecting the collectors with the electric telephone apparatus.

7. The combination of several submerged collectors, a direction-indicating device, pipes connecting the several collectors to the indicating device there being a separate tube for each collector, a dial, and an index-hand moved with said device to indicate the position of the collectors.

660,803. MEASURING INSTRUMENT. FRANZ SCHROTTKE, Berlin, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Original application filed Sept. 2, 1899, Serial No. 729,324. Divided and this application filed Feb. 12, 1900. Serial No. 4,929. (No model.)



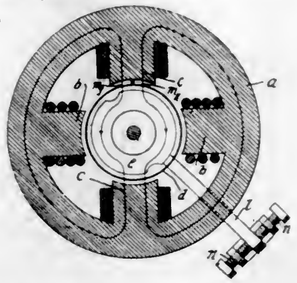
Claim.—1. The method of correcting errors in alternating-current-measuring instruments, which consists in setting up lines of force by the current that is to be measured, subjecting a movable element of the instrument to said lines of force, and adjusting the reluctance in the magnetic circuit threaded by a portion only of said lines of force, substantially as described.

2. The method of correcting errors in alternating-current-measuring instruments, which consists in setting up lines of force by the current that is to be measured, causing the said lines of force to follow separate paths, subjecting the movable member of the instrument to the lines of force in both paths, and adjusting the reluctance of the magnetic circuit threaded by one set of the lines of force, substantially as described.

3. The method of correcting errors in alternating-current-measuring instruments, which consists in setting up lines of force by the current that is to be measured in a field portion, subjecting a movable member of the instrument to the action of the field, and varying the cross-section of a part only of the field portion to adjust the reluctance of a magnetic circuit threaded by a portion only of the lines of force to effect the desired correction, substantially as described.

4. The method of correcting errors in alternating-current-measuring instruments, which consists in setting up lines of force, causing the said lines of force to follow two paths in a field portion, subjecting a movable member of the instrument to the action of the said field portion, and varying the cross-section of a part of the field portion threaded by one set of lines of force to adjust the reluctance and thereby to effect the desired correction, substantially as described.

660,804. MEASURING INSTRUMENT FOR ALTERNATING CURRENTS. KARL O. F. SCHROTTKE, Berlin, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Sept. 2, 1899. Serial No. 729,324. (No model.)



Claim.—1. In an alternating-current-measuring instrument, the combination with the movable member, of a field portion, a winding therefor for association with an alternating-current circuit, and an adjustable portion included in the same magnetic circuit with the field portion adapted to vary the reluctance of a portion only of the magnetic circuit including the field portion substantially as described.

2. In an alternating-current-measuring instrument, the combination with the movable member, of a field portion, a winding therefor for association with an alternating-current circuit, and a rotatably-adjustable portion included in the same magnetic circuit with the field portion adapted to vary the reluctance of a portion only of the magnetic circuit including the field portion substantially as described.

3. In an alternating-current-measuring instrument, the combination with an alternating-current circuit, of a winding, a field portion affording multiple magnetic circuits for the lines of force due to the said winding, means for varying the reluctance in one of said magnetic circuits, and a movable element of the instrument subjected to the action of said field portion, substantially as described.

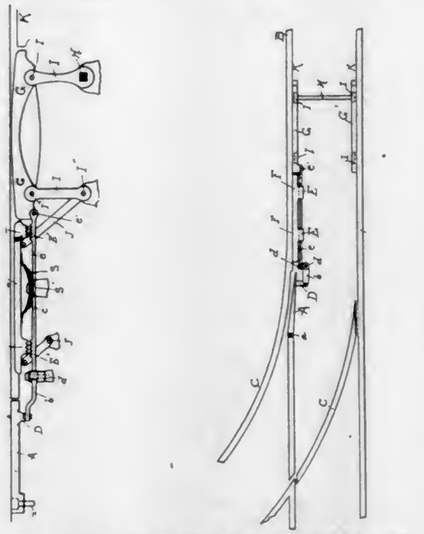
4. In an alternating-current-measuring instrument, the combination with a winding to be associated with an alternating-current circuit, of a field portion affording distinct paths for lines of force due to the said winding, a movable element of the instrument subjected to the action of said field portion, and a rotatable body for effecting the adjustment of the reluctance in said magnetic circuits or either of them, substantially as described.

5. The combination with an annular field portion provided with inwardly-projecting pole-pieces, of a winding for the field portion, an armature subjected to the action of the field portion, and an adjustable magnetic body inclosed by the armature adapted to effect the adjustment of the reluctance in the magnetic circuits threaded by a portion only of the lines of force, substantially as described.

6. In an alternating-current-measuring instrument, the combination with a field-ring *a* provided with interiorly-projecting pole-pieces *b b c c*, of windings for the said pole-pieces, a drum *d* inclosed by the pole-pieces, and an adjustable grooved iron cylinder *e* inclosed by the drum, substantially as described.

7. In an alternating-current-measuring instrument, the combination with a field-ring *a* provided with interiorly-projecting pole-pieces *b b c c*, of windings for the said pole-pieces, a drum *d* inclosed by the pole-pieces, and a grooved iron cylinder *e* inclosed by the drum, substantially as described.

660,805. ACTUATING DEVICE FOR RAILWAY APPLIANCES. ELMER A. SPERRY, Cleveland, Ohio. Filed May 17, 1897. Serial No. 636,924. (No model.)



Claim.—1. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and suitable connections between said movable part and the appliance to be actuated, whereby the said appliance may be actuated in either of two directions or left quiescent by the torque condition of said wheel or wheels, substantially as described.

2. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved in two directions for effecting different movements of the actuated appliance, the said movable part being controlled in its movements by the torque condition of a passing wheel or wheels, substantially as described.

3. In an actuating device for railway appliances, a movable part lying closely adjacent to a railway-track, but below the tread-surface thereof, and suitable connections between said movable part and the appliance to be actuated, whereby the latter may be actuated in either of two directions by the flange of a passing wheel or wheels or left quiescent, by the torque condition of the wheel or wheels, substantially as described.

4. In a device for operating railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved thereby, the said movable part being suitably connected to the appliance to be operated and having its upper or contact surface inclined at its ends, substantially as and for the purposes specified.

5. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved by the torque condition thereof, suitable connections between the movable part and the appliance to be actuated, and locking mechanism for securing the appliance in the position to which it has been moved, during the passage of a train, substantially as described.

6. In an actuating device for railway appliances, a part lying in the path of a wheeled locomotive or vehicle and adapted to be moved by the torque condition of one or more of the passing wheels, and a locking device also in such path, whereby, at a predetermined point in the travel of the wheel or wheels, the part or parts are rendered inactive.

7. In an actuating device for railway appliances, a part lying in the path of a wheeled locomotive or vehicle, and adapted to be moved by the torque condition of one or more of the passing wheels, and a locking device impinged by the passing wheel or wheels and adapted to render the part or parts inactive during such impingement.

8. In an actuating device for railway appliances, a part lying in the path of a wheeled vehicle and adapted to be moved in either direction from a central position by the torque condition of a passing wheel of the vehicle, and a centralizing device for returning the part to a central position, consisting of opposing springs and a fixed stop or stops for limiting the movement of said springs, substantially as shown and described.

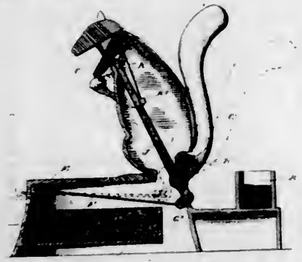
9. In an actuating device for railway appliances, such as switches, the combination of one or more movable parts located in the path of, and

adapted to be actuated by the movement of the car-wheels, said movable part or parts being provided with permanent connections with the appliance to be actuated and adapted thereby to communicate motion to the latter in either of two directions, whereby the position of the appliance is determined by the adjustment of the movable part or parts, substantially for the purpose set forth.

10. In an actuating device for railway appliances, such as switches, the combination with track-rails, of one or more movable parts, slidably located in the path of the car-wheels on each side of the track, a rock-shaft extending transversely of the track beneath the rails with upwardly-projecting arms connected to the movable parts, and permanent connections between the movable parts and the appliance to be actuated, whereby the position of the actuated appliance is determined by the position of the movable parts, substantially for the purpose set forth.

11. In an actuating device for railway appliances, a part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved thereby, and recording mechanism arranged to record the movements of said device, substantially as described.

660,806. **NUT-CRACKER.** Charles C. Tombs, Johnstown, Pa. Filed June 17, 1899. Serial No. 720,974. (No model.)



Claim.—1. The combination with a casting representing an animal seated on a stump, of a pivoted lower jaw, a lever forming the tail of the animal, a bar pivotally connected to the inner end of the lever and adapted to force the jaw upward, and a pivotal rod connecting the bar with the jaw, substantially as described.

2. The combination with a casting representing an animal seated on a stump, of a pivoted lower jaw, a spring for holding it normally in its closed position, a lever forming the tail of the animal, a bar pivotally connected to the inner end of the lever and adapted to force the jaw upward, and a rod pivoted to the jaw and slidably connected to the bar, substantially as described.

3. The combination with the hollow casting, representing a squirrel seated on a stump, of a lever pivoted to the body and representing the tail, a pivoted lower jaw, a pivoted lid to the stump, and connections between the lever and jaw, and lever and lid, whereby the lid may be opened, and the jaw closed simultaneously by depressing the lever, substantially as described.

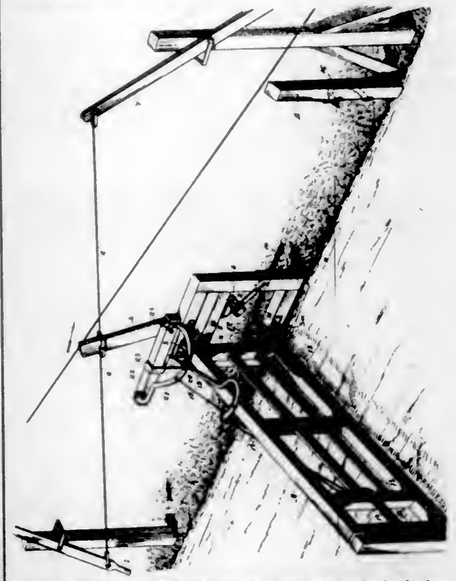
4. In a nut-cracker, the combination with the casting representing the body of a squirrel, a lever representing the tail and projecting into and pivoted to said body, of a bar pivoted to the short end of said lever within the body, the pivoted lever-jaw having a notch, a rod pivoted to the jaw in advance of the jaw-pivot and slidably connected to said bar, pivoted members representing the legs and fore feet pivoted to the said body, a link pivoted to one of said members and the movable jaw and a shell-receptacle having a hinged lid, a rod connecting said lid with the extreme lower end of the first-named lever.

660,807. **GATE.** Henry Alten, Sebastapol, Cal. Filed Aug. 11, 1900. Serial No. 26,610. (No model.)

Claim.—1. The combination with a hinged swinging gate of a lever-arm projecting rearwardly therefrom, a horizontally-slidable guided bar, a link connecting said bar with the lever, a vertically-fulcrumed lever connected with the sliding bar, other vertically-fulcrumed levers, upon posts upon each side of the driveway and cords connecting said levers with the central operating-lever.

2. The combination with a hinged swinging gate of a lever-arm projecting rearwardly therefom, a horizontally-slidable guided bar, a link connecting said bar with the lever, a vertically-fulcrumed lever connected with the sliding bar by means of a link, and having an elongated loop whereby the lever is allowed a considerable movement before acting upon the parts moved thereby, a latch and connections between said latch and the lever whereby the latter acts to disengage the latch before operating to turn the gate about its hinges.

3. A hinged swinging gate having an arm projecting rearwardly therefrom, a pivoted vertically-swinging lever, a loose connection between the lower end of said lever and an intermediate mechanism by which the arm is moved to swing the gate, a slide connected and movable with the lever, an arm fulcrumed upon the gate and movable in unison with the slide, a latch by which the gate is normally retained in its closed position, and a cord connecting the latch with the slide-actuated arm whereby the latch is raised before movement is communicated to swing the gate.



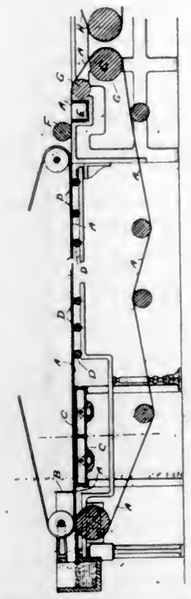
4. A hinged swinging gate having a rigid arm projecting horizontally therefrom, a vertically-swinging fulcrumed lever, loose connections between said lever and the arm by which the gate is caused to swing, a slide with which the lever is connected, a bent arm fixed to said slide, an arm fulcrumed upon the gate having one end engaged and actuated by the slide and the other connected with the latch by which the gate is held in its closed position, and a second cord connecting the bent arm with the latch, and acting to release the gate from the latch by which it is held in its open position.

5. A hinged swinging gate, a lever fulcrumed to swing vertically in rear of the hinge-post, an arm projecting horizontally to the rear of the gate-hinge, loose connections between the lever and said arm, and means for swinging the lever, a latch by which the gate is held in either its closed or its open position, a device for releasing the latch when the gate is closed, consisting of an arm fulcrumed upon the gate, a cord connecting it with the latch, a slidable bar connected with the lever whereby the arm and latch-cord are actuated by the swinging of the lever previous to the turning of the gate upon its hinges, a curved arm fixed to the slide, and a cord connecting this arm also with the latch whereby the movement of the lever and slide when the gate is opened, will act to disengage the latch.

6. A hinged swinging gate, an arm extending horizontally to the rear of the hinges, a vertically-fulcrumed lever and connections between it and other levers fulcrumed to posts at the side of the roadway whereby said lever may be tilted about its fulcrum-point, loose connections between said lever and the arm, a sliding bar connected with and actuated by the lever, a latch having a horizontal portion fulcrumed to the gate and an upturned end, cords connecting said latch with the slide whereby the preliminary movement of the lever first acts to disengage the latch before operating to swing the gate.

7. A hinged swinging gate, a lever, connections between said lever and other levers at the side of the roadway, whereby said lever may be caused to swing about its fulcrum, loose connections between the lower end of said lever and an arm by which the gate is caused to swing, a slide connected with and operated by the lever, a latch, connections between said latch and the slide whereby the latch is raised by the initial movement of the lever, and a catch with which the latch is adapted to engage, said catch being fulcrumed to the post against which the gate closes, and having a semicircular weighted lower end by which it is yieldingly maintained in position to engage the latch.

660,808. **MANUFACTURE OF PAPER.** James H. Annandale, Polton, Scotland. Filed Feb. 17, 1900. Serial No. 5,637. (No specimens.)



Claim.—The method of producing paper, analogous in texture to hand-made paper, which consists in applying a transverse shake or vibratory motion to the paper pulp while flowing in a thin stream, said shake varying in degree at different points along the course of the pulp, being greatest at the head of said stream and subjecting said pulp to suction at the point of maximum shake at the head of the stream of pulp whereby the paper is "made" at the point of maximum shake, substantially as described.

660,809. **METHOD OF MAKING TILES.** Frank K. Cheese, London, England. Filed Aug. 6, 1900. Serial No. 26,046. (No specimens.)

Claim.—1. The hereinbefore-described process of manufacturing a glass tile with roughened back by moistening the back of the tile, dropping onto it small lumps formed from a mixture held together by cementing material and composed of finely-divided infusible solid material admixed with materials which will fuse together and unite with the surface of the glass, and then heating the glass to fuse the fusible material in the lumps, substantially as set forth.

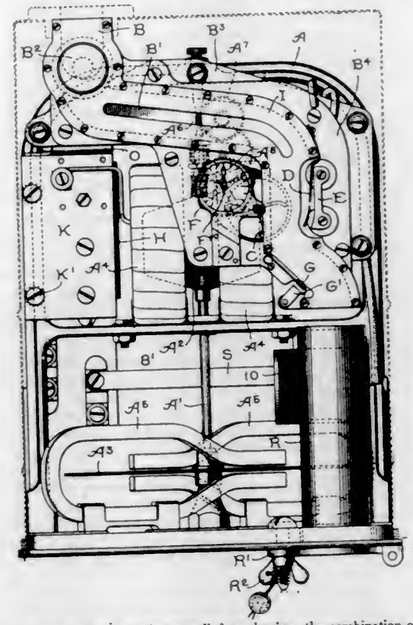
2. The hereinbefore-described process of manufacturing a glass tile with roughened back by moistening the back of the tile, dropping onto it small lumps formed from a mixture held together by cementing material and composed of finely-divided infusible solid material admixed with materials which will fuse with it and with the surface of the glass, and then heating the glass to fuse the fusible material in the lumps substantially as set forth.

3. The hereinbefore-described process of manufacturing a glass tile with roughened back, consisting in first admixing granular material such as sand with materials which will fuse when heated and with a cementing solution, allowing the mixture to harden, crushing the mixture after it has become hard into small lumps, moistening the back of the sheet of glass to be coated, sprinkling the lumps over the moistened back and then heating the glass to fuse the fusible material in the lumps substantially as set forth.

4. The hereinbefore-described process of manufacturing a glass tile with roughened back by moistening the back of the tile, dropping on it lumps composed partly of materials which will fuse together and to the glass and partly of cementing material which will adhere to the moistened back of the glass, and then heating the glass to fuse the fusible material in the lumps substantially as set forth.

5. The hereinbefore-described process of manufacturing a glass tile with roughened back by moistening the back of the tile, dropping onto it lumps composed of a mixture of sand, asbestos, oxid of lead, borax and gum, and then heating the glass to fuse the fusible material in the lumps.

660,810. **COIN-CONTROLLED MECHANISM.** Frank P. Cox, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Apr. 8, 1899. Serial No. 712,206. (No model.)



Claim.—1. In a coin-controlled mechanism, the combination of an electric circuit, a circuit-breaker included in the circuit, magnetically-controlled means for controlling both the opening and the closing of the circuit-breaker, a coin-controlled device for causing the closing of the circuit-breaker, and a separate device also coin-controlled for causing the opening of the circuit-breaker.

2. In a coin-controlled mechanism, the combination of an electric circuit, a switch included in the circuit, a magnet for causing the closing of the switch, a second magnet for causing the opening of the switch, and a coin-controlled means which is so arranged that the coin causes the energizing of first one magnet and then the other.

3. In a coin-controlled mechanism, the combination of an electric circuit, a switch included in the circuit, a magnet for causing the closing of the switch, a second magnet for causing the opening of the switch, and a coin-controlled means which is so arranged that it first causes the closing of the circuit, and then the opening of the circuit; a single coin causing both operations.

4. In a mechanism controlled by a coin or other token, the combination of a circuit, a switch in the circuit, a magnet for closing the switch, a magnet for opening the switch, contacts arranged in the path of the coin or token in such manner that first one magnet-circuit is closed and then another; and means for preventing the closing of the second circuit until after a certain interval.

5. In a coin or token controlled electrical apparatus, the combination of a circuit, a switch therein, a magnet for closing the switch, a second magnet for opening the switch, a winding for each of the magnets, through which less current is permitted to flow than in the said circuit, contacts for closing the circuits of the magnets in such a manner that the switch is first closed and then opened, all of said contacts being acted upon by the deposited coin or token, and means for retarding the passing of the coin so that there will be an appreciable time interval between the closing and opening of the switch.

6. In a prepayment mechanism for electric meters, the combination with a meter and the main circuit for its coil or coils, of a normally-open circuit-closer included in the meter-circuit, magnetically-controlled means for respectively opening and closing said circuit-closer, a coin-controlled device for setting into action the means for closing the circuit-closer, and a separate device also controlled by the coin for setting into action the means for opening said circuit-closer, substantially as set forth.

7. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter and the main circuit for the meter-coil, of a normally-open circuit-closer included in the meter-circuit, separate electromagnetic means for respectively controlling the opening and closing of said circuit-closer, a coin-controlled device for setting into action the means for closing the circuit-closer, and an automatic register-controlled device for moving the deposited coin to a point where it will set into action the means for releasing or opening said circuit-closer, substantially as specified.

8. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter, and the main circuit for the meter-coil, of a circuit-closer included in the meter-circuit and having a movable member, separate electromagnetic means for controlling the moving of said movable member of the circuit-closer to operative and inoperative positions, a coin-controlled device for setting into action the means for adjusting said movable member to an operative position and an automatic register-controlled device for advancing the deposited coin to a point where it will set into action the means for releasing or moving said movable member to an inoperative position.

9. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter and the main circuit for the meter-coil, of a circuit-closer included in the meter-circuit and having a movable member, a main-circuit-closing armature carrying the movable member of the circuit-closer, an electromagnet for moving said armature in one direction, electrically-controlled means for regulating the moving of said armature in an opposite direction, a primary circuit-closer included in a circuit with said electromagnet and the main-line connections for the meter, a coin-controlled device for operating the primary circuit-closer, and a coin or token controlled device for automatically setting into action the means for moving said armature away from its magnet.

10. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter, and the main circuit for the meter coil, of a circuit-closer included in said meter-circuit, and having a movable member, a main-circuit-closing armature carrying the movable member of said circuit-closer, an electromagnet for moving said armature in one direction, a separate electromagnet for regulating the moving of the armature in the opposite direction, separate local circuits for each of said magnets, a coin-controlled device for closing one of said local circuits, and a separate device also coin-controlled for closing the other of said local circuits.

11. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter, and the main circuit for the meter-coil, of a circuit-closer included in the meter-circuit and having a movable member, a main-circuit-closing armature carrying the movable member of the circuit-closer, an electromagnet for moving said armature in one direction, a separate electromagnet for permitting the armature to move in the opposite direction, separate local circuits for each of said magnets, a coin-controlled device for one of the local circuits, and a coin-controlled device regulated by the register for automatically closing the other of said local circuits.

12. In a prepayment mechanism for electric meters, the combination with the main circuit, of a circuit-closer included in said circuit and having a movable member, a main-circuit-closing armature carrying the movable member of said circuit-closer, an electromagnet for moving said armature in one direction, a separate electromagnet for permitting said armature to move in the opposite direction, coin-controlled means for causing one of said magnets to be energized, and separate means acted upon by the coin for causing the other of said magnets to be separately and independently energized.

13. In a prepayment mechanism for electric meters, the combination with the main circuit, of a circuit-closer included in said circuit and having a movable member, a main-circuit-closing armature carrying the movable member of said circuit-closer, an electromagnet for moving said armature in one direction, a locking device pivotally supported at one end and having locking engagement at its other end with said main armature, an electromagnet arranged adjacent to the locking device for controlling the movement thereof in one direction, a spring, separate local circuits for each of said magnets, a coin-controlled device for closing one of said local circuits, and a separate device acted upon by the same coin which controlled the closing of the first circuit for closing the other of said local circuits.

14. In a prepayment mechanism for electric meters, the combination with the register mechanism of the meter and the main circuit for the meter-coil, of a circuit-closer included in the meter-coil circuit and having a movable member, a main-circuit-closing armature carrying the movable member of the circuit-closer, a setting-magnet for moving the main armature in one direction, a locking device pivotally supported at one end and having a loose locking engagement at its other end with the main armature, a release-magnet for controlling the movement of the locking device in one direction, a spring for moving the circuit-closing armature against the action of the magnet, a circuit-closer actuated by the deposited coin for setting the magnet into operative condition, and a coin-actuated circuit-closer, regulated in its action by the register mechanism, and included in a circuit with the release-magnet.

15. In a metering device, the combination of a coil or coils included in a circuit, a switch which is normally open included in the meter-circuit, coin and magnetically controlled means for regulating the opening of the switch, and coin and magnetically controlled means for regulating the closing of the switch.

16. In a metering device, the combination of a coil or coils included in a circuit, a switch which is normally open included in the meter-circuit, magnetically-controlled means for regulating the opening of the switch, magnetically-controlled means for regulating the closing of the switch, and coin-controlled means for rendering both of the magnetic means operative.

17. In a prepayment mechanism, the combination of a main circuit, a circuit-breaker having a movable member, an armature carrying the said member, two magnets which act to control the armature, and separate coin-controlled devices for controlling the action of the magnets.

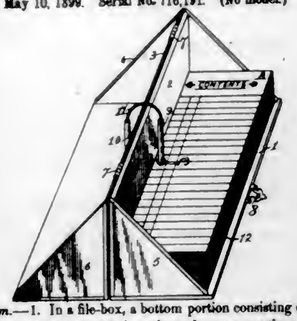
18. In a coin or other token controlled apparatus, the combination of two normally-open circuits, contacts for closing the circuits, a register mechanism and means for directing the passage of the coin or other token through the register in such manner that it causes the closing of both circuits.

19. In a coin or other token controlled apparatus, the combination of two normally-open circuits, contacts for closing the circuits a register, and a chute for directing the movement of the coin or token in such manner that the coin or token closes one circuit before entering the register, and the other after leaving the register.

20. In a coin or other token controlled apparatus, the combination of two normally-open circuits, a magnet included in each of the normally-open circuits and arranged to perform useful work, a chute for directing the movements of the coin or token, and contacts located near the chute and arranged to be pressed into engagement with each other for closing the circuit of magnets as the coin passes along; the arrangement being such that the circuit of first one magnet is closed, and then the other, the same coin or token acting in both cases.

21. In a coin or other token controlled apparatus which is capable of receiving more than a single coin or token, the combination of a magnet for closing a main circuit, a magnet for opening the circuit, means located in the path of the coin or token for closing both of the magnet-circuits, and means for permitting the second coin or token to advance to a point where it completes the closing of the circuit of the first magnet prior to the time that the first coin completes the circuit of the second magnet, so that there is no interruption of the main circuit.

660,811. **FILE-BOX.** WILLIAM E. DUNNING, Fremont, Ohio. Filed May 10, 1899. Serial No. 716,191. (No model.)

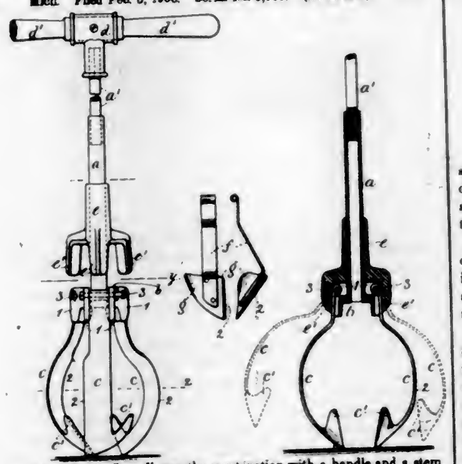


Claim.—1. In a file-box, a bottom portion consisting of a rectangular bottom, a side piece and triangular ends, a top portion consisting of a rectangular top, a side piece, and triangular ends, and hinges connecting the margin of the side piece of the bottom portion with the margin of the top piece of the top portion, whereby when the box is opened said side piece and said top piece will be folded side by side, and whereby the top and bottom may be closed in rectangular form, combined with a spindle for each of said two parts disposed in the same plane and a detachable curved connection for said two spindles, substantially as shown and described, for the purpose specified.

2. In a file-box, a rectangular case separated on a diagonal line from an upper corner to the opposite lower corner, hinged connections between these two parts, a spindle for each of said two parts disposed in the same plane, and a detachable curved connection for said two spindles, the arrangement being such that when the box is closed the two spindles stand end to end at a right angle to each other, substantially as and for the purpose specified.

3. A file-box, comprising a rectangular case separated on a diagonal line from an upper corner to the opposite lower corner, hinged connections between these two parts, a spindle for each of said two parts disposed in the same plane, a series of envelops engaged by one of said spindles, and a detachable curved connection between said two spindles whereby said envelops may be slipped upon and along said connection from one spindle to the other, and whereby when the box is closed the two spindles are disposed end to end at a right angle to each other, substantially as and for the purpose specified.

660,812. **POST-HOLE DIGGER.** GLYNDON A. FREER, Jackson, Mich. Filed Feb. 5, 1900. Serial No. 3,983. (No model.)



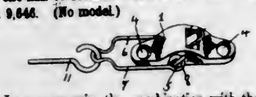
Claim.—1. In a digger, the combination with a handle and a stem, of a head-block at the lower end of the stem, blades pivoted at their upper ends to the said head-block, and colters at the lower ends of the blades, and a clutch slidable on the stem above the head and having downwardly-extending spaced-apart fingers adapted to hold the blades and colters normally in position for digging, and which when raised, permit the blades to swing outward to deliver the confined earth, substantially as set forth.

2. The combination in a digger with a handle and stem, of a head-block at the lower end of the stem, blades pivoted at their upper ends in the head-block, colters at their lower ends having a cutting advancing edge and a share, and a sliding clutch device having downward-extending fingers adapted to pass over and normally confine the blades and colters in place, and which when raised release the same to deliver the confined earth, substantially as set forth.

3. The combination in a digger with a handle and tubular stem, of a head-block at the lower end of the stem, curved blades having eyes at their upper ends pivoted in the head-block, and colters integrally formed with said blades at their lower ends, said colters having an advancing cutting edge 2 and under cutting edge and a share c', and a clutch movable longitudinally of the tubular stem and adapted to extend outside of and normally engage the said blades or to release the same, substantially as set forth.

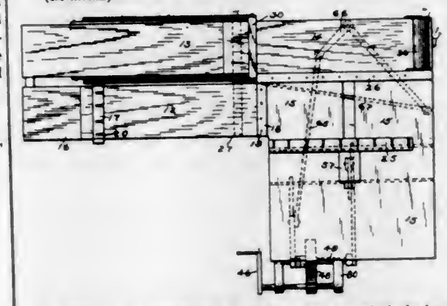
4. The combination in a digger with a handle and stem, of a head-block at the lower end of the stem, curved blades pivoted at their upper ends in the head-block and colters integrally formed with said blades at their lower ends, said colters having an advancing cutting edge 2 and under cutting edge and a share c', and a clutch movable longitudinally of the stem and adapted to extend outside of and normally engage the said blades or to release the same, substantially as set forth.

660,813. **ROPE-GRIP.** RICHARD C. GARDNER, Columbus, Ohio, assignor of one-half to Thomas West, same place. Filed Mar. 22, 1900. Serial No. 9,646. (No model.)



Claim.—In a rope-grip, the combination with the body 1 having end openings 4 and an opening between the latter, of a binder formed of hinged yoke-like sections, one of said sections projecting through said openings 8 of said body, substantially as specified.

660,814. **SOAP CUTTER AND SEPARATOR.** JOHN J. GAYNOR, Indianapolis, Ind., assignor of two-thirds to Frank Maus Fauvre and Dennis A. Murphy, same place. Filed May 3, 1900. Serial No. 15,310. (No model.)



Claim.—1. A soap-spreader including a table on which the bars of soap are deposited after being cut, a header for pushing the bars of soap off such table, a tray under the table to receive the bars of soap as they are pushed off the table, and means for moving said table and header in the same direction at a differential speed.

2. A soap spreader including a movable table for receiving the bars of soap after they have been cut, a tray under said table, a header resting upon said movable table, and a common means for moving said header and table in the same direction so arranged that the movement of the table will be at a greater speed than the movement of the header.

3. A soap-spreader including a table on which the bars of soap are deposited after being cut, a header for pushing the bars of soap off such table, a tray under the table to receive the bars of soap as they are pushed off the table, means for moving two of such parts of the machine in the same direction at a differential speed, and a roller mounted on the end of the table so as to extend over and beyond its end and adapted to rest on the bars of soap as they are moved off said table.

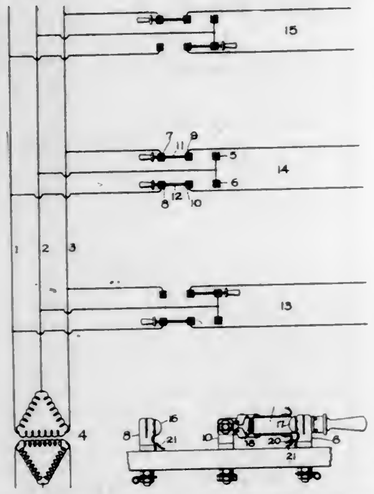
4. A soap-spreader including a table on which the bars of soap are deposited after being cut, a header for pushing the bars of soap off such table, a tray under the table to receive the bars of soap as they are pushed off the table, means for moving two of such parts of the machine in the same direction at a differential speed, a roller mounted on the end of the table so as to extend over and beyond its end and adapted to rest on the bars of soap as they are moved off said table, and springs for drawing said roller downward.

5. A soap-cutting machine including a stationary table, a support for the slab of soap movable on said table, a stationary header that engages one end of the slab of soap and holds it from movement in one direction, a cutter on the other end of the soap-support, means for reciprocating the cutter and soap-support, whereby when they are moved in one direction the soap will be cut into bars and will drop down on the table below and when they are moved in the other direction they will push said bars of soap off said table.

6. A soap-cutter including two tables, a support for the slab of soap that is movable on one table, a stationary header for engaging one end of the slab of soap and holding it from movement in one direction, a cutter mounted on the other end of said soap-support, a cutter on the second table mounted at a right angle to the cutter on the first table, a header mounted on the second table parallel to the cutter on said table, and means for moving the soap support and cutter on the first table and the header on the second table alternately, whereby the soap support and cutter when moved in one direction will cut the soap into bars that will drop down on the table below and on their return movement will push the bars of soap upon the second table between the cutter and header thereof and the further operation of the machine will cause the header on the second table to push the bars of soap through the cutter on said second table.

7. A soap cutter and spreader including a table, a support for the slab of soap movable on said table, a stationary header for holding the slab of soap from movement in one direction, a cutter secured to the soap-support, a second table adjacent to the first, a stationary cutter thereon at a right angle to the cutter on the first table, a header on said second table, a tray adjacent to said second table, a table movable on said tray and adapted to receive the bars of soap as they come from said second table, a header on said movable table, and a common means for actuating the movable soap-support on the first table and the movable table on the tray, and a header on the movable table simultaneously in the same direction so that the header will move at a slower speed than the movable table and will actuate the header on the second table alternately with the other movable parts of the machine, whereby while one slab of soap is being cut into long bars the bars of the preceding slab are being separated.

660,815. **ELECTRIC DISTRIBUTION SYSTEM.** Edward M. Hewlett, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 23, 1900. Serial No. 25,086. (No model.)



Claim.—1. In a system of distribution for alternating currents, the combination of a polyphase circuit, a single-phase circuit, and two double-throw switches for coupling the single-phase circuit with any pair of polyphase mains according to the position of the switches.

2. The combination with a triphase circuit, of a single-phase circuit, two, independently-movable double-throw switches, one pair of contacts being connected with one of the triphase mains, and the other two contacts with the other two mains respectively.

3. In a system of distribution for alternating currents, a triphase circuit, a single-phase circuit, independently-movable switches connected with the single-phase circuit, and contacts connected with the several triphase mains with which said switches may effect connection.

4. In a system of distribution for alternating currents, the combination of a triphase circuit, a single-phase circuit, two independently-movable double-throw single-pole switches pivoted to the terminals of the single-phase circuit, two switch-contacts in alinement with each switch, one pair of contacts being connected to one of the triphase mains, and the other to the other two mains respectively.

5. A double-throw switch comprising a pivoted switch-blade, contacts at each side of the pivot, arcing strips mounted on the switch-blade and connected together by a spring, arcing tips connected to the contacts adapted to detain the strips after the switch-blade is opened, and a buffer to arrest the movement of the arcing strip when the switch is closed suddenly.

660,816. **PRODUCING HIGH VACUUMS.** John W. Howell, Newark, N. J., assignor to the General Electric Company, of New York. Filed Aug. 31, 1899. Serial No. 729,076. (No specimens.)



Claim.—1. The process of producing high vacuums, consisting in exhausting air or other gas from the inclosure, then admitting phosphoreted hydrogen and again exhausting the inclosure.

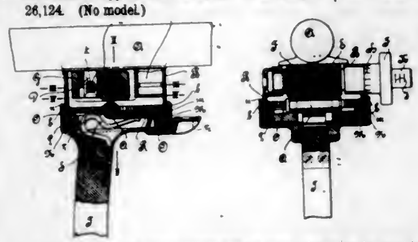
2. The process of producing a high vacuum in an incandescent lamp, consisting in first exhausting the air and other gases from the bulb, then admitting phosphoreted hydrogen, then again exhausting the bulb.

3. The process of producing a high vacuum in an incandescent lamp, consisting in exhausting the air and other gases from the bulb in which the filament is mounted, then admitting a compound gaseous at ordinary atmospheric temperatures having an affinity for the residual gases in the bulb, then exhausting the bulb.

4. The process of producing a high vacuum in an incandescent lamp, consisting in exhausting the air and other gases from the bulb, heating the lamp, admitting a determinate quantity of phosphoreted-hydrogen, then exhausting and sealing off the lamp.

5. The process of producing a high vacuum in an incandescent lamp, consisting in first exhausting the bulb, then heating the filament and walls of the lamp, then admitting phosphoreted hydrogen to the bulb, then again exhausting.

660,817. **SIGHTING APPARATUS FOR GUNS.** Hans A. von Kretschmar, Essen, and John Vollmer, Altendorf, Germany, assignors to Fried. Krupp, Essen, Germany. Filed Aug. 7, 1900. Serial No. 26,124. (No model.)



Claim.—1. In a sighting apparatus for guns adapted to be used both for direct and indirect sighting or pointing, the combination with the attachment-rod, of a telescope attachment swiveled to the attachment-rod to be laterally adjustable through a wide range, so that with a fixed gun the telescope may be turned to any target within the field of the gun, substantially as described.

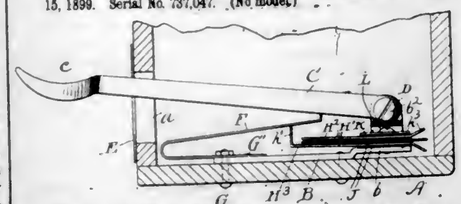
2. In a sighting apparatus for guns adapted to be used both for direct and indirect sighting or pointing, the combination with the attachment-rod, of a casing revolubly connected with the attachment-rod and laterally adjustable to substantially a full revolution, a telescope connected with the casing to be laterally adjustable with respect to the same, and means located within said casing for effecting a fine lateral adjustment of the telescope, substantially as described.

3. In a sighting apparatus for guns adapted to be used both for direct and indirect sighting or pointing, the combination with the attachment-head provided with a screw-thread, of a casing provided with a thread engaging with the thread of the attachment-head to permit it to be turned relatively to the latter, a telescope connected with said casing, and means for effecting a fine lateral adjustment of the telescope located within said casing, substantially as described.

4. In a sighting apparatus for guns adapted to be used both for direct and indirect sighting or pointing, the combination with the attachment-head, of a casing revolubly mounted on the latter and carrying the telescope, and said casing being provided with a toothed rim, and a spring-pressed lever provided with a toothed sector adapted to engage with the toothed rim of the casing; whereby the casing is held fast after the lateral adjustment of the telescope, substantially as described.

5. In a sighting apparatus for guns adapted to be used both for direct and indirect sighting or pointing, the combination with the attachment rod and head, of a casing carrying the telescope mounted on the attachment-head to permit it to be turned through substantially a full revolution, an internal toothed rim formed on said casing, a spring-pressed lever pivoted to the attachment-head and adapted to engage with said toothed rim of the casing for holding the casing fast, means for turning the telescope through a small angle for effecting a fine adjustment, and suitable scales for indicating the angles through which the casing is turned relatively to the attachment-head and the angles through which the telescope is turned relatively to the casing, substantially as described.

660,818. **ELECTRIC SWITCH.** Charles H. North, Cleveland, Ohio, assignor to the North Electric Company, same place. Filed Nov 15, 1899. Serial No. 737,047. (No model.)



Claim.—1. A plurality of switch members having alined open holes, insulating-plates sandwiched between the switch members and having smaller alined holes substantially concentric with those of the switch members, a binding-bolt extending through said holes in the switch members and insulating-plates and engaging the insulating-plates but out of contact with the switch members, and interlocking means carried directly by the insulating-plates and switch members whereby the bolt locks the insulating-plates and the insulating-plates themselves lock the switch members thus obviating insulating-bushings around the bolt within the holes of the switch members, substantially as described.

2. A base-plate having an upwardly-extending arm, a plurality of switch members having alining holes, a plurality of insulating-plates sandwiched therebetween, having smaller holes concentric with those of said switch members and also notches in their edges taking about said arm, said switch members and plates carrying interlocking means, a bolt fitting snugly through the alined holes of said insulating-plates but not touching said switch members, substantially as described.

3. In an electric switch, in combination, a hook-lever, a plurality of switch members, said switch members being resilient and certain members tending to separate from their adjacent members, there being an outer member tending with greater force to crowd the others into contact, and means operated by said lever for controlling said outer member, substantially as described.

4. A hook-lever, a leaf-spring which may bold it elevated and is an electric terminal, two resilient switch members tending to separate from each other, a third resilient switch member which tends to cause said other two switch members to contact with each other, said third member lying contiguous to said leaf-spring whereby the depression of said hook-lever makes contact between said spring and said third resilient member moving the latter and thereby opening contact between said other two switch members, substantially as described.

5. In combination, a pivoted arm C, a spring adapted to elevate the same, the three switch members H' H² H³ normally adapted to contact with each other but the intermediate member H² having a tendency to move out of contact with the member H' when the member H³ is moved away from said intermediate member, said member H³ having a projecting end which is adapted to be engaged when the arm is depressed, whereby the depression of the arm disconnects the three switch members from each other whereas its elevation allows their connection, substantially as described

6. In a telephone-switch, in combination, the hook-arm C, the spring F bearing against said arm and tending to elevate it and also forming a switch-terminal, at least three other switch members arranged in a bank and tending to spring into contact with each other by reason of an outer member of the bank tending to congregate the members against the weaker force of an intermediate member tending to segregate them, said outer member extending into proximity to said spring F but out of contact therewith when the hook-arm is elevated but adapted to be engaged thereby when the hook-arm is depressed and thus moved out of engagement with the next member, substantially as described.

7. In a telephone-switch, in combination, a base-plate B, a standard rising therefrom, a hook-arm C pivoted to the standard, a leaf-spring F secured to the base-plate and bearing on the under side of the hook-arm and tending to elevate it, a plurality of switch members arranged in a bank and insulatingly supported on said base, said members tending to contact with each other, the lower one of said members extending beneath said spring and out of engagement therewith when the hook-arm is elevated but in engagement therewith and out of engagement with the members above it in the bank when the hook-arm is depressed, substantially as described.

660,819. **MAGNETIC SIGNAL.** Charles H. North, Cleveland, Ohio, assignor to the North Electric Company, same place. Filed Apr. 21, 1900. Serial No. 13,689. (No model.)



Claim.—1. In a magnetic signal, the combination of a box-like frame including two iron side plates and a rigid iron end plate connecting them, a magnet-core and winding within said frame, means engaging the rear end of the magnet-core and said end plate for adjusting said magnet longitudinally, means engaging the forward end of the core and the side plates and adapted to slidably support said core, a pendulum-armature between the side plates and pivotally supported by them in proximity to the magnet-core, and an indicator governed by said armature, substantially as described.

2. In a magnetic signal, in combination, a frame including a pair of parallel side plates and an end plate connecting the same, a magnet within the frame, said magnet being slidably supported at its forward end by the frame, a bushing screwing into the rear end plate of the frame and adapted to bear against the magnet, and a screw-bolt passing through the bushing into the magnet-core and adapted to clamp the magnet-core to the bushing, and a signal device operated by the energization of said magnet, substantially as described.

3. In a magnetic signal, in combination, a frame having a pair of parallel side plates and an end plate connecting the same, a magnet between said side plates, a forward head for said magnet surrounding the core of the magnet and engaging the side plates and having a pair of notches in its edges, lugs or pins carried by the side plates extending into said notches, adjustable means engaging the rear end of the core and said rear end plate for adjusting the magnet backward or forward within said frame, and a suitable signaling device operated by the energization of said magnet-core, substantially as described.

4. In a magnetic signal, in combination, a frame including the two parallel side plates and an end plate, a magnet within the frame consisting of a core, a pair of heads carried by said core, and an electric winding around the core between said heads, said heads engaging with the inner sides of the side plates, means for slidably supporting the forward head on said side plates, means at the rear end of said magnet for adjusting it backward or forward within the frame, a pair of binding-posts carried by the rear head and receiving the terminals of the electric winding and passing freely through openings in the rear end plate, and a suitable signaling device operated by the energization of the magnet-core, substantially as described.

5. In a magnetic signal, in combination, a frame having two parallel side plates and an end plate connecting the same, a magnet-core within the frame, a forward head on said magnet-core, notches in the edge of said head, and lugs carried by the side plates extending thereinto whereby the head is slidably supported by the side plates, a bushing screwing into the rear end plate and adapted to bear against the end of the magnet, a bolt passing through said bushing into the magnet-core and adapted to clamp the bushing thereto, a pendulum-armature carried by said side plates in proximity to the forward end of the magnet-core, said forward end of the core being curved on an arc approximately concentric with the path of oscillation of the armature, and a suitable indicating device governed by such oscillation, substantially as described.

6. In a magnetic signal, in combination, a magnet having a concave curved pole-face, a pendulum-armature which converges toward said pole-face as it swings, a non-magnetic member projecting into the space therebetween whereby contact between said pole and armature is prevented, substantially as described.

7. In a magnetic signal, in combination, a pendulum-armature, a longitudinally-adjustable magnet supported in proximity thereto and having a projecting core curved on an arc substantially concentric with the path of oscillation of the armature, a non-magnetic protection carried by the armature to prevent its contact with the core, and a suitable signaling device governed by said armature, substantially as described.

8. In a magnetic signal, the combination of a pendulum-armature, an arm extending forward substantially from the pivot thereof, a plate carried by said arm and adapted to disclose a signal according to the position thereof, and an electromagnet adjustably supported at the rear of said armature and having its core in proximity therewith, substantially as described.

9. The combination of a switchboard-plate, a magnetic signal whose frame is secured at the rear side of said plate, a pendulum-armature carried by said frame, an arm extending forward from said armature through an opening in said plate, a shield carried by said arm and adapted to cover a suitable indication carried by said plate, a magnet at the rear of said armature and adapted to attract it and draw it rearward and thereby swing said shield to uncover said indication, substantially as described.

10. In a magnetic signal, the combination of a pair of side plates, a magnet adjustably supported between said plates, an armature E for said magnet, said armature having secured to it a plate e^2 carrying ears e', a pin carried by the frame extending into said ears, an arm g rigid with the armature and extending from approximately the center of oscillation thereof, a plate or shield G carried by said arm, and a suitable indication disclosed thereby when the magnet attracts the armature, substantially as described.

11. In a magnetic signal, in combination, a pair of side members of the frame, a magnet supported between the same, an armature for said magnet, said armature having secured to it a plate e^2 which has ears e' near its upper edge, a pin e pivoting each ear to the frame, an arm g secured to the magnet alongside of the plate e^2 and extending upward parallel therewith, and over the upper edge of said plate and projecting forward, a shield G carried at the forward end of said arm, a suitable indication adapted to be uncovered by said shield when the armature is attracted, said magnet having its core projecting into proximity to said armature and being curved on an arc approximately concentric with the arc of oscillation of the armature, substantially as described.

12. In a magnetic signal, the combination of a magnet including a core and winding, a frame therefor including a pair of iron side plates on opposite sides of the magnet, means for adjustably but magnetically connecting the core with said side plates whereby the core forms one pole of the magnet and the two side plates the other pole, and a pendulum-armature pivotally supported in proximity to the forward end of the core, both of said poles of the magnet being curved in the rear of the pendent position of the armature on an arc substantially concentric with the arc of oscillation of the armature, substantially as described.

13. In a magnetic signal, the combination of a frame including a pair of side plates, a magnet between the plates, a pendulum-armature pivoted between the plates in proximity to the forward end of the magnet, recesses in said side plates in the vicinity of the ends of the armature, said armature extending into said recesses, substantially as described.

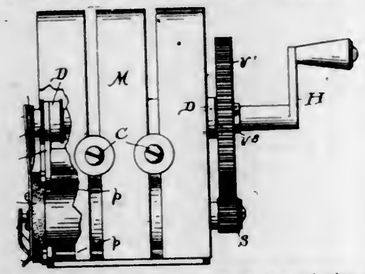
14. In a magnetic signal, the combination of a pair of frame-plates, a magnet with a core, a pendulum-armature between the plates in front of the magnet, recesses in said plates in the vicinity of the ends of the armature into which recesses the armature extends, the walls of said recesses being comparatively distant from the armature on the forward side thereof and comparatively close to the path of oscillation of the armature on the rear side thereof, said magnet-core being in magnetic connection with said plates, substantially as described.

15. In a magnetic signal, the combination of an iron frame including a pair of side plates, an electromagnet having its core in magnetic connection with the side plates, recesses in said side plates in the vicinity of the free end of the magnet-core, a pendulum-armature extending into said recesses and thereby adapted to be attracted both by the core and by said frame, said recesses having extending across them a protection of magnetic material preventing the sympathetic influence from adjacent signals, substantially as described.

16. A plurality of magnetic signals arranged side by side, each signal including an iron frame and a magnet whose core is in magnetic connection with the frame and an armature therefor, there being openings through the frame into which the armature extends, combined with magnetic plates carried on the outer sides of the frame in the vicinity of the armature, substantially as described.

17. In a magnetic signal the combination of an iron frame including a pair of side plates, a pendulum-armature between the plates, openings through said side plates in the vicinity of the ends of the armature, the armature extending into said openings, magnetic protecting-plates on the outside of the side plates extending across said openings, a magnet for actuating said armature, and a signal governed by said armature, substantially as described.

660,820. **MAGNETO-ELECTRIC GENERATOR.** CHARLES H. NORTH, Cleveland, Ohio, assignor to the North Electric Company, same place. Filed Aug. 24, 1900. Serial No. 27,881. (No model.)



Claim.—1. In a magneto-electric generator, in combination, a compound driving-shaft, consisting of a tubular member and an inclosed rod between which there is limited relative rotative movement, an armature adapted to be driven by one member of said shaft, and driving means connected with the other whereby the armature may be rotated, a plug within the sleeve, and means whereby said relative rotative movement moves said plug, and a switch member actuated by such movement, substantially as described.

2. In a magneto-electric generator, in combination, a driving-shaft, an insulator carried near the end of said shaft, a switch member normally contacting the end of said shaft, a crank connected with said driving-shaft, means for forcing said insulator against said switch member to break its contact with said driving-shaft, said means being operated by the rotation of the said crank, substantially as described.

3. In a magneto-electric generator, in combination, a driving-shaft, a switch member which makes electric contact with said driving-shaft, a wheel mounted on said shaft, means for allowing limited relative rotation between said driving-shaft and said wheel, means for holding said driving-shaft in an extreme position, an armature driven by said wheel, and means whereby a relative rotation of said shaft and wheel breaks the contact of said switch member with said driving-shaft, substantially as described.

4. In a magneto-electric generator, an armature, a compound driving-shaft consisting of a rotatable sleeve and an inclosed rod, a crank connected with said rod, a gear connection between said sleeve and the armature-shaft, means for limiting the relative rotative movement between said rod and sleeve, a plug within said sleeve, a switch member normally engaging the end of said sleeve, and coöperating inner faces carried between said plug and said rod whereby said relative rotative movement may force the switch member away from the sleeve, substantially as described.

5. In a magneto-electric generator, in combination, a compound driving-shaft, consisting of a tubular member and an inclosed rod between which there is limited relative rotative movement, an armature adapted to be driven by one member of said shaft, and driving means connected with the other whereby the armature may be rotated, a bolt within the sleeve, and means whereby said relative rotative movement moves said bolt, a spring connecting the two members of the shaft and tending against relative rotative movement, and a resilient switch member adapted to be moved by said bolt but tending to return said bolt to its normal position, substantially as described

6. In a magneto-electric generator, in combination, a suitably-journaled armature, a compound driving-shaft consisting of a sleeve and a contained rod, a driving member mechanically connected with one part of said shaft, and a mechanical connection between the other part of the shaft and the armature, means for preventing relative longitudinal movement between the rod and sleeve but allowing some rotative movement between them, a bolt within said sleeve, means for preventing relative rotative movement between the bolt and sleeve but allowing some longitudinal movement of the bolt, coöperating inclined faces between the bolt and rod, and a switch operated by the longitudinal movement of said bolt, substantially as described.

7. In a magneto-electric generator, in combination, a driving-shaft, a switch member normally contacting said shaft, said driving-shaft comprising a sleeve, an insulator carried slidably within the end thereof, a slidable bolt therebehind, means for preventing relative rotation between said bolt and sleeve, an inner shaft, a crank connected therewith, means for preventing relative longitudinal movement between said sleeve and inner shaft, said shaft and bolt having coöperating inclined end faces, whereby a movement of said inner shaft with respect to said sleeve moves said insulator to break the contact between said switch and said shaft, substantially as described.

8. In a magneto-electric generator, in combination, a frame, an armature journaled therein, a compound driving-shaft journaled in said frame, said shaft consisting of a sleeve and an inner rod, said sleeve being in electrical contact with the frame, gearing connecting one member of the shaft with the armature, and a driving-crank connected with the other member, a switch member normally engaging said sleeve and thereby making a shunt around the armature, means for limiting relative rotative movement between the parts of the shaft while allowing some such movement, and means whereby such movement separates the switch member from contact with the end of the sleeve, substantially as described.

9. In a magneto-electric generator, in combination, a compound driving-shaft consisting of a sleeve and an inclosed rod, a compound driving mechanism loosely connecting with play said sleeve and rod, said driving mechanism consisting of a wheel rigid with one member of the shaft and a retainer-plate rigid with the other member, the members of such mechanism carrying disconnected shoulders standing in the path of each other whereby a limited rotative movement is allowed between the two, and a switch actuated by said relative rotative movement, substantially as described.

10. In a magneto-elecrtric generator, in combination, a compound driving-shaft consisting of a sleeve and a rod within the same, a driving mechanism consisting of a wheel mounted on one member of said shaft and a retainer-plate rigid with the other member, one member of such mechanism having a projection and the other member having separated shoulders between which said projection takes and with either of which it may engage, a spring normally holding said projection against one of said shoulders but allowing it to move until engaging the other shoulder, an armature, and a driving mechanism connected respectively with the two members of said shaft, and a switch actuated by the relative rotative movement between said members, substantially as described.

11. In a magneto-electric generator, in combination, a compound driving-shaft, a switch member which normally contacts with said driving shaft, a driving mechanism consisting of a wheel mounted on one member of said driving-shaft and a retainer-plate rigid with the other member of said shaft, one member of such mechanism having projections taking into holes in the other member, a spring normally holding said members so that said projections contact the edges of said holes, an armature driven by said wheel, and means whereby the relative rotation between said wheel and driving-shaft breaks the contact of said switch member with said driving-shaft, substantially as described.

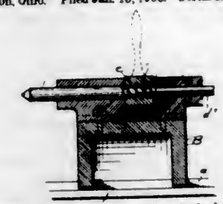
12. In a magneto-electric generator, in combination, an inner driving-shaft, a sleeve carried thereabout, a resilient switch member normally in contact therewith, a gear mounted on said shaft, and having holes in the body thereof, a retainer-plate rigidly carried by said inner driving-shaft, and having its edge flanged toward the disk of said gear, tongues integral therewith projecting into said holes, a spring carried within said retainer and connecting it to said gear, a slidable bolt within said sleeve, there being coöperating inclined faces between said bolt and inner shaft whereby relative movement between them may force the switch member away from said sleeve, and an armature connected with said gear, substantially as described.

13. In a magneto-electric generator, in combination, a driving-shaft, a resilient switch member normally contacting said driving-shaft, an independent switch member lying in proximity to said resilient member, an insulator carried by said driving-shaft, means for moving said insulator so as to move said resilient member out of contact with said driving-shaft and into contact with said independent switch member, substantially as described.

14. In a magneto-electric generator, the combination of a compound driving-shaft, consisting of a sleeve and an inclosed rod between which there is relative rotative movement, an armature and a driving member mechanically connected respectively with the two parts of said driving-shaft, a switch member normally contacting said driving-shaft, an independent switch member lying in the path of the switch member first mentioned and normally disconnected therefrom, and means whereby the relative rotative movement between the parts of the shaft moves the switch member which normally contacts the sleeve out of engagement therewith and into engagement with the other switch member, substantially as described.

15. In a magneto-electric generator, in combination, a driving-shaft compriaing a sleeve and an inner shaft, an insulator carried within the end of said sleeve, an insulating-block fastened to the frame of said generator, a resilient switch member carried by said block and having permanent contact with the armature of said generator, and normally contacting the said sleeve, a second switch member also mounted on said block and lying behind said resilient switch member, said switch members having means for connecting wiring thereto and means whereby the turning of said inner shaft moves said insulator, to move the switch member which normally contacts the sleeve out of engagement therewith and into engagement with the other switch member, substantially as described.

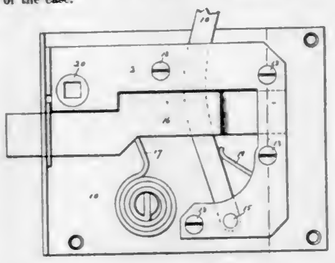
660,821. **CENTERING DEVICE FOR LATHES.** JOHN G. OBERMIER, Canton, Ohio. Filed Jan. 13, 1900. Serial No. 1,261. (No model.)



Claim.—The combination in a lathe of a bed-plate with a tail-stock, a centering-sleeve engaging therewith and provided with a recess terminating short of the end of the sleeve to form a stop, a screw-threaded centering-shaft of two diameters journaled in the centering-sleeve and carrying a corresponding screw-threaded operating-nut provided with a projecting operating-lever, substantially as described and for the purpose set forth.

660,822. **COACH-LATCH.** ANTON OCHSNER, New Haven, Conn., assignor of one-half to Robert Ochsner, same place. Filed Apr. 2, 1900. Serial No. 11,060. (No model.)

Claim.—In a coach-latch, the combination with a main plate or casing formed upon its flat inner face with a plurality of externally-tapered, internally-threaded hubs, of a cast-metal, L-shaped cover formed upon its inner face with a plurality of enlargements or bosses corresponding in number and location to the said hubs, and each furnished with a tapering socket adapted to receive one of the said hubs, and the said cover being formed in its flat outer face with a plurality of counterbores corresponding in number and location to the enlargements or bosses located upon its inner face, and arranged concentrically with and opening into the said sockets from which they are separated by beveled annular shoulders, screws passing through the said counterbores in the outer face of the cover and into the said screw-threaded hubs, and having their heads engaged with the said beveled shoulders, a spring-actuated sliding bolt having bearing upon the flat inner face of the main plate, and extending under the said cover, and a handle-lever extending between the said plate and the said cover, coacting with the said bolt, and projecting upward above the upper edge of the case.



660,823. **FOUNTAIN-PEN.** WILLIAM C. SHERMAN, Orlando, Fla., assignor of two-thirds to Archibald McCallum and Philip Bewan, same place. Filed May 21, 1900. Serial No. 17,426. (No model.)



Claim.—1. In a fountain pen, the combination with two fixed tubes disposed one within the other and spaced apart, of a movable tube telescoping between the fixed tubes, a piston in the inner fixed tube, a rod secured to said piston and to the movable tube and having an elongated slot and a wedge-shaped lug passing through the wall of the inner fixed tube and prevented from outward displacement by the intermediate tube, said lug projecting from the inner wall of the inner fixed tube and entering said elongated slot.

2. In a fountain-pen, the combination with an ink-reservoir and means for supporting a pen at one end thereof, of a piston in the reservoir, a rod projecting from said piston and having a longitudinal groove and an L-shaped groove communicating with one end of the longitudinal groove, and a removable lug projecting through the wall of the ink-reservoir and adapted to move in said grooves.

3. A fountain-pen comprising a reservoir, a casing secured to said reservoir and spaced therefrom, a tube disposed between said reservoir and casing, a piston in the reservoir, a piston-rod connecting the piston and intermediate tube, and having an angular groove and a detachable lug projecting from the reservoir and entering said groove for locking said piston and intermediate tube in their extreme outward or upper position.

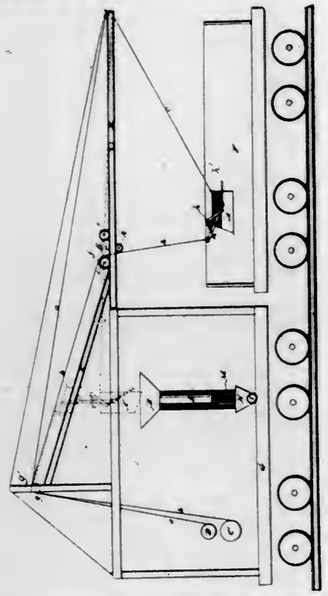
4. A fountain-pen comprising a reservoir, a casing secured to said reservoir and spaced therefrom, a tube disposed between said reservoir and casing, a plug secured in the outer or upper end of said tube, a piston in the reservoir, a piston-rod connecting said piston and plug and having a longitudinal groove therein and a transverse groove extending at right angles to the longitudinal groove at its forward or lower end, and an inwardly-projecting lug or pin removably secured in the wall of the reservoir and disposed in the groove in the piston-rod to guide the same and adapted when the rod is turned to dispose the lug in the transverse groove to lock the piston against accidental movement.

660,824. **MACHINE FOR COALING OR SLACKING BALLAST-KILNS PREPARATORY TO BURNING.** GEORGE SNYDER, Mount Pleasant, Iowa, administrator of John B. Faulkner, deceased. Filed July 7, 1899. Serial No. 723,054. (No model.)

Claim.—1. In a coaling apparatus for a ballast-kiln the combination with a pair of booms mounted upon a suitable car of a trolley adapted to travel thereon, a scoop depending from said booms and connected at its forward end with said trolley, a hopper and discharge-pipe carried by said car, and means for causing the trolley to travel along the boom and thereby bring the scoop into a position over the hopper, substantially as described.

2. In a coaling apparatus for ballast-kilns the combination with a pair of booms mounted upon a suitable car of a trolley adapted to travel thereon, a scoop depending from said booms, a pair of cables attached to said scoop, one of said cables passing over a sheave on the trolley and the other passing over a sheave on the outer end of the booms, a hopper and discharge-pipe carried by said car said discharge-pipe terminating in a deflector, and winding-drums to which said cables are attached, whereby the scoop is first drawn into engagement with the trolley, and, guided and supported by the latter, is drawn to a position over the hopper, substantially as described.

3. In a coaling apparatus for ballast-kilns, the combination with a pair of booms supported upon a suitable car and extending rearwardly thereof so as to be capable of occupying a position over another car loaded with coal or slack of a scoop suspended from the rearwardly-extending portion of said booms, a receiving and discharging device supported on said first-named car, and the means for effecting the travel of said scoop from the loaded car to the receiving and discharging device and back again, substantially as described.



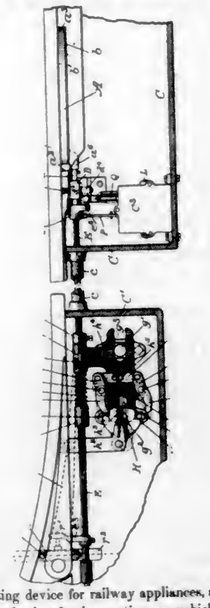
4. In a coaling apparatus for ballast-kilns, the combination with a car of a hopper mounted thereon, a pair of booms supported thereby, a portion of said booms located above the hopper being downwardly inclined and the remaining portion extending horizontally and rearwardly thereof so as to be capable of occupying a position over another car loaded with coal or slack, a trolley adapted to travel on said booms, a scoop suspended from said booms, and supporting-cables attached to said scoop and passing over said trolley and booms to suitable winding-drums, whereby said scoop may be drawn to a discharging position above said hopper, and may then be assisted by gravity in its downward and backward movements, to a position above said coal or slack car, substantially as described.

5. In an apparatus for distributing coal or slack upon kilns, the combination with the car having a suitable supporting-frame of a pair of fixed booms extending rearwardly therefrom, a scoop suspended from said booms, a hopper supported on said car beneath the inner end of said booms, means for bringing said scoop to a discharging position above said hopper and returning it therefrom, a slanting discharge-pipe connected with said hopper, a horizontal discharge-pipe communicating with said slanting discharge-pipe and extending laterally of the car and over the kiln, a blower in said horizontal discharge-pipe in rear of the junction of said slanting and horizontal discharge-pipes, and means for adjusting said horizontal discharge-pipe above the kiln, substantially as described.

6. In an apparatus for distributing coal or slack upon ballast-kilns the combination with a car having a suitable supporting-frame of a pair of booms extending therefrom, a scoop suspended from said booms, a hopper supported upon said car, means for bring said scoop to a discharging position above said hopper and returning it therefrom, a slanting discharge-pipe connected with said hopper, a horizontal discharge-pipe extending laterally of the car and over the kiln and having an adjustable deflector on the outer end, a receiver and screen intermediate said discharge-pipes, a blower in said horizontal discharge-pipe, and means for adjusting the position of said horizontal discharge-pipe above the kiln, substantially as described.

660,825. ACTUATING DEVICE FOR RAILWAY APPLIANCES. ELMER A. SPERRY, Cleveland, Ohio. Filed Oct. 17, 1899. Serial No. 733,873. (No model.)

Claim.—1. In an actuating device for railway appliances, a part lying in the path of a wheel or wheels of a locomotive or car, and designed to be moved by the torque condition thereof, and suitable connecting mechanism between said movable part and the appliance to be actuated, whereby successive movements of the movable part in the same direction will effect different movements in the actuated appliance, substantially as described.



2. In an actuating device for railway appliances, a part lying in the path of a wheel or wheels of a locomotive or vehicle, designed to be moved thereby for effecting a movement of the appliance to be actuated, and means whereby said part may be moved by a wheel passing in either direction without causing a movement of said appliance, substantially as described.

3. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle, and adapted to be moved thereby, connecting mechanism between said movable part and an appliance to be actuated, and means controlled by the passing wheels for rendering said connecting mechanism inoperative during the passage of a car or train of cars between given points, substantially as described.

4. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a car or vehicle and adapted to be moved thereby, intermediate connecting mechanism between said movable part and an appliance to be actuated, and means controlled by the passing wheels for disconnecting and again connecting the intermediate mechanism with said movable part, substantially as described.

5. In an actuating device for railway appliances, a part lying in the path of a wheel or wheels of a locomotive or vehicle and designed to be moved by the torque condition thereof, and suitable connections between said movable part and an appliance to be actuated, whereby the latter may be moved in opposite directions by successive movements of said movable part or independently thereof, substantially as described.

6. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and designed to be moved by the torque condition thereof, mechanism connected to the appliance to be actuated adapted to be operated for effecting different movements thereof by successive movements of the movable part in the same direction, substantially as described.

7. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a car or vehicle, suitable connecting mechanism between said movable part and an appliance to be actuated, and means for automatically disconnecting said movable part from and connecting it with the appliance to be actuated by means of said mechanism, substantially as described.

8. In an actuating device for railway appliances designed to be operated by the torque condition of a wheel or wheels of a passing locomotive or vehicle, a rocking lever connecting the appliance to be actuated, pawls for engaging and moving said lever in opposite directions, and means whereby said pawls will be shifted for causing an opposite movement of said lever at each operation of the device, substantially as described.

9. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle, a sliding rod controlling the movements of the appliance to be actuated, and an intermediate rod or pin between said sliding rod and movable part adapted to be moved into or out of line therewith, substantially as described.

10. In an actuating device for railway appliances a movable part lying in the path of a wheel or wheels of a locomotive or vehicle, connecting mechanism between said movable part and the appliance to be actuated, and pins also in the path of said wheels for controlling said connecting mechanism with reference to the movements of said movable part, substantially as described.

11. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle, a sliding rod controlling the movements of a device to be actuated, an intermediate pin or rod between said movable part and said sliding rod, and means controlled by the passing wheels for moving said pin or rod out of line with said movable part and holding and releasing it, substantially as described.

12. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved thereby, pawls adapted to be moved by said movable part, a rocking lever connecting the appliance to be actuated, and means whereby the pawls will be shifted for moving said rocking lever in opposite directions at each movement of said movable part, substantially as described.

13. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved thereby, a sliding rod adapted to be moved by the movements of said movable part, pawls carried by said rod, a rocking lever connecting the appliance to be actuated and means whereby the pawls will be shifted for moving said rocking lever in opposite directions at each movement of the sliding rod, substantially as described.

14. In an actuating device for railway appliances, a movable part lying in the path of a wheel or wheels of a locomotive or vehicle and adapted to be moved thereby, a sliding rod controlling the movements of the appliance to be actuated, a rod or pin between said sliding rod and movable part, means for moving said rod or pin out of line therewith, latching mechanism for holding and releasing said pin, consisting of a latch controlled by the movement of a ratchet-wheel fixed to a spring-actuated shaft, a pawl for moving said ratchet-wheel controlled by the passing wheels, and escapement mechanism also controlled by the passing wheels for permitting a return movement of said ratchet-wheel, substantially as described.

15. In an actuating device for railway appliances adapted to be operated by a wheel or wheels of a passing locomotive or vehicle, separate boxes or casings each containing wheel-actuated mechanism, a rod connecting the two boxes adapted to be moved longitudinally by mechanism in one box for operating mechanism in the other, and means within the second box for rocking or rotating said rod for operating mechanism in the first box, substantially as described.

16. In an actuating device for railway appliances adapted to be operated by a wheel or wheels of a passing locomotive or vehicle, separate boxes or casings located at a distance from each other containing wheel-actuated mechanism, a rod connecting said boxes, and mechanism in each operated by mechanism in the other through said rod, substantially as described.

17. In an actuating device for railway appliances adapted to be operated by a wheel or wheels of a passing locomotive or vehicle for effecting a movement of the appliance to be actuated, mechanism operated by a step-by-step movement for rendering the device inoperative, means for moving said mechanism step by step, and means for returning said mechanism step by step to its normal position, substantially as described.

18. In an actuating device for railway appliances adapted to be operated by a wheel or wheels of a passing locomotive or vehicle, mechanism operated by a step-by-step movement for rendering said device inoperative, means for moving said mechanism step by step, and means for returning said mechanism step by step to its normal position, the last-named means being located at a distance from the first, substantially as described.

19. In an actuating device for railway appliances designed to be operated by a wheel or wheels of a passing locomotive or vehicle, the combination with a track-rail having an overhanging flange or tread, separate boxes or casings lying along the line of said rail and separated from each other, independent wheel-actuated mechanism within each of said boxes for controlling mechanism in the other, and a rod connecting the mechanism in both boxes housed beneath the flange of the track-rail, substantially as described.

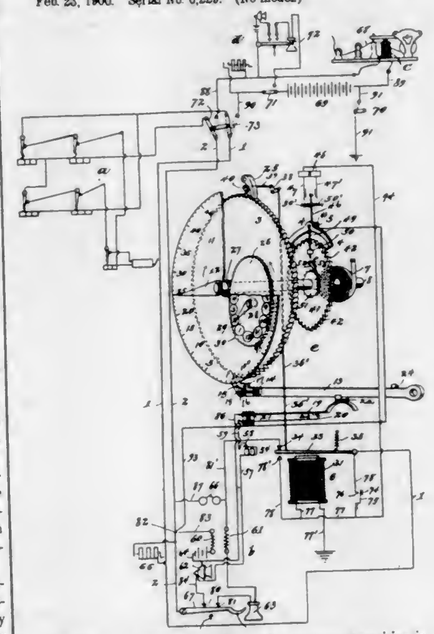
20. In an actuating device for railway appliances, a box or casing containing mechanically-operated mechanism adapted to be operated by a wheel or wheels of a passing locomotive or vehicle, a second box or casing within the first containing coöperating mechanism, and readily-detachable mechanical connections between the mechanisms in the two boxes, substantially as described.

21. In an actuating device for railway appliances designed to be operated by a wheel or wheels of a passing locomotive or vehicle, mechanism adapted to be operated in one direction for rendering the device inoperative and in an opposite direction for placing the device in operative condition, oppositely-acting actuators for causing said mechanism to move in opposite directions and means whereby both actuators may be moved simultaneously and each perform its function without interfering with the other, substantially as described.

22. In an actuating device for railway appliances adapted to be operated by a wheel or wheels of a passing locomotive or vehicle, mechanism adapted to be operated in one direction for rendering the device inoperative and in an opposite direction for placing the device in operative condition, and oppositely-acting actuators for said mechanism operated at a distance from each other, substantially as described.

23. In an actuating device for railway appliances designed to be operated by the torque condition of a wheel or wheels of a passing locomotive or vehicle, mechanism for rendering said device inoperative, a catch and releasing mechanism for the first-named mechanism, and means for delaying the action of the releasing mechanism, substantially as described.

660,826. TELEPHONE-CALL RECORDER. HAROLD D. STROUD, Chicago, Ill., assignor of one-half to James E. Plew, same place. Filed Feb. 23, 1900. Serial No. 6,229. (No model.)



Claim.—1. A telephone-call-recording system, comprising in combination with a subscriber's telephone set, a register instrument located at the subscriber's station, a mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located at a station remote from the subscriber's station, and electrical connections extending between said registering instruments whereby a series of accumulated calls recorded by the register at the subscriber's station may be automatically transferred and registered at the said station remote therefrom.

2. In combination with a subscriber's telephone set and the electrical connections leading from said set to the central station, a telephone-call-recorder system comprising a registering instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located in electrical connection with the main lines of the telephone system, at a station remote from the subscriber's station, and means for transferring an accumulated series of registered calls comprising an electrical-impulse mechanism electrically connected with the main lines, and an actuating device coöperating with the subscriber's register to operate the impulse mechanism a number of times corresponding to, and determined by, the accumulated series of calls.

3. In combination with a subscriber's telephone set and the electrical

connections leading from said set to the central station, a telephone-call-recorder system comprising a register instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located in electrical connection with the main lines of the telephone system, at a station remote from the subscriber's station, adapted to be actuated synchronously with the subscriber's register to make a record of the calls registered by said latter instrument and means for cutting the central telephone-station out of circuit with the subscriber's line during the time the calls registered upon the subscriber's registes are being transferred to the register of the station remote therefrom.

4. A telephone-call-recorder system, comprising in combination with a subscriber's telephone set, a registering instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located at a reading-station remote from the subscriber's station, electrical connections extending between said registers and means whereby a plurality of calls registered at intervals apart upon the subscriber's register may be automatically transmitted to the register of the reading-station during the restoring of the subscriber's register to its initial starting position.

5. A telephone-call-recorder system comprising in combination with a subscriber's telephone set, a registering instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located at a reading-station remote from the subscriber's station, electrical connections extending between said registers and means whereby a plurality of calls registered at intervals apart upon the subscriber's register may be automatically transmitted to the register of the reading-station during the restoring of the subscriber's register to its initial starting position, comprising an electrical make-and-break mechanism adapted to form an electrical impulse for each step of the register mechanism corresponding to a call thereon, in its restoring movement, substantially as described.

6. A telephone-call-recorder system comprising in combination with a subscriber's telephone set, a registering instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, a second registering instrument located at a reading-station remote from the subscriber's station, electrical connections extending between said registers and means whereby a plurality of calls registered at intervals apart upon the subscriber's register may be automatically transmitted to the register of the reading-station during the restoring of the subscriber's register to its initial starting position, comprising an electrical make-and-break mechanism adapted to form an electrical impulse for each step of the register mechanism corresponding to a call thereon in its restoring movement, said register at the reading-station comprising an electromagnet operated by the alternate opening and closing of the circuit and printing and paper-feeding mechanisms operated by said electromagnet whereby a mark is printed for each alternating opening and closing of the circuit, substantially as described.

7. A telephone-call-recorder system, comprising in combination with a subscriber's telephone set, a registering instrument located at the subscriber's station, mechanism for recording a call upon said register each time the subscriber asks for a connection, and mechanism electrically connected with the main circuit of the subscriber's telephone, whereby the subscriber's register may be restored to its initial starting position from a station remote therefrom.

8. A telephone-call-recorder system, comprising in combination with a subscriber's telephone set a registering instrument located at the subscriber's station, comprising a register-wheel adapted to be stepped forward a step at a time each time a call is registered thereon, a motor acting upon said register-wheel and tending to normally return it to its initial recording position, a detent acting to normally prevent the restoration of the register-wheel to its initial position under the influence of the motor, electrical connections connecting said register with the subscriber's main telephone-circuit and means controllable through said circuit for releasing said detent to permit the register to return to its initial position, operable from a station remote from the subscriber's station, substantially as described.

9. A telephone-call-recorder system, comprising in combination with a subscriber's telephone set, a registering instrument located at the subscriber's station, comprising a register-wheel adapted to be stepped forward a step at a time each time a call is registered thereon, a motor acting upon said register-wheel and tending to normally return it to its initial recording position, a detent acting to normally prevent the restoration of the register-wheel to its initial position under the influence of the motor, electrical connections connecting said register with the subscriber's main telephone-circuit, means controllable through said circuit for releasing said detent to permit the register to return to its initial position, operable from a station remote from the subscriber's station and a normally open contact device interposed in the electrical circuit extending between the main telephone-circuit and the register at the subscriber's station, adapted to be closed when it is desired to restore the register, substantially as described.

10. A telephone-call-recorder system, comprising in combination with a subscriber's telephone set a registering instrument located at the subscriber's station, comprising a register-wheel adapted to be stepped forward a step at a time each time a call is registered thereon, a motor acting upon said register-wheel and tending to normally return it to its initial recording position, a detent acting to normally prevent the restoration of the register-wheel to its initial position under the influence of the motor, electrical connections connecting said register with the subscriber's main telephone-circuit, means controllable through said circuit for releasing said detent to permit the register to return to its initial position, operable from a station remote from the subscriber's station, a normally open contact device interposed in the electrical circuit extending between the main telephone-circuit and the register at the subscriber's station, adapted to be closed when it is desired to restore the register an electromagnet included in that part of the circuit extending between the register and main telephone-circuit and a branch circuit normally open and adapted to be closed through said magnet when the latter is energized whereby the circuit from the station remote from the subscriber's station may be maintained and the restoring movement of the register controlled independently of the said contact device after the circuit has been once established, substantially as described.

11. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity of a registering member adapted to be moved forward step by step, means for returning said register member to its initial position, and a circuit-breaking device included in said electric circuit and operatively connected with the register member, said circuit-breaking device being constructed and operated to break the circuit a number of times proportionate to, or dependent upon, the number of steps the register member is stepped forward from its initial position.

12. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity of a register member adapted to be moved forward step by step, means for returning said register member to its initial position, and a circuit-breaking device included in said electric circuit and operatively connected with the register member, said circuit-breaking device being constructed and operated to break the circuit a number of times proportionate to, or dependent upon, the number of steps the register member is stepped forward from its initial position upon its return movement to said initial position.

13. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity, of a register member adapted to be moved forward step by step, a motor tending to return said register member to its initial position, a circuit-breaking device included in said electric circuit, operatively connected with the registering member and operating to break the circuit a number of times proportionate to, or dependent upon, the number of steps the registering member is stepped forward from its initial position and a retarding device acting upon said registering member to insure a gradual return movement.

14. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity, of a ratchet-wheel adapted to be moved forward step by step, a motor acting upon said ratchet-wheel and tending to return it to its initial position, an escapement mechanism operatively connected with said ratchet-wheel and a circuit-breaking device operatively connected with a vibrating part of the escapement, substantially as and for the purpose described.

15. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity of a registering ratchet-wheel adapted to be moved forward step by step, a motor acting upon said ratchet-wheel and tending to return it to its initial position, a detent arranged to normally prevent the return movement of the ratchet-wheel, and an electromagnet included in said electric circuit, and acting to withdraw the detent from the ratchet-wheel when energized.

16. In a register for telephone-calls and the like, the combination with an electric circuit and source of electricity of a registering ratchet-wheel adapted to be moved forward step by step, a motor acting upon said ratchet-wheel and tending to return it to its initial position, a detent arranged to normally prevent the return movement of the ratchet-wheel, and an electromagnet included in said electric circuit, acting to withdraw the detent from the ratchet-wheel when energized, an escapement-wheel operatively connected to move with the ratchet-wheel, a verge mounted to coöperate with said escapement-wheel, and a circuit-breaking device connected to and moving with said verge, said operative connections between the ratchet-wheel and escapement-wheel comprising a pawl-and-ratchet mechanism whereby the escapement-wheel is moved positively with the ratchet-wheel in the return movement of the latter, but is free to remain stationary during the forward movement of the ratchet-wheel.

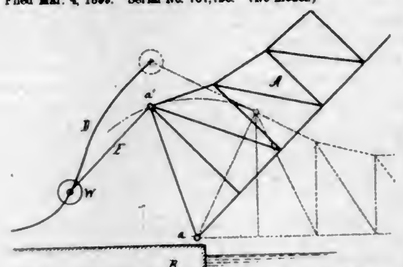
17. In a register for telephone-calls and the like, the combination of a main shaft, a dial-plate arranged concentric therewith, an indicator upon the shaft arranged to sweep over said dial, a ratchet-wheel rigidly mounted upon the shaft, a manually-operable contact-lever provided with a push-pawl adapted to step said ratchet-wheel forward when the contact-lever is oscillated, a motor acting on said shaft and tending to return it to its initial position, a detent arranged to normally hold the ratchet-wheel against return movement, a fixed contact and a movable contact coöperating therewith adapted to be brought into bearing with the fixed contact by the movement of the lever to shift the ratchet-wheel and a signaling device included in said electric circuit and adapted to be operated by the closing of the said contacts, substantially as described.

18. In a register for telephone-calls and the like, the combination of a main shaft, a dial-plate arranged concentric therewith, an indicator upon the shaft arranged to sweep over said dial, a ratchet-wheel rigidly mounted upon the shaft, a manually-operable contact-lever provided with a push-pawl adapted to step said ratchet-wheel forward when the contact-lever is oscillated, a motor acting on said shaft and tending to return it to its initial position, a detent arranged to normally hold the ratchet-wheel against return movement, a fixed contact and a movable contact coöperating therewith, adapted to be brought into bearing with the fixed contact by the movement of the lever to shift the ratchet-wheel, a signaling device included in said electric circuit and adapted to be operated by the closing of the said contact, an escapement operatively connected to move with said ratchet-wheel during its return movement, a vibrating contact device operatively connected with said escapement and operating to break an electric circuit each time the escapement is oscillated and means for withdrawing and holding the detent free from the ratchet-wheel during the return movement of the latter.

19. A telephone-call-recording system comprising in combination with a subscriber's telephone set and the main telephone-circuit thereof, of a registering instrument located at the subscriber's station, comprising a tallying mechanism adapted to be operated manually, a normally open branch circuit electrically connected with the main telephone-circuit, a contact device adapted to close said branch circuit each time the tallying mechanism is operated manually and a buzzer included in said branch circuit, adapted to be thrown into operation when said circuit is closed, substantially as described.

20. A telephone-call-recorder system comprising in combination with a subscriber's telephone set and the main telephone-circuit thereof, a manually-operable tallying mechanism located at the subscriber's station, a normally open branch electric circuit connected with the main telephone-circuit, a movable device adapted to be moved to close said branch circuit when the tallying mechanism is operated manually, a buzzer included in said branch circuit, a motor tending to return the tallying mechanism to its initial starting-point, an escapement arranged to control the return movement of the tallying mechanism, a contact make-and-break mechanism connected with the vibrating member of the escapement, a second branch circuit connected with the main-line circuit and adapted to be alternately closed and opened by the escapement-operated contact device, a branch-circuit portion located at a reading-station remote from the subscriber's station and including an electrically-operated register, means for at will shifting the main telephone-circuit from the central switchboard to said branch-circuit portion located at the reading-station, an electromagnet connected with the subscriber's register and acting to release the tallying mechanism to permit it to return to its initial or starting position under the influence of the motor and a branch circuit connected with the main telephone-circuit and extending through said electromagnet, whereby the latter may be operated from the reading-station, substantially as described.

660,827. **BRIDGE.** MONTGOMERY WADDELL, New York, N. Y. Filed Mar. 4, 1899. Serial No. 707,720. (No model.)



Claim.—1. In a vertically-swinging bridge, a counterweight, a guide for the counterweight, a truck movable thereon, a connector between the truck and the bridge, a frame pivoted to the truck, and a motor mounted on said frame on one side of its pivot, substantially as described.

2. In a vertically-swinging bridge, a guide for the counterweight, a truck movable thereon, a connector between the truck and the bridge, a frame pivoted to the truck, and a motor and a weight mounted on said frame, substantially as described.

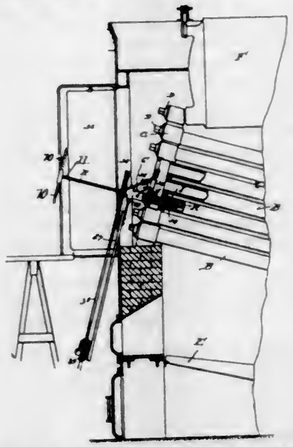
3. In a vertically-swinging bridge, the combination of the swinging span, a track or guide and a direct connector having one of its ends pivoted to the span and the other in movable contact with the said guide, said connector carrying a part of the roadway of the said bridge.

4. In a vertically-swinging bridge, the combination of the swinging span, a track or guide, a direct connector having one of its ends pivoted to the span and the other in movable contact with the said guide, said connector carrying a part of the roadway of the said bridge, and a counterweight also carried by said connector, substantially as described.

5. In a vertically-swinging bridge, the combination of the swinging span, a track or guide and a direct connector having one of its ends pivoted to the span and the other in movable contact with the said guide, said connector constituting the bridge-counterweight, substantially as described.

6. In a vertically-swinging bridge, the combination of the swinging span, a track or guide, and a direct connector having one of its ends pivoted to the span and the other in movable contact with the said guide, the guide being directed inward toward the swinging span, substantially as described.

660,828. **TUBE-CLEANER.** HENRY F. WEINLAND, Springfield, Ohio, assignor to Lagonda Manufacturing Co., same place. Filed Nov. 15, 1899. Serial No. 737,144. (No model.)



Claim.—1. In a tube-cleaner, the combination with a tube-cleaner holder, having a shoulder therein, of a rotatably-mounted sleeve having a flange adapted to come in contact with said shoulder, rollers mounted between said sleeve and holder to constitute roller-bearings for the sleeve, a driving-pulley rigidly mounted upon the outer end of said sleeve, said sleeve having an angular opening, a cleaner-rod adapted to fit said angular opening and slidably mounted therein, a non-rotatable handle connected with said cleaner-rod and adapted to reciprocate said rod, substantially as shown and described.

2. In a tube-cleaner, the combination with a tube-cleaner holder, having an annular shoulder therein, of a sleeve having an angular hole extending longitudinally through it, and an annular flange projecting outward from its inner end, and mounted within said holder, said flange engaging with the shoulder in the holder, a pair of rings mounted in an annular space about the sleeve, rollers having their ends reduced to form gudgeons mounted in holes in said rings, said rollers acting to support said sleeve, a pulley rigidly mounted on the outer end of said sleeve, a cleaner-shaft carrying a cleaner at its inner end adapted to extend through the angular opening in said sleeve, a handle having a hole or opening therein, with a headed stud rotatably mounted in said opening and adapted to engage with said cleaner-shaft, substantially as shown and described.

3. In a tube-cleaner, the combination with a tube-cleaner holder, having an exterior flange removed a short distance from its lower end, and an interior shoulder, a pair of lugs or extensions projecting from one up and the other down on opposite sides of said holder near its outer end, said lugs each having a hole or opening therein, the inner end of said support adapted to project within one end of a boiler-tube to be cleaned, and the exterior flange acting as a stop to limit its movement within said tube, means for engaging the upper lug and with a portion of the boiler to hold said shoulder in position within a tube and its flange against said

boiler, and means engaging the other of said lugs to support guide-pulleys, substantially as shown and described.

4. In a tube-cleaner, the combination with an operating-handle having a hole or opening therein, with one or more annular grooves in the wall of said opening, of a stud-shaft having an enlarged head with a groove therein, said enlarged head fitting within said hole or opening, and a wearing-surface between said grooved head and said handle, and means connected with said stud for engaging the outer end of the cleaner-shaft, substantially as shown and described.

5. In a tube-cleaner, the combination with a shaft having holes or openings therein, of yielding bearings separated from each other and having shanks adapted to extend within said holes, two or more of said bearings projecting from opposite sides of the shaft in line with each other, a cutter-shaft mounted in and connecting the separated yielding bearings, which project from one side of the shaft, together, and rotatable cutters carried by each of said cutter-shafts, all substantially as shown and described.

6. In a tube-cleaner proper, the combination with a shaft having holes therein, said holes having grooves or channels in their sides, of yieldable bearing-supports adapted to extend within said holes, each having a lug to project within said grooves, cutter-shafts mounted within said respective bearings, rotatable cutters loosely mounted on said shafts as also rings or spacing-washers between each cutter and said bearings, substantially as shown and described.

7. In a cleaner proper, the combination with a shaft having holes therein, said holes having a partially-circumferential and partially-longitudinal groove therein, bearing-posts having shanks adapted to fit within said holes, a lug or projection extending from each of said shanks adapted to fit within said groove, guide-plates projecting outward from said shaft between which said bearing-posts fit, a spring adapted to rest upon said shaft at one end and against said bearing at its other end whereby the bearing is normally maintained in its outer position, cutter-shafts, connecting the respective bearings together, mounted therein, and said cutter-shafts having loosely-mounted rotatable cutters thereon, as also collars or washers between said bearings and cutters and between said cutters, substantially as shown and described.

8. In a tube-cleaner, the combination with a tube-cleaner holder, a projection extending therefrom having a hole therein, an idler-pulley support, a hook projecting therefrom and adapted to hook into the hole in said projection, a pair of idler-pulleys mounted on said idler-pulley support, a second hook projecting from said support, a pulley attached to said hook, and another pulley, a rope secured to said other pulley at one end and passing around over the pulley connected with said second hook and back around said other pulley, all substantially as shown and described.

9. In a tube-cleaner, the combination with a tube-cleaner holder having a flange projecting therefrom about midway its length, a pair of lateral projections also extending from said holder substantially diametrically opposite each other, said flanges or projections each having a hole or opening therein, said holder having an enlarged portion and a reduced portion in its interior, a sleeve having an annular hole or opening therein, a flange extending from said sleeve near one end, said flange being adapted to fit against said reduced portion of said holder, roller-bearings between said holder and sleeve, a drive-wheel fixedly mounted on said sleeve adjacent to the outer end of said holder, said holder having a hole or opening therein back of its flange, such hole or opening entering the enlarged portion of said holder, all substantially as described.

660,829. RAND-TRIMMER SHIELD. EDWIN E. ANGELL, Somerville, Mass., assignor to the American Shoe Machinery Company, Portland, Me. Filed Feb. 23, 1899. Serial No. 706,566. (No model.)

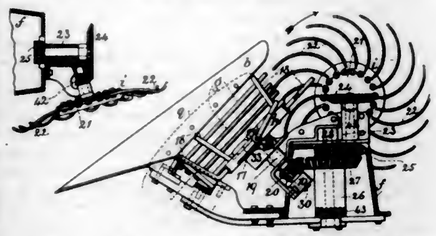


Claim.—1. In an apparatus of the character specified, a rotary shaft, a cutter, a shield for said cutter, means consisting of threaded nuts adapted to engage the threaded opening in the shield for holding said shield in relation to the cutter, and means for securing said cutter and shield to the shaft.

2. In an apparatus of the character specified, a rotary shaft, a cutter, a shield for said cutter having a threaded opening and a recess of larger diameter than said threaded opening, means consisting of threaded nuts adapted to engage said threaded opening in the shield for holding said shield in relation to the cutter, and an attaching-screw for securing the cutter and shield to said shaft and having its head located within said recess.

3. In an apparatus of the class specified, a rotary shaft, a cutter provided with a central opening, a shield for said cutter having an inner screw-threaded opening and a larger outer opening, exteriorly-threaded nuts turned into said screw-threaded opening of the shield and forming a bearing of greater diameter than said central opening of the cutter, and an attaching-screw passing through said cutter and said shield into said shaft and having a portion to fit said central opening of the cutter and having an enlarged portion to form a journal to fit the bearing formed by said nuts and having a head to fit said larger outer opening of the shield and to project over the outer of said nuts.

660,830. POTATO-DIGGER. LEWIS A. ASPINWALL, Jackson, Mich., assignor to the Aspinwall Manufacturing Company, same place. Filed Apr. 2, 1900. Serial No. 11,038. (No model.)



Claim.—1. In a potato-digger, the combination with the frame, of a concave plow having a long rearward-extending draw cutting edge, a grating formed by curved fingers adjacent and parallel to the delivery edge of the plow and a pulverizing-wheel with movable fingers and set obliquely to the axle of the machine and approximately parallel to the rear edge of the plow and means acting in connection with the pulverizing-wheel for delivering the potatoes and vines separately to one side of the machine, substantially as set forth.

2. The combination in a potato-digger, with the plow and the frame supporting the same, and a grating adjacent to the delivery edge of the plow, of a fender connected to and supported by the same frame and rising above the said frame and bent toward the plow and a pulverizing-wheel adjacent to the said fender and grating, substantially as set forth.

3. In a potato-digger, the combination with a plow and a grating of curved bars adjacent thereto, of a pulverizing-wheel set approximately parallel to the grating and above the same and comprising a revoluble hub and bent angular fingers connected to the said hub, and means for moving the fingers with the rotation of the pulverizing-wheel, substantially as set forth.

4. In a potato-digger, the combination with a plow and a grating adjacent thereto and formed of curved bars, of a pulverizing-wheel set approximately parallel to the said grating and above the same, and comprising a central revoluble hub, bent angular fingers passing through said hub and adapted to turn therein, a cam adjacent to the back of the said hub and rollers connected to the inner ends of the said fingers running upon the surface of the cam and thereby swinging the said fingers, substantially as set forth.

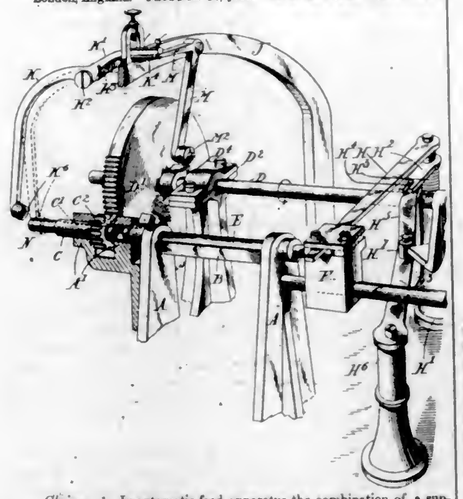
5. In a potato-digger, the combination with a plow, a grating adjacent thereto and formed of curved bars or fingers, and a pulverizing-wheel set approximately parallel to the grating and above the same, and comprising a central revoluble hub, a shaft therefor and means for turning the same, bearings formed radially with the said hub, bent angular fingers passing through the said bearings, crank ends connected to the inner portions of the said fingers and rollers carried by the said crank ends, a cam adjacent to the said hub and upon which the said rollers bear, the said rollers running upon the surface of said cam with the rotary movement of the pulverizing-wheel and swinging the fingers, the parts being so placed that a swinging movement is imparted to the fingers simultaneously with the throwing off of the tops thereby, substantially as set forth.

6. In a potato-digger, the combination with a plow and a grating of curved bars adjacent thereto, of a pulverizing-wheel set approximately parallel to the grating and above the same and comprising a revoluble hub, bent angular fingers connected to the hub, and means for swinging the fingers with the rotation of the pulverizing-wheel, and a horizontal finger-wheel rearward of the said pulverizing-wheel, substantially as set forth.

7. In a potato-digger, the combination with a plow and a grating adjacent thereto and formed of curved bars, of a pulverizing-wheel set approximately parallel to the said grating and above the same and comprising a central revoluble hub, bent angular fingers passing through the said hub and adapted to turn therein, a cam adjacent to the back of the said hub and rollers connected to the inner ends of the said fingers running upon the surface of the cam and thereby swinging the said fingers and a horizontal finger-wheel rearward of the said pulverizing-wheel, substantially as set forth.

8. In a potato-digger, the combination with the frame, of a concave plow having a long rearward-extending draw cutting edge, a grating of curved bars adjacent and parallel to the delivery edge of the plow, a pulverizing-wheel set obliquely to the axis of the machine above the fingers and approximately parallel to the rear edge of the plow and having swinging fingers and a finger-wheel rearward of the pulverizing-wheel, substantially as set forth.

660,831. AUTOMATIC FEED APPARATUS. JOSEPH S. BEEKMAN, London, England. Filed Feb. 12, 1900. Serial No. 4,985. (No model.)



Claim.—1. In automatic feed apparatus the combination of a support for the article, means for causing the article to protrude too far through the support and means for altering thereafter with precision the relative position of the article and support so that the protruded portion is reduced to a definite length.

2. In automatic feed apparatus the combination of a support for the article, a plunger operating to protrude the article too far through the support, means for reciprocating the plunger, a movable stop for partially returning the article and means for bringing the stop into a definite position relatively to the support and for withdrawing it from that position substantially as set forth.

3. In automatic feed apparatus the combination of a support for the article, a plunger for causing the article to enter and protrude too far through the support, means for reciprocating the plunger, a pivoted stop-lever operating to partially return the article, a bell-crank lever operatively connected to the pivoted stop-lever, a cam capable of rotation and operating upon the bell-crank lever, adjustable means for limiting the motion of the pivoted stop-lever and a spring controlling such lever substantially as set forth.

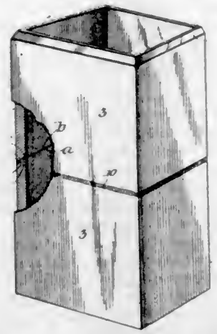
4. In automatic feed apparatus the combination of a support for the article, a plunger for causing the article to enter and protrude too far through the support, means for reciprocating the plunger, a pivoted stop-lever operating to partially return the article, a bell-crank lever, a yielding connection between the pivoted stop-lever and the bell-crank lever, a cam capable of rotation and operating upon the bell-crank lever, adjustable means for limiting the motion of the pivoted stop-lever, and a spring controlling such lever, substantially as set forth.

660,832. SECTIONAL FLUE. EDWARD A. BELL, New York, N. Y. Filed June 12, 1900. Serial No. 20,026. (No model.)

Claim.—1. A flue comprising a series of hollow sections, each having one edge contiguous to a companion section provided with a flat and an inclined surface, and its other edge provided with a pair of flat surfaces and an inclined surface, such latter inclined surface having less length than the former inclined surface, thereby providing a triangular space intermediate the sections and a point intermediate the faces of the wall and one face thereof for the reception of cement.

2. A flue comprising a series of hollow sections, each of said sections having one of its edges provided with a flat and an inclined face, and the other of its edges provided with a pair of flat faces connected by an inclined face, the latter construction of one section being adapted to be assembled with the former construction of another section and providing a space for the reception of cement or mortar.

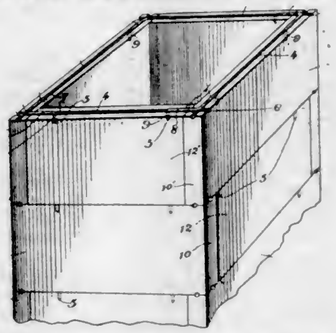
3. A flue comprising a series of hollow sections, one or more of the edges of one section having a pair of flat faces connected by an intermediate face extending entirely around the edge of said section; and one or more of the edges of another section being cut away to form a flat face and an outer side face, said outer side face and said flat face engaging, respectively, with the intermediate face and with one of the flat faces of said first section, the outer sides of said sections being flush with each other.



4. A hollow flue-section having one edge provided with a flat face and an inclined face, and its opposite edge provided with a pair of flat faces and an inclined face intermediate said flat faces and extending entirely around the edge of said section, said last inclined face having less length than said first inclined face, whereby when the section is assembled with such last inclined face contiguous to a companion section having the first inclined face, a space is formed entirely around the flue intermediate one side of such flue and a point between the sides thereof for the reception of mortar or cement, whereby such material can be filled in after the assemblage of the sections.

5. A flue composed of a series of sections assembled edge to edge, the contiguous edges of a pair of sections having flat and inclined surfaces forming at each side of such flue a space for the reception of filling material, such as cement.

660,833. PARTITION. HARRY W. BELL, New York, N. Y. Filed May 22, 1900. Serial No. 17,523. (No model.)



Claim.—1. A structure composed of a plurality of rows of wall components, the components of each row being assembled to form a corner or angle, and the components of one row breaking joint with the components of its companion row, and each of said components having one or more longitudinally-extending grooves, and some of said components having one or more transversely-extending grooves; and a binder comprising an angular member located at said corner in said grooves.

2. A structure composed of a plurality of rows of wall components, the components of each row being assembled to form a corner or angle, and the components of one row breaking joint with the components of its companion row, and each of said components having one or more longitudinally-extending grooves, and some of said components having one or more transversely-extending grooves; and a binder comprising an angular member located at said corner in said grooves and having the ends thereof projecting into some of said components.

3. A structure composed of a plurality of rows of wall components, the components of each row being assembled to form a corner or angle,

and the components of one row breaking joint with the components of its companion row, and each of said components having one or more longitudinally-extending grooves, and some of said components having one or more transversely-extending grooves; and a binder comprising an angular member located at said corner in said grooves and having means projecting into some of said components.

4. A structure composed of a plurality of rows of wall components, the components of each row being assembled to form a corner or angle, and the components of one row breaking joint with the components of its companion row, and each of said components having one or more longitudinally-extending grooves; and some of said components having one or more transversely-extending grooves; and a binder comprising an angular member located at said corner in said grooves and having means projecting into the blocks above and below the same.

5. A structure composed of a plurality of rows of wall components, one or more components of each row extending at an angle to a companion component of the same row, and each of said components having a plurality of its edges provided with grooves, the grooves of one component forming with the grooves of another component of the same row angular recesses; and an angular binder located in the contiguous angular recesses of the components of a pair of rows.

6. A structure formed of a plurality of wall components angularly located relatively to each other, each of said components having at one or more of its edges a groove, the grooves of a pair of components communicating to form an angular recess; and an angular binder located in said recess and having projections extending into a plurality of said blocks.

7. A structure formed of a plurality of rows of wall components angularly located relatively to each other, each of said components having at one or more of its edges a groove, the grooves of a pair of components communicating to form an angular recess; and an angular binder located in said recess and having projections extending into one or more components of each contiguous row.

8. A structure formed of a plurality of rows of wall components angularly located relatively to each other, and an angular binder located at the corner of such structure between the upper and lower edges of said components, and provided with projections extending into one or more components of each contiguous row.

9. A structure formed of a plurality of wall components angularly located relatively to each other, and means, comprising an angular binder located at the corner of such structure and having its members located on and running in parallelism with the edges of said components and projections extending into a plurality of such components for holding said binder in position, the organization being such that one of said binders is adapted to be located on the upper or lower edges of a terminating row of components, and also adapted, when such structure comprises a plurality of contiguous rows, to be located intermediate the upper and lower edges of such contiguous rows.

10. A block or wall component having one or more of its edges provided with one or more longitudinally-extending grooves, each of such grooved edges also having one or more transversely-extending grooves directly intersecting said longitudinally-extending grooves and located adjacent to the end of said block, whereby it is in position to form a continuation of the longitudinal groove of a companion block when such companion block is angularly assembled in position.

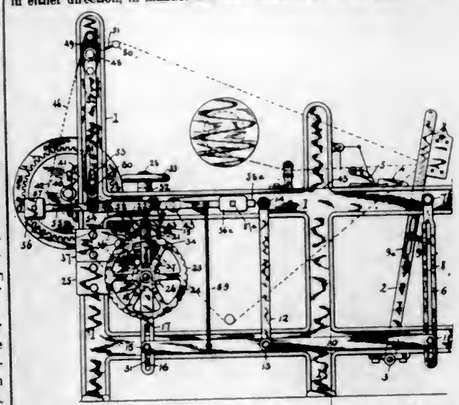
11. A binder comprising a member bent in a horizontal plane intermediate its ends to form a pair of horizontally-extending members, each bent in a vertical plane at its end to form a pair of straight, free-ended vertically-extending projections adapted to project into the material of a block.

12. A binder comprising a member bent in a horizontal plane intermediate its ends to form a pair of horizontally-extending members, each bent in a vertical plane at its end to form a straight, free-ended vertically-extending projection adapted to project into the material of a block.

660,834. **AUTOMATIC REVERSING LET-OFF MOTION FOR LOOMS.** CHARLES B. BENNETT, Philadelphia, Pa. Filed Feb. 17, 1900. Serial No. 5,560. (No model.)

Claim.—1. In a loom, the combination with its lay-sword, its warp-beam and stop-motion, of a ratchet-wheel, a ratchet-lever and a double pawl, and a connection therefrom to the stop-motion, a pendulum-lever and means for its movement by the sword, having changeable attachment thereto, and means connected to the stop-motion whereby a reverse shifting movement is effected when the filling breaks, and means from the ratchet-wheel to revolve the beam in either direction, in manner and form substantially as set forth.

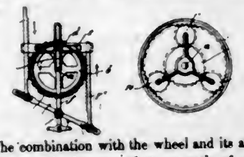
2. In a loom, the combination with its lay, its stop-motion, and its warp-beam, of a ratchet-wheel, a shaft therefor, a ratchet-lever fulcrumed upon the shaft, a double pawl upon the lever and having reversing means therefor, connected with the stop-motion, a pendulum-lever moved by the lay-sword, a suspension-fulcrum, a rod carried thereby which connects the pendulum-lever and the ratchet-lever, means to move the rod from the lay-sword, means to connect the rod for a reverse-shifting vertical movement at each end, and means from the ratchet-wheel to revolve the beam in either direction, in manner and form substantially as set forth.



3. In a loom, the combination with its lay, its lay-sword, its warp-beam and stop-motion, of a ratchet-wheel, a ratchet-lever and a double-acting pawl adapted to move the ratchet-wheel in reverse directions by mechanism connected to the lay-sword, means connected to the ratchet-wheel to move the beam, and means connecting the loom stop-motion and the pawl whereby the beam-moving mechanism is reversed when the loom-power is cut off by the breaking of the weft, substantially as and for the purposes specified.

4. In a loom, a lay, a lay-sword and a connected pendulous lever, a warp-beam, a stop-motion a ratchet-wheel having a lever and a double-acting pawl having operative connection with said stop-motion, a pivotally-suspended rod having pin-and-slot connections with the pendulum-lever and the ratchet-lever, a pendulous fulcrum for the pivotally-suspended rod and attached about midway thereof, means to move the beam from the ratchet-wheel, a feeler over which the warp is drawn, a governor connected to the feeler and attached to the pivotally-suspended rod, and operated by the pressure of the warp to move the rod aforesaid in manner to accelerate the motion of the ratchet-wheel, the beam and the warp when the warp is too taut, and reversely, when the warp is too loose to retard the motion of the ratchet-wheel, the beam, and the warp, in manner and form substantially as set forth.

660,835. **DRIVING MECHANISM FOR UNICYCLES.** HUBERT A. BOER, Kevelaer, Germany. Filed Aug. 28, 1899. Serial No. 728,772. (No model.)



Claim.—The combination with the wheel and its axle, of cranks on opposite sides of said wheel, arranged at an angle of one hundred and eighty degrees to each other, treadle-levers provided with fixed treadles and each having one vertical slide and one transverse slide intersecting each other, the said vertical slide of each treadle-lever being arranged to move on the wheel-axle, slide-rollers on the ends of the cranks arranged in the transverse slides of the treadle-levers, and a frame A within which the driving mechanism is arranged and provided with a handle-bar to assist the driving by foot-power, substantially as described.

660,836. **ELECTROGALVANIC BATTERY.** HORATIO J. BREWER, New York, N. Y. Filed July 7, 1899. Serial No. 723,057. (No model.)

Claim.—1. In a galvanic battery, an electronegative element consisting of a vertical plate of carbon forming the electrode, and a slab of depolarizing material suspended upon said carbon plate by means of interlocking shoulders formed respectively upon the said vertical carbon plate and the slab of conglomerate, said interlocking shoulders being integral with, and of the same material as, the parts upon which they are formed, whereby the weight of the conglomerate is utilized in maintaining a close electrical contact between the carbon and conglomerate, substantially as set forth.

2. In a galvanic battery, an electronegative element consisting of a vertical plate of carbon forming the electrode, a slab of depolarizing material suspended upon said carbon plate by means of interlocking shoulders formed respectively upon the said vertical carbon plate and the slab of conglomerate, said interlocking shoulders being integral with, and of the same material as, the parts upon which they are formed, whereby the weight of the slab of conglomerate is utilized in maintaining a close electrical contact between the carbon and the conglomerate, and a retaining-band surrounding the said carbon plate and slab of conglomerate whereby the engagement of the aforesaid interlocking shoulders is maintained, substantially as herein set forth.



3. In a galvanic battery, an electronegative element consisting of a central vertical plate of carbon forming the electrode, and two slabs of conglomerate material suspended upon opposite sides of said central vertical carbon plate by means of interlocking shoulders formed respectively upon said carbon plate and the slabs of conglomerate, said interlocking shoulders being integral with, and of the same material as, the parts upon which they are formed, whereby the weight of the slabs of conglomerate is utilized in maintaining a close electrical contact between the carbon and the conglomerate, substantially as set forth.

4. In a galvanic battery, an electronegative element consisting of a central vertical plate of carbon forming the electrode, two slabs of conglomerate material suspended upon opposite sides of said vertical carbon plate by means of interlocking shoulders formed respectively upon the said carbon plate and the slabs of conglomerate, said interlocking shoulders being integral with, and of the same material as, the parts upon which they are formed, whereby the weight of the slabs of conglomerate is utilized in maintaining a close electrical contact between the carbon and the conglomerate, and a retaining-band surrounding the said slabs of conglomerate and the carbon plate whereby the engagement of the aforesaid interlocking shoulders is maintained, substantially as set forth.

660,837. **SEAL.** EDWARD J. BROOKE, East Orange, N. J. Filed Aug. 24, 1900. Serial No. 27,916. (No model.)



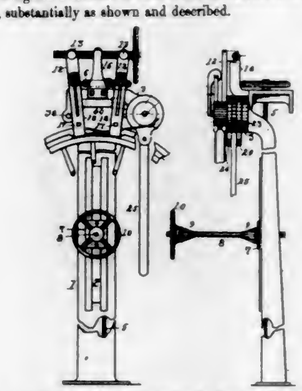
Claim.—1. A seal, adapted to be press-fastened, composed of a flexible shackle having a coil at one end and a threading end adapted to interlock directly with said coil at its other extremity, and a hollow seal-disk of sheet metal comprising a dome-shaped part having a notch to admit the coil end of the shackle at the factory and threading openings for the passage of said threading end of the shackle within access to said coil, and a disk part provided with distinguishing-marks and permanently interlocked with said dome-shaped part.

2. The combination, in a seal adapted to be press-fastened, of a flexible shackle of wire having a coil at one end and a normally-straight end at its other extremity, and a hollow seal-disk, composed of two parts of sheet metal united with each other by a circumferential joint, inclosing said coil, and having threading-holes through which the other shackle end can be passed through the seal-disk and within access to said coil, and rigid lips within the seal-disk to assist in directing the shackle end last named.

3. The combination, in a seal adapted to be press-fastened, of a flexible shackle of single wire having a coil at one end within the seal-disk and a normally-straight end at its other extremity, and a hollow seal-disk of sheet metal constructed with a pair of threading-holes connected with each other by a normally-projecting tunnel to facilitate passing the shackle end last named through the seal-disk within effective reach of said coil, substantially as hereinbefore specified.

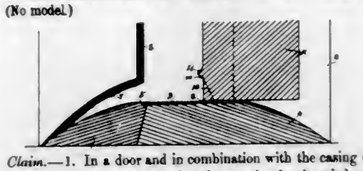
660,838. **RUBBER-TIRE-SETTING MACHINE.** WILLIAM S. BROOKE, Akron, Ohio, assignor to the Goodyear Tire and Rubber Company, same place. Filed May 15, 1900. Serial No. 16,804. (No model.)

Claim.—1. In a rubber-tire-setting machine the combination with a supporting-post having an offset head, a bracket secured to the rear thereof and a carriage adapted to slide in a slot in said post and means for sustaining revolubly a wheel on said carriage, and an adjusting-screw running through said bracket and post and means for turning said screw, a pair of radially, adjustable arms and clamping device mounted thereon to retain the ends of the wire, a winding-drum revolubly mounted on a shaft secured to the head of said post and to one side of its center a ratchet-wheel attached to said drum, a pawl-lever to engage and turn said ratchet and drum, in combination with a clamping device mounted on said drum arranged to simultaneously clamp or release said wires, by means of a sliding wedge in a channel in said drum, all constructed and arranged to operate, substantially as shown and described.



2. An improved gripping device for drawing the wires in a rubber-tire-setting machine consisting of a block arranged to be mounted in a winding-drum, having a truncated, conical channel in one face with a sliding wedge arranged and adapted to move in said channel to compress the wires against the sides, substantially as shown and described.

660,839. **WEATHER-STRIP FOR DOORS OR WINDOWS.** JESSE E. BUNDY, San Francisco, Cal. Filed Mar. 10, 1900. Serial No. 8,191. (No model.)



Claim.—1. In a door and in combination with the casing cut away at its lower sides, a threshold having the exterior face beveled or inclined outwardly on the closing-line of the bottom of the door, and having a groove or channel made transversely across its upper surface, a loose strip corresponding in thickness with the threshold and having the bottom adapted to normally and squarely rest upon the threshold-support, the inner edge beveled to coincide with that of the threshold, and the upper surface forming a smooth continuation of the threshold, and a contact-piece carried by the door and movable in said groove or channel, and adapted to strike the edge of the loose piece and cause it to tilt upward along the lower outer face of the door when the latter is closed.

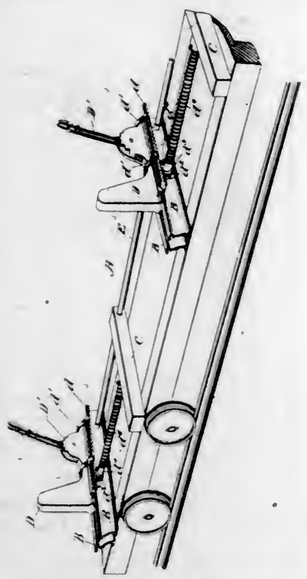
2. In combination with a door and casing thereof, said casing cut away at the lower sides, a threshold having the outer portion cut away on the closing-line of the door and beveled outwardly, a loose strip substantially corresponding with the thickness of the threshold and fitting the bottom and inner bevel, and in its upper surface normally forming a continuation of the threshold, a contact-piece carried by the door adapted to strike the loose strip and cause it to tilt upwardly against the face of the door when the latter is closed, the horizontal molding or strip fixed to the door and forming an overlap and joint with the upper edge of said strip, and a strip of yielding material secured beneath the molding and against which the upper inner edge of the loose strip strikes to make a tight joint.

3. Doors hinged and closing together, on a central line, a threshold having its outer face cut away and beveled outwardly, an independent strip similarly beveled and fitting against the outer edge of the threshold and normally forming a continuation thereof, a contact-piece upon one of the doors adapted to engage said strips and tilt it upward to form a joint along the outer lower faces of both doors, said doors having their lower outer edges beveled to allow the strip to rise without impediment.

660,840. **SAWMILL SET-WORKS.** SAMUEL W. BUTTERFIELD, Three Rivers, Canada. Filed June 23, 1899. Serial No. 721,595. (No model.)

Claim.—1. In a sawmill set-works, the combination with a head-

block, a set-shaft, a knee-slide carrying a knee, a rack connected with said knee-slide and geared to the said shaft, and a lever fulcrumed on the knee-slide and connected loosely with the rack, of a lost-motion-compensating device including a spring-actuated shaft geared to the knee-slide to normally impel the latter in a direction to take up the slack in the loose connection with the lever in the set-works rack, substantially as set forth.



2. The combination with a sawmill set-works having a knee-setting lever and a set-works rack connected loosely together, of a lost-motion-compensating device comprising an auxiliary rack made fast with a part of the setting-knee, a shaft, a pinion sleeved on the shaft and meshing with the auxiliary rack, and a torsion-spring connected with said pinion and operating the parts to force the setting-knee in a direction to take up the lost motion in the loose connection between the setting-lever and the set-works rack, substantially as set forth.

3. In combination with a sawmill set-works, having the knee-setting lever and the set-works rack loosely connected together, of a lost-motion-compensating device comprising an auxiliary rack fast with a part of the setting-knee, a shaft, a coiled spring on said shaft, a pinion fitted loosely on the shaft and meshing with the auxiliary rack, and means for firmly securing said spring to the pinion, for the purpose set forth, substantially as described.

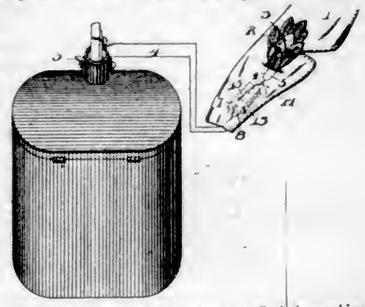
4. The combination with a sawmill set-works having a knee-setting lever and a set-works rack loosely connected together, of a lost-motion-compensating device comprising an auxiliary rack, tie-plates to firmly connect said rack to a part of the setting-knee, a shaft, a pinion loosely sleeved on the shaft to mesh with said auxiliary rack and provided with an extended collar, a spring encircling the shaft, and a screw which firmly secures one end of the spring to the pinion-collar, substantially as described.

660,841. STORM-WEATHER DOOR OR WINDOW STRIP. DAVID L. BYLER, Clinton, Mo. Filed July 2, 1900. Serial No. 22,386. (No model.)



Claim.—In a weather-strip for doors and windows, the combination with the metal strip A, bent at or nearly at right angles at *f* so as to firmly adjust the strip against the door or window, and at *e* so as to throw the water out and away from the door, of the strip of felt or other pliable or elastic material, received between the metal strip and the door and window to extend below the same and secured thereto by suitable nails or screws passing through the metal and the elastic material.

660,842. ILLUMINATED FLOWER. WALTER A. CHURCH, Pittsburg, Pa. Filed Feb. 13, 1900. Serial No. 5,075. (No model.)



Claim.—In a device of the character described, the combination with the portable battery, the artificial flower, and the incandescent lamp embedded in said flower; of the switch electrically connected to said battery and lamp, sliding means carried by said switch for forming and breaking the electrical circuit between the battery and lamp, and the fastening means connected to one side of the said switch for securing the same in position, as and for the purpose described.

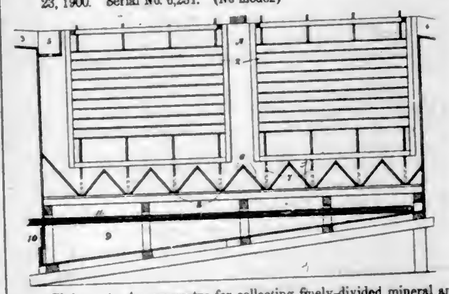
660,843. NURSING-GOWN. REBECCA COYLE, Philadelphia, Pa. Filed May 16, 1900. Serial No. 16,832. (No model.)



Claim.—1. A gown, provided with a nursing-opening, a plait on the portion of the material of the gown over said opening, covering the same, and a laterally-turned fold continuous of the outer wall of said plait.

2. A gown provided with a nursing-opening, a plait on the portion of the material of the gown over said opening covering the same, and an extensible fold on the outer wall of said plait.

660,844. DEVICE FOR COLLECTING FINELY-DIVIDED MINERALS AND SLIMES. WILTON E. DARROW, Sonora, Cal. Filed Feb. 23, 1900. Serial No. 6,231. (No model.)



Claim.—1. An apparatus for collecting finely-divided mineral and separating it from heavier gangue comprising a stationary tank having upper and lower compartments and a floor separating one compartment from the other and corrugated transversely, said upper compartment having an inlet at one end portion and an overflow at the opposite end portion, a series of superposed collecting-surfaces submerged beneath the surface of the water in the tank and extending in the direction of the flow of the water through said tank, said surfaces inclined toward the longitudinal sides of the tank whereby heavy material will slide off the surfaces by gravitation and be delivered in the channels formed by the corrugated floor, and the lighter material will adhere to said surfaces.

2. An apparatus for separating finely-divided material from heavier gangue and collecting it comprising a tank having a bottom inclined laterally and also inclined longitudinally to a point of discharge, a transversely-corrugated floor in the tank and dividing the latter into upper and lower compartments, superposed collecting-surfaces in the upper compartment below the surface of the water and extending in the direction of the flow of the latter, and inclined toward the longitudinal sides of the tank, said upper compartment having an inlet and overflow, means for admitting water to both compartments, passages connecting the two compartments and means controlling said passages.

3. An apparatus for separating finely-divided material from heavier gangue and collecting it, consisting of a stationary tank or receptacle having supply and discharge passages, transversely-inclined collecting-surfaces fixed therein, and disposed in vertical series, means for supplying water from a plurality of points upwardly in the vertical plane of the plates whereby inclined surfaces are constantly submerged, and means including transversely-extending channels below the surfaces for collecting and discharging the heavy gangue without disturbing the inclined surfaces and their load.

4. An apparatus for separating finely-divided mineral from heavier gangue consisting of a stationary tank or space having surfaces inclined toward the longitudinal sides of the tank so that heavy material will slide therefrom and lighter material will collect thereon, means for supplying water from below to fill the tank and submerge the surfaces, means for supplying material to pass through the tank and over the surfaces, and a discharge at the opposite end, a transversely corrugated or channeled bottom having openings therethrough and a closed receptacle beneath which is also filled with water whereby the heavy sediment gradually passes through the openings into the lower compartment without agitation in the upper compartment.

5. An apparatus for collecting finely-divided material and separating it from heavier gangue, consisting of a stationary tank or receptacle having transversely-inclined surfaces and transversely corrugated or channeled bottom with apertures therethrough, a closed chamber or chambers beneath, with which said apertures communicate, and a gate or gates through which said chamber may be periodically discharged, valves or stoppers closing the passages between the two chambers when the lower chamber is to be discharged, and pipes through which water is admitted into the lower chamber and caused to rise and fill the upper chamber.

6. A means for concentrating and saving fine suspended mineral contained in mill-tailings, consisting of a tank having upper and lower compartments, stationary, submerged, transversely-inclined surfaces in the upper compartment, and means for delivering upflowing currents of water directly under the surfaces, from the lower compartment, whereby the products of different specific gravity are separated.

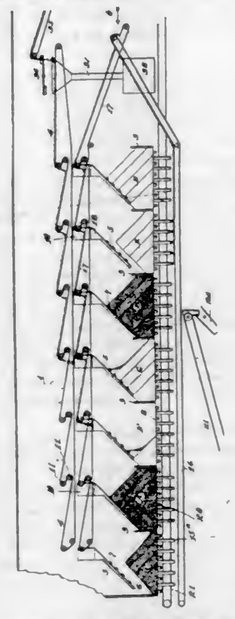
660,845. APPARATUS FOR SAMPLING, AVERAGING, MIXING, AND STORING MATERIALS IN BULK. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Jan. 11, 1900. Serial No. 1,093. (No model.)

Claim.—1. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a bin into which material is deposited, a second bin in which the material is redeposited, a feed-belt for depositing the material in the first bin, a belt below the bin for withdrawing the material therefrom, a mixing-belt onto which the material is deposited and by which the material will be deposited in the second bin, and a belt beneath the second bin for withdrawing off the material, substantially as set forth.

2. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a stock-house having a capacity for a plurality of deposits in bulk, a feed-belt passing over the stock-house for depositing material into any one of the deposits, a conveying-belt beneath the deposits for withdrawing the material therefrom, a mixing-belt with which the conveying-belt connects for carrying the withdrawn material and redepositing it in the stock-house, and a conveying-belt for carrying off the redeposited material, substantially as set forth.

3. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a bin in which the material may be deposited, a second bin in which the material may be redeposited in an averaged condition, means for depositing the material in the first bin, sampling mechanism for sampling the material before its introduction into said bin, means for withdrawing the material from the first bin and redepositing it in the second bin, and means for drawing off the redeposited material, substantially as set forth.

4. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a stock-house, means for withdrawing material deposited in said stock-house from the bottom thereof, two conveying-belts beneath the stock-house, a mixing-belt extending above the stock-house and with which one of said conveying-belts connects, and a distributing-belt extending parallel with said mixing-belt at the top of the stock-house, substantially as set forth.



5. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a plurality of bins into which the material may be deposited, an inclined feed-spout extending into each bin, means for feeding material to said spout, a plurality of openings in the bottom of said spout having manually-controlled valves, means for drawing off the material from the bottom of the several bins, and a belt beneath all of the bins for receiving material withdrawn therefrom, substantially as set forth.

6. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a plurality of bins into which the material may be deposited, an inclined feed-spout extending into each bin, means for feeding material to said spout, a plurality of openings in the bottom of said spout having manually-controlled valves, a plurality of roller-feeds for drawing off the material from the bottom of each bin, and a belt beneath all of the bins for receiving material withdrawn therefrom, substantially as set forth.

7. Apparatus for averaging material in bulk whereby an even assay thereof can be secured, comprising a bin into which the material may be deposited, an inclined feed-spout extending into said bin, means for feeding material to said spout, a plurality of openings in the bottom of said spout having manually-controlled valves, a plurality of roller-feeds arranged in two series for drawing off the material from the bottom of the deposit, and two conveying-belts coöperating with said roller-feeds, substantially as set forth.

8. Apparatus for averaging and mixing materials in the manufacture of Portland cement, comprising a stock-house, means for depositing cement-rock and limestone in said stock-house in the form of separate deposits, means for separately drawing off the deposited material in an averaged condition, two storage-bins for the cement-rock and limestone respectively, a supplemental bin beneath each of said storage-bins and to which the material may be directed, means for weighing the supplemental storage-bins and the material carried therein, means for drawing off the material from the supplemental storage-bins, and a mixing apparatus to which the cement-rock and limestone from the supplemental storage-bins may be directed, substantially as set forth.

660,846. PROCESS OF DEOXIDATING METALS. EMIL EHRENSBERGER, Essen, Germany, assignor to Fried. Krupp, same place. Filed June 10, 1896. Serial No. 595,044. (No specimens.)

Claim.—1. The herein-described process of removing oxygen from molten iron or steel, or from alloys thereof, consisting in adding to the mol-

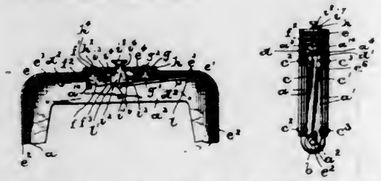
ten metal an alloy containing a metal having a greater chemical affinity for oxygen than the metal to be treated, and a non-metallic element the oxygen compound of which is an acid which combines with the basic oxygen compound of the metallic element of the alloy to form a fusible slag readily separating from the molten metal, and the alloy being added to the molten metal in such proportions that practically only a trace of the constituents of the same or at least less than 0.1 per cent., remains in the finished casting.

2. The herein-described process of removing oxygen from molten iron or steel, or from alloys thereof, consisting in adding to the molten metal an iron alloy containing a plurality of metals having a greater chemical affinity for oxygen than the metal to be treated, and a non-metallic element the oxygen compound of which is an acid which combines with the basic oxygen compounds of the metallic elements of the alloy to form a fusible slag readily separating from the molten metal, and the alloy being added to the molten metal in such proportions that, with the exception of the iron added, practically only a trace of the constituents of the alloy, or at least less than 0.1 per cent., remains in the finished casting.

3. The herein-described process of removing oxygen from molten iron or steel, or from alloys thereof, consisting in adding to the molten metal an alloy containing aluminium, which has a greater affinity for oxygen than the metal to be treated, and silicon; said constituents of the alloy being so proportioned that the compound formed by the two constituents with the oxygen of the molten metal is a fusible slag readily separating from the molten metal, and the alloy being added to the molten metal in such proportions that practically only a trace of the constituents of the same, or at least less than 0.1 per cent., remains in the finished casting.

4. The herein-described process of removing oxygen from molten iron or steel or from alloys thereof, consisting in adding to the molten metal an alloy of aluminium, manganese, silicon and iron in the proportion of about five per cent. aluminium, ten per cent. manganese, ten per cent. silicon, and seventy-five per cent. iron; said alloy being added to the molten metal in the proportion of about 0.5 per cent. to 0.8 per cent.; whereby the constituents of the compound are oxidized and form a fusible, readily-removable slag, and the finished casting contains—with the exception of the iron added—only a trace, or at least less than 0.1 per cent., of the constituents of the alloy.

660,847. **PURSE OR BAG FRAME.** BENNO VON EIGEN, Newark, N. J., assignor to Aug. Goertz & Co., same place. Filed July 20, 1900. Serial No. 24,272. (No model.)



Claim.—1. In a purse or bag frame, the combination, with a pair of inner hinged or pivoted frame-sections, of a pair of outer frame sections, arranged one in a fixed position over one of said inner frame-sections, and the other outer frame-section having a sliding motion in a direction toward the center of the frame-sections, and means connected with said several frame-sections for holding them in their closed relation, substantially as and for the purposes set forth.

2. In a purse or bag frame, the combination, with a pair of inner hinged or pivoted frame-sections, of a pair of outer frame-sections, arranged one in a fixed position over one of said inner frame-sections, and the other outer frame-section having a sliding motioo in a direction toward the center of the frame-sections, means connected with said several frame-sections for holding them in their closed relation, and section-plates *d* and *d'*, secured to the outer surfaces of said frame-sections, substantially as and for the purposes set forth.

3. In a purse or bag frame, the combination, with a pair of inner hinged or pivoted frame-sections, of a pair of outer frame-sections, arranged one in a fixed position over one of said inner frame-sections, and the other outer frame-section having a sliding motion in a direction toward the center of the frame-sections, a connecting-plate or bridge-piece connected between said outer frame-sections, and a lock-post rotatably connected with said bridge-piece, normally preventing the sliding motion of said outer movable frame-section, substantially as and for the purposes set forth.

4. In a purse or bag frame, the combination, with a pair of inner hinged or pivoted frame-sections, of a pair of outer frame-sections, arranged one in a fixed position over one of said inner frame-sections, and the other outer frame-section having a sliding motion in a direction toward the center of the frame-sections, a connecting-plate or bridge-piece between said outer frame-sections, a rotatable and depressible lock-post connected with said bridge-piece, and a holding or lock catch connected with said outer slidable or movable frame-section, normally in locked engagement with said lock-post to prevent the sliding motion of said outer slidable or movable frame-section, substantially as and for the purposes set forth.

5. In a purse or bag frame, the combination, with a pair of inner hinged or pivoted frame-sections, of a pair of outer frame-sections, arranged one in a fixed position over one of said inner frame-sections, and the other outer frame-section having a sliding motion in a direction toward the center of the frame-sections, a connecting-plate or bridge-piece between said outer frame-sections, a rotatable and depressible lock-post connected with said bridge-piece, a holding or lock catch connected with said outer slidable or movable frame-section, normally in locked engagement with said lock-post to prevent the sliding motion of said outer slidable or movable frame-section, and a pair of inclosing section-plates *d* and *d'*, between which the said outer frame-sections, bridge-piece and lock-post are arranged, when the frame is closed, substantially as and for the purposes set forth.

7. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening a^4 provided with a slotted portion or portions a^7, of a rotatable lock-post *i* having a holding part or parts slidably arranged in said slotted portion or portions a^7 to prevent turning, a holding-catch normally in locked engagement with said lock-post, and means connected with said lock-post arranged to permit the withdrawal of said holding part or parts from said slotted portion or portions a^7, and with which said lock-post is rotatably connected to release the holding-catch, substantially as and for the purposes set forth.

8. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening a^4 provided with a slotted portion or portions a^7, of a rotatable lock-post *i* having a holding part or parts slidably arranged in said slotted portion or portions a^7 to prevent turning, a holding-catch normally in locked engagement with said lock-post, and a spring secured in said frame-section, having a perforated end portion providing a bearing for said lock-post, substantially as and for the purposes set forth.

9. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening or slot a^3, of a movable frame-section *e* slidably connected with said main frame-section, and a catch-plate *f* secured to said frame-section *e* and slidably arranged in said slot a^3, a holding lug or arm f^2 and a bolt portion f^3 on said catch-plate, and a spring-actuated lock-post with which said arm or lug f^2 is normally in held engagement, substantially as and for the purposes set forth.

10. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening or slot a^3, of a movable frame-section *e* slidably connected with said main frame-section, and a catch-plate *f* secured to said frame-section *e* and slidably arranged in said slot a^3, a holding lug or arm f^2 and a bolt portion f^3 on said catch-plate, and a rotatable lock-post with which said arm or lug f^2 is normally held in engagement, substantially as and for the purposes set forth.

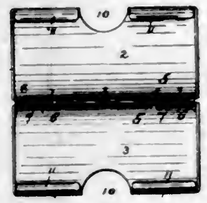
11. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening or slot a^3, of a movable frame-section *e* slidably connected with said main frame-section, and a catch-plate *f* secured to said frame-section *e* and slidably arranged in said slot a^3, a holding lug or arm f^2 and a bolt portion f^3 on said catch-plate, a spring secured in said main frame-section, having a perforated end portion, and a lock-post provided with a stud or projection *i'* rotatively arranged in said perforated end portion of the spring, substantially as and for the purposes set forth.

12. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening a^3, and an opening a^4 provided with a slotted portion or portions a^7, of a movable frame-section *e* slidably connected with said main frame-section, a catch-plate *f* secured to said frame-section *e* and slidably arranged in said slot a^3, a holding lug or arm f^2 and a bolt portion f^3 on said catch-plate, and a rotatable and spring-actuated lock portion *i* with which said arm or lug f^2 is normally held in engagement, and retaining portions on said lock portion *i* slidably and removably arranged in said slotted portion or portions a^7, substantially as and for the purposes set forth.

13. In a purse or bag frame, the combination, with one of the frame-sections thereof, having an opening a^3 and an opening a^4 provided with a slotted portion or portions a^7, of a movable frame-section *e* and slidably connected with said main frame-section, a catch-plate *f* secured to said frame-section *e* and slidably arranged in said slot a^3, a holding lug or arm f^2 and a bolt portion f^3 on said catch-plate, a spring secured in said main frame-section, having a perforated end portion forming a bearing, and a lock-post *i* provided with a stud or projection *l'* rotatively arranged in said perforated end or bearing portion, and retaining portions i^2 on said lock-post slidably and removably arranged in said slotted portion or portions a^7, substantially as and for the purposes set forth.

14. In a purse or bag frame, the combination, with a frame-section *a* having an opening a^4 and slotted portions a^7, of a pair of outer frame-sections *e* and *e'*, a connecting-plate or bridge-piece *h* connected with said sections *e* and *e'* and having a central opening or hole *h'*, a lock-post *i* in said opening a^4, retaining portions i^2 slidably and removably arranged in said slotted portions a^7, and provided with a stop portion or portions to limit the upward movement of said post, a portion i^4 connected with said post and arranged in the opening or hole *h'* in said bridge-piece, and a knob or finger-piece thereon, and a holding or lock catch arranged for holding engagement with a portion of the said lock-post, substantially as and for the purposes set forth.

660,848. **MATCH-BOX.** BENNO VON EIGEN, Newark, N. J., assignor to Aug. Goertz & Co., same place. Filed July 21, 1900. Serial No. 24,407. (No model.)
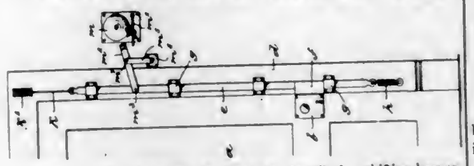


Claim.—1. A box or case for matches, &c., consisting, essentially, of a pair of hinged sections, having their sides and front edges arranged contiguous to each other to produce a closed box or receptacle, and provided with an opening in said front edges for the presentation of a portion of the match or other article in the box, means connected with said sections for retaining them in their normally-closed relation, but permitting the withdrawal of the match or other article, and section-plates 14 arranged over the abutting end portions or sides of said pair of sections, substantially as and for the purposes set forth.

2. A box or case for matches, &c., consisting, essentially, of a pair of hinged and spring-actuated sections, having their sides and front edges arranged contiguous to each other to produce a closed box or receptacle, and provided with an opening in said front edges for the presentation of a portion of the match or other article in the box, and section-plates 14 arranged over the abutting end portions or sides of said pair of sections, substantially as and for the purposes set forth.

3. A box or case for matches, &c., consisting, essentially, of a pair of sections, perforated ears or lugs connected with said sections, and a torsional spring bar or rod in the ears or lugs of the sections, arranged to normally close the said sections, but permit them to be opened, and section-plates 14 arranged over the abutting end portions or sides of said pair or sections, substantially as and for the purposes set forth.

4. A box or case for matches, &c., consisting, essentially, of a pair of sections, having their sides and front edges arranged contiguous to each other to produce a closed box or receptacle, perforated ears or lugs connected with said sections, a torsional spring bar or rod in the ears or lugs of the said sections, arranged to normally close the said sections, but permit them to be opened, said sections being provided in said front edges with an opening for the presentation of a portion of the match or other article in the box, and section-plates 14 arranged over the abutting end portions or sides of said pair of sections, substantially as and for the purposes set forth.

660,849. **LOCK STRIKE AND ALARM.** WILLIAM I. ENTWISTLE, Philadelphia, Pa. Filed June 4, 1900. Serial No. 18,948. (No model.)



Claim.—In a device of the character described, a shifting keeper, a bolt or bar serving as a carrier and a support for said keeper, means for shifting said bolt or bar, a gong arranged adjacent to the bolt or bar and having a hammer and an arm carried by the bolt or bar and adapted to actuate the hammer when said bolt or bar is elevated to release the keeper from the lock, substantially as and for the purposes described.

660,850. **CAR-SEAL.** SAMUEL F. ESTELL, Chicago, Ill. Filed Dec. 15, 1899. Serial No. 740,396. (No model.)

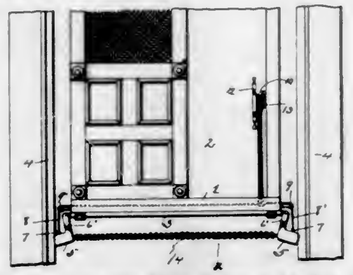


Claim.—1. In a car-seal, the combination with a strap having a chambered head at one end, the outer end of such head being open, the farther end of the strap being pointed and barbed, of a spring-wire detent in substantially U form and secured by its cross member within the chamber of the head, both of its arms being free, the ends of such detent being substantially perpendicular to the face of the strap, whereby the barbed end of the strap may enter between such ends and engage with both of its barbs.

2. In a car-seal, the combination with a strap having a chambered head at one end, the outer end of such head being open, the farther end of the strap being pointed and barbed, of a spring-wire detent in substantially U form and secured within the chamber of the head, the ends of such detent being substantially perpendicular to the face of the strap, one wall of the head having an internal transverse recess adapted to receive such detent ends.

3. In a car-seal, in combination, a strap having one of its ends formed as an arrow-head and having at its opposite end lateral flanges and an inturned tongue-piece, a U-shaped wire spring secured under such tongue and being adapted to lie along the face of the strap and having its ends upturned so as to be perpendicular thereto, a cap-piece having its side ends bent downwardly and laterally to form feet adapted to rest upon the lateral flanges of the strap and having a transverse recess for receiving the upturned ends of the wire and an inturned tongue at its rearward end, the edges of the flanges of the strap being overturned upon the feet of the cap.

660,851. **EMERGENCY STOP OR BRAKE FOR ELEVATORS.** ISAAC FRANKEL, Pittsburg, Pa. Filed Aug. 1, 1900. Serial No. 25,527. (No model.)



Claim.—In combination with an elevator-car, the shoes 5 hinged beneath the floor of the said car, a spring 14 connecting the said shoes together, the tension of which will keep the same from contact with the slides 4, ropes or cords attached to the shoes, a drum arranged within the elevator-car to which said cords or ropes are connected, means for operating the said drum whereby the said shoes may be elevated into contact with the slides, or held stationary away from the same, all arranged and combined for service, substantially as and for the purpose described.

660,852. **ELECTRODE FOR ARC-LAMPS.** FREDERICK HACHMANN, St. Paul, Minn., assignor of three-fourths to Louis Hill and Max Toltz, same place, and Elisabeth Baasen, Milwaukee, Wis. Filed Dec. 22, 1899. Serial No. 741,217. (No model.)



Claim.—1. An electrode for an electric-arc lamp comprising a tubular shell of hard carbon, and a filling of calcium carbid with an adhering and binding material.

2. An electrode for an electric-arc lamp consisting of calcium carbid incased in a shell of hard carbon or analogous material.

3. A pair of arc-lamp electrodes located adjacent to each other end to end, each electrode consisting of an inclosing hard-carbon shell and a filling of calcium carbid held in place by cohering material.

660,853. FLOWER-STAND. Kinsey M. Jennings, Philadelphia, Pa. Filed Mar. 19, 1900. Serial No. 9,226. (No model.)



Claim.—1. A flower-stand having a head which is provided with openings of different diameters, and a supporting device having a tapered stem adapted to be fitted in either of said openings, whereby the altitude of said device may be varied, and the article supported thereon may be angularly adjusted.

2. A flower-stand having a head with two openings therein, one of which is elongated, and a movable arm having a depending stem adapted to enter the other opening.

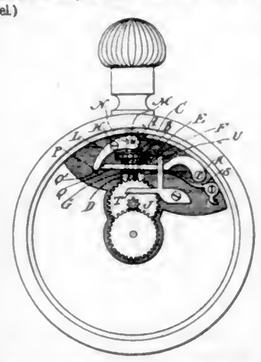
660,854. COMBINED BOX-LID SUPPORT AND TAG-HOLDER. Joseph H. Knowles, Chicago, Ill., assignor to Charles L. Beatty, same place, and Charles A. Dow, Sioux City, Iowa. Filed Feb. 12, 1900. Serial No. 4,989. (No model.)



Claim.—1. A combined box-lid support and tag-holder formed from a single piece of sheet metal and comprising a rectangular body portion provided on one side and near its opposite ends with two arms bent parallel with the under side of said body portion, the lowermost of said arms being formed with an extension disposed at a right angle thereto and projecting below said arm, the opposite ends of the said body portion being bent parallel with the front or upper side thereof to form clips adapted to engage the opposite ends of a tag, substantially as and for the purpose specified.

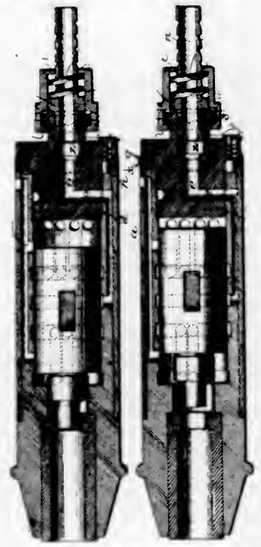
2. A combined box-lid support and tag-holder formed from a single piece of sheet metal and comprising a rectangular body portion provided on one side and near its opposite ends with two arms bent parallel with the under side of said body portion, the lowermost of said arms being formed with a right-angled downwardly-projecting extension the lower end of which is curved rearwardly, and the opposite projecting ends of said body portion being bent parallel with the front or upper side thereof to form clips adapted to engage the opposite ends of a tag, substantially as described and for the purpose specified.

660,855. STEM WINDING AND SETTING WATCH. Charles A. Kortenhaus, Philadelphia, Pa. Filed Nov. 27, 1899. Serial No. 738,315. (No model.)



Claim.—In a stem-winding and watch-setting device, an arbor, shifting gearing thereon, an arm engaging said gearing, and means for operating said arm, in combination with a double-limbed bridge, one limb of the same freely engaging the side of a wheel of the hand-setting mechanism, and the other limb projecting angularly from the first-named limb and bearing freely against the side of said arm.

660,856. PIPE-COUPLING FOR PNEUMATIC TOOLS. Herman G. Kotten, Englewood, N. J., assignor to the Ketler Tool Company, of Pennsylvania. Filed Oct. 16, 1899. Serial No. 733,715. (No model.)



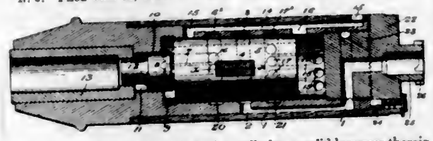
Claim.—1. In a pipe-coupling for a pneumatic tool, an inlet-piece having an inlet-port therein for the motive fluid, a neck attached to said piece and having laterally-extending lugs thereon, a coupling-sleeve recessed and provided with means for engaging said lugs, a coupling-nipple, a washer interposed between said coupling-nipple and the outer surface of said inlet-piece and a spring interposed between said sleeve and nipple.

2. In a pipe-coupling for a pneumatic tool, the combination of an inlet-piece having a port therein for the admission of the motive fluid, a neck attached to said inlet-piece and provided with lugs having curved walls, a coupling-sleeve, openings in said sleeve for permitting the insertion of said lugs, recesses or depressions upon said sleeve for the reception of said lugs, stops for limiting the movement of said lugs, a coupling-nipple, a flange thereon, a washer interposed between said flange and inlet-piece, an inwardly-projecting flange on said coupling-sleeve and a spring held between said flange and coupling-nipple.

3. In a pipe-coupling, an inlet-piece, a neck attached to said inlet-piece and provided with lugs, a coupling-sleeve, openings in said sleeve for permitting the insertion of said lugs, depressions and projections common to said lugs and sleeves, stops for limiting the rotation of said sleeve relative to said lugs, a coupling-nipple, a washer interposed between said nipple and inlet-piece, and a spring interposed between said nipple and sleeve.

4. The combination of a pneumatic tool, an inlet-piece therefor, a neck on said inlet-piece, lugs projecting from said neck, a coupling-sleeve engaging said lugs, a coupling-nipple and a spring interposed between said sleeve and nipple.

660,857. PNEUMATIC TOOL. Herman G. Kotten, Englewood, N. J. Filed Jan. 11, 1900. Serial No. 1,098. (No model.)

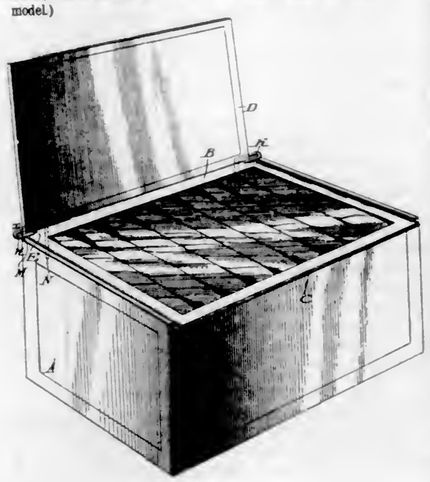


Claim.—1. In a pneumatic tool, a cylinder, a solid hammer therein, having an unbroken exterior periphery, but provided with longitudinally-extending recesses on either side thereof, a groove in the inner periphery of said cylinder always in communication with said recesses, an inlet-port in said cylinder leading to said groove, other grooves in the inner periphery of said cylinder on either side of said first-mentioned groove, and ports and passages for admitting and exhausting the motive fluid from either end of said cylinder.

2. In a pneumatic tool, a hammer having an exterior periphery of a uniform diameter, a longitudinally-extending recess in said hammer, said recess being always in communication with fluid-pressure through the groove 3 in the inner periphery of the cylinder, ports 6, passages 7, and ports 8 for admitting the motive fluid to one end of said hammer, ports 17, passages 18 and ports 19 for admitting motive fluid to the opposite end of said hammer, the number of said last-mentioned ports being greater than the first-mentioned ports, whereby a rapid movement toward the chisel end of the hammer is attained, grooves 20 and 21 on either side of said groove 3 and communicating with said ports 6 and 17 respectively, and means for exhausting from each end of said hammer.

3. In a pneumatic tool, a cylinder, a hammer having a periphery of uniform diameter, a recess in said hammer, the chisel end of the latter being provided with a reduced portion 10 having a bearing 11, a striker 12 attached to said reduced portion, a chisel-bushing 13 having an opening therein for the entrance of said striker, an annular groove 3 in said cylinder always open to fluid-pressure, and annular grooves 20 and 21 on either side thereof, which are alternately placed in communication with said groove 3 through the recess in said hammer, in combination with ports and passages leading in either direction from said grooves 20 and 21 to the ends of said hammer.

660,858. COVER FOR CIGAR OR OTHER BOXES. Henry M. Kreb, Philadelphia, Pa. Filed July 9, 1900. Serial No. 22,941. (No model.)



Claim.—1. A removable hinge for an interchangeable transparent guard for boxes, consisting of a loop, and a journal projecting from one of the limbs thereof, said journal being adapted to enter said guard and said loop to receive the edge portion of the cover of the box, and engage the same, thus connecting said guard with said lid and permitting both guard and lid to be opened or closed.

2. A removable transparent guard for a box, and a hinge common to said guard and the lid of the box, said hinge being formed of a loop adapted to receive and engage with the end portion of said lid, a journal continuous of one of the limbs of said loop being adapted to enter said guard and an offset between said journal and limb.

3. A transparent guard or cover for a box, the edges thereof being provided with a reinforce, the rear portion of the latter being formed with an eye or bearing, and a hinge member having a journal portion engaging said eye or bearing and provided with an offset, the latter being continued to form a loop for the reception of the edge portion of the box-lid, said loop having a downwardly-deflected member adapted to form a stop or abutment and to hold the lid in the desired position.

4. A transparent guard or cover for a box, and a hinge member therefor, the latter consisting of the loop M, the offset portion H, the journal portion F, and a depending portion N, adapted to contact with the rear of said box.

5. A transparent detachable guard for a box provided with a hinge member common to said guard and box to which it is applied, said hinge member having means thereon for supporting the lid of the box in open condition.

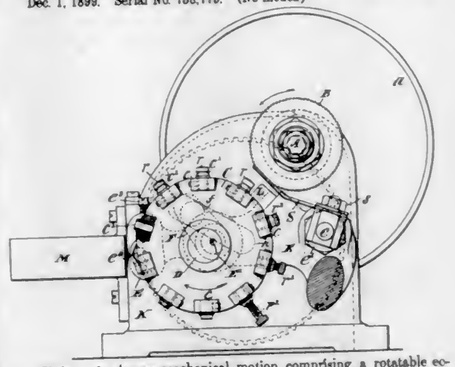
6. A hinge member for a removable guard for a box, consisting of a loop adapted to receive and engage with the edge portions of the lid of the box, a journal continuous of one of the limbs of said loop adapted to engage said guard and a stop depending from said loop adapted to abut against the box when the lid is raised.

7. A hinge member consisting of the journal portion F, its offset H, and the loop M, said loop terminating in the stop N.

660,859. PROCESS OF MAKING SOLUBLE COMPOUNDS OF QUININ AND CAFFEIN. Aisik Kekidmann, Altona, Germany. Filed May 21, 1900. Serial No. 17,454. (No specimens.)

Claim.—The process herein described, consisting in melting together by heat about two parts of quinin chlorid and one part of caffein and cooling the resultant in a solid uncrystallized mass.

660,860. MECHANICAL MOTION. Frank Lambert, New York, N. Y., assignor of one-half to George T. Montgomery, same place. Filed Dec. 1, 1899. Serial No. 738,779. (No model.)



Claim.—1. A new mechanical motion comprising a rotatable eccentric, a disk mounted thereon and adapted to normally rotate therewith, and means for intermittently arresting the rotary motion of the disk, whereby the eccentric may act on the disk to displace the same.

2. A new mechanical motion comprising a rotatable eccentric, a disk, frictionally mounted thereon, and means for intermittently overcoming the friction to allow the eccentric to displace the disk.

3. A new mechanical motion comprising an eccentric having a differential rotary motion, a disk mounted thereon and adapted to normally rotate therewith, and means for intermittently arresting the rotary motion of the disk whereby the said eccentric may act on the disk to displace the same.

4. A new mechanical motion comprising an eccentric having a differential rotary motion, a disk frictionally mounted thereon, and means for overcoming the friction during the slower part of the differential motion of the eccentric.

5. A new mechanical motion comprising an eccentric having a continuous rotary motion, and a disk mounted on said eccentric and adapted to intermittently rotate therewith, whereby rotary and reciprocating motions are alternately imparted to the said disk by the said eccentric.

6. The combination of a relatively-fixed point, with a rotatable eccentric, a disk mounted thereon and adapted to normally rotate therewith, and means for stopping the rotary motion of the said disk at such a point in the travel of the eccentric that the said eccentric may act upon the said disk to reciprocate it toward and from the said fixed point.

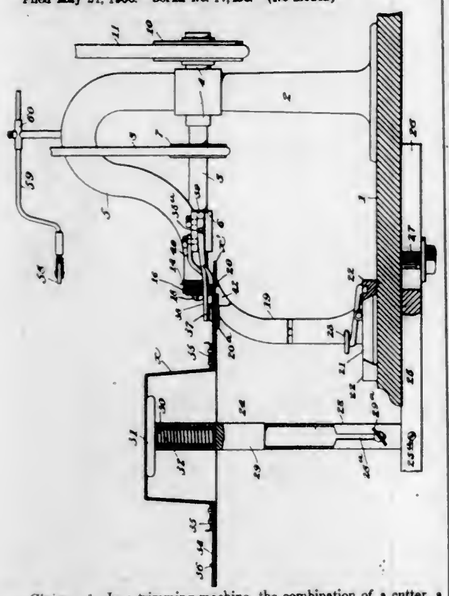
7. The combination of a relatively-fixed point, with a rotatable eccentric, a disk frictionally mounted thereon, and means for overcoming the said friction at such a point in the travel of the eccentric that the said eccentric may act upon the said disk to reciprocate it toward and from the said fixed point, and means to vary the relative positions of the axis of rotation and the said fixed point.

8. A new mechanical motion comprising a rotatable eccentric, a disk frictionally mounted thereon and provided with projections, in combination with a stop in the rotary path of the said projections adapted to arrest the rotation of the disk until the eccentric has withdrawn the projection from the stop.

9. A new mechanical motion comprising a rotatable eccentric, a disk frictionally mounted thereon and provided with projections, in combination with a guide-stop in the rotary path of the said projections adapted to arrest the rotation of the disk and guide the same while the eccentric acts upon the disk to reciprocate it.

10. A new mechanical motion comprising a rotatable eccentric, a disk frictionally mounted thereon and provided with a series of projections, in combination with a stop in the rotary path of the said projections adapted to intermittently arrest the rotation of the disk, and means for adjusting the relative positions of the stop and the disk to vary the angle of rotation of the disk between the stopping-points.

660,861. **HAT-BRIM TRIMMER.** MYER LEVY and AUGUST KINDERMANN, Cincinnati, Ohio; said Kindermann assignor to said Levy. Filed May 21, 1900. Serial No. 17,438. (No model.)



Claim.—1. In a trimming-machine, the combination of a cutter, a feed mechanism, a pattern having a projection concentric with its edge, means for supporting the article to be trimmed, and means for guiding said pattern comprising a loosely-mounted wheel, substantially as set forth.

2. In a trimming-machine, the combination of a cutter, a feed mechanism, a pattern adapted for attachment to an article to be trimmed, means for drawing the pattern toward the cutter and a guide arranged for engagement with the edge of the pattern at one side of the cutter to limit its movement toward the cutter, substantially as set forth.

3. In a trimming-machine, the combination of a cutter, a feed mechanism, guides, a work-rest mounted for sliding movement along said guides and having a work-plate adapted in the movement of the rest to be adjusted in and out of position beneath the cutter, and a lever device carried by the work-rest and adapted for engagement with one of the guides for locking said work-rest when adjusted in position beneath the cutter, substantially as set forth.

4. In a trimming-machine, the combination of a cutter, a feed-wheel, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead parallel with its edges and a pivoted arm having a roller for engagement with the said bead to hold the pattern and article attached thereto in proper relation to the cutter, substantially as set forth.

5. In a trimming-machine, the combination of two parts, one a shaft and the other a sleeve embracing the shaft, driving devices for the respective parts, a cutter carried by one part, a feed-wheel carried by the other part, and a work-plate beneath the feed-wheel and cutter and mounted to turn in a plane at right angles to the plane of the cutter, substantially as set forth.

6. In a trimming-machine, the combination of a cutter, a feed-wheel, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead parallel with its edges and a wheel mounted to turn in a plane at right angles to the plane of the cutter and adapted for engagement with the bead of the pattern to hold said pattern in proper relation to the cutter, substantially as set forth.

7. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead parallel with its edges a wheel mounted to turn and adapted for engagement with said bead to hold the pattern in proper relation to the cutter, and a guide having its end portion spaced above the upper face of the work-rest and adapted for engagement with the edge of the pattern to hold the latter against movement toward the cutter, substantially as set forth.

8. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead undercut on its side opposite to the cutter, and a movable device arranged for engagement with said undercut bead to hold the pattern in proper relation to the cutter, substantially as set forth.

9. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead, an arm mounted for pivotal movement independent of the cutter and feed mechanism, and a roller on said arm arranged for engagement with said bead to hold the pattern in proper relation to the cutter, substantially as set forth.

10. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead, an arm mounted for pivotal movement independent of the cutter and feed mechanism, a roller on said arm for engagement with the bead to hold the pattern in proper relation to the cutter, and a device for locking said arm against movement, substantially as set forth.

11. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest, a pattern adapted for attachment to an article to be trimmed and provided with a bead undercut on its side opposite to the cutter, and a pivoted arm having a roller arranged for engagement with the undercut of the bead to hold the pattern in proper relation to the cutter, substantially as set forth.

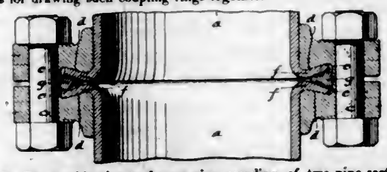
12. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest for supporting the edge portion of the article to be trimmed and a device for supporting the central portion of said article, said device having means for pressing it upward elastically to permit it to accommodate varying positions of the article to be trimmed, substantially as set forth.

13. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest for supporting the edge portion of the article to be trimmed, and a device for supporting the central portion of said article, said device comprising a longitudinally-adjustable stem and a plate elastically supported upon said stem and adapted to be engaged with the central portion of the article to be trimmed, substantially as set forth.

14. In a trimming-machine, the combination of a cutter, a feed mechanism, a work-rest for supporting the edge portion of the article to be trimmed, and a device for supporting the central portion of said article, said device comprising a longitudinally-adjustable stem provided with a recess, a plate adapted to be engaged with the central part of the article to be trimmed and provided with a pin extended in said recess of the stem and a spring coiled on said pin within said recess and adapted to hold said plate normally raised, substantially as set forth.

660,862. **PIPE-COUPLING.** LUTHER D. LOVEKIN, Philadelphia, Pa. Filed Apr. 11, 1900. Serial No. 12,415. (No model.)

Claim.—1. The combination to form a pipe coupling, of two pipe sections, coupling rings through which said pipe sections are entered, the opposing faces of which rings are provided with recesses of increasing depth from their inner to their outer portions in which rearwardly bent flanges on said pipes are entered, a packing and locking ring of triangular section disposed between the flanges of the respective pipe sections, and means for drawing such coupling rings together.



2. The combination to form a pipe coupling, of two pipe sections, coupling rings through which said pipe sections are entered, the opposing faces of which rings are provided with recesses of gradually increasing depth from the ring bores outward in which flanges on said pipes are entered, a packing and locking ring disposed between the flanges of the respective pipe sections, and means for drawing such coupling rings together.

3. The combination to form a pipe coupling of two pipe sections, coupling rings through which said pipe sections are entered, the opposing faces of which rings are provided with recesses of gradually increasing depth from their inner to their outer edges outward in which flanges on said pipes are entered, a packing and locking ring of triangular section disposed between the flanges of the respective pipe sections, and means for drawing such coupling rings together.

4. The combination, to form a pipe coupling, of two pipe sections, outwardly turned flanges formed on said sections, coupling rings in which said pipe sections are entered, the opposing faces of which rings are provided with recesses, the outer portions of which are as deep as or deeper than portions near the inner edges thereof, and in which recesses flanges on said pipes are entered, a packing and locking ring having a rib or ridge on each of its respective faces disposed between the flanges of the respective pipe sections, and means for drawing such coupling rings together.

5. The combination, to form a pipe coupling, of a pair of pipe sections which have each an outwardly and rearwardly turned flange, a pair of coupling rings through which the respective pipe sections extend, which coupling rings embody recesses for the reception of said flanges, a packing and locking ring of triangular section having an annular bead or rib on each face and disposed between the pair of flanges, and means for drawing the coupling rings together, substantially as set forth.

6. The combination, to form a pipe coupling, of two coupling rings, the opposing faces of which are each provided with an annular recess having a vertical outer edge, two flanged pipe sections respectively entered through said respective coupling rings, a packing and locking ring of metal having an outer circumferential face which is parallel with the axis of the pipe sections and in contact with the vertical outer edges of the annular recesses of both coupling rings, the flanges of the pipe sections being engaged by and between the bases of the recesses and the packing and locking ring, and means for drawing said coupling rings together, as specified.

7. The combination, to form a pipe coupling, of two coupling rings each of which is provided as to its face with a straight or vertically extending wall or edge portion in parallelism with its bore, a packing and locking ring of metal, the exterior face of which is in approximate parallelism with its axis, said face of said locking ring being in contact with the two vertically extending walls of the coupling rings, and by which face both coupling rings are maintained against a tendency to become bowed, two pipe sections having outwardly turned flanges, which sections extend respectively through the respective coupling rings and which flanges are each engaged between one of the respective coupling rings and one of the faces of the packing and locking ring, and means for securing said coupling rings together, as specified.

8. The combination to form a pipe coupling, of two pipe sections, coupling rings the meeting faces of which are each provided with an annular recess having a vertical outer edge, a packing and locking ring of approximately triangular section the outer face of which is parallel with the axis of the pipe sections, to serve as a guide and support for the coupling rings, flanges formed on said pipe sections and compressed between the faces of the recesses and the respective faces of the locking ring and means for drawing said coupling rings together.

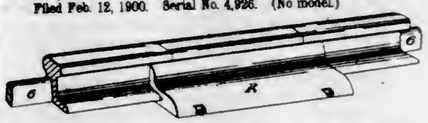
660,863. **NATURAL-WOOD FUEL.** ABBOT A. LOW, New York, N. Y. Filed Apr. 12, 1900. Serial No. 12,549. (No specimens.)

Claim.—1. As an article of manufacture, a fuel consisting of a transverse section of natural resinous exogenous wood, with the bark adhering thereto, containing integrally constituents of inflammable nature naturally oxidized therein, said resinous section being perforated at the duramen, thus effecting the drying of the wood internally, and relieving internal pressure thereby preventing the splitting of the wood during drying, whereby the loss of the volatile constituents is prevented, their oxidation is facilitated and the inflammable products of oxidation are retained within the fiber of the wood, substantially as set forth.



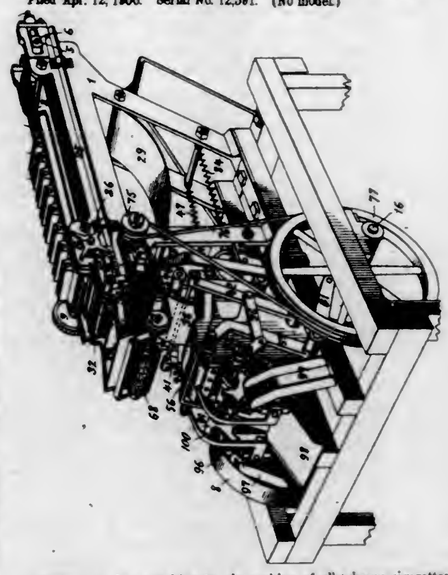
2. As an article of manufacture a fuel consisting of a transverse section of natural resinous, exogenous wood with the bark adhering thereto, containing integrally constituents of inflammable nature naturally oxidized therein, said transverse section of natural wood being perforated at its duramen for the purpose of facilitating the drying out of the wood internally and of relieving internal pressure, thus preventing the splitting of the wood during drying, avoiding the loss of the volatile constituents and retaining such inflammable products of oxidation within the fiber of the wood, substantially as set forth.

660,864. **RAIL-JOINT.** SAMUEL G. MILLER, McKeesport, Pa. Filed Feb. 12, 1900. Serial No. 4,926. (No model.)



Claim.—In a rail-joint, the combination, with the rails provided in their web and base with a longitudinally-extending recess, and a strengthening-bar fitted within said recess and entirely filling the same, of an expansion-rail mounted upon the strengthening-bar between the ends of the rails proper, and a chair having sides 2, 3 to embrace the sides of the expansion-rail and of the rails proper at the ends thereof, the side 3 of said chair being of greater thickness throughout its length than the side 2, as and for the purpose set forth.

660,865. **CIGARETTE-MACHINE.** JULIUS MOOKELIE, New York, N. Y., assignor, by mesne assignments, to Henry Berg, Orange, N. J. Filed Apr. 12, 1900. Serial No. 12,591. (No model.)



Claim.—1. In a machine for the making of all-tobacco cigarettes, &c., the combination of suitable means for wrapping and completing such articles, a flexible mold, and means for advancing it to the wrapping mechanism for delivering the molded filler, as and for the purposes set forth.

2. In a machine for the making of all-tobacco cigarettes, the com-

bination of cigarette-completing mechanism, with a flexible mold having a plurality of separable mold-blocks arranged to operate substantially as and for the purposes set forth, and means for advancing said mold toward completing mechanism.

3. In a machine for the making of all-tobacco cigarettes, the combination of means for receiving the filler, means for delivering thereto a wrapper, means for rolling the wrapper over the filler and means for severing the ends thereof to complete the cigarette, with a series of filler-forming molds with separable jaws and mounted upon a flexible back, means for delivering the molded fillers to the wrapping mechanism, all the parts being adapted to operate substantially as and for the purposes set forth.

4. In a machine for the making of all-tobacco cigarettes, the combination of means for rolling and completing cigarettes, with a flexible belt or apron carrying a series of separable molds, delivery means therefor and means for attaching the molds to the said delivery means, substantially as and for the purposes described.

5. In a machine for the making of cigarettes, the combination of means for rolling, wrapping and completing the cigarette, with a flexible mold containing a plurality of separable molds, a traveling endless chain, and means substantially as shown and described for detachably connecting the flexible mold to the chain.

6. In a machine for the making of cigarettes, the combination of means for rolling, wrapping and completing the cigarette, with a traveling carrier, a flexible mold consisting of a belt or apron and a series of molds arranged parallel with one another and transversely of the belt or apron to which they are attached, all the parts being arranged substantially as and for the purposes set forth.

7. In a machine for the making of all-tobacco cigarettes, the combination of means for rolling, wrapping and completing the cigarettes, a flexible mold containing a series of separable molds arranged parallel with each other as shown and transversely of the machine, means for feeding the flexible mold and its contained fillers toward the rolling-apron, and means for detachably connecting the said flexible mold to the feeding means.

8. In a machine for the making of all-tobacco cigarettes, the combination of means for rolling, wrapping and completing the cigarettes, with a flexible mold composed of a flexible back having molds attached thereto, said molds being centrally divided, means for carrying forward the flexible mold, the said flexible mold having means of attachment thereto, and means for separating the mold-jaws and discharging the fillers, as and for the purposes set forth.

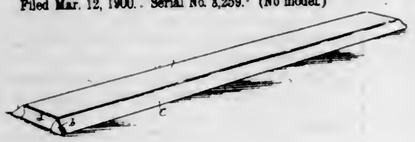
9. In a machine for the making of cigarettes, the combination of means for rolling, wrapping and completing the cigarette, a carrier, a flexible mold composed of a flexible back, a series of parallel and centrally-separable molds arranged transversely of the said flexible back, means for attaching to, and automatic detachment from, the carrier, and means for discharging the formed fillers in succession upon the rolling-apron.

10. In a machine for the making of cigarettes, the combination of means for rolling, wrapping and completing the cigarette, with a carrier, a flexible mold for forming and compressing the individual fillers, means for attachment to and detachment from said carrier and means for separating the individual molds successively and discharging their contents into a suitable hopper, and means for opening the hopper, and presenting the formed fillers in succession upon the rolling-apron, as set forth.

11. In a machine for the making of cigarettes, the combination of means for rolling, wrapping and completing the cigarette, a flexible mold containing a plurality of separable molds arranged transversely of the machine, a carrier therefor, means for attachment of said flexible mold to the carrier and means for presenting the contained fillers successively for wrapping and means for automatic detachment of the flexible mold from the carrier when its fillers are exhausted, as shown and for the purposes set forth.

12. In a machine for the making of cigarettes, the combination of a flexible mold containing a plurality of separable molds arranged transversely of the machine, an endless chain mounted upon said machine and having means for operating it, means for attaching and detaching successively the flexible molds to and from the chain and means for rolling, wrapping and completing the cigarettes, substantially as and for the purpose set forth.

660,866. METALLIC TIE. HENRY M. MUNTZ, Palmyra, Mich. Filed Mar. 12, 1900. Serial No. 8,259. (No model.)



Claim.—A railway-tie consisting of a metallic plate having parallel slots cut in the opposite ends thereof and having its margins bent downward at an angle to the plane of said tie, the side margins at the corners overlapping the end margins, as shown at *b*, thereby doubling the metal at the corners of the tie, substantially as and for the purpose set forth.

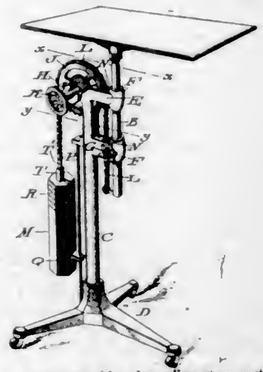
660,867. ELECTROMAGNETIC TOOTH-STOPPING HAMMER. CURT OSTMANN, Breslau, Germany. Filed June 5, 1899. Serial No. 719,412. (No model.)



Claim.—1. A dental plugger comprising an electromagnet provided with circuit-terminals, said electromagnet being provided with a two-part core of magnetizable material, one part adapted to carry a dental tool and the other carrying a circuit-breaking contact, both sections being elastically mounted.

2. A dental plugger comprising a shell of non-magnetic metal, a magnetizing-coil around the same, a two-part iron core, each part being independently and elastically mounted, one adapted to carry a dental tool, and the other provided with a circuit-interrupting contact and adapted to deliver a blow to the other and automatically open the circuit.

660,868. INSTRUMENT-TABLE FOR OPTICIANS, &c. PHILIP S. REID, Rosedale, N. J. Filed Feb. 7, 1900. Serial No. 4,325. (No model.)



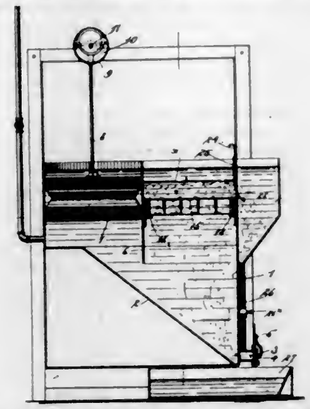
Claim.—1. A table-top with a depending stem, a standard with a recessed arm, a bearing and a boss on said arm, said stem being vertically movable in said boss, a wheel mounted on said bearing, a belt connected at one end with said stem and passing around said wheel, and a counterbalance on the other end of said belt, the recess of said arm having said belt passed freely through the same.

2. A table-top with a depending stem, a standard with recessed arms, a boss on one arm, and a bearing and a boss on the other arm, said stem being vertically movable in said bosses, a wheel mounted on said bearing, a belt connected at one end with said stem and passing around said wheel, a counterbalance on the other end of said belt, and a tightening-screw on one of said bosses, said belt being guided in the recesses of said arms.

3. In a table, a movable top, a stem carrying the same, a frame with arms, and bosses supported on said arms, in which bosses said stem is freely supported, a wheel on said frame, a belt connected with said stem and passing around said wheel, a counterbalance on the end of said belt opposite to said stem, a handle on said wheel, and a set-screw on one of said bosses adapted to tighten against said stem, the head of said screw and the said handle being adjacent, and said belt being guided in recesses in said supporting-arms.

4. In a counterbalanced table-top, an operating-strap for said top, a weight on said strap provided with an angular neck, a portion of which is of reduced thickness, and a counterpoise on said weight, said counterpoise having a slot composed of wide and narrow parts for engagement with corresponding parts of said neck.

660,869. SLIME-JIGGING MACHINE. CARROLL B. ROGERS, El Paso, Tex. Filed Mar. 16, 1898. Serial No. 674,071. (No model.)



Claim.—1. A slime-jigging machine comprising a two-compartment tank having vertical side walls, a plunger in one of said tank-compartments, and a screen in the other tank-compartments a bottom portion for said tank, the said bottom portion consisting of a horizontal section in vertical alinement with said plunger, an intact, substantially V-shaped base, extending from said horizontal section to the opposite vertical side wall of the tank, and having a continuous, uniform downward inclination, and suitably-shaped upwardly-flaring side walls, the said tank being divided into two compartments by a vertical transverse partition terminating short of said base and below the plane of said horizontal section, an outlet leading from the lower extremity of said bottom portion, and means for controlling said outlet, as herein specified.

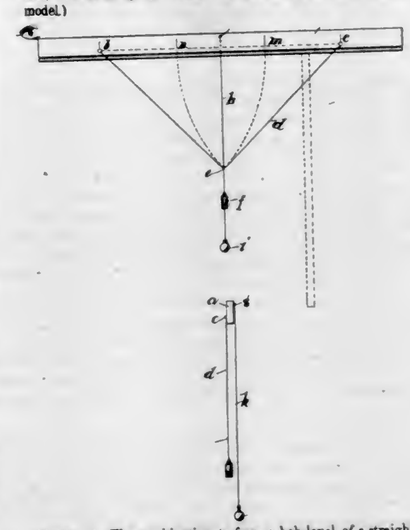
2. A slime-jigging machine comprising a two-compartment tank having a bottom portion consisting of a horizontal section, an intact, substantially V-shaped base extending from said horizontal section to the opposite side wall of the tank and having a continuous, uniform inclination, and suitably-shaped, upwardly-flaring side walls; a plunger in one of said tank-compartments and above said horizontal section, and a screen in the other tank-compartment; a bridge-wall located immediately at one end of said screen and terminating short of the top of the tank; a valved receptacle located exteriorly to the tank and adjoining said bridge-wall, the walls of said receptacle projecting above said bridge-wall; an outlet leading from the lower extremity of said bottom portion, and means for controlling said outlet; the said tank being divided into two compartments by a vertical transverse partition terminating at its lower extremity short of said base and below the plane of said horizontal bottom section, substantially as herein specified.

3. A slime-jigging machine comprising a two-compartment tank having vertical side walls, a plunger in one of said tank-compartments and a screen in the other tank-compartment, a bottom portion for said tank, the said bottom portion consisting of a horizontal section below said plunger, an intact, substantially V-shaped base extending from said horizontal section to the opposite side wall of the tank and having a continuous, uniform inclination, and suitably-shaped, upwardly-flaring side walls, a valved receiver located exteriorly to the tank and communicating therewith by way of a suitably-located, valved opening, an outlet leading from the lower extremity of said bottom portion, and means for controlling said outlet, the said tank being divided into two compartments by a vertical transverse partition terminating at its lower extremity short of said base and below the plane of said horizontal bottom section, substantially as herein specified.

4. A slime-jigging machine comprising a two-compartment tank having vertical side walls, a plunger in one of said tank-compartments and a screen in the other tank-compartment, a bottom portion for the tank, said bottom portion consisting of a horizontal section below said plunger, an intact, substantially V-shaped base extending from said horizontal section to the opposite side wall of the tank and having a continuous, uniform inclination, and suitably-shaped upwardly-flaring side walls, and said tank being divided into two compartments by means of a transverse partition terminating short of the base and below the horizontal section of said bottom portion, a bridge-wall located immediately at one end of the screen and terminating short of the top of the tank, a valved tailings-receptacle located exteriorly to the tank and adjoining said bridge-wall, the walls of said receptacle projecting above said bridge-wall, a valved concentrate-receiver located exteriorly to the tank and communicating therewith by way of a suitably-located, valved opening, an outlet leading from the lower extremity of said bottom portion, and means for controlling said outlet, as herein specified

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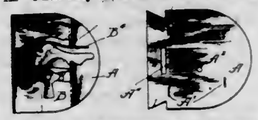
660,870. BOB-LEVEL. FERDINAND SINKOVIC, Klausenleopoldsdorf, Austria-Hungary. Filed May 4, 1900. Serial No. 15,448. (No model.)



Claim.—1. The combination, to form a bob-level, of a straight rigid rule, a flexible cord having its ends attached to two distinct points on said rule, a suitable weight attached to the middle point of said cord so that the latter and the rigid rule form an isosceles triangle, and a plumb-line attached to the rule at a point equidistant from the points where the cord is attached and carrying a bob at its free end.

2. The combination with the rigid rule, flexible cord and weight and with the plumb-line and bob, of fixed marks *n* and *m* arranged upon the rule in the described relation to the points of attachment of the cord.

660,871. LOCK. CHARLES C. SPENGLER and GEORGE H. SPENGLER, Rockford, Ill. Filed July 20, 1900. Serial No. 24,267. (No model.)

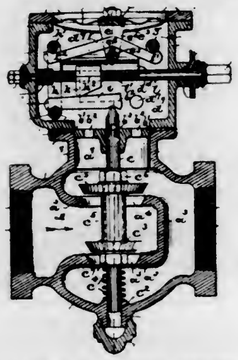


Claim.—1. In a lock, in combination, a lock-case; a bolt; and a spring; the bolt being formed with a thin web portion adapted to be displaced by the spring when the latter is forced into said web portion.

2. A bolt for locks, having an opening in its body portion formed so near its edge as to leave a thin web of material between the wall of the opening and the edge of the bolt, which web is adapted to be broken down by the forcible insertion of the lock-spring.

3. The process of securing a lock-spring to a lock-bolt, consisting of forming an opening in the bolt near the edge thereof, leaving a thin web of material between the wall of the opening and the edge of the bolt, and driving the spring into said web to break the latter down and form a slot for the insertion of the spring.

660,872. **PRESSURE REGULATING OR REDUCING VALVE.** PERCY B. TAYLOR, Newark, N. J. Filed Aug. 21, 1899. Serial No. 727,878. (No model.)



Claim.—1. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem therein, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with a laterally-moving fulcrum in said auxiliary casing in slidable engagement with the inner sides of said casing to prevent turning of the fulcrum during its movement, a fixed fulcrum in said auxiliary casing located at a point above the plane of the movement of said movable fulcrum, a means of suspension within said auxiliary casing, a system of coöperating levers suspended from said means of suspension and bearing against said fixed fulcrum and upon the free end of the valve-stem, and means forming a part of said auxiliary chambered casing, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said system of levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

2. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem therein, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with an adjusting-screw in said auxiliary casing, having one end extending from the side of the casing for its rotation, a laterally-moving fulcrum on said screw in slidable engagement with the inner sides of said auxiliary casing to prevent turning of said fulcrum during the rotation of said screw, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a system of coöperating levers suspended from said means of suspension and bearing against said fixed fulcrum and upon the free end of the valve-stem, and means forming a part of said auxiliary chambered casing, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said system of levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

3. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem therein, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with a laterally-moving fulcrum in said auxiliary casing in slidable engagement with the inner sides of said casing to prevent turning of the fulcrum during its movement, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a system of coöperating levers suspended from said means of suspension and bearing against said fixed fulcrum and upon the free end of the valve-stem, and a flexible diaphragm connected with said auxiliary casing and forming a part thereof, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-body casing, and with which said means of suspension is connected, for actuating said system of levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

4. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem therein, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with an adjusting-screw in said auxiliary casing, having one end extending from the side of the casing for its rotation, a laterally-moving fulcrum on said screw in slidable engagement with the inner sides of said auxiliary casing to prevent turning of said fulcrum during the rotation of said screw, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a system of cooperating levers suspended from said means of suspension and bearing against said fixed fulcrum and upon the free end of the valve-stem, and a flexible diaphragm connected with said auxiliary casing and forming a part thereof, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said system of levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

5. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem thereon, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with a laterally-moving fulcrum in said auxiliary casing in slidable engagement with the inner sides of said casing to prevent turning of the fulcrum during its movement, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a fulcrum-lever connected with said means of suspension and bearing at one end against said fixed fulcrum, a link connected with the opposite end of said fulcrum-lever, a spindle-lever between said link and the free end of said valve-stem and bearing on said end of the valve-stem, and means forming a part of said auxiliary chambered casing, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

6. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem thereon, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with an adjusting-screw in said auxiliary casing, having one end extending from the side of the casing for its rotation, a laterally-moving fulcrum on said screw in suitable engagement with the inner sides of said auxiliary casing, to prevent turning of said fulcrum during the rotation of said screw, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a fulcrum-lever connected with said means of suspension and bearing at one end against said fixed fulcrum, a link connected with the opposite end of said fulcrum-lever, a spindle-lever between said link and the free end of said valve-stem and bearing on said end of the valve-stem, and means forming a part of said auxiliary chambered casing, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

7. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem thereon, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with a laterally-moving fulcrum in said auxiliary casing in slidable engagement with the inner sides of said casing to prevent turning of the fulcrum during its movement, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a fulcrum-lever connected with said means of suspension and bearing at

one end against said fixed fulcrum, a link connected with the opposite end of said fulcrum-lever, a spindle-lever between said link and the free end of said valve-stem and bearing on said end of the valve stem, and a flexible diaphragm connected with said auxiliary casing, and forming a part thereof, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

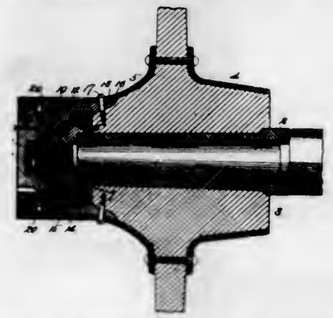
8. A balanced valve, consisting, essentially, of a main-valve casing provided with a valve-seat, a valve-disk in said casing, an upwardly-extending valve-stem thereon, a guiding means in the neck of said casing in which said stem is free to move, a chambered auxiliary casing arranged above the neck of the valve-casing, a means of communication between said two casings, combined with an adjusting-screw in said auxiliary casing, having one end extending from the side of the casing for its rotation, a laterally-moving fulcrum on said screw in suitable engagement with the inner sides of said auxiliary casing, to prevent turning of said fulcrum during the rotation of said screw, a fixed fulcrum in said auxiliary casing located at a point above the plane of movement of said movable fulcrum, a means of suspension within said auxiliary casing, a fulcrum-lever connected with said means of suspension and bearing at one end against said fixed fulcrum, a link connected with the opposite end of said fulcrum-lever, a spindle-lever between said link and the free end of said valve-stem and bearing on said end of the valve-stem, and a flexible diaphragm connected with said auxiliary casing, and forming a part thereof, capable of a vibratory action by pressure against its under surface from the pressure of the gas or liquid in the main-valve casing, and with which said means of suspension is connected, for actuating said levers and causing them to bear against said fixed and movable fulcrums and upon the free end of said valve-stem, substantially as and for the purposes set forth.

9. In a valve, the combination, with a valve-casing, and a valve-spindle and valve-disk thereon, of a chambered casing connected with the valve-casing, a fixed fulcrumal support in said casing, an adjusting-screw in said chambered casing, having one end extending from the side of said casing, for the rotation and adjustment of said screw, a pressure-indicating scale on one side of said chambered casing, a screw working in bearings on the outer side of said chambered casing, an index movably arranged on said screw, a gear on said screw, and a pinion on said adjusting-screw in mesh with said gear, a fulcrum movably arranged upon said adjusting-screw, a system of coöperating levers arranged between said fixed fulcrum and the free end of the valve-spindle, and means for actuating said system of levers and causing them to bear against said fixed and movable fulcrums and upon the valve-spindle, to change the opening and closing of the valve and cause the valve to deliver under a uniform low pressure, while receiving a variable high pressure, substantially as and for the purposes set forth.

10. In a valve, the combination, with a valve-casing, and a valve-spindle and valve-disk thereon, of a chambered casing connected with said valve-casing, a fixed fulcrumal support in said casing, a means of direct communication between said chambered casing and said valve-casing, an adjusting-screw in said chambered casing, having one end extending from the side of said casing, for the rotation and adjustment of said screw, a pressure-indicating scale on one side of said chambered casing, a screw working in bearings on the outer side of said chambered casing, an index movably arranged on said screw, a gear on said screw, and a pinion on said adjusting-screw in mesh with said gear, a fulcrum movably arranged upon said adjusting-screw, a system of coöperating levers arranged between said fixed fulcrum and the free end of the valve-spindle, and means for actuating said system of levers by the direct pressure from the liquid or gas passing through the valve-casing and thereby causing said levers to bear against said fixed and movable fulcrums and upon the valve-spindle, to change the opening and closing of the valve and cause the valve to deliver under a uniform low pressure, while receiving a variable high pressure, substantially as and for the purposes set forth.

11. In a valve, the combination, with a valve-casing, and a valve-spindle and valve-disk thereon, of a chambered casing connected with said valve-casing, a fixed fulcrumal support in said casing, a means of direct communication between said chambered casing and said valve-casing, an adjusting-screw in said chambered casing, having one end extending from the side of said casing, for the rotation and adjustment of said screw, a pressure-indicating scale on one side of said chambered casing, a screw working in bearings on the outer side of said chambered casing, an index movably arranged on said screw, a gear on said screw, and a pinion on said adjusting-screw, in mesh with said gear, a fulcrum movably arranged upon said adjusting-screw, a system of coöperating levers arranged between said fixed fulcrum and the free end of the valve-spindle, and a diaphragm with which said system of levers is operatively connected and actuated by the direct pressure of the liquid or gas passing through the valve-casing and thereby causing said levers to bear against said fixed and movable fulcrums and upon the valve-spindle, to change the opening and closing of the valve and cause the valve to deliver under a uniform low pressure, while receiving a variable high pressure, substantially as and for the purposes set forth.

660,873. **VEHICLE-WHEEL.** SAMUEL H. VAN TRUMP, Lawson, and FRANK D. ROWELL, Liberty, Mo. Filed Nov. 20, 1899. Serial No. 737,578. (No model.)



Claim.—1. The combination with an axle, a wheel journaled thereon, an axle-nut screwed on the axle and holding the wheel thereon, and an external nut screwed onto the outer end of the hub and provided with an integrally-formed socket at its inner side adapted to interlock with the axle-nut and turn the latter in one direction or the other, substantially as described.

2. The combination of an axle, a wheel journaled thereon, an axle-nut screwed on the axle and holding the wheel thereon, and an external nut screwed to the hub and adapted to interlock with the axle-nut; the outer or closed end of said external nut being solid or non-perforate, all arranged substantially as and for the purpose set forth.

3. The combination of an axle, a wheel journaled thereon, an axle-nut engaging the axle and holding the wheel thereon, a point-band secured to and forming a part of the wheel-hub, a supplemental internally-threaded point-band secured to the first-named point-band, and an external nut screwed into the supplemental point-band and adapted to interlock with said axle-nut, substantially as described.

4. The combination of an axle, a wheel journaled thereon, an axle-nut engaging the axle and holding the wheel thereon, a point-band secured to and forming a part of the wheel-hub, a supplemental internally-threaded point-band secured within the first-named point-band to form a part of the same and the hub, and an external nut screwed into the supplemental point-band and adapted to interlock with said axle-nut, substantially as described.

5. The combination of an axle, a wheel journaled thereon, an axle-nut engaging the axle and holding the wheel thereon, a point-band secured to and forming a part of the wheel-hub, a supplemental internally-threaded point-band within the first-named point-band provided at its inner end with a plurality of perforated points embedded in the wood of the hub and bearing outwardly against the first-named point-band, securing devices extending through said point-band and perforated points into the wood of the hub, and an external nut screwed into the internally-threaded point-band and adapted to interlock with the axle-nut, substantially as described.

6. The combination of an axle, a wheel journaled thereon, an axle-nut engaging the axle and holding the wheel in place, said nut having an angular head, a point-band secured to the hub, a supplemental internally-threaded point-band secured to and forming a part of the wheel-hub, and an external nut screwed into the supplemental point-band and provided with an angular socket at its inner side adapted to interlock with the correspondingly-formed head of the axle-nut, substantially as and for the purpose set forth.

660,874. **BANDAGE.** GEORGE VOELLNER, Elizabeth, N. J., assignor of one-half to Albert D. Peters, same place. Filed Jan. 23, 1900. Serial No. 2,429. (No model.)

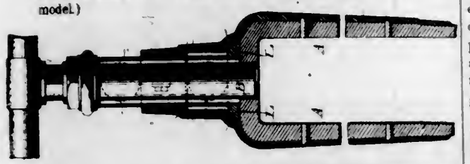
Claim.—1. As a new article of manufacture, cotton impregnated with fumes of animé, substantially as and for the purposes set forth.

2. As a new article of manufacture, cotton impregnated with fumes of a mixture of animé and charcoal, substantially as and for the purposes set forth.

660,874.



660,875. BICYCLE-GUARD. JOHN WAMBACH and GEORGE WAMBACH, Philadelphia, Pa. Filed July 28, 1900. Serial No. 25,100. (No model.)

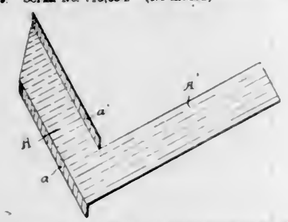


Claim.—1. A bicycle-guard for the purpose described consisting of a collar and legs pendent therefrom, said collar being adapted to freely embrace the sleeve or post of the steering-stem of the bicycle, and said legs being adapted to be firmly connected with the forks of the steering-wheel of the bicycle.

2. A divided collar, means for coupling the same and legs pendent from the sections of said collar and being attachable to the forks of the steering-wheel of a bicycle, said collar freely embracing the sleeve or post of the steering-rod of the bicycle as a supplemental connection for the forks with said sleeve.

3. The combination with the steering-stem of a bicycle and the sleeve or post around the same, of a supplemental guard or connection composed of a collar freely encircling said sleeve, and legs pendent from said collar adapted to be connected with the forks of the steering-wheel of the bicycle, said stem being secured to said forks, said guard and said sleeve having means for preventing the disconnection of the guard from said sleeve, and providing auxiliary bearings for the guard.

660,876. TRY-SQUARE. DERRICK S. WEST, Boston, Mass. Filed Apr. 19, 1899. Serial No. 713,654. (No model.)



Claim.—A try-square consisting of a single piece of metal and having the outer side of one of its blades bent down at right angles and the inner side of said blade bent up at right angles to form flanges substantially as set forth.

660,877. INK-PAD STAND. EDWARD G. WOODY, Wilmington, N. C. Filed June 6, 1900. Serial No. 19,247. (No model.)

Claim.—1. An ink-pad stand, comprising a casing for the reception of an ink-pad, and an inclined self-closing cover for the casing, and adapted to swing rearwardly therein upon application of manual pressure, to give access to the ink-pad, said cover automatically swinging forward into a closed position upon release of the pressure, the cover then forming a dust-proof joint with the front, back and sides of the casing, as set forth.

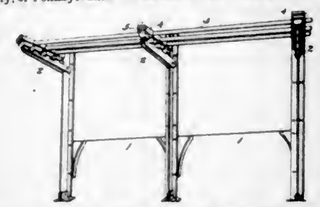
2. An ink-pad stand, comprising a casing having a low front, a high back, sides inclined upwardly and rearwardly, lugs projecting forwardly from the upper portion of the sides of the casing, and a cover having forwardly-extending lugs at its upper end, for engaging pivots carried by said lugs on said sides, the free end of said cover being adapted to rest against a projection on the front of the casing, and the sides of the cover abutting against flanges on the sides of the casing, the top of the cover being adapted to be seated on the top edge of said casing, substantially as shown and described.



3. An ink-pad stand, comprising a casing having a low front, a high back, sides inclined upwardly and rearwardly, lugs projecting forwardly from the upper portion of the sides of the casing, a cover having forwardly-extending lugs at its upper end, for engaging pivots carried by said lugs on said sides, the free end of said cover being adapted to rest against a projection on the front of the casing, and the sides of the cover abutting against flanges on the sides of the casing, the top of the cover being adapted to be seated on the top edge of said casing, and a weight extending longitudinally on the upper end of said cover, as set forth.

4. An ink-pad stand, comprising a casing having a low front, a high back, sides inclined upwardly and rearwardly, lugs projecting forwardly from the upper portion of the sides of the casing, a cover having forwardly-extending lugs at its upper end, for engaging pivots carried by said lugs on said sides, the free end of said cover being adapted to rest against a projection on the front of the casing, and the sides of the cover abutting against flanges on the sides of the casing, the top of the cover being adapted to be seated on the top edge of said casing, a weight extending longitudinally on the upper end of said cover for moving the cover into a closed position and holding it therein, and a catch on the inside of the back of the casing for engagement by the lid of the ink-pad to hold the lid open, as set forth.

660,878. INSULATING-SUPPORT FOR SWITCHBOARD-CONDUCTORS. GILBERT WRIGHT and CHRISTIAN AALBORG, Wilkinsburg, Pa., assignors to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Jan. 2, 1900. Serial No. 12. (No model.)



Claim.—1. An insulating-support for switchboard-conductors having an oblong central aperture, transverse side grooves, a continuous recess surrounding the aperture at one end and a corresponding boss on the opposite end, substantially as described.

2. Supporting means for switchboard-conductors comprising a plurality of insulating-blocks each having an oblong, central aperture surrounded at one end by a recess and at the other end by a boss, the boss on each block fitting into recess of the next block in the set, a bracket having a hollow boss fitting into the recess formed by the boss on the last block of the set and a bolt extending through said apertures, substantially as described.

3. Supporting means for switchboard-conductors comprising a plurality of insulating-blocks each of which has a central aperture, side grooves, a recess surrounding the aperture at one end and a corresponding hollow boss at the opposite end, the recesses and bosses of adjacent blocks fitting into each other, a bracket having an apertured boss fitting into the boss on the bottom block, and a bolt extending through the apertures.

4. An insulating supporting-block for electric conductors having a central aperture and side grooves, a recess surrounding the aperture at at one end and a corresponding boss surrounding the aperture at the other end, substantially as described.

5. An insulating supporting-block for electric conductors, having an oblong central aperture, side grooves and a recess and a hollow boss respectively surrounding said aperture at opposite faces of the block.

6. A switchboard having a plurality of laterally-projecting brackets each of which is provided with a plurality of upwardly-projecting hollow bosses and a plurality of insulating-blocks severally fitting over said bosses and clamped thereto.

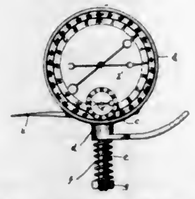
7. A switchboard having a plurality of laterally-projecting brackets, each of which is provided with a plurality of upwardly-projecting hollow bosses, and a plurality of insulating-blocks severally provided with bottom recesses of greater length and width but of less depth than the bracket-bosses which are seated and clamped therein.

8. An insulating support for switchboard-conductors having a central aperture, transverse side grooves, a recess surrounding the aperture at one end and a corresponding boss on the opposite end, substantially as described.

9. A support for electric conductors comprising a block of non-conducting material having a central aperture, transverse side grooves, a recess around the aperture at one end and a corresponding boss on the opposite end and a supporting-arm to which said boss is clamped.

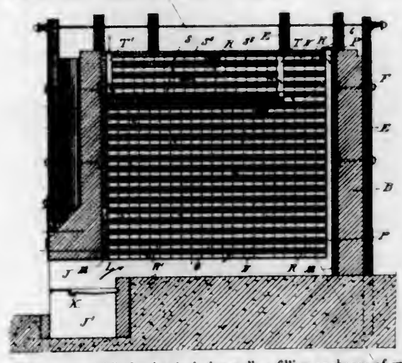
10. An arm or bracket provided with a plurality of upwardly-projecting hollow bosses in combination with a plurality of insulating-blocks severally fitting over said bosses and clamped thereto.

660,879. SHEAF OR BUNDLE REGISTERING MACHINE. JOHN F. YOUNG, Marshalton, Pa. Filed Aug. 29, 1899. Serial No. 728,858. (No model.)



Claim.—A device of the class described comprising a casing provided with a dial, a yoke secured to the rear face of the dial, a ratchet-wheel mounted upon the shaft, a lever secured to the ratchet-wheel through the medium of which it may be operated, a second shaft passing from the yoke through the dial, a gear mounted upon the said second shaft and adapted to be operated by a dog secured to the ratchet-wheel, a third shaft passing from the yoke to the dial and adapted to be revolved by a dog secured to the second-named shaft, a hollow shaft encircling the second-named shaft, a second gear-wheel mounted upon the hollow shaft and adapted to receive motion from the gear-wheel attached to the second-named shaft, and indicators secured to the outer ends of the first-named shaft, and indicators secured to the outer ends of the first-named shaft, the second-named shaft and the hollow shaft.

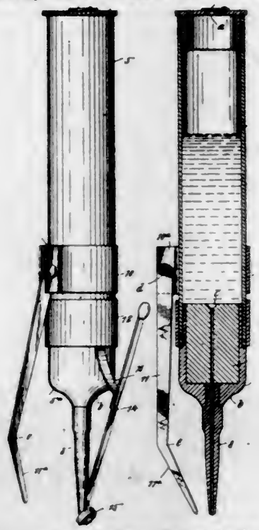
660,880. BRICK-KILN. EDGAR ABER, Jacksonville, Tex. Filed Apr. 20, 1900. Serial No. 13,607. (No model.)



Claim.—1. A kiln having inclosing walls, a filling or charge of green bricks located between said walls and consisting of superposed layers or courses having circulating-channels, the channels of adjacent layers extending at an angle to each other, eyes extending in the lower portion of the filling from front to rear, a channel extending upwardly at the rear wall of the filling and communicating with said eyes, a solid or imperforate layer of bricks located in the upper part of the kiln and extending from the front wall thereof to within a distance from the rear wall, and uptakes rising from the front and rear ends of said solid layer.

2. A kiln having inclosing walls, a filling or charge of green bricks located between said walls and consisting of superposed layers or courses having circulating-channels, the channels of adjacent layers extending at an angle to each other, eyes extending in the lower portion of the filling from front to rear, a channel extending upwardly at the rear wall of the filling and communicating with said eyes, a solid or imperforate layer of bricks located in the upper part of the kiln and extending from the front wall thereof to within a distance from the rear wall, the filling above said solid layer consisting of alternating open and imperforate layers, uptakes rising from the front and rear ends of said solid layer, and an imperforate top layer extending from the front uptake to the upper rear channel.

660,881. STRIPING DEVICE. GEORGE H. ALLEN, North Creek, N. Y. Filed Apr. 19, 1900. Serial No. 13,484. (No model.)

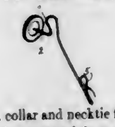


Claim.—1. In a striping device, the combination with a reservoir, a cap-piece screwing on one end of the reservoir having a vent-hole therein, and an adjustable gate controlling the vent-hole, of a nozzle on the opposite end of the reservoir, a flat spring held by one end on said reservoir and extending in direction of the nozzle, an arm supported by the plate-spring so as to be adapted for rocking movement, and a sealing-cup on the lower end of the spring-supported arm which normally closes the discharging end of the nozzle.

2. In a striping device, the combination with a reservoir, a screw-cap on one end thereof, and means to control an opening in said cap, of a nozzle on the opposite end of the reservoir, and a spring-supported rockable sealing device on the reservoir adapted to normally close the discharge end of the nozzle and be retracted therefrom by manipulation.

3. In a device of the described construction, the combination with the striping device, of a guide-arm to control the direction of movement of the striping device, and a clip-band having ears adjustably clamped on the striping device, and a pivot-bolt for supporting the guide-arm between the ears of said clip-band, and clamping said band in place.

660,882. COLLAR AND NECKTIE FASTENER. HAROLD B. BARNES, Edgewood Park, Pa. Filed June 2, 1900. Serial No. 18,896. (No model.)



Claim.—1. A combined collar and necktie fastener comprising a button and a wire portion projecting outward from one face of the button approximately at right angles thereto to form a shank portion somewhat greater in length than the combined thickness of a neckband and the buttonhole ends of a collar, and projecting from the outer end of the shank

portion laterally and inwardly to form a bulge and then laterally in the opposite direction, the free end of said wire being provided with a pin for engagement with a necktie, substantially as shown and described.

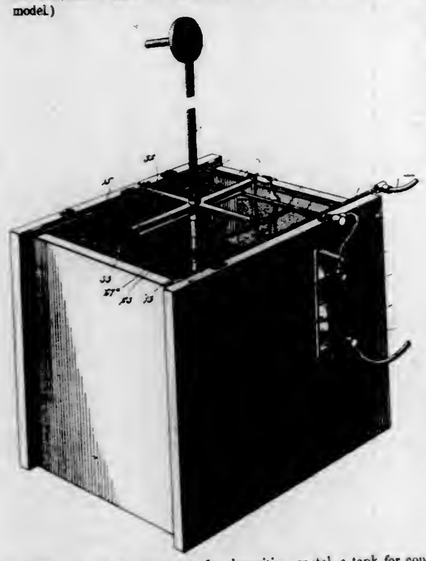
2. A combined collar and necktie holder comprising a neckband-engaging button and a collar and necktie retaining portion in the form of a wire having a shank portion terminating in a laterally and rearwardly projecting loop, the free end of the wire having a necktie-engaging pin, substantially as shown and described.

660,883. COMBINED PENCIL HOLDER OR PROTECTOR AND LETTER-BALANCE. OTTO BECKMANN, Mannheim, Germany. Filed Jan. 15, 1900. Serial No. 1,476. (No model.)



Claim.—A pocket-balance for letters and other mail-matter, comprising solely: a single tube having diametrically-opposite longitudinal slots in its side walls at one end for holding the article to be weighed, a graduated rod in the interior of said tube passing through the end thereof opposite to that having the slots, a ring on the outside end of the graduated rod passing through a hole in the outside end of the said rod, holding all the parts together, and a loose spring likewise within the tube coiled around the graduated rod and bearing at one end on a headpiece or plate on the end of said rod within the tube and at the other end on that end of the tube through which the rod passes, substantially as described.

660,884. METAL-DEPOSITING APPARATUS. HERMANN R. BOESSER, New York, N. Y. Filed Apr. 4, 1900. Serial No. 11,476. (No model.)



Claim.—1. In an apparatus for depositing metal, a tank for containing a solution, arms supported on said tank and having connection with an electrical supply device, the said arms being adapted to support anodes and cathodes, a tube extended upward in the tank, a rod movable in said tube, means for moving said rod upward and downward, arms extended outward from said rod, and an agitator carried by each arm, each agitator consisting of a downwardly-extending rod and a horizontally disposed rod at the bottom, substantially as specified.

2. In an apparatus for depositing metal, a tank for containing an acid solution, rods supported on said tank and having connection with an electric supply, said rods being adapted to support anodes and cathodes, a lead-covered tube extended upward in the tank, a rod movable in said tube, means for moving said rod upward and downward, arms extended from said rod, and lead-covered rods carried by said arms and extended into the tank between the anodes and cathodes, substantially as specified.

660,885. ANKLE-BRACE. ARTHUR J. BRAUER and ROBERT T. BRAUER, St. Louis, Mo. Filed June 9, 1900. Serial No. 19,693. (No model.)

Claim.—1. The herein-described brace comprising a flexible body portion designed to embrace the ankle, a strap for connecting the ends of the body portion, and means for drawing the contiguous ends of the brace in position, said brace being formed with circular perforations or openings opposite the protruding bones of the ankle, substantially as described.



2. The herein-described ankle-brace comprising a flexible body portion made in one piece and designed to embrace the ankle, a strap, means for drawing the contiguous ends of the body portion around the ankle of the wearer, said body portion being provided with circular openings to accommodate the protruding ankle-bones, a buckle for the strap, and a support for said buckle which is attached to the body portion on each side of one of the openings for one of the protruding ankle-bones, for distributing the pull of the strap, substantially as described.

3. The herein-described ankle-brace comprising a flexible body portion made in one piece for embracing the ankle, means for drawing the contiguous ends of said body portion around the ankle of the wearer, and a strap connected to the lower edges of said body portion near its ends, substantially as described.

4. The herein-described ankle-brace comprising a body portion provided with circular openings to accommodate protruding ankle-bones said body portion embracing the ankle, a semicircular strip secured at its ends on each side of one of said openings, a buckle carried by said semicircular strip, a strap carried by the opposite end of the body portion for cooperating with said buckle, and means for securing the contiguous ends of said body portion in position on the wearer's foot, substantially as described.

660,886. COMBINATION SHOE CLEANING, BLACKING, AND POLISHING DEVICE. LINDSAY M. BRYAN, Cincinnati, Ohio. Filed May 1, 1900. Serial No. 15,055. (No model.)

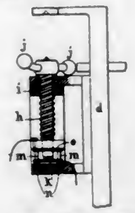


Claim.—1. A combination shoe cleaning, blacking and polishing device comprising a flexible covering for the hand having attached to one of its outer surfaces a blacking-box and dauber and the opposite outer surface consisting of material suitable for cleaning and polishing, substantially as and for the purposes set forth.

2. In a combination shoe cleaning, blacking and polishing device, a flexible covering for the hand having a blacking-box and dauber attached thereto, substantially as and for the purposes set forth.

3. In a combination shoe cleaning, blacking and polishing device, a flexible covering for the hand, a flexible reversible flap attached to the closed end thereof a button at each edge of said covering and an elastic loop connected to the free end of the flap and adapted to take over and engage with said buttons whereby the flap may be held against either side of the body, as desired, substantially as and for the purposes shown and described.

660,887. SCREW ELECTRIC CONTACT DEVICE. CHARLES CHEVALLIER, St. Quentin, and EUGÈNE CADET, Péronne, France. Filed Jan. 5, 1900. Serial No. 466. (No model.)



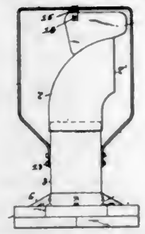
Claim.—1. The combination of a vertical quick-pitched screw, a threaded bearing in which turns said screw, weighted arms carried by the screw, a contact-plate engaging the said screw, a spring for pressing said plate upward, a contact-piece arranged above said plate, a horizontally-

movable rod arranged to strike one of the arms carried by the screw, and a telltale-circuit connected with said contact-piece and plate.

2. An electric contact device, comprising contact members, one of which is movable toward and from the other, a screw controlling the movable contact member and provided with a cross-arm having a fly-weight, and a movable operating member arranged to engage said cross-arm to turn the screw.

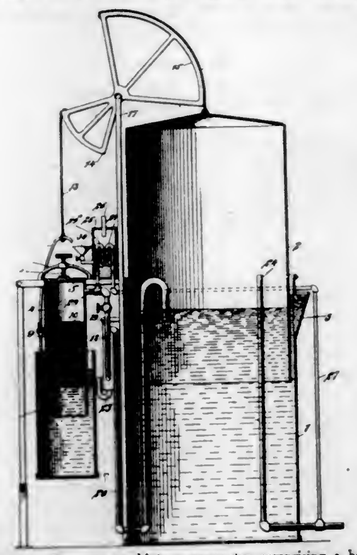
3. A target provided with a series of independently-movable sections each carrying an operating member or rod, vertically-disposed screws each provided with a weighted cross-arm arranged in the path of one of the operating members, a threaded bearing for each screw, the screws being of such pitch and weight that they will automatically work down in said bearings, and circuit-closers operated by said screws.

660,888. CHIMNEY-COWL. JOSEPH CLARKSON, Pittsburg, Pa. Filed Feb. 15, 1900. Serial No. 5,283. (No model.)



Claim.—In a chimney-cowl, the combination of a stationary lower pipe-section; an upper pipe-section having a portion fitting over and adapted to revolve around said lower pipe-section and a portion extending at an angle thereto and having a discharge-opening; a wind-vane rigidly connected to said last-named portion of the upper pipe-section and extending upwardly therefrom; a frame secured to the lower pipe-section and extending over the upper pipe-section and wind-vane; and a pivot-pin secured to said wind-vane and projecting through an opening in said frame and having a nut or head for engaging the frame and supporting said wind-vane and upper pipe-section.

660,889. ACETYLENE-GAS MACHINE. JOSEPH M. COGHLAN, Sayville, N. Y. Filed Apr. 19, 1900. Serial No. 13,492. (No model.)

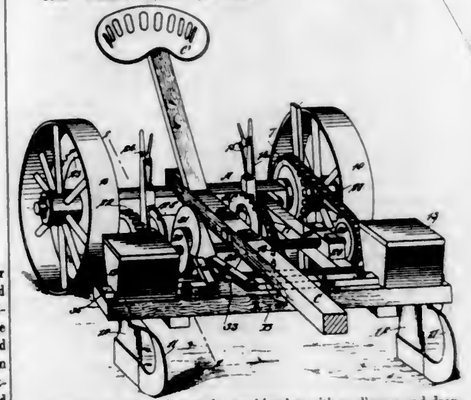


Claim.—1. In a gas-machine, a gasometer, comprising a bell, a generator, consisting of a fixed cylinder adapted to hold calcium carbid, a vessel for containing water into which said cylinder extends, and connections between said vessel and the gasometer-bell, whereby the vessel is raised or lowered by movements of said bell, substantially as specified.

2. A gas-machine, comprising a gasometer, a generator-cylinder arranged adjacent thereto, a water vessel into which the generator-cylinder passes, a segmental lever having connection with said vessel, and another larger segmental lever connected to the first-named segmental lever and having a connection with the gasometer-bell, whereby the water vessel is raised by the lowering of the bell, substantially as specified.

3. In a gas-machine, a gasometer, a generator arranged at one side thereof and having pipe communication with the interior of the gasometer, a service-pipe leading from the gasometer, a blow-off cylinder for containing water, a tube leading from the first-named pipe and having its end turned downward and then upward within the blow-off cylinder, and a tube leading from the service-pipe and having its end turned downward and then upward within said cylinder, substantially as specified.

660,890. PLANTER. JOHN COLBY, Visalia, Cal. Filed Feb. 20, 1900. Serial No. 5,916. (No model.)



Claim.—1. In a planter, the combination with seedboxes, and drop-slides therefor, of a drive-shaft, a disk secured to the drive-shaft and having a tapering peripheral flange, levers pivoted adjacent to each other, and between which the flange of the disk is adapted to travel, a spring between the levers, and links connecting the levers with the drop-slides, substantially as described.

2. In a planter, the combination with an axle, supporting-wheels, a frame pivoted to the axle, and means for raising and lowering the frame, of a shaft mounted in the frame and driven from one of the supporting-wheels, a disk secured on the shaft and having a tapering peripheral flange, pivoted levers arranged adjacent to each other and between which the flange of the disk is adapted to travel, a spring between the levers, seedboxes, drop-slides therefor, and links connecting the slides with the levers, substantially as described.

3. A planter, comprising an axle, supporting-wheels, a frame pivoted to the axle, means for raising and lowering the said frame, a drive-shaft carried by said frame, and driven from one of the supporting-wheels, seed-boxes, drop-slides therefor, pivoted and spring-pressed levers mounted upon the frame adjacent to each other and connected with the seed-drop slides, a disk secured upon the drive-shaft and provided with a circumferentially-tapering flange on its periphery arranged to travel between the inner ends of the said levers, a marking-wheel mounted on the axle, a driving connection between the drive-shaft and marking-wheel, and means for carrying the drive-shaft into and out of gear with its driving mechanism.

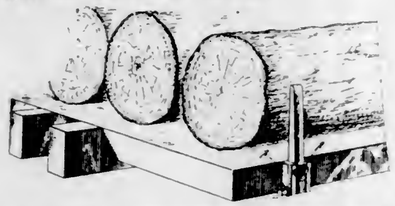
4. In a planter, the combination with the axle, supporting-wheels, a frame pivoted to the axle, a tongue secured to the axle, and a connection between the tongue and frame, of a drive-shaft having one end mounted in a sliding box, means for shifting the box, a gear-wheel on the shaft, a gear-wheel on one of the supporting-wheels, seedboxes, drop-slides in the boxes, and means for operating the drop-slides from the said shaft, substantially as described.

5. A planter, comprising an axle, supporting-wheels, a frame pivoted to the axle, a tongue secured to the axle, a connection between the frame and tongue for raising and lowering the frame, a drive-shaft driven from one of the supporting-wheels, seedboxes, drop-slides in the seedboxes, means for operating the drop-slides from the said shaft, a wheel mounted on the axle adjacent to one of the supporting-wheels, an arm secured to said wheel and projecting beyond the periphery of the supporting-wheel, and means for operating the wheel carrying the arm from the drive-shaft, substantially as described.

6. A planter, comprising an axle, supporting-wheels, a tongue secured to the axle, a connection between the tongue and frame, a drive-

shaft operated from one of the supporting-wheels, seedboxes, drop-slides for the boxes, means for operating the slides from the drive-shaft, a sprocket-wheel mounted on the axle adjacent to one of the supporting-wheels, an arm secured to the sprocket-wheel and projecting beyond the periphery of the supporting-wheel, a sprocket-wheel on the drive-shaft, and a belt passing over said sprocket-wheels, substantially as described.

660,891. STAKE-HOLDER. JAMES COWAN, Alea, Hawaii. Filed May 29, 1900. Serial No. 18,404. (No model.)



Claim.—1. A stake-holder, comprising side plates, a swinging front plate, means for swinging said front plate to open position, and means for automatically moving said front plate to its closed position, substantially as specified.

2. A stake-holder, consisting of side plates and a back plate, a swinging front plate adapted for locking engagement with the side plates, and means for simultaneously moving said front plate downward and outward, substantially as specified.

3. A stake-holder, comprising side plates and a back plate, a swinging front plate adapted for locking engagement with the side plates, an eccentric-shaft on which said front plate is mounted, a spring engaging with the front plate, and a spring connecting at one end to a side plate and at the other end to the eccentric-shaft and operating to move the front plate to its closing position, substantially as specified.

4. A stake-holder, comprising side plates, an eccentric-shaft having bearings in said side plates, the projecting end of said shaft being provided with an opening to receive an operating-lever, a front plate mounted on said eccentric-shaft, lateral projections at the upper end of said front plate adapted to pass into outwardly-opening recesses in the side plates, and to engage at the upper ends in recesses formed in the side plates, and means for automatically moving the front plate to its closing position, substantially as specified.

5. A holder for a car-stake, comprising a casing having a swinging front wall or plate, and means for automatically moving said front wall or plate to locking connection with the casing, substantially as specified.

6. A stake-holder, one wall of which is mounted to swing, and means for raising and lowering the said wall, in addition to the swinging movement, the said raising and lowering serving to engage and disengage the said wall.

660,892. PROCESS OF MOUNTING PICTURES. MARK L. COWAN, Eddy, Tex. Filed Mar. 23, 1900. Serial No. 9,933. (No specimens.)

Claim.—The herein-described method of making medallion pictures, which consists in applying to a polished glass plate a heated transparent paste containing ammonia and sugar, placing the print on the coated side of the glass and subjecting it to pressure to exclude all air, and finally coating the rear of the article with a plastic solution adapted to harden and permanently exclude air from the print and paste.

660,893. COMB-BRUSH. ALFRED B. DURGIN, Medford, Mass. Filed May 12, 1899. Serial No. 716,584. (No model.)



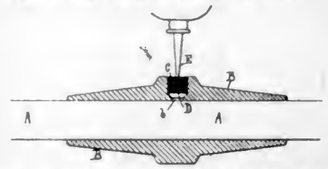
Claim.—1. A comb-brush consisting of a body having an edge portion cut to provide integral comb-teeth and having sockets in its opposite edge portion, and brush material secured in the said sockets and projecting in an opposite direction to the comb-teeth, substantially as specified.

2. A comb-brush consisting of a body having an edge portion cut to provide integral comb-teeth and having sockets in its opposite edge portion and having an end portion extended to form a handle in line with the stock, and brush material secured in the said sockets and projecting in an opposite direction to the comb-teeth, substantially as specified.

3. A comb-brush consisting of a body having an edge portion cut to provide integral comb-teeth and having longitudinal extensions at the sides of its opposite edge portion to stiffen and strengthen the body and form a brush-back provided with sockets, and brush material secured in the said sockets and projecting in an opposite direction to the comb-teeth, substantially as set forth.

4. A comb-brush consisting of a body having an edge portion cut to provide integral comb-teeth and having longitudinal extensions at the sides of its opposite edge portion to stiffen and strengthen the body and form a brush-back provided with sockets and having an end portion extended to form a handle in line with the stock, and brush material secured in the said sockets and projecting in an opposite direction to the comb-teeth, substantially as specified.

660,894. OILING DEVICE. VICTOR H. ERNST, Jersey City, N. J. Filed Sept. 27, 1898. Serial No. 692,019. (No model.)

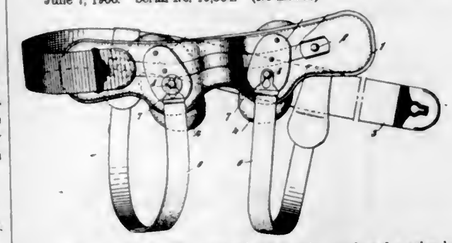


Claim.—1. The combination with a bearing having an oiling-hole therein, of a seal for said hole, consisting of a plug of fibrous material adapted to close the oil-hole, said plug having an opening of such diameter as, first, to make a tight joint with the nozzle of an oil-can when the latter is inserted for oiling, and, second, to permit the fibers to screen the opening when the nozzle is withdrawn, whereby waste of oil is prevented, and dust or grit excluded from the bearing, substantially as described.

2. The combination with a bearing having an oil-hole therein, of a seal for said oil-hole, consisting of a plug of felt adapted to close the oil-hole and having an opening of such diameter, as, first, to make a tight joint with the nozzle of an oil-can when inserted therein, and, second, to permit the fibers to screen the opening when the nozzle is withdrawn, whereby waist of oil is prevented, and dust or grit excluded from the bearing, substantially as described.

3. The combination of a bearing or hub having an opening over and about the oil-hole, with a fibrous plug fitted into said opening, said plug being itself provided with an opening of such diameter, as, first, to make a tight joint with the nozzle of an oil-can when inserted therein, and, second, to permit the fibers to screen the opening when the nozzle is withdrawn, whereby waste of oil is prevented, and dust or grit excluded from the bearing.

660,895. TRUSS. JOSEPH FANDREY, Los Angeles, Cal. Filed June 7, 1900. Serial No. 19,384. (No model.)

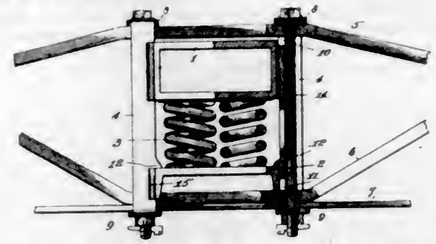


Claim.—1. In a truss, a pad provided with a projected portion between its ends, said projected portion having an approximately horizontal lower wall, said wall extending diagonally of the pad, the portion of the pad below the projected portion having a curved or dished upper face, as and for the purpose set forth.

2. In a truss, a pad provided with a projected portion gradually rising from the upper end of the pad and extending to a point below the middle of the length of said pad, said projected portion having an approximately horizontal lower wall, said wall extending diagonally of the pad, the lower portion of the pad below the projected portion being curved inwardly and downwardly toward the base of the horizontal wall of the projected portion, substantially as described.

660,896. CAR-TRUCK. GEORGE G. FLOYD, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed Feb. 24, 1900. Serial No. 6,329. (No model.)

Claim.—1. In a car-truck, the combination of a spring-plank, a truck-bolster, a side frame having upper and lower arch-bars, and a column-guide formed to embrace and entirely surround the arch-bars, substantially as set forth.



2. In a car-truck, a column-guide formed to embrace the upper and lower arch-bars and having openings through which the arch-bars pass, substantially as set forth.

3. A car-truck having side frames formed of upper and lower arch-bars, a column-guide formed with a top beneath which is an opening to receive the upper arch-bar and formed with a bottom above which is an opening to receive the lower arch-bar, substantially as set forth.

4. In a car-truck, the combination of a spring-plank, a bolster, side frames formed of arch-bars, and column-guides embracing the arch-bars and provided with integral shoulders adapted to bear on the spring-plank, substantially as described.

5. In a car-truck, the combination of a spring-plank having ribs, a bolster, side frames formed of arch-bars, and column-guides embracing the arch-bars and fitting between the ribs on the spring-plank, substantially as set forth.

6. In a car-truck, the combination of a spring-plank, a bolster, side frames formed of arch-bars, column-guides embracing and entirely surrounding the arch-bars, and bolts for holding the column-guides from horizontal movement on the arch-bars, substantially as set forth.

7. In a car-truck, the combination of the spring-plank having vertical ribs, a bolster, side frames formed of arch-bars, column-guides embracing the arch-bars and having shoulders adapted to bear on the spring-plank, and bolts for holding the column-guides from horizontal movement on the arch-bars; said column-guides fitting between the ribs on the spring-plank, substantially as described.

660,897. WALL-TIE. THOMAS E. GRAFTON, New York, N. Y. Filed Jan. 27, 1900. Serial No. 2,995. (No model.)



Claim.—1. A wall-tie comprising a single piece of wire bent to form a central portion and having its ends bent to form two wedge-shaped portions, said ends being directed against said central portion and braced against the same, substantially as described.

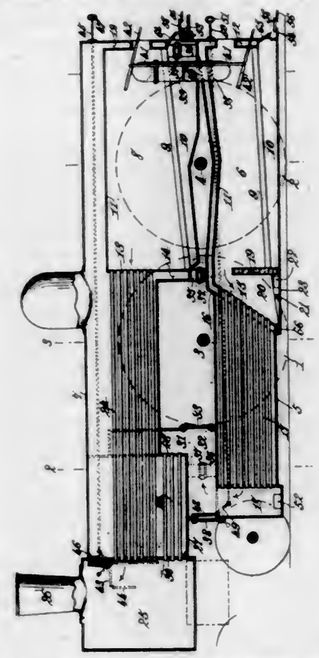
2. A wall-tie comprising a single piece of wire bent to form a central portion, and having its ends bent to form two wedge-shaped portions said ends being directed against said central portion and loosely braced against the same, all of said parts lying in substantially the same plane, substantially as described.

3. A wall-tie comprising a portion 1, the outer portions 2 and 3, and the inwardly-directed portions 4, 5, the latter being directed against said central portion 1, and loosely braced against the same at or about the middle thereof, substantially as described.

4. A wall-tie comprising a portion 1, the outer portions 2 and 3, and the inwardly-directed portions 4, 5, the latter being directly against said central portion 1, and loosely braced against the same at or about the middle thereof, all of said portions lying in substantially the same plane, substantially as described.

660,898. LOCOMOTIVE. WILLIAM W. GREGG, Elmira, N. Y. Filed May 23, 1900. Serial No. 17,733. (No model.)

Claim.—1. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes of the upper boiler, and a smoke-box disposed at the forward end of the locomotive and arranged to receive the gases and products of combustion from the fire-boxes after they have passed through their respective boilers and before they enter the smoke-stack, substantially as described.



2. In a locomotive, the combination with an upper fire-box, and boiler, and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes of the upper boiler, a flue connecting the two fire-boxes, a damper in said flue, and means for shutting off the communication between the two boilers, substantially as described.

3. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes of the upper boiler, a flue connecting the two fire-boxes, a damper in said flue, and means for closing the tubes in the upper boiler that are disconnected from the lower boiler, substantially as described.

4. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of means for causing at will the gases and products of combustion to pass from either one of the fire-boxes into the other, substantially as described.

5. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and means for causing at will the gases and products of combustion of both fire-boxes to pass through either boiler, substantially as described.

6. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes of the upper boiler, of means for causing at will the gases and products of combustion to pass from the upper fire-box into the lower fire-box and from the latter through the lower boiler and through a portion of the tubes of the upper boiler, substantially as described.

7. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, said

upper boiler being provided with an enlarged section at one end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in the enlarged section of the upper boiler, substantially as described.

8. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, a damper in said flue, a flue connecting said fire-boxes, and a damper in said flue, substantially as described.

9. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in the enlarged section of the upper boiler, a damper in said flue, a folding sectional damper suspended over the front ends of the tubes in the upper boiler disconnected with the enlarged section, means for folding up and unfolding said sectional damper to cover and uncover the ends of said tubes, a flue connecting the two fire-boxes, and a damper arranged in said last-mentioned flue, substantially as described.

10. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and the lower fire-box and boiler being removable, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, a damper in said flue, a flue connecting the fire-boxes, and a damper in said flue, the said flues being formed in separable sections to permit the removal of the lower fire-box and boiler, substantially as described.

11. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and the lower fire-box and boiler being removable, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, pipes detachably connecting the highest parts of the water-space of the lower fire-box with the water-legs of the upper fire-box, and a pipe detachably connecting the lower boiler with the enlarged section of the upper boiler, substantially as described.

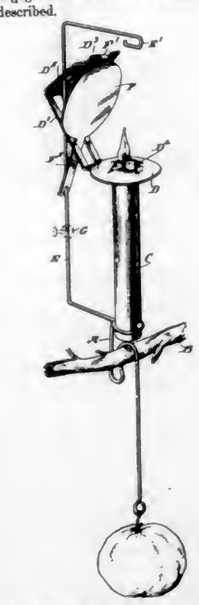
12. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of a downwardly and forwardly inclined flue-sheet forming the rear end of the lower boiler, and a fire-arch arranged in the forward end of the lower fire-box in rear of said flue-sheet and constituting in connection with the latter a combustion-chamber, said inclined flue-sheet operating to deflect downward a portion of the gases and products of combustion entering the combustion-chamber and to distribute the same through the tubes of the lower boiler, substantially as described.

13. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler, and the lower fire-box communicating with the lower boiler, of a flue connecting the fire-boxes, a damper arranged in said flue, firing-platforms arranged one above the other for firing the fire-boxes, and means for operating said damper from either of the platforms at will, substantially as described.

14. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of a flue connecting the tubes of the lower boiler with a portion of the tubes of the upper boiler, a damper arranged in said flue, a damper controlling the tubes of the upper boiler that are disconnected with the lower boiler, firing-platforms arranged one above the other for firing the upper and lower fire-boxes, and means for independently operating said dampers from the firing-platforms, substantially as described.

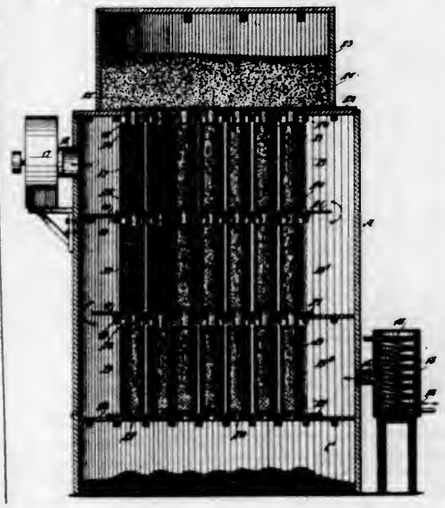
660,899. CANDLE-HOLDER. MARTIN HAGEN, Cashton, Wis., assignor of one-half to George J. Moen, same place. Filed Apr. 3, 1900. Serial No. 11,333. (No model.)

Claim.—1. The improved candle-holder and antomatic extinguisher, comprising a holder proper to which the candle may be attached, a vertical guide extending therefrom, an angular piece adapted to rest on the candle, and projecting forward or toward the candle at its upper end, and having a sliding connection with said guide, and the extinguisher proper, having a sliding connection with the guide at its lower end, and adapted for detachable engagement with the said angular piece at their upper ends, as shown and described.



2. The candle-holder proper having an attachment for resting on a tree-limb, or other suitable support, a guide-wire E, having a horizontal base portion and extending upward from such holder, a flat reflector and extinguisher plate, having an arm projecting downward and adapted to slide on said guide, and supported above and inclined toward the holder proper, and a support for said plate, which has an angular form and is adapted to rest on the candle and slide on the guide, the said plate and support having a loose engagement at their upper ends which is released as the plate slides to the base of the guide, as shown and described.

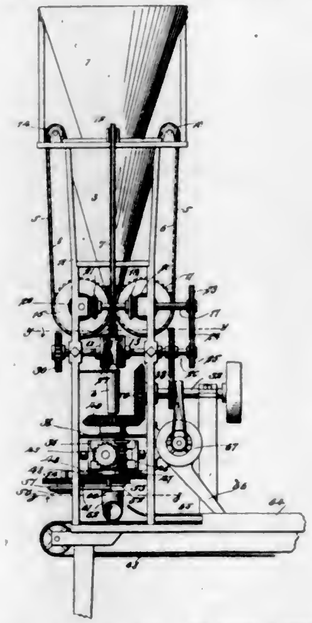
660,900. RICE-DRIER. LOUIS W. HASKELL, Savannah, Ga. Filed June 7, 1900. Serial No. 19,410. (No model.)



Claim.—1. The improved grain drying and hardening apparatus, consisting of a chamber having an air-inlet at one side and an air-outlet on the other side, at diagonally-opposite points, a series of transverse apertured partitions, the intermediate ones having an air-passage at their alternate ends, apertured slides arranged on all the partitions, several series of independent reticulated grain-receptacles having rigid tubular heads that suspend them from all the partitions save the lowest, and rigid tubular discharge ends adjacent to the slides, said receptacles being separated to allow free circulation of heated air around them on all sides, as shown and described.

2. In a machine for hardening or drying rice and other grain, a receptacle divided into chambers, the various chambers having outlets and inlets, a hopper for the supply of material and located at the inlets in the upper portion of the machine, bags having inlets and outlets suspended between the inlets and outlets of the various chambers, in connection with the inlets and outlets of said chambers, corresponding bags in the several chambers being thus connected and the divisions of the chambers being so formed that air may circulate through all of the chambers from the bottom chamber to the upper chamber, cut-offs for the inlets and outlets of the bags, an air-heater located outside of the receptacle and connected with the lowermost chamber thereof, and an exhaust-fan located at the upper chamber of the receptacle at an opposite side to that at which the air-heater is placed, as described.

660,901. CANDY-MACHINE. THOMAS J. JENKINS, Indianapolis, Ind. Filed Mar. 3, 1900. Serial No. 7,209. (No model.)



Claim.—1. In a candy-machine, a feed-hopper, a feeder and sizer device for operating in said hopper, a forming device arranged below the hopper, and a twisting device arranged below the forming device, substantially as specified.

2. In a candy-machine, a feed-hopper, endless feeding-belts for operating in said hopper, forming-rollers for receiving the material from the feeding-belts, and twisting-rollers receiving material from the forming-rollers, substantially as specified.

3. In a candy-machine, a funnel-shaped feeding-hopper, a plurality of feeding-belts movable therein, the said belts meeting at the lower end of the hopper, forming-rollers for receiving material from the belts, twisting-rollers for receiving material from the forming-rollers, and a cutting device below the twisting-rollers, substantially as specified.

4. In a candy-machine, the combination with feeding and forming devices, of a twister, comprising rollers geared together, a frame in which the rollers are mounted, means for rotating said frame in a horizontal plane, a worm carried by the frame, a gear-wheel on the shaft of one of the rollers, engaging with said worm, a pinion on the worm, and a fixed rack with which said pinion engages, substantially as specified.

5. In a candy-machine, a funnel-shaped feed-hopper having channels in its inner side, endless chains movable in said channels, leather facings or belts on said chains, and means for causing movements of the chains, substantially as specified.

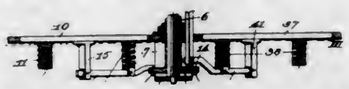
6. In a candy-machine, the combination with forming devices, of a cutter, comprising a blade, a gear-wheel on which the said cutter is eccentrically mounted, a spring for moving the cutter in one direction, a holding or stopping device for the cutter, another spring-pressed cutter, a pin on the gear-wheel for engaging with said other cutter, and a pinion engaging with the gear-wheel, the said pinion being operated by movements of the forming devices, substantially as specified.

7. In a candy-machine, a batch-hopper, a feed-hopper for receiving material from the batch-hopper, a feeder and sizer for operating in said feed-hopper, forming-rollers below the feed-hopper, twisting-rollers below the forming-rollers, and a driving-shaft from which all the movable devices are operated, substantially as specified.

8. In a candy-machine, a cooler-casing, an endless belt movable therein, the space between the upper wall of said casing and the belt being such as to cause frictional engagement between the stick, the belt and the upper wall, whereby the stick is rolled as it is carried along, and an air-blast device leading into the cooler, substantially as specified.

9. In a candy-machine, the combination with forming devices and a cutter, of a cooler-casing for receiving material directly from the cutter, means for cooling said casing, and a carrier movable in the casing, said carrier and a wall of the casing operating to impart a rotary motion to the candy while moving along, substantially as specified.

660,902. TURNSTILE. PETER M. KLING, St. Louis, Mo. Filed Apr. 9, 1900. Serial No. 12,068. (No model.)



Claim.—1. A turnstile comprising a shaft, means for locking the shaft to prevent rearward movement, means for locking the shaft to prevent forward movement, means for automatically unlocking the shaft to permit forward movement only, arms, means for connecting the arms with the shaft so as to yield in a forward direction only, means for locking the arms, and means for automatically unlocking the arms.

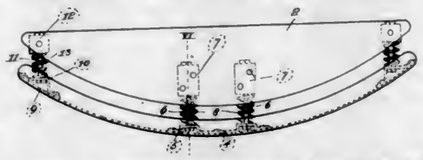
2. In a turnstile, the combination of a shaft, arms carried by the shaft, hinged plates to which the arms are connected, and means for automatically releasing the plates when the arms are to be moved in one direction, substantially as described.

3. In a turnstile, the combination of a shaft, arms carried by the shaft, hinged plates to which the arms are connected, latches for holding the plates in their normal positions, springs for returning the arms to their normal positions, and means for automatically moving said latches, substantially as described.

4. In a turnstile, the combination of a shaft provided with a head, plates hinged to the head, arms connected to the plates, spring-controlled pistons located in the arms and connected to said head, and means for automatically locking the plates in their normal positions, substantially as described.

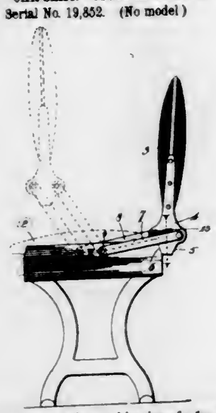
5. In a turnstile, the combination of a shaft provided with a head, plates hinged to the head, arms carried by the plates, latches for holding the plates in their normal positions, a spring-supported step, and means for moving said latches when said step is moved, substantially as described.

660,903. BUFFER FOR STREET-CARS. PETER M. KLING, St. Louis, Mo. Filed June 11, 1900. Serial No. 19,851. (No model.)



Claim.—In a street-car, in combination with the timber 2, a buffer consisting of a channel-bar, a bracket 4 having perforated U-shaped portions 5 secured to the central part of the buffer, brackets 9 having perforated portions 10 and secured to the ends of the buffer, brackets 7 and 12 secured to the under side of the timber 2, bolts connecting the brackets on the buffer to the brackets on the timber, and springs surrounding said bolts, substantially as and for the purpose set forth.

660,904. CAR-SEAT. PETER M. KLING, St. Louis, Mo. Filed June 11, 1900. Serial No. 19,852. (No model.)

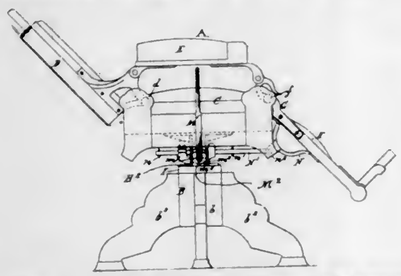


Claim.—1. In a car-seat, the combination of a frame, a back, brackets secured to the ends of the back, inner and outer links pivoted to the brackets at each end of the back and to the frame of the seat, and inner and outer ledges carried by the brackets and adapted to seat against the links, substantially as set forth.

2. In a car-seat, the combination of a frame, a back, brackets carried by the back and having respectively inner and outer ledges, and inner and outer links pivoted to the respective brackets and to the frame of the seat, said brackets having beveled lower ends adapted to bear against the beveled corners of the frame of the seat, substantially as set forth.

3. In a car-seat, the combination of a frame, a back, brackets secured to the ends of the back, inner and outer links pivoted to the brackets at each end of the back and to the frame of the seat, and inner and outer ledges 12 and 13 formed at opposed angles to each other on the brackets.

660,905. CHAIR. ERNEST E. KOKEN, St. Louis, Mo. Original application filed Mar. 10, 1898, Serial No. 673,310. Divided and this application filed Oct. 26, 1899. Serial No. 734,796. (No model.)



Claim.—1. In a foot-rest lock, the combination with a reciprocating bar, of two coacting locking members having unopposing portions engaging the bar, one of said members being movable with relation to the other, said bar being disposed between said members, and means for operating said movable member to release the bar, substantially as described.

2. In a foot-rest lock, the combination with a reciprocating bar, of two locking members, between which said bar extends, one of said members formed with projections engaging said bar, and the other member with a projection engaging said bar at a point between the engaging projections of the first-mentioned member, and one of said members being movable with relation to the other and spring-held, and means for operating said movable member to release said bar, substantially as described.

3. In a foot-rest lock, the combination with a reciprocating bar, of a relatively-fixed locking member supporting said bar, a pivoted spring-held locking member, said members having unopposing engaging portions engaging and clamping the bar, and means for operating the pivoted member to release the bar, substantially as described.

4. In a foot-rest lock, the combination with a movable and a relatively-fixed locking member, of a reciprocating bar disposed therebetween and clamped thereby, elastic means for holding the movable member normally in contact with said bar, said movable member formed with a laterally-extending projection, and a rock-shaft mounted adjacent to said projection and having a cam engaging the same and operating the movable member to release the bar when the shaft is rocked, substantially as described.

5. The combination in a revolving chair of a base; a chair-seat; a spindle attached to said seat and rotated in and supported by said base; a recess in said spindle; a bolt whose rear end extends into said recess and whose other end projects therefrom; a spring in said recess tending to force said bolt into its outermost position; a collar, and a part within said collar which said bolt, when in its normal position, wedges against said collar, thereby locking the chair-seat; and means for operating the bolt to release the parts from their locking position.

6. The combination in a revolving chair of a seat; a spindle supporting the seat and having a laterally-projecting boss; a base in which said spindle rotates and by which it is supported; a collar attached to said base; a segment arranged within said collar; and means within said segment for locking said chair-seat by forcing one end of the segment against said boss and its outer side against the inside of said collar.

7. The combination in a revolving chair of a base having a collar attached thereto; a pair of segments within said collar placed opposite each other; a chair-seat; a spindle attached to said seat and rotating in and supported by the base and having a laterally-extending boss projecting between the ends of said segments; a bolt within said collar; means for forcing the head of said bolt between the ends of said segments opposite those next said boss and holding it there, and mechanism for retracting said bolt.

8. The combination in a revolving and reclining chair of a seat; a foot-rest; means pivotally connecting the rest and seat; a locking-bar; means connecting the bar and foot-rest; a spindle having in its upper end an opening through it from front to rear; a recess for a bolt and transverse bearings for a shaft; a cam-shaft rocking in said bearings; a bolt whose rear end reciprocates in said recess and which is provided with a lug projecting into the path of the cam on said shaft; a spring tending to force said bolt into its outermost position; a foot-rest lock having a frame with openings through which said locking-bar and said cam-shaft pass; a jaw having a lug projecting into the path of the cam on said shaft opposite the lug on said bolt; a part for gripping said bar; means pivotally connecting said jaw and frame; and means elastically pressing said gripping portion of said jaw into contact with said bar, substantially as described.

9. The combination in a revolving and reclining chair of a seat; a foot-rest; means pivotally connecting the foot-rest and seat; a locking-bar; means connecting the bar and foot-rest; a base; a spindle turning in the base and supporting the chair; bearings in the spindle for a shaft; a cam-shaft journaled in said bearings; a lever attached to said shaft; an arm projecting from said shaft having an inwardly-projecting tooth; a recess in the spindle for said tooth; elastic means for forcing said tooth into said recess when the cam on said shaft reaches an inoperative position; a lock for said foot-rest bar opened by turning said lever in one direction from the position in which it stands when said tooth is in its recess, and a chair-seat lock released by turning said lever in the opposite direction, means by which the movement of said lever in one direction from its inoperative position releases the chair-seat lock, and means whereby its movement in the opposite direction releases the foot-rest lock, substantially as described.

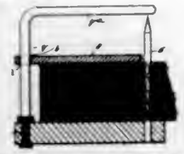
10. The combination in a foot-rest lock; a frame O having a base o containing a vertical slot o' and a transverse opening o^{14}, and having also arms o^3 and o^4 pierced by a longitudinal opening o^5; a jaw O' having a base o^{10} provided with a tooth o^{11} and a lug O^2; means pivotally connecting the end of the base of said jaw next said tooth o^{11} to said frame; a locking-bar projecting through the opening o^5 in position to be engaged by said tooth; means elastically pressing said tooth into engagement, and a cam-shaft extending through said opening o^{14} and with its cam in position to open said jaw by pressing against said lug, substantially as described.

11. The combination in a revolving and reclining chair of a spindle supporting the chair-seat; a base supporting the chair-seat; a base supporting the spindle; mechanism for locking the chair-seat; mechanism for locking the foot-rest; a bearing in said spindle; a cam-shaft journaled in the bearing for opening said locks; a pair of arms m^6 and m^7 projecting from opposite sides of the shaft and a stop m^{10} projecting from the spindle.

660,906. NEWSPAPER OR LETTER FILE. HENRY P. KREBBIEL, Canton, Ohio. Filed Apr. 7, 1900. Serial No. 11,961. (No model.)

Claim.—1. The combination with a base, a file-stud thereon, and a rotatable post located opposite the file-stud and having a lateral guard-arm adapted to be swung over the stud, of a clamping-block adjustable on the post and held to turn therewith, whereby the clamping-block can be swung into active or inactive position.

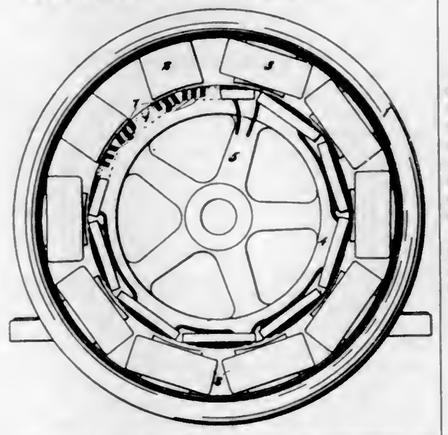
2. The combination with a base-strip, file or impaling studs thereon, and rotatable posts each having a lateral arm and arranged on said base opposite the studs, of a clamping-block adjustable up and down on each of said posts and arranged to engage the post, whereby it is held in the adjusted position on the post, the said clamping-block turning with said post, substantially as described.



3. In a paper-file, the combination with a base, file or impaling studs arranged at one side of the base, and rotatable posts arranged at the opposite side of the base, each post having a lateral arm adapted to swing above and near to the free end of a file-stud, of a clamping-block slidable on each post and adapted to press upon paper sheets filed on the studs, the perforation or opening in the clamping-block for the passage of the post being inclined forming biting edges for holding the clamping-block in the adjusted position on the post.

4. In a paper-file, a base, a file-stud on said base, a post mounted to turn and having a lateral guard-arm adapted to extend over the file-stud, the body of the said post being preferably rectangular in cross-section, and a clamping-block preferably rectangular in shape and having an inclined perforation near one corner thereof adapted to loosely receive the body portion of the post, the said inclined perforation forming biting edges on the clamping-block, whereby the said clamping-block is adjustably held in position on the post.

660,907. SINGLE-PHASE ALTERNATING-CURRENT GENERATOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed May 24, 1899. Serial No. 718,060. (No model.)



Claim.—1. In a dynamo-electric machine, an armature-core provided with a plurality of groups of slots or channels the sides of which in each group are parallel to each other and to a radial plane, in combination with a winding consisting of a plurality of groups of substantially concentric turns located in the core slots or channels.

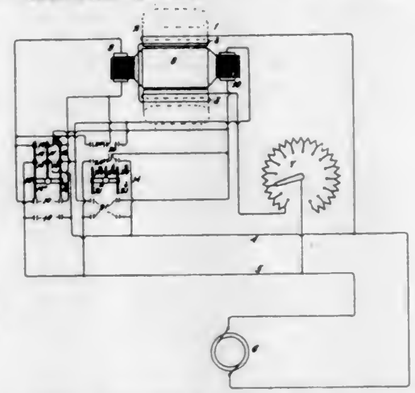
2. A single-phase alternating-current generator having an armature provided with a plurality of groups of slots or channels, those in each group being parallel to each other and to a radial plane and a single winding comprising a plurality of groups of substantially concentric turns located in said slots or channels.

3. In a dynamo-electric machine, the combination with a field-magnet having radial pole-pieces, of an armature comprising a core having a plurality of groups of slots or channels the sides of which in each group are parallel to each other and to a radial plane and a winding consisting of a plurality of groups of substantially concentric turns located in the core slots or channels, the slots or channels being so disposed that all of the conductors at adjacent sides of each two adjacent groups of coils may be under corresponding field-magnet pole-pieces at the same time.

4. In a dynamo-electric machine, the combination with a field-magnet having radial pole-pieces, of an armature comprising a core having a plurality of groups of slots, the two slots of each group that are nearest to the center being approximately the same distance apart as the space between the adjacent inner edges of adjacent pole-pieces, and a winding consisting of a plurality of groups of substantially concentric turns located in said slots.

5. In a dynamo-electric machine, the combination with a field-magnet having radial pole-pieces, of an armature comprising a core having a plurality of groups of slots, those of each group being disposed in two sets the sides of which are parallel to a radial plane and adjacent sets of adjacent groups being included in a space approximately equal to the width of each pole-piece, and a winding consisting of a plurality of substantially concentric turns located in said slots.

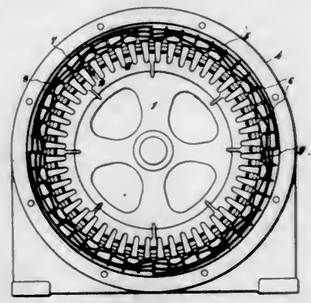
660,908. VARIABLE-SPEED ELECTRIC MOTOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed June 5, 1899. Serial No. 719,428. (No model.)



Claim.—1. The method of varying the speed of a direct-current motor provided with a plurality of armature-windings of different lengths which consists in changing the relation and number of said windings in circuit and varying the exciting-current for the motor-field prior to each change in said windings.

2. The method of gradually varying the speed of a direct-current motor provided with two armature-windings of different lengths which consists in connecting said windings in series for one rate of speed, gradually reducing the exciting-current for the motor-field, cutting the shorter windings out of circuit, making a further reduction of the exciting-current for the motor-field, connecting the windings in opposition, again reducing the exciting-current, and finally cutting the longer winding out of circuit.

660,909. ELECTRIC MOTOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Sept. 14, 1899. Serial No. 730,431. (No model.)



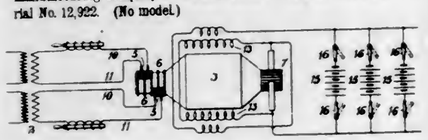
Claim.—1. In a polyphase electric motor, the combination with a secondary member having closed windings, of a primary member comprising a slotted core and a plurality of sets of coils corresponding in number to the sets of magnet-poles, the coils for producing the minimum number of poles being located at the inner ends or bases of the core-slots and those for producing the maximum number of poles being located adjacent to the outer or open ends of the slots, substantially as described.

2. In a polyphase electric motor, the combination with a secondary member having electric circuits closed upon themselves, of a primary member comprising a slotted core and a plurality of sets of coils for producing a corresponding number of rotating magnetic fields differing from each other as to the number of poles, the windings for producing the maximum number of poles being located nearest the surface of the core, substantially as described.

3. In a polyphase electric motor, the combination with a secondary member having electric circuits closed upon themselves, of a primary member comprising a slotted core, and a plurality of sets of windings located in the core-slots, those of each set being constructed and arranged to receive out-of-phase currents, but only one set being in use at any one time, the inner set being so disposed as to produce a minimum number of magnetic poles and the outer set being so disposed as to produce a maximum number of poles, substantially as described.

4. In a three-phase electric motor, the combination with a secondary member having electric circuits closed upon themselves, of a primary member comprising a slotted core and three sets of three-phase windings located in the core-slots, the set located in the bottom of the slots producing a rotating field having a minimum number of poles, the set located adjacent to the surface producing a field having a maximum number of poles, and the intermediate set producing a field having an intermediate number of poles, substantially described.

660,910. **SYSTEM OF ELECTRICAL DISTRIBUTION.** BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Apr. 14, 1900. Serial No. 12,922. (No model.)

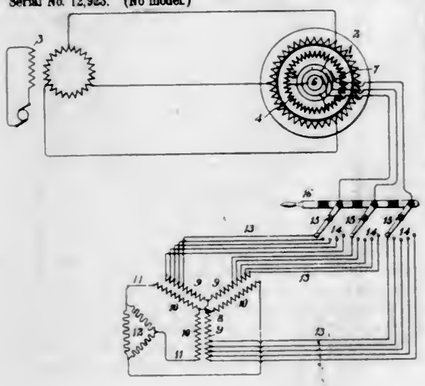


Claim.—1. In a system of electrical distribution, the combination with an alternating-current circuit containing inductive resistance, of a rotary converter connected to said alternating-current circuit and to a direct-current circuit containing translating devices, said rotary converter having shunt and series field-magnet windings arranged and connected in opposition.

2. In a system of electrical distribution, the combination with an alternating-current circuit containing inductive resistance, of a rotary converter connected to said alternating-current circuit and to a direct-current circuit for charging secondary batteries, said rotary converter having shunt and series field-magnet windings arranged and connected to produce opposing magnetizations.

3. In a system of electrical distribution, the combination with an alternating-current circuit containing inductive resistance, of a rotary converter connected to said alternating-current circuit and a direct-current circuit provided with a variable load requiring a variable electromotive force and supplied by said rotary converter, the latter having shunt and series field-magnet windings arranged and connected to oppositely magnetize the field-magnet core.

660,911. **ALTERNATING-CURRENT INDUCTION-MOTOR.** BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Apr. 14, 1900. Serial No. 12,923. (No model.)



Claim.—1. The combination with an alternating-current induction-motor, of a transformer having a loaded secondary, means for connecting the transformer primary in circuit with the secondary winding of the motor and means for varying the active length of said transformer primary to provide a constant torque with variable speed of the motor.

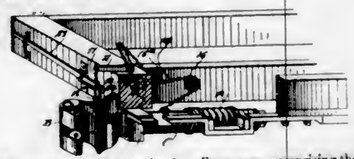
2. The combination with an induction-motor, of a transformer having a primary winding of variable length, means for varying the active length of said winding, circuit connections between said winding and the secondary winding of the motor, and a secondary winding for said transformer that is closed upon itself through a comparatively high resistance.

3. The combination with an alternating-current induction-motor, of a transformer having one of its windings in circuit with the secondary winding of the motor, an ohmic resistance in series with the other transformer-winding and means for varying the number of active turns in one of said transformer-windings.

4. The combination with an alternating-current induction-motor, of a transformer having one of its windings in series with the winding of the secondary member of the motor, an ohmic resistance-body in series with the other transformer-winding and means for varying the number of active turns in one of the transformer-windings and thereby varying the number of ampere-turns in both windings.

5. The combination with an alternating-current induction-motor, of a transformer having its primary winding in series with the winding of the secondary member of the motor, means for varying the number of active turns in said primary winding and an ohmic resistance-body connected in series with the secondary winding of said transformer.

660,912. **AUTOMATIC UNCOUPLING DEVICE FOR DRAW-HEADS.** JOHN T. LEE, Butler, N. J. Filed July 17, 1900. Serial No. 23,896. (No model.)



Claim.—An uncoupling device for railway-cars, comprising the combination with the car and draw-head and draw-bar, of a bell-crank lever mounted on the car, and having one end in connection with the coupling-pin or other mobile part of the coupler to uncouple the same, a flexible connection between the other end of the bell-crank lever and the draw-bar, and guide devices for the flexible connection such devices being mounted on the car and holding the flexible connection so that undue strain on the draw-bar will cause the coupler to be released.

660,913. **STAMP-VENDING MACHINE.** JAMES MACKIRDY, New York, N. Y. Filed July 6, 1899. Serial No. 722,954. (No model.)

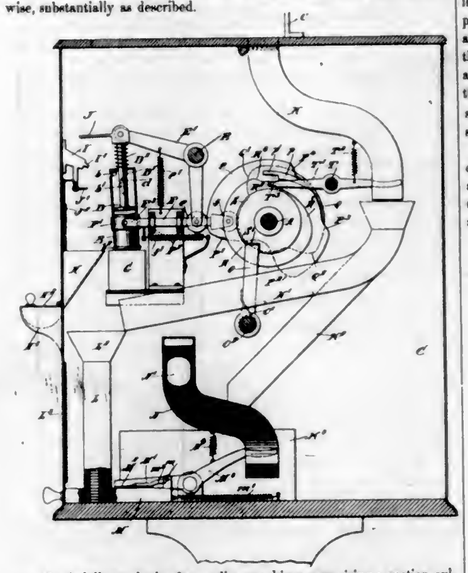
Claim.—1. A delivery device for vending-machines, comprising a suction-cylinder, a piston adapted to have a limited movement therein, a guide-ring surrounding the cylinder and having a sliding fit thereon, a bar secured to the ring and extending laterally from the cylinder, guides for said bar, a lever connected with the piston to reciprocate it, and actuating means for said lever and bar whereby the cylinder is reciprocated and then swung to one side, substantially as described.

2. A delivery device for vending-machines, comprising a suction-cylinder, a piston adapted to have a limited movement therein, a guide-ring surrounding the cylinder and sliding thereon, a bar secured to the ring and extending laterally from the cylinder, guides for said bar, a lever connected with the piston to reciprocate it, cam-rollers upon the lever and bar, and cams engaging said rollers whereby the piston and cylinder are reciprocated and are then swung to one side and the article deposited, substantially as described.

3. A delivery device for vending-machines, comprising a suction-cylinder and piston, and means for reciprocating them together, the piston having a limited movement in the cylinder, means connected with the piston for reciprocating both piston and cylinder, means for swinging the cylinder sidewise, and a catch engaging the cylinder to secure it against endwise movement after being swung sidewise, substantially as described.

4. A delivery device for vending-machines, comprising a cylinder, a piston having a limited movement therein, a guide supporting the cylinder to permit reciprocations thereof, means connected with said guide to move it and the cylinder laterally of the length of the cylinder, a lever pivoted to the piston, a fixed stop adapted to engage and hold the cylinder when it is swung to one side, and means for depressing the piston when the cylinder is in the side position, substantially as described.

5. A delivery device for vending-machines comprising a suction-cylinder, means for moving it into contact with the article to be delivered, means for lifting and transferring it sidewise, and a fixed catch engaging the cylinder to hold it against endwise movement after being moved sidewise, substantially as described.



6. A delivery device for vending-machines comprising a suction-cylinder, means for moving it in contact with the article to be delivered, a guide-ring surrounding the cylinder and in which the cylinder has sliding movement, a bar connected with the ring and extending laterally from the cylinder, the said bar having guided movement, means for lifting said cylinder, and means for actuating said bar to swing the cylinder to one side, substantially as described.

7. A delivery device for vending-machines, comprising a cylinder having a stop-receiving hole in one side, the piston having a limited movement in the cylinder, a guide supporting the cylinder to permit reciprocations thereof, a bar connected with said cylinder-guide and extending to one side thereof, guides for said bar, permitting its longitudinal movement whereby the cylinder is moved laterally of its length, a lever pivoted to the piston, a fixed stop adapted to enter the hole in the cylinder when swung to one side, cam-rollers on the bar and lever, cams engaging the rollers, and means for turning them whereby the cylinder is lowered into contact with the article to be sold and is then raised and swung to one side, and the piston depressed within the cylinder to release the article, substantially as described.

8. In a vending-machine, a reservoir or receptacle for the article being sold, a suction device adapted to enter said receptacle and remove one of the articles therein, an indicator, a catch normally holding the indicator out of sight, and an arm projecting from the suction device and adapted to engage the catch to free the indicator when the receptacle becomes empty, substantially as described.

9. A delivery device for vending-machines, comprising a suction-cylinder, a piston having a limited movement therein, a spring bearing against the upper end of the cylinder, a lever connected with the piston to reciprocate it and the cylinder, means for actuating said lever, means for swinging the cylinder to one side, and a catch engaging the cylinder to hold it against endwise movement after being moved sidewise, substantially as described.

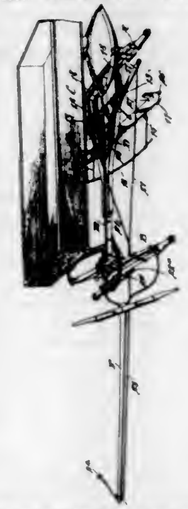
10. A delivery device for vending-machines, comprising a suction-cylinder, a guide-ring surrounding the same, a bar connected with said guide-ring and extending laterally from the cylinder, a piston having a limited movement in the cylinder, a lever connected with the piston to reciprocate both it and the cylinder, a cam for actuating said lever, and a second cam for actuating the said bar to swing the cylinder to one side, substantially as described.

11. A delivery device for vending-machines, comprising a cylinder, a piston having a limited movement therein, a spring connected with the piston-rod and bearing against the upper end of the cylinder, a bell-crank lever connected with said piston to reciprocate the same and the cylinder, a spring acting on said bell-crank lever for normally depressing said cylinder, means for actuating said lever, and means for swinging the cylinder sidewise, substantially as described.

12. A delivery device for vending-machines comprising a cylinder, a piston having a limited movement in the cylinder, a spring bearing against the upper end of the cylinder, a spring-controlled guide supporting said cylinder to permit reciprocation thereof, a lever pivoted to the piston, actuating means for said lever whereby the piston is first lifted and then the cylinder is raised, actuating means for said guide, whereby the cylinder when raised is swung to one side, a stop adapted to engage and hold the cylinder when it is swung to one side, and means whereby the piston is moved downward in the cylinder when the latter is in the side position and then restored to normal position, substantially as described.

13. In a vending-machine, a delivery device comprising a suction-cylinder adapted to be moved into contact with the article to be delivered and to be lifted and transferred sidewise, actuating means for imparting said movements to said cylinder, and a locking device to hold said actuating means out of action, substantially as described.

660,914. **VEHICLE-BRAKE.** HUGH MAGEE, Meadville, Miss. Filed Mar. 29, 1900. Serial No. 10,629. (No model.)



Claim.—1. The brake herein described comprising the reach and hounds, the yoke pivotally supported at its upper end above the reach and hounds and having at its ends depending arms extending past the reach and hounds, the brake-bar supported on said arms, and arranged below the reach and hounds, the spring-bar secured at its middle to the running-gear in advance of the brake-bar and having its outer free ends connected with the brake-bar whereby to actuate the same forward at both ends, the levers arranged in rear of the brake-bar and below the hounds and pivoted to the latter, connections between the inner ends of said levers and the brake-bar and means for operating the levers to set the brake, substantially as set forth.

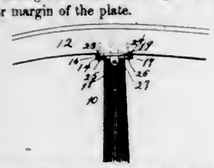
2. In a brake substantially as described, the combination of the brake-bar, means supporting the same, devices for operating the bar to set the brake and a spring-bar secured at its middle in advance of the brake-bar and connected at its ends with the brake-bar whereby to advance the same, substantially as set forth.

3. The combination of the reach and hounds, the blocks mounted on the hounds, the yoke having a cross-bar journaled in said blocks and provided at its ends with depending arms, the brake-bar supported on said arms, means for operating the brake-bar to set the brake, and a spring for releasing the brake, substantially as set forth.

4. In a brake the combination of the reach and hounds, the yoke pivotally supported above the hounds and having at its ends depending arms extending past the hounds, the brake-bar supported on said arms and arranged below the hounds, a spring for releasing the brake, and levers arranged below and pivoted to the hounds, means connecting the inner ends of the levers with the brake-bar, and means for operating the levers to set the brake, substantially as set forth

660,915. **SPOKE, TIRE, AND FELLY TIGHTENER.** HENRY MEYER, Des Moines, Iowa. Filed May 7, 1900. Serial No. 15,740. (No model.)

Claim.—1. As an improved article of manufacture, the plate of semicircular form and provided with an inner notch and the lugs formed on said plate and radiating therefrom, which lugs are apertured and lie wholly outside the outer margin of the plate.



2. The plate of semicircular form and provided with the inner notch, the lugs on the periphery of said plate, two of said lugs being in the plane of the plate and the other lug being turned at right angles to the plane of the plate, said lugs being perforated or apertured.

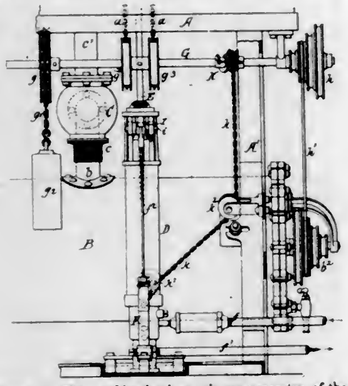
3. The combination of the tire, felly and the spoke formed with a shoulder and dowel end, the counterpart plates mounted in contact with the concave face of the felly and embracing the dowel end of the spoke, ears on said plates and perforated two of said ears being turned at right angles to the plates, means for fastening the right-angled ears to the spoke and means for fastening the other ears to the felly.

4. The combination of the tire, felly and spoke formed with a dowel end entering the felly, the plates mounted on the concave face of the fellies and embracing the dowel end of the spoke, means for attaching said plates to the fellies and lugs or ears on said plates bent at right angles to the plates alongside of the spoke and arranged for attachment to said spoke.

5. The combination of the spoke formed with a dowel end, and felly formed with a dowel-seat to receive the dowel end of the spoke, the tire, the counterpart plates mounted upon the concave face of the felly and embracing the dowel end of the spoke, the washer-plates between the first plates and the felly and the staples whereby the plates are conjunctively attached to the felly.

6. The combination of the spoke formed with a dowel end, the felly formed with a dowel-seat to receive the dowel end of the spoke, the tire of endless form, the counterpart plates mounted on the concave face of the felly and each formed with inner notches to receive and embrace the dowel end of the spoke and radial lugs formed on and projecting from the outer margins of said plates, and washer-plates interposed between the first plates and the felly and formed with inner notches to receive and embrace the dowel end of the spoke and lugs on and radiating from the washer-plates and apertured in registration with the apertures of the first plates, and staples whereby said plates are conjunctively attached to the felly.

660,916. AIR-GAS APPARATUS. CASPAR W. MILLER, Wallingford, Pa. Filed June 7, 1899. Serial No. 719,681. (No model.)



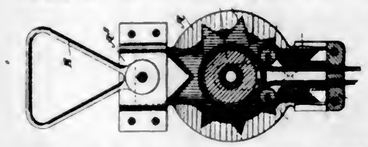
Claim.—1. The combination in an air-gas apparatus, of the air-reservoir having a moving section, a cylinder, a piston in the cylinder adapted to raise the moving section of the air-reservoir, a valve controlling the admission of fluid to and exhaust from the cylinder, a lever connected to the valve, a driven shaft, mechanism connecting said shaft with the moving section of the reservoir and a scroll on the shaft and a chain adapted to the scroll and connected to the lever, substantially as described.

2. The combination in an air-gas apparatus, of the reservoir having a moving section, a cylinder, a piston in the cylinder connected to the moving section of the air-reservoir, a valve controlling the admission of fluid to and exhaust from the cylinder, a lever connected to the valve, a shaft turned in unison with the movement of the moving section of the air-reservoir, a scroll on the shaft, and a chain secured to the highest portion of the scroll and to the long arm of the lever and passing around pulleys so that the lever will be drawn down as the air is exhausted from the reservoir, substantially as described.

3. The combination in an air-gas apparatus, of the air-reservoir having a moving section, a cylinder, a piston within the cylinder, a rod extending from the moving section of the air-reservoir to the piston, a valve controlling the admission of fluid to and exhaust from the cylinder, a lever connected to the valve, a shaft connected to the moving section of the reservoir, a scroll on the shaft, a chain connected to the scroll and to the lever, and an interposed spring, substantially as and for the purpose set forth.

4. The combination in an air-gas apparatus, of an air-reservoir having a moving section, a cylinder, a piston therein, a rod extending from the moving section of the reservoir to the piston, a valve governing the flow of fluid to the cylinder, a lever connected to the valve, and a spring attached to the lever so that when the lever is raised by the piston the spring will be under tension, and the spring on its recoil will shift the valve, substantially as described.

660,917. FIRE-ESCAPE. JAMES O. MILLER and DANIEL AGNEW, Rochester, Ind. Filed July 12, 1900. Serial No. 23,382. (No model.)



Claim.—1. A fire-escape, comprising a casing, a supporting-loop pivoted on said casing, an escapement, a drum, journaled in the casing and having a V-shaped peripheral groove for the passage of the cable, a guiding-tube held in the casing and having an elongated opening extending over the guide-openings in the bottom of the casing, and antifriction-rollers journaled in the upper portion of said tube, as set forth.

2. A fire-escape, having a casing, a drum mounted therein, an escapement-wheel fastened to the axis of the drum, an escapement-bar working with the escapement-wheel, and a guide-tube located adjacent to the drum and adapted to have both runs of the cable passed through it, to guide the same to and from the drum.

3. A fire-escape, having a casing, a friction-drum mounted therein, a flat guide-tube carried in the casing and adapted to lead the cable to and from the drum, and antifriction-rollers mounted at the upper end of the guide-tube directly adjacent to the drum to press the rope into true engagement with the drum.

660,918. VOTING-MACHINE. CHARLES H. OCUMPAUGH, Rochester, N. Y. Filed Oct. 1, 1900. Serial No. 31,632. (No model.)



Claim.—1. In a voting-machine, the combination of a suitable casing having an aperture formed therein; an irregular balloting device consisting of a belt mounted wholly within said casing and adapted to pass by said aperture, said belt having pockets formed therein for the insertion and retention of ballots as said pockets are brought to position in line with the aperture; and means for winding the belt upon itself.

2. In a voting-machine, the combination of a suitable casing having an aperture therein; an irregular balloting device mounted wholly within said casing, said device consisting of a traveling belt having pockets for the insertion and retention of ballots; and means for winding the belt about itself.

3. In a voting-machine, the combination of a suitable casing having an aperture formed therein; an irregular balloting device consisting of a belt mounted wholly within said casing and adapted to pass by said aperture, said belt having a series of equidistantly-spaced pockets formed therein for the insertion and retention of ballots as said pockets are brought to position in line with the aperture; and means for winding the belt about itself.

4. In a voting-machine, a face-plate having a register-operating device on one side of its face, and a traveling belt upon the opposite side, said belt being provided with pockets for the insertion and permanent retention of ballots until they are finally counted, as and for the purpose set forth.

5. In a voting-machine having an apertured face-plate; a traveling belt provided with pockets adapted to receive and retain ballots; and means for moving the belt past the aperture in said plate, and winding the belt about itself.

6. In a voting-machine, the combination of a regular-vote-registering mechanism; a traveling belt having pockets for irregular ballots; and suitable interlocking mechanism, as and for the purpose set forth.

7. In a voting-machine having an apertured face-plate; a traveling belt provided with pockets; a regular registering mechanism; a movable slide or cover; and suitable interlocking mechanism between the register and the cover, as and for the purpose set forth.

8. In a voting-machine, the combination of a suitable casing having an apertured face-plate; a flexible ballot-receiving belt having pockets formed therein for the reception and retention of a ballot, said pockets being open at one end only; and means for winding the belt about itself after the ballot has been deposited in the pocket.

9. In a voting-machine, the combination of a suitable casing having an apertured face-plate; a flexible ballot receiving and retaining belt mounted wholly therein; and means for winding the belt on itself after the ballot has been inserted.

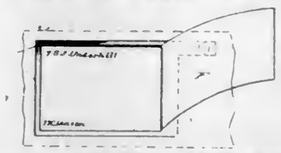
10. In a voting-machine, the combination of a resetting device and a movable ballot-receiving belt having pockets for the reception and retention of a ballot, said belt being moved by the actuation of the resetting device by the voter.

11. In a voting-machine, the combination of an apertured face-plate; a ballot receiving and retaining belt extending past said aperture, said belt having covered pockets formed therein and extending parallel to the face of the plate.

12. In a voting-machine, the combination of a suitable casing having an aperture formed therein; a belt provided with pockets and mounted wholly within said casing; and means for imparting a step-by-step movement to the belt as it is wound about itself.

13. In a voting-machine, the combination of a suitable casing having an aperture formed therein; a ballot-receiving belt mounted wholly within said casing and provided with a series of openings adapted to receive and retain ballots; and means for imparting a step-by-step movement to said belt, said movement bringing an opening in the belt in register with the aperture.

660,919. VOTING-MACHINE. CHARLES H. OCUMPAUGH, Rochester, N. Y. Filed Oct. 2, 1900. Serial No. 31,749. (No model.)



Claim.—1. In a voting-machine an apertured face-plate in combination with a belt having one or more leaves or flaps accessible to the voter through an aperture, as and for the purposes set forth.

2. The combination in a voting-machine having a register-operating device on its face to indicate a vote for party nominees whose names appear on the face, and a movable belt or band having one or more of said names appearing thereon before insertion of the belt into the machine and a blank space for the placing of a name by the voter, as and for the purposes set forth.

3. In a voting-machine, a movable vote-receiving belt having more than one ply, and provided with means adapted to admit registering of the voter's choice directly on one or more of the plies of the belt, as and for the purpose set forth.

4. In a voting-machine a movable vote-receiving belt having leaves or flaps capable of being turned outward from the face of the belt, as and for the purposes set forth.

5. In a voting-machine, a single register and registering-operating device for the registry of a vote for more than one of the party nominees for the same office, the names of said nominees appearing on the face of the machine, in combination with a movable irregular-vote-receiving band having the said names appearing thereon previous to insertion of the belt into the machine, as and for the purposes set forth.

6. In a voting-machine, a vote-receiving belt having leaves or flaps attached thereto, said leaves or flaps having the name of one or more of the party nominees thereon, as and for the purposes set forth.

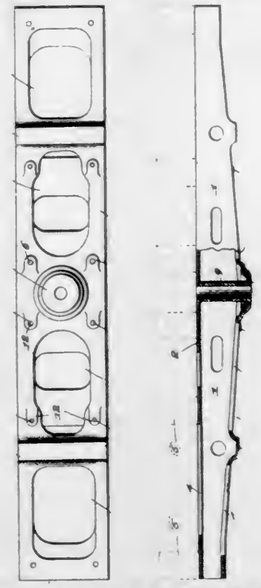
7. A voting-machine having the names of candidates appearing thereon, in combination with an irregular voting device having the same names thereon, the names on the irregular device being accessible to the voter up to the final moment of voting.

8. A voting-machine having one or more names of candidates shown alike previous to voting in both a party-column and the irregular space for the same office, as and for the purposes set forth.

9. In a voting-machine, the combination of a casing having an aperture therein; an irregular voting device comprising a belt having the same name in more than one place thereon, and means for moving said names past the aperture.

10. In a voting-machine, a movable vote-receiving belt having the same name in more than one place thereon said name appearing thereon before the belt is inserted into the machine, in combination with a face-plate having an aperture therein of a size sufficient to read the said name and at the same time to allow the placing on the belt of another name, as and for the purpose set forth.

660,920. BODY-BOLSTER FOR RAILWAY-CARS. ERIC W. PALMQUIST, St. Louis, Mo., assignor to the Shickle, Harrison & Howard Iron Company, same place. Filed June 4, 1900. Serial No. 18,923. (No model.)



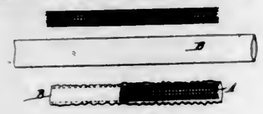
Claim.—1. A cast body-bolster for railway-cars of box form consisting of sides, a bottom, and a top; said bottom having integral side and center bearings and the center bearing being strengthened by an integral brace, substantially as set forth.

2. A cast body-bolster for railway-cars of box form and consisting of vertical sides, a flat top, and a bottom inclined upwardly in both directions from the center, said bottom being provided with ledges 12 and center and side bearings and the center bearing being strengthened by braces cast integral with the bearing and the body of the bolster, substantially as described.

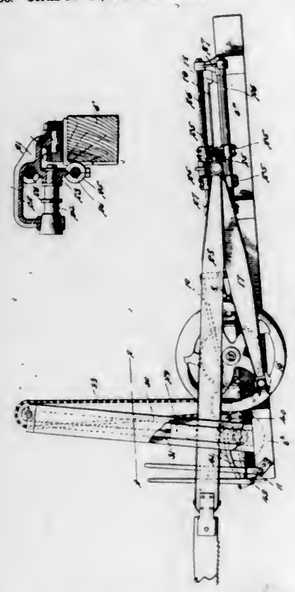
660,921. FILTER FOR WINES OR OTHER LIQUIDS. GASTON PÉRAUD, La Rochelle, France. Filed Sept. 8, 1899. Serial No. 729,870. (No model.)

Claim.—A filter for liquids consisting of a vessel containing a number of filtering-tubes formed by a sleeve or tube of appropriate fabric and

a supporting-framework for the fabric, which fabric is plaited or gathered upon this framework, as and for the purpose described.



660,922. DRAG-SAW. James H. Perkins, Seattle, Wash. Filed June 5, 1900. Serial No. 19,130. (No model.)



Claim.—1. A drag-saw, having a slideway, a bracket mounted to move thereon, a wrist-pin carried by the bracket, one or more guide-bars arranged parallel with the slideway, a box or boxes carried by the bracket and arranged to slide on the guide bar or bars, a saw-beam connected with the wrist-pin, and means for driving the bracket on the slide.

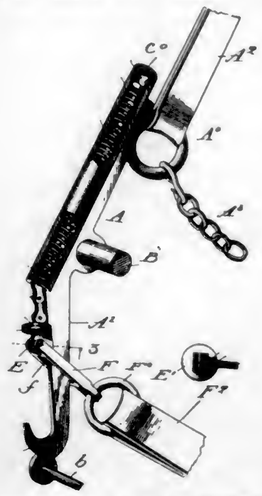
2. A drag-saw, having a slideway, a slide arranged to work thereon, a bracket carried by the slide, two arms projecting from the bracket, a wrist-pin carried by the arms, two guide-bars arranged on opposite sides of the wrist-pin, boxes carried by and moving with the bracket and arranged on the guide-bars, a saw-beam connected with the wrist-pin, and means for driving the bracket on the slide.

3. A drag-saw, having a framing, a connecting-rod, means for driving the same, a bracket, a slide in which the bracket is mounted to move, a wrist-pin carried by the bracket and to which wrist-pin the connecting-rod is attached, a saw-beam also connected with the wrist-pin, one or more guide-rods mounted adjacent to and parallel with the slide, and one or more boxes carried on the bracket and working with the guide rod or rods.

4. A drag-saw having a framing, a slideway thereon, a bracket mounted to move in the slideway, one or more guide-rods mounted adjacent to and parallel with the slideway, a box or boxes carried on the bracket and working with the guide-rods, a wrist-pin carried by the bracket, a connecting-rod attached to the wrist-pin, means for driving the connecting-rod, a saw-beam also attached to the wrist-pin, and feed mechanism for the saw-beam, such mechanism being operated from the means for driving the connecting-rod.

5. A drag-saw, having a framing, a bracket mounted to slide thereon, a wrist-pin carried by the bracket, a connecting-rod attached to the wrist-pin, means for driving the connecting-rod, a saw-beam also attached to the wrist-pin, a tower mounted on the frame, a sling carried and movable in the tower and sustaining the free end of the saw-beam, winding devices at the top of the tower and connected with the sling to move the same, and gearing extending between the winding devices and the means for driving the connecting-rod, such gearing actuating the winding devices.

660,923. BRIDLE-BIT. James Purcell, Winona, N. D. Filed Apr. 9, 1900. Serial No. 12,211. (No model.)



Claim.—1. In a bridle-bit, the combination of the mouth-bar and side bars rigidly connected thereto, said side bars extending toward opposite sides of the said mouth-bar, a hollow cylinder fixed along the upper portion of each side bar, and coil-springs inclosed within said cylinders, links inclosing the lower extensions of said side bars, said links being provided with connections for the reins, a follower within the upper portion of each of said cylinders and flexible connections between the said links and the said followers, the said springs acting normally to elevate said links, substantially as described.

2. In a bridle-bit, the combination of the mouth-bar and side bars rigidly connected thereto, said side bars extending toward opposite sides of the said mouth-bar, a hollow cylinder fixed along the upper portion of each side bar, and coil-springs inclosed within said cylinders, links inclosing the lower extensions of said side bars, said links being provided with connections for the reins, a follower within the upper portion of each of said cylinders and flexiblo connections between the said links and the said followers the said springs acting normally to elevate said links, a removable cap closing the upper end of each of said cylinders and a yielding disk carried by said flexible connection arranged to close the lower end of each of said cylinders, substantially as described.

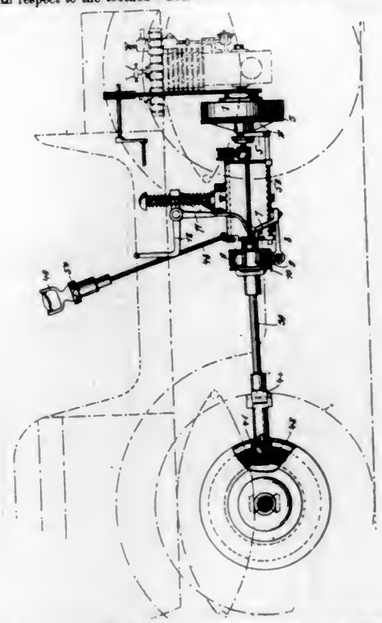
3. In a bridle-bit, the combination with the mouth-bar and side bars rigidly connected to the ends thereof, said side bars extending toward opposite sides of said mouth-bar and inclined rearwardly at the lower ends; closed cylinders carried upon the upper portions of said side bars and coil-springs mounted under tension in said cylinders; of links inclosing the lower extensions of said side bars and movable therealong, followers within said cylinders, chains connected to the said followers within the upper portions of said cylinders; sliding blocks connected to said chains outside said cylinders, and pivotally connected to the said links, substantially as described.

4. In a bridle-bit, the combination with the mouth-bar and side bars rigidly connected to the ends thereof, said side bars extending toward opposite sides of said mouth-bar and inclined rearwardly at the lower ends; closed cylinders carried upon the upper portions of said side bars and coil-springs mounted under tension in said cylinders; of links inclosing the lower extensions of said side bars and movable therealong, followers within said cylinders, chains connected to the said followers within the upper portions of said cylinders: sliding blocks connected to said chains outside said cylinders and pivotally connected to the said links, means for closing the ends of said cylinders against the entry of moisture or other foreign matter, substantially as described.

660,924. DRIVING AND SPEED-CHANGING MECHANISM FOR MOTOR-VEHICLES. Louis Renault, Paris, France. Filed July 22, 1899. Serial No. 724,842. (No model.)

Claim.—1. In gearing for motor-vehicles, the combination of friction-clutch mechanism forming a coupling, a brake working with one section of the coupling, means for actuating the brake and coupling in unison, and means for transmitting the movement of the coupling-section with which the brake is connected.

2. In gearing for motor-vehicles, the combination of clutch and brake mechanisms, a toothed wheel, and a shaft connecting the clutch and brake mechanisms with the toothed wheel, the connections of the shaft being such as to permit the independent play of the clutch and brake mechanisms with respect to the toothed wheel.

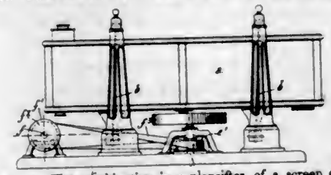


3. In a gearing for motor-vehicles, the combination of a primary-movement member driven from the motor, a clutch working with said member, a shaft driven by the clutch, the shaft being in two sections with a releasable connection between them, variable-speed gear for driving the sections of the shaft, and movement-transmitting devices in connection with said shaft.

4. The combination of a shaft formed in two sections, a clutch connecting the sections with each other, an eccentrically-mounted shaft, movable eccentrically toward and from the first-named shaft, gears fastened to the several shafts, and means for operating the clutch and for throwing the eccentric-shaft in unison with each other.

5. The combination with a casing, of a shaft mounted therein and formed in two sections, a clutch connecting the sections, a shaft mounted in the casing, means in connection with the shaft for throwing the clutch, a third shaft eccentrically mounted in the casing and movable toward and from the first-named shaft, gear-wheels attached to the first-named shaft and to the eccentric-shaft, and means for throwing said eccentric-shaft, such means having connection with the second-named shaft.

660,925. PLANSIFTER. Henri Rose and Georges Rose, Poissy, France. Filed Oct. 20, 1897. Serial No. 655,783. (No model.)



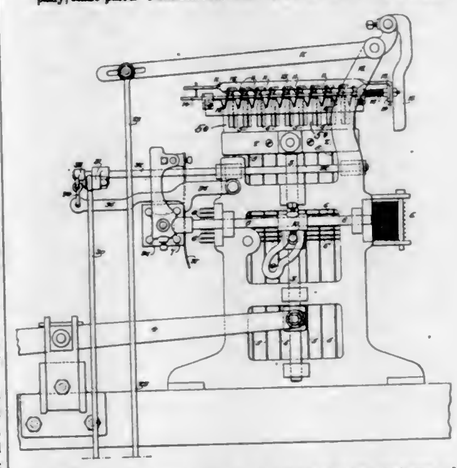
Claim.—1. The combination in a plansifter, of a screen or sieve, means for imparting gyrating movement thereto, a longitodinal brush-carrying bar or frame free to move both longitudinally and laterally in respect to the sieve as the latter is gyrated, and a controlling device for said bar or frame, said controlling device consisting of a guard having a recess of circumscribed area, and a projection, the movement of which is restricted by said guard, the recess of the latter being of such dimensions as to permit limited movement of the brush bar or frame both longitudinally and laterally but prevent traveling movement of the same, substantially as specified.

2. The combination in a plansifter, of the sieve or screen and means for imparting gyrating movement thereto, a series of cleaning-brushes for said screen, a bar or frame connecting said series of brushes and causing them to move as a unit, a cross-bar, as g', mounted on the sieve-frame and a bar or plate, as j', mounted on longitudinally-separated supports, as j^3, on the brush-bar and resting on said cross-bar, whereby while the latter supports the brush-bar it permits movement of the same both longitudinally and laterally, substantially as specified.

3. The combination in a plansifter, of a sieve or screen, means for gyrating the same, a series of cleaning-brushes for the screen, a frame or bar to which said series of brushes is secured and by which said brushes are caused to move as a unit, said brush frame or bar being free to move in respect to the screen as the latter is gyrated, a projection on the brush bar or frame, and a recessed guard for restricting the freedom of movement of said projection, said guard having a perforated screen closing the bottom of said recess, substantially as specified.

4. The combination in a plansifter, of a sieve or screen means for gyrating the same, a series of cleaning-brushes for the screen, a frame or bar to which said series of brushes is secured and by which said brushes are caused to move as a unit, said brush-frame being free to move in respect to the screen as the latter is gyrated, a block connected to the brush-bar and having a polygonal recess therein, and a bar secured to the sieve-frame and having an opening therethrough, and a projecting polygonal block entering the polygonal recess in the block which is attached to the brush-bar, substantially as specified.

660,926. JACQUARD MECHANISM FOR LOOMS. Thomas Rowcroft, Philadelphia, Pa., assignor to the Star and Crescent Mills Company, same place. Filed Mar. 30, 1900. Serial No. 10,761. (No model.)



Claim.—1. The combination in jacquard mechanism for looms, of double-hooked lifter-wires, a lifter-frame having movable griffs adapted, when in one position, to engage one set of hooks and when in the other position to engage the other set of hooks of the lifter-wires, means for moving said griffs between successive picks, and a series-pick card-cylinder whereby the successive sheddings of the warp are different but the adjustment of the lifter-wires by the needles is changed only after a succession of picks has been made with the use of the same card, substantially as specified.

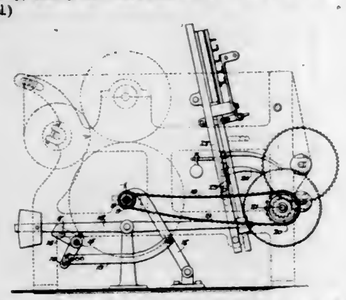
2. The combination in jacquard mechanism for looms, of double-hooked lifter-wires, a lifter-frame having movable griffs which, when in one position, engage with one set of hooks and when in the other position engage with the other set of hooks of the lifter-wires, means for moving said griffs between successive picks, and a series-pick rotating card-cylinder whereby the successive sheddings of the warp are different but the adjustment of the wires by the needles is changed only after a succession of picks has been made with the use of the same card, substantially as specified.

3. The combination in jacquard mechanism for looms, of double-hooked lifter-wires, a lifter-frame having movable griffs, a controlling device whereby all of said griffs may be simultaneously moved, a cam for actuating said controlling device, and a series-pick card-cylinder, substantially as specified.

4. The combination in jacquard mechanism for looms, of the double-hooked lifter-wires, the lifter-frame having movable griffs, cam mechanism

for effecting movement of said griffs, a card-cylinder and mechanism for reciprocating the same, a cylinder-rotating device, and cam mechanism for acting upon the latter so as to render it operative only once in a series of picks, substantially as specified.

660,927. **FRINGE-PULLING DEVICE FOR LOOMS.** THOMAS ROWCROFT, Philadelphia, Pa., assignor to the Star and Crescent Mills Company, same place. Filed Mar. 30, 1900. Serial No. 10,762. (No model.)



Claim.—1. The combination in a loom, of the take-up roll, means for driving the same from one of the power-shafts of the loom, a clutch whereby said driving device may be rendered operative or inoperative, and means for throwing said clutch into or out of action, said means comprising a lever for acting on the clutch, a lever forming part of the shuttle-box mechanism of the loom, an intermediate lever acted upon by said shuttle box lever, and a positive connection between said intermediate lever and the lever which acts upon the clutch, substantially as specified.

2. The combination of the take-up roll, a driving-wheel therefor on one of the power-shafts of the loom, said driving-wheel carrying one member of a clutch, a disk rotating with but movable longitudinally on said shaft, and carrying the other member of said clutch, a yielding pressure device for moving said disk in one direction, a lever engaging with a cam-flange on the disk to move it in the opposite direction, and means under control of a moving element of the loom for throwing said lever into and out of engagement with the cam-flange of the disk, substantially as specified.

3. The combination of the take-up roll of a loom, a driving device therefor mounted on one of the power-shafts of the loom and having a projecting lug, a cam-disk turning with said shaft but movable longitudinally thereon and having a projecting pin for engagement with said lug, a disk interposed between the cam-disk and the driving device and serving as a guide and support for said pin, a yielding pressure device for moving the cam-disk in one direction, a lever for engagement with the cam-flange on the disk to move it in the opposite direction, and means under control of a moving part of the loom for throwing said lever into and out of engagement with the cam-flange of the disk, substantially as specified.

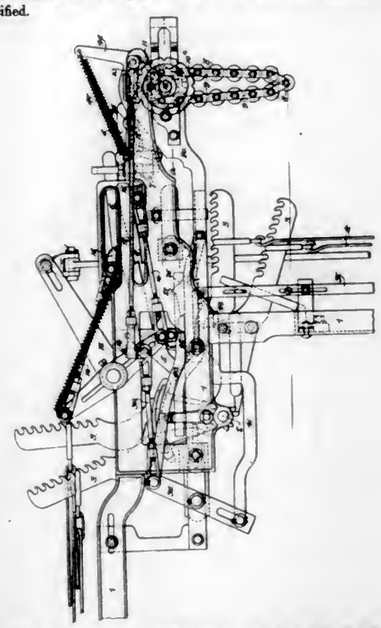
660,928. **HEDDLE MECHANISM FOR LOOMS.** THOMAS ROWCROFT, Philadelphia, Pa., assignor to the Star and Crescent Mills Company, same place. Filed Mar. 30, 1900. Serial No. 10,763. (No model.)

Claim.—1. The combination in heddle-operating mechanism for looms, of a laterally-movable pattern-chain having pattern-rollers in sets, the rollers of each set being disposed side by side, cooperating elements of the heddle mechanism, whereby either series of rollers of a set may be caused to act upon the cooperating element, and means for laterally moving the pattern-chain said means also locking the same in each of its positions of adjustment, substantially as specified.

2. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain and means for effecting such lateral movement, comprising a slide movable in a direction transversely to the movement of the pattern-chain and having cams for imparting lateral movement to said pattern-chain, and collars on the pattern-chain carrier for engaging said cams, substantially as specified.

3. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain, and means for effecting such lateral movement, said means comprising a slide movable in a direction transversely to the movement of the chain, and having cams upon its opposite faces, and flanges or collars on the pattern-chain shaft, one of said collars being acted upon by the cams on one side of the cam-slide and the other by the cams on the other side of said slide, substantially as specified.

4. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain, and mechanism for effecting such lateral movement, comprising a rod or bar mounted so as to reciprocate in a direction transversely to the movement of the pattern-chain, means whereby the movement of said rod or bar causes lateral movement of the chain, a hooked jack carried by said bar, a pair of reciprocating bars adapted to engage with said hooked jack, and means for moving said jack so as to cause a hook of the same to engage with either of said bars, substantially as specified.



5. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain, a rod or bar movable in a direction transversely to said pattern-chain, means whereby the movement of said rod or bar is transmitted to said pattern-chain, a hooked jack carried by said bar, a pair of reciprocating bars adapted to engage with said hooked jack, and means for moving the jack so that a hook of the same may engage with either of said reciprocating bars, said means having a cross-bar whereby the jack is supported and in respect to which it can move longitudinally without affecting its support, substantially as specified.

6. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain, and mechanism for effecting such lateral movement, comprising a rod or bar movable in a direction transversely to the movement of the pattern-chain, means for transmitting the movement of said rod or bar to the chain, a jack carried by the bar, and having a series of hooks upon its upper and lower edges, a pair of reciprocated bars, one above and one below the jack, and means for moving the jack whereby either of its hooks may be caused to engage with a corresponding bar, substantially as specified.

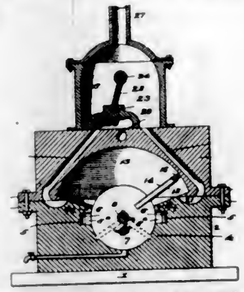
7. The combination in heddle mechanism for looms, of a laterally-movable pattern-chain, a ratchet, a pawl, a swinging pawl-arm for operating the pattern-chain shaft, all partaking of the lateral movement of said shaft, and an operating-rod for said swinging pawl-arm having pivotal connection with its actuating device, whereby its outer end is free to swing laterally with the pawl-carrying arm, substantially as specified.

660,929. **STEAM-ENGINE.** CARROLL A. RUCKEL and WILLIAM POTTS, Jr., White Hall, Ill. Filed Feb. 16, 1900. Serial No. 5,475. (No model.)

Claim.—1. In combination with an engine, of a cylinder consisting of an upper and a lower casting, side plates secured to said castings, an oscillating cylindrical piston journaled in the lower casting, a wing or blade carried by said piston movable in a space of the upper casting, packing carried by the three free edges of the wing, spring-actuated packings mounted in the lower casting so as to contact the piston, and means for regulating the flow of motive power to the cylinder and causing it to be directed so as to oscillate the piston.

2. A cylinder and piston of an engine consisting of a lower casting mounted upon a base and provided with a piston bearing or casing, an upper casting secured to the lower casting and provided with an arched space, side plates secured to said castings, an oscillating cylindrical piston

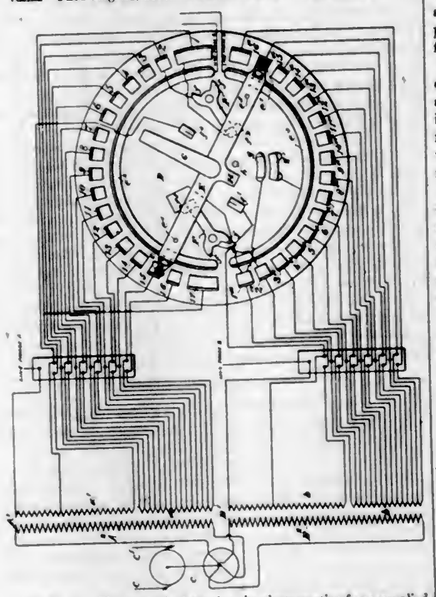
mounted in said bearing or casing, a wing or blade carried by said piston and adapted to move within the arched space, packing carried by the three free edges of the wing, spring-actuated packings mounted in the lower casting so as to contact the piston, and means for regulating the flow of motive power to the castings and causing it to be directed so as to oscillate the piston.



3. In an engine, the combination of a chest, a cylinder consisting of an upper and a lower casting communicating with the chest, side plates connected to the castings, means for controlling the communication between the chest and cylinder, an oscillating cylindrical piston located in the lower casting, a blade or wing carried by said piston, packing carried by the three free edges of the wing, spring-actuated packings mounted in the lower casting so as to contact the piston, and means for receiving power from the piston and transmitting it to the desired machinery.

4. In combination with an engine, of a cylinder consisting of the two castings, side plates secured to said castings, an oscillating cylindrical piston journaled in the lower casting and the side plates, a wing or blade carried by said piston movable in a space of the upper casting, a wheel carried upon the outer end of the piston, and means for regulating the flow of motive power to the cylinder consisting of a valve located above the castings, means for sliding said valve from one side to the other to cause the power to be directed so as to oscillate the piston, and a series of levers connected to said means and the wheel carried upon the piston.

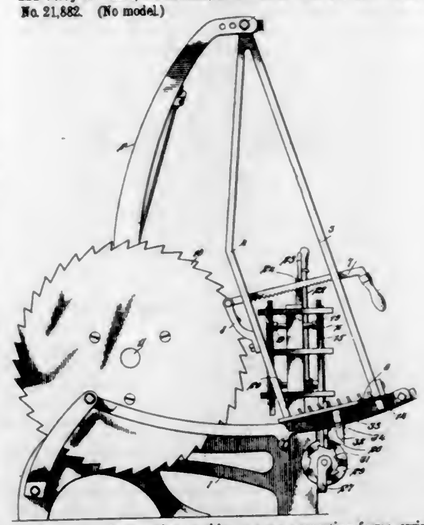
660,930. **METHOD OF VARYING ACTIVE LENGTHS OF ELECTRICAL CONDUCTORS.** CHARLES F. SCOTT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, of Pennsylvania. Filed Aug. 21, 1897. Serial No. 649,031. (No model.)



Claim.—1. The method of varying the electromotive force supplied by a transformer which consists in gradually cutting in or out a subdivided portion of either the primary or the secondary winding of the transformer, and when such portion is all inserted or cut out, simultaneously cutting out or reinserting said portion and inserting or cutting out another portion of substantially the same length.

2. The method of varying the electromotive force supplied by a transformer which consists in gradually cutting in or out a subdivided portion of the primary or the secondary winding of the transformer and when such portion is all inserted or cut out, simultaneously cutting out or reinserting said portion and inserting or cutting out another portion of the same length, and finally gradually inserting or cutting out said subdivided portion.

660,931. **SHINGLE-SAWING MACHINE.** JOHN W. SEAVOLT, Lock 53, Md., assignor of one-half to Emmet A. Vanscoy, same place, and Jerry W. Clark, Jamestown, N. Y. Filed June 28, 1900. Serial No. 21,582. (No model.)

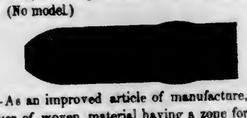


Claim.—1. In a sawing-machine, a gage-supporting frame, swinging arms on which the frame is mounted, a lever for swinging the arms and holding the frame at all times parallel with the side of the saw, a gage-plate mounted to swing on the frame, and set-screws carried by the frame for engaging with the gage-plate, substantially as specified.

2. In a shingle-sawing machine, a saw, a work-carrying frame mounted to swing toward and from said saw, a gage-supporting frame, swinging arms on which said gage-supporting frame is mounted, a lever for swinging said arms, a gage-plate pivoted at its central portion to said carrying-frame, a swinging lever engaging with a pin on said gage-plate, a cam-wheel engaging with said lever, and means for imparting step-by-step rotary motion to said cam-wheel, substantially as specified.

3. In a shingle sawing machine, a saw, a work-carrying frame mounted to swing toward and from said saw, a gage mounted to swing at one side of the saw, a shifting-lever having a bifurcated upper end into which a pin on the frame passes, a cam with which the lower end of said shifting-lever engages, a shaft on which the cam is mounted, a ratchet-wheel on said shaft, and a pawl carried by the work-carrying frame for engaging with said ratchet-wheel, substantially as specified.

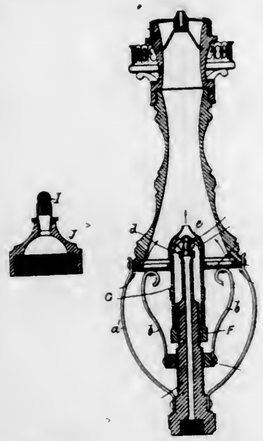
660,932. **MANTLE FOR INCANDESCENT LAMPS.** WILHELM H. A. SIEVERTS, Hamburg, Germany. Filed May 20, 1899. Serial No. 717,592. (No model.)



Claim.—As an improved article of manufacture, an elastic mantle of a single layer of woven material having a zone formed of threads of greater thickness than the threads composing the body of the mantle, said thickened zone being more heavily coated with incandescing material than, and with the same incandescing material as, the other portions of the mantle, substantially as described and for the purpose specified.

660,933. **GAS-BURNER.** THEODORE E. SINNBERG, London, England. Filed Apr. 21, 1900. Serial No. 13,722. (No model.)

Claim.—1. In an atmospheric burner for incandescent lighting, the combination with the gas-supply tube, of a gas-regulating valve and of means of adjusting said valve and of directing the issuing jet of gas, said means consisting of a tube adapted to screw upon the gas-supply tube and having an apertured upper end to which the valve is fixed, the said tube being surmounted by a jet-directing nozzle substantially as specified.



2. In an atmospheric burner, the combination with the gas and air mixing tube and with an independently-adjustable valve for regulating the gas-supply, of a disk valve adapted to close against a seat at the lower end of the mixing-tube, and carried by a nut screwing on a threaded part of the gas-supply tube for the purpose of regulating the admission of air to the mixing-chamber, substantially as specified.

3. The combination with an atmospheric gas-burner provided with a valve controlling the admission of air to the lower end of the mixing-tube and around the gas-supply, of a supplementary burner adapted to be fitted onto the head of the atmospheric burner in lieu of the mantle and mantle-support, and adapted for burning gas unmixed with air, substantially as specified.

4. In an atmospheric burner, the combination with a gas-supply tube having an open upper end, of a tube screwing on the gas-supply and having a dome-shaped perforated upper end, a plug-valve depending from the upper end of the tube and adapted to enter the gas-supply tube, and a jet-nozzle secured to the upper end of the valve-carrying tube, substantially as described.

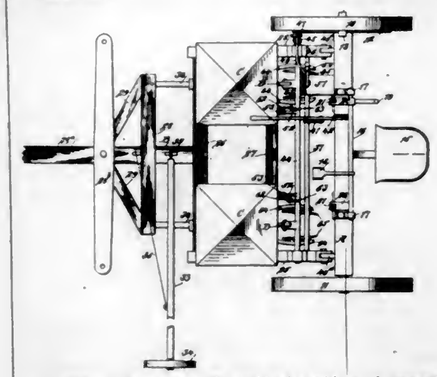
5. In an atmospheric burner, the combination with a mixing-tube, and a gas-supply tube, of a valve for regulating the admission of air to the lower end of the mixing-tube, a tube adjustably mounted on the gas-supply tube and projecting through the said valve, the upper end of the tube being perforated, a valve secured to the inner face of the top of the said tube and adapted to regulate the flow of gas through the gas-supply tube, and a jet-nozzle secured to the upper end of the valve-carrying tube, substantially as described.

6. In an atmospheric burner, the combination with a mixing-tube, and a gas-supply tube, of a disk valve adjustably supported on the gas-supply tube and adapted to regulate the admission of air to the mixing-tube, of a supplementary burner adapted to be secured to the head of the mixing-tube in lieu of the mantle and mantle-support, substantially as described.

7. An atmospheric burner, consisting of a mixing-tube having a valve-seat at its lower end, a screw-threaded gas-supply tube having open upper end, a disk valve adapted to be seated on the seat of the mixing-tube, a nut on the gas-supply tube and provided with arms secured to said valve, a tube screwing on the gas-supply tube and having its upper end projecting through the disk valve and provided with perforations, a plug-valve depending from the top of the tube and adapted to enter the gas-supply tube, a jet-nozzle secured to the upper end of the tube carrying the plug-valve, and interchangeable burners for the mixing-tube, substantially as described.

8. In an atmospheric burner, the combination with a mixing-tube, and a gas-supply pipe, of a valve for closing the lower end of the mixing-chamber, and a valve for closing the upper end of the supply-pipe, said valves being separately and movably mounted on the gas-supply pipe, to permit each to be adjusted independently of the other, substantially as described.

660,934. PLANTER. STEPHEN G. SPARROW, Eminence, Ky., assignor of two-thirds to Charles O. Lecompte, Richard N. Smith, and Sallie Slaughter, same place. Filed May 5, 1900. Serial No. 15,616. (No model.)



Claim.—1. In a planter, the combination, with an axle, supporting-wheels carried thereby, one of said supporting-wheels being provided with check-markers and with offsets in alinement with said markers, of a frame supported from the axle, a rock-shaft carried by the frame, seedboxes likewise carried by the frame and provided with seed-dropping mechanism, which mechanism is connected with and is actuated from the rock-shaft, runner-like chutes carried by the boxes, a spring-controlled sleeve mounted on the shaft to slide thereon and turn therewith, one portion of the said sleeve being adapted to be engaged by the offsets on the said ground-wheel, and a shifting device for the sleeve, as described.

2. In a planter, the combination, with an axle, means for raising and lowering the same, and ground-wheels carried by the axle, one of which wheels is provided with check-markers and with projections in alinement with said check-markers, of a frame connected with the axle, a rock-shaft carried by the frame and spring-controlled in one direction, seedboxes supported by the frame, the seed-dropping mechanism whereof is connected with the rock-shaft, a spring-controlled sleeve mounted to move longitudinally on the rock-shaft, having an extension arranged to be engaged by the projections on the ground-wheel carrying the marking-checks, and a shifting lever connected with the said sleeve.

3. In a planter, the combination with an axle, supporting-wheels for the same and a frame connected with the axle, of seedboxes, the seed-dropping mechanism whereof is controlled by the movements of one of the ground-wheels, delivery-chutes leading from the seedboxes, runners attached to the frame and extended rearward, the said runners having connection with the delivery-chutes and having outlets for the seed, and covering-disks located at the rear of the delivery-chutes.

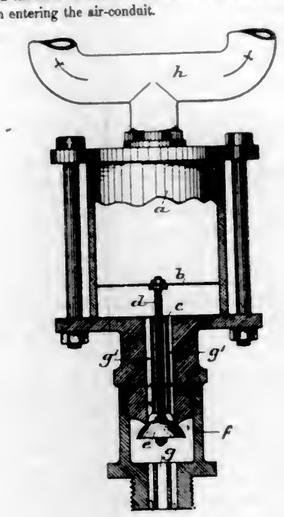
4. In a planter, the combination, with an axle, supporting-wheels for the same, and a frame connected with the axle, of seedboxes the seed-dropping mechanism whereof is controlled by the movement of one of the ground-wheels, delivery-chutes for the seed, and divided into compartments at the outlet end and connected with the seedboxes, covering-disks located at the rear of the delivery-chutes, tension devices acting normally to force the covering devices in a downward direction, lift-levers for said covering devices, and a lifting mechanism for the axle of the machine, for the purpose specified.

5. In a planter, a seedbox, a delivery-chute for the seedbox, and a runner connected with the delivery-chute, the delivery portion of the runner being divided into compartments, whereby the seeds conveyed to the runner are separated before reaching the ground, as described.

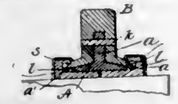
660,935. SHUT-OFF VALVE FOR WATER-CHAMBERS OF LIQUID-FORCING APPARATUS. HEINRICH STAUFF, Cologne, Germany. Filed Dec. 20, 1899. Serial No. 741,010. (No model.)

Claim.—1. In an apparatus for forcing liquids by pneumatic pressure, the combination of an air-delivery conduit and a controlling vessel communicating with the air-conduit and arranged between the water-chamber of the pressure apparatus and said conduit, a disk loosely arranged in the controlling vessel, and a valve connected thereto to be actuated thereby and adapted to close or open the communication between the water-chamber and the air-conduit, whereby the water is prevented from entering the air-conduit.

2. In an apparatus for forcing liquids by pneumatic pressure, the combination of an air-delivery conduit and a controlling vessel communicating with the air-conduit and arranged between the water-chamber of the pressure apparatus and said conduit, with a disk adapted to move loosely in the said controlling vessel, and a valve of elastic material connected with the said disk and adapted to open or close the communication between the water-chamber and conduit, whereby the water is prevented from entering the air-conduit.



660,936. RAIL-JOINT. DANIEL STEPHENS, Pottsville, Pa. Filed Sept. 13, 1900. Serial No. 29,915. (No model.)



Claim.—1. A rail-joint embodying rails with notches in their flanges, a tread portion B adapted to embrace the ends of the webs of the rails and formed with lips to be engaged with said notches, and side clamping-supports engaging with both the flanges of the rails and the portion B to secure them together horizontally, and spikes as the securing devices, substantially as set forth.

2. In a rail-joint, the combination, of the rails with the ends of their treads cut away and formed with notches in their flanges adjacent to said cut-away portion, a tread portion B mounted on said ends covering the joint between them, and having flanges extending out over the rail-flanges with lips cut therein to be bent down into said notches, substantially as set forth.

3. In a rail-joint, the combination, of the rails having the ends of their treads cut away, and notches formed in their flanges, a tread portion B adapted to fill in said cut-away portion and having lips to engage said flanges, keys extending through apertures in said portion B and the webs of the rails, the clamping-supports C, and the securing-spikes, substantially as set forth.

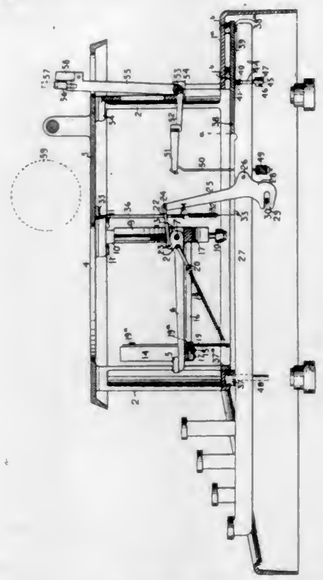
4. In a rail-joint, the combination, of the rails with the ends of their treads cut away, the tread portion B supplying said cut-away portions, interengaging notches and lips on said rails and portion B, the side clamping-supports, and spikes engaging the ties and notches in said side clamping-supports and said portion B, substantially as set forth.

660,937. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J., assignor to Jacob Feibel, New York, N. Y. Filed Jan. 12, 1900. Serial No. 1,190. (No model.)

Claim.—1. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, and means for causing the fulcrum-point of said lever to shift during the operation of the lever to move the type-carrier from normal position to the printing-point, so that the purchase of said lever upon said type-carrier is greatest at the beginning of the stroke and least at the end of the stroke.

2. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, and a fixed fulcrum-surface along which said lever is adapted to roll, so that the purchase of said lever upon said type-carrier diminishes during the operation of the lever.

3. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor having a curved tread and a fixed straight fulcrum-surface along which said lever is adapted to roll, so that the purchase of said lever upon said type-carrier diminishes during the operation of the lever.



4. In a type-writing machine, the combination of a type-carrier, a lever, connecting devices extending from said type-carrier to said lever at a point between its ends, operating means at one end of said lever, and a fixed fulcrum-surface along which the other end of the lever has a leverage-changing rolling movement.

5. In a type-writing machine, the combination of a type-carrier, a lever provided at one end with a key, a fixed fulcrum-surface arranged over the other end of the lever and along which the upper edge of the lever has a leverage-changing rolling movement, and connecting devices extending from a point between the ends of said lever to said type-carrier.

6. In a type-writing machine, the combination with a series of type-bars of a series of operating-levers therefor and a common fulcrum-plate along which all of said levers have leverage-changing rolling movements.

7. In a type-writing machine, the combination with a series of type-bars of a series of operating-levers therefor each having a curved tread, and a fixed plane fulcrum-plate along which all of said levers have leverage-changing rolling movements.

8. In a type-writing machine, the combination of a series of type-bars, a series of levers provided at their forward ends with keys, a fixed common fulcrum-plate arranged over the rear ends of the levers and along the under surface of which said levers have leverage-changing rolling movements, and a series of connecting devices extending from said levers to said type-bars.

9. In a type-writing machine, the combination of a type-carrier, a key-lever, a sublever connected to said key-lever and also to said type-carrier, and means for causing one of said key-lever and sublever elements to work with a varying fulcrum, so that the purchase of the key upon the type-carrier is greatest at the beginning of the stroke and least at the end of the stroke.

10. In a type-writing machine, the combination of a series of type-bars, a series of levers of the second order provided at their forward ends with keys, a sublever pivoted upon each of said key-levers and provided with a connection to the corresponding type-bar, and means for causing one of said key-lever and sublever elements to work with a varying fulcrum, so that the purchase of the key upon the type-bar is greatest at the beginning of the stroke and least at the end of the stroke.

11. In a type-writing machine, the combination of a series of type-bars, a series of levers, each provided with a key at its forward end, a common fulcrum-plate arranged over the rear ends of said levers and along the under surface of which said levers have leverage-changing rolling movements, and a sublever pivoted to each of said levers and connected to the corresponding type-bar.

12. In a type-writing machine, the combination with a type-carrier

of an operating-lever therefor, a fixed fulcrum-surface along which said lever has a leverage-changing rolling movement, such that the purchase of said lever upon said type-carrier diminishes during the operation of the lever, and means for preventing endwise displacement of the lever.

13. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, a fixed fulcrum-surface along which said lever is adapted to roll, a fixed projection, and a notch formed in said lever and adapted to engage said projection.

14. In a type-writing machine, the combination with a series of type-bars of a series of operating-levers therefor, a common fulcrum-plate upon which said levers are adapted to roll, a fixed bar common to all of said levers, and a notch formed in each of said levers and adapted to engage said bar.

15. In a type-writing machine, the combination with a series of type-bars, of a series of operating-levers therefor, provided with curved treads, a plate along which said levers are adapted to roll, a bar secured to said plate and extending transversely of said levers, and a notch formed in each lever and adapted to engage said bar.

16. In a type-writing machine, the combination with a series of type-bars, of a series of operating-levers therefor, a common fulcrum-plate along which all of said levers have leverage-changing rolling movements, a transverse bar secured to said fulcrum-plate, and a series of teeth formed integrally with said bar and adapted to space said levers apart.

17. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, a fixed fulcrum-surface along which said lever is adapted to roll, a fixed projection, a notch formed in said lever and adapted to engage said projection, and means for preventing accidental disengagement of said notch from said projection.

18. In a type-writing machine, the combination with a series of type-bars, of a series of operating-levers therefor, a fulcrum-plate along which said levers are adapted to roll, a bar secured transversely upon said fulcrum-plate, a notch formed in each lever and adapted to engage said bar, and a second bar common to all of said levers and adapted to prevent accidental disengagement of the notches from the first-mentioned bar.

19. In a type-writing machine, the combination with a series of type-bars, of a series of key-levers therefor, a fulcrum-plate arranged over the rear ends of the levers, a bar secured transversely along the under surface of said fulcrum-plate, a series of teeth formed integrally with said bar and adapted to space said levers apart, a pair of arms provided upon said bar, and a second transverse bar secured to said arms beneath said levers, and adapted to prevent accidental disengagement of said notches from the first-mentioned bar.

20. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, a fixed fulcrum-surface along which said lever is adapted to roll, a fixed projection, means provided upon said lever to engage said projection so as to prevent endwise movement thereof, and removable means for preventing said lever from becoming accidentally disengaged from said projection.

21. In a type-writing machine, the combination with a type-carrier, of an operating-lever therefor, a fixed fulcrum-surface along which said lever is adapted to roll, and a spring for holding said lever against said fulcrum-surface.

22. In a type-writing machine, the combination with a series of type-bars, of a series of operating-levers therefor, a common fulcrum-plate along which said levers are adapted to roll, and a series of springs for holding said levers against said fulcrum-plate.

23. In a type-writing machine, the combination with a series of type-bars, of a series of levers having keys at their forward ends, a stop for the forward ends of said levers, a fulcrum-plate arranged over the rear ends of said levers, and along the under surface of which said levers are adapted to roll, a connection extending from each type-bar to the associated key-lever at a point between said fulcrum-plate and said stop, and a spring attached to each of said key-levers between said connection and said stop.

24. In a type-writing machine, the combination with a type-carrier of an operating-lever therefor, and means for causing the fulcrum-point of said lever to shift slowly during the first part of the operation of the lever, and rapidly during the latter part of the operation of the lever to move the type-carrier from normal position to the printing-point, so that the purchase of said lever upon said type-carrier diminishes slowly during the first portion of the stroke and rapidly during the remainder of the stroke.

25. In a type-writing machine, the combination with a type-carrier and an operating-key of an intermediate irregularly-curved rolling device, whereby at the operation of said key, the purchase of said key upon said type-carrier diminishes slowly during the first part of the key-stroke and rapidly during the remainder of the key-stroke.

26. In a type-writing machine, the combination with a type-carrier, of an unpivoted key-lever connected thereto and having a free elongated fulcrum end, and an elongated fulcrum for said free end of the key-lever.

27. In a type-writing machine, the combination with a type-carrier, of an operating-lever free at its fulcrum end, and an extended or elongated fulcrum therefor, whereby when the said lever is vibrated the fulcrum end may creep along the fulcrum or contact therewith at successive points, so as to change the leverage.

28. In a front-strike type-writing machine, the combination of a series of type-bars pivoted at their rear ends, a link pivoted to each type-bar, a lever to which the other end of said link is pivoted, an unpivoted key-lever to which said lever is pivoted, and an extended fulcrum for said key-lever.

29. In a front-strike type-writing machine, the combination of a series of type-bars pivoted at their rear ends and each carrying a plurality of types, means for shifting said type-bars vertically to enable one or the other of said types to print, a link pivoted to each type-bar, a lever to which the other end of said link is pivoted, an unpivoted key-lever to which said lever is pivoted, and an extended fulcrum for said key-lever.

30. In a front-strike type-writing machine, the combination of a series of type-bars pivoted at their rear ends, a horizontally-arranged link pivoted to each type-bar, a bell-crank lever to which the other end of said link is pivoted, an unpivoted horizontally-arranged key-lever to which said bell-crank lever is pivoted, a horizontal fulcrum-plate arranged over the rear ends of said key-levers and along the under surface of which said key-levers are adapted to roll, and a common fulcrum-rod for said bell-crank levers.

31. In a front-strike type-writing machine, the combination of a series of type-bars pivoted at their rear ends, a horizontally-arranged link pivoted to each type-bar, a bell-crank lever to which the other end of said link is pivoted, an unpivoted horizontally-arranged key-lever to which said bell-crank lever is pivoted, a horizontal fulcrum-plate arranged over the rear ends of said key-levers and along the under surface of which said key-levers are adapted to roll, springs for holding said key-levers up against said fulcrum-plate, and a common fulcrum-rod for said bell-crank levers.

32. In a front-strike type-writing machine, the combination of a series of type-bars pivoted at their rear ends, a spring device connected at one end to said type-bar and at the other end to a fixed part of the machine, a horizontally-arranged link pivoted to each type-bar, a bell-crank lever to which the other end of said link is pivoted, an unpivoted horizontally-arranged key-lever to which said bell-crank lever is pivoted, a horizontal fulcrum-plate arranged over the rear ends of said key-levers and along the under surface of which said key-levers are adapted to roll, and a common fulcrum-rod for said bell-crank levers.

33. In a type-writing machine, the combination with a platen of a system of type-bars having a plurality of sets of characters thereon, a system of key-operated levers, means for causing the fulcrum-point of each of said levers to shift during the operation of the lever to move its type-bar from normal position to the printing-point, and means for shifting said type-bar system relatively to said key-lever system and to said platen, to cause different sets of characters to print.

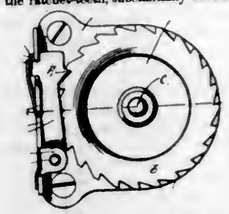
34. In a type-writing machine, the combination with a platen of a system of type-bars having a plurality of sets of characters thereon, a system of levers each bearing a finger-key, means for causing the fulcrum-point of each of said key-levers to shift during the operation of the lever to move its type-bar from normal position to the printing-point, connections extending from said key-lever system to said type-bar system, and means for shifting said type-bar system relatively to said key-lever system and to said platen, to cause different sets of characters to print.

35. In a type-writing machine, the combination with a series of type-bars and a series of operating-keys of a series of leverage-changing connections between said keys and said type-bars, each of said connections being constructed to diminish the leverage of its key upon its type-bar slowly during the first part of the key-stroke, and rapidly during the remainder of the key-stroke, so that the first portion of the impulse communicated from the key to the type-bar occurs when the leverage is greatest, and so that thereafter the leverage diminishes at first slowly, then more rapidly, until the point of least leverage is gained, at which point the last portion of the impulse is communicated from the key to the type-bar.

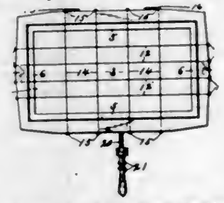
660,938. PICTURE-ADJUSTER. Daniel W. Tower Grand Rapids, Mich., assignor to the Grand Rapids Brass Company, same place. Filed July 9, 1900. Serial No. 23,040. (No model.)

Claim.—1. In a picture-hanger, the combination with a base comprising a plate having at one side an upturned flange provided on its outer edge with an undercut or overhanging lug or lip, a winding-drum rotatably mounted on the base and provided on its periphery with ratchet-teeth, and a pivoted pawl constructed at its free end to engage said ratchet-teeth and arranged to oscillate between the said overhanging lip or tongue and the edge of the flange, substantially as described.

2. In a picture-hanger, the combination with a base comprising a plate having at one side an upturned flange, a drum rotatably mounted on the base and provided on its periphery with ratchet-teeth, a pivoted pawl constructed at its free end to engage said ratchet-teeth and provided on its outer edge with a lip or lug bent at a right angle to the pawl, and a spring inserted at one end in apertures formed in said flange and at its free end bearing against the lip or lug on the pawl to hold the latter in engagement with the ratchet-teeth, substantially as described.



660,939. APPARATUS FOR MAKING MOLDS OF BUTTER, &c. Robert E. Webb, Syracuse, N. Y. Filed Feb. 7, 1900. Serial No. 4,415. (No model.)



Claim.—1. An apparatus for making molds of butter or similar substance, the same comprising a receptacle having an opening for receiving the butter, a flexible wall movable in the receptacle, cutters arranged transversely of each other in the path of the moving wall, means for limiting the movement of opposite edges of the wall, and additional means for moving the intermediate portions of the wall beyond the limit of the movement of its opposite edges.

2. An apparatus for making molds of butter or similar substance, the same comprising a receptacle having an opening for receiving the butter, a flexible wall movable in the receptacle and formed of substantially the same area as the opening, a cutter-supporting frame surrounding the opening and composed of separate sections each provided with a series of parallel cutters, the cutters of one section being arranged transversely of the cutters of the other section, means for limiting the movement of opposite edges of the movable wall, and additional means connected to the intermediate portion of the wall for actuating said wall and forcing the intermediate portion thereof beyond the limit of the movement of its opposite edges.

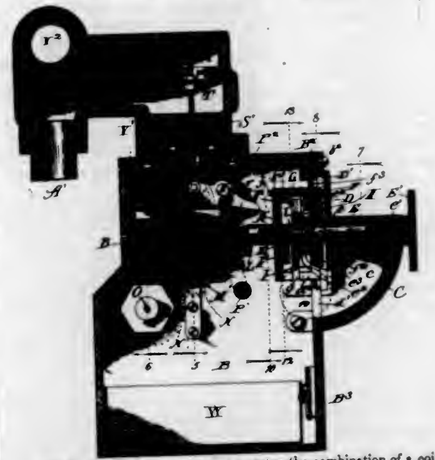
3. An apparatus for making molds of butter or similar substance, the same comprising a frame having an opening provided with parallel side and end walls, a flexible supporting-wall movable in the opening and having its upper face formed of substantially the same area as the opening, a cutter-supporting frame composed of separate sections each having a series of parallel cutters extending across the opening, the cutters of one section being arranged parallel with the side walls of the opening in such manner as to divide the opening into a series of parallel subdivisions of equal area, and the cutters of the other section being arranged parallel with the end walls in such manner as to divide the opening into a series of parallel transverse subdivisions of equal area, means for limiting the movement of opposite edges of the supporting-wall, and additional means connected to the supporting-wall for moving the same toward and away from the cutters and for forcing the intermediate portion of the wall beyond the limit of movement of its opposite edges.

4. An apparatus for making molds of butter or similar substance, the same comprising a frame having a rectangular opening, a rectangular flexible supporting-wall movable in the opening and having its upper face formed of substantially the same area as the opening, a cutter-supporting frame composed of separate rectangular sections surrounding the opening, and each provided with a series of parallel cutters, the cutters of one section being arranged parallel to the side walls of the opening and the cutters of the other section being arranged parallel with the end walls of the opening, one of the sections being hinged to one of the end walls of the frame and the other section being hinged to the lengthwise wall of the former section, means for limiting the movement of opposite edges of the supporting-wall and additional means for moving said wall toward the cutters and for forcing the intermediate portion of said wall beyond the limit of movement of said opposite edges.

5. In an apparatus for making molds of butter, the combination of a plurality of cutters, and a flexible wall movable toward and away from the cutters.

6. In an apparatus for making molds of butter, the combination with a plurality of cutters, and a flexible wall movable toward and away from the cutters, said cutters being movable toward and away from said wall.

660,940. PREPAYMENT GAS-METER. John Zander, Chicago, Ill. Filed Oct. 16, 1899. Serial No. 733,751. (No model.)



Claim.—1. In a prepayment gas-meter, the combination of a coin-channel, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, and a guard-plate carried by the shaft and crossing the mouth of the coin-channel, substantially as described.

2. In a prepayment gas-meter, the combination of a coin-channel, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, a guard-plate carried by the shaft and having a projecting portion provided with a cam or inclined edge and a depressed end or tongue to overlie the mouth of the coin-channel and a recess to aline with the coin-channel, substantially as described.

3. In a prepayment gas-meter, the combination of a coin-channel, a plate having an annular chamber on its inner face and a coin-slot, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, and a guard-plate carried by the shaft and located within the annular chamber and provided with a projecting portion having a cam or incline edge and a depressed end or tongue crossing the mouth of the channel, and a recess in line with the coin-channel, substantially as described.

4. In a prepayment gas-meter, the combination of a coin-channel, a plate having an annular chamber on its face, and provided with a coin-slot in line with the coin-channel, a second plate having on its outer face an annular groove or recess and provided with a slot in line with the coin-channel, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, a guard-plate carried by the shaft and located in the annular chamber and having a projecting portion with a cam or incline edge, and a depressed end or tongue entering the annular channel or recess, and a recess in line with the coin-slots of the two plates when in normal position, substantially as described.

5. In a prepayment gas-meter, the combination of a revoluble shaft, an annular wall within the casing of the mechanism, a trip-lever and an engaging lever both carried by the shaft and revoluble within the annular wall, substantially as described.

6. In a prepayment gas-meter, the combination of a revoluble shaft, an annular wall within the casing of the mechanism, a lateral slot in the wall, a trip-lever having a trip-arm and an arm entering the lateral slot, and an engaging lever having an engaging arm and an arm entering the lateral slot, both levers carried by the shaft and operating within the annular wall, substantially as described.

7. In a prepayment gas-meter, the combination of a coin-channel, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, an annular wall within the casing of the mechanism, a lateral slot in the wall, a trip-lever having a trip-arm and and an arm entering the lateral slot, and an engaging lever having an engaging arm and an arm entering the lateral slot, both levers

carried by the shaft and operating within the annular wall, substantially as described.

8. In a prepayment gas-meter, the combination of a coin-channel, a revoluble shaft overlying the coin-channel and having one side cut away to form an opening to aline with the channel, a guard-plate carried by the shaft, an outer and inner plate between which the guard-plate is located, the outer and inner plates each having a slot to aline with the channel, an annular wall within the casing of the mechanism, a lateral slot in the wall, a transverse slot in the wall in line with the coin-slots of the plates, a trip-lever having a trip-arm and an arm entering the lateral slot, and an engaging lever having an engaging arm and an arm entering the lateral slot, both levers carried by the shaft and operating within the annular wall, substantially as described.

9. In a prepayment gas-meter, the combination of a coin-controlling and coin-controlled outer revoluble shaft, a revoluble inner shaft having a screw-thread thereon and actuated from the coin controlling and controlled outer shaft, an elongated gear movable by and on the screw-thread of the inner shaft, a flange or rim on the gear and a rocking arm or lever contacted by the flange or rim and operated by the travel of the gear for opening and closing the gas-supply valve to a gas-meter, substantially as described.

10. In a prepayment gas-meter, the combination of a coin-controlling and coin-controlled outer revoluble shaft, a revoluble inner shaft having a screw-thread thereon and actuated from the coin controlling and controlled outer shaft, an elongated gear movable by and on the screw-thread of the inner shaft, a flange or rim on the gear, a rocking arm or lever contacted by the flange or rim and operated by the travel of the gear, and a valve-stem pivotally connected with the rocking arm or lever and provided with a valve, for the movement of the rocking arm or lever to open and close the port of a gas-supply passage to a gas-meter, substantially as described.

11. In a prepayment gas-meter the combination of a coin-controlling and coin-controlled outer revoluble shaft, a revoluble inner shaft having a screw-thread thereon and actuated from the coin controlling and controlled shaft, an elongated gear movable by and on the screw-thread of the inner shaft, a flange or rim on the gear, a rocking arm or lever contacted by the flange or rim and operated by the travel of the gear, a valve-stem, a valve on the stem, a gas-induction passage, a gas-eduction passage, and a port between the passages opened and closed by the valve from the movements of the rocking arm or lever, substantially as described.

12. In a prepayment gas-meter, the combination of a coin-controlling and coin-controlled outer revoluble shaft, an inner revoluble shaft having a screw-thread thereon and actuated from the coin controlling and controlled outer shaft, an elongated gear movable by and on the screw-thread of the inner shaft, a worm coacting with the gear, and means for revolving the worm from the shaft of a gas-meter register and returning the elongated gear to normal position, substantially as described.

13. In a prepayment gas-meter, the combination of a coin-controlled outer revoluble shaft, an inner revoluble shaft actuated from the coin-controlled outer shaft, an elongated gear movable by and on the inner shaft, a worm coacting with the gear, a pinion on the worm, a gear engaging the pinion, a divided driving-shaft for the gear, a gear on the divided shaft and a worm on the shaft of the gas-meter register for returning the elongated gear with the passage of gas through the meter, substantially as described.

14. In a prepayment gas-meter, the combination of an outer revoluble shaft having formed therein a portion of a coin-deposit channel for opening and closing the coin-channel by the shaft itself, an inner revoluble shaft actuated from the coin-controlled outer shaft, and a coin-controlled connection between the two shafts for engaging and disengaging the shafts with the deposit of a coin, substantially as described.

15. In a prepayment gas-meter, the combination of a coin-controlling and coin-controlled outer revoluble shaft, an inner revoluble shaft having a screw-thread thereon and actuated from the coin controlling and controlled outer shaft, an elongated gear movable on and by the screw-thread of the inner shaft, a rocking arm or lever actuated by the movable gear and directly operating a valve controlling the gas-passage into a gas-meter, and coin-controlled means between the outer and inner shafts for connecting and disconnecting the shafts and controlling the supply of gas passing through the meter, substantially as described.

16. In a prepayment gas-meter, the combination of a coin-controlling and coin-controlled outer revoluble shaft, an inner revoluble shaft having a screw-thread thereon and actuated from the coin controlling and controlled outer shaft, an elongated gear movable on and by the screw-thread of the inner shaft, a rocking arm or lever actuated by the movable gear and directly operating a valve controlling the gas-passage into a gas-meter, coin-controlled means between the two shafts for connecting and disconnecting the shafts and operating the movable gear, and means for revolving the movable gear from the shaft of a gas-meter register and returning the gear and its coöperating parts to normal position, substantially as described.

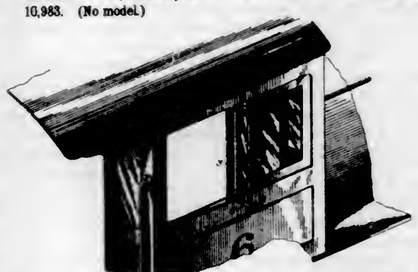
17. In a prepayment gas-meter, the combination of a coin-controlled outer revoluble shaft having its body operating to in and of itself open and close a coin-deposit slot forming a portion of the shaft, a coin-controlled engaging lever carried by the shaft, normally inoperative and made operative by engagement with a deposited coin, an inner revoluble shaft having a screw-thread thereon, a head or disk on the inner shaft engaged and disengaged by the lever of the outer shaft for connecting and disconnecting the two shafts, an elongated gear movable by and on the screw-thread of the inner shaft, and a rocking arm or lever actuated by the movements of the gear and operating a valve controlling the gas-passage into a gas-meter, substantially as described.

18. In a prepayment gas-meter, the combination of a coin controlling and controlled outer revoluble shaft, a coin-controlled trip-lever and a coin-controlled outer engaging lever both carried by the outer shaft, an inner revoluble shaft, a head or disk on the inner shaft engaged with and disengaged from the outer shaft through the medium of the coin-controlled levers of the outer shaft, an elongated gear movable by and on the inner shaft, and a rocking arm or lever actuated by the movements of the gear and operating a lever controlling the gas-passage into a gas-meter, substantially as described.

19. In a prepayment gas-meter, the combination of a coin controlling and controlled outer revoluble shaft, a coin-controlled engaging lever, and a coin-controlled trip-lever both carried by the shaft, an inner revoluble shaft, a head or disk on the inner shaft engaged by the coin-controlled levers of the outer shaft, a pawl engaging the head or disk and engaged by the trip-lever of the outer shaft, an elongated gear movable by and on the inner shaft and a rocking arm or lever actuated by the movements of the gear and operating a valve controlling the gas-passage into a gas-meter, substantially as described.

20. In a prepayment gas-meter, the combination of a revoluble shaft, an engaging lever and a trip-lever both carried by the shaft and both normally dropping out of operative position and brought into operative position with the insertion of a coin into the coin-channel for its edge to engage the levers, substantially as described.

660,941. DEFLECTOR FOR LOCOMOTIVE-ENGINE CABS. GEORGE C. ZANG, Philadelphia, Pa. Filed Mar. 31, 1900. Serial No. 10,983. (No model.)



Claim.—1. A transparent deflector mounted upon and projecting from the side of a locomotive-cab in front of the window-opening therein and having its outer edge uninclosed, substantially as specified.

2. The combination of a transparent deflector with a frame mounted upon the side of a locomotive-cab in front of a window-opening therein, the top and bottom bars of said frame projecting beyond the deflector-plate and having retainers engaging with the outer edge of said plate, substantially as specified.

660,942. VEHICLE-TIRE. GEORGE L. ALLEN, Bradford, Pa. Filed Mar. 2, 1900. Serial No. 7,113. (No model.)



Claim.—1. A tire comprising a divided tube, retaining-bands located within the tire structure adjacent to the inner corners of the tube edges, and fastening means for holding said bands in fixed spaced relation and permitting of the rotative movement of the unconnected tire edges, whereby the edges of the deflated tire are presented to the wheel-rim, and which edges, upon inflation of the tire, rotate upon the bands as axes to present the periphery of said tire to the wheel-rim.

2. A tire comprising a divided tube, retaining-bands located within the tire structure adjacent to the inner corners of its edges, and a series of fasteners intermediate of, and connected loosely to, the bands, whereby the edges of the deflated tire are presented to the wheel-rim and which edges upon inflation of the tire, rotate upon the bands as axes to present the periphery of said tire to the wheel.

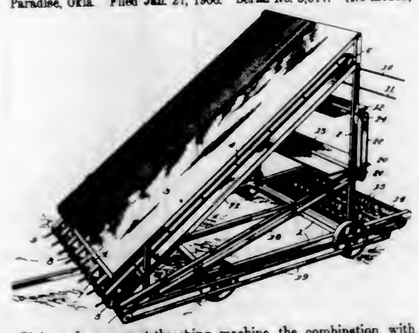
3. A tire comprising a casing or tube divided along one edge and thickened immediately adjacent to the line of division to form shoes having straight end faces and transversely-curved outer faces, and connecting means intermediate of the shoes and having pivotal connection with each of said shoes at points adjacent to the inner ends of the straight faces, and retaining-bands extending through the shoes at points nearer the end faces than the curved outer faces, such organization serving to effect the distention of the retaining-bands when the tire is inflated.

4. A tire comprising a divided casing or tube thickened along the edges of the division to form shoes having straight end faces, and correspondingly-curved outer side faces extending from the end faces, elastic retaining-bands, coextensive with the shoes and embedded therein adjacent to the contiguous ends of the straight end faces, and transverse fastening devices pivotally connected at their opposite ends to the retaining-bands at intervals, whereby the straight end faces of the shoes may be practically alined to facilitate the placing of the tire upon a rim and whereby the inflation of the tire will automatically effect the apposition of the straight faces and will serve to distend the elastic retaining-bands.

660,943. METHOD OF PREPARING DENTAL REMEDIES. HERMANN BAUERMEISTER, Brunswick, Germany. Filed Mar. 13, 1900. Serial No. 8,536. (No specimens.)

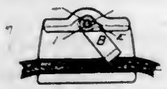
Claim.—The method of producing a durable substance for the treatment of cauterized pulp-stumps, consisting in impregnating asbestos with a solution of an astringent salt, allowing the salt to crystallize and removing the water of crystallization by means of heat, and then further impregnating said substance with an antiseptic in the form of an essential oil, substantially as described.

660,944. PEANUT-VINE STRIPPER. FREMONT W. BOWEN, Paradise, Okla. Filed Jan. 27, 1900. Serial No. 3,017. (No model.)



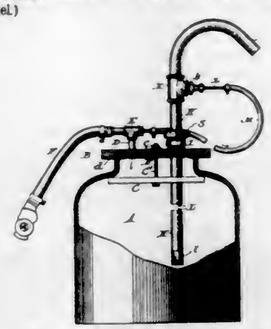
Claim.—In a peanut-threshing machine, the combination, with a frame, of posts thereon, an inclined cover on the tops of the posts, the inner surface of which is provided with downwardly-extending teeth, a roller journaled in the front of the frame, a roller and two fans journaled in the rear posts, a toothed conveyer, over said rollers, and adjacent to the cover, a series of rearwardly and downwardly extending rods and an inclined screen secured to the rear posts between the upper fan and the end of the conveyer, the screen being below the rods, and a receptacle at the rear end of the frame directly beneath the screen and divided into compartments, one in front of the other, and means for removing the nuts therefrom, substantially as described.

660,945. LACING HOOK AND FASTENER. LOUIS J. BUCHSIEB, Grand Rapids, Mich. Filed July 12, 1900. Serial No. 23,407. (No model.)



Claim.—In a lacing hook and fastener, a casing, a pivot connected thereto, a tube loosely mounted thereon, a lever rigidly secured at one end to said tube and at its opposite end provided with a projection, and a spring surrounding said tube and having one end engage said casing and its other end engage said lever for keeping the latter normally in a lowered position, substantially as described.

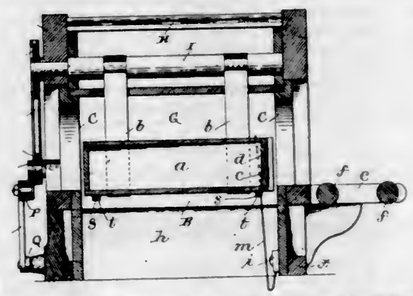
660,946. APPARATUS FOR PUMPING WATER, SAND, &c. THOMAS BUTLER, Cleburne, Tex. Filed Mar. 23, 1900. Serial No. 10,503. (No model.)



Claim.—1. The combination, substantially as set forth, of an air-tight vessel, a cap fitting air-tight to an opening in the upper end thereof and removably connected therewith, a discharge-pipe carried by the cap extending through it down into the vessel, an entrance for compressed air in the cap opening into the vessel above the open lower end of the discharge-pipe and above the material in the vessel, a pipe supplying compressed air to the vessel through said entrance-opening, a relatively small pipe extending down through the discharge-pipe and discharging compressed air upward in the discharge-pipe near its lower end, and connections between the upper end of said relatively small pipe and the main compressed-air-supply pipe, the organization being such that compressed air is forced into the vessel upon the surface of the material to cause it to enter the lower end of the discharge-pipe while compressed air acting as an ejector enters the discharge-pipe at its lower end and forces the material upward therein.

2. The combination, substantially as set forth, of an air-tight vessel, a cap fitting air-tight to an opening therein and removably connected therewith, a discharge-pipe extending through a stuffing-box in the cap in which it is free to move vertically and to turn about its axis, a compressed-air pipe opening into the vessel through the cap, a relatively small pipe contained in the discharge-pipe and extending through the cap down into the vessel, and discharging upward in the discharge-pipe near the lower end thereof, and a flexible pipe connecting the main compressed-air-supply pipe with the upper end of the relatively small pipe contained in the discharge-pipe.

660,947. BURIAL APPARATUS. JOHN CARHART, Campbell, Cal. Filed June 28, 1900. Serial No. 21,917. (No model.)



Claim.—1. A temporary transportable tomb having closed sides and top and an open end, a lowering mechanism situated therein, and a projecting casket-receiving member in a line with the open end of the tomb, substantially as described.

2. A temporary inclosed tomb adapted to receive and lower the casket within the grave, the said tomb having movable doors at its lower portion against which the dirt is to be piled, and to be dumped within the grave by the inward movement thereof, substantially as described.

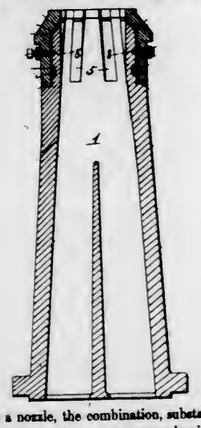
3. An inclosed temporary tomb having an open end for the passage of the casket and provided with a casket-receiving means situated therein, doors at the lower portion of the tomb and pivoted at their upper end, movable means for holding the doors against inward movement under the pressure of the dirt piled against them, and means for releasing the holding means and permitting the doors to swing inwardly, substantially as described.

4. A temporary inclosed tomb adapted to receive a casket, means for lowering the casket into the grave, the tomb having at its lower portion inwardly-movable doors against which the dirt is piled and locking and releasing means for the said doors, substantially as described.

5. A temporary tomb constructed to receive and lower a casket within the grave, the tomb having inwardly-movable doors at its lower portion, a locking and releasing means for the said doors, and a connection between the locking and releasing means and the lowering mechanism, substantially as described.

6. An inclosed tomb adapted to receive a casket, a box-supporting means within the tomb for receiving the casket, movable doors at the lower portion of the said tomb against which the dirt is piled, means for locking the doors against movement, and a connection between the casket-receiving box and the said door locking and releasing means, substantially as described.

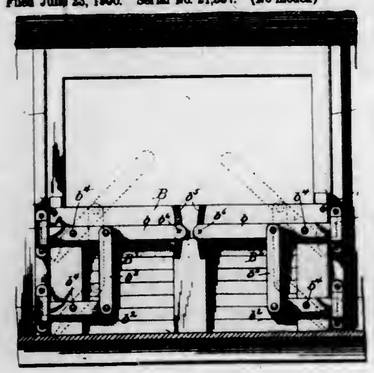
660,948. **REDUCING-CAP FOR NOZZLES.** GEORGE J. CARLISLE, Ashley, Ind., assignor of one-half to Jasper N. Robertson, same place. Filed July 30, 1900. Serial No. 25,285. (No model.)



Claim.—1. In a nozzle, the combination, substantially as described of a nozzle provided with interior grooves traversing it longitudinally, the outer contour of said nozzle being rounded off on an arc and being broken by an annular projection, and a reducing-cap mounted to turn on said nozzle and constructed to fit over the same and provided with grooves constructed to register with the said interior grooves in said nozzle.

2. In a nozzle, the combination, substantially as described, of a nozzle provided with interior grooves traversing it longitudinally, an exterior groove cutting said nozzle transversely and of a length equal to the width of one of said grooves, a reducing-cap mounted on said nozzle and provided with interior grooves adapted to register with the said interior grooves in said nozzle, a set-screw seated in said reducing-cap and adapted to extend into the said transverse groove in said nozzle to limit the movement of said cap, and means for turning said cap to register said interior grooves or to throw them out of register.

660,949. **GRAIN-CAR DOOR.** JOHN CLARKE, Orangeville, Canada. Filed June 23, 1900. Serial No. 21,337. (No model.)



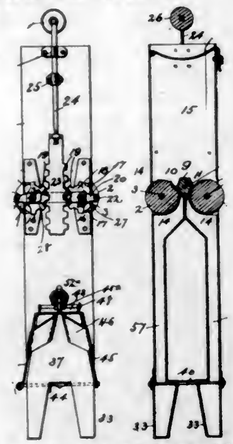
Claim.—1. In a grain-car door, the combination with the door-opening having a pair of keepers secured on each stile thereof, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the ends of the levers to eogage the keepers, substantially as described.

2. In a grain-car door, the combination with the door-opening, having a pair of keepers secured on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers having beveled free ends, the levers being adapted for movement in arcs of alined circles, the beveled ends of the levers to engage the keepers, substantially as described.

3. In a grain-car door, the combination with the door-opening having a pair of keepers arranged on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the levers having beveled ends to engage the inclined lips of the keepers, and means for holding the levers at the desired adjustment, substantially as described.

4. In a grain-car door, the combination with the door-opening having a pair of keepers arranged on each stile thereof and provided with inclined lips, of a door carrying two sets of connected levers adapted for movement in arcs of alined circles, the levers having beveled ends for engaging the inclined lips of the keepers, means for holding the levers at the desired adjustment, guides secured to the car adjacent to the door-opening, and runners carried by the door and engaging the guides, substantially as described.

660,950. **CORN-PLANTER.** BYRON COX, Evart, Mich. Filed Aug. 3, 1900. Serial No. 25,781. (No model.)



Claim.—1. The combination with the tube of the two pairs of dibbles having pivoted jaws, the pintles connecting said pivoted jaws in pairs, the yoke mounted on one of said pintles, the adjustable arm connecting one pair of said pivoted jaws to the outer end of said yoke, and the lever connected to communicate the motion of one pair of pivoted jaws to the other pair.

2. In a planter, a plurality of dibbles, the stationary jaws of which are all formed of, and integral with, a single piece of sheet metal suitably shaped, substantially as described.

3. In a planter, dibbles, the pivoted or movable jaws of which are formed in pairs of, and integral with, a single piece of sheet metal suitably shaped, substantially as described.

4. In a planter, the combination, substantially as described, of a pair of feed-rolls mounted to be revolved, and provided with seed-chambers, the gears, a rack-bar provided with cogs on both sides mounted intermediate said gears and constructed to mesh therewith to revolve said rolls.

660,951. **INFANT'S CHAIR.** EDWARD FIRNHABER, Worms, Nebr., assignor of one-half to William Landgraf, Majors, Nebr. Filed Jan. 6, 1900. Serial No. 574. (No model.)

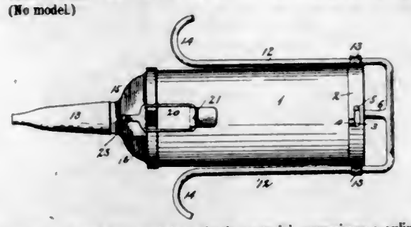
Claim.—1. In a chair, the combination with a seat portion, of a frame removably secured to the seat, and arms and a back fixed to the frame for application and removal thereof with the frame, for the purpose set forth.

2. In a chair, the combination with a seat portion having dowel-openings, of a U-shaped plate having pins for engagement with the openings, and arms and a back fixed to the plate for application and removal therewith to and from the seat, the pins forming supporting-legs for the plate when disengaged from the seat.



3. In a chair, the combination with a seat of a plate removably disposed upon the seat, arms and a back fixed to the plate for application and removal with the plate to and from the seat, and a clamping-plate attached to the seat and adapted for engagement with the first-named plate to hold it against displacement.

660,952. **MECHANICAL DEVICE FOR ART DECORATING.** GEORGE HALL, Lima, Ohio. Filed Nov. 17, 1899. Serial No. 737,299. (No model.)



Claim.—A tool for applying plastic material, comprising a cylindrical casing, a plunger fitted in said casing, a plunger-rod connected to the plunger and passing through the end of the casing, a cross-bar rigidly connected to the plunger-rod, said cross-bar having two integral arms bent at right angles thereto, said arms fitted to slide in guides at the sides of the casing, and the ends of said arms being curved outwardly to form thumb-holds to operate the plunger, substantially as described.

660,953. **BANJO-BRIDGE.** FREDERICK B. HANMANN, Baltimore, Md. Filed Sept. 3, 1897. Renewed Apr. 28, 1900. Serial No. 14,761. (No model.)



Claim.—1. In a musical instrument a flexible head, strings stretched across said head, a bridge between said strings and said head consisting of a body running under and at right angles to said strings, feet attached to said body and resting upon said flexible head upon the elements of a curved surface running parallel to said strings, substantially as described.

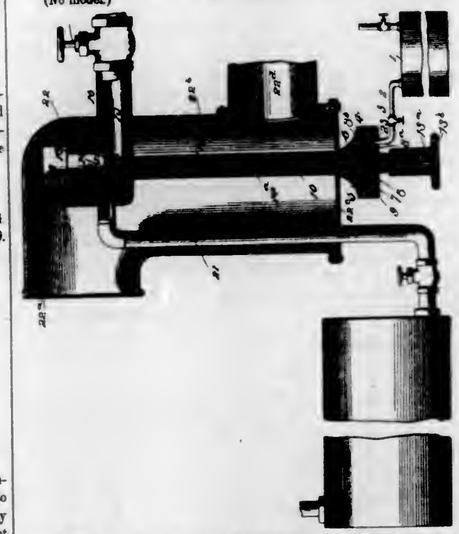
2. In a musical instrument the combination of a vibratory head, strings stretched over said head, with a bridge between said strings and said head consisting of a body running under and at right angles to said strings, having feet attached to said body and resting upon said vibratory head upon the elements of a curved surface said curved surface being formed by a straight generatrix parallel with the said strings governed by a curved directrix, substantially as described.

3. In a musical instrument the combination of a vibratory head, strings stretched over said head with a bridge between said strings and said head consisting of a body of concave sides and parallel edges running under and at right angles to the said strings, having feet attached to said body and resting upon said vibratory head upon the elements of a curved surface said curved surface being formed by a straight generatrix parallel with said strings governed by a curved directrix and curved fillets in the plane of said body joining said feet to the said body, substantially as described.

4. A banjo-bridge consisting of a body, feet attached to said body said feet having convexly-curved surfaces coated with an adhesive where the same comes in contact with the banjo-head and designed to rest along an element of the said surface parallel with the strings upon the flexible head of the banjo, substantially as described.

5. A banjo-bridge consisting of a body, feet attached to said body said feet having convexly-curved surfaces where the same comes in contact with the banjo-head and designed to rest along an element of the said surface parallel with the strings upon the flexible head of the banjo, substantially as described.

660,954. **FUEL VAPORIZER AND MIXER FOR EXPLOSIVE-ENGINES OR OTHER USES.** ALBERT HAYES, Salt Lake City, Utah, assignor of one-half to Matthew H. Walker, William A. Nelden, and Edward F. Colborn, same place. Filed June 4, 1900. Serial No. 19,006. (No model.)



Claim.—1. In an apparatus for the purpose specified, the combination with a tank containing oil under pressure, a vaporizing-tube connected with the tank and having a valve-controlled outlet, and a valve independent of the outlet-valve controlling the supply of oil to the vaporizing-tube constructed and arranged to be operated to shut off the supply of oil by the back pressure in the vaporizing-tube when it exceeds the pressure on the tank, of a fixing-chamber, an air-inlet tube communicating with the fixing-chamber, the vaporizing-tube being arranged to discharge vapor into the air-inlet tube, and means for heating the vaporizing-tube and fixing-chamber, the parts being so arranged that the fixing-chamber is subjected to a more intense heat than the vaporizing-tube; substantially as described.

2. In an apparatus for the purpose specified, the combination with a vaporizing-tube having a vapor-outlet at one end and a valve controlling the outlet, of means for automatically controlling the supply of oil to the vaporizing-tube, consisting of a valve carried by and freely movable on the stem of the outlet-valve arranged between the oil-supply tube and the entrance to the vaporizing-tube, the space between the upper face of the valve and the casing therefor being sufficient to permit oil to be forced into the vaporizing-tube and the lower face of the valve fitting tightly in its seat when forced to its seat by back pressure from the vaporizing-tube; substantially as described.

3. In an apparatus for the purpose specified, the combination with a vaporizing-tube having a vapor-outlet at its inner end and provided with a filling of fibrous material, means for supplying oil to the outer end of the tube, and means actuated by the vapor-pressure for automatically regulating the supply of oil, of a fixing-chamber and an air-inlet tube communicating therewith, the vaporizing-tube being arranged to discharge vapor into the air-inlet tube, a gas-outlet pipe communicating with the fixing-chamber and means for heating the vaporizing-tube and fixing-chamber; substantially as described.

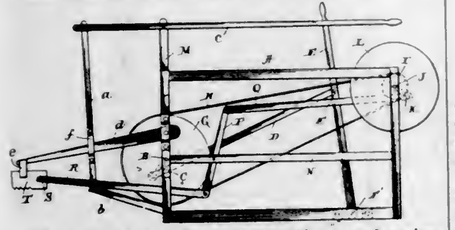
4. In an apparatus for the purpose specified, the combination with a vertical vaporizing-tube having a vapor-outlet at its upper end and provided with a filling of fibrous material, means for supplying oil to the bottom of the tube and means for automatically regulating the supply of oil, of a fixing-chamber and an air-inlet tube communicating therewith, the vaporizing-tube being arranged to discharge vapor into the air-inlet tube, a gas-outlet pipe communicating with the fixing-chamber at a point above its bottom, and means for heating the vaporizing-tube and fixing-chamber, the parts being so arranged that the fixing-chamber is subjected to a more intense heat than the vaporizing-tube, substantially as described.

5. In an apparatus for the purpose specified, the combination with a tank containing oil under pressure, a vertical vaporizing-tube connected with the tank having a filling of fibrous material and having a valve at its lower end, constructed and arranged to be operated to shut off the supply of oil by the back pressure in the vaporizing-tube, when it exceeds the pressure on the tank, of a fixing-chamber, an air-inlet tube communicating with the fixing-chamber, the vaporizing-tube being arranged to discharge vapor into the air-inlet tube, and means for heating the vaporizing-tube and fixing-chamber, the parts being so arranged that the fixing-chamber is subjected to a more intense heat than the vaporizing-tube; substantially as described.

6. In an apparatus, for the purpose specified, the combination with a vertical vaporizing-tube, having a filling of fibrous material, and having a valve-controlled outlet, of means for automatically controlling the supply of oil to the vaporizing-tube, consisting of a valve arranged between the oil-supply and the entrance to the vaporizing-tube, the space between the upper face of the valve and the casing therefor being sufficient to permit oil to be forced into the vaporizing-tube and the lower face of the valve fitting tightly in its seat when forced to its seat by back pressure from the vaporizing-tube; substantially as described.

7. The combination with a vaporizing-tube having an oil-inlet at one end, and a vapor-outlet at the other end, of a valve controlling the vapor-outlet and a valve controlling the oil-inlet, carried by and freely movable on the stem of the outlet-valve; substantially as described.

660,955. DRAG-SAW MOTOR. COMMODORE P. HELLYER, Russell, Iowa. Filed June 4, 1900. Serial No. 19,039. (No model.)



Claim.—In a drag-saw the combination with a saw and a reciprocating mechanism operatively connected therewith, of a lever *b* for lifting the saw, a lever *c* operatively connected with the lever *b* through the medium of the vertical bar *a*, and a guiding-bar *d* having its inner end pivotally connected and its outer end provided with a fork engaging the top edge of the saw, the bar *d* being intermediately but slidably connected with the bar *a*, whereby when the saw is lifted the guiding-bar *d* is also lifted, substantially as described.

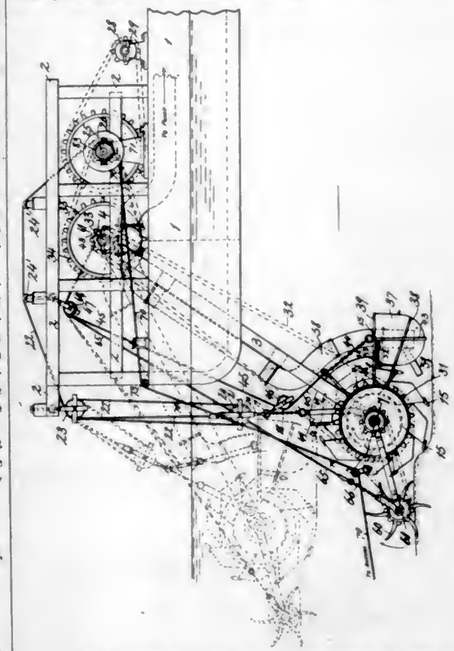
660,956. EXCAVATING APPARATUS. WILLIAM HENDERSON, Washington, D. C., assignor of one-half to Isaac O. Gordon, same place. Filed Apr. 23, 1900. Serial No. 13,970. (No model.)

Claim.—1. In an excavating apparatus, the combination with the rotary excavator, of the receiving-tank located to receive the material from the excavator and adapted to swing in the arc of a circle about the axis of rotation of the excavator and independently of the excavator, and a suction-pipe for lifting the material from the tank, substantially as described.

2. In an excavating apparatus, the combination with the rotary bucket excavator and the receiving-tank, of the shields located at opposite sides of the buckets and extending toward the tank to prevent the material from falling sidewise from the buckets and to direct it from the buckets into the tank, substantially as described.

3. In an excavating apparatus, the combination with the rotary bucket excavator, and the receiving-tank located to receive the material from the buckets, of means located between the upper part of the tank and the excavator to prevent the material from falling between the tank and excavator, substantially as described.

4. In an excavating apparatus, the combination with the rotary excavator and the receiving-tank located outside of the excavator to receive the material therefrom, of the suction-pipe for lifting the material from the tank, and branch pipes communicating with the suction-pipe and having their receiving ends adjacent to the lower part of the excavator for delivering to the suction-pipe material loosened by the excavator and not lifted by the excavator, substantially as described.



5. In an excavating apparatus, the combination with the rotary excavator and the receiving-tank, of a hinged flap between the tank and excavator to close the space between the two, said flap being actuated by a part of the excavator in the rotation of the excavator, substantially as described.

6. In an excavating apparatus, the combination with the rotary excavator and a receiving-tank, of a spring-influenced flap between the tank and excavator to close the space between the two, said flap being actuated in one direction by a part of the excavator in its rotation, substantially as described.

7. In an excavating apparatus, the combination with the rotary excavator, and the receiving-tank, of the hinged flap between the tank and the excavator to close the space between the two, said flap being provided with curved shoes for a part of the excavator to contact with in the rotation of the excavator, substantially as described.

8. In an excavating apparatus, the combination with the rotary excavator, of a swinging receiving-tank having the same center of movement as the excavator, and means for raising and lowering the said tank, substantially as described.

9. In an excavating apparatus, the combination with the rotary excavator, of the receiving-tank, arms supporting said tank from the shaft of the excavator, and means for raising and lowering said tank, substantially as described.

10. In an excavating apparatus, the combination with the rotary excavator, of the receiving-tank, and the shields at the sides of the excavator for directing material from the elevator into the tank, said tank and shields having a swinging movement about the excavator, substantially as described.

11. In an excavating apparatus, the combination with the rotary excavator, of hubs rotatably mounted upon the shaft of the excavator, said hubs having arms extending therefrom some of which support a receiving-tank and others support shields for directing the material from the excavator to the tank, substantially as described.

12. In an excavating apparatus, the combination with the rotary excavator, of means for raising and lowering the excavator, a swinging receiving-tank adapted to be adjusted to maintain the same relative position in relation to the excavator, and means for raising and lowering the tank for its adjustment, substantially as described.

13. In an excavating apparatus, a rotary excavator composed of a rotary drum, plates secured to said drum and bent to form the bottoms of buckets carried by the drum, plates applied to constitute the opposite sides of said buckets said plates having rear extensions secured to the plates of the next succeeding bucket, and means for rotating said excavator, substantially as described.

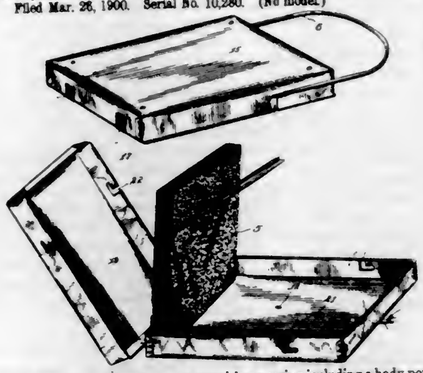
14. In an excavating apparatus, the combination of the rotary bucket excavator, the shaft upon which the excavator is mounted, the hubs mounted loosely upon said shaft, the ladder connected to a part of said hubs, the forks or yokes connected to a part of said hubs, and mechanism connected with said yokes for raising and lowering the excavator and the ladder, substantially as described.

15. In an excavating apparatus, the combination with the rotary excavator, of the hubs mounted upon the shaft of said elevator to rotate thereon, said hubs having extensions, the bars bolted to said extensions, the rotary shaft carrying cutters and journaled in hubs having extensions to which the ends of said bars are bolted, and means for raising and lowering said bars carrying the cutters, substantially as described.

16. In an excavating apparatus, the combination with the rotary bucket excavator, of a rotary cutter-shaft connected with the shaft of the rotary excavator, guide-blocks for anchor-cables connected by chains to the shafts of the excavator and the cutter by a swiveled connection, said connection consisting of clevises fitting around the ends of the shafts, keys passing through the clevises into grooves formed in the shafts, and clamping-rings passed around the clevises over said keys, substantially as described.

17. An excavating apparatus comprising a rotary bucket excavator, a receiving-tank supported by arms having a swinging movement about the excavator, shields located at the sides of the excavator and having a swinging movement about the same, a suction-pipe for lifting material from the receiving-tank, means for raising and lowering the excavator, and means for adjusting the receiving-tank and the shields about the excavator, substantially as described.

660,957. FOOT-WARMER. HELENA HERMANS, Tacoma, Wash. Filed Mar. 26, 1900. Serial No. 10,280. (No model.)



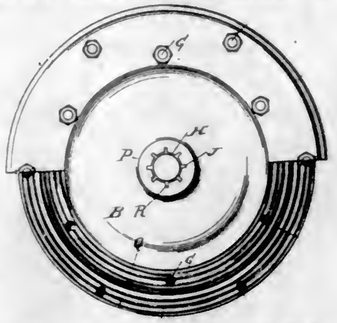
Claim.—1. A foot-warmer comprising a casing including a body portion and a cover, and a heat-retaining body provided with a bail, said body being movable within the casing to engage the bail with the body of the casing and its cover and hold the cover in its closed position.

2. A foot-warmer comprising a casing including a hollow body portion and a hollow cover therefor, openings in the sides of the body portion and cover and adapted for alinement when the cover is closed, and a heat-retaining body adapted to lie within the casing and having a bail adapted to enter said openings and hold the cover in position upon the body of the casing.

3. A foot-warmer comprising a metallic casing, heat-insulating material within the casing, a lining for the casing disposed upon the insulating material, openings in the casing, and a heat-retaining body adapted to lie within the casing and having a bail adapted for projection through the openings to lie exteriorly of the casing.

4. A foot-warmer comprising a casing including a body portion having sides, and a cover having sides adapted to lie against the sides of the body portion, slots formed inwardly from the edges of the sides of the body portion and extending longitudinally thereof at their inner ends, similar slots formed in the sides of the cover and adapted to aline their longitudinally-extending portions with the corresponding portions of the first-named slots when the cover is closed, and a heat-holding body adapted to lie within the casing and provided with a bail, said bail being adapted to engage the slots of the casing and lie in the longitudinally-extending portions thereof to hold the cover in place.

660,958. CAR-WHEEL. ISRAEL HOGELAND, Indianapolis, Ind., assignor of two-thirds to Charles E. Kregelo and Albert W. Wishard, same place. Filed May 16, 1900. Serial No. 16,840. (No model.)

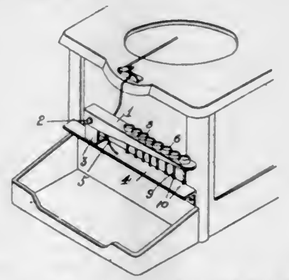


Claim.—1. A car-wheel comprising a center having a stepped periphery, two of the faces of which at opposite sides of the central face are radial, and a tire having a stepped interior corresponding with the stepped periphery of the center; all of said mating faces being grooved or corrugated and spaced to receive packings or cushions between them; substantially as described.

2. A car-wheel comprising a center having a stepped periphery, the side surfaces being radial and the central surface being flared or tapered, a rim having its interior stepped to conform to the periphery of the center and all of said meeting faces being grooved or corrugated, and packings or cushions between the several corrugated faces; substantially as described.

3. A car-wheel comprising a center having a stepped periphery, two of the faces of which at opposite sides of the central face are radially disposed, a tire having a stepped interior corresponding with the stepped periphery of the center, all of said mating faces being grooved or corrugated and spaced to receive packings or cushions between them, and inner and outer alternately-arranged bolts passing through the wheel-sections at their radially-disposed portions; substantially as described.

660,959. KEY-BAR. GILBERT H. IRISH, Dallas, Tex. Filed July 30, 1900. Serial No. 25,260. (No model.)



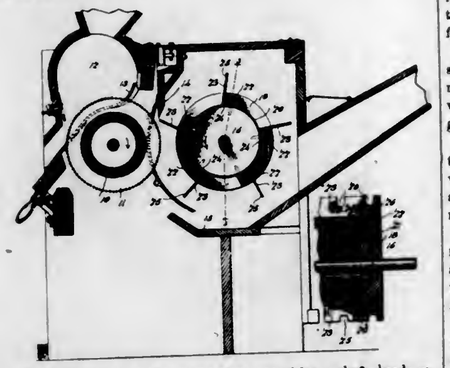
Claim.—1. In a key mechanism, the combination, substantially as described, of a movable bar, a series of keys provided with heads by which said keys are supported in said bar, and a fixed stop to limit the movement of said keys.

2. In a key mechanism, the combination, substantially as described, of a movable bar, a series of keys carried by said bar, and loosely mounted to slide therein, and a base with which said keys are constructed to contact to limit their movement after being depressed.

660,960. METALLIC BRUSH FOR COTTON-GINS. JOHN H. JENKINS, Hubbard City, Tex. Filed June 24, 1899. Serial No. 721,776. (No model.)

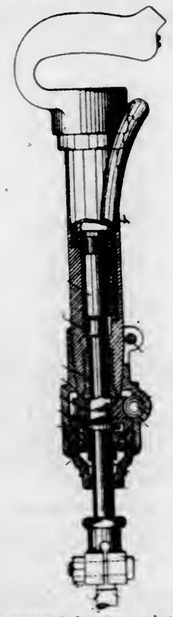
Claim.—1. A brush-cylinder for cotton-gins, comprising a shaft, heads secured to the opposite extremities thereof and provided with seat-notches laterally extending through the peripheral portions of the heads, the notches of the opposite heads being alined, a series of cross-rails corresponding in contour to but smaller than the said seat-notches, a plurality of metallic cleaner-strips having inner angularly-bent ends to fit over the inner edges of the said cross-rails, the outer free edges of the said strips being notched at regu-

lar intervals, and the cross-rails applied to the inner angular ends of the strips, and fastening devices for securing the cross-rails and strips detachably to the cylinder-head.



2. A brush-cylinder for cotton-gins, comprising a shaft, heads secured to the opposite extremities of said shaft and provided with lateral seat-notches opening out through the periphery of each head, the notches in the opposite heads being in alinement, a series of cross-rails of smaller dimensions than the seat-notches, a plurality of metallic cleaner-strips having inner angularly-bent ends removably fitted in the said seat-notches and against which the said rails are applied, the said rails and inner angularly-bent ends of the strips being unitedly inserted in the seat-notches; the adjacent portions of the strips at one side compensating for the difference in dimension between the cross-rail and the seat-notches to provide a snug fitting of the assembled parts, and fastening devices for securing the cross-rails and strips detachably to the cylinder-heads.

660,961. **PNEUMATIC HAMMER FOR ROCK-DRILLS.** WILLIAM D. JONES and WILLIAM O. PIERCE, Penmaen-Mawr, England, assignors of one-third to William Maine Treglown, London, England. Filed July 23, 1900. Serial No. 24,552. (No model.)



Claim.—1. In pneumatic hammers and other automatic percussive tools, means for effecting the rotation of the cutting-tool, consisting of a motor, a toothed wheel slidably and directly mounted upon the cutting-tool, and gear between the motor and the toothed wheel substantially as described.

2. In pneumatic hammers and other automatic percussive tools, means for effecting the rotation of the cutting-tool, consisting of a motor, a toothed wheel slidably mounted upon the cutting-tool, gear between the motor and the toothed wheel, a flange upon the cutting-tool, and an elastic ring with which the said flange contacts on each stroke of the piston, for the purposes and substantially as described.

3. In pneumatic hammers and other automatic percussive tools, a sleeve secured to the extremity of the cylinder and held from rotary movement therewith, a motor mounted upon said sleeve, a toothed wheel within the sleeve slidably and directly mounted upon the cutting-tool, and gear between said toothed wheel and motor, substantially as described.

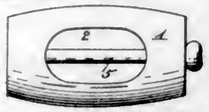
4. In combination, the cutting-tool, a non-rotating cylinder, a piston therein, a sleeve fixed to the extremity of the cylinder, a toothed wheel within the sleeve mounted directly and slidably upon the stem of the tool, a worm engaging the toothed wheel and supported by the sleeve and means for turning the worm, substantially as described.

5. In pneumatic hammers and other automatic percussive tools, means for effecting the rotation of the cutting-tool, consisting of a motor, a toothed wheel slidably mounted upon the cutting-tool, gear between the motor and the toothed wheel, and a pipe connection between the motor and the exhaust-port of the cylinder, substantially as described.

6. In combination, the cylinder, and piston, a sleeve fixed to the end of the cylinder, a toothed wheel within the sleeve slidably and directly mounted on the stem of the tool, a motor-casing also carried by the sleeve, a vane-wheel therein, a power-supply pipe leading to the casing and an operating connection between the vane-wheel and the toothed wheel.

7. In combination, the drill, the cylinder and piston, a power-supply conduit leading to the cylinder, a motor for rotating the drill and a connection between the motor and drill, the said motor being operated by the exhaust from the cylinder, substantially as described.

660,962. **COMBINED DUMB-BELL AND INDIAN CLUB.** DANIEL J. KENNEDY, Taunton, Mass., assignor, by direct and mesne assignments, of one-half to Albert King, same place. Filed Apr. 28, 1899. Serial No. 714,848. (No model.)



Claim.—A combined dumb-bell and Indian club consisting of a weight having a transverse oval aperture therethrough, a central longitudinal opening extending entirely through the weight, interior screw-threads formed in the opening near one end thereof, the remaining portion of said opening being plain or smooth, and a rod having a bead at one end and a screw-threaded portion at the other end passed through the opening from the unthreaded end thereof and secured in place at the threaded end to serve as a dumb-bell, the rod being removable and reversible for connection to the weight at the threaded end to serve as an Indian club, substantially as described.

660,963. **WRENCH.** JOHN P. KIBLER, Burr, Va. Filed June 5, 1900. Serial No. 19,152. (No model.)



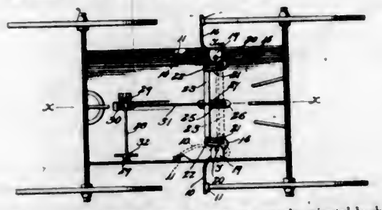
Claim.—1. In a wrench, a pair of relatively fixed and movable shanks provided with coacting jaws, one of said shanks being provided with a handle, and a lever pivotally connected with the other shank and provided with a bifurcated portion having a shiftable fulcrum connection with the first-named shank upon both sides thereof.

2. In a wrench, a pair of relatively fixed and movable shanks provided with coacting jaws, one of said shanks being provided with a handle, and a bell-crank lever pivotally connected at its angle with the other shank and provided with a bifurcated arm detachably and adjustably fulcrumed to the first-named shank upon both sides thereof.

3. In a wrench, the combination with a shank having a stationary jaw and provided with a handle portion, of a movable jaw mounted upon the stationary shank, a series of fulcrum projections arranged on both sides of the stationary shank, and a lever pivotally connected with the movable jaw and having a bifurcated portion the arms of which embrace the stationary shank and have detachable engagement with certain of the fulcrum projections, substantially as described.

4. In a wrench, the combination with a stationary shank one end of which is provided with a jaw, of a movable shank slidably mounted upon the stationary shank and having a jaw, a series of fulcrum-pins projecting upon both sides of the stationary shank, and a bell-crank lever pivoted to the movable shank, one of the arms of said lever forming a handle, the other arm being bifurcated to embrace the stationary shank and having a detachable engagement with certain of the fulcrum-pins, substantially as described.

660,964. **BRAKE.** CHARLES W. MARTINAS, Bloomsburg, Pa. Filed June 9, 1900. Serial No. 19,751. (No model.)



Claim.—1. The combination of a pair of opposite pivotal brake-levers provided with cam members at their inner ends, and a reciprocatory cross-bar interposed between the brake-levers and having an operative sliding connection respectively with the cam members of the opposite brake-levers, said operative connection comprising means for increasing the leverage of the brake-levers as they are thrown into action.

2. The combination of a pair of opposite pivotal brake-levers provided with cam members having inclined slots at their inner ends, and a reciprocatory cross-bar interposed between the brake-levers and having an operative sliding connection respectively with the cam members of the opposite brake-levers, said operative connection comprising means for increasing the leverage of the brake-levers as they are thrown into action.

3. In a vehicle-brake, the combination of a pair of pivoted brake-levers having shoes at one end, and at their other ends provided with cam-slots, a sliding bar having projections engaging in said cam-slots, means for guiding said bar, and means for operating the bar to throw the brake-levers into and out of operation, substantially as described.

4. In a vehicle-brake, a brake-lever comprising a pivot-arm, a cam-plate detachably secured to said arm, and means engaging said cam-plate to operate the arm, substantially as described.

5. In a vehicle-brake, the combination with a pair of pivot-levers having brake-shoes at one end, of cam-plates detachably secured to the opposite end of said levers, said cam-plates being provided with slots, a sliding cross-bar having pins engaging in said slots, means for guiding said cross-bar, a rock-shaft connected to said cross-bar and having an operating-lever, whereby the brake-shoes are thrown into and out of engagement with the wheels of a vehicle when the lever is operated, substantially as described.

6. In a vehicle-brake, the combination with a vehicle-body having a guiding-slot on its under side, of pivoted brake-levers provided with cam-plates, a reciprocatory cross-bar having a sliding connection with the slot of the vehicle-body, said cross-bar being also slidably connected with the cam-plates, substantially as described.

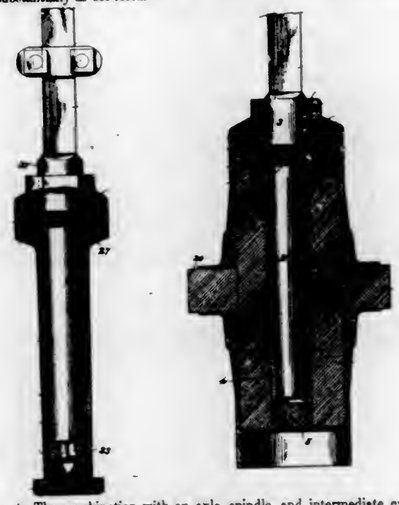
7. The combination with a pair of pivoted brake-levers provided at one end with brake-shoes, and at their opposite ends with openings, of cam-plates having locking projections, said locking projections being adapted to fit in the openings of the brake-levers whereby the cam-plates are detachably secured to the brake-levers, a sliding cross-bar having sliding connection with said cam-plates, and means for operating the sliding cross-bar, whereby the brake-levers are thrown into and out of operation, substantially as described.

660,965. **AXLE-BOX AND AXLE CONNECTION.** WILLIAM H. MATTHEW, Zanesville, Ohio. Filed May 2, 1900. Serial No. 15,217. (No model.)

Claim.—1. The combination with a spindle, axle-box, and ring removably secured to the spindle, of a nut securable to the axle-box, and opposite recesses in the nut and end of the axle-box, respectively, said recesses being adapted to receive and conjointly to closely fit the ring substantially as and for the purpose specified.

2. The combination with a spindle and annulus threaded thereto near the inner end of the spindle, of a tubular extension upon the annulus fitting the smooth exterior surface of the spindle, a thimble secured to the end of the spindle, and an axle-box working upon the thimble and extension and revolubly secured to the annulus, substantially as set forth.

3. The combination with a spindle, annulus and tubular extension secured near the inner end thereof, of a reduced end upon the spindle, irrevolubly fitting within an aperture in the end of the thimble fitting on the end of the spindle, an axle-box fitting upon the thimble and extension respectively, and means for securing the axle-box revolubly to the annulus, substantially as set forth.



4. The combination with an axle, spindle, and intermediate cylindrical collar, of a box and nut adapted to be secured directly or indirectly to the box, means for fixing the position of the box and nut revolubly upon the spindle and collar respectively, and a washer within the recess in the inner wall of the nut working against the collar, substantially as set forth.

660,966. **MANUFACTURE OF PASTEBOARD GLAZED TILES.** HERRENDEILDO MITALLES Y ANGLES, Barcelona, Spain. Filed June 16, 1900. Serial No. 20,606. (No specimens.)

Claim.—1. The herein-described process of producing pasteboard or other similar glazed tiles, which consists in subjecting the body of the tile to a hot bath composed of asphaltum, turpentine and dissolved india-rubber then applying a sheet of paper containing the desired drawings or design, then forming thereon the desired pattern in relief, and finally varnishing or glazing the upper face of the thus-formed tile.

2. As an improved article of manufacture, a pasteboard or other similar glazed tile, the body portion of which is composed of waterproofed pasteboard or other similar board, said board being covered on one face with a paper or other analogous sheet containing the desired drawing or representation and the desired pattern being pressed upon the paper and the body of the tile, the paper sheet being varnished or glazed, substantially as described.

3. As an improved article of manufacture, a pasteboard or other similar glazed tile, the body portion of which is composed of pasteboard or other similar board which has been subjected to a hot solution of asphaltum, turpentine and dissolved india-rubber, said body being covered on one face with a paper or analogous sheet containing the desired drawing or representation and the desired pattern being pressed upon the paper and the body of the tile, the paper sheet being varnished or glazed, substantially as described.

4. In the manufacture of pasteboard glazed tiles, the process of forming the body of the tiles by pasteboard, strawboard, wood-pulp board or like board, by immersing said board in a hot solution of Jew's pitch turpentine and india-rubber dissolved in benzene, substantially as described.

5. In the manufacture of pasteboard glazed tiles, the process which consists in fixing or applying to pasteboard tile-bodies, previously immersed in a hot solution of Jew's pitch, turpentine and india-rubber dissolved in benzene, a paper sheet with the desired drawings previously printed thereon by any typographic, lithographic, phototypic, counter-drawing or similar process, then forming thereon the desired pattern and finally varnishing or glazing the right face of the so-formed tiles, substantially as described.

660,967. **NAIL.** JEROME G. MCGAUGHEY, Spokane, Wash., assignor of one-half to William F. Sheiry, same place. Filed Mar. 28, 1900. Serial No. 10,526. (No model.)

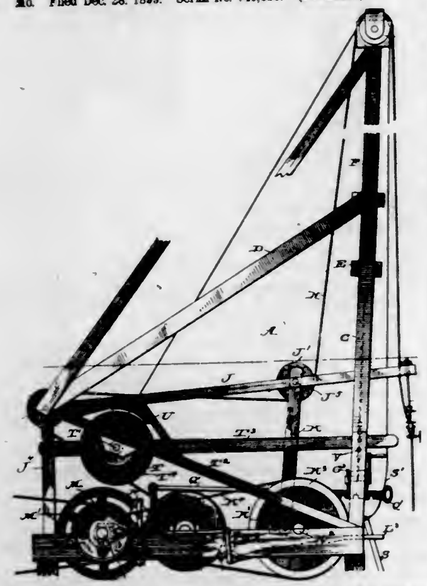
Claim.—1. A nail comprising a flat wedge-shaped shank and oppositely-extending lugs adjacent to one longitudinal edge only of the shank, and flush with said edge and the upper end of the shank to form a nail having a substantially T-shaped end face.



2. A nail comprising a flat tapering shank, and oppositely-extending lugs adjacent to one longitudinal edge only of the shank and flush with said edge and with the upper end of the shank to form a nail having a substantially T-shaped end face, the under faces of said lugs being oppositely beveled from the side faces of the shank.

3. A nail comprising a flat metal shank approximately rectangular in cross-section and defining a wear-face at its upper end, and divergently-related longitudinal edges extending in an unbroken line from end to end of the shank, and a pair of oppositely-extending lugs located at the upper end of the shank and flush with the top and with one edge thereof to form with said shank a substantially T-shaped flat end face, the side and edge faces of said lugs being beveled.

660,968. **DRILLING-MACHINE.** OLIVER E. OAKES, Webb City Mo. Filed Dec. 28, 1899. Serial No. 741,828. (No model.)



Claim.—1. In a machine of the character described, the combination with a driven shaft carrying a friction-wheel, and a bull-wheel, of spring-supported friction-rollers interposed between the peripheries of the friction-wheel and bull-wheel, and means for throwing said rollers into engagement with said wheels, as set forth.

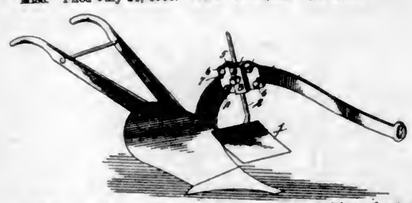
2. In a drilling-machine, a framework, a driven shaft in said framework and carrying a friction-wheel, a bull-wheel in said framework, a bearing-post secured on the framework between the bull-wheel and friction-wheel, spring-supported friction-rollers connected with said post, and means for actuating said rollers whereby to drive the bull-wheel from the friction-wheel, as set forth.

3. In a drilling-machine, a framework, a bull-wheel in said framework, a driven shaft carrying a friction-wheel, a bearing-post on said framework, laterally-extending spring-arms secured to said post, brackets mounted on said arms, friction-rollers in said brackets, and means for throwing said rollers into frictional engagement with said bull-wheel and friction-wheel, as set forth.

4. In a drilling-machine, a framework, a driven shaft in said framework carrying a friction-wheel, a bull-wheel in said framework, a bearing-post secured on the framework between the bull-wheel and friction-wheel, laterally-extending spring-arms secured to the upper and lower ends of said post, a jointed bracket formed with ears by which it is hung from the upper spring-arm, a pair of jointed brackets having ears secured to the lower spring-arm, a friction-roller in each of said brackets and a crank-shaft mounted on the framework and secured to all of said brackets, as and for the purpose set forth.

5. In a drilling-machine, a bull-wheel, a driver, shaft carrying a friction-wheel, a spring-held friction-roller between the peripheries of the bull-wheel and friction-wheel on one side of their horizontal diameters, a pair of spring-held friction-rollers on the other side of said diameters, and means for alternately throwing the single roller and the pair of rollers into gear, as set forth.

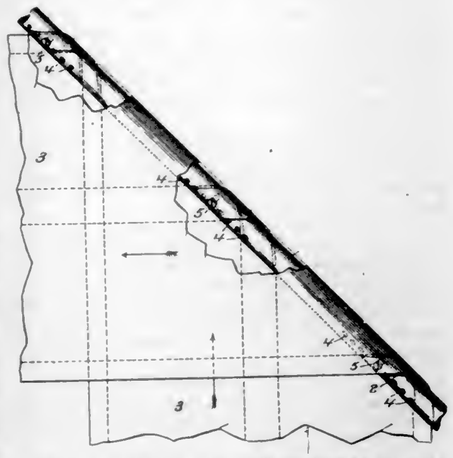
660,969. **COTTON-SCRAPER.** FRANCIS N. RENFROW, Yazoo City, Miss. Filed July 21, 1900. Serial No. 24,442. (No model.)



Claim.—1. A device of the class described comprising a front plate having an upright enlargement provided with an opening, said front plate being also provided with opposite upper and lower slots located at opposite sides of the enlargement, a shank arranged in the said opening, a rear plate, fastening devices connecting the front and rear plates and arranged in the said slots and designed to be located above and below a plow-beam, and clamping-screws mounted on the front plate at the enlargement and at opposite sides thereof and arranged to engage the shank and the beam of a plow, substantially as described.

2. A device of the class described comprising a front plate adapted to receive a scraper-blade and provided with oppositely-disposed upper and lower slots designed to be located above and below a plow-beam, said plate being also provided with threaded perforations located opposite the beam, a rear plate, fastening devices connecting the plates and arranged in the said slots, and clamping-screws mounted in the said perforations and engaging the plow-beam, substantially as described.

660,970. **GUIDE FOR PRINTING-MACHINES.** OSCAR ROSSEN, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Jan. 22, 1900. Serial No. 2,247. (No model.)



Claim.—1. In a printing-machine, the combination with devices for leading and guiding a printed web through the machine, of a stationary guiding-surface provided with ribs or raised portions operating to hold the printed parts of the web or sheet led thereover away from the guiding-surface, substantially as described.

2. A stationary guide-bar having means for preventing parts of a web or sheet which is passing thereover from coming in contact with the bar, substantially as described.

3. A stationary guide-bar having means for preventing parts of a web or sheet which is passing thereover from coming in contact therewith except at the margins of the printed portions of said sheet or web, substantially as described.

4. A stationary guide-bar provided with raised parts operating to prevent certain parts of a web or sheet passing thereover from coming in contact with the body of the bar, substantially as described.

5. A turning-bar having spirally-arranged raised parts operating to prevent certain parts of a web or sheet passing thereover from coming in contact with the body of the bar, substantially as described.

6. The combination with a turning-bar, of ribs secured thereto, and means whereby said ribs are made adjustable on the bar, substantially as described.

7. The combination with a turning-bar, of ribs secured thereto, and means whereby said ribs are made longitudinally adjustable on the bar, substantially as described.

8. The combination with a turning-bar, of spirally-arranged ribs secured thereto, and means whereby said ribs are made adjustable on the bar, substantially as described.

9. The combination with a turning-bar, of spirally-arranged ribs secured thereto, and means whereby said ribs are made longitudinally adjustable on the bar, substantially as described.

10. A turning-bar having a series of spirally-arranged ribs, said ribs being arranged so that the margins of the printed paper passing thereover come in contact therewith, said ribs operating to hold the remainder of the paper away from the body of the bar, substantially as described.

11. The combination with a turning-bar having sets of holes therein, of a plurality of ribs, and screws for securing the ribs in any one of each of the sets of holes, whereby the ribs may be made adjustable on the bar, substantially as described.

660,971. **BICYCLE.** JAMES E. RUBY, Cosby, Mo. Filed May 21, 1900. Serial No. 17,381. (No model.)



Claim.—1. The combination with a bicycle, the hub of the rear wheel of which is provided with a crown-head; of a spring-motor carried by the frame of the bicycle and provided with a gear, a driving-shaft also carried by the frame, a gear thereon constantly in mesh with the gear of the motor, and a pinion also on said shaft adapted to be thrown into and out of contact with different portions of the crown-head, so that the motor can be wound thereby and the unwinding of the motor will be adapted to rotate the hub always in the same direction.

2. The combination with a bicycle; of a crown-head on the hub of the rear wheel thereof, a spring-motor on the bicycle-frame, a drive-shaft having a gear in connection with said motor, a pinion on the shaft, movable at will into and out of mesh with different parts of the crown-head to wind the motor, and means carried by the axle of the rear wheel to engage the pinion and prevent its rotation.

3. The combination with a bicycle; of a crown-head on the rear wheel thereof, a spring-motor carried by the bicycle-frame, a drive-shaft, a gear thereon engaging a similar gear on the motor, a pinion also on said shaft and adapted to engage the crown-head when the motor is unwinding, and a series of ribs carried by the axle of the said hub to be engaged by the pinion to prevent the unwinding of the motor.

4. In a device of the character described, the combination with a bicycle the hub of the rear wheel of which is provided with integral gear, of a spring-motor carried by the bicycle-frame, a pinion adapted to be operated thereby and having an angular opening, an operating-shaft also carried by the frame and provided with an angular spline reciprocating in the opening in the pinion, a second pinion rigidly mounted on the shaft and designed to engage the gear on the hub, and an operating device connected to one end of the shaft whereby the second pinion may be thrown in engagement with the gear on the hub to wind the spring and be shifted to a point diametrically opposite to the point of engagement to operate the rear wheel in a forward direction when the spring unwinds.

660,972. **DIAGNOSING-BELT.** FORTUNER R. RYAN, Memphis, Tenn. Filed May 25, 1900. Serial No. 17,960. (No model.)

Claim.—1. The combination with a supporting-belt, of a sponge provided with a pocket having a spiral pocket-distending means therein; substantially as specified.



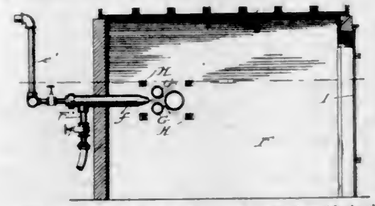
2. The combination with a supporting means, of a sponge carried thereby and provided with a pocket, and a non-absorbent receptacle located within the pocket whereby secretions from the sponge about the receptacle may be collected and retained by the receptacle; substantially as specified.

3. The combination with a supporting-belt, of a sponge having two pockets, one of which is provided with means for distention and the other with an open non-absorbent capsule restricted to a lower portion of the pocket to receive and retain liquid in the capsule; substantially as specified.

4. The combination with a belt, of a clasp for a sponge having a belt-receiving loop and a spring sponge-embracing end; substantially as specified.

5. The combination with a belt, of a sponge-carrying device comprising a loop and sponge-embracing ends extended toward each other; substantially as specified.

660,973. **APPARATUS FOR MAKING LAMPBLACK.** JOHN F. SANDERS, Chicago, Ill., assignor to Harry Brown, same place. Filed Nov. 11, 1899. Serial No. 736,581. (No model.)



Claim.—1. In an apparatus for manufacturing lampblack, the combination of a confined combustion-chamber, a burner entered into the combustion-chamber, two deposit-pipes of small diameter and a third deposit-pipe of larger diameter at the rear of the small deposit-pipes, forming, in conjunction with the small pipes, a triangular arrangement of pipes, into the space between which the flame from the burner is projected, substantially as described.

2. In an apparatus for manufacturing lampblack, the combination of a burner having a flattened nozzle, two pipes of small diameter located side by side and into the space between which the flame from the burner is projected, and a third pipe of increased diameter located in line with the space between the two pipes and rearwardly of such pipes, substantially as described.

3. In an apparatus for manufacturing lampblack, the combination of a confined combustion-chamber, a burner entered into the combustion-chamber, and a plurality of rotatable horizontally-disposed deposit-pipes arranged in triangular position and in front of the burner, substantially as described.

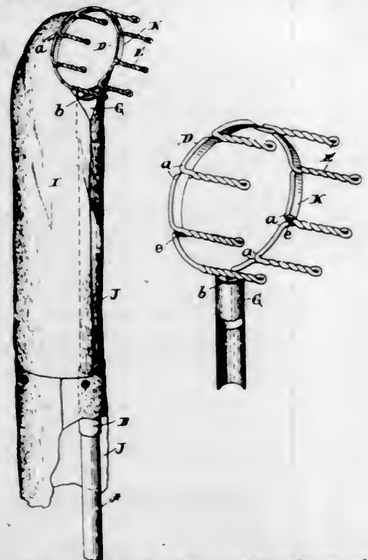
4. In an apparatus for manufacturing lampblack, the combination of a confined combustion-chamber, a burner entered into the combustion-chamber, and a plurality of rotatable horizontally-disposed deposit-pipes of unequal diameters arranged in triangular position and in front of the burner with the pipes of smaller diameter next to the burner, substantially as described.

5. In an apparatus for manufacturing lampblack, the combination of a confined combustion-chamber, a plurality of horizontally-disposed burners having flattened nozzles, and a plurality of rotatable horizontally-disposed deposit-pipes arranged in triangular position and in front of the burners, substantially as described.

660,974. **FRUIT-PICKER.** WILLIAM G. SAYRS, Burnside, Ill. Filed Feb. 7, 1900. Serial No. 4,366. (No model.)

Claim.—1. A picker-ring composed of a single piece of wire having laterally-extending doubled portions constituting picker-arms, and a metallic band passing between the two members constituting the picker-arms thereof, the upper edge of the band constituting a knife situated between the said arms, substantially as described.

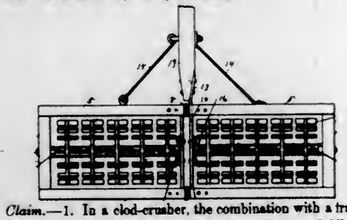
2. A picker-ring composed of a single piece of wire having a plurality of laterally-extending doubled portions constituting picker-arms, and a knife extending between the lower ends of the two members of the doubled portions and held in position thereby to constitute a knife between the said arms, substantially as described.



3. A picker-ring composed of a single piece of wire having a plurality of doubled laterally-extending twisted portions constituting picker-arms, and a knife composed of a metallic band extending between the two members of the doubled and twisted portions, one edge of the knife resting upon the upper edge of the ring between the said arms for holding the knife against movement in one direction, and the knife being held against movement in the other direction by the twisted portions of the arms, substantially as described.

4. A picker-ring composed of a single piece of wire having a plurality of laterally-extending doubled portions constituting picker-arms, and a knife composed of a strip of metal with its outer edge sharpened, the said strip extending between the two members constituting the doubled portions, the knife having its ends provided with hooks adapted to embrace the stems of the doubled portions, substantially as described.

660,975. CLOD-CRUSHER. JOSEPH SCHOELER, Hamilton, Ohio, assignor to the H. P. Deuscher Company, same place. Filed Oct. 27, 1899. Serial No. 735,004. (No model.)

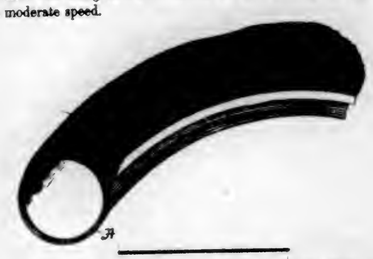


Claim.—1. In a clod-crusher, the combination with a frame, hinges bisecting the front and the rear bar thereof middle bars rigidly secured to the hinges and movable therewith in relation to each other, of a pole rigidly secured to the front end of one of said middle bars, and stay-rods connecting the pole with the front bar.

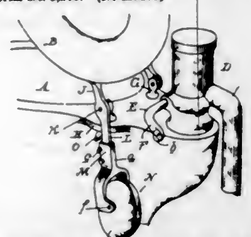
2. In a clod-crusher, the combination with a rectangular frame, hinges bisecting the front and the rear bar thereof and formed with depending flanges, middle bars rigidly secured to the flanges on corresponding sides of the hinges, a pole rigidly secured to the front portion of one of the middle bars, stay-rods connecting with the pole and the front bar, and a seat movably supported on the frame by means of inverted stirrups.

660,976. TIRE FOR BICYCLES. NILS SWANSON, Olean, N. Y. Filed Apr. 29, 1899. Serial No. 715,031. (No model.)

Claim.—As an article of manufacture, a reinforcing or supplemental strip of rubber adapted to be secured on a vehicle-tire, said strip having its outer surface made up of unbroken cross-channels of uniform depth and inclosed, independent or square projections whereby to prevent water and mud from being carried around on the surface when the wheel turns at a moderate speed.



660,977. SEAT-CONTROLLED VALVE-OPERATING MECHANISM FOR WATER-CLOSETS. WILLIAM TAYLOR, Detroit, Mich., assignor to the Ideal Manufacturing Company, same place. Filed Jan. 29, 1900. Serial No. 3,206. (No model.)



Claim.—1. In a seat-controlled valve-operating mechanism, the combination with a bifurcated arm extending rearward from the seat of a counterweight for the seat comprising a two-part shell, a pin passing through said shell securing said sections together and pivoting the same to the arm, and a soft-metal core cast within said shell.

2. In a seat-controlled valve-operating mechanism for water-closets, the combination with a bifurcated arm extending rearward from the seat, of a counterweight for the seat comprising a two-part shell formed of a non-corrodible metal (such as brass) a pin passing through said shell securing said sections together and pivoting the same to said arm between the bifurcations thereof and a core of soft metal of greater specific gravity, cast within said shell.

3. In a seat-controlled valve-operating mechanism for water-closets, the combination of a counterweighted arm extending rearward from the seat, a lug or post to which said arm is hinged having a downwardly-extending threaded shank, a flange on the bowl or crock through which said shank passes and a stop-arm secured to said threaded shank and extending into the path of said counterweighted arm.

4. In a seat-controlled valve-operating mechanism for water-closets, the combination with a counterweighted arm extending rearward from said seat a lug or post to which said arm is hinged having a downwardly-extending threaded shank and a flange on the bowl or crock through which said shank passes, of an arm or stop sleeved upon said shank and extending into the path of said counterweighted arm, an elastic bumper secured to said stop and bearing against the bowl or crock and a nut engaging said threaded shank for clamping said stop and lug or post to said flange.

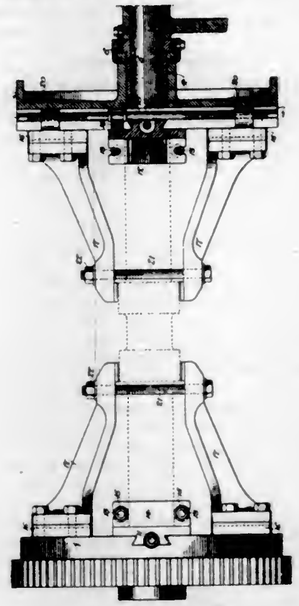
660,978. CRANK-PIN-TURNING ATTACHMENT FOR LATHES. ADAM TINDEL and OTTO ALBRECHT, Philadelphia, Pa. Filed Jan. 8, 1900. Serial No. 739. (No model.)

Claim.—1. The combination of a lathe cross-head with means for chucking a crank-shaft, and a pair of adjustable slides each having a projecting arm forming a clamp-jaw for engaging with a crank-arm of said shaft, substantially as specified.

2. The combination of a lathe face-plate with a radially-adjustable chucking device for a crank-shaft, and a pair of adjustable slides each having a projecting arm forming a clamp-jaw for engaging with a crank-arm of said shaft, substantially as specified.

3. The combination of a lathe face-plate with means for chucking a crank-shaft, a pair of adjustable slides each having a projecting arm forming a clamp-jaw for engaging with a crank-arm of said shaft, and a clamping-bolt whereby the outer ends of said arms may be drawn together substantially as specified.

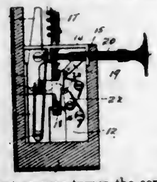
4. The combination in a crank-pin-turning attachment for lathes, of a positively-rotated face-plate and a face-plate mounted so as to be free to turn on the tail-stock, or dead-spindle of the lathe, with shaft-chucking mechanism, and pairs of adjustable crank-arm-gripping jaws, one pair on each of said face-plates, substantially as specified.



660,979. ELECTRIC ACCUMULATOR OR SECONDARY BATTERY. HENRI WEYMERSCH, Paris, France. Filed Feb. 19, 1900. Serial No. 6,208. (No specimens.)

Claim.—In the manufacture of electric accumulators or secondary batteries, the process of increasing the electrical capacity and duration of the plates, which consists in dipping the plates when dry alternately in a bath of acidulated water and in a mixed solution of pyridin-water and alcohol, substantially as described.

660,980. MUSIC-SHEET TURNER. JOHN R. WILLIAMSON and HARRY L. MEANS, Louisville, Ky.; said Williamson assignor to said Means. Filed Dec. 13, 1899. Serial No. 740,213. (No model.)

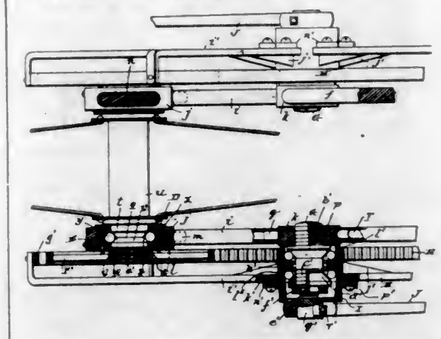


Claim.—1. In a sheet or page turner, the combination with a support, arms pivotally connected to said support and springs for throwing said arms from right to left, of a sliding bolt on said support to hold the arms in their extreme right-hand position, means for operating said bolt step by step to separately release the arms, and means in position to be engaged by said arms when they are returned to their right-hand position for automatically releasing the bolt to permit the same to engage said arms.

2. In a leaf or page turner, the combination with arms adapted to be connected with the pages or leaves of a book or sheet of music and springs for forcing said arms from right to left, of a spring-pressed bolt normally disposed in the path of said arms, ratchet-teeth on said bolt, a push-rod, a spring-pressed dog on said rod to engage said ratchet-teeth and move the bolt step by step out of the path of the arms, another spring-pressed dog adapted to prevent upward movement of the bolt, a lever in rear of the arms when they are in their right-hand position and adapted to be operated thereby, and a plate on said lever adapted to engage both of said dogs and force them out of engagement with the bolt.

3. In a page or leaf turner, the combination with a support and means thereon for turning the pages of a book or sheet of music, of plates connected to said support, spaced apart and having oval openings therein, and a rod adapted to be inserted in the binding of a book and having recessed portions for insertion in said oval openings in the plates.

660,981. BICYCLE. NATHAN M. BARNES, Minneapolis, Minn. Filed Jan. 13, 1900. Serial No. 1,362. (No model.)



Claim.—1. In a bicycle, the combination with the frame comprising the head-bar, the top line-bar, the bottom line-bar terminating at its rear end in a tubular fork, the upright seat-post tube fixedly joined to the rear end of the top line-bar and terminating at its lower end in a tubular fork, the short tube-sections *i* arranged between the ends of the said forks, the interiorly-threaded rings interposed between the rear ends of the tube-sections *i* and the ends of the tubular fork of the seat-post tube and having the lugs brazed in said ends, and the interiorly-threaded rings interposed between the forward ends of the tube-sections *i* and the ends of the tubular fork on the bottom line-bar and having lugs brazed in said ends; of annular threaded cups arranged in the rear rings of the frame, the rear or drive wheel having its hub extended through the bearing-cups and provided with peripheral grooves, antifriction-balls arranged in said grooves and interposed between the hub and the cups, gear-wheels fixed on the ends of the hub and having their outer sides flush with said ends, journals screwed into and extending laterally outward from the forward rings and having fixed and adjustable cones, gear-wheels surrounding and intermeshed with the gear-wheels on the hub of the traveling wheel and having hubs surrounding the journals, antifriction-balls interposed between the cones of the journals and the hubs of said gear-wheels, removable caps connected to the outer side of said gear-wheels and closing the outer ends of the hubs, and cranks fixed on said caps, substantially as specified.

2. The herein-described bicycle-frame consisting essentially of the head-bar, the top line-bar, the bottom line-bar, terminating at its rear end in a tubular fork, the upright seat-post tube fixedly joined to the rear end of the top line-bar and terminating at its lower end in a tubular fork, the short tube-sections *i* arranged between the ends of the said tubular forks, the interiorly-threaded rings *j* interposed between the rear ends of the tube-sections *i* and the ends of the tubular fork of the seat-post tube and having the lugs *m n* brazed in the rear ends of the sections *i* and the ends of the fork of the seat-post tube, respectively; the said rings being adapted to receive the journal-bearings of a rear wheel, and rings *k* interposed between and having lugs brazed in the forward ends of the tube-sections *i* and the ends of the tubular fork of the bottom line-bar; the said rings being interiorly threaded whereby they are adapted for the connection of journals, substantially as specified.

660,982. HEARTH FOR ROASTING ORES. GEORGE CLARY, Zacatecas, Mexico, and GEORGE W. GARRISON, Goldfield, Colo. Filed Feb. 5, 1900. Serial No. 4,109. (No model.)

Claim.—1. In an ore-roasting hearth, a plate, rollers carried by said plate, a frame mounted on said rollers, a table having an inclined top pivoted to said frame, a shaft supported by the said plate, means carried by said shaft for moving the said frame and table rearwardly when the said shaft is operated, and a separate means for throwing the said frame and table forwardly, substantially as specified.

2. In an ore-roasting hearth, a frame supported on rollers, an inclined table having its forward end pivoted to said frame, the rear end of said table being free, means for raising and lowering the free end of said table, and means for reciprocating said frame and table endwise, substantially as specified.

3. In an ore-roaster, a plate, a plurality of rollers carried by said plate, a frame mounted upon said rollers, a table carried by said frame and being pivoted at one end thereto, means carried by said plate for moving said frame rearwardly, a separate means for moving the table forwardly, and means for raising and lowering the free end of said table, substantially as specified



4. In an ore-roasting hearth, a frame, a table carried by said frame, means for raising and lowering the rear end of said table, a receptacle upon said table, and sections of corrugated fire-clay removably carried within said receptacle, substantially as specified.

660,983. **ART OF HARDENING AND TEMPERING COPPER, GOLD, OR SILVER.** DANIEL R. CONNER and ORVILLE BAGBY, Covington, Ky.; said Bagby assignor of his right to Louis Fritz, same place, and said Conner assignor of one-half of his right to George M. Pearce, Washington, D. C. Filed May 24, 1899. Serial No. 718,096. (No specimens.)

Claim.—1. The herein-described process of hardening non-ferrous metals, which consists in first cooling the same to a temperature at least 50° below zero, Fahrenheit, and then rapidly heating them to a temperature of a least 1,000°, Fahrenheit.

2. The herein-described process of hardening non-ferrous metals, which consists in placing them in liquid air, and then rapidly heating them to a temperature of at least 1,000°, Fahrenheit.

3. The herein-described process of hardening non-ferrous metals, which consists in first cleaning and annealing the metal treated by heating and immersing it in cold brine, then cooling the metal to at least 50° below zero, Fahrenheit and then rapidly heating the same to a temperature of at least 1,000°, Fahrenheit.

660,984. **STARTING-MACHINE FOR RACE-HORSES.** CHARLES W. CROWLEY, St. Louis, Mo. Filed Jan. 2, 1900. Serial No. 71. (No model.)



Claim.—1. A movable starting-machine, provided with rear, side and front barriers pivotally secured together, a means for locking the said barriers in a rectangular shape, and a means for operating said front barrier to allow horses to enter or pass from said starting-machine, substantially as specified.

2. A starting-machine, consisting of rear, side and front barriers pivotally secured together, a means for holding said barriers in a shape suitable for use, a lock for said front barrier and springs for actuating said front barrier when the lock is removed, substantially as specified.

3. A starting-machine, comprising side, rear and front barriers pivotally secured together, means for operating said front barrier, and suitable wheels by means of which the said machine may be moved from one locality to another, substantially as specified.

4. A movable starting-machine, comprising side, rear and front barriers pivotally secured together, traction-wheels upon which said barriers are mounted, means for locking said barriers in a rectangular shape, and means for removing said front barrier when it is desired to start the horses, substantially as specified.

5. A starting-machine, comprising a rear barrier, side barriers pivotally secured to said rear barrier, a front barrier, means for operating said front barrier, and suitable wheels for moving said machine from one locality to another, substantially as specified.

6. A starting-machine, comprising side and rear barriers pivoted together, a front barrier, means for locking said front barrier in a position suitable for use, and means for removing said front barrier when it is desired to start the horses, substantially as specified.

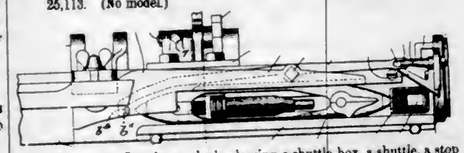
7. A starting-machine, comprising a rear barrier, side barriers pivoted to said rear barrier, a front barrier, means for locking said front barrier in position, means for removing said front barrier, and traction-wheels for moving the machine from one locality to another, substantially as specified.

660,985. **APPAREL-COAT.** FREDERICK G. DODGSON, Hamilton, Ohio, assignor to Jacob A. Sommers, same place. Filed May 31, 1900. Serial No. 18,644. (No model.)



Claim.—As a new article of manufacture, a coat having its body formed with a vertical seam on each side and its sleeves each, with a single longitudinal seam, the vertical seams each extending in a straight line from the rear end of the scye-seam to the bottom of the coat and the sleeve-seams each extending from the forward end of the scye, the edges of the material forming the respective seams being of substantially the same length and also substantially straight except the scye-seams, whereby the seams are smooth and are protected by the sleeves, substantially as set forth.

660,986. **SHUTTLE-POSITIONING MECHANISM FOR LOOMS.** ARTEMAS B. EDMANDS, Milford, Mass., assignor to the Draper Company, Portland, Me., and Hopedale, Mass. Filed July 28, 1900. Serial No. 25,113. (No model.)



Claim.—1. In a loom, the lay having a shuttle-box, a shuttle, a stop movable into and out of the entrance of the shuttle-box, means controlled by impact of the shuttle when properly positioned in the shuttle-box to effect the movement of the stop into the entrance, and independent means to positively withdraw the stop from the path of the shuttle before the latter is thrown.

2. In a loom, the lay having a shuttle-box, a shuttle, means to automatically close the entrance of the shuttle-box when the shuttle is properly boxed, stopping mechanism for the loom, and devices between said mechanism and the box-closing means, to effect the operation of the former when the shuttle is improperly boxed.

3. In a loom, stopping means, including a protector rock-shaft, the lay having a shuttle-box, a shuttle, means to close the entrance of the shuttle-box when the shuttle is properly positioned therein, connections between said means and the rock-shaft, to turn the latter into inoperative position when said means is operated, and independent mechanism to rock said shaft in the opposite direction to open the shuttle-box entrance.

4. In a loom, stopping means, including a protector rock-shaft, the lay having a shuttle-box, a shuttle, means to close the entrance of the shuttle-box when the shuttle is properly positioned therein, connections between said means and the rock-shaft, to turn the latter into inoperative position when said means is operated, independent mechanism to rock said shaft in the opposite direction to open the box-entrance, and a friction device to retard the rotative movement of the rock-shaft.

5. The lay, a shuttle-box thereon, a lever fulcrumed adjacent said box and having its inner end bent to form a stop movable into and out of the box-entrance, a rocking actuator for and operatively connected with the outer end of the lever, means operated by impact of the shuttle to rock the actuator in one direction and thereby swing the stop into the box-entrance, and a device to rock said actuator in the opposite direction.

6. In a loom, the lay having a shuttle-box and the protector rock-shaft mounted thereon, a shuttle, a finger fast on the rock-shaft, a coöperating star-cam, means to rotate it step by step as the lay swings back, to partly turn the rock-shaft in one direction, means controlled by entrance of the shuttle into the box to prevent its rebound and to turn the rock-shaft in the opposite direction, and connections between said means and the protector-shaft, failure of the shuttle to properly enter the box causing the rock-shaft to assume its operative position.

7. In a loom, the lay having a shuttle-box, a shuttle, stopping mechanism, including a dagger, means to close the entrance to the shuttle-box when the shuttle is properly positioned therein, connections between said means and the dagger, to render the latter inoperative at such time, and setting means to thereafter restore the dagger to operative position and through the connections aforesaid to open the entrance of the shuttle-box.

8. In a loom, the lay having a shuttle-box, a shuttle, stopping mechanism including a rock-shaft having a dagger and a finger, a rotatable star-cam coöperating with the latter, means to close the box-entrance when the shuttle is properly positioned therein, connections between said means and the shaft, to positively rock the latter and turn the cam in one direction, the dagger being also rendered inoperative, and means to partly rotate the cam in the opposite direction at each backward swing of the lay, to thereby rock the shaft correspondingly and place the dagger in operative position, failure of said box-closing means to operate permitting the dagger to effect the operation of the stopping mechanism.

9. An automatic filling-replenishing loom having, in combination, a filling-supplying mechanism which operates automatically to insert a fresh supply of filling in the shuttle and to expel the exhausted filling-carrier from the shuttle, a shuttle-box open to receive the fresh filling and to discharge the exhausted filling-carrier, a lock to lock the shuttle in the shuttle-box in proper position to receive fresh filling, said lock being automatically operated by the action of the shuttle when entering the shuttle-box, and automatic means independent of the shuttle for effecting the disengagement of the lock from the shuttle preparatory to the ejection of the shuttle from the shuttle-box.

10. An automatic filling-replenishing loom having, in combination, a filling-supplying mechanism which operates automatically to insert a fresh supply of filling in the shuttle and to expel the exhausted filling-carrier from the shuttle, the lay having a shuttle-box open to receive the fresh filling and to discharge the exhausted filling-carrier, a shuttle, a picker-stick, a lock to lock the shuttle in the shuttle-box in proper position to receive fresh filling, means to actuate the lock upon impact of the shuttle as it enters the shuttle-box, and lock-releasing means independent of the picker-stick to release the lock before the shuttle is ejected from the shuttle-box by the picker-stick.

11. An automatic filling-replenishing loom having, in combination, a filling-supplying mechanism which operates automatically to insert a fresh supply of filling in the shuttle and to expel the exhausted filling-carrier from the shuttle, the lay having a shuttle-box open to receive the fresh filling and to discharge the exhausted filling-carrier, a shuttle, a stop or lock, means to move it in front of the inner end of the shuttle when the latter is properly boxed, and automatic means operative independently of the shuttle to retract said stop or lock from the path of the shuttle preparatory to the ejection of the latter from the shuttle-box.

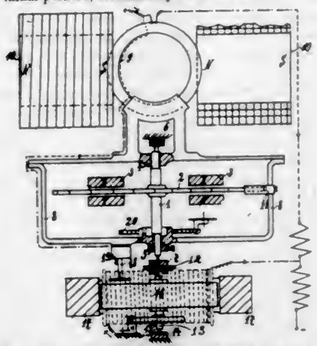
12. An automatic filling-replenishing loom having, in combination, a filling-supplying mechanism which operates automatically to insert a fresh supply of filling in the shuttle and to expel the exhausted filling-carrier from the shuttle, the lay having a shuttle-box open to receive the fresh filling and to discharge the exhausted filling-carrier, a shuttle, a stop or lock, means operated by or through entrance of the shuttle into the shuttle-box to move said stop or lock in front of the inner end of the shuttle when properly boxed, and automatic means operative independently of the shuttle to effect withdrawal of the stop or lock from the path of the shuttle preparatory to the ejection of the latter from the shuttle-box.

660,987. **ELECTRICITY-METER.** PAUL EISIG, Berlin, Germany, assignor to Martin Behrendt, same place. Filed Oct. 7, 1899. Serial No. 732,945. (No model.)

Claim.—1. In an electricity-meter the combination with fixed coils, a pressure-coil arranged to oscillate between the said fixed coils and connected with a frame, a brake-disk hung within the said frame, and a pawl-and-ratchet connection between the said frame and brake-disk; of an armature periodically energized and connected with the said frame to return the same to its initial position, substantially as described.

2. In an electricity-meter the combination with fixed coils, a pressure-coil arranged to oscillate between the said fixed coils and connected with a frame, a contact-plate upon the said frame, a brake-disk hung within the frame, and a pawl-and-ratchet connection between the said disk and frame, of an armature hung in proximity to the said frame, a contact-pin upon the said armature arranged to engage the said contact-plate on the frame, and thus close the circuit to energize the said armature and return the said frame to its initial position; substantially as described.

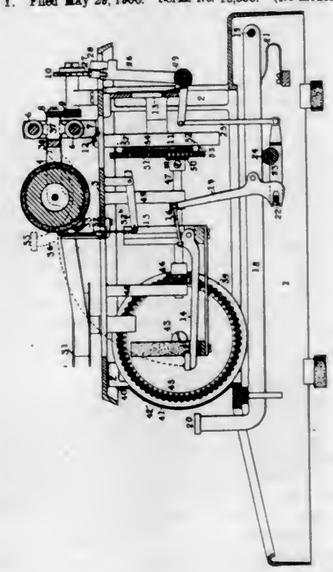
3. In an electricity-meter the combination with fixed coils, a pressure-coil arranged to oscillate between the said fixed coils and connected with a frame, a contact-plate upon the said frame, a brake-disk hung within the frame, damper-magnets arranged to act upon the said brake-disk, and a pawl-and-ratchet connection between the said disk and frame; of an armature hung in proximity to the said frame, a contact-pin on the said armature to engage the said contact-plate on the frame and thus close the circuit to energize the said armature and cause the latter to return the said frame to its initial position; and means for returning the said armature to its initial position, substantially as described.



4. In an electricity-meter, the combination with fixed coils, a pressure-coil hung to oscillate between the said fixed coils, a frame hung in proximity to the said coils, and secured to the said pressure-coil to oscillate therewith, a brake-disk hung to rotate within the said frame, and damper-magnets arranged to act upon the said frame, a pawl-and-ratchet connection between the said brake-disk and the said frame, and a cushion-spring connected with the said frame; of an armature hung in proximity to the said frame and arranged to engage the latter during the forward movement of the said armature, means for periodically closing the circuit to energize the said armature, and means for returning the said armature to its initial position; substantially as described.

5. In an electricity-meter, the combination with fixed current-coils; a pressure-coil arranged to oscillate within the field of said fixed coils, a brake-drum acted upon by said pressure-coil in one oscillatory direction only; said pressure-coil oscillating automatically in such direction with a velocity corresponding to the current passing through said fixed coils; of an electromagnet arranged to be brought into the circuit and energized thereby adapted to reverse the movement of said pressure-coil, and means for returning the several parts to their initial positions; substantially as described.

660,988. **TYPE-WRITING MACHINE.** JACOB FELBEL, New York, N. Y. Filed May 29, 1900. Serial No. 18,353. (No model.)



Claim.—1. In a type-writing machine, the combination of a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel mounted in the framework of the machine independently of said carriage and bearing upon its periphery a series of numbers arranged in numerical order, one number for each letter-space movement of said carriage, connections between said number-wheel and said carriage for causing the number-wheel to oscillate as the carriage reciprocates, and also for causing the movement of the peripheral portion of the number-wheel to be greater than the corresponding movement of the carriage, and step-by-step letter-feeding devices controlling the movements of both said carriage and said number-wheel.

2. In a type-writing machine, the combination of a step-by-step letter-feeding mechanism, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel mounted in the framework of the machine independently of said carriage and bearing a column of numbers, the height of each number exceeding the corresponding step-by-step letter-feeding movement of the carriage, and connections between said number-wheel and said carriage for causing the number-wheel to oscillate as the carriage reciprocates.

3. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, and a wheel operatively connected to said carriage but mounted in the framework of the machine independently thereof, said wheel being provided with a series of numbers upon a surface or portion thereof which travels step by step at a greater rate of speed than the step-by-step movements of the carriage, and said numbers being arranged in numerical order, one number for each letter-space movement of the carriage.

4. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel provided with a single series of easily-read whole numbers, one number for each complete letter-space movement of the carriage, said numbers being arranged in consecutive order and presented to the operator in their natural positions, and means for causing said wheel to oscillate as the carriage reciprocates.

5. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a vertically-arranged wheel mounted in the framework of the machine independently of said carriage, means for causing said wheel to oscillate as said carriage reciprocates, a column of numbers extending in numerical order around the peripheral face of said wheel, said numbers corresponding to the letter-feed movements of the carriage and being successively presented to the operator in their natural positions, and means for indicating to the operator the number on the wheel which corresponds to the position of the carriage.

6. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel connected to said carriage so as to oscillate as the carriage reciprocates, a series of numbers arranged in numerical order upon said wheel, one number for each letter-feed movement of said carriage, and a sight-hole so arranged with reference to said wheel that only that one of said numbers which tells the position of the carriage is visible to the operator.

7. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel arranged within the framework of the machine and mounted independently of said carriage, means for causing said wheel to oscillate as the carriage reciprocates, a series of whole numbers arranged in numerical order around said wheel, and a sight-hole in the framework through which the number which tells the position of the carriage is visible to the operator.

8. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a wheel arranged vertically at the front of the machine, means for causing said wheel to oscillate as the carriage reciprocates, a series of numbers extending in numerical order around the periphery of said wheel, and a sight-hole through which said numbers are visible one at a time and in their natural positions.

9. In a type-writing machine, the combination of step-by-step letter-feeding devices, a carriage constructed to reciprocate in letter-space direction along the framework of the machine, a platen upon said carriage, a wheel arranged vertically at the front of the machine and mounted in the framework independently of said carriage, operative connections extending from said wheel to said carriage, a series of numbers extending in numerical order around the periphery of said wheel, and a sight-hole arranged between the top and the front of said wheel.

10. In a type-writing machine, the combination of a power-driven reciprocatory carriage, escapement devices, a release-key, a wheel positively connected to said carriage and arranged to rotate in a plane at right angles to the direction of travel of the carriage, a column of numbers extending in numerical order around said wheel, and a sight-hole.

11. In a type-writing machine, the combination with a reciprocatory carriage and step-by-step feeding devices of a wheel having numbers arranged in numerical order thereon, and a motion-multiplying gear positively connecting said number-wheel to said carriage so that it may reciprocate therewith.

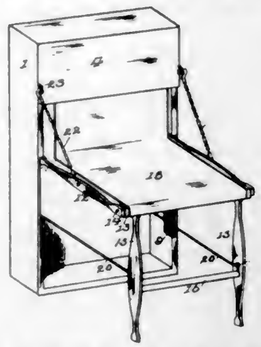
12. In a type-writing machine, the combination of a reciprocatory carriage, a spring-barrel connected thereto, a gear fixed upon said barrel, a pinion in mesh with said gear, a forwardly-extending shaft upon which said pinion is mounted, a pinion carried upon the forward portion of said shaft, and an upright number-wheel having a gear which meshes with the last-mentioned pinion, the axis of said number-wheel being disposed crosswise of the axis of said shaft.

13. In a type-writing machine, the combination of a reciprocatory carriage, a spring-barrel connected thereto, a gear secured by screws to said spring-barrel, collars arranged upon said screws between the spring-barrel and the gear, a pinion in mesh with said gear, a bevel-pinion connected by a rearwardly-extending shaft to said first pinion, a number-wheel whose axis is arranged at right angles to the axis of said shaft, said number-wheel being provided with an integral bevel-gear which meshes with said bevel-pinion, and a sight-hole for said number-wheel.

14. In a type-writing machine, the combination of a reciprocatory carriage having a platen, a series of type-bars arranged forwardly of the platen, a front plate extending across the machine, a number-wheel connected to the carriage and arranged in rear of said plate, and a sight-hole arranged at said number-wheel.

15. In a type-writing machine, the combination of a reciprocatory carriage having a platen, a series of type-bars arranged forwardly of the platen, a front plate extending across the machine, a number-wheel connected to the carriage and arranged in rear of said plate, a hood provided upon said plate for said wheel, and a sight-hole provided in said hood.

660,989. **COMBINED CASE AND CHAIR.** HERBERT FLANDERS, Manchester, N. H., assignor of one-half to Charles E. Stearns, same place. Filed Mar. 14, 1900. Serial No. 8,642. (No model.)



Claim.—1. The combination of the case, the seat-frame pivoted in the sides of the case, a flexible band connecting the front of the frame and the interior of the case and constituting a seat and partial back, and pivoted legs to support the frame and the seat part of the band in a horizontal plane, said case constituting the rear supporting-leg of the seat-frame, and adapted to inclose the said frame, legs and band.

2. The combination of the case, the seat-frame pivoted in recesses within the sides of the case, a flexible band connecting the front of the frame and the interior of the case and constituting a seat and partial back, and pivoted legs to support the frame and the seat part of the band in a horizontal plane, said case also constituting the rear supporting-leg of the seat-frame and adapted to inclose the said frame, legs and band.

3. In a combined case and chair, the seat-frame pivoted in recesses within the sides of the case, a flexible band connecting the front of the frame and the case, and pivoted legs to support the frame and part of the band in a horizontal plane, said case supporting the rear of the seat-frame, a detachable case-cover, and folding legs pivoted in said cover immediately above the recesses in the case sides and holding the side bars of the seat-frame when folded in said recesses.

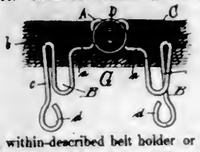
4. In a combined case and chair, the seat-frame pivoted in the sides of the case, a flexible band connecting the front of the frame and the case, and pivoted legs to support the frame and part of the band in a horizontal plane, said case supporting the rear of the seat-frame, and a detachable case-cover to hold the folded chair-seat frame in the case.

5. In a combined case and chair, a partial cover 4 fixed to the case to support the back of the chair occupant, a detachable cover 5, hooks on said latter cover engaging the fixed cover, and a catch to engage the opposite end of the detachable cover with the case.

6. In a combined case and chair, a partial cover 4 fixed to the case to support the back of the chair occupant, a detachable cover 5, hooks in said latter cover engaging the fixed cover, and a catch to engage the opposite end of the detachable cover with the case, said detachable cover overlying the fixed cover.

7. In a combined case and chair, a partial cover fixed to the case to support the back of the chair occupant, a detachable cover, hooks on said latter cover engaging the fixed cover, and a catch to engage the opposite end of the detachable cover with the case, the seat-frame, and the flexible strip having one end secured to the front bar of said frame and its other end secured to the case under the fixed cover.

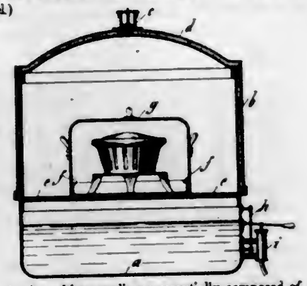
660,990. **BELT-RETAINER.** FRANK H. HOUGHTON, Daytona, Fla. Filed Sept. 11, 1899. Serial No. 730,165. (No model.)



Claim.—1. The within-described belt holder or retainer formed of a single piece of wire bent into shape to form a loop A with the lateral extensions *a* on opposite sides thereof and thence downwardly and upwardly to form the loops B, both of said loops and the opposite members of each of them lying in substantially the same plane and the two loops spaced apart by the extensions *a*, the wire then being folded backwardly at the upper end of the outward member of each loop B to form the folds *b*, and thence downwardly and forwardly to form the prongs *c* converging toward the outer members of the loops B, substantially as and for the purposes described.

2. The within-described belt holder or retainer formed of a single piece of wire and having the centrally-disposed loop A to engage the shank of a button, the two U-shaped loops B spaced from and connected with a part of the loop A by the lateral extensions *a*, the loop B and both members of each of said loops lying in substantially the same plane, and the prongs *c* connected with the upper end of the outer members of loops B by the folds *b*, and having their lower ends extended below the loops B and bent to form the flat hook-shaped portions *d*, substantially as described.

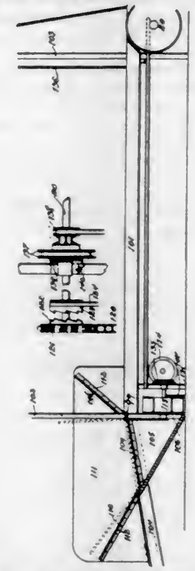
660,991. **COOKING APPLIANCE.** EMMA JÜRGENS, Friedenau, Germany. Filed Dec. 5, 1899. Renewed Aug. 27, 1900. Serial No. 28,245. (No model.)



Claim.—1. A cooking appliance essentially composed of a water-receptacle and a steam-chamber secured thereto, the bottom of the steam-chamber fitted concentrically with an annular externally-screw-threaded ridge and perforated outside said ridge, a bell adapted to be screwed onto the ridge, said bell adapted to cover the foodstuff to be cooked, and a water-gage and a suction-pump in connection with the water-receptacle, substantially as described and shown and for the purposes specified.

2. A cooking appliance comprising in combination a water-receptacle fitted with a water-gage and a suction-pump for keeping the water volume constant, a steam-chamber covered by a lid fitted with a safety-valve tightly secured to the upper edge of the water-receptacle, heat-non-conducting material employed in connection with the shell and lid of the steam-chamber, an annular externally-screw-threaded ridge fitted concentrically to the bottom of the steam-chamber, said bottom perforated outside the annular ridge, and a bell adapted to be screwed onto the annular ridge, said bell adapted to cover the foodstuff to be cooked, substantially as described and shown and for the purposes specified.

660,992. **WAGON-DUMP AND ELEVATOR.** JOHN S. KIDD, Des Moines, Iowa. Filed Dec. 22, 1898. Serial No. 700,064. (No model.)



Claim.—1. In a wagon-dump and elevator, a wagon-platform arranged for oscillation, an approach-platform, a well or hopper in said approach-platform, trap-doors arranged to close the top of said well or hopper at times and be elevated and form extensions of said hopper at times, side pieces 111 arranged above the platforms and forming extensions of the ends of the hopper and means for removing grain from said hopper.

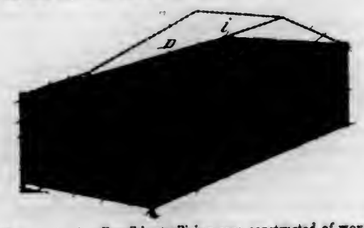
2. In a wagon-dump and elevator, an elevator comprising a leg 117, a wheel 125 mounted for rotation therein and open at one end, an axial aperture in the elevator-leg in alinement with the axis of said wheel, chains mounted on said wheel, elevator-buckets connected with said chains and carried thereby and a conveyer for delivering grain to the interior of said leg, wheel and elevator-buckets through the said aperture in said leg.

660,993. **DEVICE FOR PICKING UP AND AFFIXING STAMPS.** DANIEL P. MACLAURIN, New York, N. Y., assignor to the Union Specialty Manufacturing Company, same place. Filed Sept. 1, 1898. Renewed Mar. 16, 1900. Serial No. 8,996. (No model.)



Claim.—A device of the class described comprising a head provided with a handle the operative surface of said head being convexedly curved and provided adjacent each end with rigidly-secured prongs the relative arrangement and construction being such that said head and handle form a double lever with the pins at the operative ends, and a curved bearing-surface between said pins, substantially as shown and described.

660,994. **STERILIZING-CASE.** JAMES G. MASTIN, Chicago, Ill. Filed Jan. 11, 1900. Serial No. 1,116. (No model.)

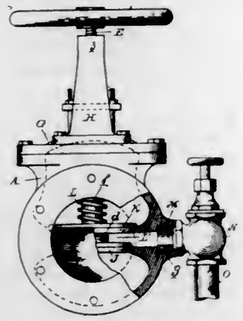


Claim.—1. A collapsible sterilizing-case constructed of woven wire having a bottom, and sides and ends hinged to the bottom to be folded

thereagainst, catches at the upper corners of the sides and ends to secure them together when set up, said catches each comprising a pin adapted to pass through an aperture, and a spring removably covering the end of the pin, a top hinged to the case side, trays of pervious material adapted to fit one within the other and to be suspended in the case when set up, and a flexible handle for the case.

2. A collapsible sterilizing-case constructed of non-oxidizable woven wire having a bottom strengthened at intervals and provided with supporting-legs, and sides and ends hinged to the bottom to be folded thereagainst, catches at the upper corners of the sides and ends to secure them together when set up, said catches each comprising a pin on a case end adapted to pass through an opening in a case side, and a spring removably covering the end of the pin, a top formed in sections each of which is hinged to a case side, woven-wire trays adapted to fit one within the other, chains to suspend the trays at different planes in the case when set up, and a flexible handle for the case.

660,995. **DOUBLE-SEATED VALVE.** CHARLES F. MURRAY, Wyandotte, Mich., assignor of one-half to Charles Lorimer, Shabbona, Mich. Filed Dec. 30, 1899. Serial No. 742,054. (No model.)



Claim.—1. A double-seated valve comprising a casing having two separated seats therein, a chamber between said seats and a vent-aperture connecting with said chamber of a valve comprising a valve-stem, a disk secured to said stem with a slight longitudinal play therein adapted to engage with one of said seats, a second disk sleeved upon said stem for engaging with the other seat and a spring for pressing the latter disk to its seat.

2. A double-seated valve comprising a casing having two separated seats therein, a chamber between said seats and a vent-aperture connecting with said chamber, a valve comprising a valve-stem, a disk secured to said stem with a slight longitudinal play thereon adapted to engage with one of said seats, a second disk sleeved upon said stem for engaging with the other seat, a spring for pressing the latter disk to its seat, and an auxiliary valve controlling said vent-aperture.

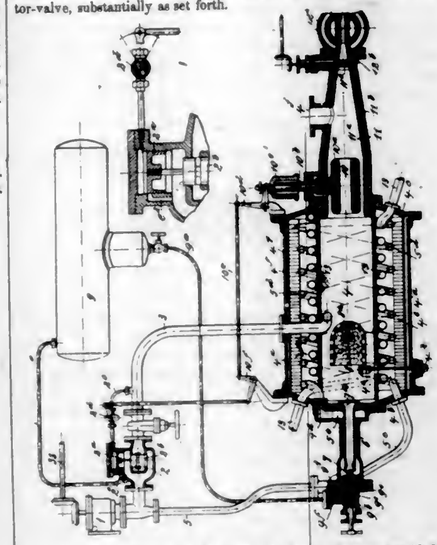
660,996. **CALORIC-ENGINE.** JOHN T. NICOLSON, Manchester, England. Filed June 6, 1900. Serial No. 19,337. (No model.)

Claim.—1. The combination of a plurality of low-pressure motor-compressors, a plurality of high-pressure motor-compressors, a furnace for reheating the air between the high-pressure and the low-pressure motors, a receiver in which the air is cooled between the low-pressure and the high-pressure compressors, a second receiver for the fully-compressed air a furnace for heating the fully-compressed air, a reducing-valve through which the high-pressure air is supplied to the last-named furnace, and pipes connecting the said parts with each other, substantially as described.

2. In an apparatus of the class described, the combination with the furnace for heating the compressed air, of a reducing-valve intercalated between the furnace and the source of compressed air the said reducing-valve having a floating piston with a chamber above it, a thermostat, a tube connecting the reducing-valve chamber with the air-pipe on the furnace side of the valve, and a cock in the connecting-tube controlled by the thermostat, substantially as set forth.

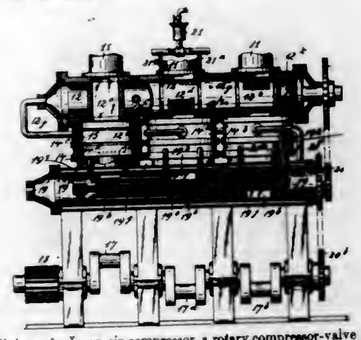
3. In an apparatus of the class described, a main valve controlling the admission of the compressed air, a furnace provided with a liquid-fuel burner for heating the compressed air, a reducing-valve intercalated in a passage from the main valve to the interior of the furnace, and a tube coiled around the furnace and communicating at one end with the liquid-fuel burner and at the other end with the main valve, substantially as set forth.

4. In an apparatus of the class described, a plurality of motor-compressors each containing a trunk-piston connected with a common crank-shaft, a rotary valve admitting compressed air to the side of each piston away from the trunk, a rotary compressor-valve adapted to work synchronously with the motor-valve controlling the admission to and delivery from the trunk side of the cylinder, a pipe communicating through branches with the trunk side of each cylinder, a cock intercalated in each of the branch pipes, a link by which all the cocks can be opened and closed simultaneously, and an air-heating furnace communicating on one side with the compressed-air supply and on the other side with the motor-valve, substantially as set forth.



5. In an apparatus of the class described, a furnace provided with a liquid-fuel injector-burner, a perforated cup containing an axial stemmed projection therein, a thermostat in the furnace-outlet for controlling the air-supply, a removable oil and wick holder for lighting up, and a coil around the furnace for preliminarily heating the compressed air, substantially as set forth.

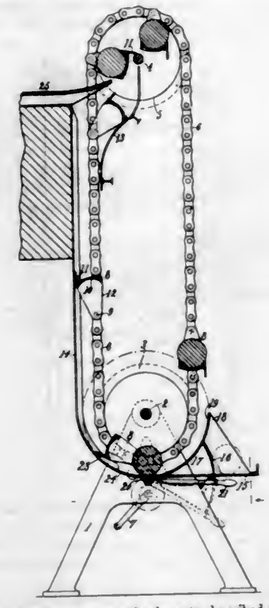
660,997. **COOLING MEANS FOR MOTOR-COMPRESSORS.** JOHN T. NICOLSON, Manchester, England. Filed Sept. 12, 1900. Serial No. 29,759. (No model.)



Claim.—1. In an air-compressor, a rotary compressor-valve having an annular chamber in communication with an end air admission, a port in the outer wall corresponding with a cylinder-port, a central cavity communicating with the delivery-outlet, said cavity having also a port corresponding with the cylinder-port, and a tube forming part of a water-circulating system, substantially as described.

2. In a jacketed rotary valve for an air-compressor, an axial tube surrounded by a space through which the compressed air is delivered, a branch of the said tube at one end opening through the surface of the valve and communicating with a water-admission port, and a second branch at the opposite end of the tube also opening through the surface of the valve and communicating through a port with the water-jacket, substantially as described.

660,998. **HOISTING APPARATUS.** ROBERT R. RAYMOND, Boston, Mass., assignor to Henry B. Newhall, Plainfield, N. J. Filed Aug. 21, 1899. Serial No. 727,875. (No model.)



Claim.—1. In an apparatus of the character described, endless chains, one or more carriers freely hung or suspended between said chains, means whereby said carriers are caused to descend in an inverted position, and means whereby they engage and take up individual loads, substantially as specified.

2. In an apparatus of the character described, endless chains, one or more carriers freely suspended between said chains, a platform at the lowermost path of travel of the carriers consisting of a load-support and a guide for keeping the load in engagement with the carrier until supported thereby, guides or means for inverting the carriers and maintaining them in inverted position as they descend, and means for automatically presenting loads to said carriers on said platform.

3. In an apparatus of the character described, endless chains, one or more carriers freely suspended between said chains, a platform at the lowermost path of travel of the carriers having an inclined extension whereby the load is kept in engagement with the carrier until supported thereby, means for causing the carriers to descend in an inverted position, means for presenting the carriers to the loading-platform in a partly-inverted position, and means for presenting the loads to said carriers on said platform.

4. In an apparatus of the character described, endless chains, one or more carriers freely suspended between said chains, a platform at the lowermost path of travel of the partly-inverted carriers, means for presenting the carriers to the platform in a partly-inverted position, and movable guides for automatically keeping the load in engagement with the carrier until supported thereby, substantially as specified.

5. In an apparatus of the character described, endless chains, one or more carriers freely suspended between said chains, a loading-platform situated at the lowermost path of travel of the carriers, a loading device consisting of a table, the floor of which has one or more pivoted segments with curved faces and means for raising the ends of said curved portions, whereby the faces thereof are made to correspond generally with the line of travel of the carriers, substantially as specified.

6. In an apparatus of the character described, endless chains, one or more carriers freely suspended between said chains, a loading-platform situate at the lowermost path of travel of the carriers, a loading device consisting of a table, the floor of which has one or more pivoted segments with curved faces and means of raising the outer ends of said curved portions, and one or more arms carrying curved plates which form continuations of the curved faces of the pivoted segments when raised, substantially as specified.

7. In an apparatus of the character described, endless chains, a carrier freely suspended between said chains and consisting of a bottom plate and a tailpiece, a tripping device adapted to engage the tailpiece and temporarily to arrest its motion and tip the carrier, a loading-platform at the lowermost path of travel of the carrier, and means for presenting said carrier to said platform in a partly-inverted position whereby it engages and takes up a load on said platform.

8. In an apparatus of the character described, endless chains, a carrier freely suspended between said chains, and consisting of a bottom plate and a tailpiece, a tripping device, and an inner guide adapted to deflect the tailpiece and invert said carrier, substantially as specified.

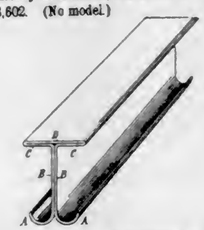
9. In an apparatus of the character described, endless chains, one or more carriers supported thereon, a tripping device adapted to engage with and tip said carriers, means for inverting said carriers, and maintaining them in an inverted position, a loading-platform at the lowermost point of travel of said carriers, and means for presenting said carriers to loads on said platform in a partly-inverted position.

10. In an apparatus of the character described, endless chains, one or more carriers supported thereon, an inner guide for deflecting and inverting the carriers and an outer guide for maintaining the carriers in inverted position, substantially as specified.

11. In an apparatus of the character described, endless chains, one or more carriers freely supported thereon, an inner guide for deflecting and inverting the carriers, outer guides for maintaining the carriers in inverted position, said outer guides being inwardly curved at their lower ends, and a curved platform extending between said guides and situate at the lower and inner ends thereof, substantially as specified.

12. In an apparatus of the character described, endless chains, one or more carriers freely supported thereon, an inner guide for deflecting and inverting the carriers, an outer guide for maintaining the carriers in inverted position, and a loading-platform at the lower and inner end of said guide, said platform being upwardly inclined in the direction of the upward path of travel of the carriers.

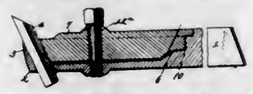
660,999. **TROLLEY-TRACK.** FRED J. RICHARD, Bloomsburg, Pa., assignor to Henry B. Newhall, Plainfield, N. J. Filed Apr. 20, 1900. Serial No. 13,602. (No model.)



Claim.—1. A trolley-track of substantially T shape consisting of a single sheet and having a double top piece, a double stem and having its lower ends projecting outward, substantially as described.

2. A trolley-track of substantially T shape consisting of a single sheet and having a double top piece, a double stem and having its lower ends projecting outward and upward, substantially as described.

661,000. **TOOL-HOLDER.** FREDERIC W. ROEBBEL, St. Louis, Mo. Filed Jan. 25, 1900. Serial No. 2,762. (No model.)



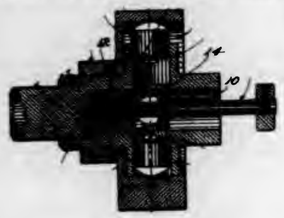
Claim.—1. A tool-holder, comprising a grooved member having an aperture in its forward end, a cutter carried in said aperture, a T-shaped lock carried by said grooved member, its forward end resting upon the said cutter, apertured bosses integral with the said grooved member and lock, and a screw-bolt passing through said lock and being threaded into the grooved member, the said lock being adapted to frictionally engage the said cutter when pressed downwardly by the manipulation of the tool-post screw, substantially as specified.

2. A tool-holder, comprising a grooved member having an aperture in its forward end, a straight cutter carried in said aperture, an elevation integral with said grooved member in the rear end of said groove, and a T-shaped lock having a V-shaped notch across its forward end, carried by said grooved member, the rear end of said lock resting upon the said elevation, there being a projection 10 integral with said lock, for bearing on the said elevation, substantially as specified.

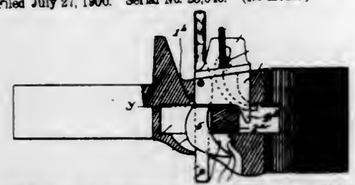
661,001. **FLUID CLUTCH.** JAMES T. RYTHER, Lynn, Mass. Filed Dec. 29, 1899. Serial No. 741,953. (No model.)

Claim.—The improved device comprising the interior member pro-

vided with a plurality of radial chambers having central communication with one another, pistons in said chambers, the exterior member having an eccentrically-disposed wall acting upon the said pistons, and the centrally-located valve comprising essentiallly the cylindrical plunger 12 and the plunger or disk 14 separated from each other as set forth whereby the movement of the fluid may be controlled as desired, substantially as described.



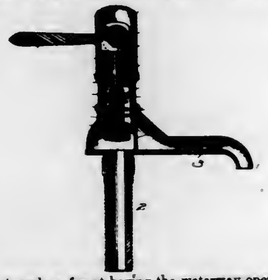
661,002. CAR-COUPLING. CHARLES SCHLARES, Columbus, Ohio. Filed July 27, 1900. Serial No. 25,040. (No model.)



Claim.—1. In a car-coupling, a knuckle having a tongue thereon, a pin having a tongue-locking flange or projection on one side and a tongue-operating lever on the opposite side, combined with a latch attached to the pin-lifting device for automatically latching the aforesaid pin in its tongue-locking position, substantially as described.

2. In a car-coupling, the combination of a knuckle having a tongue, a movable locking-pin therefor, and a lever pivoted to the locking-pin having a cam edge to operate the tongue, and a cam edge to contact with the draw-head when lifted to move said lever against the tongue, substantially as described.

661,003. SELF-CLOSING COCK OR FAUCET. FRANK H. STAHL, Charlestown, W. Va., assignor to the Powhatan Brass and Iron Works same place. Filed Apr. 13, 1899. Serial No. 713,453. (No model.)

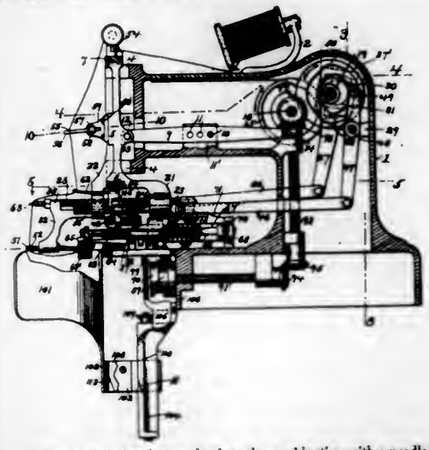


Claim.—A cock or faucet having the waterway-opening of its diaphragm provided with a removable valve-seat, a valve-disk located so as to bear on the water-pressure side of said seat and insertible through said waterway-opening when said seat is removed, and a valve-stem adapted to reciprocate through said valve-seat and be rotated to rotate the same, substantially as described and for the purpose set forth.

661,004. OVERSEAMING SEWING-MACHINE. ORVILLE R. VAN VECHTEN, New York, N. Y. Original application filed Nov. 21, 1898, Serial No. 696,983. Divided and this application filed Oct. 10, 1900. Serial No. 32,583. (No model.)

Claim.—1. In a sewing-machine, the combination with a bed-plate, of means for supporting the work at an angle to the bed-plate, a straight needle, means for supporting and operating it in a plane which is substantially parallel to the bed-plate, devices coöperating with the needle to form a stitch, and means for giving the needle and coöperating stitch-forming devices a bodily movement at an angle to the line of reciprocation of the needle, substantially as described.

2. In a sewing-machine, the combination with a straight needle, of means for supporting and operating it in a substantially horizontal plane, devices coöperating with the needle to form a stitch, means for supporting the work in a substantially vertical plane, and means for giving the needle and the coöperating stitch-forming devices intermittent vertical movement, substantially as described.



3. In a stitch-forming mechanism, the combination with a needle reciprocating in a substantially horizontal plane and mounted to throw out its loop in a plane which cuts the horizontal plane containing the path of the needle at an acute angle, and a coöperating stitch-forming device, substantially as described.

4. In a stitch-forming mechanism, the combination with a needle reciprocating in substantially a horizontal plane and mounted to throw out its loop in a plane which cuts the horizontal plane containing the path of the needle at an acute angle, of a coöperating stitch-forming device moving in a curved path, substantially as described.

5. In a stitch-forming mechanism, the combination with a needle reciprocating in a substantially horizontal plane and mounted to throw out its loop in a plane which cuts the horizontal plane containing the path of the needle at an acute angle, of an oscillating looper moving in a curved path, substantially as described.

6. In a sewing-machine, the combination with the bed, of a reciprocating needle and means for supporting and operating it, the needle being mounted to throw out its loop in a plane cutting at an acute angle a plane which contains the path of the needle and which is substantially parallel to the bed, and coöperating stitch-forming devices, substantially as described.

7. The combination with a frame or support, of a carrier movable therein, means for giving an intermittent movement to the carrier, a needle-bar carried by the carrier, a coöperating stitch-forming device also carried by the carrier, said stitch-forming device in the stitch-forming operation moving in a path which is contained in a plane cutting the path of movement of the carrier at an acute angle, substantially as described.

8. The combination with a frame or support, of a carrier movable therein, means for giving an intermittent movement to the carrier, a needle-bar carried by the carrier, and a looper also carried by the carrier and moving in a path which is contained in a plane cutting the path of movement of the carrier at an acute angle, substantially as described.

9. In a stitch-forming mechanism, the combination with a frame or support, of a carrier, means for giving the carrier intermittent vertical movement, a needle supported in the carrier, a shaft, a coöperating stitch-forming device mounted thereon, said shaft standing at an angle to the movement of the carrier which is other than a right angle, and means for operating the shaft and needle to cause the stitch-forming device and needle to form a stitch, substantially as described.

10. In a stitch-forming mechanism, the combination with a frame or support, of a carrier, means for giving the carrier intermittent movements, a needle-bar supported in the carrier, and reciprocating at an angle to the movement of the carrier, a straight needle carried thereby, a coöperating stitch-forming device, a shaft on which the coöperating stitch-forming device is mounted, said shaft standing at an angle to the movement of the carrier which is other than a right angle, and means for operating the stitch-forming device and the needle to form a stitch, substantially as described.

11. In a stitch-forming mechanism, the combination with a support having a bearing therein, of a reciprocating needle-bar moving in said bearing, a bracket on the bar to which the needle is connected, and means independent of the needle-bar whereby the needle-carrying bracket is kept from turning with respect to the bar as the bar reciprocates, substantially as described.

12. In a stitch-forming mechanism, the combination of a support having a bearing therein, a reciprocating needle-bar moving in said bearing, a bracket on the needle-bar to which the needle is connected, and a guide-and-slot connection between the bracket and the bearing whereby the needle-carrying bracket is guided in its movements, substantially as described.

13. In a stitch-forming mechanism, the combination with a carrier having a supporting-bearing, of a needle-bar working in the bearing and carrying a needle, a shaft mounted on the carrier, said shaft carrying a coöperating stitch-forming device, means for moving the carrier, and means for operating the needle-bar and shaft, substantially as described.

14. In a stitch-forming mechanism, the combination with a carrier and the means for moving it, of a supporting-bearing, a needle-bar working in the bearing and carrying the needle, a shaft mounted on the carrier, a coöperating stitch-forming device mounted on the shaft, a reciprocating rod also moving in a bearing in the support, and connections between said rod and the shaft, substantially as described.

15. In a stitch-forming mechanism, the combination with a support, of a looper-shaft mounted therein, a reciprocating rod, suitable bearings therefor, a slotted disk on the looper-shaft, a block located in the slot in the disk, and connections between the reciprocating rod and the block whereby the reciprocating motion of the rod is converted into a rotary motion of the looper, substantially as described.

16. In a stitch-forming mechanism, the combination with a reciprocating rod moving in suitable bearings, of a looper-shaft supported in suitable bearings and standing at an angle to the line of reciprocation of the rod, a slotted disk on said looper-shaft, a block mounted in the slot, and a connection between the rod and the block, said connection being angularly adjustable around the rod, substantially as described.

17. In a stitch-forming mechanism, the combination with a reciprocating rod moving in suitable bearings, of a looper-shaft mounted in suitable bearings and standing at an angle to the line of reciprocation of the rod, a slotted disk on the looper-shaft, a block mounted in the slot, and a connection between the rod and block, said connection being longitudinally adjustable along the rod, substantially as described.

18. The combination with a reciprocating carrier, of a reciprocating rod working in bearings therein, a looper-shaft standing at an angle to the movement of the carrier which is other than a right angle, a slotted disk on said looper-shaft, a block in the slot, an adjustable connection between the reciprocating rod and the block, and a needle-bar carried by said carrier, substantially as described.

19. The combination with a frame or support, of a carrier mounted therein, means for giving the carrier intermittent reciprocating movement, a needle-bar reciprocating in said carrier, a straight needle carried by the bar, a shaft mounted in the carrier, a coöperating stitch-forming device mounted on the shaft, and means for operating the shaft, substantially as described.

20. The combination with a frame or support, of a carrier mounted therein, means for giving the carrier intermittent reciprocating movements, a needle-bar reciprocating in bearings in said carrier, a straight needle carried by said bar, a looper-shaft mounted in said carrier, a reciprocating rod working in bearings in the carrier, and connections between the rod and the looper-shaft, substantially as described.

21. In a sewing-machine, the combination with a thread-supply, of a needle-bar, a thread-guide between the thread-supply and bar, a thread-controlling device between the guide and the bar, means for giving the thread-controlling device a movement which is parallel to the movement of the bar, and coöperating stitch-forming devices, the parts being constructed and arranged so that the needle-bar draws the thread from the supply on its outward stroke and slack is taken up on its inward stroke, substantially as described.

22. In a sewing-machine, the combination with a reciprocating needle-bar carrying a needle, of a thread-supply, a thread-guide located between the thread-supply and the bar, and a thread-controlling device carried by the bar and operating to take up the slack on the inward stroke of the bar, substantially as described.

23. In a sewing-machine, the combination with a thread-controlling device moving in a right line, of a thread-guide for delivering the thread thereto, and means for varying the distance between the thread-guide and the thread-controlling device, substantially as described.

24. In a sewing-machine, the combination with a reciprocating needle-bar, of a thread-controlling plate having a movement parallel with the bar, a thread-guide from which the thread is led to the thread-controlling plate, and a moving thread-guide to which the thread is led from the controlling-plate, substantially as described.

25. In a sewing-machine, the combination with a reciprocating needle-bar, of a thread-controlling plate having a right-line movement parallel with the bar, a thread-guide from which the thread is led to the thread-controlling plate, and means for varying the distance between the guide and the thread-controlling plate, substantially as described.

26. In a sewing-machine, the combination with a support, of a rotary stud mounted therein, of a bar having a thread-guiding eye therein mounted on the stud and adjustable radially with respect to the axis of the stud, substantially as described.

27. In a sewing-machine, the combination with a bracket, of a rotary stud mounted therein, a bar having a thread-guiding eye therein mounted in the stud and adjustable radially with respect to the axis of the stud, and a single screw for controlling both adjustments, substantially as described.

28. In a sewing-machine the combination with a carrier of a reciprocating needle-bar mounted therein, a needle-supporting bracket mounted on the bar, means for securing the needle to the bracket in a position parallel to the bar and so that a line drawn from any point in the needle and at right angles to its axis will intersect the bar, and means for giving the carrier a movement at an angle to the reciprocating movement of the bar, substantially as described.

29. In a sewing-machine, the combination with a carrier of a horizontally-reciprocating needle-bar mounted therein, a needle-supporting bracket mounted on the bar, means for securing the needle to the bracket in a position parallel to the bar and so that a line drawn from any point in the needle and at right angles to its axis will intersect the bar, and means for giving the carrier a movement at an angle to the reciprocating movement of the bar, substantially as described.

30. In a sewing-machine, the combination with a carrier of a horizontally-reciprocating needle-bar mounted therein, a needle-supporting bracket mounted on the bar, means for adjustably securing the needle to the bracket in a position parallel to the bar and so that a line drawn from any point in the needle and at right angles to its axis will intersect the bar, and means for giving the carrier a movement at an angle to the reciprocating movement of the bar, substantially as described.

31. In a sewing-machine, the combination of a carrier with a reciprocating needle-bar supported in the carrier, needle-supporting means at the outer end of the bar operating to support the needle with its point toward the inner end of the bar, operating mechanism for the bar connected to its inner end and means for giving the carrier a movement at an angle to the movement of the bar, substantially as described.

32. In a sewing-machine, the combination of a carrier with a horizontally-reciprocating needle-bar supported in the carrier, needle-supporting means at the outer end of the bar operating to support the needle with its point toward the inner end of the bar, operating mechanism for the bar connected to its inner end and means for giving the carrier a movement at an angle to the movement of the bar, substantially as described.

33. In a sewing-machine, the combination with a bed-plate, of means for supporting and feeding the work at an angle to the bed-plate, a needle-bar, devices on the bar for supporting the needle, means for causing the bar when forming a stitch to reciprocate across the line of feed, a carrier for the bar, means for giving the carrier a movement at an angle to the movement of the bar, and coöperating stitch-forming devices, substantially as described.

34. In a sewing-machine, the combination with a bed-plate, of a feeding mechanism operating in a plane parallel to the bed-plate, means for supporting the work at an angle to the bed-plate, a needle-bar, devices thereon for supporting the needle, means for reciprocating the bar across the line of feed, a carrier for the bar, means for giving the carrier a movement at an angle to the movement of the bar, and coöperating stitch-forming devices, substantially as described.

35. In a sewing-machine, the combination with a presser-foot, of a carrier therefor, means whereby the carrier and foot are operated to clamp and release the work, and means for giving the carrier and foot a bodily adjustment in a direction at an angle to the line in which they move to clamp the work, substantially as described.

36. In a sewing-machine, the combination with a presser-foot, of a bar by which the foot is carried, means for operating the bar to cause the foot to clamp and release the work, and means for giving the bar and foot adjustment in a line at right angles to their line of movement in clamping the work, substantially as described.

37. In a sewing-machine, the combination with a presser-foot, of a bar by which the foot is carried, means for operating the bar to clamp and release the work, a block having a bearing in which the bar moves, and means for adjusting the block, substantially as described.

38. In a sewing-machine, the combination with a feeding mechanism, of a stitch-forming mechanism working across the line of feed, and a pair of adjustable stops one of which is located on each side of the path of travel of the stitch-forming mechanism and extending over the line of feed, substantially as described.

39. In a machine for sewing sweat-leathers in hats, the combination with a feeding mechanism, of a stitch-forming mechanism operating across

the line of feed, a presser-foot for holding the work in position, and a guide in the presser-foot through which the sweat-leather is fed to the hat, substantially as described.

40. In a machine for sewing sweat-leathers in hats, the combination with a feeding mechanism, of a stitch-forming mechanism operating across the line of feed, a presser-foot for holding the work in position having a guide through which the sweat-leather is fed to the hat, and a curved guide over which the brim of the hat is folded, substantially as described.

41. In a sewing-machine, the combination with a frame having an overhanging arm, of guides in the outer end of the arm, a carrier located in the guides, a needle-bar supported in the carrier, a looper supported in the carrier, a reciprocating rod for operating the looper, connections between the rod and the looper, needle-bar-operating mechanism including a link connection extending from the inner end of the needle-bar, looper-operating mechanism including a link connection extending from the inner end of the looper-operating rod, and devices for intermittently raising and lowering the carrier, substantially as described.

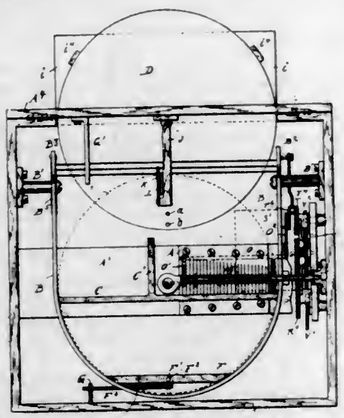
42. In a sewing-machine, the combination with a frame having an overhanging arm, of guides in the outer end of the arm, a carrier working in the guides, means for intermittently moving the carrier, a needle-bar supported in the carrier, looper mechanism supported in the carrier, means for operating the looper, and means for operating the needle-bar including a link connection extending from the inner end of the bar, substantially as described.

43. In a sewing-machine, the combination with a frame having an overhanging arm, of guides mounted in the outer end of the arm, a carrier mounted in the guides, means for intermittently moving the carrier, a stitch-forming mechanism including a horizontally-reciprocating needle-bar supported in the carrier and carrying a straight needle, suitable devices for operating the stitch-forming mechanism, and a feeding mechanism operating to feed the work across the path of reciprocation of the needle-bar, substantially as described.

44. In a sewing-machine, the combination with a frame, of a carrier, guides in which the carrier is mounted, a stitch-forming mechanism supported in the carrier, a lever by which the carrier is raised and lowered, and means for changing the fulcrum-point of the lever, substantially as described.

45. In an organized machine for sewing sweat-leathers in hats, the combination with a guide over which the edge of the hat is folded, a feed for feeding the work along the guide, a presser-foot for holding the work in position having a guide therein for directing the sweat-leather into proper position to be secured to the hat, an adjustable stop lying across the line of feed to prevent the work from rising, a guide in said stop for guiding a reed between the leather and the hat, and a stitch-forming mechanism operating across the line of feed, substantially as described.

661,003. **MUSICAL BOX.** GEORGE VARRELMAN and CHARLES M. FELS, New York, N. Y. Filed Sept. 22, 1899. Serial No. 731,281. (No model.)



Claim.—1. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, substantially as herein shown and described.

2. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, which frame is closed at the swinging end and open at the hinged end, substantially as herein shown and described.

3. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, and a cross-bar on said frame, substantially as herein shown and described.

4. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a cross-bar on said frame and an inclined arm extending from said cross-bar toward the hinged end of the frame, substantially as herein shown and described.

5. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, and a balancing-spring attached to an arm at the hinged end of said frame, substantially as herein shown and described.

6. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism and a motor for operating said frame, substantially as herein shown and described.

7. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a motor, gearing for operating said frame, gearing for rotating a note-disk for operating the music-producing mechanism, and means for throwing the motor in gear alternately with the frame-operating gear, and the music-mechanism-operating gear, substantially as herein shown and described.

8. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, which frame is open at the rear end to permit the disk being lifted by the frame to slide off the frame and a support for receiving said sliding disk, substantially as herein shown and described.

9. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, and a pin from which a series of note-disks can be suspended vertically, a trigger mechanism for holding the note-disks on the said pin and releasing them singly substantially as herein shown and described.

10. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a pin on the swinging end of said frame, for holding a disk, while the same moves downward with and on the frame, substantially as herein shown and described.

11. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a pin on the swinging end of said frame, for holding a disk, while the same moves downward with and on the frame, and means for projecting said pin when the frame arrives at the vertical position and means for withdrawing said pin when the frame arrives in the horizontal position, substantially as herein shown and described.

12. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a pin on the swinging end of said frame, for holding a disk, while the same moves downward with and on the frame, and means for withdrawing said pin, when the frame arrives in lowered position, substantially as herein shown and described.

13. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a lever pivoted on the swinging end of the frame, a pin on one end of said lever, which pin can be projected through the frame to project from the inner side of the same, and a projection for tripping said lever when the frame arrives in lowered position to withdraw said pin, substantially as herein shown and described.

14. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a frame mounted to swing toward and from the music-producing mechanism and to convey a note-disk upon said mechanism, a lever pivoted on the swinging end of the frame, a pin on the inner end of said lever, which can be projected through the frame, a projection for tripping the outer end of said lever when the frame arrives at the raised position and a projection for tripping the outer end of the lever when the frame arrives at the lowered position, substantially as herein shown and described.

15. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a pin for holding a series of note-disks suspended, a trigger having a projection for holding the disks on said pin, the trigger being so mounted that the projection can be raised, a lever operated by the trigger to move in opposite direction and also serving to hold disks on said pin, substantially as herein shown and described.

16. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating note-disk, of a pin for holding a series of note-disks, a trigger-lever pivoted to a suitable support and having its free end near the end of said pin, a lever pivoted to the trigger-lever and to the support and also having its free end near the end of said pin and means for operating said trigger mechanism, substantially as herein shown and described.

17. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating disk, of a pivoted retaining-bar, a central pin around which the disk rotates, and a latch in said central pin for locking the free end of the retaining-bar, substantially as herein shown and described.

18. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating disk, of a pivoted retaining-bar, a central pin around which the disk rotates, and a latch in said central pin for locking the free end of the retaining-bar and means for opening the latch antomatically when the disk is to be removed, substantially as herein shown and described.

19. In a musical box, the combination with a music-producing mechanism, adapted to be operated by a rotating disk, of a pivoted retaining-bar, a central pin around which the disk rotates, and a latch in said central pin for locking the free end of the retaining-bar, means for exchanging the note-disks and devices for opening said latch in the central pin from the note-disk-exchanging means, substantially as herein shown and described.

20. In a musical box, the combination with a music-producing mechanism adapted to be operated by rotating note-disks of a motor, gearing for rotating the note-disks from said motor, mechanism for automatically placing note-disks into playing position in relation to the music-producing mechanism, gearing for operating said note-disk-exchanging mechanism from the motor, alternately with the music-producing mechanism, a pin, from which the supply of note-disks is suspended, a trigger for releasing them singly which trigger is operated by the note-disk-exchanging mechanism, substantially as herein shown and described.

21. In a musical box, the combination with a music-producing mechanism, adapted to be operated by rotating note-disks, of a motor, a cog-wheel driven by the motor and mounted on a pivoted frame to swing to either side, a cog-wheel pivoted on a plate of the music-box frame at each side of the swinging wheel and adapted to be engaged therewith, one of said cog-wheels operating the music-producing mechanism and the other a note-disk-exchanging mechanism, a hub on each cog-wheel on the plate, each hub having a hole and two teeth on the lever on which the swinging cog-wheel is pivoted, a separate spring acting on each end of said pivoted lever and means for alternately bringing the two springs in tension, substantially as herein shown and described.

22. In a musical box, the combination with a music-producing mechanism, adapted to be operated by rotating note-disks, of a motor, the cog-wheel S driven by the motor and adapted to engage the cog-wheels T and R^4 having the hubs T^2 and R^6 having holes T^3 and *d*, the pivoted inverted-T-shaped lever V carrying the cog-wheel S and having the teeth V^3 V^4, the U-shaped lever W, pivoted friction-tight, the springs W^5 and W^6 connecting the levers V and W, and the pins *g* and *h* on the cog-wheels R^4 and T respectively, substantially as herein shown and described.

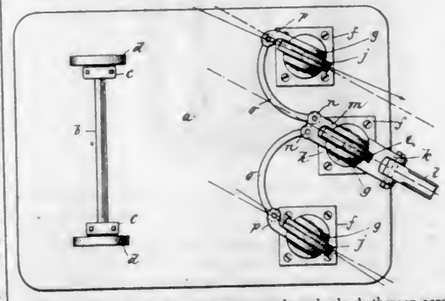
23. In a musical box, the combination with a music-producing mechanism, adapted to be operated by rotating note-disks, of a motor, the cog-wheel S driven by the motor and the cog-wheels T and R^4 adapted to be engaged by the wheel S, said wheels T and R^4 having the hubs T^2 and R^6 having holes T^3 and *d*, the pivoted inverted-T-shaped lever V carrying the cog-wheel S and having the teeth V^3, V^4, the U-shaped lever W pivoted friction-tight, the springs W^5 and W^6 connecting the levers V and W and the pins *g* and *h* on the cog-wheels R^4 and T respectively, and means for automatically locking the lever V in place to prevent displacements of parts, substantially as herein shown and described.

24. In a musical box, the combination with a music-producing mechanism, adapted to be operated by rotating note-disks, of a motor, the cog-wheel S driven by the motor, the cog-wheels T and R^4 having the hubs T^2 and R^6 provided with holes T^3 and *d*, the inverted-T-shaped lever V carrying the wheel S and having pins V^3 V^4 and shouldered recesses U^4, the pivoted lever W, the springs W^5 W^6, connecting the levers W and V, the pivoted locking-levers U, the pins U^3 on the same, the arms U' on said levers U and the springs U^2, substantially as herein shown and described.

25. In a musical box, the combination with a motor, of a disk-rotating mechanism driven from said motor, a disk-exchanging mechanism driven from said motor, a pivoted disk-retaining bar, a central pin for rotating note-disks, an automatic latch in said central pin for locking the free end of the retaining-bar, and means for holding said latch in inoperative position while the motor operates the disk-exchanging mechanism, substantially as herein shown and described.

26. In a musical box, the combination with a casing having a hinged cover, of music-producing mechanism in the casing, a disk-suspending pin on the inner side of the cover, a trigger mechanism for releasing the disks singly from said pin, a swinging frame for receiving the released disks and conveying them upon the playing mechanism and means for operating said frame, substantially as herein shown and described.

661,006. **RUNNING-GEAR FOR TRUCKS.** ENOCH WHALLEY, Williamsett, Mass., assignor of one-half to Charles H. Curran, Holyoke, Mass. Filed May 9, 1900. Serial No. 16,062. (No model.)



Claim.—1. A truck comprising an axle and wheels thereon across the rear end of the truck, three wheels arranged across the front end of the truck, the center one only of which, together with the rear axle, normally sustains the weight of the truck, substantially as described.

2. A truck comprising an axle and wheels thereon across the rear end of the truck, three wheels adapted to rotate in a horizontal plane arranged across the front end of the truck, and means of connection between them whereby that one of said outside front wheels, toward which the center wheel is moved in turning the truck will have imparted to it a greater degree of rotational movement than the other of said wheels, substantially as described.

3. A truck comprising an axle and wheels thereon across the rear end of the truck, three wheels arranged across the front end of the truck adapted to swing in a horizontal plane, the center one only of which, together with the rear axle, normally sustains the weight of the truck, and means of connection between said three front wheels, whereby when said center wheel is swung to the right or left to change the direction of movement of the truck, that one of the wheels located at the side of said center wheel, which moves on the shortest radius, will have the greatest degree of rotational movement imparted thereto, substantially as described.

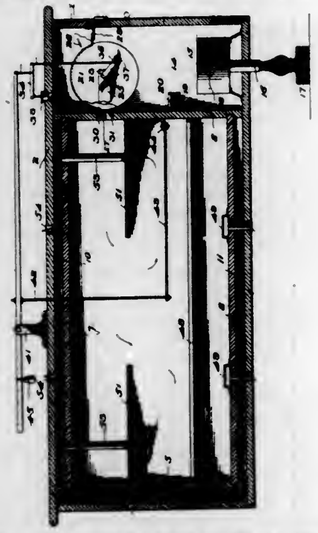
661,007. **INCUBATOR.** CURTIS S. WILSON, Forest, Ohio. Filed Oct. 5, 1899. Serial No. 732,603. (No model.)

Claim.—1. The combination with an incubator provided with a heating-chamber and heater for said chamber, of a heat-regulator adapted to make and break communication between the heating-chamber and the interior of the incubator, respectively, an aperture in the case beyond the regulator, a cap for said aperture, and thermostatically-actuated means for operating the regulator and said cap in successive order, substantially as set forth.

2. The combination with an incubator provided with a heating-chamber and heater for said chamber, the chamber being provided with an aperture and a shelf upon opposite walls, the aperture communicating exclusively with the interior of the incubator, of an oscillatory regulator provided with flanges working within the said aperture and to and from said shelf respectively, and thermostatically-actuated means for operating said regulator, substantially as set forth.

3. The combination with an incubator provided with a heating-chamber and heater for said chamber, the chamber being provided with an aperture and a shelf upon opposite walls, of an oscillatory regulator provided with flanges working within said aperture and to and from said shelf, respectively, a second aperture in the chamber beyond the regulator, a cap

adapted to cover said aperture, and common thermostatically-actuated means for operating the regulator and cap, substantially as set forth.



4. The combination with an incubator provided with a heating-chamber and heater for said chamber, the chamber being provided with an aperture and a shelf upon opposite walls, of an oscillatory regulator provided with flanges working within said aperture and to and from said shelf, respectively, a second aperture in the chamber beyond the regulator, a cap adapted to cover said aperture, a lever operatively connected with the regulator, and with the cap, a balancing-lever supporting the first-named lever, and a thermostat within the incubator, operatively connected with the balancing-lever, substantially as set forth.

5. The combination with an incubator-case provided with means for supplying heat to the interior thereof, of oppositely-projecting deflecting-plates below the points at which the heat enters, defining a medial opening within said case, and outlets communicating with the interior of the case below said deflecting-plates, and at points adjacent to the walls from which said plates project, substantially as set forth.

661,008. DEPOSITING-MACHINE FOR CONFECTIONERY.

GABRIEL CARLSON, Springfield, Mass., assignor to the Confectioners' Machinery and Manufacturing Company, same place. Filed July 12, 1900 Serial No. 23,350. (No model.)

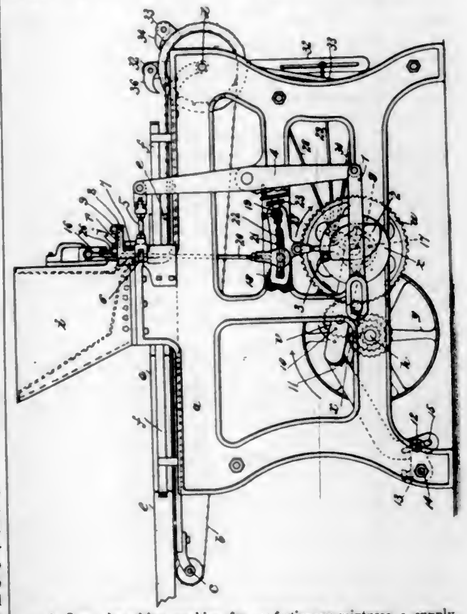
Claim.—1. The combination with the supply-tank of a confectionery-depositing machine, of a cylinder and its piston, supported in proximity thereto, an inlet-port in said cylinder in communication with said tank, one or more outlet ports in the cylinder, and means for rotating said cylinder, whereby said inlet and outlet ports may be alternately opened and closed in operative relation to the movements of said piston, and means for moving the latter, substantially as described.

2. The combination with the supply-tank of a confectionery-machine, of a cylinder and its piston, supported in proximity thereto, an inlet-port and a plurality of outlet-ports in said cylinder, means for alternately opening and closing said inlet and outlet ports in operative relation to the movements of the piston, whereby, upon one stroke of the latter, the cylinder may be filled with material from the tank, and upon the opposite stroke discharge said material through said outlet-ports, substantially as described.

3. A depositing-machine for confectionery mixtures comprising a supply-tank, a series of trays, molds formed in suitable material therein, ratchet mechanism for moving said trays through the machine with a uniform step-by-step movement, and means for changing the length of one of said ratchet steps at predetermined intervals, substantially as described.

4. A depositing-machine for confectionery mixtures comprising a supply-tank, a series of trays, molds formed in rows in suitable material therein, mechanism for moving a series of said trays end to end through the machine automatically, with a continuously forward movement and means for depositing confectionery material in one or more of said rows simultaneously, substantially as described.

5. A depositing-machine for confectionery mixtures comprising a supply-tank, a series of trays, molds formed in rows in suitable material therein, mechanism for moving a series of said trays end to end through the machine automatically, a series of cylinders supported in proximity to said tank, pistons in said cylinders, a port in each of the latter communicating with said tank, a plurality of discharge-outlets from said cylinders, and means for alternately opening and closing said inlet and discharge outlets by the oscillation of said cylinders, substantially as described.



6. In a depositing-machine for confectionery mixtures, a supply-tank, a series of cylinders supported in proximity to the latter, an inlet-port and a plurality of discharge-ports in said cylinders, a piston-bar, pistons supported therein and entering said cylinders, and means for reciprocally and adjustably operating said bar in line with the axis of said cylinders, consisting of a swinging yoke, connecting-rods between said yoke and said bar, an eccentric for operating said yoke, and means on the latter for shifting the point of connection of said connecting-rods therewith, substantially as described.

7. In a confectionery-depositing machine, the combination with a supply-tank, of a cylinder-bar supported thereon, a cylinder in said bar, a piston, an inlet and one or more outlets in said cylinder, and means for oscillating the latter, whereby when said inlet is thereby closed said outlet will be opened and vice versa, together with means for operating said piston, substantially as described.

8. In a confectionery-depositing machine, the combination with a supply-tank, of a piston-bar supported thereon consisting of a solid piece having a series of cylinder-receiving sockets formed therein, cylinders fitted in said sockets for axial rotation therein, an inlet-port in said cylinders communicating with said tank, one or more outlet-ports extending through the lower part of said cylinder and through said bar, and means for rotating said cylinders at the proper time to open and close said outlet and inlet ports alternately, substantially as described.

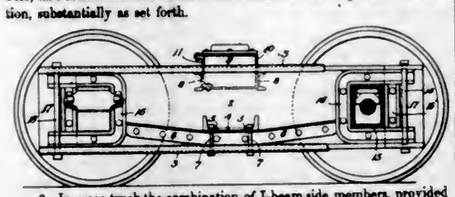
9. In a machine of the class described, a tray having molds formed in suitable material therein in uniform rows, a supply-tank, a mold-charging cylinder in communication with said tank and adapted to discharge confectionery mixture into said molds in two or more rows simultaneously, and means for moving said trays through the machine with an intermittent movement consisting of a series of uniform steps, periodically interrupted by a step or steps of different length, substantially as described.

661,009. CAR-TRUCK.

CYRUS M. CARNAHAN, Allegheny, Pa., assignor to the National Rolled Steel Car Company, Pittsburg, Pa. Filed Feb. 10, 1900. Serial No. 4,723. (No model.)

Claim.—1. A car-truck composed of rolled structural side members, a middle cross member rigidly connecting the side members supplemental cross members constituting bolster-guides, a bolster, reinforcing extended journal-box housings in the ends of the side members, and upper and lower reinforcing rolled members embracing the side members and extended journal-box housings, substantially as set forth.

2. A car-truck composed of I-beam side members, upper and lower reinforcing channel members, a middle cross member rigidly connecting the side members, supplemental cross members constituting bolster-guides, a bolster, reinforced journal-box housings in the ends of the side members, and removable end sections with means for holding them in position, substantially as set forth.



3. In a car-truck the combination of I-beam side members, provided at each end with reinforced journal-box housings open at the outer ends, upper and lower reinforcing channel members projecting beyond the ends of the side members, removable reinforced end sections with means for holding them in position between the upper and lower channel members, a middle cross member rigidly connecting the side members, supplemental upper cross members constituting bolster-guides, and a bolster mounted between the upper cross members and resting upon springs supported by the middle cross member, substantially as set forth.

4. In a car-truck having main I-beam side members, a middle cross member consisting of a channel-beam cut out at its ends, abutting against the webs of the side members and provided with side extensions passing through the webs and resting on and riveted to supporting angle-brackets secured to the outer sides of the side members, substantially as set forth.

5. In a car-truck having I-beam side members, the combination with such side members of a middle cross channel-beam cut out at its ends, abutting against the webs of the side members, provided with side extensions passing through the webs and resting on and riveted to supporting angle-brackets secured to the outer sides of the side members, supplemental upper cross members constituting bolster-guides with an intervening space for rods, &c., a box-bolster mounted between the supplemental cross members and intervening supporting-springs resting on the cross channel-beam, substantially as set forth.

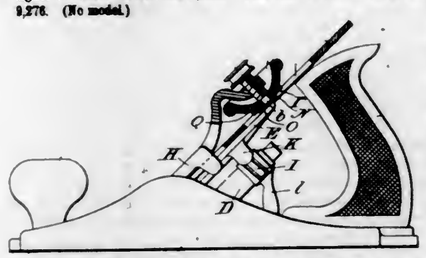
6. In a car-truck having I-beam side members, journal-box housings in the ends of the members consisting of rectangular open-ended apertures adapted to receive the journal-box, surrounding reinforcing frame members riveted to the web of the side members and extending outwardly beyond the ends of the beam, upper and lower reinforcing channel members projecting beyond the beam, and supplemental I-beam extensions provided with reinforcing frame members adapted to interfit between the fixed reinforcing frame members and the reinforcing-channels with vertical securing-bolts passing through the beam-flanges and reinforcing-channels respectively, substantially as set forth.

7. In combination with I-beam side members, a middle cross channel member and upper supplemental cross members forming bolster-guides; a bolster consisting of a rectangular hollow box of structural metal fitting between the upper supplemental members and supported by springs resting on the middle cross channel member, substantially as set forth.

8. In a car-truck, in combination with rolled structural side members, journal-box housings therein at each end consisting of end apertures, a surrounding reinforcing-frame therefor, upper and lower members embracing the frame, and removable end sections forming outer walls for the housing, substantially as set forth.

661,010. PLANE.

MASCHIL D. CONVERSE, New York, N. Y., assignor to John J. Tower, same place. Filed Mar. 19, 1900. Serial No. 9,276. (No model.)



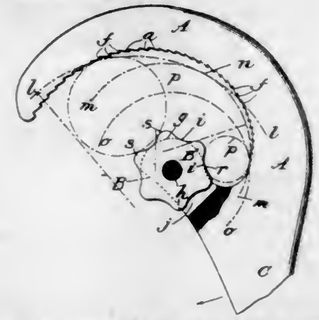
Claim.—1. In a plane a lateral bit-adjustment mechanism comprising an arched clamp-plate carrying a pivot and cramp-screw, a concavo-convex thumb-wheel revolubly mounted on said pivot, provided with an eccentric on its convex side and a radially-flattened surface thereon adjacent to said eccentric, in combination with a longitudinally-slotted bit.

2. In a plane a lateral bit-adjustment mechanism comprising an arched clamp-plate carrying a shouldered pivot and cramp-screw, a concavo-convex thumb-wheel revolubly mounted on said pivot, provided with an eccentric on its convex side and a radially-flattened surface thereon adjacent to said eccentric, in combination with a longitudinally-slotted bit.

3. In a plane a lateral bit-adjustment mechanism comprising an arched clamp-plate carrying a pivot and cramp-screw, a concavo-convex thumb-wheel revolubly mounted on said pivot, provided with an eccentric on its convex side and a radially-flattened surface thereon adjacent to said eccentric and means for preventing the said thumb-wheel from becoming accidentally detached from said clamp-plate, in combination with a longitudinally-slotted bit.

661,011. PIPE AND NUT WRENCH.

MASCHIL D. CONVERSE, New York, N. Y., assignor to John J. Tower, same place. Filed June 7, 1900. Serial No. 19,368. (No model.)



Claim.—1. In a wrench of the type described in combination, a rigid arc-shaped fulcrum-jaw, a rigid circumscribing jaw provided with teeth having their respective points ranged upon a true involute line relatively the working surface of said fulcrum-jaw, and a suitable handle.

2. In a wrench of the type described in combination, a rigid arc-shaped fulcrum-jaw, a rigid circumscribing jaw provided with graduated differential teeth having their respective points ranged upon a true involute line relatively the working surface of said fulcrum-jaw, and a suitable handle.

3. In a wrench of the type described in combination, a rigid fulcrum-bearing, a concave-recessed pivoted striding fulcrum-piece mounted in a slot therein, a rigid circumscribing jaw provided with teeth having their respective points ranged upon a true involute line relatively the axis of said striding fulcrum-piece, and a suitable handle.

4. In a wrench of the type described in combination, a rigid fulcrum-bearing, a concave-recessed pivoted striding fulcrum-piece mounted in a slot therein, a rigid circumscribing jaw provided with graduated differential teeth having their respective points ranged upon a true involute line relatively the axis of said striding fulcrum-piece, and a suitable handle.

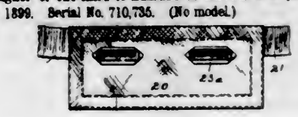
5. In a wrench of the type described in combination, a handle, a rigid circumscribing toothed jaw, a rigid fulcrum-bearing, and a smooth-surfaced, concave-recessed pivoted striding fulcrum-piece mounted in the latter, said concave recesses being equidistant from the pivot, substantially as and for the purposes shown and described.

6. In a wrench of the type described in combination, a rigid arc-shaped fulcrum-jaw, a rigid circumscribing jaw provided with teeth having their respective points ranged upon a true involute line relatively the working surface of said fulcrum-jaw and with the planes of the perpendicular side of each arranged tangential to the evolute, and a suitable handle.

7. In a wrench of the type described in combination, a rigid arc-shaped fulcrum-jaw, a rigid circumscribing jaw provided with teeth having their respective points ranged upon a true involute line relatively the working surface of said fulcrum-jaw, said involute line having a constant angle of convergence of not less than eleven degrees nor more than fifteen degrees, and a suitable handle.

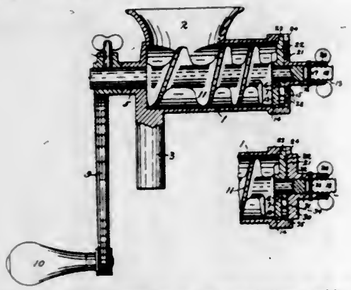
661,012. SKIRT-SUPPORTER.

ERNEST E. DYER, Chicago, Ill., assignor of one-third to Edmund H. Stroud, same place. Filed Mar. 28, 1899. Serial No. 710,735. (No model.)



Claim.— A skirt-supporter for shirt-waists or like garments comprising an inner plate of flexible metal and an inclosing fabric sheath stitched about said plate leaving suitable terminals to which the waist-tapes can be fastened; said inner plate being properly slit and upset through corresponding slits at the face of the sheath to constitute reinforce-eyes (closed at the back by the fabric) for reception of the elongated clips carried on opposite sides of the skirt-placket, substantially as described.

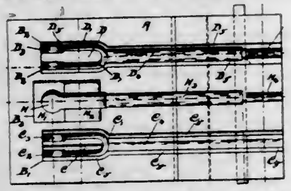
661,013. **MEAT-GRINDER-KNIFE SHARPENER.** Robert V. Jones, North Industry, Ohio, assignor of one-half to Emma L. Hurford and Robert B. Kuhn, Canton, Ohio. Filed July 30, 1900. Serial No. 25,214. (No model.)



Claim.—1. The combination of a meat-grinding machine, a disk having a grinding-face, said disk removably mounted on the actuating-shaft of the grinding-machine and against the knives thereof, substantially as specified.

2. The combination of a meat-grinding machine, an insertible sharpening-disk having a grinding-face, adjustably mounted against and in a plane parallel with the cutting-knives thereof, with means for rotating one against the other, substantially as specified.

661,014. **DIE FOR FORGING FORK-HEADED RODS.** William L. Jones, Arlington, N. J., assignor to Henry Johnson, Rahway, N. J. Filed Oct. 7, 1898. Serial No. 692,880. (No model.)



Claim.—1. As a new article for the manufacture of fork-heads with inside bosses, a pair of horizontally-operated equivalent die parts, each part having a splitting, roughing and finishing matrix substantially as they are illustrated and described, forming the said inside bosses on the fork-heads in one heat.

2. In the manufacture of fork-headed rods having tang ends, the fork-heads having inside bosses, the combination of an upper and lower die transversely recessed to receive the detachable, interchangeable tang-end-forming sections of the dies substantially as set forth and described.

3. As a new article of manufacture, a pair of horizontal dies having three graded matrices for forming fork-headed rods with inside bosses, said dies being transversely recessed to receive the detachable, interchangeable tang-end-forming sections of the dies, substantially as set forth and described.

4. In the manufacture of fork-headed rods, the combination of an upper and lower die, each die having a splitting, roughing and finishing matrix, said dies being transversely recessed to receive the detachable interchangeable tang-end-forming sections of the dies, substantially as set forth and described.

5. In the manufacture of fork-headed rods having fork-heads with inside bosses, the combination of an upper and lower die, a splitting-matrix forming part of each upper and lower die, having a V-shaped cleaving-stump, two semicircular-shaped cavities adjacent to and indenting the cleaving-stump, a continuous V-shaped bed merging into the bed for forming the prongs of the fork, a roughing and finishing matrix formed in said upper and lower dies substantially as described.

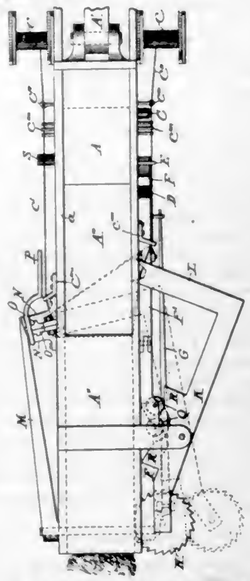
6. In the manufacture of fork-heads or jaws having inside bosses, the combination of upper and lower equivalent die parts, each die having a splitting, roughing and finishing horizontal matrix, and a recessed mandrel to be inserted between the jaws in the finishing-matrix for the purpose as specified substantially as described.

7. In the manufacture of fork-headed rods, the combination of an upper and lower equivalent die, each die having a splitting-matrix, a roughing-matrix having a stump separating the prongs square in section, two semicircular cavities adjacent to and indenting the separating-stump, a bed for the body of the rod, semicircular in section and having two different diameters substantially as set forth and described.

8. In the manufacture of fork-headed rods the combination of an upper and lower die, each die having a splitting-matrix, a roughing-matrix, a finishing-matrix having a right-angled bed conforming to the shape of the fork-prongs, two surfaces cut in the face of the dies embracing the bed of the prongs of the fork, and a mandrel inserted between the prongs of the fork-head so as to rest on said surfaces substantially as and for the purposes described.

9. The combination of an upper and lower die, a splitting, roughing and finishing matrix formed in each die, an inside boss-shaping mandrel to be inserted between the prongs of the fork-head in the finishing-matrix during the process of forging, a detachable interchangeable tang-end-forming section adjustably secured in the upper and lower die, trimming-surfaces furnished around each matrix substantially as it is illustrated and described.

661,015. **BAND-TYING MECHANISM FOR BALING-PRESSES.** William Kennedy and James M. Hunt, Harrisonville, Mo., assignors of one-third to Mary Leonard White, same place. Filed Sept. 19, 1899. Serial No. 731,005. (No model.)



Claim.—1. In a band-tying mechanism for baling-presses, the combination of a pair of vertical guides secured to the side of the press, a pair of vertically-reciprocating toothed racks splined into said guides, a pair of juxtaposed toothed wheels or pinions having trunnions pivoted in said guides, the teeth of said pinions meshing with the teeth of said racks, the grooves between the teeth of said pinions extending into the trunnions to receive the band-wires, a needle threaded with the band-wire having two points, each point being grooved or slotted to receive a band-wire, the points of said needles being separated to such a distance that when brought into proper position the points will straddle the faces of said pinions and cause the wire carried thereby to drop into one of the grooves of the pinions, means for actuating said needle and means for reciprocating said racks, thereby rotating said wheels or pinions and doubly twisting the band-wires together, substantially as described.

2. In a band-tying mechanism for baling-presses, the combination of a pair of vertical guides secured to the side of the press, a pair of vertically-reciprocating toothed racks splined into said guides, a pair of juxtaposed toothed wheels or pinions having trunnions pivoted in said guides, the teeth of said pinions meshing with the teeth of said racks, the grooves between the teeth of said pinions extending into the trunnions to receive

the band-wires, a needle threaded with the band-wire having two points, each point being grooved or slotted to receive a band-wire, the points of said needles being separated to such a distance that when brought into proper position the points will straddle the faces of said pinions and cause the wire carried thereby to drop into one of the grooves of the pinions, means for actuating said needle and means for reciprocating said racks, thereby rotating said wheels or pinions and doubly twisting the band-wires together, and means for giving relative movement to said wheels or pinions whereby the twisted band-wires are sheared or cut between the respective twists, substantially as described.

3. The combination in a baling-press of a plunger having transverse, open-ended slots, a pivoted, cam-actuated needle-bar, a measuring-wheel carried thereby, a jointed, reciprocating slide actuated by said plunger, cam-wheels on said slide for operating said needle-bar, a rock-shaft located at the end of the baling-press, having a rock-arm secured at one end for contact with said slide, a rock-arm secured at the opposite end of said rock-shaft, said latter rock-shaft designed to actuate a bale-tying device in conjunction with said needle-bar, substantially as described.

4. In a baling-press, the combination of a slotted plunger and baling-chamber, a pivoted needle-bar carrying needles, said needle-bar being actuated by the plunger to cause said needles to traverse said slots in the plunger, a band-tying device comprising juxtaposed tying-wheels, suitable supports for said wheels, means for rotating said wheels independently or in unison, intermediate means between said plunger and said tying device for actuating the same whereby the wires carried by the needle-bar and the wires carried by the tying device are doubly twisted or tied together by the movement of the plunger, substantially as described.

5. In a baling-press, the combination of a slotted plunger and baling-chamber, a pivoted needle-bar carrying needles, said needle-bar being actuated by the plunger to cause said needles to traverse said slots in the plunger, a band-tying device comprising juxtaposed tying-wheels, suitable supports for said wheels, means for rotating said wheels independently or in unison, intermediate means between said plunger and said tying device for actuating the same whereby the wires carried by the needle-bar and the wires carried by the tying device are doubly twisted or tied together by the movement of the plunger and means for severing the band-wires between the twists or knots, substantially as described.

6. In a baling-press, the combination of the plunger, the needle-bar and the jointed slide-carrying rollers engaging cam-surfaces on said needle-bar for actuating the needle-bar, said slide cooperating with the plunger to actuate said needle-bar and means for connecting said slide with the plunger, substantially as described.

7. In a baling-press, the combination of a slotted plunger, a slide and a pivoted needle-bar carrying needles, means for connecting said jointed slide with the plunger, cam mechanism carried by said slide and said needle-bar for actuating said needle-bar to cause the needles to traverse the slots of the plungers when said slide is actuated by said plunger, substantially as described.

8. In a baling-press, the combination of a plunger, a slide and a pivoted needle-bar, means for connecting said slide with the plunger, cam mechanism carried by said slide and said needle-bar for actuating said needle-bar when said slide is actuated by said plunger and means for disconnecting said slide from the plunger at the end of the plunger-stroke, substantially as described.

9. In a baling-press, the combination of a slotted plunger, a slide and a pivoted needle-bar carrying needles, means for connecting said jointed slide with the plunger, cam mechanism carried by said slide and said needle-bar for actuating said needle-bar to cause the needles to traverse the slots of the plungers when said slide is actuated by said plunger, a rock-arm mounted upon one end of a rock-shaft, said rock-arm cooperating with said slide to actuate band-tying mechanism, substantially as described.

10. In a baling-press, the combination of a plunger, a slide and a pivoted needle-bar, means for connecting said slide with the plunger, cam mechanism carried by said slide and said needle-bar for actuating said needle-bar when said slide is actuated by said plunger, a rock-arm mounted upon one end of a rock-shaft, said rock-arm cooperating with said slide to actuate band-tying mechanism and means for disconnecting said slide from the plunger at the end of the plunger-stroke, substantially as described.

11. In a baling-press, the combination of a plunger, a jointed slide and a pivoted needle-bar, means for connecting said jointed slide with the plunger, cam mechanism carried by said jointed slide and said needle-bar for actuating said needle-bar when said jointed slide is actuated by said plunger and means for disconnecting said jointed slide from the plunger at the end of the plunger-stroke, substantially as described.

12. In a baling-press, the combination of a slotted plunger, a jointed slide and a pivoted needle-bar carrying needles, means for connecting said jointed slide with the plunger, cam mechanism carried by said jointed slide and said needle-bar for actuating said needle-bar to cause the needles to traverse the slots of the plungers when said jointed slide is actuated by said plunger, a rock-arm mounted upon one end of a rock-shaft, said rock-arm cooperating with said jointed slide to actuate band-tying mechanism, substantially as described.

13. In a baling-press, the combination of a plunger, a jointed slide and a pivoted needle-bar, means for connecting said jointed slide with the plunger, cam mechanism carried by said jointed slide and said needle-bar for actuating said needle-bar when said jointed slide is actuated by said plunger, a rock-arm mounted upon one end of a rock-shaft, said rock-arm cooperating with said jointed slide to actuate band-tying mechanism and means for disconnecting said jointed slide from the plunger at the end of the plunger-stroke, substantially as described.

14. In a baling-press, the combination of a plunger, a jointed slide, means for connecting said jointed slide with said plunger, separate means for disconnecting said jointed slide from said plunger, a pivoted needle-bar, needles carried by said needle-bar, band-wires passed through eyes in the points of said needles, band-tying mechanism carrying a second set of wires, intermediate mechanism between the jointed slide and the band-tying mechanism for actuating said band-tying mechanism and cam mechanism for actuating said needle-bar from the jointed slide, whereby, upon the reciprocation of the plunger, the needle-wires and the second set of wires are twisted together, substantially as described.

15. In a baling-press, the combination of a plunger, a jointed slide, means for connecting said jointed slide with said plunger, separate means for disconnecting said jointed slide from said plunger, a pivoted needle-bar, needles carried by said needle-bar, band-wires passed through eyes in the points of said needles, band-tying mechanism carrying a second set of wires, intermediate mechanism between the jointed slide and the band-tying mechanism for actuating said band-tying mechanism and cam mechanism for actuating said needle-bar from the jointed slide, whereby, upon the reciprocation of the plunger, the needle-wires and the second set of wires are doubly twisted together, substantially as described.

16. In a baling-press the combination of a plunger, a jointed slide, means for connecting said jointed slide with said plunger, separate means for disconnecting said jointed slide from said plunger, a pivoted needle-bar, needles carried by said needle-bar, band-wires passed through eyes in the points of said needles, band-tying mechanism carrying a second set of wires, intermediate mechanism between the jointed slide and the band-tying mechanism for actuating said band-tying mechanism, cam mechanism for actuating said needle-bar from the jointed slide, whereby, upon the reciprocation of the plunger, the needle-wires and the second set of wires are doubly twisted together and means for severing the twisted wires between the double twists, substantially as described.

17. In a baling-press, the combination of a plunger, a jointed slide, means for connecting said jointed slide with said plunger, separate means for disconnecting said jointed slide from said plunger, a pivoted needle-bar, needles carried by said needle-bar, band-wires passed through eyes in the points of said needles, band-tying mechanism carrying a second set of wires, intermediate mechanism between the jointed slide and the band-tying mechanism for actuating said band-tying mechanism, cam mechanism for actuating said needle-bar from the jointed slide, whereby, upon the reciprocation of the plunger, the needle-wires and the second set of wires are doubly twisted together and means actuated by the plunger for severing the wires between the double twists, substantially as described.

661,016. **RELIEF DEVICE FOR ROLLS.** Cornelius Kuhlewind, Knoxville, Pa., assignor to the Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Filed Dec. 22, 1899. Serial No. 741,207. (No model.)

Claim.—1. A relief device for rolls, having movable parts with coacting inclined faces, and springs arranged to normally hold them in place, said parts being arranged to move under excessive pressure, and a cushioning device arranged to give a slight yield to the roll during the ordinary rolling operation; substantially as described.

2. A relief device for rolls, having coacting parts with inclined faces, and springs arranged to hold them in place, said parts being arranged to yield slightly under the ordinary working pressure of the rolls; substantially as described.

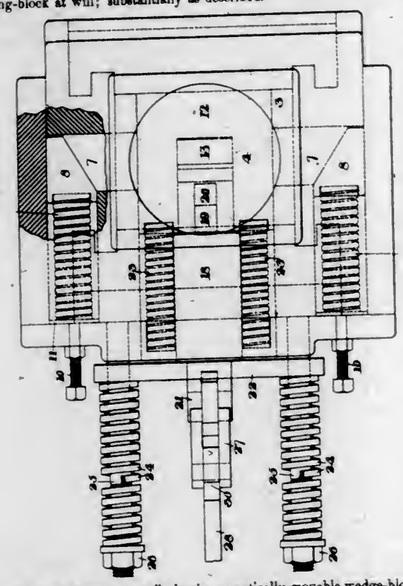
3. A roll-breaker having coacting main wedge-blocks, and a supplemental relief device connected to one of said blocks and arranged to hold them slightly apart until the working pressure is applied; substantially as described.

4. An automatic relief device for rolls, arranged to operate under excessive pressure and containing a wedge and spring system, and a hand device arranged to move out a part of the wedge system against the action of the springs to relieve the roll when desired; substantially as described.

5. A relief device for rolls, having coacting parts with inclined faces, springs arranged to hold them in normal position until excessive pressure is applied, and a hand-lever arranged to move one of said wedges to relieve the pressure; substantially as described.

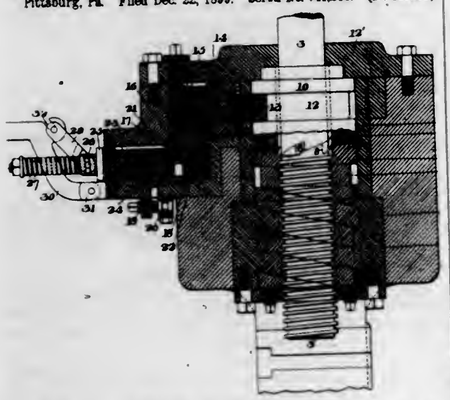
6. A relief device for rolls having coacting main wedge-blocks, a

locking-block between them, and a hand-lever arranged to operate the locking-block at will; substantially as described.



7. A relief device for rolls, having a vertically-movable wedge-block, a horizontally-movable wedge-block coacting therewith, a locking-block arranged to hold them in normal position, springs bearing upon the horizontally-movable block, and a movable slide arranged to hold the locking-block in place; substantially as described.

661,017. ROLLING-MILL. CORNELIUS KUHLEWIND, Knoxville, Pa., assignor to the Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Filed Dec. 22, 1899. Serial No. 741,210. (No model.)



Claim.—1. A rolling-mill having an adjusting-screw, and an automatic relief device comprising a sleeve surrounding the screw, and arranged to be actuated by it, and a yielding pressure device arranged to be actuated by the sleeve when the pressure reaches a determined limit; substantially as described.

2. A rolling-mill having an adjusting-screw, an externally-screw-threaded sleeve having inner screw-threads engaging said screw, a rotatable hub arranged to be turned by the sleeve, and a yielding pressure device arranged to be operated by the hub; substantially as described.

3. A rolling-mill, having a yielding pressure device located in its housing, and at least partially surrounding the adjusting-screw; substantially as described.

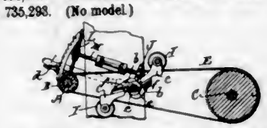
4. A rolling-mill having an adjusting-screw, an externally-threaded sleeve arranged to be rotated and moved endwise by the screw, a rotatable head having teeth engaging teeth at the end of the sleeve, said hub having an eccentric, and a spring-pressed wedge system arranged to be operated by the eccentric, substantially as described.

5. A rolling-mill having an adjusting-screw, an externally-threaded sleeve within the housing, and surrounding the screw, said sleeve having inclined end teeth, a rotary hub surrounding the stem of the adjusting-screw, and having teeth engaging those of the sleeve, a push-block actuated by the hub, and a spring-pressed wedge system arranged to be actuated by the push-block; substantially as described.

6. A rolling-mill having an adjusting-screw, a sleeve surrounding the screw and actuated by it, and a yielding pressure device arranged to be actuated by the sleeve; and a liner acting upon the yielding pressure device; substantially as described.

7. A rolling-mill having an adjusting-screw, an externally-threaded sleeve arranged to be rotated and moved endwise by the screw, a rotatable head having teeth engaging teeth at the end of the sleeve, said hub having an eccentric, a spring-pressed wedge system arranged to be operated by the eccentric, and an adjustable liner acting upon the wedge system; substantially as described.

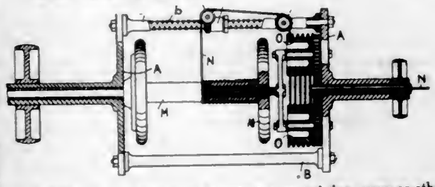
661,018. BELT SHIFTER AND TIGHTENER. BENJAMIN G. LUTHER, Worcester, Mass. Original application filed Sept. 17, 1898, Serial No. 691,235. Divided and this application filed Oct. 30, 1899. Serial No. 735,293. (No model.)



Claim.—1. The combination of the cone-pulleys, and the rock-shaft, with the sliding belt-shifter held upon the rock-shaft and provided at its opposite ends with the belt-guiding rollers adapted to bear upon the same side of the belt, means for imparting lateral movement to the belt-shifter, and means for imparting rotary movement to the rock-shaft to cause the tightening or loosening of the belt, substantially as described.

2. The combination of the cone-pulleys, and the rock-shaft, with the sliding belt-shifter held upon the rock-shaft and provided at its opposite ends with the belt-guiding rollers adapted to bear upon the same side of the belt, the endless chain, and sprocket-wheel for moving the belt-shifter laterally, the arm secured to the rock-shaft and provided with the catch, and the notched bar adapted for the engagement of the catch, substantially as described.

661,019. TRAVERSING OR BUILDING DEVICE FOR FLIERS. CHARLES S. MCCONNAN, Liverpool, England. Filed July 17, 1900. Serial No. 23,945. (No model.)



Claim.—1. An apparatus for spinning or twisting yarns or other material, comprising fliers, a bobbin arranged between them, a guiding-pulley adapted to be moved backward and forward along one of the fliers for conducting the material to the bobbin, mechanism operated by the said pulley for feeding the same longitudinally with respect to the bobbin, whereby the material will be fed evenly from one end of the bobbin to the other, substantially as described.

2. An apparatus for winding or twisting yarn or other material, comprising a bobbin, fliers arranged on either side thereof, a guiding-pulley for directing the material to the bobbin, and mechanism interposed between the said pulley and one of the fliers, whereby the passage of the material over the pulley will operate to feed the said pulley back and forth upon the flier, substantially as described.

3. A mechanism for twisting or winding yarns, comprising a bobbin one or more fliers, a sleeve adapted to engage screw-threads upon a flier, gearing carried by the said sleeve, a guide-pulley for guiding the material to the bobbin, the said pulley being connected to the gearing so that the material in rotating the pulley will operate the gearing and feed the sleeve back and forth upon the flier opposite the bobbin for delivering the material evenly thereto, substantially as described.

4. An apparatus for winding yarn or the like, comprising a bobbin, fliers arranged outside the same, a rotating sleeve, screw-threads formed upon one of the fliers, the sleeve engaging the same, means for preventing the sleeve from turning on the flier, a guide-pulley carried by the sleeve for directing the yarn to the bobbin, gearing connecting the pulley with the screw-threads upon the flier, the structure being such that as the material passes over the pulley it will operate the gearing to feed the sleeve back and forth on the flier, substantially as described.

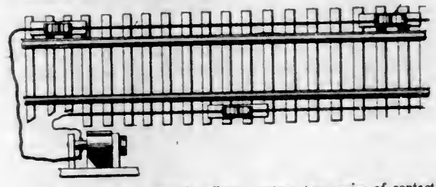
5. An apparatus for winding or twisting yarn, comprising a bobbin, fliers arranged outside the same, a traverse-ring mounted on a flier, a sleeve carried by the said ring, back-and-forth screw-threads formed on one of the fliers, a guide-pulley carried by the sleeve and adapted to engage the threads on the flier, whereby the sleeve will be fed back and forth on the same, the said traverse-ring operating to prevent the sleeve from turning around the flier, substantially as described.

6. An apparatus for twisting or winding yarn and the like, comprising a bobbin, fliers arranged outside the same one of said fliers being provided with back-and-forth screw-threads, a traverse-ring mounted on a flier, a sleeve carried by the ring and surrounding the screw-threaded flier, a counterbalancing-eccentric mounted upon the smooth flier and adapted to automatically accommodate said traverse-ring to the swinging of the flier under centrifugal force, substantially as described.

7. An apparatus for winding or twisting yarn, comprising a bobbin, fliers mounted outside the same, one of said fliers being provided with back-and-forth screw-threads, a sleeve surrounding the screw-threaded flier, means for preventing the same from turning around the sleeve, a bushing mounted in the sleeve and having a web engaging the threads of the flier, a gear-wheel for turning the bushing, a worm engaging the said gear-wheel, and a pulley for turning the worm, the said pulley being arranged to guide the yarn to the bobbin, the structure being such that the yarn, through the agency of the said pulley, will cause the sleeve to be fed back and forth on the threaded flier, substantially as described.

8. An apparatus for twisting or winding yarn, comprising a bobbin, fliers arranged outside the same, a guide-pulley mounted on one of the fliers, gearing connecting the said pulley with screw-threads formed on a flier, two or more grooves arranged in the periphery of the pulley around which the yarn may be passed two or more times for obtaining a positive grip upon the same, the structure being such that the yarn passing over the pulley will cause the said pulley to be moved back and forth on the said flier, substantially as described.

661,020. ELECTRIC RAILWAY SYSTEM. BYRON E. OSBORN, Auburn, N. Y. Filed Apr. 5, 1900. Serial No. 11,729. (No model.)



Claim.—1. In an electric-railway system, two series of contact-stands disposed at intervals to one another on opposite sides of a railway, a prime conductor passing through one series of said stands which are normally "dead," an oscillating contact-lever normally "dead," carried by each of the latter, contact members having electrical connection with the prime conductor, shoes carried by a car, one of which shoes being designed, as it traverses a contact-stand through which the primary conductor passes, to tilt said oscillating lever against one of said contact members, and hold the latter against the contact-stand, the second shoe adapted to contact with a stand in the return-circuit, a motor and electrical connections between same and the shoes, as set forth.

2. In an electric-railway system, two series of contact-stands disposed at intervals to one another on opposite sides of a railway, a prime conductor passing through one series of said stands which are normally "dead," oscillating contact-levers carried by the latter, spring-actuated contact-pieces connected to the primary conductor, the shoes carried by the car, one of which shoes being designed, as it traverses a contact-stand, through which said primary conductor passes, to throw a lever into electrical connection with one of said contact-pieces, the second shoe designed to contact a stand on the opposite side of the railway and in a return-circuit, a motor and electrical connections between same and said shoes, as set forth.

3. In an electrical-railway system, two series of contact-stands disposed at intervals to one another on opposite sides of a railway, a prime conductor passing through one of said series of stands which are normally "dead," oscillating contact-levers carried by the latter, springs for holding said levers in vertical positions, spring-actuated contact-pieces designed to be thrown into electrical connection with the primary conductor as said lever is tilted, a shoe carried by a car and designed to traverse the stands through which the primary conductor passes, and to tilt said levers, a shoe contacting with a stand on the opposite side of the railway, the motor and electrical connections between same and said shoes, as set forth.

4. In an electric-railway system, two series of conductor-stands disposed at intervals to one another, on opposite sides of a railway, in alternate relation, a prime conductor passing through one of said series of stands which are normally "dead," oscillating levers journaled in the latter, pivoted and spring-actuated contact members adapted to be tilted by said levers, the cups held in contact with the primary conductor, and containing metallic mercury, into which the ends of said members are inserted as they are tilted by a shoe traversing the stand and oscillating said lever, the motor, shoes and electrical connections as set forth.

5. In an electric-railway system, two series of conductor-stands, one series being located along each side of the railway, and in alternate relation to one another, a prime conductor and a feeding-wire insulated in suitable piping, and disposed between the stands on one side of the railway, which stands are normally "dead," segmentary conductors located in said stands, couplings connecting the primary conductor to said segmentary conductor, the contact-plates secured to the latter, the oscillating lever pivoted to the stand and spring-actuated, the contact members also spring-actuated and designed to be tilted by said lever into electrical connection with said segmentary conductor, the antifriction-roller carried by said lever, the antifriction-rollers on the stands, the shoes, motor and electrical connections between the latter and said shoes as set forth.

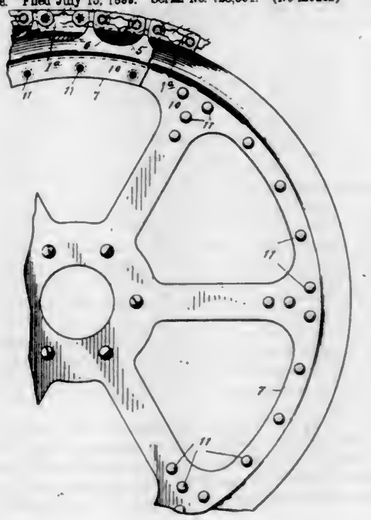
6. A contact-stand for an electric-railway system, comprising the oscillating contact-lever pivoted to the walls of the stand and having an antifriction-roller for contact with a shoe, lugs on the lower end of said lever, springs engaging said lugs to hold said lever normally in a vertical position, the segmentary conductor in the chamber of the stand, the pivoted and spring-actuated contact members, the plates secured to said segmentary conductors, as set forth.

7. In an electric-railway system, a return contact-stand comprising a segmentary conductor carried in the chamber of the stand, couplings in which the ends of said conductor are held, the antifriction-rollers journaled in the upper edge of the stand, the conductor bolted to the upper edge of the stand and connected to the return-wire, said stand being normally "live" with the wire to which it is connected.

8. In an electric-railway system, the combination with the contact-stands, as described, the guard-plates recessed and held against the ends of the contact-stands, and the insulated blocks held against the ends of the contact-stands, as shown and described.

9. In an electric-railway system, the combination with the series of contact-stands and electrical connections therewith, the shoes, adapted to be held in contact with a stand on the outgoing and return circuits, each shoe made up of two complemental angle-plates with upturned ends, the binding-post secured to said shoe, the flanged disk, the angle-braces securing same to the shoe, the metallic post, and spring-bearing between said disk and a portion of the truck of the car carrying the shoe, as set forth.

661,021. DRIVE-CHAIN AND WHEEL THEREFOR. JOHN C. PRATT, Hartford, Conn., assignor of one-half to Arthur L. Foster, same place. Filed July 15, 1899. Serial No. 723,891. (No model.)



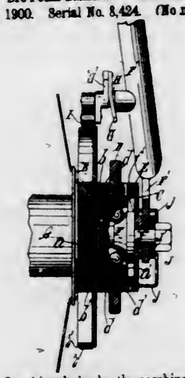
Claim.—1. A drive-chain comprising a series of metal links formed from one piece of metal, and having two parallel sides between which one end of the block is supported, said sides below the block-receiving portion thereof converging toward each other and constituting bearing-surfaces adapted to enter a V-shaped groove in the periphery of a pulley for rotating the latter, combined with blocks pivotally uniting said links, substantially as described.

2. A drive-chain comprising a series of metal links and blocks alternately united end to end, said links being bent up to inclose each side of a block, and said links having converging sides, combined with a wheel having a V-shaped chain-receiving groove in its periphery, adapted to receive the converging sides of said links, substantially as described.

3. In a drive-chain, the combination of a series of metal links each made in one piece and having two parallel sides adapted to receive a metal block between them, pivot-pins in said blocks, and a slot in said parallel sides having an enlarged central portion whereby said pins may be withdrawn for removing a block; said links having converging bearing-surfaces constituting a prolongation of said parallel sides below the block-receiving portion of the latter, and metal blocks pivotally uniting said links, substantially as described.

4. A wheel having in its periphery a groove having sides outwardly yielding relative to the web of the wheel and inclined toward the axis thereof, and a drive-chain for said wheel adapted to frictionally engage said groove, substantially as described.

661,022. **BICYCLE-BRAKE.** HARVEY E. RINGLE, Redlands, Cal. Filed Mar. 12, 1900. Serial No. 8,424. (No model.)



Claim.—1. In a bicycle-brake, the combination set forth of the band-wheel screwed upon the hub of the hind wheel and provided upon its outer face with ratchet-teeth; the sleeve screwed upon said hub and arranged to lock the band-wheel in position; a sprocket-wheel provided upon its inner face with ratchet-teeth to take into the ratchet-teeth of the band-wheel when the pedals are operated to drive the bicycle forward, and provided upon its outer face with reverse ratchet-teeth; the brake-operating member loosely mounted coaxially of the sleeve and provided with teeth to be engaged by the reverse teeth upon the ratchet-wheel when the pedals are operated to drive the sprocket-wheel backward; the band encircling the brake-wheel; the lever adapted to operate the band; and a connecting-arm between the lever and the brake-operating member.

2. In a bicycle-brake, the combination of a hub; a brake-wheel fixed to the hub and provided at its face with teeth sloping in one direction; a brake for braking the brake-wheel; mechanism for operating the brake; a member loosely mounted coaxial of the hub for operating said mechanism and provided with teeth sloping in the direction opposite to those of the brake-wheel; a sprocket-wheel mounted loosely coaxial of the hub to slide to and fro between the brake-wheel and the brake-operating member and provided on the face presented toward the brake-wheel, with teeth sloping in the direction opposite to the teeth of the brake-wheel and provided on the face presented toward the brake-operating member with teeth sloping in the direction opposite to the teeth of the brake-operating member; the space between the outer sides of the toothed faces of the sprocket-wheel being greater than the space between the toothed face of the brake-wheel and the toothed face of the brake-operating member, and less than such space plus the depth of the notches of one of the toothed faces.

3. In a bicycle-brake, the combination set forth of the hub; a brake-wheel screwed upon the hub; a smooth sleeve screwed upon the hub to lock the brake-wheel in position; a sprocket-wheel having ratchet-teeth on both sides and mounted upon the sleeve; a washer mounted upon the axle; a brake-operating disk independent of the hub and having ratchet-teeth to engage with the teeth on the sprocket-wheel which fits loosely between the brake-disk and the brake-wheel and is adapted to engage with the brake-wheel when rotated in one direction to drive the bicycle, and to be released therefrom to allow the hub to rotate freely when the sprocket-wheel is rotated backward or held from rotating, and to engage with the brake-disk when the sprocket-wheel is rotated backward; and a brake for the brake-wheel adapted to be operated by the brake-disk.

4. In a bicycle-brake, the combination set forth of the brake-wheel secured upon the hub and provided on its outer face with the ratchet-teeth; the sleeve screwed upon the hub and locking the brake-wheel in position; the sprocket-wheel mounted upon the sleeve and provided on its inner face with teeth adapted to take into the teeth on the brake-wheel when the sprocket-wheel is rotated forward and provided on the other side with reverse ratchet-teeth; a brake-disk mounted coaxially of the hub and provided upon its inner face with ratchet-teeth to be engaged by the teeth upon the outer face of the sprocket-wheel when the sprocket-wheel is rotated backward, sufficient space being allowed between the brake-wheel and the brake-disk to allow the sprocket-wheel to rotate forward without engaging the brake-disk when in engagement with the brake-wheel, and to allow the brake-wheel to rotate freely without engaging the sprocket-wheel when the sprocket-wheel is in engagement with the brake-disk; and a brake adapted to be operated by the brake-disk.

5. A bicycle-brake comprising a sprocket-wheel provided upon opposite sides with reversely-directed ratchet-teeth and loosely mounted upon the bicycle-hub; a clutch-wheel secured to the hub and provided with ratchet-teeth; a brake-disk with teeth to engage the ratchet-teeth of the sprocket-wheel; means for operatively connecting the sprocket-wheel with the brake-wheel or the brake-disk; and a brake adapted to be operated by the brake-disk.

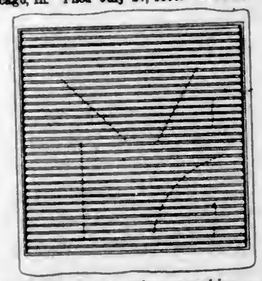
6. A bicycle-brake comprising a brake-wheel provided with ratchet-teeth and fixed upon a hub; a brake-disk provided with ratchet-teeth and independent of the hub; a sprocket-wheel arranged between the brake-wheel and the brake-disk and adapted to be shifted and thrown into engagement with either the brake-disk or the brake-wheel; and a brake adapted to be operated by the brake-disk to engage the brake-wheel.

7. In a bicycle-brake, the combination of the brake-wheel fixed upon the hub and provided with ratchet-teeth; the brake-disk independent of the hub and provided with ratchet-teeth; the sprocket-wheel journaled upon the hub and provided upon opposite sides with ratchet-teeth adapted to engage with either the brake-wheel or the brake-disk; a brake adapted to be operated by the brake-disk; and a spring yieldingly forcing the brake-disk toward the brake-wheel.

8. In a bicycle-brake, the combination of the brake-wheel screwed upon the bicycle-hub and provided upon its outer face with ratchet-teeth; the brake-disk journaled upon the hub and provided upon its inner face with ratchet-teeth; the sprocket-wheel journaled upon the hub and provided upon opposite sides with ratchet-teeth to engage with the teeth upon the brake-wheel, and the teeth upon the brake-disk; the arm secured to the brake-disk; the journal-pin fixed upon the hind fork of the bicycle; the bell-crank lever journaled upon the pin; the friction-band having one end secured to the pin and its other end secured to one end of the bell-crank lever; and an arm connecting the other end of the bell-crank lever with the brake-disk arm.

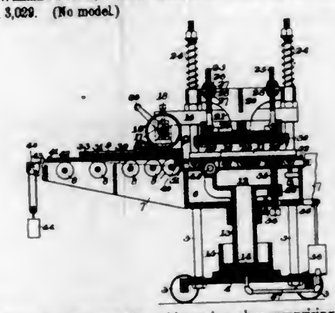
9. The combination with a driving member, and a driven member, of a clutch member fixed against rotation upon the driven member, a laterally-movable brake member located upon the opposite side of the driving member, the latter being laterally movable for engagement with each of the other members.

661,023. **PRISM-GLASS.** DANIEL C. RIPLEY, Pittsburg, and FRANK L. O. WADSWORTH, Allegheny, Pa., assignors to William A. Bond, trustee, Chicago, Ill. Filed July 27, 1899. Serial No. 725,233. (No model.)



Claim.—An illuminator prism-plate comprising a sheet of plate-glass having prisms molded therein while the glass is in a flat plastic state, said prisms being produced by pressure exerted in a direction transverse to the plane of the sheet upon the entire cross-section of the portion to be shaped into prisms, whereby the prism-plate is free from internal strains and capable of being cut on predetermined lines.

661,024. **APPARATUS FOR MAKING GLASS.** DANIEL C. RIPLEY, Pittsburg, and FRANK L. O. WADSWORTH, Allegheny, Pa., assignors to William A. Bond, trustee, Chicago, Ill. Filed Jan. 27, 1900. Serial No. 3,029. (No model.)



Claim.—1. Apparatus for making prism-glass comprising a spreading-table on which the glass is rolled, a roll, and an upper pressing-die having prism-form shaping-cavities, said cavities being provided with air-vents and means arranged to force said spreading-table and die toward one another said die being shaped to make pressing-contact of the surface of the said cavities with the entire surface of the glass beneath them; substantially as described.

2. In a machine for shaping vitreous material, a lower spreading-table for receiving the material, means for spreading the material thereon, an upper die, and means for superposing and bringing the spreading-table and die toward one another to compress the intervening material, and devices adapted to carry the spreading-table and die to an inclined position, and to support them in said position during the act of separation substantially as described.

3. The combination with a forming-die and table, of means for setting them in an inclined position, and devices for supporting them in such position during the act of separation; substantially as described.

4. The combination of a longitudinally-movable spreading-platen, a table to receive the same, a reciprocating shaping-die, and means for carrying the die and table to and from each other; substantially as described.

5. The combination of a longitudinally-movable spreading-platen, a table to receive the same, an upper shaping-die, means for adjusting the die and table to different angles, and means for carrying them to and from each other; substantially as described.

6. The combination of a longitudinally-movable spreading-platen, a movable table to receive the same, a reciprocating shaping-die, yielding supports for said die, and means for carrying the table and die to and from each other; substantially as described.

7. The combination of a longitudinally-movable spreading-platen and supports upon which it can travel, a movable table in line with said supports, a die above said table, and means for carrying the die and table to and from each other; substantially as described.

8. The combination of the table 10 having beveled sided strips and a die with faces adapted to the sides of said strips; substantially as set forth.

9. The carrier 12 and the table 10 in combination with a suspended die 23, the table pivoted to the carrier, and an adjustable stop 55; substantially as set forth.

10. The carrier 12, mechanism operating the same, and table 10, in combination with a suspended die 23, the table pivoted to the carrier, and an adjustable stop 55; substantially as set forth.

11. The combination of a vertically-moving table 10, rollers carried thereby and capable of a limited vertical movement, and supports for the roller-journals arranged to hold the rollers in position projecting above the table when the latter is in its lower position; substantially as set forth.

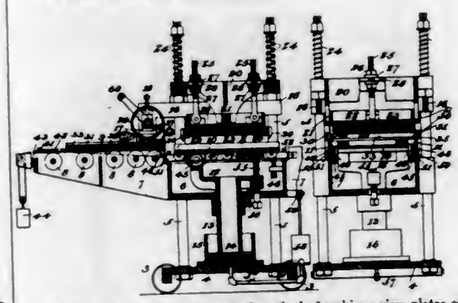
12. The combination with the vertically-movable table 10, of rollers carried therewith normally projecting above the table, and means for depressing the roller when the table is lifted; substantially as set forth.

13. The combination with the lower sliding platen, upper suspended die, and vertically-movable table 10, of rollers carried therewith, normally projecting above the table, and means for depressing the rollers when the table is lifted; substantially as set forth.

14. The combination of an engine having a piston-rod and carrier 12 connected therewith, a table pivoted to said carrier, adjusting means and a suspended die 23; substantially as set forth.

15. The combination of the platen 9 having shearing edges and movable strips 33, and a die 23, cutters 29, and devices for moving out the strips as the cutters descend; substantially as set forth.

661,025. **MANUFACTURE OF PRISM-GLASS.** DANIEL C. RIPLEY, Pittsburg, and FRANK L. O. WADSWORTH, Allegheny, Pa., assignors to William A. Bond, trustee, Chicago, Ill. Filed June 14, 1900. Serial No. 20,293. (No model.)



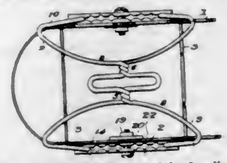
Claim.—1. The herein-described method of making prism-plates of large area in two operations, consisting in producing a substantially flat sheet of glass, and then forming prisms on the surface of the sheet by pressure exerted in a direction transverse to the plane of the sheet upon the entire cross-section of the portion to be shaped into prisms; substantially as described.

2. In the manufacture of prism-plates, first spreading the glass into a sheet of at least the dimensions of the completed article while the same is freely plastic, whereby change in the relation of the particles is unaccompanied by increased tension of any part of the mass, and then, (leaving the glass sheet of the dimensions so constituted and without further spreading the glass,) forming on the surface of the sheet while still plastic prisms over the entire portion to be shaped and confining the prisms until the glass thereof has set; substantially as described.

3. The herein-described method of making prism-plates of large area in two operations, consisting in producing a substantially flat sheet of glass, and then forming prisms on the surface of the sheet by pressure exerted in a direction transverse to the plane of the sheet, upon the entire cross-section of the portion to be shaped, and confining the prisms until the glass has set; substantially as described.

4. The herein-described method of making prism-plates in two operations, which consists in producing a substantially flat sheet of glass, and then while it is still plastic applying pressure to the surface thereof in a direction transverse to the plane of the sheet and upon the entire surface to be shaped into prisms, segregating thereby portions of the plastic glass, and displacing the same upwardly into ridges of prism form, whereby the prism-plate is formed without unequal straining of the glass; substantially as described.

661,026. **TOE-CLIP.** OREN W. KINLEY and IRVIN J. ESHLIMAN, Glenwood, Iowa. Filed Oct. 5, 1899. Serial No. 732,638. (No model.)



Claim.—1. The combination with a pedal, of a clip, consisting of an arch provided with four terminals disposed in pairs upon opposite sides of the pedal, each pair being designed to be fitted to the foot of a wearer, and clip-securing mechanisms, respectively located upon the opposite sides of the pedal, and adapted to independently adjust the terminals to secure the fit referred to, substantially as set forth.

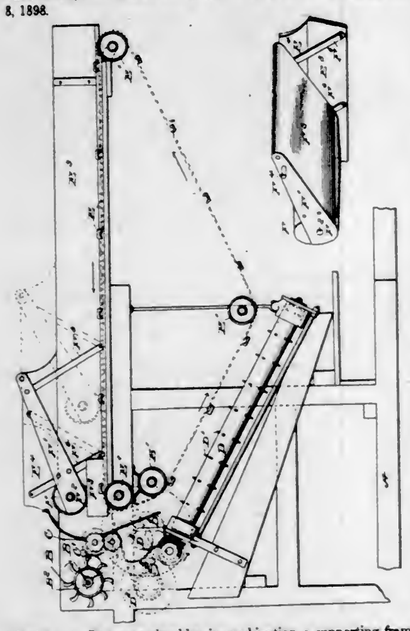
2. The combination with a pedal and an arch provided with two pairs of terminals, each pair being designed to independently fit the foot of a wearer, of pairs of grooved plates, located respectively upon opposite sides of the pedal, and means for securing and clamping together each pair of plates upon the pedal, whereby the terminals may be independently adjusted, and the height of the arch and the breadth of its terminals may be at the same time independently regulated, substantially as set forth.

3. The combination with a pedal, of a clip consisting of a pair of wires united, as by intertwining, near their middle, and terminating in

four terminals, and a pair of grooved plates, adapted to receive within the grooves thereof the terminals of the wires, thereby constituting adjustable clip-securing mechanisms, said mechanisms being located respectively upon the opposite sides of the pedal, substantially as set forth.

REISSUES.

11,866. CORN-SHREDDER. FREDERICK HAGEN, Belvidere, Ill. Filed June 5, 1900. Serial No. 19,122. Original No. 613,676, dated Nov. 8, 1898.



Claim.—1. In a corn-shredder, in combination, a supporting-frame, a shredding mechanism, a carrier for presenting the cornstalks to the shredding mechanism, lower side boards and upper side boards which latter are movably mounted over the carrier by a pair of pivotal links loosely pivoted to the upper and lower side boards respectively, and a presser carried by the upper side boards and adapted to be moved therewith, substantially as and for the purpose specified.

2. In a corn-shredder, the combination of a supporting-frame, a carrier for presenting cornstalks to a shredding mechanism, a freely-mounted presser located over the carrier and pivotally connected to the main frame, said connection permitting the presser to be moved bodily in a lengthwise direction of the main frame and supporting said presser in either of the two extreme opposite positions.

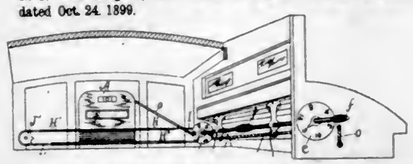
3. In a corn-shredder, the combination of a supporting-frame, a carrier for presenting cornstalks to a shredding mechanism, supplemental frames located over the main frame, a presser pivotally supported at one end to the supplemental frames, its other end being self-adjustable, and a suitable connection between the main frame and supplemental frames, said connection permitting the said supplemental frames to be moved bodily to and from the shredding mechanism and supporting the same in either of the two extreme opposite positions.

4. In a corn-shredder, the combination of a supporting-frame, a shredding mechanism, a carrier for presenting cornstalks to the shredding mechanism, supplemental frames located over the main frame and supported thereby, a presser pivotally supported at one end to the supplemental frames, its other end being self-adjustable, and links connecting the supplemental frames and main frame, the connection being such that the said supplemental frames and presser may be moved bodily to and from the shredder mechanism and supported in either of the two extreme opposite positions of their movement.

5. In a corn-shredder, the combination of a supporting-frame, a shredder mechanism, a carrier for presenting cornstalks to the shredder mechanism, a pivotally-mounted presser supported over the carrier, and a movable connection between said main frame and presser, permitting the latter to be moved to and from the shredder mechanism.

6. The combination of a supporting-frame, a shredding mechanism E, a frame including side boards E^2 secured to the main frame, a carrier between said side boards, a pair of upper side boards normally resting upon the side boards E and connected to each other by a framework F', and a shield F^3, a presser-roller F, stop-blocks secured to said side boards E^2 to support the framework F' and prevent the roller from falling into contact with the carrier, and two pairs of links each pivoted at one end to the side boards E^2 and at the other end to the upper side boards E^4, and of such a length as to permit the presser to rest either in normal position and yield to excess of feed, or to be drawn back and at the other end of its movement to rest on the side boards E^2 out of the way to permit access to the shredding mechanism.

11,867. MECHANISM FOR OPERATING FARE-REGISTERS. JOHN F. OHMER and HIRAM TYLER, Dayton, Ohio, assignors, by direct and mesne assignments, to the Ohmer Car Register Company, Rochester, N. Y. Filed Aug. 15, 1900. Serial No. 26,984. Original No. 635,343, dated Oct. 24, 1899.



Claim.—1. In mechanism for operating street-car registers, the combination with a series of individual slides adapted to operate the mechanism of said register, of a slide movable to positions to engage with any one of said individual slides, and means for imparting movements to said slide.

2. In mechanism for operating street-car registers, the combination with a series of individual slides adapted to operate the mechanism of said register, of a carriage, a slide supported on said carriage and movable therewith to positions to engage with the slides in the register, and means for imparting movements to said carriage and to the slides thereon.

3. In mechanism for operating street-car registers, the combination with a series of slides adapted to operate the mechanism of said register, the said slides having arms or projections that project through slots in said register, of a carriage, a slide mounted on said carriage to move vertically, and adapted to be carried by the carriage to positions to engage with any one of the arms on the register-slides, a lifting-bar engaging with the slide on the carriage, substantially as and for the purposes specified.

4. In mechanism for operating street-car registers, the combination with a series of sliding bars arranged in said register and adapted to operate the mechanism of said register, of a carriage, an operating rod or rods on the car, connections between said rod or rods and the carriage, whereby a horizontally-reciprocating movement is imparted to said carriage, a slide carried on said carriage and adapted to engage with the sliding bars in the register, and means for actuating said slide on the carriage to move the sliding bars in the register, substantially as specified.

5. In mechanism for operating street-car registers, the combination with a series of register-slides B with arms E, of a carriage adapted to be moved back and forth horizontally, a slide mounted on said carriage and adapted to be moved in a plane at right angles to the movement of the carriage, and mechanism substantially as described for operating said carriage and slide, as and for the purposes specified.

6. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, a first operating device for establishing an operative relation between such actuating device and a desired one of such independently-movable parts, and a second operating device for operating such actuating device and thereby also the desired one of such independently-movable parts, such operating devices arranged to be engaged and operated separately and independently by the hand of the operator.

7. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, a first operating device for establishing an operative relation between such actuating device and a desired one of such independently-movable parts, and a second operating device for operating such actuating device and thereby also the desired one of such independently-movable parts, such operating devices located adjacent to each other and arranged to be engaged and operated separately and independently by the hand of the operator.

8. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, a first operating device for establishing an operative relation between such actuating device and a desired one of such independently-movable parts, and a second operating device for operating such actuating device and thereby also the desired one of such independently-movable parts, such operating devices arranged to be engaged and operated separately and independently by the hand of the operator, and a common support for such first and second operating devices.

9. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, two independently-operating handles, means whereby the different movements of a first one of such handles establish an operative relation between such actuating device and the desired one of such independently-movable parts, and means whereby the movement of the second one of such handles operates such actuating device, and thereby also the desired one of such independently-movable parts.

10. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, two independently-operating handles located adjacent to each other, means whereby the different movements of a first one of such handles establish an operative relation between such actuating device and a desired one of such independently-movable parts, and means whereby the movement of the second one of such handles operates such actuating device and thereby also the desired one of such independently-movable parts.

11. In combination with a series of independently-movable parts each arranged to operate its corresponding set of mechanism in a fare-register, an actuating device arranged to engage and operate each one individually of such independently-movable parts when in operative relation therewith, two independently-operating handles, means whereby the different movements of a first one of such handles establish an operative relation between such actuating device and the desired one of such independently-movable parts, and means whereby the movement of the second one of such handles operates such actuating device, and thereby also the desired one of such independently-movable parts, and a common support for such first and second handles.

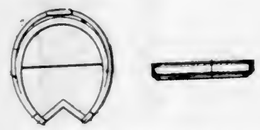
DESIGNS.

33,449. BADGE. CHARLES S. ROGERS, Hot Springs, Ark. Filed Sept. 5, 1900. Serial No. 29,094. Term of patent 3½ years.



Claim.—The design for a badge, as herein shown and described.

33,450. SCARF-PIN. HERMAN COHEN, New York, N. Y., assignor of one-half to Nathan Blank, same place. Filed Aug. 25, 1900. Serial No. 28,081. Term of patent 7 years.



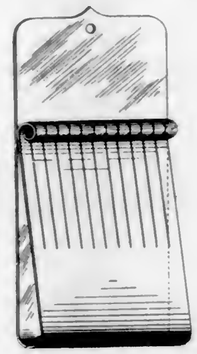
Claim.—The design for a scarf-pin, herewith shown and described.

33,451. HAT-PIN. SAMUEL K. GROVER, Providence, R. I. Filed Oct. 3, 1900. Serial No. 31,930. Term of patent 3½ years.



Claim.—The design for a hat-pin, as herein shown and described.

33,452. HOLDER. JOHN W. PAX, Chicago, Ill. Filed Oct. 2, 1900. Serial No. 31,792. Term of patent 7 years.



Claim.—The design for a holder, substantially as shown and described.

33,453. COLLAR OR CUFF BUTTON. JOHN E. HILL, Center Harbor, N. H. Filed Oct. 3, 1900. Serial No. 31,937. Term of patent 7 years.



Claim.—The design for a collar or cuff button as herein shown and described.

33,454. BUCKLE. LOUIS B. PRAHAR, New York, N. Y. Filed Oct. 6, 1900. Serial No. 32,310. Term of patent 3½ years.



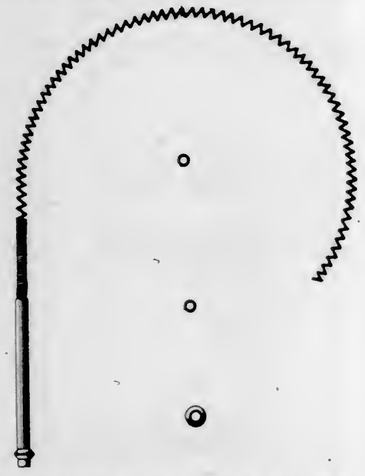
Claim.—The design for a buckle as shown and described.

33,455. BUCKLE-FRAME. JOSEPH ROSS, New York, N. Y., assignor to Henry J. Gaisman and Ferdinand S. M. Blun, same place. Filed Sept. 28, 1900. Serial No. 31,449. Term of patent 7 years.



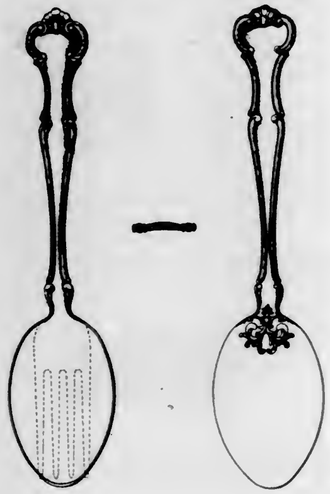
Claim.—The design for a buckle-frame, substantially as shown and described.

33,456. CATHETER. WILLIAM WELD HARRIS, New York, N. Y., assignor to The Max Huncke Chemical Company, same place. Filed Oct. 3, 1900. Serial No. 32,450. Term of patent 14 years.



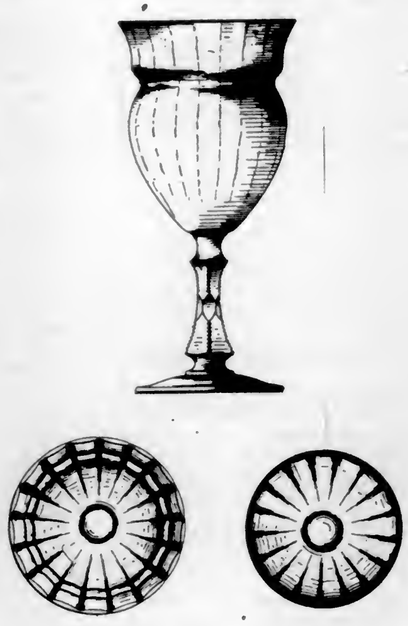
Claim.—The design for a catheter, as herein shown and described.

33,457. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. WILLIAM C. CODMAN, Providence, R. I., assignor to the Gorham Manufacturing Company, same place. Filed Oct. 3, 1900. Serial No. 31,933. Term of patent 7 years.



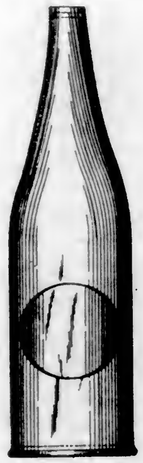
Claim.—The design for the handle of a spoon, fork or similar article, as herein shown and described.

33,458. DRINKING VESSEL. WILLIAM H. CASSELL, Wheeling, W. Va. Filed Sept. 29, 1900. Serial No. 31,581. Term of patent 3½ years.



Claim.—The design for a drinking-glass, substantially as herein shown and described.

33,459. BOTTLE. GEORGE G. DARR and PETER W. BECHMAN, Sharpsburg, Pa. Filed Sept. 4, 1900. Serial No. 29,008. Term of patent 14 years.



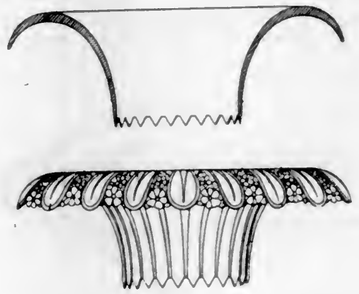
Claim.—The design for a bottle, as herein shown and described.

33,460. MATCH-LIGHTER. ADOLPH C. HANSEN, Chicago, Ill., assignor of one-half to George J. Ordnung, same place. Filed Aug. 31, 1900. Serial No. 28,718. Term of patent 7 years.



Claim.—The design for a match-lighter, substantially as herein shown and described.

33,461. ORNAMENTAL TUBE FOR GAS OR ELECTRIC FIXTURES. HOWARD E. WATKINS, New York, N. Y., assignor to the Oxley & Enos Manufacturing Company, same place. Filed Aug. 21, 1900. Serial No. 27,629. Term of patent 7 years.



Claim.—The design for an ornamental tube for fixtures, as herein shown and described.

33,462. WELL-PIPE. TIMOTHY STEBBINS, Davenport, Iowa. Filed Aug. 7, 1899. Serial No. 726,477. Term of patent 14 years.



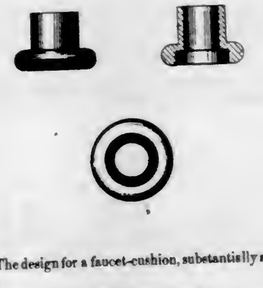
Claim.—The design for a well-pipe, as herein shown and described.

33,463. COUPLING-JOINT. JOSEPH H. GLAUBER, Cleveland, Ohio. Filed Oct. 4, 1900. Serial No. 32,054. Term of patent 7 years.



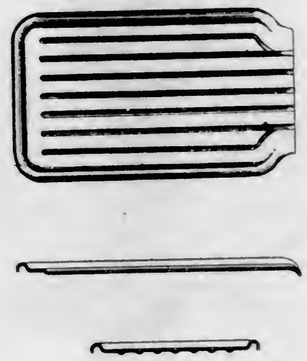
Claim.—The design for a coupling-joint, substantially as herein shown and described.

33,464. FAUCET-CUSHION. HOWARD GOULD NORTHROP, Chicago, Ill. Filed Mar. 22, 1900. Serial No. 9,809. Term of patent 14 years.



Claim.—The design for a faucet-cushion, substantially as herein shown and described.

33,465. DRAIN-BOARD FOR SINKS. JOHN H. GAVIN, Chicago, Ill., assignor to the L. Wolff Manufacturing Company, same place. Filed Sept. 28, 1900. Serial No. 31,452. Term of patent 14 years.



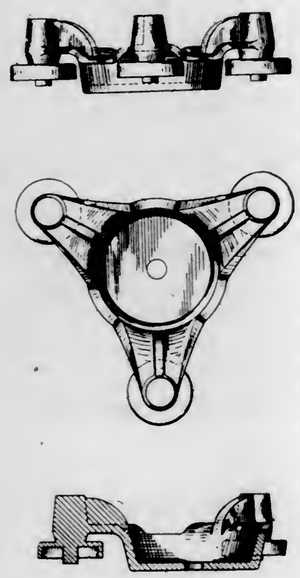
Claim.—The design for a drain-board for sinks, as herein shown and described.

33,466. ELECTRIC BICYCLE-LAMP. Alexander C. Proudfit, Boston, Mass. Filed Oct. 2, 1899. Serial No. 732,422. Term of patent 14 years.



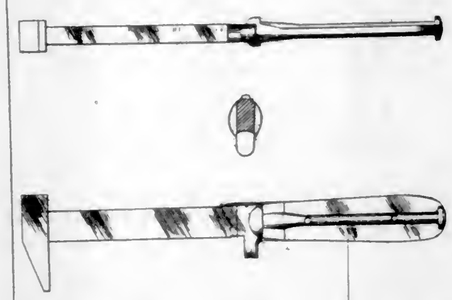
Claim.—The design for an electric bicycle-lamp, substantially as herein shown and described.

33,467. CASTER-PLATFORM. Herman C. Fischer, Cleveland, Ohio. Filed Sept. 28, 1900. Serial No. 31,451. Term of patent 7 years.



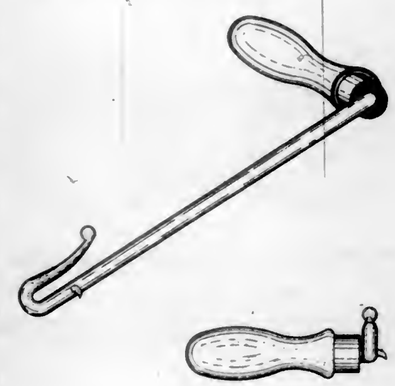
Claim.—The design for a caster-platform, substantially as herein-before shown and described.

33,468. WRENCH MEMBER. Amos Shepard, Plantsville, Conn. Filed Oct. 5, 1900. Serial No. 32,191. Term of patent 14 years.



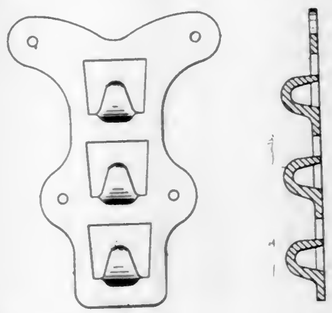
Claim.—The design for a wrench member, as herein shown and described.

33,469. WIRE-FENCE TOOL. Frederick A. Gienckе, Brookfiel Wis. Filed Oct. 3, 1900. Serial No. 31,932. Term of patent 7 year.



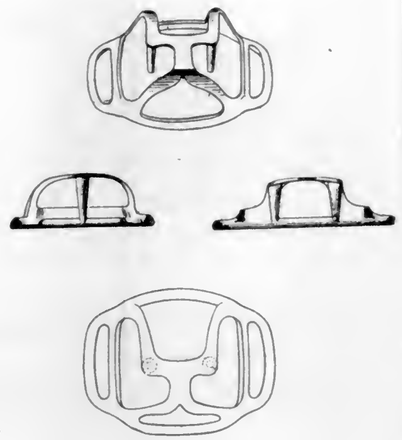
Claim.—The design for a wire-fence tool, as herein shown and described.

33,470. BACK-BAND HOOK. Edward L. McClain, Greenfield, Ohio. Filed July 2, 1900. Serial No. 22,370. Term of patent 3½ years.



Claim.—The design for a back-band hook as herein shown and described.

33,471. TRACE-CARRIER. John J. Creedon, Moline, Ill., assignor to Herbert W. Cooper, same place. Filed July 5, 1900. Serial No. 22,636. Term of patent 14 years.

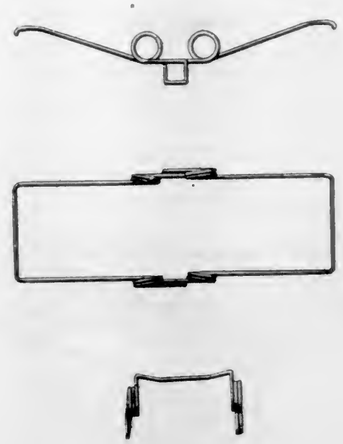


Claim.—The design for a trace-carrier substantially as herein shown and described.

33,472. SALT-BOX. William Gambrel, Lincoln, Ill. Filed June 19, 1900. Serial No. 20,902. Term of patent 14 years.

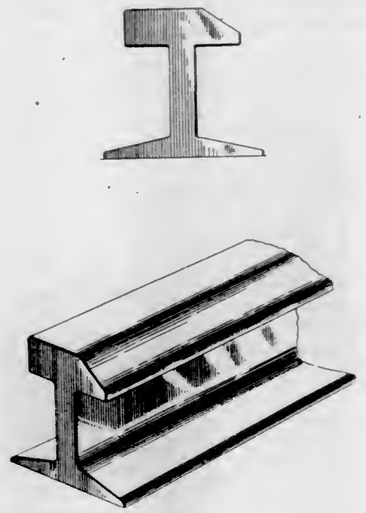
Claim.—The design for a salt-box herein shown and described.

33,473. CUSHION-SPRING FOR CARRIAGE-TOP BOWS. Herbert Severance, Sac and Fox Agency, Okla. Filed Oct. 4, 1900. Serial No. 32,055. Term of patent 7 years.



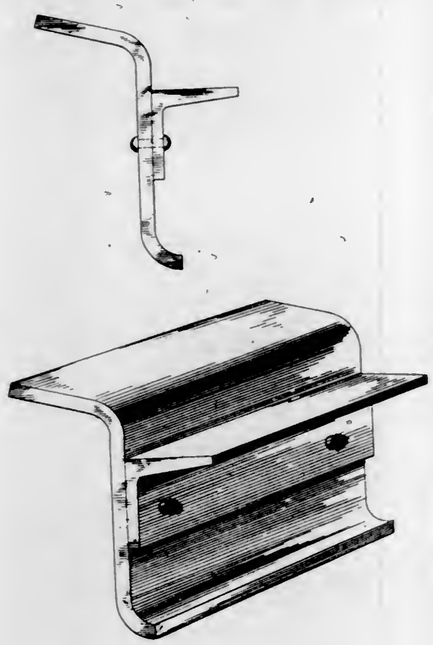
Claim.—The design for a cushion-spring for carriage-top bows, as herein shown and described.

33,474. RAILROAD-RAIL. Charles Kopsek, Aplington, Iowa. Filed Oct. 4, 1900. Serial No. 32,058. Term of patent 3½ years.



Claim.—The design for a railroad-rail as herein shown and described.

33,475. FINGER-GUARD BAR FOR HEADERS AND HARVESTERS. GLENN T. WILLIS, Fresno, Cal., assignor to James Porteous, same place. Filed Sept. 5, 1900. Serial No. 29,091. Term of patent 14 years.



Claim.—The design for a finger-guard bar for headers and harvesters, substantially as herein shown and described.

33,476. GAS-STOVE. PHILIP S. BRINDLE, Columbus, Ohio. Filed Aug. 2, 1900. Serial No. 25,723. Term of patent 7 years.



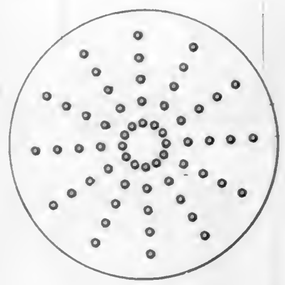
Claim.—The design for a gas-stove as herein shown and described.

33,477. COOKING-STOVE. GEORGE W. COPE and WILLIAM L. BERTRAM, Detroit, Mich., assignors to C. Emrich, Columbus, Ohio. Filed Oct. 8, 1900. Serial No. 32,451. Term of patent 7 years.



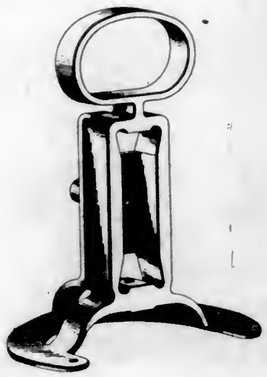
Claim.—The design for a stove substantially as herein shown and described.

33,478. PLATE FOR FOOD-BOILERS. NELLIE J. KELLY, Victor, N. C. Filed Sept. 29, 1900. Serial No. 31,586. Term of patent 7 years.

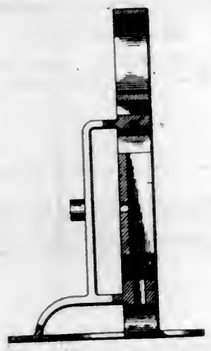


Claim.—The design for a plate for food-boilers, as herein shown and described.

33,479. GEARING-FRAME FOR CHURNS. ROBERT PAULING and JOSEPH SUTTER, Lewistown, Mont. Filed Oct. 4, 1900. Serial No. 32,056. Term of patent 14 years.

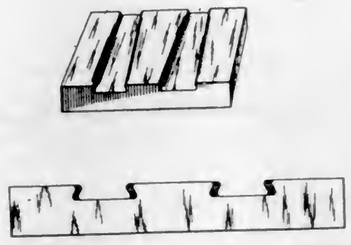


33,479.



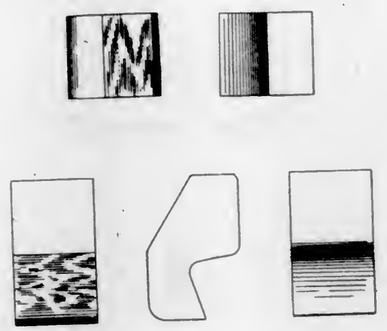
Claim.—The design for a gearing-casing for churns and like machines, substantially as herein shown and described.

33,480. TILE. WILLIAM P. MEEKER, Newark, N. J. Filed Aug. 1, 1900. Serial No. 25,595. Term of patent 14 years.



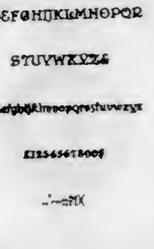
Claim.—The design for a tile, substantially as shown and described

33,481. TILE. JOHN FRANCIS BOORAEM, New York, N. Y., and BERNARD JACQUART, South River, N. J. Filed Oct. 4, 1900. Serial No. 32,053. Term of patent 14 years.



Claim.—The design for a tile substantially as herein shown and described.

33,482. FONT OF PRINTING-TYPE. JAMES HAY HUTCHISON, London, England. Filed Sept. 22, 1900. Serial No. 30,856. Term of patent 14 years.



Claim.—The design for a font of printing-type, substantially as described and shown.

33,483. BASE FOR DISPLAY CHARACTERS. PLINY PATRICK, Cincinnati, Ohio. Filed May 10, 1900. Serial No. 16,234. Term of patent 7 years.



Claim.—The design for a base for display characters, substantially as herein shown and described.

33,484. ADVERTISING-CABINET. ERNEST P. MULLER, New York, N. Y., assignor of one-half to J. K. Young, same place. Filed Sept. 8, 1900. Serial No. 29,470. Term of patent 14 years.



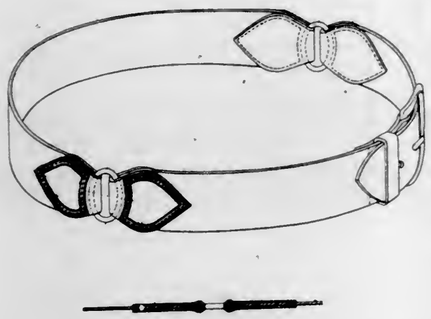
Claim.—The design for an advertising-cabinet, as herein shown and described.

33,485. BASE FOR BOOT-CLEANERS. OSCAR A. TAFT, Leominster, Mass. Filed Aug. 24, 1900. Serial No. 27,963. Term of patent 3½ years.



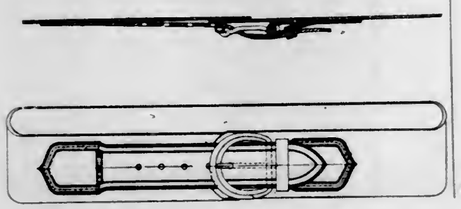
Claim.—The design for a base for boot-cleaners, as herein shown and described.

33,486. APPAREL-BELT. MAX SCHEUER, New York, N. Y. Filed Oct. 3, 1900. Serial No. 31,924. Term of patent 7 years.



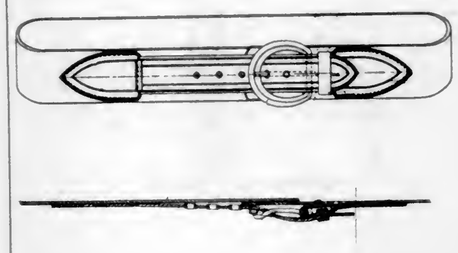
Claim.—The design for an apparel-belt, substantially as herein shown and described.

33,487. APPAREL-BELT. MAX SCHEUER, New York, N. Y. Filed Oct. 3, 1900. Serial No. 31,925. Term of patent 7 years.



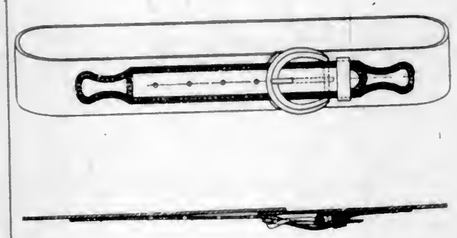
Claim.—The design for an apparel-belt, substantially as herein shown and described.

33,488. APPAREL-BELT. MAX SCHEUER, New York, N. Y. Filed Oct. 3, 1900. Serial No. 31,926. Term of patent 7 years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

33,489. APPAREL-BELT. MAX SCHEUER, New York, N. Y. Filed Oct. 3, 1900. Serial No. 31,927. Term of patent 7 years.



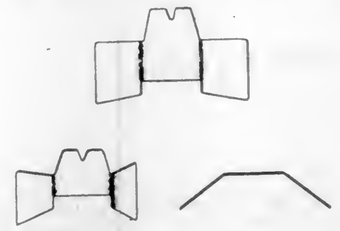
Claim.—The design for an apparel-belt, substantially as herein shown and described.

33,490. ENCIRCLING BAND. GILBERT D. GEORGE, St. Paul, Minn. Filed Oct. 2, 1899. Serial No. 732,410. Term of patent 7 years.



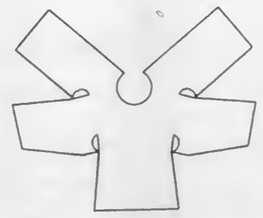
Claim.—The design for an encircling band herein shown and described.

33,491. NECKTIE-FORM. OSCAR R. LOOKER, Detroit, Mich. Filed Oct. 6, 1900. Serial No. 32,309. Term of patent 7 years.



Claim.—The design for a necktie-form substantially as herein shown and described.

33,492. COAT-PATTERN. FREDERICK G. DODSHON, Hamilton, Ohio. Filed Sept. 14, 1900. Serial No. 30,077. Term of patent 14 years.



Claim.—The design for a coat-pattern as herein shown and described.

TRADE-MARKS

REGISTERED OCTOBER 30, 1900.

35,317. COLLARS, CUFFS, NECKBANDS, AND WRISTBANDS. GOODMAN MANUFACTURING CO., Troy, N. Y. Filed Sept. 27, 1900.



Essential feature.—The word "ELK" and the representation of an elk's head. Used since August 1, 1898.

35,318. SHIRTS, PAJAMAS, AND BATH-ROBES. JOHN WANAMAKER, Philadelphia, Pa., and New York, N. Y. Filed June 4, 1900.

RAGLAN

Essential feature.—The word "RAGLAN." Used since February 15, 1900.

35,319. SILK DRESS GOODS OR SILK FABRICS. PHALANX SILK MILL, Jersey City, N. J. Filed Sept. 24, 1900.

PHALANX

Essential feature.—The word "PHALANX." Used since November 1, 1894.

35,320. GUTTA-PERCHA PAPER. LOEWITZ & ROHLFS, Ottensen, Germany. Filed June 8, 1900.



HAMMONIA

Essential feature.—A representation of a woman's head and the word "HAMMONIA." Used since April 1, 1893.

35,321. CERTAIN NAMED MONTHLY MAGAZINES. THE CURTIS PUBLISHING COMPANY, Camden, N. J., and Philadelphia, Pa. Filed July 10, 1900.

THE LADIES' HOME JOURNAL

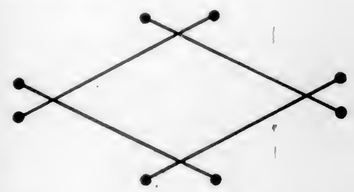
Essential feature.—The words "LADIES' HOME JOURNAL." Used since December, 1883.

35,322. LETTER-ENVELOPS. CHARLES LEWIS BENEDICT, Toronto, Canada. Filed Sept. 12, 1900.



Essential feature.—The representation of a hand bearing the legend "5 in 1." Used since April 1, 1900.

35,323. FOUNTAIN-PENS. FREDERICK J. OTIS, Apollonia, Wis. Filed July 21, 1900.



Essential feature.—A diamond outline. Used since April 6, 1899.

35,324. GOLD AND SILVER WARE, JEWELRY, AND PLATED WARE. J. G. & R. G. SILVER, New York, N. Y. Filed Aug. 2, 1900.



MAPLE LEAF.

Essential feature.—The words "MAPLE LEAF" and the representation of a maple leaf and the letters "J B." Used since July 1, 1899.

35,325. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 5, 1900.

1 P

Essential feature.—The figure "1" and letter "P." Used since 1875.

35,326. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 5, 1900.

IDEAL

Essential feature.—The word "IDEAL." Used since August 1, 1897.

35,327. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 5, 1900.

S E

Essential feature.—The letters "S E." Used since 1875.

35,328. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong Me. Filed Oct. 5, 1900.

WORLDS FAIR

Essential feature.—The words "WORLD'S FAIR." Used since August 1, 1889.

35,329. CERTAIN NAMED DENTAL SUPPLIES. EDWARD EDDIE, Cambridge, Mass. Filed July 21, 1900.

A

Essential feature.—The letter "A." Used since July 2, 1900.

35,330. RUBBER WATER-BOTTLES AND SYRINGES. JOHN A. WEBSTER & SON, Boston, Mass. Filed Sept. 29, 1900.

Essential feature.—A red cross. Used since September 1, 1900.

35,331. CERTAIN NAMED SURGICAL INSTRUMENTS AND APPLIANCES. THE DOERFLINGER ARTIFICIAL LIMB COMPANY, Milwaukee, Wis. Filed Aug. 20, 1900.



Essential feature.—Two concentric circles and a representation of an artificial leg within the inner circle. Used since February 17, 1899.

35,332. ELECTRICAL CURATIVE APPARATUS. SKINNER & CLARKE, New York, N. Y. Filed Sept. 21, 1900.

OXYGENKURE

Essential feature.—The word "OXYGENKURE." Used since August 1, 1900.

35,333. CHEMICALS FOR PHOTOGRAPHIC PURPOSES. ALUMINIUM INDUSTRIE ACTIEN-GESELLSCHAFT, Neuhausen, Switzerland Filed Oct. 2, 1900.

ANTIHYPO

Essential feature.—The word "ANTIHYPO." Used since August 15, 1900.

35,334. CERTAIN NAMED OILS AND LUBRICANTS. THE CLEVELAND REFINING COMPANY, Cleveland, Ohio. Filed Sept. 22, 1900.



Essential feature.—The words "BEE HIVE," or the representation of a bee hive, or both. Used since August 1, 1900.

35,335. CERTAIN NAMED DEVICES AND ARTICLES FOR REARING PREMATURELY AND WEAKLY BORN INFANTS. SAMUEL SCHENKEIN, New York, N. Y. Filed Aug. 20, 1900.

QBATA

Essential feature.—The word "QBATA." Used since May 2, 1900.

35,336. CERTAIN NAMED PINE-NEEDLE PRODUCTS. PACIFIC PINE NEEDLE COMPANY, San Francisco, Cal. Filed May 31, 1900.



Essential feature.—The representation of a pine-branch with a pine-cone and pine-needles attached to a disk of paper by being passed through strips cut therefrom and integral therewith. Used since June, 1897.

35,337. SALVES AND MEDICINAL SKIN-SOAPS. ROTKOWITZ BROS., New York, N. Y. Filed Sept. 28, 1900.

TRIUMPH

Essential feature.—The word "TRIUMPH." Used since March 1, 1900.

35,338. CERTAIN NAMED MEDICINES AND SOAP. ROTKOWITZ BROS., New York, N. Y. Filed Sept. 28, 1900.

LIBIT

Essential feature.—The word "LIBIT." Used since March 1, 1900.

35,339. CERTAIN NAMED SKIN REMEDIES. WILLIAM CHUBBUCK, New York, N. Y. Filed Oct. 3, 1900.

STERATOL

Essential feature.—The word "STERATOL." Used January 1, 1900.

35,340. REMEDY FOR CERTAIN NAMED DISEASES. J. H. SCHENCK & CO., Matteawan, N. Y. Filed July 16, 1900.



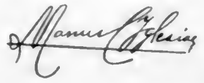
Essential feature.—A portrait of Dr. Schenck. Used since January 1, 1892.

35,341. CERTAIN NAMED MEDICINAL COMPOUND. FRANK S. HIGGINS, Lewiston, Me. Filed Oct. 2, 1900.

QUINOL

Essential feature.—The word "QUINOL." Used since September 1, 1899.

35,342. CERTAIN NAMED MEDICINAL COMPOUNDS. YGLESIAS & YGLESIAS, Los Angeles, Cal. Filed Aug. 2, 1900.



Essential feature.—The facsimile of the autograph of Manuel Yglesias. Used since 1873.

35,343. CERTAIN NAMED MEDICINES. NEW YORK QUININE AND CHEMICAL WORKS, New York, N. Y. Filed Sept. 15, 1900.

CUBE

Essential feature.—The word "CUBE." Used since March 1, 1894.

35,344. CERTAIN NAMED PROPRIETARY MEDICINES. JARED T. SEELY, Paterson, N. J. Filed Sept. 28, 1900.

TONN-TONN.

Essential feature.—The hyphenated word "TONN-TONN." Used since September 18 1900.

35,345. MEDICINE. L. L. WALTON & CO., Williamsport, Pa. Filed Sept. 4, 1900.

TOKOLON.

Essential feature.—The word "TOKOLON." Used since November, 1899.

35,346. FOOD FOR INFANTS AND INVALIDS. SMITH, KLINE & FRENCH COMPANY, Philadelphia, Pa. Filed Dec. 1, 1899.



Essential feature.—The representation of two oval frames, each surrounded by an ornamental border, with the head of an infant in a circle between the frames. Used since October 15, 1896.

35,347. CANDIES. PAN CONFECTION COMPANY, Chicago, Ill. Filed Oct. 5, 1900.

AZ-U-LY-KIT

Essential feature.—The hyphenated word "AZ-U-LY-KIT." Used since March, 1900.

35,348. CANDIES. PAN CONFECTION COMPANY, Chicago, Ill. Filed Oct. 5, 1900.

JELLIET

Essential feature.—The word "JELLIET." Used since March, 1900.

35,349. PRESERVES, EXTRACTS, WINE, JAM, AND JELLY MADE FROM THE RASPBERRY. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Sept. 18, 1900.



Essential feature.—The representation of a branch of a raspberry-bush with the berries attached. Used since August 15, 1900.

35,350. PRESERVED CHERRIES AND JELLY AND WINE MADE FROM THE CHERRY. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Sept. 20, 1900.



Essential feature.—The representation of a branch of a cherry-tree with the fruit attached. Used since September 3, 1900.

35,351. CANNED AND PRESERVED BLUEBERRIES. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Sept. 20, 1900.



Essential feature.—The representation of a branch of a blueberry-bush with the berries attached. Used since September 3, 1900.

35,352. JELLY AND BUTTER MADE FROM THE CRAB-APPLE. Abbot Augustus Low, New York, N. Y. Filed Sept. 20, 1900.



Essential feature.—The representation of a branch of a crab-apple tree with the fruit attached. Used since September 3, 1900.

35,353. PRESERVES AND JELLY DERIVED FROM THE CRANBERRY. Abbot Augustus Low, New York, N. Y. Filed Oct. 6, 1900.



Essential feature.—The representation of a branch of a cranberry plant with the fruit attached. Used since September 26, 1900.

35,354. WINE AND JELLY MADE FROM THE WILD BLACK CHERRY. Abbot Augustus Low, New York, N. Y. Filed Oct. 6, 1900.



Essential feature.—The representation of a branch of a wild black-cherry tree with the berries attached. Used since September 26, 1900.

35,355. WINE AND PRESERVES. Abbot Augustus Low, New York, N. Y. Filed Oct. 6, 1900.



Essential feature.—The representation of a branch of an elderberry-bush with the berries attached. Used since September 26, 1900.

35,356. NON-ALCOHOLIC BEVERAGE. Cherry Kola Co., Williamsport, Pa. Filed Aug. 13, 1900.



Essential feature.—The representation of a cherry sprig or branch with leaves and fruit thereon. Used since March, 1893.

35,357. CONDENSED MILK. Consumers Preserved Milk Company, New York, N. Y. Filed Oct. 3, 1900.

MAYFLOWER

Essential feature.—The word "Mayflower." Used since April 2, 1899.

35,358. COFFEE. Livierato Bros., New York, N. Y. Filed July 14, 1900.

LF

Essential feature.—The letters "L F." Used since January 1, 1886.

35,359. SODA AND SALERATUS AND SAL-SODA. Church & Dwight Company, New York, N. Y. Filed Dec. 14, 1899.



Essential feature.—The representation of an annular band. Used since 1869.

35,360. BAKING-POWDER. Sea Foam Baking Powder Company, New York, N. Y. Filed Sept. 11, 1900.

SEA FOAM

Essential feature.—The words "Sea Foam." Used since May, 1869.

35,361. FLOUR. Elmore Miller, Kansas City, Mo. Filed Oct. 4, 1900.



Essential feature.—The representation of a walnut with the mantle thereon and the words "Nut Brown" on the mantle. Used since March, 1900.

35,362. SALT. Seneca Lake Salt Company, New York, N. Y. Filed Oct. 5, 1900.



Essential feature.—The word "Pillar" and the representation of a pillar. Used since August 1, 1900.

35,363. NIPPERS, PINCERS, AND CUTTING-PLIERS. Utica Drop Forge and Tool Company, Utica and New York, N. Y. Filed July 28, 1900.



Essential feature.—The representation of three connected links. Used since April 6, 1900.

35,364. METAL TRIMMINGS FOR PLUMBERS' SUPPLIES. L. Wolff Manufacturing Company, Chicago, Ill. Filed Aug. 16, 1900.

DURO

Essential feature.—The word "Duro." Used since June 1, 1899.

35,365. SHOEMAKERS' OUTFITS OR KITS OF TOOLS. Charles F. Parker, Somerville, Mass. Filed May 19, 1900.

SOLIDITY

Essential feature.—The word "Solidity." Used since 1885.

35,366. SEWING-MACHINES AND ACCESSORIES. Edwin J. Toof, New Haven, Conn. Filed Oct. 3, 1900.

Twoinone.

Essential feature.—The word "Twoinone." Used since October, 1899.

35,367. SEWING-MACHINES AND ACCESSORIES. Edwin J. Toof, New Haven, Conn. Filed Oct. 3, 1900.



Essential feature.—The numerals "2" and "1." Used since October, 1899.

85,368. STOVES, RANGES, AND HEATING APPARATUS. The White-Warner Company, Taunton, Mass. Filed Sept. 29, 1900.

HOUSEHOLD

Essential feature.—The word "HOUSEHOLD." Used since May 18, 1882.

85,369. HANDSAWS. Simonds Manufacturing Company, Fitchburg, Mass., and Chicago, Ill. Filed Apr. 28, 1900.



Essential feature.—The figure of a shield with an Indian upon it and above it a hand holding a sword. Used since March, 1900.

85,370. HACKSAWS AND BUTCHER-SAWS. Union Saw Manufacturing Company of New Jersey, Camden, N. J. Filed Sept. 12, 1900.

The TwentiethCentury

Essential feature.—The representation of a heart with the capital letter "U" inscribed therein and the words "THE TWENTIETH CENTURY." Used since May 1, 1900.

85,371. FIRE-EXTINGUISHERS. George Henry Downing, New York, N. Y. Filed June 23, 1900.



Essential feature.—The figure of a man holding a fire-extinguisher in the act of extinguishing a fire. Used since April, 1899.

THE NORRIS PETERS CO. PHOTO-LITH WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE SMITH AND HOYLAND.

Decided October 13, 1900.

NEW MATTER—OMISSION OF ELEMENTS.

Where certain features are merely additional and unnecessary elements which may or may not be used, and where their omission does not change in any way the function and operation of the other parts of the device, *Held* that their omission from the application does not involve new matter.

ON petition.

CAR-SEAL.

Application of Burton A. Smith and George M. Hoyland filed June 26, 1899, No. 721,900.

Mr. Hiram J. Livergood for the applicants.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner under Rule 70 objecting to a substitute specification and a substitute drawing on the ground that they omit certain elements disclosed in the application as filed.

The parts omitted are the flanges E, which are said in the original specification to be for the purpose of guiding the shackle A in its proper course and preventing it from being turned sidewise, and the Examiner apparently holds that the omission of these flanges involves a departure from the original disclosure. No claim is now made to those flanges, and they are not included as an element of any of the claims. The illustration of them is unnecessary, since the device is obviously operative without them. No useful purpose would be served by illustrating and describing them, and their omission does not change in any way the function and operation of the other parts of the device. They are merely additional and unnecessary elements which may or may not be used, and therefore their omission does not involve new matter.

It is not intended to hold that the omission of elements may not in some cases involve new matter, but merely that the omission of unnecessary elements, as in the present case, does not.

The petition is granted.

CAMMETT *v.* HALLETT.

Decided October 13, 1900.

1. INTERFERENCE—MOTION TO DISMISS—AUTHORITY OF THE EXAMINER OF INTERFERENCES.

Since there is no provision in the rules whereby the Examiner of Interferences is empowered to dismiss an interference, *Held* that he properly refused to dismiss an interference on the ground that the question of priority is *res adjudicata*.

2. SAME—ESTOPPEL—QUESTION OF PRIORITY.

The question whether a party is estopped by prior proceedings from asserting priority of invention as against his opponent relates to the merits of the controversy, and the evidence of estoppel goes to establish the question of priority.

3. SAME—MOTION TO DISSOLVE—DUTY OF EXAMINER OF INTERFERENCES.

Where a motion for dissolution is in proper form, alleges proper grounds, and is filed within the twenty days allowed by the rule, *Held* that the Examiner of Interferences cannot properly refuse to transmit it. It is for the Primary Examiner to determine the propriety and sufficiency of the reasons advanced in support of the allegations in the motion.

APPEAL on motion.

ORE-CONCENTRATOR.

Application of Ira A. Cammett filed November 15, 1898, No. 696,503. Patent granted Samuel I. Hallett November 15, 1898, No. 614,322.

Mr. Harold Binney for Cammett.

Mr. Julian C. Dowell for Hallett.

CHAMBERLIN, *Assistant Commissioner:*

This is an appeal by Hallett from the decision of the Examiner of Interferences denying his motion to dismiss the interference and refusing to transmit to the Primary Examiner his motion to dissolve.

Hallett contends that this interference was declared contrary to the provisions of Rule 127 and asks that it be dismissed—

because the judgment of priority heretofore entered in favor of the said Hallett in a former interference, No. 19,540, is conclusive against the said Cammett, on the issues in this case; the question at issue being *res adjudicata*.

It appears that the prior interference referred to was between an application filed by the present applicant, Cammett, as joint inventor with one Shepard and the application upon which Hallett's patent here involved was issued. Hallett contends, in effect, that Cammett is estopped by a concession of priority in the prior interference in favor of Hallett and by an agreement entered into by him, together with other parties, in reference to the invention from now contesting the question of priority and that the question of priority is *res adjudicata* by reason of these proceedings. In passing upon the motion the Examiner of Interferences said:

The party, Cammett, in this interference being a sole applicant and hence not the same as the joint applicants, Cammett and Shepard, it is clear to the Examiner that the motions to dismiss and to dissolve should be for that reason denied.

No authorities were cited for this holding, but it was apparently based upon the principles announced in *Secor and Secor* v. *Knapp* (63 O. G., 612) and *Mead* v. *Brown*, (48 O. G., 397.) The decision seems to have been based upon the ground that Cammett is not, in fact, estopped and that the question of priority is not *res adjudicata*, and the

question whether or not the motion was proper does not appear to have been considered.

There is no provision in the rules whereby the Examiner of Interferences is empowered to dismiss an interference, as is requested in the present motion, and therefore the motion could not have been granted even if the Examiner had reached a different conclusion on the merits of the question argued. As pointed out in *Roth* v. *Brown and Stillman*, (83 O. G., 593,) the question whether a party is estopped from asserting priority of invention relates to the merits of the controversy, and the evidence of estoppel goes to establish the question of priority. The holding by the Examiner of Interferences that the question of priority is *res adjudicata* would therefore furnish a good ground for rendering a decesion on priority, but it would not justify him in dismissing the interference.

If Hallett's motion could be construed as a request for a decision on priority in his favor in view of the facts set forth, it is doubtful if an appeal would properly lie from the decision denying the request. For the Commissioner to review and reverse that decision would be for him to pass upon the question of priority of invention upon an interlocutory appeal without having the matter first decided by the Examiners-in-Chief. This would be unjust to Cammett, who under the rules has the right of appeal successively to the several tribunals of this Office and to the court of appeals from an adverse decision on priority upon whatever grounds that decision is based. (*McGuire* v. *Hill*, 84 O. G., 983.) No such substantial rights on the part of Hallett would be affected by the refusal of his request and the refusal to review the decision upon an interlocutory appeal, since no decision on priority or on the merits of the case adverse to his right to a patent has been rendered. The refusal merely makes it necessary for the case to proceed in the regular way to a final decision on priority. Hallett may without taking testimony rely entirely upon the matters now referred to as showing that he is entitled to a judgment of priority at final hearing, and if the decision is against him then he will have the right of appeal to the Examiners-in-Chief, to the Commissioner, and to the court in the regular way.

The grounds upon which the motion to dissolve was refused transmission to the Primary Examiner are not clearly set forth in the decision of the Examiner of Interferences. That motion was filed within the twenty days allowed by Rule 122, sets forth three of the grounds for dissolution mentioned in that rule, and appears to be in proper form. This being true, the provisions of the rule have been complied with, and therefore the motion should have been transmitted. (*Laurent-Cely* v. *Payen*, 51 O. G., 621; *Pupin* v. *Hutin and Leblanc*, 82 O. G., 1418.) It appears that the Examiner of Interferences holds that the motion is really founded upon the contention that Cammett is estopped from contesting the question of priority and that the matter is *res adjudicata* His refusal to transmit the motion is seemingly based either upon the ground that this contention is not a matter to be considered by the Primary Examiner upon a motion to dissolve or upon the ground that the facts of this case do not sustain the contention. It is not clear which.

In view of the fact that the motion alleges no interference in fact, irregularity in the declaration, and that Cammett has no right to make the claim the Examiner of Interferences cannot properly hold that the motion really involves nothing but the question of estoppel and upon that ground refuse to transmit it. (*Silverman* v. *Hendrickson*, 88 O. G., 1703.) When a motion filed within the twenty days allowed by the rule is in proper form, it is for the Primary Examiner to determine the propriety and sufficiency of the reasons advanced in support of the allegations in the motion. The allegations in the present motion do not indicate that Hallett will not urge other grounds than those mentioned by the Examiner of Interferences in support of the motion.

The decision of the Examiner of Interferences refusing to dismiss the interference is affirmed, and his decision refusing to transmit to the Primary Examiner the motion to dissolve is reversed.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

SAXLEHNER v. EISNER & MENDELSON COMPANY.

Decided October 15, 1900.

1. TRADE-MARK—"HUNYADI" FOR MEDICINAL WATERS—PROPER SUBJECT OF TRADE-MARK.

   The name "Hunyadi" being neither descriptive nor geographical, but purely arbitrary and fanciful as applied to medicinal waters, was the proper subject of a trade-mark.

2. SAME—SAME—ABANDONMENT.

   Held with regard to the defense of abandonment that there is but slight evidence of any personal intention on the part of Saxlehner to abandon the use of the word "Hunyadi" or to dedicate the same to the public.

3. SAME—SAME.

   To establish the defense of abandonment, it is necessary to show not only acts indicating a practical abandonment, but an actual intent to abandon. Acts which unexplained would be sufficient to establish abandonment may be answered by showing that there never was an intent to give up and relinquish the right claimed.

4. SAME—SAME.

   Evidence that the Apollinaris Company, which had the exclusive right to sell the medicinal water for Saxlehner in the United States, intended to abandon the right to the name "Hunyadi" might be sufficient as against it to defeat a suit for an injunction, but it would not be binding upon Saxlehner unless done with his knowledge and acquiescence.

5. SAME—SAME—APPROPRIATING PART OF A TRADE-MARK—INFRINGEMENT.

   It is not necessary to constitute infringement that every word of a trade-mark should be appropriated. It is sufficient that enough be taken to deceive the public in the purchase of a protected article.

6. SAME—SAME—LACHES.

   Where the party who originally adopted the trade-mark "Hunyadi" was inactive and permitted the use of the word by numerous other importers for twenty years, *Held* that it is now too late to resurrect the original title which has been lost by laches.

7. SAME—SHAPE OF BOTTLE—LABEL.

   Held that the defendants infringed the shape of the bottle and the label of the complainant, and they are restrained from their further use.

8. SAME—SAME—ABANDONMENT—LACHES.

   Where the defendants adopted the shape of complainant's bottle and also his label with intent to deceive, *Held* that they are restrained from further use thereof, although the plaintiff delayed for several years from bringing suit against them.

ON writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit.

STATEMENT OF THE CASE.

This was a bill in equity filed in the Circuit Court for the Southern District of New York by the widow of Andreas Saxlehner, deceased, a resident of Buda-Pesth and a subject of the King of Hungary, against the Eisner & Mendelson Company, importers and wholesale dealers, to enjoin the defendant from selling any water under a name in which the word "Hunyadi" occurs, or making use in the sale of bitter waters of labels, in form, color, design and general appearance, imitating the labels used by plaintiff in the sale of Hunyadi János water.

The bill averred in substance that plaintiff's husband, Andreas Saxlehner, was, until May 24, 1889, the proprietor of a certain well within the city limits of Buda-Pesth, and that in 1863 he began to sell the waters of the same in the market under the name or trade-mark of "Hunyadi János;" that as his business increased he acquired additional territory, opened new wells, adopted a novel style of bottles and a peculiar label, and that the water soon became known in all the markets of the world under the name of "Hunyadi János," or in England and the United States under the name of "Hunyadi" alone; that in March, 1876, Saxlehner entered into a contract with the Apollinaris Company of London, under which such company was given the exclusive right to sell this water in Great Britain and the United States, and that such contract was not terminated until March, 1896; that this company used a label of similar design but of different color, and that large quantities of this water were exported by Saxlehner through such company and sold in the United States under the name of Hunyadi water; that Saxlehner died May 24, 1889, and plaintiff succeeded him in the business; that prior to his death Saxlehner obtained the registration in the Patent Office of the name "Hunyadi" as his trade-mark; that the defendant, knowing of these facts, had unlawfully imported and sold bitter water, not coming from plaintiff's wells, in bottles of identical shape and size as those used by plaintiff, and with labels in "close and fraudulent simulation of your orator's trade-mark," but under the name of "Hunyadi Laszlo" or "Hunyadi Matyas"—all in defiance of plaintiff's right, and with the design of imposing the waters upon the public as those of the plaintiff.

The answer denied the material allegations of the bill, and averred that in the year 1873, one Ignatius Markus, being the proprietor of a certain well within the limits of Buda-Pesth, applied to the proper authorities and was granted the registration of the name "Hunyadi Matyas" as a denomination of the waters of his spring, such authorities holding that the name was distinguished from that of the "Hunyadi János;" that "Hunyadi János," when anglicised, is John Hunyadi, the name of a celebrated Hungarian hero, and that the name "Hunyadi" is a common one in Hungary, and means of or from Hunyad, and that for this reason it is of itself incapable of exclusive appropriation by any one, being a common descriptive personal name, and also used to designate certain districts and towns in Hungary; that in the year 1889 the word had become a generic term, describing a kind of bitter aperient water, the peculiar product of a large number of wells in Hungary; that the shape of the bottle and the peculiarities of the label have become common property, and were adopted by every one who sold the Hunyadi water, whether under the name of "Hunyadi János," "Laszlo," "Matyas," "Arpad," etc., and that to the time of his death Saxlehner had never asserted or made any claim to the exclusive use of his style of bottle, or capsules, or labels; that in 1886 or 1887 the Apollinaris Company brought suit against the American agents of several of these waters and obtained temporary injunctions, which were subsequently dissolved upon evidence that the word "Hunyadi" was used in Hungary as part of the name of a number of different mineral waters, that Saxlehner refused to join with or aid the Apollinaris Company in opposing a dissolution of such injunctions, and that thereafter these waters were sold freely, openly and continuously in competition with the "Hunyadi János" in the bottles and with the labels and capsules affixed thereto as before stated, with the knowledge, consent and acquiescence of Saxlehner and his agents; that defendant, a Pennsylvania corporation, entered into a contract with the owners of the "Hunyadi Matyas" spring, and obtained the exclusive right to import their waters into the United States for the term of twenty-five years; that in 1890 it began to sell this water in like bottles and with like capsules and labels affixed thereto as now claimed by the plaintiff herein to be in violation of her claimed rights, which bottles, capsules and labels were similar to those in which the said "Hunyadi Matyas" water had been first imported, and that this was done with the consent of the American agent of the Apollinaris Company, who expressly stated that he had no objection to the label used by the defendant, nor to the way in which it was advertising the "Hunyadi Matyas" water; that in 1889 it also became the agent for sale in the United States of the "Hunyadi Arpad," "Hunyadi Laszlo" and "Hunyadi Bela" waters, and began to sell the same in large quantities; that these waters were put up for sale and sold in bottles similar to those of the "Hunyadi János," with like capsules and labels; that these waters were sold in open competition with the "Hunyadi János" until some time in 1893, when plaintiff stopped said competition in part by purchasing the Arpad and Bela springs, and thereupon revoked the agency of the defendant to sell such waters; that in 1877 Saxlehner applied to the Commissioner of Patents for the registration of the words "Hunyadi János" as a trade-mark; that such trade-mark was registered September 11, 1877, by which proceeding he abandoned all claim and assertion of right to the word "Hunyadi" in and of itself, and that it had for many years previously been a generic term to designate this class of waters. The answer further alleged that the defendant, in order to designate the waters sold by it and to secure additional protection to the label used by it, registered the trade-mark "Hunyadi Matyas," since which time the defendant has used such trade-mark as stated therein, and in accordance therewith.

As the case depended almost wholly upon questions of fact, a somewhat elaborate statement of the evidence becomes necessary.

In 1862, Andreas Saxlehner discovered within the city limits of Buda-Pesth, Hungary, in a valley surrounded on all sides by hills acting as a natural barrier, secluding it from the outer world, a spring, which was named by him the "Hunyadi" spring, and on January 19, 1863, the municipal council of Buda granted him permission to sell the water taken from such spring and to give the spring the name of "Hunyadi," upon the payment of a small sum of money for hospital purposes. Soon after this he began to bottle the water of his spring and to sell it under the arbitrary name or trade-mark of "Hunyadi János;" in other words, John Hunyadi, a Hungarian hero of the fifteenth century. Several wells were subsequently sunk by him in the same valley to the number of about one hundred and twelve, all of which produced water, substantially of the same chemical combination, which

is led through a system of pipes to large subterranean cisterns, from which it is taken and bottled. It soon began to be exported beyond the limits of Hungary to other European countries, and also to the United States.

Saxlehner was not, however, the first one in Hungary to put up the bitter waters with which that kingdom abounds, but others were already sold in the market, one of them being called "Hildegarde," and another "Franz Deak." Different bottles and labels were used for these waters, when Saxlehner adopted, in conjunction with the distinctive name of "Hunyadi János," a novel style of bottle of straight shape with a short neck, to the top of which was attached a metal capsule bearing the inscription "Hunyadi János, Budai Keserüviz Forrás," meaning "Hunyadi János, bitter water of Buda," together with a supposed portrait of the hero stamped thereon. He also adopted a peculiar label covering almost the whole body of the bottle, divided into three longitudinal panels, the middle one of which bore the same portrait in a medallion, with the name of "Hunyadi János" written in large letters on the top of the label, the color of the middle panel being a reddish brown and the outer panels white. As this water was exported to and sold in the various countries of the world, a different custom concerning its appellation sprung up in different countries, the Latin races using the word "János" as the common appellation of the water, it being known as "Eau de János" or "Aqua di János," while in England and the United States of America the name of "Hunyadi" became its common appellation, it being known as Hunyadi water.

In 1872, it seems that one Ignatius Markus discovered a spring upon a plot of ground leased by him, which also produced bitter water of similar quality, and shortly thereafter petitioned the municipal council of Buda, not only for permission to sell the water, which was unconditionally granted upon the report of the town physician concerning the quality of the water found, but also to be allowed to name this spring "Hunyadi Matyas," and to bring the water into commerce under that name. This was denied, upon the petition and protest of Saxlehner, who claimed the exclusive right to the use of the name "Hunyadi." It was said that the granting of the denomination "Hunyadi Matyas" to another spring "would very likely, nay certainly lead both between the owners of the two springs and among the consuming public, to unpleasant misunderstandings, which it is the duty of the authorities to avoid and even to prevent. And further, the fact that petitioner, notwithstanding the many designations at his disposal, seeks to apply the name 'Hunyadi' to his spring, undoubtedly shows the not very noble intention on his part to avail himself of the great diffusion and good renown enjoyed by the Saxlehner Hunyadi Bitter Spring, both at home and abroad, which, however, cannot be tolerated by the authorities, and in the present case all the less, as it is a well-known fact that Mr. Saxlehner was able to secure this good renown to his spring only through many years' labor and at considerable expense."

On a petition in appeal, however, to the Minister of Agriculture, in 1873, the decision of the council, which denied to Markus the permission to use the name "Hunyadi Matyas," was reversed, because of certain omissions by Saxlehner to conform to the local laws, and also because "Hunyadi János" and "Hunyadi Matyas" "represent two quite clearly different names, which may stand without any infringement to each other." This spring was afterward registered in Buda-Pesth by the name of "Hunyadi Matyas," and thereupon the proprietors of other wells began to sell their waters in Europe under the name of Hunyadi with an added name, and also with the use of a close imitation of the red-and-white labels. It did not appear, however, that Markus sold any water or made use of the permission granted to him by the Minister, or obtained a license from the local authorities; but, in 1876, the firm of Mattoni & Wille became the purchasers of the plot of ground leased by Markus and several other adjoining plots containing springs, and in that year registered a separate trade-mark and name for each of the six springs which they then acquired, among which was a trade-mark bearing the name "Hunyadi Matyas." In 1877 they began selling these waters in Hungary, claiming certain specific differences of composition of the various waters which recommended them for different purposes.

In February, 1876, Saxlehner made a contract with the Apollinaris Company, Limited, of London, by which that company agreed to purchase a certain quantity yearly, and Saxlehner bound himself for a term, which finally expired in 1896, to give the company the exclusive right to sell his "Hunyadi János" water in Great Britain, the United States and other transmarine countries. The company agreed to purchase at least 100,000 bottles yearly until 1878, and at least 150,000 bottles thereafter at a stated price. In addition to this Saxlehner agreed not to fill any orders coming from the territory granted to the company, but to make them over to the company. A special label was designed to be used on the bottles sold by the company of substantially the same contents and characteristics, but of a different color, the body of the label being a dark blue, with a red or reddish-brown central field. A narrow strip on the top of the label contained the name of the Apollinaris Company as the importer, and from the making of this contract large quantities of water bearing this label were exported and sold in the United States under the name of "Hunyadi János," or the shorter name "Hunyadi."

After April, 1889, and until the cancellation of the contract in 1896, this company placed upon each bottle of János water which it sold in this country a red diamond containing these words: "The red diamond is the trade-mark of the Apollinaris Company, Limited, and is meant only to indicate that the mineral waters so marked are sold by the Apollinaris Company, Limited."

In 1887, Saxlehner caused the name "Hunyadi" to be registered separately from "János" as a trade-mark in the United States Patent Office. In the statement accompanying this registration he was again careful to refer to the red-and-white or red-and-blue label upon which said trade-mark was used by him, and to repeat the caution that he did not in any wise intend by said registration to abridge his right to the exclusive use of said label as a whole, or to any of its features.

The Apollinaris Company embarked in the business of selling Hunyadi János water in the United States, but met with competition from one Scherer, who imported the water under the red-and-white label from Europe, buying it from parties who had purchased it from Saxlehner. The company sought to enjoin Scherer from so selling upon the ground of its exclusive right within the United States, but failed in the suit. The case was decided in 1886, and reported in 27 Fed. Rep., 18.

In the same year Mattoni & Wille of Buda-Pesth consigned to one Andres in New York one hundred and twenty-one cases of Hunyadi Matyas water taken from one of four springs purchased by them, one of which was the original Markus spring above mentioned.

About the same time the firm of Ignatz Ungar & Son began to sell waters from a spring owned by them, which was designed "Hunyadi Arpad," through one Joseph Ungar as their agent. This water was put up in an imitation of Saxlehner's red-and-blue labels. The Matyas water was also

put up in red-and-white labels of similar design. Suits were brought against them in 1886, in the Circuit Court of the United States, by the Apollinaris Company to enjoin the use of the name "Hunyadi" and of the labels. These suits were, however, withdrawn for want of jurisdiction, and two other cases, one against Andres and the other against Ungar, were brought by the Apollinaris Company in the Supreme Court of the State. *Ex parte* injunctions were issued in each case in February, 1887, and remained in force until July, 1888, when the injunction in the Ungar suit was dissolved upon application of the defendant, and soon thereafter the Andres suit was voluntarily discontinued. Saxlehner appeared to have had no knowledge of these suits, although an effort was made, which the court below found to have been unsuccessful, to show that he was notified of the motion to dissolve the injunction, and refused to assist in opposing it. The defendants in these suits seem to have relied largely upon the fact that, under the laws of Hungary, as they then were, they had a right to make use of the word "Hunyadi," provided they annexed thereto as a suffix a word different from "János," as, for instance, "Matyas" or "Arpad," and that, having obtained permission by royal grant to make use of these names in Hungary, they were entitled to make use of the same names in other countries.

In the meantime, however, and in 1887, Saxlehner instituted another suit in Hungary to enjoin the use of the name "Hunyadi" as applied to a water sold there called the "Hunyadi Josef." He was again unsuccessful, not only in preventing the use of the word "Hunyadi," but even in preventing the use of colorable imitations of his red-and-white label, apparently on account of the lack of efficient statutes upon the subject of trade-marks. As one of the witnesses, Saxlehner's son, states, he was advised by his lawyer that before 1890 there was a statute which gave protection against so-called counterfeit or imitation labels and against literal imitations, but not imitations which were similar merely.

In 1890, a statute was passed which gave a protection to pictorial trade-marks only, but not to trade-marks designated by name. Plaintiff, whose husband died in 1889, at once took advantage of this statute, and instituted suits against Mattoni & Wille, as well as a number of other infringers. In 1895, another act was passed giving protection to verbal trade-marks. The suit against Mattoni & Wille resulted in an order of the Minister of Commerce, November 26, 1894, canceling the several trade-marks of Hunyadi Matyas water—

> because, according to the opinion of three experts consulted by the chamber, such trade-marks are similar in composition, design and color, and also for general impression to the trade-marks previously registered for the firm Saxlehner, and have been found to be imitations of the same and apt to mislead the public.

A similar suit instituted by plaintiff against the "Compagnie Générale d'Eaux Universales et de Bains de Mer" resulted in a similar decree canceling the Hunyadi Laszlo label—

> because of the three experts consulted, two have pronounced same to be entirely similar to the trade-mark registered for Saxlehner, and the danger of misleading is greatly augmented by the fact that on this trade-mark the name Hunyadi is applied in a prominent place.

The sale of the Hunyadi Laszlo water seems to have been practically stopped by this decree, but notwithstanding the decree against them of November 26, 1894, Mattoni & Wille continued to use the name Hunyadi Matyas separate from the label, and exported water as before to the defendant in this suit with red-and-blue labels, which were not registered in Hungary.

In 1895, however, another act was passed in Hungary for the registration of words or names as trade-marks. Plaintiff took advantage of this, registered the name "Hunyadi" as a trade-mark, and promptly instituted another suit against Mattoni & Wille, which resulted, in 1896, in another decree canceling, not only the illustrated trade-marks, but the verbal trade-mark Hunyadi Matyas, and awarding to the plaintiff a priority of right to the exclusive use of the words "Hunyadi János" and "Hunyadi" alone, both as a commercial denomination as well as a trade-mark. In the decree of the Minister the prior decree of the Minister of Agriculture of the year 1873, legalizing the use of Hunyadi Matyas, was referred to and treated as superseded by the laws of 1890 and 1895.

> There is [says he] therefore absolutely no connection between that decision and the case now under consideration.

Similar decrees were rendered the same year against other defendants who sought to appropriate the name Hunyadi, including "Hunyadi Josef," against which Saxlehner had been unsuccessful in 1887; "Hunyadi Lajos," and also "Uj Hunyadi" or new Hunyadi, whose litigation against Saxlehner seems to have been carried on in the interest of the Apollinaris Company. In fact, this litigation seems to have resulted in a complete vindication of the right of Saxlehner to the use of the word "Hunyadi."

Promptly upon the rendition of these decrees, and early in 1897, this suit, as well as the others hereinafter mentioned, was instituted.

The case came on for hearing before the circuit court upon pleadings and proofs, and resulted in a decree enjoining the defendant from selling, or offering for sale, any bitter water not coming from the "Hunyadi János" wells of the plaintiff in bottles of a straight shape, with a short neck, and bearing labels in color, size, shape and general design so closely similar to plaintiff's said label as to be calculated to deceive, but permitting the defendant to make use of the name "Hunyadi" as a prefix to some other name than "János," and denying the injunction demanded by the plaintiff against the use of the name "Hunyadi." (88 Fed. Rep., 61.)

On appeal to the circuit court of appeals, the decree of the circuit court was affirmed as to the name "Hunyadi," but reversed as to the label, and the bill dismissed. (63 U. S. App., 139, 145.)

Mr. Joseph H. Choate, *Mr. John G. Johnson*, *Mr. A. v. Briesen*, and *Mr. Antonio Knauth* for the appellant.

Mr. Edmund Wetmore and *Mr. Charles G. Coe* for the appellees.

Mr. Justice BROWN (after stating the case as above) delivered the opinion of the Court.

This case involves the question of plaintiff's exclusive right to the use of the name "Hunyadi" as a trade-mark for Hungarian bitter waters, as well as her right to the red-and-blue label and its characteristic features used by her upon the bottles in which she has been accustomed to sell "Hunyad, János" water.

From the foregoing summary of the facts it appears:

1. That Saxlehner was the first to appropriate and use the name "Hunyadi" as a trade-mark for bitter waters, and that such name being neither descriptive nor geographical, but purely arbitrary and fanciful as applied to medicinal waters, was the proper subject of a trade-mark;

2. That in the shape of his bottles, the design of his capsules and his labels, he was originally entitled to be protected against a fraudulent imitation;

3. That the defendant is selling a water under

the name of "Hunyadi Matyas" in bottles of the same size and shape as the plaintiff's, containing a label in three parallel panels of the same colors, size and general design as those of the plaintiff, that their general appearance is such as to deceive the casual purchaser, and that such bottles and labels were evidently designed for the purpose of imposing the defendant's waters upon the public as those of the plaintiff. A moment's comparison of the two labels will show that, while the printed matter upon each is different from that upon the other, their general resemblance is such as would be likely to mislead the public into the purchasing of one for the other. While the proprietors of the "Hunyadi Matyas" water undoubtedly found a justification for their use of the word Hunyadi in the decision of the Minister of Agriculture of 1873, that decision did not cover the use of the simulated label, the adoption of which seems to have been an act of undisguised piracy.

Practically, the only defenses pressed upon our attention are those of abandonment and laches.

1. To establish the defense of abandonment it is necessary to show not only acts indicating a practical abandonment, but an actual intent to abandon. Acts which unexplained would be sufficient to establish an abandonment may be answered by showing that there never was an intention to give up and relinquish the right claimed. (*Singer Mfg. Co.* v. *June Mfg. Co.*, 163 U. S., 169, 186; *Moore* v. *Stephenson*, 27 Conn., 13; *Livermore* v. *White*, 74 Me., 452; *Judson* v. *Malloy*, 40 Cal., 299; *Hickman* v. *Link*, 116 Mo., 123.) And in a recent English case this doctrine has been applied to a case of trade-marks. (*Mouson* v. *Boehm*, 26 Ch. Div., 398.) With regard to the defense of abandonment, it may with confidence be said that there is but very slight evidence of any personal intention on the part of Andreas Saxlehner or his wife to abandon the use of the word "Hunyadi" or dedicate the same to the public, and none at all of an intent to abandon the peculiar bottles and labels in connection with which he sold his waters. In fact, Saxlehner's whole life was a constant protest against the use by others of the name "Hunyadi." He discovered his spring in 1862, and in 1863 obtained permission to give it the name of Hunyadi Spring. He carried on an uninterrupted trade under that name until 1872. It also appears from the certificate of the Chamber of Commerce and Industry that the trade-mark "Hunyadi János" was, on December 12, 1872, registered, and that previously to such registration no trade-mark was entered in which the name "Hunyadi" or "János" was contained. It further appears that Ignatius Markus had no sooner petitioned the town council for a license to apply to his spring the name of "Hunyadi Matyas" than Saxlehner entered his protest, and was at first successful, but was finally defeated, and that upon the strength of this decision other springs were opened by various parties under trade-marks, of which the word "Hunyadi" was the principal component. At that time, owing to the inefficacy of the Hungarian laws upon the subject of trade-marks, he could do no more. In 1877 he registered the trade-mark "Hunyadi János" in the Patent Office of the United States. In 1884 he registered both his red-and-white and red-and-blue labels in the Buda-Pesth Chamber of Commerce, the latter being intended for use by the Apollinaris Company. In 1887 he instituted an unsuccessful suit in Hungary against the use of the words "Hunyadi Josef." Upon the passage of the Hungarian law of 1890, legalizing the use of pictorial trade-marks, the plaintiff again registered the three labels, and in the following year instituted suits against all infringers in Hungary, which finally resulted in a complete establishment of her rights to the name Hunyadi. In 1887 Saxlehner registered the word "Hunyadi" as his trade-mark in the Patent Office of the United States, and in 1895, when the act for the protection of verbal trade-marks was enacted, plaintiff registered the same word in Hungary. Saxlehner appears, however, to have successfully protested against Mattoni & Wille's registration of "Hunyadi Matyas" in Germany. In June, 1896, plaintiff also instituted a suit against the Apollinaris Company in England, and obtained a final injunction against the illegal use of the name "Hunyadi." In the decree of the Court of Chancery, which is reproduced, it was ordered that the Apollinaris Company deliver up to the plaintiff for destruction all labels, trade documents and capsules in their possession which, by reason of their exhibiting the name "Hunyadi," are capable of being used for business in the United Kingdom for any Hungarian bitter water not being Hunyadi János water. Immediately upon the determination of the Hungarian litigation, and in the spring of 1897, plaintiff began these suits.

There is nothing in these facts tending to show an abandonment by Saxlehner or the plaintiff of their rights either in the name of Hunyadi or in the labels, unless it be the fact that the trade-mark registered in the United States in 1887 contained the words "Hunyadi János," which, it is insisted, was a waiver of a right thereafter to register the name "Hunyadi" alone. That position, however, assumes that, in the absence of such re-registration, other dealers would have the right to seize upon and appropriate the principal word "Hunyadi" of the prior trade-mark, provided they changed the final word and substituted another. We are not prepared to indorse this contention. It is not necessary to constitute an infringement that every word of a trade-mark should be appropriated. It is sufficient that enough be taken to deceive the public in the purchase of a protected article. It was said by Vice-Chancellor Shadwell, in 1847—

> that if a thing contains twenty-five parts and but one is taken, an imitation of that one will be sufficient to contribute to a deception, and the law will hold those responsible who have contributed to the fraud. (*Guinness* v. *Ulmer*, 10 Law Times, 127.)

While this may be a somewhat exaggerated statement, the reports are full of cases where bills have been sustained for the infringement of one of several words of a trade-mark. (*Shrimpton* v. *Laight*,

18 Beav., 164; *Clement* v. *Maddick*, 1 Giff., 98; *Hostetter* v. *Vowinkle*, 1 Dill., 329; *Morse* v. *Worrell*, 9 Am. Law Review, 368; *Grillon* v. *Guenin*, Weekly Notes, 1877, 14; *American Grocer Pub. Co.* v. *Grocer Pub. Co.*, 25 Hun., 398.) It would seem that the registration in 1887 of the single word "Hunyadi" was really unnecessary for the protection of Saxlehner's rights, though we see no reason for holding the former registration an estoppel. The evidence shows that these Hungarian bitter waters were largely known in this country as Hunyadi waters, and that in a certain sense Hunyadi had become a generic word for them. Of course, if it became such with the assent and acquiescence of Saxlehner, he could not thereafter assert his right to its exclusive use. But as this appropriation was made against his constant protest, and as he apparently made every effort in his power to put a stop to the use of it, it ought not to be charged up against his claim that the word had become generic.

It is contended, however, that the conduct of the Apollinaris Company was such as to show an abandonment both of the name and label, and that plaintiff is estopped by their act in further asserting title to them. This defense presupposes that the Apollinaris Company had power to bind Saxlehner by its admission and contract. Certainly the contract gave it no such power in express terms. Saxlehner did not purport to make the company his agent. He agreed to sell the company a certain number of cases of his water at a certain price, and also agreed to sell to no one else during the pendency of the contract. It was agreed that their consignments should carry the label "Sole importers, Apollinaris Company, Limited, 19 Regent street, London, S. W." The company agreed not to compete with Saxlehner upon the continent, and upon his part he agreed to make over to the company all orders arising from countries reserved to it, as well as to refuse such orders where he had good reason to suppose they were intended for such countries. This is practically all there is of the contract. No agreement was made with respect to the trade-mark or the good-will of the business, and the company reserved the right, which it subsequently exercised, of canceling the contract upon notice. While such contract may have authorized the company to prosecute infringers here, and in the conduct of those particular suits Saxlehner may have been bound, it did not agree to do so or preclude the institution of other suits by him, nor was there any authority on the part of the company to bind him by its admissions.

The conduct of the Apollinaris Company, relied upon as evidence of abandonment, consists principally in the discontinuance of the two suits against Ungar and Andres after preliminary injunctions had been obtained (Saxlehner was not shown to have had knowledge of these suits); of a conversation between Mendelson, treasurer of the defendant company, and Steinkopf, a director of the Apollinaris Company in London, in which Mendelson spoke of his intention to sell the Hunyadi Matyas water, of which he had obtained control, and Steinkopf stated "that he could have no objection to that; that there were other Hunyadi waters," and of some other statements equally unimportant. There is little in any of these indicative of an intent on the part of the Apollinaris Company to abandon its exclusive right to the use of the word "Hunyadi" in America. Certainly, nothing indicative of such an intent on the part of Saxlehner, whose conduct in Hungary was wholly inconsistent with that theory. Evidence that the Apollinaris Company intended to abandon an exclusive right to the name Hunyadi might be sufficient as against them to defeat a suit for an injunction, but would not be binding upon the plaintiff unless done with her knowledge and acquiescence.

2. The defense of laches depends upon somewhat different considerations, and, so far as it applies to the use of the word "Hunyadi," we think it is established. It appears that after the decision of the Minister of Agriculture in 1873 sustaining the claim of Markus to the trade-mark "Hunyadi Matyas," other springs were opened whose waters were bottled under different trade-marks, in all of which the word "Hunyadi" was a component, and as early as 1886 these waters found their way to the United States, and were put on sale here with the knowledge of the Apollinaris Company. There is no evidence that Saxlehner had personal knowledge of these infringements, and while something may be said in his favor in view of his persistent efforts to establish his rights in Hungary, he was bound to know the law in this country, and to take steps within a reasonable time to vindicate his rights. The infringers were making use of their trade-marks under licenses from the Hungarian Government, and we see no reason to doubt that they were proceeding in good faith to dispose of their waters under the trade-marks registered in Hungary. Under these circumstances, if Saxlehner had intended to assert his rights under the laws of this country, to the exclusive use of the word "Hunyadi," he was bound to act with reasonable promptness. It is true that he may have supposed the Apollinaris Company would assert his rights in that particular for their own benefit; but if, as we have already held, he was not bound by their admissions, he is in no position to take advantage of their inaction, and, as against traders who were selling bitter waters under trade-marks legalized by the Hungarian Government, he should not have waited until the name "Hunyadi" had become generic in this country, and indicative of this whole class of medicinal waters.

We do not find it necessary to decide exactly what effect shall be given to the various decrees of the Hungarian ministers and courts. It is quite sufficient to observe that the use of the words "Hunyadi Matyas" was expressly sanctioned within the Kingdom of Hungary by the Minister of Agriculture in 1873, and it would seem that under our treaty with the Austro-Hungarian Empire of June 1, 1872, (17 Rev. Stats., 917,) the right to use

the word became available in the United States. By the first article of this treaty—

every reproduction of trade-marks which, in the countries or territories of the one of the contracting parties, are affixed to certain merchandise * * * is forbidden in the countries or territories of the other of the contracting parties—

and by the same article—

if the trade-mark has become public property in the country of its origin, it shall be equally free to all in the countries or territories of the other of the two contracting parties.

In view of the decision of the Minister of Agriculture of 1873, sustaining the trade-mark "Hunyadi Matyas," and the subsequent adoption of the word "Hunyadi" in connection with some other word by numerous proprietors of similar waters, it seems to be clear that the word became and continued to be for twenty years public property in the Kingdom of Hungary, and it is difficult to escape the conclusion that it also became so here. It is true the law of Hungary was subsequently changed in this particular, and that the courts of that country held the plaintiff entitled to the benefit of that change; but it needs no argument to show that, if the word once became public property here, a subsequent change in the law in her own country would not enure to the advantage of the plaintiff here. The right to individual appropriation once lost is gone forever.

If, upon the other hand, we assume that the case can be decided without reference to the law of Hungary or the decisions of its officers and courts, the plaintiff is still at a disadvantage by reason of not instituting her suits more promptly. Saxlehner knew as a matter of fact that the Minister of Agriculture had overruled his protest, and that the word "Hunyadi" had become public property in the Kingdom of Hungary. He knew that a large number of dealers would appropriate the word, and that he was himself selling a large quantity of bitter water in the United States. He must also have known, or at least had good reason to know, that his competitors were doing the same thing. Under such circumstances he should have instituted inquiries upon his own account, and, regardless of his contract with the Apollinaris Company, have seen to it that his own interests were protected. If the Apollinaris Company were not his agent for the protection of his rights in the United States, then it was incumbent upon him to assert such rights personally or through some other recognized medium. In now invoking our laws, his successor is bound to show that she has complied with our requirements of diligence and promptness in instituting suit. She has failed in this particular. By twenty years of inaction she has permitted the use of the word by numerous other importers, and it is now too late to resuscitate her original title.

3. This argument, however, has but a limited application to the appropriation of the bottles and red-and-blue labels covering them, which appear to have been seized upon by the proprietors of the Matyas spring as well as by others, without a shadow of justification and in fraud of plaintiff's rights. As already stated, Saxlehner, when he began selling his water, adopted not only the name "Hunyadi János," but a straight bottle with a short neck, to the top of which was attached a metal capsule with an inscription, as well as a peculiar label, covering almost the whole body of the bottle, divided into three rectangular panels of red and white, which at the time of his contract with the Apollinaris Company was changed to red and blue, so far as it applied to waters sold to that company for the American market. A narrow strip on the top of the label was added, containing the imprint of the Apollinaris Company as importers, and from 1876, the date of the contract, until 1886 the business was carried on by the Apollinaris Company in this country without any important competitors. In 1886, however, Mattoni & Wille began to consign "Hunyadi Matyas" bitter water to New York, put up in bottles bearing a red-and-white label. In 1889 the Eisner & Mendelson Company, defendant herein, made a contract with Mattoni & Wille, by which it obtained the sole agency for the United States and Canada for the sale of their bitter waters for the term of twenty years. During 1889 and 1890 defendant imported some twenty thousand bottles under the name of "Royal Hungarian Bitter Water," under a red-and-white label devised by themselves. In 1890 the defendant took a new lease for five years, with an option for a renewal for twenty years, from Mattoni of the Hunyadi Matyas spring. The circuit court found in this connection that—

the reason which induced Eisner to make this lease was his desire to control the American label, so that neither Mattoni & Wille nor European producers could interfere with the American trade. A new label was therefore forthwith devised by Eisner, which was a reddish-brown and blue label, and is described in the complaint containing the name "Hunyadi Matyas," "Buda Keserüviz" and a medallion portrait of King Stephen in the center of the red division. He intentionally simulated the Saxlehner United States label for the purpose of obtaining, by means of the simulation, part of the good-will which the János water had gained.

We are pointed to no decision of the Hungarian authorities authorizing the use of Saxlehner's label by other parties. The petition of Markus did not ask for permission to use it. The decision of 1873 did not grant it. The decree favorable to Saxlehner did not mention it, but dealt only with the name "Hunyadi." Notwithstanding repeated violations of his label, he seems to have been unable to obtain redress on account of the inefficacy of the laws until 1896, when a competitive trade-mark was ordered to be canceled in his favor by reason of its resemblance to Saxlehner's label, as well as by the use of the word "Hunyadi." In all his applications, both in Hungary and the United States, for the registration of his trade-mark name, there is an express reservation of his right to the medallion head of Hunyadi and to his label. Indeed, we find no authority whatever for the appropriation of this label by any of Saxlehner's competitors, and nothing to show that it was not a case of undisguised piracy. The only justification for its appropriation now insisted upon is the fact that, by general use in this country for the past ten years, it has come to be recognized as a kind of generic label applicable to all Hungarian bitter waters, and if Saxlehner had originally an exclusive right to make use of it, that right has been lost by his acquiescence and that of

the Apollinaris Company in its general use by other importers. But in cases of actual fraud, as we have repeatedly held, notably in the recent case of *McIntyre* v. *Pryor*, (173 U. S., 38,) the principle of laches has but an imperfect application, and delay even greater than that permitted by the statute of limitations is not fatal to plaintiff's claim. We have only to refer to the cases analyzed in that opinion for this distinguishing principle that, where actual fraud is proven, the court will look with much indulgence upon the circumstances tending to excuse the plaintiff from a prompt assertion of his rights. Indeed, in a case of an active and continuing fraud like this we should be satisfied with no evidence of laches that did not amount to proof of assent or acquiescence.

As applicable to trade-marks, two cases in this court are illustrative of this principle. In *McLean* v. *Fleming*, (96 U. S., 245,) there had been apparently a delay of about twenty years in instituting proceedings, but the court observed that—

equity courts will not, in general, refuse an injunction on account of delay in seeking relief where the proof of infringement is clear, even though the delay may be such as to preclude the party from any right to an account for past profits.

An injunction was granted in this case, but it was held that by reason of inexcusable laches, the complainant was not entitled to an account of gains or profits. See also *Harrison* v. *Taylor*, 11 Jurist, (N. S.,) 408. An effort was made in *Menendez* v. *Holt*, (128 U. S., 514,) to obtain a reconsideration of the principle of *McLean* v. *Fleming*, so far as it was therein held that an injunction might be awarded, though the complainant were precluded by his delay from obtaining an account of gains and profits. But the Chief Justice observed:

The intentional use of another's trade-mark is a fraud; and when the excuse is that the owner permitted such use, that excuse is disposed of by affirmative action to put a stop to it. Persistence then in the use is not innocent, and the wrong is a continuing one, demanding restraint by judicial interposition when properly invoked. Mere delay or acquiescence cannot defeat the remedy by injunction in support of the legal right, unless it has been continued so long and under such circumstances as to defeat the right itself, * * * nor will the issue of an injunction against the infringement of a trade-mark be denied on the ground that mere procrastination in seeking redress for depredations had deprived the true proprietor of his legal right. (*Fullwood* v. *Fullwood*, 9 Chan. Div., 176.) * * * So far as the act complained of is completed, acquiescence may defeat the remedy on the principle applicable when action is taken on the strength of encouragement to do it, but so far as the act is in progress and lies in the future, the right to the intervention of equity is not generally lost by previous delay, in respect to which the elements of an estoppel could rarely arise.

In the case under consideration we do not see how it is possible to wring an abandonment on the part of Saxlehner or the plaintiff from the repeated and persistent efforts made by them in Hungary to assert their rights. But it was not until the law was amended in 1895 that these efforts were successful. It can scarcely be wondered at that, in view of the disabilities under which he labored in his own country, Saxlehner should have thought it futile to undertake the prosecution of his rights in a distant land. As the defendant is unable to call to his assistance any authority from the home government for the use of these simulated labels, and as they and their vendors in Hungary seized upon these labels with knowledge of Saxlehner's rights, it is no hardship to enjoin their further use, and to hold defendant liable for such profits as it may have realized or for such damages as the plaintiff may have sustained by reason of the illegal use.

It seems, however, that in 1893 the defendant company began to affix to their bottles of Matyas water an additional label, consisting of a red seal upon a white ground, and containing the words "Ask for the Seal brand. This label has been adopted to protect the public from imitation and as a guarantee of the genuineness of the Hunyadi Matyas Water imported solely by Eisner and Mendelson Co., New York." The attention of druggists was called to this Seal brand by advertisements in the trade papers. The circuit court was of opinion that, as the word "Hunyadi" had become generic, and was no longer subject to individual appropriation, this label was a sufficient attempt on the part of defendant to assert that it was the seller of the Matyas water, and that from its adoption it freed the defendant from the charge, which before that time was true, that it was cajoling or deceiving the ordinary purchaser into the belief that he was buying the János water; and in its decree refused to enjoin the defendant from selling such water under the red-and-blue label bearing the name "Hunyadi Matyas" in connection with the Seal brand label.

We are of opinion, however, that as defendant's bottle and label are a clear infringement upon those of the plaintiff, it would be destructive to her just rights to permit the use of such bottles and labels by the defendant, notwithstanding the affixing of the Seal brand, which is a mere private mark of the importer. The injury to her is in the simulation of her bottle and label, and she has the right to require that her competitors shall be forced to adopt a style of bottle which no one with the exercise of ordinary care can mistake for hers. While this label may have been adopted in good faith, we do not think its employment would prevent the casual customer from purchasing this water as that of the plaintiff, and that the injunction should also go against its use and that plaintiff should recover her damages therefor.

We are therefore of opinion that the decree of the circuit court of appeals must be reversed, and the case remanded to the Circuit Court for the Southern District of New York, with directions to reinstate its decree of April 29, 1898, except so far as it denies to the plaintiff an injunction against the use of the Seal brand labels and damages sustained by such use, and for further proceedings not inconsistent with the opinion of this Court.

SAXLEHNER *v.* SIEGEL-COOPER COMPANY. SAXLEHNER *v.* GIES. SAXLEHNER *v.* MARQUET.

Decided October 15, 1900.

Mr. Joseph H. Choate, *Mr. John G. Johnson*, *Mr. A. v. Briesen*, and *Mr. Antonio Knauth* for the appellant.

Mr. Edmund Wetmore and *Mr. Charles G. Coe* for the appellees.

Mr. Justice BROWN delivered the opinion of the Court.

These three cases were brought against retail dealers, and defended by the Eisner & Mendelson Company, who imported and furnished the defendants with the water sold by them. The bills charged the defendants generally with unlawfully selling bitter water under labels simulating Saxlehner's blue-and-red label, and under the name "Hunyadi." The answer was substantially the same as that in the main case, and the same record of proofs was used.

In the case against the Siegel-Cooper Company there was no charge of an intentional fraud, and the court found there was no evidence of fraudulent conduct on its part, and dismissed the bill as to that company. As to the other two cases the court found that the clerks in charge of their stores, in response to special requests for János water, wrapped up and delivered Matyas water purchased of the Eisner & Mendelson Company. In other words, that they had palmed off the one for the other.

We think that an injunction should issue against all these defendants, but that, as the Siegel-Cooper Company appears to have acted in good faith, and the sales of the others were small, they should not be required to account for gains and profits. The fact that the Siegel-Cooper Company acted innocently does not exonerate it from the charge of infringement. (*Moet* v. *Couston*, 33 Beav., 578; *Millington* v. *Fox*, 3 Myl. & Cr., 338; *Edelsten* v. *Edelsten*, 1 De Gex., J. & S., 185; *Browne on Trade Marks*, sec. 386.)

The decrees of the circuit court of appeals in these cases are also reversed, and the cases remanded to the Circuit Court for the Southern District of New York for further proceedings, etc.

SAXLEHNER *v.* NIELSEN.

Decided October 15, 1900.

ON writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit.

STATEMENT OF THE CASE.

This was a bill of similar character to those involved in the prior cases, and was brought to enjoin the defendant from selling water under the name of "Hunyadi Lajos," or any other name in which the word "Hunyadi" occurs, as well as selling such water in bottles or under capsules or labels resembling those of the plaintiff upon her bottles of "Hunyadi János" water. The answer pleaded abandonment and laches. The circuit court made a similar decree to that in the Eisner and Mendelson suit, enjoining the infringement of plaintiff's red-and-blue label, requiring an accounting for damages, and denying relief against the use of the name "Hunyadi." The circuit court of appeals reversed this decree, and ordered the bill to be dismissed.

Mr. Joseph H. Choate, *Mr. John G. Johnson*, *Mr. A. v. Briesen*, and *Mr. Antonio Knauth* for the appellant.

Mr. Louis C. Raegener for the appellee.

Mr. Justice BROWN delivered the opinion of the Court.

The evidence in this case is much less complete than that in the cases just decided, although its general tendency is much the same. Plaintiff proved the adoption of the name "Hunyadi" by certificate of the municipal council of Buda, dated January 19, 1863, authorizing Saxlehner to give his spring the name of "Hunyadi Spring," and by other certificates of a similar character.

It was shown that Andreas Saxlehner had used uninterruptedly the trade-mark "Hunyadi János" ever since 1865; that in 1873 he had registered this trade-mark in Hungary, and that plaintiff had re-registered the same in 1890. It was admitted that, if the plaintiff had not been guilty of laches, acquiescence or abandonment, she would undoubtedly be entitled to the exclusive enjoyment of both name and label.

But the contract with the Apollinaris Company was also put in evidence, together with testimony showing that from 1886, when the Hunyadi Arpad water began to be imported, some fourteen different Hunyadi waters were put upon the American market without opposition on the part of Saxlehner or the Apollinaris Company, and that the name "Hunyadi" had become widely known in this country as applicable to Hungarian bitter waters. Of some of these waters the importations were as high as six or seven thousand cases a year. As stated in the former opinion, the use of the name "Hunyadi" had become generic in Hungary, and Saxlehner could not have been ignorant of this fact, or of the further fact that exportations of these waters were constantly being made to foreign countries. He was, at least, put upon inquiry as to whether these waters were not being sold in America in competition with his own, and he should have either instructed the Apollinaris Company to prosecute the infringements, or instituted proceedings himself to vindicate his proprietary interest in the name. Under such circumstances we think it too late now to maintain an exclusive title on the part of the plaintiff to the name "Hunyadi," and that she has been guilty of laches which preclude her right to an injunction.

So far as the question of label is concerned, plaintiff's witnesses proved sales of the Hunyadi János water in this country since about 1870, first under a red-and-white label and afterward under the red-and-blue label. Defendant's water does not come from the neighborhood of Buda-Pesth, but from a spring situated at Koes, more than a hundred miles from that place, though the water is apparently of similar character. His label appears to have been designed originally by one Schmidthauer, in Hungary, where it was registered as a trade-mark in July, 1892, and introduced the same year into this country. The label is so obviously an imitation of the Saxlehner label that defendant makes no argument to the contrary, and the appearance of the two is so nearly alike that a casual purchaser would easily suppose he was purchasing the Hunyadi János water in buying that of the defendant. The record also shows that the trade-mark registered by Schmidthauer in July, 1892, as above stated, was canceled by the Gyor Chamber of Commerce and Industry on March 24, 1897. There seems to have been no excuse for the adoption of this label except the fact that so many dealers of bitter water in Hungary had seized upon Saxlehner's name and label that it was treated as public property. For the reasons stated in the former case, we think that defendant should be held accountable for this misappropriation.

The decree of the circuit court of appeals will therefore be reversed, and the case remanded to the Circuit Court for the Eastern District of New York with direction to reinstate its decree of July 18, 1898, and for further proceedings consonant with this opinion.

Patents No. 661,027 to 661,478.

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Non-Withdrawal of Allowed Cases for the Purpose of Suggesting Claims for Interference.

(ORDER NO. 1,365.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., August 25, 1900.

Hereafter applications will not be withdrawn from the issue for the purpose of suggesting claims for interference. When an application is pending before the Examiner which contains a claim which may be made in a case in issue, the Examiner may write a letter suggesting such claim to the applicant whose application is in issue, stating that if such claim is made within a certain specified time the case will be withdrawn from issue, the amendment embodied, and the interference declared. Such letter must have the approval of the Commissioner.

When the Examiner suggests a claim appearing in a case in issue to an applicant whose application is pending before him, the case in issue will not be withdrawn for the purpose of interference unless the suggested claim shall be made in the pending application within the time specified by the Examiner.

In either of the above cases the Issue and Gazette Division should be notified when the claim is suggested, so that in case the final fee is paid during the time in which the suggested claim may be made proper steps may be taken to prevent the final fee from being applied.

WALTER H. CHAMBERLIN,
Acting Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Amendment to Rules of Court of Appeals of the District of Columbia.

That in addition to section 2 of Rule 21 the following provision shall be adopted, to wit:

If the petition for an appeal and the certified copies of papers and evidence on appeal mentioned in this and the preceding section of this rule shall not be filed and the case duly docketed in this court within forty days (exclusive of Sundays and legal holidays) from the day upon which notice of appeal is given to the Commissioner of Patents, the Commissioner, upon such facts being brought to his attention by motion of the appellee, duly served upon the appellant or his attorney, may take such further proceedings in the case as may be necessary to dispose of the same, as though no notice of appeal had ever been given. That this addition to said Rule 21 shall not go into effect and operation until and from the first Monday of December next; and that a copy of said Rule 21, as thus amended, be furnished by the clerk of this court to the Commissioner of Patents.

Per Curiam.

Test:

ROBERT WILLETT,
Clerk.

Promulgated October 19, 1900.

Notices of Disclaimers.

(ORDER NO. 1,374.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 16, 1900.

It is directed that hereafter all notices of disclaimers to patents as published in the OFFICIAL GAZETTE be printed on slips similar to those on which corrections of Letters Patent are now printed and that one of these slips be pasted on each copy of the patent to which the disclaimer applies and one copy be sent to the party filing the disclaimer to be attached to the patent in his possession.

C. H. DUELL,
Commissioner.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.	Netherlands.
Argentine Republic.	Norway.
Belgium.	Peru.
Brazil.	Portugal.
Costa Rica.	Russia.
Denmark.	San Salvador.
Haiti.	Servia.
Honduras.	Sweden.
Italy.	Switzerland.
Mexico.	

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business October 30, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Oct. 24	Oct. 22	37
106	II. Farm Stock, Products, etc.	Oct. 18	Oct. 18	127
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Oct. 16	Oct. 19	151
240	VII. Velocipedes, Games, and Toys.	Oct. 15	Oct. 22	113
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Oct. 8	Oct. 16	161
246	I. Tillage and Fences	Oct. 5	Oct. 17	110
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 5	Oct. 16	120
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Oct. 4	Oct. 16	86
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 4	Oct. 16	172
253	X. Carriages and Wagons	Oct. 3	Oct. 19	87
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 3	Oct. 15	211
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Oct. 3	Oct. 12	155
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 2	Oct. 20	99
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Oct. 2	Oct. 19	139
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 2	Oct. 17	97
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Oct. 2	Oct. 17	97
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 2	Oct. 16	144
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 2	Oct. 16	120
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Oct. 2	Oct. 16	148
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 1	Oct. 18	141
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Oct. 1	Oct. 18	111
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Oct. 1	Oct. 17	170
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 1	Oct. 17	159
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 1	Oct. 17	115
93	XXI. Textiles, etc	Oct. 1	Oct. 17	151
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 1	Oct. 16	142
120	IX. Hydraulics, Fire-Extinguishers, etc.	Oct. 1	Oct. 16	105
248	XVIII. Steam-Engineering, etc	Oct. 1	Oct. 16	137
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Oct. 1	Oct. 16	274
102	XIX. Stoves and Furnaces	Oct. 1	Oct. 16	200
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Oct. 1	Sept. 15	244
	Between one and two months.			
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 27	Oct. 9	190
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Sept. 20	Oct. 17	101
250	VIII. Furniture, Beds, Store Furniture, etc.	Sept. 18	Sept. 25	366
	Between three and four months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 30	Sept. 5	336
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	July 6	Aug. 20	221
	Total number of applications awaiting action			5,537

Applications Under Examination—Continued.

Under one month.			
*Designs	Oct. 25	Oct. 29	35
†Trade-Marks	Oct. 26	Oct. 26	14
‡Labels and Prints	Oct. 27	Oct. 29	2

ISSUE OF NOVEMBER 6, 1900.

Patents	452—No. 661,027 to No. 661,478, inclusive.
Designs	43—No. 33,493 to No. 33,535, inclusive.
Trade-Marks	None.
Labels	None.
Prints	None.
Reissues	1—No. 11,868.
Total issue	496

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Arizona Territory			New Hampshire		
Arkansas	1		New Jersey	23	
California	14		New Mexico Territ'y		
Colorado	1		New York	74	
Connecticut	12		North Carolina	2	
Delaware	1		North Dakota		
District of Columbia	4		Ohio	29	
Florida			Oklahoma Territ'y		
Georgia	1		Oregon		
Hawaii			Pennsylvania	45	
Idaho	2		Rhode Island	2	
Illinois	62		South Carolina		
Indian Territory	1		South Dakota	2	
Indiana	27		Tennessee	10	
Iowa	10		Texas	3	
Kansas	5		Utah		
Kentucky	4		Vermont	1	
Louisiana	8		Virginia	3	
Maine	2		Washington	1	
Maryland	8		West Virginia	1	
Massachusetts	23		Wisconsin	10	
Michigan	17		Wyoming		
Minnesota	7		U. S. Army		
Mississippi			U. S. Navy		
Missouri	16		Total to citizens of the United States	437	
Montana	1				
Nebraska	4				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	2	
Australia			Japan		
Austria-Hungary	6		Java		
Barbadoes			Mexico		
Belgium	3		Netherlands		
Bermuda			New South Wales		
Brazil			New Zealand	1	
Canada	5		Norway		
Chile			Queensland		
China			Russia	2	
Costa Rica			Scotland		
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Spain		
England	13		Sweden	1	
Finland			Switzerland	2	
France	9		Venezuela		
Germany	14		Victoria		
Guatemala			Total to citizens of foreign countries	58	
Haiti					
India					
Ireland					

PATENTS

GRANTED NOVEMBER 6, 1900.

661,027. **WIRE-STRETCHER.** EDWARD T. ARNOLD, Butaw, Pa. Filed July 12, 1900. Serial No. 23,385. (No model.)



Claim.—1. A wire-stretcher comprising a bar, a plate mounted upon the bar, a stationary jaw serving as a retaining device for the plate, and a movable jaw carried by the plate in coöperative relation with the stationary jaw.

2. A wire-stretcher comprising a bar, a plate carried by the bar and having an end bent out of the plane of the bar, a stationary jaw engaging the bent end of the plate and serving to secure said end to the bar, and a movable jaw mounted upon the plate in coöperative relation with the stationary jaw.

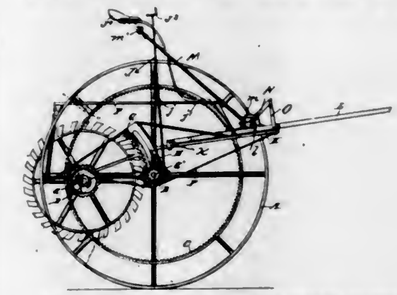
3. In a wire-stretcher, the combination with a bar, of a plate having one end bent at an angle to the bar and provided with a guard formed by locating the extremity of said end in a plane substantially parallel with the plate, and a substantially U-shaped stationary jaw engaging the bent end of the plate and embracing a portion of the bar, whereby said stationary jaw has interlocking engagement with the plate and is clamped upon the bar to retain the plate in place, and a movable jaw mounted upon the plate and having its engaging face extended under the guard in one position.

4. In a wire-stretcher, the combination with a bar provided with a lateral foot extension, of a plate disposed upon one face of the bar and having a bent end located upon the extension of the bar, a substantially U-shaped stationary jaw engaging the bent end of the plate and embracing the contiguous end of the bar extension, a single securing-bolt passed through the bar and plate, and a pivoted jaw fulcrumed upon the plate and in operative relation with the stationary jaw.

5. In a wire stretcher and cutter, the combination with a bar having a plate seated upon one edge thereof, stationary and movable jaws mounted upon the plate, a pair of cutters being formed in the movable jaw and disposed substantially radial to the axis of movement of the jaw, and a pair of recessed extensions formed upon the plate and located beyond the opposite sides of the bar and in operative relation with the cutters.

6. In a wire stretcher and cutter, the combination with a bar having a lateral foot extension, of a plate provided with recessed extensions extending beyond the opposite side faces of the bar and with an angular end bent back into parallel relation with the plate to form a guard, a substantially U-shaped stationary jaw having interlocking engagement with the bent end of the plate and embracing the contiguous end of the foot extension, a single retaining-bolt passed edgewise through the bar and piercing the plate between the recessed extensions thereof, a pivoted jaw fulcrumed upon the plate and formed with a semicircular engaging face and a handle at opposite sides of its pivot and with a pair of radial cutters movable over the recessed extensions of the plate for the purpose of severing a wire or wires located within the recesses of said extension.

661,028. **CLOD-CRUSHER.** BRUCE BENNETT and JOHN E. MOORE, New Haven, Ill. Filed June 11, 1900. Serial No. 19,894. (No model.)



Claim.—1. In a machine of the character described the combination with supporting and conveying wheels, of circular racks on said wheels, a crusher, pinions on the crusher for engaging the racks on the wheels, a framework supporting the crusher, racks on the framework, pinions in engagement with the racks on the framework, and means for operating said last-mentioned pinions for causing the racks to be raised and lowered and the crusher correspondingly operated, substantially as described.

2. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a framework and crusher, means for raising and lowering the framework and crusher, and means for maintaining the framework in horizontal position comprising a tongue or rod pivoted thereto, and means operating substantially as described, to shift the rod and framework relative to each other.

3. In a machine of the character described, the combination with suitable supporting and surveying wheels, of toothed racks on said wheels, a crusher in mesh with the toothed racks of the wheels, a movable framework supporting the crusher, racks carried by the framework and guided by the axle of the machine, pinions in engagement with said racks, and means for operating said last pinions to raise and lower the framework and crusher comprising an operating-lever, a worm on the lever and a gear on the axle of the machine, substantially as described.

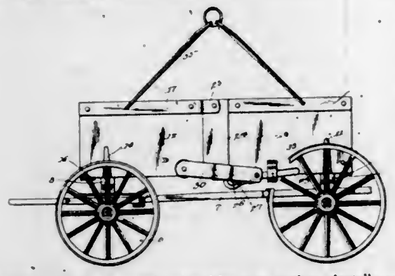
4. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a crusher, a movable supporting-framework for the crusher, means for raising and lowering the framework and crusher, a tongue pivoted to said framework, and means carried by the tongue for raising and lowering the forward portion of the framework to maintain the horizontal position of the framework, substantially as described.

5. In a machine of the character described, the combination with suitable supporting and conveying wheels, of a crusher, a movable support for said crusher, means for raising and lowering the support and

crusher, a tongue pivoted to the support, and means on the tongue for maintaining the support in proper horizontal position, comprising a suitably-controlled operating-lever, and a connection between said lever and the support, substantially as described.

6. In a machine of the character described, the combination with a suitable framework, of a crusher, and means for varying the position of the crushers comprising racks carried by the framework, pinions in engagement with the racks on the framework, means for operating the pinions for causing the racks to be raised and lowered and the crusher correspondingly operated comprising a worm-and-pinion mechanism, an operating-rod for the worm, and a universal connection between the rod and the framework adapted to operate substantially as described.

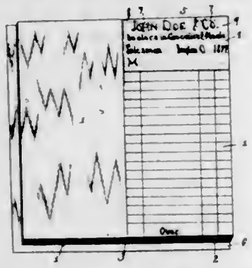
661,029. **WAGON-BODY.** JAMES BOWER, Topeka, Ill. Filed Feb. 21, 1900. Serial No. 6,067. (No model.)



Claim.—1. A wagon-body comprising two sections pivotally connected at their upper edges and disconnected therebelow, whereby the sections may be moved into and out of engagement, and means for moving the sections pivotally, said means comprising a lever pivoted to one section adjacent its lower edge and a link pivoted to the lever and to the other section adjacent its lower edge, the lever being adapted for movement to carry the pivotal connection of the link therewith, in a direction to lie behind the fulcrum of the lever.

2. A wagon-body comprising two sections pivotally connected at their upper edges and disconnected therebelow, whereby the sections may be moved into and out of engagement, means for moving the sections pivotally and including a lever fulcrumed to one section and a link pivoted to the opposite section and to the lever, whereby the lever may be operated to move the adjacent end of the link in a direction to lie behind the fulcrum of the lever, and a clip for engagement by the lever to hold the latter at one limit of its movement.

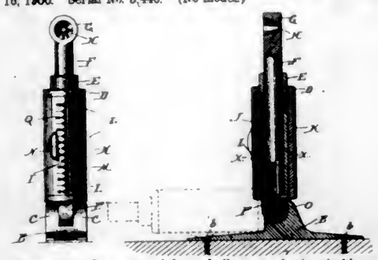
661,030. **MANIFOLDING SALES-BOOK.** JOHN A. BRAKE, Dayton, Ohio. Filed Apr. 2, 1900. Serial No. 11,044. (No model.)



Claim.—1. A sales-book, composed of sheets divided by longitudinal perforations 3 to provide two leaves 1 and 2 of equal length, leaves 2 having oblique perforations 8 extending from the longitudinal edges thereof to the upper terminal of said longitudinal perforations 3 and being united to the back above the line of said oblique perforations, substantially as and for the purposes specified.

2. The herein-described manifolding or sales book, composed of a series of sheets which are perforated in their longitudinal centers to provide two separable leaves 1 and 2 of uniform size, leaves 2 being attached with one or more carbon-sheets to the back of the book, and the said attached leaves having oblique perforated lines 8 upon which they may be detached from the stub, said perforated lines 8 extending from the longitudinal edges of sheets and terminating with the upper ends of the perforations 3, substantially as shown and described.

661,031. **GUN-SIGHT.** SOLON A. BRAY, Carrol, Idaho. Filed Feb. 16, 1900. Serial No. 5,446. (No model.)

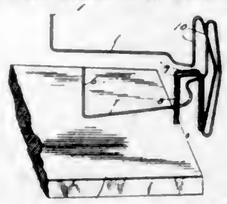


Claim.—1. In a gun-sight, a hollow standard suitably secured to the firearm, a shank having the sight upon its upper end and adapted to slide in the hollow of said standard, an extension from this shank through a longitudinal slot in the standard, and a series of spring-teeth engaging the outer end of said extension to hold the sight in any position, as specified.

2. In a gun-sight, a hollow standard suitably secured to the firearm, a sight having a shank extending downward therefrom, said shank adapted to slide vertically in the hollow of the standard, an extension from said shank through a longitudinal slot in the standard, a split tube of spring metal surrounding the standard, one edge formed by the split in said tube secured to the standard, and the other edge being loose having teeth adapted to engage the outer end of the extension on the shank of the sight, and means for disengaging the teeth from said extension, for the purpose of adjusting the sight, as specified.

3. The herein-described combination of a stock-plate B adapted to be secured to the firearm A, a standard D pivotally secured to said stock-plate and adapted to be swung out of position when not in use, to be stopped in its proper position by the lug O, a tube E fitting in said standard and adapted to receive the shank F of the sight H, a screw I secured in said shank passing through longitudinal slots in both tube E and standard D, a split tube of spring metal having a toothed edge engaged by the screw, and a thumb-piece N for disengaging the teeth, as specified.

661,032. **DANCING TOY.** CHARLOTTE H. BRIGGS, Clinton, Iowa. Filed Apr. 9, 1900. Serial No. 12,196. (No model.)



Claim.—1. A dancing toy, comprising a stationary base, a figure, and a spring-support therefor, comprising an intermediate spring frictional operating device, having its opposite ends extended into a standard rising from the base, and a figure-supporting arm, respectively.

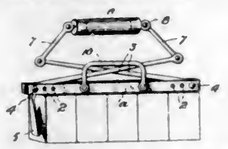
2. A dancing toy, comprising a stationary base, a figure, and a spring-support therefor, consisting in a spring frictional loop, having one end extended into a standard rising from the base, and the opposite end extended into a substantially horizontal figure-supporting arm projecting over the platform.

3. A dancing toy, comprising a stationary base, a toy, and a spring-support therefor formed from a single length of spring-wire, having an intermediate vertically-disposed spring frictional operating-loop, the outer side of which is bowed outwardly, one end of the wire being extended into a standard rising from the base, and the opposite end being formed into a substantially horizontal figure-supporting arm extending over the base.

4. A dancing toy, comprising a stationary base, a toy, and a spring-support therefor formed from a single length of spring-wire, which is bent into an intermediate vertically-disposed spring frictional operating-loop, one end of the wire being bent from an intermediate point of the inner side of the loop and formed into a standard rising from the base, and the opposite end of the wire being bent from an intermediate point of the inner side of the loop and formed into a figure-supporting arm extended over the base.

5. A dancing toy, comprising a stationary base, a jointed figure located above the base and having its feet in close proximity thereto, and a spring figure-support rising from the base, and having an intermediate frictionally-controlled operating device.

661,033. **GRAPPLE.** JAMES G. BROWNFIELD, Terrell, Tex. Filed June 28, 1900. Serial No. 21,912. (No model.)



Claim.—In a device of the character described, the combination with a frame comprising a metal bar bent twice upon itself to form parallel strips, *a b c*, formed at their ends with longitudinal rows of apertures, of levers pivoted between said strips and said apertures and capable of adjustment longitudinally of said frame and provided at their lower ends with clamping-jaws, a grip, and links pivotally connecting said grip to the upper ends of said levers, substantially as set forth.

661,034. **CENTER.** CHARLES H. BURWINKLE, Philadelphia, Pa. Filed June 26, 1900. Serial No. 21,418. (No model.)



Claim.—1. A supporting arch for a center, consisting of a pair of keepers provided with hooks adapted to engage upon the upper edges of the flanges of I-beams, and with bases adapted to extend across the under faces of said I-beams, screws extending through the bases of said keepers into contact with the under faces of said I-beams to adjust the inclination of said keepers, bar engaging devices formed in or on said keepers, a spring bar the respective ends of which are entered in said devices and free for longitudidal adjustment with respect thereto, and means for securing the respective ends of said spring bars at various positions of adjustment with respect to said devices.

2. The combination, to form a supporting arch for a center, of a spring bar, means for engaging one end of said spring bar to the lower portion of an I-beam, and, as a means for connecting the other end of said bar to the adjacent I-beam, a keeper consisting of a base, embodying a socket open at both ends, a hook extending from said base and adapted to engage upon the upper edge of the lower flange of the I-beam, a screw passing through said base and adapted to engage the lower face of said I-beam, and a binding screw engaged in said base and entering said socket.

3. A keeper or support for a center arch, consisting of a block or body provided with a hook adapted to engage upon the lower flange of an I-beam, which hook sustains the weight of said body and permits its movement in a plane perpendicular to the axis of said beam, means carried by said block, and operative against the lower portion of the I-beam, for adjusting the set of said body in different positions in said plane of movement, and means for engaging the end of a bridge bar, substantially as set forth.

4. A keeper or support for a center, consisting of a block or body provided with a supporting hook adapted to engage upon the lower flange of an I-beam, to support the weight of said block, said block being adjustable in a plane transverse with respect to the axis of the I-beam, a screw carried by said block adapted to abut against the lower face of the I-beam and by its set control the adjustment of the block, and means carried by said body or block for securing in different positions of longitudinal adjustment, the end of a bridge bar, substantially as set forth.

5. A keeper or support for a center, consisting of a body or block provided with a hook adapted to engage upon the upper edge of the flange of an I-beam, and formed with a base adapted to extend across the lower face of said beam, a screw extending through said base into contact with the lower face of said beam, and a bar engaging device formed in or on said keeper.

6. A keeper or support for a center, consisting of a body or block, provided with a hook adapted to engage upon the upper edge of the flange of an I-beam, and formed with a base adapted to extend across the lower face of said beam, a screw extending through said base into contact with the lower face of said beam, and a bar engaging device formed in or on said keeper and adapted to secure a bridge bar in different positions of longitudinal adjustment with respect thereto.

7. A keeper for a supporting arch, consisting of a body provided with a hook, a screw passing in an approximately vertical direction through said body, a socket extending through said body for the reception of a bridge bar, and a screw adapted to engage a bridge bar extending through said socket, substantially as set forth.

661,035. **BOX-LID HOLDER.** COLIN CABLE, Kansas City, Mo. Filed Aug. 10, 1899. Serial No. 726,771. (No model.)

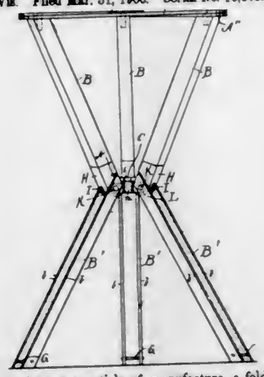


Claim.—1. A box-lid holder, comprising a body portion, each end of which is bent laterally to form an arm and the intermediate portion of which is provided with a laterally-extending plate lying in substantially the same plane with the arms, substantially as described.

2. A box-lid holder, comprising a body portion, each end of which is bent laterally to form an arm, one of which is longer than the other, and the intermediate portion of which body is flat and provided with a laterally-extending plate, lying in substantially the same plane with the arms, substantially as described.

3. A box-lid holder consisting of a wire having pointed arms at the upper and lower ends, and flattened intermediate its ends, and the plate attached to the flattened portion, substantially as and for the purpose described.

661,036. **FOLDING STAND OR STOOL.** ROBERT P. CLARK, Milwaukee, Wis. Filed Mar. 31, 1900. Serial No. 10,873. (No model.)



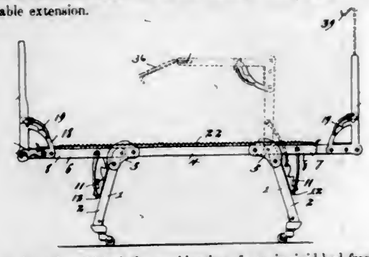
Claim.—1. As a new article of manufacture, a folding stool, comprising a center piece having a top board *l* with edges beveled downwardly and inwardly to form a bearing for the upper leg-section, with leg-supporting arms J projecting laterally from said center piece; upper leg-sections slotted at their lower ends and adapted to fit over the arms projecting from the center piece; lower double-barred leg-sections, within which the upper leg-sections are adapted to fold; and a hinge-pin uniting the interlocking ends to an arm of the center piece; together with a removable folding-bar seat, adapted, when folded, to engage the upper ends of the upper leg-sections, substantially as described.

2. As a new article of manufacture, a folding stool, comprising a center piece having a top board *l* with edges beveled downwardly and inwardly to form a bearing for the upper leg-sections; leg-supporting arms J projecting laterally from said center piece; upper leg-sections slotted at their lower ends and adapted to fit over the arms projecting from the center piece; lower double-barred leg-sections within which the upper leg-sections are adapted to fold; a hinge-pin uniting the interlocking ends to an arm of the center piece; and a lug attached to the upper section, adapted to engage the projecting end of the lower section above the hinge-pin, to throw out the lower sections when the bars are unfolded; together with a removable folding-bar seat, adapted, when unfolded, to engage the upper ends of the upper leg-sections, substantially as described.

661,037. **INVALID-BED.** NELSON CLEMENT, Chicago, Ill., assignor of one-half to Mrs. M. H. Gibson, same place. Filed Jan. 25, 1900. Serial No. 2,713. (No model.)

Claim.—1. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, an extension pivotally connected to one end thereof, means for holding said extension at various angles with

relation to said main frame, and an end frame pivotally engaged with the adjustable extension.



2. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, an extension pivotally connected to one end thereof, means for holding said extension at various angles with relation to said main frame, and an end frame detachably engaged with said adjustable extension.

3. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, an extension pivotally connected to one end thereof, means for locking said extension at various angles with relation to said main frame, an end frame pivotally engaged with said adjustable extension, and means for locking said end frame rigid with the extension in various angles with relation thereto.

4. In an invalid-bed, the combination of a main bed-frame, provided with supporting-legs, a series of notches arranged at intervals apart upon one of said supporting-legs, an extension pivotally connected to one end of the main frame, and a holding link or bail pivotally engaged with the extension and adapted to coöperate with the notches upon the supporting-leg, to lock said extension at various positions with relation to the main bed-frame.

5. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, a series of notches upon one of said legs arranged at vertically-separated intervals, an extension pivotally connected to one end of said main frame, a supporting link or bail pivotally connected with said extension and adapted to coöperate with said notches, an end frame pivotally engaged with the swinging end of the adjustable extension, a notched segment rigidly secured to one of said last-mentioned members, and a coöperating detent mounted upon the opposite member, and adapted to coöperate with the notched segment, to hold the end frame in various angles of adjustment with relation to the extension.

6. In an invalid-bed, the combination of a main bed-frame, provided with supporting-legs, an extension pivotally connected to one end thereof, means for holding said extension at various angles with relation to said main frame, a mattress-frame adapted to fit and rest upon said main frame, and means for positively, but detachably, engaging one end of said mattress-frame with the extension whereby it will be lifted or lowered with the latter.

7. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, an adjustable extension pivotally connected at each end thereof, means for holding said adjustable extensions at various angles with relation to said main frame, a mattress-frame adapted to extend from one adjustable extension to the other, and means for positively, but detachably, engaging each end of said mattress-frame with the corresponding adjustable extensions, whereby the mattress may be supported bodily above the main bed-frame by means of the adjustable extensions.

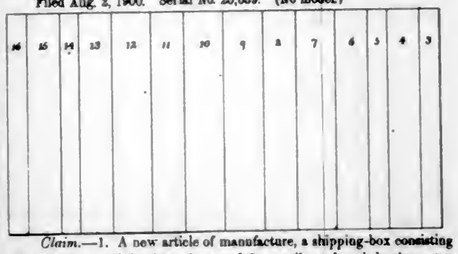
8. In an invalid-bed, the combination of a main rigid bed-frame, provided with supporting-legs, an extension pivotally connected to one end thereof, means for holding said extension at various angles with relation to said main bed-frame, a mattress-frame adapted to rest upon said bed-frame, provided at one end with a plurality of holding devices, a flexible sheet adapted to cover said mattress-frame, provided with means for engaging it with said holding devices upon the end of the mattress-frame, and holding devices upon the adjustable extension at the end of the mattress-frame remote from the end of the latter engaged with the flexible sheet, adapted for engagement with the opposite end of said flexible sheet, whereby said sheet may be suspended free from the mattress-frame at one end in hammock fashion.

9. The combination with an invalid-bed, comprising a rigid bed-frame, provided with supporting-legs, and a pivotally-connected frame at each end thereof, each of said pivotally-connected frames comprising a horizontal cross-bar, and means for locking said pivotally-connected frames in various angles with relation to the main frame, a stretcher comprising a pair of supporting-bars adapted to extend between and rest upon said cross-bars, a flexible fabric extending between said stretcher-bars, and means for holding the stretcher-bars separated laterally, so as to hold the stretcher fabric distended, comprising cross-bars detachably connected with the ends of the stretcher-bars at each end of the latter.

10. The combination with an invalid-bed, comprising a main rigid bed-frame, provided with supporting-legs, and a mattress-frame adapted to rest upon said main frame, of a detachable clothing-support comprising a pair of end frames, each provided with legs or extensions adapted to be inserted between the mattress-frame and bed-frame to hold the frame in vertical position, and a horizontal cross-frame extending between said end frames and detachably engaged with the latter.

11. The combination with an invalid-bed, comprising a main rigid bed-frame, provided with supporting-legs, and a mattress-frame adapted to rest upon said main frame, of a detachable clothing-support comprising a pair of end frames, each provided with legs or extensions adapted to be inserted between the mattress-frame and bed-frame to hold the frame in vertical position, and a horizontal cross-frame extending between said end frames and detachably engaged with the latter, comprising a pair of bars pivotally connected to each other at points intermediate of their lengths, and provided with notches at their ends adapted for engagement with the end frames, substantially as described.

661,038. **COMPARTMENT-BOX.** JOHAN R. COLE, New York, N. Y. Filed Aug. 2, 1900. Serial No. 25,639. (No model.)



Claim.—1. A new article of manufacture, a shipping-box consisting of two boxes, each having a base and four walls, and each having a top and a central horizontal partition, the said tops and partitions being provided with central apertures to receive the subject-matter to be inclosed therein, the said boxes being bound together so that their open sides close each other, substantially as described.

2. As a new article of manufacture, a packing-box consisting of two boxes having each a base and four walls, a top and a central horizontal partition, and apertures in said box and partitions to receive the article to be inclosed therein with elastically-hinged flanges interposed in said apertures, the said boxes being hinged together so that their open tops will close each other; a strip of suitable material interposed between said boxes when they are thus closed, and a band encircling both boxes, substantially as described.

3. As a new article of manufacture, a compartment-box consisting of two right-angular forms, each having a central horizontal partition; suitable apertures in the top of the box and the partitions to receive the articles to be inclosed therein; said forms being hinged together at the edges of their tops so that, when folded together, the top of one closes the top of the other, with a partition interposed between the boxes when folded together; a suitable band binding the two boxes together, substantially as described.

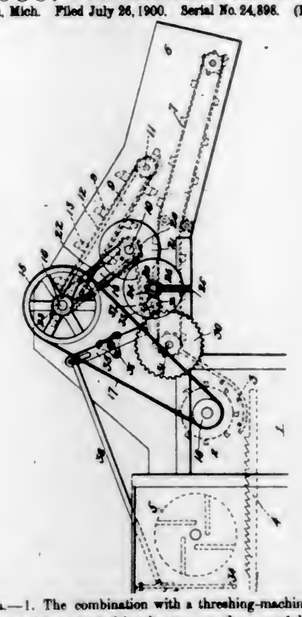
4. As a new article of manufacture, a compartment-box consisting of two right-angular forms, each having a central horizontal partition; suitable apertures in the top of the box and the partitions to receive the articles to be inclosed therein, with flanges interposed in said apertures, said flanges being hinged with a suitable spring tension, and said forms being hinged together at the edges of their tops, so that when folded together, the top of one closes the top of the other with a partition interposed between the boxes, when folded together, a suitable band binding the two boxes together, substantially as described.

5. As a new article of manufacture, a compartment-box formed of one piece of cardboard, or equivalent material scored transversely to divides the same into suitable strips or walls; certain of said strips being provided with suitable apertures of a size to receive the article to be inclosed; this blank being folded and secured to form two connected boxes, substantially as described.

6. As a new article of manufacture, a compartment-box formed of one piece of cardboard, or equivalent material scored transversely to divide the same into suitable strips or walls; certain of said strips being provided with suitable apertures of a size to receive the article to be inclosed; flanges cut out of the cardboard to form the apertures; these flanges being interposed in the apertures to form cushion-bearings, said cardboard being folded and secured to form two connected boxes, substantially as described.

7. As a new article of manufacture, a compartment-box formed of one piece of cardboard, or equivalent material scored transversely to divide the same into suitable strips or walls; certain of said strips being provided with suitable apertures of a size to receive the article to be inclosed; flanges cut out of the cardboard and forming the apertures; these flanges being interposed in the apertures to form cushion-bearings; said board being folded and secured to form two connected boxes, and means to bind said boxes together with a suitable cushioning-strip interposed between them, substantially as described.

661,039. **THRESHING-MACHINE.** GEORGE F. CONNER, Port Huron, Mich. Filed July 26, 1900. Serial No. 24,898. (No model.)

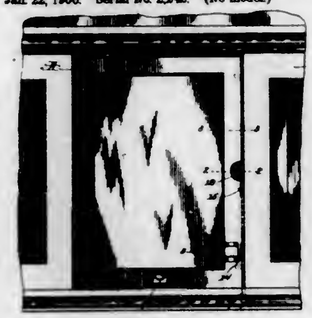


Claim.—1. The combination with a threshing-machine and a self-feeder, of a regulator actuated by the straw at the rear of the threshing-cylinder to control the amount of grain being fed to the threshing-cylinder, substantially as set forth.

2. The combination with a threshing-machine and a feeder therefor, of a movable regulating device arranged within the path of movement of the threshed straw, a constantly-moving variable-speed gearing geared with the feeder for actuating the same, and a connection between the regulating device and the variable-speed gearing for shifting the variable-speed gearing to change the speed of movement of the conveyer, substantially as set forth.

3. The combination with a threshing-machine and a feeder therefor, of a hinged arm, a constantly-driven wheel journaled in said arm, suitably-journaled gear-wheels with which said constantly-driven wheel is geared, a movable regulating device arranged at the rear of the threshing-cylinder and within the path of movement of the straw, a connection between the regulating device and the hinged arm for rocking said arm, and intermediate gearing for transmitting the motion of the gear-wheels with which the constantly-driven gear-wheel is connected to the feeder, substantially as set forth.

661,040. **WEATHER-STRIP.** ANDREW CRAIG, Lawrence, Mass. Filed Jan. 22, 1900. Serial No. 2,242. (No model.)



Claim.—1. A sash and its frame, the sash having a longitudinal groove and a strip embodying a flat body provided with a longitudinal rib or fin fitted in said groove, one or more cases carried by said strip and intersecting said rib or fin, and springs within said case or cases bearing against the strip and the sash.

2. A weather-strip having a transverse rib extending the entire length of the same, and one or more cases or tubes carried by said strip and intersecting said rib.

661,041. **WIRE-FENCE TIGHTENER.** GEORGE H. CULLEN, Sitka, Ind. Filed Apr. 5, 1900. Serial No. 11,725. (No model.)

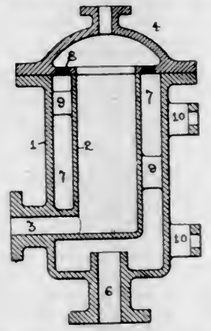


Claim.—1. A tool for tightening fence-wires by the formation of crimps therein, the same consisting of a handle provided at one end with spaced parts of approximately circular outline with their inner peripheral portions outwardly flared and transversely notched, and a second handle having an approximately circular head about equal in diametrical extent to the aforementioned circular parts and pivoted concentrically therebetween and having its outer edge portion oppositely beveled and transversely notched, substantially as described.

2. A tool for tightening fence-wires by the formation of crimps therein, the same consisting of a handle provided at one end with spaced parts of approximately circular outline with their inner peripheral portions outwardly flared and transversely notched, one wall of the notches being straight and the other wall beveled, and a second handle having an approximately circular head about equal in diametrical extent to the aforementioned circular parts and pivoted concentrically therebetween and having its outer edge portion oppositely beveled and transversely notched, one wall of the notch being straight and the other oppositely beveled from a central line, substantially as specified.

3. A tool for tightening fence-wires by the formation of crimps therein, the same consisting of a handle having a head composed of a plurality of spaced parts of approximately circular outline having the adjacent faces of their peripheral portions outwardly flared, and having sets of transversely-alined notches at intervals in their circumferential length, corresponding walls of the notches being oppositely beveled, and a second handle having a head composed of a number of spaced parts of approximately circular outline and fitted between the parts of the aforementioned head and pivoted concentrically therewith, the two heads being of about equal diameter, and the parts of the last-mentioned head having their peripheral portions oppositely beveled and formed with a series of transversely-alined notches with corresponding walls beveled in an opposite direction to the beveled walls of the notches formed in the parts of the first-mentioned head, substantially as specified.

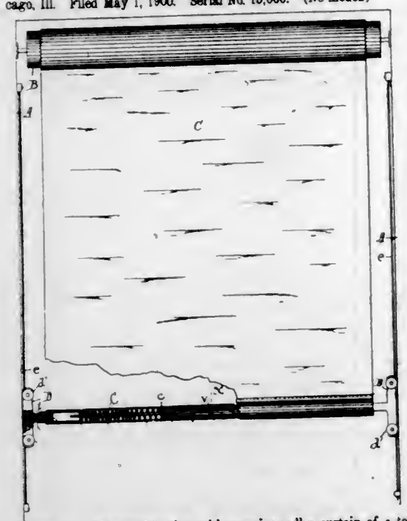
661,042. **FEED-WATER HEATER.** DAVID B. CUMMING, Liverpool, England. Filed Apr. 16, 1900. Serial No. 13,209. (No model.)



Claim.—A feed-water heater consisting of an outer cylindrical vessel, an inner cylindrical vessel formed in one therewith, a water-inlet leading into said inner vessel, a cover adapted to close them and having as an integral part thereof an annular perforated diaphragm whereby the water is subdivided in passing from one vessel to the other, and an inlet for steam so arranged that the direction of flow of the inflowing steam

coincides with the direction of flow of the outgoing water, substantially as described.

661,043. CURTAIN-FIXTURE. GEORGE H. DAVIS, Portland, Me., assignor to the Curtain Supply Company, Jersey City, N. J., and Chicago, Ill. Filed May 1, 1900. Serial No. 15,066. (No model.)

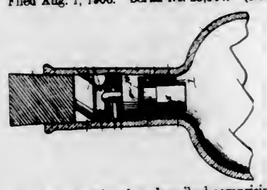


Claim.—1. The combination with a spring-roller curtain of a telescoping tubular curtain-stick therefor, friction ends for said curtain-stick, each having a shank fitting into one end of said curtain-stick, vertical guides for holding said ends against the casing and means for holding said tube normally in its extended position and means for temporarily shortening it to free it from said ends, substantially as described.

2. The combination with a spring-roller curtain, of a telescoping tubular curtain-stick therefor, comprising an inner and an outer tube, friction ends for said curtain-stick each having a shank fitting into one end of said curtain-stick, vertical guides for holding said ends adjacent to the casing, a spiral spring within said curtain-stick for holding said inner tube in its outer position and means for temporarily retracting said inner tube to release said ends, substantially as described.

3. The combination with a spring-roller curtain of a tubular curtain-stick having a tubular extension fitting in one end thereof, friction ends for said curtain-stick, each having a shank fitting into one end of the curtain-stick, vertical guides for holding said ends adjacent to the casing, a spiral spring for forcing said tubular extension outward, a bolt fitting in the curtain-stick, a rod connecting said tubular extension and said bolt rigidly secured to one and connected by a screw-thread with the other, a longitudinal slot in the curtain-stick opposite said bolt, said slot having a shoulder or offset, a pin in said bolt projecting out through said slot adapted to catch in said offset when the bolt is drawn back and turned, substantially as described.

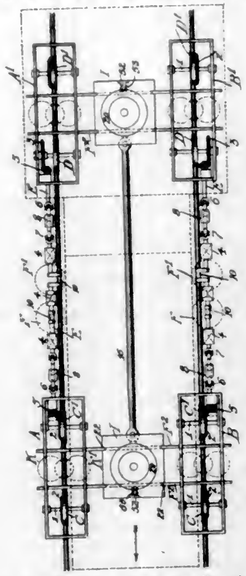
661,044. NON-REFILLABLE BOTTLE. ROBERT M. ELLIS, Martin, Tenn. Filed Aug. 1, 1900. Serial No. 25,567. (No model.)



Claim.—1. A device of the class described comprising a receptacle having a neck provided with interior screw-threads, the guard or shield located within the neck and consisting of a threaded lower portion engaging the threads of the neck and provided with grooves intersecting the screw-threads, an upper portion provided with grooves having their lower ends offset from the upper ends of the grooves of the lower portion, a neck connecting the upper and lower portions of the guard or shield and being of less diameter than the neck of the receptacle to provide an annular space, a sleeve arranged within the neck of the receptacle at a point below the guard or shield, and a valve consisting of a tubular stem arranged within the said sleeve and provided with openings, and a disk or head arranged to fit against the upper edges of the sleeve to close the receptacle, and having its upward or outward movement limited by the guard or shield and being of a less diameter than the lower end of the same to clear the grooves thereof, substantially as described.

2. A device of the class described comprising a receptacle having a neck provided with interior screw-threads, the guard or shield located within the neck and consisting of a threaded lower portion engaging the threads of the neck and provided with grooves intersecting the threads, an upper portion provided with grooves having their lower ends offset from the grooves of the lower portion, and a neck connecting the upper and lower portions of the guard or shield, and being of a less diameter than the neck of the receptacle, a sleeve arranged within the neck of the receptacle at a point below the guard or shield and provided near its upper end with an outer shoulder, an elastic band surrounding the said sleeve adjacent to the shoulder and engaging the neck of the receptacle, and a valve consisting of a tubular stem arranged within the sleeve and provided at its top with openings, and a disk or head seated upon the upper edges of the sleeve and having its outward movement limited by the lower end of the guard or shield and being of a less diameter than the same, substantially as described.

661,045. MOUNTAIN-LOCOMOTIVE. GEORGE S. FOUTS, San Francisco, Cal. Filed Nov. 15, 1899. Serial No. 737,121. (No model.)



Claim.—1. A locomotive having a plurality of trucks upon one side, carrying-wheels running therein and geared to a driving-shaft, independent trucks upon the other side, a bolster-frame extending from side to side and loosely connecting opposite independent trucks together, and a boiler structure pivotally supported by said bolsters.

2. A locomotive provided with one or more pairs of grip-wheels adapted to grip a rail, in combination with means for rotating said grip-wheels, means for engaging said grip-wheels with and releasing them from the rail, and means for lifting them in the line of their axes above the rail.

3. A locomotive having truck-wheels, a pair of horizontal grip-wheels, means for causing said grip-wheels to grip a rail of the track upon which the truck-wheels run, means for causing said grip-wheels to release the track, and means for raising said grip-wheels above the track.

4. A locomotive having truck-wheels geared to a driving-shaft, in combination with a pair of grip-wheels for gripping a rail, such grip-wheels being geared to each other and to said driving-shaft.

5. A locomotive having carrying-wheels geared to a driving-shaft, a pair of grip-wheels geared to each other and to the carrying-wheels and adapted to grip a rail, means for causing said grip-wheels to engage and to release said rail, and means for lifting said grip-wheels without affecting their driving-gearing.

6. A locomotive having grip-wheels arranged in pairs on both sides of the structure, and adapted to grip both track-rails horizontally, and an intermediate mechanism connected to the grip-wheels on both sides for operating said grip-wheels on both sides simultaneously to cause them to grip both track-rails and also to release said track-rails.

7. In a locomotive, a wheel-truck, a pair of horizontal grip-wheels journaled in said truck and having their shafts geared together, a driving-shaft, and gearing between said driving-shaft and a grip-wheel shaft.

8. In a locomotive, wheel-trucks having carrying-wheels, a driving-shaft, gearing connecting the driving-shaft to said carrying-wheels, gearing connecting the carrying-wheels of each truck together, so that all carrying-wheels on one side are in a system of gearing with the driving-shaft, a pair of horizontal grip-wheels journaled in a truck and geared to each other, and to said system of gearing, and means for causing said grip-wheels to engage with a track-rail.

9. In a locomotive, a pair of grip-wheels adapted to grip a track-rail sidewise, and journaled in a supporting-truck of the locomotive, in combination with means operated by the pull or push of the load, independently of the locomotive-trucks, for moving such grip-wheels toward each other and the rail and away from each other and the rail.

10. In a locomotive, a pair of grip-wheels, adapted to grip a track-rail sidewise, and journaled in a supporting-wheel truck, in combination with a movable part on the locomotive structure, and a connection to said grip-wheels operated in both directions by said movable part for causing said grip-wheels to engage and release the track-rails.

11. In a locomotive having carrying-trucks, a pair of grip-wheels adapted to grip a track-rail sidewise, and another pair of grip-wheels for similarly gripping the opposite rail, in combination with a movable part on the locomotive structure, connections to both pairs of grip-wheels operated simultaneously by said movable part in both directions for causing both pairs of grip-wheels to engage and release the rails.

12. In a locomotive, wheel-trucks, a pair of grip-wheels journaled in a truck and adapted to grip a rail sidewise, a boiler structure supported by said trucks so as to have a limited longitudinal movement, and means operated by said movement for causing said grip-wheels to engage said rail.

13. In a locomotive, wheel-trucks, pairs of grip-wheels journaled in said trucks so that each pair grips a rail sidewise, a boiler structure supported by said trucks, so as to have a limited longitudinal movement and connections to all the pairs of grip-wheels operated simultaneously by said longitudinal movement for causing the grip-wheels to engage both rails.

14. In a locomotive, opposite forward trucks and opposite rear trucks, bolsters loosely connecting the opposite trucks and a longitudinal reach jointed to said bolsters, all forming a connected supporting structure; in combination with a boiler and engine frame mounted pivotally upon said bolsters and capable of a limited longitudinal movement, rail-gripping wheels journaled in pairs in forward and rear trucks, independent connections to the forward and the rear grip-wheels, and means for causing the said longitudinal movement of the boiler to cause the said forward and rear grip-wheels to simultaneously engage the rail.

15. In a locomotive, supporting-trucks connected by transverse bolsters, a bed-plate supported in guides upon said bolsters so as to be movable longitudinally, a boiler supported pivotally upon said bed-plate, a transverse lever adapted to derive motion from said longitudinal movement in either direction, and a pair of rail-gripping wheels connected to said lever.

16. In a locomotive, supporting-trucks connected by transverse bolsters, a bed-plate supported in guides upon said bolsters, so as to be movable longitudinally, a boiler supported pivotally upon said bed-plate, two transverse levers jointed together and adapted to derive simultaneous motion from said longitudinal movement in either direction, and a pair of rail-gripping wheels journaled in opposite trucks, and connected to said levers.

17. In a locomotive, a pair of grip-wheels for gripping a rail sidewise, shafts journaled in movable bearings and carrying said grip-wheels, connections between said shafts, and means for operating said connections to cause said grip-wheels to approach each other and to recede from each other.

18. In a locomotive, a pair of grip-wheels for gripping a rail sidewise, shafts journaled in movable bearings and geared together carrying said grip-wheels, connections between said shafts, and means for operating said connections to cause said grip-wheels to approach each other and to recede from each other.

19. In a locomotive, a pair of grip-wheels for gripping the rail sidewise, means for supporting said grip-wheels whereby they can approach and recede from each other, and can also move vertically and a power-cylinder having its piston connected to said grip-wheels for imparting to them the said vertical movement.

20. In a locomotive, a pair of grip-wheels for gripping a rail sidewise, loosely-supported shafts on which said grip-wheels are mounted, a connection between said shafts, means for operating said connection in order to cause the grip-wheels to approach and recede from each other, a power-cylinder, and a connection between the piston of said cylinder and both grip-wheel shafts whereby said grip-wheels can be vertically and simultaneously moved.

21. In a locomotive, a pair of grip-wheels for gripping a rail sidewise, shafts on which said wheels are mounted, gearing feathered upon said shafts and connecting them together, means for operating said gearing, a power-cylinder and piston, and a connection from the piston for raising both shafts independently of the said gearing.

22. In a locomotive, means for securing increased traction comprising truck-wheels, one of which is geared to a driving-shaft, a pair of horizontal side gripping-wheels located between two adjacent truck-wheels, grip-wheel shafts geared together, a bevel-gear on one grip-wheel shaft, and other bevel-gearing connecting said bevel-gear to both of said truck-wheels.

23. In a locomotive, the combination with a wheel-truck of two substantially vertical shafts, journaled respectively in upper and lower boxes or bearings; the upper boxes being rocking boxes, and the lower boxes being sliding boxes, grip-wheels secured to said shafts and adapted to clamp a rail between them, connections between said sliding boxes, means for rotating said grip-wheels, and means for operating said connections, in order to cause said sliding boxes to approach and recede from each other.

24. In a locomotive, a pair of wheels for gripping a rail sidewise, shafts for said wheels journaled in a wheel-truck in upper rocking boxes and in lower sliding boxes, a rock-shaft connected to both of said sliding boxes, a lever controlling said grip-wheels pivoted independently of the wheel-truck and having a connection with said rock-shaft for moving said sliding boxes, such connection comprising substantially a vertical rod connected to a crank on said rock-shaft and a horizontal rod connected to said lever; the two rods meeting and being jointed together at approximately the level of said rocking boxes; whereby the grip-wheels, while gripping a rail, can follow a change in track-gage without affecting said controlling-lever on account of the location of the joint between said rods at about the center of oscillation, viz., said rocking bearings.

25. In a locomotive, a wheel-truck, a pair of grip-wheels, sliding boxes forming journals for the shafts of said wheels, a rock-shaft having connections to both boxes so as to make them simultaneously movable toward each other to engage said wheels with a rail, and a casing for guiding the boxes and holding them in line during such movement.

26. In a locomotive, a wheel-truck, a pair of grip-wheels, sliding boxes forming journals for the shafts of said wheels and movable toward each other to engage said wheels with a rail, a casing for guiding the boxes and holding them in line during such movement, a power-cylinder for lifting said grip-wheels above the track, and vertical guides in the truck-frame for guiding said casing and boxes during the movement resulting from said power-cylinder.

27. In a locomotive, two opposite independent wheel-trucks in combination with a transverse bolster-frame extending continuously across the trucks and having downwardly-extending arms on both sides of each truck, whereby said trucks are held loosely together.

28. In a locomotive, two opposite independent wheel-trucks having raised side pieces, provided with oppositely-placed slots, a bolster passing loosely through the slots in both side pieces, and having downwardly-projecting arms on both sides of each truck, whereby the trucks are held loosely together, but are completely independent as to individual rocking movements.

29. In a locomotive, carrying-wheels, one or more pairs of grip-wheels for gripping each track-rail sidewise, a separate driving-shaft for driving the carrying-wheels and the grip-wheels on each side, and one or more engine-cylinders for operating each shaft separately; whereby the grippage is maintained on curves, and each engine automatically adjusts itself to the required speed.

30. In a locomotive, wheel-trucks having transverse bolsters, a bed-plate mounted on said bolsters and movable thereon, an engine and boiler structure supported by said bed-plate, and a stop on said plate for limiting its sliding motion.

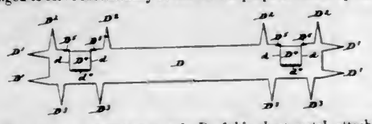
31. In a locomotive, front and rear trucks, connected by transverse bolsters, a longitudinal reach connecting said front and rear bolsters, a sliding bed-plate supported respectively by the front and rear bolsters, and a stop on each bolster for limiting its sliding motion.

32. In a locomotive, opposite wheel-trucks, a pair of track-gripping wheels mounted in each truck, a sliding bed-plate supporting the engine-boiler and carried by said trucks, a pair of horizontal levers jointed together and having connections to said grip-wheels, and two studs on each bed-plate located respectively in front and in rear of said levers, whereby sliding motion of said bed-plate either forwardly or rearwardly will cause a stud to bear upon and operate said jointed levers.

661,046. GARMENT-SUPPORTER. BETTIE H. FRANK, New York, N. Y. Filed Mar. 7, 1900. Serial No. 7,678. (No model.)

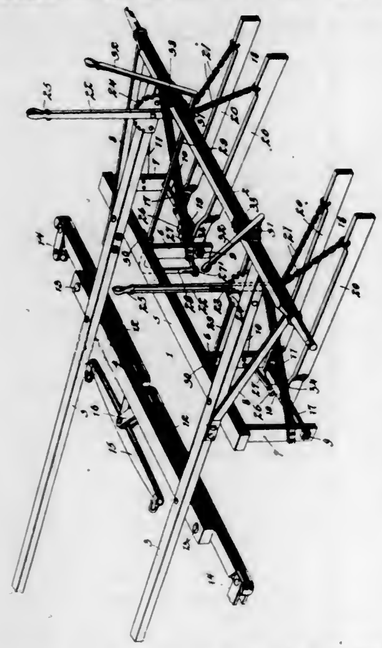
Claim.—1. In a garment-supporter, a strip D of thin sheet metal,

attaching-prongs thereon and rectangular hooks D^1 D^1 near the ends of said strip and formed integral therewith, in combination with eyes E E having attaching-prongs at the lower portions thereof, and having the rectangular openings *e e*, matching to said hooks, said eyes adapted when engaged to lie within the margins of said strip and with the offsets d^1 d^1 joining said hooks to said strip on a straight line and serving with said openings as stops to prevent the disengagement of said hooks and eyes, all arranged to serve substantially as and for the purposes herein specified.



2. In a garment-supporter, a strip D of thin sheet metal, attaching-prongs thereon and rectangular hooks D^1 D^1 at the ends of said strip and formed integral therewith, and the offsets d^1 d^1 on a straight line and at right angles thereto, in combination with eyes E E having attaching-prongs at the lower portions thereof and having the rectangular openings *e e* matching to said hooks, the said eyes adapted when engaged to lie within the margins of said strip the said offsets serving as stops to prevent the disengagement of said hooks and eyes, and the flanges D^2 D^2 on the upper edge of said strip adjacent to said hooks serving as additional stops for preventing disengagement, all substantially as herein specified.

661,047. CULTIVATOR AND PLANTER. ELBERT G. GRAVES, Waxahachie, Tex. Filed Aug. 29, 1900. Serial No. 28,455. (No model.)



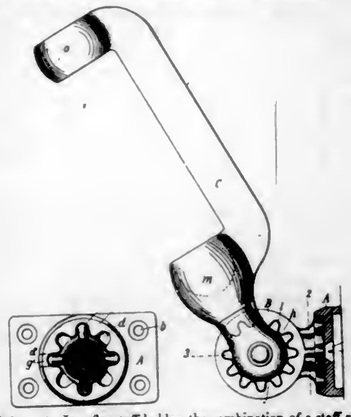
Claim.—1. In a device of the class described, the combination of a supporting-frame provided with transverse pintles, swinging frames mounted on the transverse pintles and adapted to be raised and lowered, and capable of lateral adjustment, means for raising and lowering the swinging frames, and rock-shafts provided with arms connected with and adapted to move the frames laterally, substantially as described.

2. In a device of the class described, the combination of a supporting-frame provided with transverse pintles, swinging frames having bearings receiving the pintles, longitudinal rock-shafts provided with depending arms, links connecting the arms of the rock-shafts with the bearings of the swinging frames, and means for operating the rock-shaft, substantially as described.

3. In a device of the class described, the combination of a main frame provided with depending arms, rods connecting the arms, sleeves arranged on the rods, swinging frames provided with sleeves slidingly mounted on the said sleeves and having apertured flanges, longitudinal rock-shafts, having depending arms, links extending from the depending arms of the rock-shafts, and engaging the apertures of the flanges, and means for operating the rock-shafts, substantially as described.

4. In a device of the class described, the combination of a frame provided with depending arms, pintles connecting the arms, swinging frames mounted on the pintles, longitudinal rock-shafts journaled on the main frame and provided at their front ends with depending arms connected with the swinging frames, operating-arms arranged at the rear ends of the rock-shafts, and means for raising and lowering the swinging frames, substantially as described.

661,048. FLAGSTAFF-HOLDER. WALTER HART, New York, N. Y. Filed Feb. 23, 1900. Serial No. 6,145. (No model.)



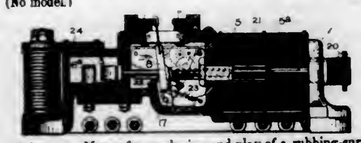
Claim.—1. In a flagstaff-holder, the combination of a staff-supporting member having at its lower end a lateral projection, said projection being peripherally toothed for a part of its length, an adjusting member having a socket into which said projecting member enters, said socket being correspondingly toothed for a part of its length, and a base-plate upon which said adjusting member is adjustably mounted, substantially as and for the purposes described.

2. In a flagstaff-holder, the combination of a base-plate, an adjusting member mounted thereon and having a socket smooth-bored for most of its length, and interiorly toothed or corrugated at one end, and a flag-supporting member provided at its lower end with a lateral projection comprising a smooth portion revolubly fitting into said socket, and a series of peripheral teeth or corrugations for engaging with the corresponding teeth in said socket, substantially as and for the purposes described.

3. In a flagstaff-holder, the combination of a staff-supporting member having at its lower end a lateral projection comprising a smooth portion and a peripherally-toothed portion, and an adjusting member suitably mounted or supported, said adjusting member being provided with a socket into which said lateral projection loosely fits and with teeth for engaging or locking said peripherally-toothed portion, substantially as and for the purposes described.

4. In a flagstaff-holder, the combination of a base-plate, an adjusting member seated upon said base-plate and detachably secured thereto, said adjusting member having a socket interiorly toothed for a part only of its length, means of securing axial adjustment of said adjusting member upon said base-plate, a staff-supporting member detachably secured to said adjusting member and provided with a projection or boss entering said socket, substantially as and for the purposes described.

661,049. CONTROLLING END PLAY OF ROTARY MACHINES. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 31, 1900. Serial No. 28,651. (No model.)



Claim.—1. Means for producing end play of a rubbing-surface with relation to a shaft comprising means for periodically shifting one of the engaging parts at intervals corresponding to its period of natural oscillation.

2. Means for producing end play of a rubbing-surface with relation to a shaft comprising means for laterally shifting one of the engaging parts and means for adjusting the periods of shifting action to maintain the said part in oscillation, thereby effecting uniform wear.

3. Means for producing end play of a rubbing-surface with relation to a shaft comprising means for laterally shifting one of the engaging parts and adjusting devices for timing the shifting action according to the lateral movement of the shaft.

4. Means for producing end play of a rubbing-surface with relation to a shaft comprising means for shifting one of the engaging parts endwise of the shaft, a controlling electric circuit and an adjustable timing device for determining a periodical charging of the circuit with current.

5. Means for producing end play of a rubbing-surface with relation to a shaft comprising an electromagnet for relatively shifting one of the engaging parts, a circuit including the magnet, a circuit-controller, and a time-train governing the period of the circuit-controller.

6. Means for producing end play of a rubbing-surface with relation to a shaft comprising means for laterally shifting one of the engaging parts, and a regulable time-limit-controlling device adapted to effect engagement and disengagement of the shifting device for determinate intervals.

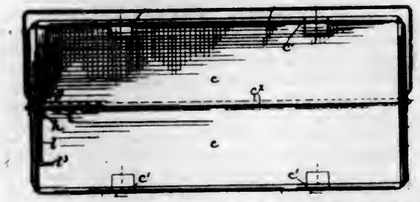
7. Means for producing end play of the shafts of a plurality of machines comprising an end-play magnet on each machine, a common charging-circuit for the magnets of all machines, and a time-limit circuit-controller for the circuit.

8. Means for producing end play of a rubbing-surface with relation to a shaft comprising an end-play magnet, a circuit including the same, a circuit-controller, means for periodically operating the circuit-controller with uniform relation to the lateral excursions of the shaft, and means for retaining the circuit closed to prolong the thrust of the end-play magnet.

9. A time-limit device for electric circuits comprising a magnetically-operated main circuit-controller in a charging-circuit, an auxiliary circuit-closer controlling the same, a time-limit device for opening the auxiliary circuit-closer, and a demagnetizing-circuit, closed by the auxiliary circuit-closer after a determinate interval of time, to open the main circuit-controller.

10. A time-limit device for electric circuits comprising a differential magnet, an armature controlled thereby to govern the circuit, a circuit-closer governing the magnet, a timing device for the circuit-closer adapted to hold the magnet charged for a determinate interval, and a demagnetizing-contact for neutralizing the magnet at the expiration of said interval.

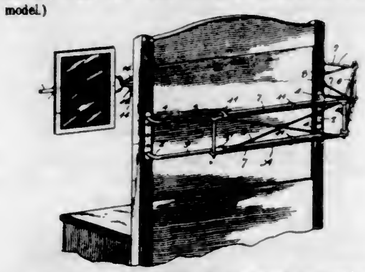
661,050. BOX OR RECEPTACLE. RUDOLPH HOFFMAN, Lorain, Ohio. Filed Apr. 25, 1900. Serial No. 14,258. (No model.)



Claim.—1. The combination, with a box or receptacle having a bottom composed of two suitably-supported vertically-tiltable sections, of an upright bar movable up and down the receptacle, two links operatively connecting said bar with the different bottom-forming sections, respectively, means for guiding the bar and comprising a strap that straddles the bar from one side of the said bar and is rigid with the body portion of the receptacle, and a latch pivoted to the bar and having the pivot-engaging hole elongated longitudinally of the latch, and the arrangement of parts being such that, in the closed or normal position of the aforesaid bottom-forming sections, the latch is in position at and externally of one end of the aforesaid guide-forming strap and capable of being slid endwise upon the pivot of the pivotal connection formed between the latch and the aforesaid bar, substantially as and for the purpose set forth.

2. The combination with a box or receptacle having a bottom composed of two suitably-supported vertically-tiltable sections, of an upright bar movable up and down the receptacle, two links operatively connecting the said bar with the different bottom-forming sections, respectively, means for guiding the bar and comprising a strap that straddles the bar from one side of the latter and is rigidly secured to the body portion of the receptacle and extends to, or in close proximity to, the receptacle's upper extremity, and a latch pivoted to the upper end of the aforesaid bar and having the pivot-engaging hole elongated longitudinally of the latch, all arranged and operating substantially as shown, for the purpose specified.

661,051. MIRROR ATTACHMENT FOR BUREAUS. MARY B. HORTON, Valda, Tex. Filed Feb. 6, 1900. Serial No. 4,204. (No model.)



Claim.—1. In a device of the class described, the combination with fixed horizontally-arranged supporting-rods, of a flexible supporting-bracket mounted upon said supporting-rods and freely slidable thereon, and a mirror carried by said bracket, substantially as described.

2. In a device of the class described, the combination with a supporting device, of a member freely slidable thereon, a flexible bracket pivotally connected to the slidable member, and a mirror carried by the bracket, substantially as described.

3. In a device of the class described, the combination with a fixed horizontally-arranged support, of a flexible supporting-bracket mounted upon said support and freely slidable thereon, a mirror carried by said supporting-bracket and having a pivotal connection therewith, and means for clamping said mirror rigidly to the bracket, substantially as described.

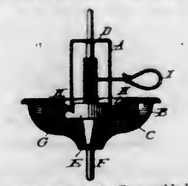
4. In a device of the class described, the combination with a fixed horizontally-arranged support, of a flexible bracket composed of a plurality of sections hinged together, one of the end sections of said bracket being mounted upon said support and freely slidable thereon, and a mirror carried upon the free end of said flexible bracket, substantially as described.

5. In a device of the class described, the combination of a supplemental mirror, supporting-rods having angled ends adapted to be connected to a bureau or the like, and a flexible connection between the supplemental mirror and the supporting-rods, one end of the connection being provided with eyes or rings embracing the rods, whereby the flexible connection is slidably mounted upon the supporting-rods, substantially as and for the purpose set forth.

6. In a device of the class described, the combination of a supplemental mirror, a support comprising opposite plates adapted to be fitted to the back of a bureau or the like, and a pair of horizontal vertically-alined rods having angled ends connected to the respective plates, and a flexible connection between the mirror and the support, one end of the flexible connection being provided with rings or eyes loosely embracing the respective rods, whereby the flexible connection is slidably mounted upon the supporting-rod and capable of being moved to either side of the bureau, substantially as and for the purpose set forth.

7. In a device of the class described, the combination of a supplemental mirror, a support adapted to be fitted to a bureau or the like, an adjustable connection between the mirror and the support, a rod carried by the free end of the adjustable connection and adapted to pivotally support the supplemental mirror, a disk having an arcuate slot and fixedly connected to the rod, a movable disk pivoted to the rod, and a thumb-screw carried by the movable disk, slidably received within the arcuate slot of the fixed disk and engaging the mirror, whereby the latter may be held in its adjustment upon the rod, substantially as and for the purpose set forth.

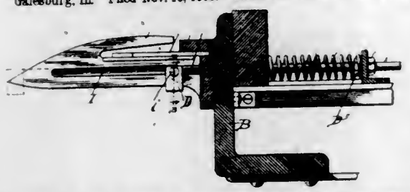
661,052. SPINNING-TOP. GEORGE H. HINE, Rochester, N. Y. Filed Jan. 22, 1900. Serial No. 2,406. (No model.)



Claim.—In a spinning-top a shaft F, provided with a spinning-point at either end, and carrying a driving-wheel C, rigid with the shaft, a cord I, one end secured on the top of the driving-wheel near the shaft, said shaft having a shoulder D, near its upper end, and a shoulder E near its lower end, a frame A, rigid on a case B, both frame and case loose

on the shaft, and extending above and below the shoulders and provided for limited vertical movement, the frame provided with angles H H, at its base, an annular groove G, in the driving-wheel to freely receive the angles to a limited extent, said angles acting as a guard for the cord as it winds upon the shaft, the shoulders on shaft to hold the frame and case free from the driving-wheel, and also being adapted to engage and thereby rotate said frame and case when resting on the uppermost shoulder on the shaft when the top is spinning on either spinning-point, substantially as described.

661,053. DOFFER FOR CUTTER-GUARDS. HERBERT E. IRWIN, Galesburg, Ill. Filed Nov. 18, 1899. Serial No. 737,535. (No model.)



Claim.—1. In a machine of the character specified, the combination with a cutter-bar and its guard, of a doffer slidably connected to said guard, and means for operating said doffer.

2. In a machine of the character specified, the combination with a cutter-bar and its guards, of an independent slidable doffer for each of said guards, and means for operating said doffers.

3. In a machine of the character specified, the combination with a cutter-bar and its guards, of an independent slidable doffer for each of said guards, and means for moving said doffers simultaneously.

4. The combination with the guard of a cutter-bar, of a doffer slidably secured on one side thereof, means for moving the doffer lengthwise of the guard and devices for returning the doffer to its normal rearward position.

5. In machines of the character specified, the combination with a cutter-bar, a series of guards for said cutter-bar, and slidable doffers located adjacent to the guards of the cutter-bar, of foot-treadle connections intermediate of said doffers and treadle and retracting means for said doffers, substantially as and for the purpose described.

6. In machines of the character specified, the combination with a cutter-bar and a series of guards therefor, of doffers located adjacent to each guard, a foot-treadle and connections between the doffers and said treadle whereby the doffers may be projected forward on the guard and spring devices for returning the doffers to their normal position, substantially as described.

7. In machines of the character specified, the combination with a cutter-bar and a series of guards therefor, of doffers located adjacent to each guard, a cross-bar behind the cutter-bar, a support for each doffer comprising parallel rods connected to the doffer and extending back to the cross-bar and a spring on one of said rods, substantially as described.

661,054. RAILROAD-SWITCH. DANIEL ISARD, Camden, N. J. Filed July 28, 1900. Serial No. 25,205. (No model.)

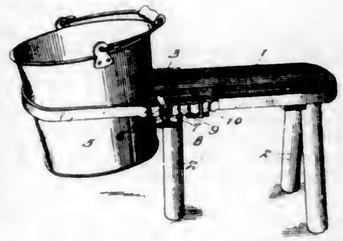


Claim.—1. In a railroad switching device, in combination with the switch-rails, of a link adapted to move the movable rail or rails of a switch, a shaft there being an orifice in said link through which said shaft passes, a yoke surrounding said shaft, a spring surrounding the shaft between each end of the yoke and the link, and a lever having a fixed fulcrum and pivotally connected to said yoke.

2. In a railroad switching device, in combination with the switch-rails, of a link connected to a movable rail on the through-track, and a movable rail on the switch-track, a shaft, there being an orifice in said link through which said shaft passes, a yoke surrounding said shaft, a spring surrounding the shaft between each end of the yoke and the link, a lever having fixed fulcrum and pivotally connected to said yoke.

661,055. MILKING-STOOL. NELSON M. JEWETT, Riceville, Iowa. Filed July 13, 1900. Serial No. 23,517. (No model.)

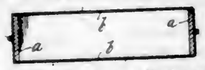
Claim.—1. A milking-stool, having a pail-holding flexible band, one end of which is fixedly connected to one edge of the stool, and its opposite free end normally lying against the opposite edge of the stool, and a swinging latch carried by the stool and having its free edge bearing against the free portion of the band and adjustably binding the latter against the adjacent edge of the stool.



2. A milking-stool, having a pail-holding flexible band fixedly secured to one edge of the stool, a pair of arms projecting laterally outward from the opposite edge of the stool, a swinging latch mounted between the arms, and the free portion of the band being inserted and adjustably held between the latch and the adjacent edge of the stool.

3. A milking-stool, having a pail-holding flexible band, one end of which is fixedly secured to one edge of the stool, and the opposite end portion being corrugated or convoluted, and a swinging latch mounted upon the opposite edge of the stool and outward therefrom, the free corrugated end of the band being adjustably held between the latch and the adjacent edge of the stool.

661,056. FILTERING MATERIAL AND PROCESS OF MAKING SAME. MAX JOLLES, ADOLF JOLLES, and JULIUS TRENKLER, Vienna, Austria-Hungary, assignors to Filterwerke Kuffler & Co., same place. Filed May 27, 1899. Serial No. 718,592. (No specimens.)



Claim.—1. The process of producing filtering media, which consists in saturating an asbestos fabric with a solution of silicic acid or a silicate and a fluorid of the alkaline earths, and rendering the coating insoluble and adherent to said fabric by means of heat, substantially as described.

2. The process of producing filtering media, which consists in saturating a fabric with a solution of silicic fluorids, and depositing the non-vaporizable residues on the fabric by means of heat, substantially as described.

3. The process of producing filtering media, which consists in coating a fabric with a solution of silicic acid or a soluble silicate, decomposing the silicic acid or the soluble silicate on the fabric by means of heat and coating the prepared fabric with a paste of soluble and insoluble silicates in acid solution, drying and heating, substantially as described.

4. The process of producing filtering media, which consists in coating an asbestos fabric with a mixture of soluble or insoluble silicates and carbon in acid solution, heating to drive off the vaporizable constituents, and washing to dissolve the soluble constituents, substantially as described.

5. The process of producing filtering media, which consists in coating a fabric with an acid solution of silico-fluorids, adding thereto a fluorid of the alkaline-earth metals, vaporizing the volatile constituents and washing out the soluble constituents remaining after the heating, substantially as described.

6. The process of producing filtering media, which consists in coating an asbestos fabric with a paste composed of a hydrochloric-acid solution of a silico-fluorid, a fluorid of the alkaline-earth metals and carbon, heating the coated fabric to render the soluble constituents insoluble and vaporize the volatile fluorids, and washing to remove the remaining soluble constituents, substantially as described.

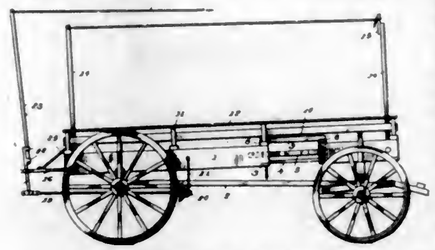
7. The process of producing filtering media, which consists in saturating a mineral, animal or vegetable fabric with an aqueous solution of an alkali silicate, and heating to a temperature of from 200° to 500° centigrade, substantially as set forth.

8. The process of producing filtering media, which consists in saturating a fabric with a solution of an alkaline silicate, coating the so-prepared fabric with porous material saturated with an alkaline-silicate and fluorid solution, and heating to the fusion-point of the alkaline silicate, substantially as set forth.

9. The herein-described product, comprising a fabric having chemically-deposited filtering media thereon, composed of insoluble silicates and fluorids.

10. The herein-described product, comprising a silicious fabric having deposited thereon a filtering media composed of carbon cemented by silicates and fluorids rendered insoluble.

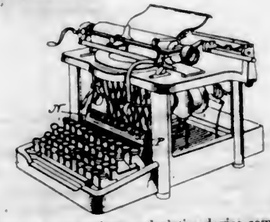
661,057. HAY-RACK. JOSEPH F. KARRAKER, Dongola, Ill. Filed Feb. 10, 1900. Serial No. 4,793. (No model.)



Claim.—1. The combination, with a hay-frame, the sills and a portion of the longitudinal slats of which are cut away near the forward end, of a brace secured to the sills at said cut-away portions, the central portion of which is above the uncut longitudinal slats, cross-pieces secured to the tops of the sills at said cut-away portion, cross-pieces thereon, and transverse slats secured to said cross-pieces in position to form a cover over said cut-away portions, substantially as described.

2. The combination, with a hay-frame, of a bracket secured to the rear end thereof, a lever pivotally secured to said bracket, the upper end of which is provided with loops, a brake-lever pivotally secured to the lower end, a brake-beam suspended from the frame, and connected with the forward end of said rod, a brake-pole removably secured in said loops, and a rope extending from the upper end of said pole to the forward end of the frame, substantially as described.

661,058. CALCULATING DEVICE FOR TYPE-WRITERS. CHARLES S. LABOFISH, Washington, D. C. Filed June 27, 1900. Serial No. 21,793. (No model.)



Claim.—1. In a type-writer, a calculating device comprising a base, a series of registering-wheels mounted thereon, a rocker formed with projecting arms held pivotally upon the said base operating the registering-wheels, said calculating device being secured to the type-writer frame intermediate between the movable carriage and the type-writer keys, so that the said projecting arms engage the type-writer keys, substantially as described.

2. In a type-writer, a calculating device secured to its frame intermediate between the movable carriage and the type-writer keys, said calculating device comprising a base, and a suitable casing having sight and front slots therein, a series of registering-wheels and a rocker formed with projecting arms underneath said casing, said projecting arms having a free movement in the front slots of the said casing in engagement with the type-writer keys, substantially as described.

3. In a type-writer, a calculating device secured to the said type-writer frame above the upper row of type-writer keys and parallel therewith, said calculating device comprising a base, a series of registering-wheels mounted thereon, a slidable rod provided with suitable means for engaging the registering-wheels successively, sliding through the registering-wheels, and operative connection between the registering-wheels and the type-writer keys, as set forth.

4. In combination with the type-writer, of a calculating device comprising a fixed base horizontally disposed above the upper row of the type-writer keys, registering-wheels mounted upon the said base, a shaft for said wheels and an operative arm connecting the said shaft to the type-writer keys, substantially as described.

5. A calculating device comprising a base, a series of registering-wheels mounted thereon, of a rocker comprising a rod, formed with inwardly-projecting arms whereby it is pivoted to the base, so that the said rod will have a vertical movement in front of and parallel with the registering-wheels, and a series of forward-projecting arms disposed upon the said vertical movable rod adapted to be depressed to turn the registering-wheels substantially as described.

6. A calculating device comprising a base, registering-wheels mounted thereon, of a slidable rod formed with a series of circumferential grooves whereby it is moved laterally and suitable means for engaging the registering-wheels successively held slidable through the central openings of the said registering-wheels, substantially as described.

7. A calculating device comprising a base, a series of registering-wheels mounted thereon, of a slidable rod formed with a series of inclined circumferential grooves and a series of notched collars adapted to engage the registering-wheels successively sliding through the said registering-wheels, as set forth.

8. In a type-writer, a calculating device secured to its frame said calculating device comprising a base, a series of standards formed with hollow bosses mounted thereon, registering-wheels journaled upon the said bosses, and provided with suitable means for engaging the registering-wheels successively held slidable within the said bosses, an operative connection between the said slidable rod and the type-writer keys, as set forth.

9. A calculating device comprising a base, a series of registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively in the central opening of the said registering-wheels, a jaw-clutch upon the said rod, said jaw-clutch being adapted to turn the rod in one direction and release it, as set forth and described.

10. A calculating device comprising a base, registering-wheels mounted thereon, of a rod provided with suitable means for engaging the registering-wheels successively held slidable through the central openings of the said registering-wheels and having a jaw-clutch one part of which is fixed upon the rod and the other is loosely journaled thereon, substantially as described.

11. The dog-escapement comprising a slidable rod provided with suitable means for engaging the registering-wheels successively in combination with a split dog held pivotally upon the base in engagement with the said slidable rod, as and for the purpose specified.

12. In a calculating device, a base, a series of registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively held slidably within the registering-wheels, in combination with a pivoted dog in operative connection with the said slidable rod, and a spring pressing the said rod forward said dog limiting the movement of the said rod and holding it against the tension of the said spring, substantially as described.

13. The herein registering-wheels having ten-toothed gear-wheels secured on both sides, one of the said gear-wheels having a central opening corresponding in diameter to that of the registering-wheels and the other being smaller and having ten internal notches cut therein, as and for the purpose specified.

14. A calculating device comprising a base, registering-wheels mounted thereon, of a slidable rod provided with means for engaging the registering-wheels successively, having a jaw-clutch, one part of which is secured to the said rod and the other is loosely mounted thereon, and having gear-wheel teeth cut upon its periphery, substantially as described.

15. A calculating device comprising a base, standards supporting registering-wheels secured thereto, a rod provided with a series of grooves or their equivalent, and a series of notched collars adapted to engage the registering-wheels successively, held slidable through the registering-wheels, in combination with a rocker carrying suitable means for engaging the said slidable rod so as to turn and slide the said rods alternately, as forth.

16. A calculating device comprising a base, a series of registering-wheels mounted thereon, a rod held slidable through the registering-wheels, of a casing or covering for the said registering-wheels having an aperture therein coaxial with the said rod, as and for the purpose specified.

17. A calculating device comprising a base a series of registering-wheels and a rocker mounted thereon a suitable casing or covering for the said registering-wheels, of a stop-pin passing through the said casing adapted to limit and retard the movement of the said rocker, substantially set as described.

18. In a type-writer, a calculating device secured to its frame said calculating device comprising a base, registering-wheels mounted thereon, a pivoted rocker operating the said registering-wheels, arms projecting from the said rocker in engagement with the type-writer keys in combination with suitable means for retarding the said rocker from engaging the type-writer keys, as set forth.

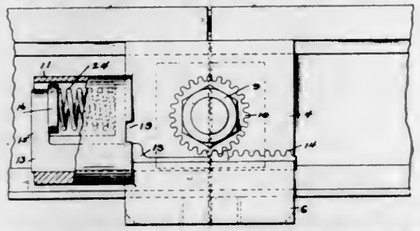
19. In a type-writer, a calculating device secured thereto above the upper row of its keys, said calculating device comprising a base, a series of registering-wheels mounted thereon a rocker formed with projecting arms operating the said registering-wheels, said projecting arms being forked out at their outer extremities to engage the type-writer keys, substantially as described.

20. A calculating device comprising a base, registering-wheels mounted thereon, of a rod having a series of ten-toothed notched collars adapted

to engage the registering-wheels successively, held slidably through the central opening of the said registering-wheels, substantially as described.

21. A calculating device comprising a base, registering-wheels mounted thereon, a rod provided with suitable means for engaging the registering-wheels successively, of a spacing-dog operating the said slidable rod to engage the registering-wheels successively, as set forth.

661,059. **NUT-LOCKING DEVICE.** JOHN E. LENHULT, Leetes Island, Conn., assignor of one-half to Joseph Mattson, Branford, Conn. Filed Jan. 29, 1900. Serial No. 3,109. (No model.)



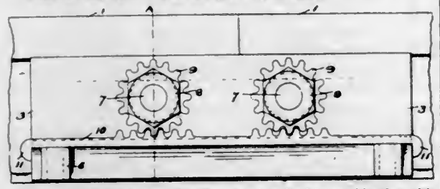
Claim.—1. In a device of the character described the combination with a tie-plate having a base portion and a spring-cylinder integral therewith; of a tie-bolt; a nut provided with gear-teeth threaded upon said tie-bolt; and a spring-actuated slide within a groove in said tie-plate and movable in one direction by a spring within said cylinder, substantially as described.

2. In a device of the character described, in combination with car-rails; of a tie-plate upon either side thereof having engagement with said rails whereby endwise movement thereof is prevented; a tie-bolt passing through said tie-plates; and between the ends of said rails; a nut threaded upon said tie-bolt; a spring-actuated slide movable upon one of said tie-plates and having teeth thereon which engage with teeth upon said nut and movable in one direction by a spring, substantially as described.

3. In a device of the character described, in combination with a tie-plate having a base portion, upon which is a spring-cylinder; and a groove extending through said cylinder and across said base portion; of a tie-bolt; a nut, provided with gear-teeth, threaded upon said tie-bolt; a slide movable in said groove, having teeth which mesh into the teeth upon said nut, and terminating at one end in a spring-plate; and a spring within said cylinder, having engagement with said plate whereby the said slide is moved in one direction, substantially as described,

4. In a device of the character described, the combination with the tie-plate 4 having the spring-cylinder 11 thereon and the groove 12 therein; of a tie-bolt 8; a nut 9 provided with gear-teeth threaded upon said bolt; slide 13 within said groove, having teeth 14 thereon, and terminating at one end in the spring-plate 16; and a coil-spring 24 within said cylinder; all constructed and operating substantially as described.

661,060. **NUT-LOCKING DEVICE.** JOHN E. LENHULT, Leetes Island, Conn., assignor of one-half to Joseph Mattson, Branford, Conn. Filed Jan. 30, 1900. Serial No. 3,292. (No model.)

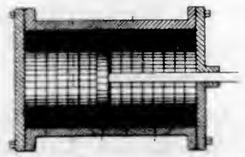


Claim.—In a device of the character described in combination with the tie-plate 3 having a base portion 4; of the tie-bolts 7; nuts 8 threaded upon said tie-bolt and having gear-teeth around the outside thereof; and a locking-bar 10 engaging with the teeth upon the said nuts and provided with downwardly-projecting lips 11 11 at either end which engage with the opposite ends of the base 4, all constructed and operating substantially as described.

661,061. **STEAM-ENGINE CYLINDER.** JOHN A. LIDBACK, Portland, Me. Filed Dec. 9, 1899. Serial No. 739,853. (No model.)

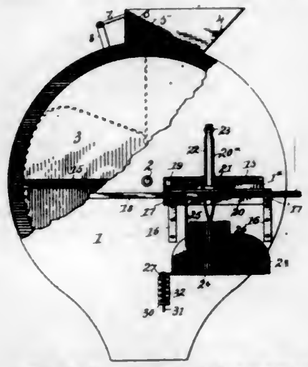
Claim.—1. The herein-described steam-engine cylinder having a lining composed of a series of contiguous hardened rings throughout its entire length, combined with a piston.

2. The herein-described steam-engine cylinder having a lining composed of hardened-steel rings placed side by side and having annular grooves in their adjacent edges combined with connecting-rings adapted to fit into said grooves.



3. The herein-described steam-engine cylinder having a lining of hardened-steel rings placed side by side, the inner edges of said rings being rounded or cut away to form V-shaped internal grooves between the rings.

661,062. **AUTOMATIC WEIGHER.** WILLIAM G. MARSH, Fort Madison, Iowa, assignor of one-third to the Chambers, Bering, Quinlan Company, Decatur, Ill. Filed July 10, 1899. Serial No. 723,326. (No model.)



Claim.—1. The combination with a pivotally-supported weighing-receptacle having a radial rib, of a receptacle-detaining trip adjustable to and from the pivot of the receptacle and engageable with the rib at various points along the same.

2. The combination with a pivotally-supported weighing-receptacle having a radial rib, of a weighted receptacle-detaining trip adjustable to and from the pivot of the receptacle and engageable with the rib at various points along the same.

3. In a scale appliance for automatic weighers, the combination of a pivotally-supported weighing-receptacle having a radial rib, a slide adjustable to and from the pivot of the receptacle and a receptacle-detaining trip-lever fulcrumed on the slide crosswise thereof and engageable with the rib of the receptacle.

4. In a scale appliance for automatic weighers, the combination of a slidable bar, a trip-lever fulcrumed crosswise of the slidable bar with its weighted end turned upward, a weight swung from the upturned end of the lever and an inclined plate against which the weight may move in rising and falling.

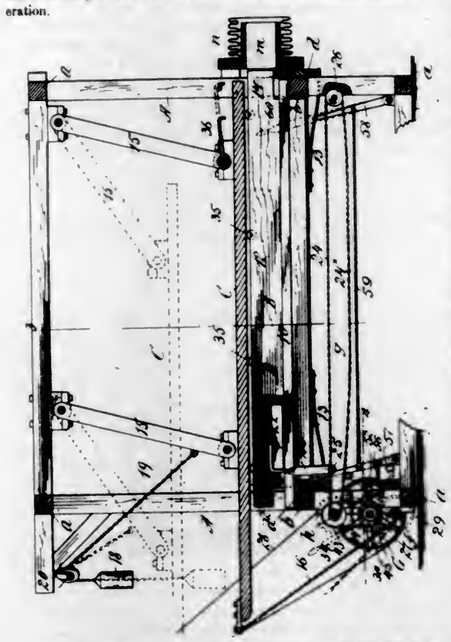
5. In a scale appliance for automatic weighers, the combination of a slidable bar, a trip-lever fulcrumed crosswise of the slidable bar with its weighted end upturned, a weight swung from the upturned end of the lever and a yielding plate against which the weight may move in rising and falling.

661,063. **MATTRESS-MACHINE.** GEORGE F. MARTIN, Springfield, Mass. Filed Sept. 25, 1899. Serial No. 731,517. (No model.)

Claim.—1. In a mattress-machine, the elevated frame or supporting structure, the press-box supported below the top of the frame, yielding supports for the press-box, and a compressing-top, having both a vertical and a lateral movement, combined with two sets of opposite pairs of links 15, by their upper ends pivotally hung to the upper part of said supporting structure, and on the lower ends of which the compressing-top is hung, and means for exerting a downward and a lateral draft on said top to carry it at all times in parallelism with the plane of the top of the compressing box, as shown.

2. In a mattress-machine, the combination with the elevated framing or supporting structure and the press-box supported thereby below the top thereof, of a compressing-top, two sets of opposite pairs of links

15, by their upper ends pivotally hung to an upper part of said supporting structure and on the lower ends of which the compressing-top is hung, a shaft, a winding-drum loosely mounted upon the shaft and provided with a clutch connection and a chain or like flexible connection secured to said top and having a winding engagement with said shaft, means for imparting an occasional winding motion to said shaft and means for exerting an elevating force on said top to raise the same and insure thereby the unwinding of said flexible connection after the mattress-stuffing operation.



3. In a mattress-machine, the combination with the elevated framing or supporting structure and the press-box supported thereby below the top thereof, of a single compressing-top, two sets of opposite pairs of links which by their upper ends are pivotally hung to upper end portions of the said supporting structure, and on the lower ends of which the compressing-top is hung, the winding-shaft *f*, the connection 16 secured to said top and having winding engagement with said shaft, a driving-shaft G having a clutch-provided gear-wheel loose thereon, a clutch member having a sliding engagement on the driving-shaft G to engage and disengage said clutch-provided gear, a gear-wheel on the winding-shaft engaged by the first-named gear and means for operating the clutch member.

4. In a mattress-stuffing machine, in combination, the press-box, the compressing-top C, pairs of links 15 by which the top is suspended, the winding-shaft *f*, the connection 16 secured to said top and having winding engagement with said shaft, a driving-shaft G having a clutch-provided gear-wheel loose thereon, a clutch member having a sliding engagement on the main shaft to engage and disengage said clutch-provided gear, a gear-wheel on the winding-shaft engaged by the first-named gear, means for operating the sliding clutch member, the guide-sheaves 20, the counterweights 18, the flexible connections 19, on which the weights are connected which run over the said sheaves, and are connected to one of each of the pairs of said links.

5. In a mattress-machine, the press-box having the sides thereof spring-supported and downwardly yielding, in combination with a compressing-top, and means for imparting the compressing downward motion thereto, substantially as described.

6. In a mattress-machine, in combination, the press-box having the opposite upstanding sides spring-supported and downwardly yielding under pressure, and provided with the rollers 35 at their upper edges, the compressing-top C supported by the paired links 15, a winding-shaft and means for operating it and the flexible connection in winding engagement with said shaft and secured to the compressing-top, substantially as described.

7. In a mattress-machine, the press-box having the sides and the wall at the discharging end thereof spring-supported, the compressing-top, and means for moving it forcibly downwardly toward and against the upper edges of said press-box sides insuring under compression, the lowering of said sides and of said depressible end wall, a plunger within the press-box, and means for operating it.

8. In a mattress-machine, the combination with the framing of the machine, and the springs 13, 13, provided thereon, of the cross-boards *d* and *d*[2] supported by said springs and the opposite longitudinal boards 12, 12, supported on said cross-boards and all vertically movable, of the compressing-top C, the links on which the same is supported, and means for imparting the downward motion to said top to bring it forcibly against the upper edges of said side boards.

9. In a mattress-machine, the combination with the elevated framing or supporting structure and the press-box supported thereby below the top thereof, of a single compressing-top, two sets of opposite pairs of links which by their upper ends are pivotally hung to upper end portions of the said supporting structure, and on the lower ends of which the compressing-top is hung, and the plunger D, the main shaft G, the winding-shaft *f* and the winding-shaft A, arranged in parallelism, and the sheave 26, the chain 16 connected to the top and engaging shaft *f*, the chain *g* having both ends thereof connected to the plunger, and one course thereof extended directly to winding engagement with said shaft A, while the other course thereof extends forwardly around said sheave, and returns to winding and unwinding engagement with the shaft A, and separate means for placing the shafts *f* and A in connection with the said main shaft G to be rotated thereby.

10. In a mattress-machine, the combination with the elevated framing or supporting structure and the press-box supported thereby below the top thereof, of a single compressing-top, two sets of opposite pairs of links which by their upper ends are pivotally hung to upper end portions of the said supporting structure, and on the lower ends of which the compressing-top is hung, and the plunger D, the main shaft G, the winding-shaft *f* and the winding-shaft A, arranged in parallelism, and the sheave 26, the chain 16 connected to the top and engaging shaft *f*, the chain *g* having both ends thereof connected to the plunger, and one course thereof extended directly to winding engagement with said shaft A, while the other course thereof extends forwardly around said sheave, and returns to winding and unwinding engagement with the shaft A, means for placing the shafts in connection with the said main shaft G to be rotated thereby, and separate shiftable driving mechanisms between the shaft G and shaft A, and means for placing the one or other thereof in its driving connection, for the purposes set forth.

11. In a mattress-stuffing machine, the press-box, and the plunger D, placed therein, a driving-shaft, the shaft A driven from the driving-shaft, the sheave 26 placed at the opposite end of the frame, and a chain wrapped around the shaft A and the sheave, and to which the plunger is fastened, combined with a mechanism for driving the chain in one direction so as to push the plunger toward the rear end of the presser-box, and shiftable connections connected with said mechanism for reversing the movement of the chain and returning the plunger to the forward or outer end of the box, and which connection is adapted to be so moved that the shaft A will not operate the chain in either direction, substantially as described.

12. In a mattress-stuffing machine, the press-box, the plunger D placed therein, a driving-shaft, the shaft A driven from the driving-shaft, the sheave 26 at the opposite end of the frame, the chain *g* wrapped around the shaft A and the sheave, and to which chain the plunger is connected, combined with a mechanism for reversing the forward movement of the shaft A for the purpose of returning the plunger to the outer end of the box after it has been forced forward for the purpose of forcing the material into the ticking, and a mechanism placed at each end of the box whereby the shaft A is automatically thrown out of gear when the plunger reaches the length of its movement either forward or back, substantially as specified.

13. In a mattress-stuffing machine, the combination with the winding and unwinding shaft A having the gear 38, and pulley 43 fast thereon, the plunger D, and the chain connections *g* arranged substantially as described, of the driving-shaft G having the clutch-provided gear 39 loose thereon, and the open belt 44, the clutch members 42 and 47 splined and sliding on the shaft G, means for connecting and disconnecting them respectively and separately with the adjacent clutch-provided gear and pulley, for the purpose set forth.

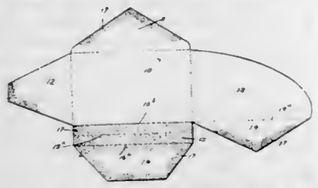
14. In a mattress-stuffing machine, the combination with the press-box and the plunger D having the depending abutment member 23, the winding and unwinding shaft having the gear 38 and the pulley 43 fast thereon, the chain *f* having connections with the plunger and with the shaft A, substantially as described, the driving-shaft G having the clutch-provided gear 39 loose thereon, and directly-meshing gear 38, and having the clutch-provided pulley 45 loose thereon, and the open belt 44 around both pulleys 45 and 43, the clutch members 42 and 47 splined and sliding on the shaft *g*, means for connecting and disconnecting them respectively and separately with the adjacent clutch-provided gear and pulley, and a device engaging to axially slide both said clutch members and arranged to be operated in opposite directions to be thrown out of clutch by said abutment 23 at the termination of the forward and backward movement of the plunger.

15. In a mattress-stuffing machine, the combination with the press-box and the plunger D having the depending abutment member 23, the winding and unwinding shaft having the gear 38 and the pulley 43 fast thereon, the chain *g* having connections with the plunger and with the shaft *h*, substantially as described, the driving-shaft G having the clutch-provided gear 39 loose thereon, and directly-meshing gear 38, and having the clutch-provided pulley 45 loose thereon, and the open belt 44 around both pulleys 45 and 43, the clutch members 42 and 47 splined and sliding on the shaft *g*, the slide-rods 52 having the arm 53 and having the forks 50, 50, engaging the clutch members 40 and 47, the bell-crank lever 55 engaging the arm 53, the trip-levers 57 and 58, the connecting-link 59 and the link 56, substantially as and for the purposes set forth.

16. In a mattress-stuffing machine, a suitable framework, links supported therein from their upper ends, and a cover for the compression-box loosely connected to the lower ends of the links, combined with a compression-box, having vertically-moving sides, and a mechanism connected directly to the end of the cover for both depressing it upon the vertically-movable sides and forcing the cover endwise at the same time, substantially as set forth.

17. In a mattress-machine, the press-box having the sides thereof downwardly movable and a yielding support which is provided therefor, in combination with a compressing-top, and means for imparting the compressing downward motion thereto, substantially as described.

661,064. **ENVELOP.** FRANCIS M. MERRIDEW, Boulogne-sur-Mer, France. Filed Mar. 7, 1900. Serial No. 7,637. (No model.)



Claim.—An envelop, comprising a main or front portion 10, laterally-directed flaps 12 and 13 connected therewith and one of which is provided at its lower edge portion with an auxiliary flap 14, said main or front portion being provided at its upper edge with a projecting flap 11, and at its lower edge with a detachable strip 15, with the lower edge of which is connected a flap 16, said flaps 11, 12 and 16 being provided with adhesive material, and said strip 15 and auxiliary flap 14 being also thus provided, the relative arrangement and construction of parts being such that when said flaps 12, 13 and 16 are folded and secured together, and said strip 15 is folded upon itself, said auxiliary flap 14 will lie within the resultant envelop, said flap 11 being arranged to be folded and connected with the remainder of the envelop to effectually seal the same, substantially as shown and described.

661,065. **HOOK AND EYE.** VICTOR O. MILLS, Chicago, Ill. Filed July 11, 1900. Serial No. 23,222. (No model.)



Claim.—1. A hook or eye comprising a hook or eye proper and a two-part shank each having a pin-point end, one of such shank parts engaging the other and then continuing to form a pin-point end proper.

2. A hook or eye comprising a wire or strip which is bent substantially at the middle to form a hook or eye and whose remaining ends are each extended rearwardly and then reversed to form the shank, one of the said rearwardly-extending portions engaging and retaining its similar member.

3. A hook or eye comprising a strip or wire bent at its middle to form a hook proper, the remaining ends having a rearwardly-extending portion and bent to form an inwardly-extending portion, one of the rearwardly-extending portions having a loop or bend to engage or retain the other corresponding portion to prevent spreading of the shank.

4. A hook or eye having a shank provided with pins for attachment to cloth or the like, and having swells or bends in front of and in line with the extreme ends of the pins to protect the same.

5. In a hook or eye, the combination of a hook or eye proper and a shank with pin-point ends for attachment to the cloth, said shank having loops to receive the pin point ends and having swells in front of such loops to protect the extreme ends of the pins when resting in such loops.

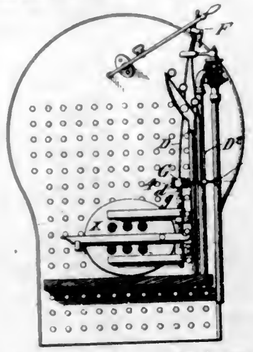
6. A hook and eye comprising a hook proper 1, swells 3, loops 4, portions 5 and 7 and pins 6 and 9, the portion 7 having a retainer 8 engaging portion 5.

7. A hook or eye comprising a hook or eye proper, swells 3, loops 4, portions 5 and 7, pins 6 and 9, the dortion 7 having a retainer 8 engaging portion 5, the hook proper having bends 16 and the eye proper having sockets 15 engaging in such bends.

8. A hook or eye comprising a hook or eye proper and a shank portion consisting of portions 5 and 7, and pins 6 and 9, the portion 7 being looped over portion 5 to prevent spreading of such shank.

9. A hook or eye comprising a wire or strip which is bent substantially at the middle to form a hook or eye and whose remaining ends are bent to form a two-part shank consisting of the rearwardly-extending portions or arms 5 and 7 and the forwardly-extending portions 6 and 9 forming the pins proper and means for preventing the spreading, one from the other, of the two parts of the shank.

661,066. **STEAM-BOILER FURNACE.** JOHN MILTON, Washington, D. C. Filed Jan. 10, 1900. Serial No. 984. (No model.)



Claim.—1. In a steam-boiler furnace of the character described, an air-inlet adjacent to the furnace-stack and exhaust-outlet, a self-closing valve at said inlet openable under the action of excessive exhaust, fluid-pressure means for transmitting motion to said valve to open the same, said means being adapted to be set in operation by movement of the furnace-door or independently of said door.

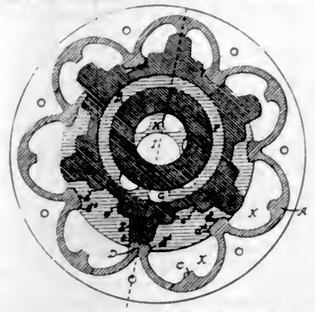
2. In a steam-boiler furnace of the character described, an air-inlet adjacent to the furnace-stack and exhaust-outlet, a valve at said inlet openable under the action of excessive exhaust, actuated by fluid-pressure, a valve in the fluid-pipe operatively connected with the stoking-door whereby movement of the latter controls the inlet-valve-operating means, and a hand-valve in the fluid-pipe adapted to shunt the door-valve and independently control the inlet-valve-operating means.

3. In a steam-boiler furnace of the character described, an air-inlet adjacent to the furnace-stack and exhaust-outlet, a self-closing valve at said inlet openable under the action of excessive exhausts, means for operating the valve actuated by fluid-pressure, and a controlling-valve in the fluid-pipe operatively connected with the stoking-door and adapted in one position to admit fluid to the valve-operating means and in another position to cut off the fluid-supply and exhaust said pipe.

4. In a steam-boiler furnace of the character described, an air-inlet adjacent to the furnace-stack and exhaust-outlet, a self-closing valve at said inlet openable under the action of excessive exhausts, means for operating the valve actuated by fluid-pressure, and a controlling-valve in the fluid-pipe operatively connected with the stoking-door and adapted in one position to admit fluid to the valve-operating means and in another position to cut off the fluid supply and exhaust said pipe, and a hand-valve in the fluid-pipe adapted in one position to open a passage between the door-valve and inlet-valve-operating means and in another position to shunt the door-valve and admit fluid to the inlet-valve-operating means.

5. In a steam-boiler furnace, the bombination of a valve controlling an air-inlet adjacent to the stack, means actuated by fluid-pressure for operating the valve, a compressed-fluid-delivery pipe leading to the valve-actuating means, a valve in the delivery-pipe operatively connected with the stoking-door to be moved thereby, a hand-controlled valve in the delivery-pipe beyond the aforesaid valve, said hand-valve having a passage adapted in the movement of the valve to open and close communication between the valve-actuating means and the fluid-supply pipe through the door-operated valve, and having a by-passage adapted in the movement of the valve to shunt the delivery of fluid through the door-operated valve, and establish direct delivery to the valve-actuated means through a by-pipe connection with the fluid-supply pipe.

661,067. **WATER-METER.** LEWIS H. NASH, South Norwalk, Conn. Filed June 4, 1900. Serial No. 19,011. (No model.)



Claim.—1. A meter of the class described having a case provided with joint-forming projections undercut or recessed on their sides and ports extending between said projections and entering said recesses, combined with a piston provided with joint-forming projections engaging those of the case.

2. A meter of the class described having the inner surfaces of the cylinder between the port-openings in the inner faces of the heads conforming to the paths of travel of the outer surfaces of teeth or projections upon the piston, the sides of said projections of the cylinder being undercut or recessed outside of the inner edges of said port-openings, and said port-openings extending into said recesses, substantially as described.

3. A water-meter having a cylinder provided with inwardly-extending teeth or projections forming peripheral pockets, the cylinder-heads having port-openings within and extending entirely across the pockets, and a piston having teeth less in number than the pockets in the cylinder and adapted to enter said pockets, the outer ends and that portion of the side surfaces of the teeth of the cylinder lying within the inner portline being engaged respectively by the end and side surfaces of the teeth upon the piston in passing from one pocket to the other, and the teeth of the piston in their outer positions overhanging the inner edge of the port, substantially as described.

661,068. **ANIMAL-TRAP.** CHARLES F. NELSON, Galesburg, Ill. Filed Nov. 18, 1899. Serial No. 737,534. (No model.)



Claim.—1. In an animal-trap, the combination with a spring-controlled engaging jaw and a locking device, of a base and a trigger each provided with a registering bait-opening, substantially as and for the purpose described.

2. In an animal-trap, the combination with a spring-controlled engaging jaw and a locking device, of a trigger, and a base formed of a single sheet of metal, said trigger and base being provided with registering bait-openings, substantially as described.

3. In an animal-trap, the combination with a spring-controlled engaging jaw and a locking device, of a trigger provided with a baiting-plate having a bait-opening therein and a base formed of a single sheet of metal and provided with depending sides and ends, said base having a bait-opening registering with the opening in the bait-plate, substantially as described.

4. In an animal-trap, the combination with a base, of a spring-controlled engaging jaw pivotally mounted on the base, a locking device, a trigger provided with depending arms extending through slots in the base and an engaging lug, and means for pivoting the trigger to the base, substantially as described.

5. In an animal-trap, the combination with a base formed of a single sheet of metal and provided with depending sides and ends and a bait-opening, of a spring-controlled engaging jaw pivotally mounted on the base, a lug struck up from the base at the rear end thereof, a locking-arm loosely pivoted to said lug, and a trigger comprising a bait-plate provided with a bait-opening registering with the opening in the base, a lug to be engaged with the locking device and integral depending arms extending downwardly through slots in the base, and means for pivoting said arms to the base, substantially as described.

661,069. **DRAFT-HOOK.** FRED F. NORDIN, New York, N. Y. Filed Jan. 24, 1900. Serial No. 2,685. (No model.)



Claim.—1. A draft-hook, comprising an attaching member, and a hook member pivoted together, a guard-finger upon the attaching member extending outside the end of the hook for giving it lateral support, the hook being so pivoted that weight placed upon it will force it against the guard-finger, substantially as described.

2. A draft-hook, comprising an attaching member provided with a securing-eye, a guard-finger formed upon the attaching member, a hook member pivoted to the attaching member and having its end resting normally against the inner surface of the guard-finger, the pivot-point of said hook member being arranged a little to one side of the line of draft on the hook, so that a strain upon the hook will press it against the guard-finger, the said guard-finger thus giving it lateral support, substantially as described.

3. A draft-hook, comprising an attaching member and a hook member, an eye formed upon the attaching member, a guard-finger formed upon the lower end of the said attaching member, a reduced portion formed upon the hook member and adapted to extend through a slot formed in the attaching member, a pivot-bolt for joining the parts together, a head on the said reduced portion for strengthening the hook, the lower end of the guard-finger being so extended as to extend outside and overlap the free end of the hook member, whereby tendency to straighten the hook under an excessive load will be prevented by the pressure of the guard-finger against the end of the hook, substantially as described.

4. A draft-hook, comprising an attaching member and a hook member pivoted together, a guard-finger integral with the attaching member and provided with a shouldered end portion, a shouldered end portion formed upon the hook member for engaging the same, whereby the guard-finger will give the hook lateral support and greatly strengthen the hook, substantially as described.

661,070. **CLUTCH MECHANISM.** RANSOM E. OLDS, Detroit, Mich. Filed Nov. 27, 1899. Serial No. 738,461. (No model.)

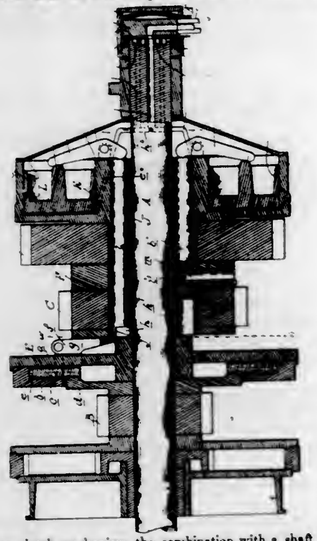
Claim.—1. In a clutch mechanism, the combination with a shaft, a multiple of members to be driven loosely sleeved thereon, clutches for the members mounted upon the shaft for longitudinal movement, a disk fixed to the shaft, a multiple of independent fluid-motors for operating the clutches arranged upon the disk, operative connections between each of the motors and its respective clutch, a fluid-supply, and conduits leading from said supply to the motors.

2. In a clutch mechanism, the combination with a shaft, a multiple of members to be driven loosely sleeved thereon, clutches for the members mounted upon the shaft for longitudinal movement, a disk fixed upon the shaft, a series of pneumatic piston-motors secured upon the disk, the motors being arranged in pairs, one for each clutch, operating connections between each clutch and its respective pair of motors, a fluid-supply, and conduits leading from said supply and extending through the shaft to the motors

3. In a clutch mechanism, the combination with the shaft, a multiple of members to be driven loosely sleeved thereon, clutches for the members mounted upon the shaft for longitudinal movement, a disk fixed to the shaft, a series of pairs of pneumatic piston-motors secured upon the disk, the motors of each pair being arranged diametrically opposite each other, a lever for each motor fulcrumed upon the disk in the path of the motor-piston, connecting-bars slidingly engaging the shaft and extending from the levers to the clutches to be operated, an air-supply, and a valve-controlled air-conduit leading from said supply to each motor and extending through the shaft.

4. In a clutch mechanism, the combination with a shaft having a multiple of longitudinal bores formed therein, a multiple of members to be driven loosely sleeved upon the shaft, a clutch for each member, a

multiple of fluid-motors upon the shaft one for each clutch, conduits leading from the longitudinal bores formed within the shaft to the motors, a fluid-supply, and means for conducting the fluid to the several shaft-bores.



5. In a clutch mechanism, the combination with a shaft having a multiple of longitudinal bores formed therein, a multiple of members to be driven loosely sleeved upon the shaft, a clutch for each member, a multiple of fluid-motors upon the shaft one for each clutch, conduits leading from the longitudinal bores formed within the shaft to the motors, a fluid-supply means for conducting the fluid to the several shaft-bores, and a single actuating device for admitting the fluid into any one of the bores independent of the others.

6. In a clutch mechanism, the combination with the shaft having a longitudinal bore formed therein and extending through one end thereof, of the member to be driven, the clutch therefor and a fluid-motor for operating the clutch, all carried upon said shaft, a block adjacent to the shaft end having a port formed therein communicating with the shaft-bore, a cap covering the block and swiveled over said shaft end, a spring acting normally to separate the cap and block, a fluid-supply, a fluid-conduit leading from the supply to the cap and extending through the latter to the port in the block, and a conduit leading from the shaft-bore to the motor.

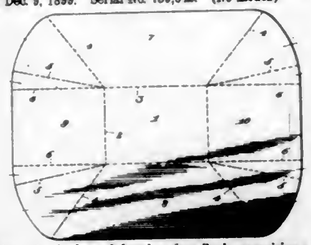
7. In a clutch mechanism, the combination with the shaft having a longitudinal bore formed therein and extending through one end thereof, of the member to be driven, the clutch therefor and a fluid-motor for operating the clutch, all carried upon said shaft, a cylindrical cap or coupling swiveled over the end of the shaft, a disk-shaped block within the coupling having an angular port formed therein, an apertured packing between the block and shaft end, a fluid-supply, a fluid-conduit leading from said supply to the periphery of the cap and extending through the latter to the port in the block, and conduit leading from the shaft-bore to the motor.

8. In a clutch mechanism, the combination with the shaft, a disk-shaped motor-support fixed thereto and having an elongated hub, a multiple of members to be driven loosely sleeved upon the hub, and a clutch for each of the members mounted upon and having a sliding engagement with said hub, a multiple of pneumatic piston-motors arranged upon the disk-shaped support, connections between the motors and the clutches, and means for independently operating the motors.

9. In a clutch mechanism, the combination with a shaft, a multiple of members to be driven loosely sleeved thereon, clutches for the members mounted upon the shaft for longitudinal movement, a disk fixed to the shaft, a multiple of fluid-motors for operating the clutches carried by the disk, operative connections between each of the motors and its respective clutch, a fluid-supply, a multiple of fluid-conduits leading from said supply to the several motors, and a single valve controlling the flow of the fluid through the conduits and constructed to admit the fluid to any one of the conduits independently of the others.

10. In a clutch mechanism, the combination with the shaft having a multiple of longitudinal bores formed therein and extending through one end, a multiple of members to be driven loosely sleeved thereon, a clutch for each member, a multiple of fluid-motors upon the shaft, one for each shaft, conduits leading from the several longitudinal bores to the motors, a coupler in the form of a cap swiveled over the end of the shaft through which the bores extend, a fluid-supply and a multiple of independent fluid-conduits leading from said supply to the coupling and communicating with the several shaft-bores, substantially as described.

661,071. BUTTER-PLATE. MARTIN O'MEARA, Jackson, Mich. Filed Dec. 9, 1899. Serial No. 739,842. (No model.)



Claim.—1. A plate of the class described, comprising a blank folded on parallel longitudinal lines to form the sides, and having parallel transverse folds extending between said longitudinal folds to form the bottom and ends, each of said ends being provided with parallel longitudinal folds in alinement with the longitudinal folds between the bottom and sides, folds between said sides and ends to form the corners, said folds extending at an obtuse angle to the folds between the bottom and sides, folds between said corner folds and the longitudinal folds of the ends to form overlapping portions adapted to lie beneath the ends, said folds extending at an acute angle to said longitudinal folds of the ends, shear cuts between the ends and the corners, said cuts lying between the folds extending at an acute angle to the longitudinal folds of the ends to form tongues, said tongues being adapted to overlap, and means for securing said tongues together.

2. A plate of the class described, comprising a blank folded on parallel longitudinal lines to form the sides, and having parallel transverse folds extending between said longitudinal folds to form the bottom and ends, each of said ends being provided with parallel longitudinal folds in alinement with the longitudinal folds between the bottom and sides, folds between said sides and ends to form the corners, said folds extending at an obtuse angle to the folds between the bottom and sides, folds between said corner folds and the longitudinal folds of the ends to form overlapping portions adapted to lie beneath the ends, said folds extending at an acute angle to said longitudinal folds of the ends, shear cuts between the ends and the corners, said cuts lying between the folds extending at an acute angle to the longitudinal folds of the ends to form tongues, said tongues being adapted to overlap and provided with notches adapted to interlock for securing the tongues together.

661,072. MACHINE FOR COLORING ILLUSTRATIONS. PHILIPPE ORSONI, Paris, France. Filed Apr. 14, 1899. Serial No. 713,018. (No model.)

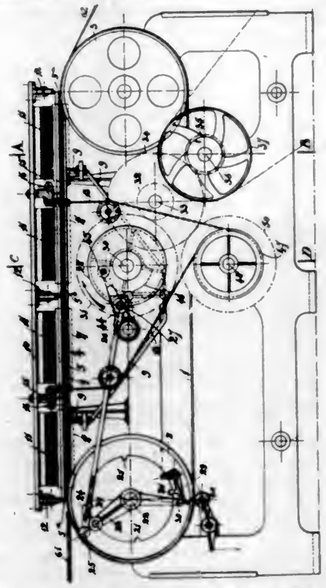
Claim.—1. In a machine for coloring illustrations and the like, a frame, a flat table supported by the said frame, an endless paper-carrier, a stencil-frame, a system of brushes above the said stencils, and means for actuating and inking the said brushes, substantially as described.

2. In a machine for coloring illustrations and the like, a frame, a flat rigid table supported on said frame, a revolving endless metallic paper-carrier, gearing for intermittently actuating the said paper-carrier, an adjustable frame superposed above the said paper-carrier, stencils for intercepting the color applied to the paper on said paper-carrier, a series of coloring-brushes supported by the adjustable frame, inking-rollers periodically in contact with the said brushes, apparatus for intermittently actuating the said brushes, and take-off mechanism for delivering the printed sheets, substantially as described.

3. In a machine for coloring illustrations and the like, in combination with an endless metallic paper-carrier, gearing actuated by eccentrics and connecting-rods from the main shaft conveying to the said paper-carrier intermittent motion in lengths of uniform and adjustable distance, in combination with a geared driving-roller having studs adapted to engage in the perforated reinforced edges of the said metallic paper-carrier.

4. In a machine for coloring illustrations and the like, coloring-brushes, suspending-chains passing over wheels actuated by gearing and capable of occasioning motion of the brushes alternately to and fro, inking-rollers rotated by gearing operating regulatably for each roller, said rollers dipping in vessels capable of containing color.

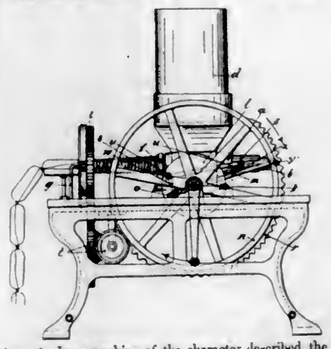
5. In a machine for coloring illustrations and the like, stencil-plates, a divided frame holding said stencil-plates, coloring-brushes reciprocating over the said stencil-plates, means for supplying the said coloring-brushes with color, and a plurality of pivoted double-lever bars attached to the said brushes and controlling the slope thereof, substantially as described.



6. In a machine for coloring illustrations and the like, a frame, a flat rigid table supported by the said frame, the paper-carrier 1, the supporting-rollers 2 and 3, the pivoted frame 5, the stencil-holder 7, the brushes 11, the brush-chains 13 and 14, the brush-carrier 15 and the inking-rollers 17, substantially as described and shown.

7. In a machine for coloring illustrations and the like, the means for actuating the rotary endless paper-carrier in unison with the motion of the stencil-frame comprising the roller 2, the controlling-ring attached thereto with quadruple notches 21, the two-armed coaxially-mounted lever 23 bearing stop-catch 24 controlled by the connecting rod 25 pivotally connected to a wheel 28 in connection with a source of power; a catch 29 pivotally supported on the machine-frame locking the roller 2 at each quarter-revolution, a pin 39 on the other arm of the lever 23 adapted to raise the catch 29 at the commencement of each stroke of the connecting-rod 26, and quadruple studs on the outer edges of the periphery of the roller 2 engaging in correspondingly-spaced perforations in the reinforced edges of the paper-carrier.

661,073. SAUSAGE STUFFING AND LINKING MACHINE. WILHELM PAULITSCHKE and FRANZ BARILITSCH, Mödling, Austria-Hungary. Filed Apr. 20, 1899. Serial No. 713,751. (No model.)



Claim.—1. In a machine of the character described, the combination with a hopper, of a cylinder arranged beneath the discharge-opening of the hopper, a piston arranged and adapted to be reciprocated in the cylinder, a thin tube arranged intermediate the piston and cylinder and adapted to be reciprocated independently of the piston in the manner described, and means for reciprocating the tube and piston.

2. In a machine of the character described, the combination with a hopper, of a cylinder arranged beneath the discharge-opening of the hopper, a piston arranged and adapted to be reciprocated in the cylinder, a thin tube arranged intermediate the piston and cylinder and adapted to be reciprocated independently of the piston in the manner described, means for reciprocating the tube and piston and means for varying the stroke of the tube and piston.

3. In a machine of the character described, the combination with a stuffing mechanism, of forks *g g* arranged to engage and throttle the stuffed skin at predetermined points means for reciprocating the forks from opposite directions, and means for winding twine around the stuffed skin at the points where the same is throttled by the forks and while held by the latter.

4. In a machine of the character described, the combination with a hopper, of a cylinder arranged beneath the discharge-opening of the hopper, a piston arranged and adapted to be reciprocated in the cylinder, a tube *s* arranged to slide between the piston and the cylinder, a driving-shaft, a crank-disk, an arm *w* having a pivotal connection with the disk, rod *u* pivotally connected with the arm *w* and with the tube, and a rod *m* pivotally connected with the arm *w* and the piston, the pivotal point of arm *w*, with rod *u* being at a greater distance from the center of the driving-shaft than the pivotal point of rod *m* with the arm *w* for the purpose specified.

5. In a machine of the character described, the combination with a stuffing mechanism, of forks *g, g*, arranged to engage and throttle the stuffed skin at predetermined points, levers *z, z*, carrying the forks, pivoted rods *p, p*, having a connection at one end with the levers, a rotatable wheel *n* upon opposite sides of the rim of which the other end of the rods are arranged and adapted to bear, the said rim for a portion of its length being widened, means for rotating the wheel, and means for winding twine around the stuffed skin at the points where the same in throttled by the forks.

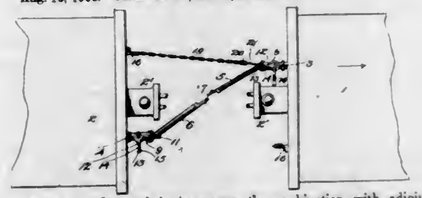
661,074. PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. HENRY J. PHILLIPS, London, England, assignor to the Golden Link Consolidated Gold Mines, Limited, same place. Filed July 31, 1899. Serial No. 725,683. (No specimens.)

Claim.—1. The herein-described process for extracting precious metals from their ores, which consists in subjecting said ores to the action of vaporized chlorid of sulfur, substantially as described.

2. The process of extracting precious metals from their ores, which consists in pulverizing said ores and subjecting the same in a closed vessel under heat to the action of vaporized chlorid of sulfur, substantially as described.

3. The herein-described process for extracting precious metals from their ores, which consists in pulverizing said ores, subjecting the same in a closed vessel under heat to the action of chlorid of sulfur, the amount of chlorid of sulfur so employed being proportioned to the amount of gold or other precious metals in the ore and which it is desired to recover, raising the temperature of the mixed ore and chlorid of sulfur until the latter is dissociated and chlorids of the precious metals thereby formed and recovering the precious metal or metals from said chlorids in any well-known manner, substantially as described.

661,075. AIR-BRAKE SYSTEM. JOHN R. RICHARDSON, Scranton, Pa., assignor of two-fifths to John F. Thomas, same place. Filed Aug. 16, 1900. Serial No. 27,046. (No model.)



Claim.—1. In an air-brake system, the combination, with adjoining cars of a train provided with air-cocks and couplings to connect the same, of a valve-closing connection between one of the cars and the cock on the other car to close said cock upon the parting of the cars, said connection being of such length and arrangement as to leave the cock momentarily open upon the parting of the cars and couplings to effect a partial reduction of pressure, and then to close the cock to prevent further reduction of pressure, substantially as set forth.

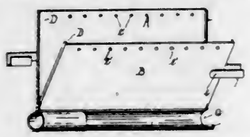
2. In an air-brake system, the combination with the train; of air-pipes one of which is provided with an air-cock having a member, the

outer end of which is formed with a stop-shoulder and a knob of less diameter than said shoulder, air-tubes connecting said pipes, and a connection comprising a chain adapted to be secured to one car and having a swiveled ring at one end adapted to be slipped over the outer end of said valve member and to lie in the groove between the shoulder and knob, said connection being of greater length than the distance between the car to which it is attached and the valve member in the open position of the latter, so as to close the air-cock after the parting of the air-tubes, substantially as set forth.

3. In an air-brake system, an air-cock having a handle and an operating-arm arranged at right angles to the handle and formed at its outer end with a stop-shoulder and an oval knob of less diameter than said shoulder and having a beveled end, and a valve-closing connection provided with an oval ring or eye adapted to slip over said knob and lie between the knob and shoulder, substantially as set forth.

4. In an air-brake system, an air-cock having an operating member, and a valve-closing connection comprising an attaching-bracket having a hook, and a chain connected at one end to the bracket and provided at its free end with a ring or eye adapted to engage said valve-operating member when the parts are to be connected and to engage said hook when the connection is not in use, substantially as set forth.

661,076. MARKER-HOLDER. HERMAN RICHTER, Cincinnati, Ohio. Filed Mar. 30, 1900. Serial No. 10,808. (No model.)



Claim.—1. In a marker-holder, the combination of a pair of plates taking against the sides of a long-edged piece of marking substance substantially throughout their area, a hinge between the plates, with means for separating the ends of the plates, and a clamp at each side of the plates for clamping the plates upon the piece of marking substance, substantially as described.

2. In a marker-holder, the combination of a pair of clamping-plates for holding a thin long-edged piece of marking substance between them and arranged to be relatively opened for the reception of the piece of marking substance, a spring for normally causing said opening, with a clamp for clamping the piece of marking substance between the clamping-plates, substantially as described.

3. In a marker-holder, the combination of a pair of clamping-plates for holding a thin long-edged piece of marking substance between them and arranged to be relatively opened for the reception of the piece of marking substance, a spring for normally causing said opening, with a clamp for clamping the piece of marking substance between the clamping-plates, and retaining projection on a plate for the piece of marking substance, substantially as described.

4. In a marker-holder, the combination of a pair of plates taking against the sides of a piece of marker substantially throughout their area, and means for clamping the piece of marker between the plates, with a spring for normally separating the plates, substantially as described.

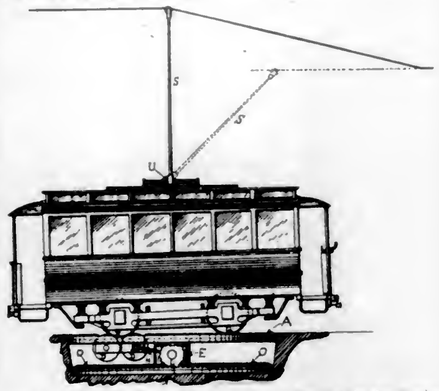
5. In a marker-holder, the combination of a back, a flap hinged with relation thereto and constructed and arranged for having a piece of marker take between them, with a hinged clamp at each side thereof for clamping the piece of marker between the plates, and a spring for normally pressing the back and flap apart, substantially as described.

6. In a marker-holder, the combination of a pair of plates for receiving a piece of marker between them, with sidewise-projecting flanges opposite each other at each end of the plates and a clamp at each end of the plates for fastening the marker between the plates and the flanges, and a spring for normally separating the plates, substantially as described.

7. In a marker-holder, the combination of a pair of plates for receiving a piece of marker between them, with sidewise-projecting flanges opposite each other at each end of the plates and a clamp at each end of the plates for fastening the marker between the plates and the flanges, and a spring for normally separating the plates, and retaining projections on a plate for the piece of marker, substantially as described.

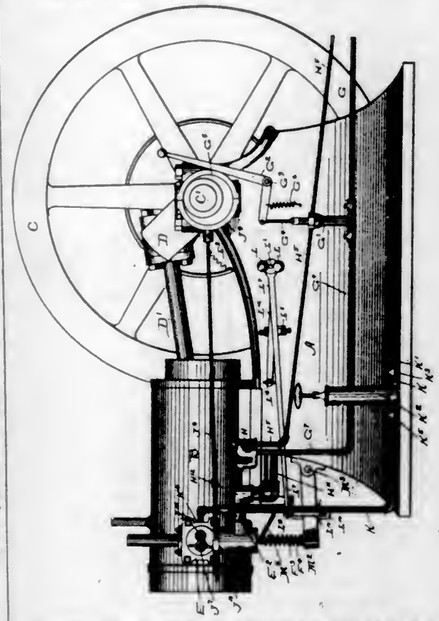
661,077. STREET-CAR TURN-TABLE. OTTO G. RIESKE, Dayton, Ohio, assignor, by mesne assignments, to Ernest B. Schneider, Zanesville, Ohio. Filed July 22, 1899. Serial No. 724,875. (No model.)

Claim.—1. The combination with a street-car truck of a stationary circular rack, a rotatable plate mounted above said rack and provided with parallel slots, friction-wheels mounted below said plate with their peripheries projected upwardly through said slots and adapted to be engaged by the wheels of the street-car truck, a pinion engaging with the circular-rack and a knuckle-coupling by means of which motion is transmitted from one of the axles of the friction-wheels to said pinion, substantially as and for the purposes specified.



2. The combination with the street-car, a trolley-pole having a swiveled connection of an inclined wire upon which the trolley-pole may run to assume a vertical position, a stationary circular rack, a rotatable plate mounted above said rack said plate having parallel slots therein, friction-wheels the peripheries of which project through said slots in position to be engaged by the wheels of the car, a pinion engaging with said circular rack, and a coupling by means of which motion is transmitted from an axle of the friction-wheels to said pinion, substantially as and for the purposes specified.

661,078. VAPOR-ENGINE. JOSEPH B. RODGER, Batavia, Ill., assignor to the Challenge Windmill and Feed Mill Company, same place. Filed May 1, 1899. Serial No. 715,150. (No model.)



Claim.—1. The combination of the governor with the intake and exhaust valves, and the two-part lever, the governor controlling said lever and preventing it from opening the exhaust-valve and also acting to hold the intake-valve closed, substantially as specified.

2. The combination with the intake and exhaust valves of a vapor-engine, of a two-part lever $M' M^2$, the cam actuating said lever, the governor, and means whereby the governor may cause said lever to hold said valves against operating, substantially as specified.

3. The combination with the intake and exhaust valves of a vapor-engine, of a two-part lever $M' M^2$, the cam actuating said lever, the governor, and means whereby the governor may cause said lever to hold the intake-valve closed and the exhaust-valve open, substantially as specified.

4. The combination with an intake-valve, of a pivoted lever M^6 having a spring extension connecting it to the valve, an adjusting device for regulating the tension of the spring and the throw of the valve, a lever M^3 for locking the lever M^6, the governor, and means having no connection with the exhaust-valve whereby the governor causes the locking action by lever M^3, substantially as specified.

5. The combination with the intake-valve and the pivoted lever M^6 having a spring extension connecting it to the valve, of a two-part lever, one part of which is adapted to lock said lever M^6, the governor, and connections between the governor and the two-part lever, whereby the latter is made to lock lever M^6, substantially as specified.

6. The combination with the governor and exhaust-valve, of a two-part lever and cam for opening said valve, and mechanical connections whereby the governor locks one part of said lever against action, substantially as specified.

7. The vapor-engine wherein are combined an exhaust-valve and a lever for opening the same, said lever being made in two parts, and the part joined to the valve being adapted to be locked stationary, substantially as specified.

8. The vapor-engine wherein are combined an exhaust-valve and a lever for opening the same, said lever being made in two parts, both pivoted at the same point and one part actuating the other in one direction, and means for locking the part thus actuated, substantially as specified.

9. The combination with the exhaust-valve lever, made in two parts M' and M^2 as set forth, of means for locking the part M' down, thereby causing the retention of the valve in its open position, substantially as specified.

10. The combination with the exhaust-valve and its pivoted operating-lever, the latter made in two parts M' and M^2, of means operable at will acting to lock the part M' in its lower position and thereby to raise the part M^2 to its upper position and holding the valve open, substantially as specified.

11. In a gasolene-engine, the intake and exhaust valves and the two-part lever connected to both valves, in combination with a lever N locking one part of said lever, and a weighted handle N^3 controlling said lever N, substantially as specified.

12. In a gasolene-engine, the intake and exhaust valves, and their operating mechanism, the latter embracing a two-part lever, in combination with a controlling-lever N operable at will and having a pivoted weight N^3, substantially as specified.

13. In a gasolene-engine, the combination with the intake and exhaust valves and their operating mechanism, of a hand-lever N for controlling said operating mechanism, said lever having two positions and also having a pivoted and weighted handle for retaining it in said positions, substantially as specified.

661,079. BELT-PULLEY. FRITZ ROHRBECK, St. Veit-on-the-Triesting, Austria-Hungary. Filed July 3, 1899. Serial No. 722,727. (No model.)



Claim.—1. A belt-pulley comprising two semicircular parts, each composed of two strips of sheet metal, the outer strip having its lateral edges bent over the corresponding edges of the inner strip, there being a longitudinal corrugation on the inner strip, the edges of said strip bent inwardly, and a hub having radial arms secured to said inwardly-bent ends, substantially as set forth.

2. A belt-pulley comprising two complementary semicircular parts, each composed of two strips of sheet metal of different perimeter, the outer strip of greater perimeter having its lateral edges bent over the corresponding edges of the inner strip of least perimeter, the latter having its terminals bent inwardly, and a hub having radial arms secured to said terminals, for the purposes set forth.

3. A split pulley comprised of two semicircular parts, each composed of two strips of sheet metal, the outer one forming the face of the wheel and having its edges bent over the corresponding face of the inner one, the flat ends of the inner strip bent inwardly, and a hub in two sections, radial arms thereon and offsets at the ends of each arm to receive the inwardly-bent ends of the inner strip, and a keyway arranged in said arms at the hub, substantially as set forth.

4. A belt-pulley comprised of two semicircular parts, each composed of two strips of sheet metal, the outer one forming the face of the wheel and having its lateral edges bent over the corresponding edges of the inner one, the ends of the inner strip bent radially inward, a bellied portion thereon extending between the inwardly-bent ends, and a pair of channel-shaped arms secured to said ends, and a hub formed at the center of said arms, substantially as set forth.

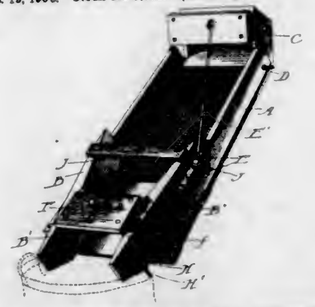
5. A belt-pulley comprising a sheet-metal rim composed of two complementary semicircular sections whose terminals are bent inwardly to form bolt-flanges, and a hub composed of two strips of sheet metal ⌊⌋-shaped in cross-section and bent to form between them shaft-bearings, and arms radiating therefrom, said strips being bolted together and to the inturned terminals of the rim, for the purposes set forth.

6. A belt-pulley comprising a sheet-metal rim composed of two complementary semicircular sections whose terminals are bent inwardly to form bolt-flanges, and a hub composed of two strips of sheet metal ⌊⌋-shaped in cross-section and bent to form between them a shaft-bearing, and arms radiating therefrom, cup-shaped washers *l* and bolts *k* passing through the same and through the webs of the hub-sections and through said webs and the bolt-flanges on the rim-sections respectively, substantially as and for the purpose set forth.

7. A belt-pulley hub composed of two strips of sheet metal ⌊⌋-shaped in cross-section and bent to form between them a shaft-bearing, and arms radiating therefrom, the web of said strips shaped to form a seat radiating from the shaft-bearing for the reception of a key, in combination with a pulley-rim, and means for securing the same to the radial arms of said hub, for the purposes set forth.

8. A belt-pulley hub composed of two strips of sheet metal ⌊⌋-shaped in cross-section and bent to form between them a shaft-bearing, and arms radiating therefrom, the web of said strips shaped to form between them a seat radiating from said bearing, a filling-block inserted in said seat and bolted to the webs of said strips, said block shorter than its seat in a radial direction to form a keyway at the inner end of said seat, in combination with a pulley-rim, and means for securing the same to the radial arms of the hub, substantially as and for the purposes set forth.

661,080. COAL-SCREEN. HIRAM R. SACKETT, Chicago, Ill. Filed Feb. 19, 1900. Serial No. 5,801. (No model.)



Claim.—1. The herein-described coal-screen, consisting of the combination of the screen portion A, the regulating cut-off C, at the top thereof adapted to regulate the amount of coal flowing over the screen, the bagger B, removably attached to the lower end of the screen, the cut-off F, pivoted in said bagger, and means for holding the bag in place, all substantially as shown and described.

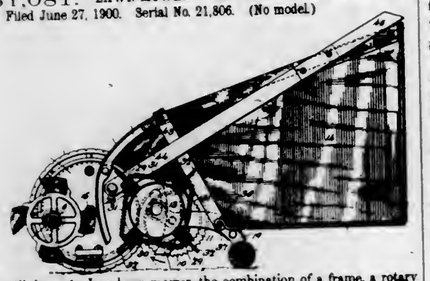
2. The herein-described coal-screen, consisting of the combination of the screen portion A, the regulating cut-off C, at the top thereof, adapted to regulate the amount of coal flowing over the screen, the bagger B, removably attached to the lower end of the screen, the cut-off F, pivoted in said bagger, and the hooks H, H', in the end of the bagger for holding the bag in place, all substantially as shown and described.

3. The herein-described coal-screen, consisting of the combination of the screen portion A, the regulating cut-off C at the top thereof, provided with the rod E, and hooks E which said rod engages for regulating the height of said cut-off, the bagger B, secured to the lower end of said screen, and the cut-off F, pivoted to said bagger, all substantially as shown and described.

4. The herein-described coal-screen consisting of the combination of the screen portion A, the regulating cut-off C at the top thereof, the bagger B attached to the lower end, having the sides B', setting within the sides of the screen, and the cut-off F pivoted on the sides of the bagger at a point about midway between top and bottom thereof all substantially as shown and described.

5. In a coal-screen, the herein-described bagger attached, consisting of the combination of the sides B', approaching one another toward their lower ends, the cut-off F, pivoted in said sides, to swing directly across the path of the coal which passes through the bagger and means for securing said bagger in the screen, all substantially as shown and described.

661,081. LAWN-MOWER. CARL A. SELLSTROM, Princeton, Ill. Filed June 27, 1900. Serial No. 21,806. (No model.)



Claim.—1. In a lawn-mower, the combination of a frame, a rotary cutter arranged at the front of the frame, a receptacle located in rear of the cutter and separated from the same by an open space, and a rotary rake operating in the open space in front of the receptacle and arranged to engage the surface of the ground, whereby it is adapted to carry the severed grass therefrom into the receptacle, substantially as described.

2. In a machine of the class described, the combination of a frame, a rotary cutter arranged at the front of the frame, a stationary blade, a receptacle located in rear of and spaced from the stationary blade, and a rotary rake arranged in the open space between the receptacle and the stationary blade and having teeth arranged to operate on the ground, whereby the severed grass is carried therefrom into the receptacle, substantially as described.

3. In a machine of the class described, the combination of a frame, a rotary cutter, a stationary blade, a receptacle located in rear of and spaced from the stationary blade and having its bottom located in a plane above the same, and a rotary rake arranged in the open space in front of the receptacle and having teeth arranged to operate on the ground and adapted when moving forward at the surface of the ground to carry the severed grass upward in front of the rotary rake, substantially as described.

4. In a machine of the class described, the combination of a frame, a rotary cutter, a stationary cutting-blade, a receptacle located in rear of and separated from the stationary blade by an open space and having its bottom arranged in a plane above the said stationary blade, a rotary rake operating in the open space in advance of the bottom of the receptacle and having teeth arranged to engage the surface of the ground, means for rotating the rake to carry its teeth forward at the surface of the ground, and an apron or shield arranged in advance of the rotary rake and extending rearward over the same to direct the severed grass into the receptacle, substantially as described.

5. In a machine of the class described, the combination of a frame, a rotary cutter, a receptacle, and a rotary rake comprising the body portion and hinged spring-supported rakes mounted on the body portion and arranged at intervals around the same, substantially as described.

6. In a machine of the class described, the combination of a frame, a rotary cutter, a receptacle, and a rotary rake comprising a cylindrical body portion provided with bars extending longitudinally of it, rakes hinged to the bars, and springs located in advance of the rakes and connected with the same and with the bars next in advance, substantially as described.

7. In a machine of the class described, the combination of a frame, a rotary cutter, a receptacle detachably secured to the frame and located above the ground, a rotary rake interposed between the receptacle and the rotary cutter, a curved apron extending downward in advance of the rotary rake and projecting rearward over the same, and the side extensions arranged at the ends of the apron, substantially as described.

8. In a machine of the class described, the combination of a frame, a rotary cutter, a front pinion connected with the rotary cutter, a wheel provided with internal and external gears, the internal gear meshing with the said pinion, a rotary rake arranged in rear of the cutter, a rear pinion connected with the rotary rake, and a rear gear provided with internal and external teeth and meshing with the rear pinion and with the said wheel, substantially as described.

9. In a machine of the class described, the combination of a frame, a rotary cutter, a rotary rake located in rear of the rotary cutter and capable of adjustment independently of the frame, a rear support connected with the rotary rake and supporting the rear of the machine, and gearing connecting the rake with the cutter, substantially as described.

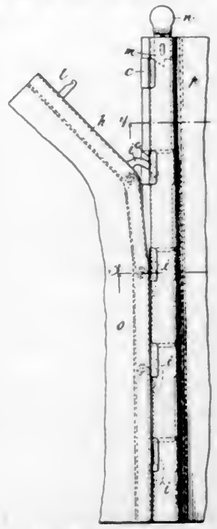
10. In a machine of the class described, the combination of a frame, a rotary cutter, slides mounted on the frame and adapted to move upward and downward thereon, a transverse roller connecting the slides, a rotary rake also connected with the slides and capable of upward and downward movement with the said roller, and gearing connecting the cutter and the rake, substantially as described.

11. In a machine of the class described, the combination of a frame, a rotary cutter mounted on the frame, the curved slides mounted on the frame in suitable ways thereof, the bars connected with the slides, a transverse roller connecting the bars, a rotary rake journaled in the latter, and gearing connecting the rake and the cutter, substantially as described.

12. In a machine of the class described, the combination of a frame, a rotary cutter, a curved slide mounted on the frame in a suitable guide or way, a rotary rake having a journal extending through a slot of the frame, a bar secured to the slide and provided at its front end with a bearing receiving the journal of the rotary rake, and gearing connecting the rotary rake with the cutter, substantially as described.

13. In a machine of the class described, the combination of a frame provided with ways, slides mounted in the ways and capable of adjustment on the frame, bars connected between their ends to the slides, a rotary rake mounted on the front ends of the bars, and adjusting devices mounted on the frame and engaging the slides, substantially as described.

661,082. CORSET-FASTENER. ALFRED SHEDLOCK, Jersey City, N. J. Filed Mar. 26, 1900. Serial No. 10,170. (No model.)



Claim.—1. A corset-fastener forming or adapted to form the meeting edges of a corset comprising two members, one having a series of seats or sockets and the other capable of flexing edgewise at intervals and having a corresponding series of hooks each adapted to enter its socket with a lateral and inward movement as the meeting edge above it is brought toward the other member.

2. A corset-fastener forming or adapted to form the meeting edges of a corset comprising two members, one having a series of seats or sockets and the other capable of flexing edgewise at intervals and having a corresponding series of hooks, each adapted to enter its socket with a lateral and inward movement as the meeting edge above it is brought toward the other member, and a fastening device for securing the two members together at or near one of their ends.

3. A corset-fastener forming or adapted to form the meeting edges of a corset comprising two members, one having a series of seats or sockets, and the other a flexing member composed of sections joined together, the first section having a laterally-extending hook at or near its free end and the other sections each having a laterally-extending hook adjacent to its pivotal connection, the last section having at or near its free end a fastening device adapted to connect to the end of the other member of the fastener.

4. A corset-fastener having its main side or member provided with pockets having lateral openings, and its other side or member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks adapted to enter and engage with the pockets.

5. A corset-fastener having its main side or member provided with pockets having lateral openings, and its other side or member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks adapted to enter and engage with the pockets, one of the end sections being provided with a catch formed to enter an end pocket of the main member and to engage with a counterpart in said pocket.

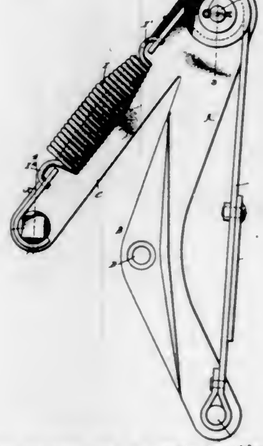
6. A corset-fastener having its main side or member provided with pockets having lateral openings, and its other side or member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks extending beyond the ends which are flexibly connected to another section; said hooks being formed so as to enter the pocket-openings with the sections in angular positions to the main member and to act as levers to draw the two members together as the sections are moved alongside the pocket member.

7. A corset-fastener having its main side or member provided with pockets having lateral openings, and its other side or member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks adapted to enter and engage with the pockets, one of the end sections being provided with a catch formed to enter an end pocket of the main member, and a counterpart catch in said pocket having a projecting finger-piece by means of which it may be manipulated.

8. In a corset-fastener, in combination, a member comprising a strip of flexible metal; pieces of sheet metal shaped and connected to the strip to form pockets at intervals on the strip, and having extensions making sliding connections with the adjacent pockets, and intervening partition-pieces; and another member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks.

9. In a corset-fastener, in combination, a member comprising a strip of flexible metal, pieces of sheet metal shaped and connected to the strip to form pockets at intervals on the strip, and having extensions making sliding connections with the adjacent pockets, a sliding latch located in one of the end pockets, and intervening partition-pieces; and another member composed of sections hinged or flexibly connected together and provided with laterally-projecting hooks, one of the sections being provided with a catch adapted to engage with the sliding latch in the end pocket.

661,083. PICKER-CHECK FOR LOOMS. DAVID W. SHERRETTS, Oswego Falls, N. Y. Filed Apr. 2, 1898. Serial No. 676,200. (No model.)



Claim.—In a picker-check, the combination with a bow-shaped base, the bend of which is perforated and one end of which is provided with an arm which extends at an inclination to the rear of the bow, the free end of the arm being perforated, a stud and a spindle at the respective ends of the base, a stud in the perforation at the end of the arm, the intermediate portion of which is provided with a radially-projecting stud the end through the perforation being screw-threaded and provided with a clamping-nut and the opposite end being angular whereby it may be adjusted and secured to the arm, a spool loosely journaled upon the spindle, a strap secured to the studs at the end of the bow and the free end of the arm, respectively, one of which straps is longer than the other and is passed over the spool, and a coiled spring secured at its ends to the free ends of said straps, substantially as described.

661,084. CHAIR. LEWIS M. SMITH and WILLIS H. BANKS, Jefferson, Wis. Filed June 13, 1900. Serial No. 20,127. (No model.)



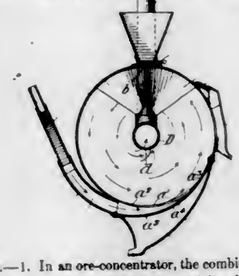
Claim.—1. In combination, a chair-frame having seat-rails capable of yielding laterally slightly, pins fixed in the side rails and projecting laterally inwardly therefrom, an independent seat fitting removably between the rails and having recesses adapted to receive therein the pins projecting from the side rails, and means below the seat secured to the side rails and including a turnbuckle adapted to draw the rails tightly against the interposed seat.

2. In combination, a chair-frame having seat-rails provided with seat-supporting pins projecting inwardly therefrom adapted to yield slightly laterally, an integral removable chair-seat resting on the pins and occupying substantially all the space between the rails, the pins projecting from the rails being adapted to enter registering recesses in the chair-seat and retain it against movement forward or back thereon, rods below the seat anchored in the rails and extending therefrom inwardly toward each other, and a clamping device including a turnbuckle adapted by drawing the rods toward each other to clamp the rails against the seat and by releasing the rods to loosen the rails from the seat.

661,085. PROCESS OF MAKING ACCUMULATOR-PLATES. ZDZISLAW STANECKI, Lemberg, Austria-Hungary. Filed Nov. 9, 1899. Serial No. 736,404. (No specimens.)

Claim.—The process for the production of very hard and porous accumulator-plates consisting in forming a paste of lead oxids with distilled water, then shaping the said paste into a slab, then slowly desiccating with repeated moistening with water, and after complete desiccation and incrustation with hydrate of lead immersing the hardened slab in dilute sulfuric acid.

661,086. ORE-CONCENTRATOR. ALBERT H. STEBBINS, Little Rock, Ark. Filed Dec. 18, 1899. Serial No. 740,805. (No model.)



Claim.—1. In an ore-concentrator, the combination of an outer cylindrical drum, a feed-chute for feeding material to the inside of said drum, an exhaust-cylinder centrally located in said drum and having an opening therein on the side opposite the feed-chute, an air-blast inlet extending the length of said drum and arranged substantially tangential thereto, and a discharge-opening in the wall of said drum over which the blast is directed.

2. In an ore-concentrator, the combination of an outer cylindrical drum, a feed-chute leading into said drum in the upper portion thereof, an exhaust-cylinder having an opening through its wall and extending axially the length of said drum, an exhaust-pipe connected to said exhaust-cylinder, an air-inlet extending the length of said drum and arranged substantially tangential thereto, a discharge-opening in the wall of the drum over which the incoming blast is directed and a concentrate-box below said drum.

3. In an ore-concentrator, the combination of an outer cylindrical drum, a feed-chute for feeding material thereto, an exhaust-cylinder located in said drum, an air-blast inlet extending substantially the length of the drum and arranged tangential thereof and below the feed-opening, a concentrate-box communicating with the lower portion of said drum and a concentrate-box communicating with the side of said drum.

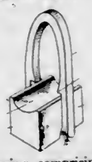
4. In an ore-concentrator, the combination of a drum having an opening in the lower portion, a feed-chute having an elongated opening to feed the material thereto in a sheet lengthwise of the drum, an exhaust-

cylinder arranged axially of said drum and having an opening in the wall thereof, an air-blast inlet arranged tangential to and extending the length of the drum, the lower wall of said air-blast inlet being provided with perforations, and a concentrate-box below said perforations.

5. In an ore-concentrator, the combination of a drum, a feed-chute having an elongated opening through which the material is fed to the interior of the drum in a thin sheet and a valve in said opening, an exhaust-cylinder within the drum and having an opening in its wall opposite the feed-opening, said drum being provided in its lower portion with an opening extending the length thereof through which the concentrates pass, an air-inlet communicating with said opening and arranged tangential to the drum, and a concentrator-box below the drum.

6. In an ore-concentrator, the combination of a drum having an opening in its lower portion throughout its length, an air-inlet in communication with said opening and arranged tangential to the drum, a feed-chute having an elongated opening, an exhaust-cylinder within said drum, an exhaust-pipe communicating with said cylinder through the cylindrical wall of the drum and wings extending on opposite sides of the exhaust-pipe in the space between the exhaust-cylinder and the interior wall of the drum.

661,087. SCALE-BEARING. WALTER F. STIMPSON, Detroit, Mich. Filed July 23, 1900. Serial No. 24,619. (No model.)

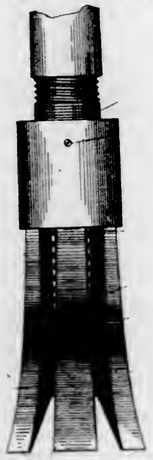


Claim.—1. A scale-bearing, comprising a block having a notch or groove on one face thereof, and a loop embracing said block having its end portion pivotally engaging said notch or groove said loop having a shoulder formed in its side projecting beyond the opposite face of said block and forming a stop for limiting the turning of said block on its pivot.

2. A scale-bearing comprising a block having a notch or groove on one face thereof, and a loop embracing said block having its end portion pivotally engaging with said notch, said loop being provided on its sides with a shoulder projecting beyond the opposite face of said block and arranged to prevent the disengagement of the pivotal portion of said loop from said notch or groove but permitting of a limited free turning of the block upon its pivot.

3. A scale-bearing comprising a substantially rectangular block having a grooved bearing-face, a transverse notch or groove upon the opposite face thereof, and parallel side faces; and a loop embracing said parallel side faces having one end portion pivotally engaging with said transverse groove and a projecting shoulder overlapping said bearing-face whereby said block is free to swing upon its pivot through a limited angle but is prevented from disengagement from said loop.

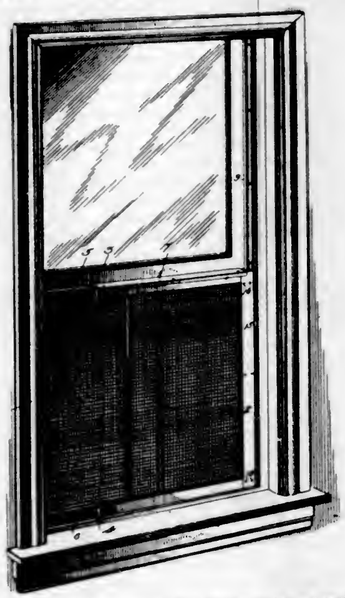
661,088. FLUE-SCRAPER. WILLIAM B. STOUT, New Orleans, La. Filed Dec. 21, 1899. Serial No. 741,169. (No model.)



Claim.—1. The combination with an expanding-rod, of a spring-pressed head engaged therewith and having a sliding movement thereon, said head being provided with longitudinal apertures, a pin inserted through said apertures and the expanding-rod to limit the movement of said head on said rod, said head being provided with longitudinally-radial recesses, the base-walls of which at their rear ends are provided with sockets, scraper-blades provided with lips at their rear ends to engage said sockets and provided with heels at their forward ends on their contiguous sides adapted to be engaged by the expanding-rod, and a sleeve connected to said head and surrounding the rear ends of the scraper-blades to hold them in the longitudinal recesses, substantially as set forth.

2. In a flue-scraper, the combination with the expanding-rod, of a spring-pressed head engaged therewith and having a limited movement thereon, scraper-blades seated in said head and provided with heels, a sleeve connected to said head to hold the scraper-blades in position, said expanding-rod adapted to engage said heels and expand said scraper-blades, and a sleeve connected to the outer end of the expanding-rod and provided with slots through which the heels of said scraper-blade project in order to be actuated by the expanding-rod, substantially as set forth.

661,089. ADJUSTABLE WINDOW-SCREEN. JOHN TANNER, Paterson, N. J. Filed Mar. 14, 1900. Serial No. 8,657. (No model.)

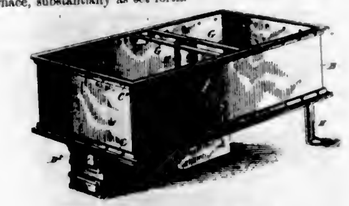


Claim.—1. The combination with a window-casing and vertical rails secured thereto, of two telescopic screen-sections having grooves in their sides for engagement with said rails, and removable clamping-strips also provided with grooves to engage the rails to lock the sections to the rails to keep them extended.

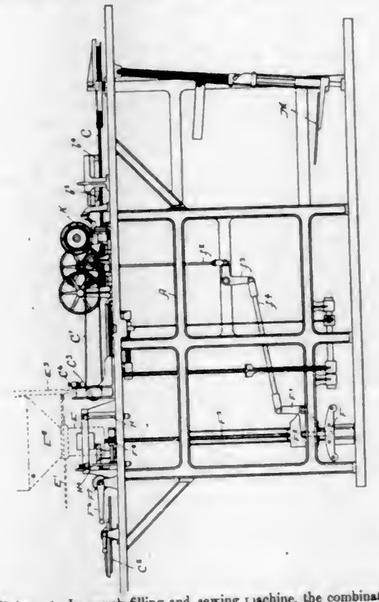
2. The combination with a window casing or frame, of vertical I-shaped rails rigidly secured to each side of the casing, two extensible and contractible screen-sections, each having grooves for engagement with the rails, and a clamping-strip secured to each section and also provided with a groove to engage said rails whereby the screen-sections will be held against displacement in sliding on the rails.

661,090. COMBINED TANK AND HEATER. JURGEN C. THOMSEN, Clinton, Iowa. Filed Oct. 5, 1898. Serial No. 692,727. (No model.)

Claim.—In a combined tank and heater, the combination, with a plate, the central portion of which is perforated, of side walls thereon, an angle-flange riveted to the top and bottom thereof respectively, the bottom flange extending out to the edge of the plate and riveted thereto, a furnace riveted to the bottom of said plate and having its rear wall located beyond the opening in the plate, a flanged pipe riveted to said plate around the opening and having its top even with the top of the walls, two bars secured at their ends to the walls and at their intermediate portions engaging with the opposite sides of the pipe, and legs at the rear ends of the plate, the lower ends of which are even with the bottom of the furnace, substantially as set forth.



661,091. SACK FILLING AND SEWING MACHINE. ARTHUR T. TIREWELL, Chicago, Ill., assignor to Albert Dickinson, same place. Filed Sept. 20, 1897. Serial No. 652,270. (No model.)



Claim.—1. In a sack filling and sewing machine, the combination with a sack-filling device and a sack-sewing mechanism, of a bumper, mechanism for vibrating the bumper against the lower end of the sack, and a slide to which the operating-lever of the bumper is connected, and a counterbalance-weight connected to said slide for holding the bumper in position for operation against the sack, whereby the jars and vibrations due to the operations of the bumper are prevented from being communicated to the sewing mechanism and other moving parts of the machine, substantially as specified.

2. The combination with a sack-holder, of a sack-filling device, a sack-sewing mechanism, a movable bumper to engage the lower end of the sack, mechanism for vibrating the bumper, and a counterbalance weight and line connected to the bumper for holding it in position to engage the sack and relieving the frame of the machine and parts mounted thereon from jars or vibrations, substantially as specified.

3. The combination with a sack-filling device and a sack-sewing mechanism, of an opening and closing traveling sack-holder provided with sack-clamping jaws at its opposite ends, and a reciprocating spring-held slide on the holder upon which one of said clamping-jaws is mounted to enable the sack-holder to automatically accommodate itself to variations in the width of the sack, substantially as specified.

4. An opening and closing sack-holder, comprising a number of hinged bars and provided with sack-clamping jaws at each end, and a reciprocating spring-held slide upon which one of said sack-clamping jaws is mounted to enable the holder to accommodate sacks of different widths, substantially as specified.

5. The combination with a sack-filling device and a sack-sewing mechanism, of an opening and closing traveling sack-holder, a track for the holder provided with movable sections at the filling device, and a scale or weighing mechanism having lifting pins or bars engaging the movable sections of said track, substantially as specified.

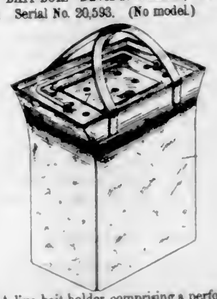
6. The combination with a sack-filling device and a sack-sewing mechanism, of an opening and closing traveling sack-holder, a recurving track for the holder provided with movable sections at the filling device, and a scale or weighing mechanism having lifting pins or bars engaging the movable sections of said track, substantially as specified.

661,092. CHURN. JAMES B. TURNER and JAMES F. WEBB, Centre, Mo. Filed Dec. 1, 1898. Serial No. 697,982. (No model.)



Claim.—The combination with a churn-body having a projecting flange at its upper end, of oppositely-disposed strips curved upon their adjacent faces to engage beneath the flange of the churn-body, rods connecting the adjacent opposite ends of said strips, an arched yoke having its extremities detachably engaged in said strips at diametrically-opposite points and providing an unobstructed space beneath, thumb-screws in said strips engaging the extremities of said yoke, operating mechanism mounted in the upper part of said yoke, a shaft-bearing detachably supported within the churn-body at the lower end thereof, a dasher-shaft supported by said bearing, and an adjustable rod telescoping with the dasher-shaft and detachably connected with the shaft of the operating mechanism, and means for rigidly securing said rod and shafts together, all substantially as herein shown and described.

661,093. BAIT-BOX. DAVID B. WARREN, West Plains, Mo. Filed June 16, 1900. Serial No. 20,593. (No model.)



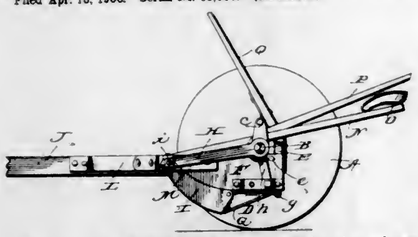
Claim.—1. A live-bait holder comprising a perforated metallic box, an inclosing flexible waterproof casing therefor having an open mouth, and means for holding the casing at points away from said box to provide vertical passages for the circulation of air, substantially as set forth.

2. A collapsible live-bait box, comprising side walls provided at their side edges with longitudinal grooves and at their upper and lower edges with tongues, and walls provided at their side edges with tongues to slidably engage said grooves, and top and bottom sections provided with grooves to receive the upper and lower tongues of said side walls, whereby the parts are adapted to be connected with and disconnected from each other by an endwise sliding movement, substantially as described.

3. A collapsible live-bait box, comprising in its construction, side, end, top and bottom walls detachably connected, said top wall being provided with an opening, a lid closing said opening, and an air-chamber removably arranged within the box and having a central open passage in line with said lid and opening, substantially as set forth.

4. A collapsible live-bait box, comprising perforated side, end, top and bottom walls detachably connected, and a removable air-chamber provided with means to engage the perforations in the side or end walls of the box and adapted to be suspended therein, substantially as described.

661,094. **WHEEL-SCRAPER.** WILLIAM P. WARREN, Baker, Ill. Filed Apr. 16, 1900. Serial No. 13,166. (No model.)



Claim.—1. In a wheeled scraper, the combination of an axle provided with cranks, a scoop or scraper, links connecting the cranks and scraper and provided with portions to engage the axle and assist the cranks to support the scoop in elevated position, and a raising and lowering lever connected to the axle, substantially as set forth.

2. In a wheeled scraper, the combination of an axle provided with cranks, a draft-frame, suspending-arms pivoted to the draft-frame, a scoop or scraper suspended at the front from said arms, links connecting the sides of the scoop to said cranks, and a raising and lowering lever connected to the axle, substantially as set forth.

3. In a wheeled scraper, the combination of an axle provided with cranks, a scoop suspended from the cranks and having a hinged or pivoted dumping-board and a scraper hinged or pivoted to said dumping-board, and a dumping-lever for operating said dumping-board to raise the scraper, substantially as set forth.

4. In a wheeled scraper, the combination of an axle provided with cranks, a scoop comprising sides, a dumping-board or back hinged or pivoted to said sides, and a scraper hinged or pivoted at the rear to said dumping-board, links connecting the sides of the scoop to the cranks, a draft-frame, suspending-arms pivotally connecting the front portion of the scraper to the draft-frame, and a dumping-lever connected to the dumping-board, substantially as set forth.

5. In a wheeled scraper, the combination of an axle provided with cranks, a scoop suspended from said cranks, a draft-frame, operating means for the scoop, and a seat beam or bar pivoted to the draft-frame and resting on the axle, substantially as set forth.

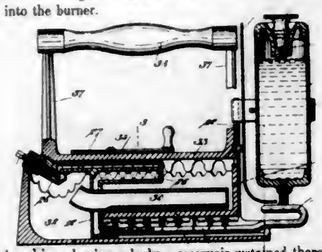
6. In a wheeled scraper, the combination of an axle provided with cranks, a draft-frame carrying a draft appliance, a scoop comprising sides having a back or dumping-board hinged or pivoted thereto and a scraper hinged or pivoted at the rear to said dumping-board, links pivotally connecting the scoop to the cranks, suspending-arms pivotally connecting the scraper to the draft-frame, pivoted arms connecting the axle and draft-frame, a lever connected to the axle for raising and lowering the scoop, and a second lever connected to the dumping-board for dumping the scraper, substantially as set forth.

7. In a wheeled scraper, the combination of an axle provided with cranks, a scoop pivotally suspended from said cranks and having a hinged or pivoted back or dumping-board and a scraper hinged or pivoted thereto, and means for raising and lowering the scoop and for operating said dumping-board, substantially as set forth.

661,095. **SAD-IRON.** IVER WICKLAND, South Superior, Wis., assignor to Carl Oscar Carlson, Superior, Wis. Filed Nov. 28, 1899. Serial No. 738,539. (No model.)

Claim.—1. A sad-iron, having a body, a box mounted vertically therein and forming an oil-cup in front thereof, a reservoir having communication with the box, a retort communicating with the box, a tube communicating with the retort, a valve controlling the outlet from the retort, the said tube being extended forward over the oil-cup, and a burner in which said valve discharges.

2. A sad-iron, having a body, a box fitted vertically therein and forming an oil-cup in the front thereof, a burner extended through the box and having openings therein rearward of the box, a retort communicating with the box, a tube passing from the retort forwardly over the oil-cup, and a valve controlling the outlet from the second-named tube and discharging into the burner.



3. A sad-iron, having a body, a reservoir sustained thereon, a shield mounted in the body near the bottom thereof, a tube passing from the reservoir beneath the shield, a box mounted in the body and communicating with the tube, the box being situated forward of the shield and forming an oil-cup in the forward part of the body, a burner-tube mounted in the box and extending over the shield, a retort communicating with the box, a tube leading from the retort forwardly over the oil-cup, and a valve controlling the outlet of the tube and discharging into the burner-tube.

4. A sad-iron comprising a body, a plate fitted to slide therein at the rear thereof and disposed vertically, a shield attached to the plate and extending forward over the bottom of the body, a box mounted vertically in the front portion of the body and forming an oil-cup forward thereof, a burner-tube mounted in the box and extending rearwardly over the shield, the burner-tube extending forward of the box, an oil-supply tube passing into the body beneath the shield and communicating with the box, a retort communicating with the box, and a valve controlling the outflow from the retort, such valve discharging into the open front end of the burner-tube.

5. A sad-iron, having a body with internal lugs or webs projecting from the side walls thereof, a shield with notched side edges receiving the lugs or webs, spaces being left between the side edges of the shield and the side walls of the body, an oil-supply pipe passing into the body beneath the shield, and burner devices located in the body above the shield.

6. In a sad-iron, the combination with a body and vapor generating and burning devices, of a plate slidably fitted in the body and disposed vertically, and a shield attached to and supported by the plate, the shield extending horizontally beneath the burner devices.

7. A sad-iron, having a body, a shield to be mounted therein in proximity with the bottom thereof, an oil-supply tube passed over the bottom beneath the shield, a burner located above the shield, and a retort in communication with the oil-supply tube and discharging to the burner.

8. A sad-iron, having a body, a shield fitted therein and extending horizontally in proximity with the bottom of the body, an oil-supply tube extending under the shield, and vapor generating and burning devices communicating with the supply-tube and situate over the shield.

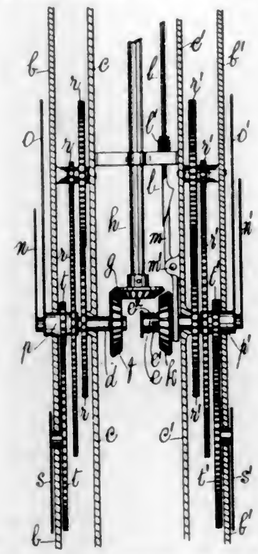
9. A sad-iron, having a body formed with vertical guides thereon, a plate slidably fitted in the guides, a shield carried horizontally by the plate in proximity to the bottom of the body, a supply-tube passed beneath the shield, and vapor generating and burning devices communicating with the supply-tube and situate above the shield.

10. A sad-iron, having a body, a box fitted in the front portion thereof and forming an oil-cup in front of the box, the box being in communication with the oil-supply, a retort communicating with the box, and a burner situate rearward of the box.

661,096. **CALCULATING APPARATUS.** FRANCIS A. WILKINSON, Manchester, and CLAUD C. GIBSON, London, England. Filed Mar. 15, 1900. Serial No. 8,804. (No model.)

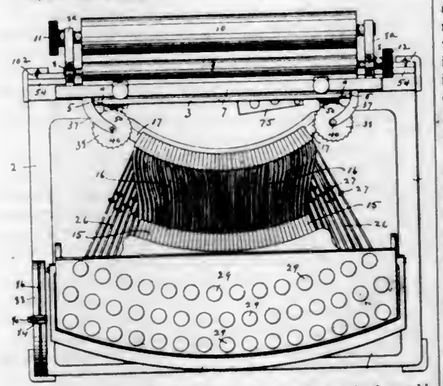
Claim.—1. In a portable calculating apparatus, item and result indicating mechanisms in two detached portions, capable of effecting addition or subtraction at the will of the operator, and capable of being coupled together in operation, or of being disconnected to permit of the item portion being set back to zero; the said item portion comprising pointers, gearing operating same, and a hand actuating spindle or stem permanently in connection with such gearing, and capable of operating the same in either direction; the said result-indicating mechanism comprising pointers, gearing operating same, a movable clutch-wheel in connection with such gearing, a coupling-spindle operated from the exterior of the apparatus by hand, and connections actuated by such spindle, whereby said clutch may be forced into or out of communication with the actuating-stem aforesaid, such stem being thereby capable of simultaneously operating both sets of pointers in either direction, or of actuating the item-pointers alone, substantially as herein set forth.

2. In a portable calculating apparatus, item-indicating pointers *n*, *o*, *s*, gear-wheels *r*, *t*, and shaft *d*, operating same, bevel-wheel *f* actuating said shaft, bevel-wheel *g*, gearing with wheel *f*, and hand-spindle *h*, operating wheel *g*, in combination with result-indicating pointers *n'*, *o'*, *s'*; gear-wheels *r'*, *t'*, and shaft *e*, operating same, movable clutch-wheel *k*, actuating said shaft *e*, the movable clutch-wheel being capable of operation through bevel-wheel *g*, and spindle *h*, or of disconnection therefrom, lever *m* acting on said clutch-wheel, and spindle *l*, operating said lever, for the purpose and in manner substantially as herein set forth.



3. In a portable calculating apparatus, pointers *n*, *n'*, on shafts *d*, *e*, pointers *o*, *o'*, on sleeves *p*, *p'*; riding upon such shafts, and pointers *s*, *s'*; said shafts *d*, *e*, and sleeves *p*, *p'*; gearing *f*, *g*, *k*, *r*, *r'*, and *t*, *t'*, operating said pointers; spindle *h*, rotated by hand, and actuating said gearing: in combination with spring c^2, and lever *m*, acting on clutch-wheel *k*, and spindle *l*, depressed by hand to connect wheels *k*, and *g*, for the purpose and in manner substantially as herein set forth.

661,097. **TYPE-WRITING MACHINE FOR WRITING MUSIC.** FRANK C. WINN, Worcester, Mass. Filed Feb. 28, 1899. Serial No. 707,191. (No model.)



Claim.—1. In a type-writing machine for writing music, the combination of a platen provided with a paper-supporting surface lying in the same plane and capable of a vertical and a horizontal movement parallel with the plane of its paper-supporting surface, paper-rolls 9 and 10 having parallel axes and journaled one above and the other below said platen, a series of type-forms arranged to strike said platen at a common printing-point and in the same horizontal plane, means for sliding said platen vertically so as to bring its entire surface into the horizontal plane of the printing and means for imparting a horizontal feeding movement to said platen, substantially as described.

2. In a type-writing machine, the combination of a platen provided with a flat or plane paper-supporting surface and capable of both a vertical and a horizontal movement in planes parallel with the plane of its paper-supporting surface, means for moving the paper transversely across the surface of said platen, a series of type-forms arranged to strike the platen at a common printing-point and in the same horizontal plane, means for sliding said platen vertically and means for imparting a horizontal feeding motion to said platen, substantially as described.

3. The combination with a framework having fixed horizontal ways for a sliding rack, a rack sliding in said ways, fixed vertical ways, a frame sliding on said fixed vertical ways and having horizontal ways for a paper-holding carriage, a paper-holding carriage sliding on said horizontal ways and operatively connected with said sliding rack, whereby said carriage is moved horizontally independently of its vertical movement, substantially as described.

4. The combination of a fixed upright frame having vertical ways, a frame capable of sliding on said ways and having horizontal ways, a carriage sliding on said horizontal ways, lugs projecting from said carriage, a horizontally-sliding rack, means for imparting a feeding motion to said rack, and posts projecting upwardly from said rack and entering holes in said carriage-lugs, whereby the feeding motion of said rack is imparted to said carriage independently of its vertical movement, substantially as described.

5. The combination of a paper-holding carriage, capable of sliding in the horizontal ways of a vertically-sliding frame, a frame sliding in vertical fixed ways, a rack sliding in fixed horizontal ways and operatively connected with said carriage, a pivoted lever operatively connected with said vertically-sliding frame by which said frame is raised and lowered, a platen held by said carriage and consisting of a flat plate lying in a plane parallel with the line of the vertical movement of said carriage and a series of type-forms arranged to strike said plane in a single horizontal plane, substantially as described.

6. The combination with a sliding rack and paper-holding carriage operatively connected with said rack, of a pinion engaging said rack, a ratchet attached to said pinion, a swinging lever pivoted concentrically with the axis of said ratchet, a pawl carried by said swinging lever and engaging said ratchet, a stud carried by said swinging lever and engaging a slotted arm, a slotted arm attached to a rocking shaft, means for rocking said shaft, a spring bearing against said slotted arm to raise said slotted arm into contact with said pawl, whereby said pawl is normally held out of engagement with said ratchet, substantially as described.

7. The combination with a paper-holding carriage and a sliding rack operatively connected therewith, of mechanism for intermittently moving said rack, comprising a pawl and ratchet, a rocking shaft operatively connected with a spacing-key, a spacing-key, a radial arm carried by said rocking shaft and arranged to engage said pawl, said radial arm having an extended tip adapted to strike said pawl and disengage it from said ratchet, substantially as described.

8. The combination of a sliding rack, a pinion engaging said rack, a pawl-and-ratchet mechanism operatively connected with said pinion, a rocking shaft operatively connected with a spacing-key, a spacing-key by which said shaft is rocked in one direction, a spring by which the rocking shaft is reversed, a radial arm carried by said rocking shaft and having its end held by said spring against said pawl to normally hold it out of engagement with said ratchet and intermediate connecting mechanism between said radial arm and said pawl, whereby the pawl is moved into engagement with said ratchet, substantially as described.

9. The combination of a rack, a pinion engaging said rack, a ratchet attached to said pinion, a swinging lever pivoted concentrically with said ratchet, a pawl pivoted on said lever, a spring by which said pawl is carried into engagement with said ratchet, a rocking shaft, an arm operatively connected with said swinging lever to rock the same and having its end arranged to come into contact with said pawl and disengage it from said ratchet, a spacing-key by which said shaft is rocked in one direction and a spring by which its motion is reversed, substantially as described.

10. The combination of a vertically-sliding frame provided with horizontal ways for a paper-holding carriage, a paper-holding carriage sliding in said horizontal ways, a rocking shaft, radial arms carried by said shaft, links connecting said arms with said vertically-moving frame, a pivoted hand-lever operatively connected with said rocking shaft, a plate having an edge shaped in the arc of a circle and concentric with the pivot of said hand-lever and provided with holes to receive a spring-latch and a spring-latch carried by said hand-lever, whereby said frame is locked in position, a platen carried by said carriage consisting of a bar, or plate, having a paper-supporting surface lying in a plane parallel with the vertical movement of said frame and a series of type-forms arranged to strike said platen in the same horizontal plane, substantially as described.

11. The combination of a platen presenting a flat surface for the support of the paper to be printed, a ruling mechanism having a series of contact-points with the paper on said platen, means for moving the platen in one direction to simultaneously rule a series of lines forming a musical staff, means for moving the platen at right angles to the ruled lines to bring a new portion of the paper into contact with the ruling mechanism, substantially as described.

12. The combination with a carriage capable of both a horizontal and a vertical movement, and a platen held on said carriage, of a locking mechanism, by which said carriage is held in the required vertical position, and an inked roller having circumferential ribs and being capable of being brought into contact with the paper on said platen, and a spring by which said roller is normally held out of contact with the paper, substantially as described.

13. The combination of a series of type-forms arranged to strike against a platen in a single horizontal plane, of a platen capable of both a horizontal and a vertical movement, and consisting of a bar, or plate, having a flat paper-supporting surface lying in a plane parallel with the line of the vertical movement of the platen, a graduated plate having a vertical movement corresponding with the vertical movement of said platen and a fixed gage mark, or line, corresponding with the horizontal plane of the printing and means for vertically moving said platen in order to bring the lines of a musical staff on the paper into the plane of the printing, substantially as described.

14. The combination with a paper-holding carriage, of a spacing mechanism by which said carriage is fed, a series of type-bar levers and actuating-keys, a rocking frame 33 arranged to be depressed by the downward movement of said keys and connecting mechanism by which said rocking frame and said spacing mechanism are connected or disconnected at will, substantially as described.

15. The combination of a type-bar pivoted at one end and carrying a type-form at its free end, said pivoted end having a cam-surface 22 and a prong 23 with a notch 24 inclosed between said prong and said cam-surface, a pivoted lever 26 having at one end a bent prong 25 arranged to bear against said cam-surface and enter said notch as the type-bar is rocked on its pivot, a vertically-sliding key 29 engaging said lever to depress the same and rock the type-bar and a spring by which said key is reversed, substantially as described.

16. The combination of a series of type-bars, type-bar-actuating mechanism, a rocking frame operatively connected with the type-bar-actuating mechanism, a carriage upon which the paper is held, a spacing mechanism, by which said carriage is given a feeding motion, and a button pivotally attached to said rocking frame, and adapted to be turned into engagement with said spacing mechanism, whereby said spacing mechanism and said type-bar-actuating mechanism are operatively connected, substantially as described.

17. The combination with a paper-holding carriage capable of a horizontal and a vertical movement, of a platen held on said carriage and consisting of a bar, or plate, having a flat paper-supporting surface lying in a plane parallel with the line of its vertical movement, a copy-holding frame mounted on said carriage and having a paper-supporting surface corresponding to the paper-supporting surface of said platen, means for holding the copy on said surface and an index-finger held by the frame of the machine and overlapping said copy-supporting surface, substantially as described.

661,098. AUTOMATIC RIBBON REVERSING MECHANISM FOR TYPE-WRITERS. ERNEST WIENER, New York, N. Y., assignor to the Wagner Typewriter Company, same place. Filed June 6, 1900. Serial No. 19,223. (No model.)

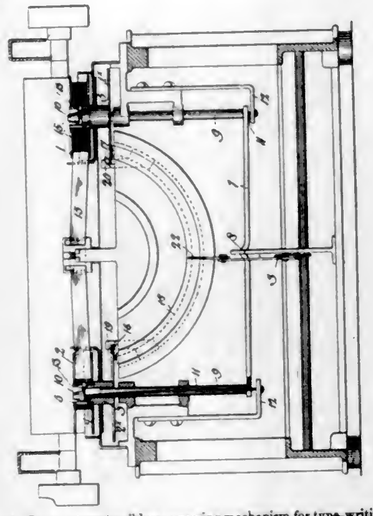
Claim.—1. In an automatic ribbon-reversing mechanism for type-writing machines the combination of balanced ribbon-spools, a ribbon and means for permitting a transverse movement of said balanced ribbon-spools when an end of the ribbon is reached.

2. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, mechanism for imparting an intermittent feed movement to the ribbon and means controlled by the weight of the ribbon for effecting a change of direction of the ribbon-feed.

3. In an automatic ribbon-reversing mechanism for type-writing machines the combination of a ribbon, ribbon-spools, mechanism for imparting an intermittent feed movement to the ribbon-spools and means controlled by the weight of the ribbon upon one of the spools for effecting a reversal of the ribbon-feed.

4. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, balanced ribbon-spools, means operatively connected to said balanced ribbon-spools for effecting a change in direction of feed of the ribbon and means for rendering said ribbon-spools and the means operatively connected thereto effective to change the direction of feed of the ribbon.

5. In an automatic ribbon-reversing mechanism for type-writing machines the combination of a ribbon, rotatable balanced ribbon-spools, rotatable ratchet-wheels which are likewise transversely movable and feed-pawls which coöperate with said ratchet-wheels to effect an intermittent feed movement of the ribbon and which are fixed with relation to the transverse movement of said ratchet-wheels whereby when the ribbon is wound upon one spool the weight of the ribbon will cause an engagement of the ratchet-wheel of one spool with the ratchet feed-pawl of said ratchet-wheel.



6. In an automatic ribbon-reversing mechanism for type-writing machines the combination of a ribbon-feed mechanism for alternately feeding the ribbon in opposite directions and means operated by the weight of the ribbon for bringing the feed mechanism into effective operation to feed the ribbon in one direction or another accordingly as the preponderance of ribbon is on one or the other side of the machine.

7. In an automatic ribbon-reversing mechanism for type-writing machines the combination of a ribbon-feed mechanism for alternately feeding the ribbon in opposite directions, means operated by the weight of the ribbon for bringing the feed mechanism into effective operation to feed the ribbon in one direction or another accordingly as the preponderance of ribbon is on one or the other side of the machine and controlling mechanism for permitting the movement of the weight-operated means at a predetermined point in the feed of the ribbon in either direction.

8. In an automatic ribbon-reversing mechanism for type-writing machines, the combination of ribbon-spools, a ribbon-feed mechanism for alternately and intermittently rotating said spools in order to alternately feed the ribbon in opposite directions, means operated by the weight of the ribbon for bringing the feed mechanism into effective operation to feed the ribbon-spools in one direction or another accordingly as the preponderance of ribbon is on one or the other ribbon-spool and a latch for permitting the movement of the weight-operated means at a predetermined point in the feed of the ribbon in either direction.

9. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of rotatable ribbon-spools which are likewise moved transversely by the weight of the ribbon, intermediate connections between said ribbon-spools for transmitting a transverse movement to one of said spools when the other is moved transversely, means for locking either of said spools against transverse movement and means for releasing the locking means by a movement of the ribbon.

10. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of rotatable ribbon-spools which are likewise moved transversely by the weight of the ribbon, intermediate connections between said ribbon-spools for transmitting a transverse movement to one of said spools when the other is moved transversely, locking means for both of said spools to lock the same against transverse movement, said parts being so arranged that the locking means of one spool will be free from engagement when the locking means of the other spool is in locking engagement, and means for releasing the locking means by a movement of the ribbon.

11. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of balanced rotatable and transversely-movable ribbon-spools, the said spools being moved transversely by the weight of the ribbon, intermediate connections between the said ribbon-spools for transmitting a transverse movement to one of said spools when the other is moved transversely, means for automatically locking either of said spools against transverse movement, means for releasing the locking means by a movement of the ribbon and ribbon-feed mechanism which is operative to transmit a rotary movement to the ribbon-spools in either direction, the direction of movemeet depending upon which spool is in engagement with the locking means.

12. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of balanced rotatable and transversely-movable ribbon-spools, intermediate connections between said ribbon-spools for transmitting a transverse movement to one of said spools when the other is moved transversely, locking means for both of said spools to lock the same against transverse movement, said parts being so arranged that the locking means of one spool will be free from engagement when the locking means of the other spool is in locking engagement, means for releasing the locking means of either spool by a movement of the ribbon and ribbon-feed mechanism which is operative to transmit a rotary movement to the ribbon-spools in either direction, the direction of movement depending upon which spool is in engagement with the locking means.

13. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of rotatable and transversely-movable ribbon-spools, the transverse movement of said ribbon-spools being effected by the weight of the ribbon, intermediate connections between said spools for transmitting a transverse movement to one of said spools when the other is moved transversely, means for locking either of said spools against transverse movement, means for releasing the locking means by a movement of the ribbon, ratchet-wheels for rotating said ribbon-spools, feed-pawls for rotating said ratchet-wheels and means for moving said ratchet-wheels and pawls into and out of coöperative relation, the movement of the ratchet-wheels and pawls into and out of coöperative relation being effected by the transverse movement of the ribbon-spools.

14. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, a pair of rotatable and transversely-movable ribbon-spools, the transverse movement of the ribbon-spools being effected by the weight of the ribbon, intermediate connections between said ribbon-spools for transmitting a transverse movement to one of said spools when the other is moved transversely, automatic locking means for both of said spools to lock the same against transverse movement, said parts being so arranged that the locking means of one spool will be free from engagement when the locking means of the other spool is in locking engagement, means for releasing the locking means of either spool by a movement of the ribbon, ratchet-wheels for rotating said ribbon-spools, feed-pawls for rotating said ratchet-wheels and means for moving said ratchet-wheels and pawls into and out of coöperative relation, the movement of the ratchet-wheels and pawls into and out of coöperative relation being effected by the transverse movement of the ribbon-spools.

15. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, ribbon-spools therefor, each of said ribbon-spools having a central opening therein and a pivoted latch carried by each of said ribbon-spools, each latch being adapted to be connected to the ribbon and to be projected across the central opening in its coöperative ribbon-spool and a locking-head coöperating with each latch.

16. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, ribbon-spools therefor, each of said ribbon-spools having a central opening therein, a pivoted latch carried by each of said ribbon-spools each latch being provided with means for connecting it to the ribbon and adapted to be projected across the central opening in its coöperating ribbon-spool and a spring-pressed tapering locking-head projecting into the central opening in each ribbon-spool and coöperating with the latch thereof.

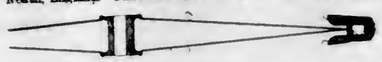
17. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, rotatable and transversely-movable ribbon-spools therefor, each of said ribbon-spools having a central opening therein, means for rotating said ribbon-spools in either direction according to the transverse position of said ribbon-spools, a pivoted latch carried by each of said ribbon-spools, each latch being adapted to be connected to the ribbon and to be projected across the central opening in its coöperating ribbon-spool and a locking-head coöperating with each latch.

18. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, rotatable and transversely-movable ribbon-spools therefor, each of said ribbon-spools having a central opening therein, means for rotating said ribbon-spools in either direction according to the transverse position of said ribbon-spools, a pivoted latch carried by each of said ribbon-spools each latch being provided with means for connecting it with the ribbon and adapted to be projected across the central opening in its coöperating ribbon-spool and a spring-pressed tapering locking-head projecting into the central opening in each ribbon-spool and coöperating with the latch thereof.

19. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, balanced ribbon-spools therefor each ribbon-spool having an opening therein, a ratchet-wheel operatively connected to and movable with each of said spools, an automatically-operated locking-head projecting into the opening in each spool, a latch coöperating with each locking-head and adapted to be operated by the ribbon, a universal bar, feed-pawls moved by the universal bar and adapted to coöperate with the ratchet-wheels whereby when one latch is in engagement with its locking-head the feed-pawls and ratchet-wheel of one spool will be in coöperative relation and the feed-pawl and ratchet-wheel of the other spool will be out of coöperative relation.

20. In an automatic ribbon-feed mechanism for type-writing machines the combination of a ribbon, balanced ribbon-spools therefor, each ribbon-spool having a central opening and a ratchet-wheel operatively connected to and movable with each of said spools, an automatically-operated laterally-deflectable tapering locking-head projecting into the opening in each spool, a latch coöperating with each locking-head and adapted to be operated by the ribbon and to deflect its locking-head laterally, feed-pawls adapted to coöperate with the ratchet-wheels whereby when one latch is in locking engagement with its locking-head the feed-pawl and ratchet-wheel of one spool will be in coöperative relation and the feed-pawl and ratchet-wheel of the other spool will be out of coöperative relation and whereby a movement of one spool from the locked position will bring about the automatic locking engagement of the latch of the other spool with its locking-head.

661,099. TIRE FOR VEHICLE-WHEELS. JAMES B. DAVID, Neath, England. Filed Apr. 2, 1900. Serial No. 11,204. (No model.)



Claim.—1. The herein-described tire embodying a casing-like rim resilient elements mounted therein at opposite sides thereof and by which the spokes are directly supported, substantially as shown and described.

2. The herein-described wheel-tire embodying a rim provided at opposite sides with resilient elements, and an annular band carried by said resilient elements and with which the spokes are directly connected, substantially as shown and described.

3. The herein-described vehicle-tire embodying a rim, comprising a tread, and inwardly-directed sides, strips of rubber or similar material connected with the inner walls of said sides, an annular band connected with and supported by said strips of rubber and with which the spokes are directly connected, and a tread-piece arranged exteriorly of said tread, substantially as shown and described.

661,100. SHIP'S DRAG. CHARLES E. DELANOY, New York, N. Y. Filed Jan. 11, 1900. Serial No. 1,031. (No model.)



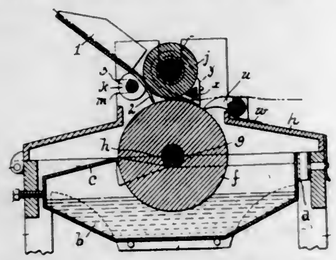
Claim.—1. The ship's log comprising the elongated body having a longitudinal opening through it and weighted at its front end to cause said end to materially overbalance the rear end of said body, and the bracket at the upper side of said body to receive at its front end the cable, said bracket being at a pitch to compel said body to assume when in use an inclined position with its front end on a lower level than its rear end; substantially as set forth.

2. The ship's log comprising the elongated body having the longi-

todinal opening through it, and a bracket at the upper side of said body to receive at its front end the cable, said opening gradually increasing in diameter toward its rear end, and said bracket being at a pitch to compel the said body to assume when in use an inclined position with its front end on a lower level than its rear end; substantially as set forth.

3. The ship's log comprising the elongated body having the longitudinal opening through it, the fins or blades, and the weighted section at its lower side and gradually decreasing in thickness toward the rear end of said body, said section extending throughout about two-thirds of the length of said body, and said opening being of smaller diameter at its front end than at its rear end; substantially as set forth.

661,101. LABEL-GUMMING MACHINE. Hugo R. Grassmann, Philadelphia, Pa. Filed Jan. 18, 1900. Serial No. 1,374. (No model.)

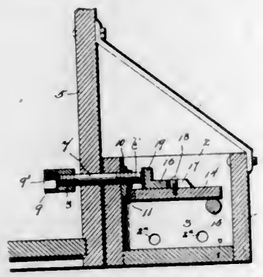


Claim.—1. In a gumming-machine, in combination, a frame, a trough carried by said frame and adjustable transversely thereof, a strickle carried by said trough, a gumming-roller carried longitudinally of said frame, a top hinged to said frame, feed-rollers carried by said top, means whereby said gumming and feed rollers may be driven, a feeding-table for carrying labels to said feed-rolls, and a take-off for lifting the gummed label from said gumming-roll.

2. In a gumming-machine, in combination, a frame, a gum-carrying trough carried by said frame, a strickle formed integrally with said trough, a gumming-roller carried by said frame, a spring carried by said frame engaging the side of said trough opposite to the operative end of said strickle, and set-screws carried by the side of said frame opposite to said spring, said screws and spring operating jointly to adjust the bearing of said strickle against the gumming-roller.

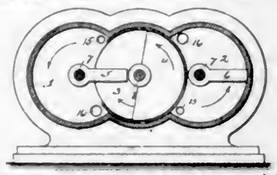
3. In a label-gumming machine, in combination, a gum-carrying trough, a gumming-roller passing through said trough, a pair of feed-rollers, the face of the under one of which is furnished with a series of grooves, a feeding-table furnished with a series of fingers adapted to enter said grooves, a take-off engaging said gumming-roll, means for revolving said gumming and feed rolls, and a bar for keeping label in contact with gumming-roll and preventing the label from passing up around the upper feed-roller.

661,102. DRINKING-TROUGH FOR HOGS OR CATTLE. Jurgen W. Gronewold, Golden, Ill. Filed July 12, 1900. Serial No. 23,394. (No model.)



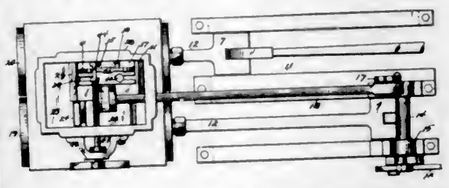
Claim.—In a drinking-trough for hogs and cattle, the combination, with a barrel or supply-tank, of a trough partitioned to form a central float-compartment and one or more drinking-compartments, said drinking-compartments being in communication with the float-compartment through openings in the partitions, braces connecting the tank and trough, a water-supply pipe extending through the adjacent walls of the trough and tank and having threaded ends, an adjustable inlet tube or nozzle threaded onto the end of the pipe within the barrel and provided with a strainer, a substantially U-shaped adjustable bracket upon the interior of the float-compartment and threaded upon the contiguous end of the pipe, a pintle mounted in the arms of said bracket, a float hinged or pivoted to said pintle and held by the arms of the bracket from lateral play, and an adjustable valve or cut-off carried by the float and adapted to control the flow of water through the discharge-pipe, substantially as set forth.

661,103. ROTARY ENGINE. Edwin M. Kaster, Rimersburg, Pa. Filed Mar. 9, 1900. Serial No. 8,094. (No model.)



Claim.—The herein-described rotary engine, consisting of the two cylinders 1 and 2, located the one opposite the other, the pistons 5 and 6, operating within the said cylinders, and the two intermediate valves 3 and 4, constructed and arranged as described, and a means whereby the said pistons and valves may be rotated in unison, all arranged and combined for service substantially as described.

661,104. ENGINE. Louis E. Kottmeyer, Rhineland, Mo., assignor of one-half to J. J. Meritt and S. J. Burch, same place. Filed Dec. 29, 1899. Serial No. 742,010. (No model.)



Claim.—1. In an engine, a pair of piston-cylinders, live-steam ports leading into one of the said cylinders, a valve operating on the said cylinders, ports on each end of the said valve for conveying the steam from one end of one cylinder to the same end of the other cylinder, ports through the said valve and leading into the second-mentioned cylinder, an auxiliary valve carried in the first-mentioned valve for closing said ports, and a means for operating the said auxiliary valve, substantially as specified.

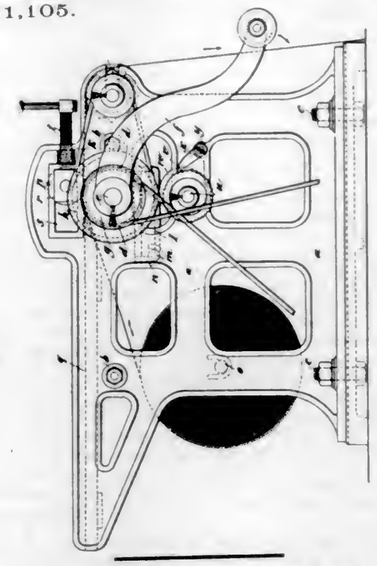
2. In an engine, a pair of uniform piston-cylinders live-steam ports leading into one of said cylinders, a valve operating on the said cylinders, ports within the said valve for conveying steam from one to the other of said cylinders, ports leading through the valve for admitting steam to the latter of the said cylinders, an auxiliary valve carried on the first-mentioned valve, ports leading through the said secondary valve intermediate of the ports in the first-mentioned valve and a means for operating said auxiliary valve as the speed of the engine is decreased whereby the ports in the several valves are made to register with each other, substantially as specified.

3. In an engine, a plurality of piston-cylinders, a steam-chest on the said cylinders, a valve operating upon said cylinders, steam-ports leading through one side of said valve, an auxiliary valve having steam-ports intermediate of the first-mentioned ports operating on the first-mentioned valve, an operating-rod mounted in the said steam-chest and a means whereby the said rod operates the auxiliary valve to register the ports in the various valves with each other as the speed of the engine decreases, and closes said valve as the speed increases, substantially as specified.

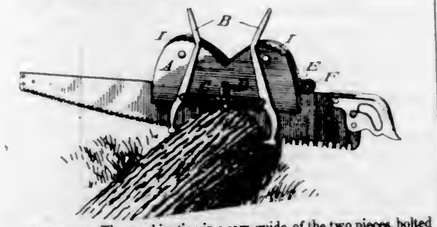
661,105. COPYING-MACHINE. Carl F. Müller, Frankfort-on-the-Main, Germany, assignor to Johann Georg Leonhard Schroeder, same place. Filed July 17, 1900. Serial No. 23,983. (No model.)

Claim.—In a copying-machine, the combination with a frame, a water-receptacle hinged or pivoted at one end to the frame, and a moistening-roller, of a pressure-roller journaled in bearings mounted to slide in guides upon the frame toward and from the moistening-roller, a shaft mounted upon the frame, an eccentric mounted on said shaft and bearing upon the free end of the water-receptacle, a ratchet-wheel also mounted on said shaft and a pawl engaging the ratchet-wheel, substantially as set forth.

661,105.



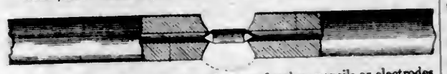
661,106. SAW-GUIDE. George E. Pooler, Three Oaks, Mich. Filed Aug. 22, 1900. Serial No. 27,744. (No model.)



Claim.—1. The combination in a saw-guide, of the two pieces, bolted together forming the body of the guide, with the pointed pivoted levers journaled thereto, the ratchet for engaging the levers, the connecting-bar between the points of oscillation of levers, with the adjustable pointed spur which with the levers forms three points of engagement, substantially as set forth.

2. The body of the guide, with the arched spring-arm pivoted thereto, the wheel journaled to end of spring-arm, the end of spring extended for engaging a ratchet, the ratchet for engaging the spring, and the connecting-bar between points of oscillation of spring and ratchet, the whole combined substantially as set forth.

661,107. CARBON PENCIL OR ELECTRODE FOR ELECTRIC LIGHTS. John F. Sanders, Chicago, Ill., assignor to Harry Brown, same place. Filed Sept. 25, 1899. Serial No. 731,564. (No model.)



Claim.—1. The combination of a pair of carbon pencils or electrodes for electric lights vertically positioned, each having a predetermined point of fusion, reduction and consequent combustion, and each provided with an axial longitudinal hole, and a non-fusible resistance-separator of cylindrical form interposed between the carbon pencils or electrodes and having both of its ends beveled or pointed to enter the axial hole and properly center the separator longitudinally with the pencils and having a length coincident with the required spacing between the points of the carbon pencils or electrodes for producing a resistance proportionate to the point of fusion, reduction and combustion, substantially as described.

2. The combination of a pair of carbon pencils or electrodes for electric lights vertically positioned, each having a predetermined point of fusion, reduction and consequent combustion, and each provided with an axial longitudinal hole, and a non-fusible resistance-separator of cylindrical form and of a diameter slightly greater than the axial hole in the carbon pencils and considerably less than the diameter of the carbon pencils themselves and having a length coincident with the required spacing between the points of the carbon pencils or electrodes for producing a resistance proportionate to the point of fusion, reduction and combustion, substantially as described.

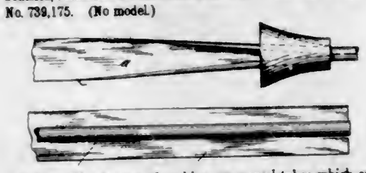
3. The combination of a pair of carbon pencils or electrodes for electric lights vertically positioned, each having a predetermined point of fusion, reduction and consequent combustion, and each provided with an axial longitudinal hole, and a non-fusible resistance-separator of cylindrical form, and having greater vertical than horizontal dimensions and a length coincident with the required spacing between the points of the carbon pencils or electrodes for producing a resistance proportionate to the point of fusion, reduction and combustion, substantially as described.

4. As a new article of manufacture, a resistance-electrode for the regulation of electric-contact arc-lights, of cylindrical form, composed of a refractory and non-conductive material, and a coating of a homogeneous mixture of carbon material and a salt of magnesium, substantially as described.

5. As a new article of manufacture, a resistance-electrode for the regulation of electric-contact arc-lights, of cylindrical form, having a body composed of carbon material proper and a salt of magnesium and an axial longitudinal hole through it, substantially as described.

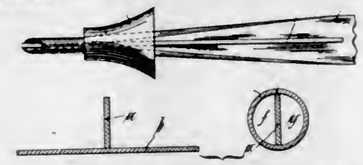
6. As a new article of manufacture, a resistance-electrode for the regulation of electric-contact arc-lights, of cylindrical form, having a body or core composed of carbon material proper and a resistance material and a coating composed of refractory material, substantially as described.

661,108. MANUFACTURE OF COMPOUND TUBES. Albert Schmitz, Raunheim-on-the-Main, Germany. Filed Dec. 4, 1899. Serial No. 739,175. (No model.)



Claim.—The process of making compound tubes which consists in forming a tube from a flat skelp, placing the tube so formed upon another flat skelp and drawing said tube and skelp simultaneously through a die whereby the second skelp is formed into a tube around the first-named tube, with their joints out of alinement, substantially as described.

661,109. PROCESS OF MANUFACTURING PIPES. Albert Schmitz, Dusseldorf, Germany. Filed May 18, 1900. Serial No. 17,102. (No model.)



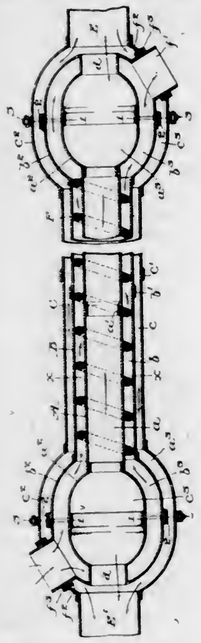
Claim.—1. The process of manufacturing pipes with longitudinal partitions, which consists in placing a profiled bar upon a sheet-metal strip and simultaneously drawing both through a die, thereby causing the strip to form a tube around the bar; substantially as shown and described.

2. The hereinbefore-described process for manufacturing pipes with longitudinal partitions by placing a previously-twisted profiled bar upon a sheet-metal strip and drawing both simultaneously through a die; substantially as, and for the purpose described.

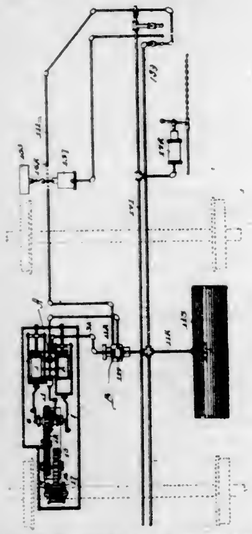
661,110. COOLING APPARATUS. Harry Schwerdfeger and Joseph Kayser, Philadelphia, Pa. Filed May 6, 1897. Serial No. 635,295. (No model.)

Claim.—A cooling apparatus comprising three concentric pipes having expanded or globe-like sections at the ends thereof, necks connecting the two inner sections together at each end, inlet and outlet pipes connected with the outer sections respectively, and inlet and outlet pipes connected with the outer one of the two inner sections respectively and extended through and clamped to the adjacent outer sections, the said sections being each made in two parts detachably coupled together in the body thereof, substantially as described.

661,110.



661,111. AIR-BRAKE. JOHN SHOURDS, Pittsburg, Pa. Filed Nov. 20, 1899. Serial No. 737,712. (No model.)



Claim.—1. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of the said cylinders and adapted to supply air alternately to each end of said cylinders, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connection, and means connected to said mechanism adapted to pass pressure for discontinuing and continuing the operation of the pumps, substantially as set forth.

2. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connection, a reducing-valve connected to said pressure-regulating valve mechanism, connections between said reducing-valve and said cylinders for exhausting the pressure therefrom when pressure is passed from the regulating to the reducing valve mechanism, and means connected to said reducing-valve for discontinuing and continuing the operation of the operating means for the pumps or compression-cylinders, substantially as set forth.

3. In an air-pump, a pair of pumps or compression-cylinders, operating means therefor, a reservoir, connection between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connection, a reducing-valve connected to said pressure-regulating valve mechanism, connections between said releasing-valve and said cylinders for exhausting the pressure therefrom when pressure is passed from the regulating to the reducing valve mechanism, a clutch-operating cylinder connected to said reducing-valve, and means connected to said clutch-operating cylinder for discontinuing and continuing the operation of the operating means for said pumps, substantially as set forth.

4. In an air-brake, a reducing-valve consisting of a pair of sections having a sleeve arranged between the same, a diaphragm arranged between each of the said sections and the said sleeve and forming thereby an air-chamber provided with a suitable inlet and outlet, a piston-head operating against the inner face of each of the said diaphragms, a tubular extension formed integral with the outer face of each of the said sections, a valve operating therein, connections between said valve and said piston-head, a spring arranged in each of the said sections and adapted to engage said valve, a connection between said extension and one of the air-pumps or compression-cylinders, and each of said sections provided with an exhaust for the said pumps or compression-cylinders, substantially as set forth.

5. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing having a valve suitably arranged and operating therein, an exhaust-valve casing in communication with said main-valve casing and having an exhaust-valve suitably arranged and operating therein, and further provided with a supply-valve connected thereto and operating in the said main-valve casing, in communication with said main and exhaust valve casings and an auxiliary-valve casing having a piston arranged therein and adapted when operated to pass pressure therefrom, substantially as described.

6. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing having a valve arranged therein and connected to a diaphragm, an exhaust-valve casing having an exhaust-valve operating therein and connected to a diaphragm, a supply-valve arranged in said exhaust-valve casing operated by a diaphragm and operating in the main-valve casing, an auxiliary-valve casing having a spring-actuated piston suitably arranged and operating therein, said exhaust-valve casing provided with an air port or passage for passing pressure from said main-valve casing thereto, substantially as set forth.

7. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing having a valve suitably arranged and operating therein, an exhaust-valve casing having an exhaust-valve suitably arranged and operating therein and a supply-valve connected thereto and operating in the main-valve casing, an auxiliary-valve casing provided with a spring-actuated piston, said main-valve casing provided with a series of ports or passages to permit of the passage of pressure to said auxiliary and exhaust valve casing when said valve in the main-valve casing is operated causing thereby the operation of said exhaust and supply valves and said spring-actuated piston, substantially as set forth.

8. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing having a valve suitably arranged and operating therein, an exhaust-valve casing having an exhaust-valve suitably arranged and operating therein and a supply-valve connected thereto and operating in the main-valve casing, said main-valve casing provided with air ports or passages for passing pressure to said auxiliary and exhaust valve casings, and said auxiliary-valve casing provided with air ports or passages registering with the said ports or passages of the main-valve casing for passing pressure thereto, substantially as set forth.

9. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing having a valve suitably arranged and operating therein, an exhaust-valve casing having an exhaust-valve suitably arranged and operating therein and a supply-valve connected thereto and operating in the main-valve casing, said main-valve casing provided with air ports or passages for passing pressure to said auxiliary and exhaust valve casings, said auxiliary-valve casing provided with air ports or passages registering with said ports or passages in the main-valve casing, and said exhaust-valve casing provided with ports or passages adapted to communicate with the ports or passages of the main-valve casing, substantially as set forth.

10. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing, an exhaust-valve casing and an auxiliary-valve casing, said main-valve casing having a diaphragm suitably arranged therein, a tension-spring operating against the inner face thereof, a link connected to said diaphragm, an operating-lever pivotally connected to said lever and having its upper end pivotally connected to a suitable bearing, a spring-actuated pressure-valve arranged in said casing and provided with an opening in which operates the other end of the said lever, and a series of ports or passages arranged in said main-valve casing, substantially as set forth.

11. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing provided with a series of air ports or passages and suitable valve mechanism, an auxiliary-valve casing, and an exhaust-valve casing consisting of a series of sections suitably connected together and forming air-chambers 91, 92, a diaphragm secured to each of the said sections and extending through each of the said air-chambers, a supply-valve connected to the diaphragm of the chamber 91, an exhaust-valve engaged by the diaphragm in the chamber 92, said sections further provided with air-passages communicating with main-valve casing and the chamber 92, said sections also provided with air-passages communicating with the air-passages of the main-valve casing, and further provided with a suitable exhaust-port, substantially as set forth.

12. In an air-brake, a pressure-regulating valve mechanism consisting of a main-valve casing provided with a series of ports or passages and a suitable valve mechanism, an exhaust-valve casing provided with suitable valve mechanism and with ports or passages for establishing communication between the same and said main-valve casing, an auxiliary-valve casing consisting of a tubular casing of two different diameters, and divided by a partition into two chambers closed at the outer end by a cap, a spring-actuated piston arranged in the smaller of the said chambers, a spring-actuated piston arranged in the larger of said chambers, said tubular casing provided with a series of ports or air-passages registering with the ports of the main-valve casing for passing pressure to the smaller of said chambers, means for establishing communication between the two chambers, and said larger chamber provided with a suitable inlet 110 and outlet 84, substantially as set forth.

13. In an air-brake, a pressure-regulating mechanism consisting of a main-valve casing provided with a series of air-ports and a suitable valve mechanism, an exhaust-valve casing provided with suitable valve mechanism, and with ports or air-passages for establishing communication between the same and the main-valve casing, an auxiliary-valve casing provided with suitable piston and valve mechanism and with ports or air-passages for establishing communication between the main and exhaust valve casings and further provided with inlet 110 and outlet 84, substantially as set forth.

14. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-pipe connected to each of the said cylinders, a suction-valve mechanism connected to the bottom of each of the said pumps or cylinders and in communication with each end thereof and with the said suction-pipe, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connection, a brake-valve casing, connections between said casing and said reservoir, connections between said brake-valve-casing connections and said pressure-regulating mechanism for passing pressure thereto, and means connected to said pressure-regulating mechanism adapted to pass pressure for discontinuing and continuing the operation of the operating means for said cylinders, substantially as set forth.

15. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism in communication with each end of said pumps or cylinders, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connection, a brake-valve casing, connections between said casing and said reservoir, connections between said brake-valve-casing connections and said pressure-regulating mechanism for passing pressure thereto, a reducing-valve mechanism connected to said pressure-regulating mechanism, and means connected to said reducing-valve for discontinuing and continuing the operation of the operating means for the said cylinder, substantially as set forth.

16. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with the said connection, a brake-valve casing, connections between said casing and said reservoir, connections between said brake-valve-casing connections and said pressure-regulating mechanism for passing pressure thereto, a reducing-valve mechanism connected to said pressure-regulating valve mechanism, connections between said reducing-valve mechanism and said cylinders, means connected to said reducing-valve mechanism for discontinuing the compression of air by said cylinders, and means arranged in said reducing-valve for exhausting the air from the said cylinders, substantially as set forth.

17. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-pipe connected to each end of one of said cylinders, a suction-valve casing in communication with said suction-pipe and provided with a port 121, passages 122 122′, ports 123′ 123′, valves 124, passages 128 128′, ports 129, 129′, passages 130 130′, ports 131 131′, valves 132, and passage 133, said cylinders provided with ports 126 127 communicating with ports 123′ 123′ when the valves 124 are opened, and with passages 128 128′ when the valves 124 are closed, said cylinder further provided with a passage 134 communicating with passage 133, a reservoir, and means for connecting said reservoir and passage 134, substantially as set forth.

18. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-pipe connected to said cylinders, a suction-valve casing in communication with said suction-pipe, said casing provided with inlet and outlet ports in communication with the interior of the said cylinder, a suction-valve arranged in said casing, an outlet-valve arranged to said casing, a reservoir, connections between said reservoir and said casing, a reducing-valve mechanism in communication with said connection, a brake-valve casing, connection between said reservoir or said brake-valve casing, connections between said connections and pressure-regulating mechanism for passing pressure thereto, means connected to said regulating mechanism for discontinuing the operation of the operating means for the cylinders, a brake-cylinder connected to said brake-valve casing, and means connected to said casing adapted to pass pressure for operating a sand-receptacle, substantially as set forth.

19. In an air-brake, a reservoir, a brake-valve casing having a brake-valve suitably operating therein, connection between said reservoir and brake-valve, a brake-cylinder, connections between said cylinder and said brake-valve casing, a tubular casing connected to said brake-valve casing, a two-way cock arranged in said tubular casing, said brake-valve casing provided with a port for establishing communication between the same and the tubular casing through the medium of the said cock, a piston arranged in said tubular casing, a sand-cylinder communicating with said tubular casing, and means in the said cylinder adapted to be operated by pressure passed through said brake-valve casing from said tubular casing for operating the sand-receptacle, substantially as set forth.

20. In an air-brake, a pair of pumps or compression-cylinders provided with suitable operating means, a suction-valve mechanism suitably connected to each of the said cylinders, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating mechanism, a branch connecting said regulating mechanism to said connection between said reservoir and brake-valve casing, and means arranged in said branch adapted when operated to pass pressure through said regulating-cylinder for discontinuing the operation of the operating means for the compression-cylinders, substantially as set forth.

21. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of the said pumps or compression-cylinders, a reservoir, a pressure-regulating valve mechanism provided with a main valve, an exhaust-valve, a supply-valve, and a spring-actuated piston, a connection between said pumps, reservoir and pressure-regulating valve mechanism, a reducing-valve mechanism, connection between said reducing and regulating valve mechanism, connections between said pumps and said reducing-valve mechanism, and means connected to said reducing-valve mechanism for discontinuing the operation of said pumps when pressure is passed from the regulating-valve to the reducing-valve mechanism, substantially as described.

22. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of the said pumps or compression-cylinders, a reservoir, a pressure-regulating valve mechanism provided with a main valve, an exhaust-valve, a supply-valve, and a spring-actuated piston, a connection between said pumps, reservoir and pressure-regulating valve mechanism, a reducing-valve mechanism, connections between said reducing and regulating valve mechanism, connections between said pumps and said reducing-valve mechanism, a brake-cylinder, connections between said cylinder and said reservoir, connections between said connections and said pressure-regulating valve mechanism, a cut-off arranged in said last-named connections, and means connected to said reducing-valve mechanism for discontinuing the operation of said pumps when pressure is passed by opening said cut-off through said pressure-regulating valve mechanism to the reducing-valve mechanism, substantially as described.

23. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of the said pumps or compression-cylinders, a reservoir, a pressure-regulating valve mechanism provided with a main, exhaust and supply valves and spring-actuated piston, a connection between said pumps, reservoir and pressure-regulating valve mechanism, a reducing-valve mechanism, connections between said reducing and regulating valve mechanism, connections between said pumps and said reducing-valve mechanism, a brake-cylinder, connections between said cylinder and said reservoir, connections between said connections and said pressure-regulating valve mechanism, a cut-off arranged in said last-named connections, a cylinder 30 connected to said reducing-valve mechanism, a clutch mechanism con-

nected to said cylinder and adapted when pressure is passed to the reducing-valve mechanism to discontinue the operation of said pump.

24. In an air-brake, a reservoir, means for supplying pressure thereto, a brake-valve casing, connections between said reservoir and brake-valve casing, a brake-cylinder, connections between said casing and said cylinder, a brake-valve arranged in said casing and adapted to pass to and exhaust pressure from said cylinder, a sand-receptacle, connections between said receptacle and brake-valve casing adapted when operated by a passage of pressure to operate said sand-receptacle, and said brake-valve further provided with means for exhausting said pressure from the sand-receptacle connections without exhausting pressure from the brake-valve casing or brake-cylinder.

25. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of said pumps or cylinders, a reservoir connected to the said cylinders, a brake-valve casing suitably connected to said reservoir, a brake-cylinder suitably connected to said brake-valve casing, a brake-valve operating in the said casing and adapted to pass and exhaust pressure from said brake-cylinder, a sand-receptacle, a tubular casing secured to said valve-casing and provided with means operated by a passage of pressure for operating said sand-receptacle, and said brake-valve further provided with means for exhausting said passage of pressure without exhausting pressure from the brake-valve casing and cylinder, substantially as described.

26. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of said pumps or cylinders, a reservoir connected to the said cylinders, a brake-valve casing suitably connected to said reservoir, a brake-cylinder suitably connected to said brake-valve casing, a brake-valve operating in the said casing and adapted to pass and exhaust pressure from said brake-cylinder, a sand-receptacle, a tubular casing secured to said brake-valve casing, a sand-cylinder connected to said sand-receptacle and said tubular casing, means arranged in said tubular casing operated by a passage of pressure for passing pressure to operate said sand-cylinder causing the operation of said sand-receptacle, means arranged in said tubular casing for passing pressure thereto from the brake-valve casing, and means for exhausting the said passage of pressure from the brake-valve casing and brake-cylinder, substantially as described.

27. In an air-brake, a brake-valve casing connected to a suitable source of pressure-supply, a sand-receptacle connected to said casing, means for passing pressure to operate said receptacle, and a brake-valve operating in said casing and so arranged when operated as to exhaust the pressure passed to operate the sand-receptacle without exhausting pressure from the brake-valve casing, substantially as described.

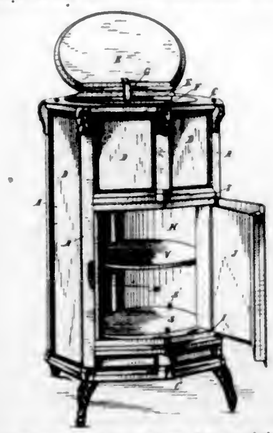
28. In an air-brake, a brake-valve casing connected to a suitable source of pressure-supply and to the brake-cylinder, a sand-receptacle, operating means therefor connected to said casing and adapted to be operated by a passage of pressure, means for passing pressure to operate said operating means, and a brake-valve operating in said casing and so arranged when operated as to exhaust the pressure passed to operate the sand-receptacle without exhausting the pressure from the brake-valve casing, substantially as described.

29. In an air-brake, a brake-valve casing connected to a suitable source of pressure-supply and to the brake-cylinder, a sand-receptacle, a sand-cylinder connected thereto, a tubular casing connected to said cylinder and said valve-casing, means arranged in said tubular casing when operated adapted to pass pressure to operate said cylinder causing the operation of the sand-receptacle, means for passing pressure for operating said operating means in said tubular casing, and a brake-valve operating in said casing for passing pressure to the brake-cylinder and so arranged as to exhaust the pressure passed for operating the sand-receptacle without exhausting the pressure from the brake-cylinder and valve-casing.

30. In an air-brake, a pair of pumps or compression-cylinders, operating means therefor, a suction-valve mechanism connected to each of the said pumps or cylinders, a reservoir, connections between said reservoir and said cylinders, a pressure-regulating valve mechanism in communication with said connections, a brake-valve casing, connections between said casing and said reservoir, connections between said brake-valve-casing connections and said pressure-regulating mechanism for passing pressure thereto, a reducing-valve mechanism connected to said pressure-regulating valve mechanism, connections between said reducing-valve mechanism and said cylinders, means connected to said reducing-valve mechanism for discontinuing the compression of air by the said cylinders, and means arranged in said reducing-valve mechanism for exhausting the air from the said cylinders, substantially as described.

661,112. KNOCKDOWN REFRIGERATOR. PETER J. VANDERLINDA, Grand Rapids, Mich., assignor of one-half to Edwin L. Bowring, same place. Filed July 16, 1900. Serial No. 23,710. (No model.)

Claim.—1. In a refrigerator, a case having polygonal sides formed of a series of posts having grooves in their sides, panels engaging the grooves in the posts and a lining, heads engaging the ends of the posts, lining and panels, and bolts connecting the heads, substantially as described.



2. In a refrigerator, walls of polygon form consisting of a series of posts having grooves in their sides and panels engaging the grooves, and a cylindrical lining; in combination with heads having polygonal outlines and flanges, and engaging the ends of the posts, panels and lining, and bolts connecting the heads, substantially as described.

3. The combination of heads having polygonal outlines, flanges, and circular openings; posts extending between the angles of the heads, a cylindrical lining engaged by the flanges of the heads, a detachable cover, closing the upper head, and a detachable bottom closing the lower head, substantially as described.

4. In a refrigerator, the combination of annular heads each having a central opening and a flange, posts having grooves in their sides and rear, panels engaging the side grooves in the posts, bolts in the rear grooves of the posts and connecting the heads, a cylindrical lining engaged by the flanges at one side and engaged by the posts at the other side, transverse sills between the posts, bolts connecting the sills and heads, a door between the sills, a top having a hinged segment and detachably secured in the upper head, and a detached bottom closing the lower head, substantially as described.

5. In a refrigerator, a bottom having a groove or channel, an open inclined trough in the channel; a detachable pipe extending upward from the trough and an ice-receptacle detachably connected to the pipe, substantially as described.

6. In a refrigerator, or ice-receptacle having a nipple, a bottom having a channel, an open trough in the channel a pipe extending upward from the trough and a nipple extending downward from the same, a clip detachably holding the pipe, and an elbow detachably connecting the pipe and the nipple of the ice-receptacle, substantially as described.

7. In a refrigerator, in combination with an ice-receptacle having a nipple, a double elbow, a pipe having a coupling engaging the elbow, an open trough having one end beneath the pipe and a nipple extending downward from the trough at its other end, substantially as described.

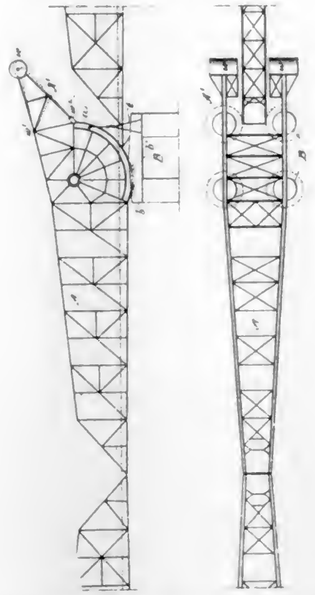
8. In a refrigerator, a turn-table, brackets having keyhole-slots, screws in the wall of the refrigerator to engage the slots in the brackets, rolls on the brackets engaging and supporting the turn-table, an extension on one of the brackets, and a pivot-pin on the extension and engaging an opening in the axis of the turn-table, substantially as described.

9. In a refrigerator, a turn-table, brackets detachably secured to the wall of the refrigerator and provided with rolls, one of said brackets also having an extension pivotally connected to the axis of the turn-table, substantially as described.

10. A knockdown refrigerator, consisting of a series of posts having grooves, panels between the posts and engaging the grooves, a cylindrical lining, heads engaging the ends of the posts, panels, and lining, bolts connecting the heads, a detachable cover to the upper head, a detached floor and turn-table, brackets detachably secured to the wall of the refrigerator and supporting the floor and turn-table, a detachable ice-receptacle supported by the floor, and a detachable drain-pipe to the ice-receptacle, substantially as described.

661,113. BASCULE-BRIDGE. MONTGOMERY WADDELL, New York, N. Y. Filed Nov. 16, 1899. Serial No. 737,155. (No model.)

Claim.—1. In a bascule-bridge, the combination with the movable span provided with a circular track upon which it turns, of two nests of rollers upon which the track rests and moves, said nests being located upon opposite sides of a vertical plane passing through the axis of rotation of the bridge, and power devices for moving the bridge located between said nests of rollers, substantially as described.



2. In a bascule-bridge, the combination with the movable span provided with a circular track upon which it turns, of two nests of rollers upon which the track rests and moves, said nests being located upon opposite sides of a vertical plane passing through the axis of rotation of the bridge, and power devices for moving the bridge located between said nests of rollers, and a braking device for retarding the bridge also located between said nests of rollers.

3. In a bascule-bridge, the combination with the movable span provided with circular tracks upon which it turns, said tracks provided along its middle with a rack, two nests of rollers upon which the track rests and moves, said nests being located upon opposite sides of a vertical plane passing through the axis of rotation of the bridge, a motor and gearing driven thereby and engaging with the rack at a point between the two nests of rollers, substantially as described.

4. In a bascule-bridge, the combination with the movable span provided with a circular track of large diameter as compared with an ordinary trunnion, said track forming the bearing-surface upon which the bridge turns, of a brake-shoe adapted to bear upon said track, substantially as described.

5. In a bascule-bridge, the combination with the movable span provided with a circular track of large diameter as compared with an ordinary trunnion, said track forming the bearing-surface upon which the bridge turns, of two roller-supports upon which the track rests and moves, said supports being located upon opposite sides of a vertical plane passing through the axis of rotation of the bridge, and a brake-shoe adapted to bear upon said track and located between said supports, substantially as described.

6. A bascule-bridge provided with a curved track upon which it turns, said track being of large dimensions as compared with an ordinary trunnion, said bridge being also provided with a forked rearward extension upon the extremities of which the bridge-counterweight is secured, substantially as described.

7. The combination with a movable bridge of a counterweight therefor, a truss or frame supporting the counterweight and hinged to the bridge, substantially as described.

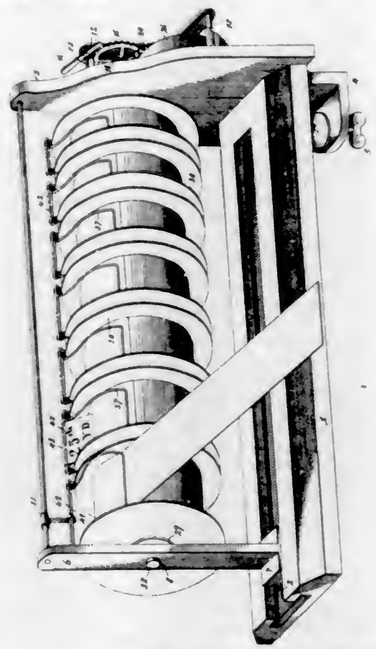
8. The combination with a vertically-moving bridge of a counterweight therefor, said bridge provided with an extension to the rear of its axis of rotation, said extension being pivoted to the main bridge and carrying a counterweight, and means for swinging said extension upon its pivot, for the purpose set forth.

9. In a bascule-bridge, the combination with a movable span of a friction-brake therefor.

10. A pivoted bridge-span provided with a surface concentric with its pivot, in combination with a brake-shoe and means for forcing it against said surface for the purpose set forth.

11. The combination with a vertically-swinging bridge of a flexible link pivoted to the bridge at a point back of the pivotal point of the bridge and anchored at a point substantially vertically below its connection with the bridge substantially as described.

661,114. RIBBON HOLDING AND WINDING DEVICE. WILLIAM D WILLIAMS, Westville, Ind. Ter. Filed Apr. 30, 1900. Serial No. 15,020. (No model.)



Claim.—1. A ribbon holding and winding device, comprising a suitable frame, a shaft journaled therein, ribbon-carrying spools fixed upon said shaft, a ribbon-retaining spring mounted on said shaft and engaging the ribbon between the flanges of the spool, means for winding the ribbon on the spools, and means to prevent the said spring from turning with the spool from which ribbon is unwound, substantially as described.

2. A ribbon holding and winding device, comprising a suitable frame, a shaft journaled therein, ribbon-carrying spools fixed upon said shaft, a ribbon-retaining spring mounted on said shaft, and provided with a cross-bar, and a hook engaging said cross-bar to prevent the spring from turning with the spool when the ribbon is being wound upon the latter, substantially as described.

3. A ribbon holding and winding device, comprising a suitable frame, a shaft journaled therein, ribbon-carrying spools fixed upon said shaft, ribbon-retaining springs, comprising a loop pressed upon the ribbon between the spool-flanges, arms at opposite sides of the spool and encircling the shaft at their lower ends, and hinge-coils connecting the loop with the upper ends of said arms, a cross-bar connecting said hinge-coils, and a hook to engage said cross-bar, substantially as described.

4. A ribbon holding and winding device, comprising a suitable frame, a shaft journaled therein, one or more ribbon-carrying spools fixed upon said shaft, a ribbon-retaining spring mounted on the shaft, a cross-bar secured to said spring, consisting of a body portion and arms doubled back on the body portion to receive a price or equivalent tag, and a hook engaging said cross-bar, substantially as described.

5. A ribbon holding and winding device, comprising a base portion, a pair of standards thereon, relatively adjustable to vary the distance between them, a shaft journaled in said standards, one or more spools fixed upon said shaft, one or more ribbon-retaining springs mounted on the shaft, and means for preventing one or more of said ribbon-retaining springs from turning with the back rotation of the spools from which ribbon is unwound, substantially as described.

6. A ribbon holding and winding device, comprising a base portion, a pair of standards thereon, relatively adjustable to vary the distance between them, a shaft journaled in said standards, one or more spools fixed upon said shaft, a rod connecting said standards, an adjustable hook suspended from said rod, one or more ribbon-retaining springs mounted on the shaft, and a cross-bar carried by said springs and adapted to be engaged by said hook, substantially as described.

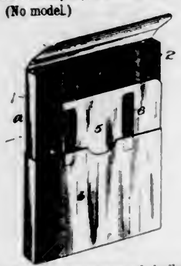
7. A ribbon holding and winding device, comprising a grooved base portion, a movable standard mounted upon and in said grooved base portion, a stationary standard at the opposite end of said base portion, a shaft journaled in said standards, one or more spools fixed upon said shaft, a rod connecting said standards, an adjustable hook suspended from said rod, one or more ribbon-retaining springs mounted on the shaft, and a cross-bar carried by said springs and adapted to be engaged by said hook, substantially as described.

8. A ribbon holding and winding device, comprising a base portion, a pair of standards thereon, relatively adjustable to vary the distance between them, a depending angle-bracket, a set-screw carried thereby, a shaft journaled in said standards, one or more spools fixed upon said shaft, a rod connecting said standards, an adjustable hook suspended from said rod, one or more ribbon-retaining springs mounted on the shaft, and a cross-bar carried by said springs and adapted to be engaged by said hook, substantially as described.

9. A ribbon holding and winding device, comprising a suitable frame, a shaft journaled therein, ribbon-carrying spools fixed upon said shaft, ribbon-retaining springs mounted on said shaft and engaging the ribbon between the flanges of the spool, a clockwork mechanism to wind the ribbon on the spool unwound, a pawl-and-ratchet mechanism to arrest such winding mechanism, and means to prevent the ribbon-retaining spring from turning with the spools from which ribbon is unwound, substantially as described.

10. A ribbon holding and winding device, comprising a suitable frame, a clockwork mechanism at one end of the frame and embodying a shaft, driven by the clockwork, projecting through the corresponding end of the frame, and a pawl-and-ratchet mechanism to prevent the unwinding of the clockwork-spring, a shaft journaled in the opposite end of the frame, a coupling mounted on the clockwork-shaft provided with a socket to receive the contiguous end of the shaft journaled in the other end of the frame, one or more ribbon-spools mounted on the last-mentioned shaft, a ribbon-retaining spring for each spool mounted on the shaft, and means to prevent said springs turning in rewinding ribbon upon the corresponding spools by the back rotation imparted to the latter by the clockwork mechanism, substantially as described.

661,115. **BOX.** DANIEL J. CAMPBELL, New York, N. Y., assignor to the American Tobacco Company, Newark, N. J. Filed June 9, 1896. Serial No. 594,842. (No model.)



Claim.—1. A slide-box for cigarettes and similar small articles having a flap extending over the front of the box and one or more partitions arranged edgewise to the flap and extending longitudinally of and between the articles in the box, in combination with a cover-slide, whereby the articles are prevented from falling over sidewise after some of the articles have been removed, substantially as described.

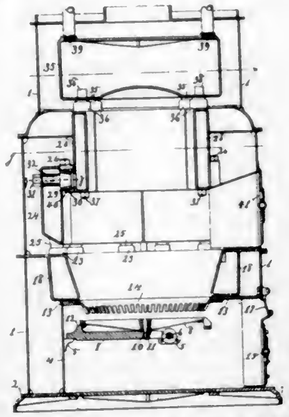
2. Box *a* having the side flaps 1, 2, a cover-flap 3 closing the top and a part of the front of the box, flap 5 closing the bottom and a part of the front of the box, and one or more partitions 6 extending inwardly from the flap 5 and between the articles in the box, in combination with a cover-slide *b*, substantially as described.

3. Box-blank *a* having the side projections 1, 2, flaps 3, 5 at the opposite ends of the box and portions 6 of the flap 5 cut to form partitions within the box when the blank is folded, substantially as described.

4. In a slide-box, the combination with the cover-slide, of the box operating therein formed of a single piece of sheet material and embodying the integral body, end panels, end flaps, and one or more longitudinal partitions turned at right angles to the body and to the ends of the box, substantially as described.

5. In a slide-box, the combination with the cover-slide, of the box operating therein formed of a single piece of sheet material and embodying the body, end panels, end flaps, the sides, and one or more longitudinal dividing-partitions cut from the box and extending at right angles to the body, substantially as described.

661,116. **HOT-WATER HEATER.** WILLIAM L. DANNAHOWER, Kansas City, Mo. Filed June 10, 1899. Serial No. 720,007. (No model.)



Claim.—1. In a hot-water heater the combination with an annular water-chamber forming the fire-bowl of the heater, of an annular water-chamber composed of vertically-arranged independent segmental sections supported upon and each section having independent communication with said fire-bowl water-chamber, an annular water-chamber composed of vertically-arranged independent segmental sections telescoping with said last-mentioned water-chamber, and each section having independent communication with a corresponding section of said chamber, and a water-chamber mounted upon said last-mentioned chamber, and with which each section of said chamber has independent communication; substantially as set forth.

2. In a hot-water heater the combination with an annular water-chamber forming the fire-bowl of the heater, and provided with openings in its upper face, and collars surrounding said openings, of an annular water-chamber composed of vertically-arranged independent segmental sections supported upon said fire-bowl water-chamber, each section communicating independently with said fire-bowl water-chamber through suitable openings, and collars surrounding said openings arranged to engage and interlap with the collars on said chamber, an annular water-chamber composed of vertically-arranged independent segmental sections telescoping with said last-mentioned water-chamber, each section secured to and communicating independently with a corresponding section thereof through suitable openings in the opposing faces, and collars formed on the opposing faces surrounding said openings and arranged to interlap to form a water-tight passage, and a water-chamber mounted upon said last-mentioned chamber, and with which each section of said chamber communicates independently through suitable openings in the opposing walls, and collars formed on the opposing walls surrounding said openings and arranged to interlap to form water-tight passages, substantially as set forth.

3. In a hot-water heater the combination with an annular water-chamber forming the fire-bowl of the heater, and a water-chamber forming the top of the heater, of intermediate annular water-chambers composed of independent, vertically-arranged telescoping segmental sections communicating through suitable openings independently with each other and with the lower and upper chambers respectively, and collars on the opposing faces surrounding said openings and arranged to engage and interlap to form water-tight passages; substantialy as set forth.

4. In a hot-water heater, an annular water-chamber composed of independent, vertically-arranged segmental sections, a bead or rib formed on the contiguous upper margin of said sections, and a flanged washer arranged to engage said bead or rib to hold said sections in position when bolted down; substantially as set forth.

5. In a hot-water heater of the class described, an annular water-chamber composed of independent, vertically-arranged segmental sections, an annular water-chamber composed of independent, vertically-arranged segmental sections telescoping with said water-chamber, independent communication between each outer section and a corresponding inner section through openings in the opposing walls, collars formed on the opposing walls surrounding said openings and arranged to engage and interlap to form water-tight passages, cored sleeves in the water-space of the outer sections for the passage of binding-bolts, binding-bolts passing through said sleeves, and threaded bosses on the outer face of the inner sections with which said binding-bolts engage; substantially as set forth.

6. In a hot-water heater, the combination with an annular water-chamber forming the fire-bowl of the heater, and a water-chamber forming the top of the heater, of intermediate annular water-chambers formed of independent, vertically-arranged, telescoping, segmental sections, communicating through suitable openings, independently with each other and with said lower and upper water-chambers respectively; substantially as set forth.

7. In a hot-water heater comprising a series of superposed water-chambers, the upper communicating with the lower through suitable openings, collars on the opposing faces surrounding said openings, and arranged to interlap to form water-tight passages; substantially as set forth.

661,117. **FRICTION-CLUTCH.** FRANK L. DYER, Montclair, N. J. Filed Oct. 19, 1898. Serial No. 693,955. (No model.)



Claim.—1. In a friction-clutch, the combination of a normally-stationary and a normally-movable member, said members being adapted to be moved into engagement in a direction at right angles to their axes of rotation, means for moving the clutch members relatively to engage together, a locking device for locking the clutch members in their engaged position, and means for tripping the locking device to release said clutch members, substantially as set forth.

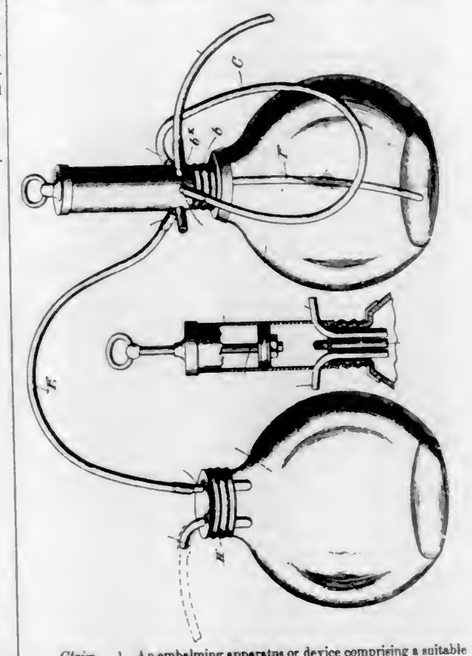
2. In a friction-clutch, the combination with a rotatable clutch member movable toward and away from its axis of rotation, a brake device normally rotating with said clutch member, connections between the brake device and said clutch member for moving the clutch member radially by the retardation of the brake device, a second clutch member coöperating with the movable clutch member, and a locking device for locking the brake device in its retarded position, substantially as set forth.

3. In a friction-clutch, the combination with a rotatable clutch member movable toward and away from its axis of rotation, a brake device normally rotating with said clutch member, connections between the brake device and said clutch member for moving the clutch member radially by the retardation of the brake device, a second clutch member coöperating with the movable clutch member, a locking device for locking the brake device in its retarded position, and means for releasing said locking device, substantially as set forth.

4. In a friction-clutch, the combination with a rotatable clutch member movable toward and away from its axis of rotation, a brake device normally rotatable with said clutch member, connections between the brake device and said clutch member for moving the latter radially upon the retardation of the brake device, a second clutch member with which the movable clutch member coöperates, and a pawl carried by the movable clutch member for locking the brake device in its retarded position, substantially as set forth.

5. In a friction-clutch, the combination with a rotatable clutch member movable toward and away from its axis of rotation, a brake device normally rotatable with said clutch member, connections between the brake device and said clutch member for moving the latter radially upon the retardation of the brake device, a second clutch member with which the movable clutch member coöperates, a pawl carried by the movable clutch member for locking the brake device in its retarded position, a brake for retarding said brake device, and a trip carried by said brake for releasing the locking-pawl, substantially as set forth.

661,118. **EMBALMING APPARATUS.** EMANUEL E. ERTSKAN, Chicago, Ill. Filed Feb. 24, 1900. Serial No. 6,333. (No model.)



Claim.—1. An embalming apparatus or device comprising a suitable receptacle, an upright air-pump having its base portion detachably engaging the neck of said receptacle and provided with induction and eduction passages, a plurality of metal tubes secured to the base of said pump and communicating with the interior of said receptacle, and means whereby one of said tubes can be connected up with either the induction or eduction passage of the pump.

2. An embalming apparatus or device comprising a suitable receptacle, an upright air-pump having its base portion threaded to engage screw-threads on the neck of said receptacle, the base portion of the pump in this way serving as a cap for said neck, a rubber gasket arranged between the top of said neck and the bottom wall of the pump-barrel, the base portion of said pump being provided with suitable air induction and eduction passages and also with a plurality of passages leading to the interior of said receptacle, and means whereby either the induction or eduction passage of the pump can be placed in communication with the interior of said receptacle.

3. An embalming apparatus comprising a glass bottle, an air-pump having its base portion detachably secured upon the neck of said bottle, the barrel of said pump being provided with suitable passages through which air can be pumped either into or out of the said receptacle, the base of said pump being provided with liquid inlet and outlet passages.

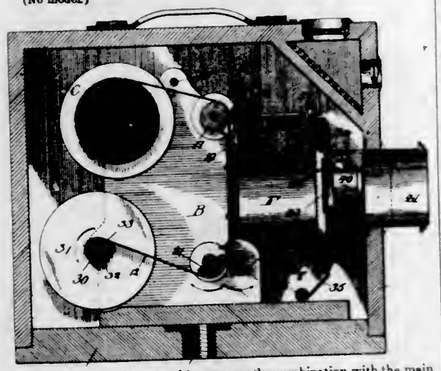
4. An embalming apparatus comprising a suitable receptacle, an air-pump mounted upon said receptacle and having its base provided with laterally-projecting tubes or nipples which provide induction and eduction passages for the pump and which also provide suitable passages leading to the interior of the receptacle, and a flexible rubber tube by which either the induction or eduction passages of the pump can, at will, be connected up with one of said passages leading to the interior of said receptacle, substantially as and for the purpose described.

5. An embalming device comprising a suitable receptacle provided with liquid inlet and outlet passages and also with an air-passage, an air-pump detachably mounted upon said receptacle and provided with induction and eduction passages, and means whereby the said air-passage

of the receptacle can, at will, be placed in communication with either the said induction or eduction passage.

6. A combined injector and aspirator comprising a suitable receptacle, an air-pump detachably mounted thereon and provided with induction and eduction passages, the base portion of said pump being also provided with liquid inlet and outlet passages for said receptacle, means whereby the interior of said receptacle can be connected at will with either the induction or eduction air-passage of the pump, a second receptacle having suitable connection with said first receptacle, and means for connecting said second receptacle with the corpse, substantially as and for the purpose set forth.

661,119. **KINETOGRAPHIC CAMERA.** WILLIAM V. ESMOND, Chicago, Ill, assignor, by mesne assignments, to the Moving Picture Camera Company, same place. Filed Feb. 25, 1899. Serial No. 706,810. (No model.)



Claim.—1. In photographic cameras, the combination with the main reel for the ribbon strip and with the sustainer-plate to keep the strip at the focal plane, of the mutilated feed-roll and the companion roll rotating positively therewith to intermittently draw the strip directly from the main reel in successive lengths, substantially as described.

2. In photographic cameras, the combination with the main reel for the ribbon strip and with the sustainer-plate to keep the strip at the focal plane, of the equally-mutilated, intermeshing feed-rolls coacting directly with the main reel to draw the strip therefrom in definite lengths at successive intervals, substantially as described.

3. In photographic cameras, the combination with the main reel for the ribbon strip and with the sustainer-plate to keep the strip at the focal plane, of the companion mutilated feed-rolls coacting directly with the main reel to intermittently draw the strip therefrom in successive lengths, the light-excluding shutter and an automatic shifter therefor to admit the light at intervals in timed relation with the stoppage of the strip, substantially as described.

4. In photographic cameras, the combination with the main reel for the ribbon strip and with the sustainer-plate to keep the strip at the focal plane, of the mutilated feed-roll and companion roll rotating in unison therewith to directly draw the strip from the main reel, the take-up reel for the slack of the ribbon strip and suitable means cooperating with the feed-rolls to actuate said take-up reel, substantially as described.

5. In photographic cameras, the combination with the main reel for the ribbon strip, of the sustainer-plate and the lens-tube to keep the ribbon strip in the focal plane between them, the equally-mutilated, intermeshing feed-rolls, positively driven to intermittently advance successive portions of the strip past the focal plane, the shutter to exclude light from the lens-tube and automatic means for momentarily shifting said shutter in timed relation with the intermitted advance of the strip, substantially as described.

6. In photographic cameras, the combination with the main reel for the ribbon strip, of the sustainer-plate and the lens-tube to keep the ribbon strip at the focal plane between them, the mutilated feed-roll and the companion intermeshing roll rotating in unison therewith to directly draw the strip from the main reel, the light-excluding shutter for the lens-tube, automatic mechanism to shift the shutter intermittently, the take-up reel for the slack of the ribbon strip and suitable means cooperating with the feed-rolls to actuate said take-up reel, substantially as described.

7. In photographic cameras, the combination with the feed mechanism for the ribbon strip, of the sustainer-plate at the focal plane and the lens-tube with its yielding pad extended to said plane in confronting position for retention of the ribbon strip between such tube and the sustainer-plate, substantially as described.

8. In photographic cameras, the combination with the sustainer-plate and with the confronting lens-tube to keep the sensitized strip in the focal plane between them, of the mutilated feed-roll with its companion roll positively intermeshing and driven in unison to intermittently advance successive portions of the strip, the movable shutter for excluding light from the lens-tube, the revolving master-wheel and suitable connections coacting therewith to impart motion respectively to the feed-rolls and at intervals to the shifting shutter, substantially as described.

9. In photographic cameras, the combination with the main reel for the sensitized strip, the sustainer-plate at the focal plane, and the mutilated feed-rolls to intermittently advance successive portions of the strip past said plane, of the movable lens-tube having a yielding pad at the back thereof in contact with the strip to hold the same from overrunning when the grip of the feed-rolls is released, substantially as described.

10. In photographic cameras, the combination with the sustainer-plate at the focal plane, of the pivoted lens-tube having yielding pad thereon to bear against said plate, and a draw-latch engaging said tube to snugly seat the pad at bearing position, substantially as described.

11. In photographic cameras, the combination with the main reel for the ribbon strip, of the sustainer-plate at the focal plane, the pivoted lens-tube swinging into confronting position at said plane and suitable means for holding said tube in place, substantially as described.

12. In photographic cameras, the combination with the main reel for the ribbon strip, of the sustainer-plate at the focal plane, the movable lens-tube shifting into confronting position at said plane and suitable means for holding said tube in place, substantially as described.

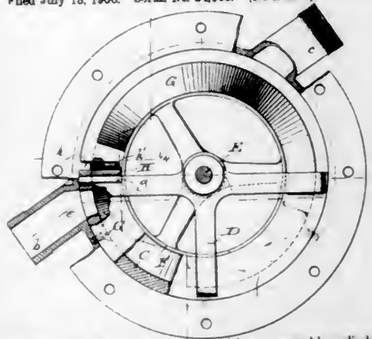
13. In photographic cameras, the combination with the main reel for the ribbon strip and suitable mechanism to intermittently feed said strip, of the sustainer-plate at the focal plane, the lens-tube shifting into confronting position at said plane, the movable shutter with its operating-lever carried on said tube, and the master gear-wheel having a set of trip-pins thereon to successively encounter the lever, substantially as described.

14. In photographic cameras, the combination with the master gear-wheel having trip-pins thereon, of the pair of feed-rolls in mesh with said wheel to intermittently advance the ribbon strip, the focal tube with its movable shutter mounted pivotally thereon and the intermediate lever carried by said tube to encounter the gear-wheel pins and thereupon shift the shutter, substantially as described.

15. In photographic cameras, the combination with the main reel for the ribbon strip, of the sustainer-plate at the focal plane, the revolving feed-rolls to advance successive portions of the strip past said plane, the take-up reel for the slack of the strip, a winding-wheel upon the axle of the slack-reel and an intermediate "kick-off" carried by the feed-rolls to intermittently turn the winding-wheel, substantially as described.

16. In photographic cameras, the combination with the sustaining-frame having the ribbon-reel and its feed mechanism mounted thereon, of the inclosing removable box or cover provided with light-tight sliding joints at the apertures for the lens-tube and for the actuating-crank respectively.

661,120. **ROTARY METER.** GUSTAV FAJEN, Milwaukee, Wis. Filed July 18, 1900. Serial No. 24,008. (No model.)



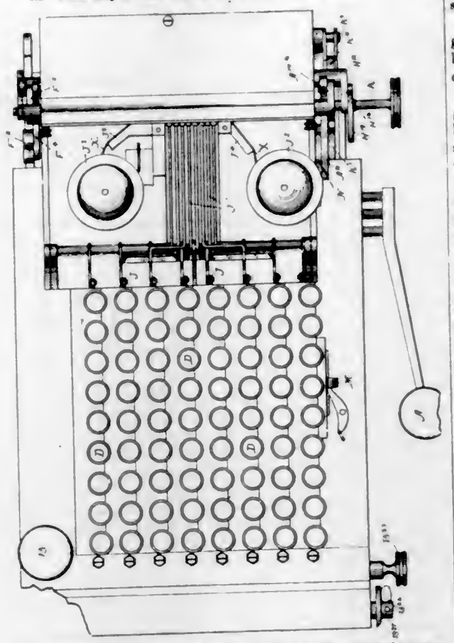
Claim.—1. A rotary meter comprising a separable cylindrical casing having an inlet and outlet, a trough in the casing concentric therewith clear of said outlet but having communication with said inlet, a spindle having its bearings in said casing central of the same, means in conjunction with the spindle for operating register mechanism, a trough-facing drum fast on said spindle, a continuous wave-flange on the periphery of the drum engaging the trough, and a loose gate provided with a recess engaged by the drum-flange, this gate being guided in the casing opposite the end of said trough adjacent to the aforesaid inlet.

2. A rotary meter comprising a separable cylindrical casing having an inlet and outlet, a trough in the casing concentric therewith clear of said outlet but having communication with said inlet, upper and lower brackets extending inward from the trough, a spindle having its bearings in the brackets central of said casing, means in conjunction with the spindle for operating register mechanism, a trough-facing drum fast on said spindle, a continuous wave-flange on the periphery of the drum engaging the trough and a loose gate provided with a recess engaged by the drum-flange, this gate being guided in the casing opposite the end of said trough adjacent to the aforesaid inlet.

3. A rotary meter comprising a separable cylindrical casing having an inlet and outlet, a trough in the casing concentric therewith clear of said outlet but having communication with said inlet, a spindle having its bearings in said casing central of the same, means in conjunction with the spindle for operating a register mechanism, a trough-facing drum in vertically-adjustable rigid connection with said spindle, a continuous wave-flange on the periphery of the drum engaging the trough, and a loose gate guided in the casing opposite the end of said trough adjacent to the aforesaid outlet.

4. A rotary meter comprising a separable cylindrical casing having an inlet and outlet, a trough in the casing concentric therewith clear of said outlet but having communication with said inlet, a spindle having its bearings in said casing central of the same, means in conjunction with the spindle for operating a register mechanism, a trough-facing drum fast on said spindle, a continuous wave-flange on the periphery of the drum engaging the trough, a flange extending upward from that end of said trough adjacent to the aforesaid inlet, a rib in the casing parallel to the trough-flange, and a loose gate between said trough-flange and casing-rib having a recess engaged by the drum-flange.

661,121. **CALCULATING-MACHINE.** DORR E. FELT, Chicago, Ill. Filed May 2, 1898. Serial No. 679,461. (No model.)



Claim.—1. In a printing and calculating machine, a main actuating-lever, in combination with a spring for imparting return strokes to the lever, and a reinforcing-spring acting on the lever, during the concluding portion only of the strokes, substantially as specified.

2. In a printing and calculating machine, a hand-lever for actuating the calculating and printing mechanisms, in combination with said mechanisms, a spring for actuating the lever in its return strokes, and a reinforcing-spring acting on the lever during the concluding portion only of the strokes, substantially as specified.

3. In a printing and calculating machine, a main actuating-lever, in combination with a spring for imparting return strokes to the lever, of a reinforcing-spring acting on the lever during the concluding portion only of the strokes, and means for holding said reinforcing-spring out of action during the initial part of the strokes, substantially as specified.

4. In a printing and calculating machine, a main actuating-lever, in combination with a spring for imparting return strokes to the lever, of a reinforcing-spring acting on the lever during the concluding portion only of the strokes, and means for limiting the distention of said reinforcing-spring, substantially as specified.

5. In a printing and calculating machine, a main actuating-lever, in combination with a spring for imparting return strokes to the lever, of a reinforcing-spring acting on the lever, during the concluding portion only of the strokes, and a lever A^3 to which the reinforcing-spring is attached, and which serves to hold the same out of action during the initial part of the strokes, substantially as specified.

6. In a printing and calculating machine, a main actuating-lever, in combination with a spring for imparting return strokes to the lever, of a reinforcing-spring acting on the lever during the concluding portion only of the strokes, a pivoted lever A^3 having an arm A^4 controlling said reinforcing-spring, the cam A', and pin A^7, substantially as specified.

7. The combination with the main lever and a lever B^6 actuated thereby and having a pin B^{16}, of the answer-printing plunger, and the cam actuated by the plunger and engaging said pin, substantially as specified.

8. The combination with the main lever and a lever B^6 actuated thereby and having a pin B^{16}, of the answer-printing plunger, and the cam B^4 having a groove receiving said pin and a point B^5 engaging the pin, substantially as specified.

9. The combination with the main lever and the answer-printing plunger, of the cam B^4 constructed essentially as described and controlling the plunger, and a device engaging with said cam and controlling the main lever, substantially as specified.

10. The combination with the main lever and answer-printing plunger, of cam B^4 controlling the plunger and lever B^6 controlling the main lever, and means for locking the lever B^6 in engagement with the cam, substantially as specified.

11. The combination with the main lever and answer-printing plunger, of cam B^4 controlling the plunger and lever B^6 controlling the main lever, and catch-lever B^{17} for locking the lever B^6 in engagement with the cam, substantially as specified.

12. The combination with the main lever and answer-printing plunger, of cam B^4 controlling the plunger and lever B^6 controlling the main lever, and a device for locking the lever B^6 in engagement with the cam, such device being released at the end of the return stroke of the main lever, substantially as specified.

13. The combination with the main lever and answer-printing plunger, of cam B^4 controlling the plunger and lever B^6 in engagement with the cam, and a device for locking the lever B^6 in engagement with the cam, such device being released by the power actuating the main lever in its return stroke, substantially as specified.

14. The combination with the main lever and answer-printing plunger, of cam B^4 controlling the plunger, and lever B^6 controlling the lever; and the spring catch-lever B^{17} for locking lever B^6 and released by the main cam, substantially as specified.

15. The combination with the answer-printing mechanism and means for setting the numeral-wheels, of a device for controlling said mechanism, a device engaging said controlling device, and means for holding said last-mentioned device in engagement with said controlling device during the setting operation, substantially as specified.

16. The combination with the answer-printing mechanism and means for setting the numeral-wheels, of the cam B^4 controlling said mechanism, the lever B^6 engaging with said cam, and means for holding said lever in engagement with the cam during the setting operation consisting of the arm B^{28} controlling said lever B^6, the pin B^{29} and slotted disk B^{31} on the numeral-wheel shaft, substantially as specified.

17. The combination with the numeral-wheel shaft and means for actuating the latter, of the slotted disk B^{31}, the hand-lever B^{26} having arm B^{28} and pin B^{29}, the latter normally in the slot of the disk and adapted to be moved out of the slot and to ride on the edge of the disk during cancellation, substantially as specified.

18. The combination with the normally-locked numeral-wheel shaft, the answer-printing mechanism and means for locking the latter during the operation of the former, of means for releasing the lock upon the shaft, and means for actuating the shaft, substantially as specified.

19. In a calculating-machine, a carrying-lever consisting of a U-shaped piece of metal, the bent-up sides forming bearings and one of them also forming the stop projection C^8, substantially as specified.

20. In a calculating-machine, a carrying-lever consisting of a U-shaped piece of metal, having the stop projection C^8 formed upon one of the bent-up sides, substantially as specified.

21. In a calculating-machine, a carrying-lever consisting of a U-shaped piece of metal, having the latch-stop C^9 formed upon one of the bent-up sides, substantially as specified.

22. In a calculating-machine, a carrying-lever consisting of a U-shaped piece of metal, having the stop projection C^8 and latch-stop C^9 formed upon its bent-up sides, substantially as specified.

23. The combination with the numeral-wheels of spring brake-levers bearing against the inner surface of the wheel-rims, the angular rocking shaft serving to hold the levers normally out of action, and means for rocking said shaft at proper times so as to release the levers, substantially as specified.

24. The combination with the numeral-wheels of spring brake-levers, bearing against the inner surface of the wheel-rims, the angular rocking shaft acting normally to hold the levers out of action, means for rocking said shaft, and means for retaining the shaft in the releasing position, substantially as specified.

25. In a calculating-machine, the combination with the carrying-levers and their detaining-latches, of the rock-shaft acting to release said latches, the cam C^{16} upon the numeral-wheel shaft, and the arm C^{17} attached to the rock-shaft and riding on said cam, substantially as specified.

26. The combination with the numeral-wheels and means for actuating them in canceling, of the carrying-levers, the latches controlling the carrying-levers, the rock-shaft for releasing the latches, the cam C^{16} on the numeral-wheel shaft, and the arm C^{17} attached to the rock-shaft and riding on said cam, substantially as specified.

27. The combination with the carrying-levers of the rock-shaft B', the arms carried by said shaft and controlling the positions of the levers, and means for operating said shaft, substantially as specified.

28. The combination with the answer-printing plunger and the lever F^2, having an upward extension F^3, of the shaft B' having arm B^2 receiving impulses in both directions from the plunger and lever, substantially as specified.

29. The combinatioo with the shafts B' and F', of the answer-printing plunger, the arm B^2, cam F and lever F^2, having extension F^3, substantially as specified.

30. The combination with the numeral-wheels, of stop-levers E, one for each wheel, springs for lifting said levers, and a cross-rod E^4 tying the levers together, substantially as specified.

31. The combination with the main cam, and lever B^3, of the toggle for controlling said lever and preventing noisy contact with the main cam, substantiallly as specified.

32. The combination with the main cam, of the lever B^3 returned to its normal position by spring-power, and the toggle for limiting the return movement of said lever, substantially as specified.

33. The combination with the main cam, of the lever B^3 returned to its normal position by spring-power, the toggle for limiting the return movement of said lever, and a spring G acting to keep said toggle in acting position, substantially as specified.

34. The combination with the swinging frame H^2, the lever H^3, and the devices actuating said lever, of a spring-detent acting on said frame, substantially as specified.

35. The combination with the swinging frame H^2, the lever H^3 controlled by said frame, the lever H receiving motion from the segment-lever, and giving motion to lever H^3, and the guides between which said lever H moves, of the detent H^{16}, substantially as specified.

36. The combination with the levers H^3, and the swinging frame H^2, of a detent acting to prevent premature movement of said levers, such detent having a triangular projection which adapts it to yield and allow the frame to move at proper times, substantially as specified.

37. The calculating-machine, having type and hammers for impressing the paper against the type, said hammers having hinged heads made separate from the bodies, actuating-springs attached to the heads, and means for arresting the heads before the hammers can make the impressions, substantially as specified.

38. In a machine for printing numbers, the combination with the type, of swinging hammers having their heads made separate from their bodies, springs attached to the heads and through them actuating the bodies, and means for arresting the heads before the making of the impressions, substantially as specified.

39. In a machine for printing numbers, the combination with the type, of swinging hammers composed of hinged heads and hinged bodies, the actuating-springs being attached to the heads and the heads adapted to actuate the bodies, and means for arresting the heads before the completion of the stroke, substantially as specified.

40. In a machine for printing numbers, a printing-hammer made in two parts and hinged together, one part receiving the actuating power and imparting it to the other, and being itself arrested before the making of the impression, substantially as specified.

41. In a machine for printing numbers, a printing-hammer consisting of a head and a body made separate and hinged upon the same shaft, the head bearing upon the body and receiving the power for making the impression and imparting it to the body, and means for arresting the head, substantially as specified.

42. The combination with the paper-roll and its ratchet, of a pawl for actuating the ratchet, said pawl being shaped to ride idly on the ratchet when in its normal position and to engage when moved from its normal position, substantially as specified.

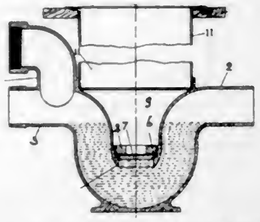
43. The combination with the paper-roll and its ratchet, of a pawl for actuating said ratchet, and a movable support for the pawl, the pawl engaging the ratchet when the support moves from its normal position, and at other times riding idly thereon, substantially as specified.

44. The combination with the carrying-levers and the rock-shaft for controlling them, of means for rocking said shaft consisting of a lever connected to the shaft, a latch operating said lever, and an oscillating device carrying the latch, substantially as specified.

45. The combination with the carrying-levers and the rock-shaft for controlling them, of means for rocking said shaft consisting of a lever connected to the shaft, a latch operating said lever, the cam carrying the latch, and means for temporarily locking lever B^2 in the position to which it is moved by said stud, substantially as specified.

46. The combination with the carrying-levers and rock-shaft controlling the same, of mechanism for rocking said shaft, and means for holding the shaft in the position to which it is moved by the rocking mechanism, substantially as specified.

661,122. TRAP. TIMOTHY J. FITZPATRICK, Boston, Mass. Filed Mar. 10, 1900. Serial No. 8,126. (No model.)



Claim.—1. A trap having a clean-out opening located between its inlet and discharge legs, below the water-line in the trap and on the upper side thereof, means for closing said opening, and imperforate walls which are cast integral with the trap and extend between the legs thereof on each side of said opening, said walls and the legs of the trap forming a water-tight pocket in which the clean-out opening is located, and which is wholly disconnected from the passage-way through the trap, except through said clean-out opening.

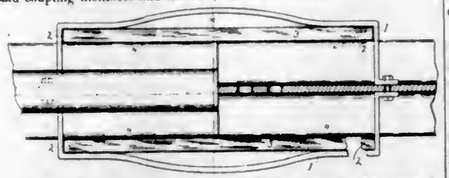
2. A trap of the character described, having an opening between the inlet and discharge legs of the trap, below the water-line and on the upper side thereof, means for closing said opening, upwardly-extending imperforate walls which are integrally connected with the legs of said trap at their sides and bottoms and surround said opening, forming a chamber in which said opening is located, and which is wholly disconnected from the passage-way through the trap except through said clean-out opening, and a pipe which is connected to said walls at their upper edges.

3. An S-trap of the character described having an opening in the upper side midway between the inlet and discharge legs thereof, a screw-plug for closing said opening, imperforate walls which are cast integrally with the body of the trap and extend from the side of one leg to the same side of the opposite leg on each side of the trap, said walls extending over and meeting on the upper sides of said legs and forming a continuous, circular wall, screw-threads formed on said circular portion, and an imperforate pipe having a screw-threaded end which engages the threads of said wall and extends upwardly therefrom, forming a chamber which is wholly disconnected from the passage through the trap, except through said clean-out opening.

4. An S-trap of the character described having an opening at the upper side, and between the inlet and discharge legs thereof, a screw-plug for closing said opening, imperforate walls which are integrally connected with the legs of said trap at their sides and bottoms, said walls surrounding said opening and terminating at their upper edges in a circular wall which extends over the upper sides of the legs of the trap, a pipe having a screw-threaded connection with said circular wall and which extends upwardly to the floor of the room above said trap, said walls, pipe and trap combining to form a water-tight chamber which is wholly disconnected from the passage-way through the trap, and a cover for closing the top of said pipe.

661,123. RAIL-JOINT. WILLIAM W. GILLESPIE, Milwaukee, Wis. Filed May 23, 1900. Serial No. 17,633. (No model.)

Claim.—1. A rail-joint, comprising abutting rail ends; coupling members adjusted at the sides thereof with their central portions extended outwardly beyond the base-flanges, and with one or more edges of said central portions extended inwardly and adapted to form a shelf or shelves for the support of an independent metallic plate: an independent metallic plate resting on said shelves; and a cast-metal filling intervening between said coupling members and the rails, and fused to both.



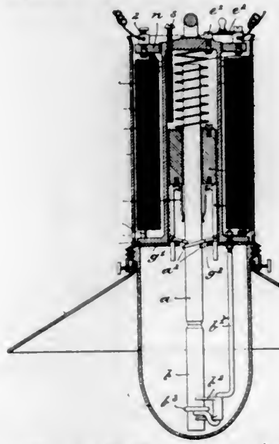
2. A rail-joint, comprising abutting rail ends; coupling members adjusted thereto, with their central portions extending laterally beyond the base-flanges, and inwardly along the lower edge; a metallic plate supported upon the inwardly-projecting portions of the coupling members; and an intervening metallic filling fused to the walls of the rails and coupling members.

661,124. SELF-HEALING COMPOUND FOR TIRE-PUNCTURES. WILLIAM B. HARTLEY, Southport, and ORA J. PARRISH, Indianapolis, Ind., and OSCAR M. PARRISH, Chicago, Ill. Filed Mar. 12, 1900. Serial No. 8,372. (No specimens.)

Claim.—1. The herein-described compound for healing punctures in pneumatic tires consisting of glycerin, comminuted mica, comminuted asbestos, and extract of bitter-apple, combined in substantially the proportions specified.

2. The herein-described compound for healing punctures in pneumatic tires consisting of glycerin, comminuted mica and comminuted asbestos, combined in substantially the proportions specified.

661,125. ELECTRIC-ARC LAMP. JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Feb. 27, 1900. Serial No. 6,658. (No model.)



Claim.—1. In an electric-arc lamp, an air-tight receptacle having walls of insulating material, a solenoid-core inclosed in said receptacle, means for connecting said core directly with the source of electric energy, an upper carbon inclosed in said receptacle and surrounded by said core and in electrical contact therewith, means carried by said core for feeding said carbon, and a solenoid-coil located outside the walls of the receptacle and adapted to magnetically actuate the core during the feeding of said carbon, substantially as and for the purposes described.

2. In an electric-arc lamp, an air-tight receptacle having walls of insulating material, an upper carbon adapted to move in said receptacle, a solenoid-core surrounding and serving to guide said carbon, means carried by said core adapted to feed the carbon and to supply current directly from the core to said carbon, said core and means inclosed in said receptacle, and a solenoid-coil located outside the walls of said receptacle and adapted to actuate the core therein, substantially as and for the purposes described.

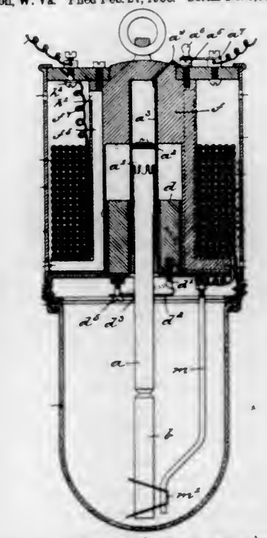
3. In an electric-arc lamp, a carbon-holder comprising a rod, a spring clamping-arm formed at its lower end, and a forked arm pivotally secured to said rod and adapted in conjunction with the clamping-arm to hold the carbon, substantially as and for the purposes described.

4. In an electric-arc lamp, an upper carbon and a solenoid-core surrounding said carbon, and serving to guide the same, said core being directly connected with the source of electric energy and also in electrical contact with the carbon, substantially as and for the purposes described.

5. In an electric-arc lamp, an upper carbon, a solenoid-core surrounding said carbon, contact-fingers depending from said core and bearing against said carbon, and a wire coiled around the upper end of said carbon and connecting the solenoid-core with one pole of the source of electric energy, substantially as and for the purposes described.

6. In an electric-arc lamp, an upper carbon, a solenoid-core surrounding said carbon, a receptacle inclosing said carbon and core, and an adjusting-screw traversing said receptacle and adapted to limit the upward movement of the core in said receptacle, substantially as and for the purposes described.

661,126. ELECTRIC-ARC LAMP. JOHN A. HEANY, Philadelphia, Pa., assignor to the Teter-Heany Developing Company, same place and Charleston, W. Va. Filed Feb. 27, 1900. Serial No. 6,659. (No model.)



Claim.—1. In an electric-arc lamp, an upper carbon, a cap to which the carbon is secured, a contact-brush carried by said cap, a stationary metallic tube connected with one pole of the source of electric energy, said carbon and its cap adapted to slide freely in said tube and said brush adapted to make contact with said tube, and a solenoid-core surrounding said tube and adapted to slide up and down thereon, said core adapted to operate the upper carbon in the tube, substantially as and for the purposes described.

2. In an electric-arc lamp, a feeding mechanism for one of the carbons, comprising a solenoid-core, a stem projecting from the base of said core, a spring-plate fixed at one end to said stem and having a central aperture surrounding the carbon and adapted to normally project obliquely to the base of the core, and a stop-pin adapted when the core is depressed to depress the free end of said spring-plate so that said plate shall assume a position parallel to the base of the core, substantially as and for the purposes described.

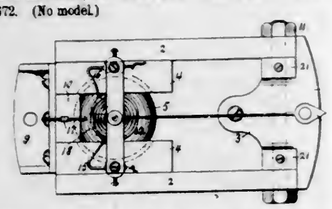
3. In an electric-arc lamp, a box or receptacle adapted to inclose the upper carbon and the solenoid-core, said box having its peripheral walls channeled or grooved to form air-flues, substantially as and for the purposes described.

4. In an electric-arc lamp, an upper carbon, a fixed tube, wherein the upper carbon is adapted to move, a solenoid-core surrounding said tube and adapted to slide up and down thereon, a stem projecting from the base of said core, a spring-plate fixed at one end to said stem and having a central aperture surrounding the carbon, said plate normally projecting from the stem obliquely to the base of the core, a set-screw adapted to form a means for adjusting the downward movement of the core, said screw adapted when the core is depressed to depress the free end of the spring-plate to cause the plate to assume a position parallel to the base of the core, substantially as and for the purposes described.

5. In an electric-arc lamp, a box or receptacle, a solenoid-core adapt-

ed to be elevated and depressed in said receptacle, a collar forming a base for the box or receptacle and a support for the core in the depressed position, a headed pin or pins depending from the base of the core and traversing said collar and a spring coiled around said pin and interposed between its head and the collar, substantially as and for the purposes described.

661,127. ELECTRICAL MEASURING INSTRUMENT. FREDRICK A. LA ROCHE, New York, N. Y. Filed Aug. 22, 1900. Serial No. 27,672. (No model.)

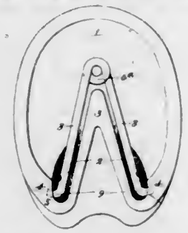


Claim.—1. In an electrical measuring instrument, a magnetic field composed of a sectional permanent magnet having a yoke and permanent magnets secured to the yoke, pole-pieces for the permanent magnet having opposing concave surfaces, and a spherical armature-core therefor, a circular armature adapted to rotate over the surface of said core between said pole-pieces and said armature-core, terminal conductors for the said armature being differentially coiled about the shaft of said armature so as to neutralize the effects of the mutual and self induction of the currents carried by said terminal conductors; substantially as described.

2. In an electrical measuring instrument, a magnetic field composed of a sectional permanent magnet having a yoke and permanent magnets secured to the yoke, pole-pieces for the permanent magnet having opposing concave surfaces, and a spherical armature-core therefor, a circular armature adapted to rotate over the surface of said core between said pole-pieces and said armature-core, terminal conductors for the said armature being differentially coiled about the shaft of said armature so as to neutralize the effects of the mutual and self induction of the currents carried by the said terminal conductors, and an adjustable dial for the said instrument and arms depending from the magnet of the instrument for securing the dial; substantially as described.

3. In an electrical measuring instrument, a magnetic field composed of a sectional permanent magnet having a yoke and permanent magnets secured to the yoke, pole-pieces for the permanent magnet having opposing concave surfaces, and a spherical armature-core therefor, a circular armature adapted to rotate over the surface of said core between said pole-pieces and said armature-core, terminal conductors for the said armature being differentially coiled about the shaft of said armature so as to neutralize the effects of the mutual and self induction of the currents carried by said terminal conductors, and an indicator for said instrument carried by the armature, said armature together with the said armature-core and the said indicator being carried by said pole-pieces and removably attached to the said permanent magnet; substantially as described.

661,128. ADJUSTABLE HOOF-EXPANDER. ROBERT MOSER, Kansas City, Mo., assignor of one-half to John G. Rompel, same place. Filed June 23, 1899. Serial No. 721,603. (No model.)



Claim.—1. A hoof-expander consisting of a pair of diverging spring-arms, suitably supported on the front portion of the hoof and extending rearwardly upon each side the frog to terminals formed by turning up the ends of said arms and forming serrations or barbs in the outer surfaces of such upturned ends, substantially as set forth.

2. A hoof-expander consisting of a pair of diverging spring-arms, formed with a loop or eye at their angle of intersection, terminals at the ends of said arms adapted to engage the rear portion of a hoof, and with a V-shaped fork secured in said loop and having its prongs extending forwardly and adapted to engage seats between the forward portions of the hoof and shoe, substantially as set forth.

3. In a hoof-expander of the type described, a pair of outwardly-extending wings or plates, each rigidly secured on one of the spring-arms, with its free edge adapted to be interposed between the hoof and shoe, substantially as set forth.

661,129. HEEL. FREDRICK NERGER, Chicago, Ill. Filed Jan. 15, 1900. Serial No. 1,503. (No model.)



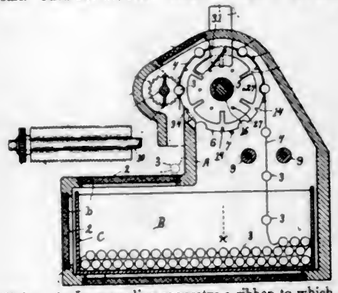
Claim.—1. A normally concavo-convex rubber lift for boot and shoe heels, provided with a longitudinally and centrally arranged spring clamping-plate embedded in the lift and provided with openings for nails or screws, substantially as described.

2. A normally concavo-convex rubber lift for boot and shoe heels provided with a longitudinally and centrally arranged transversely-curved spring clamping-plate embedded in the lift and provided with holes for nails or screws, substantially as set forth.

3. A normally concavo-convex rubber lift for boot and shoe heels provided with a longitudinally and centrally arranged spring-plate having laterally-extending arms and embedded in the rubber lift, the plate being provided with suitable holes for nails or screws, substantially as described.

4. The combination with a boot or shoe heel of a normally concavo-convex rubber lift; a set of nails or screws securing the lift to the boot or shoe heel and passing through the longitudinal middle portion of the lift having its middle portion reinforced to prevent the lift from breaking away from the heads of the nails or screws, the lift thus secured being flattened down upon the boot-heel in opposition to spring resistance between its margin and the securing nails or screws and being unattached between said margin and its middle portion thus held down upon the heel by said nails or screws.

661,130. VENDING-MACHINE. HARRY W. PAPE, Cincinnati, Ohio. Filed Dec. 23, 1899. Serial No. 741,377. (No model.)



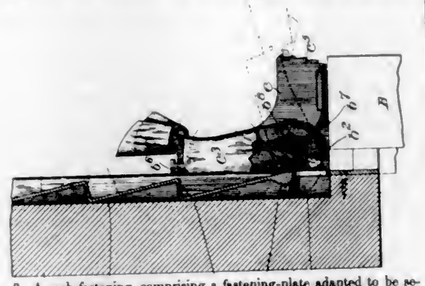
Claim.—1. In a vending apparatus a ribbon to which the articles to be vended are secured, a roller over which the ribbon is fed, means for actuating the roller, and means substantially as shown and described for successively cutting the ribbon so as to free the articles, substantially as specified.

2. In a vending apparatus, a compartment adapted to receive and display the original package, a ribbon to which the articles to be vended are secured, a roller over which said ribbon is fed, and means substantially as specified for successively severing the ribbon and delivering the articles, substantially as specified.

661,131. SASH-FASTENER. JOHN M. PORTER, Boston, Mass. Filed July 30, 1900. Serial No. 25,248. (No model.)

Claim.—1. A sash-fastening, comprising a fastening-plate adapted to be secured to the stile of the upper sash and provided with a recess or opening, and one or more shoulders above said recess; and a single fastening member having a pivotal support upon the meeting-rail of the lower sash, one end of said fastening member being adapted to engage with said recess and the other end of said fastening member being adapted to engage with said shoulder to prevent a further movement of either sash in the direction to open the window, substantially as described.

2. In a sash-fastening, a fastening-plate adapted to be secured to the stile of the upper sash and provided at its lower end with a recess having an engaging portion at the front thereof, and above said recess with one or more shoulders; a locking-lever pivotally supported in a frame secured to the meeting-rail of the lower sash; a hook portion at the lower end of said lever adapted to enter said recess and engage the engaging surface at the front of the same when said lever has been moved in one direction upon its pivot; means for fastening said lever to the frame at the end of such movement; and an engaging shoulder at the opposite end of said lever adapted when the lever is moved in the opposite direction to engage one of the shoulders above the recess, substantially as described.

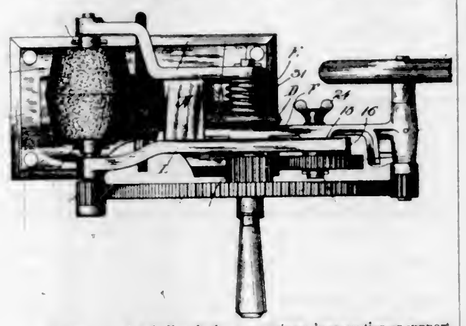


3. A sash-fastening comprising a fastening-plate adapted to be secured to the stile of the upper sash and provided with an engaging portion and one or more shoulders above said portion; a single fastening member having a pivotal support upon the meeting-rail of the lower sash, one end of said fastening member being adapted to engage with said engaging portion, and the other end of said fastening member being adapted to engage the said shoulder; and a spring having a bearing on said member and so shaped as to bear against the same substantially in line with its pivotal support when said member engages said engaging portion and substantially out of line with said pivotal support when said member engages said shoulder, substantially as described.

4. In a sash-fastening, a plate secured to one sash and having a series of shoulders with inclined surfaces extending from one shoulder to the next; a lever connected with the other sash and provided with a shoulder to engage said plate; a spring for forcing said lever into engagement with said plate; and a fastening-catch to hold the said lever out of engagement with said plate, as set forth.

5. In a sash-fastening, a plate secured to the upper sash and having a series of shoulders with inclined surfaces extending from one shoulder to the next and a recess below said shoulders; a lever connected with the other sash and provided with a shoulder to engage the shoulders on the plate; a spring for forcing said lever into engagement with said plate; a fastening-catch pivotally connected with said lever; a shoulder coöperating with said catch to hold said lever out of engagement with said plate; a locking projection at the opposite end of said lever to engage the recess below the shoulders on the plate; and one or more engaging portions to coöperate with said catch when said locking projection is engaged with said recess, as set forth.

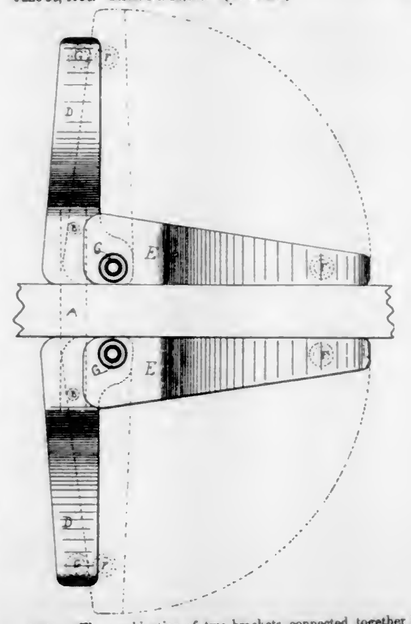
661,132. GRINDER. ANDREW L. REINER, Blue Island, Ill., assignor, by mesne assignments, to the Piano Manufacturing Company, Chicago, Ill. Filed Apr. 13, 1899. Serial No. 712,855. (No model.)



Claim.—1. A grinding device comprising a base portion or support, a stud therein, a rotatable grinding-wheel, a frame pivoted on said stud, carrying at one end the grinding-wheel and having an extension at the other end beyond its pivotal point, an eccentric contacting such extension to vibrate the frame and the grinding-wheel, a gear actuating the eccentric, and a main driving gear-wheel rotating the grinding-wheel and having a pinion meshing with the eccentric-actuating gear.

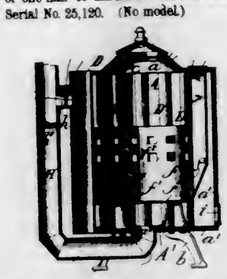
2. A grinding-machine comprising a base portion or support, a stud mounted therein, a rotatable grinding-wheel, a frame pivoted on said stud, carrying at one end the grinding-wheel and having a bifurcated arm extending beyond its pivotal point, an eccentric located between the bifurcations of said arm and adapted to vibrate the frame, a gear-wheel actuating said eccentric, and a main driving gear-wheel arranged on the stud, and adapted to rotate the grinding-wheel and having a pinion to actuate the eccentric-actuating gear-wheel.

661,133. CLAMP. WILLIAM H. RIGGLE, Charleroi, Pa. Filed June 30, 1900. Serial No. 22,245. (No model.)



Claim.—The combination of two brackets connected together but held spaced apart the thickness of the door or thing to be clamped with one edge of each opposing the other by an adjustable spring, each having near the outer end of its lower edge a supporting-foot, of wings pivoted to the side of said brackets so as to be capable each of swinging out at a right angle to its bracket and into the plane of said opposing edge of its bracket or to be folded back against the side of said bracket and also having a foot near the outer end of its lower edge resting upon the floor.

661,134. STOVE. ABRAHAM L. YEARIAN, St. Anthony, Idaho, assignor of one-half to Zardia F. Yearian, same place. Filed July 28, 1900. Serial No. 25,120. (No model.)

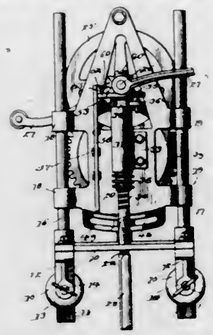


Claim.—1. In a stove of the class described, the combination of an outer closed casing having an inlet for air in its upper end and an outlet for the products of combustion centrally in its base, an inner casing supported away from the base and sides of the outer casing, said inner casing having a closed base, an open top, a plurality of openings in the upper portion of its wall, and an air-draft inlet in its lower portion connected to the air-inlet in the outer casing.

2. In a stove of the class described, the combination of an outer closed casing having an inlet for air in its upper end and an outlet for the products of combustion centrally in its base, an inner casing supported away from the base and sides of the outer casing, said inner casing having a closed base, an open top, a plurality of openings in the upper portion of its wall, and an air-draft inlet in its lower portion connected to the air-inlet in the outer casing, and air-pipes between the casing-walls and extending between openings in the top and bottom of the outer casing.

3. In a stove of the class described, the combination of an outer casing having an inlet in its top for air and an outlet in its bottom for the products of combustion, a smoke-pipe leading from the bottom opening, a direct-draft opening in the top of the casing connected with the smoke-pipe, a damper for the pipe and a damper for the direct-draft opening, an inner casing supported in the outer casing away from the base and sides, an air-inlet in the base of the inner casing, a pipe connecting said air-inlet with the inlet in the outer-casing top, and a regulator for said pipe.

661,135. MORTISING-MACHINE. GEORGE F. ANDREWS, Riverside, Cal. Filed Apr. 30, 1900. Serial No. 14,913. (No model.)



Claim.—1. A mortising-machine comprising a stock-clamp, a carrier movable with respect to the clamp, a rocker carried by the carrier and adapted for attaching an auger, operating means for the auger carried by the rocker, a feed mechanism for the carrier and connections between the rocker and the feed mechanism for operating the latter.

2. A mortising-machine comprising a pivoted rocker, a rotatable cutter, means for rotating the cutter, said cutter and rotating means being carried by the rocker, feed mechanism for advancing the rocker, and connections between the feed mechanism and the cutter-operating mechanism for operating the feed mechanism.

3. A mortising-machine comprising a movable carrier, a rocker sustained by the carrier, cutting mechanism upon the rocker, feeding mechanism for the carrier operable by the rocker, and means for throwing the feeding mechanism into and out of operation.

4. A mortising-machine comprising a carrier, a cutting mechanism sustained by the carrier and mounted for lateral bodily movement, step-by-step feed mechanism for advancing the carrier, and means intermittently operable by the bodily movement of the cutting mechanism for actuating the feed mechanism.

5. A mortising-machine comprising guides, a slidable carrier sustained by the guides, a rocker pivoted to the carrier, an auger-shaft mounted in the rocker and adapted for attachment of an auger, a power-shaft operatively connected with the auger-shaft, a slot in the carrier, a gear-wheel mounted on the rocker and having a wrist-pin eccentric thereto and engaged with the slot, and connections between the gear-wheel and the power-shaft to operate the wheel and move the rocker.

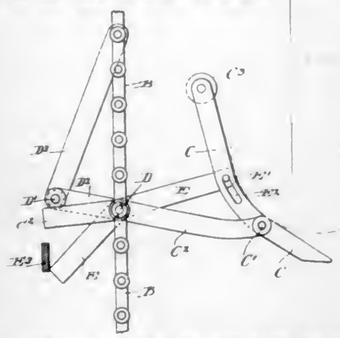
6. A mortising-machine comprising guides, a carrier mounted on the guides, a rocker pivoted to the carrier, a cutting mechanism carried by the rocker, a wheel mounted upon the rocker and having an adjustable wrist-pin engaged with a slot in the carrier, means for operating the wheel to move the rocker, feed mechanism for the carrier and means operated by said wheel for actuating the feed mechanism.

7. A mortising-machine comprising guides, a carrier mounted upon the guides, a rocker pivoted upon the carrier and carrying cutting mechanism, means for operating the rocker, a rack fixed with respect to the carrier, a feed-worm upon the carrier and engaging the rack, said worm being adapted for movement into and out of engagement with the rack to permit movement of the carrier independently of the worm, and actuating mechanism for the worm, operable by the rocker.

8. A mortising-machine comprising a carrier, a rocker pivoted to the carrier and having cutting mechanism mounted thereon, a slotted wheel carried by the rocker, a block adjustably mounted in the slot of the wheel and having means for holding it at different points of its adjustment, and a wrist-pin upon the block and engaged with a slot in the carrier, said slotted wheel and cutting mechanism having means for operating them whereby the rocker may be adjusted and operated to move the cutting mechanism through different arcs to cut different lengths of mortises.

9. A mortising-machine comprising a carrier, cutting mechanism, a rocker pivoted to the carrier and sustaining the cutting mechanism, means for operating the cutting mechanism and the rocker, a rack fixed with respect to the carrier, a sleeve mounted upon the carrier, a bushing rotatably mounted in the sleeve, a worm having a shaft rotatably mounted in the bushing and eccentric thereto, means for oscillating the bushing to engage and disengage the worm with respect to the shaft, a ratchet upon the worm-axle, a pivoted lever, a pawl upon the lever in operative relation to the ratchet, and a finger carried by the lever and lying in the path of the rocker to operate the lever and feed the carrier.

661,136. ELEVATOR. ROBERT ARDELL, Rottneros, Sweden, assignor to the Link Belt Machinery Company, Chicago, Ill. Filed Oct. 23, 1899. Serial No. 734,597. (No model.)



Claim.—1. A device for conveying articles from one level to another, comprising a movable supporting device, a series of arms pivotally connected therewith, bracing attachments for said arms so that they project outwardly when in their operative position, a tipping device associated with said arms to cause them to tip and discharge the article at the proper point, a folding device associated with said arms to cause them to fold when in their inoperative position.

2. A device for conveying articles from one level to another, comprising a movable supporting device, a series of arms pivotally connected therewith, bracing attachments for said arms so that they project outwardly when in their operative position, a tipping device associated with said arms to cause them to tip and discharge the article at the proper point, a folding device associated with said arms to cause them to fold when in their inoperative position, the several devices for bracing, tipping and folding the arms situated so that they are substantially wholly within the movable supporting device when the arms are folded.

3. A device for conveying articles from one level to another, comprising a flexible movable supporting device, a series of engaging arms movably connected therewith, a portion of each of said arms projecting inwardly past the movable supporting device, a brace for each arm connected with the movable supporting device and associated with the inwardly-projecting part of the arm, so as to be contained within the space bounded by said movable supporting device.

4. A device for conveying articles from one level to another, comprising a suitable frame, a movable supporting device mounted thereon, an engaging arm connected with said movable supporting device, a brace pivotally connected with said arm and connected with said movable supporting device, said brace contained within the outer boundaries of said frame.

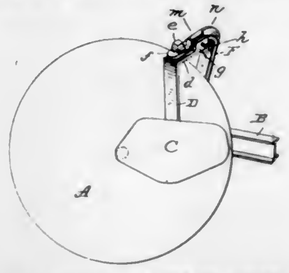
5. A device for conveying articles from one level to another, comprising a frame, a movable supporting device mounted thereon, an engaging arm connected with said movable supporting device comprising a tripping-arm, a holding-arm movably connected therewith and connected with said movable supporting device, a brace associated with said holding-arm and connected with said movable supporting device, so as to be wholly contained within the outer boundaries of said frame, and a tripping-lever for said tripping-arm.

6. A device for conveying articles from one level to another, comprising a frame, a movable supporting device mounted thereon, an engaging arm movably connected with said supporting device and projecting outwardly therefrom when in its operative position, said arm provided with an inwardly-projecting part, a brace connected with said supporting device and free and unconnected with said arm, said brace so positioned as to be engaged by the inwardly-projecting part of said arm when the arm is in an operative position.

7. An engaging apparatus for devices for conveying articles from one level to another, comprising a tripping-arm upon which the article rests, a holding-arm pivotally connected thereto and adapted to be movably connected with a movable supporting device, said holding-arm provided with an inwardly-projecting part, a brace adapted to be connected with the supporting device and so positioned as to engage the inwardly-projecting part of said holding-arm so as to prevent its movement in one direction, and a link connecting said brace with said holding-arm, whereby the arm may be automatically folded, substantially as described.

8. A device for conveying articles from one level to another, comprising a frame, a flexible movable supporting device mounted thereon, suitable direction-changing devices near the top and bottom of said frame, about which said flexible supporting device passes, a folding arm movably connected with said supporting device and adapted to automatically fold in passing over one of said direction-changing devices, and a guide in proximity to the other direction-changing device and adapted to engage said arm so as to retard the unfolding thereof.

661,137. SCRAPER FOR DISK PLOWS. JUDSON BUCHANAN, Chattanooga, Tenn., assignor to the Chattanooga Plow Company, same place. Filed Jan. 15, 1900. Serial No. 1,489. (No model.)



Claim.—1. In combination with a plow-disk, a scraper, an arm carrying the scraper, a standard to which the arm is pivoted and means for moving one part in relation to the other and holding the parts rigidly in adjusted position to limit the movement of the scraper toward the disk.

2. In combination, the disk, the arm carrying the scraper and having a lateral extension, a standard also having a lateral extension, a pivotal connection between the extensions and set-screw for adjusting the relation between the extensions to set the scraper in proper relation to the disk.

3. In combination, the plow-disk, the scraper, the standard and scraper-arm, each having a lateral extension, and an adjustable connection between the extensions of the arm and standard, substantially as described.

4. In combination, a plow-disk, a scraper, an arm carrying the scraper, a standard, a bolt pivotally connecting the standard and arm, said arm having an ear *g*, and a set-screw passing through the same and engaging the standard, substantially as described.

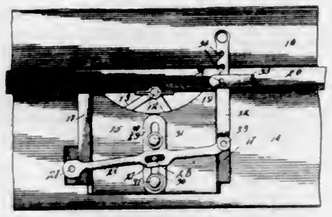
5. In combination, the disk, a scraper, a scraper-arm connected with the scraper, a standard, a pivotal connection between the standard and scraper-arm, said scraper extending substantially radially and at right angles to the axial line of the pivot of the scraper-arm, and means for adjusting the scraper-arm whereby the outer edge of the scraper will be adjusted in relation to the disk, said means consisting of the set-screw acting as a stop to limit the movement of said outer edge toward the disk.

6. In combination, the standard, a scraper-arm pivoted thereto, a scraper carried by the arm, a plow-disk, and an adjustable stop for limiting the movement of the scraper toward the plow-disk, substantially as described.

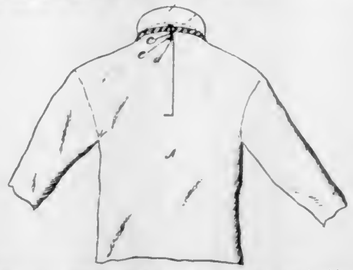
7. In combination, the standard, a scraper-arm pivoted thereto, a scraper carried by the arm, a plow-disk, and an adjustable stop for limiting the movement of the scraper toward the plow-disk, said stop comprising a set-screw by which the scraper-arm may be moved, substantially as described.

661,138. BLAST-REGULATOR FOR THRESHING-MACHINES. JOSEPH ERNST, Urbana, Iowa. Filed Dec. 30, 1899. Serial No. 742,141. (No model.)

Claim.—In a blast-regulator for threshing-machines, the combination of the vertically-movable wind boards or shutters in guides on the sides of the fan-casing, the rod-shaft extending through the fan-casing and having its bearings in the sides thereof, said rod-shaft having the crank-arms at its ends, provided with the slots 27 and one of said crank-arms being extended in length beyond said slots, the locking and adjusting arm connected to the free end of said extended crank-arm, the vertically-adjustable plates on the said wind boards or shutters and having the vertical slots, and the pins 28, the latter playing in the slots 27 of the crank-arms, and adjusting-bolts 31, securing said plates to said wind boards or shutters, and engaging the vertical slots in said plates, substantially as described.

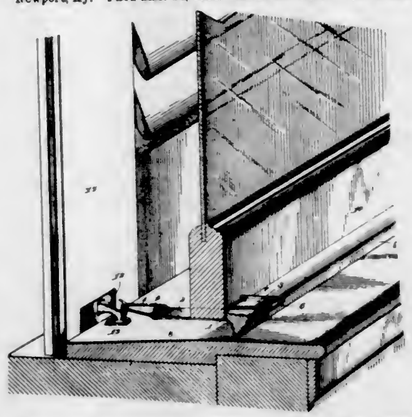


661,139. APPAREL-SHIRT. JONAS L. FROHMAN, Chicago, Ill. Filed June 22, 1900. Serial No. 21,176. (No model.)



Claim.—The combination with a shirt having a band with one or more holes therein, of a flexible strip secured at one end to one face of the shirt below said band, a hook secured to the free end of said strip, said hook and strip being adapted to be passed through the said hole or holes in the shirt-band, and a loop on the opposite face of the shirt below the said shirt-band and with which the said hook is adapted to engage, substantially as and for the purpose specified.

661,140. WINDOW-BLIND FASTENER. VIRGINIA A. GALAGHER, Newport, Ky. Filed Mar. 24, 1900. Serial No. 10,060. (No model.)



Claim.—1. A window-blind fastener, comprising a body, having a latch-engaging device at its outer end, and a substantially U-shaped stop pivotally or hingedly connected to the opposite inner end of the body, and having its opposite sides arranged to embrace the body.

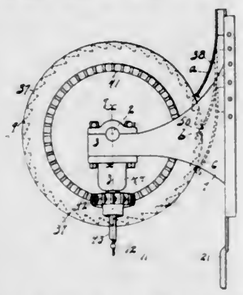
2. A window-blind fastener, comprising a strap-metal body, having its opposite ends bent or folded into terminal loops or beads, a latch-en-

gaging link pivotally embraced by one of the loops or beads, and a substantially U-shaped stop, having its transverse portion pivotally embraced by the other loop or bead.

3. A window-blind fastener, comprising a metallic strap bent intermediate of its ends to form an intermediate transverse shoulder, and opposite substantially parallel sections, a blind-engaging device at one end of the plate, and a pivotal or hinged window-sash-engaging device at the opposite end of the plate.

4. A window-blind fastener, comprising a metallic plate, which is bent to form an intermediate transverse upstanding shoulder, and opposite substantially parallel sections, an adjustable blind-engaging device at one end of the plate, and an adjustable window-sash-engaging device at the opposite end of the plate.

661,141. **FIRE-ESCAPE.** CHARLES GEIS, Cincinnati, Ohio, assignor of two-thirds to Edward Geis and Henry A. Meyer, same place. Filed July 2, 1900. Serial No. 22,296. (No model.)



Claim.—1. The combination, in a fire-escape, of a reel and a flexible ladder therefor adapted to be secured at or near the roof of a building for serving various floors thereof, ratchet-teeth for the reel, a pawl reciprocating bodily for making contact with the ratchet-teeth, and positively rotating the reel, and a connection with the pawl extending past various floors of the building and operable from each, substantially as described.

2. In a fire-escape, the combination of a reel and flexible ladder therefor for attachment at or near the roof of a building for serving various floors thereof, a divided rod extending past various floors and operable from each, a connection at the upper end of the latter for turning the reel, and constructed and arranged for operating the upper end of the rod while the lower end remains at rest and for operating both ends from the lower end, substantially as described.

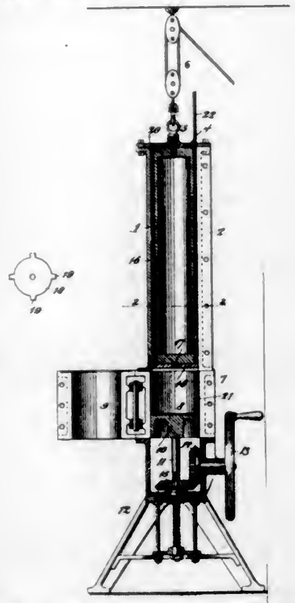
3. In a fire-escape, the combination of a reel and flexible ladder therefor for attachment at or near the roof of a building for serving various floors thereof, projections for the reel, and a slide and contact-piece thereon for the projections, constructed and arranged for permitting the slide and contact-piece to be reciprocated for making repeated contact between the contact-piece and projections and positively rotating the reel, with a pulling device connecting with the slide for imparting an unreeling motion to the reel and extending on the outside of the building past the various floors and operable from each, substantially as described.

4. The combination, in a fire-escape, of a reel and a flexible ladder therefor, ratchet-teeth for the reel, a slide, a pawl thereon, means for reciprocating the slide, constructed and arranged for making contact between the pawl and teeth and rotating the reel in the forward movement of the slide and for permitting the pawl to pass the teeth in the retrograde movement of the slide, substantially as described.

5. The combination, in a fire-escape, of a reel and a flexible ladder therefor, ratchet-teeth for the reel, a slide, a spring-pressed pawl thereon, means for reciprocating the slide and pawl, constructed and arranged for making contact between the pawl and teeth and rotating the reel in the forward movement of the slide with the pawl constructed and arranged for permitting the pawl to pass the teeth in the retrograde movement of the slide and to take against the teeth for acting as a brake on the reel when unreeling the ladder, substantially as described.

6. The combination, in a fire-escape, of a reel and a flexible ladder therefor for attachment at or near the roof of a building for serving various floors thereof, projections for the reel, and a reciprocating contact-piece for making contact with the projections, constructed and arranged for making repeated contact between the contact-piece and projections for unwinding the ladder, with a pulling device connecting with the contact-piece for imparting an unreeling motion to the reel and extending on the outside of the building past various floors and operable from each, substantially as described.

661,142. **PRINTING-SURFACE AND PROCESS OF PRODUCING SAME.** CHARLES GRASSER, Passaic, N. J., assignor to the American Lithographic Company, New York, N. Y. Filed May 12, 1899. Serial No. 716,481. (No model.)



Claim.—1. The process of making a curved printing-surface adapted and designed to be developed in the lithographic manner, which consists in bending or flexing a sheet of suitable metal into a curved form, casting fluid metal on the interior thereof and causing the cast metal to adhere to the inner surface of said curved sheet, and then transferring a design to said sheet-metal surface and developing it into a surface of the character desired.

2. The process of making a curved zinc printing-surface, which consists in bending or flexing a sheet of zinc into a curved form, casting fluid metal on the interior thereof and causing the cast metal to adhere to the inner surface of the said curved sheet-zinc, and then transferring a design to said sheet-zinc surface and developing it into a printing-surface of the character desired.

3. The process of making a curved sheet-metal printing-surface adapted and designed to be developed in the lithographic manner, which consists in arranging a sheet of suitable metal in a mold having a curved interior so that said sheet is supported in curved form by the interior of the mold, casting fluid metal on the inner surface of said sheet within the mold and causing the cast metal to adhere to the surface of the curved sheet, and then transferring a design to said curved sheet-metal surface and developing it into a printing-surface of the character desired.

4. The process of making a curved zinc printing-surface which consists in bending or flexing a sheet of zinc into a curved form, casting fluid metal on the interior thereof and causing the cast metal to adhere to the inner surface of the said curved sheet-zinc, and then imposing a design upon said zinc sheet.

5. The process of making a curved printing-surface adapted and designed to be developed in the lithographic manner, which consists in bending or flexing a sheet of suitable metal into a curved form, casting fluid metal on the interior thereof and causing the cast metal to adhere to the inner surface of said curved sheet to form a rigid backing therefor and thereby maintain said curved sheet in permanent curved form, and then transferring a design to said sheet-metal surface and developing it into a surface of the character desired.

6. The process of making a curved zinc printing-surface, which consists in bending or flexing a sheet of zinc into a curved form, casting fluid metal on the interior thereof, and causing the cast metal to adhere to the inner surface of the said curved sheet-zinc to form a rigid backing therefor and thereby maintain said sheet-zinc in permanent curved form, and then transferring a design to said sheet-zinc surface and developing it into a printing-surface of the character desired.

7. The process of making a curved sheet-metal printing-surface adapted and designed to be developed in the lithographic manner, which consists

in arranging a sheet of suitable metal in a mold having a curved interior so that said sheet is supported in curved form by the interior of the mold, casting fluid metal on the inner surface of said sheet within the mold and causing the cast metal to adhere to the surface of the curved sheet to form a rigid backing therefor and thereby maintain said curved sheet in permanent curved form, and then transferring a design to said curved sheet-metal surface and developing it into a printing-surface of the character desired.

8. The process of making a curved printing-surface adapted and designed to be developed in a lithographic manner, which consists in bending or flexing a sheet of suitable metal into a curved form, casting fluid metal under pressure on the interior thereof and causing the cast metal to adhere to the inner surface of said curved sheet to form a rigid backing therefor and thereby maintain said curved sheet in permanent curved form, and then transferring a design to said sheet-metal surface and developing it into a printing-surface of the character desired.

9. The process of making a curved zinc printing-surface which consists in bending or flexing a sheet of zinc into a curved form, casting fluid metal under pressure on the interior thereof and causing the cast metal to adhere to the inner surface of the said curved sheet-zinc, and then imposing a design upon said zinc sheet.

10. The process of making a curved zinc printing-surface which consists in bending or flexing a sheet of zinc into a curved form, casting fluid metal under pressure on the interior thereof and causing the cast metal to adhere to the inner surface of the said curved sheet-zinc to form a rigid backing therefor and thereby maintain said sheet-zinc in permanent curved form, and then transferring a design to said sheet-metal surface and developing it into a printing-surface of the character desired.

11. The process of making a curved sheet-metal printing-surface adapted and designed to be developed in the lithographic manner, which consists in arranging a sheet of suitable metal in a mold having a curved interior so that said sheet is supported in curved form by the interior of the mold, casting fluid metal under pressure on the inner surface of said sheet within the mold and causing the cast metal to adhere to the surface of the curved sheet to form a rigid backing therefor and thereby maintain said curved sheet in permanent curved form, and then transferring a design to said curved sheet-metal surface and developing it into a printing-surface of the character desired.

12. The process of making a curved sheet-metal printing-surface adapted and designed to be developed in a lithographic manner, which consists in arranging a sheet of suitable metal in a mold having an inner core and having a curved interior so that the said sheet is supported in curved form by the interior of the mold, casting fluid metal between the inner surface of said sheet and said core within the mold and causing the cast metal to adhere to the inner surface of the curved sheet to form a rigid backing therefor and thereby maintain said curved sheet in permanent curved form, and then transferring a design to said curved sheet metal and developing it into a printing-surface of the character desired.

13. The process of making a hollow cylindrical sheet-metal printing-surface adapted and designed to be developed in a lithographic manner, which consists in arranging a sheet of suitable metal in a mold having an inner removable core and having a cylindrical interior so that said sheet is supported in cylindrical form by the interior of the mold, casting fluid metal under pressure between the inner surface of said sheet metal and the core within the mold and causing the cast metal to adhere to the inner surface of the cylindrical sheet to form a rigid backing therefor and thereby maintain said cylindrical sheet in permanent cylindrical form.

14. The process of making a hollow cylindrical sheet-zinc printing-surface which consists in arranging a sheet of zinc in a mold having an inner removable core and a cylindrical interior so that said sheet is supported in cylindrical form by the interior of the mold, casting fluid metal under pressure between the inner surface of said zinc sheet and the core within the mold and causing the cast metal to adhere to the inner surface of the cylindrical zinc sheet to form a rigid backing therefor and thereby maintain said cylindrical zinc sheet in permanent cylindrical form.

15. The process of making a hollow cylindrical sheet-zinc printing-surface having a tapering bore, which consists in arranging a sheet of zinc in a mold having an inner removable tapering core, and a cylindrical interior so that said sheet is supported in cylindrical form by the interior of the mold, casting fluid metal under pressure between the inner surface of said zinc sheet and the core within the mold and causing the cast metal to adhere to the inner surface of the cylindrical zinc sheet to form a rigid backing therefor and thereby maintain said cylindrical zinc sheet in permanent cylindrical form.

16. A curved printing-surface, adapted and designed to be developed in the lithographic manner, comprising an exterior surface of suitable sheet metal bent or flexed in proper shape, and a curved metal backing permanently united to the said sheet metal by fusion, so that the backing and sheet metal become integral, said sheet metal being held in its curved form by the backing and being developed or partly developed by etching.

17. A curved printing-surface adapted and designed to be developed in the lithographic manner, comprising an exterior surface of sheet-zinc bent or flexed in proper shape, and a curved metal backing permanently united to the said sheet-zinc by fusion so that the backing and sheet-zinc become integral, said sheet-zinc being held in its curved form by the backing and being developed or partly developed by etching.

18. A cylindrical printing-surface adapted to be developed in the lithographic manner, comprising an exterior surface of suitable sheet metal, bent or flexed into a cylindrical shell, the edges of said sheet being brought into contact with each other, and a cylindrical metal backing permanently united to said shell by fusion, so that the backing and shell become integral, said shell being developed or partly developed by etching.

19. A cylindrical printing-surface adapted and designed to be developed in the lithographic manner, comprising an exterior surface of sheet-zinc, bent or flexed into a cylindrical shell, the edges of said sheet being brought into contact with each other, and a cylindrical metal backing permanently united to said shell by fusion, so that the backing and shell become integral, said shell being developed or partly developed by etching.

20. A hollow cylindrical printing-surface adapted and designed to be developed in the lithographic manner, comprising an exterior surface of suitable sheet metal, bent or flexed into a cylindrical shell, the edges of said sheet being brought into contact with each other, and a hollow cylindrical metal backing permanently united to the said cylindrical shell by fusion so that the backing and sheet metal become integral, said backing operating to maintain said bent sheet in its cylindrical form.

21. A hollow cylindrical printing-surface adapted and designed to be developed in the lithographic manner, comprising an exterior surface of sheet-zinc bent or flexed into a cylindrical shell, the edges of said sheet being brought into contact with each other, and a hollow cylindrical metal backing having a tapering bore permanently united to the said cylindrical shell by fusion so that the backing and sheet-zinc shell shall become integral, said backing operating to maintain said bent sheet in its cylindrical form.

22. A hollow cylindrical printing-surface comprising an exterior surface of sheet-zinc bent or flexed into a cylindrical shell, and a hollow tapering cylindrical metal backing having a tapering bore permanently united to said cylindrical shell by fusion, so that the backing and sheet-zinc shell become integral, said backing operating to maintain said bent sheet in its cylindrical form and having internal ribs or equivalent means for mounting it in a predetermined position upon a cylindrical support.

23. The process of making a curved printing-form which consists in arranging a sheet of suitable metal, bent or flexed into a curved form, within a mold having a curved interior so that said sheet accurately fits the interior of the mold and is thereby supported in curved form; casting fluid metal on the inner surface of the curved sheet and causing the cast metal to adhere thereto and form a rigid backing for the curved sheet and thereby maintain it in permanent curved form, and then imposing a design upon the exterior surface of the curved sheet metal.

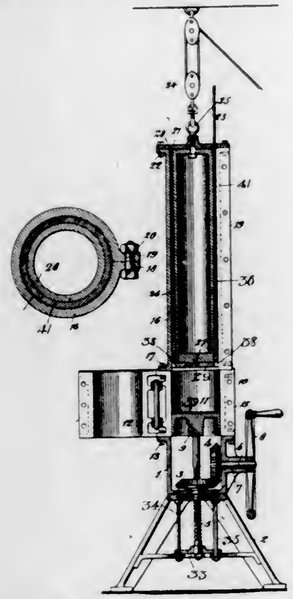
661,143. **APPARATUS FOR CASTING HOLLOW CYLINDERS.** CHARLES GRASSER, Passaic, N. J., assignor to the American Lithographic Company, New York, N. Y. Filed May 12, 1899. Serial No. 716,482. (No model.)

Claim.—1. In a casting apparatus, the combination of a fluid-receptacle, provided with means for forcing the fluid metal therefrom under pressure, a mold connected with the fluid-receptacle, a cap-plate adapted to be secured to the upper end of the mold, a removable core, means for securing the core to the cap-plate and thereby centering the core at its upper end in the mold, and a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core into the mold.

2. In a casting apparatus, the combination of a fluid-receptacle, provided with means for forcing the fluid metal therefrom under pressure, a cylindrical metallic mold having a longitudinal split and flanges 18 and 19, whereby the mold may be tightly closed when desired, said mold being adapted to be removably connected with the fluid-receptacle, a removable cap for the mold, a removable core, means for connecting the core with the cap and thereby centering the core at its upper end in the mold, and a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core into the mold.

3. In a casting apparatus, the combination of a fluid-receptacle, provided with a vertically-moving piston, at the bottom of the receptacle, a mold connected with the fluid-receptacle, a cap-plate adapted to be secured to the upper end of the mold, a removable core, means for securing the core to the cap plate and thereby centering the core at its upper end in the mold, and a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core into the mold.

4. In a casting apparatus, the combination of a fluid-receptacle, provided with a vertically-moving piston at the bottom of the receptacle, a cylindrical metallic mold having a longitudinal split and flanges 18 and 19, whereby the mold may be tightly closed when desired, said mold being adapted to be removably connected with the fluid-receptacle, a removable cap for the mold, a removable core, means for connecting the core with the cap and thereby centering the core at its upper end in the mold, and a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core into the mold.



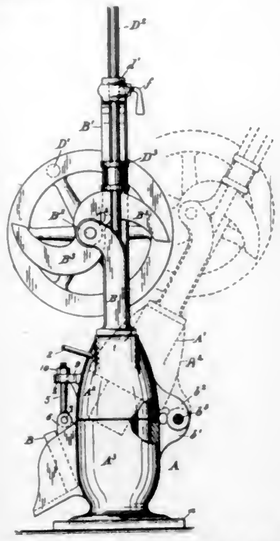
5. In a casting apparatus, the combination of a fluid-receptacle, a piston at the bottom of the receptacle and provided with a screw-threaded piston-rod, a beveled gear loosely mounted on said piston-rod and a hand-wheel mounted on the shaft carrying the beveled gear-wheel, which meshes with the gear on the piston-rod, a mold connected with the fluid-receptacle, a cap-plate adapted to be secured to the upper end of the mold, a removable core, means for securing the core to the cap-plate, and thereby centering the core at its upper end in the mold, and a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core into the mold.

6. In a casting apparatus, the combination of a fluid-receptacle 10, a split mold 16, provided with a core 26, a removable cap-plate arranged to be secured to the upper end of the core and center it at its upper end in the mold, a removable plate at the lower end of the mold arranged to center the core at its lower end, said plate providing a peripheral gate for the simultaneous flow of the fluid metal around the core in the mold, and hoisting-tackle for handling the mold 16.

661,144. ORE STAMP-MILL. MARK H. HAMM, Petaluma, and HENRY R. TAYLOR, Oakland, Cal., assignors to the John Taylor & Company, San Francisco, Cal. Filed Dec. 13, 1899. Serial No. 740,195. (No model.)

Claim.—1. In an ore stamp-mill, the combination with the mortar comprising an upper and lower section, a hinged connection therebetween, of a stamp working within the mortar, the standards or uprights secured to and projecting from the upper section of the mortar, the stamp-stem extending through an opening in the upper section of the mortar, a tappet-cam secured to a cam-shaft working in bearings of the uprights or standards, device for frictionally locking the stamp-stem, and of a water and an ore feed opening formed in the upper section of the mortar.

2. In a stamp-mill, the combination with the mortar consisting of an upper and lower section connected by a hinged joint, the uprights or standards secured to and projecting from the upper section of the mortar, the stamp-stem working through said section of the mortar and through bearings of one of the uprights or standards, operating mechanism for the stamp, and of a device for engaging with the stamp-stem to hold the same in a raised position.



3. In a stamp-mill, the combination with a mortar comprising a lower section, and an upper section hinged to said lower section, a stamp working within the mortar and having a stem guided in bearings carried by the upper mortar-section, means mounted on the upper mortar-section for operating said stamp, and a locking device adapted to engage said stem for holding the stamp, substantially as described.

4. In an ore stamp-mill, the combination with a mortar comprising an upper and a lower section, a hinged connection therebetween, of a stamp working within the mortar, standards secured to and projecting from the upper mortar-section, a stamp-stem, extending through an opening in the upper mortar-section, a shaft mounted in bearings on said standards, means operated by the shaft for reciprocating said stamp and a device for locking the stamp in raised position, said mortar being provided with an ore-feed, substantially as described.

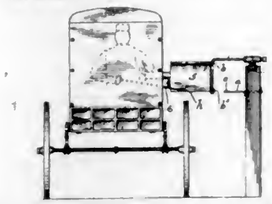
5. In an ore stamp-mill, the combination of a mortar comprising a lower section, and an upper section hinged thereto, a stamp within the mortar, a stem projecting therefrom through an opening in the upper mortar-section, standards secured to and projecting from said upper mortar-section, a bearing on one of said standards for said stamp-stem, a rotary shaft journaled in bearings on said standards, operating devices between said shaft and stem for reciprocating the latter, and a locking device for holding said stamp in raised position, substantially as described.

661,145. ATTACHMENT FOR BICYCLES. OTTO HAUSMANN, Minneapolis, Minn. Filed Aug. 6, 1900. Serial No. 26,083. (No model.)



Claim.—In a device of the class described, the combination with a bicycle, of the approximately vertical clamp located at the back of the bicycle and connecting the rear bars at a point in advance of the rear axle and composed of the inner and outer plates fitted together and provided at their inner abutting faces with grooves forming openings for the said rear bars, fastening devices connecting the plates, the depending L-shaped portion formed integral with the lower end of the outer plate, a spindle adjustably mounted on the depending L-shaped portion, and a supplemental wheel arranged on the spindle, substantially as described.

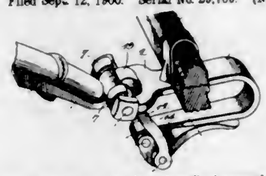
661,146. MAIL RECEIVING AND DELIVERING APPARATUS. ANDREW L. HENRY, Ladoga, Ind. Filed Aug. 13, 1900. Serial No. 26,724. (No model.)



Claim.—1. The combination, in a mail receiving and delivering apparatus, of a suitable support, a vertical bearing carried by said support, an eye having a stem mounted in said bearing, a rod mounted and adapted to slide through said eye, and a mail-box secured to said rod, substantially as and for the purposes set forth.

2. The combination of a support, a bearing thereon, a pivoted eye mounted vertically in said bearing, a sliding rod mounted in said pivoted eye, a mail-box hinged to said sliding rod whereby said mail-box is adapted to be moved in and out by sliding said rod through said eye, and a catch-arm also carried by said support whereby said mail-box may be held in its position when at rest, substantially as set forth.

661,147. COUPLING FOR POLES OR THILLS. WILLIAM A. HILL, Ursa, Ill. Filed Sept. 12, 1900. Serial No. 29,789. (No model.)



Claim.—1. A device of the class described comprising a bearing-plate having its front portion forked or bifurcated and provided at opposite sides with open bearings, said bearing-plate being also provided with a lower spring, a coupling-iron having a pivot arranged in the bearings, an upright bar or lever passing through the fork or bifurcation at the back thereof and engaging the thill or coupling iron, to retain the same in the open bearings and to prevent the said iron from rattling, and an operating-lever connected with the spring and with the upright bar or lever, substantially as and for the purpose described.

2. A device of the class described comprising a bearing-plate having its front portion forked or bifurcated and provided at opposite sides with open bearings, said bearing-plate being also provided with a lower spring, a coupling-iron having an eye arranged in the front portion of the fork or bifurcation, a pivot-bolt passing through the said eye and arranged in the said bearings, an upright bar or lever passing through the fork or bifurcation at the back thereof and having a hook-shaped upper portion for engaging the said eye to retain the bolt in the open bearings and to prevent the same from rattling, and a lever connecting the lower portion of the upright bar or lever with the said spring, substantially as described.

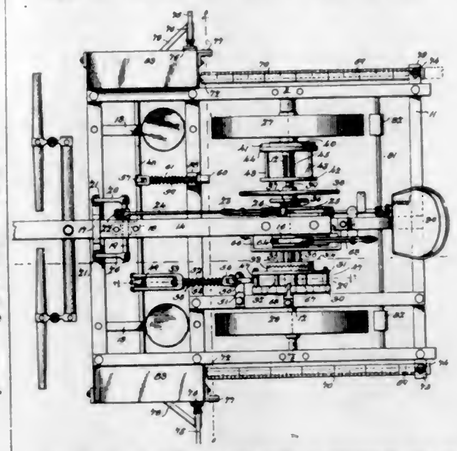
3. A device of the class described comprising an approximately U-shaped frame arranged horizontally and constructed of resilient material, the upper portion of the frame being provided with open bearings and its lower portion constituting a spring, a coupling-iron having a pivot arranged in the said bearings, and an upright bar or lever engaging the coupling-iron and connected with the spring, substantially as described.

4. A device of the class described comprising an approximately U-shaped frame having its upper portion forked, the sides of the fork being provided with open bearings, a coupling-iron having a pivot, an upright bar or lever passing through the fork or bifurcation at the back thereof and engaging the coupling-iron, and a lever connecting the upright bar or lever with the spring, substantially as described.

5. A device of the class described comprising a substantially U-shaped frame having its upper portion forked and provided with open bearings, a coupling-iron having a pivot arranged in the bearings, an upright bar or lever passing through the fork and engaging the coupling-iron, the lower portion of the upright bar or lever being forked to straddle the lower portion of the frame, and a substantially L-shaped lever pivoted within the fork of the upright bar or lever and connected with the spring, substantially as described.

6. A device of the class described comprising an approximately U-shaped frame provided at its upper portion with open bearings and having its lower portion constituting a spring, a coupling-iron having a pivot arranged in the bearings, and a device connected with the spring and engaging the coupling-iron to retain the pivot in the bearing, substantially as described.

661,148. CHECK-ROW CORN-PLANTER. JOHN HILLERY, Colchester, Ill. Filed June 6, 1900. Serial No. 19,280. (No model.)



Claim.—1. In a check-row corn-planter, in combination with the seed-dropping mechanism, an axle-shaft, a master-wheel, loose on said shaft, to actuate the seed-dropping mechanism, supporting and traction wheels, one fast and the other loose on said shaft, a clutch to lock said master-wheel to the shaft, a spring to normally unclutch the same, a spring-pressed normally effective clutch to lock said loose traction-wheel to said shaft, and a hand-wheel, operative on a screw-threaded section of the shaft, and disposed between said clutches, to operate the same, substantially as described.

2. In a planter, in combination with the seed-dropping mechanism, an axle-shaft, a master-wheel loose on said shaft to actuate the seed-dropping mechanism and having a measuring-scale coacting with a fixed point, supporting and traction wheels, one fast and the other loose on said shaft, a clutch to lock said master-wheel to said shaft, a disk free to travel longitudinally of the shaft, rods connecting said disk to said clutch, a drum, fast to the shaft and through which said rods pass, a hand-lever and connections to manually rotate said master-wheel by turning said clutch, a clutch to lock the loose traction-wheel to said shaft and means to operate said clutches, substantially as described.

3. In a check-row corn-planter, in combination with the seed-dropping mechanism, an axle-shaft, a master-wheel, loose on said shaft, to actuate the seed-dropping mechanism and having a measuring-scale coacting with a fixed point, supporting and traction wheels, one fast and the other loose on said shaft, a clutch to lock said master-wheel to the shaft, a spring to normally unclutch the same, a disk, free to travel longitudinally of the shaft, rods connecting said disk to said clutch, a drum, fast to the shaft and through which said rods pass, a hand-lever and connections to manually rotate said master-wheel by turning said clutch, a spring-pressed, normally effective clutch to lock said loose traction-wheel to said shaft, a hand-wheel, engaged by a screw-threaded section of said shaft, and operating between the disk of the waster-wheel clutch and a member of the loose traction-wheel clutch, to operate said clutches, and a hill-finder bar adapted to be extended longitudinally from the planter, substantially as described.

4. In a check-row corn-planter, the combination with a seed-dropping mechanism, of an axle-shaft, a master-wheel to actuate the seed-dropping mechanism, loose on said shaft, said master-wheel having a measuring-scale coacting with a fixed pointer, means to lock said master-wheel to said shaft, a traction-wheel to rotate the latter, means to rotate said shaft manually, and a hill-finder bar adapted to be extended longitudinally from the planter, for the purpose set forth, substantially as described.

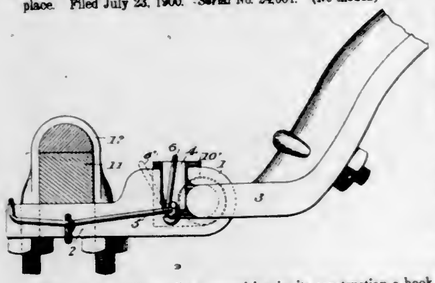
5. In a planter, the combination of the frame having the planting mechanism at its front side, the axle-shaft on which said frame is adapted to be tilted to raise and lower the front side thereof, supporting and traction wheels on said shaft, a hand-lever, a draft pole or tongue pivoted to said shaft, a rock-shaft having a crank-arm and rock-arms, the latter being connected to the front side of the frame, and a rod connecting said crank-arm to the hand-lever, substantially as described.

6. In a check-row corn-planter, the brackets secured to the sides of

the frame in line with the heels of the seed-spouts, the pointer-arms pivotally attached at their inner ends to said brackets and adapted to be extended outward therefrom, supported thereby and to be upturned and supported in said brackets, for the purpose set forth, substantially as described.

7. In a check-row corn-planter, the vertical depending brackets attached to the sides of the frame in line with the heel of the seed-spouts and having the spring sides, and the pointer-arms having their inner ends pivoted to said brackets, between the spring sides thereof, the latter by frictional contact with the pointer-arms serving to support the latter when turned to an upright position, substantially as described.

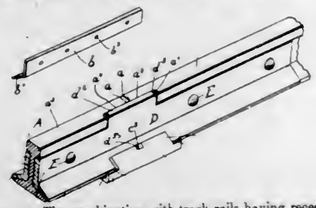
661,149. ANTIRATTLER THILL-COUPLING. FRANK W. MALLERY, Overton, Ohio, assignor of one-half to James T. Smith, same place. Filed July 23, 1900. Serial No. 24,601. (No model.)



Claim.—1. A thill-coupling, comprising in its construction a hook terminus upon a shank, a raised portion opposite the hook, with vertical opening between the terminus of the hook and said raised portion, and both furrowed out along their inner and adjacent surfaces; shaft tail-irons made with bifurcations and a circular cross-bar uniting the opposite ends of the bifurcations—said cross-bar fitted to enter the furrows of the hook; and wedge-block having flanges to enter the opening of the hook vertically along the opposite grooves thereof, and a spring-clip attached to the shank of the hook to removably secure the said block in position by a constant pressure, substantially as set forth and for the purpose specified.

2. In a thill-coupling, the combination with a hook attachment, said hook turned rearwardly opposite a corresponding raised portion—said hook and raised portion furrowed along their inner and adjacent edges or faces; of a tailpiece for the shaft of a vehicle constructed with a round cross-bar, centrally enlarged, and solidly secured between the opposite forks of said tailpiece, said enlarged central portion fitted to enter and bear against the forward and bottom portions of said furrow in the shackle; and a block having flanges fitted to enter said grooves vertically and bear against the cross-bar of said tailpiece by means of a spring-fastener removably pressing upon said block, substantially as set forth and for the purpose specified.

661,150. RAIL-JOINT. CLARENCE F. MEAD, Kansas City, Mo. Filed Mar. 13, 1900. Serial No. 8,534. (No model.)



Claim.—1. The combination with track-rails having recesses in the sides of the flanged heads of the contiguous end portions of separate rails, of a rail-joint chair having its base extending beyond the edge of the flanged base of said rails, and upwardly-extended, inwardly-bent flanged portions of said chair, a fish-plate upon the sides of said rails having a laterally-extended, downwardly-inclined flange upon its lower edge, and an upwardly-extended rail-reinforcing plate upon its upper edge and within the recesses of said rails, and a fish-plate upon the other side of said rails, and an outwardly-extended, downwardly-inclined flange upon the lower edge of said fish-plate, adapted to wedge the track-rails in position, substantially as described.

2. The combination with the track-rails having recesses in the sides of the flanged heads of the contiguous end portions of separate rails, of a rail-joint chair having its base extending beyond the edges of the flanged base of said rails, and upwardly-extended, inwardly-bent flanged portions of said chair, a fish-plate upon the sides of said rails, having a laterally-extended, downwardly-inclined flange upon its lower edge, an upwardly-extended rail-reinforcing plate supported by said fish-plate and within the recesses of said rails, and a fish-plate upon the other side of said rails, and an outwardly-extended, downwardly-inclined flange upon the lower edge of said fish-plate, adapted to wedge the track-rails in position, substantially as described.

661,151. COP-TUBE. WILLIAM J. MCCAUSLAND, Camden, N. J. Filed June 23, 1900. Serial No. 21,259. (No model.)



Claim.—1. A cop-tube formed of a coiled sheet of paper or pliable material having its inner face coated with paste and the outer longitudinal edge abraded or mechanically softened to insure its adherence and in which the longitudinal outer seam is continuous and smooth so as to form an unobstructed surface for the yarn.

2. A tapered tube formed of a coiled sheet of paper or pliable material having its inner face coated with paste and the outer longitudinal edge abraded or mechanically softened to insure its adherence and furthermore having the smaller end stiffened by an extra layer of glue or paste between the coiled layers.

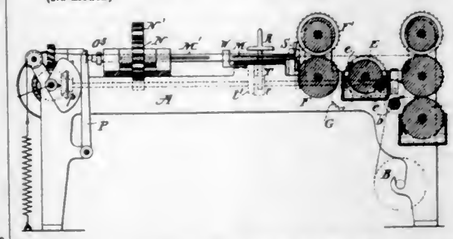
3. As a new article of manufacture a tapered cop-tube formed of coiled paper having its overlapping layers pasted together and the smaller end stiffened or strengthened by an extra layer of glue interposed between and shielded by the overlapping coils of the paper.

4. A sheet of paper adapted to be coiled into a tapered cop-tube consisting of a sheet having parallel edges B, C, and curved edges D, E, one convex and the other concave, the sheet having paste upon the greater portion of its surface on one side and extending between the curved edges D, E, so as to leave a longitudinal unpasted surface G adjacent to the edge B, and a narrow strip of glue transversely arranged upon its other face and adjacent to the concave edge E and extending to the edge B of the sheet.

5. A sheet of paper adapted to be coiled into a tapered cop-tube consisting of a sheet having parallel edges B, C, the latter being abraded or mechanically softened, and curved edges D, E, one convex and the other concave, the sheet having paste upon the greater part of its surface on one side and extending between the curved edges D, E to and including the abraded edge *c*, so as to leave a longitudinal unpasted surface G adjacent to the edge B, and a narrow strip of glue transversely arranged upon its other face adjacent to the concave edge E and extending to the edge B of the sheet.

6. A cop-tube consisting of coiled hard or sized paper having its layers directly glued or pasted together and having its outer longitudinal edge continuous and abraded or mechanically softened and incorporated with glue or paste and tightly secured to the body of the tube so as to retain its sealed condition and present a continuous smooth surface.

661,152. MACHINE FOR MAKING COP-TUBES. WILLIAM J. MCCAUSLAND, Camden, N. J. Filed June 23, 1900. Serial No. 21,260 (No model.)



Claim.—1. In a machine for making paper tobes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, and connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately.

2. In a machine for making paper tubes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, additional devices for applying an adhesive substance to the opposite side of the web transversely to its length at uniform intervals and on curved lines terminating with the line of transverse severance, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, and connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately, means for reciprocating the mandrel longitudinally when not rotating, and a stripper to strip the tube from the mandrel during the reciprocation.

3. In a machine for making paper tubes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, additional devices for applying an adhesive substance to the opposite side of the web transversely to its length at uniform intervals and on curved lines terminating with the line of transverse severance, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, and connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately.

4. In a machine for making paper tubes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, means for abrading or mechanically softening the pasted edge of the web opposite to the unpasted edge whereby it will more readily adhere in the coiling operation, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, and connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately.

5. In a machine for making paper tubes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately, means for reciprocating the mandrel longitudinally when not rotating, and a stationary stripper to strip the tube from the mandrel during the reciprocation.

6. In a machine for making paper tubes, the combination of rollers for feeding a web of paper, means for intermittently rotating said rollers, a pasting device for applying paste longitudinally upon one side except a narrow strip near one edge, means for abrading or mechanically softening the pasted edge of the web opposite to the unpasted edge whereby it will more readily adhere in the coiling operation, additional devices for applying an adhesive substance to the opposite side of the web transversely to its length at uniform intervals, a cutter to sever the web at stated intervals transversely on curved lines, a coiling-mandrel for receiving the unpasted edge of the web for a distance corresponding to the length of the subdivisions, means for intermittently rotating the mandrel to coil the sheet, connecting means for controlling the means for rotating the mandrel and feed-rollers whereby they operate alternately, means for reciprocating the mandrel longitudinally when not rotating, and a stripper to strip the tube from the mandrel during the reciprocation.

7. In a machine for making tobes of paper, the combination of means for intermittently feeding a web of paper, means for applying paste to the surface of said web, means for abrading or mechanically softening the edge of the web which is to be pasted, a cutter for cutting the pasted web into sheets of given lengths, and an intermittently-rotating mandrei for coiling the paper sheets.

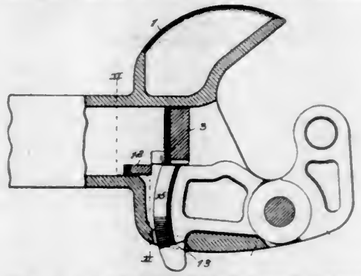
8. In a machine for making tubes of paper, the combination of means for intermittently feeding a web of paper, means for applying paste to the surface of said web, means for abrading or mechanically softening the edge of the web which is to be pasted, a cutter for cutting the pasted web into sheets of given lengths, an intermittently-rotating mandrel for coiling the paper sheets, and a spring-plate for pressing the pasted sheet against the mandrel during the coiling operation.

9. In a machine for making tobes of paper, the combination of means for intermittently feeding a web of paper, means for applying paste to the surface of said web, means for abrading or mechanically softening the edge of the web which is to be pasted, a cutter for cutting the pasted web into sheets of given lengths on curved lines, an intermittently-rotating mandrel for coiling the paper sheets, and an intermittently-operated finger or clamp to hold the severed sheet for a short period of time until the mandrel begins to rotate.

10. In a machine for making tubes of paper, the combination of means for intermittently feeding a web of paper, means for applying paste longitudinally to one of the surfaces of said web, means for applying an adhesive substance to the opposite surface on transverse lines at intervals apart, means for abrading or mechanically softening the edge of the web which is to be pasted, a cutter for cutting the pasted web into sheets of given lengths, and an intermittently-rotating mandrel for coiling the paper sheets.

11. In a machine for making paper tubes, the combination of means for feeding a web of paper intermittently, means for applying paste to one surface throughout its length, means for applying an adhesive substance to the other face on transverse lines at intervals apart, means to subdivide the web into sheets at each of the transverse lines of adhesive substance, and a coiling-mandrel for coiling the pasted sheets.

661,153. CAR-COUPLING. WILLIAM MCCONWAY and JOSEPH KELSO, Pittsburg, Pa., assignors to the McConway & Torley Company, same place. Filed Apr. 30, 1900. Serial No. 14,878. (No model.)



Claim.—1. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a gravity-lock arranged to move into the path of movement of the tail of the knuckle, and a locking-bar arranged to be shifted on the unlocking movement of the locking-block so as to have a bearing at two points in different horizontal planes on the locking-block and to have a third bearing on a stationary point or abutment outside of the locking-block, substantially as set forth.

2. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a gravity-lock adapted to move into the path of movement of the tail of the knuckle and having two shoulders or bearing-points out of line with each other, a locking-bar arranged to be shifted on the unlocking movement of the locking-bar between the shoulders or bearing-points on the locking-block, and a stationary bearing point or abutment for the locking-bar outside of the locking-block, substantially as set forth.

3. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a locking-block adapted to move into and out of the path of movement of the tail of the knuckle, and a locking-bar, the locking block and bar being constructed to interlock when the block is in unlocked position and mutually support one another in unlocked position, substantially as set forth.

4. In a car-coupler, the combination of a swinging hook provided with a tailpiece, and a locking mechanism for the hook consisting of members constructed to interlock and mutually support one another in unlocked position, substantially as set forth.

5. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivoted locking-block provided with a notch, a locking-bar adapted to enter said notch by a lateral movement when the block is in unlocked position and thereby hold the block in unlocked position, and means for supporting the bar in raised position, substantially as set forth.

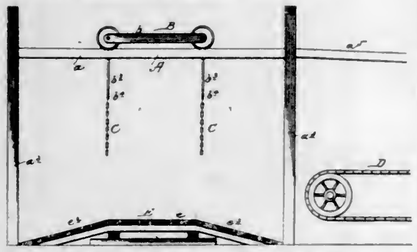
6. In a car-coupler, the combination of a swinging hook provided with a tailpiece, a pivotally-mounted locking-block movable into and out of the path of movement of the tail of the knuckle and provided with a notch, and a lifter engaging said block to raise it to unlocked position and provided with an arm adapted to move laterally into the notch in the block and thereby hold the latter in unlocked position, substantially as set forth.

661,154. UNLOADING OR LOADING DEVICE. HENRY NADLER and BEN C. LE BLANC, Plaquemine, La. Filed Aug. 23, 1895. Serial No. 560,244. (No model.)

Claim.—1. An unloading and loading device comprising an overhead track, a trolley normally stationary thereon but free at all times to be propelled by an agent independent of and disconnected from it, and means acting to lift or clear the load from the vehicle that contains it by the movement of the vehicle itself, alone, and leave the load suspended from the trolley, substantially as described.

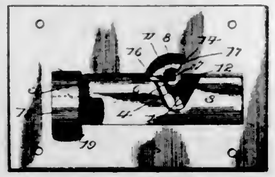
2. An unloading and loading device comprising an overhead track, a trolley normally stationary thereon but free at all times to be propelled by an agent independent of and disconnected from it, and means acting

automatically to lift or clear the load from the vehicle that contains it by the movement of the vehicle itself, alone, and leave the load suspended from the trolley, substantially as described.



3. An unloading and loading device, comprising an overhead track, having an inclined end portion, trolleys adapted to run thereon, a conveyer arranged below the inclined portion, and a double inclined platform located below the track at the end opposite the inclined portion, substantially as described.

661,155. HASP-LOCK. HILDA A. NOTTINGHAM, Fort Benton, Mont. Filed Aug. 6, 1900. Serial No. 26,065. (No model.)



Claim.—1. In a hasp-lock, the combination with a pivoted locking-button, of a sliding bolt adapted to engage and secure the button, a tumbler having an operating-arm received in a notch in the bolt whereby the latter is shot back and forth and having a stop-arm, and a shoulder or stop on the casing adapted to engage the said stop-arm when the bolt has been shot into engagement with the button and said operating-arm being adapted to aline lengthwise with the bolt when the latter is thus engaged, whereby retraction of the bolt is prevented.

2. In a hasp-lock, the combination with a pivoted locking-button, of a sliding bolt adapted to engage with and secure the button, a tumbler having two shoulders for engagement with the bit of the key and provided with an operating-arm which enters a notch in the bolt and also having a stop-arm adapted to engage a shoulder on the lock-casing when the bolt is engaged with the button, said operating-arm on the tumbler being adapted to aline lengthwise of the bolt when the latter is engaged with the button and the stop-arm on the tumbler being arranged to abut the bolt when the latter is retracted.

661,156. FLEXIBLE MATCH-STRIP. FRANK A. RATHBUN, Indianapolis, Ind. Filed Feb. 16, 1900. Serial No. 5,416. (No model.)

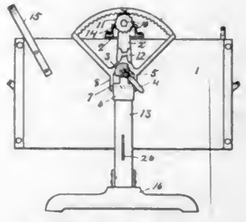


Claim.—1. As a new and useful article of manufacture a match-strip for the purpose described having in combination a flexible combustible strip and match-heads secured thereto and consisting of a combustible body portion and a fulminate embedded therein, said body portion having a notch below said fulminate on one side and a cavity for the engagement of an ejector formed through said flexible strip on the other side, substantially as set forth.

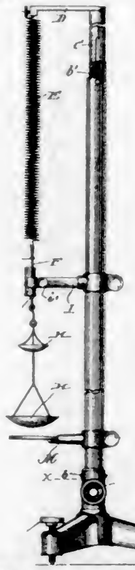
2. As a new and useful article of manufacture a match-strip for the purpose described having in combination a flexible combustible strip and match-heads secured thereto and consisting of a combustible body portion and a fulminate portion embedded in said body portion and having its entire outer surface at least as deep in the body portion as the sides and face of the body portion whereby the surfaces of the fulminate will be protected from friction against surfaces with which the sides and face of the body portion may come in contact, substantially as set forth.

661,157. GEARING. FRANK S. SCHMIDT, Fort Wayne, Ind. Filed Feb. 23, 1900. Serial No. 6,152. (No model.)

Claim.—In combination, standards, a tilting receptacle supported thereby, a toothed quadrant ranging above the side of said receptacle and having depending arms pivoted to one of said standards and adapted to be swung outward, an overreaching plate pivoted to said standard and adapted to normally hold said quadrant in position, an oscillating shaft mounted upon said receptacle, a pinion upon said shaft adapted to be engaged by said quadrant, a shaft within said receptacle, and bevel-gear connections between said shafts.



661,158. BALANCE. CHRISTIAN H. STOELTING and CHARLES E. LINERARGER, Chicago, Ill., assignors to the Chicago Laboratory Supply and Scale Company, same place. Filed June 18, 1900. Serial No. 20,651. (No model.)

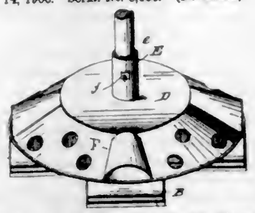


Claim.—1. A spring-balance consisting of a base, a perpendicularly-projecting tube-standard, a tube telescoping within the standard, means for sliding the telescoping tube within the standard, an arm projecting horizontally from the top of the telescoping tube, a spiral spring suspended from the arm, a weighing-pan suspended to the lower end of the spring, and means for limiting the vibration of the spring, substantially as described and for the purpose herein set forth.

2. In a Jolly balance, means for controlling the action of the weighing-spring, consisting of a narrow strip of metal having arms projecting at right angles from either end, which is suspended from the lower end of the weighing-spring and between the spring and the weighing-pan, which metal strip swings freely within a short tube, adjustably secured, by means of a bracket, to the supporting-standard of the balance, the tube being shorter than the distance between the arms projecting from either end of the metal strip, and which projecting arms may not pass through the tube, substantially as described, and for the purposes herein set forth.

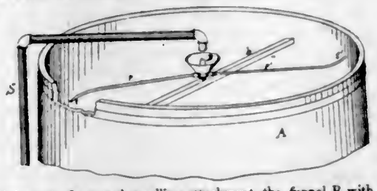
3. In a Jolly balance, means for reading weights consisting of a graduated tube supporting the weighing-spring, having telescoping engagement with a tube-standard projecting upward from the base of the balance, the graduations on the tube registering with an indicator secured to the upper end of the standard, an indicator secured to the lower end of the weighing-spring, and between the spring and the weighing-pan, an indicator projecting from the standard which is made to register with the indicator secured to the weighing-spring by raising or lowering the graduated tube carrying the weighing spring and pan, substantially as described, and for the purposes herein set forth.

661,159. CHURN-DASHER. EMMA G. THOMAS, Comstock, Ohio. Filed Mar. 14, 1900. Serial No. 8,686. (No model.)



Claim.—The combination with the lower cruciform section having the perforations of different diameters near the ends of the wings of the same, and a central tube of the upper section forming the frustum of a cone, and having the semi-elliptical tubes, and U-shaped openings in the dasher directly beneath the inner or smaller end of the elliptical tubes, the elliptical tubes disposed radially upon the section of the dasher, perforations formed between the elliptical tubes, the tubes secured centrally to the dasher, gasket or packing interposed between the central tube and dasher-rod and the bolt and nut for securing them together, all constructed and arranged for joint operation substantially as described, and for the purpose set forth.

661,160. APPARATUS FOR SWELLING STAVES OF WOODEN TANKS. JAMES M. THORP, Alameda, Cal. Filed Feb. 21, 1900. Serial No. 6,090. (No model.)



Claim.—1. In a tank-swelling attachment, the funnel B with the base *c*, cone *g*, pipe-sockets *e*, *e'*, guide *f* and set-screws *i*, *i'*, as shown.

2. In a tank-swelling attachment, the beam *b*, supported across the upper center of a tank in combination with the vertically-projecting pivot *d*, and the funnel B, as shown and described.

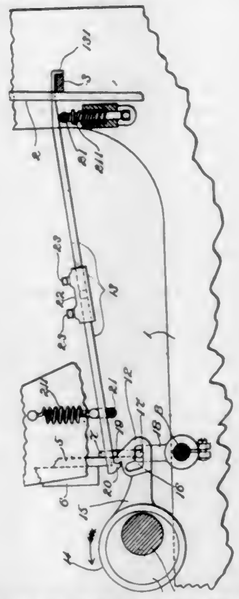
3. In a tank-swelling attachment the vertically-projecting and pointed pivot *d*, fixed at the upper center of a tank by means of the beam *b*, and supporting the funnel B which is adapted to receive the tank-supply water and distribute the same over the inner surface of the tank-walls, all as shown and described and for the purpose set forth.

661,161. WARP STOP-MOTION FOR LOOMS. CHANNING WHITAKER, Tyngsborough, Mass., assignor to the Lowell Machine Shop, Lowell, Mass. Filed Dec. 27, 1897. Serial No. 663,554. (No model.)

Claim.—1. The improved stop-motion devices comprising the cam or eccentric, the actuator operated by the said cam or eccentric and having a slot inclined to its path of motion, the vibrator having connected therewith a pin which enters the said slot and thereby receiving motion from the actuator, the transmitting-rod engaged by the actuator and moved endwise thereby, and a knocking-off device to be operated by the endwise movement of the said rod.

2. The improved stop-motion devices comprising the eccentric, the actuator having a strap-like portion fitting the said eccentric and having a slot with a longitudinally-extending portion and an inclined portion, the vibrator having an arm provided with a pin fitting the said slot, and normally having the end of the inclined portion of the latter seated thereon, whereby the vibrator receives motion from the said actuator, the transmitting-rod engaged by the actuator and moved endwise thereby, and a knocking-off device to be operated by the endwise movement of the said rod.

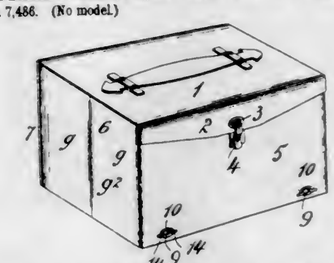
3. The improved stop-motion devices comprising the eccentric, the actuator fitting said eccentric and having an angular slot, the vibrator having an arm provided with a pin fitting the said slot and thereby receiving motion from the actuator, a knocking-off device, and the transmitting-rod engaged by the actuator and moved endwise thereby, and also free to rise and fall with the actuator whereby the point of engagement of the actuator with the transmitting-rod remains substantially in a straight line connecting the virtual center of the eccentric with the point of engagement of the said rod with the knocking-off device.



4. The improved stop-motion devices comprising the eccentric, the counterbalanced actuator fitting the said eccentric and having a projecting portion containing an angular slot, the vibrator having connected therewith a pin fitting the said slot and thereby receiving motion from the actuator, a transmitting device to be moved by the said actuator, and a knocking-off device.

5. The improved stop-motion devices comprising the actuator having an angular slot, means to oscillate the said actuator, the vibrator having connected therewith a pin fitting said slot and thereby receiving motion from the actuator, and a spring tending to hold the end of the offset portion of the slot seated on the said pin.

661,162. FOLDING LUNCH OR OTHER BOX. JOHN J. WHITE and EDMUND F. WHITE, Holyoke, Mass. Filed Mar. 6, 1900. Serial No. 7,486. (No model.)



Claim.—1. In a folding lunch or other box, comprising front and rear sides and ends suitably hinged and adapted to be collapsed or folded together, and having the bottom hinge-connected to one of the sides, and adapted to be folded thereagainst and to be swung down across to the other side, and a detachable locking device operating between the marginal portion of the bottom, and a wall of the box adjacent which the bottom is swung, the same constituting, in addition to a device for confining the bottom, also a supporting device therefor.

2. In a folding lunch or other box of the character described having the bottom hinge-connected to one of the box sides to be collapsed thereagainst and swung therefrom into a horizontal position across to the opposite box side, and having the box side opposite that at which the bottom is hinge-connected provided near its lower edge with a hole 10, of a locking device provided on the hinged bottom adjacent its margin and having a sliding movement on said bottom for engagement through

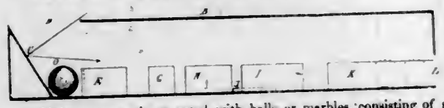
and disengagement from, said hole in the box side, for the purpose set forth.

3. In a folding lunch or other box of the character described, in which the bottom is hinge-connected to one of the box sides and is adapted to be swung from a position against such side at right angles thereto to be brought marginally adjacent the other box side, and the latter having therethrough the hole 10, and the bottom having the headed stud or button 12, the locking and supporting device 9 having an elongated loop or eye 13, normally divergent extremities 15, 15, and the outturned free ends 14, 14, said elongated eye having a sliding engagement with the bottom, for the purpose set forth.

4. In a folding lunch or other box of the character described, a side wall thereof having the eyeleted holes 10, 10, and the hinged bottom having the headed studs or buttons 12, 12, combined with which are the devices 9, 9, each composed of a single length of wire, the middle portions of which are bent to form the elongated loop 13, and the extremities of which are divergent and have the ends 14, 14, outturned in opposite directions, for the purposes set forth.

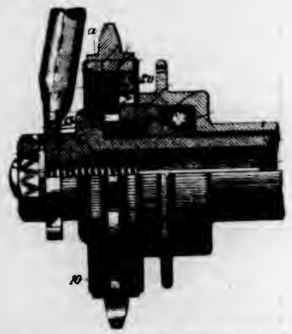
5. In a folding lunch or other box of the character described, a side wall thereof having the eyeleted holes 10, 10, and the hinged bottom having the headed studs or buttons 12, 12, combined with which are the devices 9, 9, each composed of a single length of wire, the middle portions of which are bent to form the elongated loop 13, and the extremities 15, 15, of which are extended divergent substantially in the plane of the loop, and have the ends 14, 14, outturned in opposite directions while portions of said extremities 15, 15, between the ends 14 and the loop have the bowed form 16, as shown.

661,163. PUZZLE. EDMUND T. YOUNG, Hamilton, Canada. Filed Jan. 29, 1900. Serial No. 3,165. (No model.)



Claim.—A puzzle operated with balls or marbles, consisting of a box formed with interior partitions, runways and obstructions, having its top partially covered with a semi-opaque covering as ground-glass, an opening at one end of the cover, a mirror placed diagonally at the open end of the box, by which the operating-balls and interior can be seen reflected though reversed in the mirror, an inlet-opening for the balls or marbles to enter and an opening in the opposite end for their exit, substantially as and for the purpose specified.

661,164. BACK-PEDALING BRAKE. ALFRED R. ANTHONY and CALVIN T. CUNNIUS, Wilkes-Barré, Pa. Filed Jan. 10, 1899. Serial No. 701,736. (No model.)



Claim.—1. In an automatic bicycle-brake, the combination of a driving-rim, the rear axle, an extensible sleeve surrounding said axle, said sleeve being rotatable but normally stationary, bearings upon said sleeve, the rear wheel-hub mounted on said bearings and free to revolve thereon while the sleeve is stationary, a brake device connected to one end of said sleeve, and means for connecting and disconnecting the driving-rim with the other end of said sleeve for the purpose of applying and releasing the brake.

2. In a back-pedaling brake the combination with an axle of a sleeve arranged to rotate about the axle, a wheel-hub arranged to rotate upon said sleeve, a ratchet-wheel connected to said sleeve, a second ratchet-wheel connected to said wheel-hub, a driving-rim surrounding said ratchet-wheels, dogs connected with the driving-rim and arranged to engage and rotate the ratchet-wheels, and a brake device also connected to said sleeve, substantially as described.

3. In a back-pedaling brake, the combination of an axle, a rotatable sleeve surrounding the axle, a rotatable hub surrounding the sleeve, a driving-rim, two ratchet-wheels within said rim connected respectively to said sleeve and hub, two series of dogs within said rim, one series for each ratchet-wheel, said dogs being in permanent engagement with the driving-rim and adapted to drive the ratchet-wheels in opposite directions corresponding to the backward and forward movements of the driving-rim, and a brake device connected to said sleeve, substantially as described.

4. In a back-pedaling brake, in combination with the brake device, the combined driving-wheel and clutch comprising a driving-rim, a series of rockers upon which said rim is supported, a ring supporting the inner ends of the rockers, a ratchet-wheel on one side of said rockers connected with the rear hub, a ratchet-wheel on the opposite side of said rockers connected with the brake device, and a series of dogs for each ratchet-wheel movably connected with the driving-rim, substantially as described.

5. In a back-pedaling brake, the combination with a driving-rim of a series of rockers supporting said rim, a ring upon which said rockers are supported, ratchet-wheels on opposite sides of said rockers and within the driving-rim, dogs on opposite sides of said rockers adapted to connect the driving-rim with the ratchet-wheels, and disks inclosing said ratchet-wheels, dogs and rockers, the ratchet-wheels being connected respectively to the driving-wheel of the bicycle and to the brake, substantially as described.

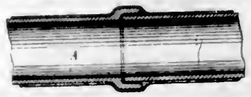
6. In an automatic bicycle-brake, the combination with an axle of an extensible sleeve rotatably mounted on the axle, bearings carried by the parts of said sleeve, a wheel-hub carried on said bearings, said hub being free to revolve thereon while the sleeve is normally stationary, and means for adjusting the length of the sleeve, whereby the bearings of said wheel-hub are adjustable, substantially as described.

7. In an automatic bicycle-brake, the combination with an axle of an extensible sleeve rotatably mounted on the axle, and comprising two halves having interlocking portions whereby they are adjustable longitudinally but compelled to rotate together, cones mounted upon the parts of said sleeve, a wheel-hub having ball-bearings running on said cones, said hub being free to revolve while the sleeve is normally stationary, and means for adjusting the two parts of the extensible sleeve, whereby the cone-bearings of the hub are adjusted, substantially as described.

8. In a back-pedaling brake, the combination with an axle of an extensible sleeve rotatably mounted on the axle, a wheel-hub rotatably mounted on said sleeve, ratchet-wheels connected to said wheel-hub and sleeve, respectively, a driving-rim, dogs connected with the driving-rim and adapted to move said ratchet-wheels in opposite directions, a brake-ring connected with the wheel-hub and a brake-band connected at one end with the extensible sleeve and at the other end to a stationary part and arranged to be applied to the brake-surface when the sleeve is rotated backward, substantially as described.

9. In a combined coaster and brake for velocipedes, the combination with the wheel-hub, a driving-wheel mounted loosely on one end thereof, and a coasting-clutch which is interposed between the driving-wheel and the hub and which drives the latter forwardly but allows said wheel to be held stationary while the hub continues its forward rotation, of a brake mounted on a stationary support at the opposite end of the hub, a brake-actuating device, a sleeve connected at one end with said actuating device and arranged lengthwise in the hub but independent thereof, said sleeve being normally stationary and free to be turned backwardly while the hub is free to rotate forwardly, and a brake-clutch interposed between the opposite end of the sleeve and the driving-wheel and operating reversely to the coasting-clutch, substantially as set forth.

661,165. PROTECTING UNDERGROUND METALLIC STRUCTURES FROM EFFECTS OF ELECTROLYSIS. LUCIEN I. BLAKE, Lawrence, Kans. Filed Aug. 9, 1900. Serial No. 26,436. (No model.)



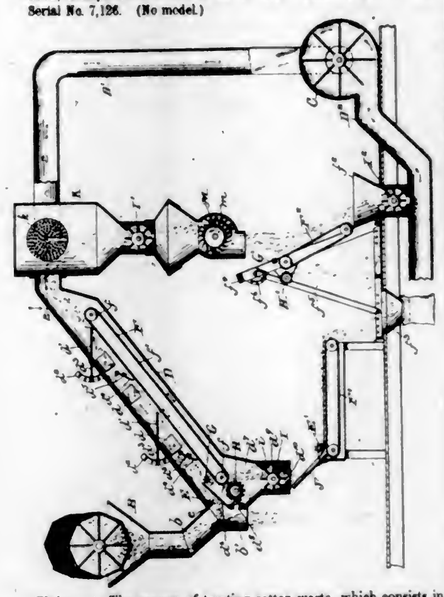
Claim.—1. As a means of protecting an underground metallic structure from corrosion resulting from electrolytic action, a conducting-coating applied thereto, which is unaffected by electrolytic action and impervious to the products of such action, as set forth.

2. The combination with an underground metallic structure of an electrically-conducting medium surrounding the same, which is unaffected by electrolytic action and impervious to the products of such action.

3. The combination with an underground metallic structure of a coating composed of a non-ionizable conductor and a binding material impervious to fluids, as set forth.

4. The combination with an underground metallic structure of a conductive-coating compound of powdered graphite and parafin, as set forth.

661,166. PROCESS OF TREATING COTTON-WASTE. ROBERT R. BOYD, Memphis, Tenn. Filed Jan. 6, 1898. Renewed Mar. 2, 1900. Serial No. 7,126. (No model.)



Claim.—1. The process of treating cotton-waste, which consists in subjecting it to the action of a current of air whereby the heavy trash is at once separated therefrom, conveying the remainder of the waste along by said current of air, and separating therefrom the principal part of the cotton while it is carried along by the air-current, separating the dust and light trash from the remainder, disintegrating said remainder, and separating the cotton from said disintegrated mass, substantially as described.

2. The process of treating cotton-waste, which consists in subjecting it to the action of a current of air, whereby the heavy trash is removed therefrom, removing therefrom fibrous substances, such as strings, conveying the remainder of the waste along by said current of air, and separating therefrom the principal part of the cotton during its transit, separating the dust and light trash from the remainder, disintegrating said remainder, and separating the cotton from said disintegrated mass, substantially as described.

3. The process of treating cotton-waste, which consists in subjecting it to the action of a current of air whereby the heavy trash is removed, conveying the remainder along by said current of air, separating it, during its transit, into two parts, and removing from one of those parts fibrous substances, substantially as described.

4. The process of treating cotton-waste, which consists in subjecting it to the action of a current of air whereby the heavy trash is removed therefrom, removing fibrous substances, such as string, from the remainder of the waste, conveying the waste along by said current of air, dividing said remainder in its transit, into two parts, still further separating the fibrous substances from one of said parts, separating the dust and other light trash from the other of said parts, disintegrating the remainder, and separating the cotton out of the disintegrated mass, substantially as described.

661,167. TIP FOR SYRINGES. HARLAN P. COLE, Hartford, Conn. Filed Dec. 5, 1899. Serial No. 739,231. (No model.)



Claim.—1. A tip for syringes having a conical end with a circumferential flange adjacent to the point where said end is united to the body portion of the tip, said flange serving to retain the tip within a passage of the human body.

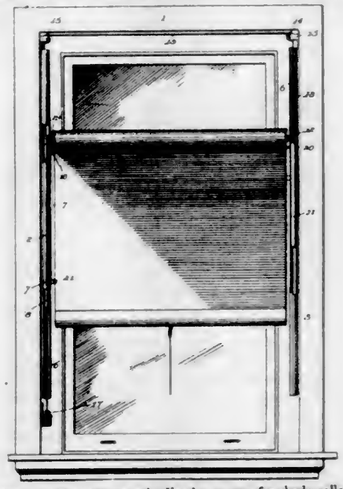
2. A tip for syringes comprising a tubular stem having a chambered end portion of large diameter, and a conical tip proper having a flange located at right angles to the stem and serving to retain the tip in a passage of the human body.

3. A stem for a syringe having an enlarged bulging portion at its upper end, and also having a tip projecting from said portion and provided with a right-angular flange, said flange serving to retain the tip in a passage of the body.

4. A stem for a syringe having an enlarged portion with exteriorly-curved walls at one end, combined with a tip removably applied to said enlarged portion and having a right-angular shoulder on its under side, and a deflector located within said tip.

5. The combination with a source of fluid-supply, of a stem having an enlarged portion at one end, a perforated plate carrying a deflector removably seated in said enlarged portion, and a tip surrounding said deflector, said tip having a shoulder, substantially as set forth.

661,168. ADJUSTABLE SHADE-ROLLER SUPPORT. PERCY J. DORAN, Chicago, Ill. Filed Feb. 20, 1900. Serial No. 5,931. (No model.)



Claim.—1. Supporting and adjusting means for shade-rollers, comprising vertically-slotted tubes secured to opposite sides of the window-frame; one of said tubes being also slotted transversely; a rod arranged within one of said tubes, provided with a finger-piece, and slotted at its upper end; a weight within the other tube formed with a socket near its upper end; a cord connecting said rod and weight; and pulleys over which the cord passes.

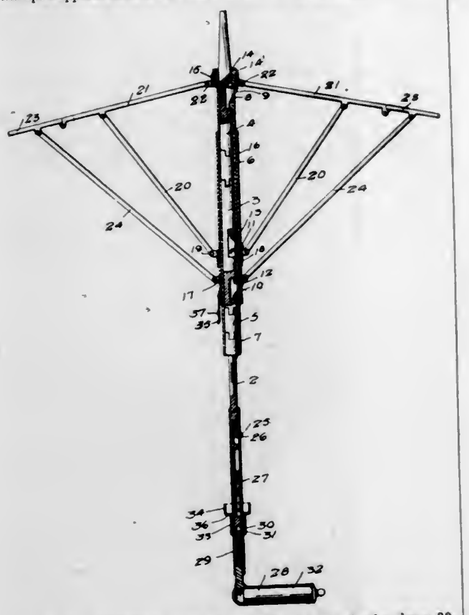
2. Supporting and adjusting means for shade-rollers, comprising vertically-slotted tubes secured to opposite sides of the window-frame; one of said tubes being also slotted transversely; a rod arranged within one of said tubes and slotted vertically at its upper end; a finger-piece projecting from said rod; a weight within the other tube formed with a socket near its upper end; a cord connecting the upper end of said weight with the lower end of said rod; pulleys at opposite sides of the top of the window-frame; and a pulley secured to one side of the frame below the lower end of the transversely-slotted tube, said cord passing over the upper pulleys and under the lower pulley.

661,169. FOLDING UMBRELLA. JOHN A. EKELUND, Minneapolis, Minn., assignor of one-third to Alfred Peterson, same place. Filed Feb. 5, 1900. Serial No. 3,975. (No model.)

Claim.—1. In a folding umbrella, the combination with a stick or rod composed of several jointed sections, of a tube 7 slidable thereon, means for locking said tube over the joints in said stick, the notch 15 slidable on said tube, means for locking said notch at the upper end of said tube, the ribs composed of sections pivoted together and having their inner sections pivoted to said notch, a runner slidable on said tube, braces pivotally connected to said runner and to the outer sections of said ribs, a collar 18 slidable on said runner, and a series of braces pivotally connecting said collar and the inner sections of said ribs, substantially as described.

2. In a folding umbrella, the combination, with a stick composed of several sections pivoted together, of a tube slidable on said stick, means for locking said tube over the joints between said sections, the notch 15 slidable on said tube, the jointed ribs pivoted on said notch, a runner slidable on said tube, braces connecting said runner and the outer sections of

said ribs, an auxiliary runner slidable on said runner, braces pivotally connecting said auxiliary runner and the inner sections of said ribs, a tube telescoping with the lower end of said stick, and a handle fitting within the open opposite end of said tube, substantially as described.



3. The combination, with the umbrella stick or rod, of a sleeve 33 fixed thereon, a flange 34 provided on said sleeve and having a hole or opening 36, a runner 16 slidable on said rod, the notch 15 slidable on said rod and runner, the ribs pivoted on said notch, the auxiliary runner 18 also slidable on said runner, the braces 20 connecting said auxiliary runner and said ribs, and the spring 35 provided on said sleeve and adapted to enter the hole 36 in said flange, substantially as described.

4. The combination, with an umbrella stick or rod composed of several sections pivotally connected and having a stop 14 near its upper end, of a tube slidable on said rod and having an enlarged upper end to engage said stop, springs for locking said tube over the joints in said rod, a runner slidable on said tube and locked thereon by said springs, a notch slidable on said tube and runner and fitting over the enlarged upper end of said tube, a spring locking said notch on said enlarged end, a series of jointed ribs pivotally connected with said notch, an auxiliary runner freely slidable upon said runner and adapted to be locked thereon by one of its locking-springs, braces pivotally connected with said auxiliary runner and with the inner joints or sections of said ribs, and similar braces pivotally connected with the lower end of said runner and the outer joints of said ribs, substantially as described.

661,170. **POTATO-HARVESTER.** WILLIAM F. ELLIS, New York, N. Y. Filed July 14, 1900. Serial No. 23,690. (No model.)

Claim.—1. A potato-harvester, comprising a front and rear axle, a conveyer-support the rear end of which is mounted on the rear axle, and the front end of which is pivotally connected with side arms which are pivotally supported above the front axle and extend downwardly and backwardly, a conveyer mounted in said conveyer-support and between side boards forming a part thereof, fingers connected with the front end of said support in front of the conveyer, and extending forwardly and downwadly and designed to piek up the potatoes, a vertically-movable plowshare supported in connection with the front axle, and devices for raising and lowering said plowshare and the front end of the conveyer-support, substantially as shown and described.

2. A potato-harvester, comprising a front and rear axle, a conveyer-support the rear end of which is mounted on the rear axle, and the front end of which is pivotally connected with side arms which are pivotally supported above the front axle and extend downwardly and backwardly, a conveyer mounted in said conveyer-support and between side boards forming a part thereof, fingers connected with the front end of said support in front of the conveyer, and extending forwardly and downwardly and designed to pick up the potatoes, a vertically-movable plowshare supported in connection with the front axle, devices for raising and lowering said plowshare and the front end of the conveyer-support, and revoluble spring-fingers mounted over the first-named fingers and operating in connection therewith, substantially as shown and described.



3. A potato-harvester, comprising a front and rear axle, a vertically-movable plowshare supported by the front axle, downwardly and backwardly directed arms pivotally supported above the front axle and near the opposite ends thereof, and provided at the lower ends with forwardly and downwardly directed fingers, a conveyer-support mounted on the rear axle and extending forwardly and downwardly, and pivotally connected with said arms, a conveyer mounted in said conveyer-support, and in operative connection with the rear axle, fingers connected with the front end of the conveyer-support projecting forwardly and downwardly, a revoluble transverse bar mounted above said fingers and in operative connection with the rear axle, and provided with spring-fingers which operate in connection with said first-named fingers, means for raising and lowering the plowshare and the front end of the conveyer-support and parts connected therewith, and means for supporting a potato-receptacle at the rear end of the conveyer, substantially as shown and described.

4. A potato-harvester, comprising a front and rear axle, a plowshare supported in connection with and in front of the front axle and vertically movable, side arms pivotally supported above the front axle and projecting downwardly and backwardly, a conveyer-support mounted on the rear axle and extending forwardly and downwardly and pivotally connected with said arms, and a hand-lever supported rearwardly of and above the front axle and in operative connection with the plowshare and with the pivotal connection of said arms and the conveyer-support, said conveyer-support and side arms being also provided with forwardly-directed fingers, substantially as shown and described.

5. A potato-harvester, comprising a front and rear axle, a conveyer-support mounted thereon, a conveyer mounted in said support and geared in connection with the rear axle, suitable supports connected with the front axle and extending downwardly and backwardly and pivotally connected with the conveyer-support, fingers connected with said conveyer-support and extending forwardly and downwardly, a plowshare connected with the front axle and vertically movable, and a hand-lever in operative connection with said plowshare and with the front end of the conveyer-support for raising and lowering the same, substantially as shown and described.

6. A potato-harvester, comprising a front and rear axle, a conveyer-support mounted thereon, a conveyer mounted in said support and geared in connection with the rear axle, suitable supports connected with the front axle and extending downwardly and backwardly and pivotally connected with the conveyer-support, fingers connected with said conveyer-support and extending forwardly and downwardly, a plowshare connected with the front axle and vertically movable, and a hand-lever in operative connection with said plowshare and with the front end of the conveyer-support for raising and lowering the same, said conveyer support being also provided with revoluble spring-fingers which operate in connection with the first-named fingers; substantially as shown and described.

7. A potato-harvester, comprising a front and rear axle, a conveyer-support mounted on the rear axle and extending forwardly and downwardly, a conveyer mounted therein and geared in connection with the rear axle, fingers connected with the front end of said support and projecting forwardly and downwardly, revoluble spring-fingers mounted over the first-named fingers and geared in connection with the rear axle, a support mounted over the front axle, a vertically-movable plowshare connected therewith, gear-wheels mounted in a backwardly-directed extension of said support, and geared in connection with the plowshare and also in connection with the front end of the elevator-support, and a hand-lever for operating said gear-wheels, substantially as shown and described.

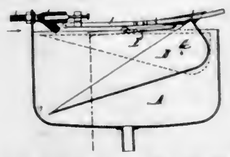
8. In a potato-harvester, a front and rear axle, a vertically-movable plowshare supported by the front axle, a conveyer the rear end of which is supported by the rear axle, said conveyer being geared in connection with said axle, side arms pivotally supported above the front axle and extending downwardly and backwardly and pivotally connected with the front end of the conveyer-support, and fingers connected with the conveyer-support and projecting forwardly and downwardly and adapted to pick up the potatoes and discharge them onto the conveyer, substantially as shown and described.

9. A potato-harvester, comprising a front and rear axle, a bolster pivotally supported above the front axle, a plowshare supported by said bolster, and vertically movable, a conveyer-support the rear end of which is mounted on the rear axle, and the front end of which is pivotally connected with side arms which are pivotally connected with said bolster, a conveyer mounted in said conveyer-support and geared in connection with the rear axle, means for picking up potatoes and discharging them on the conveyer, and means for raising and lowering the front end of the conveyer and the said plowshare, substantially as shown and described.

10. A potato-harvester, comprising a front and rear axle, a bolster pivotally supported above the front axle, a plowshare supported by said bolster and vertically movable, a conveyer-support the rear end of which is mounted on the rear axle, and the front end of which is pivotally connected with side arms which are pivotally connected with said bolster, a conveyer mounted in said conveyer-support and geared in connection with the rear axle, means for picking up potatoes and discharging them on the conveyer, and means for raising and lowering the front end of the conveyer and the said plowshare, consisting of a hand-lever pivotally supported rearwardly of said bolster and geared in connection with said plowshare or digger and with the front end of the conveyer-support, substantially as shown and described.

11. A machine of the class described, comprising a front and rear axle, a support mounted above the front axle, a plowshare connected therewith and vertically movable, side arms pivotally connected with said support and extending downwardly and backwardly, a conveyer-support mounted on the rear axle and projecting forwardly and downwardly and pivotally connected with said arms, a conveyer mounted in said support and geared in connection with the rear axle, fingers connected with said conveyer-support and projecting forwardly and downwardly, revoluble spring-fingers mounted above said first-named fingers and geared in connection with the rear axle, other fingers connected with said arms and projecting forwardly and downwardly at the sides of the first-named fingers, a hand-lever pivotally supported rearwardly of the front axle and geared in connection with the plowshare for raising and lowering the same, and also in connection with the front end of the conveyer-support for raising and lowering the same, substantially as shown and described.

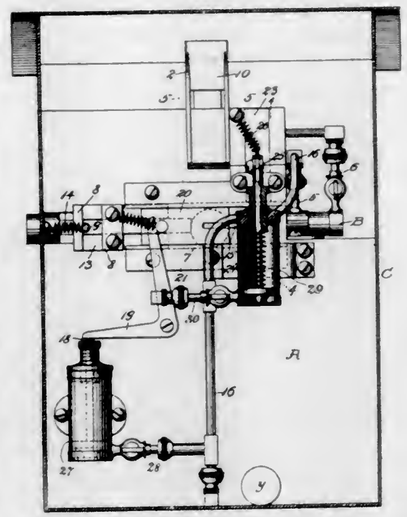
661,171. **AUTOMATIC FLUSHING AND DISCHARGING APPARATUS FOR SANITARY OR OTHER PURPOSES.** MAX GAUTIER, Brussels, Belgium. Filed Apr. 17, 1899. Serial No. 713,360. (No model.)



Claim.—1. In flushing apparatus, the combination, with a tilting vessel, and a valve which discharges into the said vessel; of a pivoted lever for operating the valve, said lever being supported by the upper part of the said vessel when tilted, a catch pivoted to the said lever and normally holding the said vessel in its tilted position, and means for raising the said catch, thereby permitting the said vessel to right itself and allowing the said lever to open the valve, substantially as set forth.

2. In flushing apparatus, the combination, with a reservoir having a discharge-opening at its lower part, a tilting vessel pivoted in the said reservoir, and a valve which discharges into the said vessel; of a pivoted lever for operating the valve, said lever being supported by the upper part of the said vessel when tilted, a catch pivoted to the said lever and normally holding the said vessel in its tilted position, and a lever pivotally supported by the said reservoir and operating to raise the said catch, thereby permitting the said vessel to right itself automatically and allowing the first said lever to open the valve, substantially as set forth.

661,172. **AUTOMATIC TIRE-INFLATER.** PAUL F. GILLETTE, New York, N. Y., assignor, by mesne assignments, to the United Specialty Company, same place. Filed Feb. 23, 1899. Serial No. 706,629. (No model.)



Claim.—1. The combination, in a tire-inflater, of a fluid-pressure-controlling valve, hand and automatically operative means for controlling in conjunction with the proper coin the opening of said valve, and means for discharging the coin upon the supply of the desired pressure, as set forth.

2. The combination, in a coin-operated inflater, of a fluid-pressure-controlling valve, a hand-operated device acting in conjunction with the coin for opening said valve, another device for automatically holding said valve open for the proper time, and an automatically-operative coin-discharger permitting the closing of the valve, as set forth.

3. The combination, in a coin-operated inflater, of a fluid-pressure-controlling valve, a lever connected to operate the valve, a coin-moving device confining the coin between itself and the valve-lever, and an independent coin-discharger for releasing said lever and permitting the valve to close, as set forth.

4. The combination, in a coin-operated inflater, of a fluid-pressure-controlling valve, a lever connected to operate the valve, a hand-operated device for moving the coin against the lever to open the valve, an automatically-operative device for continuing the holding of the coin against the moved lever, and a coin-discharger for removing the coin and releasing said lever, as set forth.

5. In a coin-operated inflater, the combination of a fluid-pressure-controlling valve having a lever projecting into the path of the coin, a hand-operated device for moving said lever in conjunction with said coin, a fluid-pressure-operated device for continuing the movement of the coin and lever, and a fluid-pressure-operated coin-discharger for removing the coin and releasing the lever, as set forth.

6. In a coin-operated inflater, the combination of a fluid-pressure-controlling valve having a lever projecting into the path of the coin, a hand-operated coin-pusher for moving the coin against the lever to open the valve, another coin-pusher automatically operative upon the opening of said valve, and a coin-discharger automatically operative upon the accumulation of the desired pressure in the device being filled with the fluid-pressure, as set forth.

7. In a coin-operated inflater, the combination of a fluid-pressure-controlling valve, a fluid-pressure-operated coin-pusher, a fluid-pressure-

operated coin-discharger and a single pipe connection leading from the valve-casing to the device to be supplied with fluid-pressure and to said pusher and discharger, as set forth.

8. In a coin-controlled inflater, the combination of a fluid-pressure-controlling valve, means for moving the coin to open the valve, and means for automatically discharging the coin governed by the degree of inflation obtained, as set forth.

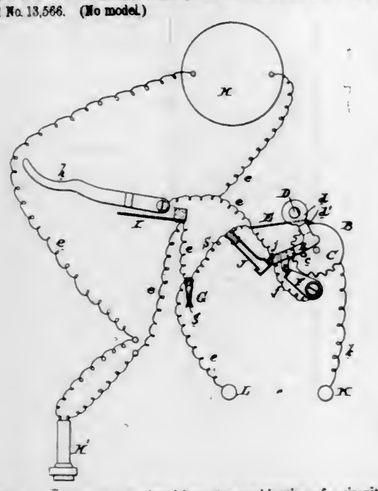
9. In a coin-controlled inflater, the combination of a fluid-pressure-controlling valve, means for moving the coin to open the valve and means for causing the coin to hold the valve open until the desired degree of inflation is obtained, as set forth.

10. In a coin-operated tire-inflater, the combination of a valve for controlling the supply of fluid to the tire, coin-operated means permitting the opening of said valve, means for temporarily holding the said valve open and a valve-liberating device other than said holding means operating upon the release of the holding means to allow the valve to close, as set forth.

11. In a coin-operated tire-inflater, the combination of a valve controlling the supply of fluid to a tire, coin-operated means for opening the said valve, a device for holding the valve open until the desired pressure is obtained and means independent of the holding device for liberating the said valve, as described.

12. The combination, in a tire-inflater, of a fluid-pressure-controlling valve, hand and automatically operative means for controlling the opening of the said valve, and means independent of the said automatic means for liberating the said valve, as described.

661,173. **ELECTRIC CALL OR SIGNAL BOX.** GEORGE G. GLENN and WILLIAM S. SULLIVAN, Philadelphia, Pa. Filed Apr. 20, 1900. Serial No. 13,566. (No model.)



Claim.—1. In a call or signal box, the combination of a circuit-interrupting wheel, a spring-actuated clockwork to rotate it a number of times, a stop for normally preventing the circuit-interrupting wheel making more than one revolution held in place by fusible solder whereby under the application of excessive heat it will fall away and the circuit-interrupting wheel may make a series of revolutions, and an electric circuit including the circuit-interrupting wheel for transmitting signals to a distant place.

2. In a call or signal box, the combination of a circuit-interrupting wheel, a spring-actuated clockwork to rotate it a number of times, a stop for normally preventing the circuit-interrupting wheel making more than one revolution held in place by fusible solder whereby under the application of excessive heat it will fall away and the circuit-interrupting wheel may make a series of revolutions, a telephone in series circuit with the circuit-interrupting wheel, a shunting-circuit for short-circuiting the telephone and means for closing the telephone-shunting circuit so that when the circuit-interrupting wheel is in operation the current impulses may be shunted around the telephone.

3. In a call or signal box, the combination of a circuit-interrupting wheel and contact, a spring-actuated clockwork to rotate it a number of times, a stop for normally preventing the circuit-interrupting wheel making more than one revolution held in place by fusible solder whereby under the application of excessive heat it will fall away and the circuit-interrupting wheel may make a series of revolutions, a telephone in series circuit with the circuit-interrupting wheel, a shunting-circuit for short-circuiting the telephone, means for closing the telephone-shunting circuit so that when the circuit-interrupting wheel is in operation the current impulses may be shunted around the telephone, and a fusible circuit-interrupting switch for opening the shunting-circuit in case of excessive heat.

4. In a call or signal box, the combination of a circuit-interrupting wheel, a spring-actuated clockwork to rotate it a number of times, a stop for normally preventing the circuit-interrupting wheel making more than one revolution held in place by fusible solder whereby under the application of excessive heat it will fall away and the circuit-interrupting wheel may make a series of revolutions, an electric circuit including the circuit-interrupting wheel for transmitting signals to a distant place, a telephone transmitter and receiver in series with each other and with the circuit-interrupting wheel, a short-circuiting switch operated by the weight of the receiver to short-circuit the telephone receiver and transmitter, and automatic means operating in parallel with the short-circuiting switch for shunting the telephone instruments when the circuit-interrupting wheel is in operation.

5. In a call or signal box, the combination of an electric circuit adapted for connection with a line-circuit, a spring-actuated circuit-interrupter for said circuit, a telephone-receiver of low resistance and transmitter in said electric circuit and in series with each other and with the interrupter, and a short-circuiting or shunting switch for short-circuiting the electric circuit around the receiver and transmitter so that the circuit-interrupter may be operated without causing interrupted currents to flow through the receiver and transmitter.

6. In a call or signal box, the combination of an electric circuit adapted for connection with a line-circuit, a spring-actuated circuit-interrupter for said circuit, a hand-operated device for winding up the spring-power of the interrupter and liberating the interrupter-wheel, a telephone-receiver of low resistance and transmitter in said electric circuit and in series with each other and with the interrupter, and a short-circuiting switch controlled by the hand-operated winding device for short-circuiting the electric circuit around the receiver and transmitter so that the circuit-interrupter may be operated without causing interrupted currents to flow through the receiver and transmitter.

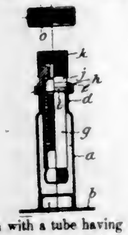
7. In a call or signal box, the combination of an electric circuit adapted for connection with a line-circuit, a spring-actuated circuit-interrupter for said circuit, a telephone-receiver of low resistance and transmitter in said electric circuit and in series with each other and with the interrupter, a short-circuiting switch for short-circuiting the electric circuit around the receiver and transmitter so that the circuit-interrupter may be operated without causing interrupted currents to flow through the receiver and transmitter, and means operating under the application of heat for causing the interrupter to continue to operate beyond normal operations without interfering with the short-circuited conditions of the telephone receiver and transmitter and without interfering with their proper use in series with the interrupter when it has ceased to operate.

8. In a call or signal box, the combination of an electric circuit adapted for connection with a line-circuit, a spring-actuated circuit-interrupter for said circuit, a hand-operated device for winding up the spring-power of the interrupter and liberating the interrupter-wheel, a telephone-receiver of low resistance and transmitter in said electric circuit and in series with each other and with the interrupter, a short-circuiting switch controlled by the hand-operated winding device for short-circuiting the electric circuit around the receiver and transmitter so that the circuit-interrupter may be operated without causing interrupted currents to flow through the receiver and transmitter, a short-circuiting switch controlled by the hand-operated device for short-circuiting the interrupter when not operating to maintain a good electric circuit when the telephone receiver and transmitter are in operative circuit.

9. In a call or signal box, the combination of an electric circuit adapted for connection with a line-circuit, a spring-actuated circuit-interrupter for said circuit, a telephone-receiver of low resistance and transmitter in said electric circuit and in series with each other and with the interrupter, a short-circuiting switch for short-circuiting the electric circuit around the receiver and transmitter so that the circuit-interrupter may be operated without causing interrupted currents to flow through the receiver and transmitter, a short-circuiting switch controlled by the hand-operated device for short-circuiting the interrupter when not operating to maintain a good electric circuit when the telephone receiver and transmitter are in operative circuit.

661,174. **INFLATION-VALVE ATTACHMENT.** JOHN H. GOSS, Waterbury, Conn., assignor to The Scovill Manufacturing Company, same place. Filed July 2, 1900. Serial No. 22,332. (No model.)

Claim.—1. An inflation-valve attachment, comprising a metal tube adapted to be applied to the tire and to receive the valve as a whole, and provided with an outer socketed end having an external screw-thread, and a valve-casing having a nut swiveled thereon and adapted to engage the external screw-thread of the tube, whereby the valve as a whole may be inserted in said tube and removed from it at pleasure without disturbing the said metal tube or its fastening to the tire, substantially as described.

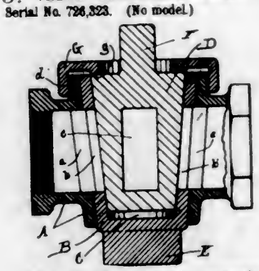


2. The combination with a tube having a socketed mouth which is externally screw-threaded, of a valve-casing, a packing-ring thereon, an external collar or flange above said packing-ring, and a nut applied to said casing above said flange and engaging it and also engaging the external screw-thread of the tube, substantially as described.

3. An inflation-valve casing, having an undercut plain portion below the usual screw-thread which receives the cap, a subjacent collar or flange, and a swivel-nut applied thereto, combined with an attaching-tube having a socket to receive said casing, and provided with an external screw-thread for coöperation with said nut, substantially as described.

4. An inflation-valve attachment, comprising a tube having a socket and an external screw-thread thereon, a valve-casing having the usual cap-receiving external screw-thread, a plain undercut portion next to such screw-thread, a subjacent collar or flange, a packing-ring beneath said collar or flange, and a nut swiveled on said plain portion and adapted to engage the screw-thread on the socket, substantially as described.

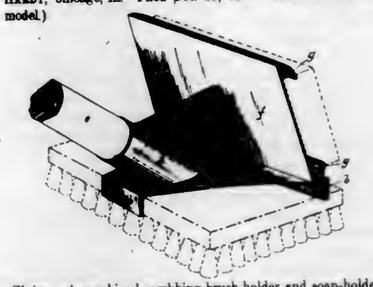
661,175. **VALVE.** SAMUEL HAIGH, Cincinnati, Ohio. Filed Aug. 5, 1899. Serial No. 726,323. (No model.)



Claim.—1. In a valve with registering transmission-passages, the combination of an outer casing A; a rotatable intermediate casing B; the rotatable plug D seated within the intermediate casing B; and the nut G in threaded connection with the outer casing A, substantially as described and for the purpose specified.

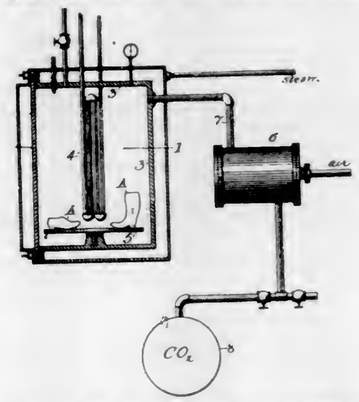
2. In connection with the outer casing of a valve having the usual transmission-passages, the combination of an auxiliary or intermediate casing B with registering passages intersecting an internal recess C; means for rotating the casing B, as shown at E; the rotatable plug D having a similar registering passage *c*; means for rotating plug *d*, as shown at F; and the nut G to secure the parts, substantially as described and for the purpose specified.

661,176. **COMBINED BRUSH AND SOAP HOLDER.** RICHARD L. HARDY, Chicago, Ill. Filed Dec. 22, 1899. Serial No. 741,280. (No model.)



Claim.—A combined scrubbing-brush holder and soap-holder, comprising a plate provided with means for holding the brush and having a handle-socket attached to it and inclining upward and backward, a soap-holder plate attached to the brush-plate at the front edge thereof and extending upward therefrom and provided with means for holding a cake of soap, and a bracing-web connecting the socket to the brush-plate, substantially as set forth.

661,177. **PROCESS OF VULCANIZATION.** WILLIAM G. HILL, Jr., Malden, Mass. Filed Jan. 9, 1900. Serial No. 826. (No specimens.)

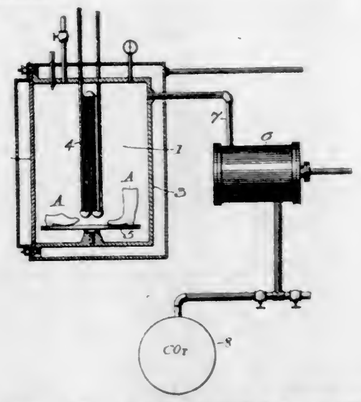


Claim.—1. The process of vulcanizing rubber and allied gums, which consists in surrounding with gas the substance to be vulcanized, heating the gas to a temperature sufficient to vulcanize the substance, and subjecting the gas to pressure irrespective of that which may be due to the expansion of the gas by heat; substantially as described.

2. The process of vulcanizing rubber and allied gums, which consists in surrounding with air the substance to be vulcanized, heating the air to a temperature sufficient to vulcanize the substance, and subjecting the air to pressure irrespective of that which may be due to the expansion of the air by the heat; substantially as described.

3. The process of vulcanizing rubber and allied gums, which consists in surrounding with gas the substance to be vulcanized, heating the gas to a temperature sufficient to vulcanize the substance, and subjecting the gas to a pressure of from thirty to one hundred pounds per square inch; substantially as described.

661,178. **PROCESS OF VULCANIZATION.** WILLIAM G. HILL, Jr., Malden, Mass. Original application filed Jan. 9, 1900, Serial No. 826. Divided and this application filed Mar. 5, 1900. Serial No. 7,885. (No specimens.)



Claim.—1. The herein-described process of vulcanizing rubber and allied gums, which consists in heating the rubber compound in an atmosphere of an inert gas, substantially as set forth.

2. The herein-described process of vulcanizing rubber and allied gums, which consists in heating the rubber compound in an atmosphere of a non-oxidizing gas, substantially as set forth.

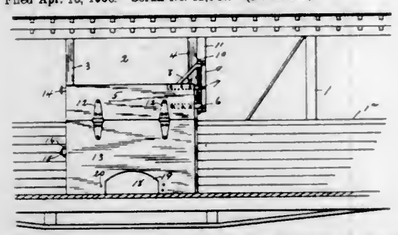
3. The herein-described process of vulcanizing rubber and allied gums, which consists in heating the rubber compound in an atmosphere of carbon dioxid, substantially as set forth.

4. The process of vulcanizing rubber and allied gums which consists in surrounding with inert gas the substance to be vulcanized, heating the gas to a temperature sufficient to vulcanize the substance, and subjecting the gas to pressure irrespective of that which may be due to the expansion of the gas by heat; substantially as described.

5. The process of vulcanizing rubber and allied gums, which consists in surrounding with non-oxidizing gas the substance to be vulcanized, heating the gas to a temperature sufficient to vulcanize the substance, and subjecting the gas to pressure irrespective of that which may be due to the expansion of the gas by heat; substantially as described.

6. The process of vulcanizing rubber and allied gums, which consists in surrounding with carbon-dioxid gas the substance to be vulcanized, heating the gas to a temperature sufficient to vulcanize the substance, and subjecting the gas to pressure irrespective of that which may be due to the expansion of the gas by heat; substantially as described.

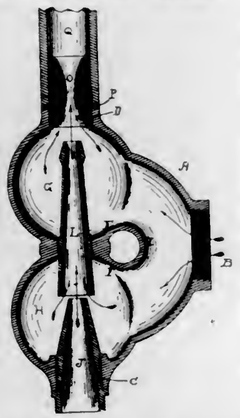
661,179. **RAILWAY GRAIN-DOOR.** JACOB KOLB, Wichita, Kans. Filed Apr. 10, 1900. Serial No. 12,347. (No model.)



Claim.—1. In combination with a railway freight-car, a grain-door consisting of an upper and lower section, the upper narrower section hinged to the inside of the side car-door post, the lower wider section hinged to the upper section, an opening in the lower part of said lower section, and a small door journaled at one side of said opening adapted to close said opening, and a latch adapted to hold said lower door in place while in use, and up against said upper section when out of use, substantially as shown and described.

2. In the herein-described grain-door, the combination of a lower section of about the width of the inside sheeting of a railway freight-car, an opening in the lower side of said lower section, a small door journaled to the outside of said door adapted to close said opening an upper section narrower than said lower section, hinges for securing said grain-door to the side door-posts, hinges connecting said upper and lower sections, and a double-hooked latch for securing said lower section to the door-post when in use, and to said upper section when out of use.

661,180. **EJECTOR.** WILLIAM D. LABADIE, South Bend, Ind. Filed May 17, 1900. Serial No. 17,044. (No model.)



Claim.—1. In an ejector, a body or frame provided with a horizontal partition which divides the frame or body into two separate and distinct chambers upon one side of the body or frame only and from each of which the water is ejected, substantially as shown.

2. In an ejector, a body or frame provided with a horizontal partition F, which extends substantially in a line with the center of the water-inlet, and which partition divides the body or frame into two separate and distinct chambers upon one side of the body or frame only and from both or only one of which the water is ejected by the pressure of the steam, substantially as described.

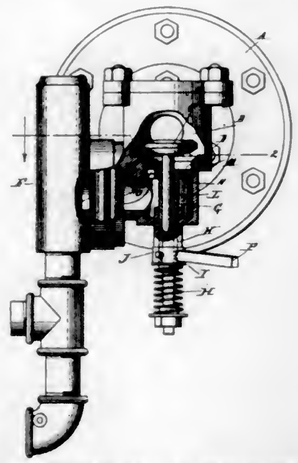
3. In an ejector, a body or frame provided with a partition which divides it into two separate and distinct chambers, combined with a tube which is screwed into and through the partition, a steam-ejector tube, and a discharge-nozzle, substantially as set forth.

4. In an ejector, a reversible discharge-nozzle, combined with the tube through which both the water and steam are forced, substantially as specified.

5. In an ejector, a reversible discharge-nozzle, and the body or frame into which one end of the nozzle is screwed and which is provided with a horizontal partition, combined with the tube L, and the steam-ejector tube J, substantially as shown.

6. In an ejector, a discharge-nozzle, provided with a flange near one end, and screw-threaded its entire surface upon each side of the flange, the pipe Q into which one end of the nozzle is screwed, and the frame provided with a horizontal partition which divides the frame into two separate and distinct chambers, from one or both of which the water may be ejected, and which partition extends in a line with the inlet for the water, and the tube L which extends through and is supported by the partition, combined with the steam-tube J, substantially as set forth.

661,181. **SPEED-REGULATOR FOR GAS-ENGINES.** JOHN W. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed Dec. 23, 1899. Serial No. 741,406. (No model.)



Claim.—In combination with a gas-engine, an igniting-chamber connected to the working cylinder thereof, a gas-supply conduit connected with the said chamber, a main valve seated over the opening therebetween, this valve being provided with a stem extending through the wall of the supply-conduit, an apertured auxiliary valve-seat between the main valve-seat and the supply-passage, an auxiliary disk valve seated on said seat, against the face adjacent to the main valve and provided with an aperture, a sleeve connected to said disk valve and surrounding the main valve-stem and extending out through the wall of the gas-passage, a device for holding said disk valve against its seat, a governor mechanism connected to the projecting end of said sleeve and adapted to rotate the same independently of the main valve-stem, and means for intermittently operating the main valve and its stem independently of the auxiliary valve and its governor mechanism.

661,182. **TUG-STOP.** OLIVER P. LANGAN, St. Louis, Mo. Filed Mar. 5, 1900. Serial No. 7,392. (No model.)

Claim.—1. A tug-stop, comprising a strip, an open ring integral with each end of said strip, apertured ears integral with said rings, screws for connecting said ears, and a finger carried by said strip opposite from the said rings, substantially as specified.

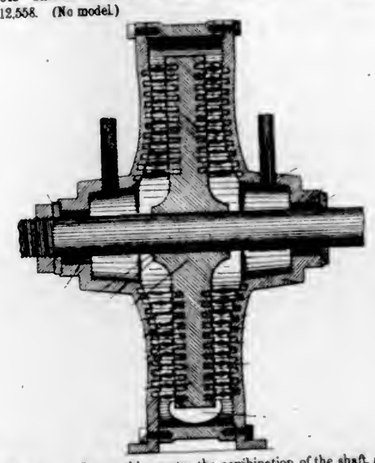
2. A shaft tug-stop, comprising a strip, an open ring integral with each end of said strip, apertured ears integral with each of said rings, screws for said apertures, a lug integral with said strip opposite from said rings, and a finger rigidly carried by said lug which finger acts as a tug-stop, substantially as specified.



3. A shaft tug-stop comprising a strip, an open ring integral with each end of said strip, ears integral with said rings, the said ears being in planes parallel with the plane of the strip, means for drawing said ears together, a lug integral with said strip, and a finger carried by said lug, substantially as specified.

4. A tug-stop, comprising a strip, an open ring integral with each end of said strip, means for clamping the rings around the shaft, a lug integral with the said strip, and a finger rigidly carried by said lug, substantially as specified.

661,183. **RADIAL-FLOW STEAM-TURBINE ENGINE OR MOTOR.** SAMUEL LOUNT, Barrie, Canada. Filed Apr. 10, 1899. Serial No. 712,558. (No model.)

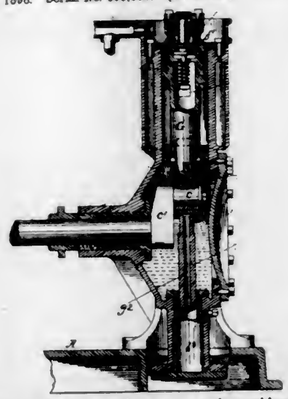


Claim.—1. In a turbine motor the combination of the shaft, a driving-disk thereon, a series of blades set in concentric circles on said disk parallel to the driving-shaft and each inclined at a uniform angle to the radius of the disk passing through it, a casing for said disk in which the driving-shaft is journaled, a corresponding series of blades of opposite inclination set in the inner face of the casing, each circle of blades set in the disk running between two circles of blades set in the casing, a steam-inlet at the center of the casing, and a steam-outlet at the perimeter of the casing, the disk and casing being so shaped that the distances between them at different points shall vary so as to produce such port-openings at the various circles of blades that at every point the ratio of expansion of the steam to the area of port-opening shall vary as the distance from the center of the disk varies.

2. In a turbine motor, the combination of the shaft, a driving-disk thereon, a series of blades set in concentric circles on said disk parallel to the driving-shaft and each inclined at a uniform angle to the radius of the disk passing through it, a casing for said disk in which the driving-shaft is journaled, a corresponding series of blades of opposite inclination set in the inner face of the casing, each circle of blades set in the disk running between two circles of blades set in the casing, a steam-inlet at the center of the casing and a steam-outlet at the perimeter of the casing, the disk and casing being so shaped that the distance between them decreases in a curve which begins at the inner circle of blades, reaches its minimum at an intermediate circle of blades, and then increases as the perimeter of the disk is approached.

3. In a turbine motor, the combination of the shaft, a driving-disk thereon, a series of blades set in concentric circles on said disk parallel to the driving-shaft and each inclined at a uniform angle to the radius of the disk passing through it, a casing for said disk in which the driving-shaft is journaled, a corresponding series of blades of opposite inclination set in the inner face of the casing, each circle of blades set in the disk running between two circles of blades set in the casing, a steam-inlet at the center of the casing and a steam-outlet at the perimeter of the casing, the area of the port-openings in the successive circles of blades varying from the inner to the outer circle as the ratio of the coefficient of expansion of steam at any one circle of blades to the radius of said circle.

661,184. **AMMONIA-COMPRESSOR.** JAMES T. LUDLOW, San Francisco, Cal., assignor to the Vulcan Iron Works, same place. Filed Oct. 31, 1898. Serial No. 695,097. (No model.)



Claim.—1. In an ammonia-compressor, the combination of a casing, an adjacent cylinder, a piston therein, a guide-chamber opposite said cylinder, a piston-rod for said piston carrying a guide-rod working in said guide-chamber, said rod having an oil-duct adapted to receive oil from said chamber and carry it to the drive connection, and power connections for driving said piston-rod, in said casing, substantially as described.

2. In an ammonia-compressor having a shell or casing to contain oil, and an adjacent cylinder with piston and rod, said rod having a yoke with depending guide-rod, a crank-pin seated in a sliding box in said yoke, whereby the piston is operated, a guide-chamber in which the guide-rod works, said chamber communicating with the shell or casing containing the oil, a hole in said guide-rod, to permit the oil to pass therethrough from the guide-chamber, and suitable communications from the top of said hole, to permit the oil to reach the crank-pin and box.

661,185. **RAG DOLL.** MADGE L. MEAD, Philadelphia, Pa. Filed Mar. 29, 1900. Serial No. 10,581. (No model.)



Claim.—1. A head-pattern for a rag doll consisting of a single piece having a central circular projection to form the crown and side extensions adapted to be stitched around the circular projection and joined at their extremities having its lower margin provided with dart-seams to form the chin, substantially as described.

2. A head-pattern for a rag doll consisting of a single piece having a central circular projection to form the crown and side extensions adapted to be stitched around the circular projection and joined at their extremities having its lower margin provided with three dart-seams in front and one on each side to form the chin and neck, substantially as described.

3. An arm and hand pattern for a rag doll consisting of one piece adapted to be folded longitudinally and its edges stitched together except at its upper or shoulder end which is adapted to be secured to the trunk member, with transverse stitching midway its extremities to form the elbow-joint and longitudinal dart-stitching along the folded edge, substantially as described.

4. A leg and foot pattern for a rag doll, consisting of a single piece, adapted to be longitudinally folded and stitched together at its edges having a transverse stitching for the knee-joint, and dart-seams for deflecting the foot member, substantially as described.

5. A rag doll consisting of the following patterns, secured together and filled with yielding material, a front and back pattern for the trunk member with its edges secured together, a head-pattern consisting of a single piece having a central circular projection and side extensions, its edges properly joined, and the lower edge secured to the trunk member,

two arm and hand patterns each consisting of a single piece folded longitudinally and the edges stitched together, one end stitched to the armholes of the trunk member, and transverse stitching intermediate its extension to form the elbow-joint, two leg and foot patterns each consisting of a single piece folded longitudinally and the edges stitched together with transverse stitching for the knee-joint and dart-seams for deflecting the foot part.

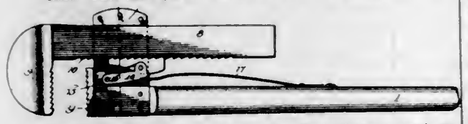
661,186. SMOKE-STACK COUPLING. BERTRUM MITCHEL, Oconomowoc, Wis. Filed Aug. 21, 1899. Serial No. 727,938. (No model.)



Claim.—1. The combination with a divided smoke-stack, the sections of which are held out of contact with each other, of a sheet-metal split collar, having overlapping ends, surrounding the said smoke-stack, and covering the space between the said two separated sections thereof, one of said ends having a projecting headed rivet, and the other of said ends being provided with a keybole-slot for the reception of said headed rivet, whereby the said ends are adjustably held together in an overlapped position, together with suitable means for diminishing the circumference of said collar, while the ends are thus held together.

2. In a removable split collar, the combination with an integral band of sheet metal bent into tubular form, with overlapping ends, of a pair of angle-plates secured to one of said ends, the free projecting portions of said angle-plates having round smooth-bored perforations therethrough; a pair of screw-bolts formed with their unthreaded ends shouldered or offset, and said shouldered ends being bent into a coil or ring, and rigidly and immovably secured by screw-bolts and nuts to the other of said overlapping ends, with the threaded ends of said first-named screw-bolts projecting in line with the described perforations in said angle-plates; and tightening-nuts for engagement with said projecting threaded ends after the same have passed through the perforations in said angle-plates.

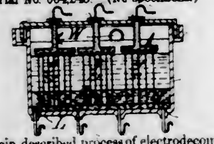
661,187. PIPE-WRENCH. WILLARD A. MORRIS, Cedar Bluffs, Nebr. Filed Mar. 6, 1900. Serial No. 7,551. (No model.)



Claim.—1. A wrench comprising a handle having a recessed stationary jaw, a plate, a stud thereto secured within the recess, a yoke, a jaw having a toothed shank slidably mounted within the yoke, a toothed block within the yoke, a link pivoted to said block and to the handle, and a spring secured to the handle and bearing upon the link, whereby the toothed block is held normally in engagement with the toothed shank.

2. A wrench comprising a handle having a recessed stationary jaw, a plate, a stud thereto secured within the recess, a yoke, a jaw having a toothed shank slidably mounted within the yoke, a recessed toothed block within the yoke, a link pivoted within said recess and to the handle, and a spring secured to said handle, and bearing upon said link, whereby the toothed block is held normally in engagement with the toothed shank.

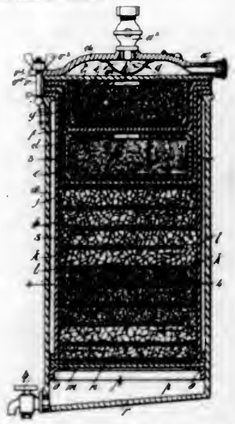
661,188. PROCESS OF SEPARATING METALS FROM THEIR COMBINATIONS. ANTON NETTL, Prague, Austria-Hungary. Filed Dec. 29, 1897. Serial No. 664,245. (No specimens.)



Claim.—The herein-described process of electrodecomposition which consists in causing a mercury electrode to continually fall freely by gravity in a plurality of finely-divided streams through the body of the electrolyte, and passing an electric current to the mercury as cathode through an electrolyte containing a metal capable of combining with such mercury cathode.

661,189. APPARATUS FOR FILTERING WATER. FRANCIS J. OLSEN and EDWARD H. WHITMORE, Christchurch, New Zealand. Filed Mar. 15, 1900. Serial No. 8,858. (No model.)

Claim.—1. In water-filtering apparatus the combination of two cylinders one within the other, the inner cylinder having superposed compartments containing broken granite, a felt cup within the upper part of said inner cylinder receiving a perforated drum containing charcoal, a second felt cup within the first arranged above the drum containing charcoal and receiving a perforated drum containing lime, a felt disk above the lime-drum, a cover through which water to be filtered is supplied means for securing said cover to the outer cylinder whereby the felt cups and felt disk are clamped in position a felt disk at the bottom of said inner cylinder, a chamber beneath it receiving filtered water and a tap upon the outer cylinder for withdrawing water from the chamber substantially as specified herein and illustrated.



2. The combination in water-filtering apparatus of two cylinders one within the other the inner cylinder having superposed compartments containing broken granite, a felt cup within the upper part of said inner cylinder receiving a perforated drum containing charcoal, a felt disk above said drum a cover having an opening to admit water to be filtered means for securing said cover to the outer cylinder and clamping the felt cup and disk in position a felt disk at the bottom of said inner cylinder a chamber beneath said inner cylinder receiving filtered water and a tap upon the outer cylinder for withdrawing water therefrom substantially as specified.

3. The combination in filtering apparatus of a cylinder containing broken quartz a felt cup within the upper part of said cylinder a perforated drum within said felt cup containing charcoal a cover over said cup through which water to be treated is admitted a reservoir for filtered water at the perforated bottom of said cylinder and a tap for withdrawing water from said reservoir substantially as specified and illustrated.

4. The combination in water-filtering apparatus of two cylinders one within the other the inner cylinder containing broken granite a felt cup within the upper part of said inner cylinder receiving a perforated drum containing charcoal, a felt disk above said drum a cover having an opening to admit water to be filtered means for securing said cover to the outer cylinder and clamping the felt cups and disk in position a felt disk at the bottom of said inner cylinder a chamber beneath said inner cylinder receiving filtered water and a tap upon the outer cylinder for withdrawing water therefrom substantially as specified.

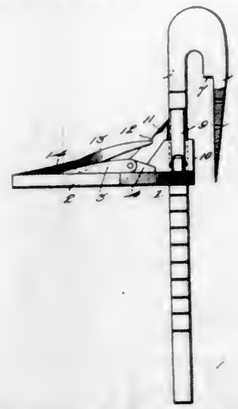
661,190. COVER FOR POTS OR KETTLES. ALFRED OLSON, San Diego, Cal. Filed June 4, 1900. Serial No. 19,015. (No model.)



Claim.—The combination with a cover having a slot therein; and an annular bead concentric to the center thereof; of a slide adapted to cover the slot; a bead thereon forming a groove which corresponds and registers with the bead of the cover; a bolt engaging the slide and cover and serving as a pivot for said slide; a knob secured to the bolt; and projections struck up from the slide at opposite sides of the base of the knob and clamping the same thereto whereby said slide and knob are adapted to be turned in unison.

661,191. SAUER-KRAUT PRESS. ROGER J. ONG and ANDERSON J. DOUGLAS, Yates Landing, Ill. Filed May 21, 1900. Serial No. 17,402. (No model.)

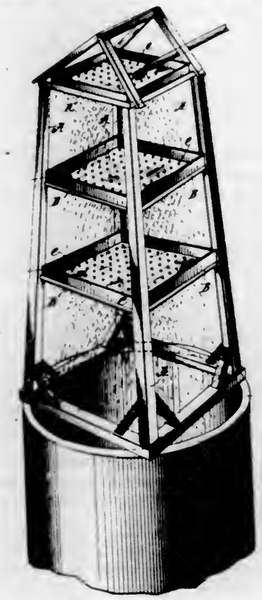
Claim.—1. A press for sauer-kraut, or other materials, comprising a platen consisting of hinged sections, one of which is formed with an opening; a rack-bar extending through said opening, and turned down at its upper end to adapt it to be attached to a barrel; a pawl on the platen to engage said rack-bar; and means for securing the front section of the platen.



2. A press for sauer-kraut or other materials, comprising a platen consisting of hinged sections, one of which is formed with an opening; a rack-bar extending through said opening; and having its upper end turned down and formed with a shoulder and screw-holes; a housing surrounding the opening in the platen; a pawl pivotally secured to the platen at one side of the rack-bar to engage the latter; and a pawl pivotally secured to the front section of the platen to engage a notch in the housing.

3. A press for sauer-kraut or other materials, comprising a platen consisting of hinged sections, one of which is formed with an opening; a rack-bar extending through said opening and turned down to form a depending arm formed with a shoulder and a series of openings; a pawl pivotally secured upon the platen at one side of the rack-bar; a housing surrounding the opening; an inclined notched plate closing the front of the housing; and a pawl pivoted centrally on the platen and adapted to engage the notched plate.

661,192. WATER-COOLING APPARATUS. WILLIAM OSTENDORFF, Union Hill, N. J. Filed Aug. 10, 1900. Serial No. 26,466. (No model.)

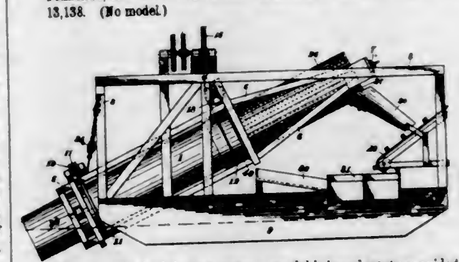


Claim.—1. In a water-cooling apparatus, the combination, with a pan-sustaining framework, of a series of water-pans, each provided with a multiplicity of small apertures in its bottom, and with a series of inclined deflectors formed of metallic strips secured by one edge to its under side, to cause the water to fall from opposite sides of the pan, in intersecting curves, substantially as and for the purposes set forth.

2. In a water-cooling apparatus, the combination, with a pan-sustaining framework, of a series of water-pans, each provided with a multiplicity of small apertures in its bottom, arranged in a series of rows across the pan, and provided beneath each of said series of holes with a continuous metallic strip attached to the bottom of the pan through an integral flange and having a free depending edge inclined toward the center of the pan, whereby the water is caused to fall from opposite sides of the pan in intersecting curves, substantially as and for the purposes set forth.

3. In a water-cooling apparatus, the combination, with a pan-sustaining framework of a series of water-pans, each provided with a multiplicity of small apertures in its bottom arranged in a series of rows across the pan and provided beneath each of said series of holes, with a continuous metallic strip attached to the bottom of the pan through an integral flange, and having a free depending edge inclined toward the center of the pan, whereby the water is caused to fall from opposite sides of the pan in intersecting curves, the deflectors of each succeeding pan being set at an angle to those on the pan next above, substantially as and for the purposes set forth.

661,193. SUBAQUEOUS DREDGER. WILLIAM W. PRIESTLEY, Smartsville, Cal., assignor of one-half to GUSTAVE A. KORNBERG, San Francisco, Cal. Filed Aug. 8, 1899. Renewed Apr. 16, 1900. Serial No. 13,138. (No model.)



Claim.—1. In dredging apparatus, a revoluble barrel or tube provided with interior helical passages, adjustably mounted in slings and driven by traction of the same, substantially as specified.

2. In dredging apparatus, a revoluble barrel or tube having helical passages therein, set in an inclined position and adjustably supported in and driven by the traction of a sling or slings, means to raise and lower the outer or working end of the barrel and excavating devices attached to the submerged end thereof, substantially as specified.

3. In dredging apparatus, a revoluble barrel having helical passages therein, means to revolve and support the same in an inclined and adjustable position, and in combination therewith a cylindrical screen having a like diameter and continuation of the helical passages through this screen, substantially as specified.

4. In dredging apparatus, a main revoluble barrel having helical passages therein, set in an inclined position and provided with excavating devices at its lower or working end, an inclosing frame 5 around this main barrel, fixed in respect to the barrel's rotation but moving longitudinally and laterally therewith, substantially as specified.

5. In dredging apparatus, a main revoluble barrel set in an inclined position and having helical passages therein, an inclosing frame 5 around this barrel, means to prevent longitudinal movement of the barrel therein, a sustaining-roller 19 mounted on this frame and the lateral bearing-rollers 39 at its sides, substantially as specified.

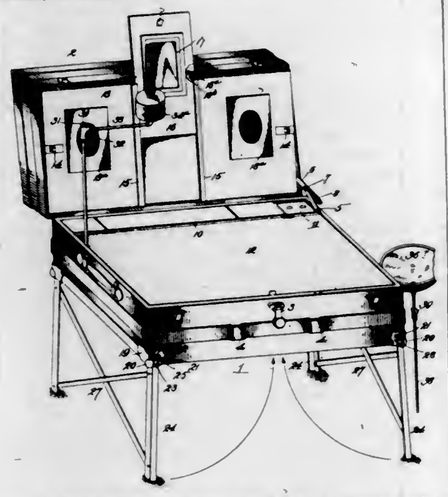
6. In dredging apparatus, a main revoluble barrel adjustably mounted in an inclined position, helical passages therein formed of struts of timber spanning and bracing the outer shell, in the manner and for the purposes substantially as specified and described.

7. In dredging apparatus, a main revoluble barrel set in an inclined position, sustained in slings and driven by traction thereof, provided at its lower or working end with removable excavating devices and also an angular extension 32 for use in deep working, the whole arranged, combined and operating substantially as specified.

661,194. TABLE-DESK TRUNK. ALFRED P. ROTHSCHILD and GEORGE J. BUB, Leavenworth, Kans. Filed Apr. 24, 1900. Serial No. 14,111. (No model.)

Claim.—1. In a device of the character described, a set of corner-

brackets having pivot-pins and pockets above said pins, and legs having slots pivotally embracing said pins and adapted to fit in said pockets, substantially as described.



2. In a device of the character described, a set of corner-brackets having pivot-pins and pockets above said pins, and legs at corresponding ends connected in pairs and all provided with slotted upper ends engaging said pins and adapted at times to fit in said pockets, substantially as described.

3. In a device of the character described, a set of corner-brackets having pivot-pins and pockets above said pins, and legs constructed of angle-iron, each leg having one arm prolonged beyond the other to provide a shoulder at the upper end of the latter; said prolonged arms having longitudinal slots and adapted at times to fit in said pockets, substantially as described.

4. In a device of the character described, a set of corner-brackets having pivot-pins and pockets above said pins, and legs constructed of angle-iron, each leg having one arm prolonged beyond the other to provide a shoulder at the upper end of the latter; said prolonged arms having longitudinal slots and adapted at times to fit in said pockets, and said legs being adapted to be clamped firmly up against the lower front and rear edges of the trunk, substantially as described.

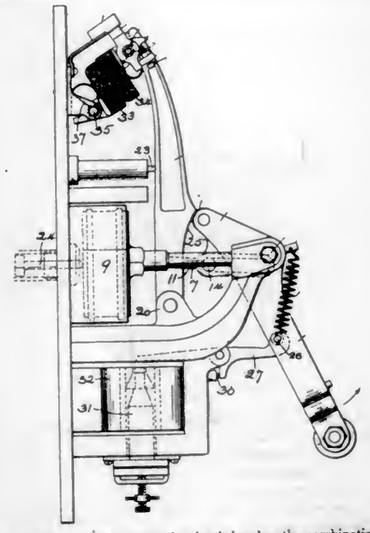
5. In a device of the character described, a body portion supported upon legs, a top hinged to the body portion, means to support the top in a substantially vertical position, a tray in said top, guide-cleats secured to the bottom of the tray, a sliding mirror secured in said guide-cleats, means to support it in its elevated position, an illuminating attachment supported upon the body portion, and a lavatory attachment detachably connected to the body portion, all arranged substantially as and for the purpose set forth.

661,195. AUTOMATIC MAGNETIC CIRCUIT-BREAKER. WILLIAM M. SCOTT, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed July 22, 1899. Serial No. 724,750. (No model.)

Claim.—1. In an automatic magnetic circuit-breaker the combination of a main switch, a hand-lever for operating the movable contact of same, a supplemental switch in shunt with the main switch, a pivoted arm carrying the movable contact of the shunt-switch, the hand-lever adapted to act upon the pivoted arm by cam engagement to close the shunt-switch, the hand-lever being connected to the movable contact of the main switch with a certain amount of play to secure the closing of the shunt-switch before that of the main switch, and the opening of the main switch before that of the shunt-switch.

2. In an automatic magnetic circuit-breaker the combination of a main switch, a hand-lever for operating the movable contact of same, a supplemental switch in shunt with the main switch, a pivoted arm carrying the movable contact of the shunt-switch, the hand-lever provided with a projection adapted to act upon the pivoted arm by cam engagement to close the shunt-switch, means connected between the hand-lever and the main switch for closing the latter after the hand-lever has closed the shunt-switch, and adapted to permit the opening of the main switch before the opening of the shunt-switch.

3. In an automatic magnetic circuit-breaker the combination of a main switch and a supplemental switch, each having a movable support independent of the other, spring means for actuating said switches and a manually-operative closing member having toggle-joint connection with the main switch and cam engagement with the supplemental switch, substantially as described.



4. In an automatic magnetic circuit-breaker the combination of a main switch and a supplemental switch independently movable with respect to each other, spring means for actuating same, a manually-operative closing member having toggle-joint connection with the main switch and cam engagement with the supplemental switch to cause the movement of the supplemental switch first in closing and to permit the movement of the supplemental switch first in opening the circuit, substantially as described.

5. In an automatic magnetic circuit-breaker the combination of a main switch and a supplemental switch in shunt therewith, a pivoted hand-lever and a rod pivotally secured to the movable contact of the main switch and having also a pivot-and-slot connection with the hand-lever, a pivoted member carrying the movable contact of the shunt-switch and operated to hold it in the closed position by the hand-lever prior to the closing of the main switch, and until after the opening of the same.

6. An electric contact member composed of metal laminæ the outer ends of which are formed approximately in circular arcs, the centers of the arcs of the inner and shorter laminæ being closer to the inside edge of the bridge than those of the outer and longer laminæ, said laminæ being separated and lying apart, toward and at their extremities or contacting edges.

7. An electric contact member composed of metal laminæ, the outer ends of which are formed approximately in circular arcs, the centers of the arcs of the inner and shorter laminæ being closer to the inside edge of the bridge than those of the outer and longer laminæ, said laminæ being separated and lying apart toward and at their extremities or contacting edges, said contact-faces of the laminæ so disposed as to coöperate with the inclined surfaces of the fixed contacts which are inclined toward each other.

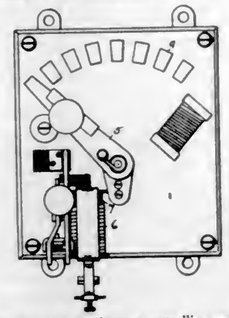
8. The combination with an electric main switch, of two coöperating carbon contacts for final break, each pivotally mounted and spring-controlled, and so disposed as to maintain a flat contact during their entire engagement with each other until after the main switch has opened, and then to separate upon a line.

9. In combination with an electric contact member, two coöperating carbon contacts for final break, each carbon having independent pivotal mounting.

661,196. RHEOSTAT AND CIRCUIT-BREAKER. WILLIAM M. SCOTT, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed Sept. 28, 1899. Serial No. 731,945. (No model.)

Claim.—1. In combination with an electromagnetic circuit-breaker and a resistance-controlling switch, means for short-circuiting a portion of the actuating-coil during a prescribed movement of the resistance-controlling switch, substantially as described.

2. In combination with an electromagnetic circuit-breaker and a resistance-controlling switch, a shunt to the actuating-coil of the circuit-breaker adapted to be brought into or out of circuit by the movement of the resistance-controlling switch, substantially as described.



3. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker means controlled by the controlling-switch altering the amount of current flow required for the operation of the circuit-breaker, substantially as described.

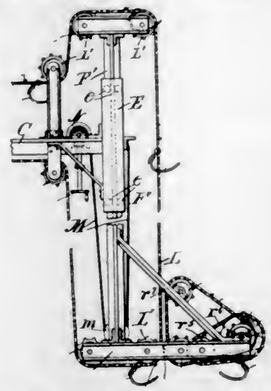
4. In combination with a controlling-switch an automatic magnetic circuit-breaker, means controlled by the controlling-switch for changing the ampere-point of operation of the circuit-breaker, substantially as described.

5. In combination with a resistance-controlling switch an automatic magnetic circuit-breaker, magnetic means controlled by the resistance-controlling switch for opposing the automatic magnetic actuation of the circuit-breaker, substantially as described.

6. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker a coil so disposed as to oppose, during certain positions of the controlling-switch, the magnetism of the actuating-coil of the circuit-breaker, substantially as described.

7. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker, a coil in series with the resistance and so disposed with respect to the actuating-coil of the automatic magnetic circuit-breaker as to oppose the magnetism of the latter until the resistance is cut out, substantially as described.

661,197. CONVEYER. SIDNEY J. SYDNEY, New Orleans, La. Filed Aug. 31, 1899. Serial No. 729,102. (No model.)



Claim.—1. In a conveyer, the combination with a frame, of an adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, means for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm, and means for driving the same, substantially as described.

2. In a conveyer, the combination with a frame, of an adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, means for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm and means for driving the same, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and baskets are moving in the same direction, substantially as described.

3. In a conveyer, the combination with a pivoted horizontal frame, of an adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, means for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm, and means for driving the same, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and basket are moving in the same direction, substantially as described.

4. In a conveyer, the combination with a pivoted horizontal frame, of a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, means for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm and means for driving the same, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and baskets are moving in the same direction, substantially as described.

5. In a conveyer, the combination with a pivoted horizontal frame, of a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, chain-driving mechanism for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm and means for driving the same intermittingly, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and basket are moving in the same direction, substantially as described.

6. In a conveyer, the combination with a pivoted horizontal frame, of a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, chain-driving mechanism for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm and means for driving the same intermittingly, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and basket are moving in the same direction, substantially as described.

7. In a conveyer, the combination with a horizontal frame, of a revoluble support to which said frame is secured, a traveling support from which said frame is suspended, a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried upon said arm and frame, means for transmitting motion to and supporting said baskets, an auxiliary feeding mechanism carried by the adjustable arm and means for driving the same, said feeding mechanism being adjusted to feed the articles to the conveyer-baskets while both articles and baskets are moving in the same direction, substantially as described.

8. In a conveyer, the combination with a frame, of a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried by said frame and arm, means for supporting and transmitting motion to said baskets, an auxiliary feeding mechanism comprising conveyer feed-baskets and means for supporting the same, and means for imparting motion to the feed-baskets in the same direction as that of the conveyer-baskets and at different speed whereby the feed-baskets are caused to deposit their contents into the conveyer-baskets, substantially as described.

9. In a conveyer, the combination with a horizontal pivoted frame, of a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried by said frame and arm, chain-driving mechanism for supporting and transmitting motion to said baskets, an auxiliary feeding mechanism comprising conveyer feed-baskets and means for supporting the same, and means for imparting motion to the feed-baskets in the same direction as that of the conveyer-baskets and at different speed whereby the feed-baskets are caused to deposit their contents into the conveyer-baskets, substantially as described.

10. In a conveyer, the combination with a horizontal pivoted frame, of a vertically adjustable arm carried at one end of said frame, conveyer-baskets carried by said frame and arm, means for supporting and transmitting motion to said baskets, an auxiliary feeding mechanism comprising conveyer feed-baskets, and means for supporting the same and means for imparting motion to the feed-baskets in the same direction as that of the conveyer-baskets and at different speed whereby the feed-baskets are caused to deposit their contents into the conveyer-baskets, substantially as described.

11. In a conveyer, the combination with a horizontal frame, of a revoluble frame supporting said horizontal frame near one end, a traveling support from which said horizontal frame is suspended, a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried by said frame and arm, means for supporting and transmitting motion to said baskets, an auxiliary feeding mechanism comprising conveyer feed-baskets and means for supporting the same, and means for imparting motion to the feed-baskets in the same direction as that of the conveyer-baskets and at different speed whereby the feed-baskets are caused to deposit their contents into the conveyer-baskets, substantially as described.

12. In a conveyer, the combination with a horizontal extensible frame, a revoluble pivoted frame supporting one end of said horizontal frame, a traveling support from which said horizontal frame is suspended,

a vertically-adjustable arm carried at one end of said frame, conveyer-baskets carried by said frame and arm, means for supporting and transmitting motion to said baskets, an auxiliary feeding mechanism comprising conveyer feed-baskets and means for supporting the same, and means for imparting motion to the feed-baskets in the same direction as that of the conveyer-baskets and at a different speed, whereby the feed-baskets are caused to deposit their contents into the conveyer-baskets, substantially as described.

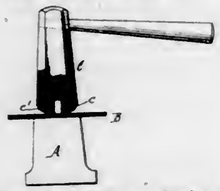
13. In a conveyer, the combination with a horizontal pivoted frame, conveyer-baskets carried by said frame, means for supporting said baskets upon said frame and imparting motion thereto, mechanism for receiving the contents of said conveyer-baskets comprising a moving support, and means for driving said moving support at a speed differing from that of the said baskets, substantially as described.

14. In a conveyer, the combination with a horizontal pivoted frame, an adjustable arm carried by said frame, chain-and-sprocket driving-gear carried by said frame and arm, conveyer-baskets carried by said chain driving-gear, mechanism for receiving the contents of said conveyer-baskets, comprising moving belts and means for supporting the same, and means for driving said belts at a speed differing from that of the conveyer-baskets, substantially as described.

15. In a conveyer, the combination with a horizontal frame, an adjustable arm carried by said conveyer, baskets carried by said frame and arm, means for supporting and transmitting motion to said baskets, mechanism for receiving the contents of said conveyer-baskets comprising moving belts located beneath the baskets, means for supporting said belts, and means for driving them at a speed differing from that of the conveyer-baskets, substantially as described.

661,198. HAMMER FOR STRAIGHTENING SAW-BLADES.

JAMES W. THURSTON and HERBERT A. THURSTON, Indianapolis, Ind. Filed Mar. 19, 1900. Serial No. 9,307. (No model.)

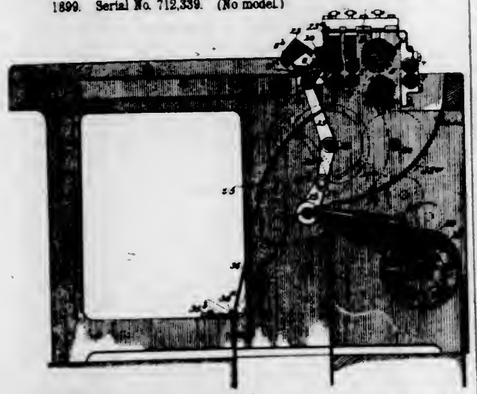


Claim.—1. A hammer or tool for straightening or planishing saw-blades, provided in its striking-face with a recess or depression which is closed on all sides, and having the striking-face formed to recede in all directions from the edge of said recess, substantially as set forth.

2. A hammer or tool for straightening or planishing saw-blades, provided with a convex striking-face having a central recess or depression which is closed on all sides, substantially as set forth.

661,199. TOBACCO-STEMMING MACHINE.

JOSEPH B. UNDERWOOD, Fayetteville, N. C., assignor, by mesne assignments, to the Underwood Stemming Machine Company, of New Jersey. Filed Apr. 8, 1899. Serial No. 712,339. (No model.)



Claim.—1. In a leaf-stemming machine, the combination, with stripping mechanism which intermittently receives leaves and then strips the same, and means for feeding leaves thereto, of means for moving away from such stripping mechanism, at times when stripping is going on, leaves which have been presented to such stripping mechanism but have not been engaged thereby.

2. In a leaf-stemming machine, the combination, with stripping mechanism, which intermittently receives leaves and then strips the same, and means for feeding leaves thereto, of a movable member located in front of such stripping mechanism, and means for moving said member across the plane of movement of the said leaves, to deflect from their normal path and hold away from the stripping mechanism leaves which have been presented thereto but not engaged thereby.

3. In a leaf-stemming machine, the combination, with stripping mechanism and means for feeding leaves thereto, of a movable stop arranged transversely of the direction of motion of the leaves passing to said stripping mechanism, and means for moving said stop across the plane of movement of the said leaves, to deflect from their normal path such leaves as have already been presented to the stripping mechanism but not engaged thereby, and arrest incoming leaves which have not been so presented.

4. In a leaf-stemming machine, the combination, with stripping mechanism, and substantially horizontally arranged feeding mechanism for feeding leaves to said stripping mechanism, of a substantially vertically movable stop arranged transversely of the direction of motion of the leaves passing to said stripping mechanism, and means for moving said stop from beneath the path of the leaves upward, thereby raising away from the stripping mechanism leaves which have been presented thereto but not engaged thereby.

5. In a tobacco-leaf-stemming machine, the combination with stripping mechanism adapted to remove the leaf by a wiping action, and a feeding means for feeding the leaves flatwise in the plane of the coacting surfaces of the stripping mechanism; of a member movably held at a point between the delivery end of the feeding means and the stripping mechanism; and devices for intermittently shifting said movable member, whereby to alternately move it in a plane with the feeding means to form a bridge-piece and to a point over the path of the movement of the leaf whereby it will act as a stop for the purposes specified.

6. In a tobacco-leaf-stemming means as described; the combination with the leaf-feeding mechanism and stripping-rolls; of a member intermittently movable in a plane above the coacting surfaces of the rolls, said member acting as a support to hold the ends of the improperly-fed leaves from engaging with the coacting surfaces of the stripping-rolls, and mechanism for operating the said movable member, as specified.

7. In a tobacco-stemming machine, the combination, with the feeding devices and the stripping mechanism, of a leaf-stop located between the delivery end of the feeding devices and the stripping mechanism, movably supported, and adapted to move below the discharge end of the feeding devices, and means for raising said stop across the plane of movement of the leaves while a leaf is being stripped, thereby checking the feeding of other leaves.

8. The combination with the main leaf-feed and the supplemental feed devices and the stripping mechanism, of a combined bridge-piece and leaf-stop member for retarding a leaf during the stripping operation of a preceding leaf and forming a continuation of the feed-table as the leaf is fed forward, said member being gravity-operated to its lower or bridge position, and a support for the said bridge operated by the supplemental feed devices to elevate the said bridge, substantially as shown and described.

9. In a tobacco-leaf-stemming machine as described, the combination with the main feed and the stripping mechanism, of the supplemental feed mechanism, comprising the upper and lower vibrating rolls, and a guide carried by the roll-support movable with such rolls for leading the leaf between them, substantially as shown and described.

10. In a leaf-stemming machine, the combination, with main and supplemental stripping mechanisms, of a separating device, which receives the leaf particles stripped from the stems by the supplemental stripping mechanism, together with such pieces of stem as accompany such leaf particles, and separates such leaf particles from the pieces of stem.

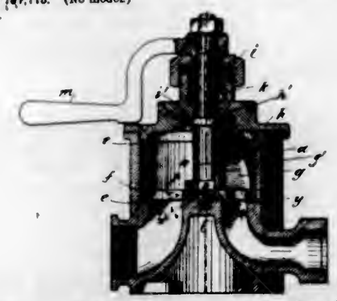
11. In a leaf-stemming machine, the combination, with main and supplemental stripping mechanisms, of an air-blast separating mechanism, which receives the particles stripped from the stems by said supplemental stripping mechanism, together with such pieces of stem as accompany such leaf particles, and separates the leaf particles from pieces of stem.

12. In a leaf-stemming machine, the combination, with stripping mechanism, of a separating mechanism for separating the leaf particles from particles of stem, and a guide extending from the point of discharge of the stems to said separating mechanism, and arranged to direct leaf particles and particles of stem accompanying them to such separating mechanism.

13. In a tobacco-stemming machine as described, the combination with the main stripper-rolls, the main drive-shaft, the oppositely-rotatable clutch-gears loosely mounted on the shaft, and geared with the stripping-rolls, said shaft having a tubular extension, the sliding double clutch-wheel, the reciprocating rod movable in the tubular shaft and connected with the sliding clutch-wheel, a cam longitudinally movable on the shaft and rotatable therewith, a fixed member to engage and shift the cam lengthwise, said cam having a cushioned connection with the reciprocating rod, all being arranged substantially as shown and for the purposes described.

661,200. SLIDE-COCK FOR MIXING WATER AND STEAM.

JOHANN WEHINGER, Zurich, Switzerland. Filed Nov. 21, 1899. Serial No. 737,773. (No model.)



Claim.—1. The combination with a compound cock provided with intercommunicating mixing and discharge chambers, with a plurality of supply-passages opening into said mixing-chamber and with a discharge-passage opening into said discharge-chamber; of means for establishing communication between the mixing-chamber and either one or all of the supply-passages, for the purpose set forth.

2. The combination with the casing of a compound cock, a perforated partition dividing said casing into mixing and discharge chambers, supply-passages opening into said mixing-chamber and a discharge-passage opening into the discharge-chamber; of means for placing said supply-passages separately or collectively into communication with the aforesaid mixing-chamber, for the purposes set forth.

3. The combination with the casing of a compound cock, a partition dividing said casing into mixing and discharge chambers, said partition provided with rows of ports of increasing cross-sectional area, supply-passages opening into said mixing-chamber and a discharge-passage opening into said discharge-chamber; of means for placing said supply-passages separately or collectively into communication with the mixing-chamber, for the purpose set forth.

4. The combination with the casing of a compound cock provided with a plurality of supply-passages, and a discharge-passage; of a mixing-chamber in communication with said casing and a valve constructed and operating to establish communication between the casing and discharge-passage and between the mixing-chamber and either one or all the supply-passages, said mixing-chamber moving with said valve, for the purposes set forth.

5. The combination with the casing of a compound cock provided with a plurality of supply-ports and a discharge-port in its bottom; of a revoluble discoidal valve seated on said bottom and provided with corresponding inlet and outlet ports and with a chamber encompassing its inlet-ports, said chamber in communication with said casing, for the purpose set forth.

6. The combination with the casing of a compound cock provided in its bottom with a plurality of supply-ports and with a discharge-port; of a revoluble discoidal valve seated on said bottom and provided with corresponding inlet and outlet ports, the distance between said inlet-ports being less than the distance between the corresponding supply-ports, for the purpose set forth.

7. The combination with the casing of a compound cock provided in its bottom with a plurality of supply-ports and with a discharge-port; of a revoluble discoidal valve seated on said bottom and provided with corresponding inlet and outlet ports, the distance between said inlet-ports being less than that between the corresponding supply-ports, the cross-sectional area of said inlet-ports being equal to the like area of said supply-ports, and the cross-sectional area of the valve outlet-port being greater than the like area of the casing discharge-port, for the purposes set forth.

8. The combination with the casing of a compound cock provided in its bottom with supply-ports *x y* and with a discharge-port *z*; of the revoluble valve *f* seated on said bottom and provided with ports *n*, *o* and *p* and with the dome-shaped chamber *g* having vertical perforated wall *w*, substantially as and for the purposes set forth.

9. The combination with the casing *a* provided in its bottom with ports *x*, *y* and *z*, the revoluble discoidal valve *f* seated on said bottom and provided with inlet-ports *n*, *o*, and an outlet-port *p* with a diametral seat groove or recess in its upper face, and with a journal on its under side stepped in a bearing in the bottom of said casing; of the valve-spindle *i* having radial arms *l* fitting into the aforesaid diametral seat or groove, and a collar *i'*, and the cap *h* for the casing having a circular projection *h'* bearing on the aforesaid collar *i'*, substantially as and for the purposes set forth.

661,201. AMMUNITION-BOX.

JAMES A. WILDING, London, England, assignor of two-thirds to Walter Rothschild and Gerald Dudley Smith, same place. Filed June 11, 1900. Serial No. 19,833. (No model.)



Claim.—1. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box and having a projection at its free end to coöperate with the recess to clamp the band therein, and means to lock the lid in closed position, substantially as set forth.

2. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box and having a projection at its free end to coöperate with the recess to clamp the band therein, the operative surfaces of the projection and recess being rounded and lying in different planes, and means to lock the lid in closed position, substantially as set forth.

3. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box and having a projection at its free end to coöperate with the recess to clamp the band therein, the operative surfaces of the projection and recess being rounded and lying in different planes, and one of said surfaces being fixed and the other yielding and means to lock the lid in closed position, substantially as set forth.

4. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box, a spring secured to the free end of the lid and having a downwardly-projecting portion to coöperate with the recess to clamp the band therein, and means to lock the lid in closed position, substantially as set forth.

5. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box, a spring secured to the free end of the lid and having a downwardly-projecting portion to coöperate with the recess to clamp the band therein, the operative surfaces of the recess and downwardly-projecting portion of the spring being rounded and lying in different planes, and means to lock the lid in closed position, substantially as set forth.

6. The combination of a box adapted to contain a cartridge-band and having a recess in the upper edge of one of its sides for the passage of the cartridge-band, a lid hinged to the box and having a projection at its free end to coöperate with the recess to clamp the band therein, and a catch adapted when in one position to lock the lid in closed position to clamp the band in the recess, and in another position to hold the lid partially open to permit the withdrawal of the band through the recess, substantially as set forth.

661,202. ATTACHMENT FOR LEAD-PENCILS, PENHOLDERS, &c.

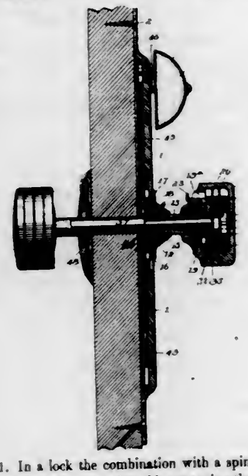
JOHN C. WRIGHT, Hilton, N. Y. Filed June 9, 1900. Serial No. 19,755. (No model.)



Claim.—1. The combination with a casing; of annular beads therein, disks within the casing, annular flanges thereto engaged by the said beads, a spindle journaled in the disks, means for preventing longitudinal movement of the spindle, a tape secured to the spindle, and means for normally holding said tape retracted within the casing.

2. The combination with a casing; of annular beads therein; disks within the casing; annular flanges thereto engaged by said beads; a spindle mounted within the disks; a tape secured to the spindle; a sleeve secured to one end of the spindle; a cross-pin within the sleeve; a cross-pin within the casing; and an elastic engaged at opposite ends by said cross-pins.

661,203. DOOR-LOCK. CALVIN E. ARNER and JOSEPH ARNER, Weissport, Pa., assignors, by direct and mesne assignments, to the Keyless Lock Company, Lehighton, Pa. Filed Jan. 30, 1900. Serial No. 3,338. (No model.)



Claim.—1. In a lock the combination with a spindle, of a tumbler secured to one end thereof, a second tumbler engaging therewith, a washer between the tumblers and secured to a knob inclosing the same, and means for locking said tumblers and washer together.

2. In a lock the combination with a spindle, of a notched tumbler secured thereto, a second tumbler engaging therewith and provided with a similar notch, a notched washer between the tumblers and secured to a knob inclosing the same, and a vertically-movable dog adapted to engage with said notches when brought into alinement.

3. In a lock the combination with the casing, of a spindle therein, a toothed wheel secured thereto, a gravity-seated slide contacting at its end with the periphery of said wheel, an alarm, and means for sounding said alarm from the slide.

4. In a lock the combination with the spindle; of a stem loosely mounted thereon; a retractor-plate secured to the stem; a sliding plate having arms adapted to be engaged and retracted by said plate; tumblers; and a dog, said bolt adapted to be operated by the spindle and retractor-plate upon turning the same in either direction to predetermined points.

5. In a bolt the combination with the spindle, of a stem loosely mounted thereon, a retractor-plate secured to the stem, shoulders thereon for engagement with arms of a sliding bolt, a tumbler secured to the spindle, a knob secured to the stem and having a washer fixed therein, and a dog for locking said tumbler and washer together.

6. A lock comprising a casing, a spindle, a toothed wheel secured thereto, a sliding rack contacting with the periphery of the wheel and adapted to engage with a cog for operating an alarm, a tumbler secured to the end of the spindle, a stem loosely mounted on the spindle, a knob secured thereto and having a washer fixed therein, a dog for locking said tumbler and washer together, a retractor-plate secured to the stem, a sliding bolt having arms adapted to be engaged by said plate, and a spring for holding said bolt normally projected.

7. In a lock, a tumbler comprising an outer ring, notched in its inner edge, an inner contractible ring provided, at a point between its ends, with an outer extension for engagement with one of said notches, an inner extension and a laterally-extending pin thereon.

661,204. SPRING-TRAINING DEVICE FOR HARVESTERS. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to the Adriance, Platt & Company, same place. Filed Mar. 27, 1900. Serial No. 10,352. (No model.)

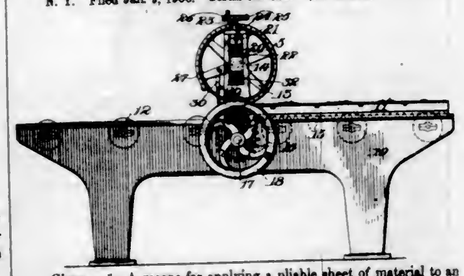


Claim.—1. The combination with the pole, the carrying-lever and the lifting-spring attached at its rear end to said carrying-lever, of a straining and releasing lever mounted on the pole and connected with the front end of the lifting-spring, substantially as set forth.

2. The combination with the pole, the carrying-lever, and the lifting-spring arranged along the grainward side of the pole and connected at its rear end to the carrying-lever, of a straining and releasing lever mounted on the pole and having its short arm arranged on the grainward side of the pole and connected with the front end of the lifting-spring, while the long arm of said lever is arranged on the stubbleward side of the pole, substantially as set forth.

3. The combination with the pole, the carrying-lever, and the lifting-spring attached at its rear end to said carrying-lever, of a straining and releasing lever mounted on the pole and connected with the front end of the lifting-spring, a spring-pressed locking-pawl carried by said lever, and a locking-segment secured to the pole and engaged by said pawl, substantially as set forth.

661,205. APPARATUS FOR COVERING IRREGULAR SURFACES, SUCH AS RELIEF-MAPS. FREDERICK J. BURGI, Rochester, N. Y. Filed Jan. 9, 1900. Serial No. 886. (No model.)



Claim.—1. A means for applying a pliable sheet of material to an irregular surface consisting of a die formed as a counterpart of said surface between the face of which and the said surface the pliable sheet is pressed.

2. A means for applying to an irregular surface a pliable covering, consisting of a flexible die corresponding to the said surface carrying upon its face the covering which is transferred to the face of the surface and made to conform to its irregularities by the pressure between the parts.

3. A device for applying to an irregular or relief surface, a covering of pliable material capable of stretching, consisting of a flexible die, the counterpart of the said surface, and means for rolling the die upon the relief-surface to apply the covering thereto.

4. In a device for applying a covering to a relief-surface, the combination with a flexible die the counterpart of said surface, mounted on a curved support carrying the pliable covering-sheet upon its face, and means for causing the die to register with the relief-surface and apply the covering-sheet as the faces of the die and relief-surfaces are brought together.

5. In a device for applying coverings to relief-surfaces, the combination with a flexible die mounted upon a roller carrying a pliable covering-sheet upon its face, of means for causing the die to register with the relief-surface and the faces of the two to pass in contact with each other, whereby the covering-sheet will be transposed to the relief-surface.

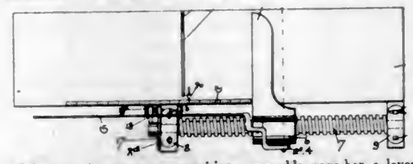
6. In a device for applying coverings to irregular surfaces, the combination with a roller carrying a flexible die having index-marks and supporting a pliable covering mounted upon its face having corresponding index-marks, of means for causing the die to register with the surface and the faces of the two to be passed in contact with each other, and tension devices for regulating the pressure between the parts.

7. In a device for applying a covering to an irregular surface, the combination with a roller carrying a flexible die mounted in bearings and having index-marks coöperating with corresponding marks upon the face of the pliable covering-sheet, of a movable bed carrying the relief-surface, adjusting devices for causing a contact and regulating the pressure between the die and relief-surface, and means for operating the bed and die.

8. In a device for applying a covering to an irregular surface, the combination with a frame having the supports, the cylinder or roller mounted in bearings and adjustable on the supports, the flexible die mounted on the roller supporting the pliable covering-sheet, of the reciprocating bed, as the frame, carrying the relief-surface, adjusting devices for causing a contact between the die and relief-surface, and means for operating one of the parts, whereby the die and its coöperating surface will be passed into contact throughout their length to transpose the covering-sheet from the former to the latter.

9. In a device for applying a covering-sheet to an irregular surface, the combination with a frame, having the supports, the cylinder mounted in bearings movable on the supports, the flexible die mounted on the cylinder, of the bed mounted upon the frame, means for reciprocating the latter beneath the cylinder, adjusting devices for moving the latter relatively of the bed, and the relief-surface corresponding to the die mounted upon the bed.

661,206. CIRCULAR-SAW GAGE. DORES R. CARLETON, Haverhill, Mass. Filed Mar. 5, 1900. Serial No. 7,261. (No model.)



Claim.—1. A saw-gage comprising a movable gage-bar, a lever connected thereto, a screw-threaded shaft, means for holding the same in a fixed position, and means controlled by said lever for engaging the threads of said shaft.

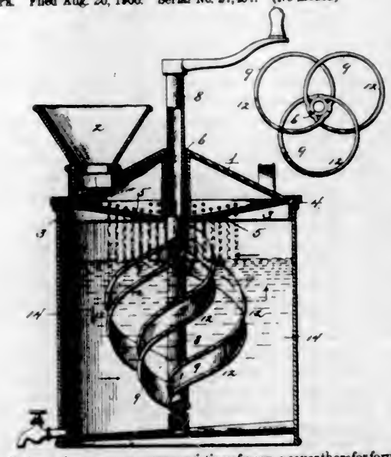
2. A saw-gage comprising a movable gage-bar, a lever connected thereto, a screw-threaded shaft on which said bar is adapted to slide, means for holding said shaft in a fixed position, a latch connected to said bar which is adapted to be held in engagement with the threads of said shaft, and connections between said lever and said latch for moving the latter out of engagement with the threads of said shaft.

3. A saw-gage comprising a movable gage-bar, a screw-threaded shaft on which said bar is adapted to slide, a lever which is pivoted on said bar, a latch which is connected to said lever and is adapted to be held in engagement with the threads of said shaft by said lever, said parts being arranged so that when said lever is moved from its normal position said latch will be moved out of engagement with said shaft.

4. A saw-gage comprising a movable gage-bar, a screw-threaded shaft on which said bar is adapted to slide, means for adjusting the position of said shaft and for holding the same in its adjusted position, a latch which is adapted to engage said shaft between one or more of the threads thereof and lock said bar against movement, and means for disconnecting said latch from the threads of said shaft.

5. A saw-gage comprising a gage-bar, a screw-threaded shaft on which said bar is adapted to slide, a lever pivoted to said bar, a latch which is pivotally connected to said bar in such a position that it may engage the threads of said shaft, a flexible connection between said lever and said latch, said parts being arranged so that when said lever is lifted to move said bar, said latch will be moved out of engagement with said shaft.

661,207. CREAM-SEPARATOR. HOWARD G. CARTER, Oak Hill, Pa. Filed Aug. 20, 1900. Serial No. 27,457. (No model.)



Claim.—A cream-separator consisting of a can, a cover therefor formed of a concave bottom, a central tube rising therefrom, an imperforate conical shed flaring from the inner end of said tube below the bottom, perforations in the latter above the shed and a separate imperforate conical top part seated upon the concave part having a depending tube telescoping with the bottom tube, an opening at one side of the tube, and a shaft passing through the depending conical shed and the cover-tubes, having mixing-scrolls whereby cold water is rained from the cover in streams and from the conical shed in a shed upon the scrolls to effect its quick and uniform mixing with the cream.

661,208. THILL-COUPLING. ERNEST J. S. DAVIS, Knoxville, Iowa. Filed May 7, 1900. Serial No. 15,752. (No model.)

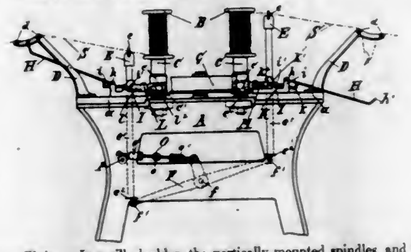


Claim.—1. In a coupling, the combination with a clip having arms, and a shaft-iron, of a slotted bolt engaging said arms and shaft-iron, a hook projecting from the bolt, a spring engaging the bolt and adapted to bear upon the shaft-iron, and a recurved end to the spring adapted to extend into the slot of the bolt.

2. In a coupling the combination with a clip having arms and a shaft-iron, of a split bolt engaging the said arms and iron, a hook projecting from the bolt, a spring coiled at the center engaging said hook, the coil adapted to bear upon the thill-iron, and a recurved tapered end to the spring adapted to extend into, and expand the bolt.

3. In a coupling the combination with a clip having arms and a shaft-iron, of a split bolt engaging the said arms and iron, an enlarged end thereto, a hook projecting from said end, a spring coiled at the center and engaging said hook, the coil adapted to bear upon the thill-iron, and a recurved tapered end to the spring adapted to project into, and engage with notches within, the slit in the bolt.

661,209. SILK-DOUBLER. JOSEPH DUFFY, Paterson, N. J. Filed June 26, 1900. Serial No. 21,625. (No model.)



Claim.—In a silk-doubler, the vertically-mounted spindles and the belt and pulleys for driving the same, in combination with a stop-lever, a spring adapted to press against the outer end of the lever causing the inner end to pass between the belt and spindle, a vertically-tilting lever the inner end of which is adapted to engage the spring-actuated end of the stop-lever, and fallers pivotally mounted above said vertically-tilting lever and adapted to fall upon the outer end thereof, if unsupported, thereby causing the inner end to be raised and permitting the spring-actuated end of the stop-lever to be pressed laterally forcing the inner end of the same between the belt and the spindle, substantially as set forth.

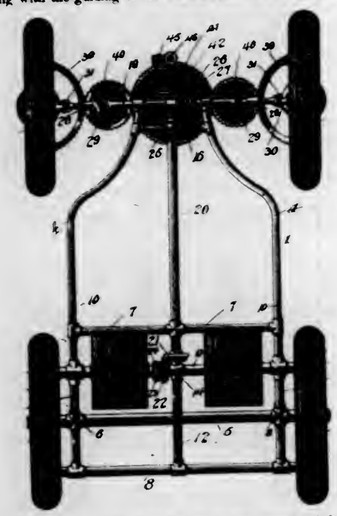
661,210. RUNNING-GEAR FOR MOTOR-VEHICLES. JOHN W. EIKENHUTE, New York, N. Y., assignor, by mesne assignments, to Mamie G. Read, same place. Filed Jan. 23, 1900. Serial No. 2,485. (No model.)

Claim.—1. A running-gear for vehicles comprising a frame joining front and rear wheels, a power-shaft connected with the rear wheels, means for imparting motion to the same, means for turning the front wheels to guide the vehicle, and shafting connected with the revoluble rims of the guiding-wheels, and means imposed in the said shafting for accommodating the same to the different positions of the guiding-wheels and means connecting said shafting with the rear power-shaft so that motion may be imparted to either front or rear wheels, substantially as described.

2. A running-gear for vehicles comprising a suitable frame, guiding-wheels pivotally mounted thereon, segments upon the non-revoluble webs of the said wheels, pinions engaging the said racks and a power-pinion for moving the same for changing the position of the wheels for guiding the vehicle, means for turning the said power-pinion and means for connecting the power with the wheels of the running-gear for propelling the same substantially as described.

3. A running-gear for vehicles, comprising a suitable frame, a power-shaft mounted thereon and adapted to be connected with a suitable motive power, a rim driving mechanism for actuating the front steering-wheels comprising a jointed shaft made up of sections, universal joints connecting the said sections, some of the sections being formed with telescoping parts, whereby the shafting may accommodate itself to the different positions of the guiding-wheels and may be led to the rims of the said wheels for actuating the same, substantially as described.

4. In a running-gear for vehicles, the combination with a power-shaft having pinions for driving the rear wheels of a vehicle, means for actuating the said power-shaft, a longitudinal shaft carried by the said framing and having a gear meshing with a gear on the power-shaft, means for throwing said latter gear into and out of engagement with a gear on the transmitting-shaft, a shaft mounted upon the forward end of the said frame and connected by means of bevel-gears with the longitudinal transmitting-shaft, a clutch for bringing the bevel-gear into connection with the said forward shafts, short shafts connected with the revolving rims of the guiding-wheels of the vehicle so that it may actuate the same, telescopic shafts connecting the short shaft with the ends of the forward shaft and universal joints interposed between the parts of the shaft, the construction being such that power may be transmitted to one set of wheels or to both sets of wheels for the better propelling of the vehicle, this construction not interfering with the guiding of the vehicle, substantially as described.



5. A running-gear for vehicles comprising upper and lower frame portions, the lower frame portions resting upon the axles of the vehicle, rigid axles supporting the frame, guiding-wheels having non-revoluble web and revoluble rim portions, brace-rods for supporting the upper frame in position upon the lower frame, a power-shaft mounted upon the said upper frame, and inclined braces for bracing the power-shaft and the upper frame rigidly in position, substantially as described.

6. In a running-gear for vehicles the combination with a suitable frame of power mechanism mounted thereon, guide-wheels having non-revoluble web portions pivotally secured to said frame, segments secured to the web portions of the said guiding-wheels and projecting inwardly therefrom, and gearing for engaging the said segments to turn the wheels, substantially as described.

7. In a running-gear for vehicles the combination with a suitable frame on axles supporting the same, guiding-wheels secured to the end of one of said axles, the guiding-wheels being pivotally adjusted to the said axle so as to turn vertically with respect to the same, yokes or segments rigidly secured to the said guiding-wheels and projecting inwardly therefrom, intermediate gears meshing with the segments, said gears being pivotally mounted upon the said axle, an actuating gear-wheel also mounted upon said axle and engaging each of the intermediate gears, a hand operating means engaging with the said actuating-gear whereby the guiding-wheels may be turned simultaneously to guide the vehicle, substantially as described.

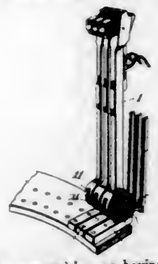
8. In a running-gear for vehicles the combination with a suitable frame, guiding-wheels connected therewith, segments secured to said guiding-wheels, intermediate pinions meshing with the said segments, an actuating-gear engaging the said intermediate gear, a spiral gear connecting the actuating gear-wheel with a short shaft, a spiral gear connecting the short shaft with a hand operating-shaft whereby the guiding-wheels may be turned simultaneously for guiding the gears of the vehicle, substantially as described.

661,211. PROCESS OF OBTAINING SOLUBLE ALBUMEN. DITTMAR FINCKLER, Bonn, Germany. Filed July 7, 1899. Serial No. 723,106. (No specimens.)

Claim.—1. The process of obtaining soluble albumen from natural crude albuminous substances, which consists in removing the gelatin and gelatin-yielding constituents by washing with acidulated water of suitable temperature, albumosing the resultant product in the usual manner and arresting the latter process before peptonization of the albumen sets in, substantially as set forth.

2. The process of obtaining soluble albumen from albuminous animal substances, which consists in freeing the latter from gelatin and gelatin-yielding constituents by washing in acidulated water heated to from 60° to 100° centigrade, until tannic acid ceases to react upon the wash-water, then albumosing the product in the usual manner, arresting the latter process before peptonizing of the albumen sets in, and neutralizing and drying the soluble albumen thus obtained, substantially as and for the purpose set forth.

661,212. TYPE-ARM BEARING. ROBERT J. FISHER, Athens, Tenn., assignor to the Fisher Typewriter Company, of Tennessee. Filed Jan. 22, 1898. Serial No. 667,570. (No model.)



Claim.—1. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, the said spaced elements being carried by the type-arm, and annular keys having an interlocked engagement with the adjacent faces of said elements, substantially as specified.

2. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, the said spaced elements being carried by the type-arm, and annular antifriction-keys having an interlocked engagement with the adjacent faces of said elements, substantially as specified.

3. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, the said spaced elements being carried by the type-arm, and duplicate annular series of antifriction-balls interposed between and seated at their opposite sides in the adjacent faces of said elements to provide an interlocked engagement with said faces, substantially as specified.

4. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, the said spaced elements being carried by the type-arm, and duplicate coaxial annular keys having an interlocked engagement with the adjacent faces of said elements, substantially as specified.

5. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, an annular series of antifriction-balls interposed between, and seated in ball-races formed in, the facing surfaces of said elements, the diameter of each ball-race being greater than the interval between the planes of the races, substantially as specified.

6. A type-arm and hanger having bearing members, of which that carried by the type-arm comprises spaced side elements, and that carried by the hanger consists of a single element interposed between those of the type-arm member, and antifriction-balls arranged in races formed in the adjacent facing surfaces of said elements concentric with the axis of movement of the type-arm to provide an interlocked engagement with said surfaces, substantially as specified.

7. A type-arm and hanger having bearing members, of which one has a single element interposed between duplicate spaced elements of the other, the said spaced elements being carried by the type-arm, the first-named elements having outwardly-facing ball-races concentric with the axis of movement of the type-arm, and the spaced elements having inwardly-facing ball-races registering with those of the first-named element, and duplicate series of antifriction-balls seated in said registering races to provide an interlocked engagement with the elements, substantially as specified.

8. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, the said spaced elements being carried by the type-arm, said elements being provided with registering ball-races concentric with the axis of movement of the type-arm, and facing in opposite directions parallel with said axis, and duplicate series of antifriction-balls seated in said races to provide an interlocked engagement with said elements, substantially as specified.

9. A type-arm and hanger having bearing members, one of which has an element interposed between spaced elements of the other, and annular keys, interposed between and having interlocked engagement with the adjacent faces of said elements, the spaced elements of one of the members being connected by a band which is slotted for the reception of the element of the other member, substantially as specified.

10. A type-arm and hanger, one of which has a core-disk and the other a band concentric with the axis of movement of the type-arm and inclosing the core-disk, and side cheeks carried by said band in planes parallel with and at opposite sides of the core-disk, said band being slotted in a plane between said cheeks to receive a stem of the core-disk, and annular keys interposed between and engaging the adjacent surfaces of said core-disk and cheeks, substantially as specified.

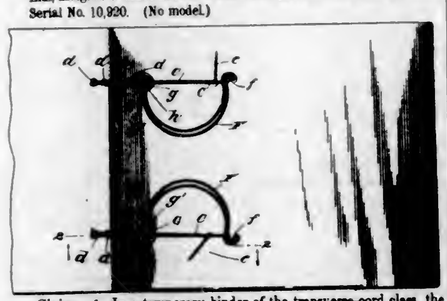
11. A type-arm and hanger, one of which has a core-disk and the other a band concentric with the axis of movement of the type-arm and inclosing the core-disk, and side cheeks carried by said band in planes parallel with and at opposite sides of the core-disk, said band being slotted in a plane between said cheeks to receive a stem of the core-disk, one of said cheeks being axially adjustable, and annular keys interposed between and engaging the adjacent surfaces of said core-disk and cheeks, substantially as specified.

12. A type-arm and hanger having bearing members, one of which has a single element and the other duplicate-spaced elements between which the single element is interposed, a band encircling said spaced elements, and having a slot, in a plane between said elements, to receive the single element, and annular keys interposed between the single element and the spaced elements and having an interlocked engagement therewith, substantially as specified.

13. A type-arm and hanger having bearing members, one of which is provided with a single element, and the other with parallel-spaced elements between which said single element is interposed, a band encircling and connecting said spaced elements, and one of them being threaded in the band for axial adjustment, said band being cut away between the spaced elements to provide for the insertion of the single element, and annular keys interposed between and engaging the adjacent faces of said spaced and interposed elements and having an interlocked engagement therewith, substantially as specified.

14. A ball-bearing pivotless type-arm for type-writing machines, in which the ball-bearing includes duplicate axially-spaced annular series of balls, the diameter of each series being greater than the interval between the series, substantially as specified.

661,213. TEMPORARY BINDER. HENRY FITCH, Lawrenceburg, Ind., assignor to Alice Brewer Fitch, same place. Filed Mar. 31, 1900. Serial No. 10,920. (No model.)

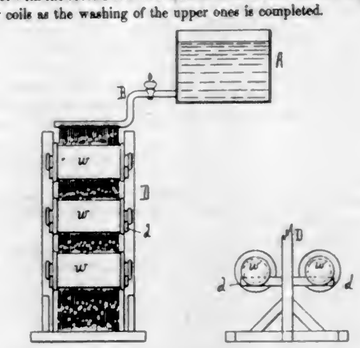


Claim.—1. In a temporary binder of the transverse-cord class, the combination with the looped binding-cord of a double bow-spring formed of a wire bent back upon itself in a horizontal plane and terminating in a hook to engage the cord, and means for securing the inner end of the spring to the binder.

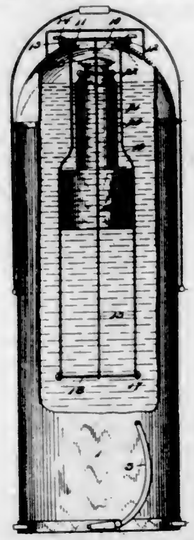
2. In a temporary binder of the transverse-cord class, the combination with the looped binding-cord, of a double bow-spring formed of wire bent back upon itself in a horizontal plane, the spring having at its outer end a hook to engage the cord and having lateral bends at its inner end, a cap covering and securing the laterally-bent end, and means for securing the cap in place.

661,214. METHOD OF WASHING SPOOLED THREAD OR STRIPS OF CELLULOSE. MAX FREMERY and JOHANN URBAN, Oberbruch, Germany. Filed June 20, 1899. Serial No. 721,259. (No specimens.)

Claim.—The herein-described method of freeing spooled cellulose threads, strips and the like from the chemicals used in their manufacture, the said method consisting in bringing the washing liquid in small portions successively into contact with the coils of the described cellulose products arranged one over the other, so that the first coil receives the fresh small portions of the washing liquid which then are brought into contact with the second and then with third coils, &c., and moving up the lower coils as the washing of the upper ones is completed.



661,215. FIRE-EXTINGUISHER. THOMAS F. HANDLY, Allegheny, Pa. Filed June 16, 1898. Serial No. 683,552. (No model.)



Claim.—1. An extinguisher-receptacle, charged with suitable fluid, with a floating vessel carrying acid or orther suitable chemical and floating in the fluid, and mounted in a manner that on the inversion of the receptacle the vessel will float up through the fluid and discharge the acid as it floats, subetantially as shown and described.

2. The combination with an extinguisher-receptacle, of a cage suitably secured therein, and a floating acid-receptacle arranged in the said cage.

3. The combination with an extinguisher-receptacle, of a cage suitably secured therein, an acid-receptacle mounted in the said cage, and a float arranged in the said extinguisher-receptacle adapted to operate the acid-receptacle.

4. The combination of an extinguisher-receptacle, guides suitably arranged therein, a float-operated acid-receptacle operated between the said guides, and means for sealing the acid-receptacle when in an upright position, substantially as shown and described.

5. An extinguisher-receptacle provided with a cage suitably arranged therein, a float operating in said cage, and an acid-receptacle formed integral with said float, substantially as shown and described.

6. In a fire-extinguisher, the combination with an extinguisher-receptacle, of a cage suitably secured therein, a float operating in said cage and carrying an acid-receptacle and an auxiliary cage secured to said float and surrounding said acid-receptacle, substantially as set forth.

7. In a fire-extinguisher, the combination with an extinguisher-receptacle, of a cage suitably arranged therein, a float operating in said cage,

an auxiliary cage secured to said float, an acid-receptacle arranged in said auxiliary cage and a sealing-cap for said acid-receptacle, substantially as herein shown and described.

8. In a fire-extinguisher, the combination with an extinguisher-receptacle, of a cage suitably secured therein, a float operating in said cage, an acid-receptacle secured to said float and suitable means for rapidly drawing said float and acid-receptacle through the alkaline solution contained in the extinguisher thereby discharging the acid from the acid-receptacle in the alkaline solution, substantially as herein shown and described.

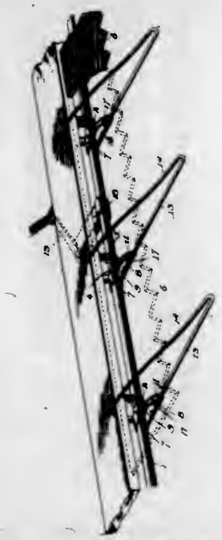
9. In a fire-extinguisher, the combination with an extinguisher-receptacle, of a sealing-plate suitably secured to the mouth thereof, a cage secured to said plate, and extending into said extinguisher, a float operating in said cage, and an acid-receptacle secured to said float, substantially as herein shown and described.

10. In a fire-extinguisher, the combination with an extinguisher-receptacle, of a downwardly-extending cage suitably secured to the mouth of the receptacle and formed with two different diameters, a float arranged in the larger diameter of said cage, and an acid-receptacle suitably secured to said float and adapted to be operated thereby, as and for the purpose set forth.

11. In combination, an extinguisher-receptacle, a cage suitably secured therein, a float arranged in the said cage, an auxiliary cage connected to the said float, and an acid-receptacle of smaller diameter than the said float mounted in the said auxiliary cage, substantially as shown and described.

12. In combination, an extinguisher-receptacle, a cage suitably secured therein, a float arranged in the said cage, an auxiliary cage connected to the said float, an acid-receptacle of smaller diameter than the said float mounted in the said auxiliary cage, and means for sealing said acid-receptacle when in an upright position, substantially as described.

661,216. **GUARD-FINGER AND FINGER-BAR.** FLOYD R. JOHNSON, Aberdeen, S. D. Filed Mar. 16, 1900. Serial No. 8,945. (No model.)

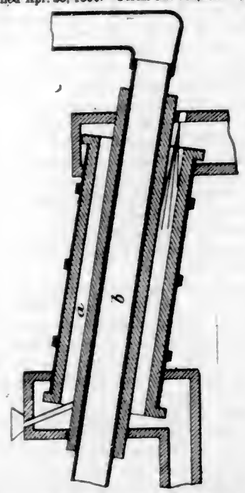


Claim.—1. The combination with the cutting apparatus of a harvester, of a transverse shaft arranged in rear thereof and having a plurality of shoes rigidly secured thereon, said shoes being provided with grooves or recesses, and a plurality of forwardly-extending and independently-moving guard-fingers mounted in the grooves of the shoes.

2. The combination with the cutting apparatus of a harvester; of a shaft arranged in rear thereof, a series of independent shoes rigidly connected thereto and having side flanges to form grooves, guard-fingers mounted in said grooves and adapted to move independently, and a transverse stop connected to the side flanges of each shoe to limit the upward movement of the respective fingers.

3. The combination with the cutting apparatus of a harvester; of a transverse shaft arranged in rear thereof, sleeves rigidly connected to said shaft, a grooved extension projecting from each sleeve, a pivotally-mounted guard-finger in the groove of each extension, and a transverse pin arranged in said groove in front of the pivotal point of the guard-finger to limit the upward movement of said guard-finger.

661,217. **ROTARY KILN.** PAUL O. VON KROTTNAUERR, Berlin, Germany. Filed Apr. 25, 1899. Serial No. 714,417. (No model.)



Claim.—1. In rotary kilns or ovens, the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned situated at the higher end of said chamber, and the lower end of the same being open for the discharge of said material, a flame-inlet situated at said lower end of the chamber, and a heat-refracting body extending longitudinally within said chamber, all as set forth.

2. In rotary kilns or ovens, the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned, situated at the higher end of said chamber, and the lower end of the same being open for the discharge of said material, a flame-inlet situated at said lower end of the chamber, and a heat-refracting pipe extending longitudinally within said chamber, all as set forth.

3. In rotary kilns or ovens, the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned situated at the higher end of said chamber, and the lower end of the same being open for the discharge of said material, a flame-inlet situated at said lower end of the chamber, and a body, having a heat-refracting surface, extending longitudinally within said chamber, all as set forth.

4. In rotary kilns or ovens the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned situated at the higher end of said chamber, and the lower end of the same being open for the discharge of said material, a flame-inlet situated at said lower end of the chamber, and a heat-refracting pipe extending longitudinally within said chamber, and means for cooling the same, all as set forth.

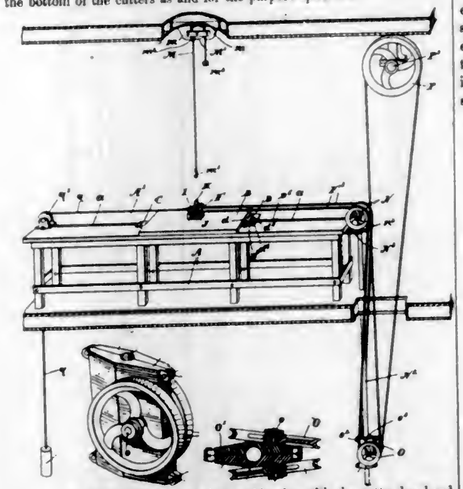
5. In rotary kilns or ovens the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned situated at the higher end of said chamber, and the lower end of the same being open for the discharge of said material, a flame-inlet situated at said lower end of the chamber, and a heat-refracting body extending completely through said chamber, all as set forth.

6. In rotary kilns or ovens the combination with the inclined rotary burning-chamber, of means for the admission of the material to be burned situated at the higher end of said chamber, and the lower end of same being open for the discharge of said material a flame-inlet situated at said lower end of the chamber, and a heat-refracting pipe extending longitudinally within said chamber, and closed at its inner end, all as set forth.

7. In a rotary kiln or oven, the combination with the rotary burning-chamber of an internal body passing into the said chamber from one end thereof and closed at its inner end, and of a body inside the second body for introducing a cooling medium into the said second body, substantially as hereinbefore described.

661,218. **TOOTHING-MACHINE.** SAMUEL J. LAUGHLIN, Guelph, Canada, assignor to Edmund Palmer Hawkins, same place. Filed June 19, 1899. Serial No. 721,065. (No model.)

Claim.—1. In a toothing-machine, the combination with the cutter-head and the spindle thereof and the cross-bars in which such spindle is journaled, of the guard-ring surrounding the cutter-head, the spindles extending from the guard-ring up through the cross-bar and spring means for normally holding the spindles and guard-ring up above the level of the bottom of the cutters as and for the purpose specified.



2. In a toothing-machine, the combination with the cutter-head and the spindle thereof and the cross-bars in which such spindle is journaled, of the guard-ring surrounding the cutter-head, the spindles extending from the guard-ring up through the cross-bar, spring means for normally holding the spindles and guard-ring up above the level of the bottom of the cutters, the angular wire loop suitably supported on the extensions of the cross-bar and provided with a supplemental loop designed to engage with the notch on one of the sleeves of the connecting-spindles of the cross-bar and flat ends to extend over and abut the ends of the spindles of the guard-ring as and for the purpose specified.

3. The combination with the cutter-head and driving-pulley thereof secured on the spindle of the same, the freely-movable frame carrying said head and pulley, of the endless rope drive passing over the pulley of the cutter-head at one end and over the main driving-pulley at the opposite end, the vertically-adjustable rod supported in a bracket at the end of the table, the angularly-set guiding-pulleys journaled on the end of a cross-bar pivotally held on the top of the vertical rod, the plate vertically adjustable on the rod and the angularly-set converging guiding-pulleys journaled in studs on the plate and forming with the plate a weight to keep the rope taut during the gyrations of the cutter-head as and for the purpose specified.

4. In a machine of the class described, the combination with the table and longitudinal slot extending throughout the length thereof, of the clamping-plate C having a depending tongue and washer and screw-pin with a tightening-arm designed to hold one end of the board, and the opposite clamping-lever, the plate upon which it is pivoted, the tongue depending from the plate, the screw-pin and washer and tightening-arm and the cam-lever all operated in order to clamp or release the opposite end of the board as specified

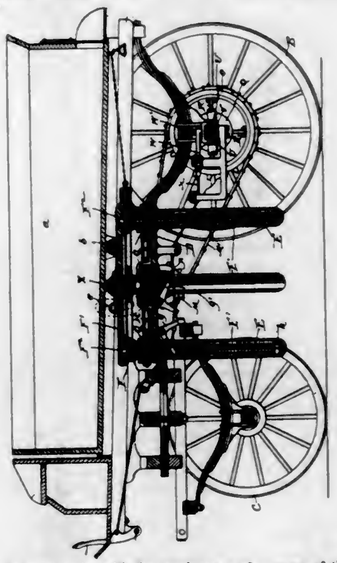
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661,219. **DUMPING-WAGON.** THOMAS LEE, Philadelphia, Pa., assignor of one-third to William Day Rowland, same place. Filed Mar. 26, 1900. Serial No. 10,299. (No model.)

Claim.—1. In a wagon of the character described, a suitable running-gear, a platform supported thereby, elevating mechanism attached to the platform, a turn-table adapted to be raised and lowered by said mechanism, said turn-table consisting of a stationary and a revolving member, a body pivoted to the revolving member of the turn-table, and means connected with the rear wheels of the wagon for actuating the elevating mechanism during the travel of the wagon, substantially as specified.

2. In a wagon of the character described, a suitable running-gear, rear wheels supporting said running-gear, a turn-table, rods attached to the stationary member of said turn-table, mechanism connected with the rear wheels of the vehicle for operating said rods to raise and lower the turn-table, means under the control of the driver for throwing said mechanism into and out of action, a body hinged to the revolving member of the turn-table, and means for holding the body in an inclined position for unloading, as specified.

3. In a wagon of the character described, a suitable running-gear, elevated mechanism supported by said running-gear, a turn-table adapted to be raised and lowered by said elevating mechanism, a body hinged to the turn-table, sprocket-wheels journaled upon the hubs of the rear wheels of the wagon, sprocket-chains connecting the first-named wheels with the elevating mechanism, two clutch mechanisms adapted to lock either of the sprocket-wheels to the rear wheels of the wagon, foot-levers located in easy reach of the driver and connected with said clutch mechanisms so as the latter may be operated thereby, and means for automatically arresting the upward or downward movement of the elevating mechanism, as specified.



4. In combination with the running-gear of a wagon of the character described, four rods, means connected with said running-gear for raising or lowering said rods, a turn-table supported by said rods, said turn-table consisting of a stationary member, and a rotary member, a body hinged to the rotary member and adapted to be inclined, and means for holding the body in its inclined position, as specified.

5. In combination, a suitable running-gear, front and rear wheels upon which said running-gear is mounted, extensions formed with the hubs of the rear wheels, sprocket-wheels loosely journaled upon said extensions, clutches carried by said extensions for locking the sprocket-wheels to the hubs of the wagon-wheels, means under the control of the driver for operating the clutches, crank-shafts journaled upon the running-gear, sprocket-wheels secured upon the crank-shafts, sprocket-chains connecting the first and last named sprocket-wheels, a series of nuts, bevel-gears carried by said nuts, corresponding bevel-gears secured upon the inner ends of the crank-shafts and meshing with the first-named bevel-gears, a sprocket-chain connecting all of the nuts and adapted to revolve the same in unison, a series of screw-rods threaded through the nuts, a turn-table supported by said rods, said turn-table consisting of a stationary and a rotary member, ball-bearings interposed between these members, a central pin for holding the two members in their proper relative position, a body hinged to the revolving member, and a latch for holding the body against displacement, as and for the purpose set forth.

661,220. **RUG OR CARPET FASTENER.** WILLIAM D. LE FEVER, Smyrna, Del. Filed Apr. 23, 1900. Serial No. 13,947. (No model.)



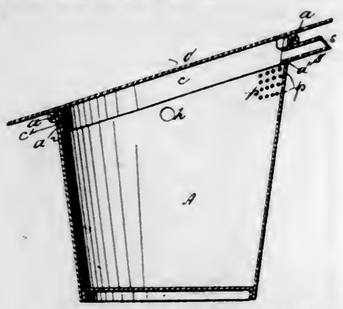
Claim.—1. The combination, with a body having a longitudinally-extending slot provided with an enlargement between its ends, of prongs bent at right angles to the body and thence in a plane parallel with said body.

2. The combination, with a body having a slot therein, an enlarged portion to the slot at a point between its ends, and perforations near one end of the body, of prongs extending from the surface of said body.

3. The combination, with a body having a slot therein, an enlarged portion to the slot at a point between its ends, and perforations near one

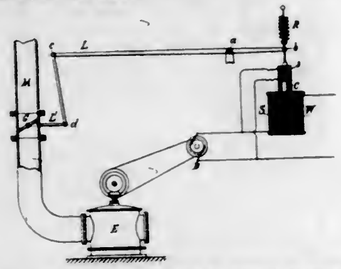
end of the body; of prongs bent upwardly at right angles to the body and thence in a plane parallel to the body.

661,221. SAP-PAIL. ABBOT A. LOW, New York, N. Y. Filed Jan. 13, 1900. Serial No. 1,264. (No model.)



Claim.—The combination of a sap-pail A, formed with the inclined rim *a*, and slot *a'*, with the flat cover C, formed with the flange *c*, underneath, having the spout S, adapted to project through the slot *a'*, in the body of the pail, for the purpose set forth.

661,222. METHOD OF GOVERNING PRIME MOVERS. RALPH D. MERSHON, New York, N. Y., assignor to the Westinghouse Electric and Manufacturing Company, of New Jersey. Filed Nov. 6, 1899. Serial No. 736,066. (No model.)

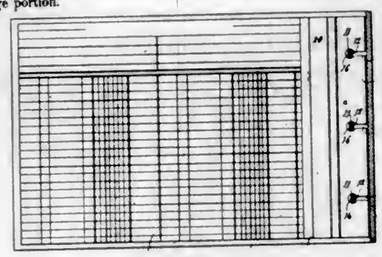


Claim.—1. The method of regulating for constancy or approximate constancy, the speed of an electric generator carrying a variable load whose variations are due to variations in electromotive force or current or both, which consists in causing the electromotive force and current to produce a magnetic resultant which resultant and its variations are proportional to the power and variations of the power delivered by the generator, causing variations in such magnetic resultant to produce corresponding variations in the driving power applied to the generator, thereby producing an approximately constant speed on the part of the generator regardless of variations in the load.

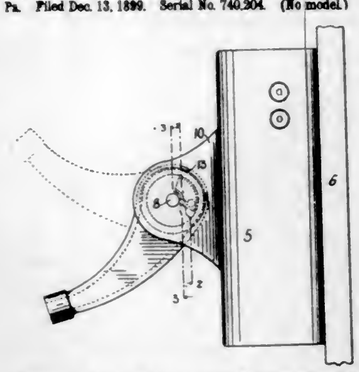
2. The method of regulating for constancy or approximate constancy, the speed of an electric generator carrying a variable load whose variations are due to variations in electromotive force or current or both, which consists in causing the electromotive force and current to produce a magnetic resultant, which resultant and its variations are proportional to the power and variations of the power delivered by the generator, causing variations in such magnetic resultant to produce independently of the normal operation of the speed-governor of the prime mover, corresponding variations in the driving power applied to the generator, thereby producing an approximately constant speed on the part of the generator regardless of variations in the load.

661,223. BOOK-LEAF. HENRY C. MILLER, Milwaukee, Wis. Filed Jan. 13, 1899. Serial No. 702,047. (No model.)

Claim.—A loose leaf for a book or binder consisting of a main flexible portion, a rear supplemental flexible portion and a hinge portion comprising a flexible strip forming a connection between the rear edge of the main portion and the inner edge of the supplemental portion, said hinge portion being provided with a stiffening device of less width than and extending longitudinally of the flexible strip of the hinge portion, and consisting of one or more longitudinal folds in the flexible strip forming the hinge portion, said fold or folds being secured to the main body of the hinge portion.



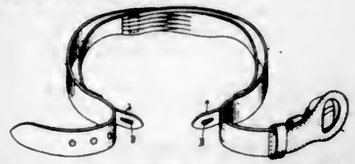
661,224. TELEPHONE-ARM. HUGH MCDONALD, Williamsport, Pa. Filed Dec. 13, 1899. Serial No. 740,204. (No model.)



Claim.—1. In a telephone, a pivotally-mounted arm for the support of the transmitter, said arm consisting of a shell or casing 7, having spindle-holes 9, and an elongated opening 13, substantially as and for the purpose set forth.

2. In a telephone, an arm, consisting of a shell or casing 7, having spindle-holes 9, and an opening 13, and provided with a recess 12, a base 5, having lugs 10, in which the said arm is pivotally mounted, and a projection 11 formed on one of said lugs, and adapted to engage said recess, substantially as and for the purpose set forth.

661,225. APPAREL-BELT. HENRY POLAK, New York, N. Y., assignor of one-half to Francis B. Ray, same place. Filed Jan. 30, 1900. Serial No. 3,345. (No model.)

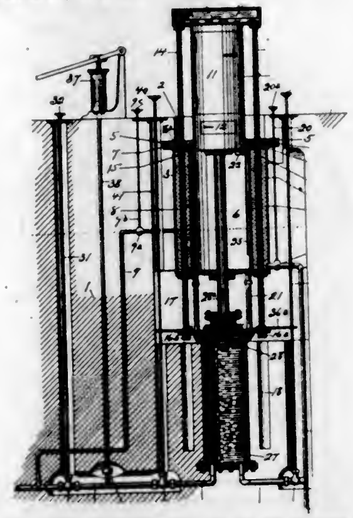


Claim.—1. A belt composed of two parts connected to one another by a sliding connection, said parts having means of detachably securing same to a garment at their inner and smaller ends as described, and the outer ends provided with means of attachment to each other.

2. A belt arranged to be detachably connected to a garment, consisting of two parts or pieces adjustably secured to each other and having their inner and smaller ends located beneath or under the belt for the purposes set forth, and an adjustable fastener for securing the other ends to one another.

661,226. SAFE. HOWARD A. POST, Wichita, Kans., assignor of one-half to William H. Craddock, Kansas City, Mo. Filed Feb. 26, 1900. Serial No. 6,567. (No model.)

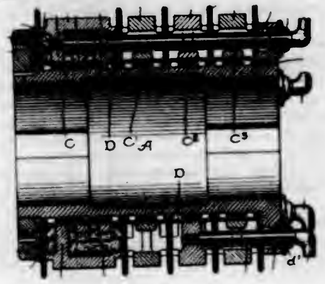
Claim.—1. A safe apparatus comprising a vault or tank contained within a body of masonry, concrete, or other protective material, a casing within said vault, a closed water-chamber, connected with a source of water-supply under pressure, between said casing and the inner walls of said vault, a safe removably located within said casing, a closed water-cap mounted on the upper end of said safe and secured thereto, pipes connecting said water-cap with said water-chamber, whereby constant and equal pressure may be exerted on the water contained within said chambers, and means for elevating and lowering the safe from or within the casing, substantially as set forth.



2. A safe apparatus comprising a vault or tank contained within a body of protective material, a vertical casing within said vault or tank, a water-chamber, connected with a source of water-supply under pressure, between said casing and the inner walls of said vault, a safe located within said casing and vertically movable therein, a closed water-cap mounted on the upper end of said safe and secured thereto, pipes connecting said water-cap with said water-chamber, whereby constant and equal pressure may be maintained on water contained within said chambers, means for elevating or lowering the safe from or within the casing, and means for holding said safe in lowered position for a fixed period and permitting its elevation at the expiration of such period, the same consisting of a mechanically-rotated disk mounted horizontally on the safe and having a notch in its edge, and a guide-stop mounted on the inside of the casing, with which said notch registers at fixed intervals, substantially as set forth.

3. A safe apparatus comprising a tank contained within a body of protective material, a vertical casing within said tank, a water-chamber, connected with a source of water-supply under pressure, between said casing and tank, a safe located within said casing and vertically movable therein, a closed water-cap secured on the upper end of said safe, pipes connecting said water-cap with said chamber, whereby constant and equal pressure may be maintained on water contained within said chambers, means for elevating and lowering the safe from or within said casing, and means for holding said safe in lowered position for a fixed period and permitting its elevation at the expiration of such period, substantially as set forth.

661,227. COMMUTATOR-COLLECTOR. HENRY G. REIST and EDWARD L. AIKEN, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed June 25, 1898. Serial No. 684,520. (No model.)



Claim.—1. The combination with a supporting-ring and a body of insulation formed thereon, of a plurality of commutator-rings shrunk on over the insulation.

2. The combination of an arbor, a number of metal rings making working fits therewith, corresponding insulating-rings thereon, collecting devices mounted on the different rings, and means for securing the parts.

3. The combination of an arbor, a number of metal rings making working fits therewith, insulation upon the rings, collecting devices shrunk on over the insulation, insulating-septa between the collectors, and means for securing the parts in place.

4. An integral blank for the commutator of a dynamo-electric machine, comprising a number of rings connected by staggered spokes to an external ring or flange.

5. The process of constructing a commutator, which consists in forming a blank having a number of internal rings connected by spokes with an external flange, mounting the rings upon an insulating-support, and then cutting the flange between each two spokes so as to form commutator-segments.

6. The process of constructing a commutator, which consists in forming a blank having a number of separated internal rings connected by spokes with an external flange, shrinking the blank on an insulating supporting-ring, and then cutting the flange between each two spokes so as to form commutator-segments.

7. A commutator comprising a metallic casting having a plurality of supporting-rings, each ring connected by a series of spokes which do not overlap the spokes of another ring, to a peripheral flange cast in one piece and having its face divided into separate segments by cuts between each two spokes of the total series of spokes.

8. A commutator for a three-phase electrical machine, comprising a casting having three supporting-rings, a series of spokes extending from each ring, no spoke in any series overlapping a spoke in another series, and a commutating-surface cast in one piece and divided by cuts across its face into a series of segments, to each of which a spoke is connected.

9. A commutator comprising a casting having several supporting-rings, a series of spokes on each ring, each spoke in all the series occupying an unobstructed lateral space, a commutating periphery cast in one piece and having as many transverse cuts therethrough as the total number of spokes, a spoke being connected between each two cuts to said periphery.

10. A commutator comprising a number of supporting-rings, each ring being united integrally by a series of spokes, each of which spokes occupies a different radial position from any one of all the series, with a flange cast in one piece and divided by transverse cuts into a series of commutating-segments which form a periphery of substantially uniform width of face.

11. A commutator comprising a number of supporting-rings, spokes on each ring, and a flange cast in one piece and divided by transverse cuts into a series of contact-segments, each supported by a single spoke integral with its segment.

12. A commutator comprising a number of concentric supporting-rings, integral spokes extending radially from the periphery of each ring, and a flange cast in one piece and divided by transverse cuts into a series of contact-segments, each supported by a single spoke integral with its segment.

13. The combination with an arbor, of a plurality of metal rings mounted on said arbor and making a working fit therewith, insulation on said rings, collecting devices securely mounted over the insulation, insulating-septa between the collectors, and means for securing the parts.

14. A commutator comprising a cast blank having a number of separate supporting-rings integrally united by series of spokes with a peripheral flange cast in one piece, each spoke of which lies in an independent lateral position, incisions through the flange between each pair of spokes, and insulation in the incisions.

15. A commutator comprising a blank having a number of separate supporting-rings integrally united by series of spokes with a peripheral flange cast in one piece, each spoke of which lies in an independent radial position, supporting-blocks between each two spokes, incisions through the flange between each two spokes, and insulation in the incisions secured by the blocks.

16. A commutator comprising a blank having a number of separate supporting-rings integrally united by series of spokes with a peripheral flange cast in one piece, each spoke of which lies in an independent radial position, supporting-blocks between each two spokes, incisions through the flange extending into each block, and insulation in the incisions between the flange-segments and held in the block incisions.

17. A cast commutator-blank consisting of a plurality of supporting-rings connected to a single exterior concentric ring by series of spokes, no two spokes of which share radial space.

18. In a commutator-collector, the combination with an arbor, of rings removably mounted thereon, insulation for said rings, and collecting and commutating devices securely mounted over said insulation.

19. In a commutator, the combination with an arbor, of rings thereon having a working fit therewith, insulation for said rings, collecting and commutating devices shrunk on over said insulation, and insulating-septa between the collecting and commutating devices.

20. The method of manufacture which consists in inserting supporting-blocks in the spaces between each pair of a radial series of spokes connecting a plurality of supporting-rings with a peripheral flange, making a series of radial incisions through the flange and into the supporting-blocks, and then inserting insulating-septa in the incisions, between the separated flange-segments, and into the supporting-blocks.

21. The method of manufacture, which consists in inserting supporting-blocks in the spaces between each pair of a radial series of spokes connecting a plurality of supporting-rings with a peripheral flange, making a series of radial incisions through the flange, each incision extending through the flange and into the separating-block, inserting insulating-septa in the incisions between the separate flange-segments and into the supporting-blocks, and then finishing off the peripheral surface.

22. The method of manufacturing commutators, which consists in mounting supporting-rings upon an arbor, covering the rings with insulating material, and then shrinking on contact-rings over the insulation.

23. The method of manufacturing commutators, which consists in mounting supporting-rings and insulating-septa alternately upon an arbor, then covering the rings with insulating material, and shrinking on contact-rings over the insulation.

24. A commutator having a peripheral flange cast in a single piece and integral with interior supports, which supports are organized into a plurality of electrically-separated parts, said flange having perforating incisions between each pair of radial supports, whereby the commutator, including the flange as well as the supports, is divided into a plurality of electrically-independent parts.

25. The combination with a plurality of interior members, of a series of integral supports extending radially in the same plane from each member, the supports on no member occupying the same radial position as those of another member, and a peripheral flange cast in one piece and integral with said supports and having a perforating incision between each pair of supports.

26. A commutator, which consists of an arbor, insulation mounted thereon, a plurality of rings mounted rigidly over the insulation, a plurality of series of spokes extending radially from the rings, no two series of spokes being in the same plane, no two spokes occupying like radial position, and a continuous flange on the ends of the spokes, from which transverse portions are removed between adjacent portions connected to spokes, whereby each ring, its spokes and the segments thus formed on the ends of the spokes are electrically separated from the other rings, spokes and segments.

27. A commutator, which comprises a plurality of rings having radial spokes, an exterior flange which is divided into electrically-separate segments by the removal of transverse sections of the metal of the flange between adjacent spokes, whereby successive segments are connected by the corresponding spokes to different rings.

28. A commutator, which comprises an exterior flange cast integral with radial spokes extending from a plurality of separated internal supporting-rings, transverse portions of the metal of the flange between adjacent spokes being removed to form separate commutator-segments.

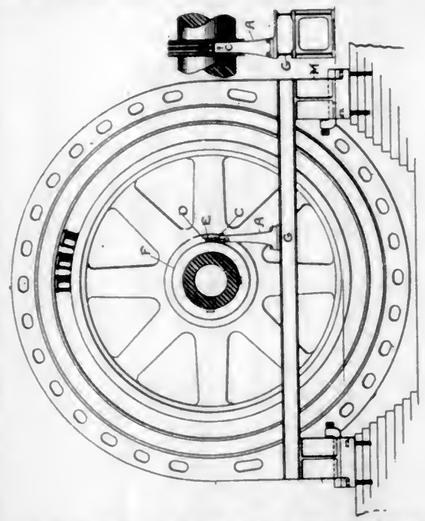
29. A commutator, which comprises a plurality of rings, a plurality of radial supports extending from each ring, each support on one ring being located in a radial position to one side of the nearest support on the next ring, and a peripheral flange cast integral with the supports and rings, said flange having transverse sections removed, whereby the successive segments thus formed are carried successively by the radial supports extending from the successive rings.

30. In a commutator, the combination with an arbor, of insulation covering the same, a single-piece casting thereon provided with a plurality of rings which are rigidly secured over the insulation, with radial supports extending from each ring, and with a peripheral flange, said flange being divided into segments by the removal of transverse sections of metal therefrom, at points between the junctions of the radial supports with the flange.

661,228. ADJUSTING BRUSH-HOLDERS. Henry G. Reist, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 22, 1900. Serial No. 9,666. (No model.)

Claim.—1. Means for adjusting the brush-holders of electric machines, which comprises a split tubular support adapted to receive the brush-holder, and means for clamping the split portions together about the holder.

2. Means for adjusting the brush-holders of electric machines, which comprises a split tubular support adapted to receive the shank of the brush-holder, and a bolt for clamping the split portions about the shank.



3. Means for adjusting the brush-holders of electric machines, which comprises a tubular support, a yieldable hollow bushing therefor, adapted to receive a brush-holder, and means for clamping the bushing about the brush-holder.

4. Means for adjusting the brush-holders of electric machines which comprises a tubular support, a yieldable hollow bushing therefor, having a shoulder resting on the end of the support, and means for clamping the bushing about the brush-holder which it is adapted to receive.

5. Means for adjusting the brush-holders of electric machines, which comprises a split tubular support, a rubber bushing therefor, adapted to receive a brush-holder, and a bolt for clamping the split portions about the bushing surrounding the brush-holder.

6. In combination, a tubular support, a brush-holder therein, a flexible conductor secured to the holder inside the support, and means for retaining the holder at different positions in said support.

7. An electric machine, in combination with a brush-holder in operative relation with respect to its collector, and a vertical support mounted independently of the machine on which support said brush-holder is adjustably mounted.

8. In an electric machine, the combination with the collector, of a brush-holder in operative relation thereto, and a hollow split support in which said holder is adjustably mounted.

9. In an electric machine, the combination with a collector, of a support mounted independently of the machine, and a brush-holder in operative relation with respect to the collector and adjustably mounted in said support.

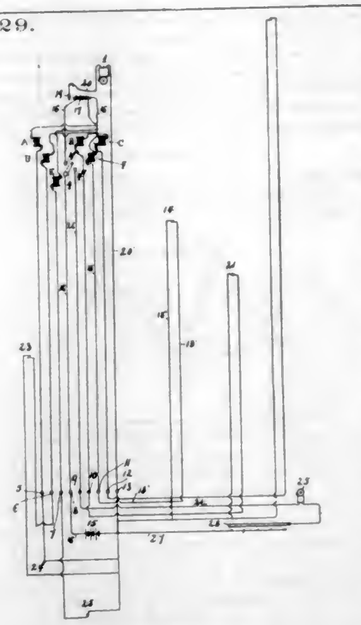
10. The combination with an electric machine, of a support mounted independently thereof, and a brush-holder carried by said support and adjustable therein.

661,229. ELECTRIC BURGLAR-ALARM SWITCHBOARD. Simon H. Rickard, West Bridgewater, Pa. Filed Sept. 16, 1899. Renewed Aug. 6, 1900. Serial No. 26,105. (No model.)

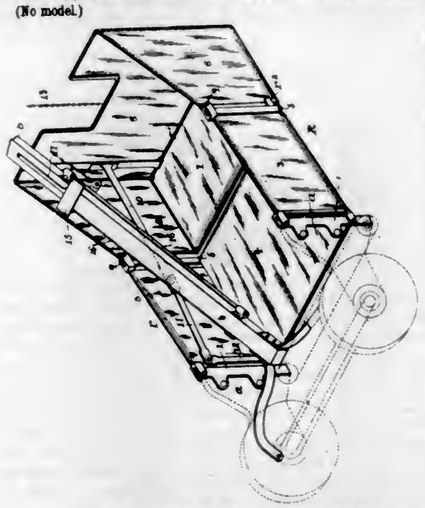
Claim.—1. In a switchboard for the purpose set forth, the combination with an annunciator and its circuits, of a board G for the purpose of attaching the same thereto, an automatic circuit-closing device such as 2 and a switch such as 4 placed within the main-battery circuit upon said board, a branch circuit leading from said automatic circuit-closer to the circuit-wire at the opposite pole of the battery, and a bell in said circuit, all arranged and combined to operate substantially as shown and set forth.

2. In a switchboard for the purpose set forth, the combination with an annunciator and its circuits, of a board G for the purpose of attaching the same thereto, an automatic circuit-closing device such as 2 and a switch such as 4 placed within the main-battery circuit upon said board, a branch circuit leading from said automatic circuit-closer to the circuit-wire at the opposite pole of the battery, a bell in said circuit, and the wire 9 to cut said devices out of circuit and place in circuit an independent alarm-bell, all arranged and combined to operate as shown and set forth.

661,229.



661,230. GRASS-CATCHER FOR LAWN-MOWERS. Michael Roracker, Greenwich, Conn. Filed Aug. 2, 1900. Serial No. 25,690. (No model.)



Claim.—1. A grass-catcher for lawn-mowers and the like comprising a stationary section having a hinged bottom adapted to swing upwardly, a section hinged to the stationary section to swing upwardly and outwardly, and a connection between the hinged section and the hinged bottom for causing simultaneous movement of the two parts, substantially as described.

2. A grass-catcher for lawn-mowers and the like comprising a stationary section provided with a hinged bottom adapted to swing upwardly, a section hinged to the stationary section to swing upwardly and outwardly, rods extending from the movable section and from the hinged bottom, and a link connecting the free ends of said rods, substantially as described.

3. A grass-catcher for lawn-mowers and the like comprising a receptacle formed in two sections, of which the front section is provided with a bottom hinged to its rear to turn upwardly and rearwardly, and the rear section is hinged to the upper, rear part of the front section to turn upwardly and forwardly, and means in connection with the hinged bottom and the rear section for turning the same to discharge the grass, substantially as described.

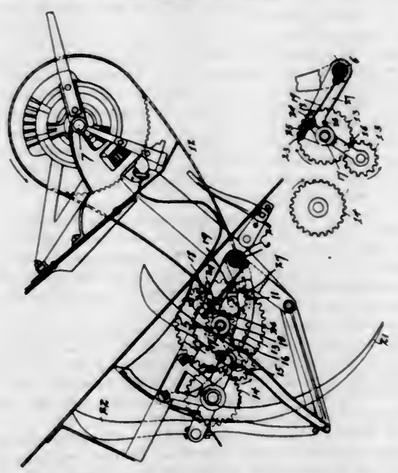
4. A grass-catcher for lawn-mowers and the like comprising a receptacle formed in two sections, of which the front section is provided with a bottom hinged to its rear to turn upwardly and rearwardly, and the rear section is hinged to the upper, rear part of the front section to turn upwardly and forwardly, a rod-and-link connection between the rear section and the hinged bottom of the front section, and operative means in connection with the rear section for turning the same, substantially as described.

5. A grass-catcher for lawn-mowers and the like comprising a receptacle formed in two sections, of which the front section is provided with a bottom hinged to its rear to turn upwardly and rearwardly, and the rear section is hinged to the upper, rear part of the front section to turn upwardly and forwardly, a rod-and-link connection between the rear section and the hinged bottom of the front section, a cross-head mounted to slide upon the mower-handle, a connection between the rear section of the receptacle and the cross-head, and a handle connected with said cross-head for sliding the same upon the mower-handle, substantially as and for the purpose specified.

6. A grass-catcher for lawn-mowers and the like comprising a receptacle formed in two sections, of which the front section is provided with a bottom hinged to its rear to turn upwardly and rearwardly, and the rear section is hinged to the upper, rear part of the front section to turn upwardly and forwardly, a rod-and-link connection between the rear section and the hinged bottom of the front section, a guide-bar extending longitudinally of the mower-handle and connected therewith, a cross-head mounted on said guide-bar and adapted to slide thereon, a cord or chain connecting the back of the rear section of the receptacle with said cross-head, a rod attached to said cross-head and extending in the longitudinal direction of the mower-handle, and a handle attached to said rod, substantially as and for the purpose set forth.

7. The catcher herein described consisting of a stationary section open at its rear and having a bottom hinged to the rear thereof to swing upwardly and rearwardly, a section open at its front and hinged to the stationary section to swing upwardly toward the same; the two sections when in their normal positions forming a box-like receptacle open at its top for the reception of the material cut, and means for moving the hinged bottom and the hinged section toward each other for effecting the discharge of the collected material from the receptacle.

661,231. SELF-BINDING-HARVESTER. James A. Sharp, Harvey, Ill., assignor of one-half to Charles F. Craver, same place. Filed Mar. 28, 1900. Serial No. 10,483. (No model.)



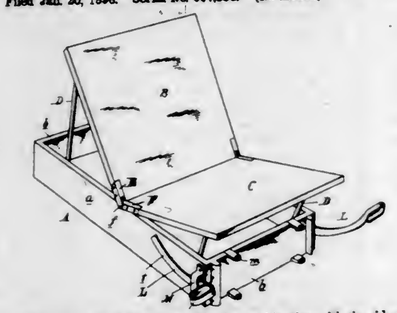
Claim.—1. In a self-binding harvester, the combination with a constantly-rotating driving or power shaft, of an intermittently-rotating packer-shaft, gear-wheels mounted upon said driving-shaft and packer-shaft, and an intermediate gear movably mounted, and means actuated by the binding mechanism for moving said intermediate gear into position to transmit rotary motion from the driving-shaft to the packer-shaft, substantially as described.

2. In a self-binding harvester, the combination with a constantly-driven shaft having a spur-gear thereon, of an intermittently-driven packer-shaft having also a spur-gear thereon, an intermediate gear movably mounted and constantly in mesh with the driving-gear, and means actuated by the binding mechanism for causing said intermediate gear to traverse upon the driving-shaft gear and to roll into and out of mesh with the packer-shaft gear, substantially as described.

3. In a self-binding harvester, the combination with a driving-shaft having a spur-gear thereon, a packer-shaft also having a spur-gear thereon, an intermediate gear mounted on a vibrating arm whose axis is concentric to the driving-shaft, a rocking needle-shaft, and a connection between said needle-shaft and said vibrating arm whereby the oscillation of the needle-shaft is caused to move said arm and thereby move the intermediate gear out of driving mesh with the packer-shaft gear, substantially as described.

4. In a self-binding harvester, the combination with a driving-shaft and packer-shaft and their gears, of an intermediate gear, a vibrating arm on which said gear is mounted, a needle having intermittent oscillation, and a yielding connection between the needle-shaft and said vibrating arm, substantially as described.

661,232. OPERATING-TABLE. JAMES T. SHIPLEY, Detroit, Mich. Filed Jan. 20, 1898. Serial No. 667,358. (No model.)



Claim.—1. In an operating-table the combination with the side rails and a top formed of two abutting sections or leaves, of hinges connecting said leaves to each other and the side rails, each comprising the members E F and G, pivoted together, the members E and F being secured respectively to the edges of said leaves the member F having a recess on the under side thereof, and the member G being secured to the side rail and having an ear *j* projecting upward into the recess on the under side of the member F and the member F having the flange *k* covering said ear *j*.

2. In an operating-table the combination with the table-frame of two leaves forming the separate leg extension independently hinged to a common head and means for detachably securing said head to the table-frame comprising the apertured ears *m* on the frame, and the dowels *n* and spring-latch bolts *o* on the head adapted to engage with said ears.

3. The combination with the table and the hinged leaf forming a leg extension therefor said leaf having a hinged foot-section at its outer end of a double-jointed supporting-brace for said leaf connected at its outer end to said foot extension and at its inner end to said table, the inner joint of said rod being adapted to break upwardly and the outer joint to break downwardly for the purpose described.

4. In combination with an operating-table, a leaf forming the leg extension thereof, a head on the table to which said leaf is hinged, a foot-section hinged to the outer end of the leaf, a rearwardly-extending arm rigid on the foot-section, a supporting brace-rod hinged respectively to said arm and the head, and a break-joint in said rod intermediate its hinge connections, substantially as described.

5. In an operating-table, the combination with the side rail, a top formed of sections or leaves, and a hinge connecting said sections together and to the side rail comprising a member adapted to be secured to the side rail, and elongated hollow members pivotally secured to said first member adapted to embrace and be secured to portions of the edges of the leaves or sections, substantially as described.

6. In an operating-table, the combination with the side rail, a top formed of sections or leaves, and a hinge connecting said sections together and to the side rail comprising a member adapted to be secured to the side rail, and members pivotally secured to said first member having inturned portions adapted to overlie and be secured to portions of the edge of the leaves or sections, substantially as described.

7. In an operating-table, the combination with the side rail, a top formed of sections or leaves, and a hinge connecting said sections together and to the side rail comprising one member adapted to be secured to the side rail, and grooved members pivotally secured to said first member adapted to engage and be secured to portions of the edges of the leaves or sections, substantially as described.

8. In an operating-table, the combination with a frame or support, of a bearing member thereon having a substantially horizontally disposed opening, and a stirrup member having a curved shank passing through the horizontal opening, the curved or convexed edge of the shank being arranged downward relative to the table, substantially as described.

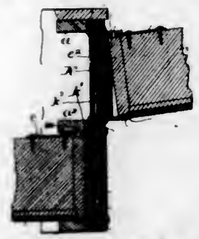
661,233. STANDING ATTACHMENT FOR BICYCLES. MICHAEL WHALING, Amsterdam, N. Y., assignor to Laura Whaling, same place. Filed Oct. 11, 1899. Serial No. 733,338. (No model.)



Claim.—1. In a device of the character described, the combination with a rod having a clamp at each end; of eyes pivoted to opposite sides of the lower clamp; a rib extending longitudinally of, and partly encircling, the rod; a plate mounted upon the rod and engaging the rib; and foot-rods secured to said plate and slidable within the eyes of the clamp.

2. In a device of the character described, the combination with a rod having a clamp at each end; and eyes pivotally secured to opposite sides of the lower clamp; of a rib extending longitudinally of, and partly encircling, the rod; teeth formed within the rib; a plate mounted upon the rib and guided thereby; means within the plate adapted to engage the teeth of the rib; and outwardly-extending rods secured to the plate and slidably mounted within the eyes of the lower clamp.

661,234. DEVICE FOR HANGING SHELVES, DRAWERS, &c. ELIAS BAMBERGER, Freeport, Ill. Filed Dec. 30, 1899. Serial No. 742,072. (No model.)



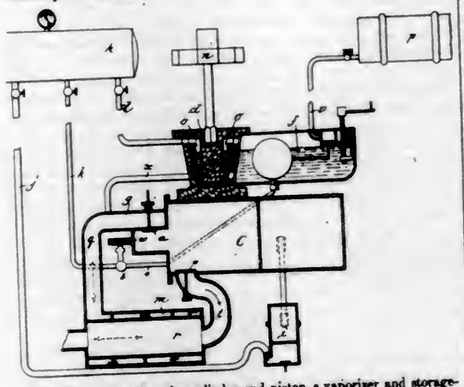
Claim.—1. In a device of the class described, the combination with a vertically-pivoted rearwardly-concave hanger having rearwardly-projecting edges, of a drawer supported upon and removable from said hanger, provided with grooves to receive said edges; substantially as described.

2. In a device of the class described, the combination with a suitable support and a horizontally-swinging drawer carried thereby, of a vertically-pivoted hanger provided with horizontal tongues projecting from the top and bottom thereof and substantially rigid with respect to each other, a device upon the top of the rear edge of the drawer adapted to engage the upper tongue from beneath and prevent horizontal movement of that portion of the drawer and means upon the bottom of said edge of the drawer adapted to slide upon the lower tongue and support the drawer thereon; substantially as described.

661,235. PETROLEUM-MOTOR. LOUIS CHARON and FRÉDÉRIC MANAUT, Paris, France. Filed Nov. 9, 1899. Serial No. 736,419. (No model.)

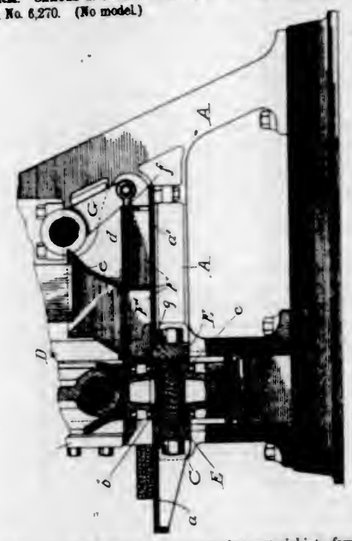
Claim.—1. In a four-cycle petroleum-engine, the combination with the cylinder and piston, of a vaporizer and a suction or storage chamber connected therewith, a distribution-valve controlling the flow of petroleum to the engine, a gas-valve controlling the passage of vapor to the cylinder means whereby in the normal action of the engine the said gas-valve will be held open during the suction-stroke and during a portion of the compression-stroke, and means whereby excessive speed of the engine will cause said gas and distribution valves to remain closed during the entire cycle of movement, substantially as described.

2. In combination, the cylinder and piston, a vaporizer and a storage-chamber connected therewith, a distribution-valve for controlling the flow of petroleum to said vaporizer, a gas-valve controlling the flow of the explosive mixture to the engine, means whereby in the normal action of the engine said gas-valve is held open during the suction-stroke and a portion of the compressing-stroke, means whereby on the excessive speed of the engine said distribution and gas valves are maintained closed, and means for preventing a vacuum in the cylinder during said closure, substantially as described.



3. In combination, the cylinder and piston, a vaporizer and storage-chamber both connected with said cylinder, a distribution-valve for controlling the flow of petroleum to said vaporizer, a gas-valve controlling the passage from the vaporizer and storage-chamber to the cylinder, a shaft driven continuously by the engine, a cam-sleeve splined thereon carrying a cam, connections whereby said cam is caused to operate said distribution-valve, an incline on said sleeve, a rocking arm having its free end in juxtaposition to said incline, a governor and a stop or abutment operatively connected with said governor whereby said swinging arm is held rigidly against said incline, substantially as described.

661,236. MACHINE FOR COMPRESSING MATERIAL INTO FORM. SAMUEL S. CHISHOLM, Chicago, Ill. Filed Feb. 23, 1900. Serial No. 6,270. (No model.)



Claim.—1. In a machine for compressing material into form, a stationary mold and a roller forming an auxiliary compressing mechanism, said roller acting upon the material in the mold prior to the application of the principal compressing mechanism.

2. In a machine for compressing material into form, the combination of a stationary mold, a feed-box adapted to reciprocate across the top of said mold, and a roller carried by said feed-box and adapted to act upon the material delivered to said mold by said feed-box.

3. In a machine for compressing material into form, a reciprocating feed-box having a roller arranged therein adjacently to the front wall thereof and transversely to the direction of motion of said feed-box, and adapted to act upon the material in the mold.

4. In a machine for compressing material into form, a reciprocating feed-box having an adjustable roller arranged therein adjacently to the front wall thereof and transversely to the direction of motion of said feed-box and adapted to act upon the material in the mold.

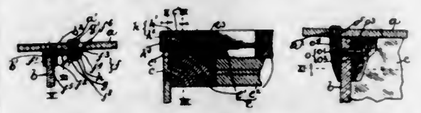
5. In a machine for compressing material into form the combination of a mold, a feed-box for charging said mold, a roller within said feed-box for acting upon the material within said mold, and compressing mechanism.

6. In a machine for compressing material into form, the combination of a mold, a feed-box for charging said mold, an adjustable roller within said feed-box for acting upon the material within said mold, and compressing mechanism.

7. In a machine for compressing material into form, the combination of a mold, a reciprocating plunger adapted to enter said mold, a reciprocating feed-box for charging said mold, and a roller within said feed-box transverse to the direction of the motion thereof, and adapted to act upon the material in said mold when said feed-box is being retracted.

8. In a brick-machine, the combination of a plurality of vertically-reciprocating plungers and an auxiliary compressing mechanism for partially compressing the clay or other material prior to the compressive action of said plungers, said auxiliary mechanism embracing parts moving in a direction transverse to the direction of motion of said plungers.

661,237. SHOW-CASE. JAMES L. CRANE, Cleveland, Ohio. Filed Apr. 27, 1899. Serial No. 714,667. (No model.)



Claim.—1. In a show-case, the combination, with the front plate *b* having its upper edge provided with recesses *b'* extending transversely of the said edge and arranged at suitable intervals longitudinally of the plate, and the top plate overlapping the said recessed edge of the front plate, of fastening devices engaging the different aforesaid recesses, respectively, and secured to the top plate at the under side of the latter, and each of the said fastening devices having two members depending from the top plate at and overlapping opposite sides, respectively, of the front plate, substantially as shown, for the purpose specified.

2. In a show-case, the combination, with the front having its upper edge provided with a recess *b'* and having one of its sides provided, near the said edge, with a lateral recess *b²*, and the top overlapping said edge, of a fastening device engaging the first-mentioned recess and comprising two depending members overlapping opposite sides, respectively, of the front, means securing the said fastening device to the top, and a lug formed upon one of the aforesaid depending members and engaging the aforesaid lateral recess *b²*.

3. In a show-case, the combination with the front plate and the top plate overlapping the upper edge of the front plate: of a fastening device arranged at the under side of the top plate and comprising two pieces arranged, one above the other, and one of said pieces being adjustable longitudinally of the other; means securing the said fastening-forming pieces to the top plate and instrumental in securing the adjustable piece in the desired adjustment; flanges formed upon the two different pieces, respectively, of the fastening device and overlapping opposite sides, respectively, of the front plate; a tongue-and-grooved connection formed between the opposing surfaces of the said pieces, and the groove of the said tongue-and-grooved connection being longer than the tongue to accommodate the longitudinal adjustment of the aforesaid adjustable piece, substantially as shown, for the purpose specified.

4. In a show-case, the combination with the front plate provided, in its upper edge, with recesses arranged at suitable intervals between the ends of the case, and the top plate overlapping the upper edge of the front plate; of a fastening device for connecting the said plates together at each of the aforesaid recesses, which fastening device is arranged at the under side of and suitably secured to the top plate and comprises two flanged pieces, one of said flanged pieces extending through one of the aforesaid recesses and having its flange overlapping the outer side of the front plate, and the other flanged piece having its flange overlapping the inner side of the front plate, substantially as shown, for the purpose specified.

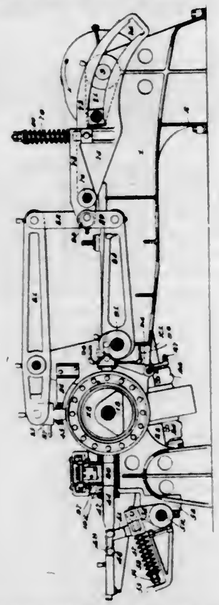
5. In a show-case, the combination with the upright front plate, upright end plates, and the top plate overlapping the upper edges of the said

upright plates and extending beyond the outer sides of the front plate and end plates; of a fastening device located at each upper forward corner of the case and comprising two suitably-connected angle-plates or jaws engaging the inner sides and outer sides, respectively, of the upright plates at the said corners, and the outer jaw being provided with an upright threaded bole in its upper end, and a screw extending through the projecting portion of the top plate and engaging the said bole, which screw, at its upper end, has a head that overlaps the outer side of the top plate, substantially as shown, for the purpose specified.

6. In a show-case, the combination with the upright front plate, the top plate and the upright end plates; of a fastening device located at each upper forward corner of the case and comprising two angle-plates or jaws engaging the inner sides and outer sides, respectively, of the upright plates at the said corner, and the outer jaw being gradually enlarged in thickness toward its upper end; an upright screw-threaded hole formed in the upper end of the outer jaw; a perforation formed in the top plate and registering with the aforesaid screw-threaded hole, and a screw engaging the said screw-threaded hole and extending through the perforation in the top plate and having a head at the outer side of the top plate, substantially as shown, for the purpose specified.

7. In a show-case, the combination with the back recessed, as at c^3, and the end plates c having the recesses c^3 and the niches c'; of the angle-plates k having the lugs k^3, all arranged and operating, substantially as shown, for the purpose specified.

661,238. **MACHINE FOR FORMING PULVERIZED MATERIAL INTO BRIQUETS.** THOMAS A. EDISON, Llewellyn Park, N. J. Filed May 23, 1898. Serial No. 681,475. (No model.)



Claim.—1. In a machine for forming briquets of pulverized material, the combination of a mold, a plunger coöperating therewith, a divided lever for moving said plunger, and a safety-spring uniting the sections of said lever, substantially as set forth.

2. In a machine for forming briquets of pulverized material, the combination of a mold, a plunger coöperating therewith, a rock-shaft, an arm carried by said rock-shaft and connected with said plunger, a main driving-shaft, a lever, a cam on the main shaft for operating said lever, a second arm carried by the rock-shaft, and connections between said arm and said lever, substantially as set forth.

3. In a machine for forming briquets of pulverized material, the combination of a mold, a pivoted arm adjacent to said mold, a "final" plunger carried by said arm, and a knuckle-lever for operating said plunger, substantially as set forth.

4. In a bricking-machine, the combination with the mold-carrier and its coöperating plungers, of a driven shaft, connections between said shaft and said plungers for oscillating the latter, connections between said shaft and the mold-carrier for rotating said carrier with a step-by-step movement, a driving-pulley loosely mounted on said shaft, and a safety connection between said pulley and shaft, substantially as set forth.

5. In a bricking-machine, the combination with the mold-carrier and its coöperating plungers, of a driven shaft, connections between said shaft and said plungers for oscillating the latter, connections between said shaft and the mold-carrier for rotating said carrier with a step-by-step movement, a driving-pulley loosely mounted on said shaft, a link connected to said pulley, and a shear-bolt for securing said link to said shaft, substantially as set forth.

6. In a bricking-machine, the combination with the mold-carrier and its coöperating plungers, of a driven shaft, connections between said shaft and said plungers for oscillating the latter, connections between said shaft and the mold-carrier for rotating said carrier with a step-by-step movement, a driving-pulley loosely mounted on said shaft, a link connected to said pulley, a shear-bolt for securing said link to said shaft, and an adjustable wedge-block behind said shear-bolt, substantially as set forth.

7. In a bricking-machine, the combination of a rotatable mold-carrier, plungers coöperating therewith, a main driving-shaft, a worm-gear carried by the shaft of the mold-carrier, a drunken worm for driving said gear, an inclined shaft carrying said worm, and an adjustable bearing-plate carrying said shaft and adjustable laterally, substantially as set forth.

8. In a bricking-machine, the combination of a rotatable mold-carrier, plungers coöperating therewith, a main driving-shaft, a worm-gear carried by the shaft of the mold-carrier, a drunken worm for driving said gear, an inclined shaft carrying said worm, a bearing-plate carrying said shaft and adjustable laterally, adjusting-screws for said plate, and clamping-screws therefor, substantially as set forth.

9. In a bricking-machine, the combination of a mold, a plunger coöperating with said mold, means for reciprocating said plunger, a receptacle in line between said plunger and mold for receiving material which is forced by said plunger into said mold, and a trough above said recess along which the material is carried and deposited in said recess, substantially as set forth.

10. In a bricking-machine, the combination of a mold, a plunger coöperating with said mold, means for reciprocating said plunger, a receptacle in line between said plunger and mold for receiving material which is forced by said plunger into said mold, a trough above said recess along which the material is carried and deposited in said recess, and a conveyer for moving the material in said trough, substantially as set forth.

11. In a bricking-machine, the combination of a mold, a plunger coöperating with said mold, means for reciprocating said plunger, a receptacle in line between said plunger and mold for receiving material which is forced by said plunger into said mold, and a cutting-tool at the edge of said recess, substantially as set forth.

12. In a bricking-machine, the combination of a mold, a plunger coöperating with said mold, means for reciprocating said plunger, a receptacle in line between said plunger and mold for receiving material which is forced by said plunger into said mold, a cutting-tool at the edge of said recess, a trough above said recess along which material is carried, a conveyer for moving the material along said trough, and spring-pressed flights or scrapers carried by said conveyer and yielding when engaging with said cutting-tool, substantially as set forth.

13. In a bricking-machine, the combination of a rotatable mold-carrier, a plurality of plungers coöperating with said carrier, means for rotating said carrier with an intermittent movement, means for reciprocating said plungers, a pocket between one of said plungers and the mold-carrier, and a trough above said pocket or recess along which the material is moved and from which it drops into said recess, substantially as set forth.

14. In a bricking-machine, the combination of a rotatable mold-carrier, a plurality of plungers coöperating with said carrier, means for rotating said carrier with an intermittent movement, means for reciprocating said plungers, a pocket between one of said plungers and the mold-carrier, a trough above said pocket or recess along which the material is moved and from which it drops into said recess, and a conveyer in said trough for moving the material therein, substantially as set forth.

15. In a bricking plant, the combination of a series of bricking-machines, each having a mold and a plunger coöperating with said mold, a pocket between each of said plungers and its coöperating mold, and a trough extending past the pockets or recesses of all the bricking-machines and along which the material is moved, substantially as set forth.

16. In a bricking plant, the combination of a series of bricking-machines, each having a mold and a plunger coöperating with said mold, a pocket between each of said plungers and its coöperating mold, a trough extending past the pockets or recesses of all the bricking-machines and along which the material is moved, and a conveyer working in said trough for moving the material therein, substantially as set forth.

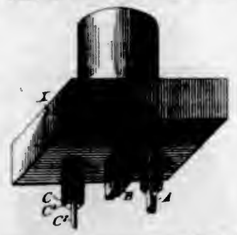
17. In a bricking plant, the combination of a series of bricking-machines arranged side by side, each comprising a rotatable mold-carrier, a series of plungers coöperating therewith, means for reciprocating said plungers, and means for giving to the mold-carrier a step-by-step rotary movement, a pocket arranged between one of said plungers and the mold-carrier of each machine, and a trough extending above the pockets or recesses of all the machines, along which the material is moved and from which the material drops into said pockets or recesses, substantially as set forth.

18. In a bricking plant, the combination of a series of bricking-machines arranged side by side, each comprising a rotatable mold-carrier, a series of plungers coöperating therewith, means for reciprocating said plungers, and means for giving to the mold-carrier a step-by-step rotary movement, a pocket arranged between one of said plungers and the mold-carrier of each machine, a trough extending above the pockets of all the machines, along which the material is moved and from which the material drops into said pockets or recesses, and a conveyer in said trough for moving the material therein, substantially as set forth.

19. In a bricking-machine, the combination of a mold, a plunger coöperating therewith, a receptacle between said plunger and the mold, and a movable cover for said receptacle, substantially as set forth.

20. In a bricking-machine, the combination of a mold, a plunger coöperating therewith, a receptacle between said plunger and the mold, a movable cover for said receptacle, and a trough mounted above said receptacle and along which the material is moved, substantially as set forth.

661,239. **DIES FOR MAKING UPHOLSTERERS' BUTTONS.** CHARLES S. ELLIS, Chicago, Ill., assignor to the Doan & Gates Company, same place. Filed Jan. 9, 1899. Serial No. 701,690. (No model.)



Claim.—1. The combination of a plurality of punches for cutting the prong of an upholsterer's pin or button, and another punch for cutting the head thereof, the latter being provided with a protuberance for indenting the head, and with a bending-finger for bending the prong into a position at a substantially right angle to the head, all substantially as described.

2. The combination of a plurality of punches for cutting the prong of an upholsterer's pin or button, and a punch for cutting the head of the button, this prong being provided with a protuberance for indenting it, and with a bending-finger for bending the prong into a position at a substantial right angle to the head, and a female die with apertures corresponding in number, size and position with the punches, all substantially as described.

3. The combination of a plurality of punches for cutting the prong of an upholsterer's pin or button, a punch for cutting the head of the button, said punch being provided with a protuberance for indenting the head of the button and a bending-finger for bending the prong into a position at a substantial right angle to the head, and a female die provided with a lifting-post actuated by a spring so arranged as to disengage from the die the cut stock, and containing apertures corresponding in number, size and position with the punches, all substantially as described.

4. In a die for making upholsterers' buttons, the combination of a plurality of punches for cutting the prong and head of a button, and a bending-finger, all constructed for the purpose and substantially in the manner described.

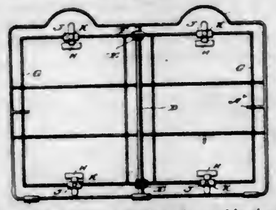
5. The combination of a plurality of punches for cutting the prong of an upholsterer's button, a punch for cutting the head of the button provided with a protuberance for indenting it, and a bending-finger, all substantially as described.

6. The combination of a plurality of punches for cutting the prong of an upholsterer's button, a punch for cutting the head of the button, this punch being provided with a protuberance for indenting it, a bending-finger and a female die with apertures corresponding in number, size and position with the punches, all substantially as described.

7. The combination of a plurality of punches for cutting the prong of an upholsterer's button, a punch for cutting the head and provided with a protuberance for indenting the head of the button, a bending-finger, and a female die provided with a lifting-post actuated by a spring so arranged as to disengage from the die the cut stock, and containing apertures corresponding in number, size and position with the punches, all substantially as described.

8. The combination of a cutting-punch provided with a protuberance and a bending-finger, a second cutting-punch, and a lifting-post provided with the coiled spring, substantially as described.

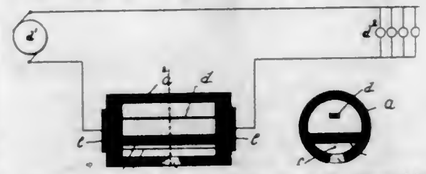
661,240. **MUSIC-HOLDER.** CHARLES E. ELY, Peebles, Ohio. Filed Feb. 10, 1900. Serial No. 4,808. (No model.)



Claim.—1. In a music-leaf holder, the combination of a frame having stops extending inwardly from opposite sides, a central rod joining the top and bottom bars of the frame, music-leaf-supporting frames hinged upon said rod, and spring-clasps adjustably mounted upon said leaf-supporting frames, all substantially as shown and described.

2. In a music-leaf holder, the combination of a frame with stops A^2 extending inwardly from opposite sides thereof, a central rod joining the top and bottom bars of the frame, music-leaf-supporting frames hinged upon said rod, guides adjustable on the top and bottom bars of the leaf-supporting frames and spring-clamps carried by said guides and adjustable therein at right angles to the direction of adjustment of said guides, substantially as shown and described.

661,241. **THERMAL CUT-OUT OR FUSE.** OTTO FEUERLEIN, Charlottenburg, Germany, assignor to the Siemens & Halske Electric Company, Chicago, Ill. Filed Sept. 9, 1899. Serial No. 729,897. (No model.)



Claim.—1. The combination with the main and supplemental fuses, of a casing forming the walls of a hollow structure, and having a partition dividing its interior into two chambers, the main fuse being contained in one chamber and the supplemental fuse in the other, the said fuses being included in parallel relation with each other in the circuit, and the chamber for the supplemental device being constructed so as to permit the latter to be seen, substantially as described.

2. The combination with the main and supplemental fuses, of an inclosed casing containing the fuses, a partition forming a part of the casing and arranged between the two fuses, the said fuses being included in parallel relation with each other, and the casing being constructed so as to permit the supplemental fuse to be seen, substantially as described.

3. The combination with the main and the supplemental fuses, of a cylindric casing having closed ends, and also having a longitudinally-extending partition dividing it into two longitudinal chambers, the main fuse being arranged longitudinally in one of these chambers and the supplemental fuse in the other, and the casing being provided with an aperture opening into the chamber containing the supplemental fuse, whereby the latter can be seen from outside the casing, and a pair of terminal strips, one arranged at each end of the casing and each connected with the ends of the fuses terminating at the end of the casing at which it is situated, the said terminal strips being adapted for connection in the circuit to be protected, substantially as described.

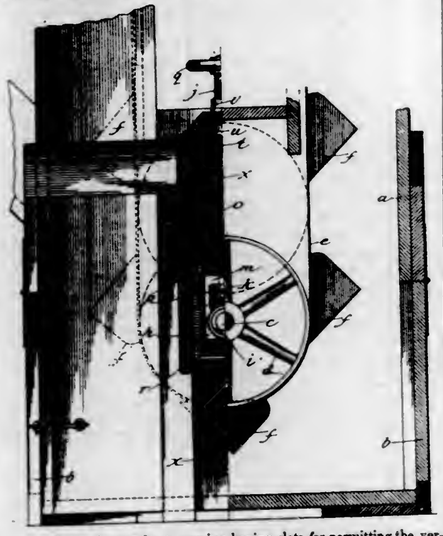
661,242. **ELEVATOR-BOOT.** HARRY J. FLOOD, Chicago, Ill., assignor to the Chisholm, Boyd & White Company, of Illinois. Filed Jan. 24, 1900. Serial No. 2,616. (No model.)

Claim.—1. In an elevator-boot having slots in the boot-casing, and a pulley-shaft vertically adjustable therein, slot-covers consisting of plates vertically adjustable with the boot-shaft; said covers extending substantially the entire length of said slots for all positions of said shaft, and said covers forming individual parts of said boot separate from said shaft, and parts for supporting and adjusting said shaft.

2. In an elevator-boot, the combination of a slotted boot-casing, a pulley-shaft extending through the slots of said casing, vertically-adjustable boxes for supporting said shaft, and covers adjacent to said casing and extending across the slots therein, said covers being separate from and supported by said boxes.

3. In an elevator-boot, the combination of a slotted boot-casing, a

pulley-shaft extending through the slots in said casing, vertically-adjustable boxes for supporting said shaft, covers for closing the casing-slots, said covers being separate from and supported by said boxes, and frames rigidly secured to the sides of said casing at the said slots therein, said frames serving as guides for said covers, and affording means for adjustably supporting said boxes and covers.



4. In an elevator-boot, a casing having slots for permitting the vertical adjustment of the pulley-shaft, boxes for supporting said shaft, slot-covers adjacent to the outside of said casing, said covers having apertures of a diameter substantially equal to the diameter of said boot-shaft for permitting the passage of said shaft, and means for supporting said covers free from said shaft in a position between said casing and said shaft-boxes.

5. In an elevator-boot, a casing slotted to permit the adjustment of the boot-shaft, boxes for supporting said shaft, and slot-covers lying between said casing and said boxes, said covers closely encircling said shaft and thereby preventing the access of material from within said casing to said boxes, and rings or collars secured to said covers and resting upon said boxes, thereby supporting said covers upon said boxes.

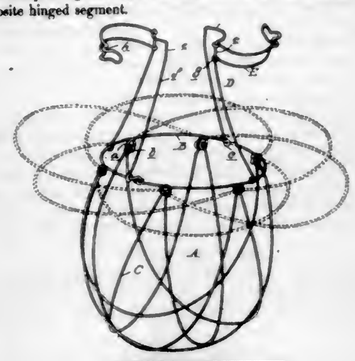
6. In an elevator-boot, the combination of a slotted casing; frames forming separate individual parts of said boot and being rigidly secured to the outside of said casing at the slots therein; slot-covers held in proximity to said casing by said frames, said covers constituting individual parts of said casing; and vertically-adjustable shaft-boxes located outside of said casing and covers, and forming supports for said covers; and means for adjustably suspending said boxes in said frames.

7. In an elevator-boot, the combination of a slotted boot-casing, a pulley-shaft, covers for closing the casing-slots said covers forming individual parts of said boot, boxes for supporting said shaft in said covers, said boxes having arches or cross-bars formed thereon which are apertured to afford a passage for take-up screws, take-up frames rigidly secured to the sides of said casing, said frames having bosses suitably apertured to afford a passage for said screws, said bosses being chambered to receive and prevent the rotation of nuts upon said screws, and take-up screws as aforesaid, having collars at or near their lower extremities for supporting the arches or cross portions of said boxes, said screws extending upward through said apertured bosses, and being adapted to be supported thereon by means of nuts, one nut being located above the boss, and the second nut lying within the chamber thereof, and being thereby prevented from rotating.

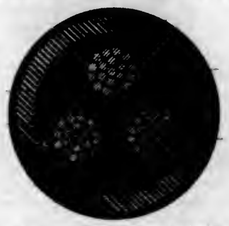
661,243. LAMP-GUARD. EMIL GAHLAU, Detroit, Mich., assignor to William C. Clark, same place. Filed Feb. 19, 1900. Serial No. 5,813 (No model.)

Claim.—1. A lamp-guard comprising a body, arms hinged thereto adapted to extend upon opposite sides of the lamp-socket, each of said arms consisting of a wire loop having longitudinal bearing portions and a connecting segmental portion; and semicircular locking-segments hinged to the longitudinal portions at one side of each arm having hooks at their free ends adapted to engage with the corresponding longitudinal portions of the opposite arms and to clamp over the intermediate longitudinal portions.

2. A lamp-guard comprising a body, arms hinged thereto and adapted to extend upon opposite sides of the lamp-socket, each of said arms consisting of a wire loop having longitudinal bearing portions and a connecting segmental portion, and locking-segments hinged to said arms comprising each a wire loop having eyes at its ends engaging with one of said longitudinal portions, and a hook at its free end for engaging with the corresponding bearing of the opposite arm between the eyes of the opposite hinged segment.



661,244. ELECTRIC CABLE. WILLIAM M. HABIRSHAW, New York, N. Y. Filed Sept. 26, 1900. Serial No. 31,148. (No model.)

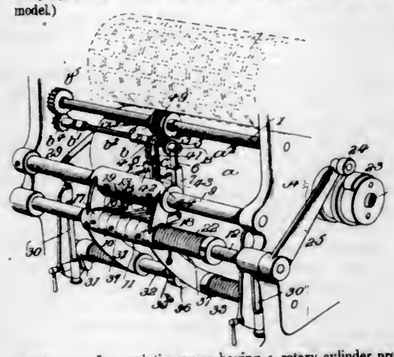


Claim.—1. An insulated cable composed of a plurality of electric conductors, each inclosed in a coating of paper, laid together with a jute filling, and a coating or layer of vulcanizable rubber surrounding the jute filling, the whole being taped and braided, substantially as set forth.

2. A multiple-strand cable, consisting of one or more electric conductors, each inclosed in a paper covering, laid down in a bed of fibrous material, the whole being surrounded by a layer of vulcanizable rubber, as set forth.

3. A multiple-strand cable composed of electric conductors inclosed in paper coatings and embedded in a filling of jute, a coating of vulcanizable rubber and an outside jacket of braided tape or twine, as set forth.

661,245. PRINTING-PRESS. CHARLES G. HARRIS, Niles, and JOHN F. MCNUTT, Warren, Ohio, assignors to the Harris Automatic Press Company, Niles, Ohio. Filed Nov. 24, 1899. Serial No. 738,170. (No model.)



Claim.—1. In a printing-press having a rotary cylinder provided with stops on its periphery, means for feeding stock on said cylinder against said stops while the same is in motion, comprising two sets of feed-rolls,

means for rotating the latter, and means for compensating for inequalities in the thickness of the stock as it is acted upon by said sets of feed-rolls, substantially as set forth.

2. In a printing-press having a rotary cylinder provided with stops on its periphery, means for feeding stock on said cylinder against said stops while the same is in motion, comprising two sets of feed-rolls, one of said sets of feed-rolls having yielding bearings, means for throwing the feed-rolls into and out of frictional engagement, and means for rotating both sets of feed-rolls, as set forth.

3. In a printing-press having a rotary cylinder provided with stops on its periphery, means for feeding stock on said cylinder against said stops while the same is in motion, comprising a set of feed-rolls fixedly supported, a second set of feed-rolls designed to intermittently coact with the former, a yielding support or bearing for said second set of feed-rolls, and means connected to both of said feed-rolls for rotating the same, substantially as set forth.

4. In a printing-press having a rotary cylinder provided with stops on its periphery, means for feeding stock on said cylinder against said stops while the same is in motion, comprising a shaft having fixed bearings and feed-rolls on said shaft, a second shaft and feed-rolls thereon for coacting with the former feed-rolls, yielding supports or bearings for said second shaft, means for intermittently placing said feed-rolls in frictional engagement, and means for rotating both of said shafts, substantially as set forth.

5. In a printing-press having a rotary cylinder provided with stops on its periphery, means for feeding stock on said cylinder against said stops while the same is in motion, comprising a shaft having fixed bearings and feed-rolls on said shaft, a second shaft having feed-rolls for coacting with the former feed-rolls, means for rotating both of said shafts, standards supporting said second shaft, means for raising and lowering said standards, and springs forming independent yielding bearings for said standards, substantially as set forth.

6. In a printing-press having a rotary impression-cylinder, means for positioning or registering stock on said cylinder while the latter is in motion, comprising a shaft having feed-rolls, a second shaft also having feed-rolls, pivotally-mounted bearings for said second shaft, an intermittently partially rotated shaft having arms, and springs interposed between said arms and bearings, as set forth.

7. In a printing-press having a rotary impression-cylinder, means for positioning or registering stock on said cylinder while the latter is in motion, comprising a shaft having feed-rolls, a second shaft also having feed-rolls, standards supporting said second shaft, an intermittently partially rotated shaft, arms loose thereon to which said standards are connected, arms fixed on said shaft, and springs interposed between the latter arms and those to which the standards are connected, substantially as set forth.

8. In a printing-press having a rotary impression-cylinder, means for positioning or registering stock on said cylinder while the latter is in motion, comprising a shaft having feed-rolls, a second shaft also having feed-rolls, standards supporting said second shaft, an intermittently partially rotated shaft, arms loose thereon to which said standards are connected, said arms having upper and lower lateral lugs, fixed arms on said shaft having lateral lugs projected between said upper and lower lugs, springs interposed between the lugs of the fixed arms and the upper lugs of said loose arms, and set-screws in the lower lugs of said loose arms, substantially as set forth.

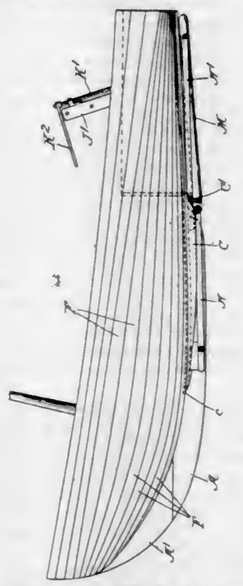
9. In a printing-press having a rotary impression-cylinder, means for positioning or registering stock on said cylinder while the latter is in motion, comprising a shaft having fixed bearings, feed-rolls on said shaft, a second shaft having feed-rolls thereon, gearing operated by said first-mentioned shaft having a universal connection with said second shaft, and means for periodically placing the two sets of feed-rolls in frictional engagement, substantially as set forth.

10. The combination with the press-frame and a cylinder having stops thereon, of the upper and lower feed-rolls, said lower feed-rolls having a short shaft, standards supporting said shaft, a stationary frame having brackets through which said standards are passed, an intermittently-operated shaft having arms loose thereon connected to said standards, a second set of arms fast on said shaft, both sets of arms having lateral lugs, and springs between the lugs of the fast and loose arms, substantially as set forth.

11. The combination with a printing-press having a shiftable impression-cylinder, and a shaft for shifting said cylinder having a shoulder thereon, of an intermittently-operated shaft, an arm loose on said shaft having a hooked end for engaging said shoulder and provided with a lateral lug, a second arm fast on said shaft movable toward and away from said lug, and a device having a feeler-lever designed to engage with the stock being fed to the press, and a second lever connected to the former lever having a lug designed to fit in the space between said second arm and the lug of the loose arm, substantially as set forth.

12. The combination with a printing-press having a shiftable impression-cylinder, and a shaft for shifting said cylinder, having a shoulder thereon, of an intermittently-operated shaft, an arm loose on said shaft and having a hooked end for engaging said shoulder, two sets of feed-rolls, one of which sets is raised and lowered by said intermittently-operated shaft, supports connecting said set of feed-rolls to said shaft, and a device carried by one of said supports having a feeler-lever located between said feed-rolls, and having a second lever connected to said former lever and designed to effect the disengagement of said hooked arm with said cylinder-shifting shaft in the event of any irregularity in the feed to the press, substantially as set forth.

661,246. BOAT. GEORGE F. HOLLOWAY, Oak Park, Ill. Filed May 17, 1900. Serial No. 16,953. (No model.)



Claim.—1. A boat-hull, having at the stern portion a downwardly-open pocket; a rigid frame pivoted at its forward end to the hull, and arranged to oscillate vertically in the pocket; such frame comprising a rudder-bearing post at the rear end, and rigid braces extending from such post forwardly to such pivot, and the rudder mounted on the bearing-post.

2. A boat-hull, having at the stern portion a narrow, longitudinally-extended pocket, downwardly open throughout its whole extent and upwardly open at a rear portion; a rigid frame pivoted at its forward end to the boat-hull and arranged to oscillate in such pocket, such frame comprising at the rear end a rudder-bearing post which extends through the pocket, the upwardly-open part thereof fitting between the side walls of the pocket; and rigid braces extending from such bearing-post forward toward the pivot, and the rudder mounted on the rear side of such bearing-post.

3. A boat-hull, having a central longitudinal, downwardly-open pocket at the stern end; a skeleton rudder-carrier and a centerboard in such pocket, both pivoted at the forward end and arranged to be oscillated vertically at the rear to cause them to protrude more or less downward; and the rudder, mounted on the rear end of the carrier.

4. A boat-hull, having a central longitudinal, downwardly-open pocket at the stern end; a skeleton rudder-carrier in such pocket pivoted at its forward end and having a rudder-bearing post forming its rear end; a centerboard within the skeleton carrier, pivoted on the same line as the latter and at its rear edge engaging and obtaining guidance in the rudder-bearing post.

5. A boat-hull, having a central longitudinal, downwardly-open pocket at the stern end; a skeleton rudder-carrier and a centerboard in such pocket, both pivoted at the forward end and arranged to oscillate vertically at the rear end to cause them to be protruded more or less from the pocket downward; the rudder mounted on the rear end of the carrier; and means for raising and lowering the carrier and the centerboard independently of each other.

6. In combination with a boat-hull, a counterweight; links attached to the counterweight and pivoted to the hull so as to swing fore and aft in vertical plane; means by which such links are stayed against the hull so as to hold the counterweight rigid with the latter as respects lateral movement, at a position remotely below the bottom of the hull when the links are approximately vertical, such links being constructed and arranged to swing up rearward, away from such vertical position, whereby the boat is automatically trimmed to cause the bow to sit higher in the water when the counterweight is elevated.

7. In combination with the boat-hull, a counterweight of relatively small vertical dimensions; links attached to the counterweight and pivoted to the hull so as to swing fore and aft in vertical plane, and stayed laterally at their connection with the hull at the upper end, so as to hold the counterweight rigid as respects lateral movement at a position remotely below the hull's bottom when the links are approximately vertical.

8. A boat-hull, having a centerboard, and means for raising and lowering it, and a counterweight; arms by which the counterweight is connected to the hull rigidly as respects lateral movement, adapted to hold such counterweight remotely below the bottom of the hull, and means for raising and lowering it independent of the means for operating the centerboard; whereby either centerboard or counterweight may be operated without operating the other.

9. A boat-hull having at the stern a downwardly-open pocket, the centerboard attached to the hull and adapted to be withdrawn upward into the pocket and lowered to protrude therefrom; in combination with a counterweight, and arms by which it is held rigid with the hull as respects lateral movement, said arms being adapted to hold the counterweight remotely below the bottom of the hull forward of the position occupied by the centerboard; and means for raising and lowering the counterweight independent of the means for raising the centerboard.

10. In combination with a boat-hull having a central longitudinal, downwardly-open pocket at the stern end, and a centerboard in such pocket arranged to be raised and lowered therein to cause it to protrude more or less below the bottom of the pocket; a counterweight, and the pivoted arms which attach it to the hull, arranged to cause such weight at its highest position to be under the centerboard at the highest position of the latter.

11. A boat which is flat-bottomed at the rear part, and whose cross-section increases and becomes lanceolate from the middle forward, with increasing acuteness toward the bow, and which has at the stern a downwardly-open pocket; in combination with a rudder-carrier in such pocket and arranged to be raised and lowered therein; and a rudder arranged to be mounted at the rear end thereof; whereby the boat may be trimmed to ride on the flat bottom at the rear, with elevated rudder, in shallows, and may be trimmed in deep water to sit deep in the water at the bow with the rudder depressed.

12. A boat which is flat-bottomed at the rear part and whose cross-section increases and becomes lanceolate from the middle forward, in combination with a counterweight secured and longitudinally movable underneath the hull, and connections therefrom extending into the boat to move such counterweight fore and aft at will to trim the boat, and cause it at will either to ride upon the flat-bottomed portion toward the stern, or to sit deep in the water at the bow.

13. A boat which is flat-bottomed at the rear part, and whose cross-section increases and becomes lanceolate from the middle forward, in combination with a counterweight, and links attached to the counterweight and pivoted to the hull so as to swing fore and aft in vertical plane as it is lowered and raised by the links, whereby the boat is automatically trimmed by the adjustment of the counterweight, to ride upon the flat-bottom portion of the stern when the counterweight is raised, as for shallow water, or to sit deep in the water at the bow when the counterweight is lowered in deep water.

661,247. PROCESS OF REVIVIFYING OLD PLASTER-OF-PARIS. WILLIAM R. JOHNSON, New York, N. Y., assignor to himself and George Nichols, Leicester, England. Filed July 12, 1898. Serial No. 685,751. (No specimens.)

Claim.—1. The method of revivifying plaster-of-paris by subjecting the same to two heatings and an intermediate wetting with acidulated water, the first heating effecting a more complete removal of water than the second, while the intermediate wetting serves to rehydrate the burnt plaster, substantially as described.

2. The method of revivifying old plaster-of-paris, by burning the same, wetting the burnt plaster with acidulated water, and then heating the so-treated plaster in powdered form until cessation of ebullition, whereby the old plaster is first dehydrated, then rehydrated and acidulated, and then partially dehydrated, substantially as described.

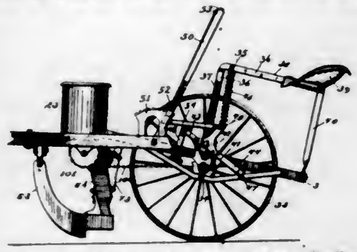
3. In revivifying old plaster, the improvement consisting in burning the same, and applying acidulated water to the burnt old plaster when this is in the form of lumps, and afterward grinding the said lumps and heating the powdered material until cessation of ebullition, substantially as described.

4. The method of revivifying old plaster-of-paris by subjecting the same to a heating, a subsequent wetting with acidulated water, a grinding operation, and a second heating, the first heating and the wetting being performed with the plaster in lumps and the second heating after the said plaster has been reduced to powder, substantially as described.

5. In revivifying old plaster, the improvement consisting in burning the same, and applying acidulated water to the burnt old plaster when this is in the form of lumps and at a temperature above the boiling-point of water so as promptly to evaporate a part of the applied water, and afterward grinding the said lumps and heating the powdered material until cessation of ebullition, substantially as described.

6. The method of revivifying old plaster-of-paris, by subjecting the same to a heating, a subsequent wetting with acidulated water, a grinding operation, and a second heating, the first heating being performed with the plaster in lumps and effecting a more complete removal of water than the second which is performed with the plaster in powder, and the lumps from the first heating being wet with the acidulated water while still hot from the calcining operation so as promptly to evaporate a part of the applied water, substantially as described.

661,248. CONVERTIBLE CORN-PLANTER. JOHN KAYLOR, Decatur, Ill. Filed Nov. 10, 1899. Serial No. 736,484. (No model.)



Claim.—1. In a corn-planter, the combination with a front frame carrying runners and seed devices, and a rear frame hinged to said front frame and provided with wheels, of a standard mounted on said rear frame, a bell-crank lever pivoted on said rear frame and having a forward-projecting arm pivotally connected with said front frame, a rearward-projecting arm provided with a foot-rest and an upward-projecting arm adapted when said lever is rocked to pass forward and backward of said standard, and a spring connecting said upward-projecting arm with said standard, substantially as described.

2. In a corn-planter, the combination with a front frame carrying runners and seed devices, a tongue mounted on said front frame, and a rear frame hinged to said front frame and provided with wheels, of a standard mounted on said rear frame, a bell-crank lever pivoted on said rear frame and having a forward-projecting arm, a rearward-projecting arm provided with a foot-rest, and an upward-projecting arm adapted when said lever is rocked to pass forward and backward of said standard, a link connecting said forward-projecting arm with said tongue, and a spring connecting said upward-projecting arm with said standard, substantially as described.

3. In a corn-planter, the combination with a front frame carrying runners and seed devices, a tongue mounted on said front frame, and a rear frame hinged to said front frame and provided with wheels, of a standard mounted on said rear frame, a bell-crank lever pivoted on said rear frame and having a forward-projecting arm, a rearward-projecting arm provided with a foot-rest, and an upward-projecting arm adapted when said lever is rocked to pass forward and backward of said standard, a link connecting said forward-projecting arm with said tongue, a spring connecting said upward-projecting arm with said standard, a hand-lever mounted on said front frame, and a link connecting said hand-lever and said upward-projecting arm, substantially as described.

4. In a corn-planter, the combination with a front frame having seedboxes, seed-valves in said seedboxes, mechanism for operating said seed-valves, and runners mounted on said frame below said seedboxes and having seed-tubes opening into the same, and having an upper and lower shoulder respectively near the top and bottom of said seed-tubes, of a longitudinally-movable runner-valve mounted in said seed-tube and having upper and lower shoulders adapted to alternately contact with the said upper and lower shoulders respectively in said seed-tube so as to form shelves which will alternately hold and release the seed deposited thereon, check-rower mechanism connected with said runner-valve and adapted to move the same longitudinally, and devices operating upon the lower end of said runner-valve to throw the lower end of said valve slightly backward as the said valve is raised and forward as the same is lowered, substantially as described.

5. In a corn-planter, the combination with a front frame having seedboxes, seed-valves in said seedboxes, mechanism for operating said seed-valves, and runners mounted on said frame below said seedboxes and having seed-tubes opening into the same, and having an upper and lower shoulder respectively near the top and bottom of said seed-tubes, of a longitudinally-movable runner-valve mounted in said seed-tube and having upper and lower shoulders adapted to alternately contact respectively with the said upper and lower shoulders in said seed-tube so as to form shelves which will alternately hold and release the seed deposited thereon, check-rower mechanism connected with said runner-valve and adapted to move the same longitudinally, and a pin mounted in said seed-tube and adapted by contacting the lower end of said runner-valve to move the same slightly backward as said runner-valve is raised and forward as the same is lowered, substantially as described.

6. In a corn-planter, the combination with a front frame having seedboxes, seed-valves in said seedboxes, mechanism for operating said seed-valves, and runners mounted on said frame below said seedboxes and having seed-tubes opening into the same, and having an upper and lower shoulder respectively near the top and bottom of said seed-tubes, of a longitudinally-movable runner-valve mounted in said seed-tube and having upper and lower shoulders adapted to alternately contact respectively with the said upper and lower shoulders in said seed-tube so as to form shelves which will alternately hold and release the seed deposited thereon, check-rower mechanism connected with said runner-valve and adapted to move the same longitudinally, a curved slot in said runner-valve, and a pin mounted in said seed-tube and passing through said slot whereby as said runner-valve is raised the lower end is moved slightly backward and as said runner-valve is lowered the lower end is moved slightly forward, substantially as described.

7. In a corn-planter, the combination with a front frame having seedboxes, seed-valves in said seedboxes, mechanism for operating said seed-valves, and runners mounted on said frame below said seedboxes and having seed-tubes opening into the same, and having an upper and lower shoulder respectively near the top and bottom of said seed-tubes, of a longitudinally-movable runner-valve mounted in said seed-tube and having upper and lower shoulders adapted to alternately contact respectively with the said upper and lower shoulders in said seed-tube so as to form shelves which will alternately hold and release the seed deposited thereon, check-rower mechanism connected with said runner-valve and adapted to move the same longitudinally, and means for holding said runner-valve in a partially-raised position to permit the free passage of seed from the bopper through the seed-tube, substantially as described.

8. In a corn-planter, the combination with a seedbox, a runner, and a seed-tube in said runner opening into said seedbox, of a beveled gear mounted in the bottom of said seedbox, a seed-valve carried by said beveled gear, a shaft below said seedbox, a beveled gear journaled on said shaft below said seedbox adapted to engage with the beveled gear in the bottom of said seedbox, a star-shaped ratchet-wheel connected with the beveled gear on said shaft by a plurality of cross-bars arranged equidistant from each other and from the axis of said beveled gear, a rock-shaft, check-rower mechanism for rocking said rock-shaft, and a pawl carried by said rock-shaft and adapted to successively engage said cross-bars and intermittently rotate said beveled gear, substantially as described.

9. In a corn-planter, the combination with a seedbox, a runner, and a seed-tube in said runner opening into said seedbox, of a beveled gear mounted in the bottom of said seedbox, a seed-valve carried by said beveled gear, a shaft below said seedbox, a beveled gear journaled on said shaft below said seedbox adapted to engage with the beveled gear in the bottom of said seedbox, a star-shaped ratchet-wheel connected with the beveled gear on said shaft by a plurality of cross-bars arranged equidistant from each other and from the axis of said beveled gear, a rock-shaft, check-rower mechanism for rocking said rock-shaft, a pawl carried by said rock-shaft and adapted to successively engage said cross-bars and intermittently rotate said beveled gear, and a detent pivotally suspended below said seedbox operated by said pawl and adapted to successively engage and disengage the points of said star-shaped ratchet-wheel as the same is intermittently rotated, substantially as described.

10. In a corn-planter, the combination with a front frame having runners provided with seed-tubes and seedboxes opening into said seed-tubes, check-rower mechanism carried on said front frame, and a rear frame hinged to said front frame and having an axle journaled on said rear frame, and wheels secured to said axle, of beveled gears mounted in the bottom of said seedboxes, seed-valves carried in said seedboxes by said beveled gears and operated thereby, a shaft journaled in said front frame below said seedboxes, beveled gears journaled on said shaft engaging with said beveled gears in said seedboxes and adapted to be operated by said check-rower mechanism or to be disconnected therefrom, collars mounted on said shaft and adapted to be placed in clutch engagement with the beveled gears mounted on said shaft, and means for rotating said shaft from said axle, substantially as described.

11. In a corn-planter, the combination with a front frame having runners provided with seed-tubes, and seedboxes opening into said seed-tubes, check-rower mechanism carried on said front frame, and a rear frame hinged to said front frame and having an axle journaled on said rear frame, and wheels secured to said axle, of beveled gears mounted in the bottom of said seedboxes, seed-valves carried in said seedboxes by said beveled gears and operated thereby, a shaft journaled in said front frame below said seedboxes, beveled gears journaled on said shaft engaging with said beveled gears in said seedboxes and adapted to be operated by said check-rower mechanism or to be disconnected therefrom, collars mounted on said shaft and adapted to be placed in clutch engagement with the beveled gears mounted on said shaft, a sprocket-wheel mounted on said axle, a sprocket-wheel mounted on said shaft, and a sprocket-chain connecting said sprocket-wheels, substantially as described.

12. In a corn-planter, the combination with a runner having a seed-tube, of a seedbox opening into said seed-tube and having a bowl-shaped bottom of lesser diameter than said seedbox, provided with a concentric upward-extending interior cone-shaped projection having a circumferential shoulder, an annulus-shaped beveled gear adapted to surround said cone-shaped projection and rest upon said circumferential shoulder, and having upward-extending ears provided with notches, an annular seed-valve adapted to rest in said seedbox and to engage with said notches and be carried and rotated by said beveled gear, and mechanism for rotating said beveled gear, substantially as described.

13. In a planter, a seed-valve consisting of a circular plate provided with a series of pockets open from below and with shelves partially covering said pockets from above, substantially as described.

14. In a planter, a seed-valve consisting of a circular plate provided with a series of pockets open from the circumference of said plate and from below, and with shelves partially covering said pockets from above, substantially as described.

15. In a planter, a seed-valve consisting of a circular plate provided on its under side with a series of circumferential seed pockets or chambers separated by radial arms and with openings into said seed-pockets from above of a lesser area than that of said pockets, substantially as described.

16. In a planter, a seed-valve consisting of a circular plate provided on its under side with a series of circumferential seed-pockets open from the circumference and from below, and partially covered over above, substantially as described.

17. In a planter, a seed-valve consisting of a circular plate provided on its under side with a concentric circular downward-projecting ledge, radial arms extending outwardly from said ledge and having their lower edges flush with the lower edge of said ledge and forming a series of circumferential seed-pockets, and shelves, partially covering said pockets from above, substantially as described.

18. In a planter, the combination with a runner having a seed-tube, and a seedbox mounted above said runner and opening thereinto, of a circular seed-valve mounted in said seedbox and having a series of circumferential seed-pockets separated by radial arms, and shelves, partially covering said seed-pockets from above, mechanism for rotating said valve, and a cut-off located above said seed-valve above the opening from said seedbox into said seed-tube, substantially as described.

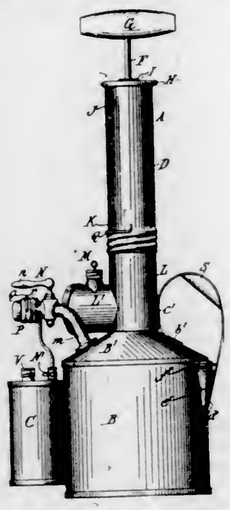
19. In a planter, the combination with a runner having a seed-tube, and a seedbox mounted above said runner and opening thereinto, of a circular seed-valve mounted in said seedbox and having a series of circumferential seed-pockets separated by radial arms, and partially covered from above by shelves having openings therein, mechanism for rotating said valve, and a packing device adapted to automatically force seed into said openings, substantially as described.

20. In a planter, the combination with a runner having a seed-tube, and a seedbox mounted above said runner and opening thereinto, of a circular seed-valve mounted in said seedbox and having a series of circumferential seed-pockets separated by radial arms, and shelves having openings into said seed-pockets from above of a lesser area than said pockets, mechanism for rotating said valve, and a packer consisting of a wheel journaled in said seedbox and having a plurality of radial projections adapted to engage with the openings in said seed-valve and be rotated thereby, substantially as described.

21. In a planter, the combination with a runner having a seed-tube, and a seedbox mounted above said runner and opening thereinto, of a circular seed-valve mounted in said seedbox and having a series of circumferential seed-pockets separated by radial arms, and shelves having openings into said seed-pockets from above of a lesser area than said pockets, mechanism for rotating said valve, and stirrers carried by said seed-valve, substantially as described.

661,249. SPRAYER. CLINTON H. LEGGETT, New York, N. Y. Filed May 15, 1900. Serial No. 16,737. (No model.)

Claim.—1. In sprayers, the combination with an air-pump, of a water-tank, and a liquid-reservoir outside said tank and connected therewith, of an air-pressure chamber connected to said pump, and connections from said tank and reservoir with said chamber.



2. In sprayers, the combination with an air-pump, and a water-tank and liquid-reservoir connected thereto, of a liquid-pressure chamber for receiving air from said pump, and connections leading from said chamber to the upper end of said water-tank and liquid-reservoir.

3. In sprayers, the combination with an air-pump, of a water-tank beneath said pump, and an air-pressure chamber above the upper end of said tank and below the lower end of said pump.

4. In sprayers, the combination with an air-pump, a liquid-reservoir, and a water-tank, of an air-pressure chamber connected to said pump, reservoir and tank and a safety-valve for said chamber.

5. In sprayers, the combination with an air-pump, a water-tank, and a liquid-reservoir. of an air-pressure chamber interposed between said tank and pump, and communicating with the upper end of said liquid-reservoir, discharge-pipes for said liquid and water, a discharge-nozzle connected to said pipes, and valves adjacent to said nozzle for regulating the discharge from said water-tank and liquid-reservoir.

6. In sprayers, the combination with a pump, a water-tank and a liquid-reservoir, of a mixing-chamber connected to said tank and reservoir, means for mixing the liquids in said chamber and a discharge-opening in said mixing-chamber.

7. In sprayers, the combination with a pump, a water-tank and a liquid-reservoir, and a mixing-chamber outside of said tank and reservoir, means for mixing the liquids in said chamber, pipes leading from said tank and reservoir to said mixing-chamber, and a discharge-opening in said mixing-chamber.

8. In sprayers, the combination with a pump, a water-tank, and a liquid-reservoir, of a mixing-chamber connected to said tank and reservoir, means for mixing the liquids in said chamber and a discharge-nozzle screwing on the wall of said mixing-chamber.

9. In sprayers, the combination with a pump, a water-tank and a liquid-reservoir, of a mixing-chamber, pipes leading from said tank and reservoir in said chamber, and having discharge-openings adjacent to each other, the one arranged to discharge across the other.

661,250. PROCESS OF MANUFACTURING THIN HOMOGENEOUS PLATES. LUIGI LOMBARDI, Turin, Italy. Filed May 18, 1900. Serial No. 17,171. (No specimens.)

Claim.—1. The process for the manufacture of thin homogeneous plates consisting in spreading fusible substances upon a suitable liquid base, and subsequently cooling the plates and removing them from the said base, substantially as hereinbefore described.

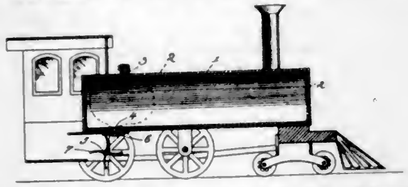
2. The herein-described process of preparing dielectric plates for high-tension condensers consisting in spreading a fused insulating material upon a liquid base, cooling until said fused insulating material is hardened, and finally removing said hardened layer, substantially as described.

661,251. FLOUR-SIEVE. SAMUEL F. RUKENBROD, Youngstown, Ohio. Filed Mar. 25, 1899. Serial No. 710,417. (No model.)



Claim.—In a flour-sieve, the combination of a hollow cylindrical receptacle having its top end inclined, a handle secured to the periphery of said receptacle at the shorter side thereof and near the top edge, a semispherical-shaped screen or sieve connected to the inner face of said receptacle below the center thereof, an operating-shaft journaled centrally of the said casing and extending entirely therethrough and further extending outwardly on one side and bent downwardly, outwardly and upon itself forming a handle below the plane of the operating-shaft, a pair of disks mounted upon said shaft within the said receptacle, a series of curvilinear wire beaters arranged in said screen and connected at their ends to the said disks, a keeper secured to the periphery of said receptacle, and a coiled retractile spring having one end working freely in the said keeper, and its opposite end rigidly secured to the inner end of said handle, said spring being adapted to rock the operating-shaft in the direction opposite to that in which it is rocked by means of its handle, substantially as described.

661,252. TOY ENGINE. ERNEST W. SHORTRIDGE, Farnum, W. Va. Filed Mar. 24, 1900. Serial No. 10,046. (No model.)



Claim.—In a toy engine, the boiler of which is formed from thin material provided with a valved inlet and outlet, of an air-receptacle therein, formed from expansible material and provided with an inlet and an outlet, said receptacle being secured to the boiler at its inlet and outlet, of a rotary shaft beneath the engine, the ends of which are provided with wheels rigidly secured thereto, and the intermediate portion is provided with means for being engaged by the current of air from the receptacle, and means in the outlet of the receptacle for closing or opening the same, substantially as described.

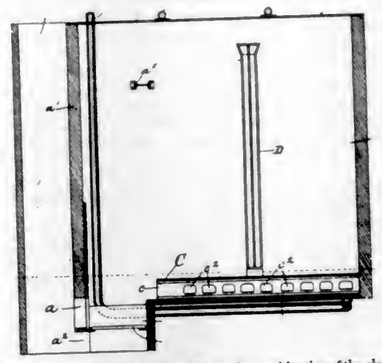
661,253. CAN-OPENING KEY. JOHN ZIMMERMAN, Chicago, Ill. Filed Aug. 21, 1899. Serial No. 727,919. (No model.)



Claim.—1. A can-opening key comprising an acting end, a stem or body and a spread or enlarged handle or turning end formed integral from a single piece of metal containing an undistorted slot at the acting end, left intact at the stem or body and flattened, slotted and spread outwardly at the handle or turning end, substantially as described.

2. A can-opening key comprising a slotted acting end, a stem or body and a spread or enlarged handle or turning end formed integral from a single piece of metal flattened and containing an undistorted and longitudinal slot at the acting end, left intact at the stem or body and flattened, longitudinally slotted and spread outward at the handle or turning end, substantially as described.

661,254. DRYING-OVEN. GEORGE P. BASSETT, Jr., Cincinnati, Ohio. Filed May 1, 1899. Serial No. 715,130. (No model.)



Claim.—1. In an oven for drying flasks the combination of the closed-top oven, the fireplace within the oven having an imperforate end wall and in direct open communication with the interior thereof and the pipe connected with an air-exhaust and communicating with the oven at or near its floor, substantially as shown and described.

2. In an oven for drying flasks the combination of the closed-top oven, the fireplace within the oven having an imperforate end wall and in direct open communication with the interior thereof, the perforated plates supported above the floor thereof, and the pipe connected to a blower and communicating with the oven below the perforated plates, substantially as described.

3. The combination of the closed-top oven, the open-top fireplace within the oven having imperforate end wall, openings in the oven-wall for the admission of fuel and air to the fire, bearing-bars upon the oven-floor, perforated plates supported by said bars, and pipes connecting the chambers formed by said floor bars and plates, with an exhaust, substantially as shown and described.

4. The combination of the closed-top oven having a concrete floor, the bearing-bars resting upon said floor and having their webs perforated, the perforated plates supported by said bearing-bars to support the flasks to be dried, the open-top grate or fire-chamber within the oven arranged at its forward end and having its top on a substantially horizontal level with the top of the concrete floor of the oven, pipes at the rear end of the oven below the concrete floor and in communication with the chambers between the concrete floor and perforated plates and also in communication with the pipe connected with the exhaust, substantially as shown and described.

5. In a flask-drying oven the combination substantially as hereinbefore set forth of the closed oven, the furnace arranged at the forward end of the oven having the top of its fire-chamber arranged below the level of the oven-floor, an open-top air-shaft in front of the oven having its inner wall perforated and provided with openings to supply fuel to the fire-chamber and air to the ash-pit, the bearing-bars resting upon the floor of the oven, the perforated plates resting upon said bearing-bars to support the flasks to be dried, the perforations communicating with the chambers between the bearing-bars and the chambers between the bearing-bars being in communication with each other, an exhaust-pipe beneath the concrete floor of the oven having branch pipes extending through the floor of the oven communicating with the chambers between the concrete floor and perforated plates, whereby the gaseous products of combustion which ascend from the fire-chamber to the top of the oven are drawn down through and around the flasks supported above and upon the perforated plates and the vapors caused by the drying of the flasks exhausted.

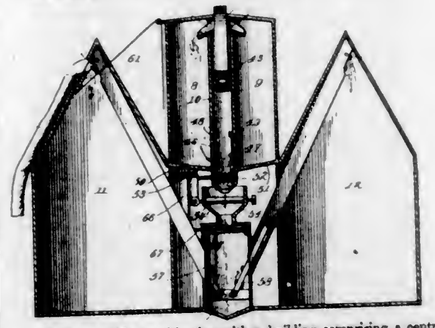
661,255. LOCK-NUT FOR VEHICLE-AXLES. WILLIAM BELFIELD, Platteville, Ill., assignor of three-fourths to Robert Shearer, John Findlay, and Gamaliel Belfield, same place. Filed May 26, 1900. Serial No. 18,107. (No model.)



Claim.—1. In a lock-nut for vehicles, the combination, with a vehicle-spindle, the outer end of which is provided with a longitudinally-grooved and laterally-recessed tip, of a nut, the inner end of the bore of which is provided with inwardly-extending ribs adapted to slide within the grooves and to be moved laterally into the recesses, a ring at the outer end of the nut, the inner face of which is provided with wedges in position to slide longitudinally within the grooves of the tip, said wedges being of such a length that when the ring and wedges are at their inner position the inner ends of the wedges will engage with the sides of the ribs and prevent their removal from the recesses, and means for moving said ring and wedges, substantially as described.

2. In a lock-nut for vehicles, the combination, with a spindle, the outer end of which is provided with a longitudinally-grooved and laterally-recessed projection, of a nut upon the projection, the inner end of the bore of which is provided with inwardly-projecting ribs adapted to slide within the grooves of the projection and to be moved laterally into the recesses, the outer end of the nut being recessed around the bore, a collar within the recess provided with wedges to fit in the grooves of the projection and having its outer surface provided with diametrically oppositely located tangential slots, a bail pivotally secured to the outer end of the nut, the sides of which are provided with inwardly-extending pins in position to enter said slots, and a spring secured to the nut in position for its free ends to engage with the ends of the bail and lock the same in two positions, substantially as described.

661,256. MACHINERY FOR TREATING MOLDING-SAND. JOHN A. BOUGHTON, Everett, Ohio. Filed May 22, 1899. Serial No. 717,769. (No model.)



Claim.—1. The combination with a building comprising a central portion, a store-room upon each side thereof, and a shed, of a furnace in the shed, a pit under the furnace, a conveyer leading thereto and an elevator leading therefrom to the top of the central portion, a grader below the central portion, and an elevator leading from below the grader to each of the store-rooms.

2. The combination with a building comprising a central portion, a store-room upon each side thereof, and a shed, the upper part of the central portion containing two bins and an elevator-way, and the lower portion containing a grader, of a furnace and a pit in the shed, a conveyer leading to the furnace, an elevator leading from the pit to the top of the central portion and communicating with the bins, and an elevator leading from below the grader to each of the store-rooms, one of them being adapted to communicate with the exterior of the building, substantially as described.

3. The combination with a building comprising a central portion, a store-room on each side thereof, and a shed, the central portion being provided with bins, of a furnace in the shed, a grader below the bins, a feed-roller and two crushing-rolls between the bins and the grader, an elevator leading from below the grader to each of the store-rooms, and an elevator leading from the shed to the bins in the central portion, substantially as described.

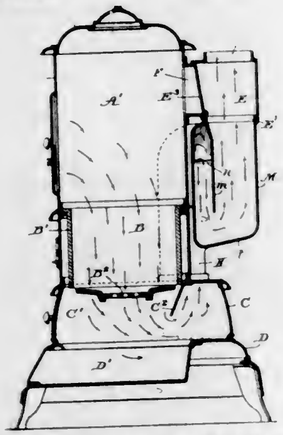
4. The combination with a furnace, of a smoke-box connecting therewith, a feed-hopper above the smoke-box, a conduit leading therefrom to the furnace, an inclined screen above the hopper and a vertically-movable crusher above the screen, the forward end of which is curved upwardly, substantially as described.

5. The combination of a furnace, an inclined revolving cylinder leading therefrom and carrying an upward current of heat, a feed-hopper, a spout leading therefrom into the upper end of the cylinder, a screen mounted above the hopper, a crusher in the screen, and means for raising and dropping the crusher, substantially as described.

6. The combination with a furnace of a smoke-box, a smoke-stack leading therefrom, a hopper, an inclined revolving cylinder leading from the furnace to the smoke-box, a spout leading from the hopper through the smoke-box into the raised end of the cylinder, a receptacle below the furnace into which the lower end of said cylinder empties, and an elevator for removing the deposits therefrom, substantially as described.

7. In a machine for treating sand, the combination with a furnace and feed-hopper of an inclined revolving cylinder leading from the hopper and carrying an upward current of heat from the furnace, a pit to receive sand from the cylinder, cooling-bins, an elevator to carry the sand up into said bins, rolls below the bins, a screen below the rolls, a receptacle into which the sand is discharged from the screen, and means for conveying the sand to the storehouses, substantially as described.

661,257. STOVE. ISAAC BROOKE, Pottstown, Pa., assignor to Floyd, Wells & Co., Royersford, Pa. Filed Jan. 6, 1900. Serial No. 557. (No model.)

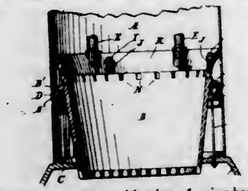


Claim.—1. In a heating-stove of the downdraft class, comprising a fire-box, a superposed fire-chamber, a damper-box opening into the latter, and a damper therein adapted to open and close such communication at pleasure, the combination therewith of a draft-chamber below the fire-box and having a rear extension, a radiating-chamber having communicating passages leading from said draft-chamber to the damper-box, and a deflecting-plate in said draft-chamber, arranged therein in such manner as to deflect and control the course of the downdraft through the grate-bars; substantially as described.

2. In a heating-stove of the class described, having a damper-box with suitable openings and a damper therein operating to reverse the direction of the draft through the fire-box, and a draft-chamber below the fire-box, the combination therewith of a radiating-drum arranged between said draft-chamber and the damper-box, said drum consisting of a pair of pipes or legs H, H, and an intermediate drum M closed at bottom the parts H, H, opening into each other and into said drum M, and a depending deflecting-plate in the latter; substantially as described.

3. In a heating-stove of the character described, having a damper-box with suitable openings and a damper therein operating to reverse the direction of the draft through the fire-box, the combination therewith of the draft-chamber C' below the fire-box, a deflecting-plate C^2 therein, and a radiating-drum consisting of the hollow legs or pipes H, H, intermediate drum M, and deflecting-plate *m* in said drum; said parts being constructed, combined and operating substantially as described.

661,258. FIRE-POT FOR STOVES. PETER J. COPPENS, Grand Rapids, Mich. Filed Jan. 19, 1900. Serial No. 1,969. (No model.)

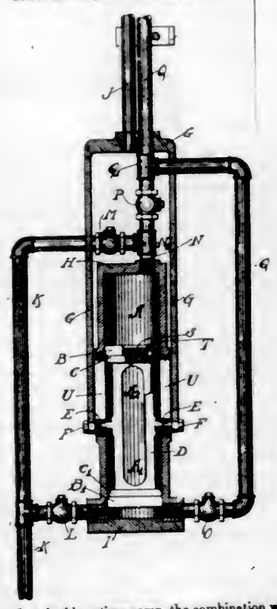


Claim.—1. In a stove the combination of a ring having an inwardly and upwardly projecting flange, a fire-pot having an outwardly and downwardly projecting flange engaging the flange on the ring, a continuous sheet-metal body extending above and below the ring, and means for securing the ring to the inner surface of the body, substantially as described.

2. The combination of a sheet-metal body having an inwardly-pressed bead, a ring secured to the body and having one or more diagonal seams D' and a concave channel opposite the bead, and also having an inwardly-projecting flange, and a fire-pot having an outwardly-projecting flange to engage the flange on the ring and supporting the fire-pot, substantially as described.

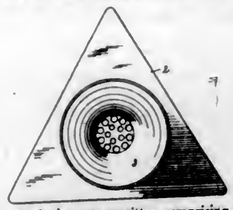
3. The combination of a sheet-metal body having an inwardly-pressed bead, a ring secured to the body and having a concave channel opposite the bead and an inwardly and upwardly projecting flange; and a fire-pot having an outwardly and downwardly projecting flange engaging the flange on the ring and slidable thereon, substantially as described.

661,259. PUMP. JOHN E. ELAM, Whitehaven, Tenn. Filed Dec. 29, 1899. Serial No. 741,925. (No model.)



Claim.—In a double-acting pump, the combination with two single-acting cylinders disposed with their open ends facing each other and connected by an integral body portion, a head for the upper cylinder integral therewith, a removable head for the lower cylinder, a double solid-end piston, suction-pipes leading into the sides of the cylinders, a discharge-pipe eccentrically fastened into the solid head of the upper cylinder, to support the cylinder and act as a guide for a forked-end piston-rod, guides for the piston-rod fastened to the said discharge-pipe at intervals and a discharge-pipe leading from the side of the lower cylinder into the upper discharge-pipe, of a forked-end piston-rod adapted to slide on and be guided by the discharge-pipe and when so sliding to move along the center line of the cylinders, substantially as shown and described.

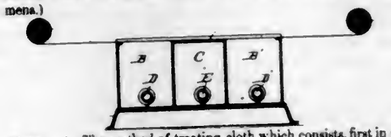
661,260. TRANSMITTER. RICHARD H. FERGUSON, Baltimore, Md. Filed Aug. 15, 1900. Serial No. 26,919. (No model.)



Claim.—1. A telephone-transmitter comprising a casing having a screw-threaded lug projecting inwardly therefrom; a chamber fitting over and screwed upon the said lug and having a carbon block therein, which latter impinges against the said lug, and granules of carbon between the said block and the opposite end of the chamber; a cap of metal or other conducting material fitted over the front end of the said chamber; a sound-diaphragm secured to the front of the said cap and having its periphery insulated; a cap fitting over and secured to the said casing; and a mouthpiece secured to the said cap.

2. A telephone-transmitter comprising a casing having a screw-threaded lug projecting inwardly therefrom; a chamber containing granules of carbon, having one end flexibly closed and the opposite end screw-threaded upon its inner surface and screwed upon the said lug; a block of carbon fitted within the said chamber and impinging against the said lug; a sound-diaphragm secured to the front end of the said chamber and having its periphery clamped between the casing and front cap and insulated therefrom; a cap fitted over and secured to the said casing; and a mouthpiece secured to the said cap.

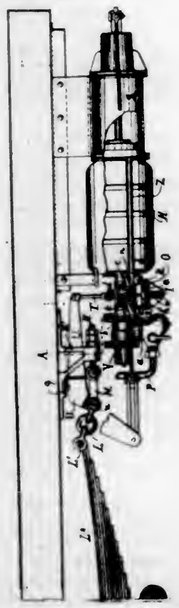
661,261. PROCESS OF TREATING CLOTH. ARTHUR GARLAND, Howell, Mich. Filed Mar. 24, 1900. Serial No. 10,106. (No specimens.)



Claim.—1. The method of treating cloth which consists, first in subjecting the same to a current of heated air or gases; second, while the cloth is still heated, subjecting the same to the action of live steam until it is thoroughly heated and acted upon by the same, and then subjecting the same to a current of heated air or gases to drive off the residue of steam and dry the cloth.

2. The process of treating cloth which consists in subjecting the same to the action of live steam until the fabric is thoroughly heated and expanded, and then subjecting the same, while it is still heated, to a current of heated gases to drive out the steam and thoroughly dry the fabric.

661,262. AUTOMATIC REGULATOR FOR ATMOSPHERIC CAR-BRAKES. JORDAN GEORGOFF, St. Petersburg, Russia. Filed July 28, 1900. Serial No. 25,187. (No model.)



Claim.—1. The combination in a car-brake with means for communication between the three-way valve and the auxiliary reservoir, and means for communication between the three-way valve and the brake-cylinder, of means for restricting the said means of communication with the brake-cylinder, means for closing said restricting means by a predetermined pressure in the brake-cylinder, a link interposed between the car-body and the end of a bow-spring supporting said car-body, and means for causing said link to retain said restricting means in the open position.

2. The combination in a car-brake with means for communication between the three-way valve and the auxiliary reservoir, and means for communication between the three-way valve and the brake-cylinder, of a check-valve located in said latter communication and arranged to be closed by the air flowing from the auxiliary reservoir into the brake-cylinder, a cylinder, a piston working in said cylinder and connected with said check-valve, means of communication between the said latter cylinder and said brake-cylinder for admitting air from the brake-cylinder to act on one side of said piston and cause it to move said check-valve to its closed position, and means for causing the weight of the car-body to act on said piston and check-valve and move them to open said check-valve.

3. The combination of a housing having two separate passages leading therethrough, a check-valve located in one of said passages, a cylinder connected with said housing, a piston working in said cylinder, a rod interposed between said piston and said check-valve, said housing having a passage-way communicating the said passage-way containing the check-valve with one end of said cylinder, said cylinder having a passage-way communicating its other end with the atmosphere, a piston-rod attached to said piston, a lever impinging on said piston-rod, and means for operating said lever from the weight of the car-body.

4. The combination in a car-brake, with means for communication between the three-way valve and the auxiliary reservoir, and means for communication between the three-way valve and brake-cylinder, of means for restricting said means of communication with the brake-cylinder, means for closing said restricting means by the predetermined pressure in the brake-cylinder, a link interposed between the car-body and the end of a bow-spring supporting the car-body, a lever fulcrumed on the car-body and having one end connected with said link, and means connecting the other end of said lever with said restricting means for causing the depression of said lever by the car-body to retain the restricting means in the open position.

5. The combination in a car-brake, with means for communication between the three-way valve and the auxiliary reservoir and means for communication between the three-way valve and the brake-cylinder, of means for restricting said means of communication with the brake-cylinder, means for closing said restricting means by a predetermined pressure in the brake-cylinder, a link interposed between the car-body and the end of a bow-spring supporting the car-body, means for moving the point of attachment of said link with the car-body in a direction toward and from said end of the bow-spring, a lever fulcrumed on the car-body and having one end connected with said link, and means connecting the other end of said lever with said restricting means for causing the depression of said lever by the car-body to retain the restricting means in the open position.

6. The combination in a car-brake, with means for communication between the three-way valve and the auxiliary reservoir, and means for communication between the said three-way valve and the brake-cylinder, of means for restricting the said means of communication with the brake-cylinder, a cylindric chamber, means for communication at one end of said chamber with the brake-cylinder, a piston working in said cylindric chamber, a rod attached to said piston, means for causing said piston to operate said restricting means, a double-armed regulating-lever, one end of which engages said piston-rod whereas the other end is coupled by a link to a lever interposed between the car-body and a bow bearing-spring and pivoted to the joining-pin of the links of the spring-hangers.

661,263. PROCESS OF MAKING ENAMELED SHEETS OF FIBROUS MATERIAL. BYRON B. GOLDSMITH, New York, N. Y. Filed Sept. 16, 1898. Serial No. 691,066. (No specimens.)

Claim.—1. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the fibrous base or on a polished surface, or on both, one or more coats of a solution containing pyroxylin, and pressing the base and polished surface together before the coat or coats are dry, to produce a flexible coating having a patent-leather-like surface, substantially as described.

2. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the fibrous base, or on a polished surface, or on both, one or more coats of a solution containing pyroxylin, pressing the parts together before the coats are dry and then peeling the coated base from the polished surface, whereby the treated side of the base receives a flexible, patent-leather-like surface, substantially as described.

3. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the fibrous base or on a smooth surface, or on both, one or more coats from a solution containing pyroxylin, pressing the base and polished surface together before the coats are dry, peeling the coated base from the smooth surface, and then applying a coat of ordinary patent-leather varnish, substantially as described.

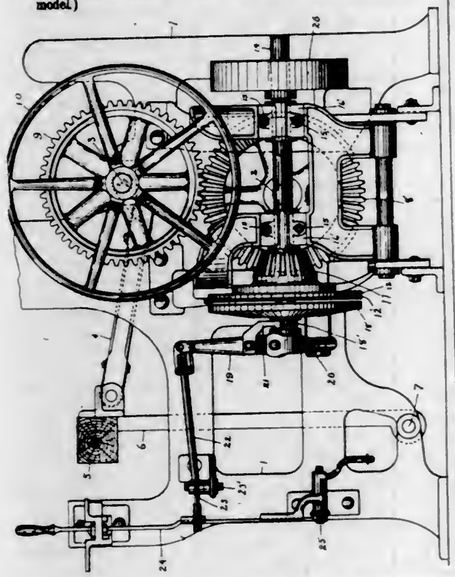
4. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the fibrous base or on a polished surface, or on both, one or more coats from a solution containing pyroxy-

lin, some or all of which coats contain a substance to render the same flexible, and pressing the base and polished surface together before the coats are dry, whereby the treated side of the base receives a flexible, patent-leather-like surface, substantially as described.

5. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the base, or on a polished surface, or on both, one or more coats of a solution containing pyroxylin and oil, and pressing the base and polished surface together before the coats are dry, whereby the treated side of the base receives a flexible patent-leather-like surface, substantially as described.

6. The process of enameling sheets of fibrous material of the kind described which consists in depositing on the fibrous base or on a polished surface, or on both, one or more coats from a solution containing pyroxylin and a substance to render the coats flexible, pressing the base and polished surface together before the coats are dry, and then peeling the coated base from the polished surface, whereby the treated side of the base receives a flexible patent-leather-like surface, substantially as described.

661,264. **DRIVING MECHANISM FOR LOOMS.** ALBERT A. GORDON, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed June 16, 1900. Serial No. 20,543. (No model.)



Claim.—1. In the driving mechanism of a loom, the combination with the cross driving-shaft, mounted and turning in boxes or bearings on the frame, a belt-pulley fast on one end of said shaft, and a friction-disk splined on the other end of said shaft to revolve therewith and have a sliding motion thereon in the direction of the length of the shaft, and means for moving said friction-disk, of a sleeve mounted on said shaft, and means for holding the sleeve to prevent motion in the direction of the length of the shaft, and a bevel-gear, and second friction-disk loosely mounted on the sleeve, and means for preventing said gear and friction-disk from moving in the direction of the length of the sleeve, substantially as shown and described.

2. In the driving mechanism of a loom, the combination with the cross driving-shaft, mounted and turning in boxes or bearings on the frame, a belt-pulley fast on one end of said shaft, and a friction-disk splined on the other end of said shaft to revolve therewith and have a sliding motion thereon in the direction of the length of the shaft, and means for moving said friction-disk, of a sleeve mounted on said shaft, and having a flange on one end thereof, and a collar on said sleeve, and a bevel-gear, and friction-disk loosely mounted on said sleeve, between said flange and collar, substantially as shown and described.

3. In the driving mechanism of a loom, the combination with the cross driving-shaft, mounted and turning in boxes or bearings on the frame, a belt-pulley fast on one end of said shaft, and a friction-disk splined on the other end of said shaft to revolve therewith and have a sliding motion thereon in the direction of the length of the shaft, and means for moving said friction-disk, and a sleeve mounted on said shaft having a flange on one end thereof, and a collar on said sleeve, and a bevel-gear and friction-disk loosely mounted on said sleeve between said flange and collar, said friction-disk and bevel-gear having an internal annular oil-reservoir, substantially as shown and described.

4. In the driving mechanism of a loom, the combination with the cross driving-shaft, mounted and turning in boxes or bearings on the frame, a belt-pulley fast on one end of said shaft, and a friction-disk splined on the other end of said shaft to revolve therewith and have a sliding motion thereon in the direction of the length of the shaft, and means for moving said friction-disk, of a sleeve mounted on said shaft, and having a flange on one end thereof, and held on said shaft by bolts extending in recesses in said sleeve, which bolts secure the cap-piece to the shaft box or bearing, and a bevel-gear and friction-disk loosely mounted on said sleeve between the flange on said sleeve and said shaft box or bearing, substantially as shown and described.

5. In the driving mechanism of a loom, the combination with the cross driving-shaft, mounted and turning in boxes or bearings on the frame, a belt-pulley fast on one end of said shaft, and a friction-disk splined on the other end of said shaft to revolve therewith and have a sliding motion thereon in the direction of the length of the shaft, and means for moving said friction-disk, of a sleeve mounted on said shaft, and a bevel-gear and friction-disk loosely mounted on said sleeve, said bevel-gear and friction-disk having an internal annular oil-reservoir for oil to lubricate the sleeve and shaft, substantially as shown and described.

661,265. **TRIPLE SIGN.** THEODORE P. HEINEMANN, Connersville, Ind., assignor of one-half to Francis T. Roots, same place. Filed Nov. 27, 1899. Serial No. 738,266. (No model.)

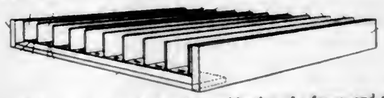


Claim.—1. In a triple sign the combination of pieces with parallel edges forming the back of the sign, transverse strips between the pieces said pieces and strips having perforations to come in alinement and a bolt or bolts passing through the perforations to hold the strips between the pieces and to tighten them together, substantially as shown and described.

2. In a triple sign the combination of end pieces having ways in them to receive the pieces composing the back of the sign said back pieces and transverse strips to be held between the back pieces, substantially as shown and described.

3. In a triple sign the combination of end pieces having ways in them to receive the pieces composing the back of the sign, said back pieces, transverse strips between the back pieces and a bolt passing through the back pieces and the transverse strips to hold and tighten them together, substantially as shown and described.

661,266. **TRIPLE SIGN.** THEODORE P. HEINEMANN, Connersville, Ind., assignor of one-half to Francis T. Roots, same place. Filed Nov. 27, 1899. Serial No. 738,267. (No model.)



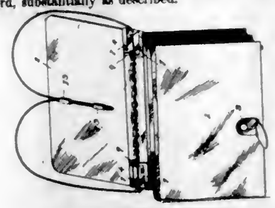
Claim.—1. In a triple sign the combination of a frame, and angle-pieces secured to the frame one series of the arms of which form the background and the other series of arms of which form the transverse members of the sign, substantially as shown and described.

2. The hereinbefore-described angle-pieces with arms at substantially a right angle to each other one series of arms of which is to form the background of a triple sign and the other series of arms of which is to form the transverse members of the sign, substantially as shown and described.

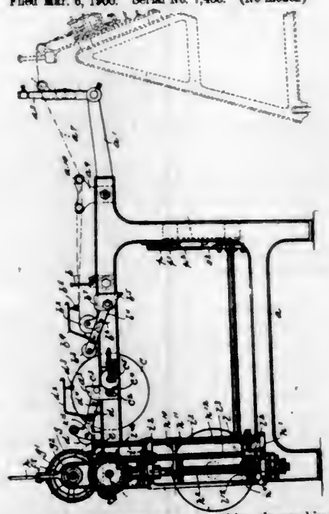
661,267. **POCKET-BOOK ATTACHMENT.** ESTELLA V. JONES, Chicago, Ill. Filed Mar. 31, 1900. Serial No. 10,972. (No model.)

Claim.—1. In an attachment for pocket-books, the combination, with two clamps, each of which comprises a flat portion and two strips and an eyelet projecting therefrom, said flat portion and the strips being each provided with a fastener, and one of the strips being provided with a laterally-extending spring, of a cord secured at its ends to said eyelets, and having its intermediate portion doubled upon itself, and two runners upon the doubled portion, substantially as described.

2. The combination, with a pocket-book, of two clamps secured thereto, one upon each edge of the flap thereof, each clamp comprising a flat portion and two strips and an eyelet projecting therefrom, said flat portion and strips being each provided with a prong for engaging with the flap, and one of the strips being provided with a laterally-extending bowed spring, a cord secured at its ends to said eyelets and having its intermediate portion doubled upon itself, and two runners upon the doubled portion of the cord, substantially as described.



661,268. **WARPING-MACHINE.** CHARLES H. KNAPP, Paterson, N. J. Filed Mar. 6, 1900. Serial No. 7,483. (No model.)



Claim.—1. In a warping or beaming machine, the combination, with the frame, of a beam-rotating shaft journaled in said frame, disconnective driving means for said shaft, a suitably-journaled friction-disk, a friction-wheel engaging said friction-disk and operatively connected to said driving means, mechanism, comprising disconnective parts and controlled by said friction-disk, for adjusting said friction-wheel relatively to said friction-disk, and a lever controlling said disconnective driving means and the disconnective parts of said friction-wheel-adjusting mechanism, substantially as described.

2. In a warping or beaming machine, the combination, with the frame and with a rotary element to be driven, of a friction-disk journaled in said frame, a friction-wheel engaging said friction-disk and movable radially thereof, operative power-transmitting connection between said friction-wheel and said element, and means, connected to said friction-wheel and comprising a rotary part bearing against said friction-disk, for moving said friction-wheel radially of said friction-disk, substantially as described.

3. In a warping or beaming machine, the combination, with the frame and with a rotary element to be driven, of a friction-disk journaled in said frame, a friction-wheel engaging said friction-disk and movable radially thereof, operative power-transmitting connection between said friction-wheel and said element, and adjustable means, connected to said friction-wheel and comprising a rotary part bearing against said friction-disk, for moving said friction-wheel radially of said friction-disk, substantially as described.

4. In a warping or beaming machine, the combination, with the frame and with a rotary element to be driven, of a shaft journaled in said frame, a friction-disk carried by said shaft, a friction-wheel engaging said friction-disk, operative power-transmitting connection between said friction-wheel and said element, a revoluble threaded shaft, operative connecting means between said friction-wheel and said threaded shaft, and means, operatively connected to said threaded shaft and comprising a rotary part bearing against said friction-disk, for rotating said threaded shaft, substantially as described.

5. In a warping or beaming machine, the combination, with the frame and with the main drive-shaft journaled therein, of a friction-disk carried by said drive-shaft, a revoluble beam-rotating shaft, a revoluble intermediate shaft disposed substantially parallel to said friction-disk, operative connecting means between said beam-rotating shaft and the intermediate shaft, a friction-wheel keyed on said intermediate shaft and adapted to engage said friction-disk, and means, connected to said friction-wheel and comprising a rotary part bearing against said friction-disk, for moving said friction-wheel longitudinally of the intermediate shaft, substantially as described.

6. In a warping or beaming machine, the combination, with the frame and with the main drive-shaft journaled therein, of a friction-disk carried by said drive-shaft, a revoluble beam-rotating shaft, a revoluble intermediate shaft disposed substantially parallel to said friction-disk and operatively connected to said beam-rotating shaft, a friction-wheel keyed on said intermediate shaft and adapted to engage said friction-disk, a revoluble threaded shaft disposed parallel to said intermediate shaft, operative supporting means for said friction-wheel mounted on said threaded shaft, and means, operatively connected to said threaded shaft and controlled by said friction-disk, for rotating said threaded shaft, substantially as described.

7. In a warping or beaming machine, the combination, with the frame and with the main drive-shaft, of a beam-rotating shaft, a friction-disk carried by said drive-shaft, an intermediate suitably-journaled shaft disposed parallel to said friction-disk, operative connecting means between said beam-rotating shaft and the intermediate shaft, friction-wheels disposed on said intermediate shaft, the one being keyed and the other being freely movable thereon, a threaded shaft suitably journaled parallel to said intermediate shaft, operative supporting means mounted on said threaded shaft and sustaining the keyed friction-wheel, and operative connecting means between said freely-movable friction-wheel and said threaded shaft adapted to transmit intermittent rotary movements from the one to the other thereof, substantially as described.

8. In a warping or beaming machine, the combination, with the frame and with the main drive-shaft, of a beam-rotating shaft, a friction-disk carried by said drive-shaft, an intermediate suitably-journaled shaft disposed parallel to said friction-disk, operative connecting means between said beam-rotating shaft and the intermediate shaft, friction-wheels disposed on said intermediate shaft, the one being keyed and the other being freely movable thereon, a threaded shaft suitably journaled parallel to said intermediate shaft, operative supporting means mounted on said threaded shaft and sustaining the keyed friction-wheel, a ratchet-wheel mounted on the threaded shaft and adapted to rotate the same, an eccentric carried by the freely-movable friction-wheel, a suitably-pivoted pawl engaging said ratchet-wheel, and levers connecting said eccentric and the pawl, substantially as described.

9. In a warping or beaming machine, the combination, with the frame and with the main drive-shaft, of a beam-rotating shaft, a friction-disk carried by said drive-shaft, an intermediate suitably-journaled shaft disposed parallel to said friction-disk, operative connecting means between said beam-rotating shaft and the intermediate shaft, friction-wheels disposed on said intermediate shaft, the one being keyed and the other being freely movable thereon, a threaded shaft suitably journaled parallel to said intermediate shaft, operative supporting means mounted on said threaded shaft and sustaining the keyed friction-wheel, a ratchet-wheel mounted on the threaded shaft and adapted to rotate the same, an eccentric carried by the freely-movable friction-wheel, a suitably-pivoted pawl engaging said ratchet-wheel, levers connecting said eccentric and the pawl, a movable bracket sustaining said freely-movable friction-wheel, and means for adjusting said bracket, substantially as described.

10. In a warping or beaming machine, the combination, with the frame and with stationary brackets projecting therefrom, of the main drive-shaft, a beam-rotating shaft, a friction-disk carried by said drive-shaft, an intermediate shaft disposed parallel to said friction-disk and journaled in said brackets, operative connecting means between said beam-rotating shaft and the intermediate shaft, friction-wheels disposed on said intermediate shaft, the one being keyed and the other being freely movable thereon, a threaded shaft journaled in said brackets parallel to said intermediate shaft, operative supporting means mounted on said threaded shaft and sustaining the keyed friction-wheel, a ratchet-wheel mounted on the threaded shaft and adapted to rotate the same, an eccentric carried by the freely-movable friction-wheel, a suitably-pivoted pawl engaging said ratchet-wheel, levers connecting said eccentric and the pawl, a movable bracket sustaining said freely-movable friction-wheel, and another threaded shaft journaled in said stationary bracket and penetrating and engaging said movable bracket, substantially as described.

11. In a warping or beaming machine, the combination, with the frame and with stationary brackets projecting therefrom, of the main drive-shaft, a beam-rotating shaft, a friction-disk carried by said drive-shaft, an intermediate shaft disposed parallel to said friction-disk and journaled in said brackets, operative connecting means between said beam-rotating shaft and the intermediate shaft, friction-wheels disposed on said intermediate shaft, the one being keyed and the other being freely mov-

able thereon, a threaded shaft journaled in said brackets parallel to said intermediate shaft, operative supporting means mounted on said threaded shaft and sustaining the keyed friction-wheel, a ratchet-wheel mounted on the threaded shaft and adapted to rotate the same, an eccentric carried by the freely-movable friction-wheel, a suitably-pivoted pawl engaging said ratchet-wheel, levers connecting said eccentric and the pawl, a movable bracket sustaining said freely-movable friction-wheel, another threaded shaft journaled in said stationary brackets and penetrating and engaging said movable bracket, a rod connecting said stationary brackets, and a spring disposed between said movable bracket and the rod and acting toward the friction-disk, substantially as described.

12. In a warping or beaming machine, the combination, with the frame, of a pair of beam-carrying brackets suitably supported in said frame, a gear-casing formed with one of said brackets, a beam-rotating shaft journaled in said bracket, a gear inclosed in said casing and journaled on said shaft, a combined friction-disk and circumferentially-grooved collar keyed onto said shaft, the friction-disk being adjacent the gear, a lever fulcrumed in said gear-casing and operatively engaging said grooved collar, a hand-lever fulcrumed in said gear-casing, a link connecting said hand-lever and the other lever, the fulcruming-point for said hand-lever being normally substantially between the points of connection of said link, and the two levers and said hand-lever being movable so as to bring said points into and past alinement with each other, a stop for said hand-lever disposed at the limit of motion thereof, and means for rotating said gear, substantially as described.

13. In a warping or beaming machine, the combination, with the frame, of a pair of beam-carrying brackets suitably supported in said frame, a gear-casing formed with one of said brackets, a beam-rotating shaft journaled in said bracket, a gear inclosed in said casing and journaled on said shaft, a combined friction-disk and circumferentially-grooved collar keyed onto said shaft, the friction-disk being adjacent the gear, a lever fulcrumed in said gear-casing and operatively engaging said grooved collar, a hand-lever fulcrumed in said gear-casing, a link connecting said hand-lever and the other lever, the fulcruming-point for said hand-lever being normally substantially between the points of connection of said link and the two levers, and said hand-lever being movable so as to bring said points into and past alinement with each other, an adjustable stop for said hand-lever disposed at the limit of motion thereof, and means for rotating said gear, substantially as described.

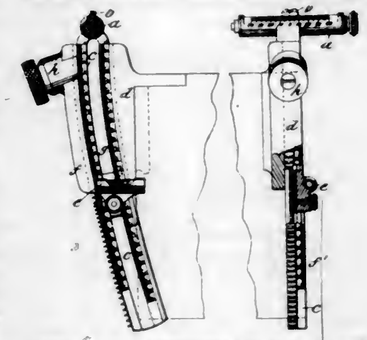
14. In a warping or beaming machine, the combination, with the frame, of a beam-rotating shaft, journaled in said frame, disconnective driving means for said shaft, a lever controlling said disconnective driving means, a suitably-journaled friction-disk, a suitably-supported friction-wheel engaging said friction-disk, operative connection between said friction-wheel and said driving means, and means, comprising a rotary part bearing against said friction-disk, for adjusting said friction-wheel relatively to said friction-disk, substantially as described.

15. In a warping or beaming machine, the combination, with the frame and with a beam-rotating shaft journaled in said frame, of disconnective driving means for said shaft, another shaft, a friction-disk carried by said last-named shaft, a friction-wheel engaging said friction-disk, power-transmitting mechanism between said friction-wheel and said driving means, a revoluble threaded shaft, operative supporting means for said friction-wheel mounted on said threaded shaft, and means, operatively connected to said threaded shaft and comprising a rotary part bearing against said friction-disk, for rotating said threaded shaft, substantially as described.

16. In a warping or beaming machine, the combination, with the frame, of a beam-rotating shaft journaled in said frame, disconnective driving means for said shaft, a lever controlling said disconnective driving means, a suitably-journaled friction-disk, suitably-supported friction-wheels engaging said friction-disk, operative connection between one of said friction-wheels and said disconnective driving means, operative adjusting means connecting said friction-wheels and including a ratchet and pawl, and a finger-carrying shaft operatively connected to said lever, the finger on said shaft being adapted to engage said pawl, substantially as described.

17. In a warping or beaming machine, the combination, with the frame, of a beam-rotating shaft suitably journaled in said frame, a suitably-supported revoluble friction-disk, a suitably-journaled shaft disposed parallel to said friction-disk, a gear journaled on said beam-rotating shaft, a friction-disk keyed onto said beam-rotating shaft and adapted to bear against the gear, operative connecting means between said gear and the other shaft, a suitably-fulcrumed lever operatively connected to said last-named friction-disk, friction-wheels carried on the shaft adjacent the first-named friction-disk and bearing against said friction-disk, one of said friction-wheels being adapted to drive said shaft and the other being loosely journaled thereon, operative adjusting means connecting said friction-wheels and including a ratchet and pawl, and a finger-carrying shaft operatively connected to said lever, the finger on said shaft being adapted to engage said pawl, substantially as described.

661,269. SIGHT FOR ORDNANCE. HEINRICH KORRODI, Bern, Switzerland. Filed May 1, 1899. Serial No. 715,077. (No model.)



Claim.—1. In an ordnance-sight, the combination with a standard bodily movable in a vertical plane with relation to the gun, and a rear sight-piece carried by said standard, of a leveling device movable with relation to the standard and gun, means for fixing the leveling device with relation to the standard.

2. In an ordnance-sight, the combination with a standard bodily movable in a vertical plane with relation to the gun, and a rear sight-piece carried by said standard, of a leveling device movable with relation to the standard and gun, means for fixing the leveling device with relation to the standard, means for fixing the standard with relation to the gun, and indices and scales for indicating the relative positions of the standard with relation to the gun and the leveling device with relation to the standard.

3. In an ordnance-sight, the combination, with a standard bodily movable in a vertical plane with relation to the gun, and a rear sight-piece carried by said standard, of a leveling device movable on the standard, means for fixing the standard with relation to the gun and means for clamping the leveling device at any desired position on the standard.

4. In an ordnance-sight, the combination, with a guide fixed with relation to the gun, a standard bodily movable in said guide, a rear sight-piece carried by said standard, and means for fixing the standard at any desired position with relation to the guide, of a leveling device movable with relation to the standard and means for fixing said leveling device to the standard at any desired position thereon.

5. In an ordnance-sight, the combination with a guide fixed with relation to the gun, a segmental standard bodily movable in said guide, a sight-piece on said standard and means for detachably locking the standard to the guide, of a leveling device movable with relation to the standard and means for detachably locking the said leveling device to the standard.

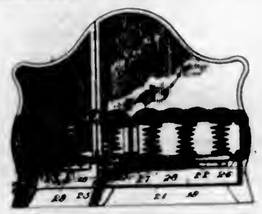
6. In an ordnance-sight, the combination, with a guide carried by the gun, an arc-shaped standard bodily movable in said guide in an arc whose center is coincident with the front sight of the gun, and means for detachably locking said standard to the guide at any desired point, of a leveling device movable along the standard in an arc concentric with the curve of the standard, and means for detachably locking the leveling device to the standard at any desired point.

7. In an ordnance-sight, the combination, with a guide carried by the gun, an arc-shaped standard bodily movable in said guide and provided with an arc-shaped groove, and means for detachably locking said standard to the guide at any desired point, of a leveling device movable in the groove of the standard, and means for detachably locking the leveling device to the standard at any desired point.

8. In an ordnance-sight, the combination, with a guide fixed to the gun, an arc-shaped standard bodily movable in said guide, said standard having a concentric arc-shaped groove and two scales, one at each side of said groove, of means for detachably locking the standard to the guide at any desired point, an arc-shaped block movable in said groove, a spirit-level carried by said block and means for detachably locking the block to the standard at any desired point.

661,270. COMBINATION BED AND COUCH. SETH G. LESHER, Shelbyville, Ind., assignor of one-third to Will F. Green, same place. Filed Aug. 2, 1898. Serial No. 687,545. (No model.)

Claim.—In a combined bed, sofa and wardrobe, the combination with the end pieces, each of which is provided with a wing and a cleat, of a box provided at its ends with means for engaging with said end pieces and having its rear edge below the cleats on the wings when they are folded, catches on the rear of the box for engaging with the wings, a folding spring-mattress on the cleats, each end of which is provided with a hinge comprising two elbow-shaped bars, the joint of which is even with the top of the mattress, and the rear edge of the front portion of which mattress terminates forwardly of the rear end of the cleats on the main portion of the end pieces and at a distance in front of the wings equal to the thickness of the mattress.



661,271. EAR-RING FASTENER. IGNATZ MANN, New York, N. Y. Filed Sept. 15, 1900. Serial No. 30,206. (No model.)



Claim.—A combination of screw-head, composed of perforated disk and threaded clip, and stem of ear-ring having smooth and threaded portions separated by a circular groove forming shoulders so adapted that when the screw-head screws past the threaded portion of stem it must be sprung back by the hand past shoulder to be unscrewed, substantially as set forth.

661,272. DOOR-BELL. WILLIAM R. MOORE, Eden, N. Y. Filed Mar. 31, 1899. Renewed Oct. 6, 1900. Serial No. 32,285. (No model.)

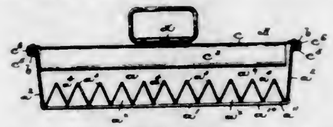


Claim.—1. In a gong-bell, the combination with a door having an opening therein, a cap secured to the outer face of the door, a push-button secured within the cap, a rod having its outer end connected with the push-button, a base or shell secured to the inner face of the door having forward and rear plates, the former having a small opening therein, alined with the opening in the door through which the push-rod passes, the latter having a larger opening alined with the smaller openings in the forward plate and door, a bell-crank lever pivotally secured in an offset formed upon the rear plate and having one of its arms projected into the base or shell making contact with the push-rod, the offset having perforated lugs or ears for pivotally securing the bell-crank lever to the plate and within the opening, a train of gearing located within the base or shell to actuate the bell-hammers, substantially as described.

2. In a gong-bell, the combination with a door having an opening therein; a cap secured to the outer face of the door; a push-button secured within the cap; a rod having its outer end connected with the push-button; a base or shell secured to the inner face of the door having forward and rear plates; the former having a small opening therein alined with the push-rod opening in the door, the latter having a larger opening alined with the smaller openings in the forward plate and door, a bell-crank lever pivotally secured in an offset formed upon the rear plate and having one of its arms projected into the base or shell making contact with the push-rod, the offset having perforated lugs or ears for pivotally securing the bell-crank lever to the plate, and within the opening; a train of gearing located within the base or shell to actuate the bell-hammers; an eccentric mounted upon the rear end of the shaft of the pinion journaled in the rear plate; an angular rod extending from said eccentric to the hammer-rod, and the said hammer-rod with its hammers, substantially as described.

3. In a gong-bell, the combination with a door having an opening therein for the passage of the push-rod, a cap secured to the outer face of the door; a push-button secured within the cap; a rod having its outer end connected with the push-button; a base or shell secured to the inner face of the door having forward and rear plates, the former having a small opening therein alined with the push-rod opening in the door, the latter having a larger opening alined with the smaller openings in the forward plate and door; a bell-crank lever pivotally secured in an offset formed upon the rear plate, and having one of its arms projected into the base or shell making contact with the push-rod, the offset having perforated lugs for pivotally securing the bell-crank lever to the plate and within the opening; a train of gearing located within the base or shell to actuate the bell-hammers; an eccentric mounted upon the rear end of the shaft of the pinion journaled in the rear plate; an angular rod extending from said eccentric to the hammer-rod, a short arm secured to the outer end of the ratchet-wheel shaft, a link connecting the short arm to the bell-crank lever; a retractile spring having its lower end secured to a stud in the rear plate of the base or shell, one of its upper or free ends embracing the short arm and its opposite end the shaft or arbor of the bell, and a bell secured to the outer end of the bell-shaft, substantially as and for the purpose set forth.

661,273. BAKER'S PAN. JAMES PARK, Newark, N. J. Filed Nov. 2, 1898. Serial No. 695,276. (No model.)

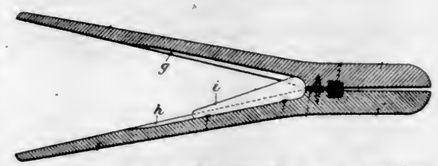


Claim.—1. A baker's pan for baking a single loaf, comprising a body having a transverse arrangement of channels or grooves extending upwardly to near the middle of the body of the pan, and a cover on said body provided with perforations c^4 for the escape of moisture or steam, having one or more longitudinally-arranged channels or grooves extending downwardly to near the center of the body of the pan, substantially as and for the purposes set forth.

2. A baker's pan comprising a body a having a channeled bottom a', sides a^2, and sides a^3, a ledge on each side a^5 overlapping a portion of said bottom a', a removable cover on said body, provided with perforations c^4 for the escape of moisture or steam, and a longitudinally-arranged channel or channels in said cover, extending inwardly to near the center of the body of the pan, substantially as and for the purposes set forth.

3. A baker's pan comprising a body a having a bottom, a series of inwardly-extending V-shaped portions a^3 in said bottom, forming a series of transverse and parallel channels a^4 and $a^\times$, and a cover on said body, provided with perforations c^4 for the escape of moisture or steam, and one or more inwardly-extending and longitudinally-arranged V-shaped portions in said cover, extending inwardly to near the center of the body of the pan, substantially as and for the purposes set forth.

661,274. GARMENT-STRETCHER. AUGUST PIEPER, Gloversville, N. Y. Filed Dec. 20, 1899. Serial No. 740,999. (No model.)



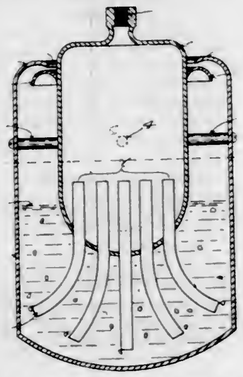
Claim.—1. A glove-stretcher, composed of complemental jaws, a hinge for uniting them, and a wedge-shape flat-sided blade or rib inserted in a kerf or groove in one of the jaws in advance of the hinge and projecting into a kerf or groove in the other jaw, and in such relation to the pivot of the jaws as to be in constant engagement with the walls of such kerf or groove in all positions of the two jaws, and thereby adapted to retain the jaws in alinement as well in the opening as in the closing of the implement, substantially as described.

2. A glove-stretcher, comprising complemental jaws, a hinge by which they are connected, an interposed spring, and an independent wedge-shape blade arranged in advance of the hinge in a kerf or groove in one of the jaws and secured therein by lateral dents and projecting above said jaw and into a kerf or groove in the opposite jaw, substantially as and for the purpose described.

661,275. COMPOUND FOR TREATING TOBACCO. WILLIAM A. PIKE, ALBERT C. CHADOIN, and HUTCHISON M. PIKE, Springfield, Tenn. Filed Apr. 14, 1900. Serial No. 12,932. (No specimens.)

Claim.—A compound for treating tobacco consisting of creosote, sulfur, lignin, ammonia, charcoal and salt (chlorid of sodium) in or about the proportions mentioned.

661,276. MUFFLER AND PURIFIER FOR GASOLENE-ENGINES. GUSTAF L. REENSTIERNA, Winchester, Mass. Filed Oct. 12, 1899. Serial No. 733,361. (No model.)

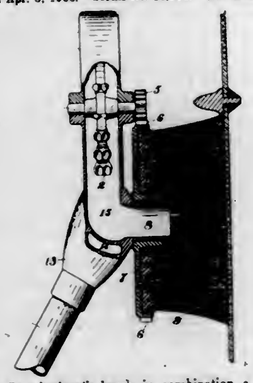


Claim.—1. A muffler and purifier for connection with a gasolene-engine, comprising a bulb into which the exhaust of the engine discharges, a vessel or receiver inclosing the said bulb and containing a quantity of liquid, a conduit leading from the interior of the bulb into said vessel or receiver and discharging into said liquid, the said vessel or receiver having in its upper part a liquid-retaining flange or rim and a narrow or contracted opening adjacent said flange or rim, encircling the bulb, and permitting the passage of the gases, substantially as described.

2. A muffler and purifier for connection with a gasolene-engine, comprising a bulb into which the exhaust of the engine discharges, a vessel or receiver inclosing the said bulb and containing a quantity of liquid, a plurality of tubes leading from the interior of the bulb into said vessel or receiver and discharging into said liquid, the said vessel or receiver having in its upper part a liquid-retaining flange or rim and a narrow or contracted opening adjacent said flange or rim, encircling the bulb, and permitting the passage of the gases, substantially as described.

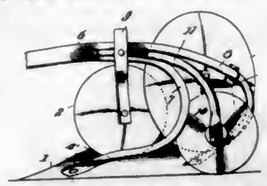
3. A muffler and purifier for connection with a gasolene-engine, comprising a bulb into which the exhaust of the engine discharges, a vessel or receiver inclosing the said bulb and containing a quantity of liquid, a plurality of tubes leading from the interior of the bulb and discharging into the liquid in said vessel or receiver; and overlapping flanges or rims at the upper part of said vessel or receiver having between them a contracted opening encircling the bulb, and permitting the escape of the gases, substantially as described.

661,277. HYDRAULIC BRUSH. EDWARD A. RIX, San Francisco, Cal. Filed Apr. 3, 1900. Serial No. 11,381. (No model.)



Claim.—In a hydraulic brush, in combination, a tubular handle, a chambered casing attached to said tubular handle, a tangential wheel mounted within said casing, a nozzle directed upon the vanes of said wheel, a passage in said casing forming communication between said tubular handle and said nozzle, a rotary brush mounted on said casing, gear connection between said rotary brush and said wheel, and an outlet from said casing through said rotary brush, substantially as specified.

661,278. PLOW. MATTHEW L. ROBERTS, Watertown, S. D. Filed Aug. 14, 1900. Serial No. 26,881. (No model.)



Claim.—1. In a plow, and in combination with a share, front and rear disks coöperating with the share, the forward portion of the rear disk underlapping the rear portion of the forward disk, substantially as set forth.

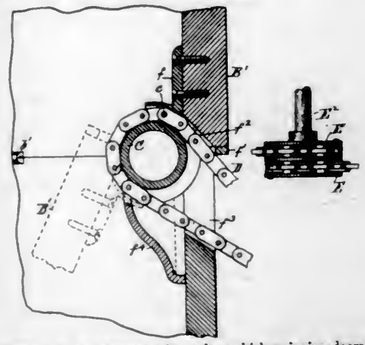
2. In a plow, and in combination with a share, front and rear disks of different diameters, the forward disk being the smaller and having its rear portion overlapping the front portion of the rear disk, substantially as set forth.

3. In combination with the share of a plow having its upper front and rear edge portions curved, front and rear disks having their lower concave faces snugly fitting the corresponding edge portions of the share, the rear disk being of larger diameter than the front disk and having its front portion underlapping the rear part of the front disk, substantially as set forth.

4. In a plow, front and rear standards connected at their upper ends to the beam, the front standard being about in the plane of said beam and the rear standard curving laterally, a share secured at its ends to the end portions of the said standards and having its upper front and rear edge portions curved, and front and rear concavo-convex disks overlapping and having the lower portion of their concave faces snugly fitting the corresponding curved edges of the said share, substantially as set forth.

5. In combination, a beam having a front, a rear and an intermediate standard branching therefrom, a share secured to the terminal portions of the front and rear standards, front and rear disks coöperating with the share in the manner set forth, and a furrow-wheel journaled to the lower end of the intermediate standard and located between the front and rear standards, substantially as specified.

661,279. HANSOM-CAB. HENRY C. SEARS, Boston, Mass. Filed Apr. 8, 1899. Serial No. 712,236. (No model.)



Claim.—1. In a hansom-cab or other vehicle swinging doors hinged near the front corners of the body of the vehicle and means for opening and closing them from behind the vehicle comprising a spindle located at the back of the vehicle and running vertically downward within its outer wall to a point considerably below the roof and carrying a double drum fast to its lower end, drums or wheels fixed to said doors near their hinged ends and endless draw chains or cords extending about said door-drums along the sides of the body of the vehicle to the back thereof and around said double drum as and for the purposes set forth.

2. In a hansom-cab or other vehicle swinging doors hinged near the front corners of the body of the vehicle and means for opening and closing them from behind the vehicle comprising a spindle located at the back of the vehicle running vertically downward within its outer wall to a point considerably below the roof and carrying a double drum fast to its lower end, drums or wheels fixed to said doors near their hinged ends and endless draw chains or cords extending about said door-drums along the sides of the body of the vehicle to the back thereof and around said double drums, each draw-chain being provided with an adjustable section by

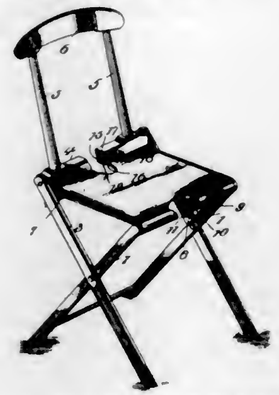
means of which its length may be adjusted as and for the purposes set forth.

3. In a hansom-cab or similar vehicle swinging doors hinged near the front corners of the body of the vehicle and means for opening and closing them from behind the vehicle comprising a spindle located at the back of the vehicle running vertically downward within its outer wall to a point considerably below the roof and carrying a double drum fast to its lower end, drums or wheels fixed to said doors each having ears arranged to project therefrom at a right angle with relation to each other and also having holes or recesses in continuation of the groove or runway thereof in combination with endless draw chains or cords extending about said door-drums along the sides of the body of the vehicle to the back thereof and around said double drums as and for the purposes set forth.

4. In a hansom-cab or similar vehicle the swinging doors B, B', the drums or wheels C each attached to the hinged edge of one of said doors outside the center of its hinges, endless chains attached to said drums or wheels and extending along the sides of the body of the vehicle, means for adjusting the length of said chains, the guiding and spacing rolls c^2, c^3, c^4 and c^5 in combination with the turning-spindle E^2 carrying the drums E, E' fast thereon and a crank or the like E^3, the said drums E, E' receiving said endless chains, said spindle E^2 and its drums E, E' all lying within the body of the cab and in line with the guiding and spacing rolls whereby said endless chains will pass directly over said carrying-drums and said guiding and spacing rolls, all arranged together as set forth.

5. The wheel or drum C having ears *f*, *f'* arranged to project therefrom at a right angle with relation to each other and also having holes or recesses in continuation of the groove or runway of the wheel or drum as and for the purposes set forth.

661,280. CHAIR. GEORGE M. SMITH, Readsborough, Vt. Filed Mar. 28, 1900. Serial No. 10,519. (No model.)



Claim.—1. In a chair or analogous device, and in combination with the frame comprising side pieces and a connecting cross-piece formed in a side with a longitudinal groove, a textile, a spline for securing the textile in the said groove of the cross-piece and having its end portions overlapping the side pieces, and means for securing the terminal portions of the spline to said side pieces to prevent spreading thereof, substantially as set forth.

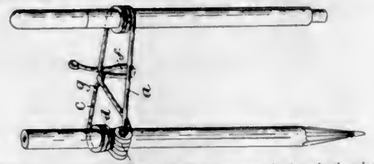
2. In a chair or analogous device, and in combination with the frame comprising side pieces and a cross-piece having its ends tenoned to the side pieces and having a longitudinal groove in one side, a textile, a spline for securing the textile in the groove of the said cross-piece and having its end portions overlapping the side pieces of the frame, and means for securing the terminals of the spline to the side pieces and passing through the latter and the tenons of the aforementioned cross-piece to prevent spreading of the side pieces and a turning of the cross-piece, substantially as set forth.

3. In a chair or kindred article, and in combination with side pieces and a connecting cross-piece having its ends tenoned to the said side pieces and formed in a side with a longitudinal groove, a textile, a spline for securing the textile in the groove of the cross-piece and having its ends overlapping the side pieces and secured thereto and to the tenons of the cross-piece, and fastenings located at intervals in the length of the spline and connecting it and the textile to the aforementioned cross-piece, substantially as set forth.

4. In a chair or analogous device, and in combination with the legs, a roll or head-block having its ends tenoned into the legs and provided in a side with a longitudinal groove, and a textile seat, of a spline having its end portions pointed and bent about at a right angle and driven into the legs and tenons of the said roll, said spline holding the seat within the groove of the roll, and fastenings disposed at intervals in the length of the spline and let into the said roll, substantially as set forth.

5. In a chair and in combination with the rear head-block having its lower edge provided intermediate of its sides with a channel gradually deepening toward the rear side and having marginal portions at the sides of the channel in different relative planes, a back having portions passing through the head-block and projecting beyond the same, a seat having its rear edge portion folded and fitted in the aforesaid channel, and a clamp-bar apertured to receive the projections of the back and adapted to secure the folded edge portion of the seat in the head-block, substantially as set forth.

661,281. PEN AND PENCIL HOLDER. JOHN T. UEBACH and JOHN M. KNIGHT, Baltimore, Md. Filed July 14, 1900. Serial No. 23,647. (No model.)

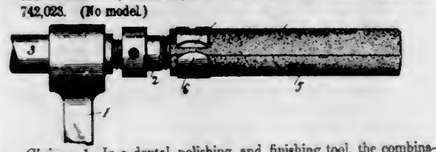


Claim.—1. A pen or pencil holder composed of a single piece of wire and consisting of a stem portion having at each end a horizontally-projecting pencil-receiving coil, the end of the wire extending from one end of the coil constituting a pin, and the end of the wire extending from the other coil provided with a pin-receiving member, and the extremity of the pin-receiving member formed into a hook adapted to catch over the stem portion, substantially as described.

2. A pen or pencil holder composed of wire and having a pen or pencil receiving coil, a projecting pin, a pin-receiving member, the pin-receiving member provided with a hook adapted to catch over the stem portion of the holder, substantially as described.

3. A pen or pencil holder comprising a stem portion having at each end a pen or pencil receiving coil, the end of the wire extending from one coil constituting the pin and the end of the wire projecting from the other coil provided with a pin-receiving member carrying a hook, the stem portion provided with an intermediate bend, substantially as described.

661,282. DENTAL POLISHING AND FINISHING TOOL. CHAUNCEY C. BACHMAN, Waterloo, N. Y. Filed Dec. 30, 1899. Serial No. 742,023. (No model.)



Claim.—1. In a dental polishing and finishing tool, the combination of a tubular elastic cushion adapted to receive a sheet of abrading material, an annular elastic clasp to encircle the cushion and abrading material, and a tapering mandrel fitted within the cushion for the purpose of expanding the cushion and increasing the tension of the clasp to bind the abrading material between the clasp and cushion, substantially as described.

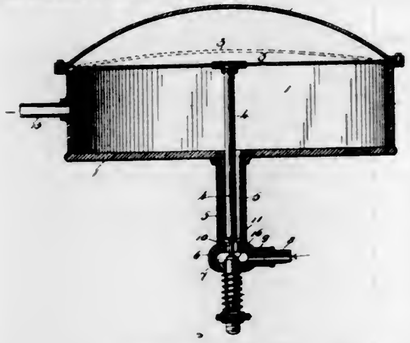
2. In a dental polishing and finishing tool, the combination of a tubular elastic cushion, an abrading material encircling said cushion, an annular split expansible clasp encircling the cushion and abrading material, and formed with a finger-lip, and an expanding-mandrel fitted within the tubular cushion for the purpose of expanding the cushion and binding the abrading material between the clasp and cushion, substantially as described.

3. In a dental polishing and finishing tool, the combination of a tubular elastic cushion, an abrading material encircling said cushion, a split clasp encircling the cushion and abrading material, and a tapering threaded mandrel fitting within the tubular cushion for the purpose of expanding the cushion so as to clamp the abrading material between it and the split clasp, substantially as described.

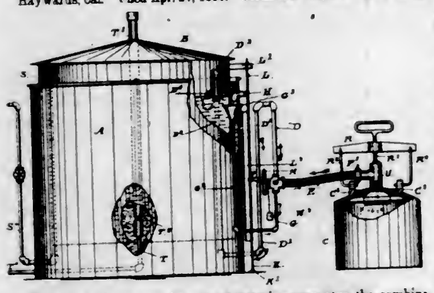
661,283. PRESSURE-REGULATOR. CHARLES W. BENEDICT, St. Louis, Mo., assignor of one-half to Charles J. Johnson, same place. Filed Mar. 20, 1900. Serial No. 9,412. (No model.)

Claim.—A pressure-regulator, comprising a suitable chamber, a diaphragm secured within the same, a supply-pipe leading from said cham-

ber, a tubular extension depending from the latter, and in communication with the same, a chamber formed in the lower end of said extension, and in communication with said tubular extension by a suitable port, a supply-pipe leading from a suitable reservoir, attached to the lower end of the tubular extension, and in communication with the chamber formed therein, a rod attached to the said diaphragm and depending therefrom, and passing through the said tubular extension, the lower end of said rod being enlarged and passing through the lower wall of the extension, and projecting downwardly therefrom, said rod having a reduced portion passing through the port formed in the cylindrical extension, and a seat cooperating with the upper wall of the chamber about said port, a nut, screwed on the enlarged portion of the stem, and a coil-spring encircling the enlarged portion of the stem, and interposed between said nut and lower end of the extension, as and for the purpose described.



661,284. ACETYLENE-GAS GENERATOR. HENRY E. BRUNNER, Haywards, Cal. Filed Apr. 27, 1899. Serial No. 714,766. (No model.)

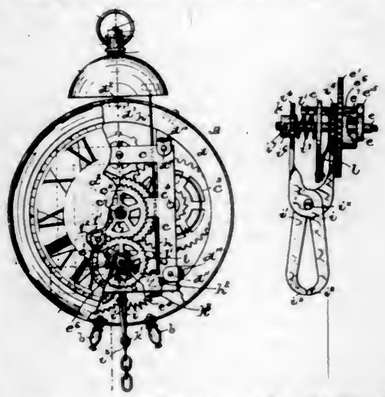


Claim.—1. In an acetylene-gas-generating apparatus, the combination, with a stationary water-tank, a floating gasometer therein, and a pivotally-attached faucet on the tank adapted by virtue of its adjustment to draw off a supply of water from the tank to the gas-generating chamber of the apparatus; of means for elevating and depressing the said faucet from the movements of the gasometer in the tank, comprising the stationary guide, a web or vertical plate slidable on said guide and adapted by its position with relation to the faucet to elevate and hold up the outer end of that member in the upward movement of the plate, and means adjustably connecting the upper end of the slidable web to the gasometer, whereby the time of contact between the web and the faucet can be regulated to take place earlier or later in the rise of the gasometer, as set forth.

2. In an acetylene-gas machine, the combination, with the floating gasometer movable in its tank under the variations in the generation and consumption of the gas, and having a pivotally-attached faucet which is adapted to supply water from the tank to the gas-generator; of the stationary guide K, slidable tube L, vertical web or plate L^2 on said tube, and the bracket L' and clamp L^2 on the gasometer as a means for adjustably connecting the slidable tube to the gasometer.

3. The combination, with a three-way cock connecting two generating-chambers with a common gasometer; of means for turning said cock to connect one generator and disconnect the other by the movements of the gasometer, comprising a sheave on the stem of the cock, a weight attached to said sheave by a chain, means for supporting the weight to hold the same out of action, and a tripping device actuated by the movements of the gas-holder and adapted to detach the weight in the downward movement of the gasometer and allow the weight to act on the sheave.

661,285. TIME RELEASING MECHANISM. SAMUEL S. COLT, Orange, N. J. Filed Feb. 21, 1900. Serial No. 5,990. (No model.)



Claim.—1. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting of a pair of opening and closing holding-jaws and a direct means of pivotal connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of said mechanism, substantially as and for the purposes set forth.

2. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting, essentially, of a pair of spring-actuated opening and closing holding-jaws, and a direct means of pivotal connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of said mechanism, substantially as and for the purposes set forth.

3. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting, essentially, of a pair of pivotally-connected and spring-actuated opening and closing jaws, having their lower ends in holding contact with the load to be released, arranged and constructed to be opened and closed by the action of said mechanism, substantially as and for the purposes set forth.

4. In a releasing mechanism, the combination, with the casing of a clock, and its alarm mechanism, of a weight or load releasing mechanism arranged within said casing and having a portion extending through the casing, and means connected with said alarm mechanism for actuating said weight or load releasing mechanism, said load-releasing mechanism consisting, essentially, of a pair of opening and closing holding-jaws, and a direct means of connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of the alarm mechanism, substantially as and for the purposes set forth.

5. In a releasing mechanism, the combination, with the casing of a clock, and its alarm mechanism, of a weight or load releasing mechanism suspended on the alarm-arbor of said alarm mechanism, and means on said alarm-arbor for actuating said weight or load releasing mechanism, said load-releasing mechanism consisting, essentially, of a pair of opening and closing holding-jaws, and a direct means of connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of the alarm mechanism, substantially as and for the purposes set forth.

6. The combination, with the frame of a clock mechanism, and its alarm mechanism, of a weight or load releasing mechanism connected with the alarm-arbor of said alarm mechanism, said load-releasing mechanism consisting, essentially, of a pair of opening and closing holding-jaws, and a direct means of connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of the alarm mechanism, substantially as and for the purposes set forth.

7. The combination, with the frame of a clock mechanism, its alarm mechanism, and the alarm-arbor thereof, of a weight or load releasing mechanism connected with said alarm-arbor a fixed sleeve on said arbor, a finger or projection on said sleeve, and a sliding gear and cam-shaped hub on said gear, said load-releasing mechanism consisting, essentially, of a pair of opening and closing holding-jaws, and a direct means of connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of the alarm mechanism, substantially as and for the purposes set forth.

8. The combination, with the frame of a clock mechanism, its alarm mechanism, and the alarm-arbor thereof, of a weight or load releasing mechanism connected with said alarm-arbor, consisting, essentially, of a pair of spring-actuated holding-jaws, having their lower ends in holding contact with the load to be released, and means on said arbor for actuating said holding-jaws, substantially as and for the purposes set forth.

9. The combination, with the frame of a clock mechanism, its alarm mechanism, and the alarm-arbor thereof, of a weight or load releasing mechanism connected with said alarm-arbor, consisting, essentially, of a pair of spring-actuated holding-jaws, having their lower ends in holding contact with the load to be released, and means on said arbor for actuating said holding-jaws, consisting, of a fixed sleeve on said arbor, a finger or projection on said sleeve, a sliding gear and a cam-shaped hub on said gear, substantially as and for the purposes set forth.

10. The combination, with the frame of a clock mechanism, its alarm mechanism, and the alarm-arbor thereof, of a weight or load releasing mechanism connected with said alarm-arbor, consisting, essentially, of a pair of pivoted holding-jaws, and a guiding means for preventing a lateral motion of said jaws, and a direct means of pivotal connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of said alarm mechanism, substantially as and for the purposes set forth.

11. The combination, with the frame of a clock mechanism, its alarm mechanism, and the alarm-arbor thereof, of a weight or load releasing mechanism connected with said alarm-arbor, consisting, essentially, of a pair of pivoted holding-jaws, and a guiding means for preventing a lateral motion of said jaws, and means on said arbor for actuating said jaws, consisting, of a fixed sleeve on said arbor, a finger or projection on said sleeve, a sliding gear and a cam-shaped hub, substantially as and for the purposes set forth.

12. In an alarm-clock, the combination, with an arbor *e*, and means of rotating the same, of a weight or load releasing mechanism connected with said arbor, and means on said arbor for actuating said weight or load releasing mechanism, said load-releasing mechanism consisting, essentially, of a pair of opening and closing holding-jaws, and a direct means of connection between both jaws, for bringing the lower ends of said jaws in holding contact with the load to be released, and whereby said jaws are arranged and constructed to be opened and closed by the action of the alarm mechanism, substantially as and for the purposes set forth.

13. In an alarm-clock, the combination, with an arbor *e*, a sliding gear on said arbor, and means engaging with said gear for rotating the same and said arbor, of a weight or load releasing mechanism connected with said arbor, and means on said gear and arbor for actuating said weight or load releasing mechanism, consisting, of a cam-hub on said gear and a fixed sleeve on said arbor having a finger or projection with which said cam-hub is in operative engagement, substantially as and for the purposes set forth.

14. In an alarm-clock, the combination, with an arbor *e*, and means for rotating the same, of a pair of pivoted and spring-actuated holding-jaws connected with said arbor, having their lower ends in holding contact with the load to be released, and means on said arbor for actuating said jaws, substantially as and for the purposes set forth.

15. In an alarm-clock, the combination, with an arbor *e*, a sliding gear on said arbor, and means engaging with said gear for rotating the same and said arbor, of a pair of pivoted and spring-actuated holding-jaws connected with said arbor, and means for actuating said jaws, consisting, of a cam-hub on said gear and a fixed sleeve on said arbor having a finger or projection with which said cam-hub is in operative engagement, substantially as and for the purposes set forth.

661,286. SEWER. CHARLES E. COLTON, Syracuse, N. Y. Filed May 7, 1900. Serial No. 15,695. (No model.)

Claim.—1. In a sewer, the combination of a base, opposite side sections rising from the base, and having the outer portions of their upper faces provided with upwardly-projecting arms, and additional opposite side sections resting on the former side sections and having the inner portions of their lower faces provided with depending arms engaging the inner faces of the former arms, substantially as and for the purpose described.

2. In a sewer, the combination of base-sections, and side sections, a plurality of the side sections engaging underlying sections for preventing outward movement of said side sections, and a plurality of the base-sections engaging overlying sections for preventing spreading of the base-sections, substantially as and for the purpose specified.

3. In a sewer, the combination of base-sections provided with upward extensions, additional sections engaging the upper faces of said base-sections and the inner faces of the extensions, and side sections engaging outer faces of the extensions for preventing spreading of the base-sections, said side sections also engaging the additional sections, substantially as and for the purpose set forth.



4. In a sewer, the combination of base-sections having the outer portions of their upper faces provided with upward extensions formed with upwardly-diverging inner faces and upwardly-converging outer faces, additional sections engaging the inner portions of the upper faces of the base-sections and the inner faces of said extensions, and side sections engaging the outer faces of the extensions and the contiguous end faces of said additional sections, substantially as and for the purpose described.

5. In a sewer, the combination of base-sections, opposite side sections rising from the base-sections and engaging outer faces of the base-sections for preventing spreading thereof, said side sections having the inner portions of their lower faces provided with depending arms engaging inner faces of the underlying sections, substantially as and for the purpose described.

6. In a sewer, the combination of base-sections having the outer portions of their upper faces provided with upward extensions formed with upwardly-diverging inner faces and upwardly-converging outer faces, additional sections engaging the inner portions of the upper faces of the base-sections and the inner faces of said extensions, and side sections engaging the outer faces of the extensions and the contiguous end faces of said additional sections, said side sections having the inner portions of their lower faces provided with depending arms having their lower faces inclined downwardly from the inner edges thereof and the upper edges of their outer faces arranged above said inner edges, substantially as and for the purpose specified.

7. In a sewer, the combination of base-sections having the outer portions of their upper faces provided with upward extensions formed with upwardly-diverging inner faces and upwardly-converging outer faces, additional sections engaging the inner portions of the upper faces of the base-sections and the inner faces of said extensions, and additional side sections resting on the former side sections and having the inner portions of their lower faces provided with depending arms having their lower faces inclined downwardly from the inner edges thereof and the upper edges of their outer faces arranged above said inner edges, substantially as and for the purpose set forth.

8. In a sewer, the combination of a base composed of two side sections and an intermediate section; with additional sections forming the walls of the sewer, said side and intermediate base-sections being provided with means for preventing inward or outward movement of the additional sections.

9. In a sewer, the combination of an intermediate base-section and side base-sections; with the walls supported partly on the intermediate base-section and partly on the side base-sections, said walls having their lower ends prevented from outward movement by the underlying sections and being engaged with the side base-sections for preventing spreading of said side base-sections, substantially as and for the purpose described.

10. In a sewer, the combination of a base composed of two side sections having upward extensions and an intermediate section having an upward extension of less width than its lower portion; with additional sections diverging upwardly from opposite sides of the extension of the intermediate base-section and forming the walls of the sewer, said additional sections being supported partly on the side base-sections and partly on the intermediate base-section between the extensions of the side base-sections and at opposite sides of the extension of the intermediate base-section, substantially as and for the purpose specified.

11. In a sewer, the combination of an intermediate base-section and side base-sections; with additional sections supported partly on the intermediate base-section and partly on the side base-sections, and side sections supported partly on the side base-sections and partly on said addi

tional sections, said side sections having means for preventing spreading of the side base-sections and having their lower ends prevented from outward movement by the underlying sections, substantially as and for the purpose set forth.

12. In a sewer, the combination of an intermediate base-section, side base-sections provided with upward extensions, additional sections engaging the intermediate base-section and the upward extensions of the side base-sections, and side sections engaging the additional sections and outer faces of said extensions, substantially as and for the purpose described.

13. In a sewer, the combination of a base composed of two side sections having upward extensions and an intermediate section having an upward extension of less width than its lower portion; with additional sections diverging upwardly from opposite sides of the extension of the intermediate base-section and supported partly on the side base-sections and partly on the intermediate base-section between the extensions of the side base-sections and at opposite sides of the extension of the intermediate base-section, and side sections supported partly on the side base-sections and partly on said additional sections, said side sections having means for preventing spreading of the side base-sections and having their lower ends prevented from outward movement by the underlying sections, substantially as and for the purpose described.

14. In a sewer, the combination of an intermediate base-section having a reduced upper portion and lateral shoulders, side base-sections having upward extensions rising above the lateral shoulders, additional sections engaging the lateral shoulders of the intermediate base-section and the inner faces of the upward extensions of the side base-sections, and side sections also engaging said extensions, substantially as and for the purpose specified.

15. In a sewer, the combination of an intermediate base-section having a reduced upper portion and lateral shoulders, side base-sections having the inner portions of their upper faces arranged substantially coincident with the lateral shoulders and the outer portions of their upper faces provided with upward extensions formed with upwardly-diverging inner faces and upwardly-converging outer faces, additional sections engaged with the lateral shoulders of the intermediate base-section and with the inner portions of the upper faces of the base-sections and the inner faces of said extensions, and side sections engaging the outer faces of the extensions and the contiguous end faces of said additional sections, substantially as and for the purpose set forth.

16. In a sewer, the combination of an intermediate base-section, side base-sections provided with upward extensions, additional sections engaging the intermediate base-section and the upward extensions of the side base-sections, and side sections engaging the additional sections, said additional sections being provided with means for preventing outward movement of the side sections substantially as and for the purpose described.

661,287. GUARD FOR SHOVELS. CHARLES C. CRAGO, Centreville, Iowa. Filed May 15, 1900. Serial No. 16,797. (No model.)

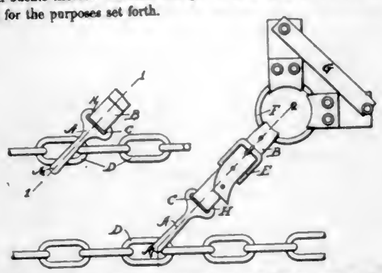


Claim.—1. A shovel having a metal blade and provided with a guard consisting of a round rod arranged at and receiving the front edge of the metal blade and forming a rounded bead at both the front and rear faces of the said blade, whereby the shovel is enabled to slide freely over rough surfaces and is prevented from injuring the material handled, substantially as described.

2. A detachable guard for shovels consisting of a round rod having its terminals bent at an angle to form arms, the body portion of the rod being grooved to receive the front edge of a shovel, and the arms being slotted to receive the side edges of the shovel and perforated for the reception of fastening devices, substantially as described.

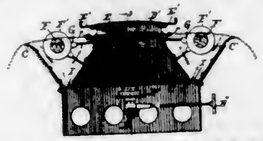
661,288. HARNESS-CONNECTOR. JOHN E. ELAM, Oakville, Tenn. Filed Jan. 18, 1900. Serial No. 1,954. (No model.)

Claim.—1. As a harness-fastening, the combination of a narrow U-shaped metal piece enlarged at the bend of the U, having legs of substantially equal length, with eyes in the upper ends of the said legs, the eyes being substantially parallel to each other and occupying planes which are substantially at right angles to the plane of said legs, with a strap with buckle thereon inserted through the said eyes, all substantially as and for the purposes set forth.



2. In a harness, the combination with the breeching and the trace, of a connection, said connection comprising a narrow U-shaped metal piece, enlarged at the bend of the U, having eyes in the upper ends of the legs substantially parallel to each other and substantially at right angles to the plane of said legs, which legs are closer together at the eye end than at the bend of the said U, and a strap with buckle thereon, said strap being inserted through the said eyes, substantially as described.

661,289. APPARATUS FOR TREATING FABRICS. ARTHUR GARLAND, Howell, Mich. Filed Dec. 22, 1899. Serial No. 741,279. (No model.)



Claim.—1. In an apparatus for treating cloth, the combination of a burner; a casing therefor open at its top; a tank centrally located on said casing so there shall be a passage on each side for the upward escape of heated gases from said burner; wings or deflectors to each side of said casing to guide the gases upward; and a perforated top for said tank all arranged and coacting together as described whereby a web of cloth in passing over said apparatus is first heated, then steamed and then heated again until dry, to properly shrink the same.

2. In an apparatus for treating cloth, the combination of a burner; a casing therefor open at its top; a tank centrally located on said casing so there shall be a passage on each side for the upward escape of heated gases from said burner; and a perforated top for said tank all arranged and coacting together as described, whereby a web of cloth in passing over said apparatus is first heated then steamed and then heated again until dry, to properly shrink the same.

3. In an apparatus for treating cloth or fabrics the combination of a tank suitably opened at the top; a burner or heater arranged underneath the same and so that the heated gases shall rise at the sides of the same, and means of guiding a web of fabric over the tank whereby it is first heated, and then steamed, and then heated and dried causing the fabric to properly shrink as specified.

4. In an apparatus for treating cloth or fabrics, the combination of a suitable steaming device containing perforations or apertures to force the steam through the cloth, and means in proximity thereto to deliver a current of heated gases through the fabric to dry the same.

5. In an apparatus for treating cloth, an apparatus divided into compartments through one of which pass heated gases the next steam, the next heated gases, and means of guiding a fabric over the same whereby it is first heated and then steamed and then heated and dried, so that the cloth is properly shrunk.

6. In an apparatus for treating cloth, an apparatus divided into compartments through one of which passes steam and the next heated gases, and means of guiding a fabric over the same whereby it is steamed and then heated and dried, so that the cloth is properly shrunk.

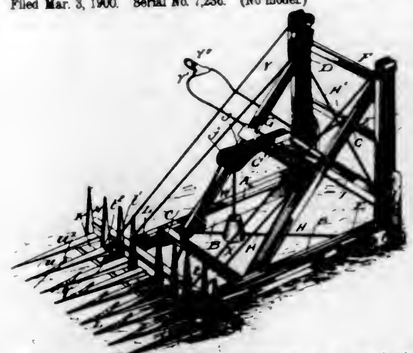
7. In an apparatus for treating cloth or fabrics, the combination of a suitable heater; a tank for the same having converging sides and a perforated top whereby the steam is collected and delivered under pressure and means of guiding a fabric over the top as specified.

8. In an apparatus for treating cloth or fabrics, the combination of a suitable heater; a tank for the same having converging sides and a perforated top whereby the steam is collected and delivered under pressure, a horizontal partition in said tank with large apertures therethrough, and means of guiding a fabric over the top as specified.

9. In an apparatus for treating cloth, the combination of a tank D having a broad base and converging sides and a perforated top D′ extending to form a flange around the top of the said tank; a cover E to rest on said tank with springs r for engaging the flange around the top of the tank; adjustable wings E′ to close down to each side for the purpose of covering the tank while the same is generating steam, as specified.

10. In an apparatus for treating cloth the combination of the casing A having suitable perforations in its sides; deflector-wings C′ to each side thereof supported by bars C resting across the top of same; a heater within said casing; a tank D resting centrally on said casing, so that there are spaces for the passage of air to each side, which said tank has converging sides and a perforated top D′; rollers F with suitable adjustable guides F thereon, supported on brackets to each side of said tank, all coacting substantially as described for the purpose specified.

661,290. HAYSTACKER. CHARLES R. IVENS, Lexington, Nebr. Filed Mar. 3, 1900. Serial No. 7,236. (No model.)

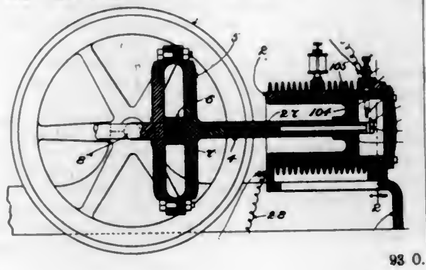


Claim.—1. In a haystacker, the combination of a frame having main sills or runners, short auxiliary runners arranged at the rear and upon the outer sides of said main runners, pivot pins or bolts connecting the main and auxiliary runners, and a rake mounted on arms having their rear ends mounted on said pins and held between the main and auxiliary runners, substantially as described.

2. In a haystacker, the combination of a frame having main runners, short auxiliary runners arranged at the rear and upon the outer sides of the main runners, standards having their lower ends fitted between the main and auxiliary runners, and a rake mounted on arms having their rear ends pivotally mounted between the said main and auxiliary runners in advance of the standards, substantially as described.

3. In a haystacker, the combination with a frame, of a rake comprising a head formed of upper and lower transverse bars and intermediate distance-bars, the said upper and distance bars being, respectively, formed with seats in their front and bottom edges, horizontal fingers united by a cross-bar and having their rear ends fitted in the seats of the distance-bars and arranged between the same and lower bar of the head, vertical arms pivoted to the horizontal arms and occupying the seats in the upper bar of the head, and swinging arms pivoted to the frame and having their front ends passed through the head between the upper and lower bars and adjacent distance-bars and connected to the cross-bar of the horizontal fingers, substantially as and for the purpose set forth.

661,291. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. AXEL JOHNSON, Winchester, Mass. Filed Jan. 31, 1900. Serial No. 3,427. (No model.)



Claim.—1. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of the said contact-pieces being mounted pivotally on the piston, the plunger-rod acting by its head against the said pivoted contact-piece, and a spring to force the said plunger-rod lengthwise to cause it to act against the pivoted contact-piece to hold the latter in normal position on its pivot, the said piston having a chamber or bore within which the said plunger-rod and spring are received and in which the spring is shielded from the heat and gases, substantially as described.

2. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of the said contact-pieces being mounted pivotally on the piston, a plunger-rod acting by its head against the said pivoted contact-piece, and a spring to force the said plunger-rod lengthwise to cause it to act against the pivoted contact-piece to hold the latter in normal position on its pivot, the said piston having a chamber or bore receiving the said plunger-rod and spring and in which the spring is shielded from the heat and gases, the other contact-piece being mounted on the cylinder and provided with means to adjust the same with relation to the path of that carried by the piston, substantially as described.

3. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of the said contact-pieces being mounted pivotally on the piston, a plunger-rod acting by its head against the said pivoted contact-piece, and a spring to force the said plunger-rod lengthwise to cause it to act against the pivoted contact-piece to hold the latter in normal position on its pivot, the said piston having a chamber or bore receiving the said plunger-rod and spring and in which the spring is shielded from the heat and gases, the other contact-piece being mounted on the cylinder and provided with means to adjust the same transversely with relation to the path of that carried by the piston, substantially as described.

4. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of the said contact-pieces being mounted pivotally on the piston, a plunger-rod acting by its head against the said pivoted contact-piece, and a spring to force the said plunger-rod lengthwise to cause it to act against the pivoted contact-piece to hold the latter in normal position on its pivot, the said piston having a chamber or bore receiving the said plunger-rod and spring and in which the spring is shielded from the heat and gases, a socket mounted in the cylinder-shell and containing the other contact-piece, and a screw to adjust the latter contact-piece transversely with relation to the path of the contact-piece that is carried by the piston, substantially as described.

5. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising relatively movable contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, a carrier or mounting with which one of the said contact-pieces is connected pivotally to enable it to be tilted by engagement with the other contact-piece, and the yielding presser whereby said contact-piece is held in normal position on its pivot, the pivotal connection having provisions for permitting transverse movement of the pivoted contact-piece on its carrier or mounting when such contact-piece engages improperly with the other one, substantially as described.

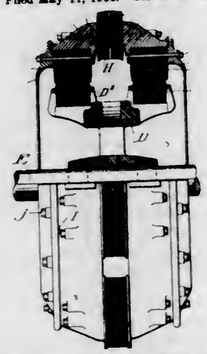
6. In an explosive engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of said contact-pieces being mounted on the piston and one on the cylinder, and one thereof having therein a diagonal slot, a pivot-pin passing through said slot and on which the said contact-piece is adapted to be turned by engagement of the other contact-piece therewith in the normal working of the parts, the said slot allowing the contact-piece to slide transversely upon the pivot-pin in case the pivoted contact-piece fails to be turned properly, and a spring-actuated presser bearing against the back of the said contact-piece to keep it in normal position, substantially as described.

7. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising contact-pieces forming the terminals of opposite polarity of a normally broken electric circuit, one of such contact-pieces being mounted on the cylinder and the other on the piston, and one of such contact-pieces having a slot therein, a pivot-pin passing through the said slot and on which the said contact-piece is adapted to turn and also to slide, a spring-actuated plunger acting against the said contact-piece to hold it in normal position, and a chamber containing the said plunger and spring and shielding the latter from the heat and gases, substantially as described.

8. In an explosive-engine, in combination, the cylinder and piston, and firing or sparking devices comprising a contact-piece moving with

the piston and slotted as described, a pivot-pin on which said contact-piece is adapted to both turn and slide, a second contact-piece, a socket applied to the cylinder and in which the said second contact-piece is fitted, and a screw to adjust the second contact-piece transversely with relation to the path of movement of the first contact-piece, substantially as described.

661,292. **DYNAMO-ELECTRIC MACHINE.** JOHN F. KELLY, Pittsfield, Mass. Filed May 11, 1900. Serial No. 16,318. (No model.)



Claim.—1. In a dynamo-electric machine the combination of a set of coils carried by a magnetic body having a continuous polar surface of revolution of one polarity at which both limbs of said coils are located, an inductor mounted so as to be rotatable within said coils and form magnetic paths from said polar surface, and means for magnetizing the said magnetic body so as to produce said polar surface, said means not embracing the axis of said inductor, substantially as described.

2. In a dynamo-electric machine the combination of a magnetic body having one continuous surface of revolution, means for rendering said surface of a definite polarity, said means not embracing the axis of revolution of said surface, coils carried by said magnetic body having both limbs located at its continuous surface and a rotatable inductor adapted to move in front of said coils, substantially as described.

3. In a dynamo-electric machine the combination of a magnetic body having a continuous polar surface of revolution, coils, not concentric with the axis of revolution, for energizing said polar surface, said coils lying in planes substantially at right angles to said axis, armature-coils having both limbs located at said continuous surface of revolution, and an inductor adapted to rotate before said surface and armature-coils, substantially as described.

4. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface of revolution, means for rendering said surfaces of opposite polarity, said means not embracing the axis of revolution, armature-coils having both limbs located at said polar surfaces, and an inductor mounted so as to rotate before said coils, substantially as described.

5. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface of revolution, connections between said bodies, energizing-coils, not concentric with the axis of revolution, and lying in planes substantially at right angles thereto, said coils surrounding said connections, armature-coils having both limbs located at the continuous surfaces of said bodies and carried thereby, and an inductor rotatable within said armature-coils, substantially as described.

6. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface, extensions from said bodies, energizing-coils surrounding said extensions, armature-coils having both limbs located at the surface of said bodies and carried thereby, and an inductor rotatable within said armature-coils, substantially as described.

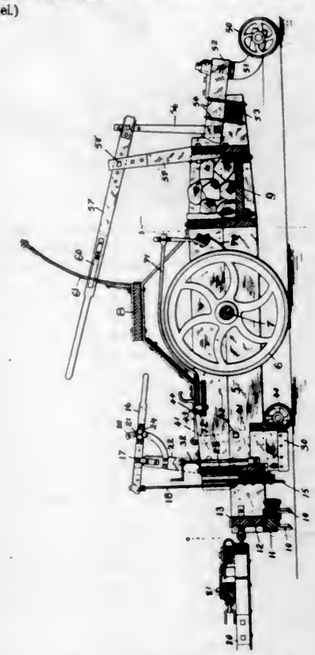
7. In a dynamo-electric machine the combination of two magnetic bodies having continuous polar surfaces, a plurality of energizing-coils held between said bodies at intervals, armature-coils supported by said bodies and having both limbs located at their polar surfaces, and an inductor rotatably mounted within said armature-coils, substantially as described.

661,293. **LIFE-SAVING AND SWIMMING APPARATUS.** GEORGE PLUMMER, Georgetown, Mass. Filed Nov. 4, 1899. Serial No. 735,828. (No model.)

Claim.—The life-saving and swimming apparatus described, consisting of the tubes A and B, tapered at each end and provided with cutting edges *i* where said tubes pass over the shoulders and secured by belts *a*, *b*, *c*, in combination with the leg attachments, formed of the tubes C, C', provided with the hip-shaped paddles D attached by knuckle-joints *g* to said tubes C', secured by straps *d*, *e*, and all arranged as shown and specified.



661,294. **ROAD-GRADER.** SAMUEL D. REYNOLDS, De Kalb, Ill., assignor to John G. Davy, Henry B. Hoyt, Andrew G. Johnson, and Lewis Pool, same place. Filed June 30, 1900. Serial No. 22,140. (No model.)



Claim.—1. The road-grading machine wherein are combined a rigid tilting body, carrying a leveling device at its forward end, rollers by which the body is supported at its center, a trailer-wheel, and means whereby said wheel may cause the tilting of the body, substantially as specified.

2. The road-grading machine wherein are combined a rigid tilting body carrying the scraper at its forward end, a smoothing roller or rollers by which the body is supported, a governing-wheel joined to the rear of the body, and means whereby the governing-wheel may cause the tilting of the body, substantially as specified.

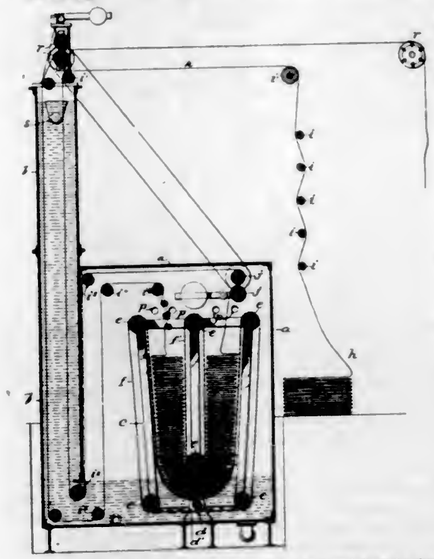
3. The grading-machine wherein the body carries the leveling devices at its forward end, and is mounted upon a central support upon which it may tilt to regulate the depth of soil removed by the leveling devices, and is combined with devices including a rear governing-wheel, for effecting the tilting adjustments of the body substantially as specified.

4. The grading-machine wherein the body carries the leveling devices at its forward end, and is mounted upon a central support upon which it may tilt to regulate the depth of soil removed by the leveling devices, and is combined with devices, including a rear governing-wheel and a rocking lever connecting the wheel and the body, for effecting the tilting adjustment of the body, substantially as specified.

5. The grading-machine wherein the body carries the leveling devices at its forward end, and is mounted upon a central support upon which it may tilt to regulate the depth of soil removed by the leveling devices, and is combined with a rear governing-wheel, a rocking lever connecting the wheel and body, and means on the body for rocking said lever, substantially as specified.

6. The road-grading machine wherein are combined a rigid body, a smoothing roller or rollers on which the body tilts, leveling devices on the forward end of the body, a rear governor-wheel and mechanical connections between the body and the wheel, such connections being operable by the driver and enabling him to cause the tilting adjustable of the body, substantially as specified.

661,295. **KEIR FOR BLEACHING.** CARLO RIGAMONTI and GIOVANNI TAGLIANI, Milan, Italy. Filed Aug. 22, 1900. Serial No. 27,650. (No model.)



Claim.—1. A keir for bleaching textile fabrics, consisting of a closed casing, endless feed-aprons in said casing forming a U-shaped channel, means for imparting motion to the fabric, means for imparting motion to the feed-aprons independently of the feed-motion of the fabric, and means for feeding and piling the fabric into the channel formed by the feed-aprons, substantially as set forth.

2. A keir for bleaching textile fabrics, consisting of a closed casing provided at one side with a trunk of greater height open at the upper end, two endless feed-aprons forming a U-shaped channel, means for imparting motion to said feed-aprons, means for feeding the fabric into said channel, and spray-pipes above each leg of the channel for supplying the liquor to the fabric piled in the same, substantially as set forth.

3. A keir for bleaching textile fabrics, which consists of a closed casing, means for feeding the fabric through the casing, a frame pivoted to said casing, endless feed-aprons forming a U-shaped channel supported by said frame, means for imparting motion to said aprons independently of the feed-motion of the fabric, and means for automatically stopping or starting the feed-aprons, substantially as set forth.

661,296. **RECORD BLANK OR FORM.** CHARLES E. STRUBLE, Hartwell, Ohio. Filed Apr. 28, 1900. Serial No. 14,723. (No model.)

Claim.—1. A blank for records comprising a main sheet or body having its opposite surfaces provided with suitable forms, and an extension or agent's sheet adapted for attachment to one edge of the main sheet or body and having produced upon its opposite sides forms one of which corresponds with and forms the beginning of one of the forms upon the main sheet or body and the other of which corresponds with and constitutes a continuation of the other form upon the main sheet or body, substantially as set forth.

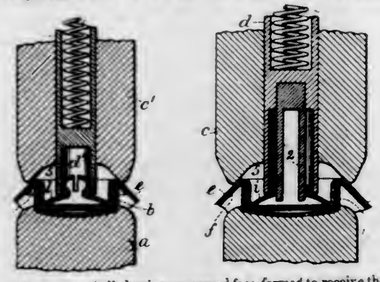
2. A blank for records comprising a main sheet or body having its opposite surfaces provided with suitable forms and two extensions or agents' sheets adapted for attachment to opposite edges of the main sheet or body and each having produced upon its opposite sides forms one of which corresponds with and constitutes the beginning of one of the forms of the main sheet or body and the other of which corresponds with and constitutes a continuation of the other form of the main sheet or body, substantially as set forth.



3. A blank for records having a main sheet or body the opposite sides of which are provided with forms, said main sheet or body being folded at one side of its central part to produce leaves or plies of unequal widths the edges of which are out of line and are provided with stripes of gum or the like, substantially as set forth.

4. In a blank for records, the combination of a main sheet or body folded at one side of its central part to produce leaves or plies of unequal widths the edges of which are out of line, and two extensions or agents' sheets secured to the respective edges of the folded main sheet or body with their points of attachment thereto alongside of, but out of line with each other, substantially as set forth.

661,297. **MECHANISM FOR ASSEMBLING, FORMING, AND SETTING GARMENT-FASTENERS.** JAMES V. WASHBURNE, Waterbury, Conn. Filed Apr. 30, 1900. Serial No. 14,845. (No model.)

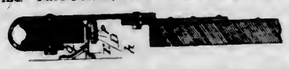


Claim.—1. A die having a recessed face formed to receive the metal cup forming the head of the fastener, in combination with a die centrally perforated and having in the said perforation a tubular spring-actuated plunger for holding the inner member of the fastener and an annular conoidal surface surrounding the plunger and adapted to act upon the rim of the cup-shaped head to turn the same over upon the edge of the inner member, substantially as set forth.

2. In a machine a die having a recessed upper face in combination with another die over the same centrally perforated, a tubular plunger, spring-actuated and movable through the center of the upper die and the upper die having a conical surface surrounding the plunger, substantially as set forth.

3. In a machine a die having a recessed upper face in combination with another die over the same centrally perforated, a tubular plunger, spring-actuated and movable through the center of the upper die and the upper die having a conical surface surrounding the plunger, and spring-fingers fixed to and located within the tubular plunger, substantially as and for the purposes set forth.

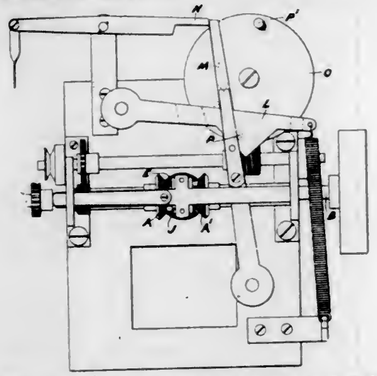
661,298. **SLIDING-DOOR HANGER.** HENRY WESNIDGE, Worthington, Ind. Filed Feb. 15, 1900. Serial No. 5,343. (No model.)



Claim.—1. In a door-hanger, the combination of a track, and a supporting-bracket therefor provided with a riveting connection extending through the track and a shoulder for the track to bear upon and reinforcing said connection.

2. In a door-hanger, the combination of a track, and a supporting-bracket therefor comprising upper and lower arms provided at their rear ends with feet and connected at their front ends by a bearing portion, said bearing portion being provided with a shoulder at its free end and a prong projecting outwardly above said shoulder and through the track, substantially as set forth.

661,299. COIN-FREED PHOTOGRAPH-EXHIBITING APPARATUS. CECIL WRAY, Bradford, England, assignor to the Automatic Cinograph Company, Limited, Leeds, England. Filed Mar. 14, 1900. Serial No. 8,569. (No model.)



Claim.—1. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing gearing between the motor-shaft and the film-operating shaft whereby the latter may be driven in a forward direction, automatically reversed and driven in a rearward direction and finally thrown out of gear, in combination with means for controlling such gearing, consisting of a slide provided with locking or engaging means, a lever arranged to rock automatically after having been carried into a vertical position, a wheel provided with pins, one of which is adjustable, to engage with and move the lever into the vertical position together with a coin-freed detent, all acting substantially as herein set forth.

2. In coin-freed apparatus for exhibiting series of photographs or other pictures and in which the motor or driving shaft is adapted to rotate in one direction only, providing disengaging and reversing gear between the motor-shaft and the film-operating shaft for the purposes herein set forth, in combination with a locking-slide K, a lever M, pivoted below its center of gravity, a wheel O, carrying two pins P, P', and detent N, substantially as herein set forth.

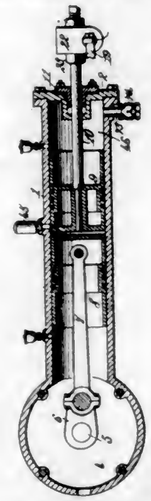
3. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing disengaging and reversing gearing between the motor-shaft and the film-operating shaft for the purposes herein set forth, in combination with a slide K, pivoted lever M, spring-actuated lever L, wheel O carrying pins P, P', together with detent N, substantially as herein set forth.

4. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only, providing gearing between the motor-shaft and the film-operating shaft, consisting of two bevel-wheels A, A', mounted upon the driving-shaft B, bevel-wheel E, fixed upon the shaft D, and sliding clutch J, in combination with means for controlling such gearing, consisting of a slide, a lever arranged to rock automatically after having been carried into a vertical position, a wheel provided with pins to engage with and move the lever into the vertical position, together with a coin-freed detent, all acting substantially as and for the purposes herein set forth.

5. In coin-freed apparatus for exhibiting series of photographs or other pictures, and in which the motor or driving shaft is adapted to rotate in one direction only providing gearing between the motor-shaft and the film-operating shaft, consisting of two bevel-wheels A, A', mounted upon the driving-shaft B, bevel-wheel E fixed upon the shaft D, and sliding clutch J, in combination with means for controlling such gearing, consisting of a slide K, pivoted lever M, spring-actuated lever L, wheel O carrying pins P, P', together with detent N, all acting and arranged substantially as herein set forth.

661,300. EXPLOSIVE-GAS ENGINE. THOMAS M. ANTISELL and FRANK L. ANTISELL, Matawan, N. J. Filed Oct. 5, 1899. Serial No. 732,661. (No model.)

Claim.—1. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, an air-inlet communicating with the interior of the air-chamber, an outwardly-closing check-valve in the air-inlet, an air-outlet communicating with the atmosphere, a compressed-air tank, means for alternately conveying the compressed air from the tank into the air-chamber and exhausting it from the latter to actuate the piston, means for throwing the tank out of communication with the air-chamber, and means for closing the air-outlet at will, the arrangement being such that air may be alternately compressed and expanded in the air-chamber to act as a cushion for the piston, may be compressed and stored in the tank, or may be conveyed from the tank and alternately admitted to and exhausted from the air-chamber to aid the gas in actuating the piston, all at the will of the operator, substantially as described.



2. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, an air-inlet communicating with the interior of the air-chamber, an outwardly-closing check-valve in said inlet, on air-outlet communicating with the atmosphere, a compressed-air tank, means for alternately conveying the compressed air from the tank into the air-chamber and exhausting it therefrom to actuate the piston, means for throwing the tank out of communication with the air-chamber, and means for opening and closing the air-outlet at will, the arrangement being such that the air may be alternately drawn in and expelled from the air-chamber, may be alternately compressed and expanded in said chamber to form a cushion for the piston, may be compressed and stored in the tank, or may be conveyed from the tank and alternately admitted to and exhausted from the air-chamber to aid the gas in actuating the piston, all at the will of the operator, substantially as described.

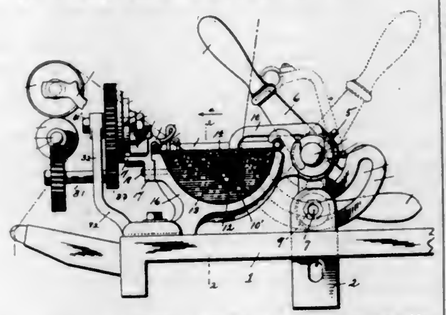
3. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, a compressed-air tank, a three-way-valve casing having one port for conveying air compressed in the air-chamber to the tank, another port for conveying compressed air from the tank to the air-chamber, and a third port communicating with the atmosphere, a valve arranged in said casing having a single port communicating with the air-chamber, and means for throwing said valve-port into communication with either of the three ports in the casing and for throwing it out of communication with all three of them, substantially as described and for the purpose specified.

4. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, a compressed-air tank, a three-way-valve casing having one port for conveying air compressed in the air-chamber to the tank, another port for conveying compressed air from the tank to the air-chamber, and a third port communicating with the atmosphere, a valve arranged in said casing having a single port communicating with the air-chamber, means for throwing said valve-port by hand into communication with the port leading to the tank or out of communication with all three of said ports, and mechanism automatically actuated by the engine for alternately throwing the valve-port into communication with the port leading from the tank and with the port leading to the atmosphere, substantially as described.

5. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, a compressed-air tank, a three-way-valve casing having one port for conveying air compressed in the air-chamber to the tank, another port for conveying compressed air from the tank to the air-chamber, and a third port leading to the atmosphere, a rotatable valve arranged in the casing and having a single port leading to the air-chamber, a lever on the valve for turning said valve to throw its port into register with any one of the three ports in the valve-casing or out of register with all of them, substantially as described and for the purpose specified.

6. In a gas explosive-engine, the combination with a cylinder, of a piston arranged therein, said cylinder having a gas-explosion chamber on one side of the piston and an air-compressing chamber on the other side thereof, a compressed-air tank, a three-way-valve casing having one port for conveying air compressed in the air-chamber to the tank, another port for conveying compressed air from the tank to the air-chamber, and a third port leading to the atmosphere, a rotatable valve arranged in said casing and having a single port communicating with the air-chamber and also arranged to register with either of the ports in the casing or be thrown out of register with all of them, a handle on the valve, a reciprocating rod arranged to engage said handle to alternately throw the valve-port into register with the port leading from the tank and the port leading to the atmosphere, a cam arranged on the engine-shaft for reciprocating the rod, a spring for holding the valve-lever in engagement with the rod, and pivoted latches for holding the valve-lever to maintain the valve-port in communication with the port leading to the tank or out of communication with all three ports, substantially as described.

661,301. TWISTER-MACHINE. HERBERT G. BEEDE, Pawtucket, R. I. Filed Apr. 13, 1900. Serial No. 12,695. (No model.)



Claim.—1. In a twister, a traverse rod or bar and thread-guides thereon, said rod or bar having a reciprocating motion in the direction of its length, and also an up-and-down motion, and means for imparting the reciprocating motion, and the up-and-down motion, substantially as shown and described.

2. In a twister-machine, a traverse rod or bar, and wire thread-guides thereon, said rod or bar having a motion in a vertical plane, to change the position of the guide-wires, relative to the thread passing through said wires, and means for imparting said motion, substantially as shown and described.

3. In a twister-machine, a traverse rod or bar, having a shoe or bearing with an inclined lower surface to travel in the traverse-rod stand, and said traverse-rod stand, substantially as shown and described.

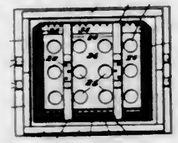
4. In a twister-machine, a traverse rod or bar, having a shoe or bearing with an inclined lower surface to travel in the traverse-rod stand, and said traverse-rod stand, and a lip or projection on the stand, to extend over the upper edge of said shoe or bearing, and hold the traverse-rod in place, substantially as shown and described.

5. In a twister-machine, the combination with the lifter-rod, of a rod-supporting finger fast thereon, and having a recess for the rod, and a detachable clamp-piece having a rounded or curved bearing-surface, under the attaching-screw, and said attaching-screw and a recess for the rod, of less diameter than the recess in the finger, and means for attaching the clamp-piece to the finger, substantially as shown and described.

6. In a twister-machine, the combination with the lifter-rod, of a rod-supporting finger fast thereon and having a recess for the rod, and a detachable clamp-piece having a rounded or curved bearing-surface, under the attaching-screw, and said attaching-screw and a recess for the rod, of less diameter than the recess in the finger, and fins or ridges on the edges of the clamp-piece, and means for attaching it to the finger, substantially as shown and described.

7. In a twister-machine, the combination with the traverse-rod stand, having a holding lip or projection on the rear side thereof, of the water-trough, and a rod extending along the edge thereof, and within said lip or projection, to be held thereby, substantially as shown and described.

661,302. CUSHION-MAKING APPARATUS. CHARLES BERNHARDT and WILLIAM H. LUELF, Cincinnati, Ohio. Filed Mar. 24, 1900. Serial No. 10,110. (No model.)



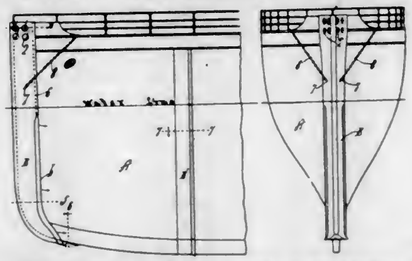
Claim.—1. In an apparatus for the manufacture of cushions, the combination of a bed to receive the cushion, a follower for pressing the cushion on the bed and a frame inclosing the follower with its lower edges rested on the edges of the bed, but removable therefrom and when in position on the bed adapted to clamp between its said lower edges and the edges of the bed the cushion-cover, substantially as set forth.

2. In an apparatus for making cushions, the combination of a bed to receive the cushion and provided with a raised edge wall, a follower for pressing the cushion on the bed and a frame inclosing the follower with its lower edges rested on the raised edge wall of the bed but removable therefrom and when in position on the bed adapted to clamp between its said lower edges and the raised edge wall of the bed the cushion-cover, substantially as set forth.

3. In an apparatus for making cushions, the combination of a bed having a raised edge wall notched at intervals and provided with a reinforcing-strip over said notches, a follower for pressing the cushion on the bed and a frame inclosing the follower with its lower edge rested on the raised edge wall of the bed over the reinforcing-strip thereof and formed with notches corresponding in arrangement with the notches of said raised edge wall, said frame being removable from the bed and being adapted when in position on the bed to clamp the cushion-cover between its lower edges and the reinforcing-strip of the edge wall of the bed, substantially as described.

4. In an apparatus for making cushions, the combination of a bed to receive the cushion, pins on the bed and projecting above the face thereof and provided with openings to receive needles and also provided with notches in their sides to receive buttons, the upper ends of the pins being provided with slots communicating with said notches and adapted for the passage of twines, and a follower for pressing the cushion on the bed, substantially as set forth.

661,303. AIR-INJECTING DEVICE FOR LESSENING SKIN FRICTION OF VESSELS. JOHN S. BRIGGS, Los Angeles, Cal. Filed May 3, 1898. Renewed Apr. 10, 1900. Serial No. 12,378. (No model.)



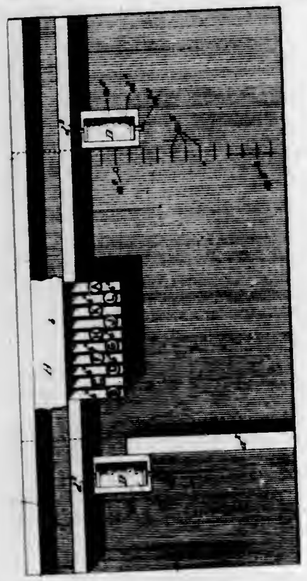
Claim.—1. The combination with a vessel; of false bow-piece which extends from above the water-line to below the water-line and is provided above the water-line with openings to admit air and is provided below the water-line with rearwardly-directed openings, one on each side of the bow whereby the frictional action of the water will operate to introduce air beneath the vessel, the inner surface of said bow-piece being provided with points which engage with the vessel and hold the bow-piece away from the same to form a conduit.

2. The combination with the vessel, of a false bow; means to hold the same away from the vessel side; packing at the rear edges of the false bow to close the space between such edges and the vessel above the water-line; an open space being provided below the water-line between the vessel and the rear edges of the bow.

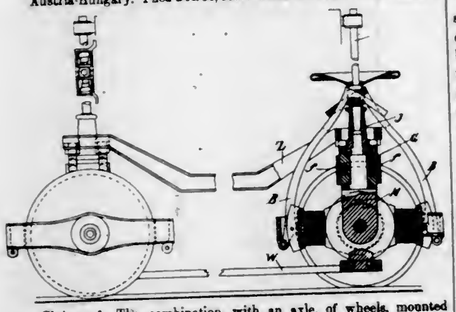
3. A vessel having at its side an up-and-down plate provided with points interposed between the plate and the vessel side with air-inlet above water-line, and rearwardly-opening outlet below water-line.

661,304. TYPE-WRITER. PERCY H. BROWN, Victoria, Canada. Filed Nov. 23, 1899. Serial No. 737,983. (No model.)

Claim.—A type-writing machine comprising a bed forming a paper-platen, a horizontal guideway fixed on the bed above the plane of such paper-platen, a paper-guide on said platen, the graduated scale also on the platen and in parallel relation to said guide, a type-support shiftable freely in said guideway and limited thereby to rectilinear reciprocating movement above the paper-platen, a series of yieldable type-fingers carried by the type-support, the series of type-heads on said fingers and in a common vertical plane lengthwise of the type-support, and the inking-rollers journaled on the bed adjacent to the guideway and disposed in the path of the type-heads for the latter to frictionally brush against said rollers on the shiftable movement of the type-support, substantially as described.



661,305. WORKING DEVICE FOR RAILWAYS WITH AUTOMATIC CORRECTION OF THE AXLES. JOSEF DE BUIGNE, Vienna, Austria-Hungary. Filed Dec. 30, 1897. Serial No. 664,566. (No model.)



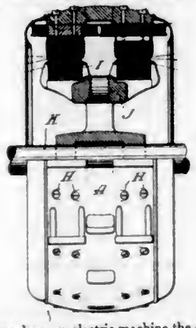
Claim.—1. The combination, with an axle, of wheels, mounted loosely on said axle and being independently movable one of the other, each wheel being provided with an outer circumferential flange, and means for imparting rotary motion to each wheel independently of the other, substantially as set forth.

2. The combination, with an axle, of wheels, mounted loosely on said axle and being independently movable one of the other, each wheel being provided with an outer circumferential flange and with a hub, and a motor on the hub of each wheel for rotating one wheel independently of the other, substantially as set forth.

3. The combination, with a truck, of an axle applied to said truck, wheels mounted loosely on said axle and being independently movable one of the other, each wheel being provided with an outer circumferential flange, means for imparting rotatory motion to each wheel independently of the other, and means for flexibly coupling one truck with the adjacent truck, substantially as set forth.

4. The combination with a car-axle, wheels journaled independently thereon, and an additional car-axle suitably suspended below aforesaid car-axle and wheels journaled independently thereon, said wheels having outer flanges, of means for driving said wheels independently, and pressure means for pressing the opposing wheels with more or less friction against the rails on which they are adapted to travel, substantially as set forth.

661,306. DYNAMO-ELECTRIC MACHINE. CUMMINGS C. CHESNEY, Pittsfield, Mass. Filed May 11, 1900. Serial No. 16,333. (No model.)



Claim.—1. In a dynamo-electric machine the combination of a magnetic body having a continuous surface of revolution, an inclosing shell, energizing-coils giving said entire surface one definite polarity, with their axes substantially radial to the axis of revolution, said energizing-coils being located between the shell and said magnetic body armature-coils having both limbs located at said continuous surface and an inductor mounted so as to rotate before said coils, substantially as described.

2. In a dynamo-electric machine the combination of a supporting-shell, a laminated body having a continuous surface within said shell, energizing-coils located between said shell and said laminated body giving said surface one definite polarity, armature-coils having both limbs located at said continuous surface of said body and carried thereby and an inductor rotatably mounted within said armature-coils, substantially as described.

3. In a dynamo-electric machine the combination of a supporting-shell, two laminated bodies having continuous surfaces within the same, energizing-coils located between said shell and said bodies making the continuous surfaces of said bodies of opposite polarity, armature-coils having both limbs located at the said surfaces of said bodies and supported thereby, and an inductor mounted so as to rotate within said coils, substantially as described.

4. In a dynamo-electric machine the combination of a supporting-shell concentric with the axis of the machine, a laminated body having a continuous surface of revolution within said shell, removable connecting-blocks between said body and said shell at intervals, energizing-coils surrounding said connecting-blocks and having their convolutions in planes parallel to the axis of revolution, armature-coils carried at the continuous surface of said shell and an inductor mounted so as to rotate before said armature-coils, substantially as described.

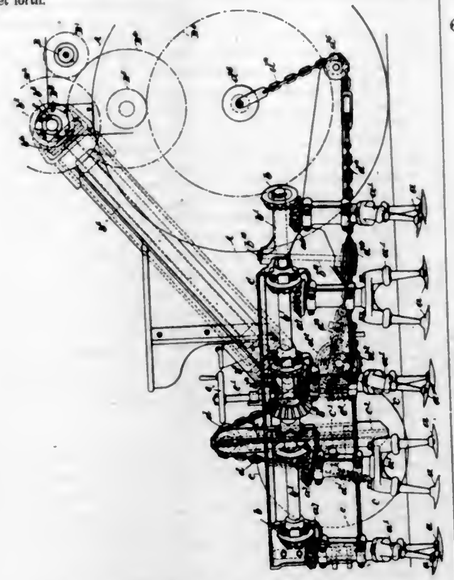
661,307. IMPLEMENT FOR CULTIVATING LAND. THOMAS C. DARBY, THOMAS A. DARBY, and SIDNEY C. DARBY, Pleshey, England. Filed Dec. 21, 1899. Serial No. 741,104. (No model.)

Claim.—1. In an implement for digging and cultivating land, and in combination, a digging-frame, vertical guides carried by said frame, a frame rocking in said vertical guides, an axle carried by the rocking frame and a carrying-wheel mounted on said axle, substantially as set forth.

2. In an implement for digging or cultivating land the combination with a V-shaped or diverging frame and rigid support therefor, of a series of approximately vertically placed axes, spaced apart in said frame, a series of forks and disks on the free ends thereof, carried by said axes, and means for simultaneously rotating the said axes with the forks and disks, substantially as set forth.

3. In an implement for digging or cultivating land the combination with a supporting-frame, of axes passing through said frame, forks connected to the lower ends of said axes, axes passing through the fork-arms, disks mounted on the ends of the said axes, means for rotating the forks and means for simultaneously rotating the axes and the disks, substantially as set forth.

4. In an implement for digging or cultivating land the combination with a supporting-frame, of axes passing through said frame, forks connected to the lower ends of said axes, axes passing through the fork-arms, disks mounted on the ends of said axes, means for rotating the forks, gears upon the axes of the disks and a fixed gear on the frame whereby the disks are rotated independent of the forks, substantially as set forth.



5. In an implement for digging or cultivating land, the combination of a V-frame, carrying-chains attached at one end to the engine, guide-pulleys for said chains attached to the V-frame, and spring-pulleys to which the other ends of the chains are attached and around which they can be wound, substantially as set forth.

6. In an implement for digging or cultivating land, the combination of a V-shaped digging-frame, vertical guides carried by said frame, a cross-bar sliding in the upper portions of said vertical guides, a roller mounted at the center of said cross-bar, pulleys mounted at the ends of said cross-bar, chains passing over said pulleys attached to the V-frame, a frame rocking in said vertical guides, an axle carried by the rocking frame, and a carrying-wheel mounted on said axle, substantially as set forth.

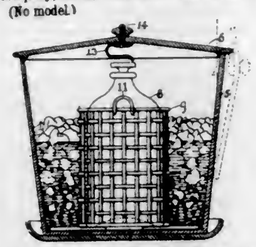
7. In an implement for digging or cultivating land, the combination of a main driving-shaft on an engine, toothed wheels and a cross-shaft receiving motion from said driving-shaft through the toothed wheels, a bevel-pinion mounted on said cross-shaft, an inclined shaft having a bevel-pinion at each end thereof, and driven by said cross-shaft, a cross-shaft mounted on the V-frame having a bevel-pinion on each end thereof and driven by the inclined shaft, shafts along each side of the V-frame, bevel-pinions on said shafts, rotating forks driven by said bevel-pinions and carried by the V-frame, and disks mounted on the ends of said rotating forks, substantially as set forth.

8. In an implement for digging or cultivating land the combination of a V-shaped or diverging frame, a series of revoluble forks and axes mounted in said frame and means for operating the same, of a hinge adjacent to each free end of said V-shaped frame, a separate end section to said frame connected to said hinge, a revoluble fork and disks mounted upon each of said sections and means for operating the same.

9. In an implement for digging or cultivating land, the combination with a V-shaped or diverging frame and shafts along each side thereof, a series of revoluble forks and disks mounted in said frame and means for operating same, of a hinge adjacent to each free end of said V-shaped frame, a separate end section to said frame connected to said hinge, a shaft-section in each end section adapted to couple with the ends of the aforesaid shafts, a revoluble fork and disks mounted upon each of said sections and means for operating the same.

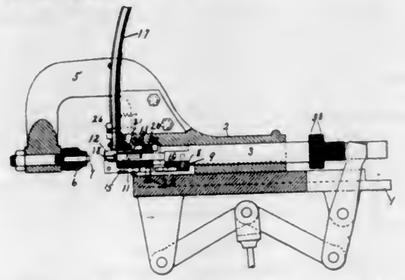
10. In an implement for digging or cultivating land, the combination of a V-frame, carrying-chains attached at one end to the engine, guide-pulleys for said chains attached to the V-frame, spring-pulleys to which the other ends of the chains are attached and around which they can be wound, other chains also attached to said spring-pulleys and passing over pulleys to the rear part of the V-frame, a cross-bar carrying said pulleys, vertical guides attached to the V-frame in which the cross-bar slides, a roller mounted at the center of said cross-bar, a rocking frame on which said roller rests and which is controlled by vertical guides, an axle carried by the rocking frame, and a carrying-wheel mounted on said axle, substantially as shown and described.

661,308. BOTTLE-COOLER. ELDRIDGE W. ESTES, Hoboken, N. J., and FREDERICK A. EMERICK, Oswego, N. Y., assignors to the Great Bear Spring Company, Jersey City, N. J. Filed May 2, 1900. Serial No. 15,208. (No model.)



Claim.—A bottle-cooler consisting in the combination with a receptacle or jacket, of a removable bottle-cell formed of wire-net and having loops of wire secured across its bottom and projected beyond the walls thereof to the walls of the receptacle for the purpose of centering the cell within the receptacle, substantially as set forth.

661,309. BUTTON-SETTING MACHINE. GEORGE W. GWINN and HENRY C. SMITH, Baltimore, Md., assignors to the Raymond Button Company of Baltimore City, of Maryland. Filed Jan. 5, 1900. Serial No. 489. (No model.)



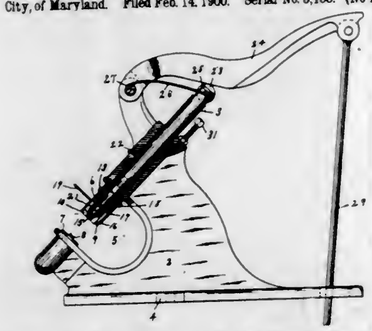
Claim.—1. In a button-setting machine, the combination of a chuck, 11, having two jaws, 12, pivoted to the lower surface thereof and having their front ends projecting upward flush with the top of the said chuck; a longitudinally-reciprocal plunger which on its preliminary traverse carries the chuck and jaws forward, and having a plate, 8, on its lower surface, provided with two beveled fingers, 10, which fingers when the plunger makes its final traverse take on the outer sides of the said jaws at the rear ends thereof forcing the rear ends together and thereby opening the front ends and releasing the staple after being secured to the button; and means to operate the said plunger.

2. In a button-setting machine, the combination of a chuck, 11, having two jaws, 12, pivoted to the lower surface thereof and having their front ends projecting upward flush with the top of the said chuck; a longitudinally-reciprocal plunger which on its preliminary traverse carries the chuck and jaws forward, and having a plate, 8, on its lower surface provided with two beveled fingers, 10, which fingers when the plunger makes its final traverse take on the outer sides of the said jaws at the rear ends thereof forcing the rear ends together and thereby opening the front ends and releasing the staple after being secured to the button; means to operate the said plunger; an arm, 5, provided with a clencher, 7, against which the staples are forced by the plunger, 3; and means to close the jaws, 12, after being released from the said fingers, 10.

3. In a button-setting machine, the combination of a chuck, 11, having two jaws, 12, pivoted to the lower surface thereof and having their front ends projecting upward flush with the top of the said chuck; a longitudinally-reciprocal plunger which on its preliminary traverse carries the chuck and jaws forward, and having a plate, 8, on its lower surface provided with two beveled fingers, 10, which fingers when the plunger makes its final traverse take on the outer sides of the said jaws at the rear ends thereof forcing the rear ends together and thereby opening the front ends and releasing the staple after being secured to the button; means to operate the said plunger; a spring to close the said jaws; and means to feed the staples to the chuck.

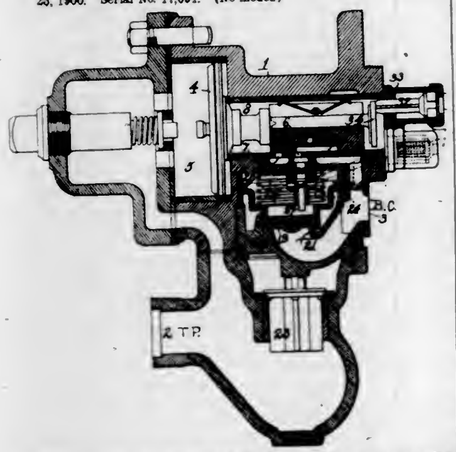
4. In a button-setting machine, the combination of a base, 2, provided with an arm, 5; a plunger, 3, longitudinally reciprocal within the said base; a chuck, 11, having two jaws, 12, pivoted to the lower surface thereof; a plate, 8, secured to the lower surface of the said plunger and having fingers, 10, which when the plunger moves forward force the rear ends of the jaws together, thereby opening the front ends thereof to release the staple; a spring, 22, to close the said jaws when released from the fingers, 10; a clencher 7, secured to the arm, 5, and on a plane with the plunger; and means to operate the said plunger.

661,310. **BUTTON-SETTING MACHINE.** GEORGE W. GWINN, Baltimore, Md., assignor to the Raymond Button Company of Baltimore City, of Maryland. Filed Feb. 14, 1900. Serial No. 5,133. (No model.)



Claim.—In a button-setting machine, the combination of the plate, 2; a plunger, 3, reciprocating within the said plate and having a recess, 14, in its front end; a chuck, 6, having two jaws, 10, pivoted thereto, the said jaws having their facing surfaces concaved and tapering to a point; a screw, 13, extending through the said chuck and projecting into the recess, 14, of the plunger, whereby the latter is allowed to move a limited distance without moving the said chuck; an adjustable plate, 16, secured by one end to the plate, 2, and projecting outwardly below the chuck, 6, said plate, 16, having an elongated slot, 17, therein; and a screw, 18, secured to the said chuck and projecting through the said slot, 17, in the plate, 16, whereby the chuck is carried forward when the plunger makes its preliminary traverse and is held securely when the plunger makes its final traverse.

661,311. **FLUID-PRESSURE BRAKE.** MAURY W. HIBBARD, Chicago, Ill., assignor to Richard Fitzgerald, same place. Filed May 23, 1900. Serial No. 17,691. (No model.)



Claim.—1. In a brake mechanism, a triple-valve device operating in a chamber to control ports and passages between an auxiliary reservoir, a brake-cylinder and the atmosphere, and an auxiliary emergency-valve operating alone in a second chamber and opened by said triple-valve device in emergency action by a release of fluid under pressure from such second chamber, in combination with means for maintaining in the auxiliary reservoir the high pressure as equalized in emergency action.

2. In a brake mechanism having a triple valve operative in a chamber and an auxiliary emergency-valve operating in a second chamber and opened by said triple-valve device in emergency action by a release of fluid under pressure from such second chamber, in combination with means for maintaining in the auxiliary reservoir the high pressure as equalized in emergency action and means for connecting the triple-valve chamber and the brake-cylinder in emergency action.

3. In a brake mechanism having a triple valve operative in a chamber and an auxiliary emergency-valve operating in a second chamber and opened by said triple-valve device in emergency action by a release of fluid under pressure in combination with means for maintaining in the auxiliary reservoir the high pressure as equalized in emergency action, means for connecting the triple-valve chamber and the brake-cylinder in emergency action; and a pressure-reducing device to reduce the pressure in the brake-cylinder, and triple-valve chamber to any predetermined amount.

4. In a brake mechanism having a piston-actuated slide-valve operative in a main chamber to govern the brake-release and the service application of the brakes and an auxiliary emergency-valve controlled by the slide-valve and operating in a chamber to govern the local exhaust of pressure from the train-pipe, said slide-valve having a port which in emergency action connects the brake-cylinder with the main chamber and having a recess for connecting the emergency-chamber on one side of the emergency-valve to the atmosphere to open such emergency-valve, in combination with means for maintaining in the auxiliary reservoir the high pressure as equalized in emergency action.

5. In a brake mechanism having a triple valve operative in a chamber to govern the brake-release and service application of the brakes, a piston-actuated auxiliary emergency-valve operative in a second chamber, controlled by the triple valve and opened upon the release of fluid under pressure from one side of the piston, a passage between the auxiliary reservoir and the emergency-valve chamber on the other side of the piston, in combination with means for maintaining in the auxiliary reservoir the high pressure as equalized in emergency action, means for reducing the brake-cylinder pressure to a predetermined amount and means for connecting the brake-cylinder and the triple-valve chamber in emergency action.

6. In a brake mechanism having a triple valve operative in a chamber, a piston-actuated emergency-valve operative in a second chamber and opened upon the release of fluid under pressure from one side of the piston, a passage between the auxiliary reservoir and the emergency-valve chamber said last-named chamber having an outlet through which said release takes place, and a valve closing such outlet after the emergency-valve is opened.

7. In a brake mechanism having a triple valve operative in a chamber, a piston-actuated auxiliary emergency-valve operative in a second chamber and opened upon the release of fluid under pressure from one side of the piston, such second or emergency-valve chamber having an outlet-passage through which said release takes place and a valve governing said outlet-passage and contacted by the emergency-valve in its movement when opened and causing a closing of the outlet-passage.

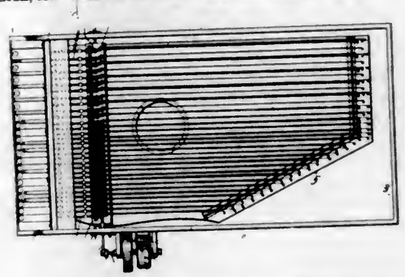
8. In a brake mechanism having a piston-actuated slide-valve operative in a chamber, a piston-actuated auxiliary emergency-valve operative in a second chamber, and opened upon the release of fluid under pressure from one side of the piston, such second or emergency-valve chamber having an outlet-passage through which said release takes place, a valve governing said outlet-passage and closing the same after the emergency-valve has opened, said slide-valve governing such release from the emergency-valve chamber, a check-valved passage between the auxiliary reservoir and the emergency-valve chamber opening on the other side of the piston therein, valve mechanism between the triple-valve chamber and the auxiliary reservoir, providing open communication therebetween in "running" and "service" positions but closing such communication in emergency action, the slide-valve having a port or passage which in emergency action establishes communication between the brake-cylinder and the triple-valve chamber, and a pressure-reducing valve to reduce the pressure in the brake-cylinder and triple-valve chamber to a predetermined amount.

9. In a brake mechanism having a piston-actuated slide-valve governing the brake-release and service application of the brakes, a piston-actuated auxiliary emergency-valve of the type operated in a chamber by a release of pressure from such chamber and under the control of said slide-valve, in combination with valve mechanism for cutting off communication between the auxiliary reservoir and triple-valve chamber, the triple-valve chamber having a supplemental release-port 9 and a supplemental brake-cylinder port 12 and the slide-valve having a supplemental recess 14 adapted to connect ports 9 and 12 after a preliminary return travel of the slide-valve succeeding emergency action.

10. In a brake mechanism having a piston-actuated slide-valve operating in a chamber and governing the brake-release and service application of the brakes, such slide-valve having recesses 14, 15 and 16, and passages 17 and 18 and governing exhaust-ports 9 and 10, an emergency-valve-chamber port 11, and brake-cylinder ports 12 and 13, a valve governing communication between the slide-valve chamber and the auxiliary reservoir and held open by such slide-valve except in emergency action, a piston-actuated emergency-valve operating in a chamber which has a passage 26 communicating with port 11 and governed by recess 16, a valve working in passage 26 and seated therein by contact of the emergency-valve therewith in emergency action and a check-valved passage 24 from the auxiliary reservoir to the emergency-valve chamber and entering such chamber on the side of the piston opposite to that on which the passage 26 leads.

11. In a brake mechanism having a piston-actuated slide-valve operating in a chamber and governing the brake-release and service application of the brakes, a piston-actuated auxiliary emergency-valve of the type operated in a chamber by a release of pressure from such chamber, said slide-valve having means for releasing the pressure from one side of the emergency valve piston, a passage 24 from the auxiliary reservoir to the emergency-valve chamber on the other side of the piston therein, a check-valve in such passage to check return of fluid under pressure to the auxiliary reservoir, in combination with a valve governing the communication between the slide-valve chamber and the reservoir and maintained open by the slide-valve except in emergency action, such slide-valve having a port connecting the slide-valve chamber with the brake-cylinder in emergency action whereby the pressure in the slide-valve chamber equals the brake-cylinder pressure and the release can be effected by a restoration of train-pipe pressure equal to brake-cylinder pressure.

661,312. **MUSICAL INSTRUMENT.** CHRISTIAN HOGREBE, St. Louis, Mo. Filed Feb. 12, 1900. Serial No. 4,913. (No model.)



Claim.—1. A device of the class described, comprising a body, a cithern carried in said body, a strip supported by said body, means for reciprocating said strip, wires supported by the forward end of said body, picks carried by said wires, and means whereby said picks are operated when the said reciprocating strip is moved, substantially as specified.

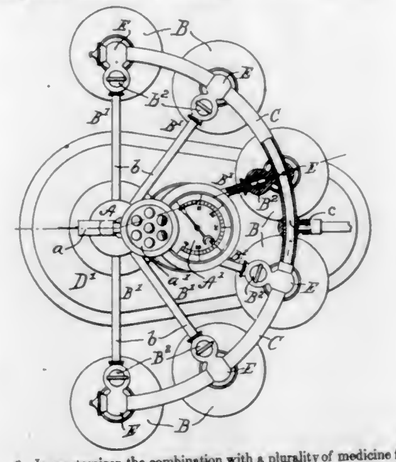
2. A device of the class described, comprising a body, a cithern carried in said body, a plurality of picks supported in the forward end of said body, a strip supported in said body, a foot-lever, connections between said foot-lever and said strip, and means whereby the picks are moved by the operation of said strip, substantially as specified.

3. A device of the class described, comprising a body, a cithern carried in said body, a reciprocating strip supported by said body above the said cithern, a strip carried by the forward end of said body in front of the first-mentioned strip, wires carried by said forward strip, picks carried by said wires and projecting through apertures in the first-mentioned strip, levers for operating said picks, keys for operating said levers, and means for operating the said reciprocating strip, substantially as specified.

661,313. **ATOMIZER.** OLIN Q. HOLMAN, La Grange, Ill. Filed June 28, 1897. Serial No. 642,664. (No model.)

Claim.—1. In an atomizer, the combination with a plurality of medicine flasks or bottles, an air-chamber provided with an air-supply opening, atomizing-tubes which connect said air-chamber with said flasks or bottles, valves which control said atomizing-tubes and a discharge-tube from said flasks or bottles, of a standard upon which the elements of said atomizer are supported, the air-chamber being formed in said standard and the flasks or bottles and the discharge-tube being supported on tubular arms secured in the walls of said air-chamber, said tubular arms forming sections of the atomizing-tubes, substantially as described.

2. In an atomizer, the combination with a plurality of medicine flasks or bottles, an air-chamber provided with an air-supply opening, atomizing-tubes which connect said air-chamber with said flasks or bottles, valves which control said atomizing-tubes, and a discharge-tube from said flasks or bottles, of a standard upon which the elements of the atomizer are supported, the air-chamber being supported directly upon said standard and the flasks or bottles and the discharge-tube on tubular arms secured in the walls of said air-chamber, said tubular arms forming sections of the atomizing-tubes, substantially as described.

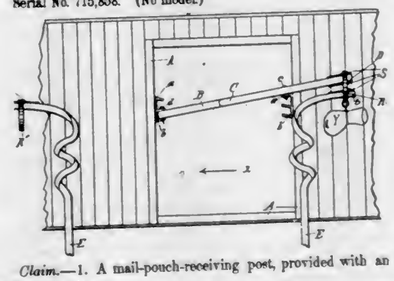


3. In an atomizer, the combination with a plurality of medicine flasks or bottles, an air-chamber provided with an air-supply opening, atomizing-tubes which connect said air-chamber with said flasks or bottles, valves which control said atomizing-tubes, a pressure-regulating valve and a pressure-gage applied to said air-chamber and a discharge-tube, which communicates directly with said flasks or bottles, of a standard upon which said elements are supported, the air-chamber being supported directly upon said standard and the flasks or bottles and the discharge-tube on tubular arms secured in the walls of said air-chamber, and radiating therefrom, said tubular arms forming sections of the atomizing-tubes, substantially as described.

4. A spray-tube provided with an air-passage extending downward from the upper end, a liquid-passage extending upward from the lower end, an intervening partition and fine outlets from the proximate ends of these two passages converging to a spray-hole, the said hole and converging outlets being all within the outer surface of the external cylindrical wall of the said tube and obviating the need of a lateral nozzle or other projection or projections, from the side of the said tube, substantially as set forth.

5. A spray-tube provided with an air-passage extending downward from the upper end, a liquid-passage extending upward from the lower end, an intervening partition and fine outlets from the proximate ends of these two passages, converging to a spray-hole, the liquid-outlet being inclined upward and the air-outlet approximately horizontal in order that the liquid may be blown upward obliquely in the act of vaporization and finely divided, substantially as set forth.

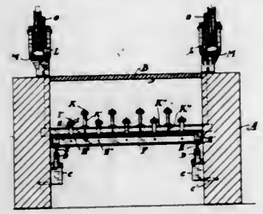
661,314. **MAIL-POUCH CATCHER AND DELIVERER.** CHRISTIAN HOLSTEIN and HANS H. SIEH, Millard, Nebr. Filed May 6, 1899. Serial No. 715,858. (No model.)



Claim.—1. A mail-pouch-receiving post, provided with an upper spiral termination.

2. The combination with a lever provided with two extensions, said extensions being so arranged that one comes above, and the other below a plane passing centrally between said ends, posts provided with spiral ends the terminations of which come intermediate of said ends, and pouch-holders removably adapted to be secured to the upper end of said lever and to said post, all arranged substantially as and for the purpose set forth.

661,315. LEER. ULGIS HOUZE, Muncie, Ind. Filed Mar. 28, 1900. Serial No. 10,432. (No model.)



Claim.—1. In a leer, the combination with a lifting-frame carrying the lifting-bars and means for raising and lowering the lifting-frame, of a carrying-frame supporting the carrying-bars, boxes supported on opposite sides of the leer, a flanged wheel in each box having an axle resting on the upper edge of the box, the periphery of the wheel adapted to support the carrying-frame, and means for limiting the movement of the wheel in the box.

2. In a leer, the combination with a lifting-frame carrying the lifting-bars and means for raising and lowering the lifting-frame, of a carrying-frame supporting the carrying-bars, boxes supported on opposite sides of the leer, a flanged wheel in each box having an axle resting on the upper edge of the box, the periphery of the wheel adapted to support the carrying-frame, and shoulders on the opposite ends of the edges of the box to limit the movement of the wheel therein.

3. In a leer, the combination with a lifting-frame carrying the lifting-bars, of a carrying-frame supporting the carrying-bars, boxes on opposite sides of the leer, a flange on the boxes extending into the side walls to support the same, and a wheel rollingly mounted in each box for supporting the carrying-frame.

4. In a leer, the combination with a lifting-frame carrying the lifting-bars, of a carrying-frame consisting of inverted side rails, cross-bars connecting the side rails, uprights carried by the cross-bars, carrying-bars supported on the uprights, boxes on opposite sides of the leer, and a wheel rollingly mounted in each box on which the side rails of the carrying-frame rest.

5. In a leer, the combination of a lifting-frame and a carrying-frame, cross-bars for each frame, uprights extending from the cross-bars, lifting and carrying bars formed with a horizontal base and vertical portions, and a complementary seat on the uprights in which the bars are adapted to be slid and held in position.

6. In a leer, the combination in a carrying-frame, of inverted side rails, cross-bars connecting the side rails, each bar consisting of two portions spaced apart, clips for securing the cross-bars to the side rails, uprights secured between the two portions of the cross-bars, and carrying-bars supported by the uprights.

7. In a leer, the combination of a lifting-frame and a carrying-frame, cross-bars for each frame consisting of two portions spaced apart, uprights having their lower ends bifurcated and extending down between the two portions of the cross-bars, a bolt passing through the bifurcations of the uprights and the two portions of the cross-bars for securing the cross-bars and uprights together, and lifting and carrying bars carried by the uprights of each frame respectively.

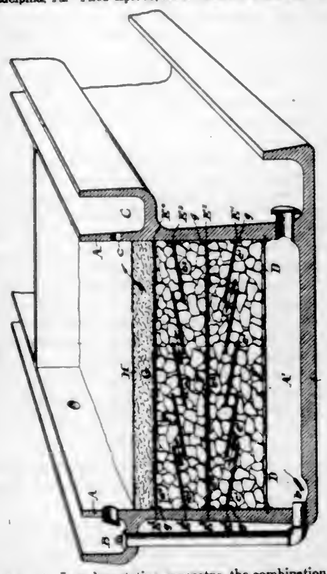
8. In a leer, the combination of a lifting-frame and a carrying-frame, cross-bars for each frame, each bar consisting of two channel-bars spaced apart, uprights having their lower ends bifurcated and extending down between the two portions of the cross-bars, a shoulder on the uprights resting on the top of the cross-bars, a bolt passing through the bifurcations of the uprights and the two portions of the cross-bars for securing the cross-bars and uprights together, and lifting and carrying bars carried by the uprights of each frame respectively.

9. In a leer, the combination with a lifting-frame, of wheels journaled above the leer and on opposite sides thereof, chains connecting the wheels to the opposite sides of the lifting-frame, flexible connections between the wheels, and means located at the rear end of the leer connected with the flexible connections for simultaneously rotating the wheels.

10. In a leer, the combination with a lifting-frame, of wheels journaled above the frame and on opposite sides thereof, flexible connections between the wheels and opposite sides of the lifting-frame, a shaft positioned across the rear end of the leer, a pulley on each end of the shaft, flexible connections between these pulleys and the wheels on the top of the leer, and a lever for rotating the shaft.

11. A leer-bar formed with a horizontal and vertical portion, a heat-non-conducting material fitted over the bar but leaving a space between it and the upper edge of the vertical portion of the bar and provided with shoulders which rest upon the horizontal portion of the bar.

661,316. DECANTATION APPARATUS. JEAN A. MAIGNEN, Philadelphia, Pa. Filed Apr. 18, 1900. Serial No. 13,294. (No model.)



Claim.—1. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, and coarse granular material interposed between said diaphragms, substantially as set forth.

2. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, and geometrical blocks or fragments of material interposed between said diaphragms, substantially as set forth.

3. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, coarse granular material interposed between said diaphragms, a layer of buoyant elastic material above the upper diaphragm, and means to prevent the displacement of said buoyant material, substantially as set forth.

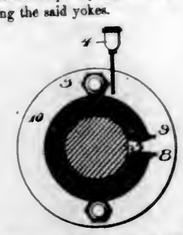
4. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, the lateral direction of inclination of said plates or tiles being different in the adjoining diaphragms, and coarse granular material interposed between said diaphragms substantially as set forth.

5. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, the lateral direction of inclination of said plates or tiles being different in the adjoining diaphragms, coarse granular material interposed between said diaphragms, a layer of buoyant elastic material above the upper diaphragm, and means to prevent the displacement of said buoyant material, substantially as set forth.

6. In a decantation apparatus, the combination with an inclosing casing, of an inlet for liquid at the bottom of said casing, an outlet for liquid at the top of said casing, a series of diaphragms comprising courses of plates or tiles slightly inclined in an upward direction, the lateral direction of inclination of said plates or tiles being different in the adjoining diaphragms, coarse granular material interposed between said diaphragms, and elastic material between the edges of said diaphragms and the adjoining wall of said inclosing casing, substantially as set forth.

661,317. LUBRICATOR FOR PUMP OR PISTON RODS. JOHN MCBRIDE, McKee's Rocks, Pa. Filed Mar. 12, 1900. Serial No. 8,304. (No model.)

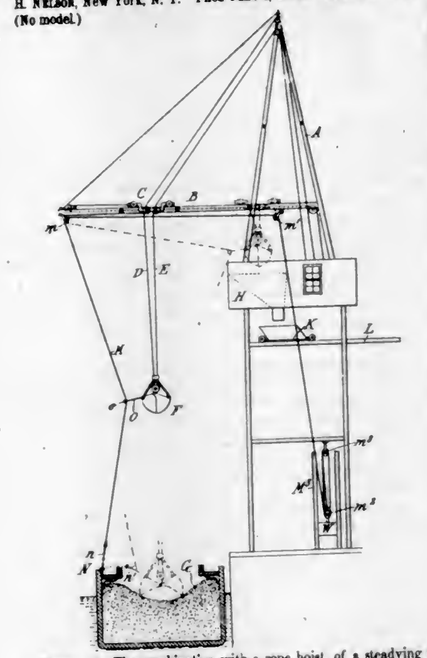
Claim.—1. A lubricating device comprising in its construction a pair of substantially circular-shaped spring clasping-yokes, and a fibrous packing entirely covering the said yokes.



2. A lubricating device consisting of a suitable piece of spring-wire bent to form a pair of spring clasping-yokes connected together and suitably surrounded by a fibrous packing.

3. In a lubricating device for piston-rods and the like, a piece of spring-wire bent to form a pair of substantially circular-shaped spring-yokes in alinement with each other, and a fibrous packing surrounding the said yokes.

661,318. STEADYING DEVICE FOR ROPE HOISTS. WALTER H. NELSON, New York, N. Y. Filed June 4, 1900. Serial No. 18,946. (No model.)



Claim.—1. The combination with a rope hoist, of a steadying device acting in a substantially horizontal direction during the operation of the hoist, said steadying device having an automatic tension device for maintaining its tension.

2. The combination with a rope hoist, of a yielding guide therefor, said guide being substantially parallel to the travel of the load, and an automatic tension device tending to hold said guide taut.

3. The combination with a rope hoist, of a yielding guide therefor, said guide being substantially parallel to the travel of the load, and an automatic tension device tending to hold said guide taut, the load being engaged with said guide by a traveling engagement.

4. The combination with a rope hoist, of a guide therefor, said guide being fixed at one end, and an automatic tension device attached to said guide at the other end.

5. The combination with a rope hoist, of a guide therefor, said guide being fixed at one end, and an automatic tension device attached to said guide at the other end, the load being engaged with said guide by a traveling engagement.

6. The combination with a rope hoist, of a guide therefor, said guide being fixed at one end, an automatic tension device attached to said guide at the other end, and a guy running from the load to said guide and engaged with said guide by a traveling engagement.

7. The combination with a rope hoist, of an automatic steadying device exerting a substantially horizontal force on the load toward the lower end of its travel, said steadying device having an automatic tension device for maintaining such horizontal force substantially constant.

8. The combination with a rope hoist, of a guide therefor, said guide being fixed at its lower end, and an automatic tension device attached to said guide at its upper end, the load being engaged with said guide by a traveling engagement.

9. The combination with a rope hoist, of a support extending over the material to be hoisted, a guide extending from a point on said support to a point adjacent to said material, said guide being fixed at one end and running at its other end over a pulley and thence to a weight, and a guy running from one side of the load to said guide.

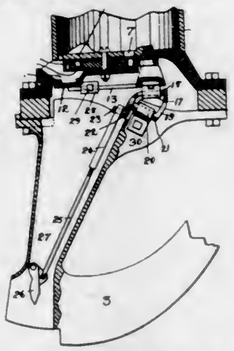
10. The combination with a rope hoist, of a support extending over the material to be hoisted, a guide extending from a point on said support to a point adjacent to said material, said guide being fixed at one end and running at its other end over a pulley and thence to an automatic tension device, and a guy running from one side of the load to said guide.

11. The combination with a rope hoist, of a support extending over the material to be hoisted, a guide adapted for attachment at its lower end to a point adjacent to the material to be hoisted and running at its upper end over a pulley on said support and thence to a weight, and a guy running from one side of the load to said guide.

12. The combination with a rope hoist, of a support extending over the material to be hoisted, a guide adapted for attachment at its lower end to a point adjacent to the material to be hoisted and running at its upper end over a pulley on said support and thence to a fixed point, a weight supported by said line intermediate of said pulley and said fixed point, and a guy running from one side of the load to said guide.

13. The combination with a rope hoist, of a support extending over the material to be hoisted, a guide adapted for attachment at its lower end to a point adjacent to the material to be hoisted and running at its upper end over a pulley on said support and thence to a weight, and a guy running from one side of the load and traveling on said guide.

661,319. CORN-PLANTER. JOSEPH E. PORTER, Ottawa, Ill. Filed July 16, 1900. Serial No. 23,769. (No model.)



Claim.—1. In a corn-planter, a cut-off valve in combination with its actuating shaker-bar, the latter having a lateral arm 13 on which the valve is adjustably mounted, substantially as specified.

2. In a corn-planter, a cut-off valve in combination with its actuating shaker-bar, the latter having a lateral arm 13 on which the valve is adjustably mounted, and the valve having a frame surrounding the arm and a set-screw for securing it thereon, substantially as specified.

3. The corn-planter having its cut-off valve 12 made adjustable so that it can be moved away from its acting position without detaching it from the shaker-bar, substantially as specified.

4. The combination in a corn-planter, of a flipper-valve, a rocker for actuating the same, and an adjustable connection between the valve and the rocker made in two parts one of which is threaded in the other, substantially as specified.

5. In a corn-planter, the combination with the casting 30 and flipper-valve, of a rocker actuating said valve and receiving motion from the shaker-bar, and a keeper bolted to the casting and bent so as to form a bearing for the pivot of the rocker, substantially as specified.

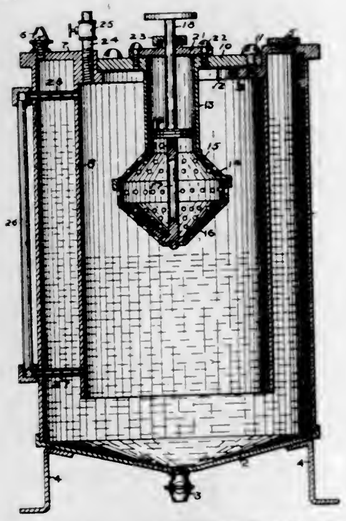
6. In a corn-planter, the combination with the runner-casting 30 and flipper-valve, of a rocker 19 actuating the valve and receiving motion from the shaker-bar, a keeper bolted to the casting and bent so as to form

a bearing for the pivot of the rocker, and an extensible connection between the rocker and said valve, substantially as specified.

7. The combination with the flipper-valve, the runner-casting and the shaker-bar, of a rocker for actuating said valve, of which rocker one member engages the shaker-bar and another member serves as a pivot, an arm on said rocker connected to said valve, and a keeper embracing said pivot and bolted to the casting, substantially as specified.

8. The combination with the flipper-valve and its actuating device, of a connection between the two consisting of male and female parts threaded together, substantially as specified.

661,320. ACETYLENE-GAS GENERATOR. LAFAYETTE D. RAILSBACK, Indianapolis, Ind. Filed Nov. 27, 1899. Serial No. 738,393. (No model.)



Claim.—1. An acetylene-gas generator including a water-tank closed at its upper end, a generating-chamber extending down therein that is open at its lower end, a carbid-holder in said chamber, a closure for charging it through the upper end, and a valve-closed air-vent at the upper end of the water-tank, whereby the water will be held down in the generating-chamber when it is opened at the upper end.

2 An acetylene-gas generator including a water-tank closed at its upper end, a generating-chamber extending down therein that is open at its lower end, a carbid-holder that does not extend to the lower end of the generating-chamber, a closure for charging the carbid-holder through its upper end, an air-vent at the upper end of the water-tank, and means for closing said air-vent air-tight, whereby the water will be held down in the generating-chamber when it is opened at the upper end.

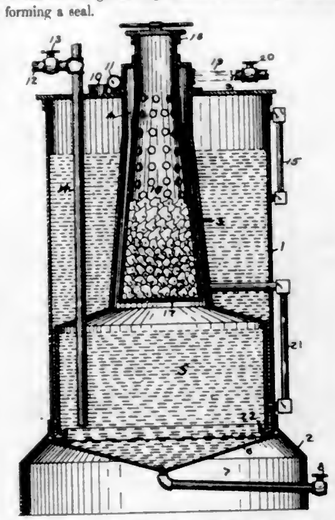
3. An acetylene-gas generator including a water-tank closed at its upper end with a casing depending therefrom to form a generating-chamber, a carbid-holder mounted in said generating-chamber that does not extend to the lower end thereof and whose lower end is so formed as to hold the carbid in a downwardly-tapering body, and a valve-closed air-vent at the upper end of the water-tank.

4. An acetylene-gas generator including a carbid-holder whose upper end is straight and whose lower end is conical, a rotatable scraper mounted in the lower end having a stem extending upward therefrom, a handle extending into the carbid-holder that is detachably connected with the stem of the scraper, and a washer on said handle within the straight portion of the carbid-holder to close the carbid-holder and hold the handle in place.

661,321. ACETYLENE-GAS GENERATOR. LAFAYETTE D. RAILSBACK, Indianapolis, Ind. Filed May 28, 1900. Serial No. 18,292. (No model.)

Claim.—1. An acetylene-gas apparatus including a chamber for generating and holding the gas, a water-tank with its lower end upturned into said chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal and means for closing the upper end of said water-tank air-tight.

2. An acetylene-gas apparatus including a chamber for generating and holding the gas with its lower end open, and a surrounding water-tank with its lower end upturned trough-like into said inner chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal.



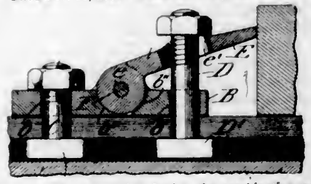
3. An acetylene-gas apparatus including a chamber for generating and holding the gas, a water-tank with its lower end upturned into said chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal means for closing the upper end of said water-tank air-tight, and means for removing the water from the lower end of said inner chamber.

4. An acetylene-gas apparatus including a chamber for generating and holding the gas, a carbid-holder mounted in the upper portion of said chamber, a removable cap for closing the upper end of said carbid-holder, a gas-outlet from the upper end of said chamber, a water-outlet from the lower end thereof, a water-tank with its lower end upturned in said inner chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal and means for closing the upper end of said water-tank air-tight.

5. An acetylene-gas apparatus including a gas-generating chamber, a gas-holder below and communicating with and of greater diameter than the gas-generating chamber, a water-tank with its lower end upturned into the gas-holding chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal an air-vent at the upper end of the water-tank, means for closing the same air-tight, and an open tube leading from the lower end of the gas-holder to the open air.

6. An acetylene-gas apparatus including a gas-generating chamber, a gas-holder below and communicating with and of greater diameter than the gas-generating chamber, a water-tank with its lower end upturned into the gas-holding chamber and open, the walls of the generating-chamber extending into said upturned portion forming a seal an air-vent at the upper end of the water-tank, means for closing the same air-tight, an open tube leading from the lower end of the gas-holder to the open air, and means for supplying the apparatus with water through said open tube.

661,322. WORK-HOLDER OR CLAMP. JACOB RANZ, St. Louis, Mo. Filed Nov. 13, 1899. Serial No. 736,789. (No model.)



Claim.—1. In a clamping device, the combination with an adjustable body portion, of means for locking the same in position, a dog mounted on said body portion, and means independent of said locking device for the body portion for adjusting the position of said dog relative to said body portion, said means also serving to clamp the dog and body portion in position; substantially as described.

2. In a clamping device, the combination with a body portion, of means for locking the same in position, a dog pivoted thereon, and means coöperating with the support for the body portion and the dog, for moving said dog to, and locking the same in, an operative position, said means also serving to clamp the body portion in position on its support; substantially as described.

3. In a clamping device, the combination with a recessed body portion, of a dog formed with an eye fitting in said recess which affords an abutment therefor, means for fastening the body portion in position, and an independently-operable device for exerting pressure on the dog to move the same in an arc of a circle, said independently-operable device also holding the body portion in position; substantially as described.

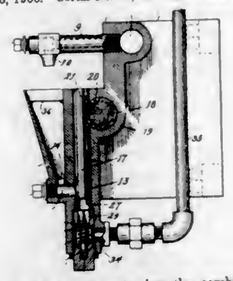
4. In a clamping device, the combination with a body portion, of means for fastening the same in position, a pivoted dog mounted on said body portion, said dog being provided with a slot, and a crown-face on each side of said slot, and a bolt which passes through said body portion through the slot and dog, clamping the device in position and forcing the dog into engagement with the material to be operated upon; substantially as described.

5. The combination with a grooved machine-bed, of a clamping device arranged thereon and comprising the body portion, a plurality of bolts whose heads fit and slide in said grooves, nuts for clamping said body portion in position on the bed, a dog pivoted to said body portion, and a nut on one of said securing-bolts for coöperation with the upper face of said dog; substantially as described.

6. In combination with a machine-bed having formed therein inverted-T-shaped grooves, of a base-block, a pivoted dog or lever mounted thereon, means for clamping the base-block and its carried parts to the machine-bed, and independent means for clamping the dog or lever to the material to be "worked," said last-mentioned means also clamping the base-block and its carried parts to the machine-bed; substantially as described.

7. In a work-holder of the character described, the combination with a base-block, of a pivoted dog or lever mounted thereon, said dog or lever being provided with a slot, a bolt which passes through a suitable perforation in the base-plate and the slot in the pivoted dog or lever, means arranged on said bolt for coöperation with the pivoted dog or lever to move it in the proper direction to cause it to impinge against the material to be held, and at the same time, provide means whereby the work-holder as an entirety is, when said work-holder is in proper position upon a bed of a machine, clamped to the bed of a machine, and additional means arranged on said work-holder for clamping the same upon the bed of a machine; substantially as described.

661,323. OIL-FEEDING MECHANISM. WILBER E. RICHARDSON, Milwaukee, Wis., assignor of one-half to Willis S. Sherman, same place. Filed Aug. 20, 1900. Serial No. 27,446. (No model.)



Claim.—1. In oil-feeding mechanism, the combination of a chamber, a visible feeding mechanism adapted to feed oil into the chamber, forcing mechanism adapted to act on the oil in the chamber, a conduit leading from the chamber, and through which conduit the oil is forced, said conduit leading to the mechanism to be lubricated, and a valve for preventing backflow of the oil.

2. In oil-feeding mechanism, the combination with a visible feeding mechanism for the oil, a receiver adapted to receive the oil from the feeding mechanism, a chamber in communication with said receiver, forcing mechanism adapted to act on the oil in the chamber, a conduit leading from the chamber, and through which conduit the oil is forced, said conduit leading to the mechanism to be lubricated, and a valve for preventing backflow of the oil.

3. In oil-feeding mechanism, the combination of a visible valve-controlled oil-feeding pipe, means for feeding oil to said pipe, a receiver to receive the oil from the oil-pipe, a chamber in communication with said receiver, forcing mechanism adapted to act on the oil in the chamber, and a conduit leading from the chamber, and through which conduit the oil is forced, said conduit extending to the mechanism to be lubricated, and a valve for preventing backflow of the oil.

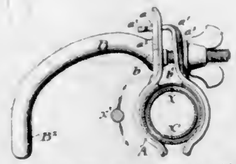
4. In oil-feeding mechanism, the combination, of a visible oil-feeding pipe, means for feeding oil to said pipe, a receiver to receive the oil from the pipe, a plunger working in a suitable cylinder, said cylinder being in communication with the receiver, means for reciprocating the plunger, whereby the amount of oil which is visible is forced to the mechanism to be lubricated, a conduit leading from the cylinder of the pump mechanism to the mechanism to be lubricated, and a valve in the conduit, said valve adapted to move away from its seat upon one stroke of the plunger, in order to permit the oil to be forced through the conduit into the mechanism to be lubricated, and to move toward and against its seat on the reverse stroke of the plunger.

5. In oil-feeding mechanism, the combination of a plate having a series of pump-cylinders therein, valve-chambers in communication with the pump-cylinders, means for feeding oil to the pump-cylinders, plungers in the pump-cylinders, each plunger provided with a series of teeth, a rock-shaft having a series of teeth engaging the teeth of the plungers, said teeth on the rock-shaft being segmentally arranged and continuous along the shaft so as to engage the teeth of the different plungers, the untoothed portions of the shaft presenting a smooth bearing-surface, means for rocking the rocking shaft, valves within the valve-chambers, said valves adapted to move away from their seats upon one reciprocation of the plungers, and to move toward and against their seats upon the opposite reciprocation of the plungers, and conduits leading from the valve-chambers to the mechanism to be lubricated.

6. In oil-feeding mechanism, the combination of a plate formed with a passage into which oil is fed from any suitable source of supply, said plate also formed with an oil-receiver independent of said passage and with a pump-cylinder in communication with said receiver, and said plate further provided with a valve-chamber in communication with the cylinder, a plunger adapted to reciprocate in the pump-cylinder, a visible oil-dripping pipe extending from the feed-passage of the plate and adapted to drip the oil into the receiver, whereby the amount of oil which is visible is forced to the mechanism to be lubricated, a valve in the valve-chamber, and adapted upon one reciprocation of the plunger to move away from its seat, and upon the opposite reciprocation of said plunger to move toward and against said seat, and a conduit leading from the valve-chamber to the mechanism to be lubricated.

7. In oil-feeding mechanism, the combination of visible feeding mechanism for the oil, an open-top receiver to receive the oil from the feeding mechanism, a chamber in communication with said receiver, forcing mechanism adapted to act on the oil in the chamber, a conduit leading from the chamber, and through which conduit the oil is forced, said conduit leading to the mechanism to be lubricated, and a valve for preventing backflow of the oil.

661,324. LAMP-BRACKET. EDWIN M. ROSENBLUTH and ALBERT S. CARTER, Philadelphia, Pa.; said Carter assignor to said Rosenbluth. Filed June 3, 1899. Serial No. 719,202. (No model.)



Claim.—1. In a lamp-bracket, the combination with a clamping-jaw provided with an aperture for a lamp-bearing member, and a longitudinal slot, of a second clamping-jaw provided with an aperture for a lamp-bearing member, and a T-headed lug for engagement with the slot of the first jaw aforesaid, a lamp-bearing member secured against rotation in the aperture of one of said jaws, and provided with a threaded shank entered through the aperture in the other of said jaws, and a nut fitted to said shank to effect the relative adjustment of said jaws, substantially as set forth.

2. In a lamp-bracket, the combination with opposed clamping-jaws of a member comprising at one extremity an adjustable connection for said jaws, and a lamp-bearing at the opposite extremity of said member, the axis of said lamp-bearing being non-coincident with the axis of said adjustable connection, substantially as set forth.

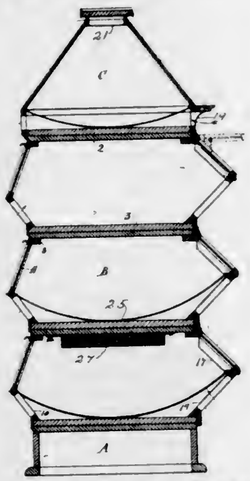
3. In a lamp-bracket, the combination with opposed clamping-jaws, of a member comprising at one extremity an adjustable connection for said jaws, a lamp-bearing at the opposite extremity of said member, the axis of said lamp-bearing being non-coincident with the axis of said adjustable connection, and means to vary the position of said lamp-bearing, with respect to said jaws, and to secure the same in predetermined relation, substantially as set forth.

4. In a lamp-bracket, the combination with two opposed jaws of rigid construction, of a hinge connection between said jaws, a lamp-bearing member having a threaded shank entered through said jaws, a flange upon said member opposed to one of said jaws, a nut upon said shank opposed to the other of said jaws, and a lamp-bearing upon said member, extending beyond said flange, substantially as set forth.

5. In a lamp-bracket, the combination with opposed clamping-jaws of rigid construction, of a hinge connection between said jaws, a member comprising at one extremity an adjustable connection for said jaws and at the other extremity a bearing for the lamp, a flange upon said member intermediate of said jaw connection and said lamp-bearing, and a shoulder adjoining said flange arranged to predetermine the position of said member with respect to one of said jaws, substantially as set forth.

6. In a lamp-bracket, the combination with a member provided at one extremity with a bearing for the lamp, of a flange intermediate of the length of said member, a shoulder adjoining said flange, a jaw removably fitted to said member in relation predetermined by the said shoulder, a second jaw opposed to the first jaw in hinged connection therewith, a screw-threaded shank upon said lamp-bearing member extending through said jaws, and a nut upon said shank, arranged to adjust said jaws independently of said lamp-bearing, substantially as set forth.

661,325. ADJUSTABLE-COMPARTMENT DISPLAY COUNTER OR CABINET. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 31, 1900. Serial No. 3,452. (No model.)



Claim.—1. In a grocer's cabinet of the class described, a compartment consisting of parallel top and bottom and front and rear walls, each of said walls consisting of a lower perforated part, and an upper part projecting outwardly beyond said lower part to protect the perforations thereof from falling dirt.

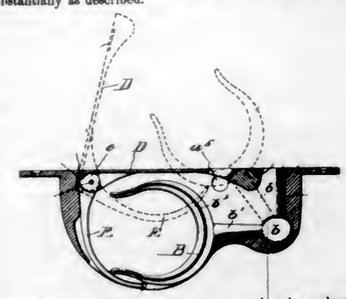
2. A grocer's cabinet of the class described, consisting of a series of sections each of said sections having parallel top and bottom and connecting side walls, the front and rear walls of said sections being each provided with perforations, and means for preventing falling dirt striking said perforations.

3. In a grocer's cabinet of the class described, a compartment provided with perforate sections in its front and rear walls, and a plate arranged horizontally of said compartment above said perforate sections, said plate being centrally curved toward the bottom of said compartment and being perforated.

661,326. ROWLOCK. CHARLES D. SPATES, Roseway, Canada, assignor of one-half to William Curtis Specht, Barton, Canada. Filed Jan. 10, 1900. Renewed Oct. 8, 1900. Serial No. 32,448. (No model.)

Claim.—1. A folding rowlock, comprising a recessed casing, adapted to be inserted in a slot in the gunwale of a boat; a lock pivoted therein; and a lever pivoted to said casing and provided with an arm adapted to raise said lock up into its operative position, substantially as described.

2. A folding rowlock, comprising a recessed casing, adapted to be inserted in the gunwale of a boat; a lock pivoted by a ball-and-socket connection in said recess; a lever pivoted in said casing; and an arm pivoted in said casing and connected to said lever, the lower end of said arm being adapted to engage the lock to raise the same to its operative position, substantially as described.

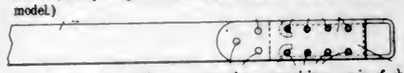


3. A folding rowlock, comprising a recessed casing, adapted to be inserted in the gunwale of a boat; a lock pivoted by a universal joint within the recess of said casing; a lever pivoted in said casing and adapted to close the said recess; a curved arm pivotally connected to said lever and the casing; shoulders on the upper end of said arm, adapted to abut against shoulders formed upon said lever, to limit the movement of said arm; and a hook formed on the lower end of said arm adapted to engage an arm of the lock to raise the same to its operative position, substantially as described.

4. A folding rowlock, comprising a recessed casing, adapted to be inserted in the gunwale of a boat; a lock pivoted therein; and a lever pivoted to said casing and provided with an arm adapted to raise said lock up into its operative position, the outer end of said lever being adapted to be folded down into engagement with the shank of the lock when in its operative position, substantially as described.

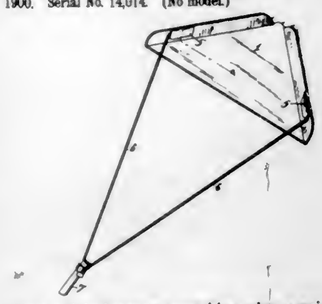
5. A folding rowlock, comprising a recessed casing, adapted to be inserted in the gunwale of a boat; a lock pivoted therein; a lever pivoted to said casing and provided with an arm adapted to raise said lock up into its operative position, the outer end of said lever being adapted to be folded down into engagement with the shank of the lock when in its operative position; and openings formed in the sides of said casing and adapted to receive the bar of a padlock, whereby the lever is locked in its closed position, substantially as described.

661,327. ADJUSTABLE HARNESS-STRAP EXTENSION. JOHN STROHM, Sharpsburg, Pa. Filed Apr. 6, 1900. Serial No. 11,844. (No model.)



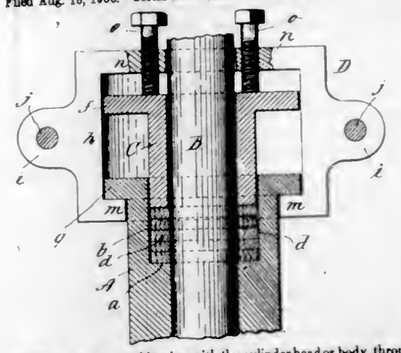
Claim.—An adjustable strap extension, comprising a pair of sheet-metal plates secured to the strap end, a row of pins secured to and between said plates at each side thereof, a wire extension-piece having hooks formed upon its ends to engage said pins, and a casing adapted to engage over said plates to secure the hooked extension in engagement with said pins, combined and arranged as shown and set forth.

661,328. LEAF-PROTECTOR FOR BOOKS. DAVID J. TAYLOR, St. Louis, Mo., assignor to Thomas L. Ely, same place. Filed Apr. 23, 1900. Serial No. 14,014. (No model.)



Claim.—A leaf-protector comprising a plate, a projection 4 integral with said plate, depending sides integral with said plate for fitting against the edges of the leaves, ears integral with said sides, a section of elastic material having its ends held by said ears, and a strip of flexible material for attaching the device to a book, substantially as specified.

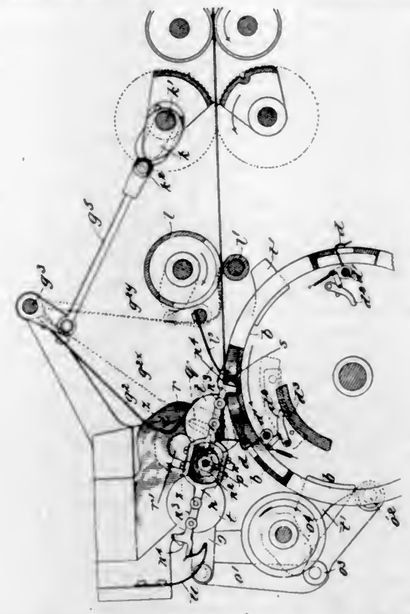
661,329. PACKING-BOX. ROBERT THOMPSON, Holyoke, Mass. Filed Aug. 18, 1900. Serial No. 27,257. (No model.)



Claim.—1. The combination with the cylinder head or body, through which the piston-rod or shaft works, provided with a flange *g*, and having an endwise open annular packing depression, of the annular gland, the end portion of which is entered in said depression, the clamping-casing consisting of separable semicylindrical sections, *h h*, with the internal flanges *m n* the former to engage under said flange *g* and the latter to embrace the shaft outside of the gland, means of detachable connection for said clamp-sections, and the setting-up screws passing the clamp-section flanges *n* to bearing against the end of the gland, substantially as and for the purposes set forth.

2. The combination with the body A, comprising a pump or cylinder head, or the like and having the flange *g*, and the annular depression for packing, of the annular gland C the end of which enters said depression, the clamp D comprising the paired semicylindrical sections *h h* having the matching ear-lugs *i i*, and the inturned semi-annular flanges *m* and *n*, the distance between the inner faces of said flanges being less than the length of the gland, the bolts *j* and nuts j^2 engaged through, and with, said ear-lugs *i*, and the setting-up screws *o o*, threading through the clamp-section flanges against the outer end of the gland.

661,330. PAPER-BAG MACHINE. HERBERT E. WESTERVELT, South Bend, Ind. Filed Aug. 19, 1899. Serial No. 727,788. (No model.)



Claim.—1. In a paper-bag machine, the combination with a folding-bed for receiving the bag-blank, of an expansible defining-plate comprising blades *e e* adapted to be inserted within the bag-blank to define the primary cross-crease and form the diamond fold, means for expanding and moving the defining-plate to fold the upper ply of the blank back upon itself, a gripper *d* disposed in advance of the bag-blank, adapted to engage the forward edge of the lower ply of the bag-blank and hold it down to the folding-bed while the upper ply is being folded back, and means for operating said gripper, substantially as set forth.

2. In a paper-bag machine, the combination with a folding-bed for receiving a bellows-folded bag-blank, of an expansible defining-plate adapted to be entered between the plies of the bag-blank when contracted, means for expanding and moving the plate to fold the upper ply of the blank back upon itself, grippers *c c* adapted to engage the lower ply of the blank to hold it down to the folding-bed and define the creases made in the lower ply while the upper ply is being folded back by the defining-plate, and means for operating said grippers, substantially as set forth.

3. In a paper-bag machine, the combination with a folding-bed for receiving a bellows-folded tubular bag-blank, of an expansible defining-plate consisting of two reciprocally-acting blades or members *e e*, means for entering the contracted defining-plate between the plies of the bag-blank, means for expanding and moving the defining-plate to fold the upper ply back upon itself, a front gripper *d* adapted to engage the central portion of the edge of the lower ply and hold the same down to the folding-bed, side grippers *c c* adapted to be entered at the sides of the blank in the bellows fold thereof, to hold the lower ply down to the folding-bed, said front and side grippers coacting to define the creases of the lower ply when the upper ply is folded over whereby a diamond-folded bag-bottom is formed, and means for operating said grippers, substantially as set forth.

4. In a paper-bag machine, the combination with a folding-bed for receiving a tubular bag-blank, of a reciprocating tongue *g* within the blank, adapted to open the mouth thereof, an auxiliary tongue g^2 adapted to be inserted from the outside into the mouth of the tubular blank to hold the mouth of said blank open as the tongue *g* recedes, means for carrying the tongue g^2 forward as the bag-blank advances, whereby the open mouth of the tube is carried forward farther than can be done by tongue *g*, a folding-plate adapted to be inserted in the mouth of the blank, said tongue g^2 being adapted to transfer the open blank to the folding-plate, and means for operating the folding-plate, whereby a bag-bottom is formed, as set forth.

5. In a paper-bag machine, the combination with means for feeding a tubular bag-blank, of a rotary cylindrical folding-bed adapted to receive the bag-blank, folding mechanism adapted to attack the blank upon the bed and fold the same, a pair of feed-rollers *l l'* adapted to carry the paper tubing forward onto the folding-bed, one of said feed-rollers being mutilated, having a portion of its periphery cut away, whereby the mouth of the bag-blank is permitted to expand as it reaches the cylindrical folding-bed, and means for driving the cylindrical bed and the feed-rollers, the surface speed of the mutilated feed-roller being less than the surface speed of the cylindrical bed, whereby tube sections or blanks of different lengths may be manipulated upon the one cylinder, as set forth.

6. In a paper-bag machine, the combination with means for feeding or advancing a bellows-folded tubular bag-blank, of a folding-bed adapted to receive the bag-blanks one after another as they are fed onto the same end foremost, a rotary carriage *n*, a plurality of expansible folding-plates mounted upon said carriage and adapted to attack the oncoming blanks to fold the same, means for expanding and contracting the folding-plates, and means for rotating the carriage to bring each folding-plate successively into position to attack the advancing blanks, as set forth.

7. In a paper-bag machine, the combination with means for feeding or advancing a bellows-folded tubular bag-blank, of a rotary cylindrical folding-bed for receiving the bag-blanks one after another as they are fed onto the same end foremost, a carriage *n* and a plurality of expansible folding or defining plates projecting radially therefrom adapted when contracted to be inserted within the mouths of the advancing bag-blanks, means for expanding and contracting the folding-plates, a pivotal mounting for the carriage, whereon the same may be rotated to bring one folding-plate after another in position to attack the advancing bag-blanks, and pins or projections *s* on the cylindrical folding-bed for engaging projecting parts of the carriage, whereby, as the cylinder turns, the carriage will be rotated or given a rearward sweep, substantially as and for the purpose set forth.

8. In a paper-bag machine, the combination with a folding-bed for receiving a bag-blank, of a reciprocating tongue *g*, and means for moving the same to and fro within the blank, said tongue being adapted to open the mouth of the blank, an auxiliary tongue g^2 adapted to be inserted into the mouth of the tubular blank and to carry the same forward as the tongue *g* recedes during the further advance of the bag-blank, whereby the open mouth of the tubular bag-blank is carried forward farther than can be done by the inner tongue *g*, a rotatable carriage *n* and a plurality of defining-plates carried thereby, adapted to attack the bag-blanks, means for expanding and contracting the defining-plates, and means

for rotating said carriage to bring one defining-plate after another into position to attack the advancing bag-blanks, substantially as set forth.

9. In a paper bag machine, the combination with a rotary cylindrical folding-bed for receiving a bag-blank, of an expansible defining-plate adapted when contracted to be entered between the plies of the blank, means for expanding the defining-plate and for giving the same a rearward sweep upon its lower edge as an axis to form the primary cross-crease and to fold the upper ply of the blank back against itself, grippers carried by the cylindrical folding-bed for holding the lower ply of the blank down to the folding-bed and for defining the creases formed in the lower ply when the upper ply is folded back, and striking-fingers *f f*, adapted to enter the open mouth of the blank as the defining-plate is beginning its rearward sweep, and to push the inner edges of the bellows fold outwardly to start the formation of longitudinal creases a^2 a^3 in the diamond fold, substantially as described.

10. In a paper-bag machine, the combination with a folding-bed adapted to receive a tubular bag-blank, of a reciprocating tongue and means for moving the same to and fro within the blank, said tongue having distending-fingers upon the end thereof for opening the mouth of the bag-blank, an expansible defining-plate formed of two reciprocally-acting blades or members adapted to be entered within the mouth of the bag-blank as the same is held opened by the distending-fingers of the tongue, means for expanding the defining-plate within the tubular bag-blank and for pressing the lower edge of the expanded plate down against the folding-bed, to form the primary cross-crease, means for giving the defining-plate a rearward sweep about the said lower edge as an axis, whereby the upper ply of the blank is folded back upon itself, means for simultaneously holding the lower ply down to the folding-bed, and means for contracting and withdrawing the defining-plate from the completed fold, as set forth.

11. In a paper-bag machine, the combination with a folding-bed adapted to receive a tubular bag-blank, of an expansible defining-plate formed of two reciprocally-acting blades or members adapted to be entered within the mouth of the advancing bag-blank, means for expanding the defining-plate within the bag-blank and for pressing the lower edge of the expanded plate against the folding-bed, to form the primary cross-crease, a depressing-plate adapted to engage over all the plies of the tubing to hold the same down to the cylinder at the time the defining-plate is expanded, said depressing-plate being thus adapted to assist in preventing wrinkles in the primary cross-crease, means for giving the defining-plate a rearward sweep about its lower edge, as an axis, whereby the upper ply of the bag-blank is folded back upon itself, means for simultaneously holding the lower ply down to the folding-bed and defining the angular creases incident to a diamond fold, and means for contracting and withdrawing the defining-plate from the completed fold, substantially as set forth.

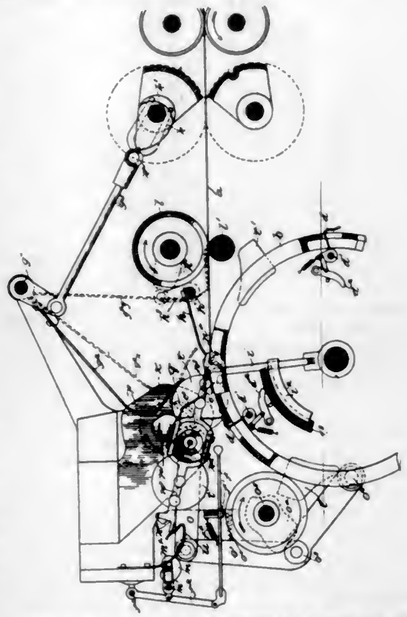
12. In a paper-bag machine, the combination with a folding-bed for receiving the bag-blank, of an expansible defining-plate adapted when contracted to be entered between the plies of the blank and engage the same with the folding-bed, means for expanding and moving the plate about its lower edge as an axis, to fold the upper ply of the blank back upon itself and form the primary cross-crease, a gripper *d* disposed in advance of the bag-blank, adapted to engage the forward edge of the lower ply of the bag-blank and hold it down to the folding-bed while the upper ply is being folded back, and means for operating said gripper, substantially as set forth.

13. In a paper-bag machine, the combination with a folding-bed for receiving a bag-blank, of an expansible defining-plate adapted when contracted to be entered between the plies of the blank and engage the same with the folding-bed, means for expanding and moving the plate about its lower edge as an axis, to fold the upper ply of the blank back upon itself and form the primary cross-crease, grippers *c c* adapted to engage the lower ply of the blank to hold it down to the folding-bed and define the creases made in the lower ply while the upper ply is being folded back by the defining-plate, and means for operating said grippers, substantially as set forth.

661,331. PAPER-BAG MACHINE. HERBERT E. WESTERVELT, South Bend, Ind. Filed Oct. 21, 1899. Serial No. 734,365. (No model.)

Claim.—1. In apparatus for forming the diamond fold in paper-bag machines, the combination with hinged folding members *c* comprising upper and lower wings adapted to enter the side tucks of the bellows-folded blank, of folding-fingers c^3 adapted to enter between the upper and lower wings of said hinged folding members, and means for causing the rearward folding movement of said folding-fingers substantially in the axis of rotation of the hinged members, substantially as described.

2. In apparatus for forming the diamond fold in paper-bag machines, the combination with a central or front gripper, of combined side grippers and hinged folding members *c* comprising upper and lower wings adapted respectively to engage the forward edge and the side tucks of the bag-blank, folding-fingers c^3 adapted to enter between the upper and lower wings of the hinged folding members, and means for rotating said folding-fingers and the upper wings of the hinged folding members rearwardly substantially in the axis of rotation of the movable wings of said hinged members, substantially as described.



3. In apparatus for forming the diamond fold in paper-bag machines, the combination with folding members shaped substantially to conform when opened to the triangular side tucks of the paper bag, of actuating parts c^3, means for causing their operative engagement with and actuation of said folding members, an interiorly-acting defining-plate and gripping mechanism operating in conjunction with said folding members, substantially as described.

4. In apparatus for forming the diamond fold in paper-bag machines, the combination with side-folding members comprising upper and lower wings shaped to conform to the triangular side tucks of a completed bag, the same being adapted to enter the side tucks of the bellows-folded bag-blank, of an expansible defining-plate adapted to enter the mouth of the bag and form the primary cross-crease, a carriage therefor, means for causing its rotation substantially about the edge of the defining-plate, and folding-fingers c^3 mounted upon said carriage adapted to enter between the upper and lower wings of the folding members, substantially as described.

5. In apparatus for forming the diamond fold in paper-bag machines, the combination with grippers adapted to engage the front and sides of the bag-blank and clamp said parts to the folding-bed, of a defining-plate adapted to enter the mouth of the bag-blank, said plate being laterally mutilated or cut away to prevent its engagement with the bag-blank at the intersection of creases a^2 and a^4, and means for rotating the defining-plate with respect to the folding-bed substantially about the line of its outer or engaging edge as an axis, substantially as described.

6. In apparatus for forming the diamond fold in paper-bag machines, the combination with grippers adapted to engage the front and sides of the bag-blank and clamp the same to the folding-bed, of a defining-plate having lateral portions cut away corresponding to the folds or creases a^2 a^4, whereby the bag-blank is relieved from strain, and means for imparting to said defining-plate a rearward sweep or folding movement, whereby tension is placed upon the mouth of the paper-bag blank when the diamond fold is formed, substantially as described.

7. In a machine of the class described, the combination with gripping mechanism adapted temporarily to secure the bag-blank upon the folding-bed, of side-folding members adapted to enter the side tucks of the bellows-folded bag-blank, said members having upper and lower wings conforming in shape to the triangular side tucks to be formed in the completed bag, a defining-plate having lateral portions cut away corresponding to the folds or creases a^2 a^4, whereby the bag-blank is relieved from strain, folding-fingers c^3 adapted to enter between the upper and lower wings of the folding members, and means for imparting to the defining-plate and folding-fingers a rearward sweep or folding movement, whereby tension is placed upon the mouth and tucks of the paper-bag blank when the diamond fold is formed, substantially as described.

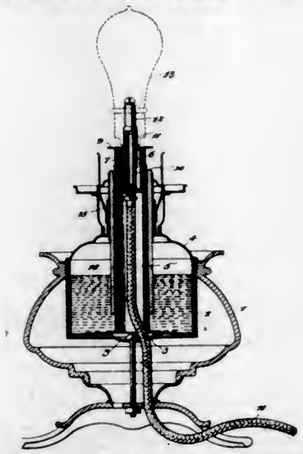
8. In a machine of the class described, the combination with gripping mechanism adapted temporarily to secure the bag-blank upon the folding-bed, of side folding members comprising upper and lower wings adapted to enter the side tucks of the bellows-folded blank, said members being provided with movable wings, folding-fingers c^3 adapted to enter beneath the movable wings of said folding members, an expansible defining-plate adapted to be inserted within the mouth of the bag-blank, and means for causing the rearward folding movement of said folding-fingers and defining-plate substantially in the axis of rotation of the side-folding members, substantially as described.

9. In a machine of the class described, the combination with grippers adapted temporarily to secure the bag-blank in position upon the folding-bed, of an expansible defining-plate adapted to enter the mouth of the bag-blank, said defining-plate having a forward or outer edge adapted to form the primary cross-crease a' and mutilated shoulders adapted to engage the bag-blank throughout a portion only of the length of creases a^2 and a^4, and means for rotating the defining-plate substantially about its forward edge as an axis, substantially as described.

10. In a machine of the class described, the combination with grippers adapted temporarily to secure the bag-blank upon the folding-bed, of a folding member adapted to enter the side tuck of the bellows-folded bag-blank, an expansible defining-plate having lateral portions cut away to relieve the bag-blank from strain, adapted to be inserted in the mouth of said bag-blank, and means for causing the rearward folding movement of said folding member and defining-plate, substantially about the forward edge of the latter as an axis, substantially as described.

11. In apparatus for forming the diamond fold in paper-bag machines, the combination with a gripper adapted to engage the forward end of the lower ply of the bag-blank and clamp the same to the folding-bed, of an expansible defining-plate adapted to enter the mouth of the bag-blank, said plate being laterally mutilated or cut away to prevent its engagement with the bag-blank at the intersection of creases a^2 and a^4, and means for expanding the defining-plate and for rotating the same with respect to the folding-bed, substantially about the line of its outer or engaging edge as an axis, substantially as described.

661,332. LAMP. WILLIAM R. WHITEHEAD, Trenton, N. J., assignor to the American Lamp and Brass Company, same place. Filed Nov. 21, 1899. Serial No. 737,748. (No model.)



Claim.—1. In a central-draft lamp, the combination, with the central draft-tube, of a device for removable connection with the upper end of said draft-tube, having an opening extending therethrough and provided with means at its upper end for the detachable connection therewith of a burner, for the purpose set forth.

2. In a central-draft lamp, the combination, with the central draft-tube, of a flame-spreader, removably connected with the upper end of said tube, provided with a tube connected therewith and extending through its top or cap piece, the upper projecting end of said tube being adapted for the detachable connection therewith of a burner.

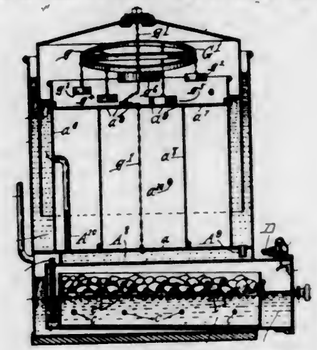
3. In a central-draft lamp, the combination, with the central draft-tube, of a flame-spreader, removably connected with the upper end of the tube, provided with a vertically-arranged tube extending through its top or cap piece and being rigidly connected therewith, the opposite ends of said tube being adapted for the detachable connection therewith of a burner and gas-tube respectively.

4. A flame-spreader for central-draft oil-lamps, provided with a tube connected therewith and extending through one wall thereof, the exterior projecting end of said tube being adapted for the detachable connection therewith of a burner.

5. A flame-spreader for central-draft oil-lamps, provided with an opening extending therethrough and having means adjacent to the upper end of said opening for the connection therewith of a burner, for the purpose set forth.

6. A central-draft oil-lamp provided with a central draft-tube having a cap or device adjacent to its upper end which is provided with an opening extending therethrough and with means adjacent to the upper end of said opening for the connection therewith of a burner, for the purpose set forth.

661,883. ACETYLENE-GAS GENERATOR. GEORGE L. WILSON, Oak Park, Ill. Filed Dec. 2, 1897. Serial No. 660,469. (No model.)



Claim.—1. The combination with a water-chamber and connected generating-chamber, of a superposed gas-holder, a connecting-passage between the generating-chamber and gas-holder, and a drain for said passage consisting of an open depending pipe extending downward into an open cup forming a trap and located within the water-chamber, so that it will fill from and overflow into said water-chamber.

2. The combination with a water-chamber and connected generating-chamber, of a superposed gas-holder, a passage connecting the generating-chamber and gas-holder, a drain for said passage consisting of an open depending pipe, an open cup located within the water-chamber so that it will fill from and overflow into said water-chamber and forming a trap to receive said depending pipe, and a drain-pipe from the gas-holder also depending into said cup.

3. The combination with a generating-chamber having a gas-outlet of a closed water-chamber connected with the generating-chamber, a relief-pipe opening into the water-chamber at a point above the normal level of the water therein from a point in the generating-chamber below the normal level of the water therein, and an open ventilating-pipe leading from the water-chamber.

4. The combination with a generating-chamber having a door of a closed water-chamber connected with the generating-chamber, a relief-pipe opening into the water-chamber from a point in the generating-chamber below the normal level of the water therein, and an open ventilating-pipe leading from the water-chamber, a filling-orifice leading into the water-chamber at a point below the normal water-level therein, means for draining the generating-chamber, and means for flushing the generating-chamber to expel the gas therefrom before opening the door.

5. The combination with a water-chamber of a generating-chamber having a door and connected with the water-chamber by a valved passage, said chambers being so proportioned and arranged that the inflow from the water-chamber when filled will partially fill the generating-chamber, a force-pump having its suction and discharge connected respectively with the water and generating chambers for flooding the latter, and a drain for the generating-chamber.

6. The combination with a generating-chamber and connected water-chamber having a water-inlet of means for adjustably limiting the maximum water-level in said chamber, consisting of an overflow-pipe revolubly mounted in the wall of the chamber with its inner end deflected from its axis of rotation and carrying a trap for containing a water seal against the escape of gas.

7. The combination with a generating-chamber and connected water-chamber having an inlet-passage, of means for adjustably limiting the maximum water-level in the water-chamber, comprising an overflow-pipe

revolubly mounted in the wall of the chamber with its inner end deflected from its axis of rotation and bent to contain a water seal against the escape of gas.

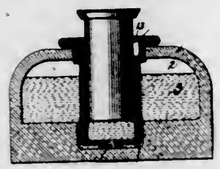
8. The combination with a generating-chamber and connected water-chamber having an inlet-passage, of means for adjustably limiting the maximum water-level in the water-chamber, comprising an overflow-pipe revolubly mounted in the wall of the chamber and having its inner end deflected from its axis of rotation and bent to contain a water seal, stops limiting the rotary movement of the pipe, and an angular bend in the pipe whereby the plane of the water-containing portion is at such an angle with the plane of the extremities that the water seal is maintained throughout the extreme movement of the pipe between the stops.

9. The combination with the water-chamber and inclosed generating-chamber projecting above the normal water-level in said chamber and with a superposed gas-holder provided with a floating bell depending into a water seal, of a separate water-space covering the upper portion of the generating-chamber for cooling the latter, and connections at different levels between said water-space and the sealing-chamber of the gas-holder for securing a circulation of water therethrough.

10. The combination with a generating-chamber in which the water-supply is controlled by the gas-pressure, of a gas-holder provided with a floating bell, a number of weights adapted to be lifted in succession by said bell to increase the pressure as the latter rises, and means for concentrating the pull of said weights upon the bell, consisting of an equalizer loosely suspended centrally from the center of the bell, and separately supporting the several weights.

11. The combination with a generating-chamber in which the water-supply is controlled by the gas-pressure, of a gas-holder provided with a floating bell and a number of weights arranged to be lifted in succession by said bell to increase the gas-pressure as the bell rises, and means for concentrating the pull of said weights upon said bell, consisting of a hoop having a cross-bar and suspended centrally from the bell by the middle of its cross-bar, and links or chains of different lengths connecting the several weights with different points on the hoop.

661,334. **INK-WELL.** FRANK M. ASHLEY, New York, N. Y. Filed June 13, 1900. Serial No. 20,106. (No model.)



Claim.—1. In an ink-well, the combination with the body containing a cistern, of a sleeve removably supported therein and having an opening in its lower end adapted to be sealed by the weight of the sleeve when it contacts with the bottom of the cistern, a float moving in said sleeve, and means for raising the ink in said float by the depression thereof, substantially as described.

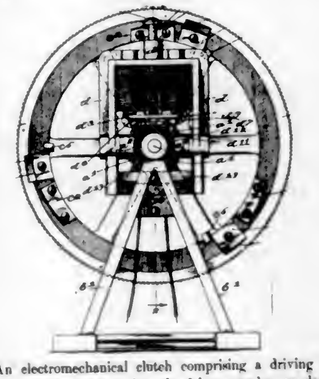
2. In an ink-well, the combination of the body portion containing a cistern, a cylindrical sleeve having its upper end open and its lower end closed with the exception of a small opening therein, said sleeve removably supported in said body portion and resting by gravity therein with its closed end upon the bottom of the cistern, whereby the weight of said sleeve seals the said opening, and a depressible float moving in said sleeve, substantially as described.

3. In an ink-well, the combination of a body containing a cistern, a sleeve open at both ends, the lower opening being relatively small and having tapered sides, said sleeve being adapted to rest upon the bottom of said cistern and thereby close said small opening, and a depressible float moving in said sleeve, substantially as described.

661,335. **ELECTROMECHANICAL CLUTCH.** RUSSELL E. CRYDER, Chicago, Ill., assignor to Charles F. Chapman, same place. Filed Mar. 30, 1900. Serial No. 10,726. (No model.)

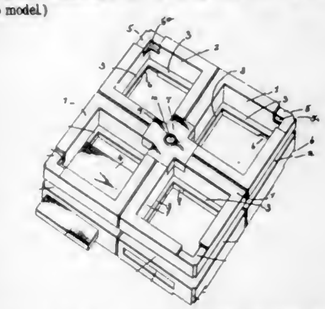
Claim.—1. An electromechanical clutch comprising a driving member, a driven member, an engaging device on one or the other of the members, a means on either of the members for mechanically moving the said engaging device into position for engagement, and an electromagnet for retaining the said device in said engaging position, substantially as set forth.

2. An electromechanical clutch comprising a driving member, a driven member, a movable engaging device on the driven member, a device on the driving member for mechanically moving said engaging device to a position for engagement with the driving member, and an electromagnet for holding said engaging device in said position, substantially as set forth.



3. An electromechanical clutch comprising a driving member, a driven member, a frame pivoted on the driven member, an electromagnet in the said frame, an engaging device, an armature for said magnet for controlling said engaging device, a device on the driving member for lifting said engaging device into an engaging position, and a cam or part of a cam on the driving device whereby said frame is moved on said pivots, into engagement with a driver on the said driving member, substantially as set forth.

661,336. **PAVING OR FLOORING CONSTRUCTION.** GEORGE W. DYARMAN, Columbus, Ohio. Filed Mar. 19, 1900. Serial No. 9,143. (No model.)



Claim.—A paving construction comprising separately-formed frames 1 having keyways in their outer sides and internal ways or grooves 3, bottom plates adapted to slide in said internal ways, key-bars adapted to connect said frames as described and upper and lower bolt-connected clamping-plates adapted to unite the group of said frames at their corners, substantially as specified.

661,337. **BUTTON.** EDWIN GEBHARDT, Cincinnati, Ohio, assignor of one-half to Gustave Fox, same place. Filed June 21, 1899. Serial No. 721,379. (No model.)

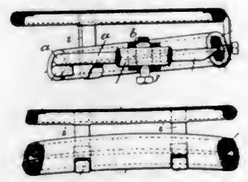


Claim.—1. In a button, a screw-threaded shank, and a separable button-back to be screwed thereon, with a plate carrying teeth or prongs and means for securing said plate loosely to the back so as to rotate freely with reference thereto, substantially as shown and described.

2. In a button, a screw-threaded shank, and a separable back provided with a hub portion and a plate carrying prongs mounted on said hub to rotate freely thereon, said hub being upset or riveted to hold said plate to the back, substantially as shown and described.

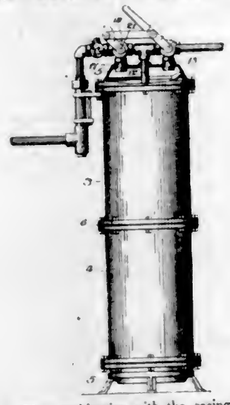
661,338. **BICYCLE-SADDLE.** THOMAS GREEN, Newark, N. J. Filed Oct. 11, 1899. Serial No. 733,304. (No model.)

Claim.—1. The combination with a frame and a clip for connecting the same to the bicycle seat-post, of an auxiliary frame parallel with and located below the aforesaid frame, a yielding tubular envelop inclosing both frames and connecting the same and through the body of which the frames pass, arms from the auxiliary frame extending upward and a frame and leather seat supported thereby, substantially as set forth.



2. The combination with a seat and downwardly-extending arms, of an auxiliary frame of substantially triangular form and connected to the lower end of the arms, a frame of substantially triangular form with parallel inturned ends that are located centrally of the frame and a clip for connecting the said ends to the seat-post, the said frame being located above the auxiliary frame and a rubber tubing arranged parallel with said frames and inside the body of which said frames are placed, the weight of the rider being carried upon the lowermost and auxiliary frame, substantially as and for the purposes set forth.

661,339. **FILTER.** ALBERT R. GREVER, Philadelphia, Pa. Filed May 17, 1900. Serial No. 16,982. (No model.)



Claim.—1. The combination with the casing provided with relatively-arranged inlet and outlet openings, the filtering material in said casing, and a horizontally-disposed plate interposed between the inlet-opening and the filtering material, the upper surface of said plate being provided with channels of different lengths, substantially as described.

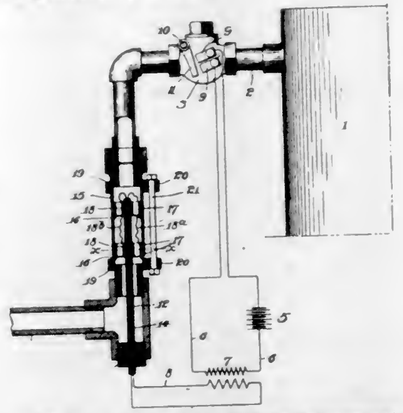
2. The combination with the casing, and the filtering material therein, of the supply-pipe, a stand-pipe leading from the supply-pipe and opening below the filtering material and connected at its upper end with the supply-pipe, inlet and outlet connections between the supply-pipe and the upper part of the casing, said connections being located on the respective sides of the union of the stand-pipe with the supply-pipe and valve mechanism for controlling the said connections, substantially as described.

3. The combination with the casing and the filtering material therein, of the supply-pipe, a stand-pipe leading from the supply-pipe to a point below the filtering material, a series of laterally-extending open branch pipes on the lower end of the stand-pipe, inlet and outlet connections between the supply-pipe and the upper part of the casing, said connections being located on the respective sides of the union of the stand-pipe with the supply-pipe and valve mechanism for controlling the said connections, substantially as described.

4. The combination with the casing, and the filtering material therein, of the supply-pipe, a stand-pipe leading from the supply-pipe and opening below the filtering material and connected at its upper end with the supply-pipe, inlet and outlet connections between the supply-pipe and the upper part of the casing, said connections being located on the respective sides of the union of the stand-pipe with the supply-pipe, three-way valves in said connections, and means for simultaneously setting said valves, substantially as described.

661,340. **MEANS FOR ELECTROLYZING LIQUIDS.** ALBERT R. GREVER, Philadelphia, Pa. Original application filed May 17, 1900, Serial No. 16,982. Divided and this application filed July 18, 1900. Serial No. 23,997. (No model.)

Claim.—1. The combination with a receiver, and a supply-pipe connected therewith, of electrodes in the supply-pipe in advance of said receiver, and electrical connections for said electrodes, together with a valve in said pipe, and means whereby the said connections are controlled by said valve, substantially as described.



2. The combination with a pipe, of two electrically-connected rings of conducting material therein, and two smaller electrically-connected rings therein of like material separated from the other rings, a source of electric energy, and electrical connections between the same and said rings, substantially as described.

3. The combination with a pipe, and a check-valve therein, of electrodes in said pipe, a source of electric energy, electrical connections between the same and said electrodes, and means whereby the electric circuit is controlled by the operation of the check-valve, substantially as described.

4. The combination with a pipe, and a check-valve therein, of electrodes in said pipe, a source of electric energy, an induction-coil, a secondary circuit connected with the electrodes; a normally broken primary circuit, and means whereby the latter circuit is controlled by the operation of the check-valve, substantially as described.

5. The combination with a filter, of a supply-pipe connected therewith, a valve in said pipe in advance of the filter, a source of electric energy, an induction-coil, a primary circuit, a secondary circuit, and electrodes connected with the latter circuit and arranged in the path of the liquid to be filtered, together with means whereby one of said circuits is made and broken by the operation of said valve, substantially as described.

6. The combination with a tubular section of insulating material, of electrically-connected rings of conducting material supported therein, smaller electrically-connected rings of like material contained within said section and separated from the other rings, a support for the inner rings, a source of electric energy, and electrical connections between the same and the respective rings, substantially as described.

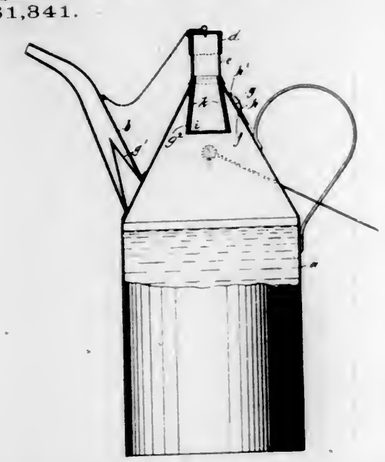
7. The combination with a supply-pipe including a detachable tubular section, of electrically-connected rings of conducting material supported therein, smaller electrically-connected rings of like material contained within said section and separated from the other rings, a perforated column of insulated material extending into said section and supporting the smaller rings, conductors extending through said column and electrically connected with the respective rings, and a suitable source of electric energy, substantially as described.

8. The combination with a tubular section of insulating material, of electrically-connected rings of conducting material supported therein, smaller electrically-connected rings of like material contained within said section and separated from the other rings, a support for the inner rings, an induction-coil, a secondary circuit electrically connected with said rings, a normally broken primary circuit, a source of electric energy, a check-valve on the supply-pipe, and means whereby the said primary circuit is controlled by the operation of the valve, substantially as described.

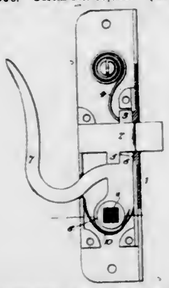
661,341. **SAFETY-CAN FOR PETROLEUM, BENZENE OR SIMILAR LIQUIDS.** FERDINAND HENSE, Salzkotten, Germany. Filed Oct. 7, 1899. Serial No. 732,955. (No model.)

Claim.—The combination of the filling-neck c, finely-perforated metal tube or sleeve g^2 projecting downward therefrom within the can and the sheet-metal protecting-body *i* within the perforated sleeve g^2 having in its vertical walls outwardly and upwardly projecting teeth *k* forming between them inclined passages for the oil, as shown and explained.

661,841.

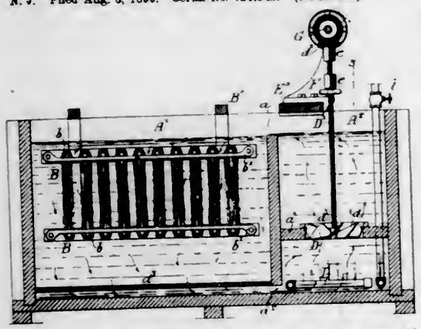


661,342. CARRIAGE-DOOR LOCK. Harry E. Hirst, Philadelphia, Pa., assignor of one-half to Alexander Wolfington, same place. Filed July 13, 1900. Serial No. 23,505. (No model.)



Claim.—A carriage-door lock having a sliding and spring-projected bolt, and a lever independent of the bolt, but in engagement therewith, said lever having an arm projecting through the end of the lock-casing and serving as a means whereby the bolt may be retracted by a direct pull from the inside of the door, and a knob or handle having a stem engaging with the hub of the lever and projecting through the side of the lock-casing whereby said lever may be operated from the outside of the door, substantially as specified.

661,343. APPARATUS FOR DYEING. Joseph Hussong, Camden, N. J. Filed Aug. 8, 1899. Serial No. 726,542. (No model.)



Claim.—1. The combination in a die-vat, of a partition dividing the vat into two sections, one section containing the material to be dyed and having a perforated floor arranged near the bottom of the vat for the passage of the dye liquor, and means in the other section for maintaining a circulation of the dye liquor through the vat, said dye liquor being drawn under the partition from the dyeing-section and forced over said partition into the dyeing-section, substantially as described.

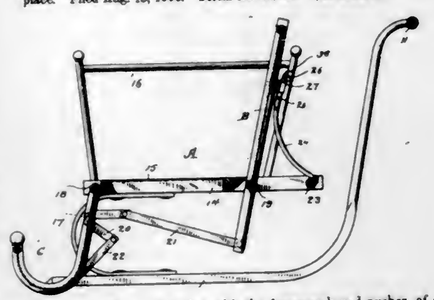
2. The combination of the vat, a partition therein dividing the vat into two sections, said partitions stopping short of the bottom so as to form a communicating passage between the two sections, a horizontal partition in one section, one or more openings in said partition, and one or more bladed wheels adapted to the openings, means for driving said wheels so that a current of liquor will flow from one compartment under the partition to the other, and will be discharged over the partition in the first-mentioned section, substantially as described.

3. The combination of a dye-vat having a partition therein stopping short of the bottom thereof, dividing the said vat into two sections, a perforated bottom in that section in which the yarn to be dyed is placed, a horizontal partition in the other section, driven bladed wheels mounted in openings in the said partition so as to create a current and cause the liquor to flow from the dyeing-section under the partition, up through the other section, and over the partition in the dyeing-section, substantially as described.

4. The combination in a dye-vat, a transverse partition therein stopping short of the bottom thereof, a perforated floor in the dyeing-section, a horizontal partition having one or more openings therein, one or more bladed wheels mounted in said openings, means for driving said wheels, a coil of steam-pipe mounted in the bottom portion directly under the horizontal partition, said steam-pipes having openings so that the steam will mingle in the dyeing liquor as it is drawn upward by the bladed wheels, substantially as described.

5. The combination in a dye-vat, of a transverse partition dividing the vat into two sections, a horizontal partition having one or more openings therein arranged in one of said sections, bladed circulating-wheels mounted in said horizontal partition, means for driving said wheels so that a circulation of the dye liquor will be maintained, being drawn under the partition from the dyeing-section and forced over the partition into the dyeing-section, and a perforated floor in the dyeing-section, the openings in said floor being spaced apart at different distances, so that an even circulation of the dye liquor may be maintained throughout the dyeing-section, substantially as described.

661,344. CHILD'S RECLINING CARRIAGE. Charles B. Jones, New Haven, Conn., assignor of one-half to Frederick L. Cowles, same place. Filed Aug. 13, 1900. Serial No. 26,720. (No model.)



Claim.—1. The combination with the framework and pusher, of a back and a foot-rest pivoted to the framework, a bell-crank lever whose angle is pivoted to the foot-rest and links connecting the arms of said bell-crank lever with the back and pusher respectively, whereby the movements of the foot-rest toward or from the reclining position are caused to correspond with the movements of the back.

2. The combination with the framework, pusher, pivoted back and pivoted foot-rest, of a bell-crank lever whose angle is pivoted to the foot-rest, links connecting the arms of said bell-crank lever with the back and pusher respectively and means for locking the back and foot-rest in any desired position.

3. The combination with the framework, pusher, pivoted back and pivoted foot-rest, of a bell-crank lever whose angle is pivoted to the foot-rest, links connecting the arms of said bell-crank lever with the back and pusher respectively and a locking-rod pivotally connected to the body and adjustably connected to the back, whereby the latter and with it the foot-rest may be locked in any desired position.

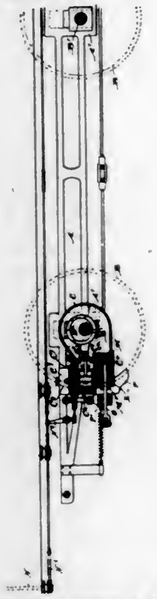
4. The combination with the framework, pusher, pivoted back and pivoted foot-rest, of a bell-crank lever whose angle is pivoted to the foot-rest, links connecting the arms of said bell-crank lever with the back and pusher respectively, a locking-rod pivotally connected to the body and a holding device upon the back through which the locking-rod passes and by which said rod and the back and foot-rest may be locked in any desired position.

5. The combination with the framework, pusher, pivoted back and pivoted foot-rest, of a bell-crank lever whose angle is pivoted to the foot-rest, links connecting the arms of said bell-crank lever with the back and pusher respectively, a locking-rod pivotally connected to the body and provided with locking-notches and a holding device upon the back comprising a spring-actuated locking-catch adapted to engage the notches in the locking-rod, substantially as shown, for the purpose specified.

6. The combination with the framework, pusher, pivoted back and pivoted foot-rest, of a bell-crank lever whose angle is pivoted to the foot-rest, links connecting the arms of said bell-crank lever with the back and pusher respectively, a locking-rod pivotally connected to the body and provided with locking-notches and a stop, and a holding device upon the back comprising a pivoted locking-catch having a lug adapted to engage the locking-notches and a spring acting to hold said catch in the locking position.

7. The combination with a locking-rod having locking-notches, of a case through which the locking-rod passes, said case being provided with a stud 32 and projection 35, of a locking-catch pivoted on said stud and adapted to engage the locking-notches and a hooked spring which is retained in place by the projection and bears against the locking-catch to hold the latter in the locking position.

661,345. AUTOMATIC CAR-BRAKE. Benjamin S. Lawson, New York, N. Y., assignor, by direct and mesne assignments, of one-half to David W. Copeland and Henry J. Hart, Syracuse, N. Y. Filed Feb. 20, 1900. Serial No. 5,869. (No model.)



Claim.—1. In a car-brake actuated by fluid-pressure, the continuously-reciprocating piston G playing in a cylinder C^2, with ports whereby the fluid may play idly from one end of such cylinder to the other alternately in opposite directions and a brake-cylinder, piston and connections for operating the brakes, and ports, valves and a controlling device, whereby the fluid can be thus moved idly or directed into the brake-cylinder at will, all combined and arranged substantially as herein set forth.

2. In a car-brake actuated by fluid-pressure, the continuously-reciprocating piston G playing in a cylinder C^2 having ports c' c^2, in combination with induction-valves D', D^2 serving with a supply-reservoir C^7, delivery-valves E' E^2 serving with a brake-cylinder C^4 and a piston M in the latter, and proper connections therefrom to the brake devices P and with a controllable valve device serving to put the two ports in free communication and thus allow the fluid to reciprocate idly at will or to close such communication and cause the fluid to be pumped and thus to apply the brakes and with the screw-threaded guiding and adjusting case T inclosing a relief-valve R and a helical operating-spring, all substantially as herein specified.

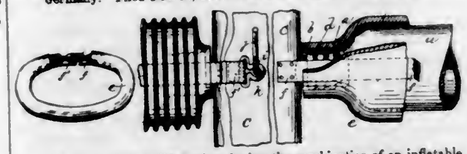
3. In a car-brake actuated by fluid-pressure, the continuously-reciprocating piston G playing in a cylinder C^2 having ports c' c^2, in combination with induction-valves D' D^2 serving with a supply-reservoir C^7, delivery-valves E' E^2 serving with a brake-cylinder C^4, and a piston M in the latter and proper connections therefrom to the brake devices P and with a controllable valve device comprising the cylinder C^6 with its zone f' f^2 and the rod I with its rings I' I^2 serving to put the two ports in free communication and thus allow the fluid to reciprocate idly or to close such communication at will and cause the fluid to be pumped and thus to apply the brakes all substantially as herein specified.

661,346. SPRING-HINGE. Marvin Lincoln, Malden, Mass. Filed May 25, 1900. Serial No. 17,994. (No model.)



Claim.—In spring-hinges, two body portions and two or more straps joining them; the adjacent faces of the body portions being cylindrical and parallel and the straps being springs tempered in ogee shape to fit upon the said cylindrical surfaces, and means for attaching the straps to the body portions at points beyond their contact-surfaces, substantially as described.

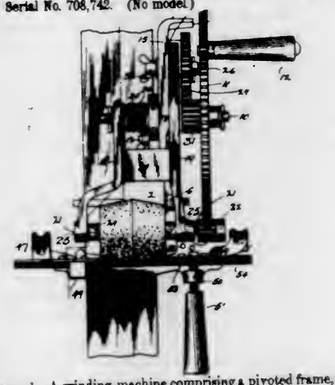
661,347. LIFE-SAVING BELT. Heinrich Löwing, Hamburg, Germany. Filed Feb. 19, 1900. Serial No. 5,804. (No model.)



Claim.—1. In a life-saving device, the combination of an inflatable tube having an extensible cover, of a casing connected with said tube, a gas-container in said casing, and means for releasing the gas from said container.

2. In a life-saving device, the combination of an inflatable tube having an extensible cover, of the internal band *f*, means for securing same, and means for inflating said tube, substantially as set forth.

661,348. GRINDER. James Macphail, Blue Island, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill. Filed Mar. 11, 1899. Serial No. 708,742. (No model.)



Claim.—1. A grinding-machine comprising a pivoted frame, a grinding-wheel therein, an eccentric for vibrating such frame, an adjustable frame in which the eccentric is mounted and means for operating the grinding-wheel and the eccentric.

2. A grinding-machine comprising a support, a frame pivoted therein, a grinding-wheel in such frame, an eccentric for vibrating such frame, a second frame adjustable on such support, said eccentric being adjustably mounted in said adjustable frame and means for operating the grinding-wheel and the eccentric.

3. A grinding-machine comprising a standard or support, a stud mounted therein, a grinding-wheel frame pivotally mounted on said stud, a grinding-wheel journaled in such frame, a bracket or frame also mounted for rotary adjustment upon said stud, an eccentric carried by said bracket and arranged to engage said grinding-wheel frame for rocking the same about said stud, and a drive-gear mounted on said stud and adapted to actuate said grinding-wheel and eccentric.

4. A grinding-machine comprising a standard, a stud mounted therein, a grinding-wheel frame pivotally mounted on the stud, a grinding-wheel journaled in such frame, a bracket also mounted on said stud and provided with a lug, means connected to said frame arranged to engage said lug for locking said frame against movement and a main drive-gear for actuating said grinding-wheel.

5. A grinding-machine comprising a main stud, a frame pivotally mounted thereon and carrying a grinder, a slotted bracket also mounted on said stud, a short stud adjustably mounted in the slot of said bracket and carrying an eccentric, said eccentric arranged to engage said frame, and a drive-gear mounted on said main stud and arranged to actuate said grinder and eccentric.

6. A grinding-machine comprising a vibrating grinding-wheel frame, a grinding-wheel therein, means for vibrating the frame and rotating the wheel and means for changing the position or altitude of the arc described by the frame in its vibrations without affecting the extent of vibration.

7. A grinding-machine comprising a grinding-wheel, a pivoted frame carrying the wheel at one end and having an extended portion at the other end beyond the pivotal point, an eccentric cooperating with such extended portion to vibrate such frame, and a frame carrying such eccentric and adjustable in position to vary the position of the arc of vibration.

8. A grinding device comprising a vibrating grinding-wheel frame, a grinding-wheel therein, mechanism for vibrating the frame, a driving-wheel operating said mechanism and simultaneously rotating the grinding-wheel and means for throwing said mechanism out of operation and simultaneously locking the same.

9. A grinding-machine comprising a stud, a frame pivotally mounted thereon and carrying a grinder, a bracket also mounted on said stud, means carried by said bracket and arranged to engage such frame, a drive-gear mounted on said stad and adapted to rotate said grinder, and means for rotarily adjusting said bracket on said stud.

10. A grinding-machine comprising a pivotally-mounted and vibratable frame carrying a grinder, a bracket mounted for angular adjustment with reference to the pivotal axis of said frame and carrying an eccentric arranged to engage said frame, and a drive-gear mounted concentric with said axis and arranged to actuate said grinder and eccentric.

11. A grinding-machine comprising a stud, a grinder-frame and a bracket mounted on the stud, a grinder in such frame, an eccentric carried by said bracket and arranged to vibrate said frame upon the stud, a main drive-gear for rotating said grinder and actuating said eccentric, and a spring arranged to oppose the action of said eccentric in one direction.

12. A grinding-machine comprising a standard or support, a stud mounted therein, a rotatable grinding-wheel, a frame pivoted on said stud, carrying at one end the grinding-wheel and having a bifurcated arm extending beyond its pivotal point, an eccentric located between the bifurcations of said arm and adapted to vibrate the frame, a gear-wheel actuating said eccentric, means for removing it from mesh with its driving-pinion to prevent vibration of the frame and a main driving gear-wheel adapted to rotate the grinding-wheel and having a pinion to actuate the eccentric-actuating gear-wheel.

13. A grinding-machine comprising a pivoted frame, a grinding-wheel therein, mechanism for vibrating such frame, an adjustable frame in which such mechanism is mounted and means for operating said grinding-wheel and said mechanism.

14. A grinding-machine comprising a standard or support, a stud mounted in said standard, a grinding-wheel, a frame pivoted on the stud and carrying the grinding-wheel at one end and having an extension on its opposite end beyond its pivotal point, a bell-crank-shaped lever pivoted on the stud, one arm being substantially horizontal and projecting parallel to said extension of the frame, such arm having a longitudinal slot, a stad adjustable in said slot, an eccentric mounted on such adjustable stud and a driving-wheel for simultaneously rotating the grinding-wheel and the eccentric to vibrate the frame.

15. A grinding-machine comprising a standard or support, a stud mounted therein, a grinding-wheel, a frame pivoted on the stud and carrying the grinding-wheel at one end and having an extension on its opposite end beyond its pivotal point, a bell-crank-shaped frame pivoted on said stud and adjustable with respect to the standard, an eccentric journaled in one of the arms of the bell-crank-shaped frame and adapted to contact said extension of the grinding-wheel frame to vibrate the same and means for rotating the grinding-wheel and for rotating the eccentric to vibrate the grinding-wheel frame.

16. A grinding-machine comprising a standard or support, a stud mounted therein, a rotatable grinding-wheel, a frame pivoted on the stud and carrying the grinding-wheel at one end and having an extension on its opposite end beyond its pivotal point, a bell-crank-shaped frame pivoted on said stud and having one of the arms thereof projecting downward adjacent to said standard and provided with a slot, a clamping-bolt passing through the standard and received by said slot to hold said bell-crank-shaped frame in adjusted positions, the other arm thereof extending rearwardly substantially horizontal and provided with a slot, a stud adjustable in said last-named slot, a gear-wheel provided with an eccentric and mounted on said last-named stud, such eccentric contacting said extension of the grinding-wheel frame, a main driving-gear rotating the grinding-wheel, and a pinion intermediate such driving gear-wheel and the eccentric-provided gear-wheel.

17. A grinding-machine comprising a standard or support, a stud mounted therein, a rotatable grinding-wheel, a frame pivoted on the stud and carrying the grinding-wheel at one end and having a bifurcated extension on its opposite end beyond its pivotal point, an arm mounted on said stud and extending rearwardly, a gear-wheel, an eccentric thereon embraced by said bifurcated extension to vibrate the grinding-wheel frame, a stud for said gear-wheel and adjustably mounted in said arm, a driving-wheel rotating the grinding-wheel and having a pinion meshing with said gear-wheel and a projection on said arm to engage in and lock said gear-wheel when adjusted out of mesh.

18. A grinding-machine comprising a base, a vibrating grinding-wheel frame mounted thereon and having a bifurcated extension, an eccentric embraced by such extension and having a stud, a bracket arranged on the base and having a slot in which the stud is adjustably secured, driving mechanism for operating said eccentric, and a lug or tooth on said bracket adapted to engage the eccentric when adjusted out of operation with the driving mechanism, whereby the eccentric is held in different positions to adjust and hold the frame from vibrating and at different altitudes.

19. A grinding-machine comprising a standard or support, a stud mounted therein, a rotatable grinding-wheel, a frame pivoted on the stud and carrying the grinding-wheel at one end and having a bifurcated extension, an arm extending rearwardly from said stud and having its extreme end turned at an angle and there provided with a rib or lug, a stud or spindle adjustably mounted on said arm, a gear-wheel mounted on said spindle, an eccentric thereon embraced by said bifurcated extension, and a driving-wheel rotating the grinding-wheel and having a pinion meshing with said gear-wheel to rotate the same and cause the eccentric to rock the grinding-wheel frame.

20. A grinding-machine comprising a vibrating frame, a grinding-wheel rotatably mounted therein, a pinion for such wheel, a drive-gear for vibrating such frame and for rotating such wheel through its pinion, and a fly-wheel also driven by the gear by engagement therewith at a point on the said gear substantially diametrically opposite the point where the grinding-wheel pinion meshes.

21. A grinding-machine comprising a vibrating frame, a grinding-wheel rotatably mounted therein and having a pinion, a fly-wheel having a pinion, a driving gear-wheel having teeth engaging said pinions to rotate said grinding-wheel and the fly-wheel, such pinions meshing with said gear on opposite sides thereof, and a connection between said driving-gear and said grinding-wheel frame to vibrate such frame.

22. A grinding-machine comprising a standard, a vibrating frame mounted thereon, a grinding-wheel rotatably mounted in said frame and having a pinion, an arm connected with the standard and extending rearwardly, a journal in the extreme end of such arm, a fly-wheel having a shaft mounted in such journal, a pinion on said shaft, a gear-wheel having an eccentric and mounted in said arm, such eccentric contacting the frame to vibrate it, a main driving gear-wheel meshing with said pinions at its opposite sides and having a pinion meshing with said eccentric-provided gear-wheel.

23. A grinding-machine comprising a base, a vibrating frame mounted thereon, a grinding-wheel rotatably mounted in such frame, an eccentric contacting said frame to vibrate it, a bracket providing a bearing for the eccentric and having a journal at its end, a shaft bearing in such journal and having a fly-wheel, and a wheel driving the grinding-wheel, eccentric and fly-wheel.

24. A grinding-machine comprising a base having upwardly-projecting bearing-lugs, a grinding-wheel rotatably supported thereon, means for rotating such wheel and a work-holder comprising a frame having downwardly-projecting bearing-lugs cooperating with the lugs of said base, one of said lugs on the frame extended below its pivotal point and a set-screw in said base engaging such extended portion and a rotatable clamp screwing through the frame and against the work in such frame.

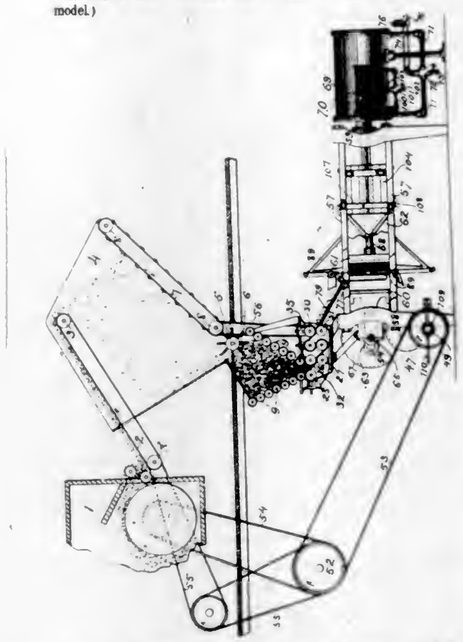
25. A grinding-machine comprising a pivoted frame, a grinding-wheel therein, a bracket, an eccentric adjustably mounted in such bracket and arranged to engage said frame and vibrate it and means for operating the grinding-wheel and the eccentric.

26. A grinding-machine comprising a vibrating grinding-wheel frame, a rotatable grinding-wheel therein, an eccentric for vibrating said frame, mechanism for rotating the eccentric and means whereby the eccentric may be shifted out of operation, and locked in different positions to hold the frame stationary and at different altitudes.

27. A grinding-machine comprising a vibrating frame, means for varying the position of arc of the frame's vibration, a grinding-wheel rotatable in such frame and having a pinion, a fly-wheel having a pinion and adjustable simultaneously with said vibrating frame and a drive-wheel rotating said pinions which mesh upon its opposite sides.

28. In a grinding-machine, the combination of a supporting-frame, a driver, a journal pivoted on the frame, a fly-wheel mounted therein and driven by such driver, such journal and fly-wheel being adjustable with respect to the driver and in the arc of a circle with the frame as a center.

661,349. COTTON-PRESS. CHARLES E. MALLETT, New York, N.Y. Filed Sept. 9, 1899. Renewed July 27, 1900. Serial No. 25,024. (No model.)



Claim.—1. The combination with a ginning appparatus and means for delivering cotton from such apparatus, of driving means for continuously operating such delivery means, an accumulating device receiving the cotton from such delivery means, and having an outlet, a picker device located at said outlet to open the cotton and feed it through the outlet, feeding means in the accumulator for feeding the cotton therein toward the outlet thereof and to the said picker device, an intermittently-operating baling-press, bat forming and feeding devices adapted to receive the cotton from the said picker device and deliver it in the form of a bat to the press, and driving mechanism connected to the said feeding device in the accumulating device, to the picker device, and to the bat-forming devices, operating said devices intermittently and concurrently with the operation of the baling-press.

2. A bat-condensing means comprising smooth carrying-rolls and two belts mounted thereon in such manner as to pass in parallel arrangement between and around the rolls during a part of the length of each belt, and to pass concentrically around one of the rolls, then between the roll and another roll and then in reverse curvature around said other roll, and means for driving said rolls at substantially the same speed to move the parallel parts of the belt in the same direction.

3. In a cotton-press, the combination with the horizontal press-box having a feed-opening on top, and the plunger movable horizontally toward and away from the feed-opening in said box, bat-feeding rolls located on top of said box adjacent to said feed-opening adapted to feed a bat of cotton by gravity between the platen and plunger, and means for holding a portion of the bat so that the bat will fold as it drops by gravity from the feed-rolls in position to be acted upon by the plunger.

4. In a cotton-press, the combination with means for forming and feeding a cohesive bat, of a horizontally-arranged press-box, a horizontally-reciprocating plunger and bat-feeding mechanism arranged above the box and adapted to feed the bat by gravity in front of the plunger, substantially as set forth.

5. In a cotton-press, the combination with means for forming and feeding a cohesive bat, of a horizontally-arranged press-box, a horizontally-reciprocating plunger and bat-feeding rolls arranged above the box and adapted to feed the bat by gravity in front of the plunger, substantially as set forth.

6. In a cotton-press, the combination with means for forming and feeding a cohesive bat, of a press-box, a reciprocating plunger, means for feeding a bat of cotton in front of the plunger and a shelf or support for accumulating the cotton during the compressing action of the plunger.

7. In combination with means for condensing cotton into a bat of sufficient density to maintain its own weight, a horizontally-arranged press-box, a horizontally-reciprocating plunger, and a feeding device for said bat arranged over said box and adapted to take the bat from said bat-condensing means and feed it by gravity in front of said plunger, substantially as set forth.

8. In combination, means for condensing cotton into a compact bat, a shelf or support for receiving and accumulating said bat, feed-rolls arranged to receive the bat from said shelf or support, and a horizontal press-box and horizontally-reciprocating plunger arranged beneath said feed-rolls, substantially as and for the purpose set forth.

9. In a cotton-press, the combination of a horizontal press-box, a horizontally-reciprocating plunger, a feeding device over said box adapted to feed and fold by gravity a bat of cotton in front of said plunger, and retaining-fingers having mechanism for moving them laterally into and out of engagement with the folded bat, substantially as set forth.

10. In a cotton-press, the combination with the platen and the plunger movable toward and away from the platen, of means for feeding a cohesive bat between such platen and plunger, comprising feed-rolls and means for operating said rolls to feed the bat while the plunger is removed from the platen and to arrest said rolls when the plunger is approached to the platen.

11. In a cotton-press, the combination with the platen and the plunger movable horizontally toward and away from the platen, of bat-feeding rolls adapted to feed a bat of cotton between the platen and the plunger, means for holding a portion of the bat so that the bat will fold as it drops by gravity from the feed-rolls, and means for operating said rolls to feed the bat while the plunger is removed from the platen and to arrest said rolls when the plunger is approached to the platen.

12. In a cotton-press the combination with the platen and the plunger provided with means whereby it is moved toward and away from the platen, of feed-rolls for feeding and laying in folds a cohesive bat of cotton between the platen and the plunger, an oscillating mechanism operatively connected to the plunger, and a connection, including a pawl and ratchet, between such oscillating mechanism and the feed-rolls, to enable the feed-rolls to be operated during a part of the movement of the plunger but to remain at rest during the rest of such movement.

13. In a cotton-press the combination with the platen and the plunger movable toward and away from the platen, of means for laying a bat of cotton in folds between the platen and plunger, means for operating the plunger to press the folds so laid toward the platen, retaining-fingers movable laterally to the direction of movement of the plunger, and means for operating said retaining-fingers, comprising cams operatively connected with the plunger-operating means, and lever mechanism operated by said cams to move the fingers in and out from between the platen and plunger.

14. In a cotton-press the combination with the frame, the platen, an inclosing box adapted to surround the platen, means for moving the platen, and means for moving the box parallel to the movement of the platen, of hinged flaps supported on said frame by hinge-supports and adapted to be closed to form a box extension or to be opened to allow the box to move within or past them.

15. The combination with the platen and plunger mechanism, and the cotton-retaining finger-frames and means for reciprocating said finger-frames, of means for simultaneously disengaging said retaining-finger frames from their operating means.

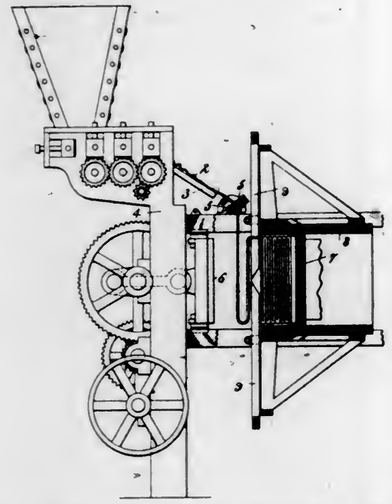
661,350. COTTON-PRESS. CHARLES E. MALLETT, New York, N. Y. Filed May 5, 1900. Serial No. 15,621. (No model.)

Claim.—1. A cotton-press comprising a press-box, means for delivering a continuous and unbroken web into said box, and a plunger of less dimension than the press-box, so as to form a space between it and the wall of the box to receive the web, whereby it presses said web in folds without breaking its continuity.

2. In a cotton-press, the combination of means for feeding an unbroken web, a press-box having its feed-opening located beneath the web-feeding means, a plunger pressing the web in folds and constructed with its vertical dimension less than that of the press-box so as to leave a space between its upper side and the top of the press-box to permit the web to continue past it back from the pressing-point during compression, and a support mounted on the plunger for that portion of the web accumulating during compression.

3. In a cotton-press, the combination of a press-box, web-pressing rollers above the box feeding a continuous unbroken web into the opening of the box by gravity, a plunger pressing the web into continuous con-

nected folds and constructed with its vertical dimension less than that of the press-box so as to leave a space between it and the wall of the box, to permit the web to continue past it back from the pressing-point, to avoid breaking the web, and said plunger being constructed to support the web and brought beneath the web-pressing rollers while the plunger is pressing.



4. In a cotton-press, the combination of means for forming a continuous web, and a plunger-press into which the web is delivered, said press and its plunger being constructed so as to leave a space between the edge of the plunger and the corresponding wall of the press-box from the pressing-point to the feed-opening, to receive the cotton-web and prevent severance thereof during pressing.

5. In a cotton-press, the combination of a baling-box, a traverser arranged to operate therein, means for operating said traverser, means for pressing the cotton to be baled into a web, and said traverser being constructed to support the web after it has passed the feed-rolls and while the preceding portion of the web is being pressed, substantially as described.

6. In a cotton-press, the combination of a baling-box, a traverser to operate therein, means for operating the traverser, means for pressing the cotton to be baled into a bat or web, and said traverser being constructed to support and arrest the movement of the web into the baling-box while the traverser is making the last part of its forward and the first part of its rearward movement.

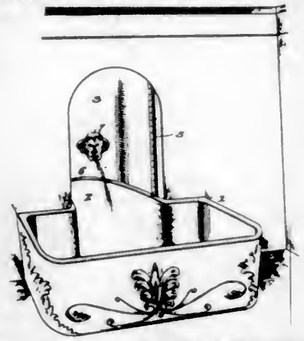
7. A cotton-press comprising a press-box having a feed-opening and a plunger, web-pressing rollers delivering into said feed-opening a continuous unbroken web, the relation between the transverse dimension of the plunger and the corresponding dimension of the press-box being such as to leave a web-passage from the point of pressing to the feed-opening, whereby the plunger may press said web into folds without breaking its continuity.

8. A cotton-press, comprising a press-box having a feed-opening, means for forming the cotton into a continuous and unbroken web or bat, and which is located over the feed-opening of the press-box so as to deliver the bat by gravity into said feed-opening in an unbroken condition, and a plunger located in and of less vertical dimension than the interior of said press-box and acting to press said bat into folds without breaking its continuity.

9. A plunger-press provided with a suitable feed-opening and having the wall of the press-box on the side in which the feed-opening is formed, and between said feed-opening and the pressing-point, spaced apart from the plane of the corresponding edge of the plunger, whereby a space extends past said edge of the plunger when the latter is at the pressing-point and means for feeding a continuous and unbroken web or bat of cotton to said press; substantially as and for the purposes set forth.

10. The combination of bat forming and condensing mechanism, means for feeding and folding by gravity a continuous bat, a horizontal press-box having a feed-opening for said bat, and a plunger or traverser arranged to enter said box to compress said bat therein and having its vertical dimension less than that of the interior of the press-box, substantially as and for the purpose set forth.

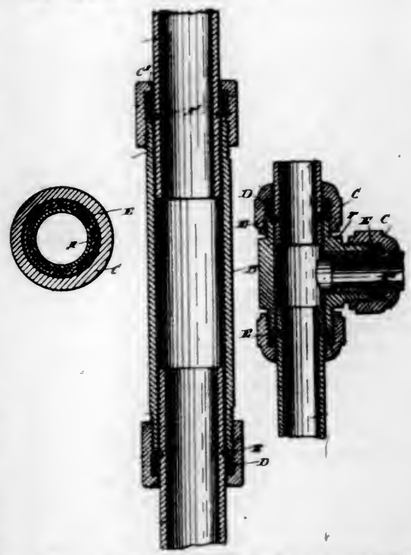
661,851. BATH-TUB. ALFRED J. MANNING, Irvington, N. Y. Filed Feb. 17, 1900. Serial No. 5,631. (No model.)



Claim.—1. The combination with a wall of a room provided with a recess or alcove projecting beyond the floor-space of the room, of a bath-tub abutting against said wall on opposite sides of said alcove and provided in its abutting side with a hollow spur projecting outwardly therefrom into said recess, said spur having a contour corresponding to the alcove or recess to effect a water-tight joint, perforated pipes, 5, extending vertically and embedded in the wall of the alcove, and a pipe, 6, having an outlet, 7, and a shower-bath spray-head, substantially as set forth.

2. The combination with a wall of a room provided with a recess or alcove projecting beyond the floor-space of the room, of a bath-tub abutting against said wall on opposite sides of said alcove and provided in its abutting side with a hollow spur projecting outwardly therefrom into said recess, said spur having a contour corresponding to the alcove or recess to effect a water-tight joint and provided with a seat the upper surface of which is above the bottom of the tub, perforated pipes 5 extending vertically and embedded in the wall of the alcove, and a pipe 6 having an outlet 7 and shower-bath spray-head, substantially as described.

661,852. FITTING. JOHN R. MOODY, Perry, Iowa. Filed Dec. 19, 1899. Serial No. 740,855. (No model.)

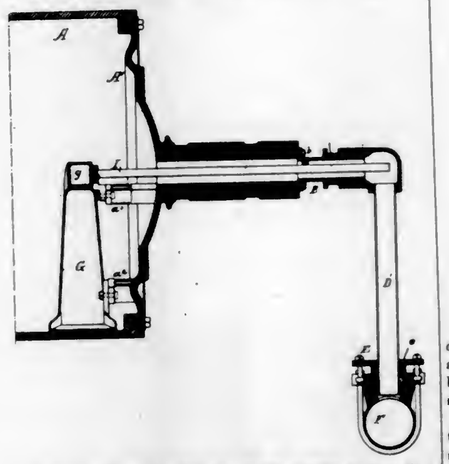


Claim.—1. A device of the class described, comprising a pipe-fitting with external threads and adapted to receive the end of a pipe, a collar fitted on the pipe end, and removably secured thereto bat held against longitudinal movement thereon, the said collar abutting on the end of the fitting, a coupling slipped over the pipe and screwing on the threads of the fitting, and a packing in the coupling and adapted to be compressed against the collar, substantially as described.

2. A device of the class described, comprising a pipe-fitting with external threads, and adapted to receive the end of the pipe, the said pipe being formed near its end with an external annular groove, a sectional collar engaging the annular groove in the pipe end, and abutting on the end of the fitting, a coupling slipped over the pipe and screwing on the threads of the fitting, and a packing resting against the collar and adapted to be compressed by the said coupling, substantially as described.

3. A device of the class described, comprising a fitting having externally-threaded ends and adapted to slip over the ends of pipes, sectional collars held on the pipe ends, couplings screwing on the threaded fitting ends and extending over the pipe, and having inward flanges on the outer ends of the couplings, and packings in the couplings between the coupling-flanges and said collars, the latter being set in external annular grooves formed in the pipe ends, as set forth.

661,853. DRYING-CYLINDER. JOHN W. MOORE, JOSEPH A. WHITE, and WILLIAM T. WIEGAND, Philadelphia, Pa.; said Wiegand assignor to said Moore and White. Filed Aug. 22, 1900. Serial No. 27,682. (No model.)



Claim.—1. The combination in a drying cylinder or drum, of a steam-supply pipe, a dipper within the drum arranged to scoop up the water of condensation, a pipe connected to the trough-section and extending through the steam-supply pipe and discharging the water of condensation into the steam-supply pipe, with a water-discharge for said steam-supply pipe, substantially as described.

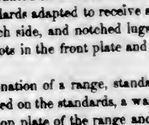
2. The combination of a drying cylinder or drum, a hollow trunnion therefor, a section coupled to said trunnion, an elbow into which the section is free to revolve, a horizontal steam-supply pipe, a vertical pipe coupled to said elbow and communicating with the horizontal supply-pipe, a dipper within the drum and rotating with it, an exhaust-pipe extending through the trunnion of the drum and into the elbow so that the water of condensation as it accumulates in the drum will be scooped up by the trough and discharged through the exhaust-pipe, with provision for conducting said water to the horizontal steam-supply pipe, substantially as described.

3. The combination in a drying-cylinder, having a head with a hollow trunnion, a steam-pipe connected to said trunnion, a dipper secured to the inner side of the head, and a pipe connected to the trough, said pipe extending through the trunnion and into the steam-pipe, substantially as described.

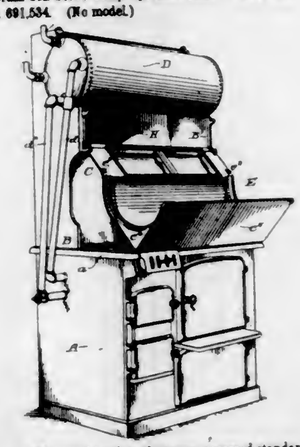
4. The combination of a drying-cylinder having a hollow trunnion, an elbow connected to the trunnion, a steam-pipe connected to the elbow and communicating with a steam-supply pipe, a dipper within the drum, a pipe extending from the trough through the trunnion into the elbow, and provision in the steam-pipe, connected to the elbow, for conducting water gathered by the dipper to the steam-supply pipe, substantially as described.

661,854. BEDSTEAD-FASTENING. FRED C. F. PETERS, Monroe, La. Filed June 30, 1900. Serial No. 22,152. (No model.)

Claim.—A bedstead-fastening, comprising two sections, the first of which has a flat outstanding part and the second of which has two flat outstanding parts lying in parallel planes and receiving the outstanding part of the first section between them, and a pin carried by the first section and disposed transversely of the said outstanding part thereof, the second section having a recess in one of its outstanding parts to receive the pin, for the purpose specified.



661,855. RANGE. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Filed Sept. 21, 1898. Serial No. 691,534. (No model.)



Claim.—1. The combination of a range, recessed standards mounted on the same, a horizontal boiler resting in the recesses of the standards and exposed at each end, and a movable front plate adapted to inclose the body of the boiler and having ends conforming thereto, the couplings for said boiler being secured at the end thereof, substantially as described.

2. The combination of a range, standards mounted on each side of the same, a horizontal boiler mounted on said standards, a warming-shelf secured to the standards and arranged between the top of the range and the boiler, a front plate pivoted to the standards and adapted to inclose the boiler and shelf, and doors hung to said pivoted front plate so that access may be had to the warming-shelf, substantially as described.

3. The combination of a range, end standards mounted thereon, a horizontal boiler mounted on the standards, a front plate having trunnions, sockets on the standards adapted to receive said trunnions, said front plate having a slot at each side, and notched lugs on the standards adapted to pass through the slots in the front plate and to engage the latter, substantially as described.

4. The combination of a range, standards mounted thereon, a horizontal boiler mounted on the standards, a warming-shelf arranged between the boiler and the top plate of the range and extending from one standard to the other, a pivoted front plate having trunnions at its lower corners, lugs having sockets projecting from the standards to which the trunnions are adapted, the front plate having top and side extensions to inclose the body of the boiler and retain the latter in place, with means for securing said plate in position, substantially as described.

661,856. BUTTER-PRESS. JACOB D. REIFF, Skippack, Pa. Filed Sept. 29, 1900. Serial No. 31,579. (No model.)

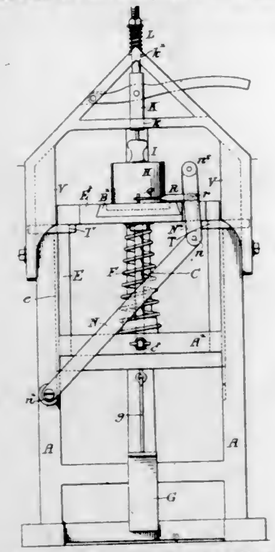
Claim.—1. In a press, the combination of a main frame, a reciprocating frame, means for operating the same, a mold carried by the reciprocating frame, a tilting frame connected to the main frame and means thereon for compressing material in the mold, substantially as described.

2. In a press, a main frame, a reciprocating frame and a tilting frame pivoted to the main frame, a mold carried by the reciprocating frame and a lever and plunger on the tilting frame for compressing material in the mold, substantially as described.

3. In a butter-press, a main frame, a reciprocating frame, a mold carried thereby, means for operating the reciprocating frame whereby said material is removed from said mold, and means for imparting rotary motion to the mold to loosen the material therein, substantially as described.

4. The combination of a main frame, a mold, means for compressing material therein, a reciprocating frame, whereby material is removed from

said mold, bars connected to the main frame, and to the reciprocating frame, and a link connecting one of said bars to the mold, whereby said mold is rotated when the frame is reciprocated, substantially as described.



5. In a butter-press, the combination of a mold rotatively mounted on a reciprocating frame, a main frame having guides in which said reciprocating frame operates, a pedestal mounted on said main frame, and supporting a plate which serves as the bottom of the mold, with means for compressing material in the mold and means for operating the reciprocating frame, substantially as described.

6. In a press for molding oleaginous substances, the combination of a main frame, a second frame and a mold carried thereby, a tilting frame connected to the main frame, and means for limiting the motion of the tilting frame within certain limits, substantially as described.

7. The combination of a main frame, a reciprocating frame operating therein, a mold carried thereby, with a tilting frame pivoted to the main frame and normally in a vertical position over the mold, said tilting frame being movable on its pivots to a position at an angle to the vertical, thereby allowing material to be freely taken from and put into said mold, substantially as described.

8. The combination of a main frame, a reciprocating frame operating therein, a mold carried thereby, a tilting frame connected to the main frame and a bar attached to the main frame and to the tilting frame, whereby its motion is limited, substantially as described.

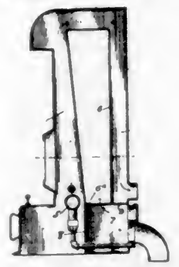
9. The combination of a main frame, a reciprocating frame, a mold carried by the upper member thereof, means for normally maintaining the reciprocating frame in its highest position means for operating and means for locking said reciprocating frame in said highest position, substantially as described.

10. The combination of a main frame, a reciprocating and a tilting frame, a mold carried by the reciprocating frame and means for holding said frame in its highest position, levers carried by the main frame and operated by the tilting frame, whereby the reciprocating frame is locked in said highest position, substantially as described.

661,357. **HEATING-STOVE.** THOMAS RODERICK, Columbus, Ohio. Filed Feb. 23, 1900. Serial No. 6,237. (No model.)

Claim.—1. In a heating-stove, the front and back walls substantially parallel to each other, a top, and ends or sides, large openings in said sides or ends conforming in shape to the general contour of the edges of the ends, and a horizontally-arranged air-heating chamber of prismatic form free and open from end to end with the edges of its ends uniting with the edges of the openings in the ends or sides of the stove, substantially as shown.

2. In a heating-stove, the front and back walls, the top, and the sides or ends, large openings in said ends or sides conforming in shape to the general contour of the edges of the said sides or ends, a horizontally-arranged air-heating chamber of prismatic form free and open from end to end with the edges at its ends uniting with the edges of the openings in the sides or ends, and a cold-air chamber below said air-heating chamber opening into said air-heating chamber, substantially as shown and described.



661,358. **BRUSH.** MAURICE ROSENTHAL, New York, N. Y. Filed June 22, 1900. Serial No. 21,188. (No model.)

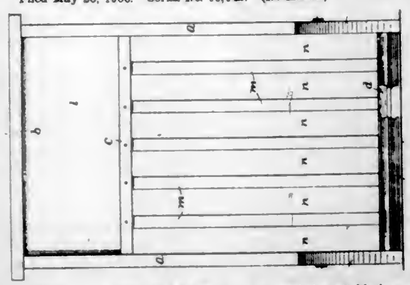


Claim.—1. A brush, provided with a resilient center piece held in the bristles and dividing them into two parts, and a bridle-cord passed around the bristles and engaging with the edges of the center piece.

2. A brush provided with a center piece located between the bristles, and a bridle-cord or the like passed around the bristles and engaged with the edges of the center piece.

3. A brush, provided with a center piece having a part fastened to the handle of the brush inside of the ferrule, the center piece lying between the bristles, and a bridle-cord passed around the bristles and engaged with the edges of the center piece.

661,359. **BICYCLE-RACK.** LEONARD C. TIEFEL, Rochester, N. Y. Filed May 26, 1900. Serial No. 18,142. (No model.)



Claim.—1. A rack for holding bicycles, consisting of side bars connected at their upper ends, a bar connecting the lower ends of said side bars and upon which the wheel of a bicycle is designed to rest when in use, and legs pivotally connected to the side bars in the same plane therewith and having inclined upper and lower ends whereby when the legs are spread the side bars are brought toward the ground and the lower cross-bar into position to receive the bicycle-wheel, and the inclined upper ends of the legs engage opposite sides of the side bars of said frame, substantially as shown and described.

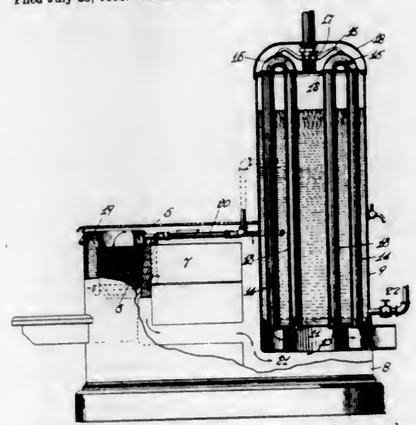
2. A rack for holding bicycles, consisting of a rectangular frame, with lower connecting-bar to receive the weight of the wheel of a bicycle and legs secured pivotally thereto in the same plane therewith with their lower ends reaching below the frame, the latter having horizontal bars and vertically equally spaced minor bars reaching between the horizontal bars, substantially as and for the purpose set forth.

3. A bicycle-rack consisting of a frame, and foldable legs secured thereto in the same plane therewith, the legs being formed with slanting or inclined lower ends constituting feet for supporting the device when folded and their upper ends inclined to engage opposite sides of the side bars of the frame and the said side bars having a lower connecting-bar which is brought into position to receive the wheel of a bicycle by the spreading of said legs, substantially as shown and described.

4. A bicycle-rack consisting of a bolding-frame having a lower connecting-bar to receive the wheel of a bicycle and legs secured pivotally to the side bars of said frame in the same plane as the side bars thereof on either side of the frame, and horizontal bars parallel with the frame and connecting the legs on either side of the frame, substantially as shown and described.

5. A rack for holding bicycles, comprising a frame having openings for receiving the wheels and a lower cross-bar upon which a bicycle-wheel may rest, and pivotal foldable legs joined to the frame, the legs when opened out or spread for use bearing at their upper ends flat against the frame and at their lower ends flat upon the floor, substantially as shown and described.

661,360. **STOVE.** WINAND W. J. TOUSSAINT, Brookline, Mass. Filed July 23, 1898. Serial No. 686,667. (No model.)

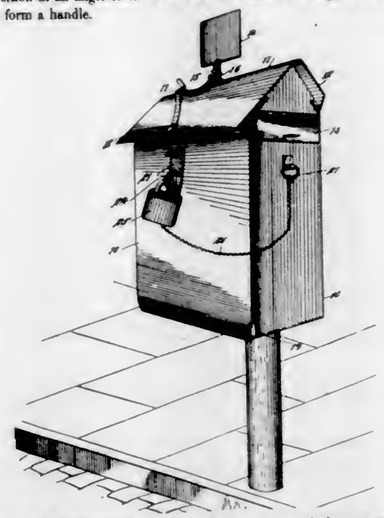


Claim.—1. In a stove, the combination with the fire-pot and oven portion, and a rearwardly-extending base forming a flue-chamber, of a boiler mounted above said flue-chamber and comprising a shell and flue-sheets, direct vertical tubes connected with said chamber, return-tubes fixed in said tube-sheets, an annular flue with which the lower ends of the return-tubes are connected, and connections between the upper ends of the direct and return tubes.

2. The combination with the stove 5 having the fire-pot 6, the oven 7 and the base 8 furnished with the chamber 21, of the boiler comprising the shell 9 mounted above the chamber 21, the annular flue 10, the tube-sheets 11 and 12, the tubes 13 secured in said tube-sheets and open to the chamber 21, the tubes 14 also secured in said tube-sheets and connected at their lower ends with the annular flue 10, the elbows 15 connecting the upper ends of the tubes in pairs and means for securing the elbows, and the water-back 19, and coil 20 connected with the water-back and the boiler, as described.

661,361. **MAIL-BOX.** WILLIAM J. WEAVER, Leetonia, Ohio. Filed May 24, 1900. Serial No. 17,827. (No model.)

Claim.—1. A mail-box, comprising a body, a door hinged to the box and a hasp pivoted to the door near the top and formed with an extension at the inner side of the door, said extension being of a length to overlap and engage the inside of the box above the door when the door is closed, the body of the hasp having a preponderance of weight to assume a position at an angle to the door when the latter is swung outward and thus form a handle.

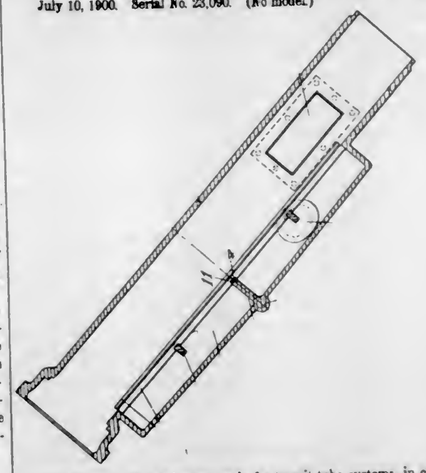


2. The combination with a mail-box, of a signal-plate, an arm pivoted on the roof and with which said plate is connected, and a spring-latch attached to the outer side of the roof and adapted to engage with the free end of said arm, substantially as specified.

661,362. **COMPOSITION FOR PAVING, &c.** HENRY P. WILLIAMS, San Francisco, Cal. Filed Dec. 28, 1896. Serial No. 617,281. (No specimens.)

Claim.—A composition for the described purpose consisting of asphaltum, and lime-sludge from purification of beet-juice in sugar-manufacture, the same being calcined limestone which has taken up carbonic acid in the purifying process.

661,363. **DRAINING MECHANISM FOR TUBULAR-DESPATCH SYSTEMS.** WASHINGTON A. H. BOGARDUS, New York, N. Y. Filed July 10, 1900. Serial No. 23,090. (No model.)



Claim.—1. In a drip-receptacle for transit-tube systems, in combination with a transit-tube, a drip-chamber having a plurality of compartments, substantially as and for the purpose set forth.

2. In a drip-receptacle for transit-tube systems, in combination with a transit-tube, a drip-chamber having a plurality of communicating com-

partments and longitudinal openings from said transit-tube to said compartments, substantially as described.

3. In a drip-receptacle for transit-tube systems, in combination with a transit-tube, a drip-chamber having a plurality of compartments, means of communication between said compartments, longitudinal openings from said transit-tube to said compartments, and a drain-pipe and cock therefor common to all of said compartments, substantially as described.

4. In a drip-receptacle for transit-tube systems, in combination with a transit-tube, a drip-chamber having a plurality of compartments, longitudinal openings from said transit-tube to said compartments, the bottoms or floors of said compartments inclined to a common drain-pipe, means of communication between said compartments adjacent said bottoms or floors, a cock for said drain-pipe and means of access to said drip-chamber and said transit-tube adjacent said chamber, substantially as described.

5. In a drip-receptacle for transit-tube systems, in combination with a transit-tube, a drip-chamber, a plurality of compartments in said chamber, partitions between said compartments and clearage-space between said partitions and the inner periphery of said transit-tube, substantially as and for the purpose set forth.

6. In combination with a transit-tube and a drip-chamber, a plurality of ports between said tube and chamber, bridges for strengthening the casting between said ports and clearage-space between said bridges and the inner periphery of said transit-tube, substantially as and for the purpose set forth.

661,364. FOLDING FLASH-LIGHT BRACKET. OTTO C. BOTZ, Sedalia, Mo. Filed Mar. 14, 1900. Serial No. 8,637. (No model.)



Claim.—1. A folding flash-light bracket, comprising a supporting-bar for attachment to a socket on the camera, an extension-rod fulcrumed on the supporting-bar, an extension-upright consisting of telescopic sections for carrying the flash-light material, said upright being pivotally connected with said extension-rod, to fold thereon, a spring for holding the sections as adjusted and means for locking the said upright in a vertical position relatively to the said extension-rod, substantially as shown and described.

2. A folding flash-light bracket, comprising a socket on a camera, a bar pivotally connected therewith and adapted to swing horizontally, an extension-rod pivoted on the free end of said bar to swing in a horizontal direction, an upright pivoted on the free end of the said rod, and carrying at its upper end means for supporting the flash-light material, and a hook fulcrumed on the extension-rod and adapted to engage the extension-upright, to lock the latter in a vertical position relatively to the rod, as set forth.

3. A folding flash-light bracket, comprising a socket on a camera, a bar pivotally connected therewith and adapted to swing horizontally, an extension-rod pivoted on the free end of said bar to swing in a horizontal direction, an upright consisting of sliding members pivoted on the free end of the said rod, and carrying at its upper end means for supporting the flash-light material, a hook fulcrumed on the extension-rod and adapted to engage the extension-upright, to lock the latter in a vertical position relatively to the rod, and means for holding the members of the upright in an extended position, as set forth.

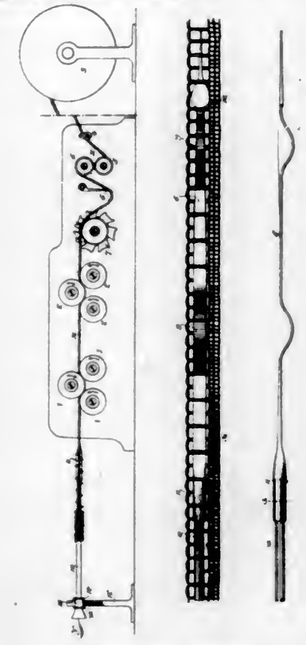
661,365. MACHINE FOR THREADING TAPE INTO EDGINGS. THOMAS F. BYRNE, Phoenixville, Pa. Filed Apr. 24, 1900. Serial No. 14,170. (No model.)

Claim.—1. The combination in a machine for inserting tape into lace edgings, of the tape-tube open at both ends and carrying the tape within it, the threading-needle, and rollers for feeding the edging over the needle and onto the tube, said needle having an enlarged rear end for the reception of the forward end of the tube, substantially as specified.

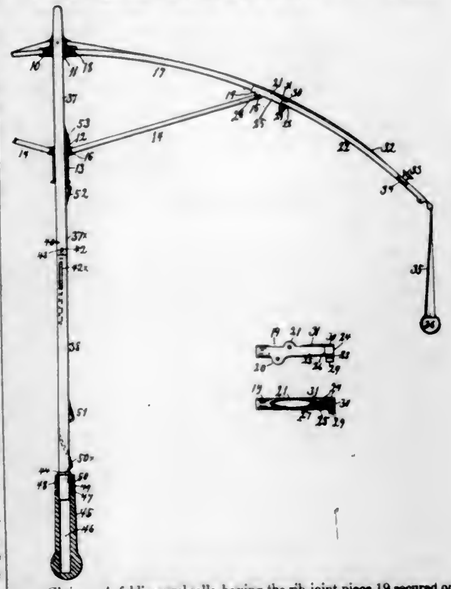
2. The combination in a machine for inserting tape into lace edgings, of the tape-tube open at both ends and carrying the tape within it, the threading-needle and rollers for feeding the edging over the needle and onto the tube, said needle having an enlarged rear end with projecting hollow portion for the reception of the front end of the tube, substantially as specified.

3. The combination in a machine for inserting tape into lace edgings, of the tape-tube open at both ends and carrying the tape within it, the threading-needle and rollers for feeding the edging over the needle and onto the tube, said needle having an enlarged rear end with which the front end of the tape-tube can be engaged by a longitudinal movement, and means for retaining said tape-tube longitudinally, substantially as specified.

4. The combination in a machine for inserting tape into lace edgings, of the tape-tube and threading-needle, said needle having an enlarged end for engagement with the front end of the tape-tube, and said tube having a flanged collar, and a slotted bracket or standard engaging with said collar, whereby it serves to support the tube vertically and confine it longitudinally, substantially as specified.



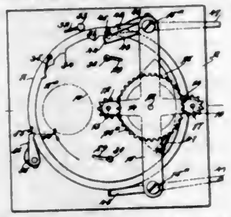
661,366. FOLDING UMBRELLA. OTTO CARLSON and OSCAR GARDEEN, St. Paul, Minn. Filed Feb. 2, 1900. Serial No. 3,716. (No model.)



Claim.—A folding umbrella having the rib-joint piece 19 secured on the outer end of the upper rib-section and having the stretcher and the lower rib-section pivoted to it, said joint-piece also having the two arms

24 and 25, one of which is formed with the cam edge 31 and hook 30 at its upper edge, and the supporting-hook 28 and finger-catch 29 at its lower edge, substantially as and for the purpose set forth.

661,367. PHOTOGRAPHIC SHUTTER. JOHN V. COATS, Saratoga Springs, N. Y. Filed Apr. 26, 1900. Serial No. 14,420. (No model.)



Claim.—1. A camera-shutter mounted to revolve, a spring arranged to turn the shutter, a trip-lever, and check-arms carried by the trip-lever for engaging and stopping the shutter at a point in its revolution and for releasing the said shutter, and a winding device for the spring, the winding device having a controlling mechanism.

2. In a camera-shutter, a spring arranged to impart movement to the shutter, stops carried by the shutter, a trip-lever adapted for universal use, which lever carries check-arms arranged for alternate engagement with any one of the stops, and a release-lever, which lever carries an arm adapted to check the movement of the shutter when a time exposure is to be made.

3. A camera-shutter, a spring arranged to impart movement to the shutter, and a winding device for the spring, said device comprising a shaft mounted to turn and having a head at one end and a pinion at the other, a drum in which the spring is arranged, an arbor for said drum having a gear-wheel at one end meshing with the pinion on the shaft, a single-toothed wheel connected with the other end of the arbor, and a controlling-wheel having a multiple of teeth, arranged for engagement by the single-toothed wheel, for the purpose specified.

4. A camera-shutter consisting of two plates, having one or more registering openings, one of said plates having a limited sliding movement on the other, a spring arranged to turn both of the plates in one direction, a check for the plates, means for releasing the said check, one of said plates having peripheral series of recesses, a detent arranged to enter the recesses of one series, an arm mounted to turn and adapted to enter the recesses of the second series to shift the said plate, as described.

5. A camera-shutter mounted to revolve, a spring for revolving the shutter, a trip-lever carrying check-arms, one of which is longer than the other, and one arm at its free end being below the other, the said arms being adapted to directly engage and stop the shutter, and a release-lever carrying an arm adapted to engage the shutter and check the movement of the same, when a time exposure is to be made.

6. In camera-shutters, a face-plate having a single opening, a shutter mounted to revolve upon the inner surface of the said face-plate, the said shutter being provided with a stop-pin located near its periphery, a trip-lever, check-arms carried by the trip-lever, one of which arms is longer than the other and one arm at its free end being below the other, the said arms being adapted for alternate engagement with the stop-pin, a release-lever, a check-arm carried by the said release-lever, also adapted for engagement with the stop-pin, and means for throwing the check-arm of the release-lever into or out of the path of the stop-pin, for the purpose set forth.

7. In camera-shutters, a face-plate having a single opening, a shutter mounted to revolve upon the inner surface of the said face-plate, the said shutter being provided with a series of stop-pins located near its periphery, a trip-lever, check-arms carried by the trip-lever, one of which arms is longer than the other and one arm at its free end being below the other, the said arms being adapted for alternate engagement with any of the stop-pins, a release-lever, a check-arm carried by the said release-lever, also adapted for engagement with any one of the stop-pins, means for throwing the check-arm of the release-lever into or out of the path of the stop-pins, a detent arranged for engagement with one of the stop-pins when another stop-pin is in engagement with the shorter check-arm carried by the trip-lever, and a winding device for the spring, having a controlling mechanism, which controlling mechanism prevents the spring from being fully wound, for the purpose set forth.

8. In camera-shutters, a shutter, a spring propelling device for the shutter, which spring is located within a drum, having one end attached to the drum and another end to the arbor passed through the drum, the spring being given a partial coil before being placed in the drum, a wheel having a single tooth and secured to the outer end of the arbor, an engaging wheel having a multiple of teeth, one of which teeth has a convexed peripheral surface and the other teeth concaved peripheral surfaces, the said wheels being located in circular connecting-depressions, a gear-wheel secured to the inner end of the arbor and means for turning the same, for the purpose set forth.

9. In a camera-shutter, two plates correspondingly apertured and arranged to turn together, one plate having limited sliding movement on the other, and provided with notches in its periphery, and an arm mounted to turn and adapted to engage the notches to shift one plate on the other, whereby the aperture or apertures in one plate may be reduced in diameter, as described.

10. In a camera-shutter, two plates correspondingly apertured, and arranged to turn together one plate being provided with notches in its periphery and having limited sliding movement upon the other, a rod mounted to turn and carrying an arm adapted to engage the notches and shift the said plate, the said rod being provided with a pointer adapted to travel over a scale, and means for holding the said plate in the adjusted position, substantially as set forth.

11. In camera-shutters, a shutter mounted to rotate, checks for the shutter, one of which is arranged to be operated in both time and instantaneous exposures, the other check being operated only when time exposure is required, a pinion carried by said shutter, a drum provided with a gear-wheel, connected with said pinion, a spring for imparting movement to the drum, the said spring being given a quarter wind or turn before being placed in the drum, and a winding device for imparting another quarter wind or turn to the spring, as specified.

12. The combination with the camera-plate having an opening therein, of a shutter mounted to revolve, a drum arranged to impart movement to the shutter, a spring located within the drum for driving the same, means for releasing the shutter and for checking the movement of the same, means for winding the spring, and a controlling mechanism for the spring-winding device, substantially as set forth.

13. The combination, with a shutter, a spring-controlled drum provided with a gear-wheel meshing with a pinion on the shutter, a face-plate upon which the shutter revolves, an arbor passed through said drum and face-plate, a spring attached to the drum and to the arbor, and means for winding the spring, of a device adapted to regulate the winding of the spring, which device consists of a wheel having a single tooth and attached to the arbor, and a mating wheel pivoted on the outer face of the drum and having a multiple of teeth, one of which multiple teeth has a peripheral convexity and the others concaved peripheral surfaces, both wheels being located in circular connecting-recesses in the outer face of the drum, and means for releasing and for checking the movement of the shutter, for the purpose set forth.

14. A camera-shutter mounted to revolve, a spring for revolving the shutter, a trip-lever provided with two check-arms arranged to directly engage and stop the shutter, a release-lever provided with an arm adapted to engage the shutter and check the movement of the same when a time exposure is to be made, and a winding device for the spring, the winding device having a controlling mechanism.

15. A camera-shutter mounted to revolve, a spring arranged to impart movement to the shutter, a trip-lever provided with check-arms arranged to engage and check the shutter, a release-lever, a check-arm carried by the release-lever and also arranged to engage and check the shutter, and a spring-pressed detent for the shutter pivoted upon the camera-plate and adapted for engagement with the shutter when the latter is in the normal position, the said detent being also arranged to engage with the shutter when the latter is released from the normal position, for the purpose set forth.

16. The combination with the front plate of a camera having an opening therein, of a shutter consisting of two circular plates adapted to turn together, a pinion at the center of the outer plate, and having an arbor mounted to turn in suitable bearings, a shaft mounted to turn and having a head at its outer end, and a pinion at its inner end, a drum provided with a spindle and having a gear at its inner marginal face meshing with the pinion on the shutter, a gear secured to the inner end of the drum-spindle and meshing with the pinion on the headed shaft, a spring attached at one end to a collar on the spindle within the drum and at its opposite end to the interior of the drom, means for releasing and for checking the movement of the shutter, and a controlling device for the winding mechanism, substantially as described.

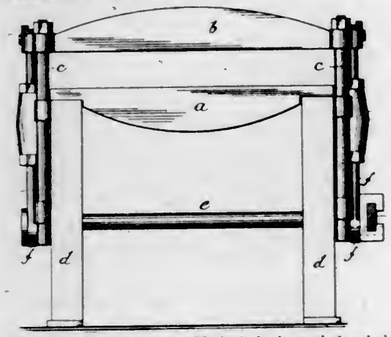
17. In a camera-shutter, a spring arranged to impart movement to the shutter, a trip-lever, and check-arms carried by the trip-lever for stopping the shutter at a point in its revolution and for releasing the said shutter, one of said check-arms being longer than the other, and one arm at its free end being below the other, the free end of each arm being provided with a flange, for the purpose set forth.

18. A camera-shutter mounted to revolve, a spring arranged to impart movement to the shutter, a trip-lever carrying check-arms, one of which is longer than the other and one arm at its free end being below the other, the said arms being adapted to engage and stop the shutter, means for limiting the movement of the trip-lever, a release-lever carry-

ing an arm adapted to engage the shutter and check the movement of the same, and means for limiting the movement of the release-lever, as set forth.

19. A camera-shutter mounted to turn, a spring for turning said shutter, a trip-lever carrying check-arms arranged to engage and stop the shutter, a release-lever carrying an arm adapted to check the movement of the shutter, stops limiting the movement of the trip-lever, and a latch for holding said trip-lever in engagement with one of said stops, substantially as described.

661,368. HAND-POWER PRESS. EDMUND R. COLLINS, New York, N. Y., assignor to Abednego Dewes, same place. Filed Mar. 6, 1900. Serial No. 7,514. (No model.)

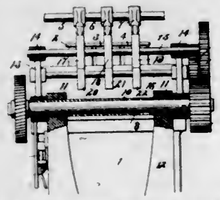


Claim.—1. In combination with the bed, platen, shaft and platen-connecting rods and crank-pins of a press, of a crank device comprising a head adapted to be secured to the end of the shaft, and outboard-bearing for the crank-pin which connects the end of a connecting-rod to the crank device, and a connecting-piece joining the head and the outboard-bearing and acting as a stop in conjunction with the connecting-rod.

2. In combination with the bed, platen shaft and platen-connecting rods and crank-pins of a press, of a crank device comprising a head adapted to be secured to the end of the shaft, and outboard-bearing for the crank-pin which connects the end of a connecting-rod to the crank device, a connecting-piece joining the head and the outboard-bearing and acting as a stop in conjunction with the connecting-rod, and a handle-socket extending from the side of the crank and forming a part of the outboard-bearing.

3. In combination, the connecting-rod of a press, and a crank having an outboard-bearing for the crank-pin which connects the rod to the crank, and a stop-piece, which contacts with the connecting-rod to limit the movement of the crank.

661,369. VALVE-GEAR FOR EXPLOSIVE-ENGINES. FRÉDÉRIC C. DUCHOFF, Bar-le-Duc, France, assignor to the Diesel Motor Company of America, of New York. Filed Oct. 5, 1899. Serial No. 732,685. (No model.)



Claim.—1. The combination with the engine and its controlling-valves, of a valve-actuating mechanism comprising a driving-shaft, driven shafts arranged circumcentrally around said driving-shaft and in constant operative engagement therewith, means for shifting said driven shafts around said driving-shaft and cams arranged on said driven shafts, for the purposes set forth.

2. The combination with an engine and its controlling valves, of a plurality of cam mechanisms adapted to operate same to cause operation of the engine in the reverse directions, a rocking frame carrying said cam mechanisms and adapted to bring either of same into operative relation with the corresponding valves, and an operating-gear journaled concentrically with the rocking frame, and gearing connected to said cam mechanisms adapted to engage continuously with the said operating-gear.

3. The combination with an engine and its controlling-valves, of an operating-shaft carrying an operating-gear, a rocking frame mounted concentrically with said shaft, a plurality of shafts carried by said frame, each carrying cam mechanisms adapted to cooperate with said valves and a gear for engaging with the operating-gear, and a handle for shifting said rocking frame.

4. The combination with an engine and its controlling-valves, of an operating-shaft carrying an operating-gear, a rocking frame mounted concentrically with said shaft, a plurality of shafts carried by said frame, each carrying cam mechanisms adapted to cooperate with said valves and a gear for engaging with the operating-gear, and a handle for shifting said rocking frame, the said cam mechanisms being longitudinally shiftable on their shafts, and the said handle being movable on the rocking frame and engaging with the cam mechanisms, to shift them on their shafts.

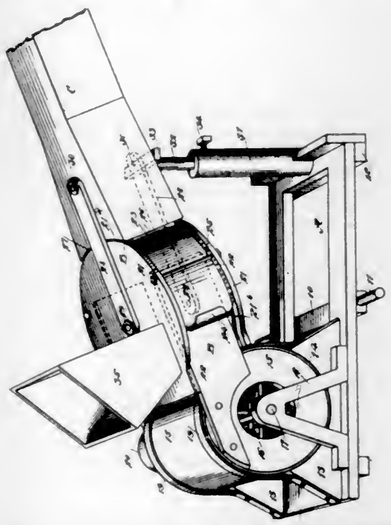
661,370. BICYCLE HANDLE-BAR. TACITUS W. GAILLARD, New York, N. Y. Filed Apr. 10, 1900. Serial No. 12,330. (No model.)



Claim.—1. A velocipede, having a plug carrying the handle-bars, a member provided with a socket on the velocipede, in which socket the plug is fitted, a nut serving to hold the socket member in place and having an extended portion or finger, and a catch carried by the plug and engaging the said extended portion or finger removably to secure the plug in the socket.

2. In a velocipede, the combination of a worm with a split portion forming spring-fingers, the handle-bar stem on which said worm is supported, and held friction-tight by said spring-fingers, handle-bars having toothed portions engaged with the worm, and means for pivotally mounting the handle-bars on the handle-bar stem.

661,371. STRAW-STACKER. CONRAD GLAUB, Audubon, Minn. Filed Feb. 8, 1900. Serial No. 4,490. (No model.)

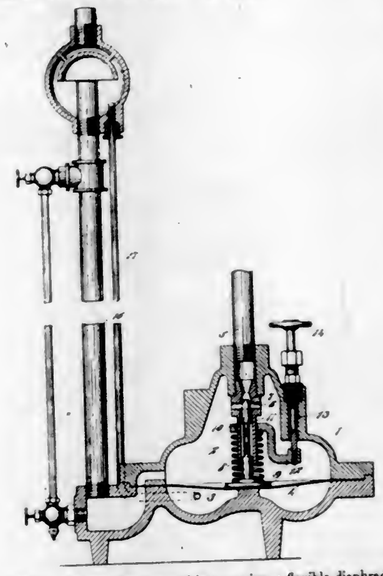


Claim.—1. In a straw-stacker, a fan-casing, a support having a bearing engaging the fan-shaft and another bearing for the periphery of the fan-casing, said second bearing being curved cylindrically, and a delivery-spout secured to the fan-casing.

2. In a straw-stacker, a support, a fan-casing carried thereby, a substantially cylindrical receiving-box secured to the fan-casing, a discharge-spout connected loosely with the box to swing sidewise relatively thereto, and slides connected to move with the spout and engaging peripheral guideways of the box.

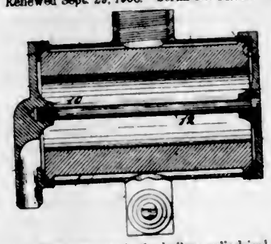
3. In a straw-stacker, a support, a trunk carried thereby and including a fan-casing, a discharge-spout connected loosely with the trunk to swing sidewise relatively thereto, and slides connected to move with the spout and engaging guideways on the trunk.

661,372. STEAM-TRAP. GEORGE H. GROTE, St. Louis, Mo. Filed July 26, 1900. Serial No. 24,905. (No model.)



Claim.—A steam-trap, comprising a casing, a flexible diaphragm in said casing, dividing it into upper and lower chambers, pipes leading into said chambers, a valve for controlling an outlet from the upper chamber, the said valve resting on the diaphragm, a collar surrounding the valve-stem, a spring arranged between said collar and a disk on the lower end of the valve-stem, an arm extended from said collar, and a rod having screw-thread engagement in the casing and engaging with said arm, substantially as specified.

661,373. FILTER. WILLIAM JANDUS, Cleveland, Ohio. Filed Apr. 22, 1899. Renewed Sept. 29, 1900. Serial No. 31,533. (No model.)



Claim.—1. A filter composed of a hollow cylindrical filtering-body having a filtered-water outlet from its interior chamber, a cylindrical casing surrounding said body to form a space around the same closed at the ends and provided with a water-inlet at one side, and partitions in said space extending longitudinally in the same and alternately projecting from opposite ends to form a longitudinally-winding channel in the space around the body and on both sides of the same from the inlet, substantially as set forth.

2. A filter composed of a cylindrical casing provided with a water-inlet at one side and a waste-outlet opposed to said inlet, and a hollow cylindrical filtering-body fitted in said casing to form a narrow space closed at the ends and provided with a filtered-water outlet from its interior and formed with longitudinal integral ribs upon its outer side alternately extending from the ends of the body to a distance from the opposite end to form a longitudinal winding channel in the space around both sides of the body from the inlet to the waste-outlet, substantially as set forth.

3. A filter composed of a casing having a water-inlet, and a filtering-body within said casing formed with integral ribs upon its surface fitted within the casing to form a winding channel in the space between the body and casing, substantially as set forth.

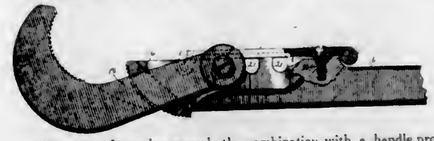
4. In a filter, the combination of a cylindrical casing having a water-inlet and a cylindrical filtering-body within the same having a filtered-water outlet, said elements being separated from each other to form a narrow filtering-space by an annular shoulder at their ends making a joint and having an annular groove formed by the ends of said elements at their joint, a gasket in said groove, and a head bearing against said gasket to fill said groove and to tighten the joint, substantially as set forth.

5. In a filter, the combination of a cylindrical casing having a water-inlet and a cylindrical filtering-body within the same and having a filtered-water outlet, one of said elements having an annular shoulder at its end against which the other element bears and which spaces the body from the casing and an annular groove being formed at the ends of said body and casing in the joint of the shoulder, a gasket in said groove and tightly closing the joint of the shoulder, and a head bearing against said gasket to force the same into the groove and joint, substantially as set forth.

6. In a filter, the combination of a cylindrical casing having a water-inlet, a tubular filtering-body within said casing formed with annular shoulders at its ends each having an external bevel at the end, gaskets bearing in the grooves formed between said bevels and the casing, and heads clamped against the ends of the casing and body to force the gaskets into the grooves and one of said heads formed with a filtered-water outlet from the interior of the filtering-body, substantially as set forth.

7. In a filter, the combination of a cylindrical casing having a water-inlet at one side and a waste-outlet opposed to said inlet, a tubular filtering-body in said casing formed with an annular shoulder at each end having an external bevel and with ribs longitudinally extending alternately from the shoulders at opposite ends to form a longitudinally winding channel in the space between the body and the casing, gaskets bearing in the annular grooves formed between the bevels of the shoulders and the ends of the casing, and heads clamped against the ends of the casing and body to force the gaskets into the grooves and one of said heads formed with a filtered-water outlet from the interior of the filtering body, substantially as set forth.

661,374. PIPE-WRENCH. JOSEPH P. LAVIGNE, New Haven, Conn. Filed July 19, 1900. Serial No. 24,232. (No model.)



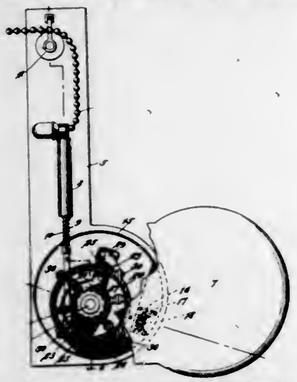
Claim.—1. In a pipe-wrench, the combination with a handle provided with two or more bearings and with a fixed jaw, of a pivotal jaw adapted to have its pivot shifted into one or the other of said bearings, a pivotal arm for holding the pivot of the pivotal jaw in one of the said bearings, a locking-lever for holding the said arm in its locked position, and a spring coacting with the said lever for holding it in its locked position, the said lever and handle being grooved for the reception of the spring, which, when the lever is turned, is forced out of the groove in the lever into the groove of the handle.

2. In a pipe-wrench, the combination with a handle provided with two or more bearings and with a fixed jaw, of a pivotal jaw adapted to have its pivot shifted into one or the other of said bearings, a pivotal arm for holding the pivot of the pivotal jaw in one of the said bearings, a locking-lever for holding the said arm in its locked position, and a spring coacting with the said lever for holding it in its locked position, the said lever and handle being grooved for the reception of the spring, which, when the lever is turned, is forced out of the groove in the lever into the groove of the handle, and the said spring containing a central perforation, and provided with two bosses located at its respective ends and entering the groove in the lower face of the lever when the same is in its closed position, and being crowded into the groove in the handle when the lever is not in that position.

661,375. BRIDLE-BLIND. FRANK MACK, New York, N. Y. Filed Apr. 25, 1900. Serial No. 14,268. (No model.)

Claim.—1. A horse-blinker, comprising a body, a shade movably

mounted thereon to cover or uncover the eye of a horse, a cam mounted on the body to actuate the shade, and means for operating the cam.



2. A horse-blinker, comprising a body, a shade movably mounted thereon, a cam actuating the shade to cover or uncover the eye of a horse, a moving arm having a pawl for driving the cam, and means for driving the arm.

3. A horse-blinker having a body, a shade movably mounted thereon, a rotating cam for actuating the shade to cover or uncover the eye of a horse, an arm mounted to turn upon the axis of the cam, a pawl carried by the arm and acting upon the cam to drive the same, and means for driving the arm.

4. A horse-blinker, comprising a body, a pivotally-mounted shade movable on its pivot to cover or uncover the eye of a horse, and a wheel with two cams thereon, such cams being each of a length equal approximately to one-half the circumference of the wheel, the cams acting upon the shade to actuate the same in the manner described.

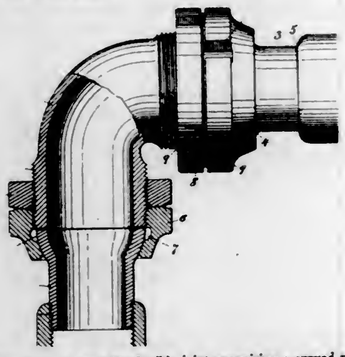
661,376. SPOKE-SECURING NIPPLE. FREDRICK W. MARSHALL, Westville, Conn. Filed Apr. 18, 1900. Serial No. 13,342. (No model.)



Claim.—1. A nipple for the purposes stated, formed of hard sheet metal and bent up into tubular shape, the upper end terminating in an integral bead, and a threaded sleeve of soft metal brazed or otherwise secured in the upper end of the bore of the tubular body, substantially as shown and described.

2. As a new article of manufacture, a nipple for bicycle-spokes, consisting of a hard-sheet-steel blank bent up into tubular shape, the upper end having an integral bead or cap and a supplemental tubing of brass or other soft metal and fitted into the upper end of the tubular body said soft-metal tubing being threaded substantially as shown and for the purposes described.

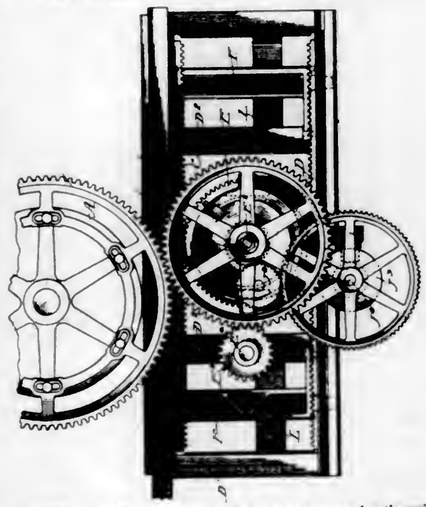
661,377. METALLIC FLEXIBLE JOINT. JESSE C. MARTIN and JESSE C. MARTIN, Jr., San Francisco, Cal. Filed Feb. 8, 1900. Serial No. 4,537. (No model.)



Claim.—1. A metallic flexible joint comprising a curved pipe provided with threads on each of its ends, a nipple having an enlarged end abutting one of the ends, the enlarged end formed with a smooth exterior spherical surface and a socket-ring fitting and forming a joint with the enlarged portion of the nipple and provided with an internal thread adapted to engage with the thread on the pipe and having a recess or countercored internal enlargement between the threads and the spherical joint-surface and a lock-nut adapted to engage with the threaded socket to secure it in position.

2. A metallic flexible joint comprising a curved pipe provided with threads on each of its ends, a nipple having an enlarged end abutting one of the ends, the enlarged end formed with a smooth exterior spherical surface and a socket-ring fitting and forming a joint with the enlarged portion of the nipple and provided with an internal thread adapted to engage with the thread on the pipe and having a recess or countercored internal enlargement between the threads and the spherical joint-surface and a lock-nut adapted to engage with the threaded socket to secure it in position and a substantially similar nipple, threaded socket and lock-nut on the other end of the curved pipe.

661,378. BED-MOTION FOR PRINTING-PRESSES. ROBERT MIEHLE, Chicago, Ill., assignor to the Miehle Printing Press and Manufacturing Company, same place. Filed Mar. 27, 1899. Serial No. 710,629. (No model.)



Claim.—1. The combination with the gear for operating the wrist-pin, and the racks having guideways at their ends whereby the pin controls the bed during the reversing operations, one side of each guideway being movable, of a wrist-pin having two separate rollers one bearing against the stationary side of the guideways and the other against the movable side thereof, substantially as specified.

2. In a bed-motion for printing-presses, the combination of guideways each having a movable side, with a wrist-pin entering the guideways and carrying two rollers, one for engaging the stationary sides of the guideways and one for engaging the movable sides thereof, substantially as specified.

3. The combination of the rack-frame provided with a slotted guideway and a crank provided with a wrist-pin adapted to engage the guideway and reverse the movement of the rack-frame, with separate rollers on said wrist-pin respectively adapted to engage the opposite side walls of the guideway.

4. In a bed-movement for printing-presses, the combination of a rack-frame provided with racks and guideways, a pinion adapted to engage the racks and impart the main stroke to the bed, and a wrist-pin on the pinion adapted to engage the guideways and reverse the movement of the bed, said wrist-pin being provided with two rollers respectively adapted to engage the opposite side walls of the guideways, for the purpose and substantially as described.

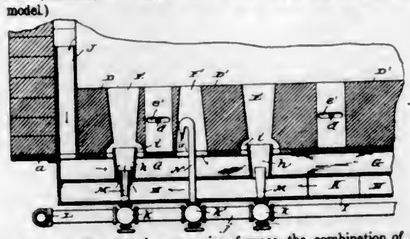
5. In a bed-movement, the combination of a pair of racks, a revolving crank, a wrist-pin thereon and revolving therewith, a vertical guide-slot at each end of the rack-frame alternately cooperating with the wrist-pin to reverse the movement of the bed at each end of the working stroke of the racks, an annular pinion slidably mounted on and supported by said revolving crank, and means for shifting the pinion on the crank so as to engage it alternately with the racks, substantially as described.

6. In a bed-movement, the combination of a pair of racks attached to the bed and a vertical guide-slot at each end of the rack-frame, a revolving crank, a wrist-pin thereon adapted to alternately engage the guide-slot, at the ends of the working strokes of the racks, to reverse the movement of the bed, an annular pinion slidably mounted on and supported by said revolving crank, and means for shifting the pinion on the crank so as to engage it alternately with the racks, substantially as specified.

7. In a bed-movement, the combination of a rotatable shaft having a large hub or crank-disk on one end, a wrist-pin on said disk and revolving therewith, a rack-frame provided with parallel racks disposed in different planes, an annular or ring pinion slidably mounted on but rotating with said crank-disk, vertical guide-slots, one at each end of the rack-frame, adapted to be alternately engaged by the wrist-pin to accomplish the reversal of movement of the rack-frame at each end of its stroke, and means for shifting the pinion upon the disk from engagement with one rack into engagement with the other during the period of reversal.

8. The combination of the racks attached to the bed and vertical guide-slots one at each end of the racks, with a rotary shaft having a large hub, a gear slidably keyed to and supported on said hub, alternately meshing with the racks, a wrist-pin independent of said gear supported from said hub and revolving therewith and alternately engaging said guide-slots, and means for sliding the gear on the hub, substantially as specified.

661,379. SMOKE-CONSUMING FURNACE. WILLIAM E. MINSHALL, Minonk, Ill. Filed July 12, 1900. Serial No. 23,396. (No model.)



Claim.—1. In a smoke-consuming furnace, the combination of a fire-box or combustion-chamber, a hot-air chamber, passages connecting the hot-air chamber and the interior of the fire-box or combustion-chamber, a cold-air chamber open to the atmosphere, and one or more passages leading from said cold-air chamber into one or more of the passages intermediate of the hot-air chamber and fire-box.

2. In a smoke-consuming furnace, the combination of a fire-box or combustion-chamber, a hot-air chamber, a cold-air chamber, a cold-air-supply conduit open to the atmosphere and leading from a point below the cold-air chamber to said chamber, passages intermediate of the hot-air chamber and the fire-box or combustion-chamber, and one or more passages leading from the cold-air chamber into one or more of the passages between the hot-air chamber and fire-box.

3. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber disposed transversely in front of the fire-box and in a plane above the grate thereof, a cold-air chamber arranged parallel to the hot-air chamber and adjacent thereto; said cold-air chamber being open to the atmosphere, passages intermediate of the hot-air chamber and the fire-box, and a passage leading from the cold-air chamber into one of the passages intermediate of the hot-air chamber and fire-box, substantially as specified.

4. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, a passage leading from the hot-air chamber to the fire-box, a return-passage leading from the fire-box above the fire to the hot-air chamber, a cold-air chamber open to the atmosphere, a passage leading from the cold-air chamber into the first-named passage between the hot-air chamber and fire-box, and a steam-pipe having a jet arranged to discharge into the passage between the cold-air chamber and the passage leading from the hot-air chamber into the fire-box, substantially as specified.

5. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, passages intermediate of the fire-box and the hot-air chamber, a cold-air chamber open to the atmosphere, a passage leading from the cold-air chamber into one of the passages between the hot-air chamber and the fire-box, a steam-pipe having a jet arranged to discharge into the passage between the cold-air chamber and the passage leading from the hot-air chamber to the fire-box, and a pipe leading from the steam-pipe into one of the passages between the hot-air chamber and the fire-box and arranged to discharge into said passage in a direction away from the fire-box, substantially as specified.

6. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, a passage leading from the hot-air chamber to the fire-box, a return-passage leading from the fire-box to the hot-air chamber, a cold-air chamber open to the atmosphere, a passage leading from the cold-air chamber into the first-named passage between the hot-air chamber and the fire-box, a steam-pipe, a jet-tube arranged to discharge into the passage between the cold-air chamber and the passage leading from the hot-air chamber into the fire-box, and a valve interposed between the steam-pipe and the jet-tube, substantially as specified.

7. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, passages intermediate of the fire-box and the hot-air chamber, a passage open to the atmosphere and leading into one of the passages between the hot-air chamber and the fire-box, a steam-supply pipe, and a jet-tube arranged to discharge into the tube communicating with a source of air-supply.

8. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, passages intermediate of the fire-box and the hot-air chamber, a passage leading from the atmosphere into one of the passages between the hot-air chamber and the fire-box, a steam-supply pipe, a jet-tube arranged to discharge into the passage communicating with the atmosphere, and a valve interposed between the supply-pipe and the jet-tube, substantially as specified.

9. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, passages intermediate of the hot-air chamber and fire-box, a cold-air chamber, a cold-air supply conduit having its receiving end open to the atmosphere located considerably below the cold-air chamber, and a passage leading from the cold-air chamber into one of the passages between the hot-air chamber and the fire-box.

10. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber, passages intermediate of the hot-air chamber and fire-box, a cold-air chamber, a cold-air-supply conduit having its receiving end located considerably below the cold-air chamber and open to the atmosphere, a passage leading from the cold-air chamber into one of the passages between the hot-air chamber and the fire-box, and suitable means for supplying steam to the passage leading from the cold-air chamber, substantially as specified.

11. In a smoke-consuming furnace, the combination of a fire-box, a hot-air chamber disposed transversely in front of the fire-box and in a plane above the grate thereof, a cold-air chamber arranged parallel to the hot-air chamber and adjacent thereto; said cold-air chamber being open to the atmosphere, passages intermediate of the hot-air chamber and the fire box, one or more tubes leading from the cold-air chamber into said passages, a steam-supply pipe, and one or more jets connected therewith and arranged to discharge into one or more of the said tubes, substantially as specified.

12. In a smoke-consuming furnace, the combination of a fire-box, a casing disposed transversely in front of the fire-box and in a plane above the grate thereof, and containing a longitudinal hot-air chamber connected by openings with the fire-box, a cold-air chamber open to the atmosphere and separated from the hot-air chamber by a longitudinal partition, tubes communicating with the cold-air chamber and extending into the openings between the hot-air chamber and the fire-box, and a steam-pipe having jets arranged in the said tubes, substantially as specified.

13. In a smoke-consuming furnace, the combination of a fire-box, and a plurality of castings forming part of one of the walls of the fire-box, and having their contiguous ends rabbeted and lapped and also having apertures in the one and slots in the other; said castings being provided with passages, and bolts extending through the apertures and slots of the castings, and connecting the same, substantially as specified.

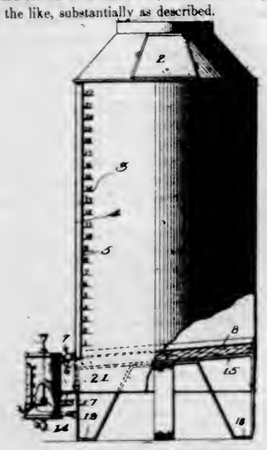
14. In a smoke-consuming furnace, the combination of a fire-box, a plurality of castings arranged end to end and forming part of the front wall of the fire-box; said castings having passages extending from their outer to their inner sides, a casing arranged at the outer side of the castings, and containing hot and cold air chambers; the hot-air chamber being in communication with the passages in the castings, return-passages intermediate of the fire-box and hot-air chamber, passages leading from the cold-air chamber into passages of the castings, means for supplying air to the cold-air chamber, and means for supplying steam to the passages leading from the cold-air chamber into passages of the castings, substantially as specified.

661,380. COMBINED OIL CAN AND MEASURER. PAUL MORDAN and MAGNUS ROSER, Chicago, Ill. Filed July 9, 1900. Serial No. 23,020. (No model.)

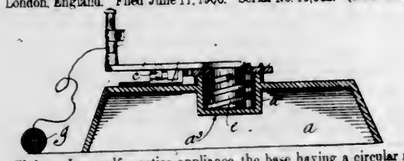
Claim.—1. In combination with a tank having its side wall extended below its bottom, a support for said tank located within said depending portion, comprising two bars crossing each other at right angles and riveted together at the point of crossing, said bars having their end portions bent downward, inward and upward, to form legs, and having said downwardly-bent portions secured to the depending portion of the wall of the tank, substantially as described.

2. A support for oil-tanks comprising two bars crossed and secured at right angles and having their end portions bent downward, inward and

then upward to the under sides of the bars and being secured thereto by rivets, or the like, substantially as described.

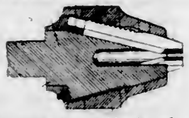


661,381. GOLF-PRACTICE APPARATUS. JAMES MCHARDY, London, England. Filed June 11, 1900. Serial No. 19,982. (No model.)



Claim.—In a golf-practice appliance, the base having a circular recess therein and provided with a circular top, the surface of which is divided into graduations; in combination with a spring-controlled arm having its rear downwardly-turned end revolubly mounted in said recess and in a revolving boss mounted around the raised track surrounding said central recess; and a forward struck-up end of said arm carrying a loose sleeve to which a captive ball is flexibly connected, said struck-up part having a graduated surface and a spring-clip mounted upon it; and an indicating-arm on the periphery of the said revolving boss, said indicating-arm being dropped below the said spring-controlled arm and having a pivoted toggle arranged to offer a resistance to the movement of the spring-controlled arm in one direction, substantially as specified.

661,382. CHUCK. EDWARD A. NOLL, Cleveland, Ohio. Filed Mar 21, 1900. Serial No. 9,552. (No model.)



Claim.—1. In a chuck, the combination of a shell formed with a truncate-conical recess having screw-threads raised from the cone surface of its inner and larger portion, a conical core fitted in said shell and formed with a step or break in its cone surface to fit the inner portion within the threaded portion of the shell and formed with longitudinal grooves in its surface, and jaws fitted to slide in said grooves and within the shell and having threads into the inner portions of their outer sides to be engaged by the threads upon the inner surface of the shell, substantially as set forth.

2. In a chuck, the combination of a core formed with a smaller cone surface at its outer portion and a larger cone surface at its inner portion parallel to said former surface and with a step between said surfaces and having longitudinal grooves in the full length of its surface, a shell fitted upon said core with corresponding internal cone surfaces and step and having the inner cone surface screw-threaded, and jaws fitted to slide in the grooves of the core and having threads in the inner portions of their outer sides to be engaged by the screw-threaded cone surface of the shell, substantially as set forth.

3. In a chuck, the combination of a conical core having longitudinal grooves, a shell fitted upon said core and having an internal screw-thread in its interior cone surface, jaws sliding in the grooves of the core and having threads in their outer sides engaged by the screw-threads of the shell, and a locking-collar fitted to revolve at the inner end of the core and secured in the inner open end of the recess in the shell to close the same, substantially as set forth.

4. In a chuck, the combination of a shell formed with a truncate-conical recess having screw-threads raised from the cone surface of its inner and larger portion, a conical core fitted in said shell and formed with a step or break in its cone surface to fit the inner portion within the threaded portion of the shell and formed with longitudinal grooves in its surface, jaws fitted to slide in said grooves and within the shell and having threads into the inner portions of their outer sides to be engaged by the threads upon the inner surface of the shell, and a locking-collar fitted to revolve at the inner end of the core and secured in the inner open end of the recess in the shell to close the same, substantially as set forth.

5. In a chuck, the combination of a core formed with a smaller cone surface at its outer portion and a larger cone surface at its inner portion parallel to said former surface and with a step between said surfaces and having longitudinal grooves in the full length of its surface, a shell fitted upon said core with corresponding internal cone surfaces and step and having the inner cone surface screw-threaded, jaws fitted to slide in the grooves of the core and having threads in the inner portions of their outer sides to be engaged by the screw-threaded cone surface of the shell, and a locking-collar fitted to revolve at the inner end of the core and secured in the inner open end of the recess in the shell to close the same, substantially as set forth.

6. In a chuck, the combination of a core formed with a cylindrical shoulder at its inner end and with a cone surface at its outer portion and a larger cone surface at its inner portion and with a step between said surfaces and formed with equidistant longitudinal grooves in the full length of its cone surfaces and step, a shell fitted upon said core with corresponding cone surfaces and step and having screw-threads formed in the inner cone surface, jaws fitted to slide in the longitudinal grooves in the core and formed with clamping edges at their outer ends and with threads in the inner portions of their outer sides engaged by the threads of the shell, and a locking-collar screwed into the open inner end of the shell and fitted to turn upon the shoulder of the core, substantially as set forth.

7. In a chuck, the combination with a core, a shell around the same and jaws within the core and shell, of a locking-collar fitted to turn upon the core and screwed into the open end of the shell and formed with a slit, and a tapering screw threaded in a hole intersecting said slit for spreading the same and expanding the collar in the threads of the shell, substantially as set forth.

8. In a chuck, the combination with a core, a shell around the same, and jaws within the core and shell, of a locking-collar fitted to turn upon the core and screwed into the open end of the shell and formed with a slit extending nearly through the thickness of the collar and from near the edge of the same to another point near the edge and with an outwardly-tapering threaded hole intersecting said slit, and a tapering screw in said hole whereby the slit may be spread by drawing the screw outward and the threads of the collar expanded in the threads of the shell, substantially as set forth.

9. In a chuck, the combination of a core having its inner end of a greater diameter than the outer end and having a reduced shoulder at such inner end, a shell fitting around said core and fitted from the outer end of the same, jaws within the core and shell, and a locking-collar fitted to turn upon the reduced shoulder and secured to the inner and larger end of the shell to close the same and retain the shell upon the core, substantially as set forth.

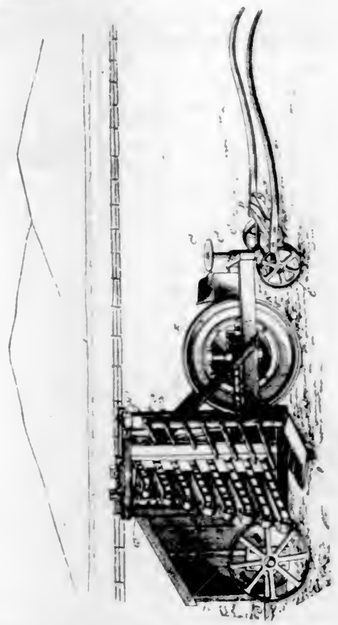
661,383. AUTOMATIC COTTON-PICKER. JOHN A. PEER, New Orleans, La. Filed Apr. 13, 1898. Serial No. 677,461. (No model.)

Claim.—1. In a cotton-picking machine, the combination with the main body, of a laterally-extending picker-belt, mounted upon rollers having vertical axes, and means for driving the said belt so that its forward side will move outwardly, substantially as described.

2. In a cotton-picking machine, the combination with the main body, of a vertical series of horizontally-disposed belts laterally extending, mounted upon rollers provided with vertical axes, said belts being separated to permit the branches of the plants and unmatured bolls to pass between them, and means for driving the said belts so that their forward sides will move outwardly, substantially as described.

3. In a cotton-picking machine the combination with the main body, of a vertical series of horizontally-disposed belts laterally extending, mounted upon rollers provided with vertical axes, said belts being separated to permit the branches of the plants and unmatured bolls to pass between them and mechanism for driving all of said belts so that the forward sides thereof will move outwardly, substantially as described.

4. In a cotton-picking machine the combination with the main body, of a vertical series of laterally-extending horizontally-disposed belts, mounted upon rollers having vertical axes, said belts being spaced a distance apart to permit branches of the plants and unmatured bolls to pass between them, means for adjusting said belts to cause them to lie at different angles to the main body of the machine and driving mechanism for said belts, substantially as described.



5. In a cotton-picking machine, the combination with the main body, of a vertical series of laterally-extending fingers, pivotally connected to the said main body, a series of picker-belts mounted upon rollers having vertical axes between certain of said fingers, said belts being separated from each other to permit branches and unmatured bolls to pass between them, and means for driving said belts so as to cause their forward sides to travel outwardly, substantially as described.

6. In a cotton-picking machine, the combination with the main body, of a vertical series of laterally-extending fingers, pivotally connected to the said main body, a series of picker-belts mounted upon rollers having vertical axes between certain of said fingers, said belts being separated from each other to permit branches and unmatured bolls to pass between them, and means for driving said belts so as to cause their forward sides to travel outwardly, and means for adjusting said fingers and the belts carried thereby to different angles with respect to said main body, substantially as described.

7. In a cotton-picking machine, the combination with the main body, of a vertical series of horizontally-disposed fingers extending laterally therefrom, a series of belts mounted between certain of said fingers, upon rollers provided with vertical axes, said belts being separated to permit branches and unmatured bolls to pass between them, driving means for said belts and guards secured to the said fingers and extending across the ends of said belts to prevent the cotton picked thereby from being brushed off by contact with the plants, substantially as described.

8. In a cotton-picking machine, the combination with the main body, of a vertical series of laterally-extending fingers, pivotally connected to the said main body, a series of picker-belts mounted upon rollers having vertical axes between certain of said fingers, said belts being separated from each other to permit branches and unmatured bolls to pass between them, and means for driving said belts so as to cause their forward sides to travel outwardly, a clamping-rod extending vertically through all of said fingers and through slots provided in parts connected with the main body of the machine and a securing device for said rod, whereby said fingers and said belts may be adjusted to different angles with respect to said main body, substantially as described.

9. In a cotton-picking machine, the combination with the main body provided with a vertical shaft, of a vertical series of horizontal fingers pivotally mounted upon said shaft and separated from each other, a series of rollers secured to said shaft between certain of said fingers, a series of vertical rollers secured between the outer ends of certain of said fingers, a series of picker-belts carried by said rollers, and disposed horizontally one above another, said belts being separated a distance to permit branches and unmatured bolls to pass between them, and means for driving said vertical shaft to cause the forward sides of said belts to move outwardly, substantially as described.

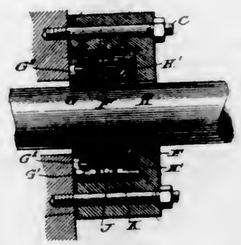
10. In a cotton-picking machine, the combination with the main body, of a vertical series of horizontally-disposed belts laterally extending, mounted upon rollers provided with vertical axes, said belts being separated to permit the branches of the plants and unmatured bolls to pass between them, driving mechanism for said belts, and a vertical series of horizontal rake-arms located forward of and in line with the spaces between said belts, substantially as described.

11. In a cotton-picking machine, the combination with the main body, of a vertical series of horizontally-disposed belts laterally extending, mounted upon rollers provided with vertical axes, said belts being separated to permit the branches of the plants and unmatured bolls to pass between them, a vertical series of rake-arms pivotally secured to said main body forward of said belts each of said arms being in a horizontal line with one of the spaces between two adjacent belts, substantially as described.

12. In a cotton-picking machine, the combination with the main body, of a vertical series of horizontally-disposed belts laterally extending, mounted upon rollers provided with vertical axes, said belts being separated to permit the branches of the plants and unmatured bolls to pass between them, a pair of rear supporting-wheels secured to said main body, a pair of front supporting-wheels, a traction-wheel intermediate said front and rear wheels operatively connected with said belts, and means for adjusting said front wheels with respect to the main body to vary the weight upon said traction-wheel, substantially as described.

13. In a cotton-picker, the combination of the main frame, of the front and rear wheels supporting said frame, the rear wheels being independently adjustable, the adjusting-screw for raising and lowering the front end of the frame, the stationary disk carrying a rotary shaft provided with a drive-sprocket, the traction-wheel revolving about the said stationary disk and imparting motion to the rotary shaft, the belt and brush shafts together with the intermediate gearing devices for communicating a motion to the said belt and brush shafts, the endless belts and spacing-arms arranged on the belt-shafts, the brushes arranged upon the rotary brush-shafts, the box or receiver carried upon the rear end of the main frame, the separating or rake arms, and the guards upon the lower sides of the main frame all arranged and adapted to operate substantially as shown and described.

661,384. METALLIC PACKING. WILLIAM H. PRENDERGAST, Savannah, Ga., assignor of one-half to Theodore D. Kline, same place. Filed Jan. 19, 1900. Serial No. 2,027. (No model.)



Claim.—1. In a packing substantially as described, the combination of the packing-ring sections, the equalizing-plate fitting over the said sections and extending circumferentially of the packing-ring, and the spring fitting over and extending circumferentially along the equalizer-plate and engaged at its ends with such plate adjacent to the ends of the latter.

2. In a packing substantially as described the combination, of the universal sections having a ball-and-socket joint at their contacting edges, the packing-rings composed of sections fitted together, the equalizing-plates fitting over the ring-sections and extending circumferentially of the ring, the springs fitting over and extending circumferentially along the equalizing-plates and engaged at its ends with such plates adjacent to the ends of the latter, and the spring-plate provided with springs and adapted to exert pressure against the face of the packing-rings substantially as set forth.

3. In a packing substantially as described, the combination of the packing-ring sections and the equalizing-plate fitting over the ring-sections and having pocket-like seats at its ends and the spring fitting over the equalizing-plate and engaged at its ends in the pocket-like seats of the equalizing-ring.

4. In a packing, a plurality of rings fitted side by side and composed of sections fitting together to form their rings, the joints of the sections

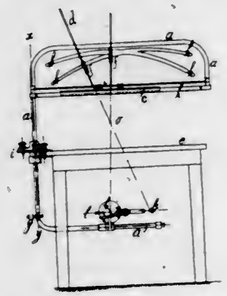
of one ring being staggered with respect to the next, and such rings being provided in their peripheries with alined non-circular grooves, and a pin extending between said rings and fitted to and in said grooves substantially as set forth.

5. In a packing substantially as described the combination of the packing-ring sections, the equalizing-plate fitting circumferentially on the packing-ring and having its ends separated and spaced apart, and spring devices exerting a tension directly on said ends of the plate in a direction to press such ends toward each other substantially as set forth.

6. In a packing substantially as set forth the combination of the packing-rings fitted side by side and composed of sections, the joints of the sections of the adjoining rings being staggered, and said rings being provided in their outer edges with grooves, the pin fitting in said grooves and connecting the adjoining packing-rings, and the equalizing-plates fitting on their respective rings and over the grooves and pin therein substantially as set forth.

7. In a packing substantially as described, a spring-supporting plate which is rabbeted forming a projecting shoulder, and springs held to said plate alongside said shoulder, such springs being held at their middles to the plate and having their ends deflected and bearing edgewise between their ends and middles against the said projecting shoulder and the packing devices substantially as set forth.

661,385. APPARATUS FOR DETERMINING THE POSITION OF FOREIGN BODIES BY MEANS OF ROENTGEN RAYS. CHARLES REMY, Paris, France. Filed Sept. 28, 1899. Serial No. 731,961. (No model.)



Claim.—1. In apparatus for determining the position of foreign bodies by means of Roentgen rays, consisting of a double-armed bracket or frame, a means for pivoting the frame to the operating-table with one arm above and the other below the same, a support mounted on the lower arm and capable of limited movement, a Crookes tube fixed to the support and movable therewith, a slotted plate fixed to the upper arm of the bracket, said slots being circular and struck from the focus of the Crookes tube in its two extreme positions, slides or ferrules adjustably mounted in the slots, rods mounted in the ferrules with their axes coinciding with the radius of the slots and a diffusing screen or plate mounted on the frame below the rods, substantially as described.

2. In apparatus for determining the position of foreign bodies by means of Roentgen rays, the means for carrying the screen and indicating apparatus so as to allow of such apparatus being turned aside during the surgical operation consisting of a clamp or support, a double-armed bracket mounted to rotate on its axis in the support, a means for determining the angle of rotation and a means for fixing the bracket, substantially as described.

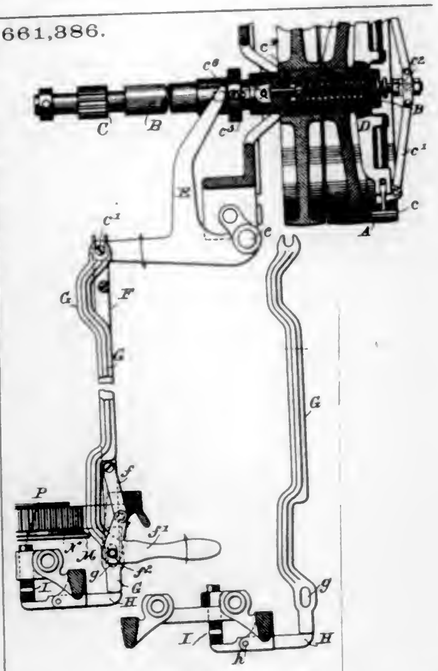
661,386. LINOTYPE-MACHINE. JOHN R. ROGERS, New York, N. Y., assignor to the Mergenthaler Linotype Company, of New York. Filed June 5, 1900. Serial No. 19,136. (No model.)

Claim.—1. In the Mergenthaler linotype-machine, the combination of the main driving-clutch, the automatic devices controlled by the first elevator for throwing the same out of action, and the manual devices, independently connected with the clutch by the bar G, substantially as described.

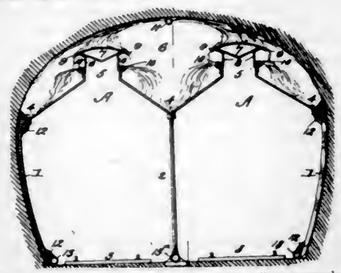
2. In a Mergenthaler linotype-machine and in combination with a clutch-controlling lever E, two independent actuating-bars, F and G, the former connected with a manual device and the latter connected with devices operated by the first elevator.

3. In a Mergenthaler linotype-machine and in combination with a clutch-controlling lever E, actuating-bar G, lever H and lever I, the latter controlled by the mold-disk and by the first elevator, substantially as described and shown.

661,386.



661,387. VENTILATING ATTACHMENT FOR RAILWAY-TUNNELS. JAMES J. SWAINE, Baltimore, Md. Filed May 22, 1900. Serial No. 17,566. (No model.)



Claim.—1. A ventilating attachment for railway-tunnels, comprising a supplemental roof or arch, having a central longitudinal opening or passage and inclined sides, pipes in the space above the same, for delivering fluid upon the roof and gutters arranged at the outer edges of the latter and tubular conductors leading down from said gutters, substantially as shown and described.

2. A ventilating attachment for railway-tunnels, comprising a supplemental roof or arch, having a central longitudinal opening or passage, and inclined sides and gutters arranged at the outer edges of the latter, a deflector arranged directly over said passage, and supported a short distance above the latter, the said deflector having an angular base portion and side edges which project downward and laterally beyond the sides of said passage, as shown and described.

3. A ventilating attachment for railway-tunnels, comprising a supplemental roof or arch, having a central longitudinal opening or passage, and inclined sides, and gutters arranged at the outer edges of the latter, a deflector having an angular base and side edges which project downward and laterally beyond the sides of said passage, as shown and described.

4. The combination with a railway-tunnel of a supplemental arch having a central longitudinal passage, and pipes arranged in the space above the same for conveying fluid to effect condensation of gases and side gutters constructed as part of said arch, for receiving and conducting the wash, substantially as shown and described.

5. The combination with a railway-tunnel of a supplemental arch having a central longitudinal passage, and pipes arranged in the space above the same and provided with perforations for emission of fluid to produce condensation of gases, &c., substantially as shown and described.

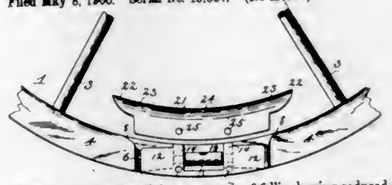
6. The combination with a railway-tunnel and a supplemental arch, having a longitudinal passage, of pipes arranged alongside said passage, and having lateral perforations for emission of fluid, substantially as shown and described.

7. The combination with a railway-tunnel and supplemental arch therefor, having a longitudinal passage, of a deflector arranged above said passage, and a fluid-discharge pipe having perforations and arranged above the deflector, substantially as shown and described.

8. The combination with a railway-tunnel and supplemental arch, formed of parallel sections each having a longitudinal passage, side gutters, and deflectors arranged over the passages and having crowning tops, of a water-pipe arranged above and intermediate of the arch-sections, and having perforations in both sides, whereby water may be discharged upon both deflectors simultaneously, as shown and described.

9. The combination with a railway-tunnel of a supplemental arch having two longitudinal passages, an imperforate portion or bridge between said passages, gutters along the outer sides of the arch, transverse tubes which span the passages, and perforated pipes arranged above the arch for discharging water laterally, as shown and described.

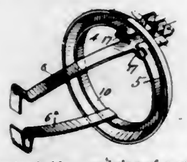
661,388. TIRE-TIGHTENER. FRANCIS A. TERPENING, Albia, Kans. Filed May 8, 1900. Serial No. 15,887. (No model.)



Claim.—1. In a tire-tightener, a pair of fellies having reduced ends, a pillow-cap for each of said ends, said pillow-cap consisting of the side walls, the inclined bottom, a perforated partition, and a projecting flange, a turnbuckle having oppositely-threaded ends fitted in the perforations in the partitions of the pillow-cap, and a cover-plate for concealing the joints, said plate having slots, and perforations, substantially as described.

2. The herein-described tire-tightener, consisting of the pillow-caps having side walls, inclined bottoms, perforated partitions, and recessed flanges, fellies having reduced ends fitting the pillow-caps, a turnbuckle having oppositely-screw-threaded ends fitting the perforations in the partitions, a cover-plate fitting the felly ends and provided with slots and perforations, bolts passing through the slots and perforations, the felly ends having apertures therein, for the purpose set forth.

661,389. STOVEPIPE-HOLDER. WILLIARD C. WILLIAMS, Benton Harbor, Mich. Filed Sept. 21, 1899. Serial No. 731,184. (No model.)

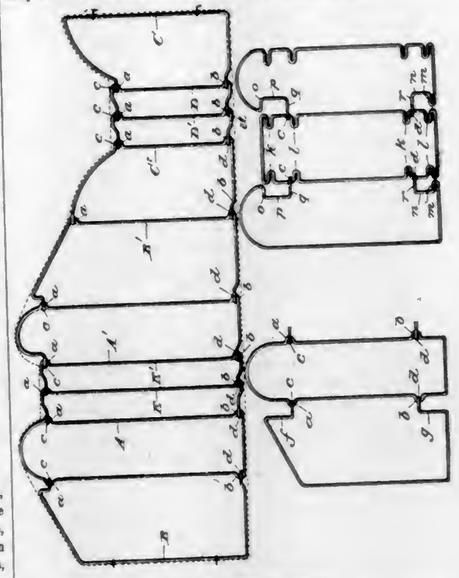


Claim.—A stovepipe-holder consisting of a collar having an outer rim and an inner face, a slot or opening in said face a split ring secured intermediate its ends to the face of said collar, the ends of said ring having projections provided with perforated lugs for a clamping-bolt, arms having hooked ends, one of said arms being secured to the face of the collar intermediate the ends of the split ring, and the other arm having upturned lugs for holding the split ring in place at the ends thereof and said arms passing through the slot or opening in the face of the collar, substantially as described.

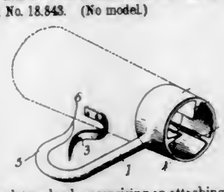
661,390. VAPOR-BATH CABINET. JOHN W. ZINKHANN, Evans City, Pa. Filed Mar. 10, 1900. Serial No. 8,183. (No model.)

Claim.—1. The herein-described collapsible vapor-bath cabinet comprising a frame-section and a series of part-frame sections each having top, bottom and one side member, the vertical members of the sections having loops near their upper and lower ends and the top and bottom members of the part-frame sections having their extremities bent into eyes embracing the loops on the vertical members of the adjoining sections, substantially as and for the purpose described.

2. The herein-described collapsible vapor-bath cabinet comprising a frame A, and the part-frame sections A', B, B', C, C', D, D', E and E' hinged to each other substantially as described, sections E, E', forming the rear and sections D, D', the front of the cabinet, and these pairs of front and rear sections being narrower than the others; with the flexible fabric covering the outer broad faces of the sections, and the flexible hood attached to the upper edges thereof, all constructed and arranged substantially as shown and described and for the purpose specified.



661,391. SINGLETREE-HOOK. THORE A. BAKKEN, De Soto, Wis., assignor of one-half to Otto M. Gilbertson, La Crosse, Wis. Filed June 2, 1900. Serial No. 18,843. (No model.)



Claim.—A singletree-hook comprising an attaching ring or ferrule, a hook portion formed thereon having its free end turned inwardly but its point flared outwardly, a guard comprising a piece of spring metal attached to the singletree at one end and extending at its other end into the said hook, the free end of the said guard being bent first outwardly so as to approach the rounded portion of the hook end and then inwardly so that wedge-shaped approaches are formed in each direction opposite the rounded portion of the hook end, whereby a trace or trace-fastening may be inserted or detached by a light pull in either direction, substantially as described.

661,392. MANUFACTURE OF BOOTS OR SHOES. JOHN A. BAXTER, London, England. Filed Apr. 10, 1900. Serial No. 12,372. (No model.)



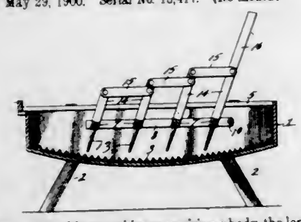
Claim.—1. In a shoe, the combination with the main sole, of the upper having its lower edge folded inward upon a continuous flexible connection, stitches uniting the folded portions of the upper above the said flexible connection, and stitches extending through the main sole and through said upper above said flexible connection, substantially as described.

2. In a shoe, the combination with the main sole provided on its upper side with a channel adjacent to its edges of the upper having its lower edges turned inward and upward upon a continuous flexible connection,

stitches uniting the folded parts of the upper above said flexible connection and stitches extending through the bottom of the main sole and passing through the folded portions of the upper above the flexible connection, substantially as described.

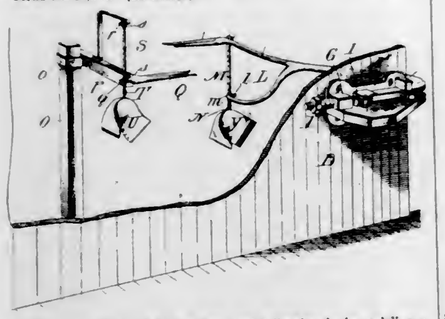
3. In a shoe, the combination with the main sole provided on its upper side with a groove adjacent to its edges and on its lower side with a corresponding groove, of the upper having its lower edges folded inward and upward, a continuous flexible connection within said folded portions, stitches uniting the folded portions of the upper above said flexible connection and stitches extending from the lower sole-channel through the sole into the upper sole-channel and through the folded portions of the upper above said flexible connections, substantially as described.

661,393. WASHING-MACHINE. HENRY F. CARRICO, Wingo, Ky. Filed May 29, 1900. Serial No. 18,417. (No model.)



Claim.—A washing-machine comprising a body, the longitudinal side bars located at the inner faces of the sides of the body and pivoted thereto near one end thereof and provided at intervals with perforations, the transverse rock-shafts having journals detachably arranged in the said perforations, said rock-shafts being provided with depending clothes-engaging arms and having upwardly-extending arms 14 gradually increasing in length from one end of the body, one of the upwardly-extending arms forming a projecting handle located at one end of the body, the fastening devices 12 detachably securing the side bars to the rock-shafts and adapted to permit the latter to be removed, whereby an agitator of the desired capacity may be provided and the short independent links 15 arranged at different elevations and detachably secured at their ends to the upwardly-extending arms, substantially as and for the purpose described.

661,394. MEANS FOR HANDLING MAIL-BAGS UPON MOVING TRAINS. AMOS O. CRAVENER, Indiana, Pa. Filed May 9, 1900. Serial No. 16,079. (No model.)



Claim.—1. In a mail-bag catching and delivering device, a delivery-arm mounted on a vertical pivot carried by a sliding rotatable member and to be extended outside the car and when withdrawn inside the car to be turned vertically, as set forth.

2. In a device of the character described, a pivotally-mounted arm carried by a horizontally-sliding rotatable member and having a forked end, and means for locking the arm in its extended position, as set forth.

3. In a device of the character described, a horizontally-slidable rotatable member, a pivotally-mounted arm carried thereby and having a forked end, means for locking the same in its extended position, and means for taking up the recoil, as set forth.

4. In a device of the character described, simultaneously-operating delivering and receiving means comprising forked arms extended in opposite directions in substantially the same vertical plane, one of said arms being pivotally mounted on a vertical pivot and connected with a horizontally-slidable rotatable member, as set forth.

5. In a device of the character described a pivoted delivery-arm having its free end provided with a fork having a pin projecting from the rear thereof, said arm being also provided with a downwardly-extending supplemental arm having a pin in vertical alinement with the pin on the fork, as set forth.

6. In a device of the character described, a crane-arm provided with a fork having a pin, projecting horizontally from the rear thereof, and an arm above the same having a pin in the same vertical plane as the pin carried by the fork, as set forth.

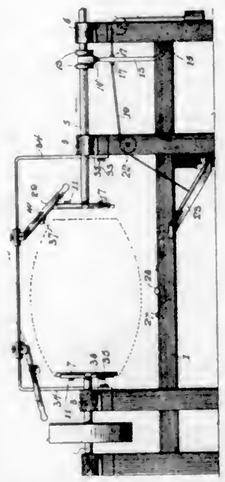
7. In a device of the character described, the combination with two oppositely-disposed forked arms each of which is provided with a bag-supporting pin extended in the direction opposite to that of the fork, of a supplemental arm carried by each of said forked arms, and each provided with a bag-supporting pin, the pins of the supplemental arms being vertically alined with the pins of the forked arms, and a bag-supporting cord normally suspended from the pin of each fork and the pin of the supplemental arm carried thereby and adapted to be removed by the opposing fork.

8. In a device of the character described, the combination of a base-plate with lug, a pivotally-mounted arm designed to engage beneath said lug, and a latch-bolt movable through the base-plate to engage said arm, as set forth.

9. In a device of the character described, the combination of a base-plate with lug, an arm pivotally mounted on said base-plate to engage beneath said lug, a latch-bolt movable vertically through said base-plate, and a pivotally-mounted weighted lever connected with said bolt, as and for the purpose specified.

10. In a device of the character described, the combination of a base-plate, an arm pivotally mounted thereon, a rod slidable through a block on the base-plate, connections between said rod and arm, and elastic collars on the rod bearing upon opposite sides of said block, as and for the purpose specified.

661,395. MACHINE FOR PLACING HOOPS UPON BARRELS. WILLIAM CURTIS, Duluth, Minn. Filed June 5, 1900. Serial No. 19,156. (No model.)



Claim.—1. A machine for tightening the hoops of barrels, comprising a frame, shafts carrying barrel-gripping chucks mounted therein, means for engaging the hoops upon the barrels comprising adjustable levers having antifriction shoes or rollers for bearing against the hoops, a longitudinally-arranged bar or support, means for securing the said levers at different points upon said support so as to bring them opposite any desired hoop upon a barrel, and means for supporting and rotating the barrel, the structure being such that by drawing the levers toward each other against the hoops as the barrel revolves the hoops may be tightly wedged thereon.

2. In a machine for tightening the hoops of barrels, the combination with a suitable frame, and means for supporting and rotating the barrel, of a longitudinally-arranged support, independently-operating levers mounted upon said support, means for securing them at any point upon the said support so as to bring them opposite any of the hoops, the structure being such that the levers may be operated independently of each other and be caused to bear against any one or more of the hoops for tightening them.

3. A machine for tightening hoops upon barrels, comprising a frame, shafting carrying gripping-chucks for rotatably supporting the barrel, means for rotating the same, a rod arranged longitudinally of the machine and parallel with the longitudinal axis of the barrel, sleeves movably mounted upon the said rod, means for holding the sleeves at any point upon the rod so as to bring them opposite certain hoops of the barrel, levers pivotally mounted upon said sleeves and carrying antifriction-rollers for engaging the hoops, the structure being such that the levers may be brought to bear upon any of the hoops of the barrel and may act independently of each other, substantially as described.

4. A machine for tightening hoops upon barrels comprising a frame, shafting mounted thereon, barrel-gripping chucks carried by the said shafting, for supporting a barrel, a bridge-rod mounted on the said frame, adjustable sleeves mounted on the bridge-rod, levers pivotally secured to the said sleeve, and hoop-engaging sheaves secured to the said levers, whereby upon forcing the levers together and revolving the barrel the hoops may be wedged upon the same and means for revolving the barrel.

5. A machine for tightening hoops of barrels comprising shafting, barrel-engaging chucks carried thereby, for supporting a barrel, means for rotating the same, a bridge-rod mounted upon the frame, means for adjusting the same to different heights, sleeves adjustably secured on the said bridge-rod, blocks pivoted to the said sleeves, levers pivoted to the said block, sheaves or antifriction-rollers adjustably mounted upon the said levers, the said sheaves having beveled edges, whereby they will engage the hoops of the barrel more securely, the structure being such that the levers may be raised and lowered or moved apart and forced together for acting upon the hoops to be tightened, substantially as described.

6. A machine for tightening hoops of barrels comprising a shaft to support the barrels, chucks carried by the said shaft consisting of disks having dovetailed grooves formed therein, arms moving in the said grooves and provided at their outer ends with chime-engaging depressions, and means for clamping the arms in their adjusted positions, and means for rotating the chucks and barrel, the structure being such that the chucks may be adapted to receive barrels of different sizes and hold them in proper position in the machine.

7. A machine for tightening the hoops of barrels comprising a frame, shafting mounted thereon, and carrying chucks for engaging the heads of a barrel, to support it, means for rotating said shafting, a skid for conducting the barrels from the machine, a barrel-adjusting frame pivoted upon the machine, the said frame being hinged thereto at one end and being free to be lifted at the other end, the structure being such that a barrel rolled upon the said frame may be raised to a proper position between the chucks to be gripped thereby.

8. A machine for tightening the hoops of barrels, comprising a frame, shafting mounted thereon and provided with barrel engaging and supporting chucks, means for rotating said shafting, a barrel-adjusting frame mounted upon the machine comprising bars hinged to the frame at one end and connected by a cross-bar at their other ends, a handle formed upon the said frame, the arrangement being such that by gripping the handle a barrel rolled upon the said frame may be lifted between the chucks of the machine so as to gripped thereby.

9. A machine for tightening the hoops of barrels, comprising a frame, shafting mounted thereon and provided with barrel engaging and supporting chucks, means for rotating said shafting, a barrel-adjusting frame mounted upon the machine, barrel-holding dogs secured to said frame, set-screws for adjustably holding said dogs in place, the construction being such that the dogs will hold the barrel from rolling on said frame and will raise the said barrel into the axial line of the chucks, substantially as described.

661,396. LUBRICATOR. EDWARD E. DAVIS, New York, N. Y. Filed June 29, 1900. Serial No. 22,091. (No model.)

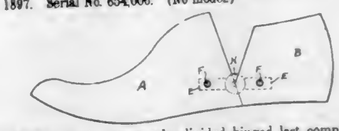


Claim.—1. An oil-cup composed of a body for the oil and having an inner feed-tube, in combination with a sliding, gravity-pressure cut-off cover having an inner part to engage with the top of the tube to shut off the feed of oil, substantially as described.

2. In an oil-cup the body provided with an outside projection and an inner oil-feeding tube in combination with a cover having its depending wall slotted, whereby the said cover is adapted to slide upon and engage by gravity with the said projection and with the top of said feed-tube to cut off the flow of oil therethrough or to be held out of said engagement, substantially as described.

3. In an oil-cup, the body provided with an inner oil-feeding wick-tube, and an outside projection in combination with a cover provided with an inside conically-shaped plug and with outside slots, whereby the said cover is adapted to be raised and rested on said projection through one of said slots, and lowered on the said projection through the other of said slots, the said conical plug engaging with said wick-tube when so lowered to cut off the flow of the oil, substantially as described.

661,397. LAST. FILLMORE DECKER, Chicago, Ill. Filed Oct. 4, 1897. Serial No. 654,006. (No model.)



Claim.—1. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with a plurality of articulated metallic hinges whose stems have cross-sections whose vertical and horizontal axes are substantially equal, said stems being placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

2. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with a plurality of articulated metallic hinges whose stems have cross-sections whose vertical and horizontal axes are substantially equal, said stems being placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions, and the pins passing through the holes cut through the sides of the last and into the stems of the hinges to secure them in place and in proper alinement, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

3. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with two articulated metallic hinges whose stems have cross-sections whose vertical and horizontal axes are substantially equal, said stems being placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions at a distance from the sides of said portions substantially equal to the thickness of one of said hinges, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

4. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with two articulated metallic hinges whose stems have cross-sections whose vertical and horizontal axes are substantially equal, said stems being placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions at a distance from the sides of said portions substantially equal to the thickness of one of said hinges, and the pins passing through the holes cut through the sides of the last and into the stems of the hinges to secure them in place and in proper alinement, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

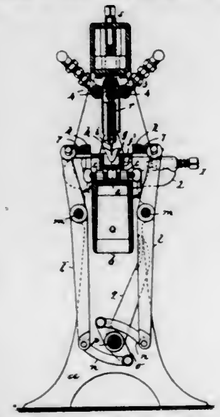
5. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with a plurality of articulated metallic hinges whose round stems are placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions, said last being

so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

6. A transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with a plurality of articulated metallic hinges whose round stems are placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions, and the pins passing through the holes cut through the sides of the last and into the stems of the hinges to secure them in place and in proper alinement, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

7. As a new and improved article of manufacture, a transversely-divided hinged last comprising a fore part and a heel part formed with opposed ends contacting from the bottom of the last upwardly toward the center, and with an open space above said contacting surfaces and between the upper portion of the inner ends of the fore part and heel part, with two articulated metallic hinges whose round stems are placed in correspondingly-shaped apertures cut into the opposing ends of said fore and heel parts in a transverse horizontal line at the upper edge of said contacting end portions at a distance from the sides of said portions substantially equal to the thickness of one of said hinges, and the horizontal pins passing through the holes cut through the sides of the last and into the stems of the hinges to secure them in place and in proper alinement, said last being so constructed and the hinges so located that the heel part can swing upwardly on said hinges to remove the last from the shoe, the pivots of said hinges being in the line of the transverse cut separating the fore and heel parts.

661,398. **GLUING-PRESS.** WYMAN EATON and MICHAEL BOLAND, Dolgeville, N. Y., assignors to the American Felt Company, New York, N. Y. Filed Aug. 15, 1900. Serial No. 26,977. (No model.)



Claim.—1. A press provided with a holder and compression-slides, a treadle for actuating the slides and swinging fastening devices for said slides substantially as described.

2. A press provided with a holder and compression-slides, actuating-levers for the slides, a rock-shaft having arms linked to the levers, and a treadle connected to the rock-shaft substantially as described.

3. A press provided with a holder and compression-slides, a treadle for actuating the slides, screws or fastenings for fixing the compression-slides, swinging supports for said screws or fastenings substantially as described.

4. A press provided with a holder and compression-slides, fixing-screws or fastenings for the slides, and swinging or swiveling carriers for the screws substantially as described.

5. A press provided with a holder and compression-slides, a treadle for actuating the slides, arms for holding down the slides and swinging fastening devices for said slides substantially as described.

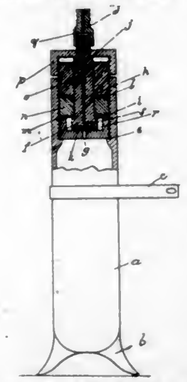
6. A press provided with a holder and compression-slides, a treadle for actuating the slides, arms for holding down the slides, and rock-shafts for moving the arms into and out of action substantially as described.

7. A press provided with a holder and oppositely-located compression-slides, arms for holding down the slides, rock-shafts for actuating the arms, gears for connecting the rock-shafts and an actuating handle or lever for the shafts substantially as described.

8. A press provided with a holder and compression-slides, a treadle for actuating the slides, arms for holding down the slides, and rock-shafts for moving the arms into and out of action, said arms being made adjustable in length and the slides having seats for receiving the ends of the arms substantially as described.

9. A press provided with a holder and compression-slides, actuating-levers for the slides, a rock-shaft having arms and a treadle for actuating the levers, fixing-screws for the slides, swinging supports for the screws, arms for holding the slides, rock-shafts for the arms, a strip made to coact with the holder, and actuating-screws for the strip substantially as described.

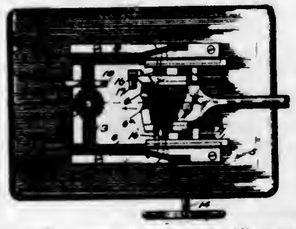
661,399. **APPARATUS FOR INFLATING PNEUMATIC TIRES.** JULES EMINGER and PROSPER E. MARCHAND, Paris, France. Filed Mar. 10, 1899. Serial No. 708,499. (No model.)



Claim.—1. In a device for filling pneumatic tires, &c., the combination of a receptacle *a* adapted to contain gas in a liquefied or compressed condition, a valve-seat therein, a valve adapted to coöperate with the said valve-seat and provided with a freely-oscillating stem, a cap adapted to hold the said valve down to its seat, the said cap being in screw-threaded connection with the receptacle *a* and coöperating with the shoulder on the valve-stem and a suitable packing surrounding the valve-stem, whereby upon screwing the cap off the shoulder the valve-stem will be permitted to have a longitudinal movement to lift the valve clear of its seat.

2. In a device of the character described, the combination of a gas-receptacle *a* provided with a valve-seat, a valve seated on the said valve-seat and provided with a valve-stem *h*, a series of rings or washers *o*, *n* surrounding the said valve-stem and adapted to act as a packing, the said valve-stem being adapted for free longitudinal movement in the said washers, shoulders *i j* on the valve-stem and a cap in screw-threaded connection with the washer *o* and adapted to rest upon the shoulder *j* substantially as described, whereby the said cap will hold the said valve on its seat until released and the shoulder *i* will serve as a stop for limiting the movement of the valve-stem.

661,400. **MACHINE FOR MAKING SHOVEL-HANDLES.** AUGUSTUS R. FEISTEL, Philipsburg, Pa. Filed Apr. 3, 1900. Serial No. 11,324. (No model.)



Claim.—1. The combination with a rotatable cutter of a slidable carrier or carriage and means for reciprocating it, a tiltable holder for a shovel-handle blank which is pivoted in said carriage, and automatically-operating means for tilting the said holder as it approaches the cutter-head substantially as shown and described.

2. The combination with a rotatable cutter arranged vertically and fixed guides arranged horizontally in suitable proximity thereto, of a carrier or carriage adapted to slide on said guide toward and from the cutter, automatically-operating means for effecting such reciprocating movement, a holder for shovel-handle blanks which is pivoted in said carriage, and automatically-operating means for tilting the blank-holder to bring the blank into engagement with the cutter, substantially as shown and described.

3. The combination with a rotatable cutter of side guides arranged adjacently in horizontal position, a carriage adapted to slide thereon, means for imparting the required movement thereto, and a handle-blank holder which is pivoted in said carriage and provided with internal parallel grooves for receiving the blank, and having a projection adapted to engage a device adapted to tilt the holder gradually into vertical position, the said device being located in suitable proximity to the cutter, substantially as shown and described.

4. The combination with a rotatable cutter and suitable side guides of a reciprocating carriage, a blank-holder which is pivoted and tiltable therein, and a fixed projection or cam adapted to engage and tilt said holder substantially as shown and described.

5. The combination with the rotatable cutter and fixed guides arranged horizontally, of a slidable carriage, a blank-holder pivoted and tiltable therein, a fixed cam adapted to engage the carriage for throwing it upward into vertical position, and another cam adapted to engage the holder for throwing it back to the original position, substantially as shown and described.

6. The combination with a rotatable cutter of a blank-holder which is movable horizontally toward and from said cutter, and means for automatically tilting the same into vertical position and back to horizontal position, substantially as shown and described.

7. The combination with a cutting device of a reciprocating carriage, a blank-holder pivoted therein, pins adapted to work laterally through the trunnions of said holder, for engaging the blank, and cams fixed on the frame and arranged laterally opposite each other and separated by a space adapted for travel of the heads of said pins, whereby the latter are alternately forced inward and retracted as the carriage reciprocates, substantially as shown and described.

8. The combination with a rotatable cutter, horizontal guides fixed opposite each other on each side of the cutter, two cams arranged on each guide and consisting of two inclines, one of which is slotted and separated from the other by a narrow space, two pins provided with heads which are of greater diameter than the slots in the retracting-cam, a handle-blank holder, and a carriage in which the same is pivoted, substantially as shown and described.

9. The combination with a rotatable cutter of guides arranged horizontally on both sides of the same, two fixed cams also arranged laterally, one of the same being slotted, a carriage adapted to slide on said guides, a blank-holder pivoted in the carriage and having hollow trunnions, and headed pins adapted to coact with the said cams as described, and working through the side bars of the carriage and the trunnions and bars of the blank-holder, substantially as shown and described.

10. The combination with means for forming a hole in a blank of a slidable and tiltable holder for said blank, the same being adapted to approach and recede from the hole-forming device, means for effecting this movement, and means for tilting the holder, substantially as shown and described.

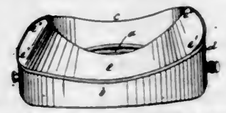
661,401. **PROCESS OF STORING EXPLOSIVE GASES.** EDMOND FOUCHÉ, Paris, France. Filed Sept. 8, 1897. Serial No. 650,978. (No specimens.

Claim.—1. The process herein described for storing an explosive gas, which consists in filling the receiver with a porous substance provided with numerous separate small bores or perforations, filling the pores and perforations of said substance with a suitable liquid, and then compressing the gas into the said receiver whereby it will be absorbed by the liquid and be stored in isolated quantities in said substance.

2. The process herein described for storing an explosive gas, which consists in filling the receiver with a porous substance provided with numerous separate bores or perforations, charging the receiver with the gas, and compressing said gas into liquid form, whereby it will be stored in isolated quantities in the said substance.

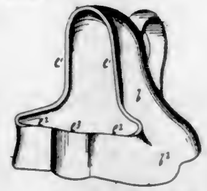
661,402. **DOUCHE-PAN.** DANIEL HOGAN, New York, N. Y., assignor to the Meinecke & Company, same place. Filed Mar. 8, 1900. Serial No. 7,900. (No model.)

Claim.—1. A douche-pan or the like having its transverse dimension at least equal to its dimension from front to rear and having a top or support at its front concaved at the center portion and convexed at the edges, the rear edge of the pan being cut away or depressed to allow ready access to the person for the free use of instruments substantially as described.



2. A douche-pan or the like having a top or support concaved at the center portion and convexed at the edges, the rear of the pan being cut away or depressed to allow the free use of instruments substantially as described.

661,403. **URINAL.** DANIEL HOGAN, New York, N. Y., assignor to the Meinecke & Company, same place. Filed June 29, 1900. Serial No. 22,062. (No model.)



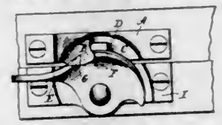
Claim.—1. As a new article of manufacture, a urinal having an opening, the lower rim of which projects beyond the general surface of the front wall thereof, to occupy a position between the buttocks, and extends laterally in a substantially horizontal plane, substantially as set forth.

2. As a new article of manufacture, a urinal having an opening, the lower rim of which projects to beyond the general surface of the front wall thereof, and extends laterally in a substantially horizontal plane, and having the front part of the bottom portion laterally flared, substantially as set forth.

3. As a new article of manufacture, a urinal having an opening, the lower rim of which projects beyond the general surface of the front wall thereof and extends laterally in a substantially horizontal plane, and having the front part of the bottom portion laterally flared and the upper part contracted in cross-sectional area, substantially as set forth.

4. As a new article of manufacture, a urinal having an opening, the lower rim of which projects beyond the general surface of the front wall thereof, the upper rim portion standing perpendicularly and said lower rim portion standing horizontally and extended laterally, substantially as set forth.

661,404. **SASH-FASTENER.** GEORGE M. HUBBARD, New Haven, Conn., assignor to the W. & E. T. Fitch Company, same place. Filed May 26, 1900. Serial No. 18,081. (No model.)



Claim.—1. In a sash-fastener, the combination with a horizontally-arranged lever mounted on a case-plate and provided with an upwardly-winding upper lifting-face and a drawing edge on its under face, of a keeper formed with a lifting-finger and with a depressing-surface in a plane below said finger and between which the lever is adapted to be turned, said depressing-surface of the keeper formed with an upwardly-extending locking-lug, which coacts with the drawing edge of the lever, substantially as described.

2. In a sash-fastener, the combination with a horizontally-arranged lever formed with a depressing lower edge, and an upwardly-winding lifting-face, of a keeper having a lifting and drawing finger and a depressing-surface in a plane below said finger and at one side thereof and between which finger and surface the lever is adapted to be turned and wedged when in the locked position, substantially as described.

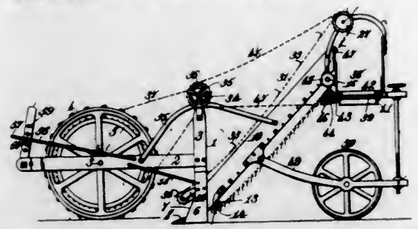
3. In a sash-fastener, the combination with a horizontally-arranged lever formed in its lower edge with a cam-groove, of a keeper formed with a lifting-finger and with a depressing-surface in a plane below said finger, said depressing-surface provided with a lug adapted to coact with said groove to draw the meeting-rails of the sashes together when the lever is turned into its locked position, substantially as described.

4. In a sash-fastener, the combination with a case-plate, of a lever mounted thereon and formed with a hub extending into the case-plate, one

or more springs in said case-plate, coacting with the hub of the lever to throw it into its locked or unlocked position, said lever formed with an upwardly-winding lifting-face and a depressing edge, and a keeper formed with a lifting-finger and depressing-surface between which the lever is adapted to be turned, whereby the meeting-rails of the sashes are either lifted or depressed into line with each other, substantially as described.

5. In a sash-fastener, the combination with a horizontally-arranged lever having a lifting upper face and a depressing lower face, of a keeper having a lifting-finger and a depressing-surface formed independent of the keeper but adapted to be secured thereto in a plane below said finger and in position for the lever to be passed between them, whereby the lifting and depressing surfaces of the lever may respectively engage with the lifting-finger or the depressing-surface of the keeper, substantially as described.

661,405. DITCHING-MACHINE. DAVID F. KAIN, Bluffton, Ind. Filed Feb. 9, 1900. Serial No. 4,677. (No model.)



Claim.—1. In a ditching-machine, the combination with a frame carrying an excavator, of an inclined elevator-frame comprising two parallel plates or beams, a table or platform comprising rollers journaled in said plates or beams and tie-rods secured at their opposite ends in the respective plates or beams, the rollers and tie-rods alternating with one another, and an apron carried by the elevator-frame and arranged to travel on said table or platform, substantially as described.

2. In a ditching-machine, the combination with a frame carrying an excavator, of an inclined elevator-frame carrying an endless apron, two parallel endless sprocket-chains arranged to travel above the apron, rakes attached to said chains at uniform distances apart, each of said rakes comprising a plurality of curved teeth projecting outward from the chains at substantially right angles between the chains, and a transverse delivery-apron arranged beneath the upper end of the elevator-frame, and means for driving said aprons and rake, substantially as described.

3. An endless apron comprising two endless sprocket-chains each link whereof is provided on its inner side with an outwardly-projecting perforated lug or ear, a rod journaled in each two corresponding perforated lugs or ears, and metallic plates each bent or crimped at one edge about one of said rods and arranged to overlap at its opposite edge the pivoted edge of the succeeding plate, substantially as described.

4. In a ditching-machine, the combination with a frame carrying an excavator, of an inclined elevator-frame provided with a table or platform, and an apron traveling about said table or platform, said apron comprising two parallel endless sprocket-chains each link whereof is provided on its inner side with an outwardly-projecting perforated lug or ear, a rod journaled at its opposite ends in each two corresponding perforated lugs or ears, and metallic plates each provided at one edge with two slots arranged to receive said lugs or ears, the edge of the plate being bent or crimped about said rod and its free edge arranged to overlap the pivoted edge of the succeeding plate, substantially as described.

5. In a ditching-machine, the combination with a frame carrying an excavator, of a rearwardly-inclined elevator-frame carrying an endless apron adapted to receive and elevate the excavated earth, a delivery-apron arranged beneath the rear end of and transversely to the said endless apron, means for driving said aprons, two arms pivoted at their forward ends to the elevator-frame and having journaled therein a ground-wheel, a screw rotatably mounted in a fixed support and engaging a nut on the rear ends of said arms, and means for turning said screw to raise and lower the ground-wheel and thereby regulate the penetration of the excavator, substantially as described.

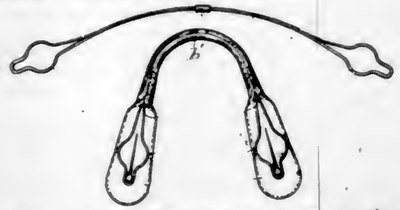
661,406. PROCESS OF HARDENING, PURIFYING, AND TOUGHENING METALS. CHARLES L. LEIBY, Knoxville, Tenn., assignor, by direct and mesne assignments, to the Leiby Company, same place. Filed Dec. 5, 1898. Serial No. 698,343. (No specimens.)

Claim.—The process of hardening, purifying and toughening metals, which consists in reducing said metals to a molten state and introducing therein potassium nitrate, a cyanid and powdered silica, substantially as set forth.

661,407. PROCESS OF MAKING METALS WELDABLE AND MALLEABLE. CHARLES L. LEIBY, Knoxville, Tenn., assignor, by direct and mesne assignments, to the Leiby Company, same place. Filed Dec. 5, 1898. Serial No. 698,347. (No specimens.)

Claim.—The process of rendering metals weldable and malleable which consists in placing them in a vessel with a compound of potassium nitrate and a cyanid in about the proportions of one pound of potassium nitrate to ten grains of cyanid, substantially as described, and of a quantity sufficient to immerse said metal when fused, and subjecting the whole to a heat sufficient to fuse said compound, and allowing said metal to remain in said vessel a period of time, subject to the chemical action of said compound, substantially as set forth.

661,408. SUSPENDER-END. ABRAHAM A. LEVI, Syracuse, N. Y. Filed July 23, 1900. Serial No. 25,122. (No model.)

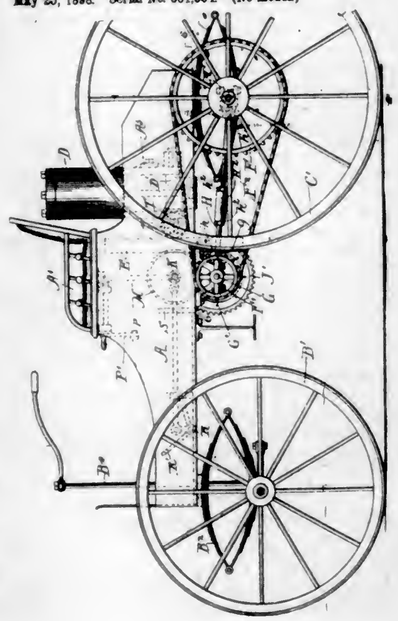


Claim.—1. The combination with a suspender-end of a wire secured at its ends thereto and bent intermediately into the form of a button-receiving loop lying freely on the buttonhole portion of the suspender-end as set forth.

2. The combination, with duplex continuous suspender-ends, of a wire extending the entire length of said suspender-ends and secured thereto and terminating in button-receiving loops lying freely on the buttonhole portions of said suspender-ends as set forth.

3. The combination, with duplex continuous suspender-ends formed with a tubular portion between the buttonhole portions, of a continuous wire having its end portions folded back upon the central portion and united therewith and inserted into the aforesaid tubular portion, and the folds of said wire protruding from the said tubular portion and bent into the shape of button-receiving loops lying free on the buttonhole portions of the suspender-ends as set forth.

661,409. MOTOR-VEHICLE. GEORGE W. LEWIS, Chicago, Ill., assignor to the Lewis Motor-Vehicle Company, Camden, N. J. Filed May 25, 1898. Serial No. 681,664. (No model.)



Claim.—1. The combination with vehicle driving-wheels and a motor, of a driving and brake gear embracing two rotating disks adapted for frictional contact with each other, one of said disks being driven by the motor and the other or second disk being operatively connected with the driving-wheels by gearing acting to transmit motion to the driving-wheels from said disk at a less speed but greater power, said second disk being movable laterally into and out of frictional contact with the first disk, and a friction strip or shoe located in position for contact of the second disk therewith when it is shifted away from the first disk, whereby the friction-brake acts on a part which is driven at a higher speed and with less power than the driving-wheels.

2. The combination with vehicle driving-wheels and a motor, of a driving and brake gear embracing two rotating disks adapted for frictional contact with each other, one of said disks being driven by the motor and the other or second disk being operatively connected with the driving-wheels by gearing acting to transmit motion to said driving-wheels from said disk at a less speed but greater power, said second disk being movable laterally into and out of frictional contact with the first disk, and being movable in a direction parallel with its axis for varying the rotative speed thereof and of the driving-wheels, and a friction strip or shoe located in position for contact of the second disk therewith when it is shifted away from the first disk, whereby the friction-brake acts on a part which is driven at a higher speed but less power than the driving-wheels.

3. The combination with vehicle driving-wheels and a motor, of a driving and brake gear embracing two friction-disks adapted for frictional contact with each other, one of said disks being driven by the motor and the other or second disk being operatively connected with the driving-wheels by gearing acting to transmit motion to the driving-wheels from said disk at a less speed but with greater power, said second disk being movable laterally into and out of contact with the first disk, a friction strip or shoe located in position for contact of the second disk therewith when it is shifted away from the first disk, a rock-shaft at the front end of the vehicle which is operatively connected with said second disk to shift it into and out of contact with the first disk, and forwardly and rearwardly extending foot-levers rigid with said shaft.

4. The combination, with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a pulley adapted for contact with the face of the same, a shaft supporting the pulley with which said pulley has sliding engagement, a laterally-movable bearing for one end of said shaft, and a pivotal bearing for the opposite end of the shaft, comprising a tube or sleeve and pivot-studs engaging the opposite sides of the said tube or sleeve.

5. The combination, with vehicle driving-wheels and a prime mover, of a driving-gear comprising a friction-disk, a pulley adapted for contact with said disk, a movable shaft with which said pulley has sliding but non-rotative connection, and an actuating-lever connected with said pulley for moving it endwise on the shaft, the actuating connection between said actuating-lever and the pulley embracing a pivotal joint permitting lateral movement with the shaft of the parts immediately engaged with the pulley.

6. The combination, with vehicle driving-wheels and a prime mover, of a driving-gear comprising a friction-disk, a pulley adapted for contact with said disk, a movable shaft with which said pulley has sliding but non-rotative connection, an actuating-lever for moving said pulley endwise on the shaft, and connections between said lever and the pulley embracing a horizontally-arranged rock-shaft and an arm connected with the rock-shaft by a pivotal joint to allow lateral movement of the outer end of the arm when the pulley is laterally shifted.

7. The combination, with vehicle driving-wheels and a prime mover, of a driving-gear comprising a friction-disk, a pulley adapted for contact with the face of the disk, a shaft with which said pulley has longitudinally-sliding but non-rotative connection, said shaft being movable toward and from the disk, an actuating device for moving the shaft toward and from the disk, and means for moving the pulley endwise on the shaft embracing a rock-shaft having an arm the free end of which is connected with the pulley, a second rock-shaft connected with the first by means of rigid arms on both rock-shafts and a connecting-rod, a hand-lever on the second rock-shaft, a notched segment, and a spring-detent on the hand-lever adapted for engagement with the notched segment.

8. The combination, with vehicle driving-wheels and a prime mover, of driving connections embracing a spur-gear speed-changing mechanism, consisting of a shaft carrying two gear-wheels of different sizes which are rigidly attached to the shaft and a second endwise-movable shaft carrying two gear-pinions of different sizes which are rigidly attached to the said shaft, and actuating devices for the shaft by means of which said shaft may be shifted endwise at the will of the operator.

9. The combination, with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a pulley adapted for contact with the face of the disk, which pulley is movable toward and from the face of the disk and also toward and from the center of the same, and a spur-gear speed-changing mechanism consisting of two gear-wheels and an endwise-movable shaft carrying two gear-pinions of different sizes, either of which may be engaged with one of the gear-wheels, and means for giving endwise movement to said shaft.

10. The combination, with vehicle driving-wheels and a prime mover, of driving-gear comprising a friction-disk, a shaft movable toward and from the face of the disk, a pulley movable endwise on the shaft adapted for contact with the face of the disk, two gear-wheels having operative connection with the driving-wheels, and two gear-pinions mounted on said shaft, said gear-pinions being movable to permit the engagement of one or the other of them with one or the other of the gear-wheels.

11. The combination, with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a shaft movable toward and from the face of the disk, said shaft being movable endwise in its bearings, a pulley movable endwise on the shaft and adapted to engage the face of the disk, two gear-wheels of different sizes having operative connection with the driving-wheels, and two pinions affixed to the shaft and adapted for engagement with said gear-wheels by the endwise shifting of the shaft.

12. The combination, with vehicle driving-wheels and a prime mover, of driving connections comprising a friction-disk, a shaft movable toward and from the face of the disk and also movable endwise, a pulley having sliding but non-rotative connection with said shaft, a pivotally-supported bearing for one end of the shaft through which the latter is adapted to slide endwise, a laterally-movable bearing for the opposite end of the shaft through which the shaft is also adapted to slide endwise, and a spur-gear speed-changing device comprising two pinions on said shaft and two gear-wheels having operative connection with the driving-wheels.

13. The combination, with a friction-disk, a shaft movable toward and from the disk and also movable endwise, a pulley having sliding but non-rotative engagement with the shaft, and a laterally-movable bearing for the shaft embracing a sleeve which immediately engages the shaft and through which it is adapted to slide endwise, and antifriction-balls or rollers interposed between said sleeve and the main part of the bearing.

14. The combination, with a friction-disk, a shaft movable toward and from the disk and movable also endwise in its bearings, a pulley having sliding but non-rotative connection with said shaft, and a spur-gear speed-changing device comprising two pinions affixed to the shaft, two gear-wheels of different sizes adapted for engagement with said pinions by the endwise movement of the shaft, a lever connected with said shaft, a foot-lever for actuating the shaft, a longitudinally-movable bar connecting said levers, said bar being provided with notches and a spring-detent adapted for engagement with the notches of the bar.

15. The combination, with vehicle driving-wheels and a motor, of driving connections comprising a friction-disk, a shaft extending transversely of the vehicle and movable toward and from the face of the disk, a friction-pulley having sliding but non-rotative engagement with the shaft, a second shaft parallel with the first one and provided at each end with a sprocket-wheel, a spur-gear speed-changing device connecting said shafts, said sprocket-wheels being mounted to turn independently of each other and being connected with the speed-changing device through the medium of an equalizing driving-gear, a sprocket-wheel attached to each driving-wheel, and chain belts connecting the sprocket-wheels on the said second shaft with those attached to the driving-wheels.

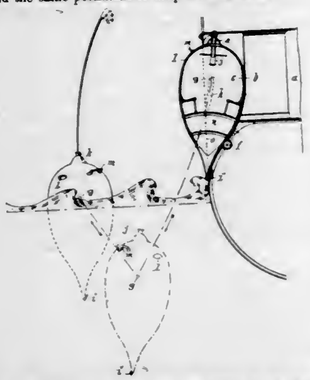
16. The combination, with vehicle driving-wheels and a motor, of driving connections comprising a friction-disk, a shaft extending across the vehicle-frame parallel with the face of the disk, said shaft being movable toward and from the disk and being also movable endwise, a friction-pulley having sliding but non-rotative engagement with the shaft, a second shaft arranged parallel with the first shaft, a speed changing and equalizing gear connecting said shafts consisting of two rigidly-connected gear-wheels of different diameters mounted to turn on the shaft, gear-pinions affixed to the first shaft and adapted for engagement with said gear-wheel by the endwise movement of said first shaft, sprocket-wheels mounted on said second shaft and adapted to turn independently of each other, gear-wheels mounted on said second shaft and rigidly connected one with each of said sprocket-wheels, a gear-pinion mounted in said rigidly-connected gear-wheels first mentioned with its axis radial to the shaft, said gear-pinion intermeshing with both of the gear-wheels which are connected with the sprocket-wheels, sprocket-wheels attached to the said driving-wheels, and chain belts connecting the sprocket-wheels of the said second shaft with the sprocket-wheels attached to the driving-wheels.

661,410. LIFE-BUOY. GUSTAF A. LINDBERG, Malm, Russia. Filed June 23, 1900. Serial No. 21,315. (No model.)

Claim.—1. A life-buoy comprising a casing adapted to fit in a downwardly-opening recess in the side of a vessel, and means for detachably securing the buoy inside the recess, whereby it may be dropped from the same into the water when desired, substantially as described.

2. A life-buoy adapted to be swung upon the side of the vessel comprising a casing adapted to be tightly closed, an attaching bolt or screw

operable from the inside and extending through the top of the buoy and engaging an overhanging portion of the vessel whereby the buoy may be released and the same permitted to drop into the water.



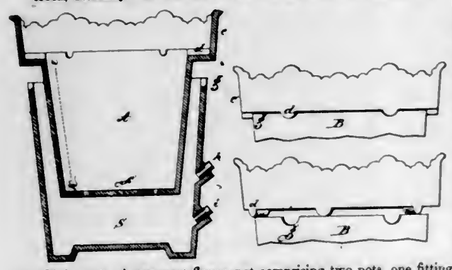
3. A life-buoy, comprising a casing adapted to be tightly closed, a screw-bolt extending through the top thereof and engaging a socket in the overhanging portion of a vessel, a handle inside the buoy for turning the said screw, whereby it may be loosened by the occupants of the buoy to permit the same to drop into the water, and a hook or projection at the lower end of the buoy engaging a recess in the side of the vessel for further holding the same in position, substantially as described.

4. A life-buoy adapted to be carried in a recess in the side of a vessel, means for holding the same in position in the said recess, and means for guiding it when released, so as to drop into the water, comprising laterally-projecting pins or lugs on the sides of the buoy adapted to engage grooves or guideways formed in the side of the vessel, and antifriction-rollers, substantially as described.

5. A life-buoy adapted to be suspended in a recess formed in the side of a vessel, comprising an approximately oval casing having an entrance-door adapted to coincide with a door in the side of the vessel, a suspending screw or bolt, an auxiliary attaching-hook, pins for engaging guide-grooves to direct the movement of the buoy, skylights in the said buoy, a handhold for facilitating the hoisting of the buoy into place, and ventilating-tubes extending through the top of the buoy and provided with safety-valves, whereby the atmosphere in the buoy may be changed and yet water cannot enter through the said tubes, substantially as described.

6. A buoy, comprising an approximately oval casing, means for attaching it to a vessel, an entrance-door adapted to be tightly closed, ventilating means comprising two or more tubes extending through the top of the buoy, valves guarding the said tubes against the entrance of water, seats arranged within the buoy, a floor, a subfloor arranged in the buoy, whereby the ballast-chamber is formed at the bottom and a chamber for holding provisions is arranged between the floors, substantially as described.

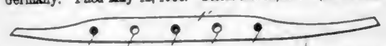
661,411. TWO-PART FLOWER-POT. HUGO LONITZ, Neuhaldensleben, Germany. Filed Mar. 6, 1900. Serial No. 7,555. (No model.)



Claim.—1. A two-part flower-pot comprising two pots, one fitting within the other to provide an intermediate concentric space, one of said pots being provided with a series of recesses, and the other with a corresponding series of ribs or projections adapted to seat within said recesses when in one position but arranged to be supported at points intermediate the recesses when in another position, whereby a space is provided between the two pots when in the said latter-named position which leads to the said concentric space, substantially as described.

2. A two-part flower-pot comprising two pots one fitting within the other to provide an intermediate concentric space between them, the said outer pot being provided with a series of recesses at its upper edge, and the inner pot being provided with an annular flange with ribs or projections on its under side corresponding to the recesses in the outer pot, said ribs or projections being arranged to seat within the said recesses when in one position but adapted to be supported at points intermediate said recesses when in another position, substantially as and for the purpose described.

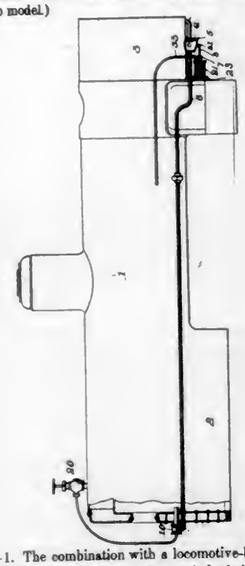
661,412. BASS-BAR OF VIOLINS. LOUIS LÖWENTHAL, Berlin, Germany. Filed May 12, 1900. Serial No. 16,477. (No model.)



Claim.—1. The combination with a bass-bar provided with openings, of hollow cross-pieces fixed in said openings and extending beyond the sides of the bar.

2. The combination with a bass-bar provided with transverse openings of hollow cross-pieces secured in said openings and extending at right angles beyond the sides of the bar.

661,413. SPARK-ARRESTER FOR LOCOMOTIVE-BOILERS. THOMAS J. MARSHALL, Richmond, Va. Filed Jan. 13, 1900. Serial No. 1,399. (No model.)

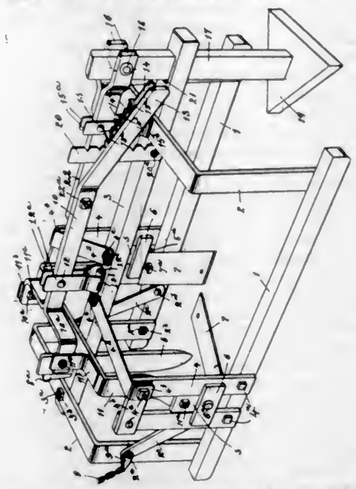


Claim.—1. The combination with a locomotive-boiler, of a hopper secured to the under side of the smoke-box of the boiler, a suction-pipe communicating at its forward end with the hopper and at its rear end with the fire-box, a short pipe leading from the front wall of the hopper and communicating with the smoke-box near the front wall of the latter, a short flue extending through the wall of the fire-box, a three-way coupling to which said suction-pipe and flue are secured, a jet-pipe secured to said coupling, a steam-pipe secured at its lower end to said jet-pipe, and a valved connection in the upper portion of said steam-pipe leading to the upper portion of the boiler, substantially as shown and described.

2. The combination with a locomotive-boiler, of a suction-pipe connecting with the fire-box and the rear wall of the hopper, a short pipe connecting the front wall of the hopper and the front portion of the smoke-box, means for creating a rearward draft through said suction-pipe, a cylinder secured to the boiler, a piston-rod within the cylinder and connected with the door of the hopper, a pipe for admitting motive fluid to the forward end of said cylinder to move the piston, and a spring for returning said piston to its normal position, all substantially as described and for the purpose set forth.

3. The combination with a locomotive-boiler, of a hopper secured to the smoke-box thereof, of a suction-pipe communicating at its front end with the rear side of the hopper, a short pipe leading from the front wall of the hopper and communicating with the smoke-box, a flue extending through the rear wall of the fire-box, a T-coupling secured at one end to said flue, and also secured to the rear end of the suction-pipe, a nipple or jet-pipe having an externally-threaded flange for securing said pipe to the coupling, and a valved steam-pipe secured at its lower end to the threaded opening of said nipple, and at its upper end with a valved connection leading to the upper portion of the boiler.

661,414. STUBBLE-SHAVER. CÉSAIRE MÉLANÇON, Plattenville, La. Filed Oct. 3, 1898. Serial No. 692,572. (No model.)



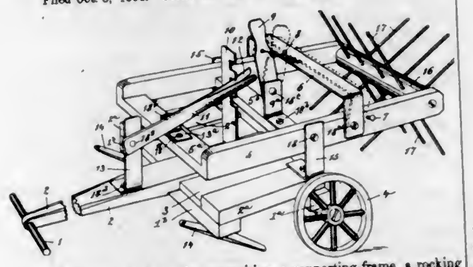
Claim.—1. A stubble-shaver comprising a main frame, the paired uprights supported by the frame, the hangers guided between the uprights, the horizontal knives supported by the hangers, the arched hanger-frame on which the hangers are supported, and means for raising and lowering the hanger-frame at will.

2. A stubble-shaver comprising a pair of runners, front and rear arched frames secured to the runners, a central beam supported by the arched frames, the paired uprights, the hangers guided between the uprights, the horizontal knives supported by the hangers, the arched hanger-frame to which the hangers are secured, the main lever from which the hanger-frame is suspended, and a pawl-and-ratchet device for securing the main lever in desired position.

3. A stubble-shaver comprising a pair of runners, front and rear arched frames secured to the runners, a central beam supported by the arched frames, the main lever, the auxiliary lever pivoted to the main lever, the fluke suspended from the auxiliary lever and a pawl-and-ratchet device for locking the main lever in desired position.

4. A stubble-shaver comprising a pair of runners, front and rear arched frames secured to the runners, a central beam supported by the arched frames, the paired uprights, the hangers guided between the uprights, the horizontal knives supported by the hangers, the arched hanger-frame to which the hangers are secured, the main lever from which the hanger-frame is suspended, the auxiliary lever pivoted to the main lever, the fluke suspended from the auxiliary lever, and a pawl-and-ratchet device for locking the main lever in desired position.

661,415. HAY-RAKE. CÉSAIRE MÉLANÇON, Plattenville, La. Filed Oct. 3, 1898. Serial No. 692,573. (No model.)

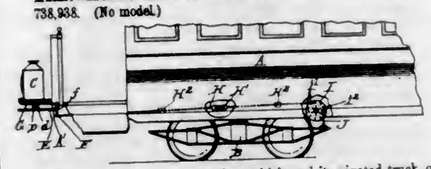


Claim.—1. A hay-rake comprising a supporting-frame, a rocking frame pivoted to the supporting-frame, a lever pivoted to the rocking frame, a revolving rake-head having rows of teeth and journaled to the rocking frame, a stop on the rocking frame, an arched frame pivoted to the rocking frame and resting in normal position against the stop to arrest the rotation of the rake-head, and means whereby the arched frame is connected with the lever.

2. A hay-rake comprising a supporting-frame, a rocking frame pivoted to the supporting-frame, a lever pivoted to the supporting-frame, and bearing on the forward end of the rocking frame, a ratchet-bar secured to the supporting-frame and with which the lever on the supporting-frame is engaged, a lever pivoted to the rocking frame, a revolving rake-head journaled to the rocking frame, an arched frame pivoted to the rocking frame to arrest the rotation of the rake-head, and means whereby the arched frame is connected with the lever on the rocking frame.

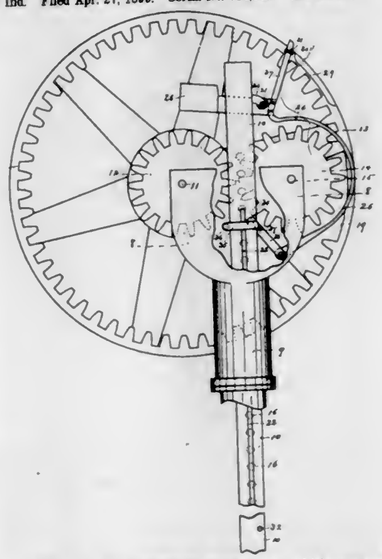
3. A hay-rake comprising a supporting-frame, a rocking frame pivoted to the supporting-frame, a lever pivoted to the rocking frame, a revolving rake-head journaled to the rear end of the rocking frame, an arched frame pivoted to the rocking frame, to arrest the rotation of the rake-head, means whereby the arched frame is connected with the lever, and means for adjusting the forward end of the rocking frame.

661,416. AUTOMATICALLY-ADJUSTABLE HEADLIGHT. CHAS. MERRYWEATHER, Anderson, Ind. Filed Dec. 1, 1899. Serial No. 738,938. (No model.)



Claim.—The combination with a vehicle and its pivoted truck, of a headlight rotatably supported upon said vehicle, an intermediately-pivoted, vertical lever adjacent to one end of said truck, an intermediately-pivoted vertical lever adjacent to said headlight, a connection between the lower arm of said first-named lever and the truck, a connection between the upper arm of said first-named lever and the lower arm of said last-named lever, and a connection between the upper arm of said last-named lever and said headlight, substantially as specified.

661,417. MECHANICAL MOVEMENT. FRANCIS M. MOSSMAN, near Collins, Ind., assignor of one-half to John F. Mossman, Coesse, Ind. Filed Apr. 27, 1899. Serial No. 714,642. (No model.)



Claim.—1. In a mechanical movement by which rotary motion is converted into reciprocating rectilinear motion, a driving-shaft: a pinion and an internal gear-wheel mounted on said shaft: an idle pinion mounted on a gudgeon and meshing with said internal gear-wheel: a guide-plate provided with two grooves on its front face: a reciprocating bar provided with a rack on its front side and on its rear side with a guiding rib or tongue

adapted to move in the grooves in said guide-plate: and means to automatically shift said reciprocating bar at each end of the stroke, so that said rib or tongue shall move first in one groove and then in the other alternately.

2. In a mechanical movement by which rotary motion is converted into reciprocating rectilinear motion, the combination of a supporting-frame: gear-wheels or pinions adapted to mesh with the rack on a reciprocating bar: means to rotate the gear-wheels or pinions: a reciprocating bar provided on its front side with a rack, and on its rear side with a rib or tongue: means to shift said bar at the end of each stroke automatically, consisting of a guide-plate provided with two grooves for said rib: a lug 20 and a pin 32 attached to said reciprocating bar: a swinging arm 26 provided with an inclined end and with a bolt 30 having a friction-wheel: an internal gear-wheel provided with a cam: an arm 33 attached to the supporting-frame and provided with a hook adapted to engage said pin 32: a cross-arm 35 having the guide pins or projections 36 and 37 for the purpose and substantially as described.

3. In a mechanical movement in which rotary motion is converted into reciprocating rectilinear motion, a reciprocating bar provided on one side with a rack and on its other side with a rib or tongue: a guide-plate provided with two grooves for said rib to move in alternately: means to automatically shift said reciprocating bar so that said rib shall move in said grooves alternately: and means to operate the rack-bar reciprocally and to shift it alternately at the end of each stroke.

4. In a mechanical movement by which rotary motion is converted into reciprocating rectilinear motion, a bar provided on one side with a rack: a pinion mounted on a driving-shaft: an idle wheel mounted on a gudgeon: a driving-shaft having an internal gear-wheel mounted thereon meshing with said idle wheel: means to shift and guide said bar automatically at the end of each stroke while the driving-shaft is in motion, so that its rack shall alternately engage said pinion and said idle wheel respectively.

661,418. UNIVERSAL BRACE AND DRILL. STEPHEN MCCLELLAN, New York, N. Y., assignor of one-half to Dennis Nunan, same place. Filed Feb. 24, 1900. Serial No. 6,385. (No model.)



Claim.—1. A bit-brace and drill comprising a frame, a perforated body mounted in the said frame, and having a sleeve projecting therefrom, a stock mounted to slide in the said perforated body, a drill-spindle mounted in the said stock, a pinion secured to the said drill-spindle, a gear-wheel mounted on the said sleeve and having two sets of teeth adapted to mesh with the said pinion, a pin threaded in the said sleeve and adapted to lock the said stock with the pinion in engagement with either of the said sets of teeth, and means for turning the said gear-wheel, substantially as described.

2. A bit-brace and drill comprising a frame, a body mounted to turn in the said frame, a stock mounted in the said body, a drill-spindle mounted in the said stock, a pinion secured to the said drill-spindle, a gear-wheel mounted on the said body and adapted to mesh with the said pinion, means for turning the said gear-wheel, and means for locking the said body from turning, substantially as described.

3. A bit-brace and drill comprising a frame having two prongs, a body journaled in one of the said prongs, a stock mounted in the said body, a drill-spindle mounted in the said stock, a pinion upon the said spindle, a gear-wheel mounted on the said body and meshing with the said spindle, and means for turning the said gear-wheel, a mutilated wheel on the said body, a guide in one of the prongs of the said frame, in which the mutilated wheel is adapted to turn, and means for locking the said mutilated wheel at any desired adjustment with relation to the frame, substantially as described.

4. A bit-brace and drill comprising a frame having two prongs, a body journaled in one of the said prongs, a stock mounted in the said body, a drill-spindle mounted in the said stock, a pinion upon the said spindle, a gear-wheel mounted on the said body and meshing with the said spindle, and a handle for turning the said gear-wheel, a mutilated wheel on the said body, a guide in one of the prongs of the said frame in which the mutilated wheel is adapted to turn, and a spring-catch for locking the said mutilated wheel at any desired adjustment with relation to the said frame, substantially as described.

5. A bit-brace and drill comprising a frame, a body mounted in the said frame, and having a sleeve projecting therefrom, a second sleeve mounted to rotate upon the first sleeve a head upon the second sleeve and a handle secured to the said head, a gear-wheel mounted to rotate upon the second sleeve, and means for locking the said gear-wheel to the head on the second sleeve, a stock mounted in the said body, a drill-spindle mounted in the said stock, and a pinion on the said drill-spindle meshing with the said gear-wheel, substantially as described.

6. A bit-brace and drill comprising a frame, a body mounted in the said frame, and having a sleeve projecting therefrom, a second sleeve mounted to rotate upon the first sleeve a head upon the second sleeve and a handle secured to the said head, a pin mounted to rotate in the head of the second sleeve, and adapted to screw into the first sleeve, a gear-wheel mounted to rotate upon the second sleeve, and means for locking the said gear-wheel to the head on the second sleeve, a stock mounted in the said body, a drill-spindle mounted in the said stock, and a pinion on the said drill-spindle meshing with the said gear-wheel, substantially as described.

7. A bit-brace and drill comprising a frame, a body mounted in the said frame and having a sleeve projecting therefrom, a stock mounted to slide in the said body, a drill-spindle mounted in the said stock, a pinion on the said drill-spindle, a second sleeve mounted to rotate on the first sleeve, a head on the second sleeve and a handle secured to the said head, a pin mounted to rotate in the said head and sleeve and adapted to screw into the first sleeve and bear against the said stock, a gear-wheel mounted to rotate on the second sleeve, and arranged to mesh with the said pinion, and a pawl-and-ratchet connection between the said head of the second sleeve and the said gear-wheel; substantially as described.

8. A bit-brace and drill comprising a frame, a body mounted in the said frame and having a sleeve projecting therefrom, a stock mounted to slide in the said body, a drill-spindle mounted in the said stock, a pinion on the said drill-spindle, a second sleeve mounted to rotate on the first sleeve, a head on the second sleeve, a slotted handle passing through the said head and means for securing the said handle therein, a pin passing through the slot in the said handle, collars on the said pin on each side of the said handle, a gear-wheel mounted to rotate on the second sleeve and adapted to mesh with the said pinion, a ratchet connection between the said gear-wheel and the head on the second sleeve, the said pin being adapted to screw into the first sleeve and press against the said stock, and lock the several parts in their proper relative positions; substantially as described.

9. In a bit-brace and drill, the combination with a frame, a body mounted to turn in the said frame, and means for locking the said body to the said frame, a stock mounted in the said body, a drill-spindle mounted in the said stock, and means for turning the said drill-spindle; of a feed-screw threaded in the said stock, and adapted to be run out the rear end thereof, substantially as described.

10. In a bit-brace and drill, the combination with a frame, a body mounted to turn in the said frame, and means for locking the said body to the said frame, a stock mounted in the said body, a drill-spindle mounted in the said stock, and means for turning the said drill-spindle; of a feed-screw threaded in the said stock and extending into the said drill-spindle and adapted to be run out the rear end of the said stock, substantially as described.

11. In a bit-brace and drill the combination with a frame having a tubular slotted rearward extension terminating in a rest or handle; a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular extension, a sleeve threaded upon the said screw and inclosed by said tubular extension, hooks upon the said sleeve projecting through the said slots holding said sleeve against turning and adapted to engage a suitable abutment, and means for turning the said feed-screw; substantially as described.

12. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a gear secured to the said feed-screw, a gear mounted in the said frame and meshing with the said gear and a handle for turning the said gear; substantially as described.

13. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a gear secured to the said feed-screw, a gear mounted in movable bearings upon the said frame, and adapted to be moved out of engagement with the said gear, and a handle for turning the said gear; substantially as described.

14. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a milled wheel secured to one end of the said feed-screw, and a gear secured to the other end of the same, a gear mounted in bearings upon the said frame, and meshing with the said wheel-gear, and a handle for turning the said gear; substantially as described.

15. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a worm-gear secured to the said feed-screw, a worm mounted in the said frame and meshing with the said worm-gear, and a handle for turning the said worm; substantially as described.

16. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a worm-gear secured to the said feed-screw, a worm mounted in movable bearings upon the said frame, and adapted to be moved out of engagement with the said worm-gear and a handle for turning the said worm; substantially as described.

17. In a bit-brace and drill the combination with a frame having a tubular slotted portion, a drill-spindle mounted in the said frame, and means for turning the said drill-spindle; of a feed-screw mounted in the said tubular portion, a sleeve threaded upon the said screw, hooks upon the said sleeve projecting through the said slots and adapted to engage a suitable abutment, a milled wheel secured to one end of the said feed-screw and a worm-gear secured to the other end of the same, a worm mounted in bearings upon the said frame, and meshing with the said worm-gear, and a handle for turning the said worm; substantially as described.

661,419. UNIVERSAL BRACE. STEPHEN MCCLELLAN, New York, N. Y., assignor of one-half to Dennis Nunan, same place. Filed Feb. 24, 1900. Serial No. 6,386. (No model.)

Claim.—1. In a detachable rest for bit-braces, the combination with a frame comprising two sockets or sleeves set at an angle to each other, the one to adjustably inclose a rigid portion of the frame of the brace, and the other to receive the forward end of the rest-rod or handle, and means for clamping one of said sockets or sleeves upon said rigid portion of the brace-frame, allowing of adjustment in a circular direction about the same, substantially as described.

2. In a detachable feeding device for bit-braces, the combination with the rest-rod or handle; of a hollow sleeve adapted to fit over the rest-rod or handle, and having exterior screw-threads; an interiorly-screw-threaded sleeve mounted thereon and provided with means for turning the same; and a hub or turnbuckle mounted loosely on the said outer sleeve and having hooks or ears for the attachment of a rope or chain, substantially as described.

3. In a detachable feeding device for bit-braces, the combination with the rest-rod or handle; of a hollow sleeve adapted to fit over the rest-rod or handle, and having exterior screw-threads; an interiorly-screw-threaded sleeve mounted thereon and provided with means for turning the same; and a hub or turnbuckle mounted loosely on the said outer sleeve and having hooks or ears for the attachment of a rope or chain, and means for holding the inner sleeve against rotation on said rest-rod or handle, substantially as described.

4. A bit-brace comprising a guide-frame, an inclined arm rigidly connected thereto, a shaft journaled in said frame and carrying a chuck, a second shaft in said inclined arm, gearing between said shafts, means for rotating said second shaft, and a breast-rest or handle connected to the said inclined arm and adjustable thereabout, substantially as described.



5. A bit-brace comprising a guide-frame, and an inclined arm rigidly connected thereto, a shaft journaled in said frame and carrying a chuck, a second shaft journaled in said inclined arm, ratchet mechanism for rotating the latter shaft, gearing between the said shafts, and a breast-rest or handle connected to the said inclined arm and adjustable thereabout, substantially as described.

6. A bit-brace comprising a guide-frame, an inclined arm rigidly connected thereto, a chuck, and means for driving the same carried by the said guide-frame, a breast-rest or handle, and a sleeve connected to the forward end thereof inclosing the said inclined arm, and means for clamping the said sleeve adjustably about the said inclined arm, substantially as described.

661,420. TRACE-FASTENER. JAMES A. PARSONS, Thayer, Iowa. Filed Sept. 29, 1900. Serial No. 31,530. (No model.)



Claim.—A trace-fastener, comprising a bowed attaching-plate, having opposite perforations from which the plate is crimped or fluted outwardly to the adjacent edge forming grooves upon the inner or concave side of the plate, and corresponding perforations at the rear of the plate, and a substantially U-shaped spring-wire fastener, having its opposite ends passed inwardly through the respective gutters and the adjacent perforations, the extremities of the wire being provided with inwardly-directed hooks or fingers engaged with the rear perforations.

661,421. HOLLOW GLASS LETTER. MAX PESCHMANN, Waldenburg, Germany. Filed Sept. 29, 1899. Serial No. 732,125. (No model.)



Claim.—In the devices of the class set forth, the combination with a hollow glass body forming a letter and open at the back, of a metal plate shaped correspondingly to said glass body, an upper and a lower forwardly-projecting end or lug on said metal plate and turned over the corresponding edges of the glass body, a vertical rod extending through said projecting ends or lugs and through the glass body, and having its ends provided with screw-threads, nuts screwed on said threaded ends, and a lug *f* on the back of said metal plate, substantially as and for the purpose set forth.

661,422. **BOTTLE ATTACHMENT.** JACOB H. PETERS, New York, N. Y. Filed Sept. 23, 1899. Serial No. 731,427. (No model.)



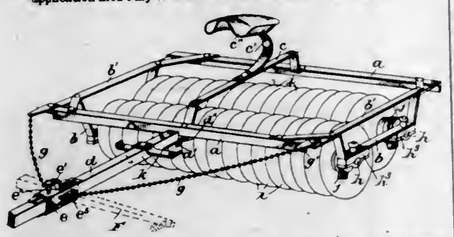
Claim.—1. The combination with a bottle, a guard or protecting-casing substantially inclosing the bottle and a gas-charging device, of a siphoning device connecting the gas-charging device with the guard and interposed between the gas-charging device and the bottle, substantially as set forth.

2. The combination with a bottle, a guard or protecting-casing substantially inclosing the bottle and a gas-charging device, of a siphoning device connecting the gas-charging device with the guard and entirely independent of the gas-charging device, substantially as set forth.

3. The combination with a bottle, its guard and a gas-charging device, of a hollow coupling engaged with the gas-charging device and the bottle-guard and a siphon carried by the said coupling, substantially as set forth.

4. The combination with a bottle and its guard, of a siphoning device having a screw-threaded engagement with the top of the guard, and a gas-charging device having a screw-threaded engagement with the top of the siphoning device whereby the siphoning device, the gas-charging device and the guard may be separated at pleasure, substantially as set forth.

661,423. **PULVERIZER.** AUGUST F. PETERSON, Kent, Ohio. Original application filed Feb. 13, 1900, Serial No. 5,092. Divided and this application filed July 9, 1900. Serial No. 23,011. (No model.)



Claim.—1. In a pulverizer, the combination of the parallel angle-iron front and rear frame-bars, a tongue extending forwardly and centrally of said bars, rearwardly extending and diverging connections from said tongue secured to the front bar, the centrally-depressed flat metal end bars having the straight ends secured to the ends of said angle-iron frame-bars, the truss-straps secured to said connecting said straight ends of said end bars, respectively, and also secured to said angle-iron bars, and a shaft mounted to the lower portions of said end bars and provided with soil-rolling devices, substantially as described.

2. In a pulverizer, the combination of front and rear frame-bars, draft devices, the end bars rigidly secured to and connecting the frame-bars and having the centrally-depressed portions and straight ends, and the truss-straps secured to said flat ends of the end bars, respectively, and also secured to the front and rear frame-bars and bracing the corners of the frame formed by the front and rear and end bars, substantially as described.

3. In a pulverizer, the combination of a frame comprising front rear and end bars rigidly secured together at their ends, and the truss-straps rigidly secured to and connecting end portions of the end bars, respectively, and having the deflected diagonal ends secured to the front and rear bars and bracing the corners of the frame, substantially as described.

4. In a pulverizer, the combination of the parallel front and rear cross-bars, the end bars rigidly secured to and connecting said cross-bars and depressed between the same, the truss-straps secured to the upper portions of the end bars, respectively, and secured to the cross-bars and bracing the corners of the frame, draft connections, and a shaft carrying a series of disks, substantially as described.

5. In a pulverizer, the combination of a rigid frame, a draft-tongue, a box-slide confined thereto, and movable longitudinally thereon, said slide having a brace and pivot-bolt for the doubletree, and provided with side bars, the front corners of the frame having side ears, and loose draft connections from said ears of the slide to the ears of the frame, substantially as described.

6. In a pulverizer, the combination of the rectangular frame comprising the parallel front and rear bars and the connecting depressed end bars, a rotary shaft carried by the end bars, rotary disks in said shaft, the tongue coupled to the central portion of the front frame-bar, a box slidable longitudinally on the tongue and provided with means for coupling the draft thereto, and draft connections from said box to the front corners of said main frame, substantially as described.

7. In a device of the character described, the combination of a horizontally-disposed main frame, rolling soil-pulverizing means mounted therein, the rigid arched cross-bar arranged centrally of said frame in the line of draft and rigidly secured to the front and rear bars thereof, the tongue arranged in the plane of said cross-bar, an eye fixed to said frame, a projection rigid with the rear end of the tongue and entering said eye and loosely coupling said tongue to said frame, a seat mounted on said cross-bar, the foot-piece rigid with and projecting laterally from said tongue, and a draft device movable longitudinally on the tongue and having the direct-draft connections therefrom to the front corners of said main frame, whereby the draft is applied to the main frame through said draft device and its said connections, substantially as described.

8. In a machine of the character specified, the combination of a main frame, soil-pulverizing means mounted therein, a tongue coupled to said frame, a longitudinal slot through said tongue, a box loosely encircling the tongue, a bolt secured to the box and passing loosely through said slot, and draft connections from said box to the main frame on opposite sides of the tongue, said box adapted to have the draft coupled thereto, for the purpose substantially as described.

9. In a pulverizer, the combination of a horizontal main frame, soil-pulverizing means mounted therein, a tongue loosely coupled thereto, ears at the front end portions of said frame, a box loosely embracing the tongue and slidable longitudinally thereon and provided with a bolt to receive the draft, said box having side attaching-ears, the draft connections attached to said ears of the frame, respectively, and means adjustably securing said connections to the ears of the box, respectively, substantially as described.

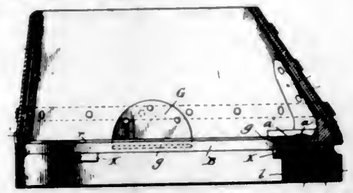
10. In combination, a horizontal main frame comprising end pieces and front and rear bars, soil-pulverizing means mounted in said frame, a forwardly-projecting eye rigid with the central portion of said front bar, a tongue resting on said eye and having a rigid depending projection entering the same, a box loosely embracing and longitudinally movable on said tongue and provided with means to receive draft-attaching devices, and draft connections attached to said box and attached to opposite end portions of said front bar respectively, substantially as described.

11. In a pulverizer, the combination of a frame, soil-pulverizing means mounted in the frame, a tongue loosely coupled to the frame having a longitudinal slot therethrough, a box loosely embracing the tongue and longitudinally movable thereon, a bolt secured to the box and passing through said slot and extended beyond the box to receive the draft-attaching devices, said box having side ears, and draft connections attached to said ears of the box and to the front end portions of said frame, substantially as described.

661,424. **HORSESHOE.** ERNEST F. PFLUEGER, Akron, Ohio. Filed Apr. 12, 1900. Serial No. 12,621. (No model.)

Claim.—1. The combination with the rubber sole, and the steel brace and holder embedded therein, of the boot portion and the sole-plate, connected to said boot and holder, substantially as specified.

2. In a horseshoe, the rubber sole and the steel brace and holder embedded in said sole, of channeled form of U shape in cross-section, and having the edges of its lateral walls arranged to form a part of the wearing-surface, substantially as specified.



3. In a horseshoe, the rubber sole, and the steel brace and holder of channeled horseshoe form of U shape in cross-section and entirely embedded in said sole with the exception of the edges of its lateral walls, which are arranged to form part of the wearing surface or tread, substantially as specified.

4. In a horseshoe, the rubber sole and the steel brace and holder embedded in said sole, of channeled horseshoe form of U shape in cross-section, having apertures in its side walls for influx of the rubber, and having the edges of its lateral walls arranged to form part of the wearing surface or tread, substantially as specified.

5. In a horseshoe, the combination with the sole-plate adapted to be secured to the hoof of a horse, and having apertures therein, of a rubber sole, and a steel brace or holder of channeled form embedded in said sole, and having attachment projections extending through the apertures of said plate, substantially as specified.

6. In a horseshoe, the combination with the sole-plate adapted to be secured to the hoof of a horse, and having apertures therein, of a rubber sole, and a steel brace or holder of channeled horseshoe form embedded in said sole, and having attachment projections extending through the apertures of said plate, substantially as specified.

7. In a horseshoe, the combination with the boot, having inwardly-extending metallic projections, of a sole-plate, having edge recesses for the reception of said projections, a rubber sole, and a steel brace and holder embedded in said sole, and means for securing said sole to said sole-plate, substantially as specified.

8. In a horseshoe, the combination with the boot having inwardly-extending metallic projections, of a sole-plate having edge recesses for the reception of said projections, a rubber sole, and a steel brace and holder of channeled form embedded in said sole and having attachment projections engaging apertures of said sole-plate, substantially as specified.

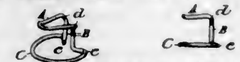
9. In a horseshoe, the sole-plate, having attachment devices for a rubber sole, and edge recesses for the attachment of a boot portion, substantially as specified.

10. In a horseshoe, the sole-plate having apertures for the attachment of a rubber sole, and edge recesses for the attachment of a boot portion, substantially as specified.

11. The horseshoe, consisting of the rubber sole and its embedded brace and holder having prongs extending through the rubber, and the edge-flanged sole-plate, having apertures, for the reception of the prongs of the brace and holder, substantially as specified.

12. The horseshoe comprising the rubber sole, its embedded brace and holder having fastening-prongs, the boot portion having the flanged attachment-plates, and the sole-plate having apertures for said fastening-prongs, edge recesses to engage said flanged attachment-plates, and edge flanges to engage the hoof, substantially as specified.

661,425. **COMBINED NECKTIE-HOLDER AND COLLAR AND CUFF FASTENER.** WILLARD D. REDINGTON, Binghamton, N. Y. Filed Mar. 8, 1899. Serial No. 708,229. (No model.)



Claim.—The herein-described collar and cuff fastener and necktie-holder made of one piece of wire bent so as to form a substantially semi-circular neck-base provided with shoulders *c*, *c*, and the twin shanks B projecting outward from said neck-base, the tongue A provided with the retaining-shoulders *d*, *d*, and slightly bent outward, downward and then upward between the retaining-shoulders *d*, *d*, and its point, yet remaining substantially parallel with the neck-base, substantially as and for the purpose set forth.

661,426. **STAGE ILLUSION APPARATUS.** MORGAN A. SHERWOOD, Washington, D. C. Filed July 31, 1900. Serial No. 25,382. (No model.)

Claim.—1. An apparatus for producing fire and flame illusion, consisting of fixed parts which are illuminated and appear more or less incandescent, flexible and movable parts arranged adjacent and adapted to simulate flame, means for illuminating such parts, and a blast-producing agent, substantially as shown and described.



2. An apparatus for producing fire and flame illusion, consisting of fixed parts representing combustible material, lights arranged therewith for illumination and production of apparent incandescence, flexible streamers arranged behind such fixtures, lamps for illuminating said streamers, and a blast-producing agent, substantially as shown and described.

3. An apparatus for producing fire and flame illusion, consisting of fixed portions representing wooden logs, means for illuminating and producing apparent incandescence of such logs, vertically movable or extensible streamers composed of thin, light flexible material, arranged behind the logs, lamps for illuminating said streamers, and a blast-producing agent, substantially as shown and described.

4. An apparatus for producing fire and flame illusion, consisting of a supporting-frame, a series of imitation fire-logs, and flame-simulating devices, a blast-producing agent, a fireback comprising a suitable rigid backing, a filling including reflecting material having interspersed lamps, and a front through which the filling appears, the said fireback being arranged in front of the logs and constructed as described, a series of red lamps arranged in front of and below the fireback, and a series of smoke-producing devices, located below the fireback, as specified.

5. An apparatus for producing fire and flame illusion, consisting of fixed objects and lights illuminating them so that they have the appearance of combustible material in a state of incandescence, a series of streamers arranged along with said material, a blast-producing agent, and a vertically-movable device or trap for supporting and gradually lowering a person impersonating one being burned, substantially as shown and described.

6. An apparatus for producing fire and flame illusion, consisting of a series of streamers attached to a frame, a blast-producing agent, a vertically-movable trap located behind such streamers, and adapted to descend below them, and means for controlling said trap, to permit its gradual descent, as shown and described.

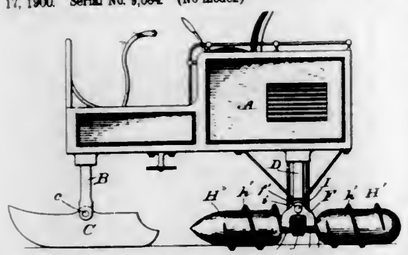
7. In an apparatus for producing flame illusion, the combination, with a blast-producing agent, of a streamer consisting of thin fabric, a roller on which the streamer is wound, and a support or holder for said roller, substantially as shown and described.

8. A portable apparatus for producing flame illusion, consisting of a hood open on its upper side, a flexible air-pipe connected with the apex of the hood, one or more colored streamers secured to said frame, and a series of red lamps attached to the frame and arranged in rear of said streamers, as shown and described.

9. A portable apparatus for producing flame illusion consisting of a frame, colored streamers, and means for extending and retracting them, a series of colored lamps secured to the frame adjacent to and behind said streamers, a blast-producing agent connected with the frame, and flexible connections between the frame and the blast-operating agent, substantially as shown and described.

10. An apparatus for producing a flame effect, consisting of flame-simulating agencies, a blast-producing agent, a spark-distributer consisting of a rotatable box arranged over the point of blast-discharge, and having perforated and imperforate sides, substantially as shown and described.

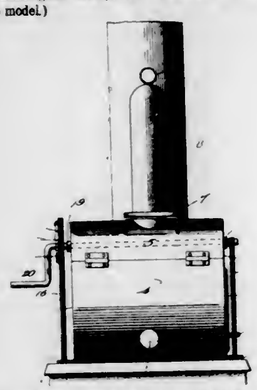
661,427. SLED. JAMES T. SIBLEY and RICHARD T. NEWTON, New York, N. Y., assignors to W. Scott O'Connor, same place. Filed Mar. 17, 1900. Serial No. 9,084. (No model.)



Claim.—1. In a vehicle of the character described, journal-brackets, sleeves attached to the said journal-brackets, bearings in the frame of the said vehicle to receive the said sleeves, drums journaled in the said journal-brackets, and having spiral flanges thereon, a transverse shaft journaled in the said sleeves in the journal-brackets and geared to the said drums, and means for turning the said shaft, substantially as described.

2. In a vehicle of the character described, the combination with journal-brackets; sleeves on the said journal-brackets; journal-bearings in axial line with the said sleeves; a pair of journal-bearings at right angles to the said sleeves; shafts journaled in the last-mentioned journal-bearings; and drums having spiral flanges thereon mounted upon the said shafts; of bearings in the frame of the vehicle to receive the said sleeves; a transverse shaft journaled in the said sleeves and geared to the aforesaid shafts; and means for turning the said transverse shaft; substantially as described.

661,428. HOOD FOR COOKING STOVES OR RANGES. CHARLES P. SLOWE, Huntingdon Valley, Pa. Filed Jan. 30, 1900. Serial No. 3,273. (No model.)

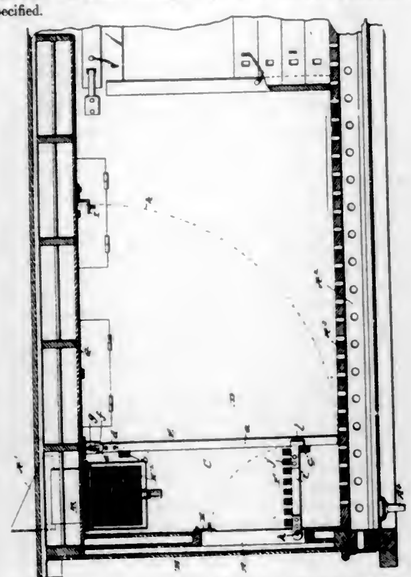


Claim.—1. The combination with a stove-hood adapted to be supported upon the top of a stove, of standards secured to the outside of the hood at opposite sides thereof; a shaft extending through openings in the sides of the hood and into bearings formed in the said standards, means formed on the shaft for limiting the lateral movement of said shaft; means for revolving said shaft, and a shelf suspended from the shaft within the hood and adapted to be held at any suitable height within said hood, substantially as shown and described.

2. The combination with a stove-hood provided with horizontally-projecting edges at the lower portion or base thereof, and having a pipe connected with the stove-pipe and a door-and-damper device; of standards secured to the projecting flanges or edges of the hood; a shaft extending through both sides of the hood and supported in bearings formed in the said standards; a handle for revolving the shaft; chains secured at their upper ends to the shaft and divided at their lower ends and secured to the shaft; means for limiting the lateral movement of the shaft; and a shelf suspended within the hood and adapted to be supported at any suitable height within said hood, substantially as shown and described.

661,429. REFRIGERATOR-CAR. HENRY F. STANLEY, New Orleans, La. Filed Feb. 15, 1900. Serial No. 5,368. (No model.)

Claim.—1. In a freight-car, the combination with the top, end and side walls of the car-body; of a transverse wall connected in a hinged manner to the top wall whereby it is adapted, when not in use, to be swung against the same, a bottom wall connected in a hinged manner to the end wall whereby it is adapted, when not in use, to be swung up against said end wall, said bottom wall being provided with hooks for engaging and holding the transverse wall when both walls are in their operative positions, means for holding the bottom wall when said wall is swung up against the end wall of the body, and means for holding the transverse wall when the same is swung up against the top wall, substantially as specified.



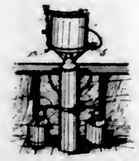
2. In a car, the combination with the top, side and end walls of the car-body, the top wall having slotted hangers *f*, and the end wall having a recess A; of the adjustable, transverse wall comprising upper and lower cross-bars, upright bars *a a'* arranged at intervals apart and connected to the cross-bars, and castings on the upper ends of the bars *a'* having lugs *e* journaled in the slotted hangers *f*, whereby said transverse wall is adapted to be swung and moved endwise, the adjustable bottom wall adapted to swing independently of the transverse wall, and comprising longitudinally-disposed bars pivotally mounted at one end on a transverse rod in the lower portion of the recess A and having hooks at their opposite ends adapted to engage the lower cross-bar of the transverse wall, a latch on the top wall for engaging the transverse wall, and a latch on the end wall for engaging the adjustable bottom wall, substantially as specified.

3. In a car, the combination with the car-body having one or more ventilators at its top, and also having a foraminated floor, an air-space between said floor and its bottom; and a drain-pipe communicating with the air-space; of an adjustable, transverse wall connected in a hinged manner at its upper end to the top wall of the body, an adjustable bottom wall connected in a hinged manner to the end wall of the body and adapted to swing independently of the transverse wall, means on one of the adjustable walls for engaging and holding the other when said walls are in their operative positions, means for holding the transverse wall when the same is swung against the top wall of the body, and means for holding the bottom wall against the end wall of the body, substantially as specified.

4. In a car, the combination with the top, side and end walls of the car-body, the end wall having a recess in its inner side; of a transverse wall connected in a hinged manner to the top wall whereby it is adapted, when not in use, to be swung against the same, a bottom wall connected in a hinged manner to the end wall whereby it is adapted, when not in use, to be swung into the recess in said end wall; said bottom wall being provided with hooks for engaging and holding the transverse wall when both walls are in their operative positions, means for holding the transverse wall when the same is swung against the top wall of the body, and means for holding the bottom wall in the recess in the end wall of the body, substantially as specified.

661,430. FIRE-EXTINGUISHING APPLIANCE. JOSEPH TOMBEUR, Brussels, Belgium. Original application filed July 8, 1897, Serial No. 643,925. Divided and this application filed Oct. 4, 1899. Serial No. 732,588. (No model.)

Claim.—The combination with a reservoir, for containing fire-extinguishing liquid, said reservoir, having a beveled upper end, a corresponding hollow head fitted over said end, and hooks or equivalents, suitably secured to said reservoir and head and adapted to support pails, or other receptacles, of a suitable receptacle placed upon said head and serving to contain fire-extinguishing liquid, said receptacle provided with means for carrying same on the back; and a suitable sucking and forcing hand-pump, connected with said receptacle, substantially as and for the purpose set forth.



661,431. WASHBOILER. HIRAM H. TUTTLE, York, Pa. Filed Feb. 8, 1900. Serial No. 4,503. (No model.)



Claim.—1. A washboiler substantially as herein described, comprising the tank provided on its inner side with inwardly-projecting cleats having their under sides undercut, the steaming false bottom provided with a perforated top plate having upwardly-projecting discharge-tubes, and depending rim-flanges having perforations communicating with the chamber below the top plate, cross-cleats on the under side of the top plate of the bottom forming the chamber into compartments, and side bars pivoted at their lower ends to the false bottom alongside the latter and having their upper ends arranged to engage below the undercut cleats, the lid or cover and means for fastening said lid or cover in place.

2. A washboiler comprising the tank provided on its inner side with inwardly-projecting cleats undercut on their under sides, the steaming false bottom and the side bars pivoted at their lower ends to the false bottom whereby their upper ends may be moved into and out of engagement with the undercut sides of the cleats of the tank, substantially as set forth.

661,432. CAR TRUCK AND BRAKE. DWIGHT B. VAN DORN, Cleveland, Ohio. Filed Mar. 17, 1900. Serial No. 9,043. (No model.)

Claim.—1. A car-truck having its sides formed of single flat steel plates and edgings of angle-iron riveted upon the outside of said plates along their top and bottom and smooth plain inner surfaces, substantially as described.

2. A car-truck having each side thereof formed wholly of flat metal plates having smooth unobstructed inner surfaces and separate right-angled plates riveted along the top and bottom edges on the outside of each side of the truck, the said body portion having openings for axle-boxes and angular reinforcing-strips at each side of said openings, in combination with the car-axles and springs on said axles outside said truck resting within the top right-angled plates, substantially as described.

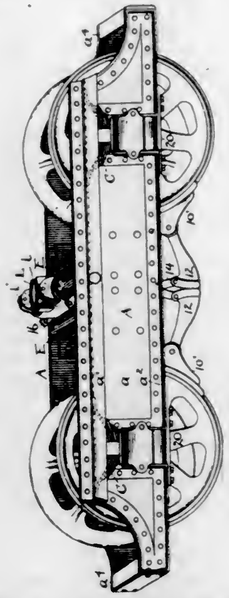
3. A car-truck having each side made with a steel-plate body and a right-angled edging riveted thereto along its top and flat on top and bottom, in combination with truck-carrying springs bearing against said edging from below, substantially as described.

4. A car-truck constructed of steel plate with flat inner sides, a set of substantially U-shaped housings transversely across said truck and secured thereto at their ends, and springs supported in said housings, substantially as described.

5. A car-truck having plain inner sides and a set of combined braces and housings connecting said sides, said housings closed over their top and open at their bottom and having lateral flanges at their ends riveted to the sides of the truck, substantially as described.

6. The truck-frame and a set of transverse substantially U-shaped housings connecting the sides of the frame between its ends, springs in said housings and supporting connections between said springs beneath the housings, substantially as described.

7. The truck-frame and substantially U-shaped connections between the sides of the frame at about its center, a spring in each connection and an equalizing member beneath each spring and operatively connected therewith, and cross-supports between said equalizing members, substantially as described.



8. The truck-frame and the spring-housings fixed thereto, springs supported in said housings and equalizing mechanism supported from said springs and spanning the space between and below the housings, and a support for the car-body resting on said equalizing mechanism, substantially as described.

9. A car-truck and spring-supports across its center, a spring carried by each support, an equalizing-bar connected with each spring beneath the same, cross connections between the ends of said bars, and a bolster for the car-body resting on said cross connections between said spring-supports, substantially as described.

10. A car-truck having a set of spring-supports transversely across its middle portion, springs in said supports and equalizing mechanism connected with the said springs having rounded carriers, and a free bolster set down upon said carriers between the spring-supports, substantially as described.

11. The car-truck and the spring-housings therein, leaf-springs in said housings, equalizing mechanism comprising links operatively supported from said springs beneath the same, and connections between the links, and a bolster supported by said mechanism, substantially as described.

12. A car-truck and transversely-arranged spring-supports at its center and springs therein, equalizing mechanism connecting said springs having rounded bearings and a substantially U-shaped bolster having its edges fashioned to engage over said rounded bearings, substantially as described.

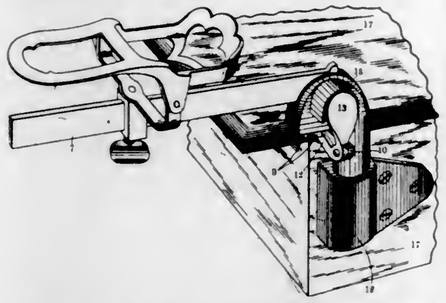
13. The car-truck and the transversely-arranged springs at its center, equalizing mechanism for said springs comprising rounded parts with channels and a substantially U-shaped bolster having its edges resting in said channels, substantially as described.

14. A car-truck having a set of springs transversely at its center and supports therefor fixed to the truck, equalizing mechanism connected with said springs comprising a set of rollers having each two channels around the same, and a bolster having recesses in its edges rounded to rest down in said channels, substantially as described.

15. The truck and the housings across its center, a leaf-spring in each housing, an equalizing-bar for each spring and links connecting said parts, rollers supported by and between said equalizing-bars, and a substantially U-shaped bolster riding on said rollers and constructed to carry the car-body, substantially as described.

16. The truck-frame, a set of spring-supporting housings across said frame and springs therein, an equalizing mechanism for said springs, and a bolster member resting thereon, substantially as described.

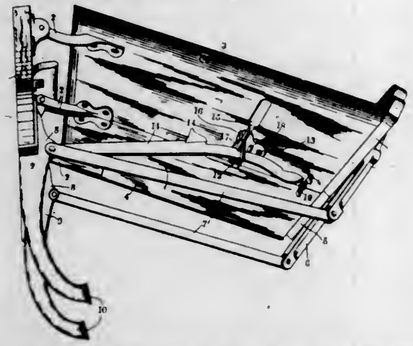
661,433. ADJUSTABLE STIRRUP-BAR FOR PHYSICIANS' TABLES. WILLIAM D. ALLISON, Indianapolis, Ind. Filed Dec. 20, 1899. Serial No. 740,951. (No model.)



Claim.—1. A stirrup-bar for physicians' tables, consisting of a stem, a pair of lips carried by said stem, a stirrup-supporting bar pivoted between said lips and having a series of ratchet-teeth, a latch arranged to engage said ratchet-teeth and having its operating-arm extending up alongside the adjacent lip, and a guard extending from said lip beyond and embracing said operating arm.

2. A stirrup-bar for physicians' tables, consisting of a stem, a pair of lips carried by said stem, a stirrup-supporting bar pivoted between said lips and having a series of ratchet-teeth, a latch arranged to engage said ratchet-teeth and having its operating-arm extending up alongside the adjacent lip, a guard extending from said lip beyond and embracing said operating-arm, a series of teeth carried by said stem and concentric therewith, an eye adapted to receive said stem, and a tooth carried by said eye in position to be embraced by any adjacent pair of said concentric teeth.

661,434. ADJUSTING MEANS FOR LEG-RESTS OF PHYSICIANS' TABLES. WILLIAM D. ALLISON, Indianapolis, Ind. Filed Dec. 20, 1899. Serial No. 740,952. (No model.)

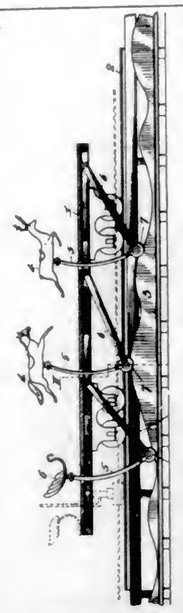


Claim.—An adjusting means for the leg-rest of a physician's table, consisting of a pivoted brace provided with a series of teeth, a plate 13 adapted to be secured to the under side of the leg-rest, an eye carried by said plate and adapted to receive the end of said brace, a guide 16 carried by said plate adjacent said eye, a latch 15 pivoted to said plate adjacent said eye between the brace and said plate in position to engage the teeth on the brace and so as to be supported between said guide and eye, and a lug 18 carried by said plate in position to form a stop for said brace, substantially as and for the purpose set forth.

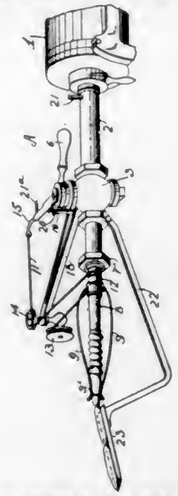
661,435. PLEASURE-RAILWAY OR CAROUSEL. JOHN ANDERSON, St. Louis, Mo., assignor to the Ariel Electric and Manufacturing Company, same place. Filed Feb. 12, 1900. Serial No. 4,849. (No model.)

Claim.—The combination of a stationary rail having an undulating upper surface, a moving car supported upon a track, a lever pivoted to the car and extending in a downward direction, a roller journaled in the lower end of the lever and which bears against the undulating surface of the rail, an arm rising from the lever and extending through the platform of the car and a seat connected to the upper end of the arm.

661,435.



661,436. LINKING ATTACHMENT FOR SAUSAGE-STUFFING MACHINES. HENRY C. ATKINSON, Louisville, Ky., assignor of one-half to Michael Reisser, same place. Filed June 30, 1900. Serial No. 22,131. (No model.)



Claim.—1. The combination with a sausage-stuffing machine, having meat-feeding means comprehending a valve actuable to control the supply of meat to the sausage-casing, of a rotatable holder for said casing, and connections between said valve and holder by which the holder is rotated to form a link-twist in the casing simultaneously with the turning of the valve to shut off the supply of meat to the casing.

2. A linking attachment to sausage-stuffing machines, having, in combination a rotatable holder for the sausage-casing, a reciprocable valve for controlling the supply of meat to the casing, connections between said holder and valve by which the holder is rotated when the valve is turned in one direction, and means by which the holder is held against rotation when the valve is turned in the opposite direction.

3. The combination with a sausage-stuffing machine, having meat-feeding means comprehending a valve actuable to control the supply of meat to the sausage-casing, of a rotatable holder for said casing, a flexible connecting means between said holder and valve, a returning means for said flexible connecting means, and devices for preventing backward rotation of the casing-holder by the return of said connecting means.

4. The combination with a sausage-stuffing machine, having meat-feeding means comprehending a valve actuable to control the supply of meat to the sausage-casing, of a rotatable tube for supporting said casing, said tube having a yielding clamping means, means for preventing backward rotation of the tube, a cord extending around said tube and having one end connected with said valve, and a spring-barrel to which the other end of said cord is attached.

5. The herein-described attachment to sausage-stuffing machines, comprising a feed-tube, a rotatable casing-holder for holding the gut open to access of sausage-meat thereinto, a reciprocable valve having an opening through which the meat passes into the casing, a handle for operating said valve, an arm projecting from said valve, a second arm, a spring-barrel and a pulley both supported by said second arm, a cord having one end attached to said spring-barrel and its other end attached to the first mentioned arm, said cord extending around said casing-holder and pulley, and a pawl and ratchet for preventing backward rotation of the casing-holder.

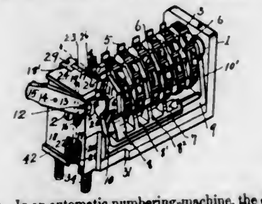
6. The herein-described attachment to sausage-stuffing machines, comprising a feed-tube, a linker connected therewith and embodying an inner tube, an outer tube rotatable on the inner tube and a yielding clamping means on the outer tube, said linker having a pawl and ratchet for preventing backward rotation of the outer tube, a valve having an opening through which meat passes into the inner tube of the linker, a handle and an arm projecting from said valve, a cord extending around the outer tube of the linker and having one end attached to said arm, and a returning means to which the other end of said cord is attached.

7. The herein-described attachment to sausage-stuffing machines, comprising a feed-tube, a rotatable casing-holder, a reciprocable valve for controlling the supply of meat to the casing, an arm connected with said valve and partaking of the movements thereof, a cord attached at one end to said arm and extending around said casing-holder, a returning means to which the other end of said cord is attached, means for preventing backward rotation of the casing-holder, and a catch to engage said arm and lock the valve in closed position while a casing is being placed on said holder.

8. A linking attachment to sausage-stuffing machines, comprising a rotatable casing-holder, a reciprocable valve actuable to control the supply of meat to the casing, a cord having one end connected with the valve, a spring-controlled returning means to which the other end of said cord is attached, said cord extending around the casing-holder and being operated to rotate the same when the valve is turned to shut off the supply of meat to the casing, means for preventing backward rotation of the casing-holder, a stop for limiting the movement of the valve in one direction, and a locking means for holding the valve in closed position during the imposition of a casing upon said holder.

9. A linking attachment to sausage-stuffing machines, having, in combination, a rotatable holder for the sausage-casing, a valve for controlling the supply of meat to the casing, connections between said holder and valve by which the holder is rotated when the valve is turned in one direction, and a rest supported at the mouth of said holder, for supporting the sausage as it is stuffed and until it has been linked.

661,437. TYPOGRAPHIC NUMBERING-MACHINE. EDWIN G. BATES and CHARLES SPIELMANN, New York, N. Y., assignors, by direct and mesne assignments, to the Bates Machine Company, same place. Filed Aug. 30, 1897. Serial No. 649,984. (No model.)



Claim.—1. In an automatic numbering-machine, the combination of figure-wheels having ratchet-wheels, stepped pawls, which when set for advancing said wheels are a short distance behind the ratchet-teeth to be operated on, means for moving the pawls for advancing the ratchet and figure wheels, and means consisting of a movable period-plate in position to be moved by the stepped-pawl mechanism before the pawls can engage the ratchets of the figure-wheels to be moved for preventing the beginning of rotation of the figure-wheels until said wheels have moved a distance from the plane of the printed paper.

2. The combination of a numbering-head having a frame, an axis, figure and ratchet wheels thereon, a pawl-plate and stepped pawls, the longest pawl being wider than its ratchet, a loose toothed wheel 25 on the axis beside the ratchet of the unit-wheel in position to be moved by said longest pawl, the teeth of wheel 25 having a different radial or angular arrangement than the ratchet-wheel teeth, whereby when the pawl-plate is moved so that one or more of the pawls will on their return movement advance figure-wheels, the longest pawl first engages a tooth of wheel 25 before reaching a tooth of the ratchet-wheel, and means for retarding movement of wheel 25.

3. In a numbering-machine having figure-wheels, stepped pawls and means for moving the pawls, a movable period-plate having a downwardly-extending cam or tooth, a loose toothed wheel between the teeth of which the cam is adapted to fit, and a tooth of the stepped pawl adapted to engage a tooth of the loose wheel before moving the first figure-wheel.

4. In a numbering-machine having figure-wheels, ratchets and stepped pawls for advancing them, said pawls when set for advancing the ratchets and figure-wheels being a short distance behind the ratchet-teeth to be engaged, a lever for moving said pawls, a period-plate, and means operated by movement of said lever for raising the period-plate before said pawls reach ratchet-teeth to move figure-wheels, thereby retarding the latter.

5. In a numbering-machine having figure-wheels and stepped pawls for advancing them, a lever for moving said pawls, a period-plate, a spring normally holding it on a level with the figure-wheels, and means operated by movement of said lever for raising the period-plate against tension of its spring.

6. In a numbering-machine having figure-wheels and stepped pawls for advancing them, a lever for moving said pawls, a period-plate, a spring normally holding the period-plate on a level with the figure-wheels, and means operated by movement of said lever for raising the period-plate against the tension of its spring before said pawls move figure-wheels, thereby retarding the latter, and means for guiding the period-plate in a perpendicular line.

7. In a numbering-machine having figure-wheels and means for advancing them, a period-plate normally level with the figure-wheels, means for raising the period-plate, said means acting to raise the period-plate above the figure-wheels before the means for advancing them moves the first figure-wheel.

8. The combination of a case, a numbering-head adapted to move up and down therein, a pivoted arm carried by the head and projecting therefrom, a catch connected to the case and having a hook engaging said pivoted arm on the head, said catch having a part distinct from said hook adapted to engage the head to limit outward movement thereof.

9. The combination of a case, a numbering-head adapted to move up and down therein, and a hook connected to the case and holding the head therein, said hook having a part adapted to engage the head to limit outward movement thereof, said hook having also a transverse extension with an arm 44 adapted to engage the head at the opposite side thereof.

10. The combination of a case, a numbering-head adapted to move up and down therein, a yielding hook with beveled head within the case, and an arm connected to the head in position to press back said hook and to be engaged thereby when the head is introduced into the case.

11. The combination of a case, a numbering-head adapted to move up and down therein, a rib on the head, a stop-arm adapted to be automatically moved back when the head is introduced into the case to allow the rib to pass it, and a spring for returning the stop-arm to position to engage the rib to limit its outward movement.

661,438. BLACK DYE AND PROCESS OF MAKING SAME. RENÉ BOHN, Mannheim, Germany, assignor to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed June 29, 1900. Serial No. 22,063. (Specimens.)

Claim.—1. The process for the production of a black coloring-matter which consists in treating 1.8 dinitro-naphthalene with concentrated sulfuric acid and a sulfid at a high temperature and converting the product so obtained into its soluble form by combination with a bisulfite, substantially as described.

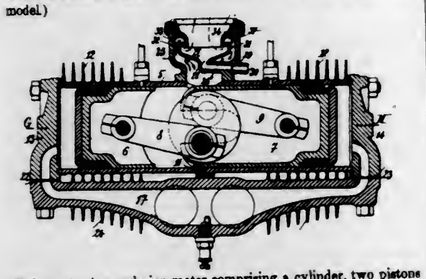
2. The process for the production of a black coloring-matter which consists in treating 1.8 dinitro-naphthalene with concentrated sulfuric acid and a sulfid at a high temperature, substantially as described.

3. As a new article of manufacture the new black coloring-matter which can be obtained by treating 1.8 dinitro-naphthalene with concentrated sulfuric acid and hydrogen sulfid, and which is nearly insoluble in cold water, slightly soluble in boiling water giving a dirty-blue-violet solution, and which is soluble in concentrated and in fuming sulfuric acid (containing twenty-three per cent. SO_3) giving in both cases a dirty-red-violet solution, all substantially as described.

4. The herein-described dye which can be derived from dinitro-naphthalene, concentrated sulfuric acid and hydrogen sulfid, and which is soluble in cold water giving a yellow-brown solution, soluble in carbonate-

of-sodium solution giving a brown solution which changes very slowly in the presence of air; soluble in caustic-soda solution with a brown color which soon changes to dirty blue, and which gives a dirty-brown solution in concentrated sulfuric acid, all substantially as described.

661,439. EXPLOSION-ENGINE. ALFRED BOULIER and EUGÈNE BOULIER, Neuilly, France. Filed July 14, 1900. Serial No. 23,554. (No model.)

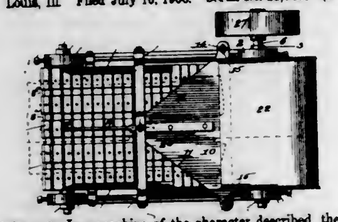


Claim.—1. An explosion-motor comprising a cylinder, two pistons in said cylinder working simultaneously in opposite directions, an explosion-chamber separated from said cylinder and containing the devices for the admission and escape of the gases and an ignition device and connections between said explosion-chamber and the ends of the cylinder, and an air inlet and outlet vessel on said cylinder and communicating with the interior thereof between the pistons, and oil-intercepting devices in said vessel substantially as described.

2. An explosion-motor comprising a substantially-closed cylinder, two pistons in said cylinder, working simultaneously in opposite directions, an air inlet and outlet vessel on said cylinder and communicating with the interior thereof between the pistons, an oil-intercepting cup in said vessel and a baffle arranged above and about the rim of said cup substantially as described.

3. An explosion-motor comprising a substantially-closed cylinder, two pistons in said cylinder working simultaneously in opposite directions, an explosion-chamber separated from said cylinder and extending longitudinally thereof, gas inlet and outlet ports therein and connections between the ends of the explosion-chamber and the ends of the cylinder for the inlet and outlet of gases and an air inlet and outlet vessel on the cylinder and communicating with the interior thereof above the crank-shaft and an oil-intercepting device in said vessel substantially as described.

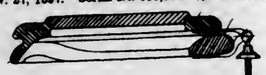
661,440. PORK-SKINNING MACHINE. JOSEPH N. BURNS, East St. Louis, Ill. Filed July 16, 1900. Serial No. 23,749. (No model.)



Claim.—1. In a machine of the character described, the combination of an angular-shaped skinning-knife, a slitting-knife extending forwardly from the point of said skinning-knife, and means for feeding the meat to be operated upon to said knives, substantially as set forth.

2. In a machine of the character described, the combination of an angular-shaped skinning-knife, a slitting-knife extending forwardly from said skinning-knife and having an upturned forward end, and means for feeding the meat to be operated upon to said knives, substantially as described.

661,441. CLOSET SEAT AND LID. HIRAM T. BUSH, Detroit, Mich. Filed Nov. 27, 1897. Serial No. 659,999. (No model.)

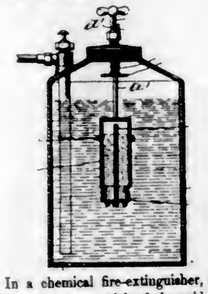


Claim.—1. The combination of an open-front or horseshoe-shaped seat and a lid provided with a lip adapted to close into the opening between the arms of the seat, substantially as described.

2. The combination of an open-front or horseshoe-shaped seat, and a lid provided with a lip arranged to close into the opening between the arms of the seat behind the extreme front ends of said arms and to extend to the plane of the lower face of said seat, substantially as described.

3. The combination of an open-front or horseshoe-shaped seat, and a lid shaped to conform to and cover the opening in the seat and provided at its forward end with a lip arranged to extend to the plane of the lower face of the seat and to close the opening between the ends of the seat, substantially as described.

661,442. FIRE-EXTINGUISHER. GUSTAVUS W. COON, Washington, D. C., assignor to Jesse D. Kingsbery, trustee. Filed Apr. 2, 1896. Serial No. 585,941. (No model.)



Claim.—1. In a chemical fire-extinguisher, the combination with the tank for holding alkaline material, of the acid-holder having one or more discharge-openings of small size and means for introducing alkaline material into said acid-holder to generate gas therein, substantially as described.

2. In a chemical fire-extinguisher, the combination with the tank for containing an alkaline solution, of an acid-holder having an acid-discharge opening or openings and means other than the said discharge-opening for introducing material into the acid-holder to generate gas therein, substantially as described.

3. In a chemical fire-extinguisher the combination with the tank for holding an alkaline solution, of an acid-holder therein having an acid-discharge opening or openings means for closing and opening said discharge-openings and means other than the said discharge-openings for introducing a liquid into said holder to generate gas therein, substantially as described.

4. In a chemical fire-extinguisher, the combination with a tank for holding an alkaline solution, of an acid-holder having discharge-openings, of means other than the discharge-openings for introducing material into said acid-holder above the acid to generate gas therein, substantially as described.

5. In a chemical fire-extinguisher the combination with the tank for holding the alkaline solution, of the acid-holder having openings in one end of the same, said holder having a tube extending from one of the said openings to near the closed end of the holder and means for depressing the open end of the holder below the surface of the said solution, whereby the pressure engendered in the tank is caused to force the solution into the holder, substantially as described.

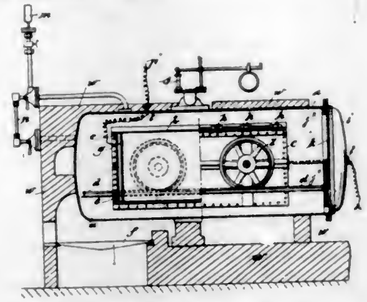
6. In a chemical fire-extinguisher the combination with the tank for holding the alkaline solution, of the acid-holder having openings in one end and the tube extending to near its opposite end, said holder being pivoted intermediate its ends, means for holding the open end of the holder above the said solution and means for inverting it to bring said opening beneath the solution, substantially as described.

7. In a chemical fire-extinguisher the combination with the tank for holding the alkaline solution, of the acid-holder having openings in one end and the tube extending to near the closed end of the holder, said holder being eccentrically pivoted, means for holding the holder with the end provided with openings uppermost and releasing means, substantially as described.

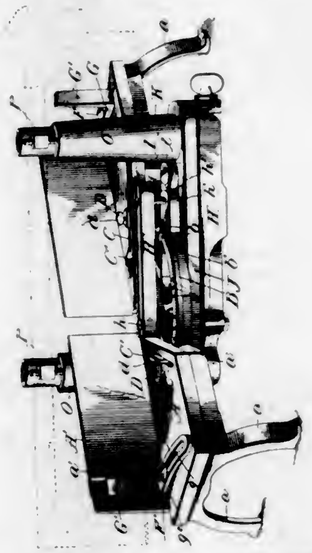
8. In a chemical fire-extinguisher, the combination with the tank for holding the alkaline solution, of the acid-holder located therein having openings in one end and a tube within said holder extending from one of said openings to near the opposite end of the same, means for closing the openings in the acid-holder and means for removing the closure and bringing the acid-holder into operative relation with the alkaline solution, substantially as described.

661,443. PROCESS OF PRODUCING ARTIFICIAL STONE. EMERY COULON, Blaton, Belgium. Filed Mar. 20, 1899. Serial No. 709,798. (No specimens.)

Claim.—A process of producing artificial stone, which consists in crushing sand and lime to impalpable powder; mixing these materials and submitting the mixture to the action of electricity, the moistening effect of hot water and pressure by the latter equally to the top and to all sides of the block, the lateral inward pressure fully counterbalancing the downward pressure and preventing all disintegrating action while compressing the block, substantially as set forth.



661,444. MITER-BOX. JOHN H. COY, Salem, Ohio. Filed May 9, 1900. Serial No. 16,076. (No model.)



Claim.—1. A miter-box having its base provided with inclined slots with enlargements at their ends, and stops adjustable and rotatable in said slots and mounted to be turned down into said enlargements as and for the purpose specified.

2. A miter-box having a base provided with inclined slots, with enlargements at their inner ends, stops rotatably mounted and adjustable in said slots, and means whereby the stops may be turned down in said enlargements below the plane of the base, as set forth.

3. A miter-box provided with a base having slots with enlargements, rods disposed lengthwise of said slots, and stops rotatably mounted upon said rods and adjustable lengthwise of the slots, as and for the purpose specified.

4. A miter-box provided with a base with inclined slots with enlargements and stops rotatably and adjustably mounted therein, and independent stops at the ends of the base for circular moldings, as set forth.

5. A post, having vertical slots, a tubular portion with vertical slots, and a plug adjustable within the tubular portion and slotted substantially as shown and described.

6. A post, a tubular portion therein, each slotted vertically, a plug adjustable within the tubular portion, and a stop carried by the tubular portion, as shown and described.

7. A post, a tubular portion therein, each vertically slotted, a ping adjustable within the tubular portion and slotted, a stop adjustably mounted in the tubular portion, and a gaining-stop also adjustable in the tubular portion, all as and for the purposes specified.

8. The combination with the frame and the swinging saw-carriage, of a locking-pin for locking the carriage in its adjusted positions, and a cam and actuating means for moving said pin to unlock the carriage, as set forth.

9. The combination of the frame, a swinging saw-carriage and a locking-pin, of a cam and actuating means, and a spring acting in opposition thereto, as and for the purpose specified.

10. The combination of a frame, a swinging saw-carriage, a locking-pin, a block carrying the same, a spring acting upon said block to force it in one direction, and a cam acting upon the block to move it in the opposite direction, as set forth.

11. The combination of a frame, a swinging saw-carriage, a locking-pin, a recessed block carrying the same, a spring disposed within the recess of the block to keep the pin normally upward, a cam acting on the block to force it in opposition to the spring, and a rod acting to move the same, as set forth.

12. The combination of the frame, the swinging saw-carriage, the recessed block, the spring acting thereon, the block being provided with extensions, a cam having wings to engage said extensions, and a rod having a polygonal portion engaging a correspondingly-shaped opening in the cam, as and for the purpose specified.

13. The combination with the frame and the saw-carriage having its lower portion recessed, of the post and its support adjustable therein, means for holding the same in its adjusted position, and a locking-rod carried by the adjustable support and having a portion to engage a cam for locking the saw-carriage in its adjusted position, as set forth.

661,445. GAS-PRODUCER. EDWARD J. DUFF, Liverpool, England, assignor of one-half to the United Alkali Company, Limited, same place. Filed Feb. 16, 1900. Serial No. 5,519. (No model.)

Claim.—1. In a gas-producer, a grate consisting of grids arranged in inverted-V form, bearings for the lower edges of the grids, a support against which the upper edges of the grids normally rest, a spindle adapted to be operated from outside the furnace, and means such as a projection or hammer on said spindle having freedom of movement between the upper ends of the grids and adapted upon rotation of the spindle to strike the grids and move them outwardly in opposite directions.

2. In a gas-producer, a grate consisting of grids arranged in inverted-V form, bearings for the lower edges of the grids, a support against which the upper edges of the grids normally rest, a spindle adapted to be operated from outside the furnace, means such as a projection or hammer on said spindle having freedom of movement between the upper ends of the grids and adapted upon rotation of the spindle to strike the grids and move them outwardly in opposite directions, and a headpiece above the spindle covering the space between the upper ends of the grids.

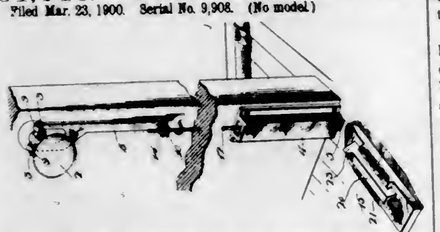
3. In a gas-producer, upright partitions at the bottom of the combustion-chamber, forming an air-inlet compartment beneath the grate and water-seal spaces at the sides of said compartment, a grate consisting of grids arranged in inverted-V form over the air-compartment, bearings for the lower edges of the grid, a support against which the upper edges of the grids normally rest, and means operating between the upper ends of the grids and common to both for moving the same outwardly in opposite directions.

4. In a gas-producer, upright partitions at the bottom of the combustion-chamber forming an air-inlet compartment beneath the grate and water-seal spaces at the sides of said compartment, said spaces being adapted to receive the spent fuel and being provided with openings through which they are accessible from the exterior of the producer for the removal of said spent fuel, a grate consisting of grids arranged in inverted-V form over the air-compartment, bearings for the lower edges of the grid, a support against which the upper edges of the grids normally rest, and means operating between the upper ends of the grid and common to both for moving the same outwardly in opposite directions.

5. In a gas-producer, two upright partitions extending across the bottom of the combustion-chamber and forming an air-inlet compartment beneath the grate and water-seal spaces at the sides of said compartment, a grate consisting of two grids bearing at their lower edges respectively on the upper edges of said partitions and arranged in inverted-V form over the air-compartment, a support against which the upper edges of the grids normally rest, and means operating between the upper ends of said grids and common to both for moving the same outwardly in opposite directions.

6. In a gas-producer, two upright partitions extending across the bottom of the combustion-chamber and forming an air-inlet compartment beneath the grate and water-seal spaces at the sides of said compartment, a grate consisting of two grids bearing at their lower edges respectively on the upper edges of said partitions and arranged in inverted-V form over the air-compartment, a support against which the upper edges of the grids normally rest, a spindle adapted to be operated from outside the furnace, and means such as a projection or hammer on said spindle having freedom of movement between the upper ends of the grids and adapted upon rotation of the spindle to strike the grids and move them outwardly in opposite directions.

661,446. DOOR-STOP. JAMES R. FOLEY, Mount Crawford, Va. Filed Mar. 23, 1900. Serial No. 9,908. (No model.)



Claim.—1. The combination with the bolt-casing adapted to be secured to a door, of a vertical bolt located in said casing, and a stop-plate provided with an inclined edge and with a spring-actuated buffer-plate adapted to be engaged and be depressed by said bolt and to lock said bolt in said catch-plate, substantially as and for the purpose set forth.

2. The combination with the bolt-casing adapted to be secured to a door, a bolt having a recess in its side, and a groove communicating with said recess, a plate adapted to be connected to the door-knob and be elevated thereby, and a connecting-rod the lower end of which is located within the recess of said bolt and extends through the groove in said bolt and the upper end of which is adjustably connected to the plate, substantially as and for the purpose set forth.

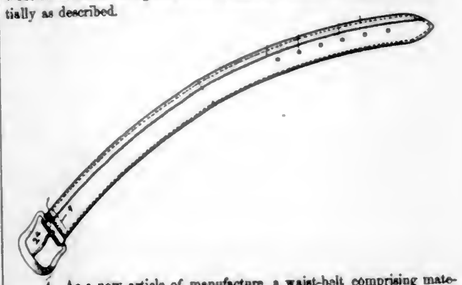
3. A stop-plate provided with an inclined end and a longitudinal recess, a spring located in said recess, and a buffer-plate having a longitudinal sliding engagement with the stop-plate and actuated by said spring, substantially as and for the purpose set forth.

661,447. APPAREL-BELT. HENRY J. GAISMAN, New York, N. Y. Filed Oct. 26, 1899. Serial No. 734,805. (No model.)

Claim.—1. A belt, strap, or the like comprising material folded upon itself the edges of which material meet and are secured together, the opposite walls or webs of said material being secured together, substantially as described.

2. A belt, strap or the like comprising material folded upon itself, the edges of which meet and are secured together, and stitches securing the opposite walls or webs of the material together, substantially as described.

3. As a new article of manufacture, a waist-belt comprising a piece of material folded upon itself the edges of which meet along one face thereof and are secured together, stitches securing the opposite walls or webs of the material together, and a fastener attached to the belt, substantially as described.



4. As a new article of manufacture, a waist-belt comprising material folded upon itself so that its edges meet, said edges being secured together, the opposite walls or webs of said material being secured together, said meeting edges of the material being at one side of the median line of the belt, and a fastener attached to said belt, substantially as describe d

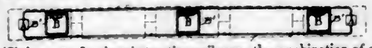
5. As a new article of manufacture, a waist-belt comprising material folded upon itself so that its edges meet, said edges being stitched together, and one or more lines of stitches joining the webs of the material together between said edges and the outer edge or edges, and a fastener attached to said belt, substantially as described.

6. As a new article of manufacture, a waist-belt comprising material folded upon itself so that its edges meet and stitches joining said edges together, said stitches being looped together between apertures from which they pass, whereby the edges of the material can aline or abut, the opposite walls or webs of said material being secured together, and a fastener attached to the belt, substantially as described.

7. As a new article of manufacture, a waist-belt comprising material folded upon itself so that its edges meet and stitches joining said edges together, said stitches being looped together between apertures from which they pass, whereby the edges of the material can aline or abut, one or more lines of stitches extending along the material between the outer edge or edges thereof and the first-mentioned stitches, and a fastener attached to the belt, substantially as described.

8. A belt, strap or the like comprising material folded upon itself having its edges stitched together and arranged along one face of the belt or strap between its outer edges so that the edges aline or abut, the walls being stitched together, and a fastener attached to the strap, substantially as described.

661,448. ELECTRIC TRACTION OF TRAINS OF VEHICLES UPON RAILS. LUCIEN GENTY, Marseilles, France. Filed May 3, 1900. Serial No. 15,406. (No model.)



Claim.—1. In electric traction-railways, the combination of an electric motor, compressed-air pipes one of which serves for forward motion and the other for rearward motion a transmitter for maintaining constant pressure in one of said pipes, said transmitter having its throttle-lever adapted to engage a rack or notched bar, a reversing-piston alternately acted upon by said pressure, a second piston, also actuated by the pressure from said transmitter, a series of freely-movable heavy bodies or plates actuated by said second piston an electrical controlling device for said second piston, and an auxiliary compressed-air motor, fitted with a brake, substantially as described.

2. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, an air-pressure transmitter comprising a chamber and divided into three compartments by membranes or flexible diaphragms, the central compartment being independent of the other compartments and the latter connected together and with one of said air-pipes, means for controlling communication between said latter compartments and said air-pipe, means for the retention of the throttle-lever of said transmitter as described, a reversing-piston alternately actuated by the pressure from said transmitter, a second piston also subjected to the pressure from said transmitter, movable weights or plates actuated by said second piston, an auxiliary compressed-air motor fitted with a brake, substantially as set forth.

3. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, an air-pressure transmitter, comprising a chamber subdivided into several compartments by membranes or flexible diaphragms, the central compartment being independent of the other compartments and the latter connected together and with one of

said air-pipes, and a pressure-regulator adapted to maintain a predetermined constant pressure within the central compartment, substantially as set forth.

4. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, an air-pressure transmitter, comprising a chamber subdivided into a number of compartments, the central one being independent of the other compartments, and the latter connected together and with one of said air-pipes, and a pressure-regulator, adapted to maintain a predetermined constant pressure within the central compartment, comprising a piston, having connected thereto a spring suitably held in place, a counterpoise or weight adapted to counterbalance the tension of said spring and means effecting connection between said spring and the "throttle-lever" of said transmitter, substantially as set forth.

5. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, an air-pressure transmitter subdivided into a number of compartments, the central one being independent of the other compartments and the latter connected together and with one of said pipes, a pressure-regulator adapted to maintain a predetermined constant pressure within the central compartment, comprising a piston having a cross-piece to which are connected springs, a counterpoise or weight adapted to counterbalance the tension of said springs, segments carried by the pivot of the "throttle-lever" of said transmitter, said springs having flexible band connections with said segments, and means for the predetermined retention in position of said "throttle-lever," substantially as specified.

6. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, an air-pressure transmitter, subdivided into a number of compartments, the central one being independent of the other compartments and the latter connected together and with one of said pipes, a pressure-regulator adapted to maintain a predetermined constant pressure within the central compartment, comprising a piston having springs connected thereto, a counterpoise or weight adapted to the tension of said springs, segments carried by the pivot of the transmitter "throttle-lever," said springs having flexible band connections with said segments, and a pressure-regulating valve adapted to control the pressure between said central compartment of the transmitter and the air-reservoir, substantially as set forth.

7. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, a transmitter, a pressure-actuated piston arranged in connection with said air-pipes and electrical current-controlling mechanism, comprising a cylinder having a piston and about centrally having pipe connection with the chamber of said pressure-actuated piston, and with its ends connected to said air-pipes, a rotary drum or roller adapted to form connection between the induction-coils and armatures of said electric motor, and intermediate motion-transmitting mechanism between the piston of said cylinder and said rotary drum, substantially as set forth.

8. In apparatus of the character described, the combination of an electric motor, compressed-air pipes, a transmitter, an air-pressure-actuated piston arranged in connection with said air-pipes, and electrical current-controlling mechanism comprising a cylinder having a piston and about centrally having pipe connection with the chamber of said pressure-actuated piston, and with its ends connected to said air-pipes, a rotary drum or roller adapted to form connection between the induction-coils and armatures of said electric motor, said cylinder piston-rod and drum-shaft being intergeared, substantially as set forth.

9. In apparatus of the character described, the combination of an electric motor, a transmitter, compressed-air pipes connected to said transmitter, and a speed-indicator comprising an air-pressure-actuated piston connected up with said air-pipes, a plurality or series of weights loosely arranged on bolts or stems, and rods adapted to be carried by said piston and connected up with said loosely-arranged weights, substantially as set forth.

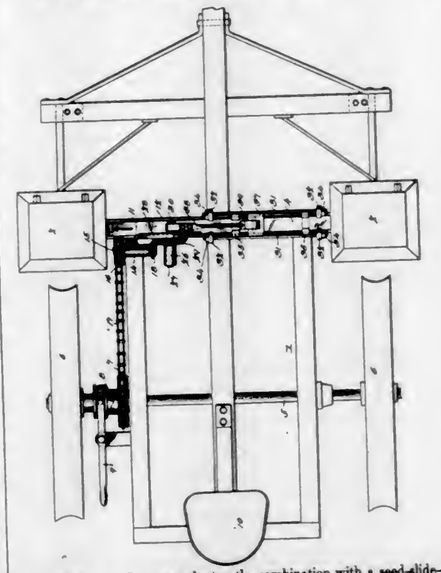
10. In apparatus of the character described, the combination of an electric motor, a transmitter, compressed-air pipes connected to said transmitter, and a speed-indicator comprising an air-pressure-actuated piston connected up with said air-pipes, a plurality or series of weights loosely arranged upon bolts or stems, rods carried by said piston and connected up with said loosely-arranged weights, an electromagnet, a bell-crank lever controlled by said magnet, and having a pawl or detent adapted to engage said piston, means to normally effect such engagement of said pawl a differential valve and air-inlet valve controlled thereby, and a third valve controlled by said pawl and adapted to establish communication between the chambers of said piston and differential valve and the atmosphere, substantially as set forth.

11. In apparatus of the character described, the combination of an electric motor, a transmitter, compressed-air pipes connected to said transmitter, and a speed-indicator comprising an air-pressure-actuated piston connected up with said air-pipes, a series of weights loosely arranged upon bolts or stems, rods carried by said piston and connected up with said loosely-arranged weights, an electromagnet, a bell-crank lever controlled by said magnet and having a pawl or detent adapted to engage said piston, a spring to effect such engagement of said pawl with said piston, a valve adapted to be controlled by said pawl or detent, a differential valve and an inlet-valve controlled thereby, and an exhaust-valve, said detent-controlled valve adapted to establish communication between the chambers of said differential valve and piston and the atmosphere, substantially as set forth.

12. In apparatus of the character described, the combination of an electric motor, a transmitter, compressed-air pipes connected to said transmitter, an air-pressure-controlled piston also adapted to be actuated by air-pressure and an auxiliary or "service" motor comprising a cylinder, its double piston having tubular or hollow rods, adapted to receive air from the air-brake reservoir, said hollow piston having two series of air passages or ports, and a double-acting slide-valve arranged in the chambers of said pistons and adapted to control said two series of air passages or ports and, itself, controlled by said air-pressure-controlled piston, substantially as set forth.

13. In apparatus of the character described, the combination of an electric motor, a transmitter, compressed-air pipes connected to said transmitter, an air-pressure-controlled piston also adapted to be actuated by air-pressure, an auxiliary or "service" motor comprising a cylinder, its double piston having tubular piston-rods adapted to receive air from the air-brake reservoir, said hollow piston having two series of air passages or ports, a double-acting slide-valve arranged in the chambers of said pistons and adapted to control said two series of passages or ports and itself, controlled by said air-pressure-controlled piston, and a brake comprising a circumferentially grooved or ribbed cylinder adapted to be engaged by a rack on said hollow or tubular piston, a peripherally ribbed or grooved disk or piston suitably fixed in position and adapted to engage the inner circumference of said ribbed or grooved cylinder, said cylinder adapted to contain a liquid, substantially as described.

661,449. CORN-PLANTER. CHARLES H. HALL, Frankfort, Ind. Filed July 21, 1900. Serial No. 24,435. (No model.)

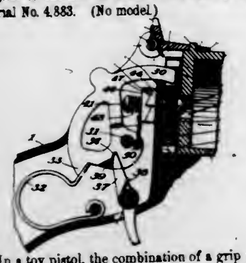


Claim.—1. In a corn-planter, the combination with a seed-slide-operating bar, of a pair of tappet-yokes adjustable thereon and secured thereto, parallel guides on which said tappet-yokes reciprocate, a cross-head on said guides adapted to actuate the tappet-yokes at the limits of the strokes of the cross-heads, a crank-wheel, means to rotate the same, and a pitman connecting said crank-wheel to said cross-head, substantially as described.

2. In a corn-planter, the combination of a seed-slide-operating bar, a pair of tappet-yokes adjustable thereon and secured thereto, parallel guides on which said tappet-yokes reciprocate, a cross-head on said guides, a crank-wheel, a pitman connecting said crank-wheel to said cross-head, a counter-shaft geared to the shaft which carries the crank-wheel, said counter-shaft having a sprocket-wheel, a sprocket-wheel on the driving-shaft of the planter, an endless sprocket-chain connecting said sprocket-

wheels, and a clutch to lock the driving sprocket-wheel to and release the same from the said driving-shaft, substantially as described.

661,450. TOY REVOLVING PISTOL. HENRY C. HALL, Covington, Ky., assignor of one-half to Louis Fritz, same place. Filed Feb. 12, 1900. Serial No. 4,883. (No model.)



Claim.—1. In a toy pistol, the combination of a grip portion, a barrel portion pivoted thereon and provided with an enlarged rear end, means to lock the barrel portion against pivotal movement, firing mechanism comprising a hammer or its equivalent, a breech-piece rotatable between the grip portion and the enlarged rear end of the barrel portion and provided with openings for the passage of the hammer or its equivalent said breech-piece being connected to the grip portion and being adapted to hold the charge between itself and the enlarged rear end of the barrel portion in position to be exploded by the hammer when projected through the said openings in the breech-piece and means to rotate the breech-piece, substantially as set forth.

2. In a toy pistol, the combination of a grip portion, a barrel portion pivoted thereon and provided with an enlarged rear end having a central opening, means to lock the barrel portion against pivotal movement, firing mechanism comprising a hammer or its equivalent, a breech-piece arranged between the grip portion and the enlarged rear end of the barrel portion and provided with openings for the passage of the hammer or its equivalent, a shaft on which the breech-piece is held, said shaft having its end arranged to project beyond the breech-piece for engagement with the central opening in the rear end of the barrel portion, and means to rotate the breech-piece, substantially as set forth.

3. In a toy pistol, the combination of a frame, firing mechanism comprising a hammer, a shaft mounted to turn in the frame, a breech-piece carried by the shaft, a clutch member fixed to the shaft, a clutch member loose on the shaft and provided with a spring for holding it engaged with the first-named clutch member and means to communicate the movement of the hammer to said loose clutch member, substantially as set forth.

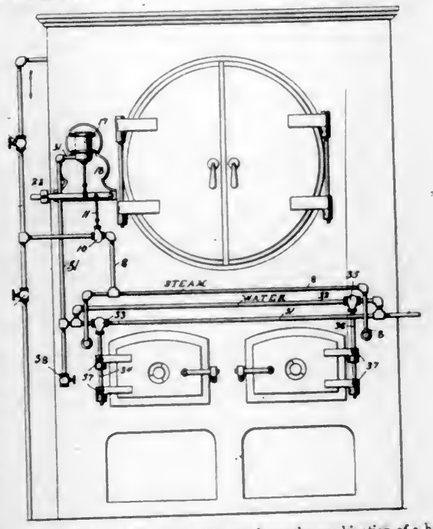
4. In a toy pistol, the combination of a grip portion, a barrel portion pivoted thereto, means to lock the barrel portion against pivotal movement, firing mechanism, a shaft held to turn at the forward end of the grip portion and driven from the firing mechanism, and a breech-piece held on the forward end of said shaft between the grip portion and the barrel portion and provided with openings for the passage of the hammer of the firing mechanism, substantially as set forth.

5. In a toy pistol, the combination of a grip portion, a barrel portion pivoted thereon, means to lock the barrel portion against pivotal movement, firing mechanism comprising a hammer, a shaft held to turn at the forward end of the grip portion, a breech-piece held to turn with said shaft between the grip portion and the barrel portion, a head or enlargement on the rear end of said shaft, a clutch member fixed on the shaft, a clutch member loose on the shaft and adapted for engagement with the fixed clutch member when moved in one direction, to compel rotation of the shaft, a spring coiled on the shaft between the head or enlargement thereof and the loose clutch member, and a connection between the hammer and said loose clutch member, substantially as set forth.

661,451. SMOKE-CONSUMER. ARCHER G. JONES, Richmond, Va., and CHARLES H. PHILBROOK, New York, N. Y., assignors to E. M. Crutchfield, Richmond, Va. Filed Apr. 18, 1900. Serial No. 13,364. (No model.)

Claim.—1. In a furnace, the combination of a main air-duct built wholly within the bridge-wall and extending transversely across said wall and opening to the atmosphere through a port in the side wall of the furnace, with a lateral air-duct connecting with the main duct and having openings into the furnace-chamber, and automatic mechanism injecting air from said lateral duct into the furnace-chamber when the furnace-door is opened, and gradually and progressively decreasing the amount of air injected after the door is closed.

2. In a furnace the combination of an air-duct leading through the side wall of the furnace from the outer air transversely across the furnace in the bridge-wall, a side duct connecting therewith and having openings into the furnace-chamber, a steam-pipe located in said side duct and having injector-nozzles in said openings, a valve controlling said steam-pipe, a cylinder, a piston in said cylinder having a stem operatively connected to said valve, a water-pipe leading into said cylinder, a valve controlling said water-pipe, and a furnace-door having a pintle operatively connected to said last-named valve.



3. In a furnace provided with two doors, the combination of a hot-air duct communicating with the furnace-chamber, a steam-pipe conducting steam thereto, a valve controlling said steam-pipe, a cylinder having a piston therein connected to said valve, a water-pressure pipe leading past the furnace-doors to said cylinder, a by-pass pipe connected to said water-pressure pipe, a valve in said last-named pipe connected to the pintle of one of the furnace-doors, a valve in the by-pass pipe connected to the pintle of the other door, and a leak-valve attached to the water-pressure pipe.

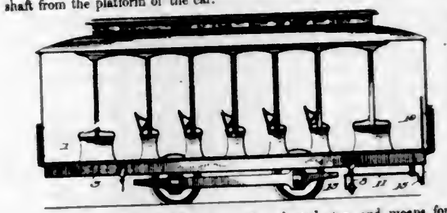
4. In a smoke-consuming furnace, the combination of a hot-air duct leading through the side wall of the furnace from the outer air along the bridge-wall, lateral ducts connecting therewith and opening into the furnace-chamber, a steam-pipe in said lateral ducts and having injector-nozzles communicating with the furnace-chamber, a valve controlling the passage of steam through said pipe, a cylinder, a piston therein operatively connected to the stem of said valve, a water-pressure pipe leading to said cylinder, a normally-closed valve in said pressure-pipe connected to the pintle of one of the furnace-doors, a by-pass pipe around said valve, a normally-closed valve in said by-pass pipe connected to the pintle of the other door, a petcock connected to said pressure-pipe and a weighted lever connected to said piston and steam-valve.

5. In a smoke-consuming furnace, the combination of a hot-air duct communicating with the furnace-chamber, a steam-pipe in said duct having injector-nozzles, a gradually and progressively closing valve controlling said steam-pipe, means controlling the time consumed in closing said valve, means controlling the amount of air passing through said duct, a cylinder, a piston therein, a water-pressure pipe leading to said cylinder, a valve controlling said pressure-pipe and connected to a pintle of one furnace-door, a by-pass pipe around said valve, and a valve in said by-pass and connected to the other furnace-door.

6. In a smoke-consuming furnace, the combination of a steam-pipe leading to the furnace-chamber, with a water-motor operatively connected to a valve in said pipe, a water-pressure pipe leading to said motor, a valve directly connected to the pintle of one of the furnace-doors and controlling the transmission of pressure through said pipe, a by-pass pipe around said valve and a valve in said by-pass pipe and connected directly to the pintle of the other furnace-door.

661,452. RAILWAY-CAR. JOHN A. KRATZ, Baltimore, Md., assignor of one-fourth to Robert Rosenbush, same place. Filed Mar. 22, 1900. Serial No. 9,777. (No model.)

Claim.—1. The combination with a car, of a pivoted step, and means for raising and lowering said step, comprising a bracket secured to the car, a slotted angle-arm secured to the step and pivotally secured to said bracket, a crank-shaft, one end of which extends through the slot in said angle-iron and carries a roller and means for operating said crank-shaft from the platform of the car.

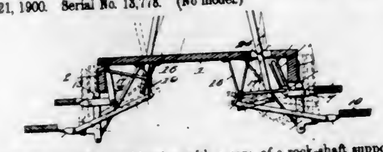


2. The combination with a car, of a pivoted step, and means for raising and lowering said step, comprising a bracket secured to the car, and provided with a shoulder; a slotted angle-iron secured to the step and pivotally secured to said bracket, a crank-shaft, one end of which extends through the slot in said angle-iron, and carries a roller and means for operating said crank-shaft from the platform of the car.

3. The combination with a car, of a pivoted step, and means for raising and lowering said step, comprising a bracket secured to the car, a slotted angle-iron secured to the step and pivotally secured to said bracket; a crank-shaft, one end of which is bent to form an arm which projects through the slot of the angle-iron, a roller on said arm, and means for tilting said crank-shaft.

4. The combination with a car, of pivoted running-boards one at each side of the car, and means for raising one of said boards and simultaneously lowering the other, comprising slotted angle-irons secured to the boards, oppositely-disposed double cranks supported in bearings below the car, an operating-lever and links connecting the lever and double cranks.

661,453. RAILWAY-CAR STEP. JOHN A. KRATZ, Baltimore, Md., assignor of one-fourth to Robert Rosenbush, same place. Filed Apr. 21, 1900. Serial No. 13,778. (No model.)



Claim.—1. The combination with a car; of a rock-shaft supported in bearings below the car-body; a running-board pivotally supported at the side of the car and arranged parallel to said rock-shaft; arms projecting from said rock-shaft; means for connecting said running-board with the rock-shaft at two or more points, comprising a plurality of pivotally-secured straps each formed with an elongated slot; and rollers carried by said arms and moving within the slots of the straps.

2. The combination with a car; of a longitudinally-disposed rock-shaft supported in bearings below the car-body; arms projecting from said shaft; a roller carried by one of said arms; a plurality of pivoted straps; an upper and a lower step or running-board secured to said straps; a slotted angle extension on one of said straps coöperating with said roller; a link connecting another of said arms with the straps of the lower step; and a lever for rocking said shaft.

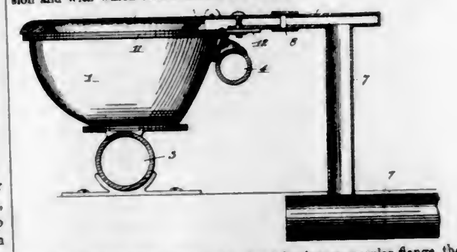
3. The combination with a car; of a longitudinally-disposed rock-shaft supported in bearings below the car-body; an arm projecting from said shaft; a pivotally-secured strap connected to said arm; a lever for rocking said shaft; means for securing said lever; and a supplemental support for the steps comprising a pivoted bracket having lateral projections; and a loosely-pivoted bail adapted to engage said projections.

4. The combination with a car; of a pivotally-supported step or running-board; a lever for raising and lowering said step or running-board; connections between said lever and step; and means for securing said lever, comprising a ratchet-plate fixed upon the car-platform; a pawl pivoted upon said lever; a lateral projection from said lever; and a guide-loop having a projecting rib or plate.

5. The combination with a car; of a pivotally-secured step or running-board; means for raising and lowering said step, and a supplemental support for the step comprising a bracket fixed upon the car; a strap pivotally secured thereto; a cross-pin extending through said strap and a pivoted bail adapted to engage the ends of said cross-pin.

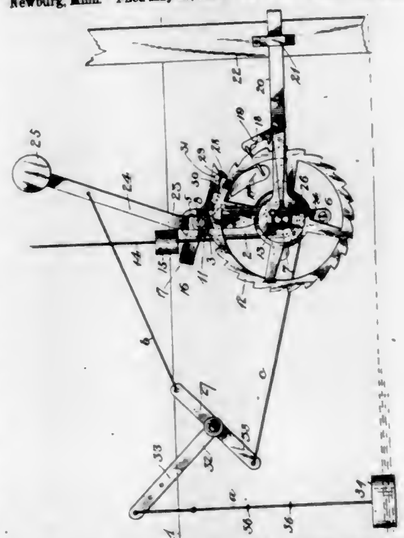
661,454. WATER-CLOSET. LOUIS D. LAWWILL, Edwardsville, Ill., assignor to the N. O. Nelson Manufacturing Company, St. Louis, Mo. Filed Apr. 27, 1900. Serial No. 14,528. (No model.)

Claim.—1. A water-closet comprising a bowl having an annular flange, the flushing-wall having an inside rim and a rear extension and bolted to the annular flange of the bowl, a seat cut away at the rear part to provide a vertical air-passage, and a ventilating box or duct with which the vertical air-passage communicates, and which is bolted to said extension and with which communicates a vent-pipe.



2. A water-closet comprising a bowl having an annular flange, the flushing-wall having an inside rim and a rear extension and bolted to the annular flange of the bowl, a seat cut away at the rear part to provide a vertical air-passage, a horizontal two-part ventilating box or duct with which the vertical air-passage communicates, bolted to the extension and having a pendent vent-pipe, and means for connecting the two parts of the ventilating box or duct.

661,455. REGULATOR FOR WINDMILLS. KNUD K. LERDL, Jr., Newburg, Minn. Filed May 21, 1900. Serial No. 17,431. (No model.)



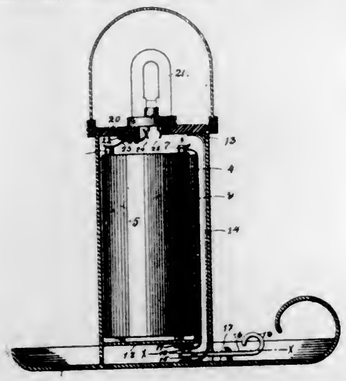
Claim.—1. In an automatic regulator for windmills, a ratchet-wheel journaled to a support, a winding-drum on said ratchet-wheel, a rope attached to said wheel and carrying a weight, a two-armed lever pivoted on said support, one arm of said lever spanning the drum, connections from said arms to a lever operated by the float, and an arm carrying a pawl, said arm attached to the pump-rod, substantially as described.

2. In a regulator for windmills, a ratchet-wheel journaled to a support, and provided with a drum, a rope connected to the shifting mechanism of the windmill and carrying a weight, an arm pivoted to the support and connected to the pump-rod, a pawl on said arm adapted to engage the ratchet-wheel, and connections whereby the rope is wound upon and unwound from the drum to throw the pump into and out of operation depending upon the height of water in the water-tank, subetantially as described.

661,456. ELECTRIC CANDLESTICK. LAWRENCE F. LEWIS, New York, N. Y., assignor of one-half to Charles G. Till, same place. Filed Jan. 25, 1900. Serial No. 2,730. (No model.)

Claim.—An electric candlestick in which are comprised a foot or base provided with a carrying-ring, a cylindrical casing attached thereto, a dry primary battery within said casing, an electric lamp mounted upon the top of said casing, concealed conductors passing to the lamp and to con-

tacts beneath the cylinder, and a concealed switch provided with an operating extension projecting from beneath the cylinder, the whole arranged substantially as shown and described.



661,457. LIFE-PRESERVER. GEORGE PLUMMER, Boston, Mass. Filed May 5, 1900. Serial No. 15,605. (No model.)



Claim.—In a life-saving and swimming apparatus, the combination of the single tube A, and the tube B, arranged at the center of the front and back of the body, connected by shoulder-straps D, and bottom strap G, with the tubes H and I, arranged on the sides of the body under the arms, and connected to said tubes A, B, by straps C, D, in the manner shown and specified.

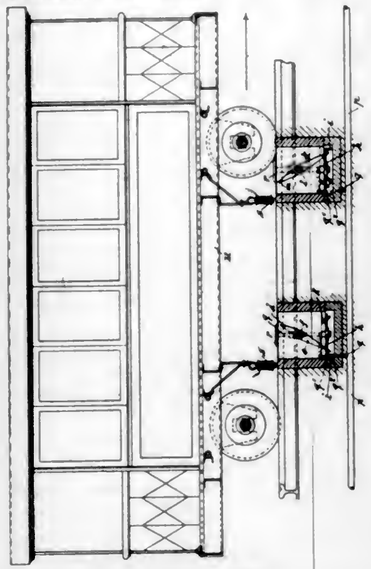
661,458. CURRENT-DISTRIBUTER FOR ELECTRIC RAILWAYS. HEINRICH SCHRAMM, Nuremberg, Germany, assignor to Otto Herrmann, New York, N. Y. Filed May 9, 1900. Serial No. 16,075. (No model.)

Claim.—1. A current-distributer for electric railways, by which a current can be taken from the contact-button by a sliding contact as long as the carriage is above the distributer in question, characterized by a horizontal indicator-lever A, provided with a contact-piece *i* at one end, engaging loosely with two vertical pivoted arms *e k*, actuated by two electromagnets located on the carriage, in such manner that through one of the electromagnets the circuit to the contact-piece *i* of the horizontal lever A is closed and through the second one interrupted.

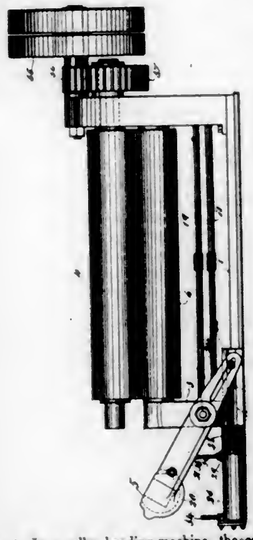
2. A horizontal contact closing and opening lever combined with lateral swinging electromagnetic-actuated levers for moving the horizontal lever to closing and opening position substantially as described.

3. A main or feeder conductor *p* combined with a broken or open branch *q*, a contact-closer *i* for the break in the branch, a lever made to carry the contact-closer, and oppositely-acting electromagnetic-actuated levers for moving the first-named lever to and from closing position substantially as described.

4. A box or receptacle having a central or supporting portion *a*, a horizontal lever fulcrumed to the under side of the supporting portion, oppositely-acting levers fulcrumed to the sides or ends of the supporting portion and made to move the horizontal lever in opposite directions, a contact carried by the horizontal lever, a broken conductor adapted to be closed by the contact, and an exposed button or face *r* connected with the conductor substantially as described.



661,459. ROLLER BENDING-MACHINE. GEORGE W. STIFEL and WILLIAM C. PRITCHARD, Cambridge City, Ind. Filed Dec. 23, 1899. Serial No. 741,451. (No model.)



Claim.—1. In a roller bending-machine, the combination with a master-roll having its drive end in a fixed journal-bearing and its opposite end in a slip or removable journal-bearing, of forward and rearward inferior rolls, journal-boxes wherein said inferior rolls are supported at their ends, suitable slides wherein said journal-boxes traverse, and suitable hydraulically-operated mechanism for traversing said journal-boxes whereby the inferior rollers are caused to independently or jointly approach toward or recede from said master-roll.

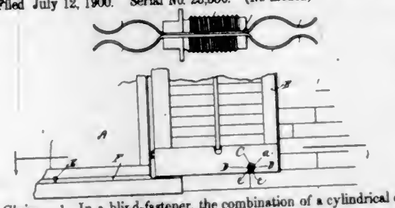
2. In a roller bending-machine, the combination with a master-roll, of a pivotal lever having a top socket end and a lower slotted end, a slip journal-bearing having a spherical exterior surface and supported by said socket, a cross-head and a cross-head pin adapted to slide in the slot of said pivotal lever, and suitable hydraulically-operated mechanism for traversing said cross-head.

3. In a roller bending-machine, the combination with a master-roll, a pivotally-supported lever having a top socket end, of a slip-journal having a spherical exterior surface adapted to fit in and turn in said socket and suitable hydraulically-operated mechanism for manipulating said pivotal lever.

4. In a roller bending-machine, the combination with a master-roll, of a pivotal lever and a slip journal-bearing pivotally connected to the end of said lever, and means for manipulating said lever to either engage or disengage said slip-bearing.

5. In a roller bending-machine, the combination with a master-roll, of a pivotal lever, a slip journal-bearing pivoted on the top end of said lever, of a locking-tongue, as described, and a lip on said pivotal lever having a groove adapted to receive said locking-tongue, substantially as and for the purpose set forth.

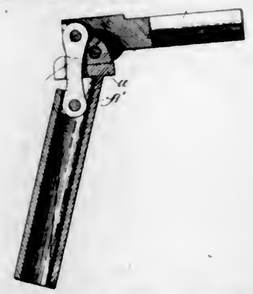
661,460. BLIND-FASTENER. CHARLES E. TEFFT and JOSEPH MCGOWAN, Pawtucket, R. I.; said McGowan assignor to said Tefft. Filed July 12, 1900. Serial No. 23,356. (No model.)



Claim.—1. In a blind-fastener, the combination of a cylindrical externally-screw-threaded casing, a longitudinal slot extending through said casing, and a catch having spring-holding jaws and longitudinally-extended parallel shanks, said shanks fitting within the longitudinal slot in the casing, and being held in place by the latter, as described.

2. In a blind-fastener, the combination of a cylindrical externally-screw-threaded casing, provided at each of its opposite ends with a catch formed of two oppositely-curved spring-clasping jaws, said jaws being turned toward each other at their outer portions to form a retaining-space between them, and adapted for frictional engagement with a post or keeper, substantially as described.

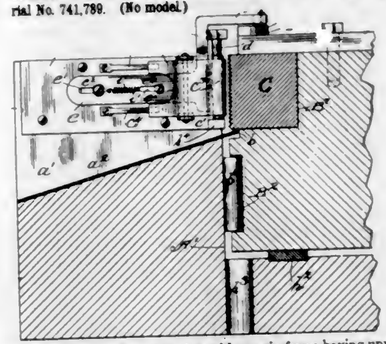
661,461. SEAT-POST FOR BICYCLES. ALBERT E. MCGILL, Chicago, Ill., assignor to Thomas A. Banning, same place. Filed May 22, 1899. Serial No. 717,740. (No model.)



Claim.—1. A seat-post for bicycles comprising an upwardly-tapering member, a downwardly-tapering member, and a seat-supporting lever fulcrumed upon the first-named member and pivotally connected to the last-named or sliding member, substantially as described.

2. The combination with a tubular seat-post-supporting standard forming a bicycle-frame of a cylindrical seat-post fitting snugly within said standard and formed by cutting the piece of tubing in half longitudinally so as to produce opposing inclined faces on the members thus formed, a lever fulcrumed at its front end upon the member forming the body of the post and adapted to swing in a vertical plane, and pivotally connected to the upper end of the other member near its rear end, and a seat mounted upon the said lever rearward of its connection with the last-named member, substantially as described.

661,462. MACHINE FOR ROLLING SCREWS OR OTHER ARTICLES. JOHN P. WENNERSTEN, Chicago, Ill. Filed Dec. 28, 1899. Serial No. 741,789. (No model.)

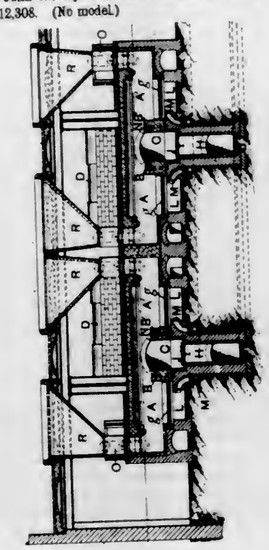


Claim.—1. The combination with a main frame having upward extensions, of dies secured on said extensions, a head journaled on the main frame and located between said dies, a series of dies located on the head so as to be brought into parallelism and contiguity with the dies of the main frame, cam-plates secured to the head near the dies thereof, a spring-actuated feeder movably secured to each of the extensions of the main frame, and having a friction-roller to contact with the cam-plates, and means to operate the head, substantially as described.

2. The combination with a main frame having upward extensions, of dies secured on said extensions, a head journaled on the main frame and located between said dies, a series of dies located on the head, cam-plates located on the head near the dies thereof, a spring-actuated feeder movably secured to each of the extensions of the main frame and having a friction-roller to contact with the cam-plates, a spring-actuated holder secured to each of said extensions, and means to operate the head, substantially as described.

3. The combination with a main frame having upward extensions and a circular depression, of a series of dies secured on the inner faces of said extensions, a head journaled on the main frame within the said depression thereof, a series of dies located on the periphery of the head and having a shoulder at one of their ends, cam-plates located on the head near the dies thereof, a spring-actuated feeder movably secured to each of the extensions of the main frame, and having a friction-roller to contact with the cam-plates, a spring-actuated holder secured to each of the said extensions, and means to operate the head, substantially as described.

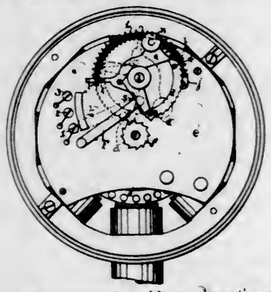
661,468. DESTRUCTOR-FURNACE. JOHN WILKIE, Manchester, England, assignor to James Jones Meldrum, Thomas Frederick Meldrum, and John Wesley Meldrum, same place. Filed Apr. 10, 1900. Serial No. 12,308. (No model.)



Claim.—1. In a refuse-destructor, two cells in line with each other and having a feed-hopper at each of their outer ends, a secondary chamber in line between the cells, a furnace in each cell between the said chamber and the feed area, two fire-bridges constituting parts of opposed walls of the secondary chamber, a flue connecting the said chamber with a heat-utilizing apparatus, and a by-pass through which the chamber may be placed in direct communication with the chimney, substantially as set forth.

2. In a refuse-destructor, two cells in line with each other and having a feed-hopper at each of their outer ends, a secondary chamber in line between the cells, a furnace in each cell between the said chamber and the feed area, two fire-bridges constituting parts of opposed walls of the secondary chamber, and an outlet for the gases passing from the furnaces through the chamber, substantially as set forth.

661,464. ALTERNATING-CURRENT MOTOR. WALES ALDRICH and HENRY E. BORGER, Dayton, Ohio, assignors to D. L. Bates & Brother, same place. Filed Apr. 30, 1900. Serial No. 14,856. (No model.)



Claim.—1. The combination with an alternating-current electric motor, of a mechanical starting device, consisting of a ratchet-wheel geared to the armature-shaft, a pivotal frame mounted adjacent to the armature-shaft, a segmental ratchet yieldingly mounted on said pivotal frame and adapted to gear with the ratchet-wheel on the armature-shaft, as herein shown and described.

2. In an alternating-current motor, the combination with a rotor of the squirrel-cage type, of a pivotal frame having a projection thereon, a switch-lever engaged by said projection in one movement of said frame, a segmental ratchet-bar yieldingly connected to said frame, and a ratchet-wheel on the rotor-shaft with which the said segmental bar engages, substantially as shown and for the purposes specified.

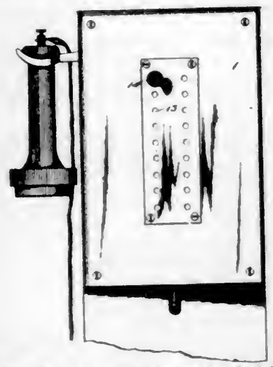
3. In an electric alternating-current motor, the combination with an armature, of a mechanical starter for simultaneously giving said armature its initial movement and switching in an electrical circuit for running said motor at its maximum speed, the said mechanical starter comprising a pivotal frame normally held out of an operative position, a segmental ratchet-bar yieldingly supported on said frame, a pinion on the armature-shaft with which said segmental ratchet engages, and means on said pivotal frame engaging with the switch-lever during the movement of said frame in giving the armature its initial movement.

4. In an alternating-current motor, the combination of a field-magnet having two or more circuits, and a rotor of a squirrel-cage type, of a mechanical starter for imparting to the rotor its initial movement and switching in the first or starting circuit through which the motor attains its maximum speed, said mechanical starter consisting of a pivotal frame, a segmental ratchet yieldingly connected to said pivotal frame, a projection on said frame engaging with the switch-lever, and a pinion on the rotor-shaft with which the segmental ratchet engages to impart to said rotor its initial movement, substantially as shown and described.

5. In an electrical motor, the combination with the rotating part of the motor, of a pivotal frame, a ratchet-bar loosely connected to said frame, a pinion on the shaft of the rotating part of the motor and with which said ratchet-bar engages, a switch-lever engaged by said pivotal frame during the movement of the latter, and whereby said switch-lever throws in circuit the winding on the field-magnet producing the maximum speed, substantially as described.

661,465. ELECTRICAL SWITCH. NATHAN BABBITT, Philadelphia, Pa., assignor to the Globe Telephone Manufacturing Company, same place. Filed Feb. 8, 1900. Serial No. 4,517. (No model.)

Claim.—1. An electrical switch of the character described, having a sliding or movable circuit-closer arranged in a circuit and provided with a series of contact-lugs, means for actuating or moving said circuit-closer and adapted to be weighted at one end, a spring-contact, normally movable in line with said contact-lugs and connected up in circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said lugs upon its return or recoil movement, and means to engage said spring-contact with said contact-lugs, substantially as set forth.



2. An electrical switch of the character described, having a sliding or movable circuit-closer arranged in a circuit and provided with a series of contact-lugs, a lever for actuating or moving said circuit-closer and adapted to be weighted at one end, a spring-contact, normally movable in line with said contact-lugs and connected up in circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said lugs upon its return or recoil movement, and means to engage said spring-contact with said contact-lugs, substantially as set forth.

3. An electrical switch of the character described, having a sliding or movable circuit-closer provided with a series of contact-lugs, a lever for actuating or moving said circuit-closer, a spring-contact connected up in circuit with said circuit-closer and normally movable in a line with said contact-lugs, a contact-plate arranged in the bell-circuit, and means for engaging said spring-contact with said contact-plate, substantially as set forth.

4. An electrical switch of the character described, having a sliding or movable circuit-closer provided with a series of spaced-apart contact-lugs, a contact-plate arranged in the bell-circuit, a lever connected to said circuit-closer and arranged in the telephone-circuit and adapted to be weighted at one end, a spring-contact normally movable in line with said contact-lugs and arranged in the same circuit with said lever and adapted to spring or snap past said contact-lugs and operatively engage said contact-lugs upon its recoil or return movement, and means for engaging said spring-contact with said contact-plate and said contact-lugs of the circuit-closer, substantially as specified.

5. An electrical switch of the character described, having a sliding circuit-closer, provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, means for depressing said circuit-closer, a spring-contact arranged in the same circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said contact-lugs upon its return or recoil movement, means to engage said spring-contact with said contact-lugs, and means for automatically returning said circuit-closer to its normal position, substantially as set forth.

6. An electrical switch of the character described, having a slidable or movable circuit-closer provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, a series of spring-contacts arranged in the same circuit with said circuit-closer, and having their free ends opposed to said contact-lugs, means for actuating said circuit-closer, means for engaging said spring-contacts with said contact-lugs, substantially as set forth.

7. An electrical switch of the character described, having a circuit-closer comprising a slide or bar provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, means for actuating said slide or bar, a series of spring-contacts having their free ends opposed to said contact-lugs and arranged in the same circuit with said circuit-closer, and means for engaging said spring-contacts with said contact-lugs, substantially as specified.

8. An electrical switch of the character described, having a circuit-closer comprising a slide or bar provided with a series of spaced-apart contact-lugs and a lever connected to said slide or bar and arranged in the telephone-circuit, with one end adapted to be weighted, to move or actuate said slide or bar, a series of spring-contacts arranged in the circuit referred to and having their free ends opposed to said contact-lugs, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

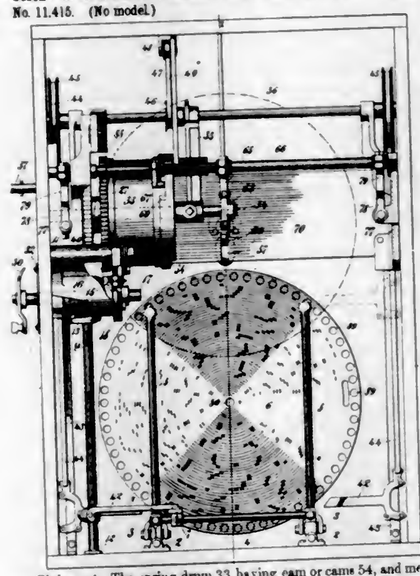
9. An electrical switch of the character described, having a circuit-closer comprising a spring-upheld slide or bar, provided with a series of spaced-apart contact-lugs, a lever arranged in the telephone-circuit and connected to said slide or bar, with one end adapted to have suspended therefrom a weight, a series of spring-contacts with their free ends opposed to said contact-lugs and arranged in the circuit above referred to, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

10. An electrical switch of the character described, having a circuit-closer arranged in the telephone-circuit and comprising a slide or bar provided with a series of spaced-apart contact-lugs, a spring the action of which is to retain said slide or bar in its normal or elevated position, means to depress or actuate said bar or slide comprising a furcated lever connected to the latter, a series of spring-contacts arranged in the circuit above referred to, and having their free ends opposed to said contact-lugs, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

11. An electrical switch of the character described, having a slide or movable circuit-closer arranged in a circuit, a spring-contact normally movable in line with said circuit-closer, means adapted to effect such movement of said spring-contact, and means to provide for the disengagement of said spring-contact from said circuit-closer, substantially as set forth.

12. An electrical switch of the character described, comprising a circuit-closer arranged in the telephone-circuit and having a series of spaced-apart contact-lugs, a series of spring-contacts arranged in the same circuit with said circuit-closer and opposed to said contact-lugs, means for actuating said circuit-closer, and a push-pin adapted to engage said spring-contacts with said contact-lugs, substantially as specified.

661,466. AUTOMATIC MECHANICAL MUSICAL INSTRUMENT. GUSTAV A. BRACHHAUSEN, Rahway, N. J. Filed Apr. 4, 1900. Serial No. 11,415. (No model.)



Claim.—1. The spring-drum 33 having cam or cams 54, and mechanism controlled thereby for raising and lowering a note-sheet, cam or cams 69 and mechanism controlled thereby for centrally supporting the elevated note-sheet, and cam or cams 27 and mechanism controlled thereby for moving the carriage that holds series of note-sheets and gear 88 on said drum for revolving the elevated note-sheet.

2. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in the operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the spring-motor and the transporting means for operating the same at different predetermined intervals, intermediate means between the motor and the carriage-locking mechanism, for automatically operating said locking mechanism, guiding mechanism for preventing the note-sheets from reaching contact with the sounding device in the movement of the sheets to and from operative position, and means for operating the guiding means from said spring-motor.

3. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, locking mechanism for locking said carriage against movement, means for engaging a note-sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the spring-motor and the transporting means, for operating the same at different predetermined intervals and intervening means between the motor and the carriage-locking mechanism for automatically operating said locking mechanism.

4. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging sheets for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the spring-motor and the transporting means for operating the same at different predetermined intervals, guiding mechanism for preventing the note-sheets from reaching contact with the sounding device in the movement of the sheets to and from operative position and means for operating the guiding means from said spring-motor.

5. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, locking mechanism for locking said carriage against movement, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in the operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the motor and the transporting means for operating the same at different predetermined intervals, intermediate means between the motor and the carriage-locking mechanism, for automatically operating said locking mechanism, guiding mechanism for preventing the note-sheets from reaching contact with the sounding device in the movement of the sheets to and from operative position, and means for operating the guiding means from said spring-motor.

6. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the spring-motor and the transporting means for operating the same at different predetermined intervals, automatically-operated means for clamping the note-sheet in the operative position and for releasing the sheet after it has been rotated by the driving means, and mechanism for operating said clamping means from the spring-motor.

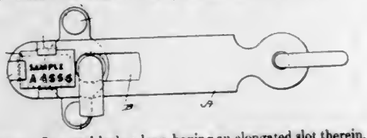
7. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in the operative position to effect a rotation thereof to play the instrument, a single spring-motor, intervening mechanism between said spring-motor and the carriage and between the spring-motor and transporting means for operating the same at different predetermined intervals, a movable pivot adapted to be received in a bearing in each of the note-sheets and means operated by the spring-motor for automatically inserting said pivot in the bearing of a note-sheet when the same is in the operative position in the instrument.

8. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in the operative position to effect a rotation thereof to play the instrument, means for clamping the sheet in operative position, a movable pivot for the sheet, locking mechanism for locking the carriage against movement and a single spring-motor operatively connected to said transporting means, driving means, clamping means, movable pivot and locking mechanism to effect a movement thereof.

9. In an antomatic mechanical musical instrument, the combination of a sounding device and an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position in the instrument, driving means coöperating with the sheet when it is in operative position to effect a rotation thereof to play the instrument, means for maintaining the driving means out of action while a note-sheet is being conveyed to and from operative position, locking mechanism for locking the carriage against movement and a single spring-drum operating the transporting means, driving means, locking mechanism and the means for maintaining the driving means out of action.

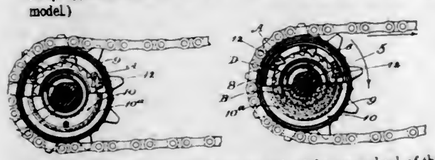
10. In an automatic mechanical musical instrument, the combination of a sounding device, an automatically-operated note-sheet carriage adapted to convey a note-sheet to a position to be transported into operative position in the instrument, means for engaging a sheet for transportation thereof to and from operative position, a driving-wheel coöperating with the sheet when it is in the operative position to effect a rotation thereof to play the instrument, means for maintaining the driving-wheel out of action while a note-sheet is being conveyed to and from operative position, means for clamping the sheet in operative position, a movable pivot for the sheet, locking mechanism for locking the carriage against movement and a single spring-motor operating the transporting means, driving means, clamping means, movable pivot, locking mechanism and the means for maintaining the driving-wheel out of action.

661,467. SEAL-LOCK. ARTHUR W. COFFIN, San Francisco, Cal. Filed June 12, 1900. Serial No. 20,072. (No model.)



Claim.—In a seal-lock, a hasp having an elongated slot therein, supports for a seal upon said hasp and between the outer end thereof and the outer end of said slot, a rotatably-mounted pin having recesses or teeth formed about its circumference and provided about its circumference with an annular recess, a head upon the outer end of said pin and adapted when turned in one position to pass through the slot in the hasp, but when turned in another position to partly extend across the hasp and thus lock said hasp in position, a pawl engaging the teeth in said pin, and a pin secured to a relatively-fixed member and entering the said annular recess, the said teeth and pawl being so arranged that rotation of the pin is permitted in one direction only; substantially as described.

661,468. BACK-PEDALING BRAKE. CHARLES P. CONRAD, Elyria, Colo., assignor, by mesne assignments, to the Conrad Manufacturing Company, Denver, Colo. Filed Nov. 13, 1899. Serial No. 736,797. (No model.)



Claim.—1. The combination with the hub of the rear wheel, of the coasting-sprocket mechanism applied to one extremity thereof and comprising the inner and outer plates suitably separated, an intermediate ratchet-ring, a sprocket-rim surrounding the ratchet-ring and located between the two plates, dogs pivotally mounted on the sprocket-rim and adapted to engage the ratchet-ring, and a split spring-ring surrounding the dogs and having a tendency to throw them to locking engagement with the ratchet-ring.

2. The combination with a coasting-sprocket mounted on the hub of the rear wheel and adapted to clutch the hub when the sprocket turns but allowing the hub to turn freely in the sprocket when the latter is stationary, of coöperating brake mechanism comprising a ratchet-wheel fast on the crank-shaft, a toothed arm adapted to engage the ratchet, a spool connected with the toothed arm and adapted to engage the tire of the rear wheel, a friction-wheel operated by the spool and a friction-face engaged by the friction-wheel.

3. The combination with a coasting-sprocket mounted on the hub of the rear wheel and adapted to clutch the hub when the sprocket turns but allowing the hub to turn freely in the sprocket when the latter is stationary, of a ratchet-wheel fast on the crank-shaft, a toothed arm adapted to engage said ratchet, a spindle journaled in the forked rear extremity of said arm, a spool fast on the spindle and adapted to engage the tire, a friction-wheel fast on each extremity of the spindle, and a stirrup-shaped device supported on the frame and adapted to engage each friction-wheel.

4. The combination with a coasting-sprocket mounted on the hub of the rear wheel and adapted to clutch the hub when the sprocket turns but allowing the hub to turn freely in the sprocket when the latter is stationary, of a bicycle-brake comprising a revoluble spool fast on its axle, an arm in which the spool is journaled, a stirrup mounted on the frame and faced with leather or similar material, a wheel operated by the spool and engaging the friction-face of the stirrup, and means mounted on the crank-shaft and engaging the spool-arm for forcing the spool against the tire.

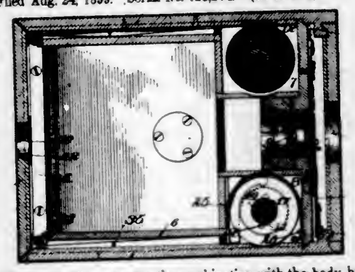
5. The combination with a coasting-sprocket mounted on the hub of the rear wheel and adapted to clutch the hub when the sprocket turns, but allowing the hub to turn freely in the sprocket when the latter is stationary, a pair of stirrup-shaped devices mounted on the frame of the bicycle, their lower parts being downwardly inclined as they extend forwardly, an arm whose forward extremity is toothed and whose rear extremity is forked, a spindle journaled in the forked extremity of the arm, a spool fast on the spindle, a friction-wheel fast on each extremity of the spindle and adapted to engage the inclined parts of the stirrups, whereby the tendency of the spool is to assume the forward position disengaged from the tire, and a ratchet-wheel fast on the crank-shaft and adapted to engage the toothed extremity of the arm.

6. The combination with a coasting-sprocket mounted on the hub of the rear wheel and adapted to clutch the hub when the sprocket turns but allowing the hub to turn freely in the sprocket when the latter is stationary, of a ratchet-wheel fast on the crank-shaft of a bicycle, a toothed arm adapted to engage said ratchet, a spool adjustably mounted on said arm and adapted to engage the tire of the bicycle-wheel, a friction-roller operated by the spool, a friction-support engaged by the roller and means for supporting the toothed arm out of engagement with the ratchet-wheel when it is not desired to operate the brake.

7. The combination with a coasting-sprocket mounted on the hub of the rear wheel, and adapted to clutch the hub when the sprocket turns, but allowing the hub to turn freely in the sprocket when the latter is stationary, of a ratchet-wheel fast on the crank-shaft of a bicycle, a toothed arm adapted to engage said ratchet, a spool mounted on said arm and adapted to engage the tire of the bicycle-wheel, a friction-roller operated by the spool, a friction-support engaged by the roller, and a housing-plate mounted on the frame above the brake-setting devices.

8. The combination with the hub of the rear wheel, of coasting-sprocket mechanism applied to one extremity thereof and comprising the inner and outer plates suitably separated, the outer plate being provided with an annular groove in its outer surface, a dust-excluding washer located in said groove, a ratchet-ring located between the two plates, a sprocket-rim surrounding the ratchet-ring and also located between the two plates, dogs pivotally mounted on the sprocket-rim, and a split spring-ring surrounding the dogs.

661,469. ROLL-HOLDING CAMERA. GEORGE EASTMAN, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Aug. 24, 1899. Serial No. 728,274. (No model.)



Claim.—1. In a camera the combination with the body having the central chamber, the film-chambers and the film-guides, of a removable casing for said body embodying the three connected covering-pieces and a separate removable fourth covering-piece interlocking with two of the others to hold the casing around the body.

2. In a camera the combination with the body having the central chamber, the film and the film-guides, of a removable casing for said body embodying a plurality of connected covering-pieces, and a detachable covering and locking-piece interlocking with two of the others and also with the body to hold the parts together.

3. In a camera, the combination with a body, of the end casing-section, the side casing-sections, flexible connections between the former and the latter, and the second end casing-section or locking-board engaging with the body and side coverings, securing the parts in position upon the body.

4. In a camera the combination with the body having the film-support and the open-sided chambers, of a detachable casing composed of the connected sections coöperating at their edges with the body and a removable casing-section engaging the casing and the body and a detachable fastening for holding said section in position to secure the parts.

5. In a photographic camera, the combination with the body having the top and bottom portions, of a removable sectional casing adapted to inclose the body and to be held in engagement with the edges of the top and bottom of the body by means of a key or locking-piece formed by one of the said casing-sections.

6. In a camera, the combination with the body having the top and bottom, the film-support and film-chambers at the sides, of the removable side and end casing-sections coöperating with the top and bottom of the body and with each other to inclose the body and a single detachable fastening for holding said parts in engagement.

7. In a photographic camera, the combination with the body, the top and bottom portions secured thereon, the front portion extending between them, and the rib formed upon the sides of the latter and upon the sides and rear ends of the top and bottom portions, of the interlocking sectional casing inclosing the body, engaging with the edges of the top and bottom portions and provided with the grooves adapted to receive the rib, and means for detachably securing the casing-sections together around the body.

8. In a photographic camera, the combination with the body provided with the top and bottom portions, and the front portion extending between them in rear of their forward edges, having the rib formed at the sides of the front and extending around the sides and rear of the top and bottom, and the grooves or notches formed upon the inner surfaces of the forward-projecting portions of the latter parts, of the detachable sectional end casing-section and the side sections connected thereto adapted to engage the edges of the top and bottom and having the grooves to receive the rib, the forward end section engaging the side portions and secured in the notches formed in the forward-extending ends of the top and bottom.

9. In a camera, the combination with a body having the top and bottom portions, of the detachable end and side casing-sections connected thereto and adapted to surround the body, the strips located near the forward edges of the side coverings, having the grooves and the end covering engaged between the top and bottom, having the tongues at its edges engaging in the grooves in the strips to secure the side and end sections in engagement with the edges of the top and bottom portions of the body.

10. In a camera, the combination with a body having the top and bottom portions, the front extending between them, the film-chambers arranged in the body in rear of the front, and the film-support located at the rear of the body, of the detachable sectional covering extending around the body engaging the top and bottom thereof and adapted to be locked thereon by the application of one of the covering-pieces.

11. In a camera, the combination with a body having the top and bottom portions, the front extending between them in rear of their forward edges, the film-chambers arranged in the body, and the film-support located at the rear of the body, of the detachable sectional casing, the spring arranged on one of the sections and bearing against the film, and means for locking the various casing-sections upon the body by the application of one of the detachable sections.

12. In a camera, the body having the film-chambers, the combination with a winding-spindle accessible from the exterior of the casing, having the threaded portion near the lower end and the projection or bearing extending beyond the latter, of a ratchet-wheel having the screw-threaded aperture, and the lugs arranged upon the sides thereof and adapted to engage the film-spool, and a pawl in the body adapted to engage the wheel to permit its revolution in one direction only.

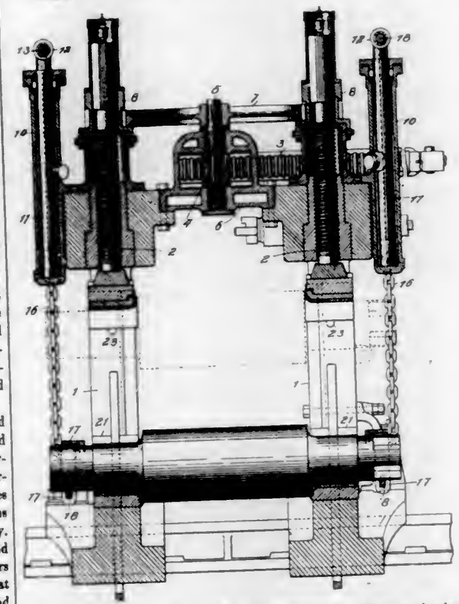
13. The combination with the body, having a film-chamber, a removable spindle having bearings in the body and adapted to extend through the spool, the loose removable ratchet-wheel with which the spindle engages having the lugs punched therefrom for engaging the spool, and a pawl coöperating with the ratchet-wheel.

14. In a camera, the combination with the body composed of the connected top and bottom portions, of an enveloping casing composed of three connected boards or sections adapted to coöperate with the sides and end of the body, and a fourth removable board or section coöperating with the others and with the body to lock the casing in position on the latter.

15. In a camera, the combination with the body composed of the connected top and bottom portions, of an enveloping casing embodying the three boards or sections flexibly connected and having a detachable tongue-and-groove connection with the body, and a removable fourth or securing section of the casing coöperating by tongue-and-groove joints with the body and the casing and locking all said parts together when in position.

16. In a camera the combination with the body consisting of the top and bottom portions and having the open film-receiving chambers at the side, the film-support at the rear, the front board and a shutter on its exterior, of a casing, embodying the sides and end sections coöperating with the top and bottom portions of the body, and inclosing the film-chambers support and shutter, one of said sections interlocking with the others and with the body to hold the casing in position and a detachable catch for holding said section in engagement.

661,470. ROLLING-MILL. JOSEPH FAWELL, Pittsburg, and JOSEPH E. SCHWAB, Duquesne, Pa. Filed May 22, 1900. Serial No. 17,596. (No model.)



Claim.—1. In a rolling-mill having in combination lifting mechanism independent of the roll-adjusting mechanism mounted on the roll-housing, and means for detachably connecting the lifting mechanism to both rolls, substantially as set forth.

2. A rolling-mill having in combination lifting mechanism independent of the roll-adjusting mechanism mounted on the roll-housing, a cross-head movable by the lifting mechanism, and means for detachably connecting the cross-head to the rolls, substantially as set forth.

3. A rolling-mill having in combination fluid-pressure cylinders mounted upon the housing, a cross-head connected to the rams or pistons of said cylinders, rods extending down from the cross-head on opposite sides of the rolls, and means for detachably connecting the rolls to said rods, substantially as set forth.

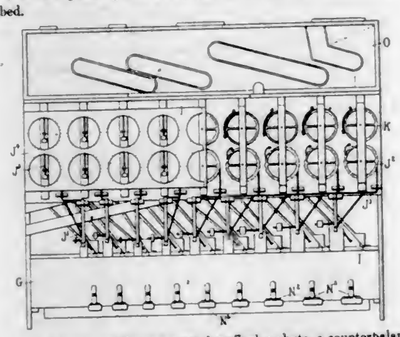
4. A rolling-mill having in combination two lifting-cylinders arranged on the housings outside of and in, or approximately in line with the roll-adjusting screws, and means for detachably connecting the rams of the cylinders with the rolls, substantially as set forth.

661,471. APPARATUS FOR INDICATING, ASSORTING, AND COUNTING COINS AND DELIVERING CHANGE. CHARLES HIBBERD and JOSHUA BARTON, London, England. Filed Sept. 6, 1898. Serial No. 690,371. (No model.)

Claim.—1. In a device of the character described, a chute, a counterbalanced plate in the chute adapted to be depressed by the passage of a coin thereover, a curved arm carried by the plate to prevent succeeding coins passing onto the plate while said plate is depressed, a second curved arm extending over the chute to prevent two coins passing at a time, a pawl connected to the plate and a registering means engaged by the pawl, substantially as described.

2. In a device of the character described, a chute, a counterbalanced plate in the chute adapted to be depressed by the passage of a coin thereover, a curved arm carried by the plate to prevent succeeding coins passing onto the plate while said plate is depressed, a pawl connected to the

plate, and a registering means engaged by the pawl, substantially as described.



3. In a device of the character described, a chute, a counterbalanced plate in the chute adapted to be depressed by the passage of a coin thereover, a curved arm carried by the plate to prevent succeeding coins passing onto the plate while said plate is depressed, a second curved arm extending over the chute to prevent two coins passing at a time, a pawl connected to the plate, a registering means engaged by the pawl, a receiver located beneath the plate to receive the coins therefrom, said receiver being provided with an inclined mouth, and a curved extension on the plate to direct the falling coins toward the lowest portion of the mouth of the receiver, substantially as described.

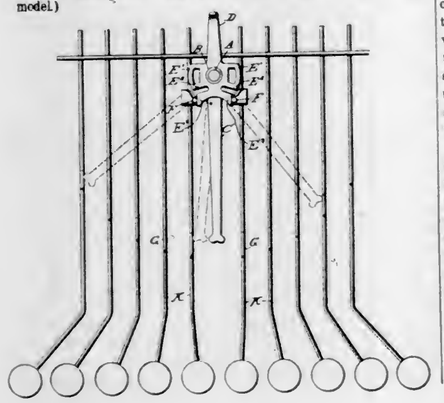
4. In a device of the character described, a case comprising transparent panels, inclined strips between the panels forming chutes for coins, a sliding shutter to open and close the space between the panels, and a wire connected to the shutter and extending up the chute, said wire having an indentation in one direction at an intermediate point and an indentation in the opposite direction near its upper extremity, substantially as described.

5. In a device of the character described, a chute, a counterbalanced plate forming part of the bottom thereof, a curved arm carried by the plate to prevent succeeding coins passing onto the plate while said plate is depressed, a curved extension on the plate, a pawl connected to the plate and a registering means engaged by the pawl, substantially as described.

6. In a device of the character described, a separator for coins tendered, a second separator for coins of purchase, suitable receivers for the coins, chutes leading from both separators to each receiver, and registering means connected with the chute leading from the second separator, substantially as described.

7. In a device of the character described, a chute, a counterbalanced plate therein adapted to be depressed by the passage of a coin, a pawl connected to the plate, and a registering means engaged by the pawl, a receiver having an inclined mouth located beneath the plate to receive coins therefrom, and a curved extension on the plate to direct the falling coins toward the lowest portion of the receiver-mouth, substantially as described.

661,472. **TYPE-WRITING MACHINE.** FREDERIC W. HILLARD, New York, N. Y., assignor to the Elliott & Hatch Book Typewriter Company, same place. Filed Aug. 16, 1900. Serial No. 27,039. (No model.)



Claim.—1. In a type-writer, the combination of a type-wheel, key-levers, means for rotating the type-wheel by the key-levers, and a stop-arm and stops operated by the different key-levers to set the wheel, the configuration of the end of the stop-arm being such as to secure a different point of contact with the different stops, substantially as described.

2. In a type-writer, the combination of a type-wheel, key-levers, means for rotating the type-wheel by the key-levers, and a stop-arm and stops operated by the different key-levers to set the wheel, the end of the stop-arm being provided with two circular contacting faces, substantially as described.

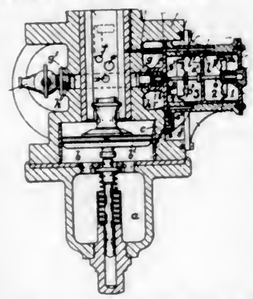
661,473. **LUBRICANT FOR FIBERS.** ROBERT H. HUTCHISON, New York, N. Y., assignor to the Swan & Finch Company, same place. Filed Feb. 14, 1900. Serial No. 5,200. (No specimens.)

Claim.—1. The compound consisting of an independently-made neutral soap mixed with wool-fat from which free fatty acids have been eliminated, substantially as set forth.

2. A compound composed of soap and wool-fat from which free fatty acids and impurities have been eliminated dissolved in water and adapted to the oiling of wool fibers, for the purpose described.

3. A compound composed of soap and wool-fat from which the free fatty acids and impurities have been removed dissolved in water at normal or substantially normal temperatures for the purposes described.

661,474. **AIR-BRAKE VALVE MECHANISM.** LEOPOLD KRIMMELBEIN, Baltimore, Md., assignor of one-third to John F. Feldmann, same place. Filed June 27, 1900. Serial No. 21,717. (No model.)



Claim.—1. The combination with the triple valve of air-brake mechanism, of an automatic retainer connected therewith and provided with a retention-chamber and releasing-chamber always in open communication with the auxiliary reservoir and train-pipe respectively; and an exhaust-air-retention valve in said retainer, as set forth.

2. The combination with the triple valve of an air-brake mechanism, of an automatic retainer connected therewith and provided with a rigid partition and a diaphragm on each side of said partition and forming therewith two chambers which are at all times in communication with the auxiliary reservoir and train-pipe respectively; a valve-rod extending through said partition and secured to said diaphragm; and an exhaust-air-retention valve adapted to be closed by the exhaust-air from the triple valve and opened by engagement with said valve-rod, as set forth.

3. The combination with the triple valve of an air-brake mechanism, of an automatic retainer connected therewith and provided with a partition and a diaphragm on each side of said partition and forming therewith two chambers in communication with the auxiliary reservoir and train-pipe respectively; a valve-rod extending through said partition and secured to said diaphragms; and an exhaust-air-retention valve in said retainer adapted to be closed by the exhaust-air from the triple valve, and disconnected from but arranged to be engaged and opened by said valve-rod, as set forth.

4. The combination with railway air-brake mechanism, of an automatic retainer connected with the triple-valve case and provided with a retention-chamber and a releasing-chamber always in open communication respectively, with the auxiliary reservoir and the train-pipe, and an exhaust-air-retention valve in said retainer, said valve being held off its seat when the pressure in the said releasing-chamber is equal to or greater than the pressure in the said retention-chamber, but closing to its seat when the pressure in said releasing-chamber is reduced below the other chamber, as set forth.

5. The combination with air-brake-valve mechanism, of a cylinder connected with the triple-valve case and provided with a rigid partition and two diaphragms one on each side of said partition and forming therewith a retention-chamber and a releasing-chamber in communication respectively, with the auxiliary reservoir and the train-pipe; a valve-rod extending through said partition and secured to said diaphragms; and an exhaust-air-retention valve adapted to control the exhaust from the triple valve and arranged for engagement and actuation by said valve-rod, as set forth.

6. The combination with railway air-brake mechanism, of an automatic retainer connected with the triple valve and provided with a partition and two diaphragms, one on each side of said partition and forming a retention-chamber and a releasing-chamber in communication respectively, with the auxiliary reservoir and the train-pipe; an exhaust-air-retention valve in said retainer adapted to control the exhaust-air from said triple valve and normally spring-pressed to its seat; a valve-rod fitted through said partition and secured to said diaphragms; and a spring tending to move said valve-rod in the direction to hold the exhaust-air-retention valve off its seat, whereby when pressure is reduced in the releasing-chamber of the retainer, said rod will move out of contact with said exhaust-air-retention valve and allow the latter to close, as set forth.

7. The combination with railway air-brake mechanism, of a head provided with a nipple screwing in one exhaust-nozzle of the triple-valve case; a cylinder abutting against said head and provided with webs securing it to said triple-valve case and an exterior flange abutting against said triple valve, and also provided with a retention-chamber and a releasing-chamber and passages establishing communication between said chambers and the auxiliary reservoir and train-pipe respectively; a spring-pressed exhaust-air-retention valve in said nipple adapted to control the exhaust from said triple valve; means for normally holding said exhaust-air-retention valve open; and means for permitting said exhaust-air-retention valve to close by the reduction of pressure in the said releasing-chamber, as set forth.

8. The combination with a triple valve provided with a brake-cylinder port, *f*, an emergency-port, *e*, and an exhaust-port, *x*, of an automatic retainer provided with four chambers, 1, 2, 3, and 4, of which the chambers 2 and 3 are always in open communication with the auxiliary reservoir and train-pipe respectively, and the chambers 1 and 4 are in communication with each other and the atmosphere; and an exhaust-air-retention valve controlling the escape of air from said exhaust-port, *x*, to the chambers 1 and 4 and thence to the atmosphere, as set forth.

9. The combination with the triple valve of an air-brake mechanism, of an automatic retainer connected therewith and provided with a partition and a diaphragm on each side of said partition and forming therewith two chambers in communication with the auxiliary reservoir and train-pipe respectively; a valve-rod extending through said partition and secured to said diaphragms; and an exhaust-air-retention valve in said retainer adapted to be closed by the exhaust-air from the triple valve, said exhaust-air-retention valve being provided with a pin which extends through its seat and is adapted to be engaged by the end of said valve-rod, as set forth.

10. The combination with the triple valve of an air-brake mechanism, of an automatic retainer connected therewith and provided with a partition and a diaphragm on each side of said partition and forming therewith two chambers at all times in communication with the auxiliary reservoir and the train-pipe respectively; a valve-rod extending through said partition and secured to said diaphragms; an exhaust-air-retention valve in said retainer adapted to be closed by the exhaust-air from the triple valve and opened by engagement with said valve-rod; and a packing-collar on said valve-rod in that chamber which is in communication with the train-pipe, as set forth.

11. The combination with the triple valve of an air-brake mechanism, of an automatic retainer having a head formed with a nipple connected with one exhaust-nozzle of the triple-valve case and a valve-port extending through said head; a cylinder abutting against said head and provided with a partition and a retention-chamber and a releasing-chamber one on each side of said partition and in open communication with the auxiliary reservoir and train-pipe, respectively; an exhaust-air-retention valve in said nipple and provided with a pin extending through said valve-port; and a valve-rod extending through said partition and moved by the variations of air-pressure in the two chambers into and out of engagement with said pin, as set forth.

661,475. **BALE OF FIBROUS MATERIAL.** GEORGE A. LOWRY, Chicago, Ill., assignor, by direct and mesne assignments, to the Planters Compress Company, of West Virginia. Filed Jan. 29, 1897. Serial No. 621,208. (No model.)

Claim.—1. A bale of highly-compressed, fibrous material, composed of a continuous spiral with the convolutions flattened and resting one upon the other; substantially as and for the purpose set forth.

2. A bale of highly-compressed, fibrous material, composed of a continuous spiral with the convolutions resting one upon the other and leaving a longitudinal, central opening through such bale, substantially as and for the purpose set forth

3. A bale of fibrous material composed of highly-compressed layers superposed one upon the other in the form of a continuous spiral; substantially as and for the purpose set forth.

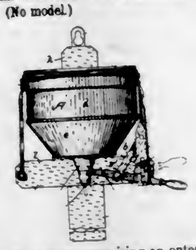


4. As a new article of manufacture, a bale composed of a series of superposed layers, each of which is highly compressed so as to express the air from the particles thereof, and such layers flattened and resting one upon the other under compression so as to exclude the air from between the layers; substantially as and for the purpose set forth.

5. As a new article of manufacture, a bale composed of a series of superposed layers, each of which layers is highly compressed so as to express the air therefrom, and all of which layers are superposed one above the other under compression so as to exclude the air from between such layers, and means for retaining the bale in this compressed condition; substantially as and for the purpose set forth.

6. As a new article of manufacture, a highly-compressed bale of fibrous material composed of a continuous spiral, each of the convolutions of which is individually highly-compressed, and all of the convolutions of which are flattened and superposed one above the other under compression, and means for retaining the bale in this condition; substantially as and for the purpose set forth.

661,476. **MILK-STRAINER.** HERMAN D. MACK, Brighton, N. Y., assignor of one-half to Elias E. Hale, same place. Filed Feb. 3, 1900. Serial No. 3,861. (No model.)



Claim.—1. A milk-strainer comprising an outer or main open vessel with an opening at the bottom, a removable vessel supported within the outer vessel and consisting of a cylindrical part, a downwardly-projecting conical part, and an upwardly-projecting central imperforate conical part, said downwardly-projecting part having openings through it above the junction of the two conical parts to form a sediment-dam, and perforated sheets to cover said openings, substantially as shown and described.

2. A milk-strainer comprising a straining vessel having perforated sections or areas near the bottom, the bottom of the vessel being imperforate and elevated at the middle, with a valley adjacent to and below the apex of the bottom to form a sediment-dam below the perforated sections, and an inclosing vessel for said straining vessel, substantially as and for the purpose set forth.

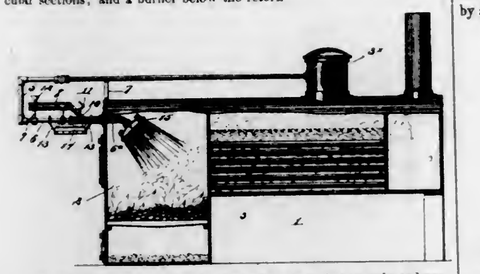
3. A milk-strainer comprising a vessel open at the top and having imperforate bottom elevated at the center with a valley adjacent to the outer edge, perforated sections intermediate said bottom and the outer walls of the vessel otherwise than horizontal, a strainer beneath the same having imperforate top, vertical perforated portions, and a strainer within the same having inclined perforated sections, all substantially as shown and described.

661,477. **SMOKE-CONSUMER.** IRA C. MCCLENTHEN, Hebron, Ind. Filed Aug. 3, 1899. Serial No. 726,017. (No model.)

Claim.—1. In a smoke-consumer for boilers, the combination, with a steam-pipe projecting into the fire-box, of an oil-receptacle provided with a spout extending into the steam-pipe, reversely-arranged concavo-convex plates forming a retort and secured to the steam-pipe within the fire-box: a mixer between the plates; and a burner below the retort.

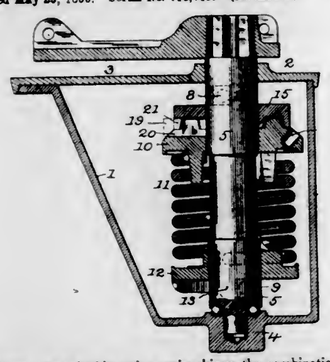
2. In a smoke-consumer for boilers, the combination, with a steam-pipe projecting into the fire-box and having an enlarged portion and an oil-receptacle provided with a spout extending into said enlarged portion; of reversely-arranged concavo-convex plates forming a retort and secured

to the steam-pipe within the fire-box; air-pipes projecting into the upper plate; a burner below, and adapted to heat the enlarged portion of the steam-pipe; means for controlling the flow of steam and oil; a mixer between the concavo-convex plates of the retort and comprising semicircular sections; and a burner below the retort.



3. The combination, with a boiler, of a steam-pipe, an enlarged portion thereto projecting into the fire-box and bent downward at an angle; an oil-receptacle communicating with the enlarged portion of the steam-pipe; a burner below, and adapted to heat said enlarged portion; a retort formed of two oppositely-disposed concavo-convex plates; air-pipes projecting from the upper plate; a burner below the lower plate; and a mixer arranged between said plates and comprising a hollow sphere made in sections one of which is formed with openings for the passage of vapor.

661,478. SPRING-HINGE. THOMAS G. MORRIS, Chicago, Ill. Filed May 29, 1899. Serial No. 718,715. (No model.)



Claim.—In a double-acting spring-hinge, the combination of a casing or housing adapted for insertion in the floor or threshold, having a wall inclined upwardly to produce an enlarged upper portion in which an adjusting-tool may be operated and provided with a cover formed in two sections, one section of which is stationary and the other of which is removable, a hinge-pintle journaled at its upper end in said stationary cover-section and at its lower end in a step-bearing at the lower part of the casing or housing, an operating-spring surrounding said pintle below the cover, devices for connecting the spring with the pintle, and means for adjusting the tension of the spring from above the casing, comprising a collar having an inclined upper surface provided with inclined capstan-recesses, whereby upon removal of the removable cover-section said collar and capstan-recesses may be readily accessible from above for adjustment of the spring tension without disturbing the location of the hinge.

REISSUES.

11,868. PLIERS. WILLIAM A. BERNARD, New Haven, Conn., assignor to the Wm. Scholhorn Company, same place. Filed Sept. 22, 1896. Serial No. 606,691. Original No. 526,479, dated Sept. 25, 1894.

Claim.—1. In pliers, the combination with hollow sheet-metal handles having parallel forwardly-extending side plates, the parallel side plates of one handle passing through the mortise-opening of the other handle and being connected by a pivot; of hollow sheet-metal jaws provided with strengthening and stiffening flanges formed at right angles to the jaw-faces and extending back forming a continuation of the parallel side plates of the handle, substantially as described.

2. The pliers made of sheet metal in two parts each part being cut with a mortise and stamped up with a hollow handle and parallel side plates that extend and form edge flanges behind the jaw-faces, the parallel side plates of one handle and jaw passing through the opening between the parallel side plates of the other handle and jaw and being connected by a pivot and the similar jaw-faces coinciding, substantially as specified.



3. The pliers made of sheet metal in two parts each part being cut with a mortise and stamped up with a hollow handle and parallel side plates that extend and form edge flanges behind the jaw-faces, the parallel side plates of one handle and jaw passing through the opening between the parallel side plates of the other handle and jaw and being connected by a pivot and having teeth upon the opposite edges of the parallel side plates and the similar jaw-faces coinciding, substantially as specified.

4. Pliers made of sheet metal in two parts, one part being cut with a mortise and each part having a hollow handle and parallel side plates that extend and form edge flanges behind the jaw-faces, the parallel side plates of one handle and jaw passing through the mortise-opening of the other handle and jaw and being connected by a pivot and the jaw-faces coinciding, substantially as described.

5. The pliers made of sheet metal in two parts each part being cut with a mortise and stamped up with a hollow handle and parallel side plates that extend and form edge flanges behind the jaw-faces, the parallel side plates of one handle and jaw passing through the opening between the parallel side plates of the other handle and jaw and being connected by a pivot, and a spring around the pivot-pin with its ends within the hollow sheet-metal handles, substantially as specified.

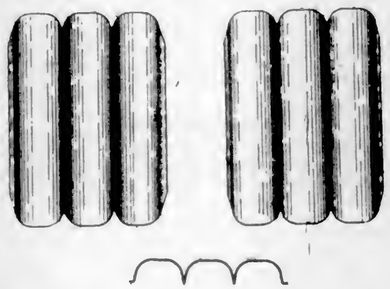
DESIGNS.

33,493. BADGE. JOSEPH T. BAILEY, Philadelphia, Pa. Filed Oct. 9, 1900. Serial No. 32,553. Term of patent 14 years.



Claim.—The design for a badge substantially as shown and described.

33,494. CIGAR-PROTECTOR. WILLIAM M. RANDOLPH, Pittsburg, Pa. Filed Sept. 20, 1900. Serial No. 30,630. Term of patent 7 years.



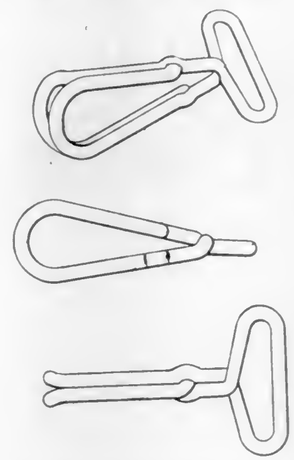
Claim.—The design for a cigar-protector, substantially as herein shown and described.

33,495. MATCH-LIGHTER. CHARLES OLIVER FOLTZ, Chicago, Ill. Filed July 18, 1900. Serial No. 24,110. Term of patent 14 years.



Claim.—The design for a match-lighter as herein shown and described.

33,496. SNAP-HOOK. SOLOMON S. HOMES, Spring Hill, Iowa. Filed Oct. 9, 1900. Serial No. 32,555. Term of patent 7 years.



Claim.—The design for a snap-hook, substantially as herein shown and described.

33,497. PICTURE-HOOK. JAMES P. WILLIAMS, New Castle, Pa. Filed July 25, 1900. Serial No. 24,824. Term of patent 14 years.



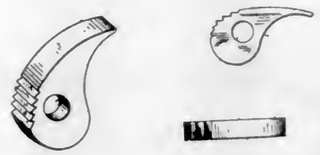
Claim.—The design for a picture-hook, substantially as shown and described.

33,498. FURNITURE-BUFFER. SIEGMUND SALOMON, New York, N. Y. Filed Oct. 11, 1900. Serial No. 32,795. Term of patent 7 years.



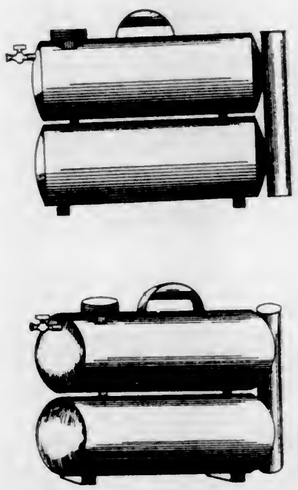
Claim.—The design for a furniture-buffer, as herein shown and described.

33,499. CLAMP MEMBER FOR SASH-BALANCES. WILLIAM ERNEST NORRIS, Flat River, Mo. Filed Sept. 18 1900. Serial No. 30,440. Term of patent 14 years.



Claim.—The design for a clamp member, substantially as herein shown and described.

33,500. SPRAYER-BODY. GEORGE FRANCIS CLARK, Utica, N. Y. Filed Oct. 3, 1900. Serial No. 31,936. Term of patent 7 years.



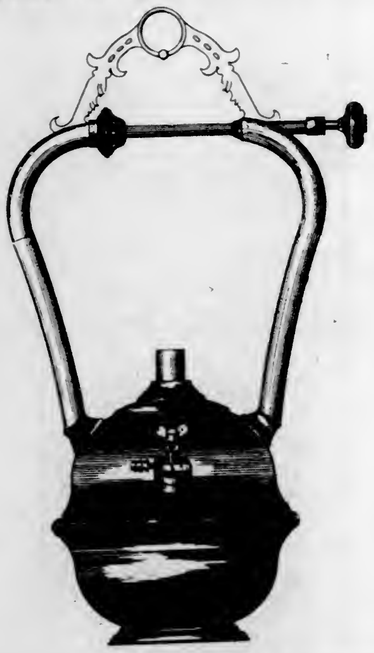
Claim.—The design for a sprayer-body, substantially as herein shown and described.

33,501. EYELET-DIE. FRANKLIN R. WHITE, Waterbury, Conn., assignor to the Patent Button Company, same place. Filed Sept. 25, 1900. Serial No. 31,104. Term of patent 14 years.



Claim.—The design for an eyelet-die, as herein shown and described.

33,502. LAMP-BODY. SAMUEL FOSTER, Chicago, Ill., assignor to Frederick F. Hawks, same place. Filed Sept. 17, 1900. Serial No. 30,359. Term of patent 7 years.



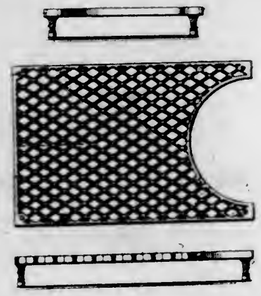
Claim.—The design for a lamp-body, substantially as herein shown and described.

33,503. ARGAND BURNER FOR ACETYLENE GAS. DEMETRIUS M. STEWARD, Chattanooga, Tenn. Filed Oct. 9, 1900. Serial No. 32,554. Term of patent 7 years.



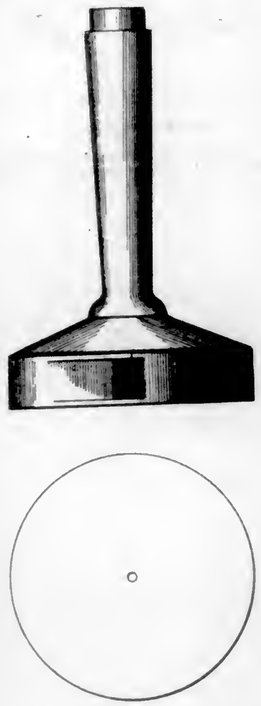
Claim.—The design for an Argand burner for acetylene gas as herein shown and described.

33,504. STAND FOR DRAINING GLASSES. MICHAEL J. O'BRIEN, Philadelphia, Pa. Filed Sept. 28, 1900. Serial No. 31,450. Term of patent 14 years.



Claim.—The design for a stand for draining glasses, as herein shown and described.

33,505. CHURN-DASHER. THOMAS F. TIERNEY, New York, N. Y. Filed May 8, 1900. Serial No. 15,984. Term of patent 14 years.



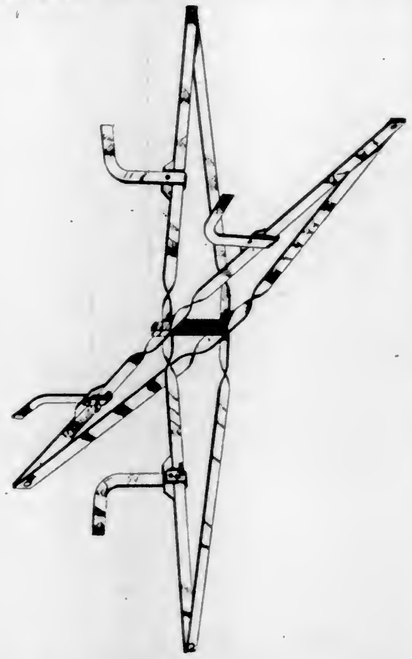
Claim.—The design for a churn-dasher as herein shown and described.

33,506. MEAT-HOOK. WILLIAM STEGEMAN, Chicago, Ill. Filed Oct. 11, 1900. Serial No. 32,793. Term of patent 7 years.



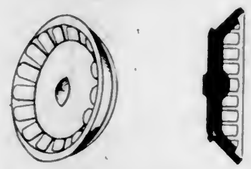
Claim.—The design for a meat-hook substantially as illustrated and described.

33,507. ARM MEMBER FOR REELS. ABRAHAM B. PROBASCO, Lebanon, Ohio. Filed June 13, 1900. Serial No. 20,215. Term of patent 7 years.



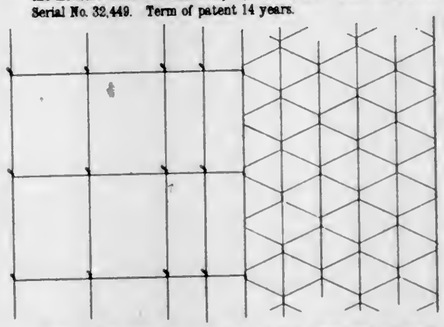
Claim.—The design for the arm member of a reel substantially as shown and herein described.

33,508. PISTON-HEAD FOR PUMPS. DE WANE B. SMITH, Deerfield, N. Y. Filed Sept. 28, 1900. Serial No. 31,457. Term of patent 7 years.



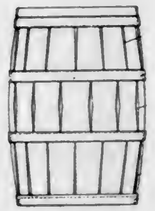
Claim.—The design for a piston-head, substantially as herein shown and described.

33,509. WIRE FENCE. HARRY WARD, Kokomo, Ind., assignor to the Kokomo Wire and Nail Company, same place. Filed Oct. 8, 1900. Serial No. 32,449. Term of patent 14 years.



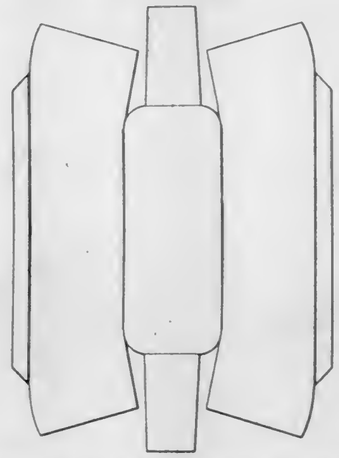
Claim.—The design for a wire fence herein shown and described.

33,510. BARREL. GORDON D. CANFIELD, Washington, N. C., assignor to the Spruks Manufacturing Company, same place. Filed Oct. 11, 1900. Serial No. 32,788. Term of patent 7 years.



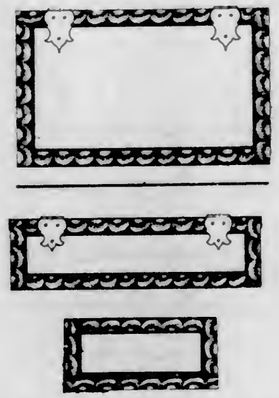
Claim.—The design for a barrel, as herein shown and described.

33,511. BOX-BLANK. CARL ENGBERG, St. Joseph, Mich., assignor to Abel W. Wells and John W. Mullen, same place. Filed Oct. 9, 1900. Serial No. 32,552. Term of patent 14 years.



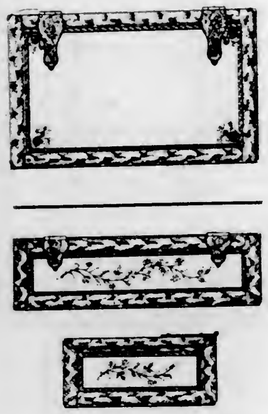
Claim.—The design for the box-blank herein shown and described.

33,512. BOX OR RECEPTACLE. GUSTAV A. KRUTTSCHNITT, Newark, N. J. Filed Oct. 8, 1900. Serial No. 32,454. Term of patent 3½ years.



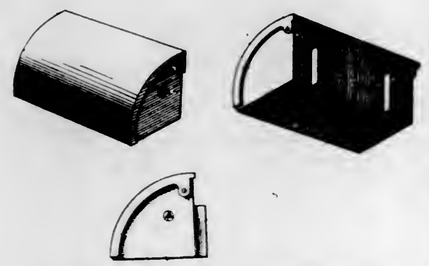
Claim.—The design for a box or receptacle, as herein shown and described.

33,513. BOX OR RECEPTACLE. GUSTAV A. KRUTTSCHNITT, Newark, N. J. Filed Oct. 3, 1900. Serial No. 32,455. Term of patent 3½ years.



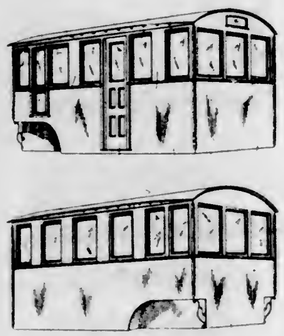
Claim.—The design for a box or receptacle, as herein shown and described.

33,514. BOX FOR PATROL-STATIONS. ABRAHAM NEWMAN, Chicago, Ill. Filed July 28, 1900. Serial No. 25,201. Term of patent 14 years.



Claim.—The design for a box for a patrol-station as herein shown and described.

33,515. LUNCH-WAGON BODY. THOMAS H. BUCKLEY, Worcester, Mass. Filed June 28, 1900. Serial No. 21,998. Term of patent 14 years.



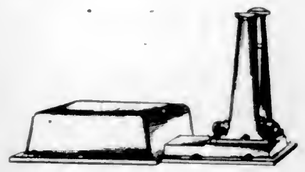
Claim.—The design for a lunch-wagon body, substantially as shown and described.

33,516. VEHICLE-THILL. WILLIAM HENRY FYAN, Port Huron, Mich. Filed July 3, 1899. Serial No. 722,651. Term of patent 14 years.



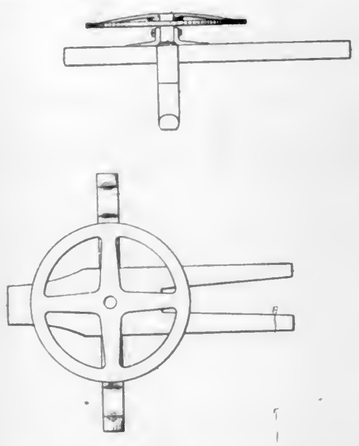
Claim.—The design for vehicle-thills herein shown and described.

33,517. FRAME FOR GAS ENGINES AND COMPRESSORS. EDWARD B. GALLAHER, New York, N. Y., assignor, by mesne assignments, to the New York Air Compressor Company, of New Jersey. Filed Nov. 13, 1899. Serial No. 736,878. Term of patent 3½ years.



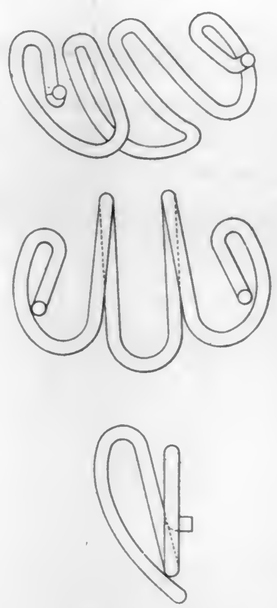
Claim.—The design for a frame for a gas engine and compressor, as herein shown and described.

33,518. FIFTH-WHEEL FOR VEHICLES. MARTIN L. SENDERLING, Jersey City, N. J. Filed Oct. 28, 1899. Serial No. 735,131. Term of patent 14 years.



Claim.—The design for a fifth-wheel, substantially as herein shown and described.

33,519. BICYCLE-SADDLE SPRING. EDWARD G. ASHLEY, Rochester, N. Y. Filed Oct. 11, 1900. Serial No. 32,794. Term of patent 7 years.



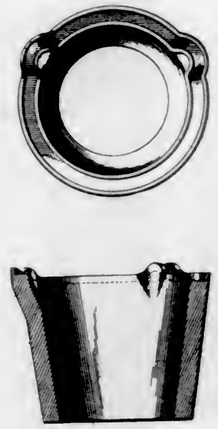
Claim.—The design for a bicycle-saddle spring substantially as shown and described.

33,520. BRIQUET OF ARTIFICIAL FUEL. JOHN T. DAVIS, San Francisco, Cal. Filed Aug. 7, 1900. Serial No. 26,202. Term of patent 14 years.



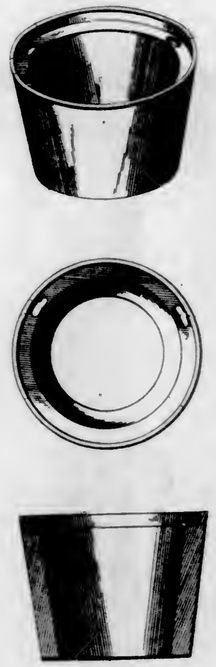
Claim.—The design for a briquet of artificial fuel as herein shown and described.

33,521. FIRE-POT. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Oct. 2, 1900. Serial No. 31,789. Term of patent 14 years.



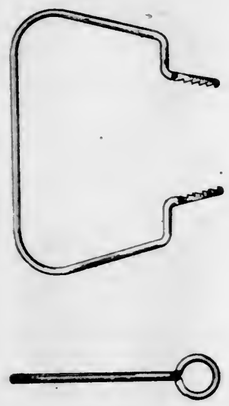
Claim.—The design for a fire-pot as described and shown.

33,522. FIRE-POT. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Oct. 2, 1900. Serial No. 31,790. Term of patent 14 years.



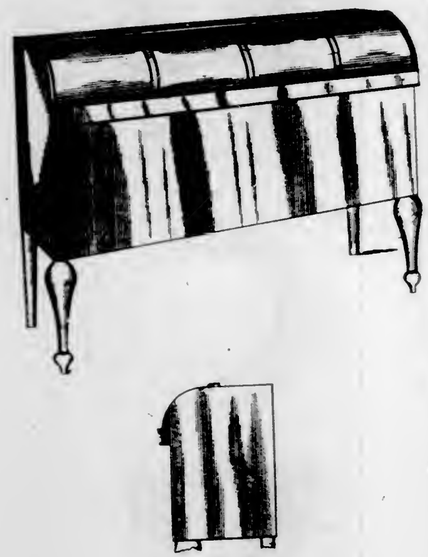
Claim.—The design for a fire-pot herein described and shown.

33,523. BEDCLOTHES-HOLDER. THOMAS W. HAMILTON, Springfield, Mass. Filed Oct. 11, 1900. Serial No. 32,787. Term of patent 14 years.



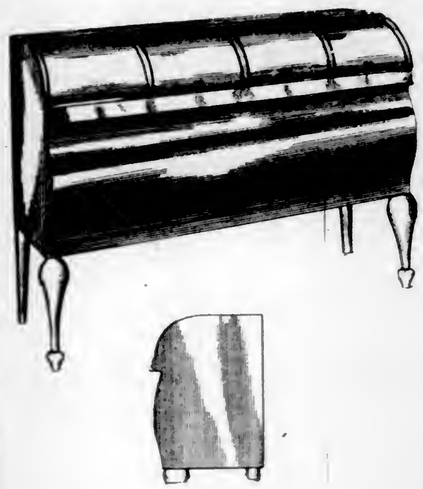
Claim.—The design for a bedclothes-holder substantially as herein shown and described.

33,524. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,508. Term of patent 3½ years.



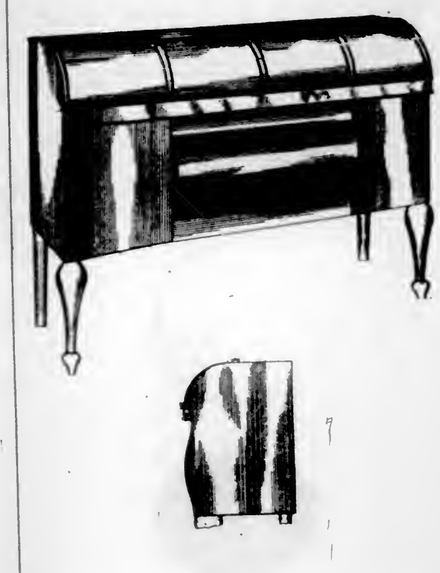
Claim.—The design for a caddy substantially as herein shown and described.

33,525. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,509. Term of patent 3½ years.



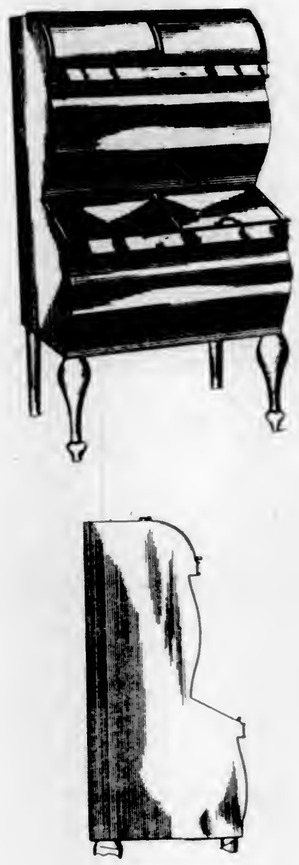
Claim.—The design for a caddy substantially as herein shown and described.

33,526. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,510. Term of patent 3½ years.



Claim.—The design for a caddy substantially as herein shown and described.

33,527. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,511. Term of patent 3½ years.



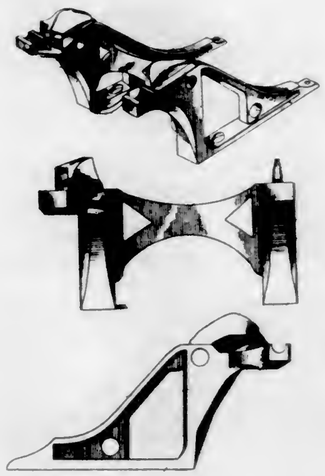
Claim.—The design for a caddy substantially as herein shown and described.

33,528. FASTENER FOR CHAIRS. MORTIMER I. REYNOLDS, Hebron, Nebr. Filed Oct. 13, 1900. Serial No. 33,013. Term of patent 14 years.



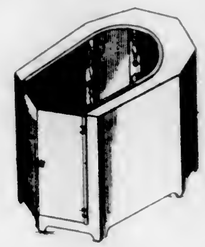
Claim.—The design for a fastener for a chair, herein shown and described.

33,529. STAND FOR SAWING-MACHINES. WILLIAM A. HANDLEY, Arlington, Wash. Filed Oct. 8, 1900. Serial No. 32,452. Term of patent 7 years.



Claim.—The design for a stand herein shown and described.

33,530. CABINET FOR MEDICAL TREATMENT. HENRY A. SCHMIDT, Milwaukee, Wis. Filed Sept. 24, 1900. Serial No. 30,961. Term of patent 7 years.



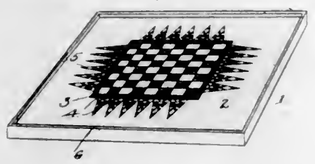
Claim.—The design for a cabinet for medical treatment as herein shown and described.

33,531. FONT OF PRINTING-TYPE. JAMES HAY HUTCHISON, London, England. Filed Sept. 22, 1900. Serial No. 30,857. Term of patent 14 years.

ABCDEFGHIJ
KLMNOPQRS
TUVWXYZ
ÆŒæœ
abcdefghijklmnopqrst
uvwxyz

Claim.—The design for a font of printing-type, substantially as described and shown.

33,532. GAME-BOARD. CHARLES H. LEONARD, Grand Rapids, Mich. Filed Sept. 7, 1900. Serial No. 29,349. Term of patent 7 years.



Claim.—The design for a game-board as herein shown and described.

33,533. CREASE-RETAINER FOR HATS. JOHN JOHNSON, Manistee, Mich. Filed May 23, 1900. Serial No. 17,766. Term of patent 7 years.



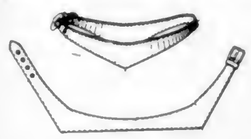
Claim.—The design for a crease-retainer for hats, as herein shown and described.

33,534. HEEL-CUSHION. MARTIN LOGAN, New York, N. Y. Filed Oct. 11, 1900. Serial No. 32,789. Term of patent 7 years.



Claim.—The design for a heel-cushion, as herein shown and described.

33,535. BELT. ABRAHAM RITTER, New York, N. Y. Filed Sept. 18, 1900. Serial No. 30,441. Term of patent 3½ years.



Claim.—The design for a belt as herein shown and described.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SMITH *v.* CARMICHAEL.

Decided October 13, 1900.

1. INTERFERENCE—MOTIONS—JURISDICTION OF THE PRIMARY EXAMINER.

The practice is well settled that after an interference has been declared the Primary Examiner will take jurisdiction of the case only for the consideration of the motions transmitted by the Examiner of Interferences.

2. SAME—SAME—RULE 109.

Rule 109 contemplates only amendments inserting a claim to matter claimed by another party to the interference, and therefore the Examiner of Interferences properly refused to transmit to the Primary Examiner a motion to amend involving merely descriptive matter in the specification.

3. SAME—RIGHT TO MAKE CLAIM—AMENDMENT LAYING FOUNDATION FOR CLAIM—REOPENING CASE.

Where on a motion to dissolve the Examiner has held that a party has no right to make the claim and the limit of appeal has expired without any appeal having been taken, *Held* that the party cannot be permitted to reopen the entire question by merely filing an amendment to the specification laying a foundation for the claim.

APPEAL on motion.

PROCESS OF TANNING HIDES AND SKINS.

Application of Francis P. Smith filed March 20, 1897, No. 628,510. Application of Henry Carmichael filed December 14, 1896, No. 615,549.

Mr. Murray Corrington for Smith.

Mr. James H. Churchill and *Mr. Charles L. Sturtevant* for Carmichael.

CHAMBERLIN, *Assistant Commissioner:*

This is an appeal by Smith from the decision of the Examiner of Interferences refusing to transmit the case to the Primary Examiner for the purpose of considering a motion to amend his specification. The facts appear to be as follows:

On August 10, 1900, the Primary Examiner decided a motion brought by Carmichael to dissolve this interference—

upon the grounds that the contestant Smith has no right to make the claims of the issue.

This motion was granted as to count 1 and denied as to counts 2 and 3 of the issue. The limit of appeal was set to expire on September 1, 1900, but no appeal was taken, and therefore the decision that Smith has no right to make the claim of the first count has become final. On August 30, 1900, Smith filed a motion that a certain amendment to his specification (accompanying the motion papers) be—

accepted and incorporated into Smith's application involved herein.

The purpose of the amendment is set forth as follows:

The reasons for said motion are that applicant Smith desires by said proposed amendment to correct an inaccuracy of description as to what takes place during the working of his process and to correctly state and describe what does take place and what substances are present in his reduction or second tawing-bath in accordance with the statements made in the opinion of the Examiner in charge, as set forth in the annexed affidavit, thereby leaving no room for doubt as to his right to make the claim embraced in count 1 of the interference.

This motion was addressed to the Primary Examiner and was noticed for hearing on the first day of September. It was, however, disposed of by the Examiner of Interferences in the same manner as if it had been accompanied by a motion to transmit and its transmission was refused. It is from this action that appeal is taken. Smith now contends that the Examiner of Interferences had no jurisdiction to entertain the motion, that the motion was brought under Rule 109, and that the Primary Examiner should have entertained and decided it.

This position is not well taken. The practice is well settled that after an interference has been declared the Primary Examiner will take jurisdiction of the case only for the consideration of the motions transmitted by the Examiner of Interferences. (*Crocker* v. *Allderdice*, 84 O. G., 1434; *Richards* v. *Tracy*, 85 O. G., 288; *Mechlin* v. *Horn et al.*, 92 O. G., 2507.) In this case the Primary Examiner had jurisdiction only for the purpose of deciding the motion to dissolve. The action of the Examiner of Interferences in entertaining and disposing of the motion was therefore correct.

In his decision the Examiner of Interferences held that the motion does not come within the letter or spirit of Rule 109, as contended by Smith, and for that reason refused to transmit it. This holding is correct, since Rule 109 contemplates only amendments inserting a claim to matter claimed by the other party, and in the present amendment no claim is made.

Rule 130 provides that—

amendments to the specification will not be received during the pendency of an interference, except as provided in Rules 106, 107, 109.

The proposed amendment does not come within these exceptions, and therefore it cannot properly be permitted.

If the appellant was of the opinion that the Examiner erred in holding that he had no right to make the claim of count 1, he should have appealed from the decision within the limit set. Having failed to do so and having thereby lost his right to

have the matter reviewed, he cannot now be permitted to reopen the entire question by filing an amendment containing a description of the matter which in the claim has been held to involve a departure from the invention originally disclosed.

The decision of the Examiner of Interferences is affirmed.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

HUBBELL *v.* THE UNITED STATES.

Decided October 22, 1900.

1. HUBBELL—METALLIC CARTRIDGE—CONSTRUCTION OF CLAIM—INFRINGEMENT.

Letters Patents No. 212,313, granted to William W. Hubbell, for an improvement in metallic cartridges, given a limited construction and *Held* that the cartridges made and used by the Government were not within the description contained in the claim.

2. CONSTRUCTION OF CLAIM—CLAIMS INTERPRETED BY THE ACTIONS ON THE APPLICATION.

A claim as allowed in the patent must be read and interpreted with reference to the rejected claims and to the prior state of the art and cannot be construed to cover either that which was rejected by the Patent Office or disclosed by prior devices.

3. SAME—SAME—MERE CHANGES OF EXPRESSION.

Where a difference between claims as made and as allowed consists of mere changes of expression having substantially the same meaning, such changes made to meet the views of the Examiner ought not to be permitted to defeat a meritorious claimant. While not allowed to revive a rejected claim by a broad construction of the claim allowed, yet the patentee is entitled to a fair construction of the terms of his claim as actually granted.

4. SAME—SAME—MATERIAL ELEMENTS OF THE COMBINATION.

If a claim to a combination be restricted to specified elements, all must be regarded as material, and limitations imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public and looked upon as in the nature of disclaimers.

APPEAL from the Court of Claims.

STATEMENT OF THE CASE.

On December 28, 1878, William Wheeler Hubbell filed, in the United States Patent Office, an application for a patent for an improvement in metallic cartridges, and on February 18, 1879, Letters Patent No. 212,313 were granted and issued to him.

On April 19, 1883, Hubbell, the patentee, filed a petition in the Court of Claims against the United States, alleging that the latter were using his patented methods in circumstances that warranted a claim for compensation. This case was numbered in the Court of Claims as No. 13,793, and was so proceeded in that on June 1, 1885, judgment was entered in the Court of Claims dismissing the petition. (20 C. Cl., 352.) In August, 1885, an application for allowance of an appeal from that judgment to this Court was filed. Pending this application Hubbell brought another suit against the United States in the Court of Claims by filing a petition, No. 16,261, on June 11, 1888, presenting substantially similar issues to those asserted in the first suit.

On December 23, 1895, judgment was entered by the Court of Claims dismissing the petition in the second case. (31 C. Cl., 454.) On March 20, 1896, an application for allowance of an appeal from this judgment to this Court was filed, and on July 6, 1896, this appeal was allowed. On May 31, 1898, the judgment of the Court of Claims, dismissing the petition in the second case, was approved by this Court. (171 U. S., 203.)

On June 7, 1898, the application for allowance of appeal in the first case was allowed, and on May 31, 1898, a petition was allowed to be filed in this Court for a rehearing in the second case. The appeal in the first case and the petition for a rehearing in the second case were argued together in this Court on January 9, 1900.

Mr. George S. Boutwell, *Mr. Frederic D. McKenney*, *Mr. J. Nota McGill*, and *Mr. F. P. Dewees* for the appellant.

Mr. W. W. Hubbell, *pro se.*

The *Attorney-General*, *Assistant Attorney-General Pradt*, and *Mr. C. C. Binney* for the appellee.

Mr. Justice SHIRAS delivered the opinion of the Court.

It is contended, on behalf of the appellant, that we should regard the present case and the case disposed of upon the former appeal, in No. 171 U. S., 203, as constituting substantially one controversy, and that we should give the appellant the benefit of the new or additional facts which, it is claimed, were made to appear by the amended findings in the first case. It is claimed, on the part of the United States, that the former decision of this Court was a final adjudication of the controversy, that its finality was not affected by the subsequent allowance by the trial court of an appeal from the former judgment, and that, at all events, the additional findings were, in substance, not different from those previously made, and, even if now considered, show no sufficient grounds for reversing the judgment of the Court of Claims in the present case, or that of this Court on the first appeal.

Whether if the additional findings of the trial court had presented a new and meritorious case, this would afford a sufficient reason for this Court to set aside its previous judgment, and to enter upon a consideration of the controversy *de novo*, we do not decide, as, even upon such an assumption, we agree with the court below in thinking that the new findings did not make a new or different case, or impair the legal foundation of the judgment rendered in the case in which they were made.

Those findings, as we find them printed in the record of the case at No. 198 of the October term 1897, of this Court, consist partly of matters connected with the claim on account of the manufacture and use of the cup-anvil cartridge, and as the claimant filed a waiver of that claim such parts of the findings have no relevancy now. Other portions of the additional findings bear on the number of cartridges made by the United States, so as to afford a basis for estimating the damages, if the claimant should recover, and do not affect the legal questions involved. Other of the findings allowed reference to certain drawings filed by the claimant in previous applications made by him in the Patent Office, which may have some relevancy as disclosing the history of the art, but do not appear to materially affect the construction of the claim finally allowed by the Patent Office, and the same

may be said of some verbal amendments allowed to the findings previously made.

An examination of the history of the appellant's claim, as disclosed in the file-wrapper and contents, shows that in order to get his patent he was compelled to accept one with a narrower claim than that contained in his original application; and it is well settled that the claim as allowed must be read and interpreted with reference to the rejected claim and to the prior state of the art, and cannot be so construed as to cover either what was rejected by the Patent Office or disclosed by prior devices. (*Leggett* v. *Avery*, 101 U. S., 256; *Shepard* v. *Carrigan*, 116 U. S., 593; *Knapp* v. *Morse*, 150 U. S., 227.)

It is quite true that, where the differences between the claim as made and as allowed consist of mere changes of expression, having substantially the same meaning, such changes, made to meet the views of the Examiners, ought not to be permitted to defeat a meritorious claimant. While not allowed to revive a rejected claim, by a broad construction of the claim allowed, yet the patentee is entitled to a fair construction of the terms of his claim as actually granted. The specification, as amended, contained the following description:

The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder charge. In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber, and fills it. The flange and head of the metallic case are solid, all in one piece. This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil-plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder charge. To effect this, the central anvil-piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate, for two purposes: One is to diffuse the fire from this center most thoroughly; the other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker and obtain complete resistance by the anvil-bar, and yet have free escapement for the explosive force at once from beneath the anvil-plate without any chamber or space for it to expand into under the plate. This assures a certain ignition, security of the anvil-plate to keep its position, and a complete combustion of the powder charge, from the base forward, as it impels the bullet out of the gun.

The claims made in the application were as follows:

1. The circular plate E, constructed with central solid resisting-piece *i*, and two or more side perforations *k k*, substantially as described, applied within a metal case, with cylinder and rear end solid and tight, thereby requiring the insertion of the plate and charge and priming from the front, igniting the charge and remaining fire-tight in firing as described.

2. The circular plate E, constructed as described, in combination with the circular disk D, and metal solid fire-tight case A, substantially as shown and described.

3. A circular metallic tight-fitting plate, perforated into a central fulminate-chamber, leaving a central solid or unperforated bar over the fulminate-chamber, within a solid fire-tight metal case, substantially as set forth.

The Examiners rejected these claims on reference to prior patents. Thereupon the claimant, having amended his specification as above, substituted for the three claims above copied the following:

What I claim as new and desire to secure by Letters Patent is—

The construction and arrangement of the chamber of fulminate, anvil, plate, perforations and case, with the central constructed filled chamber of fulminate-powder in contact and between the base of the case and the circular anvil-plate, with central anvil-bar and two or more side perforations, extending from the extreme sides of the chamber of fulminate into the base of the powder charge, whereby the smallest area of resistance is presented to the fulminate explosion, and the fire is diffused in the base of the charge of powder, and the greatest resistance is presented by the front face of the plate to the powder charge, consuming the powder and securing the plate as and by the means described.

The Examiners held that the construction described in the amended specification involved patentable novelty, and that a specific and well-defined claim might be allowed, but not the amended claim, it being "vague, indefinite and ambiguous." The claimant thereupon withdrew the above-amended claim, and substituted another, which was finally allowed, in the following terms:

What I claim as new and desire to secure by Letters Patent is—

In the bottom of a solid metallic-flange cartridge case or shell the combination of a circular base inclosing a central chamber of fulminate provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described.

It is obvious that this is a claim for a combination, none of the elements or constituent parts of which is claimed to be new, but whose merit consists in such an adjustment and relation of the parts as to produce the desired effect.

In such a claim, if the patentee specifies any element as entering into the combination, either directly by the language of the claim, or by such reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the court cannot declare it to be immaterial. It is his to make his own claim and his privilege to restrict it. If it be a claim to a combination, and be restricted to specified elements, all must be regarded as material, leaving open only the question whether an omitted part is supplied by an equivalent device or instrumentality. (*Fay* v. *Cordesman*, 109 U. S., 408.)

In patents for combinations of mechanism, limitations and provisos, imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon in the nature of disclaimers. (*Sargeant* v. *Hall Safe & Lock Co.*, 114 U. S., 63.)

If an applicant, in order to get his patent, accepts one with a narrower claim than that contained in his original application, he is bound by it. If dissatisfied with the decision rejecting his application, he should pursue his remedy by appeal. (*Shepard* v. *Carrigan*, 116 U. S., 593.)

When the rejected claims and the one finally allowed are compared, it will be perceived that they all describe the combination as consisting of a circular base, containing a central chamber of fulminate, the anvil over it, with two or more perforations to permit the fire or explosive force of the fulminate to be communicated to the powder charge. What, then, was the difference or modification which resulted in the allowance of a claim? We agree with the court below in finding that difference in the position of the apertures or vents. The Examiners refused to allow the claim until the claimant distinctly located the vents as "openings whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge," thereby making the relative position of the vents and the walls of the fulminate-chamber a material part of the claimant's patent. Breech-loading metallic cartridges were not new, and it was the opinion of the Examiners that, in merely claiming "a circular metallic tight-fitting plate perforated with a central fulminate-chamber, leaving a central solid or unperforated bar over the fulminate-chamber, within a solid fire-tight metal case," the claimant was anticipated by the patents of Moffat, 53,168, March 13, 1866; of Tibbals, 90,607, May 25, 1869, and by an English patent, 2,906, 1865. It was not until the claimant specifically claimed, as part of his combination, "an anvil over the fulminate provided with two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge," that the patent

was allowed. Whether the Examiners were right or wrong in so holding we are not to inquire, as the claimant did not appeal, but amended his claim and accepted a grant thereof; thereby putting himself within the range of the authorities which hold that if the claim to a combination be restricted to specified elements, all must be regarded as material, and that limitations imposed by the inventor, especially such as were introduced into an application after it had been peristently rejected, must be strictly construed against the inventor and in favor of the public, and looked upon as in the nature of disclaimers.

It may be observed that the courts of this country cannot always indulge the same latitude which is exercised by English judges in determining what parts of a machine are or are not material. Our law requires the patentee to specify particularly what he claims to be new, and if he claims a combination of certain elements or parts, we cannot declare that any one of these elements is immaterial. The patentee makes them all material by the restricted form of his claim. (Per Mr. Justice Bradley in *Water Meter Company* v. *Desper*, 101 U. S., 332, 337; *Morgan Envelope Co.* v. *Albany Paper Co.*, 152 U. S., 425, 429.)

With these principles of construction in view, we are constrained to concur with the court below in holding that the cartridges made and used by the Government were not within the description contained in the appellant's claim.

The Government cartridges alleged to be within the appellant's patent are of two kinds, one called the "cup-anvil cartridge," the other the "reloading cartridge." As the appellant has withdrawn his claim for infringement of the former, we have only to do with the latter or reloading cartridge. It is thus described in the sixth finding of the court below:

This cartridge is a hollow metallic shell, rimmed around the base with a pocket in the exterior of the center of the base; through the center of the top of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate-flame to the black-powder chamber. This cartridge contains only the black powder and the bullet. Any one of the several kinds of primers may be used in it. The one used by the United States and alleged to infringe claimant's rights is a circular metallic cup, into which is put the fulminate; above this is fastened a disk or cover having a groove on its upper side, being the diameter of the circle; at each end of this groove a small piece or notch is cut out of it; through the holes thus formed the flame from the fulminate escapes; if this primer is placed in the chamber of the reloading cartridge, with the closed end of the cup outward and the grooved end against the top of the chamber, the flame from the fulminate when exploded would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black-powder chamber through this single aperture. The entire area of each of the holes or notches in the disk is over the fulminate-chamber, and the portion of the disk between the holes is the anvil.

This finding is claimed by the appellant to be incorrect in several respects, and particularly in its statement that "the portion of the disk between the holes is the anvil."

But even if we were permitted as an appellate court to depart from the findings of fact made by the trial court, we do not perceive that the particulars in which this finding is objected to really affect the case as presented to us. Even if we were to adopt the description of the Government's cartridge given by the appellant, it still appears that there is an essential difference between the two types of cartridge. Without accepting or rejecting the Government's contention that the Government's cartridge is outside-primed and the appellant's inside-primed, and wherein it is claimed that for reloading purposes an outside-primed cartridge is superior, it is sufficient to say that the difference in the shape and position of the vents, whereby the explosive force of the fulminate is communicated to the powder charge, is obvious.

The distinguishing feature of the appellant's cartridge is that the anvil-plate has two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate; but in the reloading cartridge of the Government the vents are wholly over the fulminate-chamber, do not lead directly to the powder-chamber, but lead to a channel cut across the upper face of the anvil, and by this to a hole in the base of the powder-chamber.

By this latter construction the explosive force of the fulminate enters the powder-chamber in a central stream. But the appellant specifies, as a distinguishing feature, that the fulminate "chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil-plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder charge."

It may be, as the appellant contends, that his method of communicating the explosive force of the fulminate to the powder charge is an improvement on previous methods, and is superior in efficacy to that used in the Government's cartridges; but our inquiry is not as to the merits of the patent in suit, but is confined to the question whether it covers, in legal contemplation, the defendant's cartridge.

Some contention is made, in argument, that because it is stated that some grains of powder may and do fall down through the base of the defendant's powder-chamber, and lie loosely in the groove across the upper face of the anvil, therefore it must be concluded that such loose grains of powder come directly in contact with the flame of the fulminate before the latter enters the powder-chamber. But such a fact, if it be a fact, appears to be immaterial. It is not pretended that these few loose grains of powder are relied on, or in fact operate, as a means of igniting the charge in the powder-chamber.

Nor can we accept the contention that these two combinations are identical because they are intended to obtain the same result. What we have to consider is not whether the end sought to be effected is the same, but whether the devices or mechanical means by which the desired result is secured are the same.

We do not consider it necessary to consider a further suggestion, contained in the opinion of the court below, that, even if the relative position of the vents and the wall of the fulminate-chamber be not a material part of the claimant's patent, still the claimant cannot recover because the other characteristics of his invention, found in the cartridge now used by the defendants, were introduced by them prior to the application for or issue of the patent.

The decree of the Court of Claims, dismissing the claimant's petition, is affirmed.

No. 198.—October Term, 1897.

Hubbell *v.* The United States.

Appeal from the Court of Claims.

The petition in the above-entitled case, for a rehearing, is denied.

Patents No. 661,479 to 661,941.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 7. TUESDAY, NOVEMBER 13, 1900. Price—$5 per year.

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Disclaimer.

640,709.—*Richard H. Scott* and *Henry C. Teel*, Toledo, Ohio. Improvement in Automatic Sheet-Feeding Mechanism. Patent dated January 2, 1900. Disclaimer filed November 3, 1900, by said patentees.

Enter their disclaimer—

"Of claim 1 of said Letters Patent, which claim is in the following words:

'1. In an automatic sheet-feeding mechanism, the combination of a roller secured upon a driving-arbor, means for intermittently feeding a sheet of paper to said roller, a driven arbor in parallel relation thereto, having secured thereto a roller adapted to be driven by the roller secured to the driving-arbor, a friction device adapted to retard the revolution of the driven roller, whereby a single sheet causes the revolution of both the driving and driven rollers, and the sheet pressed upon by the driving-roller is delivered to the impression-cylinder while the surplus of sheets is held by the periphery of the retarded roller, and means for revolving the driving-roller, substantially as described.'"

CERTIFICATES OF REGISTRATION ISSUED NOVEMBER 13, 1900.

Labels.

7,862.—Title: "The S & S Shirt Waist Trousers." (For Trousers.) *Jacob Salsburg*, Philadelphia, Pa. Application filed October 5, 1900.

7,863.—Title: "Probono." (For Canned Goods.) *Alfred E. von Cotzhausen*, Milwaukee, Wis. Application filed October 17, 1900.

7,864.—Title: "Dureasco." (For Canned Goods.) *Alfred E. von Cotzhausen*, Milwaukee, Wis. Application filed October 17, 1900.

7,865.—Title: "Howdah Brand." (For Canned Sugar-Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 19, 1900.

7,866.—Title: "Manx Brand." (For Canned Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 19, 1900.

7,867.—Title: "Summer Beauties Brand." (For Canned Tomatoes.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 19, 1900

7,868.—Title: "Gravel Spring." (For Mineral Water.) *Seligman Bros.*, Jacksonville, Ill. Application filed February 11, 1899.

7,869.—Title: "A. B. C." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed June 28, 1900.

7,870.—Title: "Black Bass." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed October 15, 1900.

7,871.—Title: "Black Bass Beer." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed October 15, 1900.

7,872.—Title: "Bechtel Brew." (For Bottled Lager-Beer.) *The George Bechtel Brewing Company*, New York, N. Y. Application filed October 18, 1900.

7,873.—Title: "Black Tulip Claret." (For Wine.) *Weyrich & Schley*, New York, N. Y. Application filed September 22, 1900.

7,874.—Title: "Brookwood." (For Whisky.) *Joseph Thompson*, Atlanta, Ga. Application filed October 22, 1900.

7,875.—Title: "Great Dane." (For Whisky.) *Joseph Thompson*, Atlanta, Ga. Application filed October 22, 1900.

7,876.—Title: "Red Cross." (For Whisky.) *Western Distilling Co.*, Omaha, Nebr. Application filed October 22, 1900.

7,877.—Title: "Charmion Egyptian Cigarettes." (For Cigarettes.) *L. Finkelstein*, New York, N. Y. Application filed October 13, 1900.

7,878.—Title: "Our Lulu." (For Cigars.) *Wood Mercantile Co.*, Concordia, Kans. Application filed October 9, 1900.

7,879.—Title: "Plug Smoking." (For Smoking-Tobacco.) *Finzer Bros. Tobacco Company*, Louisville, Ky. Application filed October 18, 1900.

7,880.—Title: "Boss John." (For Tobacco.) *Finzer Bros. Tobacco Company*, Louisville, Ky. Application filed October 18, 1900.

7,881.—Title: "Spurt." (For Plug-Tobacco.) *Finzer Bros. Tobacco Company*, Louisville, Ky. Application filed October 18, 1900.

7,882.—Title: "Old Loyalty." (For Plug-Tobacco.) *Finzer Bros. Tobacco Company*, Louisville, Ky. Application filed October 18, 1900.

7,883.—Title: "Bright-ine." (For Silver-Polish.) *Edward A. Fichter*, Syracuse, N. Y. Application filed October 13, 1900.

7,884.—Title: "Star Metal Polish." (For Metal-Polish.) *The Bell Manufacturing Company*, St. Louis, Mo. Application filed October 22, 1900.

7,885.—Title: "Red Cross Disinfecting and Deodorizing Powder." (For a Powder.) *Red Cross Chemical Company*, Boston, Mass. Application filed October 18, 1900.

7,886.—Title: "Red Cross Antiseptic Shampoo." (For a Shampoo.) *Red Cross Chemical Company*, Boston, Mass. Application filed October 19, 1900.

7,887.—Title: "Ro-Zone Dust Bag." (For a Medical Compound.) *Tha-Mou Cure Co.*, Kokomo, Ind. Application filed October 5, 1900.

7,888.—Title: "Cincalco Tonic." (For a Tonic.) *Pittsburgh Homeopathic Pharmacy*, Pittsburg, Pa. Application filed October 16, 1900.

7,889.—Title: "Cowgill's Expectorant." (For a Medicine.) *William Cowgill*, Camden, N. J. Application filed October 18, 1900.

7,890.—Title: "Suckow's Rheumatic Remedy." (For a Medicine.) *John K. Suckow*, Pueblo, Colo. Application filed October 18, 1900.

7,891.—Title: "Cascarine." (For a Stomach Medicine.) *Rea Bros. & Co.*, Minneapolis, Minn. Application filed October 18, 1900.

7,892.—Title: "Corrective Syrup." (For a Medicine.) *Corrective Syrup Co.*, Boston, Mass. Application filed September 4, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 6, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS. Optics.	Oct. 30	Oct. 29	89
106	II. Farm Stock, Products, etc.	Oct. 25	Oct. 25	119
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Oct. 23	Oct. 26	156
240	VII. Velocipedes, Games, and Toys.	Oct. 16	Oct. 21	140
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Oct. 15	Oct. 23	135
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Oct. 15	Oct. 18	159
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 11	Oct. 25	94
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 11	Oct. 24	139
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Oct. 10	Oct. 24	178
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Oct. 10	Oct. 24	174
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 10	Oct. 23	146
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Oct. 10	Oct. 23	103
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Oct. 10	Oct. 23	285
120	IX. Hydraulics, Fire-Extinguishers, etc.	Oct. 9	Oct. 26	94
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Oct. 8	Oct. 27	141
253	X. Carriages and Wagons	Oct. 8	Oct. 26	125
246	I. Tillage and Fences	Oct. 8	Oct. 25	101
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 8	Oct. 25	118
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 8	Oct. 25	138
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 8	Oct. 24	203
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 8	Oct. 24	132
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Oct. 8	Oct. 24	123
248	XVIII. Steam-Engineering, etc	Oct. 8	Oct. 24	151
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Oct. 8	Oct. 23	98
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 8	Oct. 23	175
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 8	Oct. 23	130
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 8	Oct. 22	121
102	XIX. Stoves and Furnaces	Oct. 8	Oct. 22	197
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 8	Oct. 9	345
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Oct. 8	Sept. 24	287
	Between one and two months.			
93	XXI. Textiles, etc	Oct. 5	Oct. 17	161
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 4	Oct. 19	233
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Oct. 3	Oct. 24	124
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Sept. 27	Oct. 9	234
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 14	Aug. 20	179
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91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 30	Sept. 5	319

Total number of applications awaiting action.....5,799

Applications Under Examination—Continued.

Under one month.			
*Designs	Nov. 2	Nov. 5	20
†Trade-Marks	Nov. 3	Nov. 5	15
‡Labels and Prints	Nov. 6	Nov. 6	2

ISSUE OF NOVEMBER 13, 1900.

Patents	463—No. 661,479 to No. 661,941,	inclusive.
Designs	36—No. 33,536 to No. 33,571,	inclusive.
Trade-Marks	76—No. 35,372 to No. 35,447,	inclusive.
Labels	31—No. 7,862 to No. 7,892,	inclusive.
Reissues	4—No. 11,869 to No. 11,872,	inclusive.
Total issue	610	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada	2	
Arizona Territory	1		New Hampshire	6	
Arkansas			New Jersey	9	5
California	8	1	New Mexico Territ'y	1	
Colorado	5	1	New York	82	22
Connecticut	26	2	North Carolina	1	
Delaware	2		North Dakota	1	
District of Columbia	6		Ohio	33	9
Florida	3		Oklahoma Territ'y	1	
Georgia	3	2	Oregon		
Hawaii			Pennsylvania	43	12
Idaho	1		Rhode Island	1	
Illinois	44	11	South Carolina	2	
Indian Territory	2		South Dakota	1	1
Indiana	16	2	Tennessee	2	
Iowa	12	1	Texas	5	1
Kansas	2	1	Utah	1	
Kentucky	7	5	Vermont		
Louisiana	1	2	Virginia	4	
Maine	2	1	Washington	1	
Maryland	6		West Virginia		
Massachusetts	33	6	Wisconsin	12	3
Michigan	12		Wyoming		
Minnesota	7	2	U. S. Army		
Mississippi	2		U. S. Navy		
Missouri	17	6			
Montana	1		Total to citizens of the United States	434	98
Nebraska	2	2			

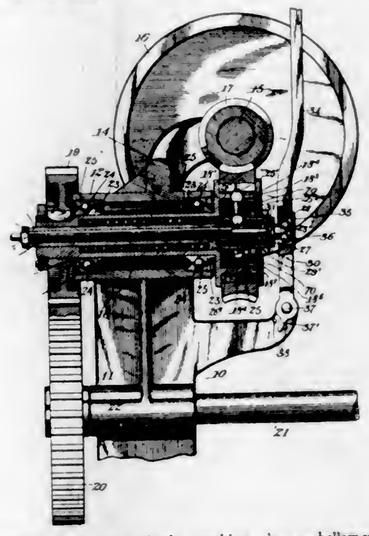
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Japan		
Austria-Hungary	2		Java		
Barbadoes			Mexico	1	
Belgium	2		Netherlands		1
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	2	2	Norway		
Chile			Queensland	1	
China			Russia	1	
Costa Rica			Scotland		
Cuba			South African Republic		
Denmark	1		South Australia		
Egypt			Spain		
England	23		Sweden	1	
Finland			Switzerland		
France	5	3	Venezuela		
Germany	28	3	Victoria	1	
Guatemala					
Haiti					
India			Total to citizens of foreign countries	68	9
Ireland					

PATENTS

GRANTED NOVEMBER 13, 1900.

661,479. CLUTCH. HORACE L. ARNOLD, New York, N. Y., assignor to John A. Hill, same place. Filed Feb. 21, 1900. Serial No. 6,008. (No model.)



Claim.—1. A friction-clutch comprising a sleeve or hollow cylinder having a chambered head; a divided ring carried by said head; a member carried by and adapted to be locked to the head, a series of toggles mounted in sockets of said head and adapted to engage said ring to expand the same and lock said member to the head; a spindle mounted within said cylinder and having a series of openings to receive the ends of said toggles; and means for reciprocating said spindle.

2. A friction-clutch comprising a hollow spindle having a chambered head; a divided ring carried by said head; a series of toggles mounted in the chamber of said head and adapted to expand the ring; a device carried by the head and adapted to be locked thereto when said ring is expanded; a device for adjusting the toggles; and means for actuating said toggles.

3. A friction-clutch comprising a head having a flange provided with a series of openings; a divided ring mounted on said flange and having a series of sockets; toggles having heads entering the openings of the flange and the sockets of the ring; a device mounted over the ring and adapted to be secured to the head when said ring is expanded; and means for operating the toggles.

4. A friction-clutch comprising a head having a hollow extension; a divided ring fitted over a flange of the head; a device within which said ring is mounted; a cap for closing the end of the head and securing said ring and device in position; a hollow spindle within the extension of the head and spring-actuated in one direction; a rod having a cone fitted within a chamber of the spindle; a series of toggles for expanding the divided ring; and means for reciprocating the spindle and thereby actuating the toggles.

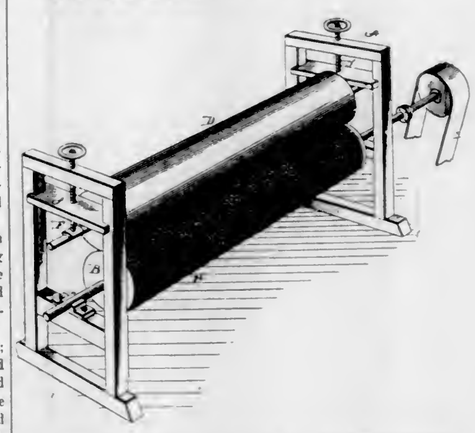
5. A friction-clutch comprising a head; a divided ring mounted thereon and adapted when expanded to lock the device to be driven to said head; a series of toggles having rounded ends; a reciprocatory spindle carried by an extension of the head and adapted to actuate the toggles; a rod adjustably mounted in said spindle and carrying a cone engaging with said toggles; and means for adjusting said rod.

6. The combination, with framework having ball-raceways, of a hollow cylinder also carrying ball-raceways; a series of balls placed between said raceways; a chambered head projecting from said hollow cylinder and having flanges; a divided ring supported between said flanges; a series of toggles; a device to be driven mounted over said ring; a spindle having a chambered head mounted in said cylinder; a spring surrounding said spindle; an adjustable rod carried by the spindle; a cone removably attached to the end of said rod; a cap for closing the chambered end of said spindle, said cap carrying a hardened conical plug; and a lever having a ball-bearing into which said plug is received, said lever serving to actuate said spindle and thereby the toggles to set the clutch.

7. In a clutch, the combination, with a hollow cylinder carrying a flanged and chambered head, the flange of said head being perforated at intervals around its circumference, of a divided ring having a series of sockets, said ring being mounted between the flanges of said head; a spindle carried by said cylinder and having a chambered head perforated at intervals around its circumference; a series of toggles with rounded ends received in the perforations of said flange and the head of said spindle; a rod carrying a cone mounted within the spindle; a spiral spring surrounding the spindle and serving to actuate the same in one direction; a cap for said spindle, carrying a plug with a hardened conical tip; a pivoted lever having a recess; and a ball-bearing seated in said recess and bearing against the tip of said plug.

8. A friction-clutch comprising a cylinder having a portion provided with a series of openings; an expansible ring carried by said portion of the cylinder and having a series of sockets; toggles having heads entering the openings of the cylinder and the sockets of the ring; a device movably mounted over the ring and adapted to be secured to the cylinder when said ring is expanded; and means for operating the toggles.

661,480. MACHINE FOR INDENTING PAPER-STOCK. ROBERT A. G. AULT and JOHN C. SCHMIDT, York, Pa. Filed Aug. 15, 1900. Serial No. 26,949. (No model.)



Claim.—1. In a machine for indenting paper-stock the combination with a platen-roll having a yielding surface, of a cooperating pattern-roll having its surface formed by pattern material wound spirally thereon.

2. In a machine for indenting paper-stock the combination with a platen-roll having a yielding surface, of a pattern-roll having its surface covered with a spiral winding of rope; substantially as described.

3. An indenting-roll for paper-machines having a rigid body and a surface formed by winding rope spirally thereon with the convolutions in juxtaposition; substantially as described.

661,481. SHIPPING-CRATE. ELIAS M AVERILL, Harrisburg, Mich. Filed Apr. 1, 1899. Serial No. 711,333. (No model.)



Claim.—A crate comprising parallel walls, and a web of fabric consisting of a plurality of rigid woof members, and warp-wires passed through the woof members in opposite directions at regular intervals between their side edges and crossed within and between the same and embracing the said woof members, said web being secured to the edges of the walls by fastening devices passed through the perforations for the wires, substantially as described.

661,482. INDICATOR FOR BOTTLES. WESLEY J. BARRETT, Marion, N. Y. Filed May 14, 1900. Serial No. 16,646. (No model.)



Claim.—1. An indicator for bottles, consisting of a hollow body rigidly fixed within the bottle, and concentric cylinders in the hollow body dividing its space, the inner cylinder opening into the space within the bottle, substantially as specified.

2. An indicator for bottles, consisting of a hollow body within the bottle, having its inclosed space divided into annular chambers by graded overlapping cylinders, with an air-bulb communicating with the outer chamber, and an outflow-opening in the air-bulb, substantially as set forth.

3. An indicator for bottles consisting of a hollow body within the bottle and hollow parts in said body dividing the space within it, and a bulb secured to said body, the latter with the contained parts and the bulb being made of transparent material, substantially as specified.

4. An indicator for bottles, consisting of a hollow cylindrical body in the bottle, having its interior divided by graded overlapping cylinders secured alternately to the upper wall and to the base of the body, substantially as and for the purpose specified.

5. An indicator for bottles, consisting of a body secured to the inner surface of the bottom of the bottle, and divided internally into a series of chambers from the middle outward, and a tube or bulb open at both ends projecting from said body and communicating with the outer chamber of the body, there being a continuous passage from the interior of the bottle through said series of chambers and outward through said tube or bulb, substantially as shown.

661,483. COMPASS-PROTRACTOR. JOHN D. BARRIE, Los Angeles, Cal. Filed Apr. 12, 1900. Serial No. 12,567. (No model.)

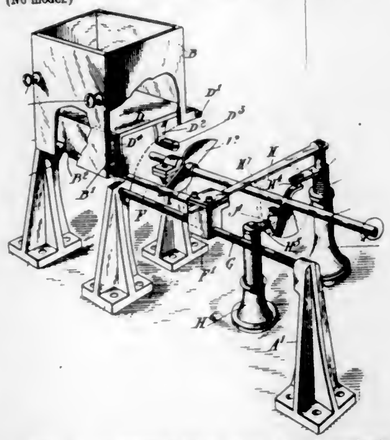
Claim.—1. In a compass-protractor, in combination, the handpiece having a stationary sleeve; a spring within said stationary sleeve; a slotted crayon-holding tube working in said stationary sleeve and retained therein by a cross-pin traversing said slotted sleeve; a cord-winding drum; a revoling sleeve provided with a cord-guiding arm having an eccentric clamp hinged to its upper face, said revolving sleeve being interposed between said cord-winding drum and said stationary sleeve; substantially as specified.



2. In a compass-protractor, the combination with the axially-bored crayon-holder having one end provided with crayon-holding fingers and the sliding finger-clamping sleeve provided with separated encircling rings; the loose ring mounted between said encircling rings and provided with an arm having an eye therein for attaching one end of a measuring-cord thereto; substantially as specified.

3. In a compass-protractor, the combination with the protractor proper and the handpiece having the winding-drum and the rotary sleeve provided with the integral arm having the cord-guide and the eccentric cord-clamp; of the crayon-holder provided with the holding-fingers; the finger-clamp sleeve provided with the loose ring having the cord-attaching arm; and the measuring-cord connecting said attaching-arm with the winding-drum on said handpiece; substantially as specified.

661,484. AUTOMATIC DELIVERY APPARATUS. JOSEPH S. BEKMAN, London, England. Filed Feb. 12, 1900. Serial No. 4,986. (No model.)



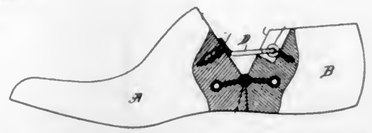
Claim.—1. In automatic delivery apparatus, the combination of a chamber for the articles to be delivered, a hinged agitator the top surface of which forms the bottom of the chamber and supports the articles and which is provided with a curved face, a trough to receive the articles, a conduit between the chamber and the trough parallel and adjacent to the curved face of the agitator, and means for operating the agitator, substantially as described.

2. In automatic delivery apparatus, the combination of a chamber for the articles to be delivered, a hinged agitator the top surface of which forms the bottom of the chamber and supports the articles and which is provided with a curved face, a trough to receive the articles, a conduit between the chamber and the trough parallel and adjacent to the curved face of the agitator, a plunger for ejecting the articles from the trough, and means for operating the agitator, substantially as set forth.

661,485. HINGED LAST. GEORGE E. BELCHER, Stoughton, Mass. Filed June 9, 1900. Serial No. 19,679. (No model.)

Claim.—1. A hinged last made up of a toe-piece and a heel piece connected by a hinge; that hinge; a spring-catch secured to one of these pieces; a locking-bolt universally hinged to the other piece, and having an eye bent upward at its free end and adapted to engage the spring-catch, all organized and operating as described.

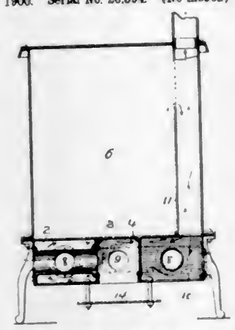
2. A hinged last made up of a toe-piece and a heel-piece connected by a hinge; that hinge; a spring-catch secured to one of these pieces; a locking-bolt having an eye bent upward at its free end and movably secured at the other end to the other piece, all organized to permit the eye of the locking-bolt to engage the spring-catch to lock the last open, as described.



3. A hinged last made up of a toe-piece and a heel-piece connected by a hinge; that hinge; a spring-catch secured to one of these pieces; a locking-bolt having an eye at its free end bent at an angle to its length, and movably secured at the other end to the other piece; all organized to permit the eye of the locking-bolt to engage the spring-catch to lock the last open, as described.

4. A hinged last made up of a toe-piece and a heel-piece connected by a hinge; that hinge; a spring-catch secured to one of these pieces; a locking-bolt universally hinged to the other piece, and having an eye bent upward at its free end, the point of connection of the locking-bolt being within a recess in the face of the part to which the locking-bolt is hinged, all organized to permit the catch and the bolt to be contained within the recess when the last is in its closed position, as described.

661,486. HEATING-STOVE. ROBERT A. BRATTON, Galena, Ill. Filed Aug. 9, 1900. Serial No. 26,394. (No model.)



Claim.—1. A base for a stove comprising a casing having a central chamber therein open at its bottom, a series of flues extending through said casing and communicating with the central chamber said flues being open at their outer ends for the discharge of hot air and means for directing smoke and products of combustion about the flues.

2. A base for a stove comprising a casing having a central chamber therein open at its bottom, a series of flues extending longitudinally and transversely through the casing, short flues connecting the first-mentioned flues with the central chamber and outside air and a partition in said casing to compel the circulation of smoke and products of combustion around all of said flues.

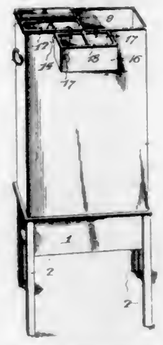
3. A base for a stove comprising a casing having a central chamber therein open at its bottom, a series of flues extending longitudinally and transversely through the casing, short flues connecting the first-mentioned flues with the central chamber and outside air, a partition in said casing to compel the circulation of smoke and products of combustion around all of said flues and a door in the wall of said casing to facilitate cleaning the same.

4. A base for a stove comprising a casing having a central chamber open at its bottom, a deflector disposed below said open bottom of the central chamber, and a series of flues communicating with said central chamber and open at their outer ends to discharge heated air.

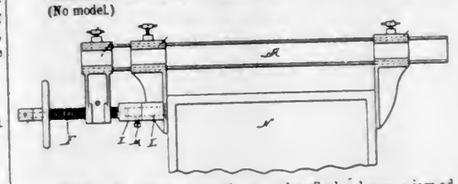
661,487. EGG-SAVER. EMIL BRAUN, New York, N. Y. Filed Aug. 4, 1899. Renewed Apr. 26, 1900. Serial No. 14,503. (No model.)

Claim.—The drip-pan, the shell-holder removably supported thereon, a foraminous shelf removably suspended in said holder, a cutter-blade fixed to the upper end of said holder, and the egg-vessels suspended in the mouth of said holder on opposite sides of said cutter-blade, substantially as and for the purpose set forth.

661,487.



661,488. COMBINATION CLAMP AND LIFTING-JACK. PETER BROADBOOKS, Batavia, N. Y. Filed Jan. 11, 1900. Serial No. 1,044. (No model.)



Claim.—In a device of the character described, a beam, a jaw adjustably secured on the beam, a screw-block adjustably secured on the beam, a hollow operating-screw threaded through the screw-block, a hand-wheel secured to the screw, a spindle journaled in the hollow screw and terminating in a socket, a jaw slidable on the beam, a rod swiveled in the slidable jaw and removably connected to the socket of the spindle, as and for the purpose set forth.

661,489. BUNSEN BURNER. FRANK M. BROOKS, New York, N. Y. Filed June 12, 1900. Serial No. 20,094. (No model.)



Claim.—1. In a Bunsen burner the combination of a burner-tube, inlets for gas and air, a chamber located within the tube entirely above the air-inlets and having a contracted mouth which is located within substantially the central third of the tube, a cap at the upper end of the tube having a solid central part and holes near its periphery, and a combined flame-arrester and heat-transmitter composed of perforated metal or wire-gauze which makes direct contact with the under side of the solid central part of the cap, for the purposes set forth.

2. In a Bunsen burner the combination of a burner-tube, inlets for gas and air, a chamber at one end of the tube having a contracted mouth located within substantially the central third of the tube, means to adjust the chamber, a cap at the upper end of the tube having perforations near its periphery, and a combined flame-arrester and heat-transmitter attached to the cap, for the purposes set forth.

3. In a Bunsen burner a detachable cap for the burner-tube having a solid central part provided with openings near its edge for the passage of the gas, and a combined flame-arrester and heat-transmitter permanently attached thereto, composed of perforated metal or wire-gauze, which makes direct contact with the under side of said solid central part of the cap, and the lower part of which has sliding contact with the interior walls of the burner, for the purposes set forth.

4. In a Bunsen burner a cap for the burner-tube having a flat plate with a solid central part and openings for the passage of the gas near its edge and a flange adapted to embrace the exterior of the tube, and a combined flame-arrester and heat-transmitter permanently attached thereto, composed of perforated metal or wire-gauze which makes direct contact with the under side of the cap the lower part of which has sliding contact with the interior of the tube, for the purposes set forth.

5. In a Bunsen burner a detachable cap for the burner-tube having a solid central part with openings near its periphery for the passage of the gas, deflectors adjacent to and which overhang the openings, a flange

adapted to embrace the exterior of the tube, and a combined flame-arrester and heat-transmitter permanently attached thereto, composed of perforated metal or wire-gauze which engages with the cap and the lower edge of which is curved inwardly so as to be automatically guided into and have easy sliding contact with the interior of the tube, for the purposes set forth.

6. In a Bunsen burner a metallic cap for the burner-tube having perforations therein near its edge, partially-detached portions of the metal lying beyond the plane of the perforations and lapping the said perforations, for the purposes set forth.

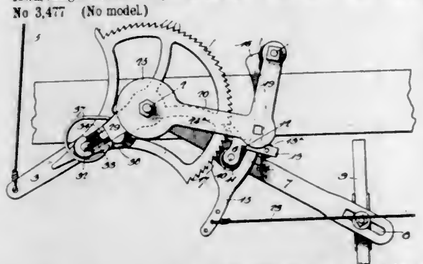
7. In a Bunsen burner a detachable cap for the burner-tube embodying a plate having perforations near its edge and deflectors overhanging said perforations, whereby the flame will be directed against the mantle, and a combined flame-arrester and heat-transmitter composed of perforated metal or wire-gauze permanently attached to and which moves with the cap, for the purposes set forth.

8. In a Bunsen burner an adjustable tubular device having a reduced upper part and a contracted mouth located within the burner-tube, the contracted mouth opening at about the central third vertically of the tube, for the purposes set forth.

9. In a Bunsen burner the combination of a burner-tube, inlets for gas and air, a tubular device having a contracted mouth at one end of the tube, and a cap at the upper end of the tube having perforations whereby the gas passes through it in separate jets, for the purposes set forth.

10. In a Bunsen burner the combination of a burner-tube, inlets for gas and air, a tubular device at one end of the tube having a contracted mouth, and a cap at the upper end of the tube having perforations whereby the gas is enabled to pass through it, and means to project the flame of the gas against the mantle, for the purposes set forth.

661,490. WINDMILL-REGULATOR. ETHAN A. BROWN, Waverly, Iowa, assignor to Bert Koplin, same place. Filed Jan. 31, 1900. Serial No. 3,477. (No model.)



Claim.—1. In a device of the class described, the combination of a brake disk or wheel, a ratchet-wheel designed to be connected with a windmill and provided with a brake-shoe and adapted to oscillate to engage the same with the brake disk or wheel to retard the movement of the windmill when the same is thrown into operation, an operating-lever provided with an actuating-pawl, and a check pawl or dog, substantially as described.

2. In a device of the class described, the combination of a brake disk or wheel, a ratchet-wheel designed to be connected with a windmill and arranged to oscillate, and provided with a brake-shoe arranged to be carried into engagement with the brake disk or wheel by the oscillation of the ratchet-wheel, and means for operating the ratchet-wheel and for releasing the same, substantially as described.

3. In a device of the class described, the combination of a ratchet-wheel, means for actuating and for releasing the same, a brake disk or wheel, and a pivotally-mounted laterally-movable brake-shoe carried by the ratchet-wheel and arranged to frictionally engage the disk or wheel when the ratchet-wheel is released to permit the windmill to be thrown into operation, substantially as described.

4. In a device of the class described, the combination of a ratchet-wheel, means for operating and releasing the same, a threaded shank pivotally mounted on the ratchet-wheel, a friction or brake wheel, a brake-shoe carried by the shank and having a limited movement longitudinally thereof, a nut arranged on the threaded shank and engaging the brake-shoe, and a spring also engaging the brake-shoe to hold the same against the friction or brake wheel, substantially as described.

5. In a device of the class described, the combination of a ratchet-wheel, means for operating the same, a brake wheel or disk, a threaded shank pivotally mounted on the ratchet-wheel, a brake-shoe having a socket receiving the shank, a nut arranged on the shank and engaging the brake-shoe, a stop arranged at one side of the brake-shoe, and a spring engaging the brake-shoe at the opposite side thereof, substantially as described.

6. In a device of the class described, the combination of an approximately L-shaped support provided at one end with a friction disk or wheel, a ratchet-wheel provided with an arm, a brake-shoe carried by the ratchet-wheel and connected with the arm, an oscillating lever, a pawl mounted on the oscillating lever and arranged to actuate the ratchet-wheel, and a lever fulcrumed on the support and provided with a check pawl or dog engaging the ratchet-wheel, substantially as described.

7. In a device of the class described, the combination of a ratchet-wheel, an approximately horizontal lever, an actuating-pawl movably mounted on the lever and engaging the ratchet-wheel, and a lever arranged at an angle to the said lever and connected with and having a limited movement independent of the pawl and directly engaging the ratchet-wheel and adapted when swung backward to disengage the actuating-pawl also from the ratchet-wheel, substantially as described.

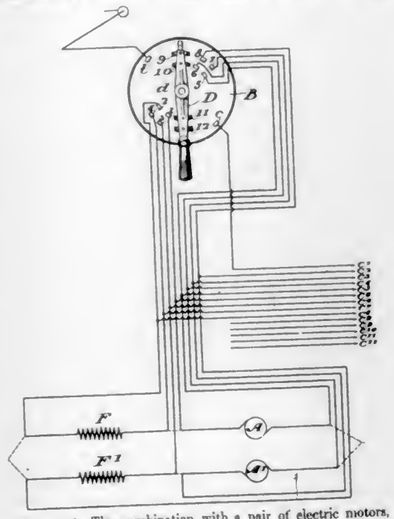
8. In a device of the class described, the combination of a ratchet-wheel, a substantially horizontal oscillating lever, an actuating-pawl engaging the ratchet-wheel and movably mounted on the lever and provided with a yoke, and a lever extending through the yoke and engaging the ratchet-wheel and adapted when drawn backward to disengage the actuating-pawl from the ratchet-wheel, substantially as described.

9. In a device of the class described, the combination of a ratchet-wheel, an actuating-pawl engaging the same and provided with a yoke, and a lever also engaging the ratchet-wheel and having a curved portion extending through the yoke, substantially as and for the purpose described.

10. In a device of the class described, the combination of a ratchet-wheel provided at one end with a stop and having an arm, a support having a brake-disk, an oscillating lever, an actuating-pawl pivotally mounted on the oscillating lever and engaging the ratchet-wheel and provided with a yoke, the lever 15 provided with a dog to engage the ratchet-wheel and having a curved portion extending through the yoke, a brake-shoe engaging the brake-disk and carried by the ratchet-wheel, and springs connected with the lever 15 and with the actuating-pawl, substantially as described.

11. In a device of the class described, the combination of a ratchet-wheel, an actuating-pawl engaging the same and provided with a yoke having an antifriction wheel or roller at its outer end, and a lever also engaging the ratchet-wheel and having a curved portion extending through the yoke, substantially as and for the purpose described.

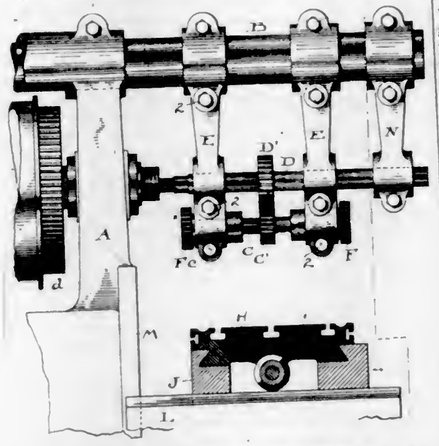
661,491. EMERGENCY-BRAKE SWITCH. WILLIAM M. BROWN, Johnstown, Pa. Filed Oct. 14, 1898. Serial No. 693,496. (No model.)



Claim.—1. The combination with a pair of electric motors, of a switch having a plurality of fixed contacts, arranged in pairs, one contact of one pair being connected to the supply-circuit and the other contact of the same pair to the regular motor-circuit, the remaining contacts being connected to the respective motor-terminals, said switch having a movable member which in one position connects the two contacts of the first-named pair, and in the second position disconnects said contacts and connects the other contacts in their respective pairs, the connections between these last-named contacts and the motor-terminals being such that when the switch is in the last-mentioned position the motors are connected in a closed circuit with one element of each connected to cause a current-flow therethrough in a direction reverse to the normal flow.

2. The combination with a pair of electric motors, of a switch having five pairs of fixed contacts, one contact of one pair being connected to the supply-circuit, and the other contact of the same pair to the regular motor-circuit, and each of the other contacts being connected respectively to one of the motor-terminals, of a movable arm or lever arranged in one position to bridge the two contacts of the first-named pair and also carrying four insulated contacts adapted each, in a second position of said arm or lever to bridge one pair of the other four pairs of contacts.

661,492. MILLING-MACHINE. FRANK A. BURNHAM, Cleveland, Ohio, assignor to the Chandler & Price Company, same place. Filed May 8, 1900. Serial No. 15,966. (No model.)

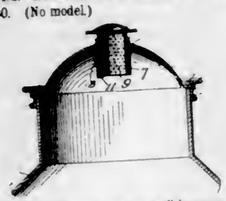


Claim.—1. In a milling-machine, the main frame and an adjustable arm extending therefrom and free at its outer end, a set of hangers removably fixed on said arm, the drive-shaft beneath said arm separately supported and a drive-gear thereon, and the milling-shaft supported in said hangers and having a gear meshing with said drive-gear, substantially as described.

2. The main frame and an adjustable arm projecting therefrom, a set of sectional hangers clamped by bolts on said arm, a drive-shaft and a single milling-shaft supported in said hangers and operatively connected together, and milling-cutters on the ends of said milling-shaft, substantially as described.

3. The main frame and a free arm supported thereon, a milling-shaft and a drive-shaft therefor and sectional hangers supporting said shafts one above the other from said arm and a separate support for the outer end of the drive-shaft engaged on said arm, whereby the milling-shaft may be taken down and the drive-shaft will be held in place, substantially as described.

661,493. COMBINED COVER AND STRAINER FOR MILK OR CREAMING CANS. HENRY M. CASE, Phelps, N. Y. Filed Aug. 2, 1900. Serial No. 25,680. (No model.)



Claim.—A combined concave and reversible cover and strainer for milk and creaming cans, comprising a body having a central opening, a fixed strainer-tube arranged in said opening, a removable strainer and ventilating tube adapted to fit within the fixed tube and provided at one end with a spreader-head, and a pivoted L-shaped catch upon the opposite end of the removable strainer and adapted to engage the inner end of said fixed tube to hold the removable tube in position, substantially as set forth.

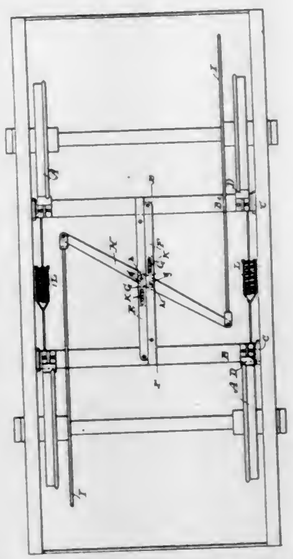
661,494. CURTAIN-POLE. CHARLES E. CLARK and HENRY F. A. ULLRICH, Chicago, Ill. Filed May 23, 1899. Serial No. 717,918. (No model.)



Claim.—1. In a curtain-support, the combination, with a pole provided with a longitudinal groove extending nearly from end to end, and with perforations extending from the bottom of the groove through the pole, and with a series of openings near each end in the under surface at right angles to the groove and the perforations, a clamp in the groove, the ends of which are provided with projecting pins, wing-nuts on the pins and L-shaped brackets.

2. In a curtain-support, the combination, with a pole provided with a longitudinal groove extending nearly from end to end, and with perforations extending from the bottom of the groove through the pole and with openings near each end in the under surface at right angles to the groove and the perforations, a clamp in the groove, each end of which is provided with a screw-threaded pin which projects through the perforations in the pole, and the intermediate portion is provided with a perforation, a pin in said perforation, the outer end of which projects through a perforation in the pole, and is screw-threaded, a wing-nut on each screw-threaded portion, and L-shaped brackets, substantially as described.

661,495. CAR-BRAKE. SAMUEL E. CLARKSON, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 1, 1899. Serial No. 738,764. (No model.)



Claim.—1. In a car-brake, the combination with the brake-beams, of the forked or bifurcated straps secured thereto, the slidable fulcrum-pieces adjustably secured in said straps, and the lever fulcrumed to both the said pieces at adjacent points.

2. In a car-brake, the combination with the brake-beams, of the forked or bifurcated straps secured thereto, the fulcrum-pieces seated to slide longitudinally in said straps, the lever fulcrumed to both said pieces at adjacent points, and means for sliding said fulcrum-pieces in said straps to compensate for wear of the brake-shoes.

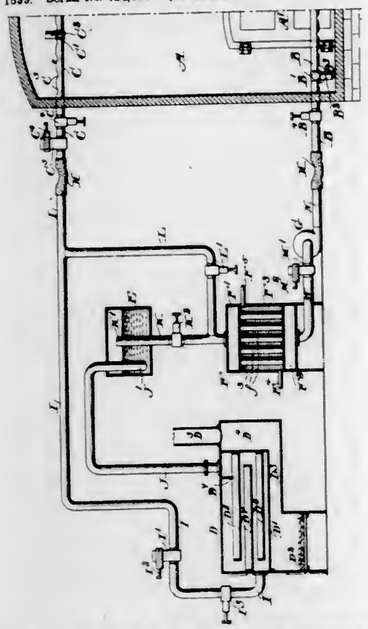
3. In a car-brake, the combination with the brake-beams, of a strap connected to each of the said beams, a slotted fulcrum-piece arranged to slide longitudinally in each of said straps, a lever engaging the slots of both said fulcrum-pieces and fulcrumed therein, and wedge devices for adjusting said pieces to compensate for wear of the brake-shoes.

4. In a car-brake, the combination with the brake-beams, of a strap secured to each of said beams, a slotted fulcrum-piece carried by each strap, a lever engaging the slots of the said pieces and pivoted therein, and the oppositely-driven adjusting-wedges engaging the said fulcrum-pieces.

5. In a car-brake, the combination with the inside-hung brake-beams, and the straps connected thereto and extending side by side, of the fulcrum-

pieces seated to move longitudinally in the said straps, the lever extending through said fulcrum-pieces and pivoted therein, means for adjusting said pieces and oppositely-extending brake-rods connected to the arms of the said lever, substantially as described.

661,496. MECHANISM FOR CHARGING CLOSED COMPARTMENTS WITH GAS. THOMAS A. CLAYTON, Philadelphia, Pa. Filed July 21, 1899. Serial No. 724,660. (No model.)



Claim.—1. A device for charging closed compartments with gas having in combination, an inlet-pipe leading into the compartment said inlet-pipe having a series of outlet-openings formed through its under side, an outlet-pipe leading from the top of the compartment, a gas-generating furnace, conduits connecting the inlet and outlet pipes aforesaid with the furnace and means, as a fan, for maintaining a circulation through the furnace and closed compartment.

2. A device for charging closed compartments with gas having in combination, an inlet-pipe leading into the compartment, said inlet-pipe having a series of outlet-openings formed through its under side, an outlet-pipe leading from the top of the compartment having a series of openings in its upper side, a gas-generating furnace, conduits connecting the inlet and outlet pipes aforesaid with the furnace and means, as a fan, for maintaining a circulation through the furnace and closed compartment.

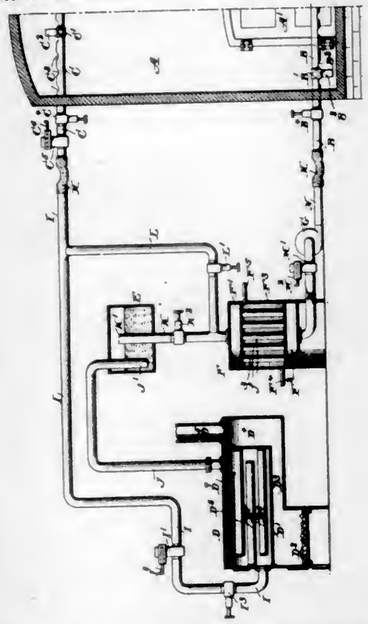
3. A device for charging closed compartments with gas having in combination, an inlet-pipe leading into the lower part of the compartment a short distance above its floor, said inlet-pipe having a series of outlet-openings formed through its under side, an outlet-pipe leading from the top of the compartment, a gas-generating furnace, conduits connecting the inlet and outlet pipes aforesaid with the furnace and means, as a fan, for maintaining a circulation through the furnace and closed compartment.

4. A device for charging closed compartments with gas having in combination, inlet and outlet pipes leading into and from the compartment, a gas-generating furnace connected with said inlet and outlet pipes, means for maintaining circulation through said pipes, a cooler for gases situated in the inlet-pipe between the furnace and the chamber, a by-pass connecting the inlet and outlet pipes through the cooler and not through the furnace and suitable valves whereby gases that are generated in the furnace may be passed directly into the compartment through the cooler, and by means of which the further generation of gases may be discontinued by cutting out the furnace, and the gases already formed may be circulated through the cooler and compartment only.

5. A device for charging closed compartments with gas having in combination, inlet and outlet pipes leading into and from the compartment, a gas-generating furnace connected with said inlet and outlet pipes, means for maintaining a circulation through said pipes, a cooler for gases situated in the inlet-pipe between the furnace and the chamber, a by-pass connecting the inlet and outlet pipes through the cooler and not through the furnace, suitable valves whereby the gases that are generated in the furnace may be passed into the compartment through the cooler, and by means of which the generation of gases may be discontinued by cutting out the furnace, and the gases already formed may be circulated through the cooler and compartment only, and suitable other valves whereby a circulation of fresh air may be maintained through the compartment for the purpose of driving out the gases.

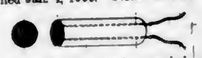
6. A device for charging closed compartments with gas having in combination, inlet and outlet pipes leading into and from the compartment, a gas-generating furnace connected with said inlet and outlet pipes, means for maintaining a circulation through said pipes and furnace, a cooler for gases situated in the inlet-pipe between the compartment and furnace, a by-pass connecting the inlet and outlet pipes through the cooler and not through the furnace, and valves, C^3, K^3, L' and M^3, whereby the gases may be passed through the cooler, either by way of the furnace or the by-pass, as desired, or a circulation of cold air may be obtained through the compartment.

661,497. METHOD OF EXTINGUISHING FIRES IN CLOSED COMPARTMENTS. THOMAS A. CLAYTON, New York, N. Y. Original application filed July 21, 1899, Serial No. 724,660. Divided and this application filed Dec. 26, 1899. Serial No. 741,521. (No specimens.)



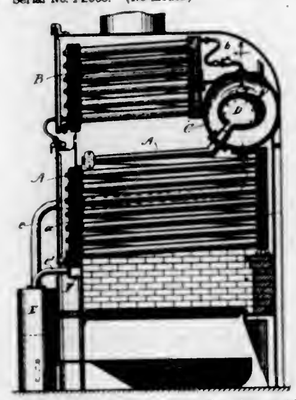
Claim.—The method of extinguishing fires in closed compartments which consists in maintaining a circulation through the chamber and a gas-generating furnace in order to create and maintain in the chamber an atmosphere incapable of supporting combustion, and extinguish the fire, then maintaining the circulation through the chamber and a cooling device until the temperature of the chamber is reduced to a safe point and then gradually admitting air to the chamber so as to avoid the reignition of charred material.

661,498. ELECTRIC FUSE. JOSHUA L. COHEN, New York, N. Y., assignor of fifty-one one-hundredths to Herschel P. Copeland, Jersey City, N. J. Filed Jan. 4, 1900. Serial No. 364. (No model.)



Claim.—An electric igniting device consisting of a non-conducting combustible material, a compound affixed thereto, and a conducting-wire adapted for igniting and flashing the compound and producing a flame in connection with the combustible non-conducting material when an excessive current of electricity is applied thereto, substantially as shown, described and set forth herein as a new article of manufacture.

661,499. BOILER. MIERS CORYELL, New York, N. Y. Filed Apr. 24, 1900. Serial No. 14,083. (No model.)



Claim.—1. In a sectional water-tube boiler, the combination of a steam-drum, a series of tubular steam-generating elements, each forming an independent circulatory conduit between a feed-water collector and the steam-drum, a separator carried by the end of each tube within the steam-drum and detachable connections between each tube and its separator, substantially as shown and described.

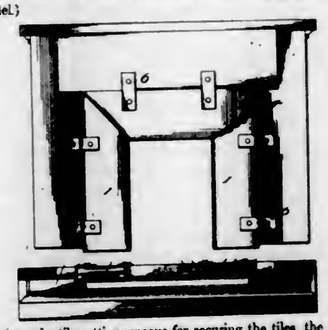
2. In a sectional water-tube boiler, the combination of a series of tubular steam-generating elements, each forming an independent circulatory conduit between a feed-water collector and the steam-drum, a series of shorter tubes above the steam-generating elements forming a feed-water heater and a steam-drum located above the ends of the steam-generating tubes and adjacent to the ends of the feed-water heating tubes so as to form in the space between the two sets of tubes a water-wall by which the gaseous products of combustion are deflected between the tubes of the feed-water heater, substantially as shown and described.

3. A separator for water-tube steam-boilers consisting of a curved deflector-plate, a support for said plate and detachable connections between said support and the end of the steam-generating tube, substantially as shown and described.

4. A separator for water-tube boilers consisting of a shell provided with separate steam and water outlets, a plate within said shell for deflecting the entering steam and water and detachable connections between said shell and the steam-generating tubes, substantially as shown and described.

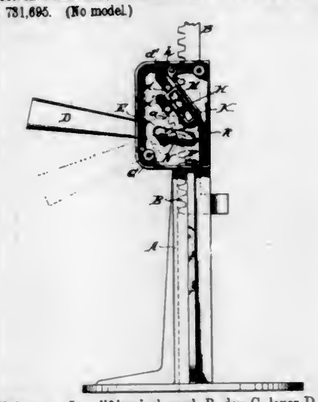
5. In a sectional water-tube boiler, the combination of a steam-drum, a series of tubular steam-generating elements, each forming an independent circulatory conduit between a feed-water collector and the steam-drum and each connected with the steam-drum below its water-line, and a separator carried by the end of each tube in the steam-space of the steam-drum above the water-line, substantially as shown and described.

661,500. METAL CASING FOR TILEWORK. RICHARD C. DARNES, Coshocton, Ohio. Filed Mar. 7, 1900. Serial No. 7,725. (No model.)



Claim.—In tile-setting, means for securing the tiles, the same consisting of a metal casing open at one side and having opposite inturned retaining-flanges and having one end open and the opposite end formed with supporting-flanges extending across the tile-space, substantially as set forth.

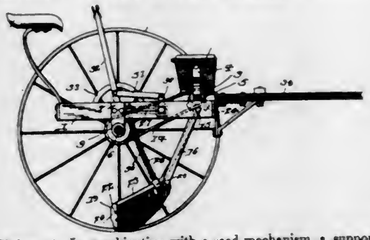
661,501. LIFTING-JACK. HERMAN A. DIERIG, Dayton, Ky., and ANTON A. VORNDIEKE, Cincinnati, Ohio. Filed Sept. 25, 1899. Serial No. 731,695. (No model.)



Claim.—1. In a lifting-jack, rack B, dog C, lever D, toothed head E, in combination with finger N, slide K, lug H, and spring-arm M, as set forth.

2. In a lifting-jack, rack B, dog C, lever D, toothed head E, in combination with finger N, slide K, lug H, and spring-arm M, and spring *k* and key P, as set forth.

661,502. SEED-DRILL. GEORGE C. DITTLER, Uniondale, Ind. Filed June 8, 1900. Serial No. 19,572. (No model.)



Claim.—1. In combination with a seed mechanism, a supporting-rod under the same, receiving-cups on said rod, supporting-arms attached to said rod, furrowing shares or cutters attached to said supporting-arms and trailed thereby, said furrowing-shares or cutter-plates having drill-tubes at their rear ends, and seed-tubes connecting the said receiving-cups to said drill-tubes, substantially as described.

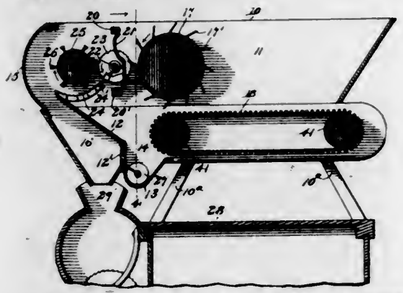
2. The combination with a seed mechanism having an operating-shaft, a power-shaft, connections between said operating and power shafts whereby the former is driven by the latter, said connections including a clutch, supporting-arms, furrowing-shares or cutter-plates attached to said supporting-arms and trailed thereby, said furrowing-shares or cutter-plates having drill-tubes at their rear ends, tubes to conduct seed from the seed mechanism to said drill-tubes, a rock-shaft having rock-arms, connections between said rock-arms and said furrowing-shares or cutter-plates to raise and lower the latter, a lever to operate said rock-shaft, and one of said rock-arms having a cam to automatically operate the clutch when said rock-shaft is caused to raise said furrowing-shares, or cutter-plates, for the purpose set forth, substantially as described.

3. In a seed-drill of the class described, in combination with a seed mechanism, a supporting-rod disposed under the same, receiving-cups on said rod, supporting-arms attached to said supporting-rod, furrowing-shares or cutter-plates attached to and trailed by said supporting-arms, said furrowing-shares or cutter-plates having drill-tubes at their rear ends, seed-tubes connecting said drill-tubes to said receiving-cups, a rock-shaft having rock-arms, rods connecting said furrowing-shares or cutter-plates to said rock-arms and adapted to move upward in the latter, a lever to operate said rock-shaft and springs bearing downward on said furrowing-shares or cutter-plates, substantially as described.

4. A furrowing-share comprising the flat, parallel-sided blade 17, the drill-tube 19 secured on the rear end thereof, projecting rearwardly therefrom and comprising the separable members 20 secured on opposite sides of said blade and countersunk to receive the same, and the seed-tube disposed on the upper side of the blade and discharging into the upper end of said drill-tube.

5. A furrowing-share comprising the flat parallel-sided blade 17, the drill-tube 19, disposed vertically on the rear end thereof, projecting rearwardly therefrom, overlapping the sides of the said blade, and wedge-shaped in horizontal section and adapted to widen the upper portion of the furrow cut by said blade, and a seed-tube discharging into the said drill-tube, substantially as described.

661,503. **FEEDER AND CLEANER FOR COTTON-GINS.** THEOPHILUS C. EBERHARDT, Prattville, Ala. Filed Dec 23, 1899. Serial No. 741,400. (No model.)



Claim.—1. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for seed-cotton, a picking-drum partially over said chamber, a stripping-breast arranged over the chamber and having openings or spaces of a width for said seed-cotton to pass therethrough, and a saw-cylinder rotating in the spaces of the breast and coöperating with the picking-drum.

2. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for seed-cotton, a picking-drum partially over said chamber, a screen situated over a part of the refuse-chamber, a brush-cylinder over the screen and arranged for its brushes to frictionally sweep the same and to discharge seed-cotton to the passage of the casing, and a saw-cylinder arranged between and in coöperative relation to the picking-drum and the brush-cylinder, substantially as described.

3. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for seed-cotton, a picking-drum partially over said chamber, a screen over a part of the refuse-chamber, a brush-cylinder frictionally sweeping the screen and discharging seed-cotton to the passage of the casing, a stripping-breast arranged over the refuse-chamber and between the picking-drum and the brush-cylinder, and a saw operating in the openings of the breast and in coöperative relation to the picking-drum and the brush-cylinder.

4. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for seed-cotton, a picking-drum partially over said chamber, a screen partially over the mouth of the refuse-chamber, a brush-cylinder, a stripping-breast over the refuse-chamber, between the picking-drum and the brush-cylinder, and comprising a series of vertical ribs spaced at intervals to form intermediate openings for the passage therethrough of seed-cotton, and a saw-cylinder working in the openings of the breast and coöperating with the picking-drum and the brush-cylinder.

5. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for seed-cotton, a picking-drum partially over said chamber, a screen partially over the refuse-chamber, a brush-cylinder, a stripping-breast between the brush-cylinder and the picking-drum, a saw-cylinder working in the spaces of the breast, and a conveyer within the refuse-chamber and operable to transfer refuse therefrom in a path at an angle to the line of feed of seed-cotton through the casing, substantially as described.

6. In a cleaner and feeder for cotton-gins, the combination with a feeder-casing divided by a partition into the refuse-chamber and the seed-cotton passage, a picking-drum, a conveyer mechanism arranged to discharge certain materials into the refuse-chamber, a screen at the upper part of the refuse-chamber and contiguous to the cotton-passage, a stripping and refuse-detaining mechanism close to the picking-drum and over the refuse-chamber, and a brush-cylinder arranged to sweep said screen, substantially as described.

7. In a cleaner and feeder for cotton-gins, the combination with a feeder-casing, a picking-drum, a brush-cylinder, a saw-cylinder between said cylinder and drum, a conveyer mechanism below the drum, pulleys secured to the shafts of the drum and cylinders, a lever carrying an idler-pulley, an endless drive-belt passing around said pulleys to rotate the picking-drum and the saw-cylinder in a common direction and to propel the brush-cylinder in an opposite direction, a screw conveyer driven from one of the shafts, and a pawl-and-ratchet feed mechanism from the screw conveyer to a roller-shaft of the endless conveyer, substantially as described.

8. In a hulling seed-cotton feeder for gins, the combination of the casing having a refuse-chamber and a passage for seed-cotton, a stripping-breast interposed in the path of the material over the refuse-chamber toward the said passage for seed-cotton, said breast having openings or spaces of a width for seed-cotton to pass therethrough, a picking-drum arranged at one side of the breast, and a saw-cylinder rotating in the spaces of the breast and coöperating with said drum, substantially as set forth.

9. In a cotton feeder and cleaner for gins, the combination of a casing having a refuse-chamber and a passage for the cleaned seed-cotton, a stripping-breast disposed over the chamber, a feeding-conveyer terminating contiguous to the chamber, a picking-drum between said conveyer and the stripping-breast and revoluble in a direction to transfer seed-cotton from the former to the latter, and a saw-cylinder adjacent to the breast, substantially as described.

10. In a hulling seed-cotton feeder for gins, the combination of the casing having a refuse-chamber, and a separate passage for seed-cotton, stripping mechanism for hulls and the like interposed in the path of the cotton over the refuse-chamber toward the passage for seed-cotton, a feeder for directing cotton toward the refuse-chamber, and a picking device coöperating with said feeder and the stripping mechanism, substantially as set forth.

661,504. **PHOTOGRAPHIC-FILM CARTRIDGE.** MATHIAS J. EHLMAN, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Filed Sept. 10, 1900. Serial No. 29,556. (No model.)



Claim.—1. As an article of manufacture a film-cartridge embodying a backing-strip of flexible opaque material and a plurality of separate strips of flexible photographic film secured thereto at one end only, said strips and backing being wound together into a continuous roll, the extreme ends of the backing beyond the first and last film strips being of sufficient length to cover and protect the film from light when wound into a roll from either end, and the backing between the strips being of sufficient length to cover and protect from light the film on both sides thereof when severed between the proximate ends of the film strips.

2. As an article of manufacture, a film-cartridge embodying a backing-strip of flexible opaque material and a plurality of separate strips of flexible photographic film secured thereto, said film strips and backing being wound together into a continuous roll, the backing-strip extending beyond the outer ends of the first and last film strips, and having partially divided or weakened portions between the proximate ends of the film strips.

3. As an article of manufacture, a film-cartridge embodying a backing-strip of flexible opaque material and a plurality of flexible photographic-film strips secured thereto at intervals, said film strips and backing being wound together into a continuous roll, the backing-strip extending beyond the outer ends of the first and last film strips and having the narrowed severing portions between the proximate ends of the film strips, the length of the backing-strip between the narrowed portions and the proximate ends of the film strips being sufficient to form a protecting-covering for each film strip when wound into a roll with the backing to which it is secured.

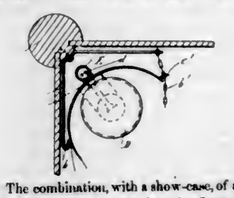
4. As an article of manufacture, a film-cartridge embodying a backing-strip of flexible opaque material and a plurality of separate flexible photographic-film strips secured thereto at intervals, said backing-strip having markings on its outer side in rear of the film strips indicating the separate exposures of film, and being weakened or partially divided to form severing portions at intervals between the proximate ends of the film strips, said weakened portions being a sufficient distance from the proximate ends of the film strips to provide several convolutions of the backing around the film strips and backing when wound into a roll together.

5. As an article of manufacture, a film-cartridge embodying a spool having flanged ends, a backing-strip of flexible opaque material and a plurality of separate strips of flexible photographic film secured at one end to the backing-strip at intervals, the backing-strip and film being wound continuously together upon the spool with the film inside, the backing-strip having markings on the rear side in rear of the film indicating the separate exposures thereof, and being weakened or partially divided between the proximate ends of the film strips, and at a sufficient distance from said ends to form a covering for the film strips when wound with their backing into a roll, the extreme ends of the backing beyond the first and last film strips being of sufficient length to cover and protect from light all of the film strips when wound with the backing upon a spool.

6. As an article of manufacture, a film-cartridge embodying a spool, a film backing or covering of flexible opaque material, and a plurality of separate strips of flexible photographic film secured thereto at intervals, the backing being provided with weakened separating portions between the proximate ends of the film strips and a sufficient distance from said ends to form protecting-covering convolutions of the backing around both strips of film to protect them from the action of light when wound into a roll with the backing to which they are attached, and gummed strips attached to the backing on one side of the weakened portions and extending across the latter.

7. As an article of manufacture, a film-cartridge embodying a spool, a backing-strip of flexible opaque paper and a plurality of separate strips of flexible photographic film secured to the backing at the forward ends only and each film strip containing a plurality of exposures, said backing-strip being provided on its outer side with markings corresponding to and indicating the separate exposures of film, the proximate ends of said film strips being separated by a space at least twice as great as the circumference of the spool when the film and backing wound thereon and the extreme ends of the backing-strip extending beyond the outer ends of the film strips a distance at least as great as the circumference of the roll of film and backing when wound upon the spool.

661,505. **ILLUMINATING DEVICE.** LEONARD ERIKSON, Boston, Mass. Filed Mar. 17, 1900. Serial No. 9,063. (No model.)



Claim.—1. The combination, with a show-case, of angle-brackets secured in the corner of the case, a channel-shaped reflector supported by the said brackets and having a tube secured to its back, and electric lamps secured in the channel of the said reflector, substantially as set forth.

2. The combination, with supporting angle-brackets, of a channel-shaped reflector pivoted to the lower ends of the said brackets, adjustable supports for the reflector connected to the upper ends of the said brackets, and electric lamps secured in the channel of the said reflector, substantially as set forth.

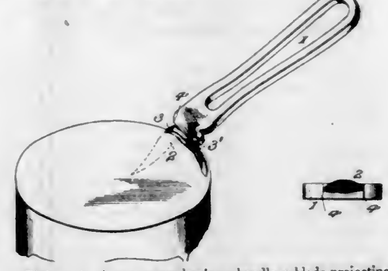
3. The combination, with supporting angle-brackets, of a channel-shaped reflector pivoted to the lower ends of the said brackets, adjustable supports for the reflector connected to the upper ends of the said brackets, a conduit-tube secured to the back of the reflector and provided with openings for the passage of electric wires to the lamps, and electric lamps secured in the channel of the said reflector, substantially as set forth.

661,506. **PIPE-COUPLING.** CHARLES C. FISHER, Warren, Pa., assignor to Charles P. Northrop, same place. Filed Jan. 15, 1900. Serial No. 1,491. (No model.)



Claim.—A pipe-coupling comprising two circular plates arranged flat against each other and having central openings and provided with registering perforations and having polygonal enlargements 3 extending from their outer faces and interiorly threaded, one of the plates being provided at its inner face with concentric ribs 7 and 8 arranged at its inner and outer peripheries and forming an intervening annular space, the inner rib 7 being arranged in alinement with said enlargements 3 and provided with a smooth inner face and the other plate being provided at its inner and outer peripheries with annular recesses 9 and 10 receiving the said ribs 7 and 8 and forming an enlarged flat annular projecting portion 12, spaced from the inner and outer edges of the plate and fitting within the said annular space, the circular packing also arranged in the said annular space and provided with perforations registering with the said perforations, and the fastening devices passing through the said perforations and connecting the plates and forming supports for the packing, and adapted to retain the latter in proper position with relation to the ribs and the enlargements when the parts are being assembled or separated, substantially as described.

661,507. **CAN-OPENER.** HERBERT FLANDERS, Manchester, N. H., assignor of one-half to John Foster, same place. Filed July 27, 1899. Serial No. 725,258. (No model.)



Claim.—1. A can-opener having a handle, a blade projecting therefrom having a longitudinally-curved and transversely-convex portion next the handle, said curved transversely-convex part having a cutting edge adapted to bear on the edge of the can as a fulcrum.

2. A can-opener having a handle, a blade projecting therefrom having a longitudinally-curved and transversely-convex portion next the handle, said curved transversely-convex part having a cutting edge and the handle having a shoulder adjacent said edge as and for the purposes stated.

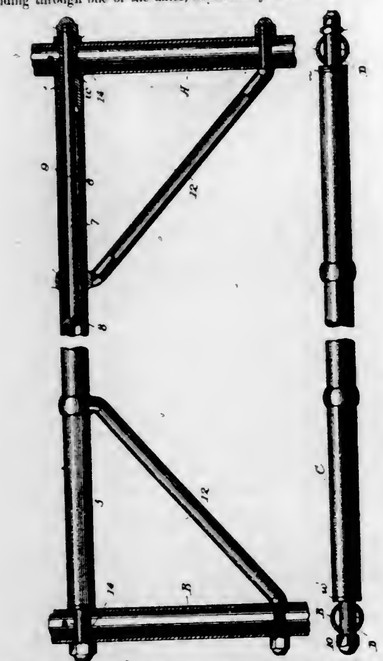
661,508. **RUNNING-GEAR FOR VEHICLES.** CHARLES T. FLETCHER, Westborough, Mass., assignor, by mesne assignments, to the Locomobile Company of America, New York, N. Y. Filed Mar. 10, 1900. Serial No. 8,211. (No model.)

Claim.—1. The combination with the axles of a vehicle, of a metallic perch consisting of two tubular sections one extending into the other, and a bolt connected at the inner end of one of the sections, extending through the other section and connected to the axle, substantially as set forth.

2. The combination with the axles of a vehicle, of two tubular metallic sections abutting at their inner ends, connected at their outer ends with the axles, a partition or cross-piece in one of the sections, and a bolt connected at one end with the cross-piece, extending through the other section, and connected at its outer end with the axle, substantially as set forth.

3. The combination with the axle, of a perch consisting of two tubular metallic sections, one provided with a reduced portion extending into the other, and a bolt connecting the two sections, substantially as set forth.

4. The combination with the axles of a vehicle, of a perch consisting of two hollow metallic sections abutting at their inner ends, a tube brazed within one section and extending into the other, a cross-piece bearing against one end of the tube, and a bolt connected to the cross-piece and extending through one of the axles, substantially as set forth.

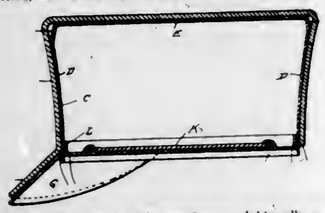


5. The combination with the axle of a vehicle, of a perch consisting of tubular metallic sections abutting at their inner ends and connected by a bolt, and a brace extending to the axle and provided with a ring encircling the abutting ends of the said perch, substantially as set forth.

6. The combination with axles having transverse sockets, of tubular perches and connecting-pieces D having hollow heads and necks, the heads brazed to the perches and the necks extending through the sockets of the axles and threaded and provided with nuts, and bolts 9 connected with the perches and extending through the connecting-pieces and threaded and provided with nuts at their outer ends, substantially as set forth.

7. The combination of an axle having a transverse socket, a sectional tubular metallic perch, and a connecting-piece having a head brazed within the perch, and a tubular neck passing through the axle, threaded at the outer end, and provided with a nut, and a bolt extending from the inner section of the perch through the outer section and through said neck and also provided with a nut, substantially as set forth.

661,509. TRAVELER'S HAT-CONFORMER. JOHN S. FOGG, Biddeford, Me. Filed Sept. 4, 1900. Serial No. 28,869. (No model.)

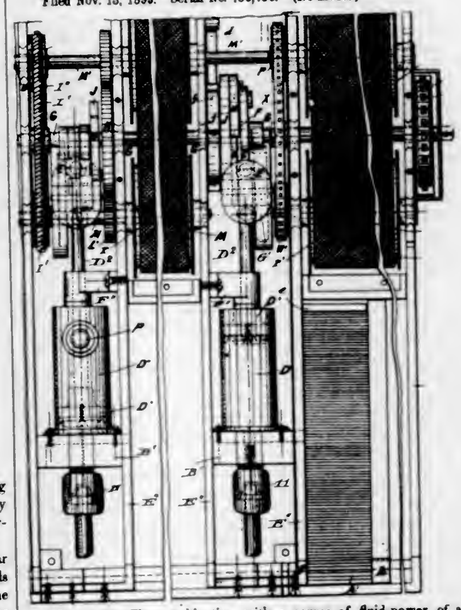


Claim.—1. In a traveler's hat-conformer, rigid walls, a top piece attached thereto, a cover detachably connected to said walls and adapted to rest upon a shoulder running around the inner sides of said walls and to serve as a strengthener therefor and a flange running at an angle from said walls at or near their lower ends, the altitude of the walls of said conformer being greater than the depth of the hat in which it is inserted.

2. In a traveler's hat-conformer, rigid walls, a top provided with beveled corners on its outer edges, a cover detachably connected to said walls adapted to rest upon a suitable shoulder running around the inner sides of said walls and to serve as a strengthener therefor and a rim running at an angle from the lower extremity of the walls thereof to conform to the shape of the vizor or rim of a cap, the depth of the conformer being greater than the depth of the cap.

3. In a traveler's hat-conformer, rigid walls, a top provided with beveled corners on its outer edges, a shoulder on the inner sides of the walls and near the lower extremity thereof, a cover detachably hinged to said walls adapted to tightly fit within the same and rest upon the shoulder, a mirror attached to the inner side of said cover and a rim or flange running at an angle to the walls thereof, the height of the walls of the conformer being greater than the depth of the hat in which it is inserted.

661,510. INDICATOR. JEAN B. FONDU, Brussels, Belgium. Filed Nov. 13, 1899. Serial No. 736,750. (No model.)

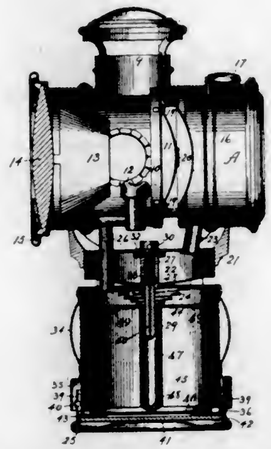


Claim.—1. The combination, with a source of fluid-power, of a fluid-controlled apparatus operative in a forward or backward direction, a sounding device, piping connecting said source of fluid-power and said apparatus and the sounding device, said piping comprising two sections through one of which the fluid is adapted to be conveyed whereby to actuate said apparatus in one direction and through the other of which the fluid is adapted to be conveyed to actuate said apparatus in the other direction, said sounding device and the source of fluid-power having a common port of communication with each of said sections of piping, and a valve controlling said ports and adapted to maintain the closure of one and to effect, simultaneously, communication, through the other, between the corresponding section of piping and the source of fluid-supply and the closure of communication, through said port, between said section of piping and the sounding device, or vice versa, substantially as described.

2. The combination, with a source of fluid-power, of a plurality of fluid-controlled indicating apparatuses each operative in a forward or backward direction, a sounding device, a cross, two opposing ports of said cross being connected with the sounding device and the source of fluid-power, piping, said piping comprising two sections connecting the other two ports of said cross and said apparatuses and adapted the one to convey the fluid whereby to actuate said apparatuses in one direction and the other to convey the fluid whereby to actuate said apparatuses in the other direction, and a revolving valve having an angular port and arranged at the intersection of the ports of said cross, said valve being adapted to effect communication between any two adjoining ports of said cross and maintain the closure of the other ports thereof, substantially as described.

3. The combination, with a source of fluid-power, of pairs of cylinders, supports for said cylinders, shafts journaled in said supports, one shaft for each pair of cylinders, an indicating apparatus controlled by each shaft, pairs of power-transmitting mechanisms operatively connecting each shaft and the corresponding pair of cylinders and adapted to turn said shaft, the one in the one direction and the other in the other direction, a sounding device, piping connecting said source of fluid-power and the cylinders and the sounding device, said piping comprising two sections, through one of which the fluid is adapted to be conveyed whereby to actuate one of said cylinders in each pair and through the other of which the fluid is adapted to be conveyed to actuate the other of said cylinders in each pair, said sounding device and the source of fluid-power having a common port of communication with each of said sections of piping, and a valve controlling said ports and adapted to maintain the closure of one and to effect, simultaneously, communication, through the other, between the corresponding section of piping and the source of fluid-supply, and the closure of communication, through said port, between said section of piping and the sounding device, or vice versa, substantially as described.

661,511. ACETYLENE-GAS LAMP. EDWARD C. FOWLER, Bristol, Conn., assignor to the Bristol Brass and Clock Company, same place. Filed Oct. 28, 1899. Serial No. 735,043. (No model.)



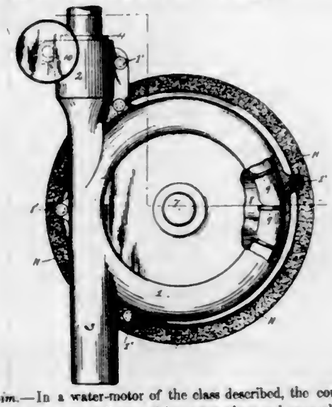
Claim.—1. An acetylene-gas lamp, substantially T-shaped in side view having in combination the horizontal cylinder provided with the burner-chamber at one end and the main water-chamber at the other, the upright cylindrical portion containing the supplemental water-chamber and gas-chamber, the said supplemental water-chamber being arranged at the upper end of the said upright cylindrical portion underneath the said horizontal cylinder above the said gas-chamber and having a communicating pipe connecting the said water-chambers and a valve within the said supplemental water-chamber leading from the bottom thereof to the said gas-chamber, substantially as described.

2. The combination of the water-chamber 22 with the valve-socket, interiorly threaded and provided with a transverse opening communicating with said chamber, the valve 30 screwed into one end of the said socket, the adjustable tubular plug the upper end of which serves as a valve-seat screwed into the other end of said socket and means for partially rotating said valve and holding it in the position into which it may be partially rotated, substantially as described.

3. The combination of the water-chamber 22 with the valve-socket interiorly threaded and provided with an opening communicating with the said chamber, the valve 30 screwed into one end of the said socket, an operating-handle projecting from the said valve, a part rigidly mounted relatively to the said water-chamber and provided with a series of holding-notches for the said operating-handle, and an adjustable valve-seat for the said valve whereby the said seat may be adjusted to insure the tight closing of the valve when the handle is placed in its zero-notch, substantially as described.

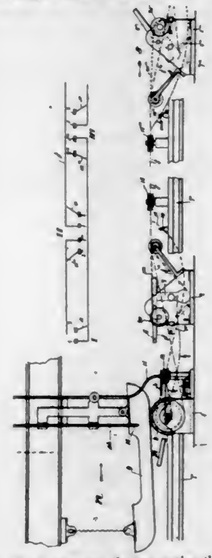
4. In an acetylene-gas lamp, the combination of the horizontal cylinder having the burner-chamber at one end and the main water-chamber at the other end, with the supplemental water-chamber and gas-chamber arranged in the form of a vertical cylindrical portion underneath the said horizontal cylinder, the said main and supplemental water-chambers having a communicating pipe, a carbid-holder within the gas-chamber having a water-inlet and gas-outlets, a valve within the supplemental water-chamber for regulating the flow of water to the carbid-holder and a pipe leading from the gas-chamber to the burner-chamber of the horizontal cylinder, substantially as described.

661,512. WATER-MOTOR. JOHN H. FULLMER, Wilmerding, Pa. Filed Feb. 21, 1900. Serial No. 6,001. (No model.)



Claim.—In a water-motor of the class described, the combination with an outer annular shell formed in two sections and secured together by means of rivets, of a water inlet and outlet formed integral with said shell and arranged upon a tangent with the annular inner space in which the propeller of the motor operates, a rubber piece 4 arranged in said water-inlet, a centrally-arranged shaft journaled in said casing and having an annular web, said web carrying a series of transversely-extending and peripherally-arranged paddles of the same shape as the annular space in which they operate, said shaft extending outwardly at one end, and having threaded portions of varying diameters whereby different devices may be attached thereto, substantially as herein shown and described.

661,513. APPARATUS FOR PREVENTING COLLISION OF TRAINS. HENRI L. DE GAILLARD and MARIE H. A. PORTRET, Toulouse, France. Filed May 23, 1900. Serial No. 17,734. (No model.)



Claim.—1. In an apparatus for preventing the collision of railway-trains, the combination of a striking pulley mounted on a horizontal shaft in bearings at the side of the track and carrying the pulley of smaller diameter, a horizontal fork pivoted to a fixed foundation adjacent to the pulley and adapted to swing across the rail, and a chain or cable around and secured to the smaller diameter pulley at one end and to the fork at the other, the striking pulley being located in the path of the movement of some part of the train, substantially as described.

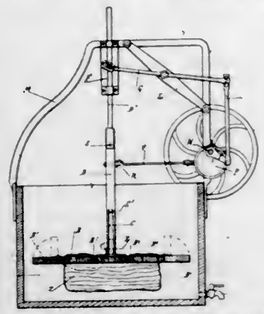
2. In an apparatus for preventing the collision of railway-trains, the combination with two similar devices located alongside the tracks at a distance apart, each comprising a vertical striking pulley, a horizontal shaft

upon which it is supported, mounted in fixed bearings at the side of the track, a second pulley carried by the shaft, a horizontal fork mounted on a vertical pivot and adapted to swing across the track, and a chain or pulley connecting the second pulley with the fork, the two striking pulleys being located in position to be successively struck and rotated by the moving train, the two similar devices being connected for conjoint operation substantially as described.

3. In an apparatus for preventing the collision of railway-trains, the combination of a horizontal shaft mounted in bearings at the side of the track, a striking pulley thereon in the path of some part of the train, a pivoted counterbalance-signal in advance of said pulley, a pendulum pivoted adjacent to the signal, and a chain connecting the striking pulley and the pendulum, substantially as described.

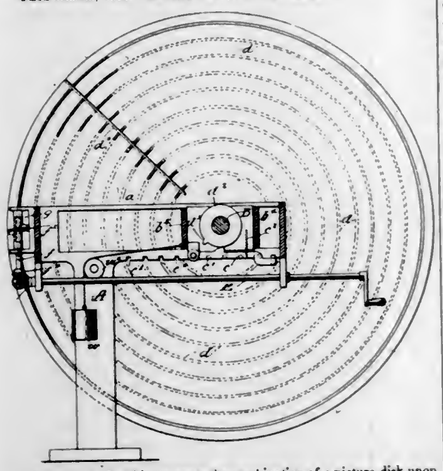
4. In an apparatus for preventing the collision of railway-trains, the combination with a striking pulley pivoted at the side of the track, a horizontal pivoted fork adjacent to the striking pulley, a chain connecting the striking pulley and fork, a pivoted counterbalance-signal adjacent to the pulley and fork, a pendulum under the signal, and a chain connecting the pendulum with the striking pulley, substantially as described.

661,514. WASHING-MACHINE. ZÉNAÏDE GAILLARD, St. Germain Les Bains, France. Filed Dec. 18, 1897. Serial No. 662,769. (No model.)



Claim.—In a machine for washing clothes, the combination of a water-receptacle, a frame carried thereby, a shaft vertically movable in said frame, a plate connected to said shaft, means for securing the clothes to said plate, and means for imparting a horizontal reciprocating motion to said shaft, substantially as described.

661,515. KINETOSCOPE. FRANCIS S. GIEL, New York, N. Y. Filed Jan. 25, 1898. Serial No. 667,918. (No model.)



Claim.—1. In a kinetoscope, the combination of a picture-disk upon which the pictures are arranged in concentric circles and means for shifting the axis of the disk toward and away from the optical axis, substantially as described.

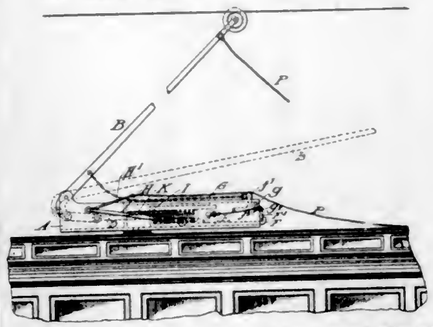
2. In a kinetoscope, the combination of a picture-disk and a rack-disk mounted on the same shaft, the racks of the latter being arranged in concentric circles, and gearing for engaging with and driving said racks, means for shifting the two disks relative to the gearing, substantially as described.

3. In a kinetoscope, the combination of a picture-disk and a rack-disk mounted upon the same shaft, the pictures being arranged in concentric circles and the racks being arranged in corresponding concentric circles, and driving-gear engaging with one of the concentric racks and means for shifting the mechanism so that the driving-gear may engage with the racks in succession.

4. In a kinetoscope the combination of a picture-disk and a driving rack-disk mounted on the same shaft, the racks upon the latter being arranged in concentric circles, said rack-disk being provided with a radial tooth extending across all of the circular racks and coinciding with a tooth on each, a gear-wheel engaging with one of said racks and means for shifting the rack-disk and the gear-wheel with respect to each so as to cause the gear-wheel to slide upon the radial tooth from one rack to another, for the purpose set forth.

5. In a kinetoscope the combination of a picture-disk and a rack-disk mounted upon the same shaft, said shaft being bodily movable, and means for locking said shaft to prevent such bodily movement, a series of racks on the rack-disk arranged in concentric circles, and fixed gearing engaging with one of said racks, means for releasing said locking mechanism at the end of each rotation of the disk, and means for simultaneously shifting the axis of the disks, substantially as described.

661,516. TROLLEY. HENRY S. GOUGHNOUR, Johnstown Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Mar. 21, 1900. Serial No. 9,523. (No model.)



Claim.—1. In a trolley, the combination with a pivoted trolley-pole, of a spring for elevating the same, a slide forming a bearing for one end of said spring, a rod having a bearing for the opposite end of the spring, and connected to the said pole, a latch device for said slide, and a connection between the pole and said latch device for tripping the latter when the pole assumes a certain position.

2. In a trolley, the combination with a pivoted trolley-pole, of a spring for elevating the same, a slide forming a bearing for one end of said spring, a rod having a bearing for the opposite end of the spring, and connected to the said pole, a latch device for said slide, and a connection between the pole and said latch device for tripping the latter when the pole assumes a certain position, together with means for restoring the compression in said spring.

3. In a trolley, the combination with a pivoted pole, and a spring for holding the pole in running position, of a slide forming a bearing for one end of said spring, a latch device for said slide, and a connection between the latch device and the pole for automatically tripping said latch.

4. In a trolley, the combination with a pivoted trolley-pole and its actuating-spring, of a slide forming a bearing for one end of said spring, a latch device for said slide, a connection between the latch device and the pole for automatically releasing said device when the pole assumes a certain position, a resetting-lever engaging the said slide, and means for actuating the said lever.

5. In a trolley of the character described, the combination with the pole, its actuating-spring, and a slide forming a bearing for one end of said spring, of a latch for engagement with said slide, a block to which said latch is pivoted and which is arranged to fulcrum at one of its edges, spring means for holding said block to its seat, and a connection between said block and the trolley-pole.

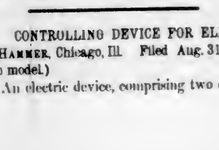
6. In a trolley of the class described, the combination with the pivoted pole, its actuating-spring, the slide forming a bearing for one end of the said spring, a latch for holding said slide with the spring under compression, and means for automatically releasing said latch when the spring assumes a certain position, of a resetting-lever engaging one end of the said slide, and means for actuating said lever.

7. In a trolley, the combination of a swiveled bracket, a pole pivoted thereto, a spring seated in said bracket, a rod connected to the pole at one end and having a bearing for the distant end of the spring, a slide on said rod having a bearing for the opposite end of the said spring, a latch for securing the said slide, means whereby said latch is released when the pole assumes a certain position, and means for restoring said slide to its original position after it has been released.

8. In a trolley-base, the combination with a swiveled bracket, a pole pivoted thereto, an actuating-spring for said pole, a slide forming a bearing for one end of the spring, and in which the spring is seated, means for holding said slide with the spring under compression, and for automatically releasing the same when the pole assumes a certain position, of a resetting device engaging the said slide to move the same in one direction, and also forming a stop for limiting the movement of said slide in the opposite direction.

9. In a trolley, the combination with the bracket, and the slide mounted therein and forming a bearing for one end of the pole-actuating spring, of the connected resetting-levers pivoted to opposite sides of said bracket and the transverse rod seated in slots in said bracket and engaging one end of said slide, said rod having cranked end portions pivotally secured in said levers.

661,517. LAMP-BURNER. JOSEPH GREGORY, New York, N. Y. Filed Aug. 30, 1899. Serial No. 728,991. (No model.)



Claim.—1. In a central-draft-lamp burner, the combination with an inner and outer wick-tube, of a vertically-movable spreader carrying a member having its upper edge flanged outwardly to form an imperforate guard, an air-space being formed between said member and said inner wick-tube, the upper side of said air-space being closed by said guard, and said spreader having perforations above and below the said guard and coacting devices within the inner wick-tube, to limit the upward movement of the spreader, guard and wick, substantially as described.

2. In a lamp-burner of the class described, the combination with an inner wick-tube, and a flame-spreader movable freely therein in a vertical direction within certain limits, of coacting ribs and flanges on said wick-tube and the spreader for limiting the movement of the spreader within said wick-tube and for permitting manual removal of said spreader from said tube, substantially as described.

3. In a lamp-burner of the class described, the combination of a flanged wick-tube, a ribbed flame-spreader, and a stop to limit the adjustment in a horizontal plane of the flame-spreader within the wick-tube substantially as described.

4. In a lamp-burner of the class described, the combination of a wick-tube having a notched flange extending into the air-space thereof, a flame-spreader provided with longitudinal ribs arranged to cooperate with said flange in limiting the movement of said flame-spreader within the wick-tube, and a flange on the flame-spreader, said wick-tube flange arranged to circumscribe the flame-spreader between its ribs and the flange thereon, substantially as described.

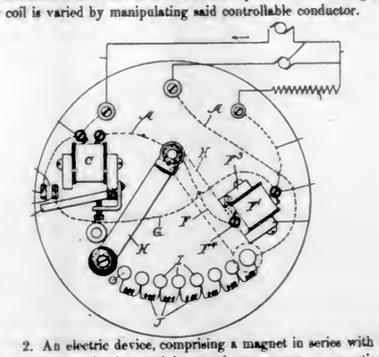
5. In a lamp-burner of the class described, a flame-spreader consisting of tubular members made in separate pieces and firmly united together, the lower member of said spreader provided with longitudinal projections, in combination with a wick-tube, and a flange on said wick-tube to cooperate with the projections of the flame-spreader, substantially as described.

6. In a lamp-burner of the class described, the combination of a wick-tube, a notched flange thereon, a flame-spreader, and ribs on said flame-spreader in cooperative relation to the notched flange, substantially as described.

7. In a lamp, the combination of an inner wick-tube provided at its upper end with an inwardly-projecting notched flange, a vertically-movable spreader, and projections coacting with said flange for limiting the upward movement of said spreader within the wick-tube, substantially as described.

661,518. CONTROLLING DEVICE FOR ELECTRIC CIRCUITS. EDWARD W. HAMMER, Chicago, Ill. Filed Aug. 31, 1899. Serial No. 729,024. (No model.)

Claim.—1. An electric device, comprising two coils, one in a main circuit and the other in a shunt-circuit, and a controllable conductor connected with the main circuit in advance of the coil therein and with the shunt-circuit below the coil therein, whereby the current through said latter coil is varied by manipulating said controllable conductor.



2. An electric device, comprising a magnet in series with the main circuit, a shunt-circuit containing an electromagnet, a connection leading from the main circuit above the series magnet to the shunt-circuit below the shunt-magnet, a circuit-controlling device operated by said series magnet and adapted to control said connection, so as to cause a reverse current to flow through the shunt-magnet.

3. An electric circuit, comprising a magnet in series with the main circuit, a shunt-circuit containing an electromagnet, a connection leading from the main circuit above the series magnet to the shunt-circuit below the shunt-magnet, a circuit-controlling device operated by said series magnet and adapted to control said connection, so as to cause a reverse current to flow through the shunt-magnet, means for breaking the main circuit, and a second circuit-controlling device in said connection adapted to be operated to break the connection before the main circuit is broken.

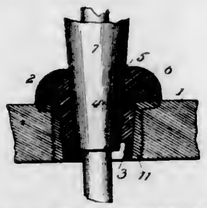
4. A circuit-controlling device, comprising main and shunt circuits, each containing an electromagnet, a connection leading from the main circuit above the magnet therein to the shunt-circuit below the magnet therein, a circuit-controlling device associated with the magnet in the main circuit and adapted to control said connection, a movable circuit-controlling arm provided with a retracting device and adapted to be held in a predetermined position by the magnet in the shunt-circuit.

5. A circuit-controlling device, comprising main and shunt circuits, each containing an electromagnet, a connection leading from the main circuit above the magnet therein to the shunt-circuit below the magnet therein, a circuit-controlling device associated with the magnet in the main circuit and adapted to control said connection, a movable circuit-controlling arm provided with a retracting device and adapted to be held in a predetermined position by the magnet in the shunt-circuit, the parts so arranged that, when the current in the main circuit becomes abnormal, the circuit-controlling device associated with the magnet therein is actuated to vary the connection between the main and shunt circuits so as to cause a reverse current to flow in the shunt-magnet and release the circuit-controlling arm, said circuit-controlling arm associated with the connection between the shunt and main circuits so as to break said connection when the arm is moved to its initial position.

6. The combination with a motor of an electromagnet in circuit with the armature of said motor, a second electromagnet in circuit with the field-coils of said motor, a normally open connection leading from a point in advance of the magnet in the armature-circuit to the field-circuit below the magnet therein, a circuit-controlling device associated with the magnet in the armature-circuit and adapted to be actuated to close said connection when the circuit in the motor-armature becomes abnormal, so as to cause a reverse current to flow in the magnet in the field-circuit, a controlling-arm for controlling the armature-circuit of the motor adapted to be held in a predetermined position by the magnet in the field-circuit, and a retracting device associated with said arm and adapted to move it to its initial position when the circuit-controlling device associated with the magnet of the armature-circuit is operated.

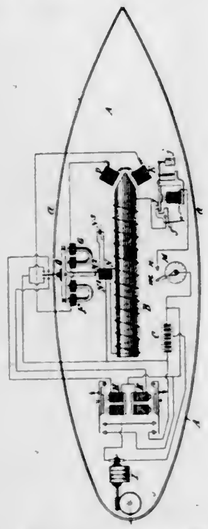
7. The combination with a motor of an electromagnet associated with the motor-circuit, a second electromagnet in a shunt-circuit with said first magnet, a normally open connection leading from a point in advance of the first magnet to a point below the second magnet, a circuit-controlling device associated with the first magnet and adapted to be actuated to close said connection when the motor-circuit becomes abnormal, so as to cause a reverse current to flow in said second magnet, a controlling-arm for controlling the circuit of the motor and adapted to be held in a given position by said second magnet, said arm provided with a retracting device adapted to move it to its initial position when said connection is closed.

661,519. BUSHING FOR BARRELS. JOSEPH HART and JACOB WORTH, New York, N. Y. Filed Aug. 18, 1900. Serial No. 27,328. (No model.)



Claim.—A rigid bushing to fit a barrel-opening and itself having a frusto-conical opening, and an elastic bushing adapted to be driven into the rigid bushing and make a tight joint therewith, said latter bushing having also a frusto-conical opening with its larger diameters toward its outer end to receive a faucet and having a flanged head to fit the outer surface of the rigid bushing, all substantially as described, whereby in case of failure of the ordinary wooden cup-shaped bung said elastic bushing may be immediately applied to preserve the contents of the barrel.

661,520. AUTOMATIC STEERING DEVICE FOR TORPEDOES. CARYL D. HASKINS, Newton, Mass. Filed Aug. 2, 1897. Renewed Apr. 12, 1900. Serial No. 12,634. (No model.)



Claim.—1. The combination with a torpedo of steering apparatus therefor and a magnetic determining device for said apparatus controlled in its action by the magnetic mass of the object to be attacked.

2. The combination with a torpedo of steering apparatus therefor comprising an operating electric motor and a magnetic determining device in the circuit of said motor, controlled in its action by the magnetic mass of the object to be attacked.

3. The combination with a torpedo of steering apparatus therefor, an electric motor for said apparatus, a circuit for said motor, a determining device for the said circuit, controlled by the magnetic mass of the object to be attacked, and a timing device governing the action of said determining device.

4. The combination with a torpedo of steering apparatus therefor, an electric motor for operating it, a double circuit for the motor, a double-circuit closer in said circuit and a magnetic determining device controlled by the magnetic mass of the object to be attacked.

5. The combination in a torpedo, of steering apparatus, a magnetic determining device therefor controlled in its action by the magnetic mass of the object to be attacked, and a non-magnetic casing inclosing the said determining device.

6. The combination with a torpedo, of steering apparatus therefor and a magnetic determining device for said apparatus, having included in its magnetic circuit the shell or casing of the torpedo composed of magnetic material and controlled in its action by the magnetic mass of the object to be attacked.

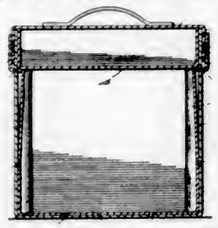
7. The combination with a torpedo having a shell composed partly of magnetic and partly of non-magnetic material, of steering apparatus therefor and a magnetic determining device for said apparatus, including in its magnetic circuit the magnetic portion of the casing or shell and controlled in its action by the magnetic mass of the object to be attacked.

8. The combination with a torpedo, of an intermittently-energized magnet, differential inductive devices placed symmetrically in the field of the said magnet, so as to become active when the said field is disturbed by the magnetic mass of an object to be attacked, and steering apparatus for the torpedo controlled by the said inductive devices.

9. The combination with a torpedo, of a magnet therein intermittently energized, differential induction-coils in the field of said magnet, a polarized relay in the circuit of said coils, and a steering apparatus for the torpedo controlled by the said relay when energized by a differential current in the said coils, arising when the magnetic circuit of the magnet aforesaid is disturbed by the magnetic mass of the object to be attacked.

10. The combination with a torpedo, of steering apparatus therefor and a magnetic determining device for said apparatus controlled in its action by the magnetic mass of the object to be attacked and consisting of a magnet intermittently energized from a source of current beginning at a definite time or distance after starting, and having in its magnetic field opposing coils located one on each side of the longitudinal axis of the torpedo, so as to be affected differentially by the induction of the magnet aforesaid when its magnetic circuit is disturbed by the magnetic mass of the object to be attacked and including in their circuit a polarized relay controlling the steering apparatus.

661,521. HAT-BOX. CLEBURNE L. HAYES, De Funiak Springs, Fla. Filed Apr. 2, 1900. Serial No. 11,181. (No model.)



Claim.—1. A hat-box, comprising a body, a lid, having a pendent marginal rim to embrace the body of the box, and also provided with outwardly-directed studs, and opposite spring-arms secured to the inside of the body, and provided with latches extending outwardly through openings or slots in the sides of the body, and arranged to engage the respective studs.

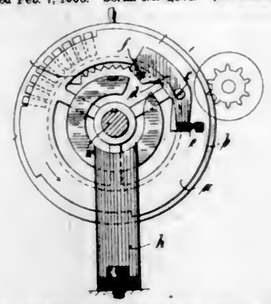
2. A hat-box, comprising a body, having an open upper end, a substantially U-shaped metallic strap, having its intermediate portion secured to the inner side of the bottom of the box, the opposite arms thereof having their free ends bent into substantially L-shaped latches, which project outwardly through slots or openings formed in the respective sides of the box, and a lid or cover, having catches for engagement with the latches.

3. A hat-box, comprising a body, which is open at its upper end, a cover or lid therefor, opposite spring-arms connected to the inner sides of the box, provided with transverse shoulders extending through slots or openings in the sides of the box, and having latches at the outer ends thereof and for engagement with the lid, and a tray supported upon the inner portions of the transverse shoulders.

4. A hat-box, comprising a rectangular body, which is open at its upper ends, corner-supports fitted snugly in each corner of the body and extending from the bottom of the latter to points adjacent to the upper edge thereof, a tray supported upon the upper ends of the supports, a lid, having a marginal flange or rim to embrace the body of the box, and a substantially U-shaped metallic strap, having its transverse portion secured flat against the inner side of the bottom of the box, the opposite arms of the strap being inclined inwardly and upwardly away from adjacent sides of the box, and having their upper ends formed into substantially L-shaped latches, the transverse portions of which form supports for intermediate portions of the tray, and also pass loosely outward through openings or slots in the adjacent sides of the box, to locate the latches upon the exterior of the box and for engagement with the lid.

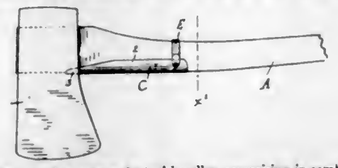
5. A hat-box, comprising a body, a lid, and opposite spring-arms secured to the inner sides of the body, and having their free ends formed into latches, which extend laterally outward through lateral slots or openings in the sides of the body, and lie exposed upon the respective outer sides of the box for engagement with the lid.

661,522. LOCKING DEVICE. WOLDEMAR HEINITZ, Dresden, Germany. Filed Feb. 7, 1900. Serial No. 4,371. (No model.)



Claim.—In a setting-wheel for calculating-machines the combination with a disk fixed upon a shaft, a second disk bearing teeth and being movably fastened to the former disk and a two-armed spring-action lever on the first disk bearing a catch passing through said disk and engaging between the teeth of the second disk, of a ring-shaped partly-open rail below said lever, substantially as shown and described.

661,523. PROTECTOR FOR TOOL-HANDLES. JOHN A. HEINTZ, Menomonie, Wis. Filed Mar. 19, 1900. Serial No. 9,203. (No model.)



Claim.—1. A protector for tool-handles, comprising in combination a shield fitted to one side of the handle and an attaching-strip passing around the handle and through an eye in the shield.

2. A protector for tool-handles, consisting of a shield fitted to one side of the handle and adapted to fit into the eye of the tool, and a clip passing around the handle and through eyes in the opposite sides of the shield.

3. A protector for tool-handles, consisting of a shield shaped to fit the under side of the handle and extending upwardly on either side, and an attaching-strip adapted to be passed around the handle and through eyes in the opposite sides of the shield.

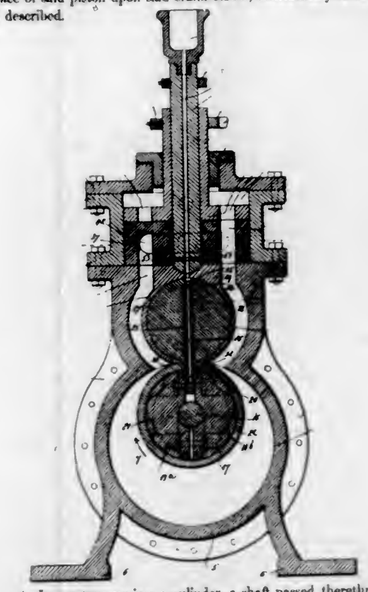
4. A protector for tool-handles, consisting of a shield shaped to fit the under side and sides of the handle and pointed at one end to enter the eye of the tool, and a pliable attaching-clip adapted to be passed around the handle and through eyes in the opposite sides of the shield.

661,524. ROTARY ENGINE. NESTOR HENQUIN, Schenectady, N. Y. Filed Mar. 6, 1900. Serial No. 7,457. (No model.)

Claim.—1. In a rotary engine, a cylinder, a shaft passed therethrough and provided with a crank-elbow therein, and a piston rotatably mounted upon said crank-elbow comprising a piston-head embodying two members which are clamped about the crank-elbow, a projecting vane which is clamped between said piston members, a jacket which is passed about said piston-head members, and a spring element interposed between said piston-head and jacket, substantially as shown and described.

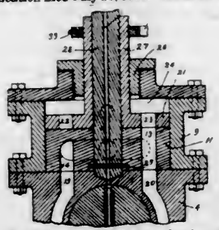
2. In a rotary engine, a cylinder, a shaft passed therethrough and provided with a relatively movable piston, said piston being provided with a vane, a rocking bearing mounted in the engine exterior of the cylinder and with which the vane is loosely connected, said rocking bearing and said vane being provided with oil-passages whereby oil may be introduced to the bearing-surface of said piston upon said shaft, substantially as shown and described.

3. In a rotary engine, a cylinder, a shaft passed therethrough, and provided therein with a crank-elbow, a piston rotatably mounted upon said crank-elbow, a rocking bearing mounted exteriorly of the cylinder and provided with a transverse chamber, said piston being provided with a vane which is slidably mounted in the chamber in said rocking bearing, an ingress and an exit port formed at either side of said rocking bearing and communicating with said cylinder, a valve mounted above said rocking bearing and provided with ports arranged to be brought into registration with said ingress and exit ports, said valve being provided with a valve-rod and with a longitudinal oil-passage arranged to communicate with the chamber in said rocking bearing, said vane being also provided with an oil-passage through which oil may be admitted to the bearing-surface of said piston upon said crank-elbow, substantially as shown and and described.



4. In a rotary engine, a cylinder, a shaft passed therethrough provided with a crank-elbow therein, a piston rotatably mounted upon said crank-elbow and comprising a piston-head embodying two members which are passed about the crank-elbow, a projecting vane which is clamped between said piston-head members, a jacket which is passed about said piston-head members, and within which said crank-elbow operates, and a spring element interposed between said piston-head and jacket, said piston-head members being of less length than said jacket, substantially as shown and described.

661,525. VALVE MECHANISM. NESTOR HENQUIN, Schenectady, N. Y. Original application filed Mar. 6, 1900, Serial No. 7,457. Divided and this application filed July 25, 1900. Serial No. 24,851. (No model.)



Claim.—1. In an improved valve mechanism, a cylinder, an ingress and an egress port communicating therewith, a reverse-valve provided with an exhaust chamber and with two ports communicating therewith and with two other ports formed transversely therethrough, the ports in said reverse-valve being arranged to be brought into registration with said ingress and said egress port and a feed-valve provided with ports arranged to be brought into registration with the ports formed transversely through said reverse-valve, substantially as shown and described.

2. In an improved valve mechanism, a cylinder, an ingress and an egress port communicating therewith, a reverse-valve provided with an exhaust-chamber and with two ports communicating therewith and with two other ports formed through said reverse-valve, said ports in said reverse-valve being arranged to be brought into registration with said ingress and said egress port, a feed-valve provided with ports arranged to be brought into registration with the ports transversely through said reverse-valve, a valve-rod fixed to said reverse-valve, and a valve-sleeve fixed to said feed-valve and through which said reverse-valve rod passes, and means for oscillating said sleeve, substantially as shown and described.

3. In an improved valve mechanism, a cylinder, an ingress and an egress port communicating therewith, a reverse-valve provided with an

exhaust-chamber and with two main ports communicating therewith, and with two supplemental ports, said ports in said reverse-valve being arranged to be brought into registration with said ingress and said egress port respectively, a feed-valve provided with ports arranged to be brought into registration with the said supplemental ports formed in said reverse-valve, said reverse-valve being provided with a projecting valve-rod and said feed-valve being provided with a projecting sleeve through which said valve-rod passes, means for intermittently oscillating said feed-valve sleeve and a handle, whereby said reverse-valve rod may be operated, substantially as shown and described.

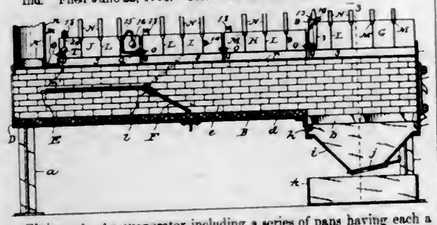
4. In an improved valve mechanism, a cylinder, an ingress and an egress port communicating therewith, a reverse-valve provided with an exhaust-chamber and with two main ports communicating therewith, and with two supplemental ports, said ports in said reverse-valve being arranged to be brought into registration with said ingress and said egress port respectively, a feed-valve provided with ports arranged to be brought into registration with said supplemental ports formed in said reverse-valve, said reverse-valve being provided with a projecting valve-rod, and said feed-valve being provided with a projecting sleeve through which said reverse-valve rod passes, means for intermittently oscillating said feed-valve sleeve and said reverse-valve rod being chambered longitudinally, constituting an oil-passage for the several operative parts of the engine, substantially as shown and described.

5. A valve mechanism, comprising a reverse-valve 11 provided with an exhaust-chamber 16, and with two main ports 14 and 15 communicating therewith, and with two supplemental ports 12 and 13, and a feed-valve 21 provided with ports 22 and 23 arranged to be brought into registration with the ports 12 and 13 in said reverse-valve 11, substantially as shown and described.

6. A valve mechanism, comprising a reverse-valve 11 provided with an exhaust-chamber 16, and with two main ports 14 and 15 communicating therewith, said exhaust-chamber and ports 14 and 15 passing but partially through the valve 11, said reverse-valve 11 being provided with two supplemental ports 12 and 13, passing entirely therethrough, and a feed-valve 21 provided with ports 22 and 23 which pass transversely therethrough and are arranged to be brought into registration with the ports 12 and 13 in the reverse-valve 11, substantially as shown and described.

7. An improved valve mechanism, comprising a valve-casing, a reverse-valve rotatably arranged therein, and a feed-valve rotatably arranged therein, and superposed upon said reverse-valve, said valve-casing being provided beneath said reverse-valve with steam-ports and being provided above said feed-valve with a steam-chest or steam-supply, said reverse-valve being provided with an exhaust-chamber and with two main ports communicating therewith, and with two supplemental ports formed transversely through said reverse-valve, said main and supplemental ports in said reverse-valve being arranged to be brought into registration with said steam-ports in the bottom of said valve-casing, said feed-valve being provided with two transverse ports arranged to be brought into registration with said supplemental ports in said reverse-valve, and means for operating said feed-valve, substantially as shown and described.

661,526. **EVAPORATING-PAN.** JASPER J. HENRY, Greencastle, Ind. Filed June 22, 1900. Serial No. 21,191. (No model.)



Claim.—1. An evaporator including a series of pans having each a series of partitions each provided with a tube extending horizontally along the top thereof, and branch pipes connecting such tubes in pairs so as to form a continuous cooling-duct through such tubes, whereby the upper edges of such tubes may be influenced by a cooling-current.

2. An evaporator including a series of pans having each a partition or plurality of partitions dividing the pan into compartments in pairs, passages connecting the compartments at the ends thereof, ducts connecting the pans at the ends of compartments opposite the ends having the passages, whereby the relative positions of the pans may be transposed without changing the course of the passages through the series, interchangeable valves for the ducts, an outlet-valve for each pan, a horizontally-disposed cooling-tube at the top of each of such partitions, and connecting-pipes for such tubes.

3. An evaporator comprising a furnace, a sap-pan and a series of transposable syrup-pans, a series of hollow plugs connecting such pans in alinement and situated between adjacent walls of the pans near corners thereof, transverse partitions in the pans, passages in the partitions so disposed with relation to said ducts as to form a continuous passage for the liquid alternating uniformly in transverse directions throughout the series of pans, detachably-mounted valves for the hollow plugs, outlet-valves for the pans, and cooling-tubes disposed horizontally at the tops of the partitions.

4. An evaporator comprising a furnace, a sap-pan and a series of transposable syrup-pans having interchangeable hollow plugs connecting the pans, interchangeable valves fitted to the hollow plugs, valve-levers, brackets on each of the transposable pans whereby to support the valve-levers, an outlet-cock connected with each pan, partitions in the pans, passage-ways in the partitions, a weighing-lever bracket attached to each of said transposable pans, an interchangeable outlet-valve seated at one of the outlet-cock ducts, a weighing-lever connected with the outlet-valve and pivoted in the weighing-lever bracket, and cooling-tubes disposed at the tops of the partitions and extending from one end to the other end thereof.

5. An evaporator comprising a furnace, a series of transposable pans having interchangeable hollow plugs connecting the pans, interchangeable valves fitted to the plugs, valve-levers, brackets on each of the pans whereby to support the valve-levers, an outlet-cock connected with each pan, a weighing-lever bracket attached to each pan, an interchangeable outlet-valve seated at one of the outlet-cock ducts, and a weighing-lever connected with the outlet-valve and pivoted in the weighing-lever bracket.

6. In an evaporator, the combination of the furnace comprising the side plates, the front and the rear plates connected to the side plates, the grate-bars at the lower parts of the front ends of the side plates, the horizontal partition extending between said side plates near the rear ends thereof, the bottom plate extending from said grate-bars to the rear ends of said side plates, the brick lining facing said side plates and said bottom plate, the damper operating at the front of said partition, the damper-lever, the hopper supported below said grate-bars, and the slide working at the bottom of said hopper; the pans having the partitions therein and resting upon said side plates, the ducts between said pans, the inlet-valve, the outlet-valve, the valves at said ducts, and the floats in said pans and connected to said several valves, whereby liquid may enter one of said pans and pass through the series of pans and flow from one of said pans automatically, substantially as set forth.

7. In an evaporator, the combination of the furnace comprising the side plates, the front and the rear plates secured to the side plates, the bottom plate, the angle-irons at the upper edges of said plates, the grate-bars between one end of said bottom plate, the brick vertical lining against said side plates, the horizontal partition attached to said side plates, the damper working between said vertical linings, the damper-lever, the hopper having the inclined sides supported below said grate-bars, and the slide mounted in an inclined plane at the bottom of said hopper; the notched sector secured to one of said side plates and engaged by said damper-lever, the sap-pan mounted upon said angle-irons, the series of interchangeable syrup-pans also mounted upon said angle-irons, the hollow plugs connecting said pans, the interchangeable valves engaging said plugs, the levers connecting said valves, the supports for said levers, the partitions having the apertures in said pans and so disposed relatively to each other and to said hollow plugs as to provide a continuous channel from one corner of said sap-pan forward and backward alternately to the farther corner of the last one of said series of pans, and the inlet and outlet valves for said pans, substantially as set forth.

8. In an evaporator, the combination of the furnace comprising the side plates, the angle-irons at the upper edges of said plates, the front and the rear plates secured to said side plates, the bottom plate secured to said side plates, the brick lining for said plates, the horizontal partition, the grate-bars between one end of said bottom plate and said front plate, the hopper supported below said grates, and the slide at the bottom of said hopper; the series of pans having each the ribs at the bottoms thereof resting upon said angle-irons, the hollow plugs connecting said pans, the damper at said horizontal partition and operating against the bottom of one of said pans, the damper-lever connected with said damper, and the sector attached to one of said side plates and engaging said damper-lever, substantially as set forth.

9. In an evaporator, the combination of the furnace having the side plates, the series of pans mounted upon the side plates, the open brackets secured to the side plates and projecting outwardly therefrom, and the props each comprising an arm extending through one of said brackets and an arm extending over said bracket and pivoted at the junction of said arms to a pan, substantially as set forth.

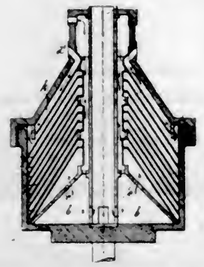
10. In an evaporator, the combination of the furnace having the angle-irons at the top thereof, the pans having the ribs at the bottoms and resting upon said angle-irons, the apertured partitions in said pans, the horizontal cooling-tubes extending along the tops of said partitions, the detachable hollow plugs connecting said pans, the open brackets secured to said furnace, and the props each comprising an arm adapted to engage one of said brackets either at the top or in the opening thereof and an arm projecting over the top of said bracket and pivoted to one of said pans, whereby said pans may be supported in inverted positions, substantially as set forth.

11. In an evaporator, the combination of the furnace comprising a pair of vertical side plates, angle-irons secured to the top edges of the side plates, a front plate secured to said side plates, doors hinged to said front plate, a rear plate secured to said side plates, a roof-plate secured to said side plates, a bottom plate secured to said side plates, a smoke-stack on said roof-plate, legs attached to said side plates, a damper situate between said side plates, grate-bars supported at the front end of said bottom plate, a hopper supported by said side and bottom and front plates below said grate-bars, linings for said bottom and side plates, and a slide mounted at the bottom of said hopper; the pans mounted upon said angle-irons, the hollow plugs forming ducts between said pans and having the valve-seat at each end thereof, the valves operating at a seat of said plugs, and the ash-pan below said slide, substantially as set forth.

12. In an evaporator, the combination of the furnace having the open top, the pans having the apertured partitions provided with the cooling-tubes extending along the tops thereof, the detachable hollow plugs each having a valve-seat at each end thereof and forming a duct between two of said pans, the drain-cocks situate in proximity to said plugs, the valves operating at the seats of said plugs, the levers connected to said valves, the brackets attached to said pans and supporting said levers, the supply-tank adjacent to one of said pans, the supply-valve connected to said tank, the adjusting-rod connecting with said valve, the float mounted on one of said pans and connected with said adjusting-rod, the outlet-valve seated in one of said pans, and the automatic weigher connected to said outlet-valve, substantially as set forth.

13. In an evaporator, the combination of the furnace, the pans mounted on the furnace and having each the aperture at each of two opposite sides thereof in alinement, the welts secured at said apertures, the hollow plugs removably inserted in said apertures and bearing against said welts, the valve-seat at each end of said plugs, the brackets attached to portions of said pans, the levers pivoted to said brackets, and the valves connected to said levers and engaging said valve-seats, substantially as set forth.

661,527. **CENTRIFUGAL CREAM-SEPARATOR.** LAMBERT HERLITSCHKA, Dusseldorf, Germany. Filed May 19, 1899. Serial No. 717,410. (No model.)

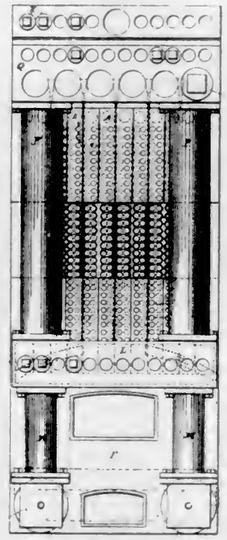


Claim.—A centrifugal machine composed of a rotatable drum, a tubular milk-shaft extending therethrough, a conical spiral liner which abuts at its outer edge against the drum, a perforated jacket that communicates with the inner edge of the liner, and a passage for withdrawing the blue milk from the outer edge of the liner, substantially as specified.

661,528. **STEAM-BOILER.** ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Dec. 12, 1898. Serial No. 698,966. (No model.)

Claim.—1. A water-tube boiler having in combination water-chambers arranged on opposite sides of the combustion-chamber, a series of pairs of connected tubes, the members of each such pair extending in diverging lines from one side of the boiler to the water-chambers on the opposite side and a second series of pairs of connected tubes the members of each such pair extending from the other side of the boiler in diverging lines to the opposite water-chambers and return connections or downtakes, substantially as set forth.

2. A water-tube boiler having in combination two series of front headers, two connected series of tubes extending in diverging lines from the rear of the boiler to the front headers, two series of rear headers and two connected series of tubes extending from the front of the boiler to the rear headers, and return connections between the upper and lower series of headers, substantially as set forth.



3. A water-tube boiler having in combination two series of front headers, two series of rear headers, a series of pairs of connected tubes the members of each pair extending from a point between the rear headers in diverging lines to the front headers, and a second series of pairs of connected tubes, the members of each such pair extending from a point between the front headers in diverging lines to the rear headers, and return connections between the upper and lower series of headers, substantially as set forth.

4. A water-tube boiler having in combination two series of front headers, two series of rear headers, a series of pairs of connected tubes the members of each pair arranged in different vertical planes and extending from a point between the rear headers in diverging lines to the front headers, and a second series of pairs of connected tubes, the members of each such pair extending respectively in planes parallel to the members of the pairs of the front series from a point between the first headers to the rear headers, and return connections between the upper and lower series of headers substantially as set forth.

5. A water-tube boiler having in combination upper and lower front headers, upper and lower rear headers, two series of connected tubes extending respectively from the front headers to the rear of the boiler, two series of connected tubes extending respectively from the rear headers forward to the front of the boiler, tubes connecting the upper headers, a steam-drum, tubes connecting the upper rear headers to the steam-drum, a water-front, return water-columns from the steam-drum to the water-front, a mud-drum and water-legs extending from said water-front to the mud-drum, substantially as set forth.

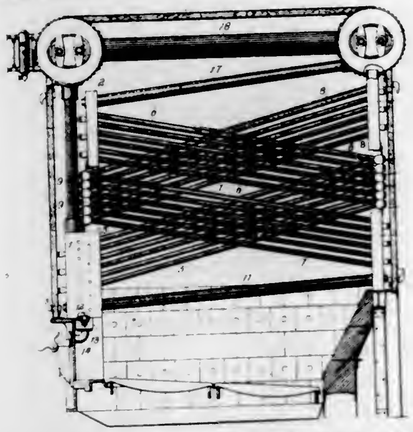
6. A water-tube boiler having in combination upper and lower headers, upper and lower rear headers, two series of connected tubes extending respectively from the front headers to the rear of the boiler, two series of connected tubes extending respectively from the rear headers to the front of the boiler, tubes connecting the upper front and rear headers, a steam-drum, tubes connecting the upper rear header to said drum, a water-front, return water-columns from the steam-drum to the water-front, a mud-drum, water-legs extending from said water-front to the mud-drum, and a supply-pipe extending through said water-leg and discharging into said drum, substantially as set forth.

7. A water-tube boiler having in combination upper and lower headers, tubes extending from the headers across the combustion-chamber, a steam-drum connected to the upper headers, downtake pipes or columns connecting the steam-drum to the lower headers, and superheating-pipes extending from the steam-drum across the combustion-chamber, substantially as set forth.

661,529. **STEAM-BOILER.** ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Feb. 16, 1900. Serial No. 5,437. (No model.)

Claim.—1. A boiler having in combination a series of upper and a series of lower front headers, a series of two or more banks or sets of con-

nected tubes extending from each series of headers in converging planes to the rear side of the boiler, a series of upper and a series of lower rear headers, a series of two banks or sets of connected tubes extending from the upper and lower headers in converging planes to the front side of the boiler, and a series of tubes intermediate of the banks of cross-tubes and the combustion-chamber connecting the lower front and rear headers, substantially as set forth.



2. A boiler having in combination a series of upper and a series of lower front headers, a series of two or more banks or sets of connected tubes extending from each series of headers in converging planes to the rear side of the boiler, a series of upper and a series of lower rear headers, a series of two banks or sets of connected tubes extending from the upper and lower headers in converging planes to the front side of the boiler, a drum connected to the series of upper rear headers, and a series of tubes extending from the upper front headers to said drum, substantially as set forth.

3. A boiler having in combination a series of upper and a series of lower front headers, a series of two or more banks or sets of connected tubes extending from each series of headers to the rear side of the boiler, a series of upper and a series of lower rear headers, a series of two or more banks or sets of connected tubes extending from the upper and lower headers in converging planes to the front side of the boiler, a drum connected to the upper rear headers, a series of tubes extending from the front upper header to said drum, a drum arranged across the front of the boiler, a series of tubes connecting the front and rear drums, and a series of downtake-pipes connecting the front drum to the lower rear headers, substantially as set forth.

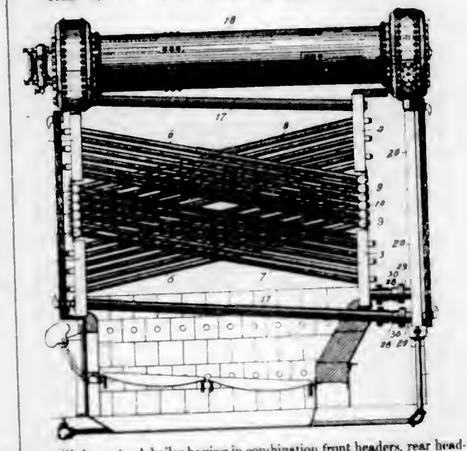
4. A boiler having in combination a series of upper front headers, a series of lower front headers, a series of upper rear headers, a series of lower rear headers, tubes extending across the combustion-chamber connecting the front and rear headers, and a drum having independent connections to the upper and lower headers, substantially as set forth.

5. A boiler having in combination, a series of upper front headers, a series of lower front headers, a series of upper rear headers, a series of lower rear headers, tubes extending across the combustion-chamber connecting the front and rear headers, drums connected to the upper headers, and connections independent of the upper headers from the drums to the lower headers, substantially as set forth.

6. A boiler having in combination a series of upper and a series of lower front headers, a series of two or more banks or sets of connected tubes extending from each series of headers in converging planes to the opposite sides of the boiler, a series of upper and a series of lower rear headers, a series of two or more banks or sets of connected tubes extending from the upper and lower headers in converging planes to the front side of the boiler, the front headers and their connecting-tubes forming one system of circulation and the rear headers and their tubes forming another system of circulation, a series of tubes intermediate of the banks of cross-tubes and the combustion-chamber and connecting the two systems of circulation, substantially as set forth.

7. A boiler having in combination a series of upper and a series of lower front headers, a series of two or more banks or sets of connected tubes extending from these series of headers in converging planes to the rear side of the boiler, a series of upper and a series of lower rear headers, a series of two or more banks or sets of connected tubes extending from the upper and lower rear headers in converging planes to the front side of the boiler, the front headers and their connecting-tubes forming one system of circulation and the rear headers and their connecting-tubes forming another system of circulation and a drum connected to the upper portions of the two systems of circulation, substantially as set forth.

661,530. STEAM-BOILER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Feb. 16, 1900. Serial No. 5,438. (No model.)

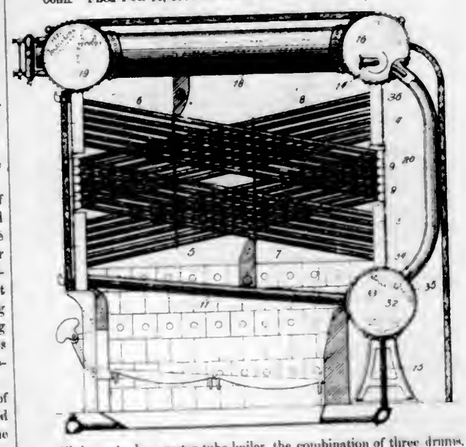


Claim.—1. A boiler having in combination front headers, rear headers, tubes extending from the headers across the combustion-chamber, a front drum connected to said headers, a rear drum connected to the front drum and a series of downtake-pipes having independent connections to the rear drum and having independent connections to the front and rear headers, substantially as set forth.

2. A boiler having in combination upper and lower front and rear headers, tubes extending from the headers across the combustion-chamber, a front drum connected to the upper front and rear headers, a rear drum connected to the front drum and a series of downtake-pipes connected to the rear drum and the lower headers, substantially as set forth.

3. A boiler having in combination front headers, rear headers, tubes extending from the headers across the combustion-chamber, a drum connected to the front and rear headers, a rear drum connected to the front drum and a series of downtake-pipes arranged such a distance in the rear of the rear headers as to afford access to said headers and the cross-tubes, and connected to the rear drum and the front and rear headers, substantially as set forth.

661,531. STEAM-BOILER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Feb. 16, 1900. Serial No. 5,439. (No model.)



Claim.—1. In a water-tube boiler, the combination of three drums, two of said drums being arranged in or approximately in the same horizontal plane above the other drum, two series of tubes extending from the lower drum and connected respectively to the upper drums, tubes connecting the upper drums and downtake-pipes connecting one of the upper drums to the lower drum, substantially as set forth.

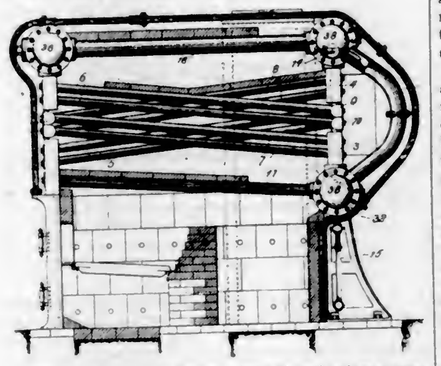
2. In a water-tube boiler, the combination of three drums, two of said drums being arranged in or approximately in the same horizontal plane above the other drum, two series of tubes extending from the lower and connected respectively to the upper drums, tubes connecting the upper drums, and curved downtake-pipes connecting one of the upper drums with the lower drum whereby a space is formed between the series of tubes and the downtakes, substantially as set forth.

3. A boiler having in combination a series of upper front headers, a series of lower front headers, a series of upper rear headers, a series of lower rear headers, cross-tubes connecting said headers, two connected drums connected respectively to the upper headers, a drum connected to the lower headers, and curved downtake-pipes connecting the rear headers, substantially as set forth.

4. A boiler having in combination a series of upper front headers, a series of lower front headers, a series of upper rear headers, a series of lower rear headers, cross-tubes connecting said headers, two connected drums connected respectively to the upper headers, a drum connected to the lower headers, downtake-pipes connecting the rear drums, a feed-pipe extending into the upper rear drum, and having discharge-openings in line with the downtake-pipes, substantially as set forth.

5. A boiler having in combination a series of upper front headers, a series of lower front headers, a series of upper rear headers, a series of lower rear headers, cross-tubes connecting said headers, two connected drums connected respectively to the upper headers, a drum connected to the lower rear headers, a series of tubes connecting said drum with the lower front headers, downtakes connecting the rear drums, and a baffle-plate arranged in the lower drum and extending from the downtakes across the drum to a point between the junctions of the tubes and headers with the drum, substantially as set forth.

661,532. STEAM-BOILER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Feb. 16, 1900. Serial No. 5,440. (No model.)



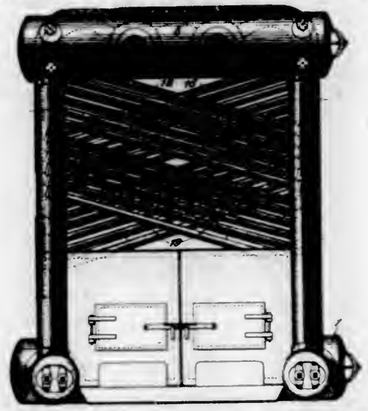
Claim.—1. A water-tube boiler consisting of a series of two or more detachable units, each unit consisting of water-chambers arranged on opposite sides of the combustion-chamber, a series of pairs of connected tubes, the members of each pair extending in diverging lines from one side of the boiler to the water-chambers on the opposite side, and a second series of pairs of connected tubes, the members of each pair extending from the other side of the boiler in diverging lines to the opposite water-chambers and return connections or downtakes, substantially as set forth.

2. A water-tube boiler, having in combination, three drums, each consisting of two or more connected sections, two of said drums being arranged in or approximately in the same horizontal plane above the other drum, two series of tubes extending from each section of the lower drum connected respectively to the corresponding sections of the upper drums, tubes connecting the sections of the upper drums and downtake-pipes connecting each section of one of the upper drums to a corresponding section of the lower drum, substantially as set forth.

3. A water-tube boiler, having in combination a drum, a header connected to the drum, a series of tubes connected to the header, the points of connection of the header to the tubes and drum being in different vertical planes, substantially as set forth.

661,533. STEAM-BOILER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed July 30, 1900. Serial No. 25,267. (No model.)

Claim.—1. In a boiler, the combination of two parallel or approximately parallel lower drums, tubular columns connected to said drums, two series of headers connected respectively to said drums, and forming the sides of the fire-box, two series of upper headers the headers of each upper series being connected by diverging banks of tubes to the headers of the corresponding lower series, and connected upper drums connected to the tubular columns and to the upper headers, substantially as set forth.



2. In a boiler, the combination of two parallel or approximately parallel lower drums, tubular columns connected to said drums, two series of headers connected respectively to said drums and forming the side of the fire-box, two series of upper headers, the headers of each upper series being connected by diverging banks of tubes to the headers of the corresponding lower series, two upper drums arranged at or approximately at right angles to the lower drums and connected to the tubular columns, the connection between the upper drums being connected to the upper series of headers, substantially as set forth.

3. In a boiler, the combination of two parallel or approximately parallel lower drums, two parallel or approximately parallel upper drums arranged at or approximately at right angles to the lower drums, tubular columns connecting the upper and lower drums, one or more drums connecting the upper drums, two series of lower headers connected respectively to the lower drums and forming the sides of the fire-box, two series of upper headers connected to the drum or drums forming the connection between the upper front and rear drums, and two diverging banks or series of tubes connecting each series of lower headers with the corresponding series of upper headers, substantially as set forth.

4. In a boiler, the combination of two lower drums, two upper connected drums, tubular columns connecting the upper and lower drums, two series of lower headers connected to the lower drums, two series of upper headers having inwardly-bent necks connected to the connection between the upper drums, and two diverging banks of tubes connecting each of the upper series of headers with the corresponding lower series of headers, substantially as set forth.

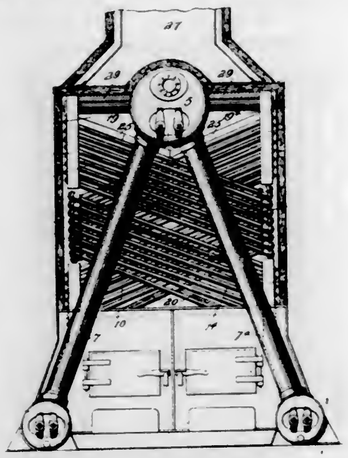
5. In a boiler, the combination of two parallel or approximately parallel lower drums, a transverse drum connecting the latter at points adjacent to their rear ends, tubular columns connected to said drums, two series of headers connected respectively to the lower side drums and forming the sides of the fire-box, two series of upper headers the headers of each upper series being connected by diverging banks of tubes to the headers of the corresponding lower series, connected upper drums connected to the tubular columns and to the upper headers, and a series of tubes connected to the lower transverse drum and to the upper drums and forming the rear wall of the combustion-chamber, substantially as set forth.

661,534. STEAM-BOILER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed July 30, 1900. Serial No. 25,268. (No model.)

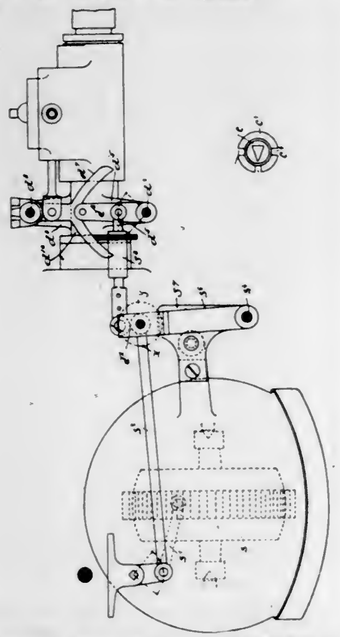
Claim.—1. In a steam-boiler, the combination of two lower drums, an intermediate upper drum, two pairs of tubular columns connecting the lower drums to the upper drum, two series of headers connected to the lower drums and arranged in such proximity to each other as to form practically continuous side walls for the fire-box, two series of headers connected to the upper drum, and two diverging banks of tubes connecting each series of upper headers with the corresponding series of lower headers, substantially as set forth.

2. In a steam-boiler, the combination of two lower drums, an intermediate upper drum, two pairs of tubular columns connecting the lower drums to the upper drum, two series of lower headers having their lower

portions outwardly inclined and connected to the lower drums, two upper headers connected to opposite sides of the upper drum, and two diverging banks of tubes connecting each series of upper headers to the upper portions of the corresponding series of lower headers, substantially as set forth.



661,535. TORPEDO. EMIL KASELOWSKY, Berlin, Germany. Filed Aug. 14, 1899. Serial No. 727,180. (No model.)

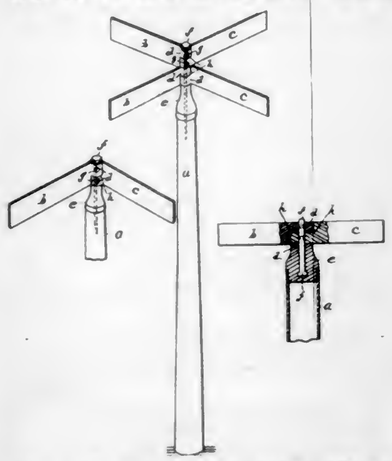


Claim.—1. In torpedoes, the combination of the Servo motor in operative connection with steering devices, and with the fly-wheel by gearing mechanism variable in length, with means adapted to be controlled from the outside for altering the length of the gearing mechanisms between the Servo motor and fly-wheel, these means extending to the outside casing of the torpedo, for the purpose and substantially as set forth.

2. In torpedoes, the combination of a Servo motor with a gyroscope, rods fixed to the suspending-ring of the rotating body, connecting the fly-wheel of the gyroscope to the steering-gear of the Servo motor, a square head turned from the outside for shortening or lengthening the connecting-rods, thereby altering the position of the steering-gear in relation to the gyroscope, means to turn the said head from the outside, either in one direction or in the other direction, for the purpose as set forth.

3. In torpedoes, the combination with the rod *b*, guided within a stuffing-box *a* fixed in the casing of the torpedo, said rod being adapted to be turned from the outside, a helical spring *f* surrounding said rod and pressing the same outward, a lever *d* fixed to the lower extremity of the rod *b*, a steering-box *n*, a lever *m* provided with a pin *g*, rigidly connected to the steering-box, the pin engaging with the lever *d* of the rod *b*, a rod *g* arranged within a box *i* and pressed outward by means of a spring *k*, pins *h h' h²* fixed to the rod *g* and fixing the position of the lever *m*, and of the steering-box, a valve-cock *o* connected to the suspending-ring of the gyroscope-wheel by means of the lever *p* and the rod *t*, for the purpose and substantially as set forth.

661,536. SIGN FOR STREETS OR HIGHWAYS. HENRY N. KING, Adrian, Mich. Filed Feb. 24, 1900. Serial No. 6,357. (No model.)



Claim.—1. The combination with a post, of two vertically-arranged sign-board arms each consisting of a rectangular body provided with an integral attaching-hub projecting from said body at one end thereof, and a device passing through the bore of said hub to engage the hub of the arm upon the post, the opposite end of the arm being disengaged, said hubs recessed on adjacent edges thereof to permit the said arms being vertically arranged upon the post, with the upper and lower edges of said arms in the same horizontal planes respectively.

2. The combination with a post, provided with a metal cap, of a vertically-arranged sign-board arm provided with an integral attaching-hub at one extremity thereof, and a vertical attaching rod or bolt passing through the bore of the hub to engage said hub upon said cap, the bore of the hub being vertically parallel with the face of the sign-board arm, the upper and lower edges of said arm being in the same horizontal planes, respectively.

3. The combination with a post provided with a vertical attaching rod or bolt at the top thereof, of a sign-board arm provided with an integral hub swiveled upon said rod or bolt, and a fastening device passed through said hub to bind the hub of said arm upon the rod or bolt in any desired position.

4. The combination with a post, of a sign-board arm provided with an attaching-hub at one end thereof, a rod or bolt to secure the hub of said arm to the post and upon which said hub is swiveled, and a set-screw passed through said hub to engage said hub upon the bolt to hold said arm in rigid engagement in required position upon said attaching rod or bolt.

5. The combination with a post, of a lower set of vertically-arranged sign-board arms each provided with an integral attaching-hub, and an upper set of vertically-arranged sign-board arms each provided with an integral attaching-hub located above the lower set, and an attaching device passed through the bores of the hubs of both of said sets of arms to engage said arms upon the post, the upper and lower edges of each set of said arms being in the same horizontal planes respectively.

6. The combination with a post provided with a cap at its upper end, of vertically-arranged sign-board arms each provided with an attaching-hub at adjacent extremities thereof, and an attaching device passed through the bore of said hubs to engage said hubs upon the post, said hubs being recessed on adjacent edges thereof to permit two arms being

vertically arranged upon the post with their hubs one above the other, and with the upper and lower edges of the bodies of said arms in the same horizontal planes respectively, the ends of said arms opposite said hubs being disengaged.

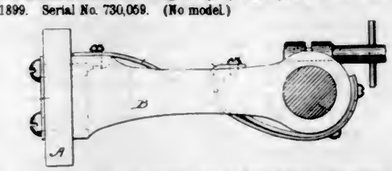
661,537. TAILOR'S TAPE-MEASURE. HARRY D. KIRK and WALTER I. KIRK, Chicago, Ill.; said Walter I. Kirk assignor to said Harry D Kirk. Filed Dec. 11, 1899. Serial No. 739,922. (No model.)



Claim.—1. In a tape-measure for tailor's use the combination of a flexible tape, a tongue consisting of comparatively inflexible material, said tongue being approximately triangular in outline and having one of its edges adapted to serve as a measuring edge; and a rivet for revolubly attaching said tongue to said tape, the distance between said rivet and said measuring edge of the tongue being equal to the distance between said rivet and the extremity of the tape, said rivet being located at the extremity of said tongue opposite to the measuring edge thereof, by which construction said tongue is adapted to be rotated away from proximity to the extremity of said tape and thereby become virtually removed without being detached from said tape.

2. In a tape-measure, the combination with the flexible tape, of a comparatively inflexible tongue approximately triangular in outline and having one of its edges adapted to serve as a measuring edge from which measurements may be taken; a rivet whereby said tongue is revolubly attached to said tape, said rivet being located at the extremity of said tongue opposite to said measuring edge, the distance between said rivet and said measuring edge being equal to the distance between said rivet and the extremity of said tape, by which construction when said tongue is revolved backward along said tape, said measuring edge lies at a distance from said extremity of the tape approximately equal to twice the length of said tongue; two washers upon the rivet-shank inclosing a portion of said tape, and a shoulder or offset upon the rivet-shank for maintaining a suitable distance between the rivet-head and the washer nearest thereto.

661,538. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. CHRISTIAN W. KRAGH, Madison, Wis., assignor to the Northern Electrical Manufacturing Company, same place. Filed Sept. 11, 1899. Serial No. 730,059. (No model.)



Claim.—1. In a brush-holder for dynamo-electric machines, the combination of a holding-piece to which the brush is attached, a support upon which said holding-piece is movably mounted, a flat spring attached to said support and connected with said holding-piece by a sliding contact and so as to elastically press the brush against the commutator, and a conductor fixedly attached to the support and to the holding-piece so as to give a fixed connection around the connection between the support and holding-piece.

2. A brush-holder for dynamo-electric machines, comprising a holding-piece to which the brush is connected, said holding-piece provided with two branches and movably mounted upon a support, an engaging part between said branches, said engaging part securely attached to said support, a spring connected with said engaging part and passing up between the branches of the holding-piece, said spring engaging the holding-piece on its upper face, so as to elastically press the brush against the commutator.

3. A brush-holder for dynamo-electric machines, comprising a holding-piece to which the brush is connected, said holding-piece provided with two branches and movably mounted upon a support, an engaging part between said branches, said engaging part securely attached to said support, a spring connected with said engaging part and passing up between the branches of the holding-piece, said spring engaging the holding-piece on its upper face, so as to elastically press the brush against the commutator, and a conductor fixedly attached at one end to the holding-piece and at the other end to the engaging part.

661,539. TEMPLET. CHARLES H. KRAUSS, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 28, 1899. Serial No. 741,810. (No model.)



Claim.—1. In a templet, intercrossing members, consisting each of an elongated flat strip having a gage-line edge, a pivot connecting said members, at the intersection of two of their edges, and means whereby said pin may be shifted from one edge of one member to its opposite edge.

2. In a templet, intercrossing members, consisting each of an elongated flat strip having gage-line edges, a pivot connecting said members at the intersection of two of their edges, and means for shifting said pivot so that it may be situated at the intersection of any two gage-line edges.

3. A templet member consisting of a narrow elongated metallic strip having true elongated edges, and provided at its central portion with lateral perforated opposite offsets, the perforations of which are intersected by the lines of said edges, substantially as described.

4. A templet, consisting of a pair of intercrossing members having gage-line edges, and a pivot connecting said members at the point where the lines of two of said edges intersect, one of said members having a pivot-seat at each edge, substantially as described.

5. In a templet, a pair of intercrossing members, each of which consists of a flat elongated strip having true longitudinal edges and has at its central portion offset pivot-seats which are intersected by the lines of its edges, and a pivot adapted to engage any two of said seats, said pivot having a removable head or nut, substantially as described.

6. A templet having two intercrossing members, and a connecting-pivot whose axis is at the point of intersection of the lines of two edges of said members, said members being reversible, whereby the lines of either edge of either member may be made to intersect the line of either edge of the other member at the axis of said pivot, substantially as described.

7. A templet consisting of a pair of members having gage-line edges, a connecting-pivot upon which said members are reversible edge for edge, and adjustable braces connecting the arms of said members, substantially as described.

661,540. RAILWAY-SWITCH. CARL F. KREBS, Jr., Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Mar. 19, 1900. Serial No. 9,224. (No model.)



Claim.—1. A switch tongue or point provided with an enlargement at its heel end formed with flangeways and tread-surfaces at both the tread and guard sides thereof.

2. A switch tongue or point formed with a circular enlargement at its heel end for supporting the pivot pin or pintle and for carrying the car-wheels by the said pin or pintle onto the abutting or adjacent tracks.

3. A switch tongue or point formed with a circular enlargement at its heel, said enlargement having flangeways and tread-surfaces for carrying the car-wheels onto both of the connecting tracks.

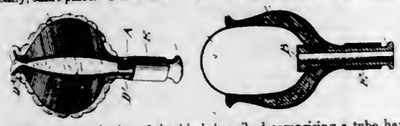
4. A switch tongue or point formed with a circular enlargement at its heel portion extending laterally beyond the gage-lines of both the connecting tracks.

5. The combination with a foundation structure having a circular pocket therein, of a switch tongue or point having its heel portion circularly enlarged and pivotally seated in said pocket, such enlarged portion having flangeways and tread-surfaces formed therein at both the tread and guard sides thereof.

6. The combination with a foundation structure having a circular pocket therein, of a switch tongue or point circularly enlarged at its heel end and pivotally seated in said pocket, and having its surface extended laterally of the gage-lines of the connecting tracks, the extension at the guard side of the tongue being flush with and forming a part of the tread-surface of the foundation structure.

7. The combination with a foundation structure having a circular pocket formed therein, and a hardened plate set into and forming the bottom of said pocket, of a switch tongue or point having a circularly-enlarged heel portion pivotally seated in said pocket.

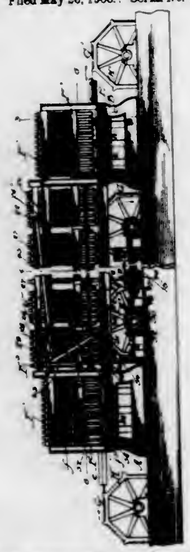
661,541. **COMBINED TOY AND ADVERTISING DEVICE.** EDWARD S. LATHROP, Atlanta, Ga., assignor to the Parisian Novelty Company, same place. Filed June 12, 1900. Serial No. 20,037. (No model.)



Claim.—1. A device of the kind described comprising a tube having an inflatable bulb and a sound-producer attached thereto, the leaves connected also to the tube and the pod or other article arranged within the leaves and surrounding the bulb, substantially as shown and described.

2. A device of the kind described comprising a tube having a sound-producer, and an inflatable bulb arranged at one end, the leaves attached to the tube by means of an elastic sleeve and the pod or boll arranged within the leaves and surrounding the inflatable bulb, substantially as described.

661,542. **LUMBER-JOINING MACHINE.** ALBERT T. LINDERMAN, Whitehall, Mich. Filed May 26, 1900. Serial No. 18,052. (No model.)



Claim.—1. The combination of cutters for forming the tongue upon the edge of one piece of lumber, carrier mechanism for carrying said piece past said cutters, cutters for forming the groove upon the edge of the other piece of stuff, and carrier mechanism for carrying said grooved piece, said cutters being relatively arranged and said carrier mechanisms moving in opposite directions and being extended so as to carry the pieces of stuff toward each other and cause them to unite, substantially as set forth.

2. The combined tonguing, grooving and weaving machine, consisting of cutters for forming the tongues, other cutters for forming the grooves, and carriers for each set of said cutters, said carriers moving in opposite directions and carrying the pieces of stuff toward and into engagement with each other, substantially as specified.

3. The combined tonguing, grooving and weaving machine, consisting of cutters for forming the tongues and grooves upon the edges of the lumber, and two oppositely-moving carriers relatively arranged and adapted to carry the pieces of lumber past the cutters and into engagement with each other, substantially as specified.

4. The combined tonguing, grooving and weaving machine, consisting of cutters for forming the tongues and grooves upon the adjoining edges of the lumber, two oppositely-moving carriers relatively arranged and adapted to carry the pieces of lumber past the cutters and into engagement with each other, and pressure devices for holding the lumber down upon the carriers, substantially as specified.

5. The machine for dovetailing and uniting lumber, consisting of cutters for forming the tongues, other cutters for forming the grooves, two oppositely-moving carriers for moving the lumber past the cutters and into engagement, pressure devices holding the lumber down upon the carriers while it is being cut, releasable pressure devices holding the lumber while it is being united, and means for releasing said last-mentioned pressure devices, substantially as specified.

6. The combined tonguing, grooving and weaving machine, consisting of cutters for forming the tongues and grooves, and means for feeding and uniting the lumber, said means being provided with pushing devices which are withdrawn from their acting positions at the conclusion of the uniting operation, substantially as specified.

7. The combination with oppositely-moving carriers arranged and adapted to unite dovetailed lumber, of mechanism moving transversely of the carrier and acting to eject the united lumber from the machine, substantially as specified.

8. The combination with oppositely-moving carriers arranged and adapted to unite dovetailed lumber, of releasable pressure devices for each of said carriers acting to hold the lumber down thereon, means for releasing said pressure devices, and means for discharging the united lumber, substantially as specified.

9. The combination with oppositely-moving carriers arranged and adapted to unite dovetailed lumber, and each provided with retractable pushing devices, of means for simultaneously retracting the pushing devices of both carriers, substantially as specified.

10. The combination of the oppositely-moving carriers adapted to unite dovetailed lumber, the retractable pushing devices mounted upon said carriers and means such as cam 3, for retracting said pushing devices, with pressure devices for holding the lumber down while it is being joined, and means for raising said pressure devices at the completion of the joining, substantially as set forth.

11. The combination with the oppositely-moving carriers adapted to unite dovetailed lumber, and each provided with retractable pushing devices, of means for simultaneously retracting the pushing devices of both carriers, and means for ejecting the united lumber, substantially as specified.

12. In a lumber-joining machine, mechanism for uniting the lumber together, consisting of two oppositely-moving carriers, pressure devices for holding the lumber down upon said carriers while it is being united, means for lifting said pressure devices, and automatic mechanism for discharging the united lumber, substantially as set forth.

13. The combination with the tongue and groove cutters, of feeding devices moving in opposite directions and relatively arranged and adapted to carry the lumber into engagement, substantially as set forth.

14. The combination with the endless and oppositely-moving carriers and their retractable pushing devices, of cams 3 for withdrawing said pushing devices, substantially as specified.

15. The combination with the endless and oppositely-moving carriers and their retractable pushing devices, of adjustable cam 3, for withdrawing said pushing devices from the lumber, substantially as set forth.

16. The combination with the oppositely-moving carriers of pressure devices, a movable frame F^2 supporting said pressure devices, mechanism for lifting said frame and cams for locking the frame momentarily in the raised position, substantially as specified.

17. The combination with the oppositely-moving carriers relatively arranged so as to adapt them to unite dovetailed lumber, of cross discharging-belts extending across both carriers so as to adapt them to eject the united lumber from the machine, and means for actuating said belts at proper intervals, substantially as specified.

18. The combination with cutters for forming the tongues upon the lumber, other cutters for forming the grooves therein, and oppositely-moving carriers relatively arranged so as to adapt them to carry the pieces of lumber past the cutters and into engagement with each other, of flue-applying mechanism located at the side of one of the carriers and between the cutters acting upon the stuff moved by that carrier and the point where the pieces are united, substantially as specified.

19. The combined tonguing, grooving and weaving machine, consisting of cutting mechanism for forming the tongues located at one end of the machine, cutting mechanism for forming the grooves located at the other end of the machine and oppositely-moving carriers for feeding the stuff past said cutting mechanisms, said carriers being extended so as to lap by each other intermediate of said cutting mechanism and otherwise arranged to carry the stuff into engagement, and means for holding the lumber upon said carriers while it is being operated upon, substantially as specified.

20. The combination with cutters for cutting the tongues, cutters for cutting the grooves, and oppositely-moving carriers relatively arranged and adapted to unite dovetailed lumber as described, of a series of pressure devices a portion whereof act upon the lumber during the cutting and another portion whereof act thereon during the uniting, substantially as specified.

21. The combination of two opposite feeders placed adjacent and parallel to each other and with one end of each extended past one end of the other, and pressure devices located as described so as to adapt them to hold the lumber in position while being joined by said feeders, substantially as set forth.

22. The combination with two oppositely-moving, parallel, adjacent and lapping feeders, adapted and arranged relatively to each other to carry the pieces of lumber to be joined into engagement with each other, of cutters for cutting the tongue on the edge of one piece, and other cutters for cutting the groove on the edge of the other piece, substantially as specified.

23. The lumber-joining machine having cutters for cutting interfitting dovetails on the surfaces of two different pieces of lumber, and means for bringing the pieces together and forcing the cut surfaces into engagement, substantially as specified.

24. The lumber-joining machine having two sets of cutters for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for bringing said pieces together endwise with the dovetails in alinement, preparatory to forcing them into engagement, substantially as specified.

25. The lumber-joining machine having two sets of cutters for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for bringing said pieces together endwise with the dovetails in alinement, and means for forcing the dovetails into engagement, substantially as specified.

26. The lumber-joining machine having two sets of cutters for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for bringing said pieces together endwise with the dovetails in alinement and acting also to force the dovetails into engagement, substantially as specified.

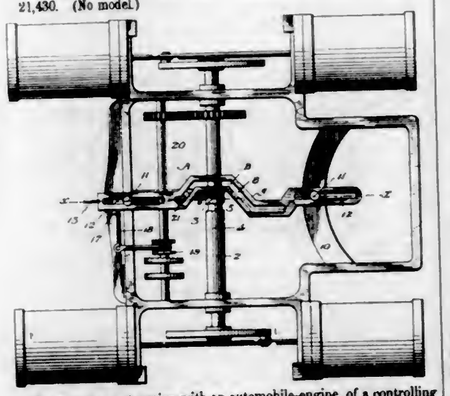
27. The lumber-joining machine having two sets of cutters for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for feeding said pieces past the cutters and into engagement with each other, substantially as specified.

28. The combination in a lumber-joining machine with means for uniting two pieces of lumber having interfitting dovetails formed on their proximate surfaces, of means for imparting a transverse movement to the united pieces, substantially as specified.

29. The combination in a lumber-joining machine with means for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for uniting the pieces by means of said dovetails, of means for moving the united pieces transversely, substantially as specified.

30. The combination in a lumber-joining machine with means for forming interfitting dovetails on the surfaces of two pieces of lumber, and means for forcing the dovetails into engagement by a movement longitudinal of the dovetails, of means for moving the united pieces at right angles to the dovetails, substantially as specified.

661,543. **CONTROLLING MECHANISM FOR AUTOMOBILES.** JOHN G. MACPHERSON, Philadelphia, Pa., assignor to the MacPherson Automobile Company, same place. Filed June 25, 1900. Serial No. 21,430. (No model.)



Claim.—In combination with an automobile-engine, of a controlling mechanism therefor, comprising a hand-lever, an engine-frame, a slidingly-mounted plate or arm provided with two end slots and a central zigzag slot mounted upon said frame, a shaft operated by the engines mounted in the frame, a clutch carried by the shaft, means for operating said clutch as it is operated by the zigzag slot of the plate, a lug carried by said plate near its forward end, an L-lever operated by said lug when the hand-lever is pushed forward, a small shaft to the rear of the engine's shaft, and a clutch carried by said small shaft and operated by the L-lever to reverse the movement of the automobile without affecting the engine.

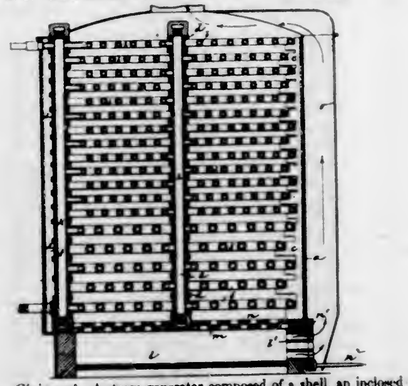
661,544. **WINDOW-SCREEN.** JOHN A. MACKERON, Washington, D. C., assignor to William H. Moses, Hatty C. Moses, and Arthur C. Moses, same place. Filed Apr. 21, 1899. Serial No. 713,982. (No model.)



Claim.—1. The combination of a molding adapted to be located at one side of a window-opening, a molding having a deep, broad groove, a wall and a tongue of less depth than the wall, and adapted to be located at the other side of the window-opening, and a window-screen comprising a frame adapted at one end to engage one of the molding-strips, and at the other end having a broad tongue of less width than the deep broad groove, a groove of greater width than the narrow tongue of the adjacent molding, and a seating-spring; substantially as described.

2. The combination of a molding having a groove and walls and adapted to be located at one side of a window-opening, a molding having a deep, broad groove, a wall and a tongue of less depth than the wall, and adapted to be located at the other side of the window-opening, and a window-screen comprising a frame having at one end a tongue, and, at the other end a broad tongue of less width than the deep broad groove, a groove of greater width than the narrow tongue of the adjacent molding, and a seating-spring; substantially as described.

661,545. **STEAM-GENERATOR.** THEODORE MILLER, New York, N. Y. Filed Jan. 25, 1900. Serial No. 2,714. (No model.)



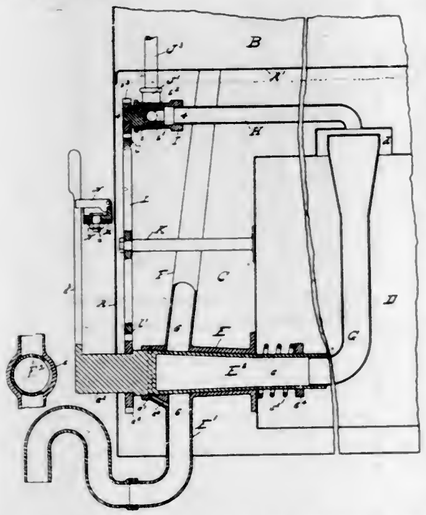
Claim.—1. A steam-generator composed of a shell, an inclosed series of coiled tubes, tubular fittings that connect the tubes alternately at inner and outer ends, and partitions that project across the fittings and subdivide them into horizontal compartments, substantially as specified.

2. A steam-generator composed of a shell, an inclosed series of coiled tubes, tubular fittings that connect the tubes alternately at inner and outer

ends, partitions that project across the fittings and subdivide them into horizontal compartments, and bolts extending longitudinally through the fittings, substantially as specified.

3. A steam-generator composed of a shell, an inclosed series of coiled tubes, fittings connecting the tubes alternately at inner and outer ends, a feed-water pump communicating with the uppermost tube, a steam-pipe having a blow-off cock and communicating with the lowermost tube, a fire-chamber, a flue communicating therewith, a register adapted to conduct the heat either into the shell or into the flue, and means for simultaneously operating said register and the blow-off cock, substantially as specified.

661,546. LIQUID-DISPENSING VESSEL. WILLIAM I. MYERS and WILLIAM BASHLINK, Meadville, Pa. Filed Mar. 20, 1899. Serial No. 709,822. (No model.)



Claim.—1. In a dispensing apparatus, the combination of a plug-valve for controlling the discharge of liquid therefrom; a siphon-spout, G, carried by said plug, said spout having the turned end, *g*, into which the opposite side of the spout extends; and the lip *g'*, extending from the inside of the spout toward the lip, as described.

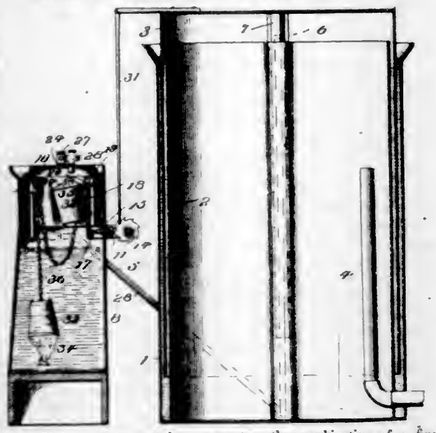
2. In a dispensing apparatus, the combination with the measuring-tank, D; a plug-valve arranged on said tank; a spout G, carried by the plug, and arranged to vary the amount of liquid discharged by a variation of the inclination of said spout; a handle on said plug; and a series of stops adjustable in the direction of movement of said handle and arranged in the path of said handle.

3. In a dispensing apparatus the combination with the measuring-tank, D; a plug-valve arranged on said tank; a spout, G, carried by the plug and arranged to vary the amount of liquid discharged by a variation of the inclination of said spout; a handle on said plug; a plate; brackets movably secured to said plate; pivoted stops arranged in said bracket; said stops being arranged to be thrown into and out of the path of the said arm.

4. In a dispensing apparatus, the combination with the measuring-tank, D; a plug-valve arranged on said tank; a spout, G, carried by the plug and arranged to vary the amount of liquid discharged by a variation of the inclination of said spout; a handle on said plug; a curved plate, M, having the slots, *m'*, therein; the brackets, N', secured to the plate, M, by bolts, *n*; and the pivoted stops, N, arranged to be moved into and out of the path of said arm.

5. In a liquid-dispensing apparatus, the combination with the casing, A, having a partition, A', therein forming the reservoir-chamber, B, and the chamber, C; the measuring-tank, D, in said chamber, C; a plug-valve device secured to the chamber, D; a pipe, F, connecting the valve device with the chamber, B, said pipe, F, being in the chamber, C; a spout, G, carried by the plug of the valve device and arranged to vary the discharge of liquid from the tank, D, by a variation of the inclination thereof; the handle, e^2, secured to the shank of the plug without the casing, A; the plate, M, having the slots, *m'*, therein; studs, *m*, for securing said plate to the casing, A; stops secured to said plate, and arranged in the path of the arm, e^2.

661,547. ACETYLENE-GAS GENERATOR. THOMAS D. MCCLARY, Washington, D. C., assignor to the Acetylene Lighting Company, of Virginia. Filed Feb. 15, 1900. Serial No. 5,266. (No model.)



Claim.—1. In acetylene-generators the combination of a fixed hanger for a carbid-container, a vertically-movable detaching-bolt for releasing the container from the hanger, and means actuated by the falling bell for controlling the movement of the bolt.

2. An acetylene-generator embracing a tank, a fixed hook or hanger within the tank, a vertically-movable detaching-bolt alongside the hanger, and means actuated by the falling bell for operating the bolt.

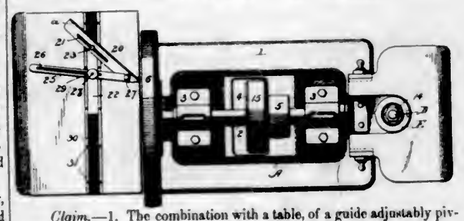
3. In acetylene-generators the combination of a tank, a plurality of hangers arranged within the tank, a detaching-bolt alongside each of the hangers, a plurality of rock-shafts, each having an arm in the range of one of the bolts within the tank, and each having an arm outside the tank in the range of a tripping mechanism actuated by the falling bell of the holder.

4. In an acetylene-generator having a removable cover for closing it, a gas-conduit leading from the same, and means for dropping carbid-containers, the combination of a conduit leading to a holder, a cock in the conduit, a rotary tripping-shaft, a cover-holding bolt and a pawl or stop connected with the cock to prevent rotation of the shaft when the cock is closed and for projecting into the path of the cover-holding bolt when the cock is open.

5. In acetylene-generators having a water-sealed cover, the combination of a vent-cock and a cover-holding bolt having a loop or strap adapted to lie over the handle of the cock and prevent it from being operated while the cover is closed.

6. In acetylene-generators the combination of a tank having vertical hangers or hooks rigidly fixed to a stationary part of the generator, and a carbid-container having a lateral arm or a bracket for connection with a hanger, and means for automatically detaching the container from the hook.

661,548. WOODWORKING-MACHINE. BENTON ORRISON, Chicago, Ill. Filed Mar. 31, 1899. Serial No. 711,235. (No model.)



Claim.—1. The combination with a table, of a guide adjustably pivoted thereto and an adjusting-plate pivotally connected with the guide, and means for setting the said plate whereby the angle of the guide may be changed.

2. The combination with a table and a slide, of a guide pivoted to the slide, and an adjusting-plate pivoted to the guide and adjustably connected with the table.

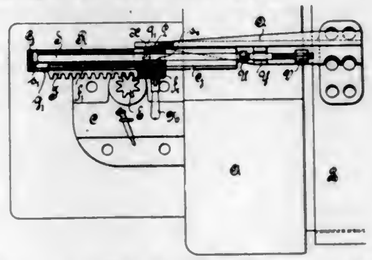
3. The combination with a table and a guideway, of a slide, and slotted guide pivoted to the slide, and a slotted adjusting-plate pivoted to the guide and adjustably connected with the slide.

661,549. PROCESS OF MANUFACTURING STEEL. FRANK E. PARKS, Homestead, Pa., assignor to the Carnegie Steel Company, Limited, Pittsburg, Pa. Filed Mar. 9, 1896. Serial No. 582,406. (No specimens.)

Claim.—1. The process of making from steel, castings and ingots free from blow-holes, the same consisting in adding to the molten steel a carbid of an alkaline earth, when making castings and ingots from the steel, substantially as and for the purpose set forth.

2. The process of making from steel, castings and ingots free from blow-holes, the same consisting in adding to the molten steel, calcium carbid when making castings and ingots from the steel, substantially as and for the purpose set forth.

661,550. BREECH-CLOSING MECHANISM FOR RECOIL-GUNS. CARL POHLIT, Essen, Germany, assignor to Fried. Krupp, same place. Filed Aug. 18, 1900. Serial No. 27,278. (No model.)



Claim.—1. In a breech-loading mechanism having a breech-block moved in and out by a screw-spindle, the combination of a rack participating at a reduced rate of speed in the running-out movement of the gun-barrel, and a gear-wheel secured to the screw-spindle and adapted to roll on the rack during the running-out movement of the barrel for automatically turning the screw-spindle to open the breech, substantially as described.

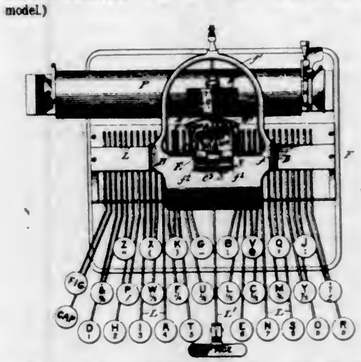
2. In a breech-loading mechanism having a breech-block moved in and out by a screw-spindle, the combination of a rack participating in the running-out movement of the gun-barrel and in the inward and outward movement of the breech-block, means for reducing the longitudinal movement of the rack relative to the running-out movement of the gun, and a gear-wheel secured to the screw-spindle and moving inwardly and outwardly with the same and engaging with the rack during the running-out movement of the gun for automatically turning the spindle to open the breech, substantially as described.

3. In a breech-loading mechanism having a breech-block moved in and out by a screw-spindle, the combination of a housing attached to the breech-block, a rack guided to move in said housing, a spring-pressed bolt mounted in the rack and movable at an angle to the same, an impact-plate attached to a stationary part of the gun and having a laterally-extending edge adapted to engage with the bolt during a portion of the running-out movement of the gun-barrel, while its body engages with and holds down the bolt during the recoil of the gun-barrel, and a gear-wheel attached to the screw-spindle and engaging with said rack, substantially as described.

4. In a breech-loading mechanism having a breech-block moved in and out by a screw-spindle, the combination of a housing attached to the breech-block, a rack guided to move in said housing, a spring-pressed bolt mounted in the rack and movable at an angle to the same, an impact-plate attached to a stationary part of the gun and having a lateral impact edge extending obliquely to the axis of the gun-barrel and adapted to engage with the bolt during a portion of the running-out movement of the gun-barrel for reducing the speed of the rack, while its body engages with and holds down the bolt during the recoil movement of the gun-barrel, and a gear-wheel attached to the screw-spindle and engaging with said rack, substantially as described.

5. In a breech-loading mechanism having a breech-block moved in and out by a screw-spindle, the combination of a housing attached to the breech-block, a rack guided to move in said housing, a spring-pressed bolt mounted in the rack to move at right angles to the same, an impact-plate attached to the cradle of the gun and having an impact edge extending obliquely to the axis of the gun-barrel and adapted to engage with the bolt during the running-out movement of the gun-barrel, while its body engages with and holds down the bolt during the recoil movement of the gun-barrel, means for withdrawing the bolt, a rod mounted in the housing, a spring surrounding said rod and confined between the rack and a head on said rod, an open stop on the impact-plate, stops on the rod located on opposite sides of the former stop, means for connecting the rod and bolt and for disconnecting the same, and a gear-wheel on the screw-spindle; whereby the rod is held from moving by one of the stops and the spring thereby compressed during the recoil movement of the gun and the rod is coupled to the rack at the end of the recoil movement for retaining the spring under tension when the rod is released from the open stop in the outward movement of the breech-block, substantially as described.

661,551. TYPE-WRITING MACHINE. CHARLES T. POWERS, Brisbane, Queensland. Filed Dec. 5, 1898. Serial No. 698,322. (No model.)



Claim.—1. In a type-wheel type-writer, a type-wheel stop-motion comprising a toothed stop-wheel revoluble with said type-wheel, and a locking-pawl organized to move substantially parallel to the axes of said wheels and engage the stop-wheel, for the purpose set forth.

2. In a type-wheel type-writer, a type-wheel stop-motion comprising a toothed stop-wheel revoluble with said type-wheel, and a locking-pawl organized to move substantially parallel to the axes of said wheels and engage the stop-wheel, and means for moving said pawl out of engagement with said stop-wheel, for the purpose set forth.

3. In a type-wheel type-writer, the combination with the type-wheel spindle, the type-wheel revoluble thereon, said spindle adapted to rock about a horizontal axis; of a type-wheel stop-motion comprising a toothed stop-wheel revoluble synchronously with the type-wheel on its spindle, and a locking-pawl, organized to rock with and move substantially parallel to said spindle into engagement with the stop-wheel, for the purpose set forth.

4. The combination with the type-wheel rock-shaft, the type-wheel spindle rocking with said shaft, the type-wheel, and a toothed stop-wheel revoluble synchronously on the type-wheel spindle; of a locking-pawl rocking with and having motion parallel to said type-wheel spindle on said rock-shaft, for the purpose set forth.

5. The combination with the type-wheel rock-shaft, the type-wheel spindle carried by and rocking with said shaft, the type-wheel and a toothed stop-wheel revoluble synchronously on said spindle, and a locking-pawl carried by the rock-shaft and having rocking motion independently thereof and with the type-wheel spindle and motion parallel to said spindle to engage the stop-wheel for the purpose set forth.

6. The combination with the type-wheel rock-shaft, the type-wheel spindle rocking with said shaft, the type-wheel and a toothed stop-wheel revoluble synchronously on the type-wheel spindle; of a locking-pawl rocking with and having motion parallel to said type-wheel spindle on said rock-shaft, type-key levers, and means controlled thereby for positioning the type and stop wheels and imparting the aforesaid movements to said locking-pawl when one of said levers is depressed, for the purpose set forth.

7. The combination with the type-wheel rock-shaft, the type-wheel spindle rocking with said shaft, the type-wheel and a toothed stop-wheel revoluble synchronously on the type-wheel spindle; of a locking-pawl rocking with and having motion parallel to said type-wheel spindle on said rock-shaft, type-key levers, means controlled thereby for positioning the type and stop wheels and imparting the aforesaid movements to said locking-pawl when one of said key-lever is released, for the pupose set forth.

8. The combination with the type-wheel rock-shaft, the type-wheel spindle rocking with said shaft, the type-wheel and a toothed stop-wheel revoluble synchronously on the type-wheel spindle; of a locking-pawl rocking with and having motion parallel to said type-wheel spindle on said rock-shaft, type-key levers, means controlled thereby for positioning the type and stop wheels and imparting the aforesaid movements to said locking-pawl when one of said levers is depressed, and means operating an-

tomatically to disengage the pawl from the stop-wheel when said key-lever is released, for the purpose set forth.

9. The combination with the type-wheel spindle, the type-wheel revoluble thereon, said spindle adapted to rock about a horizontal axis; of a type-wheel stop-motion comprising a stop-wheel having an inturned toothed flange revoluble synchronously with the type-wheel on its spindle, and a locking-pawl rocking with said spindle and moving parallel thereto into engagement with said stop-wheel, for the purpose set forth.

10. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked by said shaft, the type-wheel and a toothed stop-wheel mounted to revolve synchronously on said spindle, and a locking-pawl rocking with and having radial motion on the rock-shaft in the path of the teeth of said stop-wheel, and a cam-lever on the rock-shaft, a lever acted upon by said cam-lever and acting upon said locking-pawl to move it into engagement with the stop-wheel; of the type-key levers and means controlled thereby and positioning the type-wheel and then actuating the aforesaid cam-lever, for the purpose set forth.

11. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked by said shaft, the type-wheel and a toothed stop-wheel mounted to revolve synchronously on said spindle, and a locking-pawl rocking with and having radial motion on the rock-shaft in the path of the teeth of said stop-wheel, and a cam-lever on the rock-shaft, a lever acted upon by said cam-lever and acting upon said locking-pawl to move it into engagement with the stop-wheel; of the type-key levers, means controlled thereby and positioning the type-wheel and then actuating the aforesaid cam-lever, and means for moving the locking-pawl out of engagement with the stop-wheel, for the purpose set forth.

12. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked by said shaft, the type-wheel, and a toothed stop-wheel mounted to revolve synchronously on said spindle, a locking-pawl rocked by and having radial motion on the aforesaid rock-shaft, said pawl provided with a bearing-flange, a cam-lever on the rock-shaft having stepped bearing-surfaces, and a lever acted upon by said surfaces and acting upon the aforesaid flange on the locking-pawl to move the same into engagement with the stop-wheel; of the type-key levers and means controlled thereby and positioning the type-wheel and then actuating the aforesaid cam-lever, for the purpose set forth.

13. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked by said shaft, the type-wheel, and a toothed stop-wheel mounted to revolve synchronously on said spindle, a locking-pawl rocked by and having radial motion on the aforesaid rock-shaft, said pawl provided with a bearing-flange, a cam-lever on the rock-shaft having stepped bearing-surfaces, and a lever acted upon by said surfaces and acting upon the aforesaid flange on the locking-pawl to move the same into engagement with the stop-wheel; of the type-key levers, means controlled thereby and positioning the type-wheel and then actuating the aforesaid cam-lever, and a coiled spring connecting the locking-pawl and cam-lever, for the purpose set forth.

14. The combination with the type-wheel rock-shaft, the type-wheel spindle carried thereby and rocking therewith, the type-wheel and a toothed stop-wheel having its teeth formed in an inturned circular flange and divided into two sets having their faces beveled in opposite directions, said wheels mounted to revolve synchronously on the type-wheel spindle, and a locking-pawl carried by and having independent motion on the type-wheel rock-shaft, said pawl rocking with the type-wheel spindle and having motion parallel thereto, of type-key levers, and means controlled thereby to position the type and stop wheels, rock the pawl, and move it into engagement with the toothed flange of the stop-wheel when one of said levers is depressed, for the purpose set forth.

15. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked by said shaft, the type-wheel, and a stop-wheel having a toothed circular flange divided into two series of teeth by a longer and a shorter tooth, said series of teeth having their faces beveled in opposite directions and said stop and type wheels mounted to revolve synchronously on said spindle, and a locking-pawl having radial motion on the rock-shaft in the path of the teeth on the stop-wheel; of the type-key levers, means controlled thereby to position the type-wheel and then move the pawl into engagement with the stop-wheel, and means not controlled by said key-levers to move said pawl out of engagement with the stop-wheel, for the purpose set forth.

16. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked thereby, the type-wheel and the stop-wheel W^2 having two series of teeth w^2 divided by the shorter tooth w, and the longer tooth w', said two wheels mounted to revolve synchronously on said spindle, the locking-pawl C and cam-lever D constructed as described and mounted on the rock-shaft, and the lever E interposed between the cam-surfaces of the cam-lever and the bearing-flange on the locking-pawl; of the type-key levers, the short bails b actuated thereby, and means controlled by said short bails to position the type-wheel, the long bail b' actuated by said key-levers, and a toothed arm on said long bail adapted to gear with a toothed portion of the cam-lever, for the purpose set forth.

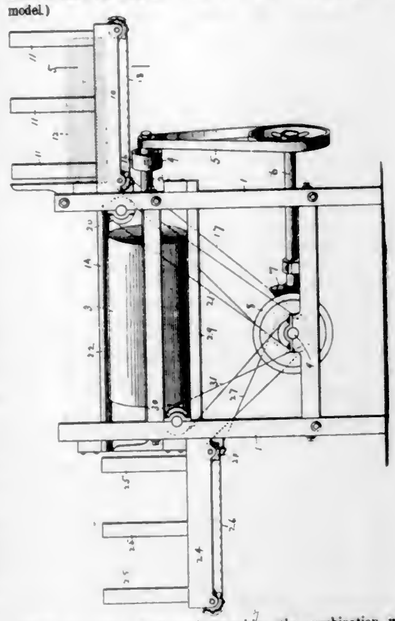
17. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked thereby, the type-wheel, and a toothed stop-wheel mounted to revolve synchronously on said spindle, a locking-pawl having radial motion on the rock-shaft and a guide for said pawl rocked by the shaft; of the key-levers, means controlled thereby to position the type-wheel and then move the locking-pawl radially of the rock-shaft into engagement with the stop-wheel, and means for moving said pawl out of engagement with the stop-wheel on the release of a type-key lever, for the purpose set forth.

18. The combination with the type-wheel rock-shaft, the type-wheel spindle rocked thereby, the type-wheel, and a toothed stop-wheel mounted to revolve synchronously on said spindle, a locking-pawl having radial motion on the rock-shaft and a guide for said pawl rocked by the shaft; and carrying a retarding-spring in perpetual frictional contact with said stop-wheel; of the key-levers, means controlled thereby to position the type-wheel and then move the locking-pawl radially of the rock-shaft into engagement with the stop-wheel, and means for moving said pawl out of engagement with said stop-lever on the release of a type-key lever, for the purpose set forth.

19. The combination with the rock-shaft S, the type-wheel spindle S^3, the stop-wheel W and the locking-pawl C; of the sleeve S′ rocking with the shaft S and having the radial arm s' and the angle radial arm s^2 provided with a guide-slot s^3 for the locking-arm c^3 of said pawl C, substantially as and for the purpose set forth.

20. The combination with the rock-shaft S, the type-wheel spindle S^3, the stop-wheel W and the locking-pawl C; of the sleeve S′ rocking with the shaft S and having the radial arm s' and the angle radial arm s^2 provided with a guide-slot s^3 for the locking-arm c^3 of said pawl C, and the segmental spring S^7 secured to said slotted arm and having bearing on the inner face of the toothed flange of said stop-wheel, substantially as and for the purpose set forth.

661,552. SANDPAPERING-MACHINE. THOMAS E. RICH and LEWIS E. RICH, Barre, Mass. Filed Feb. 1, 1900. Serial No. 3,577. (No model.)



Claim.—1. In a sandpapering-machine, the combination with a guideway and an abrading-roll with its axis placed obliquely to said guideway, of means for holding the work in said guideway from lateral movement with one edge of the work tangential to said roll at one end and the opposite edge of the work tangential to the roll at its opposite end, substantially as described.

2. The combination with a revolving abrading-roll, of guides for the articles to be smoothed placed obliquely to the axis of said roll, one of said guides being placed above and the other below said roll, a lip at one edge of the upper guide and a lip at the opposite edge of the lower guide, said lips being arranged to hold the work against lateral movement by the action of said revolving roll, substantially as described.

3. In a sandpapering-machine, the combination with a revolving abrading-roll, of a guide for the articles to be smoothed, said guide having a supporting-surface by which the article to be smoothed is held in contact with the surface of the abrading-roll and having a lip at one edge of said supporting-surface toward which the abrading-roll revolves, substantially as described.

4. The combination of a revolving abrading-roll, a guide parallel with the face of the roll and at an oblique angle to its axis, a stack in alinement with said guide and mechanism for feeding articles from said stack into said guide, substantially as described.

5. The combination of a revolving abrading-surface, a guide by which the articles to be smoothed are conducted across said abrading-surface, a yielding feed-roll by which the articles to be smoothed are fed to said guide, a vertical stack and an endless chain adapted to engage and push the articles from said stack forward to said feed-roll, substantially as described.

6. The combination in a sandpapering-machine of a revolving abrading-roll, a guide parallel with the face of said roll, means for feeding the articles to be smoothed along said guide, a second guide parallel with the face of the roll and on the opposite side of said roll and means for feeding the articles to be smoothed along said second guide, substantially as described.

7. The combination with a revolving abrading-roll, of guides for the articles to be smoothed, one of said guides being above and the other below said abrading-roll, means for feeding the articles to be smoothed along said upper guide, a stack, or receptacle, arranged to receive the articles from said upper guide and present them to the lower guide and means for feeding the articles along said lower guide, substantially as described.

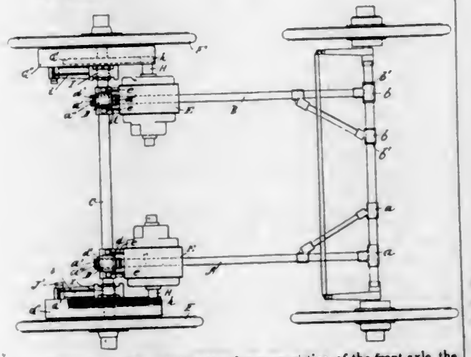
8. The combination in a sandpapering-machine of a revolving abrading-roll, of a pair of guides parallel with the face of said roll and at an oblique angle with its axis, said guides being on opposite sides of said abrading-roll, whereby the articles to be smoothed are conducted across the surface of said abrading-roll on opposite sides and in opposite directions, substantially as described.

9. The combination of a revolving abrading-roll, of a guide placed at an oblique angle with the axis of the roll, a vertical stack, an endless chain carrying lips adapted to engage the articles held in said stack and push them between said guide and a feed-roll and a yielding feed-roll by which the articles are fed along said guide, substantially as described.

10. In a sandpapering-machine, the combination with a revolving abrading-surface, of means for feeding the articles to be smoothed across said abrading-surface, a stack, or receptacle, into which the articles, when smoothed on one side, fall by gravity and are held in alinement with the revolving abrading-surface by which the opposite side is smoothed, substantially as described.

11. The combination with a frame, of a shaft 2 journaled in said frame, an abrading-roll carried in said shaft, guides 14 and 29 parallel with each other and at an oblique angle with the axis of said abrading-roll and lips 22 and 32 on the sides of said guides arranged to resist the sidewise movement of the article to be smoothed while in contact with the abrading-wheel, substantially as described.

661,553. RUNNING-GEAR FOR MOTOR-VEHICLES. ANDREW L. RIKER, Stamford, Conn. Filed Jan. 17, 1899. Serial No. 702,452. (No model.)



Claim.—1. The running-gear frame consisting of the front axle, the continuous and unitary non-revoluble rear axle, and the two side bars connecting them, one of said side bars being connected rigidly to the front axle and loosely to the rear axle, and the other side bar being connected loosely to both axles, substantially as described.

2. In a running-gear, the side bar connected rigidly to the front axle in the same horizontal plane therewith, and connected to the rear axle loosely and below the same, substantially as described.

3. In a running-gear, the side bar connected by a swivel-joint to the front axle in the same horizontal plane therewith, and connected by a double swivel to the rear axle below the same, substantially as described.

4. In a running-gear, the side bar connected by a swivel-joint to the front axle and by a double swivel-joint to the rear axle, substantially as described.

5. A running-gear frame consisting of the two continuous and non-revoluble axles and two side bars connecting them, in combination with two independent motors each located near the end of the rear axle and geared to drive the adjacent wheel, substantially as described.

6. In a running-gear for motor-vehicles, the combination of the substantially-rectangular frame consisting of the front and rear axles and the side bars connecting them, the motor-casings supported at the rear by said rear axle and at the front by said side bars, and the motors carried by said casings and each geared to drive its adjacent rear wheel, substantially as described.

7. The combination with the substantially-rectangular running-gear frame and the two rear wheels turning on the rear axle thereof, of the two independent motors each geared to drive its adjacent rear wheel, substantially as described.

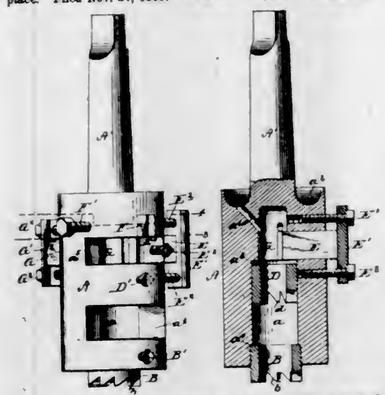
8. In a running-gear for motor-vehicles, the combination with the rear axle and the side bar connected thereto by a double swivel, of the motor-casing supported at its rear end by arms embracing the axle loosely on either side of the swivel and at its front end by the side bar, substantially as described.

9. The combination of the coupling-piece surrounding the axle, the two arms of the motor straddling the same and provided with grooves in their rear faces, the clamping-plates provided with corresponding grooves, and the axle provided with reduced cylindrical portions fitting within the said grooves, all for the purpose set forth, and substantially as described.

10. In a running-gear for motor-vehicles, the combination with the axle, of a motor and a spring-support carried thereby and a vehicle-wheel turning thereon, the said wheel having fast thereto a brake-drum and a drive-gear, the said motor having a drive-shaft and pinion, the latter in mesh with the drive-gear, and the said spring-support carrying brake mechanism for operating the brake-band upon the drum, substantially as described.

11. The combination with the axle, of the two vehicle-wheels rotating thereon, each wheel carrying a brake-drum and a drive-gear, means for independently operating each drive-gear, and means for actuating the drums, substantially as described.

661,554. ROTARY CUTTER-HEAD. JOHN E. ROBERTS, Jamestown, N. Y., assignor to the Straight Manufacturing Company, same place. Filed Nov. 27, 1899. Serial No. 738,434. (No model.)



Claim.—1. A rotary self-centering tool for finishing crank-shafts and the like, having a central chamber, one or more annular cutters in said chamber, for acting on the work, and additional cutters in the walls of said chamber automatically acting on the work simultaneously with said annular cutters.

2. A rotary tool for finishing crank-shafts and the like, having a central chamber provided with perforations in its wall, one or more annular cutters in said chamber for acting on the work, side cutters in said perforations acting simultaneously with the annular cutters, and automatic means for centering the work relative to the cutters.

3. A rotary tool for finishing crank-shafts and the like, having a central chamber containing one or more side perforations, annular cutters in said chamber, additional cutters entering said chamber through said perforations, and means for centering the work relative to the cutters.

4. A rotary tool for finishing crank-shafts and the like, having a central chamber containing side perforations, one or more annular cutters in said chamber, additional cutters entering said chamber through said side perforations, and automatic means for centering the work relative to the cutters.

5. A rotary tool for finishing crank-shafts and the like, having a central chamber containing perforations in its wall, one or more annular cutters in said chambers, side cutting-tools entering the chamber through said perforations, and adjustable automatic means in said wall for centering the work relative to the cutters.

6. A tool for shaping and finishing crank-shafts, and the like, comprising a cylindrical body having a central chamber, counterbored at one or more points, an annular milling-cutter concentric with said chamber at its lower end, a second annular cutter above the first, a flat taper cutter, and a facing-off cutter, inserted through slots in the body, and means for holding and adjusting said cutters.

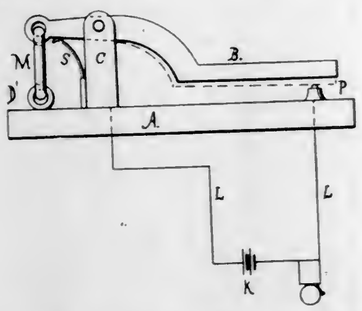
7. A tool for shaping and finishing crank-shafts and the like, comprising a cylindrical body having a central chamber provided with counterbores, and radial and transverse slots, an annular milling-cutter in each counterbored portion, a straight taper cutter and a straight facing-off cutter received in said slots, and means for clamping and adjusting said cutters.

8. A tool for shaping and finishing crank-shafts and the like, comprising a cylindrical body having a central chamber, annular milling-cutters concentric with said chamber, straight taper and facing-off cutters, and a steady-block inserted through a slot in the body opposite the taper cutter.

9. The combination with the body A, having the central chamber *a*, of annular milling-cutters B and D received in said chamber, a straight taper cutter E inserted through the side of the body A, a steady-block G of antifriction material, having a semicircular groove in its inner end and inserted through a radial slot in the body opposite the taper cutter, and means for holding and adjusting said block.

10. The combination with the body A, having a central chamber *a*, and transverse slot a^2, provided with grooves a^1, of a cutter E received in the slot a^2 and projecting into the chamber, a block E^4 rabbeted to fit the grooves a^1, and a screw E^3 tapped through the block against the cutter.

661,555. FIRE-ALARM. ALFRED A. ROSS, Montgomery, Ala. Filed Mar. 15, 1900. Serial No. 8,739. (No model.)

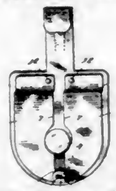


Claim.—1. In a thermal alarm mechanism a sealed vessel of glass or material which will break on the volatilization of its contents, containing a volatile liquid, having an approximately cylindrical body and having its ends bent upon itself to form open hooks by which it can be held in tension, and by its fracture release such alarm, substantially as described.

2. In a fire-alarm mechanism a sealed capsule of glass having an approximately cylindrical body with its ends bent upon itself to form open hooks by which it can hold such mechanism inoperative; said capsule filled with an easily-volatilized liquid and adapted to break on the volatilization of its contents, substantially as described.

3. In a fire-alarm mechanism a releasing device consisting of a sealed capsule of glass containing a volatile liquid and which will break from the volatilization of its contents and having its ends bent upon itself whereby it can engage said mechanism and normally prevent its operation, substantially as described.

661,556. GARMENT-SUPPORTER. ARTHUR W. SCHNEIDER, Columbus, Ohio. Filed Feb. 20, 1900. Serial No. 5,955. (No model.)

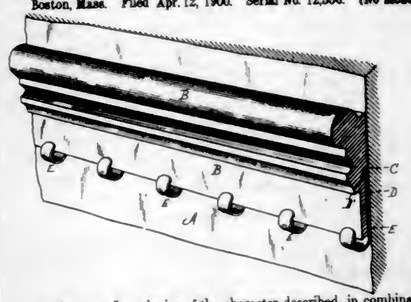


Claim.—1. In a garment-supporter, the combination, with a base provided with means for connecting it with a garment, of a button projecting from the face thereof and two slides pivotally secured thereto one on each side of the button and having their free ends provided with means for interlocking with each other upon the opposite side of the button, substantially as described.

2. In a garment-supporter, the combination, with a plate provided with means for securing it to the garment, of a button projecting from the face thereof, two slides pivotally secured to the base one on each side of the button and having their free ends provided with means for interlocking with each other upon the opposite side of the button, the intermediate portion of said slides lying in a plane between the head of the button and the base, and each of them provided with a recess in position to partially encircle the button when they are closed, substantially as described.

3. In a garment-supporter, the combination, with a base provided with means for securing it to a garment, of a button projecting from the face thereof, two slides pivotally secured to the base at one end one on each side of the button and having their free ends each provided with a projecting lug, one of said lugs being provided with a groove and the other one provided with a projection in position to enter said groove and lock the parts together, the intermediate portions of said slides lying in a plane intermediate the head of the button and the base and each provided with a recess for partially encircling the button, substantially as described.

661,557. PICTURE HOOK AND MOLDING. GUSTAV SCHWAB, Boston, Mass. Filed Apr. 12, 1900. Serial No. 12,556. (No model.)



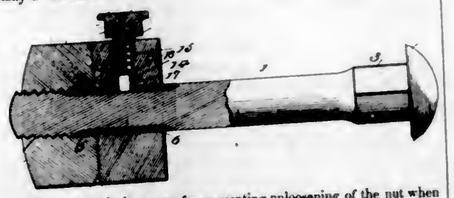
Claim.—1. In a device of the character described, in combination, the horizontal plate D provided with a plurality of downwardly-extending hooks E and formed with a lip or flange at its upper edge; and a molding provided on its rear side with a horizontal groove adapted to receive said lip, substantially as described.

2. In a device of the character described, in combination, the horizontal plate D provided with a plurality of downwardly-extending hooks E and formed with the downwardly-bent lip or flange D'; and a molding provided on its rear side with the downwardly-extending horizontal groove C of suitable shape and at the proper angle to receive said lip, substantially as set forth.

3. In a device of the character described, in combination, the horizontal plate D provided with a plurality of downwardly-extending hooks E and formed with the downwardly-bent lip or flange D'; and a molding provided on its rear side with the downwardly-extending horizontal groove C of suitable shape and at the proper angle to receive said lip, the rear sides of said molding below the groove being recessed to receive said plate flush with the portion of the rear side above the groove, substantially as described.

661,558. NUT-LOCK. ERVIN A. SHUFF, Mathewson, Okla. Filed May 15, 1900. Serial No. 16,825. (No model.)

Claim.—1. In a nut-lock, and in combination with the bolt provided in its sides with a series of longitudinally-disposed grooves, means for securing the nut, the same consisting of a spring-actuated locking pin or dog, and a cap for holding the said pin or dog in place and in turn prevented from casual displacement by the actuating-spring of the said dog, substantially as set forth.



2. In a nut-lock, means for preventing unloosening of the nut when tightened, the same consisting of a pin or dog adapted to interlock with the bolt, a cap for holding the dog in place, an approximately bayonet-shaped joint between the cap and the part to which it is fitted, and a spring disposed to exert an outward pressure upon the cap to prevent casual disengagement of the joint and inward pressure against the said dog to hold it in engagement with the bolt, substantially as set forth.

3. In a nut-lock, means for securing the nut, the same consisting of a tube, a pin slidingly mounted in the tube and adapted to coöperate with the bolt, a cap fitted to the outer end of the tube and held thereon by a joint of approximately bayonet form, and a spring mounted upon the pin and confined between the cap and the shouldered portion of the said pin and exerting a pressure in opposite directions against said cap and pin, substantially as and for the purpose set forth.

4. In a nut-lock, a tube and locking-pin loosely mounted in the tube, a cap detachably fitted to the outer end of the tube and having a central opening to receive the outer end of the pin, an approximately bayonet-shaped joint between the cap and tube to retain the former in place, and a spring located in the tube and confined between the cap and shouldered portion of the pin, substantially as set forth.

661,559. GAGE ATTACHMENT FOR BENCH-PLANES. MILLAGE M. SMITH, Stockdale, Tex. Filed June 16, 1900. Serial No. 20,552. (No model.)



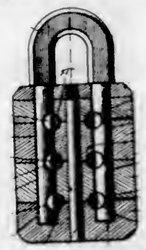
Claim.—1. In a device of the class described, the combination with a plane, of a gage-plate provided with pintles or journals, a supporting bar or piece having clamps for engaging the plane and provided in their engaging faces with open bearings receiving the journals or pintles of the gage-plate, said plane fitting over the open bearings and retaining the pintles or journals therein, and an adjusting device connecting the gage-plate with the supporting bar or piece, substantially as described.

2. In a device of the class described, the combination with a plane, of a gage-plate provided with pintles or pivots, a supporting bar or piece provided with clamps composed of lower jaws fitting against the plane and provided with open bearings receiving the pivots or pintles, the plane being arranged over the open bearings, whereby the gage-plate is removably secured to the supporting bar or piece by the engagement of the clamps with the plane, and clamping-screws located above the said jaws and coöperating with the same, and an adjusting device connecting the gage-plate and the supporting-piece, substantially as described.

3. A gage attachment comprising a supporting bar or piece provided with clamps, a hinged gage-plate, an adjusting-screw pivoted at its inner end to the gage-plate and extending outward through an opening of the supporting bar or piece, nuts mounted on the adjusting-screw and located at the inner and outer sides of the supporting bar or piece, and a graduated bar or arm extending from the gage-plate and passing through a guide of the supporting bar or piece and arranged approximately parallel with the adjusting-screw, substantially as described.

661,560. COMBINATION-LOCK. ADAM N. STALL, Greenville, S. C. Filed Aug. 20, 1900. Serial No. 27,476. (No model.)

Claim.—1. A combination-lock comprising a sectional body portion, a bolt for holding the sections in coöperative relation and with which one end section is removably engaged to hold it in place, a locking-shackle engaged with the sections to prevent independent rotation thereof with respect to the bolt to remove the removable end section, and locking-pins for holding the shackle in place, said pins being disposed in engagement with mutually-adjacent sections to prevent rotation thereof upon the bolt when the shackle is removed.



2. A lock comprising a body portion built up of sections, a bolt carried by one end section and passed through the remaining sections, the second end-section having threaded engagement with the bolt, a shackle for engagement with the sections, means for holding the shackle against removal, said shackle being adapted when in place to prevent unscrewing of the end section, and locking-pins for the shackle disposed in engagement with the mutually-adjacent sections to prevent rotation of the sections upon the bolt when the shackle is removed.

3. A combination-lock comprising a body portion built up of sections, said body portion having transverse perforations formed partly in mutually-adjacent sections, locking-pins in the perforations, and a shackle adapted to enter the body and for engagement by the locking-pins, the sections of the body and their pins being interchangeable to vary the combination.

4. A combination-lock comprising a body portion built up of sections, a bolt carried by one end section and passed through the remaining sections, the opposite end section having threaded engagement with the bolt to hold the intervening sections thereon, additional alining perforations in the sections, a shackle for engagement with said alining perforations and having slots therein, transverse perforations formed partly in each of mutually-adjacent sections of the body and intersecting their respective lines of perforations, locking-pins in the transverse perforations and adapted for rotation into and out of the slots of the shackle, the sections of the body being interchangeable with their pins, to permit of changing the combination of the lock.

661,561. TUBULAR STEAM-BOILER. FRANK E. STANLEY and FREELAN O. STANLEY, Newton, Mass., assignors to the Stanley Automobile Company, of New York. Filed May 24, 1899. Serial No. 718,062. (No model.)



Claim.—1. A steam-generator having flat heads of hard metal, vertical tubes, a seamless soft-metal body suitably reinforced by wire winding and with flanges at the ends, and rings between said flanges, the rings and heads riveted together upon the flanges, whereby the latter constitute soft-metal packings between the rings and heads and also the means of connection between the heads and body, substantially as set forth.

2. The combination in a steam-generator, of a soft-metal seamless shell having flanges integral therewith, a wire wrapping around the shell, flat heads upon which the flanges bear, vertical tubes, rings between which and the heads the flanges extend, and rivets extending through the heads and rings and compressing the flanges to form tight pressure-resisting joints between the heads and flanges, substantially as described.

661,562. MEASURING-GAGE. LEROY S. STARRETT, Athol, Mass. Filed May 19, 1899. Serial No. 717,460. (No model.)

Claim.—1. In a measuring-gage, the body A having at one end the recurved anvil *a* and at the opposite end the hollow head B, in combina-

tion with the graduated spindle capable of a sliding movement through such head and provided with a clinging adjustable clasp to indicate measurements, such clasp being a short tube, longitudinally severed and self-holding by constriction, substantially as set forth.

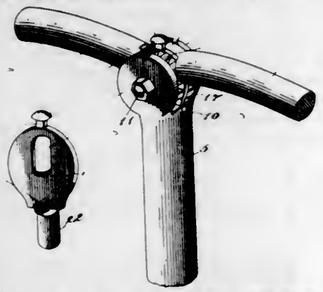


2. In a measuring-gage, the body, anvil and hollow head, in combination with the removable graduated spindle D fitting within such head, and with the sliding slotted clasp E adapted to cling to the spindle in any adjusted position, the zero-mark of the linear scale being at a distance from the inner end of the spindle exactly equal to the distance from the face of the anvil to the outer end of the head plus the length of said clasp, substantially as set forth.

3. In a measuring-gage, the body A having at one end the anvil *a* and at the opposite end the hollow head B formed with a threaded central portion and a beveled and reduced outer portion slotted longitudinally to constitute compressible terminal prongs *b*, in combination with the spindle D and slotted clasp E, and with the clamping-nut C engaging the threads of the body and bearing upon the bevel of the prongs to compress them upon the spindle, substantially as set forth.

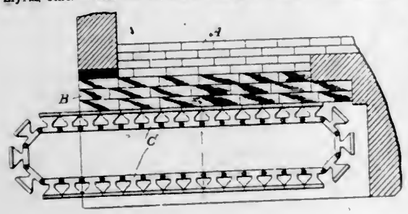
4. In a measuring instrument, the cylindrical spindle D provided with a line of graduations denoting linear measurements, in combination with the sliding clasp E, milled centrally, slotted longitudinally and clinging internally, by constriction, upon the periphery of said spindle, to maintain its adjusted position, substantially as set forth.

661,563. **HANDLE-BAR.** WILLIAM F. STOCKFORD, South Bend, Ind. Filed Apr. 4, 1900. Serial No. 11,524. (No model.)



Claim.—In a handle-bar, the combination with a stem having a bifurcated upper end and a recess opening into the interspace between the bifurcations, the lower portion of the recess being cylindrical and the upper portion being flared, of two bar-sections, each having a notched disk at one end disposed in axial alinement between the bifurcations of the stem and in contact with the latter, a locking-bolt comprising a plate disposed between the disks and having a central slot, and a stem having its upper end flattened to form a web extending longitudinally from the stem and projecting laterally beyond the side faces thereof, said web having a slot therein in which the plate is engaged, and said stem lying with its lower portion in the cylindrical portion of the recess of the handle-bar stem and with its webbed portion in the flared upper portion of said recess, a spring in the recess below the bolt and bearing thereagainst to hold the bolt normally raised with the web in engagement with the notched disks, a finger-piece upon the plate, and a pivot-pin for the disks passed through the bifurcations of the handle-bar stem, the disks and the central opening of the bolt-plate.

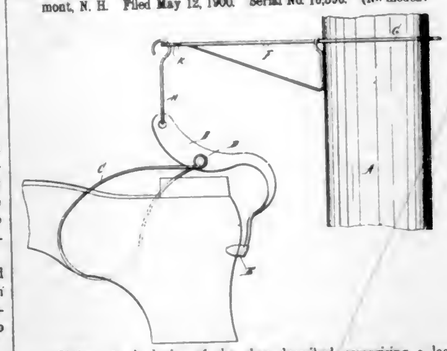
661,564. **FURNACE CONSTRUCTION.** MAXIMILIAN M. SUPPES, Elyria, Ohio. Filed Oct. 13, 1899. Serial No. 733,473. (No model.)



Claim.—1. A steam-boiler or other furnace in which coal is burned on a grate, having those portions of its fire-box which are exposed to clinker formation constructed with an inset or lining of sand or silica stone.

2. A steam-boiler or other furnace in which coal is burned on a grate, having the walls of its fire-box adjacent to the grate provided with a lining composed of sand or silica stone.

661,565. **BOOT OR SHOE HOLDER.** JOSEPH A. TICKNOR, Claremont, N. H. Filed May 12, 1900. Serial No. 16,396. (No model.)



Claim.—1. A device of the class described, comprising a loop through which the toe of a boot or shoe may be passed, said loop being pivotally connected with a swinging arm, one end of which is curved upwardly and forwardly and the other backwardly and downwardly, and provided at its lower end with a clamp, substantially as shown and described.

2. A device of the class described, comprising a loop through which the toe of a boot or shoe is adapted to pass, a swinging arm with which the ends of said loop are pivotally connected, one end of said arm being curved upwardly and forwardly and the other being curved backwardly and downwardly and provided with a clamp-head, and means for supporting said swinging arm from its forwardly and upwardly curved end, substantially as shown and described.

3. A device of the class described, comprising a loop member, an arm pivotally connected with the ends of said loop member, and the ends of which project in opposite directions from said pivotal connection, one end of said arm being curved upwardly and the other downwardly, the downwardly-curved end being provided with a clamp-head, and the upwardly-curved end being provided with means for loosely suspending it from a suitable support, substantially as shown and described.

661,566. **CHECK-ROW PLANTER AND FERTILIZER-DISTRIBUTER.** ROBERT H. TRUITT, Benton, Ky. Filed Mar. 8, 1900. Serial No. 7,862. (No model.)

Claim.—1. The combination with a seed or fertilizer slide, of a reciprocatory element connected thereto, to move said slide in one direction and having a tappet-arm, a retracting rocking element connected to said reciprocatory element and having a tappet-arm, and a revoluble element having tappets (one or more) in the path of which the said tappets of said reciprocatory and rocking elements are disposed and by which said tappets of said reciprocatory elements are successively engaged.

2. In combination with a revoluble element having tappets, a reciprocatory push-bar connected to a seed or fertilizer slide and having an arm disposed in the path of a tappet and moved thereby in one direction, and a retracting bell-crank lever connected to said push-bar and having an arm disposed in the path of the tappet and operated thereby after the tappet has cleared the arm of the push-bar, substantially as described.

3. In combination with a revoluble element having tappets, a reciprocatory element connected to a seed or fertilizer slide, adapted to be disposed in the path of a tappet and moved thereby in one direction, and a rocking element connected to said reciprocatory element and having an arm disposed in the path of the tappet and operated thereby after the tappet has cleared the reciprocatory element, and a movable support for said reciprocatory and rocking elements whereby the same may be moved out of the path of the tappets, substantially as described.

4. In combination with a revoluble element having tappets, a reciprocatory element connected to a seed or fertilizer slide, adapted to be disposed in the path of a tappet and moved thereby in one direction, and a rocking element connected to said reciprocatory element and having an arm disposed in the path of the tappet and operated thereby after the tappet has cleared the reciprocatory element, a pivoted support for said reciprocatory and rocking elements and means for moving and locking said pivoted support whereby said reciprocatory and rocking elements may be secured in or out of the path of the tappets, substantially as described.



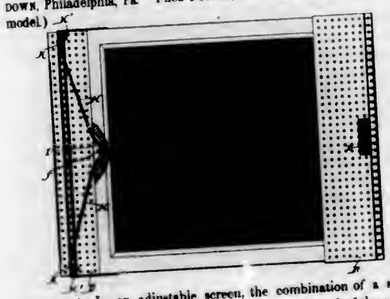
5. In a planter, the combination of a hopper having a transversely-disposed and slotted plate in the bottom thereof, a slide comprising a trough having a discharge-opening in its lower side, said trough being guided in the bottom of the hopper, under the slotted plate, and having blocks on opposite sides of the discharge-opening, one of said blocks being adjustable, and the other having a stirring-pin operating in the slot in the plate, and means to reciprocate said slide, substantially as described.

6. In a planter, the combination with a seed-tube, of a vertically-adjustable furrow-opening shoe or runner having a tubular standard telescoping on said seed-tube, said shoe or runner provided at its front end with a vertical arm extending through a vertical guide-opening in the frame of the planter and means for securing said arm to the frame of the planter at any adjustment of the shoe, substantially as described.

7. The combination with a seed or fertilizer slide, of a reciprocatory push-rod having a tappet at one end, a link-lever connecting said push-rod to said slide, a retracting bell-crank lever disposed below the outer end of said push-rod and engaging and adapted to move said push-rod in one direction, and a revoluble element having tappets (one or more) to engage said tappet of said push-rod and move the same in one direction and thereafter engage said bell-crank lever and cause the latter to return the push-rod to its initial position, substantially as described.

8. A covering device for planters, comprising a pair of supporting-bars adapted to be pivoted at their front ends and having adjusting-slots at their rear ends concentric with said pivots, covering-disks mounted on the outer sides of said supporting-bars, and the scrapers on said supporting-bars and engaging the inner sides of the covering-disks.

661,567. **ADJUSTABLE WINDOW-SCREEN.** JOHN K. UNDERDOWN, Philadelphia, Pa. Filed Feb. 16, 1900. Serial No. 5,476. (No model.)



Claim.—1. In an adjustable screen, the combination of a screen proper with perforated boxes adapted to slide over each end of the screen-frame, springs arranged within said boxes and adapted to exert pressure outwardly upon the same, as specified.

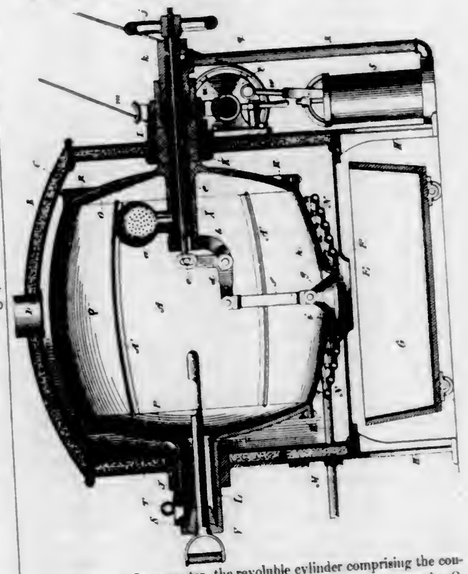
2. In an adjustable screen, the combination of a screen proper with perforated boxes adapted to slide longitudinally over the ends of said screen, the outer ends of said boxes being closed and formed with a groove adapted to fit upon the parting-strip of the window-casing, said groove so formed that the inner face of the screen will be flush with the inner surface of the parting-strip so as to allow for the raising and lowering of the window-sash past the screen, springs arranged within said boxes and adapted to exert an outward pressure on the boxes, and pins arranged so as to engage the ends of the springs for preventing the accidental removal of said boxes from the screen-frame, substantially as shown and for the purpose specified.

3. As a new article of manufacture, a screen-frame having perforated boxes adapted to slide over the ends thereof, a groove E formed in the ends of the outer edge of said boxes and adapted to fit upon the parting-strip of the window-casing in such manner as to allow the free raising and lowering of the window-sash past the screen, a flange F formed with the box to engage the outer surface of the parting-strip, springs H arranged within said boxes and adapted to press said boxes outward, hooks H' formed on the ends of the springs, pins K passing through the boxes and engaging the hooks H' preventing the removal of the boxes from the screen-frame, and handhold L formed in the boxes, substantially as shown and for the purpose specified.

4. In an adjustable screen, a screen-frame, perforated boxes adapted to slide upon the ends of said screen-frame, a spring H arranged within said boxes and adapted to press the same outward, pins passing through the boxes and engaging the ends of the springs H, a groove E and a flange F formed in the edge of said boxes, a spring M secured to the outer surface of the flange F and adapted to exert pressure between an outer bead O and the flange F, for the purpose of binding the screen securely in place, substantially as shown and specified.

5. In combination with a screen of the character described, a screen-frame, the sides and ends of which are made of sheet-metal strips said strips having flat portions, a roll formed on the outer edges of said strips retaining devices for retaining the wire-cloth formed in the flat portions of said strips, covering-strips having flat portions adapted to cover the retaining devices and to pass between the end *d* of the roll and flat portion of the first-named strip into the roll thereof, a roll formed upon the outer edge of said covering-strip and adapted to fit inside of the roll of the first-named strip and to bear against the inner surface of the outer roll in such a manner as to cause sufficient friction and spring action therebetween to hold the covering-strip in its normal position, as specified.

661,568. **COFFEE-ROASTER.** WILLIAM WALTER, New York, N. Y. Filed Apr. 14, 1899. Serial No. 712,963. (No model.)



Claim.—1. In a roaster, the revoluble cylinder comprising the concave ends O, P, and the shallow-bellied regularly-curved body portion Q, having an outlet for the material to be roasted, said ends O, P, having

the annular flanges R and hollow hubs K, L, the latter of which has the inlet with means for closing the same, and said body portion Q being secured at its ends to said flanges R, combined with means connected with said hub K for exhausting the gases, smoke and foreign matter through the same, and means for rotating said cylinder; substantially as set forth.

2. In a roaster, the revoluble roasting-cylinder having the hollow hubs K, L, the latter of which has the inlet with means for closing the same, combined with means for rotating said cylinder, a suction or exhaust pump connected with said hollow hub K for extracting the gases, smoke and foreign matter from said cylinder during the rotation of the latter, and means for operating said pump, said cylinder except at said hub K being, when said inlet is closed, substantially sealed or air-tight; substantially as set forth.

3. In a roaster, the revoluble roasting-cylinder having an inlet and an outlet, and provided with a valve whose closing edges are exterior to the cylinder for closing said outlet, combined with the valve-rod extending through the hub of said cylinder, lever connections intermediate said valve-rod and said valve for controlling the same, and means for controlling the movement of the said rod; substantially as set forth.

4. In a roaster, the roasting-cylinder, comprising the ends O, P, and the body portion Q, said ends being formed with the hubs and annular flanges R, and said body portion being secured to said flanges, combined with the casing in which said hubs are journaled, the valve controlling the outlet from said cylinder and having its sealing-flange exterior thereto, the valve-rod extending through one of the hubs of said cylinder, the bell-crank lever connected with the inner end of said valve-rod, the link connected with said bell-crank lever and said valve, and the wheel engaging the threaded end of said valve-rod for controlling the movement of the latter and said valve; substantially as set forth.

5. In a roaster, the revoluble cylinder having an inlet and an outlet for the material to be roasted, the casing within which said cylinder is mounted, and the pinion-wheel connected with the hub of said cylinder for imparting motion to the latter, combined with the power-shaft having the worm in engagement with said pinion, the clutch for connecting said worm with said shaft or disconnecting the same therefrom, the crank-wheel on the end of said shaft, the suction-pump connected with said crank-wheel, and the pipe leading to said pump and communicating with the interior of said cylinder, said cylinder except at its connection with the suction-conduit being substantially sealed or air-tight; substantially as set forth.

6. In a roaster, the revoluble cylinder having an inlet and an outlet for the material to be treated, and the casing within which said cylinder is mounted and adapted to revolve, one end of said cylinder having the hollow hub K and sleeve X, combined with means engaging said hollow hub K for revolving said cylinder, the dome *a* connected with said sleeve X, the valve-rod extending through said sleeve X, the valve controlling the outlet from said cylinder and connected with said valve-rod, and means for controlling said valve-rod; substantially as set forth.

7. In a roaster, the roasting-cylinder having an inlet and an outlet for the material to be treated, and the casing within which said cylinder is mounted and adapted to revolve, one end of said cylinder having the hollow hub K and sleeve X, combined with the stationary sleeve *k* connected with said hub K, means connected with said hub K for revolving said cylinder, the valve-rod extending through said sleeve *k*, hub K, and sleeve X, the valve controlling the outlet from said cylinder and connected with said valve-rod, means for controlling said valve-rod, and suction apparatus connected with said stationary sleeve *k* and communicating with the interior of said cylinder A; substantially as set forth.

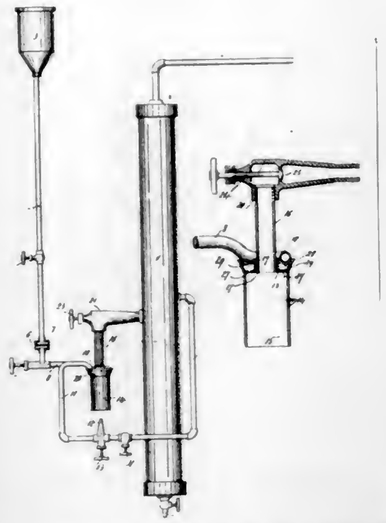
661,569. **CARBURETER.** JOHN C. WINANS, Waldron, Mich. Filed Mar. 1, 1900. Serial No. 6,891. (No model.)

Claim.—1. A gas-generator, comprising the gas-storage reservoir, gasolene-feed means, a generating-coil, gas-conveying means extending from the coil to an outlet or ejector, the gas-receiver arranged above said outlet and having an open bottom and a perforated top provided with flanges forming a heating-chamber above which the generating-coil is arranged, and a connection extending between said gas-receiver and the reservoir.

2. In a gas-generating apparatus, a gas-receiver provided with jet-openings and having a gas-conduit leading from its main chamber, in combination with a generating-coil mounted adjacent to said jet-openings, gasolene-feed means for the said coil, and gas-conveying means extending from said coil to an outlet or ejector arranged in operative position with relation to said gas-receiver.

3. In a gas-generator, a gas-receiver provided with jet-openings in its top and having top flanges or extensions forming a heating-chamber about said jet-openings, a gas-conduit leading from the top of said gas-receiver, a generating-coil sustained at the top of the heating-chamber above said jet-openings, gasolene-feed means for the coil, and gas-conducting means extending from the coil to an outlet or orifice operatively arranged with relation to said gas-receiver.

4. In a gas-generator, a gas-receiver having an open bottom provided with jet-openings at its top, a gas-conduit leading centrally from said top, a generating-coil encircling said gas-conduit and sustained in position above said jet-openings, and a gas-conducting means extending from the coil to an outlet or ejector projecting operatively with relation to the open bottom of the gas-receiver.



5. In a gas-generator of the class described, the gas-storage reservoir directly carrying a gas-receiver embodying a heating-chamber and means for operating the same by gas from said gas-receiver, in combination with a generating-coil sustained by said gas-receiver in operative relation to the heating-chamber and a gas-conducting means extending from said coil to an outlet or ejector operatively arranged with relation to the gas-receiver.

6. In a gas-generator, a gas-receiver having an open bottom and mounted above a gas outlet or ejector, said gas-receiver being provided with a heating-chamber at its top and means for operating said heating-chamber by gas from the receiver, in combination with a generating-coil sustained in operative relation to said heating means of the gas-receiver and connected with the outlet or ejector beneath the open bottom of said receiver.

661,570. **CAN-OPENER.** LOUIS C. WITKOWSKI, Washington, D. C. Filed Jan. 8, 1900. Serial No. 758. (No model.)

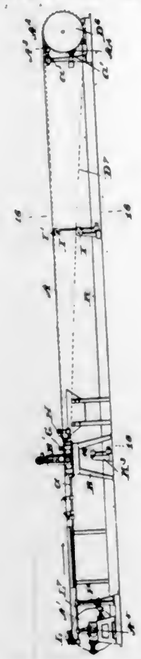


Claim.—1. As an improved article of manufacture, a can-opener consisting of a body portion provided with means for engaging the top or end of a can and carrying a pivoted knife or cutting-point, which knife rests flatly or horizontally upon the top of a can and parallel with the body portion during transportation, but, which, when it is desired to cut out the end of the can, is turned at substantially a right angle to the main body portion and forced through the tin and given a rotary movement, substantially as described.

2. As an improved article of manufacture, a can-opener consisting of a body portion provided with a puncturing-point which serves as a pivot during the cutting-out operation, said body portion also carrying a pivoted knife or cutter which, during transportation, rests flatly or horizontally upon the top of a can and parallel with the body portion, but which, when it is desired to cut out the end of a can, is turned to a position at right angles to said body portion and forced through the top of the can and given a rotary movement, substantially as described.

3. As an improved article of manufacture, a can-opener consisting of a suitable body portion and a cutting-point, which latter is an integral part of the material constituting the body portion and which, during shipment, rests parallel with the body portion, but which, when it is desired to cut out the end of the can, can be turned at an angle to the body portion, substantially as described.

661,571. **MOLDING-MACHINE.** WILLIAM ZOELLER, Chicago, Ill. Filed Apr. 20, 1900. Serial No. 13,626. (No model.)



Claim.—1. In a molding-machine, the combination of a plurality of band-wheels having convex or crowned peripheries, a metal band trained over said wheels and adapted to serve as a traveling support for the plastic material, means for embossing said material as it moves along with said band, and a twisted or spiral knife arranged obliquely across the band, and in position to shave off the ornament, the spiral form of the knife permitting it to conform to the curved surface which the band presents while passing around one of said wheels, and the arrangement being such that the severed ornament passes over the knife and moves along with said band.

2. A molding-machine comprising a plurality of band-wheels, a metal band trained over said wheels and providing a traveling support for the plastic material, means for embossing said material as it moves along with said band, a bar extending transversely above the belt and having its ends mounted in bearings or blocks, said bearings being adjustable both horizontally and vertically, a knife adjustably mounted upon said bar and arranged in position to separate the ornament from the band, said ornament passing over the knife and moving on with said band, substantially as described.

3. A molding-machine comprising a couple of band-wheels mounted upon structures arranged at a suitable distance apart, a band trained over said wheels and providing a traveling support for the plastic material, a third structure arranged at a suitable point between said wheels and providing a support for an embossing-roll, a fourth structure arranged at a point between said roll and one of said wheels, idler-rolls mounted upon said fourth structure and arranged to support the upper and lower leaves of said band, said idler-rolls being vertically adjustable, and a knife for shaving off the ornament, said band being of a length to give the embossed material time to dry to the proper extent before reaching said knife, and the severed ornament passing over the knife and moving on with said band, substantially as described.

4. In a molding-machine, the combination of a traveling support for the plastic material, an embossing-roll or rotary die, a body frame or structure upon which said roll is mounted, guides arranged above the upper leaf of the band and adapted for guiding the plastic material to said roll, and horizontally disposed and telescoping or extensible connections between said guides and said body-frame, said connections being horizontally extensible in a direction transverse to said band, so as to permit the distance between the guides to be varied at will, substantially as described.

5. In a molding-machine, the combination of a traveling support for the plastic material, an embossing-roll, a vertically-adjustable frame having portions which extend upwardly at either side of said traveling support, a shaft arranged above said traveling support, screws extending through said upwardly-extending portions and having their ends engaging the ends of said shaft, a couple of disks adjustably clamped upon said shaft and provided with sharp edges which contact with the upper surface of said traveling support, a threaded stem secured to the lower portion of said vertically-adjustable frame, and bevel-gearing applied to said stem; substantially as and for the purpose set forth.

6. In a molding-machine, the combination of a traveling support for the plastic material, a shaft arranged above said support, a pair of split collars clamped upon said shaft, an embossing-roll arranged between and keyed to said collars, a second shaft arranged below said traveling support and gear connected with said first-mentioned shaft, a roll on said second shaft supporting said traveling support, a sleeve loosely mounted upon said second shaft and having its end portion formed with teeth, a plurality of different-sized pulleys secured to said sleeve, a third shaft, a gear-wheel on said third shaft engaging the teeth on said sleeve, a gear-wheel on said second shaft, and a pinion on said third shaft engaging said last-mentioned gear-wheel, the said sleeve rotating in the same direction as the shaft upon which it is mounted, but at a higher rate of speed, substantially as and for the purpose set forth.

7. In a molding-machine, the combination of a couple of band-wheels, a metal band trained over said wheels and providing a traveling support for the plastic material, an embossing-roll, a structure arranged between said roll and one of said band-wheels, said structure comprising a pair of vertically-disposed and adjustably-supported rods arranged at either side of said band, bearings adjustably secured upon the upper end portions of said rods, an idler-roll journaled in said bearings and supporting the upper leaf of said band, similar bearings secured to the lower end portions of said rods, an idler-roll journaled in said bearings and supporting the lower leaf of said band, said last-mentioned roll being recessed at its middle to permit the embossed material to pass, and a knife for paring or shaving off the ornament, the length of the band being sufficient to give the embossed material time to dry to the proper extent before reaching said knife, substantially as described.

8. A molding-machine comprising a plurality of pulley or band wheels, a metal band or belt trained over said wheels and adapted to provide a traveling support for the plastic material, an impression-roll for embossing said material as it moves along with said band or belt, a knife for shaving off the ornament, the distance between said knife and the impression-roll being sufficient to give the embossed material time to dry to the proper extent before reaching the knife, and the said knife being arranged in such manner that the severed ornament passes over the knife and then moves along resting upon the residue, substantially as described.

9. A molding machine comprising an endless band or belt adapted to serve as a traveling support for the plastic material, a rotary die or impression-roll, and a knife for shaving off the ornament as it moves along with said belt, the arrangement being such that the severed ornament passes over the knife and continues its forward movement resting upon the residue, substantially as described.

10. A molding-machine comprising an endless metal belt adapted to provide a traveling support for the plastic material to be embossed or ornamented, an impression-roll arranged above the upper leaf of said belt and provided with a periphery suitable for embossing or ornamenting the composition as it moves along with the said belt, knives for trimming off the surplus marginal portions of the composition after passing under the impression-roll, a knife for separating the ornament from the belt, means for removing the residue from the belt, and means for driving said belt.

11. A molding-machine comprising a plurality of pulleys or belt-wheels having crowned peripheries, an endless steel band or belt trained over said wheels and adapted to provide a traveling support for the composition or other plastic material, means for driving said belt, an impression-roll arranged above the upper leaf of said belt, a pair of circular cutters and a pair of plow-shaped trimmers for cutting and trimming off the surplus marginal portions of the composition after it passes under the said impression-roll, a spiral-shaped knife arranged over one of said pulleys or belt-wheels and adapted to separate the ornament from the belt or band, and a scraper and a deflector for removing the residue from the said belt.

12. A molding-machine comprising a plurality of pulleys or belt-wheels having crowned peripheries, an endless band or belt trained over said wheels and adapted to provide a traveling support for the plastic material to be operated upon, an impression-roll arranged above the upper leaf of said belt and provided with a periphery suitable for embossing or ornamenting the plastic material as it moves along with the said band or belt, means for trimming off the surplus marginal portions of the plastic material after passing from under the said roll, a knife for separating the embossed or ornamental material from the band or belt, means for removing the residue therefrom, scrapers for scraping the peripheries of the wheels over which the band or belt is trained, and means for scraping the inner surface of said band or belt.

13. A molding-machine comprising a plurality of band-wheels having crowned peripheries, an endless steel band trained over said wheels

and adapted to provide a traveling support for the plastic material to be operated upon, means for embossing or ornamenting said material as it moves along with said band, a spiral knife arranged over one of said wheels and adapted to sever the ornament from the band, means for removing the residue therefrom, and adjusting devices adapted and applied for adjusting said knife.

14. A molding-machine comprising a plurality of band-wheels having crowned peripheries, an endless steel band trained over said wheels and adapted to provide a traveling support for the composition, means for embossing or ornamenting said composition as it moves along with the said band, means for trimming off the surplus marginal portions of the composition, a knife for severing the ornament from the band, means for removing the residne therefrom, and adjusting devices adapted and applied for adjusting the said knife vertically and horizontally and for raising and lowering the heel of the same so as to vary its angle, substantially as and for the purpose set forth.

15. A molding-machine comprising a plurality of band-wheels, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, springs applied to one of said wheels for the purpose set forth, means for driving said belt, means for embossing or ornamenting said plastic material as it moves along with said belt, and means for separating the ornament from the belt.

16. A molding-machine comprising a plurality of band-wheels having crowned peripheries, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, means for driving said band, means for embossing or ornamenting said material as it moves along with said band, means for separating the ornament from the band, and adjusting devices adapted and applied for skewing said wheels, substantially as and for the purpose set forth.

17. A molding-machine comprising a plurality of band-wheels, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, swiveled bearings for said wheels whereby such wheel can be skewed at will, adjusting devices adapted and applied for adjusting said wheel, means for driving said band, means for embossing or ornamenting said plastic material as it moves along with said band, and means for separating the ornament from the band.

18. A molding-machine comprising suitable band-wheels, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, means for driving said band, swiveled bearings for one of said wheels whereby such wheels can be skewed at will, adjusting devices adapted and applied for adjusting said wheels, springs applied to one of said wheels so as to permit such wheel to yield under an increased tension of the band, means for embossing or ornamenting the plastic material as it moves along with said band, and means for separating the ornament from the band.

19. A molding-machine comprising suitable band-wheels, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, the bearings for one of said wheels being swiveled in boxes or blocks which slide in ways, springs applied to said boxes or blocks for the purpose of permitting the wheel to yield under an increased tension of the band, adjusting devices adapted and applied for adjusting said boxes or blocks along the said ways, means for driving said band, means for embossing or ornamenting said plastic material as it moves along with said traveling band, and a knife for severing the ornament from the band.

20. A molding-machine comprising suitable band-wheels, an endless band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, means for driving said band, bearings for one of said wheels swiveled in boxes or blocks which slide in ways, threaded rods secured to said boxes or blocks, nuts on said rods, coil-springs arranged on the rods between the said nuts and the body-frame, means for embossing or ornamenting said plastic material as it moves along with said band, and a knife for severing the ornament from the said band.

21. A molding-machine comprising a plurality of band-wheels having crowned peripheries, an endless steel band trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, means for embossing or ornamenting the said plastic material as it moves along with said band, and a spiral knife arranged obliquely above the band at a point over one of said wheels, and adjusting devices adapted and applied for adjusting said knife and varying its angle and also for raising and lowering it and shifting it horizontally.

22. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting the plastic material as it moves along with said band or belt, a bar rotatably mounted in vertically-adjustable blocks and arranged obliquely above the said band or belt, nuts for adjusting said blocks, a frame slidably mounted upon said bar, a screw for adjusting said frame, and a knife adjustably secured to said frame and adapted to separate the ornament from the band or belt.

23. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said plastic material as it moves along with said band or belt, a spiral knife adjustably mounted upon said rods and adapted to separate the ornament from the band or belt, and means for removing the residue therefrom, said means being also adjustably mounted upon said rods.

24. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said plastic material as it moves along with said band or belt, a rod arranged at each side of the upper leaf of said band or belt, trimmers adjustably mounted upon said rods and adapted to trim off the surplus marginal portions of the plastic material after having its central portion embossed or ornamented, and a knife for separating the ornament from the said band or belt.

25. A molding-machine comprising a plurality of band-wheels, an endless band or belt trained over said wheels and adapted to provide a traveling support for the composition, means for embossing or ornamenting said composition as it moves along with said band or belt, means for separating the ornament from the band or belt, rods arranged at either side of said band-wheels, and scrapers adjustably mounted upon said rods and adapted to scrape the peripheries of said wheels.

26. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said material as it moves along with said band or belt, vertically-disposed rods arranged at either side of said band or belt, and idler-rolls adjustably supported by said rods and adapted to support the upper leaf of said band or belt, substantially as and for the purpose set forth.

27. A molding-machine comprising a couple of band-wheels, an endless band or belt trained over said wheels and adapted to provide a traveling support for the plastic material to be treated, an impression-roll arranged over the upper leaf of said band or belt and adapted to emboss or ornament the said material as it moves along with said band or belt, means for separating the ornament from the band or belt, vertically-disposed rods arranged at either side of the band or belt, and idler-rolls adjustably supported by said rods and adapted to support the upper and lower leaves of said band or belt.

28. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said plastic material as it moves along with said band or belt, means for severing the ornament from the band or belt, means for removing the residue therefrom, and means for scraping the inner surface of said band or belt.

29. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said material as it moves along with said band or belt, a couple of plow-shaped trimmers provided with knives and adjustably supported and arranged for trimming off the surplus marginal portions of the plastic material after the central portion of the same has been embossed or ornamented, means for severing the ornament from the band or belt, and means for removing the residue therefrom.

30. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said band or belt, means for separating the ornament from the band or belt, a scraper for separating the residue from the band or belt, a supporting-roll for the band or belt arranged under the said scraper, and a deflector arranged in the rear of said scraper and adapted to remove the residue from the band or belt.

31. A molding-machine comprising a movable member having an endless exterior surface adapted to support the plastic material to be treated, means for driving said member, an impression-roll having a periphery adapted to emboss or ornament the said material as it moves along with said surface, means for guiding the plastic material to the said roll, adjustable trimmers for trimming off the surplus marginal portions of the plastic material after leaving the roll, an adjustable knife for shaving off the ornament, an adjustable scraper for separating the residue from said surface, and an adjustable deflector for directing the residue off at each side of said surface.

32. A molding-machine comprising a plurality of band-wheels, an endless band or belt trained over said wheels and adapted to provide a traveling support for the composition, a sprocket-chain for driving one of said wheels, idler-rolls for supporting said chain, said idler-rolls being so formed that they contact only with the side portions of the chain, means for embossing or ornamenting said material as it moves along with said band or belt, and means for separating the ornament from the band or belt.

33. A molding-machine comprising a moving or traveling support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said traveling support, a rod arranged horizontally and transversely above said traveling support, and a couple of trimmers adjustably mounted upon said support and adapted to trim off the surplus marginal portions of said plastic material.

34. A molding-machine comprising a moving or traveling support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said support, a rod arranged horizontally and transversely above said support and mounted for both horizontal and vertical adjustment, and a couple of plow-shaped trimmers adjustably mounted upon said rod and adapted to trim off the surplus marginal portions of said plastic material.

35. A molding-machine comprising a traveling or moving support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said support, a rod arranged at each side of said support, a casting or clamping-piece arranged upon said rods, a socket-piece removably secured to the top of said clamping-piece, a stem secured in each socket-piece, a rod secured to the heads of said stems and extending horizontally above the said traveling support, and a couple of trimmers adjustably mounted upon said rod and adapted to trim off the surplus marginal portions of said plastic material.

36. A molding-machine comprising a traveling or moving support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said support, trimmers arranged above said support and adapted to trim off the surplus marginal portions of the said plastic material, a rod arranged at either side of said support, a socket-piece adjustably clamped upon each rod, a stem secured in each socket-piece, and a roll journaled in the heads of said stems and arranged to bear against the under side of said support at a point under, or substantially under, the said trimmers.

37. A molding-machine comprising a moving or traveling support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said support, a couple of circular cutters mounted for vertical adjustment and held down by spring-pressure upon the upper surface of said traveling support.

38. A molding-machine comprising a moving or traveling support for the plastic material to be treated, means for embossing or ornamenting said material as it moves along with said support, a vertically-adjustable frame carrying a couple of rotary disks having sharp edges which contact with the upper surface of said support, said frame being held down by spring-pressure, and adjusting devices adapted and applied for raising and lowering said frame and disks.

39. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said material as it moves along with said band or belt, a vertically-adjustable frame carrying a couple of disks having sharp edges which contact with the upper surface of said band or belt, the said frame being held down by spring-pressure, and suitable bevel-gearing and screws for raising and lowering said frame and disks.

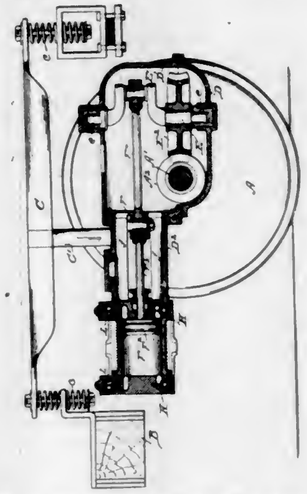
40. A molding-machine comprising an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, means for embossing or ornamenting said material as it moves along with said band or belt, a vertically-adjustable frame carrying a couple of disks having sharp edges which contact with the upper surface of said band or belt, a rod extending through an opening in the lower portion of said frame and having its lower portion threaded, a shoulder on the upper end of said rod, a coil-spring arranged on said rod between said shoulder and said frame, a bevel-gear having a threaded bore which engages the threaded portion of said rod, a second bevel-gear engaging said first bevel-gear, and means for rotating said second bevel-gear, substantially as and for the purpose set forth.

41. A molding-machine comprising an endless metal band or belt adapted to provide a traveling or moving support for the plastic material to be treated, a shaft arranged transversely above said support, an impression-roll mounted upon said shaft, a bearing for said shaft arranged at each side of said roll, vertically-adjustable boxes to which said bearings are pivoted or trunnioned, housings arranged at each side of the upper leaf of said metal band or belt and providing guideways for said boxes, and adjusting devices adapted and applied for raising and lowering said boxes and thereby raising and lowering said shaft and roll.

42. The combination of an endless band or belt adapted to provide a traveling support for the plastic material to be treated, means for driving said band or belt, a vertically-adjustable shaft arranged above said band or belt, an impression-roll mounted upon said shaft, a pair of guides arranged to guide the plastic material to said roll and having telescoping or extensible connections with the body-frame whereby said guides can be adjusted laterally, a pair of rotary disks having sharp edges which contact with the upper surface of said band or belt and which cut through the plastic material after the same leaves the said roll, a pair of plow-shaped trimmers for trimming off the surplus marginal portions of the said material after being separated from the central portion by said rotary cutting-disks, a knife for shaving or cutting off the ornament, and means for removing the residue from the surface of the said band or belt.

43. The combination of a traveling band or belt, the rotary impression-roll, the laterally-adjustable guides, the laterally-adjustable cutting-disks, the laterally-adjustable plow-like trimmers, the crowned band-wheels over which said band or belt is trained, the spiral knife for shaving or cutting off the ornament, and means for removing the residne from said band or belt.

661,572. AIR-BRAKE MECHANISM FOR CARS. DENNIS BEE NER, Detroit, Mich. Filed Feb. 25, 1898. Renewed Apr. 30, 1900. Serial No. 14,916. (No model.)



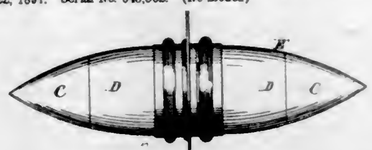
Claim.—1. The combination of the axle, the vertical crank-shaft, gear connecting the axle and crank-shaft, and the pump, substantially as described.

2. The combination of the axle, the worm-gear, the vertical crank-shaft and the pump, substantially as described.

3. The combination of the axle, the case divided horizontally on a line with the axle, the crank-shaft and gear and the interior bearings for the crank-shaft formed in the opposite portions of the case, said bearings adapted to assemble with and support the shaft when the case is united over the axle, substantially as described.

4. The combination of the axle, the pump the connecting-rod, the gear operated from the axle and a crank operated by said gear for oscillating and reciprocating the connecting-rod in a horizontal plane, substantially as described.

661,573. BUOY. CHARLES I. BERG, New York, N. Y. Filed July 22, 1897. Serial No. 645,562. (No model.)



Claim.—1. A disaster-buoy consisting of a hollow metal body formed in two parts and provided with interlocking and securing flanges having cam or wedge surfaces adapted to draw the parts tightly together when the two parts are given relative rotation, and a radial vane or disk extending about the buoy, substantially as described.

2. An elongated buoy adapted to float horizontally and having a vane or disk subetantially as described, projecting above the same in a single plane, said vane being adapted by the action of the wind thereon to determine the position of the buoy with relation to the wind.

3. A disaster-buoy consisting of a hollow metal body formed in two parts and provided with interlocking and securing flanges having cam or wedge surfaces adapted to draw the parts tightly together when the two

parts are given relative rotation, and a radial vane or disk extending about the buoy substantially perpendicular to its longest dimension, substantially as described.

4. A disaster-buoy consisting of a hollow metal body formed in two parts and provided with interlocking and securing flanges having cam or wedge surfaces adapted to draw the parts tightly together when the two parts are given relative rotation, one of said parts having an annular recess in its joining end and a compressible ring in said recess adapted to be engaged by the end of the other part to form a water-tight joint, substantially as described.

5. The combination with an elongated buoy adapted to freely float with its axis or longest dimension horizontally, and an annular vane substantially as described extending about the buoy in a plane substantially perpendicular to its axis or longest dimension.

6. A disaster-buoy having a radial vane or disk extending about it substantially perpendicular to its longest dimension, said vane or disk being mounted eccentrically upon the buoy whereby it acts to keep one side of the buoy upward at all times, substantially as described.

7. A disaster-buoy composed of inner and outer shells and divided into two separable parts provided with locking means for securing them tightly together, and a radial disk surrounding the buoy and extending substantially perpendicular to the longest dimension of the buoy, substantially as described.

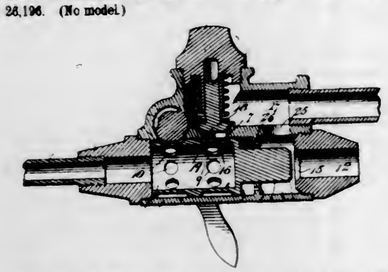
8. A disaster-buoy composed of inner and outer shells and divided into two separable parts provided with locking means for securing them tightly together, and a radial vane or disk surrounding the buoy and extending substantially perpendicular to the longest dimension of the buoy, said disk being eccentrically mounted upon the buoy whereby one side of the buoy is kept uppermost at all times, substantially as described.

9. A disaster-buoy composed of two parts, each having an inner and an outer shell forming a closed air-chamber, a rotative cam-locking device for joining the two parts, a compressible packing-ring between the two parts, and a radial vane or disk extending about the buoy substantially perpendicular to its longest dimension, substantially as described.

10. A disaster-buoy composed of two separable parts, each composed of inner and outer shells, combined with means for fastening the parts together, substantially as described.

11. A buoy comprising two hollow sections and means for detachably securing the hollow ends of said sections together, the junction plane being substantially central of the buoy and perpendicular to its longest dimension, and a radial projecting vane secured to one section adjacent to and substantially parallel with the junction plane of the two sections.

661,574. QUICK-RELEASING VALVE FOR AIR-BRAKES. PERRY H. CORBETT, Hannibal, Mo. Filed Aug. 7, 1900. Serial No. 26,196. (No model.)



Claim.—1. A release-valve comprising an inlet-passage, a piston-operating chamber, a piston mounted therein, an exhaust opening and closing member secured to the piston, a brake-cylinder-operating chamber, a valve-passage leading from the piston-operating chamber to the brake-cylinder-operating chamber, an outlet-passage, an exhaust-chamber, a passage leading from the brake-cylinder-operating chamber to the exhaust-chamber, an exhaust-passage, and air-ports leading from the exhaust-chamber to the piston-operating chamber, whereby when air passes through said ports it acts on the opposite side of the piston and returns to its initial position and opens the exhaust-passage.

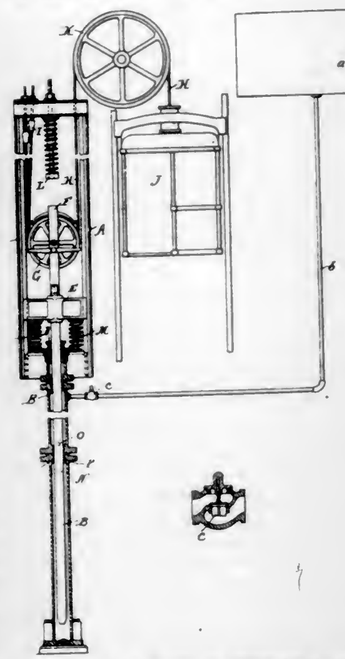
2. A release-valve comprising an inlet-passage, a piston-operating chamber, a piston mounted therein, an exhaust-passage opened and closed by said piston, a brake-cylinder-operating chamber, a valved passage leading from the piston-operating chamber to the brake-cylinder-operating chamber, a cut-out valve also communicating the piston-operating chamber with the brake-cylinder-operating chamber, an outlet-passage, and a passage or passages communicating with the other side of the piston for returning it to its initial position.

3. A release-valve comprising an inlet-passage, a piston-operating chamber, a hollow cylindrical piston closed at one end and provided with one or more annular grooves and air-ports leading into said groove from the interior of the piston, a brake-cylinder-operating chamber, one or more valved passages leading from the piston-operating chamber to the brake-cylinder, an air-outlet passage, an air-exhaust passage opened and closed by the piston and a passage or passages communicating with the outer side of the piston for returning it to its initial position.

4. A release-valve comprising an inlet-passage, a piston-operating chamber, a piston mounted therein, an exhaust opening and closing member secured to the closed end of the piston and being a cylindrical extension thereof but smaller in diameter to form impact-shoulders, a brake-cylinder-operating chamber, a valved passage leading from the operating-chamber to the brake-cylinder-operating chamber, an outlet-passage, an exhaust-chamber, a passage leading from the brake-cylinder-operating chamber to the exhaust-chamber, an exhaust-passage and air-ports leading from the exhaust-chamber to the piston-operating chamber whereby when air passes through said ports it acts on the opposite side of the piston and returns to its initial position and the exhaust-passage is opened.

5. A release-valve comprising an inlet passage, a piston-operating chamber, a hollow cylindrical piston having one end closed and its wall provided with two annular grooves and a series of holes leading from the interior of the piston to said grooves, a brake-cylinder-operating chamber, a cut-out valve communicating with the piston-operating chamber and the brake-cylinder-operating chamber, a passage connecting the piston-operating chamber and the brake-cylinder-operating chamber, a normally closed valve for the said passage, an outlet-passage, an exhaust-chamber, a passage connecting the brake-cylinder chamber and the exhaust-chamber, an exhaust-passage, an exhaust opening and closing member consisting of a cylindrical extension of the piston smaller in diameter to form an impact-shoulder and air-ports connecting the exhaust-chamber with the piston-operating chamber substantially as described.

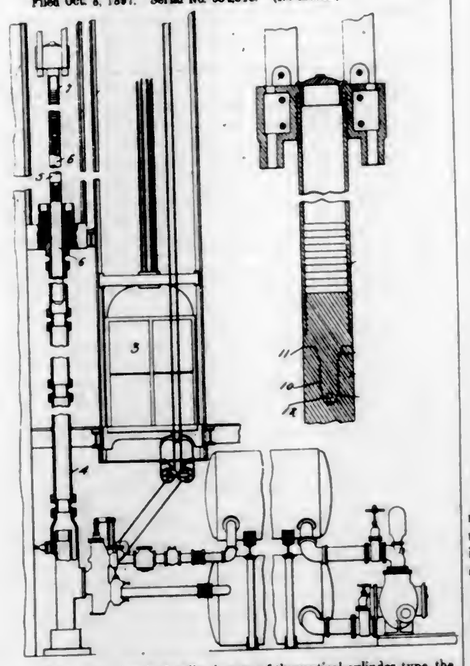
661,575. HYDRAULIC ELEVATOR. RICHARD T. CRANE, Chicago, Ill., assignor to the Otis Elevator Company, of New Jersey. Filed Dec. 26, 1896. Serial No. 617,036. (No model.)



Claim.—1. In an elevator, the combination of a car, a ram, cable connections therebetween, a closed cylinder in which said ram works, and having an internal diameter greater than the diameter of the ram, a series of guide-bearings for said ram at intervals in the cylinder through which the ram freely works, means for permitting the passage of the operating medium through said guides and about said ram, a hydraulic pressure operating to maintain said cylinder constantly filled with water, means for controlling the supply of said water, whereby the ram is raised by said pressure to lower the car, and means for controlling the exhaust of said water from the cylinder, whereby the car is raised and the weight of the hoisting-chain is compensated by the fall of the ram in the cylinder, as and for the purpose set forth.

2. In an elevator, the combination of a car, a ram, cable connections therebetween, a closed cylinder in which said ram works, having an internal diameter greater than the diameter of the ram, a series of guide-bearings for said ram at intervals in the cylinder through which the ram freely works, said ram being externally tapered to permit of the passage of the operating medium about said ram, supply and exhaust openings for said cylinder adjacent to the lower end thereof but somewhat removed therefrom, and means for controlling the supply of water to an exhaust thereof from said cylinder, whereby said cylinder is constantly maintained filled and the ram is raised and lowered, as and for the purpose set forth.

661,576. HYDRAULIC-ELEVATOR RAM. RICHARD T. CRANE, Chicago, Ill., assignor to the Otis Elevator Company, of New Jersey. Filed Oct. 8, 1897. Serial No. 654,510. (No model.)



Claim.—1. In a hydraulic elevator of the vertical-cylinder type, the combination with a car and its operating-cylinder, of a ram connected to the hoisting-cables of the car and operating in said cylinder, said ram built up of removable sections secured together, some of said sections being solid and some hollow, as and for the purpose set forth.

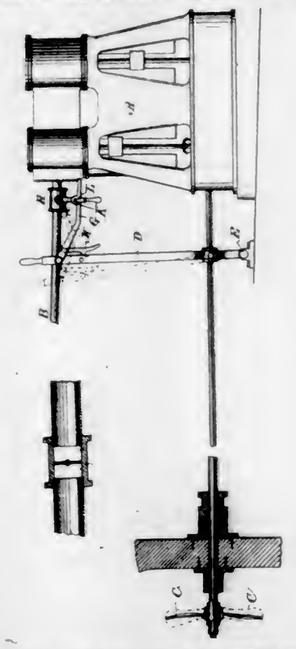
2. In a hydraulic elevator of the vertical-cylinder type, the combination with a car and its operating-cylinder, of a ram connected to the car-hoisting cables the operating in said cylinder, said ram being composed of interspersed removable solid and hollow portions, the hollow portions adapted to receive a variable weight, as and for purpose set forth.

3. In a hydraulic elevator of the vertical-cylinder type, the combination with a car and its operating-cylinder, of a ram connected to the car-hoisting cables and operating in said cylinder, said ram composed of removable solid and hollow sections, said sections being secured together by a joint comprising a threaded socket formed in the end of one section and having tapering portions on either side of the threaded portion, and a threaded pin or projection on the adjacent end of the next section, said pin or projection being correspondingly threaded and tapered, as and for the purpose set forth.

4. In an apparatus of the class described, a counterbalancing hoisting-ram composed of interspersed solid and hollow sections secured together by a joint comprising a threaded socket formed in the end of one section and a threaded pin or projection in the adjacent end of the next section adapted to be received in said socket, and a pin for securing said threaded projection in said socket, as and for the purpose set forth.

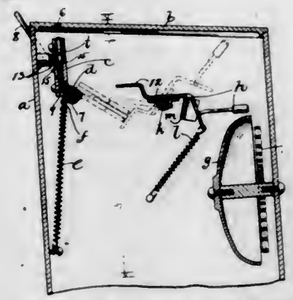
5. In an apparatus of the class described, a counterbalancing hoisting-ram, composed of removable solid and hollow sections, said sections being provided with squared abutting ends, one of the sections having a threaded socket, and tapering walls on opposite sides of the threaded portion, and the adjacent end of the other section provided with a correspondingly threaded and tapered projection adapted to be received in said socket, as and for the purpose set forth.

661,577. MOTOR-CONTROLLING DEVICE. EDWARD N. DICKERSON, Stovall, N. C. Filed Aug. 16, 1900. Serial No. 26,996. (No model.)



Claim.—The combination in a vessel, of a reversible propeller, power mechanism for driving the same, a lever connected with the propeller-reversing mechanism and with the throttle-valve of the power mechanism, and means for disconnecting the throttle-valve from said lever, substantially as described.

661,578. TOLL-COLLECTING DEVICE FOR TELEPHONES. WILLIAM A. FOSS, Cleveland, Ohio, assignor to the American Toll Telephone Company, same place. Filed July 26, 1900. Serial No. 24,878. (No model.)



Claim.—1. A toll-collecting machine comprising an oscillating toll-receiving hopper, means for oscillating the hopper to the extent required to discharge the toll therefrom, a gong or sound-yielding body, and a suitably-applied movable hammer having an arm extending into the sweep of the toll-representing coin or check so as to result in the operation of the hammer directly by the said coin or check during the toll-discharging oscillation of the hopper.

2. A toll-collecting machine comprising an oscillating hopper for receiving the toll-representing coin or check edgewise, which hopper has

its rear and forward side walls slotted, as at 15, from the upper edges of the said walls downwardly; means for oscillating the hopper; a gong or sound-yielding body, and a suitably-applied tiltable hammer having an arm extending into the sweep of the slotted portions of the aforesaid walls of the hopper so that a coin or check within the hopper shall come into engagement with the said hammer-arm at the slots in the aforesaid walls of the hopper during the oscillation of the hopper into its toll-discharging position.

3. A toll-collecting machine comprising a signaling device, a suitably-supported oscillating shaft, a hopper fixed upon the shaft and adapted to receive the said toll-representing coin or check, means for oscillating the shaft, an inclosing case having a slot registering with the hopper, a coil-spring arranged below the shaft and having its lower end attached to the inclosing case, a chain attached to the upper end of the spring and leading thence to the rear side of and over the shaft to which the chain is fixed.

4. A toll-collecting machine comprising a horizontally-arranged shaft, several toll-receiving hoppers fixed upon the shaft, means for oscillating the shaft, gongs or sound-yielding bodies, and mechanisms for sounding the different sound-yielding bodies, respectively, and arranged to be operated by a toll-representing coin or check within the different hoppers, respectively, during the toll-discharging oscillation of the hoppers.

5. A toll-collecting machine comprising an inclosing case *a* having a top provided with slots 6; an oscillating shaft *d*; hopper *c* fixed upon the shaft; means for oscillating the shaft; means acting to retain the shaft and attached hoppers in their normal position; gongs or sound-yielding bodies *g*; the rod *k* and the hammers *h* journaled upon the said rod, all arranged and operating substantially as shown, for the purpose specified.

661,579. PURSE OR BAG FRAME. ALBERT F. FULLER, Newark, N. J., assignor to the J. E. Mergott Company, of New Jersey. Filed Sept. 21, 1900. Serial No. 30,668. (No model.)



Claim.—1. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch on one of said frame-sections, comprising, a casing secured upon the frame-section, provided with a front and back piece, each piece having an opening therein, and a spring-actuated holding or locking catch-plate in said casing, having a forwardly-projecting portion which extends into and through the opening in the front piece of the casing, an upwardly and forwardly extending finger-piece on said portion of the catch-plate, a rearwardly-projecting portion on said catch-plate which extends into and through the opening in the back piece of said casing, and means on said rearwardly-projecting portion for engagement with the other frame-section of the bag or purse frame, substantially as and for the purposes set forth.

2. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch on one of said frame-sections, comprising a casing secured upon the frame-section, provided with a front and back piece, each piece having an opening therein, a holding or locking catch-plate in said casing, consisting, essentially, of a main body portion, and oppositely-projecting lugs or projections thereon, all arranged between the inner surfaces of said front and back pieces to prevent lateral displacement, a forwardly-projecting portion on said body portion of the catch-plate which extends into and through the opening in the front piece of the casing, an upwardly and forwardly extending finger-piece thereon, a rearwardly-projecting portion on said catch-plate which extends into and through the opening in the back piece of said casing, a nosing on said rearwardly-projecting portion, for holding engagement with the other of said frame-sections, and a spring in said casing bearing on said main body portion of the catch-plate, substantially as and for the purposes set forth.

3. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch secured upon one of the frame-sections, comprising, a casing, consisting, essentially, of an upwardly-curved top, a front piece having an opening therein, and a back piece having an opening therein, lugs at the opposite ends of said curved top for securing said casing on said frame-section, a catch-plate in said casing, having a locking or holding portion extending into and through the hole in said back piece, a forwardly-projecting portion extending into and through the opening in said front piece, a spring in said casing, arranged over the main body portion of said catch-plate and having its ends in holding engagement with the inner surface of the curved top of said casing, and a finger-piece on said forwardly-projecting portion of said catch-plate for raising the locking or holding portion of said catch-plate by means of a downward pressure on said finger-piece, against the action of the said spring, substantially as and for the purposes set forth.

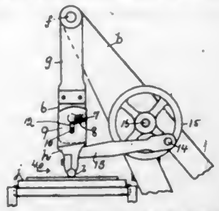
4. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch on one of said frame-sections, comprising, a casing, consisting, essentially, of an upwardly-curved top, a front piece having an opening therein, and a back piece having an opening therein, lugs at the opposite ends of said curved top for securing said casing on said frame-section, a catch-plate in said casing, a pair of oppositely-arranged lugs or ears on said catch-plate arranged between said front and back pieces of the casing to prevent lateral displacement, a locking or holding portion extending into and through the opening in said back piece, a forwardly-projecting portion extending into and through the opening in said front piece, a spring in said casing, arranged over the main body portion of said catch-plate and having its ends in holding engagement with the inner surface of the curved top of said casing, and a finger-piece on said forwardly-projecting portion of said catch-plate for raising the locking or holding portion of said catch-plate by means of a downward pressure on said finger-piece against the action of the said spring, substantially as and for the purposes set forth.

5. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch on one of said frame-sections, comprising, a casing, having an opening in its side, and a spring-actuated holding or locking catch in said casing, provided with a portion extending into and through said opening and having a fulcrumal bearing upon the upper surface of one of said frame-sections, outside and independent of the lock or catch casing, substantially as and for the purposes set forth.

6. In a bag or purse frame, the combination, with a pair of hinged or pivoted frame-sections, of a lock or catch on one of said frame-sections, comprising, a casing, consisting, essentially, of a top piece, a front piece having an opening therein, and a back piece having an opening therein, a spring in said casing, a catch-plate in said casing having a portion arranged directly beneath said spring, a locking or holding portion on said catch-plate extending into and through said opening in the back piece for engagement with the other frame-section, and a forwardly-projecting portion extending into and through said front piece of the casing, provided with a finger-piece, and having a fulcrumal bearing upon the upper surface of the frame-section to which the lock or catch casing is secured, outside and independent of said casing, substantially as and for the purposes set forth.

7. In a bag, or the like, the combination, with the side piece *a* and a pocket *b*, of a frame secured thereto, consisting, essentially, of a frame-section *c* and securing-plate *d'* between which portions of the piece *a* and the pocket *b* are arranged, and rivets or pins *d* for securing said parts together and the frame-section *c* in position, a second frame-section *e* hinged to said frame-section *c*, an inlay *h* between which and the frame-section *e* other portions of the side piece *a* and the pocket *b* are placed, and rivets or pins *i* for securing said parts together and the frame-section *e* in position, substantially as and for the purposes set forth.

661,580. LEATHER-WORKING MACHINE. EDWARD HAYES, Lynn, Mass., assignor to the Vaughn Machine Company, Portland, Me. Filed Apr. 4, 1899. Serial No. 711,664. (No model.)



Claim.—1. In a machine of the class described, the combination with a pendulum, and means to oscillate it, of a tool-carrier connected to said pendulum to move in the same direction, and a cam to act on said tool-carrier to move it independent of the said pendulum, for the purpose specified.

2. In a machine of the class described, the combination with a pendulum having a fixed fulcrum, and means to oscillate it, of a tool-carrier connected to said pendulum to move in the same direction and to permit of movement in another direction independent of the pendulum, and means to effect said independent movement of the tool-carrier, substantially as described.

3. In a machine of the class described, the combination with a bed, of a tool-carrier provided with a tool cooperating therewith, a pendulum pivoted to a stationary or fixed support and movable in the arc of a circle in the direction of the length of the bed, means to loosely connect said tool-carrier with said pendulum to move in the direction of the length of the bed, and means to move said tool-carrier bodily in a different direction from that in which the pendulum is moved, substantially as described.

4. In a machine of the class described, the combination with a stationary support, of a pendulum pivoted thereto to move in the arc of a circle, a tool-carrier connected to said pendulum to move with it and to move independent thereof in the direction of the length of the pendulum, and means to effect said independent movement of the tool-carrier while moving with the said pendulum.

5. In a machine of the class described, the combination with a stationary support, of a pendulum pivoted thereto, a tool-carrier connected to said pendulum, means to move said pendulum in the arc of a circle, and a cam to act on said tool-carrier and cause it to be moved in a substantially straight path, substantially as described.

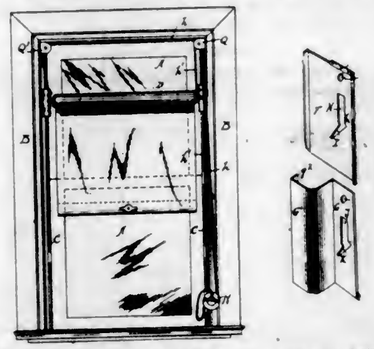
6. In a machine of the class described, a bed composed of two parts, the lower surface of the upper part being concaved transversely for substantially its entire length, and the upper surface of the lower part being correspondingly curved, a lug or projection depending from the lower surface of the upper part intermediate of its sides and extended into a slot or opening formed in the lower part intermediate of its sides, and set-screws to engage said lug or projection, substantially as described.

7. In a machine of the class described, the combination with a bed to support the material, of a rotatable support for said bed, yielding means interposed between said bed and its support, and means to lock said rotatable support in its operative position, substantially as described.

8. In a machine of the class described, the combination with a bed, of a rotatable support therefor having yielding means attached to opposite sides, and means to secure said support against rotation, substantially as described.

9. In a machine of the class described, the combination with a bed to support the material, of a vertically adjustable and rotatable support for said bed, substantially as described.

661,581. ADJUSTABLE WINDOW-SHADE. ROBERT R. JOHNSON, Detroit, Mich. Filed Mar. 17, 1899. Serial No. 709,385. (No model.)



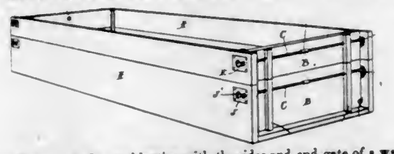
Claim.—1. In an adjustable curtain-fixture, a bracket consisting of two parts, a portion of one of said parts being adapted to pass over a portion of the other of said parts to prevent said parts from being separated in a direction perpendicular to their contiguous portions, said parts of said bracket being provided with registering apertures for receiving the pintle of the curtain-roller, substantially as shown and described.

2. In an adjustable curtain-fixture, a bracket consisting of two parts a portion of one of said parts being adapted to pass over a portion of the other of said parts to prevent said parts from being separated in a direction perpendicular to their contiguous portions, said parts of said bracket being provided with slanting registering apertures for receiving the pintle of the curtain-roller, substantially as shown and described.

3. In an adjustable curtain-fixture, the combination of the way for said fixture, a bracket consisting of two parts a portion of one of said parts being adapted to pass over a portion of the other of said parts to prevent relative motion of said parts in a direction perpendicular to their contiguous portions, said parts of said bracket being provided with registering apertures for receiving the pintle of the curtain-roller, said apertures extending in a direction that forms an angle with the direction in which the bracket is guided by said way, substantially as shown and described.

4. In a pulley for an adjustable bracket, the combination of a sheet-metal casing provided with upturned flanges, one end of the back portion of said casing being extended and sharpened to form a spur, *q*, and the other end being extended to form the lug, *q'*, and a wheel-axle bearing in said flanges, substantially as and for the purpose described.

661,582. WAGON END-GATE. ALBERT H. KRING and SILAS A. KRING, Grape, Mich. Filed Aug. 23, 1900. Serial No. 27,815. (No model.)



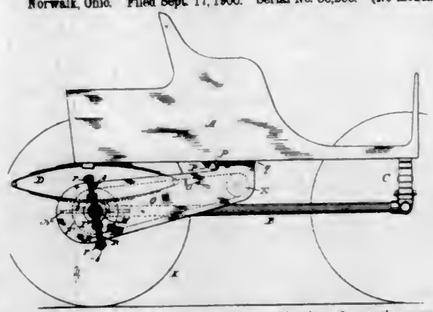
Claim.—1. In combination with the sides and end-gate of a wagon-box, a plate secured to one of said sides and having an opening provided with a lateral slot, a rod secured to said end-gate and provided with a head adapted to pass through said opening and engage the outer side of said plate, and a stop-cleat secured to said side and adapted to engage the end-gate to move the end of said rod into engagement with said lateral slot when said gate is turned at right angles to said side, substantially as described.

2. In combination with the sides and end-gate of a wagon-box, a hook on said gate, a link engaging said hook at one end and extended through the box side and provided with a cam at the opposite end, a downwardly-extending lever on said cam, an arm on said lever adapted to pass through an opening in the box side and engage the outer surface of the gate near its lower edge, substantially as described.

3. In combination with the sides and end-gate of a wagon-box, a hook secured to the gate, a plate secured to the box side having an opening and a portion extended at right angles through an opening in said side to form a stop for said hook, a link extending through the opening in said box and plate, and engaging said hook at one end a cam pivoted to the opposite end of said link, a projecting contact-point on said cam adapted to engage said plate at a point above the pivot of said cam and a lever on said cam to engage said plate below said pivot, substantially as described.

4. The combination of wagon-box sides having openings near their ends, plates secured to said sides and over said openings, one of said plates being provided with an opening having a lateral slot and the opposite plate formed with a portion extended at right angles through the opening in said box side to form a stop, an end-gate, stops on said box sides to engage said gate, a rod secured to said gate, a head on one end of said rod to engage the slotted plate, a hook at the opposite end of said rod engaging the stop on the other plate, a link formed with an eye at one end to engage said hook and passing through said plate having the stop, a cam pivoted to the outer end of said link, a downwardly-extending lever on said cam, and an arm on said lever extending through an opening in said box side and engaging said gate, substantially as described.

661,583. GEAR-CASE FOR MOTOR-VEHICLES. FRANK LANKIN, Norwalk, Ohio. Filed Sept. 17, 1900. Serial No. 30,260. (No model.)



Claim.—1. In a motor-vehicle the combination of a motive-power device, a shaft connected to the driven wheels and the mechanism for transmitting power from the motor to the wheel-shaft with a casing inclosing said power-transmitting mechanism supported in suitable manner at the power-device end and at its other end connected to the vehicle-frame by supports of rubber or similar suitable material which constitute

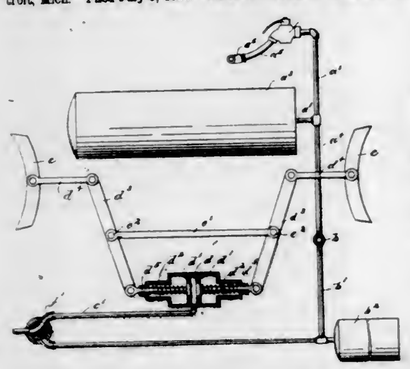
the sole contact of the casing with the vehicle-frame, for the purpose herein set forth.

2. In a motor-vehicle the combination of a motive-power device, a shaft connected to the driven wheels and the mechanism for transmitting power from the motor to the wheel-shaft with a casing inclosing said power-transmitting mechanism suitably supported at its power-device end and at the other end connected to the vehicle-frame at or near the wheel-shaft by cushions or pads of rubber or similar suitable material which constitute the sole contact of the casing with the frame for the purpose hereinbefore set forth.

3. In a motor-vehicle the combination of a motive-power device, a shaft connected to the driven wheels and the mechanism for transmitting power from the motor to the wheel-shaft with a casing inclosing said power-transmitting mechanism suitably supported at its power-device end and at its other end connected to the vehicle-frame by cushions or pads of rubber or similar suitable material arranged about the axis of the wheel-shaft substantially as and for the purpose set forth.

4. In a motor-vehicle the combination of a running-gear, a vehicle-body spring supported on said running-gear, a motive-power device carried by said vehicle-body, a driving-wheel shaft supported by the running-gear and mechanism for transmitting power from the motor to the wheel-shaft with a casing inclosing said power-transmitting mechanism suitably connected at one end to the vehicle-body and at the other to the running-gear by cushions or pads of rubber or similar suitable material arranged substantially about the axis of said wheel-shaft as and for the purpose herein set forth.

661,584. **STORAGE AIR-BRAKE SYSTEM.** WILLIAM K. OMICK, Pontiac, Mich., assignor to the G. P. Magann Air Brake Company, Detroit, Mich. Filed July 3, 1899. Serial No. 722,637. (No model.)



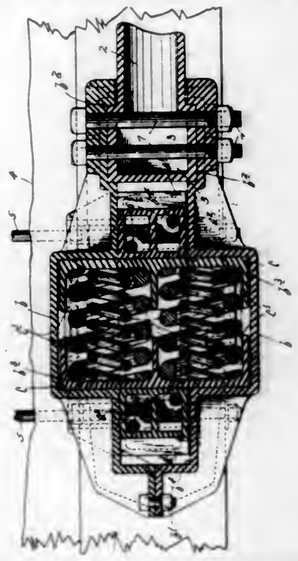
Claim.—In a storage air-brake system, the combination with a main reservoir and a coupling device associated therewith for connecting the main reservoir with a source of air-supply, of an auxiliary reservoir connected with the main reservoir, a reducing-valve interposed between the same, an air-brake cylinder, a pair of pistons therein yieldingly pressed toward each other, a pipe extending between the auxiliary reservoir and the air-brake cylinder at a point between said pistons, suitable connections between said pistons and the brake-shoes and a manually-operated valve interposed in the pipe extending between said auxiliary reservoir and the brake-cylinder and adapted in one position to maintain the communication between the auxiliary reservoir and the air-brake cylinder and in the other position to seal the auxiliary reservoir and connect the air-brake cylinder with the atmosphere, substantially as described.

661,585. **DRAFT-RIGGING FOR CARS.** EDWARD POSSON, St. Paul, Minn. Filed June 25, 1900. Serial No. 21,423. (No model.)

Claim.—1. In a draft-rigging, the combination with an anchored draft bridge or frame, of a draft-bar provided with a draft-yoke embracing said draft bridge or frame, a pair of followers coöperating with said draft-yoke and said draft-bridge, and springs arranged in parallel and compressed between the said pair of followers, substantially as described.

2. The combination with an anchored draft bridge or frame, of a draft-bar provided with a separable draft yoke or stirrup embracing said draft-bridge, a pair of elongated followers held in position by the connected sections of said yoke or stirrup for coöperation with the shoulders thereof and with the said draft-bridge, and a pair of draft-springs located one over the other and compressed between said followers, substantially as described.

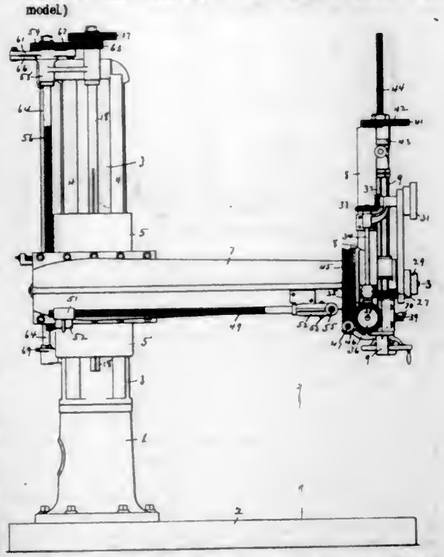
3. The combination with a rectangular draft bridge or frame, of the draft-bar provided with the head 3, the separable draft yoke or stirrup *b* secured to said head 3 by bolts 7 and provided with the semicylindrical follower-seats b^3 and bearing-surfaces b^4, the followers *c* with twin pockets *c'*, and the springs *f* seated in said pockets *c'* and compressed between the said followers *c*, said parts operating substantially as described.



4. The combination with the rectangular draft-bridge *a* having the lugs or flanges a^2 terminated in the key-sections a^4, of a draft-bar provided with a draft yoke or stirrup embracing said draft-bridge, and springs and followers coöperating with said draft-bridge and draft-yoke, substantially as described.

5. A draft frame or device having an integrally-formed and projecting key portion for engagement with alined seats in a pair of adjacent beams or timbers, substantially as described.

661,586. **RADIAL DRILLING-MACHINE.** VERNON F. PRENTICE, Worcester, Mass. Filed Aug. 11, 1896. Serial No. 602,381. (No model.)



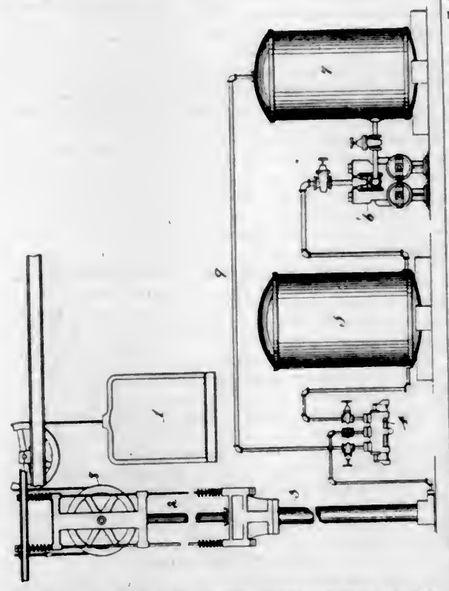
Claim.—1. In a radial drilling-machine the combination of a supporting-post, a sleeve held on said post and capable of rotation about a vertical axis and provided with vertical ways, a carriage capable of sliding on said ways, said carriage having horizontal ways, a radial arm capable of sliding in said horizontal ways, a head supported by the end of said radial arm and capable of rotating about a horizontal axis, and a rotating drill spindle journaled in said head, substantially as described.

2. In a radial drilling-machine, the combination of a supporting-post, a rotatable sleeve journaled on said post and provided with vertical ways, a carriage capable of sliding on said ways, said carriage having horizontal ways, an arm capable of sliding on said horizontal ways, a head carried by said arm and capable of rotating about a horizontal axis and a rotating drill-spindle carried by said arm and with the axis of said drill-spindle in a plane at an angle with the horizontal axis of its rotating head, substantially as described.

3. In a radial drilling-machine, the combination of a vertical post, a sleeve rotatable on said post, a carriage capable of a vertical movement on said sleeve, a radial arm held by said carriage and capable of a radial movement thereon, a head supported by the end of said arm and capable of rotating in a plane at right angles to the radial movement of said arm, and a drill-spindle journaled in said head, substantially as described.

4. In a radial drilling-machine, the combination of a vertical post, a radial arm held by said post, a shaft journaled concentrically in said post, a vertical shaft outside said post and connected with said concentric shaft, a horizontal shaft journaled in said radial arm and a short intermediate shaft between said vertical and said horizontal shafts and gears carried by said intermediate shaft by which said vertical and said horizontal shafts are connected, substantially as described.

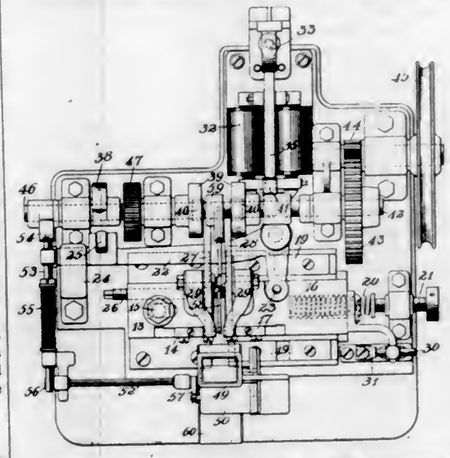
661,587. **HYDRAULIC ELEVATOR.** GEORGE H. REYNOLDS, Chicago, Ill., assignor, by mesne assignments, to the Otis Elevator Company, East Orange, N. J. Filed July 24, 1896. Serial No. 600,456. (No model.)



Claim.—1. In a hydraulic elevator, a vertically-arranged operating-cylinder, a weighted ram arranged to operate therein and connected to the car in combination with a closed storage-tank arranged to receive the exhaust from said cylinder, a pressure-tank connected to said cylinder and forming the source of operating pressure therefor and a pump arranged to deliver the pressure from said storage-tank to said pressure-tank, whereby a portion of the pressure in said cylinder, developed by the excessive weight of the ram in descending is stored up and utilized in effecting the raising of the ram, as and for the purpose set forth.

2. In a hydraulic elevator, a vertically-arranged operating-cylinder, a weighted ram arranged to operate therein and connected to the car, a closed vertically-arranged storage-tank, a pipe delivering from the lower end of said cylinder into the upper end of said storage-tank, a pressure-tank delivering from the end thereof into the lower end of said cylinder, and a pump delivering from the lower end of said storage-tank into said pressure-tank, as and for the purpose set forth.

661,588. **ELECTRIC WELDING APPARATUS.** ADOLPH F. RIETZEL, Lynn, Mass., assignor to the Thomson Electric Welding Company, same place. Filed June 1, 1899. Serial No. 718,939. (No model.)



Claim.—1. In an electric metal-working machine, the combination with clamps forming the terminals of the heating-circuit and relatively movable to and from one another, of means for automatically opening and closing said clamps at predetermined intervals, said opening means being mounted upon the bed of the machine and unconnected with the clamps.

2. In an electric metal-working machine, the combination with clamps forming the terminals of the heating-circuit and relatively movable to and from one another, of means for automatically opening and closing said clamps at predetermined intervals, said opening means being mounted upon the bed of the machine and unconnected with the clamps, and an automatic feeding mechanism for supplying to the clamps the articles to be welded.

3. In an electric metal-working machine, the combination with clamps forming the terminals of the heating-circuit and relatively movable to and from one another, of means unconnected with said clamps and fixed to the bed of the machine for automatically opening them at predetermined intervals, means for automatically closing them, means for cutting off the current when the clamps are moved toward one another, and means for automatically turning on the current when the clamps are closed upon the work.

4. In an electric metal-working machine, the combination with the clamps which form the terminals of the heating-circuit, of means for automatically moving one of the clamp-supports for upsetting the work and automatically cutting off the current, and means fixed to the bed of the machine and independent of the clamps for automatically opening them when the work is done.

5. In an electric metal-working machine, the combination with the clamps which form the terminals of the heating-circuit, of the jaws on one side of the clamps, a lever carrying each jaw on the other side of each clamp, springs for moving said levers in one direction and cams acting directly upon said levers and constructed to move them in the opposite direction at predetermined intervals.

6. In an electric metal-working machine, the combination with the spring-returned clamping-levers, of elbow-levers actuated by cams for closing them on the work and holding them rigidly in that position for a fixed interval, and other cams for moving the elbow-levers to release the clamping-levers.

7. In an electric metal-working machine, the combination with the clamping-levers, of the elbow-levers for closing the clamping-levers upon the work, said elbow-levers each having facets formed upon their upper end by the first of which the clamping-levers engage them when the clamps are opened, by the second of which they gradually force the clamping-levers down upon the work, and by the third facet hold them fixed in that position for a predetermined interval.

8. In an electric metal-working machine, the combination with the automatically opening and closing clamps which form terminals of the heating-circuit, of the movable block carrying one of the clamps, a spring for moving it toward the other clamp, an elbow-lever engaging said block with its short arm and a cam engaging the long arm of said lever to actuate it for moving said block and thereby putting said spring under tension.

9. In an electric metal-working machine, the combination with the

clamps and automatic mechanism for operating them, of a circuit-breaker controlling the heating-current, a relay-magnet for releasing said circuit-breaker, a circuit-closer in circuit with said relay and closed by the movement of one of the clamps, and a cam operated by said automatic mechanism for closing said circuit-breaker.

10. In an electric metal-working machine, the combination with the clamps, of automatic mechanism for closing and opening the clamps, a pivoted ejecting-lever adapted to move between the clamps, and a cam for tripping said lever to eject the work when completed.

11. In an electric metal-working machine, the combination with the spring-returned clamping-levers, of means actuated by cams for closing them on the work and holding them rigidly in that position for a fixed interval, and other cams for moving said means to release the clamping-levers.

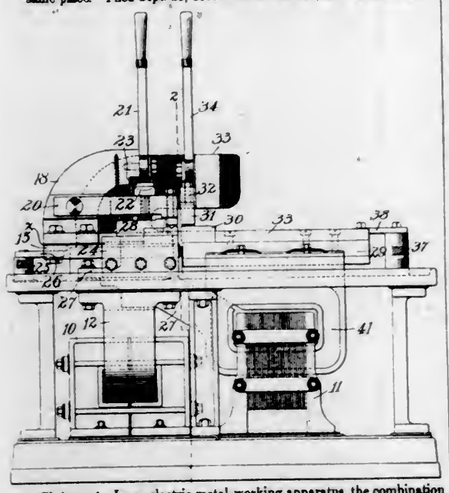
12. In an electric metal-working machine, the combination with the clamping-levers, of devices for closing the clamping-levers upon the work, each having facets formed thereon by the first of which the clamping-levers engage said devices when the clamps are opened, by the second of which they gradually force the clamping-levers down upon the work, and by the third facet hold them fixed in that position for a predetermined interval.

13. In an electric metal-working machine, the combination with the automatically opening and closing clamps, of the movable block carrying one of the clamps, a locking device for this clamp also carried by said block, an actuating device for said clamp unconnected therewith and mounted on the bed of the machine, a spring for moving this latter clamp toward the other one, and means for automatically moving said block back after each operation and thereby putting said spring under tension.

14. In electrical metal working or welding machines, the combination with a movable clamp and means for applying welding pressure thereto, of a device for locking said clamp closed, means for actuating said locking device but unconnected therewith so as to disengage itself therefrom when locked thereby permitting said movable clamp to respond freely to the welding-pressure.

15. In a metal working or welding machine, the combination with a slide carrying one of the work holders or clamps, a device for closing and locking said clamp also carried on said slide, and actuating means for said device not carried by said slide and adapted to free itself from said locking device as soon as it has locked it, whereby the slide and the parts thereon may be unrestrained in their movement.

661,589. ELECTRIC WELDING APPARATUS. ADOLPH F. RIETZEL, Lynn, Mass., assignor to the Thomson Electric Welding Company, same place. Filed Sept. 23, 1899. Serial No. 731,397. (No model.)



Claim.—1. In an electric metal-working apparatus, the combination of an electric heating device, with an electric welding device, means for holding one part of the work in the heating device independently of other parts of the work, means for bringing said part of the work held in the heating device into the circuit of the welding device without moving it from the circuit of the heating device, and means for including another piece of work therewith in the circuit of the welding device.

2. In an electric metal-working apparatus, the combination of an electric heating device provided with clamps for one part of the work, and an electric welding device provided on one terminal with a clamp for another part of the work and having the coöperating terminal located for engagement with the work in the heating-clamps.

3. In an electric metal-working apparatus, the combination of an electric heating-transformer provided with clamps upon the terminals of its secondary for holding one piece of the work, and an electric welding-transformer, having one terminal of its secondary located between the secondary terminals of the heating-transformer at the back of the clamps and the other terminal at the other side of said clamps, as and for the purpose set forth.

4. In an electric metal-working apparatus, the combination with a support for one part of the work, of the coöperating support or clamp whose upper member is borne on an arm arising from the same side of the work as the first support, whereby the apparatus is rendered capable of receiving work of any area.

5. In an electric metal-working apparatus, the combination with the heating-transformer having work-holders movably mounted on its secondary, of a welding-transformer having one pole of its secondary normally fixed and the other provided with a movable work-holder, for the purpose set forth.

6. In an electric metal-working apparatus, the combination with the secondary having one pole or terminal fixed and the other provided with a movable work-holder, the upper member of which is borne by an arm extended to the back of the fixed terminal below the plane of the work-holders and then upwardly and forward, whereby an open space is left in front of the work-holders.

7. In an electric metal-working apparatus, the combination with the secondary of the heating-transformer of a slide upon each terminal thereof each bearing the lower member of a work-holder, an arm mounted upon said slides, a frame pivoted to said arm and carrying at its forward end the upper work-holders, and a lever carried by said arm for closing the work-holders.

8. In an electric metal-working apparatus, the combination with the secondary of the heating-transformer, of a slide upon each terminal thereof each bearing the lower member of a work-holder, an arm mounted upon said slides, a frame pivoted to said arm and carrying at its forward end the upper work-holders, a lever carried by said arm for closing the work-holders, and a lever for moving said slides and the parts mounted thereon.

9. In an electric metal-working apparatus, the combination with the secondary of the heating-transformer, of a slide upon each terminal thereof each bearing the lower member of a work-holder, an arm mounted upon said slides, a frame pivoted to said arm and carrying at its forward end the upper work-holders and means for depressing them, the secondary of the welding-transformer having one terminal located between said slides, a slide upon the other terminal of the latter secondary, a work-holder carried thereby, and a lever for moving said slide and work-holder to and from the coöperating terminal.

10. In an electric welding apparatus, the combination with a heating-transformer and a welding-transformer, of means for holding a piece of work in the former while out of the circuit of the latter, and means for bringing another piece of work into engagement with the first and then including them both in the circuit of the welding-transformer.

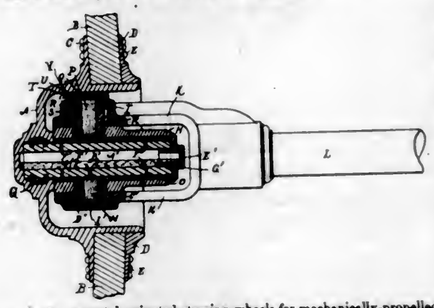
11. In an electric metal-working apparatus, the combination with a heating-transformer and a welding-transformer having their secondaries in intersecting planes, of work-holders on the secondary of the heating-transformer serving to clamp the work against one terminal of the secondary of the welding-transformer, and a work-holder on the other terminal of the welding-transformer secondary adapted to carry the other piece of the work against that held by the clamps of the heating-transformer.

12. In an electric metal-working apparatus, the combination of a heating-transformer, a welding-transformer, and work-holders upon the former serving at the same time as work-holders for one side of the secondary of the latter.

661,590. VEHICLE-HUB. JOSEPH SHAVER, Milwaukee, Wis. Filed July 9, 1900. Serial No. 22,946. (No model.)

Claim.—1. In a separately-pivoted steering-wheels for mechanically-propelled vehicles, the combination of a hollow hub; an inwardly-projecting hollow horizontal trunnion rigidly affixed at one end to said hollow hub; a sleeve within which said trunnion rotates; a sleeve-retaining nut or cap having screw-threaded bearings in the inner wall of said hollow trunnion; two vertical hollow trunnions rigidly affixed at their opposing ends to the walls of said sleeve; a vehicle-axle; bifurcated arms connected with such vehicle-axle, provided with journaled bearings, one above and one below said horizontal trunnion, within said hollow hub, for the reception of said vertical trunnion; and oil ducts or passages communicating from oil-spaces in said trunnions with the bearing-surfaces of said trunnion, substantially as and for the purpose specified.

2. In separately-pivoted steering-wheels for mechanically-propelled vehicles, the combination of a hollow hub; an inwardly-projecting hollow horizontal trunnion rigidly affixed at one end of said hollow hub; a sleeve within which said trunnion rotates; a sleeve-retaining nut or cap having screw-threaded bearings in the inner wall of such hollow trunnion; an oil-aperture formed through said nut or cap for the introduction of oil; two vertical hollow trunnions rigidly affixed at their opposing ends, to the walls of said sleeve, said upper vertical trunnion being provided with an annular flange in which an annular groove is formed for the reception of a corresponding shoulder of the trunnion-bearings; a vehicle-axle; bifurcated arms affixed to said axle, provided with bearings, one above and one below said horizontal trunnion, within said hollow hub, for the reception of said vertical trunnions, and oil ducts or passages communicating from oil-spaces in said trunnions with the bearing-surfaces of said trunnions, substantially as and for the purpose specified.



3. In separately-pivoted steering-wheels for mechanically-propelled vehicles, the combination of a hollow hub; an inwardly-projecting hollow horizontal trunnion rigidly affixed at one end to said hollow hub; a sleeve within which said trunnion rotates; a sleeve-retaining nut or cap having screw-threaded bearings in the inner wall of said hollow trunnion; two vertical hollow trunnions rigidly affixed at their opposing ends to the walls of said sleeve; a vehicle-axle; bifurcated arms provided with journal-bearings, one above and one below said horizontal trunnion, within said hollow hub, for the reception of said vertical trunnions; oil-ducts communicating from the hollow spaces in the said upper vertical trunnion, with its journaled bearings; and an oil-duct communicating from the oil-space in said horizontal trunnion to the hollow space in said lower vertical trunnion; and oil-ducts communicating from the spaces in said lower vertical trunnion, with its journaled bearings, substantially as and for the purpose specified.

661,591. PUMP-STRAINER. JOHN M. STOKES, Snyder, Tex. Filed July 19, 1900. Serial No. 24,237. (No model.)



Claim.—1. A strainer for pumps comprising a hollow core, spacing-bars disposed longitudinally of the core and upon its outer surface, a wire helix wound over the spacing-bars and inclosing a chamber between it and the core, and openings in the core connecting the chamber and the interior of the core, said wire being continued inwardly over the ends of the bars and upon the body of the core to form closures for the ends of the chamber, and attached to the body.

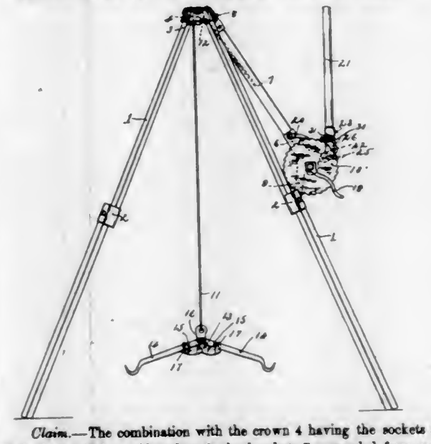
2. A strainer comprising a hollow core having a closed end and adapted for attachment at its opposite end to a pump-barrel, spacing-bars disposed upon the outer surface of the core and longitudinally thereof and having inturned ends engaged with the core, a helix of wire wound upon the bars and inclosing a chamber between it and the core, and openings in the core connecting the chamber and the interior of the core.

3. A strainer comprising a hollow core, spacing-bars disposed upon the outer surface of the core, a wire wound over the core and resting upon the bars to inclose a chamber between the wire and core, and openings in the core connecting the chamber and the interior of the core, said wire being continued inwardly over the ends of the bars and upon the body of the core to form closures for the ends of the chamber, and attached to the body.

4. A strainer comprising a hollow core having perforations therein, bars having their ends bent laterally and engaged with the perforations, a helix wound upon the bars and inclosing a chamber between the helix and core, and openings in the core connecting the chamber with the inclosure of the core.

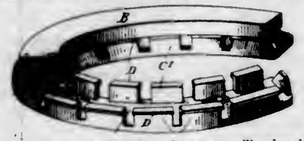
5. A strainer comprising a hollow core having perforations therein, bars disposed longitudinally of the outer surface of the core and having their ends bent laterally and engaged with the perforations, and a wire helix wound upon the spacing-bars to inclose a chamber between the helix and the core, said core having openings connecting the chamber with the interior of the core.

661,592. HOISTING APPARATUS. DANIEL SVENSON, Twin Valley, Minn. Filed Apr. 13, 1900. Serial No. 12,679. (No model.)



Claim.—The combination with the crown 4 having the sockets 3, of the legs 1 fitting said sockets 3, the brackets 7 suspended from said crown 4, the bearings 6, connected to said bracket 7 and having legs 9 secured to the adjacent legs 1, the windlass-shaft 5 mounted in said bearing 6 and provided with the ratchet-wheel 18, a pawl-equipped lifting-lever operating on said ratchet-wheel, and a flexible connection extending from said windlass over a suitable guide-sheave mounted in the crown 4, said parts operating substantially as described.

661,593. SOFT-TREAD HORSESHOE. CHARLES WASTE, Galesburg, Ill. Filed Mar. 24, 1900. Serial No. 10,111. (No model.)



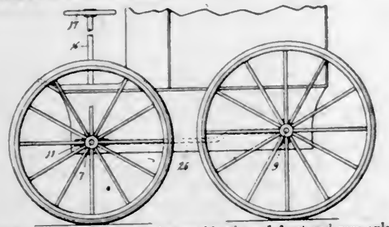
Claim.—1. In a soft-tread horseshoe, a metallic plate having on its outer and inner edges a series of separate downwardly-depending flanges, the heel ends of the plate having separate flanges, and a cushion held in position between said edge and heel-flanges, substantially as described.

2. In a soft-tread horseshoe, a metallic plate having flexible segmental flanges projecting downwardly from its side edges, the heel ends of the plate being closed by other independent flanges, and a cushion clenched in position between and held by said side and heel flanges, substantially as described.

3. In a soft-tread horseshoe, a metallic plate bearing on its side

edges a series of flexible separate downwardly-depending flanges, said flanges being provided on their ends with supporting-ribs, downwardly-depending separate plain flanges being formed at the heel ends of the plate, and a continuous cushion dovetailed and shouldered, so as to be grasped between all of said flanges and partly supported by said ribs, substantially as described.

661,594. VEHICLE. RICHARD L. YOUNG, Milwaukee, Wis., assignor of one-half to Thomas J. Price, same place. Filed Mar. 27, 1900. Serial No. 10,326. (No model.)



Claim.—1. In a vehicle, the combination of front and rear axles, traction-wheels mounted thereon, studs intersecting the front axle vertically, forks straddling the front axle, the arms of each fork provided with concentric curved slots to receive the projecting ends of each stud, and arms extending from the forks and provided at their rear ends with bearings for the rear axle.

2. In a vehicle, the combination of front and rear axles, the front axle formed or provided with bosses or enlargements, studs intersecting the bosses vertically, traction-wheels mounted on the front and rear axles, and arms provided at their rear ends with bearings for the rear axle, and each arm provided at its forward end with a forward extension, each extension being adjacent to the end of a boss, and provided with a curved slot to receive the vertical pin.

3. In a vehicle, the combination of front and rear axles, the front axle having at a medial point a chambered hub portion, traction-wheels mounted on the front and rear axles, a rotatable part extending into the chamber of the hub and engaging the walls of said chamber, and thereby adapted to swing the axle, and means for turning the rotatable part.

4. In a vehicle, the combination of front and rear axles, the front axle having at a medial point a chambered hub portion, the walls of the chamber being provided interiorly with a rigid gear-wheel, traction-wheels mounted on the front and rear axles, a toothed wheel arranged within the chamber of the hub and engaging the gear-wheel thereof, and thereby adapted to swing the axle, and means for turning said toothed wheel.

5. In a vehicle, the combination of front and rear axles, the front axle having a medial hub portion, traction-wheels mounted on the front and rear axles, a rotatable part engaging the hub and thereby adapted to swing the axle, means for turning said rotatable part, studs intersecting the front axle vertically, each stud being disposed between the hub portion and the outer ends of the axle, and arms provided with bearings for the rear axle, and each arm provided at its forward end with a forward extension extending over the front axle, each extension provided with a curved slot adapted to receive the vertical pin.

6. In a vehicle, the combination of front and rear axles, the front axle having a medial hub portion, traction-wheels mounted on the front and rear axles, a rotatable part arranged within and engaging the hub, and thereby adapted to swing the axle, plates interposed between the rotatable part and the ends of the hub, and means for turning the rotatable part.

7. In a vehicle, the combination of front and rear axles, the front axle having a medial hub portion, said hub having a closed lower end, a screw-cap fitting the upper end of the hub, traction-wheels mounted on the front and rear axles, a rotatable part engaging the hub and thereby adapted to swing the axle, and means for turning said rotatable part.

8. In a vehicle, the combination of front and rear axles, the front axle having a medial hub portion, traction-wheels mounted on the front and rear axles, a rotatable part arranged within and engaging the hub and thereby adapted to swing the axle, cushions interposed between the rotatable part and the ends of the hub, and means for turning said rotatable part.

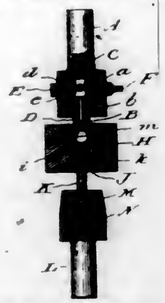
9. In a vehicle, the combination of front and rear axles, traction-wheels mounted thereon, studs intersecting the front axle vertically, and arms provided at their rear ends with bearings for the rear axle, and each arm provided at its forward end with a forward extension extending over the front axle, each extension provided with a curved slot adapted to receive the vertical pin.

661,595. SWIMMING APPARATUS. JAMES S. BARTHOLOMEW, Guerneville, Cal. Filed Feb. 21, 1900. Serial No. 6,075. (No model.)

Claim.—A buoyant, floating and swimming apparatus of the class described comprising the floatable flexible strip 1, the alternately-arranged arms 4 and 5, the arms 4 being charged with light gas and pivoted at their inner ends to said strip, the arms 5 being similarly pivoted, but weighted to sink, the flexible fabric 6 fixed at its outer end to the contiguous ends of said pivoted arms, and the application of gas for flotation in water, substantially as and for the purposes set forth.



661,596. COMPRESSOR-DIE FOR PILL-MACHINES. FERDINAND J. BECK, Chicago, Ill., assignor to Beck & Aubert, same place. Filed July 20, 1900. Serial No. 24,318. (No model.)



Claim.—1. In a pill-machine, the combination with a forming-block, a stationary tubular die therein, and a lower reciprocal die movable in the same, of an upper reciprocal tubular die, and a plunger-die movable therein.

2. In a pill-machine the combination with a forming-block, a stationary tubular die therein, and a lower reciprocal die movable in the same, of an upper reciprocal tubular die, and a plunger-die movable therein, said tubular die and plunger moving simultaneously downward to the work, but the initial upward movement of said tubular die being prior to that of said plunger.

3. In a pill-machine, the combination with a forming-block, an adjustable stationary tubular die therein, and a lower reciprocal die movable in the same, of an upper reciprocal tubular die, and a plunger-die movable therein.

4. In a pill-machine, the combination with a forming-block, a stationary tubular die therein, and a lower reciprocal die movable in the same, of an upper adjustable reciprocal tubular die, and a plunger-die movable therein.

5. In a pill-machine, the combination with a forming-block, an adjustable stationary tubular die therein, and a lower reciprocal die movable in the same, of an upper adjustable reciprocal tubular die, and a plunger-die movable therein.

6. In a pill-machine, the combination with a stationary forming-block, having a vertical central opening therethrough, a stationary tubular die secured in the lower part of said opening, a bushing in the upper part of the same, and a lower reciprocal die operating in and through the tubular die, of an upper reciprocal tubular die and a plunger-die therein.

7. In a pill-machine, the combination with a stationary forming-block, having a vertical central opening therethrough, a stationary tubular die secured in the lower part of said opening, a bushing in the upper part of the same, and a lower reciprocal die operating in and through tubular die, of an upper reciprocal tubular die and a plunger-die therein, said tubular die and plunger moving simultaneously downward to the work, but the initial upward movement of said tubular die being prior to that of said plunger.

8. In a pill-machine the combination with a forming-block, a stationary tubular die therein, an upper reciprocal tubular die and a plunger-die movable therein, of a reciprocal lower die coöperating with said reciprocal plunger and tubular die to form the pill, and thereafter following the same during the upward movement, until its end is at or above the plane of the upper surface of said forming-block.

9. In a pill-machine the combination with a forming-block, a stationary tubular die therein, an upper reciprocal tubular die and a plunger-die movable therein, said reciprocal tubular and plunger dies moving simultaneously downward to the work, but the initial upward movement of said tubular die being prior to that of said plunger, of a reciprocal lower die coöperating with said reciprocal plunger and tubular dies to form the pill within said forming-block and thereafter following the same to a point at or about the plane of the top of said forming-block.

10. In a pill-machine the combination with a forming-block, a stationary tubular die therein and a lower reciprocal die movable in the same, of an upper reciprocal tubular die, a plunger-die having a slight reciprocal movement therein, and braking mechanism for said plunger-die whereby the initial movement of said tubular die in either direction precedes that of said plunger.

11. In a pill-machine the combination with an upper die consisting of a tubular part B and a reciprocal part D having a slight movement in the bore of said tubular part independent thereof, of an annulus to which the upper end of said plunger-die is pivotally connected, a plate having a vertical slot therein, and a braking-bolt movable in said slot to the head of which said annulus is suitably connected.

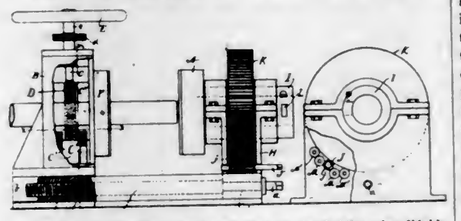
12. In a pill-machine the combination with the reciprocal upper-die holder, and the upper die consisting of a tubular part secured in the lower end of said die-holder, and a plunger-die having a limited movement in and independent of said tubular part and having trunnions projecting radially from the upper end thereof which extend through vertically-elongated slots therein, a bolt with the head of which said annulus is suitably connected and which extends through said slot, a nut on the end of said bolt opposite said head, and a coil expansion-spring surrounding said bolt between said nut and said plate.

13. In a pill-machine, the combination with a forming-block, an adjustable stationary tubular die therein, and a lower adjustable die movable in the same, of an upper reciprocal tubular die, and a plunger-die movable therein.

14. In a pill-machine, the combination with a forming-block, and a lower reciprocal die movable in the same, of an upper reciprocal tubular die, and a plunger-die movable therein.

15. In a pill-machine, the combination with a forming-block, and a lower reciprocal die movable in the same, of an upper adjustable reciprocal tubular die, and a plunger-die movable therein.

661,597. SCREW-THREADING DEVICE. MARTIN BEHRENS, Appleton, Wis. Filed Mar. 24, 1899. Serial No. 710,315. (No model.)



Claim.—1. The combination of a bed; a pipe-holding vise slidably mounted therein; an adjusting-screw mounted in the bed and extending through an aperture in the base of the pipe-holding vise; a feed-nut screw-block engaged by said screw in the rear of the vise; and a rotary die-holder mounted on said bed and adapted to coöperate with the vise; together with a die-holder provided with supporting-arms adapted to removably engage the frame of the vise.

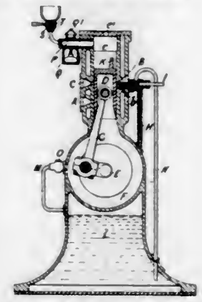
2. The combination of a bed; a pipe-holding vise slidably mounted therein; a die-holder provided with supporting-arms adapted to removably engage the frame of the vise; and a rotary die-holder mounted on the bed in coöperative relation with the vise and the removable die-holder supported thereby; together with means for adjusting the vise longitudinally of the bed.

661,598. STOCK-MARKER. ABNER F. CALLISON and WILLIAM S. BING, Salt Lake City, Utah. Filed May 11, 1900. Serial No. 16,367. (No model.)

Claim.—An implement of the character set forth, comprising a pair of jaws with interfitting pivoted members and handles, the upper jaw having an inner straight flat working face, and the lower jaw formed with a seat with a front angular shoulder to receive a tag or clip and also having an upsetting-recess, the said lower jaw having a front downwardly-curved guide extension in advance of the outer terminal of the upper jaw.



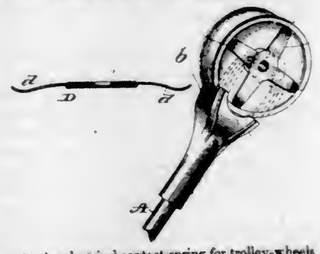
661,599. OIL-ENGINE. JOSEPH DAY, Weston-Super-Mare, England. Filed Dec. 28, 1897. Serial No. 663,980. (No model.)



Claim.—1. In a hydrocarbon-motor, an oil-reservoir, an air-compressing chamber, a passage connecting the two, means for checking back-flow of air from the reservoir to the chamber, the piston-cylinder having oil and air feed ports respectively in communication with said oil-reservoir and air-compressing chamber, means controlling the supply of oil to the cylinder, said oil-port proximate to, in line with and outwardly of said air-port, exhaust and air-intake ports in the cylinder practically opposite the aforesaid oil and air feed ports, said air-intake port adapted to be placed in communication with the air-compressing chamber, the piston whose movements control all of the aforesaid ports and a suitable igniter, substantially as and for the purpose set forth.

2. In a vertical hydrocarbon-motor, an oil-reservoir, crank-casing and power-cylinder arranged one above the other, said crank-casing serving as an air-compressing chamber, a passage connecting the latter with the oil-reservoir, a check-valve in said passage, oil and air feed ports in the cylinder respectively in communication with the reservoir and crank-casing, means controlling the supply of oil to said cylinder, said oil-feed port proximate to, in line with and outwardly of air-feed port, exhaust and air-intake ports in the cylinder practically opposite the aforesaid oil and air feed ports, the piston having a deflector on the side of said feed-ports, the movements of said piston controlling all of the aforementioned ports and acting as a compressor, said air-intake port located to communicate with the crank-casing at a certain point of the stroke of the piston, and a suitable igniter, substantially as set forth.

661,600. TROLLEY-WHEEL. THOMAS I. DUFFY and CHARLES S. MCMAHAN, Chicago, Ill.; said Duffy assignor to said McMahan. Filed July 16, 1900. Serial No. 23,789. (No model.)



Claim.—1. An electrical contact-spring for trolley-wheels, comprising a plate of conducting material provided with a central pivot-aperture and adapted to press against the inner side of a barp-arm adjacent to said

pivot, a contact-washer also of conducting material secured centrally on said spring and adapted for contact with said harp-arm and a plurality of electrical conducting radial spring-arms integral with said plate and curved on one side of the plane of the same and adapted to engage with their outer ends a trolley-wheel near its periphey at a point equally spaced about the wheel and acting to press said wheel oppositely from the harp-arm.

2. An electrical contact-spring for trolley-wheels, comprising an outwardly-dished plate of conducting material adapted to be secured on a trolley-pivot between the harp-arm and the trolley-wheel and provided on its outer side with a depression adapted to receive a washer also of conducting material adapted for contact with a harp-arm at a point adjacent to the trolley-pivot, a plurality of inwardly-curved radial spring-arms integral with said plate and adapted to engage with their outer ends and press inwardly a trolley-wheel or the like, said arms being spaced at equal distances around the wheel.

3. The combination with a trolley-harp having a trolley-wheel pivoted therein, of an electrical contact-spring centrally apertured and adapted to be secured on each side of said trolley-wheel between the hub of the same and an arm of said harp and springs being outwardly dished near the center and adapted to pass outwardly against the harp-arm and having a plurality of inwardly-bent radial arms adapted to engage and pressing inwardly on said trolley-wheel near the periphery of the same, and a washer of conducting material removably secured on the trolley-pivot between the trolley-wheel and the harp and acting to afford electrical contact with each, while obviating wear on the spring.

4. The combination with a trolley-harp having a trolley-wheel pivoted thereon, of an electrical contact-spring centrally apertured and adapted to be secured on each side of said trolley-wheel between the hub of the same and said harp-arm said springs being outwardly dished near the center and adapted to press outwardly on the harp-arm and having a plurality of equally-spaced inwardly-bent radial arms adapted to engage and pressing inwardly on said trolley-wheel near the periphery of the same, and a hardened washer of conducting material bedded in said spring and removably secured to the same between the same and the harp-arm.

661,601. **ELASTIC BICYCLE-TIRE.** CHARLES G. FAWKES, Denver, Colo. Filed May 22, 1900. Serial No. 17,584. (No model.)



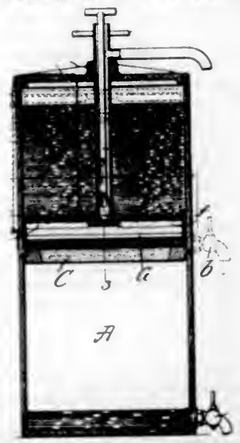
Claim.—1. In an elastic bicycle-tire, the combination with an endless-tread tire having a closable opening at a predetermined point in its inner periphery and an elastic tire adapted to be inserted through said closable opening and to fit in said outer tire and comprising a round, elastic shell having an internal depending rib at its tread portion, a plurality of disks extending across said shell throughout its length at short distances apart, an oblong hole in each of said disks extending from the inner edge of the said shell to near the said rib and having the inner periphery of said shell divided into two separate parts by a divisional opening extending through said shell into said oblong hole of each disk, substantially as described.

2. In an elastic bicycle-tire the combination of a round shell of elastic material molded to form a separate circular tire, a plurality of partitions a short distance apart throughout the length of said tire, a hole in each partition having its opposite ends round and of larger diameter than its center two oppositely-disposed points of each partition extending into the center of said oblong hole and having said tire divided and separated into two equal parts by a narrow slot or opening along its inner periphery through its shell into said hole, with a suitable endless covering having a closable entrance and adapted to admit and surround said elastic tire, substantially as described.

3. In an elastic bicycle-tire the combination with the outer endless-tread tire provided with a laced opening, of an inner elastic tire adapted to be admitted into said tread-tire through said laced opening and comprising a rubber shell having an internally-depending rib at its tread portion, a plurality of partitions integral with said shell extending across it at short distances apart, a hole in each of said partitions substantially like the figure **8**, and a narrow slot through said shell along its inner periphery into said hole, substantially as described.

4. The combination in an elastic tire of the endless outer-tread tire, the entrance-opening in said tire, the lacing in said opening arranged to manually close said opening with the inner separated elastic tire comprising the rubber shell having a rib projecting toward its axis from the tread portion of its periphery, disk-shaped partitions formed integral with said shell and rib extending diametrically across said shell and at short distances apart throughout the length of said elastic tire, the round fillets at the junction of said partitions with said shell and rib, a hole in each of said disks and a narrow slot or cut through said shell along its inner periphery into said hole of each of said partitions arranged and adapted to divide the inner peripheral portion of said tire into two separate parts, substantially as described.

661,602. **FILTER.** ARTHUR F. GARESCHÉ, St. Louis, Mo., assignor of one-half to the E. F. W. Meier China and Glass Company, same place. Filed Aug. 6, 1900. Serial No. 26,023. (No model.)



Claim.—1. In a filter, the combination with a suitable receptacle and filtering material, of a device designed to cooperate with the surface of the filtering material to cleanse the latter, a disk for confining the dirty water in a space adjacent to said filtering material, means for operating the cleansing apparatus, and means for drawing the dirty water resulting from the cleansing operation, from the filter; substantially as described.

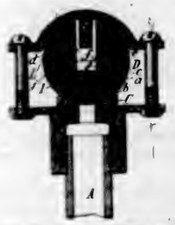
2. In a filter, the combination with a suitable receptacle and filtering material, of a rod, a disk carried by said rod, said disk being of slightly-smaller diameter than the receptacle, and a brush mounted upon said disk for cleansing the surface of the filtering material; substantially as described.

3. In a filter, the combination with a receptacle and filtering material, of a hollow rod, a disk mounted upon the end of said rod, a brush carried by said disk for cleansing the surface of the filtering material, and a plunger located in the holllow rod for drawing the water resulting from the cleansing operation, through the hollow rod; substantially as described.

4. In a filter, the combination with a suitable receptacle and filtering material, of a device designed to cooperate with the surface of the filtering material to cleanse the latter, a disk for confining the dirty water in a space adjacent to said filtering material, means for operating the cleansing apparatus, and means for holding said disk and said cleansing device out of operative relation to the surface of said material; substantially as described.

5. In a device for cleaning the surface of filtering material, the combination with a hollow rod, of a plunger in said rod, a disk carried by said rod, ways provided on said disk for the reception of the brush, and a brush, said brush and ways being cut away opposite the hollow rod to give access to the open end thereof; substantially as described.

661,603. **SAFETY-VALVE AND VALVE PROPER.** EDWARD E. GOLD, New York, N. Y. Filed May 5, 1897. Serial No. 635,110. (No model.)



Claim.—1. An article of manufacture consisting of a valve proper comprising in combination a facing member of relatively unyielding material and a backing member of relatively yielding material, permanently united to constitute one body, substantially as described.

2. A valve proper comprising in combination a facing member of semiyielding seating composition and a backing member of yielding material, substantially as described.

3. A valve proper comprising in combination a facing member of semiyielding seating composition and a backing member of yielding material, permanently united to constitute one body, substantially as specified.

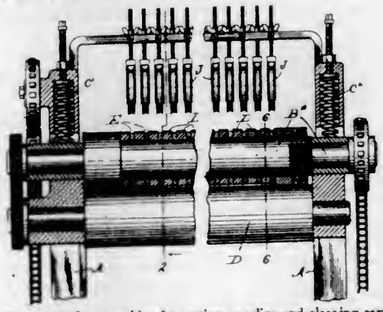
4. A spherical valve proper consisting of a facing member of semiyielding seating composition and a backing member of yielding rubber.

661,604. **PIPE-HANGER.** PETER GRABLER, Mansfield, Ohio. Filed Nov. 2, 1898. Renewed Apr. 21, 1900. Serial No. 13,769. (No model.)



Claim.—A pipe-hanger comprising in its construction an elongated strip of metal which is shaped to form a vertical portion having its lower part hook-shaped and the end thereof reduced, the other end of the vertical portion having a pair of barbs formed integral therewith and extending at right angles thereto, said barbs having their inner edges at an incline to their outer edges to compress the wood between the barbs when driven therein, said vertical portion having an aperture underneath the barbs to receive fastening means adapted to enter the wood the location of the said aperture being such, that the compression of the wood by the barbs prevents splitting of the same when the fastening means is inserted therethrough into the wood, substantially as set forth.

661,605. **MACHINE FOR CUTTING, RAVELING, AND CLEANING CARPET-STRIPS.** ADOLPH HAFTER, Chicago, Ill. Filed Nov. 27, 1899. Serial No. 738,431. (No model.)

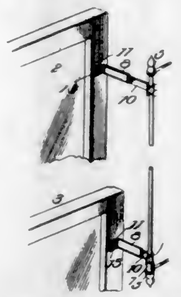


Claim.—1. In a machine for cutting, raveling and cleaning carpet-strips, a feeding mechanism therefor comprising a bed-plate provided with a series of longitudinal grooves, a series of rollers mounted transversely above the bed-plate and provided with circumferential grooves registering with the longitudinal grooves of the bed-plate, belts adapted to travel above the bed-plate and having projections which jut into the longitudinal grooves, the said belts being located in the grooves of the rollers, and having motion imparted thereto by contact therewith, whereby a strip of carpet is carried along the bed-plate under the rollers, and parallel with the grooves in the bed-plate, for the purpose stated.

2. In a machine for cutting, raveling and cleaning carpet-strips, a slitting mechanism therefor comprising a bed-plate having a series of parallel longitudinal slots therethrough, a revoluble shaft mounted below the bed-plate, circular knives mounted on the shaft and projecting upwardly through the slots and above the surface of the bed-plate, rollers mounted transversely of and above the bed-plate, there being circumferential grooves in the rollers, feed-belts in the grooves of the rollers in contact with the surface of the bed-plate, and other circumferential grooves between the first-named grooves in which edge portions of the circular knives are disposed, substantially as stated.

3. The combination in a machine for cutting, raveling and cleaning carpet-strips, having a feed mechanism comprising a bed-plate provided with a series of longitudinal grooves, a series of rollers mounted transversely above the bed-plate and provided with circumferential grooves registering with the longitudinal grooves of the bed-plate, belts adapted to travel above the bed-plate and having projections which jut into the longitudinal grooves, the said belts being located in the grooves of the rollers, and having motion imparted thereto by contact therewith, of a series of rotary knives adapted to cut the woof-threads of the carpet, and thereby slit the same longitodinally into stripe, and a series of transverse knives adapted to cut the warp-threads at the marginal side edges of the stripe, and a rotary spring-toothed cleaning-wheel adapted to remove the warp-thread cuttings, in the manner and for the purpose substantially as hereinbefore stated.

661,606. **SASH-HOLDER.** ISHAM R. HARDY, Gatesville, Tex., assignor of one-third to George G. Pylant, same place. Filed Aug. 9, 1900. Serial No. 26,423. (No model.)



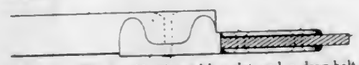
Claim.—1. In a window, and in combination with the casement and sliding sash, a rod parallel with the plane of motion of the sash, a holder having a grip at one end to coöperate with the said rod, and having an offstanding lug at the opposite end convex on its outer surface to form a rocker-bearing, and a pivot-fastening adapted to pass through the rocker-bearing lug about at a right angle to its convex surface, and having loose connection with the said lug, substantially as described.

2. In a window, and in combination with the casement and sliding sash, a rod parallel with the plane of motion of the sash, and a two-part holder having the parts slidably connected and provided at its inner end with a convex surface forming a rocker-bearing which is adapted to be secured to the part against which the holder is fitted, and having a grip and a finger projection at its outer end, substantially as described.

3. In combination with a sliding sash and its casement, a holder, a rod to coöperate with the holder and having its end portions threaded, mountings for the rod having eyes for the reception of the threaded end portions thereof, a stop having adjustable connection with the lower end of the rod and adapted to rest upon the lower mounting and support the rod, a tip fitted to the lower end of the rod below the mounting and adapted to clamp the latter between itself and the stop, and another tip fitted to the upper end of the rod above the top mounting, substantially as specified.

4. The combination with a sliding sash and its casement, a rod applied to a jamb of the casement, and a two-part holder applied to a bar of the said sash, the inner member of the holder having loose connection with the said sash so as to rock, and the outer member having slidable connection with the inner member, substantially as set forth.

661,607. **DRAG-BELT FOR STRAW-STACKERS.** MARTIN HEINEKE, Springfield, Ill. Filed Aug. 5, 1899. Serial No. 726,275. (No model.)

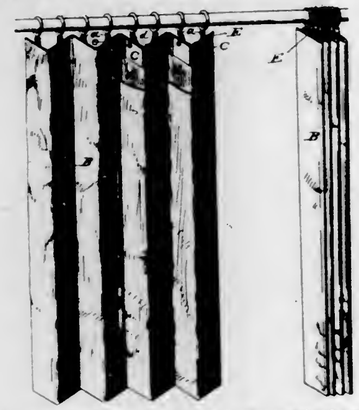


Claim.—1. The combination with a slat and a drag-belt therefor, of a clip adapted to embrace an end of the slat and having a forked extension to straddle the belt.

2. The combination with a slat and a drag-belt therefor, of a clip attached to an end of the slat and having a forked extension approximately in line with a side of the slat and astride the belt.

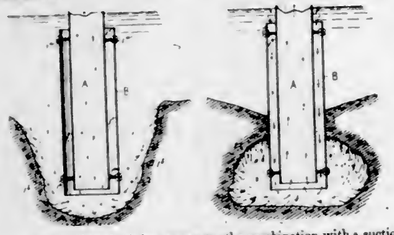
661,608. **PORTIÈRE.** JOHN B. HOLTZCLAW, Indianapolis, Ind., assignor of one-half to Oscar A. Jose, same place. Filed Mar. 12, 1900. Serial No. 8,297. (No model.)

Claim.—1. The combination with a portiere or other curtain of a stiffening and fold-forming strip at its top edge, said strip being formed of a plurality of strong and stiff sections equal in length to the width of the desired folds and said strips being hinged together to fold in alternately opposite directions, a horizontal pole, curtain-rings sliding thereon having eyelets to engage curtain-hooks, and curtain-hooks fastened to the stiffening and fold-forming strips intermediate their ends, said hooks being bent transversely of the strips to which they are fastened across and against the top edge thereof, and being continued thence upwardly and then down to form a hook with its loose end at one side of and below the edge of the strip, substantially as described and shown.



2. The combination with a portiere or other curtain of a stiffening and fold-forming strip incorporated therein substantially as described, said strip being formed of a plurality of stiff sections hinged together as described and shown, said hinged sections having adjustable extensions *g*, *g*, to limit the extent of their opening, substantially as specified.

661,609. **DREDGING-MACHINE.** FRANK K. HOOVER and ARTHUR J. MASON, Kansas City, Mo. Filed Mar. 5, 1897. Serial No. 625,924. (No model.)



Claim.—1. In a dredging apparatus the combination with a suction-pipe of a debris-trap arranged therein to intercept and trap debris, and a water-sealed valve for the exit of the debris from said trap; substantially as set forth.

2. In a debris-trap a suitable chamber, a grating in said chamber, a water-sealed discharge-opening directly under said grating, and a contracted waist at a point directly below the grating; substantially as and for the purpose set forth.

661,610. **PROCESS OF MANUFACTURING INCANDESCENT BODIES.** CARL KELLNER, Vienna, Austria-Hungary. Filed Mar. 23, 1899. Serial No. 710,238. (No specimens.)

Claim.—1. The improvement in the manufacture of incandescible bodies, which consists in dry-molding into the desired shape an infusible or substantially infusible metal of inferior conductive and high illuminating power and then surface-oxidizing the body so obtained, for the purpose set forth.

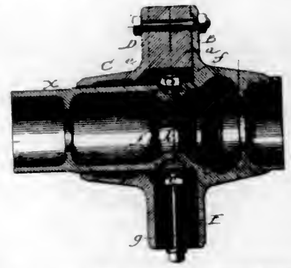
2. An incandescible body consisting of an infusible or substantially infusible metal of inferior conductive and high illuminating power and having its surface coated with an oxid of said metal or metals, for the purpose set forth.

3. An incandescible body made of a mixture of nitrid of titanium and high-resistance refractory oxids, substantially as set forth.

4. The manufacture of incandescible bodies which consists in forming such bodies of alloys of high-resistance metals and surface-oxidizing the completed body, substantially as described.

5. The manufacture of incandescible bodies which consists in forming the same of a mixture of refractory oxids, cellulose and chlorid of zinc, drying and flashing, substantially as described.

661,611. **WHEEL.** ALBERT W. KING, Chicago, Ill. Filed Feb. 12, 1900. Serial No. 4,946. (No model.)



Claim.—1. A hub having two circumferential flanges separated longitudinally of the hub, and stationary spacing members arranged between said flanges, in combination with a series of spokes, and movable holding members arranged between the spokes to force the same against the stationary members and secure them in such position.

2. A hub having two circumferential flanges separated to receive the spokes, stationary tapered spacing members between said flanges, dividing the space between the flanges into a series of compartments each adapted to receive a plurality of spokes in combination with the spokes and radially-adjustable tapered spacing members arranged between the spokes to secure the same in radial position between the stationary and movable members.

3. A hub having circumferential separable flanges, one of which has a series of lugs projecting from its face toward the opposing flange, in combination with a series of spokes, and a series of radially-adjustable wedges between which and said lugs the spokes are secured.

4. A hub having separable circumferential flanges, one of which has a series of lugs, projecting therefrom toward the opposing flange, in combination with a series of spokes arranged radially in pairs with the exterior faces of the butts of each pair in contact with the adjacent faces of an opposing pair of lugs, a series of wedges, each arranged between the interior faces of a pair of spoke-butts, and radially movable toward the axis of the hub to force the spokes against the lugs.

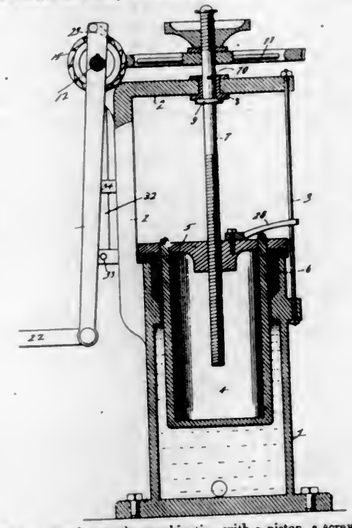
5. A hub having a pair of circumferential flanges and stationary lugs carried thereby, in combination with a series of spokes, a series of wedges between which and the said lugs the butts of the spokes are secured, bolts extending longitudinally through said wedges, and nuts on the inner ends of said bolts for adjusting said wedges radially.

6. A hub comprising a thimble-skein having a circumferential flange integral therewith, and a sleeve fitting over one end of said skein and having a circumferential flange opposed to the flange on the skein, one of said flanges being provided with a series of integral lugs projecting therefrom toward the opposing flange, in combination with a series of spokes, and a series of radially-movable wedges between which and the said lugs the inner ends of the spokes are secured, and means for uniting the skein and the sleeve.

7. A hub comprising a thimble-skein having a circumferential flange integral therewith, a sleeve fitting over one end of said skein having a circumferential flange thereon opposed to the flange on the skein and provided with a series of integral lugs projecting laterally therefrom toward the opposing flanges, and means for uniting said lugs with the opposing flange, in combination with a series of spokes, a series of movable wedges arranged between said spokes, and means for adjusting said wedges radially to secure the spokes between said wedges and the lugs.

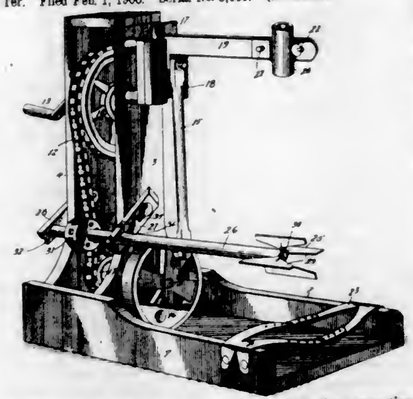
661,612. **LUBRICATOR.** OLE O. KITTLESON, Lee, Ill. Filed June 2, 1900. Serial No. 18,845. (No model.)

Claim.—1. In a lubricator, the combination with a piston, a screw-shaft to actuate the same, a worm-gear on said screw-shaft, an endwise-movable shaft having projecting studs, a worm on said shaft, a ratchet-wheel loose on said shaft, said worm engaging the worm-gear and said ratchet-wheel having open notches in its outer side to receive said studs, of an oscillating lever having a pawl to engage the ratchet-wheel, means to prevent reverse rotation of said shaft, a tension-spring on said endwise-movable shaft and means to regulate the tension of said spring for the purpose set forth, substantially as described.



2. In a lubricator, the combination with a piston, a screw-shaft to actuate the same and a worm-gear on said screw-shaft, of an endwise-movable shaft having projecting studs, a worm fast on said shaft and engaging the said worm-gear, a ratchet-wheel loose on said shaft and having open notches in its outer side adapted to receive the said studs, a spring bearing on said shaft and normally retaining said studs in engagement with said notches, an oscillating lever having a pawl to engage the ratchet-wheel, a ratchet-wheel 29 on the said endwise-movable shaft and having open notches on its outer side to engage studs with which said shaft is provided, a spring-bar bearing against the outer side of said ratchet-wheel 29, and a pawl on said spring-bar engaging said ratchet-wheel 29, substantially as described.

661,613. **CHURN-POWER.** THOMAS M. LATTIMORE, Palmer, Ind. Ter. Filed Feb. 1, 1900. Serial No. 3,609. (No model.)



Claim.—1. In a churn-power, the combination of a supporting-frame having a base and provided with an upright portion, the upper and lower horizontal shafts 8 and 9 located above the base and journaled in the upright portion of the frame, wheels mounted on the shafts 8 and 9, an approximately vertical chain or belt connecting the wheels, means for transmitting motion from one of the shafts to a churn-dasher, the horizontal shaft located at one side of the upright portion of the frame and extending longitudinally of the base and designed to carry a fan and provided with a wheel engaging one of the flights of the chain or belt, and adjustable bearings extending laterally from the upright portion of the frame and adapted to be moved inward and outward to tighten the belt or chain and to position the fan, substantially as described.

2. In a churn-power, the combination of a supporting-frame, the upper and lower horizontal shafts 8 and 9 journaled on the supporting-frame, wheels mounted on the said shafts 8 and 9, an approximately vertical chain or belt connecting the wheels, means for transmitting motion from one of said shafts to a churn-dasher, a pair of arms extending laterally from one side of the frame and capable of adjustment to move them inward and outward, and the horizontal shaft 26 mounted on the said arms at one side of the frame and provided with a wheel engaging one flight of the chain or belt, said shaft 26 being adapted to tighten the chain or belt and to carry a fan and operate the same adjacent to the churn-body, substantially as described.

3. In a churn-power, the combination of a supporting-frame provided at one end with a pair of uprights spaced apart, the upper and lower horizontal shafts 8 and 9 journaled on the uprights, the wheels mounted on the horizontal shafts and arranged between the uprights, a belt or chain connecting the wheels, a pair of arms adjustably secured to the uprights and extending laterally from one side of the fr me, means for communicating motion from one of the said shafts to a dasher-rod, and the horizontal shaft 26 located at one side of the frame and journaled in suitable bearings of the laterally-extending arms and provided with a wheel engaging one of the flights of the chain or belt, said shaft 26 serving as a belt-tightener and being adapted to operate a fan adjacent to the churn-body, substantially as described.

661,614. **VEHICLE-TIRE.** ARTHUR H. MARKS, Akron, Ohio, assignor to the Diamond Rubber Company, same place. Filed Mar. 31, 1900. Serial No. 10,930. (No model.)



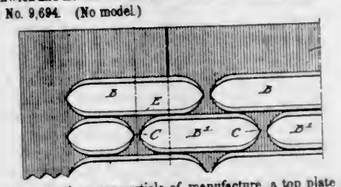
Claim.—1. In a rubber tire, the combination of an outside member containing a longitudinal recess, and having its inner wall slitted, with a removable core which is fitted into said recess, and longitudinal fastening-wires in said core, substantially as specified.

2. In a rubber tire, the combination of an outside member containing a longitudinal recess, and having its inner wall slitted, and having inwardly-extended ribs at the edge of the slit, with a core fitted to said recess and having a groove which receives said ribs, and longitudinal fastening-wires in said core, substantially as specified.

3. In a rubber tire, the combination of an outside member containing a longitudinal recess and having its inner wall slitted, said section containing, in that part thereof which surrounds said recess, a plurality of plies of fabric, with a core fitted to said recess, and longitudinal fastening-wires passing through said core, substantially as specified.

4. In a rubber tire, the combination of an outside member containing a recess, and having its inner wall slitted, with a core fitted to said recess and made up of a plurality of plies of rubber and fabric, and longitudinal fastening-wires in said core, substantially as specified.

661,615. **TOP PLATE FOR HOT-AIR REGISTERS.** DAVID B. MARWICK and HOWARD S. HART, Chicago, Ill. Filed Mar. 22, 1900. Serial No. 9,694. (No model.)



Claim.—1. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, bridging portions integral with said plate for reinforcing and strengthening the same.

2. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, said connections being located in staggered arrangement, bridging portions integral with said plate for reinforcing and strengthening the same.

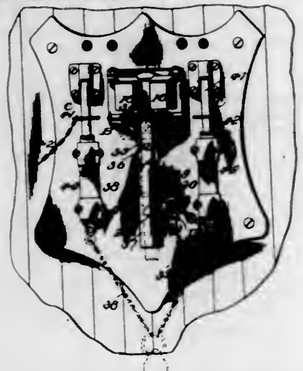
3. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, bridging portions integral with said plate and at the sides of said perforations for reinforcing and strengthening said plate.

4. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated to form bars therein, connections between said bars, said connections being located in staggered arrangement, bridging portions integral with said plate and adjacent said connecting portions to reinforce and strengthen said plate.

5. As a new article of manufacture, a top plate for registers and the like said plate being formed of sheet metal and perforated to form cross-bars therein and also connections between said cross-bars, said connections being located in staggered arrangement, and bridges formed integral with said plate to reinforce and strengthen the same.

6. As a new article of manufacture, a top plate for registers and the like, said plate being formed of sheet metal and perforated in many places to form in the metal a web-like central portion, the webs being arched in cross-section to reinforce and strengthen the plate at those portions that would otherwise be weakened by the perforating of the material.

661,616. ALARM AND RELEASING MECHANISM FOR FIRE-ENGINE HOUSES. EDWARD P. MATTER, Alexandria, Va. Filed Mar. 13, 1900. Serial No. 8,543. (No model.)



Claim.—1. In a system comprising a general-alarm circuit, a local alarm, and an electric releasing mechanism, an electric circuit-closer included in the general alarm and actuated thereby, a switch for throwing the electric releasing mechanism out of circuit and the local alarm into circuit, and a counterbalance normally held in restraint by a part of the electric releasing mechanism and adapted to throw the electric releasing mechanism out of circuit and the local alarm into circuit upon an initial actuation of the aforesaid circuit-closer, substantially as set forth.

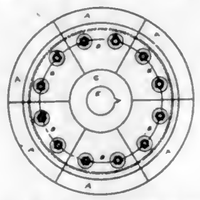
2. In a system comprising a general alarm, a local alarm, and an electric releasing mechanism, an electric circuit-closer controlled by and included in the general-alarm circuit, a catch mechanism, a switch, and a counterbalance normally held in restraint by a part of the releasing mechanism and connected with the said switch and catch mechanism for a simultaneous actuation thereof when the circuit-closer is initially operated, whereby the catch mechanism is released, the releasing mechanism thrown out of circuit, and the local alarm cut into circuit, substantially as set forth.

3. In a fire-alarm system, the combination of a general-alarm circuit normally closed and including an electromagnet as part of a circuit-closer, a local-alarm circuit, and a releasing-circuit including a switch and electric contacts, the latter normally held separated by the attractive force of the aforementioned electromagnet, and a counterbalance normally held in restraint by a part of the aforesaid releasing mechanism and having connection with the switch and adapted to throw the circuit of the releasing mechanism out of action and the local-alarm circuit into action upon the initial closing of the aforesaid electric contacts by the primary demagnetization of the circuit-closing magnet, substantially as set forth.

4. In combination, a general-alarm circuit, a circuit-closer included in and forming a part of the general-alarm circuit, a local-alarm circuit, a releasing mechanism having an electromagnet included in an independent circuit, a switch, a pivoted arm, an armature-controlled catch for holding the pivoted arm in position, and a counterbalance held in restraint by means of the pivoted arm and having connection with the aforesaid switch, whereby upon the initial closing of the circuit through the releasing mechanism, the latter is thrown out out of circuit and the local alarm cut into circuit, substantially as set forth.

5. In combination, a general alarm including a circuit-controlling electromagnet, a releasing mechanism having an electromagnet included in a circuit which is normally held open by means of the aforesaid electromagnet, a local alarm, a switch for throwing the circuit of the releasing mechanism out of action and cutting the local-alarm circuit into action, a movable arm, an armature-controlled catch for holding the pivoted arm in position, a pivoted catch for holding a connection in restraint, a bolt for securing the catch against the action of the said connection, and a counterbalance having connection with the said bolt and switch and normally held in restraint by the aforesaid movable arm and adapted upon the initial closing of the circuit to release the catch mechanism and cut the circuit of the releasing mechanism out of action and local-alarm circuit into action, substantially as set forth.

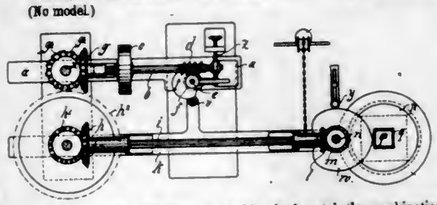
661,617. CRUSHING-ROLL. EDWARD W. MCCANNA, Anaconda, Mont. Filed May 11, 1900. Serial No. 16,353. (No model.)



Claim.—1. A roll, for grinding or crushing machines, having a core grooved on its periphery and recessed on one face, and a shell comprising a series of sections each provided with a dovetailed rib to engage the groove in the core, and a complemental series of clamp-plates for said shell-sections constructed to fit the recessed face of the core and to engage the ribs of the shell-sections, and bolted to the core, substantially as described.

2. A roll, for grinding or crushing roll machines, having a dovetailed groove in its periphery and a recessed face combined with a series of shell-sections having dovetailed ribs to engage the dovetailed groove, and a complemental series of clamp-plates for said shell-sections constructed to engage the dovetailed ribs of the shell-sections and also to engage the recess in the core, and bolts passed through the core and the clamp-plates and thereby independently securing each shell-section and plate in place and permitting the independent removal and renewal of the shell-sections, substantially as described.

661,618. MACHINE FOR BEATING LEAF METAL. FRITZ FÜSSER, Fürth, Germany. Filed Aug. 22, 1900. Serial No. 27,645. (No model.)



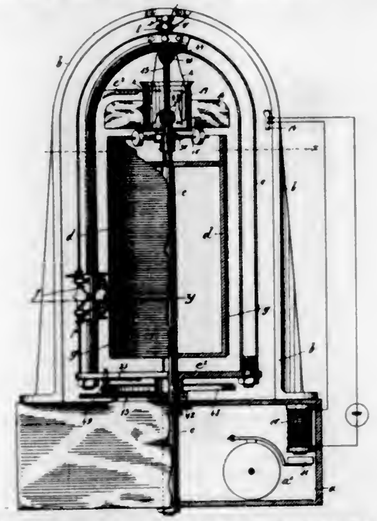
Claim.—1. In a machine for working leaf metal, the combination of a driving-shaft and a bed-plate to support the same mounted to swing in a horizontal frame and means for adjusting the position of said plate, a frame also mounted to swing in a horizontal plane, an anvil under the free end of the said frame, a vertically-reciprocating hammer above said anvil, a rotary disk at the free end of said frame having an orifice therein to engage the metal to be worked and move the same under the hammer, a spindle mounted in said frame and means for driving the same from the driving-shaft whatever be the relative positions of frame and bed-plate on their pivots, a cam driven by the driving-shaft and acting against the frame to shift the same on its pivot, a larger cam at the forward end of the frame and a stop against which the same acts to shift the said frame when the smaller cam has been placed out of action and means for rotating the metal-holding disk from the frame-spindle substantially as described.

2. In a machine for working leaf metal the combination of a bed-plate carrying a driving-shaft and a frame-carrying spindle horizontally mounted therein, both the bed-plate and the frame being mounted to swing horizontally on pivots, means for transmitting the motion of the driving-shaft to the spindle of the frame whatever be the relative position of the bed and frame on their pivots, a cam actuated by the driving-shaft to swing the frame and a second cam working against a stop to swing the frame when the first cam is out of action, means for rotating the said second cam from the frame-spindle, a metal-holding disk having an orifice

therethrough mounted in the end of the frame and means for rotating the same from the frame-spindle, an anvil mounted below the said orifice, a reciprocating hammer above the same and means in connection with the said hammer to relieve it of the actuating force the moment before it touches the metal and thus to allow it to recoil or spring back after the blow has been given substantially as described.

3. The combination of a bed-plate to swing horizontally and carrying a driving-shaft and a horizontally-swinging frame having a metal-holding disk at its free end and means for rotating the said disk from the driving-shaft and for shifting the position of the said frame relatively to that of the bed-plate, as specified, an anvil below the metal-holding disk and a reciprocating hammer above the same, having a cylinder formed in its stem, a plunger working air-tightly in the same, means for positively reciprocating the said plunger and means for establishing communication between the space in the cylinder below the plunger and the outer air the moment before the hammer touches the metal in the manner and for the purpose substantially as described.

661,619. METHOD OF RECORDING AND REPRODUCING SOUNDS OR SIGNALS. VALDEMAR POULSEN, Copenhagen, Denmark. Filed July 8, 1899. Serial No. 723,198. (No specimens.)



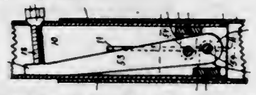
Claim.—1. The method of recording and reproducing speech or signals which consists in impressing upon an electric circuit containing an electromagnet, undulations of current corresponding to the sound-waves of speech or to the signals; simultaneously bringing successive portions of a magnetizable body under the influence of said electromagnet and thereby establishing in said body successively-varying magnetic conditions; and finally subjecting an electromagnet connected in a circuit, successively to the various magnetic conditions established in said body, substantially as described.

2. The method of recording and reproducing speech, signals, &c., which consists in imparting magnetic conditions successively to a magnetizable body or surface, said conditions varying in accordance with the sound-waves produced by said speech or signals and then subjecting a reproducing apparatus to said magnetic conditions successively.

3. The method of storing up signals or messages represented by undulating or irregular currents, which consists in imparting to various portions of a magnetizable body, magnetic conditions corresponding to said undulating or irregular currents.

661,620. TUBE-EXPANDER. VICTOR R. RUMBARGER, Dayton, Ohio. Original application filed Oct. 30, 1899, Serial No. 735,312. Divided and this application filed Jan. 19, 1900. Serial No. 1,999. (No model.)

Claim.—1. The combination of two telescoping tubular parts, a clamping-lever extending longitudinally within said parts, separate members upon opposite sides of and actuated by said lever, said members engaging opposing portions of the inner tubular parts, one of said members being pivotally connected to said lever, the axis of said pivoted connection being at substantially right angles to the bore of said tube, and means for oscillating said lever to effect or release the binding action of said members, substantially as specified.

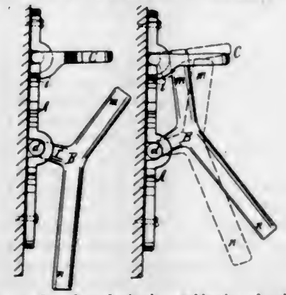


2. The combination of two telescoping tubular parts, a clamping-lever extending longitudinally within said parts, separate members pivotally connected at different points in the length of said lever and engaging opposing portions of the inner tubular part the axis of each of said pivotal connections being at substantially right angles to the axis of said parts, and means for oscillating said lever upon an axis substantially coinciding with one of said pivotal connections, substantially as specified.

3. The combination of a tube, a plurality of separate members within said tube and bearing against different portions thereof, and means extending longitudinally within and movable at an angle to the bore of said tube and connected to and moving said members at right angles to the length of said tube, for effecting and releasing the binding action between said members and tube, substantially as specified.

4. The combination of a tube, a slot in said tube, a clamping-lever extending longitudinally within said tube, a separate bearing member pivotally connected to said lever, the axis of said pivotal connection being at substantially right angles to the length of said lever, a coöperating guide and guideway between said member and said tube at a point within the slotted portion of said tube, and means for moving said lever about an axis substantially coinciding with the axis of said pivotal connection, substantially as specified.

661,621. DOOR-HOLDER. WILLIAM R. RUMMLER, Chicago, Ill. Filed Dec. 20, 1893. Serial No. 494,227. (No model.)



Claim.—1. In a door-check, the combination of a plate adapted to be secured to a door, and having a rear open bearing for a propping-arm toward its lower end, and a rear open bearing for a latch toward its upper end; a propping-arm having a lateral projection whereby said arm is pivotally supported in said lower bearing; and a gravity-latch supported in said upper bearing, and adapted to automatically engage the prop in a raised position.

2. In a door-check, the combination of a plate adapted to be secured to a door, and having a bearing for a propping-arm toward its lower end, and a bearing for a latch toward its upper end, a propping-arm pivotally supported in said lower bearing; and a gravity-latch pivotally supported in said upper bearing, and adapted to automatically engage said propping-arm in a raised position.

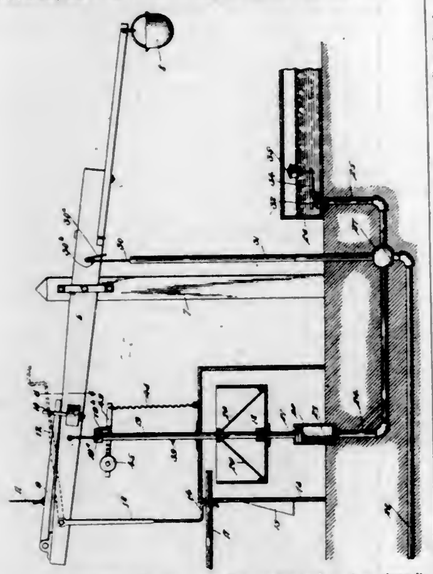
3. In a door-check, the combination of a door, with a lever fulcrumed on one face of the door, having a downwardly-disposed arm adapted to abut the floor, and an upwardly-disposed arm inclined normally away from said face, and a gravity-latch pivotally secured to the door and adapted to automatically engage said upper arm inward of its normal position.

4. In a door-check, the combination of a door, with a lever fulcrumed on one face of the door, having a downwardly-disposed arm adapted to abut the floor, and an upwardly-disposed arm inclined normally away from said face, and means on the door for automatically engaging said upper arm inward of its normal position and thereby holding the lower arm out of engagement with the floor.

661,622. WATER-SUPPLY REGULATOR. FREDERICK S. SEYMOUR, Dubuque, Iowa. Filed Aug. 10, 1899. Serial No. 726,835. (No model.)

Claim.—1. The combination of a vertically-movable rod normally suspended in an upward position, a dog pivotally carried on the rod, a stationary object against which the dog may bear to retard the descent of the rod, means for yieldingly holding the dog in active position, a pan

having connection with the rod, means for supplying water to the pan, a pipe passing from the pan and communicating therewith to carry the water therefrom, and a valve commanding the outflow from said pipe.



2. The combination of a vertically-movable rod, a dog pivotally mounted thereon, a stationary object against which the dog may bear to retard the downward movement of the rod, a lever mounted on the rod, a weight actuating the lever, a flexible connection between the lever and the said stationary object, a yielding arm attached to the lever and adapted to be thrown thereby into engagement with the dog, a pan carried by the rod, means for supplying water to the pan, a pipe communicating with and leading the water from the pan, and a valve controlling the outflow from said pipe.

3. In a water-supply regulator, the combination with means for conducting the water to the regulator, of a beam mounted to swing and connected with the motor, a rod in connection with the beam, a pan attached to the rod and primarily receiving the water, a pipe extending from the pan, a tank to receive the water from the pipe, a valve commanding the pipe and closing the same to back the water into the pipe when the tank is full, the pan being adapted to drop when the water backs therein and the dropping of the pan serving to draw down the rod and the beam to which it is attached, a detent mounted on the rod, a stationary object adapted to be engaged with the detent to temporarily arrest the descent of the rod and the attached pan, and means for holding the detent engaged with said stationary object.

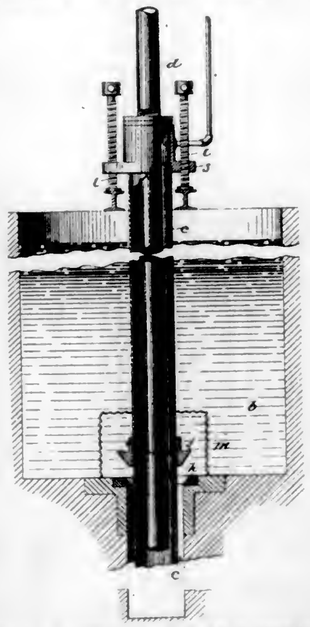
4. In a water-supply regulator, the combination with means for conducting the water to the regulator, of a pan receiving the water from said means, a pipe communicating with the pan and receiving the water therefrom, a tank to which the pipe extends, a valve situated at the tank and commanding the pipe and closing the same to back the water into the pipe when the tank is full, the water passing through the pan and pipe on its way to the tank, and means attached to the pan, such means serving to transmit the movement thereof to the motor, the pan being adapted to drop and move said means as the water backs in the pan.

5. In a water-supply regulator, the combination with means for conducting the water to the regulator, of a beam mounted to swing, a connection between the beam and the motor, a rod in connection with said beam, a pan attached to the rod, the pan being adapted to drop when the water backs therein, thus moving with it the rod and beam, a pipe communicating with the pan and serving to conduct the water therefrom, a tank to which said pipe leads and a valve at the tank and commanding the pipe and closing the same to back the water into the pipe when the tank is full, the pan being arranged to primarily receive the water from the said means for conducting it to the regulator, and the water passing through the pan and pipe.

6. The combination with a water-supply regulator of a beam mounted to swing and connected therewith to be actuated thereby, an arm having one end pivotally connected with the beam, a catch mounted on the beam and serving to removably engage the free end of the arm by which to hold the arm rigid on the beam essentially in parallelism therewith, and a rod or other connection attached to the arm and adapted to be actuated by the movement of the beam through the medium of the arm when the arm is held by the catch.

7. The combination with a reservoir, of a pipe leading thereto, a valve-seat mounted at the upper end thereof, a valve bearing on the seat, a lever and float situated within the reservoir, the lever bearing on the valve to close the same when the float is water-borne, and a second float attached to the valve and extending down within the pipe, a second float being raised by water within the pipe and serving to hold the valve in closed position when the pipe is emptied.

661,623. APPARATUS FOR LIFTING WATER. CLIFFORD SHAW, New York, N. Y., assignor to the Bacon Air Lift Company, same place. Filed Mar. 22, 1900. Serial No. 9,696. (No model.)



Claim.—1. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift mechanism, a valve-seat through which liquid is admitted to the air-lift mechanism, and a valve connected to and actuated by the air-lift mechanism, substantially as set forth.

2. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift mechanism, a valve-seat through which liquid is admitted to the air-lift mechanism, and a valve connected to and movable with the air-lift mechanism, substantially as set forth.

3. In combination in apparatus for raising water, wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the well or pit, combining an uptake and a downtake pipe, and a valve secured to one of said pipes for closing the well or pit, substantially as set forth.

4. In combination in apparatus for raising water, wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the well or pit, combining an uptake and a downtake pipe one within the other, a valve secured to the outer pipe and movable therewith, and a valve-seat therefor through which the water passes to the well or pit, and means for moving the said outer pipe and valve to open and close the well or pit, substantially as set forth.

5. In combination in apparatus for raising water, wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the well or pit, combining an uptake and a downtake pipe one within the other, a valve secured to the outer pipe and movable therewith, and a valve-seat therefor through which the water passes to the well or pit, and means for raising, lowering, and supporting the said outer pipe and valve to open and close it, substantially as set forth.

6. In apparatus for raising water of the type employing a submergence pit or well and air-lift mechanism therein, the combination of the uptake and downtake pipes placed one within the other and adapted to maintain a continuous flow as distinguished from an intermittent flow, the submergence pit or well therefor, and valve mechanism for opening and closing said submergence pit or well at will and maintaining it open continuously during the operation of the said air-lift mechanism, substantially as set forth.

7. In apparatus for raising water of the type embodying a submergence pit or well and air-lift mechanism, the combination of a valve-seat through which the water passes into said well or pit and through which the said air-lift mechanism extends, a valve therefor encircling the said mechanism, and means for actuating the said valve, substantially as set forth.

8. In apparatus for raising water of the type embodying a submergence pit or well and air-lift mechanism, the combination of a valve-seat through which the water passes into said well or pit and through which the uptake and downtake pipes of said mechanism extend, one of them being within the other, and an annular valve encircling the outer of said pipes and adapted to be seated on said valve-seat, substantially as set forth.

661,624. APPARATUS FOR LIFTING WATER. CLIFFORD SHAW, New York, N. Y. Original application filed Mar. 22, 1900, Serial No. 9,696. Divided and this application filed May 29, 1900. Serial No. 18,395. (No model.)

Claim.—1. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift mechanism, a valve-seat through which liquid is admitted to the air-lift mechanism, and a valve therefor mounted and movable upon the air-lift mechanism, substantially as set forth.

2. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift mechanism, a valve-seat through which liquid is admitted to the air-lift mechanism, and a valve guided by but controlled independently of the air-lift mechanism, substantially as set forth.

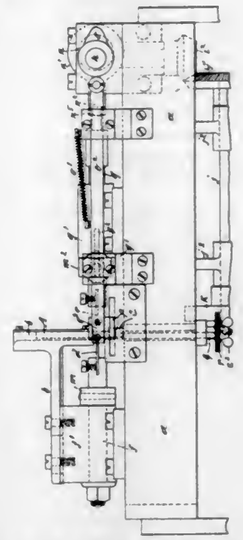
3. In combination in apparatus for raising liquid of the type employing a submergence pit or well and an air-lift mechanism, a valve-seat through which liquid is admitted to the air-lift mechanism, a valve encircling and sliding upon the air-lift mechanism and means for moving the valve, substantially as set forth.

4. In combination in apparatus for raising water wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the said well or pit, and a valve through which the air mechanism extends, independently movable for controlling the delivery of water thereto, substantially as set forth.

5. In combination in apparatus for raising water, wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the well or pit, combining an uptake and a downtake pipe one within the other, a valve mounted to slide parallel with and upon the outer pipe, a valve-seat therefor through which the water passes to the well or pit, and means for moving the said valve to open and close the well or pit, substantially as set forth.

6. In combination in apparatus for raising water, wherein the water to be raised is first delivered into a reservoir well or pit, air-lift mechanism for raising the water from the well or pit, combining an uptake and a downtake pipe one within the other, a valve encircling the outer pipe and movable relatively thereto, a valve-seat therefor through which the water passes to the well or pit, and means for raising, lowering, and supporting the said valve, substantially as set forth.

661,625. TILE-CUTTING MACHINE. GEORGE A. STANBERY, Zanesville, Ohio, assignor to the American Encaustic Tiling Company, Limited, New York, N. Y. Filed July 31, 1900. Serial No. 25,415. (No model.)



Claim.—1. In a tile-cutting machine, the combination of a tile-guide, with a cutter, a tile-support, and means for imparting a reciprocating movement to said support, substantially as specified.

2. In a tile-cutting machine, the combination of a tile-guide, with a cutter, a tile-support, means for imparting a reciprocating movement to said support, and means for adjusting the elevation of said support, substantially as specified.

3. In a tile-cutting machine, the combination of a tile-guide, with a tile-support, means for imparting a reciprocating movement to said support, and a pair of cutters arranged in a plane intermediate between the tile-guide and the tile-support, substantially as specified.

4. In a tile-cutting machine, a tile-support composed of a vertically-movable spring-actuated rest combined with a pin for lowering the same, and a slide having an inclined face that engages said pin, substantially as specified.

5. In a tile-cutting machine, the combination of a tile-support composed of a vertically-movable spring-actuated rest with a nut engaging the same, a pin supported upon the nut, and a slide having an inclined face that engages the pin, substantially as specified.

6. In a tile-cutting machine, the combination of a tile-guide, with a rock-shaft, a cutter secured thereto, and means for imparting reciprocating axial movement to the rock-shaft, substantially as specified.

7. In a tile-cutting machine, the combination of a tile-guide, with a pair of rock-shafts, cutters secured thereto, means for oscillating said shafts in unison, and means for reciprocating axially one of said shafts, substantially as specified.

8. In a tile-cutting machine, the combination of a pair of rock-shafts, with means for oscillating said shafts in unison, means for reciprocating one of said shafts, and a vertically-movable rest for supporting the severed tile, substantially as specified.

9. In a tile-cutting-machine, the combination of a tile-guide, with a vertically-movable tile-support, a pair of rock-shafts arranged in a plane intermediate between the guide and support, means for oscillating said shafts, and means for reciprocating axially one of said shafts, substantially as specified.

10. In a tile-cutting machine, the combination of a tile-guide, with a vertically-movable tile-support, a pair of rock-shafts, arranged in a plane intermediate between the guide and support, means for adjusting the oscillation of said shafts, and means for reciprocating axially one of said shafts, substantially as specified.

11. In a tile-cutting machine, the combination of a yoke, with means for oscillating the same, a pair of shafts adapted to be rocked by the yoke, and a sliding connection between one of said shafts and the yoke, substantially as specified.

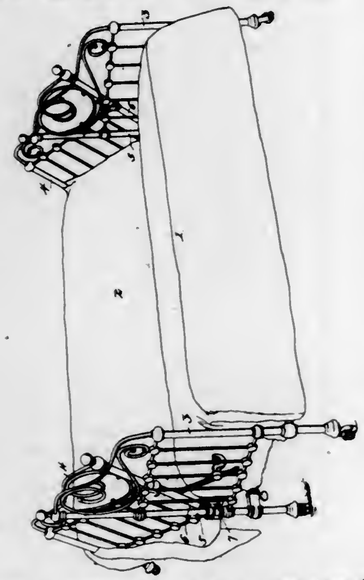
12. In a tile-cutting machine, the combination of a crank-disk, with a rod adjustably coupled thereto, a yoke operated by the rod, a pair of

shafts adapted to be rocked by the yoke, and a sliding connection between one of said shafts and the yoke, substantially as specified.

13. In a tile-cutting machine, the combination of a pair of rock-shafts, with means for rocking said shafts in unison, means for adjusting the lateral movement of the shafts, and means for imparting a reciprocating axial movement to one of said shafts, substantially as specified.

14. In a tile-cutting machine, the combination of the following elements: a pair of rock-shafts, means for rocking said shafts in unison, means for imparting a reciprocating axial movement to one of said shafts, a tile-guide, and a reciprocating tile-rest arranged in a plane between the rock-shafts, substantially as specified.

661,626. CONVERTIBLE BED. KATHERINE L. STENHOUSE, Chicago, Ill. Filed Feb. 10, 1900. Serial No. 4,752. (No model.)



Claim.—1. A combined bed and settee composed of two similar members having upwardly-extending end sections, and pivot mechanism connecting said members at their adjacent sides constructed to afford a limited longitudinal relative movement, whereby the end sections of the respective members may be brought into different planes to permit said sections to be moved into a position at right angles to each other, substantially as described.

2. A combined bed and settee composed of two similar members of equal length, having upwardly-extending end sections lying normally in the same plane at each end of the bed, said members being pivotally connected at their adjacent sides and the pintle and eye members of the hinge connections being constructed to have sliding engagement with each other to permit a limited longitudinal relative movement to bring the end sections into different planes at each end, substantially as described.

3. A combined bed and settee composed of two similar members having upwardly-extending end sections lying normally in the same plane at each end of the bed, and hinges connecting the adjacent sides of said members, the pintle and eye members of each hinge being constructed to have sliding engagement with each other to afford both pivotal and longitudinal movement relatively to each other, substantially as described.

4. A combined bed and settee composed of two similar members having upwardly-extending end sections lying normally in the same plane at each end of the bed, and hinges connecting the adjacent sides of said members, each hinge composed of two members, one provided with an elongated pintle, and the other provided with an apertured arm adapted to turn and slide on said pintle, substantially as described.

5. A combined bed and settee composed of two similar members having upwardly-extending end sections lying normally in the same plane at each end of the bed, and hinges connecting the adjacent sides of said members, each hinge consisting of a member provided with a yoke having an elongated pintle-bolt, and a member having an apertured arm to travel on said pintle-bolt between the arms of the lug, substantially as described.

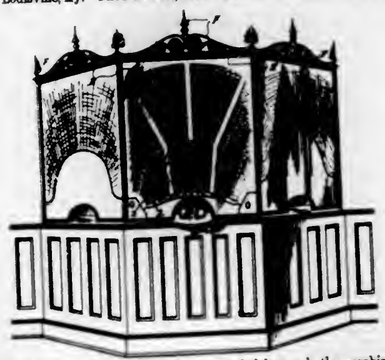
6. A combined bed and settee composed of two similar members having upwardly-extending end sections lying normally in the same plane at each end of the bed, and hinges connecting the adjacent sides of said members, each of said hinges consisting of two parts or sections, and each part or section comprising a separable collar for connection with the leg of the bed member, and a hinge member, substantially as described.

7. In a bed of the character described, the combination with the legs of the adjacent bed members, of hinges, each member of which comprises a hinge member proper and a two-part collar, one half of which is provided with a grooved flange, and the other half of which is provided with a rib to fit the said groove, and bolts connecting the halves at the other side of the collar, substantially as described.

8. In a bed of the character described, a hinge comprising two members, one member having a two-part collar, one half of which carries a yoke having a removable pintle, and is provided with a grooved flange at one side, while the other half is provided with a rib to fit the groove, and bolts connecting the two halves, the other member of the binge consisting of a two-part collar, one half of which carries an apertured arm adapted to slide on the pintle-bolt and is provided with a grooved flange, the other half of said collar being provided with a rib to engage said groove, and bolts connecting said halves, substantially as described.

9. In a bed of the character described, hinges connecting the bed members and each consisting of two hinge members adapted to be detachably connected to the adjacent legs of the respective bed members, one of said hinge members being provided with a yoke having a removable pintle-bolt, and the other of said binge members being provided with an arm adapted to slide upon said pintle-bolt, substantially as described.

661,627. TICKET-RACK. WILLIAM A. WADE and JAMES B. SMITH, Louisville, Ky. Filed Nov. 20, 1899. Serial No. 737,640. (No model.)



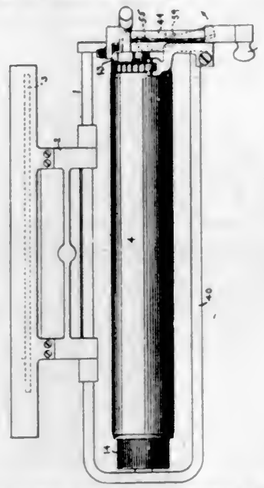
Claim.—1. In a combined diagram and ticket-rack, the combination of a diagram of an auditorium, forming a portion of the inclosure of a ticket-office, and covered with glass, and a ticket-rack consisting of pockets attached to the rear of said diagram and communicating therewith by perforations through which the tickets may be seen by the public, substantially as specified.

2. The combination of a diagram, in which the seats are represented by perforations arranged and numbered as the seats are arranged and numbered on the floor, and a ticket-rack consisting of tiers of pockets on the rear of the diagram so arranged that each pocket shall cover a perforation representing a seat, shall have the same number as its communicating perforation placed on its back, shall have the word "Sold" on the portion visible through the perforation, and shall be of such a depth as to allow the number of the ticket to be seen above its top edge, substantially as shown.

3. The combination of a set of diagrams, one for each floor, forming the outer walls of the inclosure of a ticket-office, so arranged that the location and numbers of seats may be seen from some distance by persons approaching, the seats being represented by numbered perforations; and a ticket-rack on the inside of the office, attached to the back of the diagram and consisting of rows of pockets for holding tickets, each of said pockets communicating at its lower end with a perforation on the diagram and bearing the same number as said perforation, substantially as specified.

661,628. TYPE-WRITING MACHINE. CASPER D. WALLACE, Bridgeport, Conn., assignor to the Yost Writing Machine Company, Ilion, N. Y. Filed Nov. 3, 1897. Serial No. 657,278. (No model.)

Claim.—1. In a type-writing machine, the combination of a platen, a ratchet-wheel, a detent therefor, a clutch, a spring, operating normally to hold said clutch in frictional engagement with said ratchet-wheel, and means adapted to be actuated by the hand of the user for overcoming the pressure of the spring and releasing the clutch so as to enable the platen to be turned independently of the ratchet-wheel while the hand of the user is overcoming the pressure of the spring



2. In a type-writing machine, the combination of a platen, a ratchet-wheel, a detent therefor, a clutch, a spring, operating normally to hold said clutch in frictional engagement with said ratchet-wheel, a sliding pin opposing said spring, and means for moving said pin to overcome the pressure of the spring and release the ratchet-wheel, whereby the platen may be turned independently of the ratchet-wheel and the clutch.

3. In a type-writing machine, the combination of a platen, a ratchet-wheel, a detent therefor, a clutch, a spring operating normally to hold said clutch in frictional engagement with said ratchet-wheel, a sliding pin, and a lever for actuating said pin.

4. In a type-writing machine, the combination of a platen, a ratchet-wheel, a detent therefor, a pair of clutching-segments arranged within said ratchet-wheel, a sliding pin connected to said clutching-segments, a spring operating normally to bold the said segments in frictional engagement with the interior of said ratchet-wheel, and means for sliding said pin and disengaging said clutching-segments from said ratchet-wheel.

5. In a type-writing machine, the combination of a platen, a flanged hollow stem or socket secured to one end of said platen and having a collar or shoulder as 27, a ratchet-wheel loosely mounted on the flanged part of said device, a detent for said ratchet-wheel, a pair of segments having shanks which pass through slots or openings in the collar or shoulder, a sliding pin or rod connected to the inner ends of said shanks a spring within said socket, and a slide pressed thereby against said pin.

6. In a type-writing machine, the combination of a platen, a hollow stem or socket secured to one end of said platen by a flange 19 and having a bearing at 20 for said platen, a collar or shoulder as 27, a ledge as 28, and a hub as 29, a ring as 50, a ratchet-wheel mounted on said flange 19 and said ring 50, a detent for said ratchet-wheel, a pair of segmental clutches having each a shank which is accommodated in a slot or opening in said collar or shoulder, a sliding pin or rod connected to the inner ends of said shanks, a coiled spring within said socket, a plunger pressed outwardly by said spring, and means for moving the pin inwardly against the pressure of said spring.

7. In a type-writing machine, the combination of a platen, the device 18 secured thereto and comprising the flange 19, the bearing 20, the socket 21, the slotted collar 27, the ledge 28 and the hub 29, a ring as 50 seated on said ledge, a ratchet-wheel seated on said flange and on said ring, a detent for said ratchet-wheel, a plug or bearing as 37 for said hub, a pin or rod as 35 supported in a perforation in said plug or bearing, a pair of segments having shanks which pass through the slots in the collar 27 and are connected to the inner end of said pin or rod, a coiled spring within said socket pressing outwardly against said pin or rod and said shanks and thereby causing the said segments to frictionally engage with said ratchet-wheel, and means for forcing the said pin or rod inwardly against the pressure of said spring so as to release such frictional engagement.

8. In a type-writing machine, the combination of a platen, a socket secured within the core thereof and containing a coiled spring, a loosely-mounted ratchet-wheel, a detent therefor, and a pair of clutching devices carried by the socket device and held normally in frictional engagement with said ratchet-wheel by the pressure of said spring.

9. In a type-wrjting machine, the combination of a platen, a socket secured within the core thereof and containing a coiled spring, a loosely-mounted ratchet-wheel, a detent therefor, a pair of clutching devices carried by the socket device, and held normally in engagement with said ratchet-wheel by the pressure of said spring, and means for overcoming the pressure of the spring and releasing said clutching devices.

10. In a type-writing machine, the combination of a platen, a socket device secured within the core thereof and carrying at its outer end a pair of clutching devices, a ratchet-wheel mounted upon said socket device, a detent for said ratchet-wheel, a spring within the latter for acting on said clutching devices to cause them to frictionally engage said ratchet-wheel, and a slide for also acting on said clutching devices to break their engagement with said wheel.

11. In a type-writing machine, the combination of a platen, a head attached at one end thereof and comprising the hub 7, flange 8 and hollow shank 9, a hand-wheel mounted on said shank, the stud or pivot 12 on the end bar seated within said hollow shank, a flanged socket attached to the platen at its opposite end and extending within the core thereof, the threaded rod 15 connecting the said socket with the said head, a ratchet-wheel mounted loosely on said flanged socket, a detent for said ratchet-wheel, a spring-pressed clutching mechanism carried by said socket and operating to normally connect said ratchet-wheel with said platen, a sliding pin for freeing said ratchet-wheel, and means for moving said pin.

12. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a detent therefor, means for rotating said ratchet-wheel, a platen-head carrying a clutch adapted to engage said ratchet-wheel, a spring acting normally to effect such engagement, a sliding pin for closing said spring, and means, independent of the platen, for moving said pin against the pressure of the spring to release said ratchet-wheel and permit the platen to be turned in either direction.

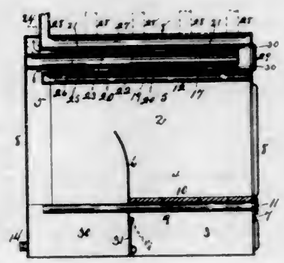
13. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a detent therefor, means for rotating the ratchet-wheel, a platen-head, a clutch carried thereby and normally frictionally engaging said ratchet-wheel, a spring-pressed plunger mounted within said head and abutting said clutch, and a sliding pin to coact with said plunger.

14. In a type-writing machine, the combination of a platen, a platen-head secured at one end thereof, a line-space ratchet-wheel, having a plunger and engaging said head, a detent for said ratchet-wheel, a pair of clutching-segments having shanks that are inserted within said head, a spring-pressed plunger abutting said shanks, a sliding pin opposing said plunger, and a lever for actuating said pin.

15. In a type-writing machine, the combination of a platen, a platen-head provided with a socket interiorly of said platen, a spring-pressed plunger within said socket, a line-space ratchet-wheel loosely mounted on said head, a detent therefor, means for rotating said ratchet-wheel, and a clutch comprising two segments carried by said head and held normally in frictional engagement with said ratchet-wheel by the pressure of said plunger.

16. In a type-writing machine, the combination of a platen, a platen-head provided with a socket interiorly of said platen, a spring-pressed plunger arranged within said socket, a line-space ratchet-wheel loosely mounted on said head, a detent therefor, means for rotating the ratchet-wheel, a clutch comprising two segments carried by said head and held normally in frictional engagement with said ratchet-wheel by the pressure of said plunger, and means independent of said plunger for overcoming the pressure thereof to release the clutch and permit the platen to be rotated in either direction independently of the ratchet-wheel.

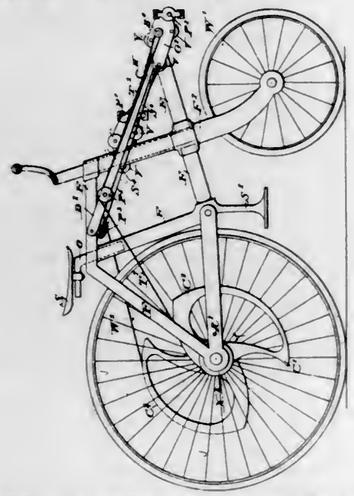
661,629. HEATING APPARATUS. HIRAM J. WATTLES, Syracuse, N. Y. Filed June 16, 1899. Serial No. 720,745. (No model.)



Claim.—1. In a heater, the three vertical parallel walls 2, 8 and 12, the combustion-chamber formed between the inner walls 2, and the smoke-flues 17 and 23 extending from this combustion-chamber, combined with the chambers A between the walls 2 and 12, the perforated partitions 13 at the top of the chambers A, the hot-air chamber 15 between the walls 2 and 12, the hot-air chamber 25 over the crown-sheet and connecting with the chamber 15, the hot-air chamber 26, the perforated partition 16 between the chambers 26 and 15, and the hot-air chamber 27 arranged above the chambers 25, 26, and connected therewith, the parts being arranged to operate substantially as shown.

2. In a heater, the three vertical walls 2, 12, and 8, extending parallel with each other, the hot-air chambers formed below the level of the grate, and upon each side thereof, the chamber 15 formed between the walls 2 and 12 and connected with the chambers A at its lower ends, the perforated partitions 13 arranged between the chambers A and 15, the perforated partition 16 placed at opposite sides of the air-chamber 15, the hot-air chambers 25, 26 and 27 arranged parallel with each other, and connected together, combined with the smoke-flues 20 and 21 between said chambers 25, 26 and 27, substantially as shown and described.

661,630. BICYCLE. ARTHUR M. ALLEN, New York, N. Y. Filed June 16, 1897. Serial No. 641,061. (No model.)



Claim.—1. In a wheeled vehicle, a hind wheel with a frame and steering-head, and a fork, in which is mounted a smaller and front wheel, pivoted in said steering-head, in combination with foot driving-gear arranged above and entirely clear of the front wheel and beyond the fork.

2. In a wheeled vehicle, guides D′ D², pedal-carriages G′ G², pedals P² P², all arranged in front of the fork and above, and clear of, the front wheel, and an operating connection to the hind wheel.

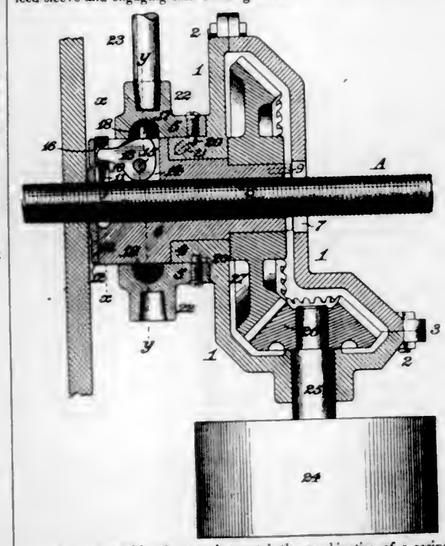
3. Alternating pedals P′ P² secured to each other by strap S⁴ over pulley P³, guides D′ D², and pedal-carriages G′ G², all arranged forward of the fork, and clear of, and above the front wheel, in combination with clutch mechanism on the hind-wheel axle, and a flexible connection thereto.

4. In a wheeled vehicle, two wheels mounted in line in a frame, the front wheel in a fork, which is pivoted in a steering-head in the hind frame, and provided with a seat on the frame between the wheels, in combination with sliding pedal mechanism arranged below the line of the upper frame-bar, in front of the fork and above and entirely clear of the front wheel, and an operating connection to the hind wheel.

661,631. MACHINE FOR SEVERING METAL RODS. RICHARD W. BAYLEY, Chicago, Ill. Filed Sept. 18, 1899. Serial No. 730,796. (No model.)

Claim.—1. In a machine-tool for severing metal, the combination of a casing or frame, a tool-carrier rotatable thereon, a cutting-tool pivotally connected to the tool-carrier, a feed-sleeve fitting and movable longitudinally and peripherally on the casing, and having a surface bearing against a member of the connections of the cutting-tool and adapted to impart movement thereto toward the axial line of the tool-carrier, helical grooves on the casing, and pins fixed to the feed-sleeve and engaging said helical grooves.

2. In a machine-tool for severing metal, the combination of a casing or frame, a tool-carrier rotatable thereon, a cutting-tool pivotally connected to the tool-carrier, a feed-sleeve fitting and movable longitudinally and peripherally on the casing, and having a surface bearing against a member of the connections of the cutting-tool and adapted to impart movement thereto toward the axial line of the tool-carrier, helical grooves, of progressively-increasing pitch, on the casing, and pins fixed to the feed-sleeve and engaging said helical grooves.



3. In a machine for severing metal, the combination of a casing or frame, a tubular bearing projecting therefrom, a tool-carrier rotatable in said bearing and having a central bore for the admission of the metal to be severed, a cutting-tool fitted to traverse in an end recess of the tool-carrier toward and from the axial line thereof, a feed-lever of bell-crank form, pivoted in a recess of the tool-carrier and having one of its arms connected with the cutting-tool, and a feed-sleeve fitting and movable longitudinally on the tubular bearing of the casing, and having an annular groove within which the other arm of the feed-lever is free to rotate and which provides a bearing-surface whereby the feed-lever may be moved about its pivotal axis by longitudinal movement of the feed-sleeve to effect the inward traverse or feed of the cutting-tool.

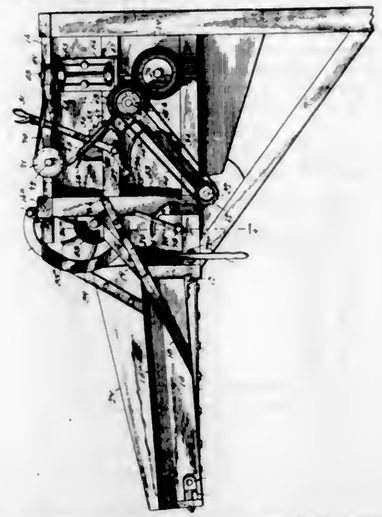
661,632. BAND-CUTTER AND FEEDER. EDMOND F. BIBBONNETTE, Nashua, Iowa. Filed Dec. 5, 1899. Serial No. 739,270. (No model.)

Claim.—1. In a band-cutter and feeder, the combination with an endless feed mechanism, a main driving-shaft, and a feed-apron-driving shaft, of a pulley mounted idly on said apron-driving shaft, and having a tappet, a spring-pressed clutch-lever having an element normally in the path of the tappet on the idle pulley, said clutch-lever being fulcrumed on a disk fast on said apron-driving shaft and a centrifugal governor having an endwise-movable shaft located and adapted to directly engage said clutch-lever, for the purpose set forth, substantially as described.

2. In a band-cutter and feeder for threshing-machines, the combination of a table, endless feed-aprons traveling thereon, the sector-shaped adjustable band-cutting knives disposed between said endless feed-aprons, having their front ends rigidly supported and their rear ends provided with depending heels, an adjusting crank-shaft on which said heels of said knives are supported, and feeding and cutting devices above said aprons and said adjustable band-cutting knives, substantially as described.

3. In a band-cutter and feeder for threshing-machines, the combination of a table, endless feed-aprons traveling thereon, relatively-fixed band-cutting knives projecting above said table and disposed between said endless aprons, feeding and cutting devices above said aprons and said relatively-fixed band-cutting knives, pivoted rocking agitator-blades disposed between said endless aprons, in rear of said relatively-fixed band-cutting knives and movable vertically in openings in the table, the crank-shaft, and pitmen connecting said crank-shaft to said rocking agitators, to operate the latter, substantially as described.

4. In a band-cutter and feeder for threshing-machines, the combination with a series of upper band-cutting knives and a feeding and beating cylinder having arms disposed between the same, of the feed-table, the endless feed-aprons having one lead traveling thereon, the sector-shaped adjustable band-cutting knives disposed under the upper knives and below said feeding and beating cylinder, said lower knives having their front ends rigidly supported and their rear ends provided with depending heels and an adjusting crank-shaft on which said heels, of said lower knives are supported, whereby the latter may be vertically adjusted toward and from the upper band-cutting knives, substantially as described.



5. In a band-cutter and feeder, the combination with a feed mechanism, a main driving-shaft, and a shaft for driving the feed mechanism, of a variable-speed driving mechanism including a shiftable frame and a friction-wheel normally propelled by the main driving-shaft, said friction-wheel being shiftable on the frame independently of the adjustment of the latter, and a speed-gear member fast with the feed-mechanism driving-shaft and arranged to have frictional engagement with the shiftable friction-wheel under all adjustments of the latter, substantially as described.

6. In a band-cutter and feeder, the combination with a main driving-shaft, a feed mechanism and a shaft for propelling the feed mechanism, of a stepped pulley carried by the feed-mechanism drive-shaft, an adjustable frame movable in an arc concentric with the axis of the main driving-shaft, a counter-shaft journaled in the frame to be adjustable therewith and geared to the main driving-shaft, and a shiftable friction-wheel mounted on the counter-shaft and adapted to engage frictionally with either member of the stepped pulley, substantially as described.

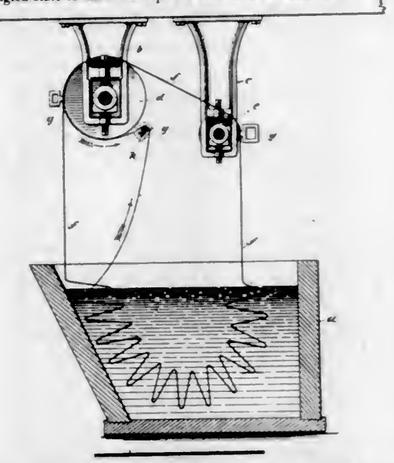
7. In a band-cutter and feeder, the combination with a feed mechanism, a main driving-shaft and a shaft for propelling the feed mechanism, of an adjustable frame mounted loosely on the main driving-shaft, a counter-shaft carried by said frame and geared to the main driving-shaft, a stepped pulley on the shaft for the feed mechanism, a friction-wheel on the counter-shaft, a lever for shifting the position of the adjustable frame and the friction-wheel laterally with respect to the stepped pulley, and means for normally pressing the friction-wheel into frictional engagement with the stepped pulley, substantially as described.

661,633. APPARATUS FOR DYEING. HENRY W. BOETTGER, New York, N. Y. Filed Aug. 21, 1900. Serial No. 27,536. (No model.)

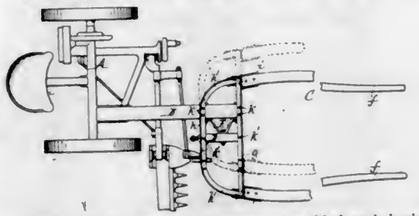
Claim.—1. In a dyeing apparatus, the combination with a dye-bath of a web-manipulating roller provided with a removable rod extending longitudinally thereof and means for supporting the said longitudinally-extending rod outside of the periphery of the said roller whereby the said rod will be available when in place to effect the winding of the fabric upon the roller in a doubled condition.

2. A web-manipulating roller provided with the eyes *g* and a removable rod extending longitudinally of the said roller and supported by the said eyes.

3. In a dyeing apparatus, the combination of a dye-vat and a web-manipulating roller above the dye-vat, adapted to cause a web of fabric to travel in the dye-vat and around itself, and web-engaging means carried by the roller for engaging the web and securing a loop or bight thereof to the roller, whereby upon rotation of the roller the web will be wound thereon in a doubled condition so as to remove the web from the vat in an untangled state to allow the liquid in the vat to be changed.



661,634. DRAFT-GEAR FOR HARVESTERS. THOMAS S. BROWN, Poughkeepsie, N. Y., assignor to the Adriance, Platt & Company, same place. Filed Apr. 2, 1900. Serial No. 11,211. (No model.)

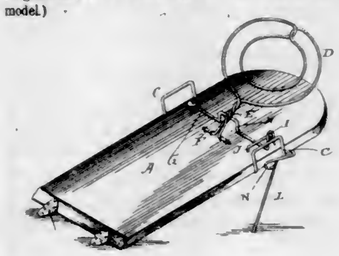


Claim.—1. In a harvester, the combination with the pole having a lateral extension on the grainward side, of thills provided at the rear end with a frame which rests upon said pole and extension and is laterally adjustable thereon to permit the thills being placed in the position for mowing or for reaping, and means whereby said thill-frame can be secured in either adjusted position, substantially as set forth.

2. In a harvester, the combination with the pole having a lateral extension on the grainward side, of thills provided at the rear end with a frame which rests upon said pole and extension and is laterally adjustable thereon to permit the thills being placed in the position for mowing or for reaping, means whereby said thill-frame can be secured in either adjusted position, and a draft device adapted to be secured to the under side of the pole or its lateral extension to correspond to the position of the thills, substantially as set forth.

3. In a harvester, the combination with the pole having on the grainward side a lateral extension composed of a longitudinal stub and a connecting-bracket, of thills having a rear frame provided with front and rear cross-bars which rest upon said pole and stub and are laterally adjustable thereon, and means whereby said cross-bars can be secured to the pole and stub in their adjusted positions, substantially as set forth.

661,635. BODY-REST FOR CASKETS. THOMAS W. COUGHLIN, Binghamton, N. Y. Filed Mar. 30, 1900. Serial No. 10,858. (No model.)



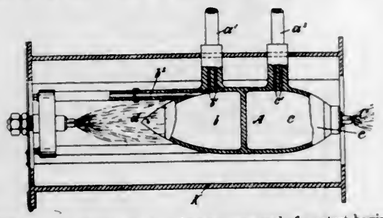
Claim.—1. In a rest for caskets, the combination of a frame or support, legs pivoted to said frame or support to support the same at different angles, and means carried by the frame for engaging with and throwing the supporting-legs out of operative position, substantially as described.

2. In a rest for caskets, the combination of a frame or support, legs of different lengths pivoted to said frame or support to support the same at different angles, and means carried by the frame for engaging with and throwing the supporting-legs out of operative position, substantially as described.

3. In a rest for caskets, the combination with a frame or support for the body of a head-rest pivoted thereto, and a lever pivoted to said frame and adapted to adjust and hold the head frame or support in the desired position, substantially as described.

4. In a rest for caskets, the combination with a frame of a head-rest pivoted to said frame, and a lever pivoted at one end to one side of the frame and extending transversely thereof, said lever having thereon means for engagement with the pivoted head-rest, whereby motion of the lever will adjust and support the said pivoted rest, substantially as described.

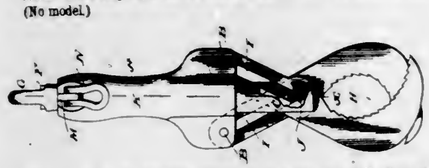
661,636. VAPOR-BURNER. LUDWIG DÜRR, Bremen, Germany. Filed Feb. 19, 1898. Serial No. 670,944. (No model.)



Claim.—1. A petroleum-vapor burner composed of a retort having a rear conical end and divided into a pair of chambers, separate inlet-pipes for said chambers, a front and a rear burner, the rear burner being placed in alinement with the rear conical end of the retort, and a vapor-supply pipe adapted to feed the rear burner, all being so constructed that the flame of the rear burner is adapted to overspread the surface of the retort, substantially as specified.

2. A petroleum-vapor burner composed of a retort having a rear conical end, and divided into a pair of chambers, separate inlet-pipes for said chambers, a front and a rear burner, the rear burner being placed in alinement with the rear conical end of the retort, and a vapor-supply pipe placed substantially parallel to the axis of the retort and adapted to feed the rear burner, substantially as specified.

661,637. ANIMAL-SHACKLE. SYDNEY E. FARRELL, Ottumwa, Iowa. Filed Aug. 15, 1899. Renewed Aug. 27, 1900. Serial No. 28,244. (No model.)



Claim.—1. A shackle-hook composed of a case or handle A, a reciprocating bar C bifurcated at the lower end and secured within the case or handle, an actuating-spring between the bar and case, and jaws H H slotted longitudinally and pivoted through said slots to the case, and within the bifurcated end of the reciprocating bar, substantially as and for the purpose set forth.

2. The double shackle composed of the cases A, reciprocating bars C, provided with lateral projections M N; actuating-springs D, jaws H, H, the swivels or rings G, connecting-chain R, and spring-latches L, substantially as and for purposes set forth.

3. In combination with two shackles composed of cases A, reciprocating bars C, provided with lateral projections M N, actuating-springs D, jaws H, H, and swivels or rings G; the chain R, connecting the two rings G, the spreader O, provided with a suspension-hook, and connected with the lateral projections M N, substantially as and for the purposes set forth.

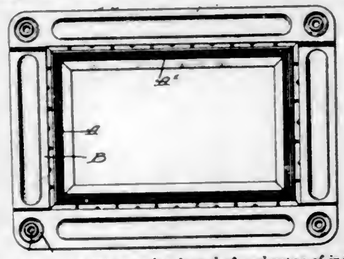
661,638. SHEET-METAL REGISTER. HOWARD S. HART and DAVID B. MARWICK, Chicago, Ill. Filed May 10, 1900. Serial No. 16,157. (No model.)

Claim.—1. In a register, a sheet-metal border-plate, a depressed central portion forming a downwardly-directed flange integral with said border, supporting means integral with said flange and adapted to support a top plate, the bottom of said depressed central portion being cut out and removed and adapted to rest upon said supporting means.



2. The process of forming a register which consists in drawing down the central portion of a rectangular sheet of metal to form a narrow rectangular border and a box-like casing integral therewith and standing at an angle thereto, cutting out the bottom of said casing and providing said casing at its upper portion with means to support a top plate, perforating said cut-out bottom of said casing and adjusting the same on said supporting means at the upper portion of said casing to serve as said top plate.

661,639. REGISTER. HOWARD S. HART and DAVID B. MARWICK, Chicago, Ill. Filed May 10, 1900. Serial No. 16,158. (No model.)



Claim.—1. A register-casing formed of a plurality of independent side walls abutting against each other at an angle, each of said side walls having attached thereto a border-strip, said strips having projecting ends adapted to overlap each other, and said overlapping ends having nesting corrugations thereon.

2. A register-casing formed of a plurality of independent sheet-metal side walls abutting against each other at an angle, each of said side walls having integral therewith a sheet-metal border-strip, said strips having projecting ends adapted to overlap each other, and said overlapping ends having nesting corrugations thereon and registering perforations to receive a fastening device.

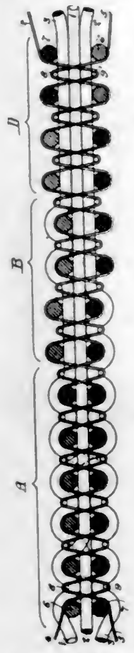
3. A register-casing formed of a plurality of independent sheet-metal side walls abutting against each other at an angle and having integral tongues, the tongues on one side wall being located in the slots between the tongues of the other side wall and bent over to hold the parts in place, each of said side walls having integral therewith a sheet-metal border-strip, said strips having projecting ends provided with corrugations adapted to overlap each other, said corrugations then engaging each other.

661,640. WOVEN FABRIC. ALFRED HEALD, Philadelphia, Pa. Filed Feb. 19, 1900. Serial No. 5,754. (Specimens.)

Claim.—1. A woven fabric in which sets of pile-forming warp-threads alternating with binding warp-threads are interwoven with heavy weft-threads alternating with binding weft-threads, said pile-forming warp-threads producing pile-loops on both faces of the fabric, the heavy weft-threads distending said pile-loops, the binding weft-threads tying and indenting the pile-forming warp-threads between the heavy weft-threads, and each binding warp-thread passing around a heavy weft-thread, thence to and around a binding weft-thread and thence back and around a heavy weft-thread, substantially as specified.

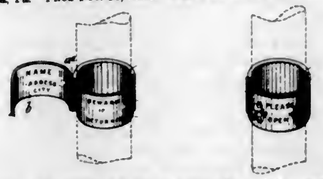
2. A woven fabric in which sets of pile-forming warp-threads alternating with binding warp-threads are interwoven with heavy weft-threads alternating with binding weft-threads, said pile-forming warp-threads producing pile-loops on both faces of the fabric in some portions of the same and being distended by the heavy weft-threads at such places, the heavy weft-threads covering the pile-forming warp-threads on one or both faces of the fabric in other portions of the same, the binding weft-threads tying and indenting the surface warp-threads between the heavy weft-threads, and each binding warp-thread passing around a heavy weft-thread, thence to and around a binding weft-thread and thence back to and around a heavy weft-thread, substantially as specified.

3. A woven fabric in which sets of pile-forming warp-threads, each comprising three or more threads, alternating with binding warp-threads, are interwoven with heavy weft-threads in sets or pairs alternating with binding weft-threads, two of the pile-forming warp-threads of each set forming loops on the opposite faces of the fabric, and the remaining thread or threads of the set occupying an intermediate position, a heavy weft-thread of each set or pair occupying a position between such intermediate warp thread or threads and the pile-loops of one face, and another heavy weft-thread of each set or pair occupying a position between said intermediate warp thread or threads and the pile-loops of the other face, the binding weft-threads tying and indenting the pile-loops between the sets or pairs of heavy weft-threads and the binding warp-threads being interwoven with the heavy weft-threads and the binding weft-threads in order to tie the two faces of the fabric together, substantially as specified.



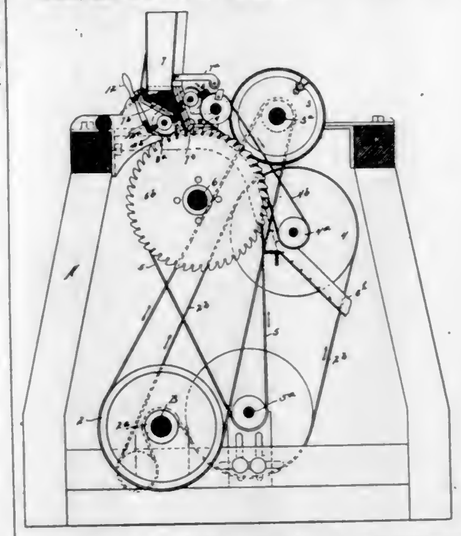
4. A woven fabric in which sets of pile-forming warp-threads, each set comprising three or more threads, alternating with binding warp-threads, are interwoven with sets or pairs of heavy weft-threads alternating with binding weft-threads, said pile-forming warp-threads of each set forming, in some portions of the fabric, loops on the opposite faces of the same and the other thread or threads of each set not so employed occupying an intermediate position in the fabric, one of the heavy weft-threads of each set or pair being disposed between the intermediate warp thread or threads and the pile-loops of one face, and the other heavy weft-thread of each set or pair being disposed between said intermediate warp thread or threads and the pile-loops of the other face, either heavy weft-thread, when not so disposed, lying outside of the pile-forming warp-threads and forming a surface-thread of the fabric, the binding weft-threads tying down the pile-forming warp-threads between the sets or pairs of heavy weft-threads, and the binding warp-threads being interwoven with the heavy weft-threads and binding weft-threads in such manner as to tie the two faces of the fabric together, substantially as specified.

661,641. IDENTIFYING DEVICE. JULIUS HENRICH, Philadelphia, Pa. Filed Feb. 10, 1900. Serial No. 4,832. (No model.)



Claim.—An identifying device comprising a ring, a recess of more than one-half of the periphery of the ring provided therein, a lid hinged to said ring and covering the entire recess, substantially as and for the purposes set forth.

661,642. TOOTHPICK-MACHINE. JOSEPH M. HOMMEL, Detroit, Mich., assignor to the National Toothpick Company, same place. Filed Jan. 5, 1900. Serial No. 418. (No model.)



Claim.—1. In a toothpick-machine, a hopper, a feed-spout leading from said hopper, a rotating brush at the junction between the said hopper and spout adapted to brush the picks back into the hopper and to straighten the same, and a brush midway between the ends of said spout adapted to urge the picks in the spout toward the delivery end thereof, substantially as described.

2. In a toothpick-machine, a hopper provided with a feed-spout, and a brush arranged to engage through the walls of the spout, said brush being adapted to urge the picks toward the delivery end of said spout with a yielding pressure, and thereby to straighten the same, substantially as described.

3. In a toothpick-machine, a hopper provided with a feed-spout having slots extending longitudinally thereof, through its front and rear faces, a pair of brushes arranged one in front at the upper end thereof, and one behind the feed-spout toward the lower end thereof, and to rotate in the same direction, whereby the brush in front produces an actuating result the reverse of the actuating result provided by the brush at the rear, substantially as described.

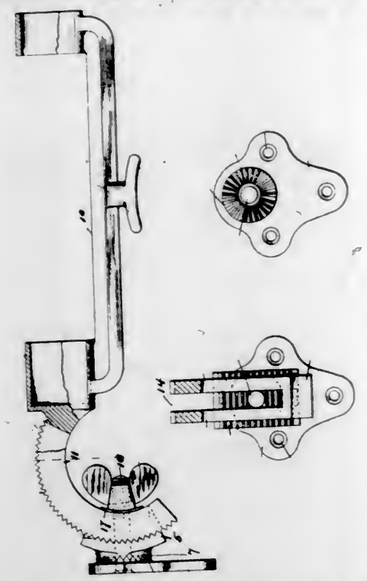
4. In a machine for treating splints, and as a means for arranging the individual splints, a rotating carrier-wheel provided with notches on its periphery, a hopper, a feed-spout leading from the hopper to the carrier-wheel, a rotating agitator arranged to engage through a slot in the feed-spout against the splints, and rotated in a direction contrary to the feed motion of the splints, a rotating force feed arranged to engage through a slot at the rear of the feed-spout and to rotate in a direction with the feed of the splints, substantially as described.

5. In a machine for treating splints, means for presenting said splints singly to the treating mechanism consisting of parallel rotating disks provided with notched edges, a loose belt-wheel mounted between the rotating disks, a belt arranged to be carried on said belt-wheel, an opposing belt arranged against the first-mentioned belt, and means for giving opposite motions to said belts, whereby the splints carried forward in the notches of said disks are rotated, substantially as described.

6. In a machine for feeding splints and sharpening the same, the combination of a pair of carrier-disks, each of which is provided with notches in its periphery, a belt-support between the carrier-disks, a belt-support outside the carrier-disks, and arranged to carry a belt in parallelism with the belt between the disks, and means whereby motion is given to the two belts, substantially as described.

7. In a machine for feeding splints and sharpening the same, the combination of a pair of carrier-disks, each of which is provided with notches on its periphery, means for feeding the splints into said notches, a belt-support between the carrier-disks, a belt-support outside the carrier-disks, and arranged to carry a belt in parallelism with the belt between the disks and means whereby motion in opposite directions and at different velocities is given to said belts, whereby said splints are whirled, and rolled along at a speed approximately that of the periphery of said disks, substantially as described.

661,643. FLAGSTAFF-HOLDER. EDWARD S. MOWRY, Middletown, Conn. Filed July 13, 1900. Serial No. 23,463. (No model.)



Claim.—1. In a flagstaff-holder, the combination of a base member, a clamp-block arranged upon said base and capable of adjustment with relation to it and having its face curved in an arc of a circle and provided with teeth, and a pole-supporting member having a segmental toothed rack the teeth of which engage with the face-teeth upon the said clamp-block, and means for securing the said members, substantially as described.

2. In a flagstaff-holder, the combination with the base member, of a a clamp-block adjustable thereon in a plane parallel therewith and provided on its outer surface with teeth, a pole-supporting member having a segmental toothed rack and adjustable with relation to the clamp-block and the teeth of which are adapted to engage the teeth of said clamp-block in any adjusted position, and means for securing the said members in such adjusted position, whereby the pole-supporting member may be inclined relatively to the base member and also adjusted about its longitudinal axis, substantially as described.

3. In a flagstaff-holder, the combination with the base member, of a clamp-block provided with face-teeth, a pole-supporting member having a segmental toothed rack, said rack being slotted longitudinally, a bolt projecting from the base member through the said slot, and a nut engaging the said bolt and adapted to clamp the several members in any adjusted position, substantially as described.

4. A flagstaff-holder, comprising a base member having a number of teeth, a clamp-block having complemental teeth on one side to engage the teeth on the base member and having teeth on its other side and said other side curved in the arc of a circle, a pole-supporting member having a segmental toothed rack the teeth of which are adapted to engage the teeth of the curved surface of the clamp-block in any adjusted position, and means to bind the several members in adjusted position, substantially as described.

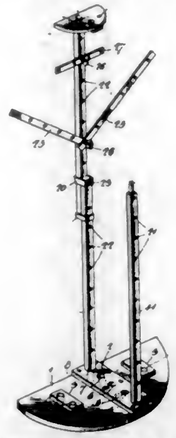
5. A flagstaff-holder, comprising a base member having a number of teeth, a clamp-block having complemental teeth on one side to engage the teeth on the base member and having teeth on its other side and said other side curved in the arc of a circle, a pole-supporting member having a segmental toothed rack the teeth of which are adapted to engage the teeth of the curved surface of the clamp-block in any adjusted position, means to bind the several members in adjusted position, and a cleat for the halyards arranged upon the pole-supporting member, substantially as described.

6. A flagstaff-holder, comprising a base member, a clamp-block adjustable on said base member in a plane parallel therewith, and having its face curved in an arc of a circle, a pole-supporting member having a segmental end adjustably fitted to said curved face of the clamp-block, and means for securing these several members in adjusted position, whereby the pole-supporting member may be inclined relatively to the base member and also adjusted about its longitudinal axis, substantially as described.

661,644. COVERING FOR DRAWING-ROLLS OF SPINNING MACHINERY. WALTER F. REID, Addlestone, England, assignor to the Velvril Company, Limited, London, England. Filed Feb. 6, 1900. Serial No. 4,269. (No model.)

Claim.—A covering for the drawing-rolls used in spinning consisting of a mixture of nitrocellulose with nitroricinolein.

661,645. DISPLAY-RACK. FREEMAN C. ROGERS, Pueblo, Colo. Filed Jan. 31, 1900. Serial No. 3,512. (No model.)



Claim.—1. A display-rack comprising a base provided with a series of sockets arranged in a perpendicular and an inclined position, a standard adapted to be fitted in any one of the sockets, whereby it may be arranged at different points on the base and in a vertical or an inclined position, an arm adjustably secured to the standard and adapted to be arranged horizontally or at an inclination, and a top or cap piece mounted upon the upper end of the standard, substantially as described.

2. A display-rack comprising a semicircular or segmental base provided with sockets, the long and short standards adapted to be arranged in the sockets and provided with top or cap pieces of segmental form, and arms provided with means for mounting them on the standards and adapted to be arranged in a horizontal or inclined position, substantially as described.

3. A display-rack comprising a horizontal base, long and short standards adjustably mounted thereon, and arms extending from opposite sides of the long and short standards, located at the upper ends thereof and adapted to be arranged either in a horizontal or an inclined position, substantially as described.

4. A display-rack comprising a base having side sockets and provided with a central series of sockets arranged perpendicular and at a forward and rearward inclination, an adjustable standard composed of upper and lower sections and designed to be arranged at the back of the base, a short front standard, and arms provided with means for securing them to the standards, substantially as described.

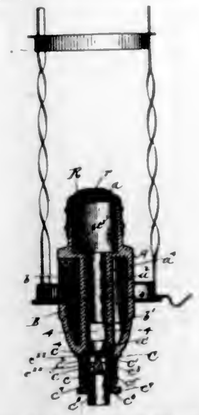
5. A display-rack comprising a base, standards provided at their upper ends with tenons, arms having means for securing them to the standards, and a top or cap piece adapted to be arranged on the upper ends of the standards in a horizontal or inclined position and provided with a perpendicular and an inclined socket or opening, substantially as described.

6. A display-rack comprising a horizontal base, the long and short standards detachably secured to the base and adapted to be arranged vertically or at an inclination, a removable cap-piece adapted to be arranged on the upper end of either standard, and an arm provided with means for detachably securing it to either standard or to the cap-piece, substantially as described.

661,646. BUNSEN BURNER. LEVI L. ROWE, Boston, Mass. Filed May 28, 1898. Serial No. 682,001. (No model.)

Claim.—1. In a Bunsen burner, the combination with a burning-surface, of a gas-inlet, a direct air and gas passage leading from said inlet to said burning-surface and forming a substantially closed air and gas mixing chamber, a chamber surrounding said mixing-chamber, an air-supply passage leading to said direct air and gas passage through said chamber in a circuitous course and terminating in a single opening in the wall of said mixing-chamber, and a wall or diaphragm interposed between its outer inlet and the opening in the wall of said mixing-chamber.

2. In a Bunsen burner, the combination with a burning-surface, of a gas-inlet pipe, an air and gas passage leading from said gas-inlet pipe to said burning-surface, a circuitous air-passage surrounding said air and gas passage and communicating therewith, a holder for the burner mounted on said inlet-pipe, said holder having passages $c^{\prime}$ and provided with an integral conical valve C′ and a threaded encircling flange, and a cap threaded on said flange and adjustable thereon, said cap, forming, with said flange, a chamber c^{4}, said cap having also a conical opening in its top controlled by said conical valve C′.



3. In a Bunsen burner, the combination with a plurality of independent burning-surfaces, of a common supply-chamber d^{3}, separate passages connecting said common chamber with the burning-surfaces, a substantially closed gas-passage $d^{\prime}$ forming an air and gas mixing chamber leading to said chamber d^{2}, and a circuitous air-passage d^{5} encircling said passage $d^{\prime}$, and entering said passage $d^{\prime}$ through a single opening d^{6}.

4. In a Bunsen burner, the combination with a section E having a chamber d^{2} therein and a plurality of burning-surfaces, a second section E′ screwed to said section E, a gas-inlet in said section E, a substantially closed direct passage leading from said inlet to said chamber d^{2}, and forming an air and gas mixing chamber, and an air-supply passage d^{5} encircling said direct passage and entering said direct passage through a single opening at a point removed from the entrance to said air-supply passage.

5. A gas-burner having a burning-surface consisting of a cap-plate R having a circular exterior flame-opening and a central flame-aperture, whereby an exterior, circular heating-flame and a central heating-flame are produced.

6. A gas-burner having a burning-surface consisting of a gauze cap r, and a superposed cap-plate R having a circular, exterior flame-opening and a central flame-aperture, whereby an exterior, circular heating-flame and a central heating-flame are produced.

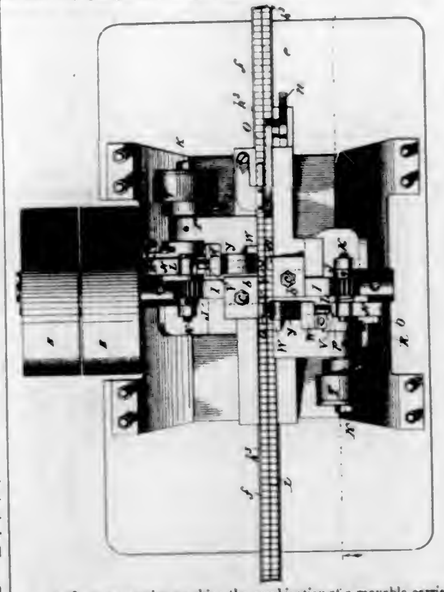
7. In a Bunsen burner, the combination with a gas-inlet pipe, of a holder c^{2} mounted on said gas-pipe and provided with gas-passages c^{6}, a conical valve C′ integral with said holder, a cap $c^{\prime}$ adjustably mounted on said holder c^{2} and having an inlet-opening registering with said conical valve, a burner having an air-inlet mounted on said holder c^{2} and so connected with said adjustable cap $c^{\prime}$ as that when said burner is turned the cap is moved toward or from said conical valve C′ and the flow of gas through opening $a^{\prime}$ is controlled.

8. In a Bunsen burner, the combination with a gas-pipe, of a burner holder or support thereon having suitable gas-passages and a conical gas-valve, of a cap screw-threaded to said holder and having an inlet-opening registering with said conical valve, and a burner mounted on said holder or support and free to slide vertically thereon, said burner being so connected with said cap as that rotation of said burner will cause said cap to move toward and from said conical valve and regulate the flow of gas, said burner holding a suitable air-inlet.

9. In a Bunsen burner, the combination with the holder c^{2} screw-threaded to the gas-supply pipe, and having passages c^{6}, and the integral conical valve C′, of the cap $c^{\prime}$ provided with the inlet-opening $a^{\prime}$ registering with said valve C′ and the vertical slot c^{23} in one side, and the burner A provided with an air-inlet $b^{\prime}$ mounted on said holder so as to have free vertical movement thereon, said burner having a lug c^{22} which enters the slot c^{23} in said cap $c^{\prime}$, so that when said burner is moved toward or from the conical valve C′ the flow of gas is regulated.

661,647. SAW-SETTING MACHINE. AUGUSTUS C. SAXTON, New York, N. Y. Filed Nov. 2, 1899. Serial No. 735,579. (No model.)

Claim.—1. In a saw-setting machine the combination of a movable carriage within which the saw is clamped, intermittently-acting feeding devices which engage with the carriage, a pair of independently-acting and spring-actuated hammers, which operate in reverse directions, plungers adapted to be engaged by the hammers, and anvils to resist the thrust of the plungers, for the purposes set forth.



2. In a saw-setting machine the combination of a movable carriage within which the saw is clamped, intermittently-acting feeding devices which engage with the carriage, two independently-acting and spring-actuated hammers, one presented to the right and the other to the left, right and left plungers adapted to be engaged by the hammers, and right and left anvils adapted to resist the thrust of the plungers, the faces of the anvils being beveled opposite the teeth to set the teeth to the right and left respectively, for the purposes set forth.

3. In a saw-setting machine the combination of a movable saw-clamping carriage, means to adjust the saw within the carriage, intermittently-acting feeding devices for the carriage, a pair of independently-acting and spring-actuated hammers, the parts being so arranged that the feeding is effected during the time the springs of the hammers are put under tension, and the hammers act during the time the feeding devices are recovering; plungers each provided with a retracted spring adapted to be engaged by the hammers, and anvils to resist the thrust of the plungers, for the purposes set forth.

4. In a saw-setting machine the combination of a carriage for the support of the saw, feeding devices adapted to engage with the carriage, reciprocating racks which engage respectively with pinions, oscillating hammers, means whereby the hammers are actuated by the racks and pinions, springs put under tension by the movement of the hammers respectively, plungers which receive the stroke of the hammers, and springs for the retraction of the plungers, for the purposes set forth.

5. In a saw-setting machine the combination of independently-acting oscillating hammers mounted upon shafts, separate springs, each connected with its respective hammer and put under tension by their movement respectively, pawls intermittently actuated by the machine for moving the hammers and giving tension to the springs, devices immovable on the machine against which the pawls strike and by which they are tripped for the release of the hammers, plungers adapted to receive the stroke of the hammers, and anvils adapted to resist the thrust of the plungers, for the purposes set forth.

6. In a saw-setting machine the combination of a shaft, cams mounted upon the shaft, racks connected with said cams, pinions which engage said racks, pawls carried by the pinions, oscillating hammers engaged by the pawls, means to trip the pawls, springs put under tension by the movement of the hammers, plungers to receive the stroke of the hammers, and anvils to resist the thrust of the plungers, for the purposes set forth.

7. A movable carriage for supporting a saw-blade composed of two plates, separate from other parts of the machine and adapted to clamp the blade between them, means such as screws carried by the plates, whereby they may be clamped together and adjustable devices located between the

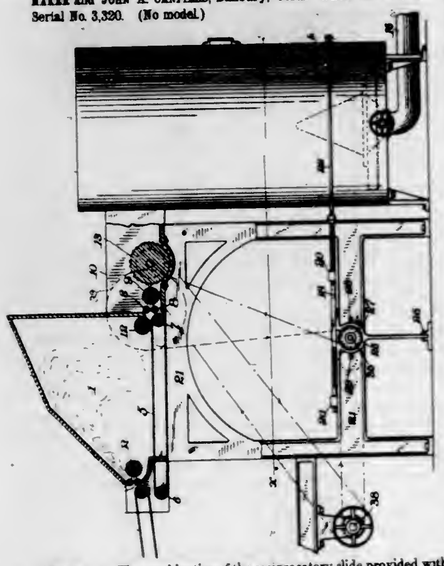
plates for determining the vertical position of the saw-blade between the two parts of the carriage, for the purposes set forth.

8. A carriage for supporting a saw-blade composed of two plates adapted to clamp the blade between them, adjustable devices located between the plates for determining the vertical position of the saw-blade within the carriage, and detents or teeth on one of said plates whereby the carriage and the saw-blade may be fed through the machine, for the purposes set forth.

9. The combination of a table or plate upon which the saw-carrying device rests, said table being not shorter than the saw-blade, adjusting-screws threaded into the frame of the machine whereby the respective ends of the table may be vertically and independently adjusted, and springs connected with the said table which normally pull the same downwardly, for the purposes set forth.

10. The combination of a table or plate upon which the saw-carrying device rests, said table being not shorter than the saw-blade, adjusting-screws threaded into the frame of the machine whereby the respective ends of the table may be vertically adjusted, downwardly-extending headed bolts connected with the table, and springs encircling the bolts, engaging with the heads thereof at one end and against some immovable part of the machine at the other end, for the purposes set forth.

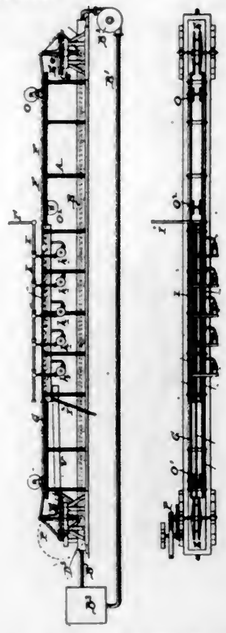
661,648. HAT-FORMING MACHINE. GEORGE H. L. SCHOONMAKER and JOHN A. CANFIELD, Danbury, Conn. Filed Jan. 30, 1900. Serial No. 3,320. (No model.)



Claim.—1. The combination of the reciprocatory slide provided with an inclined slot and guided within suitable ways supported by the frame of the machine, the hinged and jointed rods connected respectively with the doors of the hat-forming chamber and with one end of said slide, the hinged journal-box, the disk provided with an annular groove in its face, the pins extending through opposite sides of said box within said groove, the shaft having a splined connection with said disk and journaled in the frame of the machine and carrying on its inner end a spur-gear, the short shaft journaled in said frame and carrying a pulley and a spur-gear meshing with the first-named gear, means for communicating motion to this pulley from the power-pulley, the pulley loose upon the first-mentioned shaft, said pulley and disk having surfaces adapted to properly engage by friction, the pin extending within said inclined slot and within the annular groove in said disk, and the rolls which deliver the fur into the hat-forming chamber which rolls receive their motion from said loose pulley, whereby when the doors of the hat-forming chamber are opened the frictional contact between said disk and pulley will be broken, thereby stopping the delivery of the fur, and when said doors are closed said parts will engage by friction thereby effecting the delivery of the fur into the forming-chamber, substantially as set forth.

2. In a hat-forming machine, the combination of the feeding mechanism which delivers the fur into the hat-forming chamber proper, with means operated by the opening and closing of the doors of the hat-forming chamber for stopping and continuing the said feeding mechanism, substantially as set forth.

661,649. MERCERIZING-MACHINE. FRANK SHUMAN and CONSTANTINE SHUMAN, Philadelphia, Pa. Filed July 21, 1900. Serial No. 24,427. (No model.)



Claim.—1. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, and washing devices for washing the yarn after passing through the tank.

2. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, automatic devices for operating the locking devices for putting them into action, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, and means for releasing the devices which hold the spools in their extended position whereby the tension may be removed from the yarn.

3. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, and means for rotating the spools and yarn upon the carriages while passing through the tank containing the caustic alkali.

4. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, and means for rotating the spools and yarn upon the carriages while passing through the tank containing the caustic alkali first in one direction and then in the opposite direction.

5. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to

or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, and means for circulating the caustic alkali through the tank in the reverse direction to the travel of the carriages and yarn.

6. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, means for circulating the caustic alkali through the tank in the reverse direction to the travel of the carriages and yarn, and means to cool the caustic alkali prior to its circulation through the tank.

7. In a mercerizing-machine, the combination of an endless chain of carriages each of which is provided with two spools to support a skein of yarn to be mercerized, means for moving the said spools relatively to or from each other, locking devices for holding the spools in their extended position for stretching the skein of yarn, a tank for containing caustic alkali through which the carriages are caused to pass, means for feeding the carriages successively through the tank, washing devices for washing the yarn after passing through the tank, and means for releasing and again fastening the locking devices of the spools during the passage of the carriages between the washing devices and their entrance into the tank containing the caustic alkali whereby mercerized skeins may be removed and unmercerized skeins placed upon the spools and stretched.

8. In a mercerizing-machine, the combination of an endless chain of carriages, guiding-wheels, and rails for propelling and guiding the said chain of carriages, means on each of the carriages for supporting and stretching skeins of yarn to be mercerized, a tank containing mercerizing fluid through which the chain of carriages are caused to pass for subjecting the yarn to the action of the mercerizing fluid, means to wash the yarn on the carriages consisting of a series of water-receiving receptacles below the chain of carriages and each provided with spraying-pipes above the chain of carriages, a fresh-water-supply pipe to the spraying-pipe of the receptacle through which the carriages last passed, a circulating-pump for drawing the water through each of the several receptacles and discharging it into the spraying-pipes of the next receptacles in advance, and a discharge-pipe from the first receptacle through which the carriage with the mercerized yarn passes for the purpose of carrying away the waste alkaline water produced by the series of washings.

9. In a mercerizing-machine, a carriage for supporting and conveying yarn to be mercerized through caustic-alkaline solution, consisting of a frame, a transverse fixed shaft journaled therein and having one or both ends provided with a yarn-supporting spool, a second shaft adjustably guided in the carriage-frame and movable to and from the fixed shaft and also provided with a supporting-spool for the yarn, means for moving the two shafts and their spools relatively to and from each other, and locking devices for holding the said shafts in their extended position whereby the yarn may be stretched between the spools, consisting of a toggle, one end of which is secured to the carriage and the other end to the adjustable shaft, and latching means for holding the toggle in a depressed position and when the two parts of the toggle are in substantial alinement.

10. In a mercerizing-machine, a carriage for supporting and conveying yarn to be mercerized through caustic-alkaline solution, consisting of a frame, a transverse fixed shaft journaled therein and having one or both ends provided with a yarn-supporting spool, a second shaft adjustably guided in the carriage-frame and movable to and from the fixed shaft and also provided with a supporting-spool for the yarn, means for moving the two shafts and their spools relatively to and from each other, locking devices for holding the said shafts in their extended position whereby the yarn may be stretched between the spools consisting of a toggle one end of which is secured to the carriage and the other end to the adjustable shaft and latching means for holding the toggle in a depressed position and when the two parts of the toggle are in substantial alinement, and a stop to limit the depression of the toggle elements whereby their joint may pass slightly below a plane through the two shafts and the toggle elements themselves lock the two shafts in their most extended position.

11. In a mercerizing-machine, a carriage for supporting and conveying yarn to be mercerized through caustic-alkaline solution, consisting of a frame, a transverse fixed shaft journaled therein and having one or both ends provided with a yarn-supporting spool, a second shaft adjustably guided in the carriage-frame and movable to and from the fixed shaft and also provided with a supporting-spool for the yarn, means for moving the two shafts and their spools relatively to and from each other, locking devices for holding the said shafts in their extended position whereby the yarn may be stretched between the spools consisting of a toggle one end of which is secured to the carriage and the other end to the adjustable shaft and latching means for holding the toggle in a depressed position and when the two parts of the toggle are in substantial alinement, and an adjustable support between the toggle and carriage-frame whereby the toggle may be bodily adjusted to or from the fixed shaft.

12. In a mercerizing-machine, a carriage for supporting and conveying yarn to be mercerized through caustic-alkaline solution, consisting of a frame, a transverse fixed shaft journaled therein and having one or both ends provided with a yarn-supporting spool, a second shaft adjustably guided in the carriage-frame and movable to and from the fixed shaft and also provided with a supporting-spool for the yarn, means for moving the two shafts and their spools relatively to and from each other, locking devices for holding the said shafts in their extended position whereby the yarn may be stretched between the spools, a toothed wheel secured to the transverse shaft which is adapted to rotate in fixed bearings, a mercerizing-tank, one or more racks in said tank for rotating the toothed wheel and its shaft, and means for propelling and guiding the carriage through the tank.

13. In a mercerizing-machine, a carriage for supporting and conveying yarn to be mercerized through caustic-alkaline solution consisting of a frame, a transverse fixed shaft journaled therein and having one or both ends provided with a yarn-supporting spool, a second shaft adjustably guided in the carriage-frame and movable to and from the fixed shaft and also provided with a supporting-spool for the yarn, means for moving the two shafts and their spools relatively to and from each other, locking devices for holding the said shafts in their extended position whereby the yarn may be stretched between the spools, a toothed wheel secured to the transverse shaft which is adapted to rotate in fixed bearings, a mercerizing-tank, one or more racks in said tank for rotating the toothed wheel and its shaft, means for propelling and guiding the carriage through the tank, and means for circulating the mercerizing fluid through the tank in a direction opposite to the travel of the carriage whereby the air-bubbles are brushed off of the yarn while the same is being rotated on its spools and fed through the mercerizing-tank.

14. In a mercerizing apparatus, the combination of a tank having guides therein, carriages adapted to travel through the tank upon said guides and provided with means for carrying skeins of yarn to be mercerized, a non-conducting packing about the outer portion of the mercerizing-tank, a non-conducting lid over the upper part of the tank and so arranged as to leave space for the carriage to pass into and out of the tank, means for circulating caustic alkali through the tank in a direction opposite the travel of the carriage, and cooling means for cooling or refrigerating the caustic alkali prior to its being circulated through the tank.

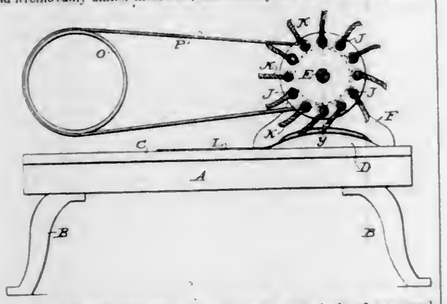
15. In a mercerizing-machine, the combination of a tank for containing mercerizing fluid provided with guide-rails, a second set of guide-rails elevated above the tank, an endless chain of carriages arranged to run upon the guide-rails within the tank and above the tank and be inverted in transferring from one set of rails to the other set, guide-wheels at each end of the two sets of guide-rails for conveying the chain of carriages from one set to the other, means on each of the carriages for supporting and stretching skeins of yarn, washing devices for washing the yarn upon the carriages arranged adjacent to the upper rails and intermediate of their ends, whereby the yarn may be mercerized by complete submersion in the tank and the completion of the mercerizing operation carried on in the air prior to meeting the washing devices.

16. In a mercerizing-machine, the combination of a tank for containing mercerizing fluid provided with guide-rails, a second set of guide-rails elevated above the tank, an endless chain of carriages arranged to run upon the guide rails within the tank, and above the tank and be inverted in transferring from one set of rails to the other set, guide-wheels at each end of the two sets of guide-rails for conveying the chain of carriages from one set to the other, means on each of the carriages for supporting and stretching skeins of yarn, washing devices for washing the yarn upon the carriages arranged adjacent to the upper rails and intermediate of their ends, means for putting the yarn on the carriages under tension prior to entering the mercerizing-tank, and automatic means for increasing said tension immediately after the carriages and yarn have left the tank and prior to their reaching the washing devices, whereby the yarn may be mercerized by complete submersion in the tank and the completion of the mercerizing operation carried on in the air under increased tension prior to meeting the washing devices.

661,650. PROCESS OF COATING ONE METAL WITH ANOTHER AND RESULTING PRODUCT. SAMUEL H. THURSTON, Long Branch, N. J. Filed Dec. 8, 1898. Serial No. 698,670. (Specimens.)

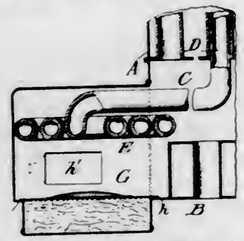
Claim.—1. The process substantially hereinbefore specified, which consists in producing a coating of one metal upon another, by first cleaning the metal to be coated substantially as specified, and then forcibly beating the coating metal upon the metal being coated systematically and continuously until the particles or molecules of the coating metal are driven

into the pores of and incorporated with the particles at and beneath the surface of the metal being coated, and an amorphous inherent, adherent, coherent, permanent film or pellicle of the coating metal is formed upon and irremovably united therewith, substantially as hereinbefore specified.



2. The within-described product consisting of a body of one metal whose surface particles are commingled with particles of another, coating metal, the coating metal being driven into the pores of the body metal, the two metals being incorporated together at and beneath the surface of the body metal, and forming a union the one with the other of a permanent nature, the one forming an inherent, adherent, amorphous, and coherent, coating upon the other, substantially as specified.

661,651. VAPORIZER FOR AUTOMOBILE-BOILERS. JOHN R. WALKER, Irvington, N. Y. Filed Mar. 3, 1900. Serial No. 7,151. (No model.)



Claim.—1. The combination with a boiler provided with a combustion-chamber and a burner, of means for supplying a fluid fuel to said burner, a vaporizer located at one side of but adjacent to the combustion-chamber, a housing inclosing said vaporizer and forming a chamber which opens into or communicates with said combustion-chamber, and means for temporarily heating said vaporizer.

2. The combination with a boiler provided with a combustion-chamber and a burner, of a pipe for supplying fluid fuel to said burner, a portion of said pipe being disposed to form a vaporizing-coil located adjacent to said combustion-chamber, a housing inclosing said coil and forming a vaporizing-chamber which is at one side of but which opens into or communicates with said combustion-chamber, and an alcohol-lamp for temporarily heating said vaporizing-coil.

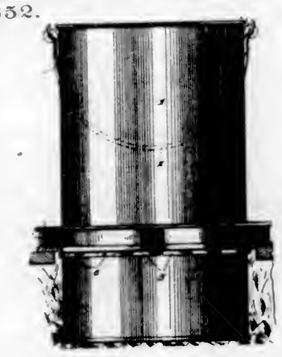
3. The combination with a boiler provided with a combustion-chamber and a burner, of a pipe for supplying liquid fuel to said burner, a portion of said pipe being disposed to form a horizontal vaporizing-coil, a chamber for said coil extending laterally from but opening into or communicating with said combustion-chamber, and a fluid-burning lamp for temporarily heating said vaporizing-coil.

4. The combination with a boiler provided with a combustion-chamber and a burner, of a pipe for supplying liquid fuel to said burner, a portion of said pipe being disposed to form a horizontal vaporizing-coil, a chamber for said coil extending laterally from but opening into or communicating with said combustion-chamber, and a fluid-burning lamp for temporarily heating said vaporizing-coil, the latter being disposed partly within said combustion-chamber.

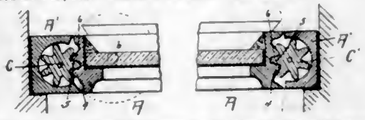
661,652. COOKING UTENSIL. ALICE WELKER, Wayne, Nebr. Filed Mar. 26, 1900. Serial No. 10,199. (No model.)

Claim.—The combination with a cylindrical pot, having a handle, of an external vertically-adjustable stove-engaging support, consisting of a flat outwardly-directed ring encircling the pot, and having an inner pendent marginal notched spring-rim frictionally embracing the pot, and an outer upstanding marginal flange spaced from the pot.

661,652.



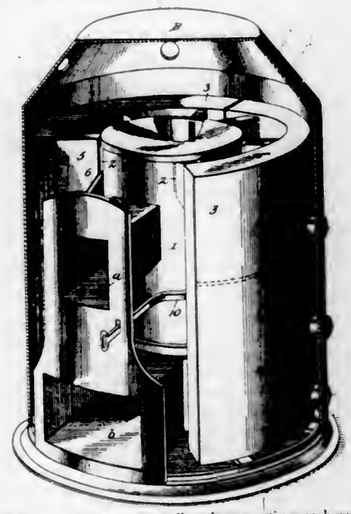
661,653. CASEMENT. WILLIAM YOULTEN, London, England. Filed Nov. 19, 1897. Serial No. 659,157. (No model.)



Claim.—1. In a swinging casement, the combination of a casement-frame, a revolving corrugated rod mounted within said casement-frame, a casement pivoted to said casement-frame, corrugations formed on the pivoted end of said casement, adapted to interlock with the corrugated surface of the said revolving rod when the casement is closed, substantially as described.

2. In a swinging casement, the combination with a casement-frame provided with hanging and locking stiles, a revolving corrugated rod mounted in said stiles, a casement pivoted to the hanging stile of said casement-frame, corrugations formed on both the hanging and locking stiles of said casement and running the length thereof and adapted to interlock and form a weather-tight joint with the corrugated surfaces of the said corrugated revolving rods, substantially as described.

661,654. FURNACE. CHESTER M. BATES, Wilkes-Barré, Pa., assignor of one-half to Frederick N. Ruggles, same place. Filed Mar. 5, 1900. Serial No. 7,323. (No model.)



Claim.—1. In a furnace, a radiator in two sections, each section having a short tube projecting from the rear of the outer wall, a hood adapted to engage said short tubes and hold said sections together.

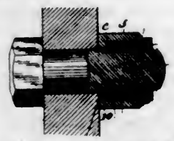
2. The combination in a furnace, a combustion-chamber, two radiating-chambers partially surrounding the combustion-chamber but stationed a distance therefrom, tubes having outwardly-inclined lower walls connecting the combustion-chamber and radiators, a draft-tube between the drum of the combustion-chamber and one of the radiating-chambers, a damper in said tube, operating means for the damper, a short tube projecting from the outer wall of each radiating-chamber, a hood having holes adapted to fit on said tubes, a smoke-uptake for the hood, a series of baffle-plates in each radiating-chamber, a casing having a dome, and hot-air pipes, as and for the purpose described.

3. The combination in a furnace, a combustion-chamber having openings near the top, two radiators partially surrounding the combustion-chamber but stationed a distance therefrom abutting at the rear, and having openings near the top, grooved flanges surrounding the openings of the combustion-chamber and radiators, tubes having beading interposed therebetween, said beading being adapted to fit on the grooved flanges, a draft-tube between the combustion-chamber and one of the radiating-chambers, a damper in the draft-tube, a damper-rod, said rod being curved around the drum and terminating in a handle at one side of the fuel-door, a short tube projecting from the rear of the outer wall of each chamber, one of the short tubes being in a line with the draft-tube, a hood having holes so positioned with relation to the short tubes as to fit on the short tubes and hold the rear ends of the radiating-chambers together, a smoke-uptake for the hood, a series of baffle-plates in each radiator arranged with an upper plate extending horizontally from the front of the chamber and terminating near the rear wall, and a lower plate having its end in contact with the rear end of the chamber on approximately the same horizontal plane as the upper baffle-plate and extending horizontally a short distance, then inclined and ending in a horizontally-disposed section terminating some distance from the front wall, cleaning-doors in the outer wall of each chamber slightly above the plane of the baffle-plates, a casing having a dome, and hot-air pipes, as and for the purpose described.

4. In a furnace, the combination of the combustion-chamber and radiators, each having openings near the top, of tubes connecting and suitably secured to the edges of the openings of the combustion-chamber and radiators; said tubes having their lower walls inclined downward from the combustion-chamber, so as to rapidly increase the size of the tubes in the direction of the radiator.

5. In a furnace, the combination of the combustion-chamber and radiators, each having openings near the top, of tubes connecting and adjustably secured to the edges of the openings of the combustion-chamber and radiators; said tubes having their lower walls inclined downward from the combustion-chamber so as to rapidly increase the size of the tubes in the direction of the radiator.

661,655. LOCK-NUT. ANDREW V. BRICK, Allegheny, Pa., assignor of nine-twentieths to George B. Wix, same place. Filed Feb. 20, 1900. Serial No. 5,896. (No model.)



Claim.—1. A lock-nut comprising an outer unthreaded portion, having an angular interior, and an inner threaded part having an angular exterior, said inner part having thinner web portions extending its entire length and acting as hinges, and having also a separating-slot along one side; substantially as described.

2. A lock-nut comprising an outer unthreaded portion having an angular interior, and an interior-threaded portion having a corresponding exterior, the inner portion having hinge-webs extending its entire length, and provided with inclined faces engaged by inner wedge-ribs on the outer portions; substantially as described.

3. A lock-nut, comprising threaded and unthreaded parts, separate from each other, the threaded part being composed of sections hinged together by thinner web portions extending the entire length of the threaded part, said part being within the unthreaded part and adapted to be turned thereby and locked upon the bolt, when the threaded part abuts against a resisting-surface; substantially as described.

4. A lock-nut, comprising threaded and unthreaded parts, separate from each other, the threaded part being within the unthreaded part and having a separating-slot throughout its length, and at least a portion thereof being tapered, and having an angular exterior, the unthreaded part being shaped interiorly to correspond therewith, the threaded part being turned thereby when the outer portion is rotated; substantially as described.

5. A lock-nut, comprising threaded and unthreaded parts, separate from each other, the threaded part being within the unthreaded, and adapted to be turned by the latter, a stop or shoulder on the threaded part, in the rear of the unthreaded, adapted to limit the inward movement of the threaded part, and to cause the same to bind upon the bolt, when the outer part abuts against a resisting-surface; substantially as described.

6. A lock-nut, comprising threaded and unthreaded parts, separate from each other, the threaded part being within the unthreaded, and adapted to be turned by the latter, a stop or shoulder having beveled or cam faces on the threaded part, in the rear of the unthreaded, adapted to limit the inward movement of the threaded part, and to cause the same to bind upon the bolt when the outer part abuts against a resisting-surface; substantially as described.

7. A lock-nut, comprising an inner threaded part, an outer unthreaded part, separate therefrom, the inner part being provided with ribs and grooves, and the outer part having interfitting wedge-shaped projections and recesses, whereby the threaded portion is turned, and locked when the outer part abuts against a resisting-surface; substantially as described.

8. A lock-nut having an outer unthreaded portion with an angular interior, an inner threaded portion with an angular exterior, said inner portion having faces inclined to the axis of said part and having also faces extending parallel with the axis, the outer part having inner wedge-shaped ribs bearing upon the inclined faces of the inner part; substantially as described.

9. A lock-nut comprising threaded and unthreaded parts separate from each other, the threaded part being within the unthreaded, the inner part being provided with grooves which gradually deepen and widen toward the inner end thereof, wedge-shaped ribs formed thereby said ribs having their angular portion *a* parallel with the longitudinal axis of the nut, said ribs being wider at their outer ends, and narrower at their lower end, the socket in unthreaded outer part being the converse of ribs and grooves of the inner part, whereby the latter is turned, when the outer part is rotated; substantially as described.

10. A lock-nut comprising threaded and unthreaded parts separate from each other, the threaded part being within the unthreaded, the inner part being provided with grooves which gradually deepen and widen toward the inner end thereof, wedge-shaped ribs formed thereby said ribs being wider at their outer end, and narrower at their lower end, the socket in unthreaded outer part being the converse of ribs and grooves of the inner part, whereby the latter is turned, when the outer part is rotated, a stop or shoulder on the threaded part in the rear of the unthreaded, adapted to limit the inward movement of the threaded part, and to cause the same to bind upon the bolt, when the outer part abuts a resisting-surface; substantially as described.

661,656. HARNESS FOR CROSS-WEAVING. WILLIAM B. DIXON, Philadelphia, Pa. Filed Mar. 24, 1897. Serial No. 628,936. (No model.)



Claim.—1. A heddle for cross-weaving formed of a single piece of wire doubled upon itself at its center to form a crescent-shaped eye for the crossing thread, the inner side of which is curved or arched to form a seat to receive a heddle-guide or heddle-operating device and having stringing-eyes at the ends of its legs lying in the same plane with said crescent-shaped eye.

2. A heddle for cross-weaving formed of a single piece of wire doubled upon itself at its center to form a crescent-shaped eye for the crossing thread, the inner side of which is curved or arched to form a seat to receive a heddle-guide or heddle-operating device the legs of said heddle being offset above said eye so as to bring them into the same plane and having stringing-eyes at their ends.

3. A guide for cross-weaving heddles formed of a single piece of wire twisted at its ends to form stringing-eyes, having long, open loops extending from said stringing-eyes at right angles thereto to receive the legs of the heddle, and having a central twist between the said loops to engage and operate the heddle.

4. A guide for cross-weaving heddles formed of a single piece of wire twisted at its ends to form stringing-eyes, having long, open loops extending from said stringing-eyes at right angles thereto to receive the legs of the heddle, and having an offset, central twist between the said loops to engage and operate the heddle.

5. In a cross-weaving harness for looms, the combination with a heddle having a crossing-thread eye, of a supporting-frame for said heddle; heddle-guides for said heddle having closed, offset portions engaging said heddle, said guides having open loops on either side of said offset portion through which the legs of the heddle pass, whereby movement of either of said guides will operate said heddle without disturbing the other guide, and operating-frames on which said heddle-guides are strung.

6. In a cross-weaving harness for looms, the combination with a heddle having a crescent-shaped eye for the crossing thread, the inner side of said eye being curved or arched to form a seat for the heddle-operating guides, of a supporting-frame for said heddle; heddle-guides having closed, offset central portions engaging the curved seat of said heddle-eye, said guides having long, open loops on either side of said closed offset portion through which the legs of the heddle pass, and stringing-eyes at either end; whereby movement of either of said guides will operate said heddle without disturbing the other guide, and operating-frames on which said heddles are strung.

661,657. **WINDOW-FRAME** ANDY FINNEKK, Osakis, Minn. Filed Aug. 11, 1900. Serial No. 26,650. (No model.)



Claim.—1. A window-frame, having the intermediate portion of one of its parting-strips cut away and made laterally adjustable in opposite directions and in the plane of the frame, attaching-straps projecting longitudinally beyond opposite ends of the adjustable strip and at the back thereof, and adjusting-screws swiveled to the frame and engaging screw-threaded perforations in the respective attaching-straps, the heads of the screws being accessible for adjustment at the exposed side of the window-jamb.

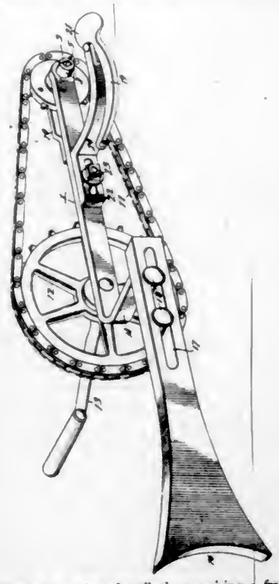
2. A window-frame, having the intermediate portion of one of its jambs cut away and made laterally adjustable in opposite directions and in the plane of the frame, the adjacent portion of the parting-strip being cut away and carried by the movable jamb portion, attaching-straps projecting longitudinally beyond opposite ends of the movable jamb portion and overlapping the fixed jamb, and adjusting-screws swiveled to the respective upper and lower fixed jamb portions and fitting screw-threaded perforations in the respective attaching-straps, the heads of the screws being flush with and accessible at the exposed portion of the jamb.

3. A window-frame, having a separate jamb portion, which is laterally adjustable in opposite directions and in the plane of the frame, a separate parting-strip portion carried by the adjustable jamb portion, attaching-straps projecting longitudinally beyond the opposite ends of the said jamb portion and at the back thereof, each strap overlapping the adjacent fixed jamb portion and having a screw-threaded perforation, each fixed jamb portion having an opening corresponding with the perforation of the adjacent strap, a plate fitted flush with the exposed portion of the jamb and having an opening registering with the opening in the jamb, a headed adjusting-screw passing through the openings in the plate and the jamb and also fitting the perforation in the adjacent attaching-strap, and a nut fitted to the screw and at the inner side of the plate, said nut and the head forming a swiveled connection between the screw and the plate, the head being accessible for adjustment from the exposed side of the jamb.

4. A window-frame, having a laterally-adjustable parting-strip portion, an upper attaching-strap, having a slot or opening for the reception of a sash-pulley and the cord thereof, and an adjusting device carried by the frame and engaging the attaching-strap at a point above the opening therein.

661,658. **TIRE-BOLTING MACHINE.** JOHN F. GILLILAND, New Vienna, Ohio. Filed Apr. 16, 1900. Serial No. 13,090. (No model.)

Claim.—1. A device of the class described comprising a frame, a wrench journaled on the frame and adapted to receive a nut, gearing for rotating the wrench, an adjustable bracket or arm carried by the frame, and a clamping device for engaging the head of a bolt, substantially as described.

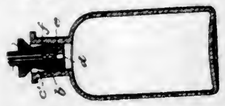


2. A device of the class described comprising a frame, a wrench journaled on the frame and adapted to receive a nut, sprocket-gearing mounted on the frame and connected with the wrench for rotating the same, an adjustable bracket or arm carried by the frame, and a clamping-lever fulcrumed on the bracket or arm and adapted to engage the head of a bolt, substantially as described.

3. A device of the class described comprising a frame having an adjustable stop adapted to fit against the shoulder of the operator, a wrench journaled on the frame, sprocket-gearing connected with the wrench and mounted on the frame and having a crank-handle at one side of the same, an adjustable bracket arranged at the opposite side of the frame and adapted to be grasped by the operator, and a clamping device mounted on the bracket for engaging the head of a bolt, substantially as described.

4. A device of the class described comprising a supporting-bar, a rotary wrench, gearing mounted on the supporting-bar and connected with the wrench, a stock adjustably secured to the supporting-bar and offset from the gearing, a bracket extending from the supporting-bar, and a lever fulcrumed on the bracket and arranged to engage the head of a bolt, substantially as described.

661,659. **STOPPER FOR BOTTLES CONTAINING VOLATILE LIQUIDS.** HEINRICH GOETZ, Frankfort-on-the Main, Germany. Filed Apr. 24, 1899. Serial No. 714,264. (No model.)

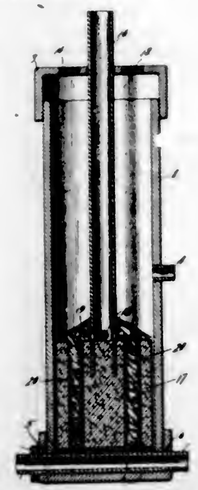


Claim.—A stopper for bottles containing volatile liquids consisting of a lower hollow perforated metallic body having two conical surfaces and adapted to be cemented in the neck of the bottle, an upper hollow body screwing into the lower body, a capillary tube inserted in the upper metallic body and communicating with the perforation in the lower body, and a screw-cap screwing onto the upper body and closing the capillary tube.

661,660. **CARBURETER.** ANDREW GRIEBEL, Cleveland, Ohio, assignor of two-thirds to Henry M. Brenenstul, Wakeman, Ohio. Filed Mar. 30, 1900. Serial No. 10,796. (No model.)

Claim.—1. In a carbureter for the purpose set forth, the combination of a body having an apertured top cap, a cork holder within the body having capillary feeding devices extending therethrough in a vertical direction and the extremities loosely exposed, a tube movably mounted in the said cap and its lower extremity extending into the center of and

fast to the top portion of the said holder, the lower portion of the tube adjacent the holder being apertured, and a length of exhaust-pipe extending through the lower portion of the body.



2. In a carbureter for the purpose set forth, the combination of a body adapted to receive gasolene and having an apertured top cap, a cork float mounted in the said body and having capillary feeding devices extending therethrough and the extremities loosely exposed above and below the upper and lower ends of the float, a tube movably mounted in the top cap of the body and connected to the top portion of the float, the said tube adjacent its point of connection with the float being provided with apertures, and a conical hood connected to the tube and extending over the adjacent end portion of the float and the loose extremities of the capillary feeding devices, the periphery of the said hood extending above the adjacent part of the upper end of the float.

3. In a carbureter for the purpose set forth, the combination of a containing body having upper and lower caps, and a length of exhaust-pipe extending transversely through and secured to the lower cap.

4. In a carbureter, the combination of a body having upper and lower caps and an intermediate nipple for attachment of a supply-conduit, the upper cap being apertured and adapted to be connected to an engine, a cork float mounted in the said body and having wicks vertically extending therethrough at regular intervals, the opposite terminals of the wicks being loose and located over the opposite ends of the float, a thin tube movable through the center of the top cap and connected at its lower extremity to the central portion of the float and having openings therein adjacent to the upper end of the float, a hood attached to the tube and extending over the upper portion of the float and the wicks to cause the air indrawn through the said tube to pass over and through the saturated wick ends under the hood, and a length of exhaust-pipe extending transversely through the lower cap of the casing

661,661. **CHAIN-LINK.** CARLTON L. HOFF, York, Pa. Filed July 5, 1900. Serial No. 22,628. (No model.)

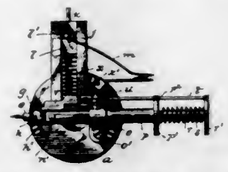


Claim.—1. A metal link comprising two single links joined by a curved central portion the free ends of the metal being formed into eyes which are independent of each other and which engage the loops formed, said eyes being in close proximity or contact with adjacent portions of the link so as to prevent the collapsing of the center thereof.

2. A metal link comprising two single links made of a single piece, said single links being arranged at right angles to each other, the eyes upon the free ends of the metal engaging a double-looped central portion and being turned inwardly and located within the line of the sides of the link, substantially as described.

661,662. **STYLUS-MAGAZINE FOR GRAMOPHONES.** GUSTAV KORYTOWSKI, Leipsic, Germany. Filed Aug. 22, 1899. Serial No. 728,098. (No model.)

Claim.—1. A reproducer for talking-machines having a plurality of reproducing-needles in a substantially common plane and automatic means for discarding the used needle and simultaneously replacing it with a fresh one.



2. In a reproducer for talking-machines, a magazine containing a number of reproducing-needles arranged in a substantially common plane, and means for putting said needles into position, one after another, to reproduce sound.

3. In a reproducer for talking-machines, a magazine, a number of reproducing-needles in superposed relation, and automatic means for simultaneously ejecting the used needle and replacing it with a fresh one.

4. In a reproducer for talking-machines, a magazine containing a number of reproducing-needles in superposed relation and having a downward feed, and automatic means for simultaneously ejecting the used needle and replacing it with a fresh one.

5. In a reproducer for talking-machines, a magazine attached to the sound-box and containing a number of reproducing-needles a needle-holder, and means for feeding said needles to the needle-holder, consecutively.

6. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine under tension, a needle-holder alined with the lowermost needle, and means for feeding said needles to the needle-holder, consecutively.

7. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a needle-holder, means for keeping the lowermost needle in axial alinement therewith, a plunger mechanism for causing the needles to be inserted in the needle-holder, one after another, in position to reproduce sound.

8. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device, and means connected with the needle-holder whereby when the plunger is actuated, the used needle is released and a new one substituted.

9. In a reproducer for talking-machines, a magazine attached to the sound-box, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated, the used needle is released and a new one substituted, and suitable means to prevent a second needle working forward while a needle is operating.

10. A magazine for talking-machines, having a downward feed and containing a plurality of superposed reproducing-needles under tension in combination with means for automatically feeding said needles to the needle-holder.

11. A magazine for talking-machines, adapted and arranged to contain a plurality of needles and having a sight-opening, a spring-block bearing upon said needles, and a lateral slot near the base of said magazine, with a reed or spring having a projection normally bearing upon the lowermost needle to hold same in position.

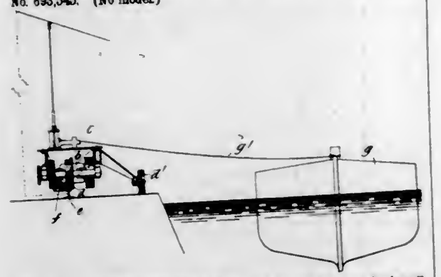
12. The combination in a talking-machine, of a reproducer having a magazine provided with a sight-opening extending the length thereof and with a slot near its lower end, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated the used needle is discarded and a new one substituted therefor, and a spring having a projection located in said slot and normally tending to prevent a second needle working forward while a needle is operating.

13. The combination, in a talking-machine, of a reproducer having a magazine attached to the sound-box and provided with a sight-opening extending the length thereof and with a slot near its lower end, a removable connection between the magazine and the sound-box, a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and with the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated the used needle is discarded and a new one substituted therefor, and a spring having a nose or projection located in said slot and normally tending to prevent a second needle from working forward while a needle is operating.

14. The combination in a talking-machine, of a reproducer having a magazine attached to the sound-box and provided with a sight-opening extending the length thereof, a removable connection between the maga-

zine and the sound-box, including a laterally-slotted trough into which the magazine is adapted to feed a plurality of reproducing-needles contained in said magazine, a clamping needle-holder, a plunger device axially alined with said needle-holder and with the lowermost needle, means connected with the needle-holder whereby when the plunger is actuated the used needle is discarded and a new one substituted therefor, and a spring having a nose or projection protruding through the slot in said trough and normally tending to prevent a second needle from working forward while a needle is operating.

661,663. **MEANS FOR TOWING CANAL-BOATS.** CARL A. R. D. KÖTTGEN, Charlottenburg, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Oct. 14, 1898. Serial No. 693,545. (No model.)

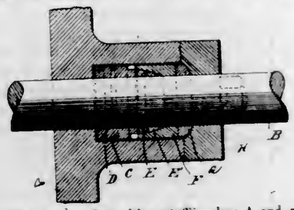


Claim.—1. In a traction-motor adapted to travel upon a single rail, the combination with supporting-wheels placed in alinement and carrying the weight of the motor upon the single rail-head, of lateral rollers associated with said wheels, engaging the side of the rail and adapted to resist lateral strain, secondary wheels carried upon the motor by a laterally-extending frame in position to support a small portion of its weight and assist the lateral rollers, and electrical means for supplying the tractive power, substantially as described.

2. In a traction-motor adapted to travel upon a single rail, the combination with supporting-wheels placed in alinement and carrying the weight of the motor upon the single rail-head, of lateral rollers mounted in the motor-frame adjacent to the supporting-wheels in position to engage the side of the rail-head, adapted to resist lateral strain, secondary wheels carried upon the motor by a laterally-extending frame in position to support a small portion of its weight and assist the lateral rollers, and electrical means for supplying the tractive power, substantially as described.

3. In a traction-motor adapted to travel upon a single rail, the combination with wheels *h* carrying the major portion of the motor's weight and adapted to bear upon the top of the rail-head, of pressure-rollers *h'*, means for forcing said pressure-rollers into close engagement with the sides of the rail-head, secondary wheels *d'* placed at one side of the motor, and electrical means for driving the pressure-rollers, whereby the traction-motor is propelled along the supporting-rail, substantially as described.

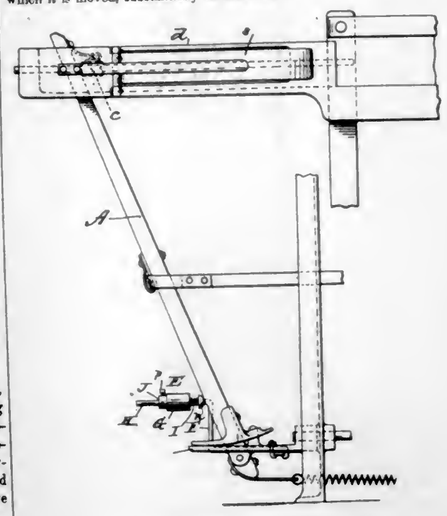
661,664. **METALLIC ROD-PACKING.** REAMER Y. LANE, Meridian, Miss. Filed July 20, 1899. Serial No. 724,538. (No model.)



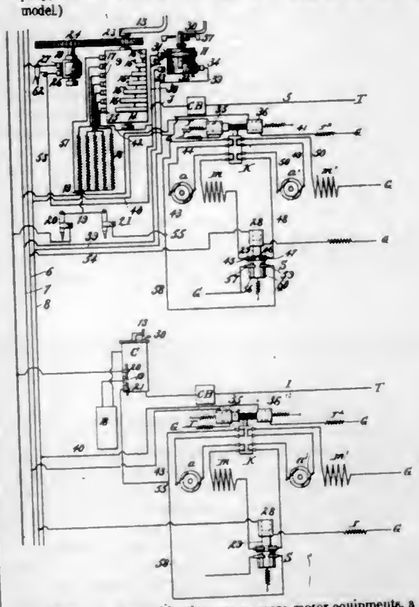
Claim.—The combination with a stuffing-box A and rod B, of a piston C having an extension C', rings D on the piston fitting the bore of the box, packing-rings E E' of soft metal, the latter having a tapered surface, a cupped ring F fitting the rings E E' and the rod, a ring G adjacent to the ring F, and a gland H receiving the ring G.

661,665. **SHUTTLE-CHECK FOR LOOMS.** JOHN P. MALONEY, Woonsocket, R. I. Filed May 18, 1900. Serial No. 17,164. (No model.)

Claim.—In combination with the picker-stick of a box-loom, of the angle-rod F having one end mounted and secured at the side of the step of the picker-stick and bent as shown, the socket-piece G adjustably mounted on said angle-rod and provided with a circular recess longitudinally disposed, the pin H having an enlarged head *n* integral therewith at one end thereof, said pin adapted to pass through the said socket-piece and longitudinally central with the circular recess thereof, the spring I in the recess of said socket-piece and surrounding said pin, adapted to press said pin against the picker-stick, with the collar J mounted upon the opposite end of the socket-piece, said collar provided with a screw-threaded aperture to receive a set-screw *p* adapted to hold said pin in position to which it is moved, substantially as described.



661,666. **SYSTEM OF ELECTRIC TRAIN CONTROL.** CHARLES B. MARTIN, New York, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 23, 1897. Serial No. 656,134. (No model.)



Claim.—1. In combination, one or more motor equipments, a main controlling-switch for controlling the supply of current to all the motors, a circuit-changing switch or switches in cooperative relation to each motor equipment, and means located at any desired point for operating the circuit-changing switch or switches without connecting the motor-circuits to the source of supply.

2. In combination, a plurality of motor equipments, a main supply system connecting said motor equipments, a common controlling-switch for controlling the supply of current to all the motors, a circuit-changing switch or switches in cooperative relation to each motor equipment, and an independent controlling system for controlling the operation of the circuit-changing switches.

3. In a system of train control, one or more motor equipments, a main controlling-switch, located at any desired point on the train, for controlling the supply of current to all the motors, a circuit-changing switch or switches in cooperative relation to each motor equipment, and means, independent of the motor-circuits, for controlling, from any desired point on the train, the operation of the circuit-changing switches.

4. In a system of train control, in combination, a plurality of cars provided with motor equipments, a main supply system connecting said motor equipments, one or more main controlling-switches for controlling the flow of current to all the motors in said equipments, a circuit-changing switch or switches in cooperative relation to each of said motor equipments, and an independent controlling system for controlling the operation of the circuit-changing switches.

5. In combination, one or more motor equipments, a main supply system connected to said motor equipment or equipments, a circuit-changing switch or switches in cooperative relation to each of said motor equipments, an independent controlling system connected to said circuit-changing switches, and a controller comprising means for controlling the flow of current to all the motor equipments and means for controlling the operation of the circuit-changing switches.

6. In combination, a plurality of motor equipments, a main supply system connecting said motor equipments, a circuit-changing switch or switches in cooperative relation to each of said motor equipments, an independent controlling system for said switches, and a controller comprising a main controlling-switch directly controlling the flow of current from the source of supply to the motor equipments and one or more auxiliary controlling-switches indirectly controlling the circuit connections of each of the motor equipments through said independent controlling system.

7. In a system of train control, a plurality of motor equipments, a main supply system connecting said motor equipments, reversing-switches in cooperative relation to each of said motor equipments, an independent controlling system for said switches, a main controlling-switch directly controlling the flow of current from the source of supply to the motor equipments, and an auxiliary controlling-switch for controlling the operation of said reversing-switches.

8. In a system of train control, a plurality of motor eqnipments, a main supply system connecting said motor equipments, series-parallel and reversing switches in cooperative relation to each of said motor equipments, an independent controlling system for said switches, and a controller comprising a main controlling-switch directly controlling the flow of current from the source of supply to the motor equipments, and auxiliary controlling-switches for controlling the operation of said series-parallel and reversing switches.

9. The combination with two or more sets of motors and two or more series-parallel switches, of a single rheostat cooperating with all of said switches.

10. The combination with two or more sets of motors and two or more sets of series-parallel switches, of a rheostat, and a controller operating directly upon the said rheostat upon said series-parallel switches by an electromagnetic device.

11. The combination with two or more sets of motors, of two or more series-parallel switches, a rheostat, a controller for the rheostat, electromagnets for operating the said switches, and a circuit from the said magnets to the said controller, whereby the controller may operate the rheostat directly and the switches indirectly through said magnets.

12. The combination with two or more sets of motors, of a series-parallel switch in cooperative relation to each of said sets, a common source of current for all the motors, and a rheostat interposed between said source and the motors.

13. The combination with a plurality of electric motors, of a switch for connecting them in series or in parallel relation, an electromagnetic device for operating said switch, a rheostat, a controller, and circuit connections leading from the sections of the rheostat, and from said electromagnetic devices to the controller, whereby the controller acts directly upon the rheostat and indirectly by means of said electromagnetic device, upon the series-parallel switch.

14. The combination with two or more sets of motors, of series-parallel switches therefor, a common rheostat for controlling the flow of current to all the said motors, and train-circuits having electromagnetic devices governing the said switches.

15. The combination with a plurality of electric motors located on two or more cars of a train, of a rheostatic controller for all of said motors located upon one of the cars, and series-parallel switches for controlling the circuits of the several motors, located on the respective cars, but controlled from one car of the train.

16. In a system of electric-power transmission and control, the combination with a source of electric supply and a plurality of electromotive devices, of a main lead connected to all of the electromotive devices, a main controlling-switch controlling the connection between said main lead and the source of electric supply, electromagnetically-controlled switches and connections for connecting said electromotive devices in either series or parallel relation, and an auxiliary controlling-switch and connections for controlling the operation of said series-parallel switches.

17. In a system of electric transmission and control, the combination with a source of electric supply, of a plurality of electromotive devices arranged in pairs, separate switching devices for connecting the electromotive devices of each pair in series or parallel relation, a main lead connected to all of the pairs of electromotive devices, and a controller controlling the connection between the main lead and the source of supply.

18. In a system of electric-power transmission and control, the combination with a source of electric supply, of a plurality of electromotive devices arranged in sets, a main lead connected to all of said sets of electromotive devices, a main controlling-switch for controlling the flow of current from said source to said electromotive devices, switches for connecting the electromotive devices in each of said sets in different circuit relations, and means for controlling the operation of said switches.

19. In a system of electric train control, the combination with a source of electric supply, of a plurality of electromotive devices arranged in pairs, separate electromagnetically-operated switches for connecting the electromotive devices of each pair in series or parallel relation, a main lead connected to all of the pairs of electromotive devices, a controller controlling the connection between the main lead and the source of supply, and contacts and connections operated by the controller at the time when the latter opens the supply connection, to control the electromagnetically-operated series-parallel switches.

20. The combination with a supply-circuit, of a plurality of motors connected thereto, a switch and connections for connecting said motors in series or parallel relation, an electromagnetic device operating said switch, means for connecting said electromagnetic device to the supply-circuit, and means rendered operative upon cessation of current in the circuit of said electromagnetic device for operating said switch to place the motors in series relation.

21. In a system of electric train control, the combination with a source of electric supply and a plurality of cars having motor equipments, of a main lead extending from car to car and connected to the several motor equipments, switches on the respective motor-equipped cars for connecting the motors of each equipment in series or parallel relation, electromagnetic devices for operating said switches, operating connections for said electromagnetic devices extending from car to car, and one or more controllers each comprising means for connecting the main lead with the source of electric supply, means for varying the resistance in the connection so established, and means for controlling the operating connection of the electromagnetic devices for operating the series-parallel control-switches.

22. In a system of electric train control, the combination with a source of electric supply, of a plurality of controlling devices for connecting the electromotive devices of each set in series or parallel relation, a main lead connected to all of said sets of motive devices, means for controlling the connection between said main lead and the source of electric supply, and means for operating all of the aforesaid series-parallel controlling devices from one point.

23. In a system of electric train control, the combination with a source of electric supply and a plurality of cars having motor equipments, of a main lead extending from car to car, and connected to the several motor equipments, switches on the respective motor-equipped cars for connecting in series or parallel relation the motors of each equipment, and one or more controllers, comprising means for connecting said main lead with the source of supply and means for controlling the series-parallel switches, said means being operatively related, and a single handle for operating both the connecting means and the series-parallel controlling means.

24. In a system of electric-power transmission and control, the combination with a source of electric supply, of a plurality of electric motors supplied therefrom, an electromagnetically-operated switch for connecting said motors in series or parallel relation, a controller comprising means for controlling the connection of the motors with the source of supply and means for controlling the electromagnetic device operating the series-parallel switch, said latter means comprising contacts for connecting said electromagnetic device to the source, and a switch for closing a shunt around said contacts, so as to operate the series-parallel switch independently of the controller.

25. In a system of electric train control, in combination, a plurality of cars provided with motor equipments, a source of current-supply, a main lead to which the motor equipments of the several cars are connected, one or more main controlling-switches for controlling the flow of current from said source to said motors, circuit-changing switches for said motor equip-

ments, and one or more auxiliary controlling-switches for controlling the operation of said circuit-changing switches.

26. In a system of electric train control, in combination, a plurality of cars provided with motor equipments, a source of current-supply, a main lead to which the motor equipments of the several cars are connected, a main controlling-switch for controlling the flow of current from said source to said motors, circuit-changing switches on each of said motor-cars, and means independent of the motor-circuits for simultaneously operating the corresponding switches on the several cars.

27. In a system of electric train control, in combination, a plurality of cars provided with motor equipments, a source of current-supply, a main lead to which the motor equipments of the several cars are connected, a main controlling-switch for controlling the flow of current from said source to said motors, a circuit-changing switch on each of said motor-cars, a lead or leads independent of the motor-circuits to which the operating-circuits of said circuit-changing switches are connected, and an auxiliary controlling-switch for simultaneously operating the circuit-changing switches on the several cars.

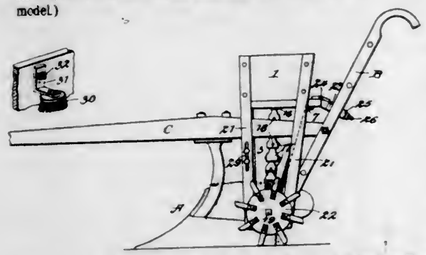
28. In a system of electric train control, in combination, a plurality of cars provided with motor equipments, a source of current-supply, a main lead to which the motor equipments of the several cars are connected, a main controlling-switch for controlling the flow of current from said source to said motors, circuit-changing switches on each of said motor-cars, leads independent of the motor-circuits to which the operating-circuits of said circuit-changing switches are connected, and auxiliary controlling-switches for controlling the circuit connections between the source and their respective leads.

661,667. **COMBINED MATCH-BOX AND CIGAR-TIP CUTTER.** FRANK MCINTYRE, New York, N. Y., assignor to William Schimper & Co., Hoboken, N. J. Filed Aug. 11, 1900. Serial No. 26,557. (No model.)



Claim.—The combination with a match-box comprising a body portion and a cover hinged thereto, of a cigar-tip-cutting blade hinged in the cover in position to sever the cigar between it and the cover, the said cutting-blade being roughened to form a sharp abrasive match-ignition surface, substantially as set forth.

661,668. **PLANTER-ATTACHMENT FOR PLOWS.** FRIEDRICH RIEWE, Pottsville, Tex. Filed June 22, 1900. Serial No. 21,211. (No model.)

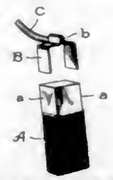


Claim.—1. The combination with a plow having handle-bars B at the rear end of the beam, of a planting attachment comprising a hopper, clamping-bars on the rear side thereof, clamped on the front and rear sides of the handle-bars, and to which clamping-bars said hopper is flexibly connected, as by a hinge, a seed-spout depending from said hopper, a frame or support depending from said hopper, a traction-wheel carried by said frame or support, seed-dropping mechanism in said hopper and operating connections between said seed-dropping mechanism and said traction-wheel, substantially as described.

2. In a planter, the combination of a hopper, a revoluble seed-disk therein, a traction-wheel and a flexibly-jointed shaft rotated by said traction-wheel and to which said seed plate or disk is attached and by which said seed plate or disk is rotated, substantially as described.

661,669. **CONNECTING CONDUCTORS TO CARBON BRUSHES.** ALBERT L. ROHRER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 22, 1898. Serial No. 686,579. (No model.)

Claim.—1. A carbon brush, a plating of good conducting metal thereon, a conductor united integrally with said metal plating, and a yielding non-resilient conductor connected in good conducting relation to said conductor.



2. A carbon brush, a plating of good conducting metal thereon, a conductor soldered to said plating, and a yielding non-resilient conductor connected in good conducting relation to said conductor.

3. The means described for carrying current from the brush to the stud in a brush-holder, consisting of a flexible non-resilient conductor provided with a clip making a close fit with the brush.

4. The conductor C having the strip B secured to the carbon brush A and provided with the loop *b*, in which the conductor is compressed and soldered.

5. A carbon brush provided with a metallic clip of large surface integrally united therewith and having no movement independent thereof, and a flexible non-resilient conductor secured in said clip.

6. A carbon brush having a metallic clip of large surface secured thereto in good conducting relation and having no movement independent thereof, and a flexible non-resilient conductor secured in good conducting relation in said clip.

7. The means for making connection between a carbon brush and a flexible non-resilient conductor, which consists of a conducting-strip making intimate and extensive contact with the surfaces of the brush and of the flexible conductor.

8. The combination with a carbon brush, of a clip making contact with said carbon brush, and a conductor making contact with said brush and clip.

9. The combination with a carbon brush, of a rigid conducting-plate intimately associated therewith, and a flexible non-resilient conductor secured to said plate.

10. The combination with a carbon brush, of a rigid conducting-plate united integrally therewith, and a flexible non-resilient conductor secured to said plate.

11. The combination with an electroplated carbon brush, of a rigid conducting-clip soldered thereto, and a flexible non-resilient conductor attached to said clip.

12. The combination with a carbon brush, of a conducting-clip secured thereto, and a flexible non-resilient conductor held compressed by said clip.

13. The combination with a carbon brush, of a conducting-clip secured thereto, and a flexible non-resilient conductor compressed and soldered to said clip.

14. A carbon brush having its surfaces engaged by the flat surfaces of a conducting-strip, said strip having secured to it a flexible non-resilient conductor.

15. A carbon brush, a plating of good conducting metal thereon, a conductor soldered to said plating, and a yielding non-resilient conductor soldered to said conductor.

16. A carbon brush, a plating of good conducting metal thereon, a conductor integrally united with said plating, and a yielding non-resilient conductor soldered to said conductor.

17. A carbon brush, a plating of good conducting metal thereon, a conductor soldered to said plating, a yielding non-resilient conductor connected in good conducting relation to said conductor, and a plating of good conducting metal on the joint between the conductor and the plating.

18. A carbon brush, a plating of good conducting metal thereon, a conductor soldered to said plating, and a flexible conductor connected in good conducting relation with said conductor.

19. In combination a carbon brush, a braided-wire cable and a contact-piece secured to the brush in such manner that full current may be transmitted from the brush to the cable.

20. The combination with a carbon brush, of a braided-wire cable in electrical communication therewith, and a contact-piece rigidly connected to said brush and conductor.

21. The combination with a carbon brush, of a metallic strip secured thereto, and a braided-wire cable secured to said strip.

22. The combination of a brush having a cut-away portion *a* with a strip of conducting material registering with the cut-away portion, so that the strip and sides of the main body of the brush are in the same plane, and a conductor attached to the strip.

23. As a new article of manufacture, a carbon brush having a cut-away portion *a* designed to register with a conducting-strip for collecting current.

24. A carbon brush having a cut-away portion, and a rectangular strip of good conducting metal soldered to the cut-away part of the brush, with a flexible conductor secured in a loop in the strip.

25. A carbon brush having a cut-away portion, a clip soldered to the cut-away part of the brush, the joint being electroplated with copper, and the clip having a loop in which a flexible conductor is compressed and soldered.

26. The method, which consists in plating a carbon brush with good conducting metal, and then uniting with said plating, a conductor to which a yielding non-resilient conductor is connected in good conducting relation.

27. The method, which consists in plating a carbon brush with good conducting metal, and then soldering thereto a conductor to which a yielding non-resilient conductor is connected in good conducting relation.

28. The method, which consists in integrally uniting with a carbon brush, a conductor to which a yielding non-resilient conductor is connected in good conducting relation.

29. The method, which consists in uniting in good conducting relation with a carbon brush, a conductor which is integrally united with a yielding non-resilient conductor.

30. The method, which consists in integrally uniting a yielding non-resilient conductor with a second conductor, and then integrally uniting the latter with a carbon brush, whereby the yielding conductor is united integrally with the brush.

31. The method, which consists in soldering a yielding non-resilient conductor to a second conductor, and then integrally uniting the latter with a carbon brush.

32. The method, which consists in plating a carbon brush with good conducting metal, and soldering thereto a conductor to which a yielding non-resilient conductor is soldered.

33. The method, which consists in plating a carbon brush with good conducting metal, soldering thereto a conductor to which a yielding non-resilient conductor is connected in good conducting relation, and finally electroplating the joint between the plating and said conductor with good conducting metal.

34. The method, which consists in uniting with a carbon brush, a conductor to which a yielding non-resilient conductor is connected in good conducting relation, and then electroplating the joint between the brush and said conductor with good conducting metal.

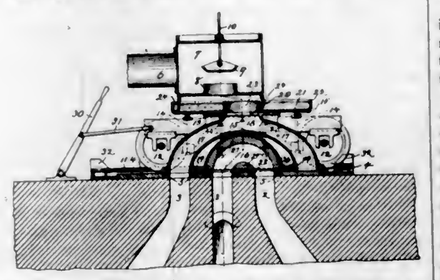
35. The method, which consists in plating a carbon brush with good conducting metal, and integrally uniting therewith a conductor to which a yielding non-resilient conductor is soldered.

36. The method, which consists in plating a carbon brush with good conducting metal, soldering thereto a conductor to which a yielding non-resilient conductor is connected in good conducting relation, and then electroplating the joint between the plating and said conductor with good conducting metal.

37. In combination, a carbon brush, a metallic clip secured in good conducting relation therewith, and a flexible non-resilient conductor held mechanically by said clip in good conducting relation therewith.

38. A carbon brush having a metal plating on its exterior surface at one end, a metal clip soldered to the plating, the clip being formed with a loop, and a flexible cable held in the loop.

661,670. **GAS-REVERSING VALVE.** HERMANN E. SCHILD, Pittsburg, Pa. Filed Apr. 4, 1900. Serial No. 11,483. (No model.)



Claim.—1. In a gas-reversing valve, the combination with the gas-box and chimney and regenerator-flues, of a reversing-valve comprising two members constructed and designed to operate together, each of said members being provided with a passage, and an air-space between said members, said members being so arranged that as the valve is reversed one of said passages connects the gas-box alternately with the regenerator-flues while the other passage connects the chimney-flue alternately with the regenerator flues but in the reverse order in which the same are connected with the gas-box.

2. In a gas-reversing valve, the combination with a gas-box and chimney and regenerator-flues, of a reversing-valve comprising two independent members, each of which is provided with a passage, and means for connecting said members out of contact with each other, said members being so arranged that as the valve is reversed one of said passages connects the gas-box alternately with the regenerator-flues while the other passage connects the chimney-flue alternately with the regenerator-flues but in the reverse order in which the same are connected with the gas-box.

3. In a gas-reversing valve, the combination with a gas-box and chimney and regenerator-flues, of a reversing-valve comprising two independent members, each of which is provided with a passage, and means for connecting said members out of contact with each other, said means permitting said members to be adjusted relatively to each other, said members being so arranged that as the valve is reversed one of said passages connects the gas-box alternately with the regenerator-flues while the other passage connects the chimney-flue alternately with the regenerator-flues but in the reverse order in which the same are connected with the gas-box.

4. In a gas-reversing valve, the combination with the gas-box and chimney and regenerator-flues, of a slide-valve intermediate said gas-box and flues, and a water seal between said slide-valve and the gas-box.

5. In a gas-reversing valve, the combination with the gas-box and chimney and regenerator-flues, of a slide-valve intermediate said gas-box and flues, and a pan removably placed on the top of the valve and adapted to receive water to form a seal between said slide-valve and the gas-box.

6. In a gas-reversing valve, the combination with a slide-valve, of the carriage on which said valve is mounted, and means constructed to adjust the valve vertically on said carriage and secure it in any of its adjusted positions.

7. In a gas-reversing valve, the combination with the track, of the carriage moving thereon, a slide-valve mounted on the carriage, and removable stops secured to the track.

8. In a gas-reversing valve, the combination with the track, of the carriage moving thereon, removable stops secured to the track, a slide-valve mounted on the carriage, and a pan removably placed on the top of the valve.

9. In a gas-reversing valve, the combination with a carriage having side beams, of the slide-valve comprising two separate members removably mounted on said carriage, one of said members having its top normally lying below the lower edge of the side beams of the carriage.

10. A gas-reversing valve comprising the arched member and the member located within the arch of the first-named member but out of contact therewith, and means for connecting said members to cause them to move together.

11. In a gas-reversing valve, the combination with the carriage, of the arched sliding member mounted thereon, and the sliding member located in the arch of the first-named member but out of contact therewith.

12. In a gas-reversing valve, the combination with the carriage having side beams, of the arched sliding member mounted thereon, and the sliding member located in the arch of the first-named member with its top below the lower edge of the side beams of the carriage.

13. In a gas-reversing valve, the combination with the carriage, of the arched sliding member mounted thereon, the sliding member located in the arch of the first-named member and means for vertically adjusting said members on the carriage.

14. In a gas-reversing valve, the combination with the carriage having side beams, of the arched sliding member mounted thereon, the pan removably placed on the top thereof, and the sliding member located in the arch of the first-named member with its top below the lower edge of the side beams of the carriage.

15. In a gas-reversing valve, the combination with the gas-box and chimney and regenerator-flues, of the arched sliding member having an opening in its top communicating with the gas-box and an opening in each lower end adapted to register alternately with the regenerator-flues, and a second sliding member located in the arch of the first-named member and out of contact therewith, and having a passage registering with the chimney-flue and alternately with the regenerator-flues.

16. In a gas-reversing valve, the combination with a gas-box and chimney and regenerator-flues, of the arched sliding member intermediate said gas-box and flues and having an opening in its top communicating with the gas-box and an opening in each lower end adapted to register alternately with the regenerator-flues, a pan removably placed on the top thereof and adapted to receive water to form a seal between said slide-valve and gas-box, and a second sliding member located in the arch of the first-named member and having a passage registering with the chimney-flue and alternately with the regenerator-flues.

17. In a gas-reversing valve, the combination with the gas-box and chimney and regenerator-flues, of the carriage having side beams, the arched sliding member mounted thereon and having an opening in the

top communicating with the gas-box and an opening in each lower end adapted to register alternately with the regenerator-flues, and a second sliding member adjustably secured to the arched member and located in the arch thereof with its top below the side beams of the carriage and having a passage registering with the chimney-flue and alternately with the regenerator-flues.

661,671. TIRE OR OTHER VALVE. GEORGE H. F. SCHRADER, New York, N. Y. Filed Apr. 7, 1897. Serial No. 631,082. (No model.)



Claim.—1. In tire and other valves, a shell member having a valve-chamber and an outer screw-threaded socket, in combination with a plug screwing into said socket, a valve-seat held therein by said plug, a packing surrounding said seat and compressed against said shell by the screwing in of said plug for making a leak-tight joint between said seat and the walls of said chamber, and means between said plug and packing transmitting the inward pressure of the plug thereto without rotating the packing with the plug, and a valve proper in said chamber engaging said seat.

2. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, in combination with a plug screwing into said socket and carrying a valve-seat, a packing-ring compressed by the screwing in of said plug for making a leak-tight joint between said seat and the walls of said chamber, and means between said plug and packing-ring permitting rotation of the plug independently of the ring, and a valve proper in said chamber.

3. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, in combination with a tubular member within said shell having a valve-seat, a valve proper in said chamber engaging said seat, a packing material between said shell and member, and a plug movable independently of said member screwing in said socket for holding the member therein.

4. In a tire and other valves, a shell having a valve-chamber and a screw-threaded socket, in combination with a removable tubular seat member within said shell, and an independently-rotative plug screwing in said socket and holding said seat member therein, and a packing compressed against said shell and member for making a leak-tight joint, and a valve proper in said chamber.

5. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, in combination with a tubular seat member within said shell, one of said parts having an annular groove, and the other a face opposite said groove, a ring of packing material in said groove, and a screw-threaded plug distinct from said seat-member screwing on said shell and compressing said ring between said member and shell.

6. In tire and other valves, a shell having a valve-chamber, and a valve proper therein, in combination with a tubular plug and a tubular seat member swiveled together and fastened in said shell, and a stem for said valve proper traversing said plug and member.

7. For tire and other valves, the improved seat member consisting of a tubular part having an annular valve-seat at one end for entering the chamber of a valve-shell, having an annular wall beyond said seat for making a leak-tight joint with such shell, and having an independently-rotative screw-threaded plug connected to it for engaging such shell.

8. The improved article of manufacture comprising a seat member for entering the chamber of a valve-shell, having an annular valve-seat at one end, and a tubular plug rotative relatively to said member at its other end for coupling it to a valve-shell, and a valve-stem traversing said members and movably and irremovably connected thereto.

9. As a new article of manufacture a tubular plug having a screw-thread for fastening it to a valve-shell, a valve-seat carried by said plug for entering a valve-chamber, and a ring of packing material rotatively connected to said plug for making a tight joint around said seat.

10. In tire and other valves, a valve-shell having a valve-chamber, a seat and a valve proper, in combination with a stop P consisting of a freely-movable part within said chamber at the egress side of said valve proper.

11. In tire and other valves, a valve having a valve-chamber, a seat, a valve proper, and a spring for the latter, in combination with a freely-movable part P within said spring.

12. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, in combination with a tubular seat member entering said socket and having a valve-seat, a packing-washer making a leak-tight joint between said shell and seat member, a separate plug screwing into said socket, holding said seat member and washer in said shell, and rotative independently of said parts, and a valve proper in said chamber and engaging said seat.

13. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, and a valve proper in said chamber, in combination with a seat removably held in said shell, and a separate plug screwing into said socket and holding said seat in said chamber, and means withdrawing said seat with the unscrewing of said plug therein.

14. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, and a valve proper in said chamber, in combination with a seat member in said shell, a separate plug screwing into said socket and holding said member therein, and a packing compressed by the screwing in of said plug and means withdrawing said seat member with the unscrewing of said plug.

15. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, and a valve proper in said chamber, in combination with a seat member in said shell, a plug screwing into said socket and holding said member therein, and a stem traversing said parts.

16. In tire and other valves, a shell having a valve-chamber and a screw-threaded socket, and a valve proper in said chamber, in combination with a tubular seat removably held in said shell, a separate tubular plug screwing into said socket, and holding said seat in said chamber, and a stem traversing the apertures through said plug and seat, and having near its extremities portions of greater size than such apertures, whereby the stem is connected to said parts.

661,672. TIRE OR OTHER VALVE. GEORGE H. F. SCHRADER, New York, N. Y. Filed July 31, 1897. Serial No. 646,604. (No model.)



Claim.—1. In air and other valves, a casing having a valve-chamber, a flexible tube having an end in said chamber and having an air-passage through it, and a valve proper pressing against such end to close the passage therethrough.

2. In air and other valves, a casing having a valve-chamber, a flexible tube having an end projecting into said chamber and having an air-passage through it, and a valve proper pressing against such end to close the passage therethrough.

3. In air and other valves, a casing having a valve-chamber, a flexible tube held in said casing and having an end in said chamber and having an air-passage through it, and a valve proper pressing against such end to close the passage therethrough.

4. In air and other valves, a casing having a valve-chamber, a plug coupled to said casing, a flexible tube held in said casing by said plug and having an air-passage through it, and having an end in said valve-chamber, and a valve proper pressing against such end to close the passage therethrough.

5. In air and other valves, a casing having a neck, a flexible tube held in said casing by said plug and surrounding said neck, and having an end in said chamber, and a valve proper pressing against such end to close the passage therethrough.

6. In air and other valves, a casing having a valve-chamber, a plug screwing to said casing, a flexible tube held in said casing by said plug, and having an end in said chamber, and a valve proper pressing against such end to close the passage therethrough.

7. In air and other valves, a casing having a valve-chamber, a plug screwing in said casing and having a neck, a flexible tube held in said casing by said plug, surrounding said neck, and having an end in said chamber, and a valve proper pressing against such end to close the passage therethrough.

8. In air and other valves, a casing having a valve-chamber, a plug screwing in said casing and having a neck, a flexible tube held in said casing by said plug, surrounding said neck, and having an end in said chamber, a valve proper pressing against such end to close the valve, and a valve-stem passing through said plug.

9. The combination with a valve-shell having an open end of a cap having a screw-threaded lower end for screwing on said shell, a solid top, and a projection above said top for entering such shell, and having screw-driver provisions at its sides and a central socket.

10. The combination with a valve-shell having an open end of a cap having a screw-threaded lower end for screwing on said shell, a solid top and a hollow projection above said top for entering such shell, and having screw-driver provisions.

11. The combination with a valve-shell having an open end of a cap having a screw-threaded lower end for screwing on said shell, a solid top and a projection above said top for entering such shell, said projection having transverse notches.

12. The combination with a valve-shell having an open end of a cap having a screw-threaded lower end for screwing on said shell, a solid top, and a projection above said top for entering such shell, said projection having diametrically opposite projections.

13. The combination with a valve-shell having an open end of a cap having a screw-threaded lower end for screwing on said shell, a solid top, and a hollow projection above said top for entering such shell, said projection having a reduced diameter at its upper end, and having diametrically opposite projections on said end.

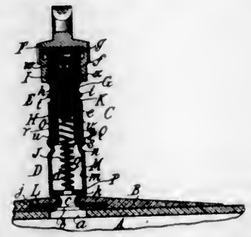
14. In air and other valves, a casing having a hollow interior, in combination with a flexible tube fastened to said casing and having an end projecting into its interior, and a valve proper within the casing seating on the inner end of said tubes and pressing against such end to close the valve.

15. In air and other valves, a valve-casing having a hollow interior, in combination with a tubular plug removably fastened to said casing, a flexible tube compressed between said casing and plug around its periphery at one point to make a leak-tight joint, and having an end extending inwardly into said casing and constituting a valve-seat, and a valve proper engaging such end and pressing against it to close the valve.

16. As a new article of manufacture for tire and other valves, a tubular plug having a nipple adapted to be fastened within a valve-casing, a flexible tube sprung over said nipple and projecting inwardly of the end thereof for constituting a packing-washer around said nipple, and a valve-seat inwardly thereof, and a valve proper seating against the inwardly-projecting end of said tube.

17. As a new article of manufacture for tire and other valves, a tubular plug having a nipple adapted to be fastened within a valve-casing, a flexible tube sprung over said nipple and projecting inwardly of the end thereof for constituting a packing-washer around said nipple, and a valve-seat inwardly thereof, and a valve proper seating against the inwardly-projecting end of said tube and irremovably coupled to said plug.

661,673. TIRE AND VALVE-ATTACHER AND VALVE THEREFOR. GEORGE H. F. SCHRADER, New York, N. Y. Filed Apr. 15, 1899. Serial No. 713,098. (No model.)



Claim.—1. The improved cot for tire-valves consisting of a metal tube adapted to be attached to a pneumatic tire at one end and having a compressed open end portion at its other end, an open socket for receiving a valve member, and an internal shoulder for limiting the movements of such member, whereby a tire-valve can be connected to said cot by being clamped within the open end thereof, and said cot will present a metallic exterior to the felly of a wheel to prevent creeping of the tire.

2. The improved cot for tire-valves consisting of a metal tube having means at one end for connecting it to a tire, having a compressed onter end, a socket inwardly of said end for receiving a tire-valve, and an internal shoulder for holding such valve.

3. The improved cot for tire-valves consisting of a tube D having a flange L at one end, a socket *p* at its other end having longitudinal projecting faces, and a compressed portion at said socket end, and formed of compressible metal, substantially as and for the purposes set forth.

4. The improved cot for tire-valves consisting of a tube adapted to be connected to a tire-valve at one end, having an open-ended socket at its outer end and having an internal chamber *d* adapted to constitute part of the valve-chamber of a tire-valve, an internal shoulder *u* and a compressed end beyond said shoulder at its outer end.

5. The improved tire-valve attacher consisting of a flexible disk B adapted to be cemented to a pneumatic tire and a metal tube D connected to said disk at one end, having a socket for receiving a tire-valve at its other end, and having compressed walls at its socket end, and an internal shoulder *u* at the inner end of said compressed wall for limiting the outward movement of a valve-shell.

6. The improved attacher for tire-valves consisting of a flexible disk B, and a metal tube D such tube having a flange engaging said disk, a neck *k* embraced by said disk and a soft-metal socket end.

7. The improved attacher for tire-valves consisting of a flexible disk B having a socket *j*, a metal tube D having a flange L secured in said socket and having a soft-metal outer end having a socket adapted to receive a tire-valve and an internal shoulder for limiting the movement of such valve.

8. In pneumatic tires, a tire A, an attacher B cemented thereto, and a metal tube connected to said attacher, and having a soft-metal end and a socket therein for receiving a tire-valve and a shoulder for limiting the movement of such valve.

9. The improved valve member consisting of a valve-shell, having a valve-seat and valve-chamber, an external wall *r* surrounding said chamber and adapted to pass within and be engaged by a tire-cot, a valve proper in said chamber, and a packing material surrounding said wall for passing within and making direct leak-tight contact with said cot.

10. The improved valve member consisting of a shell *h* having a wall *r* and a flange *s* for passing a tire-cot, a packing material surrounding said wall above said flange, a valve-seat on said shell, and a valve proper engaging said seat.

11. The improved valve member consisting of a shell *h*, having an external wall *r* for engagement with a tire-tube, shoulders *s* and *t* at the extremities of said wall, an open-ended valve-chamber within said shell, a valve-seat carried by said shell, a valve proper engaging said seat in said chamber and a spring connected to said valve proper and projecting through the open end of said chamber.

12. The improved tire-valve consisting of a shell *h* having an open-ended chamber, a metal tire-tube D having a compressible end and a socket-opening through said end, said chamber and socket constituting the valve-chamber of the valve, and said shell held in said tube by compression of the cot about the shell, and a packing between said cot and shell.

13. The combination with a valve-shell, of a metallic cot adapted to be attached to a tire, said cot having its end compressed on said valve-shell, holding the latter in place therein.

14. The combination with a valve-shell, of a metallic cot adapted to be attached to a tire, said valve-shell extending within said cot and held in place by compression of the cot about the shell, and a packing material between said cot and shell.

15. The combination with a valve-shell of a metallic cot having a projection for limiting the inward movement of the shell, and compressed about the latter above such projection.

16. The combination with a valve-shell having a flange at its inner end, of a cot having a projection engaging said flange, said shell held in said cot by compression of the latter about the shell above the engaging-point of said projection and flange, and a packing material between said cot and shell.

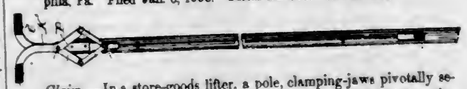
17. The improved cot for tire-valves consisting of a metal tube adapted to be attached to a pneumatic tire at one end, and having a soft-metal socket end adapted to be compressed about a valve-shell, and an internal shoulder for abutting against such shell.

18. The improved cot for tire-valves consisting of a tube adapted to be attached to a pneumatic tire at one end, and having a socket end, and inwardly-extending corrugations at such socket end.

19. The improved cot for tire-valves consisting of a tube adapted to be attached to a pneumatic tire at one end, and having a socket end and longitudinal inwardly-extending portions between its ends.

20. The improved cot for tire-valves consisting of a tube adapted to be attached to a pneumatic tire at one end, and having a socket at its other end, and a crimped portion at its socket end.

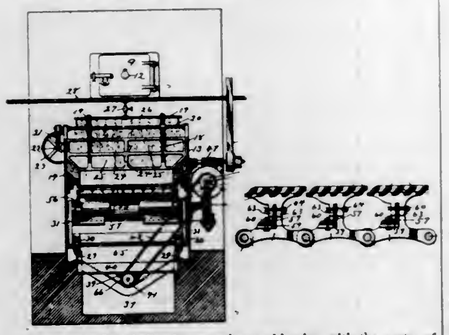
661,674. STORE-GOODS LIFTER. ALBERT J. SNYDER, Philadelphia, Pa. Filed Jan. 8, 1900. Serial No. 671. (No model.)



Claim.—In a store-goods lifter, a pole, clamping-jaws pivotally secured to the pole at a point substantially at the center of their lengths, each jaw comprising a body part lying in planes parallel with the pole, and a clamping-jaw bent at right angles to the body portion, the lower

portion of the body below the pivot-point being bent to form a section of lazy-tongs, a rod arranged in parallel relation with the pole, links connecting the rod and the lower ends of the clamping-jaws, a lever pivotally secured to the pole near its lower end, to which the lower end of the rod is secured, and a spring interposed between the lever and the pole, normally exerting an upward pull upon the lever.

661,675. BOILER-FURNACE AND CHAIN-GRATE STOKER THEREFOR. ROBERT M. SNYDER, Vandergrift, Pa. Filed Apr. 27, 1900. Serial No. 14,592. (No model.)



Claim.—1. In a boiler-furnace, the combination with the grate, of a screw ash-conveyer located below the same, the ash-pit in front of the furnace, a bar extending across said pit, and bearings for the front end of the ash-conveyer shaft secured to the lower side of said bar, whereby the space below the conveyer is left unobstructed.

2. In a boiler-furnace, the combination with a furnace-chamber, of the gate for closing said chamber, said gate comprising a casting provided with horizontal ribs on the outer face thereof forming recesses, and means for spraying water on the outer face of said gate.

3. In a boiler-furnace, the combination with the stoker and chamber therefor, of the coal-hopper located in front of said chamber, the gate separating said chamber and the coal-hopper, and means for spraying water on the outer face of the gate, whereby the same is cooled and the coal suitably moistened.

4. In a boiler-furnace, the combination with a chain-grate stoker, the chamber in which said stoker is located, of the endless ash-conveyer underneath said stoker, and the fixed diaphragm at the rear end of the stoker-chamber and fitting over the endless ash-conveyer, said diaphragm having its upper edge curved and lying in close proximity to the lower side of the chain-grate stoker.

5. In a boiler-furnace, the combination with the chain-grate stoker of the carriage on which said stoker is mounted, the endless ash-conveyer underneath said stoker, and the fixed diaphragm hung on the rear axle of the stoker-carriage and fitting over the endless conveyer to prevent back draft.

6. In a chain-grate stoker, the combination with the chains therefor, of the grate-bar carriers secured to the chain-links, and the enlarged rear hollow shaft for said stoker, said shaft being of such a diameter as to contact with the lower sides of the grate-bar carriers and thereby prevent ashes falling inside the stoker.

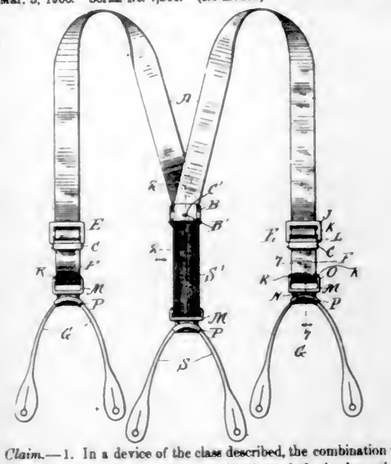
7. In a chain-grate stoker the combination with the chain-links, said links having flat horizontal faces and vertical projections, of the angle-bars secured thereto and having one flange resting on the flat faces of said links and the other flange bearing against the vertical projections, and the grate-bars independently and detachably secured to said angle-bars.

8. In a chain-grate stoker, the combination with the chain-links, said links having flat horizontal faces and vertical projections, of the angle-bars secured thereto and having one flange resting on the flat faces of said links and the other flange bearing against the vertical projections, the grate-bars provided with depending webs and cotter-pins for securing said webs to the angle-bars.

9. A grate-bar for chain-grate stokers, comprising the body portion having cross-bars and side bars uniting the ends of the cross-bars, said side bars and the end cross-bars having straight outer faces whereby projecting ends are avoided and means on said grate-bar whereby the same may be secured to the carrier-bar.

10. A grate-bar for chain-grate stokers, comprising the body portion having cross-bars, side bars uniting the ends of the cross-bars, said side bars and the end cross-bars having straight outer faces whereby projecting ends are avoided, and depending webs uniting the side bars for securing the grate-bar to the carrier-bar.

661,676. SUSPENDERS. EUGENE T. SPECHT, Chicago, Ill., assignor of thirteen-twentieths to Ernest A. Eastman, same place. Filed Mar. 5, 1900. Serial No. 7,266. (No model.)



Claim.—1. In a device of the class described, the combination with the main strap having the hook C secured to its end, the hook portion D thereof being short as shown, of the buckle E adjustable on said strap and having its lower cross-piece L formed with the rearwardly-projecting upper edge so as to engage with said hook portion D and prevent its displacement, and the tab supported by the loop formed by engaging the hook C with the buckle E, substantially as shown and described.

2. In a device of the class described, the combination of the main strap having the buckle E formed with the cross-pieces J, K and L slidingly mounted thereon, and the hook C secured to the lower end thereof and adapted to take over the cross-piece L to form a loop, with the tab G supported from said loop by a link M consisting of the two symmetrical halves secured together so as to form the link-body proper rigidly supporting the tube P through which the tab slides, substantially as shown and described.

3. In a device of the class described, the combination of the main strap having the buckle E formed with the cross-pieces J, K and L slidingly mounted thereon, and the hook C secured to the lower end thereof and adapted to take over the cross-piece L to form a loop, with the tab G supported from said loop by a link M consisting of the two symmetrical halves secured together so as to form the link-body proper rigidly supporting the tube P through which the tab slides and having the cross-pieces Q thereon, substantially as shown and described.

4. In a device of the class described, the combination with the main strap having the hook C secured to its end, the hook portion D thereof being short as shown and the buckle E formed with the cross-pieces J, K and L slidingly secured thereon, the lower cross-piece I being formed with the rearwardly-projecting upper edge so as to engage with said hooked portion D and preventing its displacement when engaged therewith to form the loop F, of the tab G supported from said loop.

5. In a device of the class described, the combination with the main strap having the hook C secured to its end, the hook portion D thereof being short as shown and the buckle E formed with the cross-pieces J, K and L slidingly secured thereon, the lower cross-piece L being formed with the rearwardly-projecting upper edge so as to engage with said hooked portion D and prevent its displacement when engaged therewith to form the loop F, of the tab G supported from said loop by a link M consisting of the two symmetrical halves secured together to form an aperture through which the loop passes and the curved tube P through which the tab slides, substantially as shown and described.

6. In a device of the class described, the combination with the strap A carrying the tabs at its ends, of the back piece B carrying the roller W over which said strap slides and having the clamp Y beneath said roller, and the loop S' formed by a strap having its ends secured in the piece B by said clamp and supporting the rear tab.

7. In a device of the class described, the combination with the strap A carrying the tabs at its end, of the back piece B carrying the roller W over which said strap slides and having the clamp Y beneath said roller, and the rear tab comprising a strap held in place by said clamp.

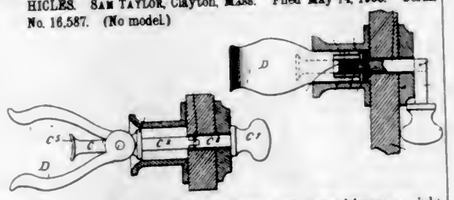
8. In a device of the class described, the combination with the strap A carrying the tab at its ends, of the back piece B carrying the rollers W provided with the flanges X over which said strap slides and having the clamp Y beneath said rollers, and the loop S' formed by a strap having its ends secured in the said clamp and supporting a rear tab.

9. In a device of the class described, the combination with the strap A carrying the tabs at its ends, of the back piece B carrying the roller W over which said strap slides and having the clamp Y beneath said roller and the projection A', and a back piece comprising a strap S' secured in said back piece by the clamp Y and having its position adjusted by the projection A', substantially as and for the purpose described.

10. In a device of the class described, the combination with the strap A carrying the tabs at its ends, of the back piece B carrying the cross-piece over which said strap slides and having the clamp Y secured thereto beneath said cross-piece provided with the catch-lug C', and the projection A' projecting inwardly therefrom and provided with the lug B', and the loop S' adapted to be engaged by the clamp Y.

11. In a device of the class described, the combination with the strap A carrying the tabs at its ends, of the back piece B carrying the cross-piece over which said strap slides and having the clamp Y beneath said cross-piece provided with the catch-lug C', the projection A' in said back piece terminating in the lug B' adapted to coöperate with the catch-lug C', and the loop S formed by a strap having its ends secured in said clamp and positioned by the lug A', substantially as and for the purpose described.

661,677. SUPPORT OR HOLDER FOR WHEELS OR LIGHT VEHICLES. SAM TAYLOR, Clayton, Mass. Filed May 14, 1900. Serial No. 16,587. (No model.)



Claim.—1. A device of the class described, comprising an upright provided at one side with a hollow casing, the end walls of which are beveled outwardly at the sides thereof, a sliding member mounted in said casing and provided with a shank which passes through the upright, said sliding member being also provided with two jaws which are pivotally connected with the inner end thereof, and being also provided at its outer end with a head, and the shank of said sliding member being provided with a hinged member having a knob or handle, substantially as shown and described.

2. A device of the class described, comprising an upright support, a hollow casing secured to one side thereof, a sliding member mounted in said casing and provided at its inner end with a shank which passes loosely through the support, and jaws pivotally connected with said sliding member near its inner end and which project outwardly through said casing, said jaws being adapted to be forced out of said casing by said shank, substantially as shown and described.

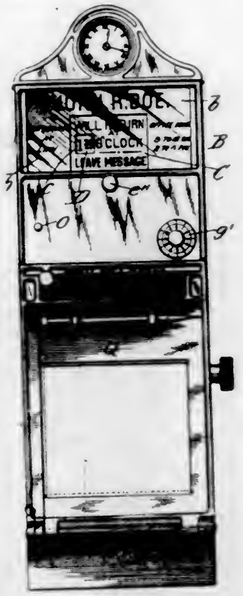
3. A device of the class described, comprising an upright support, a hollow casing secured to one side thereof, a sliding member mounted in said casing and provided at its inner end with a shank which passes through the support, and jaws pivotally connected with said sliding member near its inner end and which project outwardly through said casing, said sliding member being also provided at its outer end with a head, and the shank of said sliding member being provided with a hinged section, substantially as shown and described.

4. In a device of the class described, a hollow casing which is adapted at one end to be secured to a suitable support, and the other end of which is open, a sliding member mounted in said casing and provided at its inner end with a shank which is adapted to be passed through said support, and jaws pivotally connected with said sliding member, and adapted to project from the open end of said casing, said sliding member being also provided with a head which projects outwardly from the pivotal connection of said jaws, substantially as shown and described.

5. In a device of the class described, a hollow casing which is adapted at one end to be secured to a suitable support, and the other end of which is open, a sliding member mounted in said casing and provided at its inner end with a shank which is adapted to be passed through said support, and jaws pivotally connected with said sliding member, and adapted to project from the open end of said casing, said sliding member being also provided with a head which projects outwardly from the pivotal connection of said jaws, and the shank of said sliding member being provided with a hinged section having a knob or handle, substantially as shown and described.

661,678. OFFICE INDICATOR AND REGISTER. ALBERT R. VERDIER, St. Louis, Mo. Filed Apr. 2, 1900. Serial No. 11,088. (No model.)

Claim.—1. The combination with independently-operable disks, of a spindle on which the same are mounted, a notched disk on said spindle, an arm coöperating with said disk to lock the same against movement, and a disk having a flattened portion on its periphery for coöperating with said locking-arm; substantially as described.



2. The combination with independently-rotatable disks, of a spindle on which the same are mounted, a notched disk M, mounted on said spindle, a locking-arm coöperating with said notched disk, a disk H provided with a flattened portion on its periphery for actuating said locking-arm, a spindle on which said disk H is mounted, and notched tumblers which are driven from said spindle, for locking said spindle against movement; substantially as described.

3. The combination with indicating-disks, of means for locking the same against movement, said means comprising a locking-arm, a toothed disk, a flattened disk for operating said arm, a spindle on which said disk is mounted, a knob on said spindle for indicating the position of the flattened portion of the disk carried by said spindle, and a dial on said spindle; substantially as described.

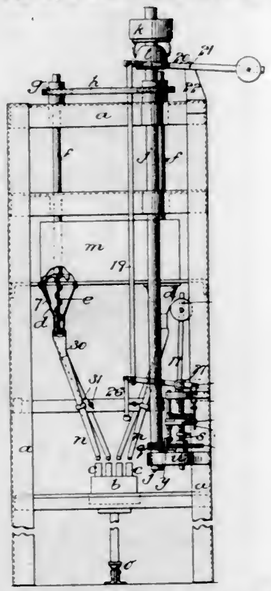
4. The combination with a spindle G, of notched tumblers loosely mounted on said spindle G, ratchets fixed to said spindle, pawls carried by the notched tumblers for coöperating with said ratchets, a lever coöperating with said notched tumblers, a locking-arm L, a toothed disk for coöperating with said locking-arm, and means on said spindle for actuating said locking-arm, and locking the indicating-disks against movement; substantially as described.

5. In an office indicator and register, the combination with a back plate, of a casing arranged thereon, the lower portion of said casing forming a receptacle, a hinged cover for said receptacle, indicating-disks arranged in the upper portion of the casing, a spindle, notched rotatable tumblers which are driven from said spindle, a locking-arm, a toothed disk M, means on said spindle for actuating said arm for locking said disks against movement, a lock for the cover of the receptacle, and a lever carrying said lock and coöperating with said notched tumblers; substantially as described.

6. The combination with indicating-disks, of means for rotating the same, a spindle for said disks, a notched disk M mounted on said spindle, a locking-arm L coöperating with said disk, a spindle G carrying a disk formed with a flattened periphery for operating said locking-arm, and washers on said spindle G which serve as antifriction devices to prevent the rotation of either the indicating-disks, or the flattened disk, from affecting the position of the other disk or disks; substantially as described.

7. The combination with indicating-disks, of a toothed disk M, a spindle G, a locking-arm L, means operated by said spindle for actuating said locking-arm to lock said indicating-disks against movement, a cover for a receptacle, a lever carrying a locking-bolt for coöperating with said receptacle-cover, notched tumblers on spindle G coöperating with said lever to lock and release the same, pivoted wings also coöperating with said lever to rock the same when released by the notched tumblers, and a push-button coöperating with said wings; substantially as described.

661,679. MACHINE FOR FILLING PACKAGES. JAMES H. WYCKOFF, Syracuse, N. Y., assignor of one-half to Albert Stearns, same place. Filed July 12, 1900. Serial No. 23,304. (No model.)



Claim.—1. In a machine for filling packages, the combination with a filling-hopper and a feed-screw working therein, of a counting-screw, mechanism for rotating said feed-screw and counting-screw and a stop-motion for said mechanism controlled by said counting-screw, substantially as herein described.

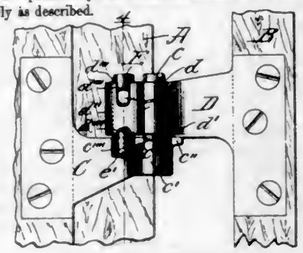
2. In a machine for filling packages, the combination with a filling-hopper and a feed-screw working therein, of a counting-screw, mechanism for driving said feed-screw and counting-screw, a stop-motion for said mechanism, a divided nut on said counting-screw for actuating the stop-motion and means for disengaging said nut from the counting-screw by the action of said stop-motion, substantially as herein described.

3. In a machine for filling packages, the combination with a filling-hopper and a feed-screw working therein, of a counting-screw and bearings therefor in which it is confined lengthwise, a driving-shaft and means for transmitting motion therefrom to said feed-screw and counting-screw, a driving device on said shaft and means for engaging it therewith and disengaging it therefrom, a divided nut fitted to the counting-screw, a lever fulcrumed on said screw for closing and opening said nut to engage it with and disengage it from the counting-screw, and a stop-motion controlled by said nut for simultaneously disengaging said driving device from said shaft and opening said nut after a determined amount of revolution of said counting-screw, substantially as herein described.

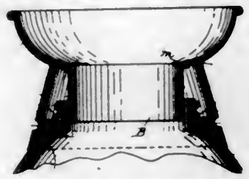
4. In a machine for filling packages, the combination with a filling-hopper and a feed-screw working therein, of a counting-screw and bearings therefor in which it is confined lengthwise, a driving-shaft and means for transmitting motion therefrom to said feed-screw and counting-screw, a driving device on said shaft and a clutch for engaging said device with and disengaging it from said shaft, a divided nut fitted to the counting-screw, a lever fulcrumed on said screw for opening and closing said nut, a clutch-operating lever, a stop-lever engaging with the first-mentioned lever, a tappet carried by said stop-lever to be actuated by said divided nut, a connection between said stop-lever and the clutch-operating lever, and a tumbler carried by said stop-lever, substantially as herein described.

661,680. LOCK-HINGE. FREDERICK ANDREAS, St. Louis, Mo., assignor of one-half to Joseph W. Schilling, same place. Filed May 18, 1900. Serial No. 17,068. (No model.)

Claim.—In a lock-hinge, the combination with the member C having a spindle c projecting upwardly from a hub portion c' at its outer end, a track-flange c'' formed on the hub portion at the base of the spindle, a portion of said track-flange being arranged on a horizontal plane and the remaining portion of said flange being inclined to form a cam-face c''', of a member D provided with an eye d for receiving the spindle, a projection d' adjacent to said eye and designed to coöperate with the cam-face c''' of the track-flange, an extension d'' provided with an opening for the reception of a locking-bolt, and a locking-bolt provided with projections e and e', said locking-bolt designed in one position of the hinge to coöperate with the member C and lock the hinge against movement, and in another position of said members, said locking-bolt rides upon, and is held in an elevated position by, the horizontal portion of the track-flange c'; substantially as described.



661,681. FRUIT-JAR FILLER. JOHN H. ASHBAUGH, Irvington, and CHEEVER L. WEBSTER, Indianapolis, Ind. Filed May 31, 1900. Serial No. 18,542. (No model.)



Claim.—1. A fruit-jar filler including a funnel, a base provided with apertures extending circumferentially, and a clamp mounted movably in the apertures of the base.

2. A fruit-jar filler including a funnel provided with an apertured base and a funnel-tube within the base, and a clamp working in the apertured base, whereby the filler may be connected to a jar and the jar carried thereby.

3. A fruit-jar filler including a funnel having a funnel-tube, a base provided with circumferentially-disposed apertures and surrounding the funnel-tube, and a substantially U-shaped clamp extending through and working in the apertures of the base whereby to engage a jar-neck.

4. A fruit-jar filler consisting of a funnel including a funnel-tube, a base attached to the funnel and surrounding the funnel-tube and provided with apertures therein, and a spring-clamp working in the apertures in the base.

5. The combination with a funnel, of a base provided with circumferentially-disposed apertures and extending below the apertures as a gage for a clamp, and a clamp mounted in the apertures and extending into the interior of the base so as to engage a jar-neck, when the base incloses the same.

6. A fruit-jar filler consisting of a bowl apertured at the bottom thereof, a tube attached to the bottom of the bowl at the apertures thereof, a base provided with circumferentially-disposed apertures and secured to the bowl and surrounding the tube, and a substantially U-shaped spring-clamp extending through the apertures in the base to the interior thereof and projecting through at opposite sides of the base.

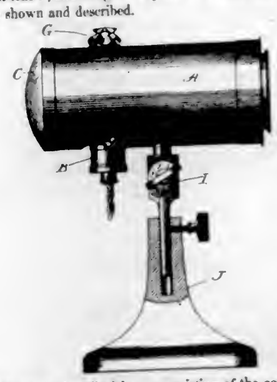
661,682. LARYNGOSCOPE. WILLIAM AVERY and ABRAHAM BURRELL, Chicago, Ill. Filed Mar. 24, 1900. Serial No. 10,006. (No model.)

Claim.—1. The herein-described lamp, consisting of the combination of the casing A, the light B therein, the concentrating-lens D, the objective lens F, and the ground-glass diaphragm E, all substantially as shown and described.

2. The herein-described lamp consisting of the combination of the casing A, the light B therein, the reflector C, at focal distance from said light, the concentrating-lens D, at focal distance from said light, the objective lens F, all about double the distance from said lens D, and the ground-glass diaphragm interposed between said lenses, all substantially as shown and described.

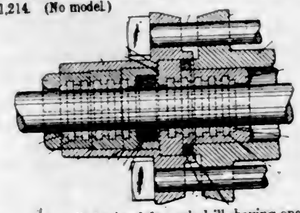
3. The herein-described lamp consisting of the combination of the casing A, the light B, therein, the reflector C on one side of said light, the compound plano-convex lens D on the other side of said light, the object-lens F on the further side of said lens D, and the ground-glass diaphragm E located between said lenses, all substantially as shown and described.

4. The herein-described lamp, consisting of the combination of the casing A, the electric light B located therein, having its filament disposed in circles at right angles to the line of projected light, the concentrating-lens D, the object-lens F, and the ground glass E between said lenses, all substantially as shown and described.



5. The herein-described lamp, consisting of the combination of the casing A, the light B, therein, the double convex lenses D, having an air-space between them, ventilating-holes H, leading from said space, the object-lens F, and the ground glass E, between said lenses, all substantially as shown and described.

661,683. ROCK-DRILL CYLINDER-HEAD. ALBERT BALL and THOMAS OFFICER, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. Filed June 20, 1899. Serial No. 721,214. (No model.)



Claim.—1. A cylinder-head for rock-drills having one or more annular shoulders formed therein decreasing in diameter from the upper to the lower end of said head, and a partible bushing within said head having corresponding shoulders engaging said shoulders in said head, substantially as set forth.

2. A cylinder-head for rock-drills having one or more annular shoulders formed therein decreasing in diameter from the upper to the lower end of said head, a partible bushing within said head having corresponding shoulders engaging said shoulders in said head, said bushing having grooves formed therein, and Babbitt metal engaging said grooves, substantially as set forth.

3. In a cylinder-head for rock-drills, a bushing contained within the shell of said head, a U-shaped packing engaging an abutment on said bushing, a ring within said packing, and means bearing on said ring for holding it in the packing, substantially as set forth.

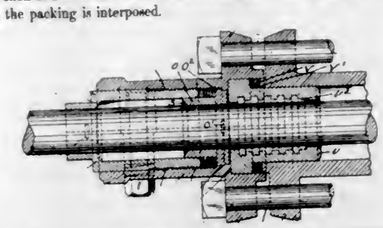
4. In a cylinder-head for rock-drills, a bushing contained within the shell of said head, a U-shaped packing engaging an abutment on said bushing, a ring within said packing, and an upper bushing bearing on said ring for holding it in the packing, substantially as set forth.

5. A cylinder-head having a shoulder at the upper end thereof, a bushing resting with its lower end on said shoulder, the upper end of said bushing extending beyond said head and adapted to enter the cylinder, and packing interposed between a shoulder on said bushing and the lower end of said cylinder, substantially as set forth.

661,684. ROCK-DRILL CYLINDER-HEAD. ALBERT BALL and THOMAS OFFICER, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. Filed June 20, 1899. Serial No. 721,215. (No model.)

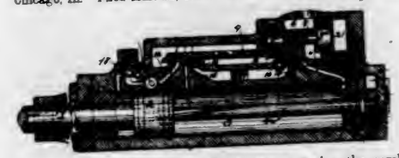
Claim.—1. In a cylinder-head for rock-drills, a bushing contained within the shell of said head, a partible gland extending into the shell and over the bushing, said gland having a shoulder between which and the end of the bushing the packing is interposed, and means for adjustably securing the gland in the shell of the head.

2. In a cylinder-head for rock-drills, said head comprising a shell provided with interior screw-threads, a bushing contained within the shell, a partible gland extending into the shell and over the bushing, said gland having exterior screw-threads for engaging the interior screw-threads of the shell and an internal shoulder between which and the end of the bushing the packing is interposed.



3. In a cylinder-head for rock-drills, said head comprising a shell provided with interior screw-threads and a shoulder, a bushing contained within the shell and having a shoulder engaging the shoulder of the shell, a partible gland extending into the shell and over the bushing, said gland having exterior screw-threads for engaging the interior screw-threads of the shell, and an internal shoulder between which and the end of the bushing the packing is interposed.

661,685. ENGINE. ALBERT BALL and THOMAS OFFICER, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. Filed Mar. 22, 1900. Serial No. 9,677. (No model.)



Claim.—1. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder and governing means actuated by fluid at approximately normal working pressure to control the movement of the piston when it tends to exceed its normal speed.

2. In a direct-acting fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder and governing means actuated by fluid at approximately normal working pressure to throttle the fluid supplied to the cylinder when the piston exceeds its normal stroke.

3. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder, a differential valve for throttling the supply of fluid to the cylinder and means for supplying actuating fluid at approximately normal working pressure to said valve when the piston exceeds its normal stroke.

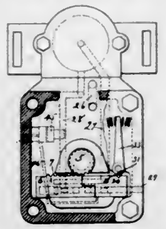
4. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder, a governing-valve for throttling the live fluid supplied to said cylinder and means for applying live fluid at approximately normal working pressure to said governing-valve to positively actuate the same when the piston exceeds its normal stroke.

5. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder, a governing-valve for throttling the live fluid supplied to said cylinder, a chamber in open communication with the main air-chest and containing a reversing-valve, and a passage leading from said chamber to the governing-valve chamber, said passage being uncovered by the reversing-valve when the piston exceeds its normal stroke.

661,686. ENGINE FOR ROCK-DRILLS. ALBERT BALL and THOMAS OFFICER, Claremont, N. H., assignors to the Sullivan Machinery Company, same place and Chicago, Ill. Filed Mar. 22, 1900. Serial No. 9,678. (No model.)

Claim.—1. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a piston working in said cylinder, a fluid-pressure-actuated device for operating said main valve, a controller for

said fluid-pressure-actuated device and means for rendering said controller active when the piston exceeds its normal stroke.

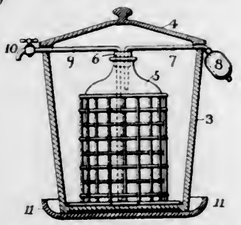


2. In a direct-acting, fluid-pressure engine, a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a main piston working in said cylinder, an auxiliary piston for operating said main valve, means for applying fluid-pressure to said auxiliary piston, a controller for said auxiliary piston and means for actuating said controller when the main piston exceeds its normal stroke.

3. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve for controlling the same, a main piston working in said cylinder, an auxiliary cylinder having inlet and exhaust ports and a piston in said auxiliary cylinder for operating the main valve, means operated by the main piston for controlling the inlet and exhaust ports of said auxiliary cylinder and means for partially closing one of said ports when the main piston exceeds its normal stroke.

4. In a direct-acting, fluid-pressure engine, the combination with a cylinder provided with inlet and exhaust ports, of a main valve, a main piston working in said cylinder, an auxiliary cylinder having inlet and exhaust ports and a piston in said auxiliary cylinder for operating the main valve, a governing-valve for said auxiliary piston and a reversing-valve and ports and passages for effecting the operation of the governing-valve when the main piston exceeds its normal stroke.

661,687. **PUMP ATTACHMENT FOR BOTTLE-COOLERS.** JOSEPH H. BRANDT, Philadelphia, Pa., assignor to the Great Bear Spring Company, Jersey City, N. J. Filed July 28, 1900. Serial No. 25,076. (No model.)



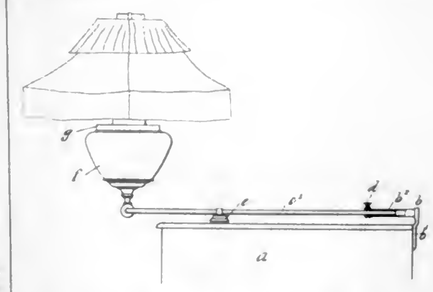
Claim.—A water-cooler consisting of a receptacle as 3 provided with notches in its upper edge and with a cover, a bottle located within said receptacle and having a perforated cork, a tube as 7 extending into the upper portion of the bottle through one of the perforations in said cork and to the exterior of the receptacle through one of the notches in the edge thereof, a compression-bulb secured to the outer end of said tube, and a tube as 9 extending through the other perforation in said cork to the bottom of the bottle and through the other notch in the upper edge of the receptacle to the exterior thereof and having a faucet at its upper end, all substantially as and for the purpose set forth.

661,688. **LAMP-BRACKET.** ELIJAH D. CASTELOW, Meriden, Conn. Filed Feb. 25, 1897. Serial No. 624,950. (No model.)

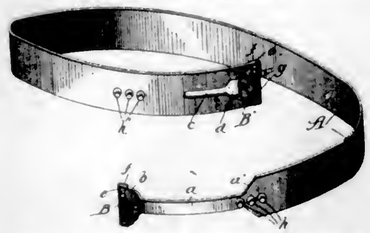
Claim.—1. In a lamp-bracket, in combination, an anchor-plate, tubular arms rigidly borne by the anchor-plate and projecting forward at an angle thereto, a U-shaped outer section with its ends fitting within said arms, means for supporting a lamp or the like at the outer end of said section, and a pad located between the branches of the outer section and supported thereby.

2. In a lamp-bracket, in combination, an anchor-plate, tubular arms rigidly secured to but removable from the anchor-plate, said arms projecting forward at an angle to the plane of the plate, a U-shaped outer section with its ends fitting within said arms, means for supporting a lamp or the like at the outer end of said section, and a pad located between the branches of the outer section and supported thereby.

661,688.



661,689. **APPAREL-BELT.** ALFRED J. CLOW, Chicago, Ill. Filed Apr. 2, 1900. Serial No. 11,106. (No model.)

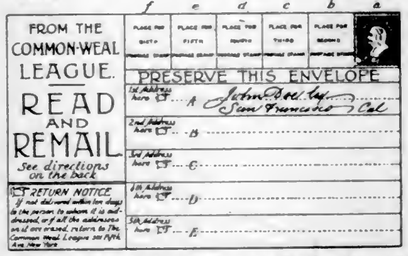


Claim.—1. A belt provided in one end with an opening and at its opposite end with a narrow neck portion to pass through the said opening, a fastener member on each extremity and fastener members on the body of the belt to be engaged by said extremity members, substantially as described.

2. A belt provided in one end with an opening *d* and slot *c*, and at its opposite end with a neck *a* terminating in a head *b*, a fastener member on each extremity, and fastener members on the body of the belt to be engaged by said extremity members, substantially as described.

3. A belt provided in one end with an opening *d* and slot *c*, and at its opposite end with a neck *a* terminating in a head *b*, clasps B B′ on the extremities provided with sockets *f*, and headed studs *h h′* on the body portion of the belt, all constructed and arranged to operate substantially as and for the purpose set forth.

661,690. **MULTIPLE-ADDRESS ENVELOP.** MATTHIAS N. FORNEY, New York, N. Y. Filed May 4, 1900. Serial No. 15,437. (No model.)



Claim.—1. An envelop having a number of designated spaces adapted to receive successive addresses to different parties, a corresponding number of designated spaces adapted to receive successive postage-stamps, all on the front face of the envelop, and means for securing its contents while preserving the envelop, all substantially as herein described.

2. An envelop having a number of designated spaces for successive addresses; a corresponding number of designated spaces for postage-stamps, all on the front face of the envelop; another space carrying instructions inscribed on the envelop for redirecting and remailing it and a readily attachable and detachable fastening for securing the contents within the envelop, substantially as herein described.

3. An envelop having a number of designated spaces for successive addresses, and a corresponding number of designated spaces for postage-stamps and covering-flaps adapted to serve for the protection of the stamps in the first portion of a series of successive mailings.

4. An envelop having a number of designated spaces for successive addresses, and a corresponding number of designated spaces for postage-stamps, covering-flaps for the stamps, and instructions inscribed on the envelop for redirecting and remailing it, substantially as herein specified.

5. An envelop having a number of designated spaces for successive addresses, and a corresponding number of designated spaces for postage-stamps, and covering-flaps for the protection of the stamps and a readily attachable and detachable fastening for securing the contents within the envelop, substantially as herein described.

6. An envelop having a number of designated spaces for successive addresses, a corresponding number of spaces for postage-stamps and covering-flaps for the protection of the stamps, the whole formed of one sheet of paper, substantially as herein specified.

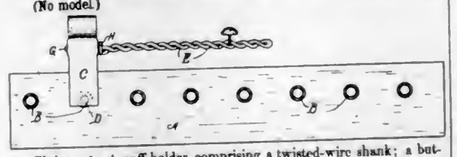
661,691. **BAGGAGE-CHECK CARRIER.** ALPHONSO M. GOODWIN, Saco, Me. Filed Dec. 16, 1899. Serial No. 740,521. (No model.)



Claim.—1. A baggage-check carrier adapted to receive and carry a check in the front side and provided with a hole in the body of the carrier, a loop on the back side of the carrier and a strap adapted to pass through said loop, said strap having its end adapted to cover said hole.

2. A baggage-check carrier having a suitable body part and flanges formed by turning the lateral edges of the body part around a suitable supporting-bar, the edges of said turned-up portions terminating above the base of the body part, whereby grooves are formed to receive the edges of the check and hold it upon the base and the supporting power of the flanges is reinforced, and means for preventing accidental endwise displacement of the check.

661,692. **CUFF-HOLDER.** WILLIAM H. GRAEBNER, Milwaukee, Wis. Filed Dec. 22, 1899. Renewed Sept. 26, 1900. Serial No. 31,135. (No model.)



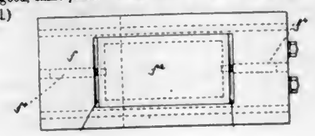
Claim.—1. A cuff-holder, comprising a twisted-wire shank; a button interlaced therein near one end; and a suitable clasp secured to the other end of said shank, and adapted to engage at one or more points of support on the sleeve of the user, substantially for the purpose set forth.

2. A cuff-holder, comprising a twisted-wire shank; a button interlaced therein near one end; and a spring-actuated clasp having one end of said wire extended therefrom to form a pivotal axis, substantially for the purpose set forth.

3. A cuff-holder, comprising a twisted-wire shank; a button interlaced therein near one end; a spring-actuated clasp secured to the other end of said shank and provided with a stud on the interior surface of one of the clamping-jaws; and a strip of flexible material provided with eyelets for the reception of said stud, and adapted to be secured to the sleeve of the user, substantially for the purpose set forth.

4. A cuff-holder, comprising a shank provided near one end with means for engaging the buttonhole of a cuff; a spring-actuated clasp secured to the other end of said shank in a laterally-projecting position, and provided with studs on the interior surface of one of its clamping-jaws; and a supporting-strip of flexible material extending in a line substantially parallel to that of the shank, and provided with eyelets in which said stud is adapted to engage, substantially for the purpose set forth.

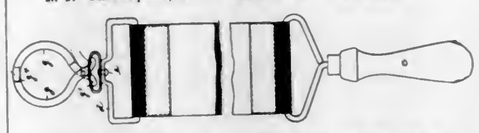
661,693. **MECHANICAL MOVEMENT.** CHARLES E. HASELHURST, Norwich, Conn., assignor of one-third to William A. Breed and Frederic L. Osgood, same place. Filed Mar. 3, 1900. Serial No. 7,252. (No model.)



Claim.—1. The combination with two screws, a rocking beam provided with nuts adapted to alternately engage said screws, and having inclined surfaces n^2 as set forth, means for revolving said screws, and means for rocking the said beam consisting of spring-actuated rolls *l* located in the path of the said inclined surfaces.

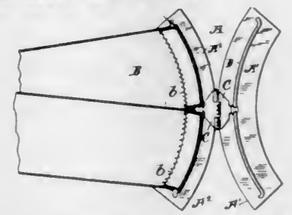
2. In combination, a fixed bed, a carriage, a plate f^3 adjustably mounted on said carriage, two screws revolubly mounted in the said bed, a rocking beam fulcrumed in said plate f^3 and having nuts adapted to engage the screws as set forth, and means, consisting of spring-actuated rolls lying in the path of the said beam, for rocking the latter to cause the said nuts to alternately engage the said screws.

661,694. **RAZOR-STROP.** JOHN H. HEMMERDINGER, New York, N. Y. Filed Sept. 14, 1900. Serial No. 29,987. (No model.)



Claim.—A razor-strop provided with a frame, a slotted ring swiveled thereto, a pair of pivoted tongs having diverging lower ends that enter said slot, and jaws at their upper ends, substantially as specified.

661,695. **BELT.** JULIUS HILDER, New York, N. Y. Filed June 11, 1900. Serial No. 19,845. (No model.)



Claim.—1. A belt frame or attachment having strap-holders located on opposite sides and extending laterally in opposite directions and adapted to be attached to straps or the like, substantially as described.

2. A belt frame or attachment having a plurality of strap-holders on each side extending in substantial endwise alinement each holder being adapted to have a strap attached to it to retain the straps from lateral displacement, substantially as described.

3. A belt frame or attachment comprising two members located side by side and movably connected together, each member having a strap-holder that diverges laterally and is adapted to receive a strap or the like, substantially as described.

4. A belt comprising a frame provided with strap-holders on opposite sides, and pairs of straps attached to the strap-holders, the straps of each pair converging outwardly, substantially as described.

5. A belt comprising a frame provided with strap-holders located on opposite sides, the strap-holders diverging laterally from the central portion of the frame, and a plurality of straps connected to the holders on opposite sides of the frame, a pair of straps on each side converging outwardly and overlapping, substantially as described.

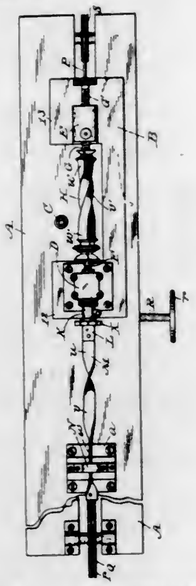
661,696. **APPARATUS FOR FORMING IRREGULAR SPIRALS.** HENRY F. HOLTMANN, Indianapolis, Ind. Filed Dec. 4, 1899. Serial No. 739,168. (No model.)

Claim.—1. A machine for forming spirals, including a guide-bar distorted from or twisted on an axis other than the longitudinal center of dimension thereof, a guide-head for the bar, and a base whereon a blank may be carried capable of sliding laterally and longitudinally and operatively connected to the guide-bar.

2. A machine for forming spirals, including a laterally-flexible elastic guide-bar, a guide-head for the bar, and a base whereon a blank may be carried capable of sliding laterally and longitudinally and operatively connected to the guide-bar.

3. A machine for forming spirals, including a guide-bar adapted to be distorted from a uniform degree of pitch and re-formed to conform to predetermined variable patterns to be produced, a guide-head adapted to receive such bar slidingly, and a base whereon a blank to be worked upon may be carried capable of sliding laterally and longitudinally and operatively connected to such guide-bar.

4. A machine including a guide-bar, for forming irregular spirals, characterized by its capability of being either wholly or in part distorted so as to have varying degrees of pitch or spirality interspersed with non-spiral portions, a guide-head adapted to permit such bar to be drawn therethrough, and a sliding base whereby the work may be carried operatively connected to such bar.



5. A guide-bar for forming spirals, consisting of a thin oblong metallic bar substantially rectangular in cross-section and adapted to be distorted axially at any desired portions while other portions have parallel plane faces remaining, whereby forms may be produced having differing degrees of spiral pitch interspersed with plane faces.

6. A guide-bar for forming spirals, consisting of a thin oblong metallic bar substantially rectangular in cross-section and capable of being distorted axially at any desired portions while other portions retain parallel plane faces, whereby forms having different degrees of spiral pitch interspersed with plane faces may be produced, and a guide-head for the bar having elastic contact therewith.

7. In a spiral-forming machine, the combination with a sliding base having the head and tail stocks and the rotating spindle, of a laterally-flexible elastic guide-bar having irregular twists or axial distortions and operatively connected to the spindle, and a guide-head having elastically-controlled bearings for the bar whereby compensation is provided for the passage of such irregular distortions, said head being secured independently of the sliding base.

8. In a spiral-forming machine, the combination with the irregular distorted guide-bar connected with devices for carrying a blank to be worked upon, of the guide-head including a pair of vertically-disposed narrow bearings one of which is elastically forced toward the opposing bearing, and adapted to permit said bar to be drawn therethrough.

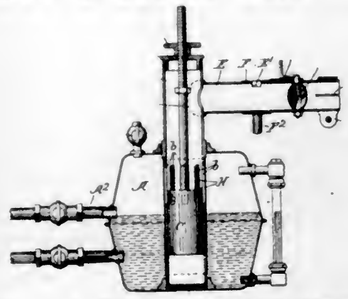
9. In a spiral-forming machine, the combination of the table, the base sliding laterally and longitudinally, the head and tail stocks, the rotating spindle, the quartering chuck, the guide-bar having irregular axial twists or distortions and elastically flexible laterally, and the guide-head adapted to permit the passage of such irregularly-distorted bar therethrough, said head having an elastic bearing with said bar, substantially as set forth.

10. In a spiral-forming machine, the combination of the table, the sliding base, the cutter-head having a vertical axis, the tail-stock, the head-stock having a pair of spindles rotating in two parallel lines, the toothed wheels connecting such two spindles, the quartering chuck, the twisted laterally-elastic guide-bar attached to said chuck and so constructed as to be capable of being re-formed to varying degrees of twist and distortion, and the guide-head having the elastically-controlled bearing whereby such distorted bar may be received under lateral pressure, substantially as set forth.

11. In a spiral-forming machine, the combination of the table, the sliding base, the cutter-head having a vertical axis, the tail-stock, the head-stock having the multiple spindles mounted in separate axial lines, the connecting gear-wheels, the quartering chuck attachable to either of said spindles independently, the guide-bar attached to the quartering chuck and adapted to be distorted and redistorted from its longitudinal center of dimension, the guide-head having a non-elastic bearing and an opposing elastic bearing, and the adjusting-screw for the elastic bearing, substantially as set forth.

12. In a spiral-forming machine, the combination of the table, the sliding base, the cutter-head having a vertical axis, the tail-stock, the head-stock having the multiple spindles mounted in separate axial lines, the connecting gear-wheels attached to said spindles, the quartering chuck attached to one of said spindles, the guide-bar attached to said chuck and adapted to elastically bend laterally, the adjustably-elastic guide-head, the pulleys mounted at the ends of said table, the hand-wheel and drum mounted below said table, and the cable coiled about said drum and having one end thereof attached to said guide-bar and the opposite end thereof connected to said sliding base, substantially as set forth.

661,697. CARBURETER. THOMAS B. JEFFERY, Chicago, Ill.
Filed Aug. 11, 1899. Serial No. 726,852. (No model.)



Claim.—1. In a carbureter, two chambers, one for a carbureting liquid and having an air-inlet above the liquid-level, the other chamber having an exhaust connection; a partition-wall which separates the two chambers, apertured to afford communication above the liquid-level of the first chamber; a capillary diaphragm which obstructs such communication and extends down below the liquid-level; and a shutter or valve which covers or obstructs more or less of the aperture of said wall; and suitable means for adjusting such shutter to vary at will the unobstructed area of such aperture.

2. A carbureter comprising a fluid-chamber and means for maintaining a liquid-level therein; a vapor-chamber and a wall which separates it from the fluid-chamber apertured above the liquid-level of the latter, the separation being complete below that level; a capillary element on the side of said wall toward the liquid-chamber constituting a diaphragm obstructing such aperture and extending down below the liquid-level.

3. A carbureter, comprising a liquid-chamber and a vapor-chamber, a passage through which they communicate, a capillary diaphragm which obstructs such communication on the side toward the liquid-chamber, a valve which controls such communication on the side toward the vapor-chamber, such vapor-chamber having a discharge-opening for vapor beyond such valve.

4. A carbureter, comprising a vapor-chamber and a liquid-chamber; a passage through which they communicate; a capillary diaphragm which obstructs such communication on the side toward the liquid-chamber; a valve which controls such communication on the side toward the vapor-chamber; said vapor-chamber having a discharge-opening beyond said controlling-valve; and a valve which controls such discharge-opening to regulate the quantity of mixed air and vapor discharged.

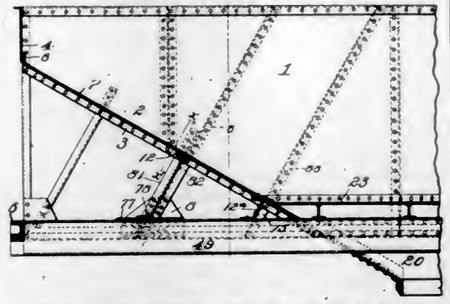
5. A carbureter, comprising a liquid-chamber and a vapor-chamber; a passage through which they communicate; a capillary diaphragm which obstructs such communication on the side toward the liquid-chamber; a valve which controls the communication on the side toward the vapor-chamber; the liquid-chamber having an air-inlet and a valve which controls such inlet; the vapor-chamber having a discharge-opening and a valve which controls such opening.

6. A carbureter comprising a liquid-chamber and a tubular vapor-chamber intruded thereinto and apertured for communication with the fluid-chamber; a capillary fabric covering the aperture of the tubular chamber and extended below the liquid-level of the fluid-chamber; and a piston-valve or shutter arranged to play within the tubular chamber to cover or obstruct more or less of the aperture thereof.

7. A carbureter, comprising a fluid-chamber and a vapor-chamber, a capillary diaphragm consisting of a web, part of whose extent is exposed in the liquid, the other part being out of the liquid, and constituting a diaphragm which obstructs the sole communication between the vapor-space of the liquid-chamber and the vapor-chamber, the liquid-chamber having an air-inlet above the liquid-level of said chamber, and the vapor-chamber having an air-outlet and provided with suitable means for exhausting the vapor through such outlet.

8. A carbureter, comprising a chamber for containing carbureting liquid; a tube intruded thereinto and exteriorly thereof provided with exhaust connection, and having, within the chamber-wall, apertured, above the liquid level therein; a capillary diaphragm, covering the apertures of such tube and extending down into the liquid; and a valve or shutter which obstructs more or less of the apertures of the tube; and suitable means for adjusting such valve to vary the area of the unobstructed portion of the apertures.

661,698. HOPPER-BOTTOM CAR. GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo.
Filed Aug. 17, 1900. Serial No. 27,163. (No model.)



Claim.—1. The combination with the side plates, of the inclined bottom plates formed with downturned flanges which extend to the lower edges of the side plates, and securing devices which pass through said flanges and side plates; substantially as described.

2. The combination with the side plates and the end plate, of the longitudinal floor-plates formed with depending flanges at their sides which are coextensive in depth with the side plates, the outer ends of said floor-plates being provided with upwardly-extending flanges, and devices for securing said floor-plates to the side and end plates; substantially as described.

3. The combination with the side and end plates of a car-body, of inclined floor-plates arranged longitudinally, a cover-plate arranged centrally of the floor-plates, downturned flanges 3, at the side edges of the floor-plates which extend to the lower edges of the side plates substantially throughout the length of their inclined portions, and coöperate with the side plates at this point, devices for securing said flanges to the side plates, and means for securing the outer end of the floor-plates to the end plate; substantially as described.

4. The combination with the side plates, of inclined floor-plates, downturned flanges at the side edges of the floor-plates which coöperate with the lower edges of the side plates, and hopper-plates secured to the side plates and having inturned flanges at their lower edges, the side edges of the floor-plates opposite said hopper-plates being unflanged and secured to the flanges of the hopper-plates; substantially as described.

5. The combination with the side plates, of the inclined floor-plates, downturned flanges at the side edges of the floor-plates which coöperate with the lower edges of the side plates, the inner ends of the floor-plates being sheared or cut at an angle, and inclined hopper-plates secured to the side plates and having inturned flanges at their lower edges extending under the floor-plates; substantially as described.

6. In a car, the combination with the center sills and the side plates, of inclined floor-plates whose side edges are flanged downwardly and secured to the side plates, and whose inner edges are flanged upwardly and secured to the center sills; substantially as described.

7. In a hopper-bottom car, the combination with the side plates, of the floor-plates provided with downwardly-extending flanges which are secured to the side plates, inclined stiffening-braces, a floor-beam arranged under the floor-plates, and a connection-plate between said floor-beam and inclined stiffening-braces; substantially as described.

8. In a hopper-bottom car, the combination with the side plates, of the floor-plates provided with downwardly-extending flanges which are secured to the side plates, inclined stiffening-braces, a floor-beam arranged under the floor-plates, a connection-plate between said floor-beam and inclined stiffening-braces, and diagonals secured to said connection-plate; substantially as described.

9. The combination with the side plates, and side and center sills, of floor-plates which are flanged downwardly at their side edges and riveted to the side plates, inclined stiffening-braces secured to the side plates and to the side sills, a floor-beam comprising a web disposed substantially at right angles to the inclination of the floor-plates, a bottom flange which is secured to the side and center sills, and a top flange which is secured to the floor-plates, said top flange being bent at the ends of the beam to pass under the flanges on the floor-plates, and said floor-beam being secured at its ends to the inclined stiffening-braces; substantially as described.

10. The combination with the side walls of a car in the form of plate-girders, of a floor-beam carried by said side walls, and center sills which are supported by said floor-beams; substantially as described.

11. The combination with the side walls of a car in the form of plate-girders, of floor-beams carried by said plate-girders, center sills, and devices carried by said floor-beams for supporting the center sills; substantially as described.

12. The combination with the side walls of a car in the form of plate-girders, of inclined stiffening-braces, floor-beams secured to said inclined stiffening-braces, center sills, and means for tying the center sills to the floor-beam; substantially as described.

661,699. LAST. FREDERICK W. KITTLINGER, New York, N. Y.
Filed Apr. 13, 1900. Serial No. 12,715. (No model.)



Claim.—1. In a transversely-divided last, the combination of heel and fore-part sections, metal blocks secured in opposite recesses in said sections and hinged together, said blocks having slots in line with each other, and a metal bolt sliding in said slots into engagement at its top with one of said blocks and at its bottom with the other of said blocks to lock the sections against folding motion of either, substantially as described.

2. In a transversely-divided last, the combination of heel and fore-part sections, metal blocks secured in opposite recesses in said sections, an arm extending from one of said metal blocks into a recess or slotted part of the other metal block and hinged thereto inside the face of the section having said block therein, and said blocks having slots alined with each other above said arm, and a metal bolt slidable in said alined slots and over said arm into engagement with the other block to form a rigid arm or extension thereof, whereby the last-sections may be rigidly secured together, substantially as described.

3. A last comprising heel and fore-part sections having vertically-disposed adjoining faces, the heel-section having a bevel at its upper front part, slotted metal blocks secured within said sections, an arm from the heel-section block extending into the slot in the fore-part-section block, a pivot-pin wholly within said fore-part section for pivotally securing said arm to the last-named block, and a sliding bolt moving in alined slots in said blocks for locking said blocks and sections together to form a rigid structure, substantially as described.

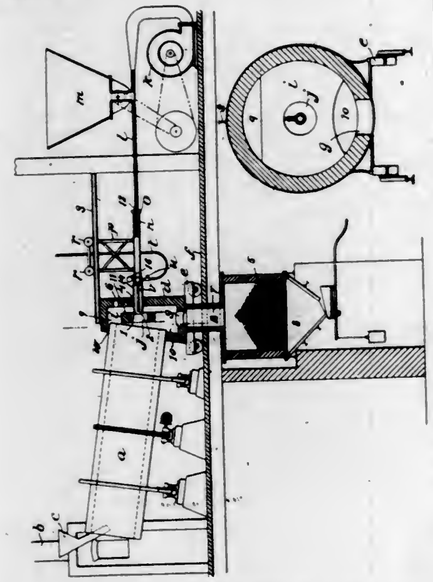
4. In a transversely-divided last, the combination of heel and toe sections hinged together, with a sliding bolt on one section and slidable into and out of engagement with the other section in a recessed or slotted part thereof and forming a rigid part, substantially, of the last-named section when engaged therewith and acting to prevent the folding of the last when so engaged, substantially as described.

661,700. APPARATUS FOR BURNING PULVERIZED FUEL.
FREDERICK H. LEWIS, Philadelphia, Pa. Filed May 11, 1899. Serial No. 716,438. (No model.)

Claim.—1. In an apparatus for burning pulverized fuel, the combination of a combustion-chamber provided with a fuel-inlet, a duct for conveying the powdered fuel to the fuel-inlet, means for producing an air-blast of large volume and small velocity through said duct, and means for injecting a small volume of air or gas at high velocity into the combustion-chamber through the inlet-opening, said injecting means being adapted to entrain the powdered fuel and air for combustion.

2. In an apparatus for burning powdered fuel, the combination of a combustion-chamber provided with an inlet-opening for the fuel elements, a receptacle for containing the powdered fuel, a duct connected with said receptacle and terminating near said inlet-opening for conveying the fuel, means for forcing an air-blast of comparatively large volume and low velocity through said duct, and means disposed near the delivery end of said duct for discharging in the direction of the inlet-opening a blast of air of

comparatively small volume and high velocity, whereby the fuel is fed to the combustion-chamber at high velocity and air necessary for combustion is entrained.



3. An apparatus for supplying powdered fuel to furnaces comprising a receptacle for containing the fuel, a duct leading from said receptacle, means connected with said duct for supplying an air-blast of low pressure for carrying the fuel forward, a fuel-ejector nozzle disposed in the discharge end of said duct and having a telescopic connection therewith, a hanger for supporting said nozzle, an air-nozzle disposed concentrically within said fuel-nozzle, and means for supplying an air-blast of high velocity connected with said air-nozzle whereby the powdered fuel is ejected from said nozzle and air entrained with said fuel.

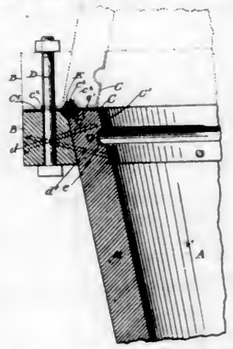
4. An apparatus for supplying powdered fuel to furnaces, comprising a receptacle for containing the fuel, a duct leading from said receptacle, means connected with said duct for supplying an air-blast of low pressure for carrying the fuel forward, an ejector-nozzle disposed in the discharge end of said duct, movable supporting means for said nozzle, an air-nozzle disposed concentrically within said fuel-nozzle, and means for supplying an air-blast of high velocity to said air-nozzle whereby the powdered fuel is ejected from said nozzle and air entrained with said fuel.

5. An apparatus for supplying powdered fuel to furnaces comprising a receptacle for containing the fuel, a duct leading from said receptacle, means connected with said duct for supplying an air-blast of low pressure for carrying the fuel forward, an adjustable fuel-ejector nozzle disposed in the discharge end of said duct, and having a telescopic connection therewith, a hanger for supporting said nozzle provided with rollers, a track on which said rollers travel, an air-nozzle disposed concentrically within said fuel-nozzle, and means for supplying an air-blast of high velocity to said air-nozzle.

6. In an apparatus for burning pulverized fuel, the combination of a combustion-chamber, a hood surrounding the rear end of said chamber, and provided with an opening at its rear end, a partition or arch in said hood provided with an opening in alinement with the opening in said hood, a storage bin or hopper for containing the fuel, a duct leading from said hopper and provided with a nozzle which projects through the opening in the end of said hood, and means for supplying said duct with an air-blast for forcing the fuel through the central opening in the partition or arch of said hood into said combustion-chamber.

7. In an apparatus for burning pulverized fuel, the combination of a combustion-chamber, a hood surrounding the lower end of said chamber and provided with an opening at its end, an ejector-nozzle adapted to project at its front end through the opening in the end of said hood, a horizontal movable hanger for supporting said ejector, a storage bin or hopper for containing the fuel, a duct leading from said hopper to said ejector-nozzle, the said duct and nozzle being telescopically connected, and means for supplying said duct with an air-blast for forcing the powdered fuel into said combustion-chamber.

661,701. PACKING-CASE. FRANK G. MIX, Schoharie, N. Y. Filed Aug. 10, 1900. Serial No. 26,462. (No model.)



Claim.—1. In a coupling for a sectional packing-case, the combination of two coupling devices C C, of circumferential form for correspondence with the portions of the sections of a packing-case they are to be applied to, made of thin metal and each a duplicate of the other and having each the web member C^2, which is adapted to parallel with that of the other and provided with registering coupling-bolt holes, and the web member C' integral with web member C^2 and turned at an angle to the latter and having correspondence with the inner surface of the side walls of the portion of the section to which they, respectively, may be secured, each web member C' having tongue *c* projected therefrom in direction of the web member C^2 and adapted to hold with a groove provided in the inner side of the side walls of the section applied to, and each web member C^2 having a tongue *c'* projected therefrom in direction web member C' is projected and adapted to hold with the substance of the end edge of the section said web member may be seated on, all substantially as and for the purposes set forth.

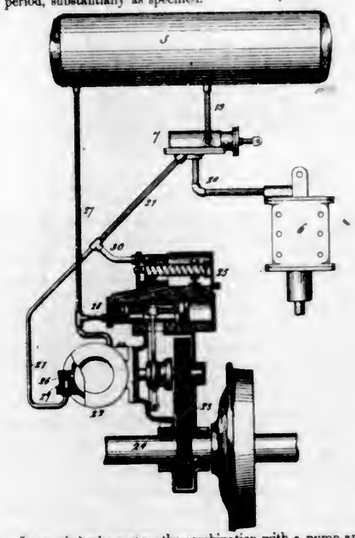
2. In a sectional packing-case, the combination with each of the two sections A and A' thereof, having groove *e* in its inner side end margin of wall portion at a suitable distance below its open end edge, of one of two similar coupling devices C made of thin metal and provided with web member C' having tongue *c* projected from its outer circumferential side and having its form and outer circumference in correspondence with that of the inner side of the open end wall portion and said groove therein whereby said web member may nicely fit said wall portion and its tongue enter and hold with the said groove therein, and also provided with web member C^2 integral with web member C' and turned outwardly at right angles to the axial line of the latter and provided with tongue *c'* projected in direction the said web member is projected from the horizontal plane of said web member C^2 and having in it a series of bolt-holes c^2, and hoop B of wood, secured as described in place on the circumferential outer end margin of the side walls of said section and abutting against the tongue side of said web member C^2 while said tongue *c'* is holding with the substance of the end edge of said walls, and coupling-bolts D, whereby each of the said two sections may have securely fixed with it a reinforced coupling device in correspondence with that secured to the other section and the two said sections be adapted to be coupled and uncoupled at pleasure, substantially as and for the purposes set forth.

661,702. AIR-BRAKE. JOHN J. NEF, New York, N. Y. Filed June 22, 1898. Serial No. 684,159. (No model.)

Claim.—1. In an air-brake system the combination with an air-reservoir, a pump and pump-operating mechanism, a pump-governor, a brake-cylinder, and a service-valve through which the brake-cylinder is controlled, of means for throwing the pump into operation through the control of the governor, and means for relieving the pump from work for a limited period by the exhaust from the brake-cylinder when the brakes are released, substantially as specified.

2. In an air-brake system the combination with an air-reservoir, a pump and pump-operating mechanism, a pump-governor, a brake-cylinder, and a service-valve through which the brake-cylinder is controlled, of means for throwing the pump into operation by the exhaust from the brake-cylinder when the brakes are released and means operated by the said exhaust, at the same time for temporarily relieving the pump of its work, substantially as specified.

3. In an air-brake system the combination with an air-reservoir, a pump and pump-operating mechanism, a pump-governor, a brake-cylinder, and a service-valve through which the brake-cylinder is controlled, of means for throwing the pump into operation by the exhaust from the brake-cylinder when the brakes are released and a connection between the said exhaust and the suction-valves of the pump whereby the exhausting of air from the brake-cylinder will hold the suction-valves open for a limited period, substantially as specified.



4. In an air-brake system the combination with a pump and pump-operating mechanism, of suction-valves in the pump having plungers adapted in their movement to hold the suction-valves open, a pump-governor, an air-reservoir, a brake-cylinder, a service-valve through which the brake-cylinder is controlled, and a communication between the exhaust-port of the service-valve and the plungers of the suction-valves whereby the exhaust of the brake-cylinder through the service-valve will raise the plungers and the suction-valves as and for the purpose set forth.

5. In an air-brake system the combination with a pump and pump-operating mechanism, of suction-valves in the pump having plungers adapted in their movement to hold the suction-valves open, a pump-governor, an air-reservoir, a brake-cylinder, a service-valve through which the brake-cylinder is controlled, and a communication between the exhaust-port of the service-valve and the plungers of the suction-valves whereby the exhaust of the brake-cylinder through the service-valve will raise the plungers and the suction-valves, said plungers being provided with such apertures as shall gradually allow the air to escape and the suction-valves to resume their seat substantially as set forth.

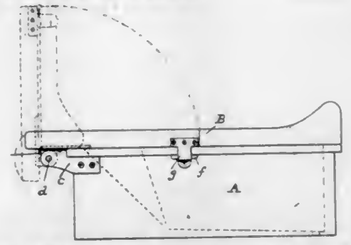
6. In an air-brake system the combination with an air-reservoir, a pump, and a pump-operating mechanism, a pump-governor and a brake-cylinder, of a service-valve having a pressure-operated device constantly exposed to fluid-pressure unbalanced in one and always the same direction, and constantly tending to maintain said valve in, or move it toward, a certain position, substantially as specified.

7. In an air-brake system the combination with an air-reservoir, a pump and pump-operated mechanism, a pump-governor and a brake-cylinder, of a service-valve through which the brake-cylinder is controlled, said service-valve having a pressure-operated device, constantly exposed to fluid-pressure unbalanced in one and always the same direction, said pressure constantly tending to maintain said valve in, or move it toward, the position in which it will close communication between an air-reservoir and the brake-cylinder, said valve adapted to be moved against said pressure to open said communication, substantially as specified.

8. A service-valve for an air-brake system consisting of a casing inclosing an air-chamber in open communication with a compressed-air supply, a valve in said air-chamber controlling the supply of air to and from a brake-cylinder, pressure-operated means secured to move with said valve, the said pressure-operated means being in open communication at all times on one and always the same side with the said air-chamber and at all times unbalanced as to fluid-pressure on the other, the said pressure-operated means constantly tending to maintain said valve in, or move it toward, a certain position, and mechanical means for moving the said valve away from such position, substantially as specified.

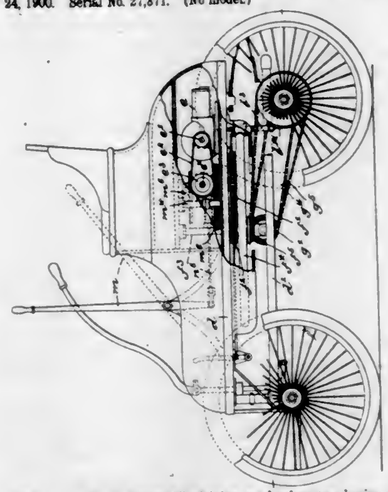
661,703. COMBINED BATH-TUB AND COUCH. WILLIAM R. PERMAR, Baltimore, Md., assignor of one-third to Charles E. Jones, Cheapside, Va. Filed July 21, 1899. Serial No. 724,619. (No model.)

Claim.—1. A bath-tub and couch combined consisting of a bath-tub provided with lateral lugs projecting from one end thereof; a couch composed of two sections hinged together and extensible on top of said tub, said couch having one of its sections pivoted at one end to said lateral lugs and the other section hinged to said pivoted section to allow it to swing to and against said pivoted section when the couch is raised; means for automatically raising and folding the couch at one end of the tub; and a catch to hold the couch in a horizontal position when the tub is not in use, substantially as described.



2. A bath-tub and couch combined, consisting of a bath-tub provided with lateral lugs projecting horizontally from one end thereof; a couch extensible on top of said tub composed of two sections hinged together, one section being longer than the other and projecting beyond the end of the tub and having lugs secured to the under side thereof at one end to register with said lateral lugs on the tub, and the shorter section hinged to said longer section and adapted to swing to and against said longer section when the couch is raised; a rod pivotally connecting the said lugs on the couch and tub; springs carried by said rod and each having one of their free ends bearing against the under side of the couch and the other end bearing laterally upon the lugs projecting from the tub, said springs serving to automatically raise and fold the couch on the said laterally-projecting lugs; and a catch to hold the couch down against the action of said springs, substantially as described.

661,704. AUTOMOBILE. DANIEL M. PFAUTZ, Philadelphia, Pa., assignor of one-half to Henry W. Amering, same place. Filed Aug. 24, 1900. Serial No. 27,871. (No model.)



Claim.—1. In an automobile driving mechanism, two horizontally-arranged driving-shafts arranged between the motor and the driven axle of the vehicle, two vertically-arranged driving-shafts arranged intermediately of the two horizontal shafts, one of said vertical shafts being disposed centrally of the vehicle, and a fly-wheel carried by said vertical central shaft, substantially as and for the purposes described.

2. In an automobile driving mechanism, a motor, a driven axle, two horizontally-arranged driving-shafts arranged intermediately of the motor and the driven axle, two vertically-arranged driving-shafts arranged intermediately of the horizontal shafts, and one of said vertical shafts being arranged centrally of the vehicle, a fly-wheel secured to the vertical central shaft, a brake adapted to control the driven axle, and a roller carried

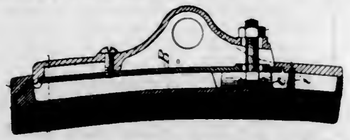
by said brake and adapted to control the fly-wheel, substantially as and for the purposes described.

3. In an automobile or similar vehicle, the combination with the motor and driving mechanism, of a hand propelling mechanism adapted to operate conjointly with or independently of said driving mechanism, substantially as and for the purposes described.

4. In an automobile or similar vehicle, the combination with the motor and the driving mechanism controlled thereby, of a gear-wheel interposed in the driving mechanism, an oscillating hand-lever and mechanism connecting said hand-lever with the gear-wheel and adapted to transform the oscillating movement of the hand-lever into continuous rotary movement of the gear-wheel, substantially as and for the purposes described.

5. In an automobile or similar vehicle, a hand propelling mechanism, comprising a gear-wheel in mesh or series with the motor-driving mechanism, two ratchet-disks controlling the gear-wheel, two pawl-arms and their pawls adapted to operate successively the ratchet-disks to continuously rotate the gear-wheel, and an oscillating hand-lever adapted to operate each pawl-arm, pawl and ratchet-disk, alternately, substantially as and for the purposes described.

661,705. BRAKE-BLOCK SHOE. MORGAN POTTER, Fishkill-on-the-Hudson, N. Y. Filed Aug. 28, 1900. Serial No. 28,288. (No model.)



Claim.—1. In combination with a brake-block shoe having projections as explained and a brake-block adapted to receive said projections, a locking-bolt the head of which engages with the material of the shoe at the back thereof, said bolt passing through the block and arranged to lock the shoe without passing through the latter, substantially in the manner and for the purposes set forth.

2. The combination as before set forth of the brake-block recessed as explained, the brake-block shoe having the sustaining projections and the lugs at the back and the locking-bolt having a beveled head, the lugs having inclined walls to admit and hold the bolt-head between them, substantially as shown and described.

3. In combination with a brake-block having inclined walls, a brake-shoe having a short portion at top fitted to enter between said walls, projections at the lower part to enter corresponding recesses in the block, and means for locking the shoe to the block, substantially as shown and described.

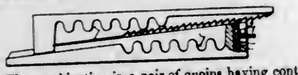
4. In a brake-shoe provided with means for locking it to the brake-block, the central longitudinal sustaining-rib located at the back of the shoe, substantially as shown and described.

5. The herein-described brake-shoe, the same having the short inclined side portions at top, the lugs for receiving the head of the locking-bolt, the projections for engaging the interior of the block, and a central longitudinal sustaining-rib, substantially as shown and described.

6. In combination with a metallic brake-shoe rabbeted at top and having sustaining projections and bolt-holding lugs as explained, a facing applied on said shoe and fitting the rabbeted portion thereof, and the brake-block arranged to receive and hold said shoe, substantially as shown and described.

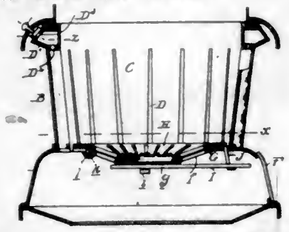
7. In a brake-shoe having the overhanging portion at top for engagement with the top of the brake-block, the sides and central rib at the back of the shoe, each recessed beneath the overhanging portion, substantially as shown and for the purposes set forth.

661,706. PRINTER'S QUOIN. CHARLES A. REUSSENZEHN, Dayton, Ohio. Filed June 11, 1900. Serial No. 19,824. (No model.)



Claim.—The combination in a pair of quoins having contiguous inclined faces and provided each with a rack-bar parallel with its outer surface, one of said quoins having ratchet-teeth or notches upon its under face, of the vertical orifice in the other of said quoins with a slot opening out from said orifice, a reciprocating pawl held in said orifice adapted to engage with said ratchet-teeth, the arresting-pin in said slot, the spiral spring held in the bottom of said orifice, the pin connected to said pawl and traversing said vertical slot, and the transverse slot adapted to receive said pin and hold the pawl out of engagement; all substantially as and for the purpose described.

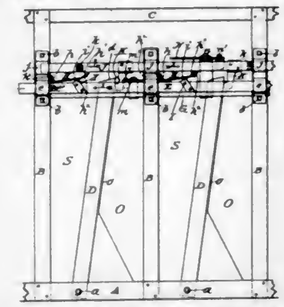
661,707. STOVE. HENRY H. SANFORD, Detroit, Mich. Filed Apr. 16, 1900. Serial No. 13,129. (No model.)



Claim.—1. In a stove, the combination with the ash-pit section provided with a draft-passage leading into its interior, of the fire-pot above the ash-pit section having a series of substantially vertical and circumferentially-arranged air-passages formed in its inner surface, a grate at the bottom of the fire-pot, means for opening and closing the ash-discharge passages in the grate, whereby the entire draft through the ash-pit section may be caused to ascend through the series of passages in the fire-pot, and a hollow ring at the top of said fire-pot provided with an opening or openings leading to the air-passages in the fire-pot and having one or more draft-openings formed therein.

2. In a stove, the combination with the ash-pit section, provided with one or more draft-passages leading into its interior, of a fire-pot above the ash-pit section having a series of substantially vertical and circumferentially-arranged air-passages formed in its inner surface, said passages communicating at their lower ends with the ash-pit section, a grate at the bottom of the fire-pot, and a single closure device for the grate-openings, whereby the air in the ash-pit section may be caused to ascend either through the body of the fuel or entirely along the sides of the latter, for the purpose set forth.

661,708. STALL FOR ANIMALS. DE WITT STEPHENS, Alcove, N. Y. Filed Mar. 11, 1899. Serial No. 708,711. (No model.)



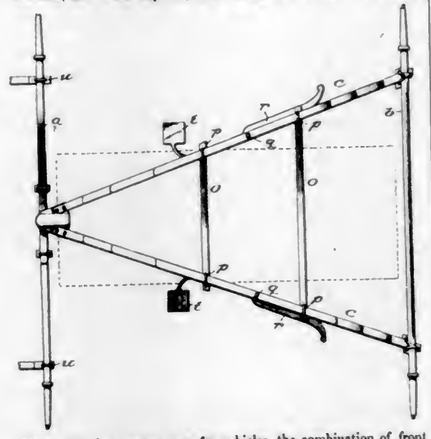
Claim.—1. In stalls for animals, the combination with the stationary bar member B, pivoted bar member D, and pivoted horizontal hasp H provided with the inclined end portion h^2, of the lifting-dog I adapted to be moved to beneath the incline of said hasp and raise the same, sliding bar J, provided with stops *k*, and presser-dogs K secured to said bar and adapted to be moved back from the front end of said hasp and receive against it the upper end of the pivoted bar member when said lifting-dog lifts said hasp out of a holding with the upper end of the pivoted bar member D, substantially as and for the purposes set forth.

2. The combination with a series of animal-stalls, comprising each a stationary bar member, a pivoted bar member provided with the inclined end *d*, and a pivoted hasp H provided with the inclined end portion h^2 for securing each of said pivoted bar members in a vertical position, in said series of stalls, of two or more guiding-ways *j* secured to stationary pieces, horizontal bar E loosely supported in said ways, lifting-dogs I carried by said horizontal bar, in number corresponding with the number of hasps and stalls, and an operating mechanism whereby said horizontal bar may be moved longitudinally, at will, in either direction, substantially as and for the purposes set forth.

3. The combination with a series of animal-stalls comprising each a stationary bar member, a pivoted bar member provided with an end incline *d* and pivoted hasps having each inclined end h^2 and adapted to engage each with a pivoted bar member of each stall, of sliding horizontal bar J supported in ways *j* and pushing-dogs K secured to said sliding bar, stops *k k* limiting the movements of said bar substantially as and for the purposes set forth.

4. In a stall for animals, the combination with a stationary bar member B, a pivoted bar member D adapted to move by gravity away from a perpendicular to an inclined position in relation to the stationary bar member, horizontal stationary pieces F and G between which the upper end of said pivoted bar member works, of the pivoted hasp H provided with finger-lever h^3, projected rearward from the pivot of said hasp, substantially as and for the purposes set forth.

661,709. SPRING-GEAR FOR BUGGIES. NATHANIEL WESTON, Shelbina, Mo. Filed Sept. 15, 1900. Serial No. 30,168. (No model.)



Claim.—1. In a spring-gear for vehicles, the combination of front and rear axles, the former carrying one member of a ball-and-socket joint, a pair of rearwardly-diverging springs connected to the rear axle at their rear ends and to the other member of said ball-and-socket joint at their forward ends, whereby the forward axle may not only rock upon its spindles but may also rock transversely and longitudinally independently of the springs.

2. In combination, the front axle carrying centrally one member of a ball-and-socket joint, a rear axle, a pair of springs connected to the rear axle and converging toward the center of the front axle, the other member of said ball-and-socket joint being carried by the forward ends of the springs, whereby the front axle may have a universal rocking movement independently of the remainder of the vehicle, and a spring take-up device in the joint holding the parts of the joint together and preventing noise and taking up the wear.

3. In combination with a pair of axles, the forward axle carrying midway its length a ball, which is rigidly attached to it, a pair of springs connected to the rear axle and converging toward their forward ends, a socket member rigidly connecting the forward ends of said springs and having a socket engaging said ball, whereby the front axle is permitted a universal limited movement independently of the vehicle-springs, as and for the purpose set forth.

4. In combination, a front axle carrying the ball member of a ball-and-socket joint, a rear axle, a pair of springs connected thereto and converging forwardly, a socket member of a ball-and-socket joint carried by the forward ends of the springs and engaging said ball, a spring-actuated device inclosed in said socket and normally bearing upon the ball and holding it in the forward end of the socket, for the purpose set forth.

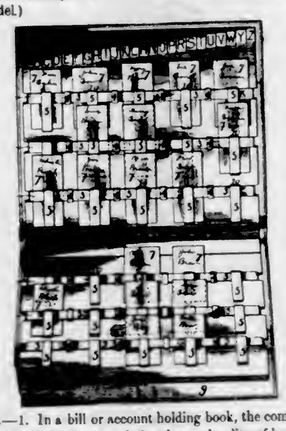
5. In combination, a front axle, bowed or bent downward between its spindles, a ball connected to said axle and supported above the same at the center thereof approximately in line with the spindles, a rear axle, a pair of springs, a socket device connected to the forward ends of the said springs and having connection with said ball, as and for the purpose set forth.

6. In combination, a front axle carrying a ball member of a ball-and-socket joint, a rear axle, a pair of springs converging forwardly, a socket member connected to the forward ends of said springs, the under side of said socket member being slotted longitudinally, a spring inclosed in said socket, a bearing-cap actuated by said spring and bearing upon the rear side of the ball, whereby the backing strain will come upon and be taken up by the spring, for the purpose set forth.

7. In combination, a pair of supporting-axles, a pair of vehicle-springs, a pair of body-supporting bars extending transversely of the springs, devices for securing the ends of these bars to the springs, a rub-iron attached to each spring at a point between the supporting-bars and extending rearward and attached to the spring again by the same fastening device that attaches the adjacent end of the rear supporting-bar to the spring, a step-iron attached to each spring at a point between the supporting-bars and extending forward and again attached to the spring by the same device that attaches the adjacent end of the front supporting-bar to the spring, whereby the rub-irons and step-irons are utilized to hold the body-supporting bars against movement on the springs.

8. In combination, a pair of vehicle-springs, a pair of axles, a pair of supporting-bars extending transversely of the springs and rigidly secured thereto, a bolt in each spring between the supporting-bars securing the leaves of the spring together, a pair of rub-irons and a pair of step-carrying irons having their adjacent ends overlap and attached to the springs by said bolts and their other ends attached to the springs by the same devices that attach the ends of the supporting-bars to the springs, for the purpose set forth.

661,710. BILL OR ACCOUNT-SLIP HOLDING BOOK. FRANK E. BRADDOCK, Middleport, N. Y. Filed June 29, 1900. Serial No. 22,060. (No model.)

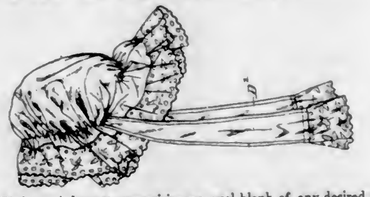


Claim.—1. In a bill or account holding book, the combination with the leaves, of bands or cords each forming a plurality of loops on the opposite sides of each leaf parallel with the bound back of the book, and tape pockets, each pocket connecting the leaf and a loop at right angles to the latter—each pocket having its open end at its connection with the loop on the opposite sides of the leaf.

2. In a bill or account book, the combination with the leaves having index-letters, of bands or cords and means whereby they are formed into a plurality of loops on the opposite sides of the leaf parallel with the bound back of the book, and tapes each having one end connected with a loop and its other end connected with the leaf forming a pocket, the said pockets standing with their open ends toward and parallel with the line of the index-letters.

3. In a bill or account book the combination with the leaves, of bands or cords parallel with the bound back looped around the leaf and fastened on both sides thereof at a plurality of points, whereby to form loops between such fastenings, and tape pockets extending in a line at right angles to each loop, opening thereat and fastened to the loop and to the leaf, the adjacent sides of each pair of leaves having an index-letter and the several groups of pockets of both leaves standing open toward said index-letter.

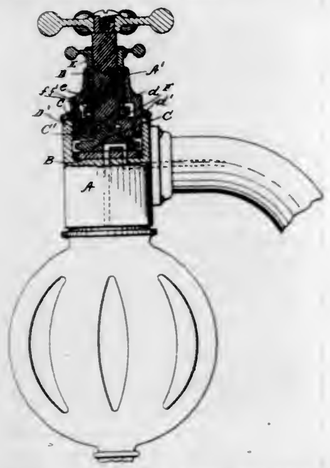
661,711. APPAREL-HOOD. ERNESTINE BRADLOFF, Malden, Mass. Filed Aug. 3, 1899. Serial No. 725,990. (No model.)



Claim.—A bonnet comprising an oval blank of any desired material; a pair of draw-string passages formed therein in line along and near the front edge of one of the longer sides of the blank; a similar pair of draw-string passages arranged in like manner along the other longer side of the blank, but at a greater distance from the rear edge than the other pair is

from said front edge, the outer ends of one pair of passages lying opposite to ends of the other pair, and separated therefrom by two plain portions of the blank; and two pairs of draw-strings, each of said pairs being contained in its respective pairs of passages and anchored therein at the outer ends thereof; the margin between said rear edge and the adjacent passages, when the draw-strings are drawn up, falling over the back and forming the cape of the bonnet, the free ends of one pair of said draw-strings projecting from a long side of said blank, and the ends of the other pair of the draw-strings projecting from the opposite long side of the blank, whereby the blank is drawn into bonnet form by puckering the blank at the central portion of its forehead margin, and also by puckering the blank at the middle portion of its cape-forming margin.

661,712. VALVE-TIGHTENER. JOHN CEDERSTROM, Buffalo, N. Y., assignor to the U. S. Aerating Fountain Company, same place. Filed Mar. 3, 1900. Serial No. 7,937. (No model.)



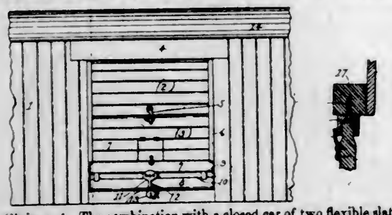
Claim.—1. The combination of a rotary valve, a turn-key therefor that turns it and also holds it in place against its seat by a universal-joint bearing, and means for tightening the same to compensate automatically for uneven wear, substantially as described.

2. A valve-tightening device comprising a rotary valve having on its upper face a transverse rib and a central boss, a turn-key with a transverse groove to engage said rib and a central seat to bear on said boss, said key having an annular shoulder, and a barrel surrounding the shank of said key to force said valve against its seat, substantially as described.

3. A valve-tightening device comprising a rotary valve having on its upper face a transverse rib with a central boss, a turn-key with a transverse groove engaging said rib and a central seat bearing on said boss, said key having an annular shoulder, a tightening-barrel surrounding the shank of said key, and an antifriction device interposed between said wheel and said shoulder, substantially as described.

4. The combination with a rotary valve and the valve-seat upon which it turns, of a head bearing upon said valve by a universal joint, and means for forcing said head against its valve to provide automatic compensation for uneven wear, substantially as described.

661,713. DISAPPEARING GRAIN-CAR DOOR. THOMAS G. COCKINGS, Newport, Ky. Filed July 13, 1900. Serial No. 23,474. (No model.)



Claim.—1. The combination with a closed car of two flexible slatted doors sliding upward to open from below and overlapping under the roof of the car, said doors being provided with means for opening a port at the bottom by displacing one of the said slats by the inside pressure on the door.

2. A car-door completely closing the door-space and composed of slats strung together, sliding in runways to open vertically and overlap under the roof, the bottom slats thereof being held in position partially by bolts so that on releasing said bolts the said slats may be pushed outward by the inside pressure on the door and open a port for the relief of the said pressure before sliding the door upward.

3. The combination with a closed car of two single flexible slatted doors, one on each side, sliding in runways upward and then in under the roof of the car, and each having a hinged relief-port at the bottom, opening outward by the inside pressure on the door, with means for holding the said swinging section normally in place.

4. The combination with a closed car of two flexible slatted doors whose edges slide in runways upward and under the roof, having means for a subsidiary opening in the upper part thereof for loading the car, and each provided with a relief-port near the bottom which swings out by the inside pressure on the door when released from the fastening to its normal position, as described.

5. A flexible slatted car-door sliding upward in runways, and having one or more of its lowest slats jointed to act in the manner of toggle-levers, held in place by the combined action of a bottom seating-catch, the pressure from the superposed slats, and a bolt engaging a fixed socket outside the door opposite the lowest slat, so that on withdrawing the said bolt from its socket the lower slat may rise from its seating-catch and be swung out by the inside pressure, automatically opening a relief-port.

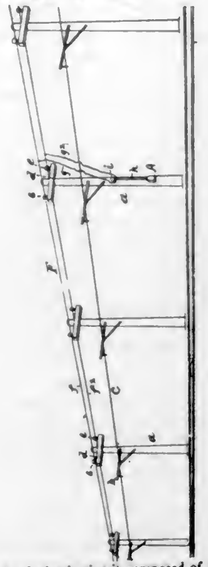
6. A flexible slatted car-door completely filling the door-space and opening by sliding upwardly into the car, and provided at its bottom with two toggle-jointed sections seated on a groove-and-tenon joint, held inward by a bolt, so that on releasing the said bolt the sections break at the said joint and the bottom slat swings out without raising the superposed slats of the door.

7. The combination with a car-door of a relief-port composed of slats forming a toggle-joint, held in normal position by a bolt and a seating-catch at the bottom, so that on releasing the said bolt the inside pressure on the door opens the relief-port, substantially as described.

8. In a sliding car-door, the combination of a toggle-jointed pair of slats 7, 8, a sliding bolt 10 to hold them in place, and an eccentric lever 11 for withdrawing the bolt.

9. In a sliding car-door, the combination of a toggle-jointed pair of slats 7, 8, a bottom seating-catch 25, a sliding bolt 10 with means for withdrawing the same, and the runways 6, substantially as described.

661,714. TELEPHONE-CIRCUIT. ISAIAH H. FARNHAM, Wellesley, and GEORGE W. DAVIS, Revere, Mass., assignors to the New England Telephone and Telegraph Company, Boston, Mass. Filed May 11, 1900. Serial No. 16,306. (No model.)



Claim.—1. A telephonic circuit composed of two conductors open at one end and provided with a series of branches extending from the conductors to normally open terminal switches inclosed in a series of boxes; the other end of said circuit being closed through an electric generator; a branch from one of said conductors including telephones normally open at the hook-switch; a signal-circuit controller having its windings in one of said conductors, a signal adapted to be operated by said controller and to be included in parallel with said generator, and adapted to be inoperative by the said hook-switch; with a portable telephonic outfit or set, inclosed in a box, consisting of a telephone-transmitter, a receiver, and a plug-connector, united in series by conducting-wires, as set forth.

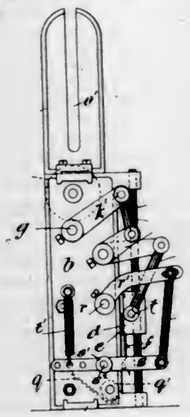
2. A telephonic circuit composed of two conductors open at one end and provided with a series of branch extensions from the conductors to normally open terminal switches inclosed in a series of boxes; the other end of the circuit being closed through an electric generator; a branch from one of the conductors including transmitting and receiving telephones normally open at the hook-switch; a signal-circuit controller having its windings in one of the conductors, a signal in a circuit parallel with the generator open at the controller and normally closed by the hook-switch; with a portable telephonic set inclosed in a box consisting of a telephone-transmitter, a receiver and a double plug-connector united in series by conducting-wires, as set forth.

3. A system of telephonic intercommunication composed of a plurality of metallic circuits each comprising two conductors open at their outer ends and provided with a series of branch extensions from their conductors to normally open terminal switches inclosed in a series of boxes; the inner ends of the circuit-conductors being combined and closed through an electric generator at a central station; a branch from one side of the combined circuit including transmitting and receiving telephones normally open at the hook-switch; a signal-circuit controller having its windings in one side of the combined circuit, a signal in a circuit parallel with the generator open at the controller and normally closed by the hook-switch; with a portable set or sets, inclosed in a box consisting of a telephone-transmitter, a receiver and a plug-connector, united in series by conducting-wires, as set forth.

4. A system of telephonic intercommunication comprised of a metallic circuit open at one end and closed through a battery and the windings of a signal-circuit-controlling relay at a central station; a signal device in a derived circuit around said battery normally open at said relay and normally closed at and by the telephone-hook switch; transmitting and receiving telephones in a normally open derived circuit around said battery; the circuit-conductors being secured to a series of poles; a series of branches extending from the conductors to normally open terminal switches inclosed in a series of boxes secured to said poles; with a portable telephonic outfit or set inclosed in a box consisting of a fixed telephone-transmitter, a movable telephone-receiver and a plug-connector, united in series by connecting-wires, as set forth.

5. A switch-box for the purpose set forth, adapted to be secured to a suitable support, consisting of a metal casing provided with a detachably-secured door or side; a block of insulation secured to a wall of the box supporting two spring-terminals, and two spring-connectors with bent ends; a second block of insulation secured to a wall of the box having holes opposite the said spring-connectors and coinciding with holes in the wall of the box; with a tube extending upward from the box to the top of which is secured a protecting-cap, as set forth.

661,715. LOOM FOR WEAVING TEXTILE FABRICS. WILLIAM GARLICK, Ashton-on-Mersey, England. Filed June 12, 1900. Serial No. 19,987. (No model.)

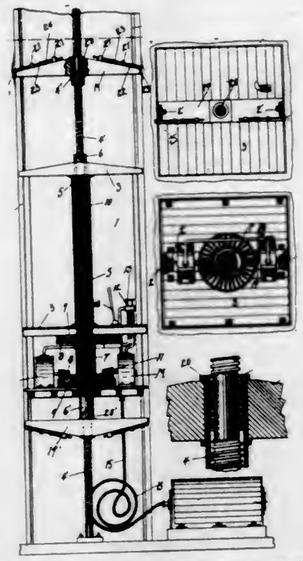


Claim.—1. In combination with a loom, means for inserting fibrous material within the warp and weft threads, comprising a feed-roller located in proximity to the slay of the loom and adapted to feed the material to be inserted, a horizontally-arranged bar with means for moving it vertically, and separating-fingers depending from said bar, substantially as described.

2. In combination, the trough, a fluted roller thereon, a horizontally-arranged bar with means for moving the same vertically, and separating-fingers depending from said bar in proximity to the edge of said trough, substantially as described.

3. In combination, the trough g, the fluted roller q', the comb x adjacent to the edge of said trough, the vertically-moving bar, and the separating-fingers depending from the edge of said bar, substantially as described.

661,716. ELEVATOR. JEFFERSON GARY, St. Louis, Mo. Filed Aug. 4, 1900. Serial No. 25,918. (No model.)



Claim.—1. In an elevator a suitable cage, a screw along which said cage travels, and brace-beams for said screw, adapted to be advanced with the cage along the screw by the movement of the cage, substantially as set forth.

2. In an elevator, a suitable cage, a screw along which said cage travels, brace-beams for said screw adapted to be advanced along the screw by the cage upon the travel of the latter, and means for arresting the travel of the brace-beams at certain points along the length of the screw, substantially as set forth.

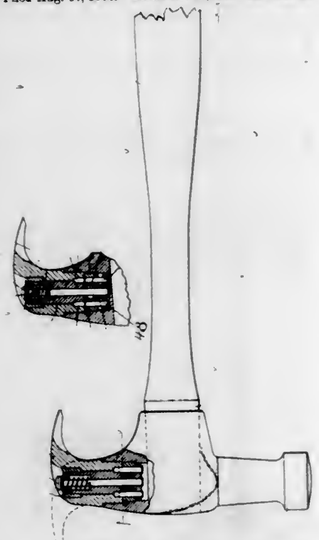
3. In an elevator, a central stationary screw disposed vertically in the shaft of the elevator, and passing through the cage thereof, a brace-beam having a central interiorly-screw-threaded collar through which the screw passes, means for coupling said collar to the cage during a portion of the travel of the latter in each direction, the screw having a smooth or threadless portion which arrests the travel of the collar and brace-beam carrying the same, substantially as set forth.

4. In an elevator, a central stationary screw, having a smooth or threadless portion at a certain point along the length thereof, a brace-beam having a central rotatable threaded collar adapted to travel along the screw, pockets formed in the shaft-walls opposite said smooth portion in the screw, and spring-controlled rods guided along and supported by the brace-beam, the outer ends of the rods being adapted to enter the pockets, and hold the beam rigidly in place, substantially as set forth.

5. An elevator comprising a shaft, a cage for the same, a stationary screw passing through the cage, a screw-threaded sleeve secured to the cage and passed over the screw and provided with a coupling-terminal at each end, a flanged spool rigidly secured to the sleeve, bearing-plates carried by the cage, ball-bearings interposed between flanges of the spool and bearing-plates, suitable motors carried by the cage and imparting rotation to the spool and sleeve, a suitable brake for the spool, brace-beams above and below the cage, rotatable collars carried by the beams and adapted to travel along the screw and provided with coupling-terminals.

adapted to couple to the adjacent ends of the sleeve, whereby the brace-beams are caused to travel along the screw during the travel of the cage in each direction, substantially as set forth.

661,717. CLAW FOR HAMMERS. FRANKLIN HAWES, Boston, Mass., assignor to the Lambert Manufacturing Company, New York, N. Y. Filed Aug. 17, 1900. Serial No. 27,180. (No model.)



Claim.—1. An improved implement, comprising a hub, a claw, and an adjustable spindle-and-socket connection between the claw and hub, whereby the claw may be adjusted to varying positions, and a locking device whereby the claw may be positively secured in different positions to which it may be adjusted.

2. An improved implement, comprising a hub, a socket formed therein, a spindle secured in said socket, a claw rotatably mounted on said spindle, a locking device within the socket whereby the claw may be locked in different positions upon the spindle, and an operating member projecting from the socket whereby the locking device may be manipulated.

3. An improved implement, comprising a hub, a socket formed therein, a spindle secured in said socket, a claw loosely mounted on said spindle but maintained in operative relation thereto, a pin arranged in said spindle and carrying on its inner end a collar, means upon said collar fo. engagement with said claw, the parts being so arranged that by the movement of said pin the claw will be released for adjustment, and thereafter locked in adjusted position.

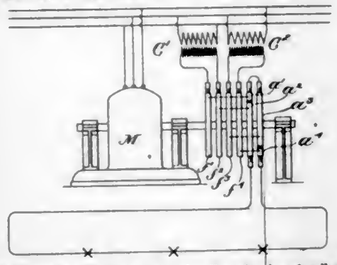
661,718. HAME-FASTENER. GEORGE W. HAYMAN, Dushore, Pa. Filed July 25, 1900. Serial No. 24,819. (No model.)



Claim.—1. The combination, of a pair of hames, each being provided with a strap-retaining device at its lower end, each of said strap-retaining devices consisting of a pair of loops depending from the hame and having their strap-engaging bars approximately parallel, and a buckle connected to one of the bars of one of the strap-retaining devices, an adjustable fastening-strap connected to one of the bars of the other retaining device and adapted to be passed back and forth between the remaining loops in a zigzag manner, whereby the strap will have two points of connection to each hame and the intermediate folded parts will be free to move in opposite directions under an outward strain on the hames and thereby equalize and take up the strain and relieve the buckle connecting the free end of the strap.

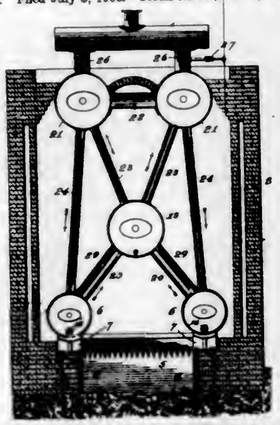
2. A hame provided at its lower extremity with a strap-retaining device consisting of a transverse pivot engaging the hame and a pair of depending diverging strap-engaging loops, whose strap-engaging bars are parallel with each other and with the surface of the lower extremity of the hame, as and for the purpose set forth.

661,719. RECTIFIER OF ALTERNATING POLYPHASE CURRENTS. LOUIS H. HAYNES, Newton, Mass. Filed Dec. 30, 1899. Serial No. 742,073. (No model.)



Claim.—The combination of a plurality of pairs of collector-rings, one pair for each phase of a polyphase current; at least one commutator segment for each collector-ring; a motor operating the rings and commutators; brushes for the collector-rings; and brushes for the commutators, all substantially as set forth.

661,720. WATER-TUBE BOILER. GEORGE C. HICKS, Jr., St. Louis, Mo. Filed July 5, 1900. Serial No. 22,475. (No model.)



Claim.—In a water-tube boiler, the combination of a pair of water-drums, a central equalizing-drum, circulating-tubes leading directly from the said water-drums to said equalizing-drum, baffle-partitions located above the circulating-tubes and extending rearwardly to a point beyond the center of the length of the drums, steam-drums located above the equalizing-drum, steam-circulating tubes leading directly from the equalizing-drum to the steam-drums, return circulating-tubes leading directly from the steam-drums to the water-drums, a balance-tube 22 connecting the steam-drums, a steam-dome 25 located transversely of the steam-drums, steam-columns leading from the steam-drums into the steam-dome, and a water-column pipe 27, leading from the equalizing-drum, to one of the steam-columns, and a water-gage connected with said pipe 27.

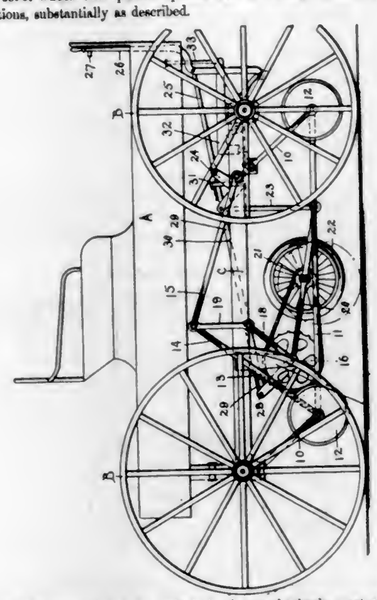
661,721. CHANGEABLE RUNNING-GEAR FOR VEHICLES. EBENEZER C. JENKINS, Shrewsbury, Mass. Filed June 9, 1900. Serial No. 19,688. (No model.)

Claim.—1. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, and means for depressing the frame when it is desired to have the vehicle run on the track-wheels, substantially as described.

2. The combination of a vehicle having road-wheels, a set of normally-lifted track-wheels, and a toggle mechanism for lowering the track-wheels when desired, substantially as described.

3. In a vehicle, the combination of a set of wheels on which said vehicle normally runs, a supplemental set of wheels normally supported

in an inoperative position, a set of connections for bringing the supplemental set of wheels into operative position, and a locking device for said connections, substantially as described.



4. The combination of a vehicle having road-wheels, a set of normally-lifted track-wheels, connections for bringing the track-wheels into operative position, a locking mechanism for said connections, and means for releasing the locking mechanism, substantially as described.

5. The combination of a vehicle having road-wheels, a set of normally-lifted track-wheels, connections for lowering the track-wheels when desired, locking connections for holding said track-wheels in operative position, and connections for releasing said track-wheels when the front axle of the vehicle is cramped or turned, substantially as described.

6. The combination of a vehicle having road-wheels, a set of normally-lifted track-wheels, connections for lowering the track-wheels when desired, a locking mechanism for holding the track-wheels in operative position, and a foot-controlled connection for releasing said locking mechanism, substantially as described.

7. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links supporting said frame, a spring normally holding the frame in a raised position, and a locking mechanism for holding the frame in operative position, substantially as described.

8. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links supporting said frame, a spring normally holding the frame in a lifted position, and toggle connections for depressing said frame when it is desired to bring the track-wheels into operative position, substantially as described.

9. The combination of a vehicle having road-wheels, a frame carrying track-wheels, downwardly-extending inclined links supporting said frame, means for depressing the frame to bring the track-wheels into operative position, a locking mechanism for locking the parts in said position, the links being arranged so that they will be but slightly inclined from a vertical position when the vehicle is running on its track-wheels, whereby the weight of the vehicle will cause a compartively slight strain upon the locking mechanism, substantially as described.

10. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, and connections operated by the motion of said vehicle for actuating said toggle mechanism, substantially as described.

11. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame to bring the track-wheels into operation, and a lock for holding the frame in its depressed position, substantially as described.

12. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing said frame, a locking mechanism for holding the frame in its depressed position, and foot-controlled connections for releasing said locking mechanism, substantially as described.

13. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, a lock for holding the frame in its depressed position, and a releasing-lever arranged to be operated to release said lock either by a foot-controlled connection or by means controlled by the cramping or turning of the front axle of the vehicle, substantially as described.

14. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, a shaft connected by links to operate said toggle mechanism, and means for turning said shaft, substantially as described.

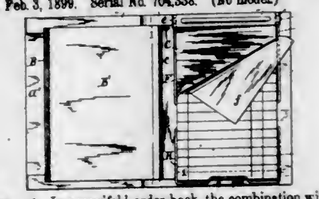
15. The combination of a vehicle having road-wheels, a frame carrying track-wheels, links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, a shaft connected by links to operate the toggle mechanism, and means for locking said parts to hold the track-wheels in operative position, substantially as described.

16. The combination of a vehicle having road-wheels, a frame carrying track-wheels, links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, a shaft connected by links to operate the toggle mechanism, and means for causing the motive power of the vehicle to turn said shaft, substantially as described.

17. The combination of a vehicle having road-wheels, a frame carrying track-wheels, parallel links normally supporting said frame in a raised position, a toggle mechanism for depressing the frame, a shaft connected by links to operate the toggle mechanism, means controlled from the seat of said vehicle for turning said shaft, and a lock consisting of a slide or bar operated by a crank-arm on said shaft, and having a notch engaging a detent for holding the track-wheels in operative position, substantially as described.

18. The combination of a vehicle, two sets of wheels therefor, and means for applying the motive power of the vehicle to bring either set of wheels into operative position as desired, substantially as described.

661,722. MANIFOLD ORDER-BOOK. THOMAS MCDOWELL, Niagara Falls, N. Y., assignor to the Carter-Crume Company, same place. Filed Feb. 3, 1899. Serial No. 704,338. (No model.)



Claim.—1. In a manifold order-book, the combination with the pile of original and duplicate leaves folded upon each other, and the carbon-sheet, of a cover, a base to support said pile hinged to the lower edge of the cover, a clamp to secure the upper end of the pile to the free end of the base, a holder to secure the lower end of the pile to the base, and a set of triplicate leaves bound together and held in the book, and adapted to lie upon either or both sides of the said base and pile of leaves, as set forth.

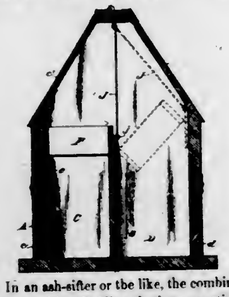
2. In a manifold order-book, the combination with the pile of original and duplicate leaves folded upon each other, and the carbon-sheet, of a cover, a base to support said pile hinged to the lower right-hand edge of the cover, a spring-clamp to hold the carbon-sheet and one end of the pile to the base, a set of triplicate leaves and a flexible cover therefor bound together at their centers, and a pocket in the inside of the first-mentioned cover containing one of the leaves of the second-mentioned cover, as set forth.

3. In a manifold order-book, the combination with the pile of original and duplicate leaves folded upon each other, and the carbon-sheet, of a cover, a base to support said pile hinged to the lower right-hand edge of the cover, a spring-clamp to hold the carbon-sheet and one end of the pile to the base, a set of triplicate leaves and a flexible cover therefor bound together at their centers, and a pocket in the right-hand side of the first-mentioned cover and opening near and on a line parallel with its central hinge receiving and containing the right-hand leaf of the said flexible cover, as set forth.

4. In a manifold order-book, the combination with the pile of original and duplicate leaves folded upon each other, and the carbon-sheet, of a hinged cover, a base to support said pile hinged to the lower edge of the cover, means to hold the carbon-sheet and the pile to the said base, a book containing the triplicate leaves having a hinged cover and having its hinge opposite the hinge of the first-mentioned cover, the latter cover extending on all sides beyond the other cover, and a pocket in one leaf of the larger cover containing a leaf of the smaller cover, as set forth.

5. In a manifold order-book, the combination with the pile of original and duplicate leaves folded upon each other in a zigzag manner with lines of perforations at the folds, and the carbon-sheet, of a cover, a base to support said pile hinged to the lower right-hand edge of the cover, a spring-clamp to hold the carbon-sheet and one end of the pile to the base, a spring-holder to hold the other end of the pile to the base, a set of triplicate leaves and a flexible cover therefor bound together at their centers and fold, the fold lying upon the hinge of the first-mentioned cover, and a pocket in the inside of the right-hand leaf of the first-mentioned cover and opening near its hinge receiving and containing the right-hand leaf of the flexible cover, substantially as and for the purpose described.

661,723. SIFTER. JOSEPH MCMASTER, Chicago, Ill. Filed May 29, 1900. Serial No. 18,363. (No model.)



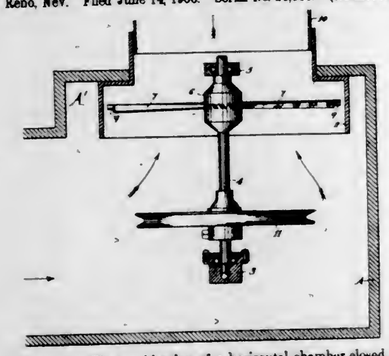
Claim.—1. In an ash-sifter or the like, the combination, with a suitable receptacle, of a partition dividing the lower portion of said receptacle into two compartments, and a sieve having hinge connection with the top of the partition, said hinge connection permitting both a swinging and a sliding movement of the sieve, as and for the purpose specified.

2. In a sifter, the combination, with a suitable receptacle, of a partition dividing the lower portion of said receptacle into two compartments, a sieve mounted in one of said compartments, connected to the partition, and adapted to be swung over into the opposite compartment, and a movable partition hung from the upper portion of the receptacle and adapted to extend downwardly to a point slightly below the top of the partition between the two compartments, substantially as described.

3. In a sifter, the combination with a suitable receptacle, of a partition dividing the lower portion of said receptacle into two compartments, a sieve hinged to said partition and normally supported in one of the compartments, and means for turning said sieve on its hinge comprising an operating-rod passing through a semicircular slot in the wall of the receptacle, substantially as described.

4. In a sifter, the combination with a suitable receptacle, of a partition dividing the lower portion of said receptacle into two compartments, a sieve, a hinge connection between the sieve and partition, means for swinging the sieve from one compartment into the other compartment, and a movable supplemental partition hung from the upper portion of the receptacle comprising a plurality of sections hingedly secured together, as and for the purpose described.

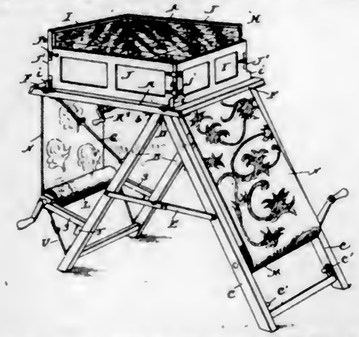
661,724. AIR-DRAFT PROPELLING APPARATUS. HENRY J. NEWMARKER, EDWARD J. NEWMARKER, and BENJAMIN C. NEWMARKER, Reno, Nev. Filed June 14, 1900. Serial No. 20,330. (No model.)



Claim.—1. The combination of a horizontal chamber closed on all sides except one, a separate casing fixed in the upper rear portion of the chamber and having two portions of unequal diameter one of which, the larger, lies within the chamber while the other, the smaller, extends therefrom, a flue or chimney forming a continuation of the smaller portion of the casing, bearings in the chamber and casing and arranged axially in line, a shaft journaled in said bearings, a wheel having a hub within the larger portion of the casing, provided with sockets with slot extensions on opposite sides, and inclined overlapping radial vanes, said vanes having inner ends fitting said slots and provided with shanks to fit said sockets, the outer ends of said vanes being provided with upturned tongues by which their contiguous edges are connected together in overlapping planes, and a pulley on said shaft.

2. The combination of a horizontal chamber closed on all sides except one, and having an enlarged or recessed portion, a casing within said enlarged or recessed portion of the chamber and having a reduced extension from its upper side, a flue connecting with said extension, and a wheel journaled within the larger portion of the casing.

661,725. PANORAMIC MYRIOSCOPE. ADOLPHUS PETERSON, Lansdowne, Pa. Filed July 17, 1900. Serial No. 23,879. (No model.)



Claim.—1. In a panoramic myrioscope or exhibitor, a collapsible mirror-box adapted to rest upon a self-sustaining stand, supports extending from the said self-sustaining stand and adapted to support the mirror-box in a horizontal position, means for folding said supports whereby the mirror-box is allowed to assume an oblique position, means for guiding the material to be exhibited beneath the mirror-box in both its horizontal and oblique position, two rolls upon which the material is wound and unwound, the entire combination making a complete self-sustaining collapsible device, substantially as shown and described.

2. In a device of the character described, a right-angled mirror-box adapted to rest on a stand, a vertically-moving bottom board arranged beneath the mirror-box guided in notches and resting on side bars of said stand over which the material to be exhibited is adapted to pass, means for raising and lowering the bottom board within said bars, friction-rollers over which the material to be exhibited is adapted to pass, two rolls upon which the material is wound and unwound, angle-pieces which serve as end rails for the stand, and also to prevent the light from entering between the bottom of the mirror-box and the material to be exhibited, substantially as shown and for the purpose specified.

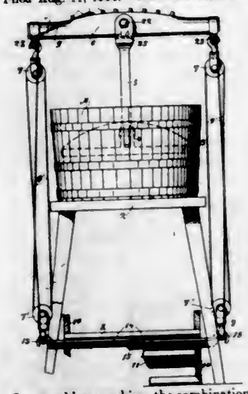
3. In a device of the character described, a collapsible stand consisting of the upright members B and C, side bars A, and angle-shaped end rails F and collapsible mirror-box H which is hinged to the side bars A, a vertically-moving bottom board Q arranged beneath the mirror-box and adapted to be guided up and down by the grooves Q^2 in the side bars A, cam R, and shaft R' for raising and lowering this bottom-board, guide-rolls O and P over which the material is adapted to pass, rolls L and M upon which the material to be exhibited is adapted to be wound and unwound, folding supports G adapted to hold the mirror-box in a horizontal position, substantially as shown and described.

4. In a device of the character described, a mirror-lined box consisting of two ends and two sides, one side being hinged to one end, the other side being hinged to the other end, tongues formed in the end of the side pieces opposite and adapted to fit in mortises formed in one end of the end pieces so as to form a solid right-angled box, hooks for holding the members of the box in position, extensions formed upon the lower corners of the end pieces, said extensions adapted to rest upon a stand, substantially as shown and described.

5. In a device of the character described, a collapsible stand consisting of the upright members B and C hinged together, a folding strap adapted to limit the spreading of these members, side bars A hinged to the member B, angle end rails F joining the side bars A, folding supports G adapted to hold the frame consisting of the side bars A and the end rails F in a horizontal position, a vertically-moving bottom board adapted to be guided in notches formed in the side bars A, means for raising and lowering this bottom board, guide-rolls journaled in the side bars A and adapted to lie within the angle of the end rails F, folding supports for roll L adapted to fold downward and out of the way of roll M when members B and C are closed, a right-angled removable mirror-box having in extensions *i* rounded L-shaped metal extensions held by slanting open sockets, substantially as and for the purpose specified.

6. In a device of the character described, a right-angled mirror-box adapted to rest on a stand, friction-rollers guiding the material beneath the mirror-box, two rolls upon which the material is wound and unwound, angle-shaped end rails serving as cross-braces to side bars of stand and coming flush to outer bottom edges of end pieces in the mirror-box and having a lip projecting below the upper edge of the friction-roll to prevent the admission of light beneath the two bottom ends of the mirror-box, as specified.

661,726. WASHING-MACHINE. THOMAS J. PICKETT, San Francisco, Cal. Filed Aug. 11, 1900. Serial No. 26,586. (No model.)



Claim.—1. In a washing-machine, the combination of a tub, a rocking plate fitting within the tub, having a rounded lower face and an actuating-stem, means by which this plate may be given a rolling backward-and-forward movement, and means by which the pressure of the plate in the tub may be regulated including a transverse centrally-pivoted handle-bar, a pressure-platform and connections between the latter and the ends of the handle-bar.

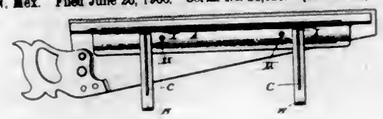
2. In a washing-machine, the combination of a tub, a convex-faced rocking plate having an actuating-stem, a transverse handle-bar supported above the tub and centrally pivoted to said stem, a pressure-platform, a transverse connection across the platform, and means joining the opposite portions of said connection with the corresponding ends of the handle-bar.

3. In a washing-machine, the combination of a tub and support, with a convex-faced plate having a notched stem, a handle-bar which is centrally pivoted on this stem, pulleys at each end of this handle-bar, a pressure-platform, other pulleys connected therewith, and ropes passing through said pulleys and adjustably fastened to the handle-bar, and secured to one end of the pressure-platform.

4. In a washing-machine, the combination of a tub, a convex-faced plate having a central stem, a transverse handle-bar, pulley-blocks at each end thereof, a pressure-platform, arms pivoted thereto to move horizontally, other pulley-blocks carried by the arms, ropes passing around said blocks and connecting the handle-bar and platform, and means for adjusting the platform with relation to the handle-bar.

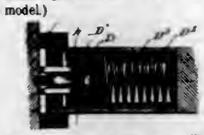
5. The combination of a tub, a convex-faced plate therein and having a stem, a transverse handle-bar centrally pivoted to said stem, a pressure-platform adapted to bear the weight of the operator, connections at the ends of the handle-bar and other connections at the sides of the platform, and ropes engaging said connections, and means on the handle-bar for the attachment of the end of the ropes whereby the platform is adjusted with relation to the handle-bar.

661,727. SAW-CLAMP. MARCUS A. K. SHOTWELL, Silver City, N. Mex. Filed June 20, 1900. Serial No. 21,028. (No model.)



Claim.—A saw-clamp comprising the jaws A, reduced in width at their ends; the U-shaped springs B pivoted to said jaws and adapted to be swung parallel with the jaws, and the lever C carrying the rollers of its inner end and arranged to open the jaws, substantially as shown and described.

661,728. SASH-HOLDER. WILLIAM AGAR, Chicago, Ill., assignor of one-half to William H. Clegg, same place; Jessie Agar administratrix of said William Agar, deceased. Filed May 13, 1899. Serial No. 716,695. (No model.)

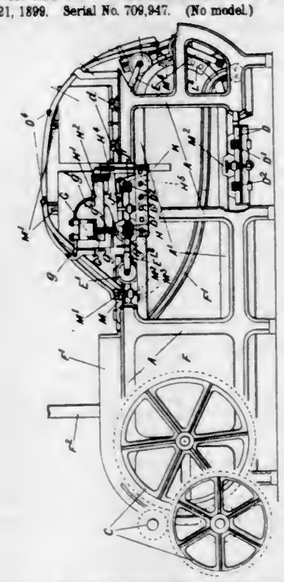


Claim.—1. The combination with two pulley-stiles provided with projecting vertical guide-bars having smooth inner edges, a sash provided at its vertical edges with grooves receiving said guide-bars, and spring-held grooved rollers carried by said sash, the grooves whereof project slightly beyond the bottoms of said sash-grooves and bear throughout their traverses upon the smooth adjacent edges of said guide-bars, substantially as and for the purpose set forth.

2. The combination with two pulley-stiles provided with projecting vertical guide-bars, a sash provided at its vertical edges with grooves receiving said guide-bars, draft-excluding lining of felt, or the like at said sash-grooves, contacting with said guide-bars, and rollers carried by said sash and projecting into said sash-grooves and bearing upon said guide-bars, substantially as and for the purpose set forth.

3. The combination with two pulley-stiles, each provided with a central projecting guide-bar and with stops parallel to and flanking said guide-bar, of a sash confined between said stops and provided at its vertical edges with barrel-receiving sockets and grooves receiving said guide-bars, said vertical sash edges being out of contact with the pulley-stiles, barrels D^2 in said sockets provided with slots having outer ends affording stops, roller-carrying blocks D in said barrels, springs confined between the blocks and the inner ends of the barrels and tending to force said blocks outward, rollers for said blocks having grooves projecting normally beyond the bottoms of the sash-grooves and bearing upon said guide-bars, and pins affording axes for the rollers and having their ends projecting beyond said blocks into said slots, whereby the outward movement of the blocks is limited when the sash is removed, substantially as and for the purpose set forth.

661,729. APPARATUS FOR MANUFACTURING SUGAR-WAFERS OR THE LIKE. GEORGE S. BAKER, London, England. Filed Mar. 21, 1899. Serial No. 709,947. (No model.)



Claim.—1. In a wafer-making machine the combination of traveling "tongs," a trimming device acting also as a bead carried by the

"tongs," means for operating such trimming device, an automatic batter-feeding device, and cams or projections moving with the "tongs" and operating the feeding device.

2. In a wafer-making machine, the combination with traveling "tongs," of an automatic batter-feeding device and cams or projections moving with the "tongs" and operating the feeding device.

3. In a wafer-making machine the combination of traveling "tongs," an automatic batter-feeding device having a reciprocating feed-nozzle, and cams or projections moving with the "tongs" and operating the feeding device.

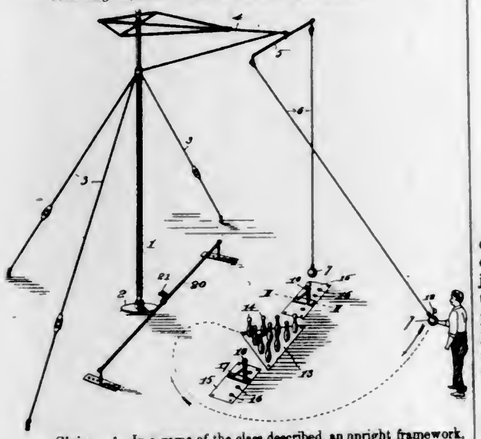
4. In a wafer-making machine the combination of traveling "tongs," an automatic batter-feeding device having a reciprocating feed-nozzle, a guide for said nozzle, means for returning the nozzle quickly, and cams or projections moving with the "tongs" and operating the feeding device.

5. In a wafer-making machine the combination with traveling "tongs," of an automatic batter-feeding device having a reciprocating nozzle, cams or projections moving with the "tongs" and operating the feeding device, a guide for the nozzle, means for returning the nozzle quickly and an inclined cam-plate H^4, second inclined cam H^5 and a traveling lever $J' J^3$, controlling and operating the reciprocating nozzle, substantially as set forth.

6. In a wafer-making machine the combination with traveling "tongs," of a trimming device carried by the "tongs" and means for automatically operating such device at certain periods.

7. In a wafer-making machine the combination with traveling "tongs" of a trimming device comprising knives L, levers L^2, eccentrics L' and a pinion L^3, and racks L^4 L^5 L^6 operating said pinion, substantially as set forth.

661,730. BOWLING GAME. AUGUST M. BEINKE, St. Louis, Mo. Filed Aug. 11, 1900. Serial No. 26,544. (No model.)



Claim.—1. In a game of the class described, an upright framework, a cross-piece fixed in the upper portion of the same, a flexible cable fixed to and depending from the cross-piece a ball swiveled to the lower end of the cable, the rail 20 adjustable longitudinally with reference to and located in front of the framework, a bell secured to said rail, the triangular plate 13, the apex of which is in direct alinement with the upright framework, pins 14 adapted to be set up on said plate, a rectangular plate having a series of apertures located on each side of the triangular plate, a small plate 17 located on each of said rectangular plates, a depending lug integral with said plates adapted to engage the series of apertures in the rectangular plates, and an upwardly-extending post secured to each of the plates 17, all combined and set up as described.

2. In a game of the character described, a flexible cable, one end of which is secured firmly to a support, of a ball swiveled to the lower end of the same, bores formed in said ball and a guide-flag the standard of which is adapted to be secured in said bores, whereby the ball is guided in its movements.

3. In a game of the character described, the combination with the upright framework, a flexible cable secured to and depending from the same and a ball secured to the lower end of the cable, of a rail adjustable longitudinally with reference to and located in front of the framework, and a bell secured on said rail.

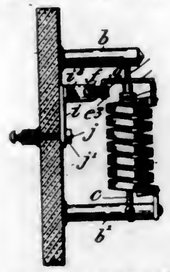
661,731. THERMOSTATIC DEVICE. ROBERT G. CALLUM, Washington, D. C. Filed Dec. 30, 1899. Serial No. 742,085. (No model.)

Claim.—1. A thermostatic device having a thermostat provided with an adjustable extension carrying a shoulder, two contacts, and a third contact between them the free end of which is in the path of the shoulder.



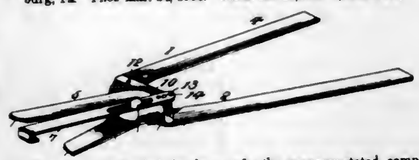
2. A thermostatic device having a thermostat of circular form supported near one end and having at its free end an adjustable extension carrying a pin, a block, a contact having one end in the block and its other end in the path of the pin, and a contact at each side of the aforesaid contact.

661,732. THERMOSTATIC DEVICE. ROBERT G. CALLUM, Washington, D. C. Filed Jan. 9, 1900. Serial No. 804. (No model.)



Claim.—A thermostatic device comprising a thermostatic coil encircling a fixed shaft, a rock-arm loose on the shaft and connected at one end to the coil, two contacts each of which is a screw carried by an adjustably-mounted bracket, and a spring-contact adjustably supported between the aforesaid contacts and normally held against one of them to provide a closed circuit, the end of the interinediate contact being in the path of but disengaged from the rock-arm and adapted in the movement of the arm to be carried away from the one contact to break the normally-closed circuit and against the other contact to establish a second circuit.

661,733. FARRIER'S IMPLEMENT. THOMAS F. DRAKE, Rohrsburg, Pa. Filed Mar. 24, 1900. Serial No. 10,053. (No model.)



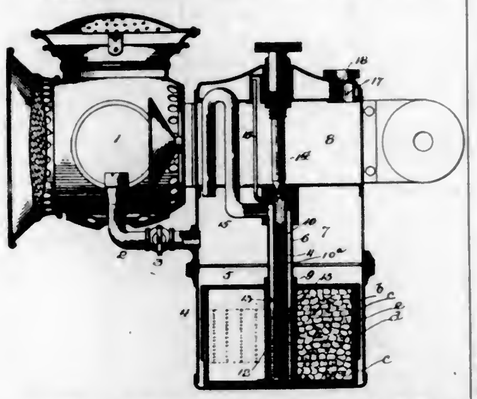
Claim.—1. A farrier's implement for the purposes stated, comprising pivoted levers having their extremities constructed to engage with an edge of a horseshoe, a sliding member arranged to maintain a central position with reference to the levers at all movements thereof and provided with a jaw to coöperate with the aforesaid terminals of the levers, and toggle-levers connecting the sliding member with the pivoted levers, substantially as set forth.

2. A farrier's implement for the purposes described, comprising pivoted levers having corresponding sides adjacent to the pivot recessed, a sliding member normally maintaining a central position with reference to the levers and provided with a jaw to coöperate therewith, and toggle-levers seated in the recesses of the pivoted levers and connecting the latter with the sliding member, substantially as set forth.

3. A farrier's implement comprising pivoted levers provided with jaws, a slidable member having a jaw and directed in its sliding movements by an extension of the pivoted fastening of the levers, and toggle-levers connecting the pivoted levers with the sliding member, substantially as set forth.

4. The herein-described farrier's implement for the purposes stated, comprising levers pivoted together and crossing forming-jaws and handles, the jaws having their extremities curved and toothed and the handles having corresponding sides recessed, a sliding member mounted upon an extension of the pivot-fastening of the levers and terminating in a hooked jaw to coöperate with the toothed ends of the pivoted levers, and toggle-levers connecting the pivoted levers with the sliding member and seated in the recesses of the handles, substantially as described.

661,734. ACETYLENE-GAS-GENERATING LAMP. ALFRED C. EINSTEIN, St. Louis, Mo. Filed Aug. 21, 1899. Serial No. 727,987. (No model.)



Claim.—1. In an acetylene-generator, the combination with the container, the gas-chamber and reservoir of said container, of the container-tube 6 having liquid-discharge openings above its lower end, the liquid-tube 10 concentric with the tube 6 and leaving an annular space between them, having perforations above its end, and the gas-pressure pipe 15 communicating with the space between the tubes 6 and 10; substantially as set forth.

2. In an acetylene-generator, the combination with the container, the gas-chamber and the reservoir of said container, of the tube 6 having perforations above its lower end, the concentric tube 10 forming with said tube 6 an annular space 11, having perforations above its lower end, the gas-pressure tube 15 communicating with the upper end of said annular space and extending upwardly to a point above the water-supply and thence downwardly, and terminating in communication with the gas-chamber 7; substantially as set forth.

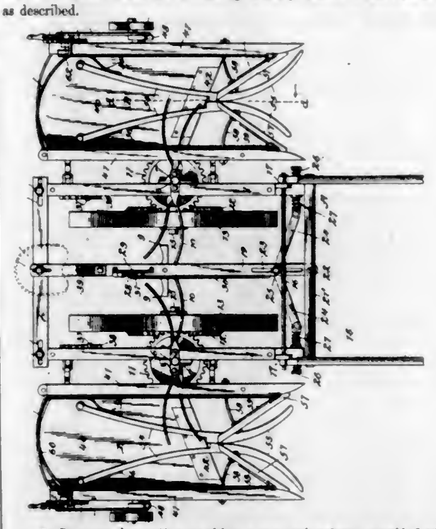
3. In an acetylene-gas generator, the combination of the reservoir, carbid-chamber and gas-chamber, the water-feed comprising concentric perforated tubes, a gas-pressure pipe communicating between the gas-chamber and the space between the tubes, and the escape-vent 16 communicating with the inner water-tube; substantially as and for the purposes set forth.

4. In an acetylene-gas generator, the combination of a carbid-container, a water-reservoir, a gas-chamber, a tube leading from the water-reservoir provided with a filling and with escape-openings, a surrounding tube forming with the water-tube a back-pressure space, and perforated for gradual escape of water therefrom, a gas-pressure tube communicating between the gas-chamber and said back-pressure space, and a vent for escape of excessive gas, communicating with the water-tube; substantially as and for the purposes set forth.

661,735. CORN-HARVESTER. JOHN H. ELICK, Decatur, Ind. Filed May 1, 1900. Serial No. 15,074. (No model.)

Claim.—1. In a corn-harvesting machine, the combination of a draft-frame, a bar, and connections between said bar and the draft-frame, to admit of the free vertical movement of said bar on the side of said frame, a cutting-frame hinged to said vertically-movable bar, said cutting-frame having a supporting-wheel at its outer side and means to adjust said wheel vertically with relation to the cutting-frame and thereby vertically adjust the latter, substantially as described.

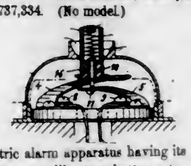
2. In a corn-harvesting machine, a draft-frame comprising side members, a cross-bar connecting the rear ends of said side members, the latter being laterally adjustable on said cross-bar, toggle-jointed levers connecting the front ends of said side members, buffer-springs on the connections between said toggle-jointed levers and said side members, the latter being movable independently of the former, and means to adjust and lock said toggle-jointed levers, in combination with cutting-frames attached to the sides of said draft-frame and extending laterally therefrom, substantially as described.



3. In a corn-harvesting machine, a supporting-frame provided with a cutting-blade, in combination with forward-extending pivoted spring-pressed guide-arms operative on opposite sides of the cornstalks and disposed on the bottom of the frame, the latter having vertical sides and elevated rearward converging spring-pressed guide-arms to engage the upper portions of the cornstalks, revoluble sweep-arms operative over the said frame, and a gate to close the space between the vertical sides of said frame in rear of said cutting-blade, substantially as described.

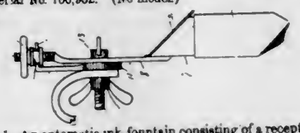
4. In a corn-harvesting machine, a draft-frame comprising laterally-adjustable side members, toggle-jointed levers connecting said side members, means to adjust said toggle-jointed levers and to lock the same when adjusted, and cutting-frames attached to the sides of the draft-frame and extending laterally therefrom, substantially as described.

661,736. FIRE-ALARM. OSCAR FRETMANN, New York, N. Y., assignor of one-fourth to Charles Tolman, same place. Filed Nov. 17, 1899. Serial No. 737,334. (No model.)



Claim.—An electric alarm apparatus having its contact-pieces normally separated, a hollow metallic press-button set upon the upper contact-piece and electrically connected therewith, a metallic pin, electrically connected to the lower contact-piece and passing through an insulated aperture in the upper contact-piece into the cavity of the metallic press-button, a metallic spring connected electrically to the pin, a metallic plate set on the spring and a pad of insulating material sufficiently hard at normal temperature to resist the pressure of the spring, and of low melting-point inserted between the plate and the top of the metallic button.

661,737. AUTOMATIC INK-FOUNTAIN FOR PRINTING-PRESSES. JOSEPH S. GOHEEN, Wichita, Kans., assignor to Anson C. Rutan, same place, and MAX REICHENBACH, St. Louis, Mo. Filed Jan. 3, 1899. Serial No. 700,952. (No model.)



Claim.—1. An automatic ink-fountain consisting of a receptacle having a fabric bottom, a spring for yieldingly holding said fabric bottom

tight, and an arm for adjustably holding said ink-receptacle on a printing-press.

2. An automatic ink-fountain in combination with a printing-press, consisting of an ink-receptacle, a fabric bottom removably seamed to the bottom of said receptacle, an adjustable arm secured to said receptacle, and a yielding arm connecting said receptacle and printing-press.

661,738. ANIMAL-POKE. HENRY A. GOOLSBEY, Lidgerwood, N. D. Filed Sept. 13, 1900. Serial No. 29,905. (No model.)



Claim.—1. An animal-poke comprising a band adapted for attachment to the head of the animal and provided with spaced eyes, arms passed slidably through the eyes and pivotally connected therebelow, and gripping-fingers pivoted to the arms at their point of connection.

2. An animal-poke comprising a band adapted for attachment to the head of the animal and provided with spaced eyes, arms slidably engaged with the eyes and pivotally connected therebelow, and hooked fingers having their shanks pivotally connected and provided with an encircling helical spring, the shank of one hook having pivotal connection with the arms at the point of pivotal connection of the latter.

3. An animal-poke comprising a brow-band including two members slidably connected, a clamping-bolt for holding the members at different points of their adjustment, a throat-strap connected with the end portions of the band, a head-strap connected with the throat-strap and with the clamping-bolt, eyes upon the brow-band, arms passed slidably through the eyes, and gripping-fingers pivotally connected with the arms.

4. An animal-poke comprising a band adapted for attachment to the head of the animal and having pivoted eyes mounted thereon, hooked arms passed slidably through the eyes and pivotally connected therebelow, and hooked fingers having curved shanks pivotally connected, the shank of one finger extending beyond the shank of the other and having pivotal connection with the arms at their point of pivotal connection, a flange upon said extended shank, and a helical spring encircling both shanks, said spring bearing at one end against the flange and at the other end against the hooked portions of the fingers.

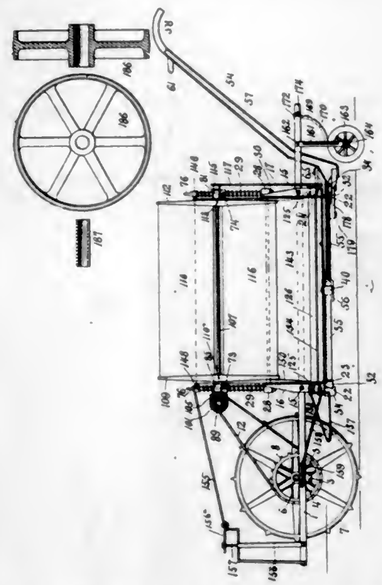
661,739. INSECT-EXTERMINATING MACHINE. TOM HANSON, Covington, Ind. Filed June 23, 1898. Serial No. 684,269. (No model.)

Claim.—1. In an insect-exterminating machine, the combination of a suitable frame or base, front and rear cross-bars, vertically-adjustable standards, upper cross-bars supported by the standards, insect-receiving apparatus mounted horizontally adjustable on the lower cross-bars, insect-brushing apparatus mounted on the upper cross-bars, and suitable driving connections therefor, substantially as and for the purpose set forth.

2. In an insect-exterminating machine, the combination of a suitable frame or base, front and rear cross-bars, vertically-adjustable standards, upper cross-bars supported adjustably by the standards, insect-receiving apparatus mounted at its respective ends to be adjustable in and out on the lower cross-bars, insect-brushing apparatus mounted on the upper cross-bars, and suitable driving connections therefor, substantially as and for the purpose set forth.

3. In an insect-exterminating machine, the combination of a suitable frame or base, front and rear cross-bars, vertically-projecting screw-threaded standards, upper cross-bars supported adjustably by the standards, insect-receiving apparatus mounted on the lower cross-bars, insect-brushing apparatus mounted on the upper cross-bars, and suitable driving connections therefor, substantially as and for the purpose set forth.

4. In an agricultural implement, the combination of the longitudinal frame, the end standards secured to the sides of said frame and having upwardly and laterally projecting supporting parts, fan mechanism mounted on the upwardly-projecting supporting parts, and crushing or receiving mechanism mounted upon the laterally-extending supporting parts, substantially as and for the purpose set forth.



5. In an agricultural implement, the combination of the longitudinal frame, the standards 16 and 17 having slots 20 receiving the respective members of said frame and provided with upwardly-projecting threaded tubes 29 and the laterally-extending arms 26, the fanning mechanism mounted upon said threaded tubes and adjustable vertically thereon, the end plates 23 and 24 mounted upon said arms 26, and the crushing mechanism supported between said end plates, substantially as and for the purpose set forth.

6. In an agricultural implement, the combination of the longitudinal frame, the standards secured to said longitudinal frame and provided with sockets at their lower ends, and the longitudinal brace having its ends secured in said sockets, substantially as and for the purpose set forth.

7. In an agricultural implement, the combination of the vertical screws 29, cross-arms 73 and 74 mounted on said screws, brackets 80 mounted at the extremities of said cross-arms and providing angularly-arranged bearings, a transverse shaft 89 mounted in two of said bearings and receiving rotation from a moving part of the machine, longitudinal shafts 107 mounted in longitudinal bearings of said brackets and having their ends geared to the ends of the transverse shaft, and suitable plant-beating means carried by said shafts 107, substantially in the manner and for the purpose set forth.

8. In an agricultural implement, the combination of the upright parts 29, cross-arms 73 and 74 mounted on said uprights, brackets 80 secured to the said arms 73 and 74 and carrying bearings 85, 86, extending respectively longitudinally and transversely of the machine, a transverse shaft at one end of the machine mounted in the bearings 86, a clutch upon said shaft engaged with a moving part of the machine, a shifting rod 94 controlling said clutch, longitudinal shafts 107 mounted in the bearings 85 and geared so as to be turned by the end of the shaft 89, and beaters mounted upon said shafts 107, substantially as and for the purpose set forth.

9. In an agricultural implement, the combination of a suitable frame, arms extending laterally upon said frame, end plates 23 and 24, supported on said arms, and crushing-rollers mounted in said end plates and having suitable means for driving them, substantially as and for the purpose set forth.

10. In an agricultural implement, the combination of a suitable frame having lateral extensions, end plates 23 and 24, mounted on said extensions, rolls mounted in said end plates, scrapers 126 having their ends connected with said end plates, and means for adjusting the scrapers to the rolls, substantially as and for the purpose set forth.

11. In an agricultural implement, the combination of the main frame having lateral braces, end plates supported on said main frame, crushing-rolls mounted in said end plates, and scrapers having their ends secured to said end plates and also mounted on said braces of the main frame, substantially as set forth.

12. In an agricultural implement, the combination of a suitable frame end plates 23 and 24 mounted on said frame, crushing-rollers mounted in said end plates, scrapers 126 adjacent to said rollers, and rods 130 threaded into said scrapers and adapted to adjust them relatively to the rollers, substantially as set forth.

13. In an agricultural implement, the combination of the main frame, the crushing-rollers suitably mounted on said implement, braces 39 for the frame of the implement, scrapers 126 adjacent to the rollers and having sockets 129 receiving the said braces, rods 130 for spacing the scrapers apart, and a bolt 132 passing through said rods and through the brace 39, substantially as and for the purpose set forth.

14. In an agricultural implement, the combination with a suitable frame or support; the end plates 23 and 24 mounted on said support, crushing-rollers mounted in said end plates, scrapers 126 having projecting ends 127 by which said scrapers are also secured in said end plates, and means for adjusting the scrapers, substantially as and for the purposes set forth.

15. In an agricultural implement, the combination of the crushing means, the fan for brushing insects into said crushing means, and the partitions on the sides of the crushing means opposite to the fans and each comprising sections 143 and 144 arranged at an angle; substantially as set forth.

16. In an agricultural implement, the combination of a suitable frame, an insect-receiver mounted on said frame, means for brushing insects from the vines into said receiver, and vine-guards 137 projecting forward from a point beneath the brushing means and having its upper side inclined upwardly from the front end to the level of the receiver, substantially as and for the purposes set forth.

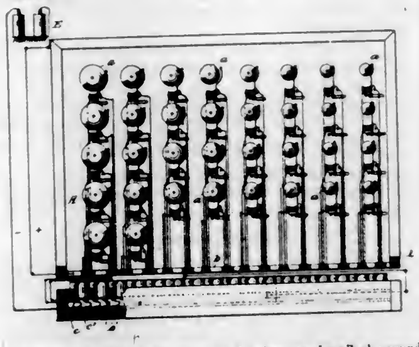
17. In an agricultural implement, the combination of a suitable frame, uprights on said frame, insect-receptacles and vine-brushing means also mounted on said frame, and partitions secured at their upper edges to the uprights and at their lower edges to said insect-receptacles, substantially as and for the purpose set forth.

18. In an agricultural implement, the combination of the longitudinal frame, the rear supporting wheels or disks, and segmental frames in which said wheels or disks are mounted, pivoted to the longitudinal frame and having means for adjusting their angle and consequently the height of the machine at its rear end, substantially as explained.

19. In an agricultural implement, the combination of the longitudinal frame, the pivoted frames mounted in the rear end thereof and provided with racks, the wheels or disks mounted in said pivoted frames, and dogs engaging said racks for adjusting the angle of said pivoted frames, substantially as and for the purpose set forth.

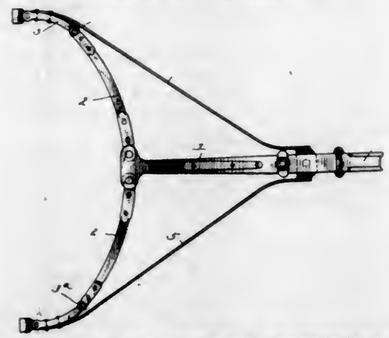
20. In an agricultural implement, the combination of the longitudinal frame, the pivoted frames, supporting-disks thereon, racks formed on said pivoted frames, and a cross-rod having its ends bent and pivoted to the longitudinal frame and terminating in dogs which engage with the racks of the pivoted frames, substantially as and for the purpose set forth.

661,740. CHIME OF BELLS. HERMANN KRUSCHWITZ, Neu-Untermhaus, Germany. Filed May 19, 1899. Serial No. 717,512. (No model.)



Claim.—In a musical instrument of the character described, a sounding-board carrying a plurality of electric bells in harmony, electrical means for causing a continuous sounding of one or more of said bells and mechanical means for causing a single stroke of said bells, a shifting frame, dampers carried thereby to deaden the sound of the bells, pedal-levers for actuating the dampers, a battery, a contact-plate *b*, electrical connections between said plate and the battery and bell mechanism, a keyboard having two sets of keys, electrical connections between each key of one of said sets and the contact-plate *b*, a second plate *b'* in electrical connection with the battery whereby the circuit through a bell mechanism is completed by depressing a key, a pulling connection between the other set of keys and the bells, and a casing for said element substantially as described.

661,741. VEHICLE-POLE. GEORGE A. LAMBERT, Anderson, Ind., assignor to the Buckeye Manufacturing Company, same place. Filed Mar. 28, 1900. Serial No. 10,517. (No model.)



Claim.—1. In an adjustable vehicle-pole the combination of a pole, a circle-bar secured to the rear end of said pole, extension-arms pivoted to the outer ends of said circle-bar, brace-rods rigidly bolted at their rear ends to said extension-arms and connected together at their forward ends, and means for adjustably clamping said braces to the pole at their connected ends, whereby said extension-arms may be simultaneously and uniformly adjusted, and whereby all strain brought on the thill-eyes will be transferred directly to the rigid fastening means of the braces, thereby taking the strain off the pivotal connections between the extension-arms and the ends of the circle-bar.

2. In an adjustable vehicle-pole the combination of a pole, a circle-bar secured to the rear end thereof, said bar being formed of two sections pivoted at their inner ends to the pole, extension-arms pivoted to the outer ends of the circle-bar, thill-eyes pivoted to the rear ends of the extension-bars, and brace-rods rigidly connected to the said extension-arms, and adjustably clamped to the pole, whereby strain put on the thill-eyes will be transferred to the rigid non-pivotal fastening means of the brace-rods, thereby relieving the pivotal connections between the extension-arms and the circle-bar.

3. In an adjustable vehicle-pole the combination of a pole, a two-part circle-bar secured to the rear end of said pole, extension-arms pivoted to the outer ends of said circle-bar, brace-rods rigidly secured at their rear ends to said extension-arms and connected together at their forward ends, and means for adjustably clamping said connected forward ends to the vehicle-pole.

661,742. CIRCUIT-CONTROLLER FOR ELECTRIC ENGINES. HENRI LETORD, Orlando, Fla., and JOSEPH S. LETORD, Kansas City, Mo. Filed Feb. 27, 1900. Serial No. 6,735. (No model.)



Claim.—1. An electric engine provided with a handpiece and located in a main circuit, in combination with a main-circuit closer, a pole-changer in the main circuit, and attachments to the handpiece for operating respectively, the main-circuit closer and pole-changer, substantially as described.

2. An electric engine provided with a handpiece, in combination with a resistance-controller in the main circuit, and an attachment to the handpiece for operating the resistance-controller, substantially as described.

3. An electric engine provided with a handpiece, in combination with a main-circuit closer, a resistance-controller in the main circuit and an attachment to the handpiece for operating the main-circuit closer and resistance-controller, substantially as described.

4. An electric engine provided with a handpiece, in combination

with a pole-changer and a resistance-controller in the main circuit, and attachments to the handpiece for operating the pole-changer and resistance-controller, respectively, substantially as described.

5. An electric engine provided with a handpiece, in combination with a main-circuit closer, a local current for operating the main-circuit closer, and a circuit-closer for the local circuit attached to the handpiece, substantially as described.

6. An electric engine provided with a handpiece, in combination with a pole-changer, for the main circuit, a local current for operating the pole-changer, and a circuit-closer for the local circuit attached to the handpiece, substantially as described.

7. An electric engine provided with a handpiece, in combination with a main-circuit closer, a pole-changer for the main circuit, local circuits for operating the main-circuit closer and pole-changer respectively, and circuit-closers for said local circuits attached to the handpiece, substantially as described.

8. An electric engine provided with a handpiece, in combination with a main-circuit closer, a resistance-controller operated by the main-circuit closer, a local circuit for operating the main-circuit closer, and a circuit-closer for the local circuit attached to the handpiece, substantially as described.

9. An electric engine provided with a handpiece, in combination with a resistance-controller in the main circuit, a main-circuit closer for operating the resistance-controller, a pole-changer in the main circuit, local circuit for operating the main-circuit closer and pole-changer, and circuit-closers for the local circuits attached to the handpiece, substantially as described.

10. An electric engine provided with a pole-changer, and a resistance-controller in the main circuit, a handpiece attachment for operating the resistance-controller, a local circuit for operating the pole-changer, and a circuit-closer for said local circuit attached to the handpiece, substantially as described.

11. An electric engine provided with a handpiece, in combination with a circuit-closer for the main circuits comprising electromagnets in a local circuit, an armature therefor forming part of the main circuit when closed and a circuit-closer for the local circuit attached to the handpiece, substantially as described.

12. An electric engine provided with a handpiece, in combination with a pole-changer comprising electromagnets in a local circuit, an armature therefor forming part of the main circuit when closed, and a circuit-closer for the local circuit, attached to the handpiece, substantially as described.

13. An electric engine provided with a handpiece, in combination with a main-circuit closer comprising electromagnets in a local circuit, an armature therefor forming part of the main circuit when closed, a pole-changer comprising electromagnets on another local circuit, an armature therefor forming part of the main circuit when closed, and circuit-closers for the local circuits attached to the handpiece, substantially as described.

14. An electric engine provided with a handpiece, in combination with a resistance-controller comprising electromagnets connected up in the main circuit, an armature therefor for operating the resistance-controller, a main-circuit closer, a local circuit for operating the main-circuit closer, and a circuit-closer for the local circuit attached to the handpiece, substantially as described.

15. An electric engine provided with a handpiece, in combination with a series of resistances, a resistance-controller for bringing all or part of said resistances into the main circuit, a main-circuit closer for operating the resistance-controller, and a handpiece attachment for operating the main-circuit closer, substantially as described.

16. An electric engine provided with a handpiece, in combination with a main-circuit closer, a pole-changer, a local battery in two divisions connected together electrically, and with the main-circuit closer and pole-changer, and a handpiece attachment for closing the circuit from one division of the battery through the main-circuit closer and from the other division of the battery through the pole-changer, substantially as described.

17 An electric engine provided with a handpiece, in combination with a main-circuit closer, a pole-changer in the main circuit, local circuits for operating the main-circuit closer and pole-changer, and a handpiece attachment comprising a push-button for closing the local circuit for the main-circuit closer, and a switch-lever for closing the local circuit for the pole-changer, substantially as described.

18. A handpiece attachment for an electric engine comprising a block of insulating material, means for clasping it upon the handpiece, and circuit-closing devices for a local circuit, substantially as described.

19. A handpiece attachment for an electric engine comprising a block of insulating material, means for clasping it upon the handpiece, and a plurality of circuit-closers for local circuits, substantially as described.

20. A handpiece attachment for an electric engine comprising a block of insulating material, means for clasping it upon the handpiece, a longitudinal metal bar extending through the block, a metal rod connected to the bar and projecting from the top of the block, a switch-lever on said rod, and a curved rod extending from the end of the bar through it, and out of its top within contact of the switch-lever, substantially as described.

21. A handpiece attachment for an electric engine, comprising a block of insulating material, means for attaching it to the handpiece, a longitudinal metal bar extending through the block, a metal rod connected to the bar and projecting from the top of the block, a switch-lever on the rod, a contact-bar for the switch-lever extending through the end of the block, a parallel longitudinal bar in the block, and a push-button for electrically connecting the two longitudinal bars, substantially as described.

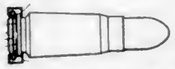
22. A main-circuit closer, for an electric engine comprising oppositely-located pairs of binding-posts in the main circuit, pins electrically connected with the respective binding-posts of the pairs, electromagnets in a local circuit, an armature therefor adapted to contact with the pins when the local circuit is closed, plates in the main circuit, and contact-pins on the armature engaging said plates, substantially as described.

23. A main-circuit closer for an electric engine comprising electromagnets 35, 36 in a local circuit, the pivoted armature 37, the platinum-faced blocks 39, 40 projecting from said armature, the pins 41, 42 on the positive and negative sides of the main circuit, the plates 45, 46 in the negative and positive sides of the main circuit, and the pins 43 and 44 passing through the armature and blocks 39, 40 and contacting with said plates, substantially as described.

24. A resistance-controller for an electric engine comprising electromagnets in the main circuit, an armature therefor normally held away from the magnets, a pneumatic cylinder, a plunger therein normally held raised, a contact-point carried by and a series of notches in said plunger, a series of stationary contact-points adjacent to the plunger, and pawls carried by the armature and engaging the notches of the plunger, substantially as described.

25. A resistance-controller for an electric engine comprising electromagnets connected up in series in the main circuit, an armature normally held away from the magnets, a pneumatic cylinder, a plunger therein normally held raised, a contact-point in the main circuit carried by a series of notches in said plunger, a series of stationary contact-points adjacent to the plunger and connected up with resistances, pawls carried by the armature and engaging the notches of the plunger, and means for admitting and discharging air from the pneumatic cylinder, substantially as described.

661,743. CARTRIDGE-HOLDER FOR CHARGING MAGAZINE-FIREARMS. PAUL MAUSER, Oberndorf, Germany. Filed May 29, 1900. Serial No. 18,384. (No model.)



Claim.—1. In cartridge receptacles or holders the combination with the body thereof having inwardly-projecting flanges of a spring constructed in the shape of a flat sheath centrally split open from end to end and having straight smooth edges or lips along the sides of such opening to bear against the bottoms of the cartridges, substantially as herein set forth and for the purpose stated.

2. A spring for a cartridge-holder, shaped like a sheath and provided with two lips which extend longitudinally of it and are separated by a longitudinal slot, substantially as set forth.

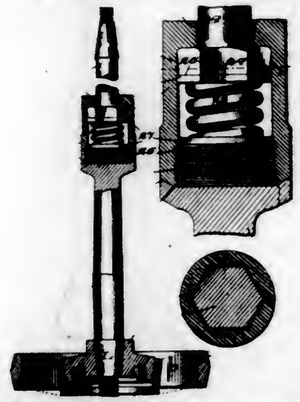
3. A spring for a cartridge-holder, shaped like a sheath and curved from end to end and provided with two lips which extend longitudinally of it on its concave side and are separated by a longitudinal slot, substantially as set forth.

4. A spring for a cartridge-holder, shaped like a sheath and provided with two concavo-convex lips which extend longitudinally of it and are separated by a longitudinal slot, substantially as set forth.

661,744. ROLL-SHAFT FOR ROLLER-MILLS. LEWIS H. ROSEBERRY, Easton, Pa. Filed Mar. 15, 1900. Serial No. 8,814. (No model.)

Claim.—1. A roll-shaft for roller-mills, consisting of a pair of separate longitudinally-alined upper and lower shaft-sections, the upper section being provided with supporting means at one end, and the lower section carrying the crushing-roll at one end, and a vibration-joint coupling the contiguous ends of the separate shaft-sections, said joint being provided with yielding means for absorbing longitudinal vibration, and also permitting of a relative rocking movement of the shaft-sections to relieve the supporting means for the shaft from undue strain, substantially as set forth.

2. A roll-shaft, for roller-mills, having supporting means at one end, and carrying the crushing-roll at its opposite end, said shaft being formed in sections between its opposite ends, and a vibration-joint coupling the contiguous ends of the separate shaft-sections, and having a compensating spring arranged to maintain a separation of said sections to permit of a relative rocking movement thereof, substantially as set forth.



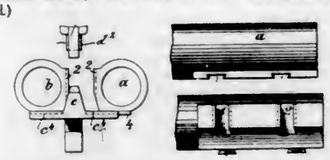
3. A roll-shaft for roller-mills, consisting of separate shaft-sections, and a vibration-joint coupling the sections and having a yielding compensating device consisting of external and internal springs arranged one within the other, and interposed between the contiguous ends of the shaft-sections, substantially as set forth.

4. A roll-shaft for roller-mills, consisting of separate shaft-sections, one of which is provided with a supporting member at one end, and the other of which carries the crushing-roll, and a vibration-joint comprising a coupling-sleeve connected with the contiguous ends of the shaft-sections, intermediate the supported end of the shaft and the crushing-roll, to permit of a relative rocking movement between the sections, and a yielding compensating device housed within the sleeve and interposed between the contiguous ends of the shaft-sections, said compensating device exerting a pressure to yieldingly maintain the axial longitudinal alinement of the shaft-sections, substantially as set forth.

5. A roll-shaft for roller-mills, consisting of upper and lower shaft-sections, the upper shaft-section being provided at its lower end with a polygonal head, and the lower shaft-section being provided at its upper end with a tenon, a coupling-sleeve fitted at its lower end upon the tenon of the lower shaft-section and provided at its upper end with a tapered shaft-opening, said sleeve being also provided contiguous to its upper end with an interior polygonal seat receiving the polygonal shaft-head, pressure-plates fitting upon the inner surfaces of the tenon and head of the opposite shaft-sections, and a spring compensating device interposed between the coupled ends of the shaft-sections and bearing upon said pressure-plates, substantially as set forth.

6. A roll-shaft for roller-mills, consisting of upper and lower shaft-sections, the upper section being provided at its lower end with a shaft-head, and the lower section being provided at its upper end with a screw-tenon and at the base of said tenon with a chamfered seat-flange, a coupling-sleeve arranged upon said screw-tenon and provided with a lower beveled end registering with said chamfered seat-flange, said sleeve being provided at its upper end with a shaft-opening receiving the lower end of the upper shaft-section, and a compensating spring device interposed between the coupling ends of the shaft-sections, substantially as set forth.

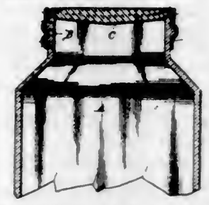
661,745. MEANS FOR UNITING GUN-BARRELS. HANS SIEBE, Sömmerda, Germany. Filed May 16, 1900. Serial No. 16,838. (No model.)



Claim.—1. The combination, with two laterally-slidable gun-barrels, and a barrel-lug connected to one side of each of them; of a vertically-slidable locking-bar which secures the said barrels together and prevents them from sliding laterally on the said barrel-lug, said lug, bar and barrels being provided with interlocking portions on their adjacent surfaces, substantially as set forth.

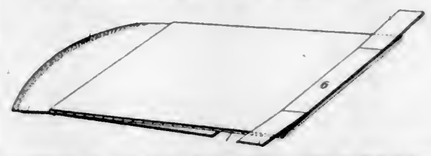
2. The combination, with two gun-barrels, of a barrel-lug secured on one side of the said barrels, and a locking-bar secured between the said barrels and provided with projections at its ends which engage with the central portion of the said barrel-lug, substantially as set forth.

661,746. FRUIT-JAR. WILLIAM C. SIMPSON, Strother, Mo. Filed Sept. 8, 1897. Serial No. 650,972. (No model.)



Claim.—In a fruit-jar, the combination, with a jar, the neck of which is exteriorly screw-threaded, the threads terminating at a distance from the top, of a cover on the jar of the same diameter as the smooth portion of the neck, the upper and lower surfaces of which are recessed or cut away around the edge, an annular washer within the recessed portion of the top of the cover, the edge of which is flanged and extends down over the edge of the cover and onto the smooth portion of the neck, and a cap on top of the washer, the side of which is screw-threaded and extends down over the flange of the washer and engages with the screw-threads of the neck, substantially as shown and described.

661,747. MAILING-TUBE. EDWARD J. SPINK, Davenport, Iowa, assignor of thirteen twenty-fifths to George W. Noth, same place. Filed Aug. 9, 1900. Serial No. 26,430. (No model.)

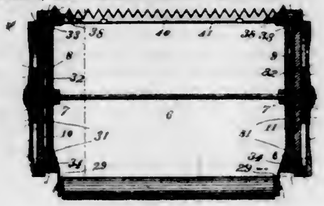


Claim.—1. A mailing-packet comprising a container-sheet designed to be rolled into tubular form and provided upon its outer surface with equidistant transverse scores extending entirely across the sheet, and a comparatively thin wrapper affixed at a point intermediate of its ends to one extremity of the scored surface of the sheet the loose portions of the wrapper at opposite sides of the point of the attachment defining a sealing-flap located beyond the sheet and an address-flap of less length than the sheet and designed to constitute a smooth cover surrounding the tube when formed, and attached to the sealing-flap.

2. A mailing-packet comprising a container-sheet provided upon one extremity of its inside face with a retaining-strip having loose ends and having attached to the opposite extremity of its outside face an intermediate portion of a comparatively thin wrapper, the opposite ends of said wrapper being unattached and defining an address-flap and a sealing-flap at opposite sides of the attachment of the wrapper to the container-sheet.

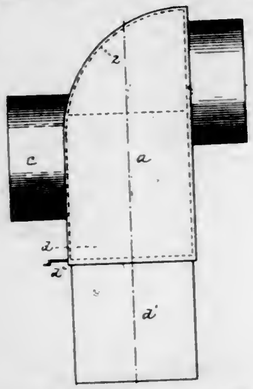
3. A mailing-packet comprising a container-sheet provided at one end with a retaining-strip affixed to its inner surface and a comparatively thin wrapper affixed at a point intermediate of its length to the outer face of the sheet and at the end thereof opposite the retaining-strip, the portions of said wrapper disposed at opposite sides of its point of attachment defining a sealing-flap located beyond the sheet and a loose address-flap extending over the sheet, and said retaining-strip being attached to the sheet at a point intermediate of the ends of the strip to define loose retaining-tabs disposed at opposite ends of the packet when the latter is organized for use.

661,748. LAWN-MOWER. JAMES F. STANLEY, Mooreland, Ind. Filed Oct. 5, 1899. Serial No. 732,673. (No model.)



Claim.—In a lawn-mower, the combination, with a frame comprising two disks, a cross-bar, cutter-bar and a handle, the disks being each provided with an outwardly-projecting peripheral flange and two brackets, of a shaft journaled in the disks, the ends of which extend beyond the same, a traction-wheel rigidly secured to each end of the shaft and provided with an inwardly-projecting flange to overlap the flange of the disk, a bevel-wheel loosely mounted on the shaft between each traction-wheel and the disk at that end, a ratchet between each traction and its companion bevel wheel and connected therewith, a shaft journaled in the brackets on each disk, one end of which is provided with a bevel-pinion in engagement with the bevel-wheel and the opposite end is provided with a wrist-pin, and a sickle upon the cutter-bar, each end of which is provided with a bar, the head of which is slotted and engages with the wrist-pin, substantially as described.

661,749. **FIBER-CLEANING APPARATUS.** LAWRENCE SULLIVAN, Walpole, Mass., assignor of one-half to Horace A. Spear, Jr., same place. Filed Dec. 7, 1899. Serial No. 739,476. (No model.)



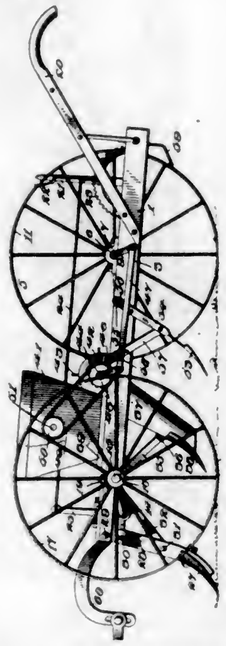
Claim.—1. A fiber-cleaning apparatus, comprising a casing having an inlet, a primary deflector opposite the inlet, against which the fibers carried through the inlet impinge, a secondary deflector against which the fibers impinge in rebounding from the primary deflector, the two deflectors being out of alinement with each other and formed to twice abruptly change the course or direction of movement of the current of air and fibers, a trap or depression below the secondary deflector in which the relatively heavy pieces of foreign matter detached from the fibers by the successive impacts against the deflectors fall by gravitation, and a fiber-outlet located above the trap and out of alinement with the inlet, the entire passage-way through the casing, including the outlet, having a capacity as great as that of the inlet, and free from obstructions other than said deflectors.

2. A fiber-cleaning apparatus, comprising a casing having an inlet, a primary deflector opposite the inlet, against which the fibers carried through the inlet impinge, a secondary deflector against which the fibers impinge in rebounding from the primary deflector, the two deflectors being out of alinement with each other and formed to twice abruptly change the course or direction of movement of the current of air and fibers, a trap or depression below the secondary deflector in which the relatively heavy pieces of foreign matter detached from the fibers by the successive impacts against the deflectors fall by gravitation, a fiber-outlet located above the trap and out of alinement with the inlet, the entire passage-way through the casing, including the outlet, having a capacity as great as that of the inlet, and free from obstructions other than said deflectors, and a receptacle for foreign matter below the trap, said receptacle having slides or gates.

661,750. **SEED-PLANTER.** WILHELM WENDTLAND and WILLIAM F. WUNDERLICH, Shiner, Tex. Filed June 25, 1900. Serial No. 21,544. (No model.)

Claim.—1. In a planter, the combination with a frame supporting a hopper and a feed mechanism, of a shaft operatively connected with the feed mechanism, a supporting and driving wheel mounted upon the shaft within the frame, a shaft supporting the front extremity of the frame and provided with offset ends, wheels journaled upon said ends, and an operating device located at the rear end of the frame and operatively connected with the last-named shaft to effect the rotation of the latter and the consequent elevation or depression of the frame.

2. In a planter, the combination with a frame supporting a hopper, a dropper-tube and feed mechanism, of a shaft journaled upon the frame adjacent to its rear end and operatively connected to the feed mechanism, a supporting and driving wheel mounted upon the shaft within the frame, a shaft supporting the front extremity of the frame and provided with offset ends, wheels journaled upon said ends, an arm extending laterally from the shaft, and a lever mounted at the rear end of the frame and operatively connected with said arm.



3. In a planter, the combination with a frame comprising a pair of parallel beams, a shaft journaled upon the beams adjacent to their rear ends, a supporting and driving wheel mounted upon said shaft and having a pair of spaced rims located at opposite sides of the longitudinal center of the frame, a dropper-tube depending from the frame in advance of said wheel and in line with the space between the rims, a hopper above said tube, feed mechanism controlling the supply of seed to the tube and operated by the rotation of the supporting and driving wheel, a shaft supporting the front end of the frame and having offset ends, wheels mounted upon the offset ends of the shaft, and means for raising and lowering the shaft.

4. In a planter, the combination with a frame, a pair of longitudinal beams, and a transverse beam at the rear end thereof, of a shaft journaled upon the beams, a supporting and driving wheel mounted upon the shaft between the beams and having a pair of rims located at opposite sides of the longitudinal center of the frame, a hopper carried by the frame in advance of said wheel and having a dropper-tube depending in advance of the space between the wheel-rims, feed mechanism operated by said wheel, a shaft supporting the front end of the frame and having offset ends, wheels adjustably mounted upon said ends beyond the outer sides of the frame, and means located at the rear of the frame for elevating and depressing said shaft.

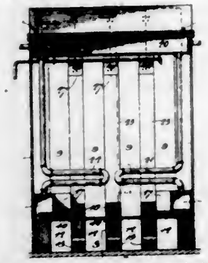
5. In a planter, the combination with a frame having a supporting-wheel at its rear end, of a shaft supporting the front end of the frame and having offset ends, wheels mounted upon the offset ends of said shaft, an arm extending from said shaft, means for effecting the adjustment of said arm with respect to the shaft, a shaft-operating lever located at the rear end of the frame and operatively connected to said arm, a furrow-opener mounted at the front end of the frame, and seed-dropping mechanism located in the rear of the furrow-opener.

6. In a planter, the combination with a frame, of a shaft journaled therein adjacent to its rear end, a single supporting and driving wheel mounted upon said shaft within the frame at the longitudinal center thereof and having a pair of spaced rims, a dropper-tube depending from the frame in advance of said wheel and in line with the space between the rims, feed mechanism controlling the supply of seed to the tube and a pair of supporting-wheels located at the front end of the planter and outside of the frame.

7. In a planter, the combination with a frame and supporting-wheels.

of a furrow-opener provided with a shank, means for adjustably securing the shank to the frame to permit its longitudinal adjustment thereon, and a shank-brace pivotally connected to the shank at a point intermediate of its ends and provided with means for adjustably connecting the shank to the frame.

661,751. **FURNACE.** JOSEPH C. WIGERT and DAVID WIGERT, Bushnell, Ill. Filed Feb. 13, 1900. Serial No. 5,069. (No model.)



Claim.—1. A furnace comprising a grate including a plurality of bars oppositely disposed in pairs, each of the bars consisting of a tube bent upon itself to form two sections lying one above the other to conduct water in opposite directions and in different horizontal planes.

2. In a furnace, a grate comprising a plurality of bars oppositely disposed in pairs, each bar consisting of a pipe returned upon itself to conduct water in different directions.

3. A furnace comprising spaced water-sections, a water-crown and a plurality of transverse hollow grate-bars each comprising a pipe returned upon itself and connected at one end with its respective water-section the opposite ends of the bars being bent upwardly to form sides and connected with the crown.

4. A furnace comprising water-sections and a water-crown, and pipes connected with the water-sections, said pipes passing transversely of the furnace and bent upon themselves with the convolutions of each pipe lying in a common vertical plane, said pipes having their upper ends connected with the water-crown.

5. In a furnace, the combination with a water-crown, of a plurality of series of pipes connected therewith and oppositely disposed in pairs, the pipes of each series lying in a common vertical plane, and the lower ends of the pipes being continued inwardly and transversely of the furnace to form a grate.

6. A furnace comprising mutually-parallel water-sections and a water-crown disposed thereabove, a series of pipes connected with the water-crown and with a water-section, the pipes of each series lying in a common vertical plane and having their lower portions bent inwardly and transversely of the furnace and returned upon themselves.

7. A furnace comprising a fire-box, a water-back including a plurality of water-columns separated by interspaces, plates closing the interspaces at the inner edges of the columns, and openings communicating with the interspaces and provided with dampers.

8. A furnace comprising a fire-box, a plurality of water-columns in the rear of the fire-box and separated by interspaces, plates closing the interspaces at the inner edges of the columns, openings through the plates, and additional openings through the plates provided with adjustable closures.

9. A furnace comprising a water-front, a water-back including columns separated by interspaces, plates closing the interspace at the inner edges of the columns, mutually-parallel water-sections communicating with the water-front and the water-back, a water-crown communicating with the water-front and the water-back, a series of pipes connected with the water-crown and with the water-sections, the pipes of each series being bent at their lower ends to lie transversely of the furnace and form a grate, and openings through the plates and leading to the interspace between the columns of the water-back.

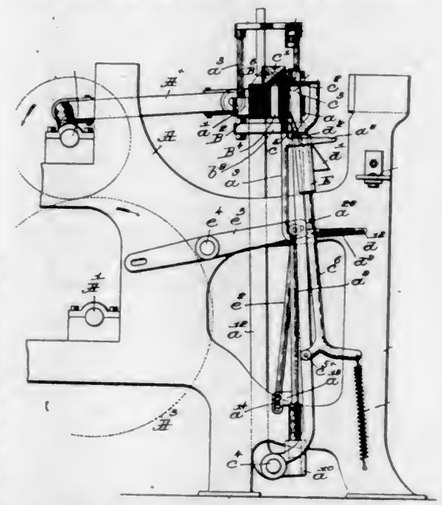
10. A furnace comprising a fire-box, a plurality of water-columns in the rear of the fire-box and separated by interspaces, plates closing the interspaces at the inner edges of the columns, a grate, openings through the plates below the grate, and additional openings through the plates above the grate and provided with adjustable closures.

11. A furnace comprising a fire-box, a plurality of water-columns in the rear of the fire-box and separated by interspaces, plates closing the interspaces, openings through the plates, and additional openings through the plates provided with adjustable closures.

12. A furnace comprising a fire-box, a water-back including columns separated by interspaces, plates closing the interspaces, a grate, openings through the plates below the grate, and additional openings through the plates above the grates and provided with adjustable closures.

13. A furnace comprising a fire-box, a plurality of water-columns in the rear of the box, a grate comprising transversely-disposed pipes, openings leading between the columns below the grate, and additional openings leading between the columns above the grate and provided with adjustable closures.

661,752. **SHUTTLE-CHANGING LOOM.** HORACE WYMAN, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed June 9, 1899. Serial No. 719,993. (No model.)



Claim.—1. In a shuttle-changing loom, the following instrumentalities, viz: a lay having a horizontal alining-surface coincident with the level of the race of the lay, and a back wall; a carrier having a front wall or binder and movable in a plane entirely without the space in front of said back wall in which the shuttle moves as it is being thrown from said horizontal alining-surface through the shed; a spare-shuttle feeder normally occupying an inoperative position at the loom side; and means to actuate said carrier and its connected front plate or binder to remove it from opposite said back wall, thereby leaving an open space at the front of the lay through which the spare-shuttle feeder may put a spare shuttle onto the horizontal alining-surface of the lay, said spare-shuttle feeder in such operation pressing said spare shuttle against the back wall of the lay and maintaining pressure thereon until the spare shuttle has been thrown from that end of the lay upon which it was applied, substantially as described.

2. In a shuttle-changing loom, a lay having a back wall, and a horizontal alining-surface to sustain the under side of the shuttle; a front plate or binder, means to move the same from its position opposite the back wall when a spare shuttle is to be put upon the horizontal alining-surface of the lay and against said back wall; a spare-shuttle feeder, and an independent movable spare-shuttle support located between said spare-shuttle feeder and the lay, and means to actuate said spare-shuttle feeder when said front plate is put out of position opposite the back wall, causing said shuttle-feeder to act against the spare shuttle sustained by the movable support and move said support and shuttle for a short distance and finally move the spare shuttle from said support onto the horizontal alining-surface of the lay, and means to lock said spare-shuttle feeder and its movable support to the lay to move therewith on a back stroke while the spare shuttle is thrown from the said horizontal alining-surface across the lay, substantially as described.

3. In a shuttle-changing loom, a lay, a spare-shuttle feeder normally stationary at or near the breast-beam and provided with a binder, an independent spare-shuttle support also normally stationary between the shuttle-feeder and the lay, and means when a shuttle is to be changed to move the spare-shuttle feeder and the support toward the lay and cause the said feeder to sweep the spare shuttle from the said support onto the lay.

4. In a shuttle-changing loom, a lay, a spare-shuttle support to support a spare shuttle substantially at the level of the race of the lay when the latter is in its forward position; combined with a spare-shuttle feeder normally stationary near the breast-beam and presenting a plate or binder, the lower end of which is located normally substantially at or above the level of the race of the lay and above the face of the shuttle-support, whereby said feeder in its movements to supply the race with a spare

shuttle is adapted to be moved over the face of the support to the front of the lay.

5. A lay, a movable spare-shuttle support normally stationary at the loom side and sustaining a spare shuttle, and a spare-shuttle feeder also normally stationary at the loom side and provided with a binder, combined with means to move said spare-shuttle feeder and said spare-shuttle support putting the spare-shuttle support at the level of the race of the lay and causing the spare-shuttle feeder to traverse the spare-shuttle support and put the spare shuttle on the lay.

6. A lay, having a horizontal alining-surface coincident with its raceway, a back wall, and a frout plate opposed to said back wall to constitute a shuttle-box; a spare-shuttle feeder normally occupying its inoperative position near the breast-beam, and interposed independent movable spare-shuttle support occupying normally its inoperative position between the spare-shuttle feeder and the lay, suitable means to remove the front plate carried by the lay from its position opposite the back wall thereof; and means to start the spare-shuttle support and feeder to move in onison with the lay at a backward stroke, the spare-shuttle feeder putting a spare shuttle on the race of the lay, substantially as described.

7. A lay having a vertical alining-surface to aline the shuttle with the reed, and a smooth unbroken horizontal alining-surface coincident with the race of the lay and located at opposite sides of the picker-stick slot of the lay to support the shuttle as it is being thrown; an auxiliary shuttle-presenter made as a lever having a presser or binder, and means to move said lever and presser or binder automatically to hold a spare shuttle against the vertical alining-surface of the lay during backward movement of the lay, substantially as described.

8. A lay, a pivoted support for a spare shuttle, an independent pivoted lever having a plate or binder and adapted to serve the purpose of a spare-shuttle feeder; means to retain said spare-shuttle support and feeder normally at the loom side, an operating-lever, and means controlled by it to move the lever of the spare-shuttle feeder and with it the spare-shuttle support to meet the lay, the further movement of the spare-shuttle feeder causing the spare shuttle to be removed from the spare-shuttle support onto the horizontal alining-surface of the lay, substantially as described.

9. In a loom, a lay having a horizontal alining-surface coincident with the level of the race of the lay, a back wall, a front plate or binder; a pivoted spare-shuttle feeder presenting a plate or binder, an intermediate movable spare-shuttle support, an operating-lever, and an actuator; and means under the control of said actuating-lever to move the front plate or binder from its position opposite the back wall of the lay and to immediately thereafter move the spare-shuttle feeder and the spare-shuttle support toward and to meet the lay and to further move the spare-shuttle feeder to sweep the spare shuttle from its support onto the horizontal alining-surface of the lay and against its back wall.

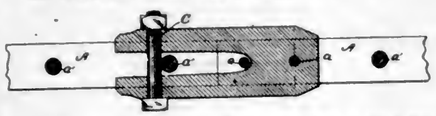
10. In a loom, a lay, a pivoted spare-shuttle support, a spare-shuttle feeder in turn pivoted upon said spare-shuttle support; means to retain the spare-shuttle support and spare-shuttle feeder in a normal stationary inoperative position at the loom side; an operating-lever, and means controlled by it to effect the movement of the spare-shuttle feeder and the spare-shuttle support toward the lay, causing the spare-shuttle feeder to sweep the spare shuttle from the spare-shuttle support onto the horizontal alining-surface of the lay, substantially as described.

11. In a loom, a pivoted lever having at its upper end a plate to sustain a spare shuttle, a pivoted lever having a spare-shuttle feeder at its upper end and pivoted to said first-mentioned lever, means to connect the lever of the spare-shuttle feeder with the lever sustaining the spare-shuttle support, and means to positively turn one of said levers about its fulcrum causing it to turn the other of said levers in the same direction, substantially as described.

12. In a loom, a lay having a horizontal alining-surface and a back wall, and a movable front plate or binder; a movable spare-shuttle support located substantially at the level of the race of the lay when the latter is in its forward position, an independent spare-shuttle feeder adapted to be moved in a horizontal plane above the level of the support for the spare shuttle; combined with means to move said spare-shuttle feeder toward the advancing lay and sweep the spare shuttle from the spare-shuttle support onto the alining-surface of the lay, substantially as described.

13. In a shifting-shuttle loom, a lay having a vertical alining-surface to aline the shuttle with the reed; a horizontal alining-surface coincident with the level of the race to sustain the under side of the shuttle; a front plate or binder; means to move it from its position opposite the vertical alining-surface when a spare shuttle is to be put upon the horizontal alining-surface of the lay and against said vertical alining-surface; a movable shuttle support and feeder to support and move the spare shuttle, and means to actuate the same when said front plate is put out of position opposite the vertical alining-surface to move the spare shuttle onto the horizontal alining-surface and against the vertical alining-surface and retain it there during the backward stroke of the lay or while the spare shuttle is thrown from the horizontal alining-surface across the lay.

661,753. HAY-TRACK COUPLING. ALLEN P. BOYER, Goshen, Ind. Filed Sept. 14, 1900. Serial No. 30,004. (No model.)

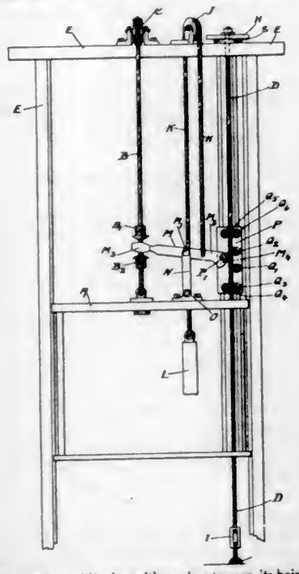


Claim.—1. The combination with opposite sections of double angle-rail track, of a coupling B with a flange above and below, with a web between arranged between the angle-rails of one end of the track, securely riveted, the said web or body containing a longitudinal notch to receive a coupling-rivet of the opposite end; and a bolt extending vertically through the flanges of said coupling back of said coupling-rivet to clamp the flanges on the rail and engage the rivet for the purpose specified.

2. A coupling for hay-carrier track consisting of a body portion with flanges above and below, the body portion having a longitudinal notch at one end and adapted to be riveted at the opposite end between the bars forming the rail, and a bolt extending through the flanges back of the cross-rivet, to draw them together upon the meeting-rail for the purpose specified.

3. A coupling for hay-carrier track consisting of a body portion with flanges above and below, the body portion having a longitudinal notch at one end and adapted to be riveted at the opposite end between the bars forming the rail, and a bolt extending through the flanges to draw them together upon the meeting-rail for the purpose specified.

661,754. ELEVATOR-BRAKE. OSCAR F. BURTON, Belleville, N. J. Filed July 28, 1899. Serial No. 725,351. (No model.)

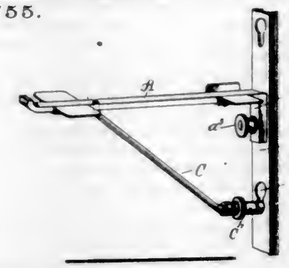


Claim.—The combination with an elevator-car, its hoisting and counterbalance cables and a standing cable; of the metallic brake-lever M operated directly by the weight of the car so as to grip the standing cable and having the hoisting-cable connected directly therewith, the metallic brake-block P having the said lever M pivoted thereto and the metallic connecting-link N pivotally connected to the car and the brake lever M substantially as described.

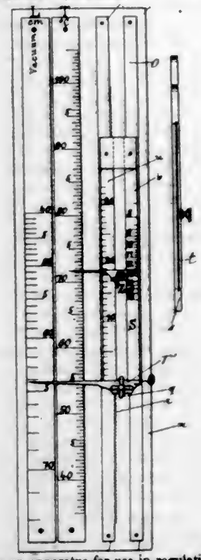
661,755. ADJUSTABLE BRACKET. STEPHEN F. CHENEY, Cleveland, Ohio, assignor to the Casler-Alton-Clarke Company, same place. Filed Apr. 7, 1899. Serial No. 712,147. (No model.)

Claim.—A bracket consisting of a horizontal member, a supporting member provided with a slot, an inclined member the lower end of which is threaded, a rotatable nut engaging said threaded end and formed with a groove engaging said slot, the upper portion of the latter being of a diameter greater than that of the nut ond, whereby the latter may be disengaged and removed from said supporting member, substantially as set forth.

661,755.



661,756. APPARATUS FOR CONTROLLING THE BOILING OF SUGAR-JUICES. HERMANN CLAASSEN, Dormagen, Germany. Filed Jan. 4, 1900. Serial No. 302. (No model.)

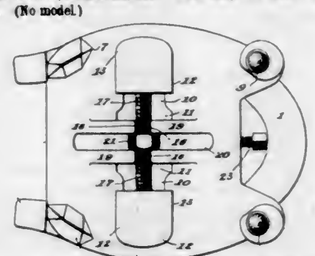


Claim.—1. In an apparatus for use in regulating the superconcentration of boiling sugar juices or syrups under vacuo and the temperature thereof and for use in controlling such superconcentration and temperature, the combination in a unitary structure of a vacuum-scale L and a temperature-scale T so correlated with each other that the boiling temperature of water at any given vacuum may be directly read, a sliding double scale S consisting of a scale *u* for indicating boiling temperatures of sugar juices and syrups and a scale *v* indicating the percentage of water at such boiling temperature, the said two scales being so correlated with each other that the water percentage at any given boiling temperature may be directly read from the scale, a fixed indicator carried by the double sliding scale and coöperating with the vacuum and temperature scales L T and a sliding indicator Z coöperating with the scales *u v* and the scale T substantially as described, whereby when the fixed indicator is set on the scales L and T, and the movable indicator Z is set to indicate the desired water contents, the said indicator Z will thereby indicate on the scale T the desired temperature to which the sugar juice or syrup is to be boiled.

2. An apparatus for use in sugar-boiling operations, the same consisting of fixed scales L T, one of the said scales indicating the degrees of vacuum and the other of the said scales indicating degrees of temperature, a double sliding scale provided with an index stationary with respect thereto when the apparatus is in use, the said index coöperating with the scales L and T to show the boiling-point of water at any desired degree of vacuum, the sliding scale having thereon degrees of temperature in excess of the boiling-point of water and opposite the said degrees of temperature, a scale indicating the percentage of water in the syrup at that temperature and a movable index Z coöperating with the two scales of the sliding scale and the temperature-scale T, whereby by setting the fixed index of the sliding scale opposite the desired or existing vacuum in the vacuum-pan and setting the sliding index Z opposite the point on the water-percentage scale which indicates the desired water contents, the said index Z will indicate on the scale T, the degree to which the juice or syrup should be boiled.

3. In an apparatus for use in determining the proper boiling temperatures of sugar-juices, the combination of a temperature-scale and a vacuum-scale so arranged as to be conjointly readable and a sliding scale provided with a plurality of indicators, one of the said indicators being when in use fixed with respect to the sliding scale and the other of the said indicators being movable with respect to the sliding scale, the sliding scale being provided with designations indicating water contents of syrups, the movable indicator coöperating with the temperature-scale and with the scale of water contents, whereby when the indicator which is fixed with respect to the sliding scale is adjusted to indicate the existing vacuum on the vacuum-scale and the movable indicator has been set to the desired water contents, the said movable indicator will also indicate the proper temperature at which to conduct the boiling operation, substantially as described.

661,757. ICE-CREEPER ATTACHMENT FOR HORSESHOES. JOHN N. CLARKE, Evansville, Ind. Filed Aug. 14, 1900. Serial No. 26,903. (No model.)



Claim.—1. In a device of the character described, the combination of a body portion having calks and provided with guide-slots each formed with an expanded part extended through the body portion, a slide-block insertible in the expanded portion of and movable along each guide-slot for engagement with a horseshoe, and a shaft held to turn on the body portion and having oppositely-screw-threaded end portions each engaged with one of said devices for moving the said devices in opposite directions, substantially as set forth.

2. In a device of the character described, the combination of a body portion having calks and provided with guide-slots having expanded portions, slide-blocks insertible in the expanded portions of the guide-slots and movable along the slots in position to engage a shoe, and means to move said slide-blocks, substantially as set forth.

3. In a device of the character described, the combination of a body portion having guide-slots and provided with ribs arranged between the slots and recessed on the under side of the body portion, slide-blocks movable along the guide-slots, a shaft having its central part held in the recesses of the ribs and its end portions oppositely screw-threaded and engaged with the slide-blocks, and an enlargement on the shaft between the ribs, substantially as set forth.

4. In a device of the character described, the combination of a body portion having calks and provided with guide-slots each having an expanded portion, slide-blocks each insertible in the expanded portion of and movable along one of the guide-slots for engagement with a horseshoe, and means to move the slide-blocks, each slide-block having lateral projections at top and bottom adapted for engagement, along the edges of its guide-slot, with the upper and lower surfaces of the body portion to hold said slide-block in position in its slot, substantially as set forth.

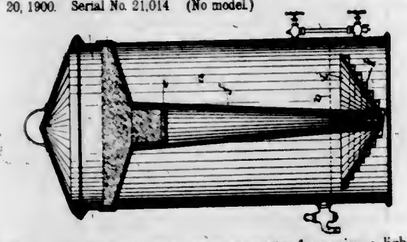
5. In a device of the character described, the combination of a body portion having calks and provided with devices for engagement with a horseshoe, a shaft held to turn and provided with a central enlargement and oppositely-screw-threaded end portions each engaged with one of said devices for moving the said devices in opposite directions, and ribs upon the body portion for engagement upon opposite sides of the enlargement of the shaft to hold the shaft against endwise movement, substantially as set forth.

6. In a device of the character described, the combination of a body portion having means to engage a horseshoe, and a screw having threaded engagement with the forward part of the body portion and provided with a head adapted for turning engagement with the forward part of the horseshoe to press the body portion rearwardly to engage its devices with the horseshoe, substantially as set forth.

7. In a device of the character described, the combination of a body portion having calks, devices carried by the body portion and movable relatively to each other for engagement with opposite sides of a horseshoe to hold the body portion in place thereon, means to move said shoe-engaging devices relatively to each other, and a device carried on the body

portion and movable for engagement with the forward part of the horse-shoe, substantially as set forth.

661,758. OIL-FILTER. JOHN G. DOUGHTY, Winsted, Conn., assignor of one-half to William E. Simonds, Canton, Conn. Filed June 20, 1900. Serial No. 21,014. (No model.)



Claim.—1. In combination, in an apparatus for passing a lighter fluid through a heavier one and in contact therewith—the tank adapted to contain the heavier fluid, means for introducing the lighter fluid into the heavier-fluid space, and the detainer having a spiral ascending lane for the lighter fluid on its conical surface; all substantially as described and for the purposes set forth.

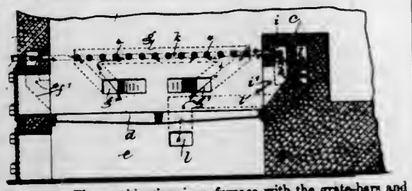
2. In combination, the tank, the pipe adapted to conduct the lighter fluid into the heavier-fluid space, the filter delivering into said pipe, and the detainer having a spiral ascending lane for the lighter fluid on its conical surface, all substantially as described and for the purposes set forth.

661,759. RAIL-JOINT. EDWARD FRANTI and ALFRED J. LANG, Jr., Allenport, Pa. Filed Aug. 21, 1900. Serial No. 27,598. (No model.)



Claim.—In a rail-joint, the combination of the engaging rail ends, one of which is provided in the side of its tread at the end of the rail with an angular recess and is cut away in its base at the opposite side of the rail, and the other of which rail ends has a projecting tongue adapted to fit in the angular recess and is cut away on one side of its base at the end of the rail whereby the tread and base of the rails may be interlocked, substantially as described.

661,760. SMOKE-CONSUMING DEVICE FOR FURNACES. GEORGE S. GALLAGHER, New York, N. Y., assignor to Zilliah R. Gallagher, Emma G. Gallagher, and Harry F. Gallagher, same place. Filed Jan. 11, 1900. Serial No. 1,039. (No model.)



Claim.—1. The combination in a furnace with the grate-bars and the walls, of flues placed horizontally in the said walls and throats in the said walls connecting the fire-chamber adjacent to the bed of fuel with the said flues, series of openings in the inner surfaces of the said furnace-walls connecting the said flues with the combustion-chamber beneath the boiler, pipes for air under pressure in said flues and injector-nozzles connected to and extending from the said pipes into the said series of openings, whereby the action of injected air draws the smoke and unconsumed products of combustion off the body of fuel into the said flues and forces the same commingled with air into the combustion-chamber to be consumed, substantially as set forth.

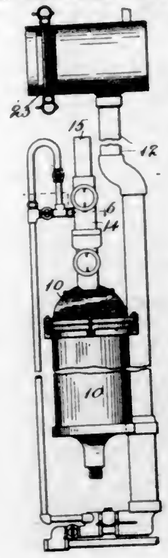
2. The combination in a furnace with the grate-bars, the side and front walls and the bridge-wall, of flues in the said walls, throats in the said walls connecting the fire-chamber adjacent to the bed of fuel with the said flues, series of openings in the inner surfaces of the said furnace-walls connecting the said flues with the combustion-chamber beneath the boiler, pipes for air under pressure in said flues and injector-nozzles connected to and extending from the said pipes into the said series of openings, whereby the action of injected air draws the smoke and unconsumed products of combustion off the body of fuel into the said flues and forces the same commingled with air into the combustion-chamber to be consumed, substantially as set forth.

3. In a furnace, the combination with the grate-bars and the side and front walls, of flues in the said walls placed horizontally, a central throat between the fuel-doors in the front wall rising and opening into the flue in the said wall, adjacent throats in the side walls with upward-inclined portions connecting the same with the ends of the flues in the side walls, the said throats being adjacent to the surface of the bed of fuel upon the grate-bars, series of openings connecting the said flues in the side and front walls with the combustion-chamber of the furnace below the boiler, pipes in said flues and injector-nozzles extending from said pipes into said series of openings for air under pressure, which is forced through the said pipes and nozzles and acts to draw the smoke and unconsumed gases off the bed of fuel, and to force the same commingled with air into the combustion-chamber of the furnace to be consumed, substantially as set forth.

4. In a furnace the combination with the walls and the grate-bars and the bridge-wall extending across between the side walls, of companion flues extending within across the said bridge-wall and series of openings connecting the said flues with the combustion-chamber of the furnace beneath the boiler, throats in the said bridge-wall adjacent to the bed of fuel extending rearward and rising and joining with the said companion flues, pipes in the said companion flues and nozzles connected thereto and extending therefrom into the series of openings, the said pipes carrying air under pressure which is forced through the said nozzles to draw the smoke and unconsumed products of combustion off the fire, and which, when mixed with the said air, is forced into the combustion-chamber to be consumed, substantially as set forth.

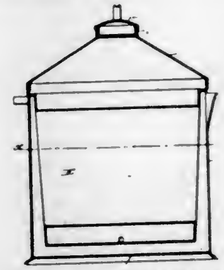
5. In a furnace the combination with the walls and the grate-bars and the bridge-wall extending across between the side walls, of companion flues extending within across the said bridge-wall, and series of openings connecting the said flues with the combustion-chamber of the furnace beneath the boiler, throats in the said bridge-wall adjacent to the bed of fuel extending rearward and rising and joining with the said companion flues, pipes in the said companion flues and nozzles connected thereto and extending therefrom into the series of openings, the said pipes carrying air under pressure which is forced through the said nozzles to draw the smoke and unconsumed products of combustion off the fire, and which when mixed with the said air, is forced into the combustion-chamber to be consumed, and flues in the side walls and throats connecting the same and opening out into the ash-pit beneath the grate-bars and extending rearward and rising and connecting with parallel horizontal flues extending across through the bridge-wall behind the companion flues, and return ends connecting the said flues with the opposite ends of the companion flues, substantially as and for the purposes set forth.

661,761. ACETYLENE-GAS GENERATOR. WILLIAM S. HANN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Feb. 26, 1900. Serial No. 6,528. (No model.)



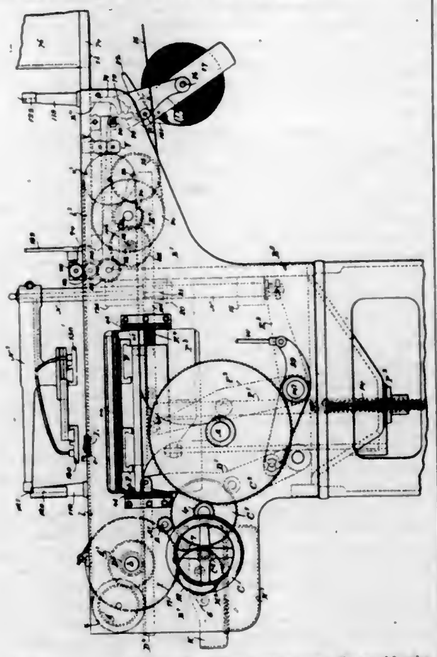
Claim.—In an acetylene-generator, in combination, a fixed nipple, a generating-cell removably attached thereto and having a plurality of vertically-arranged carbid-receptacles, the nipple and cell being so formed that water will be delivered upon the top of the carbid, a water-tank and connection leading therefrom to the nipple, and a water-gage scaled to indicate the quantity of water required for slaking the contents of each carbid-receptacle.

661,762. MILK-COOLER. KATHARINE HUNTSMAN, Belleville, Ohio, administratrix of Clancy Huntsman, deceased. Filed May 31, 1900. Serial No. 18,662. (No model.)



Claim.—In a milk-cooler, the combination of an inner and outer receptacle, the inner receptacle smaller than the outer and secured within the same, forming a water-space surrounding and underneath the inner receptacle, a connecting-tube passing centrally through the inner receptacle and connecting with the water-space surrounding the same, partitions extending downward from the top of the water-space to the bottom of the same, a partition extending across the bottom within the water-space the said partition connecting with the vertical partitions, as shown and described.

661,763. BOOK-COVER MACHINE. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Smyth Manufacturing Company, same place. Filed Jan. 20, 1900. Serial No. 2,093. (No model.)



Claim.—1. In a machine for making book-covers, the combination with a picker-shaft and picker-arm connected therewith, of means for imparting a vertical periodical movement to the said picker shaft and arm, bearings for the said picker-shaft in which the same is moved vertically, a toothed segment surrounding the picker-shaft and supported at one of the said bearings, a rack engaging the said segment and means for periodically moving the said rack to swing the said segment and means projecting from the picker-shaft below the toothed segment for periodically engaging the said segment and locking the two parts together, whereby a forward-and-backward movement to the extent of a half-revolution is imparted to the said picker-shaft, substantially as set forth.

2. In a machine for making book-covers, the combination with the picker-shaft and picker-arm connected therewith, of means for imparting a vertical periodical movement to the said picker shaft and arm, bearings for the said picker-shaft in which the same is moved vertically, a toothed segment surrounding the picker-shaft and supported at one of the said bearings, a rack engaging the said segment, and means for periodically moving the said rack to swing the said segment, and means connected with the picker-shaft for engaging the said segment and locking the two parts together, whereby a forward-and-backward movement to the extent of a half-revolution is imparted to the said picker-shaft, and guides upon the frame of the machine receiving the free ends of the picker-arm which also act as stops to limit the movement of the said picker-arm and determine its respective positions, substantially as set forth.

3. In a machine for making book-covers, the combination with a vertical picker-shaft and horizontal arm at the upper end of the same and bearings in the frame of the machine for the said picker-shaft, of a lever and means for actuating the same for raising and lowering the said picker-shaft, a toothed segment surrounding the said picker-shaft and supported adjacent to the upper bearing of the said shaft, a rack engaging the said toothed segment and a lever and means for operating the same for imparting a half forward-and-backward rotation to the said toothed segment, and means projecting from the said picker-shaft below the toothed segment for engaging the said toothed segment only when the picker-shaft is in its elevated position, whereby the toothed segment and picker-shaft are then locked to insure the rotation of the picker-shaft and the parts are disengaged when the picker-shaft is moved downward, substantially as set forth.

4. In a machine for making book-covers, the combination with a vertical picker-shaft and horizontal arm at the upper end of the same and bearings in the frame of the machine for the said picker-shaft, of a lever and means for actuating the same for raising and lowering the said picker-shaft, a toothed segment surrounding the said picker-shaft and supported adjacent to the upper bearing of the said shaft, a rack engaging the said toothed segment and a lever and means for operating the same for imparting a half forward-and-backward rotation to the said toothed segment, and a hub upon the picker-shaft, and a vertical pin connected to the said hub and adapted to be received in an opening therefor in the toothed segment, the said hub and pin moving vertically with the said shaft and coming into locking engagement when the picker-shaft is in its elevated position, substantially as and for the purposes set forth.

5. In a machine for making book-covers, the combination with a discharger-slide, the belt connected therewith and the pulleys around which said belt passes, of a stud fastened to and supported by one of the frames of the machine, a hollow shaft around the said stud and on which one of the discharger-slide pulleys is loose, a pinion mounted on said hollow shaft and a rack and means for moving the same in first one direction and then in the other, a friction-sleeve coming against the said loose pulley and a nut for applying a regulatable tension to the said sleeve and loose pulley, substantially as and for the purposes set forth.

6. In a machine for making book-covers, the combination with the discharger-slide, the belt connected therewith and the pulleys around which such belt passes, of a stud connected to and supported by one of the frames of the machine, a hollow shaft surrounding the same, a pinion upon one end of said hollow shaft, and a rack for rotating the said shaft first in one direction and then in the opposite direction, a ratchet formed on the outer face of the said hollow shaft and a loose toothed wheel coming between the ratchet and the loose pulley of the discharger-slide, a pawl on the face of the toothed wheel engaging the said ratchet, a means for applying friction to the opposite surface of the discharger-slide pulley to clamp the same against the said toothed wheel to hold the said toothed wheel with a regulatable friction, substantially as and for the purposes set forth.

7. In a machine for making book-covers, the combination with the discharger-slide, the belt connected therewith and the pulleys around which such belt passes, of a stud connected to and supported by one of the frames of the machine, a hollow shaft surrounding the same, a pinion upon one end of said hollow shaft and a rack for rotating the said shaft first in one direction and then in the opposite direction, a ratchet formed on the outer face of the said hollow shaft, and a loose toothed wheel coming between the said ratchet and the loose pulley of the discharger-slide, a pawl on the face of the toothed wheel engaging the said ratchet, a means for applying friction to the opposite surface of the discharger-slide pulley to clamp the same against the said toothed wheel to hold the said toothed

wheel with a regulatable friction, a wheel engaging the toothed wheel and a connection therefrom and endless belts driven thereby for continuing the movement of the finished cover from the discharger-slide, substantially as set forth.

8. In a machine for making book-covers, the combination with a rack and pinion and a lever and cam for actuating the same, of a hollow shaft operated by the said pinion, a ratchet on the opposite end of the said hollow shaft, a loose toothed wheel surrounding the said shaft adjacent to the said ratchet, and a pawl on the face of the toothed wheel engaging the ratchet, a gear meshing with the said toothed wheel, and a second gear meshing with the first gear, a roller on which the second gear is mounted and an endless belt passing around said roller, whereby the belt is driven from the toothed wheel by the said gears, a second roller around which the said endless belt passes, and a gear thereon, the said rollers being supported by the main frame of the machine and a platen and rollers and a belt carried thereby and actuated by the first-named belt, substantially as set forth.

9. In a machine for making book-covers, the combination with a rack and pinion and a lever and cam for actuating the same, of a hollow shaft operated by the said pinion, a ratchet on the opposite end of the said hollow shaft, a loose toothed wheel surrounding the said shaft adjacent to the said ratchet, and a pawl on the face of the toothed wheel engaging the ratchet, a gear 32 meshing with the said toothed wheel and a gear 33 meshing with the gear 32, a roller 36 on the shaft of the gear 33 and supports therefor from the main frame of the machine, a roller 37, a gear 34 on the shaft of the said roller and supports therefor from the frame of the machine, an endless band *d* passing around rollers 36 and 37, a gear 35 meshing with the gear 34 and a roller 38 on the same shaft as the gear 34, and a platen to which the roller 35 and gear 38 are connected, a roller 39 on the opposite end of the said platen and bearings therefor in the platen and an endless band c passing around the rollers 38 and 39, the said endless bands conveying and delivering from the machine the finished cover, substantially as set forth.

10. In a machine for making book-covers, the combination with a supporting-frame, a bed and a yielding surface thereon, of a platen above the same, a guide for the said platen, links pivoted to opposite sides of the platen, shafts connecting the lower ends of the said links, a link connecting the said shafts, shafts pivoted in the frame and cranks connecting the pairs of shafts, and means substantially as specified, for actuating the shafts of the frame and swinging the links of the platen to impart an up-and-down movement to the platen, substantially as set forth.

11. In a machine for making book-covers, the combination with a supporting-frame, a bed and a yielding surface thereon, of a platen above the same, a guide for the said platen, links pivoted to opposite sides of the platen, shafts connecting the lower ends of the said links, a link connecting the said shafts, shafts pivoted in the frame and cranks connecting the pairs of shafts, a crank connected to one end of one shaft in the frame, a connecting-rod secured to said crank and a lever and cam for actuating the said connecting-rod and crank to impart thereto an up-and-down movement for swinging the cranks and links and actuating the platen, substantially as set forth.

12. In a machine for making book-covers, the combination with a supporting-frame, a bed and a yielding surface thereon and a platen above the same and means for imparting an up-and-down movement to the platen, of a roller 37 and a gear 34 at the end of the press-frame, and a band surrounding the roller 37, a roller 38 and a gear 35 at the end of the platen, the gears 34 and 35 meshing with one another, a band passing around the platen and around the roller 38, and bearing-arms 110 pivoted to the ends of the platen and supporting the ends of the shaft of the roller 38, substantially as and for the purposes set forth.

13. In a machine for making book-covers, the combination with the supporting-frame, the bed and a water-bag forming a yielding surface above the bed, of an endless belt around said bed and water-bag, a platen above the water-bag and belt and an endless belt around said platen, rollers supporting said belts and around which they are moved and means for imparting an up-and-down movement to the platen and the upper belt, substantially as specified.

14. In a machine for making book-covers, the combination with the supporting-frame, the bed and a water-bag forming a yielding surface above the bed, of an endless belt around said bed, and water-bag, a platen above the water-bag and belt and an endless belt around said platen, rollers supporting said belts and around which they are moved and means for imparting an up-and-down movement to the platen and the upper belt, means for moving said belts and simultaneously bringing the cover from the platform P to and beneath the platen and discharging a cover therefrom, substantially as set forth.

15. In a machine for making book-covers, the combination with the supporting-frame, the bed and a water-bag forming a yielding surface above the bed, of a platen above the bed, rollers at the ends of the bed and platen, and endless belts around said rollers, gears connecting the belts, and means for actuating the lower belt and for simultaneously bringing the cover from the platform P to and beneath the platen and for discharging a cover therefrom, substantially as specified.

16. In a machine for making book-covers, the combination with rollers and gears for feeding the back-lining strip into the machine, and a loose gear, its shaft and friction devices for engaging the same in one direction for actuating the said rollers and gears, of a pinion on the shaft of the loose gear, a rack for revolving the pinion, shaft and loose gear, and adjustable and regulatable devices actuating the rack for imparting the desired longitudinal movement thereto, substantially as set forth.

17. In a machine for making book-covers, the combination with rollers and gears for feeding the back-lining strip into the machine, and a loose gear, its shaft and friction devices for engaging the same in one direction for actuating the said rollers and gears, of a pinion on the shaft of the loose gear, a rack for revolving the pinion, shaft and loose gear, and adjustable and regulatable devices actuating the rack for imparting the desired longitudinal movement thereto, devices actuated by the source of power for operating the said adjustable and regulatable devices and means for disconnecting the same when desired from the said power devices, substantially as set forth.

18. In a machine for making book-covers, the combination with rollers and gears for feeding the back-lining strip into the machine, and a loose gear, its shaft, and friction devices for engaging the same in one direction for actuating the said rollers and gears, of a pinion on the shaft of the loose gear, a rack for revolving the pinion, shaft and loose gear, and adjustable and regulatable devices actuating the rack for imparting the desired longitudinal movement thereto, and by which the relation of the parts may be altered for effecting a variation in the length of feed of the back-lining strip, substantially as set forth.

19. In a machine for making book-covers, the combination with rollers for feeding the back-lining strip into the machine, gears for operating said rollers and friction devices for moving said gears in one direction, of a rack and pinion for actuating said gears and friction devices, a crank and connections therefrom for actuating the said rack, an adjustable connection between the said crank and rack for shortening or lengthening the throw of the crank and imparting greater or less movement to the said rack, and means for actuating the said crank, substantially as set forth.

20. In a machine for making book-covers, the combination with rollers for feeding the back-lining strip into the machine, gears for operating said rollers and friction devices for for moving said gears in one direction, of a rack and pinion for actuating said gears and friction devices, a slotted crank, gears and a rack for imparting a backward-and-forward movement to said slotted crank, and means for disconnecting the same, a crank-pin movable longitudinally in the said slotted crank, means for determining the position of the said crank-pin and a connection from the same to the rack for actuating the back-lining feed, substantially as set forth.

21. In a machine for making book-covers, the combination with rollers for feeding the back-lining strip into the machine, gears for operating said rollers and friction devices for moving said gears in one direction, of a rack and pinion for actuating said gears and friction devices, a slotted crank, gears and a rack for imparting a backward-and-forward movement to said slotted crank and means for disconnecting the same, a crank-pin and block movable lengthwise of the said slotted crank, a screw passing through the slotted crank-pin and also through the shaft of the crank for moving the crank-pin nearer to or farther from the crank-shaft and for securing the position of the said crank-pin, a block upon the said crank-pin and ribs upon the surface of the rack forming slideways for said block, whereby the said crank imparts a forward-and-backward movement to the said rack and the extent of movement of the said rack and consequently the extent of feed of the back-lining strip are determined and regulated, substantially as set forth.

22. In a machine for making book-covers, the combination with means for progressively feeding the back-lining strip to the machine, of a support for the said roll of back-lining strip, plates for holding the roll of back-lining strip in place upon the support and adjustable guides upon said plates and between which the said strip unwinds as it passes to the feeding devices, substantially as set forth.

23. In a machine for making book-covers, the combination with means for feeding the back-lining strip into the machine, of a bracket-arm and a headpiece connected to the frame of the machine, the said headpiece having a curved portion and a groove, an arm pivoted to the said bracket and a handle connected to the said arm, the back-lining strip passing between the said arm and the said groove, whereby the handle is brought into action to force the back-lining strip between the said arm and into the groove of the bracket-head to remove inequalities and straighten out the strip, substantially as set forth.

24. In a machine for making book-covers, the combination with the frame, of a bracket-head and bracket-arm connected to and supported thereby, a shaft 86 carried by the bracket-arm for supporting the roll of back-lining strip, plates upon the said shaft at either side of the roll of back-lining strip for keeping the same in place and guides 88 connected to the upper ends of said plates, and means for regulating the position of said guides to the width of the back-lining strip, substantially as set forth.

25. In a machine for making book-covers, the combination with a table and supporting-bracket for receiving the book-covers as delivered from the machine, of a support to which the said bracket is connected, friction devices maintaining the position of the said bracket in relation to the support, and means substantially as specified and adapted to come in contact with the pile of superposed finished covers for periodically releasing the said friction devices for allowing the bracket and table to descend, substantially as set forth.

26. In a machine for making book-covers, the combination with the frame and a substantially vertical slide-bar connected therewith, of a slide-block in the said slide-bar, a table connected to the said slide-block, and means for frictionally maintaining the relation of the said slide-block to the said slide-bar, devices operated by the vertical movement of the platen and means connected therewith and adapted to come in contact with the pile of superposed finished covers, and means actuated by the movement of said parts for actuating the said friction devices for progressively releasing and lowering and again engaging the support for the covers, substantially as set forth.

27. In a machine for making book-covers, the combination with a substantially vertical slide-bar and connections therefrom to the frame of the machine, of a slide-block movable in said slide-bar, a table for the pile of superposed covers connected to the said slide-block, a friction-rod placed substantially vertical between the said slide-bar and slide-block, a crank-arm connected to the upper end of the said bar and adapted to impart a slight turning movement thereto, a spring for holding the said bar in a normal position and causing the said rod to bear frictionally against the slide-block for maintaining the same and the table in position, and means adapted to come in contact with the pile of superposed book-covers for moving the said bent lever and releasing the friction to allow the table to descend, substantially as set forth.

28. In a machine for making book-covers, the combination with a substantially vertical slide-bar and connections therefrom to the frame of the machine, of a slide-block movable in said slide-bar, a table for the pile of superposed covers connected to the said slide-block, a friction-rod placed substantially vertical between the said slide-bar and slide-block, a crank-arm connected to the upper end of the said rod and adapted to impart a slight turning movement thereto, a spring for holding the said rod in a normal position and causing the said rod to bear frictionally against the slide-block for maintaining the same and the table in position, a vertically-movable platen and pivoted arms actuated thereby, and means pivotally connected to said arms and adapted to come in contact with the pile of superposed book-covers for moving the said crank-arm and releasing the friction-rod to allow the table to descend by gravity, substantially as set forth.

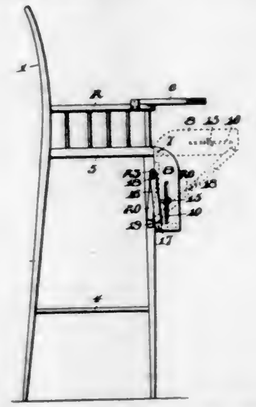
29. In a machine for making book-covers, the combination with a substantially vertical slide-bar and connections therefrom to the frame of the machine, of a slide-block movable in said slide-bar, a table for the pile of superposed covers connected to the said slide-block, a friction-rod placed substantially vertical between the said slide-bar and slide-block, a crank-arm connected to the upper end of the said friction-rod and adapted to impart a slight turning movement thereto, a spring for holding the said friction-rod in a normal position and causing the said rod to bear frictionally against the slide-block for maintaining the same and the table in position, a vertically-movable platen, arms pivoted to the frame of the machine and connections therefrom to the said platen whereby a swinging movement is imparted to said arms, a cross-bar connecting the free ends of said arms, links pivoted to the said arms and connected at their free ends by another cross-bar, a bar connected to one of the said links and depending therefrom and slotted at its lower end and receiving in said slot the free end of the aforesaid crank-arm, substantially as and for the purposes set forth.

30. In a machine for making book-covers, the combination with the glue-roll and the cloth-cylinder, of a pivoted shaft and supports therefor, a lever secured to said shaft, a dry-back scraper connected to said shaft, a spring for actuating said lever in one direction, and means connected to the cloth-cylinder for swinging the said lever periodically, substantially as set forth.

31. In a machine for making book-covers the combination with the glue-roller, of the cloth-cylinder having an annular groove at one end and a notch or enlargement in the said groove, pins adjustably secured in said groove and a spring-actuated lever and scraper operated by the rotation of the cloth cylinder and contact with the said pins, substantially as set forth.

32. In a machine for making book-covers, the combination with the glue-roller, of the cloth-cylinder having an annular groove at one end and a notch or enlargement in the said groove, a pivot-shaft connected to the frame of the glue-cylinder, a lever pivoted to said shaft, a spring for actuating the short end of said lever, the long end of said lever having a curved portion coinciding with the arc of the annular groove in the end of the cloth-cylinder and having inclined ways at opposite sides of the said curved portion for engagement with the said pins of the cloth-cylinder, and a dry-back scraper secured to the said pivot-shaft, whereby the said spring acting upon the lever brings the dry-back scraper into contact with the glue-cylinder and the pins in the cloth-cylinder acting upon the long end of the lever periodically swing the lever and remove the dry-back scraper from contact with the surface of the glue-cylinder, substantially as set forth.

661,764. SAFETY ATTACHMENT FOR INFANTS' HIGH CHAIRS. HOWARD B. JOHNSTON, Brownsville, Pa. Filed Mar. 14, 1900. Serial No. 8,582. (No model.)



Claim.—1. The combination with a high or baby chair, of a bracket having its upper end suitably connected thereto and carrying an adjustable foot-rest, a link pivotally connected to said chair and provided with an L-shaped recess in its upper end, a headed stud or pin carried in the upper end of said link, a link pivotally connected to said bracket and provided with an opening in its upper end having said stud or pin operating therein, and a stop-ing formed integral with the upper end of said last-named link and adapted to operate within the L-shaped recess of the first-named link, as and for the purpose herein specified.

2. The combination with the high chair for infants' use, of a pair of brackets pivotally secured at their upper ends to the seat of said chair and each provided with an oblong slot, a foot-rest having a guide-lug on each end to engage and operate in said oblong slots, a nut mounted on each of said guide-lugs for securing the foot-rest in the desired position, a pair of links 20 pivotally connected to the legs of said chair and each provided near their upper ends with an L-shaped recess, a headed stod carried in the upper ends of said links, links 16 pivotally connected at their lower ends to the brackets and each provided near their upper ends with oblong slots to receive said headed studs, and a stop-lug carried by each of said links 16 and adapted to engage in the L-shaped recess of the links 20, all combined and operating substantially as herein shown and described.

661,765. RENNET EXTRACT AND PROCESS OF MAKING SAME. JOHN A. JUST, Syracuse, N. Y. Filed Dec. 27, 1899. Serial No. 741,722. (No specimens.)

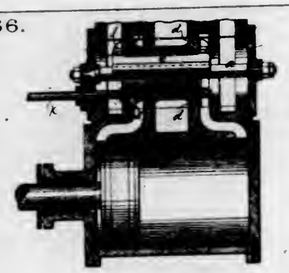
Claim.—1. The hereinbefore-described composition consisting of rennet ferment and a solution of calcium chlorid.

2. The hereinbefore-described process of preparing rennet ferment which consists in extracting said ferment from rennets by means of a weak solution of calcium chlorid, and in afterward adding additional calcium chlorid to said extract solution and filtering it, substantially as described.

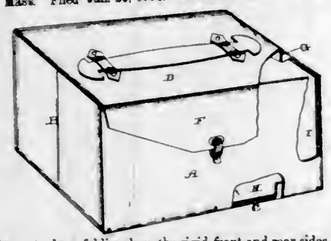
661,766. PISTON-VALVE. CARL J. MELLIN, Richmond, Va. Filed Nov. 7, 1899. Serial No. 736,199. (No model.)

Claim.—The combination with a horizontal or inclined cylindrical piston-valve having a hollow center, and a cylindrical valve-case, of a bearing-slideway extending through said valve and having fixed supports for its ends, and a bearing-slide carried by said valve and working on said slideway to relieve the under side of said valve of wear and maintain said valve centrally in the case of the valve.

661,766.



661,767. FOLDING LUNCH-BOX. JOSEPH S. O'BRIEN, Springfield, Mass. Filed Jan. 29, 1900. Serial No. 3,104. (No model.)



Claim.—1. In a folding box, the rigid front and rear sides, the folding end pieces, and the folding bottom piece, combined with a folding bottom piece which is loosely attached at one edge to one of the sides of the box along its lower edge, and the end flaps or wings which are adapted to be raised vertically between the front and rear sides of the box, and thus prevent it from collapsing, substantially as described.

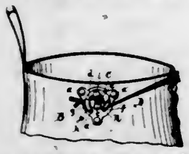
2. In a folding lunch-box, a cover hinge-connected to one upper longitudinal edge of the box and provided with a flap along its front edge, and at its ends with the two wings or flaps G, G, and said box comprising the end walls, B, B, and the expander-sections adapted to be swung upwardly to occupy positions close to said end walls, the upper edges of the end walls and expanders being free whereby said flaps G G of the cover may be entered therebetween, substantially as described.

3. A box provided with folding ends, and a folding bottom, a second bottom loosely attached to the inner side of the box, and end wings or expanders connected thereto, and which wings or expanders are adapted to be raised vertically between the front and rear sides of the box, combined with a cover having end wings or flaps, and which end wings or flaps are adapted to catch between the top edges of the folding ends of the box, and the end wings or expanders inside of the box, substantially as specified.

4. A box provided with collapsible ends having as a part thereof a collapsible or folding bottom, a second bottom within the box and provided with end wings or expanders and which are adapted to be raised vertically and extended between the front and rear sides of the box, combined with a cover having end flaps or wings adapted to be entered between the ends of the box and the expanders next therewithin, substantially as described.

5. A folding lunch-box provided with collapsible end walls, and having two bottoms one of which is collapsible on folding lines between its edges, while the other bottom is hinge-connected along one edge to the lower edge of one box side, and one of said bottoms having wings or expanders which are adapted to be folded down closely relatively thereto, and to be raised vertically, and which extend between the front and rea sides of the box, and a cover hinge-connected along one upper edge of the box.

661,768. SHOE-LACE FASTENER. WILLIAM A. PARKINSON, Syracuse, N. Y. Filed Mar. 22, 1900. Serial No. 9,701. (No model.)



Claim.—1. In a lace-fastener for shoes and analogous articles, the combination with a base-plate attached to the article and provided with a fixed jaw, a member pivoted on said plate and provided with a jaw facing the fixed jaw and with hooked projections, the lace engaging said projections and passing between said jaws, and by its draft actuating said pivoted member to cause the jaws to grip the lace substantially as set forth.

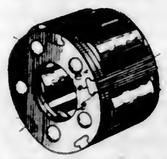
2. In a lace-fastener for shoes and analogous articles, the combination with a base-plate attached to the article and formed on its face with a fixed jaw, a segmental bar pivoted to said plate and formed at one end with a jaw facing the fixed jaw and with hooked projections, the lace engaging said projections and passing between said jaws, and by its draft actuating said bar to cause said jaws to grip the lace substantially as set forth.

3. In a lace-fastener for shoes and analogous articles, the combination with a base-plate attached to the article and formed on its face with an inclined fixed jaw, a segmental bar pivoted to said plate and formed at one end with a corresponding jaw facing the fixed jaw, and at its other end with a downwardly-hooked projection, and at its intermediate portion with an upwardly-hooked projection, the lace engaging said projections and passing between said jaws and by its draft actuating said bar to cause the jaws to grip the lace substantially as set forth.

4. In a lace-fastener for shoes and analogous articles, the combination with a base-plate attached to the article and formed on its face with an inclined fixed jaw and with a tongue rising therefrom, a segmental bar formed at its central portion with an ear by which it is pivoted between said tongue and plate, one end of said bar being formed with a jaw corresponding to and facing the aforesaid fixed jaw and at its other end with a downwardly-hooked projection, and at its central portion with an upwardly-hooked projection, the lace engaging said projections and passing between said jaws and by its draft actuating said bar to cause said jaws to grip the lace substantially as set forth.
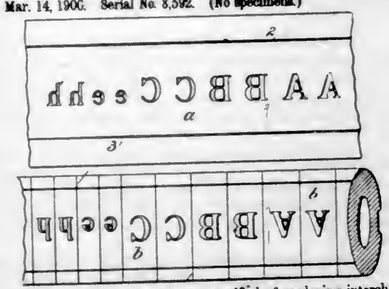
5. In a lace-fastener for shoes and analogous articles, the combination with a base-plate attached to the article and formed on its face with a fixed jaw, a segmental bar pivoted to said plate and formed at one end portion with a jaw facing the fixed jaw and terminating with a downwardly-extending hook, the other end portion of said bar being formed with a similar hook and the central portion formed with an upwardly-extending hook, the lace engaging said hooks and passing between said jaws and by its draft actuating said bar to cause the jaws to grip the lace substantially as set forth.

661,769. SHEET-METAL CAGE FOR ROLLER-BEARINGS. JULIUS A. PERKINS, Omaha, Nebr., assignor to the Moffett Bearing Company, Council Bluffs, Iowa. Filed Apr. 10, 1900. Serial No. 12,282. (No model.)



Claim.—A sheet-metal roller-cage composed of an end plate having integral bars occupying a position parallel with the longitudinal center of the cage, said bars having inturned ends notched and provided with enlargements, a backing-plate notched at its periphery, and a notched cage end, the inner ends of the notches of the cage end being enlarged to receive the enlargements at the ends of the arms.

661,770. METHOD OF PRODUCING INTERCHANGEABLE LETTER OR FIGURE DISKS. JOHN H. RIDLEY, New York, N. Y. Filed Mar. 14, 1900. Serial No. 8,592. (No specimens.)

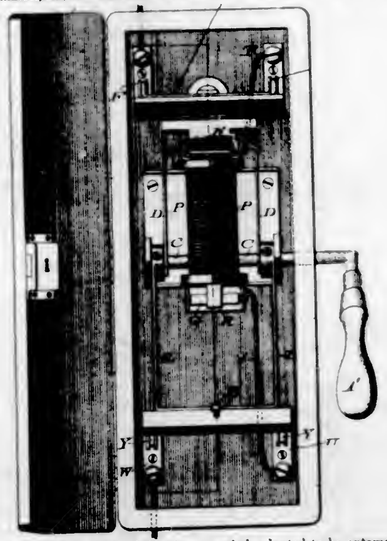


Claim.—1. The method herein specified of producing interchangeable letter or figure disks, consisting in engraving a plate with the letters or figures spaced apart, hardening the said plate, taking off in relief the letters or figures from the plate upon a hollow roll, cutting up the hollow roll into disks or sections and hardening the same so that the disks may thereafter be associated for the name and number desired, substantially in the manner and for the purposes set forth.

2. The method herein specified of producing interchangeable letter or figure disks, consisting in engraving a plate with the letters or figures spaced apart, hardening the said plate, taking off from the plate the letters or figures in relief upon a hollow soft-metal roll, longitudinally grooving the said roll at a point distant from the letters or figures, cutting up the said roll between the letters or figures into disks or sections, grinding down the said disks to the required thickness and thereafter hardening the same, the disks being thereafter adapted to be associated for names or numbers, substantially in the manner and for the purposes set forth.

3. The method herein specified of producing interchangeable letter or figure disks, consisting in engraving a plate with the letters or figures spaced apart and with lines parallel to one another and at opposite sides of the row of letters or figures, hardening the said plate, taking off from the said plate upon a hollow roll of soft metal the said letters or figures and the parallel lines, grooving the said hollow roll longitudinally upon the opposite side from that having the letters or figures in relief, cutting up the said hollow roll between the said letters or figures into disks or sections, grinding the surfaces of said disks to the thickness desired and thereafter hardening the same, so that the letters or figures are adapted to be associated for names or numbers and the ribs on the surface thereof becoming guides, substantially in the manner and for the purposes set forth.

661,771. ELECTRIC-CIRCUIT BREAKER. BENJAMIN P. RUCKER, Philadelphia, Pa. Filed June 25, 1900. Serial No. 21,425. (No model.)



Claim.—1. In a circuit-breaker, a switch adapted to be automatically operated by an abnormal current to break the circuit at one point, and a switch adapted to break the circuit at another point and by means of which said automatically-operated switch is operated to make the circuit.

2. In a circuit-breaker, a plurality of switches adapted to break the circuit at different points, one of said switches being adapted to be automatically operated by an abnormal current to break the circuit, and adapted to be operated by said other switch to make the circuit, said other switch being adapted to break the circuit when actuated to operate the automatically-operated switch.

3. A circuit-breaker having a switch adapted to be automatically operated by an abnormal current to break the circuit at one point, and a manually-operated switch adapted to break the circuit at another point and to operate said automatically-operated switch to make the circuit.

4. A circuit-breaker, having a plurality of contact-carrying arms adapted to break the circuit at different points, one of said contact-carrying arms being automatically operated by an abnormal current to break the circuit, the other contact-carrying arm being situated in the path of said automatically-operated contact-carrying arm, and means for moving said other contact-carrying arm whereby the automatically-operated contact-carrying arm can be moved by said other contact-carrying arm to make the circuit at one point and said other contact-carrying arm then returned to its normal position to make the circuit at the other point.

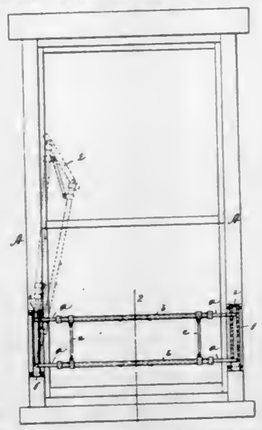
5. In a circuit-breaker, an automatically-operated contact-carrying arm, an auxiliary contact-carrying arm situated in the path of the same, and means for moving said auxiliary contact-carrying arm to move said contact-carrying arm to its operative position.

6. In a circuit-breaker, a spring-actuated contact-carrying arm, a catch for holding the same in operative position, an armature adapted to operate said catch and itself adapted to be operated by an electromagnet in the circuit controlled by the circuit-breaker, an auxiliary contact-carrying arm situated in the path of said contact-carrying arm, and means for moving said auxiliary contact-carrying arm to move said contact-carrying arm to its operative position.

7. In a circuit-breaker, an automatically-operated contact-carrying arm freely mounted upon a shaft, an auxiliary contact-carrying arm rotatable with said shaft and situated in the path of said contact-carrying arm, and means for moving said shaft to cause the auxiliary contact-carrying arm to move the contact-carrying arm to its operative position.

8. In a circuit-breaker, a switch adapted to be automatically operated by an abnormal current to break the circuit at one point, a switch adapted to break the circuit at another point and by means of which said automatically-operated switch is operated to make the circuit, a casing inclosing said switches, and a lever for operating said switch that operates the automatically-operated switch, said lever projecting exterior to said casing.

661,772. WINDOW-GUARD. FRIEDRICH SCHMELZLE, New York, N. Y. Filed Sept. 13, 1900. Serial No. 29,886. (No model.)



Claim.—In a window-guard, the combination of bent horizontal rods with tubes telescoping the inner ends of said rods, means for limiting the movement of the rods, pales pivoted to the tubes, slides connecting the outer ends of the rods, and slotted casings adapted to receive the slides, substantially as specified.

661,773. SNAP ATTACHMENT. WILLIAM E. SELL, Canton, Ohio, assignor to the Gilliam Manufacturing Company, same place. Filed Aug. 24, 1900. Serial No. 27,876. (No model.)



Claim.—1. The combination of a snap having a hook and spring-pressed tongue, an eye adapted to take onto the hook, and a flexible strap taking onto the hook at the rear of the eye and tending to retard the opening of the snap, said eye and strap being connected with the same member whereby the strap furnishes an extra hold if the eye does pass off the snap, substantially as described.

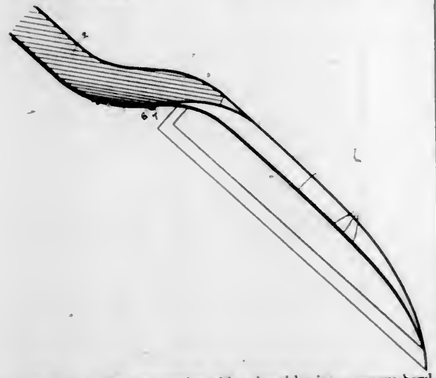
2. In combination, a snap, a member carrying the same, a coöperating eye, and a member carrying it, a flexible tongue extending from the member which carries the eye and passing onto the hook of the snap, substantially as described.

3. The combination of a snap consisting of a hook, and a tongue spring-pressed against the inner side of the hook, a strap, an eye secured thereto, a flexible extension secured to said strap and extending beyond the eye and having an opening in it near its end which opening and eye are both adapted to pass onto the hook of the snap, the tongue being long

enough to be relieved of the weight of the strap when the eye is on the hook, substantially as described.

4. The combination of a snap consisting of a hook, and a tongue spring-pressed against the inner side of the point of the hook, a strap, an eye through which the upper end of the strap extends said end being bent back upon the strap, a flexible tongue secured to said strap and extending above the eye and having an opening through it above the eye, said extension being adapted to hook onto the snap back of the eye, the same threads passing through the turned-over end of the strap through the strap itself and through the tongue, securing all three of these parts together, substantially as described.

661,774. PROSPECTING-SHOVEL. PATRICK J. SHEEHY and ROBERT E. O'NEILL, San Francisco, Cal. Filed May 3, 1900. Serial No. 15,297. (No model.)



Claim.—1. The combination with a shovel having a concave bowl, of a perforated concave plate within the shovel-bowl, said plate being shaped substantially like the bowl and having its edges forming a close joint around the inner surface of the bowl, the bowl and plate having different concavities whereby a chamber is formed between the two, and means for detachably securing the plate to the shovel.

2. The combination with a shovel having a handle and a concave bowl, of a perforated plate within the bowl, said plate being shaped substantially like the bowl but of less concavity and forming a chamber between itself and the bowl, and said plate having its edges forming a close joint around the inner wall of the bowl and having a shank extending along the shovel-handle, and means for detachably securing the shank to the shovel-handle.

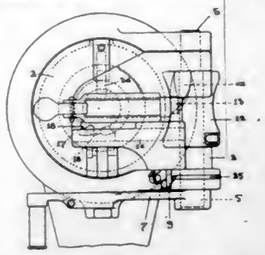
3. A shovel having a concave bowl and a perforated plate supported within the bowl out of contact with the bottom thereof to form an intermediate chamber, and means for detachably securing the plate to the shovel.

4. The combination with a shovel having a handle and a concave bowl, of a perforated plate within said bowl and having a less concavity than the bowl, and having its edges fitting the inner surface of the bowl, and forming a chamber between itself and the bowl, a shank extending from the plate along the handle of the shovel and having keybole-shaped slots made therein, pins fixed in the shovel-handle, having heads adapted to pass through the larger portion of the slots and to be interlocked with the narrower portion by sliding the shank with relation to the pins, and means by which the shank may be thus moved to engage with or disengage from said pins.

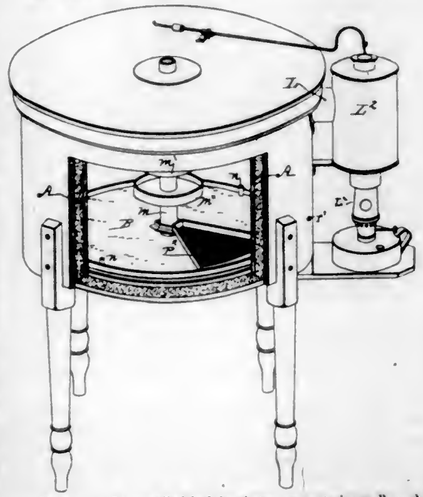
5. The combination with a shovel having a handle and a concave bowl, of a perforated plate of less concavity than the bowl, and having its edges forming a close joint around the inner surface of said bowl, to form a chamber between the two, and means for removably locking the plate to the shovel consisting of an elastic shank on the plate and having keybole-slots, and pins fixed in the shovel-handle and having heads which engage with the slots when the shank is pressed down upon them.

661,775. BREECH MECHANISM FOR BREECH-LOADING GUNS. ARVID SILFVERSPARRE, Bofors, Sweden. Filed Aug. 15, 1900. Serial No. 26,909. (No model.)

Claim.—In breech mechanisms for breech-loading guns the combination of the breech-screw 1 rotatably mounted on a door 2 adapted to be swung sidewise on a vertical hinge attached to the gun, a roll 12 secured on the rotary hinge-pin 5 and having on its circumference a slot *a* which on a portion of its length is horizontal while the remainder of it is inclined, a pin projecting radially from the breech-screw and adapted to be shifted sidewise by the inclined part of the slot and thus rotate the screw so as to loosen it from the obturator 4, a sliding toothed rack 16 arranged on the door 2 and engaging, when the door is swung outward from its closed position, with a cog or tooth 22 located on the roll 12 and shifting the rack longitudinally, a toothed segment 18 on the rear end of the screw 1 and engaging with the rack at its movement, thus turning the screw still farther at a great velocity until its motion is arrested by a stop-pin 36 secured on the door, a tooth 14 located on the circumference of the roll 12 and adapted to engage, on the completion of the rotation of the screw required for its extraction, in a recess *b* made in the screw, thus at the continued rotation of the screw compelling it to move rectilinearly rearward guided by its neck, and a vertical sliding latch 9 arranged in the door 2, said latch being movable longitudinally to the hinge-pin and during the rotation and rearward motion of the screw 1 engaging, by means of a lug *c* projecting from its lower end, with an axial recess *d* of a horizontal slot 25 arranged in the circumference of the nearest hinge-ear, thus locking the door to the gun while at the same time a lug *c* at the upper end of the latch slides in the horizontal portion of a slot 24 in the roll, the farther end portion of which slot has such shape that during the final rotation of the roll it moves the latch out of engagement with the hinge-ear and into engagement with the roll so that the door will be disengaged from the hinge-ear, coupled to the roll and thus compelled to partake in the rotation of the latter and be moved outward together with the breech-screw.



661,776. INCUBATOR. NEWTON C. SPRAGUE, Des Moines, Iowa, assignor to the Iowa Incubator Company, same place. Filed Apr. 30, 1900. Serial No. 14,863. (No model.)



Claim.—1. In a cylindrical incubator, an exterior wall, a sheet-metal plate fitted to the wall to serve as a roof for an egg-chamber and the bottom of a hot-air reservoir to radiate heat, a metal plate of smaller diameter supported in a plane above said metal roof-plate, a metal plate having a continuous flange on top of the said roof-plate and provided with a vertical opening, a tube having perforations at its bottom and an open top extended up from the center of the said roof-plate through the said two metal plates above the roof-plate and the top of the case, and means for discharging hot air down through the opening in the center of the metal plate, arranged and combined to operate in the manner set forth for the purposes stated.

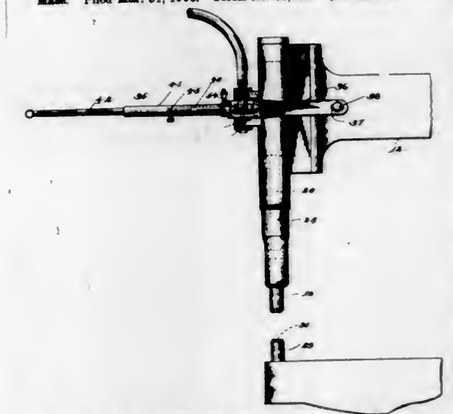
2. In a cylindrical incubator, an exterior wall, a sheet-metal plate fitted to the wall to serve as a roof for an egg-chamber and the bottom of a hot-air reservoir to radiate heat, a metal plate of smaller diameter supported in a plane above said metal roof-plate, a metal plate having a continuous flange on top of the metal roof-plate and provided with a central opening, a tube having perforations at its bottom and an open top extended up from the center of the roof-plate through the said two metal plates above the roof-plate and the top of the case, and means for discharging hot air down through the opening in the center of the upper metal plate, an auxiliary air-chamber on top of said upper plate and around said tube and in communication with the hot-air reservoir under said upper plate and a heat-generator outside of the case, arranged and combined to operate in the manner set forth for the purposes stated.

661,777. CAR-TRUCK BOLSTER. HARRY C. STALDER, Portsmouth, Ohio. Filed Aug. 16, 1900. Serial No. 27,094. (No model.)



Claim.—A car-truck bolster comprising I-beams forming the sides thereof, top and bottom plates connecting said beams, a spring plank or bar beneath the bottom plate, an inverted-U-shaped stirrup or plate connected to the I-beams, a brace connecting the upper end of said stirrup to the beams, and springs resting on the plank or bar and seated in said stirrup, substantially as set forth.

661,778. RIVETING-MACHINE. HENRY H. THORNTON, Somerville, Mass., assignor to the Roberts Iron Works Company, Cambridge, Mass. Filed Mar. 31, 1900. Serial No. 10,905. (No model.)



Claim.—1. In a riveting-machine, a cylinder, a riveting-tool connected with the cylinder, a piston in the cylinder to operate the tool, a guiding-support for the cylinder, an actuator to move the cylinder back and forth on said support in the direction of the stroke of the piston to bring the tool in contact with the work, and means operated by the actuator for supplying a fluid to the cylinder to operate the piston.

2. In a riveting-machine, a tool, a cylinder, a piston in the cylinder to operate the tool, a slide connected with the cylinder, means to support the slide, an actuator to move the slide back and forth upon its support to carry the tool in contact with or away from the work, and means operated by the actuator to admit a fluid to the cylinder for operating the piston thereof.

3. In a riveting-machine, a cylinder, a tool having a smooth stem supported by the cylinder, a piston in the cylinder to operate the tool, a spring fixed in relation to the cylinder and bearing against the smooth stem of the tool whereby the tool is frictionally sustained by the cylinder but is free to rotate on its axis.

4. In a riveting-machine, a cylinder having an extension, a riveting-tool supported by said extension, a piston in the cylinder to operate the tool, and a spring fixed to the interior of said extension and bearing against the stem of the tool, whereby the tool is frictionally sustained in said extension but is free to rotate on its axis.

5. In a riveting-machine, a cylinder, a piston in the cylinder, means for admitting a fluid to the cylinder to operate the piston, a sleeve having a screw-threaded engagement with the cylinder, and forming an extension thereof, a tool having a smooth stem inclosed by said sleeve, a spring fixed to the interior of said sleeve, and bearing against the stem of the tool, whereby the tool is frictionally sustained in the extension but is free to rotate on its axis.

6. In a riveting-machine, a framework, a cylinder, a piston in the cylinder, an actuator to move the cylinder back and forth on the framework in the direction of the stroke of the piston, means operable by the actuator to admit a fluid to the cylinder to operate the piston, a sleeve connected with and forming a continuation of the cylinder, a tool inclosed by said sleeve, a hammer connected with the piston to operate the tool, and a spring in the sleeve to engage said tool.

7. In a riveting-machine, a framework, a cylinder on the framework, a piston in the cylinder, an actuator to move the cylinder back and forth upon the framework, means operated by the actuator for admitting a fluid to the cylinder to operate the piston, a sleeve adjustably connected with and forming a continuation of the cylinder, a tool inclosed by said sleeve, a hammer connected with the piston to operate the tool, and an anvil cooperating with said tool to head the rivet.

8. In a riveting-machine, a framework, a cylinder supported thereby, means to move the cylinder back and forth upon the framework, a piston in the cylinder, means operated independently of the cylinder-actuating means for admitting a fluid to the cylinder for operating the piston, a sleeve in screw-threaded engagement with and forming a continuation of the cylinder, a tool partially inclosed by said sleeve, said tool having a smooth stem, a hammer connected with the piston to impart a blow to the tool, and a spring fixed to the sleeve and engaging the tool whereby the said tool is frictionally sustained by the sleeve and is free to rotate on its axis.

9. In a machine of the class described, a cylinder provided with a sleeve in screw-threaded engagement therewith and forming a continuation of the same, a piston in the cylinder, means to effect the operation of the piston, a tool partially inclosed by the sleeve, a flat spring also inclosed by the sleeve to engage the sides of the tool, and a hammer connected with the piston to operate the tool.

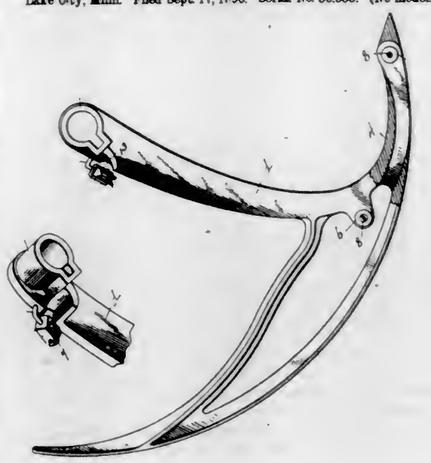
10. In a machine of the class described, a cylinder, a piston in said cylinder, a valve controlling the admission of fluid to said cylinder, an actuator for advancing the cylinder, and means operated by the actuator to open the valve.

11. In a machine of the class described, a cylinder, a piston in said cylinder, a valve controlling the admission of fluid to said cylinder, an actuator for advancing the cylinder, means operated by the actuator to open the valve, a tool, and means operative with the piston to impart a blow to the tool.

12. In a machine of the class described, a cylinder, a piston in the cylinder, a valve controlling the admission of fluid to the cylinder, an actuator for advancing the cylinder, including a turning member, connections between said turning member and the valve to operate the latter, a tool, and means operative with the piston to operate the tool.

13. In a machine of the class described, a cylinder, a yoke connected with the cylinder having a projection, a sleeve turning upon the projection, a piston in the cylinder, a valve controlling the admission of fluid to the piston, and connections between said valve and the sleeve.

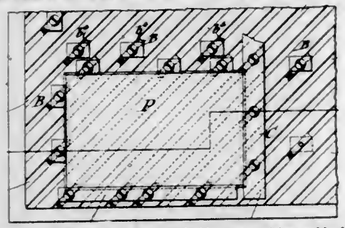
661,779. NEEDLE FOR GRAIN-BINDERS. JOHN VOLLMERS, Lake City, Minn. Filed Sept. 17, 1900. Serial No. 30,355. (No model.)



Claim.—1. The combination with a needle for grain-binding harvesters, of guide-pulleys for the twine or wire, one of said pulleys being arranged adjacent to the axis of the needle and having a swiveled connection with the needle, substantially as described.

2. The combination with a needle for grain-binding harvesters, of guide pulleys or sheaves for the binding twine or wire, one of said pulleys being arranged adjacent to the axis of the needle and journaled in a yoke or hanger having a rotatable engagement with a bracket projecting from and carried by the needle, substantially as described.

661,780. STEREOTYPE-PLATE HOLDER. FERDINAND WEKEL, New York, N. Y. Filed Jan. 12, 1900. Serial No. 1,223. (No model.)

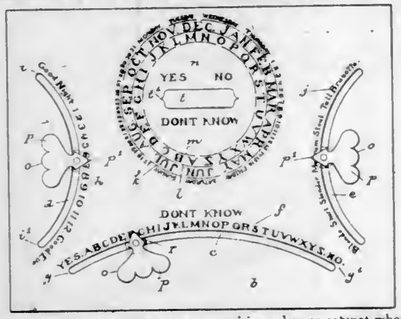


Claim.—1. A stereotype-plate holder, comprising a block having parallel dovetailed grooves arranged at an angle to the sides of the block, and margin-clamps arranged on said block, each of said clamps consisting of a base portion sliding in a groove of the block and provided with beveled sides, a face portion provided with a beveled side and a shoulder at the under side of the face portion and entering the groove, said shoulder being arranged at the same angle with the face portion as the grooves with the side of the block and having a lip extending at one end of the shoulder beyond the beveled side of the face portion, and a screw connecting the face and base portions, substantially as set forth.

2. A margin-clamp for stereotype-plate holders, consisting of a base portion having beveled sides, a face portion provided with a beveled side and an approximately diagonal shoulder at the under side of the face portion, said shoulder having a lip extending at one end of the shoulder beyond the beveled side of the face portion, and a screw connecting the face and base portions, substantially as set forth.

3. A margin-clamp for stereotype-plate holders, consisting of a base portion having beveled sides, a face portion provided with beveled sides and an approximately diagonal shoulder at the under side of the face portion, said shoulder being provided at each end with a lip extending beyond the beveled sides of the face portion, and a screw connecting the face and base portions, substantially as set forth.

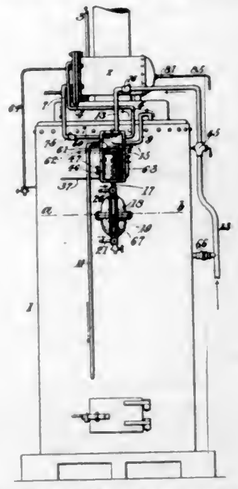
661,781. GAME APPARATUS. THEODORE H. WHITE, Baltimore, Md. Filed Apr. 19, 1900. Serial No. 13,480. (No model.)



Claim.—1. A game apparatus, comprising a box or cabinet whose top is provided with slots extending along its sides and characters such as letters, words and numerals arranged along one side of each slot; and an indicator in each slot and each provided with a finger-piece formed with a pointed end, and adapted to slide over the surface of said top and a guide-pin secured to and depending from the pointed end of the finger-piece and moving in said slot, and a retaining-button on the interior of the cabinet and secured to the lower end of said guide-pin, the opposing faces of the finger-piece and retaining-button being provided with means to reduce friction and prevent noise.

2. A game apparatus comprising a box or cabinet whose top is provided along each of three sides with a slot, and also having characters arranged along said slots and other characters in the space between the three slots; slidable indicators confined to and guided by said slots; and an indicator for the characters in the space between said slots, as set forth.

661,782. BOILER-FEEDER. THOMAS J. WHITNEY, Philadelphia, Pa. Filed Dec. 13, 1899. Serial No. 740,229. (No model.)



Claim.—1. In a boiler-feeder, a steam-valve, a float for actuating the latter, a lever from which said float is supported, lugs on said lever, members on said valve engaging said lugs, ports controlled by said valve, a piston actuated by steam passing through said ports, a heater, a valve for controlling ports through which the water flows from said heater to the boiler and actuated by said piston, and pipes intermediate said heater, valves and boiler.

2. In a boiler-feeder, a heater, a casing containing a float, said casing communicating with the water and steam space of the boiler, a valve-chamber, steam-ports in said chamber, a steam-valve controlling said ports, a lever carrying said float, and located in said chamber, interlocking devices common to said lever and steam-valve, a piston actuated by steam passing through said ports, and a valve for controlling ports through which the water flows from said heater to the boiler actuated by said piston.

3. In a boiler-feeder, a casing containing a slide-valve, water-holding chambers controlled by said slide-valve, means for introducing water into one of said chambers, a heater, connections common to said heater, water-chambers and boiler, a piston connected to said slide-valve, steam-ports for actuating said piston in either direction, a valve controlling said steam-ports and a float for actuating said valve, in combination with a lever supporting said float, walls located on opposite portions of said lever, a second lever fulcrumed in said casing, and a projecting member on said lever adapted to contact with said walls.

4. In a boiler-feeder, a casing containing a valve, water-holding chambers controlled by said valve, means for introducing water into one of said chambers, a heater, connections common to said heater, water-chambers and boiler, a piston connected to said valve, steam-ports for actuating said piston in either direction, a valve controlling said steam-ports, and a float for actuating said valve, in combination with a lever supporting said float, walls located on opposite portions of said lever, a second lever fulcrumed in said casing, and a projecting member on said lever adapted to contact with said walls.

5. In a boiler-feeder, the combination of a boiler, a casing connected with the steam-space thereof, a steam-piston therein, ports for operating said piston in either direction through which steam passes from the boiler, a steam-valve controlling said ports, a lever upon which said valve is mounted, interlocking devices common to said lever and valve, a float, connections from said lever to said float, the latter being actuated by variations of water-level in the boiler, a heater, and a valve actuated by said piston to control ports through which the water passes from the heater to the boiler.

6. In a boiler-feeder, a boiler, a heater, a casing containing a steam-actuated piston, a water-controlling valve operated thereby, ports and passages controlled by said valve and through which the water passes from the heater to the boiler, a series of steam-ports for operating said piston in either direction, a steam-valve controlling said ports and adapted to permit

the exhaust of steam at proper intervals, a float contained in said casing and having connections to the steam and water space of the boiler, a lever on which said steam-valve is supported, and connections from said float to said lever.

7. In a steam-boiler feeder, a boiler, a casing having a steam-actuated piston therein, ports and passages for conveying and exhausting steam to and from said piston, a valve for controlling said ports, a lever suitably fulcrumed on which said valve is supported, a float, connections from said float to said lever, means for actuating said lever from the exterior of the casing, a heater, and a valve actuated by said piston to control ports through which the water passes from the heater to the boiler.

8. In a boiler-feeder, a casing containing a water-inlet, a passage 14 and other water-passages 8, 12, 5 and 10, a feed-water heater, connections leading from said heater to certain of said passages, a steam-boiler, connections leading from the upper portion of the latter to certain of said passages, a pipe leading from certain of the latter to the lower portion of said boiler, a slide-valve controlling the flow of water through said passages, a steam-actuated piston connected to said slide-valve, ports leading to said slide-valve, ports leading to either side of said piston, a steam-valve controlling said latter ports, means for actuating said valve by a float and means for mechanically operating said valve from the exterior of the feeder.

9. In a steam-boiler feeder, a steam-boiler, a casing containing a float and having connections to the steam and water space of said boiler, a water-heater located above the latter and connections from said float to a lever suitably fulcrumed, a valve actuated by said lever and adapted to control a series of ports, counterbalancing devices for said lever, steam-passages leading from said ports to a steam-cylinder, a piston in said cylinder, a piston-rod leading therefrom and engaging a valve, the latter being provided with passages for controlling ports through which the water flows from said heater to said boiler.

10. In a steam-boiler feeder, a steam-boiler, a casing containing a float and having connections to the steam and water space of said boiler, a water-heater located above the latter and connections from said float to a lever suitably fulcrumed, a valve actuated by said lever and adapted to control a series of ports, steam-passages leading from said ports to a steam-cylinder, a piston in said cylinder, and a piston-rod leading therefrom and engaging a water-controlling valve, the latter being provided with passages for controlling the flow of water from said heater to said boiler, in combination with means for operating said lever and said water-valve from the exterior of the casing.

11. In a steam-boiler feeder, the combination of a boiler, a feed-water heater, pipes 4 and 7 connected with said feed-water heater, a water-controlling valve having a casing, a pipe 9 leading from the top of said boiler to a passage 10 in said casing, a passage 5 in said casing in communication with said pipe 4, a passage 8 in said casing for communicating with said pipe 7, a pipe 13 for conveying water into a passage 14 of said casing, a valved connection 66 common to said pipe 13 and to said boiler, a pipe 11 leading from a passage 12 in said casing to the lower portion of said boiler, a water-valve 40 for controlling said passages, a steam-cylinder having a piston therein, a connection from said piston to said water-valve, ports and passages for admitting and exhausting steam from either side of said piston, a valve controlling said ports, a counterbalanced lever on which said latter valve is mounted, a float contained in a chamber having communication with the water and steam space of said boiler and connections from said float to the lever carrying said latter valve.

12. In a boiler-feeder, a casing containing water-passages therein, a feed-water heater, a boiler, connections common to said casing, boiler and heater, a pipe for conveying water into said casing, a water-valve for controlling the passages in said casing, a steam-actuated piston having a piston-rod provided with a head and engaging a recess in said water-valve, ports and passages for controlling the admission and exhaust of steam to and from said piston, a valve for controlling said ports, a lever suitably fulcrumed and adapted to carry said valve, a counterbalance for said lever, a float contained in a casing having connections to the water and steam space of said boiler and connections from said float to said lever.

13. In a boiler-feeder, a casing containing water-passages therein, a feed-water heater, a boiler, connections common to said casing, boiler and heater, a pipe for conveying water into said casing, a water-valve for controlling the passages in said casing, a steam-actuated piston having a piston-rod provided with a head and engaging a recess in said water-valve, ports and passages for permitting the admission and exhaust of steam to and from said piston, a valve for controlling said ports, a lever suitably fulcrumed and adapted to carry said valve, a counterbalance for said lever, a float contained in a casing having connections to the water and steam space of said boiler and connections from said float to said lever, in combination with means for operating the water-valve from the exterior of the casing and means for operating the lever carrying said steam-valve.

14. In a steam-boiler feeder, the combination of a steam-boiler, a feed-water heater, a casing, a valved inlet-pipe leading to said casing and having a valved branch leading to said boiler, connections common to said heater, boiler, and casing, a valve controlling the water-passages in said casing, a steam-actuated piston controlling said valve, a steam-valve for controlling said piston and a float actuated by the variations of water-level for controlling the movements of said steam-valve.

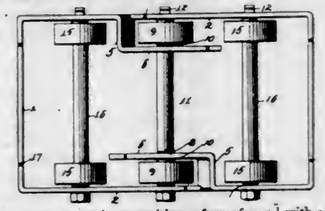
15. In a steam-boiler feeder, the combination of a steam-boiler, a feed-water heater, a casing, a valved inlet-pipe leading to said casing and having a valved branch leading to said boiler, connections common to said heater, boiler, and casing, a valve controlling the water-passages in said casing, a steam-actuated piston, a steam-valve for controlling said piston, and a float actuated by the variations of water-level for controlling the movements of said steam-valve, in combination with means for operating said water-valve and steam-valve from the exterior of said casing according to requirements.

16. In a boiler-feeder, a steam-valve, a lever, on which the latter is mounted, means for mechanically actuating said lever and valve from the exterior, ports controlled by said valve, a piston actuated by steam passing through said ports, a water-controlling valve actuated by the movements of said piston, a casing inclosing said valves, and means for actuating said water-valve from the exterior of said casing.

17. In a boiler-feeder, a casing, a steam-valve, a float for actuating the latter, ports controlled by said valve, a heater, means actuated by said steam-valve for controlling a valve through which the water flows from said heater to said boiler-pipes intermediate said heater, and boiler, and means for actuating said steam and water valves from the exterior of said casing.

18. In a steam-boiler feeder, the combination of a steam-boiler, a feed-water heater, a casing, a valved inlet-pipe leading to said casing, a valved branch leading from said inlet-pipe to said boiler, connections common to said heater, boiler and casing, a valve controlling the water-passages in said casing, means for actuating said valve, and a check-valve located in said valved inlet-pipe, said check-valve being provided with a plurality of perforations therein

661,783. ROLLER-TRUCK. GEORGE H. ALLAN and SAMUEL H. LACKLAND, St. Louis, Mo; said Lackland assignor to said Allan. Filed Apr. 30, 1900. Serial No. 14,963. (No model.)



Claim.—1. A truck, comprising a frame formed with a plurality of parts pivotally secured together, traction-wheels for supporting said frame, and means whereby certain of said wheels are elevated whenever an object is mounted on the framework, substantially as specified.

2. A truck comprising a frame formed with a plurality of parts pivotally secured together, axial bolts carried by said framework, traction-wheels carried upon said axial bolts, and means whereby certain of said wheels are elevated by the weight of the object mounted upon the framework, substantially as specified.

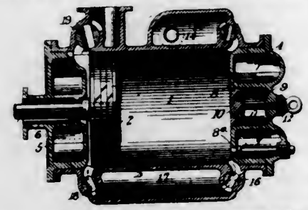
3. A truck comprising a frame formed with a plurality of parts, projecting portions carried by said framework, traction-wheels for supporting said framework and means whereby certain of said traction-wheels are elevated when any object is mounted on said framework, substantially as specified.

4. A truck comprising a framework, means whereby an object will be retained on said framework, traction-wheels for supporting said framework, means whereby all of said traction-wheels will rest upon the surface when the device is not in use, and means whereby certain of said wheels will be elevated when any object is mounted upon the framework, substantially as specified.

5. A truck comprising a framework, traction-wheels for supporting said framework, means for allowing all of said traction-wheels to move upon the surface, and means for elevating certain of said traction-wheels when the device is in use, substantially as specified.

661,784. APPARATUS FOR EXPANDING AND COMPRESSING GASES. LEICESTER ALLEN, New York, N. Y. Filed Mar. 28, 1899. Serial No. 710,853. (No model.)

Claim.—1. As a means for changing, in different stages, the volume and pressure of a gas or vapor, an engine-cylinder containing a reciprocating piston and having equal piston displacement in both a high-pressure space on one side of the piston and a low-pressure space on the opposite side of the piston, the said cylinder having an end clearance connected with its high-pressure space larger than that connected with its low-pressure space, said high and low pressure spaces having between them a connecting-passage and said larger end clearance being a mathematical function of the end clearance connected with said low-pressure space and computable therefrom, substantially as and for the purposes specified.



2. As a means for changing in stages the volume and pressure of a gas or vapor, the combination with an engine-cylinder containing a reciprocating piston and having equal piston displacement in both a high-pressure space on one side of the piston and a low-pressure space on the opposite side thereof and an end clearance connected with its high-pressure space larger than that connected with its low-pressure space, said high and low pressure spaces having between them a connecting-passage and said larger end clearance being a mathematical function of the clearance connected with said low-pressure space and computable therefrom substantially as described, of means for varying the said larger end clearance independently of the position of the cylinder-head adjacent to said high-pressure space, substantially as and for the purposes described.

3. The combination with an engine-cylinder containing a reciprocating piston and having a uniform pistoo displacement in both a high-pressure space on one side of the piston and a low-pressure space on the opposite side of the piston, the said cylinder having an end clearance connected with the high-pressure space larger than that connected with the low-pressure space, said high and low pressure spaces having between them a valve-controlled connecting-passage, of means for varying end clearance independently of the position of the cylinder-head adjacent to said clearance, substantially as herein described.

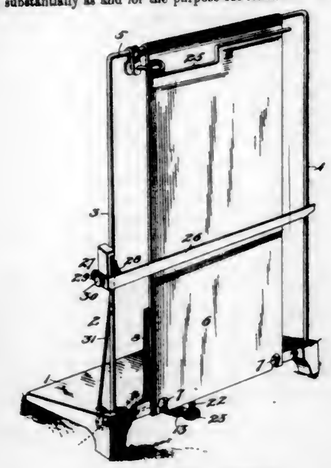
4. As a means for changing in stages the volume and pressure of a gas or vapor, the combination with an engine-cylinder containing a reciprocating piston that has equal piston displacement in both a high-pressure space on one side of the piston and a low-pressure space on the opposite side of the piston, the said cylinder having an end clearance connected with its high-pressure space larger than that connected with the low-pressure-space, said high and low pressure spaces having between them a connecting-passage and said larger end clearance being a mathematical function of that connected with said low-pressure space and computable therefrom substantially as described, of means for varying and adjusting the volume of said larger end clearance to any fraction of the stroke displacement within the limits of maximum and minimum end clearance for which said cylinder is designed, substantially as and for the purposes set forth.

5. As a means for changing, in different stages, the volume and pressure of a gas or vapor, an engine-cylinder containing a reciprocating piston and having equal piston displacement in both a high-pressure space on one side of the piston and a low-pressure space on the opposite side of the piston, the said cylinder having an end clearance connected with its high-pressure space larger than that connected with its low-pressure space, said high-pressure and low-pressure spaces being connected with each other by a valve-controlled passage, substantially as and for the purposes specified.

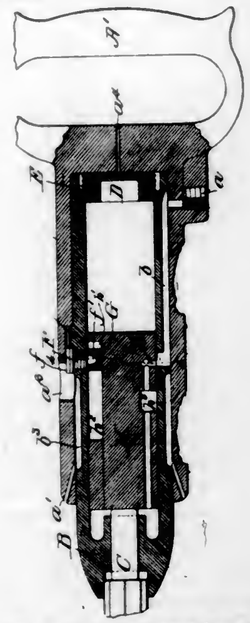
661,785. **COPY-HOLDER.** JOHN BACHELDER, Watertown, N. Y. Filed Mar. 1, 1900. Serial No. 6,928. (No model.)

Claim.—1. A copy-holder comprising a supporting-base, a vertically-slidable line-marker, a friction-wheel, a flexible connection between the line-marker and the friction-wheel, an operating-lever, a key connected to said operating-lever, a friction-lever provided with a friction-head adapted to engage the friction-wheel on the downstroke of the key to rotate it, and means for releasing the head from the periphery of the friction-wheel on the upstroke of the key and holding it out of engagement with said wheel while the key is in its uppermost position to permit of a reverse rotation of the friction-wheel, substantially as and for the purpose set forth.

2. A copy-holder, comprising the supporting-piece, a vertically-sliding line-marker, a friction-wheel, a flexible connection between the line-marker and the friction-wheel, an operating-lever, a key connected to said operating-lever, a friction-lever provided with a friction-head adapted to engage the friction-wheel on the downstroke of the key to rotate it, means for limiting the downstroke of the key, and means for releasing the head from the periphery of the friction-wheel on the upstroke of the key and holding it out of engagement with said wheel while the key is in its uppermost position to permit a reverse rotation of the friction-wheel, substantially as and for the purpose set forth.



661,786. **PNEUMATIC HAMMER.** ARTHUR C. BECKWITH, East St. Louis, Ill., assignor, by mesne assignments, to the Western Railway Equipment Company, of Missouri. Filed Sept. 1, 1899. Serial No. 729,226. (No model.)



Claim.—1. The combination with a sleeve formed with an admission-port, of a cylinder slidingly mounted in said sleeve and formed with an inlet-port or passage-way adapted to register with the sleeve-port when the cylinder is in a rear position, means for exerting a pressure tending to hold the cylinder in a forward position, and a piston carried by said cylinder; substantially as described.

2. The combination with a sleeve, of a longitudinally-movable cylinder mounted therein, said cylinder being formed with an inlet-port adapted to register with an inlet-port in the sleeve, and a spring for exerting pressure for forcing said cylinder forward to close said inlet-ports; substantially as described.

3. In a pneumatic hammer, the combination with a sleeve, of a slidable cylinder arranged therein, a piston carried by said cylinder, and means for exerting constant pressure against said cylinder to hold the same in a forward position, in which forward position the supply of motive fluid is cut off from the cylinder; substantially as described.

4. In a pneumatic hammer, the combination with a sleeve, of a slidable cylinder arranged therein, means for limiting the forward and backward movement of said cylinder, an expansible spring interposed between the rear end of the cylinder and the sleeve for exerting a constant pressure to hold the cylinder in a forward position, and a handle on the sleeve designed to be grasped by the operator in order that the pressure may be increased against the cylinder by compressing said spring when the sleeve is slid forward over the cylinder: substantially as described.

5. In a pneumatic hammer, the combination with a sleeve, of a longitudinally-movable cylinder mounted therein, a piston mounted in said cylinder, a chisel-shank for receiving impacting blows from said piston, and a spring interposed between the sleeve and the rear end of the cylinder for rendering the machine inoperative when in normal position; substantially as described.

6. In a pneumatic hammer, the combination with a sleeve or support, of a cylinder mounted therein and adapted to move longitudinally thereof, a piston arranged in said cylinder, a chisel-shank mounted in the forward end of said cylinder, and means exerting a constant pressure to hold said cylinder in a forward position to cut off the supply of motive fluid therefrom; substantially as described.

7. In a pneumatic hammer, the combination with a sleeve or other support, of a longitudinally-movable cylinder mounted therein, means for preventing said cylinder from rotating in the sleeve, and a spring exerting its energy to hold said cylinder in a forward position; substantially as described.

8. In a pneumatic hammer, the combination with a sleeve or other support, of a longitudinally-movable cylinder mounted therein, a piston in said cylinder, a spring for holding said cylinder in a forward position and a chisel-shank which is received by an opening in the front end of the cylinder, said chisel-shank forming a portion of the front end wall of the cylinder; substantially as described.

9. In a pneumatic hammer, the combination with a sleeve, of a longitudinally-movable cylinder mounted therein, a longitudinally-movable head for closing the rear end of the cylinder, and a yielding medium interposed between the sleeve and the cylinder-head for yieldingly holding the latter in position; substantially as described.

10. The combination with a sleeve, of a longitudinally-movable cylinder mounted therein, a piston mounted in said cylinder, a bolt mounted in said cylinder for limiting its longitudinal movement and preventing rotation thereof; substantially as described.

11. The combination with a sleeve, of a longitudinally-movable cylinder mounted therein, a bolt mounted in said cylinder for limiting its longitudinal movement and preventing rotation thereof relative to the sleeve, a piston mounted in the cylinder and provided with a spiral groove, and a roller mounted on the end of said bolt and fitting in said groove; substantially as described.

12. The combination with a sleeve provided with an opening a^2, and a recessed portion a^3 adjacent to said opening, a longitudinally-movable cylinder mounted in said sleeve, and a bolt which is introduced into a suitable opening in said cylinder through the opening a^2, the head of said bolt being received by the recess a^3, when the cylinder is moved longitudinally in the sleeve; substantially as described.

13. The combination with a cylinder, of a bolt formed with a tapered stud on its inner end projecting within the cylinder, a roller loosely mounted on said tapered stud, and a piston formed with a spiral groove for coöperating with said roller, said piston being also formed with ports coöperating with cylinder-ports, whereby when said piston is at or about the extremity of either movement it receives an impulse of comparatively short duration; substantially as described.

14. The combination with a cylinder provided with an inlet-port, and a piston formed with a plurality of ports coöperating with the cylinder-port in such manner that, in its forward movement, the piston receives an initial impulse and then an uninterrupted supply of motive fluid therebehind, and, in its rearward movement, said piston receives an initial impulse of short duration and then a second impulse of longer duration in front thereof, to force the piston rearwardly; substantially as described.

15. In a pneumatic hammer, the combination with a cylinder provided with an inlet-port, and a piston provided with a plurality of ports coöperating with the cylinder inlet-port in such manner that said piston, in its rearward movement, receives pressure in front thereof, in the form of impulses, said cylinder and piston being provided with coöperating ports whereby, when the piston is moving rearwardly, the pressure therebehind is exhausted uninterruptedly: substantially as described.

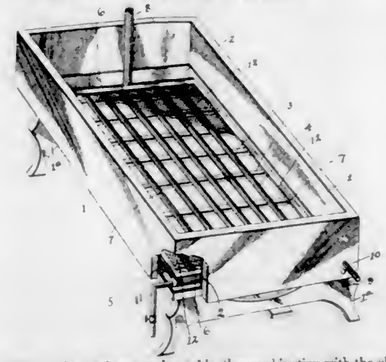
16. A pneumatic hammer comprising a cylinder having a bearing for a tool at one end and provided with an inlet-port and exhaust-ports on each side of said inlet-port, and a piston fitted to slide and turn in the cylinder, said piston being provided with blind passages h^6, h^7, and h^8, and an open passage h^4, h^5; substantially as described.

17. A pneumatic hammer comprising a cylinder having a bearing for a tool at one end and provided with an inlet-port and exhaust-ports on each side of said inlet-port, a piston fitted to slide and turn in the cylinder, said piston being provided with blind passages h^6, h^7, and h^8, and an open passage h^4, h^5, said piston being also provided with a spiral groove, and a roller carried by the cylinder and working in the said spiral groove; substantially as described.

18. A pneumatic hammer comprising a cylinder having a bearing for a tool at one end and provided with an inlet-port and exhaust-ports on each side of said inlet-port, a piston fitted to slide and turn in the cylinder, said piston being provided with blind passages h^6, h^7, and h^8, and an open passage h^4, h^5, the piston being also provided with a spiral groove open at one end thereof, oppositely-curved walls of said grooves intermediate the ends coöperating with a fixed roller to partially rotate said piston at different points in its forward and backward movements, and a stationary roller mounted in the cylinder for coöperating with said piston-groove; substantially as described.

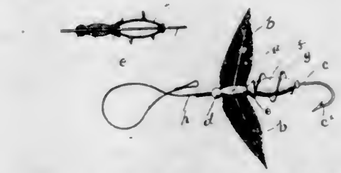
19. In a pneumatic hammer, the combination with a sleeve or other support, of a cylinder longitudinally movable therein, a piston carried by said cylinder, a chisel forming a portion of the front end wall of the cylinder, and a spring-pressed movable cap piece or head forming the rear wall of said cylinder: substantially as described.

661,787. **TOBACCO-CASING TABLE.** SEGELKE BOHLMAN, West Alexandria, Ohio, assignor of one-half to Henry Meyer, Cincinnati, Ohio. Filed May 9, 1900. Serial No. 16,037. (No model.)



Claim.—In a tobacco-casing table, the combination with the oblong tank, a metallic lining in its lower portion and parallel cross-bars 3 arranged in the bottom of said tank, of a heat-radiating frame consisting of transverse end pipes 6 and longitudinally-arranged pipes 4 connecting said end pipes, said radiating-frame supported upon said bars, a steam-inlet pipe connecting with one of said frame end pipes, an outlet-pipe connecting with the remaining end pipe and an oblong screen-frame detachably supported upon the upper side of said radiating-frame, substantially as specified.

661,788. **FISHING-FLY.** CHARLES D. BROOKE, Coshocton, Ohio. Filed Oct. 4, 1897. Renewed Apr. 3, 1900. Serial No. 11,352. (No model.)

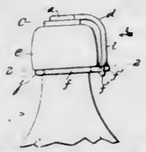


Claim.—1. In a fishing-fly, the combination with a hook and a fly-body carried thereon, said fly-body being provided with laterally-projecting wings, of a spinner-body rotatably journaled on said hook-shank, said

spinner-body being of an ellipsoidal form and provided with a spiral flange, substantially as and for the purpose specified.

2. In a fishing-fly the combination with a hook, a fly-body carried thereon, said fly-body being provided with laterally-projecting wings, of a spinner-body rotatably journaled on said hook-shank, said spinner-body being of an ellipsoidal form and provided with a spiral flange extending throughout its length and a substantially cup-shaped guard *e* interposed between said spinner-body and fly-body, said guard receiving one end of the spinner, substantially as and for the purpose specified.

661,789. **RETAINER FOR BOTTLE-STOPPERS.** GEORGE T. CHAPMAN, New York, N. Y.; Keren H. Chapman administratrix of said George T. Chapman, deceased. Filed Mar. 6, 1899. Serial No. 707,893. (No model.)



Claim.—In a bottle-stopper retainer formed of a single piece of spring-wire and comprising jaws *f* for gripping the neck of the bottle under the head, vertical members *l*, and the loop-arm *a* for bearing on the top of the stopper: the vertical members *l* looped around each other at *f'*, the gripping-jaws bent on a shorter radius than the radius of the bottle, and also formed with eye-terminals, and all constructed substantially as described.

661,790. **GARDEN-TOOL.** HARVEY L. CHILDERS, Allerton, Iowa. Filed July 5, 1900. Serial No. 22,561. (No model.)



Claim.—1. In a garden-tool, a handle having front and rear connecting devices for the attachment of a tool thereto, the rear connecting device being pivotally mounted and adapted to adjustably engage the tool-beam, substantially as set forth.

2. In a garden-tool, a handle having front and rear connecting devices for the attachment of a tool thereto, said rear connecting device consisting of a bolt pivotally connected thereto and adapted to adjustably engage the tool-beam, substantially as set forth.

3. In a garden-tool, a handle having a hook at its forward end, and a threaded bolt pivoted thereto in rear of the hook, said hook adapted to have a fixed and the bolt an adjustable engagement with a tool-beam.

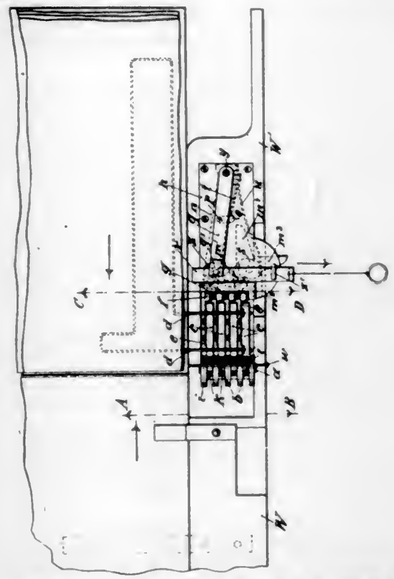
4. In a garden-tool, a tool-beam having an eye and a transverse connecting-plate, and a handle having a pivoted rear connecting member to adjustably engage said eye, and a front connecting member to detachably engage said plate, substantially as set forth.

5. In a garden-tool, a tool-beam having an apertured eye and a transverse connecting-plate, and a handle having a hook at its forward end to engage the aperture in the plate, and a pivoted bolt in rear thereof to adjustably engage said eye.

6. In a garden-tool, the combination of beams provided at their rear ends with eyes, a connecting-plate adjustably connecting said beams, a handle having at its forward end a hook to engage an aperture in said connecting-plate, a bolt pivoted to the handle and passed through said eyes, and fastening devices adjustably securing the eyes to the bolt, substantially as set forth.

661,791. **MUSIC-LEAF TURNER.** FRANZ J. CHRIST, Berlin, Germany. Filed Sept. 16, 1899. Serial No. 730,714. (No model.)

Claim.—1. A leaf-turner comprising any desirable number of levers *c* fulcrumed on a shaft *a* and having arms *d* to carry the respective leaves; detent-springs *e* on said levers, noses *g* with which the detent-springs engage when the levers are turned to normal position, a star-wheel *m*, engaging successively with the springs *e* to discharge them from their retaining-noses *g*, means for imparting step-by-step rotation to the star-wheel and springs *l* to effect the rotation of the levers when the latter are released, substantially as described.

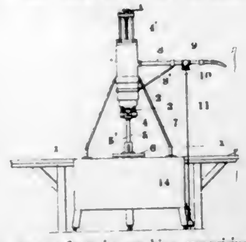


2. The combination of the levers *c* fulcrumed on a common shaft, leaf-turning arms *d* carried thereby, detaining-springs *e* on the levers carrying beveled blocks *f*, noses *g* with which the blocks *f* engage, a star-wheel *m* having teeth of unequal length to engage successively with the blocks *f* and discharge the same by rotation of the star-wheel, means for imparting step-by-step rotation to the star-wheel and suitable springs imparting movement to the levers when the latter are released substantially as explained.

3. The combination of the levers *c* fulcrumed on a common shaft *a*, leaf-turning arms, *d*, carried by said levers detaining-blocks *f* connected by springs *e* to the levers, noses *g* with which the blocks engage, the star-wheel *m* having teeth m', m^2, m^3, m^4 of successively greater length adapted to discharge the blocks *f* successively from the noses *g* when the star-wheel is rotated, the lever *n*, pawl *r* spring *t* ratchet-wheel *s* and a slide *v* suitably connected to the lever *n* to impart movement thereto and thereby impart step-by-step rotation to the star-wheel, and suitable springs *l* acting on the hubs of the levers and turning said levers when they are released.

4. In combination with levers *c*, leaf-turning arms *d* carried thereby, detaining-springs *e* and blocks *f* on the levers, noses *g* with which they are engaged, and suitable springs for turning the levers when released; the star-wheel *m* having teeth of unequal length and slide *v* connected levers *n q*, springs *t*, *u*, pawl *r* and ratchet-wheel *s* for imparting step-by-step rotation to the star-wheel substantially as described.

661,792. **MEAT-FLATTENER.** FREDERICK COWIN, Chicago, Ill. Filed Mar. 14, 1898. Serial No. 673,728. (No model.)



Claim.—1. A meat-flattening machine, comprising a meat-block; a member 6 having a flat under surface; and suitable mechanism secured to said block for imparting a yielding striking motion to said member and limiting the end of its downward stroke to a point above and free from the opposed surface of said block; substantially as described.

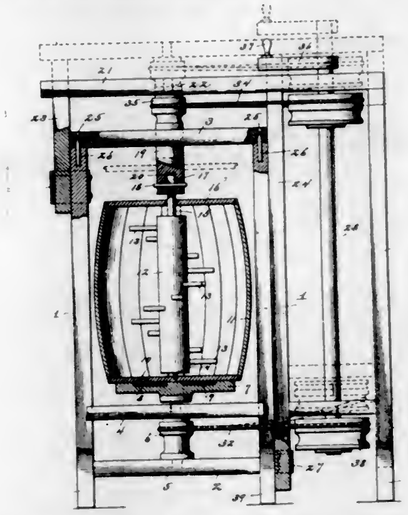
2. A meat-flattening machine, comprising a meat-block; a member 6 having a flat under surface; suitable mechanism secured to said block for imparting a yielding striking motion to said member and limiting the end of its downward stroke to a point above and free from the opposed surface of said block; and a pedal connected to said mechanism whereby same can be instantly stopped and started by the operator during the operation of feeding the machine; substantially as described.

3. A meat-flattening machine, comprising a meat-block; a member 6 having a flat under surface; suitable pneumatic mechanism secured to said block for imparting a yielding striking motion to said member and limiting the end of its downward stroke to a point above and free from the opposed surface of said block; an air-feed pipe communicating with said mechanism; a spring-valve in said pipe, normally closed; and a pedal connected to said valve whereby same can be instantly opened and closed by the operator during the operation of feeding the machine; substantially as described.

4. A meat-flattening machine, comprising a portable roller-mounted meat-block; a member 6 having a flat under surface; suitable pneumatic mechanism secured to said block for imparting a yielding striking motion to said member and limiting the end of its downward stroke to a point above and free from the opposed surface of said block; an air-feed pipe communicating with said mechanism, and having a flexible section; a spring-valve in said pipe, normally closed; and a pedal connected to said valve whereby the same can be instantly opened and closed by the operator during the operation of feeding the machine; in combination with a bench having a part cut out for receiving the block; substantially as described.

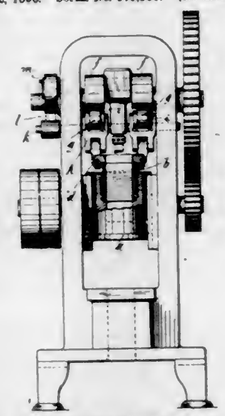
5. In an apparatus for flattening and smoothing cuts of meat, a frame-work, a pounding-block mounted to reciprocate therein, said block having an extended plain surface, and means for reciprocating said pounding-block, in combination with a stationary block having an extended plain flat surface arranged to coöperate with the pounding-block, as and for the purpose set forth.

661,793. **CHURN.** ANDREW W. DOLPH, Cherokee, Iowa. Filed Apr. 23, 1900. Serial No. 14,069. (No model.)



Claim.—A churn comprising an upright stationary frame and an upright slide-frame arranged side by side and slidingly associated and connected, fixed vertical dowel-pins on one of said frames adapted to engage the other frame when the parts are in their operative position, a revoluble disk journaled in the stationary frame, a pulley thereon, a churn-body removably mounted on the disk and adapted to interlock therewith, a vertical driving-shaft at the side of the churn-body mounted in and movable with the slide-frame, a rotary head detachably connected with the dasher-shaft, a pulley thereon, and belts connecting the driving-shaft with the pulleys on the rotary head and churn-body-supporting disk, substantially as described.

661,794. **STAMPING-PRESS.** HUGO DUDECK, Risedorf, Germany. Filed May 2, 1898. Serial No. 679,539. (No model.)

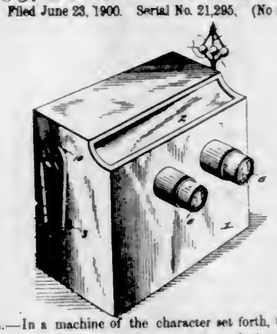


Claim.—1. In an apparatus such as described, the combination of a pressure-plate, a ring revolubly mounted therein, a combined plunger-guide and movable work-holder carried thereby, and means substantially as described for actuating said parts, as and for the purpose set forth.

2. The combination in a draft-press, of an adjustable combined plunger-guide and movable work-holder, a pressure-plate above the holder, a ring revolubly mounted in said plate, means for adjusting the position of said holder in relation to said ring and means substantially as described for actuating said parts as and for the purpose set forth.

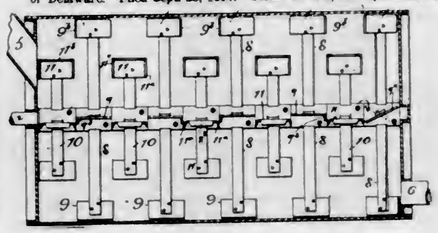
3. The combination in a draft-press, of an adjustable combined plunger-guide and movable work-holder, a pressure-plate above the holder, a ring revolubly mounted in said plate and screw-threaded to said holder, pressure-rollers movably connected with the pressure-plate and cam mechanism for actuating said parts, substantially as described.

661,795. **KINETOSCOPE.** CHARLES T. ELLSWORTH, Forest City, Iowa. Filed June 23, 1900. Serial No. 21,295. (No model.)



Claim.—In a machine of the character set forth, the combination with a casing or cabinet provided with slots, of a shaft adapted to be applied and removed through said slots, and drums arranged upon the shaft and carrying pictures adapted to be consecutively displayed, substantially as described.

661,796. **PULVERIZER.** WILLIAM M. ERNST, New York, N. Y., assignor, by mesne assignments, to the Phoenix Investment Company, of Delaware. Filed Sept. 23, 1897. Serial No. 652,721. (No model.)



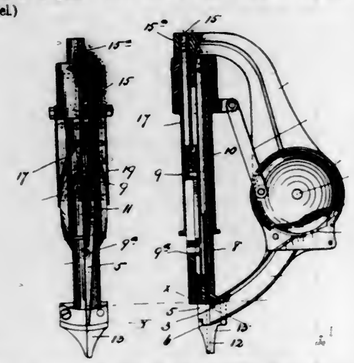
Claim.—1. A pulverizer comprising a casing having an inlet and an outlet, a rotative shaft therein, and a series of bats or beaters carried by said shaft and provided with a lip or web at one end that projects at an angle to the face of the bat or beater and in the direction of rotation of the latter adapted to obstruct the passage of larger particles of material longitudinally through the casing, substantially as described.

2. A pulverizer comprising a casing having an inlet and an outlet, a rotative shaft therein, radial arms carried by said shaft, certain of said arms being longer than the others, bats or beaters carried by the long arms and having a lip or web at one end that extends substantially at right angles to the axis of the shaft, and bats or beaters carried by the short arms, substantially as described.

3. A pulverizer comprising a casing having an inlet and an outlet, a rotative shaft therein, radial arms carried by said shaft, certain of said arms being longer than others, bats or beaters carried by the long arms and having a lip or web at one end projecting in the direction of rotation of the bats or beaters, and bats or beaters carried by the shorter arms and having a lip or web at their ends and a lip at the outer edge, substantially as described.

4. A pulverizer comprising a casing having an inlet and an outlet, a rotative shaft therein, bats or beaters carried by said shaft, said bats or beaters having a lip or web at the ends and a lip or web at the outer edge, a space being provided between the ends of the adjacent lips or webs, substantially as described.

661,797. TACK OR NAIL DRIVING MACHINE. JOSIAH M. GIMSON, JOSIAH GIMSON, ARTHUR J. GIMSON, and SYDNEY A. GIMSON, Leicester, England. Filed Nov. 14, 1898. Serial No. 696,487. (No model.)



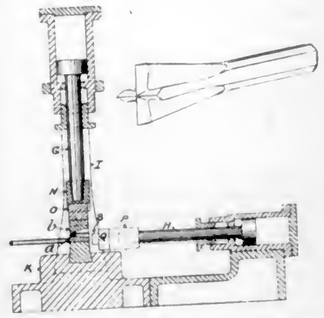
Claim.—A hand tack or nail driving implement comprising a curved bracket 16, a circular frame attached thereto, and a raceway 2 attached to and depending from the circular frame, a tack-box or nail-driver 1 in the form of two dished-out disks or cups, their outer edges fitting within the said circular frame, the curved bracket having a top portion 15ª from which depends a guide-rod 15, a cylindrical body 8 upon which slides a handle 17, spring-links secured to the handle 17 and connected with the said disks, a driver-rod 10 attached to the handle, a swinging carrying-lever 5 having a foot 6, vertical hole 7, a cam-groove 11, the said lever being fulcrumed to the cylindrical body 8 by a pin 9ª, a pin 9 attached to the driver-rod 10 and engaging the cam-groove of the lever 5, and a nozzle 13 provided with a tubular opening 12, substantially as described.

661,798. APPARATUS FOR MAKING AND SHARPENING ROCK-DRILLS. GILBERT GLOSSOP, Leeds, England. Filed May 22, 1900. Serial No. 17,582. (No model.)

Claim.—1. The combination of an anvil-block and vertical and horizontal dies fitted into the same with a vertically-acting die-carrying hammer and a horizontally-acting die-carrying hammer, the said hammers being adapted to be used either for drill-forming or drill-sharpening and the dies of the said anvil being interchangeable to allow its use for either of the said purposes, substantially as set forth.

2. In machinery or apparatus for mending and sharpening blunted and worn rock-drills the combination of a vertical and a horizontal hammer and an anvil, the hammer-head *n* of the vertical hammer having a wing drawing, forming and pointing die or tool *d* and a holding-die *i*, the hammer head *p* of the horizontal hammer having a wing-sharpening tool or die *k*, while the anvil-block is provided with a wing pointing, forming and drawing die *c* and a holding-die *h* all substantially as herein set forth.

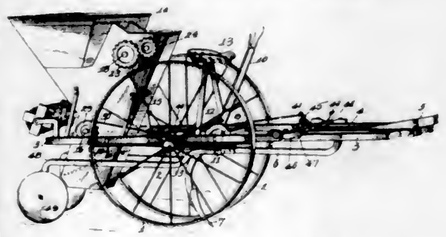
3. In machinery or apparatus for mending and sharpening blunted end worn rock-drills the combination of a vertical hammer, a horizontal hammer, an anvil, the hammer-head *N* of the vertical hammer having a wing drawing and pointing die or tool *d* and a holding-die *i*, the hammer-head *p* of the horizontal hammer having a wing-sharpening tool or die *k*, and the anvil-block being provided with a wing pointing, forming and drawing die *c* and a holding-die *h*, and of the double gripping device consisting of two hollow split taper gripping-blocks *n*, tapered guides or slides connecting lugs *q*, rocking levers *s*, shaft *r* and foot-lever *p* all substantially as herein set forth.



4. In machinery for making and sharpening rock-drills the combination on one anvil-block of a bottom wing forming and pointing die *c* and a wing-holding die *h*, a horizontally-acting die and upper, vertically-acting dies adapted to coöperate with the dies on said anvil, substantially as herein set forth.

5. In wing forming and pointing dies or tools for making and sharpening rock-drills the combination of block-dies *c* and *d* having recesses to form the wings of beveled drawing and pointing steel plates *e* and *f* fitted in recesses formed toward the front of the blocks to receive it, substantially as herein set forth.

661,799. POTATO-PLANTER. THOMAS L. GOOD, Edwardsville, Ill. Filed Aug. 13, 1900. Serial No. 26,752. (No model.)



Claim.—1. A potato-planter, comprising an adjustable plow for forming a furrow, a hopper, a chute alongside said hopper, a carrier operating within said chute and through the open bottom of the hopper, a hinged plate in the bottom of said chute below the carrier for spacing the potatoes, suitable connections for operating the said plate by means of check-wire to deliver the potatoes into the furrow at uniform distances from each other, and means for covering the potatoes within the furrow, substantially as specified.

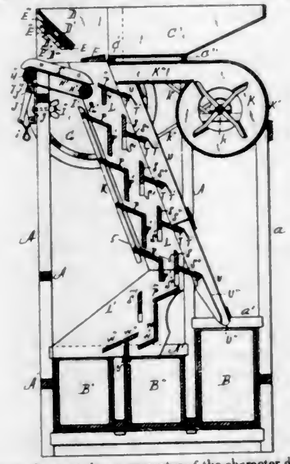
2. A potato-planter, comprising a suitable plow to form a furrow, a hopper having an open bottom, a chute alongside said hopper, a carrier operating within said chute close to the open bottom of the hopper, a series of rotary arms for removing the potatoes from the carrier, a hinged plate within said chute below the carrier for receiving and spacing the potatoes, suitable connections for operating said plate by means of check-wire to space the potatoes in the furrow, and a pair of adjustable roller-disks for covering the potatoes, substantially as specified.

3. In a potato-planter, a hopper having an open bottom, and a carrier operating adjacent to the said open bottom, the said carrier consisting of a chain having integral arms projecting therefrom and pointed hooks formed on the ends of said arms for engaging the potatoes, a series of rotary arms above the carrier for removing the potatoes from said hooks, a hinged plate below the carrier for receiving and spacing the potatoes, connections for operating the said plate by means of check-wire at suitable intervals to deliver the potatoes into a furrow, and a pair of roller-disks for covering the potatoes, substantially as specified.

661,800. PROCESS OF TRANSFORMING CARBON DYES. HERMANN GUTZKOW and BENNO HOMOLKA, Frankfort-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Filed Feb. 15, 1900. Serial No. 5,300. (Specimens.)

Claim.—The process herein described of producing transformation products of the coal-tar dye-stuffs, which consists in treating the dye-stuffs with the salts soluble in water of aromatic bases which contain at least once in the molecule the bivalent group —NH—CH_2—, wherein the hydrogen atom of the group —NH— may be substituted by alkyls, linked on both sides to aromatic carbon atoms, substantially as set forth.

661,801. CRANBERRY-SEPARATOR. LUTHROP A. HAYDEN, Carver, Mass. Filed Jan. 30, 1900. Serial No. 3,274. (No model.)



Claim.—1. In a cranberry-separator of the character described, the frame; the boards L supported by the frame; the adjustable guide-board R provided with a hook adapted to engage with projections extending from the side of one of said boards; the vertical boards I' rigidly secured to and between said boards L; the bounce-boards I' pivotally connected at their opposite ends to said vertical boards and to the guide-board R; the vertical dividing-boards S sliding in vertical slots in the boards L; and the bar *n* pivotally connected with the dividing-boards and adapted to be supported at different heights by means of projections engaging with a hook on one of the boards L, substantially as described.

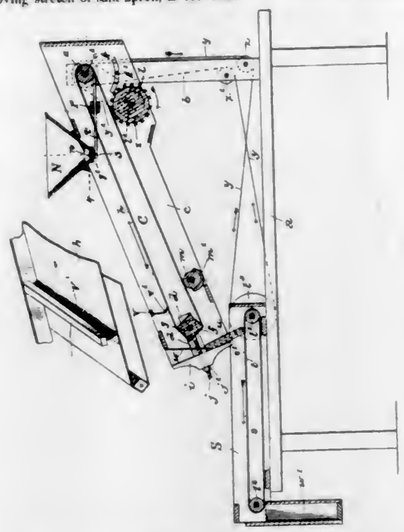
2. In a cranberry-separator of the character described, the frame; a well or chute containing suitable bounce-boards and dividing-boards; the shaft H' mounted in a frame and carrying a roll I; the supporting-lever J pivoted to the frame; the shaft H'' supported by said lever and supporting the roll I''; the vertically-adjustable plate J'' supporting pivotally the lever J; the endless belt or apron H connecting said rolls; and a spring between the lower end of the lever and the plate whereby said rolls are kept apart and the apron stretched, substantially as described.

3. In a cranberry-separator of the character described, the frame; a well or chute provided with suitable bounce-boards and dividing-boards; the structure D, D' mounted on the frame and provided with an opening or gateway leading to the well; the hopper C' hinged at its inner edge to the frame near said opening or gateway; the guide-loop *b* secured to the outer side of one of the walls D of said structure; the side bar *b'* bent as described at *b''* and formed into the lip *b'''*, said side bar being pivotally secured at one end to the hopper and extending through said guide-loop; and the bar *d* pivotally secured at its opposite ends to the frame and the side bar, substantially as described.

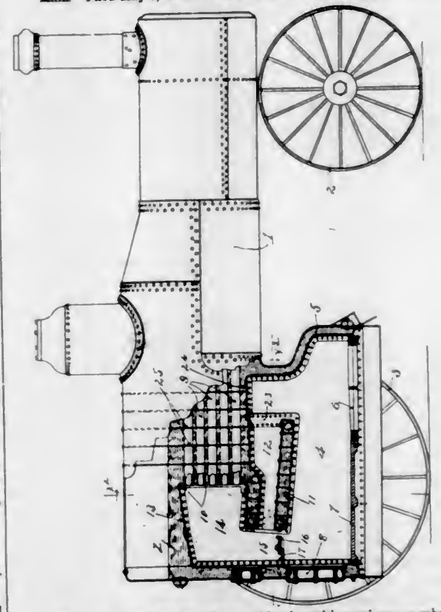
661,802. PEA-CLEANER. WILLIAM T. HILLEARY, Jr., Baltimore, Md. Filed Mar. 6, 1900. Serial No. 7,459. (No model.)

Claim.—1. In a device of the character described, the combination of an endless apron composed of two plies, the inner ply being of inelastic belt material and the outer ply having a napped surface, and arranged to travel in an inclined plane with its napped surface moving from its lower to its higher end; and a plurality or row of independently-movable flexible strings hanging with their lower ends normally in contact with said upwardly-moving napped surface, whereby the strings will be caught by the napped surface and caused to assume an upwardly-curved position, as set forth.

2. In a device of the character described, the combination of a napped endless apron whose upper surface is movable in an inclined plane from the lower to the higher end; a hopper adapted to discharge peas on said apron; and a plurality or row of flexible strings hanging with their lower ends normally in contact with the napped surface of the upwardly-moving stretch of said apron, as set forth.



661,803. FIRE-BOX. BENJAMIN R. HOISINGTON, Minneapolis, Minn. Filed May 5, 1900. Serial No. 15,564. (No model.)

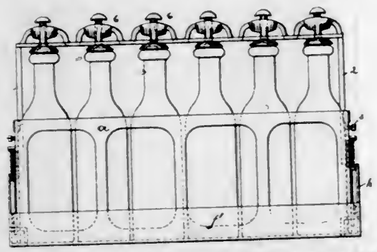


Claim.—1. In a fire-box, the combination with a primary combustion-chamber, of a secondary combustion-chamber above the same leading to the flues, a direct passage between said combustion-chambers, and an approximately horizontal water-jacketed return draft-passage leading from the said primary to said secondary chamber, substantially as described.

2. In a fire-box, the combination with a primary combustion-chamber 4, of the secondary combustion-chamber 14 between said chamber and the flue, the water-chamber 11 depending within said chamber 4 and

provided with the return draft-passage 12, and the adjustable damper 16 for varying the passage 15 between said chambers 4 and 14, substantially as described.

661,804. STEAMING-TRAY FOR BOTTLED BEVERAGES. PHILIP D. LAIBLE, Newark, N. J. Filed May 25, 1899. Serial No. 718,161. (No model.)



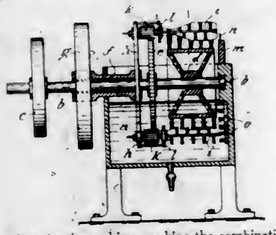
Claim.—1. A receptacle for bottled beverages, consisting of a body portion having vertical walls and an open bottom permitting said body portion to be lifted up and away from the inclosed bottles, and a detachable bottom having staples or wires thereon, said body portion being provided with cooperating hooked levers and means for automatically operating the same, substantially as set forth.

2. The herein-described container for bottled beverages, comprising a detachable bottom provided with staples or hooks, a body portion open at the bottom, hooked levers pivoted on the body portion and adapted to engage said staples or hooks on the detachable bottom, and springs normally holding said levers in locking position, whereby the body portion and bottom are automatically united when pressed together, substantially as set forth.

3. In a container for bottled beverages, the combination of a body-frame and a detachable bottom, hooked levers pivoted on the frame and adapted to engage the said bottom and connect it to the frame, springs holding said levers in locking position, and finger-pieces for releasing said levers, substantially as set forth.

4. In a beer-box, the combination of a body-frame and a detachable bottom, said bottom being provided with staples or wires *e*, and the frame having pivoted thereon bent levers having hooked arms adapted to engage said staples or wires on the detachable bottom, a connecting-link for said levers and a vertical plunger fast at its lower end to said connecting-link a finger-piece at the top of said plunger and a spring normally holding said levers in locking engagement with the staples on the detachable bottom, substantially as set forth.

661,805. BOTTLE-WASHING MACHINE. GÜNTHER VON LANGEN, Fürstenbrunn, Germany, assignor to the Filter und Brautechnische Maschinen Fabrik Actien-Gesellschaft, vormals L. A. Enzinger, vormals Sellenscheidt, Berlin, Germany. Filed July 21, 1900. Serial No. 24,382. (No model.)



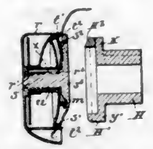
Claim.—1. In a bottle-washing machine the combination of a central rotary brush *d*, a disk *h* adapted to rotate reversely to said brush, a shaft supporting said central brush, a sleeve mounted on said shaft and carrying said disk, rotary brush-carrying spindles carried by said disk, and means for rotating the central brush and the spindles independently upon their individual axes while said spindles are concurrently carried around the axis of the central brush.

2. In a bottle-washing machine, the combination of a central rotary brush *d* and its shaft, a disk *h* adapted to rotate reversely to said brush, a sleeve carrying said disk and concentric with and rotatable and longitudinally displacable upon the shaft of said central brush, a spur-gear fixed upon said shaft adjacent to said disk, a series of brush-carrying spindles carried by said disk and provided with elongated pinions engaging with said spur-gear, and means for driving the central brush-shaft and the sleeve in opposite directions.

3. The combination of the semicircular casing or trough *a*, the shaft *b*, the brush-roller *d*, the cog-wheel *e*, the sleeve *f* with its disk *h*, the spindles *i* with their brushes and elongated pinions, the fixed brush *o*, and means for driving the shaft and sleeve in directions opposite each other.

4. The combination of the semicircular casing or trough *a*, the shaft *b*, the brush-roller *d*, the cog-wheel *e*, the sleeve *f* with its disk *h*, the spindles *i* with their brushes and elongated pinions, the supporting-ring *l*, the rubber guard *n*, the fixed brush *o*, and means upon said shaft and sleeve whereby they may be concurrently driven in opposite directions.

661,806. SHUTTLE MECHANISM FOR SEWING-MACHINES. ERNEST C. LEA, Kingston-upon-Thames, England. Filed Mar. 20, 1899. Serial No. 709,806. (No model.)



Claim.—1. A sewing-machine shuttle consisting, of a cylindrical body portion closed at one end and carrying a loop-engaging hook, a tubular projection centrally on said closed end and extending into said body portion, said projection being provided with a slot, a cover for said body portion of a less diameter than the inside of said body portion and having a convex portion and a concave portion, a flange or rim on said cover extending at right angles to the plane of the same, a centrally-projecting pin carried by said cover to enter the tubular projection on said body portion, a stud on said pin engaging in said slot whereby the cover is retained on the body portion and held from turning relative thereto.

2. In a sewing-machine shuttle, the combination, substantially as described, of a cylindrical body portion closed at one end and open at the other and provided with a tubular portion extending into the body portion and adapted to serve as an axis for a bobbin, a loop-engaging hook secured to said body portion and adapted to engage the thread and pass it around the shuttle, a cover adapted to fit said open end of said body portion with an intervening space for the thread to pass through as the shuttle is revolved, and provided with means for engaging a driver to adapt it to be carried around in unison with said driver, and a pin projecting centrally from said cover and adapted to fit snugly said tubular portion on said body portion, said pin being provided with means for limiting its movement, adapted to compel the said cover and pin to rotate in unison with said body portion.

3. In a sewing-machine shuttle, the combination, substantially as described, of a cylindrical body portion closed at one end, a tubular portion projecting from said closed end and adapted to serve as an axis for a bobbin, a loop-engaging hook secured to said body portion and adapted to engage the thread and pass it around the shuttle, a cover adapted to fit the open end of said body portion and leave an annular space for the thread to pass through and having a raised portion thereon provided with a convex and a concave portion formed therein, means for engaging a shuttle-driver to adapt the shuttle to revolve in unison with said driver, and a pin projecting centrally from said cover, said pin being adapted to fit said tubular portion and provided with means to prevent it revolving independent of said tubular portion.

4. In combination with a rotary shuttle having a cylindrical body and a cover of less diameter than the inside of said body, said cover being provided with a rim or flange extending at right angles to the face thereof, of an automatic intermittent tension device mounted on said cover and consisting of a spring-bar secured at or near its inner end to the inside of said cover, a tension-block secured to the outer end of said spring-bar and projecting through an aperture in said rim on said cover, and adapted to engage and momentarily hold the thread between it and the edge of the shuttle, and an eccentric-headed screw mounted in the cover adjacent to said spring-bar and adapted to be turned to bear with more or less force against said bar to regulate its flexure.

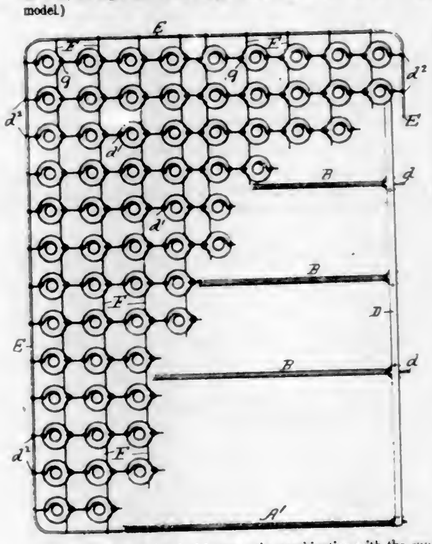
5. In combination with a rotary shuttle having a cylindrical body and a raised center portion thereon provided with a stud or spur jutting out therefrom, of a driver having a dish-like cavity therein, the inner diameter of said cavity being a loose fit for said raised center portion on said shuttle, the outer diameter of said driver being about equal to the extreme diameter of the said body portion and having its outer edge beveled off to form a lead for the thread to pass between the shuttle and said driver, and a slot in the rim of said driver which is adapted to contain said spur on said shuttle.

661,807. PROCESS OF MAKING METALS WELDABLE AND MALLEABLE. CHARLES L. LEIBY, Knoxville, Tenn., assignor, by direct and mesne assignments, to the Leiby Company, same place. Filed Dec. 5, 1898. Renewed Oct. 18, 1900. Serial No. 33,512. (No specimens.)

Claim.—1. The process of treating metals which consists in reducing them to a molten state and introducing therein potassium nitrate and a cyanid.

2. The process of treating copper and alloys thereof to purify them and render them weldable, which consists in first reducing them to a molten state and then introducing therein simultaneously potassium nitrate and a cyanid, substantially as set forth.

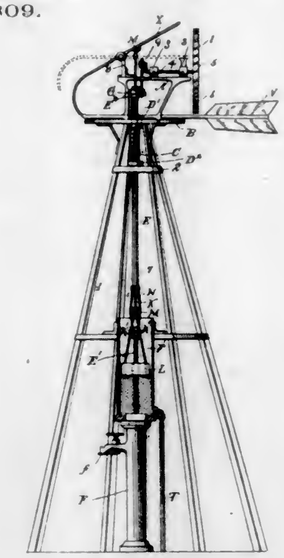
661,808. SPRING BED-BOTTOM. GEORGE C. LOCKLIN and BONHAM M. FOX, Chicago, Ill. Filed Aug. 5, 1898. Serial No. 687,761. (No model.)



Claim.—1. In a spring bed-bottom, the combination with the supporting-frame, consisting of the side bars, the end bars and the intermediate cross-bars, the T-couplings, provided with a vertical socket part and connecting the side bars and cross-bars, the standards, having their lower ends inserted in said socket part and provided on top with a plate, and the flat bars, secured thereto, substantially as described.

2. In a spring bed-bottom, the combination with the supporting-frame, of a series of T-couplings, provided with vertical socket parts and connecting the side and cross bars of the frame, the series of standards, having top plates and horizontal projecting arms and engaging the socket part of said couplings, the companion flat bars, supported above the side bars by said standards, the series of shorter springs, supported by the flat bars, the series of longer springs, the continuous border-rod, and the tie-wires, interlocking the upper ends of the longer springs and secured to the border-rod, substantially as described.

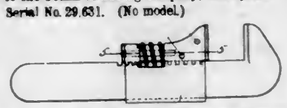
661,809. WINDMILL. PETER MITSCH, Chicago, Ill. Filed Feb. 15, 1900. Serial No. 5,287. (No model.)



Claim.—1. The combination with a windmill, of a tubular pump-rod, a reservoir to receive the pumped water, a movable shield adapted, when in one position, to shield the wheel and deflect the wind therefrom, and in the other position to expose the wheel to the wind and permit it to rotate, a float arranged within the reservoir and a rod connected to said float and extending through the tubular pump-rod and connected to the shield, whereby the shield is governed in its movements by the rise and fall of the water within the reservoir substantially as and for the purpose set forth.

2. The combination with a windmill, of a pump-rod connected to the windmill, a reservoir to receive the pumped water, a shield mounted to turn upon a horizontal axis and adapted when in a horizontal position to expose the face of the wheel to the wind and when in its inclined position to deflect the wind from the wheel and also to relieve the tower, the inclination of the shield serving to lessen the resistance of the wind against the tower, a float within said reservoir, and a connection between the float and the movable shield, substantially as and for the purpose set forth.

661,810. WRENCH. FRANK MOSSBERG, Attleborough, Mass., assignor to the Frank Mossberg Company, same place. Filed Sept. 11, 1900. Serial No. 29,631. (No model.)



Claim.—1. In a wrench the combination of a shank having a stationary jaw made integral with it and having its working face broadened by upsetting, a movable jaw formed of a blank of sheet metal having projections on it to form the outer side the inner side and top of a back bearing for a pin, a center block having its face made broad by upsetting, a center block held between the sides of the folded blank and secured by rivets, a collar having a milled screw-thread made on its surface held in a cavity in said movable jaw, a pin for said collar to turn on, substantially as described.

2. In a wrench, the combination of a shank having a stationary jaw and a row of screw-notches in its upper edge, a movable jaw made of a blank of sheet metal folded up and a center block having one end made broad to form the face of the jaw, a collar having a screw-thread on its periphery milled on its outside, a pin to hold said collar having its inner end held in a hole in said block, and its rear end held in a bearing made by bending parts of the blank across at right angle to the sides of the jaw, substantially as described.

3. In a wrench, the combination of a shank, a stationary jaw, a movable jaw consisting of a blank punched out of sheet metal with its sides bent up and fastened to a center block, said blank having ears *a* and *c* on its rear end bent around at right angles to its sides forming a bearing for a pin on which the screw-collar turns, and said center block, substantially as described.

4. In a wrench, the combination of a shank, a stationary jaw, a movable jaw consisting of a blank punched out of sheet metal, with its sides bent up parallel to each other and its upper edges riveted to a center block, said blank having ears *a* and *c* bent around at right angles to the side forming a bearing for a pin, the hole in the outer bearing *c* being headed over to keep the pin in place, said center block drilled to receive the inner end of said pin, substantially as described.

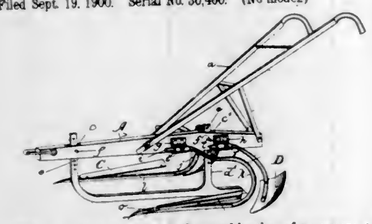
5. In a wrench, the combination of a shank, a stationary jaw, a movable jaw consisting of a blank punched out of sheet metal with its sides bent up and fastened together, said blank having ears *a* and *c* on its rear end bent around at right angles to its sides forming a bearing for a pin on which a screw-collar turns, and said center block, substantially as described.

6. In a wrench, the combination of a shank, a stationary jaw, a movable jaw consisting of a blank punched out of sheet metal with its sides bent up and fastened to a center block, a collar having a screw-thread

made on its periphery milled on its outer edge, a pin held by said movable jaw for the screw to turn on, substantially as described.

7. In a wrench, the combination of a shank, having a stationary jaw made integral with it and having its working face made broad by upsetting the metal, a movable jaw formed of a blank of sheet metal folded up and riveted together, a collar having a screw-thread made on its periphery milled on its outer edge, a pin held by said movable jaw for the screw-collar to turn on, substantially as described.

661,811. VINE-CUTTER. ANDREW J. MCCREADY, Leemont, Va. Filed Sept. 19, 1900. Serial No. 30,460. (No model.)



Claim.—1. In a vine-cutter, the combination of a runner; a beam adjustably mounted on said runner; carrier-arms whose ends are held in bearings mounted on said beams so as to turn therein; and cutting-blades carried by said arms.

2. In a vine-cutter, the combination of a runner; a beam mounted on said runner; blade-carrier arms adjustably mounted on said beam; and cutting-blades axially adjustable on said arms so as to be tilted or inclined.

3. In a vine-cutter, the combination of a runner; a beam vertically adjustable on said runner; blade-carrier arms having their upper ends mounted on said beam with their lower ends capable of swinging; cutting-blades secured to the lower ends of said arms and adjustable independently thereon so as to be tilted or inclined more or less; and scraper-blades supported by said beam.

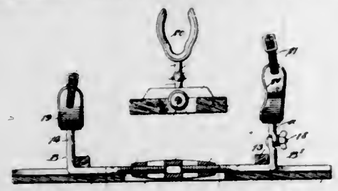
4. A vine-cutter, comprising a runner; a beam vertically adjustable on said runner; blade-carrier arms adjustably mounted on said beam; a cutting-blade adjustably secured to each arm; and scraper-shanks adjustably mounted on said beam and adjustable independently of the blade-arms and having scraper-blades secured thereto.

5. A vine-cutter, comprising a beam; means for supporting said beam; blade-carrier arms having their upper ends adjustably secured to said beam and provided at their lower ends with sockets and curved spurs projecting before said sockets; and cutting-blades having round shanks secured in said sockets and axially adjustable therein.

6. A vine-cutter comprising a U-shaped runner having a plurality of apertures in its upward-projecting ends; a beam provided with vertical slots in which said runner ends are inserted; pins inserted through said beam across said slots and through an aperture in each end of said runner; carrier-arms mounted on said beam; and cutting-blades carried by said arms.

7. A vine-cutter, comprising a beam provided with forward and rear cylindrical bearings; carrier-arms having rounded upper ends adjustably held in the forward bearings and provided at their lower ends with sockets and spurs curving outwardly and downwardly before said sockets; cutting-blades having round shanks axially adjustable in said sockets; scraper-shanks having their upper ends adjustably held in the said rear bearings; and scraper-blades secured to the lower ends of said shanks.

661,812. SURGICAL APPLIANCE. THOMAS D. MCKOWN and HARRY E. CLARK, Cripple Creek, Colo., assignors of one-third to Patrick Butler, same place. Filed Feb. 21, 1900. Serial No. 6,056. (No model.)



Claim.—1. In a surgical apparatus, supports for a limb, a bearing for the supports, and an adjusting device connecting with and operating simultaneously the supports to or from each other.

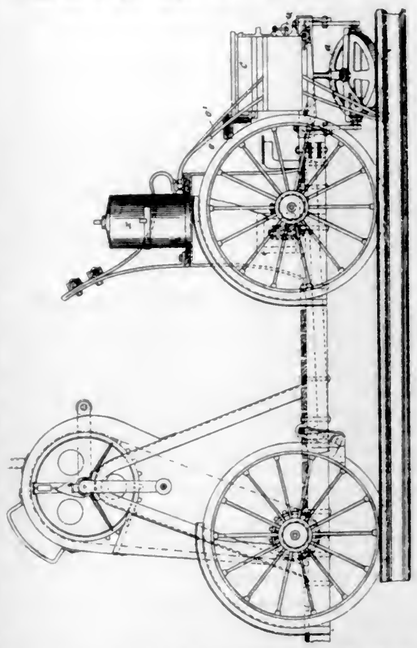
2. In a surgical appliance, supports for a limb, a rest upon which the supports have end movement, means for holding the supports against lateral movement, and an adjusting device connecting the supports, which adjusting device is capable of moving both supports either toward or from each other.

3. In a surgical appliance, a base having a scale, supports having end movement upon the said base, cuffs carried by the supports, one of the supports having its portion connected with the cuff constructed in pivotally-connected sections, and a connecting device for the support, arranged to move the said supports in direction of or from each other.

4. A base, slideways produced in the base, angular supports, the horizontal members whereof have movement in the said slideways, the inner ends of the horizontal members of the supports having respectively right and left hand threads, the vertical member of one of the supports being in pivotally-connected sections, a nut connecting the horizontal members of the supports, the nut being correspondingly threaded, and cuffs carried by the upright members of the supports, for the purpose specified.

5. In a surgical appliance having a scale thereon, supports having upright and horizontal sections, which supports are mounted to slide on a base and having their inner ends threaded one with a right-hand and the other with a left-hand thread, a nut correspondingly threaded, which receives the threaded ends of the supports, and cuffs carried by the supports, one of the cuffs being adjustable.

661,813. APPARATUS FOR MEASURING AND RECORDING GAGE OF RAILWAY-TRACKS. ANTON OLEKIEWICZ, Warsaw, Russia. Filed June 12, 1900. Serial No. 20,018. (No model.)



Claim.—1. An apparatus for measuring and recording the gage of railway-tracks, consisting of a pair of traveling wheels moving along the rails, holders for supporting said wheels, slide-rods connecting the shanks of said holders, a spring-actuated mechanism connecting said slide-rods and adapted to press the wheels firmly against the rail-heads, a recording mechanism operated by said wheels for recording the gage of the tracks, substantially as set forth.

2. An apparatus for measuring and recording the gage of railway-tracks, consisting of a pair of traveling wheels moving along the rails, holders for supporting said wheels, slide-rods connecting the shanks of said holders, a spring-actuated mechanism connecting said slide-rods and adapted to press the wheels firmly against the rail-heads, a marking-pencil on one of said slide-rods, a recording mechanism and motion-transmitting mechanism between one of the traveling wheels and the recording mechanism for actuating the same and recording the gage of the track, substantially as set forth.

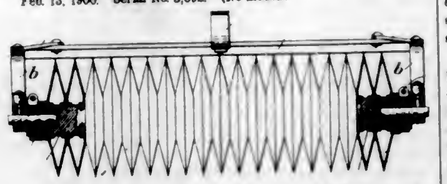
3. An apparatus for measuring and recording the gage of railway-tracks, consisting of a pair of spring-actuated traveling wheels, a recording device, a motion transmitting mechanism between one of the traveling wheels and said recording mechanism, and color-rolls for drawing parallel lines on the tape of the recording mechanism, said lines indicating the normal gage and the extreme limits of permissible deviations from the same, substantially as set forth.

4. In an apparatus for measuring the gage of railway-tracks, the combination, with a device for measuring and recording the gage of railway-tracks, having wheels traveling on the rail-heads, of a spring or weight actuated mechanism by which they are pressed against the rails, and a rail-marking device operated by said mechanism when a too great deviation from the normal gage occurs, substantially as set forth.

5. The combination, of incline traveling wheels, moving along the rail-heads, holders for supporting the same, a recording device for the gage of the track, actuated by said wheels, and a lever mechanism for lifting said wheels away from the rail-heads and interrupting the operation of the recording device when the device is to be placed out of operation, substantially as set forth.

6. The combination, with a railway hand-car, having supporting-brackets, of an apparatus for measuring and recording the gage of railway-tracks, provided with handles and pivoted legs, and means for supporting said legs when the apparatus is attached to the car, or releasing the same when removed therefrom, substantially as set forth.

661,814. PULVERIZER. AUGUST F. PETERSON, Kent, Ohio. Filed Feb. 13, 1900. Serial No. 5,092. (No model.)



Claim.—1. In a pulverizer, the combination of a frame, a rotary wooden shaft having metal pins secured to its ends forming projecting journals mounted to rotate in the frame, metal facing-strips arranged longitudinally on the exterior of the shaft, the rotary hollow beveled cutting-disks loosely arranged on the shaft and having the flat abutting ends, and the inner flanged edges bearing on the shaft, and the adjustable clamps on the ends of the shaft, substantially as described.

2. In a pulverizer, the combination of a frame, a rotary shaft mounted therein, the closely-arranged hollow metal disks independently rotatable on said shaft and rotatable together with said shaft, and removable means confining the disks on the shaft, each disk composed of the two end walls rigid with each other and having the central openings and flat faces around said openings, said walls converging to an annular junction and the surrounding cutting-blade rigid with both walls and projecting beyond said junction, substantially as described.

3. In a pulverizer, the hollow rotary metal cutting and soil-pressing disk having the side faces beveled oppositely to an annular junction and the circular cutting-blade rigid with the disk and projecting beyond said annular junction between the rigid side faces, as described.

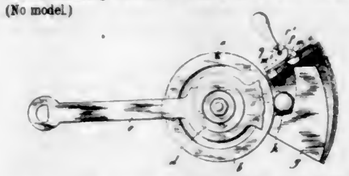
4. In a pulverizer, the combination of a frame, a rotary shaft, the series of closely-arranged hollow metal disks rotatable independently on said shaft and together with the shaft, means holding the disks together on the shaft, each disk having the side walls widely separated at the center and having the flanged openings and narrow flat faces, the walls converging oppositely from said flat faces and rigidly united at the edge of the disk, and the circular cutting-blade rigid with both walls and projecting beyond the meeting line thereof, substantially as described.

5. In a pulverizer, the combination of a frame, a rotary wooden shaft removably mounted thereto, the metal facing-strips arranged longitudinally of and secured to the shaft, the hollow metal disks rotatable independently on the shaft and also rotatable together with the shaft, said disks loosely abutting against each other and having the oppositely-beveled end faces, and the removable split-ring clamps surrounding the ends of the shaft and the facing-strips, and permitting removal and adjustment of the disks, substantially as described.

6. In a pulverizer, the combination of a frame, a shaft, and a series of metal disks arranged on the shaft, each disk formed hollow with widely-separated central hubs receiving said shaft and having its end walls converging from said hubs to a meeting line at the periphery of the disk, and the circular cutting-blade i^2, rigid with the disk and surrounding and projecting beyond said meeting line of the end walls, for the purposes described.

7. A pulverizer comprising the frame, the rotary wooden shaft having projecting end spindles mounted to the frame, and metal facing-strips arranged longitudinally on and secured at intervals to said shaft, the metal disks arranged end to end and independently rotatable on the shaft, each disk having the converging end walls and the circular cutting-blade surrounding and projecting beyond the meeting line of said walls, and clamps on the ends of the shaft and confining the disks in place, substantially as described.

661,815. DRIVING APPARATUS FOR VEHICLES. HENRY PREUSS, Hamburg, Germany. Filed May 26, 1900. Serial No. 18,095. (No model.)

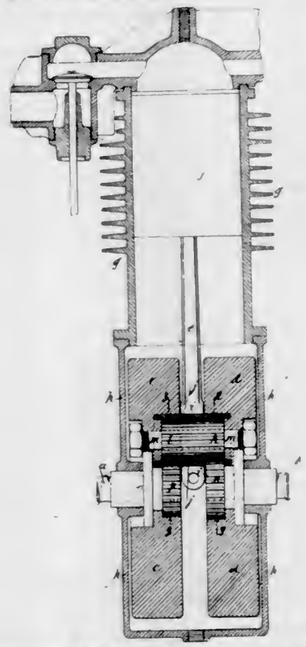


Claim.—1. The combination of the shaft, the crank pivotally mounted thereon, said crank being overweighted at one end, a clutch on the weighted end of the crank for automatically locking it to the crank-shaft, and means for locking the crank permanently to the crank-shaft if desired, for the purpose and substantially as specified.

2. The combination of the crank-shaft, the disk thereon, the crank pivoted on said shaft beside the disk, an overbalancing weight on one end, and a clutch on the weighted end of the crank adapted to engage said disk, and means for locking the crank to the disk, substantially as described.

3. The combination of the crank-shaft, the disk thereon, the crank pivotally mounted on said shaft and an overbalanced weight at one end, a slide on said weighted end adapted to lock the crank to said disk permanently, means for operating said slide, and a clutch on said weighted end adapted to lock the crank to the disk when the pedal is depressed and the slide disengaged from the disk, all substantially as and for the purpose described.

661,816. DRIVING MECHANISM FOR MOTOR-CYCLES OR MOTOR-CARS. PROSPER A. RENAUX, Paris, France. Filed Oct. 23, 1899. Serial No. 734,527. (No model.)

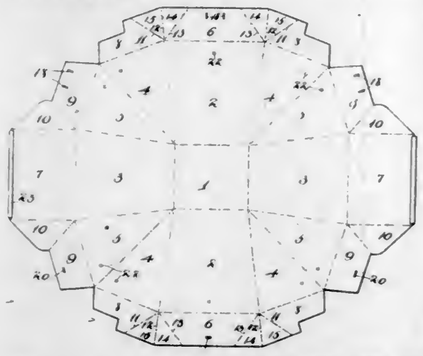


Claim.—1. A driving mechanism for automobile carriages, comprising two shafts, a fly-wheel loosely mounted on each of them, a sleeve connecting the fly-wheels, a pinion contained in said sleeve, a pinion rigidly mounted upon each of said shafts, one of these pinions engaging the

pinion in the sleeve directly, and a loose pinion engaging the pinion on the other shaft and the pinion in the sleeve.

2. In a driving mechanism, two separate shafts, fly-wheels on the shafts, pinions on the shafts, a sleeve connected to the two fly-wheels and forming a crank-pin, a gear-wheel in said sleeve and meshing with one of the pinions, a gear carried by one of the fly-wheels and connecting the gear-wheel with the other pinion, and operating mechanism having connection with the sleeve.

661,817. **PAPER VESSEL.** IDA H. RICE, Chicago, Ill., assignor to the Chicago Folding Box Company, same place. Filed Mar. 24, 1899. Serial No. 710,328. (No model.)

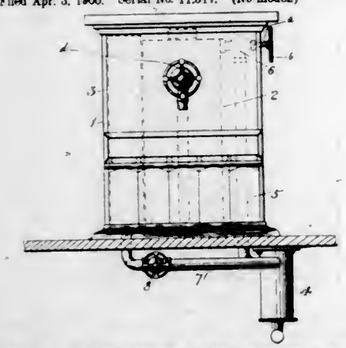


Claim.—1. A paper vessel having a bottom 1, sides 2, ends 3, corner-folds 4, 5, extensions 7 on the ends to form a lid, extensions 6 on the sides, top corner-folds or extensions 8, 9 extending from the corner-folds 4, 5 and extensions or flaps 10 on the extensions 7, the extensions 7 being foldable to form a two-part lid and the extensions 6, 8, 9 and 10 being foldable upon the top of the lid, each of said extensions 8 having a portion cut away on its margin and foldable against the side extension 6, such vessel when folded having five plies or thicknesses beyond the sides 2, and fasteners secured to three of such plies but not secured to the extensions 8.

2. A paper vessel having a bottom 1, sides 2, ends 3, corner-folds 4, 5, extensions 7 on the ends to form a lid, extensions 6 on the sides, top corner-folds 8, 9 extending from the corner-folds 4, 5 and having a V-shaped space between them, whose sides lie flat and side by side when the vessel is folded, and sections 14, 15 between the extensions 6 and 8, each of said extensions 8 being foldable against the side extensions 6.

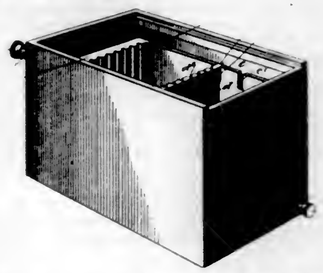
3. A paper vessel having a bottom 1, sides 2, ends 3, corner-folds 4, 5, extensions 7 on the ends to form a lid, extensions 6 on the sides, top corner-folds or extensions 8, 9 extending from the corner-folds 4, 5, but unconnected to each other by reason of a V-shaped opening between them, and extensions or flaps 10 on the extensions 7, each of said extensions 8 having a portion cut away on its margin adjacent to said V-shaped opening and foldable against the side extensions 6.

661,818. **SODA-FOUNTAIN.** SAMUEL J. ROGERS, Marion, Ind. Filed Apr. 3, 1900. Serial No. 11,317. (No model.)



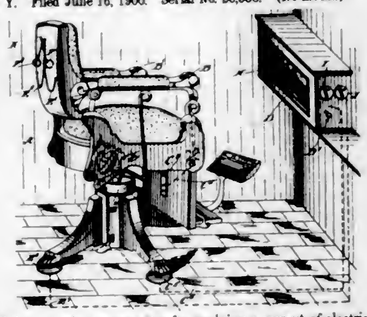
Claim.—In a soda-fountain, a cabinet, a chamber, 3, occupying substantially the entire space within said cabinet, a cylindrical tank, 2, within said chamber, a dispensing-pipe, *c*, connected to the bottom of said tank and extending upward and out through the casing, a pump, a pipe extending from the pump up through the casing and connected to the tank, 2, near its upper end, a valve in said pipe, a valve-stem connected to said valve and extending through the casing and provided with a handle outside the casing, a pipe extending from the pump up through the casing into the chamber, 3, and provided with a valve, a cap for closing the tank, 2, and a cover for the chamber and casing, substantially as described.

661,819. **PHOTOGRAPHIC-PLATE WASHING AND FIXING APPARATUS.** SAMUEL SALOMAN, New York, N. Y. Filed May 19, 1900 Serial No. 17,259. (No model.)



Claim.—The combination of the receptacle having at one end vertical grooves terminating above the bottom to form stops, and in its sides parallel longitudinal grooves immediately above the level of the upper ends of said vertical grooves, and registering vertical grooves extending downward in the sides of the receptacle from said longitudinal grooves, and a partition having ears arranged to slide lengthwise in said side grooves and into the downward vertical grooves, said partition having vertical grooves corresponding to those in the end of the receptacle, and a ledge extending horizontally across the partition below the lower ends of said grooves.

661,820. **ELECTRICAL APPARATUS.** MARTIN SCHUPNER, Nyack, N. Y. Filed June 16, 1900. Serial No. 20,558. (No model.)



Claim.—1. As an apparatus for applying a current of electricity to the body, the combination of an induction-coil, a source of electrical supply and a chair having metallic plates thereon for contact with a patient, the induction-coil located between the source of supply and the chair and being connected electrically to the said plates by means of a conductor, and a conductor connected to the other pole, having bracelets thereon for engagement with the arms of an operator, whereby the circuit may be made by contact of the patient with said plates and the operator, substantially as shown and described.

2. In an electric shampooing apparatus, the combination of a source of electric supply, an induction-coil, and a chair having contact-plates thereon, and a conductor in electrical engagement with said contact-plates through the medium of one pole of the battery, and a conductor having bracelets thereon, in connection with the other pole of the battery, and an interposed switch for turning the current off and on substantially as shown and described.

3. In an electrical apparatus for applying a current of electricity to the human body, a support having contact-plates thereon, a source of electric supply, an induction-coil, a conductor connected with said contact-plates through the medium of one pole of said source of electric supply, a second conductor connected with the other pole of said source of electric supply, and means on said second conductor and arranged for attachment to an operator, to enable the latter to establish a circuit through a human body in contact with said contact-plates, as set forth.

4. In an electric shampooing apparatus, the combination with a barber's chair carrying contact-plates, of a source of electric supply arranged on said chair, an induction-coil located on said chair, a conductor on said chair and in electrical connection with said contact-plates through the medium of one pole of said source of electric supply, a second flexible conductor connected with the other pole of said source of electric supply, and means on said flexible conductor and arranged for attachment to the wrists of an operator, to enable the latter to send an electric circuit through a human body in contact with the said contact-plates, as set forth.

5. In an electric shampooing apparatus, the combination with a barber's chair having a chamber in its seat-frame and carrying electric contact-plates, of a source of electric supply arranged in said chamber, an induction-coil in said seat-frame, a conductor on the seat of the chair and in electric connection with said contact-plates through the medium of one pole of said source of electric supply, a second flexible conductor connected with the other pole of said source of electric supply, and means on said flexible conductor and arranged for attachment to the wrists of an operator, to enable the latter to send an electric current through a human body in contact with said plates, as set forth.

661,821. **PROCESS OF MAKING ANTHRANILIC ACID.** PAUL SEIDEL, Ludwigshafen, and LUDWIG PREUSS, Bonn, Germany, assignors to the Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Filed Jan. 10, 1900. Serial No. 985. (No specimens.)

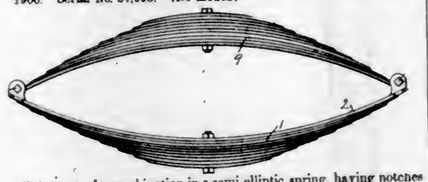
Claim.—1. The process of producing anthranilic acid by treating ortho-nitro-toluene with a solution of caustic alkali and subsequently with a reducing agent, all substantially as described.

2. The process of producing anthranilic acid by treating ortho-nitro-toluene with a solution of caustic soda and then with ammonium sulfid, all substantially as described.

3. The process of producing anthranilic acid by treating ortho-nitro-toluene with a solution of caustic soda, all substantially as described.

4. The process of producing anthranilic acid by treating ortho-nitro-toluene with a caustic alkali, substantially as described.

661,822. **SPRING.** THOMAS A. SHEA, Oswego, N. Y., assignor to the National Railway Spring Company, same place. Filed Aug. 25, 1900. Serial No. 27,993. (No model.)



Claim.—1. In combination in a semi-elliptic spring, having notches in its main leaf near the ends, and a bearing-plate with dovetails corresponding to said notches and adapted to be forced inwardly to fill the notches engaging with the main leaf and securing the plate permanently in position.

2. In combination with a spring having elongated notches on each side near its ends, hanger-plates fitting the ends of the spring and having elongated integral dovetails on their upper side, said dovetails inclining slightly outwardly and being beveled on their inner surfaces and adapted to be forced inwardly to fill the notches and secure the plate permanently in position.

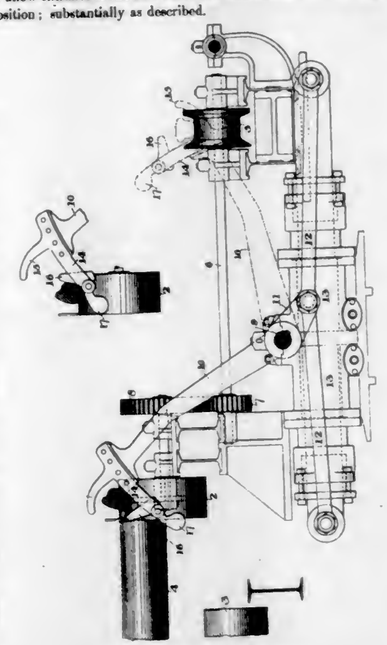
3. In combination a spring-leaf formed with elongated shallow notches on both sides of each end, said notches being slightly deeper on the under side of the spring and a hanger-plate provided with elongated dovetails corresponding to said notches, said dovetails inclining slightly outwardly and being adapted to be forced in to fill the notches and secure the plate permanently in position on the spring.

661,823. **TRANSFER MECHANISM.** EDWIN E. SLICK, Braddock, Pa. Filed Aug. 2, 1900. Serial No. 25,635. (No model.)

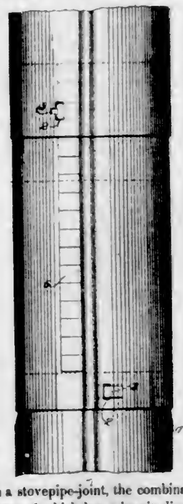
Claim.—1. A swinging transfer device having a movable detent arranged to automatically move to pass the metal, and means for automatically moving the detent to hold the metal on the transfer device; substantially as described.

2. A swinging transfer device having a counterweighted freely-swinging detent arranged to swing to allow entrance of a metal bar and then automatically return to its normal position to hold the bar in place; substantially as described.

3. A rolling-mill having transfer-arms arranged to carry the metal laterally from one pass to another, at least part of said arms having a fixed finger at one side and at the other side a yielding detent arranged to allow entrance of the metal and then automatically return to its normal position; substantially as described.



661,824. **STOVEPIPE.** FRANK L. SMITH, Marietta, Kans. Filed Aug. 18, 1900. Serial No. 27,341. (No model.)

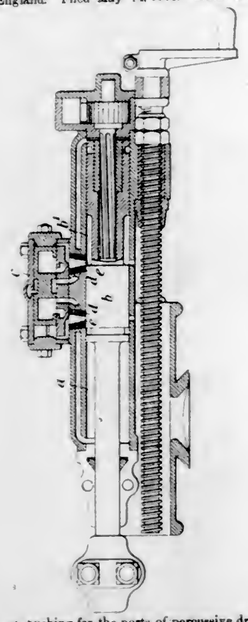


Claim.—1. In a stovepipe-joint, the combination of adjacent stovepipe-sections, the outer of which has a longitudinal slot provided with a notch in one edge thereof, and the inner section having a lateral tongue passing outwardly through the slot and covering the notch in the edge of the latter.

2. A stovepipe-section, having an external lateral tongue at one end, and a corresponding longitudinal slot at the opposite end of the stovepipe, one edge of the slot having a lateral notch.

3. A stovepipe-section, having a longitudinal folded joint, a slot at one end of the pipe, and a tongued strip, having its back edge folded into the joint, with the tongues extending laterally therefrom and upon the exterior of the pipe, the tongues and the slot being upon opposite sides of the joint.

661,825. ROCK-DRILLING ENGINE. WILLIAM C. STEPHENS, Carn Brea, England. Filed May 14, 1900. Serial No. 16,627. (No model.)

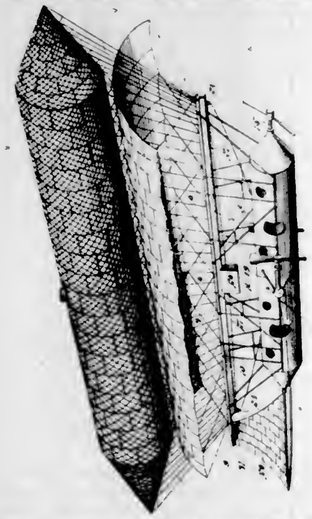


Claim.—1. A bushing for the ports of percussive drills and the like consisting of an elastic compressible portion and means for preventing the lateral expansion thereof, substantially as described.

2. In a rock-drill, the employment in the exhaust-passage of an elastic and compressible bushing having a central passage provided with a lining of a suitable rigid material such as metal, substantially as described.

3. A bushing for the ports of percussive drills and the like consisting of the elastic compressible portion and a tapering metal lining therefor adapted to retain said elastic compressible bushing in a compressed state, substantially as described.

661,826. CONTROLLABLE BALLOON. LEO STEVENS, New York, N. Y. Filed Feb. 7, 1900. Serial No. 4,386. (No model.)

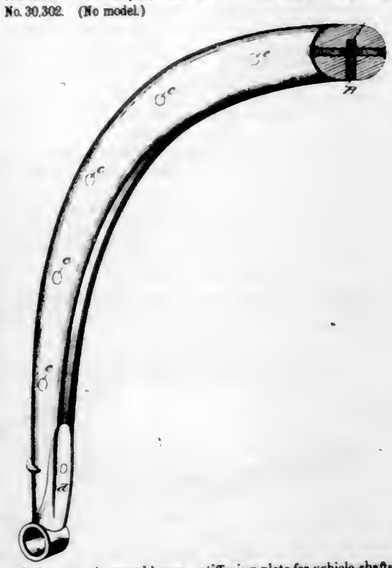


Claim.—1. In aerial navigation, the combination of a gas-bag, a parachute mounted below the same, a beam suspended from the gas-bag below the parachute, a car supported from the beam, propelling devices carried by the car, and a weight mounted on the beam and adjustable longitudinally thereof, for the purpose specified.

2. A controllable balloon, comprising a gas-envelop, a rigid beam arranged below the same and extending longitudinally thereof, flexible connections between the gas-envelop and the beam to sustain the beam from the gas-envelop, a parachute, the middle portion of which is fastened to the said connections, the parachute extending outward from opposite sides thereof, connections between the side edges of the parachute and the said beam, and a car provided with driving and controlling devices, the car being supported from the beam.

3. A controllable balloon, comprising a car, a beam mounted above the same and extending longitudinally thereof, means for rigidly connecting the beam with the car, an elongated gas-envelop arranged above the beam and extending longitudinally thereof, and flexible connections between the beam and gas-envelop, for the purpose specified.

661,827. STIFFENING-PLATE FOR VEHICLE-SHAFTS. CHAS. E. STONE, Amesbury, Mass., assignor of one-half to the Amesbury Pneumatic Gear Company, same place. Filed Sept. 17, 1900. Serial No. 30,302. (No model.)



Claim.—1. A curved brace or stiffening-plate for vehicle-shafts, said plate having flat sides and curved edgewise and adapted to enter the body of the shaft and terminating at its inner end in means necessary to form in part a coupling between said shaft and axle, said means being integral with the plate, substantially as and for the purpose set forth.

2. A curved brace or stiffening-plate for vehicle-shafts, said plate having flat sides and curved edgewise and adapted to enter the body of the shaft and terminating at its inner end in a coupling-eye, said eye being integral with the plate and at a right angle to the sides thereof, substantially as and for the purpose specified.

3. A curved brace or stiffening-plate for vehicle-shafts, said plate having flat sides and curved edgewise and adapted to enter the body of the shaft and terminating at its inner end in a shank with coupling-eye integral with the plate, substantially as and for the purpose described.

4. A vehicle-shaft having its inner end formed with a slot, kerf or mortise and a brace or stiffening-plate seated therein, said plate being curved edgewise and terminating at its inner end in suitable means integral therewith and necessary to form in part a coupling between the shaft and axle, substantially as and for the purpose set forth.

661,828. THILL-COUPLING. JAMES H. THACKER, Oswego, S. C. Filed Dec. 29, 1899. Serial No. 741,983. (No model.)



Claim.—1. In a thill-coupling, the combination with a shaft, a thill-iron having at one end a socket, a bolt passing through the shaft and the thill-iron and projecting therebeyond and a nut on said bolt permanently securing the thill-iron to the shaft, of a spring member having one end interlocking with the socket and the other end provided with a nut-receiving opening and a nut on the projecting end of said bolt on the outside of the spring member, whereby the spring member is clamped against the thill-iron, substantially as described.

2. In a thill-coupling the combination with a shaft, a thill-iron having at one end a socket, a bolt passing through the shaft and the thill-iron and projecting therebeyond, and a nut on said bolt permanently securing the thill-iron to the shaft, of a spring member having one end interlocking with the socket and the other end provided with a nut-receiving opening having on opposite sides laterally-extending slots, and a locking-nut on the projecting end of the bolt on the outside of the spring-arm, said nut having oppositely-projecting wings provided with upwardly-projecting lugs, whereby the said nut straddles the movable spring member, substantially as described

661,829. UPHOLSTERED FURNITURE. WILLIAM VOGLER, Somerville, Mass., assignor of one-half to George N. Phelps, Boston, Mass. Filed July 16, 1900. Serial No. 23,698. (No model.)



Claim.—1. An article of furniture, having its body or frame composed of metal, said frame having fixedly attached to it a wooden strip provided externally with a shoulder located above its lower edge, the portion of the strip above the shoulder receiving against it the covering, and being connected therewith by suitable tacks.

2. In an article of furniture, a body or frame composed of angle-iron, wooden legs secured to the frame at each corner, wooden nailing-strips fixedly attached to the metal frame, said nailing-strips each having a shoulder for receiving against it the covering, and means for securing the covering to the nailing-strips.

3. In an article of furniture, a body or frame composed of angle-iron, wooden legs for supporting said frame, said legs having on their outer faces grooves to receive the angle-iron, and wooden nailing-strips attached to the frame, said nailing-strips having a receiving portion for the covering, and means for securing the covering thereto.

4. In an article of furniture, a frame or body composed of angle-iron, wooden legs for supporting said frame, each leg having grooves on two of its faces for the reception of a portion of the angle-iron frame, one of said grooves being located at a higher level than the other, wooden nailing-strips attached to the metal frame, each nailing-strip having a portion adapted to receive the covering, and means to secure the covering to said strips.

5. An article of furniture having its body or frame composed of angle-iron, and its legs made of wood, said legs each having grooves for the reception of the angle-iron frame, and said frame having fixedly attached to it a wooden strip provided externally with a shoulder located above its lower edge, the portion of said strip above said shoulder receiving against it the covering and being connected therewith by suitable tacks.

6. An article of furniture having its body or frame composed of angle-iron, and its legs made of wood, said legs each having horizontal grooves for the reception of the horizontal portion of the angle-iron frame, one of said grooves being at a higher level than the other, and said frame having fixedly attached to it a wooden nailing-strip provided with a shoulder located above its lower edge, the portion of the strip above the shoulder receiving against it the covering and being connected therewith by suitable tacks.

661,830. CORNER-STAKE. JOSEPH S. WEBSTER, Minneapolis, Minn. Filed Jan. 15, 1900. Serial No. 1,470. (No model.)



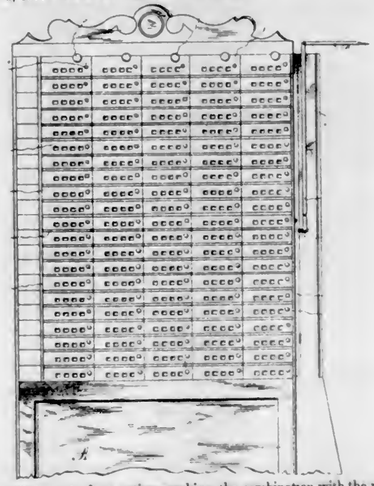
Claim.—1. A corner-stake, having ridges radiating from a common center on its top, a plate having ridges to engage between the first-named ridges, means for holding said plate as adjusted, and a series of pointers rigidly connected to said plate, substantially as specified.

2. A corner-stake, comprising a post, a link extended from said post and having an opening to receive a spike or the like to be driven into the ground, a casing removably secured to the post and adapted to support record-cards at its sides, a hood adapted to be placed over said casing, and glass panels for said hood, substantially as specified.

3. A corner-stake, comprising a post, means for holding the post against turning when set in the ground, a casing removably secured to the said post and adapted to support record-cards at its sides, a hood over said casing and having glass panels in front of the record-cards, to allow of reading the contents thereof, and means for locking the said hood to the said casing, as set forth.

4. A corner-stake, comprising a post, means for holding the post against turning when set in the ground, a casing removably secured to the said post and adapted to support record-cards at its sides, a hood over said casing and having glass panels in front of the record-cards, to allow of reading the contents thereof, means for locking the said hood to the said casing, and a pointer adjustably secured to the top of said hood, and arranged to indicate with radial lines on the top of the hood to define the angles of the section-lines of the surrounding property with the cardinal points of the compass, substantially as shown and described.

661,831. VOTING-MACHINE. JOHN B. WEIGAND, Athens, Wis., assignor of one-eighth to Ferdinand A. Strupp, same place. Filed Aug. 2, 1899. Serial No. 725,892. (No model.)



Claim.—1. In a voting-machine, the combination with the registering mechanisms and push-rods operating the same, of vertical rods operating the registering mechanisms in vertical series, said rods having notches, slides having projections adapted to engage said notches, and means moving the slides by the operation of the individual push-rods, substantially as shown and described.

2. In a voting-machine, the combination with the registering mech-

anisms and rods operating the same, of vertical rods operating the registering mechanisms in vertical series, slides adapted to engage said vertical rods, and means operating the slides by the operation of the individual push-rods, substantially as shown and described.

3. In a voting-machine, the combination with the registering mechanisms and rods operating the same, of rods operating the registering mechanisms in vertical series, said rods having notches, slides having projections adapted to engage said notches, blocks on the under side of the individual push-rods adapted to move said slides, a vertical slide having means for returning the first-mentioned slides to their normal position, substantially as shown and described.

4. In a voting-machine, the combination with the registering mechanisms and rods operating the same, of rods operating the registering mechanisms in vertical series, said rods being U-shaped in cross-section and carrying gravity-pawls pivoted therein which engage and operate the registering mechanisms, slides adapted to engage said rods, and means operating the slides on the operation of the individual push-rods, substantially as shown and described.

5. In a voting-machine, the combination with the registering mechanisms and individual rods operating the same, of rods operating the registering mechanisms in vertical series, said rods having notches, slides having projections adapted to engage said notches, blocks on the under side of the individual push-rods and adapted to move said slides, a vertical slide having inclined lugs for returning the aforesaid slides to their normal position, a sliding plate having an inclined slot with which a pin on the vertical slide engages, and means for operating the slotted plate, substantially as shown and for the purpose set forth.

6. In a voting-machine, the combination with the registering mechanisms and individual push rods operating the same, of rock-shafts operated by said push-rods, pivoted plates operated from the rock-shafts and adapted to engage the push-rods, said rock-shafts having projections at their ends; vertical rods operating the registering mechanisms in vertical series, rods operating the rock-shafts upon the operation of the vertical rods, and means operating the aforesaid vertical rods, horizontal slides adapted to engage the vertical rods, and means operating said slides on the operation of an individual push-rod; together with slides engaging the rock-shafts and horizontal slides to return them to their normal position, and means for operating said slides, substantially as shown and described.

7. In a voting-machine, the combination with the registering mechanisms and rods operating the same, of a horizontal slide for each horizontal series of operating-rods, said slides having notches or openings through which the rods pass, and said rods having beveled edges with which the slides engage, substantially as shown and described.

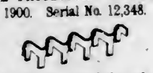
8. In a voting-machine, the combination with the registering mechanisms and cabinet having sight-openings on a line with the registering mechanisms, of slides having openings adapted to register with the openings in the cabinet, a vertical rod having pins engaging the slides, and means for turning said rod, substantially as shown and described.

661,832. FIREPROOF FLOORING. JOHN WILKINSON, Birmingham, England. Filed Dec. 23, 1897. Serial No. 663,215. (No model.)



Claim.—An improved fire and sound proof flooring comprising main supporting-bars, transversely-extending arch-supporting bars resting upon the main supporting-bars and a plurality of blocks having their ends supported by the transversely-extending supporting-bars, the blocks at the center of the arch having their upper sides in a horizontal plane above the upper edges of the main supporting-bars, and a filling of cement entirely inclosing the blocks and the supporting-bars, substantially as described.

661,833. HEEL-PROTECTOR. ALLEN G. WILLIAMS, Baltimore, Md. Filed Apr. 10, 1900. Serial No. 12,348. (No model.)



Claim.—1. A heel-protector, consisting of a narrow sinuous strip of metal having tangs projecting from the outer portions of the curves thereof, said tangs being of substantially uniform cross-sectional area throughout their length, such protector being so constructed as to be capable of being driven into the bottom of the heel, leaving the edge of the strip exposed, substantially as and for the purpose described.

2. A heel-protector consisting of a sinuous strip of metal having tangs projecting from the outer portions of the curves of such strip, substantially as and for the purpose described.

661,834. TRUCK. GEORGE M. WILLIAMS, Santa Rosa, Cal. Filed Mar. 7, 1900. Serial No. 7,671. (No model.)



Claim.—1. A truck of the character described, having its wheels arranged within its frame, said wheels provided, each, with a series of lateral notches or sockets on the outer side and a sliding locking-bar adapted to laterally engage said notches, substantially as specified.

2. A truck of the character described, having a locking-bar provided with inturned ends adapted to engage laterally the truck-wheels, substantially as set forth.

3. A truck of the character described, having its wheels arranged within its frame and a sliding locking-bar having right-angled end portions or extensions adapted to laterally engage said wheels, substantially as set forth.

4. A truck of the character described, having its wheels provided with lateral sockets or notches, upon the outer sides, and a sliding locking-bar having right-angled end portions or extensions adapted to engage said notches or sockets, substantially as set forth.

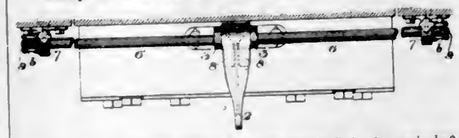
5. A truck of the character described, having its wheels arranged within its frame, said wheels provided each with a series of notches or sockets upon the outer side, and a sliding locking-bar having right-angled end portions or extensions with their inturned extremities adapted to engage said notches or sockets, substantially as specified.

6. In a truck of the character described, the combination of the sliding locking-bar having inturned end portions adapted to engage laterally the truck-wheels, and a catch-carrying rod or bar with its catches adapted to engage said locking-bar, substantially as set forth.

7. In a truck of the character described, the combination of the truck-wheels having lateral notches or sockets, upon the outer side, a spring-actuated locking-bar having right-angled end portions to engage said notches or sockets and a spring-actuated catch-carrying bar or rod having its catches adapted to engage said locking-bar, substantially as set forth.

8. In a truck of the character described, the combination of the wheels arranged within the truck-frame and having each a series of lateral notches or sockets, upon the outer side, a spring-actuated locking-bar adapted to engage said notches or sockets, brackets or supports for said locking-bar, secured or arranged upon the truck-frame and a spring-actuated rod or bar carrying catches adapted to engage said locking-bar, said rod being axially hung upon said brackets, substantially as specified.

661,835. COUPLING-UNLOCKING DEVICE. JOHN WILLISON, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Feb. 23, 1898. Serial No. 671,227. (No model.)



Claim.—1. The combination with a car-coupler lock, of a crank-shaft having a lifting-arm connected with the lock, a drop-lever and a cam or latch adapted to engage and uphold the shaft, leaving the lever free to drop; substantially as described.

2. The combination of a lifting crank-shaft, and a wedge or key movable upwardly to uphold the same, and a collar or journal applied eccentrically to said shaft; substantially as described.

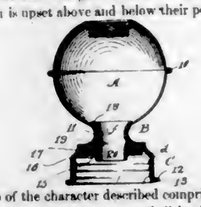
3. The combination of a lifting crank-shaft and a wedge or key movable upwardly to uphold the same, and a collar or journal applied eccentrically to said shaft, said shaft having an angled portion and the collar having an angled extension fitting the same; substantially as described.

4. The combination with a car-coupler lock, of a crank-shaft having a lifting-arm connected with the lock, a drop-lever and a gravity cam or latch adapted to engage and uphold the shaft, leaving the lever free to drop; substantially as described.

661,836. CAPSULE-BOTTLE TOP. FRANK A. WILMOT, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Apr. 12, 1900. Serial No. 12,598. (No model.)

Claim.—1. A bottle-top of the character described comprising a gas-chamber and a base, said base consisting of inner and outer shells and the base and gas-chamber being secured together by a locking-tube which is upset above and below their point of intersection.

2. A bottle-top of the character described comprising a gas-chamber and a base, said base consisting of an outer shell having a flange 12 and an inner shell whose lower end is curved about said flange whereby a bead 13 is formed, the base and gas-chamber being secured together by a locking-tube which is upset above and below their point of intersection.

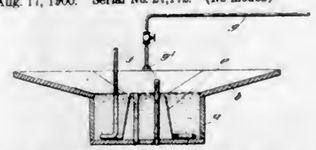


3. A bottle-top of the character described comprising a gas-chamber and a base, said base consisting of an outer shell having a flange 12 and an inner shell whose lower end is curved about said flange whereby a bead 13 is formed and whose upper end is provided with a flange 15, the base and gas-chamber being secured together by a locking-tube which is upset above and below their point of intersection and lies in contact with flange 15.

4. A bottle-top of the character described comprising a gas-chamber and a base, said base consisting of an outer shell and an inner shell secured together at their lower ends by a bead, the upper end of said inner shell having a downwardly-turned flange whereby a pocket 16 is formed and the base and gas-chamber being secured together by a locking-tube which is upset above and below their point of intersection and whose lower end lies in contact with the flange upon the inner tube.

5. A bottle-top of the character described comprising a gas-chamber, a neck and a base, said base consisting of inner and outer shells and said neck consisting of the abutting ends of the gas-chamber and the outer shell and a locking-tube lying within said abutting ends and upset both above and below their point of intersection.

661,837. SIZING-KETTLE. WILLIAM WILSON, Danbury, Conn. Filed Aug. 17, 1900. Serial No. 27,172. (No model.)

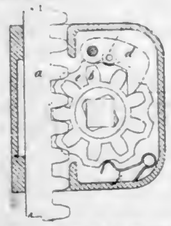


Claim.—1. The combination of a kettle or other vessel, a strainer arranged therein and forming the vessel into two compartments, and means for enforcing the circulation of water upward in one compartment and downward in the other.

2. The combination of a kettle or other vessel, a strainer therein, the strainer forming the vessel into two compartments, a steam-pipe located in one of said compartments, and a cold-water pipe located over the other of said compartments.

3. The combination of a kettle, an essentially cylindrical strainer mounted therein and forming the kettle into two compartments, a steam-pipe surrounding the strainer and located in the outer compartment, and a cold-water pipe located over the top of the inner compartment.

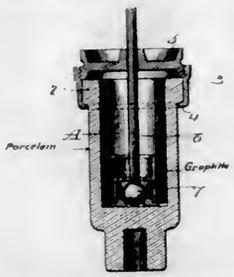
661,838. MEANS FOR LIFTING AND REGULATING TRANSOMS. ROBERT ADAMS, London, England. Filed Sept. 23, 1899. Serial No. 731,452. (No model.)



Claim.—1. The combination of a pinion, a pawl normally in engagement therewith, and means directly applied to said pinion for operating the same and releasing the pawl.

2. A pinion, means normally in engagement therewith to prevent the rotation thereof, and means directly applied to said pinion for simultaneously operating the same and releasing the means to prevent rotation.

661,839. DASH-POT FOR ELECTRIC-ARC LAMPS. THOMAS E. ADAMS, Cleveland, Ohio. Filed May 7, 1900. Serial No. 15,766. (No model.)

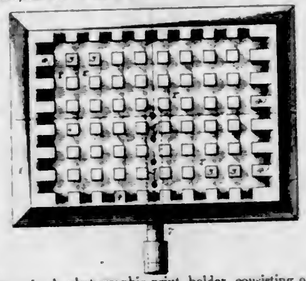


Claim.—1. An air-pot for electric lamps, comprising a cylinder of earthenware having one end permanently closed and a graphite plunger within said earthenware cylinder and provided with a plunger-rod.

2. An air-pot for electric lamps, comprising a porcelain cylinder permanently closed at one end, a graphite plunger within the porcelain cylinder and a combined valve and rod connected with said graphite plunger and projecting through the open end of the cylinder.

3. An air-pot for electric lamps, comprising a porcelain cylinder permanently closed at one end and having a smooth bore, an external flange at the open end of the porcelain cylinder, a flanged internally-threaded ring embracing the flange on the cylinder, a plunger in the cylinder, a disk screwed into said ring and having a central hole, and a plunger-rod attached to the plunger and passing freely through the hole in the disk.

661,840. PHOTOGRAPHIC-PRINT HOLDER. JOHN G. BAKER, Philadelphia, Pa. Filed Dec. 23, 1899. Serial No. 741,395. (Model.)



Claim.—1. A photographic-print holder consisting of a block of rigid material having in the face of the same intersecting-grooves extending throughout the greater portion of the area of said face and forming throughout its extent upwardly-projecting supporting posts or studs, the block also having an air-exhausting pipe and passages, whereby said air-exhausting pipe is placed in communication with the said intersecting grooves in the face of the block, substantially as specified.

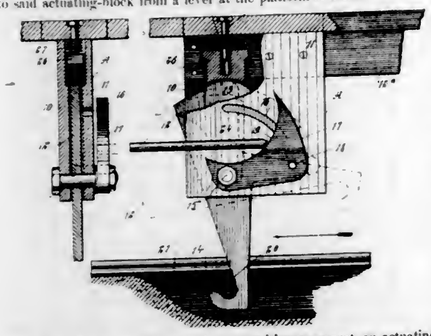
2. A photographic-print holder consisting of a block of rigid material having in the face of the same intersecting grooves extending throughout the greater portion of the area of the block and forming throughout its extent upwardly-projecting supporting posts or studs, the block also having inclined channels extending from the edges of said grooves to the face of the block, an air-exhausting pipe and passages whereby said pipe is placed in communication with said chamber or depression in the face of the block, substantially as specified.

661,841. SWITCH-CONTROLLING DEVICE FOR SURFACE CARS. CHARLES G. BAUER, New Rochelle, N. Y. Filed Mar. 26, 1900. Serial No. 10,194. (No model.)

Claim.—1. A switch-controlling device consisting of a pivoted arm which is normally in a vertical position, the said arm having a curved lower member adapted to engage with a switch-controlling mechanism, devices substantially as described, for controlling said switch-controlling device from the platform of a car, and means in conjunction with the switch-controlling mechanism whereby the pivoted arm when parted from the switch-controlling mechanism will be automatically carried to an upper or horizontal position, as described.

2. A switch-operating device for cars, comprising a support, a switch-operating arm pivoted in said support, being secured to its pivot, an ac-

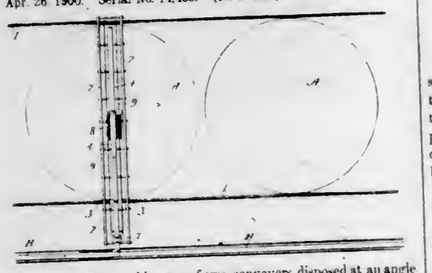
tuating-block for the switch-operating arm, attached to the pivot of said arm, a guide for the actuating-block, and means for imparting movement to said actuating-block from a lever at the platform of a car.



3. A switch-controlling device, comprising a support, an actuating-block secured to a pin, which pin is mounted to turn in said support, a switch-operating arm located within the support and secured to the said pin, which arm is tapering and provided with a hook at its narrower end, means for binding the upper end of the switch-operating arm when the said end is within the said support, and an actuating mechanism for the actuating-block, which mechanism may be operated from the car, as specified.

4. The combination, with a casing, a pin pivoted in the said casing, an actuating-block secured to the said pin, having guided movement upon the casing, the actuating-block being provided with a concaved forward edge, and means for throwing the actuating-block in a rearward direction, which means may be operated from the platform of the car, of a tapering switch-operating arm secured to the pivot-pin of the actuating-block within the said casing, the wider end of the switch-operating arm being provided with a projection and its narrower end being curved, and a tension-controlled latch adapted to engage with the projection at the wider end of the switch-operating arm when such arm is in operative or vertical position, as described.

661,842. CONVEYER. HIRAM W. BLAISDELL, Yuma, Ariz. Filed Apr. 26, 1900. Serial No. 14,483. (No model.)



Claim.—1. The combination of two conveyers disposed at an angle to each other and one adjustable relatively to the other and an adjustable discharging device coöperating with each conveyer, said discharging devices coöperating to discharge material at any point throughout the extent of the two conveyers.

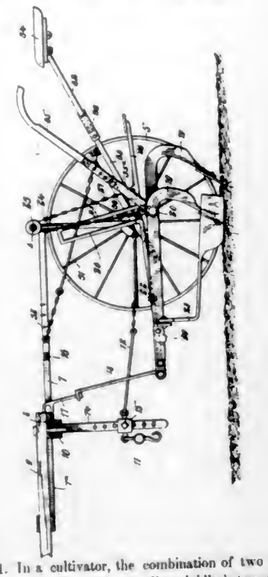
2. The combination of a conveyer, a stationary support therefor, a movable bridge disposed at an angle to said conveyer and its stationary support, a conveyer on said movable bridge, a discharging device adjustable on the fixed support and coöperating with the conveyer thereon, and a discharging device on the movable bridge adjustable from end to end thereof and coöperating with the conveyer on the bridge to discharge material at any point throughout the length of the latter.

3. The combination with a fixed trackway and a conveyer thereon, of a traveling bridge disposed at right angles to said trackway, an endless conveyer extending lengthwise of said traveling bridge adapted to receive material from the first-mentioned conveyer at any point along the fixed trackway and an adjustable tripper on the bridge and coöperating with the conveyer thereon to discharge material from the bridge conveyer at any point between the ends of the bridge.

4. The combination with a series of bins or receptacles and a rail at each side thereof forming a track, of a movable bridge mounted to run on said track and disposed over the bins or receptacles, an endless conveyer on the movable bridge, a stationary support disposed beside the series of bins or receptacles and at right angles to the movable bridge, a conveyer on the stationary support, an adjustable tripper adapted to discharge from the conveyer on the stationary support onto the conveyer on the bridge and an adjustable tripper on the bridge coöperating with the endless conveyer thereon to discharge material from said endless conveyer on the bridge into any part of any of the bins or receptacles.

5. The combination of a conveyer mounted on a stationary support, a traveling bridge disposed at an angle thereto, an endless conveyer on the bridge, means coöperating with the first-mentioned conveyer for discharging onto the conveyer on the traveling bridge and adjustable means coöperating with the conveyer on the bridge for discharging at an angle thereto.

661,843. CULTIVATOR. FERGUSON G. BRIGHT, Commerce, Mo. Filed Apr. 23, 1900. Serial No. 13,911. (No model.)



Claim.—1. In a cultivator, the combination of two shovel-beams sustained at their front ends, a rod extending rigidly between the rear portions of the shovel-beams, a foot-lever mounted on the front portions of the shovel-beams and having a return-bend therein permitting the rod to pass beyond each side of the longitudinal line of the foot-lever, and a chain or other flexible connection passing between the foot-lever and the shovel-beams and running over the axle of the machine.

2. A cultivator, having a frame, a shovel-beam pivotally mounted thereon and having a transversely-disposed rod or other part attached thereto, a foot-lever pivotally mounted on the front portion of the machine and having a return bent portion capable of moving over the rod of the shovel-beam, and a flexible connection extending between the foot-lever and the shovel-beam and passing over a part of the frame.

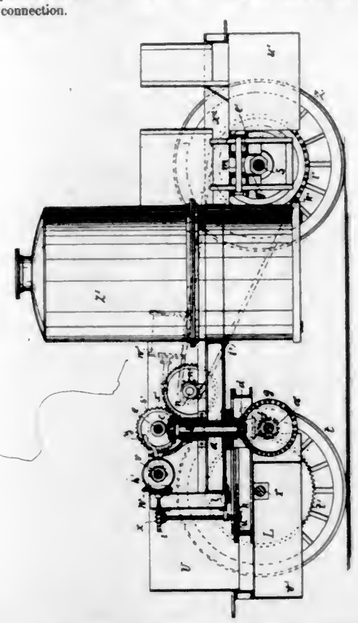
3. A cultivator having a frame, comprising a cross-beam at the front thereof, a hanger attached to the cross-beam, a shovel-beam, the front end of which is supported from the hanger, a wheeled axle for the frame, a doubletree connected with the cross-beam at the front of the frame, bars carried by the doubletree and extended downward therefrom, singletrees adjustably carried on the bars, and connections extending between the singletrees and the axle.

661,844. ROAD-LOCOMOTIVE. FRITZ BRUTSCHKE, Charlottenburg, Germany. Filed Oct. 27, 1899. Serial No. 734,951. (No model.)

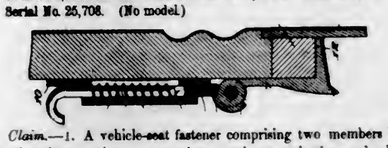
Claim.—1. In a road-locomotive with four driving-wheels the combination of one axle and its carrying-frame pivoted to turn in a horizontal plane for steering the locomotive with another axle which is movable in the vertical plane for enabling the locomotive to pass over inequalities in the ground and means for applying driving power to all four wheels, substantially as described.

2. In a road-locomotive the combination of the main frame with an under frame carrying one of the axles and movable in a horizontal plane, and a triangular structure supporting the main frame on the under frame, the connecting-pivot being displaced toward the other axle, substantially as described.

3. In a road-locomotive, the combination of the main frame with an under frame carrying the front axle with a pivotal connection between the two frames at the rear of said front axle, with means for transmitting driving power to said front axle, said pivot being the center of the transmission connection.



661,845. FOLDING SEAT-FASTENER. LEWIS O. BRYN, LUCAS GRIMSRUD, and ALBERT THRUNE, Coon Valley, Wis. Filed Aug. 2, 1900. Serial No. 25,708. (No model.)



Claim.—1. A vehicle-seat fastener comprising two members having a pivotal connection, one member carrying a projection, and a locking device carried by the other member and adapted to engage the opposite sides of said projection to provide for locking said fastener in an operative or inoperative position.

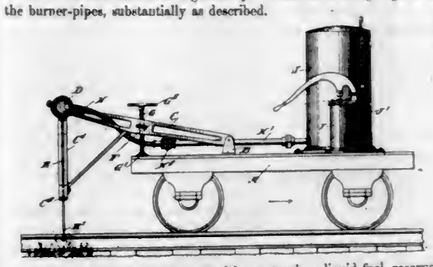
2. A vehicle-seat fastener comprising a pair of hinged plates, one of which is provided with a knuckle having a plurality of radial shoulders, and a locking-bolt carried by the other plate and normally urged toward the knuckle for engagement with either of the shoulders to lock one of the plates rigidly in its operative or inoperative position as desired, one of said plates being provided with an engaging device designed to engage a relatively-fixed part as for instance a cleat.

3. A vehicle-seat fastener comprising a pair of hinged plates, one of which is provided with a shouldered knuckle and an engaging device at its opposite ends, and a spring-pressed bolt housed in the other plate and having one end provided with a handle and its opposite end disposed for engagement with the knuckle.

661,846. VEGETATION-BURNER FOR RAILROAD-TRACKS, &c. CORNELIUS BURKE and JOHN TOOLE, Monroe, La. Filed Aug. 7, 1900. Serial No. 26,137. (No model.)

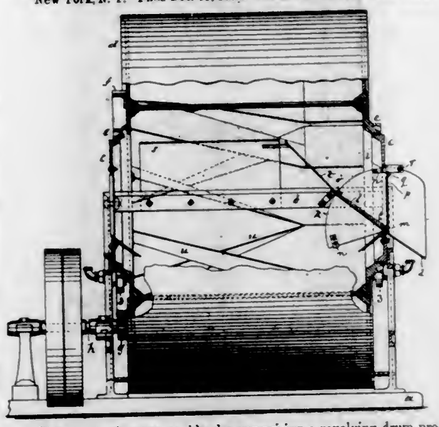
Claim.—1. In a vegetation-burner for railroad-tracks, the combination with a truck, of levers fulcrumed on the truck and extending rearwardly beyond the end of the truck, said levers being provided with nuts between their ends, screw-rods mounted on the truck and engaging the nuts of the levers, a tube carried by the outer ends of the levers, and burner-pipes depending from the tube, substantially as described.

2. In a vegetation-burner for railroad-tracks, the combination with a truck, of levers fulcrumed on the truck and extending rearwardly beyond the end of the truck, said levers being provided with swiveled nuts between their ends, screw-rods mounted on the truck and engaging the nuts of the levers, a tube carried by the outer ends of the levers, burner-pipes depending from the tube, and arms depending from the outer ends of the levers and connected together by a cross-bar forming a guide for the burner-pipes, substantially as described.



3. A vegetation-burner, comprising a truck, a liquid-fuel reservoir on the truck, an air-pump connected with the reservoir for forcing the liquid fuel from the same, levers pivoted to the truck and extending beyond the end of the same, said levers being provided with nuts between their ends, screw-rods mounted on the truck and engaging the nuts of the levers, a transversely-extending tube carried at the outer ends of the levers, burner-pipes depending from the tube, a valved connection between the tube and the reservoir, and a guide for the burner-pipes carried by the levers, substantially as herein shown and described.

661,847. APPARATUS FOR MIXING TEA, &c. ROBERT BURNS, New York, N. Y. Filed Dec. 15, 1899. Serial No. 740,428. (No model.)



Claim.—1. A mixer or blender comprising a revolving drum provided with lifting-blades, and a chute pivotally mounted on a stationary part independent of said drum and adapted to be moved to the outside or to the inside of said drum to act either as an inlet or as an outlet, substantially as described.

2. A mixer or blender comprising a revolving drum provided with lifting-blades, and a chute mounted on a stationary part and adapted to be moved or set in different positions to act as an inlet, as an outlet, or as a door or closure for said drum, substantially as described.

3. A mixer or blender comprising a revolving drum provided with lifting-blades, and a chute pivoted to a stationary part and communicating with the interior of said drum, the said chute consisting of segmental sides and a base or cross-piece intermediate of the ends of said sides, substantially as described.

4. A mixer or blender comprising a revolving drum provided with lifting-blades and a stationary end piece or disk provided with a suitable opening or passage, a pivotally-mounted chute having its sides made to fit and swing in the opening and means for retaining said chute in different positions substantially as described.

5. A mixer or blender comprising a revolving drum provided with lifting-blades, a chute pivoted to a stationary part independent of said drum and adapted to be moved to the outside or to the inside of said drum to act either as an inlet or as an outlet, and stops for retaining said chute in one or the other of these positions, substantially as described.

6. A mixer or blender comprising a drum, and a chute mounted on a stationary part and adapted to be moved or set to act either as an inlet or as an outlet and also as a closure, said chute having stops adapted to

engage said stationary part for holding the chute in its inlet and outlet positions and a stop adapted to engage said stationary part for holding the chute in its closing position substantially as described.

7. A mixer or blender comprising a drum, a chute pivoted to a stationary part, means for moving said chute to the outside or inside of said drum to adapt the same to be used as an inlet or outlet, and a lid or door pivoted at its upper end to said chute and adapted when said chute is inside said drum to automatically close the passage leading into said drum, substantially as described.

8. A mixer or blender comprising a drum, a stationary end piece or disk provided with an opening or passage, a movable chute made to fit the opening, and a door or lid at the outer part of the chute and made to automatically close when the chute is in outlet or discharge position substantially as described.

9. A mixer or blender comprising a rotary drum, a chute adapted to be moved to different positions to serve either as an inlet or as an outlet, a fixed roof-shaped spreader in the drum, and a fixed incline leading from the spreader to the chute when the latter is in position to serve as an outlet, substantially as described.

661,848. WINDOW-SASH. SALVATORE J. BUZZINI and GIOVANNI FERRACIOLI, New York, N. Y. Filed May 26, 1900. Serial No. 18,072. (No model.)



Claim.—1. The combination of an upper and a lower window-sash, each having one or more swinging sash-sections, a ledge hingedly carried on the upper sash and capable of swinging down over the top of the lower sash to cover the same, and means for fastening the ledge in place.

2. The combination of two window-sashes, the upper of which has a swinging sash-section and the lower of which has two swinging sash-sections, a ledge hingedly mounted on the upper sash and adapted to swing down over the top of the two swinging sash-sections of the lower sash, and a fastening device for holding the ledge in place.

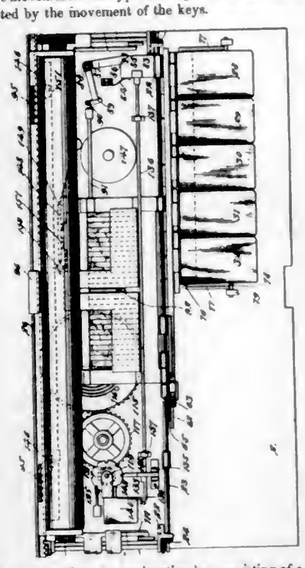
3. The combination of two sashes, the upper of which comprises a top bar with side rails rigidly connected, and the lower of which comprises a bottom bar with side bars rigidly connected, one or more sash-sections mounted in each sash, and a ledge hingedly carried by the upper sash-section and adapted to swing down over the upper edge of the lower sash-section.

661,849. TYPE-WRITER. MANUEL S. CARMONA, Mexico, Mexico. Filed Feb. 2, 1900. Serial No. 3,694. (No model.)

Claim.—1. In a type-writer, a bottom supporting the carriage, a box-section hinged to the bottom and arranged to carry the keys, said box-section carrying pinions at the hinge, and hinged ends having pinions engaging those of the hinge, to swing the ends together with said section.

2. In a type-writer, a type-locating bar consisting of a series of consecutively-arranged sections connected at their adjacent ends and movable one relatively to the other, the several sections having different relative movements, keys for effecting a movement of the several sections, movable type, the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.

3. In a type-writer, a type-locating bar consisting of a series of sections movable one relatively to the other, the relative movements of the sections being as 1, 2, 4, 8 and 16, respectively, keys for effecting a movement of the several sections, movable type the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.



4. In a type-writer, a type-locating bar consisting of a series of sections movable one relatively to the other, the relative movements of the sections being as 1, 2, 4, 8 and 16, respectively, and the last-named section operating in the opposite direction to the other sections, keys for effecting a movement of the several sections, movable type the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.

5. In a type-writer, a type-locating bar consisting of a series of consecutively-arranged sections movable one relatively to the other, the relative movements of the sections being different and increasing progressively, and the section which has the greatest movement working in the opposite direction to the others, keys for effecting a movement of the several sections, movable type the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.

6. In a type-writer, a type-locating bar consisting of a series of sections movable one relatively to the other, and overlapping at their adjacent ends, said adjacent ends being each provided with a slot or guideway which in one section has a lateral deviation, pins movable in the guideways of said overlapping ends, keys arranged to actuate said pins, movable type the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.

7. In a type-writer, a type-locating bar consisting of a series of sections movable one relatively to the other and overlapping at their adjacent ends, said adjacent ends being each provided with a slot or guideway which in one section has a lateral deviation, pins movable in the guideways of said overlapping ends and carrying rollers, keys provided with transverse guideways for the rollers, movable type, the position of which is controlled by the movement of the type-locating bar, and an impression mechanism operated by the movement of the keys.

8. A type-writer comprising a bottom supporting the carriage, hinged ends adapted to form feet for said bottom, and a side and top hinged to the bottom and arranged to carry the keys.

9. In a type-writer, a box adapted to form a type-writer support, said box comprising a connected side and bottom, the opposite side being hinged to the bottom and the top being connected directly with said hinged side, and ends hinged to the bottom and adapted to fold outwardly to form legs for supporting the bottom.

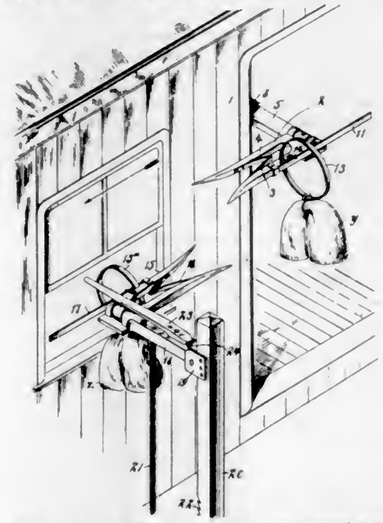
10. In a type-writer, a type-locating bar consisting of a series of sections movable one relatively to the other, keys for effecting a movement of the several sections, movable type located on a carriage having a rack, a rack on the type-locating bar, connected toothed wheels of a different number of teeth engaging the said two racks, and an impression mechanism operated by the movement of the keys.

11. In a type-writer, a type-locating bar consisting of a series of consecutively-arranged sections connected with each other at their adjacent ends and movable one relatively to the other, keys for effecting a movement of the several sections, movable type, the position of which is controlled by the movement of the type-locating bar, and impression mechanism operated by the movement of the keys.

12. In a type-writer, a carriage having a rack, a pinion engaging said rack, a notched wheel held to rotate with said pinion, two other notched wheels, each arranged on one side of the first-named notched wheel and capable of a limited turning movement relatively thereto, a releasing-pawl arranged to engage said notched wheels and to lock one of them before it releases the one with which it is temporarily engaged, means for throwing the pawl from one wheel to the next, said means being operated by the type-keys, and means operated by a space-key for giving an additional throw to the pawl.

13. In a type-writer, a carriage having a rack, a pinion engaging said rack, a notched wheel held to rotate with said pinion, two other notched wheels each arranged on one side of the first-named notched wheel and capable of a limited turning movement relatively thereto, a releasing-pawl arranged to engage said notched wheels and to lock one of them before it releases the one with which it is temporarily engaged, means for throwing the pawl from one wheel to the next, said means being operated by the type-keys, and means operated by a space-key for giving an additional throw to the pawl, the means operated by the type-keys having a projection for temporarily locking the means operated by the space-key, to prevent a return movement of the releasing-pawl until the type-keys return to their normal position.

661,850. MAIL-CATCHER. CHARLES C. COLEMAN, Keyteeville, Mo., assignor to himself and Nathan Ozark Tate & Co., same place. Filed Feb. 26, 1900. Serial No. 6,520. (No model.)



Claim.—1. A mail-catcher, comprising a plate mounted to swing and having forwardly-projected arms, a spring-plate connected at one end to one of said arms and having its free end extended rearward of the swinging-point of the plate and holding devices on the inner side of the arms, substantially as specified.

2. A mail-catcher, comprising a swinging arm, a catcher-plate mounted to swing on said arm, the said plate having forwardly-extended arms, holding devices connected to the inner sides of said forwardly-projected arms, and a spring-plate extended along the outer side of said catcher-plate, the free end of said spring-plate being projected rearward of the swinging-point of the catcher-plate, substantially as specified.

3. A mail-catcher, comprising an arm mounted to swing relatively to a support, a bifurcated plate mounted on said arm, the arms of the plate being divergent, springs connected to the inner sides of said arms and meeting at their free ends, a spring-plate attached to the outer side of the outer arm of the bifurcated plate, and a sack-suspending ring adapted to engage with said swinging arm, substantially as specified.

4. A mail-catching device for stations, comprising a post, an arm mounted to swing on said post, means for locking said arm in its horizontal position, a catcher-plate mounted on said arm and comprising divergent portions, springs mounted on the inner sides of said divergent portions, and a spring-plate attached to the outer side of one of said divergent portions, the free end of said plate passing beyond the connection of the plate and the first-named arm, substantially as specified.

5. In a mail-catcher, an arm connected to a car, whereby it may be swung into and out of the car, a bifurcated plate reversibly connected to the swinging arm, a spring-plate attached to the said bifurcated plate for receiving a ring or similar device attached to a mail-sack, and a cam-plate attached to the bifurcated plate and extended over the spring-plate, substantially as specified.

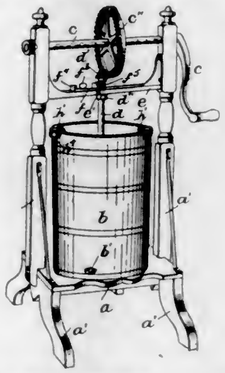
661,851. REFRIGERANT COMPOSITION. HARVEY B. CORNELL, Scranton, Pa., assignor to H. J. Seamans, same place, and G. W. Patterson, Sayre, Pa. Filed July 2, 1900. Serial No. 22,367. (No specimens.)

Claim.—1. A refrigerant composition consisting of sodium nitrate and ammonium nitrate, combined and prepared, substantially as specified.

2. A refrigerant composition, consisting of sodium nitrate, ammonium nitrate and ammonium muriate, combined and prepared, substantially as specified.

3. A refrigerant composition consisting of sodium nitrate, ammonium nitrate and ammonium muriate dissolved and recrystallized, substantially as specified.

661,852. CHURN. JOHN N. CUMMINGS, Thamesville, Canada. Filed Mar. 20, 1900. Serial No. 9,429. (No model.)



Claim.—1. In a churn, in combination, a tub, a rotary dasher-shaft, and the rotary dasher removably located on the shaft and consisting of the hub, the lower horizontal disk rigid with the lower end of the hub, the upper horizontal disk rigid with the hub and a distance above the lower disk, said disks having the corresponding flat-edge butter-collecting faces and the intervening rounded portions, substantially as described, the vertical fan between and perpendicular to the flat inner faces of the disks with a space between its vertical inner edge and the hub, said fan having its vertical front face transversely convexed to throw the cream from the dasher and its vertical rear face transversely concaved to draw the cream from the dasher and throw it outwardly, substantially as described.

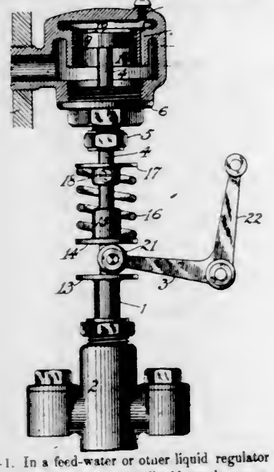
2. In a churn, the combination, of a tub, a dasher-shaft, means for rotating the same, and the integral wooden dasher consisting of the elongated hub receiving said shaft and having securing means and the two parallel separated horizontal disks on the hub having the flat-edge faces 8, operating on the cream as described, and the intervening rounded portions of said edges, said disks having vertical openings therethrough, the opening in one disk being out of line with the opening in the other disk, substantially as described.

3. In a churn, in combination, a tub, a rotary dasher-shaft, the dasher removably located on said shaft and consisting of the cylindrical hub through which the shaft passes and extended upwardly to form a handle and provided with clamping means at its upper end, the two parallel separated horizontal disks turned out with said hub from a single block, said disks having the flat-edge faces with intervening rounded portions, for the purpose described, vertical openings through said disks between said flat-edge faces and said hub, the horizontal inner faces of said disks having ways extending inwardly from said flat-edge faces, and a vertical removable inclined fan having its top and bottom edges fitted in said ways, a space being left between the vertical inner edge of the fan and said hub, and the vertical outer edge of said fan being about flush with corresponding flat-edge faces of said disks, a vertical opening of one disk being in front

of said fan and an opening of the other disk behind said fan, for the purpose described.

4. In a churn, the combination of a stand, a churn-tub, a rigid horizontal cross-bar above the tub, a rotary drive-shaft mounted in the stand above the cross-bar and provided with a gear, said cross-bar having angular slot e', opening through a side edge thereof and extending longitudinally of the bar with a bearing at its inner end, a removable rotary dasher-shaft passing through said slot, a pinion rigid on the upper end of the dasher-shaft above said bar and meshing with said gear, a stop on said dasher-shaft below said bar, a slide longitudinally arranged on said bar, a roller mounted on a vertical axis at the inner end of the slide and projecting beyond the inner end of the slide into engagement with the dasher-shaft immediately below the pinion and holding said shaft to said bearing at the inner end of said slot and said pinion to said gear, whereby when the slide is drawn back from the slot the shaft can be removed laterally through the slot and from said bar, guides and a clamping means for said slide, substantially as described.

661,858. FEED-WATER REGULATOR. ISAAC H. DAVIS, Boston, Mass., assignor of one-half to Henry H. Westinghouse, Pittsburg, Pa. Filed Nov. 27, 1899. Serial No. 738,328. (No model.)



Claim.—1. In a feed-water or other liquid regulator for reservoirs or boilers, the combination, with the liquid-supply pump, of a movable piston, which is adapted to be in direct contact, on both sides, with steam or other gaseous fluid or vapor in the boiler or reservoir when the liquid-level is below a certain height, and which, when the liquid is at a higher level, is in contact, on one side, with the liquid in the reservoir or boiler, and means whereby the liquid acts to vary the length of the stroke of the pump.

2. In a feed-water or other liquid regulator for reservoirs or boilers, the combination, with the liquid-supply pump, of a piston connected thereto, a chamber or space on one side of the piston, and a small or restricted passage through which the chamber communicates with the interior of the reservoir or boiler and means whereby the length of the stroke of the pump is varied by the resistance to the movement of the piston.

3. In a feed-water or other liquid regulator for reservoirs or boilers, the combination, with the liquid-supply pump, of a piston connected thereto, a chamber, or space, on one side of the piston, and a small or restricted passage connecting the chamber with the interior of the reservoir or boiler and so located that the chamber may be charged with the steam or air or other gas or vapor, which is above and in contact with the liquid, when the level of the liquid is below a certain height, or with liquid when the level of the liquid is above a certain height and means whereby the liquid acts to vary the length of the stroke of the pump.

4. The combination, with the water or other liquid supply pump of a reservoir or boiler, of a piston connected thereto which is adapted to be exposed on both sides to the steam, air or vapor in the reservoir or boiler when the liquid-level is below a certain height, and which, when the liquid in the reservoir or boiler reaches or exceeds a certain height, is adapted to be acted on directly by liquid from the reservoir or boiler and means whereby the length of the stroke of the pump is varied according to the resistance to the movement of the piston.

5. The combination, with the water or other liquid supply pump of a reservoir or boiler, of a piston which is adapted to be moved by a movable part of the liquid-supply pump, and which has communications from its opposite sides to the interior of the reservoir or boiler, and means whereby the length of the stroke of the pump may be varied by the resistance to the movement of the piston.

6. The combination, with the feed-pump of a reservoir or boiler, of a piston connected therewith, which is in contact with the steam, air or gas in the reservoir or boiler when the water or other liquid is below a certain level, and means whereby water or other liquid may be supplied to one side of the piston to resist its movement and to vary the length of the stroke of the pump.

7. The combination with a feed-pump for a reservoir or boiler, of a piston adapted to be operated simultaneously therewith, which is connected to a movable part of the pump, and which is adapted to be exposed on its opposite sides to contact with the steam, air or gas in the reservoir or boiler when the water-level is below a certain height, and on one side to contact with the liquid in the reservoir or boiler when the water-level reaches or exceeds a certain height, and a restricted passage through which liquid may pass to and from the reservoir or boiler to one side of the piston, and means whereby the length of the stroke of the pump may be varied by the resistance to the movement of the piston.

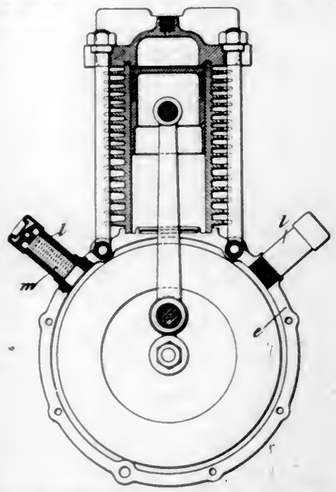
8. The combination, with a feed-pump for reservoirs or boilers, of means for actuating the pump, a regulating device which is adapted to be acted on by water or other liquid in the reservoir or boiler to resist the operation of the pump, and a spring the compression of which is adapted to be varied so as to vary the stroke of the pump.

9. The combination, with a feed-pump for reservoirs or boilers, of a rod connected to the piston or plunger of the pump, actuating means for the pump, a spring through which the actuating means moves the rod, a piston exposed to the fluid in the reservoir or boiler, a chamber on one side of the piston, and a small or restricted passage through which the chamber communicates with the reservoir or boiler.

10. The combination with the feed-pump of a reservoir or boiler, a chamber connected at its lower end to the interior of the reservoir or boiler, a piston connected to the pump and adapted to reciprocate vertically in said chamber, and a small passage from the lower to the upper side of the piston whereby the liquid will be forced through the small passage and retard the movement of the piston when the level in the reservoir or boiler rises to the level of the opening to said small passage.

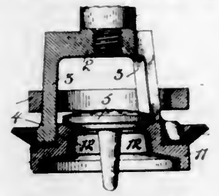
11. In a feed-water or other liquid regulator for reservoirs or boilers, the combination, with the liquid-supply pump, of a movable piston, which is adapted to be in direct contact with steam or other gaseous fluid or vapor in the boiler or reservoir when the liquid-level is below a certain height, and which, when the liquid is at a higher level, is in contact with the liquid in the reservoir or boiler, and means whereby the liquid acts to vary the length of the stroke of the pump.

661,854. GAS-ENGINE ATTACHMENT. XAVIER DE LE CROIX, Brussels, Belgium, assignor to the Delecroix Motor Syndicate, Limited, London, England. Filed Dec. 20, 1899. Serial No. 740,957. (No model.)



Claim.—In combination with the crank and fly-wheel casing of an oil-motor, tubes for circulation of air, each provided with wire-gauze partitions and at its outer mouth a turned-in lip and a deflector, substantially as described.

661,855. UNSCREWING DEVICE. ALLEN DE VILBISS, Jr., Toledo, Ohio. Filed Oct. 16, 1899. Serial No. 733,740. (No model.)

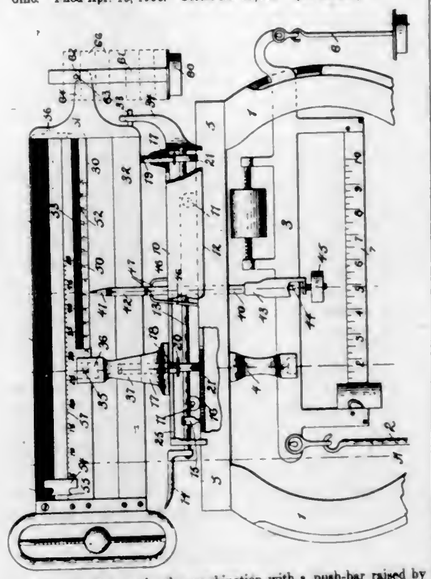


Claim.—1. The combination in a piston, with the rod, a spider secured at its center to the end of the rod, a series of arms integral with the spider and extending therefrom away from the rod, their outer faces diverging from each other as they recede from the spider and their bodies springing normally outward from an axial line, and arc-shaped pieces at the extremities of said arms; of a solid ring having a portion standing within said pieces, means for detachably connecting these parts by a relative movement longitudinally, and a drive-ring surrounding said arms and adapted when driven toward said pieces to bind them upon the contained portion of the solid ring, as and for the purpose set forth.

2. In a piston, the combination with the pump-rod, a spider attached thereto and having diverging arms normally springing outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded on its inner radial face and flat at its end; of a solid ring having a flat face, a boss of reduced diameter projecting longitudinally from the inner edge of this ring and threaded on its outer radial face to engage the threads on said pieces, a washer clamped between the flat faces of the solid and the split rings, and a drive-ring adapted to be forced onto said diverging arms, as and for the purpose set forth.

3. In a pump-piston, the combination with the pump-rod, a spider attached thereto and having diverging arms normally springing outward, and a ring split into pieces respectively connected to the arms and each threaded on its inner radial face and flat at its end; of a solid ring having a flat face, a boss of reduced diameter projecting longitudinally from the inner edge of this ring and threaded on its outer radial face to engage the threads on said pieces, a valve-seat within this ring, a valve therein working within the spider, a washer clamped between the flat faces of the solid and the split rings, and a drive-ring adapted to be forced onto said diverging arms, as and for the purpose set forth.

661,856. COMPUTING-SCALE. ALLEN DE VILBISS, Jr., Toledo, Ohio. Filed Apr. 16, 1900. Serial No. 13,002. (No model.)



Claim.—1. In a scale, the combination with a push-bar raised by the descent of the platform and pointed at its upper end, a horizontal track having teeth, a carriage movable thereon and having a support, a dog in the carriage normally engaging the teeth, and means for simultaneously disengaging said dog and raising said support; of a beam fulcrumed on said support and having in its lower edge price-per-pound notches corresponding with the teeth, the beam also having a scale-of-price totals, and a weight movable over the latter.

2. In a scale, the combination with a push-bar raised by the descent of the platform and pointed at its upper end, a horizontal track having teeth, a carriage movable thereon and having a pillar, a rock-shaft journaled in said carriage and having a handle, a cam on this shaft beneath the pillar, and a dog on this shaft engaging the teeth when the cam is down; of a pin movable in the pillar and resting on the cam, a scale-beam whose fulcrum is supported by the pin in rear of the push-bar, the beam having price-per-pound notches in its lower edge corresponding with said teeth and being also provided with a scale-of-price totals, and a weight moving over the latter.

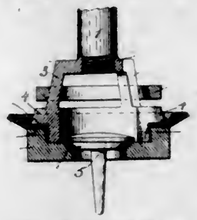
3. In a scale, the combination with a push-bar raised by the descent of the platform and pointed at its upper end, a horizontal track having teeth, a carriage movable thereon and having twin pillars near one end and a single pillar near the other, a rock-shaft journaled in the carriage and having a handle, cams on the shaft beneath the pillars, and a dog on the shaft engaging said teeth when the cams are down; of a single pin in the single pillar resting on the cam beneath, twin pins in the other pillars having a head resting on the cam beneath, twin cap-pieces on these pins supporting bearings, a bracket on the carriage having an opening, a scale-beam having a fulcrum mounted in said bearings and provided on its lower edge with price-per-pound notches adapted to engage said point, a scale-of-price totals also on the beam, a weight moving thereover, a portion of said beam standing above the single pin, and a finger engaging the opening in the bracket.

4. In a scale, the combination with the framework having a track at its head, a lever pivotally supported from said head and connected at one side of said support with the platform, a pivot in the lever at the opposite side of the support, and an upright counterbalanced push-bar mounted on this pivot and extending between the rails of said track; of a carriage movable on the track and having a longitudinal slot through which said push-bar projects, a support on said carriage in rear of the push-bar, a scale-beam fulcrumed on the support and whose lower edge has notches engaging the pointed upper end of the push-bar, and a weight movable thereover.

5. In a scale, the combination with the framework having a track at its head, a lever pivotally supported from said head and connected at one side of said support with the platform, a pivot in the lever at the opposite side of the support, an upright counterbalanced push-bar mounted on this pivot and extending between the rails of said track, and guide-fingers carried by the track for preventing lateral movement of the push-bar; of a carriage movable on the track and having a longitudinal slot through which said push-bar and fingers project, a support on said carriage in rear of the push-bar, a scale-beam fulcrumed on the support and whose lower edge engages the upper end of the push-bar, the beam also having a scale-of-price totals, and a weight movable thereover.

6. In a scale, the combination with the fulcrumed beam having a nose provided with a notch, and connections between the beam and platform; of a pendant having a head and a stem which latter in section forms three sides of a hollow square, a knife-edge across the stem above its center of gravity, and capacity-weights notched so as to be built up on the stem beyond the fulcrum and nose.

661,857. UNSCREWING DEVICE. ALLEN DE VILBISS, Jr., Toledo, Ohio. Filed Apr. 27, 1900. Serial No. 14,578. (No model.)



Claim.—1. In a piston, the combination with a solid ring having inwardly-facing threads; of a split ring whose pieces have outwardly-facing threads adapted to engage those on the solid ring, and a spider whose arms normally spring outward and are connected with said pieces.

2. In a piston, the combination with a solid ring having an integral annular boss threaded on its inner face; of a split ring whose pieces are threaded on their outer faces and adapted to engage said boss and have shoulders of larger diameter than the threads, means for spreading the

pieces radially outward, and an annular washer clamped between the face of the shoulder and the flat end of the boss.

3. In a piston, the combination with a spider having diverging arms which normally spring outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded for a distance on its outer face and having a longitudinally-facing shoulder larger than the threads; of a solid ring having a boss threaded on its interior to engage the threads on said pieces, a washer clamped between the boss of the solid ring and the shoulder of the split ring, and a drive-ring adapted to be forced onto said diverging arms to loosen the engagement of the threads.

4. In a pump-piston, the combination with the pump-rod, a spider attached thereto and having diverging arms which normally spring outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded on its outer face; of a solid ring threaded on its interior to engage the threads on said pieces, a valve in this ring working within the spider, a washer clamped between the solid ring and the split ring, and a drive-ring adapted to be forced onto said diverging arms to loosen the engagement of the threads.

5. In a pump-piston, the combination with the pump-rod, a spider attached thereto and having diverging arms which normally spring outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded for a distance on its outer face and having a longitudinally-facing shoulder larger than the threads; of a solid ring having a boss threaded on its interior to engage the threads of said pieces, a valve in this ring working within the spider and within the split ring, a washer clamped between the boss of the solid ring and the shoulder of the split ring, and a drive-ring adapted to be forced onto said diverging arms to loosen the engagement of the threads.

6. In a piston, the combination with a spider comprising a hub, obliquely-diverging arms leading therefrom, arc-shaped pieces carried thereby and constituting members of a split ring, shoulders on said pieces, a clamping-ring having a boss in threaded engagement with said arc-shaped pieces, and a washer whose inner edge is clamped between the shoulders and boss; of an axial rod connected with said spider, and a drive-ring of a size to surround said arms closely, this ring having an opening of a size to pass astride said rod.

7. In a piston, the combination with a spider comprising a hub, obliquely-diverging arms leading therefrom, arc-shaped pieces carried thereby and constituting members of a split ring, a clamping-ring in threaded engagement with said arc-shaped pieces, and a washer whose inner edge is clamped between the split and clamping rings; of an axial rod connected with said spider, and a drive-ring of a size to surround said arms closely, this ring having an opening of a size to pass astride said rod.

8. In a pump-piston, the combination with the pump-rod, a spider attached thereto and having diverging arms which normally spring outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded on its outer face; of a solid ring threaded on its interior to engage the threads on said pieces, a valve in this ring working within the spider, a washer clamped between the solid ring and the split ring, and a drive-ring adapted to be forced onto said diverging arms to loosen the engagement of the threads, this ring having an opening of a size to pass astride said pump-rod.

9. In a piston, the combination with the pump-rod, a spider attached thereto and having diverging arms which normally spring outward, and a ring split into pieces respectively connected to the ends of the arms and each threaded for a distance on its outer face and having a longitudinally-facing shoulder larger than the threads; of a solid ring having a boss threaded on its interior to engage the threads on said pieces, a washer clamped between the boss of the solid ring and the shoulders of the split ring, and a drive-ring adapted to be forced onto said diverging arms to loosen the engagement of the threads, this ring having an opening of a size to pass astride said pump-rod.

661,858. PROCESS OF DYEING TURKEY RED. ALVIN FÄHRMANN, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Oct. 18, 1899. Serial No. 733,989. (No specimens.)

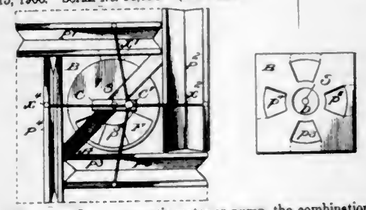
Claim.—The new process for dyeing Turkey red on vegetable fiber consisting first in boiling out the goods in the usual way, then oiling in a bath containing a castor-oil soap composed of castor-oil, caustic soda, sodium stannate, sodium aluminate, and sodium phosphate, then thoroughly wringing out and drying, then mordanting in a bath possessing an acid reaction and containing sulfate of alumina, ammonium chlorid, and sulfate of magnesium, washing the goods until the wash-water no longer shows an acid reaction, and then, without drying, dyeing in a bath containing alizarin paste and acetate of lime, swilling thoroughly and finally, without drying brightening by treating with an aqueous solution or mixture containing tournant oil, soap and potato-starch, all substantially as described.

661,859. MORDANT. ALVIN FÄHRMANN, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Original application filed Oct. 18, 1899, Serial No. 733,989. Divided and this application filed Sept. 11, 1900. Serial No. 29,703. (No specimens.)

Claim.—1. The new composition of matter consisting substantially of: fourteen (14) parts of caustic soda, twenty-five (25) parts of sodium stannate, fifteen (15) parts of sodium aluminate (commercial), ten (10) parts of sodium phosphate and water.

2. The new composition of matter coosisting of: fourteen (14) parts of caustic soda, twenty-five (25) parts of sodium stannate, fifteen (15) parts of sodium aluminate (commercial), ten (10) parts of sodium phosphate, one hundred (100) parts of castor-oil, and water substantially as hereinbefore described.

661,860. AIR MOTOR OR PUMP FOR AUTOMATIC MUSICAL INSTRUMENTS, &c. ROBERT A. GALLY, New York, N. Y. Filed Sept. 15, 1900. Serial No. 30,134. (No model.)



Claim.—1. In a pneumatic motor or pump, the combination with a main block, of a series of pneumatics arranged around said block, each pneumatic overlapping the edge of an adjacent pneumatic, said main block having valve-controlled ports and a supply or exhaust passage in communication with the pneumatics.

2. In a motor or pump, the combination with a main block having ports and a conduit, of a series of pneumatics arranged around and communicating with said block, and a main shaft carrying thereon a cupped recessed valve which bears against a valve-seat on the block, and controls communication between said block and the pneumatics.

3. In a motor or pump, the combination with a main block having a central longitudinal passage and a series of ports in its outer face, of pneumatics arranged around said main block and communicating with the said ports, and a revoluble valve engaging the outer face of said main block and having its inner face at one side of the center of a cup or recess, to successively connect the central passage with the surrounding ports, and to the opposite side of the center of an open or cut-away portion, to successively free out the several ports of the main block as the valve is revolved.

4. In a motor or pump, the combination with a main block having an exhaust-passage and a series of ports in its outer face of a series of pneumatics arranged around and communicating with the ports in said main block, and a main shaft carrying thereon a revoluble cupped or recessed valve held in engagement with the outer face of the main block by the power of the exhaust.

5. In a motor or pump, the combination with a main block having a central longitudinal passage and a series of ports in its outer face, of pneumatics arranged around said main block and communicating with said ports, a main shaft extending longitudinally through the center of said main block, a revoluble valve on said main shaft adapted to engage the outer face of said main block and control the ports therein, connections between the pneumatics and the main shaft, and a polley or equivalent device on the main shaft adapted to convey power from or to the main shaft, according as the device is used as a motor or pump.

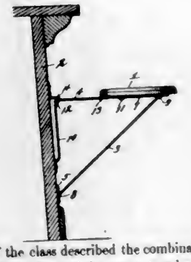
6. In a motor or pump, the combination with the main block having valve-controlled ports and a conduit, of a series of pneumatics arranged around said main block and communicating therewith through said ports and conduit, and an adjustable counterweight secured to a pneumatic to balance the movement of the same.

7. In a pneumatic motor, a series of pneumatics arranged around a common center, a shaft at this center, pitmen connected to each pneumatic and to a crank on the shaft, air-ducts leading to all the pneumatics, and a single valve moving with the shaft and controlling all the air-ducts.

8. In a pneumatic motor, the combination with a single block having air-ducts, of a series of pneumatics surrounding the block and communicating with the ducts, and a single valve having a cup of width to connect a plurality of the ducts when in proper position, and means operated by the pneumatics for moving said valve.

661,861. COUNTER-STOOL. ORA L. GAMBREL, Lincoln, Ill., assignor of one-half to Algie D. Gambrel, same place. Filed Mar. 15, 1900. Serial No. 8,794. (No model.)

Claim.—1. A device of the class described comprising a guide designed to be mounted on a counter or other suitable support, a folding seat, a connecting-piece hinged at its outer end to the seat and having its inner end slidingly connected with the guide, an inclined brace hinged at its lower end to the counter or support and similarly connected at its upper end to the seat, and means for interlocking the inner edge of the seat with the guide, whereby the seat is retained in an inclined position, substantially as described.



2. In a device of the class described the combination with a support, of a guide arranged at the front of the support and provided with an offset or bend, a seat, a connecting-piece hinged to the seat and slidingly connected with the guide and arranged to engage the offset portion or bend thereof when the seat is in a horizontal position, and an inclined brace hinged to the seat and to the counter or support, substantially as described.

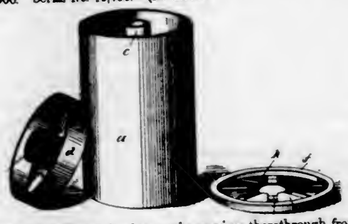
3. In a device of the class described the combination with a support, of a guide arranged at the front of the support and provided with an offset or bend, a seat, an oblong connecting-piece linked into the guide and adapted to engage the offset portion or bend and hinged at its outer end to the seat, and an oblong brace hinged to the seat and to the counter or support, substantially as described.

4. A device of the class described comprising a guide provided with an exterior lip, a seat provided with a projection or flange arranged to engage the lip, a connecting-piece hinged to the seat and slidingly connected with the guide, and an inclined brace hinged to the seat, substantially as described.

5. A device of the class described comprising a guide designed to be arranged on a counter and provided with an interior recess and with an exterior projection, a seat 1, an oblong connecting-piece slidingly connected with the guide and adapted to engage the recess thereof, an oblong link or brace and a plate hinging the connecting-piece and the link or brace to the seat 1, and provided with a flange located at the inner edge of the said seat 1 and adapted to engage the projection of the guide, substantially as described.

6. A device of the class described comprising a horizontal guide designed to be secured to a counter or support, and provided at its outer end with arms, said guide being provided with an offset or bend and having a projection, a seat, a brace hinged to the seat, and a connecting-piece linked into the guide and hinged to the seat, the latter being provided with means for engaging the said projection, substantially as described.

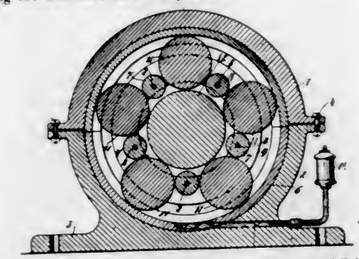
661,862. MILK-CAN. JOHN GERMAN, Aubrey, Wis. Filed May 15, 1900. Serial No. 16,750. (No model.)



Claim.—A milk-can having a tube passing therethrough from top to bottom, a cover having an opening registering with the tube and a tube projecting from the cover at the opening thereof and having sliding engagement with the tube on the can, a portion of said cover-tube being perforated and forming a screen, while the other portion of the cover-tube is imperforate, so that according to the position of the cover, the interior of the can is ventilated or not.

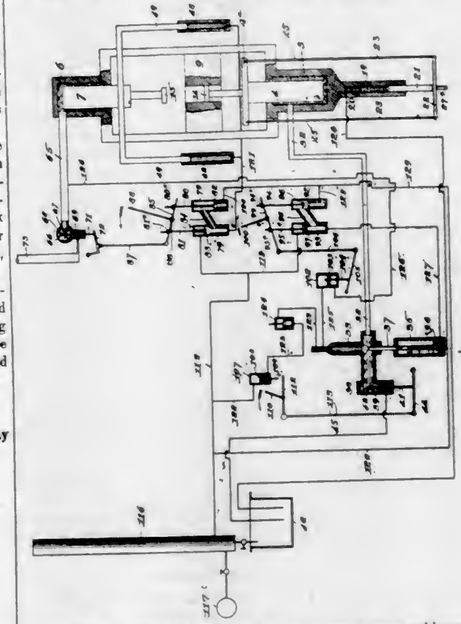
661,863. ROLLER-BEARING. JOHN S. GODFREY, Harrington, Wash., assignor of one-half to John E. Crosby, same place. Filed Sept. 4, 1900. Serial No. 28,980. (No model.)

Claim.—1. A roller-bearing, comprising a casing having the ends of its inner wall curved inward, a cage, guide-rollers supported by said cage and extended through the casing, the ends of said guide-rollers being rounded, and antifriction-rollers supported by the guide-rollers and having rounded ends, substantially as specified.



2. A roller-bearing, comprising a casing, a hard-metal lining therefor having its ends curved inward, a cage, comprising rings adapted to surround a shaft or spindle, rods connecting the rings, the said rods being provided with shoulders to bear against the inner surfaces of the rings, guide-rollers mounted to rotate on the said rods and provided with oil-ports, means for supplying oil to the interior of the casing, and friction-rollers supported by the guide-rollers and having rounded ends, substantially as specified.

661,864. HYDRAULIC BRICK-MACHINE. WILLIS N. GRAVES, St. Louis, Mo., assignor to the Hydraulic-Press Brick Company, same place. Filed Apr. 30, 1900. Serial No. 14,906. (No model.)



Claim.—1. In a brick-machine, the combination of upper and lower rams, pistons carrying the rams, cylinders in which the pistons fit, a low-pressure pump for imparting the initial pressure to the lower ram and for lifting the upper ram, a high-pressure pump for giving the final pressure to the upper and lower rams, a valve controlling communication between the low-pressure pump and the cylinder of the lower ram, a check-valve between the last-mentioned valve and the lower ram, a pivoted lever for moving said controlling-valve, a valve located in the high-pressure pump, a lever for moving the last-mentioned valve, and a connection between said levers whereby when the first-mentioned valve is opened to establish a communication between the low-pressure pump and the cylinder of the lower ram through the high-pressure pump, the last-mentioned valve is closed to shut off communication between the high-pressure pump and the discharge or waste pipe thereof, substantially as set forth.

2. A brick-machine comprising an upper cylinder, a piston carrying a ram and working in the upper cylinder, a tubular extension to the upper cylinder, a low-pressure tank, a high-pressure pump consisting of a lower cylinder, an upper cylinder having a valve-casing and a piston in the lower cylinder having a stem working in the upper cylinder of the high-pressure pump, an outlet-valve having a pendent stem and located in the valve-casing, an independent valve-casing having a valve provided with a pendent stem, a pipe connecting the low-pressure tank with the independent valve-casing, a pipe having a check-valve and connecting the independent valve-casing with the upper cylinder of the high-pressure pump, a valve-lever on which the stem of the valve in the upper cylinder of the high-pressure pump is supported, an operating-lever on which the stem of the valve in the independent valve-casing is supported, a rod whereby the levers are connected, a pipe having a controlling-valve provided with a pendent stem and connecting the upper cylinder of the high-pressure pump with the tubular extension of the upper ram-cylinder, a lever on which the controlling-valve stem is supported, a valve-casing constructed with connected valve-cylinders, an inlet-valve having a stem and located in one valve-cylinder, an outlet-valve having a stem and located in the other valve-cylinder, a pipe connecting the low-pressure tank with the inlet-cylinder, a pipe connecting the inlet-cylinder with the lower cylinder of the high-pressure pump, and an operating-lever with which the stems of the inlet and outlet valves are connected, having a rod connecting it with the lever of the controlling-valve.

3. A brick-machine comprising a lower cylinder, a piston carrying a ram and working in the lower cylinder, a tubular projection to the lower cylinder, a low-pressure tank, a high-pressure pump consisting of a lower cylinder, an upper cylinder with which the tubular projection is connected, having a valve-casing and a piston in the lower cylinder of the high-pressure pump having a stem working in the upper cylinder, an outlet-valve having a pendent stem and located in the valve-casing, an independent valve-casing having a valve provided with a pendent stem, a pipe connecting the low-pressure tank with the independent valve-casing, a pipe having a check-valve and connecting the independent valve-casing with the upper cylinder, a valve-lever on which the stem of the valve in the upper cylinder is supported, an operating-lever on which the stem of the valve in the independent valve-casing is supported, and a rod whereby the levers are connected.

4. A brick-machine comprising a lower cylinder, a piston carrying a ram and working in the lower cylinder, a tubular projection to the lower cylinder, a low-pressure tank, a high-pressure pump consisting of a lower cylinder, an upper cylinder, with which the tubular projection is connected, having a valve-casing and a piston in the lower cylinder of the high-pressure pump having a stem working in the upper cylinder, an outlet-valve having a pendent stem and located in the valve-casing, an independent valve-casing having a valve provided with a pendent stem, a pipe connecting the low-pressure tank with the independent valve-casing, a pipe having a check-valve and connecting the independent valve-casing with the upper cylinder, a valve-lever on which the stem of the valve in the upper cylinder is supported, an operating-lever on which the stem of the valve in the independent valve-casing is supported, a rod whereby the levers are connected, a valve-casing constructed with connected valve-cylinders, an inlet-valve having a stem, and located in one valve-cylinder, an outlet-valve having a stem and located in the other valve-cylinder, a pipe connecting the low-pressure tank with the inlet-cylinder, a pipe connecting the inlet-cylinder with the lower cylinder of the high-pressure pump, and an operating-lever with which the stems of the inlet and outlet valves are connected.

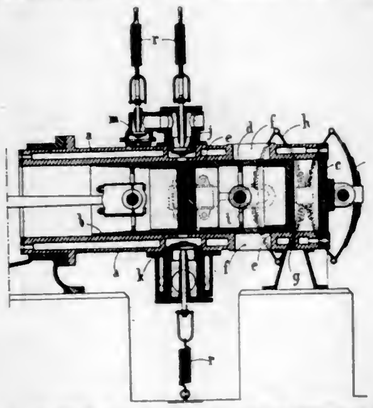
5. In a brick-machine, the combination of upper and lower rams, means for operating the rams, and an indicator consisting of a rod carried by one of the rams, a graduated plate adjustably secured to the rod, a finger pivoted to the plate, and a projection carried by the other ram for engaging said finger, substantially as set forth.

661,865. GAS-MOTOR. NARCISSE A. GUILLAUME, Paris, France. Filed Jan. 5, 1900. Serial No. 497. (No model.)

Claim.—1. In engines of the character described, the combination of a cylinder, a driving-piston, a spring-actuated auxiliary piston, and an air-chamber arranged, between said auxiliary piston and the bottom of said cylinder, and communicating with the external air through air-inlets uncovered by said auxiliary piston, said auxiliary piston having lateral stops engaging elongated slots in said cylinder, substantially as described.

2. In engines of the character described, the combination of a cylinder, a driving-piston, a spring-actuated auxiliary piston, an air-chamber between said auxiliary piston and the bottom of said cylinder, said cylinder having lateral outlets arranged intermediately of the combustion and air chambers, and stops connected to said auxiliary piston and engaging elongated slots in said cylinder, substantially as set forth.

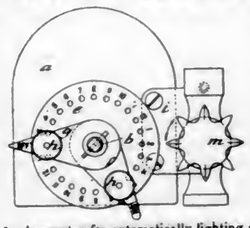
3. In engines of the character described, the combination of a cylinder or chamber, a driving-piston, a spring-actuated auxiliary movable bottom arranged between said driving-piston and the bottom proper, said auxiliary movable bottom or piston having lateral stops engaging elongated slots in said cylinder or chamber, substantially as set forth.



4. In engines of the character described, the combination of a cylinder or chamber, having an air-chamber next to its bottom, an air-inlet therefor, a driving-piston and an auxiliary movable bottom, adapted to uncover said air-inlets and serve as a supplemental piston and arranged between said driving-piston and said air-chamber, substantially as set forth.

5. In engines of the character described, the combination of a cylinder or chamber having an air-chamber next to the bottom, a driving-piston, and an auxiliary movable bottom, adapted to act as a supplemental piston, and arranged between said driving-piston and air-chamber said cylinder or chamber also having a lateral outlet or opening between said air-chamber and the combustion-chamber, substantially as set forth.

661,866. TIME LAMPLIGHTER. JOHN GUNNING, Bournemouth, England. Filed Apr. 27, 1900. Serial No. 14,588. (No model.)

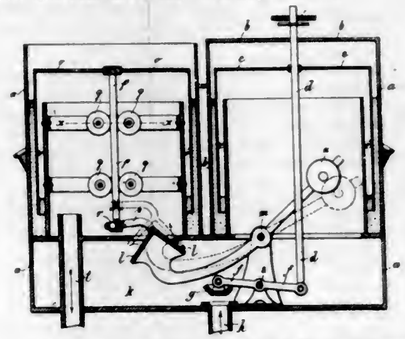


Claim.—1. Apparatus for automatically lighting and extinguishing lamps at predetermined times comprising a spindle arranged to revolve once in twenty-four hours, a fixed disk and a free disk on the spindle, adjustable arms having set-screws arranged to secure the arms in different positions on the free disk and clamp said disk to the fixed disk, and a light-control device having a spindle provided with a star-wheel acted upon by the arms; substantially as described.

2. Apparatus for automatically lighting and extinguishing lamps at predetermined times and arranged to act upon more than one set of lamps, comprising a spindle arranged to revolve once in twenty-four hours and provided with a fixed disk and a free disk, three arms having set-screws arranged to fix them in different positions on the free disk and clamp the free disk to the fixed disk, and a light-control device having a star-wheel with six arms arranged to be acted upon by the three adjustable arms; substantially as described.

661,867. GAS-PRESSURE REGULATOR. THEODOR HAHN, Kötzschenbroda, Germany, assignor to Sigismund Mühlenthal and Max Loewenthal, Berlin, Germany. Filed Sept. 26, 1899. Serial No. 731,724. (No model.)

Claim.—1. A gas-pressure equalizer for use with intermittent gas-consuming devices, comprising two gasometers connected one with the supply-pipe and the other with the delivering-pipe, a valve mounted upon a pivoted lever and adapted to close the communication between the two gasometers, connections from said valve to the bell of the gasometer which is connected with the delivering-pipe, a counterweight on said lever whereby the valve is closed by the rise of the gasometer-bell, a valve between the other gasometer and the supply-pipe, a pivoted lever carrying said valve, and connections from said lever to its gasometer-bell adapted to close the valve when the bell rises, substantially as described.



2. A gas-pressure equalizer for use with intermittent gas-consuming mechanisms, comprising two gasometers, consisting of two concentric walls forming a water seal, a bell fitting between the said walls and forming a gasometer, one of said gasometers being connected with the supply-pipe and the other with the delivering-pipe, the outer wall of the gasometer which is connected with the supply-pipe having a top or cover, a rod passing upwardly from the bell of said gasometer loosely through said cover and adapted to receive variable weights on its projecting end, a valve between said gasometer and the supply-pipe, connections therefrom to the bell whereby the valve is closed by the rise of the bell, a valve between the two gasometers, a pivoted lever carrying said valve, a rod connecting said gasometer-bell with its valve-lever to close it when the pressure rises, and connections from said gasometer to the gas-consuming mechanism, substantially as described.

3. A pressure-regulator, comprising two gasometer-hoods *c o*, one of which *c* is surrounded at the top by an air-cushion, a channel below the hoods and into which opens the supply-pipe, said channel having an unobstructed communication with the hood *c*, a valve for controlling the supply-pipe, operatively connected with the hood *c*, a valve controlling the communication between the channel and the hood *o*, and operatively connected with said hood, and a delivery-pipe leading from the hood *o* out through said channel, substantially as described.

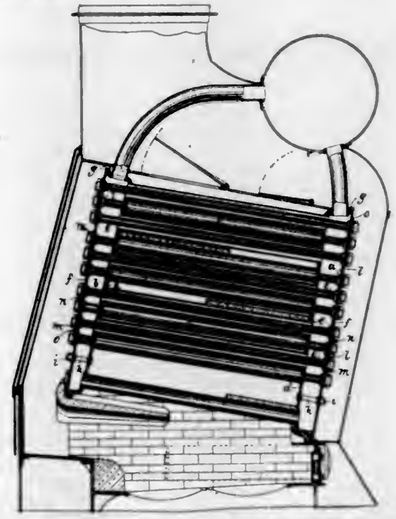
4. A pressure-regulator, comprising two gasometer-hoods *c o*, one of which *c* is surrounded at the top by an air-cushion, a channel below the hoods and into which opens the supply-pipe, said channel having an unobstructed communication with the hood *c*, a pivoted lever in the channel, a valve on one end of the lever for controlling the supply-pipe, a rod secured to the lever and to the bell *c* and having a weight on its upper end, a pivoted and weighted lever, a valve on the end of the lever and controlling the communication between the channel and hood *o*, a rod secured to the said hood and to an arm on the valve, and a delivering-pipe leading from the hood *o* out through the said channel, substantially as herein shown and described.

5. In a pressure-regulator, the combination with a chamber into which opens the supply-pipe, two gasometer-hoods *c o* arranged above the chamber and with which chamber the hood *c* has an unobstructed communication, and a valve, for controlling the supply-pipe, operatively connected with the hood *c*, of a rod depending from hood *o* and having guided movement, a pivoted and weighted lever, and the valve *l* secured to one end of the lever and provided with the arm *s* loosely connected with the rod of hood *o*, said valve controlling communication between the said hood and chamber, substantially as described.

661,868. STEAM-GENERATOR. JOSEPH HALLETT and GEORGE HALLIDAY, London, England. Original application filed Oct. 2, 1899, Serial No. 732,364. Divided and this application filed Jan. 20, 1900. Serial No. 2,136. (No model.)

Claim.—1. A steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, each header comprising a single inner dished wall to which the water-tubes are secured, and provided with a flanged rim, and a separate single outer plane wall to which the corresponding ends of the flue-tubes are attached said outer wall being removably secured to the flanged rim of said inner wall, substantially as described.

2. A steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, each header comprising a single inner dished wall to which the water-tubes are secured, and provided with a flanged rim, a separate single removable outer plane wall to which the corresponding ends of the flue-tubes are attached, and studs or bolts and nuts connecting said inner and outer plates, substantially as described.



3. A steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, each header comprising a single inner dished wall to which the water-tubes are secured, and provided with a flanged rim, a single outer plane wall removably secured to said flanged rim and formed with holes arranged opposite the ends of said water-tubes, hollow plugs screwed into said holes, and flue-tubes extending through said water-tubes and through the holes in said plugs and carrying abutting parts bearing against opposite sides of said plugs, substantially as described.

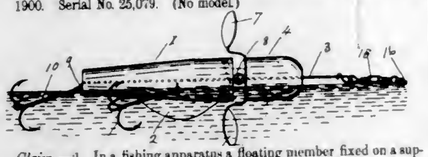
4. A steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, each header comprising a single inner dished wall to which the water-tubes are secured, and provided with a flanged rim, a single outer plane wall removably secured to said flanged rim and formed with holes arranged opposite the ends of said water-tubes, hollow plugs screwed into said holes, and flue-tubes extending through said water-tubes and through the holes in said plugs, and each provided at each end with a collar and nut abutting against the inner and outer sides respectively of the corresponding plug substantially as described.

5. In a steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, the combination in each header of the inner wall *d* having the outwardly-inclined portion, and the inwardly-flanged portion *g* approximately parallel with the inner wall *d*, the removable outer plane wall *f*, and the bolts and nuts connecting said outer wall to said inwardly-flanged portion, substantially as described.

6. In a steam-generating element having two headers and concentrically-arranged water and flue tubes connecting the same, the combination in each header of the inner dished wall *d* the removable outer plane wall *f* formed with holes *o*, the hollow plugs *w* screwed into said holes, and the flue-tubes *e* extending through said plugs and provided with the collar *l* and nut *m* abutting against opposite sides of said plugs, substantially as described.

7. A steam-generating element comprising two headers each composed of a single dished inner plate having a flanged rim and a single outer plate detachably connected to the said flanged rim of the inner plate, water-tubes secured to and connecting the inner walls of said headers, screw-plugs extending through holes formed in each outer plate opposite water-tubes connected to said inner plate, each of said holes being of larger cross-sectional area than the water-tube opposite which it is located, flue-tubes extending through some of the water-tubes and through the corresponding screw-plugs and each formed near its ends with collars that are of smaller diameter than the internal diameter of the water-tube through which the flue-tube extends and which abut against the inner ends of the corresponding screw-plugs, and nuts screwed on the outer ends of said flue-tubes and abutting against the outer ends of said plugs, substantially as described.

661,869. FISHING-BAIT. PETER HENKENIUS, Fort Wayne, Ind., assignor of one-half to James M. Kane, same place. Filed July 28, 1900. Serial No. 25,079. (No model.)



Claim.—1. In a fishing apparatus a floating member fixed on a supporting-rod provided with one or more hooks and a pendent keel or rudder for the purpose specified; a revoluble bait-twirler mounted on said rod; and means for separating said members, thereby preventing derangement of the said twirler by contact with the said floating member.

2. The combination in a fishing apparatus of a floating member having suitable hooks and a pendent keel or rudder for the purpose described; a revoluble bait-twirler arranged in coöperative relation with said member and out of contact therewith; and means for separating said members to prevent derangement of the said twirler by contact with the said member.

3. In a fishing device the combination of the floating member 1 mounted on the rod 3, having a plurality of barbed hooks, and a pendent rudder 2; a revoluble bait-twirler 4 arranged as shown on said rod, and provided with propeller-blades 7; and means for separating said members and thereby preventing derangement of said twirler by contact with the said member 1, all substantially as described.

661,870. VALLEY-GUTTER. EMANUEL HIPPARD, Youngstown, Ohio. Filed Mar. 23, 1900. Serial No. 9,938. (No model.)



Claim.—1. A valley-gutter provided with upwardly-extending longitudinal securing facings or flanges, and having its sides extended to form, with the facings or flanges, drip-gutters.

2. A valley-gutter provided with upwardly-extending longitudinal securing facings or flanges, and having its sides extended to form, with the facings or flanges, drip-gutters, said gutters communicating with the valley-gutter.

3. A valley-gutter provided with upwardly-extending longitudinal securing facings or flanges, and having its sides extended to form, with the facings or flanges, drip-gutters, said facings or flanges having openings therein to permit the water from the drip-gutters to flow into the valley-gutter, said openings being provided with flap-valves.

661,871. PROCESS OF MAKING AN INDIGO-LEUCO COMPOUND. ARTHUR H. S. HOLT, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Nov. 29, 1899. Serial No. 738,663. (No specimens.)

Claim.—1. The new process consisting in treating a polyhydroxy compound of the fatty series and an anthranilic acid body and a caustic alkali at a high temperature until a chemical reaction indicated by the evolution of gas takes place while no formation of indigo-leuco compound ensues, then isolating the intermediate product formed and converting it into indigo-leuco compound by heating with caustic alkali all substantially as described.

2. The new process consisting in treating a polyhydroxy compound of the fatty series, an anthranilic acid body and a caustic alkali at a high temperature until a chemical reaction indicated by the evolution of gas takes place while no formation of indigo-leuco compound ensues and converting the intermediate product formed into indigo-leuco compound by treating it with an agent for separating off water, all substantially as described.

3. The new process consisting in treating a polyhydroxy compound of the fatty series, and an anthranilic acid body and a caustic alkali at a high temperature until a chemical reaction indicated by the evolution of gas takes place while no formation of indigo-leuco compound ensues and converting the intermediate product formed into indigo-leuco compound by heating with alkali all substantially as described.

4. The new process consisting in treating a polyhydroxy compound of the fatty series, an anthranilic acid body and a caustic alkali at a high temperature until a chemical reaction indicated by the evolution of gas takes place while no indigo-leuco compound ensues then isolating the intermediate product formed all substantially as described.

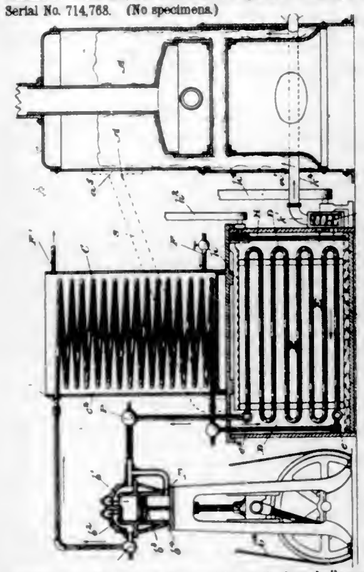
661,872. PROCESS OF MAKING NITROBENZALDEHYDE. HENRY S. A. HOLT, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed Feb. 6, 1900. Serial No. 4,276. (No specimens.)

Claim.—1. The process of making nitro-benzaldehyde by heating nitro-toluene with manganese peroxid substantially as described.

2. The process of making nitro-benzaldehyde by heating liquid nitro-toluene with manganese peroxid substantially as described.

3. The process of making ortho-nitro-benzaldehyde by heating ortho-nitro-toluene with manganese peroxid substantially as described.

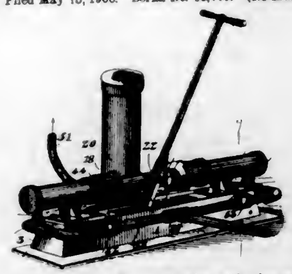
661,873. PROCESS OF REMOVING SCALE FROM BOILERS. ERNEST D. HOPCROFT, Kidderminster, England. Filed Apr. 27, 1899. Serial No. 714,768. (No specimens.)



Claim.—1. The process for removing scale from boilers which consists in applying to the boiler a temperature below the freezing-point artificially produced and sufficient to effect the separation of the scale from the boiler.

2. A process for removing the scale from boilers, which consists of artificially lowering the temperature of the interior of the boiler from five to twenty degrees below freezing-point, to cause a contraction of the metal of the boiler, and an expansion of the scale to effect a separation of the scale from the boiler, substantially as specified.

661,874. DOUBLE-CYLINDER PUMP. WARREN HULL, Gasport, N. Y., assignor of two-thirds to Arthur B. Hull and John C. Hull, same place. Filed May 15, 1900. Serial No. 16,779. (No model.)



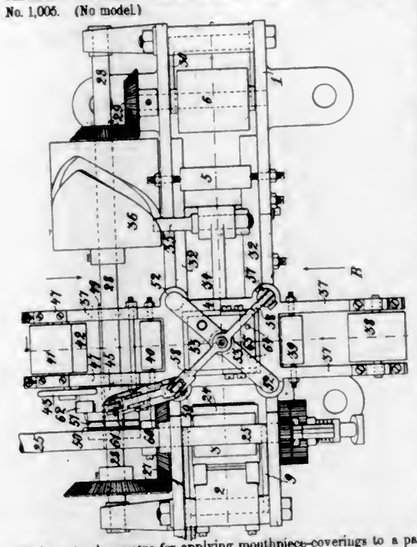
Claim.—1. In a pump, the combination with a base whose top constitutes a bed-plate, of a pair of coaxial cylinders carried thereby, a double-headed plunger movable within the cylinders, a hollow lateral base extension bolted to one side of the base and having a discharge-port, a hollow base-block surmounting the extension, an equalizing-chamber surmounting the base-block, eduction-pipes leading from the cylinders to the base-block, and induction-pipes leading to the cylinders.

2. In a pump, the combination with a hollow base, whose top constitutes a bed-plate, of a pair of coaxial cylinders provided with a foot-plate bolted to the bed-plate, a double-headed plunger movable within the cylinders, means for actuating said plunger, a hollow lateral base extension bolted to one side of the base and having its top surface located in a lower plane than the bed-plate, said lateral base extension being provided with a cavity in communication with a discharge-port, an annular flange surrounding the cavity, a base-block seated upon the lateral base extension and surrounding the annular flange, an equalizing-chamber screwed into the base-block directly over the cavity in the base extension, eduction-pipes leading from the cylinders to the base-block, and valve-controlled induction-pipes leading to said cylinders.

3. The combination with a hollow base, the top of which constitutes a bed-plate, of a pair of coaxial cylinders having foot-plates bolted to the bed-plate of the base, a double-headed plunger movable in the cylinders, a pump-lever pivoted below the base and having a pivotal connection with the plunger, a lateral base extension bolted to the base and having a cavity in communication with a discharge-port and surrounded by an annular flange, a base-block bolted upon the face of the base extension, an equalizing-chamber screwed into the base-block above the cavity and base extension, a nipple depending from the end of each cylinder, a supply-pipe, valve-controlled induction-pipes communicating with the supply-pipe and the nipples, and liquid-eduction pipes communicating with the nipples and with the interior of the base-block of the equalizing-chamber.

4. In a pump, the combination with a base whose top constitutes a bed-plate, of a pair of coaxial cylinders mounted on the base, a double-headed plunger movable within the cylinders, a base extension at one side of the base and having a discharge-port, a base-block surmounting the extension and provided with oppositely-disposed pipe-couplings, an expansion-chamber surmounting the base-block, and induction and eduction pipes surrounding the base and having common connection at their end portions with the contiguous portions of the cylinders, the induction-pipes being connected to a suitable supply-pipe and the eduction-pipes being connected to the couplings of the base-block.

661,875. MACHINE FOR APPLYING GOLD-LEAF TO PAPER. SALOMON S. HURWITZ, Dresden, Germany. Filed Jan. 10, 1900. Serial No. 1,005. (No model.)



Claim.—1. Apparatus for applying mouthpiece-coverings to a paper-band strip used in the manufacture of cigarettes or cigarette-shells comprising means for guiding and moving forward an endless paper band, means for guiding and intermittently moving forward a strip of covering material supported on a strong band, means by which this strip is moved forward opposite the part of the paper band which is to be covered, an adhesive-applying device by means of which the paper band is provided with adhesive material on the parts to which the covering is to be applied, and a presser device by means of which the adhesive portions of the paper strip are successively pressed on the leaf-metal strip, substantially as described.

2. In a machine such as described, the combination with means for feeding forward the paper strip, means for applying adhesive material intermittently thereto, means for feeding a covering material transversely to the paper strip, and a presser device consisting of a base-plate and reciprocating platen for pressing the coated portion of the paper strip against the covering material; substantially as described.

3. In a machine such as described, the combination with the endless paper strip, mechanism for feeding said strip forward continuously, mechanism for intermittently pasting portions of said strip, a carrier for the covering material, mechanism for moving said carrier at the same speed and in the direction of movement of the paper strip, mechanism on said carrier for feeding the covering material and bringing it opposite the pasted portions of the strip, and a pressing device for pressing the paper strip against the covering material; substantially as described.

4. In a machine such as described, the combination with the endless paper strip, mechanism for feeding said strip forward continuously, mechanism for applying paste intermittently to said paper strip, a slide, mechanism for moving said slide forward and backward, in the direction of movement of the paper strip and at the same speed, the endless strip of covering material carried by said slide, mechanism for feeding and bringing said strip of covering material as the slide moves backward opposite the pasted portion of the strip, and a pressing device for pressing the paper strip against the covering-strip, and connections between the slide and pressing device whereby they may move forward together; substantially as described.

5. In a machine such as described, the combination of the following elements: a paper-strip-feeding mechanism, mechanism for applying paste intermittently to the paper strip, mechanism for feeding and positioning the covering material, a pressing device for pressing the paper strip and covering material together, and mechanism for moving the pressing device forward and at the same speed with the paper strip while the paper strip and covering-strip are pressed together; substantially as described.

6. In a machine such as described, the combination with the main drive-shaft, the paper-strip-feeding mechanism operated by said drive-shaft, the slide carrying the covering material, the shaft 28 operatively connected with the main drive-shaft, the roller carried by said shaft 28 provided with the cam-groove, the stud working in said cam-groove connected with said slide, whereby the slide will be reciprocated and the paper strip fed at the same speed; substantially as described.

7. In a machine such as described, the combination with the slide, the roll carried by the slide upon which the backing of the covering material is wound, the wheel carried by the shaft of the receiving-roll, the disk carried by the shaft 28, a projection on the disk adapted to contact with the said wheel to turn the same to feed the covering-strip; substantially as described.

8. In a machine such as described, the combination with the slide, mechanism for reciprocating said slide, the receiving-roller for the covering material carried by the slide, the wheel carried by the shaft of said roller, the disk carried by the shaft 28, and movable longitudinally thereon, the projection on the disk for contacting with the said wheel to turn the receiving-roll, and connection between the disk and slide, whereby the disk will take part in the movement of the slide; substantially as described.

9. In a machine such as described, the combination with the movable bed-plate, the platen coöperating therewith, the drive-shaft, the cam moving on said shaft in unison with the bed-plate, and lever connections between the platen and cam; substantially as described.

10. In a machine such as described, the combination with the movable bed-plate, the platen coöperating therewith, the lever connected to said platen for depressing the same, a drive-shaft, the cam movable longitudinally thereon, in unison with the bed-plate, and a lever connection between said first-mentioned lever and cam; substantially as described.

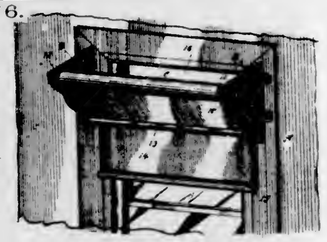
11. In a machine such as described, the combination with the movable bed-plate, the platen coöperating therewith, the drive-shaft, the cam of varying height movable longitudinally thereon, and lever connections between said cam and platen; substantially as described.

12. In a machine such as described the combination with the bed-plate, the platen coöperating therewith, the blade or knife carried by said platen, adapted to press on the strip of covering material after the platen has been partially raised, and mechanism for operating the platen; substantially as described.

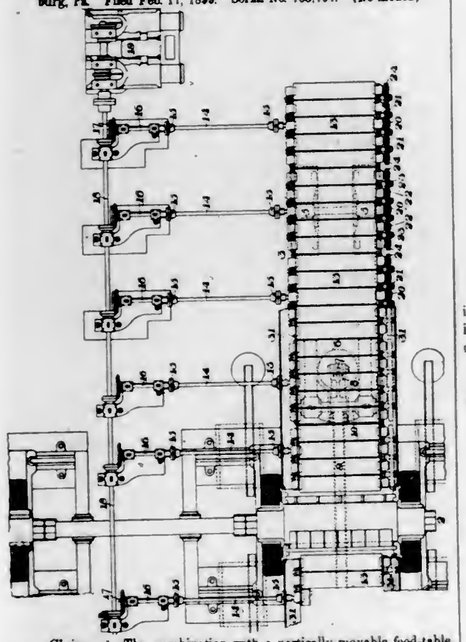
661,876. CURTAIN-FIXTURE. FRANCIS B. JACOBUS, Jersey City, N. J., assignor of one-half to John Marsch, same place. Filed Feb. 19, 1900. Serial No. 5,723. (No model.)

Claim.—A curtain-fixture, comprising two approximately triangular imperforate brackets having vertical rear edges and horizontal top edges, the brackets being provided at the outer ends of the top edges with bearings, a curtain-roller mounted in such bearings and held by the brackets out of proximity with the window, a guide device carried by the lower portions of the brackets and extending between them and a curtain wound over the roller and passed behind the guide device, the side edges of the curtain lying close to the inner faces of the brackets to form an inclosure at the top of the window, for the purpose specified.

661,876.



661,877. ROLLING-MILL FEED-TABLE. JULIAN KENNEDY, Pittsburg, Pa. Filed Feb. 17, 1899. Serial No. 705,797. (No model.)



Claim.—1. The combination with a vertically-movable feed-table, having rollers, of a series of tilting rotary shafts connected to and arranged to drive said rollers, and a common shaft mounted in stationary bearings independent of the feed-table arranged to drive said tilting shafts; substantially as described.

2. The combination with a vertically-movable feed-table having rollers thereon arranged in groups, of tilting rotary shafts, each connected to and arranged to drive the rollers of one group, and connected mechanism independent of the table arranged to drive the tilting shafts, substantially as described.

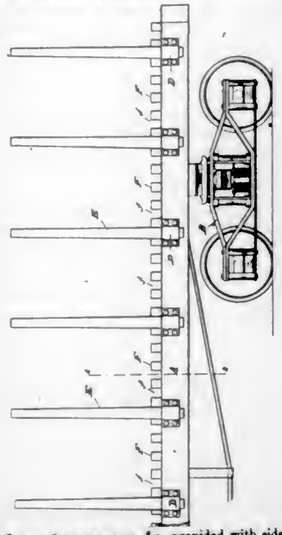
3. The combination with a vertically-movable feed-table having rollers arranged in groups, of a shaft extending alongside the table in stationary bearings, tilting shafts having bevel-gear connections with the said shaft, each tilting shaft being connected to one roller of each group, and actuating connections between said roller and the other rollers of each group; substantially as described.

4. A rolling-mill feed-table having positively-driven rollers, and provided with longitudinal shields covering the trunnions of the rollers and also their driving mechanism; substantially as described.

5. The combination with a group of rollers mounted upon a pivoted support, of a roller having actuating connections therewith and movable endwise in its supporting-bearings, and a flexible shaft for driving the latter roller connected eccentrically to the pivotal axis of said support; substantially as described.

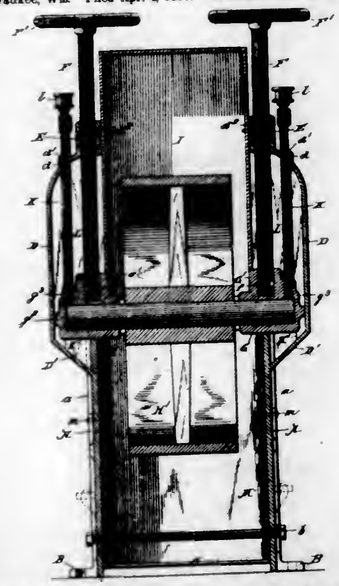
661,878. FLAT-CAR. HUMPHREY J. KIELY, New York, N. Y., assignor to the Link-Belt Engineering Company, Philadelphia, Pa. Filed Aug. 27, 1900. Serial No. 28,241. (No model.)

Claim.—1. A flat-car for sugar-cane, &c., provided with side posts and having grooves in the floor of the car extending through from side to side of the car and adapted for the passage of bundling-chains under the loaded canes, substantially as described.



2. A flat-car for sugar-cane, &c., provided with side posts and having a floor formed of transverse battens spaced to leave grooves extending through from side to side of the car for the passage of bundling-chains under the loaded canes, substantially as described.

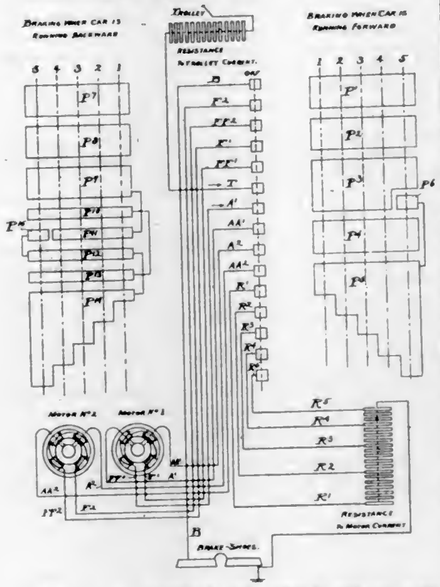
661,879. ELEVATOR-BOOT. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Apr. 4, 1899. Serial No. 711,750. (No model.)



Claim.—1. An elevator-boot having its side walls provided with housings D to receive the shaft-bearings, the said housings being provided with ribs or flanges K adapted to engage with the sides of the bearings at their outer ends, substantially as set forth.

2. The combination with an elevator-boot provided with housings D, of a turning pulley for the elevator arranged within the boot, the shaft on which the pulley is mounted and the bearings for the shaft extending into the said housings, the ends of the bearings being closed and reduced in size, as at g^3 in line with the shaft, the said reduced portions of the bearings constituting bearing-surfaces adapted to engage with the outer walls of the said housings, substantially as set forth.

661,880. ELECTRIC BRAKE-CONTROLLER. JOHN C. LINCOLN, Cleveland, Ohio, assignor to Arthur L. Garford, Elyria, Ohio. Filed Oct. 2, 1899. Serial No. 732,292. (No model.)



Claim.—1. The combination, with a source of electricity, an electric motor and a brake-magnet, of a controller adapted to connect the motor through the brake-magnet to generate current and apply the brake and adapted also to connect the current from said source through the brake-magnet and field-coils, substantially as described.

2. The combination with a motor, a brake-magnet, and a source of current-supply, of a controller adapted to close the motor through the brake-magnet in such direction that its movement generates current, and adapted to connect the independent source of supply through said brake-magnet and field-coils at the same time that the motor-current is flowing through them, substantially as described.

3. The combination, with a series-wound motor and an independent source of current-supply, of a controller adapted to close the motor on itself and adapted to direct current from said independent source through the same series field of such motor which energizes it in running at the same time that the armature-current from the motor as a generator is flowing through that field, whereby the motor-current may instantly apply the brake without waiting to build itself up, but after built up energizes its field, substantially as described.

4. The combination, with a series-wound motor and an independent source of current adapted to drive said motor, of a controller adapted to close the motor on itself and adapted to direct the current from said independent source through the main field of such motor, and an artificial resistance in the path of the current from such source to the field of the motor whereby the reduced current from the driving source causes the motor-current to instantly build up when closed as a brake without interfering with the motor-current energizing its field when built up, substantially as described.

5. The combination, with a motor having all its fields in series and an independent source of current-supply, of a controller adapted to close the motor on itself, and adapted to direct the current from said independent source through the field of such motor, an artificial resistance constant through an operation of braking in the circuit from the source of supply to the controller, and a variable resistance inserted in the motor-circuit by the controller, substantially as described.

6. The combination, with a motor, a brake-magnet, and a source of current-supply, of a controller which closes the motor through the brake-magnet and field-coils and through a governing resistance in such direction that the momentum of the car causes it to act as a brake and also connects the trolley-current through the brake-magnet when the motors have come to rest whereby the car may hold on a grade, substantially as described.

7. The combination with a motor and governing resistance and a source of current-supply, of a controller having a plurality of positions the first of which directs both the trolley-current and the armature-current through the fields of the motor, the intermediate ones of which cut governing resistance out of the armature-circuit and the final one of which causes the armature to be disconnected from the field-circuit but leaves the trolley-current flowing through the field, substantially as described.

8. The combination with a motor, a source of current-supply, and a brake-magnet, of a brake-applying controller which at each position connects the current from the source of supply through the fields of the motor and the brake-magnet, and which closes the armature on different circuits, that at the beginning of the operation being through a resistance, the fields and the brake-magnet, then the resistance being successively cut out, and then the armature being disconnected from the fields, substantially as described.

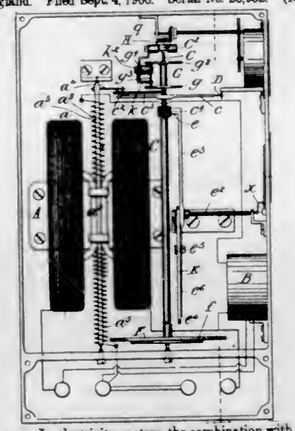
9. In a brake-applying controller for electric railways, a set of contact-fingers and two sets of contact-plates, one for use when the car is run forward, the other when it is run backward, said plates being so arranged and connected that one set closes the motors in the reverse direction from the other, each set having a position where the armatures are disconnected from the fields at which position the source of supply is connected through said fields whereby the car will be held electrically on a grade in either direction, substantially as described.

10. The combination, in a controller, of three contact-fingers which are terminals, first, of an armature of a motor; second, of a source of current-supply for the motor, and third, of a field of a motor, and a conductor movable relatively to said contact-fingers and adapted at one position to connect them all three together whereby current from the source of supply and the armature-current may flow through the fields, said controller having another position where the electric conductor connects the field and source of current but disconnects the armature-terminal, substantially as described.

11. The combination, with three contact-fingers which are terminals, first, from a current-supply; second, from the field of a motor, and, third, from the armature of such motor, of a movable conductor having a plurality of positions where it engages with said three contact-fingers, but having one position where it does not engage with said armature-terminal, and means for connecting the armature in such manner that the momentum shall generate current reaching said conductor in the same direction as the current from the source-of-supply terminal, substantially as described.

12. The herein-described means for braking by a series-wound motor without an extra field provided for braking, which consists of the combination of such motor, a conductor from a source of current-supply, a reducing resistance therefor, means for directing the current from said conductor through such resistance and through the ordinary field of the motor, and means for directing the current produced by the motor as a generator through such field, substantially as described.

661,881. ELECTRIC METER. CHARLES W. G. LITTLE, Heckington, England. Filed Sept. 4, 1900. Serial No. 28,952. (No model.)



Claim.—1. In electricity-meters, the combination with the movable coil of a wattmeter, and clockwork for putting it, at intervals, in connection with the circuit the electric energy in which is to be measured, and an indicating, or recording, device; of a weight, or spring, means whereby

the latter is acted upon by the said coil, and means for dissipating, during the time the wattmeter is idle, or not acting upon the indicating, or recording, mechanism, the energy stored up by such action, substantially as hereinbefore described.

2. In electricity-meters the combination with the movable coil of a wattmeter, and clockwork for putting it, at intervals, in connection with the circuit the electric energy in which is to be measured, and an indicating, or recording, device; of a shaft, or spindle, and means whereby it is acted upon by the movable coil during a constant portion of the angular movement of the said coil, and a weight, or spring, acted upon by the said shaft, or spindle, and means for dissipating energy during the return motion of the said weight, or spring; substantially as hereinbefore described.

3. In electricity-meters the combination with a movable coil of a wattmeter, and clockwork for putting it at intervals in connection with the circuit the electric energy in which is to be measured, and an indicating, or recording device; of a shaft, or spindle, and means whereby it is acted upon by the movable coil, and a weight, or spring, acted upon by the said shaft, or spindle; and a disk fitted loosely on the said shaft, or spindle, and so arranged that when the said shaft, or spindle, is arrested at the termination of its return stroke the said disk can continue to travel forward; and means whereby friction is applied to the said disk, substantially as hereinbefore described.

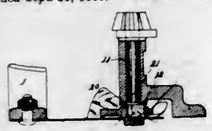
4. In electricity-meters the combination with the movable coil of a wattmeter, and clockwork for putting it at intervals in connection with the circuit the electric energy in which is to be measured, of a shaft, or spindle, and means whereby it is acted upon by the movable coil during a constant portion of the angular movement of the said coil, and a weight, or spring, acted upon by the said shaft, or spindle, and means for dissipating during the return motion of the said weight, or spring, and gearing connected with an indicating, or recording, device so arranged that the indication, or record, is made during the back stroke, substantially as hereinbefore described.

5. In electricity-meters of the kind herein referred to gear for transmitting motion to the indicator, or recorder, consisting of a bobbin, or two disks, carried on a shaft, or spindle, acted upon by the movable coil of a wattmeter, and a strut, or pawl, in connection with the indicator, or recorder, gear, and acting between the flanges of the bobbin, or the two disks, to receive movement in one direction therefrom the said strut, or pawl, having longitudinal play for the purpose explained, substantially as hereinbefore described.

6. In electricity-meters of the kind referred to, wherein a weight is raised by movement of a wattmeter-coil, the construction of the weight from two sectors capable of relative adjustment, and provided with means for fixing them in their adjusted position; substantially as and for the purpose hereinbefore described.

7. In an electricity-meter of the kind referred to, the combination with the movable coil of a wattmeter and a shaft or spindle through which its movement is transmitted to a recorder, or indicator; of an arm in connection with the movable coil and a catch carried by an arm on the said shaft, or spindle, and means for adjusting the said catch; substantially as, and for the purpose, hereinbefore described.

661,882. CORD-KNOTTER FOR SELF-BINDING HARVESTERS. ROBERT C. LIVESAY, HENRY F. CRANDALL, and EDWARD W. BURGESS, Milwaukee, Wis., assignors to the Milwaukee Harvester Company, same place. Filed Sept. 29, 1899. Serial No. 732,140. (No model.)



Claim.—1. A cord-holder for grain-binders comprising the following elements: a disk, having cord-receiving notches and a central cavity, a driving-spindle that is loosely seated in said cavity in a manner to transmit motion to, and permit a limited vibration of said disk from a plane at right angles with the axis of the spindle, and a plate yieldingly held against the disk.

2. A cord-holder disk having cord-receiving notches in its periphery, and a roughened or corrugated under surface, a central angular cavity adapted to receive the angular end of a driving-spindle, said disk adapted to vibrate relative to the axis of the spindle in combination with a plate-spring that is yieldingly held against the roughened side of the disk.

3. A cord-holder disk provided with means for engaging the cord, and a central cavity that extends partially through the disk, in combination with a driving-spindle that is loosely seated in the cavity in a manner to transmit motion to the disk.

4. A cord-holder disk having cord-receiving notches in its periphery and a central cavity adapted to receive the end of a driving-spindle, said disk adapted to vibrate relative to the axis of the spindle.

5. In a cord-holder for grain-binders, a cord-holding disk, a disk-actuating spindle provided with an angular or squared end portion, provided with a convex end bearing, an abutting collar or shoulder, and means for driving said spindle.

6. In combination with a cord-holder disk having cord-receiving notches in its periphery, a plate yieldingly held against the disk, said plate provided with an upturned cord-guiding portion adapted to guide the cord into a receiving-notch, an upturned portion on the delivery side of the disk adapted to guide the cord downward and inward to meet the jaws of the knotting-hook and hold it against the cutting action of the knife, and having a portion of the upturned part extending across the delivery-notch when the succeeding notch is in a receiving position.

661,883. WELL-BUCKET. ROBERT F. B. LOGAN, Cub Lake, Miss., assignor of one-half to Thomas Roe Maxwell, Hernando, Miss. Filed Apr. 12, 1900. Serial No. 12,595. (No model.)



Claim.—As a new article of manufacture, a cylindrical bucket provided with a cone-shaped upper portion and adapted for use in connection with tube-wells, and an inclined drinking-tube extending downwardly in said bucket, having its lower end secured to the inner face of said cylindrical portion of the bucket and its upper end bent at an angle, resting upon the top edge of said cone-shaped portion, extending outwardly from the latter and terminating in a flange, said flanged end being inside the line of the cylindrical portion of the bucket to prevent injury or collision with the well-curb, substantially as described.

661,884. CAR-MOVER. ANDREW J. MAINE, Appleton, Wis., assignor to Richard Miller, William McLeish, E. M. Wright, and Archibald Shannon. Filed Apr. 21, 1900. Serial No. 13,789. (No model.)

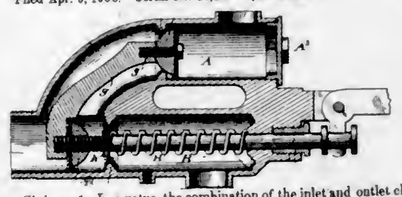


Claim.—1. In a car-mover, the combination, with a pinch-bar provided with a longitudinal slot and a fulcrum, of a pushing-lever pivoted at one end in the said slot, a main operating-lever pivoted to the said pinch-bar, and means for pivotally connecting the adjacent end portions of the said pushing and main levers, substantially as set forth.

2. In a car-mover, the combination, with a pinch-bar provided with a longitudinal slot and a fulcrum; of a pushing-lever pivoted at one end in the said slot, a main operating-lever pivoted in the said slot and provided with a handle which is slotted and secured over its lower portion, and means for pivotally connecting the adjacent end portions of the said pushing and main levers, substantially as set forth.

3. In a car-mover, the combination, with a pinch-bar provided with a longitudinal slot and a fulcrum, of a pushing-lever pivoted at one end in the said slot and provided with a stop for limiting its motion in one direction, a main operating-lever pivoted to the said pinch-bar, and means for pivotally connecting the adjacent end portions of the said pushing and main levers, substantially as set forth.

661,885. FLUSHING-VALVE. FRED W. MEYER, Louisville, Ky. Filed Apr. 9, 1900. Serial No. 12,153. (No model.)



Claim.—1. In a valve, the combination of the inlet and outlet chambers, and the intermediate storing-chamber communicating therewith, the oppositely-facing valves for closing communication respectively between the inlet and storing chambers, and between the storing and flushing chambers, the stem or casting working in the storing-chamber and subject at all times and upon all sides to the pressure in said chamber and connecting said valves whereby when one valve is opened the other is closed, and the valve-rod for displacing the valves, each of said valves being adapted to be held closed after being seated by the pressure of the water in the casing, substantially as and for the purpose described.

2. In a valve, the combination of the inlet and outlet chambers arranged side by side, the storage-chamber communicating with the inner ends of both the inlet and outlet chambers, the oppositely-facing balanced valves for closing communication between the storage-chamber and the inlet and outlet chambers respectively, the rigid transversely-disposed connection between the valves within the storage-chamber and unaffected by the pressure of water therein, the valve-rod extending through the outlet-chamber and connected to the outlet-valve, a spring on said rod within the outlet-chamber for unseating the outlet-valve, and exterior means for operating said rod; with the supply-pipe communicating with the inlet-chamber, a flushing-pipe communicating with the outlet-chamber, and the tank communicating with the storage-chamber, all so arranged that the pressure of the water on the valves when both are opened is balanced, but will hold either valve to its seat after it is closed, for the purpose and substantially as described.

3. In a flushing-valve, the combination of a U-shaped casing provided with an inlet-chamber in one leg communicating with a water-supply, an outlet-chamber in its other leg communicating with a flushing or waste pipe, and a storage-chamber communicating with both the inlet and outlet chambers; with the oppositely-facing balanced valves for closing communication between the storage-chamber and inlet and outlet chambers respectively, the casting in the storage-chamber and subject at all times and upon all sides to the pressure in said chamber detachably connected to the face of one valve and to the back of the other and the valve-rod extending through the outlet-chamber and through the outlet-valve attached to said casting, and connections whereby said stem is operated so as to close the outlet and open the inlet valve, substantially as described and for the purpose set forth.

4. The combination of a U-shaped casing having an inlet-chamber in one leg and an outlet-chamber in its opposite leg and a storage-chamber communicating with both legs at the bend of the casing, the oppositely-facing valves for closing communication between the storage-chamber and the inlet and outlet-chambers respectively, a detachable connection between said valves within the storage-chamber and subject at all times and upon all sides to the pressure in said chamber, the rod extending through the outlet-chamber but rigidly attached to said detachable connection and a spring on said rod for opening the outlet-valve and closing the inlet-valve, and means for forcibly opening the inlet-valve and simultaneously closing the outlet-valve, each valve being held closed, after being seated, by the water-pressure, for the purpose and substantially as described.

5. In a water-closet valve, the combination of the water-closet bowl, the tank, and the flushing-valve interposed between the bowl and tank having a U-shaped casing provided with an inlet-chamber in one leg communicating with a water-supply, an outlet-chamber in its other leg communicating with the closet by a flushing-pipe, and a storage-chamber communicating with both the inlet and outlet chambers and also with said tank; with the oppositely-facing valves for closing communication between the storage-chamber and inlet and outlet chambers respectively, the casting in the storage-chamber and subject at all times and upon all sides to the pressure in said chamber detachably connected to the face of one valve and to the back of the other and the valve-rod extending through the outlet-chamber and through the valve between the outlet and storage chambers and attached to said casting and connections whereby said stem is operated from the closet-seat to open the inlet and close the outlet valve, and a spring for opening the outlet-valve and closing the inlet-valve, all substantially as and for the purpose described.

661,886. CONCENTRATING-TABLE. IRA F. MONELL, Boulder, Colo. Filed June 9, 1899. Serial No. 719,913. (No model.)

Claim.—1. In an ore-concentrator, a table having a series of channels in its top, the said channels having valve-controlled outlets through the table, and an adjustable riffle at one end of each of said channels, substantially as specified.

2. A concentrator, having a series of shallow channels and deeper channels, the series of channels being arranged diagonally on the table and the deeper channels having communication with valve-controlled outlets, a series of riffles at one side of the series of channels, the said riffles also being arranged diagonally, and means for imparting swinging motion to the table, substantially as specified.

3. A concentrator-table, having a diagonally-disposed recess formed in it, a plate adapted to be removably seated in said recess, the said plate having a series of channels formed in it, certain of said channels having communication with discharge-pipes, a series of riffles arranged at one side of the recess, a tailpiece against which the ends of said riffles abut, and means for imparting motion to the table, substantially as specified.

4. A swinging concentrating-table arranged on an incline, a series of riffles on the table, the riffles being arranged diagonally, a tailpiece against which the riffles abut, and the table having a series of channels formed in it at each side of the riffles, the series of channels being arranged diagonally and certain of the channels being deeper than the other channels and communicating with outlets, and another series of riffles arranged on the table at one side of the first-named series of riffles, substantially as specified.



5. A concentrating-table mounted to swing and arranged in an inclined position, the said table having a series of channels formed in it, the said series of channels being arranged diagonally, and certain of the channels being deeper than the others and having communication with outlets, a series of fixed riffles at one side of the series of channels and also arranged diagonally, and a series of adjustable riffles arranged diagonally at the opposite side of the series of channels, substantially as specified.

6. A concentrating-table mounted to have a lateral motion and having a series of channels formed in it, the said series of channels being arranged diagonally and in sets, pins extended upward from the table above each set of channels, and fixed riffles arranged at one side of the series of channels, substantially as specified.

7. A concentrating-table, a number of series of riffles on the table, each series being arranged in a diagonal direction, each riffle in a series being parallel with the front and rear of the table, and a tailpiece extended diagonally on the table adjacent to an end of each series of riffles, substantially as specified.

8. A concentrating-table having a recess arranged diagonally in its top, a channeled plate adapted to be placed in said recess, the channels of the plate being arranged in sets each set consisting of a number of channels having a cleaning-space at one end, and a larger channel which extends beyond the ends of the other channels of a set, substantially as specified.

661,887. AUTOMATIC TIRE-INFLATING DEVICE. THOMAS H. MCCAULEY, Port Arthur, Canada. Filed Feb. 21, 1900. Serial No. 6,047. (No model.)



Claim.—1. A pumping device for pneumatic tires, comprising a bulb-shell having an air-discharge valve, and an envelop integral with the bulb-shell and having annular grooves in its ends to receive the ends of the tire.

2. A pumping device for pneumatic tires comprising an elastic bulb-shell provided with an integral cylindrical envelop adapted to be inserted between the ends of the tire, and having its ends arranged for permanent

attachment to the ends of the tire, the said bulb-shell tapering at one end and terminating at said end in an integral lipped valve, the wall of the other end of said bulb-shell being thicker than the tapered portion, the said thick end serving to facilitate the return of the bulb-shell to normal shape after compression.

3. A pumping device for pneumatic tires, comprising a bulb-shell, an air-discharge valve at one end of the shell, a laterally-flanged cylindrical envelop on the bulb-shell and having channels in the ends of its flanges to receive the ends of the pneumatic tube, and an elastic tube on the envelop and concentric with a passage extending into the cavity of the bulb-shell.

4. A pumping device for pneumatic tires, comprising an ovate bulb-shell, a lipped valve integrally formed at one end of the bulb-shell, a laterally-flanged envelop integral with the bulb-shell, and having annular grooves in the ends of its flanges to receive the ends of a severed tube-ring, which ends are secured in said grooves.

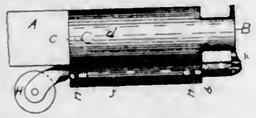
5. A pumping device for pneumatic tires, comprising an ovate bulb-shell, a lipped valve integrally formed at one end of the bulb-shell, a laterally-flanged envelop integral with the bulb-shell and having a V-shaped channel in the end of each flange to receive the tapered ends of a pneumatic tube, which ends are secured in said channels to form an endless tube-ring, and means to induct air into the bulb-shell through a perforation in said shell.

6. The combination with an outer shoe, and an inner pneumatic tube comprising an inflatable tire, of a pumping device located in the pneumatic tube, comprising an ovate bulb-shell, a double-lipped valve integrally formed at one end of the bulb-shell, a laterally-flanged envelop integral with the bulb-shell, and having a V-shaped channel in the end of each flange to receive the tapered ends of the pneumatic tube, which ends are secured in said channels to form an endless tube-ring, a tubuler nipple extending outwardly from the envelop over a perforation in said envelop and in the shell of the tube-ring, and an air-induction valve engaging the tubular nipple, the inlet portion of said valve having a porous filling.

7. A pumping device for pneumatic tires, comprising a substantially ovate-shaped bulb-shell having a thick concavo-convex end wall, a tapered thinner body portion, a two-lipped valve at the end of said tapering body portion, and a cylindric envelop on the bulb-shell adapted to have its ends connected with the ends of a severed tube-ring.

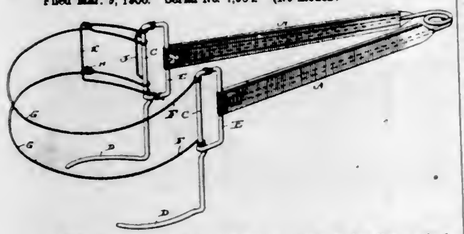
8. The combination with a pneumatic tube, of a pumping device located within the tube at the ends thereof, the said pumping device comprising a bulb-shell having an air-inlet and an air-outlet, and an envelop on the bulb-shell having projecting ends for connection with the ends of the tire, the ends of one of said parts being provided with annular grooves, and the ends of the other part being fitted and held within said grooves.

661,888. WHIFFLETREE. ALBERT NELSON, Idaho Falls, Idaho. Filed Oct. 30, 1899. Serial No. 735,347. (No model.)



Claim.—The combination with the whiffletree and tug-clips applied to its ends, and spring-bolts carried in said clips and having pulleys journaled on their inner ends, of a cord passing over the pulleys and secured at its ends to the whiffletree at points intermediate of said bolts and pulleys, and a pull-cord attached to the cord connected with the bolts as shown and described.

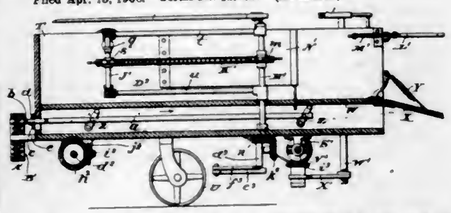
661,889. CAN-HOLDER. FRED E. NORMAN, Grand Rapids, Mich. Filed Mar. 9, 1900. Serial No. 7,984. (No model.)



Claim.—1. A can-holder, comprising a pair of handles, a single wire connecting said handles and provided with a spring at the connection, a large loop connected to said wire provided with catches, and a bail also carried by the wire to be engaged by said catches.

2. A can-holder, comprising a single piece of wire having a spring in its center, and frames and downwardly-projecting arms at its terminals, handles mounted upon said wire between the spring and frames, a loop carried by one frame provided with catches, and a bail carried by the other frame to be engaged by said loop.

661,890. GRAIN-HARVESTER. MARTIN O'CONNELL, Minonk, Ill. Filed Apr. 13, 1900. Serial No. 12,733. (No model.)



Claim.—1. In a grain-shocker, the combination of a box open at its rear end, a vertically-adjustable bottom wall arranged in said box and having a hinged spring-supported leaf at its rear end, arms pivotally connected to the side walls of the box and arranged below the adjustable wall, and an endwise-movable frame connected to said arms, and suitable means for adjustably fixing the said frame with respect to the box, substantially as specified.

2. The combination with a harvester; of a shocker comprising a box having forwardly-extending arms, traveling wheels connected with said box at an intermediate point in the length thereof, a transversely-disposed frame connected to the main frame of the harvester and arranged in front of the box, and coiled springs interposed between the upper and lower bars of said transverse frame and the forwardly-extending arms on the shocker-box, substantially as specified.

3. The combination with the main frame of a harvester and a longitudinally-disposed shaft journaled in suitable bearings thereon; of a shocker arranged at one side of the main frame and comprising a box having forwardly-extending arms and also having lateral arms loosely mounted on the longitudinally-disposed shaft, traveling wheels connected with said box at an intermediate point in the length thereof, a transversely-disposed frame connected to the main frame of the harvester and arranged in front of the shocker-box, and coiled springs interposed between the upper and lower bars of said transverse frame and forwardly-extending arms on the shocker-box, substantially as specified.

4. In a grain-shocker, a box having side walls for confining the sheaves of grain, a bottom wall arranged between the side walls and adjustable vertically with respect thereto, a leaf connected in a hinged manner to the rear end of the bottom wall, and a yielding support for the leaf, substantially as and for the purpose set forth.

5. In a grain-shocker, the combination of a box open at its rear end and having side walls for confining the sheaves of grain, a bottom wall arranged between the side walls and adjustable vertically with respect thereto, means for adjusting and adjustably fixing said bottom wall, a leaf connected in a hinged manner to the rear end of the bottom wall, and springs for yieldingly supporting the leaf; said springs being interposed between and connected to the bottom wall and the leaf, substantially as specified.

6. The combination with a harvester; of a shocker comprising a box, one or more traveling wheels disposed below the box at an intermediate point in the length thereof, a support connected to the harvester and disposed adjacent to one end of the box, and a cushion interposed between said support and end of the box, substantially as specified.

7. The combination with the main frame of a harvester; of a shocker disposed at one side of the main frame and comprising a box connected therewith in a hinged manner, one or more traveling wheels disposed below the box at an intermediate point in the length thereof, a support connected to the main frame of the harvester and disposed adjacent to one end of the box, and a yielding support for said end of the box interposed between the same and the support connected to the main frame of the harvester.

8. In a grain-shocker, the combination of a box or receptacle open at one end and having side walls for confining the sheaves of grain, a bottom wall arranged between the side walls and adjustable vertically with respect thereto, a leaf connected in a hinged manner to the rear end of the bottom wall, and a yielding support for the leaf, endless feed-belts arranged in said box, the shock-binding mechanism comprising the horizontally-disposed needle mounted on a shaft at one side of the box, and the knotter having a rotary portion mounted on a shaft at the opposite side of the box and provided with a horizontally-disposed sweep, gearing for transmitting motion to the endless feed-belt, gearing for transmitting motion to the needle and knotting mechanism; the latter gearing comprising a stop-motion device, a lever fulcrumed on the box in rear of the feed-belts and connected with the stop-motion device of said gearing, retaining-arms pivotally connected to the side walls of the box at the rear ends thereof, and springs connected to said arms, substantially as and for the purpose set forth.

661,891. TREE-PROP. EDWARD K. PARKER, Pomona, Cal. Filed Oct. 2, 1899. Serial No. 732,363. (No model.)



Claim.—The combination with a main support and a block or shoulder, of a loop passing around said parts and comprising a strip of metal the ends of which are permanently secured together and terminate inside of the loop to form teeth, said teeth adapted to penetrate the part with which they come in contact, and a staple inserted into the outer edge of the block or shoulder around the loop which crosses the shoulder at this point whereby to permanently connect the loop and shoulder together.

661,892. KEY-SOCKET ATTACHMENT. THERESA M. PEPPER, Salem, Mass. Filed May 3, 1900. Serial No. 15,350. (No model.)

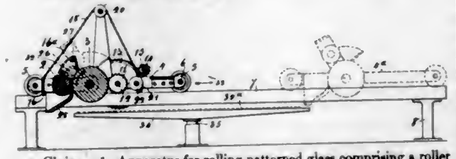


Claim.—1. An attachment for a turning-key consisting of two metal sections arranged on each side of the key, strips which extend from said sections and secure the same to the key, and pendants secured to each end of said sections which are adapted to be pulled to turn the key.

2. An attachment for a turning-key consisting of two sheet-metal sections arranged on opposite sides of the key, two strips which extend from one of said sections and are bent across the key on each side of its stem and down on the other section, a strip on said latter section which is bent down on the two strips first named, and pull-chains which are secured to each end of said sections.

3. An attachment for a turning-key consisting of two sheet-metal sections which are arranged on opposite sides of the key, a strip which is integrally connected to both of said sections, projecting strips which extend from said sections and are bent so as to secure them to said key, and pendants secured to each end of said sections which are adapted to be pulled to turn the key.

661,893. MACHINERY FOR ROLLING SHEETS OF GLASS. WILLIAM W. PILKINGTON, St. Helen's, England. Filed Aug. 22, 1899. Serial No. 728,085. (No model.)



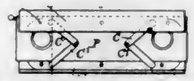
Claim.—1. Apparatus for rolling patterned glass comprising a roller having a patterned face, another roller movable concentrically about the pattern-roller, a hopper for directing molten glass between said rollers, and a guide-plate arranged to direct the formed sheet; substantially as described.

2. Apparatus for rolling patterned glass, comprising upper and lower rollers, and guide-plates for molten glass, the lower roller having a pattern and being arranged to allow the sheet of glass to follow the contour of such pattern-roller, the upper roller and the guide-plates being movable concentrically about the lower roller; substantially as described.

3. Apparatus for rolling patterned glass, comprising a frame having rollers therein, at least one of which is patterned, a hopper arranged to direct molten glass between the rollers, a swiveled table arranged to receive the sheet, and mechanism for moving the frame and table relatively to each other, and simultaneously rotating the rollers; substantially as described.

4. Apparatus for rolling patterned glass, comprising a lower roller having a pattern, an upper roller, and a hopper, both movable concentrically about the lower roller, and mechanism for moving the roller and hopper and retaining them in place; substantially as described.

661,894. BACK FOR PHOTOGRAPHIC CAMERAS. HENRY M. REICHENBACH, Rochester, N. Y., assignor to the Reichenbach, Morey & Will Company, same place. Filed Feb. 26, 1900. Serial No. 6,623. (No model.)



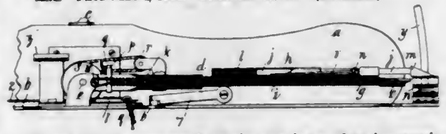
Claim.—1. The combination with the rear frame of a camera of the jointed pivoted links and the springs, said springs exerting upon said links a constant tendency to fold together against the rear of the camera, as and for the purposes set forth.

2. The combination with the rear frame of a camera, of the movable back, the jointed pivoted links, the springs and the plates, said springs exerting upon said links a constant tendency to fold together against the rear of the camera, as and for the purposes set forth.

3. The combination with a camera-body; and a movable rear frame; of links jointed loosely together in pairs, the links of each pair being jointed to the camera-body and rear movable frame, respectively; and springs acting on said pairs of links tending to retain the latter in folded position, substantially as described.

4. The combination with a camera-body, and a movable rear frame; of links jointed loosely together in pairs; rigid studs on said links pivoted to said camera-body and said rear movable frame, respectively; and torsional springs mounted in said studs exerting upon the links of each pair a tendency to fold together, substantially as described.

661,895. MUSIC-LEAF TURNER. ROBERT J. ROSS, Bootle, England. Filed June 4, 1900. Serial No. 19,065. (No model.)



Claim.—1. An apparatus for turning over leaves of music, comprising a pivoted spring-controlled arm or carrier located in proximity to the ledge of the music-rest, clips, one of each of which is sprung onto a leaf of the music to be turned, a treadle, and means for causing the pivoted arm or carrier at each depression of the treadle to first engage with the clips and then rotate half a turn in such a manner as to turn the leaf, and means whereby the release of the treadle will instantly disconnect the pivoted arm from the clip and enable the pivoted arm to swing back ready for a repetition of the operation, substantially as described.

2. In an apparatus for turning leaves of music, a spring-controlled pivoted arm or carrier for engaging the clips that are attached to the leaves of the music and which is swung over by means of a lever or treadle, said pivoted arm or carrier comprising a sliding rod held normally in its extended position in contact with the outermost clip, a second sliding rod held normally in its withdrawn position so as to be out of engagement with the clip, means for throwing the same into engagement and holding the clip in conjunction with the other rod immediately the treadle is depressed to swing over the arm, and means for releasing the hold of the respective rods on the clip immediately the carrier has been swung over, or the force that swung it over is released, substantially as described.

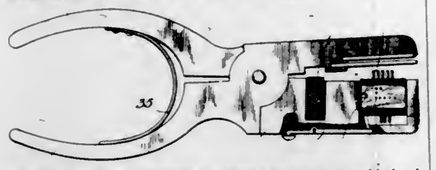
3. In an apparatus for turning over leaves of music and the like, the combination with a turning arm or carrier, of spring-clamps adapted to engage said arm or carrier, stationary pins on which said clamps are threaded, the said clamps being clipped to the leaves to be turned, an arm and a rock-shaft carrying the same, a spring for normally holding the shaft so that the arm will rest against the turned-over leaf, a cord connected with the said rock-shaft for rotating the same so as to move the arm off the said leaf when another leaf is being turned, the said cord being also connected with the turning arm, whereby both the turning arm and the clamping-arm are operated by one cord, substantially as described.

4. In a leaf-turner in combination with a pivoted arm having a return-spring, a gripping device consisting of two rods sliding in tubes or barrels on the said arm, springs in the tubes acting against the rods so as to keep one in its extended position normally and the other in its withdrawn position, a rod attached at one end to the upper or extended slid-

ing rod, its other end being pivoted to the arm so as to be eccentric to the center of oscillation of such arm, a treadle or lever connected with the lower rod, whereby on operating the treadle or lever the lower rod is thrust out and after the movement of the arm to the opposite side both rods are withdrawn as set forth.

5. In a leaf-turner the combination of the arm with its gripping device, clamps *n*, stationary pins *y*, projecting piece *p*, retarding device *z*, arm 1 with its pulley and spring, cords or wires 2 and *q* and pulleys for the purposes described.

661,896. TICKET-PUNCH. WILLIAM H. SHANDS, Clinton, S. C. Filed July 31, 1900. Serial No. 25,419. (No model.)



Claim.—1. The combination in a ticket-punch, of a rotatable head provided upon each of its faces with a piercing-punch for cutting a hole of a different outline, and a single die-plate provided with a number of die holes or openings of proper form to permit of the passage therethrough of all of the several respective punches, substantially as described.

2. The combination in a ticket-punch of two jaws adapted to be forced toward each other, a punch block or head mounted upon and pivoted so as to extend longitudinally of one of the said jaws, a series of punches of different forms projecting from the several sides of the head, a clearer-plate secured to the opposite jaw and provided with openings to permit of the passage of all of the punches, and a single die-plate provided with openings corresponding in size, form and position to the various punches, whereby one die-plate may be used with all the punches, substantially as described.

3. The combination in a ticket-punch of two jaws adapted to be forced toward each other, a punch block or head mounted upon and longitudinally pivoted in one of the said jaws, a series of punches of different forms projecting from the several sides of the head, a clearer-plate secured to the opposite jaw and provided with openings to fit and permit of the passage of all of the punches, a die-plate provided with openings corresponding in size, form and position to the various punches, and means for rotating the head and securing it in position, substantially as described.

4. The combination with the two jaws of a ticket-punch, of a head rotatable upon a longitudinal axis in one jaw, and a die-plate fixed in the other jaw, punches of different forms projecting from the several sides of the head in different planes or zones, the die-plate being provided with correspondingly shaped and located openings so as to be capable of use with any of the punches, and means for adjusting the head on its axis, substantially as described.

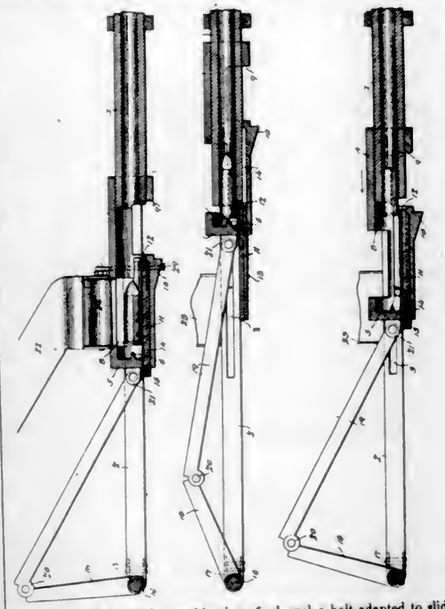
5. The combination with the two jaws of a ticket-punch, of a head rotatable in a longitudinal axis in one jaw, a die-plate fixed to the other jaw, punches of different forms projecting from the several side faces of the head, and letters or characters of the form of the punches located upon the outer end of the head, the jaw being provided with an aperture through which said letters are observable to indicate the position of the various punches, substantially as described.

661,897. MACHINE-GUN. HERMAN H. TOLL, Clarinda, Iowa. Filed May 7, 1900. Serial No. 15,765. (No model.)

Claim.—1. In a firearm, the combination of a barrel and a bolt adapted to slide telescopically thereon, to contain a cartridge and load the same into the barrel as the bolt moves forward, said bolt having an opening in one side through which the cartridge is fed thereto, and another opening, in advance of the former, covered by the barrel as the bolt moves forward and uncovered by the barrel as the bolt recedes, through which latter opening the shell of the exploded cartridge is ejected, substantially as described.

2. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon, to contain a cartridge and load the same into the barrel as the bolt moves forward, said bolt having an opening in one side, through which the cartridge is fed thereto, and another opening in advance of the former, covered by the barrel as the bolt moves forward and uncovered by the barrel as the bolt recedes, through which latter opening the shell of the exploded cartridge is ejected, and an ejector movable longitudinally with said bolt on the forward stroke of the latter, said bolt and ejector having coacting stops, to withdraw said extractor from the breech of the barrel on the reverse stroke of the bolt, substantially as described.

3. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening, uncovered by the barrel, on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally independently of the bolt, and stops to limit said movement of said extractor, substantially as described.



4. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon, to carry a cartridge and load the same into the barrel as said bolt moves forward, said bolt having an opening, in advance of the seat of the cartridge on the initial movement of the bolt, and uncovered by the barrel on the reverse movement of the bolt, and an extractor, movable with the bolt and also movable longitudinally independent of the bolt, said extractor having a flange to engage the base-rim of the cartridge-shell and said extractor being adapted to contact with the barrel, on the forward stroke of the bolt, whereby the forward movement of said extractor is arrested, prior to that of the bolt, and said extractor and bolt having coacting stops, to move said extractor rearward with said bolt, substantially as described.

5. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening, uncovered by the barrel on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally independently of the bolt, stops to limit said movement of said extractor, and means to feed a cartridge singly to the bolt on the rear stroke of the latter, substantially as described.

6. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening, uncovered by the barrel on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally, independently of the bolt, means to feed cartridges singly to the bolt on the rear stroke of the latter and means to actuate said bolt, substantially as described.

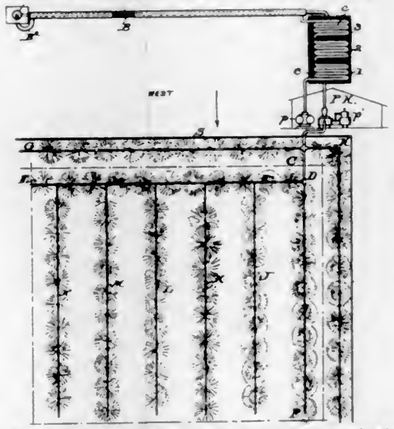
7. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon, and to carry and load a cartridge into the barrel, said bolt having an opening, uncovered by the barrel, on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally independently of the bolt, means to feed cartridges singly to the bolt on the rear stroke of the latter and a rock-shaft having a rock-arm, and a rod connecting said rock-shaft to said bolt, substantially as described.

8. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening uncovered by the barrel, on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally independently thereof, stops to limit said movement of said extractor, means to feed cartridges singly to the bolt on the rear strokes of the latter, an actuating-shaft and connections between the former and the bolt, substantially as described.

9. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening uncovered by the barrel on the reverse movement of the bolt, in advance of the seat of the cartridge on the initial movement of the bolt, an extractor movable with the bolt and also movable longitudinally independently of the bolt, stops to limit said movement of said extractor, a magazine, a revoluble feeder, and connections actuated by the bolt to operate said revoluble feeder, substantially as described.

10. In a firearm, the combination of a barrel, a bolt adapted to slide telescopically thereon and to carry and load a cartridge into the barrel, said bolt having an opening uncovered by the barrel on the reverse movement of the bolt in advance of the seat of the cartridge on the initial movement of the bolt, and also having a cam, an extractor movable with the bolt and also movable longitudinally, independently of the bolt, stops to limit said movement of said extractor, a magazine, a revoluble feeder to convey cartridges singly from the magazine to the bolt, said revoluble feeder having ratchet-teeth, a lever actuated by the cam of the tubular bolt, and a pawl carried by said lever and engaging the ratchet-teeth of said revoluble feeder, substantially as described.

661,898. PROCESS OF AND APPARATUS FOR PROTECTING TREES OR VEGETATION AGAINST COLD. JAMES F. TUCKER, Brooksville, Fla. Filed May 29, 1899. Serial No. 718,672. (No model.)



Claim.—1. An apparatus for protecting trees and vegetation from cold, comprising a system of pipes extending at close intervals through the field and provided with spray-nozzles distributed along the same, a source of water-supply connected thereto, and means for forcing a mixture of air and water to the nozzles and energizing its issue in an atomized mist or fog throughout the protected area, substantially as and for the purpose described.

2. An apparatus for protecting trees and vegetation from cold, comprising a source of water-supply, means for heating it, pipes for transferring the artificially-heated water to the fields, means for energizing the passage of water through the same, said pipes being extended at close intervals through the field and made of gradually-decreasing diameter as they extend to a more remote point from the supply, and spray-nozzles connected with the system of pipes and distributed at close intervals over the entire field to produce a protecting blanket of mist over the field and injecting into the atmosphere heat and moisture substantially as and for the purpose described.

3. An apparatus for protecting trees and vegetation from cold, comprising a system of pipes, two series of said pipes being to the north and west of and extending at close intervals through the field and provided with spray-nozzles distributed along the same, a source of water-supply connected thereto, means for heating it, a means for transferring the artificially-heated water to the nozzles and energizing its issue in the form of a mist throughout the protected area, and a wind break or shield which in combination with the two series of sprays to north and west hold the mist over said area substantially as described.

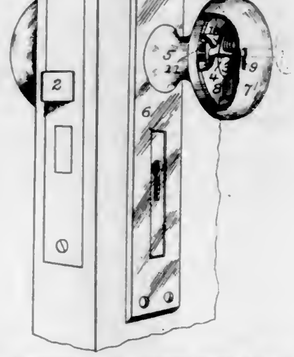
4. An apparatus for protecting trees and vegetation from cold comprising a system of pipes extending at close intervals through the field and provided with spray-nozzles distributed along the same, a source of water-supply connected thereto, means for heating the water, and means for introducing air and forcing it through the nozzles to atomize the water and form an enveloping blanket of mist throughout the field substantially as described.

5. An apparatus for protecting trees and vegetation from cold, comprising a system of pipes with spray-nozzles extending at close intervals and distributed throughout the entire field, a source of water-supply, pumps for energizing the water and an air-compressor discharging its air in heated condition directly into the water, for the triple purpose of promoting the flow of the water, for heating the same, and for admixing a gaseous medium therewith to promote its atomization at the discharge-nozzles substantially as set forth.

6. An apparatus for protecting trees and vegetation from cold, comprising a well or source of supply having an issue-pipe with an ejector-nozzle within the same, two concentric pipes one connected with the water-pipe from the well and the other with the ejector-pipe, a pump drawing water from one of the concentric pipes, and an air-compressor forcing hot air through the other concentric pipe in reverse direction to the water flow and connecting with the ejector-nozzle and a system of pipes with spray-nozzles connecting with the water-supply and extending at close intervals throughout the field substantially as and for the purpose described.

7. An apparatus for protecting trees and vegetation from cold, consisting of a source of water-supply two pipes arranged one within the other, a cistern with heating-coils communicating with the annular space between the two pipes, an air-compressor communicating with the coils and annular space between the pipes, a water-forcing pump, and a series of distributing-pipes and spray-nozzles extending at close intervals throughout the field substantially as and for the purpose described.

661,899. KNOB-LOCK. ERNEST WHITTINGHAM, Chicago, Ill. Filed Aug. 24, 1899. Serial No. 728,369. (No model.)



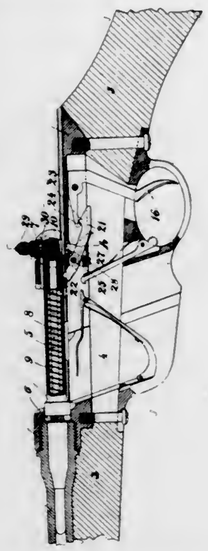
Claim.—1. The combination with the usual spring-latch bolt and its operating-spindle, of an end hub secured to said spindle and provided with means for engaging the lock-bolt, a door-knob comprising a stationary shank formed with a locking-recess and a cap portion adapted to turn upon said shank portion, and a lock-bolt arranged to move within said cap portion, and adapted to have detachable engagement with shank portion of the knob and with the end hub of the spindle, substantially as set forth.

2. The combination with the usual spring-latch bolt, and its operating-spindle, of an end hub secured to said spindle and provided with a peripheral notch, a door-knob comprising a stationary shank formed with a locking-recess in line with the notch in the spindle-hub, and a cap portion adapted to turn upon said shank portion, and a lock-bolt arranged to slide within said cap portion and adapted to have alternate engagement with the notch in the spindle-hub, and the notch in the stationary shank portion of the knob, substantially as set forth.

661,900. REPEATING RIFLE. ADOLF VON ZEKK, Buda-Pesth, and KAROL RÉDL, Gödöllö, Austria-Hungary. Filed Jan. 19, 1899. Serial No. 702,743. (No model.)

Claim.—1. The combination with a stock and a barrel immovable in said stock of the lock-casing a guide 11 in one piece therewith and situated at the side thereof a spring 15 in said guide, a breech-closer 6 having a shoulder 14 bearing against one end of said spring, and an abut-

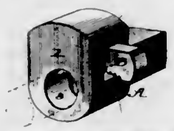
ment formed as a movable plate for the other end of said spring substantially as and for the purpose set forth.



2. The combination of a two-armed bolt 21 on the casing 2, pin 25 for said bolt, and a sear 26 pivoted on pin 25 with the breech-closer and firing-pin therein, and a spring 27 common to the bolt 21 and sear 26 the bolt 21 being adapted to hold the breech-closer after firing until the latter is set free by the recoil.

3. The combination with the guide 11 and breech-closer having a shoulder 14 of a spring 17 having a nose 18 and an eccentric 20 adapted to bear on said spring and cause the nose 18 to engage the shoulder 14 during loading.

661,901. ROD OR RIVET CLUTCH. HARRY ALAMAN, Terre Haute, Ind., assignor of one-half to W. C. Arp, same place. Filed Aug. 25, 1900. Serial No. 27,986. (No model.)



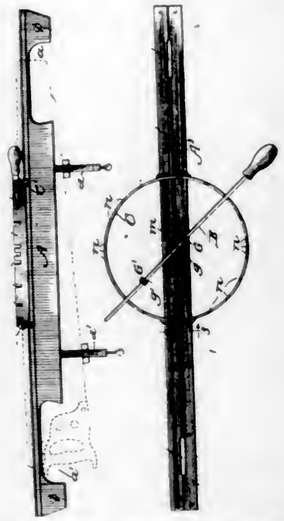
Claim.—1. An improved rod or rivet clutch, comprising a body portion adapted for application of a wrench, and having a bore for reception of the rod or rivet, also a transverse slot intersecting such bore, and a double-wedge key arranged in said slot, and adapted to slide lengthwise therein, substantially as shown and described.

2. An improved rod or rivet clutch, comprising a body portion adapted for application of a wrench, and having a bore for reception of the rod or rivet, also a transverse slot intersecting such bore, a locking-key having its under side inclined inward from the ends to the center and provided with teeth, the said key being easily slidable lengthwise in the slot, and stops for limiting the movement of the key in either direction, substantially as shown and described.

3. An improved rod or rivet clutch, comprising a body portion adapted for application of a wrench, and having a bore for reception of the rod or rivet, also a transverse slot intersecting such bore, a slidable double-wedge key having its opposite inclines constructed with teeth pointing in opposite directions, or at an angle to the incline on which they are formed, and provided with lateral projections to serve as stops, substantially as shown and described.

4. The improved rod and rivet clutch comprising a body having a bore and polygonal shank in alinement, a transverse slot intersecting such bore tangentially, and a key which is slidable in said slot, and has its under side formed as an obtuse reëntrant angle, and toothed, and provided with stops, as shown and described.

661,902. SAW-FILING MACHINE. GRANVILLE BARTLETT, Lexington, Ky. Filed July 26, 1900. Serial No. 24,944. (No model.)



Claim.—1. A saw-filing machine comprising two wooden clamp-bars having on their upper faces metal face-plates projecting over the sides of the clamp-bars to form retaining-flanges, a carriage with guides for the file-holder and hook-shaped keepers connected to the carriage and hooking under the metal edges of the said face-plates substantially as described.

2. A saw-filing machine comprising two wooden clamp-bars cut away near one end from the under side and having a clamp-bolt beyond the cut-away portions, two metal face-plates extending the full length of the clamp-bars and their cut-away portions, a file-holder carriage sliding on said face-plates, and keepers connecting them together substantially as described.

3. In a saw-filing machine, the wooden clamp-bars having metal face-plates with a cut-away space between the adjacent edges of the face-plates near one end to permit the passage of the teeth of the saw when inserting and removing the latter substantially as described

4. In a saw-filing machine, the combination with a subjacent saw-clamp; of a file-holder guide riding on said clamp and constructed simply of a metal bar of uniform transverse dimensions slotted transversely at the edges to give passage to the file-holder and the saw, and bent around in circular form and wholly open within its circle, and retaining devices for holding it upon the clamps substantially as described.

5. In a saw-filing machine, the combination with a subjacent saw-clamp having projecting metal face-plates; of a file-holder guide or carriage riding on said face-plates and constructed of a metal bar of uniform transverse dimensions slotted transversely at the edges to give passage to the file-holder and the saw, and bent around in circular form, and hook-shaped metal keepers secured to the circular carriage and locking under the projecting edges of the metal face-plates substantially as described.

6. The combination with the file-holder bar its stirrup and the file; of a back bearing for the file constructed as a wedge-block slotted in the side opposite its beveled edge and having its branches embracing the stirrup substantially as described.

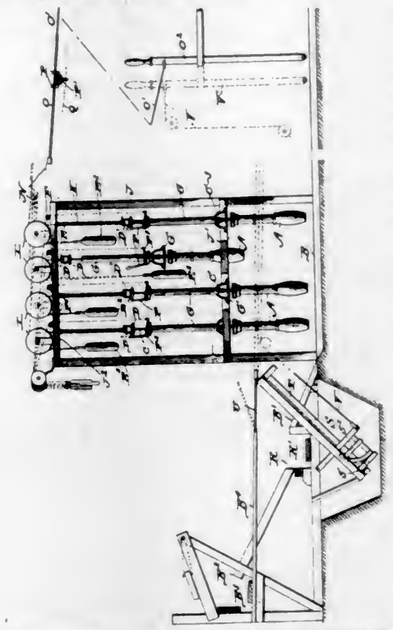
7. The combination with the file-holder bar, its stirrup and the file; of a back bearing for the file constructed with two reversely-inclined faces, and a slotted slide embracing the stirrup substantially as and for the purpose described.

661,903. BOWLING-ALLEY. HENRY BLOUTH, Wilmington, Del. Filed Aug. 10, 1900. Serial No. 26,506. (No model.)

Claim.—1. The combination of the pins, hangers suspending the same, counterbalancing devices for said pins, and restraining devices engaging said hangers for holding the pins against the action of their counterbalancing devices, and arranged to be released substantially as set forth.

2. The combination of the pins, the hangers therefor comprising rods connected with the pins and plates for engagement by the latches, the counterbalancing devices, the latches engaging said plates, and the tubes encircling the hanger-rods and arranged at their upper ends to release

the latches from engagement with the plates, and at their lower ends for operation by the pins substantially as set forth.



3. The combination of the pins, the counterbalancing devices therefor, the restraining means, the mechanism for releasing said restraining means and including a tube arranged at its lower end for operation by the upper end of the pin when the latter is struck, and guides for the said tube, such guides being extended practically to the lower end of the tube when the latter is in its lowermost position whereby to hold the said end of the tube from lateral displacement by the movement of the pin when the latter is struck, substantially as set forth.

4. The combination of the framing having upright guide-bars, the pin movable longitudinally between said bars, the counterbalancing devices, the hanger between the same and the pin, the latch between the upright guide-bars and arranged to engage the hanger, and the latch-releasing tube having its lower end arranged for operation by the pin and provided at such end with means engaging and slidable along the upright guide-bars substantially as set forth.

5. The combination of the framing having upright guide-bars, the pin; the hanger therefor, a guide-bar M at the upper end of said hanger and engaging the said guide-bars, the counterbalancing devices, the latch for restraining the same, and the tube encircling the hanger and arranged at its lower end for operation by the pin and having at such end means engaging with and slidable along the upright guide-bars substantially as set forth.

6. The combination in a bowling-alley of the framing the counterbalancing-weight suspended freely, the pin suspended freely, intermediate connections between the weight and pin, and latch devices arranged to operate upon said intermediate connections and arranged to be released through the movement of the pin substantially as set forth.

7. The combination of the pin, the counterbalancing devices connected therewith, the hanger for the pin having a bearing for engagement by the latch, the latch having an upright portion arranged to engage the bearing of the hanger, and pivoted at the base of such upright and having a laterally-extended base, and the releasing device arranged to engage such base and adapted for operation by the pin substantially as set forth.

8. In a bowling-alley, the combination of pins, the rods connected therewith and to which the pins are universally jointed, swiveled connections at the upper ends of said rods, the counterbalancing-weights having their lines connected with the swiveled connections, the latches arranged to engage the swiveled connections, and the tubes encircling the rods and arranged at their lower ends for operation by the pins and at their upper ends to release the latches when the pins are operated, substantially as set forth.

9. In a bowling-alley, the combination of the pins, the counterbalancing devices for elevating the same, latches by which to restrain the operation of the counterbalancing devices and independent counterbalancing devices for the latches, substantially as set forth.

10. The combination in a bowling-alley, of the frame having upright rods, the pins, the counterbalancing devices therefor, the latches for restraining the said counterbalancing devices, the supports for said latches secured at their ends to the uprights of the frame and having at their middles ring-like guide portions, and the tubes for releasing the latches, said tubes being guided at their upper ends in the ring-like guides of the latch-supports and at their lower ends by the uprights of the framing and arranged at such lower ends for engagement and operation by the pins when the latter are tilted in the operation of the play, substantially as set forth.

11. In a bowling-alley the combination substantially as described, of the framing, the pin, the rod to the lower end of which the pin is universally jointed, a connection swiveled to the upper end of said rod, the counterbalancing-line leading from such connection, the latch engaging with such connection for restraining the operation of the counterbalancing device, and the tube encircling the rod on which the pin is suspended and arranged at its upper end to release the latch and at its lower end for operation by the pin, substantially as set forth.

12. In a bowling-alley, the combination of the pins arranged to move vertically and means for so moving the pins, and the frame having a base-grating provided with bars or slats arranged to extend between the pins and ranging diagonally with respect to the direction of the length of the alley, substantially as set forth.

13. In a bowling-alley the combination substantially as described, of the vertically-movable pins, counterbalancing devices for elevating the pins when struck, the indicator having weights corresponding to the pins and connections between the weights of the indicator and the counterbalancing devices whereby the indicator can be operated correspondingly to the pins, substantially as set forth.

14. In a bowling-alley, the combination of the ball floor or bed of the alley having an incline in rear of the pins said incline being inclined upwardly from front to rear and provided in said incline with a gap leading to a trough below the incline, a carriage for receiving the balls from said trough and the ball-return trough or run to which the balls may be discharged by such carriage, substantially as set forth.

15. In a bowling-alley, the combination of the ball-floor, an incline at the rear end thereof and provided with a gap through which the balls may pass, and a carriage for elevating such balls consisting of a frame having upper and lower wheels and an inclined rail above and below which said wheels operate, substantially as set forth.

16. In a bowling-alley the combination with the ball-returning trough or run having a gate arranged to open and close and a carriage adapted to elevate the balls and discharge the same through such gate into the return trough or run, substantially as set forth.

17. The combination in a bowling-alley, of the incline B′ having a gap R, the transverse trough R′ below such gap, the incline rail T leading upward from the trough R, the carriage movable on said rail and having upright front bars S² extending on opposite sides of the rail T, means for operating the carriage and the ball-returning trough or run to which the balls are delivered by the said carriage, substantially as set forth.

18. A carriage for elevating the balls of a bowling-alley comprising a frame and a pivoted bed against which the balls may rest and which can tilt or rock on its pivot to pass under a ball below it, and a track or way for such carriage substantially as set forth.

19. In a bowling-alley the combination of the carriage-frame having stops, and the bed for the balls, the bed being pivoted to said frame and abutting said stops and having an arm for connection with the drag-line and the drag-line substantially as set forth.

20. In a bowling-alley, the combination of the ball-floor, the ball-returning trough and a carriage for elevating the balls to said trough, such carriage having a pivoted bed against which the balls may rest substantially as set forth.

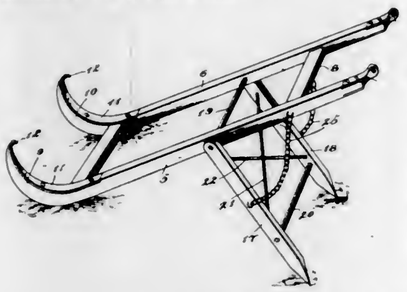
21. In a bowling-alley a ball-returning mechanism comprising an inclined track, and a carriage movable thereon and having a pivoted bed against which the ball may rest substantially as set forth.

661,904. TRUCK-LOADING MACHINE. GEORGE A. BROWNE, Wachapreague, Va. Filed Oct. 28, 1899. Serial No. 735,142. (No model.)

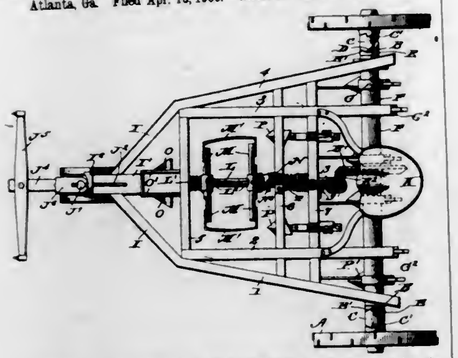
Claim.—1. A loading-truck comprising sills mutually connected to form a frame, the ends of the sills at one end of the frame being turned upwardly and the ends of the sills at the other end of the frame having eyes for pivotal connection with the wagon-body, and supporting-legs pivoted at their ends to the sills between the ends of the latter and having their free ends adapted for engagement with the ground.

2. A loading-truck comprising sills mutually connected to form a frame, the ends of the sills at one end of the frame being turned upwardly to form hooks which latter are provided with projections, and the oppo-

site ends of the sills having eyes for engagement pivotally with a wagon-body, supporting-legs pivoted at one end to the sills and having their opposite ends adapted for engagement with the ground, and flexible connections between the sills and the free portions of the leg to limit the pivotal movements of the legs in one direction.



661,905. **HORSE HOE AND CULTIVATOR.** EDWARD J. BRYAN, Atlanta, Ga. Filed Apr. 16, 1900. Serial No. 13,045. (No model.)



Claim.—1. An implement substantially as described comprising the main frame, the axle, the sleeves fitted on the axle, the boxes embracing the sleeves and provided with lugs for the connection of the shovel-standards, the shovel-standards held to said lugs, the drive-wheels, and gear on the axle, the chopping-shaft having a pinion arranged to mesh with the gear of the axle, means whereby the pinion and gear may be set into and out of mesh, and the chopping devices carried by the chopping-shaft, substantially as set forth.

2. In an implement substantially as described, the combination with the chopping-shaft, means for operating the same, the chopping device consisting of the blade, the arms carrying said blade and fitting and slidable at a point between their ends along the shaft, and means whereby said arms may be adjusted along the shaft, substantially as set forth.

3. In an implement substantially as described, the combination of the chopping-shaft, means whereby it may be operated, the arms fitting on said shaft and provided with break-pins fitting and sliding in slots extending longitudinally of the chopping-shaft and the chopping-blade carried by said arms, substantially as set forth.

4. In an implement substantially as described, the combination of the axle, the wheels thereon, the sleeves on said axle, the boxes secured to said sleeves, the frame-beams and shovel-standards secured to said boxes, and the chopping devices substantially as set forth.

5. The combination of the shaft carrying the shovel and movably rotarily and longitudinally, combined with means for moving said shaft longitudinally, and means whereby the shaft may be turned as it is moved longitudinally to set the shovel clear of the ground.

6. The combination of the axle, the cam-surface thereon inclining outwardly toward its forward end, the collar free on the axle and arranged at its inner end to engage the cam-surface thereof and having its outer end ratcheted, and the wheel free on the axle and ratcheted at its inner end to engage the ratchet-teeth of the said collar substantially as set forth.

7. The combination of the frame-beam the barring-off shovels, and the double standard supporting the same bowed above the beam, and having its upright arms pivoted to the beam and supporting the shovels substantially as set forth.

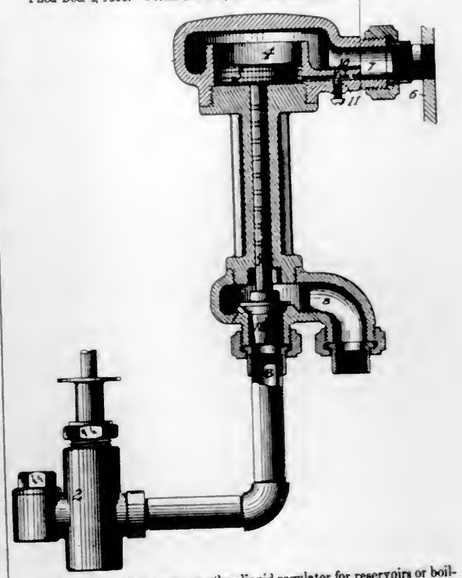
8. In a machine substantially as described, the combination of a shovel, a shaft supporting said shovel and movable longitudinally into and out of position in which it may rotate, means for preventing the rotation of the shaft in one of its positions, means for shifting the shaft longitudinally from its non-rotating to its rotatable position and means for rotating the shaft operating by its longitudinal movement, substantially as set forth.

9. The combination of a shovel, a shaft supporting the same and movable longitudinally and rotarily, means for preventing the shaft from turning in the operative adjustment of the shovel, and means whereby the shaft may be turned substantially as set forth.

10. The combination of the chopper-shaft, the chopper proper shiftable longitudinally thereon, means for shifting the chopper on its shaft, the pinion on the chopper-shaft, the drive-gear with which said pinion may engage, and means for shifting the chopper-shaft to set its pinion into and out of mesh with the drive-gear substantially as set forth.

11. The combination of the cultivator-shovel and its standard R, the framing, and the braces R′ and R³ securing said standard to the framing and adjustable substantially as set forth.

661,906. **FEED-WATER REGULATOR.** ISAAC H. DAVIS, Boston, Mass., assignor of one-half to Henry H. Westinghouse, Pittsburg, Pa. Filed Dec. 4, 1899. Serial No. 739,085. (No model.)



Claim.—1. In a water or other liquid regulator for reservoirs or boilers, means for regulating the supply of water or other liquid, comprising a piston adapted to be exposed to contact with the liquid only when the level of the liquid reaches or exceeds a certain height, and a connection from the piston to a valve of the feed-pump, whereby the operation of the valve may be varied by the action of the liquid in the reservoir or boiler on the piston.

2. The combination with a feed-pump and a reservoir or boiler to which water or other liquid may be supplied by the pump, of a piston, a valve controlling a passage through which water or other liquid may pass on its way to the reservoir or boiler, and means whereby the piston, when acted on by water or other liquid in the reservoir or boiler, may hold the valve open to permit a return flow of liquid through the passage controlled by the valve.

3. The combination, with a reservoir or boiler and a feed-pump for supplying water or other liquid thereto, of a regulating device connected to pump-valve and comprising a piston which is exposed to contact with the steam, vapor, air, or gas above the level of the liquid in the reservoir or boiler, when the level of the liquid is below a certain height, and which is exposed on one side to contact with the liquid in the reservoir or boiler when it reaches or exceeds a certain height, and means whereby the resistance of the liquid to movement of the piston may retard or prevent the closure of the valve.

4. The combination, with a reservoir or boiler and a pump for supplying water or other liquid thereto, of a piston connected to the discharge-valve of the pump, a chamber or space into which water or other liquid may be admitted below the piston and a restricted passage connecting the chamber or space with the interior of the reservoir or boiler, whereby the resistance to displacement of the liquid may cause the valve to be held open.

5. The combination with a feed-pump and a reservoir or boiler, of a piston having its faces exposed to contact with the steam, air or other gas in the reservoir when the liquid-level is below a certain height, and having one face exposed to contact with the liquid when its level reaches or exceeds that height, and a connection from the piston to a valve of the feed-pump whereby the action of the valve may be varied by the resistance of the liquid to movement of the piston.

6. The combination with a feed-pump and a reservoir or boiler, of a chamber connected to the interior of said reservoir or boiler, a piston in said chamber the movement of which is adapted to be retarded by liquid therein and a connection from the piston to a valve of the feed-pump.

7. The combination with a feed-pump and a reservoir or boiler, of a piston adapted to be exposed to contact with water or other liquid only when the level of such liquid reaches a certain height in the reservoir and a connection from said piston to a valve of the feed-pump, said valve being provided with an extension beyond its seat whereby a considerable movement of the piston is secured.

8. A casing adapted to be attached to a boiler or reservoir, a chamber in the casing, a piston in the chamber, a passage from the chamber to the boiler or reservoir connection, whereby the piston may be exposed on one side to liquid in the boiler or reservoir and on the other side to steam, air, or other gas or vapor, and a valve, operative by the action of the pump, connected to the piston and controlling a passage through which water flows to the boiler.

9. A casing adapted to be attached to a boiler or reservoir, a chamber in the casing, a piston in the chamber, a passage from the chamber to the boiler or reservoir connection, whereby the piston may be exposed to steam, air, gas or vapor above the liquid-level in the boiler or reservoir, and a restricted passage through which the piston may be exposed to the action of liquid, or of steam, air, gas, or vapor, in the boiler or reservoir, when the casing is connected with the boiler, a valve connected to the piston and controlling the supply of liquid to the boiler or reservoir.

661,907. **BROWN SULFUR DYE AND PROCESS OF MAKING SAME.** KARL ELBEL and IGNAZ ROSENBERG, Biebrich, Germany, assignors to Kalle & Co., same place. Filed Sept. 25, 1900. Serial No. 31,095. (No specimens.)

Claim.—1. The manufacture of a new substantive yellowish-brown cotton dye by acting on 1.3 dinitro 4 chlorobenzene with pyridin and soda and by fusing the so-obtained condensation product together with sodium sulfid and sulfur substantially as described.

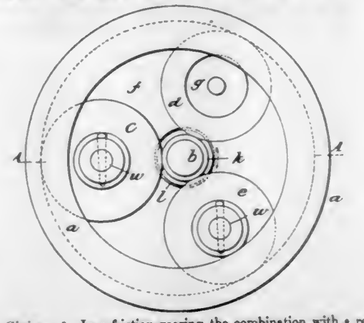
2. The new sulfur dyestuff easily soluble in water with yellowish-brown color, less soluble in alcohol with greenish-yellow color, soluble in concentrated sulfuric acid with yellowish-brown color, which is precipitated from its aqueous solution by hydrochloric acid or common salt as a brown precipitate, which dyes unmordanted cotton from a bath made up with salt and sodium sulfid yellowish-brown shades, and which is obtained by acting on 1.3 dinitro 4 chlorobenzene with pyridin and soda, and by fusing the so-obtained condensation product with sodium sulfid and sulfur substantially as described.

661,908. **CHURN-DASHER.** JOHN W. EVERICH, Annapolis, Md. Filed Mar. 16, 1900. Serial No. 8,930. (No model.)



Claim.—In a device of the class described, the combination of a churn-body, the dasher-rod composed of the long lower section projecting a considerable distance above the churn-body and the short handle-section having a longitudinal bore and provided with a recess at the upper end thereof, the clutch located at the lower end of the handle-section and interposed between both sections and composed of two members provided at their outer ends with sockets to receive the sections and having ratchet-teeth at their inner faces for engaging each other on the downstroke to lock the sections together, the upper member of the clutch being provided at its lower end with a depending annular flange extending over the ratchet-teeth and covering and concealing the inner ends of the members and forming a guard to prevent the hands of the operator from coming in contact with the teeth, and the rod extending through the bore of the handle-section and having its lower end embedded in the lower section of the dasher-rod, the upper end of the rod being provided with a head arranged in the recess of the upper end of the handle-section the latter being vertically movable on the rod, substantially as described.

661,909. **FRICTION-GEARING.** THOMAS FOSTER, Manchester, England. Filed June 5, 1900. Serial No. 19,155. (No model.)



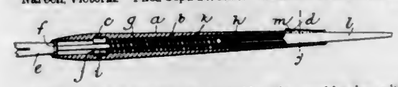
Claim.—1. In a friction-gearing, the combination with a revoluble shaft, a frame loosely encircling said shaft, and rollers mounted on said frame engaging said shaft; of a ring encircling said rollers, a loose roller also within said ring, one of said rollers being of a different size from the other rollers, substantially as described.

2. In a friction-gearing, the combination with a revoluble shaft, a frame loosely encircling said shaft, and rollers mounted on said frame engaging said shaft; of a ring encircling said rollers, a loose hollow roller within said ring and engaging said ring and shaft, one of said rollers being of a different size from the other rollers, and a stud on said frame entering the said hollow roller, substantially as described.

3. In a friction-gearing, the combination with a revoluble shaft, a frame loosely encircling said shaft, and rollers mounted on said frame engaging said shaft; of a ring encircling said rollers, loose hollow rollers within said ring engaging said ring and shaft, said loose hollow rollers being of a different size from the other rollers, and studs on said frame entering said hollow rollers, substantially as described.

4. In friction-gearing, the combination with a revolubie shaft; a frame loosely encircling said shaft; and a ring also encircling the shaft; of a self-tightening roller loosely carried between the shaft and the ring; and two other motion-transmitting rollers revolving on fixed centers, and so disposed as to act as antifriction-roller bearings for said shaft, substantially as described.

661,910. **NIB-EJECTING PENHOLDER.** FREDERIC L. GRAHAM, Nareen, Victoria. Filed Sept. 27, 1900. Serial No. 31,294. (No model.)



Claim.—1. In a nib-ejecting penholder, the combination with the hollow casing having near the nib end an enlargement of its bore, and having a double-abutment spring-ring sprung thereinto, and a slit in its other end, of a spring-retracted plunger having integrally, in the order stated, the curled-up portion *e*, rib *f*, narrow spindle *g*, curled-up portion *h*, a shoulder *m* and a paper-cutter end *l*, all substantially as and for the purposes set forth.

2. In a nib-ejecting penholder the combination with the hollow casing having near the nib end an enlargement of its bore and having sprung thereinto a split ring *i* having at each end turned-in edges *j* to serve as abutments, of a plunger having integrally in the order stated, the curled-up portion *e*, rib *f*, narrow spindle *g*, a spiral spring *k* extending the full length of the spindle and bearing against an abutment of ring *i*, curled-up portion *h*, and the projecting paper-cutter or blade *l* all substantially as and for the purposes set forth.

3. In a nib-ejecting penholder, the combination with the hollow cas-

ing having near the nib end an enlargement of its bore, and having sprung thereinto a split ring *i* having at each end turned-in edges *j* to serve as abutments, of a plunger having integrally in the order stated the curled-up nib-holding portion *e*, the rib *f*, narrow spindle *g* inclosed by a spiral spring, a curled-up portion *h* fitting within the bore of the casing, and an extremity projecting from the end of the casing, all substantially as and for the purposes set forth.

661,911. TOOTH-POWDER BOX. WILLIAM H. HALL, New York, N. Y. Filed Oct. 13, 1900. Serial No. 32,998. (No model.)



Claim.—An improved tooth-powder box composed of a top part comprising a round neck and subjacent shoulders with a depending sealing-flange, all in one piece, a body united with said top part by said sealing-flange, and a cap in one piece having as part thereof a neck-lining expanded within said neck, constructed with an open and unobstructed inner end having a circumferential flange to coact internally with said shoulders, and adapted to be turned to open and close the powder-outlet, such outlet consisting of lateral openings in said neck and neck-lining, and these parts being provided respectively with an open slot to limit the opening movement and with a stop projection to coact with said slot.

661,912. CALF-WEANER. WALTER B. HART, Duncan, Ind. Ter. Filed June 18, 1900. Serial No. 20,753. (No model.)



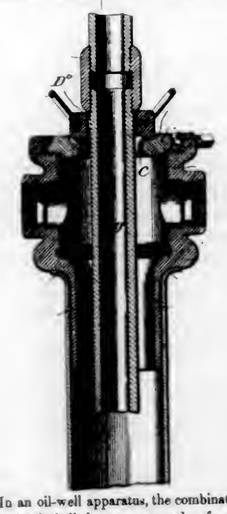
Claim.—1. A calf-weaner, comprising opposite pivotally or hingedly connected members, having jaws to clamp upon the nostrils of an animal, one of the members having a substantially L-shaped slot, and the other member having a pin or key slidably received within the L-shaped slot of the former member.

2. A calf-weaner, comprising opposite pivotally or hingedly connected members, having jaws to clamp upon the nostrils of an animal, one of the members having a transversely-disposed substantially L-shaped slot, and the other member having a laterally-movable locking pin or key slidably received within the L-shaped slot.

3. A calf-weaner, comprising a pair of opposite members, which are pivotally connected at their upper ends, one of the members having a transversely-disposed substantially L-shaped slot, the transverse branch of which is of arcuate form and struck from the pivotal connection as a center, the other member having a vertical slot to register with the vertical branch of the L-shaped slot, and a locking pin or key slidably held within the vertical slot and slidable in the L-shaped slot, the opposite ends of the pin or key projecting at the respective sides of the device and provided with enlarged heads to prevent endwise displacement of the pin.

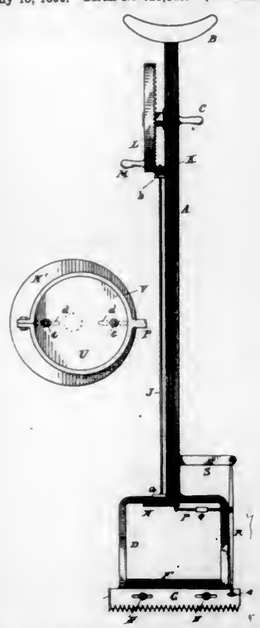
4. A calf-weaner, comprising a pair of pivotally-connected plates, provided at their upper ends with nostril-engaging jaws, the outer edges of the plates being bent rearwardly into stiffening-flanges, which also form prods, and means for locking the plates against accidental separation.

661,913. CASING-HEAD FOR OIL-WELLS. CLARKE HAYES, Franklin, Pa., assignor of one-half to Bryan H. Osborne, same place. Filed Aug. 6, 1900. Serial No. 26,063. (No model.)



Claim.—In an oil-well apparatus, the combination with the drillers' casing-nipple having its belled-over upper end; of a casing-head having a tubular extension thereon fitting within the belled-over end of the drillers' casing-nipple and having an exterior concave curved shoulder resting upon said belled-over end of the drillers' casing-nipple, substantially as described.

661,914. LAWN-MOWER. GOTTLIEB P. KAHLER, Douglas, Ill. Filed July 15, 1899. Serial No. 723,895. (No model.)



Claim.—In a lawn-mower for hand use, a push-bar A, provided with a handle C and breast portion B, a shaft J, at the side of the said bar, a pinion K on the upper end thereof, a wheel L for driving the same, and revolving the shaft, a revolving plate N' on the forward end of the shaft, a yoke D on the forward end of the push-bar, a roller F journaled at the under side of said yoke, a sickle-bar G mounted on the sickle E and adapted to vibrate thereon, slots in said sickle-bar, screws H in the sickle and passing through said slots for retaining the sickle-bar in place and guiding it in its reciprocating movements, an arm S secured to push-bar, a lever R pivoted to the outer end thereof, the same being loosely attached to the sickle-bar, a pitman pivoted to said lever consisting of the portions P and the sleeve Q for changing the length of the said pitman, the plate U secured to the said plate N', there being slots *d* in said latter plate, bolts *e* in the plate U for holding the latter and permitting adjustment thereof, and a strap V surrounding the plate U and attached to the pitman all arranged as set forth.

661,915. RESILIENT TIRE FOR WHEELS. JEAN P. LEGRAND, Levallois-Perret, France. Filed May 28, 1900. Serial No. 18,279. (No model.)



Claim.—In a protector for pneumatic tires, the combination of the tire proper provided with a comparatively thick projecting band or belt, constituting its tread, a plurality of suitable metallic strips applied side by side transversely of said band and having their ends bent to overlap the edges of the same and means for attaching said strip to said band, comprising pins or rods extending transversely through the band and through the bent overlapping ends of the strips, substantially as described.

661,916. COMBINED BUTTON AND CUFF-HOLDER. HORATIO N. LIPHARD, Lafayette, Ind. Filed Apr. 19, 1900. Serial No. 13,540. (No model.)



Claim.—1. A combined cuff-holder and button comprising two separate and independent socketed members, and a connecting-pin provided with an intermediate flange against which the ends of the sockets of the respective members are adapted to abut when all the parts are connected.

2. In a device of the character described, the combination with a disk having two outwardly-disposed semicircular flanges, of a button provided with a split post to form a socket, a connecting-pin to removably and independently engage both the disk and button and comprising a shank, a ball-shaped head on one end thereof and an annular flange at the juncture of the head with the shank.

3. The combination with two socketed members, each having inwardly-bent engaging lips at the ends of the sockets, of a separable and independent connecting-pin comprising a shank having a groove for engagement with the lips on one member, and a ball-shaped head on one end of the shank and provided with a groove for engagement with the lips on the other member.

661,917. APPARATUS FOR MAKING BOLTS, &c. WILLIAM W. MULFORD, Columbus, Ohio. Filed Jan. 30, 1900. Serial No. 3,349. (No model.)

Claim.—1. An apparatus for heating a series of metal rods or blanks preparatory to heading the same, comprising a liquid, means for automatically extending said rods into and removing them from the liquid, and a suitable source of electricity, the opposite poles of which are connected to said liquid and to the rods while in the liquid, respectively.

2. An apparatus for heating a series of metal rods or blanks preparatory to heading the same, comprising a receptacle containing a liquid, a conveyer to which the rods are connected, said conveyer being arranged to extend the rods into the liquid, and a suitable source of electricity, the opposite poles of which are connected to said liquid and to the rods while in the liquid, respectively.

3. An apparatus for heating metal rods or blanks preparatory to heading the same, comprising a receptacle containing a liquid, a conveyer arranged above said liquid, said rods being dependently attached to the conveyer and extending into the liquid, and a suitable source of electricity, the opposite poles of which are connected to said liquid and to said rods, respectively.

4. An apparatus for heating metal rods or blanks preparatory to heading the same, comprising a receptacle containing a liquid, a conveyer arranged above said liquid, a contact-bar arranged parallel with said conveyer, a series of jaws carried by said conveyer and in sliding engagement with said bar, said rods being carried by said jaws and extending into the liquid, and a suitable source of electricity, the opposite poles of which are connected to said liquid and to said contact-bar, respectively.



5. An apparatus for heating metal rods comprising a receptacle containing a liquid, a conveyer arranged to carry a series of metal rods or blanks and to extend said rods into the liquid, a suitable source of electricity, the opposite poles of which are connected to said liquid and rods respectively, and means for automatically releasing said rods from the conveyer after they have passed out of the liquid.

6. An apparatus for heating metal rods comprising a receptacle containing a liquid, a conveyer, a series of jaws attached to said conveyer, each jaw being adapted to carry a rod and to extend said rod into the liquid, a suitable source of electricity, the opposite poles of which are connected to said liquid and to said rods respectively, and means for automatically opening the jaws to release the rods when said rods have passed out of the liquid.

7. An apparatus for heating metal rods comprising a receptacle containing a liquid, a conveyer, a series of jaws carried by said conveyer, each jaw being arranged to carry a rod or blank and to extend said rod into the liquid, means for automatically opening said jaws to receive the rods, a suitable source of electricity, the opposite poles of which are connected to said liquid and to said rods respectively, and means for automatically opening the jaws to release the rods when said rods have passed out of the liquid.

8. An apparatus for heating metal rods comprising a traveling conveyer having a series of jaws or holders, each jaw being adapted to carry a rod or blank, means for automatically feeding said rods to said holders, a receptacle containing a liquid into which the rods extend while passing along with the conveyer, a suitable source of electricity, the opposite poles of which are connected to said liquid and to said rods while extended into the liquid, and means for automatically releasing said rods from the jaws or holders after they have passed out of the liquid.

9. The combination with a machine for cutting off bolt-blanks from a wire or rod, and a conveyer having jaws or holders thereon, of means for automatically delivering said blanks to the holders, a receptacle containing a liquid into which said rods dip as they pass along on the conveyer, an electric circuit in which said liquid and the immersed rods are included, and means for releasing said rods from the holders after they pass out of the liquid.

10. The combination with a machine for pointing and cutting off bolt-blanks from a wire or rod and a conveyer having jaws or holders thereon, of means for delivering said blanks to the holders by their pointed ends, a receptacle containing a liquid into which the opposite ends of said rods dip as they pass along on the conveyer, an electric circuit in which said liquid and the immersed rods are included, and means for releasing said rods from the holders after they pass out of the liquid.

11. An apparatus for heating bolt-blanks comprising a conveyer, a contact-bar arranged parallel with said conveyer, a series of metal jaws upon said conveyer and in sliding engagement with said contact-bar, said jaws being adapted to carry the bolt-blanks, a receptacle containing a liquid into which said blanks dip as they pass along with the conveyer, and an electric circuit extending through said contact-bar, jaws, bolt-blanks and liquid.

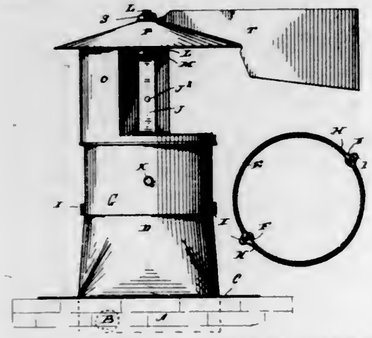
12. An apparatus for heating a series of metal rods or blanks preparatory to heading the same comprising a receptacle containing a liquid, means for extending said rods into and removing them from the liquid, a pair of parallel conductor-bars arranged within the liquid and inclined in opposite directions, and a suitable source of electricity, the opposite poles of which are connected to said bars and to the rods while in the liquid.

661,918. POCKET-CASE. NEDHUM NEWMAN, Boston, Mass., assignor to Harmon I. Lee, same place. Filed Mar. 10, 1900. Serial No. 8,124. (No model.)



Claim.—A case comprising a holder and lid hinged together at their adjacent edges, the holder having a portion of its edge formed as a cylindrical knuckle and the adjacent edge of the cover having a portion opposite the enlarged knuckle bent back upon itself and bearing and operating concentrically upon the said knuckle with frictional effect.

661,919. PROTECTIVE TOP FOR CHIMNEYS. JOHN NEWMARKER, Reno, Nev. Filed Mar. 31, 1900. Serial No. 11,035. (No model.)



Claim.—1. A ventilating-cowl consisting of a base-section adapted to enter the chimney-top and having a projecting flange to rest on said top, a pipe-section secured to said base-section by a bayonet-catch and having a cross-frame rigidly connected thereto, a spindle journaled in said cross-frame, and a hood having a conical roof connected to said spindle, a segment of a tube connected to said roof, and a vane projecting in the direction of the cut-away side of the segment, all substantially as described.

2. In combination with the cross-bars J' J², and the pipe-section G to which they are connected, the spindle L having bearings in said bars, a support above the upper bar and a support below the lower bar, and the conical roof, segment of tube, and vane, connected to said spindle, and adapted for joint operation substantially as described.

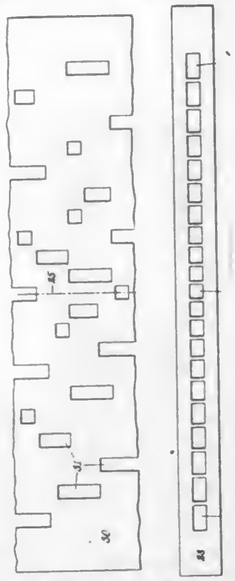
3. In a ventilating-cowl, the pipe G and its frame having two cross-bars, the spindle having a collar above and a key below said cross-bars, and the conical roof, vane, and tabular segment connected to said spindle, all combined for joint operation substantially as described.

661,920. SELF-PLAYING MUSICAL INSTRUMENT. JAMES O'CONNOR, New York, N. Y. Filed Feb. 5, 1900. Serial No. 4,092. (No model.)

Claim.—1. In a machine operated by a controlling-sheet of contractible or expansible material, a series of actuating devices arranged with an increasing pitch substantially in accordance with the ratio of lateral contraction or expansion of the sheet material.

2. In combination with a perforated sheet of contractible or expansible material, a tracker-bar provided with apertures arranged with an increasing pitch substantially in accordance with the ratio of lateral contraction or expansion of the note-sheet.

3. In combination with a perforated note-sheet of contractible or expansible material, a tracker-bar provided with apertures varispaced in an increasing pitch substantially in accordance with the varying lateral movements of the corresponding portions of the note-sheet, due to contraction or expansion.



4. In combination with a perforated note-sheet of contractible or expansible material, a tracker-bar provided with apertures each of a width substantially equal to that of its corresponding note-sheet perforation plus the lateral movement of that perforation due to the contraction or expansion or shifting of the sheet.

5. In combination with a perforated note-sheet of contractible or expansible material, a tracker-bar provided with a series of apertures arranged and proportioned in increasing width in accordance with the ratio of contraction or expansion of the note-sheet from a longitudinal base-line maintained in a constant relation to the tracker-bar.

6. In combination with a perforated note-sheet of contractible or expansible material, a tracker-bar, provided with apertures arranged in a series of zones, the width of the apertures in each zone being proportioned to allow for the lateral movement of the corresponding perforations of the note-sheet due to its contraction and expansion or shifting.

7. A controlling-sheet of the class specified, having its actuating devices spaced laterally of the sheet at increasing distances from each other substantially in accordance with the ratio of expansion or contraction of the sheet.

8. A controlling note or tally sheet having its actuating devices spaced laterally of the sheet from a longitudinal base-line at increasing distances from each other substantially in accordance with the ratio of expansion or contraction of the sheet from that line.

9. A controlling note or tally sheet having its actuating devices varispaced laterally of the sheet from a longitudinal base-line, in an increasing ratio substantially in accordance with the contraction or expansion of the sheet.

10. A perforated note-sheet having rows of actuating perforations varispaced laterally of the sheet from a longitudinal base-line at increasing distances from each other substantially in accordance with the ratio of contraction and expansion of the sheet.

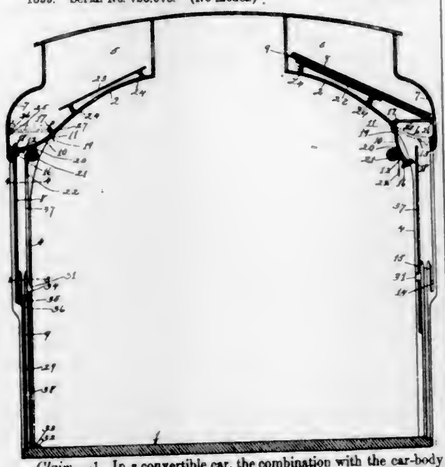
11. A perforated note or tally sheet, having its rows of actuating perforations varispaced from its longitudinal center at increasing distances from each other laterally toward its edges in a proportion substantially in accordance with that of the contraction and expansion of the sheet.

12. A controlling-sheet of the class specified, having its actuating devices arranged in a series of longitudinal zones, the lateral pitch of the devices in each zone being greater than the pitch of the preceding zone substantially in accordance with the lateral movements of that zone due to the contraction and expansion of the sheet.

13. The combination of a perforated note-sheet of contractible and expansible material, and a tracker-bar, having their coöperating apertures arranged in zones, the width and pitch of the apertures of the tracker-bar, and the pitch of the note-apertures in each zone being proportioned to the lateral movement of that zone due to the contraction and expansion of the note-sheet.

14. The combination of a perforated note-sheet of contractible and expansible material, and a tracker-bar, having their coöperating apertures arranged in a series of longitudinal zones, the width and pitch of the apertures of the tracker-bar, and the pitch of the note-apertures in each zone being proportional to the lateral movements of that zone, due to the contraction and expansion of the sheet, and increasing in the succeeding zones in proportion to their respective distances from a longitudinal base-line, to be maintained in a constant relation to the tracker-bar.

661,921. CONVERTIBLE CAR. JOHN O'LEARY, Cohoes, N. Y., assignor of one-half to Le Roy Vermilyea, same place. Filed Aug. 22, 1899. Serial No. 728,078. (No model.)



Claim.—1. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a stationary outer side wall and a bottom opening formed wholly by an aperture in the ceiling; of a sash and panel movable into and out of said chamber through said bottom opening; and a movable door for said opening, substantially as described.

2. In a convertible car the combination with the car-body having between the roof and ceiling a chamber with a bottom opening; of a sash and panel movable into and out of said chamber through said opening; means for supporting the lower end of the lowered sash; and a movable door for said opening engageable with the upper end of the lowered sash, to support the same, substantially as described.

3. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening; of a sash and panel movable into and out of said chamber through said opening; and a spring-supported bed in said chamber adapted to receive and support the raised sash and panel, substantially as described.

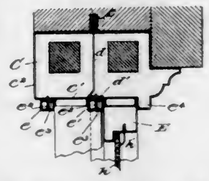
4. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening; of a sash and panel movable into and out of said chamber through said opening; a lever hinged to one of the chamber-walls and adapted to swing across said opening and forming a support for the panels; and a support on the opposite chamber-wall for the swinging end of said lever, substantially as described.

5. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening of a sash and panel movable into and out of said chamber through said opening; a movable door for said opening; a stop for limiting the opening movement of said door; and a friction-roller on the door, whereby the open door is adapted to support and form a guide for the sash and panel as the same are moved into and out of said chamber, substantially as described.

6. In a convertible car, the combination with the car-body having between the roof and ceiling a chamber with a bottom opening; of a sash and panel movable into and out of said chamber through said opening; a movable door for said opening; a curtain; and supports for the curtain mounted upon and movable with said door, substantially as described.

7. In a convertible car, the combination with a roof, floor and ceiling constructed with a panel-receiving chamber having a fixed outer wall and a bottom opening for said chamber formed by an aperture in the ceiling adjacent to said outer wall of stationary vertical side ribs provided with panel-slideways defined on the outer side by a fixed stop or bead and leading to said chamber-opening; a panel movable in said slideways into and out of said chamber; means for supporting the panel in said chamber; and a door attached to the ceiling and movable across said opening; substantially as described.

661,922. METALLIC WINDOW FRAME AND SASH. JOHN F. PREUTHUN, Philadelphia, Pa., assignor to Joseph E. Brown, same place. Filed July 11, 1900. Serial No. 23,186. (No model.)



Claim.—1. In a metallic window-frame, a hollow metallic side frame comprising a single sheet of metal bent to the desired form having an outer guide-rail formed therein, a U-shaped flange formed on one of the meeting edges of the sash-frame, a perpendicular flange formed on the other meeting edge adapted to engage the U-shaped flange, and a central partition for dividing the frame into sash-weight chambers having one edge clamped between the flanges on the meeting edges of the frame and its other edge provided with a flange adapted to be riveted to the frame, substantially as described.

2. In a metallic window-frame, a hollow metallic side frame comprising a single sheet of metal bent to the desired shape and seamed at its meeting edges, removable guides comprising hollow three-sided sheet-metal strips secured to the jamb-section of the frame, and metallic reinforcing-strips rigidly secured to the jamb of the frame over which the guide-strips fit for affording a hold for the securing-screws and giving rigidity to the guide-strips, substantially as described.

3. In a metallic frame, the combination of a hollow metallic side frame composed of sheet metal bent to the desired shape and seamed at its meeting edges, a central longitudinal partition for dividing the side frames into sash-weight compartments, an opening formed in the front face of said frame to provide means of access to the sash-weight compartments, and a removable door for said opening having U-shaped side flanges adapted to engage the sides of the opening for holding the door in position, substantially as described.

4. The combination of a hollow metallic box-like side frame, a longitudinal partition provided in said frame for a portion of its length, an opening provided on the inside or front face of the side frame, a removable door for said opening, a deep U-shaped flange provided on one side of the door forming a longitudinal groove adapted to engage one edge of the opening, and a groove of a less depth formed on the other side of said door adapted to engage the opposite edge of the door-opening, substantially as described.

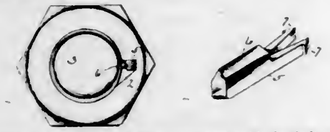
5. The combination with a hollow metallic side frame for windows, of an opening, F, provided in the front face of same to provide access to the interior, a removable door, F', for said opening, a U-shaped flange bent in on one edge of the door forming a deep longitudinal groove adapted to engage one edge of the opening, F, a similarly-shaped groove formed on the opposite edge of said door of less depth adapted to engage the other edge of the opening, F, and a flange, f^4, formed near the bottom of the door to provide a ledge which bears against the lower edge of the opening, F, for the purpose substantially as described.

6. The combination with the side stiles of a window-sash of a mullion for dividing the panes comprising a metal strip passing between the panes, a sheet-metal casing, i', bent around the same having flanges, i^2, and i^3, extending on one side of the panes, and a metal cap, j, clenched around the projecting end opposite the flanges, i^2, i^3, said cap having flanges, j', adapted to bear against the panes, substantially as described.

7. A mullion for metallic window-sashes comprising a flat metallic bar, i, extending transversely between the panes of glass, a sheet-metal casing, i', bent around said bar, i, having flanges, i^2 i^3, formed by bending the metal upon itself on opposite sides of the bar, i, a cap, j, formed in U shape adapted to embrace the end of the mullion on the side opposite the flanges, i^2, i^3, and be clenched thereon, and flanges, j', formed on said cap having bent edge, adapted to bear against the glass, substantially as described.

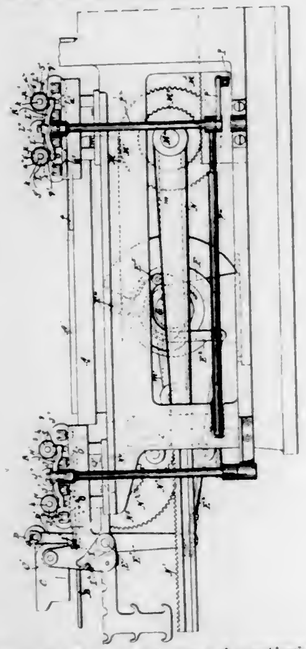
8. In a metallic window-sash, the combination with the sides and top rails, of lower rails, M, comprising hollow box-like sections formed of sheet metal, shoulders m, formed on the upper edges of said rails, against which one side of the glass bears, and projecting flanges, m', formed in the rail adapted to bear against the glass on the side opposite the shoulder, substantially as described.

661,923. NUT-LOCK. WATSON W. SPENCER, Wilkinsburg, Pa., assignor of one-third to W. H. BOWERSOX, same place. Filed Oct. 14, 1899. Serial No. 733,620. (No model.)



Claim.—In a nut-lock, the combination, with the bolt, and a nut provided with an internal recess having one of its side walls radial with the center of the nut, the other side wall in angular relation to the center of the nut, and its outer wall parallel to the center of the nut, of a key 5 having a sharpened edge 6, said key adapted to lie normally within the recess with its one side against the radial wall of the recess and its outer face against the outer wall thereof with the sharpened edge impinging upon the threads of the bolt, and a pair of diverging arms formed integral with the inner end of said key and having barbs adapted to impinge upon the side walls of the recess, as and for the purpose set forth.

661,924. FLAT-BED PRINTING-PRESS. STURGES WHITLOCK, Shelton, and WINFIELD S. HUSON, Derby, Conn., assignors to the Whitlock Printing Press Manufacturing Company, Derby, Conn. Filed Apr. 2, 1900. Serial No. 11,054. (No model.)



Claim.—1. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers, a reciprocating prime mover for the plate-inking rollers, and gearing interposed between and connecting the said reciprocating prime mover and the plate-inking rollers, whereby the same are rotated, and reversed in rotation in unison with the reciprocation of the type-bed, which is thus relieved of the work of driving the plate-inking rollers.

2. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, means for reciprocating the said type-bed, a series of plate-inking rollers, a reciprocating prime mover for the plate-inking rollers connected with and actuated by the means for reciprocating the type-bed, and gearing interposed between the said prime mover and the plate-inking rollers for rotating them, and reversing them in unison with the reciprocation of the type-bed, whereby the same is relieved of the work of driving the said rollers.

3. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of type or form inking rollers, means for driving the same from the type-bed, a series of plate-inking rollers, a reciprocating prime mover for the plate-inking rollers, having less reciprocating movement than the type-bed, and gearing between the said reciprocating prime mover and the rollers of the plate-inking series which are thereby rotated, and reversed in unison with the reciprocation of the type-bed.

4. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers, a reciprocating prime mover for the plate-inking rollers, gearing between the said prime mover and the plate-inking rollers which are rotated, and reversed in unison with the reciprocation of the type-bed, a series of type or form inking rollers, and means independent of the said prime mover for rotating and reversing the form-inking rollers.

5. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers, a reciprocating prime mover therefor, gearing between the said prime mover and the plate-inking rollers, which are rotated, and reversed in unison with the reciprocation of the type-bed, a series of type or form inking rollers driven independently of the said reciprocating prime mover, and means common to both series of rollers for simultaneously actuating their distributer-rollers in lengthwise vibration without interfering with their independently-actuated rotation.

6. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers, a reciprocating prime mover therefor, gearing between the said prime mover and the plate-inking rollers, which are thus rotated, and reversed in unison with the reciprocation of the type-bed, a series of type or form inking rollers rotated and reversed independently of the action of the said reciprocating prime mover, an upright rock-shaft having its upper end connected with the rider roller or rollers of the plate-inking series of rollers, an upright rock-shaft having its upper end connected with the rider roller or rollers of the form-inking series of rollers, and means connecting the two rock-shafts for operating them simultaneously, whereby the rider roller or rollers of both series are simultaneously actuated in lengthwise vibration.

7. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers comprising two distributer rider-rollers, a reciprocating prime mover therefor, gearing between the said prime mover and the plate-inking rollers which are rotated and reversed in rotation in accordance with the reciprocation of the type-bed, a series of type or form inking rollers comprising two distributer rider-rollers, means for rotating and reversing the said form-inking rollers independently of the said prime mover, two upright rock-shafts respectively located adjacent to the respective series of rollers, means for oscillating the said shafts simultaneously, and two two-armed levers respectively mounted upon the upper ends of the said rock-shafts and connected with the distributer rider-rollers of the said two series of rollers, whereby the rider-rollers of both series of rollers are simultaneously actuated in lengthwise vibration.

8. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a series of plate-inking rollers, means for reciprocating the type-bed, a reciprocating rack-bar carrying a rack and reciprocated independently of the said type-bed by the said means, and gearing between the said rack and the rollers of the plate-inking series which are thereby rotated and reversed in rotation in unison with the reciprocation of the type-bed.

9. In a flat-bed printing-press, the combination with a series of plate-inking rollers, of a transfer-roller adapted to receive ink from a source of supply, and to transfer the same to a roller of the said series, and means for moving the transfer-roller from its receiving to its discharging position and vice versa, the said means being timed to move the transfer-roller from its discharging to its receiving position in a state of rest as to rotation.

10. In a flat-bed printing-press, the combination with a series of plate-inking rollers including a distributer rider-roller, of an ink-fountain, a transfer-roller adapted to receivb ink from the said fountain and transfer it to the said distributer rider-roller, and means for actuating the said roller, whereby it is moved from contact with the said distributer-roller while the same is in a state of rest as to rotation, so that the said transfer-roller is returned to the said ink-fountain in a state of rest as to rotation.

11. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, a distributer-roller, means for actuating the same and reversing the direction of its rotation to correspond to the reversal of direction in the movement of the type-bed, an ink-fountain, a transfer-roller adapted to receive ink from said fountain and transfer it to the said distributer-roller, and means for operating the said transfer-roller and timed to cause the same to break contact with the distributer-roller, while the same is in a state of rest as to rotation, and while the type-bed is also at rest.

12. In a flat-bed printing-press, the combination with a reciprocating type-bed, of an ink-plate carried thereby, an ink-fountain, a series of plate-inking rollers including a distributer rider-roller, a transfer-roller adapted to receive ink from the fountain and transfer it to the said rider-roller, and means for moving the said transfer-roller back and forth between the fountain and the said rider-roller, the said means being timed to cause the transfer-roller not to break contact with the said rider-roller except when the same is in a state of rest, whereby the transfer-roller reaches the ink-fountain in a state of rest and returns to the said rider-roller in a state of rest, without the employment of braking appliances.

661,925. TRAVELING OILER FOR ELEVATOR-GUIDES. JAMES H. WOODARD, Dayton, Ky. Filed Mar. 8, 1900. Serial No. 7,778. (No model.)



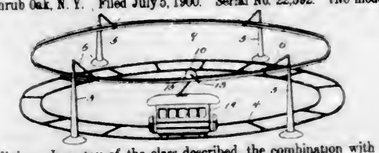
Claim.—1. In a traveling oiling device to lubricate elevator-guides, the combination of discharge-heads shaped to surround, but without contact, the wearing-surfaces of each elevator-guide, normally open discharge-orifices in these heads directed against these surfaces, a supply-pipe on which each head is carried, a normally open oil-tank in communication with these supply-pipes, an interposed ejecting device which controls and normally prevents such communication, and means manually controlled for operating this ejecting device to cause oil to be discharged against the wearing-surfaces of the elevator-guides, the whole connected to and traveling with the elevator-cab, so that oil may be discharged in any position of the cab and against any point of the traversed guide-surfaces.

2. In a traveling oiling device to lubricate elevator-guides, the combination of discharge-heads shaped to surround, but without contact, the wearing-surfaces of each elevator-guide, normally open discharge-orifices in these heads directed against these surfaces, a supply-pipe on which each head is carried, an oil-tank to feed these supply-pipes manually-controlled means operating to cause oil to be ejected against the wearing-surfaces of the elevator-guides, the whole connected to and traveling with the elevator-cab, so that oil may be discharged in any position of the cab and against any point of the traversed guide-surfaces, and devices below each discharge-head traveling also therewith, but in contact with the wearing-surfaces of the guides so as to take up and retain the oil discharged against these surfaces from the discharge-heads and distribute the same thereover while traveling with the cab.

3. In a traveling oiling device to lubricate elevator-guides, the combination of discharge-heads shaped to surround, but without contact, the wearing-surfaces of each elevator-guide, normally open discharge-orifices in these heads directed against these surfaces, a supply-pipe on which each head is carried, a normally open oil-tank in communication with these supply-pipes, an interposed ejecting device which controls and normally prevents such communication, the whole connected to and traveling with the elevator-cab and an operating-lever extending into this latter for operating the ejecting device, in a manner to permit lubrication of the elevator-guides at any point and from any position of the cab.

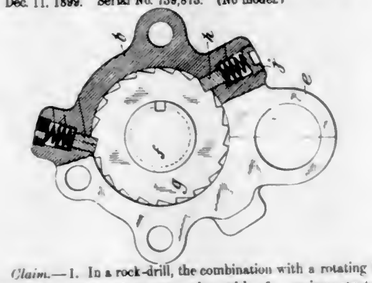
4. In a traveling oiling device to lubricate elevator-guides, the combination of discharge-heads shaped to surround, but without contact, the bearing-surfaces of each elevator-guide, normally open discharge-orfices in these heads directed against these surfaces, a supply-pipe for these heads, an oil-tank to feed this pipe, a pump-cylinder interposed between the two and in open communication with each, a plunger therein, a spring to keep the same normally in a position where it prevents the oil from passing from the tank through the supply-pipes and out of the discharge-heads, the whole connected to and traveling with the elevator-cab and operating means for operating this plunger, so as to permit lubrication of the elevator-guides at any point and from any position of the cab.

661,926. TOY TROLLEY-CAR SYSTEM. CHARLES F. AGOR, Shrub Oak, N. Y. Filed July 5, 1900. Serial No. 22,592. (No model.)



Claim.—In a toy of the class described, the combination with the circular or endless track, of a car or other body movable thereon, a trolley-pole having a spring connection with said car, the standards provided with arms and brackets supporting an endless casing and a circular rack therein, means for actuating said rack and of connecting the trolley-pole thereto, substantially as and for the purpose set forth.

661,927. ROCK-DRILL. ROBERT L. AMBROSE, North Tarrytown, N. Y., assignor to the Rand Drill Company, New York, N. Y. Filed Dec. 11, 1899. Serial No. 739,873. (No model.)



Claim.—1. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a spring-actuated pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, that end of the pawl engaging the teeth of the ratchet-wheel being perpendicular to the line of movement of the said pawl, and arranged to engage with that face of a tooth of the ratchet-wheel, which is the more nearly tangential, said face constituting the lifting-face of the said tooth.

2. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a spring-actuated pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, the axis of said movement being in a line which is eccentric of the axis of the ratchet-wheel, the inner end face of said pawl being at right angles to said line of movement and arranged to engage with that face of a tooth of the ratchet-wheel which is the more nearly tangential, said face constituting the lifting-face of said tooth.

3. In a rock-drill the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a spring-actuated pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, the working face of the pawl having a movement in a line which passes the axis of the ratchet-wheel upon that side thereof which is in a direction opposite to the direction of rotation of the ratchet-wheel.

4. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a pawl mounted in ways in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, and a helical spring mounted in the drill cylinder-head and adapted to press the said pawl inwardly against the face of the ratchet-wheel, and means to limit the inward movement of the spring whereby the said spring will be retained from accidental displacement through the pawlways, after the said pawl has been removed.

5. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a pawl mounted in ways in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, and a helical spring mounted in the drill cylinder-head and adapted to press the said pawl inwardly against the face of the ratchet-wheel, the said spring being of such size diametrically as will prevent the same from accidental displacement through the pawlways, after the said pawl has been removed.

6. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, a helical spring mounted in the drill cylinder-head and adapted to press the said pawl inwardly against the face of the said ratchet-wheel, and means interposed between the said pawl and the said spring whereby the spring is retained from accidental displacement through the pawlways after the said pawl has been removed.

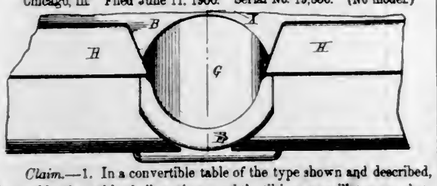
7. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, a helical spring mounted in the drill cylinder-head and adapted to press the said pawl inwardly against the face of the said ratchet-wheel, and a follower interposed between the inner end of the spring and the outer face of the pawl, the said follower being of greater width than the width of the pawlways.

8. In a rock-drill, the combination with a rotating bar and a ratchet-wheel secured to rotate therewith, of a pawl mounted in the drill cylinder-head and having a rectilinear movement therein toward and away from the face of the ratchet-wheel, a helical spring mounted in the drill cylinder-head and adapted to press the said pawl inwardly against the face of the said ratchet-wheel, and a cup-shaped follower interposed between the inner end of the spring and the outer face of the pawl, the said

cup-shaped follower being of greater width than the width of the pawl-ways.

9. An upper cylinder-head for a rock-drill comprising three pieces: a cylinder-head proper, a ratchet-box, and a cover therefor; the said ratchet-box having a cylindrical bore therethrough adapted to receive a ratchet-wheel, and having a plurality of pawlways, each adapted to receive a rectangular pawl-block, communicating with the said cylindrical bore and extending the entire width of the ratchet-box, and a plurality of cylindrical spring-housings, one for each of the said pawlways, the diameter of the said spring-housings being greater than the width of the said pawlways.

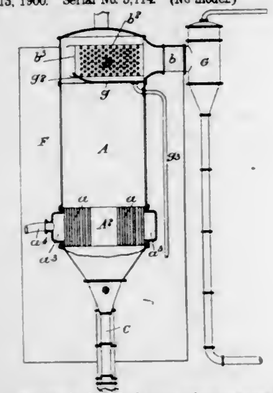
661,928. CONVERTIBLE BILLIARD-TABLE. OTTO F. BARTEL, Chicago, Ill. Filed June 11, 1900. Serial No. 19,836. (No model.)



Claim.—1. In a convertible table of the type shown and described, the combination, with a ball-receiver; and the tilting, or oscillatory, pocket-iron, of a depending leathering secured to the latter and extending down within, the outer end of the former; and a flexible connection between the pocket-iron and the ball-receiver; all substantially as and for the purposes set forth.

2. In a convertible table of the type shown and described, the combination, with the ball-receptacle; the oscillatory side-pocket iron; and the depending leathering of the latter extending down into the former, of a fringe-holder and attached fringe; the whole arranged and operating together substantially as and for the purposes set forth.

661,929. VACUUM-PAN. EDWARD J. DUFF, Liverpool, England, assignor of one-half to the United Alkali Company, Limited, same place. Filed Feb. 13, 1900. Serial No. 5,114. (No model.)

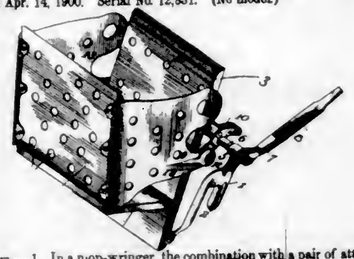


Claim.—1. The herein-described evaporating apparatus, comprising a unitary inclosed receptacle containing within itself an evaporating-drum and a preheating device located directly above the drum and within the walls of the receptacle and consisting of a number of tubes presented directly to the evaporations of the liquid being treated, a tray located beneath said preheating device and having an outlet for the water of condensation, and suitable connections for the admission of a heating medium and for the circulation of the liquid, substantially as described.

2. The herein-described evaporating apparatus, comprising a unitary inclosed receptacle containing within itself an evaporating-drum and a preheating device located directly above said drum and within the walls of the receptacle, said preheating device consisting of a number of tubes presented directly and transversely to the vapors rising from said drum in such a manner as not to require any outside or separate passage-way for such vapors, and suitable connections for the admission of a heating medium and for the circulation of the liquid, substantially as described.

3. The herein-described evaporating apparatus, comprising a unitary inclosed receptacle containing within itself an evaporating-drum and a preheating device located directly above said drum and within the walls of the receptacle and consisting of a number of horizontal tubes presented directly and transversely to the escaping vapors, a tray located beneath said device and having an outlet for the water of condensation, and suitable connections for the admission of a heating medium and for the circulation of the liquid, substantially as described.

661,930. MOP-WRINGER. GEORGE W. FINCH, Homer, N. Y. Filed Apr. 14, 1900. Serial No. 12,831. (No model.)



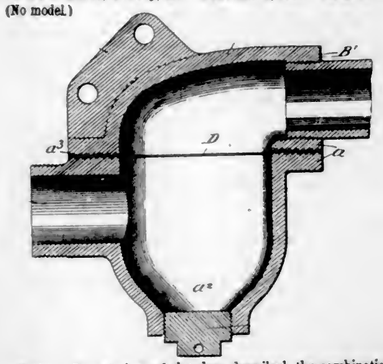
Claim.—1. In a mop-wringer, the combination with a pair of attaching-brackets, of a rockable presser-board pivoted near its lower edge to said brackets, a movable presser-board and means for moving said presser-board toward the rockable presser-board.

2. In a mop-wringer, the combination with a pair of attaching-brackets in which is journaled a rockable shaft, a rockable presser-board pivoted near its lower edge to said brackets and connected to the rockable shaft by a link connection, a movable presser-board hinged to the rockable shaft, and means for rocking said shaft to cause the respective presser-boards to approach each other.

3. In a mop-wringer, the combination with a pair of attaching-brackets in which is journaled a rockable shaft, a rockable presser-board pivoted near its lower edge to said brackets and connected to the upper arms of a pair of two-arm levers mounted rigidly on the rockable shaft, a movable presser-board connected to the lower arms of said levers, and means for rocking said shaft.

4. In a mop-wringer, the combination with a pair of attaching-brackets, of a spring-pressed perforated rockable presser-board pivoted near its lower edge to said brackets and provided with a perforated projecting bottom, a perforated movable presser-board, and means for moving the respective presser-boards toward each other.

661,931. FEED-WATER STRAINER FOR LOCOMOTIVES. JOSEPH P. HAYES, Moberly, Mo. Filed Mar. 3, 1900. Serial No. 7,186. (No model.)

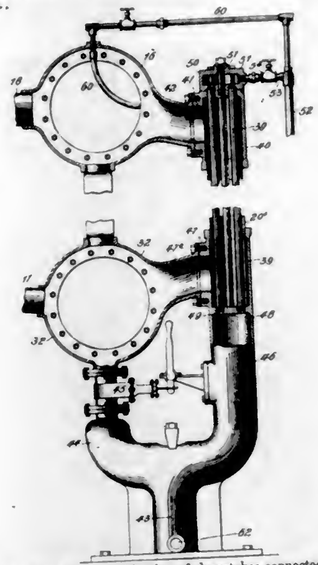


Claim.—In a strainer of the class described, the combination of a body portion made in two parts the lower or main portion provided with an inlet-opening, a waste-chamber below the inlet-opening and a screw-plug for opening and closing the waste-opening of the waste-chamber the upper part provided with an outlet-opening, and a lug for securing the strainer to the end beam of a locomotive, and a piece of perforated or reticulated material forming the strainer proper secured in position and in a horizontal plane between the two parts of the body portion, substantially as described.

661,932. FEED-WATER-HEATER. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed Apr. 3, 1900. Serial No. 11,379. (No model.)

Claim.—1. A boiler provided with downtakes and having a heat-generated circulation in combination with a settling chamber or receptacle connected to the boiler, and feed-water tubes passing through the downtakes and connected to said chamber or receptacle whereby the feed-water is caused to pass through without commingling with the water in the boiler, substantially as set forth.

2. In a boiler having a heat-generated circulation, the combination of upper and lower rear drums, downtakes connected to said drums, a settling chamber or receptacle connected to the lower drum, and feed-water tubes passing through the downtakes and connected to said chamber or receptacle, whereby the feed-water passes through the water circulating in the boiler, but without commingling therewith, substantially as set forth.



3. In a boiler, the combination of downtakes connected at or near their upper and lower ends to other portions of the boiler, diaphragms arranged in the downtakes above and below the points of connection of the downtakes with the other portions of the boiler, feed-water tubes arranged within the downtakes and projecting through the diaphragms and a chamber or receptacle connected to the boiler and the feed-water tubes, substantially as set forth.

4. In a boiler, the combination of upper and lower rear drums, downtakes connected to said drums, a chamber or receptacle connected to the lower drum, feed-water tubes passing through the downtakes and connected to said chamber or receptacle whereby the feed-water is heated by water circulating in the downtakes, prior to the admission of the feed-water into the boiler circulation and a by-pass connecting the feed-water pipe to the upper drum, substantially as set forth.

5. In a boiler, the combination of a downtake adapted to be connected at or near its ends with other portions of a boiler and provided with tube-sheets or diaphragms above and below its points of connections with the boiler, tubes extending through the downtakes and having their ends connected to the chambers formed outside of the diaphragms, substantially as set forth.

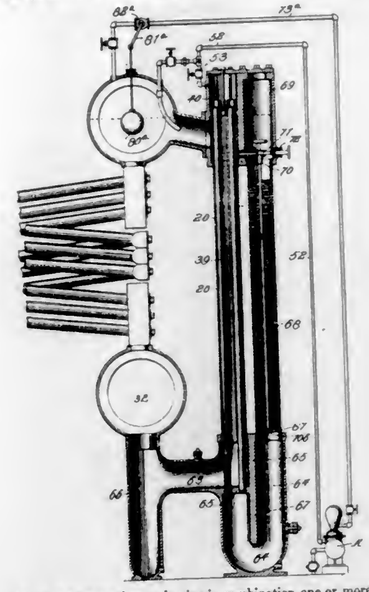
6. A boiler provided with a downtake having chambers above and below its point of connection with other portions of the boiler, in combination with tubes arranged within the downtake and having their ends connected to said chambers whereby the feed-water is heated by water circulating in the downtake prior to its admission into the boiler circulation, and a removable cap on the upper chamber, substantially as set forth.

7. In a boiler, the combination of a drum forming a portion of the circulating system of the boiler, a hollow stand connected to said drum and serving as a support for said drum, a downtake-pipe connected to the drum and to another portion of the circulating system of the boiler and a feed-water tube extending through the downtake and connected to the stand, substantially as set forth.

8. In a boiler, the combination of upper and lower drums, a hollow Y-shaped stand having its arms connected to the lower drum, a diaphragm or tube arranged in one of the arms below its point of connection with the drum, a downtake-tube connecting the upper drum with said arm and a feed-water tube arranged in the downtake and extending through the diaphragm, substantially as set forth.

661,933. WATER HEATER, PURIFIER, AND SEPARATOR. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed July 30, 1900. Serial No. 25,265. (No model.)

Claim.—1. The combination of a boiler, a chamber connected to the boiler so as to permit boiler-water to circulate therethrough, one or more tubes for the passage of feed-water arranged in said chamber so as to be subjected to full boiler temperature, a chamber for the collection of precipitates at the discharge end of the tube or tubes and a rising tube or gas-separating chamber connected to the collecting-chamber and to the boiler at a point below the normal water-level, substantially as set forth.



2. A feed-water heater having in combination one or more tubes for the passage of feed-water, a chamber for the collection of precipitates at the discharge end of the tube or tubes and a rising tube or gas-separating chamber connected to the collecting-chamber and the boiler at points below the normal water-level in the heater, substantially as set forth.

3. A feed-water heater having in combination a chamber at its upper end adapted to receive the feed-water, a heating-chamber below the receiving-chamber having connections to the boiler for the circulation of water or steam therethrough, a chamber for the collection of precipitates arranged below the heating-chamber, tubes connecting the receiving and collecting chambers and passing through the heating-chamber and a rising tube or gas-separating chamber connected to the collecting-chamber and to the boiler at points below the normal water-level in the heater, substantially as set forth.

4. In a boiler, the combination of downtakes, feed-water tubes passing through the downtakes, a settling-chamber connected to said tubes, and rising tubes connected to the settling-chamber and to the boiler, substantially as set forth.

5. The combination of a boiler, feed-water tubes passing through a portion of the boiler, a settling-chamber connected to said tubes and rising tubes connected to the settling-chamber and the boiler, substantially as set forth.

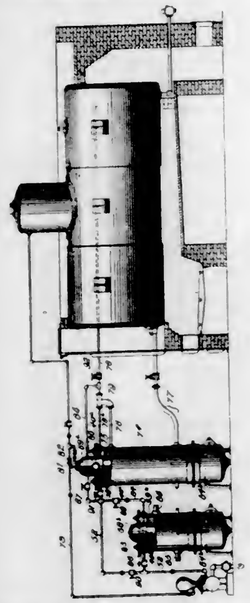
6. The combination of a boiler, feed-water tubes passing through a portion of the boiler, settling-chambers connected to said tubes and rising tubes extending from the settling-chamber to a point above the normal water-level in the boiler and having a connection with the boiler below the normal water-level, substantially as set forth.

7. The combination of a boiler, feed-water tubes subjected to the heat of the water of the boiler, a settling or collecting chamber connected to said tubes, a rising tube or gas-separating chamber connected to said tubes and to the boiler and a filtering material arranged in the rising tube substantially as set forth.

661,934. WATER HEATER, PURIFIER, AND SEPARATOR. ARCHIE G. HOHENSTEIN, New Haven, Conn. Filed July 30, 1900. Serial No. 25,266. (No model.)

Claim.—1. The combination of a boiler, a feed-water heater, a connection between the boiler and heater to permit of the flow of water from the boiler, an injector having its nozzle connected to the feed-water portion of the heater and its feed-inlet connected to the heating portion of

the heater, and its outlet connected to the boiler, and means for feeding water to the heater whereby a circulation of boiler-water through the heater is effected by the feed-water, substantially as set forth.



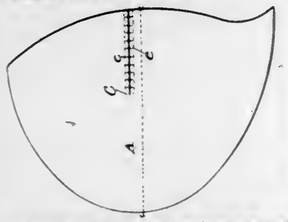
2. The combination of a boiler, a feed-water heater, in and out connections between the boiler and heater, an injector having its nozzle connected to the feed-water portion of the heater and its feeding portion forming a part of the connection between the boiler and heater, means for feeding water to the heater, and means operative on changes of water-level in the heater or boiler for controlling the means for feeding water to the heater, substantially as set forth.

3. The combination of a boiler, means for feeding water to the boiler, means operative on a change of water-level in the boiler for controlling the rate of feed of water to the boiler, and means controlled by the feed-water for producing a circulation of the water in the boiler, substantially as set forth.

4. A feed-water heater having in combination a receiving-chamber, a settling-chamber, an intermediate heating-chamber, tubes extending from the receiving-chamber through heating-chamber into the settling-chamber and a rising tube connected to the settling-chamber and extending above the normal water-level in the receiving-chamber, substantially as set forth.

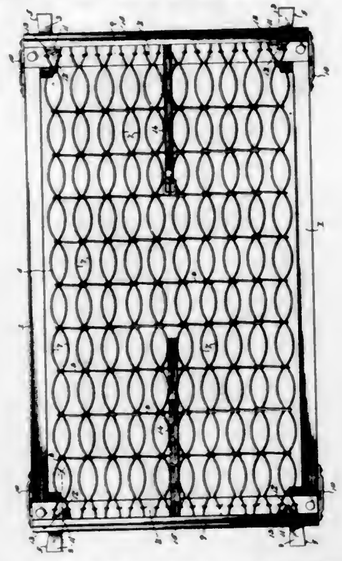
5. A feed-water heater having in combination a receiving-chamber, a heating-chamber arranged below the receiving-chamber, tubes extending from the receiving-chamber through the heating-chamber, a settling-chamber connected to the discharge ends of the tubes, a rising tube connected to the settling-chamber and extending through the heating-chamber to a point above the receiving-chamber, substantially as set forth.

661,935. **GARMENT-PAD.** ISIDORE LÖWENTHAL, Baltimore, Md., assignor to the Eureka Coat Pad Company, same place. Filed June 22, 1900. Serial No. 21,194. (No model.)



Claim.—A shoulder-pad having a triangular cut-out portion extending from the outer periphery of the pad to or near its center, the edges of said portion brought together and sewed, without overlapping, and a smooth raised central convex portion C, at the inner end or apex of the cut-out portion, formed and held permanently in place by said joint, substantially as described.

661,936. **SPRING-BED.** JAMES M. MARTIN, Knoxville, Tenn. Filed Jan. 24, 1898. Serial No. 667,780. (No model.)



Claim.—1. A spring bed-bottom comprising pairs of wires similarly waved or crimped and disposed with the waved portions opposite, whereby swelled and contracted portions are formed, in combination with a series of separate links, each link comprising an outwardly-curved body portion having eyes at its ends, the eye at one end of a link receiving a pair of wires at their contracted portion and the eye at the other end of the link receiving a subjacent pair of wires at their contracted portion; substantially as described.

2. In a spring bed-bottom, pairs of wires similarly waved or crimped and disposed in parallel relation with the waved portions opposite and alining, whereby swelled and contracted portions are formed, in combination with links arranged at right angles to the length of the waved wires and spanning the space formed between the contracted portions of adjacent pairs of wires and connecting them and having their end portions encircling and securing together the said contracted portions of each pair of wires, substantially as set forth.

3. In a spring bed-bottom, pairs of wires similarly waved or crimped and disposed with the waved portions opposite, whereby swelled and contracted portions are formed, in combination with links consecutively arranged across the bed-bottom and having their contiguous end portions overlapping and formed into eyes to receive the contracted portions of pairs of wires, each link connecting the contracted portions of adjacent pairs of wires in addition to securing together the wires of each pair, substantially as specified.

4. In a bed, the combination with the frame, and a folding end piece, of links for connecting the end piece with the frame and having independent pivotal connection at their ends with each to admit of the end piece folding close against either the top or the bottom side of the frame, and an interlocking connection between the frame and end piece acting jointly with the links to fix the position of the end piece when in operative relation, substantially as set forth.

5. In a bed, the combination with the frame and a folding end piece, of links pivotally connecting the end piece with the frame, a pin-and-socket connection for properly positioning the end piece, and a strip secured to the lower edge portion of the end piece and adapted to overlap the end portion of the frame, substantially as set forth.

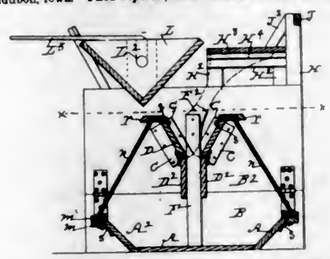
6. In a bed or the like, the combination of the frame, and a leg pivoted to fold against a side thereof in a plane parallel therewith, the outer end portion of the leg having the side facing the frame member to which the leg is pivoted thickened or formed with an integral offstanding inclined portion to come between the leg and frame and secure the leg by a wedging action and to provide an extended bearing-surface at the outer extremity of the leg, substantially as set forth.

7. In combination with the frame of a bed, an end piece, links loosely connecting said end piece with the frame and admitting of its folding against either the top or the bottom side of the frame, and means for securing the end piece when folded in either position, substantially as specified.

8. In combination with the frame of a bed, end pieces, links loosely connecting said end pieces with the frame and admitting of their folding against either the top or bottom side of the frame, and fastening means for securing the end pieces when folded either upon or beneath the bed, said fastening means comprising complementary parts attached directly to the folding end pieces, substantially as set forth.

9. In a bed, the combination with the frame and folding end pieces, of links connecting the end pieces with the frame, pin-and-socket connections between the frame and the said end pieces, strips secured to the end pieces and adapted to overlap the end portions of the frame, and tapes or straps attached to the aforedescribed end pieces to hold them when folded either above or below the frame, substantially as specified.

661,937. **KNOCKDOWN FEED-TROUGH.** HIRAM MENDENHALL, Audubon, Iowa. Filed Sept. 27, 1900. Serial No. 31,256. (No model.)



Claim.—1. A feed-trough having fixed ends, vertical extensions hinged to the fixed ends, cleats fixed to the inside faces and central portions of the hinged extensions in inclined positions and jointed partitions detachably connected with the fixed cleats, as shown and described for the purposes stated.

2. A feed-trough having fixed ends, vertical extensions hinged to the fixed ends, cleats fixed to the inside faces and central portions of the hinged extensions in inclined positions, jointed partitions detachably connected with the fixed cleats, posts fitted between said partitions and brackets fixed to the tops of the posts to support a platform, arranged and combined as shown and described for the purposes stated.

3. A feed-trough having fixed ends, vertical extensions hinged to the fixed ends, cleats fixed to the inside faces and central portions of the hinged extensions in inclined positions, jointed partitions detachably connected with the fixed cleats, posts fitted between said partitions and brackets fixed to the tops of the posts to support a platform, frames fitted against the outside of the ends of the trough and the hinged extensions and a platform having fixed cleats on its under side fitted to the tops of said frames, arranged and combined as shown and described for the purposes stated.

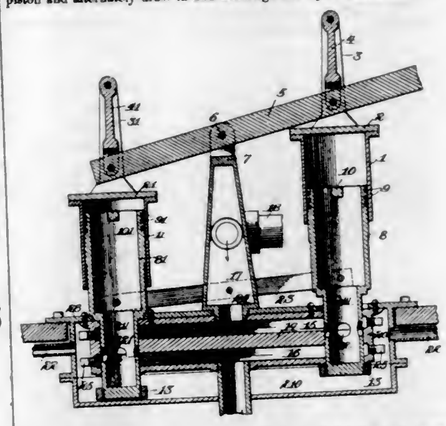
4. A feed-trough having fixed ends, vertical extensions hinged to said ends, uprights fixed to the outside and ends of the vertical extensions, frames fitted to said uprights and said extensions, a platform having cleats on its under side fitted on the tops of said frames and against said uprights and a rail having fixed braces fitted and fixed to the tops of said uprights, arranged and combined as shown and described for the purposes stated.

5. A feed-trough having fixed ends, vertical extensions hinged to said ends, cleats fixed to the inside faces in inclined positions, jointed partitions fitted between said cleats, and fenders having movable rods detachably connected with the sides of the feed-trough and the tops of the partitions, arranged and combined as shown and described for the purposes stated.

661,938. **PUMP.** JOSHUA M. MORRIS, Rochester, N. Y., assignor of one-half to John Casarietti, same place. Filed Apr. 11, 1900. Serial No. 12,442. (No model.)

Claim.—1. In a pump, the combination with a base having inlet and exhaust ports, of a cylinder movable relative the base, and a hollow piston, movable in the cylinder and base having a port arranged exterior of the cylinder adapted to coöperate alternately with the ports in base when the said cylinder is moved toward or from the latter.

2. In a pump, the combination with a base having inlet and exhaust passages, of a hollow piston movable in the base, provided with a port adapted to coöperate alternately with the ports in the base and having the open end extending upon the exterior of the base, and a cylinder inclosing said end and movable thereon relatively to the base to shift the piston and alternately draw in and discharge the liquid therefrom.



3. In a pump, the combination with the cylinder and the recessed piston arranged within the latter, open upon one end and communicating with the cylinder and having the port, of the casing provided with the inlet and exhaust ports and in which one end of the piston operates, the port in the piston coöperating with the inlet and exhaust ports when the cylinder is operated toward or from said ports to cause a relative movement of the piston in the same direction.

4. In a pump, the combination with two cylinders and two corresponding pistons, each cylinder being movable relative to its piston and the pistons and the cylinders being connected for movement in opposite directions, and valve devices for each cylinder operated positively in opposite directions by pressure of the fluid in the cylinders.

5. In a pump, the combination with the two cylinders connected for movement in opposite directions, two pistons connected for movement in opposite directions, valve devices operated positively by the movement of the pistons, and inlet and exhaust ports controlled by said valve devices.

6. In a pump, the combination with the two cylinders connected for movement in opposite directions, two pistons connected for movement in opposite directions, each of said pistons having a port therein communicating with the interior of the cylinder, of a stationary part having inlet and exhaust ports with which the ports in the pistons communicate alternately.

7. In a pump, the combination with the two connected cylinders and two connected pistons, said pistons and cylinders being relatively movable to draw and expel fluid from between them, of a stationary part in which the pistons operate having inlet and exhaust ports, said pistons having ports communicating with the interior of the cylinders and adapted to coöperate alternately with the ports in the stationary part.

8. In a pump, the combination with the stationary base having the cylindrical aperture and the inlet and exhaust ports therein, and the movable cylinder of the relatively movable piston arranged within the cylinder, one end of which is movable in the base and provided with a port communicating with the interior of the cylinder and adapted to coöperate with the ports in the base alternately as the cylinder is moved on the piston toward and from said ports.

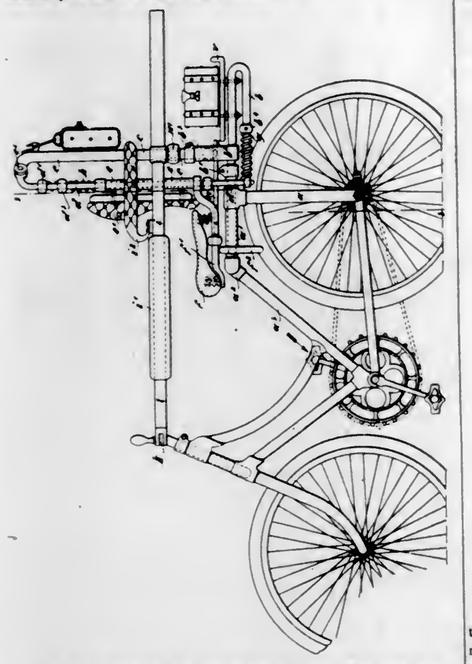
9. In a pump, the combination with the base having the passage through it and the inlet and exhaust ports, of the relatively movable cylinder and piston, one of said parts having the cylindrical extension, the stop thereon, and the valve-port in the extension adapted to connect with the inlet and exhaust ports alternately.

10. The combination with the cylinder, the recessed piston therein having the cylindrical extension at the lower end and the port therein, of the stationary base having the aperture and the inlet and exhaust ports with which the port on the piston coöperates.

11. The combination with the two movable cylinders and connections between them, the two movable recessed pistons, and connections between them, said pistons having the extensions provided with the ports, of the base-plate having the apertures and the inlet and exhaust ports with which the extensions on the pistons coöperate.

661,939. **VELOCIPEDE.** MAX VAN GÜLPEN, Mülheim-on-the-Rhine, Germany. Filed June 26, 1899. Serial No. 721,916. (No model.)

Claim.—1. In a velocipede the combination with the saddle and the steering-bar of two movable side tubes between which the saddle is arranged, back-rest and means for detaching one or both of the side tubes from the steering-bar, the said side tubes being pivotally connected to the steering-bar and movable in pivoted guides in the rear of the cycle-frame, essentially as and for the purpose described.



2. In a velocipede, the combination of a seat, a back-rest or support, a vertically-movable frame or carriage by which both the seat and back-rest are supported, and a tension-spring connected with such frame or carriage, substantially as set forth.

3. In a velocipede, the combination of a seat, pendulum-like, pivoted rods by which the saddle is supported, thus permitting a forward and back movement of the saddle, and springs which hold the saddle in normal position and are arranged to yield and permit the saddle to move when certain pressure is applied to the pedal.

4. In a velocipede, the combination of pendulum-like pivoted arms *d* arranged to move in a forward and back direction at their lower ends, the springs *g* which hold them with a yielding force in a certain normal position, a vertically-movable frame or carriage *e* mounted upon the rods *d*, the saddle and a back-rest supported in such frame or carriage, and a tension-spring, *h*, connected with the frame or carriage, substantially as set forth.

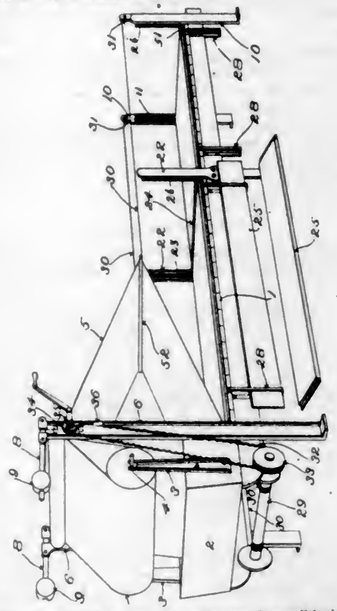
5. In a velocipede the combination of the steering-bar of two movable side tubes, a back-rest and means for securing the said side tubes in straight direction, consisting of two coöperating levers one of which is fulcrumed in fixed relation to the frame and engages by a projection with a recess in the corresponding side tube, essentially as and for the purpose described.

6. In a velocipede the combination with the steering-bar of two movable side tubes, a back-rest and levers fulcrumed in fixed relation to the frame and coöperating with the side tubes, which levers carry triangles or cams adapted to engage in slots of the said tubes, essentially as and for the purpose described.

7. In a velocipede, the combination with the steering-bar, of a movable side tube formed of two separate parts, one connected with the steering-bar, and the rear one having sliding, as well as a substantially universal connection with the frame, whereby when the parts of said side tube are disconnected, the rear part may be moved outward and down to constitute a rest or support for the velocipede, substantially as set forth.

661,940. MACHINE FOR HUMIDIFYING YARNS. JAMES T. PEARSON, Burnley, England. Filed July 5, 1900. Serial No. 22,533. (No model.)

Claim.—1. In a conditioning-machine, in combination, the conditioning-cloth, means to charge the said cloth with moisture, means to regulate the amount of moisture retained in the cloth, auxiliary means to apply moisture to one side of the cloth, and a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.



2. In a conditioning-machine, in combination, the conditioning-cloth, the trough, means to guide the cloth through the contents of the trough, means to regulate the amount of moisture retained in the cloth, auxiliary means to apply moisture to one side of the cloth, and a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.

3. In a conditioning-machine, in combination, the conditioning-cloth, the trough, a roller to guide the cloth through the contents of the trough, the squeeze-rolls to express surplus moisture from the cloth, auxiliary means to apply moisture to one side of the cloth, and a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.

4. In a conditioning-machine, in combination, the conditioning-cloth, the trough, means to guide the cloth through the contents of the trough, the squeeze-rolls to express surplus moisture from the cloth, the auxiliary cloth by which moisture is applied to one side of the cloth, and a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.

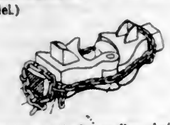
5. In a conditioning-machine, in combination, the conditioning-cloth, the trough, a guide-roller for the conditioning-cloth in the said trough, the squeeze-rolls, the auxiliary cloth, a guide-roller for said auxiliary cloth in the said trough, and the table to receive successive layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.

6. In a conditioning-machine, in combination, the conditioning-cloth, means to apply moisture to the said cloth, a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, and transverse division-pieces removably interposed between the said layers intermediate the ends thereof to separate different counts or qualities of yarn or the like, substantially as described.

7. In a conditioning-machine, in combination, the conditioning-cloth, means to apply moisture to the said cloth, a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, division-pieces applied to the said layers to separate different counts or qualities of yarn or the like, and guides to maintain said division-pieces in place, substantially as described.

8. In a conditioning-machine, in combination, the conditioning-cloth, means to charge the said cloth with moisture, auxiliary means to apply moisture to one side of the cloth, and a receiver to receive alternating layers of the moisture-laden conditioning-cloth and the yarns or other substance to be treated, substantially as described.

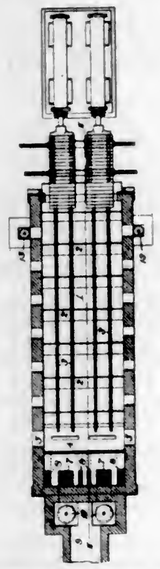
661,941. CHAIN CAR-COUPLING. JOHN L. SULLIVAN and WILLIAM MAHONEY, Los Angeles, Cal. Filed Sept. 21, 1900. Serial No. 30,723. (No model.)



Claim.—The herein-described coupling-chain, comprising a body portion having a branch portion terminating in a coupling-link, whose top portion is adapted for the passage therethrough of the links of the chain, and the lower portion thereof being adapted to receive a link therein when inserted edgewise, and to prevent the chain from slipping therethrough, said body portion also having thereon a like coupling-link at a suitable distance from the branch.

REISSUES.

11,869. FURNACE. ALEXANDER LAUGHLIN, Sewickley, and JOSEY REULEAUX, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Filed Feb. 17, 1899. Serial No. 705,941. Original No. 582,477, dated May 11, 1897.



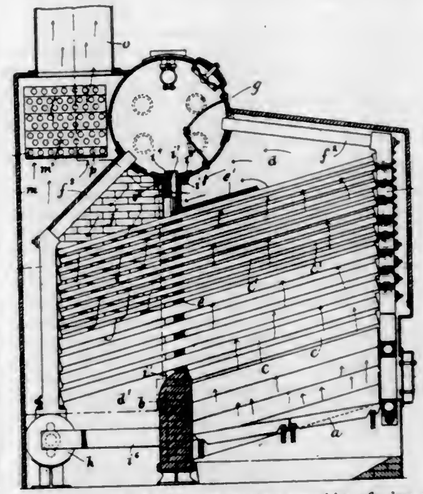
Claim.—1. A continuous-heating furnace, having in combination a billet-receiving bed located adjacent to the rear end of the furnace, and a series of two or more elevated supports extending longitudinally of the furnace from the front end thereof, the rear ends of the supports overhanging the receiving-bed, substantially as set forth.

2. A continuous-heating furnace, having in combination a billet-receiving bed located adjacent to the rear end of the furnace, a discharge-door formed through the side of the furnace in line with the receiving-bed, and a series of two or more elevated supports extending longitudinally of the furnace from the front end thereof, the rear ends of the supports overhanging the receiving-bed, substantially as set forth.

3. A continuous-heating furnace provided at or near its rear end with an opening for the removal of billets, having in combination a plurality of billet-supports extending longitudinally of the furnace from the front thereof, means for moving the billets laterally along each of said supports, a series of two or more gas-flues arranged at or near the rear end of the furnace and entering the latter at different points in proximity to the rear end of each billet-support, each flue having an independent valve connection with a gas-supply, a series of air-flues also arranged at or near the rear end of the furnace and entering the latter at different points in proximity to the rear end of each billet-support, independent valves controlling the admission of air to said flues, and outlet-flues at or near the front end of the furnace.

4. A continuous-heating furnace provided at or near its rear end with an opening for the removal of billets, having in combination a plurality of billet-supports extending longitudinally of the furnace from the front thereof, means for moving the billets laterally along each of said supports, a series of two or more gas-flues arranged at or near the rear end of the furnace and entering the latter at different points in proximity to the rear end of each billet-support, each flue having an independent valve connection with a gas-supply, a series of air-flues also arranged at or near the rear end of the furnace and entering the latter at different points in proximity to the rear end of each billet-support, independent air-inlet ports at or near the front end of the furnace, separate passages connecting said ports and air-flues, and valves in each of said ports.

11,870. STEAM-GENERATOR. KENNEDY PARK, Cambridge, Mass. Filed Oct. 4, 1900. Serial No. 32,006. Original No. 627,521, dated June 27, 1899.



Claim.—1. A boiler or steam-generator comprising a fire-box, a series of tubes extending lengthwise of the fire-box, a partition located above the bridge-wall and extending crosswise of the tubes, some of the tubes being relatively long and extending rearwardly from the said partition, while other tubes are relatively short and terminate at or near said partition, whereby flue-spaces are formed at the rear of the partition within the length of the longer tubes, said partition causing the products of combustion rising from the fire-box to pass between the tubes at the front of the partition, an elevated space or chamber above the tubes to receive the products of combustion, an escape flue or stack, a lower space or chamber below the tubes at the rear of the partition, and flues or passages located in said spaces, said lower chamber and flues constituting connections between the elevated chamber and the stack, whereby the products of combustion received hy the elevated chamber are conducted first downwardly and then upwardly, the said products being presented to the tubes at the rear of the partition in their passage from the elevated chamber to the stack.

2. A boiler or steam-generator comprising a fire-box, a series of tubes extending lengthwise of the fire-box, a partition extending across the series of tubes between their forward and rear portions, the said series being narrower at the rear than at the front of the partition, said partition causing the products of combustion rising directly from the fire-box to pass between the wider forward portion of the series of tubes, an elevated space or chamber above the tubes to receive the products of combustion, an escape flue or stack, a lower space or chamber below the narrower rear portion of the series of tubes, and side flues or passages located beside the narrower portion of the series of tubes and beside the lower chamber, said lower chamber and side flues constituting connections between the elevated chamber and the stack, whereby the products of combustion received by the elevated chamber are conducted first downwardly and then upwardly, the said products being presented to the rear portions of the tubes in their passage from the elevated chamber to the stack.

3. A boiler or steam-generator comprising a fire-box, a series of tubes extending lengthwise over the fire-box and across the bridge-wall of the fire-box, a partition extending across the series of tubes between their forward and rear portions and extending partly over the forward portions

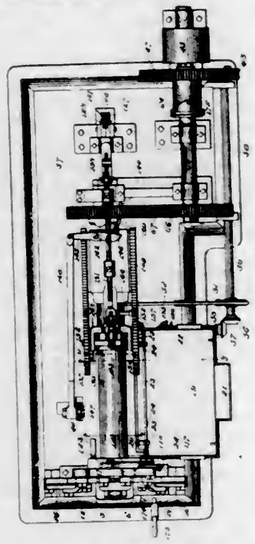
of the tubes, said partition causing the products of combustion rising directly from the fire-box to pass between the forward portions of the tubes including their forward ends, an elevated space or chamber above the tubes to receive the products of combustion from between the forward portions of the tubes, a lower space or chamber below the rear portions of the tubes, an escape flue or stack, and connections between the stack, the lower chamber, and the elevated chamber, whereby the products of combustion received by the elevated chamber are conducted first downwardly and then upwardly, the said products being presented to the rear portions of the tubes in their passage from the elevated chamber to the stack.

4. A boiler or steam-generator comprising a fire-box, a series of tubes extending lengthwise over the fire-box and across the bridge-wall of the fire-box, a partition extending across the series of tubes between their forward and rear portions and extending partly over the forward portions of the tubes, said partition causing the products of combustion rising directly from the fire-box to pass between the forward portions of the tubes including their forward ends, an elevated space or chamber above the tubes to receive the products of combustion from between the forward portions of the tubes, a lower space or chamber below the rear portions of the tubes, an escape flue or stack, connections between the stack, the lower chamber, and the elevated chamber, whereby the products of combustion received by the elevated chamber are conducted first downwardly and then upwardly, the said products being presented to the rear portions of the tubes in their passage from the elevated chamber to the stack, and a feed-water heater arranged to be acted on by the products of combustion rising from the rear portions of the tubes.

5. A boiler or steam-generator comprising a fire-box, a series of tubes extending lengthwise over the fire-box and across the bridge-wall of the fire-box, a partition extending across the series of tubes between their forward and rear portions, said partition causing the products of combustion rising directly from the fire-box to pass between the forward portions of the tubes, an elevated space or chamber above the tubes to receive the products of combustion from between the forward portions of the tubes, a lower space or chamber below the rear portions of the tubes, a supplemental casing or chamber above the rear portions of the tubes, an escape flue or stack connected with the supplemental chamber, flues or uptakes connecting the ends of the lower chamber with the ends of the supplemental chamber, the arrangement being such that the products of combustion pass from the elevated chamber downwardly between the rear portions of the tubes, to the lower chamber, and from thence through the uptakes, to the supplemental chamber, and a feed-water heater in the supplemental chamber.

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1 1 , 8 7 1 . PIPE-ELBOW MACHINE. HERMANN SEKOWSKY, Milwaukee, Wis., assignor to the National Enameling and Stamping Company, New York, N. Y. Filed July 3, 1900. Serial No. 22,463. (Original No. 643,913, dated Feb. 20, 1900.)



Claim.—1. In a pipe-elbow machine, the combination of a shaft having one end thereof formed with a spiral pitch, and a head adjustably secured to the shaft end.

2. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, and means for actuating the head upon said shaft, the opposing faces of the shaft end and head being formed with a spiral pitch.

3. In a pipe-elbow machine, an adjustable head secured to one end thereof at one side of the axis of the shaft, a lug projecting from the shaft end into a recess in the head, and means for actuating the head upon said shaft, opposing surfaces of the head and shaft being formed with a spiral pitch, terminating in said lug.

4. In a pipe-elbow machine, the combination of a shaft having one end formed with a spiral pitch, a head adjustably secured to said shaft end at one side of the axis thereof, and means for alternately oscillating said head and rotating the shaft and head.

5. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, the opposing faces of the head and shaft end being formed with a spiral pitch, means for creasing a pipe-cylinder in the space between the shaft and head, and means for rotating the shaft with the head.

6. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof at one side of the shaft-axis, and a lug projecting from the shaft and engaged in a recess in the head.

7. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof at one side of the shaft-axis, a bar, angular in cross-section, projecting from the shaft and loosely engaging a socket in the head, means for creasing a pipe-cylinder in the space between the shaft and head, and means for rotating the shaft and head.

8. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof at one side of the shaft-axis, means for adjusting the head to and from the shaft end, means for holding a sheet-metal cylinder non-rotatably on said shaft and head, and means for rotating the shaft.

9. In a pipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch, a head adjustably secured thereto, with the opposing face thereof also formed with a spiral pitch, means for adjusting said head with reference to the shaft end, a non-rotatable pipe-holder and means for rotating the shaft.

10. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, a non-rotatable pipe-holder adapted to hold a section of pipe over said shaft and head, means for crimping the pipe between the shaft end and head, and means for rotating the shaft, the opposing faces of the head and shaft end being provided with a spiral pitch.

11. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, a lug projecting from the shaft, and engaged in a socket in the head, means for creasing the pipe between the head and shaft, and means for rotating the shaft.

12. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, a non-rotatable pipe-holder, means for creasing the pipe between the head and shaft, and means for rotating the shaft.

13. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof, a lug projecting from the shaft and engaged in a socket in the head, a hinge connecting said head and shaft between the lug and the axis of the shaft and head, and means for rotating the shaft.

14. In a pipe-elbow machine, the combination of a hollow shaft, a head adjustably secured to one end thereof, a rod extending through said shaft and secured to the head by a hinge connection, a lug projecting from the shaft and engaging a socket in the head, a hinge securing said shaft and head together between the lug and shaft end, means for actuating said rod to oscillate the head upon the shaft end, and means for rotating the shaft.

15. In a pipe-elbow machine, the combination of a hollow shaft, a head adjustably secured to one end thereof with the opposing faces of the head and shaft end provided with a spiral pitch, a rod extending through the shaft and secured to said head, a hinge securing the head to the shaft end at one side of its center, means for actuating said rod longitudinally and means for rotating the head.

16. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto, crimping-jaws adapted to enter the space between the head and shaft end, means for oscillating the head upon the shaft end and means for rotating the shaft.

17. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto, crimping means adapted to enter the space between the head and shaft end, means for oscillating the head upon the shaft and means for rotating the shaft, the opposing surfaces of the head and shaft end being formed with a spiral pitch.

18. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto with the opposing faces of the head and shaft end formed with a spiral pitch, a hinge securing the head to the shaft end at one side of the axis of the shaft, crimping means adapted to register with the opening formed by oscillating the head upon said hinge, means for actuating the crimping means and means for rotating the shaft.

19. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, a set of crimping-jaws arranged to enter the space between the head and shaft, when the latter is oscillated on said hinge, a lug projecting from the shaft end and entering a recess in the head, and means for successively actuating the crimping-jaws and rotating the shaft and head.

20. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, a set of crimping-jaws arranged to enter the space between the head and shaft when the latter is oscillated on said hinge, a lug projecting from the shaft end and entering a recess in the head, and means for successively actuating the crimping-jaws and rotating the shaft and head, the opposing faces of the shaft and head being provided with a spiral pitch.

21. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, sheet-crimping means arranged to enter the space between the head and shaft to force a fold of sheet material therein, when the head is oscillated on said hinge, a lug projecting from the shaft end and entering a recess in the head, a collar adapted to be shifted longitudinally of said shaft, to cover the joint between the head and shaft end, and means for successively actuating the crimping means and rotating the shaft and head.

22. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, a set of crimping-jaws arranged to enter the space between the head and shaft when the latter is oscillated on said hinge, a lug projecting from the shaft end and entering a recess in the head, a collar adapted to be shifted longitudinally of said shaft, to cover the joint between the head and shaft end, and means for successively actuating the crimping-jaws and rotating the shaft and head, the opposing faces of the shaft and head being provided with a spiral pitch.

23. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, a set of crimping-jaws adapted to register with the joint formed by the head and shaft end, a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end, and means for successively actuating the crimping-jaws, collar, head and shaft.

24. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch, a set of crimping-jaws adapted to register with the joint formed by the head and shaft end, a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end and means for successively actuating the crimping-jaws, collar, head and shaft.

25. In a pipe-elbow machine, the combination of a shaft, a set of crimping-jaws hinged thereto at one side of the axis of the shaft, a set of crimping-jaws adapted to register with the joint formed by the head and shaft end, a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end, a pipe-holder coöperative with said collar, to hold the pipe in position for the formation of the elbow, and means for successively actuating the crimping-jaws, collar, head and shaft.

26. In a pipe-elbow machine, the combination of a shaft, a head hinged thereto at one side of the axis of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch, a set of crimping-jaws adapted to register with the joint formed by the head and shaft end, a collar adapted to be shifted longitudinally of the shaft, to cover the joint between the head and shaft end, a pipe-holder coöperative with said collar, to hold the pipe in position, for the formation of the elbow, and means for successively actuating the crimping-jaws, collar, head and shaft.

27. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch, means for oscillating the head upon the shaft end, crimping-jaws adapted to enter the space between the head and shaft end, an open collar adapted to be shifted longitudinally to cover the joint between the head and shaft end, clamping-arms adapted to engage said collar, a pipe-holder coöperative with said collar, to hold the pipe in position upon said head and shaft, and means for successively actuating the crimping-jaws, head, collar, clamping-arms and shaft.

28. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch, a lug projecting from the shaft and engaged in a slot in said head, means for oscillating the head upon the shaft end, crimping-jaws adapted to enter the space between the head and shaft end, an open collar adapted to be shifted longitudinally, to cover the joint between the head and shaft end, clamping-arms adapted to engage said collar, a pipe-holder coöperative with said collar to hold the pipe in position upon said head and shaft, and means for successively actuating the crimping-jaws, head, collar, clamping arms and shaft.

29. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured thereto, with the opposing faces of the head and shaft end formed with a spiral pitch, a lug projecting from the shaft and engaged in a slot in said head, a hinge connecting the head and shaft end between the lug and the axis of the shaft, means for oscillating the head upon the shaft end, crimping-jaws adapted to enter the space between the head and shaft end, an open collar adapted to be shifted longitudinally to cover the joint between the head and shaft end, clamping-arms adapted to engage said collar, a pipe-holder coöperative with said collar, to hold the pipe in position upon said head and shaft, and means for successively actuating the crimping-jaws, head, collar, clamping-arms, and shaft.

30. In a pipe-elbow machine, the combination of a shaft, a head hinged to one end thereof at one side of the axis of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch, a pipe-holder adapted to hold the pipe upon said shaft and head, means for intermittingly actuating the pipe-holder, crimping-jaws adapted to register with the joint between the head and shaft end, and means for actuating said jaws to crimp the pipe in the intervals between the successive movements of the pipe-holder.

31. In a pipe-elbow machine, the combination of a shaft, a head hinged to one end thereof at one side of the axis of the shaft with the opposing faces of the head and shaft end formed with a spiral pitch, a pipe-holder adapted to hold the pipe upon said shaft and head, means for intermittingly actuating the pipe-holder, crimping-jaws adapted to register with the joint between the head and shaft end, and means for successively actuating said jaws, head, and shaft in the intervals between the successive movements of the pipe-holder.

32. In a pipe-elbow machine, the combination of a shaft, a head hinged to one end thereof at one side of the axis of the shaft, with the opposing faces of the head and shaft end formed with a spiral pitch, a pipe-holder adapted to hold the pipe upon said shaft and head, a clamp adapted to rigidly bind the pipe upon the said holder, means for intermittingly actuating the pipe-holder, crimping-jaws adapted to register with the joint between the head and shaft end, and means for actuating the said jaws to crimp the pipe in the intervals between the successive movements of the pipe-holder.

33. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft being formed with a spiral pitch, a pipe-holder adapted to hold the pipe upon the said shaft and head, a clamp adapted to rigidly bind the pipe upon the pipe-holder, an open head-collar adapted to be shifted with respect to the joint between the head and shaft end, clamping-arms adapted to bind the head-collar around the pipe over said joint, crimping-jaws adapted to register with the joint between the shaft and head, means for intermittently actuating the pipe-holder and means for successively actuating the crimping-jaws, head-collar, clamping-arms, head and shaft in the intervals between the successive movements of the pipe-holder.

34. In a pipe-elbow machine, the combination of a shaft, a head adjustably secured to one end thereof and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft end being formed with a spiral pitch, a head-collar, a pipe-holder, a clamping-collar connected therewith, a set of bending-rolls arranged to bend a sheet of metal blank around the shaft, with its ends engaging under said collars, means for moving the pipe-holder forwardly, a lever for actuating said clamping-collar to secure the cylindrical blank to the pipe-holder, crimping-jaws adapted to register with the joint between the shaft and head and means for rotating the shaft.

35. In a pipe-elbow machine, the combination of a shaft provided with an enlarged end, a head adjustably secured to the shaft end and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft end being provided with a spiral pitch, a head-collar, a pipe-holder, a clamping-collar connected therewith, a lever for actuating the clamping-collar, a punch carried by the pipe-holder and adapted to be actuated by the clamping-collar lever to dent the pipe engaged by said collar, crimping-jaws adapted to register with the joint between the head and shaft end, and means for rotating the shaft.

36. In a pipe-elbow machine, the combination of a shaft provided with an enlarged end, a head adjustably secured to the shaft end and adapted to oscillate eccentrically thereon, the opposing faces of the head and shaft being provided with a spiral pitch, a head-collar, a pipe-holder, a clamping-collar connected therewith, a set of bending-rolls adapted to bend a sheet-metal blank into cylindrical form around said shaft with its ends engaging under said collars, a lever for actuating the clamping-collar, a punch carried by the pipe-holder and adapted to be actuated by the clamping-collar lever to dent the pipe engaged by said collar, crimping-jaws adapted to register with the joint between the head and shaft end, and means for rotating the shaft.

37. In a pipe-elbow machine, the combination of a shaft, a pipe-holder adjustably mounted thereon, a clamping-collar connected with the

pipe-holder, a head-collar located at one end of the shaft, and a set of bending-rolls arranged to bend a sheet-metal blank into cylindrical form around said shaft, said collars being adapted to engage and guide the front and rear ends of said blanks around the shaft and hold the cylinder thereto.

38. In a pipe-elbow machine, the combination of a shaft provided with an enlarged end, and having the end face formed with a spiral pitch, a head formed to fit said shaft end and hinged thereto at one side of the axis of the shaft, means for adjusting the head upon said hinge, a pipe-holder adjustably mounted upon the shaft, a clamping-collar connected with the pipe-holder, an adjustable head-collar adapted to cover the joint between the shaft and the head, a set of bending-rolls adapted to bend a sheet-metal blank into cylindrical form around the shaft, in a position with the ends of such cylinder engaged by said collars, a lever for clamping the pipe-holder collar upon said cylinder, means for crimping the cylindrical pipe in the space between the head and shaft end, and means for actuating said head to flatten the crimped or creased portion of the pipe, and rotating said shaft to discharge such portion of the pipe from between the shaft and the head.

39. In a pipe-elbow machine, the combination of a shaft, a pipe-holder adjustably mounted thereon, a set of bending-rolls adapted to bend a sheet-metal blank around said shaft, a feed-table, blank-holding stops adapted to retain the blanks thereon, a spring-actuated blank-holder adapted to engage the blank between it and said stops and means carried by the pipe-holder, for retracting said stops during its rearward movement, and releasing the blanks, whereby the latter are permitted to enter the bending-rolls.

40. In a pipe-elbow machine, the combination of a shaft having one end formed with a spiral pitch on the end face, a head adjustably secured thereto, crimping-jaws adapted to register with the joint between the head and shaft end, a pipe-holder, a clamping-device connected therewith, a feed-table, means for automatically feeding sheet-metal blanks therefrom, and bending the same into cylindrical form around said shaft, pawl-and-ratchet mechanism arranged to intermittently actuate the pipe-holder, and means for successively actuating the crimping-jaws in the intervals between the successive movement of the pipe-holder.

41. In a pipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch, a head hinged thereto, at one side of the axis of the shaft, a head-frame, a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle, an actuating-shaft, a jaw-actuating cam located thereon, and a sliding bar connected with said jaws and adapted to be actuated by said cam to close the jaws, said jaws being adapted to register eccentrically with the joint between the shaft and head.

42. In a pipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch, a head hinged thereto at one side of the axis of the shaft, a head-frame, a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle, adapted to register eccentrically with the joint formed by the head and shaft end, an actuating-shaft, a jaw-actuating cam located thereon, a sliding bar connected with said jaws and adapted to be actuated by the cam to close the jaws, and means for adjusting the head upon its shaft.

43. In a pipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch, a head hinged thereto at one side of the axis of the shaft, a head-frame, a set of crimping-jaws secured to the head-frame and linked together so as to form an inwardly-moving toggle adapted to register eccentrically with the joint formed by the head and shaft end, an actuating-shaft, a jaw-actuating cam located thereon, a sliding bar connected with said jaws and adapted to be actuated by the cam to close the jaws, an elbow-lever connected with the jaws and adapted to be actuated by the cam to retract the jaws and means for adjusting the head upon its hinge.

44. In a pipe-elbow machine, the combination of a shaft having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of the shaft, crimping-jaws adapted to register with the joint between the head and shaft end, a gear-wheel loose on the rear end of said shaft and adapted to be coupled thereto, an actuating-shaft, a jaw-actuating cam located thereon, a gear-wheel on said actuating-shaft, meshing with the gear-wheel on the head-shaft, and means for temporarily coupling said last-mentioned gear-wheel to the head-shaft.

45. In a pipe-elbow machine, the combination of a head-shaft having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of the shaft, crimping-jaws adapted to register with the joint between the head and shaft end, a head-shaft, a gear-wheel loose on said shaft, and adapted to be coupled thereto, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, a gear-wheel on said actuating-shaft, meshing with the gear-wheel on the head-shaft, means for adjusting said jaw-actuating cam alternately to an operative and inoperative position, and means controlled by said cam-adjusting mechanism for coupling and uncoupling the head-shaft and head-shaft gear-wheel.

46. In a pipe-elbow machine, the combination of a head-shaft having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of the shaft, crimping-jaws adapted to register with the joint between the head and shaft end, a head-collar adapted to be adjusted to cover said joint, an adjustable pipe-holder coöperative with the head-collar in holding the elbow-pipe, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, means for adjusting said cam alternately to an operative and inoperative position, and means controlled by the cam-adjusting mechanism for actuating said head-collar, head and pipe-holder.

47. In a pipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of the shaft, crimping-jaws adapted to register with the joint between the head and shaft end, a head-collar adapted to be adjusted to cover said joint, clamping devices adapted to bind said collar upon the pipe engaged thereby, an adjustable pipe-holder coöperative with the head-collar in holding the elbow-pipe, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, means for adjusting said cam alternately to an operative and inoperative position, and means controlled by the cam-adjusting mechanism, for actuating said head-collar, head-collar-clamping devices, head and pipe-holder.

48. In a pipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of the shaft, crimping-jaws adapted to register with the joint between the head and shaft end, a head-collar adapted to be adjusted to cover said joint, an adjustable pipe-holder coöperative with the head-collar in holding the elbow-pipe, clamping devices for said head-collar and pipe-holder, bending-rolls adapted to bend a sheet-metal blank into cylindrical form around the head-shaft, a feed-table, blank-holding stops therefor, a blank-holder adapted to feed the blanks to the bending-rolls, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, means for adjusting said cam alternately to an operative and inoperative position, and means controlled by the cam-adjusting mechanism, for actuating said head-collar, clamping devices, head and pipe-holder.

49. In a pipe-elbow machine, the combination of a head-shaft having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of said shaft, crimping-jaws adapted to register with the joint between the head and shaft end, an adjustable pipe-holder, a pipe-engaging clamp connected therewith, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, means for automatically adjusting said cam alternately to an operative and inoperative position at fixed intervals, means controlled by the cam-adjusting mechanism for successively actuting the head, head-shaft and pipe-holder, and connections whereby the final movement of said pipe-holder is simultaneously communicated to uncouple the driving mechanism, pipe-engaging clamp, and actuating mechanism of the pipe-holder.

50. In a pipe-elbow machine, the combination of a head-shaft, having one end face formed with a spiral pitch, a head hinged thereto on one side of the axis of said shaft, crimping-jaws adapted to register with the joint between the head and shaft end, an adjustable pipe-holder, a pipe-engaging clamp connected therewith, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon, means for automatically adjusting said cam alternately to an operative and inoperative position at fixed intervals, means controlled by the cam-adjusting mechanism for successively actuating the head, head-shaft and pipe-holder, connections whereby the final movement of said pipe-holder is simultaneously communicated to uncouple the driving mechanism, pipe-engaging clamp and the actuating mechanism of the pipe-holder, and a weight connected to the pipe-holder for retracting the same, when released from its actuating mechanism.

51. In a pipe-elbow machine, the combination with a head-shaft, of a pipe-holder provided with rearwardly-extending rack-bars, gear-wheels arranged to actuate the same, pawl-and-ratchet mechanism adapted to communicate an intermittent motion to said gear-wheels and an arm carried by one of said gear-wheels, and arranged to respectively engage and disengage said pawl from the ratchet, as the pipe-holder completes its backward and forward movements.

52. In a pipe-elbow machine, the combination with a head-shaft, of a pipe-holder provided with rearwardly-extending rack-bars, gear-wheels arranged to actuate the same, pawl-and-ratchet mechanism adapted to communicate an intermittent motion to said gear-wheels, and an arm carried by one of said gear-wheels, and arranged to respectively engage and disengage said pawl from the ratchet, as the pipe-holder completes its backward and forward movements, together with a spring-catch adapted to hold said pawl in either position of adjustment until actuated by the gear-wheel arm.

53. In a pipe-elbow machine, the combination with a head-shaft, a head hinged to one end thereof, at one side of the axis of said shaft, a rod for oscillating the head upon its hinge, a gear-wheel adapted to actuate the shaft, a pipe-holder, longitudinally movable on the head-shaft, rearwardly-extending rack-bars connected with the pipe-holder, a pawl-and-ratchet mechanism and gear-wheels for actuating said racks, a latch carried by the head-actuating rod, connections adapted to communicate motion from said latch to retract said pawl, and an arm carried by the head-shaft gear-wheel, and adapted to communicate a forward motion to said pawl.

54. In a pipe-elbow machine, the combination of a pipe-holder, a feed-table provided with blank-holding stops, a spring-actuated blank-holder adapted to engage sheet-metal blanks between the same and said stops, mechanism for retracting said stops to release the blanks, and a guide carried by the pipe-holder, adapted to actuate the stop-retracting mechanism during the return movement of the pipe-holder.

55. In a pipe-elbow machine, the combination with a head-shaft, a pipe-holder, an open clamping-collar connected with the pipe-holder, an open head-collar, and a set of bending-rolls arranged to bend sheet-metal blanks around the head-shaft, said collars being arranged to engage the edges of said blanks and guide the same around the shaft.

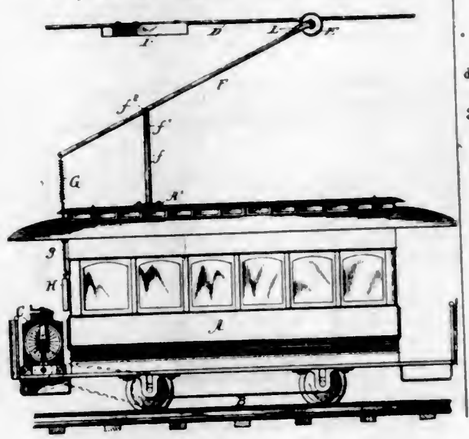
56. In a pipe-elbow machine, the combination with a head-shaft provided with an enlarged end, a pipe-holder adjustably mounted upon the head-shaft and provided with a pipe-holding collar, an open clamping-collar connected with the pipe-holder and coöperative with the pipe-holding collar, an open head-collar disposed about the enlarged end of said shaft, and a set of bending-rolls adapted to bend sheet-metal blanks around the head-shaft, with the ends engaging underneath said open collars and upon the pipe-holding collar and enlarged end of the shaft respectively, together with means for clamping said collars around the cylindrical ends of the pipe.

57. In a pipe-elbow machine, the combination of a head-shaft, a head hinged thereto at one side of the axis of the shaft, a head-frame, a set of crimping-jaws located about the joint between the head and shaft end, and connected to each other and to the head-frame by a series of levers and links arranged to form an inwardly-moving toggle closing in the arc of a circle eccentric to that of the shaft and head.

58. In a pipe-elbow machine, the combination with a set of crimping-jaws connected to form an inwardly-moving toggle, of a bar connected with one or more of said jaws and adapted to actuate the same, an actuating-shaft, a jaw-actuating cam adjustably mounted thereon and adapted to engage and actuate said bar, and mechanism for automatically shifting said cam to and from its operative position, with successive revolutions of the actuating-shaft.

59. In a pipe-elbow machine, the combination with a set of crimping-jaws connected to form an inwardly-moving toggle, of a jaw-actuating bar, an actuating-shaft, a cam adjustably mounted thereon and adapted to engage and actuate said bar, a hub connected with said cam, and provided with annular channels with a cross-channel connecting the same, a spring-actuated holding-pin adapted to engage in said channels, a switch located in one of the annular channels and arranged to lift the holding-pin out of the same, a shifting-lever for actuating said cam to adjust it alternately to its operative and inoperative positions, means for automatically actuating said shifting-lever in one direction when the holding-pin is in registry with the cross-channel, and in the other direction when the pin is lifted by said switch.

11,872. TRAVELING CONTACT FOR ELECTRIC RAILWAYS. THOMSON-HOUSTON ELECTRIC COMPANY, Boston, Mass., assignee of Albert Wahl and C. A. Coffin, administrators of Charles J. Van Depoele, deceased. Filed Sept. 28, 1900. Serial No. 31,461. Original No. 495,443, dated Apr. 11, 1893.



Claim.—1. In an electric railway, the combination of a car, an overhead conductor above the car, an upwardly-extending and laterally-swinging arm mounted on the roof of the car, and carrying a contact device at its free end and making underneath contact with the conductor, substantially as described.

2. In an electric railway, the combination of a car, an electric overhead conductor above the car and parallel with the line of travel, an upwardly-extending trailing arm carrying a contact device at its free end, adapted to make underneath contact with the conductor, said arm being supported on the car on vertical and transverse axes, so as to permit said contact device to follow the position of the conductor, notwithstanding great variations of height and of lateral displacement thereof, substantially as described.

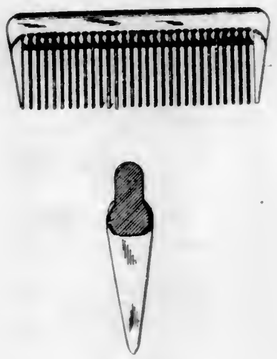
DESIGNS.

33,536. BADGE. MARY MARGARETE GORDON, Washington, D. C. Filed Oct. 13, 1900. Serial No. 33,014. Term of patent 7 years.



Claim.—The design for a badge, as herein shown and described.

33,537. COMB. FREDERICK WILLIAM GRELL, New York, N. Y., assignor to the American Hard Rubber Company, same place. Filed Oct. 16, 1900. Serial No. 33,297. Term of patent 14 years.



Claim.—The design for a comb substantially as herein shown and described.

33,538. SLIPPER ORNAMENT. JOSEPH A. DALRYMPLE, Haverhill, Mass. Filed Sept. 27, 1900. Serial No. 31,333. Term of patent 7 years.



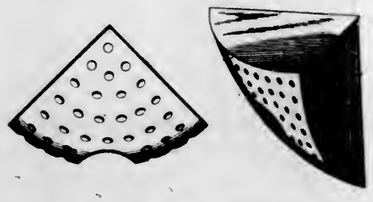
Claim.—The design for a slipper ornament, as herein shown and described.

33,539. MATCH-SAFE. JOSEPH M. KAISER, Chicago, Ill. Filed Sept. 17, 1900. Serial No. 30,362. Term of patent 3½ years.



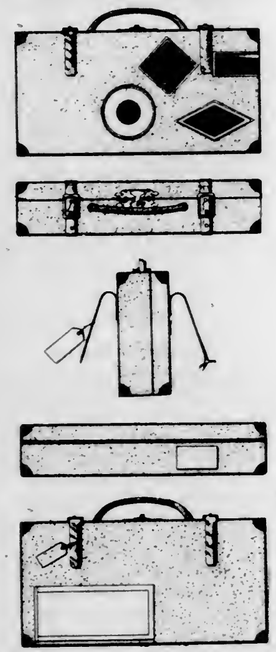
Claim.—The design of a match-safe, substantially as described and shown.

33,540. TOBACCO-MOISTENER. SIGISMUND STRAUSS, New York N. Y. Filed Oct. 10, 1900. Serial No. 32,653. Term of patent 7 years.



Claim.—The design for a tobacco-moistener herein shown and described.

33,541. CIGAR-BOX. MAURICE SWITZER, New York, N. Y., assignor to the Havana-American Company, Jersey City, N. J. Filed Oct. 5, 1900. Serial No. 32,190. Term of patent 3½ years.



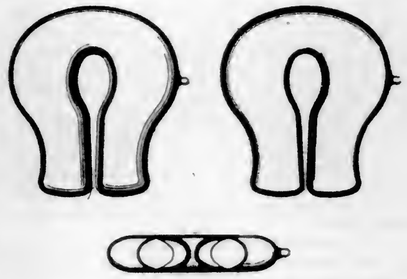
Claim.—The design for a cigar-box as herein shown and described.

33,542. TURPENTINE-BOX. DANIEL C. BELTS, Birmingham, Ala. Filed Oct. 18, 1900. Serial No. 33,520. Term of patent 14 years.



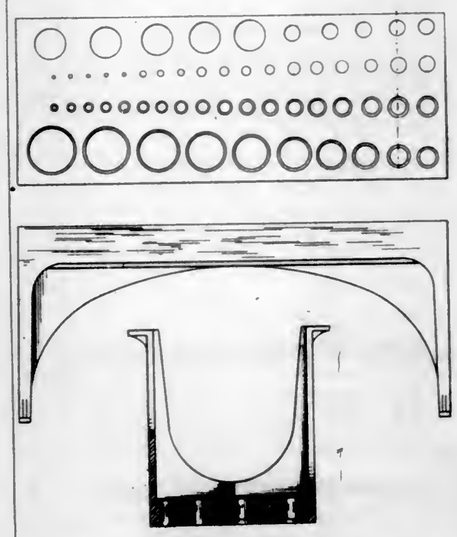
Claim.—The design for a turpentine-box, herein shown and described.

33,543. AIR-CUSHION. DANIEL HOGAN, New York, N. Y., and CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., assignors to the Meinecke & Company, New York, N. Y. Filed Oct. 3, 1900. Serial No. 31,935. Term of patent 14 years.



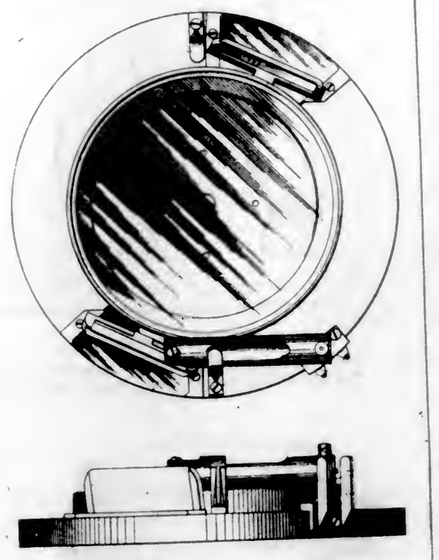
Claim.—The design for an air-cushion as herein shown and described.

33,544. DRAW-PLATE FOR SWAGING DENTAL CROWNS. BENJAMIN B. BREWER and WILLIAM M. H. BURFIEND, San Francisco, Cal. Filed Oct. 17, 1900. Serial No. 33,407. Term of patent 7 years.



Claim.—The design for a draw-plate, as herein shown and described.

33,545. VERNIER-PLATE FOR SURVEYING INSTRUMENTS. GEORGE LOUIS BUFF, Boston, Mass. Filed Aug. 25, 1900. Serial No. 28,077. Term of patent 7 years.



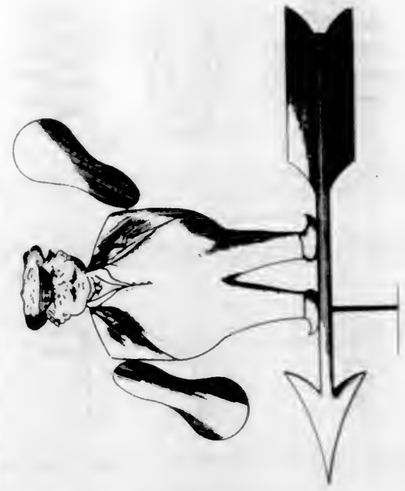
Claim.—The design for a vernier-plate for surveying instruments, as herein shown and described.

33,546. TAILOR'S SQUARE AND SCROLL. LILLIAN A. BEECHTON, Canyon, Colo. Filed Oct. 6, 1900. Serial No. 32,306. Term of patent 14 years.



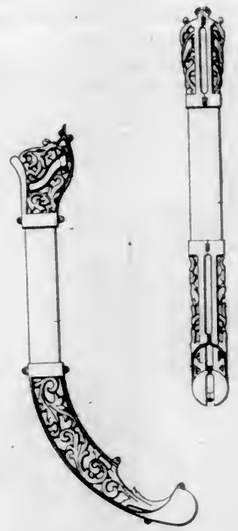
Claim.—The design for the tailors' square and scroll herein shown and described.

33,547. WEATHER-VANE. DOUGLAS HAIGHT, Coshocton, Ohio. Filed Oct. 17, 1900. Serial No. 33,405. Term of patent 7 years.



Claim.—The design for a weather-vane substantially as herein shown and described.

33,548. RECEIVING-TUBE FOR PNEUMATIC-DESPATCH SYSTEMS. ROBERT THOMAS JENNEY, London, England, assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Aug. 13, 1900. Serial No. 26,793. Term of patent 14 years.



Claim.—The design for a receiving-tube for pneumatic-despatch systems, substantially as shown and described.

33,549. POMMEL-SPRING FOR BICYCLE-SADDLES. ALBERT OLESON, Toledo, Ohio. Filed Oct. 8, 1900. Serial No. 32,453. Term of patent 7 years.



Claim.—The design for a pommel-spring for bicycle-saddles, substantially as shown and described.

33,550. PICTURE-HOOK. EDWARD MELCHERS, Toledo, Ohio. Filed Oct. 12, 1900. Serial No. 32,897. Term of patent 14 years.



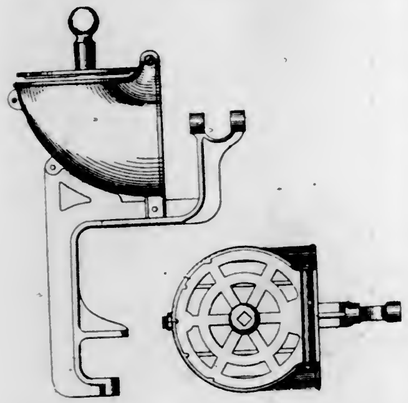
Claim.—The design for a picture-hook, substantially as shown and described.

33,551. HOOK. FRANK KENNETHER, Glasgow, Del. Filed Sept. 8, 1900. Serial No. 29,472. Term of patent 14 years.



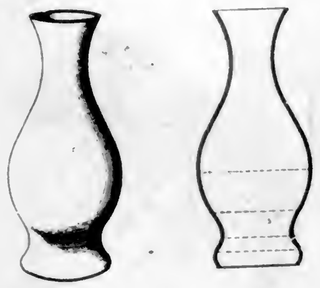
Claim.—The design for a hook, as herein shown and described.

33,552. FRAME FOR VEGETABLE-SLICERS. GEORGE WALKER, Plantsville, Conn., assignor to the Landers, Frary & Clark, New Britain, Conn. Filed Oct. 16, 1900. Serial No. 33,301. Term of patent 14 years.



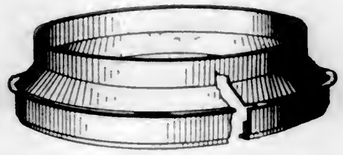
Claim.—The design for a frame for a vegetable-slicer, as herein shown and described.

33,553. LAMP-CHIMNEY. JOHN F. MCHENRY, Cameron, Mo. Filed June 1, 1900. Serial No. 18,731. Term of patent 14 years.



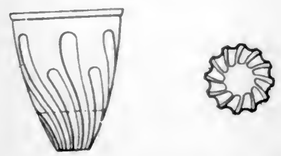
Claim.—The design for a lamp-chimney, substantially as herein shown and described.

33,554. GAS-BURNER. JOHN CLARK and ALBERT HOEFT, Chicago, Ill. Filed Oct. 10, 1900. Serial No. 32,654. Term of patent 3½ years.



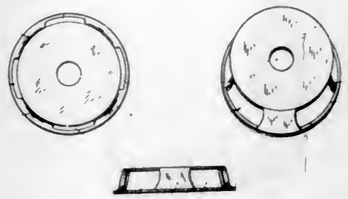
Claim.—The design for a gas-burner, substantially as shown and described.

33,555. ORNAMENTAL TRIMMING FOR GAS AND ELECTRIC-LIGHT FIXTURES. ERNST GOTTBERG, Jersey City, N. J. Filed Oct. 11, 1900. Serial No. 32,790. Term of patent 7 years.



Claim.—The design for an ornamental trimming for gas and electric-light fixtures, as herein shown and described.

33,556. DEFLECTOR FOR VALVES. THOMAS WHEATLEY, Syracuse, N. Y. Filed Oct. 15, 1900. Serial No. 33,169. Term of patent 7 years.



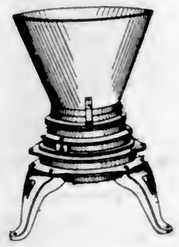
Claim.—The design for a deflector, as herein shown and described.

33,557. NUT-LOCK. WILLIAM L. LYMAN, Newark, N. J. Filed Oct. 15, 1900. Serial No. 33,171. Term of patent 14 years.



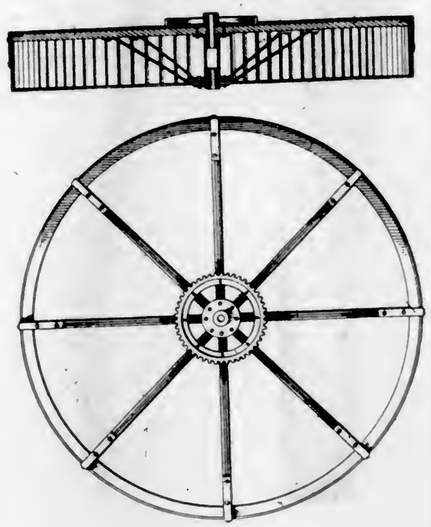
Claim.—The design for a nut-lock, substantially as shown and described.

33,558. GRINDING-MILL BODY. THOMAS CASCADEN, Jr., Waterloo, Iowa, assignor to the Davis Gasoline Engine Works Company, same place. Filed Sept. 12, 1900. Serial No. 29,813. Term of patent 3½ years.



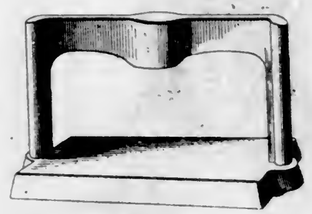
Claim.—The design for a grinding-mill body, substantially as shown and described.

33,559. TREAD-POWER WHEEL. WILLIAM JOSEPH MCDERMOTT, Kandiyohi, Minn. Filed Sept. 15, 1900. Serial No. 30,181. Term of patent 7 years.



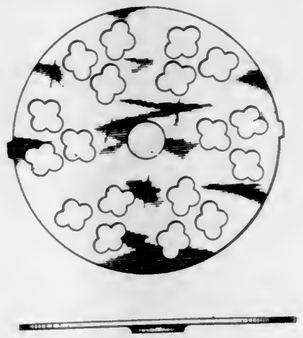
Claim.—The design for a tread-power wheel, substantially as shown and described.

33,560. FRAME FOR COPYING-PRESSES. LEONARD BAILEY, Wethersfield, Conn. Filed July 13, 1900. Serial No. 23,548. Term of patent 14 years.



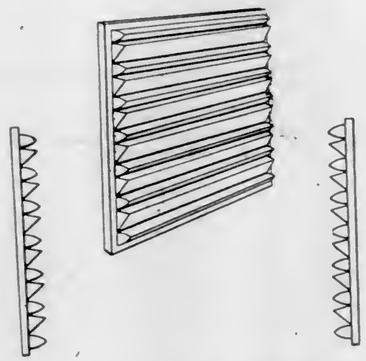
Claim.—The design for a frame for a copying-press, as herein shown and described.

33,561. SEED-PLATE FOR CORN-PLANTERS. FRANK K. LATHROP, Dayton, Ohio, assignor to the Ohio Rake Company, same place. Filed Oct. 15, 1900. Serial No. 33,174. Term of patent 7 years.



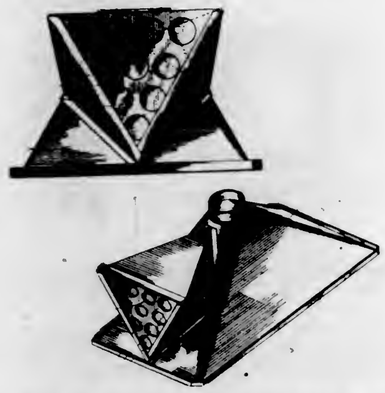
Claim.—The design for a seed-plate for corn-planters, as herein shown and described.

33,562. PRISM-PLATE. JAMES G. BROWN, Cleveland, Ohio, assignor of one-half to the Cleveland Window Glass Company, same place. Filed Oct. 19, 1900. Serial No. 33,661. Term of patent 14 years.



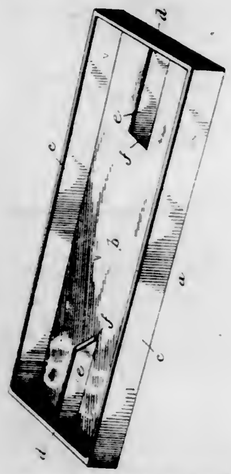
Claim.—The design for a prism-plate as herein shown and described.

33,563. BOWLING-ALLEY LIGHT-REFLECTOR AND PIN-INDICATOR. GUSTAVE BURKHARDT, Chicago, Ill. Filed Aug. 13, 1900. Serial No. 26,796. Term of patent 14 years.



Claim.—The design for a bowling-alley light-reflector and pin-indicator, substantially as shown and described.

33,564. GAME OR PUZZLE BOARD. ROBERT E. BOYLE, Norristown, Pa. Filed July 19, 1900. Serial No. 24,228. Term of patent 3½ years.



Claim.—The design for a game or puzzle board, substantially as herein shown and described.

33,565. BOOK-LEAF. JOHN GEER, London, England. Filed Jan. 15, 1900. Serial No. 1,568. Term of patent 3½ years.



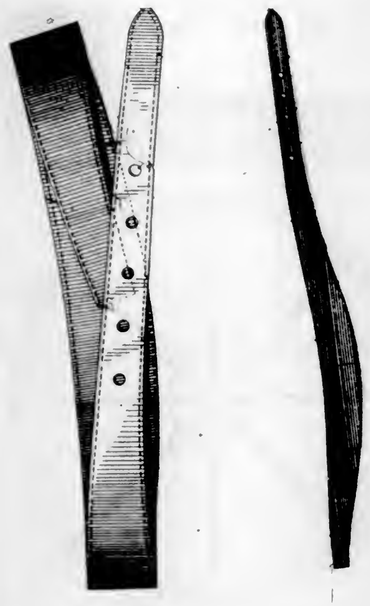
Claim.—The design for a book-leaf as herein shown and described.

33,566. SHIRT SLEEVES AND YOKE. ISAAC B. KELLER, Steelton, Pa. Filed Oct. 4, 1900. Serial No. 32,057. Term of patent 7 years.



Claim.—The design for shirt sleeves and yoke as herein shown and described.

33,567. BELT-BODY OR SIMILAR ARTICLE. WILLIAM VITTHUM, Hoboken, N. J., assignor to MAX KATZENBERG, G. GARSON FREUND, and MAX FREUND, New York, N. Y. Filed Oct. 19, 1900. Serial No. 33,657. Term of patent 3½ years.



Claim.—The design for a belt-body, or similar article, substantially as herein shown and described.

33,568. TRIMMING. GEORGE W. MERROW, Merrow, Conn. Filed Oct. 19, 1900. Serial No. 33,660. Term of patent 14 years.



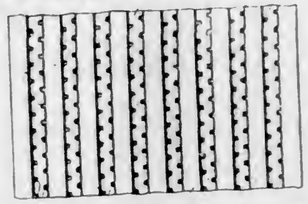
Claim.—The design for a trimming herein described and shown.

33,569. BRAID. LOUIS BRANDT, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,300. Term of patent 3½ years.



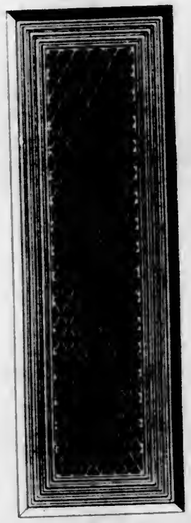
Claim.—The design for braid, herein shown and described.

33,570. FABRIC. WILLIAM H. FLETCHER, Paterson, N. J., assignor to The Peerless Plush Manufacturing Company, same place. Filed Oct. 11, 1900. Serial No. 32,792. Term of patent 7 years.



Claim.—The design for a fabric known as "fancy velour," substantially as shown and described.

33,571. RUBBER FOOT-MAT. FRANK H. TURNER, Hartford, Conn., assignor to the Hartford Rubber Works Company, same place. Filed Oct. 16, 1900. Serial No. 33,299. Term of patent 7 years.



Claim.—The design for a rubber foot-mat as herein shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 13, 1900.

35,372. WRITING-PAPER AND MOURNING PAPER AND ENVELOPS. Schlagster & Nölck, New York, N. Y. Filed July 12, 1900.



Essential feature.—The initial letters "S" and "N" and the representation of an envelop between the same. Used since July 1, 1899.

35,373. CERTAIN NAMED ARTICLES OF STATIONERY. The Spencerian Pen Company, New York, N. Y. Filed Sept. 26, 1900.



Essential feature.—The representation of a tiger's head. Used since 1860.

35,374. PLAYING-CARDS. The United States Playing Card Company, Cincinnati, Ohio. Filed Oct. 16, 1900.

LOCOMOBILE

Essential feature.—The word "Locomobile." Used since March 1, 1900.

35,375. CERTAIN NAMED GAME. James A. G. Beales, Port Chester, N. Y. Filed Oct. 22, 1900.

MORQUETTE

Essential feature.—The word "Morquette." Used since August 1, 1900.

35,376. SPECTACLES OR EYEGLASSES. American Optical Company, Southbridge, Mass. Filed July 16, 1900.

PLATINOID.

Essential feature.—The word "Platinoid." Used since March, 1899.

35,377. WATCH-MOVEMENTS. Hampden Watch Company, Canton, Ohio. Filed Oct. 15, 1900.

NORTH AMERICAN RAILWAY

Essential feature.—The words "North American Railway." Used since September 1, 1900.

35,378. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.



Essential feature.—The representation of curved and straight panels and the symbol of a keystone. Used since September, 1892.

35,379. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.

PAN-AMERICA

Essential feature.—The word "Pan-America." Used since October 12, 1900.

35,380. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.



Essential feature.—The symbol of a keystone. Used since January, 1886.

35,381. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.

CYCLONE

Essential feature.—The word "Cyclone." Used since February, 1890.

35,382. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.

BOSS

Essential feature.—The word "Boss." Used since 1859.

35,383. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.



BEE HIVE

Essential feature.—The words "Bee Hive" or the representation of a beehive. Used since August, 1898.

35,384. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. The Keystone Watch Case Company, Philadelphia, Pa. Filed Oct. 17, 1900.

KEYSTONE

Essential feature.—The word "Keystone." Used since July, 1880.

35,385. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. Philadelphia Watch Case Company, Riverside, N. J. Filed Oct. 17, 1900.



CROWN

Essential feature.—The word "Crown" or the representation of a crown. Used since May, 1882.

35,386. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. Philadelphia Watch Case Company, Riverside, N. J. Filed Oct. 17, 1900.



Essential feature.—The word "Lion" or the representation of a lion. Used since 1885.

35,387. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. Philadelphia Watch Case Company, Riverside, N. J. Filed Oct. 17, 1900.



Essential feature.—The representation of a buckled band or garter inclosing or surrounding the representation of a crown and a panel below the same. Used since October 12, 1900.

35,388. WATCHES, CLOCKS, CUTLERY, AND GOLD AND FOUNTAIN PENS. Cornelius A. Kiger, Kansas City, Mo. Filed Apr. 14, 1900.



Essential feature.—The representation of a circle and a dark segmental band crossing the circle obliquely. Used since July 1, 1897.

35,389. CERTAIN NAMED CUTLERY AND SURGICAL INSTRUMENTS. C. Lütters & Cie., Solingen, Germany. Filed Aug. 27, 1900.



Essential feature.—The representation of a resting lion with upstanding mane. Used since 1870.

35,390. HATS. Rothschild Bros., St. Louis, Mo. Filed Oct. 16, 1900.



Essential feature.—The word "Giant." Used since November 1, 1890.

35,391. COLLARS, CUFFS, SHIRTS, AND WAISTS. H. C. CURTIS & Co., Troy, N. Y. Filed Oct. 17, 1900.

INDIAN

Essential feature.—The word "INDIAN." Used since October 8, 1900.

35,392. CORSETS. ANNIE R. HODGE, Hartford, Conn. Filed Oct. 19, 1900.

Psyche

Essential feature.—The word "PSYCHE." Used since 1888.

35,393. CORSETS. ERWIN T. MUIR, Chicago, Ill. Filed Oct. 20, 1900.

Ladyship

Essential feature.—The word "LADYSHIP." Used since August 27, 1900.

35,394. SUSPENDERS AND SHOULDER-BRACES. MORRIS BROS. New York, N. Y. Filed Sept. 27, 1900.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since 1885.

35,395. COATS AND PANTS FOR BOYS AND YOUTHS. COHEN & LANG, New York, N. Y. Filed Oct. 16, 1900.

ELK

Essential feature.—The word "ELK." Used since September 21, 1900.

35,396. BOOTS AND SHOES AND LEATHER FOR SAME. RICE & HUTCHINS, Incorporated, Boston, Mass. Filed Oct. 15, 1900.

ALL-AMERICA

Essential feature.—The compound word "ALL-AMERICA." Used since October 4, 1900.

35,397. CERTAIN NAMED TOILET PREPARATIONS. MAATSCHAPPIJ TOT VERVOOTSCHAP EAU DE COLOGNE FABRIEK, VOORHEEN J. C. BOLDOOT, Amsterdam, Netherlands. Filed Apr. 6, 1900.



Essential feature.—The word "MARIGOLD" and the representation of the flower commonly known as the "marigold." Used since December 15, 1899.

35,398. TOILET AND MEDICINAL PREPARATION. XAVIER PENE, New York, N. Y. Filed Oct. 18, 1900.

BABOBA

Essential feature.—The word "BABOBA." Used since September, 1900.

35,399. DENTIFRICE. JOSEPH GRANT PEASE, New York, N. Y. Filed Oct. 8, 1900.

Dentisol

Essential feature.—The word "DENTISOL." Used since August 14, 1899.

35,400. MEDICATED BATHING FLUIDS. GEORGE BÜCKLE, New York, N. Y. Filed Oct. 12, 1900.

SYLVAN

Essential feature.—The word "SYLVAN." Used since September, 1899.

35,401. LINIMENT. ADOLPH LAGERKRANS, Oakland, Nebr. Filed July 16, 1900.

Meri-tum

Essential feature.—The hyphenated word "MERI-TUM." Used since June 29, 1900.

35,402. LAXATIVE TABLETS. ROMAINE PIERSON, Chicago, Ill. Filed July 20, 1900.

MIRACLE

Essential feature.—The word "MIRACLE." Used since July 3, 1900.

35,403. MEDICAMENT. THE TROMMER COMPANY, Fremont, Ohio. Filed Oct. 18, 1900.

PALMIFERRIN

Essential feature.—The word "PALMIFERRIN." Used since February 1, 1900.

35,404. MEDICAMENT. THE TROMMER COMPANY, Fremont, Ohio. Filed Oct. 18, 1900.

PALMIACOL

Essential feature.—The word "PALMIACOL." Used since February 1, 1900.

35,405. WITHDRAWN.

35,406. CERTAIN NAMED MEDICINE. EARL S. SLOAN, Boston, Mass. Filed July 12, 1900.



Essential feature.—The portrait of the registrant. Used since April, 1895.

35,407. CERTAIN NAMED MEDICINAL PREPARATION. SAMUEL O. STERRETT, Duluth, Minn. Filed Nov. 9, 1899.

MALTOL

Essential feature.—The word "MALTOL." Used since October 1, 1898.

35,408. CERTAIN NAMED REMEDY. JEAN BAPTISTE JOURDAIN, St. Jean Baptiste de Rouville, Canada. Filed Oct. 17, 1900.



Essential feature.—A monogram composed of the letters "J B J." Used since February 14, 1896.

35,409. REMEDY FOR CERTAIN NAMED DISEASES. JAMES F. BAHL, Philadelphia, Pa. Filed Oct. 11, 1900.



Essential feature.—The title "20TH CENTURY." Used since September 1, 1900.

35,410. MEDICINAL TONICS. F. COMAR & FILS ET CIE., Paris, France. Filed Oct. 16, 1900.

MARSYLE

Essential feature.—The word "MARSYLE." Used since May 2, 1900.

35,411. LAGER-BEER. THE WACKER & BIRK BREWING AND MALTING COMPANY, Chicago, Ill. Filed Oct. 8, 1900.



Essential feature.—The representation of the sun eclipsed by a three-pointed or Norman shield which has three bands extending, respectively, from its upper and its right and left lower margin to its center and dividing said shield into three fields, the upper two of which bear the respective figures of a hop-vine in blossom and several barley-heads and the lower bearing the monogram "W & B," and a garland of barley and hop-vine located beneath the shield. Used since March 1, 1893.

35,412. MINERAL WATER AND NON-ALCOHOLIC BEVERAGES. DUQUESNE DISTRIBUTING COMPANY, Incorporated, Harmarville, Pa. Filed Oct. 9, 1900.



Essential feature.—The representation of a Greek cross colored red. Used since December 17, 1897.

35,413. WATER FOR DRINKING PURPOSES. CRESCENT ICE COMPANY, New Orleans, La. Filed Aug. 24, 1900.



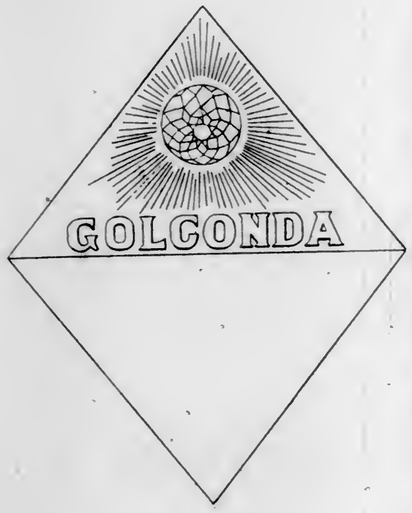
Essential feature.—The representation of a crescent with the figure of a woman seated upon the crescent, the crescent being represented as floating in the clouds and the word "ARBONARIS" following the crescent and forming therewith the word "CARBONARIS." Used since May 20, 1900.

35,414. TEA. HUNT & Co., Chicago, Ill. Filed Dec. 17, 1896.



Essential feature.—The word "MIDORI" and a group of stork like water-birds. Used since July 28, 1896.

35,415. TEA. HUNT & Co., Chicago, Ill. Filed Dec. 17, 1896.



Essential feature.—The word "GOLCONDA" and a rhombus having within it the representation of a cut diamond. Used since October 1, 1896.

35,416. TEA. HUNT & Co., Chicago, Ill. Filed Feb. 25, 1898.

35,416.



Essential feature.—The word "HIAWATHA" and a representation of an Indian standing upon the bank of a stream and holding in his arms a papoose. Used since May 20, 1897.

35,417. TEA. HUNT & Co., Chicago, Ill. Filed Feb. 25, 1898.



Essential feature.—The word "INKO" and a vine-covered trellis, near the center of which is a group of three parrots. Used since May 13, 1897.

35,418. TEA. HUNT & Co., Chicago, Ill. Filed Feb. 25, 1898.



Essential feature.—The words "STAR OF THE EVENING," a representation of a landscape, and a large star in a group of smaller stars. Used since September 22, 1896.

35,419. ROASTED COFFEE. ARBUCKLE BROS., New York, N. Y., and Pittsburg, Pa. Filed Oct. 22, 1900.

ARIOSA

Essential feature.—The word "ARIOSA." Used since August 31, 1873.

35,420. COFFEE SUBSTITUTE. MUSCATINE OAT MEAL COMPANY, Muscatine, Iowa. Filed Oct. 20, 1900.



Essential feature.—The word "COFFE-ETTE." Used since November 15, 1899.

35,421. CHOCOLATES. TRUMAN M. SWETLAND, Cleveland, Ohio. Filed Oct. 8, 1900.

LATHS

Essential feature.—The word "LATHS." Used since December 1, 1899.

35,422. SWEET-ALMOND BISCUIT. HENRI LALO, l'Isle-sur-Sorgue, France. Filed July 31, 1900.



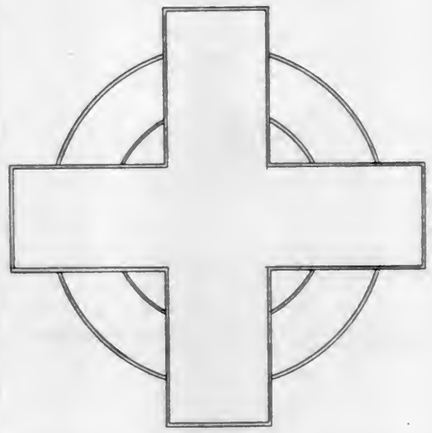
Essential feature.—A pictorial representation of an almond. Used since December 21, 1899.

35,423. SWEET-ALMOND BISCUIT. HENRI LALO, l'Isle-sur-Sorgue, France. Filed July 31, 1900.

AMANDINES DE PROVENCE

Essential feature.—The words "AMANDINES DE PROVENCE." Used since December 21, 1899.

35,424. CEREAL PRODUCTS AND PREPARATIONS. JOHN V. HECKER, Darien, Conn. Filed July 18, 1900.



Essential feature.—The representation of a cross superposed over or upon a circle. Used since July 2, 1900.

35,425. FLOUR. FULTON MILLING COMPANY, Sioux Falls, S. D. Filed July 23, 1900.



Essential feature.—The figure of an Indian warrior standing erect, holding a shield on one arm and a spear in the hand of the other arm. Used since May 23, 1900.

35,426. TABLE-SALT AND BAKING-POWDER. JAMES BUTLER, New York, N. Y. Filed Sept. 28, 1900.

RIBBON

Essential feature.—The work "RIBBON." Used since September 24, 1900.

35,427. OYSTERS. G. W. DUNBAR'S SONS, New Orleans, La. Filed Oct. 9, 1900.



Essential feature.—A pictorial representation of a Continental soldier. Used since September 26, 1896.

35,428. CERTAIN NAMED TOBACCO AND CIGARETTES. B. HOUDE & CIE, Quebec, Canada. Filed Sept. 27, 1900.

KHAKI

Essential feature.—The word "KHAKI." Used since April 17, 1900.

35,429. TWIST-TOBACCO. NEU GUINEA COMPAGNIE, Berlin, Germany. Filed May 10, 1900.



Essential feature.—The representation of a crowing rooster. Used since January 1, 1900.

35,430. TWIST-TOBACCO. NEU GUINEA COMPAGNIE, Berlin, Germany. Filed May 10, 1900.



Essential feature.—The representation of a heraldic lion holding a fleur-de-lis in its extended paw. Used since January 1, 1900.

35,431. PLUG CHEWING-TOBACCO. SMITH & SCOTT, Paducah, Ky. Filed Sept. 25, 1900.



Essential feature.—The word "STAPLE" and the representation of a staple. Used since June 1, 1900.

35,432. CERTAIN NAMED DYES. PEARL LUSTRE DYE CO., Sebec, Me. Filed July 10, 1900.

PEARL LUSTRE

Essential feature.—The words "PEARL LUSTRE." Used since January 1, 1900.

35,433. CLEANING COMPOUND FOR STEAM-BOILERS. MUCIO PEÑA SOTOMAYOR, Laredo, Tex. Filed June 22, 1900.



Essential feature.—The representation of an eagle with spread wings and an extended arm grasping an implement having a cutting-blade and held in raised position. Used since May, 1899.

35,434. COMPOUND OR MIXTURE FOR MAKING MOLDS. STORPEL & ANDREWS, Cleveland, Ohio. Filed June 16, 1900.

COREINE

Essential feature.—The word "COREINE." Used since May 1900.

35,435. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed July 29, 1898.

SUN

Essential feature.—The word "SUN." Used since August, 1892.

35,436. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed Sept. 8, 1900.

LILY

Essential feature.—The word "LILY." Used since June, 1900.

35,437. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed Sept. 8, 1900.



Essential feature.—The representation of a moon. Used since June, 1900.

35,438. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed Oct. 9, 1900.



Essential feature.—The representation of a lily. Used since June, 1900.

35,439. COTTON-SEED OILS. THE AMERICAN COTTON OIL COMPANY, New York, N. Y. Filed Oct. 10, 1900.

MOON

Essential feature.—The word "MOON." Used since June 1, 1900.

35,440. PAINTERS' SUPPLIES EXCLUSIVE OF PAINTS. ADAMS & ELTING COMPANY, Chicago, Ill. Filed July 23, 1900.

ORIENTAL

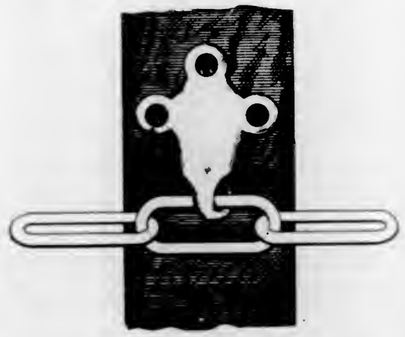
Essential feature.—The word "ORIENTAL." Used since March 1, 1900.

35,441. CERTAIN NAMED PAINTS, PIGMENTS, AND PAINTERS' SUPPLIES. CONTINENTAL MANUFACTURING COMPANY, Philadelphia, Pa. Filed Oct. 13, 1900.



Essential feature.—The representation of a pine-tree. Used since September 22, 1900.

35,442. BACK-BAND HOOKS. SETH WARD, Sr., Princeton, Ind. Filed June 15, 1900.



Essential feature.—The representation of a section of back-band for harness having a supporting-hook attached thereto and chain-links connected and extending across the band below the hook, one of the links being connected to the hook. Used since June 1, 1898.

35,443. HORSESHOE-NAILS. NORTHWESTERN HORSE NAIL MANUFACTURING COMPANY, Chicago, Ill. Filed May 28, 1900.

NW

Essential feature.—The letters "N. W." Used since May 1, 1898.

35,444. ROOFING-TIN. ALBANY HARDWARE AND IRON COMPANY, Albany, N. Y. Filed Oct. 16, 1900.

AJAX

Essential feature.—The word "AJAX." Used since October 1, 1890.

35,445. GRAIN-SEEDERS AND GRAIN-DRILLS. LA CROSSE PLOW COMPANY, La Crosse, Wis. Filed Oct. 17, 1900.

MONARCH

Essential feature.—The word "MONARCH." Used since February 1, 1898.

35,446. MINERAL MACHINERY AND IMPLEMENTS. THE KROGH MANUFACTURING COMPANY, San Francisco, Cal. Filed Oct. 6, 1900.

Twentieth Century

Essential feature.—The words "TWENTIETH CENTURY." Used since August 1, 1900.

35,447. FURNITURE. COPELAND & DURGIN COMPANY, Rochester N. Y. Filed Oct. 20, 1900.

GIANT FRAME

Essential feature.—The words "GIANT FRAME." Used since 1878

PHOTO-LITHO. THE NORRIS PETERS CO. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE LEWIS.

Decided October 30, 1900.

1. APPLICATION—DECEASE OF INVENTOR BETWEEN THE DATE OF THE APPLICATION AND THE DATE OF FILING—STRIKING APPLICATION FROM THE FILES.

On March 10, 1900, there was received in the Patent Office an application duly executed on February 23, 1900, by Lewis as inventor of the subject-matter described therein. After the application was filed it came to the notice of the Office that the inventor died on March 1, 1900. *Held* that as the application was not made by the party authorized by the statutes and rules of the Office to make it, it should be stricken from the files.

2. SAME—SAME—CONSTRUCTION OF STATUTE AND RULE.

The statute and the rule require that the application should be made by the executor or administrator when an inventor dies before an application is made, and the words "applying for" and "made by" are construed to mean the actual making or filing of the application in the Patent Office, and not to mean, as contended for, the execution of the application papers which are deposited in the Office.

3. SAME—SAME—INVENTION ASSIGNED.

The fact that the application was assigned before it was filed and before the inventor died does not seem to change the situation, as the statute is positive on the subject that only an executor or administrator can apply for a patent in the event of the death of the inventor.

ON reference.

STEAM-ENGINE.

Application of William W. Lewis filed March 10, 1900, No. 8,193.

Mr. C. M. Peck for the applicant.

DUELL, *Commissioner:*

This application has been referred to the Commissioner by the Examiner for instructions whether a new application should be required. The facts are these:

On March 10, 1900, there was received in this Office an application duly executed on February 23, 1900, by William W. Lewis as the inventor of the subject-matter described therein. On the same day there was offered for record in this Office an instrument dated the same day, whereby Lewis transferred all of his right, title, and interest in the invention to Eugene L. Lewis as trustee and requested that the patent be issued to the said assignee. The application was considered on its merits on April 13, 1900. On September 28, 1900, the Examiner wrote a letter to the attorney of record stating that the Office had been informed that the inventor died on March 1, 1900, that therefore the attorney had no power in the case on March 10, 1900, when the case was filed, and that a new application must be filed by the executor or administrator.

It is admitted that the inventor died before the papers were filed, and copies of the letters of administration to Katharine Lewis have been filed.

Section 4896 provides that—

when any person having made any new invention or discovery for which a patent might have been granted, dies before a patent is granted, the right of applying for * * * the patent shall devolve on his executor or administrator. * * *

Rule 25 of the Rules of Practice, which is based upon this section of the Revised Statutes, states that—

in case of the death of the inventor, the application will be made by * * * his executor or administrator.

It seems to me that the statute and the rule require that the application should be made by the executor or administrator when an inventor dies before the application is made, and I construe the words "applying for" and "made by" to mean the actual making or filing of the application in this Office, and not to mean, as contended by the attorney for the assignee, the execution of the papers which are deposited in this Office as the application.

As the inventor in this case died before the application was actually made by depositing the papers in this Office, it should not be considered as a proper application to be filed, and the application should have been made by the executor or administrator.

The fact that the application was assigned before it was filed and before the inventor died does not seem to change the situation, as the statute is positive on the subject that only an executor or administrator can apply for a patent in the event of the death of the inventor. If in a case like this the executor or administrator refuses to carry out the contract with the assignee and to reassign to him, this Office cannot settle the rights of the parties; but the assignee has his remedy in the court and he should go to a court of equity and compel the administrator to make the proper assignment, if he will not do it otherwise.

As the application is not made by the party authorized to make it by the statutes and rules of this Office, it is directed that it be stricken from the files.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

ECLIPSE BICYCLE COMPANY *v.* FARROW.

Decided June 5, 1900.

CONTRACT BASED ON UNPATENTED INVENTION—ACCOUNTING—ROYALTY.

Where a company agreed in consideration of the sale to it by F. of all his interest in an invention for which two applications for patent were pending in the Patent Office to pay him royalty on each device manufactured and to use due diligence in manufacturing and selling, and the company's attorney took charge of the prosecution of the applications, and the manufacture of the device was begun and it was extensively advertised, but subsequently M., an officer of the company, obtained a patent for a device effecting the same purpose as that of F., whereupon the company ceased to make the latter's device and substituted that of M., and one of F.'s applications after being allowed was placed in interference with other applications and was abandoned by the failure of the attorney to prosecute it and the other application was allowed to become forfeited by failure of the company to pay the final Government fee, and meanwhile the company became the owners of another patent claimed to dominate the devices of both F. and M. under which it continued to manufacture the device of M., and on the failure of the company to make any returns or render any account F. instituted proceedings for an accounting, *Held* that a decree holding F. entitled to royalty from the company for the devices manufactured under M.'s patent, as well as for those professedly manufactured under its contract with him, and directing a reference to the auditor for a statement of such account should be affirmed.

APPEAL by defendant from decree of Supreme Court of the District of Columbia, in Equity, No. 19,095, in suit for an accounting, affirmed.

Mr. D. S. Mackall and *Mr. J. A. Maedel* for the appellant.

Mr. Henry M. Earle for the appellee.

Mr. Justice MORRIS delivered the opinion of the court.

Under date of June 5, 1897, the appellant, the Eclipse Bicycle Company, a corporation organized under the laws of the State of New York, and located at Elmira in that State, but having an office and doing business also in this District, entered into a contract in writing with the appellee, Willard M. Farrow, of this city, for the purchase from the latter of certain inventions made by him, consisting of—

improvements in bicycles and like vehicles, pertaining to automatic mechanism for coasting and braking—

for which the appellee had two several applications for patents then pending in the Patent Office, and for which, as stated in the contract, he intended to file additional applications. By this contract the appellee sold and transferred to the appellant company all his right, title and interest in and to the inventions described and claimed in the applications referred to, and any Letters Patent that might be issued therefor, and in and to all future improvements thereon; and, in consideration of such sale and transfer, the appellant company agreed to pay to the appellee a certain royalty on each device to be made by it that should embody the invention referred to, to make due returns to him of all its sales at certain specified times, and to use due diligence in the manufacture and sale of such devices. In the event of the failure of the company to comply with any of these agreements the title to the inventions and to the Letters Patent expected to be issued therefor was to revert to Farrow. And it was further provided in the contract that, if for any reason Farrow should fail to procure the issue of Letters Patent for his invention, the company should be relieved from the payment of any royalty therefor from and after the date of the final adverse action of the Patent Office on the application or applications for patents for the said improvements.

There was a contemporaneous oral agreement, in pursuance of which Farrow assigned to the company all his right in the applications then pending in the Patent Office, revoked the authority of the attorney who was then prosecuting them, and appointed the attorney of the company as his attorney to prosecute such applications; and this assignment appears to have been filed in the Patent Office, and to have given the company the exclusive control of the further prosecution of the proceedings in the Office.

The company seems to have proceeded without delay to manufacture the appellee's device and to place it on the market; and it was advertised extensively under the designation of "the Farrow automatic brake and coaster." But on July 19, 1897, one Alexander P. Morrow, superintendent of the company at its home office in Elmira, claiming to have invented a different device to effect the same purpose as that for which the Farrow device was intended, filed an application in the Patent Office for Letters Patent therefor through the attorney of the company; and it would appear that the company almost immediately ceased to manufacture the Farrow device, substituted the Morrow device in place of it, and advertised it in substantially the same terms as it had previously advertised the Farrow device. Morrow assigned a one-half interest in his invention to Fulton, the president of the company. The company failed to make any payments or any returns to Farrow; and the appellee seems to have been unable even to procure any information as to the condition of things from the president or officers of the company.

One of Farrow's applications, after its patentability had been allowed, was placed in interference with the several applications of three other persons; but upon the declaration of interference and the filing of the preliminary statements, the attorney of the company did not deem it expedient to prosecute the claim of Farrow any further, and it was abandoned. Whether this course was taken with the consent of Farrow, is not quite apparent. At all events, it does not appear definitely that Farrow knew of this action of the attorney, or acquiesced in it. The other application of Farrow was not contested, and after some modification of the claims was allowed by the Patent Office, and authorized to go to an issue. But the company permitted the application to lapse by failure or refusal to pay the fee required upon the issue of a

patent; and consequently no patent was ever issued.

In the meantime, although at what precise time does not appear in the record, the company had in some way become the owner of a patent issued in the year 1889 to Stover and Hance; which, although not set up in the record as a defense, is now claimed in argument on behalf of the company to dominate both the device of Farrow and that of Morrow; and it is now claimed, only in the argument, however, that the company is operating, not under either the invention of Farrow or that of Morrow, but under the patent to Stover and Hance.

Upon the continued failure of the company to make any returns to him, or to give him any satisfaction on the subject, Farrow instituted the present proceeding in the Supreme Court of the District by filing a bill in equity for an account. The proceeding resulted in a decree in his favor, the court holding that he was entitled to royalty from the company for the devices manufactured by it under the Morrow patent, as well as for those professedly manufactured or intended to be manufactured under the contract between the company and Farrow; and a reference to the auditor was directed for the statement of such an account. From this decree the company has appealed.

The testimony in the case is remarkably indefinite in some of its features; but for this indefiniteness the appellee is scarcely responsible. He was compelled to summon the officers and agents of the company to prove portions of his case; and these were in the main hostile witnesses interested in the defeat of his claim. The testimony of one or two of these witnesses, notably the president of the company, who was the person who executed the contract with the appellee on behalf of the company, is characterized by conspicuous and studied forgetfulness of many things of interest to the appellee, and some of which certainly could have been recalled without great difficulty. But there is sufficient in the record to justify the conclusion that the conduct of the company in its operations under the Morrow patent and the Morrow invention and in its purchase of the Stover and Hance patent, whatever it may suppose to have been its good faith in the matter, virtually operated as a fraud upon the rights of the appellee under the contract. The execution of this contract is admitted; its requirements are plain; and the failure of the company to comply with those requirements is conclusively shown, and is not sought to be controverted. This is sufficient warrant for a decree for an accounting, unless there is some justification shown for the action of the company. This justification is sought to be shown under an allegation of failure of consideration.

It is claimed on behalf of the appellant company that the appellee was not the first inventor of the inventions or devices which formed the subject-matter of contract between him and the company; that he had no patentable invention; that his device was anticipated or dominated by the patent to Stover and Hance; that the appellant had taken up the Morrow device in good faith as effecting more conveniently the same purpose as that of the appellee, although the Morrow device was equally dominated by the Stover and Hance patent; and that the Morrow was not a mere mechanical equivalent for the Farrow device. And it is claimed that under these circumstances the appellant company was released from its liability to the appellee under the contract.

But this defense is clearly untenable. The sale by the appellee to the appellant company was of all his right, title and interest; and the claims of both of his applications were undoubtedly for patentable inventions. They were so held by the Patent Office; and one of them was allowed without contest, although probably after the modifications not unusual in such matters, to go to an issue; and if a patent was not issued on the application so allowed, it was distinctly on account of the failure or refusal of the company to pay the required fee, and the lapse was without the knowledge or consent of the appellee. The other application was abandoned upon the declaration of interference, apparently also without the knowledge and consent of the appellee; at all events, there is no satisfactory proof that he was consulted in the matter, as he undoubtedly should have been. It is very clear, therefore, that, if the appellee had even one patentable invention, for which he was awarded a patent, there was no total failure of consideration, as claimed; and if there was no total failure of consideration, the appellee beyond question was entitled to the accounting which he sought.

That the adoption of the Morrow device by the company was a fraud upon the appellee's rights under the contract, admits of no reasonable doubt. Even if Morrow conceived that device in good faith, and there was a patentable difference between it and the device of the appellee, as the Patent Office seems to have held by allowing it to go to a patent, yet it does not follow that the company was at liberty to adopt it to the exclusion of the Farrow device and wholly to discard the latter. It had contracted with the appellee with full knowledge of the nature and character of the latter's invention, and with reasonable ground to anticipate, what is usual in all such cases, that other similar, and perhaps even superior devices might be invented and come into use. With that knowledge and with that anticipation, it had deliberately undertaken and bound itself by agreement to manufacture and sell the Farrow device, not in terms, it is true, to the exclusion of all other devices, but, according to the requirements of the contract, "with due diligence" and by "all proper and legitimate enterprise." And having so bound itself to the appellee, and having practically shut out the appellee from that field of invention, it was not thereafter at liberty to relieve itself from liability under the contract by discarding the invention of the appellee and substituting therefor the invention of another person. It cannot be that the vitality of such a contract can be made to depend

on the assumption that no other similar device is coming into the market. The company, and not the appellee, took the risk of new inventions that might be superior to that of the contract. No such contract would be inviolable, if one of the contracting parties should be at liberty to withdraw from it, for the reason that during the lifetime of the contract some new device had appeared.

Nor does it make any difference in this regard that the company may have acted in what it claims to have been good faith in the adoption of the Morrow device. We cannot see how there can be good faith in the violation of a contract on the sole ground that another line of business may be more profitable. But we are not satisfied that the company adopted the Morrow device in the honest belief that it was a better thing than the Farrow device. The proof is that it effected the same precise purpose; and there is no proof, at least no sufficient proof, to show that it was in any way a better or more economical article. The inference from the testimony is strong that it was adopted for the mere purpose of evading the contract with Farrow. The insincerity of the claim of good faith is well illustrated by statement of the attorney of the company given in his deposition taken on its behalf, to the effect that *all* the claims of the Morrow patent, and most of those of the Farrow application, are covered by the patent to Stover and Hance.

Nor does the purchase of this last-mentioned patent by the company seem to have been made in any better faith, so far as the appellee's rights were concerned, than was the adoption of the Morrow device. That purchase may have been, and probably was, a reasonable precaution on the part of the company to fortify its position; but it would be absurd to assume that the company was not aware of its existence at the time at which it entered into the contract with Farrow. It was chargeable with notice of its existence, if it did not actually have it; but we are satisfied from the testimony that it had it. Having such knowledge or being chargeable therewith, it deliberately entered into the contract with Farrow to manufacture and sell the devices of the latter, which, under the contention of the appellant, were at the utmost no more than specific devices subordinate to the generic claims of the Stover and Hance patent; and it guaranteed to defend the Farrow invention against piracy and infringement. It is very clear, therefore, that it could not possess itself lawfully of the Stover and Hance patent in order to defeat the claim of Farrow. In fact, if the contention of the appellant in argument before us is correct, that the Farrow invention is dominated by the Stover and Hance patent, there is reason to infer that, by its contract with Farrow, the company was required to purchase that patent in order to protect the Farrow contract and the Farrow invention.

Only in argument, as we have said, and not in the pleadings, has the appellant company sought to relieve itself from liability to Farrow by reliance on the dominant character of the Stover and Hance patent. It alleges in argument that it is now operating under the Stover and Hance patent, and not either under the Morrow patent or under the Farrow invention. And yet the proof is that it still advertises what it manufactures and sells as the Morrow device. Owning, as it does, the Stover and Hance patent, the company could have just as easily manufactured the Farrow device under it as that of Morrow, if it had been willing faithfully to execute its contract with the appellee. The necessary inference from all the circumstances of the case is that it adopted the Morrow device simply as a pretext under which to evade its liability under that contract.

It follows that in equity the use by the company of the Morrow device should inure to the benefit of Farrow. And if this conclusion involves the company in a double liability, that is the result of its own tortious actions, and should not be permitted to prejudice the rights of the appellee. This is the conclusion reached by the court below; and in that conclusion we concur.

The point is made in the pleadings, although not greatly insisted on in the argument before us, that the appellee's remedy was at law in an action for a breach of the contract, and not in equity for an accounting. But we find no merit in this suggestion. The remedy at law, it is true, was open to the appellee, but it was plainly inadequate and impracticable. It would have been difficult, if not impossible, to ascertain the proper measure of damages in such a case. But the appellee's case was one proper for a court of equity. The theory of his case is that, in view of the contract between the parties, the Morrow device was a mere mechanical equivalent or commercial substitute for his own device; and that therefore the company was liable to account to him for its use of the Morrow device as though it had been his own. And this theory is fully supported by the testimony. It is shown that the Morrow device effects precisely the same purpose as the Farrow device, and that the substitution of it by the company for the latter was merely an attempt to evade liability. Such substitution cannot be allowed to have the effect of removing the appellant's accountability to the appellee.

It is also objected that the appellee's bill is multifarious, in so far as to an accounting from the company it seeks to add an attempt to have the Morrow device adjudged to be a mechanical equivalent of that of the appellee. But this objection we think is likewise untenable. It implies a misapprehension of the scope of the allegations of the bill. We do not understand that the bill seeks an adjudication of the rival merits of the two inventions; but that it charges that, in the hands of the company, the Morrow invention was a mere substitute for that of Farrow, and as such intended to defeat and evade the appellee's just claims. In this we find no multifariousness. So far from there being multifariousness in the bill, it is developed by the record that in the substitution of the Morrow device by the company for the Farrow device is found the gist of the appellee's grievance.

We are of opinion that the decree of the Supreme Court of the District of Columbia in the premises was right and proper, and that it should be affirmed, with costs. The cause, therefore, will be remanded to that court for the further proceedings in that decree directed.

And it is so ordered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 8. TUESDAY, NOVEMBER 20, 1900. Price—$5 per year.

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Change of Title of Invention.

(ORDER No. 1,380.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 13, 1900.

In view of the numerous requests to change the title of invention after an application has been passed to issue, the omission of the following statement from the margin of the notice of allowance is directed:

The within title is that given by the Examiner in charge as most appropriate to your invention. Should you desire a change in the same, satisfactory reasons must be given therefor on or before the payment of the final fee.

C. H. DUELL,
Commissioner.

ORDER No. 1,381.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 13, 1900.

In order to avoid the numerous requests for change of title of invention after applications have been passed to issue, the Examiners are directed to indicate in their first letters to applicants, or as soon thereafter as practicable, any change which they desire applicants to make in the titles of their inventions.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED NOVEMBER 20, 1900.

Labels.

7,893.—Title: "SILVER CREEK CREAMERY." (For Butter.) *J. J. Powers & Co.*, Ripon, Wis. Application filed October 15, 1900.

7,894.—Title: "SAND STONE BRAND." (For Butter.) *Joseph E. Amend*, Fond du Lac, Wis. Application filed October 27, 1900.

7,895.—Title: "THE NEW PROCESS BUTTER CO." (For Oleomargarin and Butterin.) *George Dewitt Davis*, Philadelphia, Pa. Application filed October 25, 1900.

7,896.—Title: "LOVE KNOT BRAND." (For Canned Tomatoes.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 30, 1900.

7,897.—Title: "DOTTY DIMPLE." (For Canned Tomatoes.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 30, 1900.

7,898.—Title: "OIL OF VANILLA." (For an Extract.) *D. Lamont*, Springwater, N. Y. Application filed May 23, 1900.

7,899.—Title: "HORSE RADISH JACK." (For Horse-Radish.) *August Cliff*, Chicago, Ill. Application filed October 6, 1900.

7,900.—Title: "WOMAN'S FRIEND." (For an Antiseptic.) *Standard Remedy Co.*, New York, N. Y. Application filed October 29, 1900.

7,901.—Title: "PA-KAL." (For a Medicine.) *Albert H. Olmstead*, St. Louis, Mich. Application filed August 27, 1900.

7,902.—Title: "ARMOZA." (For Cigars.) *American Lithographic Company*, New York, N. Y. Application filed October 29, 1900.

7,903.—Title: "MURILLO." (For Cigars.) *Cuban American Manufacturing Company*, Tampa, Fla. Application filed October 29, 1900.

7,904.—Title: "NANINE." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed September 21, 1900.

7,905.—Title: "MONTANA SPORT." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed September 21, 1900.

7,906.—Title: "LA INTRODUCCION." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed October 24, 1900.

7,907.—Title: "THE WE GIRLS COMPANY CIGARS." (For Cigars.) *The We Girls Co.*, Clinton, N. Y. Application filed October 27, 1900.

7,908.—Title: "THE BLUE AND THE GRAY." (For Beer.) *American Brewing Association*, Houston, Tex. Application filed October 15, 1900.

7,909.—Title: "A. B. C." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed June 28, 1900.

7,910.—Title: "A. B. C." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed June 28, 1900.

7,911.—Title: "A. B. C." (For Beer.) *The American Brewing Company*, St. Louis, Mo. Application filed June 28, 1900.

7,912.—Title: "CRYSTAL ROCK." (For Beer.) *The Cleveland & Sandusky Brewing Company*, Sandusky, Ohio. Application filed October 24, 1900.

7,913.—Title: "BLUE LABEL." (For Whisky.) *Andrew Forbes*, Philadelphia, Pa. Application filed October 26, 1900.

7,914.—Title: "AMERICAN GENTLEMAN RYE WHISKEY." (For Whisky.) *Aaron Herzberg*, New York, N. Y. Application filed October 26, 1900.

7,915.—Title: "THE FAMOUS MARYLAND CARPETS." (For Carpets.) *Julius Hines & Son*, Baltimore, Md. Application filed October 29, 1900.

7,916.—Title: "RAILWAY SUPPLIES AND PULP WOOD." (For Railway Supplies, Etc.) *Louis E. Martin*, Duluth, Minn. Application filed October 2, 1900.

Prints.

275.—Title: "LA NUMANCIA." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed October 24, 1900.

276.—Title: "THE WE GIRLS COMPANY." (For Cigars.) *The We Girls Co.*, Clinton, N. Y. Application filed October 27, 1900.

APPLIOATIONS UNDER EXAMINATION.

Condition at Close of Business November 13, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Nov. 5	Nov. 2	54
106	II. Farm Stock, Products, etc.	Nov. 1	Nov. 1	118
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Oct. 30	Nov. 2	152
240	VII. Velocipedes, Games, and Toys.	Oct. 24	Nov. 1	112
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Oct. 24	Oct. 30	148
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Oct. 20	Oct. 31	110
44	XXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Oct. 19	Oct. 30	131
246	I. Tillage and Fences	Oct. 18	Oct. 30	134
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Oct. 18	Oct. 5	276
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 17	Oct. 31	137
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Oct. 16	Nov. 1	175
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 16	Oct. 31	169
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Oct. 16	Oct. 30	294
248	XVIII. Steam-Engineering, etc.	Oct. 16	Oct. 30	157
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 16	Oct. 30	125
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 15	Nov. 1	143
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Oct. 15	Nov. 1	98
120	IX. Hydraulics, Fire-Extinguishers, etc.	Oct. 15	Oct. 31	124
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Oct. 15	Oct. 31	117
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Oct. 15	Oct. 30	190
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 15	Oct. 30	158
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 15	Oct. 30	121
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 15	Oct. 30	188
102	XIX. Stoves and Furnaces	Oct. 15	Oct. 30	214
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Oct. 15	Oct. 29	135
253	X. Carriages and Wagons	Oct. 15	Oct. 29	150
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 15	Oct. 24	177
	Between one and two months.			
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 13	Oct. 29	182
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 13	Oct. 19	107
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Oct. 12	Oct. 30	129
93	XXI. Textiles, etc	Oct. 12	Oct. 20	195
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Oct. 8	Oct. 24	231
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 8	Oct. 15	330
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 4	Oct. 22	202
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Sept. 20	Sept. 22	183
	Between three and four months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	July 30	Sept. 7	334

Total number of applications awaiting action.....5,950

Applications Under Examination—Continued.

Under one month.			
*Designs	Nov. 8	Nov. 9	49
†Trade-Marks	Nov. 6	Nov. 12	20
‡Labels and Prints	Nov. 10	Nov. 10	10

ISSUE OF NOVEMBER 20, 1900.

Patents	440—No. 661,942 to No. 662,381,	inclusive.
Designs	39—No. 33,572 to No. 33,610,	inclusive.
Trade-Marks	41—No. 35,448 to No. 35,488,	inclusive.
Labels	24—No. 7,893 to No. 7,916,	inclusive.
Prints	2—No. 275 to No. 276,	inclusive.
Reissues	1—No. 11,873.	
Total issue	547	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3		Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	4		New Jersey	18	3
California	18	1	New Mexico Territ'y		
Colorado	2		New York	82	23
Connecticut	14		North Carolina		
Delaware			North Dakota		
District of Columbia	3		Ohio	34	6
Florida	2	1	Oklahoma Territ'y	1	
Georgia			Oregon	1	
Hawaii			Pennsylvania	50	3
Idaho			Rhode Island	2	
Illinois	39	7	South Carolina	3	
Indian Territory	1		South Dakota	2	
Indiana	15		Tennessee	4	
Iowa	10		Texas	7	1
Kansas	8		Utah		
Kentucky	2		Vermont	1	
Louisiana	4		Virginia	4	
Maine	1	3	Washington	3	
Maryland	3	1	West Virginia	2	
Massachusetts	28	3	Wisconsin	5	3
Michigan	17	2	Wyoming		
Minnesota	7	2	U. S. Army		
Mississippi			U. S. Navy		
Missouri	8	5			
Montana			Total to citizens of the United States	413	64
Nebraska	4				

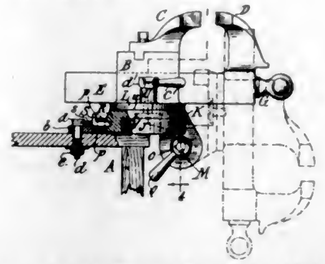
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy		
Australia			Japan		
Austria-Hungary	2		Java		
Barbadoes			Mexico		
Belgium	1	1	Netherlands	1	
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	10		Norway		
Chile			Queensland		
China			Russia		
Costa Rica			Scotland	2	
Cuba	1		South African Republic		
Denmark			South Australia		
Egypt			Spain		
England	21	1	Sweden	1	
Finland			Switzerland	1	
France	8		Venezuela		
Germany	14	1	Victoria	2	
Guatemala					
Haiti					
India			Total to citizens of foreign countries	66	3
Ireland	2				

PATENTS

GRANTED NOVEMBER 20, 1900.

661,942. VISE. PHILANDER ANDERSON, New York, N. Y. Filed Jan. 6, 1900. Serial No. 546. (No model.)



Claim.—1. In vises and like tools, the combination of the tool proper with a support therefor, and a pivotal connection between said tool and support, said pivotal connection being below and approximately at the outer edge of said support.

2. In vises, a pair of clamping-jaws, a base-plate J and means for attaching said base-plate to a bench, in combination with a carrier connecting the jaws and base-plate, a hinge connection having a horizontal axis between the carrier and base-plate and approximately at the edge of said base-plate, and a swivel connection having a vertical axis between the carrier and one of the jaws.

3. In vises, a pair of clamping-jaws, a base-plate J and means for attaching said base-plate to a bench, in combination with a carrier connecting the jaws and base-plate, a hinge connection having a horizontal axis between the carrier and base-plate and approximately at the edge of said base-plate, and a swivel connection having a vertical axis between the carrier and one of the jaws, and means for fixing the carrier and base-plate rigidly together in any position of adjustment.

4. In vises, a pair of clamping-jaws, a base-plate and means for attaching said base-plate to a bench, in combination with a carrier connecting the jaws and base-plate, a hinge connection having a horizontal axis between the carrier and base-plate and approximately at the edge of said base-plate, and a swivel connection having a vertical axis between the carrier and one of the jaws, and means for fixing the carrier and the jaw it carries against relative movement in any of several positions of adjustment.

5. In vises, jaws C and D, in combination with a stock B having a base L, a base-plate J, a carrier K movably connected to said base-plate, a movable connection between the carrier and said stock, and means for fixing the carrier and base-plate together, and means for fixing the carrier and stock together.

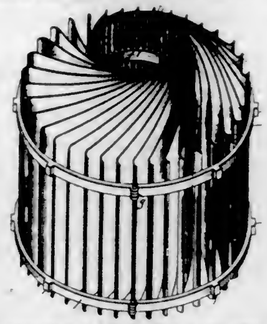
6. In vises, jaws C and D, in combination with a stock B having base L, a lock U carried by said base, a carrier K fitting said base, a swivel connection between the base-plate and carrier, a clamp for locking the base-plate and carrier in any of various positions, and a lock for locking said parts in one position.

7. In vises and other tools, the combination of the tool proper with the improved base-plate J having lug N, slot P, socket *n*, and top face *f*, substantially as and for the purpose set forth.

8. For vises, the improved carrier-plate K having lug O, projection R, top and bottom bearing-faces *g* and *v*, and axial hole *w* in combination with jaws carried by said plate and a support for said plate.

661,943. CENTRIFUGAL LIQUID-SEPARATOR. FRANCIS J. AREND, New York, N. Y., assignor to the De Laval Separator Company, of New Jersey. Filed Sept. 19, 1898. Serial No. 691,294. (No model.)

Claim.—1. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance consisting of a series of upright division-plates, loosely connected with each other at their inner ends and intersecting the radial line of the bowl, and means to prevent the outer ends of the blades contacting with the wall of the bowl



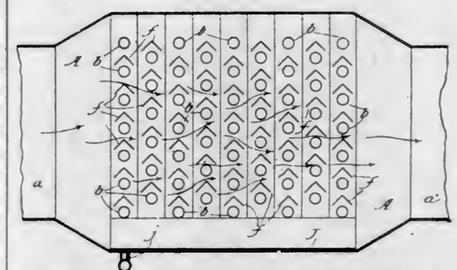
2. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance consisting of a series of upright division-plates, loosely connected with each other at their inner ends, intersecting the radial line of the bowl, means to support the outer ends of said blades and prevent the same from contacting with the wall of the bowl.

3. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance consisting of a series of upright division-plates, loosely connected with each other at their inner ends, intersecting the radial line of the bowl, and one or more bands independent of and surrounding the outer portion of said blades.

4. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance consisting of a series of upright division-plates, loosely connected with each other at their inner ends, intersecting the radial line of the bowl, and a band or bands provided with projections surrounding the outer portion of said blades.

5. The combination with the bowl of a centrifugal liquid-separator, of a division contrivance consisting of upright division-plates, loosely connected with each other at their inner ends, intersecting the radial line of the bowl, a band or bands provided with projections surrounding the outer portion of said blades, said band being connected to the bowl.

661,944. APPARATUS FOR REMOVING MOISTURE FROM AIR. EDGAR S. BELDEN, Chicago, Ill. Filed Mar. 16, 1900. Serial No. 8,870. (No model.)



Claim.—1. In a gas-cooling apparatus having a plurality of cooling-pipes, stationary liquid-shedding parts separate from said pipes, but vertically adjacent thereto for preventing the liquid precipitated from said gas, by reason of the cooling thereof, from coming into contact with pipes other than those on which said liquid is first collected or precipitated.

2. In a cooling apparatus, the combination of cooling-pipes for ex-

tracting the moisture from air; and stationary plates located vertically adjacent to each of said pipes for carrying off the precipitated liquid previously existing in a gaseous form suspended in said air.

3. In an apparatus for removing moisture from air and other gases, the combination of pipes for cooling said air, and hoods for preventing the water discharged from said air by reason of the cooling thereof, from coming into contact with pipes other than the ones whereon said water is first collected.

4. In an apparatus for removing moisture from air and other gases, the combination of pipes for cooling said air, hoods for protecting said pipes from falling water, and drip-points upon said hoods.

5. In an apparatus for removing moisture from air and other gases, the combination of hoods for carrying off the water extracted from said air, and drip-points on said hoods so arranged that certain of said points lie in the same vertical plane, but lie in different planes when reference is had to vertical planes located at right angles to said first-mentioned plane.

6. In an apparatus for removing moisture from air, the combination of cooling-pipes, plates fixed adjacently to said pipes for carrying off the precipitated water falling from above, and drips or fins upon said pipes for collecting the water precipitated upon the pipes by which said drips or fins are carried.

7. In an apparatus for removing moisture from air, the combination of pipes for conveying a cooling fluid and precipitating upon their outer surfaces the moisture contained in said air, stationary plates located vertically adjacent to said pipes for carrying off the water precipitated from said air, thereby preventing said water of precipitation from coming into contact with pipes other than those upon which the moisture is precipitated, and a structure inclosing said pipes and plates, said structure constituting a cooling-chamber.

8. In an apparatus for removing moisture from air, the combination of a cooling-chamber; air-ducts leading to and from said chamber; cooling-pipes suitably supported and connected within said chamber, said pipes serving to precipitate moisture suspended in said air; hoods over said pipes for carrying off the water of precipitation and protecting the respective pipes beneath said hoods from said water of precipitation dropping from above said hoods; and drips or fins upon said pipes.

9. In an apparatus for removing moisture from air, the combination of cooling-pipes, water-shedding hoods over said pipes, and headers affording connections for said pipes, said headers also constituting the end supports of said pipes and hoods.

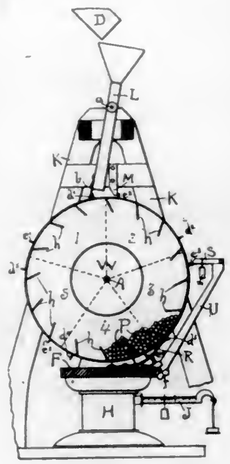
10. In an apparatus for removing moisture from air, the combination of cooling-pipes, water-shedding hoods over said pipes; headers affording connections for said pipes, said headers also constituting the end supports of said pipes and hoods; and racks forming auxiliary supports for said pipes and hoods.

11. In an apparatus for removing moisture from air, the combination of a cooling-chamber; cooling-pipes and headers within said chamber, said pipes and headers constituting a series of coils; water-shedding hoods over said pipes, and means for regulating in each of said coils separately the flow of a cooling fluid.

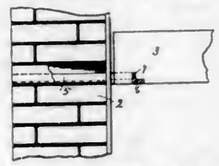
12. In an apparatus for removing moisture from air, the combination of a cooling-chamber; air-ducts leading to and from said chamber; cooling-pipes suitably supported and connected within said chamber; hoods over said pipes, and drip-points upon said hoods so arranged as to lie vertically out of line.

13. In an apparatus for removing moisture from air, the combination of a cooling-chamber; air-ducts leading to and from said chamber; cooling-pipes within said chamber; headers connecting and supporting said pipes; hoods over said pipes; drip-points upon said hoods lying vertically out of line; drips or fins upon said pipes, and means for controlling the supply of the cooling fluid through said pipes and headers.

661,945.



661,946. BEAM-SUPPORTER. LOUIS BERRY, New York, N. Y. Filed Mar. 7, 1900. Serial No. 7,677. (No model.)



Claim.—1. A supporter for beams or the like consisting of substantially parallel arms, an integrant connecting-piece for joining said arms, and an integrant, continuous rib at one side of said arms and connecting-piece, the latter being formed from a strip of material of a contour in cross-section suitable to provide a seat at the connecting-piece for a beam or the like, and to admit of a portion of said arms being built into masonry, as herein specified.

2. In combination with masonry, a beam-supporter and a beam or sleeper, the said supporter consisting of substantially parallel arms, an integrant connecting-piece for joining said arms, and an integrant, continuous rib at one side of said arms and connecting-piece, the latter being formed from a strip of material of a contour in cross-section suitable to provide a seat at the connecting-piece for a beam, and to admit of a portion of said arms being built into said masonry, all substantially as herein described.

3. The combination with masonry of a substantially U-shaped beam-supporter, angular in cross-section, and a beam or sleeper, the latter having a recess adapted to receive a portion of said supporter, as herein specified.

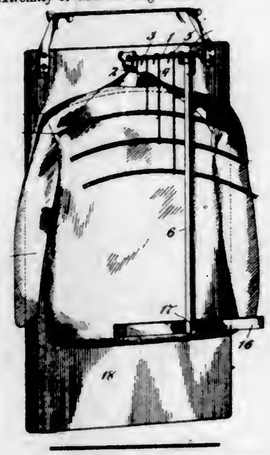
661,947. ACCESSIBLE GARMENT-HANGER. SEYMOUR W. BONSALL, New York, N. Y., assignor to Nelson Hiss, same place. Filed Dec. 1, 1899. Serial No. 738,753. (No model.)

Claim.—1. A substantially horizontal rod, a number of hangers for clothing depending therefrom, each of which is successively longer than the preceding hanger, and means adapted to press on said clothing for securing said clothing and hangers in one position upon said rod.

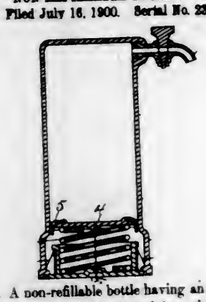
2. A substantially horizontal bar, hangers thereon, a sliding securing means depending from said bar and capable of swinging thereon, and a cross-piece pivoted to the extremity of said depending securing device.

3. A preliminary packing device, comprising a base, a bar projecting from said base, a number of hangers for clothing supported by said bar, each of which is successively longer than the preceding hanger, and means adapted to press on said clothing for securing said clothing and hangers in one position upon said rod.

4. A preliminary packing device comprising a base, a bar projecting from said base, a number of hangers for clothing supported by said bar, each of which is successively longer than the preceding hanger, means adapted to press on said clothing depending from said bar and capable of swinging thereon for securing said clothing and hangers, and a cross-piece pivoted to the extremity of said securing means.



661,948. NON-REFILLABLE BOTTLE. SOLOMON BOOKHEIM, Albany, N. Y. Filed July 16, 1900. Serial No. 23,700. (No model.)



Claim.—1. A non-refillable bottle having an outlet and a piston arranged to be forced through the bottle and force the liquid out of the outlet, said piston having a resilient device arranged to cause it to be forced through the bottle and a holding device arranged to hold the piston at its lowest point until the bottle is filled, and having a bottom for the bottle separate therefrom arranged to be inserted in the bottom and when so inserted to be non-removable therefrom, substantially as described.

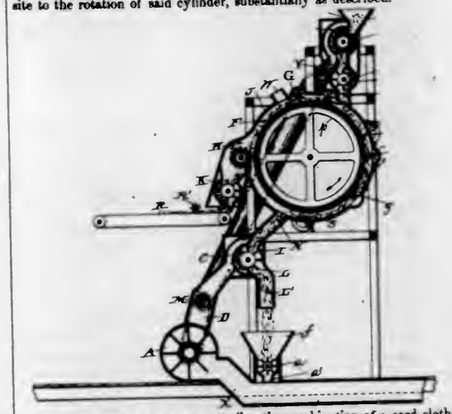
2. A non-refillable bottle and a piston therein arranged to move through the bore of the bottle and a resilient device arranged to force the piston through the same and having means for holding the piston fast until the bottle is filled and having a cup-shaped bottom separate from the bottle, said bottom being arranged to be inserted in the lower open end of the bottle and having a resilient device arranged to hold the bottom immovably in place and a closable outlet for the bottle that the same may be emptied substantially as described.

661,949. COTTON-CLEANER AND BOLL-HULLER. ROBERT R. BOYD, Memphis, Tenn. Filed Apr. 7, 1898. Renewed Mar. 2, 1900. Serial No. 7,127. (No model.)

Claim.—1. In a cotton cleaner and huller, the combination of a card-clothed cylinder, an air-tight casing, provided with inlets and outlets, closely surrounding said cylinder, means for drawing a current of air through said casing and around said cylinder in a direction opposite to the rotation of said cylinder and means for preventing a current of air in the same direction as the rotation of the cylinder, substantially as described.

2. In a cotton cleaner and huller, the combination of a cylinder provided on its surface with means for separating the cotton from the hulls and trash, an air-tight casing closely surrounding said cylinder and provided with inlets and outlets, an air-tight pocketed valve located in the inlet through which the material under treatment enters the casing, and means for drawing a current of air through said casing and around said cylinder in a direction opposite to the rotation of said cylinder, substantially as described.

3. In a cotton cleaner and huller, the combination of a card-clothed cylinder, a casing, provided with two inlets and two outlets, closely surrounding said cylinder, an air-tight pocketed valve located in the inlet through which the material under treatment enters said casing, a brush for clearing the cotton from said cylinder and means for drawing a current of air through said casing and around said cylinder in a direction opposite to the rotation of said cylinder, substantially as described.



4. In a cotton cleaner and huller, the combination of a card-clothed cylinder, a casing surrounding said cylinder, provided with inlets and outlets, an air-tight pocketed valve located in one of said inlets, deflectors located just inside of said casing, a brush for removing the cotton from said cylinder and means for drawing a current of air through said casing and around said cylinder in a direction opposite to the rotation of said cylinder, substantially as described.

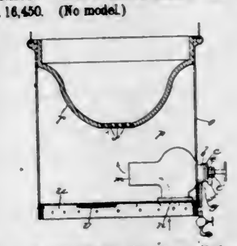
5. In a cotton cleaner and huller, the combination of a card-clothed cylinder, a casing provided with inlets and outlets, an air-tight pocketed valve located in one of the inlets, a similar valve in one of the outlets, a screen in proximity to the last-named valve, a brush, an exhaust-fan and a connection between said fan and said casing, substantially as described.

6. In a cotton cleaner and huller, the combination of a card-clothed cylinder, a casing provided with inlets and outlets, a brush for removing the cotton from said cylinder, deflectors mounted inside the casing, clearers for said cylinder, an exhaust-fan, a pipe connecting said casing and fan, a screen in said pipe, an air-tight pocketed valve in proximity to said screen and an air-tight pocketed valve located in one of the inlets to said casing, substantially as described.

7. In a cotton cleaner and huller, the combination of an air-tight casing provided with inlets and outlets, air-tight pocketed valves, a disintegrator, a screen located in proximity to said disintegrator, a card-clothed cylinder, clearers located at intervals around said cylinder, a brush for stripping the cotton from said cylinder, a vacuum-chamber provided with a screen, a suction-fan, and air-pipes connecting the fan with said casing, substantially as described.

8. In a cotton cleaner and huller, the combination of an air-tight casing provided with inlets and outlets, air-tight pocketed valves, a card-clothed cylinder, clearers for said cylinder, adjustable deflectors mounted in said casing, a brush for stripping the cotton from said cylinder, a pipe connected to the lower part of said casing, and a fan, substantially as described.

661,950. PNEUMATIC DEVICE APPLICABLE TO RIVET-HEATING FURNACES. BERT A. BROWN, Bristol, Conn. Filed May 12, 1900. Serial No. 16,450. (No model.)



Claim.—1. In combination; the valve-cylinder containing the fluid-pressure inlet; the rotatable valve provided with plural valve-conduits and connecting jet-tubes adapted to be brought successively into connection with the source of fluid-pressure; and the conduit adapted to admit fluid or flowing material to contact and mixture with fluid flowing from a jet-tube; all substantially as described and for the purpose set forth.

2. In combination; the valve-cylinder containing the fluid-pressure inlet; the rotatable valve provided with plural valve-conduits and connecting jet-tubes adapted to be brought successively into connection with said fluid-pressure inlet; the conducting-tube centrally in line with the center of a jet-tube when in connection with the source of fluid-pressure and opening beneath the twyer of the furnace; and the conduit adapted to admit air to contact and mixture with the fluid flowing from the jet-tube; all substantially as described and for the purposes set forth.

661,951. CIGAR-PERFORATOR. DANIEL C. CARR, Chicago, Ill. Filed Jan. 22, 1900. Serial No. 2,293. (No model.)



Claim.—1. In a cigar-perforator, the combination with a holder open at both ends, of a pair of levers pivoted to said holder, a pair of cutting-blades adapted to enter one end of said holder, and a pair of curved arms connecting said levers and blades for operating the latter, substantially as herein shown and described.

2. In a cigar-perforator, the combination with a holder open at both ends, of a pair of cutting-blades adapted to enter one end of said holder, and means carried by said holder for forcing said blades into said holder and away from the longitudinal center thereof, substantially as and for the purpose specified.

3. In a cigar-perforator, the combination with a holder open at both ends, of a pair of cutting-blades adapted to enter one end of said holder, means carried by said holder for forcing said blades into said holder and away from the longitudinal center thereof, and means for limiting the amount of movement of said blades away from the longitudinal center, substantially as and for the purpose specified.

4. In a cigar-perforator, a holder, a pair of levers suitably connected thereto, a curved arm pivoted at one end to each of said levers and a pair of cutting-blades pivotally connected together and suitably secured at one end to said arms.

5. In a cigar-perforator, a conical-shaped holder open at both ends, a pair of levers suitably secured at one end to said holder, a pair of curved arms connected to said levers, a pair of cutting-blades pivotally connected together and suitably secured at one end to said arms, and a coiled spring mounted upon the said blades.

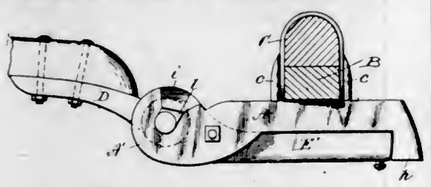
6. In a cigar-perforator, the combination with a holder, of a pair of spring-actuated cutting-blades operating therein, and means connected to said blades and holder for operating the former.

7. In a cigar-perforator, the combination with a holder, of a pair of spring-actuated cutting-blades operating therein, means connected to said blades and holder for operating the former away from the longitudinal center of the latter, and means for limiting the movement of said blades.

8. In a cigar-perforator, the combination with a holder, of a pair of cutting-blades suitably connected together and adapted to operate therein, a pair of curved arms secured to said blades for operating the same away from the longitudinal center of said holder, means connected to said holder and adapted to operate the said arms, and means carried by the said arms for limiting the movement of said blades.

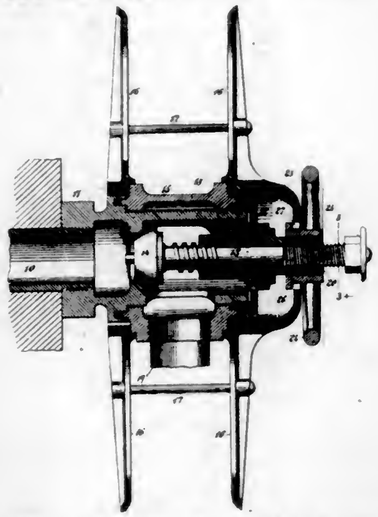
9. In a cigar-perforator, a holder, a pair of levers, a pair of arms connected thereto, a pair of cutting-blades pivotally connected together, a coiled spring surrounding said blades, and a stop carried by each of said arms.

661,952. THILL-COUPLING. WALTER S. CASTLE, Leesburg, Va. Filed Sept. 13, 1900. Serial No. 29,920. (No model.)



Claim.—A thill-coupling consisting of the fixed jaw or section A adapted to be secured to the axle by the clip C, and provided at its front end with a recess *b* and bearings *d*, and at its rear end with a downwardly-projecting lug *h*, having a recess *g*, in combination with a movable jaw or section E, suitably hinged or pivoted to said fixed jaw or section A, and provided with a central recess *e*, curved outer end *k* provided with side wings *i*, and the spring-actuated latch *f*, all substantially as and for the purpose specified.

661,953. HOSE-REEL. EDWARD CLIFF, Newark, N. J., assignor to the Cliff & Gulbert Company, New York, N. Y. Filed May 23, 1900. Serial No. 17,646. (No model.)



Claim.—1. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve within said casing, the valve-stem connected with said valve and projecting outward beyond the hub of said reel, a shoulder at the outer end of said valve-stem, a rotatory device about said stem intermediate said shoulder and the reel and normally free of said shoulder and carried by said reel, and means adapted to move said device freely outward to said shoulder during and by the unwinding of the hose and into locking engagement with said shoulder for opening said valve only after the reel has completed a portion of its unwinding motion; substantially as set forth.

2. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith, and the sleeve on said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve after the reel has completed a portion of its unwinding motion; substantially as set forth.

3. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, and the internally-threaded sleeve on said threaded portion of said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion; substantially as set forth.

4. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, and the internally-threaded sleeve on said threaded portion of said valve-stem normally keyed to said reel and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion, the length of said sleeve being so proportioned that it will have passed entirely free from its connection with said reel when the valve reaches its open position so as to leave the reel free to move without then affecting the valve; substantially as set forth.

5. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith, the sleeve on said valve-stem and adapted to be moved outward on said stem by the unwinding motion of the reel and to pass into locking engagement with said stem for opening said valve after the reel has completed a portion of its unwinding motion, and the hand-wheel adapted to engage said sleeve and said reel and permit of the outward movement of said sleeve while it, said hand-wheel, remains in engagement with said reel; substantially as set forth.

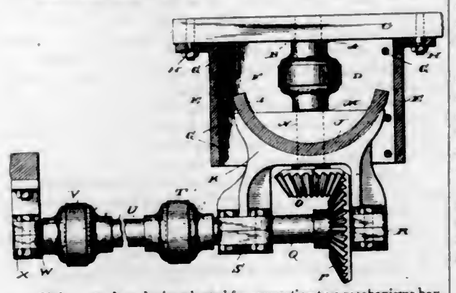
6. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and adapted to be moved outward on said stem and to pass into locking engagement with said stem for opening said valve during the rotation of said reel and after said reel has completed a portion of its unwinding motion, and the hand-wheel adapted to engage said reel and said sleeve to normally key said sleeve and reel together, said hand-wheel being adapted to permit the said sleeve to pass beyond its influence when the said valve shall have reached its open position; substantially as set forth.

7. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem, the nut on the outer end of said valve-stem to be engaged by said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally engage said sleeve and said reel to key said sleeve with said reel and also adapted, when detached from the reel, to engage said nut for the manual closing of the said valve; substantially as set forth.

8. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and being of polygonal form externally, the nut on the outer end of said valve-stem of polygonal external form and adapted to be engaged by said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally connect said sleeve with said reel, said hand-wheel having a bore adapted to the polygonal form of said sleeve and said nut, and said hand-wheel being also adapted to be connected with and disconnected from said reel; substantially as set forth.

9. The water-supply apparatus, and the valve-casing connected therewith, combined with the hose-reel mounted on said casing, the water-supply valve, the valve-stem connected therewith and having the outer threaded portion, the internally-threaded sleeve on said threaded portion of said valve-stem and having the shoulder at its outer end, the nut on the outer end of said valve-stem and having the shoulder on its inner end to be engaged by the said shoulder on the said sleeve after the latter has moved outward on said stem by the unwinding motion of the reel, and the hand-wheel adapted to normally engage said sleeve and said reel to key said sleeve with said reel, and also adapted, when detached from the reel, to engage said nut for the manual closing of the said valve; substantially as set forth.

661,954. GEARED FLEXIBLE SHAFTING. EDSON B. COLLINS, Chicago, Ill. Filed Dec. 18, 1899. Serial No. 740,698. (No model.)



Claim.—1. In a device adapted for connecting two mechanisms having relatively independent motions, the combination of a bevel-gear hanger, a box attached to the frame of one of the mechanisms, circular guide-bars attached to the sides of said box and confining said hanger to a swing in one plane only, two shafts which pass out through bearings provided in a hanger, a bevel-gear on each of said shafts, a flexible knuckle-joint connected to one of said shafts through which connection may be made to one mechanism, said joint being located at the center of swing of the hanger, and two flexible knuckle-joints connected to the other of said shafts through which connection may be made to the other mechanism, substantially as set forth.

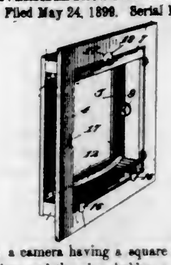
2. In a geared flexible shafting, the combination of the shaft-sections, A, M, the flexible knuckle-joint, D, the bevel gear-wheel, O, the shaft-sections, Q, U, W, the flexible knuckle-joints, V, T, the bevel gear-wheel, P, the side pieces F F, the guide-bars I I on the said side pieces, and the bevel-gear hanger K confined to a swing in one plane by said guide-bars, substantially as set forth.

661,955. COMBINATION PENCIL POINT-PROTECTOR AND SHARPENER. WILLIAM L. CRANSTONE, Melbourne, Victoria. Filed July 9, 1900. Serial No. 22,837. (No model.)



Claim.—In a combined pencil sharpener and point-protector, the combination of two substantially tubular members projecting the one into the other, one of said members having an annular internal recess and the other having an abutment projecting into said recess, and one of said members being the cutter-carrying member and the other being expansible and adapted to clasp the pencil, substantially as described.

661,956. REVERSIBLE BACK FOR CAMERAS. ALBERT D. DAVIS, Yonkers, N. Y. Filed May 24, 1899. Serial No. 718,113. (No model.)



Claim.—1. In a camera having a square opening in the division-frame between the lens and the plate-holder, a changeable plate-holder frame provided with a member adapted to fit inside of the division-frame to convert the square opening in the division-frame into a parallelogram and permit the plate-holder to lie close to said division-frame when placed in the plate-holder frame, substantially as described.

2. In a camera having a square opening in the division-frame between the lens and the plate-holder, a changeable plate-holder frame provided with stripe on different sides adapted to fit inside of the division-frame to convert the square opening in the division-frame into a parallelogram and permit the plate-holder to lie close to said division-frame when placed in the plate-holder frame, substantially as described.

3. In a camera, the combination with the division-frame having an opening, of the changeable plate-holder frame, one of said frames being adapted to fit within the other and describing a parallelogram with relation to the other, and one being changeable with relation to the other so as to convert the opening into a horizontal or a vertical parallelogram according to the position in which one may be arranged in relation to the other, and whereby the plate-holder may lie close to the division-frame when placed in the plate-holder frame, substantially as described.

4. In a camera, the combination with the division-frame having a square opening, of the changeable plate-holder frame provided with strips adapted to fit inside of the opening to the division-frame to form either a vertical or a horizontal parallelogram, one of said frames having offsets to form a recess or depression to receive a part of the other frame to form a light-tight joint where the strips meet the division-frame, substantially as described.

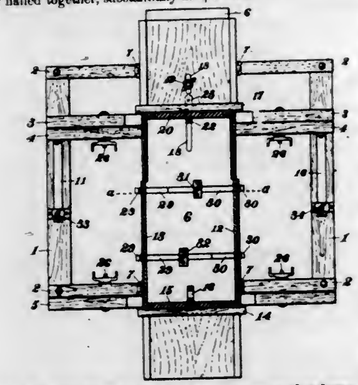
5. In a camera, the combination with the division-frame having a square opening, of the changeable plate-holder frame formed with strips to fit in the opening of the division-frame, said strips having rabbets formed therein, and a plate-holder having a tongue to fit in the rabbets of said strips, substantially as described.

6. In a camera, the combination with the division-frame having a square opening, of the changeable plate-holder frame having strips on different sides projecting over the inner edges of the sides of which they form a part and terminating back of the outer edges and of the ends of said sides and adapted to fit inside of the opening to the division-frame, whereby the opening in the division-frame may be converted into a horizontal or a vertical parallelogram and the plate-holder may lie close to the division-frame and light-tight joints are formed, substantially as described.

661,957. BOX-NAILING DEVICE. ISAAC E. DAVIS, Coralitos, Cal. Filed Apr. 16, 1900. Serial No. 13,064. (No model.)

Claim.—1. In a box-nailing device, a base-frame having fixed and movable cross-rails, a hinged form 6 attached to the end rails of the main frame by means of compound hinges so the form 6 can be turned to the right or left, in the manner substantially as specified.

2. In a box-nailing device, a main frame, a hinged-form board attached thereto by compound hinges in the manner described, and in combination therewith the vertically-adjustable rails 3 and 5 with means to hold the same at various heights corresponding to the widths of the boxes being nailed together, substantially as specified.



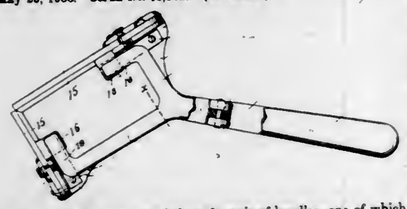
3. In a box-nailing device, a permanent supporting-frame, a hinged form attached thereto provided with the fixed and movable gages 14 and 17 and springs 16 and 22 to hold the box ends against the gages, combined and operating substantially as specified.

4. In a box-nailing device, the hinged form 6 provided with fixed and movable vertical gages to support the ends of the box, springs to hold these ends against the gages and side springs 29 and 30 to press the sides of the box against the end pieces, substantially as specified.

5. In a box-nailing device, the hinged form 6 adapted to turn to the right and left, springs to hold the sides and ends of a box thereon, and the vertically-adjustable bars 3 and 5 on which the ends of the box rest when in position to be nailed, combined and operating substantially as specified.

6. In a box-nailing device, the hinged form 6 provided with the fixed and movable end gages 14 and 17 to hold the ends of the box, the springs 29 and 30 to hold the sides of the box, these latter-named springs embedded in the form 6, lapped in the center, and adjustably held by the screws 31 and 32, combined and operating in the manner substantially as specified.

661,958. SHEARS. HENRY A. DECKER, New York, N. Y. Filed May 29, 1900. Serial No. 18,372. (No model.)



Claim.—1. A shears, consisting of a pair of handles, one of which carries two pairs of cutting-blades at right angles to each other, and the other of which carries means for operating the blades.

2. A shears, consisting of a pair of handles provided each with a pair of right-angled arms, a stationary blade carried by each arm of one handle forming with the arms a rectangle, a movable blade pivoted to said stationary blades, means to raise said movable blades when the handles are pressed, and arms or elbows carried by the arms of the other handle to operate said movable blades.

3. A shears, consisting of a pair of handles provided each with a pair of right-angled arms, stationary blades carried by the arms of one handle, movable blades pivoted to said stationary blades, springs to raise said movable blades when the handles are pressed, a gage carried by said stationary blades to limit the opening of the movable blades, and means carried by the other handle to close the movable blades.

4. In combination with a shears, of two pairs of cutting-blades arranged at right angles to each other provided with a disk, a series of perforations formed in the disks of two blades, and means to engage the perforations to limit the movement of the other blades.

5. A shears, consisting of a pair of handles, a pair of arms carried by each handle, two pairs of independently-movable blades carried by the arms of one handle, means for regulating the length of the cut of the blades, means to raise the movable blades when the handles are pressed, and elbows carried by the other handle to operate the blades.

6. A shears, consisting of a pair of handles, a pair of arms at right angles to each other carried by one handle, a stationary blade carried by each of the right-angled arms, a movable blade carried by each of the arms, flat springs adapted to contact said movable blades so as to open the same when the handles are pressed, elbows at right angles to each other carried by the other handle, and a coiled spring located between the handles so as to cause the elbows to force the movable blades closed when the handles are released.

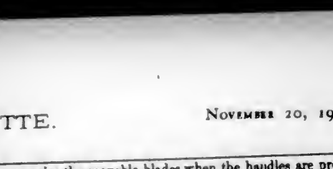
661,959. SPRING BED-BOTTOM. STOKLEY D. DILTS, Decatur, Ill. Filed Jan. 6, 1900. Serial No. 538. (No model.)



Claim.—1. A bed-bottom comprising a frame the end pieces of which are longitudinally concaved, rollers in the concaves of the end pieces of the frame, an endless mattress-supporting sheet run around the rollers and springs between the runs of the sheet.

2. A bed-bottom comprising a frame, a contractible spring-support, a mattress-supporting sheet run around the ends of the frame and connected with the spring-support and springs on the support under the upper run of the sheet.

661,960. IRONING-TABLE. STOKLEY D. DILTS, Decatur, Ill. Filed Mar. 16, 1900. Serial No. 8,879. (No model.)



Claim.—1. In an ironing-table the combination with a supporting-frame having a cross-bar at one end, of an ironing-board, a cross-strap on the board, lugs depending from the cross-strap and adapted to engage the cross-bar of the frame and a spring-clamp on the board having a free end adapted to be passed under the cross-bar, substantially as described.

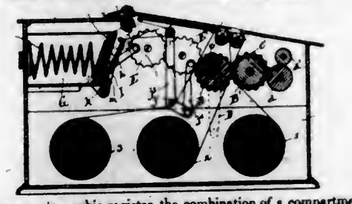
2. In an ironing-table, the combination with a supporting-frame having a cross-bar at one end, of an ironing-board, a cross-strap on the board, lugs depending from the cross-strap and adapted to engage the cross-bar of the frame, and an elastic wire loop held at its ends between the cross-strap and the board with its free end in position to pass under the cross-bar, substantially as described.

3. In an ironing-table, the combination of a supporting-frame composed of two pairs of legs with cross-bars at their upper ends and diagonal braces outside and inside the legs respectively with rectangular bends extended through the legs, an ironing-board, a spring-clamp on one end of the board adapted to embrace one cross-bar of the frame and a rack on the other end of the board adapted to engage the other cross-bar, substantially as described.

661,961. AUTOGRAPHIC REGISTER. JOHN G. DINKELBIHLER, Jr., and CLYDE C. CRANE, Cincinnati, Ohio. Filed Apr. 18, 1900. Serial No. 13,296. (No model.)

Claim.—1. In an autographic register, the combination of a compartment, a yielding abutment bearing normally toward the receiving end, a retaining device in said receiving end, a reciprocating folder, a reciprocating carrier-arm engaging over the folder, and means for moving the said folder and carrier to and from each other in time movements, substantially as specified.

2. In an autographic register, the combination of a compartment, a yielding abutment in the receiving end, a retaining device in said end toward which the abutment normally bears, a reciprocating folder moving to and from said retaining device, a reciprocating carrier engaging over said folder, during a part of its movement, and means for actuating said folder and carrier in time movements, substantially as specified.



3. In an autographic register, the combination of a compartment, a yielding abutment therein, a retaining device in the receiving end against which the abutment normally bears, a reciprocating folder movable into and out of contact with said retaining device, a reciprocating carrier engaging over said folder during a portion of its movement, and means for actuating said folder and carrier in time movements, substantially as specified.

4. In an autographic register, the combination of a compartment, a yielding abutment therein, a retaining-flange at the receiving end toward which the abutment normally bears, a reciprocating folder movable to and from said flange, a reciprocating carrier movable over said folder during a part of its travel, and means for actuating said folder and carrier in time movements, substantially as specified.

5. In an autographic register, the combination of a compartment, a yielding abutment therein, a retaining-flange toward which the abutment normally bears, a folder movable into and out of the receiving end of said compartment past said flange, a carrier which passes over the paper strip, movable over said folder during a portion of its travel, and means for actuating said folder and carrier in time movements, substantially as specified.

6. In an autographic register, the combination of a compartment, a yielding abutment therein, a retaining-flange in the receiving end toward which the abutment normally bears, a reciprocating folder movable into and ont of said receiving end of the compartment past the retaining-flange, a reciprocating carrier which passes over the paper strip, movable over said folder, during a portion of its movement, a paper-catch at one end of the said folder adapted to engage the loop formed by the carrier, and means for actuating said folder and carrier in time movements, substantially as specified.

7. In an autographic register, the combination of a compartment having an open receiving end, a retaining-flange at said end, a yielding abutment in said compartment bearing toward said flange, a reciprocating folder having a catch, a reciprocating carrier engaging over the strip of paper and adapted to carry a loop over said folder into engagement with said catch, the said folder being bodily movable into and out of said open end of said compartment past said flange, and means for actuating said folder and carrier in time movements, substantially as specified.

8. In an autographic register, the combination of an actuating feed-roll, a compartment having an open end, a retaining-flange in said end, a yielding abutment in said compartment bearing toward said flange, a reciprocating folder movable into and out of said open end, of the compartment, a paper-catch on said folder, a reciprocating carrier movable over said folder during part of its travel into engagement with said catch, means for disengaging said catch automatically when the folder approaches the said yielding abutment, and gear-and-link mechanisms between the feed-roll and the folding devices to actuate the said carrier and folder in time movements, substantially as specified.

9. In an autographic register, the combination of a pair of paper-rolls, a pair of contacting feed-rolls, equal gears on the ends of same intermeshing, a writing-table over which the two strips are passed, a pair of contacting rolls at the delivering end of the table having gear connections with said first-named gears adapted to revolve them at a faster rate of speed than the first-named rolls, and an operating-crank, substantially as specified.

10. In an autographic register the combination of an actuating feed-roll, a compartment having a retaining-flange at its open end, a yielding abutment in said compartment bearing normally toward said flange, a reciprocating folder movable to and from said yielding abutment past said flange, a reciprocating carrier movable over said folder during a part of its travel, and gear-and-link connections between said folder and carrier and the feed-roll, adapted to actuate the said folder and carrier in time movements, substantially as specified.

11. In an autographic register, the combination of an actuating feed-roll, a compartment having an open end, a retaining-flange in said end, a yielding abutment in said compartment bearing normally toward said flange, a reciprocating folder adapted to move bodily into and out of said open end of the compartment, past said flange, a reciprocating carrier movable over said folder during a portion of its travel, and gear-and-link mechanism between said feed-roller and the folder and carrier, adapted to actuate said folder and carrier in time movements, substantially as specified.

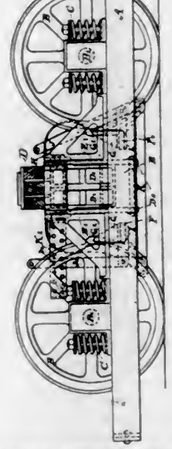
12. In an autographic register, the combination of a filing-compartment, a yielding abutment in the receiving end thereof, a retaining-flange at said receiving end, a folder-blade pivoted at the bottom of the receiving end of said compartment, spring-hooks on the pivot of the folder engaging against the yielding abutment through orifices in the folder, a carrier pivoted to the frame and adapted to tuck the paper between the abutment and folder into the engagement with the hooks and means for actuating the folder, carrier and hooks in time movements whereby a continuous strip is folded and filed away in successive folds, substantially as specified.

13. In an autographic register, the combination of a compartment, a retaining device in the receiving end, a reciprocating folder pivoted to the frame of the machine, a reciprocating carrier pivoted to the frame of the machine and adapted to move over said folder and means for operating said folder and carrier in time movements to and from said receiving end of the said compartment, substantially as specified.

14. In an autographic register, the combination of a compartment, a retaining device in the receiving end, a reciprocating folder pivoted to the frame of the machine, a reciprocating carrier pivoted to the frame of the machine, and adapted to move over said folder, an automatic catch at the pivoted end of said folder adapted to engage the carrier in its movements, means for automatically releasing said catch and means for operating said folder and carrier to and from the receiving end of the said compartment in time movements, substantially as specified.

15. In an autographic register, the combination of a pair of feed-rolls geared together, a pair of paper-delivery rolls, and gear connections between said pairs of rolls adapted to revolve the delivery-rolls at a greater surface speed than the first-named rolls, whereby the slack in the paper is automatically taken up, substantially as specified.

661,962. CAR-TRUCK. ANTOINE R. DU PONT, Detroit, Mich., assignor to the Lorain Steel Company, of Pennsylvania. Filed Aug. 29, 1899. Serial No. 728,925. (No model.)

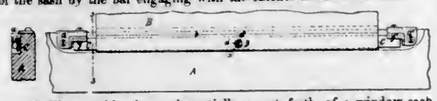


Claim.—In a car-truck, a continuous side and end frame supported from and below the journal-boxes, and consisting of a pair of edgewise-disposed plates arranged side by side and separated from each other at the sides of the truck and brought together and rigidly secured to each other at the end portions, distance-pieces secured between the side portions of said plates and supporting the car-springs and journal-box straps, and upwardly-extending bolster-guides also secured between and spacing the side portions of said plates, substantially as specified.

661,963. SECURING FLEXIBLE MATERIAL TO WINDOW-SASHES. OLIVER M. EDWARDS, Syracuse, N. Y. Filed Mar. 19, 1900. Serial No. 9,194. (No model.)

Claim.—1. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive and hold a bar widthwise thereof without removing the catches from the sash, a bar

adapted to be received and held widthwise of the sash by the catches, and flexible material adapted in part to engage with the bar, whereby the flexible material is secured to the sash in a plane substantially parallel to that of the sash by the bar engaging with the catches attached thereto.



2. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive and hold a bar widthwise thereof without removing the catches from the sash, a bar adapted to be received and held widthwise of the sash by the catches, and flexible material provided with a pocket adapted to receive the bar, whereby the flexible material is secured to the sash in a plane substantially parallel to that of the sash by the bar engaging with the catches attached thereto.

3. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive a bar without removing the catches from the sash, a bar adapted to be received by the catches and to be thereby connected with the sash, flexible material adapted in part to engage with the bar, and means attached to the sash between the catches and adapted to engage with the bar and afford a support therefor against a pull on the flexible material, whereby the flexible material is secured to the sash by the bar engaging with the catches and means attached to the sash.

4. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive a bar without removing the catches from the sash, a bar adapted to be received by the catches and to be thereby connected with the sash, flexible material adapted in part to engage with the bar, and means attached to the sash, a portion of which passes through the flexible material, and such means engages with the bar and supports the same against a pull upon the flexible material, whereby the flexible material is secured to the sash by the bar engaging with the catches and means attached to the sash.

5. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive a bar without removing the catches from the sash, a bar adapted to be received by the catches and to be thereby connected with the sash, flexible material adapted in part to engage with the bar, and means attached to the sash, a portion of which engages with the bar and affords a support for the same against a pull on the flexible material and also against disengagement from the catches, whereby the flexible material is secured to the sash by the bar engaging with the catches and the means attached to the sash and the bar is prevented from disengaging with the catches on the sash.

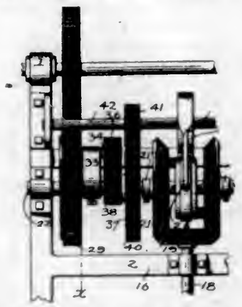
6. The combination, substantially as set forth, of a window-sash, catches attached to the sash and adapted to receive a bar without removing the catches from the sash, a bar provided with a recess in its midway portion and adapted to be received by the catches and to be thereby connected with the sash, flexible material adapted in part to engage with the bar, and means attached to the sash, a portion of which is adapted to engage with the recess in the bar and afford a support for the same against a pull upon the flexible material and also against movement of the bar relatively to the catches, whereby the flexible material is secured to the sash by the bar engaging with the catches on the sash and the bar is supported and held in eogagement with the catches by the means engaging with the bar.

7. The combination, substantially as set forth, of a window-sash recessed to receive catches and a bar, catches attached to the sash in the recessed part thereof and adapted to receive a bar and provided with lips of a less width than the width of the bar, a bar adapted to be received by the catches by entering the bar beneath the lips at an angle to the position it assumes when fully received by the catches, and flexible material adapted to engage with the bar, whereby the flexible material is secured to the sash by the bar engaging with the catches on the sash, the bar entering beneath the lips of the catches at an angle to the position it assumes when fully engaged therewith.

661,964. DRIVING-GEAR FOR MOTOR-VEHICLES. ROBERT W. ELSTON, Charlevoix, Mich. Filed Mar. 14, 1898. Serial No. 673,847. (No model.)

Claim.—1. The combination with a driving and a driven shaft, an intermediate shaft connected with, and driven by, the driving-shaft, means for changing and controlling the direction of revolution of the intermediate shaft and an arm rigid upon said intermediate shaft, of a friction-wheel, a gear connection between said arm and the driven shaft and between said arm and the friction-wheel and means for controlling the speed of rotation of the friction-wheel whereby the speed of rotation of the driven shaft may be varied, substantially as described.

2. The combination with a driving and a driven shaft, an intermediate shaft connected with, and driven by, the driving-shaft and an arm rigid upon said intermediate shaft, of a pair of pinions loosely journaled in said arm, a toothed disk loosely mounted upon said shaft and meshing with one of said pinions, said disk being geared with the driven shaft, another disk loosely mounted upon the intermediate shaft and meshing with the other one of said pinions and a friction device for controlling the speed of rotation of said last-mentioned disk, substantially as described.



3. The combination with a driving and a driven shaft, an intermediate shaft connected with, and driven by, the driving-shaft, means for changing and controlling the direction of revolution of the intermediate shaft and an arm rigid upon said intermediate shaft, of a pair of pinions loosely journaled in said arm, a toothed disk loosely mounted upon said shaft and meshing with one of said pinions, said disk being geared with the driven shaft, another disk loosely mounted upon the intermediate shaft and meshing with the other one of said pinions and a friction device for controlling the speed of rotation of said last-mentioned disk, substantially as described.

4. The combination with a driving and a driven shaft, an intermediate shaft connected with, and driven by, the driving-shaft and an arm rigid upon said intermediate shaft, of a pair of pinions loosely journaled in said arm, a toothed disk loosely mounted upon said shaft and meshing with one of said pinions, said disk being geared with the driven shaft, another disk loosely mounted upon the intermediate shaft and meshing with the other one of said pinions, a counter-shaft, a gear connection between said shaft and the last-mentioned disk, a friction-wheel also mounted on said shaft and a friction-band for controlling the speed of rotation of said wheel, substantially as described.

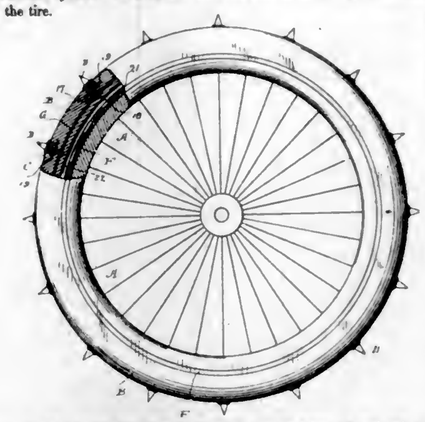
5. The combination with a driving and a driven shaft, an intermediate shaft connected with, and driven by, the driving-shaft, an arm secured to said intermediate shaft, a stub-shaft journaled in the outer end of said arm and a pair of pinions secured upon the ends, respectively, of said stub-shaft, of a disk loosely journaled upon the intermediate shaft, said disk having a flange toothed externally and internally the external teeth affording a gear connection with the driven shaft, and the internal teeth meshing with one of said pinions, the other pinion meshing with a third pinion, a disk also loosely journaled upon the intermediate shaft and carrying the last-mentioned pinion, said disk being toothed externally, a counter-shaft geared with said external teeth a friction-wheel secured upon said shaft, a friction-band encircling the friction-wheel and means for operating the friction-band, substantially as described.

6. The combination of a loosely-journaled shaft 22, means for controlling the direction of rotation of the shaft, a driven shaft, a gear-wheel secured thereon, a disk loosely journaled upon the shaft 22, said disk having a flange toothed externally and internally, the external teeth engaging with the teeth of the gear-wheel upon the driven shaft, an arm secured to the shaft 22, a stub-shaft journaled in the outer end thereof, a pinion secured upon each end of the stub-shaft, the teeth of one of the pinions meshing with the internal teeth of the flange of the disk upon the shaft 22, the opposite pinion meshing with a third pinion, a disk loosely journaled upon shaft 22 and carrying the last-mentioned pinion, said disk being toothed externally, a shaft 42, a gear-wheel secured thereon meshing with the teeth of the disk 37, a friction-wheel secured upon the shaft 42, a friction-band encircling the friction-wheel, and means for operating the friction-band, substantially as described.

7. The combination with a loosely-journaled shaft, and means for changing the direction of rotation thereof, of an arm secured upon the shaft, a driven shaft, mechanism interposed between the same and the said arm, a shaft 42 having a friction-wheel secured thereon and intermediate mechanism connecting the arm and said shaft, a friction-band encircling the friction-wheel and means for operating the band, substantially as described.

661,965. NON-SLIPPING RUBBER TIRE. KANUTE A. ENLIND, Naugatuck, Conn. Filed Feb. 19, 1900. Serial No. 5,677. (No model.)

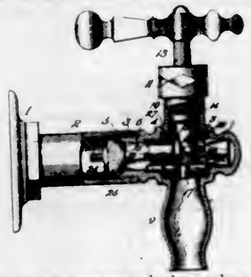
Claim.—1. The combination with a rubber tire, of threaded sockets, rods anchored in said sockets and provided with eyes and a wire upon which the eyes are threaded, said wire, rods and sockets being embedded in the tire.



2. The internally-threaded socket C having wings 19 and rods 17, substantially as shown, for the purpose specified.

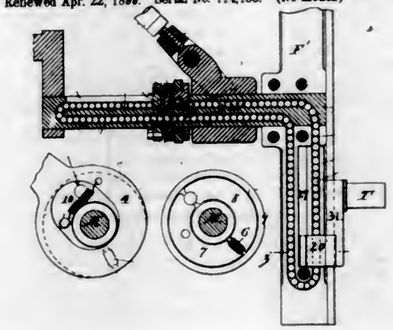
3. The combination with a rubber tire, of a series of internally-threaded sockets having wings 19, rods anchored in said sockets and provided with eyes, and a wire upon which the eyes are threaded.

661,966. WATER-FAUCET. JOHN P. FARLEY, Kansas City, Mo., assignor to the Crampton, Farley Brass Company, same place. Filed Mar. 9, 1900. Serial No. 7,957. (No model.)



Claim.—In a faucet, the casement having a valve-seat, a discharge-nozzle, and a pair of bearing-passages, a valve-carrying stem within the casement, and provided with cupped bearing-surfaces seated in said passages, a pair of shoulders between said surfaces, and a slot between said shoulders, and a handle-stem suitably journaled and provided with an axial guide-pin extending through said slot, and a cam between and engaging said shoulders, substantially as described.

661,967. SPEED-CHANGING MECHANISM. ALEXANDER FISCHER and ALBERT T. OTTO, New York, N. Y. Filed June 24, 1897. Renewed Apr. 22, 1899. Serial No. 714,133. (No model.)



Claim.—1. In a speed-changing mechanism, the combination of a rotary driving part, a crank thereon, a clutch engaging in one direction and releasing in the other and having a rock-arm, said arm being operated by a sliding contact of said crank thereon at long radii when effecting the engaging movement of said clutch and at short radii when effecting the recovering movement of the said clutch, a rotary driven part engaged by said clutch, and means for varying the stroke of said crank while the machine is in motion.

2. The combination of a rotary shaft, a crank-pin movably mounted thereon, and means for controlling the position of said crank-pin while the shaft is in motion, consisting in guiding means for said pin, a ball-channel containing a series of balls acting on said pin, said channel extending to and longitudinally within the shaft, and a controlling member movable in the length of the shaft having contact with the balls in said channel.

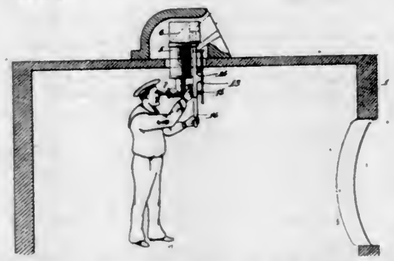
3. The combination of a rotary shaft, a crank-pin movably mounted thereon, and means for controlling the position of said crank-pin while the shaft is in motion, comprising guideways for the pin, a loop-shaped channel parallel to said guideways throughout a portion of its length, and extending out longitudinally of the shaft through another portion of its length, and a flexible chain of elements extending through said loop-shaped channel and connected to the crank-pin.

4. The combination of a rotary shaft, a crank-pin movably mounted thereon, and means for controlling the position of said crank-pin while the shaft is in motion, comprising guideways for the pin, a loop-shaped channel parallel to said guideways throughout a portion of its length, and extending out longitudinally of the shaft through another portion of its length, and a flexible chain of elements extending through said loop-shaped channel, and connected to the crank-pin, together with the sleeve longitudinally slidable on the shaft and connected to said flexible chain of elements.

5. The combination of a rotary shaft, a crank-pin movably mounted thereon, and means for controlling the position of said crank-pin while the shaft is in motion, comprising guideways for the pin, a loop-shaped channel parallel to said guideways throughout a portion of its length, and extending out longitudinally of the shaft through another portion of its length, and a flexible chain of elements extending through said loop-shaped channel and connected to the crank-pin, together with the sleeve longitudinally slidable on the shaft and connected to said flexible chain of elements, and means carried by said sleeve for taking up slack in the flexible chain of elements.

6. The combination of a rotary shaft, a crank-pin movably mounted thereon, and means for controlling the position of said crank-pin while the shaft is in motion, comprising guideways for the pin, a loop-shaped channel parallel to said guideways throughout a portion of its length, and extending out longitudinally of the shaft through another portion of its length, and a flexible chain of elements extending through said loop-shaped channel and connected to the crank-pin, together with the sleeve longitudinally slidable on the shaft and connected to said flexible chain of elements, and an adjusting-lever connected to said sleeve.

661,968. COMBINED RANGE-FINDER AND TURRET. BRADLEY A. FISKE, New York, N. Y. Filed June 28, 1900. Serial No. 21,869. (No model.)



Claim.—1. The combination with a revolving turret, of an optical range-finder carried thereon and constituting a permanent fixture thereof, whereby the range-finder will be trained on the target by the rotation of the turret, said range-finder comprising a telescope and two reflectors, said reflectors being secured at approximately the opposite ends of a diameter of the turret, which diameter thereby constitutes the base-line of the finder, and means for vertically alining the rays which come from a distant object to said opposite ends of the base-line, substantially as set forth.

2. The combination with a revolving turret, of a range-finder carried thereby and comprising a telescope, the eyepiece of which is out of line

with its objective, and through which the target is observed directly by the observer within the turret, a reflector mounted opposite said telescope and by means of which a reflected image of the object will be observed through the telescope, and means for aliuing the direct and reflected rays, substantially as set forth.

3. The combination with a revolving turret, of a range-finder carried thereby and comprisiug a telescope the eyepiece of which is out of line with its objective, said telescope being mounted near one side of the turret and through which the target is observed directly by the observer within the turret, a reflector mounted opposite said telescope and by means of which a reflected image of the object will be observed through the telescope, and means for adjusting the angle of said reflector, substantially as set forth.

4. The combination with a revolving turret, of a cross-bar pivoted thereon, a telescope carried by said bar, through which the target is observed directly, a reflector carried by the bar diametrically opposite to the telescope and through which a reflected image of the target is observed, means for adjusting the angle of said reflector, and means for manually rotating the cross-bar around its pivot, substantially as set forth.

5. The combination with a revolving turret, of a cross-bar pivoted to said turret, a vertical telescope carried by the cross-bar and projecting downward into the turret, a reflector carried by said telescope, a reflector carried by the cross-bar at its opposite end from the telescope, and means for adjnsting the angle of the latter reflector, substantially as set forth.

6. The combination with a revolving turret, of a cross-bar pivoted to said turret, a vertical telescope carried by the cross-bar and projecting downward into the turret, a reflector carried by said telescope, a reflector carried by the cross-bar at its opposite end from the telescope, and a lever connected to the pivot of the latter reflector by means of which its angle may be adjusted, substantially as set forth.

7. The combination with a revolving turret, of a cross-bar pivoted to said turret, a vertical telescope carried by the cross-bar and projecting downward into the turret, a reflector carried by said telescope, a reflector carried by the cross-bar at its opposite end from the telescope, a lever connected to the pivot of the latter reflector by means of which its angle may be adjusted, and an adjusting-lever cooperating with the said lever for adjnsting the position of the latter, substantially as set forth.

8. The combination with a revolving turret, of a cross-bar pivoted to said turret, a vertical telescope carried by the cross-bar and projecting downward into the turret, a reflector carried by said telescope, a reflector carried by the cross-bar at its opposite end from the telescope, a lever connected to the pivot of the latter reflector by means of which its angle may be adjusted, an adjusting-lever coöperating with said lever for adjusting the position of the latter, and an adjusting-screw for adjusting the position of the adjusting-lever, substantially as set forth.

9. In a range-finder, an observing-telescope movable relatively to a fixed pivot, with the eyepiece of the telescope in approximately the line of said pivot, whereby the adjustment of the telescope to maintain an object in the field of view does not effect a relative movement of the eyepiece, substantially as and for the purposes set forth.

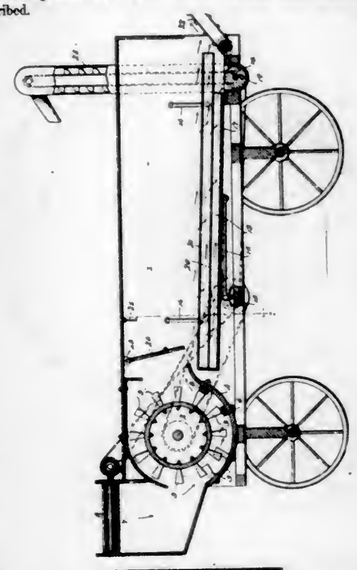
661,969. COMBINED CORN-CRUSHER AND FODDER-SHREDDER. VALENTINE FUHR, Hamlet, Ill. Filed May 17, 1900. Serial No. 17,032. (No model.)

Claim.—1. The combination, in a combined corn-crusher and fodder-shredder, of a revoluble cylinder, and an imperforate concave armed solely with shredding and breaking teeth on its front portion, said teeth and said cylinder-teeth being intercurrent, and said concave being armed solely on its rear portion with transversely-disposed crushing-bars, the face of said imperforate concave intermediate of said teeth and bars being free of teeth or bars, substantially as described.

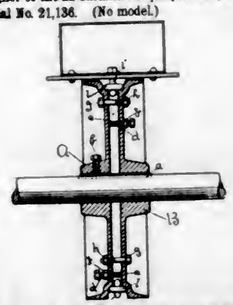
2. The combination, in a combined corn-crusher and fodder-shredder, of a revoluble cylinder, and an imperforate concave armed solely with shredding and breaking teeth on its front portion, said teeth and said cylinder-teeth being intercurrent and said concave being armed solely on its rear portion with transversely-disposed crushing-bars, substantially as described.

3. The combination, in a combined corn-crusher and fodder-shredder, of a revoluble cylinder, and an imperforate concave armed solely with shredding and breaking teeth on its front portion, said teeth and said cylinder-teeth being intercurrent and said concave being armed solely on its rear portion with transversely-disposed crushing-bars, and a sifter onto which said concave discharges, adapted to separate the meal from the imperfectly-reduced products, substantially as described.

4. The combination in a combined corn-crusher and fodder-shredder, of a revoluble toothed cylinder, and an imperforate concave armed solely on its front portion with shredding and breaking teeth, said cylinder and concave teeth being intercurrent, and armed solely on its rear portion with transversely-disposed bars, the end surfaces of the cylinder-teeth sweeping over and in close proximity to the top surfaces of the said bars and coacting therewith to grind material between them, substantially as described.



661,970. CONVEYER-PULLEY. MICHAEL GARLAND, Bay City, Mich., assignor to the M. Garland Company, same place. Filed June 22, 1900. Serial No. 21,136. (No model.)



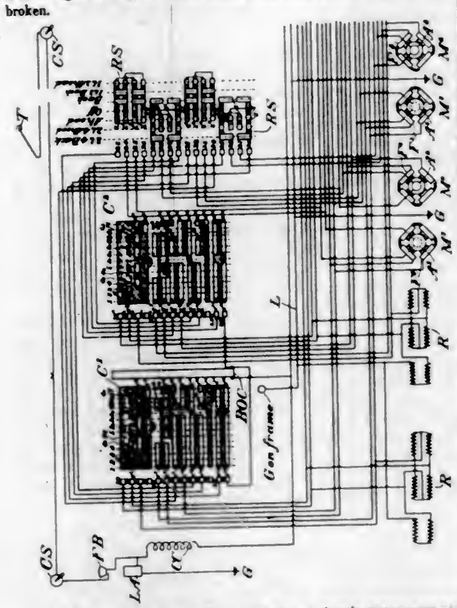
Claim.—1. A pulley for driving conveyer-chains, comprising two sections, each substantially of the form of half a solid chain-pulley that has been divided on the plane of its chain-groove; means carried by said pulley for adjusting the space between said sections; and means carried by said pulley for clamping the sections in their adjusted position, whereby the groove is conformed in width to the width of the conveyer-chain links and is adjustably adapted to grip the links.

2. In a conveyer-pulley comprising a fixed section and a section movable along the shaft toward or from the fixed section; means for adjusting said sections relatively to each other, comprising in combination set bolts screwed into one section and bearing against the other section, and bolts passing through both sections for clamping said sections in position, substantially as described and for the purposes set forth.

3. A separable grooved pulley for conveyers and the like comprising two sections, each section being of the form of half a solid grooved pulley that has been divided on the central plane of its groove; one of said sections being fixed to the pulley-shaft and the other section being movable along the shaft; set-bolts carried by one of said sections and bearing against the other section; and tie-bolts passing through both sections for clamping them together, substantially as described.

661,971. CONTROL OF ELECTRIC MOTORS. FRANK W. GARRETT, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Mar. 26, 1900. Serial No. 10,151. (No model.)

Claim.—1. The method of controlling a plurality of electric motors arranged in groups, which consists in effecting certain circuit changes in one group of motors whereby the relations of the motors or motor elements in that group are changed with respect to each other and during such changes keeping the circuit through the other group or groups unbroken.



2. The method of controlling a plurality of electric motors arranged in groups by gradually changing the motors of each group from series to parallel relation through a series of steps, some of which are effected in one group of motors in advance of the corresponding changes in the other group or groups and while the latter are actively in circuit.

3. The method of controlling a plurality of motors connected in parallel groups, which consists in changing the motors of each group from series to parallel relation by circuit changes therein, some of which are effected in one group before they are effected in the other group or groups and without opening the circuit of the latter.

4. The method of controlling a plurality of electric motors which consists in starting them from a position of rest with their fields and armatures connected in series, then connecting their fields in multiple, then connecting their armatures in multiple and their fields in series, and finally connecting the motors as a whole in multiple, those circuit changes which effect the multiple connections of the armatures alone being effected in some of the motors in advance of such changes in the remaining motors and without opening the circuit therethrough.

5. The method of controlling a plurality of electric motors in groups or pairs connected in multiple with each other, which consists in starting them from a position of rest with the armatures and field-coils of each group or pair connected in series, then connecting the fields in multiple, then connecting the armatures in multiple and the fields in series, and finally connecting the motors of each pair or group in multiple, the multiple connection of the armatures alone being effected in one group o pair in advance of the other group or groups and without opening the circuit of the latter.

6. In a series-parallel system of control for a plurality of electric motors, the method of connecting their armatures in multiple which consists in first breaking the circuit through some of the motors while maintaining a circuit through the remaining motors, then connecting the armatures of the first-named motors in multiple and reconnecting them in circuit, and then effecting like changes in the remaining motors.

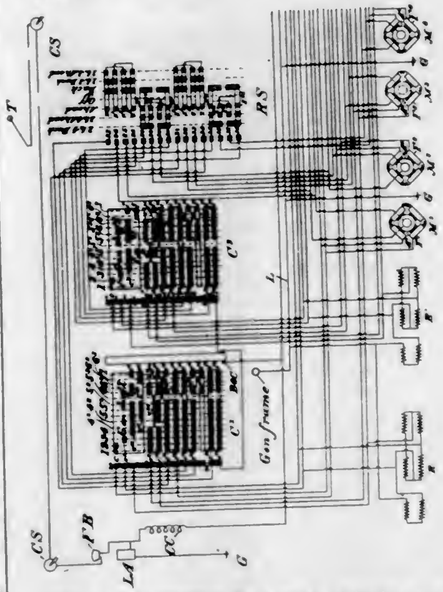
7. In a series-parallel system of control for a plurality of electric motors, the method of connecting the armatures in multiple which consists in first connecting the armatures of one group or pair in multiple without breaking the circuit through the remaining motors, and then effecting a like connection in the remaining motors while maintaining a circuit through the first group or pair, substantially as described.

8. The method of controlling a plurality of electric motors connected in parallel groups, which consists in starting with the motors of each group connected in series, then connecting the field-coils of each group in parallel, then cutting out one group, and reconnecting them in circuit with their armatures in parallel and their fields in series, then making similar changes in the other group or groups, and finally connecting the motors of each group wholly in parallel with each other.

9. The method of controlling a plurality of electric motors connected in parallel groups, which consists in starting with the motors of each group connected in series, then connecting certain elements of the motors of each group in parallel with the remaining elements still in series, then by further changes in each group, connecting those elements in parallel which were before in series and those elements in series which were before in parallel, and finally connecting the motors of each group wholly in parallel.

10. The method of controlling a plurality of electric motors connected in parallel groups of two motors each, which consists in first removing the field-coils of one motor of each group and reconnecting them in parallel with the field-coils of the other motor of the group, then cutting out each group successively, and reconnecting it in circuit with its armatures in parallel and its field-coil in series, and then connecting the motors of each group wholly in parallel with each other.

661,972. CONTROLLER FOR ELECTRIC MOTORS. FRANK W. GARRETT, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Original application filed Mar. 26, 1900, Serial No. 10,151. Divided and this application filed June 5, 1900. Serial No. 19,144. (No model.)



Claim.—1. The combination with a plurality of electric motors, of a controller arranged to connect said motors in parallel groups, and having contacts and connections for changing the motors of each group from series to parallel relation, said contacts being differently arranged for the different groups, whereby certain circuit changes are effected successively in the different groups.

2. The combination with a plurality of electric motors, of a controller arranged to connect said motors in parallel groups, and having contacts and connections for changing the motors of each group from series to parallel relation, certain contacts in one group being of different length from the corresponding contacts of the other group or groups.

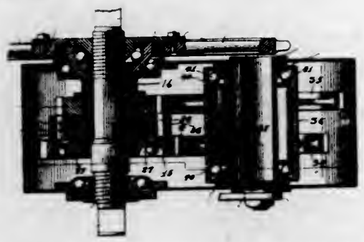
3. The combination with a plurality of electric motors, of a controller arranged to connect the same in parallel groups, said controller having a moving member for each of said groups, adapted to change the individual motors thereof from series to parallel relation, and means whereby certain steps in such change are successively effected in the different groups and without opening the circuit of more than one group at a time.

4. The combination with a plurality of electric motors designed to be operated in groups, of a controller therefor having a movable member for each group of motors, each of said members having contacts for connecting the motors of its group both in series and in parallel, and also for connecting either the fields or armatures of said motors in parallel, with the other elements in series, the said contacts being differently arranged on the different members to effect certain of said circuit conditions in one group in advance of a like effect in the other group or groups.

5. The combination with a plurality of electric motors, arranged to be operated in groups, of a controller therefor, having a movable member for each group of motors, and connecting the several groups in parallel, each of said members having one position in which the motors of its group are connected in series, a second position in which they are connected in parallel, and intermediate positions which respectively connect the fields in parallel and the armatures in series, and then the armatures in parallel and the fields in series, and means whereby the said movable members effect the last-named circuit condition successively in the different groups.

6. The combination with a plurality of electric motors, arranged to be operated in parallel groups or pairs, of a controller having a drum for each group or pair of motors, each of said drums having contacts and connections for connecting its motors both in series, both in parallel, and also either the fields or armatures only in parallel and in series with the remaining elements, and means for operating said drums simultaneously, certain contacts being of various lengths on the different drums, whereby in certain positions the different drums will at the same time effect different circuit conditions of their respective groups or pairs of motors.

661,973. BICYCLE. FRANK J. GIBBS, Tyrone, Pa. Filed Apr. 1, 1899. Serial No. 711,400. (No model.)

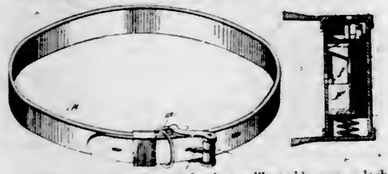


Claim.—1. An eccentric mounting for differential gears comprising a suitable support, a rotary spindle journaled therein, a separable tubular eccentric carried by the spindle, a hollow gear-carrying sleeve encircling the eccentric, oppositely-disposed bearing members adjustably carried by the eccentric and closing the ends of the sleeve, and loosely-mounted antifriction devices intermediate of the bearing members and sleeve.

2. An eccentric mounting for differential gears comprising a support, a rotary spindle, a separable tubular eccentric carried thereby, a gear-carrying sleeve surrounding the eccentric, bearing-cones adjustably carried by the eccentric and closing the ends of the sleeve, antifriction-balls intermediate of the cones and sleeve, and internal projections upon the sleeve for retaining the balls in effective engagement with the bearing-surfaces.

3. In differential-speed gearing for foot-propelled vehicles, the combination with the crank-shaft, and a crank-shaft casing having a rearward extension of corresponding width, of differential gears on the crank-shaft, a hollow sleeve or drum mounted eccentrically in said casing in rear of the crank-shaft, differential gears thereon adapted to mesh with the aforesaid gears, a tubular eccentric on which said sleeve is journaled, a tubular spindle for said eccentric having its ends journaled in the crank-hanger, means for turning said spindle, ball-cups within the ends of the sleeve and outside the planes of the gears thereon, cones adjustably mounted on the ends of the eccentric, and antifriction ball-bearings between the cups and cones, substantially as and for the purpose described.

661,974. LOCK-BUCKLE. CHARLES A. GOODEY, Fall River, Mass. Filed Apr. 19, 1900. Serial No. 13,508. (No model.)



Claim.—1. A lock-buckle having resilient side arms, a lock having its casing detachably held and adapted to be inserted and removed from between said arms by springing them apart, and a pivoted tongue capable of engagement with said lock.

2. A lock-buckle having a tubular lock-casing provided with a slot and with a slotted partition, a block fitting said casing and having a lug adjacent to said slot, a spring normally pressing said block against the partition, a bent lever having one arm passing through the slot in the partition and resting against the block, and a tongue having a hole to be engaged by the lug on the block.

3. A lock-buckle having side arms provided with broadened flanged ends, a lock having a tubular lock-casing held between said ends and received in said flanges, and a pivoted tongue capable of engagement with said lock.

4. A lock-buckle having resilient side arms provided with broadened flanged ends, flattened on one side, a lock having a tubular lock-casing also flattened on one side and held between said flanged ends, and a pivoted tongue capable of engagement with said lock.

661,975. TROLLEY. HENRY S. GOUGHNOUR, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 12, 1899. Serial No. 740,087. (No model.)



Claim.—1. In a trolley, the combination of a harp, the bushing-seated in the arms thereof, the wheel-spindle journaled in said bushings, the wheel removably secured to said spindle, and the contact-springs exterior to the harp-arms and having removable and renewable contact devices which bear on the end portions of the said spindle.

2. In a trolley, the combination of a frame or harp, a spindle journaled therein, a wheel secured to said spindle, and spring-arms secured to the said frame or harp and having at their free ends contact devices bearing on the end portions of the said spindle, said arms having inwardly-facing cup-shaped portions surrounding the said contact devices and bearing against the outer faces of the harp-arms

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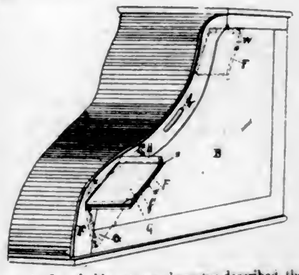
661,976. COLORED PHOTOGRAPH. PROSPER M. C. GRENIER, New York, N. Y., assignor to the Grenier Art Company of West Virginia. Original application filed May 1, 1899. Renewed Mar. 6, 1900, Serial No. 7,595. Divided and this application filed June 19, 1900. Serial No. 20,906. (No specimens.)

Claim.—1. A photograph in colors on textile fabric having alum in the fabric and on the back thereof and colors applied only to the face thereof, substantially as set forth.

2. A photograph in colors on textile fabric having alum in the dry state in the fabric and colors applied on the face of the photograph, substantially as set forth.

3. A photograph on textile fabric, having alum applied to the said fabric and colors applied to the face thereof, substantially as set forth.

661,977. HOLDER FOR MEMORANDUM-BLANKS OR THE LIKE. HARRY HAKE, Cincinnati, Ohio, assignor of one-half to Richard Y. Luthy, same place. Filed May 15, 1900. Serial No. 16,806. (No model.)



Claim.—1. In a holder of the character described, the combination of an attaching-plate, a rod extending laterally therefrom, a supporting-plate also extending laterally to the attaching-plate substantially parallel with the rod, a hinge between the attaching-plate and rod, a securing device for exerting pressure on the hinge and supporting-plate in opposite directions substantially longitudinally of the rod and plane of the supporting-plate, means on the supporting-plate extending substantially parallel with the rod laterally to the attaching-plate for receiving a clamp for paper pad and the like and distant from the longitudinal plane of the axis of the rod, with the supporting-plate arranged to swing in lateral position about an axis lateral to the attaching-plate at about the middle of the supporting-plate, with the means for receiving a clamp maintained substantially parallel with and distant from the longitudinal plane of the axis of the rod, and constructed and arranged for permitting the supporting-plate and rod to be dropped out of the way so as to hang from the attaching-plate while the supporting-plate, rod and means for receiving the clamp are maintained substantially parallel substantially as described.

2. In a holder of the character described, the combination of an attaching-plate, a rod extending laterally therefrom, a supporting-plate also extending laterally to the attaching-plate substantially parallel with the rod, a hinge between the attaching-plate and rod, a securing device for exerting pressure on the hinge and supporting-plate in opposite directions substantially longitudinally of the rod and plane of the supporting-plate, means at both top and bottom of the supporting-plate extending substantially parallel with the rod laterally to the attaching-plate for receiving a clamp for paper pad and the like and distant from the longitudinal plane of the axis of the rod, with the supporting-plate arranged to swing in lateral position about an axis lateral to the attaching-plate at about the middle of the supporting-plate, with the means for receiving a clamp maintained substantially parallel with and distant from the longitudinal plane of the axis of the rod, and constructed and arranged for permitting the supporting-plate and rod to be dropped out of the way so as to hang from the attaching-plate while the supporting-plate, rod and means for receiving the clamp are maintained substantially parallel, substantially as described.

3. In a holder of the character described, the combination of an attaching-plate, with a rod and a pivotally-arranged supporting-plate extending laterally therefrom and maintained in substantially parallel planes, a hinge between the attaching-plate and the rod, and a clamp for the supporting-plate and rod constructed and arranged for producing pressure on the hinge and supporting-plate in opposite directions longitudinally of the rod and plane of the supporting-plate and for permitting the supporting-plate and rod to be dropped so as to hang from the attaching-plate, substantially as described.

4. In a holder of the character described, the combination of an attaching-plate, a pivoted supporting-plate extending laterally with relation thereto, a rod for the supporting-plate extending laterally to the attaching-plate substantially parallel to the supporting-plate, a hinge between the rod and attaching-plate, and a clamp for the rod for clamping the supporting-plate between the clamp and the attaching-plate by exerting pressure on the supporting-plate and hinge in opposite directions substantially longitudinally of the rod and of the plane of supporting-plate, and with the supporting-plate and rod arranged to be dropped out of the way while maintained in substantially parallel position so as to hang from the attaching-plate, substantially as described.

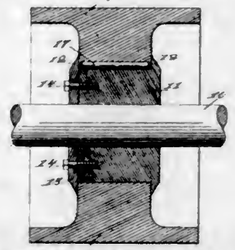
5. In a holder of the character described, the combination of an attaching-plate, a supporting-plate extending laterally with relation thereto, a rod extending laterally from the attaching-plate parallel to the supporting-plate with the supporting-plate pivoted about the rod, and a clamp at the outer end of the rod for clamping the supporting-plate between the clamp and attaching-plate by forcing the supporting-plate and rod in opposite directions longitudinally of the rod and of the plane of the supporting-plate, and with the supporting-plate and rod arranged to be dropped out of the way while maintaining their relatively parallel position so as to hang from the attaching-plate, substantially as described.

6. In a holder of the character described, the combination of an attaching-plate, a pivoted supporting-plate extending laterally with relation thereto, a rod for the supporting-plate extending laterally from the attaching-plate parallel to the supporting-plate, and a clamp at the outer end of the rod for clamping the supporting-plate between the clamp and attaching-plate by forcing the supporting-plate and rod in opposite directions longitudinally of the rod and of the plane of the supporting-plate, and with the supporting-plate and rod arranged to be dropped out of the way while maintaining their relatively parallel position so as to hang from the attaching-plate, substantially as described.

7. In a holder of the character described, the combination of an attaching-plate A, having a socket C, and a slot c, a rod E with ball D thereon taking into the socket, a plate F extending longitudinally of and parallel with the rod with the plate swingingly secured with relation to the plate A, depending side f' and depending extensions f^2, and nut e' at the outer end of rod E and outside of plate F, constructed and arranged for clamping the plate F between the nut and plate A by forcing the plate F and rod in opposite and parallel directions longitudinally of the rod E and of the plane of the plate F, and with the plate F and rod E arranged to be dropped out of the way while maintaining their relatively parallel positions so as to hang from the attaching-plate with the pad side of the plate outward, substantially as described.

661,978. ROLLER-RATCHET FOR PULLEYS, &c. GEORGE E. HALL, Kansas City, Mo. Filed Jan. 26, 1900. Serial No. 2,888. (No model.)

Claim.—1. An improved roller-ratchet for pulleys and the like, comprising in combination, a hub 11, having an integral flange 12, a plate 13 detachably connected with the opposite end of the hub, a rim mounted on said hub between the integral flange and said detachable plate, and having pockets 16 therein, extending entirely through the rim and rollers in said pockets, substantially as, and for the purposes stated.



2. An improved roller-ratchet device for pulleys and the like, comprising, in combination, a hub having on its ends projecting flanges, a pulley-rim or the like, mounted upon said hub between said flanges, there being pockets 16 in said rim, extending entirely through the rim, rollers in said pockets, ball-holders on the ends of the rollers, and bearing-balls in said holders, substantially as, and for the purposes stated.

661,979. BARBER-POLE. CHRISTIAN R. HANSON, Savanna, Ill. Filed Aug. 27, 1900. Serial No. 27,192. (No model.)



Claim.—1. A barber pole having a rotatable member, a fixed transparent cylinder inclosing said member, and an exteriorly-exposed wind-actuated device for operating the said rotatable member.

2. A barber-pole having a rotatable member with a surface design thereon, a stationary transparent cylinder inclosing said member, means engaging the upper portion of the member for rotating the same, and means for illuminating both the member and the interior of the cylinder which is entirely independent of the means for rotating said member.

3. A barber-pole comprising two tubular members, the outer one being fixed and the inner one rotatable and exposed through said outer member, the inner member being operated by mechanism from above the upper end of the same, and lighting means above the plane of both members and operating to illuminate the interior of the inner member.

4. A barber-pole having a rotatable member, a fixed transparent cylinder inclosing said member, means for illuminating the said parts, and an exteriorly-exposed wind-actuated device for operating the said rotatable member.

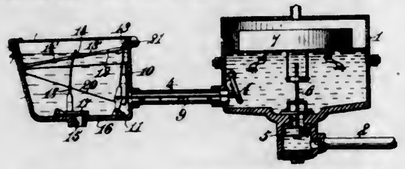
5. A barber-pole having a base and a pedestal with a flat top, a transparent cylinder stationarily mounted on the said top, a stationary cap on the upper end of the cylinder, vertical rods for connecting the flat top and cap, a capital supported above the cap and having an opening extending therethrough, a striped rotatable member located within the cylinder and having a closed bottom and an open top, mechanism mounted

on and extending through the capital and the cap and located in the latter for operating the said member, and means within the cap for illuminating the member and cylinder.

6. A barber-pole having a rotatable illuminated member with a spindle extending therethrough and forming a movable support therefor, and a stationary transparent cylinder surrounding the said member.

7. A barber-pole having an inner rotatable member having a closed bottom and an open top, means for illuminating the latter from the interior and located over said top, and an upper exteriorly-exposed wind-actuated device for operating the said rotatable member.

661,980. STOCK-WATERING APPARATUS. JOHN H. HANSON, Oakland, Nebr. Filed Mar. 23, 1900. Serial No. 9,893. (No model.)



Claim.—1. In a stock-watering apparatus, a drinking-trough having an outlet-opening in its bottom, and a valve therefor, a water-inlet pipe leading to the trough, a valve controlling the flow of water through said pipe, resilient levers for operating said valves, and means with which said levers engage for retaining them in position to hold the valves open or closed, substantially as described.

2. In a stock-watering apparatus, the combination with the drinking-trough having an outlet-opening in its bottom and a valve therefor, of a water-inlet pipe for the trough, a valve controlling the flow of water through said pipe, and means for locking said valves in their open and closed positions.

3. In a stock-watering apparatus, the combination with the drinking-trough having an outlet-opening therein, and a valve therefor, of a water-inlet pipe for the trough, a valve controlling the flow of water through said pipe, independent levers for operating said valves, and means with which said levers engage for locking them in position to hold the valves open or closed.

4. In a stock-watering apparatus, the combination with the drinking-trough having an outlet-opening in its bottom and a valve therefor, of a water-inlet pipe leading into the trough, a valve controlling the flow of water through said pipe, independent levers located within the trough for operating said valves, and a notched bar having spring-clips attached thereto with which said levers engage for locking them in position to hold the valves open or closed.

5. In a stock-watering apparatus, the combination with the drinking-trough having an outlet-opening in its bottom and a valve therefor, of a water-inlet pipe leading into the trough, a valve controlling the flow of water through said pipe, independent levers located within the trough for operating said valves, a notched cross-bar secured within the trough and having spring-clips attached thereto with which said levers engage for the purpose specified, and a protector-plate hinged to the trough and provided with side wings which inclose the levers and cross-bar, substantially as described.

6. In a stock-watering apparatus, the combination with the drinking-trough, of a water-chamber, a float-valve in the chamber for controlling the water-level in the trough, a pipe leading from said trough to the water-chamber, a valve for controlling the flow of water through said pipe, and means for holding said valve in its open and closed positions, substantially as described.

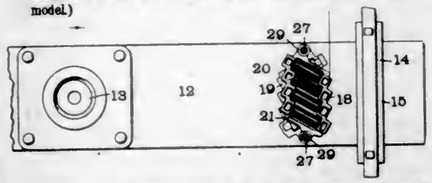
7. In a stock-watering apparatus, the combination with the drinking-trough having a valve-controlled outlet in its bottom, of a water-chamber, a pipe leading from said trough to the water-chamber, a valve in the water-chamber controlling the flow of water through said pipe, a pivoted operating-lever for said valve located within the trough, a connection between said lever and valve, a cross-bar arranged within the trough, and engaging means for the lever carried by said cross-bar, substantially as described.

8. In a stock-watering apparatus, the combination with the trough having a valve-controlled outlet in its bottom, of a water-chamber, a pipe leading from said trough to the water-chamber, a valve in the water-chamber controlling the flow of water through the pipe, a pivoted operating-lever for said valve, located within the trough, a connection between said valve and lever, and means for locking said lever in position to hold the valve open or closed.

9. In a stock-watering apparatus, the combination with the drinking-trough having a valve-controlled outlet-opening in its bottom, of a water-chamber, a pipe connection between the trough and chamber, a float-valve regulating the flow of water to the chamber, a valve controlling the flow of water from the chamber to the trough, and means located within the trough for operating the said last-named valve, substantially as described.

10. In a stock-watering apparatus, the combination with the drinking-trough, of a water-supply pipe therefor, a valve controlling the supply of water passing through said pipe, an operating-lever for said valve, pivoted within the trough, a rod passing through said pipe and attached at one end to the lever and at its opposite end to the valve, and means for locking said operating-lever in the open or closed position, substantially as described.

661,981. SIDE BEARING FOR RAILWAY-CARS. RUSSELL HARDING, St. Louis, Mo. Filed Aug. 23, 1900. Serial No. 27,752. (No model.)



Claim.—1. The combination with the body-bolster of a car and its corresponding truck-bolster, of an antifriction-roller secured to said body-bolster, and an antifriction-roller secured to said truck-bolster, said rollers being arranged at an angle to each other.

2. The combination with the body-bolster of a car and its corresponding truck-bolster, of a plurality of antifriction-rollers secured to said body-bolster, and a plurality of antifriction-rollers secured to said truck-bolster, the rollers on one of said bolsters being arranged at an angle to those on the other.

3. The combination with the body-bolster of a car and its corresponding truck-bolster, of a casing carried by said body-bolster, a roller removably secured in said casing, a casing secured to said truck-bolster and a roller removably secured in said second casing, said rollers being arranged at an angle to each other.

4. The combination with the body-bolster of a car and its corresponding truck-bolster, of a casing carried by said body-bolster, a plurality of rollers removably secured in said casing, a casing carried by said truck-bolster, and a plurality of rollers removably secured in said second casing, the rollers in one of said casings being arranged at an angle to those in the other.

661,982. LUMBER OR LOG WAGON. JOHN H. HARRIS, Willow, Ark. Filed Sept. 14, 1900. Serial No. 29,990. (No model.)



Claim.—1. The combination with a bolster having a series of shoulders on its upper face, of opposite horizontal flanges above said shoulders, a skid slidably engaging said flanges, and a leg carried by said skid and adapted by the tilting of the skid to engage or disengage said shoulders, substantially as and for the purpose set forth.

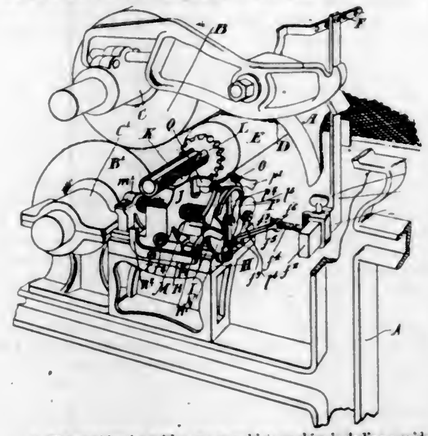
2. The combination with a bolster having on its upper face a series of shoulders, of plates secured to and extending above said bolster and having horizontal oppositely-arranged flanges, a skid having side notches in which said flanges engage and having a bracing-leg extending between said flanges and provided with lateral toes adapted to engage the under sides of said flanges, substantially as described.

3. The combination with a bolster having a series of shoulders on its upper face, of plates secured to and extending above said bolster and provided with oppositely-disposed horizontal flanges, said flanges having downturned or bent end portions, a skid having side notches in which said flanges engage, a bracing-leg adapted to engage said shoulders, and means for supporting the skid at the ends of said plates, substantially as described.

4. The combination with a bolster having on its upper face a series of shoulders and provided with skid-guides, of a skid engaging said guides and having a bracing-leg secured thereto and adapted by the tilting of the skid to engage or disengage said shoulders, substantially as described.

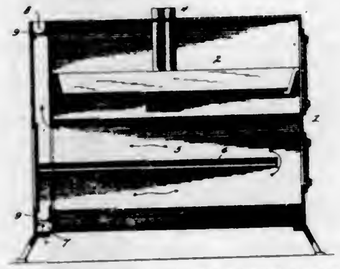
661,983. WIRE-WEB GUIDE FOR PAPER-MAKING MACHINES. THOMAS HARVEY, Jr., Hull, Canada. Filed May 29, 1900. Serial No. 18,440. (No model.)

Claim.—1. The combination in a paper-making machine with the traveling wire or felt and guide-roll therefor, of an adjustable journal-block for said roll, a single controller-stick, mechanism interposed between the same and the block for shifting the latter, said stick comprising a vertically-hung pivotally-supported portion adapted to contact with one edge of the web and a laterally-projecting weighted part to swing the stick inwardly to follow the web, substantially as described.



2. The combination with a paper-making machine including a guide-roll, a web, an adjustable journal-block for said roll, a ratchet-wheel, mechanism operated thereby for shifting said block, pawls adapted to engage and operate said wheel, and means controlled by the position of the web to hold one of said pawls disengaged from said ratchet-wheel, and a projection carried directly by said block adapted to disengage the active pawl when the block is shifted in one direction, and an independent pivoted lever adapted to disengage the active pawl when the block is shifted in the opposite direction, substantially as described.

661,984. STOVE. JAMES E. HATCH, Eaton, N. Y. Filed May 11, 1900. Serial No. 16,343. (No model.)



Claim.—1. A stove having a combustion-chamber, an oven immediately beneath and in contact with said combustion-chamber, a smoke-flue, leading from said combustion-chamber around the said oven, and disposed immediately within the casing of the stove, and exterior air-openings leading to and from the said oven, for the purpose set forth, substantially as described.

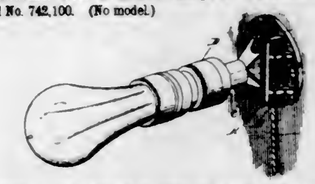
2. A stove having a combustion-chamber, an oven immediately beneath and in contact with said combustion-chamber, a smoke-flue leading from said combustion-chamber around the said oven, and disposed immediately within the casing of the stove, exterior air-openings leading to and from the said oven, and a division-plate in the said oven, forming a baffle to increase the length of the air-heating flue formed in the oven, substantially as described

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661,985. PROCESS OF DYEING. EMIL HAUSMANN, Berlin, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed July 10, 1900. Serial No. 23,068. (No specimens.)

Claim.—The process of fixing coloring-matter on wool, said process consisting of simultaneously mordanting and dyeing woolen goods in a bath containing the dye together with chromates and neutral ammonium salts.

661,986. SUPPORTING BLOCK OR BRACKET FOR ELECTRIC FIXTURES. JOHN W. HEISER, Chicago, Ill. Filed Dec. 30, 1899. Serial No. 742,100. (No model.)



Claim.—1. In a bracket for electrical fixtures, the combination with a base member having provision for attaching it to a support, of a fixture-carrying member, a projecting part on one of said members slidably engaging in a socket on the other member, to detachably hold the members together, said projecting part having formed therein a passage for the wires, substantially as described.

2. In a supporting-bracket for electrical fixtures, the combination of a base member adapted to be fixed to a support, a fixture-carrying member, a dovetail projection on one member slidably engaging in a corresponding socket on the other member and forming a detachable connection between said members, said dovetail projection having a passage therein for the wires, substantially as described.

3. In a bracket for an electrical fixture, the combination with a base having inclined converging flanges, of a carrying-block having inclined converging sides coacting with said converging flanges to hold the base member and carrying-block together, an open center and provisions for the connection of a fixture, substantially as described.

4. In a bracket for electrical fixtures, the combination with a base and a slidable carrier member, having provisions for attaching the fixture, of a slidable interlocking connection between the members and interposed insulating material, substantially as described.

5. In a bracket for electrical fixtures, the combination with a base member having provisions for attaching it to a supporting-surface, of a fixture-carrying member, a slidable interlocking connection between the members and a passage for the wires extending outside from one of the members, and interposed insulating material, substantially as described.

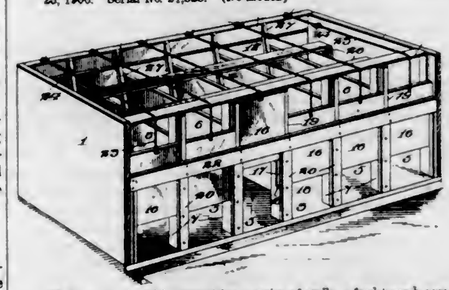
6. In a supporting-bracket for electrical fixtures, the combination with a base member, of a carrying member, a slidable dovetail connection between the members, a wire-passage extending out from between the members, and interposed insulating material, substantially as described.

7. In a bracket for an electrical fixture, the combination with a base having inclined converging flanges, of a carrying-block having inclined converging sides, an open center, and provisions for the connection of a fixture, and interposed insulating material, substantially as described.

8. In a bracket for electrical fixtures, the combination with a base member having provisions for attaching it to a supporting-surface, of a fixture-carrying member, a detachable wedge connection between the members and a passage for the wires formed in said connection and extending outward from one of the members, substantially as described.

9. In a supporting-bracket for electrical fixtures, the combination with a base member adapted to be fixed to a support, of a carrying member, a wedge projection on one member slidably and detachably engaging in a corresponding socket in the other member, said projection having formed therein a wire-passage, substantially as described.

661,987. STABLE. JAMES HINES, Monkton, Canada. Filed June 23, 1900. Serial No. 21,325. (No model.)



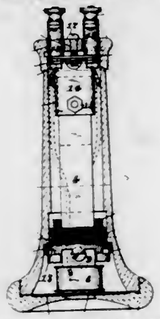
Claim.—1. A stable comprising a series of stalls, a feed-trough common to the several stalls and provided with a feed-door extending entirely across the stable, individual doors for the several stalls, the stall-doors and feed-door being located at opposite ends of the stable, and individual stall-door-operating devices for each of the several stall-doors.

2. A stable comprising a series of stalls, a feed-trough common to the several stalls and provided with a feed-door extending entirely across the stable, individual doors for the several stalls, the stall-doors and feed-door being located at opposite ends of the stable, and individual stall-door-operating devices for each of the several stall-doors, said devices being extended to the end of the stable at which the feed-door is located to permit the manipulation of the feed-door and of the individual stall-doors from the same end of the stable.

3. A stable comprising a series of stalls and having a vertically-inclined front wall, a feed-trough common to all of the stalls and located at the front end of the stable, a feed-door extending the full length of the trough and hinged at its upper edge to said wall in a vertical plane intermediate of the trough-walls, and a feed-door-retaining device arranged to engage opposite sides of the front wall to retain the door flush with said wall or in a position intermediate of the trough-walls.

4. A stable comprising a vertically-inclined front wall provided with a doorway, a feed-trough located adjacent to the bottom of the front wall and extending the full length of the stable, a series of partitions defining stalls extending from one side of the feed-trough, a stall-door hinged at its upper edge within the doorway, a door-retaining button carried by the door and provided with a tailpiece, said button being arranged to retain the door in a position flush with one wall of the trough or in a position intermediate of the walls thereof, and door-retaining devices mounted upon the wall of the trough and constituting stops for preventing the swinging of the door beyond the front wall of the stable.

661,988. TELEPHONE-RECEIVER. HARRY H. HIPWELL, Allegheny, Pa., assignor to Hipwell Manufacturing Co., same place. Filed Feb. 10, 1900. Serial No. 4,834. (No model.)



Claim.—1. In a telephone-receiver, the combination of a shell having a shoulder therein, a permanent magnet, a diaphragm, and a sleeve or collar fitting around said magnet adapted to engage with said shoulder for adjusting said magnet to and from said diaphragm.

2. In a telephone-receiver, the combination of a shell having a shoulder therein, a permanent magnet, a diaphragm, and a threaded sleeve or collar fitting around said magnet and adapted to engage with said shoulder for adjusting said magnet to and from said diaphragm.

3. In a telephone-receiver, the combination of a shell having a shoulder therein, a permanent magnet having a threaded portion thereon, a diaphragm, and a threaded sleeve or collar engaging with the threaded portion on said magnet, said sleeve or collar having a flange or enlargement thereon adapted to engage with said shoulder for adjusting said magnet to and from said diaphragm.

4. In a telephone-receiver, the combination of a shell having a shoulder therein, a permanent magnet having a threaded portion thereon, a diaphragm, a threaded sleeve or collar engaging with the threaded portion on said magnet, said sleeve or collar having a flange or enlargement thereon adapted to engage with said shoulder, and means on said sleeve or collar for operating the same to adjust said magnet to and from said diaphragm.

5. In a telephone-receiver, the combination of a shell having a shoulder therein, a permanent magnet having a threaded portion thereon, a diaphragm, a threaded sleeve or collar engaging with the threaded portion on said magnet, said sleeve or collar having a flange or enlargement therein adapted to engage with said shoulder, and openings or slots in said sleeve for the insertion of an instrument to revolve the same and adjust said magnet to and from said diaphragm.

6. In a telephone-receiver, the combination of a shell having a shoulder therein and a heel formed as part thereof, a permanent magnet, a clamp secured to said magnet, binding-posts on said clamp adapted to pass through openings in the heel of the shell, and means for removably securing said magnet and clamp between the shoulder and heel of said shell.

7. In a telephone-receiver, the combination of a shell having a shoulder therein and a heel formed as part thereof, a permanent magnet, a clamp secured to said magnet, binding-posts on said clamp adapted to pass through openings in the heel of the shell, and screws passing through openings in the heel of the shell and engaging with said clamp for removably securing said magnet and clamp between the shoulder and heel of the shell.

661,989. SAFE. JAMES H. HOWARD, Medford, Mass. Filed Dec. 1, 1897. Serial No. 661,232. (No model.)



Claim.—1. In a safe or vault, the combination of a door, and a jamb built up of layers or plates of material, one of which plates within the jamb has a portion next the door-opening extending outwardly across the ends of the front plate or plates and out to or beyond the front surface of the door, whereby an unseamed outer jamb is formed to the depth of two or more jamb-plates, for the purpose specified.

2. In a safe or vault, the combination of a door, a jamb built up of layers or plates of material, one or more of which plates have portions extending outwardly parallel to the door-opening and beyond the front surface of the jamb, so as to form a protruding flange around the door-opening, and a hinge having top and bottom horizontal portions and a vertical portion uniting said horizontal portions, the said vertical portion being offset to pass the flange, and extending over and protecting the vertical joint between the door and jamb on the hinge side of the door.

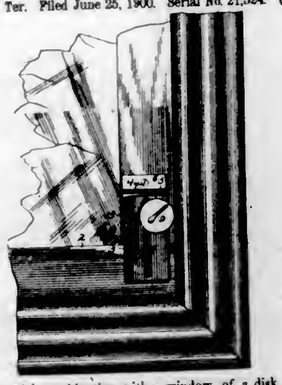
661,990. COMBINED CANE AND UMBRELLA. ERNST HUGENDUBEL, Stuttgart, Germany. Filed Dec. 10, 1898. Serial No. 698,890. (No model.)



Claim.—1. In a cane-umbrella, the combination, with an umbrella having a stick, of a ring secured to the stick and provided with a spring-bow portion having a nose, a flexible casing arranged to slip over the umbrella, and a collar connected to said casing, and provided with a groove for engagement with the nose on the spring-bow.

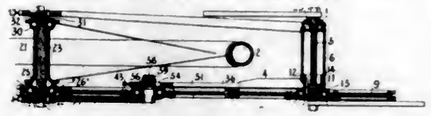
2. In a cane-umbrella, the combination with an umbrella and a flexible casing arranged to slip over said umbrella, of a sheath within the said casing, and a collar outside said casing and removably connected to said sheath, whereby the casing is clamped to the collar, and means for removably securing the collar and sheath to the extremity of the casing.

661,991. SASH HOLDER AND FASTENER. WILLIAM A. HULME, Ryan, Ind. Ter. Filed June 25, 1900. Serial No. 21,524. (No model.)



Claim.—The combination with a window, of a disk eccentrically pivoted to the sash at one side thereof and arranged to engage the window-frame, the distance between the window-frame and the pivot being less than the distance between the latter and the farther side of the disk, whereby the latter may be arranged with its major portion above or below the pivot to engage the frame, said disk being out of engagement with the sash when at an intermediate point, and a spring engaging the back of the disk, and arranged to hold the disk when the latter is swung upward or downward, and also when the major portion of the disk is at an intermediate point and out of engagement with the frame, to permit the sash to slide freely, substantially as described.

661,992. VELOCIPEDE. FRANKLIN B. HUNT, Washington, D. C. Filed May 13, 1899. Serial No. 716,682. (No model.)



Claim.—1. In a velocipede, a crank-shaft, a spor gear-wheel on said shaft, a driving-wheel, a spur gear-wheel rotatable with the driving-wheel, a spur gear-wheel intermediate of and engaging the aforesaid gear-wheels said intermediate gear-wheel having a circumferential groove extending through the teeth at a right angle to the base thereof, a yielding band seated in the groove and having a depth sufficient to bring it beyond the pitch-line of the teeth and engage circumferential recesses in the crank and driving gear-wheels, which recesses extend approximately to the pitch-line of the teeth of said wheels whereby the band is compressed and expanded laterally between the teeth of the crank and driving gear-wheels, a support for the intermediate gear-wheel provided with an offset portion, and means for adjusting the intermediate gear-wheel and the driving-wheel and gear-wheel on said support.

2. In a velocipede, a power-shaft having means for its rotation, a gear wheel on said shaft, a driving-wheel, a relatively small gear-wheel rotatable with the driving-wheel, a gear-wheel intermediate of and engaging the aforesaid gear-wheels, an arm extending from the power-shaft support rearwardly and thence by an offset forwardly of the gear-wheels and having adjustable connection with the axle, an axle for the intermediate gear-wheel having a squared portion occupying a slot in the arm and a threaded stud beyond said squared portion, an adjustable brace-rod connected at one end to the stud and at its other end to a portion of the frame, an adjusting-screw to adjust the intermediate gear-wheel with relation to the crank gear-wheel, and a binding-nut on the stud to maintain the adjusted position of the parts.

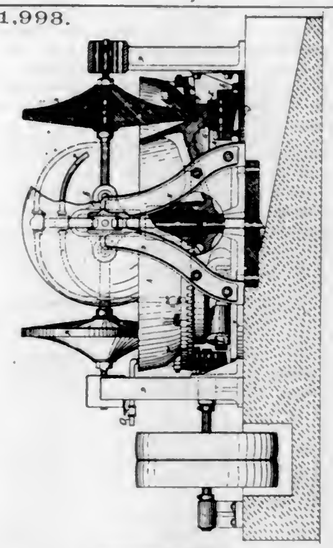
3. In combination in a velocipede, a gear-wheel on the crank-shaft, a gear-wheel on the drive-wheel shaft and an intermediate engaging gear-wheel, a hub-bearing axle for the latter wheel having a square neck terminating in a screw-stem, an arm connecting the crank-hanger and the drive-wheel shaft, and having a slot engaging the square neck of the hub-bearing axle to prevent its rotation, said arm terminating in a loop-formed yoke, provided with a slot engaged by the square end of the drive-wheel shaft, a frame member having a slot engaged by the other end of the drive-wheel shaft, and a screw-bolt in the slotted yoke and in the end of the frame member engaging the ends of the drive-wheel shaft, a brace-rod having eyes engaging the screw-stem of the bearing hub-axle and the frame, a screw-bolt engaging a screw-lug on the arm and the eyed end of the brace-rod which engages said screw-stem, screw-bolts firmly clamping the said slotted parts to the shaft and a nut firmly clamping said slotted arm to the axle.

661,993. CRUSHING-MACHINE. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed Oct. 27, 1897. Serial No. 656,511. (No model.)

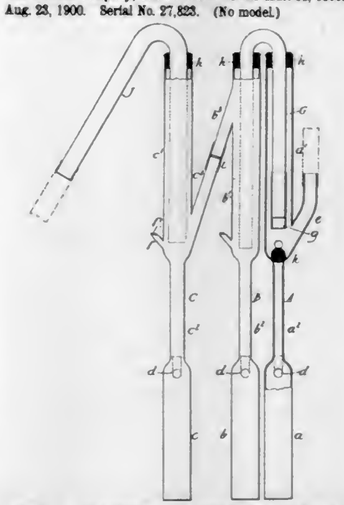
Claim.—1. In a crushing or reducing machine, the combination of a tubular spindle, a pan centrally mounted on the spindle and supported on rollers, said pan having an annular recess in its bottom, a false bottom removably seated in the recess having an annular groove for containing mercury, runners or rolls adapted to revolve on said false bottom, spindles on which the runners or rolls are mounted, said spindles being pivoted at one end and guided at the other end, and a vertically-adjustable siphon-pipe arranged within the tubular spindle and discharging below the same, said pipe having a number of radial branches extending into the pan at intervals, whereby the depth from which the water and material are withdrawn may be regulated.

2. In combination with the pan of a crushing or reducing machine rotatably mounted on a tubular spindle, a vertically-adjustable siphon-pipe arranged within the spindle and discharging below the same, said pipe having a number of radial branches extending into the pan at intervals, whereby the depth from which the water and material are withdrawn may be regulated.

661,993.



661,994. APPARATUS FOR CONCENTRATING MINERALS, &c. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed Mar. 11, 1899. Renewed Aug. 23, 1900. Serial No. 27,823. (No model.)



Claim.—1. In a concentrating apparatus, a plurality of tubes having inlets toward their lower end for water in controllable quantity, one of the tubes having between its ends an inlet for material, and an adjustable siphon connection affording a passage between the upper portions of certain of the tubes.

2. In a concentrating apparatus, a plurality of tubes having upper and lower chambers connected by restricted tube portions, inlets at the lower chambers for water in controllable quantity, an inlet for material at the upper chamber of one of the tubes, and an adjustable siphon-tube connecting the upper chambers of two of the tubes.

3. In a concentrating apparatus, a plurality of tubes having inlets toward their lower ends for water in controllable quantity, an inlet for material toward the upper end of one of the tubes, and a reversible siphon-tube connecting the upper ends of the tubes, one of the siphon-legs being adjustable as to length.

4. In a concentrating apparatus, a plurality of tubes having upper and lower chambers connected by restricted tube portions, inlets at the lower chambers for water in controllable quantity, an inlet for material at

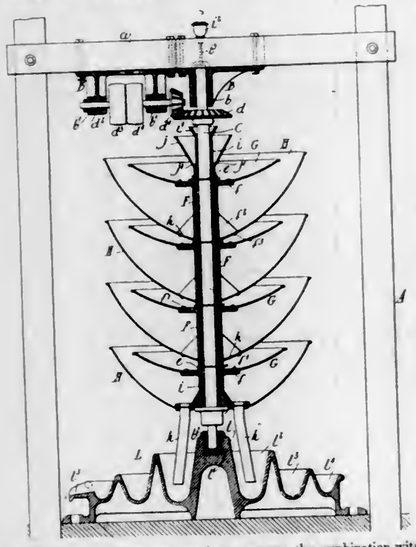
the upper chamber of one of the tubes, a siphon connection between the first and second tubes of the series, a connection between the second and third tubes, a siphon-outlet from the third tube, and a water-current-operated agitator in the chamber adjacent to the inlet for material.

5. In a concentrating apparatus, a plurality of tubes having upper chambers, and lower chambers into which water in controllable quantity is introduced, an inlet for material at the upper chamber of one of the tubes, a siphon connection between the first and second tubes of the series, a tube connection between the second and third tubes of the series, and a siphon-tube affording an outlet from the third tube.

6. In a concentrating apparatus, a plurality of tubes having connected upper and lower chambers, inlets at the lower chambers for water in controllable quantity, an inlet for material at the upper chamber of one of the tubes, an adjustable siphon-tube connecting the upper chambers of two of the tubes, and a flushing-outlet toward the lower end of the upper chamber of each of the tubes.

7. In a concentrating apparatus, a plurality of tubes having upper and lower chambers connected by restricted tube portions, controllable water-inlets at the lower chambers whereby water passing into the successive tubes may be at relatively diminishing pressures, an inlet for material of the upper chamber of one of the tubes, an adjustable siphon connection between certain of the tubes, and a siphon-outlet from the last tube of the series.

661,995. AMALGAMATING APPARATUS. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed Apr. 26, 1899. Renewed Aug. 3, 1900. Serial No. 25,796. (No model.)



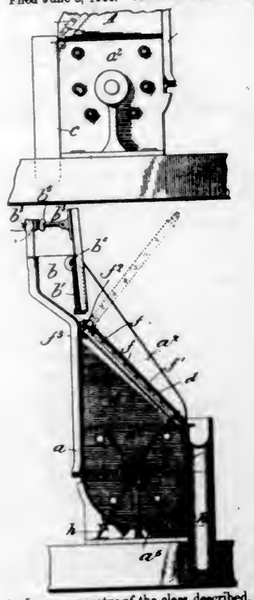
Claim.—1. In an amalgamating apparatus, the combination with a vertical spindle having means for its rotation, of a sleeve fixed to the spindle to rotate therewith said sleeve being formed in separable sections each of which is provided toward its upper end with an annular flange and toward its lower end with vertical ribs, a concave receiving-dish fixed to the flange of each section, and a delivery-dish of relatively greater concavity having an outlet in its bottom and fixed to the ribs, whereby each of the sets of receiving and delivery dishes is separable from the other sets.

2. In an amalgamating apparatus, the combination with a vertical spindle and means for rotating the same, of a tube surrounding the spindle having at its upper end a drip-cup for oil, a sleeve surrounding the tube and keyed to it and the spindle, said sleeve being formed in separable sections, and a receiving-dish and delivery-dish fixed to each section.

3. In an amalgamating apparatus, the combination with a vertical spindle and means for rotating the same, of a tube surrounding the spindle, a sleeve of the described material surrounding the tube and keyed to the spindle, a hopper near the upper end of the spindle, a series of sets of receiving-dishes and delivery-dishes carried by the sleeve, a concentrating-pan below the spindle, and discharge-tubes carried by and leading from the lowermost delivery-dish into the pan.

4. In an amalgamating apparatus, the combination with a vertical spindle having means for its rotation, of a tube surrounding the spindle, a sleeve surrounding the tube and keyed to it and the spindle said sleeve being formed in separable sections, a receiving-dish and a delivery-dish fixed to each section, a concentrating-pan having concentric wells, and discharge-tubes leading from the lowermost delivery-dish into the inner well and operating to agitate the material therein.

661,996. SCREENING APPARATUS. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed June 8, 1900. Serial No. 19,578. (No model.)



Claim.—1. In an apparatus of the class described, a hopper having an inclined bottom, an inclined screen having its upper end contiguous to the hopper-bottom, a regulable gate forming a wall for the hopper, means for adjustably moving the gate to allow material and water to discharge from the hopper and distribute or spread over the screen, and a frame of water-jet pipes adjacent to the screen to discharge thereagainst said frame being movable in a vertical plane for the purpose specified.

2. In an apparatus of the class described, a casing having an inlet at its upper end and a plurality of discharge-outlets at its bottom, an inclined screen at the inlet, means for distributing material and water over the screen; and a rotatable brush arranged in said bottom to sweep the said outlets to clear them, said brush serving also as an agitator to keep the particles in motion.

3. In an apparatus of the class described, a casing having a rounded bottom in which are discharge-outlets, an inclined screen toward the upper end of the casing, a hopper above the screen having an adjustable discharge-opening, and a rotatable brush in the casing arranged to sweep the discharge-outlets to clear them said brush serving also as an agitator to keep the particles in motion.

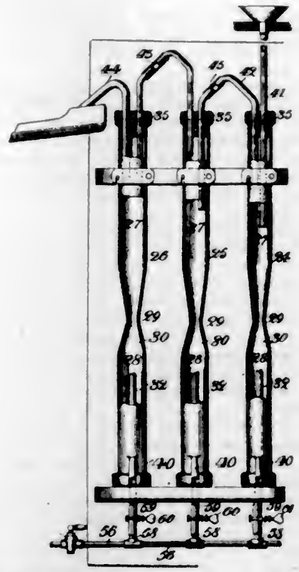
4. In an apparatus of the class described, the combination of a casing having delivery-openings in its bottom, a rotatable brush in the casing, and nozzles adjustable in the openings to maintain their inlet ends in contact with the brush, said nozzles each having an aperture slightly tapered toward its inlet end and abruptly tapered adjacent to said inlet end.

5. In an apparatus of the class described, the combination of a casing having delivery-openings, a rotatable brush in the casing, and nozzles adjustable in the openings to bring their inlet ends into contact with the brush.

6. In an apparatus of the class described, the combination of a casing having delivery-openings, a rotatable brush in the casing, and nozzles adjustable in the openings to bring their inlet ends into contact with the brush the nozzles each having an aperture tapering toward its inlet end.

661,997. CONCENTRATING APPARATUS. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed June 8, 1900. Serial No. 19,579. (No model.)

Claim.—1. A concentrating-tube having an upper cylindrical chamber and a lower cylindrical chamber of uniform diameter throughout, said chambers being connected by a restricted passage the walls of which gradually taper, a conical valve-seat at the restricted passage, a conical valve having a vertically-presented apex, means for adjusting said valve to or from said seat to control the area of water-current, an inlet for water below the valve, and an inlet for material and an outlet for gangue in the upper chamber.



2. In a concentrating-tube, a chamber receiving concentrates having a discharge-opening, and a closure for the tube provided with a plug portion entering the chamber to the level of the discharge-opening and beveled throughout upward from said discharge-opening to direct the concentrates thereto.

3. In combination with a concentrating-tube having a plain cylindrical end, a closure for said end having an annular groove of wedge form in cross-section receiving the tube end whereby an inner and an outer wedge-joint is obtained.

4. In a concentrating apparatus, a plurality of tubes having inlets toward their lower end for water in controllable quantity; one of the tubes having an inlet for material, and adjustable siphon connections affording passages between the tubes, each siphon connection being in sections which are flexibly connected thereby permitting ready adjustment.

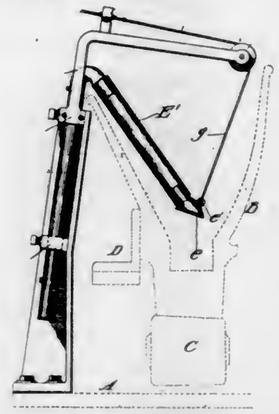
5. In a concentrating apparatus, a plurality of tubes having inlets toward their lower end for water in controllable quantity, one of the tubes having an inlet for material, adjustable siphon connections affording passages between the upper portions of the tubes, a valved water-supply pipe, and a valved branch pipe leading from the supply-pipe to each inlet.

6. In a concentrating apparatus, a series of tubes having upper and lower chambers connected by restricted tube portions the upper chambers increasing in diameter from the first to the last tube of the series, inlets at the lower chambers for water in controllable quantity, an inlet for material at the upper chamber of the first tube, adjustable siphon connections between the tubes, and an outlet for material in the last tube.

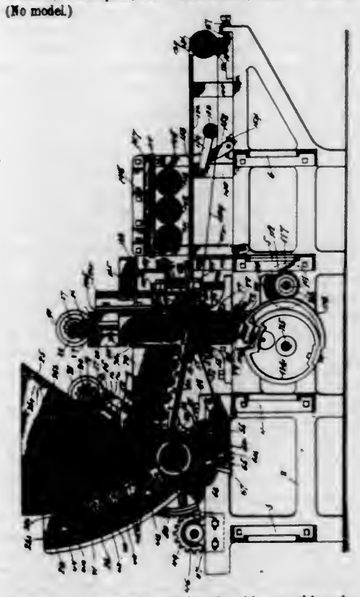
661,998. CRUSHING-MACHINE. THOMAS R. JORDAN, New York, N. Y., assignor to the Jordan Gravitation Process Company, of New York. Filed June 30, 1900. Serial No. 22,218. (No model.)

Claim.—1. In combination with the rotatable pan of a crushing or reducing machine, a siphon-pipe having a flexible short leg extending into the pan, means for vertically adjusting the siphon-pipe, and separate means for adjusting the short leg whereby through such double adjustment the inlet of the siphon-pipe may be positioned at any point in the pan.

2. In combination with the rotatable pan of a crushing or reducing machine, a siphon-pipe adjustably supported and having a flexibly-connected short leg extending into the pan, and a cord or chain attached to the short leg and serving as a means for adjusting said leg independent of the aforesaid adjustment whereby the inlet of the siphon-pipe may be positioned at any point in the pan.



661,999. AUTOMATIC BREAD-MAKING MACHINE. CHRISTIAN KESSLER, Indianapolis, Ind. Filed Dec. 5, 1899. Serial No. 739,306. (No model.)



Claim.—1. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base open, and receiving or feed rollers extending in front of the base-opening of said hopper, a flour-bin adjacent to said hopper, and a partition between said hopper and said flour-bin having openings connecting said flour-bin and said hopper.

2. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base open, and receiving or feed rollers extending across said hopper in front of said base-opening thereof, of a flour-bin adjacent to said hopper and a slatted partition between said flour-bin and said hopper.

3. In an automatic bread-making machine, the combination with a dough-receiving hopper having top and base openings, receiving or feed rollers extending across said hopper in front of said base-opening thereof of a flour-bin adjacent to said hopper and a series of overlapping slats between said bin and said hopper and means whereby said slats are moved to open or to close.

4. In an automatic bread-making machine, the combination with a

dough-receiving hopper having top and base openings, receiving or feed rollers extending across said hopper in front of said base-opening thereof, of a flour-bin contiguous to said hopper and a series of overlapping slats extending across said flour-bin between the latter and the said hopper, and pivotally mounted at their ends and means exterior of said bin for rocking said slats to either open or close and for retaining them in either open or closed position.

5. In an automatic bread-making machine, the combination with a dough-receiving hopper having an open top and base, receiving or feed rollers extending across said hopper in front of the base-opening thereof, a flour-bin contiguous to said hopper, a series of overlapping segmental formed slats extending across said flour-bin between the latter and said hopper, said slats having their convex surfaces exposed or directed toward the interior of said hopper and pivotally mounted at their ends and means exterior of said bin for rocking said slats to either open or close and to retain them in either open or closed position.

6. In an automatic bread-making machine, the combination with a dough-receiving hopper having an open and top base, receiving or feed rollers extending across said hopper in front of said base-opening, of a flour-bin contiguous to said hopper, a series of overlapping segments or slats extending across said flour-bin between the latter and said hopper, said segments or slats having their convex surfaces directed toward the interior of said hopper, arms on the ends of said slats and extending backwardly from the concave sides of said slats, trunnions or journals extending outwardly from said arms and having their axes coinciding with the radial centers of the top segmental portions of said slats, means or bearings for supporting said trunnions, arms on one of the ends of said trunnions, a rod connecting said arms, a shaft journaled in the prolonged end of one of said arms, a hand-wheel and a pinion on said shaft, and a fixed toothed segment meshing with said pinion.

7. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, a flour-bin contiguous to the front of said hopper, a separating-partition extending downwardly between the top portions of said hopper and said bin, of a series of overlapping slats horizontally disposed across the lower opening connecting said hopper and said bin to form a lower separating-partition, and means whereby said slats are moved to either open or to close and for retaining them in either open or closed position.

8. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, a flour-bin contiguous to the front of said hopper and a partition between said flour-bin and said hopper having a plurality of openings connecting the former with the latter, of a series of slats arranged in parallel rows one above the other and each opposite one of said partition-openings, and means for rocking said slats, substantially as and for the purpose set forth.

9. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, a flour-bin contiguous to the front of said dough-receiving hopper and a separating-partition between said flour-bin and said dongh-receiving hopper, and having a plurality of openings arranged in parallel rows and connecting the dough-receiving hopper with the bin, of a series of imperforate slats arranged in parallel rows and each having its edge directed toward its opposing partition-opening, and means for rocking said slats.

10. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, a flour-bin contiguous to the front of said hopper, a separating-partition between the said dough-receiving hopper and said flour-bin and having a plurality of parallel openings connecting said bin and said hopper.

11. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, upper and lower receiving-rollers extending across and in front of the base-opening of said hopper, a flour-bin having an open top, situated in front of said hopper and extending across and downwardly beneath said hopper and said lower receiving-roller to inclose the latter, an apron-reinforcing board extending across the base-opening of said flour-bin to the rear of the discharge side of said receiving-roller, an apron-roller above said reinforcing-board, a closing plate or table extending along and between said apron and receiving or feed roller, a lower apron-roller beneath said reinforcing-board and an endless apron passing over said upper and said lower apron-rollers through the interior of said bin in front of said reinforcing-board, all substantially as and for the purpose set forth.

12. In an automatic bread-making machine, the combination with a dough-receiving hopper having its top and base ends open, upper and lower receiving or feed rollers extending across and in front of the base-opening of said hopper, of a flour-bin, having an open top, situated in front of and extending across and downwardly beneath said hopper and the lower receiving or feed roller to inclose the same, and an apron-reinforcing board extending across the base-opening of said flour-bin to the rear or discharge side of said bottom receiving or feed roller, an apron-roller above said closing-board, a reinforcing-board extending along and between said apron and said receiving or feed roller, a lower apron-roller beneath said reinforcing-board, an endless apron passing over said upper and said lower apron-rollers through the interior of said bin in front of said reinforcing-board, and a closing-roller contacting with and extending across along and between said lower apron-roller and the lower edge of the front wall of said flour-bin, substantially as and for the purpose set forth.

13. In an automatic bread-making machine, the combination with upper adjustable and lower fixed receiving or feed rollers, upper adjustable and lower fixed reducing-rollers, of a traversing apron extending between said receiving or feed rollers and said reducing-rollers, means for coating said rollers and said apron with dry flour, and means for dusting the top surface of the product as it is traversed between said pairs of receiving or feed and reducing rollers, substantially as and for the purpose set forth.

14. In an automatic bread-making machine, the combination with an upper adjustable and lower fixed receiving or feed roller and an upper adjustable and a lower fixed reducing-roller, an apron-supporting table extending between said pairs, of receiving or feed rollers and said reducing-rollers, and an apron adapted to traverse over the top surface of said table, of means for coating said apron and said rollers with dry flour, and means for dusting the top surface of the product as it is traversed between the pairs of rollers.

15. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed feed or receiving roller, and an upper adjustable and a lower reducing-roller, an apron-supporting table extending between said pairs of receiving or feed rollers and said reducing-rollers, an apron adapted to traverse over said table and means for coating the surface of said apron with dry flour, of a flour-box above said apron and a series of flouring-rollers having their upper sides contacting with the dry flour contained in said flour-box, and their lower sides projecting through the base of the latter, and means whereby the said flouring-rollers may be lowered or elevated nearer to or farther from said traversing apron.

16. In an automatic bread-making machine, the combination with an upper adjustable roller and a fixed receiving or feed roller, and an upper adjustable and a lower fixed reducing-roller, a supporting-table between said pairs of receiving and said reducing rollers, an apron adapted to traverse over said table and means for coating said apron with dry flour, of a flour-box above said traversing apron, a series of flouring-rollers extending across the base of said flour-box, in the same horizontal plane and parallel to each other, and angle-hoppers between each of the pairs of said flouring-rollers.

17. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed or feed roller, an upper adjustable roller and a fixed reducing-roller, an apron-supporting table between said pairs of receiving or feed and said reducing rollers, apron-carrying rollers contiguous to the ends of said apron-supporting table, an endless apron passing over said apron-rollers and over and under said table and fixed closing plates or tables between said apron-rollers and said fixed receiving or feed roller and said fixed reducing-roller, of a flour-box above said traversing apron, a series of flouring-rollers extending across the base of said box in the same horizontal plane and parallel with each other, and angle-hoppers extending along and between each of the pairs of said flouring-rollers with their angles or corners directed upwardly in the interior of said flour-box.

18. In an automatic bread-making machine, the combination with an upper adjustable roller and lower fixed receiving or feed roller, of a flour-box above said upper roller and having its top and bottom ends open, said open bottom end adapted to receive and to inclose the top half of said adjustable top roller, a lower flour-box beneath said fixed roller and having its top and bottom ends open, said top end adapted to receive and to inclose the bottom half of said fixed roller, and an ascending bottom or base in said lower flour-box.

19. In an automatic bread-making machine, the combination with upper adjustable and lower fixed rollers, of a flour-box above said upper roller and having its top and bottom ends open, said open bottom end adapted to receive and to inclose the top half of said adjustable roller, a lower flour-box having its top and bottom ends open, said top open end adapted to receive and to inclose the bottom half of said fixed roller, a removable ascending bottom in the latter flour-box, and means for automatically moving said ascending bottom toward said fixed roller as the flour is used, and means for cleaning said top, and bottom rollers while they are in motion.

20. In an automatic bread-making machine, the combination with upper adjustable and lower fixed rollers, of a flour-box above said upper roller and having its top and bottom ends open, said bottom end adapted to receive and to inclose the top half of said upper roller, a depending lip having its reduced or knife edge contacting with and extending along the entering side of said roller, a lower flour-box beneath said lower fixed roller and having its top and bottom ends open, said top end adapted to receive and to inclose the bottom half of said fixed roller, a projecting lip having its reduced or knife edge extending across and contacting with the entering side of said fixed roller, a removable ascending bottom in said lower flour-box, springs under said ascending bottom, and means for supporting said springs, all substantially as and for the purpose set forth.

21. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming die or mold having closed sides, top and bottom, and open receiving and discharging ends, said receiving end directed toward the discharging side of said rollers, and means for dividing the product into equal sections or parts as it is discharged from said die.

22. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming die or mold having closed sides, top and bottom, and open receiving and discharging ends, said receiving end directed toward the discharging side of said rollers and said receiving end of said die of larger area than the discharging end thereof, and said discharging-opening formed to impart the desired form to the product as it is discharged from said die or mold, and means whereby the product is divided into equal sections or parts as it is discharged from said die.

23. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming die or mold having closed sides, top and bottom, and open receiving and discharging ends, said forward or receiving end of rectilinear form and extending along the entire length of said rollers at their discharging side, and said rear or discharging opening of said die of lesser or reduced area than said forward or receiving opening, and of a form conforming with the desired form of the product, upper and lower interior liners in said die, and means whereby said liners are moved and adjusted in position nearer to or farther from said rollers.

24. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming die or mold having closed sides, top and bottom and having open receiving and discharging or forming ends, a reciprocating knife extending over and along the discharge open end of said die and means for reciprocating said knife and retaining it in close contact with the die at the discharging or molding opening thereof.

25. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming or molding die having closed sides, top and bottom and end open receiving and discharging or forming openings, of a vertically-reciprocating knife having a blunt or rounded dividing edge extending over and along the discharge-opening of said die, a roller extending along and beneath said knife, and means for simultaneously rotating said roller and reciprocating said dividing-knife.

26. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming or molding die having closed sides, top, and bottom and open receiving and discharging or forming end openings, of a vertically-reciprocating dividing-knife extending over and along the discharging or forming opening of said die, a roller extending along and beneath said knife and adapted to contact therewith when the latter descends, means for yieldingly supporting said roller, and means for simultaneously rotating said roller in one direction and reciprocating said knife, all substantially as and for the purpose set forth.

27. In an automatic bread-making machine, the combination with an upper adjustable roller and a lower fixed roller, of a forming or molding die having closed sides, top and bottom, and open receiving and discharging or forming open ends, a reciprocating knife situated at the discharge end of said die or mold, a flour-box above said knife and having an open top and a screen-covered bottom and means for vibrating said flour-box, substantially as and for the purpose set forth.

28. In an automatic bread-making machine, the combination with upper and lower rotative rollers, of a die contiguous to said rollers at the discharge sides thereof, and having closed sides, top and bottom, and open receiving and discharging ends, of a vertically-reciprocating knife contiguous to the discharging end of said die, and means for intermittently reciprocating said knife.

29. In an automatic bread-making machine, the combination with upper and lower rotating rollers, a die or former contiguous to said rollers at the discharging side thereof, and having closed sides, top and bottom, and open receiving and discharging ends, of a vertically-reciprocating knife, a crank-shaft, connecting-rods connecting said crank-shaft to said reciprocating knife, a friction-roller, a rotative friction-cam having a segmental portion of its periphery adapted to engage or contact said friction-roller to rotate the latter intermittently.

30. In an automatic bread-making machine, the combination with upper and lower rollers and a die or forming-mold having closed sides, top and bottom and open receiving and discharging ends, of a vertically-reciprocating knife, a crank-shaft, adjustable connecting-rods connecting said crank-shaft and said knife, a friction-roller, and a driving-cam composed of a carrying-center and an adjustable segmental spring-cam portion, means for rotating said cam at an increased or diminished speed and means for adjusting said cam-spring to increase or diminish its frictional contact with said friction-roller, all substantially as and for the purpose set forth.

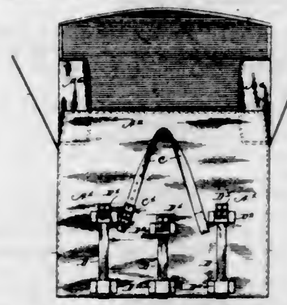
31. In an automatic bread-making machine, the combination with upper and lower rotative rollers, and a die having closed sides, top and bottom, and open receiving and discharging ends, of a vertically-reciprocating knife, a crank-shaft, adjustable connecting-rods connecting said crank-shaft and said knife, a friction-roller, a friction driving-cam, and mechanism whereby the said driving-cam is rotated and whereby the speed of rotation of the same may be either increased or diminished while said cam is in motion.

32. In an automatic bread-making machine, the combination with an endless traversing carrying and discharging apron, of a series of two or more finishing-rollers extending transversely across the direction of motion of said apron, and adjustably supported above the latter, a flour-box above said rollers having an open top and a screen-covered bottom, and means for vibrating said flour-box.

33. In an automatic bread-making machine, the combination with an endless traversing apron, of a series of two or more finishing-rollers extending transversely across the line of motion of said apron and arranged parallel to each other, and means for independently raising or lowering either end roller of the series, and a carrying-frame whereto said rollers are adjustably secured, said supporting-frame pivoted at one end and adjustably secured at its opposite end to the main frame of the machine, all substantially as and for the purpose set forth.

34. In an automatic bread-making machine, the combination with the feed-rollers thereof, the reducing-rollers, a forming-die contiguous to said reducing-rollers, and a dividing-knife, of means for varying and regulating the speed of said rollers and said dividing-knife while the machine is in motion and independently of each other, substantially as set forth.

662,000. PACKING-BAG. JOSEPH KINSTLER, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,827. (No model.)



Claim.—1. In a packing-bag, in combination, a single main piece composing the body portion of the bag, and forming the front, the bottom, the back, the front flap, and the top flap thereof; end pieces of rectangular outline secured to the edges of the main piece, which end pieces have cover-flaps formed integral therewith; pocket-flaps secured to the side edges of the top flap; binding-straps adapted to surround said bag; and handle-straps secured to the sides of said bag at points directly opposite, and adapted to have an adjustable connection with said bag either on the same side to which they are fastened or on opposite sides thereof.

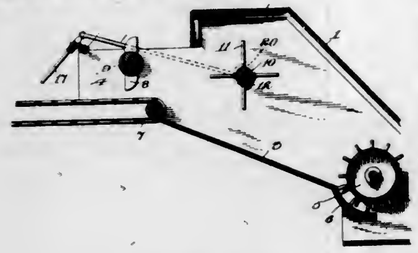
2. In a packing-bag, in combination, a single main piece composing the body portion of the bag; end pieces secured to the edges of said main piece; and handle-straps secured at points substantially opposite on the opposite sides of said bag, which straps at their free ends are adapted to be detachably secured to said bag, either on the same side with their attachment thereto, or on the opposite side thereof.

3. In a packing-bag, in combination, a single main piece composing the body portion of the bag, and forming the front, the bottom, the back, the front flap, and the top flap thereof; end pieces of rectangular outline secured to the edges of the main piece; binding-straps extending about said bag parallel with said main piece; and handle-straps secured at points substantially opposite on the opposite sides of said bag, which straps at their free ends are adapted to be detachably secured to said bag, either on the same side with their attachment thereto, or on the opposite side thereof.

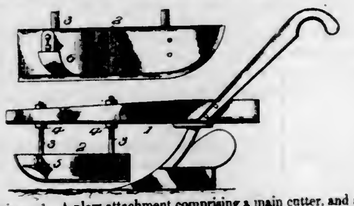
662,001. FEED-REGULATING MECHANISM FOR THRESHING-MACHINES. ED R. KLINE, Laurel, Kans. Filed Apr. 14, 1900. Serial No. 12,887. (No model.)

Claim.—The combination with the feed-throat of a threshing-ma-

chine, of a conveyer delivering the sheaves to said throat, a band-cutter located above and adjacent to the delivery end of said conveyer, a guard or cut-off located over the conveyer at a short distance in front of the band-cutter, and means for causing said guard to oscillate toward and from the conveyer and thereby alternately intercept the sheaves and leave an opening for their passage to the band-cutter.



662,002. PLOW ATTACHMENT. EDWARD H. KUHL, Beardstown, Ill. Filed July 24, 1900. Serial No. 24,683. (No model.)



Claim.—1. A plow attachment comprising a main cutter, and a supplemental cutter attached to the main cutter and curving laterally and downwardly therefrom to cut the soil a distance from and parallel with the main cutter, substantially as described.

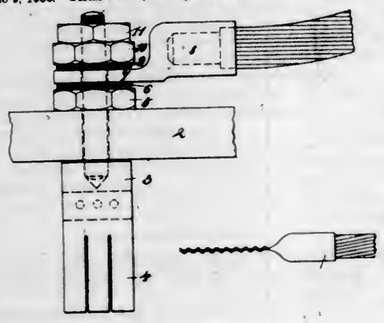
2. A plow attachment comprising a main cutter, and a supplemental cutter attached to the main cutter and curving laterally and downwardly therefrom and having its front edge rearwardly curved and adapted to cut the soil a distance from and parallel with the main cutter, substantially as described.

3. A plow attachment comprising a main cutter, a supplemental cutter projecting from one side of the main cutter, and a drag projecting from the opposite side of the said main cutter, substantially as described.

4. A plow attachment comprising a main cutter, a supplemental cutter at the front end of the main cutter and projecting from a side thereof, and a drag at the rear end of the main cutter and projecting from the opposite side thereof, substantially as specified.

5. A plow attachment comprising a main cutter, rods projected vertically from the cutter to pass through openings in the beam of the implement, a pair of nuts fitted to the threaded portions of the rods to hold the cutter in an adjusted position, a supplemental cutter projected from the front end of the main cutter and carving laterally, rearwardly and downwardly, and a drag extended laterally, forwardly and downwardly from the rear end of the main cutter, substantially as set forth.

662,003. WASHER. ALFRED LAMM, Berlin, Germany. Filed June 9, 1900. Serial No. 19,743. (No model.)



Claim.—1. In combination with the meeting surfaces of a joint, a conductive metallic sheet and a softer metallic filler, said metallic sheet formed to hold said filler, substantially as set forth.

2. In combination with the meeting surfaces of a joint, a conductive metallic sheet, projections on said sheet, and a softer metallic filler held between said projections, substantially as set forth.

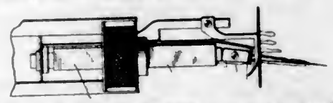
3. In combination with the meeting surfaces of a joint, a conductive metallic sheet, embossed projections on said sheet independent of one another, and a softer metallic filler held between said projections, substantially as set forth.

4. In combination with the meeting surfaces of a joint, a conductive metallic sheet, embossed spherical projections thereon independent of one another, and a lead filler held between said projections, substantially as set forth.

5. In combination with the meeting surfaces of a joint, a conductive spring-metal sheet, spherical projections thereon quincuncially arranged, and a lead filler held between said projections, substantially as set forth.

6. In combination with the meeting surfaces of a joint, a conductive spring-metal, sheet, spherical embossings on both sides of said sheet quincuncially arranged, and a lead filler held between and by said embossings, substantially as and for the purposes set forth.

662,004. TURFING IMPLEMENT. HARRY R. LAWRENCE, Fresno, Cal. Filed Feb. 18, 1899. Serial No. 706,027. (No model.)



Claim.—1. In a turfing implement, a reciprocating needle-bar in two sections, a spring for holding the lower section out of alinement with the upper section, and a hand-wheel through which the upper section of the needle-bar reciprocates, said hand-wheel being mounted in the frame of the implement and adapted to be rotated to direct the needle, substantially as described.

2. In a turfing implement, a needle-bar made in two sections, a spring connected to the upper section and extended down to the lower end of the lower section and bent at right angles and connected to the needle to hold it out of alinement with the upper section of the needle-bar, and a hand-wheel through which the upper section of the needle-bar passes, said hand-wheel being rotatable to direct the needle, substantially as described.

3. In an implement of the character described, the combination of a needle-bar made in two sections hinged together, a spring for holding said sections out of alinement with each other, said spring having an offset at its lower end which clamps the thread or yarn against the lower end of the lower section of said needle-bar at the lowermost position of movement of said needle-bar, and a hand-wheel through which said needle-bar passes for directing the needle, substantially as described.

4. In a turfing implement, a needle-bar made in two sections, a spring for holding the sections out of alinement with each other, a hand-wheel through which the upper section of said needle-bar passes, said wheel being mounted in the frame of the implement and designed to be rotated to give universal movement to the needle, the upper section of said needle-bar being tubular to serve as a guide for the yarn or thread, substantially as described.

662,005. COMBINATION-TOOL. JAMES C. LEWIS, Tracy, Cal. Filed Sept. 12, 1898. Renewed Mar. 27, 1900. Serial No. 10,406. (No model.)



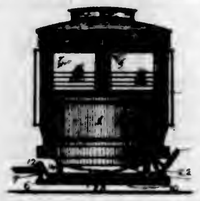
Claim.—1. In combination, a handle, an arm pivoted to the handle and having an opening transversely of its free end, and a tool insertible in the opening of the pivoted arm and adapted to be clamped between the end of the handle and a part of the arm, substantially as described.

2. In combination, a handle, an arm pivoted to the handle and having an offstanding lug and a transverse opening adjacent to the lug, and a tool insertible in the said opening and adapted to be clamped between the end of the handle and the lug of the pivoted arm, substantially as specified.

3. In combination, a handle, an arm pivoted to the handle and having an offstanding lug provided with a pivot-opening, and having a transverse opening adjacent to the said lug, a pivot-pin fitted in the said pivot-opening, and a tool insertible in the transverse opening of the pivoted arm and adapted to be clamped between the lug thereof and the handle and extending across the pivot-opening and holding the pivot-pin in place, substantially as set forth.

4. In combination, a handle having a longitudinal chamber and a pivot-socket, a tool slidable in the chamber and having a blade to extend over the pivot-socket, an arm pivoted to the handle and having a lug at its farther end and a transverse opening adjacent to the lug, the latter being formed with a pivot-pin opening, and a pivot-pin adapted to be held in either the pivot-socket or pivot-pin opening by means of the said slidable tool and lug of the pivoted arm, substantially as specified.

662,006. MECHANISM FOR RAISING OR LOWERING FOOTBOARDS ON OPEN CARS. ROBERT B. LINTNER, East Pittsburg, Pa. Filed Sept. 7, 1900. Serial No. 29,282. (No model.)



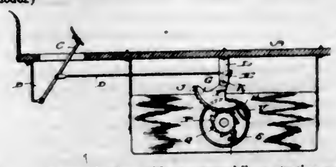
Claim.—1. In a mechanism for raising and lowering the footboards on open street-cars, the combination with the car-body and the footboards, of supports arranged beneath the car-body, laterally-adjustable frames mounted upon said supports, supports extending inwardly from said footboards and pivotally attached to said adjustable frames, fixed abutments engaging said footboard-supports, and a means of adjusting said frames from alternate ends of the car successively to raise one of said boards and lower the other at the same time.

2. In a mechanism for raising and lowering the footboards on open street-cars, the combination with the car-body and the footboards, of supports arranged beneath the car-body, laterally-adjustable frames mounted upon said supports, supports extending inwardly from said footboards and pivotally attached to said adjustable frames, fixed abutments engaging said footboard-supports, and a means of adjusting said frames from alternate ends of the car successively to raise one of said boards and lower the other and lock the same in position.

3. In a mechanism for raising and lowering the footboards on open street-cars, the combination with the car-body and the footboards, of supports arranged beneath the car-body, laterally-adjustable frames mounted upon rollers on said supports, supports extending inwardly from said footboards and pivotally attached to said adjustable frames, fixed abutments engaging said footboard-supports, and a means of adjusting said frames from alternate ends of the car successively to raise one of said boards and lower the other at the same time and lock the same in position.

4. In a mechanism for raising and lowering the footboards on open street-cars, the combination with the car-body and the footboards, of supports arranged beneath the car-body, laterally-adjustable frames mounted upon rollers on said supports, supports extending inwardly from said footboards and pivotally attached to said adjustable frames, fixed abutments engaging with said footboard-supports, and a means of adjusting said frames to raise one of said boards and lower the other at the same time from alternate ends of the car successively.

662,007. STARTING MECHANISM FOR AUTOMOBILES. JOHN G. MACPHERSON, Philadelphia, Pa., assignor to the MacPherson Automobile Company, same place. Filed June 25, 1900. Serial No. 21,429. (No model.)



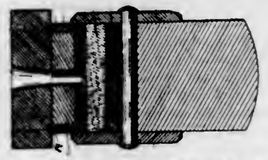
Claim.—1. In combination with an automobile, a starting mechanism for the motor thereof, consisting of a foot-lever journaled below the floor of the automobile, a spring-actuated lever in operative connection with the foot-lever, a loosely-mounted sleeve having a cog and a ratchet integral therewith, means to make the sleeve rigid with the main shaft of the motor to start the same, and a curved flat spring having one end connected to the lower end of the spring-actuated lever to prevent the lever from becoming injured when any back motion is imparted to the motor.

2. In a starting mechanism for automobile-engines, a foot-lever pivoted below the floor of an automobile, a long rod connected to said lever intermediate of its length, a pair of brackets depending from the floor of the automobile, a lever journaled in said brackets and having the upper end of the arm connected to the rod, a coiled spring surrounding one side of the lever's axle to hold the foot-lever in its normal position, a segment provided with teeth and a smooth surface formed integral with the lower end of the lever, a sleeve having a cog-wheel and a ratchet-wheel formed thereon loosely mounted upon the main shaft of the engine, and a bell or casing carrying spring-actuated pawls pinioned upon the shaft and adapted to surround the ratchet-wheel end of the sleeve so as to make the loose sleeve rigid with the shaft when the foot-lever is pushed forward.

3. In a starting mechanism for engines, a foot-lever, a spring-actuated pivoted lever carrying a segment provided with teeth and a smooth surface operated by said foot-lever, a loosely-mounted sleeve having a cog and a ratchet, said cog adapted to be engaged by the teeth of the segment, and means upon the main shaft of the engine to engage said ratchet of the sleeve when the foot-lever is pushed forward.

4. In a starting mechanism for gas or gasolene engines, a foot-lever, a rod connected to said foot-lever, a pair of brackets, a lever having an axle or shaft about midway of its length journaled in said brackets and having one end of the axle extended outside the bracket, a coiled spring surrounding said extended portion of the axle and having its ends secured to one of the brackets and the axle, respectively, a segment formed integral with the lower portion of the lever and provided with teeth and a smooth surface in same line with the bottom of the teeth, a curved flat spring having an end connected to the segment near its smooth-surfaced end, an engine-shaft, a sleeve loosely mounted upon said shaft and having a cog and a ratchet, said cog adapted to be engaged by the teeth of the segment, and a cup or bell carrying pawls rigidly secured to the shaft of the engine said pawls being adapted to engage the ratchet when the foot-lever is pushed forward.

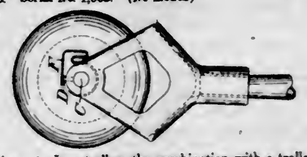
662,008. TIRE FOR VEHICLES. WILLIAM F. MASTERS, New York, N. Y. Filed Aug. 1, 1900. Serial No. 25,494. (No model.)



Claim.—1. A tire for vehicle-wheels, comprising a steel band which incloses the rim of the wheel, a rubber band placed around said steel band, a band of wood placed around the rubber band, and an outer band of steel placed around the band of wood, the outer bands of rubber and steel being connected by rivets passed therethrough, and the band of wood being provided with clips which incloses the same and are countersunk therein and through which said rivets also pass, and the rim of the wheel being provided with side plates bolted thereto which incloses the inner band of steel, the rubber band, and partially incloses the band of wood, substantially as shown and described.

2. A tire for vehicle-wheels having a rim composed of fellies of wood, comprising rings or bands of metal, rubber, wood and metal secured to the rim of the wheel in the order named, the inner band of metal being secured to the rim of the wheel in the manner of an ordinary tire, and serving to hold the fellies and spokes of the wheel in place, and the outer rings or bands of wood and metal being connected, and the rim of the wheel being also provided with annular side plates bolted thereto, and which inclose the inner rings or bands of steel and rubber and partially incloses the ring or band of wood, substantially as shown and described.

662,009. TROLLEY. FRANK A. MERRICK, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Jan. 18, 1900. Serial No. 1,882. (No model.)



Claim.—1. In a trolley, the combination with a trolley-wheel, and a shaft or spindle upon which it rotates, of a spring-pressed contact device secured to said wheel and engaging the shaft or spindle through the hub of the wheel.

2. In a trolley, the combination with a trolley-wheel, and a shaft or spindle upon which it rotates, of a radial pin seated in the hub of said wheel and contacting with the shaft or spindle, and a spring secured to the wheel and carrying said pin.

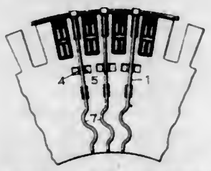
3. In a trolley, the combination with a trolley-wheel, and a shaft or spindle upon which it rotates, of a radially-movable contact device seated in the hub of the wheel and bearing upon the said shaft or spindle, and a spring secured to the wheel and maintaining the bearing of said device.

4. In a trolley, the combination with a trolley-wheel, and the fixed shaft or spindle upon which it rotates, of a radial pin seated in the hub of said wheel and contacting with the hub or spindle, and a bent spring-arm carrying said pin at one end, and secured to the periphery of the hub at its opposite end.

5. The combination with a trolley-wheel having a projecting hub and a shaft or spindle for said wheel, of a spring secured to the periphery of said hub, and a contact device carried by the said spring and contacting with the said shaft or spindle.

6. The combination with a trolley-wheel having a projecting hub and a shaft or spindle for said wheel, of a spring partially encircling the said hub, and carrying a contact-pin which engages the shaft or spindle through the said hub.

662,010. **SPACE-BLOCK FOR ARMATURE-CORES.** EDGAR W. MIX and ELIE F. G. H. FAURE, Paris, France, assignors to the General Electric Company, of New York. Filed Oct. 11, 1899. Serial No. 733,253 (No model.)



Claim.—1. A space-block for an armature-core having sheet metal separating the armature-sections and held edge-on between the same.

2. A space-block for an armature, formed of sheet metal, supported radially on a core-plate and steadied against twisting or buckling by integral projections from said core-plate.

3. A space-block for an armature, comprising a strip of sheet metal secured between terminal core-plates of adjacent bundles of laminæ, said strip being provided with zigzag or undulating shape to provide a steady support.

4. A space-block for an armature, comprising a thin strip supported on edge and having a bearing-surface against the core-plate, the edge being laterally extended to afford a firm seat.

5. A space-block for an armature united to a core-plate by a tongue-and-groove connection integral with the space-block and core-plate respectively.

6. A space-block for an armature formed of sheet metal and having a slot cut in its edge, in combination with a core-plate having a punched tongue to engage said slot.

7. A space-block for an armature formed of sheet metal and supported between lugs struck up from a core-plate.

8. A space-block for an armature, comprising a metal strip locked to a core-plate edge-on by integral locking devices and steadied by side ribs projecting from the core-plate.

9. A space-block for an armature comprising a thin metal strip locked to a core-plate edge-on, said strip having a bearing-surface against the core-plate greater than its cross-sectional thickness.

10. A space-block for an armature-core, composed wholly of sheet metal supported edge-on against the core-plates.

11. A fastening device for an armature binding-wire locked to the core and projecting therefrom to engage with the binding-wire.

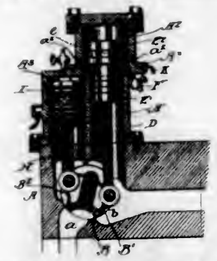
12. A fastening device for a binding-wire on an armature, comprising a flexible strip anchored in the core and projecting beyond the armature to permit securing the binding-wire.

13. A fastening device for an armature binding-wire, consisting of a strip of sheet metal locked to a core-plate and projecting radially beyond the core.

14. A fastening device for an armature binding-wire, consisting of a punched strip of sheet metal engaging a hook formed in a space-block and clamped between the space-block and the core-plate said strip projecting radially beyond the core and bent around the binding-wire.

662,011. **STEAM-ENGINE DASH-POT.** MATTHEW R. MOORE, Indianapolis, Ind., assignor to the Atlas Engine Works, same place. Filed Jan. 19, 1900. Serial No. 1,989. (No model.)

Claim.—1. In a steam-engine the combination with a cylinder mounted on the steam-chest, of a trunk dash-piston working therein and having a longitudinal steam-aperture and operating a suitable valve substantially as set forth.



2. In a steam-engine, the combination of a piston of two diameters, having a longitudinal steam-aperture and working in a corresponding cylinder, A′ A^3 mounted on the steam-chest and provided with apertures a^3 arranged to be covered and uncovered by the movements of the piston, the latter operating a suitable valve, substantially as set forth.

3. In a steam-engine, a rocking valve mounted on a flat rocking shaft with liberty to leave its seat and having a lateral arm at right angles to the plane of the shaft within the valve-chest, in combination with a link pivoted to such arm and a connected piston subject to the steam-pressure operating through the link to turn the valve-arm in the direction to close the valve all arranged for joint operation substantially as herein specified.

4. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm and a piston containing a longitudinal aperture directly communicating with the steam in the valve-chest said link transmitting motion between the valve and piston, substantially as set forth.

5. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link, pivoted to such arm and a piston containing a longitudinal aperture directly communicating with the steam in the valve-chest, said piston having a simple rolling contact with the link thus permitting ready detachment when required all substantially as set forth.

6. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm, a piston of two diameters, having a longitudinal steam-aperture and working in a corresponding cylinder A′ A^3 provided with apertures a^3, arranged to be covered and uncovered by the turning of the valve, substantially as set forth.

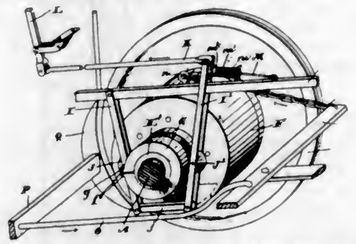
7. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm, and connected piston subject to the steam-pressure operating through the link to turn the valve-arm in the direction to close the valve, such piston being of two diameters working in a corresponding cylinder A′ A^3 provided with apertures a^3 arranged to be covered and uncovered by the turning of the valve and the link having a simple rolling contact with the piston thus being free to be easily detached from the piston when required all substantially as set forth.

8. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm and connected piston subject to the steam-pressure operating through the link to turn the valve-arm in the direction to close the valve, such piston being of two diameters working in a corresponding cylinder A′ A^3 provided with apertures a^3 arranged to be covered and uncovered by the turning of the valve and with a lip $A^\times$ adapted to arrest any water and oil ejected through such apertures, all substantially as set forth.

9. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm and a connected piston subject to the steam-pressure operating through the link to turn the valve-arm in the direction to close the valve, such piston being of two diameters working in a corresponding cylinder A′ A^3 provided with apertures a^3 arranged to be covered and uncovered by the turning of the valve and with a lip $A^\times$ and the pipe K adapted to arrest and lead away any water and oil ejected through such apertures all combined and arranged to serve substantially as herein specified.

10. In a steam-engine, a rocking valve having a lateral arm within the valve-chest, in combination with a link pivoted to such arm and a connected piston subject to the steam-pressure operating through the link to turn the valve-arm in the direction to close the valve and a second arm on the valve also within the valve-chest extending in the opposite direction from the first and having a connected link and piston arranged to contribute to turn the valve also into the closed position, the tendency of one piston being to crowd the valve upon its seat and of the other to balance such tendency by exerting a force tending to lift the valve off its seat, all combined and arranged for joint operation substantially as herein specified.

662,012. **FRICTION-BRAKE.** JAMES H. K. MCCOLLUM, Toronto, Canada. Filed May 25, 1900. Serial No. 17,971. (No model.)



Claim.—1. The combination with the brake-shoes, lever and connections, of an inclosing casing loosely journaled on the axle and connected by chain to the brake-lever, the wheel keyed to the axle completely inclosed within said casing, a friction-ring secured to the inner face of the casing and means for longitudinally adjusting the casing, so as to throw the friction-ring in contact with the face of the wheel as and for the purpose specified.

2. The combination with the brake-shoes, a brake-lever and connections from the lever to the brake-shoes, of an inclosing casing loosely journaled on the axle, a connection therefrom to the brake-lever, the wheel keyed to the axle and provided with an overhanging and inwardly-extending flange with an annular space between the flange and the wheel, said wheel rotating with the axle, a disk loosely journaled on the axle and provided with a face-contact friction-ring designed to engage with the inner face of the flange and means for longitudinally adjusting the disk, so as to throw the friction-ring against the inner face of the flange to press the outer face of the flange and said casing together whereby the casing is shifted to apply the brake, as and for the purpose specified.

3. The combination with the brake-shoes, lever and connections, of an inclosing casing loosely journaled on the axle and connected by chain to the brake-lever, the wheel keyed to the axle and provided with an overhanging and inwardly-extending flange with an annular space between the flange and the wheel, a disk loosely journaled on the axle and provided with a face-contact friction-ring designed to engage with the inner face of the flange, a friction-ring secured to the inner side of the casing opposite the flange of the wheel and means for bringing the friction-rings close toward each other, so as to frictionally grip the flange as and for the purpose specified.

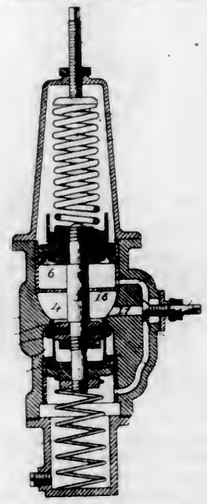
4. The combination with the brake-shoes, lever and connections, an inclosing casing loosely journaled on the axle and connected by chain to the brake-lever, of the wheel keyed to the axle and provided with an overhanging and inwardly-extending flange with an annular space between the flange and the wheel, a disk loosely journaled on the axle and provided with a face-contact friction-ring designed to engage with the inner face of the flange, a friction-ring secured to the inner side of the casing opposite the flange of the wheel, the collar secured on the hub of the friction-disk and forming with the end of the hub of the casing a V-shaped recess, the hanger double bars connected together by link, the wedge-wheels journaled in the same, means for normally holding them out of engagement and means for operating them to throw the wedge-wheels between the hub of the casing and collar, so as to separate them as and for the purpose specified.

5. The combination with the wheel keyed to the axle and the friction-disk loose on the axle provided with a contact-ring to frictionally engage the face of the wheel, of an inclosing casing designed to contain oil, a second friction-ring carried by said casing, and means for bringing the friction contact-rings into contact with the wheel as and for the purpose specified.

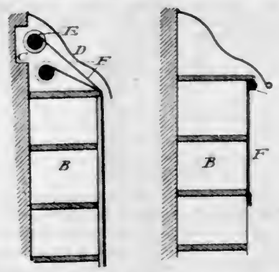
6. In a device of the class described, the combination with the casing secured to the axle and disk having a hub extending through the hub of the casing and provided with a threaded end, of the collar screwed onto the hub and the bolt extending through bosses on the collar, the wheel and the frictional surfaces, said surfaces being wholly contained in said casing, as and for the purpose specified.

662,013. **WATER-PRESSURE REGULATOR.** OSCAR MUELLER, Decatur, Ill., assignor to the H. Mueller Manufacturing Company, Incorporated, same place. Filed Feb. 10, 1900. Serial No. 4,714. (No model.)

Claim.—A water-pressure regulator having a by-pass establishing communication between the outlet side of the regulator and spaces below pistons one on the upper end of the stem and the other on the lower end of the stem, and an adjustable closure for the by-pass.



662,014. **SHELF PROTECTION.** WILLIAM H. MCNAMARA, Cleveland, Ohio. Filed Feb. 26, 1900. Serial No. 6,497. (No model.)



Claim.—The combination with the shelving of a canopy supported on top of the shelving, or the back, whereby water will be discharged and shot away therefrom, curtains and curtain-rollers supported under said canopy, adapted to operate substantially as described.

662,015. **DRIVING-GEAR FOR WINDMILLS.** LA VERNE W. NOYES, Chicago, Ill. Original application filed Mar. 8, 1899, Serial No. 708,191. Divided and this application filed June 18, 1900. Serial No. 20,714. (No model.)

Claim.—1. In combination, a plurality of eccentrics, an annulus surrounding each, a reciprocating frame or casing for each annulus upon the wall of which the annulus is adapted to roll, and rods or parts connected to and reciprocated by the respective frames, substantially as described.

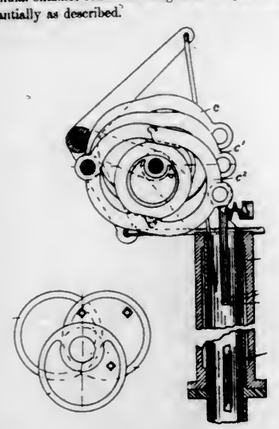
2. In combination, three eccentrics arranged at equal distance apart, an annulus surrounding each, a reciprocating frame or casing for each annulus upon the walls of which the annulus is adapted to roll, and rods or parts connected to and reciprocated by the respective frames, substantially as described.

3. In combination, the shaft of a windmill, an eccentric thereon, an annulus encircling said eccentric, a pump-rod, and a reciprocating part connected with the pump-rod and having a wall against which said annulus is adapted to roll, substantially as described.

4. In combination, an eccentric, an annulus encircling the same and a reciprocating part against which the annulus is adapted to roll, said annulus having an interior oil-chamber communicating with the periphery of said eccentric, substantially as described.

5. In combination, an eccentric, an annulus encircling the same and a part against which the annulus is adapted to roll, said annulus having

an interior annular channel communicating with the periphery of said eccentric, substantially as described.



8. In combination, an eccentric, an annulus encircling the same, and a part against which the annulus is adapted to roll, said annulus having an interior annular channel and a communicating passage between said channel and the periphery of the eccentric and extending completely around the inner periphery of the annulus, substantially as described.

7. In combination, an eccentric, an annulus encircling the same and having an annular oil-chamber opening at the inner periphery of the annulus, and an oil-hole passing through the eccentric and communicating with said oil-chamber, substantially as described.

662,016. RAILWAY-SWITCH. HENRY O'SHEA, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 28, 1899. Serial No. 741,807. (No model.)



Claim.—1. The combination with a switch tongue or point, and a seating or foundation structure therefor having a bushing formed with a tapered or frusto-conical bearing-socket, of a pin or pintle of corresponding form fitting the said socket, and secured in said tongue or point by a reduced cylindric shank at its upper end, said pin having an initial projection at its upper end above the top of said socket.

2. In a tongue-switch, the combination with a foundation structure, and a sleeve or bushing secured therein, of a switch-tongue having a tapered or frusto-conical pin secured in its heel portion and bearing in the said bushing, the upper end of the body of said pin forming a broad shoulder extending to the rear end of the tongue and supporting its heel against grinding contact with its seat.

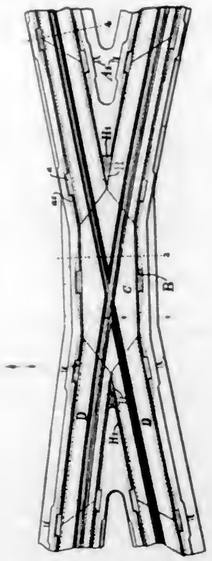
3. In a switch-piece, the combination with the foundation structure or body formed with a pocket therein, of a sleeve or bushing seated in said pocket, and retaining material between the sleeve or bushing and the walls of the pocket, said walls and the exterior surface of the bushing having corresponding opposite and oppositely-directed steps or offsets with intermediate tapered portions forming spaces of upwardly-decreasing width to receive said retaining material, substantially as described.

662,017. TRACK STRUCTURE. HENRY O'SHEA, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 28, 1899. Serial No. 741,808. (No model.)

Claim.—1. In a track structure, the combination with a body or supporting member having an open box-like upper portion, of a wheel-bearing or tread member removably seated therein and formed in sections having oblique ends, substantially as described.

2. In a track structure, the combination with a body or supporting member having an open box-like upper portion, of a wheel-bearing or tread member removably seated therein and formed in reversible sections, substantially as described.

3. In a track structure, the combination with a body or supporting member having an open box-like upper portion, of a wheel-bearing or tread member removably secured therein and formed of sections having oblique ends and a wheel-groove in both their upper and lower surfaces, substantially as described.



4. In a track structure, the combination with a body or supporting member having an open box-like upper portion formed with a rib or projection on its bottom wall, and a wheel-bearing or tread member removably secured in said box-like portion and having a wheel-groove in both its upper and lower surfaces, the groove in its lower face fitting over said rib or projection, substantially as described.

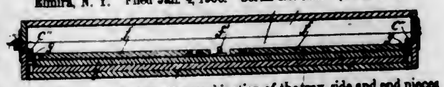
5. In a track structure, the combination with a body or supporting member having an open box-like upper portion, formed with side recesses at intervals with key-seats communicating with said recesses, and a depressed bottom wall adjacent to said recesses, of a wheel-bearing or tread member formed in separately-removable sections seated in said box-like upper portion, keys in said seats and engaging the tread member, and soft retaining material between said member and the walls of the box-like portion, substantially as described.

6. A railway-track structure consisting of a body-casting formed with a central portion having a pocket therein and arms or branches having box-like seats therein communicating with the said pocket, a wear or intersection plate seated in said pocket, and removable wheel-bearing or tread members in said seats and having gage-lines which aline with those of the said plate.

7. A railway-track structure consisting of a body-casting formed with a central portion having a pocket therein, and arms or branches having box-like seats therein communicating with the said pocket, a wear or intersection plate reversibly seated in said pocket, and reversible wheel-bearing or tread members in said box-like seats having gage-lines in alinement with those of said plate, substantially as described.

8. A railway-track structure, consisting of a body-casting having a central portion formed with a pocket therein, and arms or branches having box-like seats therein which communicate with the said pocket, a wear or intersection plate removably secured in said pocket, rail-bearing or tread members removably secured in said seats, and wedges driven in the angles between adjacent arms or branches and engaging the edges of the wheel-bearing or tread members, substantially as described.

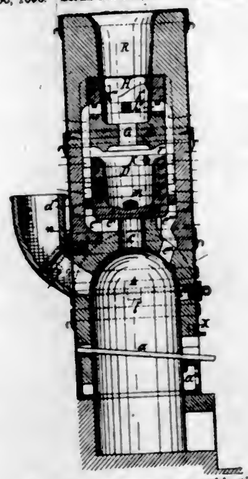
662,018. EGG-CRATE. GEORGE E. PALMER and JUDSON N. LAKE, Elmira, N. Y. Filed Jan. 4, 1900. Serial No. 309. (No model.)



Claim.—1. In a crate, the combination of the tray, side and end pieces hinged therein, brackets secured to the ends of the tray having pins adapted to engage the end pieces and provided with vertical openings and a cover adapted to be locked on the tray and provided at its ends with depending pins adapted to engage the vertical openings in the brackets on the ends of the tray.

2. A crate comprising a base or tray, side and end pieces hinged thereto and adapted to fold inwardly one upon the other, said tray being provided with inwardly-extending pins with which the side and end pieces are adapted to engage when in their vertical position, the end of said tray being provided with a bracket having a vertical opening, a cover provided with a bracket having downwardly-extending pins and adapted to engage with the openings in the bracket upon the base, hasps secured to said cover and adapted to engage with the swinging arms upon the side pieces when extended, and the swinging arms upon the base when the sides and end pieces are folded.

662,019. MELTING-FURNACE. ALBERT PIAT, Paris, France. Filed Nov. 30, 1898. Serial No. 697,884. (No model.)



Claim.—1. In a smelting-furnace, the combination with a fire place or chamber, of a crucible-chamber located above said fire-chamber, passages connecting the fire-chamber with the crucible-chamber, and a crucible located entirely within the crucible-chamber, said crucible being formed with projections on its outer face which fit closely the walls of the crucible-chamber and are so arranged that the projections above overhang the spaces between the projections below whereby said projections act as baffles to cause the flames to take a zigzag course in ascending about the crucible.

2. In a melting-furnace, the combination with a fire place or chamber, of a crucible-chamber located above and in communication with the fire-chamber, a crucible located entirely within said crucible-chamber and formed of a plurality of superimposed hollow sections, each made in one piece of refractory material and which sections have projections on their outer faces which fit closely the walls of the crucible-chamber.

3. In a melting-furnace, the combination with a fire place or chamber, of a crucible-chamber located above and in communication with the fire-chamber, a crucible located entirely within said crucible-chamber and formed of a plurality of superimposed hollow sections, each made in one piece of refractory material and which sections have projections on their outer faces which fit closely the walls of the crucible-chamber and are so arranged that the projections on the upper sections overhang the spaces between the projections on the lower sections thereby acting as baffles to the flames arising around the crucible.

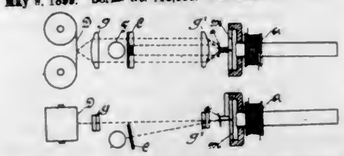
4. In a melting-furnace, the combination with a fire place or chamber, of a crucible-chamber located above and in communication with the fireplace, a crucible in said crucible-chamber, said crucible being formed of a lower cup-shaped section having a spout projecting therefrom through the side wall of the furnace, a number of superimposed hollow sections above said cup-shaped section, each of said hollow sections being formed in one piece, and projections on said sections fitting closely within the crucible-chamber.

5. The combination with a smelting-furnace composed of a plurality of superimposed separable parts or sections, of a column located in proximity to the furnace, supports or brackets connected at their outer ends to the several upper sections of the furnace respectively and free to swing about said column as a pivot, and means for elevating said supports and sections in succession.

6. The combination with a smelting-furnace composed of a plurality of superimposed separable parts or sections, of a column located in proximity to the furnace, supports or brackets connected at their outer ends to the several upper sections of the furnace respectively and free to swing about said column as a pivot, a vertical slot in one side of the column, a screw vertically disposed in the column, nuts on said screw each having an arm thereon projecting through the slot in the column, and rings or collars about and free to slide on the column, said collars being located one above the projecting end of each arm and beneath each support.

7. The combination of a smelting-furnace, comprising four superimposed separable sections, namely, a fixed part consisting of the grate and fire-chamber, the next section embracing the top wall of the fire-chamber and the fuel feeding or distributing device, the third portion embracing the crucible, and finally the topmost section containing the extension, the three upper sections being movable, of a column located in close proximity to the furnace, and means on said column for elevating the three upper sections and independently swinging the same about the column as a pivot.

662,020. MEANS FOR RAPIDLY TRANSMITTING TELEGRAMS. ANTON POLLAK and JOSEF VIRAG, Buda-Pesth, Austria-Hungary, assignors of one-half to Vereinigte Elektricitäts Actien-Gesellschaft, same place, and Friedrich Silberstein, Vienna, Austria-Hungary. Filed May 9, 1899. Serial No. 716,080. (No model.)



Claim.—1. A means for rapid telegraphy, comprising the combination of a transmitter and a vibratory receiver, the transmitter adapted to send impulses which shall affect the receiver for a duration so nearly corresponding to its period of oscillation as to substantially suppress supplementary oscillations thereof.

2. A means for rapid telegraphy, comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, the transmitter and receiver being so synchronized that the duration of each impulse affecting the receiver shall correspond to one complete oscillation thereof.

3. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, and means for varying the relative periods of said transmitter and receiver, to enable them to be so synchronized that the duration of each impulse affecting the receiver shall correspond to one complete oscillation thereof.

4. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, and means for varying the duration of the impulses affecting the receiver adapted to so synchronize the transmission to the period of the receiver that the duration of each such impulse shall correspond to one complete oscillation of the receiver.

5. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, a motor for driving the transmitter, and means for varying the speed of the transmitter, whereby it may be so synchronized to the receiver that the duration of each impulse shall correspond to the period of oscillation of the receiver.

6. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, and a condenser connected in parallel with the receiver and adapted to be charged during each transmitted impulse, and by its discharge to prolong such impulse through the receiver.

7. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses, combined with a vibratory receiver having a definite rate of vibration, the transmitter and receiver being so synchronized that the duration of each impulse shall be shorter than one complete oscillation of the receiver, and a condenser connected in parallel with the receiver, and adapted to be charged during each transmitted impulse, and by its discharge to prolong such impulse through the receiver.

8. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses over a line, combined with a vibratory receiver having a definite rate of vibration, and a self-induction device connected in parallel with the transmitter, the transmitter and receiver being so synchronized that the duration of each impulse shall correspond to the period of oscillation of the receiver.

9. A means for rapid telegraphy, comprising the combination of a transmitter and a vibratory receiver, the transmitter adapted to send either positive or negative impulses which shall affect the receiver for a dura-

tion so nearly corresponding to its period of oscillation as to substantially suppress supplementary oscillations thereof.

10. A means for rapid telegraphy, comprising the combination of a transmitter and a vibratory receiver, the transmitter adapted to send impulses of uniform duration and varying intensity, their duration being such as to affect the receiver for a time so nearly corresponding to its period of oscillation as to substantially suppress supplementary oscillations thereof.

11. A means for rapid telegraphy, comprising the combination of a transmitter and a vibratory receiver, the transmitter adapted to send either positive or negative impulses of uniform duration and varying intensity their duration being such as to affect the receiver for a time so nearly corresponding to its period of oscillation as to substantially suppress supplementary oscillations thereof.

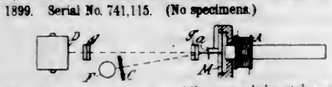
12. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses of substantially uniform duration in rapid succession, combined with a vibratory receiver having a definite rate of vibration, and comprising an elastic vibrating part, an oscillating mirror, a source of light, and means for photographically recording the deflections of the beam of light reflected from said mirror.

13. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses of substantially uniform duration in rapid succession, combined with a receiver comprising an elastic vibrating part, a mirror oscillated by the vibrations thereof, a means for directing a beam of light upon said mirror, a photosensitive surface receiving the beam reflected from said mirror, and means for moving said surface, whereby it records the oscillations of the receiver.

14. A means for rapid telegraphy comprising a transmitter adapted to send electric impulses of substantially uniform duration in rapid succession, combined with a receiver comprising an electromagnet, an elastic vibrating diaphragm therefor, a mirror oscillated by the vibrations of said diaphragm, means for directing a beam of light upon said mirror, a photosensitive surface receiving the beam reflected from said mirror, and means for moving said surface, whereby it records the oscillations of the diaphragm.

15. A receiver comprising an elastic vibrating part, a mirror oscillated by the vibrations thereof, means for directing a narrow beam of light upon said mirror, a photosensitive surface receiving the beam reflected from said mirror, and a cylindrical lens arranged to converge said beam of light to a point at said surface combined with a transmitter adapted to send a rapid succession of current impulses of substantially uniform duration.

662,021. **METHOD OF RAPIDLY TRANSMITTING TELEGRAMS.** ANTON POLLAK and JOSEF VIRAG, Buda-Pesth, Austria-Hungary, assignors of one-half to Vereinigte Elektricitäts Actien-Gesellschaft, same place, and Friedrich Silberstein, Vienna, Austria-Hungary. Filed Dec. 21, 1899. Serial No. 741,115. (No specimens.)



Claim.—1. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station, conducting said impulses to the receiving-station, and there causing said impulses to vibrate a reflector reflecting a ray of light, and cutting off each impulse when the reflector in its oscillation has approached nearest to its position of rest.

2. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station, adapted to affect a vibratory receiver at the receiving-station, and cutting off each impulse at a point such that the receiver shall be influenced thereby during one complete oscillation, so that the effect of the impulse upon the receiver shall cease when its vibration has carried it nearest to its point of rest.

3. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station adapted to affect a vibratory receiver at the receiving-station, and cutting off each impulse when the receiver in the course of one of its oscillations has approached the nearest point to its position of rest to which it will move during such oscillation.

4. In the transmission of telegrams in which a vibratory receiver is acted upon by current impulses, the method of preventing deleterious aftervibrations of the receiver, which consists in subjecting it to an impulse of a duration such that it terminates when the receiver in the course of one of its oscillations has approached the nearest point to its position of rest.

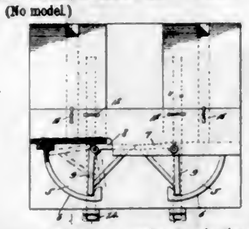
5. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station adapted to affect a vibratory receiver at the receiving-station, and so synchronizing the transmitter and receiver that the duration of each impulse affecting the receiver shall correspond to one complete oscillation thereof.

6. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station adapted to affect a vibratory receiver at the receiving-station, and prolonging the duration of each impulse to such extent as to correspond with the period of vibration of the receiver, so that injurious aftervibrations are avoided and a clear record is produced.

7. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station adapted to affect a vibratory receiver at the receiving-station, and prolonging the duration of each impulse so that it terminates when the receiver in the course of one of its oscillations has approached the nearest point to its position of rest to which it will move during such oscillation.

8. The method of rapidly transmitting telegrams which consists in producing a series of current impulses at the transmitting-station adapted to affect a vibratory receiver at the receiving-station, so synchronizing the transmitter and receiver that the duration of each impulse affecting the receiver shall correspond to one complete oscillation thereof, and generating by self-induction after each impulse a second impulse over the line in a direction opposite thereto, to the effect set forth.

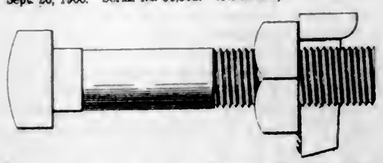
662,022. **SLUICE-GATE.** AUGUSTUS PRESCOTT, Salem, Oreg., and LEWIS I. FURBER, Winlock, Wash. Filed Mar. 28, 1900. Serial No. 10,543. (No model.)



Claim.—1. In a sluice-gate, casings terminating in forebays at the downstream end, water-inlet sluices leading through the casings and into the forebays, valves in said sluices, outlet-sluices leading from the forebays, valves for the outlet-sluices, gates pivoted at the downstream ends of the casings, and wings extended from the gates and operating in the forebays, the said wings having a greater area than the gates, substantially as specified.

2. In a sluice-gate, a platform, casings arranged on opposite sides of said platform, the inner walls of said casings forming the side walls of the main sluice, the upper surfaces of said casings being inclined downward at the upstream end, forebays at the downstream ends of the casings, valve-controlled sluices extended through the casings and communicating with the forebays, outlet-sluices leading from the forebays, valves in said outlet-sluices, gates for closing the main sluice, and wings extended at right angles from the gates and movable in the forebays, the said wings having a greater surface area than that of the gates, substantially as specified.

662,023. **NUT-LOCK.** RALPH M. READE, Quebec, Canada. Filed Sept. 20, 1900. Serial No. 30,592. (No model.)

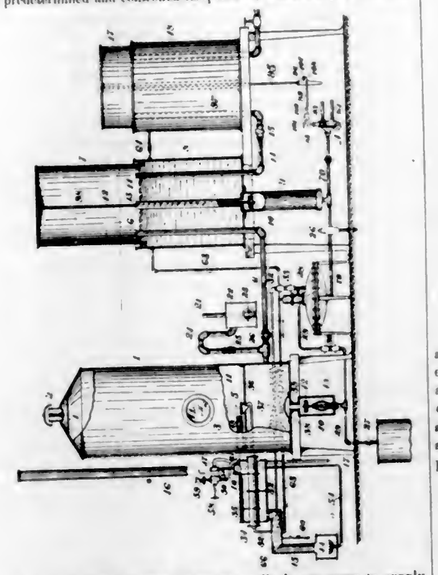


Claim.—1. In a nut-lock, the combination with a headed bolt, and a nut, of a key having a tapering shank formed with a straight back edge and a wavy front edge, and a series of upwardly-inclined teeth projecting from said straight back edge of the key-shank, whereby the teeth are adapted to positively and frictionally engage with the nut and the wavy front edge of the key binds against the front terminal of the slot in the bolt, substantially as described.

2. In a nut lock, a headed key having a shank which tapers both in width and thickness from the head thereof toward the point, and is provided with a straight back edge and a wavy front edge, and a plurality of teeth extending upwardly from said straight back edge of the key-shank, substantially as described.

662,024. **CARBURETER.** VALENTINE J. A. REY, San Francisco, Cal. Filed Jan. 23, 1900. Serial No. 2,524. (No model.)

Claim.—1. A carbureting or gas-producing vessel, a gas-impelling vessel and a gas-holding vessel connected and cooperating in the manner described, a heating-chamber exterior to said carbureting vessel, a diaphragm-pump to supply oil to the carbureting vessel, a pipe connecting these two and passing through said heating-chamber so the oil will enter at a predetermined and controlled temperature, substantially as specified.



2. A carbureting vessel or chamber, a diaphragm-pump to supply oil thereto, a pipe connecting the pump and carbureting-chamber and pipes therefrom to gas-impelling and gas-holding vessels, a tank to hold an oil-supply and a pipe therefrom connecting to the diaphragm-pump, a drainway from the carbureting vessel to this pipe, a float and valve in this drainway by which surplus oil is returned to the supply-pipe and to the carbureting-chamber, substantially as described.

3. The carbureting, gas-impelling and gas-holding vessels connected by pipes and operating dependently, an oil-impelling hydraulic diaphragm-pump connected with the carbureting-chamber by means of a pipe passing through a heating-chamber and terminating in a spray-nozzle within the carbureting-chamber, a burner to heat the oil on its passage from the pump to the carbureting-chamber and a thermostat to regulate the amount of gas supplied to the burner, so the temperature of the oil and of the carbureting-chamber will be automatically maintained, substantially as specified.

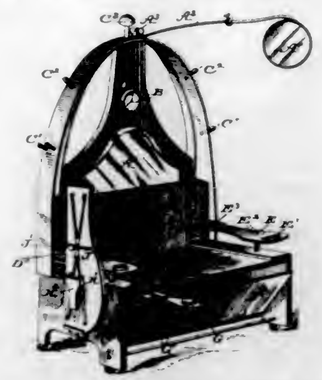
4. A carbureting vessel provided with the spray-nozzle 5, an air-inlet pipe at the top thereof and an interposed baffle-plate to protect the air-inlet valve from and to spray the oil, a pipe leading from the carbureting-chamber to a gas-impelling vessel, a second air-inlet on this connecting-pipe sealed by non-congealable fluid and having an upward extended siphon-pipe connecting to the gas-pipe between the carbureting and impelling vessels and a cock to regulate the amount of air admitted, all combined and operating in the manner substantially as specified.

5. A carbureting vessel, gas-holding and gas-impelling vessels connected and dependently operating, a hydraulic cylinder and piston to impel the gas-impelling vessel and distributing-valves for the same, an oscillating shaft to operate the distributing-valves alternately by means of cams, a weight to turn this shaft in one direction and a connection to the gas-holding vessel to turn the shaft in the other direction, combined and operating substantially as specified.

6. Carbureting, gas-impelling and gas-holding vessels connected and dependently operating, a hydraulic piston to operate the gas-impelling vessel and a diaphragm-pump to supply oil to the carbureting-chamber, distributing-valves for water serving the piston and pump conjointly operated by an oscillating shaft and cams having the rod 95 and the lever 89 to open the induction-valve, the pawl 101 to turn the cam-shaft and the pawl 107 to engage the end of the lever, all combined and operating substantially as described.

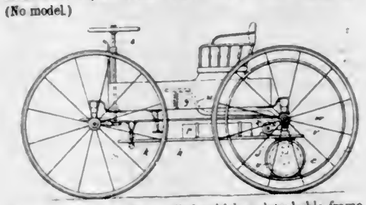
7. The carbureting vessel 1, gas-impelling and gas-holding vessels 7 and 17, the latter mounted in the sealing water-tanks 8 and 18, a water-supply pipe connecting to these tanks, a heater 44 and coil 66 to heat the water supplied thereto, substantially as specified.

662,025. **DRESSING-CHAIR.** CULLEN A. ROBERTSON, Sparta, Ga. Filed Dec. 30, 1899. Serial No. 742,114. (No model.)



Claim.—The herein-described improved dressing-chair, comprising a back provided on its rear face and on its sides with hangers for articles of apparel, a bottom underneath which is a receptacle for sundry articles, a shoe-blacking stand pivoted to the lower face of said bottom and mounted to swing in a horizontal plane underneath and out from said bottom, and a front for said receptacle, said front being spring-pressed upwardly and engaging the shoe-blacking stand when the latter is swung into outer position, as set forth.

662,026. **POWER DEVICE FOR ROAD-VEHICLES.** ROBERT B. ROBERTSON, Topeka, Kans. Filed June 1, 1899. Serial No. 718,972. (No model.)



Claim.—1. In a self-propelled vehicle a detachable frame or platform suspended beneath the vehicle-body and carrying attached thereto a motor, reservoir, hangers, shaft or shafts, and power-wheels; said power-wheels bearing directly upon and imparting rotation to the wheels of said vehicle; substantially as shown.

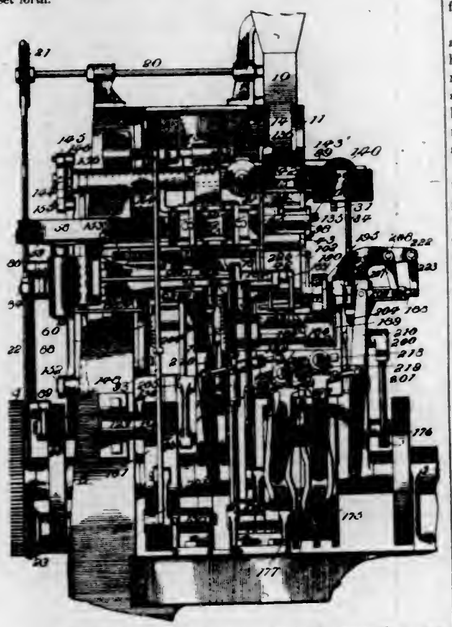
2. In a self-propelled vehicle a detachable, swinging platform or frame hung beneath the vehicle-body and carrying attached thereto a power equipment; said platform being supported at one end by links or roller-bearings hung to the vehicle body or frame and at the other end by wheels in contact with a circular flange or track fastened to the spokes or faces of the opposite wheels of said vehicle; substantially as shown.

3. In a self-propelled vehicle a lever arm or arms fulcrumed from an axle of said vehicle and carrying one or more rollers bearing upon a movable platform beneath the vehicle-body, the weight end of said lever rising above or within the vehicle-body and being free or attached by spring to the vehicle-body; substantially as shown.

662,027. **CIGARETTE-MACHINE.** HANSON ROBINSON, Baltimore, Md. Filed Sept. 30, 1899. Serial No. 732,178. (No model.)

Claim.—1. In a cigarette-machine, a mechanism for automatically and intermittently feeding a continuous strip of wrapper-paper, a mechanism movable to the strip of wrapper-paper to be cut off and adapted to grip and hold the blank of wrapper-paper, while being severed, and then after the blank has been cut off, carrying it to a pasting device, a cutting mechanism which severs the wrapper-blank, a pasting mechanism which automatically and intermittently moves toward the blank to be pasted, a cigarette-rolling mechanism having a cigarette-rolling apron on which the pasted wrapper-blank is deposited by the movable wrapper carrier or holder, a filler-measuring mechanism connected with a supply of tobacco and operating to deposit at predetermined intervals, a filler of tobacco on the rolling-apron, a cigarette-holding mechanism which grasps the rolled incompleted cigarette and holds it for a mechanism for crimping, folding and tucking the ends of the cigarette and holds it in position until said

latter operation is completed, and a crimping, folding and tucking mechanism which crimps folds and tucks the ends of the cigarettes as herein set forth.



2. In a cigarette-machine, a rotating device for supporting a continuous strip of wrapper cigarette-paper, in combination with feeding-rolls between which, said strip of wrapper-paper has a timed movement for presenting a sufficient length of the end of said strip to be cut off, said rolls carrying a device for marking or creasing transversely the wrapper-strip so as to present blanks of a greater length than the length of a completed cigarette, in combination with an automatic intermittently-acting cutting mechanism, which successively cuts off a blank of greater length than the length of the completed cigarette, as herein set forth.

3. In a cigarette-machine, a cigarette-rolling mechanism consisting of a primary table and a supplemental table, each independently movable of the other, a rolling-apron and a take-up arm, one end of the apron being secured to the primary table and the other to the take-up arm, a retaining roll-arm, and cam mechanism for operating said arms and tables.

4. In a cigarette-machine, the combination with a wrapper-feeding device, a cutting device for cutting off a wrapper-blank, a vibrating pasting device, and a cigarette-rolling device, of a vibrating wrapper-blank carrier having gripping-jaws, the said wrapper-blank carrier gripping the wrapper-blank before it is cut off, then after it is cut off swinging with it to the pasting device, and then to the cigarette-rolling device where the blank is deposited, as herein set forth.

5. In a cigarette-machine, a pasting device consisting of an intermittently-running paste-cord, and a paste-pot through which the cord runs, mounted on a vibrating support and mechanism whereby said support carries the paste-cord to and from the wrapper-blank to apply the paste thereto, as herein set forth.

6. In a cigarette-machine, a device for crimping, folding and tucking the end of the wrapper of a cigarette, consisting of a reciprocating and rotary head movable to and from the end of a cigarette held with a wrapper having ends projecting beyond the filler, and having and carrying a mechanism, which in one movement of the head, is operated to crimp and fold the projecting end of the wrapper, and in another movement of the head is operated to tuck and compress inwardly, the crimped and folded end of the wrapper of the cigarette, as set forth.

7. In a cigarette-machine, a device for folding and tucking the end of the wrapper of a cigarette, consisting of a reciprocating and rotary head having rotary crimping and folding tuckers, and a reciprocating rod movable lengthwise through said head and serving to pack the filler of a cigarette supported at one end on said rod, the head and tuckers, after said rod is withdrawn, first crimping and folding the end of the wrapper of the cigarette and then tucking and compressing it, as set forth.

8. In a cigarette-machine, a reciprocating and rotary head, having a circumferential face-gear in combination with a set of tuckers mounted in said head and having angular tucking ends, the tuckers being so disposed that their longitudinal axes are at a tangent to a circle, and said tuckers having pinions on their outer ends which mesh with the circumferential face-gear on the head, as set forth.

9. In a cigarette-machine, a rotary and longitudinally-movable head, a number of rotary tuckers with angular heads located in said rotary head, and having their longitudinal axes located at a tangent to a circle representing practically the diameter of a cigarette or other cylindrical-shaped body upon whose wrapper it may be desired to operate, which is located between the angular ends of said tuckers, mechanism for partly rotating said tuckers, mechanism for rotating said rotary head, and mechanism for reciprocating longitudinally said rotary head, as set forth.

10. In a cigarette-machine, a rotary and longitudinally-movable head, mechanism for rotating said head, mechanism for moving said head longitudinally, a number of rotary tuckers with angular heads, located in said rotary head and having their longitudinal axes located at a tangent to a circle between their angular heads, mechanism for partly rotating said tuckers, and a reciprocating rod movable lengthwise through said rotary head and between the angular heads of the tuckers, and mechanism for operating said movable head, as set forth.

11. In a cigarette-machine, the combination of a cam-operated vibrating frame, having mounted thereon an apron-roll for forming a cigarette and a device for folding and tucking the ends of a cigarette, consisting of two rotary and longitudinally-movable heads, a mechanism for advancing and withdrawing said heads from each other, a mechanism for rotating said heads, a number of rotary tuckers with angular heads, located in said rotary heads, said tuckers arranged so that their longitudinal axes are at a tangent to a circle representing practically the diameter of a cigarette located between said angular heads, mechanism for partly rotating said tuckers, rods longitudinally movable in said rotary heads which compress the filler in a cigarette, and mechanism for advancing and withdrawing said rods to and from the ends of a cigarette held between them, and a number of power-cams and cam-lever mechanisms connected with and operating the several parts and mechanisms hereinbefore recited, whereby said several parts and mechanisms operate by timed movements to perform the several steps in the formation of a completed cigarette with tucked ends, as set forth.

12. In a cigarette-machine, a pasting device consisting of an intermittently-running paste-cord and a pasting-pot, both mounted on a vibrating support, in combination with a vibrating wrapper-carrier and mechanisms connected with and operating the vibrating pasting device and the wrapper-carrier, whereby timed movements are given to each so that the wrapper-blank carrier carries a wrapper to be pasted toward the pasting device, and the pasting device is swung to meet the wrapper-carrier.

13. In a cigarette-machine, a mechanism for automatically and intermittently feeding a continuous strip of wrapper-paper, said feeding mechanism having in conjunction with it means for creasing or scoring the wrapper transversely of its length, a vibrating arm carrying a knife which automatically and intermittently swings to sever a blank from the strip of wrapper-paper, a wrapper-gripping mechanism consisting of a vibrating arm having gripping-jaws, the jaws of said arm automatically and intermittently grasping a blank of wrapper-paper, and said arm, by a timed movement, swinging with the wrapper-paper blank to a pasting device, a pasting device consisting of a paste-pot and intermittently-movable endless paste-cord mounted on a vibrating support which swings by a timed movement to carry the pasting device to the wrapper-blank, a cigarette-rolling mechanism, a gripping device which gripe the cigarette after it is rolled and pasted, and a device for folding and tucking the ends of the cigarette, consisting of two rotary heads movable toward and away from the ends of the cigarette held between them, two reciprocating plunger-rods movable toward the end of the cigarette to compress the filler and withdrawable therefrom, crimping and folding tuckers located in said rotary heads and consisting of rotary shafts having angular heads at their inner ends, the axes of said shafts being at a tangent to a circle represented by the diameter of a cigarette, said rotary heads and tuckers having timed movements whereby the ends of the wrapper of the cigarette projecting beyond the filler are first crimped and folded, and then said crimped and folded ends of the wrapper are compressed into the ends of the cigarette, and mechanisms connected with said several parts enumerated, and cam mechanisms connected with and operating said mechanisms, whereby a series of timed movements are given to the several parts of the machine to successively and intermittently carry out the steps of forming the cigarette.

14. In a machine for folding the end of a cigarette-wrapper, or other similar wrapper, a folding-head provided with movable jaws, the faces of said jaws constituting sectors of the surface of a circle, the apices of said sectors meeting at a point and completing the surface of a circle and so mounted on said head, that on separating, the jaws will swing beyond a circle, leaving a central bore between them, and means for moving the jaws into and out of crimping position.

15. In a machine for crimping and folding the end of a cigarette-wrapper or other similar wrapper, a crimping and folding head which consists of a series of crimping and folding jaws suitably journaled on the head, and means for operating the same, the axes of the folding-jaws being approximately tangent to a circle circumscribing the tube or other shaped wrapper to be folded.

16. A folding-head for crimping and folding the end of a cylinder of paper, which consists of a series of jaws suitably journaled on the head, the axes of the crimping and folding jaws being approximately tangent to the tube and means for operating the same to be folded and the jaws projecting so as to meet at a point when they are rotated simultaneously.

17. In a machine for making cigarettes, the combination of the following mechanisms: means for scoring a cigarette-paper transversely of its length and a suitable distance from its ends, means for cutting off a cigarette-wrapper blank, means for folding the wrapper-blank into a tube, means for pasting the edges of the wrapper-blank together, and means for folding the ends of the wrapper-blank beyond the scores at the ends of the tube to close the ends of the cigarette.

18. In a cigarette-machine, the combination of means for scoring the cigarette-wrapper transversely of its length at a distance from its ends, approximately equal to half the diameter of the cigarette to be formed, means for cutting off a cigarette-wrapper blank, means for folding the wrapper-blank into a tube, means for pasting the overlapping edges of the wrapper, and means for creasing the wrapper on the outside beyond the score in lines parallel to one another and folding the creased laps down upon one another.

19. In a cigarette-machine, the combination of means for scoring the cigarette-wrapper transversely of its length at a suitable distance from its end, and approximately equal to half the diameter of the cigarette to be formed, means for creasing a wrapper on the outside beyond the score in lines parallel to one another, and means for tucking the creased portions into the interior of the cylinder, as herein set forth.

20. In a machine for making cigarettes, the combination of means for scoring the cigarette-wrapper in lines transversely of its length and a suitable distance from its ends, means for cutting off a wrapper-blank, means for folding the wrapper-blank into a tube to cover the cigarette, means for pasting the lapped edges of the wrapper to secure them, a folding-head for folding the ends of the cigarette-wrapper, which consists of a series of folding-jaws suitably journaled on the head and means for operating the same, the axes of the folders being approximately tangent to a circle circumscribing the cylinder to be folded.

21. In a cigarette-machine, the combination of means for scoring the ends of the wrapper, consisting of a pair of rolls, one of which is provided with a scoring edge, through which the wrapper is passed to score it a suitable distance from its ends, means for cutting off a wrapper-blank, means for folding the wrapper-blank into a tube around the tobacco, means for pasting the lapped ends together, and means for folding the projecting ends of the tube beyond the score inward to close the end of the cigarette, substantially as described.

22. In a cigarette-machine the combination of a rolling-table having a rolling-apron, a roller suitably mounted to move over the table to roll the cigarette, a pair of crimping-heads on each side of the rolling-table, having centrally-located rods, which reciprocate through the heads and when extended lie on the table, the heads and roller being timed to move forward simultaneously and means for reciprocating the rods and the heads independently.

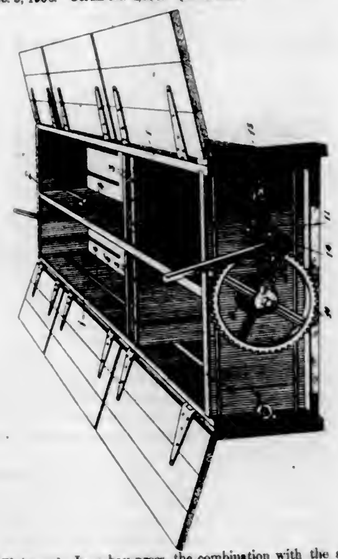
23. In a cigarette-machine the combination of a rolling-table having a rolling-apron, a roller suitably mounted to move over the table, to roll the cigarette, a pair of crimping-heads on each side of the rolling-table having centrally-located rods which reciprocate through the heads and lie on the table, and on the wrapper, the apron folding the wrapper around the tobacco and the rods, the heads and the roller being timed to move forward simultaneously and means for reciprocating the rods and the heads independently.

24. In a machine for folding the end of a cigarette, or other similar wrapper, the combination of means for holding the wrapped body opposite the folding-head, a folding-head having a series of folders mounted upon it in a plane at right angles to the axis of the wrapper to be folded, the axis of the folders on the face of the head being tangent to a circle, circumscribing the wrapper to be folded, means for inserting the wrapper into the folder, means operating the folder to crease the wrapper in suitable lines to permit it to fold flat and a follower reciprocating through the head to press down the creased wrapper.

25. In a cigarette-machine, the combination of means for rolling a wrapper of suitable size upon the cigarette having the ends of the wrapper projecting beyond its contents, means for creasing the wrapper at its ends on the outside in lines parallel to one another, to the axis of the cigarette, and means for folding the creased ends down upon the contents, substantially as described.

26. In a machine for making cigarettes, the combination of the following mechanisms: means for feeding a continuous wrapper-strip to the machine, means for cutting off a suitable wrapper, means for folding said wrapper into a tube, means for pasting the edges of the wrapper together, and means for creasing the wrapper on the outside beyond its contents in lines parallel to one another and folding the creased laps down upon one another.

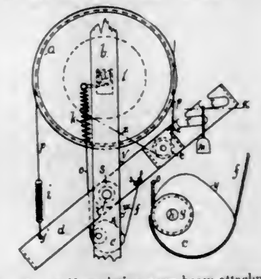
662,028. HAY-BALER. JOSEPH ROSS, Vincennes, Ind. Filed Feb. 5, 1900. Serial No. 4,088. (No model.)



Claim.—1. In a hay-press, the combination with the sides of the press provided with longitudinal grooves, of longitudinally-guiding brace-rods, carried in said grooves, of a follower provided with antifriction-roller wheels, adapted to travel on said rods, the ends of the press braced by said rods, metal straps adapted to be securely held by said rods for the purpose of holding the operating mechanism, and means for operating the follower, substantially as described.

2. The combination in a hay-press, of the ends and grooved sides, longitudinally-bracing guide-rods set in said grooved sides, and bracing said ends, metal straps secured by said rods at both ends of the press, said straps carrying the gear-wheels between the straps and the press, and a ratchet-and-pawl mechanism on the outside of said straps, substantially as shown and described.

662,029. LOOM-BEAM ATTACHMENT. CHARLES R. SAATWEBER, Paterson, N. J., assignor of one-half to George W. Renkel, same place. Filed Oct. 7, 1899. Serial No. 732,912. (No model.)



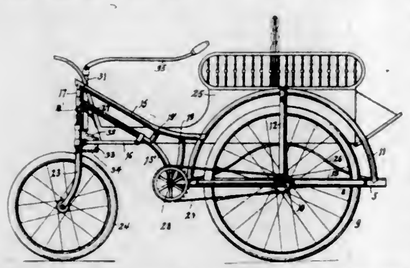
Claim.—1. In a self-regulating warp-beam attachment the combination of a warp-beam having grooved flanges *a* and a pivoted tension-bracket containing a roller, the band *p* the spring *i* connected to the said bracket at *z* and *j* respectively, the sloping slots *r* in the bracket *d*, and the weights *m* left free and movable in the slots *r*, as and for the purpose set forth.

2. In a warp-beam attachment, the tension-bracket having the sloping slots *r* and weights movable in the same, and the connecting-points *z* and *j* of the band and spring *i*, said points located to move in unequal arcs, the cam *c* with the spring *k* and the band *o* acting on its hub, and

the band *f* connected to its periphery and to the bracket *d* as set forth and described.

3. In a warp-beam attachment, having grooved flanges *a*, the combination of a warp-beam, a pivoted tension-bracket having a band operating in said flanges, the slots *r* in the bracket *d*, the movable weights in the slots and the cam *c* with the band *f* and its hub with its band *o* and spring *k* as set forth and described.

662,030. AUTOMOBILE. DOUGLAS L. SAUERHERING, Wausau, Wis. Filed June 4, 1900. Serial No. 18,967. (No model.)



Claim.—1. In an automobile, a light strong frame constructed chiefly of metal tubing including tubular furcate side bars straddling and near to the traction-wheels, traction-wheels severally axled in the side bars, and tubular trusses secured to said side bars at the front and at the rear of the wheels and extending in the vertical planes of the wheels in an arc over the wheels.

2. In an automobile, a light strong frame constructed chiefly of metal tubing including tubular furcate side bars straddling the traction-wheels, traction-wheels severally axled in the side bars, tubular trusses secured to said side bars at the front and at the rear of the wheels and extending in the vertical planes of the wheels in an arc over the wheels, and tubular upright forked members secured at their furcate ends to the furcate members of the side bars substantially at the locality of the axle-bearings and extending thence upwardly to and supporting the trusses.

3. An automobile-frame, comprising side bars 5, 5 cross-bars 6, 7 trusses 11, 11 on the side bars over the wheels, other side bars 15, 15' extending forwardly from the first-mentioned side bars and the trusses, posts 17, 17 to which the forward side bars are fixed, and parallel front cross-bars 18, 18' secured to the posts.

4. In combination, a rigid automobile-frame, traction-wheels on which the rear portion of the frame is mounted, a front-wheel frame comprising a plurality of cross-bars secured centrally to each other and hinged to the rigid frame so as to be capable of oscillation in a substantially vertical plane, wheel-posts mounted rotatably in the extremities of the cross-bars, and front guiding-wheels axled in the forks of the wheel-posts.

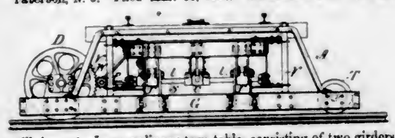
5. In combination, a rigid automobile-frame, traction-wheels on which the rear portion of the frame is mounted, a front-wheel frame comprising a plurality of cross-bars secured centrally to each other and hinged to the rigid frame so as to be capable of oscillation in a substantially vertical plane, hinged links 16 connecting the lateral extremities of the front-wheel frame to the rigid frame preventing forward or rearward movement of the wheel-frame relative to the rigid frame.

6. In combination in an automobile, a rigid frame, traction-wheels supporting the rear portion of the frame, a front-wheel frame comprising a plurality of cross-bars secured centrally to each other and hinged to the rigid frame so as to be capable of substantially vertical oscillation, hinged links 16 connecting the lateral extremities of the front-wheel frame to the rigid frame, wheel-posts mounted rotatably in the extremities of the cross-bars, wheels axled in the forks of the wheel-posts, a steering-post rotatable on the frame and provided with a crank-handle, and a wheel-shifting bar pivoted on crank-arms on the front-wheel posts and to a crank on the steering-post.

7. In combination in an automobile, a rigid frame, a body or box, elastic hangers extending toward front and rear and secured at their front ends to the rigid frame and at their rear extremities to the box by which the box at its front end is connected to and supported yieldingly on the frame, and springs on the frame by and on which the box is supported yieldingly at its rear.

8. In an automobile, the combination of a rigid frame, traction-wheels each having a short axle by which the wheels are severally mounted in the frame, a single driving-shaft extending transversely entirely across the frame, and sprocket-chains running severally on a wheel on the driving-shaft and on the axle of a traction-wheel.

662,031. LOCOMOTIVE TURN-TABLE. LOUIS H. SHOEMAKER, Paterson, N. J. Filed Mar. 16, 1900. Serial No. 8,911. (No model.)



Claim.—1. In an ordinary turn-table, consisting of two girders continuous over a center pivot about which it turns both vertically and horizontally, carriages for supporting ends of turn-table consisting of a girder supported by wheels on a circular track to which the ends of turn-table are flexibly connected vertically and rigidly connected horizontally.

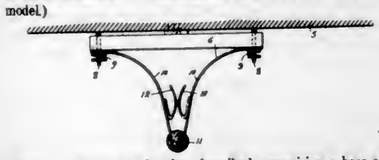
2. In an ordinary turn-table, consisting of two girders continuous over a center pivot about which it turns both vertically and horizontally, carriages, one at either end of the table, each consisting of a girder supported by two wheels on a circular rail, and each connected to an end of the turn-table in such manner that the carriage is maintained in a vertical position by the turn-table and rigidly connected to it horizontally, while permitting the ends of the turn-table to be raised and lowered by flexible connections between carriages and turn-table.

3. In an ordinary turn-table consisting of two girders continuous over a center pivot about which it turns both vertically and horizontally, with carriages at the ends resting upon a circular track, said carriages connected to the ends of turn-table in a rigid manner horizontally but so as to permit the ends of turn-table to move vertically with respect to carriages, pairs of links flexibly connected together, one link of each pair being flexibly connected to turn-table near its end and the other link being flexibly connected to carriage, and proper mechanism for actuating the joints of said pairs of links, so that by one movement the links are operated at both ends of turn-table, raising one end and lowering the other with respect to the carriages, substantially as described.

4. In an ordinary locomotive turn-table, with a carriage at each end to which the turn-table is rigidly attached horizontally and flexibly attached vertically, a mechanism consisting of the driving-shaft S, the pinion *p*, and the spur-wheel W, by which a suitable motive power may be applied to one of the wheels of each carriage in such manner as not to interfere with raising and lowering ends of turn-table and by means of which the turn-table may be turned horizontally about its center, substantially as described.

5. In an ordinary turn-table flexibly supported at the ends from carriages as before described, with suitable mechanism for raising and lowering the ends of turn-table from said carriages, a latch actuated in connection with said mechanism so made as to bring the turn-table track into alinement with the track on the edge of the turn-table pit and secure it in that position, substantially as described.

662,032. AUTOMATIC FIRE-ALARM DEVICE. ERNEST F. SITTS, Herkimer, N. Y. Filed July 10, 1899. Serial No. 723,331. (No model.)



Claim.—A device of the class described, comprising a base or support, a pair of convergently-curved main plate-springs connected at one end with said base by means of binding-posts with which line-wires are connected, the free ends of said curved springs being held in proximity by means of a ball or knob of fusible substance, and supplemental curved plate-springs connected with said main springs at one end and so arranged that their convex sides are in opposed relative position, said line-wires being in connection with a source of electricity and with the operative parts of a bell or other alarm device, the relative construction and arrangement of parts being such that a predetermined degree of heat will cause the fusion of said ball or knob which in turn will cause the mutual engagement of said supplemental plate-springs, and the closing of an electrical circuit through said ball or alarm device, substantially as shown and described.

662,033. BUTTON. EDWARD S. SMITH, Waterbury, Conn., assignor to Christina J. Higley, New York, N. Y. Filed Oct. 15, 1895. Serial No. 565,756. (No model.)

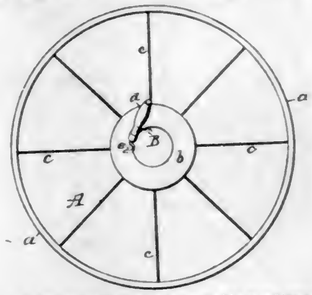
Claim.—1. As a new article of manufacture, a button comprising a base supporting a thimble, in turn supporting a ring of rubber or analogous yielding substance having an inwardly-projecting web, and a rivet holding said web in engagement between the outer wall of said rivet and the inner wall of the thimble, said rivet being secured to the base.



2. In a button in combination, a base, a thimble supported thereby, a circular head of yielding material projecting outside of and supported on the top of said thimble, a rivet passing down through said thimble and fastening the parts together, the central portion of said yielding head being securely held between the inner wall of said thimble and the outer wall of said rivet.

3. In a garment-supporter, a button comprising a base having a perforation surrounded by an upwardly-projecting flange, a thimble adapted to be supported by said base, an outwardly-projecting flange toward the upper end of said thimble, a tubular rivet expanded toward its upper end to form a flange F, and a ring D of yielding substance, having an inwardly-extending web H adapted to be held securely between said rivet and thimble when the parts are assembled.

662,034. TOY HOOP. PRESTON A. SMITH, Richford, Vt. Filed Sept. 30, 1899. Serial No. 732,184. (No model.)



Claim.—A toy comprising a large rim, a thin metal central portion provided with a large central opening having an unobstructed circular wall, spokes connecting said thin metal central portion with the rim and a driving-rod much smaller in diameter than the diameter of the opening in said central portion, said driving-rod having an unobstructed recess at right angles to its longitudinal axis and adapted to embrace the edge of the opening in the thin metal central portion to permit said driving-rod to ride on the circular unobstructed wall thereof and to permit said rod to be freely removed therefrom.

662,035. GAS-BURNER. CLARENCE S. STEWARD, Chattanooga, Tenn. Filed Jan. 14, 1898. Serial No. 666,684. (No model.)

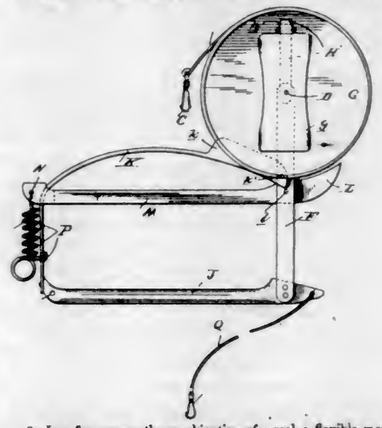


Claim.—1. A gas-burner comprising a head having a top provided with an inversely-conical under surface, said conical under surface being surrounded by the bore of the head, defined by an outer wall thereof having its inner surface substantially parallel with the conical under surface of the top and in close juxtaposition thereto, whereby gas within the bore is spread in a thin layer over the cone, ducts provided in the head and oppositely-discharging outlets communicating with the ducts, the bore of the outlets being greater than that of the ducts, and means for supplying air to the bore of the outlets, substantially as set forth.

2. A gas-burner composed entirely of steatite or other suitable material, comprising a head provided with a bore, and ducts leading therefrom, of isolated, oppositely-discharging outlets defined by undercuts from the surface of the head, substantially as set forth.

662,036. FIRE-ESCAPE. CHARLES STOLL, Chicago, Ill. Filed Sept. 18, 1900. Serial No. 30,397. (No model.)

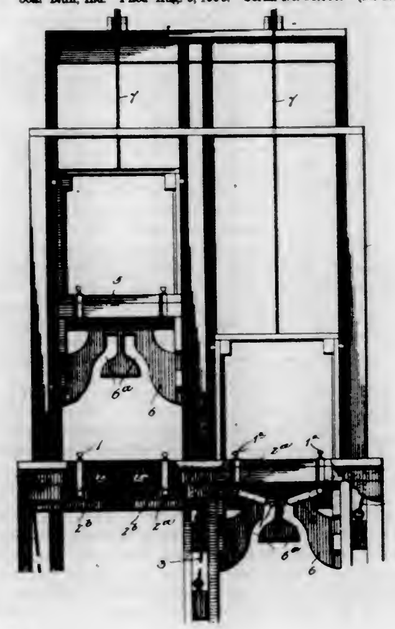
Claim.—1. In a fire-escape, the combination of a reel, a flexible member secured thereto, a journal for said reel, arms depending from said journal, a brake pivoted between said arms and adapted to bear against said reel, a handle secured to the lower ends of said arms, and an operating-trigger for said brake extending between said arms substantially parallel with said handle and between the same and said reel within reach of the fingers of the person using the fire-escape, substantially as described.



2. In a fire-escape, the combination of a reel, a flexible member secured thereto, a journal secured thereto, arms depending from said journal, a disk secured to said journal, a handle on said disk, a handle secured to the lower ends of said arms, a brake pivoted to said arms and adapted to engage both said reel and said disk, and an operating-trigger for said brake extending adjacent to said handle, substantially as described.

3. In a fire-escape, the combination with a reel, a flexible member secured thereto, a journal for said reel, arms depending from said journal, a handle secured between the lower ends of said arms and extending laterally therefrom, a finger-guard secured to the other end of said handle and also secured to said arms, a brake pivoted between said arms and adapted to engage said reel, a trigger for said brake extending between said guard and said handle and being guided at its free end by said guard, and a spring secured to said trigger and to a suitable part of the fire-escape, substantially as described.

662,037. CAR-LOADING APPARATUS. ALEXANDER STREILY, Coal Bluff, Ind. Filed Aug. 6, 1900. Serial No. 26,069. (No model.)



Claim.—1. In apparatus of the character described, the track-section pivoted or trunnioned rails and a platform or cage provided with a cam device adapted to engage and depress said rails, substantially as set forth.

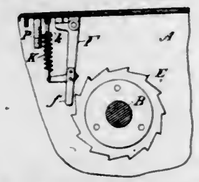
2. In apparatus of the character described, the track-section pivoted or trunnioned rails, a platform or cage having a cam device adapted to engage said rails and depress them, and means for automatically restoring or returning said rails to their normal upright position, substantially as set forth.

3. In apparatus of the character described, the track-section pivoted or trunnioned rails, a cage or platform having a cam device provided with oppositely-inclined slots in its lower edge, adapted to engage said rails, and means to automatically return said rails to their normal upright position, substantially as and for the purpose specified.

4. In apparatus of the character described, the combination of an upright frame or guide, equipped with hoisting rope or tackle, a track-section having the brackets or bed-pieces of its rails trunnioned or pivoted in position, a cage or platform manipulated along said guide or frame by said rope or tackle, and provided with a cam device upon its under side, adapted to engage and depress said rails, and means adapted to automatically return said rails to their normal upright position after depression, substantially as set forth.

5. In apparatus of the character described, the track-section pivoted or trunnioned rails, a platform or cage having a cam device adapted to engage said rails and depress them, and weighted ropes passed over pulleys and connected to said rails, substantially as set forth.

662,038. CONTROLLER. EMMETT W. STULL, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Filed Dec. 28, 1899. Serial No. 741,821. (No model.)



Claim.—1. The combination with a motor-controller drum and its blow-out coil, of a movable locking device arranged in the field of said coil, and a spring acting upon said device in opposition to the said coil, substantially as described.

2. The combination with the motor-controller drum and its blow-out coil, of a movable locking device arranged in the field of said coil, a spring acting upon said device in opposition to said coil, and means for adjusting the tension of said spring.

3. The combination with a motor-controller drum, its blow-out coil, and a ratchet fixed to the said drum, of a pawl device pivoted in the field of force of said coil and arranged to engage the said ratchet, and a spring acting upon said device in opposition to the said coil.

4. The combination of a motor-controller drum of magnetic material, a ratchet fixed with reference to said drum, a coil on the shaft of said drum, and a movable pawl situated in the magnetic field of the coil and arranged to engage the teeth of said ratchet under the action of an increase in strength of said field.

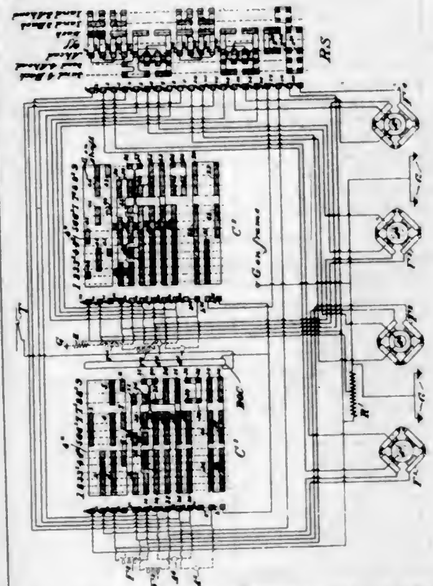
662,039. CONTROL OF ELECTRIC MOTORS. EMMETT W. STULL, Johnstown, Pa., assignor to the Lorain Steel Company, of Pennsylvania. Application filed June 8, 1900. Serial No. 19,641. (No model.)

Claim.—1. The method of controlling a plurality of electric motors, which consists in starting them connected all in series with each other, then connecting them in parallel groups whose individual motors are connected in series, and then connecting all the motors in parallel certain of the motor elements being connected in parallel in passing from the position of full series to the position of parallel groups and also in passing from the position of parallel groups to full parallel position.

2. The method of controlling a plurality of electric motors, which consists in starting them connected all in series with each other, then connecting certain elements of the motors in parallel with each other but in series with the remaining elements, then connecting the motors in parallel groups whose individual motors are connected in series with each other, then connecting all the motors in parallel.

3. The method of controlling a plurality of electric motors, which consists in starting them connected all in series, then connecting them in series groups with the fields of each group connected in parallel, then connecting the groups in parallel with the individual motors of each group in series, and then connecting all the motors in parallel.

4. The method of controlling a plurality of electric motors in groups which consists in starting them connected all in series, and while still in series connecting the fields of each group in parallel with each other, then connecting the groups in parallel with their individual motors in series, then connecting in multiple in each group certain of the motor elements with the remaining elements in series, and then connecting all the motors in multiple.



5. The method of controlling a plurality of electric motors in groups which consists in starting them connected all in series, and while still in series connecting one element of each motor of each group in parallel with the like element of the other motor or motors of the group, then connecting the groups in parallel with their individual motors in series, then connecting first one element of each motor in each group in parallel with the like element of the other motor or motors of the group, and the remaining elements in series, then changing the connections so that the before series-connected elements are in parallel and the before parallel-connected elements are in multiple, and finally connecting all the motors in multiple.

6. The method of controlling a plurality of electric motors in groups, which consists in starting them all in series, then connecting the fields of each group in parallel, then connecting the groups in parallel with their individual motors in series, then first connecting the fields of each group in parallel with the armatures in series, and afterward the armatures in parallel and the fields in series, and finally connecting all the motors in series.

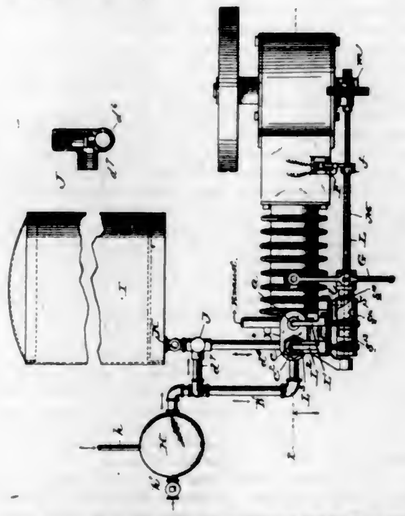
7. The method of controlling a plurality of electric motors in groups, which consists in starting them all in series, then connecting the fields of each group in parallel, then connecting the groups in parallel with their individual motors in series, then first connecting the fields of each group in parallel with the armatures in series, and afterward the armatures in parallel and the fields in series, and finally connecting all the motors in multiple, the parallel connection of the armatures alone being effected successively in the different groups.

8. The method of controlling a plurality of electric motors, which consists in starting them all connected in series, then connecting them in parallel groups whose individual motors are connected in series, and then connecting all the motors in multiple, and preparatory to each of the last two steps first coupling certain elements of the motors of each group in parallel.

9. The method of controlling a plurality of electric motors, which consists in starting them all connected in series; then removing from circuit the field-coils of part of the motors and reconnecting them in circuit in parallel with the other field-coils and in series with the armatures, then opening the circuit through one group of motors and connecting them in parallel with the other motors, but with the motors of each group in series, then again removing and reconnecting in parallel the fields of each group, then successively opening the circuit of each group and reconnecting it in circuit with its armatures in parallel and its fields in series, and then removing one motor of each group and reconnecting all the motors in parallel.

10. The method of controlling a plurality of electric motors, which consists in starting them connected all in series with each other and also with external resistance, gradually removing the resistance and then connecting the fields only of each pair of motors in parallel, then again inserting external resistance and connecting the pairs of motors in parallel with their individual motors in series, then removing such resistance and again connecting the fields of each pair in parallel, then restoring the series connections of the fields and connecting the armatures of each pair in parallel, and finally connecting all the motors in parallel.

662,040. EXPLOSION-ENGINE. THOMAS L. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Newton, Mass. Filed Feb. 6, 1900. Serial No. 4,206. (No model.)



Claim.—1. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit all the fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine each time that the charge admitted from the main source is insufficient.

2. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit all the fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated automatically to admit fluid from the receiver to augment the charge received from the main supply at each operation of the engine only when the power required of the engine is above normal.

3. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated to allow unburned fuel to pass from the power-cylinder of the engine to the receiver whenever the power required of the engine during its operation is below normal.

4. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit all the fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated to allow unburned fuel to pass from the engine to the receiver whenever the power required of the engine during its usual operation is below normal, and also to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal.

5. The combination with an explosion-engine, of a source of fuel at low pressure for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit all the fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine constructed and operated to admit fluid from the receiver at high pressure to augment the charge admitted from the main source of supply at each operation of the engine while the power required of the engine is above normal.

6. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated uniformly during the operation of the engine, a valved exhaust-passage also constructed and operated uniformly during the operation of the engine, a receiver for fluid under pressure and two valves facing each other and seating themselves in opposite direction in the same valve-chamber interposed between the receiver and the engine, and constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal.

7. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit fuel uniformly during the operation of the engine, a valved exhaust-passage also constructed and operated uniformly during the operation of the engine, a receiver for fluid under pressure, and two valves facing each other and seating themselves in opposite directions in the same valve-chamber, constructed and operated to allow unburned fuel to pass from the engine to the receiver whenever the power required of the engine is below normal.

8. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel for normal running, main admission and exhaust valves constructed and operated to admit and exhaust on a four-cycle system, a receiver for fluid under pressure, and a valved connection between the receiver and the engine constructed and operated automatically during the compression-stroke of the engine to allow surplus fluid to pass to the receiver whenever the power required of the engine is below normal.

9. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel for normal running on a four-cycle system, a receiver for fluid under pressure, and a valved connection between the receiver and the engine constructed and automatically operated after the compression-stroke to admit fluid from the receiver to the engine whenever the power required of the engine is above normal.

10. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel for normal running, a receiver for fluid under pressure, a connection between the receiver and the engine, two valves interposed in said connection controlling the passage between the receiver and the engine, devices for positively opening said valves at times, and devices permitting said valves at times to open automatically.

11. The combination with an explosion-engine, of a source of fuel for normally running, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel for normal running, a receiver for fluid under pressure, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal, and a throttle-valve interposed in said connection between the receiver and the engine for regulating the power of the engine.

12. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit fuel for normal running, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal, and valves interposed between the engine and the receiver and the engine and the main source of supply, constructed and operated to allow unused gases to be pumped around in circuit until used when the charge in the receiver is at abnormally high pressure.

13. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, constructed and operated to admit fuel for normal running, a receiver for fluid under pressure, a mixer having a port for the admission of fuel, and a valved port for the admission of air, a valved connection between the receiver and the mixer, and valved connections between the receiver and the engine, said valved connections between the receiver and the mixer and the receiver and the engine, being constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal and to allow unused gases to be pumped around in a circuit until used, before any fresh air is taken into the mixer.

14. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the

engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine, a mixer having a passage for the entrance of fuel and a valved passage for the entrance of air, and a valved connection between the receiver and the mixer for permitting fluid to pass from the receiver to the mixer when the pressure in the receiver is excessive.

15. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, a mixer, a passage through which fuel is admitted to the mixer, a pipe having a check-valve through which air is admitted to the mixer, a connection between the mixer and the receiver, and a safety-valve interposed in said connection to allow the fluid to pass from the receiver to the mixer whenever the pressure in the receiver is excessive.

16. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, a mixer, supply-passages through which fuel and air are admitted to the mixer, a check-valve in the air-supply passage, a connection between the mixer and the receiver, a safety-valve in said passage, and a combined stop and check valve in the connection between the receiver and the engine.

17. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, the combined admission and discharge valves, C and D, arranged close to each other in the connection between the receiver and the engine, with a minimum intervening space for the accumulation of compressed gases.

18. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, an air-supply, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal, and valve mechanism constructed and operated to prevent the admission of air after a predetermined maximum pressure is obtained in the receiver and until a safe maximum pressure is obtained.

19. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, means for operating the engine to develop a pressure in the charge greater than the charge before ignition, a variable cut-off, a receiver for fluid under pressure, and a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to the engine to increase the normal power thereof.

20. The combination with an explosion-engine, of a source of fuel for normal running, a connection between said source of fuel and the engine, an automatic valve interposed in said connection between the source of fuel and the engine, a receiver for fluid under pressure, a valve interposed in the connection between the receiver and the engine, opening automatically toward the engine, another valve in said connection between the receiver and the engine, opening automatically toward the receiver, means for opening the exhaust-valve after each explosion, and devices for operating the valves in the connection between the receiver and the engine to hold both of said valves closed during the exhaust, to hold one of the valves open during compression, and to hold both of said valves open for a time during the working or power stroke of the engine.

21. The combination with an explosion-engine, of a source of fuel for normal running, on a four-cycle system, a valved connection between said source of fuel and the engine, constructed and operated to admit the fuel during each admission-stroke, a receiver for fluid under pressure, a valved connection between the receiver and the engine, an exhaust-valve, and mechanism for operating said valves to permit fluid to pass from the receiver to the engine during each forward stroke of the piston, while the power required of the engine is above normal.

22. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, an exhaust-valve, a receiver for fluid under pressure, a valved connection between the receiver and the engine, mechanism for operating said valves between the receiver and the engine, to prevent the passage of fluid from the receiver to the engine when the latter is running on a four-cycle system, and devices for changing the valve-operating mechanism to operate the exhaust-valve and the valves between the receiver and the engine, to permit an exhaust during each inward stroke of the piston, and an admission from the receiver after each inward stroke of the piston, so that the engine then operates on a two-cycle system.

23. The combination of an explosion-motor or internal-combustion engine, compressing its gases in the power-cylinder and on the power side of the piston, a receiver for compressed gases, a source of fuel for normal running, a valved connection between said source of fuel and the engine, an exhaust-valve, means for operating it to cause the engine to operate on a four-cycle system, and a valved connection between the engine and the receiver, constructed and operated to allow fluid to pass from the receiver to the combustion-chamber of the engine after each inward stroke of the piston, thereby causing the engine to operate on a two-cycle system when the power required of the engine is above normal.

24. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, an exhaust-valve operated to cause the engine to run on a four-cycle system when the powor required of the engine is normal, a receiver for fluid under pressure, a valved connection between the receiver and the engine, and valve-operating mechanism acting upon the exhaust-valve and the valves between the receiver and the engine to cause the valves between the receiver and the engine to prevent the admission of fluid to augment the charge in the engine when the engine is running normally, and also to act upon the exhaust-valve and said valves between the engine and the receiver, to cause the exhaust-valve to be opened at each inward stroke of the piston, and the valves between the receiver and the engine to be opened to admit a charge from the receiver after each inward stroke of the piston, the organization being such that when the power required of the engine is normal the engine may be run economically on a four-cycle system, but when greater power is required the engine may be run with increased power on a two-cycle system.

25. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, an exhaust-valve, and means for operating the exhaust-valve and the valves between the engine and the receiver to cause the engine to run on a four-cycle system when the power required of the engine is normal, to cause the valves between the receiver and the engine to permit the passage of fluid from the receiver to the engine when the power required of the engine is above normal, but to prevent the passage of fluid from the receiver to the engine when the power required of the engine is normal or below normal, and also to permit the passage of fluid from the engine to the receiver when the power required of the engine is below normal.

26. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a mixer, a connection between the receiver and the mixer, a valve controlling the connection between the receiver and the mixer, another valve controlling the connection between the receiver and the engine, and valve mechanism constructed and operated to admit fluid to the engine from the receiver.

27. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to augment the charge in the engine whenever the power required of the engine is above normal, and devices for varying the cut-off of fluid admitted from the receiver to the engine.

28. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a connection between the receiver and the engine, a valve interposed in said connection between the receiver and the engine, constructed and operated to at times permit the passage of fluid from the engine to the receiver and prevent the passage of fluid from the receiver to the engine, devices for setting this valve, to permit free communication between the engine and the receiver in both directions, and valve mechanism in said connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to the engine when the power required of the engine is above normal.

29. The combination with the combustion-chamber of an engine, of a receiver, a valved connection between the combustion-chamber of the engine and the receiver, a pump having valved connections between the receiver and the combustion-chamber of the engine, an admission-valve for the pump, and devices for at times rendering the pump inoperative for compression, said valve mechanism between the receiver and the combustion-chamber of the engine being constructed and operated to admit fluid from the receiver to the combustion-chamber of the engine when the compressing-pump is rendered inoperative.

30. The combination with an explosion-engine, of a compressing-pump, a source of fuel therefor, a valved connection between the pump and said source of fuel, a receiver for compressed fluid, a valved connection between the receiver and the combustion-chamber of the engine, and between the combustion-chamber of the engine and the pump, and devices for operating said valves to cause the pump to supply fluid to the combustion-chamber of the engine when the power required of the engine is normal, and for operating said valves to cause fluid from the receiver to pass to the combustion-chamber of the engine when the power required of the engine is above normal.

31. The combination with an explosion-engine, of a mixer, a valved connection between the mixer and the engine, a receiver for fluid under pressure, a valved connection between the engine and the receiver, and a valved by-pass between the connections of the receiver with the mixer and the receiver with the engine.

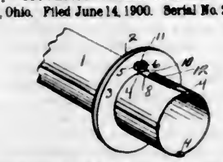
32. The combination with an explosion-engine, of a source of fuel for normal running, a valved connection between said source of fuel and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to the engine, and to permit the receiver to be charged from the engine, and valve-operating mechanism provided with devices for varying the cut-off.

33. The combination with an explosion-engine, of a pump, a source of fluid for the pump, a valved connection between the pump and the engine, a receiver for fluid under pressure, a valved connection between the receiver and the engine, means for operating the valves to cause the engine to be supplied with fluid directly from the pump alone, or with fluid taken from both the receiver and the pump, and devices for rendering the pump inoperative, to cause the engine to receive fluid from the receiver alone.

34. The combination with an explosion-engine, of a pump, a source of fluid therefor, a valved connection between the pump and said source of fluid, a valved connection between the pump and the engine, a receiver for compressed fluid, a valved connection between the receiver and the engine, constructed and operated to admit fluid from the receiver to the engine when the pump is not compressing, and devices for rendering the pump inoperative for compressing the fluid admitted to it.

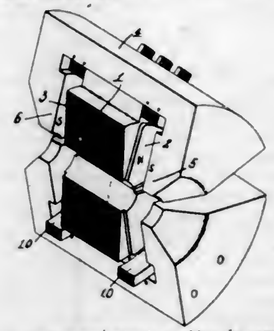
35. The combination with an explosion-engine, of a source of fuel for normal running, a connection between the engine and said source of fuel, a receiver for compressed gases, an automatic valve opening inward toward the combustion-chamber of the engine, a positively-operated valve placed close to said first-mentioned valve, and governing the same port, and other valves controlling the admission of fluid from the source of supply to the engine.

662,041. STOVEPIPE-COLLAR HOLDER. WILLIAM R. SYERS, Canal Dover, Ohio. Filed June 14, 1900. Serial No. 20,251. (No model.)



Claim.—In a stovepipe-collar holder, a collar, an asbestos lining therefor, studs provided with plates and T-heads, the said studs passing through the asbestos lining and collar and being suitably fastened to the collar whereby the lining is held upon the collar by the plates on the studs, in combination with retaining-bars each bar having one end bent at right angles to the main portion thereof, said end being provided with an open slot adapted to engage a stud on the collar and the outer end bent into a hook, said main portion being provided with a spring adapted to engage with a flue-wall when the device is in its operative position, substantially as set forth.

662,042. DYNAMO-ELECTRIC MACHINE. FRANCIS W. THROOP, Niagara Falls, N. Y. Filed Jan. 29, 1900. Renewed Oct. 15, 1900. Serial No. 33,105. (No model.)



Claim.—1. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a substantially radial inductor carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductor, and magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductor, the poles on one side of said plane being all of one polarity and those on the opposite side being all of the other polarity.

2. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a substantially radial inductor carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductor, magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductor, and a reinforcing mass of iron carried with but insulated from said inductor.

3. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a substantially radial inductor carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductor, and several pairs of magnetic poles straddling the plane of revolution of said inductor, the several pairs of poles being disposed in circumferential series, the poles upon one side of said plane having one sign and that upon the other side having the opposite sign.

4. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a series of substantially radial inductors carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductors, and magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductors, the poles on one side of said plane being all of one polarity and those on the opposite side being all of the other polarity.

5. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a series of substantially radial inductors carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductors, and several pairs of magnetic poles straddling the plane of revolution of said inductors, the several pairs of poles being disposed in circumferential series, the poles upon one side of said plane having one sign and that upon the other side having the opposite sign.

6. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a series of substantially radial inductors carried thereby, a circuit in constant direct connection with the outer and inner ends of said inductors, magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductors, and a reinforcing mass of iron carried with but insulated from said inductors.

7. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a collecting-ring carried thereby, a substantially radial spoke-like inductor carried by the shaft and having its outer end connected with said ring, a circuit in constant direct connection with said ring and the inner end of said inductor, and magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductor.

8. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a collecting-ring carried thereby, a series of substantially radial inductors carried by the shaft and having their outer ends connected with said ring, a circuit in constant direct connection with said ring and the inner ends of said inductors, and magnetic poles of opposite sign disposed at the opposite sides of the plane of revolution of said inductors, the poles on one side of said plane being all of one polarity and those on the opposite side being all of the other polarity.

9. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a disk of iron fast thereon, radial inductors mounted on but insulated from said disk, collector-rings mounted on but insulated from the periphery of said disk and connected with the inductors, brushes engaging said collector-rings, circuit connections to said brushes and to the inner ends of said inductors, and a magnet presenting opposite polar faces at the opposite sides of said disk.

10. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a hub thereon, an iron core mounted on said hub and formed of a series of concentric laminations, a strengthening-hoop encircling said core, spokes engaging said hoop and core and hub, collector-rings encircling said hoop but insulated therefrom, substantially radial inductors carried by but insulated from said core and hoop and having their outer ends connected with said collector-rings, brushes engaging said collector-rings, circuit connections connecting with said brushes and with the inner ends of said inductors, and a magnet presenting opposite poles at the faces of said disk.

11. In a dynamo-electric machine, the combination, substantially as set forth, of a cylindrical pole having an axial bore and presenting polar surfaces at its end, a series of yokes secured to the periphery of said pole and provided with inturned arms presenting polar faces parallel with said first-mentioned polar faces, a shaft mounted axially in said cylindrical pole, and a disk-armature mounted on said shaft and adapted to rotate in the space between the polar faces of said pole and arms.

12. In a dynamo-electric machine, the combination, substantially as set forth, of a longitudinally-divided cylindrical pole having an axial bore and presenting polar surfaces at its end, a series of yokes secured to the periphery of said pole and provided with inturned arms presenting polar faces parallel with said first-mentioned polar faces, a shaft mounted axially in said cylindrical pole, and a disk-armature mounted on said shaft and adapted to rotate in the space between the polar faces of said pole and arms.

13. In a dynamo-electric machine, the combination, substantially as set forth, of a cylindrical pole having an axial bore and presenting polar faces at its ends, a series of yokes connected therewith and having inturned arms at their ends presenting polar faces parallel with the polar faces of said pole, a shaft mounted axially in said pole, and disk-armatures mounted on said shaft and adapted to rotate in the spaces between the polar faces of said pole and arms.

14. In a dynamo-electric machine, the combination, substantially as set forth, of a cylindrical pole having an axial bore and presenting polar faces at its ends, a series of yokes secured thereto and having inturned arms at their ends presenting polar faces opposite the polar faces of said pole, field-coils engaging the field-magnet formed by said pole and yokes and arms, a shaft axially mounted in said pole, and disk-armatures mounted on said shaft and adapted to rotate in the spaces between the polar faces of said pole and arms.

15. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a disk-shaped iron core thereon, collector-rings on the periphery of said core, substantially radial inductors carried by said core and having their outer ends connected with said collector-rings, fixed brush-rings encircling said collector-rings, brushes carried by said brush-rings and engaging said collector-rings, circuit connections connected with said brush-rings and with the inner ends of said inductors, and a magnet presenting poles at the faces of said disk.

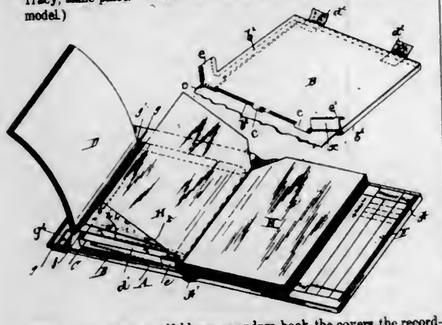
16. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a substantially radial spoke-like inductor carried by said shaft, a pair of magnetic poles of opposite sign straddling the plane of revolution of said inductor, a second substantially radial inductor carried by said shaft, a pair of magnetic poles of opposite sign straddling the plane of revolution of said second inductor, main-circuit connections to the outer ends of both said inductors, and circuit connections between the inner ends of said inductors.

17. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a series of substantially radial inductors carried thereby in equally-spaced angular planes, a pair of magnetic poles of opposite sign straddling said series of inductors, a second series of similar inductors carried by said shaft, a second pair of magnetic poles of opposite sign straddling said second series of inductors, main-circuit connections to the outer ends of an inductor of each of the two series, circuit connections between the outer ends of the remaining inductors, substantially as described, and circuit connections between the inner ends of the inductors substantially as described.

18. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a series of collector-rings mounted side by side thereon, a plurality of substantially radial inductors connected with each collector-ring, the inductors of each ring being equally spaced and all the inductors together forming an equally-spaced series, magnetic poles straddling the plane of revolution of the inductors, and circuit connections, substantially as described, connected with said collector-rings and the inner ends of the inductors.

19. In a dynamo-electric machine, the combination, substantially as set forth, of a shaft, a pair of separated armatures mounted thereon and provided with substantially radial spoke-like inductors, a pair of magnetic poles of opposite sign straddling one of said armatures, a pair of magnetic poles of opposite sign straddling the second armature, main-circuit connections to the periphery of each armature, and circuit connections between the centers of the two armatures.

662,043. **MANIFOLD SALES-BOOK.** FREDERICK M. TURCK, New York, N. Y., assignor, by mesne assignments, of one-half to Mabel Tracy, same place. Filed Mar. 15, 1899. Serial No. 709,157. (No model.)



Claim.—1. In a manifold memorandum-book, the covers, the record-sheets D, means for holding the record-sheets at the outer edge of one of the covers, the loose sheets, and a carrier for holding the loose sheets, and which carrier is hinged at one side to the cover of the book, combined with a retaining-frame attached to the carrier for holding the carbon and waxed paper, one-half of the loose leaves being loosely held between the carrier and the retaining-frame; said carrier and retaining-frame forming a collapsible holder for the loose sheets, substantially as shown.

2. In a manifold memorandum-book, the covers, a springless collapsible sheet-holder placed within the covers of a book and consisting of the flat carrier B, an upturned projection x, and the retaining-frame C, combined with the loose sheets placed between the carrier and the retaining-frame, substantially as described.

3. In a manifold sales-book, the covers, the loose sheets, the carrier B for the loose sheets hinged to the cover, an upturned projection for catching in a notch in the edges of the loose leaves, combined with a three-sided retaining-frame loosely connected to the carrier, and which catches over the top of one-half of the leaves, substantially as set forth.

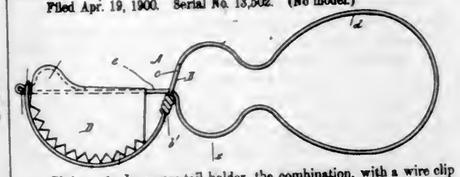
4. In a manifold sales-book, the cover, a flat carrier hinged to the cover and upon which the loose leaves are placed, combined with a three-sided retaining-frame provided with flanges upon two of its edges for catching over the edges of the leaves, a projection at the upper corner of the flat carrier, and means for connecting the retaining-frame to the carrier at their edges, said means permitting a free rising and falling movement of the retaining-frame so as to accommodate itself to the thickness of the pile of loose leaves, substantially as specified.

5. In a manifold sales-book, the cover, and a carrier for the loose sheets, which carrier is hinged to the cover, and a three-sided retaining-frame, combined with a wire which is connected at the inner edge of the carrier B at the center of the wire, and which wire has its outer ends connected to the retaining-frame, flexible retaining-strips which connect the outer edges of the carrier and the retaining-frame, so as to allow the retaining-frame a slight upward movement in relation to the carrier, and means connected to the carrier for limiting the upward movement of the retaining-frame at its inner corners, substantially as specified.

6. In a manifold sales-book, a cover, a carrier for the loose sheets provided with the upturned corner x and the loop e; and the wire d which is connected to the inner edge of the carrier by means of the loops c, combined with the three-sided retaining-frame to which the outer ends of the wire d are fastened, a clamping device attached to the outer edge of the retaining-frame and the bands d^2 which connect the outer edges of the retaining-frame and the outer edges of the carrier, substantially as specified.

7. In a manifold sales-book, the cover, the pin g connected to the outer edge of one of the covers to receive the record-sheets, and the carrier loosely connected to the cover at or near its center and provided with the loops c, at its inside edge, and the loop at its lower edge, and the upturned corner x provided with the projections e', combined with the three-sided retaining-frame, the wire by means of which the frame is loosely connected to the carrier; the retaining-bands d^2 for connecting the outer edges of the carrier and the retaining-frame, the clamp f, and the loose sheets H provided with a notch in one of their edges, one-half of the sheets being held between the carrier and the retaining-frame, substantially as shown and described.

662,044. **COW-TAIL HOLDER.** JOHN R. WELDON, Portage, Wis. Filed Apr. 19, 1900. Serial No. 13,502. (No model.)

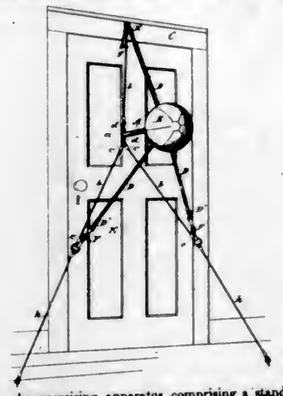


Claim.—1. In a cow-tail holder, the combination, with a wire clip for engaging with the leg of the animal, said clip being provided with two curved portions at one end and a spring-arm at the other end, of a serrated plate secured to the said spring-arm and arranged opposite the space between the said two curved portions, substantially as set forth.

2. In a cow-tail holder, the combination, with a wire clip for engaging with the leg of the animal, said clip being provided at one end with a loop, two curved portions and a guide at the opposite ends of the curved portions from the said loop, and having at its other end a spring-arm which is slidable in the said guide and provided with a catch for engaging with the said loop, of a serrated plate secured to the said spring-arm and arranged opposite the space between the two curved portions and between the said loop and guide, substantially as set forth.

3. In a cow-tail holder, the combination, with a wire clip for engaging the leg of the animal, said clip being provided with two curved portions at one end, a spring-arm at its other end, and means for locking the said arm and curved portions together, of a serrated plate secured to the said spring-arm and arranged opposite the space between the said two curved portions, substantially as set forth.

662,045. **PUNCHING-BAG SUPPORT.** ALEXANDER A. WHITELY and WILLIAM A. DUNCAN, New York, N. Y., assignors to Maude I. Whitely, same place. Filed Feb. 19, 1900. Serial No. 5,682. (No model.)



Claim.—1. An exercising apparatus comprising a standard, a bag at one end thereof, a plurality of non-elastic connections extending from the other end of the standard, means for attaching said connections to a support, and a plurality of elastic connections also extending from the standard at a point near the bag and provided with means for attaching them to a support, a pair of said connections being arranged to support the standard in a substantially horizontal position, the non-bag-carrying end of the standard and the connections supporting said end being free from a separate base-piece.

2. An exercising apparatus having a standard, a bag at one end thereof, the other end of the standard having a plurality of diverging connections, a plurality of diverging elastic connections extending from said standard, pairs of said connections extending to a common point of support, and means for stretching said connections outwardly to support the standard in a substantially horizontal position, a pair of the connections extending downwardly from an overhead support to sustain the standard.

3. An exerciser comprising a standard, a bag at one end thereof, a set of non-elastic cords connected to the opposite end of the standard, means for sustaining said cords in triangular relation to each other, means for adjusting the tension of said cords, a plurality of elastic connections extending from said standard and adapted to be arranged in triangular relation to each other, means for attaching said elastic connections to a support, pairs of said connections each extending to a ring, and a connection extending from each ring to a support for holding said pairs of connections in a diverging position.

4. In an exerciser, the combination of a standard, a punching-bag attached thereto at one end, a loop at the opposite end thereof, a plurality of cords connected with said loop and provided with hooks at their outer ends, and means for supporting said hooks, with a plurality of elastic connections attached to said standard at a point near the bag and provided with means at their outer ends to connect them with a support, and means connected with one of the first-mentioned connections for stretching the corresponding connections to suspend the standard in a substantially horizontal position.

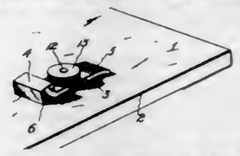
662,046. **PULLEY.** JAMES WINTER, Gilmore City, Iowa. Filed Apr. 18, 1900. Serial No. 13,357. (No model.)



Claim.—1. A pulley, comprising a metallic core or hub, having a plurality of outwardly-directed longitudinal ribs upon the outer face, and radial perforations between adjacent ribs, a plurality of segmental wooden or analogous blocks fitted between adjacent ribs, and fastenings passing through the respective blocks and entering the corresponding perforations in the core or hub.

2. A pulley, comprising a metallic core or hub, having a plurality of longitudinal dovetailed ribs upon the outer face thereof, and radial perforations located between adjacent ribs, the inner ends of the perforations communicating with the bore of the core and also enlarged to form seats, nuts received within the seats, a plurality of wooden or analogous segmental blocks snugly seated between adjacent ribs, the opposite longitudinal edges of each block having dovetailed grooves to snugly receive a portion of the adjacent ribs, and screw-threaded fastenings passing through the blocks, the corresponding perforations in the core and engaging the respective nuts, the heads of the fastenings being countersunk in the outer faces of the blocks, and also provided with screw-driver slots.

662,047. **GAGE FOR PRINTING-PRESSES.** GEORGE C. WOLVEN, Poughkeepsie, N. Y. Filed July 7, 1900. Serial No. 22,837. (No model.)



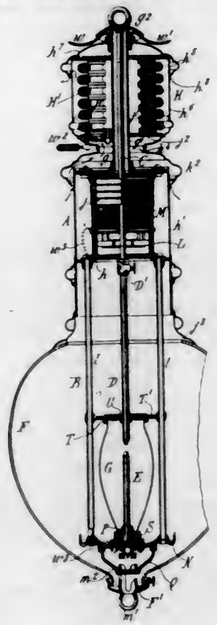
Claim.—1. A feed-gage comprising a body having a countersink, and a clamp having a head to draw the platen-sheet into said countersink, substantially as described.

2. A feed-gage comprising a plate having a countersunk opening, and a clamping device comprising a shank projecting through the opening, a head carried by the shank to draw the platen-sheet into the countersink, and a nut on the shank, substantially as described.

3. A feed-gage comprising a generally curved or bowed gage member having end bearing-points to rest upon the tympan-sheet and a central countersunk opening, and a clamping device comprising a head, a shank carrying the head and projecting through said opening, and a nut coöperating with said shank, substantially as described.

4. A feed-gage comprising a generally curved or bowed gage member having end bearing-points to rest upon the tympan-sheet and a central countersunk opening, a clamping device comprising a head, a shank carrying the head and projecting through said opening, and a nut coöperating with said shank, and a tongue mounted on the shank and having a square edge to bear against the stop of the gage, substantially as described.

662,048. **ELECTRIC-ARC LAMP.** JAMES J. WOOD, Fort Wayne, Ind., assignor to the General Electric Company, of New York. Filed July 28, 1898. Serial No. 687,119. (No model.)



Claim.—1. In an arc-lamp, a clutch feed mechanism comprising an armature-lever I and a clutch-lever J, the armature-lever connected to the clutch-lever on one side of its fulcrum and having a tail projecting to the opposite side of its fulcrum, and adapted to serve as a movable abutment for the free end of the clutch-lever in the manner described.

2. In an arc-lamp, a clutch feed mechanism comprising a clutch and a clutch-lever J, the regulating magnet or solenoid having its movable member connected to said clutch-lever, and a spring *e* arranged to bear downwardly upon said clutch-lever to overcome the momentum thereof and prevent the consequent release of the clutch after striking the arc.

3. In an arc-lamp, a clutch feed mechanism comprising an armature-lever I, a clutch-lever J, having a projecting tail, an intermediate compounding-lever I', a link connecting the armature-lever with the compounding-lever, a link connecting the latter to the clutch-lever for multiplying the motion imparted by the regulating-magnet to strike a long arc, and a stop against which said tail abuts at its extreme movement to open the clutch.

4. In an arc-lamp, a clutch feed mechanism comprising an armature-lever I, a clutch-lever J above it, the armature-lever having a tail b^3 adapted to engage the end d^2 of said clutch-lever, a compounding-lever I' above the clutch-lever, a link f^2 connecting the armature-lever to said lever T, and a link c^2 connecting the latter to the clutch-lever.

5. In an arc-lamp, the combination with the lamp-frame of a guide for the upper carbon comprising a sleeve through which the carbon moves, having a horizontally-projecting flange, two annular insulating-disks between which said flange is confined, and a support to which said disks are fastened.

6. In an arc-lamp, the combination with the lamp-frame of a guide for the upper carbon comprising a sleeve through which the carbon moves, a washer forced onto said sleeve to form a horizontally-projecting flange therefor, two annular insulating-disks between which said flange is confined, and a support to which said disks are fastened.

7. In an inclosed-arc lamp, the combination with the lamp-frame of a guide for the upper carbon comprising a sleeve through which the carbon moves, having a horizontally-projecting flange, two annular insulating-disks between which said flange is confined, and a support to which said disks are fastened, said support engaging the top of the inner globe.

8. In an inclosed-arc lamp, the combination with the lamp-frame of a guide for the upper carbon comprising a sleeve through which the carbon moves, having a horizontally-projecting flange, two annular insulating-disks between which said flange is confined, and a support to which said disks are fastened, said support formed as an inverted cup embracing the top of the inner globe, one of said insulating-disks extended beyond the other and cupped as a lining to said support.

9. In an inclosed-arc lamp, the combination with a frame having means for supporting the inner globe and comprising a lower cross-head N, a lower-carbon holder comprising a chuck passing centrally through said cross-head and adapted to insert the carbon from beneath without removing said inner globe, said cross-head having hooked ends n^2, and a globe-holder F'' for the outer globe having an eye *m'* adapted to engage said hooked ends for suspending the outer globe, while trimming the lamp, out of line with said carbon-holder.

10. In an arc-lamp, the combination with the lamp-frame comprising rods *l l* and bottom yoke N, the latter formed with a central ring, a lower-carbon holder fastened to said yoke and projecting through said ring, and a pivoted bail Q for supporting the globe-holder, pivoted to said yoke so as to swing up to afford access to said carbon-holder.

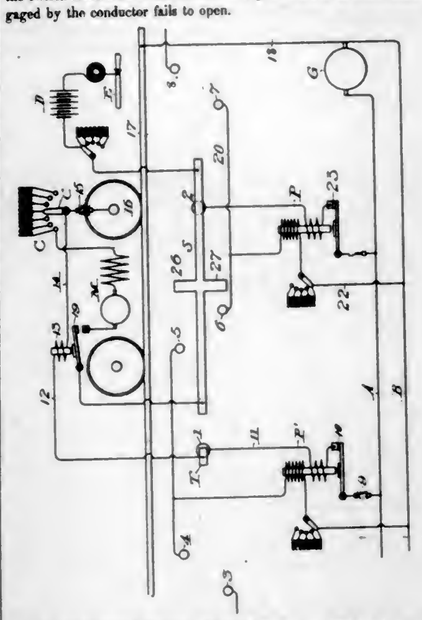
662,049. AUTOMATIC CIRCUIT-BREAKING APPARATUS. GRANVILLE T. WOODS, Monsey, N. Y. Filed Aug. 24, 1898. Serial No. 689,391. (No model.)

Claim.—1. In an electric-railway system, of the character described, the combination with the sectional conductors or contacts, of electromagnetic switches for controlling the flow of current thereto, of an automatic circuit-breaker carried by the car and connected in the motor-circuit and a normally-open test-circuit, substantially as described.

2. In an electric-railway system of the character described, the combination with the sectional conductors or contacts, of electromagnetic switches for controlling the flow of current thereto, an automatic device carried by the car, and means whereby said device will be caused to interfere with the work of the car-motor when a preceding switch fails to break the appropriate circuit, substantially as described.

3. In an electric-railway system, of the character described, the combination with the electromagnetic switches having their pick-up coils in circuits branching across the mains and normally energized by currents flowing (across the mains) through said branch circuits, an electrical source carried by the car, and means for cutting said source into circuit with the pick-up coils at starting, substantially as set forth.

4. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches for connecting the sections thereof with the feeder, an electromagnetic switch for the motor-circuit carried by the car, and a test-contact connected with said switch and adapted to engage with the sections of said sectional conductor, whereby the switch is actuated when the electromagnetic switch for the section engaged by the conductor fails to open.



5. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches for connecting the sections thereof with the feeder, and means carried by the car for breaking the motor-circuit when one of said switches fails to open.

6. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches, for connecting the sections thereof with the feeder, and an electromagnetic switch on the car which opens the motor-circuit when an electromagnetic switch fails to open.

7. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches, a car-motor, a collector, a switch between the motor and collector, a test-contact, a controller connected to the test-contact and with the motor and ground, and a coil in the connection between the controller and test-contact, which coil opens the switch between the motor and collector when the test-contact engages a conductor-section which is connected to the feeder.

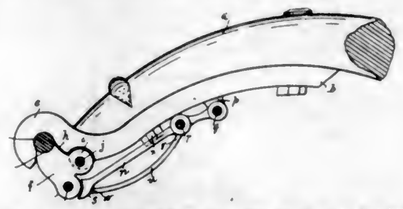
8. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches for connecting the sections thereof with the feeder, coils in series with the car-motors for keeping said switches closed, and coils in shunt to the car-motors and coöperating with said series coils to close the switches.

9. In an electric railway, the combination with the feeder, of a sectional conductor, electromagnetic switches for connecting the sections thereof with the feeder, means for energizing said switches to hold them closed, and means coöperating therewith to close said switches.

10. In an electric railway, the combination with the feeder, of a sectional working conductor, electromagnetic switches for connecting the sections thereof with the feeder, coils for the switches and connected with the sections of said working conductor, an auxiliary sectional conductor, coils for the switches and connected with the sections of said auxiliary conductor, and a collector carried by the car and adapted to engage a working-conductor section and an auxiliary-conductor section simultaneously to close a switch, and then immediately pass off from the auxiliary-conductor section.

11. In an electric railway, the combination with the feeder, of a sectional working conductor, electromagnetic switches for connecting the sections thereof with the feeder, an auxiliary sectional conductor, the sections of which are laterally disposed with respect to the sectional working conductor, two coils for each switch and connected with the sections of said sectional conductors respectively, and a collector carried by the car and having a longitudinal portion adapted to engage the sections of the working conductor, and a transverse portion adapted to engage the sections of said auxiliary conductor.

662,050. THILL-COUPLING. ALFRED H. WORREST, Lancaster, Pa., assignor to the Metal Stamping Company, New York, N. Y. Filed May 8, 1900. Serial No. 15,903. (No model.)



Claim.—1. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in its under side, a pivoted dog adapted to enter said opening and engage the coupling-bolt, a lever separated from the dog, and a spring having one end secured to the dog and the other end to the lever, for the purpose specified.

2. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a pivoted dog adapted to enter said opening and engage the coupling-bolt, a lever separated from the dog, and a spring having one end pivoted to the dog and the other end pivoted to the lever, for the purpose specified.

3. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a pivoted dog having a lip thereon and adapted to enter said opening and engage the coupling-bolt, a lever separate from the dog, and a spring having one end pivoted to the lip of the dog and the other end secured to the lever, for the purpose specified.

4. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a pivoted dog having a lip thereon and adapted to enter said opening and engage the coupling-bolt, a lever separate from the dog and having its free end adapted to be engaged by the lip on the dog when said dog is in a closed position, and a spring having one end pivoted to the dog and the other end secured to the lever, for the purpose specified.

5. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a pivoted dog having a lip thereon and adapted to enter said opening and engage the coupling-bolt, a lever separate from the dog and having its free end adapted to be engaged by the lip on the dog when said dog is in a closed position, and a spring having one end pivoted to the lip of the dog and the other end connected with the lever, for the purpose specified.

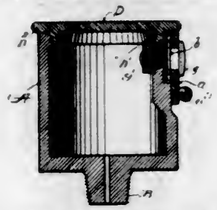
6. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a dog pivoted below said bolt, a lever fulcrumed to the thill and in front of the dog, a downwardly-curved spring having one end pivoted to the dog below the pivot of said dog and the other end pivoted to the lever between the dog and the fulcrum of said lever, for the purpose specified.

7. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a dog pivoted below said bolt and having a lip located below said pivot, a lever fulcrumed to the thill and in front of the dog and having its free end adapted to be engaged by the lip on the dog when said dog is in a closed position, and a downwardly-curved spring having one end pivoted to the lip on the dog and the other end pivoted to the lever between the dog and the fulcrum of said lever, for the purpose specified.

8. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye connected with the thill and having the opening in the under side, a dog pivoted below and in front of said bolt, a lip on the dog and located somewhat behind said pivot when the dog is in a closed position, a link-shaped lever fulcrumed to the thill in front of the dog and having its free end adapted to be engaged by the lip on the dog when said dog is in a closed position, and a downwardly-curved spring having one end pivoted to a cross-piece of the lever and inside of said fulcrum and then extended backward above the cross-piece of the free end of the lever and attached to a hinge-pin in the lip of the dog, the parts and their connections bearing such relation the one to the other that when the dog is opened or closed the lever must be thrown over its fulcrum and that when the dog is open or closed the spring will hold it in such position, substantially as and for the purpose specified.

9. The combination, in a thill-coupling, of the coupling-bolt, a hook-eye having an opening therein, a dog adapted to enter said opening, a bolt connecting the thill-iron and the thill, a nut on the bolt, a link-shaped lever constructed to embrace said nut and prevent it from turning, and an operating connection between the lever and the dog, for the purpose specified.

662,051. OIL-CUP. MONTGOMERY J. ZARNISER, Washington, Pa. Filed Apr. 9, 1900. Serial No. 12,136. (No model.)



Claim.—1. In an oil-cup the screw-threaded body A thereof, a cam-lever *a* pivoted thereon, the cover D, screw-threads thereon, the overhanging portion D^2, engaging with the cam-lever, substantially as described.

2. In an oil-cup the screw-threaded body A thereof, a cam-lever *a* pivoted thereon, the cover D, screw-threads thereon, the overhanging portion D^2, engaging with the cam-lever and a spring *b* for engaging the lever, substantially as described.

3. In an oil-cup the screw-threaded body A thereof, a cam-lever *a* pivoted thereon, the cover D, screw-threads thereon, the overhanging portion D^2, engaging with the cam-lever, a spring *b* for engaging the lever and a finger-piece a^2 for releasing the lever, substantially as described.

4. In an oil-cup the internally-screw-threaded body A thereof, a cam-lever *a* pivoted thereon, the cover D, the depending screw-threaded flange D', thereon, the overhanging portion D^2, engaging with the cam-lever, substantially as described.

5. In an oil-cup, the internally-threaded body A, the cut-away portion C, the bolt *g* thereon, the cam-lever *a*, supported thereby, the cover D, the depending screw-threaded flange D' thereon, the portion D^2, overhanging said cut-away portion, and engaging with the cam-lever, substantially as described.

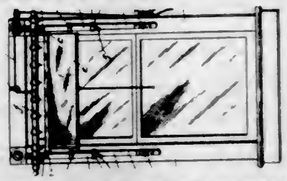
6. In an oil-cup, the internally-threaded body A, the cut-away portion C, the bolt *g* thereon, the cam-lever *a*, supported thereby, the cover D, the depending screw-threaded flange D' thereon, the portion D^2, overhanging said cut-away portion, and engaging with the cam-lever, and the spring *b*, surrounding the bolt *g*, and connecting the cam-lever and the body, substantially as described.

662,052. PRUNING IMPLEMENT. RILEY ALBACH, Mount Gilead, Ohio. Filed Apr. 4, 1900. Serial No. 11,505. (No model.)



Claim.—In a pruning implement, a plate having a socket at the lower portion of one of its edges, an integral keeper at the lower end of its opposite edge and bracing the said plate and socket, an oblique branch-receiving slot in the edge portion above the socket, and having a guide-slot in the edge portion opposite the said branch-receiving slot and consisting of an upper inclined portion and a lower straight portion, a curved blade having a straight shank passed through the aforesaid keeper, and a headed fastening attached to the blade and passed through the guide-slot of the plate, substantially as and for the purpose described.

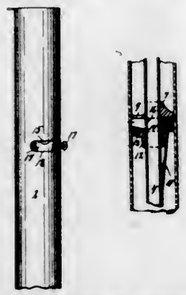
662,053. COMBINED CURTAIN-POLE SUPPORT AND SHADE-ROLLER BRACKET. HENRY M. BENSON, San Francisco, Cal., assignor to James M. Gale and Arthur Ward, same place. Filed June 6, 1900. Serial No. 19,259. (No model.)



Claim.—A combined shade-roller bracket and curtain-pole support, consisting of hinged arms each of which consists of two sliding parts, means for locking the parts of each arm together, brackets for supporting a curtain-pole and shade-roller, and an operating-cord connected to

said curtain-pole and adapted to raise or lower the device, substantially as set forth.

662,054. REPEATING AIR-RIFLE. WILLIAM J. BURROW, Plymouth, Mich., assignor to the Daisy Manufacturing Company, same place. Filed Jan. 4, 1900. Serial No. 299. (Model.)



Claim.—1. In a repeating air-rifle, the combination of the true barrel, a magazine, a channel leading from the magazine into said true barrel, a movable disk having a portion of the channel formed therein, said channel in said disk being normally closed from communication with the true barrel.

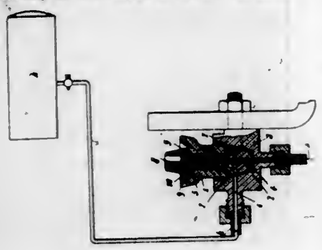
2. In a repeating air-rifle, the combination of the true barrel, a false barrel forming a magazine-chamber, a movable disk having a channel therein, an opening in the bottom of the magazine normally communicating with the channel in said disk, the true barrel having an opening therethrough normally closed by said disk, the channel in said disk being adapted to register with the aperture in said barrel by a movement of said disk.

3. In a repeating air-rifle, the combination of the true barrel, a shot-magazine adjacent thereto, the bottom of said magazine having an opening for the passage of the shot therefrom, the true barrel having an opening in the wall thereof for the passage of the shot into said barrel said barrel-opening being out of alinement with the opening in the bottom of the magazine, a movable member having a shot-conveying channel therein adapted to be moved to cause said channel to alternately register with the opening in the bottom of the magazine and the opening in the wall of the true barrel.

4. In a repeating air-rifle, the combination of the false barrel, the true barrel therein and spaced therefrom, a magazine-chamber within the false barrel surrounding the true barrel, said magazine-chamber having an inclined bottom, provided with an aperture at the base of said incline, the true barrel having an aperture through the wall thereof, a movable part mounted on the true barrel and adapted to close the aperture therethrough, said movable part having a shot-receiving channel in its upper face which normally registers with the aperture in the bottom of the magazine, said channel in said part being adapted to register with the aperture in the barrel by a movement of said part and a spring engaging said movable part.

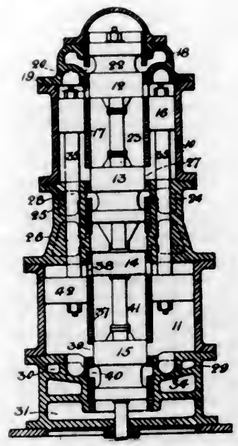
5. In a repeating air-rifle, the combination of the false and the true barrels, the magazine within the false barrel, a shot-conveying channel leading from the magazine into the true barrel, a movable part having a portion of said channel formed therein, a slot in the wall of the false barrel through which a portion of the channel in said movable part is visible and means for moving said movable part.

662,055. BURNER FOR PETROLEUM AND COMPRESSED AIR. LOUIS CHARON and FRÉDÉRIC MANAUT, Paris, France. Original application filed Nov. 9, 1899, Serial No. 736,419. Divided and this application filed May 15, 1900. Serial No. 16,747. (No model.)



Claim.—A petroleum-burner for engines using heavy petroleum and the like, comprising a body 3 having an oil-inlet and an air-inlet thereto, a plug supported in the lower portion of said body and provided with oil and air passages and an exterior screw-thread, the oil-outlets discharging above the screw-thread, and the sleeve attached to the body 3 and forming with the plug and screw-thread thereon a tortuous duct for the flow of air to the oil-outlet, substantially as described.

662,056. DOUBLE-ACTING FLUID-PRESSURE MOTOR. WILLIAM CHILTON, Dundee, Scotland. Filed Dec. 16, 1899. Serial No. 740,582. (No model.)



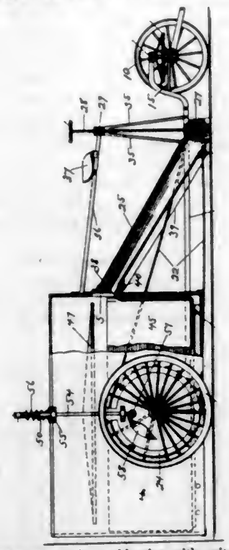
Claim.—1. In an engine, the combination of high and low pressure cylinders, placed tandem-wise, each having an annular piston therein, with two central valve-cases, one in each cylinder and extending through their respective pistons and provided with admission and exhaust ports at either end, four central concentric piston-valves in said cases, two in each, and means for operating said valves, the said ports being so arranged that the motive fluid is admitted, cut off or exhausted alternately at either end of the high-pressure cylinder, such exhausted motive fluid then being passed and admitted to either end alternately of the low-pressure cylinder, cut off and exhausted, substantially as and for the purpose set forth.

2. In an engine, the combination of high and low pressure cylinders, each, having an annular piston therein, with two or more central valve-cases, one in each cylinder and extending through their respective pistons and provided with admission and exhaust ports at either end, two or more central concentric piston-valves in said cases and means for operating said valves, the said ports being so arranged that the motive fluid is admitted, cut off or exhausted alternately at either end of the high-pressure cylinder, such exhausted motive fluid then being passed and admitted to either end alternately of the low-pressure cylinder, cut off and exhausted and from thence passed to the next low-pressure cylinder and so on, substantially as and for the purpose set forth.

3. In an engine, the combination of high and low pressure cylinders, placed side by side, each having an annular piston therein with two central valve-cases, one in each cylinder and extending through their respective pistons and provided with admission and exhaust ports at either end, four central concentric piston-valves in said cases, two in each, and means for operating said valves, the said ports being so arranged that the motive fluid is admitted, cut off or exhausted alternately at either end of the high-pressure cylinder, such exhausted motive fluid then being passed and admitted to either end alternately of the low-pressure cylinder, cut off and exhausted, substantially as and for the purposes set forth.

662,057. STREET-SWEEPER. WILLIAM J. COWAN, Kansas City, Mo. Filed Apr. 30, 1900. Serial No. 14,829. (No model.)

Claim.—1. In a street-sweeper, the combination with the running-gear, a cranked axle connecting the main wheels, a closed body or box mounted on said axle, side bars connecting said body with the front axle and a rotary brush mounted on a horizontal shaft, between said side bars, in vertically-adjustable bearings, and means for rotating said brush, of a bracket located at the longitudinal center of the brush-shaft and containing a bearing through which said shaft passes, a vertical lifter-rod rotatably secured in said bracket, a threaded sleeve through which said lifter-rod passes, means for rotating said rod, and suitable braces secured to the frame for supporting said sleeve and lifter-rod, substantially as set forth.



2. In a street-sweeper, in combination with suitable running-gear, an inclosed body or box, having a transverse opening in its front end, an inclined chute extending downward from said opening, a rotary brush mounted horizontally at the lower end of said chute, and means for rotating said brush, of a bracket located centrally on and inclosing the brush-shaft, a vertical lifter-rod rotatably secured at its lower end in said bracket, a threaded sleeve above said bracket, through which said lifter-rod passes, suitable braces extending to the frame, for supporting said sleeve, and means for rotating said rod, substantially as set forth.

3. In a street-sweeper, in combination with suitable running-gear an inclosed body or box having an opening in its front end, and an inclined chute hinged to said body, opposite said opening, and extending downwardly therefrom, of a rotary brush mounted on a horizontal shaft journaled in vertically-adjustable bearings in the frame, means for rotating said brush, a bracket located centrally on and inclosing said shaft, a flexible connection between said bracket and the lower end of said hinged chute, a vertical lifter-rod rotatably secured at its lower end in said bracket, a threaded sleeve above said bracket, through which said rod passes, supporting-braces extending from said sleeve to the frame, and means for rotating said rod, to raise or lower said brush and said chute simultaneously, substantially as set forth.

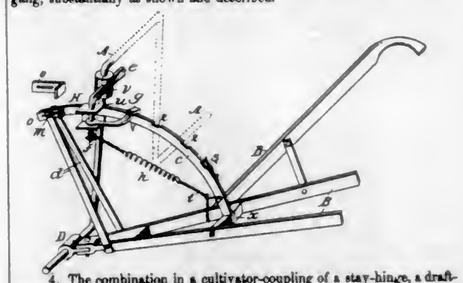
4. In a street-sweeper, the combination with suitable running-gear, an inclosed body or box mounted above the axle of the main wheels, a rotary brush mounted at the front of the machine, means for rotating said brush, and an inclined chute through which matter taken up by said brush is carried into said body, of a compression-plate mounted within said body, a cross-bar above said body, a suitable connection between said cross-bar and said plate, a spring interposed between said body and said cross-bar to hold the latter and said plate normally in elevated position, cam-plates secured on the main wheels, pull-rods depending from the ends of said cross-bar, and roller-arms on said pull-rods extending laterally from said rods into the path of said cam-plates, whereby said cross-bar and plate are depressed, against the stress of said spring, with each revolution of said wheels, substantially as set forth

662,058. CULTIVATOR-COUPLING. GEORGE T. CROBARGER, Newton, Kans. Filed Feb. 4, 1898. Serial No. 669,106. (No model.)

Claim.—1. A cultivator-coupling constructed of two hinges, an arc bar rigidly attached to the gang of the cultivator, and playing in an independent stay-hinge operating in conjunction with a draft-hinge substantially as described and for the purposes set forth.

2. The combination in a cultivator-coupling of a stay-hinge, a draft-hinge, and an arc bar as described, with the arc bar notched and a holdup-dog mounted on the arc bar dropping into the notches forming a holdup for the gangs substantially as described.

3. The combination in a cultivator-coupling of a stay-hinge, a draft-hinge, an arc bar notched, and a holdup-dog mounted on an arc bar dropping into notches forming a holdup for the gangs as described, with a lift-spring attached at one end to the stay-hinge and at its other end to the gang, substantially as shown and described.



4. The combination in a cultivator-coupling of a stay-hinge, a draft-hinge, an arc bar notched, a holdup-dog mounted on an arc bar, and a lift-spring attached to the stay-hinge and to the gang as described with an adjustable stop or lug substantially as and for the purposes set forth.

5. The combination in a cultivator-coupling of a stay-hinge, a draft-hinge, an arc bar notched, a holdup-dog, a lift-spring attached to a stay-hinge and to the gang, and an adjustable stop or lug as described, with a lock-spring for the rear notch of the arc bar, all substantially as described and for the purposes set forth.

662,059. TOY MONEY-BOX. WILLIAM H. DIETZ, Chicago, Ill. Filed Feb. 2, 1900. Serial No. 3,713. (No model.)



Claim.—1 A savings-bank, comprising a vessel, a cover for the same having a slot in its top, a mouth carried on the top of the cover and formed with a coin-receiving slot, an elastic plate between the mouth and the top of the cover and having a slit to register with the slot in the said mouth and with the slot in the cover, substantially as described.

2. A savings-bank, comprising a vessel, a cover for the same, a pin engaging registering apertures in the cover and vessel to fasten the cover to the vessel, and means for locking said pin to said cover to prevent its removal from said apertures, substantially as described.

3. A savings-bank, comprising a vessel, a cover screwing on said vessel and having a coin-receiving slot, a device engaging registering apertures in the vessel and cover to prevent the cover from unscrewing, and means for locking the said device in position, substantially as set forth.

4. A savings-bank, comprising a glass vessel having a threaded neck, a cover screwing on said neck, a coin-receiving mouth on said cover and having a receiving-slot for the entrance of a coin, and a rubber plate interposed between said mouth and the cover, said rubber plate having a slit in alinement with said slot and in alinement with a slot in the cover, substantially as shown and described.

5. A savings-bank, comprising a glass vessel having a threaded neck, a cover screwing on said neck and having a coin-receiving slot, a pin for insertion in registering apertures in the flange of said cover and said neck, and means for locking said pin to said cover, to hold the pin against removal from the apertures, substantially as set forth.

6. A savings-bank, comprising a glass vessel having a threaded neck, a cover screwing on said neck and having a coin-receiving slot, a pin for insertion in registering apertures in the flange of said cover and said neck, and a lock engaging registering eyes in said pin and said cover, to lock the said pin against removal from the apertures, as set forth.

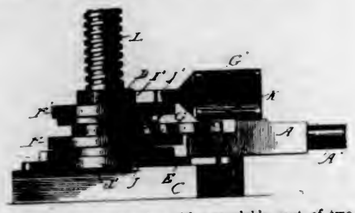
662,060. LADDER. IRA M. DILLMAN, Oakland, Cal. Filed July 16, 1900. Serial No. 23,831. (No model.)

Claim.—1. In a ladder, the combination of side pieces secured at both ends and bowed outwardly intermediate their ends, steps of graduated length secured between said side pieces, a horizontal cross-piece at the base of the ladder to which the lower ends of said side pieces are secured, said cross-pieces extending beyond the breadth of the ladder, oblique braces secured to the ends of said horizontal cross-piece and the sides of the ladder, securing members for the upper ends of the side pieces of the ladder, said securing members consisting of angularly-bent sheet metal secured to the platform of the ladder, and a brace for the ladder pivoted between the upper ends of the said side pieces; substantially as described.

2. In a ladder, side pieces, brackets secured thereto, said brackets consisting of pieces of sheet metal bent at a right angle, having their upper edges bent inwardly to form flanges to support the platform of the ladder, a platform secured upon said flanges, and a ladder-support consisting of a leg, angularly-bent pieces secured to each side of the head thereof and extending out therefrom and pivotally engaging said brackets; substantially as described.



662,061. MECHANICAL MOVEMENT. PETER DUCHSCHER, Chicago, Ill. Filed Dec. 28, 1899. Serial No. 741,539. (No model.)



Claim.—1. The combination with a revoluble part, of two levers adapted to be brought to the same radial position with respect to the axis of motion of said revoluble part and to be moved in both directions from said position, means for non-rotatively connecting each of said levers with said revoluble part when moved in one direction and disconnecting them therefrom when moved in the opposite direction, a third lever adapted to be brought to the radial position aforesaid, and means connecting the two levers first aforesaid with the third lever upon opposite sides of its fulcrum, whereby the movement of the third lever causes the two levers first aforesaid to move in opposite directions, substantially as set forth.

2. The combination with a revoluble part, of two independently-revoluble rings or collars, two levers fulcrumed upon said rings or collars and having means for engaging said revoluble part when moved in one direction and disengaging it when moved in the opposite direction, a third lever, and means connecting the two levers first aforesaid with the third lever upon opposite sides of its fulcrum, whereby the movement of the third lever causes the two levers first aforesaid to move in opposite directions, substantially as set forth.

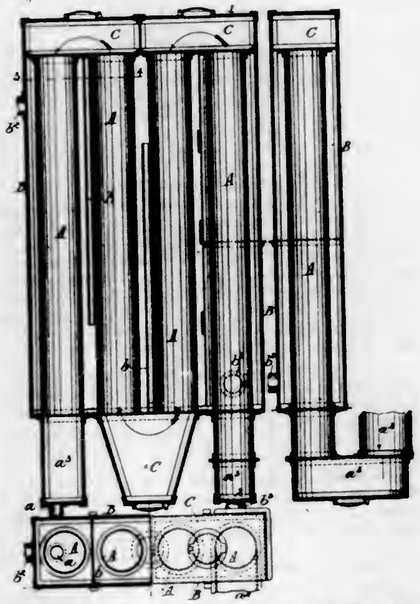
3. The combination with a revoluble part, of two independently-revoluble rings or collars, two levers fulcrumed upon said rings or collars and having means for engaging the revoluble part aforesaid when moved in one direction and disengaging it when moved in the opposite direction, and a third lever to which the two levers first aforesaid are connected upon opposite sides of its fulcrum, substantially as set forth

4. The combination with a revoluble part, of a pair of independently-revoluble rings or collars, a pair of levers each fulcrumed to one of said rings or collars and each having a cam adapted to engage said revoluble part when moved in one direction and to disengage it when moved in the opposite direction, said levers being reversible, stops carried by said rings or collars and disposed in the paths of said levers, a third lever, and means connecting the levers first aforesaid with the third lever upon opposite sides of its fulcrum, substantially as set forth.

5. The combination with a drum, of a pair of rings or collars mounted thereon so as to be revoluble independently thereof, a pair of levers each fulcrumed to one of said rings or collars and each having a cam adapted to engage the drum when moved in one direction and disengage it when moved in the opposite direction, a third lever, and means for connecting the levers first aforesaid with the third lever upon opposite sides of its fulcrum, substantially as set forth.

6. The combination with a revoluble part, of two levers, means for transmitting the movement of said levers to said revoluble part, and a third lever to which the two levers first aforesaid are connected upon opposite sides of its fulcrum and at different distances from its center of movement, substantially as set forth.

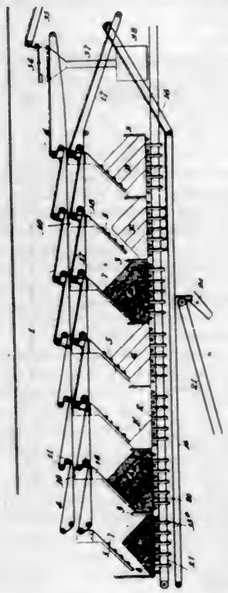
662,062. STEAM-SUPERHEATER FOR GAS-PRODUCERS. EDWARD J. DUFF, Liverpool, England, assignor of one-half to the United Alkali Company, Limited, same place. Filed Feb. 16, 1900. Serial No. 5,520. (No model.)



Claim.—A superheater for use in connection with gas-producing apparatus consisting of a vertical chamber provided with an inlet and an outlet for air and steam, and with compartments, above and outside the vertical chamber, and provided with manholes; dust-boxes below and outside the vertical chamber and each having an outlet provided with a cover; pipes passing vertically through the said vertical chamber and communicating in pairs at their upper ends with the said compartments, and communicating at their lower ends through openings in the bottom of the vertical casing, with the dust-boxes, the said dust-boxes of the first pipe and the last pipe having outlet and inlet passages for the gases communicating therewith respectively and one dust-box having a capacity to diminish the force of the gas-current, the aforesaid inlet and outlet for air and steam communicating with the vertical chamber respectively at top near the first pipe and at bottom near the last pipe; and baffle-plates extending between the pipes from side to side of the vertical chamber, and alternately from the top to near the bottom, and from the bottom to near the top; all substantially as hereinbefore described.

662,063. PROCESS OF SAMPLING, AVERAGING, MIXING, AND STORING MATERIALS IN BULK. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Jan. 11, 1900. Serial No. 1,092. (No specimens.)

Claim.—1. The process of averaging material in bulk, which consists in forming the material in a deposit composed of a series of layers, in simultaneously drawing off material from each of the layers of which the deposit is formed, in redistributing the material in a deposit and in finally withdrawing the material therefrom, substantially as set forth.



2. The process of averaging material in bulk, which consists in forming the material in a deposit composed of a series of layers, in simultaneously drawing off material from each of the layers of which the deposit is formed, in redistributing the material in a corresponding deposit composed in its turn of layers, and in withdrawing from the redeposit material simultaneously from each of the layers of which it is formed, substantially as set forth.

3. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in accumulating the cement-rock in a deposit in bulk, in securing samples of the cement-rock at intervals of time during its deposit, in making an average assay of said samples, in averaging the deposit of cement-rock, and in mixing the cement-rock with the proper proportion of limestone, substantially as set forth.

4. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of layers, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in drawing off the cement-rock simultaneously from each of the layers of which the deposit is formed, and in mixing the cement-rock with the proper proportion of limestone, substantially as set forth.

5. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of layers, in withdrawing the material simultaneously from the several layers forming said deposit, in redistributing the cement-rock and accumulating it in a new deposit, in drawing off the material from the new deposit, and in mixing therewith the proper proportion of limestone, substantially as set forth.

6. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of layers, in withdrawing the material simultaneously from the several layers forming said deposit, in redistributing the cement-rock and accumulating it in a new deposit composed of a series of layers, in withdrawing the material from the new deposit simultaneously from each of the layers of which it is formed, and in adding the proper proportion of limestone thereto, substantially as set forth.

7. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in accumulating the cement-rock in layers, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in withdrawing the material from the deposit simultaneously from all portions of which it is composed, in completing the averaging of the material so withdrawn by redistributing it in a new deposit, in withdrawing the material from the new deposit so formed, and in adding thereto a proportion of limestone determined by the assay, substantially as set forth.

8. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in accumulating the cement-rock in layers, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in withdrawing the material from the deposit simultaneously from all the layers of which it is composed, in completing the averaging of the material so withdrawn by redistributing it in the form of a new deposit composed of a series of layers, in withdrawing the material from the new deposit simultaneously from each of the layers, and in adding to the material so withdrawn a proportion of limestone determined from the assay, substantially as set forth.

9. The process of making Portland cement, which consists in accumulating cement-rock in a deposit, in redistributing the cement-rock from said deposit and accumulating it in a new deposit in an averaged condition, in accumulating limestone in a deposit, in redistributing the limestone deposit in a new deposit in an averaged condition, in determining the assay of the cement-rock deposit, in weighing a proportion of the cement-rock, in obtaining a proportion of the limestone deposit determined by the assay of the cement-rock, and in mixing the proportions of cement-rock and limestone so obtained, substantially as set forth.

10. The process of making Portland cement, which consists in depositing cement-rock in bulk in a series of layers, in drawing off the cement-rock simultaneously from each of the layers of which the deposit is formed, in redistributing the cement-rock so drawn off and accumulating it in a new deposit in a series of layers, in making an assay of the new deposit, in depositing limestone in bulk in a series of layers, in drawing off the limestone simultaneously from each of the layers of which the deposit is formed, in redistributing the limestone so drawn off and accumulating it in a new deposit in the form of a series of layers, in drawing off from the cement-rock deposit a certain proportion thereof, in drawing off from the limestone deposit a proportion determined by the assay of the cement-rock, and finally in mixing the proportions of cement-rock and limestone so drawn off, substantially as set forth.

11. The process of averaging material in bulk, which consists in forming the material in a conical pile composed of a series of inclined layers or partial cones, and in simultaneously drawing off material from each of the layers of which the conical pile is formed, substantially as set forth.

12. The process of averaging material in bulk, which consists in forming the material in a conical pile composed of a series of inclined layers or partial cones, in simultaneously drawing off material from each of the layers of which the conical pile is formed, in redepositing the material in a conical pile and in finally withdrawing the material therefrom, substantially as set forth.

13. The process of averaging material in bulk, which consists in forming the material in a conical pile composed of a series of inclined layers or partial cones, in simultaneously drawing off material from each of the layers of which the conical pile is formed, in redepositing the material in a conical pile composed in its turn of inclined layers or partial cones, and in withdrawing from the redeposited pile material simultaneously from each of the layers of which it is formed, substantially as set forth.

14. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of partial cones or inclined layers to form a conical pile, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in drawing off the cement-rock simultaneously from each of the partial cones of which the pile is formed, and in mixing the cement-rock with the proper proportion of limestone, substantially as set forth.

15. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of partial cones or inclined layers to form a conical pile, in withdrawing the material simultaneously from the several partial cones forming said pile, in redistributing the cement-rock and depositing it in a new pile, in drawing off the material from the new pile, and in mixing therewith the proper proportion of limestone, substantially as set forth.

16. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in depositing cement-rock in bulk in a series of partial cones or inclined layers to form a conical pile, in withdrawing the material simultaneously from the several partial cones forming said pile, in redistributing the cement-rock and depositing it in a new pile composed of a series of partial cones, in withdrawing the material from the new pile simultaneously from each of the partial cones of which it is formed, and in adding the proper proportion of limestone thereto, substantially as set forth.

17. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in accumulating the cement-rock in the form of a conical pile composed of inclined layers or partial cones, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in withdrawing the material from the pile simultaneously from all portions of which it is composed, in

completing the averaging of the material so withdrawn by redepositing it in a new pile, in withdrawing the material from the new pile so formed, and in adding thereto a proportion of limestone determined by the assay substantially as set forth.

18. The process of averaging and mixing materials in the manufacture of Portland cement, which consists in accumulating the cement-rock in the form of a conical pile composed of inclined layers or partial cones, in securing samples of the rock at intervals during the deposit thereof, in making an average assay of said samples, in withdrawing the material from the pile simultaneously from all portions of which it is composed, in completing the averaging of the material so withdrawn by depositing it in the form of a conical pile composed of a series of inclined layers or partial cones, in withdrawing the material from the new pile simultaneously from each of the partial cones, and in adding to the material so withdrawn a proportion of limestone determined from the assay, substantially as set forth.

662,064. **TAP AND DIE.** FERDINAND EHNKE, Reading, Pa., assignor of one-half to Daniel K. Biehl, same place. Filed Jan. 4, 1900. Serial No. 317. (No model.)



Claim.—1. A tap or die for cutting either right or left hand double threads, having two diametrically opposite rows of pyramidal teeth for each thread, the side faces of which teeth are at right angles to an axial plane passing through their summits.

2. A tap or die for cutting either right or left hand double threads having four equally-spaced rows of pyramidal teeth, with the apices of the one pair of teeth in diametrically opposite rows and the bases of the teeth in the other rows arranged in the same planes which are perpendicular to the axis of the tap or die, the side faces of the teeth being at right angles to an axial plane passing through their summits.

662,065. **NON-REFILLABLE BOTTLE.** WILLIAM H. FERRIS, Washington, D. C., assignor of one-half to George Taylor Wade, same place. Filed Mar. 9, 1900. Serial No. 8,051. (No model.)



Claim.—1. A non-refillable bottle having an annular groove in its outer wall a locking-bar seated in an annular recess in the inner wall of the neck, glass-cutting wheels journaled on said bar, spring-flaps secured to the ends of the bar, and means for inserting the bar into the annular groove in the inner wall of the neck and for rotating the wheels, as set forth.

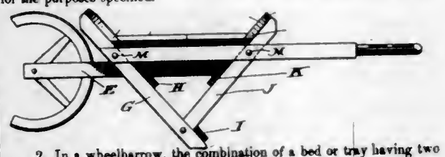
2. A non-refillable bottle having a neck with an outer annular groove, and an inner annular groove, a locking-bar seated in said inner groove, glass-cutting wheels carried by said bar and held against the inner wall of the neck opposite the outer groove, spring-flaps carried by the bar to hold the latter in a locked relation, and a key for rotating said bar, as set forth.

3. A non-refillable bottle having an annular groove in its outer wall, the inner wall of the neck having an annular recess, and vertical grooves leading to said annular groove in the inner wall, a locking-bar, the glass-cutting wheels carried by the latter, spring-flaps for locking the bar in place, and a key having a notched lower end to receive said bar, whereby the latter is forced down into a locked position, and rotated therein, as set forth.

4. A non-refillable bottle having a neck with an annular groove in its outer wall a locking-bar and glass-cutting wheels carried thereby, the locking-key having a notch at its lower end adapted to receive said bar, the lower ends of said key adapted to rest upon a shoulder on the inner wall of the neck, as set forth.

662,066. **WHEELBARROW.** VIRGIL A. GATES, Charleston, W. Va. Filed May 17, 1899. Serial No. 717,117. (No model.)

Claim.—1. In a wheelbarrow, the combination of a bed formed of separable front, back and side portions, front and rear supports connected respectively to the front and rear portions of the bed, handles connected to the side portions of the bed and connections between the handles and supports for holding the portions of the bed together, substantially as and for the purposes specified.



2. In a wheelbarrow, the combination of a bed or tray having two separable bottom portions, and the two handle-bars and the two wheel-bars, one handle-bar and one wheel-bar attached to each bottom portion of the bed, and separable supports for the bed and bars, forming a knock-down wheelbarrow, substantially as and for the purposes specified.

3. In a wheelbarrow, the combination of two separable bottom portions, and the two handle-bars, and the two wheel-bars, one handle-bar and one wheel-bar being attached to each bottom portion, and separable front support and rear support, forming a knockdown barrow, substantially as and for the purposes specified.

4. In a wheelbarrow, the two bottom portions, and the two handle-bars and the two wheel-bars, one handle-bar and one wheel-bar being attached to each bottom portion, a bed front piece, and bed back piece, vertical supports at front and back and connected to the bed front piece and bed back piece and cross-braces on the supports respectively below and near the front and back pieces for supporting the wheel-bars, substantially as and for the purposes specified.

5. In a wheelbarrow, the combination of the bed or tray formed of separable front, back and side portions, the front and rear supports connected respectively to the front and rear portions of the bed or tray, wheel-bars secured each to one of the side portions of the bed or tray, and cross-braces carried by the front and rear supports and arranged for engagement beneath the wheel-bars to support the same, substantially as and for the purposes specified.

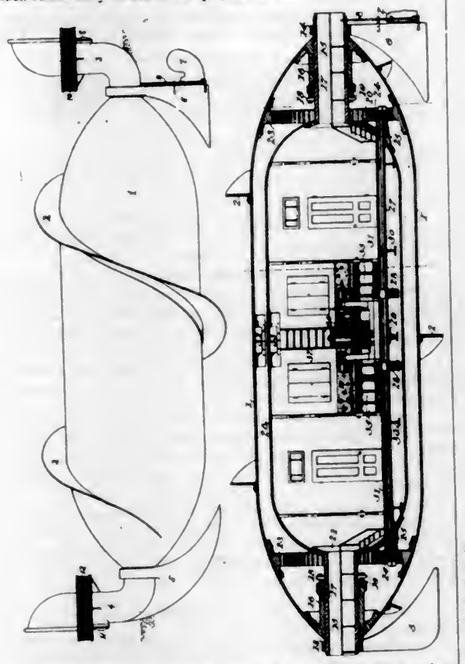
6. In a wheelbarrow, the combination of a bed or tray formed of separable front, back and side portions, front and rear supports connected respectively to the front and rear portions of the bed or tray, handles each connected to one of the separable side portions of the bed or tray, wheel-bars, each also connected to one of the separable portions of the bed or tray, cross-braces carried by the respective front and rear supports and arranged for engagement beneath the wheel-bars for supporting the same, and detachable connections between the cross-braces and the handle-bars for holding the several parts of the bed or tray together, substantially as and for the purposes specified.

7. In a wheelbarrow, a bed consisting of two bottom portions, and a front bed-piece and a rear bed-piece, the two bottom portions inclining downward toward the center of the barrow and meeting there, and having their meeting edges beveled, and each having inclined front and rear edges, causing the bottom piece to be narrower at their meeting edge than at their outer edge, and the front bed-piece and the rear bed-piece each having in their lower edge two inclines meeting at the longitudinal center of the barrow, the planes of these front and back pieces being inclined downward and inward and the handle-bars and wheel-bars, each front piece having two upright legs, and the back piece two upright braces, the two legs inclining downward and inward, and the two braces inclining downward and inward and meeting below, and a cross-piece for the front bed-piece and a cross-piece for the back bed-piece, for supporting the wheel-bars, connected to the upright supports of each piece, one of the handle-bars and one of the wheel-bars connected to one of the bed-bottom portions and the other handle-bar and the other wheel-bar connected to the other bed-bottom portion, the whole forming a knockdown barrow, conveniently left in four general portions excluding the wheel, and capable of being rapidly and quickly connected together, in a wheelbarrow, substantially as and for the purposes specified.

8. In a wheelbarrow, a bed, in which there are two tapered bottom portions inclining downward and meeting at the center of the barrow, and a front bed-piece inclined downward and rearward toward the bottom portions and having its lower edge shaped to meet these portions, and a back bed-piece inclined downward and forward toward the bottom portions, and having its lower edge shaped to conform to the adjacent edges of these portions, and upright supports connected to the front bed-piece and inclined therewith, and other upright supports connected to the back bed-piece and inclined therewith, these lower portions of the supports of the front piece arranged to meet the lower portions of the supports of the back piece, and be connected thereto, substantially as and for the purposes specified.

662,067. **SERPENTINE BOAT.** JAMES GRESHAM, New York, N. Y. Filed Feb. 12, 1898. Serial No. 579,097. (No model.)

Claim.—1. In a boat of the character described, the combination with an inner stationary shell terminating at both ends in trunnions or horizontal axes, of an outer rotating concentric shell having a continuous helical blade or spiral fixed along its periphery at a uniform pitch; the said outer shell converging at the ends and riveted to sleeves extending inwardly and provided with stuffing-boxes that surround the trunnion-tubes; the perpendicular pipes terminating in a funnel, surrounded by a gallery: collars keyed to the said trunnion-tubes and provided with a fin or blade extending downward: the rudder and its post hung from the stern-blade, and internal gears, fixed to the inner surface of the outer shell and driven by pinions keyed to a driving-shaft projecting from the inner shell substantially as and for the purpose set forth.



2. In a boat of the character described, comprising an inner stationary shell riveted at both ends to trunnions or horizontal axes of an outer rotating concentric shell having a continuous helical blade or spiral fixed along its periphery at a uniform pitch: the said outer shell converging at the ends and riveted to sleeves extending inward and provided with stuffing-boxes that surround the trunnion-tubes: of the gear-wheels keyed to the said sleeves and driven by pinions keyed to a driving-shaft projecting from the inner shell: the perpendicular pipes surrounded by a gallery: collars keyed to the said trunnion-tubes and provided with fins and blades: and the rudder and its post hung as described.

3. In a boat of the character described, the combination with an inner stationary shell riveted at both ends to hollow trunnions or horizontal axes of an outer rotating concentric shell provided with a continuous helical blade or spiral along its periphery at a uniform pitch: the said outer shell converging at both ends and riveted to sleeves extending inward, and provided with stuffing-boxes that surround the said trunnion-tubes: of gear-wheels keyed to the said sleeves and driven by pinions keyed to a common driving-shaft: the perpendicular pipes surrounded by a gallery: collars keyed to the said trunnion-tubes and provided with fins or blades: the rudder and its post hung as described: and one or more circular tracks fixed to the inner surface of the outer shell to engage idler-wheels arranged along the outer periphery of the inner shell, substantially as and for the purpose set forth.

4. In a boat of the character described, the combination with an inner stationary shell fixed at both ends to trunnions or horizontal axes of an outer rotating concentric shell provided with a continuous helical blade or spiral along its periphery at a uniform pitch: the said outer shell converging at both ends and riveted to sleeves extending inwardly and provided with stuffing-boxes that surround the said trunnion-tubes: of gear-wheels keyed to the said sleeves and driven by pinions keyed to a driving-shaft common to both: the cone-heads designed to close the ends of both tubes: collars keyed to the said tubes forward and aft, and provided with fins or blades: the rudder and its post hung as described: and one or more circular tracks riveted to the inner surface of the outer shell to engage idler-wheels arranged along the periphery of the inner shell substantially as described and set forth.

662,068. **RIFLE.** CLARENCE J. HAMILTON and COELLO HAMILTON, Detroit, Mich. Filed Nov. 7, 1898. Serial No. 695,650. (No model.)



Claim.—1. In a rifle construction, the combination of the skeleton frame, consisting of the upper and lower sections, the upper section provided with an extension beyond the end of the lower section, a breech-block uniting the sections at the end of the lower section, and a rifle-barrel suspended from the upper section and arranged to swing into contact with the breech-block, substantially as described.

2. In a rifle construction the combination of the skeleton frame, the forward extension of the upper section of the frame, the rifle-barrel suspended from the extension, the firing-rod lying between the sections of the frame and means for locking the suspended barrel and for operating the firing-rod, substantially as described.

3. In gun construction, the combination of the frame-piece E, provided with a vertical slot, the U-shaped metal case adapted to be seated in the slot, and the trigger mechanism mounted in the U-shaped case independent of the frame, substantially as described.

4. In gun construction the combination of the frame, the sheet-metal case adapted to be entered in the frame, means for supporting the case in the frame and the trigger and dog mounted in said case, substantially as described.

5. The combination of the skeleton frame, the upper section of said frame having a forward extension on which to suspend the rifle-barrel, the rifle-barrel suspended therefrom, the breech-block c' and means for forcing the breech end of the barrel against the binder to close the same, substantially as described.

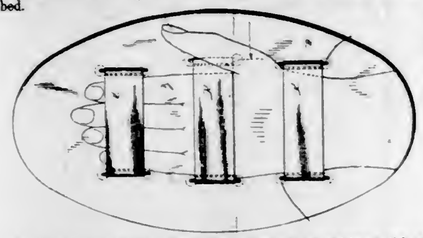
6. The combination of the skeleton frame, the forward extension of the upper section of the frame, the breech-block c', the rifle-barrel, the breech-piece d having a downward extension and the set-nut d^3 on the lower section of the frame to lock the breech-piece against the binder, substantially as described.

7. The combination of the skeleton frame having the forward extension of the upper section, the rifle-barrel suspended therefrom, the breech-block c', the breech-piece d, and the ejector d^4, substantially as described.

662,069. **SWIMMING DEVICE.** KARL F. HÖGLUND, Örebro, Sweden. Filed Feb. 3, 1900. Serial No. 3,883. (No model.)

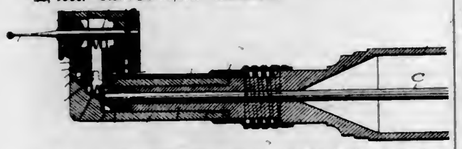
Claim.—1. A swimming device of the class described, comprising an oval disk of buoyant material, the edges of the upper surface of which are curved downwardly and the extreme periphery of which is sharp-edged and a plurality of securing devices which are arranged in a series

longitudinally of said disk, each of said securing devices being arranged transversely thereof, and consisting of a pair of yoke-shaped devices the ends of which are passed through said disk and provided beneath the lower surface thereof with heads secured in place by means of washers, and a flexible strip, each end of which is passed about one of said yoke-shaped devices, above the upper surface of said disk and further secured to the body portion of said flexible strip, substantially as shown and described.



2. A swimming device of the class described, comprising a disk of buoyant material, and a plurality of securing devices which are arranged in a series longitudinally of said disk, each of said securing devices being arranged transversely thereof, and consisting of a pair of yoke-shaped devices, the ends of which are passed through said disk and secured thereto, and a flexible strip, each end of which is passed about one of said yoke-shaped devices, above the upper surface of said disk, substantially as shown and described.

662,070. DENTAL HANDPIECE. HARRY F. JONES, Camden, N. J., assignor of one-half to Edward E. Smith, Philadelphia, Pa. Filed Aug. 22, 1900. Serial No. 27,690. (No model.)



Claim.—1. In a dental handpiece, a tool, a tool-holder, a grasping-handle having a mouth suitably connected therewith and a ring attached to said tool-holder upon which the latter is adapted to turn and having means for rigidly securing the same to the walls of said mouth.

2. In a dental handpiece, a grasping-handle, a power-rod passing therethrough, a gear on said rod, an annular gear extending at right angles to said rod, teeth on one end thereof adapted to mesh with said gear on said rod, teeth on the other end thereof, a tube having a gear adapted to mesh with the last-mentioned teeth on the said annular gear, a tool-holder, a sleeve secured to said tool-holder having teeth thereon which are seated within said handpiece, and a spring-actuated finger adapted to engage the teeth on said sleeve.

3. In a dental handpiece, a grasping-handle, a mouth, a tool-holder, a ring movably secured to said tool-holder and adapted to be rigidly secured to the walls of said mouth, a sleeve secured to said tool-holder and having teeth thereon seated within said mouth, and a finger which is spring-actuated and adapted to pass through the walls of said mouth and engage with said teeth.

4. In a dental handpiece, a grasping-handle, a rod passing therethrough to which power is applied, a gear on said rod, an annular gear extending at right angles to said rod and having teeth on one end adapted to mesh with said gear, and teeth on the opposite end which are adapted to mesh with a gear on a tool, a tool-holder, a ring having screw-threads thereon movably attached to said tool-holder, a mouth, the walls of which are adapted to be engaged by said ring, and a sleeve having teeth adapted to be engaged by a finger to prevent rotation thereof.

5. In a dental handpiece, a tool, a tool-holder, a sleeve having teeth thereon rigidly secured to said tool-holder, a ring movably supported by said sleeve with respect to said tool-holder, whereby said tool-holder and sleeve can move independently of said ring.

6. In a dental handpiece, a grasping-handle, a mouth, a tool-holder, a tool, and means seated within said mouth and rigidly secured to said tool-holder which are adapted to be locked to prevent rotation of the parts.

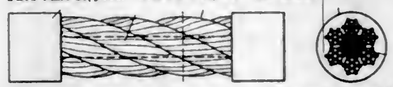
7. In a dental handpiece, a tool, a tool-holder, a grasping-handle, a sleeve extending from the grasping-handle and having a mouth and a ring adapted to be rigidly secured to said sleeve and attached to said tool-holder, whereby the latter can turn thereon.

8. In a dental handpiece, a tool, a tool-holder, a ring serving to attach the tool-holder to the sleeve extending from the grasping-handle, and a sleeve rigidly secured to the tool-holder and adapted to hold the said ring in position on the tool-holder.

9. In a dental handpiece, a tool, a tool-holder, a grasping-handle having a mouth, a ring adapted to be rigidly secured to the walls of said mouth, and means, whereby said ring holds the tool-holder with respect to said mouth and permits the said holder to turn thereon.

10. In a dental handpiece, a tool, a tool-holder, a grasping-handle having a mouth, a ring attached to said tool-holder upon which the latter is adapted to turn and having means for rigidly securing the same to the wall of said mouth, and means for locking said tool-holder in various positions.

662,071. STAY-BOLT. GEORGE R. JOCCHIMS, Moncton, Canada. Filed June 18, 1900. Serial No. 20,696. (No model.)



Claim.—1. A stay-bolt made up of numerous pieces of metal forming substantially a rope, and with ends attached which form a steam-tight joint in the plates to be stayed, in combination with the stayed surfaces of a boiler, substantially as described.

2 A stay-bolt made up of numerous pieces of metal, laid or plaited together, and having ends solidified, in combination with the stayed surfaces of a boiler, substantially as described.

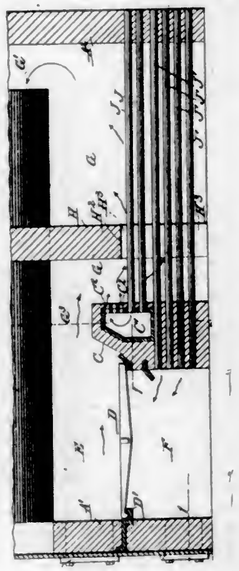
3. A stay-bolt made up of numerous pieces of metal laid or plaited together substantially longitudinally with the body of the bolt, and having enlarged solid ends attached to form a suitable steam-tight connection with the plates to be stayed, in combination with the stayed surfaces of a boiler, substantially as described.

4. A stay-bolt having the body formed of numerous wires, and with solid ends attached thereto, in combination with the stayed surfaces of a boiler, substantially as described.

5. A stay-bolt made up of numerous strands of metal, having ends forming steam-tight joints in the plates which it supports, and with a backbone or solid section attaching both ends sufficiently large to transmit the strains necessary in manufacturing and applying the bolt, substantially as described.

6. A stay-bolt comprising two solid ends, a rigid connection between them to resist the torsional and bending strains to which stay-bolts are subjected in manufacture and application, and numerous pieces or strands attached to said ends, connecting or tying them together to resist the working strains, substantially as described.

662,072. FURNACE. OTTO KOEHLER and CHARLES CALMBACH, San Antonio, Tex. Filed June 16, 1899. Serial No. 720,798. (No model.)



Claim.—A furnace having a bridge-wall formed with a chamber therein, the chamber having openings in its rear side, a baffle-wall built in the furnace beneath the boiler and rearward of the bridge-wall, the baffle-wall having a pier supporting it above the bottom of the furnace and the baffle-wall extending up into contact with the boiler, and a series of pipes communicating with and extending from the atmosphere and passing through the rear wall of the furnace forwardly beneath the baffle-wall on each side of the pier and into the bridge-wall, a portion of such pipes communicating with the chamber therein and the other of the pipes passing through the bridge-wall and discharging at the front thereof beneath the grate, said pipes being arranged in the path of the air from the bridge-wall and the gases from the combustion-chamber, whereby said air and gases are more thoroughly intermingled for secondary combustion, and the inflowing air is more highly heated.

662,073. INDIGO DYE AND PROCESS OF MAKING SAME. JOSEPH KOETSCHET, Lyons, France, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, same place. Filed June 3, 1899. Serial No. 719,298. (Specimens.)

Claim.—1. The method or process of producing indigo coloring-matters which consists in nitrating meta-toluylic aldehyde, isolating from the resulting product solid nitro-toluylic aldehyde, condensing said nitro-toluylic aldehyde with acetone in presence of an alkali, and treating said condensation product with an alkali in presence of an oxidizing agent, substantially as described.

2. The method or process of producing indigo coloring-matters, which consists in nitrating meta-toluylic aldehyde isolating from the resulting product nitro-toluylic aldehyde melting at about 44° centigrade (uncorrected,) condensing said nitro-toluylic aldehyde with acetone, and finally treating said condensation product with an alkali in presence of an oxidizing agent, substantially as described.

3. The method or process of producing indigo coloring-matters, which consists in nitrating meta-toluylic aldehyde, isolating from the resulting product solid nitro-toluylic aldehyde, treating said nitro-toluylic aldehyde with acetone in caustic-soda solution to condense said nitro-toluylic aldehyde with acetone, and finally treating said condensation product with caustic soda in presence of an oxidizing agent, substantially as described.

4. The method or process of nitrating meta-toluylic aldehyde, which consists in dissolving same in concentrated sulfuric acid at a temperature of about 40° centigrade and adding a nitrate to said solution, maintaining the temperature at 40° to 45° centigrade and separating from the resulting nitrated mixture solid nitro-toluylic aldehyde, substantially as described.

5. The method or process of nitrating meta-toluylic aldehyde, which consists in dissolving same in concentrated sulfuric acid at a temperature of about 40° centigrade and adding nitrate of soda to said solution, maintaining the temperature at 40° to 45° centigrade and separating from the resulting nitrated mixture solid nitro-toluylic aldehyde, substantially as described.

6. The method or process of isolating solid nitro-toluylic aldehyde from the crude nitrated product, which method consists in distilling the crude product fractionally *in vacuo* at a pressure of about two millimeters and temperature of 135° to 145° centigrade, and allowing to crystallize, substantially as described.

7. As a new product, the hereinbefore-described blue dyestuff, which can be produced from nitro-toluylic aldehyde, and which in its unsulfonated form is a blue powder insoluble in water, alcohol and acetone like ordinary indigo, but on dyeing in the vat in the same manner as ordinary indigo gives redder shades than ordinary indigo, and which dyestuff in its sulfonated form is soluble in water.

662,074. NITRO TOLUYLIC ALDEHYDE. JOSEPH KOETSCHET, St. Fons, France, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Original application filed June 3, 1899, Serial No. 719,298. Divided and this application filed June 6, 1900. Serial No. 19,198. (No specimens.)

Claim.—1. As a new product nitro-toluylic aldehyde which is a derivative of meta-toluylic aldehyde and which when pure crystallizes in yellow needles melting at about 43° to 44° centigrade (uncorrected) and forms a crystalline compound with anilin melting at about 51° centigrade, a crystalline compound with hydroxylamin melting at about 105° centigrade, and a crystalline compound with phenylhydrazin melting at about 142° centigrade.

2. As a new product solid o-nitro-toluylic aldehyde having the methyl group in the meta (1:3) position relatively to the aldehydic group which crystallizes in yellow needles and when pure melts at about 43° to 44° centigrade (uncorrected) and forms a crystalline compound with anilin melting at about 51° centigrade, a crystalline compound with hydroxylamin melting at about 105° centigrade, a crystalline compound with phenylhydrazin melting at about 142° centigrade.

662,075. NITRO TOLUYLIC ALDEHYDE. JOSEPH KOETSCHET, St. Fons, France, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Original application filed June 3, 1899, Serial No. 719,298. Divided and this application filed June 6, 1900. Serial No. 19,199. (No specimens.)

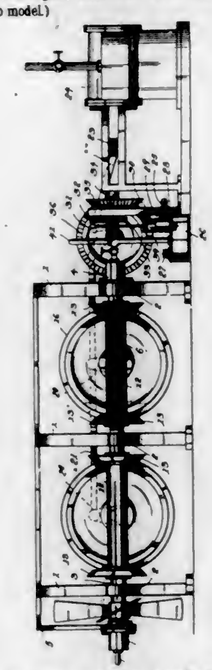
Claim.—1. As a new product nitro-toluylic aldehyde which is a derivative of meta-toluylic aldehyde and when pure crystallizes in yellowish needles which melt at about 64° centigrade (uncorrected), and which forms a crystalline compound with anilin melting at 79° centigrade, a crystalline compound with hydroxylamin melting at about 135° centigrade, and a crystalline compound with phenylhydrazin melting at about 132° centigrade.

2. As a new product a solid o-nitro toluylic aldehyde having the methyl group in the meta (1:3) position relatively to the aldehydic group and melting when pure at about 64° centigrade, (uncorrected) and forming a crystalline compound with anilin melting at about 79° centigrade, a crystalline compound with hydroxylamin melting at about 135° centigrade, and a crystalline compound with phenylhydrazin melting at about 132° centigrade.

662,076. ACETONE COMPOUND OF NITRO-META-TOLUYLIC ALDEHYDE. JOSEPH KOETSCHET, St. Fons, France, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Original application filed June 3, 1899, Serial No. 719,298. Divided and this application filed June 6, 1900. Serial No. 19,200. (No specimens.)

Claim.—As a new product an acetone condensation product of nitro-meta-toluylic aldehyde which crystallizes from ether, benzene, and alcohol, and when pure melts at about 104° centigrade and when agitated with a weak aqueous solution of alkali in the presence of air or other suitable oxidizing agent yields an indigo coloring-matter dyeing a reddish hue.

662,077. MEANS FOR TRANSMITTING POWER. WILLIAM LAY, Kremlin, Okla., assignor of five-sixths to W. D. Cornelius, H. H. Watkins, and W. E. Cogdal, Enid, Okla. Filed June 1, 1900. Serial No. 18,759. (No model.)



Claim.—1. The combination with a propeller-shaft; of friction-disks adjacent thereto; means for imparting motion to said disks; disks slidable upon, and adapted to revolve with, the propeller-shaft; a rigid connection between the last-named disks, a piston-head connected to the disks; and means for directing pressure upon each of the piston-heads.

2. The combination with a propeller-shaft; of friction-disks adjacent thereto; means for imparting motion to the disks; friction-disks slidable upon, and movable with, the propeller-shaft; a rod connecting the slid-

able disks; a piston-head at each end of the rod, each piston-head movable within a chest; and means for directing pressure upon either of said piston-heads.

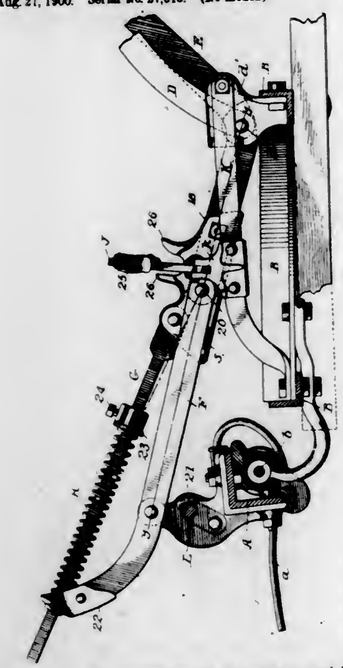
3. The combination with a frame; of a hollow propeller-shaft journaled therein; friction-disks journaled within the frame at opposite sides of the shaft; means for imparting motion to said disks; disks slidable upon, and movable with, the propeller-shaft; a rod within said shaft and connecting the slidable disks; a piston-head at each end of the rod; a chest for each piston-head; a pipe connecting each chest with a reservoir; a pump opening into the reservoir; and means for operating said pump.

4. The combination with a frame; of a propeller-shaft journaled therein; friction-disks journaled within the frame at opposite sides of the shaft; cranks upon the shafts of the friction-disks; rods connecting said cranks; cylinders; cross-heads thereto; means for connecting said cross-heads and the connecting-rods; a pump-cylinder; a piston therein; a pinion operated by the connecting-rod; gears receiving motion from said pinion and adapted to operate the pump-piston; friction-disks slidable upon, and movable with, said propeller-shaft; a rod connecting said disks; piston-heads upon the rod working within chests secured to the frame; pipes connecting the pump and the chests; and means for directing pressure into either of the chests.

5. The combination with a frame; of a hollow propeller-shaft journaled therein and provided with transversely-extending slots; a slidable sleeve upon said shaft; friction-disks secured at the ends of the sleeve; a cross-pin within each disk and a slot of the propeller-shaft; a rod engaged by each cross-strip; chests secured to the frame and inclosing the opposite ends of the rod; and a piston-head secured to each end of said rod.

6. The combination with a frame; of a hollow propeller-shaft journaled therein; friction-disks slidably mounted upon the shaft and movable therewith; a rod connecting the disks; a piston-head at each end of the rod; a chest inclosing each piston-head; a reservoir; an escape-valve thereto; and pipes connecting the reservoir and each of the chests.

662,078. **SULKY-RAKE.** WARD LINCOLN, Rock Falls, Ill., assignor to the Sterling Manufacturing Company, Sterling, Ill. Filed Aug. 21, 1900. Serial No. 27,615. (No model.)



Claim.—1. The combination with the draft-frame and draft-wheels, of a rake pivotally connected to the frame and wheels, a lever mounted upon the frame, a link connected to the lever and the rake, a spring interposed between the lever and the link, said spring being under tension when the rake is in raking position and acting on the lever and link to lock them in position to hold the rake to its work, and means to change the positions of the lever and link relatively to each other to release the spring and permit it to elevate the rake, substantially as set forth.

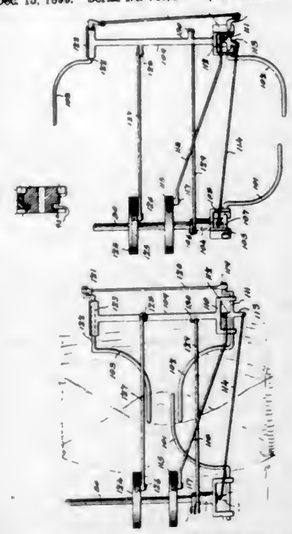
2. The combination with the draft-frame and draft-wheels, of a rake pivotally connected to the frame and wheels, a link F pivotally connected intermediate its ends to the rake, a lever E pivotally jointed to one end of the link, a rod having a sliding connection with the other end of the link and a pivotal joint with the lever E, a spring interposed between the rod and link, said spring being under tension when the rake is in raking position and acting to lock the joint between the lever and link and thereby hold the rake to its work, and means to change the relative positions of the joints between the lever and link and the rod and the lever to release the spring and permit it to elevate the rake.

3. The combination with the draft-frame and draft-wheels, of a rake pivotally connected to the wheels and frame, an angle-lever pivoted on said frame, a link pivotally connected at one end to one end of one arm of the lever and, at a point intermediate its ends, to the rake-head, a rod pivotally connected at one end to the said lever-arm and having a sliding connection with the other end of said link, an adjustable collar on the rod, a coiled spring on the rod between the collar and the end of the link through which the rod passes, said spring when compressed tending to move the link and lever-arm out of a straight line, a stop to limit such movement in one direction and means to positively move the link and lever from such limited point of movement beyond a straight line in the opposite direction, substantially as set forth.

4. The combination with the draft-frame and draft-wheels, of a rake pivotally connected to the frame and wheels, a lever pivoted on the frame, a link connecting the lever to the rake-head, a rod pivotally connected to the lever and slidingly connected to the link, and a compressible spring on the rod engaging the link, said spring by its expansion aiding to elevate the rake, and by its contraction serving to retard the downward movement of the rake, substantially as set forth.

5. The combination with the draft-frame and draft-wheels, of a rake pivotally connected to the wheels and frame, an angle-lever E pivotally mounted upon the frame, a bracket rigidly connected to the rake-head, a link F pivotally connected intermediate its ends to said bracket and at one end to the lever E, a plate connected to the lever E and projecting beyond the end to which the link is connected, a rod G pivoted at one end to said plate and having a sliding connection with the other end of said link, a collar on the rod, a spring interposed between the collar and the end of the link through which the rod slides, a projection *s* on said plate to engage the edge of the link when the parts are in one position and thereby lock the parts against movement under the influence of the spring; and means to rock the lever E on its pivot to permit the spring to exert its force, substantially as and for the purpose set forth.

662,079. **GRAIN-BINDER.** WESLEY C. MARTIN, Delaware, Ohio. Filed Dec. 15, 1899. Serial No. 740,427. (No model.)



Claim.—1. The combination with a revoluble cord-holding disk having the peripheral transversely-disposed cord-notches and the deep and shallow circumferential grooves, of the knife having the curved yielding arm disposed in said shallow groove and the blade with its cutting edge disposed in said deep groove, substantially as described.

2. The combination with the revoluble cord-holding disk having the peripheral, transversely-disposed cord-notches and the deep and shallow circumferential grooves, of the yieldable knife having the shank at one end secured to a rigid support, said knife forming a compound curve and having a curved arm formed in its free end bearing in said shallow groove of said cord-holding disk and further provided with the cutting-blade disposed in the deep groove of said cord-holding disk, said blade having the curved cutting edge against which the cord is transversely presented by the rotation of the cord-holding disk, substantially as described.

3. In a grain-binder, a cord-holding disk provided with the circumferential deep and shallow grooves and with two series of notches arranged alternately, one series of notches extending to the deep groove of said disk, and a cord-cutting knife having a curved end fitted in the shallow groove of the disk and provided with a segmental blade which extends into the deep groove of the disk, in combination with a needle-arm, a knotter-bill, and means for actuating said parts in due order, substantially as described.

4. In a grain-binder, the combination of a cord-holding disk having circumferential deep and shallow grooves, a series of curved cam-notches, and a series of cord-notches arranged alternately to the cam-notches, a yieldable knife having a curved arm fitted in the shallow groove of said disk, said curved arm having a cutting-blade in the deep groove of said disk, a knotter-bill, a master-wheel adapted for the actuation of said knotter-bill and having an offset cam arranged to ride successively in the cam-notches of the cord-holding disk for rotating the latter with a step-by-step feed, and a needle-arm, substantially as described.

5. In a grain-binder, a platform-frame having a grain-wheel centrally disposed at one end and a centrally-disposed fixed arch at the other end thereof, a caster-wheel swiveled in said arch, said platform-frame being balanced on said grain and caster-wheels and supported thereby, a platform conveyer and cutting mechanism at one end of the platform-frame, an inclined grain-conveyer at the other end thereof and over the caster-wheel, a grain-deck extending from said inclined grain-conveyer, a binding and knotting mechanism, a draft-frame pivotally connected to the front side of the platform-frame in advance of the grain-elevator and grain-deck, a drive-wheel having its shaft journaled in said draft-frame, and operating connections between said drive-wheel, cutting mechanism, platform carrier, grain-elevator and binding and knotting mechanism all arranged and adapted to operate substantially as described.

6. In a grain-binder, the combination with a platform-frame and supporting-wheels on which the same is balanced, said supporting-wheels being located at opposite ends thereof and having their axes in line with each other, in the same vertical plane, of a cutting mechanism and platform conveyer at one end of said frame, an inclined endless grain-conveying elevator at the inner end of said platform-elevator, a binding mechanism, a counter-shaft journaled in supports on the front side of the platform-frame and in front of the elevator and binding mechanism, operative connections between said counter-shaft and said cutting mechanism, platform conveyer, grain-elevator and binding mechanism, a draft-frame hinged or pivotally connected on the counter-shaft, a drive-wheel having its axle-shaft journaled in said draft-frame and operative connections between said axle-shaft of said drive-wheel and said counter-shaft, all constructed and adapted to operate, substantially as described.

7. In a grain-binder, the combination with a platform-frame and supporting-wheels at the ends thereof on which said platform-frame is balanced, the axes of said wheels being in line with each other in the same vertical plane, a draft-frame hinged or pivotally connected to the front side of the platform-frame and in which a drive-wheel is mounted, a rock-shaft in supports carried by the drive-frame, said rock-shaft having a crank-arm, a reel having its shaft journaled in said crank-arm, an extensible operating-shaft geared to said reel and connected to the platform-frame and a lever for operating the rock-shaft and thereby adjusting the reel, substantially as described.

8. In a grain-binder, the combination with a grain-deck, a needle-arm, and a knotter mechanism, of a grain separator or divider mechanism arranged above the grain-deck and including swinging fingers which are disposed on opposite sides of the path of the needle-arm, and means for positively moving said swinging fingers to a lowered position, outwardly from the needle-arm in opposite directions, and returning said fingers to a normal position raised above the deck and out of the path of the grain thereon, substantially as described.

9. In a grain-binder, the combination with a grain-deck, a knotter mechanism, and a needle-arm, of a grain separator or divider mechanism disposed above the grain-deck, out of the path of the grain thereon and including a series of three fingers, two of which normally lie one side of the path of the needle-arm and adapted to operate in unison to sweep through the head ends of the grain, and a third separator-finger disposed on the opposite side of the path of the needle-arm to move in an opposite direction and sweep through the butt-ends of the grain, and means substantially as described for lowering said separator-fingers to an operative position, moving them in opposite directions outwardly from the path of the needle-arm, and returning the same to raised positions above the grain-deck, as set forth

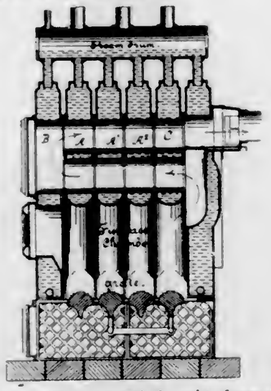
10. In a grain-binder, the combination with a grain-deck, a needle-arm and a knotter-shaft for actuating a knotter mechanism, of a grain divider or separator mechanism arranged above the grain-deck and comprising a rock-shaft, a rocking head fitted on the knotter-shaft and linked to the rock-shaft, a head-separator finger mounted in the rocking head, the head and butt separator fingers mounted in opposite ends of the rock-shaft, a cam on the knotter-shaft for actuating the rock-shaft, and a cam with operative connections to the series of fingers for moving the latter independently of the movement imparted thereto by the rock-shaft, substantially as described.

11. In a grain-binder, the combination with a grain-deck, a knotter mechanism, and a needle-arm, of a grain separator or divider mechanism above the grain-deck and comprising a rock-shaft, a rocking head supported independently of the rock-shaft and parallel therewith, a pair of head-separator fingers mounted in the rock-shaft and the rocking head, respectively, a butt-separator finger also mounted in the rock-shaft, a cam having operative connections with the rock-shaft, and another cam with operative connections to the series of fingers for moving the latter independently of the rocking motion thereof with the rock-shaft, substantially as described.

12. In a grain-binder, the combination with a grain-deck, a knotter mechanism, and a needle-arm, of a grain separator or divider mechanism above the grain-deck and comprising a rock-shaft, a rocking head supported independently of the rock-shaft and linked therewith, a pair of head-separator fingers having arms journaled in the rock-shaft and the rocking head, another separator-finger journaled in the rock-shaft, a cam on the knotter-shaft and connected with the rock-shaft, another cam on the knotter-shaft and connected with an arm of one of the separating-fingers, and connections from this arm of the separator-finger with the arms of the other separator-fingers, substantially as described.

13. In a grain-binder, the combination with a grain-deck, a knotter-shaft having knotter devices, and a needle-arm, of the rock-shaft having the heads at its opposite ends, a rocking head mounted on the knotter-shaft and linked to the rock-shaft, a pair of head-separator fingers having arms journaled in a head of the rock-shaft and the rocking head, respectively, a butt-separator having an arm journaled in the other head of the rock-shaft, a cam on the knotter-shaft and connected with the rock-shaft, another cam on the knotter-shaft, a pitman between the last-named cam and one of the separator-fingers, and link connections from the cam-actuated separator-finger to the other separator-fingers, substantially as described.

662,080. **STEAM-BOILER.** ANDREW MERCER, New York, N. Y., assignor to The H. B. Smith Company, Westfield, Mass. Filed Aug. 9, 1900. Serial No. 26,339. (No model.)

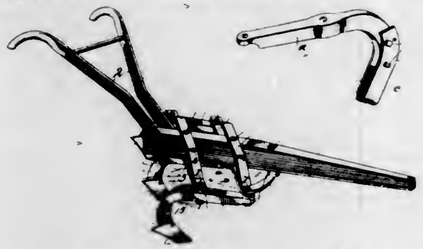


Claim.—A steam-boiler composed of a series of separable sections, as described, provided with interposed partitions of elastic and heat-resisting material between each section and covering the adjacent faces of the sections surrounding the flue-passages, substantially as set forth.

662,081. **CULTIVATING-PLOW.** CLAUDE L. MURPHREE, Walnut Grove, Ala. Filed July 31, 1900. Serial No. 25,464. (No model.)

Claim.—1. The combination of a standard having a vertical slot therein extending from the front to the rear side thereof, a landside, bear-

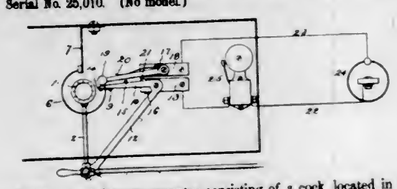
ing against one side of the standard and having a supporting-bracket comprising a plate bearing on the front side of the standard, said plate having a slot coincident with that of the standard, a share-plate on the face of said bracket, and a bolt securing said standard, bracket and share-plate together, said bolt passing through an opening in said share-plate and through said slots in said standard and bracket, substantially as described.



2. The combination in a cultivator-plow, of a beam, spring cross-bars secured to the lower side thereof, spring brace or truss bars, secured on the upper side of the beam and having their ends secured on the ends of the cross-bars, and cultivator points or shares having their standards secured to said cross-bars, substantially as described.

3. The combination of a supporting-bracket comprising a plate to bear on the front side of a standard, said bracket having a depending flange bearing against one side of the standard, and a landside pivoted near its front end to the said flange, at a point near the front end of the latter, said flange having a curved slot concentric with said pivot, and an adjusting-bolt to secure said landside to said flange, said bolt engaging said slot, substantially as described.

662,082. **AUTOMATIC SHUT-OFF AND ALARM FOR GAS-BURNERS.** JAMES G. MCALPINE, Jr., Gilroy, Cal. Filed July 27, 1900. Serial No. 25,010. (No model.)



Claim.—1. A burner-protector consisting of a cock located in the supply-pipe to the burner, a thermostatic device located adjacent to the burner, a lever connected with the cock and having a part arranged to be engaged and moved by a part of the thermostatic device, as that device is cooled, a lever connected with one of the terminals of an electric circuit and held by the thermostatic device from closing the circuit when that device is heated, but allowed by the thermostatic device to close the circuit when that device is cooled and the cock-lever has not closed the cock, and an alarm connected in the electric circuit, substantially as specified.

2. A burner-protector consisting of an annular thermostatic device located adjacent to the burner, a lever forming the terminal of an electric circuit, adapted to be connected with a gas-cock and having a part arranged to be engaged and moved by a part of the thermostatic device as the latter contracts in diameter, a lever forming the other terminal of the electric circuit and adapted to be engaged by the other lever and an alarm connected in the electric circuit, substantially as specified.

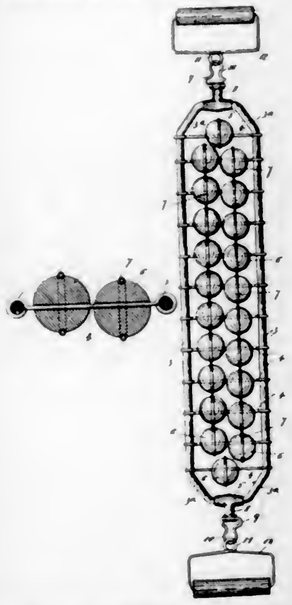
3. A burner-protector consisting of a thermostatic device located adjacent to the burner, two levers connected with the terminals of an electric circuit, and having parts arranged to be engaged and moved by parts of the thermostatic device as the latter contracts and expands, a cock connected with one of the levers, and an alarm connected in the electric circuit.

662,083. **EXERCISING AND MASSAGE DEVICE.** BERNARD A. MCFADDEN, New York, N. Y. Filed Feb. 5, 1900. Serial No. 3,993. (No model.)

Claim.—1. A massage device, embodying a plurality of eccentrically-rotatable spherical bodies, each of which is provided with a circumferential resilient projecting portion.

2. A massage device, comprising a body portion consisting of flexible side members, and a plurality of eccentrically-rotatable spherical bodies suspended therebetween, and means for manipulating said body portion.

3. A massage device, comprising a body portion consisting of elastic side members, and a plurality of eccentrically-rotatable spherical bodies, suspended therebetween, and means pivotally connected with said body portion for manipulating the same.



4. A massage device, comprising a body portion, consisting of elastic side members, a plurality of cross-bars connected therewith, and a plurality of spherical bodies eccentrically rotatably mounted thereon, and means for manipulating said body portion.

5. A massage device, comprising a body portion consisting of elastic side members, a plurality of cross-bars connected therewith, and a plurality of spherical bodies eccentrically and rotatably mounted thereon, and each provided with a circumferential projecting pneumatic element.

6. A massage device, comprising a body portion consisting of elastic side members, a plurality of cross-bars connected therewith, a plurality of spherical bodies eccentrically rotatably mounted thereon, the endmost of said cross-bars being provided each with but one of said spherical bodies, and the ends of said side members at each end of said body portion being brought together and connected, and manipulating means connected with said side members at the point of junction thereof at each end of said body portion.

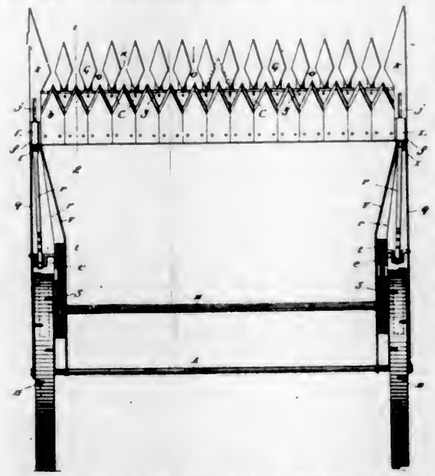
7. A massage device, comprising a body portion consisting of elastic side members, a plurality of cross-bars connected therewith, a plurality of spherical bodies eccentrically and rotatably mounted thereon, the endmost of said cross-bars being provided each with but one of said spherical bodies, and the ends of said side members at each end of said body portion being brought together and connected, and manipulating means swiveled to said side members at the point of junction thereof at each end of said body portion.

8. A massage device, embodying one or more eccentrically and rotatably mounted bodies, provided with a circumferential resilient projecting portion or ring thereon.

9. A massage device, comprising a body portion consisting of elastic side members which are connected at each end of said body portion by means of union-pieces, a plurality of cross-bars connected with said side members, and a plurality of spherical bodies eccentrically rotatably mounted upon said cross-bars, and each provided with a circumferential projecting pneumatic tube, and grips pivotally connected with said union-pieces, substantially as shown and described.

662,084. **MOWING OR GRAIN-CUTTING MACHINE.** JOHN MCGOUGH, Pierre, S. D. Filed Jan. 27, 1900. Serial No. 2,993. (No model.)

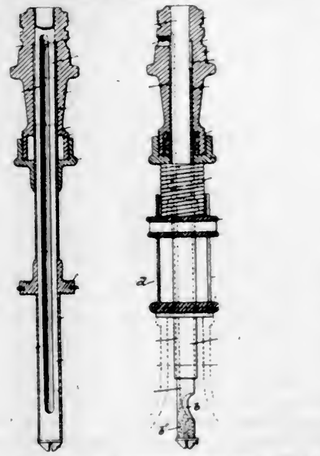
Claim.—1. The combination, in a mowing or grain-cutting machine, of a sickle having blades with sharp forwardly-conveying edges, and means for imparting a forward-and-backward motion to the sickle which cute grass, grain, &c., on a forward stroke, in combination with guards attached to a finger-bar which have grooves in their sides to receive the sharp edges of the sickle-blades, substantially as described.



2. The combination, in a mowing or grain-cutting machine, of guards attached to a finger-bar having their forward ends pointed and gradually growing wider to points *n n* a little rearward of the center, and from the points *n n* converging toward Y and having grooves *w w* in their sides ledger-plates *x* and cross-arms R in combination with the sickle having blades with the forwardly-converging edges substantially as set forth.

3. The combination, in a mowing or grain-cutting machine with the pointed guards and the sickle with blades having forwardly-converging edges said sickle having a forward-and-backward motion as described, of lugs attached to the sickle having screw-bolts passing therethrough to adjust the position of the sickle with respect to the guards, and with pitman-rods P, P, connected with screw-bolts by means of flexible joints, and through which the forward-and-backward motion is imparted to the sickle all substantially as set forth.

662,085. **FILLER-TIP.** FRANK L. NICHOLS, New York, N. Y., assignor to the New Ideas Machine Company, of West Virginia. Filed Mar. 14, 1900. Serial No. 8,645. (No model.)



Claim.—1. In a filler-tip the combination with a plug to seat in and communicate with a liquid-reservoir in a bottle-filling machine, of a filler-tube seated in and through the bore of and extending below said plug and provided at its lower end with a discharge-aperture, and having an inwardly-depressed corrugation on the exterior face of its wall extending longitudinally thereof from near its said lower end to and communicating with an outlet in said plug, and a sleeve-valve slidably mounted on and having reciprocatory play longitudinally of said filler-tube, to govern the discharge-aperture and lower end of said depressed corrugation therein.

2. In a filler-tip the combination with a filler-tube having a discharge-aperture at its lower end and an air-vent extending exteriorly thereof longitudinally from near its opposite ends, of a plug having at its top means to connect it to a liquid-reservoir in a bottle-filling machine and in and through the bore of which plug said filler-tube is seated and below which said tube extends, and having a radial aperture in its wall below its said top end, with which aperture the upward end of said air-vent on said filler-tube communicates, together with an external circumferential groove on said plug into which said radial aperture therein opens, and a sleeve-valve slidably mounted on and having reciprocatory play longitudinally of said filler-tube to govern the discharge-aperture and lower end of said air-vent in said tube.

3. In a filler-tip the combination with a filler-tube having a discharge-aperture at its lower end and an air-vent extending exteriorly thereof longitudinally from near its opposite ends, of a plug having means to connect it to a liquid-reservoir in a bottle-filling machine and in and through the bore of which plug the upward end of said filler-tube is seated, and with an outlet in the wall of which the upward end of said air-vent communicates, and which plug is provided with an annular way in its bore concentric to and circumferential of the filler-tube therein and extending from near the top of the plug to its lower end, together with a sleeve-valve slidably mounted on said filler-tube and of a length to extend from the lower end thereof into said way in the plug, and having reciprocatory play on said tube and in said way.

4. In a filler-tip the combination with a plug having at its top means to connect it to a liquid-reservoir in a bottle-filling machine, a filler-tube seated in and through the bore of and extending below said plug and having a discharge-aperture at its lower end and an air-vent on its exterior leading from its said lower end to an outlet in said plug, and a sleeve-valve slidably mounted on said tube and of a length to extend from the lower end thereof into said plug, and having reciprocatory play on said tube and in an annular way in the bore of said plug around said tube to govern the discharge-aperture and lower end of the air-vent in said tube, of a stuffing-box on the lower end of said plug to surround the reciprocatory sleeve-valve having play in said way therein.

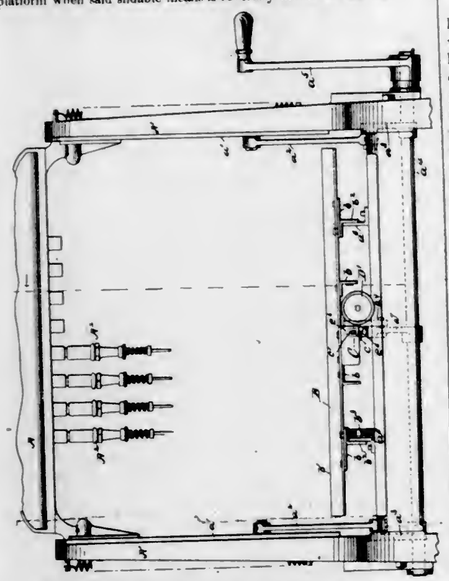
5. In a filler-tip comprising a plug to connect to a liquid-reservoir in a bottle-filling machine, a filler-tube the upward end of which is seated in and through the bore of said plug and has a discharge-aperture at its lower end and an air-vent extending from said lower end of said tube to an outlet, and a spring-controlled sleeve-valve slidably mounted on said filler-tube and seating to a flange on the lower end thereof, and having reciprocatory play longitudinally of said tube to govern said discharge-aperture and air-vent thereof, of a disk which is centrally apertured to play on said sleeve-valve and is provided with upwardly-extended arms which are at right angles to it and are segmental in lateral cross-section and the outward faces of which are threaded, a collar fixed on said sleeve-valve and having transverse peripheral channels registering with and to receive and permit longitudinal play therein of the arms on said disk, and also having peripheral radially-extended pins, together with a supplemental collar having on its internal face an annular groove in which said sleeve-collar pins engage and have circumferential play and a threaded portion on its said internal face which takes the threads on the outward faces of the disk-arms seated in the channels in said sleeve-collar.

662,086. **BOTTLE-SUPPORT FOR BOTTLE-FILLING MACHINES.** FRANK L. NICHOLS, New York, N. Y., and WILLIAM M. FOWLER, Stamford, Conn., assignors, by direct and mesne assignments, to the New Ideas Machine Company, of West Virginia. Filed May 23, 1900. Serial No. 17,630. (No model.)

Claim.—1. In a bottle-filling machine the combination with a reciprocatory tip-supporting head carrying filler-tips, in a series, of a bottle-support movable in the machine in the direction across the plane of the path of movement of said head, engageable means carried by said support, and engaging means slidably movable on the machine-frame within fixedly-adjustable variable limits through any determinate distance, to grip the engageable means on the said support when said engaging means is moved in one direction, and to release said engageable means when said engaging means is reversely moved.

2. In a bottle-filling machine, the combination with a reciprocatory tip-supporting head carrying filler-tips in a series, of a bottle-supporting platform, ways traversable by said platform and extending in the direction at right angles to the plane of the path of movement of said head, engageable means carried by and extending longitudinally of said platform, a bar extending longitudinally of and having fixed longitudinal adjustability on the machine-frame, and means slidably mounted on said bar to play between a shoulder thereon to the rearward of said plane of the path of movement of said head and a stop on the machine forward of said plane and to engage said engageable means on said platform when

said slidable means is moved on said adjustable bar in the direction toward the shoulder thereon and to release said engageable means on the platform when said slidable means is reversely moved on said bar.



3. In a bottle-filling machine the combination with a reciprocatory tip-supporting head carrying filler-tips in a series, of a bottle-supporting platform, ways traversable by said platform and extending in the direction at right angles to the plane of the path of movement of said head, a bar carried by and extending longitudinally of said platform, a guide-bar extending longitudinally of the machine-frame and having longitudinal play thereon, a set-screw having bearing in an arm on said guide-bar and working in a threaded seat on the machine-frame, and a carrier slidably mounted on said guide-bar to play between a shoulder thereon to the rearward of said plane of the path of movement of said head and a stop on the machine-frame forward of said plane, and provided with means to engage the platform-bar and move the platform in the same direction when said carrier is moved on the guide-bar toward the shoulder thereon, and to release said platform-bar and permit the platform to remain stationary during the movement of the carrier in the opposite direction on the guide-bar.

4. In a bottle-filling machine in which the bottle-supporting platform is movable in the direction across the plane of the path of movement of a reciprocatory head carrying the filler-tips and is provided with a bar extending longitudinally thereof and a guide-bar extends longitudinally on the machine-frame with a carrier slidably mounted thereon, the combination with said carrier, of a clutch comprising a body which is pivotally mounted to oscillate on said carrier and provided with laterally-projecting twin jaws respectively having opposed and parallel faces to fit upon and grip the upper and under faces of the platform-bar when the clutch is oscillated in one direction and with faces at opposite edges of the respective jaws and similarly outwardly inclined from said gripping-faces thereon and which are parallel to and free of said faces of the platform-bar when said clutch is reversely oscillated.

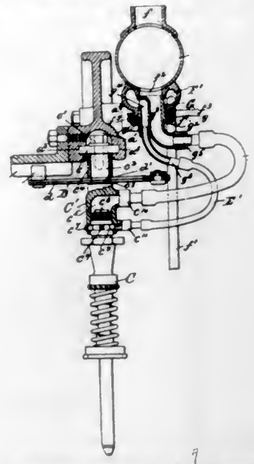
5. In a bottle-filling machine in which the bottle-supporting platform is movable in the direction across the plane of the path of movement of the reciprocatory head carrying the filler-tips and is provided with a bar extending longitudinally thereof and a guide-bar extends longitudinally on the machine-frame with a carrier slidably mounted thereon, the combination with said carrier, of an oscillatory clutch, tensioned thereto at its pivotal bearing thereon and having laterally-projecting twin jaws to engage and grip said platform-bar when the clutch is oscillated in one direction and to disengage and release said bar when said clutch is reversely vibrated, and provided with a radially-projecting extension having therein a radially-extending recess, together with a crank-arm on a rock-shaft in the machine-frame to engage in said recess and oscillate said clutch, to engage its jaws to the platform-bar and move said carrier in one direction on said guide-bar with said platform, when said rock-shaft is oscillated in one direction, and to reversely oscillate said clutch, to disengage its jaws from said platform-bar and to reversely move said carrier on said guide-bar, by engagement of the clutch, in its said reverse oscillation, with a projection on said carrier, and then to escape from said recess in said clutch, when said rock-shaft is reversely oscillated.

6. In a bottle-filling machine the combination with a reciprocatory head carrying filler-tips, and a bottle-supporting platform movable on ways in the direction across the plane of the path of movement of said head and carrying a bar extending longitudinally thereof, of a guide-bar extending longitudinally of the machine-frame and having longitudinal play in bearings and a sleeve-bracket fixed on the forward side of said frame, a set-screw having bearing in an arm on the forward end of said guide-bar and working in a threaded seat in a lug on said sleeve-bracket, and a carrier slidably mounted on said guide-bar to play between a shoulder thereon and the rearward end of said sleeve-bracket and provided with means to engage the platform-bar when said carrier is moved on the guide-bar toward the shoulder thereon and to release said platform-bar when said carrier is reversely moved on said guide-bar.

7. In a bottle-filling machine the combination with a reciprocatory head carrying filler-tips, and a bottle-supporting platform movable in the machine in the direction across the plane of the path of movement of said head in one direction within fixedly-adjustable variable limits through any determined distance, of a bar carried by and extending longitudinally of said platform and provided with radially or laterally projecting means thereon having fixed adjustability longitudinally thereof and a stop on the machine frame to be engaged by said projecting means on said platform-bar during a movement of said platform in the opposite direction in the machine.

8. In a bottle-filling machine in which the bottle-supporting platform is movable across the plane of the path of movement of a reciprocatory head carrying filler-tips and has a bar carried by and extending longitudinally of said platform, and a bar mounted on the machine-frame extends longitudinally thereof alongside said platform, the combination therewith, of a carrier composed of a block which is longitudinally recessed at one side to fit and slidably mount the block upon the said bar on the machine-frame, and a clutch on said carrier engaging said platform-bar to grip it and carry said bar and platform with it during successive movements of the carrier on the bar on the machine-frame in the direction across the plane of the path of movement of said tip-supporting head.

662,087. BOTTLE-FILLING MACHINE. FRANK L. NICHOLS, New York, N. Y., and WILLIAM M. FOWLER, Stamford, Conn., assignors, by direct and mesne assignments, to the New Ideas Machine Company, of West Virginia. Filed May 23, 1900. Serial No. 17,631. (No model.)



Claim.—1. In a bottle-filling machine the combination with the tip-supporting head, of filler-tips movably and connectedly seated at their upward ends, in a series, in ways in said head, and simultaneously fixedly adjustable thereon at determinate uniform distances apart successively in said ways.

2. In a bottle-filling machine, the combination with the tip-supporting head, of filler-tips severally movably seated at their upward ends, in a series, in ways in said head, and a lazy-tongs device common to and operatively connecting the several filler-tips of the series thereof.

3. In a bottle-filling machine the combination with the tip-supporting head, of filler-tips carried in a series by said head and severally movable thereon relatively to each other, together with a lazy-tongs device composed of links of uniform lengths and having transverse apertures in the pivotal joints of the arms constituting the respective links thereof, and pivotal heads or bearings respectively provided on each filler-tip and severally seated in said transverse apertures in the tongs-links.

4. In a bottle-filling machine the combination with the tip-supporting head, of filler-tips carried in a series by said head and severally movable thereon relatively to each other, together with a lazy-tongs device composed of links of uniform lengths, pivotal heads or bearings respectively provided on each filler-tip and severally seated in transverse apertures in the pivotal joints of the pairs of arms constituting the respective tongs-links, and a stud in a pivotal connection between links of said tongs and reaching to, engaging and having play in a guideway on the tip-supporting head.

5. In a bottle-filling machine the combination with the tip-supporting head, of filler-tips carried in a series by said head and severally movable thereon, a lazy-tongs device composed of links of uniform lengths, pivotal heads or bearings respectively provided on each filler-tip and severally seated in transverse apertures in the pivotal joints of the pairs of arms constituting a similar number of links in the respective portions of the tongs beyond the joints between the links at the middle of said tongs, and a stud projecting from a joint between the links at said middle of said tongs and reaching to, engaging and having play in a guideway on the tip-supporting head.

6. In a bottle-filling machine the combination with the tip-supporting head having a longitudinal recess in its downward face with longitudinal ways in the wall of said recess, of filler-tips severally provided at their upward ends with lateral flanges to engage and play in said ways in said recess in the tip-supporting head.

7. In a bottle-filling machine the combination with the tip-supporting head having a longitudinal recess in its downward face with longitudinal ways in the wall of said recess, of a series of sockets, each having a body into which the upper end of a filler-tip seats and a head which reaches into said recess in the tip-supporting head and carries a lateral flange which engages and plays in the ways in said recess-wall.

8. In a bottle-filling machine, the combination with the tip-supporting head having a longitudinal recess in its downward face with longitudinal ways in the wall of said recess, of a series of sockets, each having a body into which the upper end of a filler-tip seats and a cylindrical head which reaches into said recess, a laterally-projecting flange-plate secured to the top of said head with its edges seated and playing in said ways in the recess-wall, a lazy-tongs device having transverse apertures in the pivotal joints of the pairs of arms composing the tongs-links and through which apertures the cylindrical heads of the sockets severally pass, a shoulder on each socket-body to which the under faces of the respective tongs-links severally engage, and sleeves on the socket-heads between the upward faces of the tongs-links and the under faces of the flange-plates on said socket-heads.

9. In a bottle-filling machine the combination with a tip-supporting head, of filler-tips movably seated at their upward ends, in a series, in ways in said head, and severally provided at their said upward ends with an inlet to the filler-tube of the tip and an outlet from the air and overflow vent thereof, together with a supply-reservoir and a separate drainage-chamber carried by said head, and flexible, extendible connections respectively establishing communication between the said reservoir and the filler-tube inlet of each tip and between the air and overflow outlet of each said tip and said drainage-chamber.

10. In a bottle-filling machine the combination with a tip-supporting head and a supply-reservoir and separate drainage-chamber carried by said head, of a series of sockets severally provided with heads which are movably seated in ways in the tip-supporting head and bodies which severally receive the upward ends of and sustain filler-tips of a series thereof, and also severally provided with passages respectively communicating with the filler-tube and the air and overflow vent of each filler-tip, together with plugs, in a series, severally provided with passages respectively leading from said reservoir and into said drainage-chamber, and yielding or flexible and extendible connections severally establishing communication respectively between the reservoir-outlet passages in said plugs and the filler-tube inlet-passages in said sockets, and between the air and overflow passages in said sockets and the drainage-chamber inlet-passages in said plugs.

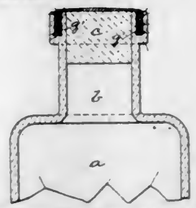
11. In a bottle-filling machine the combination with a tip-supporting head, filler-tips carried in a series by said head and movably seated therein, and a fluid-supply reservoir and a drainage-chamber, in juxtaposition and common to the series of tips and having coincident apertures in their conjunctive walls and apertures registering therewith in the opposite wall of said drainage-chamber, of plugs severally seated in said apertures in the reservoir and chamber-walls and provided with passages respectively communicating with said reservoir and chamber, together with nipples respectively leading from said passages, and flexible or yielding and extendible connections respectively establishing communication between said reservoir-passage nipples and the fluid-inlets of the several filler-tips and between the air and overflow outlets of said several tips and the drainage-chamber-passage nipples on said plugs.

12. In a bottle-filling machine, the combination with the reciprocatory head which carries a series of filler-tips, of a drainage-chamber, common to said tips and seated upon said head, and having an inwardly-concave top wall provided with inwardly flanged and flared apertures therein and with outwardly flanged and flared apertures in its bottom wall, severally registering with the apertures in the top wall, a cylindrical supply-reservoir seated on the concave top wall of said chamber and having apertures in its wall coincident with the apertures in said top wall of the drainage-chamber, and tapering or conical plugs, severally seated in said apertures in the bottom wall of said chamber and the coincident apertures in the top wall of said chamber and the wall of said reservoir, and provided with passages respectively communicating with said coincident apertures in said walls of said reservoir and drainage-chamber and with said drainage-chamber, together with a flanged collar seated upon the flange of each aperture in the bottom wall of said chamber and engaging a circumferential shoulder on each said plug.

13. In a bottle-filling machine in which the fluid-supply reservoir and the drainage-chamber are located in juxtaposition with the former above the latter and with coincident apertures in their adjacent walls and a flaring flange projecting inwardly of said chamber around the said aperture in said wall thereof, together with an outwardly flared and flanged aperture in the opposite wall of said chamber registering with said coincident apertures, a plug having a tapering body, to seat in said flanged apertures in said chamber-walls, and a larger passage longitudinally through it, to communicate with the aperture in said chamber-wall leading to said reservoir, and a smaller passage leading from the outward end of the plug to an opening in its side, to communicate with said chamber, and provided with radially or laterally turned nipples severally leading, at the outward end of the plug, from said respective passages therein.

14. In a bottle-filling machine in which filler-tips are seated, in a series, in a supporting-head, a socket to individually sustain each said filler-tip in said head, composed of a top to seat in said head and a body to receive and seat the threaded upper end of the tip and having a chamber above said upper end of the seated tip with which the fluid-inlet of the tip communicates, and an internal circumferential groove to register with a corresponding external circumferential groove on the tip into which the air and overflow vent of the tip opens, together with lateral apertures in the socket-wall respectively leading from said chamber and groove in said body thereof.

662,088. BOTTLE. SAMUEL F. O'LEARY, St. Paul, Minn., assignor of two-thirds to James M. Fahnestock, Pittsburg, Pa. Filed Oct. 22, 1897. Serial No. 655,944. (No model.)

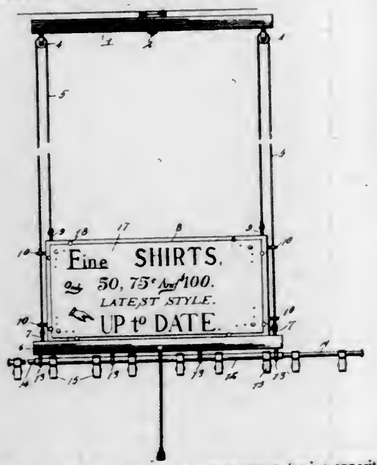


Claim.—1. A non-refillable bottle having a body portion, a neck extending upwardly from the body portion, said neck having recesses extending downwardly therein from the surface thereof, the recesses being situate at diametrically opposite points of said neck and being open only at the top; in combination with a frangible seal having a main body portion extending across the neck and a cork placed therein and arms projecting downwardly therefrom at substantially right angles thereto and extending to the bottoms of said recesses, said arms being provided at their lower ends with enlarged portions to prevent withdrawal thereof and being weakened at their upper portion for easy fracture; and a cementing material placed in said recesses and surrounding said arms and their enlarged heads.

2. A non-refillable bottle having a body portion, a neck extending upwardly from the body portion, said neck having recesses extending downwardly therein from the top surface thereof and flaring outwardly so as to form a wedge shape, the recesses being situate at diametrically opposite points of said neck and being open at the top and the outer side thereof; in combination with a frangible seal having a main body portion extending across the neck and the cork therein, and arms projecting downwardly therefrom at substantially right angles thereto and extending to the bottoms of said recesses, said arms being provided at their lower ends with enlarged portions to prevent withdrawal thereof; and a cementing material placed in said recesses and surrounding said arms and their en-

larged heads; the tapering form of the recesses forming the cementing material into a wedge to prevent withdrawal of the same from the neck.

662,089. DISPLAY DEVICE. JOSEPH A. PETTEY, Searcy, Ark. Filed Aug. 27, 1900. Serial No. 28,207. (No model.)



Claim.—1. In a display device, an upper support, having opposite guides, opposite suspending-cords having their intermediate portions passing loosely through the respective guides, a cross-bar connected to the corresponding ends of the opposite cords, and having means for suspending the articles to be displayed therefrom, and a balance-weight normally resting upon the cross-bar, located between the cords, connected to the corresponding opposite ends of the cords, and having opposite guides loosely receiving those portions of the cord which are connected to the cross-bar.

2. In a display device, an upper supporting cross-bar, having an intermediate swiveled fastening device, and guides located at opposite sides of the fastening device, opposite cords having their intermediate portions passing loosely through the respective guides, a lower cross-bar connected to corresponding ends of the cords, and provided with means for suspending the articles to be displayed therefrom, and a weight connected to the other corresponding ends of the cords and normally resting upon the lower cross-bar.

3. In a display device, an upper support, having opposite guides, opposite suspending-cords passing loosely through the respective guides, a cross-bar connected to corresponding ends of the cords, and a weight connected to the opposite corresponding ends of the cords, normally resting upon the cross-bar, and provided with guide-eyes projecting outwardly from the opposite end edges and loosely receiving the respective portions of the cords which are connected to the cross-bar.

4. In a display device, a lower horizontal telescopic rod, having means for suspending the articles to be displayed therefrom, an upper balance-weight, a suspending-cord having its opposite ends connected to the rod and the weight respectively, and a supporting-guide loosely receiving the intermediate portion of the cord and located above the weight and the rod, the latter being located in the path and forming a stop for the weight.

662,090. PROCESS OF MANUFACTURING CARBONS FOR ELECTRICAL PURPOSES. EDUARD POHL, Kalk, Germany, assignor, by direct and mesne assignments, to Adolph Schenk, Bergedorf, Germany. Filed Aug. 29, 1899. Serial No. 728,872. (No specimens.)

Claim.—1. The process of manufacturing carbon bodies for electrical and electrochemical purposes which consists in forming a body of carbon, and inclosing the same in an intimate mixture of carbon particles and carbon-yielding gas under the action of heat, said gas being generated outside of the carbon body substantially as described.

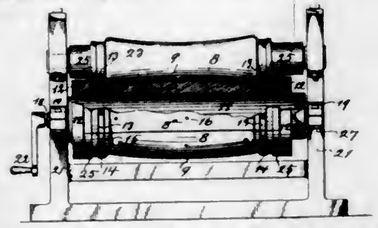
2. The process of manufacturing carbon bodies for electrical and electrochemical purposes which consists in forming a body of carbon, covering the same with a thin layer of a readily-cokable substance, embedding the covered body in a mass of reduced carbon, heating with the exclusion of the outer air, and creating a carbon-yielding atmosphere within the said inclosing mass, substantially as described

3. The process of manufacturing carbon bodies for electrical and electrochemical purposes which consists in forming a body of carbon, wrapping the same in paper, embedding the wrapped body in a mass of reduced carbon, heating with the exclusion of the outer air, and creating a carbon-yielding atmosphere within the said inclosing mass, substantially as described.

4. The process of manufacturing carbon bodies for electrical and electrochemical purposes which consists in forming a body of carbon, wrapping the same in paper, embedding the wrapped body in a mass of reduced carbon, heating with the exclusion of the outer air, and forcing a current of carbon-yielding gas into said inclosing mass of carbon, substantially as described,

5. The process of manufacturing carbon bodies for electrical and electrochemical purposes which consists in forming a body of carbon, wrapping the same with paper, embedding the wrapped body in a mass of reduced carbon, heating with the exclusion of the outer air, and forcing a hot current of carbon-yielding gas into said inclosing mass of carbon, substantially as described.

662,091. COLLAPSIBLE CORE. GEORGE H. RICKE, Cincinnati, Ohio, assignor to Charles S. Furber, Covington, Ky. Filed Jan. 26, 1900. Serial No. 2,829. (No model.)

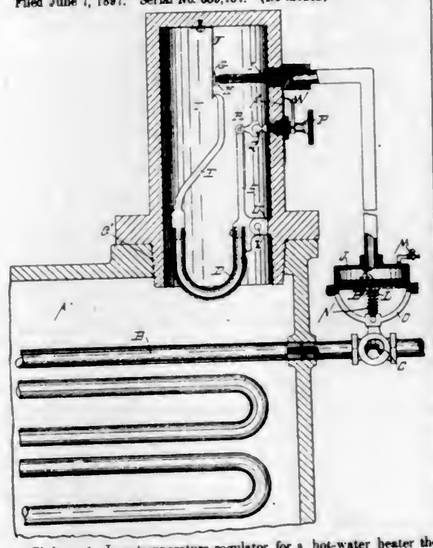


Claim.—1. A composite, collapsible core consisting of an inner core-section 11 of equal thickness throughout its entire length, independent segmental sections 8 curved outwardly between their ends and fitted loosely without connection against and around this inner core-section 11 in a manner that they join each other edgewise and present when so assembled an unbroken continuous, cylindrically-convex surface in which position they are so supported and held outwardly by inner section 11, one of these segmental sections designated by 8* having its edges so shaped as to permit its independent withdrawal inwardly into and removal from the space which is left after the outer segmental sections 8 and the inner section 11 have been separated from each other, special formations on the outside of these segmental sections and projections near their ends, completing when these sections are assembled the former certain special shapes which are reproduced in the interior of the article to be molded and the latter an outwardly-projecting annular flange 25 which determines the end of the shell and locking-ring engaging the ends of the segmental sections for the purpose of holding them in position on the inner core being detachably connected, so that upon their removal, the inner core becomes separable from the segmental sections and these latter become also separable from each other.

2. A composite, collapsible core consisting of an inner core-section 11 of equal thickness throughout its entire length, independent segmental sections 8 curved outwardly between th ir ends and fitted loosely, without connection against and around this inner core-section 11 in a manner that they join each other edgewise and present when so assembled an unbroken continuous, cylindrically-convex surface in which position they are so supported and held outwardly by inner section 11, one of these segmental sections designated by 8* having its edges so shaped as to permit its independent withdrawal inwardly into and removal from the space which is left after the outer segmental sections 8 and the inner section 11 have been separated from each other, grooves near each end of the outside of these segmental sections, segmental rings wider than the depth of these grooves fitted thereto and detachably secured therein, forming when the segmental sections are assembled, a continuous annular projection on the outside of the core which produces an interior groove in the molded article and locking-rings engaging the ends of the segmental sections for the purpose of holding them in position on the inner core being detachably connected, so that upon their removal, the inner core becomes separable from the segmental sections and these latter become also separable from each other.

3. A composite, collapsible core consisting of an inner core-section 11 of equal thickness throughout its entire length having journals projecting from each of its ends, independent segmental sections 8 curved outwardly between their ends and fitted loosely without connection against and around this inner core-section 11 in a manner that they join each other edgewise and present when so assembled an unbroken continuous, cylindrically-convex surface in which position they are so supported and held outwardly hy inner section 11, one of these segmental sections designated by 8* having its edges so shaped as to permit its independent withdrawal inwardly into and removal from the space which is left after the outer segmental sections 8 and the inner section 11 have been separated from each other, and locking-rings engaging the ends of the segmental sections for the purpose of holding them in position on the inner core, being detachably connected, so that upon their removal, the inner core becomes separable from the segmental sections and these latter become also separable from each other.

662,092. AUTOMATIC TEMPERATURE-REGULATOR FOR WATER-HEATERS. ALFRED ROESCH, Bridgeport, Conn., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed June 7, 1897. Serial No. 639,757. (No model.)

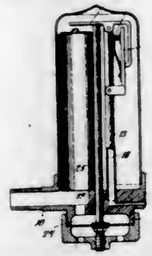


Claim.—1. In a temperature-regulator for a hot-water heater the combination of a tank containing water under pressure, means for applying heat to said tank, a cylinder having an exhaust-port always open communicating therewith, a communication between said tank and said cylinder, said communication being of a larger capacity than the said exhaust-port, means operated by variations in temperature of the water to open and close said communication, a piston located in said cylinder and operated in one direction by the pressure of the water in said tank, and in the other direction by a spring or its equivalent, and means connected with said piston and operated thereby for governing the application of heat to said tank, substantially as specified.

2. In a temperature-regulator for a hot-water heater the combination of a tank containing water under pressure, a steam-coil in said tank, a steam-supply pipe connected thereto, a valve in said steam-supply pipe controlling the admission of steam to said coil, a cylinder having an exhaust-port always open, a commnnication between said tank and said cylinder, said communication being of large capacity relatively to the said exhaust-port, means operated by the variations in temperature of the water to open and close said communication, a piston located in said cylinder and operated in one direction by the pressure of the water when said communication is opened, means for operating the piston in the opposite direction when the said communication is closed, and means operated by the movement of said piston for opening and closing the valve in said steam-pipe, substantially as specified.

3. In a temperature-regulator for a hot-water heater the combination of a tank containing water under pressure, a steam-coil in said tank, a steam-supply pipe connected thereto, a valve in said steam-supply pipe controlling the admission of steam to said coil, an outlet-port in said tank, a piston-chamber communicating with said tank through said outlet-port, an exhaust in said piston-chamber of small capacity relative to said outlet-port, a piston in said chamber, means for raising said piston when said outlet-port in said tank is closed, a rod connecting said piston with said steam-controlling valve, a valve controlling said outlet-port in said tank, a thermostat surrounded by the water in said tank, and connections between said valve controlling said outlet-port in said tank and said thermostat whereby said valve is actuated to open said port when the temperature of the water in said tank rises and close said port when said temperature falls, substantially as described.

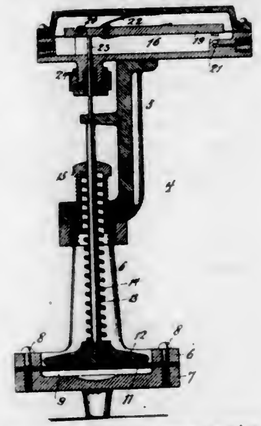
662,093. AIR-VENT. ALFRED ROESCH, Bridgeport, Conn., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed May 9, 1898. Serial No. 680,106. (No model.)



Claim.—1. In an automatic air-vent for heating systems, the combination with a valve of an expansible rod adapted by its expansion to close said valve, a diaphragm carrying said expansible rod, and adapted under variations of pressure in the system to raise same, to close said valve independently of the expansion of said rod, and a float adapted to close said valve against the passage of liquids independently of said expansible rod or said diaphragm, substantially as specified.

2. In an automatic air-vent for heating systems the combination with a valve of a pivoted lever, one arm of which is adapted to bear against the valve, an expansible rod adapted by its expansion to bear against the other arm of said lever to close the valve, a diaphragm carrying said rod, one side of said diaphragm being in communication with the heating system and the other side of said diaphragm being open to the atmosphere, whereby upon the pressure in the heating system falling below the atmospheric pressure the diaphragm will operate to raise the expansible rod and close the said valve, and a float adapted to bear against the said lever to close the valve against the passage of liquids independently of said rod or said diaphragm, substantially as specified.

662,094. PRESSURE-GOVERNOR. ALFRED ROESCH, Bridgeport, Conn., assignor to the Davis & Roesch Temperature Controlling Company, of New Jersey. Filed Feb. 28, 1899. Serial No. 707,147. (No model.)



Claim.—The combination in a regulator of a casing or support constructed in three sections, a diaphragm-chamber arranged in the lowest section, a diaphragm arranged thereon and inclosing same, an intermediate section having an annular base adapted to be secured to the lowest section and to clamp the edges of the diaphragm, and having an arched structure rising from the annular base, an upper section secured to the upper end of the intermediate structure, a valve-chest secured upon the upper end of the upper section of the casing, a valve arranged in said valve-chest, a rod controlling in its movement the movement of the valve and passing out through the valve-chest, a follower and a follower-rod arranged between the diaphragm and the valve-controlling rod, the said follower guided in the casing and bearing loosely against the end of the valve-controlling rod, a coil-spring surrounding the follower-rod and bearing at one end against the follower, and an adjusting-nut mounted upon the casing and bearing against the opposite end of the coil-spring, substantially as specified.

662,095. ELEVATOR-DOOR. ERNEST RUBBERT, Minneapolis, Minn. Filed Aug. 2, 1900. Serial No. 25,614. (No model.)



Claim.—1. The combination with an inclosure having a door-opening, of an extensible sliding door made up of sections, and a lazy-tongs lever having at least three alined pivot-joints, with one of said alined pivot-joints pivoted to a fixed support and the others pivoted one to each of said sliding-door sections, and without sliding engagements between the said pivot-joints and the parts to which they are connected, substantially as described.

2. The combination with the case or framework 1 having the rigid sections 2 and 3 spaced to form a door-opening 4, of the extensible door made up of sections 7 and 8 mounted for sliding movements in vertical planes offset from each other and from the plane of said rigid section 3, and the lazy-tongs lever 11 having the three alined pivot-joints pivoted to said framework or case at 12, pivoted to said door-section 7 at 13, and pivoted to said door-section 8 at 14, which parts are adapted to be folded and unfolded, substantially as described.

662,096. SOAP. GEORGE A. SCHMIDT, Chicago, Ill. Filed Apr. 14, 1900. Serial No. 12,909. (No specimens.)

Claim.—1. A granular soap consisting of ten parts by weight, of pure potash soap, one part water, and eighty parts granulated pumice-stone, substantially as specified.

2. A granular soap consisting of ten parts by weight, of pure potash soap, one part water, eighty parts granulated pumice-stone, and one part glycerin, substantially as specified.

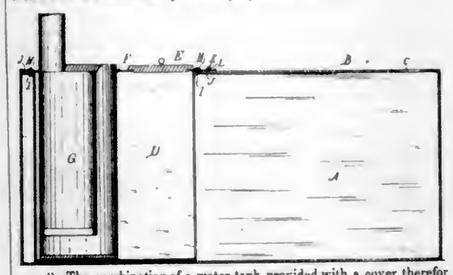
662,097. COMPUTING-SCALE. JOHN H. SCHNEIDER, Norwood, Ohio. Filed Feb. 23, 1899. Serial No. 706,488. (No model.)



Claim.—In an even-balance scale, the combination of a scale-beam supported midway between its ends, a scale-pan carried at one of these latter and a value-indicating disk at the other, a pivot 19 projecting from its under side whereby it is mounted for rotation in such end of the scale-beam, a stationary graduated scale 24 also secured to this end of the scale-beam and extending across the face of the value-indicating disk, a scale 17 and a rod 12, the latter shaped as shown and both supported parallel to the scale-beam and attached near the ends thereof, bearings for rod 12 in which the ends of the same are supported in a manner to be capable of rotation, a poise 11 engaging both scale 17 and rod 12 and supported on them in a manner to be capable of a sliding movement, the engagement between it and rod 12 being such that such sliding movement causes rotation of this rod and a pair of engaging bevel-wheels, one at one end of this latter and the other at pivot 19 whereby rotation of rod 12 causes also the value-indicating disk to rotate, all as shown and for the purpose described.

662,098. COMBINED HEATER AND STOCK-TANK. AUGUST F. SCHOENWETTER and WILLIAM H. SCHULTZ, Juneau, Wis. Filed Jan. 19, 1899. Serial No. 702,667. (No model.)

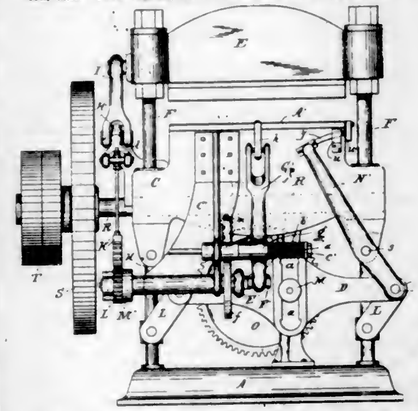
Claim.—1. The combination of a water-tank, a removable food-tank of smaller dimensions located therein, a tank-heater located in the food-tank, and a holding device for retaining the food-tank in its position in the water-tank, the contents of each tank surrounding the receptacle located therein substantially for the purpose set forth.



2. The combination of a water-tank provided with a cover therefor, having an aperture to permit access to the water, a food-tank provided with a tank-heater located therein, and having a hinged-lid cover, and an aperture adapted to permit access to the contents of such tank, and a holding device adapted to retain the food-tank in position in the water-tank, the contents of each tank surrounding the receptacle located therein substantially for the purpose set forth.

3. The combination of a water-tank provided with a cover therefor, having an aperture to permit access to the water, a food-tank provided with a tank-heater located therein, and having a hinged-lid cover, an aperture adapted to permit access to the contents of said tank, rods secured to said food-tank, and adapted to be removably secured to the sides of said water-tank and fastening devices for holding said rods against accidental disengagement, whereby the food-tank may be held in place therein, said rods being also adapted to be used as handles for removing and conveying the food-tank, the contents of each tank surrounding the receptacle located therein substantially for the purpose set forth.

662,099. PRESS FOR EMBOSSING, &c. CHARLES SEYBOLD, Dayton, Ohio. Filed Jan. 23, 1900. Serial No. 2,492. (No model.)

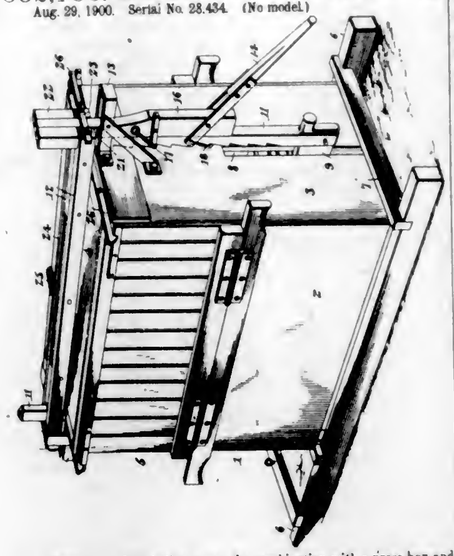


Claim.—1. In a press of the character specified, provided with a platen and means for actuating same, a reciprocating plate for the lower forms, connecting mechanism intermediate said platen and plate, for shifting said plate under the back stroke of the platen, and a locking device independent of said shifting mechanism connected with said platen-actuating means to lock said plate during the forward stroke of the platen substantially as described.

2. In a press of the character specified, the combination with the platen and mechanism for actuating same, of a plate for the lower forms, shifting-lever engaging said plate, shaft carrying a crank coupled to said lever, rack-bar connected with the platen, and pinion loosely mounted on said shaft engaged by said rack, with clutch between the pinion and shaft, whereby said pinion may be locked to the shaft when the movement of the rack is in one direction and may run free when the movement is in the other direction, substantially as shown and described.

3. In a press of the character specified, the combination, with a platen and pulling-bars, with toggle-levers pivoted thereto and to the frame for actuating same, of a reciprocating plate for the lower forms, and connecting mechanism intermediate said plate and platen for shifting said plate, lugs on said plate and a locking-lever to engage said lugs connected with one of said toggle-levers and operated thereby to lock the reciprocating plate when the toggles are moving in one direction and to release same when the toggles are moving in the other direction, substantially as shown and described.

662,100. HAY-PRESS. AUGUST SHERRER, La Grange, Tex. Filed Aug. 29, 1900. Serial No. 28,434. (No model.)



Claim.—1. In a baling-press, the combination with a press-box and movable cover, of a follower movable in the press-box, racks operatively connected with the follower, and pendants arranged to retain the cover and supporting operating mechanism for advancing the racks.

2. In a hay-press, the combination with a press-box provided with a movable cover and a follower movable within the box, of toothed racks connected to the follower, pendants provided with cover-retaining devices engaging the cover, and operating mechanism carried by the pendants and designed to elevate the racks.

3. In a baling-press, the combination with a press-box and movable cover, a follower movable within the box, and toothed racks operatively connected with the follower, of pendant-supports carrying cover-retaining devices movable into or out of engagement with the cover, and follower-actuating mechanism carried by said pendant-supports.

4. In a baling-press, the combination with a press-box, a follower movable therein, toothed racks connected to the follower, and cover-beams carried by the cover, of supporting-frames extending from the presser-box, pendant-supports received within said frames, means carried by said supports for engagement with the cover-beams, and follower-operating mechanism carried by said supports below the supporting-frames.

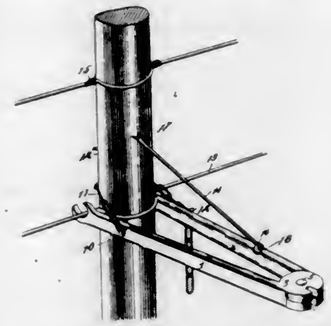
5. In a baling-press, the combination with a press-box, a follower movable therein, toothed racks connected to the follower, and a cover for said box provided with cover-beams extended beyond its ends, of guide-frames extending from the opposite ends of the press-box and receiving the racks, pendant-supports received within the guide-frames and arranged for engagement with the cover-beams, and follower-operating levers carried by the supports and provided with swinging pawls engaging the racks.

6. In a baling-press, the combination with a press-box, a follower therein, toothed racks extending from the follower, and a cover for said box provided with cover-beams, of guide-frames extending from the press-box and arranged for the reception of the racks, pendant-supports received and supported by the guide-frames, one of said supports being capable of lateral movement bodily, a retaining-head at the upper end of said support arranged to be presented above the cover-beams through the movement of the support, and follower-operating means carried by said supports below the guide-frames.

7. In a baling-press, the combination with a press-box, follower, cover and the cover-beams, of racks extending from the follower, guide-frames for the reception of the racks, pendant-supports each pivotally supported by the guide-frames, the pivotal connection of one of said supports being shiftable, a cover-retaining head located at the upper end of one of the supports, a cover-retaining bail carried by the other support, and follower-operating mechanism mounted upon said pendant-supports at points below the guide-frames.

8. In a baling-press, the combination with a press-box, follower and toothed racks extending from the follower, of a hinged cover for the press-box provided with a pair of cover-beams extending beyond the opposite ends of the box, a pair of horizontal guide-frames extending from the opposite ends of the press-box for the reception of the racks, a pendant-support pivotally mounted in one of said guide-frames and having its upper end extended between the adjacent ends of the cover-beams, a securing-bail pivoted upon said support and arranged to be swung over the cover-beams, a second pendant-support located at the opposite end of the press and provided with a pintle mounted to slide upon the upper edge of the guide-frame and with an enlarged cover-retaining head designed for location above the cover-beams, a latch carried at the ends of the cover-beams adjacent to the last-named support, and an operating-lever and separate swinging pawl carried by each of the pendant-supports below the guide-frames and arranged for engagement with the racks.

662,101. WIRE-TIGHTENER. WILLIAM A. SHORT, Putnam, Tex. Filed July 28, 1900. Serial No. 25,177. (No model.)



Claim.—1. A wire-tightener comprising the lever-frame composed of two arms hinged together at one end of the frame and provided at their other ends with means for engaging a fence-wire at opposite sides of a fence-post, and a flexible connection attached to the arms and adapted to be passed around the back of the post, whereby the frame is fulcrumed thereon, substantially as described.

2. A wire-tightener comprising a lever-frame composed of two arms hinged together at one end of the frame and provided at their other ends with means for engaging a fence-wire at opposite sides of a fence-post, a flexible connection attached to the arms and adapted to be passed around the back of the post to fulcrum the frame thereon, and a brace connected with one of the arms and adapted to engage the post, substantially as described.

3. A wire-tightener comprising a lever-frame composed of two arms hinged together at one end of the frame and provided at their other ends with means for engaging a fence-wire at opposite sides of a post, said arms being adapted to fold together, a flexible connection between the arms, and a brace hinged to one of the arms and adapted to fold against the same, substantially as described.

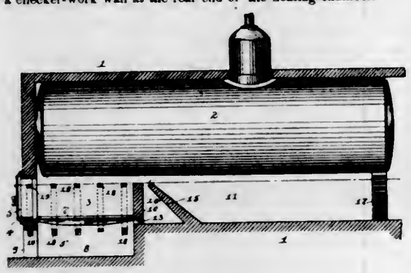
4. A wire-tightener comprising a lever-frame composed of two arms connected at one end of the frame and provided at their other ends with forks for engaging a fence-wire at opposite sides of a post, a flexible connection attached to the arms and adapted to be placed around the post, and a brace connected with the frame and adapted to engage the post, substantially as described.

5. A wire-tightener comprising a lever-frame composed of two arms connected at one end of the frame and provided at their other ends with means for engaging a fence-wire at opposite sides of a post, a flexible connection adapted to be placed around the post and connected with the arms between the ends thereof, and means for holding the lever-frame in its adjusted position, substantially as described.

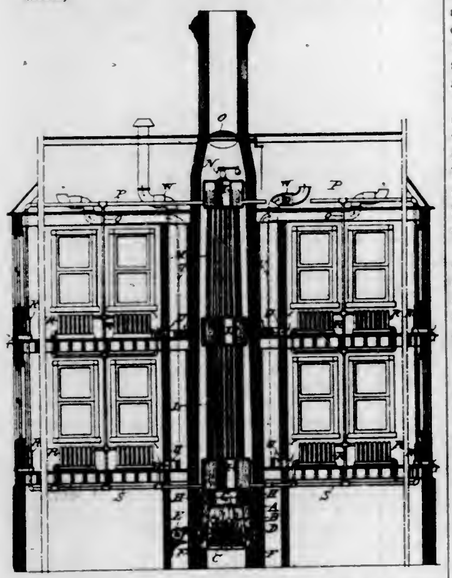
6. A wire-tightener comprising a lever-frame composed of two arms connected at one end of the frame and provided at their other ends with means for engaging a fence-wire at opposite sides of a post, one of the arms being provided with a pin or projection, a chain attached to the other arm and adapted to be placed around the post and engaged with the pin or projection, and means for holding the frame in its adjusted position, substantially as described.

662,102. SMOKE-CONSUMING FURNACE. JAMES SLATER, Pittsburg, Pa. Filed Mar. 28, 1900. Serial No. 10,442. (No model.)

Claim.—In a boiler-furnace, a charging-opening extending through the front wall of the furnace: a fire-chamber beyond the charging-opening; a bridge-wall back of the fire-chamber; a heating-chamber in the rear of said bridge-wall; a wall extending from the floor of said heating-chamber and inclining sharply forward toward the bridge-wall and terminating so as to leave an air-passage between the top of the bridge-wall and the top of said inclined wall; a hot-air flue or flues leading from the ash-pit and opening into the side wall of said charging-opening; hot-air flues also leading from the ash-pit and opening into the fire-chamber at about the level of the top of the bridge-wall; and hot-air flue or flues leading from the ash-pit through the bridge-wall and opening into the chamber formed between the bridge-wall and the inclined wall back of it; and a checker-work wall at the rear end of the heating-chamber.



662,103. **HEATING AND VENTILATING SYSTEM.** ISAAC D. SHEAD, Toledo, Ohio. Filed Aug. 17, 1899. Serial No. 727,560. (No model.)



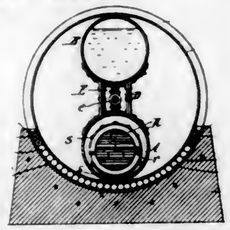
Claim.—1. In a heating system, the combination of a stack or chimney; a fire-chamber located at the lower end thereof and communicating with the stack through a central opening G and a series of openings H; a boiler mounted within said stack or chimney, said boiler comprising an annular bottom section I, upper section K and intermediate section J; and pipes connecting said sections, substantially as described.

2. In a heating system, the combination of a stack or chimney; a fire-chamber located at the lower end of said chimney; a boiler located wholly within said chimney and extending from the lower end thereof to a point near its upper end; suitable laterals extending out from the upper end of said boiler; pipes Q connected to said laterals; a series of radiators connected to said pipes Q; and laterals S connecting the lower end of said pipes Q with the lowermost end of the boiler.

3. In a heating system, the combination of a stack or chimney; a fire-chamber located at the lower end thereof; a boiler mounted within said stack or chimney, said boiler comprising a series of drums or sections connected by pipes; a central opening formed in the upper face of the fire-chamber and discharging into the stack through the lowermost section of the boiler; and a series of openings also extending from the chamber to a point at the base of the chimney exterior to the lowermost section of the boiler.

4. In a heating system, the combination of a main stack or chimney; a fire-chamber located at the lower end thereof; a boiler mounted within said chimney, said boiler comprising a series of sections or drums connected by tubes or pipes; manholes formed in said sections; and manholes formed in the stack in line with the manholes in the drums, said chimney-manholes having inclined lower faces, substantially as and for the purpose described.

662,104. **APPARATUS FOR IMPREGNATING WOOD.** LIONEL M. STERN and EDWARD M. KEMPNER, Buffalo, N. Y. Filed Aug. 11, 1900. Serial No. 26,614. (No model.)



Claim.—1. The combination of a horizontal impregnating-chamber having a releasable head for the introduction and removal of the material to be treated, a horizontal storage-chamber for the impregnating liquid arranged normally above said impregnating-chamber, means whereby said chambers are secured together, a support on which said chambers are rotatably mounted, whereby the impregnating-chamber can be brought above the storage-chamber, a flow-pipe connecting said chambers, and an adjustable valve arranged in said pipe, substantially as set forth.

2. The combination of a horizontal impregnating-chamber having a releasable head for the introduction and removal of the material to be treated, a horizontal storage-chamber for the impregnating liquid arranged normally above said impregnating-chamber, means whereby said chambers are secured together, a support on which said chambers are rotatably mounted and which has its axis arranged lengthwise of said chambers, a flow-pipe connecting said chambers, and an adjustable valve arranged in said pipe, substantially as set forth.

3. The combination of a horizontal impregnating-chamber, a horizontal storage chamber for the impregnating liquid arranged normally above said impregnating-chamber, means whereby said chambers are secured together, a flow-pipe connecting said chambers, a hand-valve arranged in said pipe, vertical rings arranged transversely to the longitudinal dimension of said chambers and encircling the same, and bearings on which said rings are rotatably supported, substantially as set forth.

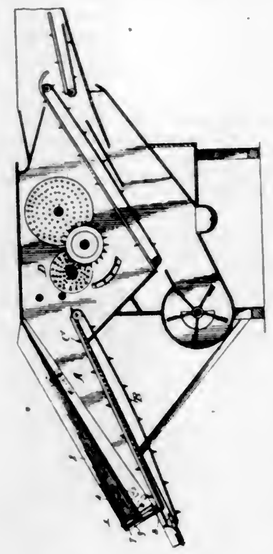
4. The combination with a storage-chamber for the treating liquid and a treating-chamber for the substance to be treated, which chambers are secured together and connected by a flow-pipe provided with a hand-valve, of a support on which said chambers are rotatably mounted, a trunnion, and valve-controlled branch pipes, one leading from said trunnion to said storage-chamber and the other to said treating-chamber, substantially as set forth.

662,105. **FEED ATTACHMENT FOR CORN-SHELLING MACHINES.** DANIEL WANDSCHEER, Sioux Centre, Iowa. Filed Mar. 21, 1900. Serial No. 9,576. (No model.)

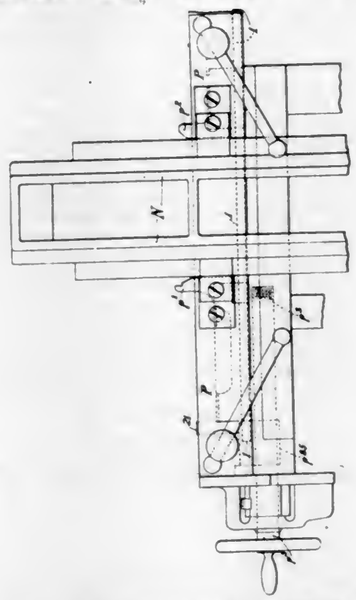
Claim.—1. The combination with the trough and endless conveyer for a feeder for corn-shellers adapted to dispose and deliver the ears endwise to the machine, said trough having upwardly-extending side walls, and a lower or front end wall extending above the plane of the carrying stretch of the conveyer, of a vibratory flap hinged at its upper edge adjacent to said end wall, and having its lower portion adapted to rest upon and be agitated by the feed projections of the conveyer, substantially as described.

2. The attachment for belt feeders for corn-shelling machines, comprising the inclined side boards 2 having the straps or links 4, the end board 3, connecting the lower ends of said inclined side boards, the vibratory flap 6 having its upper side hinged to the upper side of said end board 3, said vibratory flap being provided at its lower side with the projecting tappet-arm 8, and adapted when the attachment is in position, to rest upon and be agitated by the feed projections of the belt, substantially as described.

662,105.



662,106. **LINOTYPE-MACHINE.** FERDINAND J. WICH, Broadheath, England. Filed Apr. 4, 1900. Serial No. 11,526. (No model.)



Claim.—1. The hereinbefore-described combination with the vise, assembler-gong, and line-shifter of a linotype-machine, of means by which the adjustment of the vise for length of linotype automatically adjusts the said gong and shifter for the same length.

2. The combination in a linotype-machine, of the backing-up nut of the adjustable vise-jaw; gong mechanism; a connection between the said vise-jaw and gong mechanism; assembler-bar dog to actuate the gong; arm pivoted on the said bar to hold back the shifter-finger and connection between the said arm and the assembler-box to actuate the said arm.

3. The combination in a linotype-machine of the adjustable vise-jaw; gong mechanism; rod connecting the said vise-jaw and gong mechanism; assembler-dog to actuate the gong; stop on the rod to stop the assembler-bar; arm pivoted on the said bar to hold back the shifter-finger; and connection between the said arm and the assembler-box to actuate the said arm.

4. The hereinbefore-described combination with the line-shifter of a linotype-machine, of arm adapted to be rocked into the assembler-box to adjust the shifter-arm and to be disengaged therefrom by the assembler-box.

5. The hereinbefore-described combination with the adjustable jaw of the vise of a linotype-machine, of gong mechanism; rod connecting the two; assembler-bar; and dog thereon to actuate the gong.

6. The hereinbefore-described combination with the adjustable jaw of the vise of a linotype-machine, of gong mechanism; rod connecting the two; assembler-bar; dog thereon to actuate the gong, and stop on the rod to stop the assembler-bar.

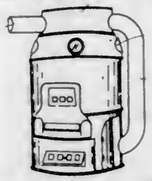
7. In a linotype-machine, an adjustable matrix-confining jaw and alarm mechanism connected with the jaw and adjusted thereby as to the time of its action, whereby the alarm is automatically set to correspond with various lengths of line to which the jaws are adjusted.

8. In a linotype-machine, the combination of a matrix-composing mechanism, a jaw adjustable to confine matrix-lines of different lengths, an alarm mechanism actuated by the assembling devices to indicate the length of line, and a connection from the adjustable jaw, controlling the operative position of the alarm, whereby the adjustment of the jaw to effect a variation in the length of line effects a corresponding adjustment of the alarm.

9. In a linotype-machine, the combination of an adjustable matrix-confining jaw, an adjustable shifter-finger, an alarm actuated by the assembling mechanism, and a connection whereby the opening of the jaw is caused to effect a corresponding adjustment of the shifter-finger and the alarm-sounding devices.

10. In a linotype-machine, the combination with an adjustable matrix-confining jaw, an adjustable finger to aid in shifting the composed line of matrices, and a connection from said jaw to control the normal position of said finger, whereby the adjustment of the jaw to change the length of line is caused to effect the corresponding adjustment of the finger.

662,107. **AIR-HEATING PROTECTOR FOR FURNACES.** EDWARD ABBS and JAMES J. GLYNN, Toronto, Canada. Filed Nov. 22, 1899. Renewed Oct. 24, 1900. Serial No. 34,178. (No model.)



Claim.—An attachment for furnaces, comprising a cold-air reservoir placed on the top of the furnace and substantially conforming in shape to the said top, an inlet-pipe to said reservoir, and one or more outlet-pipes therefrom leading to within the lower part of the furnace, substantially as described.

662,108. **STORE-LADDER.** EDWARD W. BALFOUR, Denver, Colo. Filed Feb. 17, 1900. Serial No. 5,645. (No model.)

Claim.—1. The combination with a store-ladder, of a bar mounted thereon, a slidable shelf mounted on the bar, and means for automatically actuating the shelf.

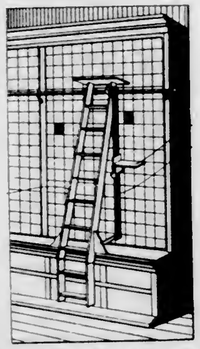
2. The combination with a store-ladder, of a bar mounted thereon, a slidable shelf mounted on the bar, means for automatically actuating the shelf on the bar, and means mounted on the shelf for locking the latter on the bar in any desired position of adjustment.

3. The combination with a store-ladder, of a vertical bar mounted thereon, a shelf slidably mounted on the bar, a spring-actuated roller mounted on the ladder, and a flexible connection between the shelf and the roller whereby the shelf is normally held at its limit of movement in one direction.

4. The combination with a store-ladder, of a vertical bar mounted thereon, a shelf slidably mounted on the bar, a spring-actuated roller mounted on the ladder, a flexible connection between the shelf and the roller whereby the shelf is normally held at its limit of movement in one direction, and means for locking the shelf on the bar in any desired position of adjustment.

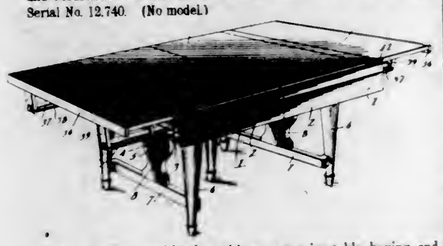
5. The combination with a store-ladder, of a vertical bar mounted

thereon, a shoe slidably mounted on the bar, a shelf attached to the shoe, a spring-actuated roller mounted on the ladder, a flexible connection between the roller and the shoe, and a locking device mounted on the shoe.



6. The combination with a store-ladder, of a vertical bar mounted thereon, a shoe slidably mounted on the bar, a shelf attached to the shoe, a spring-actuated roller mounted on the ladder, a flexible connection between the roller and the shoe, and a locking device mounted on the shoe and comprising a movable friction member, and an eccentric lever for actuating the same, the friction member being arranged to pass through a slot formed in the shoe to engagement with the bar.

662,109. ROLLER-TOP EXTENSION-TABLE. CHARLES D. BARR and JOSEPHINE P. BARR, Nebraska City, Nebr. Filed Apr. 13, 1900. Serial No. 12,740. (No model.)



Claim.—1. The combination with an extension-table having end openings, of supporting devices longitudinally movable into and outwardly through said openings beneath the plane of the top portions of said ends, and auxiliary end extensions connected to and foldable downwardly upon the said devices and having means for retaining them in position relatively to the table ends and also for closing the said openings.

2. The combination with an extension-table, having end openings, of supporting devices movable into and outwardly through the said openings, and auxiliary end extensions movably connected to and foldable downwardly upon the said devices and having depending portions to close the said openings.

3. The combination with an extension-table of end cross-strips with dovetail grooves therein auxiliary end extensions each comprising a pair of slides having lower dovetailed portions movable in the grooves of said cross-strips and a leaf adjustably secured to the said slide and adapted to be raised and lowered in relation thereto.

4. The combination with an extension-table, of auxiliary end extensions each comprising a pair of slides, arms pivotally connected to the slides, links also pivotally attached to the slides, and a leaf to which the arms and links are also pivotally connected, the under portion of the leaf where the links and arms are attached being grooved to receive said links and arms and a portion of the slides.

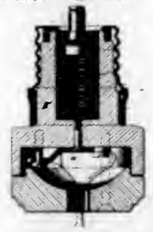
5. In an extension-table the combination with opposite end frames, of rigid top sections, a roller-top, an intermediate brace having a depending leg, and arms movably mounted in the opposite extremities of the brace for engagement with the opposite side portions of the table to prevent sagging of the same at an intermediate point.

6. In an extension-table the combination with opposite end frames, a fixed top portion, a roll-top to conjunctively act with the fixed top portion, a lazy-tongs connection between the end frames, an intermediate leg having a transversely-extending brace, and a guide supported by and extending above the top of the brace through which the said lazy-tongs connection has free movement.

7. In an extension-table the combination with end frames, of a fixed top portion, a rolled top conjunctively operating with the fixed top, slides secured to one of the frames and having antifrictional devices in the one end of each, guides attached to the opposite frame, slides loosely interposed between the first-mentioned slides and the guides, cords attached to the roll-top and movable over said antifrictional devices, and a connection between the frames.

8. In an extension-table, the combination with end frames, of an intermediate guide having a depending supporting-leg, a lazy-tongs connection between the opposite frames and movable through the guide, and a directing-link loosely connected to a portion of the lazy-tongs and to the guide, the said link being free to move and the lazy-tongs connection unattached by any other means.

662,110. TRANSLATING DEVICE. FRANK M. BELL, New York, N. Y., assignor of one-half to Willma Pollack, same place. Filed Dec. 19, 1898. Serial No. 699,660. (No model.)

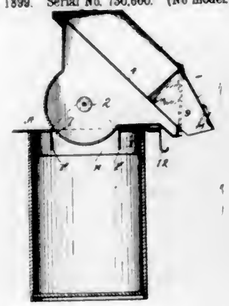


Claim.—1. A translating device comprising a base of insulating material, a cover therefor, a metallic sleeve arranged thereon provided with an annular rib, and above said annular rib with screw-threads; a central contact arranged upon said base within the metallic sleeve but insulated therefrom, said central contact comprising a cylindrical casing having a threaded opening in its exposed end, a stem arranged within said casing provided with a base, and screw-threads adjacent to said base and a spring disposed within said cylindrical casing intermediate the base of the stem and the bottom of said cylindrical casing, substantially as specified.

2. A translating device comprising a base of insulating material, a cover therefor, a metallic sleeve arranged thereon provided with an annular rib, insulating means provided upon the outer surface of said annular rib, and above said annular rib with screw threads; a central contact arranged upon said base within the metallic sleeve, but insulated therefrom, said central contact comprising a cylindrical casing having a threaded opening in its exposed end, a stem arranged within said cylindrical casing, provided with a base, and screw-threads adjacent to said base, and a spring disposed within said cylindrical casing intermediate the base of the stem, and the bottom of the casing, substantially as specified.

3. A translating device comprising a base of insulating material, a cover therefor, a metallic sleeve arranged thereon provided with an annular rib, an annular strip of insulating material adjustably arranged upon said sleeve adapted to encompass said annular rib, and screw-threads arranged upon said casing above the annular rib, a central contact arranged upon said base within the metallic sleeve, but insulated therefrom, said central contact comprising a cylindrical casing having a threaded opening in its exposed end, a stem arranged within said cylindrical casing provided with a base, and screw-threads adjacent to said base, and a spring disposed within said cylindrical casing intermediate the base of the stem and the bottom of the casing, substantially as specified.

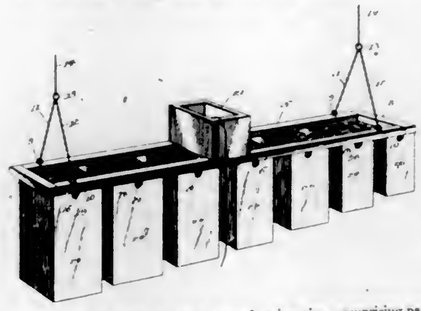
662,111. SIFTER. CLAUDE S. BOARDMAN, Somerville, Mass. Filed Sept. 16, 1899. Serial No. 730,660. (No model.)



Claim.—1. In a sifter, a supporting-body having a perforation through its top, and suitable supports upon opposite sides of the perforation, and the sifter-frame pivoted or journaled in said supports and which frame is adapted to be rocked back and forth upon its pivots, combined with the stationary sifter placed in said frame, a door pivoted to the frame over the outer end of the sifter, and hinged flanges secured to the under side of the door, which flanges are adapted to fold against the under side of the door when it is closed and to drop into a vertical position to form supports for the door when opened and guides to direct the outward flow of cinders from the end of the screen, substantially as shown.

2. In an ash-sifter, a cover having an opening therein, a body pivotally supported above the cover, a cylindrical projection upon the body rotating within the opening, a screen mounted within the body, a hinged lid upon the body, and normally-closed hinged flanges upon the under side of the lid, said flanges adapted when open to form supports for the open lid and a converging outlet for the sifter.

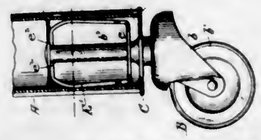
662,112. PAPER-BAG HOLDER. ABRAM E. BRUNSON, Mullins, S. C. Filed Feb. 8, 1900. Serial No. 4,513. (No model.)



Claim.—1. A holder for paper bags of various sizes, comprising parallel side rails having their ends connected by cross-pieces, a series of eyes engaged with the under side of one of the side rails, a series of hooks engaged with the under side of the opposite rail, a series of pins, each of which has an eye at one end for engagement with a hook, said pins being adapted to lie in the eyes corresponding to the hooks with which the pins are engaged, a cord-holding box secured upon the side rails midway of their ends to brace them, and hangers connected with the side rails adjacent their ends.

2. A holder for paper bags of various sizes, comprising parallel side rails having their ends connected by cross-pieces, a series of eyes engaged with the under side of one of the side rails, a series of hooks engaged with the under side of the opposite side rail, a series of pins, each of which has an eye at one end for engagement with a hook, said pins being adapted to lie in the eyes corresponding to the hooks with which the pins are engaged, a cord-holding box secured upon the side rails to brace them, and means for supporting the rails.

662,113. FURNITURE-CASTER. AMBROSE B. CLARK, Meriden, Conn., assignor to the Foster, Merriam & Company, same place. Filed Feb. 8, 1900. Serial No. 4,468. (No model.)

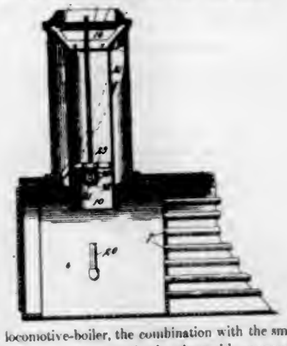


Claim.—A furniture-caster having a spindle carrying a base-plate C and a plate D in combination with a U-shaped spring, the central portion of which is also carried on said spindle and the ends of which support said plate D, the intermediate portions of said spring serving to engage with the interior of a furniture-leg, as set forth.

662,114. SPARK-ARRESTER. EBER CORY, Boone County, Ind. Filed July 21, 1900. Serial No. 24,419. (No model.)

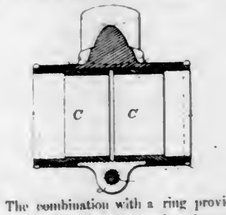
Claim.—1. A spark-arrester comprising a stack, a pipe disposed within and spaced from the walls of the stack, a foraminous cover for the pipe, openings leading from the pipe to the stack below the cover, scraper-arms rotatably mounted against the cover and means for rotating the arms.

2. A spark-arrester comprising a stack, a smoke-pipe within the stack and separated therefrom by an interspace, a foraminous cover for the pipe, openings leading from the pipe to the interspace, below the cover, scraper-arms rotatably mounted against the cover, means for rotating the arms, and partitions between the pipe and stack and disposed to convey cinders spirally from the rear of the stack to the front side thereof.



3. In a locomotive-boiler, the combination with the smoke-box of a stack mounted thereon and communicating therewith, an upwardly-tapered cap for the stack and hinged thereto, said cap having a foraminous bottom, a smoke-pipe within and concentric with the stack, an upwardly-flaring partition connecting the upper ends of the stack and pipe, said partition having openings therein to connect the pipe with the interspace between it and the stack, spirally-disposed partitions disposed between the pipe and stack and leading from the upper end of the stack at the rear to the lower end at the front thereof, said pipe extending below the stack and into the smoke-box, an exhaust-pipe below the pipe to exhaust therein and scraper-arms rotatably mounted against the perforated bottom of the cap and having means for operating them.

662,115. BICYCLE-FRAME. JOSEPH S. DIKEMAN, Torrington, Conn., assignor of one-half to Charles S. Dikeman, same place. Filed Apr. 20, 1900. Serial No. 13,643. (No model.)



Claim.—1. The combination with a ring provided with necks or lugs for the attachment of the forward reach and central brace, and end rings, each having a neck or lug for the attachment of a rear stay, of a two-part crank-bearing located within said rings and secured to the central ring.

2. The combination with a ring having two lugs or necks therein and two end rings for the attachment of the rear stays, of a crank-bearing composed of two tubes each having an end flange, the two tubes being removably secured within the rings and locking them against lateral displacement.

3. The combination with a central split ring and two end rings, of a crank-bearing located within the three rings and composed of two tubes each having a flange at its outer end, and each secured at its inner end to the central ring.

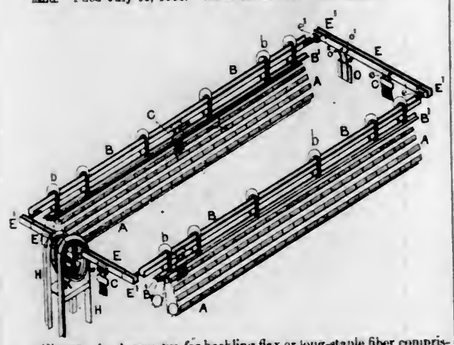
4. The combination with a central ring and two end rings the central ring being screw-threaded internally of a crank-bearing composed of two tubes each having a flange at its outer end and screw-threaded externally at its inner end to engage the female threads on the central ring.

5. The combination with a central ring and two end rings the said rings being interlocked at their edges to prevent their rotary movement or displacement, of a crank-bearing composed of two short tubes each having a flanged outer end and screw-threaded inner end, the said screw-threaded inner end adapted to engage female threads on the central ring.

662,116. CHLORMETHYL SALICYLATE OF THYMOL. ARTHUR EICHENGRÜN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Company, of New York. Filed Aug. 5, 1899. Serial No. 726,261. (No specimens.)

Claim.—The new condensation product from chlormethyl salicylic acid and thymol, being in a free state a white cyrstalline powder, melting at 250° centigrade, easily soluble in alcohol, the alcoholic solution assuming a blue color on the addition of ferric chlorid, easily soluble in ether and acetic ether, insoluble in water but dissolving in dilute alkalies forming alkaline salts which are soluble in water, being adapted for use as an antiseptic, substantially as hereinbefore described.

662,117. **HACKLING-MACHINE.** JOSHUA V EVES, Belfast, Ireland. Filed July 19, 1900. Serial No. 24,148. (No model.)



Claim.—1. Apparatus for hackling flax or long-staple fiber comprising in its construction hackle-sheets for treating the fiber, the holders for holding the fibers while being treated, the longitudinal channels along which the holders traverse through the machine, the transverse channels to carry the holder from one machine to the other and swiveling ends applied to the ends of each channel to carry the holders from one channel to the next substantially as described.

2. In a machine for hackling flax or long-staple fiber the combination with the hackling-sheets A and mechanism for operating them of longitudinal channels along which the holders travel through the machine transverse channels, swiveling ends a revolving annular carrier to receive and invert the holder, a rack and pinion to drive the annular carrier and a stationary cam below the revolving carrier to act upon and open the holder to release the fiber substantially as described.

3. In hackling-machines the combination with two hackling-machines of transverse channels E placed at the end of mechanism at one end for reversing the fiber and mechanism at the other end for releasing the fiber from the holder substantially as described.

4. In machines for hackling flax and long-staple fibers the combination with the hackling-sheets A the holder-channels B the transverse channels E of a flexible tube filled with fluid-pressure to apply the necessary force to the holders to resist the drag of the hackle-pins during the process of hackling substantially as described.

5. In a hackling-machine for hackling flax or long-staple fiber the combination with the holder-channel of a pneumatic or hydraulic tube for applying pressure to the holders and a valve for connecting such tube with a source of pressure whereby the pressure can be applied and relieved as required substantially as described.

6. In a machine for hackling flax or long-staple fiber the combination with the hackle-sheets A, the holders C, the holder-channel B of mechanism operated by fluid-pressure to apply force to the holders substantially as and for the purpose described.

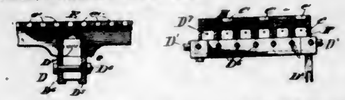
7. In machines for hackling-flax and long-staple fibers the combination with the hackle-sheets A of mechanism for operating same, holders C, two longitudinal channels B adapted to carry the holders and means for applying pressure to the holders, substantially as described.

8. In machines for hackling flax and long-staple fibers the combination with the hackle-sheets A mechanism for operating same, holder C, longitudinal channels B for the holders and transverse channels E of the table O which is lifted from vertical to horizontal position the lever P by which it is operated and the lever R and slide S' by which the holder C is opened to release the fiber substantially as described.

9. In a machine for hackling flax or long-stapled fiber mechanism for opening the holders so that the fiber may be removed and replaced constructed with a table which is lifted from vertical to horizontal position and levers to act upon the arms of the holders to open them, substantially as described.

662,118. **DUMPING-GRATE.** EDWARD GIBSON, Jersey City, N. J. Filed Jan. 27, 1900. Serial No. 2,982. (No model.)

Claim.—1. Grate-sections E each provided with a four-walled socket in combination with a rock-shaft D provided with tenons D^3 separate from one another and projecting above the upper surface of the rock-shaft into said sockets, substantially as described.



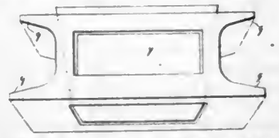
2. Grate-sections E each provided with a four-walled socket in combination with a rock-shaft D provided with tenons D^3 separate from one another and projecting above the upper surface of the rock-shaft into said sockets, and with means as the bolts D and keys D^7 for engaging and releasing any section when required, substantially as herein specified.

3. A grate composed of socketed grate-sections and a rock-shaft joined to said sections by tenons separated from one another and projecting above the upper surface of said sockets on the bottoms of the grate-sections and detachable both from the rock-shaft as from the grate-sections, substantially as described.

4. A rock-shaft composed of end pieces provided with trunnions, side pieces bolted to each other and to the end pieces, and tenons separated from one another so as to enter sockets in the grate-sections set between said side pieces and projecting beyond the upper edges thereof, substantially as described.

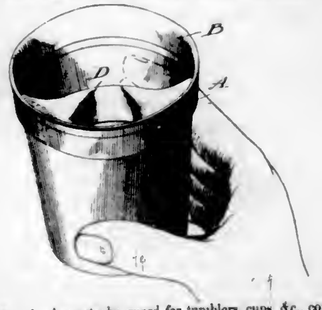
5. A grate composed of two or more sets of socketed grate-sections and independently-turned rock-shafts, the sections of each set being joined to their shaft by tenons separated from one another and projecting above the upper surface of the rock-shaft into the sockets on the bottoms of the sections and detachable both from the rock-shaft and from said sections, the latter having an excess of length at one side of their sockets, and stationary cross-bars C for limiting and stopping said extended portions, substantially as set forth.

662,119. **BRICK.** GEORGE E. A. HOLDSWORTH, Hove, England. Filed Oct. 7, 1899. Serial No. 732,884. (No model.)



Claim.—A device of the class described, comprising a frame composed of iron or other approximately impenetrable substance, said frame being open at its sides, top and bottom, and having an interior wedge-shaped chamber, and a core of wood or other penetrable substance which is wedge-shaped in form and which is passed into said chamber, said frame embodying projecting flanges, substantially as shown and described.

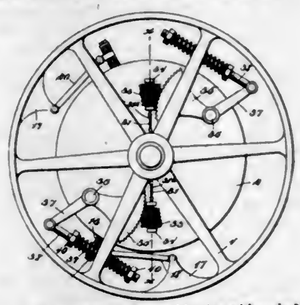
662,120. **MUSTACHE-GUARD.** DELORMA B. HUBBARD, Albion, N. Y. Filed Apr. 24, 1900. Serial No. 14,115. (No model.)



Claim.—1. A mustache-guard for tumblers, cups, &c., consisting of two bands, one of which is adapted to engage the outer circumference of a tumbler or cup and provided with screw-threads, a second band provided with a mustache-guard and having threads engaging the threads of said band held against the outer circumference of the cup, as set forth.

2. A mustache-guard for tumblers, cups, &c., consisting of two tapering bands, one of which has interior screw-threads, the second having exterior threads, and shouldered on its outer face, and provided with a mustache-guard plate, said bands designed to be screwed together, and the inner tapering face of the interiorly-threaded band to be drawn against the outer face of the tumbler, as set forth.

662,121. **GOVERNOR FOR ENGINES.** EDWARD IRWIN, Gridley, Ill. Filed Feb. 20, 1900. Serial No. 5,932. (No model.)



Claim.—1. In a governor, the combination with a shaft; of a disk secured thereto having an eccentric containing-plate slidably mounted thereon; a bell-crank lever pivoted to the disk and connected to the plate; a block adjustably secured within the lever; a pulley loosely mounted upon the shaft; and a link pivotally secured to said pulley and block.

2. In a governor, the combination with a shaft; of a disk secured thereto; an eccentric slidably mounted upon the disk; a lever pivoted to the disk; a link connection between said lever and eccentric; a block adjustably secured within the lever; a pulley loosely mounted upon the shaft; and a link pivotally secured to said pulley and block.

3. In a governor the combination with a disk having an eccentric slidably mounted thereon, and a pulley adapted to operate said eccentric by its movement in relation to the disk, of a toothed segment pivoted to the disk, an arm thereto, a spring-encircled rod pivoted to the arm, said spring secured to the pulley, a worm engaging said segment, a gear journaled within the hub of the pulley, a connecting-shaft between the gear and worm provided with universal joints, a sleeve loosely mounted on the shaft, and teeth thereon adapted to be brought into engagement with the gear.

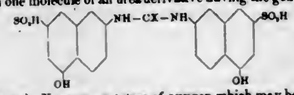
4. In a governor the combination with a shaft, having a disk secured thereto, an eccentric slidably mounted on said disk, a bell-crank lever pivoted to the disk, a link pivoted to the lever and eccentric, a block adjustably secured within said lever, a pulley loosely mounted upon the shaft, and a link pivotally secured to said pulley and block, of a toothed segment pivoted to the disk, an arm thereto, a spring-encircled rod pivoted to the arm, said springs secured to the pulley, a worm engaging said segment, a gear journaled within the hub of the pulley, a connecting-shaft between the gear and worm provided with universal joints, a sleeve loosely mounted on the shaft, and teeth thereon adapted to be brought into engagement with the gear.

5. The combination with a shaft and a disk having a laterally-extending hub secured to said shaft; of a pulley loosely mounted upon the hub; a toothed sleeve also loosely mounted upon the hub; a pinion journaled within the pulley, and meshing with the teeth of the sleeve; a worm mounted upon the disk and adapted to receive motion from said pinion; a toothed segment pivoted to the disk and engaging said worm; and a resilient connection between said segment and pulley.

6. The combination with a shaft having a disk secured thereto; of an eccentric slidably mounted upon the disk; a pulley loosely mounted upon the shaft; means whereby said eccentric is operated by the movement of the pulley in relation to the disk; a toothed segment mounted upon the disk and having a spring connection with the pulley; a worm engaging said segment; and means for revolving the worm, independently of the motion of the pulley, for regulating the tension of the springs.

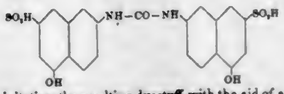
662,122. **BLUE-RED AZO DYE AND PROCESS OF MAKING SAME.** ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed May 28, 1900. Serial No. 18,244. (No specimens.)

Claim.—1. The process for producing new azo dyestuffs which process consists in first combining two molecules of two different diazo compounds with one molecule of an urea derivative having the general formula:



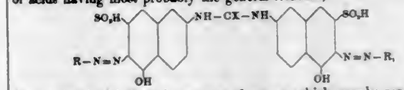
in which formula X means an atom of oxygen which may be replaced by an atom of sulfur, secondly precipitating the resulting dyestuff by means of a suitable salt and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

2. The process for producing a new disazo dyestuff which process consists in first combining one molecule of diazotized anilin and one molecule of diazotized acetyl-para-phenylene-diamin with one molecule of carbonyldioxy-dinaphthylamin disulfonic acid having in a free state the formula:



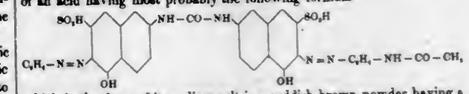
secondly precipitating the resulting dyestuff with the aid of a suitable salt, and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

3. The herein-described new azo dyestuffs which are alkaline salts of acids having most probably the general formula;



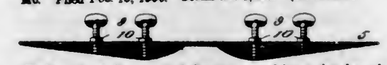
X meaning in this formula an atom of oxygen which may be replaced by an atom of sulfur, the groups —N=NR and —N=NR, meaning the radicals of two different "diazo compounds" and which are from reddish-brown to dark-brown powders having a metallic luster, soluble in water with from orange to red to bluish-red color, insoluble in concentrated hydrochloric acid, dyeing unmordanted cotton from orange to red shades which are fast to light, substantially as hereinbefore described.

4. The herein-described new diazo dyestuff being an alkaline salt of an acid having most probably the following formula



which in the form of its sodium salt is a reddish-brown powder having a metallic luster, soluble in water with a red color, insoluble in concentrated hydrochloric acid, being dissolved by concentrated sulfuric acid (of 66° Baumé) with a bluish-red color which is changed into violet by the addition of a small quantity of ice, while on the addition of a larger quantity of ice a brown precipitate is obtained, dyeing unmordanted cotton red shades which are fast to acids and to light, substantially as hereinbefore described.

662,123. **HARNESS-PAD FORMER.** JOHN A. KRAMER, Winigan, Mo. Filed Feb. 15, 1900. Serial No. 5,361. (No model.)



Claim.—1. A harness-pad shaper, comprising a clencher-plate having terminal forming portions detachably fitted thereto, whereby the pad may be formed preliminary to its introduction into a mold for stuffing, substantially as described.

2. A harness-pad shaper, comprising a clencher-plate, forming-blocks coöperating with the end portions thereof, and fastening devices detachably connecting said forming-blocks with the clencher-plate, substantially as described.

3. A harness-pad shaper, comprising a comparatively long, narrow and thin clencher-plate, laminated forming-blocks, clamp-screws passing through openings in the clencher-plate and detachably connecting the forming-blocks to the end portions thereof, and jam-nuts mounted upon the clamp-screws to secure the top part of the pad-cover to the clencher-plate, substantially as described.

4. A harness-pad shaper, comprising a clencher-plate, terminal forming devices upon the under side of said plate, and means for detachably connecting the forming devices to the clencher-plate and also clamping the top part of the pad-cover down upon the upper surface of said plate, substantially as set forth.

662,124. **LEAF-SPRING FOR CARRIAGES.** DAVID N. KRATZER, Mount Oreb, Ohio. Filed Sept. 2, 1899. Serial No. 729,310. (No model.)

Claim.—1. In a running-gear for carriages, a leaf-spring mounted on the front axle, a leaf-spring mounted on the rear axle, shackles depending from the ends of said leaf-springs and the ends of multiple side springs pivotally connected with the lower ends of the shackles, and branches on the tops of said side springs for supporting a box arranged and combined to operate in the manner set forth for the purposes stated.

2. In a running-gear for carriages, a leaf-spring mounted on the front axle, a leaf-spring mounted on the rear axle, shackles depending from the ends of said leaf-springs and the ends of multiple side springs pivotally connected with the lower ends of the shackles, short branches of the multiple side springs inclined upwardly, shackles depending from their ends and hanger-bars for supporting a box pivotally connected with

the ends of said branches, arranged and combined to operate in the manner set forth for the purposes stated.



Claim.—1. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, means for holding said tube-plate flange against said former, a flanging die or tool able to travel along inclined ways and means for operating same so as to bend the metal and to produce the desired reverse flanges between the said former and said flanging die or tool, substantially as described.

2. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder, means for causing same to hold the tube-plate flange of the flue against said former, flanging dies or tools able to travel along inclined adjustable ways and means for operating same so as to bend the metal and to produce the desired reverse flanges between said former and said flanging dies or tools, substantially as described.

3. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder, means for operating same, flanging dies or tools able to travel along inclined ways and means for operating said dies or tools, as set forth

4. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder able to travel along an inclined way, means for operating same, flanging dies or tools and means for operating same, as set forth.

5. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder able to travel along an adjustable inclined way, means for operating same, flanging dies or tools and means for operating same, as set forth.

6. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder, means for operating same, flanging dies or tools able to travel along adjustable inclined ways and means for operating said dies or tools as set forth.

7. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder, means for operating same, flanging dies or tools able to travel along inclined ways adjustable radially toward and from the axis of the flue and also angularly relatively to each other and means for operating said dies or tools, as set forth.

8. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder able to travel along an inclined way, means for operating same, flanging dies or tools able to travel along inclined ways, and means for operating same, as set forth.

9. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder able to travel along an adjustable inclined way, means for operating same, flanging dies or tools able to travel along incline ways, and means for operating same, as set forth.

10. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, a presser or flange-holder able to travel along an adjustable inclined way, means for operating same, flanging dies or tools able to travel along adjustable inclined ways, and means for operating same, as set forth.

11. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, means for holding the tube-plate flange against said former, flanging dies or tools, means for operating same and a central retainer whereby the flue is held in position, as set forth.

12. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a former, means for holding the tube-plate flange against said former, flanging dies or tools, means for operating same and a central retainer adjustable as to its diameter and comprising a number of segments connected by links to a vertical movable rod, as set forth.

13. For producing reverse flanges on a flue already formed with a tube-plate flange, an apparatus comprising a bed having a former and inclined ways fixed thereon, a presser or flange-holder and flanging-dies able to travel on said inclined ways and operated by the plungers of hydraulic rams secured beneath the bed, as set forth.

14. For producing reverse flanges on a flue already formed with a tube-plate flange, an apparatus comprising a bed *c* with abutments *q* and having a former *d* and inclined ways *e* thereon, a presser or flange-holder *f* and flanging-dies *g* mounted on blocks or carriages *h*, hydraulic rams *l* secured beneath the bed *c* and rods *i* and cross-heads *j* connecting said blocks or carriages *h* to the plungers of said rams, as set forth.

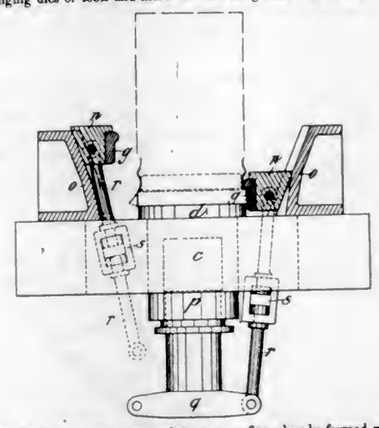
15. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of standards *t* fixed to the bed of the apparatus and formed with partly-circular faces, inclined ways *e* having vertical backs partly circular in plan and bedding against the faces of the standards, worm-segments *u* on the inclined ways and worms *v* carried by the standards, as set forth.

16. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a bed *c*, a former *d* a central retainer comprising segments *w* having part rings, and means for varying the diameter of said retainer for the purpose specified consisting of a vertically-moving rod *y*, links *z* connecting each of said segments thereto and a lever engaging said rod and worked by a nut-wheel 1 and screw 2, as set forth.

662,126. APPARATUS FOR MANUFACTURING FLANGED FLUES FOR BOILERS. FRANCIS L. LANE, Leeds, England, assignor to the Leeds Forge Company, Limited, same place. Filed Aug. 11, 1899. Renewed July 23, 1900. Serial No. 24,603. (No model.)

Claim.—1. For producing reverse flanges on a flue already formed with a tube-plate flange, apparatus comprising a former, a flange presser or holder mounted on a lever, means for actuating same, a pair of flanging dies or tools and means for actuating same, as set forth.

2. For producing reverse flanges on a flue already formed with a tube-plate flange, apparatus comprising a former, a flange presser or holder mounted on a bell-crank lever actuated by hydraulic power, a pair of flanging dies or tools and means for actuating same, as set forth.

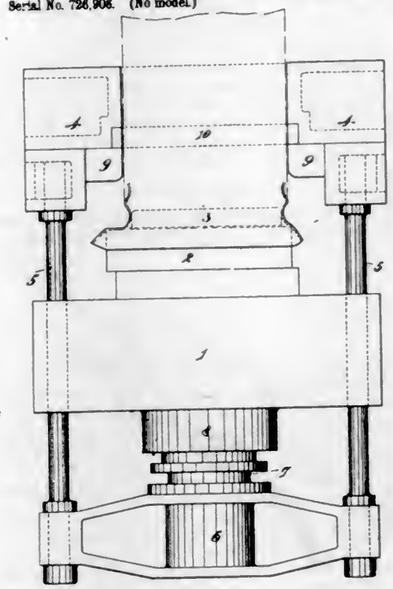


3. For producing reverse flanges on a flue already formed with a tube-plate flange, apparatus comprising a former, a flange presser or holder mounted on a bell-crank lever, means for actuating same, a pair of flanging dies or tools mounted on carriages able to travel on inclined ways, and means for actuating same, as set forth.

4. For producing reverse flanges on a flue already formed with a tube-plate flange, apparatus comprising a former, a flange presser or holder mounted on a bell-crank lever, means for actuating same, a pair of flanging dies or tools mounted on blocks or carriages able to travel on inclined ways and connected by links to the plunger of a hydraulic ram, as set forth.

5. For producing reverse flanges on a flue already formed with a tube-plate flange, apparatus comprising a former *d* mounted on a bell-crank lever *h*, a hydraulic ram *k*, the plunger *l* of which is connected to said lever, a pair of flanging dies or tools *g* carried by blocks or carriages *n* traveling on inclined ways *o*, a ram *p*, a cross-head *q* upon the plunger thereof, and a pair of adjustable links *r* connecting said cross-head to said blocks or carriages, as set forth.

662,127. APPARATUS FOR MANUFACTURING FLANGED FLUES FOR BOILERS. FRANCIS L. LANE, Leeds, England, assignor to the Leeds Forge Company, Limited, same place. Filed Aug. 11, 1899. Serial No. 726,906. (No model.)



Claim.—1. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, a flange-presser and a reverse-flanging die rigidly connected together and combined with a former having a central block or retainer adapted to enter the end of the flue, and means for imparting relative movement to said parts, as set forth.

2. In an apparatus for producing reverse flanges on a fine already formed with a tube-plate flange, a flange-presser and reverse-flanging dies rigidly connected together and combined with a stationary former carrying a central block or retainer adapted to enter the end of the flue and means for moving said flange-presser and dies toward and from said former, as set forth.

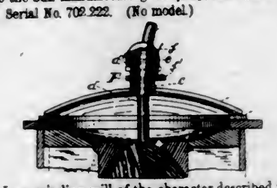
3. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a fixed bed, a former secured thereon and carrying a central block or retainer adapted to enter the end of the flue, a cross-head movably supported above said former and having rigidly attached thereto a flange-presser and reverse-flanging dies and means for moving said cross-head and attached parts toward and from said bed and former, as set forth.

4. In an apparatus for producing reverse flanges on a flue already formed with a tube-plate flange, the combination of a fixed bed, a former secured thereon and carrying a central block or retainer adapted to enter the end of the flue, a cross-head movably supported above said former and having rigidly attached thereto a flange-presser and reverse-flanging dies and a hydraulic ram, the movable portion of which is connected to said cross-head, as set forth.

5. In an apparatus for producing reverse flanges on a fine already formed with a tube-plate flange, the combination of a fixed bed, a former secured thereon and carrying a central block or retainer adapted to enter the end of the flue, a cross-head movably supported above said former and having rigidly attached thereto a flange-presser and reverse-flanging dies and an inverted hydraulic ram connected to the under side of said bed and having its plunger provided with a cross-head or frame that is connected to the first-mentioned cross-head or frame, as set forth.

6. For producing reverse flanges on a flue already formed with a tube-plate flange, an apparatus comprising a bed 1, a former 2 secured thereon, a central retainer 3 adapted to enter the end of the flue, a cross-head or frame 4 connected by rods 5 with a lower cross-head 6 secured to the plunger 7 of a hydraulic ram 8 attached to the bed, and flanging-dies 9 and a flange-presser 10 secured to the under side of the cross-head or frame 4, as set forth.

662,128. COFFEE-MILL. SAMUEL A. MITCHEL, Greenfield, Ohio, assignor to the Sun Manufacturing Company, same place. Filed Jan. 16, 1899. Serial No. 702,222. (No model.)

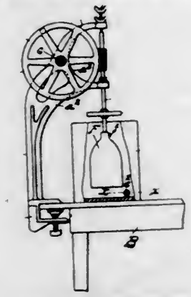


Claim.—In a grinding-mill of the character described the combination of the case having the shell or concave grinding-surface secured to the under side of its top, the hopper formed in the top of the case, the cover secured on the top of the case over the hopper and having a boss to serve as a journal for the spindle of the grinding-cone, the grinding-cone having a stem projecting through said boss and screw-threaded on its end protruding beyond the boss, a screw-threaded adjusting-nut to engage the screw-threaded end of said stem having its periphery notched to receive a locking-spring, a handle upon the end of said stem, a loose washer sleeved over said stem and a spring secured upon said washer to engage any of the notches in the adjusting-nut and the handle and lock the adjustment of the grinding-surfaces, substantially as shown and described.

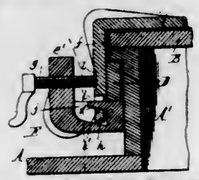
662,129. CHURN. SAMUEL A. MITCHEL, Greenfield, Ohio, assignor to the Sun Manufacturing Company, same place. Filed May 5, 1900. Serial No. 15,585. (No model.)

Claim.—1. In a churn the combination of a standard with two lateral divergent arms terminating in annular bearings the upper bearing being internally screw-threaded to receive a screw-threaded pin and the lower one being slotted to pass the dasher-shaft, the dasher-shaft, a cup upon the shaft with a flange to rest upon the lower of said bearings, balls within the cup, a cone-bearing upon the shaft to rest upon the balls, a worm secured to or formed integral with the shaft, a driving-wheel upon the standard to mesh therewith, the screw-threaded pin in the upper bearing of the standard to form the bearing for the upper end of the shaft, a lock-nut to hold the pin in a set position, and a dasher secured to the lower end of the shaft, substantially as shown and described.

2. In a churn the combination of a standard with two laterally divergent arms terminating in bearings the upper bearing internally screw-threaded to receive a screw-threaded pin the lower one slotted to pass the dasher-shaft, the shaft, upon the shaft a cone-bearing and a loose flanged cup to rest in the lower bearing of the standard, balls within the cup, collars secured upon the shaft above the cone and below the cup at a distance apart such that the cup has a slight slipping vertical motion upon the shaft, a worm secured to or formed integral with the shaft, a driving-wheel journaled upon the standard to mesh with the worm and a dasher secured to the lower end of the shaft, substantially as shown and described.



662,130. FASTENING FOR HATCHWAY-COVERS. MATHEW MULHOLLAND, Cleveland, Ohio. Filed July 21, 1900. Serial No. 24,408. (No model.)



Claim.—1. The combination with the coaming of a hatchway, and a cover, of a bracket secured to the coaming, a clamp having a vertical member arranged between the coaming and said bracket and a horizontal member which extends inwardly from the upper end of said vertical member and overlaps said cover, for holding the same down upon the coaming, and a clamping-screw arranged in said bracket and bearing against the outer side of the vertical member of said clamp, substantially as set forth.

2. The combination with the coaming of a hatchway and a cover, of a bracket secured to the coaming, a clamp engaging over the cover and capable of moving both vertically and horizontally with reference to the cover, said clamp and said bracket being provided with cooperating inclined faces which act to draw the clamp downwardly upon shifting the same in a horizontal direction, and a tightening device operating against said clamp, substantially as set forth.

3. The combination with the coaming of a hatchway and a cover, of a bracket secured to the coaming and provided at its outer end with a standard and on the inner side of said standard with a lug or projection, a clamp engaging over the cover and provided with a hook which engages under said lug, and a tightening device operating against said clamp, substantially as set forth.

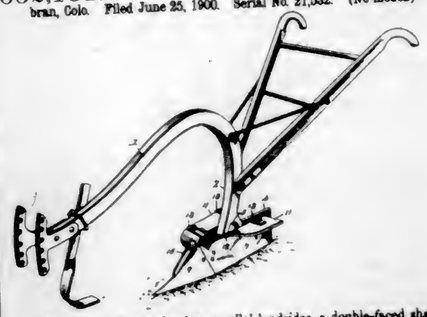
4. The combination with the coaming of a hatchway and a cover, of a bracket secured to the coaming and provided at its outer end with a standard and on the inner side of said standard with a lug or projection having a beveled under side, a clamp engaging over the cover and provided with a hook having an inclined upper side which bears against the beveled face of said lug, and a tightening device operating against the outer side of said clamp, substantially as set forth.

5. The combination with the coaming of a hatchway, the cover, the tarpaulin and the batten, of a bracket secured to the coaming below the batten and provided at its outer end with a standard and on its base-plate with a forwardly-projecting lug having a beveled under side, a clamp engaging over the cover and bearing against the outer side of the batten and provided at its lower end with a hook having a beveled upper face which bears against the beveled face of said lug, and a tightening device bearing against the outer side of said clamp, substantially as set forth.

6. The combination with a coaming of a hatchway, the cover, the tarpaulin and the batten, of a bracket secured to the coaming below the batten and provided at its outer end with a standard and on its base-plate with a forwardly-projecting lug having a beveled under side, a clamp engaging over the cover and bearing against the outer side of the batten and provided on its outer side with a vertical groove or depression and at its lower end with a hook having a beveled upper face which bears against the beveled face of said lug, and a clamping-screw arranged in said standard and engaging at its inner end in the groove of the clamp, substantially as set forth.

7. The combination with the coaming of a hatchway, and the cover, of a bracket provided at its outer end with a standard and having a base-plate which is provided on opposite sides of the bracket-body with forwardly-projecting lugs having beveled under sides, a clamp engaging over the cover and provided at its lower end with a pair of inwardly-extending hooks having inclined upper faces which bear against the beveled faces of said lugs, and a clamping-screw arranged in said standard and bearing against said clamp, substantially as set forth.

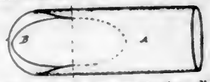
662,131. PLOW. GEORGE W. NOBLE and CARY M. KERTON, Colbran, Colo. Filed June 25, 1900. Serial No. 21,532. (No model.)



Claim.—1. A plow having parallel landsides, a double-faced share, the sides of which converge upwardly, and laterally-projecting wings disposed above the landsides, substantially as described.

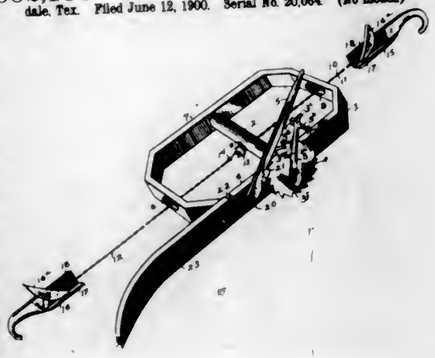
2. A plow having parallel landsides, a double-faced share, the sides of which converge upwardly, and laterally-projecting wings disposed above the landsides, the front ends of said wings being upwardly inclined and their rear portions being horizontally disposed, for the purpose set forth, substantially as described.

662,132. INNER TUBE FOR PNEUMATIC TIRES. THERON R. PALMER, Erie, Pa. Filed Aug. 22, 1900. Serial No. 27,666. (No model.)



Claim.—An inner tube for pneumatic tires slit at its end so as to form two opposing flaps, one of which is substantially half the width of the other and doubled into the interior of the tube and cemented to the inner surface of the opposing wall, and the edges of the sides of the other and wider flap being folded down upon and cemented to itself, this flap being doubled over the bend of the narrow flap and cemented upon the outer surface of its opposing wall substantially as and for the purpose set forth.

662,133. WIRE-STRETCHER. BENJAMIN H. PASMORE, Stockdale, Tex. Filed June 12, 1900. Serial No. 20,064. (No model.)



Claim.—1. A wire-stretcher comprising a frame provided at each end with a guide-opening, a shaft arranged between the ends of the frame and having an opening, a flexible connection passing through the guide-openings of the frame and extending beyond both ends of the latter and also passing through the opening of the shaft, said connection being composed of two sections detachably coupled, whereby they are adapted for drawing the ends of a broken wire together and for anchoring the frame to a post to stretch a wire to the same, clamps arranged at the ends of the flexible connections and having hooks, and means for operating the shaft, substantially as described.

2. In a wire-stretcher, the combination of a frame, a shaft, a ratchet-wheel connected with the shaft, and a pivoted lever provided with a tooth for engaging the wheel and located adjacent to a notch to form a wire-cutter, substantially as described.

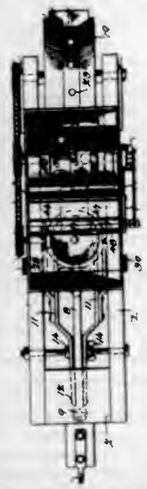
662,134. SCREW. FREDRICK W. RODD, Cleveland, Ohio, assignor of one-half to David A. Mallo, same place. Filed Feb. 9, 1900. Serial No. 4,592. (No model.)



Claim.—1. A screw having a head with a flat bottom and circular in cross-section and provided with a series of shoulders extending from the base of the head upward and deepest and widest nearest the base, substantially as described.

2. A screw having a head circular in cross-section from top to base and provided with a series of flutes at regular intervals from the top of the head downward substantially parallel to its axis and a web across the bottom of each flute and constituting a part of the otherwise flat bottom of the head, substantially as described.

662,135. COMBINED PLANTER AND FERTILIZER-DISTRIBUTER. SILAS D. ROOP, Goodes, Va. Filed Aug. 23, 1900. Serial No. 27,826. (No model.)

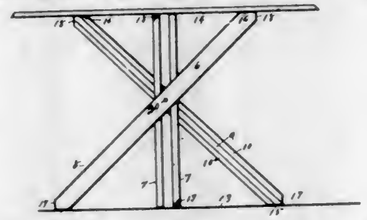


Claim.—1. In a planter, the combination with a frame having a furrow-opener and a traction-wheel, of a hopper, a revoluble seed-dropping mechanism therein having a revoluble tappet at one end of its shaft, a discharge-spout, a cut-off plate therein, a spring to normally close said cut-off plate in the spout, an operating-lever for said cut-off plate, a tappet-arm disposed in the path of the revoluble tappet, a pitman connecting said lever to said tappet-arm, and a hook to engage said operating-lever and lock the same and dispose the tappet-arm out of the path of the revoluble tappet, substantially as described.

2. In a combined planter and fertilizer-distributer, the combination of the frame having the furrow-opener, traction-wheel and discharge-spout, the hopper having the partition-plate whereby the same is divided into seed and fertilizer compartments, a revoluble seed-dropping mechanism in the bottom of the seed-compartment, a horizontally-disposed revoluble fertilizer-disk in the bottom of the fertilizer-compartment of the hopper, the latter having a sweep-plate on said disk to sweep fertilizer therefrom into the spout, said sweep-plate having an opening and a regulating-gate for said opening, for the purpose set forth, a cut-off plate in the spout, an operating-lever for said cut-off plate, a spring to normally close said plate, a tappet-arm disposed in the path of the revoluble tappet, a pitman connecting said tappet-arm to said operating-lever, and connections, substantially as set forth between the traction-wheel and fertilizer-disk and seed-dropping mechanism, substantially as described.

3. In a machine of the class described, the combination of a hopper, a discharge-spout, a horizontally-disposed revoluble fertilizer-disk in the bottom of the hopper and extending over one side of the discharge-spout, a sweep-plate depending from the bottom of the hopper and bearing on said disk, the said sweep-plate having an opening therein, a shaft in said hopper, a gate on said shaft adapted to entirely or partly close said opening and means to secure the said shaft at any desired adjustment of the said gate, substantially as described.

662,136. CHANGEABLE SUPPORT FOR TABLE-TOPS, &c. EDWARD W. SARGENT, Oshtemo, and CHARLOTTE C. DOVER, Kalamazoo, Mich., assignors to Sumner O. Bush, Battle Creek, Mich. Filed June 25, 1900. Serial No. 21,496. (No model.)



Claim.—The support, comprising the set of two leg-bars 7 and the set of two leg-bars 6, each leg-bar of the two sets being of a single continuous piece and beveled obliquely at the edges as at 10, thus making one side 9 narrower than the other side 8, a central block 19 the sides 9 of the leg-bars fitting against the sides of the block and pivoted thereto, thus causing the beveled edges of the leg-bars to rest against each other when the support is open, the opposite side corners of the ends of each leg-bar being cut off at angles 15 and 17 at one end, and at 16 and 18 at the other end, all said angles being oblique to the longitudinal plane of said leg-bars, the angles 15 and 17 being at right angles to each other, and the angles 16 and 18 being at right angles to each other, whereby when the oblique angles 17 rest on the floor, and the table-top rests on the oblique angles 18 at the then upper end of said leg-bars, the table-top is held in a higher position than when the leg-bars were opened in the other direction, substantially as set forth.

662,137. COMBINATION GUN-CARTRIDGE. HENRY A. TELLERSON, Oakland, Cal., assignor of one-half to Winfred Castor, San Francisco, Cal. Filed Mar. 10, 1900. Serial No. 8,181. (No model.)



Claim.—1. In a cartridge, a base composed of an outer and inner portion adapted to be screwed together, an annular channel and corresponding rim formed between the meeting surfaces of the base, and a paper or equivalent shell having the inner end removably clamped between said channel and rim.

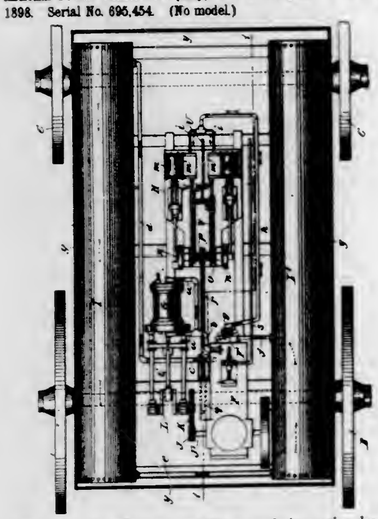
2. A cartridge consisting of a head having a screw-threaded interior socket, an inner portion, the end of which is screw-threaded and adapted to interlock with said socket, the periphery of said inner portion being of a diameter to fit the interior of a paper or like shell, said shell having its inner end clamped between the meeting ends of the outer and inner base portion and one of said meeting ends having a groove or channel and the other a corresponding rim.

3. In a cartridge, a head and an inner portion with interlocking threads by which they are clamped together, a paper cartridge having an exterior diameter corresponding with the exterior diameter of the head, and an inner diameter which fits the inwardly-projecting portion of the inner metal portion, and an annular groove or channel formed in the head and corresponding rim in the inner portion between which the inner end of the shell is crimped and clamped.

4. A cartridge-shell consisting of an outer head and inner metallic portion and a paper shell, means for locking the outer and inner metallic portions together, an annular groove and tongue formed on the meeting ends of the metallic portions whereby the inner end of a paper or like shell is clamped between the two metallic portions, a primer-seat formed in the inner metallic portion and a hole through the outer portion through which the primer is exposed to the firing-pin of the gun.

5. In a cartridge, a two-part base with means for removably securing them together, a paper or equivalent shell having one end crimped and clamped between the two, and a pin by which the two parts of the base are secured in their interlocked position, one of the parts of the base having a hole with an inclined wall engaged by said pin to allow for variations in the thickness of the shell and to insure the alinement of the parts.

662,138. MOTOR-VEHICLE. HERBERT G. UNDERWOOD, New York, N. Y., assignor, by direct and meane assignments, to the International Power Vehicle Company, of West Virginia. Filed Nov. 4, 1898. Serial No. 695,454. (No model.)



Claim.—1. The combination with an explosive-engine, having an air-chamber around its explosion-cylinder, of an air-compressor driven by the explosive-engine and supplying air to the air-chamber, an air-reservoir connected with the air-chamber, and an air-engine driven by the heated compressed air from the air-reservoir, whereby the overheating of the explosive-engine is prevented when the air-motor is stopped, substantially as described.

2. The combination with an explosive-engine, of an air-reservoir, an air-compressor driven by the explosive-engine and supplying air to the air-reservoir, means for stopping the air-motor independently of the air-compressor, and an air-heater, heated by the heat of the explosive-engine, interposed between the air-reservoir and air-compressor, substantially as described.

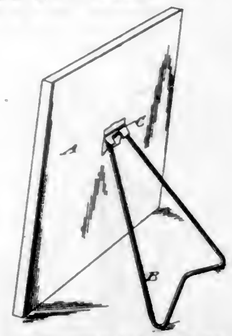
3. The combination with an explosive-engine, of an air-reservoir, an air-compressor driven by the explosive-engine and supplying air to the air-reservoir, means for stopping the air-motor independently of the air-compressor, an air-heater and cylinder-cooling chamber located in proximity to the cylinder of the explosive-engine and interposed between the compressor and air-reservoir, and an air-heater, heated by the heat of the explosive-engine, interposed between the air-reservoir and air-motor, substantially as described.

662,139. ARTIFICIAL BAIT FOR FISHING. EDMOND A. WARREN, New York, N. Y., assignor to Edmond A. Warren and Thomas J. Moore, same place. Filed May 13, 1900. Serial No. 17,091. (No model.)



Claim.—The combination of a fish-hook, a luft representing a fly on the shank of said hook, and a tubular sheath which incases the bend of said hook and a part of the shank thereof and which projects beyond the bend thereof and in which is an orifice through which the barb and point of said hook project, substantially as herein described.

662,140. PICTURE-SUPPORT. JOSEPH BABST, New York, N. Y., assignor to William Schimper & Co., Hoboken, N. J. Filed Aug. 11, 1900. Serial No. 26,564. (No model.)



Claim.—1. The combination with an easel-back and a loop-support therefor having its ends turned inwardly toward each other, of means for hinging the support to the back comprising a hinge member having a transverse socket therein for receiving the inwardly-turned ends of the support and stops carried by the hinge member retaining the ends of the support within the hinge member in whatever position the support is swung, substantially as set forth.

2. The combination with an easel-back and a loop-support therefor having its ends turned inwardly toward each other, of means for hinging the loop-support to the back comprising a hinge member having a transverse socket therein for receiving the inwardly-turned ends of the support, the said hinge member also being provided with wings which are bent to form pockets for retaining the ends of the loop-support in position within the hinge member in whatever position the support is swung, substantially as set forth.

3. The combination with an easel-back and a loop-support having its ends turned inwardly toward each other, of means for hinging the loop-support to the back comprising a hinge member having a transverse socket therein for receiving the inwardly-turned ends of the loop-support, the said hinge member being provided with wings, which are bent to form pockets which serve the double function of retaining the inwardly-turned ends of the support within the hinge member and also as stops to limit the outward swinging movement of the support, substantially as set forth.

4. The combination with an easel-back and a loop-support having its ends turned inwardly toward each other, of means for hinging the support to the back comprising a hinge member having a transverse socket therein for receiving the inwardly-turned ends of the loop-support, the said hinge member being further provided with wings bent to form sockets for retaining the ends of the loop-support within the hinge member in whatever position the support is swung, and tongues arranged to clamp the hinge member to the easel-back, substantially as set forth.

662,141. TYPE-WRITING MACHINE. WALTER J. BARRON, New York, N. Y., assignor to the Densmore Typewriter Company, Syracuse, N. Y. Filed Apr. 4, 1898. Serial No. 676,373. (No model.)

Claim.—1. In a type-writing machine, the combination of a platen, an endwise-movable card-holder arranged upon the surface of the platen and extending longitudinally thereof, and means for forcing the card-holder outwardly from the surface of said platen during an endwise movement, to enable a card to be introduced.

2. In a type-writing machine, the combination of a platen, an endwise-movable card-holder arranged upon the surface of the platen and extending longitudinally thereof, and means for forcing the card-holder inwardly toward the surface of the platen after the introduction of a card and during an endwise movement of the card-holder.

3. In a type-writing machine, the combination of a platen, a card-holder arranged upon the surface of the platen and extending longitudinally thereof, means for forcing the card-holder outwardly from the surface of the platen during an endwise movement of the card-holder in one direction to permit the insertion of a card, and means for forcing the card-holder inwardly toward the surface of the platen during an endwise movement of the card-holder in the opposite direction, so as to clamp the card upon the surface of the platen.



4. In a type-writing machine, the combination of a platen, a card-holder arranged upon the surface of the platen and extending longitudinally thereof, means for forcing the card-holder outwardly from the surface of the platen during an endwise movement of the card-holder in one direction, to permit the insertion of a card, and a spring for moving the card-holder in the opposite direction and toward the surface of the platen, to clamp the card thereupon.

5. In a type-writing machine, the combination of a platen, a card-holder, a cam at the end thereof for forcing the card-holder outwardly from the surface of the platen during an endwise movement in one direction, to permit the insertion of a card between the holder and the platen, and another cam at the end of said card-holder for forcing the same inwardly toward the surface of the platen during a movement of the card-holder in the opposite direction, so as to clamp the card upon the surface of the platen.

6. In a type-writing machine, the combination of a platen, a card-holder arranged upon the surface of the platen and extending longitudinally thereof and so attached as to slide thereon, and means for raising and lowering said card-holder away from and toward the surface of the platen during the back-and-forth sliding movements of said card-holder.

7. In a type-writing machine, the combination of a platen, a card-holder attached thereto and extending longitudinally thereof and slidable thereon, cams for raising and lowering said card-holder away from and toward the surface of the platen, and a returning-spring.

8. In a type-writing machine, the combination of a platen, a card-holder attached thereto and having a finger-piece and a cam-arm, suitable bearings for the cam-arm to work against, and a returning-spring.

9. In a type-writing machine, the combination of a platen, a card-holder having a finger-piece and a cam-arm, a platen-head having a hole for the cams on said arm to coact with, and a returning-spring.

10. In a type-writing machine, the combination of a platen, a card-holder having a slot at one end adapted to a headed device secured to the platen and provided at the opposite end with a finger-piece and a cam-arm, a platen-head having a hole for said cam-arm, and a returning-spring.

11. In a type-writing machine, the combinaton of a platen having at one end a longitudinal slot adapted to a headed device secured to the platen and at the opposite end a finger-piece for moving said card-holder endwise, a spring opposing said card-holder when moved in this direction, means for raising said card-holder when pressure is applied to the finger-piece, and means for retracting said card-holder when the pressure is removed and the spring is permitted to act.

12. In a type-writing machine, the combination of a platen having a headed device as 13 at one end thereof, a bar as 11 having a slot as 12 at one end and a finger-piece as 14 at the opposite end, the inwardly-projecting bar 15 having the cams 20 and 21, the platen-head 3 having the hole 16, and the returning-spring 17.

13. In a type-writing machine, the combination of a platen, a spring-pressed card-holder extending longitudinally thereon, means for moving the card-holder over the surface of the platen, and means for simultaneously moving it off the surface of the platen.

14. In a type-writing machine, the combination of a revoluble platen, a card-holder spring-pressed thereon and rotating together therewith, a finger-piece fixed upon said card-holder, and means actuated by pressure upon the finger-piece for lifting the card-holder off the platen.

15. In a type-writing machine, the combination of a platen, a card-holder spring-pressed thereon, and a cam and a finger-piece both fixed upon the card-holder.

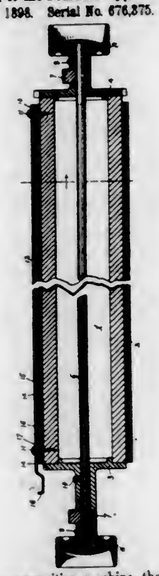
16. In a type-writing machine, the combination of a platen, a detachable endwise-movable card-holder, and means for forcing the same outwardly from said platen during an endwise movement, without detaching it from the platen, to enable a card to be introduced.

17. In a type-writing machine, the combination with a revoluble platen of a card-holder movable over the surface thereof for the introduction and clamping of the card, said card-holder being mounted to rotate together with the platen and extending for substantially the entire length thereof.

18. In a type-writing machine, the combination with a revoluble platen of a card-holder movable over the surface thereof for the introduction and clamping of the card, and provided with a finger-piece, said card-holder being mounted to rotate together with the platen and extending for substantially the entire length thereof.

19. In a type-writing machine, the combination with a revoluble platen of a detachable card-holder movable over the surface thereof for the introduction and clamping of the card, said card-holder being mounted to rotate together with the platen and extending for substantially the entire length thereof.

662,142. TYPE-WRITING MACHINE. WALTER J. BARRON, New York, N. Y., assignor to the Densmore Typewriter Company, Syracuse, N. Y. Filed Apr. 4, 1898. Serial No. 676,375. (No model.)



Claim.—1. In a type-writing machine, the combination of a revoluble platen, a catch mounted to rotate together therewith in either direction, and a card-holder extending longitudinally of the platen and having a spring-catch adapted to said platen-catch.

2. In a type-writing machine, the combination of a revoluble platen, catches mounted to rotate together therewith in either direction, and a card-holder extending longitudinally of the platen and provided with a spring-catch adapted to one of said platen-catches.

3. In a type-writing machine, the combination of a platen having fixed catches, and a card-holder having a slot adapted to one of said catches and a slotted spring adapted to the other of said catches.

4. In a type-writing machine, the combination of a platen having two fixed catches, and a card-holder having a longitudinal slot at one end and at the other end an attached spring provided also with a longitudinal slot.

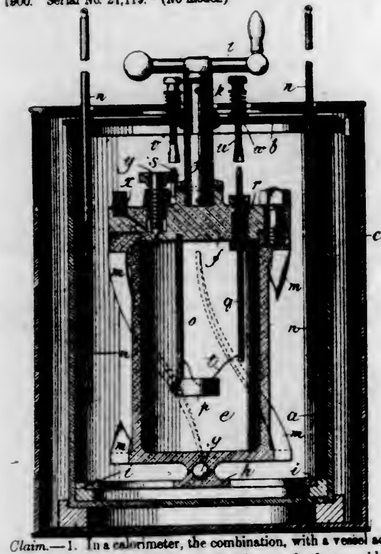
5. In a type-writing machine, the combination of a platen having at each end a fixed catch, and a card-holder having a slot at one end

adapted to one of said catches and having at the opposite end an opening, and an attached spring accommodated in said opening and provided at its free end with a locking-slot.

6. In a type-writing machine, the combination of a platen having a headed screw inserted at each end thereof, and a card-holder having at one end a slot adapted to one of said screws and at its opposite end an attached spring having a keyhole-slot adapted to the other of said screws.

7. In a type-writing machine, the combination of a platen having the screws 11, and the card-holder having the slot 13, the opening 14, the spring 16 provided with the keyhole-slot 17 and the finger-piece 18.

662,143. CALORIMETER. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Schaeffer & Budenberg, New York, N. Y. Filed June 21 1900. Serial No. 21,119. (No model.)



Claim.—1. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, of a movable combustion-chamber, within such vessel, provided with stirrers and with means for moving it, whereby circulation may be maintained within said vessel.

2. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, of a combustion-chamber revolubly mounted within such vessel, and provided with stirrers upon its outer surface, and with means for rotating it, whereby circulation may be maintained within said vessel.

3. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, of a combustion-chamber revolubly mounted within such vessel, and provided on its outer side with spiral blades, whereby the medium within such vessel may be kept in circulation, said combustion-chamber being also provided with means whereby it may be rotated.

4. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, of a combustion-chamber within such vessel, having a pivotal support at its base and having at its top a spindle, revolubly mounted in a bearing of the vessel, whereby said combustion-chamber may be rotated, said combustion-chamber being also provided with stirrers whereby, as it is rotated, the medium within said vessel may be kept in circulation.

5. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, and having, near its base, a base-plate separated from the walls of said vessel by heat-insulating material, said base-plate having at its center a recess adapted to receive a pivot-ball, of a combustion-chamber within said vessel, provided at its base with a recess adapted to fit over a pivot-ball of the base-plate, and provided at its top with means for steadying and for revolving it, and also provided with stirrers whereby, as the combustion-chamber is rotated, the medium within said vessel is kept in circulation, and a pivot-ball.

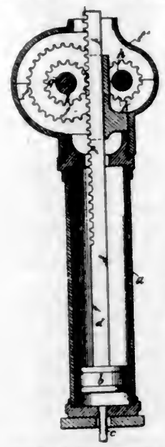
6. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, of a removable combustion-chamber within such vessel, provided with an electric igniting device having external contact-terminals, and contact-pieces carried by said vessel and adapted to make contact with the contact-terminals of the combustion-chamber, but normally out of contact therewith.

7. In a calorimeter, the combination, with a vessel adapted to contain a medium to which heat may be imparted, and having a removable cover, of a combustion-chamber adapted to be inserted into, or to be removed from, said vessel when the cover thereof has been removed, said combustion-chamber being provided with an electric igniting device having external contact-terminals, and spring-retracted contact-plungers carried by the cover of said vessel and adapted, when pressed inward, to make contact with the terminals of said igniting device.

8. A combustion-chamber for calorimeters, consisting of a chamber adapted to be revolubly mounted, provided with means whereby a charge may be introduced, and provided also with external blades or stirrers by which, when the chamber is rotated, fluid around it may be kept in circulation.

9. A combustion-chamber for colorimeters, consisting of a chamber adapted to be revolubly mounted, provided with means whereby a charge may be introduced, provided also with external blades or stirrers by which, when the chamber is rotated, fluid around it may be kept in circulation, and also provided with a connection for the introduction of gas under pressure, and with a valve by which gas so introduced may be confined within the chamber.

662,144. DEVICE FOR STOPPING ENGINES. MICHAEL J. CARROLL, THOMAS D. MILLEA, and JOHN D. MILLEA, Springfield, Mass. Filed July 20, 1898. Serial No. 686,393. (No model.)



Claim.—1. In a device for stopping engines, the combination of the main steam-pipe, a throttle-valve mounted therein, a sprocket-wheel on the stem of the throttle-valve, a piston-cylinder, a steam conduit-pipe leading from the main steam-pipe between the boiler and the throttle-valve and opening into the said cylinder, a valve interposed in said steam conduit-pipe, a lever *u* to hold said valve closed, a pivotally-supported latch to lock the lever in position, an armature movable with the latch, an electric magnet to operate the armature and move the latch to release the lever, a piston in the cylinder provided with a toothed piston-rod, gears meshing with the piston-rod, a sprocket-wheel on one of the gear-shafts and a sprocket-chain connecting the latter-mentioned sprocket-wheel with the sprocket-wheel on the throttle valve stem.

2. The combination of the cylinder *a*, the piston *b*, the tooth-provided rod *d*, the gear *i* arranged to mesh with the teeth on said rod, the gear *j* mounted on the same shaft with the gear *i*, the gear *k* with its teeth arranged to mesh with the teeth of the gear *j*, the sprocket-wheel *l* mounted on the same shaft with the gear *k*, a valve having a disk arranged to be moved by the rotation of its stem, the sprocket-wheel *n* mounted on said valve-stem to cause the rotation thereof, and a sprocket-chain extending between the two sprocket-wheels, substantially as shown.

3. The combination of the cylinder *a*, the piston *b*, the tooth-provided piston-rod *d*, the gear *i* arranged to mesh with the teeth on the piston-rod, the gear *j* mounted on the same shaft with the gear *i*, the gear *k* with its teeth arranged to mesh with the teeth of the gear *j*, the sprocket-wheel *l* mounted on the same shaft with the gear *k*, a valve having a disk arranged to be moved by rotation of its stem, the sprocket-wheel *n* mounted on said valve-stem to cause the rotation thereof, a sprocket-chain extending between the two sprocket-wheels, the conduit *r r'*, a valve *s* mounted in said conduit, and direct means to control the valve *s* from a point remote therefrom, substantially as shown.

4. The combination of the cylinder *a*, the piston *b*, the tooth-provided piston-rod *d*, the gear *i* arranged to mesh with the teeth on the piston-rod, the gear *j* mounted on the same shaft with the gear *i*, the gear *k* with its teeth arranged to mesh with the teeth of the gear *j*, the sprocket-wheel *l* mounted on the same shaft with the gear *k*, a valve having a disk arranged to be moved by rotation of its stem, the sprocket-wheel *n* mounted on said valve-stem to cause the rotation thereof, a sprocket-chain extending between the two sprocket-wheels, the conduit *r r'*, a valve *s* mounted in said conduit and direct means to control the valve *s* from a point remote therefrom, comprising an electrically-controlled mechanism, substantially as shown.

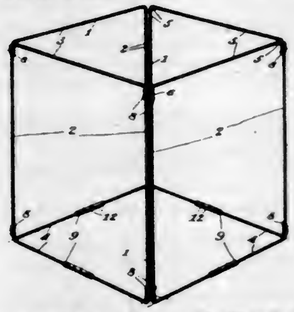
5. The combination of the cylinder *a*, the piston *b*, the rack-provided piston-rod *d*, the gear *i* arranged to mesh with the teeth on the piston-rod *d*, the gear *j* mounted on the same shaft with the gear *i*, the gear *k* with its teeth arranged to mesh with the teeth of the gear *j*, the sprocket-wheel *l* mounted on the same shaft with the gear *k*, a valve having a disk arranged to be moved by rotation of its stem, the sprocket-wheel *n* mounted on said valve-stem to cause the rotation thereof, a sprocket-chain extending between the two sprocket-wheels, the conduit *r r'*, a valve *s* mounted in said conduit and electrical means to directly control the valve *s* from a point remote therefrom, comprising the lever *u* mounted to engage the stem of the valve *s*, an electromagnet, an armature pivotally mounted, a latch *v* operatively connected with the armature and adapted to engage and release the lever *u*, a source of electrical energy and suitable conductors, substantially as shown.

6. The combination with a shut-off mechanism actuated by the making and breaking of an electric circuit, of a governor-shaft formed with an internal bore or recess, an adjustable sleeve 8 in the recess or bore, a stem 4 projected through the sleeve 8, and connected to the governor, and expanding spring 9 on the stem, an adjustable contact-piece 6 arranged to contact with said stem, and suitable electrical conductors to energize the contact-piece, substantially as described.

7. The combination in a shut-off mechanism, of an electromagnet, a pivotally-supported combined armature and latch, the latch being formed with a projection 13, a lever *u* engaging the projection on the latch, a valve engaged by the lever, substantially as and for the purpose specified.

8. In a device for stopping engines, the combination of the main steam-pipe, a throttle-valve mounted therein, a sprocket-wheel on the stem of the throttle-valve, a piston-cylinder, a steam conduit-pipe leading from the main steam-pipe between the boiler and the throttle-valve and opening into the said cylinder, a valve interposed in said steam conduit-pipe, a lever *u* to hold said valve closed, a pivotally-supported latch to lock the lever in position, a lever *w* actuated by the lever *u* to lift the interposed valve, an armature movable with the latch, an electromagnet to operate the armature and move the latch to release the lever, a piston in the cylinder provided with a toothed piston-rod, gears meshing with the piston-rod, a sprocket-wheel on one of the gear-shafts, and a sprocket-chain connecting the latter-mentioned sprocket-wheel with the sprocket-wheel on the throttle-valve stem.

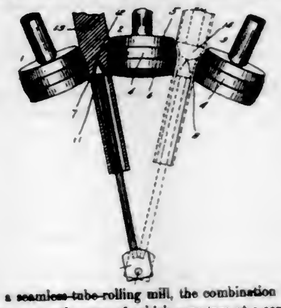
662,145. BATH-CABINET FRAME. ORIE C. DAUGHERTY, Cincinnati, Ohio, assignor to Ralph B. Goodrich, same place. Filed Dec. 20, 1899. Serial No. 740,956. (No model.)



Claim.—A frame for bath-cabinets and the like made up of sections of metal bars, each section having its ends adjacent each other and provided with projections and a coupling-sleeve embracing said ends and having its inner wall pressed down upon the top and around all sides of said projections to hold the ends against movement in the sleeve and the sleeve from movement thereon, substantially as shown and described.

662,146. MECHANISM FOR ROLLING. LEONARD D. DAVIS, Erie, Pa. Filed May 23, 1900. Serial No. 17,690. (No model.)

Claim.—1. In a seamless-tube-rolling mill, the combination with rolls forming two passes, the axes of which converge at a common point, of a mandrel pivoted at the point of convergence of the axes of the passes.



2. In a seamless-tube-rolling mill, the combination with three rolls forming two passes, the axes of which converge at a common point, and a mandrel pivoted at the point of convergence of the axes of the passes.

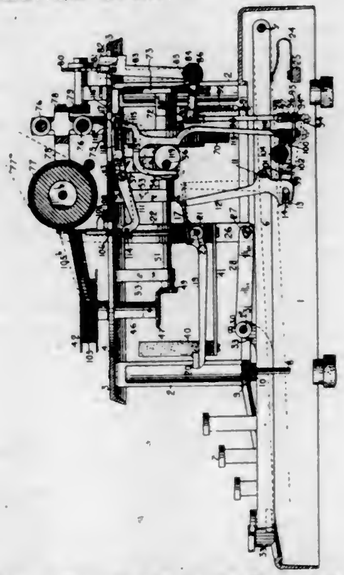
3. In a seamless-tube-rolling mill the combination with diagonally-acting rolls forming a plurality of passes, of a mandrel lying in one pass and movable into line with another pass.

4. In a seamless-tube-rolling mill, the combination with three diagonally-acting rolls forming two passes, the axes of which converge at a common point, and a mandrel pivoted at the point of convergence of the axes of the passes.

5. In a seamless-tube-rolling mill, the combination with rolls forming two passes, the axes of which converge at a common point, of a mandrel-rest pivoted at the point of convergence of the axes of the passes, said rest provided with a series of sockets spaced apart a distance equal to the angular distance between the axes of the passes.

6. In a seamless-tube-rolling mill, the combination with diagonally-acting rolls forming a plurality of passes, each pass having a converging entering portion and a diverging exit portion, of a movable mandrel adapted to lie in the diverging portion of one pass and to be moved to lie in the converging portion of another pass.

662,147. TYPE-WRITING MACHINE. CARL GABRIELSON, New York, N. Y., assignor to Jacob Feibel, same place. Filed Dec. 26, 1899. Serial No. 741,622. (No model.)



Claim.—1. In a visible-writing machine, the combination with a ribbon normally removed from and disclosing the printing-point, of means for automatically moving the ribbon crosswise variable distances over said printing-point, whereby the ribbon is used transversely of its length.

2. In a visible-writing machine, the combination with a ribbon normally removed from and disclosing the printing-point, of means for auto-

matically moving the ribbon crosswise variable distances over said printing-point during the operation of the character-keys one after another.

3. In a visible-writing machine, the combination with a ribbon normally removed from and disclosing the printing-point, of means for automatically moving the ribbon crosswise variable distances over said printing-point, whereby the ribbon is used transversely of its length, and means for moving said ribbon simultaneously in a lengthwise direction.

4. In a visible-type-writing machine, the combination with a platen, a series of types, a ribbon, and means for winding the same, of means for variably moving the ribbon to and away from the printing-point at each type impression in such a manner that the types follow a continuous wavy path determined by the ribbon-moving mechanism.

5. In a visible-type-writing machine, the combination with a carriage, means for propelling the same, a series of types, and a ribbon-winding mechanism, of means controlled by the ribbon-winding mechanism for moving the ribbon variably to and from the printing-point so that the ribbon is used both widthwise and lengthwise.

6. In a visible-type-writing machine, the combination with a platen, a series of types, and a ribbon-winding mechanism, of means for moving the ribbon to and from the printing-point and means for varying such movement automatically so as to cause the ribbon to be used widthwise as well as lengthwise, the operation of the last-mentioned means being independent of the carriage-return movements, so that the path marked by the types upon the ribbon is continuous whether long or short lines are being written on the paper.

7. In a visible-type-writing machine, the combination with a platen, a series of types, and a ribbon-winding mechanism, of means for holding the ribbon in a normal position which affords a view of the printing-point and for moving it antomatically varying distances from said normal position over the printing-point.

8. In a visible-type-writing machine, the combination with a platen, a series of types, and a ribbon-winding mechanism, of means for holding the ribbon in a normal position which affords a view of the printing-point and for antomatically moving it varying distances from said normal position over the printing-point.

9. In a visible-type-writing machine, the combination with a platen and a series of types, of a pair of ribbon-spools and winding means therefor, a ribbon-carrier arranged in proximity to the printing-point, means for moving the carrier to and from the printing-point, and means for varying the length of throw of the carrier during the operation of the types.

10. In a visible-type-writing machine, the combination with a platen and a series of types, of a pair of ribbon-spools and winding means therefor, said spools being arranged one on either side of the printing-point, a ribbon-carrier arranged between the spools in proximity to the printing-point, means for moving the carrier independently of the spools to and from the printing-point, and means for varying the length of throw of the carrier during the operation of the types.

11. In a type-writing machine, the combination with a platen and a series of types adapted to strike in front thereof, of a pair of ribbon-spools and winding means therefor, said spools being arranged one on either side of the printing-point, a ribbon-carrier arranged between the spools in proximity to the printing-point, means for moving the carrier vertically at each type impression so that the ribbon covers the printing-point, and means for antomatically varying the vertical movement of said carrier.

12. In a visible-type-writing machine, the combination with a platen, a series of types, a series of keys therefor, and a ribbon-winding mechanism, of means operated by the keys for moving the ribbon to and from the printing-point, and means controlled by said ribbon-winding mechanism for varying said to-and-fro movement of the ribbon.

13. In a type-writing machine, the combination with a carriage, a series of types, a series of keys therefor, a letter-spacing mechanism for said carriage including a universal bar operated by said keys, and a ribbon-winding mechanism, of means actuated by said universal bar for moving the ribbon to and from the printing-point, and means connected to said ribbon-winding mechanism for varying said to-and-fro movement of the ribbon.

14. In a visible-type-writing machine, the combination with ribbon-winding mechanism and ribbon-throwing mechanism which moves the ribbon from a normal position away from the printing-point to one covering the same, of a device constructed to have a step-by-step movement in a single rotary direction and to cause variations in the operation of the ribbon-throwing mechanism, so that the ribbon is moved to different working points and is used in widthwise as well as lengthwise direction.

15. In a visible-type-writing machine, the combination with ribbon-winding mechanism, of a ribbon-carrier, means for moving said carrier to and from the printing-point, and a device constructed to have a step-by-step movement in a rotary direction and connected to the said carrier-moving means and adapted to cause the latter to move said carrier variable distances.

16. In a visible-type-writing machine, the combination with a ribbon-carrier and means for moving said carrier to and from the printing-point, of a ribbon-winding mechanism and a controller operated thereby for causing said carrier-moving means to move said carrier variable distances from normal position.

17. In a visible-type-writing machine, the combination with ribbon-winding mechanism, of a lever adapted to move the ribbon to and away from the printing-point, and means for antomatically altering the throw of said lever so as to cause the ribbon to be used widthwise.

18. In a visible-type-writing machine, the combination with a lever adapted to move the ribbon to and away from the printing-point, of a ribbon-winding mechanism and a controller operated thereby for altering the throw of said lever so as to cause the ribbon to be used widthwise as well as lengthwise.

19. In a type-writing machine, the combination with ribbon-winding mechanism, of a lever provided with means for carrying the ribbon, an operating device for said lever, means for causing said operating device to engage said lever at different distances from the fulcrum of the latter, and means for giving the operating device uniform movements so as to cause the lever to move varying distances.

20. In a type-writing machine, the combination with a series of type-operating keys, of a universal-bar frame, a link connected thereto, a ribbon-throwing lever, and means for enabling said link to engage said lever at different distances from its fulcrum.

21. In a type-writing machine, the combination with ribbon-winding mechanism, including a shaft, of an eccentric on said shaft, the universal-bar frame of the type-operating and carriage-feeding mechanism, a link connected to said universal-bar frame and to said eccentric, a lever controlled by said link, and a ribbon-carrier connected to said lever.

22. In a type-writing machine, the combination with ribbon-winding mechanism, including a transverse shaft, of an eccentric on said shaft, a universal reciprocatory frame connected to the type-operating mechanism, a link connected to said universal frame and provided with a forked portion which engages said eccentric, a slotted lever, means upon said link for engaging the slot in said lever, and a ribbon-carrier connected to said lever.

23. In a type-writing machine, the combination with ribbon-winding mechanism, of a ribbon-throwing lever provided with a slot, a link engaging said slot and also pivoted to an operating device, said slot being curved concentrically to said pivot, and means for swinging said link upon said pivot and also for moving said link to cause vibrations of said lever.

24. In a type-writing machine, the combination with ribbon-winding mechanism, of a ribbon-throwing lever, a universal bar connected to the type-operating mechanism, and an automatically-varying connection from said universal bar to said lever, whereby the movement of said lever may be varied.

25. In a type-writing machine, the combination with ribbon-winding mechanism including a transversely-arranged winding-shaft, of a series of type-operating key-levers, a universal-bar frame arranged below said levers, a vertical link pivoted at its lower end to said universal-bar frame and provided with a forked portion, an eccentric upon said transverse shaft engaging said forked portion, a horizontal lever of the first order having a slotted rear arm with which the upper end of said link engages, and a vertically-arranged ribbon-carrier engaging the forward end of said lever.

26. In a type-writing machine, the combination with type-operating mechanism and ribbon-winding mechanism, of a universal-bar frame connected to said type-operating mechanism, a link adjustably connected to said universal-bar frame, and a ribbon-throwing device operated by said link.

27. In a type-writing machine, the combination with type-operating mechanism and ribbon-winding mechanism, of a universal-bar frame, a ribbon-throwing device positively connected thereto so as to be operated during the entire movement thereof, and carriage-feeding devices having a lost-motion connection to said universal-bar frame, so as to be operated only during the final portion of the initial movement of said universal-bar frame.

28. In a type-writing machine, the combination with type-operating mechanism and ribbon-winding mechanism, of a universal-bar frame, a ribbon-throwing device positively connected thereto so as to be operated during the entire movement thereof, and carriage-feeding devices having an adjustable lost-motion connection to said universal-bar frame, so as to be operated during as much of the final portion of the initial movement of said universal-bar frame as may be determined by said adjustment.

29. In a type-writing machine, the combination with a series of type-operating levers, of a universal-bar frame operated thereby, a link connected to said universal-bar frame, a ribbon-throwing device operated by said link, a second link also connected to said frame, and carriage-feeding devices adapted to be operated by said second link during only the final part of the downward motion of any key-lever.

30. In a type-writing machine, the combination with a series of type-operating levers, of a universal-bar frame operated thereby, a link adjustably connected to said universal-bar frame, a ribbon-throwing device operated by said link, a second link also adjustably connected to said frame, and carriage-feeding devices having a lost-motion connection to said universal-bar frame through said second link.

31. In a type-writing machine, the combination with a carriage and a series of type-operating levers, of a universal-bar frame operated thereby, a ribbon-throwing device connected thereto, a dog-rocker having an independent lost-motion connection to said universal-bar frame, a returning-spring for said dog-rocker, means for arresting said dog-rocker in its return movement before the arrest of said universal-bar frame, an independent spring for said universal-bar frame, and a carriage-escapement rack to engage the said dog-rocker.

32. In a type-writing machine, the combination with a carriage and a series of type-operating levers, of a universal-bar frame operated thereby, a ribbon-throwing device connected to said universal-bar frame, a dog-rocker having an independent lost-motion connection to said universal-bar frame, a carriage-escapement rack controlled by said dog-rocker, a returning-spring for said dog-rocker, means for arresting said dog-rocker in its return movement before the arrest of said universal-bar frame, and an independent returning-spring for said universal-bar frame arranged between said frame and said rocker.

33. In a type-writing machine, the combination of a series of key-levers, a vertical bell-crank pivoted to each key-lever and operatively connected to a type-bar, a fulcrum-rod common to all of said bell-cranks, a universal-bar frame pivoted upon said fulcrum-rod, a ribbon-throwing device connected to said universal-bar frame, and carriage-feeding devices also connected to said universal-bar frame.

34. In a type-writing machine, the combination with a platen, a series of types, means for moving the types to the platen, and means for shifting the types transversely of the platen, of a ribbon-winding mechanism and a ribbon-throwing mechanism, the latter including means for moving the ribbon from non-working to working position, and also including means for causing the ribbon to be used automatically in widthwise as well as lengthwise direction.

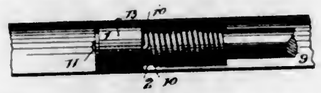
35. In a visible-writing machine, the combination with a ribbon normally removed from and disclosing the printing-point, of ribbon-moving means actuated by the character-keys and adapted to move the ribbon crosswise automatically variable distances over said printing-point.

36. In a visible-writing machine, the combination with a ribbon which normally stands away from and exposes the printing-point, of automatically-operating means for causing the ribbon to move edgewise to cause different transverse portions thereof to cover the printing-point and to return to a position uncovering said point at each action of the character-keys.

37. In a type-writing machine, the combination with a ribbon-carrier of automatically-operating means for moving said carrier at each key-stroke from a uniform normal position variable distances across the printing-point

38. In a type-writing machine, the combination with a series of types and a ribbon-carrier of automatically-operating means for moving said carrier at successive key-strokes gradually increasing and decreasing distances across the printing-point from a uniform normal position, said carrier returning to said normal position after each type impression.

662,148. SPRING SHADE-ROLLER. EDMUND P. HARTSHORN, Newark, N. J., assignor to the Stewart Hartshorn Company, of New Jersey. Filed June 22, 1900. Serial No. 21,139. (No model.)



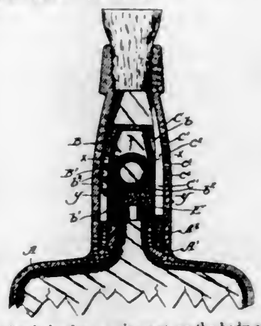
Claim.—1. In a spring shade-roller, a bung for the end of the spindle, consisting of a hollow metal cup, having a bottom and sides, within which the end of the spindle rests, and adapted to sustain the coils of the spring; and a wooden block arranged and adapted to receive and hold the metal cup, substantially as described.

2. In a spring shade-roller, a bung for the end of the spindle, consisting of the metal cup 2 having the studs 5 and prongs 7, and adapted to receive the end of the spindle and sustain the end coils of the spring, and the wooden block 1 provided with a central hole and side recesses to receive and engage with the prong 7 and studs 5, and adapted to receive and hold the cup 2, substantially as described.

3. In a spring shade-roller, in combination, a hollow metal cup having a bottom and sides, adapted to hold the end of the spindle and sustain the coils of the spring; a wooden block arranged to receive the cup and be secured within the roller; spring-bearing spindle resting on the bottom of the cup; and spring having its end coils encircling the outside of the cup, substantially as described.

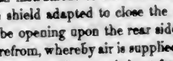
4. In a spring shade-roller, in combination, the hollow metal cup 2, having a bottom and sides; wooden block 1 secured within the roller, adapted to secure and hold the cup; spindle 9 resting on the bottom of the cup; and spring 10 encircling the outside of the cup, and attached to the block 1, substantially as described.

662,149. BOTTLE. CARL F. KIEK, New York, N. Y. Filed Aug. 9, 1900. Serial No. 26,376. (No model.)



Claim.—A bottle having a valve-seat on the body adjacent to the neck and a neck in two separately-produced pieces which may be all of glass, arranged one within the other the innermost perforated laterally, on many sides, and the outermost perforated at the points c' c^2, and equipped with a guard-ridge C' forming a longitudinal passage connecting such perforations, in combination with a floatable valve and a loosely-connected weight, all arranged for joint operation substantially as herein specified.

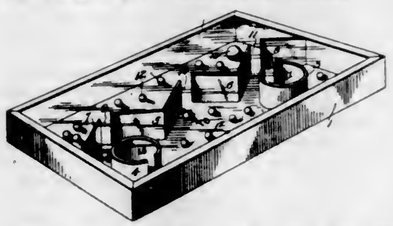
662,150. THROAT-SHIELD. WILLIAM W. MCCORMICK, Santa Rosa, Cal. Filed Mar. 15, 1900. Serial No. 8,716. (No model.)



Claim.—1. In an instrument of the character specified, the combination with a suitable shield adapted to close the entrance to the thorax of the patient, of a tube opening upon the rear side of said shield and extending forwardly therefrom, whereby air is supplied to the patient through said tube and hemorrhage from the nose is kept from entering the thorax; substantially as described.

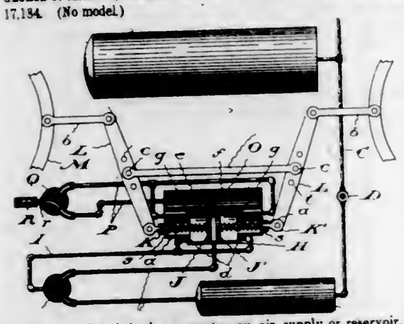
2. In an instrument of the character specified, the combination with a shield adapted to close the entrance to the thorax of the patient, of a drainage-pipe connected to the forward surface of the said shield and adapted to collect and deliver the hemorrhage beyond the mouth of the patient, and a suitable tube opening upon the rear side of the said shield and extending therefrom to a position forward and out of the path of the hemorrhage, said shield having a raised portion, or recess, in its rear surface to receive the said second-named tube; substantially as described.

662,151. GAME APPARATUS. ISAAC O. NIBBLEY, Middletown, Pa. Filed Sept. 20, 1900. Serial No. 30,586. (No model.)



Claim.—A game apparatus comprising a box or tray, pens arranged therein and provided with entrance openings, the opening of one pen being diametrically opposite the other and of greater area, angular baffle-plates arranged in a horizontal row to one side of a straight line drawn between said plates and the pens and spaced apart to form openings or passages between them, said plates being arranged so as to form pockets having inclined walls, and movable bodies of different diameters, substantially as set forth.

662,152. AIR-BRAKE. WILLIAM K. OMICK, Pontiac, Mich., and GEORGE P. MAGANN, Toronto, Canada. Filed May 17, 1900. Serial No. 17,134. (No model.)



Claim.—1. In air-brake apparatus an air supply or reservoir, in combination with a substantially-closed brake-cylinder; a pair of pistons moving therein; means for yielding pressing the said pistons toward each other; a pipe extending from the interior of the cylinder between the pistons to the reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the pistons; means for placing either the reservoir or the exhaust-pipe in communicatiou with the interior of the cylinder between the pistons; and levers pivoted at one end to the said pistons and at the other to the connections to the brake-shoes; and a link pivoted to said levers at intermediate positions forming their fulcrums and making them levers of the first order, substantially as and for the purpose specified.

2. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a pair of pistons moving therein; means for yieldingly pressing the said pistons toward each other; a pipe extending from the interior of the cylinder between the pistons to the reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the pistons; and means for placing either the reservoir or the exhaust-pipe in communication with the interior of the cylinder between the pistons, substantially as and for the purpose specified.

3. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a pair of pistons moving therein; means for yieldingly pressing the said pistons toward each other; a pipe extending from the interior of the cylinder between the pistons to the reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the pistons; and a three-way valve with which the said pipes are connected whereby compressed air may be admitted between the pistons or exhausted thence into the cylinder behind them, substantially as and for the purpose specified.

4. In air-brake apparatus an air supply or reservoir in combination with a brake-cylinder; a piston moving therein; a supplemental reservoir connected with the interior of the cylinder in front of the piston; a pipe from the air supply or reservoir similarly connected; a valve between the cylinder and said supplemental reservoir lifting only to permit air to pass from the cylinder to the said supplemental reservoir; a pipe leading from the said supplemental reservoir; a whistle connected to the pipe; and a valve in the said pipe for controlling the sounding of the whistle, substantially as and for the purpose specified.

5. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a piston moving therein; a supplemental reservoir connected with the interior of the cylinder in front of the piston; a pipe from the air supply or reservoir similarly connected; a valve between the cylinder and said supplemental reservoir lifting only to permit air to pass from the cylinder to the said supplemental reservoir; a whistle; means for placing the whistle in communication with the said supplemental reservoir; means for placing the interior of the cylinder behind the piston in communication with the said supplemental reservoir; and means for cutting off the supply of air from the cylinder in front of the piston and permitting the air therein to exhaust, substantially as and for the purpose specified.

6. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a piston moving therein; a supplemental reservoir connected with the interior of the cylinder in front of the piston; a pipe from the air supply or reservoir similarly connected; a valve between the cylinder and the said supplemental reservoir lifting only to permit air to pass from the cylinder to the said supplemental reservoir; means for cutting off the supply of air to the cylinder in front of the piston and permitting the air to exhaust; and manually-controlled means for admitting air from the said supplemental reservoir to the interior of the cylinder behind the piston, substantially as and for the purpose specified.

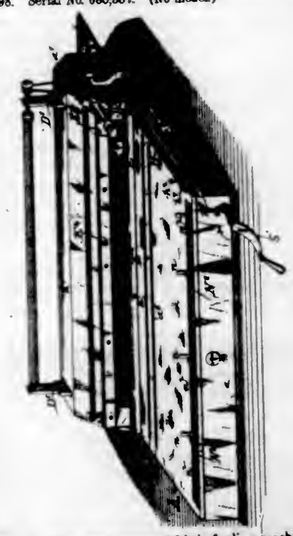
7. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a pair of pistons moving therein; a pipe extending from the interior of the cylinder between the pistons to the air supply or reservoir; a three-way valve located in said pipe whereby the space between the pistons may be put in communication with the air supply or reservoir or the exhaust; a supplemental reservoir connected with the interior of the cylinder between the pistons; a valve between the cylinder and the said supplemental reservoir lifting only to permit air to pass from the cylinder to the said supplemental reservoir; a pipe leading from the said supplemental reservoir to the interior of the cylinder behind the pistons and a valve in the said pipe, substantially as and for the purpose specified.

8. In air-brake apparatus an air supply or reservoir in combination with a substantially-closed brake-cylinder; a piston moving therein; a spring tending to maintain the piston in its normal position; a pipe extending from the interior of the cylinder to the air supply or reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the piston; and means for placing either the air supply or reservoir or the exhaust-pipe in communication with the interior of the cylinder in front of the piston, substantially as and for the purpose specified.

9. In air-brake apparatus an air supply or reservoir, in combination with a substantially-closed brake-cylinder; a peir of pistons moving therein; a pipe extending from the interior of the cylinder between the pistons to the reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the pistons; means for placing either the reservoir or the exhaust-pipe in communication with the interior of the cylinder between the pistons; and levers pivoted at one end to the said pistons and at the other to the connections to the brake-shoes; substantially as and for the purpose specified.

10. In air-brake apparatus an air supply or reservoir, in combination with a substantially-closed brake-cylinder; a piston moving therein; a pipe extending from the interior of the cylinder to the air supply or reservoir; an exhaust-pipe communicating with the interior of the cylinder behind the piston; and means for placing either the air supply or reservoir or the exhaust-pipe in communication with the interior of the cylinder in front of the piston, substantially as and for the purpose specified.

662,158. APPARATUS FOR MEASURING TEXTILES AND RECORDING SALES, &c. EMIL SAUERMILCH, New York, N. Y. Filed May 11, 1898. Serial No. 680,367. (No model.)



Claim.—1. The combination of fabric-feeding mechanism, a fabric-supporting plate or surface, a movable straight-edge, normally supported at a suitable distance above and away from the said plate or surface, a cutting-knife mounted on a guide between the normal raised position of the straight-edge and the said plate or surface, and means for lowering the straight-edge, so as to clear the cutting-knife and move it down upon the said plate or surface, alongside the cutting-knife, substantially as set forth.

2. The combination of a fabric-feeding mechanism, a casing provided with a fabric-supporting plate or surface, a straight-edge, between which and the supporting plate or surface the fabric to be cut is fed, toggle-levers pivoted to the casing and constructed so as to support the straight-edge, normally at a suitable distance above said plate or surface, and a cutting-knife mounted on a guide between the normal raised position of the straight-edge and the said plate or surface, said toggle-levers being adapted to lower the straight-edge, so as to clear the cutting-knife and move it down upon the said plate or surface, alongside the cutting-knife, substantially as set forth.

3. The combination, with fabric-feeding mechanism, of a straight yard-scale provided with alternating rows of holes, a stop-pin adapted to be inserted into either of said holes, a sliding indicator, a screw-spindle parallel with said yard-scale and means for turning said screw-spindle for moving the indicator along and parallel with said scale, simultaneously with the motion of the feed-rolls, substantially as set forth.

4. The combination, with fabric-feeding mechanism, of a straight yard-scale provided with a series of holes, a stop-pin adapted to be inserted into one of said holes, a sliding indicator, a spring-actuated shank on which said indicator is mounted, a half-nut on said shank, a screw-spindle with which the threads of said half-nut are adapted to mesh, means for rotating said screw-spindle, and a cam-lever pivoted to said shank for moving the half-nut out of engagement with the screw-spindle, substantially as set forth.

5. The combination, with a rotary shaft provided with a worm, a roller having a worm-wheel meshing with said worm, a spring-actuated roller, a result-sheet, and means for guiding the result-sheet to said rollers, said result-sheet being provided with rows of figures indicating the price for any given number of yards of fabric, of a screw-spindle, gearing connecting the latter and the said shaft, an indicator adapted to be moved by and parallel with said screw-spindle, and a stop against which the indicator abuts and arrests the motion of the spindle, shaft and result-sheet, substantially as set forth.

6. The combination, with a casing provided with two openings, and price-strips, one arranged at one side of each of said openings and graduated so as to indicate the price per yard for odd and even numbers, respectively, of a result-sheet provided on both sides with a column of figures and rows of figures arranged at right angles to said column, the columns of figures representing the number of yards and fractions thereof which may be measured off, and the rows of figures on one side indicating the products of a certain number of yards, shown in the said column at the end of the row, multiplied by an uneven price per yard, as shown on the corresponding price-strip, and the rows of figures on the opposite side, indicating, in the same way, products of a certain number of yards multiplied by an even price per yard, substantially as set forth.

7. The combination, with mechanism for measuring textile fabrics, of a result-sheet moving in connection with said mechanism, said result-sheet being applied to an unwinding spring-roller, a winding-up roller and guide-rollers, mechanism for actuating the result-sheet simultaneously with the measuring mechanism, a clutch device for starting or stopping the actuating mechanism, and mechanism for automatically returning the result-sheet to its initial or starting position, when the actuating mechanism is stopped, substantially as set forth.

8. The combination, with mechanism for measuring textile fabrics, of a result-sheet provided with rows of figures for indicating the computed price of determined lengths of fabric, means for imparting motion to said result-sheet simultaneously with the feed motion imparted to the fabric, means for arresting the result-sheet when the required quantity is measured off, and means for returning the result-sheet to its initial position after the computed price has been read off, substantially as set forth.

9. In a machine for measuring textile fabrics and computing the quantity sold, the combination of a result-sheet provided with rows of figures at opposite sides, indicating the total price of the quantity measured off, an unwinding spring-roller to which one end of said result-sheet is attached, a winding-up roller to which the other end is attached, guide-rollers for said result-sheet, means for imparting motion to the winding-up roller, means for arresting the motion of the return-sheet after the required length of fabric is measured off and means for automatically returning the result-sheet to its initial or starting position on the unwinding and winding-up rollers, substantially as set forth.

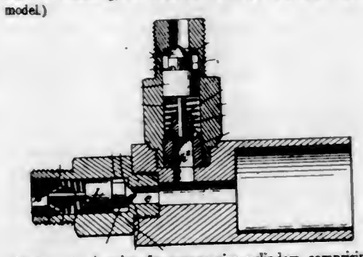
10. The combination, with mechanism for measuring determined quantities of textile fabrics and mechanism for computing the price of the fabric measured off, of a registering mechanism for the total value of sales made in a certain time and the yards cut off in the same time, said registering mechanism consisting of registering-disks, means for rotating the same simultaneously with the measuring and computing mechanisms, and devices for calling the required sets of registering-disks into action, substantially as set forth.

11. The combination, of means for measuring off textile fabrics, means for computing the price of the same, means for registering the total value of the sales made in a certain time and number of yards cut off in same time, said registering mechanism consisting of registering-disks, gear-wheels for actuating the same, adjustable sleeves provided with engaging teeth for calling the different sets of registering-disks into action, and a transmitting-shaft for imparting motion to said sleeves, substantially as set forth.

12. In apparatus for measuring textile fabrics and computing the price of the same, a registering mechanism for registering the total amount of sales, consisting of a number of registering-disks, intermeshing gear-wheels for rotating the same, check-springs for preventing the overrotation of said registering-disks, adjustable sleeves provided with teeth for engaging the required sets of registering-disks, a rotary shaft for imparting motion to said sleeves, and handles for setting the sleeves along a stationary price-strip, substantially as set forth.

13. In apparatus for measuring textile fabrics and computing the price of the same, a result-sheet provided on both sides with a column of figures located at one edge and rows of figures arranged at right angles to and in parallel columns with said column, the columns of figures progressively representing the number of yards and fractions thereof, which may be measured off, and the rows of figures on one side indicating the products of a certain number of yards, shown in the said column at the end of the row, multiplied by an uneven price per yard, and the rows of figures on the opposite side indicating, in the same way, products of a certain number of yards multiplied by an even price per yard, substantially as set forth.

662,154. VALVE FOR COMPRESSION-ENGINES. HENRY J. SCHMICK, Hamburg, Pa. Filed Nov. 24, 1899. Serial No. 738,215. (No model.)



Claim.—1. A valve for compression-cylinders, comprising a cage having a screw-threaded extension at each end, a cylindrical chamber, and a valve-seat at one end thereof; in combination with a valve having a cylindrical body of greater diameter than the valve, provided with passages extending through the body from end to end, a valve-stem, and a plug in the opposite end of the cage provided with a central passage for the valve-stem and passage for air or gas, and a spring for returning the valve to its seat.

2. A valve for compression-cylinders, comprising a cage having a screw-threaded extension at each end, a cylindrical chamber, and a valve-seat at one end thereof; in combination with a valve having a conical end, a cylindrical body the diameter of the chamber in the cage and having passages extending through the body from end to end around the valve, a valve-stem, and a plug in the opposite end provided with a central passage for the valve-stem, and passages for air or gas, and a spring for returning the valve to its seat.

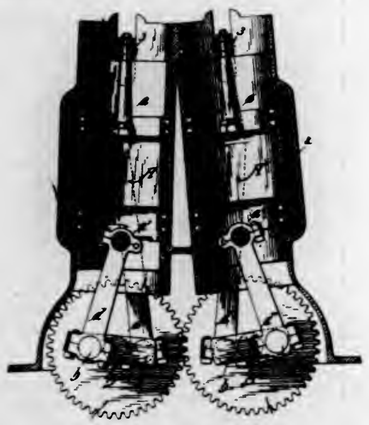
3. A valve for compression-cylinders, comprising a cage having a screw-threaded extension at each end, a cylindrical chamber, and a valve-seat at one end thereof; in combination with a valve having a cylindrical body the diameter of the chamber in the cage and having passages through the body around the valve and extending from end to end of the body, a valve-stem, and a plug in the opposite end of the cage provided with a central passage for the valve-stem, an air or gas chamber in the outer end of the plug, passages through the plug communicating with said chamber and with the valve-chamber, and a spring for returning the valve to its seat.

4. A valve for compression-cylinders, comprising a cage having a screw-threaded extension at each end, a cylindrical chamber, and a valve-seat at one end thereof; in combination with a valve having a cylindrical body of greater diameter than the valve and provided with air-passages extending through said body from end to end and into the valve forming a shoulder in the valve at one end of each passage, and suitable air-passages in the valve-cage.

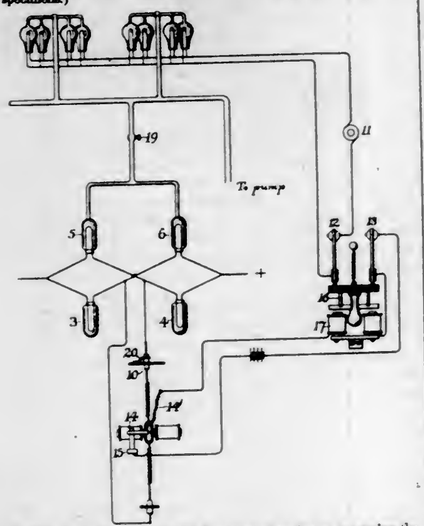
662,155. MULTIPLE-CYLINDER EXPLOSIVE-ENGINE. ALFRED J. SIGNOR, Elkhart, Ind. Filed Nov. 18, 1899. Serial No. 737,509. (No model.)

Claim.—In an explosive-engine, cylinders arranged side by side, said cylinders being rigidly connected, duplicate pistons in each cylinder the explosion taking place simultaneously in said cylinders, a crank-shaft connected to each piston and gearing between said crank-shafts, substantially as described.

662,155.



662,156. PROCESS OF GAGING HIGH VACUUMS. JOHN WARNE, Hartford, Conn. Filed June 4, 1900. Serial No. 18,954. (No specimens.)



Claim.—1. The herein-described method of gaging or measuring the tension of a confined body of gas consisting in measuring the resistance of a conductor while heated in the gas.

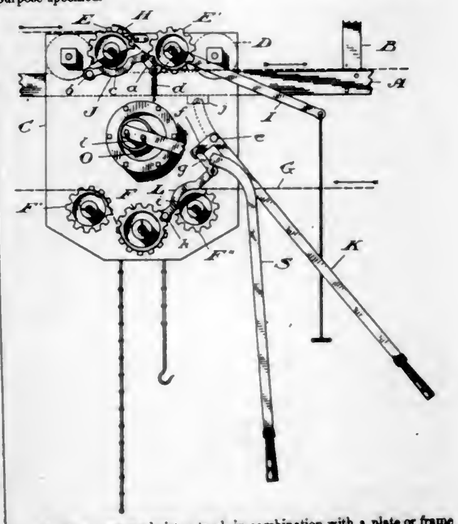
2. The herein-described method of gaging or measuring the degree of vacuum of a chamber, consisting in electrically heating a conductor therein and measuring the electrical resistance of said conductor while heated.

3. The method of standardizing the vacua of incandescent lamps consisting in gaging the resistance of the filaments while heated during the exhaustion of the lamp-bulb.

4. The method of gaging the tension of a confined body of gas consisting in passing an electric current through a heated conductor in the body of gas and measuring the electrical resistance of said conductor.

662,157. CANNERY-HOIST. JOHN C. WEST, Simcoe, Canada. Filed May 28, 1900. Serial No. 18,348. (No model.)

Claim.—1. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; a sprocket-wheel engaging the lower portion of the chain; and means for holding either of the sprockets from rotating, substantially as and for the purpose specified.



2. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; a sprocket-wheel engaging the lower portion of the chain; means for securely holding the said chain in engagement with the said sprocket-wheels; and means for holding either of the sprockets from rotating, substantially as and for the purpose specified.

3. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; an idler adapted to hold the chain in engagement with the said sprocket-wheel; a sprocket-wheel engaging the lower portion of the chain; an idler adapted to retain the chain in engagement with the said sprocket; and means for holding either of the said sprockets from rotating or releasing the same, substantially as and for the purpose specified.

4. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; an idler adapted to hold the chain in engagement with the said sprocket-wheel; a sprocket-wheel engaging the lower portion of the chain; an idler adapted to retain the chain in engagement with the said sprocket; a friction-drum formed on or secured to each sprocket-wheel; a brake-lever pivoted on the frame in proximity to each drum; and levers pivoted on the frame and adapted to operate the said brake-levers, substantially as and for the purpose specified.

5. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; an idler adapted to hold the chain in engagement with the said sprocket-wheel; a sprocket-wheel engaging the lower portion of the chain; an idler adapted to retain the chain in engagement with the said sprocket; means for holding the first-mentioned sprocket-wheel from rotating or releasing the same; a lever pivoted on the frame; a brake-shoe carried by the said lever and adapted to engage the said track; and means operated by the said lever for stopping the rotation of the sprocket-wheel engaging the lower side of the chain when the brake-shoe is released from the track and for releasing it when the brake is so engaged, substantially as and for the purpose specified.

6. As a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the upper portion of the chain; an idler adapted to hold the chain in engagement with the said sprocket-wheel; a sprocket-wheel engaging the lower portion of the chain; an idler adapted to retain the chain in engagement with the said sprocket; means for holding the first-mentioned sprocket-wheel from rotating or releasing the same; a lever pivoted on the frame; a brake-shoe carried by the said lever and adapted to engage the said track; a friction-drum formed on or secured to the sprocket-wheel engaging the lower side of the chain; a brake-lever pivoted on the frame in proximity to the drum and means whereby when the lever is operated to press the brake-shoe against the track the brake-lever is raised from the drum, and vice versa, substantially as and for the purpose specified.

7. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; a friction-pinion secured to the said axle behind the plate; a friction-wheel having its shaft carried by bearings vertically movable on the plate; a sprocket-wheel secured to the said friction-wheel; and means for moving the said bearings to move the friction-wheel into or out of engagement with the friction-pinion, substantially as and for the purpose specified.

8. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; means for retaining the chain in engagement with the said sprocket-wheel; a friction-pinion secured to the said axle behind the plate; a friction-wheel having its shaft carried by bearings vertically movable on the plate; a sprocket-wheel secured to the said friction-wheel; and means for moving the said bearings to move the friction-wheel into or out of engagement with the friction-pinion, substantially as and for the purpose specified.

9. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; a friction-pinion secured to the said axle behind the plate; a friction-wheel having its shaft carried by bearings vertically movable on the plate; a sprocket-wheel secured to the said friction-wheel; a stationary brake located above the said friction-wheel; and means for moving the said bearings to press the friction-wheel against the friction-pinion or the brake as desired, substantially as and for the purpose specified.

10. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; a friction-pinion secured to the said axle behind the plate; a friction-wheel located above the said friction-pinion; a sprocket-wheel secured thereto; a shaft on which the said wheel is journaled; an eccentric carrying the said shaft and journaled in the frame; and a lever secured to the eccentric by which it may be rotated, substantially as and for the purpose specified.

11. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; means for retaining the chain in engagement with the said sprocket-wheel; a friction-pinion secured to the said axle behind the plate; a friction-wheel located above the said friction-pinion; a sprocket-wheel secured thereto; a shaft on which the said wheel is journaled; an eccentric carrying the said shaft and journaled in the frame; a lever secured to the eccentric by which it may be rotated; and a stationary brake located above the said friction-wheel, substantially as and for the purpose specified.

12. As a cannery-hoist, a track in combination with a plate or frame adapted to move thereon; an endless sprocket-chain suitably carried and driven parallel to the track and in proximity to the plate; a sprocket-wheel engaging the said chain and secured to an axle journaled in the plate; a friction-pinion secured to the said axle behind the plate; a friction-wheel located above the said friction-pinion; a sprocket-wheel secured thereto; a shaft on which the said wheel is journaled; an eccentric carrying the said shaft and journaled in the frame; a lever secured to the eccentric by which it may be rotated; a link in which is journaled the end of the shaft of the friction-pinion; and an eccentric similar to the aforesaid eccentric journaled in the upper part of the link and having the rear end of the friction-wheel shaft secured thereto, substantially as and for the purpose specified.

13. As a cannery-hoist, the track A in combination with the plate or frame C adapted to move on the said track; the endless sprocket-chain G; the sprocket-wheel F and the friction-pinion M secured to the same axle; the sprocket-wheel F''; the lever K pivoted at *e;* the brake-shoe *j* carried by the lever; means operated by the lever for stopping the rotation of the sprocket-wheel F'' when the brake-shoe *e* is released from the track; the friction-wheel N journaled on the shaft J; the sprocket-wheel O secured thereto; and means for moving the shaft vertically in the frame, substantially as and for the purpose specified.

14. In a cannery-hoist, the track A in combination with the plate or frame C adapted to move on the said track; the endless sprocket-chain G; the sprocket-wheels F, F''; the friction-drum *i* secured to the sprocket-wheel F''; the brake-lever L pivoted at *h;* the forked lever K pivoted at *e;* the brake-shoe *j* carried by the lever; the arm *f* of the lever and the link *g* pivotally connecting the arm *f* and the brake-lever L, substantially as and for the purpose specified.

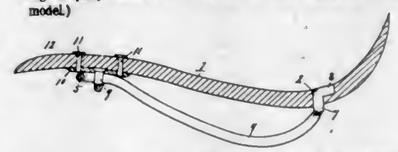
15. In a cannery-hoist, the track A in combination with the plate or frame C adapted to move on the said track; the endless sprocket-chain G; the sprocket-wheels F, F''; the friction-drum *i* secured to the sprocket-wheel F''; the brake-lever L pivoted at *h;* the forked lever K pivoted at *e;* the brake-shoe *j* carried by the lever; the arm *f* of the lever; the link *g* pivotally connecting the arm *f* and the brake-lever L; the sprocket-wheels E, E'; the friction-drum *c* secured to the sprocket-wheel E; the L-shaped lever I pivoted on the frame; the brake-lever J pivoted at *b;* and the link *g* pivotally connecting the lever and the brake-lever, substantially as and for the purpose specified.

16. In a cannery-hoist, the track A in combination with the plate or frame C adapted to move on the said track; the endless sprocket-chain G; the sprocket-wheels F, F''; the friction-drum *i* secured to the sprocket-wheel F''; the brake-lever L pivoted at *h;* the forked lever K pivoted at *e;* the brake-shoe *j* carried by the lever; the arm *f* of the lever and the link *g* pivotally connecting the arm *f* of the brake-lever L; the sprocket-wheels E, E'; the friction-drum *c* secured to the sprocket-wheel E; the L-shaped lever I pivoted on the frame; the brake-lever J pivoted at *b;* the link *g* pivotally connecting the lever and the brake-lever; and the coil-spring *d*, substantially as and for the purpose specified.

17. In a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track in combination with an endless sprocket suitably carried and driven parallel to and in proximity to the track; means for rigidly connecting either side of the chain with the frame so that the latter may be moved in either direction; a brake adapted to engage the track to hold the frame stationary; a sprocket-wheel adapted to engage a lifting-chain and means controlled by the operator for rotating the said sprocket-wheel from the said endless chain when the frame is stationary, substantially as and for the purpose specified.

18. In a cannery-hoist, a track in combination with a plate or frame adapted to move on the said track in combination with an endless sprocket suitably carried and driven parallel to and in proximity to the track; means for rigidly connecting either side of the chain with the frame so that the latter may be moved in either direction; a brake adapted to engage the track to hold the frame stationary; a sprocket-wheel adapted to engage a lifting-chain; means controlled by the operator for rotating the said sprocket-wheel from the said endless chain when the frame is stationary; and means for holding the said sprocket-wheel when it is not being driven by the endless chain, substantially as and for the purpose specified.

662,158. BICYCLE-SADDLE. BENJAMIN F. WHEELER, Detroit, Mich., assignor, by mesne assignments, to the Wheeler Manufacturing Company, same place. Filed Jan. 15, 1900. Serial No. 1,434. (No model.)



Claim.—1. In a bicycle-saddle, the combination of a base having apertures therethrough and recesses in its upper face communicating with said apertures, a spring having lateral bearing portions engaging the under side of the base and provided with feet portions having right-angled bends adapted to pass through said apertures and lie in said recesses to lock the spring to the saddle-base.

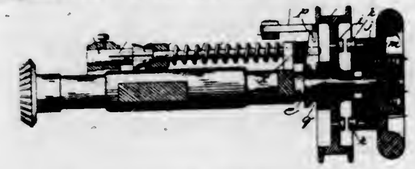
2. In a bicycle-saddle, the combination of a saddle tree or base having apertures therethrough to receive the ends of a spring, a spring whose forward end supports the pommel of the saddle and whose rear end has a bearing on the under face of the tree and is provided with angular portions which pass through said apertures in said tree and engage the upper surface thereof to lock the rear end of the spring directly to said tree.

3. In a bicycle-saddle, the combination of a saddletree apertured to permit the passage of the ends of a spring therethrough, a spring having bearing portions adapted to lie upon the under face of the tree and having angular feet portions adapted to pass through the apertures in said tree and engage the upper face thereof to lock the spring thereto.

662,159. DRIVING MEANS FOR KNITTING OR LIKE MACHINES. FRANK WILCOKE, Norristown, Pa. Filed Aug. 4, 1900. Serial No. 25,915. (No model.)

Claim.—1. In combination, in a clutch, the clutch wheel or block

fixed to the shaft, the loose clutch part, the friction members carried by the fixed clutch-block one of which members may have rotary movement independent of the clutch-block, and the engaging parts on said loose friction member and on the loose clutch part, substantially as described.



2. A clutch comprising a shaft, a fixed and a loose part thereon, and the two friction members between them for communicating the movement of one to the other of said parts with means for adjusting the pressure between the friction members, substantially as described.

3. A driving mechanism consisting of a shaft, a bearing therefor, a loose pulley adjacent to the bearing and outside thereof and having clutch parts and a hand-wheel attached rigidly to the end of the shaft and adjustable frictional connections between the loose pulley and fixed hand-wheel, said frictional connection including clutch parts, substantially as described.

4. In combination, the shaft, a loosely-mounted pulley and a fixed hand wheel on the said shaft, and a frictional ring interposed between the pulley and hand-wheel having adjustable means, accessible from the outer end of the driving-shaft, said adjustable means passing through the hand-wheel, substantially as described.

5. A driving device consisting of the shaft, a pulley loosely mounted on the shaft, the hand-wheel fixed to the shaft, frictional connections between the two and a shipping device to move the pulley longitudinally on the shaft into and out of engagement with the friction connection, substantially as described.

6. A clutch comprising a clutch-block, a friction-ring carried thereby to rotate constantly in unison therewith, a ring carried loosely by the block and adapted to impart movement thereto, means for adjusting the pressure between the rings and a clutch part to engage the loose ring, substantially as described.

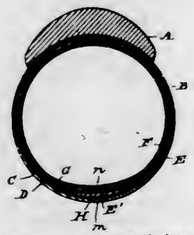
7. In combination, the clutch-block, a ring carried thereby to rotate in unison therewith, a loose friction-ring between the first ring and the clutch-block, a clutch part having means for engaging the loose ring and the screws for adjusting the first ring extending longitudinally of the shaft and accessible at the face of the clutch-block.

8. In combination, the shaft, the clutch members, a fixed and loose friction-ring carried by one of the members to communicate the motion from one member to the other through parts on the loose ring engaging parts on the opposite member, substantially as described.

9. In combination, a wheel or block, an adjustable friction member carried thereby to rotate in unison therewith a loose friction member engaging said adjustable member and carried by the wheel or block and a part to coact with the said loose member, substantially as described.

10. A clutch comprising the fixed and loose parts, a loose friction member to transmit movement from one to the other, means for regulating the pressure between said friction member and an opposing friction-surface on one of the parts and engaging parts between the said loose friction member and the other part of the clutch, substantially as described.

662,160. **NON-PUNCTURABLE PNEUMATIC TIRE.** EDGER L. ALEXANDER and SAMUEL B. ALEXANDER, Indianapolis, Ind. Filed Aug. 11, 1900. Serial No. 26,607. (No model.)

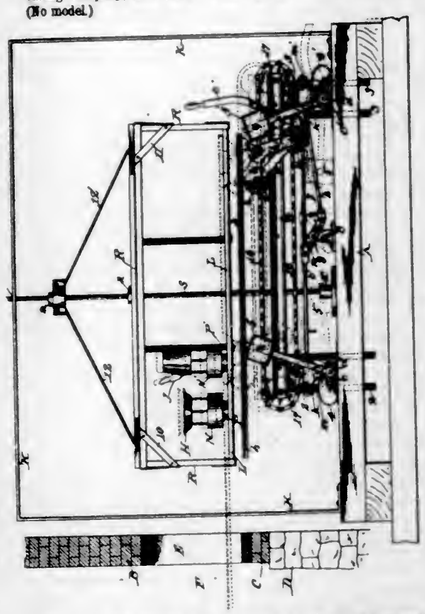


Claim.—1. In a pneumatic tire having the inner and the outer layers of fabric arranged concentrically in cross-section and having the puncture-proof strip between said layers, the combination with said strip, of the layer of rubber extending only around the upper and side portions of said tire between said layers of fabric and having its edges extending over the upper sides of the edges of said strip whereby the edges of said strip are pressed down against the outer one of said layers of fabric, and the strip of rubber extending along the central portion of said strip whereby the same is pressed up against the inner one of said layers of fabric, substantially as and for the purposes shown and described.

2. In a pneumatic tire having the inner and the outer layers of fabric arranged concentrically in cross-section and having the puncture-proof strip provided with the perforations near the edges thereof, the combination of the layer of rubber extending only around the upper and side portions of said tire between said layers of fabric and having its edges extending over the upper sides of the edges of said strip and over said perforations whereby the edges of said strip are separated from said inner layer of fabric and pressed against said outer layer of fabric, and the strip of rubber having the thick central portion bearing against the under side of said puncture-proof strip and pressing the same up against said inner layer of fabric and supported by said outer layer of fabric and having its edges extending to and through said perforations and connected securely to the edges of said layer of rubber that extend over the upper edges of said puncture-proof strip, substantially as and for the purposes shown and described.

3. The herein-described puncture-proof armor for pneumatic tires, the same consisting of the flexible continuous narrow strip H, the elastically-flexible strip E' at the under side of said strip H, and approximately the same in width, and the elastically-flexible layer E extending from the upper side of one edge of said strip H outwardly and upwardly and down to the upper side of the opposite edge of said strip and attached thereto, and a layer at each side of said formation, substantially as and for the purposes shown and described.

662,161. **APPARATUS FOR SUPPORTING AND CARRYING INTO OR WITHDRAWING FROM OVENS ARTICLES TO BE FIRED OR BURNED.** EDWARD W. BALL, LOUIS E. VACHERON, and FRANCIS H. LOCK, New York, N. Y., assignors to the Lalance & Grosjean Manufacturing Company, same place. Filed Feb. 20, 1900. Serial No. 5,903. (No model.)



Claim.—1. For moving articles toward, in, out of, and away from ovens or furnaces, the combination of a set of movable parallel supporter-bars and means to horizontally rotate the same and their loads into and out of alinement with the door of the oven, a vertically and horizontally movable fork provided with a set of supporting-fingers to rise vertically past the said supporter-bars and lift their load, and movable horizontally into and out of the oven and downwardly to restore their load to said supporter-bars and means for producing such vertical and horizontal movements substantially as and for the purposes described.

2. For moving articles toward, in, out of, and away from ovens or furnaces a pair of parallel supporter-bars carrying such articles, means to swing said supporter-bars and their load horizontally into alinement with the door of such oven or furnace, a fork having a pair of fingers, means to elevate said fingers vertically past and above said supporter-bars, and so lift said load, and means to move said fork and fingers so loaded horizontally forward into the oven; and backward out of it, means to depress said fingers below said supporter-bars to restore said load to the latter and means to swing back said supporter-bars and their load to the point of beginning, substantially as and for the purposes described.

3. The combination of a horizontally-rotating rack or carrier having supporter-bars, with a vertically and horizontally movable fork having fingers, said bars and fingers being mutually interlocated, substantially as and for the purposes described.

4. The combination of a forked carrier having fingers *b b'* and means to move the same backward and forward horizontally and also means to move the same vertically, and a horizontal swinging rack having two pairs of supporter-bars L L' and L^2 L^2, substantially as and for the purposes described.

5. The combination of a horizontally-rotating rack or carrier having a set of supporter-bars with a vertically and horizontally movable fork having a set of fingers, substantially as and for the purposes described.

6. The combination of a horizontally-rotating rack or carrier having parallel supporter-bars L L' and L^2 L^2 with a vertically and horizontally movable fork having parallel fingers *b b'* substantially as and for the purposes described.

7. A horizontally and vertically movable fork consisting of a carriage *w r w'* and parallel horizontal supporting-fingers *b b'* said carriage being provided with upper wheels *t t'* and under wheels *u u'* in combination with tracks *a a'*, an endless chain 16, sprocket-wheels 17 and 17' and a crank 15, substantially as and for the purposes described.

8. The combination of a horizontally-movable wheeled carriage *w r w'* carrying horizontal fingers *b b'* with bearing-rails *a a'* provided with guiding-frames 2 2' 3 3' cam-levers 4 4' 4'' 4''' and means for actuating said cams to raise and lower said guiding-frames and their connections, substantially as and for the purposes described.

9. The combination of a carrier-fork having carrier-fingers *b b'* and wheels *t t' u u'* with rails *a a'* mounted on guiding and supporting frames 2 2' 3 3' cam-levers 4 4' 4'' 4''' rock-shafts *d d'* 9 an operating-lever *e*, crank-arms *n m m' g* and links connecting the said crank-arms, substantially as and for the purposes described.

10. The combination of a carrier-fork having carrier-fingers *b b'* and wheels *t t' u u'* with rails *a a'* mounted on guiding and supporting frames 2 2' 3 3' cam-levers 4 4' 4'' 4''', rock-shafts *d d'* 9, an operating-lever *e*, crank-arms *n m m' g* and links connecting the said crank-arms and lever and also compensating levers 7 7' 7'' 7''' having movable counterweights 5 5' 5'' 5''' substantially as and for the purposes described.

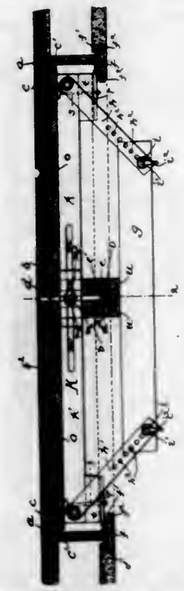
11. The combination of a horizontally-movable carrier or carousel rotating around a shaft *s* and having parallel supporter-bars L L' L^2 L^2 with a vertically and horizontally movable fork consisting of a carriage composed of four-armed braces *w w'* connected by a bolt *r* provided with upper running wheels *u u'* and horizontal parallel fingers *b b'*, a pair of tracks *a a'* connected with guiding and supporting frames 2 2' 3 3', an endless chain 16, sprocket-wheels 17 17' cam-rollers *k k' k'' k'''* rock-shaft *d* provided with cam-levers 4 4'', crank-arm *m* rock-shaft *d'* having cam-levers 4' 4''' crank-arm *m'* actuating-lever *e*, rock-shaft 9 having crank-arms *n g* and links connecting the said crank-arms and actuating-lever, substantially as and for the purposes described.

12. The combination of a horizontally-movable carrier or carousel rotating around a shaft *s* and having parallel supporting-bars L L' L^2 L^2 with a vertically and horizontally movable fork consisting of a carriage composed of four-armed braces *w w'* connected by a bolt *r* provided with upper running wheels *t t'* and under running wheels *u u'* and horizontal parallel fingers *b b'*, a pair of tracks *a a'* connected with guiding and supporting frames 2 2' 3 3', an endless chain 16, sprocket-wheels 17 17' cam-rollers *k k' k'' k'''* rock-shaft *d* provided with cam-levers 4 4'' crank-arm *m*, compensating lever 7 having movable counterweight 5, rock-shaft *d'* having cam-levers 4' 4''' crank-arm *m'* actuating-lever *e* having compensating lever 7' and counterweight 5', crank-arm *m'*, actuating lever *e*, rock-shaft 9 having crank-arms *m g* and links connecting the said crank-arms and actuating-lever, substantially as and for the purposes described.

13. The combination of a horizontally-movable carrier or carousel rotating around a shaft *s* and having parallel supporter-bars L L' L^2 L^2 with a vertically and horizontally movable fork consisting of horizontal parallel fingers and a body portion, the latter provided with a pair of overrunning wheels and also a pair of under running wheels, a pair of horizontal parallel tracks over and under which said pairs of wheels respectively travel, means to propel said fork backward and forward horizontally along said tracks and means to lift and depress said tracks vertically, substantially as and for the purposes described.

14. The combination of a horizontally-movable carrier or carousel rotating around the shaft *s* and having parallel supporter-bars L L' with a vertically and horizontally movable fork consisting of parallel horizontal fingers *b b'* and a body provided with upper running and under running wheels, tracks upon and under which said wheels respectively run, supports for said tracks provided with rollers *k k'* rock-shaft *d* provided with cam-lever 4 crank-arm *m* rock-shaft *d'* having cam-lever 4' crank-arm *m'* actuating-lever *e* rock-shaft 9 having crank-arms *m g* and links connecting the said crank-arms and actuating-lever, substantially as and for the purposes described.

662,162. **FIREPROOF CONSTRUCTION.** CHARLES A. RALPH, Pittsburg, Pa. Filed Apr. 22, 1899. Serial No. 714,139. (No model.)



Claim.—1. In fireproof floor and ceiling construction, the combination with the main beams, of a centering supported by said beams and comprising an extensible frame, means for locking the parts in adjusted position, depending arms pivoted to the ends of said frame and a beam adjustably fastened to the lower ends of said arms, substantially as set forth.

2. In fireproof floor and ceiling construction, the combination with the main beams, of a centering supported thereby, said centering comprising an extensible frame, mechanism for locking said extensible frame in its adjusted position, swinging arms connected to said frame and to a suspended beam, said arms having a series of openings therein, and a locking device engaging one of said openings and opening in said beam, substantially as set forth.

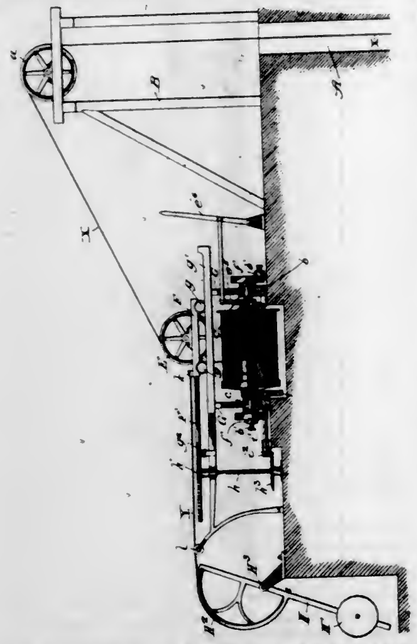
3. In fireproof floor and ceiling construction, the combination with the main beams, of a centering supported thereby, said centering comprising a frame composed of two bars in sliding relation to each other, locking mechanism for securing said sliding bars together, swinging arms connected to said sliding bars, a depending beam connected to the lower ends of said arms, and mechanism for locking said arms rigidly to said beam, substantially as set forth.

4. In fireproof floor and ceiling construction, the combination with the main beams, of plates adapted to rest on the lower flanges of said beams, an extensible frame secured to said plates, said frame comprising bars in sliding relation to each other, mechanism for locking said bars securely together, swinging arms secured to said bars, the lower ends of said arms being connected to a suspended beam, said arms having a series of openings therein, substantially as set forth.

5. In fireproof floor and ceiling construction, the combination with the main beams, of a centering supported thereby, said centering comprising an extensible frame consisting of bars having slots therein, a bolt passing through said slots, a jam-nut adapted to lock said bars securely together, arms pivoted to the ends of said frame at the upper ends and a beam adjustably bolted to the lower ends of said arms, substantially as set forth.

662,163. **HOISTING APPARATUS.** HANS C. BERG, San Francisco, Cal., assignor to the Fraser & Chalmers, Chicago, Ill. Filed June 26, 1900. Serial No. 21,457. (No model.)

Claim.—1. In a hoisting apparatus, the combination with a pit-head sheave, of a hoisting-drum, a shaft on which the drum is mounted having its axis parallel or approximately so to the plane of said pit-head sheave, a track above the drum extending parallel with the rope-leading face thereof, a carriage on the track, a rope guide-sheave on the carriage extending approximately in the plane of the pit-head sheave, and rack-and-pinion propelling mechanism for the carriage actuated from the drum to move the rope guide-sheave at its rope-leading face in a plane approximately tangential with relation to the rope-leading face of the drum.



2. In a hoisting apparatus, the combination with the pit-head sheaves, of parallel drum-shafts coupled together to work in unison, drums on the shafts provided with toothed trunnions, engaging and releasing clutch mechanism between the shafts and their drums, tracks above the drums, carriages on said tracks, rope guide-sheaves on the carriages extending approximately in the planes of their companion pit-head sheaves, and rack-and-pinion propelling mechanism for each carriage actuated from the trunnions of the respective drums to move the rope guide-sheaves at their rope-leading faces in vertical planes approximately tangential with relation to the rope-leading faces of the respective drums.

3. In a hoisting apparatus, the combination with a hoisting-drum, a rope guide-sheave movable along the drum and a traveling carriage on which said sheave is mounted, of variable-lever rope-counterbalancing mechanism connected with the carriage and operating to increase resistance to movement of the carriage as the rope pays out from the drum and decrease said resistance as the rope is wound upon the drum, substantially as and for the purpose set forth.

4. In a hoisting apparatus, the combination with a hoisting-drum, a rope guide-sheave movable along the drum and a traveling carriage on which said sheave is mounted, of variable rope-counterbalancing mechanism comprising a lever, fulcrumed between its ends to swing in a vertical plane, having a weighted arm and a curved arm describing an arc eccentric with the fulcrum, and a rope connecting the carriage with the curved surface of said arm and fastened to the lever, substantially as and for the purpose set forth.

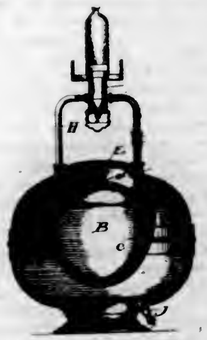
662,164. **DRAFT-EVENER.** JOSEPH BRANDIS, Medford, Minn., assignor of one-half to Robert J. Stopf, Owatonna, Minn. Filed May 3, 1900. Serial No. 15,377. (No model.)

Claim.—1. In a draft-evener, the combination of a cross-piece, a set of parallel links connected to one end of the cross-piece, a set of double or bifurcated links connected to the other end of the cross-piece and a series of three singletrees connected to the two sets of links and together in the manner described.

2. In a draft-evener, the combination of the parallel bars, the singletree pivoted to the outer end thereof and between the bars, the central tree or bar having its outer end pivoted to and between the inner ends of said bars, the outer singletree having the plates at its inner end to receive the pulley, the draft-chain passing around the pulley, the slot in said singletree and the plate forming a keeper for the stay-chain.



662,165. **LAMP.** MORTIMER CAHILL and VOLNEY B. CAHILL, Chicago, Ill. Filed July 1, 1899. Serial No. 722,534. (No model.)



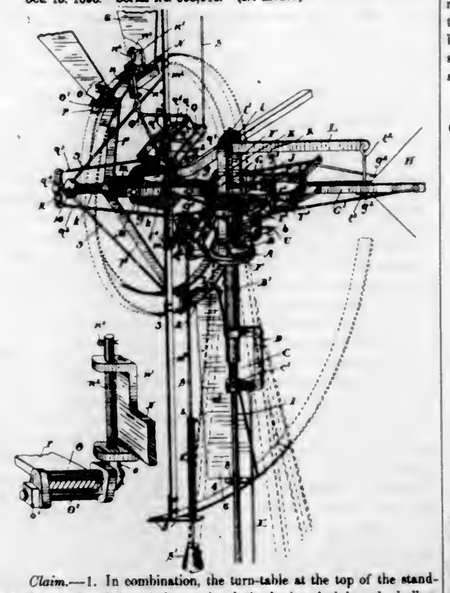
Claim.—1. In a lamp, the combination with a compressed-air reservoir, of a burner without the reservoir, a closed fuel-receptacle located centrally in the air-space within the reservoir and provided with a passage opening into the latter, and a tube leading from the interior of the receptacle to said burner, substantially as set forth.

2. In a lamp, the combination with a compressed-air reservoir, of a smaller closed fuel-receptacle located within said reservoir and at some distance from all its walls and having a passage leading through its own wall into said reservoir, a limiting-valve in said passage, a filling-tube leading into said receptacle from without the reservoir, and a delivery-tube leading from the lower portion of the receptacle to a point without the reservoir.

3. In a lamp, the combination with a compressed-air reservoir, of a relatively small closed fuel-receptacle centrally located within the same and having a passage leading through its wall into said reservoir, a limiting-valve in said passage, means for adjusting said valve from without the reservoir, a filling-tube leading from without the reservoir into said receptacle, and a fuel-delivery tube leading from the receptacle to a point without the reservoir.

4. In a lamp, the combination with a compressed-air reservoir, of a smaller closed fuel-receptacle within the latter and at some distance from all its walls, and provided with an opening into the reservoir, a limiting-valve controlling said opening, and filling and delivery tubes leading from without the reservoir to the interior of said receptacle and fixed to the walls of both, whereby the inner vessel is held at some distance from the walls of the outer one.

662,166. **WINDMILL.** JAMES CALDER, Carluke, Canada. Filed Oct. 15, 1898. Serial No. 693,618. (No model.)



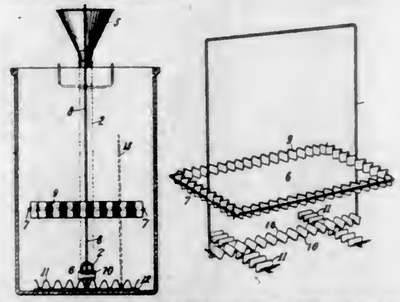
Claim.—1. In combination, the turn-table at the top of the standard, the rotating disk and sleeve, the shaft, the bevel-pinion, the hollow axle or sleeve, a bevel-wheel carried by said axle meshing with the bevel-pinion and suitably supported, the spindle extending through the hollow axle or sleeve, means connected to one end of the spindle for moving it longitudinally, the wheel, and sails suitably pivoted in the rims of the wheels, the cross-bar on the end of the spindle, the truncated hollow cone having a suitable hub secured on the hollow axle or sleeve and provided with arms, the tilting frames, rods located intermediate of the length of said frames, hangers on such rods pivoted on brackets secured to the arms, the rods connecting such hangers to the cross-bar on the end of the spindle, the triangular-shaped rod and the adjusting mechanism connected to the inner end of the sails and operated through the tilting frame as and for the purpose specified.

2. In combination, the turn-table at the top of the standard, the rotating disk and sleeve, the shaft, the bevel-pinion, the hollow axle or sleeve, a bevel-wheel carried by said axle meshing with the bevel-pinion and suitably supported, the spindle extending through the hollow axle or sleeve, means connected to one end of the spindle for moving it longitudinally, the wheel, sails suitably pivoted in the rims of the wheels, the cross-bar on the end of the spindle, the truncated hollow cone having a suitable hub secured on the hollow axle or sleeve arms extending from said cone the tilting frames, rods secured intermediate of the length of said frames, hangers on such rods brackets secured to the arms to which said hangers are pivoted, the rods connecting such hangers to the cross-bar on the end of the spindle, the triangular-shaped rod, the Z-shaped bracket secured to the inner end of the centrally-pivoted sails, the rod suitably journaled and connecting one end of said bracket to the triangular frame and the rod at the opposite end of said bracket connecting it to the rim, which is supported on suitable arms on the hollow sleeve or axle as and for the purpose specified.

3. The combination with the main spindle and cross-rod secured to the end of same and adjusting mechanism connected to such cross-rod and operated thereby, of the wheel, sails pivoted centrally between the rims of said wheel, the brackets secured to the inner ends of said sails and suitably connected to the adjusting mechanism, the rod journaled in the outer end of the bracket, the double bolts extending through each other and pivotally connected to the rod said bolts gripping the adjusting-rim as and for the purpose specified.

4. The combination with the wheels and sails pivoted centrally between the rims thereof, of the governor-rods provided with weighted ends, brackets guiding said rods secured to the wheel, a collar on each rod, spiral springs encircling such rods between such collars and the brackets, the tilting frame, the rod held in same connected by an eye to the eye on the inner end of the governor-rods, the cross-rods upon which the frame is tilted in one way, the hangers on the cross-rods, the rods connecting the hangers to a cross-bar on the end of the main spindle, the pivotal rod for the hangers extending through the top thereof, the bars secured to the arms of the wheel having bent ends in which said pivotal rod is journaled, the triangular rod pivotally connected to the tilting frame, the Z-shaped bracket connected to the sails, the rod connecting such bracket to the triangular rod and a suitable connection between the opposite end of the Z-shaped bracket and the adjusting-rim all arranged as and for the purpose specified.

662,167. **PHOTOGRAPHIC-PLATE RACK.** SAMUEL T. CRESSY, Hackensack, and WILLIAM DULLER, Jr., Englewood, N. J., assignor to the Appert Glass Company, New York, N. Y. Filed June 22, 1900. Serial No. 21,159. (No model.)

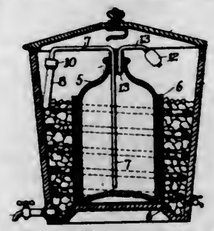


Claim.—1. A rack for holding photographic negatives in a washing and fixing tank, said rack consisting of a horizontal rod or wire shaped to follow the contour of a cross-section of the tank, and a vertical rod or wire shaped to follow the contour of a vertical section of the tank, said rods or wires being joined and each carrying a series of grooved strips, substantially as and for the purposes described.

2. A rack for holding photographic negatives in a washing and fixing tank, said rack consisting of a horizontal wire or rod shaped to follow the contour of a cross-section of the tank, a vertical rod or wire fastened to said horizontal wire and shaped to follow a vertical section of said tank, and a series of lateral rods or wires attached to the lower side of said vertical rod or wire, said rods or wires carrying a series of grooved strips, substantially as and for the purposes described.

3. A rack for holding photographic negatives in a washing and fixing tank, said rack consisting of a plurality of corrugated or grooved strips of metal suitably mounted and supported, one series of said strips being situated adjacent to the bottom of the said tank, and the remainder of said strips being arranged adjacent to the inner faces of the sides of the tank, substantially as and for the purposes described.

662,168. **DISPENSING DEVICE FOR WATER-COOLERS.** FREDERICK A. EHRRICK, Oswego, N. Y., assignor to the Great Bear Spring Company, Jersey City, N. J. Filed July 28, 1900. Serial No. 25,068. (No model.)

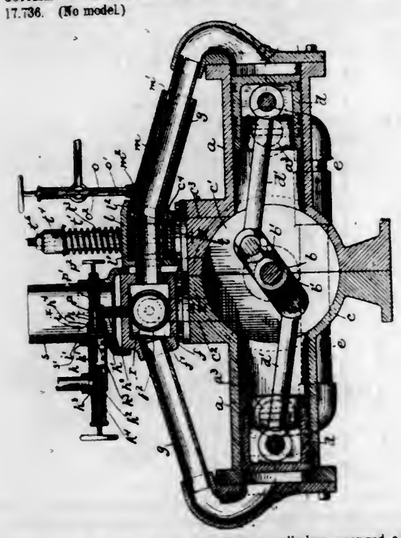


Claim.—A cooling and dispensing apparatus for liquids contained in bottles or demijohns, consisting in the combination with a cooling-jacket having a bottle-support elevated above the bottom thereof, a bottle-cell mounted upon said support in the center of the jacket, a bottle removably

located within the cell, a vent-tube passing through the cork of the bottle, a compression-bulb attached to the vent-tube, a second tube passing through said cork and extending to the bottom of the bottle, a cooling-coil located in the space between the said cell and the wall of the jacket and extending through said wall at a point below the bottom of the bottle, a faucet upon the protruded end of said coil, and a coupling or union between the inner end of said coil and the second tube whereby the two may be made continuous or uncoupled at will for the purpose set forth.

662,169. ENGINE OPERATED BY FLUID UNDER PRESSURE.

GOTTLIEB GEUDER, Cleveland, Ohio. Filed May 23, 1900. Serial No. 17,736. (No model.)



Claim.—1. The combination, with two cylinders arranged a suitable distance apart, and each provided with a fluid-pressure inlet, means for exhausting the cylinders, the engine-shaft, pistons arranged within the cylinders and operatively connected with the shaft, and a chamber formed between and connecting with the inner or adjacent ends of the chambers of the cylinders, of a valved fluid-supply passage-way leading to the said intermediate chamber, an explosion-chamber in open relation with the fluid-pressure inlet of each cylinder, a valved passage-way leading from the aforesaid intermediate cylinder-connecting chamber to the explosion-chamber, and means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber.

2. The combination, with two cylinders arranged a suitable distance apart longitudinally and each provided with a fluid-receiving port or inlet and an exhaust-port arranged a suitable distance apart, the pistons within the cylinders, the engine-shaft arranged between the inner or adjacent ends of the cylinders and operatively connected with the pistons, and the case surrounding the piston-connected portion of the shaft and having its chamber connected with the inner or adjacent ends of the chambers of the cylinders, of a suitably-valved fluid-supply passage-way leading to the chamber of the said case, an explosion-chamber arranged externally of the said case and cylinders and in open relation with the aforesaid inlet of each cylinder, a suitably-valved passage-way leading from the chambers of the aforesaid case to the explosion-chamber, and means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber, substantially as and for the purpose set forth.

3. The combination, of two cylinders arranged a suitable distance apart longitudinally and each provided with a fluid-pressure inlet, means for exhausting the cylinders, the engine-shaft between the inner and adjacent ends of the cylinders, the pistons within the cylinders and operatively connected with the shaft, a chamber connected with the inner and adjacent ends of the chambers of the cylinders, a fluid-supply passage-way leading to and connected with the said connecting-chamber, a valve within the said passage-way, which valve is normally closed and adapted to be opened by suction created within the aforesaid connecting-chamber, means acting to retain the valve in its closed position, an explosion-chamber wherein ignition and explosion of the fluid are effected, means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber, a passage-way leading from the aforesaid cylinder-connecting chamber to and connecting with the explosion-chamber, a valve within the last-mentioned passage-way and normally closed and adapted to be opened by compression of the fluid within the cylinder-connecting chamber, means acting to retain the last-mentioned valve in its closed position, and passage-ways leading from the last-mentioned passage-way, at a point between the explosion-chamber and the valve of the said valved passage-way, to the inlets of the cylinders, substantially as and for the purpose set forth.

4. The combination of two cylinders arranged a suitable distance apart longitudinally and each provided with a pressure-receiving port or inlet and an exhaust-port arranged a suitable distance apart, the engine-shaft between the inner and adjacent ends of the cylinders, the pistons within the cylinders and operatively connected with the shaft, the case surrounding the piston-connected portion of the shaft and having its chamber connected with the inner and adjacent ends of the chambers of the cylinders, the fluid-supply passage-way leading to and connected with the chamber of the said case, a valve within the said passage-way between the fluid-receiving end and the discharging end of the said passage-way, which valve is normally closed and adapted to be opened by suction created within the aforesaid shaft-surrounding case, means acting to retain the valve in its closed position, the explosion-chamber wherein ignition and explosion of the fluid are effected, means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber, a passage-way leading from the chamber of the shaft-surrounding case to and connecting with the explosion-chamber, a valve within the last-mentioned passage-way and normally closed and adapted to be opened by compression of the fluid within the shaft-surrounding case, means acting to retain the last-mentioned valve in its closed position, and passage-ways leading from the last-mentioned valved passage-way, at a point between the explosion-chamber and the valve of the said valved passage-way, to the inlets of the cylinders, substantially as and for the purpose set forth.

5. The combination of two cylinders arranged a suitable distance apart longitudinally and each provided with a pressure-receiving port or inlet and an exhaust-port arranged a suitable distance apart, the engine-shaft between the inner and adjacent ends of the cylinders, the pistons within the cylinders and operatively connected with the shaft, the case surrounding the piston-connected portion of the shaft and having its chamber connected with the inner and adjacent ends of the chambers of the cylinders, the fluid-supply passage-way leading to and connected with the chamber of the said case, means for supplying the fluid to the said passage-way, a valve arranged within and controlling the said passage-way between the fluid-receiving end and the discharging end of the passage-way and adapted to be opened by suction created within the chamber of the shaft-surrounding case during the outward movement of the pistons, means acting to retain the valve in its closed position, the explosion-chamber wherein ignition and explosion of the fluid are effected, means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber, a passage-way leading from the chamber of the shaft-surrounding case to and connecting with the explosion-chamber, a valve arranged within and controlling the last-mentioned passage-way and adapted to be opened by forcing fluid into the said passage-way from within the shaft-surrounding case, means acting to retain the last-mentioned valve in its closed position, and two pipes in open relation, at one end, with the last-mentioned valved passage-way between the explosion-chamber and the valve of the said passage-way, and leading to and in open relation with the inlet of the different cylinders, respectively, and one of the said pipes extending through the fluid-supply passage-way, substantially as and for the purpose set forth.

6. The combination, with two cylinders arranged a suitable distance apart longitudinally and provided each with a pressure-receiving port or inlet and an exhaust-port arranged a suitable distance apart, the engine-shaft arranged between the inner and adjacent ends of the cylinders, the pistons within the cylinders and operatively connected with the shaft, the case surrounding the shaft and having its chamber connected with the inner and adjacent ends of the chambers of the cylinders, of an explosion-chamber wherein the ignition and explosion of the fluid take place, a passage-way leading from the chamber of the aforesaid case to and connecting with the explosion-chamber, a valve arranged within the said passage-way and normally closed and adapted to open in the direction of the discharging end of the passage-way, means acting to retain the valve in its closed position, two pipes in open relation with the said passage-way between the valve and the explosion-chamber and extending to and in open relation with the inlets of the cylinders, a passage-way arranged to conduct and supply the ignitible and explosive fluid to the chamber of the shaft-surrounding case and comprising an air-supply tube surrounding and extending longitudinally of one of the aforesaid pipes and larger in transverse section than the said pipe so as to form an annular space around the said pipe, a valve within the fluid-supply passage-way and adapted to be opened by suction created within the chamber of the shaft-surrounding case, means acting to retain the said last-mentioned valve in its closed position, and means for supplying ignitible and explosive fluid to the said passage-way between the last-mentioned valve and the outer or air-receiving end of the aforesaid tube, substantially as and for the purpose set forth.

7. The combination, with the horizontally-arranged engine-shaft, a case surrounding the said shaft, two cylinders arranged at opposite sides, respectively, of the shaft and having their chambers connected, at the inner ends of the cylinders, with the chamber of the said case and each provided with a pressure-receiving port or inlet and an exhaust-port arranged a suitable distance apart, the pistons within the cylinders, operative connections between the pistons and the shaft, of an explosion-chamber arranged above the aforesaid case, means for effecting the ignition and explosion of the explosive fluid within the explosion-chamber, the valved passage-way leading from the chamber of the shaft-surrounding case to and connected with the explosion-chamber, two pipes in open relation with the said passage-way between the location of the valve and the explosion-chamber and extending and diverging downwardly and connected and communicating with the inlet of the different cylinders, respectively, the valved fluid-supply passage-way leading to the chamber of the aforesaid case, and means for supplying ignitible and explosive fluid to the fluid-supply passage-way between the valve and the receiving end of the said passage-way, all arranged and operating substantially as shown, for the purpose specified.

8. The combination, with a cylinder, the piston within the cylinder, the engine-shaft, and the operative connection between the piston and the shaft, of a mixing-chamber in open relation with the cylinder's chamber at the inner end of the cylinder, a passage-way for supplying air and an explosive fluid to the mixing-chamber, a valve controlling the said passage-way and adapted to be opened by suction created within the mixing-chamber during the outward movement of the piston, means acting to retain the valve in its closed position, an explosion-chamber arranged externally of the mixing-chamber, means for effecting the ignition and explosion of the explosive mixture supplied to the explosion-chamber, a passage-way leading from the mixing-chamber to the explosion-chamber, a valve controlling the last-mentioned passage-way and adapted to be opened by forcing explosive mixture from the mixing-chamber and into the explosion-chamber during the inward movement of the piston, means acting to retain the last-mentioned valve in its closed position, and another passage-way leading from the last-mentioned valved passage-way, at a point between the explosion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, and means for exhausting the cylinder, substantially as and for the purpose set forth.

9. The combination, with a cylinder, the piston within the cylinder, the engine-shaft, and the operative connection between the piston and the shaft, of a mixing-chamber in open relation with the cylinder's chamber at the inner end of the cylinder, a passage-way for supplying air and an explosive fluid to the mixing-chamber, a valve controlling the said passage way and adapted to be opened by suction created within the mixing-chamber during the outward movement of the piston, means acting to retain the said valve in its closed position, an explosion-chamber arranged externally of the mixing-chamber, means for heating the explosion-chamber to the extent required to effect the ignition and explosion of the explosive mixture supplied to the said chamber, a passage-way leading from the mixing-chamber to the explosion-chamber, a valve controlling the last-mentioned passage-way and adapted to be opened by forcing explosive mixture from the mixing-chamber and into the explosion-chamber by and during the inward movement of the piston, means acting to retain the last-mentioned valve in its closed position, a pipe leading from the last-mentioned valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way through the first-mentioned or fluid-supply passage-way to and in open relation with the pressure-receiving end of the cylinder's chamber, and means for exhausting the cylinder, all arranged and operating substantially as shown, for the purpose specified.

10. The combination, with a cylinder, a piston within the cylinder, the engine-shaft, and the operative connection between the piston and the shaft, of an explosion-chamber, a passage-way for supplying the explosive fluid to the explosion-chamber, a valve controlling the said passage-way, another passage-way leading from the said valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way and communicating with the pressure-receiving end of the cylinder-chamber, means for exhausting the cylinder, another chamber in open relation with the explosion-chamber and arranged to receive spent gas or products of combustion from the explosion-chamber preparatory to charging the explosion-chamber with explosive fluid, and means for effecting the ignition and explosion of the explosive fluid at or near the receiving end of the chamber arranged as aforesaid to receive the spent gas or products of combustion.

11. The combination of a cylinder, the piston within the cylinder, the engine-shaft, and the operative connection between the piston and the shaft, a mixing-chamber in open relation with the cylinder's chamber at the inner end of the cylinder, a passage-way for supplying the air and an explosive fluid to the mixing-chamber, a valve controlling the said passage-way and adapted to be opened by suction created within the mixing-chamber during the outward movement of the piston, means acting to retain the said valve in its closed position, an explosion-chamber, means for effecting the ignition and explosion of the explosive mixture supplied to the explosion-chamber, a passage-way leading from the mixing-chamber to the explosion-chamber, a valve controlling the last-mentioned passage-way and adapted to be opened by forcing fluid from the mixing-chamber and into the explosion-chamber during the inward movement of the piston, means acting to retain the last-mentioned valve in its closed position, another passage-way leading from the last-mentioned valved passage-way at a point between the combustion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, means for exhausting the cylinder, and means accelerating or retarding the time at which explosion shall take place within the explosion-chamber.

12. The combination, with a cylinder, the piston within the cylinder, the engine-shaft and the operative connection between the piston and the shaft, of an explosion-chamber, a passage-way for supplying the explosive fluid to the explosion-chamber, a suitably-operated valve controlling the said passage-way, another passage-way leading from the said valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, means for exhausting the cylinder, and another chamber in open relation with the explosion-chamber and arranged to receive spent gas or products of combustion from the explosion-chamber preparatory to charging the explosion-chamber with explosive fluid, and means for igniting and exploding the explosive fluid within the explosion-chamber at or near the receiving end of the aforesaid gas-receiving chamber.

13. The combination, with a cylinder, the piston within the cylinder, the engine-shaft and the operative connection between the piston and the shaft, an explosion-chamber, a passage-way for supplying the explosive fluid to the explosion-chamber, a suitably-operated valve controlling the said passage-way, another passage-way leading from the said valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, means for exhausting the cylinder, another chamber in open relation with the explosion-chamber and arranged to receive spent gas or products of combustion from the explosion-chamber preparatory to charging the explosion-chamber with explosive fluid, and means for igniting and exploding the explosive fluid within the explosion-chamber at or near the receiving end of the aforesaid gas-receiving chamber, of means for regulating the capacity of the said gas-receiving chamber, substantially as and for the purpose set forth.

14. The combination, with a cylinder, the piston within the cylinder, the engine-shaft and the operative connection between the piston and the shaft, an explosion-chamber, a passage-way for supplying the explosive fluid to the explosion-chamber, a suitably-operated valve controlling the said passage-way, another passage-way leading from the said valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, means for exhausting the cylinder, another chamber in open relation with the explosion-chamber and arranged to receive spent gas or products of combustion from the explosion-chamber preparatory to charging the explosion-chamber with explosive fluid, and means for igniting and exploding the explosive fluid within the explosion-chamber at or near the receiving end of the aforesaid gas-receiving chamber and comprising a suitably-operated endwise-shiftable plug engaging the said chamber, substantially as and for the purpose set forth.

15. The combination, with a cylinder, the piston within the cylinder, the engine-shaft and the operative connection between the piston and the shaft, of an explosion-chamber, having one of its walls constituting an igniting-wall and formed by a comparatively thin piece of metal, such, for instance, as platinum, that is able to withstand a high degree of heat, a suitably-operated burner arranged as required to have its flame impinge against the outer side of the said wall of the explosion-chamber, another chamber communicating with the explosion-chamber at or near the aforesaid igniting-wall, a passage-way for supplying the explosive fluid to the explosion-chamber, a suitably-operated valve controlling the said passage-way, another passage-way leading from the said valved passage-way at a point between the explosion-chamber and the valve of the said valved passage-way to and communicating with the pressure-receiving end of the cylinder's chamber, and means for exhausting the cylinder.

662,170. INCANDESCENT MANTLE.

ALBERT KOCH, Schönberg, Germany. Filed June 28, 1900. Serial No. 21,985. (No model.)

Claim.—1. The herein-described process of making incandescent mantles which consists in mixing hydrofluoric acid with an aqueous solution of a thoric salt and a ceric salt, then impregnating a suitable fabric blank with this mixture, and drying and incinerating the same, substantially as set forth.

2. An incandescent mantle composed of a suitable fabric blank impregnated with thoric oxid and ceric oxid, substantially as set forth.

662,171. LADY'S GUARD-CHAIN. SIGMUND LEDERER, Providence, R. I. Filed Sept. 19, 1900. Serial No. 30,463. (No model.)

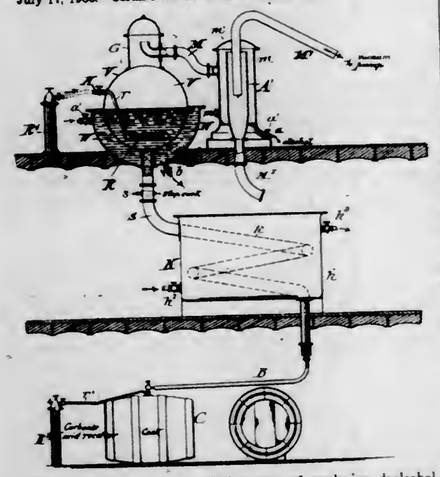


Claim.—1. In a guard-chain, the combination of a continuous neck-chain and a sliding ornament fixed to the front thereof on one side of the center of the ornament, said ornament being provided with guiding-loops on both sides of its center for engaging said chain.

2. In a guard-chain, the combination of a slide a continuous neck-chain, fixed to one side of the center of the rear of the slide in one or more places, and guiding means off the center and on another portion of the slide.

3. In a guard-chain, the combination of a slide a continuous neck-chain, fixed to one side of the center of the rear of the slide in one or more places, guiding means off the center and on another portion of the slide, and a swivel-bearing link slidably engaged with said neck-chain.

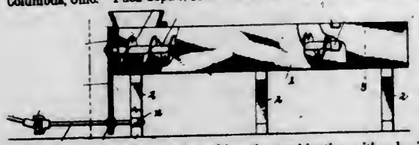
662,172. PROCESS OF PRODUCING DEALCOHOLIZED FERMENTED BEVERAGES. ADOLF MÜLLER, Stuttgart, Germany. Filed July 17, 1900. Serial No. 23,897. (No specimens.)



Claim.—1. The herein-described process of producing dealcoholized fermented beverages, which consists in subjecting the alcohol-containing beverage to distillation at less than ordinary atmospheric pressure, in an atmosphere of carbonic-acid gas, substantially as set forth.

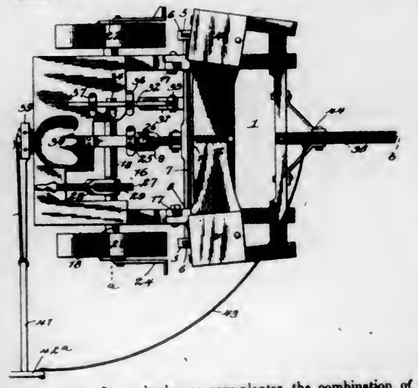
2. The herein-described process of producing dealcoholized fermented beverages, which consists in subjecting the alcohol-containing beverage to distillation at less than ordinary atmospheric pressure, in an atmosphere of carbonic-acid gas, under continuous agitation, substantially as set forth.

662,173. MORTAR-MIXING MACHINE. DANIEL W. MCGRATH, Columbus, Ohio. Filed Sept. 7, 1899. Serial No. 729,696. (No model.)



Claim.—In a mortar-mixing machine, the combination with a horizontal casing or trough, a transverse bar near the rear end of said trough and a shaft-hanger depending within said trough from said bar, of a shaft having one end journaled in said hanger and its remaining end journaled in one end of the trough, said shaft having a mixing-flange spirally arranged thereon and said flange being separated into blade projections at regular intervals and means for imparting a rotary motion to said shafts, substantially as specified.

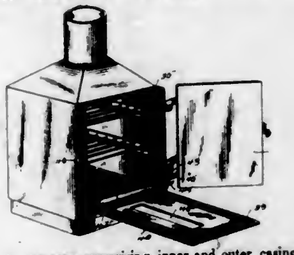
662,174. CHECK-ROW CORN-PLANTER. JAMES C. STANLEY, Birmingham, Iowa. Filed Aug. 29, 1900. Serial No. 28,451. (No model.)



Claim.—1. In a check-row corn-planter, the combination of the axle-shaft having the friction-hubs, and provided with markers, the traction-wheels having the friction-rings engaging said friction-hubs, whereby said axle-shaft may be turned with or independently of said traction-wheels, and adjusting mechanism to operate said axle-shaft independently of said traction-wheels, for the purpose set forth, substantially as described.

2. In a check-row corn-planter, the combination of a seed-dropping mechanism having the rock-shaft provided with the arm 11 and shoulder 13, the spring attached to said arm, the operating-lever connected to said rock-shaft and free to turn independently thereof in one direction, said rock-shaft and said operating-lever having coasting shoulders and said operating-lever having the arm 14 extended under the said rock-shaft, the spring bearing on said arm 14, the axle-shaft having the friction-hubs and provided with markers, the traction-wheels having the friction-rings engaging said friction-hubs, whereby said axle-shaft may be turned with or independently of said friction-wheels, adjusting mechanism to operate said axle-shaft independently of said traction-wheels, and the operating-wheel on said axle-shaft and having tappets to engage the operating-lever, substantially as described.

662,175. OVEN. JOHN L. STARKS, West Nashville, Tenn. Filed Feb. 6, 1900. Serial No. 4,200. (No model.)



Claim.—1. An oven comprising inner and outer casings, an inner door closing the inner casing, an outer door closing the outer casing, and means for connecting the doors, whereby the inner door will be held in its closed position during a portion of the opening movement of the outer door, whereby the latter may be opened and closed without opening the inner door, substantially as and for the purpose described.

2. An oven comprising inner and outer casings, an inner door closing the inner casing, an outer door closing the outer casing, and means for connecting the inner and outer doors, whereby the inner door will be held closed during the first portion of the opening movement of the outer door and will be opened by a continued movement of the outer door and closed by the movement of the outer door in the reverse direction, substantially as described.

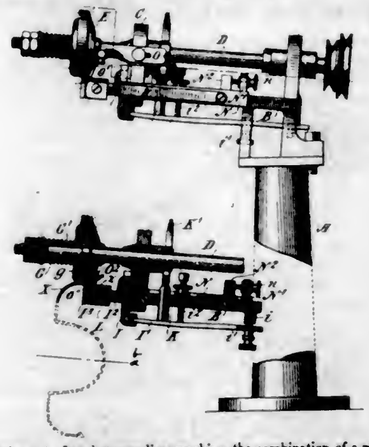
3. An oven composed of inner and outer casings, an inner door for closing the inner casing provided with a transparent panel to permit the contents of the inner casing to be inspected without opening it, an outer door for closing the outer casing, and means for connecting the doors, whereby the inner door will be held in its closed position during the first portion of the opening movement of the outer door, substantially as and for the purpose described.

4. A oven comprising inner and outer casings, a rock-shaft mounted on the outer casing and extending through the same, an inner door carried by the rock-shaft and arranged to close the inner casing, arms mounted on the exterior portion of the rock-shaft, and an outer door engaging the said arms, whereby the inner door is opened and closed by the movement of the outer door and is held in its closed position during the first portion of the opening movement of the said outer door, substantially as described.

5. An oven comprising inner and outer casings, a rock-shaft journaled in suitable bearings of the oven and having one end extended through the same, an inner door mounted on and carried by the rock-shaft and arranged to close the inner casing, arms mounted on the extended end of the rock-shaft, one of the arms being provided with an extension disposed horizontally when the inner door is closed, and an outer door provided with an arm arranged to engage the said arms, and adapted to ride on the extension whereby the inner door is held in its closed position during the first portion of the opening movement of the outer door, substantially as and for the purpose described.

6. An oven, a rock-shaft journaled in suitable bearings of the oven and extended through the same, an inner door mounted on the rock-shaft, the upper and lower arms mounted on the extended portion of the rock-shaft, the lower arm being provided with a curved extension, and an outer door provided with an arm arranged between the said arms and adapted to engage the extension of the lower arm, whereby the inner door will be held closed during the first portion of the opening movement of the outer door, substantially as described.

662,176. MACHINE FOR ROUNDING HAT-BRIMS. JAMES STEWART, Jr., Yonkers, N. Y. Filed Oct. 19, 1896. Serial No. 609,364. (No model.)



Claim.—1. In a hat-rounding machine, the combination of a rotary cutter, a guide engaging the curl or flanged edge of the hat-brim, supporting the hat therefrom so that it hangs with its axis substantially parallel with the axis of the cutter, and over which the curled edge of the brim is fed to the cutter, means for adjusting the guide in line with the longitudinal axis of the cutter to determine the line of the rounding cut on the edge of the brim, and means for depressing the brim-supporting guide to permit the insertion of the hat.

2. In a hat-rounding machine, the combination of a rotary cutter, a guide arranged beneath it and engaging the curled or flanged edge of the hat-brim, means for adjusting the guide in line with the longitudinal axis of the cutter, a spring-supported frame carrying such brim-guide, and means for depressing the frame to permit the insertion of the curled edge of the hat-brim.

3. In a hat-rounding machine, the combination of a rotary cutter, a fixed shear-plate coöperating therewith, a guide engaging the curl or flanged edge of the hat-brim, means for adjusting such guide to determine the location of the rounding cut on the curled edge of the brim, and means for depressing the guide to permit the insertion of the curled edge of the hat-brim.

4. In a hat-rounding machine, the combination of the inclined laterally-projecting frame, a circular cutter and a coöperating shear-plate mounted at one end thereof, a guide engaging the curl or flanged edge of the hat-brim, the inclination of the frame being such as to cause the hat to hang by its curled edge in proper position for the curled edge to be freely fed to the cutter, means for adjusting the guide in line with the longitudinal axis of the cutter, means for depressing it to permit the insertion of the curled edge of the hat-brim between it and the cutter, and a feeding device for assisting the feed of the hat-brim to the cutter.

5. In a hat-rounding machine, the combination of the laterally-projecting frame, a rotary cutter and coöperating shear-plate mounted at one end thereof, a vertically-movable piece to which the shear-plate is attached, a brim-supporting guide mounted upon such vertically-movable piece, means for adjusting the guide in line with the longitudinal axis of the cutter, and means for depressing the vertically-movable piece to permit the insertion of the hat-brim.

6. In a hat-rounding machine, the combination of the inclined laterally-projecting frame having a guideway in the end face thereof, a spring-supported piece movable vertically in such guideway, a shear-plate coöperating with the cutter and mounted upon a lateral extension of such movable piece, a brim-supporting guide sliding upon such lateral extension at right angles to the line of movement of the movable piece, means for adjusting the brim-supporting guide, and means for depressing the movable piece to permit the insertion of the hat-brim.

7. In a hat-rounding machine, the combination of the laterally-projecting frame, a vertically-movable spring-supported piece mounted in the end thereof, a shear-plate attached to the lateral extension from said piece, a rotary cutter coöperating with the shear-plate, a brim-supporting guide mounted upon said lateral extension, a sliding plate mounted on the laterally-projecting frame, and operatively connected by links with the brim-supporting guide, means for adjusting the sliding plate to effect the adjustment of the brim-supporting guide, and means for depressing the vertically-movable piece to permit the insertion of the hat-brim.

8. In a hat-rounding machine, the combination of a laterally-projecting frame, a movable piece mounted in the end thereof, a flat spring supporting the movable piece attached to the laterally-extending frame, and lying beneath it, means for depressing the movable piece, a shear-plate carried by a lateral extension from the movable piece, a rotary cutter coöperating therewith, and a brim-supporting guide carried by the movable piece and adjustable in the line of the axis of the cutter, to determine the line of the rounding cut.

9. In a hat-rounding machine, the combination of a rotary cutter, a fixed shear-plate coöperating therewith, a brim-supporting guide engaging the curl or flanged edge of the hat-brim, means for adjusting such brim-supporting guide to determine the location of the rounding cut, means for depressing the guide to permit the insertion of the hat-brim, and a feed-roll loosely mounted upon the cutter shaft and bearing upon the hat-brim to assist the feed of the brim to the cutter.

10. In a hat-rounding machine, the combination of the inclined laterally-projecting frame, a circular cutter and a coöperating shear-plate mounted at one end thereof, a brim-supporting guide engaging the curl or flanged edge of the hat-brim, from which the hat is thus suspended as it is fed to the cutter, means for adjusting the brim-supporting guide in line with the longitudinal axis of the cutter, means for depressing it to permit the insertion of the hat-brim between it and the cutter, and a feed-roll loosely mounted upon the cutter-shaft and bearing on the hat-brim to assist the feed of the brim to the cutter.

11. In a hat-rounding machine, the combination of a rotary cutter, the shear plate appropriately mounted with reference to the cutter, a grooved guide-block adjustable toward and from the cutter in lines parallel with its longitudinal axis, and an adjustable guide-foot coöperating with the groove in the block, substantially as set forth.

12. In a hat-rounding machine, the combination of a rotary cutter, the shear-plate appropriately mounted with reference to the cutter at one side of the edge thereof, a feed-roll bearing upon the edge of the shear-plate adjacent to the cutter, a grooved guide-block on the other side of the edge of the cutter, and a guide-finger coöperating with the groove in the block, substantially as set forth.

13. In a hat-rounding machine, the combination of a rotary cutter, the shear-plate appropriately mounted with reference to the cutter at one side of the edge thereof, a feed-roll bearing upon the edge of the shear-plate adjacent to the cutter and having an enlarged opening through which the shaft of the cuttter passes and running in frictional contact with the side face of the cutter, a grooved guide-block on the other side of the edge of the cutter, and a guide-finger coöperating with the groove in the block, substantially as set forth.

14. In a hat-rounding machine, the combination of a rotary cutter, a shear-plate appropriately placed to one side of the edge thereof, a frame

carrying the shear-plate, a spring for holding the frame up and means for depressing it to separate the cutter and shear-plate.

15. The combination with a rotary cutter, its shaft, a feeding-wheel with its opening larger than the shaft loosely mounted thereon in frictional contact with the face of the cutter and having an eccentric motion with respect to said shaft, for the purpose of assisting the feed of the hat-brim to the cutter, a brim-supporting guide engaging the curl or flange of the brim and from which the hat is suspended, and means for depressing said support and guide, substantially as described.

16. A sharpener for rotary cutters, consisting of a smooth disk mounted loosely on the same shaft with the cutter, and means for holding it in contact with said cutter, substantially as described.

17. A sharpener for rotary cutters, consisting of a smooth disk mounted on the same shaft with the cutter controlling it, said sharpener revolving in the same direction as the rotary cutter, and at a slower speed.

18. A combined feeding-wheel and sharpener for rotary cutters loosely mounted on the same shaft with the cutter, in frictional contact therewith and capable of being reversed on the shaft, so as to act in either position as a feed-wheel and in one position as a sharpener also, substantially as set forth.

19. In a hat-rounding machine, the combination of the rotary cutter, its shaft, the reversible feed-wheel and cutter-sharpener having an enlarged opening through which the shaft passes, a spring for holding one side of the wheel in frictional contact with the face of the cutter when acting as a sharpener, and means as a rib on the other side of the wheel for preventing close surface contact of the cutter and wheel when the latter is reversed, the wheel in both positions acting as a feed-wheel and in one position as a sharpener also, substantially as set forth.

20. In a hat-rounding machine, the combination of a laterally-projecting frame having an unobstructed space beneath its outer end, a hat support and guide arranged at the outer end of the frame and that engages the curled or flanged edge of the hat which is suspended freely from it with its crown turned inwardly, a rotating trimming-cutter arranged above the guide and support and coöperating therewith to trim or "round" the hat-brim as it is fed around under the cutter, and a feeding device acting upon the brim to assist in carrying it around under the cutter.

21. In a hat-rounding machine the combination of a laterally-projecting frame having an unobstructed space beneath its outer end, a vertically-adjustable hat support and guide arranged at the outer end of the frame and that engages the curled or flanged edge of the hat which is suspended freely from it with its crown turned inwardly, a rotating trimming-cutter arranged above the guide and support and coöperating therewith to trim or "round" the hat-brim as it is fed around under the cutter and a feeding device acting upon the brim to assist in carrying it around under the cutter.

22. In a hat-rounding machine the combination of a laterally-projecting upwardly-inclined frame having an unobstructed space beneath its outer end, a hat support and guide arranged at the outer end of the frame and that engages the curled or flanged edge of the hat which is suspended freely therefrom with its axis inclined to a horizontal plane and a rotating trimming-cutter arranged above the guide and support, turning about an axis parallel or substantially so with the axis of the hat and operating to trim the brim as the hat is fed around over the guide and support and under the cutter.

662,177. ELASTIC TIRE FOR VEHICLES. HENRY TOLMAN, Newton, Mass. Filed May 5, 1900. Serial No. 15,589. (No model.)



Claim.—1. A vehicle-tire comprising a yielding central member provided with a reinforcing-tube of fabric, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising in part an elastic segment at the tread side of the tire, substantially as described.

2. A vehicle-tire comprising a yielding central member, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler surrounding said central member and comprising in part a crescent of rubber at the tread side of the tire, substantially as described.

3. A vehicle-tire comprising a yielding central member provided with a reinforcing-tube of fabric, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising in part a crescent of "sponge" rubber at the tread side of the tire, substantially as described.

4. A vehicle-tire comprising a core of compacted yielding stuffer material, a reinforcing-tube of fabric surrounding said core, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising in part an elastic segment at the tread side of the tire, substantially as described.

5. A vehicle-tire comprising a core of compacted stuffer material, a reinforcing-tube of fabric surrounding said core, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising in part a crescent of "sponge" rubber at the tread side of the tire, substantially as described.

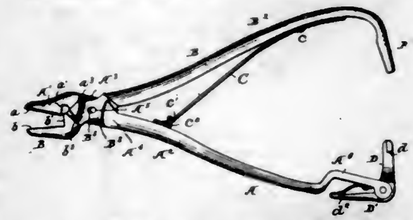
6. A vehicle-tire comprising a yielding central member, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising an elastic segment at the tread side of the tire, an adjacent elastic section, and a transversely-extending strip intervening between the two, substantially as described.

7. A vehicle-tire comprising a yielding central member, an external envelop, reinforcing-tubes of fabric in connection with the said central member and envelop, and an intermediate filler comprising an elastic segment at the tread side of the tire, an adjacent elastic section, and a transversely-extending strip intervening between the two, substantially as described.

8. A vehicle-tire comprising a core of felt, a tube of fabric inclosing the same, an external envelop having in connection therewith a reinforcing-tube of fabric, and an intermediate filler comprising an elastic segment at the tread side of the tire, an adjacent elastic section, and a transversely-extending strip of felt intervening between the two, substantially as described.

9. A vehicle-tire comprising essentially an external envelop having in connection therewith a reinforcing-tube of fabric, and a body or filler comprising essentially an elastic segment at the tread side of the tire, an adjacent elastic section, and a transversely-extending strip intervening between the two, substantially as described.

662,178. NEEDLE-HOLDER. CHARLES TRUAX, Chicago, Ill. Filed Mar. 19, 1900. Serial No. 9,271. (No model.)



Claim.—1. A needle-holder comprising two jaws each having longitudinal and transverse gripping-surfaces, a loose connection between the jaws arranged to permit the jaws to move to and from each other in the arc of a circle to open and close the longitudinal gripping-surfaces and to move longitudinally with relation to each other to open and close the transverse gripping-surfaces, and means for moving the jaws to bring the respective gripping-surfaces into and out of gripping position, substantially as described.

2. A needle-holder comprising two jaws each having a transverse gripping-surface, one of the jaws being provided with a pivot-pin and the other with an elongated slot coöperating with the pin, and means for opening and closing the jaws, whereby the transverse gripping-surfaces move to and from each other longitudinally with relation to the jaws, substantially as described.

3. A needle-holder comprising two members each having longitudinal and transverse gripping-surfaces, one of the members being provided with a pivot-pin and the other with an elongated slot coöperating with the pin and each member having an abutting surface, and a spring interposed between the members, whereby the transverse gripping-surfaces move to and from each other longitudinally with relation to the members, substantially as described.

4. A needle-holder comprising two members A and B, each having longitudinal and transverse gripping-surfaces a, b and a', b' at right angles to each other and each having an abutting surface a^2, b^2, one of the members having a pivot-pin A^3 and the other having an elongated slot B^3 fitting the pivot-pin, and a spring C secured to the member B and having its free end bearing on the member A, substantially as described.

5. A needle-holder, one of the handles B^2 of which is provided with a bent portion B^3 having teeth and the other A^2 with an offset portion A^3, and a lever D pivoted to the offset portion, said lever having a tooth adapted to engage the teeth on the bent portion and having a portion D' extending substantially in the plane of the handle A^2 on which it is mounted, substantially as described.

662,179. POWER-TRANSMITTER. FRANK S. WEATHERLY, Los Angeles, Cal. Filed Feb. 27, 1900. Serial No. 6,738. (No model.)



Claim.—1. The combination of a suitable base, upper and lower guide-plates, cross-heads adapted to operate between said plates, upper and lower toothed racks secured to said cross-heads, a power-shaft, a sleeve on the shaft, segmental gear-wheels loosely mounted on the sleeve, ratchet-wheels secured to the sleeve and pawls for connecting the segmental gear-wheels with the ratchet-wheels, substantially as set forth.

2. The combination of a suitable base, guide-plates, cross-heads adapted to reciprocate between the guide-plates, a rack formed in two sections with its teeth facing in opposite directions, legs extending from the racks to the cross-heads, L-shaped parts by which the legs are connected to the cross-heads, braces connecting the L-shaped parts with the legs, a power-shaft, a sleeve on the shaft, segmental gear-wheels mounted on said sleeve with which the racks engage, ratchet-wheels fixed to the power-shaft, and pawls for connecting the ratchet-wheels with the segmental gear-wheels, substantially as set forth.

3. The combination of a suitable base, a power-shaft journaled to the base, a sleeve on the power-shaft, segmental gear-wheels loosely mounted upon the sleeve, racks for engaging said segmental gear-wheels, ratchet-wheels fixed to the sleeve, double pawls pivoted to the segmental gear-wheels and adapted to engage the ratchet-wheels, yokes mounted on the segmental gear-wheels, springs connecting the yokes with the pawls for throwing them into or out of engagement with the ratchet-wheels and means for sliding said yokes upon the segmental gear-wheels, substantially as set forth.

4. The combination of a suitable base, a power-shaft journaled to the base, a sleeve on the power-shaft, segmental gear-wheels loosely mounted on the sleeve, ratchet-wheels fixed to the sleeve, pawls pivoted to the gear-wheels, yokes mounted on the gear-wheels, spring-rods connecting the pawls with the yokes, a reversing-wheel mounted on the shaft between the segmental gear-wheels and lugs on the reversing-wheel adapted to engage the yokes and change their position on the segmental gear-wheels, thus throwing the pawls into or out of engagement with the ratchet-wheels, substantially as set forth.

5. The combination of a suitable base, a power-shaft journaled to the base, a sleeve on the power-shaft, notched segmental gear-wheels loosely mounted on the sleeve, racks for operating said segmental gear-wheels, ratchet-wheels fixed to the sleeve, yokes on the segmental gear-wheels, a clevis secured to the yokes, pawls pivoted to the segmental gear-wheels, spring-rods connecting the pawls with the yokes, means for moving the yokes and the pawls, and a bolt on the clevis adapted to engage the notches in the segmental gear-wheels, substantially as set forth.

6. The combination of a suitable base, a power-shaft mounted thereon, a sleeve on the shaft, segmental gear-wheels loosely mounted on the sleeve, racks adapted to engage the segmental gear-wheels, ratchet-wheels fixed to the sleeve, pawls for engaging said ratchet-wheels, yokes on the segmental gear-wheels, said yokes having shoulders, means for connecting the pawls with the yokes, and springs adapted to engage said shoulders and to hold the yokes in position upon the segmental gear-wheels, substantially as set forth.

7. The combination of a suitable base, a power-shaft journaled to the base, a sleeve on the shaft, segmental gear-wheels loosely mounted on the sleeve, racks for engaging the segmental gear-wheels, ratchets fixed to the sleeve, pawls for engaging said ratchets, yokes mounted on the segmental gear-wheels, means for connecting the pawls with said yokes, a reversing gear-wheel loosely mounted on the shaft, lugs on the reversing gear-wheel for engaging the yokes, a segmental rack engaging the reversing gear-wheel and a lever operating said segmental rack, substantially as set forth.

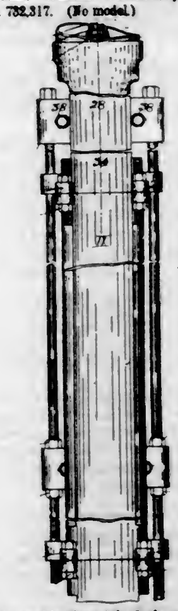
8. The combination of a suitable base, a power-shaft journaled to the base, a sleeve loosely mounted on the shaft, segmental gear-wheels loosely mounted on the sleeve, means for turning said segmental gear-wheels, ratchet-wheels mounted on the sleeve and connected therewith, spring-pawls for connecting the toothed wheels with the ratchet-wheels, and springs coiled around the power-shaft having one of their ends connected with the sleeve and their opposite ends connected to the power-shaft, substantially as set forth.

9. The combination of a shaft, a sleeve on the shaft, a segmental gear-wheel adapted to turn on the sleeve, a rack meshing with the segmental gear-wheel, springs coiled on the shaft, one end of each spring being attached to the sleeve and the other end secured to the shaft, substantially as set forth.

10. The combination of a rotary member to be continuously rotated, an oscillating member from which rotary motion is to be derived, a double pawl-and-ratchet connection through which motion is imparted to the rotary member, and means for throwing either pawl into action to determine the direction of rotation set up in the rotary member, consisting of a segmental gear-wheel mounted to oscillate, lugs located at axially and diametrically opposite points on said segmental gear-wheel, connections through which said lugs disengage the pawls from the ratchet by opposite movements of the segmental gear-wheel, and means for oscillating said segmental gear-wheel at will.

11. The combination of a power-shaft, a sleeve on the shaft, segmental gear-wheels loosely mounted on the sleeve, racks engaging said segmental gear-wheels, ratchet-wheels mounted on the sleeve and connected therewith, pawls for engaging the ratchet-wheels, yokes on the segmental gear-wheels to which the pawls are connected, there being semicircular recesses in said yokes, a reversing-wheel loosely mounted on the power-shaft, lugs on the reversing-wheel for engaging the recesses on the yokes for changing the position of said pawls and means for rotating said reversing-wheel, substantially as set forth.

662,180. PUMP. WILLIAM WILDMAN, Spadra, Cal. Filed Oct. 2, 1899. Serial No. 732,317. (No model.)

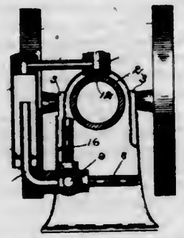


Claim.—1. The combination of the body-section having a cylinder located within it, providing water-legs, and a longitudinal opening extending through the cylinder and body-section, pumping-chambers located at the ends of the cylinder in communication with the opening and water-legs, the heads having waterways and located at the outer ends of the pumping-chambers, spring-valves seating against the outer sides of the heads for closing the waterways in the heads, the pistons each composed of two rings having waterways and screwed together and located in the pumping-chambers, the piston-rod having its ends secured to the pistons, the spring-valves seating against the outer sides of the pistons for closing the waterways in the piston-rings, a cross-head extending through the longitudinal opening and secured to the piston-rod, and means secured to the cross-head for reciprocating the piston-rod.

2. A pump comprising a tubular body having pumping-chambers, means for forcing water through said chambers, water-legs connected with said chambers, an upper section having its water-legs discharged into a central pipe, an opening extending into said upper section, a cross-head adapted to operate in said opening, a central pumping-rod connected with

said cross-head, and inner and outer sleeves surrounding said pumping-rod, and sleeves adapted to telescope with each other and having suitable packing to prevent the passage of water, substantially as set forth.

662,181. GAS-ENGINE. GEORGE J. ALTHAM and JOHN BEATTIE, Jr., Fall River, Mass. Filed May 17, 1900. Serial No. 16,998. (No model.)



Claim.—1. A valveless gas-engine having a continuously open duct connecting one end of the cylinder with the atmosphere.

2. A valveless gas-engine having a continuously open duct connecting one end of the cylinder with the atmosphere, and a gas-supply conduit communicating with the same end of the cylinder.

3. A valveless gas-engine having a continuously open duct connecting one end of the cylinder with the atmosphere, and a gas-supply conduit communicating with the same end of the cylinder, the said conduit being open to the atmosphere.

4. A gas-engine comprising a cylinder having at its outer end a duct continuously open to the atmosphere, and a gas-supply conduit communicating with said duct.

5. A gas-engine comprising a cylinder having at its outer end a duct continuously open to the atmosphere, the outer portion of said duct being enlarged, and a gas-supply conduit communicating with the enlarged portion of the duct.

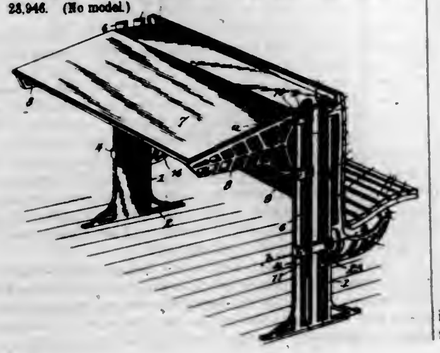
6. A gas-engine having a cylinder, a duct at the outer end of the cylinder continuously open to the atmosphere, a gas-conduit communicating with said duct, an ignition-opening between the ends of the cylinder, and a burner connected with the gas-conduit and arranged to direct a flame in operative proximity to the ignition-opening.

7. A gas-engine having a cylinder, a duct at the outer end of the cylinder continuously open to the atmosphere, and a gas-conduit communicating with said duct and open to the atmosphere between its receiving end and the cylinder-duct.

8. A gas-engine having a cylinder, a duct at the outer end of the cylinder continuously open to the atmosphere, and a gas-conduit comprising a section connected with the duct, a section connected with a gas-supply pipe, and a chamber open to the atmosphere and communicating with said sections.

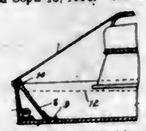
9. A gas-engine having a cylinder, a duct at the outer end of the cylinder continuously open to the atmosphere, and a gas-conduit comprising a section connected with the duct, a section connected with a gas-supply pipe, and a chamber open to the atmosphere and communicating with said sections, said chamber having a contracted neck through which it communicates with the atmosphere.

662,182. COMBINED SCHOOL DESK AND SEAT. GEORGE P. BERTON, Mattawan, Mich., assignor of one-half to Charles S. Smith and Calvin A. Fuhrman, Lawton, Mich. Filed Sept. 4, 1900. Serial No. 28,946. (No model.)



Claim.—A combined desk and seat comprising a pair of standards having vertical channels or grooves, a desk-top having brackets provided at their inner ends with lugs, a seat having brackets provided with lugs, slides, adjustably secured in the grooves or channels of the standards, and to which the lugs of the desk and seat brackets are respectively bolted, whereby the desk and seat may be adjusted independently of each other, and means for retaining the slides in place, substantially as described.

662,183. BOOT FOR CARRIAGES. EDWARD R. BRIGGS, Amesbury, Mass. Filed Sept. 13, 1900. Serial No. 29,918. (No model.)

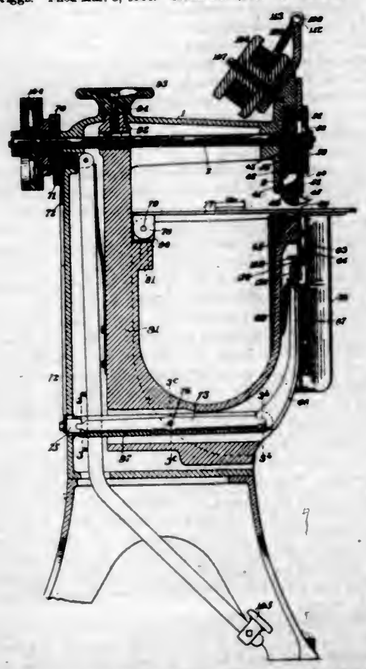


Claim.—1. In a vehicle, the combination of the vehicle-body, a roller mounted therein, a boot attached to the roller and adapted to be housed thereon, and a lid or footboard arranged in conjunction with the vehicle-body to conceal and protect the boot when the latter is housed on the roller, substantially as described.

2. In a vehicle, the combination of the vehicle-body, a roller mounted therein, a boot attached to the roller and adapted to be housed thereon, and a lid or footboard arranged in conjunction with the vehicle-body and formed to project over the edge of the latter and cause the boot to discharge water outside the vehicle, substantially as described.

3. In a vehicle, the combination of the vehicle-body, a roller mounted therein, a boot attached to the roller and adapted to be housed thereon, and having slits near its upper edge, side pieces constituting portions of the said boot and adapted to be folded inward upon the main body of the boot and to lap over each other when thus folded, and straps affixed to the rear edges of the side pieces in position to be inserted through the said slits in the main body of the boot whereby the several portions of the boot are held in proper relative position while the boot is being housed, substantially as described.

662,184. STAPLING-MACHINE. THOMAS A. BRIGGS, Arlington, and THOMAS BARRETT, Boston, Mass.; said Barrett assignor to said Briggs. Filed Mar. 5, 1900. Serial No. 7,336. (No model.)



Claim.—1. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, an oscillatory wire-feeding arm, and means coöperating therewith for alternately gripping and releasing the wire and for moving the feeding-arm positively forward and yieldingly backward, wire-cutters movable toward and from the anvil, an oscillatory adjusting-arm having a stop adapted to limit the backward movement of the feeding-arm, connections between said arm and the cutters, and a device independent of the cutters and cutter-adjusting connections for moving said adjusting-arm, the said device being located above the staple bending and driving mechanism and cutters.

2. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, wire-feeding mechanism including first an oscillatory wire-feeding arm, secondly means for giving the same a positive forward movement, and a yielding backward movement, and thirdly means for alternately engaging the wire with and releasing it from the feeding-arm, a rock-shaft located above the bending and driving mechanism and having an adjusting-arm, a feeding-arm stop on said adjusting-arm which limits the backward movement of the feeding-arm, said rock-shaft and feeding-arm having a common center of oscillation, wire-cutters movable toward and from the anvil, and connections between the said cutters and the adjusting-arm, whereby the cutters and feeding-arm stop are adjusted simultaneously by a movement of the rock-shaft.

3. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, wire-feeding mechanism including first an oscillatory wire-feeding arm, secondly means for giving the same a positive forward movement, and a yielding backward movement, and thirdly means for alternately engaging the wire with and releasing it from the feeding-arm, a rock-shaft located above the bending and driving mechanism and having an adjusting-arm, a feeding-arm stop on said adjusting-arm which limits the backward movement of the feeding-arm, said rock-shaft and feeding-arm having a common center of oscillation, wire-cutters movable toward and from the anvil, connections between the said cutters and the adjusting-arm, whereby the cutters and feeding-arm stop are adjusted simultaneously by a movement of the rock-shaft, and means for adjusting the rock-shaft.

4. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, wire-feeding mechanism including first an oscillatory wire-feeding arm, secondly means for giving the same a positive forward movement and a yielding backward movement, and thirdly means for alternately engaging the wire with and releasing it from the feeding-arm, a rock-shaft located above the bending and driving mechanism and having an adjusting-arm, a feeding-arm stop on said adjusting-arm which limits the backward movement of the feeding-arm, said rock-shaft and feeding-arm having a common center of oscillation, a cutter-carrying slide movable toward and from the anvil, cutters carried by said slide and a stud carried by the adjusting-arm and having a sliding engagement with said arm, whereby a feed-stop-adjusting movement of the rock-shaft is caused to also adjust the slide and cutters.

5. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, an oscillatory wire-feeding arm having a wire-gripping jaw affixed to the arm and a gripping-jaw carried by the arm and movable toward and from the first-mentioned jaw, mechanism for operating the said movable jaw to cause the two jaws to alternately grasp and release the wire, a rock-shaft located above the bending and driving mechanism, and having an adjusting-arm, a feeding-arm stop on the adjusting-arm, said rock-shaft and feeding-arm having a common center of oscillation, mechanism for giving the feeding-arm a forward movement, means for giving the feeding-arm a yielding backward movement which is limited by the said stop, wire-cutters movable toward and from the anvil and connections between the said cutters and the adjusting-arm whereby the cutters and feeding-arm stop are adjusted simultaneously by a movement of the rock-shaft.

6. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, an oscillatory wire-feeding arm, feed-operating mechanism having provisions for giving said arm a forward movement, an adjustable stop for limiting the backward movement of the feeding-arm, an adjustable work-support, and means for simultaneously adjusting the work-support and stop.

7. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, an oscillatory wire-feeding arm, feed-operating mechanism having provisions for giving said arm a forward movement, an adjustable stop for limiting the backward movement of the feeding-arm, an adjustable work-support, a rock-shaft supporting the feeding arm and stop and rigidly connected with the latter, so that the stop is adjusted by movements of the rock-shaft, and connections between the work-support and rock-shaft whereby vertical movements of the support are caused to partly rotate the rock-shaft.

8. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, a wire-feed, feed-operating mechanism having provisions for giving the feed a forward movement, a wire-feed stop, and wire-cutters, both adjustable relatively to the anvil, adjusting mechanism having provisions for proportionally adjusting the feed-stop and the cutters, an adjustable work-support, and means for simultaneously adjusting the work-support and operating the proportional adjusting mechanism.

9. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, a wire-feed, feed-operating mechanism having provisions for giving the feed a forward and backward movement, a wire-feed stop to limit the backward movement of the feed, wire-cutters adjustable with said stop relatively to the anvil, proportional feed-stop and cutter-adjusting mechanism, a work-support, an adjustable jack carrying the work-support, means for adjusting the jack and work-support, and connections between the jack and the proportional adjusting mechanism, whereby the latter is operated and the work-support adjusted simultaneously.

10. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, a wire-feed, feed-operating mechanism having provisions for giving the feed a forward and backward movement, a wire-feed stop to limit the backward movement of the feed, wire-cutters adjustable with the stop relatively to the anvil, proportional feed-stop and cutter-adjusting mechanism, a work-support, an adjustable jack carrying the work-support, means for adjusting the jack and work-support, operating connections between the jack and the proportional adjusting mechanism, clenchers carried by the jack and adjustable with the work-support, and clencher-operating mechanism, parts whereof are supported by the jack.

11. In a stapling-machine, the combination of a work-support having a staple-receiving throat, staple forming and driving mechanism above said throat, clencher-supporting levers pivoted at their lower ends to a support below the throat, clenchers pivoted to the upper ends of said levers and adapted to enter the throat, an operating-plate engaged with arms on the lower ends of said levers and adapted to oscillate the latter, and means for reciprocating said plate.

12. In a stapling-machine, the combination of a work-support having a staple-receiving throat, staple forming and driving mechanism above said throat, clencher-supporting levers pivoted to a support below the throat, clenchers pivoted to said levers and adapted to enter the throat, an operating-plate engaged with arms on said levers and adapted to oscillate the latter, a reciprocating arm adjacent to said plate, and a yielding connection between said arm and plate, whereby the clenchers are adapted to conform to the thickness of the work.

13. A stapling-machine comprising an anvil and staple bending and driving mechanism coöperating therewith, a slide movable toward and from the anvil, cutters carried by the slide, a wire-feeding arm having a segmental wire-guiding end and mounted to oscillate on a center with which said end is substantially concentric, an adjusting-arm mounted to oscillate on the same center and having a stop against which the feeding-arm is yieldingly held, the said stop being one-half as far from the said center as the segmental end of the feeding-arm, whereby when the adjusting-arm is moved, the segmental end of the feeding-arm is moved twice as far as the stop, connections between the cutter-supporting slide and the adjusting-arm adapted to give the cutters an adjusting movement equal to that of the stop, and a rock-shaft for moving the adjusting-arm.

14. A stapling-machine comprising an anvil, and staple bending and driving mechanism coöperating therewith, a slide movable toward and from the anvil, cutters carried by the slide, a rock-shaft journaled in fixed bearings, a feeding-arm mounted to oscillate loosely on the rock-shaft and having a segmental wire-guiding end substantially concentric with the rock-shaft, an adjusting-arm affixed to the rock-shaft and having a stop against which the feeding-arm is yieldingly held, the stop being one-half as far from the axis of the rock-shaft as the segmental end of the feeding-arm, connections between the cutter-carrying slide and the adjusting-arm, a work-support, a vertically-adjustable jack carrying the work-support, means for adjusting the jack, and connections between the jack and the rock-shaft, whereby movements of the jack are imparted to the adjusting-arm, cutters, and feeding-arm.

15. In a stapling-machine, a wire-feeding arm mounted to oscillate on a fixed center, mechanism for oscillating said arm, a pair of wire-grasping jaws, one affixed to the arm and the other movable thereon, a toggle-joint connecting the movable jaw with the arm, a spring which normally holds the toggle-joint in its broken position, and the movable jaw pressed against the wire, a jaw-opening device arranged to force the links of the toggle-joint into alinement and thus displace the movable jaw when the arm is at the end of its forward movement, and a stop arranged to break the toggle-joint when the arm reaches the end of its backward movement.

16. In a stapling-machine, a slide, wire-cutters carried thereby, one of said cutters being vertically movable, means for adjusting the slide to vary the position of the cutters, a vertically-movable cutter-operating slide having an elongated head which bears on the vertically-movable upper cutter and is in sliding contact therewith, and means for reciprocating the cutter-operating slide.

17. A pair of wire-severing cutters composed of a resilient metal strip the end portions of which constitute the cutting parts while the intermediate portion constitutes a spring which normally separates the cutters.

18. A pair of wire-severing cutters composed of a scroll-shaped resilient metal strip the end portions of which constitute the cutting parts, while the intermediate portion constitutes a spring which normally separates the cutters, one of said end portions being formed to engage a support while the other is formed to engage an operating device.

19. In a stapling-machine, a cutter-support, a resilient metal strip one end portion of which is engaged with the support and constitutes a fixed cutter, while the other end portion constitutes an upper movable cutter which is normally raised by the resilient intermediate or shank portion, an operating-slide having an elongated bead which bears on the upper cutter, and an operating-cam against which the operating-slide is held by said resilient shank.

20. In a stapling-machine, a cutter-support, a resilient metal strip one end portion of which is engaged with the support and constitutes a fixed cutter, while the other end portion constitutes a movable cutter which is normally raised by the resilient intermediate or shank portion, means for depressing the movable cutter, and a resilient wire-guiding finger extending from the feed-arm to the resilient shank and coöperating with the latter in grasping the wire when the upper cutter is depressed.

21. In a stapling machine, a pair of cutters composed of the end portions of a resilient strip, the intermediate or shank portion of which connects the cutters and normally raises one of the cutters, a support engaged with the other cutter, and a depressing device against which the first-mentioned cutter is yieldingly held by said shank, the cutters being separable from the support and depressing device and held in engagement therewith by the resilient shank.

22. A stapling-machine comprising an anvil, a staple bending and driving mechanism coöperating therewith, a work-support, a vertically-movable jack carrying the work-support, an adjustable connection between the jack and the frame of the machine, whereby the jack and work-support may be raised and lowered, a wire-feed mechanism, wire-cutting mechanism, and proportional feed and cutter adjusting mechanism operated by vertical movements of the jack.

23. A stapling-machine comprising an anvil, a staple bending and driving mechanism coöperating therewith, a work-support, a vertically-movable jack carrying the work-support, an adjustable connection between the jack and the frame of the machine, whereby the jack may be raised and lowered with the work-support, and a radius bar or strut jointed to the frame and to the lower portion of the jack and supporting the same laterally.

24. A stapling-machine comprising an anvil, and staple bending and driving mechanism coöperating therewith, a work-support, a vertically-movable jack carrying the work-support, an adjustable connection between the jack and the frame of the machine, whereby the jack may be raised and lowered with the work-support, a radius bar or strut jointed to the frame and to the lower portion of the jack, clenchers supported by the jack, a clencher-operating lever pivoted to the said radius-bar, connections between the lever and the clenchers, a clencher-operating cam, and connections between the cam and lever.

25. In a stapling-machine, a staple-receiving throat having inclined guides on opposite sides thereof, a reciprocating slide movable toward and from the said throat, pivoted levers engaged with the slide, and clenchers located wholly below said guides and pivoted to the levers and coöperating with the inclined guides.

26. In a stapling-machine, a flat work-support composed of two sections, a holder for said sections, hinge connections between the holder and the rear portions of the sections, and means for supporting the swinging ends of the sections when they are in their operative positions, said hinge connections having provisions for permitting the sections to first swing edgewise, out of engagement with the said supporting means, and then downwardly.

27. In a stapling-machine, a saddle-shaped work-support composed of two sections hinged to a suitable holder, and means for locking the sections in their raised operative position, the sections being arranged to swing in the same plane and to abut together at their inner ends when raised, said abutting ends being on the center line of the machine.

28. In a stapling-machine, a saddle-shaped work-support composed of two sections hinged to a suitable holder at points on opposite sides of the center line of the machine, the inner ends of said sections being arranged to abut together on the center line of the machine when the sections are raised to their operative positions, and to form supports for a flat work-support when the sections are released from their operative positions.

29. A stapling-machine having staple forming and driving mechanism, a staple-receiving throat, and two divided interchangeable work-supports each composed of separable sections hinged to the frame of the machine and having their meeting edges on the center line of the machine and intersecting said throat, the sections of each support being displaceable to afford room for the sections of the other support.

30. In a stapling-machine, the combination with a staple bender and driver, of a presser-foot having a segmental guide, and a segmental anvil-carrier movable by gravitation in said guide and having a wire-supporting anvil which stands normally in an operative position under the center of oscillation of the carrier, said center being in the path of the bender.

31. In a stapling-machine, a presser-foot having a segmental guide, a segmental anvil movable by gravitation in said guide and having wire-supporting shoulders which are operative when the anvil is in its normal position, the anvil having a plurality of inclined faces, a reciprocating bender adapted to coöperate with one of said faces in partly displacing the anvil to remove the said shoulders from the formed staple, and a reciprocating driver, another inclined face on the anvil being arranged to cause the driver to force the anvil out of the path of the driver.

32. In a stapling-machine, a presser-foot having a segmental guide, a segmental anvil movable by gravitation in said guide and having wire-supporting shoulders which are operative when the anvil is in its normal position, the anvil having two horns with inclined outer faces and an inclined face between said horns, a bender having grooves to receive the legs of a staple, and an intermediate finger to coöperate with the face between the staple-prongs in forcing the shoulders of the anvil out of the path of the formed staple, and a driver movable in the grooves of the bender, the inclined outer faces of the anvil-horns being in the path of the driver, so that the latter in descending displaces the anvil.

33. A stapling-machine, comprising wire-feeding mechanism and staple forming and driving mechanism, an inclined spool-supporting spindle, a frictional bearing-surface at the base of said spindle, an oscillatory wire-guiding arm journaled at one end above the spool-support and a wire-guide between the journaled end of said arm, and the feeding mechanism, the inclination of the spindle causing the spool to remain in place on the spindle and to bear by gravitation on the said frictional bearing-surface without permitting said surface to sustain the entire weight of the spool.

34. In a stapling-machine, an inclined spool-support, and a curved oscillatory wire-guiding arm journaled at one end in a fixed bearing, which is elevated above the spool-support, its other end being arranged to swing beside the spool-support, wire-feeding mechanism, and a wire-guide between the journaled end of the oscillatory guiding-arm and the feeding mechanism

35. In a stapling-machine, a spool-support, a fixed bearing adjacent to the said support and having a longitudinal slot, and a curved wire-guiding arm mounted to rock at one end in said bearing and having a wire-guiding groove which is normally out of alinement with the slot in the bearing.

36. In a stapling-machine, a spool-support, a fixed bearing adjacent to said support, a wire-guiding arm mounted to rock at one end in said bearing, its other end being arranged to oscillate beside the spool-support, a wire-feeding device, and a resilient tension-arm interposed between the wire-guiding arm and the feeding device, and provided with a facing of yielding material.

37. A stapling-machine having a work-support adjustable toward and from a gage-roll, and a pivoted gage member movable with the work-support and arranged to coöperate with the gage-roll, said pivoted gage member being held yieldingly in its operative position.

38. In a stapling-machine, the combination with the anvil and the cutters and their supporting-slide movable toward and from the anvil, of a holding-down device movable over the wire between the cutters and anvil, and means operated by the supporting-slide for projecting and retracting the same.

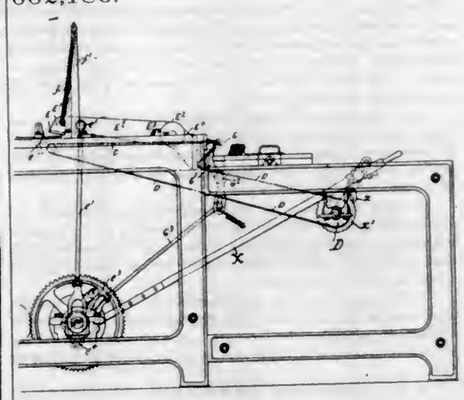
662,185. ORNAMENTAL-STITCH MACHINE. IDA R. BURDICK, Gloversville, N. Y. Filed Feb. 26, 1900. Serial No. 6,620. (No model.)

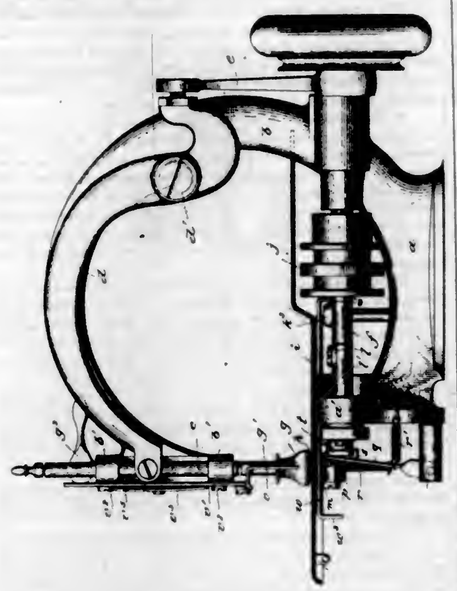
Claim.—1. The combination of a feed-dog, means to impart to it back-and-forth and up-and-down motions, and means to vibrate it laterally, with a stitch-forming mechanism including a reciprocating hook and a cast-off therefor, a complemental looper constructed as a thread-carrier, a pivoted holder for such looper, means to reciprocate said looper and its holder longitudinally and laterally with relation to the feed-dog, a take-up and means to vibrate it, substantially as described.

2. The combination of a feed-dog, means to impart to it back-and-forth and up-and-down motions, and means to vibrate it laterally, with a stitch-forming mechanism including a reciprocating hook, a complemental looper constructed as a thread-carrier and receiving the thread from below, a pivoted holder for such looper, means to reciprocate said looper and its holder longitudinally and laterally with relation to the feed-dog, a take-up and means to vibrate it, substantially as described.

3. A machine for stitching the backs of gloves, and for stitching other objects, with zigzag lines of stitches laid on the face or side exposed to the operator, comprising a reciprocating hook, to which a single thread is supplied from below, and a looper-holder pivotally connected to a fixed portion and adapted to be vibrated across the path of the descending hook and transversely thereto, a cam having peripheral and face contact with said looper-holder, means to hold the looper-holder in operative contact with said cam, and means to impart a zigzag longitudinal feed to the material, substantially as described.

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4. A machine for stitching the backs of gloves, and for stitching other objects, with zigzag lines of stitches laid on the face or side exposed to the operator, comprising a reciprocating hook to which a single thread is supplied from below, a cast-off, a complemental looper constructed as a thread-carrier, a looper-holder pivoted at its lower end to a fixed portion, means to impart a back-and-forth and a laterally-vibrating movement to said looper and its holder, and a material-feeding mechanism including a feed-dog having lengthwise, rising-and-falling and laterally-vibrating movements, substantially as described.

5. A machine for stitching the backs of gloves, and for stitching other objects, with zigzag lines of stitches laid on the face or side exposed to the operator, comprising a reciprocating hook, to which a single thread is supplied from below, a cast-off, a cast-off slide having a slot-and-screw attachment to the machine-head and a slot-and-pin connection with the hook carrier or bar and thereby adapted to be intermittently reciprocated by the said hook carrier or bar, a complemental looper, and a material-feeding mechanism including a feed-dog having lengthwise, rising-and-falling and laterally-vibrating movements, substantially as described.

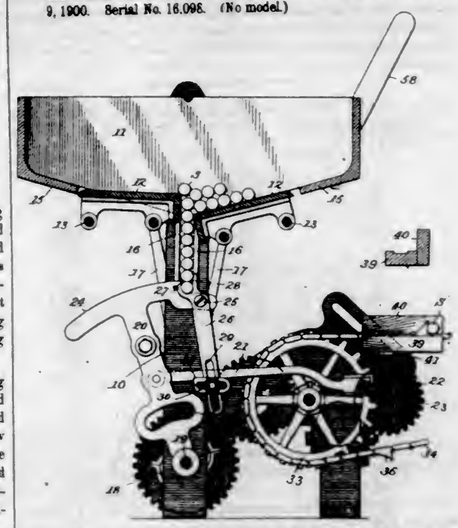
6. A machine for stitching the backs of gloves, and for stitching other objects, with zigzag lines of stitches laid on the face or side exposed to the operator, comprising a reciprocating hook, to which a single thread is supplied from below, a complemental looper constructed as a thread-carrier, a looper-holder pivotally supported at its lower end and means for giving it movement in directions transverse to one another, and material-feeding mechanism including a feed-dog having lengthwise, rising-and-falling and laterally-vibrating movements, substantially as described.

662,186. CUTTING-MACHINE. DAVID CARLAW, Glasgow, Scotland. Filed Dec. 28, 1897. Serial No. 664,004. (No model.)

Claim.—1. In mechanism for cutting and stacking strips of tickets, &c., the combination of an oscillating knife to cut the strips, with a flier and bands to receive the cut strips from the knife, and deliver them to the flier, and means for intermittently operating the knife, bands and flier, substantially as described.

2. In mechanism for cutting and stacking strips of tickets, &c., the combination of an oscillating knife to cut the strips, with a flier and bands to receive the cut strips from the knife and deliver them to the flier, and means for intermittently operating the knife, bands and flier, all from one continuously-driven shaft, substantially as described.

662,187. PAPER-DRYING APPARATUS. STEPHEN A. COPENHAVER, York, Pa., assignor, by direct and mesne assignments, of one-half to John McCoy and W. F. Bay Stewart, same place. Filed May 9, 1900. Serial No. 16,096. (No model.)



Claim.—1. In a drying apparatus of the class described, the combination with stick-carrying devices, of a hopper for holding sticks, guides for said sticks below the hopper, two movable sections in the bottom of the hopper adjacent to the guides, means for moving said sections to direct the sticks into the guides, and means for delivering the sticks successively from the guides to the carrying devices.

2. In a drying apparatus of the class described, the combination of a hopper having two pivoted rocking sections in the bottom thereof, vertical guides for the sticks, means for rocking the sections to deliver the sticks to said guides, and means for delivering the sticks successively from the lower ends of the guides to carrying devices.

3. In a drying apparatus of the class described, the combination of a hopper for sticks, guides for said sticks extending downward from the middle of the hopper, a pivoted bottom section in the hopper on each side of said guides, said sections being separated to permit the sticks to enter the guides, and means for rocking said sections alternately to direct the sticks into the guides.

4. In a drying apparatus of the class described, the combination with carrying-chains, of a hopper for sticks, arms having circular segments adapted to support the sticks in the hopper during the rocking of the arms, levers pivoted to said arms and arranged to rock about fixed pivotal points, devices on said levers adapted to receive and carry a stick, and means for rocking the arms to carry successive sticks from the hopper to the carrying-chains.

5. In a drying apparatus of the class described, the combination with the stick-hopper, and the guides below said hopper into which the sticks are directed, of the rocking arms having segments adapted to support the sticks in said guides, the carrying-levers pivoted near their upper ends to said segments, the fingers on the upper ends of said levers adapted to receive a stick from the guides, slots in the lower ends of the levers, and fixed bolts passing through said slots.

6. In an apparatus of the class described, the combination of the carrying-chains, the adjustable supports for the upper members of said chains, the stick-hopper, the rocking arms having supporting-segments, the stick-carrying levers pivoted to said segments, and the adjustable bolts about which said stick-carrying levers rock.

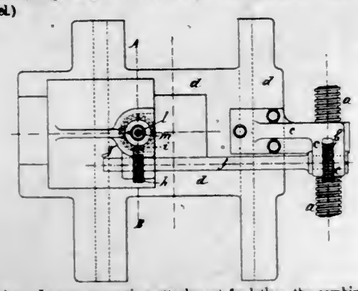
7. In an apparatus of the class described, the combination of the stick-hopper, the lower stick-carrying chains, means for feeding the sticks successively from the hopper to the chains, means for transferring the sticks to the upper carrying-chains, and the toothed wheels adapted to deliver the sticks to the hopper.

8. In an apparatus of the class described, the combination with the lower carrying-chains, and the inclined carrying-chains, of the inclines 44 for lifting the sticks from the lower chains, the pawls 47 for preventing backward movement of said sticks, and the guides 49, for the purpose set forth.

9. In an apparatus of the class described, the combination with the inclined carrying-chains, of the freely-movable toothed wheels constituting yielding stops for the sticks, said wheels being located to intercept the sticks as they are delivered from the inclined chains.

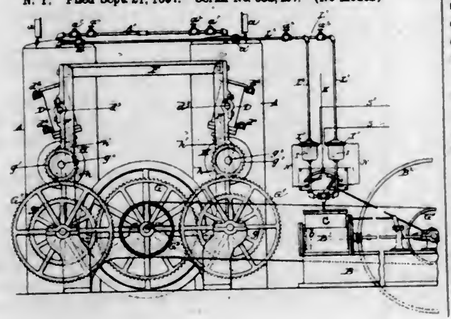
10. In an apparatus of the class described, the combination with stick-carrying chains having a rapid movement, and stick-carrying chains having a slower movement, of yielding stops arranged to intercept the sticks as they are delivered from the rapidly-moving chains to the slowly-moving chains, and prevent the disarrangement of the sticks due to their momentum.

662,188. **SCREW-CUTTING ATTACHMENT FOR LATHES.** JEAN CORNELIS, Liege, Belgium. Filed Jan. 15, 1900. Serial No. 1,436. (No model.)



Claim.—In a screw-cutting attachment for lathes, the combination with the tool-rest *g* and the saddle *d*, movable longitudinally on the ways of the lathe, of the arm *c* secured to the saddle, the screw *a* passing through arm *c* parallel with the work, the horizontal shaft *f* journaled in the arm *c* and in the tool-rest at right angles to the screw *a*, the worm *b* on shaft *f* engaging with the threads of screw *a* and driven thereby, the vertical shaft *l* journaled in the tool-rest, gearing whereby shaft *l* is driven by shaft *f* and the rotary tool *n* carried by shaft *l*, substantially as described.

662,189. **COMPRESSED-AIR ENGINE.** MATTHEW FLOOD, Albany, N. Y. Filed Sept. 21, 1897. Serial No. 652,427. (No model.)



Claim.—1. The combination with cylinder B of the engine, gear-trains driven by said engine as described, two air force-pumps actuated by said gear-trains, two compressed-air tanks A A, charge-receiving vessels I′ I′, pipes L′ L^2 communicating from the compressed-air tanks to said charge-receiving vessels I′ I′, heating devices I I contained within said charge-receiving vessels, of valve L described, pipes leading from the said vessels I′ I′ to the inlets of said valve, a pipe leading from the outlet of said valve to an air-chest provided with the valve mechanism described and communicating with said cylinder B, and mechanism described between said valve L and the engine whereby said valve is automatically operated, substantially as and for the purposes set forth.

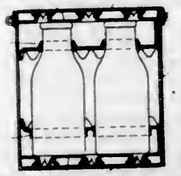
2. The combination with two compressed-air tanks, an air-engine, and mechanism between said engine and said two tanks, adapted to regulate the supply of air charges to the piston of the cylinder of the engine alternately from said tanks, of an electrical heater arranged between each of said tanks and the piston of said cylinder, conductor K electric switch mechanism between conductor K and said heaters, and mechanism operated by the engine, operating said switch mechanism for making and breaking the circuits respectively between the said conductor and said heaters, alternately.

3. The combination with two compressed-air tanks, an air-engine, mechanism operated by the said engine for regulating the discharge of compressed-air charges into the cylinder of said engine, electric heaters between the piston of said cylinder and said tanks, electric supply-conductor K and a switching mechanism, operated also by the engine, between the said heaters and the said electric supply-conductor.

4. The combination, in an air-engine, with an air-cylinder, an air-chest communicating with said cylinder, two air-compression tanks, two heaters and air-pipes L′ L^2 connecting said air-heaters with said tanks as described, of valve L provided with the chambered rotating plug L^2, described, and communicating from the said two heaters to the said steam-chest, as described, and a switch mechanism between said heaters and said valve adapted to be operated by the engine substantially as and for purposes set forth.

5. The combination with an air-engine, air-chest, eccentric and rod, two compressed-air tanks, air-valve L, air-pipes L′ L^2, and a check-valve in the course of each of said air-pipes, of a heater vessel also in the course of each air-pipe, an electric supply-conductor, an electric heater within each said vessel, switching mechanism and conductors between said electric supply-conductor and each heater and mechanism, operated by the engine, making and breaking the circuits of the electric current between the electric supply-conductor and the respective heaters.

662,190. **PACKING-CASE.** EDWARD A. GALBRAITH, Boston, Mass., assignor of one-half to Henry W. Bragg, same place. Filed Apr. 16, 1900. Serial No. 13,015. (No model.)



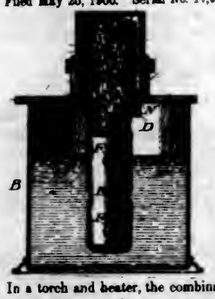
Claim.—1. The combination with a packing-receptacle adapted for the reception of bottles or jars, of packing-sheets or diaphragms each being doubled upon itself to have one section extending across the ends of the bottles or jars and having another section apertured to receive said bottles or jars, the first-mentioned section being provided with a plurality of annular groups of spring-tongues bent outwardly from one side of the section, and backwardly to overhang portions of the section, their outer ends being adapted to bear against the inner face of the top and bottom of the receptacle, to hold the bottles or jars yieldingly against longitudinal movement.

2. A packing-sheet for use in receptacles adapted for the reception of bottles or jars, said sheet being adapted to be bent upon itself to provide two parallel sections, one of which is apertured to receive a bottle or bottles, and the other of which is provided with cushioning devices for engaging the top or bottom of the said receptacle.

3. The combination with a packing-receptacle adapted for the reception of bottles or jars, of layers of packing-sheets arranged in parallelism and adapted to yieldingly maintain the said bottles or jars in said receptacle out of contact with each other and with the walls of the receptacle, one of said layers being apertured to receive said bottles or jars and having integral spring-tongues around said apertures, and the other extending across the ends of said bottles or jars and having cushioning devices to separate it from the adjacent parallel wall of the receptacle.

4. A packing-sheet of relatively springy or resilient material, having a plurality of annular groups of tongues integral with the body of the sheet, the tongues of each group surrounding an orifice formed by the displacement of the tongues, said tongues being normally bent or inclined backwardly from the said orifice to form springs which overhang the portions of the sheet surrounding the orifice, each group of tongues constituting an annular cushion exposed to end thrust against the tongues.

662,191. **TORCH AND HEATER.** CHARLES L. DE FRORER, Philadelphia, Pa. Filed May 25, 1900. Serial No. 17,915. (No model.)



Claim.—1. In a torch and heater, the combination of a reservoir, a burner and wick tube dipping into the same, means for supporting said tube in said reservoir, and a closing-cap for said tube, the top of said reservoir being provided with a port communicating with the bottom of said cap, and the burner and wick tube being formed with a channel providing communication between said reservoir and top of said cap.

2. In a torch and heater, the combination of a reservoir, a wick-tube and a sleeve surrounding the same forming a burner, which dips into said reservoir, means for supporting said tube in said reservoir and a closing-cap for said tube, the top of said reservoir being provided with a port forming a communication between said reservoir and bottom of said cap, said sleeve being spaced from said wick-tube forming an air-passage providing communication between said reservoir and top of said cap.

3. In a torch and heater, a reservoir, a wick-tube dipping into the same, a sleeve surrounding said tube and forming therewith a burner, and a flange projecting from said sleeve and being seated on said reservoir as a support for said tube, said sleeve being corrugated and partly secured to said tube, and parts spaced therefrom forming air-passages leading from the reservoir to the top of the burner.

4. In a device of the character stated, a burner, a closing-cap therefor, a reservoir having a port in the top thereof and a neck rising from said top outside of said port said port being between said borner and neck and a vertically-corrugated sleeve encircling the exterior of the burner the openings formed by the corrugation being in communication with the interior of the reservoir and the interior of a closing-cap over the burner.

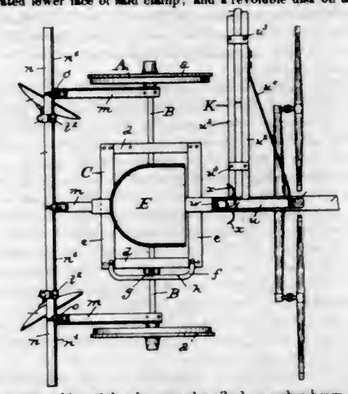
5. In a combined torch and heater, a reservoir, with ears projecting from the periphery of the top thereof, a ring having legs depending therefrom, the lower ends of the same being removably fitted in said ears, and a cup adapted to be seated on said ring or to surround the lower end of the reservoir, and the legs of the ring being adapted to slide over the upper end of the reservoir and to fit between the reservoir and the body of the cap when the parts are nested.

6. In a combined torch and heater, a reservoir having a top and a burner in said top, in combination with a ring having a loop and depending legs, said top being provided with ears which project from the periphery thereof and removably receive the lower ends of said legs.

662,192. **COMBINED FURROW OPENER, MARKER, AND COVERER.** ADAM GILTZ, Harmans, Md. Filed May 31, 1900. Serial No. 18,650. (No model.)

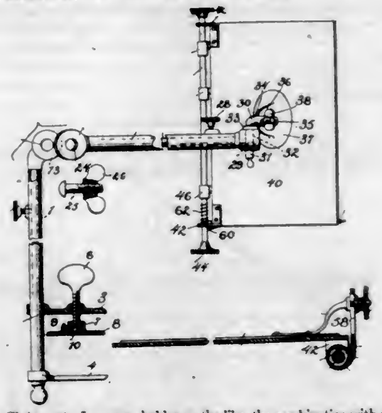
Claim.—1. A machine of the character described, comprising running-wheels; an axle supported by said wheels and mounted to rock about its longitudinal axis, and provided with upwardly-extending ears; V-shaped standards to which said ears are pivotally connected; a frame for the driver's seat rigidly attached to the upper ends of said V-shaped standards and provided at one side with a latch-bar; a strap secured to said axle; a hand-lever secured to said strap to move the same whereby to rock the axle and arranged for engagement with the latch-bar; rearwardly-extending arms rigidly secured to said axle; a transverse beam secured to said arms; and disks supported by said beam.

2. In a machine of the character described, the combination of a horizontal disk-supporting beam which is L-shaped in cross-section; a clamp having a tongue and lip engaging the horizontal member of said beam and slidable along the same; a hook engaging the vertical member of said beam and having a shank connected with the tongue of the said clamp, said clamp being also formed with an opening and a serrated lower face around the opening; a disk-carrying arm having a shank axially adjustable in said opening and provided with a serrated flange adapted to engage the serrated lower face of said clamp; and a revoluble disk on said arm.



3. In a machine of the character described, a marker-beam arranged to swing in a vertical plane from one side of the machine to the other; a rigid upright post adjacent the pivot of said beam; an upwardly-extending spring secured at one end to said post; and a spring-clip secured to the free end of said spring and having oppositely-curved ends extending outside of said post into the path of said beam and forming a space between the ends to receive the beam and hold it in vertical position, as and for the purpose set forth.

662,193. **COPY-HOLDER.** JAMES W. HARSHA, Columbus, Ohio. Filed Mar. 22, 1900. Serial No. 9,673. (No model.)



Claim.—1. In a copy-holder, or the like, the combination with a support in two members, the first consisting of a tubular upright and a smaller upright adjustable longitudinally and rotarily therein, the second consisting of a tube with a smaller piece adjustable longitudinally and rotarily therein, disks at the meeting ends of the smaller upright and said tube, a bolt through the disks for permitting swinging adjustment of the second member in a vertical plane, and at the outer end of said smaller piece a head pierced with a transverse eye; of an L-shaped member whose upright arm fits said eye, a lug adjustable pivotally in a vertical plane in the other arm of said member, and a rack carried by the lug, as and for the purpose set forth.

2. In a copy-holder, the combination with a substantially upright rack, brackets thereon, and a shaft journaled therein; of the gripper-fingers fixed on the shaft, a sleeve surrounding the shaft, a rubber ring within this sleeve for holding it frictionally in place, and an indicating-finger supported by the sleeve, as and for the purpose set forth.

3. In a copy-holder, the combination with a substantially upright rack, a sleeve supported along one edge thereof, and means for turning the sleeve on its axis and adjusting it vertically; of an arm projecting from the sleeve at substantially right angles to the rack, an indicating-finger passing across the face of the latter, and connections between these

parts for permitting the adjustment of the finger in a plane parallel with the rack, as and for the purpose set forth.

4. In a copy-holder, the combination with the rack, brackets thereon, and a shaft journaled therein; of a sleeve held frictionally on the shaft, a slotted arm projecting rigidly from the sleeve, an indicating-finger extending across the rack, a bracket thereon resting against the arm, and a set-screw passing through the slot in the latter and into the bracket, substantially as described.

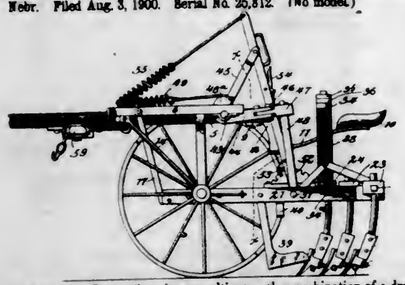
5. In a copy-holder, the combination with the rack, brackets thereon, and a shaft journaled therein, of a vertically-movable sleeve splined on the shaft between the gripper-fingers, an arm projecting rigidly from the sleeve and standing normally in a plane substantially at right angles to that of the rack said arm being turned outward when the shaft is rotated, an indicator-finger extending across the rack, and adjustable connections between this finger and arm, as and for the purpose set forth.

6. In a copy-holder, the combination with the rack, brackets thereon, a shaft journaled therein and having a longitudinal groove, and the gripper-fingers carried by the shaft; of a vertically-movable sleeve splined on the shaft, a rubber ring within this sleeve holding it frictionally thereon, an arm projecting rigidly from the sleeve and standing normally in a plane substantially at right angles to that of the rack said arm being turned outward when the shaft is rotated, an indicator-finger extending across the rack, and adjustable connections between this finger and arm, as and for the purpose set forth.

7. In a copy-holder, the combination with the rack, brackets thereon having bearings and the lowermost having in its lower face a shoulder adjacent its bearing; a shaft mounted for rotation and longitudinal movement in the bearings and having a knob or the like, a pin in this shaft below the lower bearing, and a spring turning the shaft normally in a direction to throw the pin against the shoulder; of fingers carried by the shaft and held thereby away from the rack when the spring is under pressure and the pin is engaged with the shoulder, as and for the purpose set forth.

8. In a copy-holder, the combination with the rack, brackets thereon having bearings and the lowermost having in one face a shoulder adjacent its bearing, a shaft mounted for rotation and longitudinal movement in the bearings and having a knob or the like, a pin in this shaft near the lower bearing, and a spring turning the shaft normally in a direction to throw the pin against the shoulder; of gripper-fingers fast on the shaft, a sleeve splined on the shaft between said gripper-fingers, and an indicating-finger carried by the sleeve, all the fingers being held away from the rack when the spring is under pressure and the pin is engaged with the shoulder, as and for the purpose set forth.

662,194. RIDING SULKY-CULTIVATOR. JOSEF JELEN, Norfolk, Nebr. Filed Aug. 3, 1900. Serial No. 25,812. (No model.)

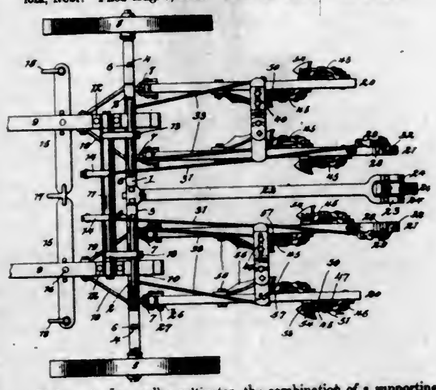


Claim.—1. In a sulky plow or cultivator, the combination of a draft-frame, a rock-shaft mounted thereon, and having the rock-arm, a plow-beam connected at its front end to said frame, a link-lever connected at its lower end to said plow-beam and connected near its upper end to said rock-arm, a spring connected to and drawing forward on the upper end of the said link-lever and tending to raise the rear end of said plow-beam, and a spring connected to said rock-shaft, tending to partly rotate the same and also tending to raise the rear end of the plow-beam, substantially as described.

2. The combination in a sulky-cultivator, of a draft-frame, a rock-shaft mounted thereon, a rock-arm rigid on said rock-shaft, a rock-arm pivotally secured to said rock-shaft, a pair of plow-beams having their front ends connected flexibly to said draft-frame, said plow-beams being flexibly connected together near their rear ends, a flexible connection between one of the plow beams and the rigid rock-arm on the rock-shaft, a link-lever connected to the other plow-beam and to the rock-arm which is pivotally secured to the rock-shaft, and a spring connected to and drawing forward on the upper portion of said link-lever, substantially as described.

3. The combination in a sulky-cultivator, of a draft-frame, a rock-shaft mounted thereon, a rock-arm rigid on said rock-shaft, a rock-arm pivotally secured to said rock-shaft, a pair of plow-beams having their front ends flexibly connected to said draft-frame, said plow-beams being flexibly connected together, near their rear ends, a flexible connection between one of the plow-beams and the rigid rock-arm on the rock-shaft, and a link-lever connected to the other plow-beam and to the rock-arm which is pivotally secured to the rock-shaft, substantially as described.

662,195. WALKING SULKY-CULTIVATOR. JOSEF JELEN, Norfolk, Nebr. Filed Aug. 3, 1900. Serial No. 25,813. (No model.)



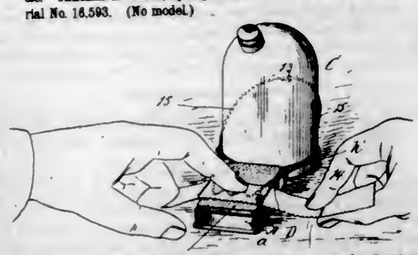
Claim.—1. In a sulky-cultivator, the combination of a supporting-frame, a rock-shaft thereon having oppositely-extending rock-arms, plow-beams, adjusting-levers on said plow-beams and connections between said levers and said plow-beams and said oppositely-extending rock-arms, for the purpose set forth, substantially as described.

2. In a sulky-cultivator, the pairs of plow-beams having the vertically and inwardly extending arms, in combination with the link-plates, adjustably secured to one of said inwardly-extending arms and pivotally secured to the other, substantially as described.

3. The combination of the plow-beams, the vertical arms projecting from the upper side thereof, the horizontally-disposed inwardly-extending arms at the upper end of said vertical arms, and link-plates adjustably secured to one of said horizontally-disposed arms and pivoted to the other, substantially as described.

4. The combination of the plow-beams having the inward-extending arms, one of which has the pivotal opening 36 and the concentric slot 37, the slotted link-plate secured to one of said arms by bolts in said slots, said link-plate having a pivotal bolt at one end in the pivotal opening 36 of the other arm and further provided with an adjusting-bolt in said concentric slot 37, substantially as described.

662,196. UTENSIL FOR MOISTENING STAMPS, ENVELOPS, &c. CHARLES L. JENNE, Springfield, Mass. Filed May 14, 1900. Serial No. 16,593. (No model.)



Claim.—1. A stamp-moistening device consisting of a fount and a pan-like base, a portion of which extends forwardly of the lower portion of the fount, and which receives therein its supply of liquid from the fount, and which is provided with an upwardly-exposed absorbent pad, a skeletonized or open-work stamp-support pivotally mounted on the fount and adapted to be swung toward and against the pad, and spring-reacting means for swinging the stamp-support to a normal position upwardly out of contact with the pad, for the purposes set forth.

2. In a device of the character described, the combination of the fount, the extended portion of the base being in the form of a pan or holder, a perforated plate supported above the bottom of said extended portion, a pad resting on said perforated plate, and the wire device D comprising the corrugated portion 10, the rearwardly-extending arms 12, 12, arranged in the plane of said corrugations, the eyes 14, 14, and the angularly-extended extremities 15, 15, engaged the one with the other, and arranged angularly to the said parts 10 and 12, the said device being pivotally connected through its eyes to the fount, substantially as described.

662,197. CUFF-HOLDER. JOEL G. KIRCHHOFER, Chicago, Ill. Filed July 9, 1900. Serial No. 22,908. (No model.)

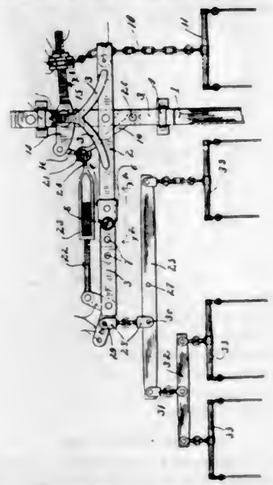


Claim.—1. In a cuff-holder the combination of two spring-pressed pivotally-united coöperating holding-jaws normally closed having upon their forward end a series of teeth, and upon their rear end a pair of spring-hooks adapted for an interlocking engagement for the purpose of holding the said jaws temporarily open; and means for securing the said holder in position on the cuff.

2. A cuff-holder consisting of a pair of spring-pressed jaws pivotally united and normally closed, having upon their lower edges a lateral flange adapted to avoid a wearing contact with the cuff, and provided upon their rear end with spring-hooks adapted for an interlocking engagement to hold the said jaws temporarily open; and means for securing the holder in position.

3. The combination in a cuff-holder of a pair of spring-pressed jaws pivotally connected and normally closed, one of said jaws being provided upon the lower edge of its forward end with a longitudinal flange for the purpose specified, and also provided with a guiding-flange arranged between the lower edge of the other jaw or movable jaw and the adjacent face of the cuff.

662,198. DRAFT-EQUALIZER. HENRY KUGLER, Fergus Falls, Minn. Filed July 20, 1900. Serial No. 24,265. (No model.)

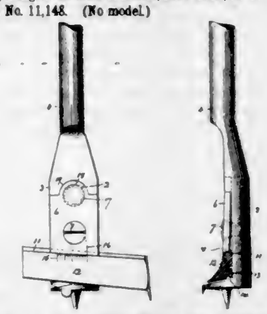


Claim.—1. An equalizer involving as an intermediate connection between the single and the plural draft devices, the lever 14 pivoted at 15 and having the adjustable collar or head 13 to which the said single draft device is connected, substantially as described.

2. The combination with the pole having the transverse bar secured thereto, of the lever 14 pivoted to said pole and provided with the collar or head 13 having screw-threaded engagement therewith, the singletree and connection to said collar 13, the bell-crank lever 17 pivoted to the outer end of said pole-bar, a three-arm toggle-lever connecting the pole with said levers 14 and 17, and a draft-equalizer applied to said lever 17, substantially as described.

3. A convertible four and five horse evener, comprising in combination with the pole 1, the extensible bar 2 5 secured to said pole, the lever 14 pivoted to said pole and provided with the collar 13 screw-threaded thereon, the singletree 11 with chain 10 guided by said bar 2 and connected to said collar 13 by a ring 12, the bell-crank lever 17 pivoted to the bar extension 5, the toggle-lever 16, 19, 21, connecting the shorter end of the lever 14 with the pole, the adjustable connection 22, 23 connecting said lever 17 with the eye 21 of the toggle member 19, the convertible three and four horse evener-bar 25 adjustably connected to said bell-crank 17, and suitable draft devices for connection to said draft-bar 2 5, substantially as described.

662,199. EXPANSIBLE BIT. JOSEPH P. LAVIGNE, New Haven, Conn., assignor to John J. Tower, New York, N. Y. Filed Apr. 2, 1900. Serial No. 11,148. (No model.)



Claim.—1. In an expansible bit, the combination with the head, transversely-arranged sliding cutter, clamping-plate and clamping-screw thereof, of a spring coacting with the clamping-plate to maintain the grip thereof upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

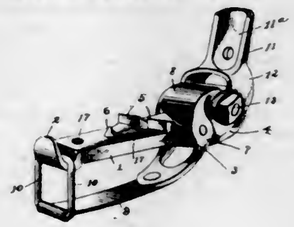
2. In an expansible bit, the combination with a head formed with a recess, and with a spring-socket leading out of the bottom of the said recess, of a transversely-arranged sliding cutter adapted to be mounted in the said head, a clamping-plate located in the said recess, and engaging with the upper edge of the cutter, a clamping-screw passing through the said plate, and a spring located in the said spring-socket, and placed under tension by the clamping-plate which it operates, when the screw is reversed, to maintain a grip upon the cutter.

3. In an expansible bit, the combination with the head thereof, of a transversely-arranged sliding cutter, a clamping-plate engaging with the said cutter for holding it against lengthwise movement, a clamping-screw passing through the plate, means for preventing the said plate from swiveling upon the said screw and a spring located above the said screw and coacting with the said plate to cause the same to maintain its grip upon the cutter when the same is turned back so as to permit the cutter to be adjusted.

4. In an expansible bit, the combination with the head thereof, of a transversely-arranged sliding cutter, a clamping-plate formed with a centering-lug coacting with the said head, a clamping-screw passing through the said plate which is prevented from swiveling upon the said screw by means of the said lug and a spring located above the said screw and coacting with the said plate to cause the same to maintain its grip upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

5. In an expansible bit, the combination with a head formed with a clamping-recess, of a transversely-arranged sliding cutter located in the lower end of the said recess, a clamping-plate located in the said recess, and formed with a centering-lug entering a recess leading out of the clamping-plate recess, a clamping-screw passing through the said plate which is prevented from swiveling upon the said screw by means of the said centering-lug, and a spring coacting with the said plate to cause the same to maintain its grip upon the cutter when the screw is turned back so as to permit the cutter to be adjusted.

662,200. THILL-COUPLING. JOHN G PARSONS, Columbus, Ohio. Filed Jan. 22, 1900. Serial No. 2,297. (No model.)

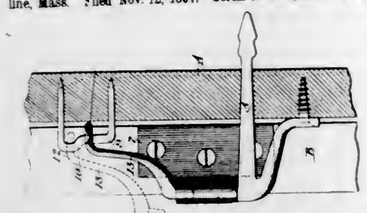


Claim.—1. In a thill-coupling, the combination with the body 1 having a jaw 4 formed therewith and an axle adapted to be secured to said body, of a clamping member or lever 7 fulcrumed to said body 1 and having a jaw portion 8 formed therewith, and a spring-strip connected with one end of said clamping member and adapted to be detachably connected with said body 1, substantially as specified.

2. In a thill-coupling, the combination with a body 1 having a hook termination 2 and a jaw termination 4 and means for connecting an axle with said body, of a clamping member 7 having a fulcrumed connection with the head of said body and having a forwardly-extending jaw portion, a spring-strip connected with said clamping member and a link jointedly connected with said spring-strip and adapted to engage said hook termination of the body 1, substantially as specified.

3. In a thill-coupling, the combination with a body 1 having a jaw termination 4 and hook termination 2, and means for connecting an axle with said body, of a clamping member 7 fulcrumed to said body 1 and having a jaw portion 8 formed therewith, a spring-strip connected with said clamping member and means for detachably connecting said spring-strip with the body 1 and a shaft-iron, and a transverse bolt carried thereby adapted to be embraced between said jaws, substantially as specified.

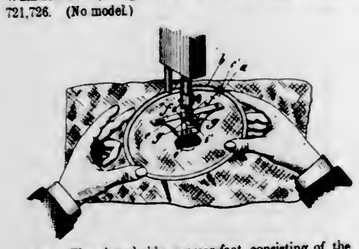
662,201. **SAFETY-GUARD FOR HINGES.** JOHN H. PINEO, Brookline, Mass. Filed Nov. 12, 1897. Serial No. 658,283. (No model.)



Claim.—1. A safety-guard for hinges comprising a combined guide and locking portion, a locking-arm movably mounted on the guide, and adapted to engage the locking portion, and having a pivot for engaging the journaled portion of the hinge.

2. The combination with a hinge having a pivot, and a sleeve longer than the pivot mounted thereon, of a guard-arm having a pivot member, adapted to be received in the hinge-sleeve, and independent supporting means for the guard-arm, including a locking device therefor.

662,202. **DARNING ATTACHMENT FOR SEWING-MACHINES.** WERNER RAGEN, Cologne, Germany. Filed June 24, 1899. Serial No. 721,726. (No model.)

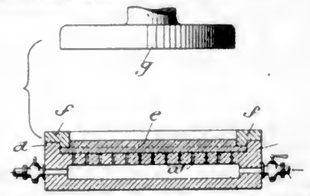


Claim.—The detachable presser-foot consisting of the perforated horizontal cross-bar *f* downwardly-projecting spring *e* and the clamping device comprising the socket *p*, spring *h*, rod *i* and packing *k* carried by said cross-bar and adapted to hold it by frictional contact on the needle and to be self-adjusting thereon, as explained.

662,203. **APPARATUS FOR MANUFACTURING HOLLOW GLASS ARTICLES.** PAUL T. SIEVERT, Dresden, Germany. Original application filed Jan. 31, 1899, Serial No. 704,054. Divided and this application filed Dec. 29, 1899. Serial No. 742,006. (No model.)

Claim.—1. An apparatus for the manufacture of hollow glass articles consisting of a hollow slab adapted to receive upon it a layer of molten glass and having an inlet for an elastic pressure medium and perforated for the issue of said medium, and means for holding such layer to said slab, substantially as herein described.

2. In an apparatus for the manufacture of hollow glass articles, the combination with a hollow slab having an inlet for an elastic pressure medium and perforated for the issue of said medium and having a surrounding projecting rim forming a receptacle for a layer of molten glass, of a frame fitted within said projecting rim for holding such layer upon said slab, substantially as herein described.



3. In an apparatus for the manufacture of hollow glass articles, the combination with a hollow slab or plate having an inlet and outlet to and from its internal cavity for an elastic pressure medium and perforated for the issue of said medium against a layer of plastic glass spread upon its face, of means for holding down the said layer upon said slab or plate on suitable outlines, and valves at said inlet and outlet for regulating the tension of the elastic pressure medium, substantially as herein described.

4. In an apparatus for the manufacture of hollow glass articles, the combination with a hollow slab or plate having an inlet for an elastic pressure medium and perforated for the issue of said medium and having a projecting rim surrounding said perforations and forming a chamber for the reception of plastic glass, of means for evenly spreading the said layer within said chamber, substantially as herein described.

662,204. **ADVERTISING-COVER FOR BASKETS, &c.** ADELBERT C. SIMKINS, Philadelphia, Pa. Filed Apr. 10, 1900. Serial No. 12,388. (No model.)



Claim.—A cover for a basket or other receptacle consisting of an exterior body of pliable material with interned separate tabs at the top thereof, in combination with a ring formed of a horizontal top and concentric inner and outer flanges, embracing respectively and clamping said tabs depending on the interior of the basket or receptacle, the top bend of said body and the adjacent outer portion of the body about the outer terminals of the slits of the tabs.

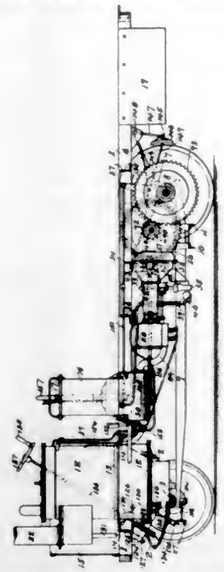
662,205. **COMPOUND FOR PREVENTING BOILER INCRUSTATIONS.** JOHANNES SMIT, Leeuwarden, Netherlands. Filed Jan. 22, 1900. Serial No. 2,391. (No specimens.)

Claim.—A composition of matter for coating the inside of steam-boilers for the prevention of the formation of incrustations, consisting in a mixture of a consistent fat, train-oil and horse-fat, with water, liquid creosote, black-lead, zinc-white, and lampblack, substantially as described.

662,206. **MOTOR-VEHICLE.** JOHN E. THORNYCROFT, London, England. Filed Oct. 16, 1899. Serial No. 733,735. (No model.)

Claim.—1. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler carried thereby, said boiler being located at the front end of the frame, and a bunker for solid fuel also carried by and located at the front end of the frame and in front of the boiler, said bunker being arranged to protect the boiler in case of accident.

2. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler carried thereby, said boiler being located at the front end of the frame, a fuel-container also carried by the frame and located at the front end thereof and in front of the boiler, said container having parts arranged to flank the boiler so as to protect it in case of accident.



3. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler carried thereby, said boiler being located at the front end of the frame, a two-part bunker for solid fuel carried by the frame and located at the front end thereof and in front of the boiler, the parts of said bunker being arranged to flank the boiler so as to protect the same in case of accident.

4. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler carried thereby and located at the front end thereof, a water-tank also carried by the frame and located adjacent to the boiler, a driver's seat located over the tank, an engine supported by the frame and beneath the surface thereof, and driving connections from said engine to the road-wheels of the truck, said connections being located entirely beneath the top of the frame.

5. In a steam-propelled motor-vehicle, the combination with a rigid frame to which the road-wheels are connected, of a spring-mounted underframe, a boiler, coal-bunkers and water-tank carried by said frame, said boiler, bunkers and tank being located at one end of the underframe, an engine carried by the underframe, driving connections from the engine to the road-wheels, said engine and driving connections being located entirely beneath the top of the underframe, substantially as described.

6. In a steam-propelled motor-vehicle, the combination with a rigid frame to which the road-wheels are connected, of a spring-mounted underframe, an engine, boiler and water-tank carried by said underframe, said boiler and water-tank being located at one end of the underframe, and a driver's seat supported over the water-tank, substantially as described.

7. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler carried thereon and located at the front end thereof, a water-tank located above the frame and adjacent to the boiler, a supplemental water-tank carried by the frame, said tank being located near the rear end of the frame and beneath its surface, and an engine carried by the frame and also located beneath its surface and between the water-tanks.

8. In a steam-propelled motor-truck, the combination with a supporting-frame, of a boiler-carrier thereon and located at the front end thereof, a water-tank located above the frame and adjacent to the boiler, a driver's seat supported over said tank, a supplemental water-tank carried by the frame, said tank being located near the rear end of the frame and beneath its surface, and an engine carried by the frame and also located beneath its surface and between the water-tanks.

9. In a steam-propelled motor-vehicle, the combination with a rigid frame to which the road-wheels are connected, of a spring-mounted underframe, a boiler and water-tank carried by the underframe, said boiler and water-tank being located at one end of the underframe, an engine carried by the underframe and located beneath the same, and a supplemental water-tank also carried by the underframe and located beneath the top thereof, substantially as described.

10. In a steam-propelled motor-vehicle, the combination with a rigid frame to which the road-wheels are attached, of a spring-supported underframe, a boiler and engine supported by said frame, and suitable pipes connecting the boiler and engine, said pipes being rigid throughout their length and having rigid connections with the boiler and engine, substantially as described.

11. In a steam-propelled motor-vehicle, the combination with a rigid frame to which the road-wheels are attached, of a spring-supported underframe, a boiler and water-tank supported at one end of the frame, an engine supported beneath the frame, and suitable pipes between the tank and the engine and the boiler and the engine, said pipes being rigid throughout their length and having rigid connections with the boiler, tank and engine, substantially as described.

12. In a steam-propelled motor-vehicle, the combination with a spring-supported underframe, of a boiler and water-tank supported at one end of the frame, a supplemental water-tank supported at the other end of the frame, said supplemental tank being located beneath the frame, an engine also supported by and beneath the frame, and suitable pipe connections between the boiler, tanks and engine, said pipes being arranged beneath the frame so as not to interfere with the carrying capacity thereof, substantially as described.

13. In a steam-propelled motor-vehicle, the combination with a spring-supported underframe, of a boiler and water-tank supported at one end of the frame, a supplemental water-tank supported at the other end of the frame and being located beneath its surface, an engine supported by and beneath the underframe and between the tanks, suitable pipe connections between the tanks, boiler and engine, said connections being arranged beneath the frame, whereby the weight of the parts carried by the frame is distributed throughout its length and its carrying capacity is not interfered with, substantially as described.

14. In a motor-propelled vehicle, the combination with rigid side bars to which the axles of the road-wheels are rigidly connected, a spring-mounted underframe, a motor and motor-shaft carried thereby, a two-part counter-shaft, one part of said shaft being carried on the spring-mounted underframe, and the other part on the side bars, a flexible connection between the two parts of the shaft, driving connections between the motor and that part of the two-part shaft which is supported on the underframe, and driving connections between the road-wheels and that part of the shaft which is supported on the rigid frame, substantially as described.

15. In a motor-propelled vehicle, the combination with rigid side bars to which the axles of the road-wheels are rigidly connected, a spring-mounted underframe, a motor and motor-shaft carried thereby, a two-part counter-shaft, one part of said shaft being carried on the spring-mounted underframe, and the other part on the side bars, a link between the two parts of the shaft, said link being connected to each part of the shaft by a universal joint, driving connections between the motor and that part of the two-part shaft which is supported on the underframe, and driving connections between the road-wheels and that part of the shaft which is supported on the rigid frame, substantially as described.

16. In a motor-propelled vehicle, the combination with rigid side bars to which the axles of the road-wheels are rigidly connected, of a spring-mounted underframe carrying a motor, a two-part shaft, one part of said shaft being supported on the side bars and the other part on the spring-mounted frame, flexible connections between the two parts of the shaft, driving connections between the motor and the part of the shaft which is supported on the spring-frame, and driving connections, including differential gearing, between the other part of the shaft and the road-wheels, substantially as described.

17. In a motor-propelled vehicle, the combination with rigid side bars to which the axles of the road-wheels are rigidly connected, springs caried by said axles, an underframe supported on the springs, a motor suspended from the underframe, a two-part shaft, one part of which is suspended from the underframe, and the other part of which is mounted on the side bars, a flexible connection between the two parts of the shaft, gearing between the motor and that part of the shaft which is supported on the underframe, and differential gearing between that part of the shaft which is supported on the rigid frame and the road-wheels, substantially as described.

18. In a motor-propelled vehicle, the combination with rigid side bars to which the axles of the road-wheels are rigidly connected, of a spring-mounted underframe, a two-part shaft, one part of which is supported on the underframe and the other part on the side bars, a link between the two parts of the shaft, a sliding and pivotal connection between one end of the link and one part of the shaft, and a pivotal and rocking connection between the link and the other part of the shaft, substantially as described.

19. In a motor-propelled vehicle, the combination with the motor, of connections from the motor to the road-wheels, a pair of gears in said connections, said gears operating to give the road-wheels varying speeds, means whereby either of said gears may be rendered operative, means whereby both gears may be rendered inoperative, and means additional

to the means for rendering the gears operative and inoperative for preventing either gear from being put in operation while the other is operative, substantially as described.

20. In a motor-propelled vehicle, the combination with the motor, of connections from the motor to the road-wheels, a pair of gears in said connections, said gears operating to give the road-wheels varying speeds, means whereby either of said gears may be rendered operative, means whereby both gears may be rendered inoperative, means additional to the means for rendering the gears operative and inoperative, for preventing either gear from being put into operation while the other is operative, and independent operating means for said additional means.

21. In a motor-propelled vehicle, the combination with a power-driven shaft, of a pair of transmitting-gears driven therefrom and operating to drive the vehicle at a given speed, a second pair of gears driven from the motor-shaft and operating to drive the vehicle at a different speed, means whereby the gears of each pair may be put in and out of mesh, means additional to the means for putting the gears into and out of mesh for preventing the gears of one pair from being thrown into mesh while the gears of the other pair are in mesh, and means whereby the gears of both pairs may be thrown out of mesh, substantially as described.

22. In a motor-propelled vehicle, the combination with a power-driven shaft, a pair of transmitting-gears driven therefrom and operating to drive the vehicle at the given speed, a second pair of gears driven from the motor-shaft, and operating to drive the vehicle at a different speed, means whereby the gears of each pair may be put in and out of mesh, means additional to the means for putting the gears into and out of mesh, for preventing the gears of one pair from being thrown into mesh while the gears of the other pair are in mesh, independent operating means for said additional means, and means whereby the gears of both pairs may be thrown out of mesh.

23. In a motor-propelled vehicle, the combination with the motor, of two pairs of gears driven therefrom and operating to drive the vehicle at different speeds, one gear of each pair being slidably mounted, a slide for controlling the position of each sliding gear, whereby a gear of each pair may be moved into and out of mesh, locking devices for holding the slides in position so that the gears of one pair shall be in mesh and the gears of the other pair out of mesh, and means for preventing the withdrawal of the locking devices for the gears which are out of mesh until after the gears which are in mesh shall be thrown out of mesh, substantially as described.

24. In a motor-propelled vehicle, the combination with a driving-shaft, of two slidably-supported gears, two slides, one for controlling the position of each gear, two gears with which the first two gears are arranged to mesh, a locking-slide for controlling the position of the gear-controlling slides, said slide operating to lock the controlling slides so that one gear will be in mesh with the gear which it drives and the other gear will be out of mesh with the gear which it drives, and means for preventing the movement of the locking-slide until the slide which controls the gear which is in mesh shall have been thrown so that its gear is out of mesh, substantially as described.

25. In a motor-propelled vehicle, the combination with a driving-shaft, of two gears of unequal diameter mounted thereon, two gears also of unequal diameter, said gears being driven by the first-named gears, two slides for controlling the position of the first-named gears, a locking-slide located between these two slides, the two slides having grooves which are engaged by the locking-slide, said grooves being arranged so that when the locking-slide engages one of them its gear will be in operative position, and when the locking-slide engages the other one, its gear will be in inoperative position, substantially as described.

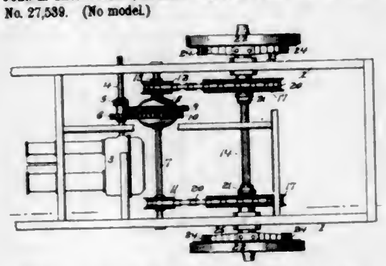
26. In a motor-propelled vehicle, the combination with a power-driven shaft, of two gears of unequal diameter slidably mounted thereon, two slides for controlling the position of the two gears, one of said slides having a locking-groove and two perforations and the other slide having a groove and one perforation, a bracket arranged between the two slides and having two perforations with which the perforations in the slides can be made to register, a locking-slide carried by the bracket and adapted to engage the groove in one slide and when in such engagement to be held therein by the other slide, and a locking-pin adapted to pass through the perforations in the bracket and slides and hold the slides in position, substantially as described.

27. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels loosely mounted thereon, a spring interposed between the axle and one of the wheels, whereby said wheel is driven from the axle, a sleeve mounted on the axle, a spring interposed between the other wheel and said sleeve, whereby said wheel is driven from the sleeve, a differential gear arranged to drive the axle and the sleeve either at the same or at varying speeds, and means for driving the differential gear, substantially as described.

28. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels loosely mounted thereon, two projections on the felly of each wheel, and two double springs, one for each wheel taking on each side of the projection, whereby one half of each spring acts to drive the wheels in one direction and the other half of each spring acts to drive the wheels in the opposite direction, and means for rotating the springs, substantially as described.

29. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels loosely mounted thereon, said wheels having projections on their fellies, a spring secured to the axle and engaging the projections on one of the wheels, a sleeve mounted on the axle, a spring secured to the sleeve and engaging the projections on the other wheel, and means for driving the sleeve and the axle either at the same or varying speeds, substantially as described.

662,207. DRIVING MECHANISM FOR MOTOR-VEHICLES. JOHN E. THORNYCROFT, London, England. Filed Aug. 21, 1900. Serial No. 27,539. (No model.)



Claim.—1. In a motor-vehicle, the combination with a spring-mounted frame, of a motor carried thereby, a shaft driven by the motor, sprocket-wheels mounted on the shaft, a rigid axle, boxes mounted on the axle, sprocket-wheels rigidly connected to the boxes, sprocket-chains connecting said sprocket-wheels with the sprocket-wheels on the driven shaft, road-wheels mounted on the axle, and springs between the boxes and the road-wheels, substantially as described.

2. In a motor-vehicle, the combination with a shaft, of a sprocket-wheel rigidly fixed thereto, a sleeve on the shaft, a sprocket-wheel rigidly fixed to the sleeve, a differential gear for driving the shaft and sleeve, a rigid axle, a pair of boxes mounted on the axle, a sprocket-wheel mounted on each box, sprocket-chains connecting these wheels with the sprocket-wheels driven by the differential gear, a pair of road-wheels, and springs between the boxes and the road-wheels, substantially as described.

3. In a motor-vehicle, the combination with a frame, of a pair of springs by which it is supported at one end, a bearing carried by each of the springs, a box mounted to rotate in each of the bearings, a rigid axle extending through the boxes, a pair of road-wheels loosely mounted on the axle, springs between each box and the road-wheels, a sprocket-wheel connected to each of the boxes, a counter-shaft mounted in the frame, a sprocket-wheel rigidly connected to the counter-shaft, a sleeve loosely mounted on the counter-shaft, a sprocket-wheel rigidly connected to the sleeve, a differential gear for driving the shaft and sleeve, sprocket-chains connecting the sprocket-wheels on the counter-shaft and sleeve, sprocket-chains connecting the sprocket-wheels on the boxes with the sprocket-wheels on the sleeve and shaft, and a suitable motor for driving the differential gear, substantially as described.

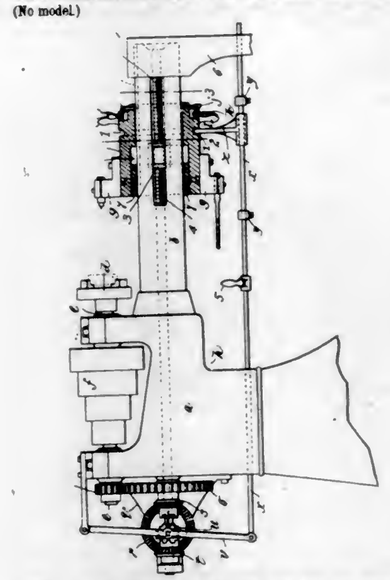
662,208. PNEUMATIC TIRE AND SHOE. AARON VREELAND, Bloomfield, N. J. Filed June 6, 1900. Serial No. 19,335. (No model.)



Claim.—1. In a pneumatic vehicle tire, a detachable shoe consisting of several strips of fabric united at their contiguous edges, and hems upon the edges of the shoe with wires inserted therein and holes at intervals adjacent to the wire, in combination with a series of separate hooks h' adapted at their opposite ends to penetrate the said holes and detachably engage the wires upon the opposite edges of the strip.

2. In a pneumatic vehicle-tire, the combination, with a pneumatic bag, of a series of woven strips applied separately over the bag with their joints laced at diverse sides of the bag, and the outer strips having hems in their margins with wires therein, and the hooks h' adapted at their opposite ends to engage the wires and secure the whole upon the tire.

662,209. TOOL-TURRET FOR SCREW-MACHINES, &c. FREDERIC E. WELLS, Greenfield, Mass. Filed July 6, 1900. Serial No. 22,897 (No model.)



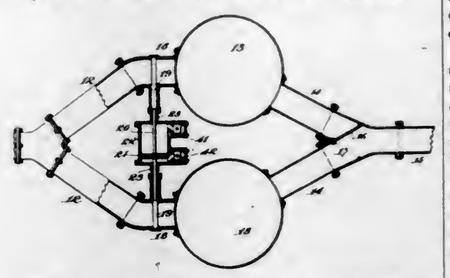
Claim.—1. In a machine of the class described, the combination with the frame thereof, of a cylindrical turret-slide, and a turret having a cylindrical bore adapted to have an endwise sliding, and a rotary movement on said slide, substantially as described.

2. In a machine of the class described, the combination with the frame thereof, of a cylindrical turret-slide, a turret having a cylindrical bore adapted to fit said slide, means for moving said turret endwise on the slide, and means for rotating said turret, substantially as described.

3. In a machine of the class described, the combination with the frame thereof, of a cylindrical turret-slide, a turret adapted to fit said slide, tools secured to the exterior of the turret, means for rotating the latter and for locking the same to said slide when one of said tools is in operative position, substantially as described.

4. In a machine of the class described, a frame, a chuck-spindle, a cylindrical turret-slide whose axis is parallel with that of said spindle, a turret adapted to fit said slide, and means for imparting an endwise movement to the turret consisting of a feed-screw located axially of the slide, a nut on said screw engaging said turret, and means for rotating said screw in opposite directions, substantially as described.

662,210. DREDGING APPARATUS. HARRY R. WHEELER, New York, N. Y. Filed Mar. 10, 1900. Serial No. 8,161. (No model.)



Claim.—1. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried by the same with its lower end in contact with the bottom to be dredged, two vacuum-cylinders on the scow or float, branch pipes connecting the suction-pipe with said vacuum-cylinders, mechanically-operated valves in said branch pipes, a common discharge-pipe leading from the scow or float, auxiliary discharge-pipes connecting the vacuum-cylinders with the common discharge-pipe, a flap-valve for automatically closing in alternation the discharge ends of the auxiliary discharge-pipes, and means for retarding the movement of said flap-valve, substantially as set forth.

2. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried by the same with its lower end in contact with the bottom to be dredged, two vacuum-cylinders on the scow or float, branch pipes connecting the suction-pipe with said vacuum-cylinders, mechanically-operated valves in said branch pipes, a common discharge-pipe leading from the scow or float, auxiliary discharge-pipes connecting the vacuum-cylinders with the common discharge-pipe, a flap-valve for automatically closing in alternation the discharge ends of the auxiliary discharge-pipes, and a dash-pot for retarding the movement of said flap-valve, substantially as set forth.

3. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried therefrom with its lower end in contact with the bottom to be dredged, a pair of vacuum-cylinders carried by the scow or float, auxiliary suction-pipes connecting the suction-pipe with said vacuum-cylinders, a common discharge-pipe, auxiliary discharge-pipes connecting the vacuum-cylinders with said common discharge-pipe, a gate-valve for each of the auxiliary suction-pipes, and means for simultaneously actuating said gate-valves, substantially as set forth.

4. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried therefrom with its lower end in contact with the bottom to be dredged, a pair of vacuum-cylinders carried by the scow or float, auxiliary suction-pipes connecting the suction-pipe with said vacuum-cylinders, a common discharge-pipe, auxiliary discharge-pipes connecting the vacuum-cylinders with said common discharge-pipe, a gate-valve for each of the auxiliary suction-pipes, and a steam-cylinder carrying a piston connected to both of said gate-valves, substantially as set forth.

5. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried thereby with its lower end in engagement with the bottom to be dredged, a pair of vacuum-cylinders carried by the scow or float, auxiliary suction-pipes connecting the suction-pipe with said cylinders, a common discharge-pipe, auxiliary discharge-pipes connecting the cylinders with said common discharge-pipe, valves in the auxiliary suction-pipes, steam-valves for admitting steam into the cylinders, and a cam-shaft having cams thereon for actuating said steam-valves in alternation, substantially as set forth.

6. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried thereby with its lower end in engagement with the bottom to be dredged, a pair of vacuum-cylinders carried by the scow or float, auxiliary suction-pipes connecting the suction-pipe with said cylinders, a common discharge-pipe, auxiliary discharge-pipes connecting the cylinders with said common discharge-pipe, valves in the auxiliary suction-pipes, steam-valves for admitting steam into the cylinders, a water-valve for each of said cylinders, and a cam-shaft carrying cams for operating said steam and water valves, whereby the steam-valve of one cylinder will be operated substantially simultaneously with the water-valve of the other, substantially as set forth.

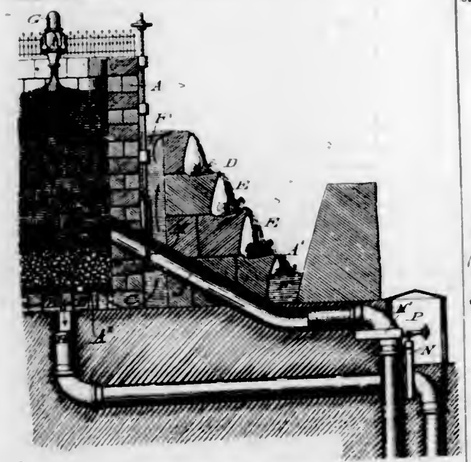
7. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried thereby with its lower end in contact with the bottom to be dredged, a pair of vacuum-cylinders mounted on the scow or float, auxiliary suction-pipes connecting the cylinders with the suction-pipe, a common discharge-pipe, auxiliary discharge-pipes connecting the cylinders with said common discharge-pipe, valves in the auxiliary suction-pipes, a steam-cylinder for simultaneously actuating said valves, controlling-valves for said steam-cylinder, steam-valves for admitting steam into the vacuum-cylinders, and a cam-shaft carrying cams for operating the valves of the steam-cylinder and the valves of the vacuum-cylinders, substantially as set forth.

8. An improved dredging apparatus, comprising in combination a scow or float, a suction-pipe carried thereby with its lower end in contact with the bottom to be dredged, a pair of vacuum-cylinders mounted on the scow or float, auxiliary suction-pipes connecting the cylinders with the suction-pipe, a common discharge-pipe, auxiliary discharge-pipes connecting the cylinders with said common discharge-pipe, valves in the auxiliary suction-pipes, a steam-cylinder for simultaneously actuating said valves, controlling-valves for said steam-cylinder, steam-valves for admitting steam into the vacuum-cylinders, a cam-shaft carrying cams for operating the valves of the steam-cylinder and the valves of the vacuum-cylinders, and water-valves for said cylinders controlled by said cam-shaft, substantially as set forth.

662,211. APPARATUS FOR FILTERING OR PURIFYING AND AERATING WATER. JOHN A. WIKDERSHEIM, Philadelphia, Pa. Filed Sept. 13, 1900. Serial No. 29,583. (No model.)

Claim.—1. In a filter, a vessel with a filtering-bed therein, an inlet at top, a discharge-opening at bottom, a well for filtered water adjacent to said vessel and in communication with the same at said opening, and an aerator for filtered water extending from the top of said well to a storage-basin.

2. In a filter, a storage basin or reservoir, a filtering vessel and a water-aerating device rising therefrom and a well intermediate of said vessel and device.



3. In a filter, a storage basin or reservoir, a filtering vessel and a water-aerating device, and a well intermediate of said vessel and device, the walls of said vessel and device being common to said well.

4. In a filter, a storage basin or reservoir, a filtering vessel, a water-aerating device, a well intermediate of said vessel and device, and a discharge-pipe communicating with the base of said vessel and well.

5. In a filter, a filtering vessel and a discharge-pipe at the side thereof communicating therewith for the removal of deposits and the material of the filter-bed.

6. In a filter, a storage basin or reservoir, a filtering vessel, a water-aerating device, a well intermediate of said vessel and device, a discharge-pipe communicating with the base of said vessel and well, and an emptying-pipe at the side of said vessel in communication with the interior of the latter at the place where the deposits collect and adjacent portion of the filter-bed is seated.

7. In a filter, a filtering-chamber adapted primarily for the downward flow of water in unfiltered condition, a well in communication with said chamber adapted for the upward flow of the water when filtered, and an aerating device extending from the discharge portion of said well.

8. In a filter, a filtering-chamber, and a well in connection therewith, said well having its discharge at the top, in combination with a pipe near the base of the filtering-chamber for the discharge of the filtering material, and a pipe at the base of said well for the discharge of the contents thereof, both for cleansing purposes.

9. In a filter, a filtering-chamber open at top, a guard on the wall of said top around the opening thereof, and a bridge leading to said wall.

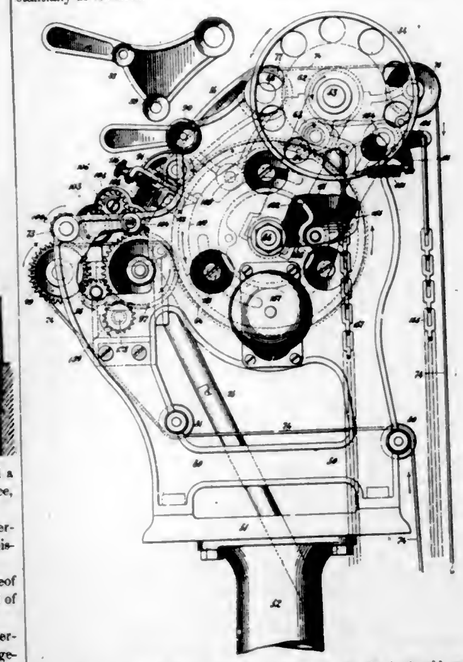
662,212. **TOBACCO STRIPPING AND BOOKING MACHINE.** JOHN R. WILLIAMS, East Orange, N. J., assignor to the John R. Williams Company, New York, N. Y. Filed June 4, 1900. Serial No. 18,945. (No model.)

Claim.—1. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the overlapping knives at said slot to sever the stem from the leaf, means for pressing the stem of the leaf into said slot and to the overlapping edges of said knives, and means for operating said knives; substantially as set forth.

2. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the overlapping knives at said slot to sever the stem from the leaf, means for directly engaging the stem of the leaf for pressing said stem into said slot and to the overlapping edges of said knives, and means for operating said knives; substantially as set forth.

3. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the overlapping knives at said slot to sever the stem from the leaf, the presser-wheel for pressing the stem of the leaf into said slot and to the overlapping edges of said knives; and means for operating said knives; substantially as set forth.

4. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the knives at said slot to sever the stem from the leaf, the presser-wheel for pressing the said stem into said slot and to said knives, and means for regulating the degree of pressure said wheel shall exert on said stem; substantially as set forth.



5. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the overlapping knives at said slot to sever the stem from the leaf, adjustable means for pressing the stem of the leaf into said slot and to the overlapping edges of said knives, and means for operating said knives; substantially as set forth.

6. In a tobacco-stripping machine, means for feeding the tobacco-leaf, and the overlapping knives for severing the stem from the leaf, combined with the stem-feeding rollers on the spindles of said knives, and means for pressing the stem of the leaf below the overlapping edges of said knives; substantially as set forth.

7. In a tobacco-stripping machine, means for feeding the tobacco-leaf in its open or spread-out condition, and the overlapping knives for severing the stem from the leaf, combined with means for pressing the stem of the leaf to the overlapping edges of said knives, and means for opererating said knives; substantially as set forth.

8. In a tobacco-stripping machine, means for feeding the tobacco-leaf in its open or spread-out condition, and the overlapping knives for severing the stem from the leaf, combined with the presser-wheel for pressing the stem of the leaf to the overlapping edges of said knives, and means for operating said knives; substantially as set forth.

9. In a tobacco-stripping machine, means for feeding the tobacco-leaf, combined with the knives for severing the stem from the leaf, said knives overlapping one another at their adjoining edges and being slightly inclined from one another so that said edges shall contact at a single point in advance of a central line through the knives; substantially as set forth.

10. In a tobacco-stripping machine, the belts for feeding the tobacco-leaf, said belts being separated from one another to admit between their edges the stem of the leaf, and the feed-rollers to coöperate with said belts in feeding the leaf, combined with the knives for severing the stem from the leaf, and means for pressing the said stem to said knives; substantially as set forth.

11. In a tobacco-stripping machine, means for feeding the tobacco-leaf, and the knives for severing the stem from the leaf, combined with a presser device for engaging the stem of the leaf and pressing the same to said knives, and means for maintaining said device in an inactive position during a part of the movement of the machine and then moving said device into and maintaining it at an active position; substantially as set forth.

12. In a tobacco-stripping machine, means for feeding the tobacco-leaf, and the knives for severing the stem from the leaf, combined with a presser device for engaging the stem of the leaf, and pressing the same to said knives, means for regulating the degree of pressure said device shall exert on said stem, and means for maintaining said device in an inactive position during a part of the movement of the machine and then moving said device into and maintaining it at an active position; substantially as set forth.

13. In a tobacco stripping and booking machine, the main supporting-frame, the booking cylinder or drum, the hinged arms suspending said cylinder or drum, means for giving said cylinder or drum a yielding tension toward the front part of the machine, and a hinged frame-section connected with the main frame of the machine and extending over the upper front portion of said cylinder or drum, said hinged frame-section being capable of being raised from and lowered to said cylinder or drum, combined with means for rotating said cylinder or drum, means for removing the stems from the tobacco-leaves during their passage inward to said drum, continuous belts passing around said cylinder or drum and said hinged frame-section, and means for imparting a traveling movement to said belts; substantially as set forth.

14. In a tobacco stripping and booking machine, the main frame having the driving-shaft extended transversely across the top of same, the booking cylinder or drum, the hinged frame suspending said cylinder or drum, means for yieldingly pressing said drum toward the front portion of said frame, the gear-wheel on the shaft of said drum, gearing connecting said gear-wheel with the said driving-shaft for imparting rotary motion to said drum, the hinged frame-section over the upper front portion of said drum, said frame-section being capable of being raised and lowered, combined with means for feeding the tobacco-leaves to said cylinder or drum, means for removing the stems from said leaves during the inward travel of the latter to said drum, the endless belts passing around said drum and thence in reverse direction over suitable pulleys constituting a part of the said main frame, and means for actuating said belts; substantially as set forth.

15. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, the knives at said slot to sever the stem from the leaf, and means for feeding the leaf over said support, combined with the presser-wheel for pressing the stem of the leaf to the said knives, the hinged frame supporting said presser-wheel, means for adjusting said frame so as to regulate the pressure of said wheel upon the stem of the leaf, and gearing intermediate said wheel and the main driving-shaft for rotating said wheel; substantially as set forth.

16. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, combined with the knives at said slot to sever the stem from the leaf, means for feeding the leaf over said support, the presser-wheel for engaging the stem of the leaf to press said stem to said knives, the shaft carrying said wheel, the hinged frame carrying said shaft and wheel, the adjusting-finger carried by said frame for regulating the relation of said presser-wheel to said knives, and the driven wheel in engagement with said finger for maintaining the position of said presser-wheel; substantially as set forth.

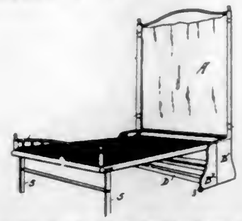
17. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, means for feeding the leaf over said support, and the knives at said slot to sever the stem from the leaf, combined with the presser device for pressing the stem of the leaf to the said knives, the hinged frame supporting said presser device, and the driven wheel 110 for engaging said frame and maintaining the position of said presser device; substantially as set forth.

18. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, the knives at said slot to sever the stem from the leaf, and a presser device for pressing the stem of the leaf to said knives, combined with the hinged frame supporting said presser device, and the driven wheel, 110, engaging said frame for maintaining the position of said presser device, said wheel comprising the recessed rim 112 and recessed cam-section 111, the latter being capable of adjustment with respect to said wheel to vary the extent of the tallying portions of said rim and cam-section; substantially as set forth.

19. In a tobacco-stripping machine, a support for the leaf, said support having the opening or slot for the stem of the leaf, means for feeding the leaf over said support, and the knives horizontally disposed at said slot and below said support, combined with means for pressing the stem of the leaf into said slot and to said knives, means below the cutting edges of said knives for conducting away the stems of the leaves, and means above said knives for carrying away the stripped leaves; substantially as set forth.

662,213. **FOLDING BED.** JOHN F. WILMOT, Detroit, Mich. Filed Mar. 23, 1900. Serial No. 9,845. (No model.)

Claim.—1. In a folding bed, the combination of the headboard, a post secured to the headboard and provided with cylindrical bearings, a folding side board and doubled-knuckled hinges uniting the post and side board, each of said cylindrical bearings forming the pintle of one of said knuckles, substantially as described.



2. In combination with a standard headboard, a swinging side board, a post secured to the headboard provided with cylindrical bearings near its upper and lower ends, rings adapted to turn on said bearings, hinge connection between the side board and the rings, substantially as described.

3. In a folding bed, in combination a headboard and folding side boards, standards finished in cylindrical form to furnish a bearing for a ring or band, a ring on said bearing, a strap-leaf secured by a pintle to the ring, and stops adapted to limit the swing of the strap, with reference to the ring, substantially as described.

4. In a folding bed, the combination of a headboard, fixed side pieces, swinging side boards, a folding bottom in two parts adapted to fold into shorter space as the foot end of the bottom is raised, a cam-guide to the head part of the folding bottom, and links adapted to draw the hinge of the two-part bottom nearer to the headboard during the first part of the folding, substantially as described.

5. In a folding bed, in combination with a frame and a wire fabric stretched thereon, a bearing arranged to support the said frame, a standard headboard, a link connecting the end of said frame with the standard headboard, a folding frame adapted to form an extension at the head end of the wire-fabric-supporting frame, and adapted to support the head end of the mattress, a cam-track arranged to engage the folding frame and cause the same to fold with respect to the wire-fabric-holding frame, the support under the wire-fabric-holding frame being arranged to permit said wire-fabric-holding frame to travel thereover and turn thereon, substantially as described.

6. In a folding bed, in combination with a headboard, and side boards arranged to simulate a cabinet, a mattress-supporting frame, a base extension provided with folding braces, of which the free edge is disposed diagonally with respect to the back and bottom edges, and which is arranged to fold toward the middle line of the bed with the diagonal edge lying in the path of the mattress-supporting frame, whereby the mattress-supporting frame when lowered, engages the braces and swings them outward to bracing position, substantially as described.

7. In a folding bed, the combination of the mattress-support, the headboard, the base extension connected with said headboard, a folding brace adapted to fold inward toward the middle line of the bed and provided with hinge connections with base extensions having the lower hinge set with its hinge-pintle farther out from the connected piece, that is the hinge-pintle of the upper hinge, whereby the outer end of the brace swings clear from the floor as the brace folds in, substantially as described.

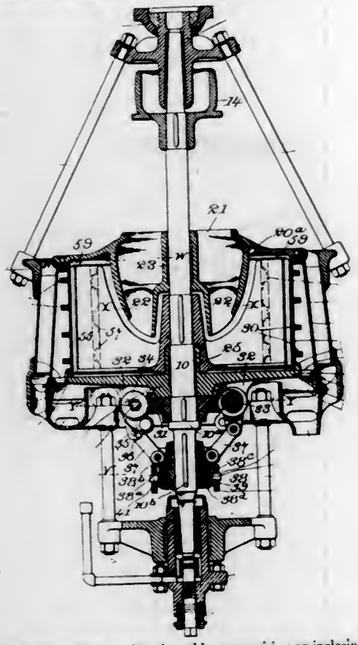
8. In a folding bed, in combination with a headboard, and a swinging mattress-holding frame, a base extension, a brace hinged to the base extension arranged to fold toward the middle line of the bed and provided at its free edge with diagonal engaging surfaces arranged to be contacted by the mattress-supporting frame when lowered, whereby the brace is adapted to be forced from its infolded position to its bracing position by the lowering of the mattress-support, substantially as described.

9. In a folding bed, the combination of a headboard, a base extension, rollers journaled on said extension, a mattress-supporting frame, link connections engaging in the said frame to the base extension and arranged to rest on said rollers, and spring connections between the head end of the mattress-support and the base connections arranged to be normally in a state of tension when the mattress-support is either in its lifted or its lowered position, but to pass a state of low tension during the swings of the mattress-support between its lifted and its lowered position, substantially as described.

662,214. **CONTINUOUS CENTRIFUGAL MACHINE.** WILLIAM A. WOOD, Ansonia, Conn., assignor to Adelbert Philander Hine, Torrington, Conn. Filed June 12, 1899. Serial No. 720,320. (No model.)

Claim.—1. A continuous centrifugal machine, comprising an inclosing casing, a horizontally-rotating basket having its periphery formed of an exterior body and an interior perforated body with lateral vertical openings through which the solid materials may be discharged; a series of inde-

pendent spaced scraper-wings within the basket, mechanism for revolving said basket and wings, and mechanism for varying the speed of rotation of the basket relative to that of the wings.



2. A continuous centrifugal machine, comprising an inclosing casing having hopper and delivery chutes, a horizontally-rotating basket having its periphery formed of an exterior body and an interior perforated body with lateral vertical openings through which the solid materials may be discharged; a series of independent scraper-wings within the basket, mechanism for revolving said basket and wings, and mechanism for changing the speed of the basket relative to that of the wings.

3. In a continuous centrifugal machine, the combination of a rotating spindle, a series of independent scraper-wings positively driven by said spindle, a rotating basket also driven by said spindle, and mechanism whereby the speed of rotation of the basket may be varied from that of the spindle and wings.

4. In a continuous centrifugal machine, the combination of a rotating spindle, a series of independent scraper-wings positively driven by said spindle, a rotating basket, and means carried by said basket, whereby the speed of rotation of the basket may be varied from that of the spindle and wings.

5. In a continuous centrifugal machine, the combination of a rotating spindle, a series of independent scraper-wings positively driven by said spindle, a rotating basket, a worm-gear on said spindle, a worm-shaft on said basket, and means for rotating said worm-shaft, whereby the speed of rotation of the basket may be varied from that of the spindle and wings.

6. In a continuous centrifugal machine, the combination of a rotating spindle, a series of independent scraper-wings positively driven by said spindle, a rotating basket, a worm-gear on said spindle, a worm-shaft on said basket, and adjustable means for rotating said worm-shaft, whereby the speed of rotation of the basket may be varied from that of the spindle and wings and adjusted.

7. In a centrifugal machine, the combination of a rotating spindle, a worm-gear on said spindle, a rotating basket, a worm-shaft on said basket, a driven shaft, and mechanism adapted to vary the speed of rotation of the basket from that of the spindle.

8. In a continuous centrifugal machine, the combination of an inclosing casing provided with bottom channels, a revolving basket provided with lateral openings, and a series of rotating scraper-wings located within said basket.

9. In a continuous centrifugal machine, the combination of an inclosing casing provided with bottom channels, a revolving basket provided with a cover, an exterior body, an interior perforated body, and a bottom portion provided with openings between said inclosing bodies; and a series of rotating scraper-wings located within said basket and moving over the interior perforated surface of said basket.

10. In a centrifugal machine, an inclosing casing comprising a flanged upper ring provided with suspending-lugs, a body-casing, and a bottom portion having two channels, one channel open at the bottom and the other channel connected to a discharge-spout.

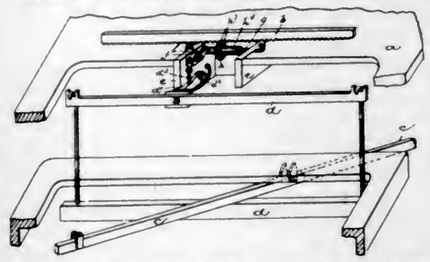
11. In a centrifugal machine, a revolving basket comprising a cover provided with a central hopper and feed-chutes, two body-casings, one solid and the other perforated, a bottom portion having openings between the points of attachment of the casings and having upwardly and downwardly extending flanges.

12. In a continuous centrifugal machine, the combination of a revolving basket supporting a horizontally-arranged worm-shaft, a spindle carrying a worm-gear which meshes with said worm-shaft, a vertically-reciprocating block mounted on and rotating with said spindle, mechanism interposed between said block and said worm-shaft for imparting rotary motion to said shaft, a non-rotatable ring carried in friction-bearings on the said reciprocating block, and an adjustable device for imparting a reciprocating motion to said ring and block.

13. In a continuous centrifugal machine, the combination with a rotating basket, of a horizontally-arranged worm-shaft supported by said basket, a ratchet-wheel fixedly attached to said shaft, a depending arm carrying a spring-pressed pawl loosely attached to said shaft, a reciprocating block, and mechanism between said arm and block whereby when the block is reciprocated the pawl and ratchet-wheel will revolve the worm-shaft.

14. In a continuous centrifugal machine, the combination with the series of bifurcated wings, of a series of scrapers located in said bifurcations, and resilient devices behind said scrapers.

662,215. TYPE-WRITING-MACHINE DOG. HENRY ALLENDER, Newark, N. J. Filed May 25, 1899. Serial No. 718,147. (No model.)



Claim.—1. The improved dog for type-writing machines, comprising wheels or rotary sections journaled on a shaft, and having a step-by-step forward rotation thereon, said sections being keyed or otherwise connected to rotate in unison and one of them being longitudinally movable with respect to the other, and said rotary sections having at their peripheries alternate teeth and open spaces or notches, substantially as set forth.

2. In a type-writing machine, the combination with a toothed rack, of a dog comprising a shaft and wheel-like dog-sections rotated together thereon and always in one direction, said sections having hubs with cooperating clutch-fingers and grooves permitting longitudinal separation, and peripheries with alternate teeth for engaging said rack and open spaces for the rack to slide through, substantially as set forth.

3. In a type-writing machine, the combination with a longitudinally-movable rack, of disk-like dog-sections rotating always forward, clutch means causing said sections to rotate together while permitting one to slide longitudinally away from the others, and said sections having at the circumference alternate portions adapted to engage the rack and open recesses, substantially as set forth.

4. The improved dog for type-writing machines, comprising rotary sections, each of which has a circumferential row of teeth and longitudinal grooves cut between said teeth, and one section being recessed at its end and the toothed fingers so formed being adapted to slide in the grooves of the other section, substantially as set forth.

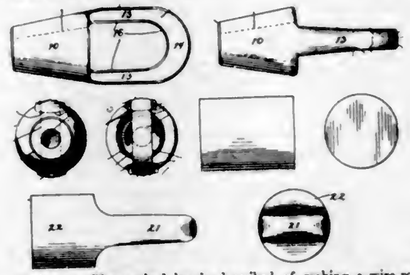
5. The improved type-writer dog, comprising cylindrical sections each having a circumferential series of teeth and longitudinal grooves alternating with said teeth, one section having its end recessed to receive the other section and the longitudinal tooth-carrying portions of each section lying in the grooves between the teeth of the other section, a spring for throwing said sections apart, and stops, substantially as set forth.

6. In a type-writer, the combination with a sliding rack, of a rotating dog having sections each with a circumferential series of teeth, the teeth of one section alternating in circumferential line with those of the other whereby the rack may be engaged by a tooth on one section and slide between the teeth of the other section, clutch means for causing said sections to rotate together but permitting relative longitudinal movement,

and means for imparting a step-by-step rotation to the dog, substantially as set forth.

7. In a type-writer, the combination of a rack, a dog comprising wheel-like sections having peripheral teeth alternating with open spaces and hubs longitudinally grooved or slotted to clutch each other and hold the sections with the teeth of one section in longitudinal line with the open spaces of the other sections, said slots or grooves being prolonged on one section, a pawl adapted to enter said prolonged grooves and means for pushing the pawl to rotate the dog, substantially as set forth.

662,216. METHOD OF MAKING METALLIC WIRE-ROPE SOCKETS. WILLIAM S. BIDLE, Cleveland, Ohio. Filed Aug. 27, 1900. Serial No. 28,145. (No model.)



Claim.—1. The method herein described of making a wire-rope socket, consisting, first, in producing a blank having a head and a shank, then heating the shank-forming portion of the blank and forging and trimming or dressing it into the shape required to form the arm of the socket, then forming a hole within and longitudinally of and through the head-forming portion of the blank, and then heating the last-mentioned portion of the blank and forging or shaping it to form the basket of the socket.

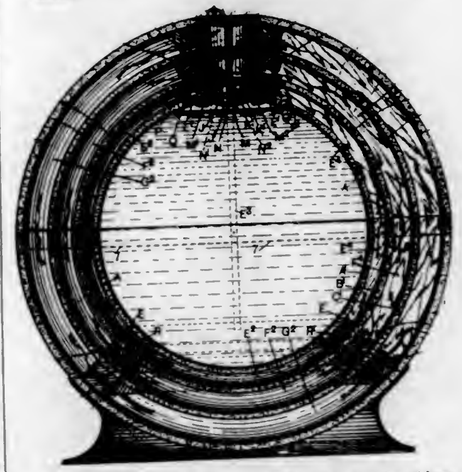
2. An improvement in the art of making a wire-rope socket, consisting, first, in producing a blank having a head and a shank, then heating the shank-forming portion of the blank and forging it into the shape required to form the arm of the socket, and cutting away any fin formed externally of the arm, and any web formed internally of the arm so as to form a bail-shaped arm, then drilling or boring a hole centrally and longitudinally of and through the head-forming portion of the blank, then heating the bored portion of the blank, then inserting an externally conical or tapering mandrel within the hole of the said bored and heated portion of the blank, and forging or shaping the said bored portion upon and so as to conform to the external contour of the mandrel, and then dressing or trimming the last-mentioned portion of the work.

3. The method herein described of making a wire-rope socket, consisting, first, in heating the billet or stock and forming it into a blank having a head and a flattened shank arranged centrally of and projecting outwardly from and longitudinally of the head, then heating the shank-forming portion of the blank and forging and trimming it to the shape required to form a bail-shaped arm, then forming a hole within and longitudinally of and through the head-forming portion of the blank, and then heating the last-mentioned portion of the blank and forging and trimming it to the shape required to form the basket of the socket.

4. The herein-described method of making a wire-rope socket, comprising, first, the heating of the billet or stock and shaping it as required to form a blank having a head and a flattened shank arranged centrally of and projecting outwardly from one end and longitudinally of the head, then heating the shank-forming portion of the blank and forging and trimming it to the shape required to form the arm of the socket, then forming a hole within and centrally and longitudinally of and through the head-forming portion of the blank, then heating the head-forming portion of the blank and introducing and arranging an externally conical or tapering mandrel within the aforesaid hole, so that the larger end of the mandrel shall be next to the arm of the socket, and then forging or shaping the heated mandrel-containing portion of the blank as required to render it conformable to the external contour of the mandrel.

5. The herein-described method of making a wire-rope socket, comprising the heating of the billet or stock and shaping it as required to form a head and a shank arranged centrally of and projecting from one end of the head outwardly and longitudinally of the head, then heating the shank-forming portion of the blank and shaping it into the form of a bail-shaped arm, then boring a hole centrally and longitudinally of and through the head-forming portion of the blank between the end members of the bail-shaped arm, then heating the bored portion of the blank and inserting a tapering or conical mandrel within the said bored portion, then shaping the said heated bored portion upon the said mandrel as required to render it conformable to the external contour of the mandrel, then withdrawing the mandrel, and then dressing the outer and smaller end of the last-mentioned and basket-forming portion of the socket.

662,217. MEANS FOR CONSERVING LIQUID GASES. JOHN F. BRADY, Chicago, Ill. Filed Mar. 29, 1899. Serial No. 710,998. (No model.)



Claim.—1. In a means for conserving liquid gas, a series of heat-insulated receptacles, one within the other, communicating heads between the vessels, each of which is provided with laterally-opening passages, valves and a partition in each head, and partitions within the spaces between the receptacles extending from opposite sides of the heads between the passages.

2. In a means for conserving liquid gas, a central receptacle adapted to contain liquid gas, a series of casings nested around the central receptacle, and each casing insulated from the other and from the central receptacle, by means of a slow heat-conducting material, which latter also serves to separate the several casings from each other and from the central receptacle, and form spaces for containing gas around between the several casings and between the central receptacle and the innermost casing, in combination with valves operated by gas-pressure which guard a passage-way leading out of the central receptacle, and passage-ways leading out of the casings into the said spaces and out of the outer casing, in combination with means without the spaces adapted to directing gas from the central receptacle around itself, and around the casings for the purpose stated.

3. In a means for conserving liquid gases, a series of heat-insulated receptacles, one within the other, each provided with an outwardly-opening valve and the central one being adapted to contain liquid gas, and means between the receptacles for causing the gas to circulate in reverse directions in the spaces between the receptacles in its passage from the interior to the exterior of said receptacles.

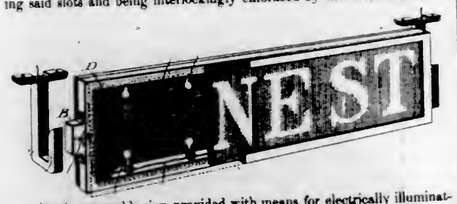
4. In a means for conserving liquid gases, a series of heat-insulated vessels, one within the other, each provided with a head, and each head being provided with spaces, each space communicating with the adjacent space between the vessels, and one of the spaces in each alternate head communicating with the corresponding space of the next succeeding head, and an outwardly-opening valve in each of the passages between the heads.

5. In a means for conserving liquid gases, a series of nested heat-insulated vessels, each provided with a head, each head being provided with spaces, said spaces communicating with the adjacent space between the vessels, and one of the spaces of each alternate head communicating with the corresponding space of the next succeeding head, an outwardly-opening spring-pressed valve in the passage from one head to the other one, and top and base rings within the spaces between the different vessels, said rings being provided with gas-passages.

662,218. ELECTRIC CAR-SIGN. IRVING R. BROWER, Philadelphia, Pa. Filed Nov. 15, 1899. Serial No. 737,012. (No model.)

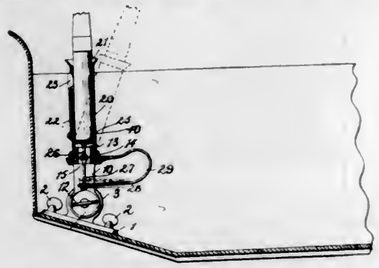
Claim.—1. A removable sign provided with means for electrically illuminating the same and stubs on the sides of the frame thereof, contact-points on said stubs connected with the electric conductors of the sign,

brackets with open slots therein adapted to receive said stubs, and electric conductors connected with said brackets, said stubs removably occupying said slots and being interlockingly embraced by the walls thereof.



2. A removable sign provided with means for electrically illuminating the same, contact-points on end members of the frame of the sign connected with the electric conductors of the sign, brackets with slots therein adapted to freely receive said end members and electric conductors connected with said brackets, said slots and end members being of angular form.

662,219. WHIP-SOCKET. OSCAR CARTER, Buena Vista, Ind., assignor of one-half to George W. Cathcart, Myrtle, Miss. Filed Mar. 8, 1899. Serial No. 708,200. (No model.)



Claim.—1. In a whip-socket, the combination with the base attached to a suitable support and having a cup-shaped disk with radial grooves therein; of a body having a disk with a convex face fitting said other disk, a thumb-screw through the centers of both disks, a socket proper supported by the body, and means for retaining in place and permitting the yielding of the socket in all directions out of longitudinal alinement with the body, as and for the purpose set forth.

2. In a whip-socket, the combination with a support and a body adjustably mounted thereon and having its upper end tubular and surrounded by a collar; of the tubular socket proper whose lower end rests between the tubular portion of the body and said collar, a fixed plate within the socket, an eye projecting downward from the plate through the body, and a spring connected with said eye for holding the socket normally in alinement with the body, as and for the purpose set forth.

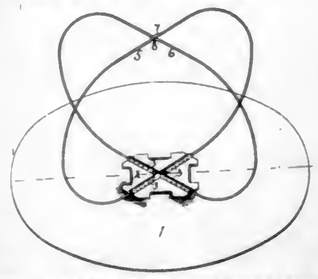
3. In a whip socket, the combination with the body, having an annular ring at its upper end; of the socket proper whose lower end fits within said ring, a rigid plate within the socket, an eye depending therefrom through the ring, a link connected with the eye, and a spring one arm of which is adjustably connected with the lower end of the link, and the other arm of which is held by the body, as and for the purpose set forth.

4. In a whip-socket, the combination with a base attached to a suitable support and having a disk with grooves therein; of a body having a disk with a face fitting said other disk, a thumb-screw through the centers of both disks, a socket proper supported by the body, a spring attached to said socket and having its free end pressing normally inward through the same to hold the whip therein, and means for retaining in place and permitting the yielding of the socket in all directions out of longitudinal alinement with the body, as and for the purpose set forth.

5. In a whip-socket, the combination with a support, and a body adjustably mounted thereon and having its upper end tubular and surrounded by a collar; of the tubular socket proper whose lower end rests between the body and collar, a plate within the socket, an eye projecting downward from the plate through the body, a link connected with the eye, a nut on the link, a washer above it, and a spiral spring having one end pressing upward against the body and the other end downward against the washer, such spring surrounding said link and eye for holding the socket normally in alinement with the body, as and for the purpose set forth.

6. In a whip-socket, the combination with the body having a ring at its upper end; of the socket proper whose lower end fits within said ring, a rigid plate within the socket, an eye depending therefrom through the ring, a link connected with the eye, and a bow-spring one arm of which is adjustably connected with the lower end of the link, and the other arm of which rests beneath the body, as and for the purpose set forth.

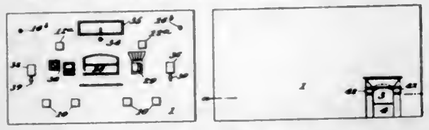
662,220. FLUE-STOPPER. JOHN L. CLARK, Rockford, Ill. Filed Mar. 19, 1900. Serial No. 9,234. (No model.)



Claim.—1. In a flue-stopper, the combination of a base-plate, a center plate connected with the base-plate having four semicircular recesses extending radially from the center of the plate, and two bows having their ends located in the recesses and adapted to cross each other when extended.

2. In a flue-stopper, the combination of a base-plate, a center plate connected with the base-plate having four semicircular recesses extending radially from the center of the plate, and two bows having their ends located in the recesses and adapted to cross each other when extended, their crossing-points formed with notches which engage each other and hold the bows in their extended position.

662,221. BAKE-OVEN. WILLIAM CLAUSS, Cincinnati, Ohio, assignor to the Schaller Patent Bake-Oven Company, same place. Filed May 25, 1900. Serial No. 17,910. (No model.)



Claim.—1. An oven having a baking-chamber, a smoke-chamber above the baking-chamber, a fire-box and two pairs or sets of flues extended beneath the baking-chamber, the flues of one pair or set being arranged to receive the products of combustion from the fire-box and to discharge them into the smoke-chamber, and the flues of the other pair or set being arranged to receive the products of combustion from the smoke-chamber and to discharge them to a chimney, dampers controlling the last-named pair or set of flues, the oven being also provided with a passage leading from the baking-chamber and adapted for communication with a chimney, and a damper controlling said passage, substantially as set forth.

2. An oven having a baking-chamber, a smoke-chamber above the baking-chamber, a fire-box and two pairs or sets of flues extended beneath the baking-chamber, the flues of one set being arranged to receive the products of combustion from the fire-box and to discharge them into the forward part of the smoke-chamber and the flues of the other set having an inclination downward from rear to front of the oven and being arranged to receive the products of combustion from the rear part of the smoke-chamber and being adapted, at their forward ends, for communication with a smoke-outlet, substantially as set forth.

3. An oven having at its central part a baking-chamber and provided with a fire-box, a smoke-chamber above the baking-chamber and parallel flues arranged in two sets below the baking-chamber, the flues of one set being arranged to receive the products of combustion from the fire-box at their rear ends and having their forward ends extended laterally and upwardly past the sides of the baking-chamber and adapted for communication with the smoke-chamber and the flues of the other set having their rear ends provided with upwardly-extended portions which pass up beyond the baking-chamber and are adapted to receive products of combustion from the smoke-chamber and having at their forward ends laterally and upwardly extended portions which pass up at opposite sides of the baking-chamber and are adapted for communication with a smoke-outlet, substantially as set forth.

662,222. CLOTHES-LINE REEL. HARRY COOK, McKeesport, Pa. Filed Aug. 1, 1900. Serial No. 25,530. (No model.)



Claim.—1. In a device of the character described, the combination with the substantially U-shaped casing, and the flanged end plates secured to said casing, of a shaft journaled in said end plates, a spool mounted on said shaft within the casing, a pair of flanged plates 12, 14, arranged within the casing at one end thereof and secured to one of the end plates, a pinion 18 mounted on the shaft of the spool between the plates 12, 14, a toothed shaft journaled in said plates above the pinion 18, a pinion 19′ mounted on said toothed shaft and in mesh with the pinion 18, a shaft 21 journaled in one of the end plates and in said plates 12, 14, a pinion 20 mounted on said shaft between the plates 12, 14, and a spring mounted between the plate 12 and end plate adjacent thereto, said spring having one end connected to the shaft 21, and its other end to the plate 12, substantially as and for the purpose described.

2. In a device of the character described, the combination with the substantially U-shaped casing closed at its front and provided with an oblong slot, and the end plates secured to said casing and provided with flanged ends for securing to a suitable support, of a shaft journaled in said end plates, a ratchet mounted on said shaft, a pivoted pawl for engagement with said ratchet, a spool mounted on said shaft, a pair of flanged plates 12, 14, mounted in the casing and secured to one of the end plates, a pinion 18 mounted on the shaft of the spool between the plates 12, 14, a toothed shaft journaled in said plates 12, 14, a pinion 19′ mounted on said toothed shaft, a shaft 21 journaled in one of the end plates and in the plates 12, 14, a pinion 20 mounted on the shaft 21, and a spring arranged between the plate 12 and the end plate to which the plate 12 is connected with one end attached to the shaft 21 and its other end connected to the said plate 12, as and for the purpose specified.

662,223. MEDICINAL BOOT OR SHOE. HARVEY F. CRAWFORD, Brockton, Mass. Filed July 9, 1900. Serial No. 22,926. (No model.)



Claim.—1. In a boot or shoe, the combination of a heel having a recess which extends from the upper surface of the heel part way down to the bottom thereof, with an insole perforated forwardly of said recessed heel, and a battery mounted in said recess and operatively connected with said perforations.

2. In a boot or shoe, the combination of a heel having a recess which extends from the upper surface of the heel part way down to the bottom thereof, and a cover for the opening of said recess.

3. In a boot or shoe, the combination of a heel having a recess which extends from the upper surface of the heel part way down to the bottom thereof; an insole perforated forwardly of the heel; positive and negative electrodes in said perforations; a voltaic battery in said recess and leads connecting a positive element of the battery with a positive electrode in the insole; and connecting a negative element of the battery with a negative electrode in the insole.

4. In a boot or shoe, the combination of a heel having a recess which extends from the upper surface of the heel part way down to the bottom thereof; with an insole having a perforation in its heel part above the opening of said recess.

5. The combination in a boot or shoe of a heel having a recess which extends from its upper portion part way to its bottom with a sanative battery in said recess.

662,224. GALLOCYANIN SULFITE DYE AND PROCESS OF MAKING SAME. CHARLES DE LA HARPE, CHARLES VAUCHER, and HERMAN LORETAN, Basle, Switzerland, assignors to Dye-Works, formerly L. Durand, Huguenin & Co., same place. Filed July 19, 1900. Serial No. 24,183. (Specimens.)

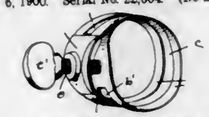
Claim.—1. The process for the manufacture of a new coloring-matter derived from the sulfoderivative of a gallocyanin resulting from the action of a nitrosodialkylanilin salt upon the reaction product of tannin with an aromatic amin of the benzene series, the said process consisting in treating the said sulfonated gallocyanin with a sulfite, substantially as described.

2. The process for the manufacture of a new coloring-matter by treating with a sulfite the dyestuff obtained by sulfonating the gallocyanin resulting from the action of nitrosodialkylanilin salt upon gallanilid, substantially as described.

3. The process for the manufacture of a new coloring-matter by treating with a sulfite the dyestuff obtained by sulfonating the gallocyanin resulting from the action of nitrosodimethylanilin chlorid upon gallanilid, substantially as described.

4. As a new article of manufacture, the herein-described coloring-matter, derived from a sulfonated anilidogallocyanin, the said coloring-matter giving in dyeing and printing on chromium mordanted fibers very deep-blue shades fast to soap and to light and being in dry state a greenish powder soluble in water and furnishing with concentrated sulfuric acid a pale solution a little dichroic, which turns to blue by the addition of an oxidizing agent, substantially as set forth.

662,225. HOSE-COUPLING. CHARLES DIEHL, New York, N. Y. Filed July 6, 1900. Serial No. 22,664. (No model.)



Claim.—1. A hose-coupling comprising an endless spring forming a double coil, and a thumb-screw working in one coil and pressing against the other, substantially as set forth.

2. A hose-coupling comprising a spring bent into a double coil and having its ends connected, and a thumb-screw for forcing the coils radially apart at one point of the coil, substantially as set forth.

3. A hose-coupling comprising a spring bent into a double coil and having its ends connected, and means for forcing the coils radially apart at one point and increasing the difference of their diameters, substantially as set forth.

4. A coupling for hose-pipe and the like, comprising a flat spring bent into a double coil and having its ends connected, one of the coils lying within the other, and a screw working radially upon the outer coil, in a threaded perforation, and abutting at its inner end against the inner coil, substantially as set forth.

5. A coupling for hose-pipe and the like, comprising a flat spring slotted at one end and reduced in width at the other, said spring being bent into a double coil with the reduced end lying in the slot of the other end and having the extremities connected, and means for forcing said coils apart in a radial line, substantially as set forth.

6. The herein-described coupling for hose-pipe and the like, comprising an endless sheet-metal spring, made wide for a portion of its length and slotted, and another portion being narrow, said spring forming two coils one lying within the other, and a radially-disposed thumb-screw turning in the outer coil and pressing against the inner coil, substantially as set forth.

7. The herein-described coupling for hose and the like, comprising a flat spring bent into a double coil, portions of said spring being narrowed and slotted, respectively, to permit the coils to lie in the same plane, a reinforcing-piece on the outer coil, and a thumb-screw working radially in said reinforcing-piece, substantially as set forth.

8. In a hose-coupling, the combination of a double-coiled spring having a narrowed portion *c*, passing through a slotted portion *b*, a curved reinforcing-piece secured to the outside of the outer coil and being perforated and threaded, and a screw working radially in said reinforcing-piece and adapted to engage at its end the inner coil, substantially as set forth.

662,226. CIGAR-POUCH. JOHN J. DITTGEN, Madisonville, Ohio. Filed May 4, 1899. Serial No. 715,515. (No model.)

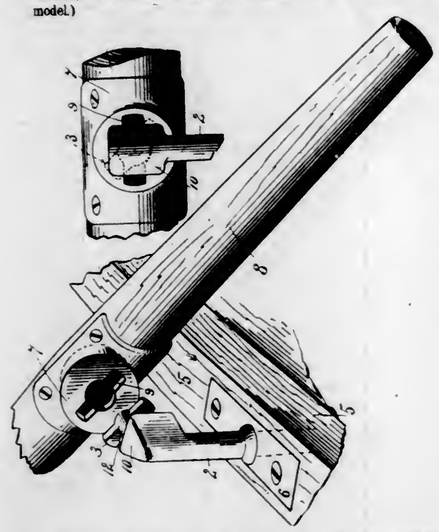


Claim.—1. Cigar receptacles or pouches in connected or sheet-like form and comprising a sheet of stiff material folded to form two plies and having parallel transverse series of cuts dividing the two plies into parts forming front and back walls for individual receptacles or pouches, and independently-formed thin paper body portions, one for each pouch or receptacle, each body portion having its front and back cemented between the front and back walls of its respective pouch or receptacle and having its opposite sides formed with inturned single folds the inner edges of

which are closely adjacent when the pouch or receptacle is collapsed, to give the pouches or receptacles an even thickness throughout their entire width, substantially as set forth.

2. Cigar pouches or receptacles in connected or sheet-like form comprising a sheet of stiff material folded to form two plies or outer walls and flexible body portions cemented between said plies, the plies having transverse series of cuts located between the body portions and one ply having portions independent of each other and extended beyond the mouths of the body portions between each two transverse series of cuts and adapted to be closed over the open mouths of the pouches, substantially as set forth.

662,227. OAR AND ROWLOCK CONNECTION. ALBERT H. ELDREDGE, Ware, Mass. Filed Sept. 6, 1900. Serial No. 29,161. (No model.)



Claim.—1. An oar and rowlock construction comprising a rowlock-stud for engagement with a suitable supporting-socket on a boat, and free to reciprocally rotate in said socket with the swinging movements of an oar, an oar-supporting arm extending from the side of said stud, a bar on said arm beyond the side of said stud extending in an inclined direction across the axis of said stud, combined with a plate forming a connection between said stud and an oar having a hollow boss thereon and an opening in the face of said boss through which said bar may pass and the borders of which opening provide bearings whereby said boss may oscillate on said arm, and said bar may meanwhile engage the inner wall of said boss, thereby operatively connecting the oar to said stud, substantially as described.

2. The rowlock-stud 2 having the arm 12 and the oar-engaging bar 3 fixed on the extremity of said arm in a position inclined across the axis of said stud, combined with the oar-plate 7 having a hollow boss thereon, and an opening therein through which said bar and arm may pass, whereby said bar may engage the inner wall of said boss, and an oar attached to said plate having a free swinging connection with said stud, substantially as described.

662,228. BEAM-HANGER. GUSTAVE E. ESCHER, New York, N. Y. Filed Aug. 10, 1900. Serial No. 26,463. (No model.)



Claim.—1. A hanger of the class described, comprising a body member, a carrying member depending from one end thereof, and a suspending member having a yielding connection with the other end thereof and extending above and substantially in parallelism with the body member, substantially as shown and described, and for the purpose set forth.

2. A hanger of the class described, comprising in integral construction, a body member consisting of side rods, a carrying member connected with one end thereof and consisting of a depending loop, the sides of which are connected with the side rods of the body member, and a suspending member connected with the other end of the body member by means of spring or yielding loops, and consisting of side rods extending above the body member.

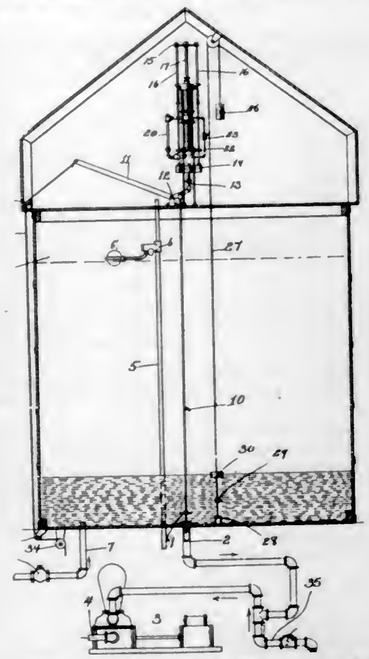
3. As an improved article of manufacture, a hanger of the class described, formed of a single length of bent wire, formed centrally into a loop constituting the carrying member, the wire being thence bent and extended in substantially parallel side rods to form the body member, and thence bent and extended in substantially parallel side rods to form the suspending member; said suspending member ranging above, and said carrying member below the body member.

4. The combination, with a flanged beam, of a hanger consisting of a body member, a carrying member depending from one end thereof, and a suspending member ranging above the body member and having a yielding connection with the other end thereof, said body member and said suspending member being passed about the flange of the beam and at opposite sides thereof; the hanger being formed in its entirety of a single length of bent wire.

5. A hanger of the class described, comprising a body member, a carrying member depending from one end thereof, and a suspending member having a yielding connection with the other end of the body member and ranging thereabove, substantially as shown and described, and for the purpose set forth.

6. A hanger of the class described, comprising, in integral construction, a body member consisting of a longitudinal rod, a carrying member connected with one end thereof and consisting of a depending loop one side of which is connected with the longitudinal rod of the body member, and a suspending member connected with the other end of the body member by means of a spring or yielding loop and consisting of a rod extending above the body member.

662,229. FIRE-PUMP APPARATUS FOR BUILDINGS. JOHN EWART, Arlington, Mass., assignor of one-fourth to Joseph A. Ewart, Braintree, Mass. Filed Mar. 19, 1900. Serial No. 9,237. (No model.)



Claim.—1. The combination of a supply-tank adapted to furnish water to a fire-extinguishing system, a pump connected with said tank and with the system, an independent source of water-supply connected with the pump, and means controlled by the water-level in the tank for automatically shifting the suction of the pump from the tank-supply to the independent supply.

2. The combination of a supply-tank adapted to furnish water to a fire-extinguishing system, and having an outlet, a valve controlling said outlet and controlled by the level of the water in the tank, said valve closing the outlet when the water is at a relatively low level, a pump delivering to the system and having its suction connected with said outlet, and an independent water-supply connected with the suction of the pump and adapted to be drawn upon automatically when said tank-valve closes.

3. The combination of a supply-tank adapted to furnish water to a fire-extinguishing system, and having an outlet, a main valve controlling said outlet, a manually-operated device adapted to open said valve, a liquid-controlled retarding device adapted to hold the valve in open position, a pilot-valve associated with said retarding device and adapted when open to permit the closing of the main valve, a float controlled by the level of the water in the tank and adapted to operate the pilot-valve, said float opening the pilot-valve when the water has sunk to a predetermined level, a pump delivering to the system and having its suction connected with said outlet, and an independent water-supply connected with the suction of the pump, and adapted to be drawn upon automatically when the main valve closes.

4. The combination of a supply-tank adapted to furnish water to a fire-extinguishing system, and having an outlet, a main valve controlling said outlet, a manually-operated device adapted to open said valve, a liquid-controlled retarding device adapted to hold the valve in open position, a pilot-vale associated with said retarding device and adapted when open to permit the closing of the main valve, a float controlled by the level of the water in the tank and adapted to operate the pilot-valve when the water has sunk to a predetermined level, adjusting means to vary the point at which said float acts, a pump delivering to the system and having its suction connected with said outlet, and an independent water-supply connected with the suction of the pump, and adapted to be drawn upon automatically when the main valve closes.

662,230. TYPE-WRITING MACHINE. CHARLES L. FENTON, Winfield, N. Y., assignor to the Wyckoff, Seamans & Benedict, Ilion, N. Y. Filed Aug. 16, 1900. Serial No. 27,103. (No model.)

Claim.—1. In a ribbon-spool having a flange, the combination with a ribbon-clamp arranged upon one side of said flange, of a finger-piece arranged at the other side of said flange and connected to said clamp for raising the latter.

2. In a ribbon-spool having a flange, the combination with a ribbon-clamp arranged upon one side of said flange, of a finger-piece extending from said clamp through said flange.

3. In a ribbon-spool comprising a pair of flanges, the combination with a ribbon-clamp arranged between said flanges, of a finger-piece arranged at one end of the spool outside of the flange and connected to said clamp for raising the latter.

4. In a ribbon-spool, the combination of a core, a flange, a spring arranged upon one side of said flange for clamping the ribbon to the core, and a finger-piece arranged upon the other side of said flange and connected to said spring.

5. In a ribbon-spool, the combination of a pair of flanges united by a core, a spring secured upon said core for clamping the end of the ribbon thereto, and a finger-piece connected to said spring and extending through one of said flanges.

6. In a ribbon-spool, the combination with a ribbon-clamping spring, of a crank 15 provided with a finger-piece and constructed and arranged to act upon said spring and cause the latter to release the ribbon.

7. In a ribbon-spool comprising a pair of flanges and a core, the combination of a ribbon-clamping spring, a bail arranged between and pivoted in said flanges and constructed to engage said spring and cause it to release the ribbon, and a finger-piece for said bail.

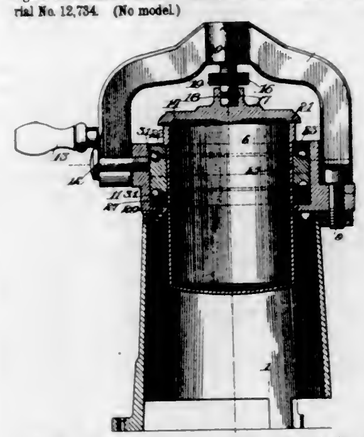
8. In a ribbon-spool comprising a pair of flanges and a core, the combination of a ribbon-clamp spring, a bail arranged between and pivoted in said flanges and constructed to engage said spring and cause it to release the ribbon, and a finger-piece for said bail, said finger-piece being in the form of a lever which extends from the axis of said bail alongside of the spool-flange and close thereto.

9. In a ribbon-spool, the combination with a pair of flanges and a core, of a spring overlying said core and secured thereto and constructed at its free end to clamp the end of the ribbon to said core, a bail lying between said spring and said core and pivotally mounted in said spool-flanges, and a finger-piece for said bail.

10. In a ribbon-spool, the combination with a pair of flanges and a core, of a spring overlying said core and secured thereto and constructed at its free end to clamp the end of the ribbon to said core, a bail lying between said spring and said core and pivotally mounted in said spool-flanges, and a finger-piece for said bail, said finger-piece being arranged outside one of said flanges and upon a part of the bail which extends through the flange.

11. In a ribbon-spool, the combination with a pair of flanges and a core, of a ribbon-clamp overlying said core, and a bail arranged between said clamp and said core and pivotally mounted at its ends in said spool-flanges, one end of said bail being prolonged and bent to form a finger-lever for turning said bail to release said clamp.

662,231. VULCANIZER. PHILIPP FUNCK, Rochester, N. Y., assignor to Johnson & Lund, Philadelphia, Pa. Filed Apr. 13, 1900. Serial No. 12,734. (No model.)



Claim.—1. In a vulcanizer, the combination with the retort having the flange, the frame surrounding the retort, having a cam-surface, and the cover connected to the frame and held stationary above the retort, of the clamping-collar extending loosely around the retort beneath the flange and capable of rotation independently thereof, and having a cam-surface coöperating with the corresponding surface on the frame to move the retort and cover relatively.

2. In a vulcanizer, the combination with the retort, the frame surrounding the latter, the yoke pivoted thereon movable to the side and the cover secured to the latter, of the collar surrounding the retort having the cam-surface coöperating with a similar surface on the frame, a ring separate from the retort interposed between the collar and the retort for supporting the latter and operating devices for revolving the collar in either direction to engage and disengage the cover and retort.

3. In a vulcanizer, the combination with a retort having the outwardly-extending projection upon its upper end, the frame surrounding the retort having the cam-surface, and the pivoted yoke mounted upon the frame and swinging to the side thereof, of the cover adjustably mounted on the yoke, the collar supporting the retort having the cam-surface coöperating with the similar surface on the frame and means for rotating the collar in either direction to cause the engagement or disengagement of the cover and retort.

4. In a vulcanizer, the combination with an annular frame having the cam-surface, the collar lying within the frame having the cam-surface coöperating therewith, the yoke pivoted on the frame and the cover mounted on the yoke, of the retort having the flange supporting it on the collar and means for revolving the collar to elevate the retort and cause its engagement with the cover.

5. In a vulcanizer, the combination with a frame having an annular shoulder upon its inner side provided with a cam-surface, a collar rotatable in the frame having the cam-surface, and balls provided between the said surfaces, of a retort having the flange upon its exterior whereby it is supported on the collar, a yoke having a cover thereon and means for operating the collar to cause the engagement of the retort with the cover.

6. In a vulcanizer, the combination with a supporting-frame, having the annular flange upon its inner side, the ring supported on the flange having the cam-surface provided with the groove, the collar having the cam-surface upon its lower side provided with the groove and the balls arranged in the grooves between the said surfaces, of the retort supported on the collar, the yoke pivotally mounted on the frame, the cover carried on the yoke and a handle connected to the collar and extending to the exterior of the frame for operating the former to cause the engagement of the retort with the cover.

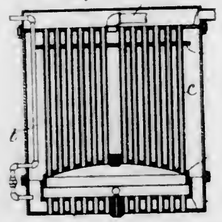
7. In a vulcanizer, the combination with a supporting-frame, the annular flange upon its inner side having the cam-surface thereon, the collar having the cam-surface coöperating therewith, the vertically-movable ring located above the collar and secured against rotation, and the retort supported on the ring, of the pivoted yoke on the frame, the cover mounted on the yoke, and a handle on the collar for operating the latter in either direction to cause the engagement and disengagement of the retort and cover.

8. In a vulcanizer the combination with a supporting-frame, the annular flange secured upon the inner side thereof having the cam-surface, the collar having the cam-surface upon its lower side coöperating therewith and provided with the groove upon its upper surface, the vertically-movable ring located above the collar having the groove, balls arranged in the grooves between the collar and ring and the retort supported on the ring, of the yoke pivoted to the frame, the cover thereon and a handle attached to the collar.

9. In a vulcanizer, the combination with a supporting-frame having the ring secured upon the inner side thereof having the cam-surface provided with the groove, the collar having the grooved cam-surface upon its lower side coöperating therewith and having the groove in its upper surface, the vertically-movable ring arranged above the collar having the groove, balls arranged in the grooves between the cam-surfaces and between the collar and rings, and the retort supported on the latter, of the yoke pivoted to the frame, the cover thereon adjustable relative to the frame and a handle on the collar for rotating the latter to elevate the retort into engagement with the cover.

10. In a vulcanizer, the combination with a supporting-frame having the cam-surface, the collar arranged therein provided with the cam-surface, the vertically-movable ring arranged above the collar and the retort supported on the ring, of the yoke extending above the retort pivoted at one end to the frame and movable to the side thereof, the hook upon the opposite extremity engaging beneath a projection on the frame, the cover, an adjusting-screw, the yoke having the shoulder engaging in a recess in the cover and loosely connected, and an operating-handle attached to the collar.

662,232. STEAM-BOILER. LOUIE J. HARRIS, Boston, Mass. Filed June 21, 1900. Serial No. 21,069. (No model.)



Claim.—1. In a steam-boiler the main section having a crown-sheet containing a removable plug combined with a bottom section provided with an orifice of greater diameter than said plug, and having a perforated plug for partially closing said orifice, substantially as described.

2. In a steam-boiler the combination of the crown-sheet forming the top of the fire-box, a removable plug fitted into said crown-sheet, a hollow bottom section forming the floor of said fire-box, said bottom section being provided with a perforated plug of larger diameter than the diameter of the plug in the crown-sheet, substantially as described.

3. In a steam-boiler the combination of the main section, comprising the shell, the head, the crown-sheet and the hot-air flues, and the lower section comprising the inner and outer plates forming a chamber in communication with the main section and air-flues connecting said plates, substantially as described.

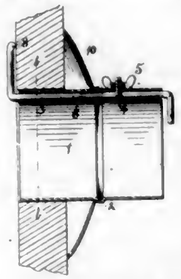
4. In a steam-boiler the combination of the main section comprising a water-chamber, and a hollow bottom section forming a supplementary water-chamber inclosing the fire-box, said bottom section being provided with air-inlet tubes, substantially as described.

5. In a boiler the combination of the outer shell, the crown-sheet, of the lower section comprising an outer and an inner plate said plates being connected by means of air-admission flues, and being detachably secured to the shell and to the crown-sheet respectively, substantially as described

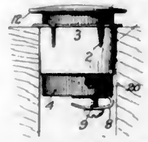
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662,233. STOVEPIPE. WILLIAM HAYLOR, Belvidere, Ill. Filed May 31, 1900. Serial No. 18,548. (No model.)

Claim.—The combination of a section of stovepipe having an outwardly-extending bead, a collar surrounding the pipe and resting against the bead, a rod located within the pipe having its ends bent at right angles to its length and extending in opposite directions, a guide for one end of the rod, a screw-threaded hook extending through the pipe and encircling the rod and a thumb-nut on the hook serving to clamp the rod against the inner face of the pipe.



662,234. CIRCUIT-CLOSING DEVICE. EDGAR W. HAZAZER, New York, N. Y. Filed Oct. 7, 1899. Serial No. 732,838. (No model.)



Claim.—1. In a circuit-closer, the combination with a supporting-plug having a perforation therethrough, of a circuit-closing stem working in the perforation and a contact located at one end of the perforation and closing the same, substantially as described.

2. In a circuit-closer, the combination with an inclosing cup of a supporting-plug having a perforation therethrough, a circuit-closing stem working in the perforation, a button for operating the stem, and a contact coöperating with the stem, said contact being arranged at one end of the perforation and closing the same, substantially as described.

3. In a circuit-closer, the combination with a supporting-plug having a perforation therethrough, of a circuit-closing stem of substantially the same diameter as the perforation working therein and a piece of metal forming the second contact, said piece of metal being secured to the bottom of the plug and closing the perforation, substantially as described.

4. In a circuit-closer, the combination with a supporting-plug having a perforation therethrough, of a circuit-closing stem working in the perforation, a button for operating the stem, a metal clip bent to form wire-receiving jaws secured to the plug so that one of the jaws closes the perforation, said clip being constructed to receive a wire between its jaws, substantially as described.

5. In a push-button, the combination with a supporting-plug, of a circuit-closing stem working therethrough, a button for operating the stem, a metal clip bent to form jaws which receive the ends of the circuit-wire between them, said clip forming the contact with which the circuit-closing stem coöperates to close the circuit, and means for securing the clip to the plug, whereby a connection may be made with the circuit-closer without bending the wire, substantially as described.

6. In a push-button, the combination with a supporting-plug, of a circuit-closing stem working therethrough, a button for operating the stem, a metal clip bent to form jaws which receive the ends of the circuit-wire between them, said clip forming the contact with which the circuit-closing stem coöperates to close the circuit, and a screw passing through the jaws which operates both to force the jaws together and to secure them to the supporting-plug, whereby a connection may be made with the circuit-closer without bending the wire, substantially as described.

7. In a circuit-closer, the combination with a supporting-plug having two perforations therein, of a circuit-closing stem working in one of the perforations, a contact coöperating therewith and closing the end of said perforation, a spring surrounding the stem and having one of its ends in electrical contact with the stem, the other end of the said spring being located in the second perforation, substantially as described.

8. In a circuit-closer, the combination with a supporting-plug carrying movable circuit-closing devices and having a longitudinal perforation therethrough, said perforation being of a size to receive two conductors, of a conductor lying in said perforation, and means for insuring electrical contact between said conductor and a second conductor which may be inserted in the perforation, substantially as described.

9. In a circuit-closer, the combination with a supporting-plug carrying movable circuit-closing devices and having a longitudinal perforation therethrough, said perforation being of a size to receive two conductors, of a conductor lying in said perforation; and a screw for insuring electrical contact between said conductor and a second conductor which may be inserted in the perforation, substantially as described.

10. In a push-button the combination with a contact-piece supported on the plug, of a circuit-closing stem working through the plug a spring for moving the stem in one direction, said spring having one of its ends in electrical connection with the stem and its other end arranged to be connected to the circuit-wire, substantially as described.

11. In a circuit-closer, the combination with a supporting-plug having two perforations therethrough, of a circuit-closing stem working in one of the perforations, a contact-piece coöperating therewith and secured to the plug so as to close the perforation, a button for operating the stem, a spring surrounding the stem and in electrical contact therewith, one end of the spring lying in the second perforation, and means for securing electrical contact between said spring and a second conductor to be inserted in said perforation, substantially as described.

12. In a circuit-closer, the combination with a supporting-plug carrying movable circuit-closing devices and having a perforation therethrough, one end of said perforation being counterbored, of a conductor lying in said perforation, the counterbore operating to receive the insulated portion of a second conductor which is to be inserted in said perforation, and means for securing electrical contact between the two conductors, substantially as described.

13. In a circuit-closer, the combination with a cup or socket formed of spring material, said cup or socket being slit at one end so as to form spring-tongues, whereby the cup or socket is held in position, circuit-closing devices supported by the cup, and a push-button located in the cup and serving to operate the circuit-closing devices, substantially as described.

14. In a circuit-closer, the combination with a cup or socket, of circuit-closing devices carried thereby, a circuit-closing button for operating said devices, said button being arranged to extend over the edge of the socket in close proximity thereto, the proportions and relative arrangements being such that the button substantially conceals the edge of the socket, substantially as described.

15. In a circuit-closer, the combination with a cup or socket, of circuit-closing devices supported thereby, and a push-button working in said socket, said push-button having a shoulder which extends over the edge of the socket in close proximity thereto, the proportions and relative arrangements being such that the shoulder substantially conceals the edge of the socket, substantially as described.

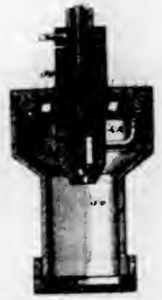
662,235. SUPPORT FOR MUSIC-LEAF TURNERS. SAMUEL W. HORNBECK, Slate Hill, N. Y. Filed Apr. 7, 1900. Serial No. 11,926. (No model.)



Claim.—A support for music-leaf turners consisting of a strip of metal curved at one end, the strip having a curved slot in said curved end and provided with a clamping-screw, the strip being bent at the other end upon itself, and with a return-bend forming a spring-clamp whereby the support is attached to any suitable object.

662,236. LIQUID-SPRAYING DEVICE. JOHN P. JOHNSTON, Oak Park, Ill., assignor to himself and Edward R. Morrell, same place. Filed Sept. 15, 1899. Serial No. 730,536. (No model.)

Claim.—1. In a liquid-spraying apparatus, the combination of a feed-pipe, a rotary cylinder, means for rotating said cylinder by the flow of the liquid thereinto, one or more passages for the discharge of the liquid from said cylinder, and means for varying the quantity of liquid supplied to said cylinder without varying the speed of its rotation, substantially as described.



2. In a liquid-spraying apparatus, the combination of a feed-pipe, a rotary cylinder, means for injecting liquid tangentially into said cylinder to effect its rotation, additional means for supplying liquid to said cylinder, and one or more passages for the discharge of liquid from said cylinder, substantially as described.

3. In a liquid-spraying apparatus, the combination of a feed-pipe, a rotary cylinder, means operated by the flow of the liquid thereinto for rotating said cylinder, additional means for supplying liquid to said cylinder, and one or more passages for the discharge of the liquid from said cylinder, substantially as described.

4. In a liquid-feeding apparatus, the combination of a spraying device operated by the flow of liquid, means for supplying liquid under pressure to said spraying device, and means for varying the quantity of liquid supplied to the spraying device without varying the pressure of the liquid therein, substantially as described.

5. In a liquid-feeding apparatus, the combination of a spraying device, means for conducting liquid to said spraying device, a plurality of passages for admitting liquid to said spraying device, and a valve governing the admission of liquid to one of said passages and not another, substantially as described.

6. In a liquid-feeding apparatus, the combination of a rotary cylinder, a supply-pipe, a plurality of passages for admitting liquid from said pipe to said cylinder, and a valve governing the admission of liquid to one of said passages and not another, substantially as described.

7. In a liquid-feeding apparatus the combination of a spraying device, means for conducting liquid to said spraying device, a plurality of passages for admitting liquid to said spraying device, a valve governing the admission of liquid to one of said passages and not another, and means for operating said spraying device by the flow of liquid, substantially as described.

8. In a liquid-feeding apparatus, the combination of a rotary cylinder, a supply-pipe for conducting liquid to said cylinder, means for injecting liquid into said cylinder tangentially, separate means for discharging liquid into said cylinder, and a valve for controlling the latter discharge, substantially as described.

9. In a liquid-feeding apparatus, the combination of a rotary cylinder having an outlet or outlets for the discharge of liquid at or near the lower end of the cylinder, a pipe communicating with said cylinder for supplying liquid thereto, means operated by the flow of liquid for rotating said cylinder, and ball-bearings supporting said cylinder from said supply-pipe, substantially as described.

10. In a liquid-feeding apparatus, the combination of a rotary cylinder having a series of cups annularly arranged, a supply-pipe, and a pipe affording communication between said supply-pipe and said cylinder and arranged to discharge liquid from said pipe into said cups tangentially, substantially as described.

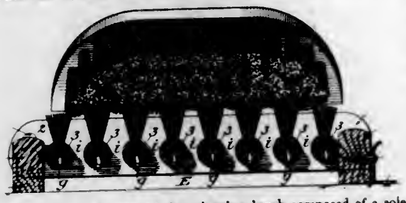
11. In a liquid-feeding apparatus, the combination of a rotary cylinder having a series of cups annularly arranged, a supply-pipe, a pipe affording communication between said supply-pipe and said cylinder and arranged to discharge liquid from said pipe into said cups tangentially, and a separate valved passage between said supply-pipe and said cylinder, substantially as described.

12. In a liquid-feeding apparatus, the combination of a supply-pipe having an external sleeve fitted upon the lower end thereof, a rotary cylinder having its upper end fitted upon said sleeve, bearings supporting said cylinder and permitting its rotation, and means for discharging liquid from said supply-pipe tangentially into said cylinder, substantially as described.

13. In a liquid-spraying apparatus, the combination of a rotary spraying-head adapted to contain the liquid to be sprayed, means for supplying liquid thereto, one or more passages for the discharge of the liquid from

said head, and means operated by a part only of the liquid supplied to said spraying-head for rotating said head, substantially as described.

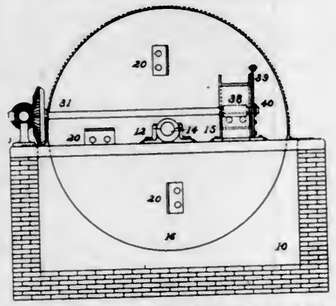
662,237. BOOT-CLEANER. GEORGE L. LAMB, Nappanee, Ind. Filed Jan. 19, 1900. Serial No. 2,028. (No model.)



Claim.—1. An improved foot-cleaning brush composed of a sole-cleaning brush having side bars, a front bar and transverse brush-section bars, with interspaces between said brush-section bars that are flaring both at top and at bottom and a space beneath, side brushes flexibly attached at their lower edges to said sole-cleaning brush by spring-hinges, a frame-piece to which said sole-cleaning brush is hinged at its rear end, and a fastening which coacts with said front bar.

2. A sole-cleaning brush having side bars and transverse brush-section bars with interspaces between said brush-section bars and a space beneath to receive the dirt, hinges attaching the brush to a floor at one edge, and a fastening which holds it down for use and releases it for cleaning out said space beneath the brush, substantially as hereinbefore specified.

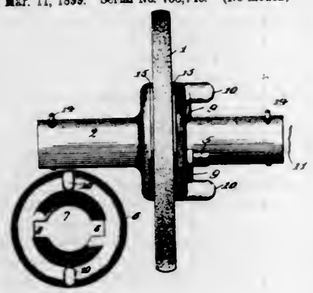
662,238. PULP-WOOD CHIPPER. ALVIN O. LOMBARD, Waterville, Me., assignor to the Burgess Sulphite Fibre Company, of Maine. Filed July 3, 1899. Serial No. 722,632. (No model.)



Claim.—1. A pulp-wood chipper provided with a feeding device consisting of a belt-driven main feed-shaft, and a gear-driven feed-roll shaft provided with a feed-roll and a trunnioned bearing adjacent to the gearing whereby the feed-roll may be raised or lowered without interference with the driving of the feed-roll shaft.

2. A pulp-wood chipper provided with the belt-driven main feed-shaft; the gear-driven feed-roll shaft, having the feed-roll, the trunnioned bearing to retain the gears in mesh and permit lateral movement of the feed-roll shaft, and the sliding box; and the slide, adapted to receive the sliding box.

662,239. GRINDING-WHEEL CENTER. JAMES MACPHAIL, Blue Island, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill. Filed Mar. 11, 1899. Serial No. 708,740. (No model.)

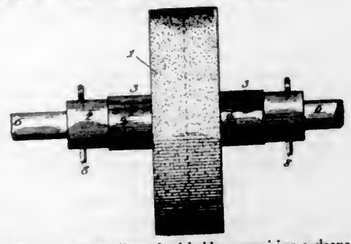


Claim.—1. A grinding-wheel center or holder comprising a hollow sleeve having a flange, a grinding-wheel having a central hole to receive the sleeve and adapted to be forced against the flange, lugs on the sleeve, a cam-nut received on the sleeve and when rotated forced against the wheel by contact with the lugs, a driving-shaft or arbor and means on both sides of the wheel for removably attaching the sleeve and shaft, said means positively holding the parts whether the wheel is running or is at rest.

2. A grinding-wheel center or holder comprising a hollow sleeve having a flange, a grinding-wheel having a central hole to receive the sleeve and adapted to be forced against the flange, lugs on the sleeve, a cam-nut received on the sleeve and when rotated forced against the wheel, and a driving-shaft or arbor having a pin-hole, the sleeve having a corresponding pin-hole and a pin passing through both said holes.

3. A grinding-wheel holder comprising a sleeve 2 having a flange 3, a hub 4 and a pin-hole 13, lugs 5, a grinding-wheel 1 received on said hub, a nut 6 having a central opening 7 and side slots 8 to accommodate the lugs, cams 9 on the nut, a driving-shaft 11 having a pin-hole 12 and a pin 14 entering holes 12 and 13 to removably secure the sleeve to the shaft.

662,240. GRINDING-WHEEL CENTER. JAMES MACPHAIL, Blue Island, Ill., assignor to the Piano Manufacturing Company, Chicago, Ill. Filed Mar. 11, 1899. Serial No. 708,741. (No model.)



Claim.—1. In a grinding-wheel holder comprising a sleeve having an enlarged portion on which the grinding-wheel is rigidly and permanently fixed, a driving-shaft inside the sleeve, and means for detachably securing the sleeve to the shaft.

2. A grinding-wheel holder comprising a sleeve having pin-holes near its ends and also having an enlarged portion provided with longitudinal grooves to be filled with a material to permanently secure the grinding-wheel on such sleeve, a driving-shaft having pin-holes registering with the pin-holes in the sleeve and removable pins entering both sets of holes.

3. A grinding-wheel center or holder comprising a sleeve having a pin-hole, a grinding-wheel received on the sleeve, means for fastening the wheel on the sleeve, a driving-shaft having a pin-hole and a pin entering both said pin-holes.

4. A grinding-wheel holder comprising a member having an enlarged portion provided with longitudinal grooves, a grinding-wheel received on said portion and a material forced into said grooves and within the wheel.

5. A grinding-wheel holder comprising a member having an enlarged portion 3 provided with grooves 4 and a grinding-wheel 1 received on said member.

6. A grinding-wheel holder comprising a sleeve 2 having a pin-hole 5 and also having an enlarged portion 3 provided with longitudinal grooves 4, a grinding-wheel 1 received on the enlarged portion of the sleeve and secured thereto by material forced into the grooves and within the wheel, a driving-shaft 6 having a pin-hole 7 and a cotter-pin 8 entering holes 5 and 7 to secure the sleeve to the shaft.

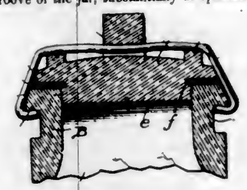
7. A grinding-wheel center comprising a member provided with longitudinal and cross grooves, a grinding-wheel and filling material in said grooves for securing the wheel on said member.

8. A grinding-wheel center comprising a member having an enlarged portion provided with longitudinal and cross grooves and a grinding-wheel received on said member.

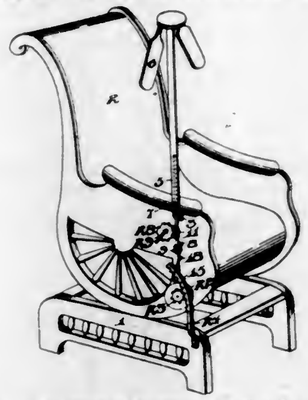
9. A grinding-wheel center comprising a member having an enlarged portion provided with longitudinal grooves and also with dodged cross-grooves between said longitudinal grooves and a grinding-wheel received on said member.

662,241. JAR-CLOSURE. JEFFERSON C. MILLS, Anderson, Ind., assignor of one-half to Ezekial A. Eggman, same place. Filed Sept. 23, 1899. Serial No. 731,432. (No model.)

Claim.—The combination with the jar having an inwardly-offset annular shoulder, and annular corrugations or teeth at its upper portion, of a cover having opposite lateral toothed inclines, and a central knob provided with an opening therethrough; and a bail-clamp having an upwardly arched or bowed transverse arm engaging the opening of said knob and the teeth of said inclines, being thus depressed at its central portion under the action of said inclines to more securely engage the same, and lateral depending arms in locking engagement with the annular corrugations or teeth of said jar, and having inturned ends in engagement with said annular groove of the jar, substantially as specified.



662,242. FAN ATTACHMENT FOR ROCKERS. JOHN J. MYERS, Wilmerding, Pa. Filed July 7, 1900. Serial No. 22,778. (No model.)

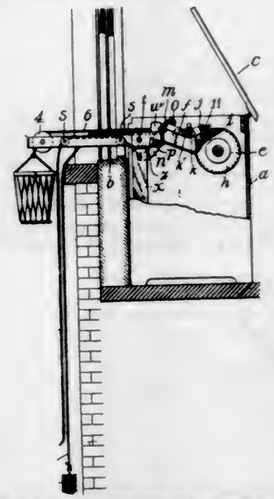


Claim.—1. In a device of the character described, the combination with the stationary base of the chair and a rack secured to said base, of a rocker mounted upon the base, keepers 3, and 8 secured to the side of said rocker, an operating-shaft journaled in said keepers, a sleeve adjustably mounted on the upper end of said shaft, a fan carried by the upper end of said sleeve, a ratchet-wheel secured to the lower end of the operating-shaft, a keeper 12 secured to the side of the rocker in vertical alinement with the keepers 3 and 8, a shaft 13 journaled in said keepers 12, a spring-pressed arm pivoted in the upper end of said shaft 13, and engaging the ratchet carried by the operating-shaft, a miter-gear secured on the lower end of said shaft 13, a shaft 21 secured to the side of the rocker, a bevel-gear carried by said shaft and adapted to mesh with the miter-gear carried by the shaft 13, and a pinion carried by said shaft 21 for engagement with the rack carried by the base, substantially as described.

2. The combination with the base carrying the rack stationary with the base, of the rocker mounted on the base, keepers secured to the side of the rockers, an operating-shaft journaled in said keepers, a sleeve adjustably mounted on the upper end of said shaft, a fan carried by said sleeve, a ratchet carried on the lower end of the operating-shaft, a shaft 13 rotatably supported from the side of the rocker, an arm pivoted in the upper end of said shaft, a spring for holding said arm in engagement with the ratchet of the operating-shaft, a miter-gear carried on the lower end of said shaft 13, a shaft 21 rotatably supported from the side of the rocker, a bevel-gear carried by said shaft and adapted to mesh with the miter-gear carried by the shaft 13, a pinion mounted on said shaft 21 for engagement with the rack carried by the base, and a case secured to the rocker for inclosing said gears and pinions, substantially as described.

662,243. FIRE-ESCAPE. OLOF NELSON, Naugatuck, Conn. Filed Mar. 13, 1900. Serial No. 8,532. (No model.)

Claim.—1. In a fire-escape the combination of a portable inclosing case having the opening top and removable side, rotating drum, basket-suspending ropes on the drum, counterbalancing weighted rope wound on the drum reversely to the basket-suspending ropes, folding and outreaching basket-rope carrying arms pivoted in the case at the open side, pulleys for the basket-ropes, spring-actuated hooks and props for holding the arms in the outreaching position, friction-disks connected with the drum, brake-bands on the friction-disks, rock-shaft and rock-lever connected with the brake-bands and the brake-controlling rope suspended from the rock-lever.

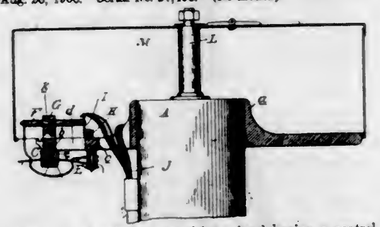


2. In a fire-escape the combination of a portable inclosing case having the opening top and removable side, rotating drum, basket-suspending ropes on the drum, counterbalancing weighted rope wound on the drum reversely to the basket-suspending ropes, folding and outreaching basket-rope carrying arms pivoted in the case at the open side, spring-actuated hooks and props for holding the arms in the outreaching position, friction-disks connected with the drum with ratchet devices permitting the upwinding of the basket-ropes independently of the disks, brake-bands on the friction-disks, rock-shaft and rock-lever connected with the brake-bands and the brake-controlling rope suspended from the rock-lever.

3. The combination with the portable inclosing case, rotating drum, basket-suspending rope and folding arms, of the spring-actuated props, having the shoulders to lodge under the arms at their pivots, and the hooks to engage over the rear extremities of the arms.

4. The combination with the portable inclosing case, rotating drum, basket-suspending rope and folding arms, of the spring-actuated props having the shoulders to lodge under the arms at their pivots, and the hooks to engage over the inner extremities of the arms, said props perforated and having the arm pivot-shaft and the rock-shaft fitted through said perforations.

662,244. POLE-TOP. PETER G. REYNOLDS, Detroit, Mich. Filed Aug. 20, 1900. Serial No. 27,468. (No model.)



Claim.—1. A pole-top comprising a head having a central socket adapted to engage with the upper end of the pole, a series of spaced insulator wire-guides arranged near the periphery of said head, through which guides the radiating terminal wires are passed, and a series of insulated anchor-studs to which the inner ends of said radiating conductors are secured.

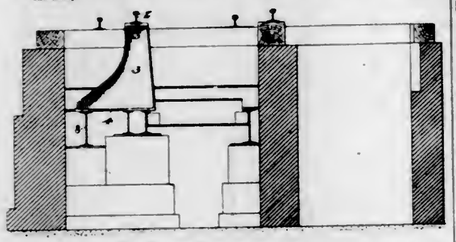
2. A pole-top comprising a polygonal head having a central socket for engaging the upper end of the pole, a series of insulator-guides for the radiating terminal wires arranged along each side of said head, and an insulated fuse-holder corresponding to each series of guides.

3. The combination with a pole of a head secured to the upper end thereof, terminal wires radiating from said head, insulator-supports for said wires, a multiple conductor-cable, a series of fuses individually connecting said terminal wires with the conductors of the cable, said fuses being arranged in a plurality of groups and independent insulator-holders for each group of fuses.

4. A pole-top comprising a polygonal head having a central socket for attachment to the pole, a series of depending insulator wire-guides arranged along each side of said head, a series of depending insulator-anchors arranged between said guides and said central socket, and a fuse-holder arranged on the top of said head for the purpose described.

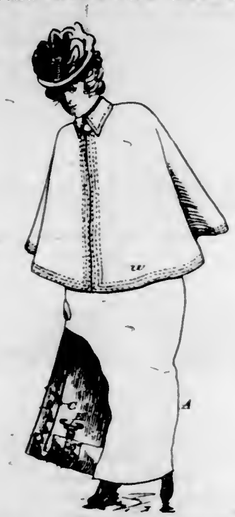
5. A pole-top comprising a polygonal head having a central socket for attachment to the pole and a laterally-projecting flange cut away to form outer edge bars, parallel inner bars and radial connecting-bars, a series of depending insulator wire-guides secured to each of said edge bars, a series of depending insulator-anchor studs secured to each of said inner parallel bars, an insulated fuse-holder secured to the upper edge of said outer bar for the purpose described.

662,245. **DEAD-RAIL STAND FOR TRACK-SCALES.** JOHN A. RISHEL, Munhall, Pa. Filed May 29, 1900. Serial No. 18,390. (No model.)



Claim.—A dead-rail support consisting of a steel casting of general triangular form having one side of the triangle provided with a projecting foot portion, said support having a web body portion extending through the foot, and being provided with opposite flanges extending entirely around the body and foot, said flanges having holes at the top and base to secure it to the foundation and to fasten the rail to the support; substantially as described.

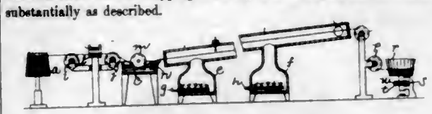
662,246. **SKIRT-PROTECTOR.** SUSIE R. SOWDEN, Plainfield, N. J. Filed Nov. 22, 1899. Serial No. 737,974. (No model.)



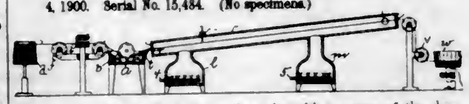
Claim.—As an article of manufacture a protecting-skirt open at the side and provided with a removably-attached facing secured thereto by glove-fastening devices and adapted to be secured to an inner garment by looped tabs that are adjustably attached at one end to said facing and permanently attached at the other end to said facing, substantially as shown and described.

662,247. **COATED WIRE.** JOHN H. VINTON, Boston, Mass., assignor to George E. Parker, same place. Filed May 4, 1900. Serial No. 15,483. (No specimens.)

Claim.—As a new article of manufacture, a wire having a thin coating of copal-varnish and bone-black firmly baked thereon, and possessing the following characteristics, viz: capability of being wound into the form of a coil, unwound therefrom, used in automatic machines and bent into small articles without stripping, cracking or breaking off the said coating, substantially as described.

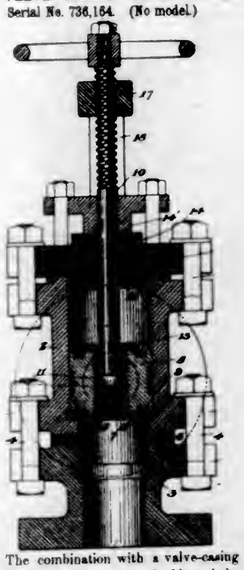


662,248. **PROCESS OF JAPANNING WIRE.** JOHN H. VINTON, Boston, Mass., assignor to George E. Parker, same place. Filed May 4, 1900. Serial No. 15,484. (No specimens.)



Claim.—The method of covering wire with a coating of the character described, which consists in passing the uncovered wire through a bath of thin coating liquid, and through a fibrous wiper partially immersed in said liquid, whereby a thin, smooth and uniform coating is applied to the wire, and then through an oven maintained at a temperature sufficiently high to bake the coating onto the wire without burning the same, such temperature being above 450° Fahrenheit, substantially as described.

662,249. **VALVE.** ALEXANDER W. CADMAN, Edgewood, Pa. Filed Nov. 7, 1899. Serial No. 736,164. (No model.)



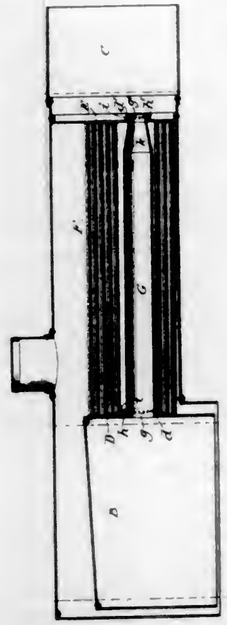
Claim.—1. The combination with a valve-casing made in transversely-divided portions, of a removable double-ended valve-seat having an annular projection which extends between the casing-sections to their exterior, said sections having projections, and bolts connecting the sections and clamping the valve-seat projection between them; and in immediate engagement therewith; substantially as described.

2. A hollow valve having interior screw-threads, a valve-stem rotatably secured thereon by screw-plugs, and a collar engaging a screw-thread on the stem, the screw-threads on said plugs being of opposite pitch from the screw-thread on said collar; substantially as described.

662,250. **LOCOMOTIVE-BOILER.** JAMES T. CONNELLY, Milton, Pa. Filed Oct. 5, 1899. Serial No. 732,643. (No model.)

Claim.—1. An improved locomotive-boiler, embodying the fire-box and smoke-box and set of tubes extending between the same, and a longitudinal unobstructed combustion-chamber extending from the fire-box to the smoke-box and provided with a relatively-contracted portion whereby a draft reduction is attained, said combustion-chamber being arranged within the tube portion and surrounded by the set of tubes, substantially as and for the purpose set forth.

2. In an improved locomotive-boiler having the fire-box and smoke-box and set of tubes extending between the same, a longitudinal unobstructed combustion-chamber extending from the fire-box to the smoke-box and having a contracted front end, said chamber being arranged within the tube portion and surrounded by said set of tubes, substantially as and for the purpose set forth.

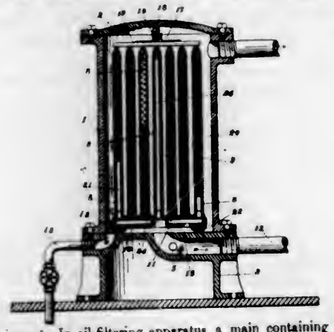


662,251. **PROCESS OF RENDERING COPPER WELDABLE.** HOWARD CORNICK, Knoxville, Tenn., administrator of Charles L. Leiby, deceased, assignor to the Leiby Company, same place. Filed Oct. 29, 1900. Serial No. 34,856. (No specimens.)

Claim.—1. The process of rendering copper and alloys thereof weldable and malleable which consists in placing them in a vessel with a fused compound containing potassium nitrate and a cyanid, substantially as set forth.

2. The process of rendering copper and alloys thereof malleable and weldable which consists in placing them in a vessel with a compound containing potassium nitrate and a cyanid in the proportion of about one pound of the potassium nitrate to ten grains of the cyanid, and subjecting the whole to a heat sufficient to fuse said compound, and allowing it to stand until the desired chemical action has taken place, substantially as set forth.

662,252. **FILTERING APPARATUS.** IRA O. CROSSCUP, San Francisco, Cal. Filed July 18, 1900. Serial No. 24,074. (No model.)



Claim.—1. In oil-filtering apparatus, a main containing vessel attached to a chambered base 3 having passages for water and steam, a series of closely-perforated forms surrounded by a fabric covering and attached to a removable base-plate 24 that connects the series of forms, holds them in their position relatively and permits their removal bodily from the main containing vessel, substantially as specified.

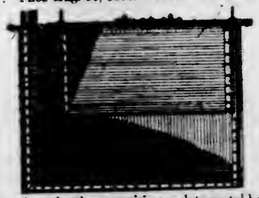
2. In oil-filtering apparatus, a main containing vessel, a chambered base thereunder and a removable cap on the top, a series of perforated hollow forms of sheet metal, of thin section, open at the bottom and attached to a perforated base-plate 24, a subbase part 11 perforated, chambered on its lower side, the whole held down on the main base 3 by a removable clamp at the top of the main containing vessel, substantially as specified.

3. In a filtering apparatus, a main containing vessel, passages thereto for water and steam and therein a series of perforated hollow forms 8, set vertically, open at the bottom and covered with a filtering fabric that fits over the forms and covers the perforations therein, substantially as specified.

4. In an oil-filter, a main containing vessel, steam and water connections thereto and therein a series of perforated hollow flat forms 8, set vertically, open at the bottom and provided with the corrugated staying-plates 21 to prevent them from collapsing by external pressure, substantially as specified.

5. In filtering apparatus, the main containing vessel 1, the perforated flat forms 8 joined to a base-plate and covered with filtering fabric, a subbase 3 for the main vessel provided with passages and connections whereby steam can be driven through the perforated flat forms and the filtering fabric thereon, substantially as specified.

662,253. **FIREPROOF TAR-KETTLE.** ELIJAH CUBBIDGE, New York, N. Y. Filed Aug. 30, 1900. Serial No. 28,574. (No model.)



Claim.—1. A tar-kettle, comprising a plate-metal body portion, two outwardly-extending side flanges on said body, end walls having flanges thinned at and near the ends thereof, which lap upon thinned end portions of the side flanges on the kettle-body, and means to secure said lapped flanges together to form a continuous level flange at the top of the kettle.

2. A tar-kettle, comprising a plate-metal body having two outwardly-extending side flanges at the upper edge thereof, end walls, flanges on said end walls lapping beneath the side flanges of the body and secured thereto, and flanges held projected integrally from the end walls in the same plane with the side flanges of the kettle-body.

3. A tar-kettle, comprising a plate-metal body bent from a single piece, curved on the bottom and laterally flanged outwardly at the side edges, angle-iron strips secured in the ends of the body, end walls affixed in the body upon the angle-iron strips, integral flanges on said end walls adapted to lap upon the ends of the side flanges and be secured thereto, and end flanges integral with the end walls and extended outwardly therefrom level with the side flanges of the body.

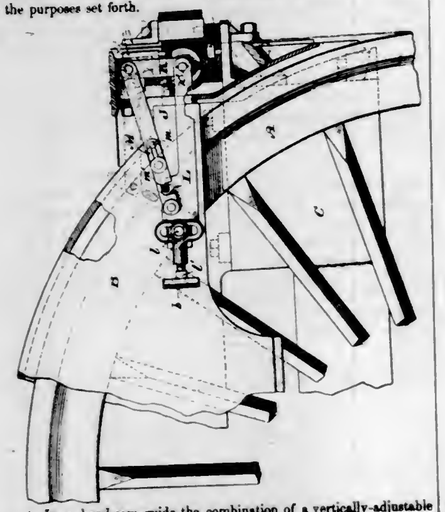
4. In an apparatus of the character described, the combination with a furnace-shell having an outwardly-extending continuous flange at the top, of a kettle also flanged outwardly, said flange seating upon the flange on the furnace-shell, and secured thereto by rivets, leaving a draft-flue behind the kettle, and a cover adapted for close-seated engagement with the upper side of the kettle-flange.

662,254. **BAND-SAW GUIDE.** ALBERT CUNNINGHAM, Milwaukee, Wis., assignor to the Filer & Stowell Company, of Wisconsin. Filed Aug. 27, 1900. Serial No. 28,120. (No model.)

Claim.—1. In a band-saw guide the combination of two jaws adapted to embrace the saw and hold it in working position, one of said jaws being pivotally connected with and movable toward and from the other, and a toggle-lever connecting said pivoted jaw with the frame and adapted when bent to separate the jaws and when straightened to bring them together and to lock the movable jaw in working position, substantially as and for the purposes set forth.

2. In a band-saw guide the combination of a base-block formed or provided with a fixed jaw, a movable jaw fitted to turn at one end in a corresponding hole in said block parallel with the working faces of the jaws, and a toggle-lever connecting a crank-arm on the movable jaw with a stationary support, substantially as and for the purposes set forth.

3. In a band-saw guide the combination of a base-block provided with a fixed arm, a movable arm fitted to turn at one end in said base-block parallel with the fixed arm, and provided at the other end with two pivot-pins, one of which is in the same axial line with the bearing of said movable arm, a link connecting the axial pivot-pin with a fixed support, a toggle-lever connecting the other pivot-pin with said link, and bearing-blocks mounted opposite each other upon said arms, substantially as and for the purposes set forth.



4. In a band-saw guide the combination of a vertically-adjustable bracket mounted on the mill-frame, a horizontally-adjustable base-block mounted on said bracket and provided with a fixed arm, a movable arm fitted to turn at one end in said base-block parallel with said fixed arm and provided at the other end with pivot-pins one of which is in the axial line on which arm turns, a link pivoted at one end on the axial pin and having a vertically and longitudinally adjustable connection at the other end with the mill-frame, a toggle-lever connecting the other pivot-pin with said link, and bearing-blocks mounted opposite each other upon said fixed and movable arms, substantially as and for the purposes set forth.

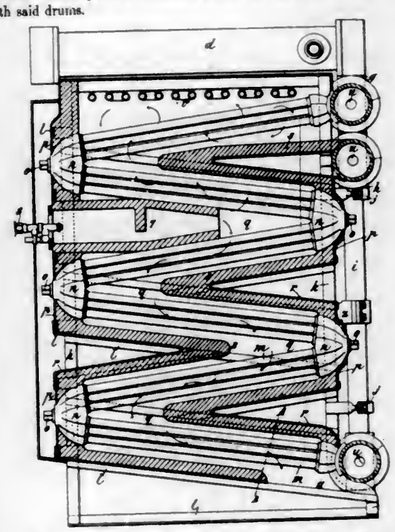
5. In a saw-guide the combination of a base-block provided with a fixed arm, a movable arm fitted at one end to turn in said base-block parallel with said fixed arm and provided at the other end with pivot-pins one of which is in the axial line of said movable arm, a link for connecting the axial pivot-pin with the mill-frame, a toggle-lever connecting the other pivot-pin with said link, and bearing-blocks detachably mounted opposite each other upon said fixed and movable arms, the several parts of the guide being reversible and adapted either to a right or to a left mill, substantially as and for the purposes set forth.

6. In a saw-guide the combination of a base-block having a fixed arm, a movable arm fitted to turn at one end in said base-block parallel with said fixed arm and provided at the other end with two pivot-pins one of which is in the axial line of said movable arm, a link for connecting the axial pivot-pin with the mill-frame, a toggle-lever connecting the other pivot-pin with said link, bearing-blocks mounted opposite each other upon said arms, and a shield hinged at one end upon said base-block and adapted when turned down to cover and protect the movable arm and when turned up to expose the same, substantially as and for the purposes set forth.

7. In a saw-guide the combination of a base-block having a fixed arm and undercut grooves in opposite faces parallel with said arm and adapted to be secured to the mill-frame by a bolt engaged with the under grooves, a movable arm fitted at one end to turn in said base-block parallel with the fixed arm and provided at the other end with a crank, detachable bearing-blocks mounted opposite each other on said arms, a toggle-lever for connecting the crank on the movable arm with the mill-frame and turning said movable arm to separate the opposing bearing-blocks and for locking the movable arm in working position, a hinge-plate secured to said base-block by a bolt engaged with the upper groove therein, and a shield hinged to said plate and adapted when turned down to cover the movable arm, substantially as and for the purposes set forth.

662,255. STEAM-GENERATOR. PRESTON DAVIES and ALEXANDER ROSS, London, England. Filed Mar. 19, 1900. Serial No. 9,287. (No model.)

Claim.—1. In a water-tube steam-generator the combination, with the upper and lower drums, of a structure of refractory material forming a flue, and tube elements located in, extending through the flue in the direction of its length and connected at the top and bottom respectively with said drums.



2. In a water-tube steam-generator, the combination, with the upper and lower drums, of a structure of refractory material forming a flue, tube elements located in, extending through the flue in the direction of its length and connected at top and bottom respectively with said drums, and water-walls forming part of the system.

3. In a water-tube steam-generator, the combination, with the upper and lower drums, of a structure of refractory material forming a flue, tube elements located in and running in the same direction as said flue, and a combustion-chamber located at the upper part of said flue, and an outlet at the lower part thereof whereby the products of combustion are compelled to follow the course that the tube elements take and also to descend to their point of outlet so that a more uniform difference of temperature between the products of combustion and the water in the generator is obtained.

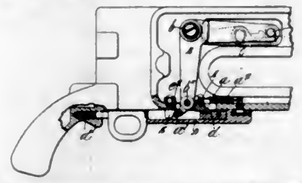
4. In a water-tube steam-generator, the combination, with the upper and lower drums, of a structure of refractory material forming a flue, tube elements located in and running in the same direction as said flue, a combustion-chamber located at the upper part of said flue, a liquid-fuel feeder projecting into said combustion-chamber, and an outlet at the lower part of said flue whereby the products of combustion are compelled to follow the course that the tube elements take and also to descend to their point of outlet so that a more uniform difference of temperature between the products of combustion and the water in the generator is obtained.

5. In a water-tube steam-generator, the combination with the upper and lower drums, of a structure of refractory material forming a flue, tube elements located in and running in the same direction as said flue, water-walls forming part of the system, a combustion-chamber located at the upper part of said flue, a liquid-fuel feeder projecting into said combustion-chamber, and an outlet at the lower part of said flue whereby the products of combustion are compelled to follow the course that the tube elements take and also to descend to their point of outlet so that a more uniform difference of temperature between the products of combustion and the water in the generator is obtained.

6. In a water-tube steam-generator a zigzag structure of refractory material forming a flue, water-tubes located in and extending lengthwise of each section or straight portion of the flue and junction-boxes located at the angles of the flue and connecting the tubes in one section of the flue with those in another, substantially as set forth.

662,256. FIRING MECHANISM FOR AUTOMATIC QUICK-FIRING GUNS. ARTHUR T. DAWSON and LOUIS SILVERMAN, London, England, assignors to the Vickers, Sons & Maxim, Limited, same place. Filed July 9, 1900. Serial No. 23,018. (No model.)

Claim.—1. In firing mechanism for guns, the combination with the firing-sear, of a hinged catch, means connected thereto and independent of the trigger and adapted to transmit the movement of said catch to the firing-sear, of a shoulder on the trigger adapted to engage with the said catch and of a cam-piece situated in the path of the catch and adapted to be brought into engagement with said means to prevent the movement thereof substantially as and for the purpose specified.



2. In firing mechanism for guns, the combination with the firing-sear, of a hinged catch, of a lever for transmitting the movement of said catch to the firing-sear, of a shoulder on the trigger adapted to engage with a nose on the catch, of a spring tending to maintain this engagement, of a cam-piece situated in the path of a tail on the catch and adapted to disengage the nose from the shoulder as the trigger is pulled to fire the gun, and of a spring for returning the said trigger to its normal position when released substantially as and for the purpose specified.

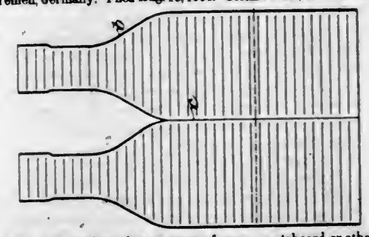
3. In firing mechanism for guns, the combination with the firing-sear, of a hinged catch having at one end a nose and at the other end a tail, of a bell-crank lever carryinng at one end the said catch and at the other end a lateral lug for operating the sear, of a sliding trigger having a shoulder for the nose of the catch to engage with, of a spring for returning the trigger to its normal position, of a spring tending to keep the nose of the said catch engaged with the shoulder of the said trigger, and of a cam-piece situated in the path of the tail of the catch and adapted to coöperate therewith for the purpose of disengaging the nose from the shoulder as the trigger is pulled substantially as and for the purpose specified.

4. In firing mechanism for guns, the combination with the firing-sear, of a spring-controlled hinged catch having at one end a nose and at the other end a tail, of a bell-crank lever carrying at one end the said catch and at the other end a lateral lug for operating the sear, of a spring-controlled sliding trigger formed with a shoulder for the said nose of the catch to engage with, of a cam-piece situated in the path of the tail of the catch, and of means for preventing the trigger from being pulled substantially as described.

5. In a firing mechanism for guns, the combination with the firing-sear of a spring-controlled hinged catch having at one end a nose and at the other end a tail, of a bell-crank lever carrying at one end the said catch and at the other end a lateral lug for operating the sear, of a spring-controlled sliding trigger formed with a shoulder for the said nose of the catch to engage with, of a cam-piece situated in the path of the tail of the catch, of a pivoted lug carried by said cam-piece and of means for shifting the said lug into or out of the path of the said bell-crank lever, substantially as and for the purpose specified.

6. In firing mechanism for guns, the combination with the firing-sear, of a spring-controlled hinged catch having at one end a nose and at the other end a tail, of a bell-crank lever carrying at one end the said catch and at the other end a lateral lug for operating the sear, of a spring-controlled sliding trigger formed with a shoulder for the said nose of the catch to engage with, of a cam-piece situated in the path of the tail of the catch, of a pivoted lug carried by said cam-piece and of a thumb-piece projecting through the gun-casing for shifting said lug substantially as and for the purpose specified.

662,257. BOTTLE CASE OR COVER. CARL DEGENEYER, Jr., Bremen, Germany. Filed Aug. 18, 1900. Serial No. 27,291. (No model.)

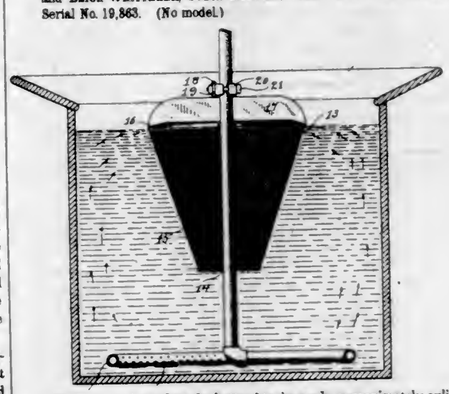


Claim.—A bottle casing or cover of paper, pasteboard or other suitable material, consisting of two half-shells fitting each the form of a half-bottle, and which are connected together along their cylindrical part so as to form a hinge or bend, the substance of the casing having corrugation ribs or grooves which do not extend to the edges of the casing or to the bending place or hinge with the object of making the edge more resistant and to allow of the bending taking place without fracture substantially as described.

662,258. PROCESS OF STORING ACETYLENE GAS. EDWARD N. DICKERSON, New York, N. Y. Filed Apr. 8, 1897. Serial No. 631,319. (No specimens.)

Claim.—The process of preventing explosions and reducing the pressure of acetylene gas, which consists in mingling liquefied acetylene gas in suitable, miscible proportions with a solvent, such as fuel-oil, and maintaining the same under a reduced pressure, substantially as described.

662,259. STRAINER FOR HATTERS' TANKS. JOHN A. DWYER and LEIGH WHITTAKER, South Norwalk, Conn. Filed June 11, 1900. Serial No. 19,863. (No model.)



Claim.—1. A strainer for hatters' tanks made approximately cylindrical and with open top and provided with a recess in one side to receive a steam-supply pipe.

2. A strainer for hatters' tanks made approximately cylindrical and provided with a recess in one side to receive a steam-supply pipe, said strainer being open at the top and the sides and bottom thereof being perforated.

3. A strainer for hatters' tanks made in the shape of an inverted frustum of a cone and with open top and provided with a recess in one side to receive a steam-supply pipe.

4. A strainer for hatters' tanks made approximately cylindrical and provided with a recess in one side to receive a steam-supply pipe, said strainer being open at the top and being provided with a dash-plate over which the water may flow freely so as to prevent accumulation of impurities at the top of the strainer.

5. A strainer for hatters' tanks made approximately cylindrical and provided with a recess in one side to receive a steam-supply pipe, said strainer being open at the top and being provided with upwardly-extending walls 17, which prevent strong currents from passing over the top of the strainer, substantially as shown for the purpose specified.

6. A strainer for hatters' tanks made approximately cylindrical and provided with a recess in one side to receive a steam-supply pipe, said strainer being open at the top and being provided with a dash-plate over which the water may flow freely and with upwardly-extending walls 17, which prevent strong currents from passing over the top of the strainer, substantially as shown, for the purpose specified.

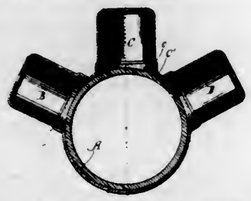
7. A strainer for hatters' tanks made approximately cylindrical and provided with a recess in one side to receive a steam-supply pipe, said strainer being provided with upwardly-extending walls 17 one of which is provided with a socket 18 to receive the arm of an attaching-clamp.

8. The combination with an approximately cylindrical strainer having a recess in one side to receive a steam-supply pipe and walls 17, one of which is provided with a socket 18, of a clamp consisting of an arm adapted to engage the socket and two complementary members which are pivoted to the arm and are adapted to engage a steam-supply pipe in any ordinary position.

662,260. CRANK-HANGER. WILLIAM H. FAUBER, Chicago, Ill. Filed Oct. 19, 1898. Serial No. 694,056. (No model.)

Claim.—1. A crank-shaft hanger comprising a hanger-sleeve and a plurality of radial tubular lugs, each made of a single piece of sheet metal and the lugs being provided at their inner ends with continuous flanges, the flanges of each lug being independent of the flanges of the others, which are curved to fit the outer surface of the sleeve and abut against

each other end to end and extend from said lugs toward the ends of the sleeve so as to cover substantially the entire outer surface of the sleeve, said flanges affording independent angular adjustment of said lugs prior to their permanent attachment to the sleeve.



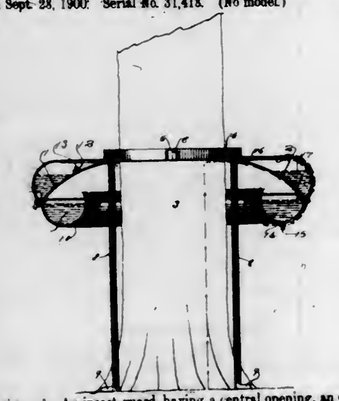
2. A crank-shaft hanger comprising a hanger-sleeve and a plurality of radial tubular lugs, each made of a single piece of sheet metal, and the lugs being provided at their inner ends with continuous flanges, the flanges of each lug being independent of the flanges of the others, which are curved to fit the outer surface of the sleeve and abut against each other end to end and extend from said lugs toward the ends of the sleeve so as to cover substantially the entire outer surface of the sleeve, thereby affording independent angular adjustment of said lugs prior to their permanent attachment to the sleeve, and said sleeve being provided with circumferential holding-flanges adapted for engagement with the side edges of the flanges on the lugs.

3. A crank-shaft hanger, comprising a hanger-sleeve and a plurality of drawn-metal tubular lugs, provided with outwardly-extending integral flanges which are curved to fit the outer surface of the sleeve, and which abut against each other end to end, thereby affording independent angular adjustment of the lugs prior to their permanent attachment to the sleeve, said sleeve having circumferential holding-flanges, adapted for engagement with the side edges of the flanges on the lug, said holding-flanges being provided with thin edges or lips which rise above the surface of the flange on the lug, and which are adapted to be bent or folded over the same to hold the lug upon the sleeve.

4. A crank-shaft hanger, comprising a hanger-sleeve, and a plurality of lugs having at their outer ends integral heads and at their inner ends flanges which extend radially outwardly from all sides thereof, and are curved to fit the outer surface of the sleeve and which abut against each other end to end, thereby affording independent angular adjustment of said lugs prior to their permanent attachment to the sleeve, said sleeve being provided at its opposite ends with circumferential holding-flanges, and said flanges on the lugs being shaped at their edges to fit against each other and against the holding-flanges of the sleeve.

5. A crank-shaft hanger comprising a hanger-sleeve and a plurality of radial lugs each of which is provided at its inner end with flanges extending radially outwardly from all sides thereof and curved to fit the outer surface of the sleeve, the flanges of each lug being independent from the flanges of the others and constructed to afford independent angular adjustment of said lugs prior to their permanent attachment to the sleeve.

662,261. INSECT-GUARD. ROLLAND FORREST, Philadelphia, Pa. Filed Sept. 28, 1900. Serial No. 31,418. (No model.)

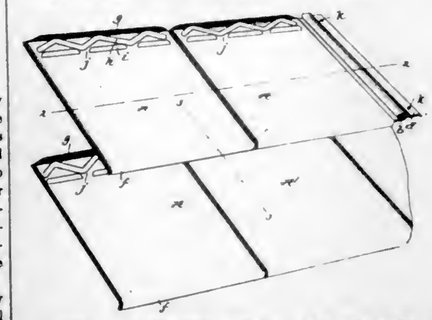


Claim.—1. An insect-guard, having a central opening, an outer and under marginal gutter, and an upper and outer marginal gutter.

2. An insect-guard, having a pendent outer marginal flange, which is rebent inwardly beneath the guard and forms a gutter, which is open at its upper side, and an upstanding outer marginal flange, which is extended inwardly and terminates above and intermediate of the opposite edges of the guard, thereby forming an upper gutter.

3. An insect-guard, comprising opposite duplicate semicircular disk-sections, having inner semicircular clamping-bands, fastenings for the corresponding ends thereof, leg-standards pendent from the bands, an outer marginal and under gutter, and an outer marginal and upper gutter.

662,262. METALLIC SHINGLE. CHARLES A. GALVIN, Modesto, Cal. Filed Apr. 2, 1900. Serial No. 11,163. (No model.)



Claim.—1. A sheet-metal shingle or roofing-plate, having a nail-flange at one edge, a downwardly and inwardly directed hook-flange at its opposite edge, the hook-flange *b*, formed by a fold of the metal, adjacent to the nail-flange, a shoulder *c* arranged adjacent to and extending above the plane of the hook-flange *b*, a downwardly-directed flange at its lower edge, an upwardly-directed flange at its upper edge or end, corrugations extending in the direction of the width of the shingle and arranged at intervals apart so as to afford passages between their ends, and a continuous zigzag corrugation arranged between the line of corrugations and the upper end of the shingle and having the lower apices of its angles arranged opposite the spaces between the corrugations of said line, substantially as specified.

2. A sheet-metal shingle or roofing-plate, having a downwardly-directed flange at one end, an upwardly-directed flange at its opposite end, a line of upwardly-pressed corrugations extending in the direction of the width of the shingle adjacent to the upwardly-directed flange thereof; the corrugations of said line being arranged at intervals apart so as to afford passages between them, and a continuous, zigzag, upwardly-pressed corrugation arranged between the upwardly-directed flange and the line of corrugations, and having the lower apices of its angles arranged opposite the spaces between the corrugations of the line, substantially as specified.

662,263. BOTTLE-SEALING DEVICE. HERMAN T. GAY, Baltimore, Md., assignor to the Ideal Stopper Company, same place. Filed Aug. 26, 1898. Renewed Apr. 2, 1900. Serial No. 11,261. (No model.)



Claim.—1. In combination with a bottle having in its mouth an annular groove and a laterally-extending seat below the groove, a sealing device which consists of a sheet-metal disk with an upturned flange adapted to be expanded circumferentially within the said annular groove, the said disk having a projection stamped or drawn therefrom so as to extend below it, and an annular compressible gasket of a diameter greater than that of the interior of the annular seat, which gasket is placed around the said projection which serves to hold the two elements of the sealing device together, substantially as specified.

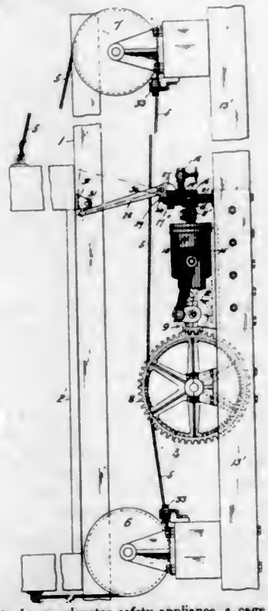
2. In combination with a bottle having in its mouth an annular groove and a laterally-extending annular seat below the groove, a sealing device which consists of a sheet-metal disk with an upturned flange and a projection on its under side which is stamped or drawn from the disk, and a compressible gasket placed around the said projection, having a diameter which is greater than the inner diameter of the seat, the said gasket being compressed between the disk and seat, and the upturned flange of the disk expanded within the annular groove in the bottle-mouth, substantially as specified.

3. A bottle-sealing device adapted for application to a bottle having an annular groove in its mouth and an annular seat situated immediately below the said groove, substantially as described, which consists of a sheet-metal disk with an upturned flange and a projection formed on its under side by stamping or drawing, combined with a joint-forming annular gasket which is placed around the said projection, substantially as specified.

4. A cup-shaped metal sealing-plug formed with an upper cylindrical portion, and a reduced lower cylindrical portion, and a flat packing-washer surrounding the plug at the junction between said portions, said plug adapted to enter, with said two cylindrical portions within the neck of the bottle formed a distance below its mouth with an upwardly-facing annular shoulder on which the under flat face of said washer is adapted to rest, whereby said plug on being expanded, holds the flat washer compressed between the intermediate portion of the plug and said shoulder of the bottle-neck, substantially as described.

5. A bottle having an internal annular sealing-shoulder, and an internal enlargement above said shoulder, in combination with a cup-shaped ductile metal sealing-plug having an intermediate annular shoulder opposing said shoulder of the bottle, and a sealing-washer surrounding the lower portion of the plug, and resting against its shoulder and seated on the shoulder of the bottle, the washer compressed between said two shoulders, and the plug radially expanded at an intermediate point in its length and immediately above said washer and into said enlargement in the bottle, substantially as described.

662,264. ELEVATOR SAFETY APPLIANCE. JAMES G. GRACEY and ALFRED GFELLER, St. Louis, Mo., assignors to the Positive Elevator Safety Company, same place. Filed Mar. 16, 1900. Serial No. 8,935. (No model.)



Claim.—1. In an elevator safety appliance, a cage or car, an air pump or pumps located at a point removed from the cage, a drum mounted in connection with the pump or pumps, a cable wound about the drum and having its opposite ends secured to the cage, means for guiding said cable, and intermediate gearing between the drum and pumps for operating the latter upon the travel of the cage in either direction, substantially as set forth.

2. In an elevator safety appliance, a cage or car, an air pump or pumps located at a point removed from the cage, a drum mounted in proximity to the pumps, a cable wound about the drum and having its opposite ends secured to the bottom and top of the cage respectively, sheaves for the cable, and intermediate gearing between the drum and the pumps for operating the latter upon the travel of the cage in either direction, substantially as set forth.

3. In an elevator safety appliance, a cage or car, an air pump or pumps located at a point removed from the cage or car, a drum mounted in connection with the pumps, intermediate gear mechanism between the drum and pumps, a cable winding about the drum and having its free opposite ends secured respectively to the upper and lower ends of the car, and a pneumatic buffer for the car or cage supplied with air compressed by the pumps, substantially as set forth.

4. In an elevator safety appliance, a cage or car, an air pump or pumps located at a point removed from the cage or car, a drum mounted in proximity to the pumps, a gear-wheel carried by the drum, a pinion carried by the shaft of the pumps and meshing with said gear-wheel, a cable wound about the drum and having its opposite free ends secured respectively to the top and bottom of the cage, sheaves for the cable, a compressed-air reservoir in connection with the pumps, a regulating air-escape valve leading from the reservoir, a reciprocating plunger mounted in the reservoir and having a port adapted to aline with the port of the reservoir leading to the regulating air-escape valve, a bent lever pivoted to the wall of the reservoir, a pin carried by the projecting end of the plunger and operating in suitable slots formed in the short arm of the bent lever, the long arm of the lever being adapted to be struck by the cage in its descent and momentarily force the plunger inward and prevent the escape of the air from the reservoir, and subsequently permit the escape as the cage settles, substantially as set forth.

5. In an elevator safety appliance, a cage or car, a suitable pump or pumps, an air-reservoir coupled to said pumps, a tubular extension forming a part of the reservoir, a plunger having a hollow portion confined in said extension, and a stem projecting through the cover-plate of the extension, a regulating air-escape valve leading from the reservoir, a port leading from the latter to the casing of said valve, a port formed in the walls of the plunger and adapted for one of the extreme positions to come opposite the first-named port, and intermediate connections between the plunger and cage for operating the former in one direction upon the descent of the cage, the plunger being forced in the opposite direction upon the ascent of the cage, substantially as set forth.

6. In an elevator safety appliance, a cage or car, an air-pump, a buffer comprising a plunger operated in one direction by the action of the pump during the ascent of the cage, a stem forming a part of the plunger, and suitable devices interposed between the stem and cage and cooperating with the latter in the descent thereof for driving the plunger in the opposite direction, and compressing the air behind the same, substantially as set forth.

7. In an elevator safety appliance, a cage or car, an air pump or pumps, a buffer comprising a plunger operated in one direction by the action of the pump or pumps, a stem forming a part of said plunger, a lever pivoted in proximity to the stem, and having its short arm coupled movably to the stem, and a long arm normally pointing upward, the free end of the latter being adapted to be struck and depressed by the cage and the air behind the plunger compressed, substantially as set forth.

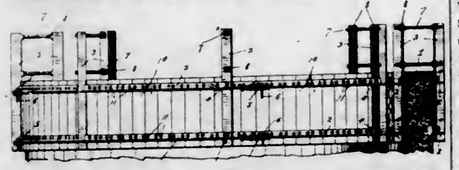
8. In an elevator safety appliance, a cage or car, a pump or pumps located at a point removed from the cage, a drum mounted in connection with the pump or pumps, a cable wound about the drum and having its opposite end secured to the cage, means for guiding said cable, and intermediate gearing between the drum and pump or pumps for operating the latter upon the travel of the cage in either direction, substantially as set forth.

662,265. STEAM-WASHBOILER. JAMES C. GREINER, Harrisonburg, Va. Filed Apr. 27, 1900. Serial No. 14,625. (No model.)



Claim.—A device of the class described comprising a washboiler having a horizontal bottom and vertical sides, the horizontal diaphragm of the same area as the interior of the boiler, fixed to the walls of the latter adjacent to the bottom thereof to provide a shallow compartment and having perforations throughout its area communicating with the shallow compartment, said diaphragm being provided at its periphery with recesses arranged at intervals and forming drain-openings to permit the shallow compartment to thoroughly drain when the boiler is inverted in any position to prevent the parts from rusting out and to obviate the necessity of having the diaphragm removable in order to secure a thorough drying of the interior, and the tubular and semitubular supports arranged at intervals and having horizontal upper and lower edges to fit against the adjacent faces of the diaphragm and the bottom of the boiler and provided at their said upper and lower edges with recesses to permit water to flow readily through them when the boiler is in any position, substantially as described.

662,266. MOLD. CHARLES F. HAGLIN, Minneapolis, Minn. Filed Nov. 20, 1899. Serial No 737,600. (No model.)

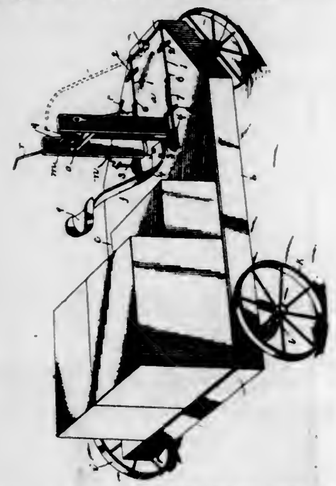


Claim.—1. A device for use in the construction of concrete bins, comprising approximately parallel moldboards having vertical projections, and spacing and clamping devices connecting said projections above the moldboards, whereby said moldboards may be properly spaced from above and may be drawn and clamped onto the hardened top layer of the partially-formed bin, substantially as described.

2. A mold for use in the construction of concrete bins, comprising concentric annular moldboards having vertical projections extending above said moldboards, and spacing bolts or rods arranged in pairs to tie together the upper parts of said vertical projections and space apart the concentric moldboards, and provided with nuts for clamping said moldboards onto the partially-formed bin, substantially as described.

3. In a mold for use in the construction of concrete bins, the combination with the segmental frames formed by the horizontal frame-sections 2 and vertical projections 3, of the facings 10, secured to said frame-sections 2, and the pairs of spacing-bolts 7, connecting the upper ends of said vertical projections 3, substantially as described.

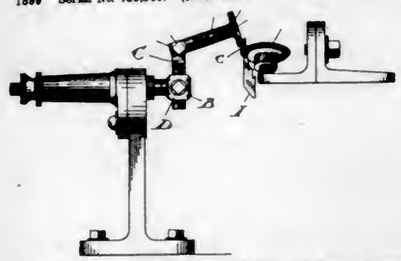
662,267. VEHICLE. JACOB A. HAMELBACK, Zanesville, Ohio. Filed Apr. 30, 1900. Serial No. 14,995. (No model.)



Claim.—1. A device of the class described, comprising a framework, wheels supporting the framework, a supplemental framework mounted vertically of the first-named framework, a spindle mounted in the supplemental framework, means for revolving the spindle, a worm-wheel, mounted upon the spindle in engagement with a worm, a shaft mounted transversely of the framework and carrying the worm, a gear-wheel mounted upon the shaft adjacent the worm, a second gear-wheel engaging with this gear-wheel, a second shaft mounted parallel with the first-named shaft to support the second-named gear, a sprocket-wheel mounted upon the second shaft, a second sprocket-wheel mounted upon the axle of two of the wheels supporting the framework, a chain connecting the two sprocket-wheels, and means for controlling the direction of the vehicle.

2. A device of the class described comprising a framework, a steering-wheel mounted at one end of the framework, a pair of supporting-wheels mounted at the opposite end of the framework, a supplemental framework mounted vertically on the first-named framework, a vertical spindle mounted in the supplemental framework, a beveled gear secured to the upper end of the vertical spindle, a shaft mounted in the supplemental framework at right angles to the vertical spindle, cranks mounted upon the latter for revolving it, a beveled gear mounted upon the shaft in engagement with the beveled gear on the spindle, a worm-wheel mounted upon the lower end of the vertical spindle, a shaft mounted rearwardly of the worm-wheel, a worm mounted upon the shaft and in engagement with the worm-wheel, a gear mounted adjacent the worm, a second gear mounted upon a second shaft extending transversely of the framework said second gear being engaged with the first-named gear, a sprocket-wheel mounted upon the second-named shaft, a sprocket-wheel mounted upon the axle of the rear supporting-wheels and receiving motion from the first-named sprocket-wheel, a spindle extending upwardly from the steering-wheel, a cross-head mounted upon the upper end of the spindle, rods extending rearwardly from each end of the cross-head, levers secured to the ends of the rods, through the medium of which the cross-head may be oscillated and springs mounted upon the rearwardly-extending rods for holding the steering-wheel in a normally fixed position.

662,268. PRESSER FOR SPRING-NEEDLE KNITTING-MACHINES. FRANK HAMMOND, Paris, Canada, assignor of one-third to the Penman Manufacturing Company, Limited, same place. Filed Dec. 7, 1899. Serial No. 739,506. (No model.)



Claim.—1. A presser for spring-needle knitting-machines, comprising a wheel adjustably supported in proximity to the needles so that the lower side of its edge may be pressed into contact therewith, and means for altering the angle of the wheel to the needles, substantially as specified.

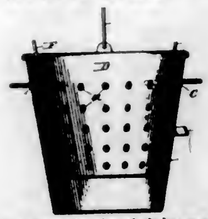
2. A presser for spring-needle knitting-machines comprising a cupped or dished wheel journaled in proximity to the needles on an axis set at such an angle to the length of the needle that the side of one portion of its edge may be pressed into contact therewith, substantially as described.

3. A presser for spring-needle knitting-machines comprising a wheel arranged to press with the edge of its face against the needles and journaled on one part of a hinged or jointed stem provided with means whereby the two parts may be clamped at varying angles to one another, substantially as and for the purpose specified.

4. A presser for spring-needle knitting-machines comprising a wheel arranged to press with the edge of its face against the needles and journaled on one part of a hinged or jointed stem provided with means whereby the two parts may be clamped at varying angles to one another, the other part of the stem being so supported that it may be vertically adjusted, substantially as and for the purpose specified.

5. A presser for spring-needle knitting-machines comprising a dished or cupped wheel arranged to press with the edge of its face against the needles and journaled on one part of a hinged or jointed stem provided with means whereby the two parts may be clamped at varying angles to one another, substantially as and for the purpose specified.

662,269. ASH-SIFTER. SARA C. HART, Galveston, Tex. Filed Jan. 3, 1900. Serial No. 250. (No model.)

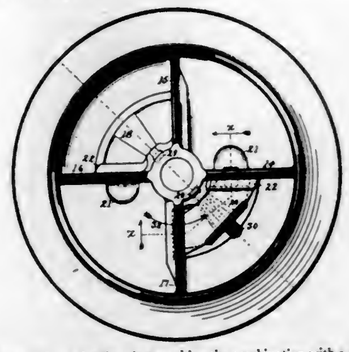


Claim.—1. In a domestic ash and cinder receptacle and separator, the combination with the outer receptacle having a carrying-handle, of the inner foraminous receptacle, having oppositely-projecting and inwardly-movable handles, with bearings on the outer receptacle with which said handles coöperate to support the inner receptacle; substantially as described.

2. In a device such as described, the combination with the outer receptacle, having slotted bearings in its side wall, of the inner foraminous receptacle fitting within the outer receptacle and having radially-movable handles adapted to project through the slots in the outer receptacle; substantially as described.

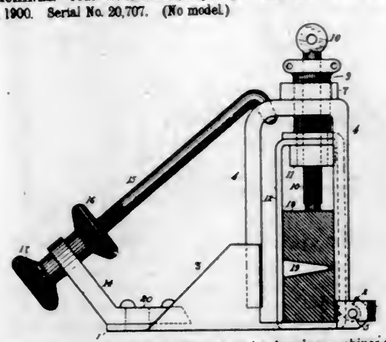
3. In a device such as described, the combination with the outer receptacle, having the carrying-handle, of the inner foraminous receptacle fitting within the outer receptacle and having carrying-handles projecting above the top of the outer receptacle, the radially-movable handles carried by the inner receptacle, and the horizontal slot-bearings in the outer receptacle with which said handles coöperate; substantially as described.

662,270. CLUTCH FOR WIRE-DRAWING MACHINERY. JOHN W. HAWKINS, Cuyahoga Falls, Ohio. Filed Mar. 12, 1900. Serial No. 8,370. (No model.)



Claim.—In a wire-drawing machine the combination with a driving-head having lugs to engage and drive the drum, of a drum having oppositely-disposed concentric openings through alternate quadrants of the bottom, the spokes at one end of said quadrants being recessed and the spokes at the other end having overhanging flanges to hold the opposite ends of retaining-plates and recesses for a volute spring, curved plates arranged to slide in said openings having lugs to engage the lugs of the driving-drum, plates to retain said curved plates, T-shaped openings in the hub to retain bolts, and bolts fitted thereto and arranged to be secured in and hold the retaining-plates and volute springs in said spring-recesses to meet the thrust of said curved plates, substantially as shown and described.

662,271. ADJUSTABLE DIE-HOLDER FOR WIRE-DRAWING MACHINES. JOHN W. HAWKINS, Cuyahoga Falls, Ohio. Filed June 18, 1900. Serial No. 20,707. (No model.)



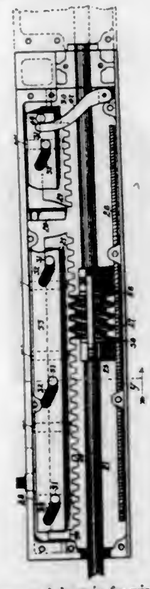
Claim.—1. An adjustable die-holder for wire-drawing machines embodying a base or bed, with means for pivotally connecting it with the drawing-bench, vertical guides to receive a die-frame arranged to be rocked to and from the wire-drawing spool, means for rocking and retaining said guides at any desired angle, a die-frame arranged to move in said guides, a screw to adjust the height of said die-frame, and means for locking a die therein, all constructed and arranged substantially as shown and described.

2. The herein-described die-holder for wire-drawing machines consisting of a base or bed, with upward-turned hooks at the front and lateral wings and a raised portion at the back to receive an adjusting-screw, in combination with parallel guides arranged to be secured in said hooks, a bridge to unite said guides, a bolt resting in an opening in the raised portion of said base, connected with said guides and provided with adjusting-nuts to rock said guides, a die-holding frame arranged to move vertically in said guides, a hollow screw-threaded bolt to raise and lower said frame and an internal screw-threaded bolt to secure the die therein, all constructed substantially as shown and described.

3. An improved die-holder for wire-drawing machines consisting of a base or bed with means for pivotally connecting parallel guides therewith, parallel guides pivotally connected with said bed, a yoke to connect said guides, a forked brace to regulate the angle of said guides, and provided with means for adjustably securing it to said base, a die-holding frame arranged to move in said guides, with means for moving it and means for securing said die in said frame, substantially as shown and described.

4. In a die-holder for wire-drawing machines having guides for the die-frame and a die-frame to slide in said guides, improved means for operating said parts, consisting of a hollow internally and externally screw-threaded bolt to move said die-frame, and a screw-threaded bolt within said hollow bolt to lock the die in the frame, substantially as shown and described.

662,272. DRAW-IN FOR WIRE-DRAWING MACHINES. JOHN W. HAWKINS, Cuyahoga Falls, Ohio. Filed July 5, 1900. Serial No. 22,564. (No model.)



Claim.—1. An improved draw-in for wire-drawing machines, consisting of a carriage arranged to move in the line of draft of the wire, having grippers to grasp the wire, a worm arranged to revolve in said carriage, means for revolving said worm, and a rack secured against longitudinal movement to be engaged by said worm to cause the advance of said carriage, substantially as shown and described.

2. An improved draw-in for wire-drawing machines consisting of a feathered shaft and means for causing its revolution, a carriage arranged to slide on said shaft having means for connecting wire-grippers therewith, and wire-grippers carried thereby, a worm in said carriage arranged to turn with said shaft, and a rack secured against longitudinal movement to be engaged by said worm, substantially as shown and described.

3. An improved draw-in for wire-drawing machines consisting of a feathered shaft and means for causing its revolution, a carriage arranged to travel along said shaft, having wire-grippers connected therewith, a worm located on said shaft within said carriage and arranged to move with said shaft, in combination with a rack adapted to mesh with said worm and arranged to be moved into and out of engagement with said worm, substantially as shown and described.

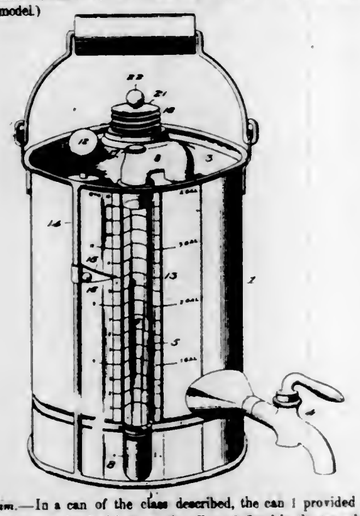
4. An improved draw-in for wire-drawing machines consisting of a feathered shaft and means for causing its revolution, a carriage arranged to travel along said shaft, having wire-grippers connected therewith, a worm mounted to revolve with and slide on said shaft in said carriage, in combination with a rack adapted to mesh in said worm, secured against longitudinal movement, and having projecting studs, and a longitudinally-sliding plate having inclined slots to receive said studs, and a device to

slide said plate to cause said rack to approach and withdraw from said worm, substantially as shown and described.

5. An improved draw-in for wire-drawing machines, consisting of a feathered shaft and means for causing its revolution, a carriage arranged to travel along said shaft, having wire-grippers connected therewith, a worm mounted to revolve with and slide on said shaft in said carriage, and a rack adapted to mesh in said worm, secured against longitudinal movement and having projecting studs, and a longitudinally-sliding plate having inclined slots to receive said studs, and means for moving said plate to cause said rack to approach and recede from said worm, in combination with a lever arranged to be engaged and rocked by said carriage to reverse the movement of said plate to cause said rack to recede from said worm, substantially as shown and described.

6. The combination with a wire-drawing bench and a number of winding-drums mounted to run therein, of a continuous feathered shaft extending the length of said bench with a carriage mounted to slide on said shaft, a worm mounted in said carriage and arranged to run with and slide on said shaft in combination with a rack to engage said worm, and means for throwing it in and out of gear therewith, substantially as shown and described.

662,273. **OIL OR GASOLENE MEASURING CAN.** FRANK B. HIDELBRIN, San José, Cal. Filed May 13, 1898. Serial No. 680,620. (No model.)



Claim.—In a can of the class described, the can 1 provided with the recessed top and raised bottom, the elbow 8 fixed in the top, the elbow 8′ fixed in the bottom, the gage-glass connecting the elbows, the tube 11 communicating with the inner end of the elbow 8′ and provided with the orifice *a*, the plug 9 having a vertical movement in said tube and the rod 10 connected to said plug and having its free end projecting through the top of the can, substantially as shown and described.

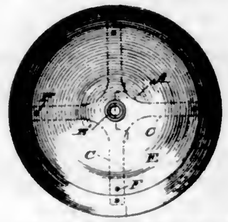
662,274. **NUT-LOCK.** WILLIAM N. KEEN, New Orleans, La. Filed Sept. 13, 1900. Serial No. 29,896. (No model.)



Claim.—1. As an improved article of manufacture, the herein-described nut-locking washer, formed of one piece of sheet metal, and consisting essentially of the lower and upper portion, and having an aperture in its upper portion, and also having the horizontal and vertical slits whereby a lateral arm and a resilient tongue arranged opposite to said arm, are formed, substantially as specified.

2. In a nut-lock, the combination with a railway-rail, a bolt extending through the rail, and a nut on the bolt; of the nut-locking washer, formed of one piece of sheet metal, and consisting essentially of the lower portion *a* having the long square edge engaging the base of the rail, and the upper portion *b* interposed between the nut and rail, and having an aperture receiving the bolt, and also having a lateral arm separated from the lower portion *a* and adapted to be bent against one side of the nut, and the resilient tongue arranged to engage the opposite side of the nut with reference to the lateral arm, substantially as specified.

662,275. **DISK CULTIVATOR.** LINDEN KIRLIN, Beattie, Kans. Filed Sept. 25, 1900. Serial No. 31,020. (No model.)



Claim.—1. A disk comprising the supporting-frame having a central portion, arms projecting therefrom and brace-ribs in line with said arms, the open ring, and the body-plate substantially as set forth.

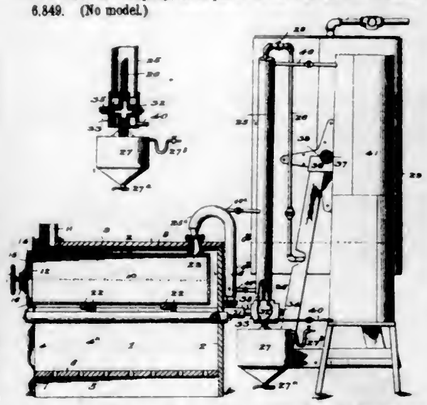
2. A disk for cultivators and harrows comprising the open rim or ring, the supporting-frame therefor, and the body-plate held detachably in the rim or ring whereby it may be removed and applied to convert the disk into an open or closed one, substantially as set forth.

3. A disk for cultivators and harrows comprising an open ring dished or concaved, a supporting-frame therefor, and a dished body-plate applicable to the supporting-frame and arranged to coincide with the rim or ring when applied to the suppporting-frame, substantially as set forth.

4. A disk for cultivators and harrows comprising the supporting-frame having a central portion and arms extending outwardly therefrom and curved or inclined laterally, the open ring supported at the outer ends of said arms and the concaved or dished body-plate fitted in said ring, substantially as set forth.

5. A disk for cultivators and harrows comprising the hub having a central portion, the arms extending outwardly from said portion, the open ring supported at the outer ends of said arms, and the body-plate fitted within the open ring and secured to the said arms and provided at its center with a tube arranged to fit over the supporting-shaft, substantially as and for the purpose set forth.

662,276. **GAS-GENERATING MACHINE.** JOHN F. KIESTLER, Tacoma, Wash., assignor, by direct and mesne assignments, to the Hydrocarbon Gas Company, same place. Filed Feb. 28, 1900. Serial No. 6,849. (No model.)

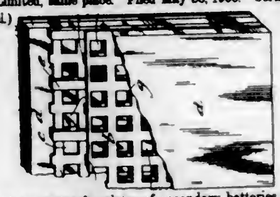


Claim.—1. In a gas-machine, the combination of a furnace, a main retort and an auxiliary retort located one above the other in the furnace, a four-way coupling connected to said auxiliary retort, a liquid-receptacle connected to the lower member of the coupling, a clean-out plug in the member opposite the retort member, a gas-conducting pipe connected to the upper member, a cooler or condenser surrounding said coupling and the conducting-pipe, means for supplying water to said cooler, and a purifying-tank connected to said conducting-pipe.

2. In a gas-machine, the combination of a furnace, a cylindrical retort located in the dome thereof, an auxiliary retort located below and partially supported by the other retort, a curved pipe connected to both retorts and causing communication therebetween, a coupling connected to the discharge end of said auxiliary retort, a liquid-receptacle also connected to said coupling, a removable plug for allowing the coupling to be cleaned, a gas-conducting pipe connected to said coupling, a cooling-jacket surrounding the conducting-pipe, means for supplying water to the cooling-jacket, and means for purifying the gas.

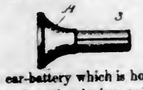
3. In a gas-machine, the combination of a furnace provided with a dome having a flue in its forward top end, a cylindrical retort located in the dome but not extending the full length of the furnace, wings formed upon said retort to support the same and cause the heat to pass around the retort, cleats formed upon the lower side of the retort, a series of horizontal pipes forming a continuous passage communicating with and below said retort, cleats carried by said pipes to engage the cleats of the cylindrical retort, a gas-conductor connected to one of said pipes, means for cooling the gas surrounding said conductor, and a purifier connected with the conductor.

662,277. **SEPARATOR FOR SECONDARY-BATTERY PLATES.** HENRY LEITNER, London, England, assignor to the Electrical Undertakings, Limited, same place. Filed May 28, 1900. Serial No. 18,283. (No model.)



Claim.—A separator for plates of secondary batteries consisting of two sheets of non-conducting material with holes in them arranged in rows, each sheet being flat on one side and provided on the other with vertical ribs between the alternate rows of holes, the ribs of one sheet being cemented to the other sheet between the ribs of that sheet, substantially as and for the pupose set forth.

662,278. **AURAL BATTERY.** CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed July 17, 1900. Serial No. 23,947. (No model.)



Claim.—1. An ear-battery which is hollow from end to end having a tubular stem portion adapted to be inserted into the ear-cavity, the stem being composed of the materials which constitute the elements of the battery, insulating materials separating the said elements, and an enlarged head of substantially bell shape at the outer end of the stem and fitting over the same, substantially as set forth.

2. An ear-battery comprising a hollow stem portion formed of two pieces of material adapted to constitute the elements of a battery, and insulating material separating said pieces, and a head of non-conducting material fitted over one end of the said stem portion, and operating to hold the parts of the stem portion of the battery together securely, substantially as set forth.

3. An ear-battery formed with a head and with a stem portion adapted to be inserted into the cavity of the ear, the said stem portion being composed of two separate pieces of material which constitute the elements of the battery, each of the said pieces of material extending the full length of the stem, constituting approximately one-half of the circumference of the stem portion, and being separated from the other by insulating material, substantially as set forth.

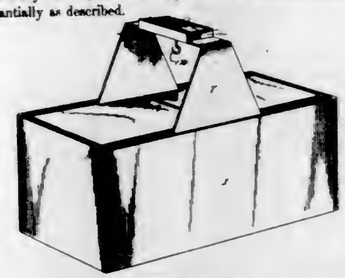
4. An ear-battery which is hollow longitudinally and has at one end an enlarged head, and a stem portion extending therefrom, the stem portion being formed of a piece of tubular material which constitutes one element of the battery and another piece of particylindrical material which constitutes the other end of the battery and which overlies the said tubular piece on one side and is separated therefrom by insulating material, substantially as set forth.

5. An ear-battery comprising a cylindrical piece of carbon, 2, a particylindrical piece of zinc, 3, insulating material between them, these parts being formed into a stem, and a head A of non-conducting material fitted closely over one end of the said stem, substantially as set forth.

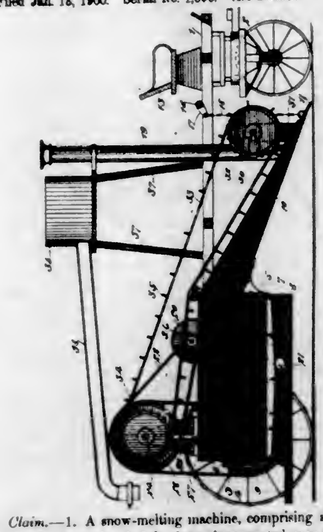
662,279. **ANIMAL-TRAP.** JAMES B. LINDSEY, Chester, S. C., assignor of one-half to D. Earl Colvin, same place. Filed Sept. 25, 1900. Serial No. 31,060. (No model.)

Claim.—1. A device of the class described comprising a receptacle designed to be provided with a cover and having supporting-rods located near its top, the rectangular frame adapted to be placed within the receptacle and arranged upon the transverse rods and provided with upwardly-extending supports located at opposite sides of the frame, a top piece connecting the supports and provided at the top with a trough and having a depending bait-holder located beneath the trough, and the tilting trap-doors having weighted outer portions, substantially as and for the purpose described.

2. A device of the class described comprising a receptacle designed to be provided with a cover and having upper supporting-rods, a rectangular frame adapted to be arranged either upon the supporting rods or within the receptacle and provided at opposite sides with supports, the top bar connecting the supports and provided with a water-trough consisting of side and end walls formed integral with the top piece, the side walls being formed by side flanges and the end walls consisting of extensions thereof, severed at their lower edges from the top piece and bent transversely thereof, and the tilting trap-doors mounted within the frame, substantially as described.



662,280. **SNOW-MELTER.** JACOB MANDREY, New York, N. Y. Filed Jan. 18, 1900. Serial No. 1,898. (No model.)



Claim.—1. A snow-melting machine, comprising a frame, a truck to which the forward end of the frame is connected, rear wheels supporting the rear end of the frame, a heater having swinging connection at its rear end with the frame, the said heater having a downwardly-inclined front portion terminating in a scraper, a blower for the furnace, and a smoke-stack at the forward end of the furnace, substantially as specified.

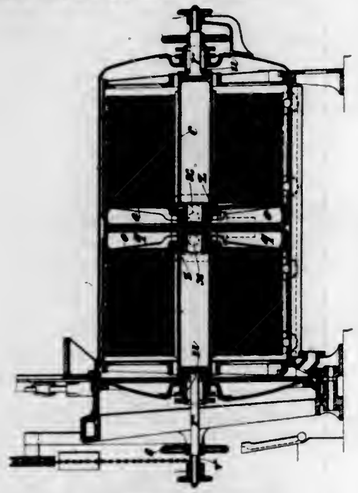
2. A snow-melter, comprising a frame mounted on wheels, a furnace mounted to swing in said frame, said furnace having a downwardly-inclined forward portion, smoke-pipes attached to opposite sides of the furnace at the forward end and adapted to receive products of combustion from the inclined portion of the furnace, means for raising and lowering the forward end of said furnace, and a conveyer for moving snow along the upper surface of said furnace, substantially as specified.

3. A snow-melter, comprising a frame mounted on wheels, a furnace mounted to swing in said frame, the said furnace having a downwardly-inclined forward portion, through which the products of combustion pass, sprocket-chains at opposite sides of the furnace, the said sprocket-chains being driven from the rear wheels of the machine, and scrapers extended across the furnace and connected to said chains, substantially as specified.

662,281. **APPARATUS FOR DYEING.** WILLIAM MATHER, Manchester, England. Filed Aug. 28, 1899. Serial No. 728,783. (No model.)

Claim.—The herein-described method of treating textile fabrics with fluids, which consists in rolling the fabric in its full width, without folding

or twisting, revolving the roll of fabric, and simultaneously causing the fluid to flow through the roll, between the convolutions thereof and in a direction parallel with the axis of the roll, as specified.



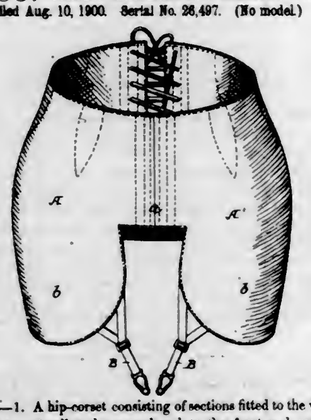
662,282. VIZOR FOR CAPS. MAX MATTES, New York, N. Y. Filed Oct. 25, 1899. Serial No. 734,747. (No model.)



Claim.—1. As a new article of manufacture, the herein-described vizor for a cap, consisting of a piece of felt provided with a sizing to stiffen it, and compressed, the sized and compressed felt being saturated with lampblack and oil, and having its top and bottom surfaces coated with successive layers of enamel, the edges of the felt being left raw or devoid of enamel, as and for the purpose set forth.

2. As a new article of manufacture, a vizor for a cap consisting of a body of compressed felt having its pores filled with a black coloring-matter and its faces covered and protected by enamel, the edges being left raw or devoid of enamel and presenting an appearance resembling that of leather, substantially as set forth.

662,283. CORSET. KATHARINE M. C. MEREDITH, Cedarhurst, N. Y. Filed Aug. 10, 1900. Serial No. 26,497. (No model.)



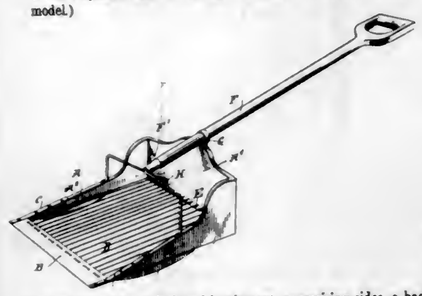
Claim.—1. A hip-corset consisting of sections fitted to the waist and hips with flaps extending downward and to the front and rear of the thighs and provided with means for adjustably connecting the edges of the waist portion at the back, substantially as set forth.

2. A hip-corset fitted to clasp the waist and with flaps extending downward over and below the hips and in front and back of the thighs, and provided with tightening means at the back of the waist portion, substantially as set forth.

3. A corset provided with flaps extending downward in front and back of the thighs and with stocking-supporters connected to said flaps at the front and rear edges thereof, substantially as set forth.

4. A corset provided with flaps *b b* extending downward and in front and back of the legs, substantially as set forth.

662,284. COMBINED HOE AND WEEDER. GLENN A. MORRELL, Grand Rapids, Mich. Filed Mar. 22, 1900. Serial No. 9,762. (No model.)



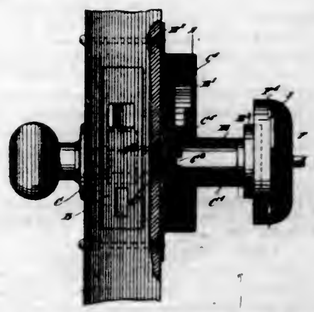
Claim.—1. An agricultural implement, comprising sides, a back, a cutter-blade at the front, spaced wires stretched from the blade to the said back to form a perforate bottom, and means, substantially as described, for taking up the slack in the said wires, as set forth.

2. An agricultural implement, comprising sides, a back, a cutter-blade at the front, spaced wires stretched from the blade to the said back to form a perforate bottom, the wires being in U shape with the middle portion secured to the cutter-blade, the several strands extending parallel from the cutter-blade to the back, and screw-eyes held on the back and engaging the rear ends of the said strands, substantially as shown and described.

3. An agricultural implement, comprising a handled scoop with a perforate bottom, and runners at the sides of the scoop to permit of regulating the scoop to raise or lower the front end thereof, substantially as shown and described.

4. An agricultural implement, comprising a scoop with a cutter-blade at the front, a perforate bottom, and runners at the sides of the scoop intermediate of the cutter-blade and the back of the scoop and extending downward below the level of the said blade, to permit of regulating the scoop on the ground and to bring the perforate bottom above the level of the ground for the dirt to fall through the perforate bottom, substantially as shown and described.

662,285. COMBINATION-LOCK. WILLIAM E. H. MORSE and OLIVER H. BEMIS, Algona, Iowa. Filed June 27, 1900. Serial No. 21,738. (No model.)



Claim.—1. A door-lock having a divided spindle, the inner section of which engages the door-lock mechanism, and the outer section is mounted to slide transversely and is adapted to be moved in engagement with the inner section, to work the door-lock mechanism for opening the door from the outside, and a spring for yieldingly holding the outer spindle-section in proper axial position and allowing a limited turning or axial movement thereof, as set forth.

2. A door-lock having a divided spindle, the inner section of which engages the door-lock mechanism, and the outer section is mounted to slide transversely and is adapted to be moved in engagement with the inner section, to work the door-lock mechanism for opening the door from the outside, an escutcheon having a hub for the outer spindle-section to turn and to slide in, a knob secured on the outer spindle-section, and manually-controlled means on said outer knob and abutting against the escutcheon-hub, for normally holding the knob and outer spindle-section against inward movement, said means being movable to allow inward movement of the outer knob and its spindle-section, as set forth.

3. A door-lock, comprising a lock mechanism, a spindle made in sections, of which the inner section engages the door-lock mechanism and the outer section is mounted to slide transversely, and is adapted to be moved in engagement with the inner section to work the door-lock mechanism for opening the door, an escutcheon having a hub for the outer spindle-section to turn and to slide in, a knob on the outer spindle-section, and manually-controlled means on said outer knob, and comprising a mobile member normally engaging said escutcheon-hub and holding the knob and outer spindle-section against inward movement, said member being movable to register with the escutcheon-hub, to allow inward movement of the outer knob and its spindle-section, as set forth.

4. A door-lock, comprising a lock mechanism, a spindle made in sections, of which the inner section engages the door-lock mechanism and the outer section is mounted to slide transversely, and is adapted to be moved in engagement with the inner section to work the door-lock mechanism for opening the door, an escutcheon having a hub for the outer spindle-section to turn and to slide in, a knob on the outer spindle-section, and manually-controlled means on said outer knob, for engaging said escutcheon-hub and hold the knob and outer spindle-section against inward movement, said means being adapted to be moved in register with said escutcheon-hub, to allow inward movement of the outer knob and its spindle-section, the said means comprising spring-pressed slides movable on the knob and having grooves adapted to register with the escutcheon-hub, to allow an inward movement of the knob, buttons slidable on the knob and adapted to be pressed by the operator, and intermediate mechanism between the buttons and the slides, to move the latter when the buttons are pressed, as set forth.

5. A door-lock, comprising a lock mechanism, a spindle made in sections, of which the inner section engages the door-lock mechanism and the outer section is mounted to slide transversely, and is adapted to be moved in engagement with the inner section to work the door-lock mechanism for opening the door, an escutcheon having a hub for the outer spindle-section to turn and to slide in, a knob on the outer spindle-section, manually-controlled means on said outer knob, for engaging said escutcheon-hub and holding the knob and outer spindle-section against inward movement, said means being adapted to be moved in register with said escutcheon-hub, to allow inward movement of the outer knob and its spindle-section, the said means comprising spring-pressed slides movable on the knob and having grooves adapted to register with the escutcheon-hub, to allow an inward movement of the knob, buttons slidable on the knob and adapted to be pressed by the operator, intermediate mechanism between the buttons and the slides, to move the latter when the buttons are pressed, and a releasing device for the said intermediate mechanism, to release the spring-pressed slides for resetting the same, as set forth.

6. A door-lock having a spindle made in sections, one of which engages the door-lock mechanism and the other is adapted to be moved in engagement with the first section, an escutcheon-hub in which the slidable spindle-section is mounted to turn and to slide, a knob on the said slidable spindle-section, spring-pressed slides mounted to slide in guideways on said knob and having grooves adapted to register with said hub, each slide having a pair of parallel ratchet-teeth racks, a spring-pressed pawl for engaging one of the racks of a slide, a button under the control of the operator, for imparting a swinging movement to said pawl, and a spring-dog for engaging the other rack of a slide, as set forth.

7. A door-lock having a spindle made in sections, one of which engages the door-lock mechanism and the other is adapted to be moved in engagement with the first section, an escutcheon-hub in which the slidable spindle-section is mounted to turn and to slide, a knob on the said slidable spindle-section, spring-pressed slides mounted to slide in guideways on said knob and having grooves adapted to register with said hub, each slide having a pair of parallel ratchet-teeth racks, a spring-pressed pawl for engaging one of the racks of a slide, a button under the control of the operator, for imparting a swinging movement to said pawl, a spring-dog for engaging the other rack of a slide, levers extending under said pawl and dog, and a button under the control of the operator and adapted to be moved in engagement with levers to impart a swinging motion thereto and release said pawls and dogs from said racks, to allow the slides to return by action of their springs, as set forth.

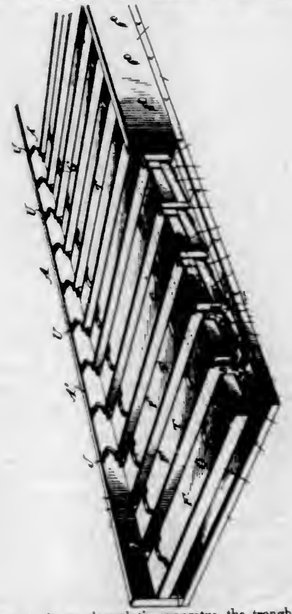
8. A combination-knob, comprising a hub, of which the spindle of the knob is mounted to turn and to slide, the hub having an annular flange, a knob proper having an annular groove for engagement by said flange, spring-pressed slides mounted to slide in guideways on said knob, and having grooves or notches adapted to move in register with said flange, adjustable means for limiting the inward movement of said slides, and a button-actuated mechanism carried by the knob and connected with said slides to move the same outward, as set forth.

9. A combination-knob, comprising a hub, of which the spindle of the knob is mounted to turn and to slide, the hub having an annular flange, a knob proper having an annular groove for engagement by said flange, spring-pressed slides mounted to slide in guideways on said knob, and having grooves or notches adapted to move in register with said flange, adjustable means for limiting the inward movement of said slides, a button-actuated mechanism carried by the knob and connected with said slides to move the same outward, the said mechanism comprising buttons slidable in the knob, spring-pressed pawls adapted to be actuated by the buttons, and racks on said slides, and adapted to be engaged by said pawls to move the slides outward, as set forth.

10. A combination-knob, comprising a hub, of which the spindle of the knob is mounted to turn and to slide, the hub having an annular flange, a knob proper having an annular groove for engagement by said flange, spring-pressed slides mounted to slide in guideways on said knob, and having grooves or notches adapted to move in register with said flange, adjustable means for limiting the inward movement of said slides, a button-actuated mechanism carried by the knob and connected with said slides to move the same outward, the said mechanism comprising buttons slidable in the knob, spring-pressed pawls adapted to be actuated by the buttons, racks on said slides, and adapted to be engaged by said pawls to move the slides outward, and dogs carried by the knob and adapted to engage a second set of racks on said slide, to hold the slides against return movement, as set forth.

11. A permutation mechanism for locks and the like, comprising a casing formed with an opening therein, a member having a flange fitting in said opening, a slide mounted in the casing and having a notch, the notch registering with the flange to permit the relative movement of the casing and flanged member, means serving normally to hold the slide with the notch out of register with the flange, and manually-operated devices for moving the slide against said means.

662,286. ELECTROLYTIC APPARATUS. EMANUEL MOTT, Jefferson, S. C. Filed May 26, 1900. Serial No. 18,129. (No model.)



Claim.—1. In an electrolytic apparatus, the trough or flume having the longitudinal sides provided with terminals for making contact with an anode-plate, and the bottom made up of sections, each having on its upper face, a flat portion at an angle to the plane of the lower face adapted

to receive a metallic plate, a transverse rib at the end of the flat portion, and a concavity on the other side of the rib extending below the plane of the flat portion, each bottom section being provided with a terminal for making contact with the metallic plate; substantially as described.

2. In an electrolytic apparatus, the trough or flume having the longitudinal sides provided with terminals for making contact with an anode-plate and the bottom made up of sections, each having on its upper face a flat portion at an angle to the plane of the lower face adapted to receive a metallic plate, a transverse rib and concavity at the end of the flat portion, each bottom section being provided with a terminal for making contact with the metallic plate; strips secured to the sides above the bottom sections and adapted to support a cross-bar, upright strips also secured to the sides and receiving between them and supporting an upright metallic plate in line with the concavity; substantially as described.

3. In an electrolytic apparatus, a cell having open ends and having a transverse concavity in its bottom comprising a horizontal cathode-plate of less length than the cell, resting on the bottom of the cell, an upright cathode-plate in circuit therewith and extending downward into the concavity in the bottom of the cell, an anode-plate supported above and with a portion thereof substantially parallel with the horizontal cathode-plate and at a fixed distance from the horizontal and upright cathode-plates; substantially as described.

4. In an electrolytic apparatus a cell having open ends and having a transverse concavity in its bottom comprising a horizontal cathode-plate of less length than the cell resting on the bottom of the cell, an upright cathode-plate in circuit therewith and extending downward into the concavity in the bottom of the cell, an anode-plate supported above and with a portion thereof substantially parallel with the horizontal cathode-plate and at a fixed distance from the horizontal and upright cathode-plates, and means for adjusting the height of the upright cathode-plate; substantially as described.

5. In an electrolytic apparatus, a series of cells, having open ends each having a transverse concavity in its bottom, and each comprising a horizontal cathode-plate of less length than the cell resting on the bottom of the cell, an upright cathode-plate in circuit therewith and extending downward into the concavity in the bottom of the cell, an anode-plate supported above and with a portion thereof substantially parallel with the horizontal cathode plate and at a fixed distance from the horizontal and upright cathode-plates, the cells being so arranged that the horizontal cathode and anode plates of each cell shall be at a lower level than the corresponding plates of the preceding cell; substantially as described.

6. In an electrolytic apparatus, a series of cells, having open ends each having a transverse concavity in its bottom and each comprising a horizontal cathode-plate of less length than the cell resting on the bottom of the cell, an upright cathode-plate in circuit therewith and extending downward into the concavity in the bottom of the cell, an anode-plate supported above and with a portion thereof substantially parallel with the horizontal cathode-plate and at a fixed distance from the horizontal and upright cathode-plates, and means for adjusting the height of the upright cathode-plate, the cells being so arranged that the horizontal cathode and anode plates of each cell shall be at a lower level than the corresponding plate of the preceding cell; substantially as described.

7. In an electrolytic apparatus, the combination with a series of open-ended cells, each comprising a cathode and anode plate, so arranged as to form a substantially horizontal passage between them, of an upright cathode-plate interposed between the end of the horizontal passage of one cell and the entrance of the succeeding cell and arranged to more or less obstruct the free flow of pulp from one cell to another and to thus agitate the pulp; substantially as described.

8. In an electrolytic apparatus, the combination with a series of open-ended cells, each comprising a cathode and anode plate, so arranged as to form a substantially horizontal passage between them, of an upright plate between the end of the horizontal passage of one cell and the entrance of the succeeding cell, and means to adjust the height of the upright plate, so as to more or less obstruct the free flow of pulp from one cell to another and thus agitate the pulp; substantially as described.

9. In an electrolytic apparatus, the combination with a series of open-ended cells, each comprising a cathode-plate and an anode-plate so arranged as to form a substantially horizontal passage between them, the anode-plate having also upright ends, of an upright cathode-plate arranged between the anode-plates of succeeding cells and extending below the plane of the horizontal portion of the anode-plate, so as to more or less obstruct the flow of pulp from one cell to another, and to thus cause an agitation of the pulp and at the same time subject it to electrolytic action; substantially as described.

10. In an electrolytic apparatus, the combination with a series of open-ended cells each comprising a cathode-plate and an anode-plate, so arranged as to form a substantially horizontal passage between them, the anode-plate having also upright ends, of an upright cathode-plate arranged between the anode-plates of succeeding cells and extending below the horizontal portion of the anode-plate, and means for adjusting the height of the upright cathode-plate, so as to more or less obstruct the flow of pulp from one cell to another and to thus agitate the pulp and at the same time subject it to electrolytic action; substantially as described.

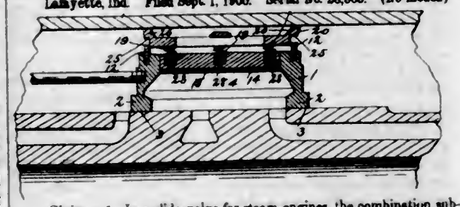
11. In an electrolytic apparatus, an open-ended cell comprising a bottom having a flat portion, a transverse rib and a concavity, sides having horizontal supporting-strips, and upright strips secured thereto, a cathode-plate resting on the flat portion of the bottom, an anode-plate carried by a cross-bar provided with handles, and resting on the horizontal supporting-strips, an upright cathode-plate movably held between the upright strips secured to the sides, and means for adjusting the upright cathode-plate; substantially as described.

12. In combination with an electrolytic cell having open ends and having a horizontal cathode-plate resting on its bottom, and an upright cathode-plate in circuit therewith, of an anode-plate carried by a removable cross-bar and having a horizontal and upright portion, so arranged that the horizontal portion is parallel with the horizontal cathode-plate and the upright portion is parallel with the upright cathode-plate; substantially as described.

13. In an electrolytic cell having open ends, the combination with a removable cross-bar and means for supporting it in position, of a metallic plate covering the bottom and two sides of the bar, and forming the anode-plate of the cell, of a metallic plate arranged horizontally below and parallel with the bottom of the cross-bar, so as to form a passage between such plate and the bottom of the cross-bar, such plate forming a cathode-plate of the cell, and an auxiliary metallic cathode-plate arranged vertically and parallel with the sides of the cross-bar and in circuit with the horizontal cathode-plate, such vertically-arranged plate extending below the plane of the bottom of the cross-bar, so as to more or less obstruct the said passage; substantially as described.

14. In an electrolytic apparatus comprising a series of open-ended cells, the combination of the anode-plate carried by a cross-bar removably supported at a distance above the bottom of the cell, a cathode-plate, resting on the bottom of the cell, the bottom being provided with a rib b' and a concavity b^2, and a metallic cathode-plate adjustably supported above said concavity, and in circuit with the horizontal cathode-plate; substantially as described.

662,287. **BALANCED SLIDE-VALVE.** LEWIS W. MCDONALD, Lafayette, Ind. Filed Sept. 1, 1900. Serial No. 28,805. (No model.)



Claim.—1. In a slide-valve for steam-engines, the combination substantially as described, of a base provided with a chamber and an aperture in the top communicating with said chamber, a roof-plate seated in said aperture, and a cap-frame bearing against said roof-plate on the bottom and adapted to bear against a cover on top and slide thereon.

2. In a slide-valve for engines, the combination, substantially as described, of a base having an exhaust-chamber therein and provided with an aperture in the top communicating with said chamber, a roof-plate seated in said aperture in said base and adapted to slide therein, and means for taking up the force of the impact of the steam against said roof-plate.

3. In a slide-valve for steam-engines, the combination substantially as described, of a base provided with an exhaust-chamber and an aperture communicating with said chamber, and a series of springs mounted adjacent to the top of said aperture, a roof-plate seated in said aperture in said base, and a cap-frame bearing on said springs and said roof-plate and adapted to slide on the cover of a steam-chest.

662,288. **LINING BRICK OR BLOCK FOR METALLURGICAL FURNACES AND METHOD OF PREPARING SAME.** ELWOOD F. MCDOWELL, Philadelphia, Pa. Filed Aug. 4, 1899. Serial No. 726,188. (Specimens.)

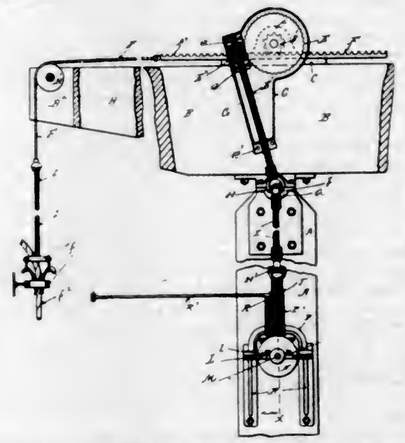
Claim.—1. The mode herein described of preparing blocks or bricks for the linings or internal parts of metallurgical furnaces, said mode consisting in first burning the bricks and then impregnating the same with liquid hydrocarbon, substantially as specified.

2. The mode herein described of preparing bricks or blocks for the linings or internal parts of metallurgical furnaces, said mode consisting in first burning the bricks and then impregnating the same with a heated liquid hydrocarbon which is solid at ordinary atmospheric temperatures.

3. A burned brick for furnace-linings, &c., said brick being saturated or impregnated with unburned carbonaceous material, substantially as specified.

4. A burned brick for furnace-linings, said brick being saturated or impregnated with unburned carbonaceous material which is solid at ordinary atmospheric temperatures, substantially as specified.

662,289. **ARTESIAN-WELL-DRILLING MECHANISM.** LESTER J. MCNUTT, Jefferson, Ohio. Filed Jan. 29, 1900. Serial No. 3,175. (No model.)



Claim.—1. In well-drilling mechanism, the combination, with a samson-post, and a beam pivoted thereto; of a toothed rack for raising the drilling-cable, a toothed pinion operating the said rack, a worm-wheel secured concentric with the said pinion, a worm provided with a driving-shaft and engaging with the said worm-wheel, all the said parts being carried by the said beam; reversible driving mechanism carried by the said samson-post, and an intermediate shaft and two flexible couplings connecting the said driving mechanism with the said worm-shaft, substantially as set forth.

2. In well-drilling mechanism, the combination, with a samson-post, and a beam pivoted thereto; of lifting mechanism for the drilling-cable carried by the said beam, reversible driving mechanism carried by the said samson-post, and a shaft and two flexible couplings operatively connecting the two said mechanisms, one of the said couplings being arranged on the axis of the end of the pivot of the said beam, so that the axis of the said pivot passes transversely through the meeting point of the inclined axes of the parts forming the said coupling, substantially as set forth.

3. In an Artesian-well-drilling mechanism, the combination of a reversible clutch and bevel-gear driving mechanism, worm-wheel and gear and reciprocating rack mechanism, flexible connections between the reversible driving mechanism and the worm-wheel and rack-gear mechanism, and flexible connections between the reciprocating rack and the drilling-cable clamps, substantially as and for the purpose set forth.

4. In an Artesian-well-drilling mechanism, the combination of two clutches and two bevel-gears driven thereby, a shaft and bevel-gear intermeshing with the first-named bevel-gears and adapted to be driven thereby, with mechanism for alternately throwing said clutches into or out of engagement, so as to reverse the operation of the mechanism, a worm-wheel mechanism driving a spur-gear intermeshing with a reciprocating rack, flexible connections between the shaft driven by said clutch and bevel-gear mechanism, and the worm-shaft and flexible connections between said reciprocating rack and the drilling-cable clamps, substantially as and for the purpose set forth.

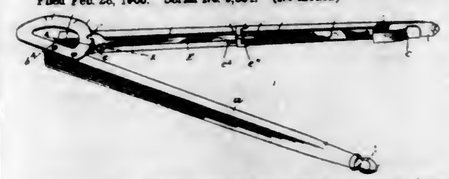
5. In well-drilling mechanism, the combination, with a samson-post, and a beam pivoted thereto; of lifting mechanism for the drilling-cable carried by the said beam and provided with a driving-shaft E', reversible driving mechanism carried by the said samson-post, a shaft I actuated by the said driving mechanism, and a flexible coupling H arranged upon the axis of the pivot of the said beam and samson-post and connecting the shafts E' and I, substantially as set forth.

662,290. **EXTENSION-TABLE.** HERMAN NONNAST and WILHELM TESAR, Chicago, Ill. Filed Sept. 13, 1897. Serial No. 651,494. (No model.)

Claim.—In an extension-table, a central section, side rails therefor, movable bars carrying the leaves slidable on the side rails and shoulders on one or more of the movable bars engaging the end rails to hold the leaves in the plane of the central section together with connecting-hinges and stops to elevate the leaves into the plane of the central section.



662,291. **COMPASSES.** REUBEN L. NYE, Battle Creek, Mich. Filed Feb. 28, 1900. Serial No. 6,831. (No model.)



Claim.—1. In a device of the class described, the combination with the two hinged members, of a projection secured to one of said members and overlapping the other member, a lever pivotally secured to the latter member and adapted to impinge, under pressure, upon the said projection and to bind it immovably to the said latter member and means for locking said lever when in engagement with the projection.

2. In a device of the class described, a holder for chalk or other marking agents, consisting of a concaved clasp immovably secured at one end to the compass-leg, by a spring-arm, and a concaved seat or longitudinal groove in the compass-leg, opposite to the clasp, between which and the clasp the chalk is retained by the tension of the spring-arm.

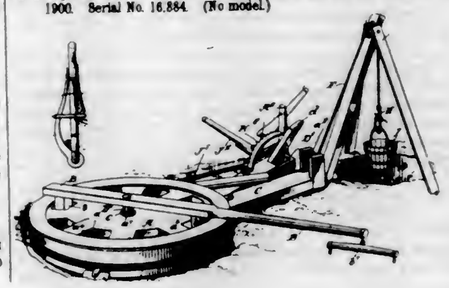
3. In a device of the class described, the combination of the hinged compass-legs, a plate secured to one leg and projecting over the other, a locking-lever having a jaw adapted to engage with said plate to lock the legs in a relatively immovable position, and means for locking said lever when its jaw is in engagement with the plate.

4. In compasses, the combination of two hinged legs, having each a straight-edge, which alines one with the other, when the compasses are fully extended, to form a ruling edge, a projection secured to one of said legs and overlapping the other member or leg, a lever pivotally secured to the latter member and adapted to impinge, under pressure, upon the said projection and bind it immovably to the said latter member, and means for locking said lever when it is in engagement with the projection.

5. In a device of the class described, the combination with the two hinged members, of a plate having a circular edge, suitably marked in degrees to form a protractor, said plate being secured to one of the members with its circular edge concentric with the joint between the hinged members, and overlapping the other member, a lever pivotally secured to the latter member and adapted to engage with the said plate to secure the said members against relative movement when adjusted, and means for locking said lever when it is in engagement with the said plate.

6. In a device of the class described, the combination with two jointed legs, of a device for locking said legs against movement, comprising a semicircular plate secured to one leg, concentrically with the joint of the compasses, a locking-lever having a jaw on the end contiguous to the plate, for clamping same to other leg, and a fork on the opposite end of the lever, a keeper engaging with said forked end, and a stop with which this end of the lever engages when in a locked position.

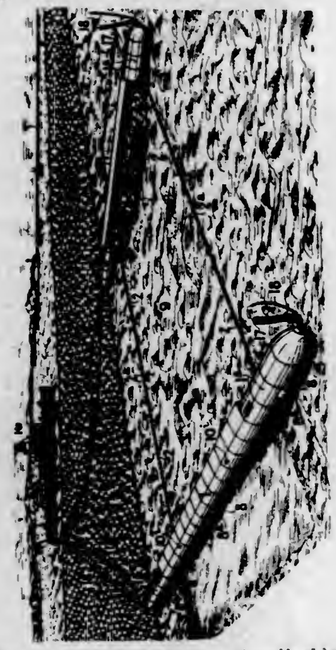
662,292. **WHIM.** JOHN H. O'BRIEN, Nasby, S. D. Filed May 16, 1900. Serial No. 16,884. (No model.)



Claim.—1. A hoisting apparatus comprising a frame, a drum, a hoisting-rope, a sweep detachably engaging the drum, a foot-lever controlling the engagement between the sweep and drum, said lever extending to a point adjacent the depending end of the rope, a brake for the drum, a brake-rod terminating adjacent to the foot-lever, an elbow-lever pivoted to the brake-rod and fulcrumed on the frame, a dog carried by the lever and a brake-lever for throwing the brake-rod.

2. The combination with a frame, of the drum, a brake-band encircling the drum, a rod extending from and connected with the brake-band, an operating-lever for said rod, a lever fulcrumed on the frame and having an arm connected with the brake-rod, and an adjustable dog mounted on the lever and movable into engagement with the drum by an excessive releasing movement of the brake.

662,293. **DREDGING APPARATUS.** MAURICE M. J. O. O'CONOR, Drumshambo, Ireland. Filed Aug. 10, 1898. Serial No. 688,302. (No model.)



Claim.—1. In dredging apparatus, a vessel capable of being sunk to the bed of a river or other waterway to be dredged and of being afterward refloated by inflation and formed with an open receptacle for dredged material and with a part adapted to direct material being dredged into said receptacle, and means whereby said vessel can, when sunk, be caused to travel over said bed and cause a portion of said bed to enter said receptacle, as set forth.

2. Dredging apparatus comprising vessels capable of being sunk to the bed of a river or other waterway and of being afterward refloated and each formed with an open receptacle for dredged material and with a part adapted to cause material being dredged to enter said receptacle, flexible connections between said vessels, and mechanism located in said vessels and whereby the flexible connections can be hauled in and the vessels caused to approach each other in a lateral direction, as set forth.

3. In dredging apparatus, a vessel formed with an open receptacle for dredged material, with air and water tight compartments, and with air and water tight chambers means whereby water can be separately admitted to and afterward shut off from said compartments and chambers, means whereby water can afterward be withdrawn from and air admitted to said compartments and chambers, and means whereby said vessel when sunk onto the bed of the river or other waterway to be dredged can be drawn over said bed so as to cause a portion of said bed to enter said receptacle.

4. Dredging apparatus comprising two elongated vessels arranged parallel to one another and each formed with an open receptacle for dredged material, with air and water tight compartments, and with air and water tight chambers and provided with means whereby water can be separately admitted to and afterward shut off from said compartments and chambers and means whereby water can afterward be withdrawn from and air admitted to said compartments and chambers, flexible connections arranged at right angles to and connecting said vessels, and mechanism located in said vessels and whereby said connections can be hauled in and the said vessels caused to move over the bed to be dredged and in a direction toward one another, as set forth.

5. In dredging apparatus, a vessel capable of being partly rotated about a horizontal axis and of being sunk to the bed of a river or other waterway and of being afterward partly rotated in the reverse direction and refloated, said vessel being provided with a receptacle having an elongated opening and adapted to receive and hold dredged material, with a wedge-like extension arranged along one side of said opening and adapted, during dredging, to cause material being dredged to enter said receptacle, and with arms or projections extending laterally from said vessel in an opposite direction to said extension and so arranged that during dredging they can bear upon said bed and prevent such vessel rolling or turning thereon, substantially as described.

6. The combination with dredging vessels adapted to be partly rotated in contact with each other, of arms or projections extending from each vessel and provided with rollers, and antifriction balls or rollers mounted on each vessel on the side thereof that will be the outer side when the two vessels are floating in an upright position and are near together, substantially as described for the purpose specified.

7. Dredging apparatus comprising two elongated vessels each capable of being sunk to the bed of the river or other waterway to be dredged and of being refloated and each provided with an open receptacle for dredged material, with a wedge-like extension arranged along one side of the mouth of said receptacle, and with arms or projections extending in an opposite direction to said wedge-like extension and adapted to bear upon said bed, the mouths of said receptacles and said wedge-like extensions facing one another, flexible connections between said vessels, and hauling-in mechanism located within said vessels and whereby said connections can be hauled in, substantially as described for the purpose specified.

8. In dredging apparatus, the combination with a vessel capable of being sunk to the bed of the waterway to be dredged and of being afterward refloated and formed with an open receptacle for dredged material, of a wedge-like extension arranged along one side of and projecting away from the mouth of said receptacle and adapted to cause material being dredged to enter said receptacle, arms or projections extending from said vessel in an opposite direction to said wedge-like extension and adapted to bear upon said bed during dredging, flexible connections extending from said vessel in the direction in which said wedge-like extension projects, mechanism carried by said vessel and whereby said flexible connections can be hauled in and the vessel moved parallel with itself, and additional hauling mechanism carried by said vessel and whereby other flexible connections can be hauled up for partially rotating said vessel about a horizontal axis, substantially as described for the purposes specified.

9. Dredging apparatus comprising an elongated vessel formed at its ends with air and water tight compartments, with a centrally-arranged longitudinal open receptacle for dredged material and with longitudinal air and water tight chambers arranged along the opposite sides of the mouth of said receptacle and one of which is made of wedge-like shape and of larger dimensions and so as to project to a greater extent than the other chamber from said vessel, arms or projections arranged to extend from said vessel in an opposite direction to said wedge-like extension, air-tubes whereby air can enter and leave said compartments and chambers, means whereby water can be admitted to and shut off from said compartments and chambers, means whereby water can be withdrawn from said compartments and chambers, and means whereby the vessel, when sunk upon the said bed so that the wedge-like extension and arms or projections bear thereon, can be drawn over said bed so as to dredge the same.

10. Dredging apparatus comprising an elongated vessel formed at its ends with air and water tight compartments, with a centrally-arranged longitudinal open receptacle for dredged material and with longitudinal air and water tight chambers arranged along the opposite sides of the mouth of said receptacle and one of which is made of wedge-like shape and of larger dimensions and so as to project to a greater extent than the other chamber from said vessel, arms or projections arranged to extend from said vessel in an opposite direction to said wedge-like extension, air-tubes whereby air can enter and leave said compartments and chambers, means whereby water can be admitted to and shut off from said compartments and chambers, means whereby water can be withdrawn from said compartments and chambers, mechanism whereby the said vessel can be caused to travel over the bed to be dredged, and mechanism whereby the vessel, with dredged material, can, when refloated, be partly rotated about its axis for the purposes specified.

11. Dredging apparatus comprising two elongated vessels, flexible connections between said vessels, and mechanism located within said vessels and whereby said connections can be hauled in and the vessels thereby caused to approach each other, each of said vessels being provided with air and water tight compartments at its ends with a central open receptacle adapted to receive and hold dredged material, with longitudinal air and water tight chambers arranged at opposite sides of the mouth of said receptacle, one of said chambers being made of approximately wedge-like shape and of larger dimensions and so as to project from said vessel to a greater extent than the other, arms or projections arranged to extend from said vessel in an opposite direction to said wedge-like extension, air-tubes whereby air can enter and leave said compartments and chambers, means whereby water can be admitted to and shut off from each of said compartments and chambers separately, and means whereby water can be withdrawn from said compartments and chambers and replaced by air, substantially as described for the purposes specified.

12. In dredging apparatus the combination with two vessels capable of being sunk onto the river or other bed to be dredged and of being refloated with dredged material and each formed with an open receptacle for dredged material and with a wedge-like extension projecting from one side of the opening leading to said receptacle, of hauling-up mechanism comprising rams and cylinders carried by each of said vessels at the side of the opening therein opposite to that carrying said extensions, and flexible connections arranged to pass under the two vessels when the same are brought near together and each connected at one end to a movable part of the hauling-in mechanism on one vessel and at the opposite end to the other vessel at a part thereof at the opposite side of the opening therein to that carrying the hauling-up mechanism of said vessel, substantially as described for the purpose specified.

13. A dredging vessel having cylindrical ends formed with air and water tight compartments capable of being filled with air or water at will and with spaces for machinery, a hollow central or intermediate compartment having an opening along one side, air and water tight chambers arranged at opposite sides of said opening and one of which is of wedge-like shape and made larger than and so as to project to a greater distance from said vessel than the other, valves adapted to be controlled from above the surface of the water in which said vessel is to float and whereby water can be admitted to and shut off from each of said compartments and chambers at will, air-tubes leading to each of said compartments and chambers, hydraulic hauling-in mechanism arranged longitudinally within said vessel, passages extending laterally through said vessel and arranged near the ends of said receptacle and extension and flexible connections connected with said hauling-in mechanism and extending through said passages, guide-rollers for said flexible connections, and pumps and electric motors for driving the same located in said machinery-spaces, one or some of said pumps being adapted to withdraw water from the end compartments, another or others for withdrawing water from the larger of the two longitudinal chambers, and another or others for supplying water under pressure to said hydraulic hauling-in mechanism substantially as herein described.

14. The combination with a vessel capable of being sunk to the bed of a river or other waterway and of being afterward refloated as set forth, of hauling-in mechanism located within said vessel, and comprising a longitudinal movable part, a rod arranged parallel to and connected at its inner end to said longitudinal movable part and adapted to be connected at its outer end to a flexible connector, a long guide-tube open at one end to the external water and in which said rod is located, and water-tight packing located in said tube and surrounding said rod, substantially as described.

15. The combination with a vessel capable of being sunk to the bed of a river or other waterway and of being afterward refloated as set forth, of sets of hauling-in mechanism arranged to work longitudinally within said vessel and arranged so as to be at or near the bottom thereof when the same is floating normally in the water, longitudinally-arranged tubes each in communication at one end with the external water and at the other end with the machinery-compartment, and packing devices located in said tubes, each set of said mechanism comprising a hydraulic ram and cylinder, and a rod located in one of said tubes, connected at one end to the movable cylinder or ram, and arranged to work in a water-tight manner through the packing in said tube, substantially as described for the purpose specified.

16. The combination with a vessel capable of being sunk to the bed of a river or other waterway and drawn over the same and afterward refloated, of sets of hauling-up mechanism each comprising a hydraulic cylinder and ram arranged longitudinally upon said vessel, and guiding devices whereby flexible connections attached to the movable parts of said mechanism can be led off transversely to said vessel substantially as described for the purpose specified.

17. The combination with a vessel formed with an open receptacle for dredged material, and capable of being sunk to the bed of a river or other waterway, of being drawn over said bed, and of being afterward refloated and partly rotated, of air-admission valves arranged to control communication between the bottom of said receptacles and the exterior of the vessel, and means whereby the valves can be opened to admit air to the receptacle when the same is inverted, substantially as described for the purpose specified.

18. The combination with a vessel formed with an open receptacle for dredged material, and capable of being sunk to the bed of a river or other waterway, of being drawn over said bed, and of being afterward refloated and partly rotated, of a number of cocks or valves arranged to control communications through the bottom of said receptacles, a longitudinal shaft geared to the stem of each cock or valve, and means substantially as described and shown for operating said shaft.

19. Dredging apparatus comprising an elongated vessel 1 formed with cylindrical end portions 1^a having connected air and water tight compartments 1^b and machinery-spaces 1^c therein, and an intermediate portion formed with a receptacle 3 having an opening 3^a at one side, and longitudinal air and water tight chambers 4 and 5 located at opposite sides of said opening and whereof 5 is in communication through suitable openings with said end compartments 1^b, means for controlling said openings from the surface of the water, strengthening-stays connecting the forward projecting portion of said chamber 4 to the part of said vessel at the opposite side of the opening 3^a therein arms or projections 8 with rollers extending from said vessel in an opposite direction to said chamber 4, air-tubes adapted to extend from above the surface of the water to each of the compartments 1^b and chambers 4 and 5, means for admitting water to said compartments and chambers separately, pumps with motors located within said machinery-spaces 1^c and adapted to separately withdraw water from said end compartments and from the chamber 4, sets of hydraulic apparatus arranged near the bottom of said receptacle, pumps with motors located in said machinery-spaces 1^c and adapted to supply water under pressure to said hydraulic apparatus, transverse passages 20 arranged near the ends of said receptacle 3 guiding devices whereby flexible connections attached to the movable parts of said hydraulic apparatus can extend away laterally from said vessel and means for admitting air or water to bottom part of said receptacle 3 all substantially as herein described for the purposes specified.

20. Dredging apparatus comprising an elongated vessel 1 formed with cylindrical end portions 1^a having connected air and water tight compartments 1^b and machinery-spaces 1^c therein, and an intermediate portion formed with a receptacle 3 having an opening 3^a at one side, and longitudinal air and water tight chambers 4 and 5 located at opposite sides of said opening and whereof 5 is in communication through suitable openings with said end compartments 1^b, means for controlling said openings from the surface of the water, strengthening-stays connecting the forward projecting portion of said chamber 4 to the part of said vessel at the opposite side of the opening 3^a therein arms or projections 8 with rollers extending from said vessel in an opposite direction to said chamber 4, air-tubes adapted to extend from above the surface of the water to each of the compartments 1^b and chambers 4 and 5, means for admitting water to said compartments and chambers separately, pumps with motors located within said machinery-spaces 1^c and adapted to separately withdraw water from said end compartments and from the chamber 4, sets of hydraulic apparatus arranged near the bottom of said receptacle, pumps with motors located in said machinery-spaces 1^c and adapted to supply water under pressure to said hydraulic apparatus, transverse passages 20 arranged near the ends of said receptacle 3 guiding devices whereby flexible connections attached to the movable parts of said hydraulic apparatus can extend away laterally from said vessel, means for admitting air or water to bottom part of said receptacle 3, sets of hydraulic hauling-up mechanism arranged longitudinally on said chamber 5, and guiding devices whereby flexible connections attached to the movable parts of said hauling-up mechanism can be led away in a direction at right angles to said vessel, all substantially as herein described for the purpose specified.

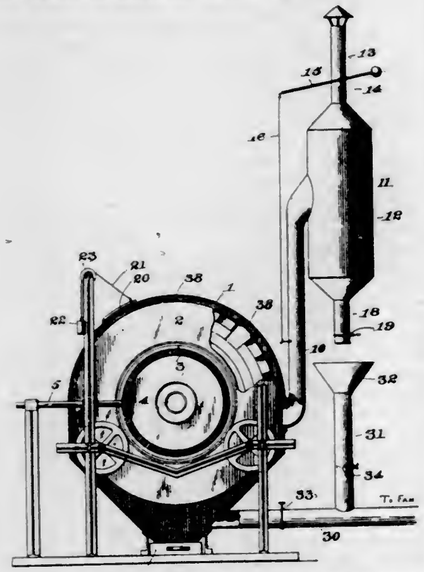
662,294. **COFFEE-ROASTING APPARATUS.** JOHN R. OKELL, Scranton, Pa. Filed Jan. 17, 1900. Serial No. 1,782. (No model.)

Claim.—1. An apparatus for roasting coffee and other material, comprising a casing, an agitating-drum therein, a furnace, a vertical stack adjacent to the drum having constricted upper and lower ends and an enlarged intermediate section, a draft-flue leading from the furnace into the drum, and a pipe leading from the casing into the enlarged section of the stack, substantially as described.

2. An apparatus for roasting coffee and other material, comprising a casing, an agitating-drum therein, a furnace, a vertical stack adjacent to the drum having constricted upper and lower ends and an enlarged intermediate section, a draft-flue leading from the furnace into the drum, and a pipe leading from the casing into the enlarged section of the stack, the stack being provided with a damper in its upper reduced end with means for operating the same, and with a discharge-gate in its lower end, substantially as described.

3. In a roasting apparatus, the combination with the roasting-cham-

ber, of a vertical smoke-stack communicating therewith, a discharge-gate at the bottom of the stack, and connected suction-pipes leading from the roasting-chamber and smoke-stack, substantially as described.



4. An apparatus for roasting coffee or other material, comprising an inclosed casing, an agitating-drum therein, a furnace, a smoke-stack, a flue leading from the furnace into the drum, a flue leading from the drum to the stack, a discharge-gate at the bottom of the stack, a suction discharge-pipe leading from the bottom of the casing, a vertical branch pipe leading upward from the suction-pipe immediately under the discharge-gate of the stack, and suitable gates or dampers in said pipes, substantially as described.

5. An apparatus for roasting coffee, comprising an inclosing casing, an agitating-drum mounted therein, means for heating the said drum, an opening in the said casing for permitting the coffee to be watered, a counterbalanced door in the casing, a draft-outlet flue connected with the casing, a stack having an enlarged portion for receiving the draft from the said flue, the upper and lower ends of the said stack being reduced, a damper in the upper end, a weighted lever secured to the said damper, a rod connected with the said lever, whereby the damper may be operated by hand, a cut-off or gate in the lower reduced portion of the stack, the structure being such that, when the door is opened to water the coffee, the damper in the smoke-flue may be closed and the gate may be opened to discharge the contents of the stack, substantially as described.

6. An apparatus for roasting, comprising a rotary drum, an inclosing casing, doors adapted to slide longitudinally of the drum in the periphery thereof, radial projections on said doors, and guides attached to the casing and operating on said projections for opening and closing the doors, while the drum is in motion, substantially as described.

7. An apparatus for roasting, comprising and carrying an agitating-drum having discharge-apertures in its periphery, doors slidable lengthwise of the drum for closing said apertures, radial projections on the doors, and sliding guides on the casing for engaging said projections for opening or closing the doors while the drum is in motion, substantially as described.

8. An apparatus for roasting, comprising a revolving drum having discharge-apertures in its periphery, sliding doors for opening or closing said apertures, a fixed means for engaging said doors to open and close the same while the drum is in motion, comprising a slide carrying guides and a lever for operating the same, substantially as described.

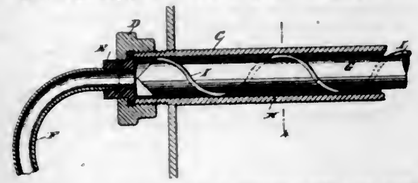
9. In a roasting apparatus, the combination with a suitable casing, of a revolving drum mounted therein having apertures upon its periphery, slides or doors for closing the said apertures, a stationary slide secured to the said casing, curved guides secured to the said slide, projections mounted upon the discharge-door and arranged in the path of the said curved guides, whereby they will engage the same and open or close the doors according to the position of the slide, and a lever connected with the said slide and mounted outside the casing for moving the slide back and forth, substantially as described.

662,295. VENTILATING-COVER FOR SHIPPING OR STORAGE VESSELS. FREDERICK C. OLTROGGE, Tripoli, Iowa. Filed June 23, 1900. Serial No. 21,302. (No model.)



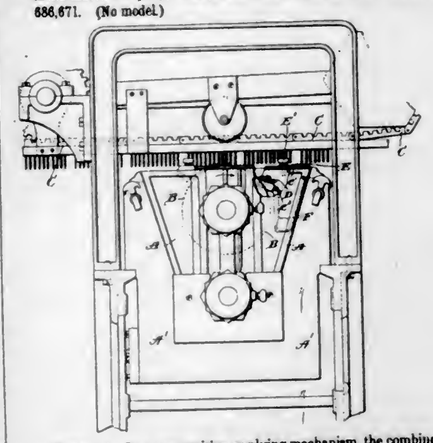
Claim.—The combination with a vessel having an outwardly-flaring discharge end, of a cover consisting of a tubular portion having a stop to limit its insertion into the discharge end of the vessel and provided at its upper end with vent-perforations, several of which are surrounded by the flaring discharge end of the vessel and others of which are located above the discharge end of the vessel, and a shield or guard secured to the extreme upper end of said tubular portion and flaring outwardly and downwardly and having its edge in a plane below the discharge end of the vessel, substantially as set forth.

662,296. STEAM-GENERATOR. CHARLES L. PALMER, Albany, N. Y. Filed Aug. 9, 1900. Serial No. 26,404. (No model.)



Claim.—In a steam generator or vaporizer, a tube, a rod extending within the tube lengthwise and of a smaller diameter than the tube so as to leave an annular chamber between the rod and the tube, the ends of the rod being chisel-pointed, and a spiral rib located in the space between the rod and the tube and in engagement with both.

662,297. COMPOSITION-APPLYING MECHANISM FOR MATCH-MACHINES. WILLIAM N. PALMER, Akron, Ohio, assignor to the Diamond Match Company, Chicago, Ill. Filed July 23, 1898. Serial No. 686,671. (No model.)



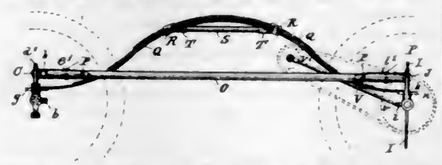
Claim.—1. In a composition-applying mechanism, the combination of a composition-containing vat, a suitable heater for heating the contents of the vat, a moving feeder for taking composition from the vat, means for removing the composition from the feeder, and a strainer in the form of a pocket, with one or more of its sides adapted to permit the passage of the composition, while holding back sticks, pieces of sticks, or other foreign material, such strainer being arranged to extend well down into the vat to a point below the top of the heater, so as to project into the composition when in the vat, substantially as and for the purpose described.

2. In a composition-applying mechanism, in combination with a composition-containing vat, and a heating device for heating the vat and contents, a moving feeder to take the composition from the vat, means for removing the composition from the feeder, and a pocket-like strainer to receive the composition removed from the feeder, extending down into the vat close to one of the heated walls thereof, to a point well below the top of the heating device, so that its lower portion will be submerged in the heated composition when in the vat, and having one or more of its sides adapted to permit the passage of the composition, while holding back any sticks, pieces of sticks, or other foreign material which may be mingled with the composition within the strainer, substantially as and for the purpose described.

3. In a composition-applying mechanism in combination with a composition-containing vat, and a heating device for heating the same and its contents, a moving feeder to take the composition from the vat, means for removing the composition from the feeder, and a removable pocket-like strainer to receive the composition removed from the feeder and extending down into the vat, close to one of the heated walls thereof, to a point well below the top of the heating device, so that the lower portion of the strainer will be submerged in the composition when in the vat, such strainer having its front side, rear side, and bottom formed of screening material adapted to allow the free passage of the composition through them while straining off and holding back from the composition sticks, or pieces of stick, which may be therein, substantially as and for the purpose described.

4. In combination with a composition-containing vat, and a heating-jacket for heating the same and its contents, a pocket-shaped strainer for composition to be passed into such vat, extending down to the vat close to one of the heated sides thereof, to a point below the top of the heating-jacket, such strainer consisting of two end plates detachably supported from the vat or its frame, rods extending between the end plates, and a netting supported from such rods and forming the sides and bottom of the strainer, adapted to allow of ready passage of the composition through it, and to screen off and retain within the strainer, foreign material which may be in the composition, substantially as and for the purpose described.

662,298. MOTOR-VEHICLE FRAME. FRANK R. PARKER, Penacook, N. H. Filed Mar. 28, 1900. Serial No. 10,434. (No model.)



Claim.—1. In a frame for automobiles, a pair of transverse rocker-frames carrying the axles, a pair of half-elliptic springs connecting the lower portion of said rocker-frames one to the other, and a pair of wooden bars connecting the upper portion of said rocker-frames whereby said axles may move horizontally.

2. In a frame for automobiles, a pair of transverse trussed frames carrying the axles, a pair of half-elliptic springs connecting the lower portion of said trussed frames, and a pair of wooden bars having their ends pivotally connected to the upper portion of said trussed frames.

3. In a frame for automobiles, a pair of transverse trussed frames carrying the axles, a pair of half-elliptic springs having their ends pivotally connected to the lower portion of said trussed frames, and a pair of wooden bars having their ends loosely connected to the upper portion of said trussed frames.

4. A frame for automobiles comprising, a pair of transverse trussed frames supporting the axles, a pair of half-elliptic springs having their central portions connected by a suitable frame, the said frame, a pair of wooden bars disposed parallel with said springs, two pair of horizontally-oscillating sleeves mounted one pair upon the upper and one pair upon the lower portion of each trussed frame, and means for rigidly connecting the ends of said wooden bars to the upper oscillating sleeves and the ends of said springs to the lower oscillating sleeves of said trussed frames.

5. A spring-frame for automobiles comprising, rocker-frames for supporting the axles, parallel wooden side bars having their ends pivotally connected to the upper portions of said rockers, parallel side springs having their ends pivotally connected to the lower portions of said rockers, and a suitable transverse frame loosely connecting the central portions of said springs.

6. A spring-frame for automobiles comprising, a transverse trussed member adapted to carry the forward axles and steering-lever, a transverse trussed member adapted to carry the rear axles and provided with a central yoke within which the driving sprocket or gear may be attached to the axles, parallel wooden side bars having their ends loosely coupled to the upper portion and parallel half-elliptic side springs having their ends loosely coupled to the lower portion of said transverse trussed members, and a transverse frame adapted to support the body and motor of the vehicle and being loosely attached to the central portions of said springs.

7. In a spring-frame for automobiles, a transverse trussed frame adapted to carry the forward wheels and comprising a straight bar or tube, a centrally-disposed vertical arm and a pair of vertical arms having two perforations at their top, said arms being located one near either end of and all three arms being brazed to said straight bar or tube, a pair of oscillating sleeves located one near either end of said straight tube outside of said vertical arms and provided each with a flanged plate, a pair of curved arms one end of each being brazed to the outer end of said straight tube and their opposite end terminating in a reduced threaded portion secured within the upper perforation of either outer vertical arm by a threaded nut, a pair of bolts passing through the lower perforation of either of said outside vertical arms and threaded to the central vertical arm, and a pair of oscillating sleeves mounted one upon each of said bolts and provided each with a reach or socket projecting at right angles therefrom, substantially for the purpose set forth.

8. In a spring-frame for automobiles, a transverse trussed frame adapted to carry the rear or driving axle and comprising a pair of tubes securely brazed to and projecting from opposite sides of a vertically-elongated yoke, the said yoke, a pair of vertically-disposed arms brazed one to each of said tubes, the arms provided each with two perforations near their outer end, a pair of curved arms securely brazed at one end to the outer end of either tube and having at their opposite end a reduced threaded portion fitting the upper perforation of either vertical arm and secured thereto by a threaded nut, a pair of oscillating sleeves mounted upon said tubes outside of said vertical arms and provided each with a flanged plate, a pair of bolts passing through the lower perforation of either of said vertical arms and threaded to opposite sides of said yoke, and a pair of oscillating sleeves mounted one upon each of said bolts and provided each with a reach or socket projecting at right angles therefrom, substantially for the purpose set forth.

9. In a frame for automobiles, a pair of transverse trussed frames one adapted to carry the forward wheels and the other the driving-wheels, a pair of wooden bars having their ends loosely coupled to the top of either trussed frame, a pair of half-elliptic springs having their ends loosely coupled to the bottom of either trussed frame, a transverse frame loosely connected to the central portion of said springs for supporting the vehicle-body and its motor, and an equalizer or brace adapted to be pivotally connected at one end to the crank-shaft of a motor and at the opposite end to the lower portion of the trussed frame carrying the driving-wheels.

662,299. COTTON-PRESS. WARREN A. PATTERSON, Dallas, Tex. Filed June 3, 1899. Serial No. 719,286. (No model.)

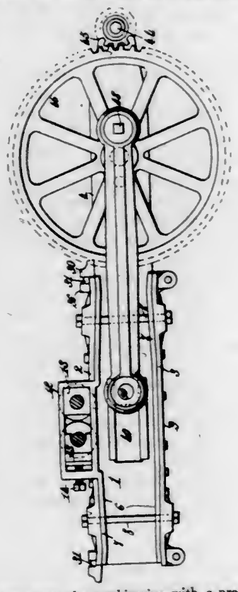
Claim.—1. In a cotton-press, the combination with a press-box and a reciprocating plunger, of mechanism for reciprocating the plunger, means for automatically holding the plunger temporarily stationary at the end of each stroke, and means for expelling the air from and effecting a further compression of the cotton while the plunger is held stationary, substantially as described.

2. In a cotton-press, the combination with a press-box, of a plunger having a yielding face arranged to yield toward the plunger at each outward stroke of the latter, mechanism for reciprocating the plunger, means for holding the plunger stationary at the end of each outward stroke, and means for projecting the yielding face outward while the plunger is held stationary to expel the air from and effect a further compression of the cotton, substantially as described.

3. In a cotton-press, the combination with a press-box, of a reciprocating plunger, means for automatically holding the latter temporarily stationary at the end of each outward stroke, a plate arranged on the forward face of the plunger and movable toward and from the same, and springs interposed between the plate and the face of the plunger, said springs being constructed and arranged to yield toward the plunger at each outward stroke of the latter and expand at the end of each outward stroke and force the plate beyond the limit of movement of the plunger to expel the air from and effect a further compression of the cotton, substantially as described.

4. In a cotton-press, the combination with a press-box, of a reciprocating plunger, a plate arranged on the face of the plunger and movable toward and from the same, springs interposed between the plate and the face of the plunger, means for reciprocating the plunger and means for automatically holding the plunger temporarily stationary at the end of its stroke, substantially as described.

5. In a cotton-press, the combination with a press-box having baling-chambers in its opposite ends and provided with a central feed-opening, of a plunger arranged to reciprocate in the central portion of the press-box between the baling-chambers, two feed-rolls arranged transversely of the press-box above the feed-opening, one of said feed-rolls rotating in close juxtaposition to one edge of the feed-opening and the other feed-roll being arranged in laterally-adjustable bearings, a plate arranged at the opposite edge of the feed-opening, and springs operating to keep said plate in contact with the adjustable roll, substantially as described.



6. In a cotton-press, the combination with a press-box having longitudinal slots in its opposite sides, the inner faces of said sides being recessed about the edges of the slots, of a plunger arranged to reciprocate in the press-box and provided with squared and reduced ends projecting through the slots, pitmen connected to said reduced ends and operating to reciprocate the plunger, and cut-off plates seated and longitudinally movable in the said recesses and rigidly fitted on the squared and reduced ends of the plunger, the ends of said recesses and cut-off plates being oppositely beveled, substantially as described, and for the purpose specified.

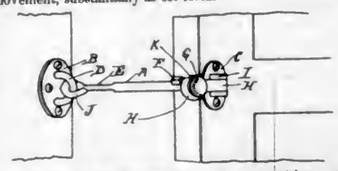
7. In a cotton-press, the combination with the press-box, the plunger therein and the end gate in the end of the press-box, of a yielding face-plate disposed on the inner side of the end gate and having projecting dowel-pins extending therethrough, springs disposed between the face-plate and end gate, a spring-contact finger fixed at one end to the end gate at one end and at its other end normally standing in front of but out of contact with one of said dowel-pins, an electric circuit the terminals of which are respectively attached to said contact-finger and to the end gate, and a battery and signal included in the circuit, the arrangement being such that when the face-plate is forced outward by the bale the circuit will be closed and the signal actuated, substantially as described.

8. In a cotton-press, the combination with the press-box having projecting lugs formed on the end of its top, said lugs having upwardly-extending projections formed on their extremities, of an end gate hinged to the end of the bottom of the press-box and having lugs formed on its upper edge arranged to project between the lugs on the top of the press-box, and a bar adapted to be fitted between the projecting ends of the lugs on the end gate and the projections on the lugs of the top of the press-box to lock the gate in its closed position, substantially as described.

9. In a cotton-press, the combination with the press-box and a plunger arranged to reciprocate therein, of mechanism for reciprocating said plunger, and an automatic controlling device arranged to throw the plunger-actuating mechanism out of operation at the end of each stroke of the plunger and temporarily hold the latter stationary, substantially as described.

662,300. OPEN-DOOR LOCK. HARRY J. PERKINS, Grand Rapids, Mich. Filed May 28, 1900. Serial No. 18,315. (No model.)

Claim.—1. A device of the character described, comprising a sliding, partially-rotatable bolt having a headed free end and a lug relatively arranged with said headed end and a pivoted arm having a slotted aperture to receive said bolt and to permit the lug thereon to pass therethrough and effect with said headed free end of said bolt, the interlocking of said arm and bolt, consequently the retention of the bolt against sliding or endwise movement, substantially as set forth.



2. A device of the character described, comprising a sliding, partially-rotatable bolt having a flattened portion, a headed free end, and a lug relatively arranged with said headed free end, and a pivoted arm having a slotted aperture to receive said bolt and to permit the lug thereon to pass therethrough and effect, with said headed free end of said bolt, the interlocking of said arm and bolt, said flattened portion of the bolt providing for the ready separation of the parts, as required in closing and securing the door in the usual way, substantially as specified.

3. A device of the character described, comprising a staple or keeper fixed to the door-casing, a bolt loosely connected to said staple or keeper and having a flattened portion, a headed free end, and a lug or stop arranged a short distance from said headed free end, and an arm pivoted to the door and having a slotted aperture, adapted to receive said bolt, and provided for the sliding of said bolt and its retention at a certain point therein, substantially as set forth.

4. The combination with a door-casing and door, of a locking-bolt having one end formed with a curved loop, said bolt further provided with a contracted portion near said curved loop, a staple D formed with a curved portion and adapted to receive said loop, and a hinged arm provided with a cylindrical opening terminating in a suitable slot adapted to permit of the entrance of said bolt to said opening.

5. In a device of the character described, the combination of a hinged or pivoted arm applied to the door, a partially-rotatable bolt having a stop and adapted to slide in said hinged arm to permit the engagement therewith of said stop, and a staple fixed to the jamb or casing and connected to said bolt and having an upward-curved loop for engagement with the eye-ended or looped portion of said bolt, substantially as set forth.

6. In a device of the character described, the combination of the partially-rotatable bolt having a cross-sectional flattened portion and a stop and flexibly connected to the jamb or casing, and a pivoted or hinged arm applied to the door and having a slotted opening to receive and permit the sliding thereon of said bolt, substantially as set forth.

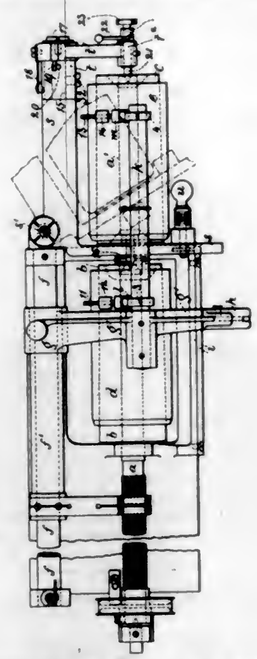
7. In a device of the character described, the combination of a hinged or pivoted arm applied to the door, and a partially-rotatable bolt having a stop at its free end and adapted to slide in said pivoted arm to provide for the engagement therewith of said stop, a second stop or lug on said bolt removed from the free end of the bolt and adapted to prevent the door from shutting when open to the extent of said bolt, and a staple applied to the jamb or casing and having connected thereto said bolt, substantially as set forth.

662,301. MACHINE FOR REPRODUCING PHONOGRAPH-RECORDS. ADEMOR N. PETIT, Newark, N. J. Filed Mar. 16, 1900. Serial No. 8,917. (No model.)

Claim.—1. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft and a sleeve fixed thereon to receive the record-cylinder, a shaft and a sleeve thereon to receive the blank-cylinder, means for supporting the same and for coupling the same to and in line with the shaft of the record-cylinder and by which means the said parts are separated at pleasure, substantially as set forth.

2. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft and a fixed sleeve thereon to receive the record-cylinder, a shaft and a sleeve thereon for receiving the blank-cylinder, a support for the said shaft pivoted to the frame of the machine and adapted to support the shaft and sleeve of the blank-cylinder in alinement with the shaft and sleeve of the record-cylinder, a coupling for connecting the two shafts and a means for locking the said support to the frame of the machine, substantially as set forth.

3. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft and a fixed sleeve thereon to receive the record-cylinder, a shaft and a sleeve thereon to receive the blank-cylinder, a support for the said shaft pivoted to the frame of the machine and adapted to support the shaft and sleeve of the blank-cylinder in alinement with the shaft and sleeve of the record-cylinder, a coupling for connecting the two shafts and a means for locking the said support to the frame of the machine, an arbor and swinging support for the same connected to the support for the blank-cylinder, substantially as set forth.



4. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft, a sleeve fixed thereon and adapted to receive the record-cylinder, a frame pivoted to the main frame and having a portion at right angles to the aforesaid shaft, and a portion parallel with the same, a shaft and a sleeve for the blank-cylinder and bearings for connecting the same to the said frame, the parts being so adjusted that the said shafts are in line, a coupler for mechanically uniting the respective adjacent ends of the said shafts, and a means for connecting the part of the frame at right angles to the shaft to the frame of the machine, an arbor and a swinging support therefor mounted upon the part of the frame parallel with the said shafts, substantially as set forth.

5. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft, a sleeve fixed thereon and adapted to receive the record-cylinder, a frame pivoted to the main frame and having a portion at right angles to the aforesaid shaft and a portion parallel with the same, a shaft and a sleeve for the blank-cylinder and bearings for connecting the same to the said frame, the parts being so adjusted that the said shafts are in line, a coupler for mechanically uniting the respective adjacent ends of the said shafts, and a means for connecting the part of the frame at right angles to the shaft to the frame of the machine, an arbor and a swinging support therefor mounted upon the part of the frame parallel with the said shafts, a spring-pawl and stops for determining the position of the arbor and its swinging support, and a cam-sleeve by which the arbor is moved longitudinally to release the shaft of the blank-cylinder, substantially as set forth.

6. In a machine for reproducing phonograph and similar records, the combination with the shaft *a* and the sleeve *b* for the record-cylinder, of a pivot *s'* upon a bracket of the main frame, a frame pivotally connected to the said bracket at the said pivot and normally occupying a position at right angles to the shaft *a*, the said frame having a tubular portion or hub, a second shaft reduced at one end and passing through the hub or sleeve of the said frame, a coupling device between and connecting the adjacent ends of the said shafts in line, a sleeve around and connected to the second shaft and upon which is mounted the blank-cylinder, substantially as set forth.

7. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of the shaft *a*, the sleeve *b* surrounding the same and adapted to receive the record-cylinder, a frame and a pivot connecting the same with a bracket of the main frame, a part of said frame normally lying at right angles to the shaft *a*, and a means for locking the same to the main frame, the said frame having a sleeve or hub, a shaft reduced in part and at the reduced part passing through the sleeve or hub of the frame, a sleeve for supporting the blank-cylinder and heads *c'* screwing into the respective ends of the said sleeve and having friction-hubs surrounding the enlarged portion of the said shaft, a spring-coupler secured to the end of the reduced part passing through the sleeve or hub of the frame, and adapted when the shafts come together in line to pass over the end of the shaft *a* in coupling the shafts together.

8. In a machine for reproducing phonograph and similar records, the combination with a reproducing device, of a shaft *a*, the sleeve *b* surrounding the same and adapted to receive the record-cylinder, a frame and a pivot connecting the same with a bracket of the main frame, a part of said frame normally lying at right angles to the shaft *a*, and a means for locking the same to the main frame, the said frame having a sleeve or hub, a shaft reduced in part and at the reduced part passing through the sleeve or hub of the frame, a sleeve for supporting the blank-cylinder and heads *c'* screwing into the respective ends of the said sleeve and having friction-heads surrounding the enlarged portion of the said shaft, a spring-coupler secured to the end of the reduced portion of the shaft of the blank-cylinder and adapted when the shafts come together in line to pass over the end of the shaft *a* in coupling the shafts together, and ring-springs 27 within the sleeve of the blank-cylinder and around the friction-hubs of the heads to insure the frictional action between the same and the shaft, substantially as set forth.

9. In a machine for reproducing phonograph and similar records, the combination with shafts in line and sleeves thereon for the record and blank cylinders, of the recording and reproducing styles, arms upon which the said styles are mounted, supports therefor, a connecting-bar extending parallel with the axis of the shafts and between the supports of the styles, connections between the arms of the styles and the said bar, together with weights and springs for actuating the said styles and their arms to exert a pressure to insure the operation of the said styles, substantially as set forth.

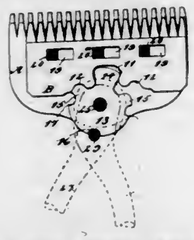
10. In a machine for reproducing phonograph and similar records, the combination with shafts in line and sleeves mounted thereon for the record and blank cylinders, of a bar *k* and a support therefor, heads connected to the said bar and adjustably spaced apart, carrier-arms pivoted to the said heads, recording and reproducing styles and arms supporting the same and pivoted to the said carrier-arms, a connecting-bar and pivots therefor and means substantially as specified for connecting the said bar with the arms of the recording and reproducing styles and for applying a spring action and a weight thereto, substantially as set forth.

11. In a machine for reproducing phonograph and similar records, the combination with shafts in line and sleeves mounted thereon for the record and blank cylinders, of a bar *k* and a support therefor, heads connected to the said bar and adjustably spaced apart, carrier-arms pivoted to the said heads, recording and reproducing styles and arms supporting the same and pivoted to the said carrier-arms, a connecting-bar and pivots therefor, and means substantially as specified for connecting the said bar with the arms of the recording and reproducing styles, and for applying a spring action and a weight thereto, and a guide *r* adjacent to the reproducing-style and adjustably supported by the carrier-arm of the said style, substantially as set forth.

12. In a machine for reproducing phonograph and similar records, the combination with shafts in line and sleeves mounted thereon for the record and blank cylinders, of a bar *k* and a support therefor, heads connected to the said bar and adjustably spaced apart, carrier-arms pivoted to the said heads, recording and reproducing styles and arms supporting the same and pivoted to the said carrier-arms, the connecting-bar 8 pivoted to the said carrier-arms and extending across between the one and the other and to which the arms of the recording and reproducing styles are connected, threaded bars projecting from the carrier-arms and having weights movable thereon, an arm secured to the connecting-bar at about the center thereof, and spring devices acting in connection with the weights for producing a pressure upon the said styles, substantially as set forth.

13. In a machine for reproducing phonograph and similar records, the combination with shafts in line and sleeves mounted thereon for the record and blank cylinders, of a bar *k* and a support therefor, heads connected to the said bar and adjustably spaced apart, carrier-arms pivoted to the said heads, recording and reproducing styles and arms supporting the same and pivoted to the said carrier-arms, the connecting-bar 8 pivoted to the said carrier-arms and extending across between the one and the other and to which the arms of the recording and reproducing styles are connected, threaded bars projecting from the carrier-arms and having weights movable thereon, an arm secured to the connecting-bar at about the center thereof, and spring devices acting in connection with the weights for producing a pressure upon the said styles, a clip 28 around and frictionally engaging the arm *k*, and a spring 29 extending therefrom to the end of the aforesaid arm and springs 31 connected at one end to the carrier-arms, and at the other ends to the ends of the arms carrying the recording and reproducing styles, substantially as set forth.

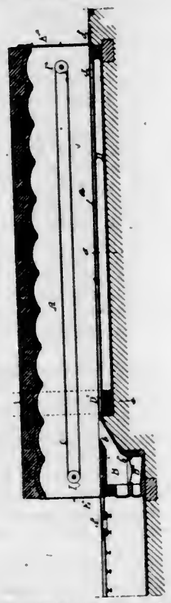
662,302. CLIPPER. ALLAN QUARRIE, Oak Lake, Canada. Filed Aug. 2, 1900. Serial No. 25,665. (No model.)



Claim.—1. In a clipper, a stationary cutter-plate, a reciprocating cutter-plate having a main central recess in its rear edge and smaller recesses at each side of the main recess, a disk having a large tooth adapted to enter the main recess in the movable cutter-plate and smaller teeth adapted to enter the smaller recesses in the movable cutter-plate, the said disk having a peripheral recess at its rear central portion, and a similar recess in each of its side portions, and a handle mounted to turn, said handle being provided with a projection adapted to enter any one of the peripheral recesses in the disk and thus enable said handle to occupy any one of three positions as desired.

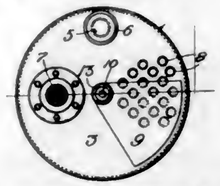
2. In a clipper, a stationary cutter-plate, a reciprocating cutter-plate having a main central recess in its rear edge and smaller recesses at each side of the main recess, a disk having a large tooth adapted to enter the main recess of the movable cutter-plate and smaller teeth adapted to enter the smaller recesses in the movable cutter-plate, the said disk having a peripheral recess at its rear central portion and a similar recess in each of its side portions, a pivot around which the said disk revolves, a handle held in adjustable yet fixed position by the said pivot, and a second handle mounted to turn around the said pivot, which latter handle is provided with a projection adapted to enter any one of the peripheral recesses in the disk and thus enable said handles to occupy any one of three positions, as desired, a straight position, a position at the right, or a position at the left of a central transverse line drawn through the cutter-plates, as set forth.

662,303. CORE-OVEN. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Filed Jan. 8, 1900. Serial No. 722. (No model.)



Claim.—The combination in a core-oven, of a long chamber, a track extending therethrough, doors at each end of the chamber, a furnace directly under the forward end of the chamber, and communicating directly with the chamber between the rails of the track through a flue, a return-flue directly under the center of the chamber, between the rails of the track, and communicating with the rear of the chamber, and with a stack situated near the forward end of the chamber, and a curved partition between the return-flue and the chamber being thin so that the floor of the chamber will be heated by the return products of combustion, substantially as described.

662,304. CARBURETER. GUSTAF L. REENSTIERNA, Winchester Mass. Filed Feb. 28, 1900. Serial No. 6,802. (No model.)



Claim.—1. In combination, the reservoir having an outlet-pipe in connection therewith, a plurality of air-inlet pipes discharging into the lower part of said reservoir, and a single damper coöperating with said air-inlet pipes to open or close a varying number of such inlet-pipes, substantially as described.

2. In an apparatus for producing and holding a mixture of gasolene-vapor and air, the combination of a reservoir, an outlet-pipe from the upper portion thereof having one or more partitions therein formed from wire-netting, a plurality of air-inlet pipes discharging into the lower part of said reservoir and a single damper coöperating with said air-inlet pipes to open or close a varying number of such inlet-pipes, substantially as described.

662,305. COMB. ISING REHNBERG and JULIUS REHNBERG, London, England. Filed Dec. 5, 1899. Serial No. 739,278. (No model.)



Claim.—1. In a metal hair-comb, the combination of a number of wires arranged parallel to each other, each wire returned upon itself at its median line, and longitudinal metal strips inclosing and secured upon the ends of said wires, substantially as described.

2. In a metal hair-comb, the combination of a number of wires arranged parallel to each other, each wire returned upon itself at its median line, and longitudinal metal strips inclosing and secured upon the indented ends of said wires, said metal strips being bent along a longitudinal line, substantially as described.

3. In a metal hair-comb, the combination of a number of wires arranged parallel to each other, each wire returned upon itself at its median line, and longitudinal metal strips inclosing and secured upon the indented ends of said wires, said metal strips being bent along a longitudinal line, and also having depressions between each pair of adjacent wires, substantially as described.

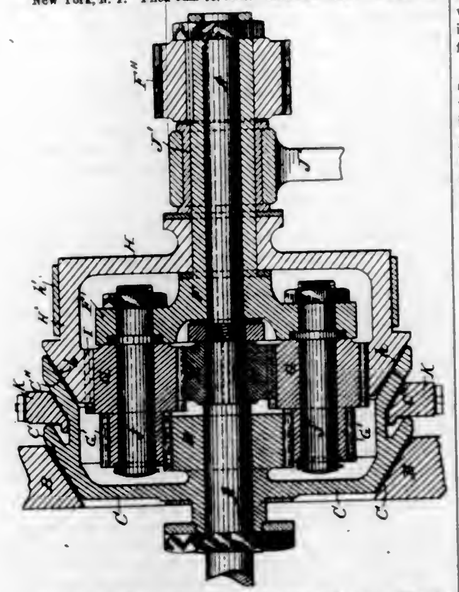
4. In a metal hair-comb, the combination of a number of wires arranged parallel to each other, each wire returned upon itself at its median line, longitudinally-folded metal strips inclosing and secured upon the ends of said wires, and a backing-strip inclosing said longitudinal strips, substantially as described.

5. In a metal hair-comb, the combination of a number of wires arranged parallel to each other, each wire returned upon itself at its median line, and longitudinal metal strips inclosing and secured upon the indented ends of said wires, said metal strips being bent along a longitudinal line, and also having depressions between each pair of adjacent wires, and a backing-strip inclosing said longitudinal strips, substantially as described.

6. A metal hair-comb, comprising a number of wires arranged parallel to each other thus forming comb-teeth, and a metal strip folded longitudinally and inclosing the ends of the wires, said folded strip being bent longitudinally, and the wires being deformed near their ends and lying within the bent portions of the strip, substantially as described.

7. A metal hair-comb, comprising a number of wires arranged parallel to each other thus forming comb-teeth, and a metal strip folded longitudinally and inclosing the ends of the wires, said folded strip being bent longitudinally, the wires being deformed near their ends and lying within the bent portion of the strip, and the strip being provided with indentations between the wires, substantially as described.

662,306. POWER-TRANSMITTING DEVICE. ANDREW L. RIKER, New York, N. Y. Filed Jan. 18, 1900. Serial No. 1,884. (No model.)



Claim.—1. The combination with the main shaft of a unidirection motor and the main gear fast thereon, the disk and reversing-gear that turn freely on said shaft, and the driving sleeve or shaft loosely encircling said shaft, of a transverse plate at the inner end of said sleeve, the intermediate planetary gear journaled on said plate and meshing with said two first-named gears, an annulus turning freely on said sleeve and provided with internal teeth meshing with said planetary gear, means for holding said disk from rotation, means for holding said annulus from rotation, and means for locking said disk and said annulus together, substantially as described.

2. The combination with the main shaft of a unidirection motor and the main gear fast thereto, the disk and reversing-gear that turn freely on the main shaft and are capable of slight longitudinal play thereon inside of said main gear, and the driving-sleeve loosely encircling said shaft beyond said main gear, of a transverse plate at the inner end of said sleeve, the intermediate planetary gear journaled on said plate and meshing with said main gear and said reversing-gear, an annulus turning freely on said sleeve and provided with internal teeth meshing with said planetary gear, means for shifting said disk against said annulus, means for holding said disk from rotation and means for holding said annulus from rotation, substantially as described.

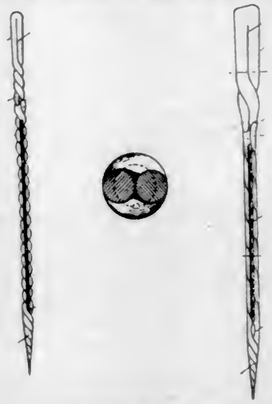
3. The herein-described power-transmitting device, the same consisting of the main shaft and the main gear fast thereon, the driving-shaft, the planetary gear carried upon the inner end thereof and meshing with said main gear, and two other gears each meshing with said planetary gear and arranged to be held stationary separately, and means for locking said two last-named gears together, whereby the driving-shaft is driven either forward at one of two speeds or backward, substantially as described.

4. The combination with the main shaft of a unidirection motor and the main gear fast thereon, the driving-shaft carrying at its inner end a transverse plate, and journaled on said plate a planetary gear (or gears) meshing with said main gear, of a revoluble annulus that meshes with said planetary gear, means to hold it from turning whereby said plate is caused to rotate bodily in order to revolve said driving-shaft at slow speed, a loosely-fitting reversing-gear on said main shaft also meshing with said planetary gear, means for holding it from turning whereby said plate is caused to rotate bodily in a direction opposite to that of the main shaft in order to reverse the driving-shaft, and means for locking said planetary gear to said main shaft in order to revolve said driving-shaft at full speed ahead, substantially as described.

5. In a power-transmitting device, the combination of the main shaft, a main gear fast thereon and a reversing-gear turning freely thereon, a driving-shaft carrying a transverse plate on its inner end, a planetary gear journaled on said plate and in mesh with said main gear, a reduced pinion carried by said planetary gear and in mesh with said reversing-gear, an annulus turning freely on said driving-shaft and carrying an internal gear in mesh with said planetary gear, means for holding said annulus stationary, to rotate the driving-shaft ahead, means for holding said reversing-gear stationary to reverse the driving-shaft, and means for locking said planetary gear to said main gear to rotate said driving-shaft at full speed ahead, substantially as described.

6. The combination of the main shaft, the main gear fast thereon and a reversing-gear turning freely thereon, a driving-shaft having a transverse plate on its inner end, a planetary gear journaled on said plate and in mesh with said main gear, a reduced pinion carried by said planetary gear and in mesh with said reversing-gear, an annulus turning freely on said driving-shaft and carrying internal gear in mesh with said planetary gear, means for holding said annulus stationary to drive the vehicle ahead, and means for holding said reversing-gear stationary to reverse the vehicle, substantially as described.

662,307. SEWING-MACHINE NEEDLE. STEPHEN S. ROSZELL, Lexington, Ky. Filed Dec. 29, 1899. Serial No. 741,981. (No model.)



Claim.—1. A needle composed of two twisted wires having a circular body or stem portion provided with a smooth outer surface, a reduced end to form a point, the opposite unreduced ends constituting the butt, and the needle provided with an eye, substantially as described.

2. A self-threading needle consisting of two twisted wires, one end reduced to form a point and provided with an eye, one of the said wires having a free upper end to form a thread-entrance between the said twisted wires, substantially as described.

3. A needle consisting of a plurality of wires, the wires extending parallel to each other to constitute the head or butt of the needle and twisted to form the main or body portion of the needle, the opposite end of the wires reduced to form a point, and the needle provided with an eye, substantially as described.

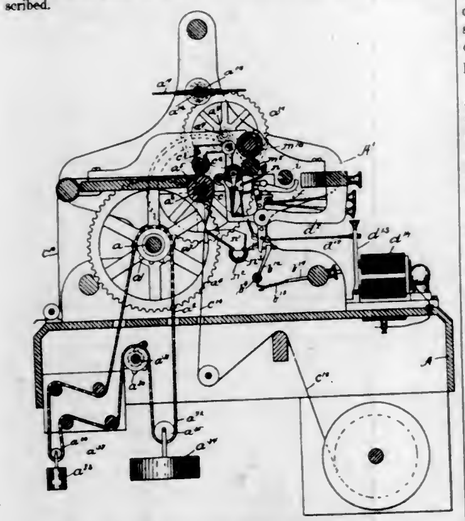
4. A self-threading needle consisting of a plurality of wires twisted together to constitute the stem or body portion of the needle, the opposite ends of the wires tightly twisted together as compared with the twist of the main or body portion and reduced to form a point, having an eye adjacent the point, and one of the wires having a free upper end to form a thread-passage leading between the said twisted wires to the said eye, substantially as described.

5. A self-threading needle consisting of a plurality of wires, the wires having longitudinally-extending portions at one end constituting the head or butt of the needle, twisted together to constitute the stem or body portion of the needle, the opposite ends of the wires tightly twisted together as compared with the twist of the main or body portion and reduced to form a point, the needle having an eye adjacent the point, and one of the wires having a free upper end to form a thread-passage leading between the said twisted wires, substantially as described.

662,308. MESSAGE-RECORDING INSTRUMENT. JOHN J. RUDDICK, Newton, Mass., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed Aug. 7, 1899. Serial No. 726,437. (No model.)

Claim.—1. In a message-recording instrument, an electromagnet, its

armature, a marking-roll, a pivoted frame bearing it elastically connected with and operated by said armature to engage a moving strip of paper, and independent means for moving said frame to move the marking-roll from the paper after a predetermined interval of time, substantially as described.



2. In a message-recording instrument, an electromagnet, its armature, a marking-roll, a pivoted frame bearing it elastically connected with and operated by said armature to engage a moving strip of paper, and independent means for moving said frame to move the marking-roll from the paper after a predetermined interval of time consisting of a finger connected with said frame and a rotating roll having a milled or roughened surface into engagement with which said finger is moved when the marking-roll is moved into engagement with the paper, substantially as described.

3. In a message-recording instrument, an electromagnet, its armature, a marking-roll, a pivoted frame bearing it elastically connected with and operated by said armature to engage a moving strip of paper, and independent means for moving said frame to move the marking-roll from the paper after a predetermined interval of time consisting of a finger elastically connected with the pivoted frame and a rotating roll having a milled or roughened surface into engagement with which said finger is moved when the marking-roll is moved into engagement with the paper, substantially as described.

4. In a message-recording instrument, an electromagnet, its armature, a marking-roll, a pivoted frame bearing it elastically connected with and operated by said armature to engage a moving strip of paper, and independent means for moving said frame to move the marking-roll from the paper after a predetermined interval of time consisting of a curved finger elastically connected with the pivoted frame and a roll driven by the motor mechanism of the recording instrument having a milled or roughened surface into engagement with which said finger is moved when the marking-roll is moved into engagement with the paper, substantially as described.

5. In a message-recording instrument, a marking-roll and an ink-conveying roll, a pivoted frame bearing them, an electromagnet having its armature connected with said pivoted frame, and a positively-driven inking-roll in engagement with which said ink-conveying roll is held when said armature is in its normal position, substantially as described.

6. In a message-recording instrument, a marking-roll and an ink-conveying roll, a pivoted frame bearing them, an arm bearing said pivoted frame detachably secured to the frame of the machine, and an electromagnet having its armature detachably connected with said pivoted frame for operating it, substantially as described.

7. In a message-recording instrument, a marking-roll, a frame bearing it, an arm detachably secured to the frame of the machine to which said marking-roll frame is pivoted, an electromagnet having its armature connected with said pivoted frame, and a spring attached to one end to said pivoted frame and at the other end to an adjusting-screw supported by said detachable arm, substantially as described.

8. In a message-recording instrument, a marking-roll, a frame bearing it, an arm detachably secured to the frame of the machine to which said marking-roll frame is pivoted, an electromagnet, its armature, and a detachable link connecting said armature with said pivoted frame, substantially as described.

9. In a message-recording instrument, a marking-roll, a frame bearing it, an arm detachably secured to the frame of the machine to which said marking-roll frame is pivoted, an electromagnet having its armature connected with said pivoted frame, and independent means for moving said pivoted frame to remove the marking-roll from the paper after a predetermined interval of time, a cooperating part of which is borne by said pivoted frame, substantially as described.

10. In a message-recording instrument, a number of marking-rolls, a corresponding number of independent frames bearing them, independently-detachable arms secured to the frame of the machine to which said marking-roll frames are pivoted, electromagnets with the armatures of which said pivoted frames are connected, and means for conveying a wide strip of paper along near said marking-roll to be engaged by any one of them, substantially as described.

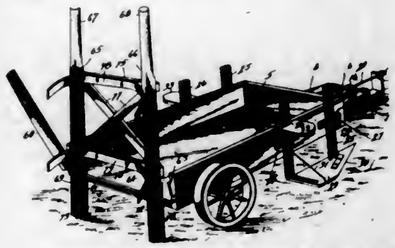
11. In a message-recording instrument, a number of marking-rolls, a corresponding number of independent frames bearing them, independently-detachable arms secured to the frame of the machine to which said marking-roll frames are pivoted, ink-conveying rolls also borne by said pivoted frames which at all times bear upon said marking-rolls, a positively-driven inking-roll which said ink-conveying rolls are adapted to engage, and electromagnets with the armatures of which said pivoted frames are connected, substantially as described.

12. In a message-recording instrument, a paper-moving train, a number of recording or marking devices each having a projection d^5, a rock-shaft, a number of fingers b^{12} corresponding to the number of recording or marking devices borne by said rock-shaft and adapted to be engaged by said projection d^5, a let-off or tripping lever for said paper-moving train secured to said rock-shaft and a number of electromagnets corresponding to the number of recording or marking devices, the armatures of which are connected with and adapted to operate said recording or marking devices to thereby operate said let-off or tripping lever and release said paper-moving train, substantially as described.

13. In a message-recording instrument, a train, a let-off or tripping lever therefor, an electromagnet for operating said lever to release the train, a spring for moving said lever out of position to engage and stop the train, and a worm for returning it into position to stop the train having at one end a groove deeper than the threads of the worm which receives said lever when in position to stop the train, substantially as described.

14. A train, a fan governing the operation of said train, a screw-rod connected with and operated by said train upon which said fan is mounted and along which it is movable in both directions and a stop for the fan at each end of said screw-rod, substantially as described.

662,309. CORN-HARVESTER. ALBERT N. RUSSELL, Cherryvale, Kans. Filed Mar. 16, 1900. Serial No. 8,918. (No model.)



Claim.—1. The combination with a vehicle, of a runner pivotally connected therewith through the medium of a king-bolt, a shoe for the runner and projecting thereabove, and a draft-rod connected with the king-bolt and the projecting portion of the shoe.

2. The combination with a vehicle, of a runner pivotally connected therewith through the medium of a king-bolt, a shoe fixed to the runner and projecting thereabove, said projecting portion having a perforation therein, and a draft-rod passed through said perforation and connected with the king-bolt.

3. The combination with a vehicle, of a runner, a king-bolt passed upwardly through the runner and connected with the vehicle, the head of said bolt lying in a recess in the runner, a shoe upon the runner and projecting thereabove, a perforation in the projecting portion of the shoe, and a draft-rod passed through said perforation and connected with the king-bolt.

4. A vehicle comprising a body portion, a plurality of reaches removably connected with the body, and projecting therebeyond, a bolster connected with the projecting portions of the reaches, a runner connected with the bolster through the medium of a king-bolt, a shoe for the runner and projecting thereabove, a draft-rod connected with the king-bolt, and engaged with the projecting portion of the shoe.

5. A vehicle comprising a body having a plurality of reaches removably connected therewith, rear axles adapted for interchangeable connection intermediate the body and the reaches, a common bolster for the reaches in advance of the body, a runner, a king-bolt pivotally connecting the runner and bolster a shoe for the runner projecting above the forward end of the runner, a draft-rod passed through the projecting end of the runner and cutting-blades removably connected with the vehicle.

6. In a shocker for corn-harvesters, the combination with a body portion having a transverse rod, of a frame having guideways receiving the rod, seats in the guideways to engage the rod and hold the frame from slidable movement, and means for holding the corn upon the frame.

7. In a device of the class described, the combination with a body portion having a transverse rod, of beams having longitudinal slots receiving the rods, and seats for engagement with the rod to hold the frame from slidable movement, said frame being pivotally movable upon the rod to engage the body, and move the seats from engagement with the rod to permit sliding of the frame.

662,310. WOOD-IMPREGNATING COMPOUND AND METHOD OF MAKING SAME. JULIUS RÜTGERS, Berlin, Germany. Filed May 22, 1900. Serial No. 17,590. (No specimens.)

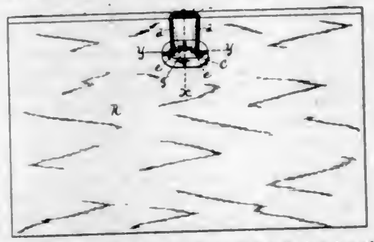
Claim.—1. The process for obtaining a solvent or diluent for tar-oil, which consists in dissolving resin-oil in sulfuric acid at a low temperature, thereby forming a mixture of acid esters with free sulfuric acid, subsequently adding water, thereby forming a lower layer consisting mainly of dilute sulfuric acid and an upper layer consisting mainly of the acid esters, and then separating the two layers, substantially as described.

2. The process for obtaining a solution or emulsion of tar-oil suitable for the impregnation of wood, which consists in dissolving the tar-oil in an alkali salt of resin-sulfuric acid, substantially as described.

3. The process for obtaining a solution or emulsion of tar-oil, suitable for the impregnation of wood, which consists in dissolving resin-oil in sulfuric acid, so as to obtain a mixture of resin sulfuric ester or resin sulfuric acid with free sulfuric acid, adding water to form a lower layer consisting of dilute sulfuric acid and an upper layer containing the resin sulfuric esters, separating the two layers, adding to the upper layer tar-oil, subsequently separating from the esters contained in the upper layer the remainder of free sulfuric acid by adding water, neutralizing the liquid by the addition of alkali, and adding sufficient water to obtain an impregnating liquid of the desired strength, substantially as described.

4. An impregnating liquid composed of tar-oil and an alkali salt of resin-sulfuric acids, substantially as described.

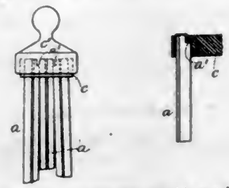
662,311. BOX-FASTENER. MICHAEL C. RYAN, Oswego, N. Y. Filed Jan. 23, 1899. Serial No. 703,031. (No model.)



Claim.—The improved clasp consisting of a catch-plate formed with a hollow protuberance in its center and with a margin in a uniform plane and united with the protuberance around its entire perimeter and provided with a slot in the protuberance, which slot terminates with housing-sockets, and a hasp formed with flexible arms terminating with locking-hooks to enter into the aforesaid sockets and formed with offsets immediately back of said hooks to allow the latter to pass through the slot in the aforesaid protuberance of the catch-plate substantially as described and shown.

662,312. POLE FOR TELEGRAPHS, &c. EDWARD W. SERRELL, New York, N. Y., assignor, by mesne assignments, to the Electric Tripartite Steel Pole Company, of New Jersey. Filed Dec. 21, 1899. Serial No. 741,123. (No model.)

Claim.—1. In a metal pole composed of not less than three similar equidistant metal bars with the upper ends of the metal bars offset, a cap-block having equidistant offset openings to receive the upper ends of the said bars, and to which cap-block the said bars at their ends are riveted, a cover over the ends of the bars and the cap-block and a pedestal having vertical openings receiving the lower spread ends of the said bars and means for connecting the said bars securely to the pedestal, substantially as set forth.

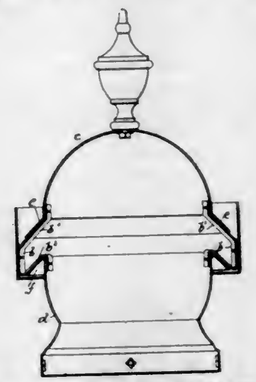


2. In a metal pole, the combination with metal bars, a cap-block to which the same are secured and binding-disks spaced apart upon said bars, of a pedestal composed of a triangular top, a circular base, connecting corner-posts and webs extending between the triangular top and circular base and keys for securing the lower ends of said metal bars to the said pedestal, substantially as set forth.

3. In a pole, the combination with not less than three similar equidistant metal bars offset at their upper ends and notched adjacent to their lower ends, of a cap-block with offset openings receiving the upper ends of the said bars and to which they are riveted, and a pedestal composed of an open triangular top, circular base, corner-posts, and connecting-webs extending from the circular base to the triangular top, bridge-pieces extending from the corner-posts to the connecting-webs and keys passing through the notches in the lower ends of the metal bars and beneath the lower bridge-pieces for locking the metal bars to the pedestal, substantially as set forth.

4. In a pole, the combination with not less than three similar equidistant metal bars offset at their upper ends and notched adjacent to their lower ends, of a cap-block with offset openings receiving the upper offset ends of the bars and to which they are riveted, a pedestal having equidistant vertical openings or cavities receiving the lower ends of the bars and means for locking the bars thereto at the notches, and clamping devices between the pedestal and cap-block and surrounding the bars, substantially as and for the purposes set forth.

662,313. VENTILATOR-CAP FOR STREET-LAMPS. ARTHUR E. SHAW, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, same place. Filed Apr. 21, 1900. Serial No. 13,793. (No model.)



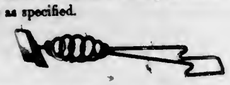
Claim.—A ventilator-cap consisting of a base member, a dome member, supports each consisting of a single piece and forming arms adapted to be secured to said base and dome members, and a band extending above and below the supports and secured to said supports and concealing the same, substantially as described.

662,314. CUFF-HOLDER. EPHRAIM C. SHEDD, Wichita, Kans. Filed May 4, 1900. Serial No. 15,499. (No model.)

Claim.—1. A cuff-holder, consisting of a strip of metal bent to form a body portion having divergent members terminating in hooks, and a spirally-coiled portion to which a clip is attached, substantially as specified.

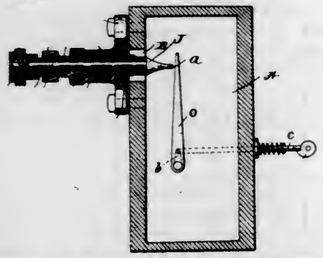
2. A cuff-holder, comprising a body portion having divergent members terminating in hook portions for engaging a cuff, one of said mem-

bers being turned spirally, the coils of the spiral gradually decreasing in diameter from the center outward, and a clip secured to the end of the spiral, substantially as specified.



3. A cuff-holder, comprising a body portion of wire, a part of said body portion being rigid as to lengthwise movement and the other part of said body portion having a coil gradually increasing in diameter from its ends toward its center and adapted to turn axially and to flex laterally, substantially as specified.

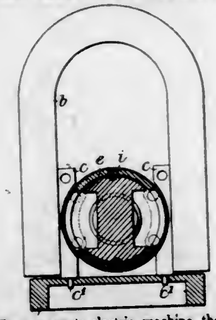
662,315. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. ALFRED J. SIGNOR, Elkhart, Ind. Filed Feb. 1, 1899. Serial No. 704,142. (No model.)



Claim.—1. In an igniter the combination of an endwise movable and rotatable electrode having at its inner end an outwardly-extending eccentric contact-point, of a movable electrode having a pivotal connection extending at an angle across the axes of the rotatable electrode thereby movable in a direction from and toward the eccentric contact-point, the movable electrode extending across the contact-point of the rotatable electrode, whereby when the rotatable electrode is moved against the movable electrode and rotated the engaging surfaces of the electrodes are scraped, substantially as described.

2. In an igniter, the combination with an electrode comprising a plate having an outwardly-projecting internally-screw-threaded bushing, an externally-screw-threaded tube passing therethrough, and an electrode-stem passing through the tube and having at its outer end an operating-nut and on its inner end an enlarged contact-head, said head having an eccentric contact-point extending outward from the outer face thereof, of a swinging electrode, the pivot of said swinging electrode extending at an angle across the stem of the other electrode and adapted to be carried against the eccentric point thereof, substantially as described.

662,316. MAGNETO-ELECTRIC MACHINE. FREDERICK R. SIMMS, London, England, and ROBERT BOSCH, Stuttgart, Germany. Filed July 5, 1900. Serial No. 22,600. (No model.)



Claim.—1. In a magneto-electric machine, the combination with the field-magnets, of a stationary armature and a continuously-rotating segmental envelop interposed between said stationary armature and the magnets, substantially as described.

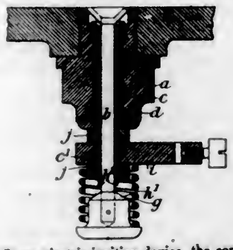
2. In a magneto-electric machine, the combination with the field-magnets, of the parallel plates, a stationary armature secured to one of said plates, and a continuously-rotating armature supported by the opposite plate and interposed between the armature and the magnets, substantially as described.

3. In a magneto-electric machine, the combination with the field-magnets, of the parallel plates secured thereto, a stationary armature secured to one of said plates, a bearing secured to the other plate, and a continuously-rotating envelop having portions interposed between the armature and the magnets and a shaft for said envelop mounted in said bearing, substantially as described.

4. In a magneto-electric machine, the combination with the field-magnets, of a stationary armature disposed longitudinally of said magnets, a continuously-rotating envelop provided with a shaft extending in a direction longitudinally of said magnets, said envelop having portions interposed between the armature and the magnets, substantially as described.

5. In a magneto-electric machine, the combination with the field-magnets, of a plate disposed transversely thereof and provided with a bearing, a second plate arranged between the magnets parallel to said bearing-plate, a stationary armature secured to said second plate, a continuously-rotating envelop interposed between said armature and said magnets, and a shaft for said envelop mounted in said bearing, substantially as described.

662,317. ELECTRIC-IGNITION PLUG FOR INTERNAL-COMBUSTION ENGINES. FREDERICK R. SIMMS, London, England. Filed Aug. 30, 1900. Serial No. 28,595. (No model.)



Claim.—1. In an electric-ignition device, the combination with an electrode provided with a conical seat, of a second electrode having a conical portion adapted to make electrical contact with said conical seat, substantially as described.

2. In an electric-ignition device, the combination with an electrode having a conical seat, of a movable electrode, provided with a conical portion adapted to make electrical contact with said conical seat, and a spring normally holding said electrodes in electrical contact, substantially as described.

3. In an electric-ignition device, the combination with a plug provided with a conical seat forming an electrode, of a movable stem mounted in but insulated from said plug and provided with a conical electrode adapted to make contact with said conical seat, and a spring connected with said stem for holding said electrodes in electrical contact, substantially as described.

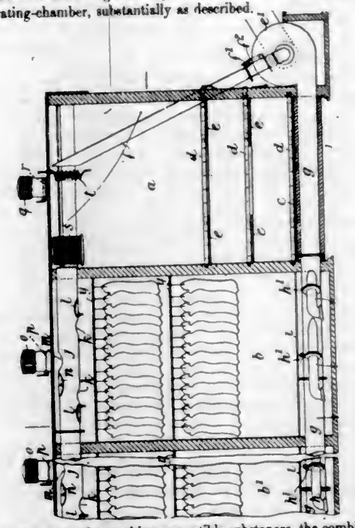
4. In an electric-ignition device, the combination with a plug having a part provided with a conical seat forming an electrode, of a sleeve mounted in said plug but insulated therefrom, and provided at its outer end with a valve-seat, a stem mounted in said sleeve and provided with a conical portion forming an electrode adapted to make contact with said conical seat, a spring normally holding said electrodes in contact, and a part on said stem adapted to engage the valve-seat on said sleeve to prevent leakage of the explosive mixture when the electrodes are separated, substantially as described.

5. In an electric-ignition device, the combination with a plug having a part provided with a conical seat forming an electrode, of a sleeve mounted in said plug but insulated therefrom, and provided at its outer end with a conical valve-seat, a stem mounted in said sleeve and extending outside of said plug provided with a conical electrode adapted to engage said conical seat of the plug, a boss on said stem provided with a conical part to engage the valve-seat of said sleeve to prevent escape of gas, and a spring interposed between said boss and the plug, substantially as described.

662,318. SMOKE-HOUSE. CHARLES H. SIMPSON, Southampton, and JOSEPH SENIOR, Wakefield, England. Filed May 11, 1900. Serial No. 16,277. (No model.)

Claim.—1. In apparatus for smoking comestible substances, the combination with the generating-chamber, of a smoking-chamber separated therefrom, a fan, connections between the fan and the generating-chamber, connections between the fan and the smoking-chamber connections between the smoking-chamber and the generating-chamber, a smoke-drying apparatus in the path of the smoke returning from the smoke-chamber to the generating-chamber, and a reheating device for reheating the smoke before it passes to the fan, substantially as described.

2. In apparatus for smoking comestible substances, the combination with the generating-chamber, of a smoking-chamber separated therefrom, a fan, connections between the fan and the generating-chamber, connections between the fan and the smoking-chamber, connections between the smoking-chamber and the generating-chamber, and a reheating device in the generating-chamber, substantially as described.



3. In apparatus for smoking comestible substances, the combination with a generating-chamber, of a separate smoking-chamber, a fan, connections between the fan and the generating-chamber, connections between the fan and the smoking-chamber, an outlet for said smoking-chamber, a valve controlling said outlet, an air-inlet for said fan, means for closing the connections between the fan and said generating-chamber, whereby by closing said connections and opening the air-inlet for the fan and the outlet for said smoking-chamber, the smoke can be blown out of the smoking-chamber, substantially as described.

4. In apparatus for smoking comestible substances, the combination with a generating-chamber provided with an outlet communicating with the open air, and a closure for said outlet, of a separate smoking-chamber, an outlet for the smoking-chamber, a closure therefor, a fan, connections from said fan to the generating-chamber and smoking-chamber and a communication between said chambers, whereby by opening the said closures more or less, air will be admitted into the generating-chamber and part of the smoke in the smoking-chamber will be expelled through the outlet therefor, substantially as described.

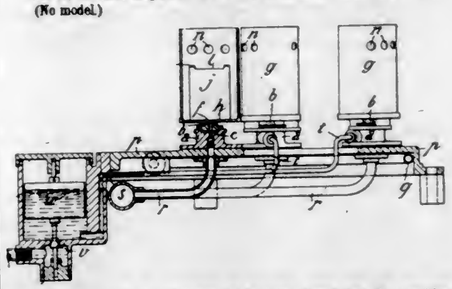
5. In apparatus for smoking comestible substances, the combination with the generating-chamber provided with an outlet communicating with the open air, and a valve controlling said outlet, of a separate smoking-chamber, an outlet therefor, a valve controlling said outlet, a fan, connections between said fan and the generating-chamber, connections between the fan and the smoking-chamber, and connections between said smoking and generating chambers whereby by opening the said valves, more or less, air will be admitted into the generating-chamber, and part of the smoke will be expelled from the smoking-chamber, substantially as described.

6. In apparatus for smoking comestible substances, the combination with a generating-chamber provided with an outlet communicating with the open air, and a valve controlling said outlet, of a separate smoking-chamber provided with an outlet, a valve closing said outlet, a return-pipe connecting the smoking-chamber with the generating-chamber, provided with inlet-openings, and an outlet-opening adjacent to the outlet for the smoking-chamber, valves controlling said inlet and outlet openings of said return-pipe, a fan, connections between said generating chamber and said fan, and connections between said fan and said smoking-chamber, substantially as described.

7. In apparatus for smoking comestible substances, the combination with the generating-chamber, of a plurality of separate smoking-chambers, a fan, connections from said fan to the generating-chamber, connections between said fan and each of said smoking-chambers, means for cutting off said smoking-chambers, from the fan, return connections from the smoking-chambers to the generating-chamber and means for cutting off said return connections, an air-inlet for said fan, a valve controlling said inlet valves for cutting off the connections between the fan and the generating-chamber, to blow the smoke out of one or all of said smoking-chambers, substantially as described.

8. In apparatus for smoking comestible substances, the combination with a generating-chamber provided with an outlet, and a valve controlling said outlet, of a separate smoking-chamber, an outlet for said smoking-chamber, a valve controlling said outlet, a return connection between said smoking and generating chambers, a valve controlling said return connection, a drying device in said generating-chamber adjacent to the outlet therein, of said return connection, a reheating device in said generating-chamber, a fan, connections from said fan to said generating-chamber, cut-off valves for closing said connections, connections from said fan to said drying-chamber, an air-inlet for said fan, and a valve controlling said air-inlet, substantially as described.

662,319. APPARATUS FOR BURNING LIQUID FUEL. JOHN SMITH, London, England. Filed May 22, 1899. Serial No. 717,751. (No model.)



Claim.—1. In an apparatus for burning liquid fuel, the combination of a central tube or passage for compressed air, a shallow annular chamber surrounding the outlet thereof and having an inlet for the liquid fuel, another tube or passage extending from said annular chamber, in line with said air-passage, and a vaporizer and spreader open at its ends and having converging sides joined at the top by bridge-pieces, and a narrow elongated opening between said bridge-pieces, substantially as, and for the purposes, described.

2. In an apparatus for burning liquid fuel, the combination of a perforated casing, a combined vaporizer and spreader therein, having converging sides joined at the top by bridge-pieces one at each end of a narrow elongated opening, said vaporizer and spreader being so arranged and proportioned relatively to said casing as to leave a space between each of its open ends and said casing, and means to introduce a spray of liquid fuel into said vaporizer and spreader, substantially as, and for the purposes, described.

3. In an apparatus for burning liquid fuel, the combination of a base made in two parts, one of which is formed with an air-jet and with an annular channel around the same having an inlet for the liquid fuel, and the other with a spray jet or nozzle of larger diameter than said air-jet and forming an extension thereof, a capillary space being left between the two parts of said base to permit the flow of a film of the liquid fuel from said annular channel to said air-jet, and a vaporizer and spreader open at its ends and having converging sides joined at the top by bridge-pieces, and a narrow elongated opening between said bridge-pieces, substantially as, and for the purposes, described.

4. In an apparatus for burning liquid fuel, the combination of a compressed-air jet, an annular chamber around the same having an inlet for the liquid fuel, a spray jet or nozzle forming an extension of said air-jet, and a combined vaporizer and spreader having sides converging as they recede from said nozzle and connected at the top by bridge-pieces so as to leave a narrow elongated opening for the passage of the inflammable vapor, and a flame chamber or casing surrounding said vaporizer and spreader and provided with air-inlets, substantially as, and for the purposes, described.

5. In an apparatus for burning liquid fuel, the combination with a plurality of burners having compressed-air inlets of a common air-supply pipe having ports communicating with said inlets respectively and a regulator actuated by the compressed air whereby a greater or less number of said ports are opened or uncovered according to the pressure of the supplied air, substantially as, and for the purposes, hereinbefore described.

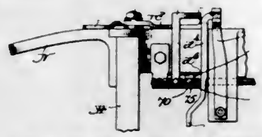
6. In an apparatus for burning liquid fuel, the combination, with a plurality of burners having compressed-air inlets of a common air-supply pipe having ports communicating with said inlets respectively, a regulator actuated by the compressed air whereby a greater or less number of said ports are opened or uncovered according to the pressure of the supplied air, and a controlling device actuated by variations of steam-pressure whereby the admission of air to said regulator is controlled, substantially as, and for the purposes, hereinbefore described.

7. In an apparatus for burning liquid fuel, the combination, with a

plurality of burners having compressed-air inlets, of pipes connected with said air-inlets, a common air-supply pipe having ports connected respectively with the pipes from the several burners, and a regulator for controlling the number of said burners supplied with compressed air from the said common supply-pipe, which regulator comprises a spring-controlled piston-valve in said pipe movable over said ports by the air-pressure, substantially as, and for the purposes, hereinbefore described.

8. In an apparatus for burning liquid fuel, the combination, with a plurality of burners having compressed-air inlets, of a common air-supply pipe having ports communicating with said inlets respectively a regulator in said pipe comprising a spring-controlled piston-valve movable over said ports by the compressed air, and an adjustable stop for limiting the travel of said piston, substantially as, and for the purposes, hereinbefore described.

662,320. LOOM. EDWARD S. STIMPSON, Hopedale, and WALLACE I. STIMPSON, Milford, Mass., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed July 5, 1900. Serial No. 22,514. (No model.)



Claim.—1. In a loom provided with filling-supplying mechanism and stopping mechanism, means to effect the operation of the former upon exhaustion of the filling to a predetermined extent and to stop the loom upon filling failure, and means to prevent operation of the stopping mechanism and effect actuation of the filling-supplying mechanism upon failure of filling.

2. In a loom provided with filling-supplying mechanism and stopping mechanism, means to always effect the operation of the former upon exhaustion of the filling to a predetermined extent, and means to effect the operation of either the filling-supplying or the stopping mechanism upon failure of the filling.

3. In a loom provided with filling-supplying mechanism and stopping-mechanism, means to always effect the operation of the former upon exhaustion of the filling to a predetermined extent, controlling means for the stopping mechanism, to actuate the same upon filling failure, means operated by or through filling failure to effect the actuation of the filling-supplying mechanism, and manually-operated devices to determine whether the stopping mechanism or the filling-supplying mechanism shall be operated upon failure of the filling.

4. In a loom, filling-supplying mechanism, two sets of controlling means therefor, governed respectively by exhaustion of the filling to a predetermined extent and by failure of the filling, stopping mechanism for the loom, controlling means therefor operative upon failure of filling, a common actuating device for the several controlling means, and means to render the stopping-controlling means operative and the filling-failure-actuated controlling means of the filling-supplying mechanism inoperative, and vice versa, whereby in one case the loom will be stopped, and in the other case the filling will be changed without stoppage, upon failure of the filling.

5. In a loom provided with filling-supplying mechanism and stopping mechanism, means, including a rock-shaft, to effect the operation of the former upon exhaustion of the filling to a predetermined extent, means to control the operation of the stopping mechanism, actuated by or through filling failure, means, including an arm loosely mounted on the said rock-shaft, to rock the arm upon filling failure, a locking device to lock the arm and shaft together to effect actuation of the filling-supplying mechanism, and a device to render ineffective temporarily the controlling means for the stopping mechanism when the said arm and rock-shaft are locked together.

6. In a loom provided with filling-supplying mechanism and stopping mechanism, means to effect the operation of the former upon exhaustion of the filling to a predetermined extent, independent means to effect the operation of either the filling-supplying mechanism or the stopping mechanism upon failure of the filling, a selecting device to determine which of said mechanisms shall be operated, and a common actuator for said independent means.

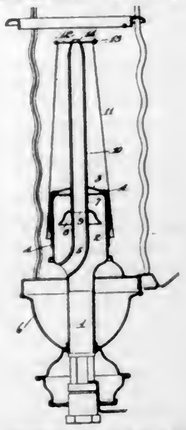
7. In a loom, filling-supplying mechanism, means to control the time of its operation, a vibrating actuator for said means, the latter including a feeler to feel the filling in the shuttle, and a latch moved into inoperative position by the feeler until the filling has been exhausted to a predetermined extent, the actuator engaging the latch when it is in operative position, combined with stopping mechanism for the loom, means operated upon failure of the filling to effect the actuation of the stopping mechanism, a device to render the operation of said means temporarily ineffective, and connections between said means and the filling-supplying mechanism, to effect the actuation of the latter when said means is temporarily rendered ineffective to operate the stopping means.

8. In a loom provided with filling-supplying mechanism and stopping mechanism, a filling-detector to detect failure of the filling, means operative upon detention of filling failure to effect the operation of either of said mechanisms, a manually-adjustable device to select the mechanism to be operated, a feeler to feel the filling in the shuttle, and means controlled by the feeler to effect the operation of the filling-supplying mechanism prior to complete exhaustion of the filling in the shuttle.

9. In a loom provided with filling-supplying mechanism and stopping mechanism, a controlling rock-shaft for the former, a fixed arm and a loose arm on the rock-shaft, a device to lock the loose arm on the shaft, means operative upon exhaustion of the filling to a predetermined extent to move the fixed arm and rock the said shaft, a slide movable upon failure of the filling, to engage and rock the other arm, a dog on the slide, adapted to at times effect the actuation of the stopping means, and a device to maintain said dog temporarily inoperative when the loose arm is locked to the rock-shaft, the movement of the slide thereupon acting to rock the shaft and effect the operation of the filling-supplying mechanism.

10. In a loom provided with filling-supplying mechanism, a slide, a stand in which it is reciprocated, an actuator to move the slide upon failure of the filling, connections including a lock-coupling, between the slide and filling-supplying mechanism, to effect operation thereof when the slide is moved, a dog on the slide, a shipper-handle adapted to be operated by the dog when the slide is moved, and means to render the dog temporarily ineffective to operate the shipper-handle when the coupling in said connections is locked.

662,321. INCANDESCENT GAS-BURNER. AARON P. STORER, Owego, N. Y. Filed Oct. 20, 1899. Serial No. 734,184. (No model.)



Claim.—1. The combination with a heating-burner and an incandescent mantle or hood heated therefrom, of an imperforate tubular support for sustaining said mantle or hood, said support being open at its top and bottom and communicating at its bottom with the outside air, substantially as set forth.

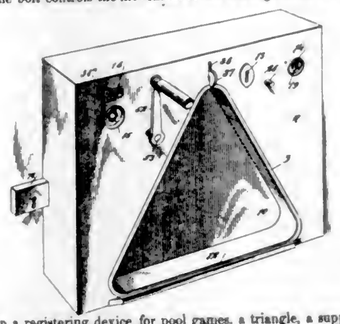
2. The combination of a Bunsen burner, a chamber above the same, a tube mounted in said chamber and communicating with the outer air, an imperforate tubular support carried by said tube and open at its top and bottom, and a mantle or hood sustained by said support, substantially as set forth.

3. The combination of a Bunsen burner, a chamber above the same, a wire-gauze section at the top of said chamber, a tube mounted in said chamber and extending through the wire-gauze, said tube being open at its bottom, a tubular support carried by said tube, and a hood or mantle carried by said support, substantially as set forth.

4. The combination of a Bunsen burner, a chamber above the same, a wire-gauze section at the top of said chamber, a tube mounted in said chamber and extending through the wire-gauze, said tube being open at its bottom, a tubular support carried by said tube, a hood or mantle carried by said support, and a spreader within the chamber on said tube, substantially as set forth.

662,322. REGISTERING DEVICE FOR POOL GAMES. WILLIAM TABER, Poughkeepsie, N. Y. Filed Apr. 26, 1900. Serial No. 14,457. (No model.)

Claim.—1. In a registering device for pool games, a triangle, a support provided with a pocket adapted to receive the triangle, a locking device for the triangle, a bolt, a mechanism for operating the bolt, and means whereby the bolt controls the movement of the locking device for the triangle.



2. In a registering device for pool games, a triangle, a support for the triangle, a locking device for the support, a releasing mechanism for the locking device, and an indicator operated by the releasing mechanism for the locking device, as set forth.

3. In a registering device for pool games, a triangle, a support for the triangle, a locking device, for the triangle, a bolt mechanism controlling the locking device, a lock controlling the bolt mechanism, and registering devices operated from said bolt simultaneously with the release of the locking mechanism, as described.

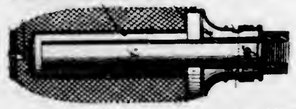
4. In a registering device for pool games, a triangle, a support for the triangle, a locking device for the triangle, a releasing mechanism for the locking device, and registering-dials adapted to be simultaneously turned and operated from the releasing mechanism, as and for the purpose specified.

5. In a registering device for pool games, a triangle, a support for the triangle, a locking device for the triangle, a releasing mechanism for the locking device, registering-dials adapted to be simultaneously turned and operated from the releasing mechanism, a punch, a tape adapted to be operated upon by said punch, guides for the said tape, and means for operating one of the registering-dials simultaneously with the operation of the punch, as described.

6. In a registering device for pool games, a support having an opening therein, a spring-controlled indicating-disk provided with numerals arranged to appear consecutively at the said opening in the said support, a stop limiting the movement of the indicating-disk in one direction, a triangle, a locking device for the triangle, and mechanism for simultaneously releasing the locking device for the triangle and permitting the indicating-disk to freely turn, as described.

7. In a registering device for pool games, a triangle, a support provided with a pocket adapted to receive the triangle, a mainspring entering the pocket and adapted to force the triangle therefrom when the triangle is free, a tension-controlled locking-arm for the triangle, a spring-support for the locking-arm, adapted to support the same in an upper position when the triangle is free from its pocket, and a bolt mechanism arranged to lock the locking-arm and to release the same, for the purpose specified.

662,323. INCANDESCENT GAS-BURNER. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed Apr. 23, 1900. Serial No. 13,961. (No model.)



Claim.—1. In an incandescent gas-burner, the combination with the central gas-tube, of a casing supported on the lower end of said tube and closed at its upper end by an air and gas mixing chamber, air-inlets in said casing, air-passages in the bottom of the said chamber for admitting air thereto from the casing, a hood surrounding the upper end of the gas-tube and communicating at its lower end with the air and gas mixing chamber, a mantle suspended over the said chamber and inclosing the hood, and means for feeding mixed air and gas from the mixing-chamber to the interior of the mantle, substantially as described.

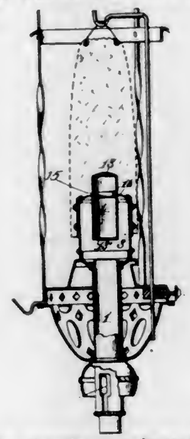
2. In an incandescent gas-burner, the combination with the central gas-tube, of a casing supported on the lower end of said tube and closed at its upper end by an air and gas mixing chamber, air-inlets in said casing, air-passages in the bottom of said chamber for admitting air thereto from the casing, a hood surrounding the upper end of the gas-tube and communicating at its lower end with the air and gas mixing chamber, a mantle suspended over the mixing-chamber and inclosing the hood, and an annular series of perforations formed in the top of the mixing-chamber near the outer edge of the latter, substantially as described.

3. In an incandescent gas-burner, the combination with the central gas-tube, of a casing supported on the lower end of said tube and closed at its upper end by an air and gas mixing chamber, air-inlets in said casing, an annular band movably arranged on said casing over the air-inlets, air-passages in the bottom of the mixing-chamber for admitting air thereto from the casing, an annular series of perforations in the top of the mixing-chamber near the outer edge of the latter, a tubular hood surrounding the upper end of the central gas-tube, said hood being closed at its upper end and communicating at its lower end with the mixing-chamber, and a mantle suspended over said mixing-chamber and surrounding the hood, substantially as described.

4. In an incandescent gas-burner, the combination with the central gas-tube, of a casing fitted on the lower end of the tube and provided near its upper end with a perforated diaphragm dividing said casing into a lower air-chamber and an upper air and gas mixing chamber, the air-chamber being provided with air-inlet openings, an upwardly-projecting hood fitted in the upper end of the air and gas mixing chamber and surrounding the upper end of the gas-tube, a mantle suspended about the air and gas mixing chamber and inclosing the hood, and means for feeding mixed air and gas from the mixing-chamber to the interior of the mantle, substantially as described.

5. In an incandescent gas-burner the combination with the central gas-tube, of a casing fitted on the lower end of the tube and flared outwardly at its upper portion and terminating at its upper end in a cylindrical portion, a perforated diaphragm arranged in said cylindrical portion and on the upper end of the flaring portion, said diaphragm dividing the casing into a lower air-chamber and an upper air and gas mixing chamber, the air-chamber being provided with air-inlet openings, an upwardly-projecting hood fitted in the upper end of the air and gas mixing chamber and surrounding the upper end of the gas-tube, a mantle suspended about the air and gas mixing chamber and inclosing the hood, and means for feeding mixed air and gas from the mixing-chamber to the interior of the mantle, substantially as described.

662,324. INCANDESCENT GAS-BURNER. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed June 18, 1900. Serial No. 20,762. (No model.)

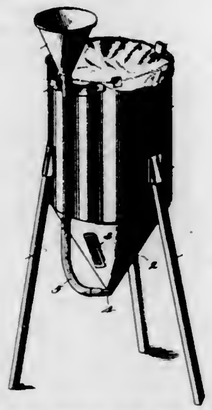


Claim.—1. In an incandescent gas-burner, the combination with a Bunsen tube adapted to connect with a gas-supply pipe, of a mixing-chamber, connected to said tube and adapted to receive the air and gas therefrom, a mantle having the lower portion thereof surrounding said mixing-chamber, a cylindrical heat-radiator made in one piece and extending upwardly into said mantle and downwardly into said mixing-chamber and provided with a peripheral groove a short distance from its upper end, and a foraminous diaphragm connected to the top of said mixing-chamber and connected within the groove in said radiator for suspending the latter in the mixing-chamber, the cylindrical portion of said radiator extending above said diaphragm, substantially as described.

2. In an incandescent gas-burner, the combination with a Bunsen tube adapted to connect with a gas-supply pipe, of a mixing-chamber for the air and gas received through said tube, a mantle, the lower portion of which surrounds said mixing-chamber, a heat-radiator consisting of a solid cylindrical body having a pointed lower end, said radiator having an annular groove a short distance from its upper end and arranged to lie partly

in and partly above the top of said chamber, and a foraminous diaphragm over the annular space between the radiator and the top of the mixing-chamber and engaging the annular groove in said radiator, the cylindrical part of said radiator projecting above said diaphragm, substantially as described.

662,325. CREAM-SEPARATOR. CHARLEY B. TITUS and PETER BATTEY, Little River, Kans. Filed May 16, 1900. Serial No. 16,914. (No model.)



Claim.—1. A cream-separator, comprising a can or receptacle, a common inlet and outlet at the bottom of the can and in direct communication with the interior thereof, a tube having a flexible connection with the outer end of the common inlet and outlet, the upper open end of said tube being normally disposed in a vertical position, extended to or above the top of the can, and also movable to points below the bottom of the can, and means for detachably connecting the free end of the tube to the can and holding said tube in an upright position.

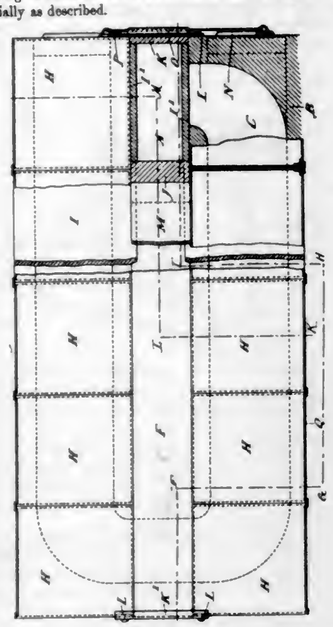
2. A cream-separator comprising a can or receptacle, a common inlet and outlet tube having a flexible connection with the can and in direct communication with the bottom of the interior thereof, the upper open end of said tube being normally extended to or above the top of the can, and a bracket carried by the can and for holding the free end of the tube in an upright elevated position, said bracket comprising a substantially horizontal bowed metal strap having its opposite ends secured to the upper portion of the exterior of the can, and its intermediate portion bent into a substantially U-shaped spring-socket for the detachable reception of the upper end portion of the tube, whereby the latter is held in an upright position.

3. A cream-separator, comprising a can or receptacle, having an inverted conical bottom, a substantially L-shaped nipple provided in the apex of the conical bottom and in direct communication with the interior of the can, a flexible tube having one end connected to the outer end of the nipple, a funnel connected to the free end of the flexible tube and carried thereby, a spring clamp or bracket provided upon the exterior of the upper portion of the can, the stem of the funnel being normally and detachably held in an upright position within the bracket or clamp, for the reception of a cooling agent, and leg-standards supporting the can and elevating the bottom thereof.

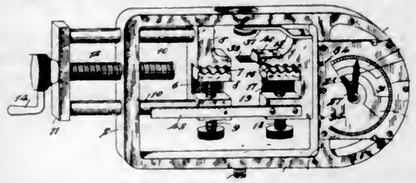
662,326. COOKING-STOVE. ALFRED S. TOMKINS, Caterham, England, assignor to the Military Equipment Stores and Tortoise Tents Company, Limited, London, England. Filed Oct. 7, 1899. Serial No. 732,950. (No model.)

Claim.—1. A cooking-stove consisting of two ranges of metal ovens mounted on each side of a furnace upon horizontal flues communicating at one end with the furnace and at the other end with a middle flue formed by an inclined plate introduced between the two rows of ovens and extending from the far ends of the flues to the chimney at the front part of the stove, the two sets of ovens being connected together at the ends by plates with slotted holes fitting on studs on the end surfaces of the oven, substantially as described.

2. In a cooking-stove, the combination of two ranges of metal ovens, a furnace between said ranges, flues extending from said furnace underneath each range of ovens and communicating at the rear end with a flue formed by introducing an inclined plate between the two ranges of ovens and extending from the said rear end to the chimney at the front part of the stove, a boiler forming the back of the furnace, and plates with slotted holes fitting on studs on the ends of the ovens for tying them together, substantially as described.



662,327. FABRIC-STRENGTH-TESTING DEVICE. WILLIAM M. VERMILYE, New York, N. Y. Filed Feb. 15, 1900. Serial No. 5,322. (No model.)



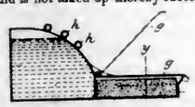
Claim.—1. A fabric-strength-testing device, comprising a frame, jaw-carrying devices movable in said frame, guides extended from one of said jaw-carrying devices and extending through an opening in a member of the frame, a screw for moving said jaw-carrying device, a spring connecting the other jaw-carrying device with the frame, a guide extended from said other jaw-carrying device and having a rack, a pinion engaging with said rack, a pointer loosely mounted on the shaft of the said pinion, an arm rigidly connected to said shaft and adapted to move the pointer, and a dial over which the pointer is movable, substantially as specified.

2. A fabric-strength-testing device, comprising a frame, jaw-carrying devices movable in said frame, a screw for moving one of said jaw-carrying devices, an indicating-finger operated from the other of said jaw-carrying devices, and a magnifying-glass carried by the last-named jaw-carrying device, substantially as specified.

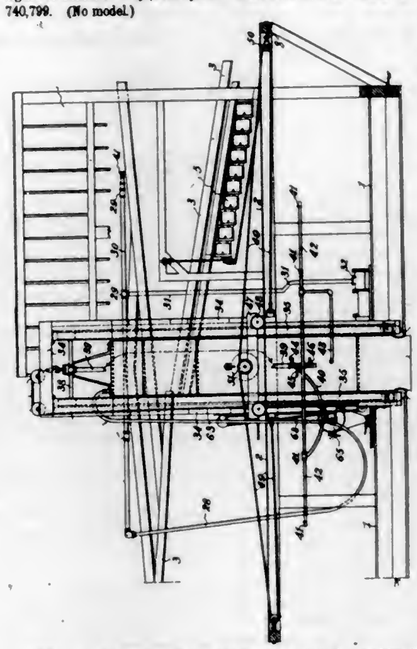
3. In a textile-strength-testing device, a frame, jaw-carrying devices movable in said frame, an indicating-pointer operated by one of said jaw-carrying devices, a magnifying-glass carried by said jaw-carrying device, and a plate having swinging connection with said jaw-carrying device and provided with a rectangular opening in line with the magnifying-glass, substantially as specified.

662,328. DAMPING-PAD OR THE LIKE. EMILY WEAVER and EDWARD L. BADDELEY, Southport, England. Filed May 22, 1899. Serial No. 717,822. (No model.)

Claim.—In a damping device, the combination with a closed receptacle *a* of a tray *b* communicating therewith by apertures *d d* through one of which the reservoir may be filled with liquid while the other acts to allow the escape of air; an absorbent material in said tray having perpendicular sides, the front and side walls *e* of said tray rising perpendicularly for a distance and then diverging outwardly in a plane angular to said perpendicular portion to prevent contact with the absorbent material so that an excess of liquid is not taken up thereby substantially as described.



662,329. DREDGER. SAMUEL A. WEYL, San Francisco, Cal., assignor to Bertin A. Weyl, same place. Filed Dec. 18, 1899. Serial No. 740,799. (No model.)



Claim.—1. In a dredger of the character specified, the combination with a barge having an opening to receive a caisson; of a caisson open at the lower end and having a top closed by a door; two hydraulic rams located on opposite sides of the caisson; suitable machinery for forcing water into the said rams to lower the caisson; and a forced-air system to fill the said caisson with air to force the water therefrom; substantially as described.

2. In a device of the nature indicated, a supporting structure, a caisson movable thereon, a ram having sliding movement in a tube, said ram and tube extending in the direction of the before-mentioned movement of the caisson and being attached one to the supporting structure and the other to the caisson, means for supplying a fluid to the said tube to act upon the ram to cause movement of the caisson, and means for discharging said fluid from the tube; substantially as described.

3. In a device of the nature indicated, a supporting structure, a caisson movable thereon, and having an attached part in a chamber adapted to receive a fluid to bear upon said attached part to cause movement of the said caisson, a pipe communicating with said chamber and provided with a discharge-valve, and a supply-pipe communicating with said first-mentioned pipe at a point between the discharge-valve and the point of communication between the said first-mentioned pipe and the chamber; substantially as described.

4. In a device of the nature indicated, a movable caisson arranged with a chamber adapted to receive fluid to cause movement of the caisson, a supply-pipe communicating with said chamber, said supply-pipe having detachable connection with its source of supply, and a valve in said pipe between its source of supply and the point at which it communicates with said chamber; substantially as described.

5. In a device of the nature indicated, a movable caisson arranged with a chamber adapted to receive fluid to cause movement of the caisson, a pipe communicating with said chamber and adapted to supply the fluid for causing movement of the caisson, two valves in said pipe, a supply-pipe communicating with said first-mentioned pipe at a point between said valves, said supply-pipe having detachable connection with its source of supply, and a valve in said supply-pipe; substantially as described.

6. In a device of the nature indicated, a supporting structure, a caisson or the like having movement thereon, a supply-pipe upon said structure and extending in substantially the direction of movement of the caisson, a plurality of valves upon said pipe, and a second pipe communicating with said caisson and adapted to be connected to the various valves on the first-mentioned pipe; substantially as described.

7. In a dredger of the character specified, the combination with a barge consisting in two floats separated to receive a caisson between and having parallel tracks mounted one on each float; a caisson mounted on wheels on the said tracks and open at the bottom and closed at the top by a door; suitable means for moving the caisson on the said tracks; two hydraulic rams located on opposite sides of the caisson; suitable machinery for forcing water into the said rams to lower the caisson and having a delivery-pipe parallel with the said tracks provided with connection-valves at suitable intervals; a connecting-pipe to connect one of the said valves on the delivery-pipe and the said rams and adapted to be extended to varying lengths to form the connection independently of the location of the valves and rams; and a forced-air system to fill the said caisson with air to force the water therefrom; substantially as described.

8. In a dredger of the character specified the combination with a barge consisting in two floats separated to receive a caisson between and having parallel tracks mounted one on each float; a caisson mounted on wheels on the said tracks and open at the bottom and closed at the top by a door; suitable means for moving the caisson on the said tracks; two hydraulic rams located on opposite sides of the caisson; suitable machinery for forcing water into the said rams to lower the caisson, and having a delivery-pipe parallel with the said tracks provided with connection-valves at suitable intervals; a connecting-pipe to connect one of the said valves on the delivery-pipe and the said rams and adapted to be extended to varying lengths to form the connection independently of the location of the valves and rams; and a forced-air system to fill the said caisson with air to force the water therefrom and comprising a pipe extended parallel with the said tracks and having connection-valves at suited intervals, and a flexible pipe connecting the said caisson and valves; substantially as described.

9. In a device of the nature indicated, a float, a caisson movable along said float, a sluice-box upon said float and extending substantially parallel with the direction of said movement of the caisson, and a discharging apparatus carried by said caisson and adapted to discharge into said sluice-box; substantially as described.

10. In a dredger of the character specified the combination with a barge consisting in two floats separated to receive a caisson between and having parallel tracks mounted one on each float; a caisson mounted on wheels on the said tracks, and provided with suitable means for being moved thereon; a hydraulic pump located at the lower end of the said caisson and provided with a telescopic delivery-pipe the upper end of which is secured to remain constantly at the same height; a sluice-box stationarily arranged on one of the said floats to receive the delivery from the said telescopic pipe, and extended parallel to the said tracks, substantially as described.

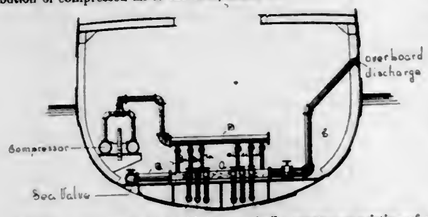
11. In a dredger of the character specified the combination with an endless bucket elevator adapted to raise the earthy sediment from near the bed-rock; a barge consisting of two parallel floats separated to receive a caisson between and having parallel tracks mounted one on each float; a caisson mounted on the said tracks and provided with suitable means for being moved lengthwise the same; a hydraulic pump located on the lower end of the said caisson to move with the same and provided with a telescopic delivery-pipe the upper end of which is stationarily fixed to remain at the same height; and a sluice-box stationarily arranged on the said float to receive and deliver from the said bucket elevator and the said delivery-pipe and extended lengthwise on the said tracks, substantially as described.

12. In a dredger of the character specified the combination with a barge having an opening to receive a caisson; of a caisson open at the lower end and having a top closed by a door; two hydraulic rams located on opposite sides of the caisson to lower the same and provided with suitable forcing machinery; a forced-air system to fill the said caisson with air and float the same as the water is drawn from the said rams and a suitable mechanical hoisting apparatus connected to the said caisson and comprising a brake to prevent the fall of the said caisson, substantially as described.

662,330. MEANS FOR CONTROLLING WATER BALLAST IN SHIPS. GEORGE R. WILLCOX, Bay City, Mich. Filed Mar. 27, 1900. Serial No. 10,411. (No model.)

Claim.—1. In combination with a ship's water-ballast system that comprises a plurality of ballast-compartments communicating by valve-controlled conduits with a chamber or header, the means whereby water

ballast may be regulated and shifted; that is to say: compressed-air conduits communicating with the respective ballast-compartments; a source of compressed air for forcing air through said conduits into the compartments to be emptied; and means for controlling the admission and distribution of compressed air to the compartments.

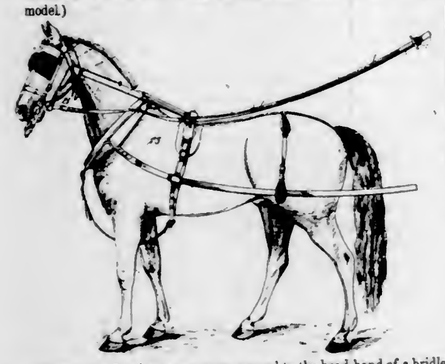


2. In combination with a ship's water-ballast system consisting of a plurality of ballast-tanks communicating with a common header, the means whereby water ballast may be shifted from one tank to another, comprising a plurality of compressed-air conduits adapted to discharge compressed air into the respective tanks; an air-compressor for forcing air through said conduits into said tanks, and valves for controlling the admission of compressed air to the compartments substantially as described.

3. The combination with water-ballast tanks having a common header and separate flow-regulating valves; of compressed-air conduits communicating with the several tanks; a common header or manifold for the several conduits; a source of compressed air for forcing air into said manifold and conduits; and means, as valves in said conduits, for controlling the distribution of compressed air to said tanks, substantially as described.

4. In a tank system comprising ballast tanks or compartments communicating respectively with a tank-header; means for shifting and controlling the contents of said compartments, that consists in displacing the contents of a compartment by compressed air, thereby causing the water to flow around through the tank-header into another ballast-compartment, substantially as described.

662,331. DEVICE FOR CONTROLLING HORSES. CHARLES E. WILLIS, New York, N. Y. Filed Feb. 12, 1900. Serial No. 4,933. (No model.)



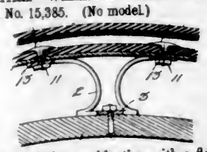
Claim.—1. In a harness, a strap secured to the head-band of a bridle to extend down at each side of the animal's neck and provided with rings at its ends, a curbing device having a central bow portion and diverging limbs provided with eyes at their ends, cords or straps secured to the eyes of the curbing device and passed through the rings of the said strap, a guide-ring secured to the cords or straps and adapted to engage the check-hook of the harness, and a lead-line connected with the said cords or straps and extending within reach of the driver, substantially as described.

2. In a harness, a strap secured to the head-band of a bridle to extend down at each side of the animal's neck and provided with rings at its ends, a curbing device having a central bow-section and end limbs, each provided with an eye at its end, cords or straps secured to the eyes of the curbing device and passed through the rings of the said strap, a guide-ring secured to the cords or straps and adapted to engage the check-hook of the harness, a driving-rein provided with a guide-sleeve, and a lead-line connected with the cords or straps, passed through the sleeve of the rein and secured to the rein in reach of the driver, substantially as described.

3. In a harness, a strap secured to the head-band of a bridle to extend down at each side of the animal's neck and provided with rings at its ends, a curbing device for exerting pressure upon the windpipe of an animal, cords or straps secured to the curbing device and passed through the rings of the said strap, a driving-rein having a guide-sleeve, a lead-line connected with the cords or straps and passed through the guide-sleeve of the rein, and a slide on the rein and to which the lead-line is secured, substantially as described.

4. In a harness, a strap secured to the head-band of the bridle and extending down on each side of the animal's neck, each end of the strap being provided with a ring, a curbing device for exerting pressure upon the windpipe of an animal, cords or straps secured to the curbing device and passed through the rings of the said strap, a guide-ring secured to the cords or straps and adapted to engage the check-hook of the harness, a driving-rein provided with a guide-sleeve, a lead-line secured to the said cords or straps and passed through the sleeve of the rein, and a slide on the rein and to which the lead-line is secured, substantially as described.

662,332. TIRE. WILLIAM A. WRIGHT, Atlanta, Ga. Filed May 3, 1900. Serial No. 15,385. (No model.)



Claim.—1. In a tire, the combination with a flexible tread, of longitudinally-extending ridges and flanges, and springs secured to the tire at points between the flanges thereof.

2. In a tire, the combination with a flexible hollow tread having longitudinally-extending ridges and flanges thereto, of a resilient rim situated between said flanges, ears to the tread overlapping, and secured to said rim, and springs.

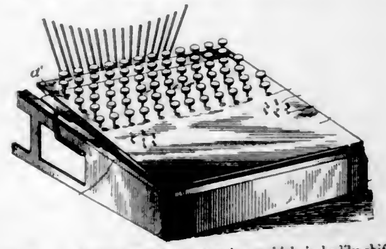
3. In a tire, the combination with a hollow flexible tread having longitudinally-extending flanges, of a resilient rim seated between said flanges, ears to the tread extending over and secured to the rim, a spring, and means for detachably securing said spring to the rim.

4. In a tire, the combination with a flexible tread having thickened side walls, of a rim secured thereto, a spring, and a bolt connecting said spring, rim, and tread, said bolt comprising two semicylindrical stems and an arm to each stem.

5. In a tire, the combination with a hollow tread having longitudinally-extending ridges and flanges, of a spring-metal rim seated between the flanges, ears to the flanges overlapping, and secured to, the rim, a connecting-plate, curved springs extending from said plate to the rim, and bolts connecting said springs and tread, each bolt comprising a semicylindrical stem and an arm at one end thereof.

6. In a tire of the character described, a connecting-bolt comprising a groove, semicylindrical stem, an arm at one end thereof, a second similar stem having an arm thereto and a tongue upon the stem.

662,333. TYPE-WRITER. JOSEPH P. ANGELL, Pine Bluff, Ark. Filed Apr. 25, 1900. Serial No. 14,286. (No model.)



Claim.—1. A keyboard for type-writers which is bodily shiftable relative to the type-actuating devices, whereby different ones of said devices may be operated at different times by the same key of the keyboard, substantially as and for the purpose described.

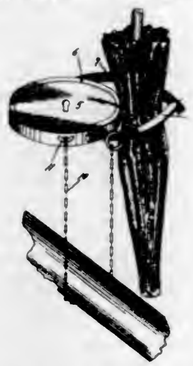
2. A keyboard for type-writers, comprising keys and a support therefor, which is bodily movable to change the position of the keys relative to the type-actuating devices, whereby different ones of said devices may be operated at different times by the same key of the keyboard, and means for fixing such keyboard in its different positions, substantially as and for the purpose described.

3. An attachment for type-writers comprising a keyboard and means for holding the same with its respective keys in coöperative relation to different keys of the type-writer at different times, substantially as and for the purpose described.

4. A keyboard attachment for type-writers comprising a base, a set of keys, a support common to all of the set, and means on the base that engage the support to hold said set in coöperative relation to different keys of the type-writer at different times, substantially as and for the purpose described.

5. The combination of a set of keys, a support therefor, and means for fixing the position of said support comprising a post and a set of holes to coöperate with the post, substantially as and for the purpose described

662,334. UMBRELLA-LOCK. ERNEST L. APPLEBY, Bradford, Pa. Filed Nov. 1, 1899. Serial No. 735,529. (No model.)

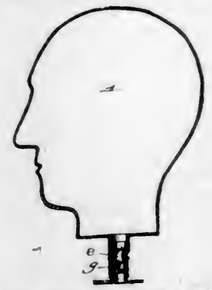


Claim.—1. An umbrella-lock comprising a body portion containing a locking mechanism, a segmental hasp-section pivoted to the body and having openings therein, a second segmental hasp-section adapted for interchangeable engagement with the openings of the first section and with the locking mechanism of the body portion, and a chain attached to the body portion, said chain having slidable connection with the second hasp-section and provided with a ring at its free end.

2. An umbrella-lock comprising a body portion containing locking mechanism, a hasp-section pivoted to the body and having openings therein, a second hasp-section having a hook at one end adapted for adjustable engagement with said openings, said second hasp-section being also adapted for locking engagement with the lock mechanism of the body portion, and a chain connected with the body and adapted for engagement with a hasp-section.

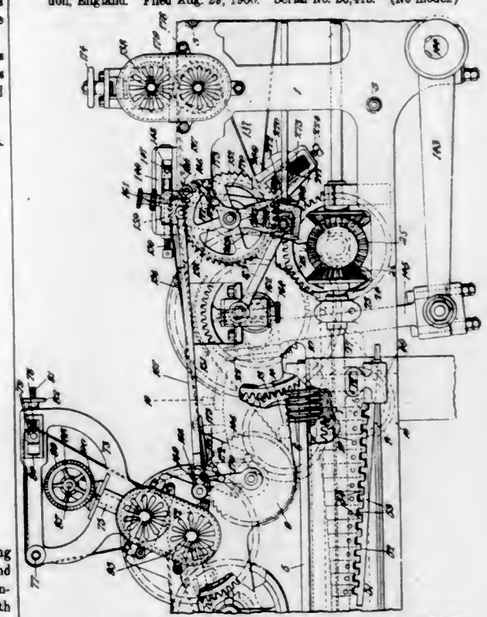
3. An umbrella-lock comprising a body portion containing locking mechanism, a hasp-section pivoted to the body and having openings therein, a second hasp-section having a hook at one end adapted for adjustable engagement with the openings of the first section, an eye carried by the second hasp-section, said second hasp-section being also adapted for locking engagement with the mechanism of the body, and a chain connected with the body and passed loosely through the eye and having a terminal ring adapted for engagement with a hasp-section.

662,335. FLOATING BODY. EDWARD G. BAILEY, Gainesville, Tex. Filed Aug. 29, 1900. Serial No. 28,422. (No model.)



Claim.—As a new article of manufacture, an inflatable folding body provided with an integral elastic nipple *b*, a check-valved closure-tube inserted into said nipple and provided with an annular groove into which the nipple is drawn by its own elasticity, a wrapping for holding the flexible nipple in said groove, and a flange connected to the lower end of said check-valved closure-tube for the attachment of a holding-cord or the like, substantially as set forth.

662,336. BISCUIT-MAKING MACHINE. GEORGE S. BAKER, London, England. Filed Aug. 29, 1900. Serial No. 28,413. (No model.)



Claim.—1. In a biscuit-making machine the combination of, a source of power, rolls operated from that source of power, conveyers serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, and means for imparting additional movement to the trays as one tray passes from under the delivery end of the conveyer and another comes into its place, substantially as set forth.

2. In a biscuit-making machine the combination of, a source of power, rolls operated from that source of power, conveyers serving material to the rolls, and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, means for imparting additional movement to the trays as one tray passes from under the delivery end of the conveyer and another comes into its place means for regulating the moment of this additional movement, and means for regulating the amount of additional movement imparted substantially as set forth.

3. In a biscuit-making machine the combination of, a source of power, rolls operated from that source of power, conveyers for serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a movable "knife-edge" at the delivery end of the conveyer, means for adjusting the position of the knife-edge relatively to the material arranged upon the conveyer, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, means for imparting additional movement to the trays as one tray passes from under the "knife-edge" of the conveyer and another comes into its place, means for regulating the moment of this additional movement, and means for regulating the amount of additional movement imparted substantially as set forth.

4. In a biscuit-making machine the combination of a source of power, rolls operated from that source of power, conveyers for serving material to the rolls and driven from the same source of power, means for

varying the speed of the rolls, means for varying the speed of the conveyers, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a movable "knife-edge" at the delivery end of the conveyer, means for adjusting the position of the "knife-edge" relatively to the material arranged upon the conveyer, means for removing the scrap material from the conveyer as it leaves the cutter, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, means for imparting additional movement to the trays as one tray passes from under the "knife-edge" of the conveyer and another comes into its place, means for regulating the moment of this additional movement, means for automatically raising the knife-edge at the moment this additional movement is imparted and means for regulating the amount of additional movement imparted substantially as set forth.

5. In a biscuit-making machine the combination of, a source of power, rolls operated from that source of power conveyers for serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, means for throwing one set of rolls out of action, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a movable "knife-edge" at the delivery end of the conveyer, means for adjusting the position of the "knife-edge" relatively to the material arranged upon the conveyer, means for removing the scrap material from the conveyer as it leaves the cutter, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, means for imparting additional movement to the trays as one tray passes from under the "knife-edge" of the conveyer and another comes into its place, means for regulating the moment of this additional movement, means for automatically raising the knife-edge at the moment this additional movement is imparted and means for regulating the amount of additional movement imparted, substantially as set forth.

6. In a biscuit-making machine the combination of a source of power, rolls operated from that source of power, conveyers serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a series of traveling trays coöperating with this conveyer, endless chains carrying these trays, gear-wheels engaging the chains, shafts carrying these gear-wheels, means for operatively connecting one shaft with the source of power whereby a step-by-step movement is imparted to it, a disk mounted upon this shaft, a pawl carried on the face of the disk, means whereby the position of the pawl relatively to the projection on the shaft may be adjusted, an operating-lever secured to the disk, a shaft mounted parallel to the shaft upon which the disk is mounted, a cam on that shaft, a rod operatively connecting the cam with the operating-lever upon the disk, means whereby that end of the rod which engages the cam may be raised or lowered, and means for keeping this end of the rod in contact with the cam, substantially as set forth.

7. In a biscuit-making machine the combination of a source of power, rolls operated from the source of power, conveyers serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a series of traveling trays coöperating with this conveyer, endless chains carrying these trays, gear-wheels engaging the chains, shafts carrying these gear-wheels, means for operatively connecting one shaft with the source of power whereby a step-by-step movement is imparted to it, a disk mounted upon this shaft, a pawl carried on the face of the disk, a projection upon the shaft adapted to be engaged by the pawl on the disk, an operating-lever secured to the disk, and means for reciprocating this lever and operatively connecting it with the source of power substantially as set forth.

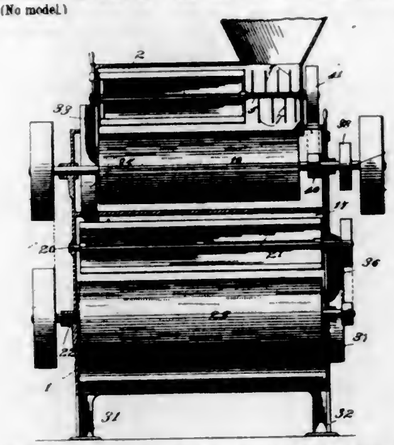
8. In a biscuit-making machine the combination of a source of power, rolls operated from that source of power, conveyers serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a series of traveling trays coöperating with this conveyer, endless chains carrying these trays, gear-wheels engaging the chains, shafts carrying these gear-wheels, means for operatively connecting one shaft with the source of power whereby a step-by-step movement is imparted to it, a disk mounted upon this shaft, a pawl carried on the face of the disk, means whereby the position of the pawl relatively to the projection on the shaft may be adjusted, an operating-lever secured to the disk, a shaft mounted parallel to the shaft upon which the disk is mounted, a cam on that shaft, a rod operatively connecting the cam with the operating-lever upon the disk, means whereby that end of the rod which engages the cam may be raised or lowered, means for keeping this end of the rod in contact with the cam, a shaft mounted parallel to the last two shafts, a cam upon this shaft, a lever connected to the "knife-edge" of the conveyer-band whereby the "knife-edge" may be raised or lowered, an extension to that lever projecting over the cam, a roller carried by a sliding shaft, and means whereby the pawl carried upon the face of the disk is operatively connected with the sliding shaft so that when the pawl is oscillated the shaft is moved endwise and its roller brought between the cam and the lever which raises the "knife-edge" substantially as set forth.

9. In a biscuit-making machine the combination of a source of power, rolls operated from that source of power, conveyers for serving material to the rolls and driven from the same source of power, means for varying the speed of the rolls, means for varying the speed of the conveyers, a cutter, means for operatively connecting the cutter with the source of power, an endless conveyer-band for serving material from the rolls to the cutter and carrying it from the same, a drum whereby one end of the conveyer-band is carried, means for supporting the drum, a movable "knife-edge" whereby the other end of the conveyer-band is carried, adjustable blocks for supporting the "knife-edge," a movable carriage for the blocks, a sling pivoted to a rigid support, a jockey-pulley carried therein and made to bear against the inoperative side of the conveyer-band and mechanism connecting the movable carriage of the "knife-edge" and the jockey-pulley sling whereby the jockey-palley and "knife-edge" may be simultaneously operated substantially as set forth.

10. In a biscuit-making machine the combination of a source of power, rolls, gearing operatively connecting the rolls with the source of power, conveyers for serving material to the rolls, gearing operatively connecting the conveyers with the source of power, a sling, a support for the sling, means whereby the sling may be made to pivot about its support, a gear-wheel carried by the sling and forming part of the gearing by which one set of rolls with its conveyer is driven, a cutter, means for operatively connecting the cutter with the source of power, a conveyer for serving material from the rolls to the cutter and carrying it from the same, means for propelling this conveyer from the source of power, a movable "knife-edge" at the delivery end of the conveyer, means for adjusting the position of the "knife-edge" relatively to the material arranged upon the conveyer, means for removing the scrap material from the conveyer as it leaves the cutter, a series of traveling trays coöperating with this conveyer, mechanism operatively connecting the trays with the source of power, means for imparting additional movement to the trays as one tray passes from under the "knife-edge" of the conveyer and another comes into its place, means for regulating the moment of this additional movement, means for automatically raising the "knife-edge" at the moment this additional movement is imparted and means for regulating the amount of additional movement imparted, substantially as set forth.

11. In a biscuit-making machine the combination of a source of power, a shaft driven from that source of power, a step gear-wheel mounted on the shaft, a second shaft mounted parallel to the first, a toothed wheel carried thereon, a second toothed wheel carried by a sling from the first wheel and gearing with the latter, means whereby the first gear-wheel with the sling is permitted to slide longitudinally upon the shaft but not to rotate thereon, means whereby the sling may be locked in position and the second gear-wheel brought into mesh with any part of the step gear-wheel, rolls, gearing operatively connecting the second shaft with the rolls, conveyers, for serving materials to the rolls, gearing operatively connecting the second shaft with the conveyers, a sling carrying one of the gear-wheels which form the connection between the two shafts and one set of rolls with its conveyer, a support for the sling, means whereby the sling may be made to pivot about its support, a cutter, means for operatively connecting the cutter with the source of power, means for varying the speed of the cutter, an endless conveyer-band for serving material from the rolls to the cutter and carrying it from the same, a drum, whereby one end of the conveyer-band is carried, means for supporting the drum, a movable "knife-edge" whereby the other end of the conveyer-band is carried, adjustable blocks for supporting the "knife-edge," a movable carriage for the blocks, a sling pivoted to a rigid support, a jockey-pulley carried therein and made to bear against the inoperative side of the conveyer-band, mechanism connecting the movable carriage of the "knife-edge" and the pulley-sling whereby the jockey-pulley and "knife-edge" may be simultaneously operated, means for operating the conveyer-band by a step-by-step movement from the source of power, means for removing the scrap material from the conveyer as it leaves the cutter, a series of traveling trays coöperating with the conveyer, endless chains carrying these trays gear-wheels engaging the chains, shafts carrying these gear-wheels, means for operatively connecting one shaft with the source of power whereby a step-by-step movement is imparted to it, a disk mounted upon this shaft, a pawl carried on the face of the disk, a projection upon the shaft adapted to be engaged by the pawl on the disk, means whereby the position of the pawl relatively to the projection on the shaft may be adjusted, an operating-lever secured to the disk, a shaft mounted parallel to the shaft upon which the disk is mounted, a cam on that shaft, a rod operatively connecting the cam with the lever upon the disk, means whereby that end of the rod connected to the lever may be raised or lowered, means whereby that end of the rod which engages the cam may be raised or lowered, a shaft mounted parallel to the last two shafts, a cam upon this shaft, a lever connected to the "knife-edge" of the conveyer-band whereby the "knife-edge" may be raised or lowered, an extension to that lever projecting over the cam, a roller carried by a sliding shaft, an extension upon the pawl mounted upon the face of the disk, and mechanism operatively connecting the sliding shaft with this extension of the pawl so that when the pawl is lowered the shaft is moved endwise and the roller brought between the cam and the lever which raises the "knife-edge" substantially as set forth.

662,337. COTTON-SEED-DELINTING MACHINE. HERMAN BARDITSKY, Florence, Ala. Filed Apr. 26, 1900. Serial No. 14,477. (No model.)



Claim.—1. The combination in a cotton-seed-delinting machine with a suitable casing and an abrading-roller mounted therein, of a seedbox surmounting the casing and the roller, one wall of said seedbox being vertically and horizontally adjustable, and horizontal teeth projecting inwardly from said adjustable wall into close proximity to the periphery of the abrading-roller, substantially as described.

2. The combination in a cotton-seed-delinting machine, of a main casing, an abrading-roller mounted therein, an open-bottom seedbox mounted above said casing and roller, one of the walls of said box being vertically and horizontally adjustable, teeth on the lower end of the said adjustable wall extending horizontally into close proximity with the periphery of the abrading-roller, a hopper mounted above one end of the seedbox, a horizontal shaft longitudinally journaled in the seedbox, radial stirring-teeth upon said shaft below the hopper, and radial crushing and stirring blades mounted upon said shaft for the remainder of its length, substantially as described.

3. The combination with a cotton-seed-delinting machine, of a main casing, a horizontal abrading-roller journaled therein and projecting through the top thereof, an open-bottom seedbox mounted above the casing and roller, horizontally and vertically adjustable teeth mounted in close proximity to the periphery of the roller, a second open-bottom seedbox mounted in the casing below the roller, horizontal teeth therein, and a second abrading-roller mounted below the lower seedbox with its periphery in close proximity to said teeth, substantially as described.

4. In a cotton-seed-delinting machine, the combination of a main casing, an abrading-roller mounted therein and projecting through its top, an open-bottom seedbox surmounting the casing and roller, horizontally and vertically adjustable teeth in proximity to the periphery of said roller, a horizontal shaft in the seedbox above the roller provided with radial teeth and radial blades as described, a fan in the main casing in substantially the same horizontal plane as the roller, a second open-bottom seedbox mounted within the casing below the abrading-roller, a second abrading-roller mounted in the bottom of said seedbox, horizontally and vertically adjustable teeth in proximity to the periphery of said roller, and a horizontal shaft in the lower seedbox above said roller provided with pressing and stirring blades throughout its length, substantially as described.

5. The combination in a cotton-seed-delinting machine, of a suitable casing open at the top, a horizontal abrading-roll journaled therein and projecting through the top, horizontally and vertically adjustable teeth in proximity to the periphery of said roll, an open-bottom seedbox mounted over the roll, a second open-bottom seedbox within the casing and below the abrading-roll, horizontal teeth therein, a second abrading-roll horizontally journaled in the casing and projecting into the bottom of the second seedbox, a communicating passage between the first and second seedboxes at one end of the machine, a hopper above the first seedbox at the opposite end, and a discharge-opening at the hopper end of the lower seedbox, substantially as described.

6. The combination in a cotton-seed-delinting machine, of a main casing open at the top, a seedbox mounted above the opening, an abrading-roll horizontally journaled in the casing and projecting into the seedbox, vertically and horizontally adjustable teeth mounted in proximity to the periphery of the roll, a horizontal shaft mounted in the seedbox above the abrading-roll, stirrer-teeth on a portion of the length of the shaft, solid blades on the remainder of the length of the shaft, a hopper mounted above the stirrer-teeth, the seedbox being provided at its opposite end with an opening, a sliding door in said opening, and a spout leading from said opening, substantially as described.

7. The combination in a cotton-seed-delinting machine, of a main casing, an abrading-roll horizontally journaled in the upper portion thereof, a seedbox mounted above the roll, horizontally and vertically adjustable teeth in proximity to the periphery of the roll, a hopper at one end of the seedbox for receiving the seed, a sliding door at the opposite end for the discharge of the seed, a lower seedbox within the casing, an abrading-roll mounted below and projecting into said seedbox, horizontally and vertically adjustable teeth in proximity to the periphery of said roll, a sliding door at one end of the lower seedbox, a spout connecting the discharge-opening of the upper box with the receiving-opening of the lower box, a discharge-spout at the opposite end of the lower box, a fan horizontally journaled in the casing by the side of the upper roll, a second fan horizontally journaled in the casing at the side of the lower roll, means for driving each roll and its fan in opposite directions, a delivery-spout at the lower end of the casing, and an endless belt working through an opening in the bottom of the casing at said spout, substantially as described.

8. The combination in a cotton-seed-delinting machine, of a suitable casing open at the top, a horizontal abrading-roll journaled in said casing and projecting through the top thereof, an open-bottom seedbox surmounting the casing and roll, a horizontal flange on the casing projecting inward toward the roll, right-angled brackets adjustably secured upon said casing, and a teeth-bearing side wall of the seedbox adjustably connected to said brackets, substantially as described.

662,338. DOUBLE HYDROSULFITE AND METHOD OF MAKING SAME. MAX BAELEN, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed May 22, 1900. Serial No. 17,545. (No specimens.)

Claim.—1. The process for the production of a double hydrosulfite of zinc and a metal of the alkaline earths, which consists in treating zinc hydrosulfite with a salt of a metal of the alkaline earths, washing the separated product with a volatile medium and drying, substantially as hereinbefore described.

2. The process for the production of a double hydrosulfite of zinc and a metal of the alkaline earths, which consists in treating zinc hydrosulfite with a salt of a metal of the alkaline earths, substantially as hereinbefore described.

3. As a new product the double hydrosulfite of zinc and a specified metal of the alkaline earths which has a chemical composition corresponding to the formula:

$$ZnM(S_2O_4)_2xH_2O$$

and is stable for months in the presence of air, which gives off sulfurous acid when heated without burning, and gives with a solution of caustic soda a precipitate which is only partially soluble in excess of caustic soda.

4. As a new product the double hydrosulfite of zinc and calcium which has a chemical composition corresponding to the formula:

$$ZnCa(S_2O_4)_2+xH_2O,$$

and is stable for months in the presence of air, which gives off sulfurous acid when heated without burning, and gives with caustic-soda solution a precipitate which is only partially soluble in excess of caustic-soda solution.

662,339. DOUBLE HYDROSULFITE AND METHOD OF MAKING SAME. MAX BAELEN, Ludwigshafen, Germany, assignor to the Badische Anilin and Soda Fabrik, same place. Filed May 22, 1900. Serial No. 17,547. (No specimens.)

Claim.—1. The process for the production of a double hydrosulfite of zinc and an alkali which consists in treating zinc hydrosulfite with a salt of an alkali, washing the separated product with a volatile medium of drying, all substantially as hereinbefore described.

2. The process for the production of a double hydrosulfite of zinc and an alkali which consists in treating zinc hydrosulfite with a salt of an alkali, all substantially as hereinbefore described.

3. As a new product the double hydrosulfite of zinc and an alkali which has a chemical composition corresponding to the formula

$$Zn(MS_2O_4)_2.xH_2O$$

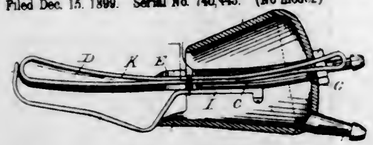
and is stable for months in the presence of air, and which gives off sulfurous acid when heated without burning.

4. As a new product the compound hydrosulfite of zinc and sodium which has a chemical composition corresponding to the formula

$$Zn(NaS_2O_4)_2.2H_2O$$

and which is stable for months to the presence of air, which gives off sulfurous acid when heated without burning, and which decolorizes a solution of indigo-sulfonic acid.

662,340. VAGINAL SYRINGE. JOHN A. BELL, Naperville, Ill. Filed Dec. 15, 1899. Serial No. 740,443. (No model.)



Claim.—1. In a vaginal syringe, the combination with a conical shell closed at its larger end and open at its smaller end, of a tube passing centrally through said shell and terminating in a nozzle projecting from the smaller open end of said shell, a frame rigidly secured to said nozzle and adapted to depress the lower wall of the vagina, dilating-levers pivotally secured to said nozzle between their ends and adapted at their forward ends to engage the side walls of the vagina, and at their rear ends projecting through slots in the rear wall of said shell, means for connecting said nozzle with a supply of liquid, and a return-flow nozzle mounted in the lower rear wall of said shell.

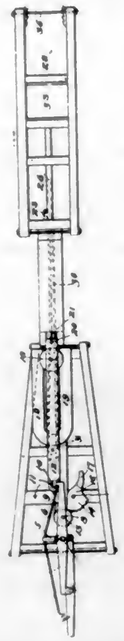
2. In a vaginal syringe, the combination with a hollow conical shell closed at its larger end and open at its smaller end, and provided at its smaller end with a projecting lip of a nozzle passing centrally through said shell and projecting from the said open end thereof, a wire frame rigidly mounted upon said nozzle and resting upon said lip, said frame being bent to form a loop projecting before the delivery end of said nozzle, dilating-levers pivotally mounted on said nozzle and projecting outwardly at each side of same, means for connecting said nozzle with a source of supply of liquid, and a return-flow nozzle mounted in the rear wall of said shell in alinement with said lip.

3. In a vaginal syringe, the combination with a hollow conical shell closed at its larger end and open at its smaller end, and provided at its smaller end with a projecting lip of a nozzle passing centrally through said shell and projecting from the said open end thereof, a wire frame rigidly mounted upon said nozzle and resting upon said lip, said frame being bent to form a loop projecting before the delivery end of said nozzle, dilating-levers pivotally mounted on said nozzle and projecting outwardly at each side of same, the forward end portions of said levers forming loops curved between their ends and the rear end portions diverging and passing through slots in the rear wall of said shell, springs interposed between the rear end portions of said levers and said nozzle for holding the forward ends of said levers normally at the inner limits of their movement, means for connecting said nozzle with a source of supply of liquid, and a return-flow nozzle mounted in said rear wall of said shell in alinement with said lip.

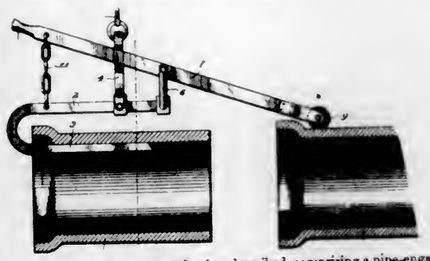
662,341. HAY-PRESS. ALBERT BENNETT, Puyallup, Wash. Filed Aug. 4, 1899. Serial No. 726,098. (No model.)

Claim.—1. In a baling-press, the combination with the baling-chamber and its reciprocatory plunger, of a suitably-fulcrumed lever, a link connection between said plunger and lever, segments connected to said lever and projecting outwardly at opposite points to the lever's fulcrum, operating mechanism, and flexible connections secured to the operating mechanism and the segments whereby the plunger is operated in both directions through draft alternately applied to the flexible connections to rock said segments alternately in opposite directions, substantially as set forth.

2. In a baling-press, the combination with a baling-chamber and its reciprocatory plunger, of a suitably-fulcrumed lever, a link connection between said plunger and lever, eccentrically-arranged segments connected to said lever and projecting outwardly at opposite points to the lever's fulcrum, operating mechanism, and flexible connections secured to the operating mechanism and the segments whereby the plunger is operated in both directions through draft alternately applied to the flexible connections to rock said segments alternately in opposite directions, substantially as set forth.



662,342. PIPE-HOOK. JAMES W. BERRY, Iowa City, Iowa. Filed Mar. 1, 1900. Serial No. 7,014. (No model.)



Claim.—1. A device of the class described, comprising a pipe-engaging device, means for raising and lowering the same, and a lever connected to the pipe-engaging device, and having one end serving as a fulcrum for engagement with an external support.

2. A device of the class described, comprising a pipe-engaging device, means for raising and lowering the same, and a lever connected to the pipe-engaging device, and also provided with a traveling fulcrum for engagement with an external support.

3. A device of the class described, comprising a hook for engagement with a pipe-section, a raising and lowering device therefor, and a lever mounted intermediate of its ends upon the hook, the forward end thereof projecting in advance of the hook, and a flexible connection between the rear portion of the lever and the hook.

4. A device of the class described, comprising a hook for engagement with a pipe-section, a raising and lowering device therefor, and a lever mounted intermediate of its ends upon the hook, the forward end of the lever projecting in advance of the hook, and provided with a roller, and a flexible connection between the rear portion of the lever and the hook.

5. A device of the class described, comprising a hook for engagement with a pipe-section, a raising and lowering device therefor, a lever connected to the hook and projecting in advance thereof, a fork or yoke at the forward end of the lever, and a concaved roller mounted within the fork or yoke.

6. A device of the class described, comprising a hook for engagement with a pipe-section, a substantially U-shaped link connected to the hook, a raising and lowering device connected to the link, and a lever mounted intermediate of its ends upon the hook and projecting loosely through the link.

7. A device of the class described, comprising a substantially U-shaped hook, a substantially U-shaped link connected to one arm of the hook, a raising and lowering device connected to the link, a lever mounted intermediate of its ends upon the link-arm of the hook and extending loosely through the link, the forward end of the lever extending in advance of the hook, and provided with a roller, and a flexible connection between the rear portion of the lever and the hook.

8. A device of the class described, comprising a horizontally-disposed substantially U-shaped pipe-engaging hook, a lever pivoted intermediate of its ends at the outer end of the upper arm of the hook, a flexible connection between the opposite end of the arm and the lever, and means connected to the arm at a point intermediate of the connections between said arm and the lever for raising and lowering the hook.

662,343. NUT-LOCK. MILLARD M. BOSWORTH, New Orleans, La. Filed July 9, 1900. Serial No. 23,033. (No model.)



Claim.—In a nut and bolt lock, the combination with the bolt, having its screw-threaded portion provided with the axial recess A°, and a nut adapted to engage the screw-threaded portion of the bolt, the said nut having a beveled outer face; of a U-shaped locking device passing through the axial recess of said bolt, capable of longitudinal adjustment therein, and having similar resilient arms so shaped as to conform with and snugly fit the opposite sides and the beveled face of said nut when forced over the same, the said resilient arms being provided at their ends with beveled catches for engaging beneath the under face of the nut and retain the locking device thereon, substantially as described.

662,344. GEAR-BLANK. GEORGE H. BOYD, Sharon, and THOMAS D. WEST, Sharpsville, Pa. Filed Feb. 5, 1900. Serial No. 4,110. (No model.)



Claim.—1. A gear-blank consisting of a cast-metal body having metal plates embedded within and extending widthwise and radially of the rim-forming or outer portion of the blank, and arranged at equal intervals circumferentially of the rim.

2. A gear-blank consisting of a cast-metal body having an annular rim, and metal plates extending from side to side of the rim in one direction and extending from within the outer portion of the rim radially inwardly a suitable distance, which plates are cast in and arranged at equal intervals circumferentially of the rim.

662,345. SUCKER. LOUIS H. BRITTON and HENRY W. MORROW, Lisbon, Ohio. Filed Sept. 21, 1900. Serial No. 30,714. (No model.)

Claim.—1. An antisiphoning-sucker, consisting of an imitation seamless tube having the end that is to be placed in the mouth formed with an oblong and collapsible suction-opening, the opposite ends of which are so weakened as to permit or cause the said suction end of the sucker to close the instant that suction of the liquid ceases, thereby preventing the liquid contained in said tube from siphoning or passing backward to its receptacle.



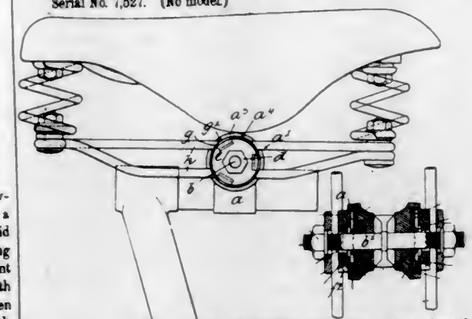
2. An antisiphoning-sucker, consisting of an imitation seamless tube having the end that is to be placed in the mouth flattened and terminating in a collapsible oblong suction-opening that will only permit the passage of liquid from said tube to the mouth.

3. An antisiphoning-sucker, consisting of a tube having a longitudinally-extended lap-seam, a flattened end provided with an oblong collapsible suction-opening, and a stiffening-coating that conceals the said lap-seam and provides the interior of the suction end of said tube with smooth opposing faces to come in close contact with each other when suction ceases.

4. An antisiphoning-sucker, consisting of an imitation seamless tube formed with a collapsible suction end and a straight longitudinally-extended seam and having a stiffening-coating that fills or rounds out the space between the edge of said seam and the adjacent circumference of the tube.

5. A sucker for conveying liquids to the human mouth, consisting of an imitation seamless tube having one end normally collapsed and which is adapted to conform when opened to the opening between the lips of the user during the siphoning operation.

662,346. CYCLE-SADDLE ATTACHMENT. JOHN B. BROOKS, Bromsgrove, and JOHN HOLT, Aston, England, assignors to the J. B. Brooks & Company, Limited, Birmingham, England. Filed Mar. 6, 1900. Serial No. 7,527. (No model.)



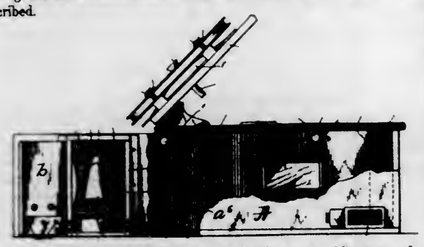
Claim.—1. A cycle-saddle attachment, comprising a boss adapted to be clamped on the seat-pillar and provided with two flanged peripheries, radially-movable bolts arranged to engage the peripheries of said flanges, a thrust-plate arranged to thrust the bolts into engagement with the flanges, means for actuating the thrust-plates and means for securing the saddle-frame to the thrust-plates, said thrust-plates and bolts being rotatably adjustable relative to the boss to permit of the saddle being tilted, substantially as described.

2. A cycle-saddle attachment, comprising a boss adapted to be clamped to the seat-pillar and provided with two flanged peripheries, radially-movable bolts arranged to engage the peripheries of said flanges, thrust-plates provided with gaps in which the bolts move, and having beveled edges arranged to engage the bolts and thrust them into engagement with the flanges, means for actuating the thrust-plates and means for securing the saddle-frame to the thrust-plates, said thrust-plates and bolts being rotatably adjustable on the boss to permit of the saddle being tilted, substantially as described.

3. A cycle-saddle attachment, comprising a boss adapted to be clamped to the seat-pillar and provided with two cheeks having annular flanges on their outer faces, a cross-pin having angular portions fitted in corresponding apertures in the cheeks and provided at its opposite ends with threaded cylindrical extensions, radially-movable bolts arranged to engage said flanges, gapped disks secured to the cheeks over the bolts and operating to hold the latter in place on the cheeks, thrust-plates loosely arranged on the cross-pin opposite the cheeks and provided with gaps in which the bolts move and having beveled edges arranged to engage correspondingly-beveled ends on the bolts which project through the gaps in the disks and thrust said bolts into engagement with the flanges, washers arranged on the outer ends of the cross-pin, and nuts for forcing the nuts toward the thrust-plates to clamp the saddle-frame between the washers and said plates, the thrust-plates and bolts being rotatably adjustable relatively to the cheeks to permit of the saddle being tilted, substantially as described.

662,347. CHICKEN-BROODER. LYMAN BROWN and HERBERT W. STURTEVANT, Middleborough, Mass., assignors to said Brown. Filed Mar. 6, 1900. Serial No. 7,580. (No model.)

Claim.—1. The combination with a brooder having a movable cover, of a heat-radiator secured thereto, a spiral flue within the radiator and heating means in communication with the heat-radiator, substantially as described.



2. The combination with a brooder having a movable cover, of a heat-radiator secured thereto, a deflecting-plate between the radiator and the cover, and heating means in communication with the heat-radiator, substantially as described.

3. The combination with a brooder, of an exteriorly-arranged heating-chamber divided by a horizontal partition into two compartments, the lower compartment communicating with the outside air, a lamp or other like heating means having its reservoir arranged below the partition, and a chimney extending into the brooder, an air-escape space formed in the partition whereby the air taken into the lower portion of the chamber may be fed to the upper portion thereof to support combustion, in combination with a heat-radiator carried by the cover of the brooder and with which the chimney communicates, substantially as described.

4. The combination with a brooder, of an exteriorly-arranged heating-chamber divided by a horizontal partition into two compartments, a lamp or other like heating means having its reservoir arranged below the partition and its chimney extending into the brooder, a lining in the heating-chamber, the lining being so arranged that air-space is left around it between the sides and top of the chamber, vents in the heating-chamber for supplying air from the reservoir-compartment upward into the combustion-chamber, the lining being likewise provided with vents, whereby heated air can pass up between the lining and the walls of the heating-chamber and escape through suitable openings formed in the wall of the brooder, and a heat-radiator carried by the brooder, and with which the chimney of the lamp or the like communicates, substantially as described.

662,348. TRANSFER-TABLE FOR ROLLING-MILLS. JAMES W. BRYSON and JAMES A. EVARTS, New Castle, Pa. Filed Aug. 3, 1900. Serial No. 25,785. (No model.)



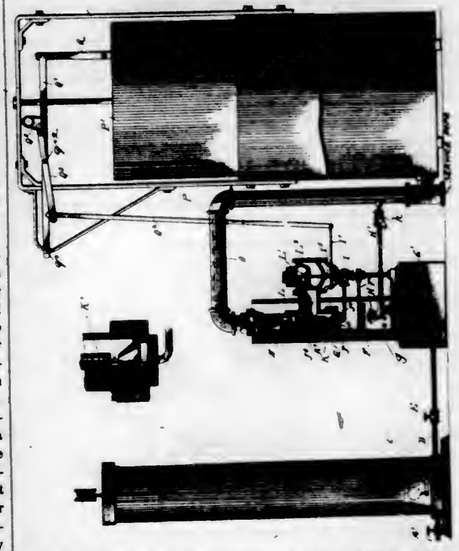
Claim.—In a transfer-table for rolling-mills, a pair of horizontal beams, a series of shafts journaled therein and each carrying a plurality of pulleys, belts passing over the pulleys, said belts being constructed to bear the metal and end sections hinged to the ends of the table and carrying the end pulleys for the belts, substantially as described.

662,349. CARBURETER. HENRY BURTON, Russellville, Ind. Filed Apr. 9, 1900. Serial No. 12,089. (No model.)

Claim.—1. A gas-machine comprising a coil through which the liquid to be vaporized flows, a burner below the coil for vaporizing the liquid flowing through the coil, an expansion-chamber, a connection between the coil and expansion-chamber, a valve in said connection, a casing above the expansion-chamber, an injector-pipe in the casing, a nozzle in the casing below the injector-pipe, an air-supply pipe extending laterally from the casing, a valve in said air-pipe, a gasometer, and a lever mechanism for operating the said valves from the gasometer-bell, substantially as described.

2. A gas-machine, comprising a coil through which the liquid to be vaporized passes, a burner below the coil, an expansion-chamber having a screen in its top, a connection between the coil and expansion-chamber, a valve in the connection, a casing connected with the expansion-chamber, an injector-pipe in the casing, a nozzle in the casing below the injector-pipe, an air-supply pipe leading into the casing, a valve in the air-pipe, a shell open at the top and inclosing the coil, burner, expansion-chamber and casing, a gasometer, and a lever mechanism for operating the valves from the gasometer-bell, substantially as described.

3. A gas-machine, comprising a pressure-chamber for containing the liquid to be vaporized under pressure, a coil, a valved connection between the coil and chamber, a burner below the coil, an expansion-chamber, a connection between the coil and expansion-chamber, a casing connected with the expansion-chamber, an injector-pipe in the casing, a nozzle below the injector-pipe, an air-supply pipe, a valve in the air-pipe, a shell open at the top, and inclosing the burner, coil, expansion-chamber, and casing, a gasometer, and a lever mechanism for operating the said valves from the gasometer-bell, substantially as described.



4. In a gas-machine, the combination of a coil through which the liquid to be vaporized flows, a burner below the coil, an expansion-chamber, a connection between the coil and expansion-chamber, a valve in said connection, a casing secured to the expansion-chamber, an injector-pipe in the casing, a nozzle at the top of the expansion-chamber and discharging into the injector-pipe, an air-supply pipe leading into the case and provided with a damper, a valve in the air-pipe, a mixing-chamber connected with the said casing, and a shell open at the top and inclosing the burner, coil, expansion-chamber, casing, and mixing-chamber, substantially as described.

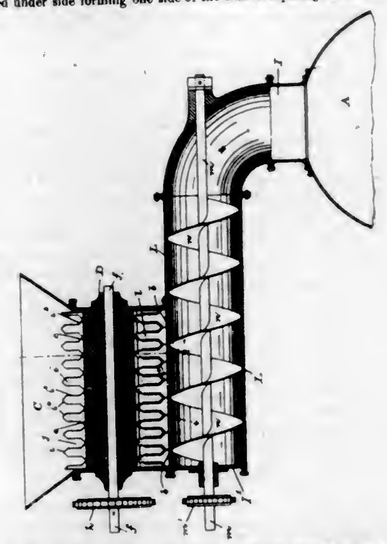
5. In a gas-machine, the combination with a vaporizer, a chamber, valves for controlling the admission of vapor and air to said chamber, and a gasometer, of a pivoted lever having a link connection with the gasometer-bell, a second lever carried by the first lever and having a spring connection with said lever, and a connection between the said second lever and the valves, substantially as described.

6. In a gas-machine, the combination with a vaporizer, a chamber, valves for controlling the admission of air and vapor to said chamber, and a gasometer, of a lever pivoted at one end, and having its other end connected by a link with the gasometer-bell, a second lever pivoted between its ends to the first lever, a spring connecting one end of the second lever with the first lever, and a connection between the other end of the second lever and the valves, substantially as described.

7. In a gas-machine, the combination with a vaporizer, a chamber, valves for controlling the admission of air and vapor to the mixing-chamber, and a gasometer, of a lever connected with the valve-stems of said valves, a lever pivoted at one end above the gasometer and having its other end connected by a link with the gasometer-bell, a second lever pivoted between its ends to the lever connected with the gasometer-bell, a spring connecting one end of the second lever with the lever to which it is pivoted, and a link connecting the other end of the second lever with the lever connected with the valve-stems, substantially as described.

662,350. FEEDING AND DISINTEGRATING APPARATUS FOR FERTILIZERS. JOSEPHUS F. BURRELL, Irvington, Va., assignor to the American Process Company, New York, N. Y. Filed May 2, 1899. Serial No. 715,292. (No model.)

Claim.—1. The combination of a feed-tube having an opening in its upper side, a case mounted over said feed-tube and having a feed-passage registering with said opening, a revoluble pronged cylinder mounted in said case and whose prongs have a path of revolution through said feed-passage, and a comb provided with horizontally-projecting teeth each having a slightly-upwardly-curved end, and a receding and downwardly-inclined under side forming one side of the said feed-passage as set forth.



2. The combination of a feed-tube having an opening in its upper side, a case mounted over said feed-tube and having a feed-passage registering with said opening, a revoluble pronged cylinder mounted in said case and whose prongs have a path of revolution through said feed-passage, and a comb N made up of separate toothed plates *l* each of which consists of a tooth projecting horizontally and having a top with a bevel-ed edge whose extremity is slightly curved upward and takes close under the body-surface of the cylinder, the under side of each tooth receding and inclining downwardly from such extremity and forming a side of the said feed-passage, and a bolt *t* extending transversely through the teeth and securing them in the case, as and for the purpose set forth.

3. The combination of a horizontally-placed feed-tube having in its upper side an opening; a case mounted over the feed-tube and having a down-curved feed-passage registering with said opening; a shaft extending horizontally through said case; a cylinder made up of a series of pronged disks centrally mounted on said shaft and keyed thereto and the prongs having a path of revolution through said down-curved feed-passage; a comb whose heel end is secured at the case-wall and whose teeth project horizontally toward the said feed-passage—said comb having curved channels through which the disk-prongs sweep upward after crossing the feed-passage; and a hopper on the said case, as set forth.

4. The combination of a horizontally-placed feed-tube having in its upper side an opening; a case mounted over the feed-tube and having a down-curved feed-passage registering with said opening; a pronged cylinder mounted in said case—the prongs moving in a path through said down-curved feed-passage; a hopper mounted upon the said case; and a knife-plate seated between the hopper-base and top of case and presenting its edge to the points of the prongs as they sweep past, said knife-plate being formed with elongated openings adapted to receive fastening devices by which it may be adjustably held, as set forth.

662,351. CAR-COUPLING. OCTAVE CAUVIN, Happy Jack, La. Filed Sept. 6, 1900. Serial No. 29,216. (No model.)

Claim.—1. In a car-coupling of the character described, the combination with the draw-head having a slot in its bottom and opening into the mortise thereof, and the knuckle or coupling-jaw, of a locking member held transversely under the draw-head, and pivotally supported thereon, said member having a locking-lug projecting up through the said slot, counterpoise devices for normally holding the member in its locking position, said member having its outer end projected to form a stop to limit the upward movement thereof, said projection being of a length to extend beyond the coincident side of the draw-head, and lever-operated means for moving the said member to an unlocking position, all being arranged substantially as shown and for the purposes described.

2. The combination with the draw-head having a slot in its base opening into the mortise thereof, and the pivoted coupling-jaw; of the locking member 9, disposed transversely under the draw-head, said member being pivotally supported on said draw-head, one end of said member terminating in a threaded shank, a counterpoise for engaging said shank, the other end of said member having a locking-lug adapted to project up through the aforesaid slot, one edge of said lug being beveled, the other straight, said straight edge being arranged to coact with the locking end of the coupling-jaw and as an abutment to engage one edge of the slot to limit the downthrust of the locking member, the outer end of said member being extended to project beyond the coincident side of the draw-head, and means for tripping the member to an unlocked position, including a lever operated from the car-platform, all being arranged substantially as shown and for the purposes described.



3. The herein-described improvement in car-coupling, comprising in combination with the draw-head having a slot in the bottom opening into the mortise thereof, and the coupling-jaw; a locking member pivotally and detachably hung on the bottom of the draw-head and extended transversely thereof, said member having one end terminating in a threaded shank to receive a counterpoise, the other end of the said member having an upwardly-extending locking-lug adapted to project through the slot in the bottom of the draw-head to project in the path of the swinging of the locking-arm of the coupling-jaw, the said outer end having an extension, and a pendent chain connecting-bar 12, the pivotally-held lever 14, having a crank member 14^a, a flexible connecting member joined at one end to the chain-bar 9^a, and at the other to the crank end of the lever, and the counterpoise 16, pivotally supported and connected to the end of the lever 14, to swing upward with its crank end, all being arranged substantially as shown and for the purposes described.

662,352. CUTTER-BODY AND METHOD OF MAKING SAME. EUGENE CHILDS, Boston, Mass., assignor to the Boston Shoe Tool Company, same place. Filed Mar. 29, 1899. Serial No. 710,871. (No model.)



Claim.—1. A frusto-conical cutter-body, the larger base of which presents solid material, the smaller base presenting an annular wall tapered at its interior, said cutter-body being formed by forging first into a frusto-conical body having the smaller base solid, and thereafter subjecting the annular wall of the larger base to compression, which shall contract said annular wall to form the smaller base of the cutter-body.

2. A forged cutter-body for rotary trimmer-cutters having a solid base portion and an annular wall extending therefrom, the exterior and interior surfaces of said wall tapering from the base toward each other.

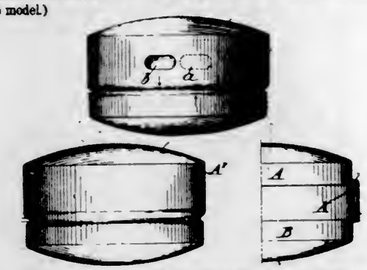
3. The herein-described improvement in the method of manufacturing cutter-bodies, which consists in heating a piece of metal, forging the same while hot to present a frusto-conical shape with a central hub, the smaller base of the body presenting a solid web of material, the larger base surrounding said hub presenting an annular wall, and thereafter subjecting the annular wall of said larger base to the action of a die which shall contract said annular wall uniformly circumferentially about said hub, thus bringing said annular wall into a compass to constitute the smaller base of the frusto-conical body, leaving what was the smaller base the larger base, substantially as described.

4. The herein-described improvement in the method of manufacturing cutter-bodies, which consists in heating a piece of metal, forging the same while hot to present a frusto-conical shape, the smaller base of the body presenting a solid web of material, the larger base presenting an annular wall, said wall tapering from its outer end inwardly toward said smaller base, and thereafter subjecting said annular wall to the action of a compressing-die tapered interiorly and moving onto said frusto-conical body in the direction of its length, said die acting gradually on said annular wall circumferentially to compress or shrink the diameter of said annular wall causing it to constitute the smaller base of a frusto-conical body, said

smaller base being left to present an annular wall tapering from its end outwardly toward the larger base of said body, substantially as described.

5. The herein-described improvement in the method of manufacturing cutter-bodies, which consists in heating a piece of metal, forging the same while hot to present a frusto-conical shape with an interior centrally-located hub, the smaller base of the body presenting a solid web of material, the larger base presenting an annular wall, and thereafter subjecting the annular wall of said larger base to the action of a die which shall contract said smaller wall uniformly circumferentially, thus bringing said wall toward said central hub to constitute the smaller base of the frusto-conical body, leaving what was the smaller base the larger base, substantially as described.

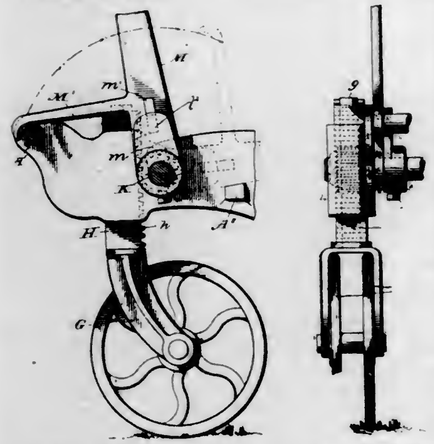
662,353. **BOX OR VESSEL FOR POWDERED OR GRANULAR MATERIAL.** EDWARD E. CLEMENT, Washington, D. C., assignor to Albert Geissert, Philadelphia, Pa. Filed Aug. 23, 1900. Serial No. 27,811. (No model.)



Claim.—1. A box or vessel of the character described composed of two complementary cylindrical members each having a closed and an open end, the diameters of the members being such that when they are placed with their open ends together one will fit within the other, to form a closed chamber, a shoulder formed in the circumference of the inner member, an inwardly-extending flange formed upon the outer member and adapted to engage over said shoulder, and apertures in the overlapping peripheries of both members adapted to be brought into registry by turning one member upon the other, substantially as described.

2. A vessel of the character described composed of two cylindrical members, each having one closed and one open end and adapted to fit with their open ends together, the edges overlapping, a continuous depression formed in the periphery of the inner member and a flange formed by turning over the edge of the outer member to loosely engage said depression, whereby the members are rotatably secured together, and apertures in the overlapping portions of the members adapted to be brought into registry by rotating one upon the other, substantially as described.

662,354. **LEVER-LOCKING MECHANISM.** THOMAS COLDWELL, Newburg, N. Y. Filed Dec. 13, 1899. Renewed Oct. 25, 1900. Serial No. 34,329. (No model.)



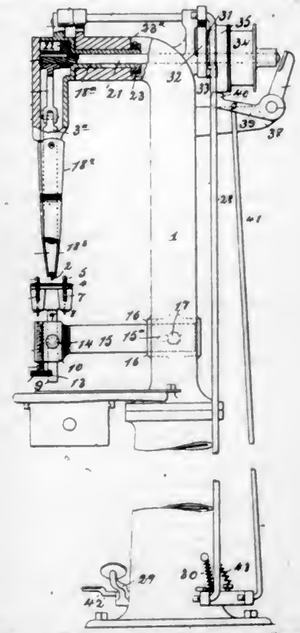
Claim.—1. The combination with a lever, a pivotal support therefor engaging a slotted portion of the lever, a rigid retaining-arm secured to said lever and provided at its outer end with a retaining projection, of a stationary part adapted to be engaged by said retaining projection, whereby said lever may be moved longitudinally with respect to its pivotal support to cause said retaining-arm to engage or disengage said stationary part, substantially as described.

2. The combination with a shaft, of an operating-arm secured thereto, a lever pivotally mounted on said shaft, but capable of moving longitudinally, an operative connection between said lever and said arm permitting the longitudinal movement of said lever, a retaining-arm secured to said lever having a retaining projection or hook and a stationary part adapted to be engaged by said retaining projection or hook, whereby said lever can be moved longitudinally with respect to said shaft and arm to cause said retaining-arm to engage or disengage said stationary part, substantially as described.

3. The combination with a shaft, of an arm secured thereto, of a lever having a longitudinally-extending slotted portion pivotally engaging said shaft, said lever and said arm having the one a projection engaging a slot in the other to permit said lever to move longitudinally, a retaining-arm rigidly secured to said lever and provided with a retaining projection at its outer end, and a stationary part adapted to be engaged by said retaining projection, substantially as described.

4. The combination with a shaft, of an arm adjustably secured thereto, a lever having a longitudinally-slotted portion engaging said shaft, said lever and arm having the one a projection engaging a slot in the other to permit the lever to move longitudinally, a retaining-arm secured rigidly to said lever, and provided with a retaining projection, and a stationary part adapted to be engaged by said retaining projection, substantially as described.

662,355. **SHOE-TRIMMING MACHINE.** ORLANDO A. DAVIS, Rochester, N. Y., assignor to the Boston Footwear Machine Company, of Maine. Filed June 30, 1899. Serial No. 722,356. (No model.)



Claim.—1. The combination with a cutter and means for supporting and operating the same within a shoe, of a support for the work and a pair of guides located on opposite sides of the cutter and adapted to be moved into and out of operative position, substantially as and for the purposes set forth.

2. The combination with a cutter and means for supporting and operating the same within a shoe, of a support, a pair of guides for the work located on opposite sides of the cutter and adapted to be moved in and out relatively to the support to enable the work to be brought against one or the other, substantially as described.

3. The combination of a cutter and means for supporting and operating the same within a shoe, with a support for the work, located on opposite sides of the cutter, and springs for holding the guides in operative

position and adapted to allow the guides to be moved out of operative position, substantially as described,

4. The combination of a cutter, a swiveled arm for the same adapted to guide the cutter within a shoe, and means for operating the cutter, with a support for the work, a pair of guides located on opposite sides of the cutter and comprising reciprocative members, means for supporting said members, and means for holding said members in operative position while permitting them to be moved out of operative position, substantially as and for the purposes set forth.

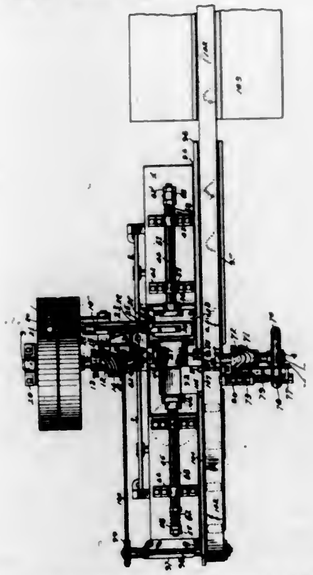
5. The combination of a cutter and means for supporting the same and for swinging it laterally to and from the operative position, with a support for the work located below the cutter, a pair of guides for the work located on opposite sides of the cutter, said guides comprising reciprocative members, guides for said members, springs to hold said members in operative position, and means to limit the outward movement of said members, substantially as described.

6. The combination of a reciprocative cutter and means for operating the same, with a support for the work in line with said cutter, a pair of guides located on opposite sides of said cutter and held from movement laterally of the cutter and adapted to have work pushed along in contact with them while in line with the cutter and to be moved into and out of operative position, and means for moving said work-support toward and from the cutter, substantially as described.

7. The combination of a cutter and means for supporting and operating the same within a shoe, with a support for the work held in line with the cutter beneath the same, a pair of guides located on opposite sides of said cutter and adapted to be moved into and out of operative position, means for moving said work-support toward and from the cutter, and means for adjusting said guides laterally relatively to said cutter, substantially as described.

8. The combination of a frame, a cutter, a swiveled arm for guiding said cutter, means within the arm for operating the cutter, a work-support in line with the cutter, adjustable guides for the work, an arm to carry said support, said frame having a socket to receive said arm, and means for adjustably holding said arm in said socket, substantially as described.

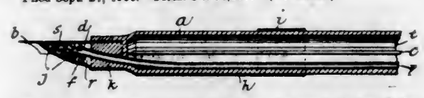
662,356. **SOAP-PRESS.** ENOS J. FORRESTER, St. Louis, Mo., assignor to C. W. Walls and F. H. Walls, same place. Filed Sept. 11, 1899. Serial No. 730,104. (No model.)



Claim.—1. In a soap-pressing machine, composed of a table mounted upon a framework, a driving-shaft carried in said framework, a double eccentric provided with grooves mounted on said shaft and operated by a driving-pulley, oscillatory operating-arms mounted upon shafts secured to said framework and communicating with and operated by said eccentrics, die-carrying rams mounted upon said table and operated by the oscillating arms, a mold adjustably held upon said table intermediate of said dies, a guide-plate located at each end of said mold, cams mounted upon said shaft at each side of the framework of said table, a lever operated by one of said cams for operating the feeding mechanism for feeding the cakes of soap in alinement with the mold and die and a lever operated by one of said cams for operating a delivery mechanism for delivering the soap from the die and mold back onto the endless carrier, said endless carrier operated by a roller rotated by the driving-shaft for conveying the soap to and from the mold onto the wrapping-table, substantially as specified.

2. In a soap-pressing machine, the combination of a table mounted upon a framework, a driving-shaft carried in said framework, double eccentrics mounted on said shaft, operating-arms mounted upon shafts mounted in said framework, said arms oscillatorily operated by an arm provided with a roller communicating with a groove formed in said eccentrics, said arms oscillating through a slot formed in said table, die-carrying rams mounted upon said table and communicating with and operated by said operating-arms, a mold adjustably mounted upon said table intermediate of said dies, a guide-plate mounted upon said table at each end of said mold, an adjustable stop carrying a water-tube mounted on said table for regulating the passage through which the soap is conveyed, cams mounted upon the driving-shaft at each side of the framework, a lever operated by one of said cams which operates a feeding-ram, one of said cams operating a lever which operates a delivery mechanism, a lever provided with a plate operated by a sprocket-wheel for releasing the cake of soap from the end of the die, an endless carrier conveyed by a roller mounted upon a shaft and operated by said sprocket-wheel carried by the driving-shaft, a water-supply tank mounted on top of said table for supplying the guide-plate with moisture for free passage of the soap, said endless carrier arranged to convey the soap in alinement with the delivery-ram and to convey the soap to a wrapping-table when the same is delivered from the mold by the delivery mechanism, substantially as specified.

662,357. **FOUNTAIN-PEN.** HENRY GRASS, Flowerdale, Victoria. Filed Sept. 27, 1900. Serial No. 31,293. (No model.)



Claim.—1. In a fountain-pen of the class indicated, the handle having a reservoir with base *f* having a slit or the like therein for the nib, of an ink-feed tube *p* passing partly through said base and having its exit near the nib, the other end of said tube having an ink-feed cup *e*, and the said reservoir and tube having a screw-cap *l* with a movable piston *m*, all substantially as and for the purposes set forth.

2. In a fountain-pen of the class indicated, the combination with the handle having a reservoir, base, ink-feed tube with exit near the nib, and screw-cap as set forth, of a longitudinally movable and adjustable wad-cup and a wad, all substantially as and for the purposes set forth.

3. In a fountain-pen of the class indicated, the combination with the ink-feed tube having its exit in a chamber under the nib, of the wad *s*, the wad-cup *f* having spikes *j* on which said wad is impaled, and a strip *h* extending from the said cup to a band *i* encircling and adapted to slide on the pen-handle, all substantially as and for the purposes set forth.

4. In a fountain-pen of the class indicated, the combination with the handle having a reservoir with ink-feed tube and ink-feed cup as set forth, of a screw-cap having a movable piston limited in its upward movement, and a push-rod, all substantially as and for the purposes set forth.

5. In a fountain-pen of the class indicated having an ink-feed tube and ink-feed cup, a screw-cap having a piston limited in its upward movement, a push-rod, and a projecting wire for cleaning the ink-feed tube, all in combination substantially as and for the purposes set forth.

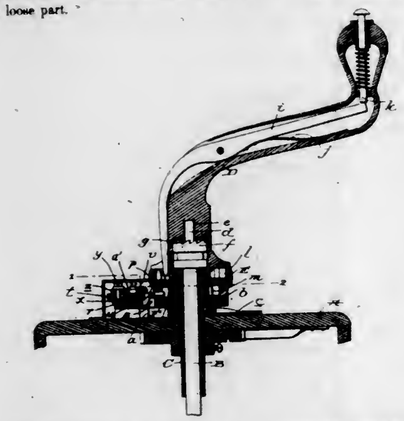
6. In a fountain-pen of the class indicated having an ink-feed tube and ink-feed cup, a screw-cap having a piston limited in its upward movement, a push-rod, a projecting wire for cleaning the ink-feed tube, and a spare wad-chamber above the said piston, all in combination substantially as and for the purposes set forth.

662,358. **CONTROLLER FOR MOTORS AND BRAKES OF ELECTRIC CARS.** ADOLPHE GROSSMAN, New Orleans, La. Filed July 5, 1900. Serial No. 22,578. (No model.)

Claim.—1. The combination with a brake, and a controller for the motor of an electrically-propelled vehicle; of a handle for operating the brake, a connecting device movable with the controller, a part movable independent of the controller and arranged to be engaged by the connecting device, means for automatically disengaging the connecting device from said independently-movable part, and means for connecting the handle with the independently-movable part.

2. The combination with a brake, and a controller for the motor of an electrically-propelled vehicle; of a handle for the brake, a latch mov-

able with the controller, a loose part mounted on the controller and arranged to be engaged by the latch, means for automatically disengaging the latch from said loose part, and means for connecting the handle with the loose part.

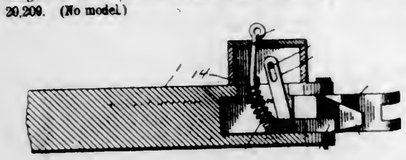


3. In a controller for motors and brakes of electrically-propelled vehicles, the combination of a brake-staff, a controller-shaft arranged concentrically thereto, a latch connected and movable with the controller-shaft, a part adapted to be engaged by the latch and move with the controller-shaft, and also adapted, when disengaged from the latch, to move independent of the shaft, operating connections between the brake-staff and said part, and means for automatically disengaging the latch from said part.

4. In a controller for motors and brakes of electrically-propelled vehicles, the combination of a brake-staff, a hollow controller-shaft surrounding the same, a disk fixed on the controller-shaft and carrying a latch, a disk loose with respect to the controller-shaft, and having projections arranged to be engaged by the latch, a crank for turning the brake-staff, an adjustable device thereon for engaging the loose disk, and automatic means for disengaging the latch from the loose disk.

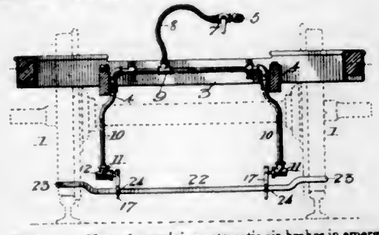
5. In a controller for motors and brakes of electrically-propelled vehicles, the combination of a support, a stop thereon, a brake-staff, a hollow controller-shaft surrounding the same, a disk fixed on the controller-shaft, and having a radial arm, a spring-pressed bolt arranged on said arm, a cam mounted on the arm and engaging the bolt; said cam being designed to be engaged by the stop, a disk loose with respect to the controller-shaft and adapted to be engaged by the spring-pressed bolt, a crank, a ratchet connection between the crank and brake-staff, and an adjustable device on the crank adapted to engage the loose disk, substantially as specified.

662,359. CAR-COUPLING. JAMES M. HOPKINS, Frostville, Ark., assignor of one-half to Lee Wallace. Filed June 13, 1900. Serial No. 20,209. (No model.)



Claim.—In a car-coupler, the combination with a head having a partition dividing it into compartments, of a stop in one of the compartments, a knuckle comprising angularly-disposed jaws and pivoted in said compartment with the stop, said knuckle being adapted to be moved to cause one of its jaws to lie against the stop and partition, a spring disposed against the knuckle and the inner wall of the head to hold the knuckle yieldably projected, a bodily-movable dog adapted for movement into and out of the path of movement of the jaw that contacts with the partition and stop to alternately lock and release the knuckle, a box upon the head and having a perforated lug therein, a shifting-rod passed through the box and lug and engaged with the dog for moving it, a helical spring disposed upon the rod and resting with its ends against the dog and lug to hold the dog normally and yieldably in its locking position, an arm extending upwardly from the dog and into the box and having its upper end slotted, and a pin engaged with the box and the slot of the arm for limiting the movement of the dog.

662,360. MEANS FOR APPLYING AUTOMATIC AIR-BRAKES IN EMERGENCIES. JAMES F. HUTCHISON, Mobile, Ala. Filed June 21, 1900. Serial No. 21,050. (No model.)



Claim.—1. Means for applying automatic air-brakes in emergencies, consisting of a train-pipe; a rod or bar located adjacent the rails and road-bed; a valve having a core with a groove and a shell with holes through the same on opposite sides communicating directly with the atmosphere; a lever-arm for the valve supporting the said rod or bar; a downwardly-extending pipe to the end of which the valve is secured and with which it is in communication by a passage; and means joining the said downwardly-extending pipe and the train-pipe, whereby when the rod engages the rail or track the lever-arm will be moved through the arc of a circle and the valve opened.

2. Means for applying automatic air-brakes in emergencies, consisting of a train-pipe; a rod or bar located adjacent the rails and road-bed; two valves; two lever-arms supporting the rod or bar; two downwardly-extending pipes; and a flexible hose or pipe uniting the two downwardly-extending pipes and the train-pipe.

3. The combination with a device, constructed and operating substantially as set forth; of downwardly-extending pipes having valves with lever-arms; and a rod or bar located adjacent the rails and road-bed and having upwardly-curved ends, 23, 23; said rod supported by the lever-arms.

4. The combination with a device, constructed and operating substantially as set forth, of a valve having a shell provided with holes, 12, 12; a grooved core; and a lever-arm; said shell having an opening communicating with the grooved core, and said grooved core normally closing the holes 12, 12 when the lever-arm is in a vertical position.

5. The combination with a device, constructed and operating substantially as set forth, of two valves having shells each provided with holes, 12, 12; a grooved core, and a lever-arm; the said lever-arms supporting a rod the ends of which extend over the rails at each end.

6. The combination with a device, constructed and operating substantially as set forth, of two valves having shells provided with holes on opposite sides, grooved cores, and lever-arms; and said lever-arms having slots within which is located a rod or bar.

7. The combination with a device, constructed and operating substantially as set forth, of two valves; two slotted lever-arms; a bar supported by the lever-arms; two pipes; and flexible means uniting the said pipes and the train-pipe.

8. The combination with the train-pipe, of a flexible hose or pipe, 8; pipes, 10, 10; valves, 11, 11; lever-arms, 17, 17; and a rod or bar, 22; said bar extending from rail to rail and adapted when engaging the track or a rail to rock the lever-arms and vent the train-pipe.

9. The combination with a device, constructed and operating as set forth, of valves having slotted lever-arms; a rod supported in the slots; and means for adjusting the rod within the slots, whereby it can be located a suitable distance above the rails.

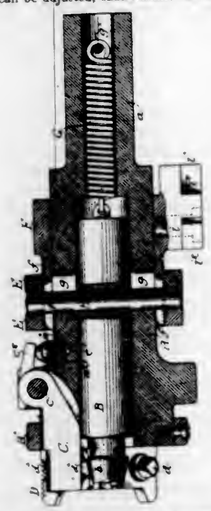
662,361. COLLAPSIBLE SCREW-THREADING TAP. SYLVESTER B. LEIDY, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Apr. 25, 1900. Serial No. 14,329. (No model.)

Claim.—1. The combination of the body, pivoted levers, cutters carried thereby, a plunger having a head acting to project the cutters, a spring tending to retract the plunger, a sleeve coupled to the plunger, and mechanism on the sleeve actuated by operating mechanism on the machine to force the plunger forward to project the cutters, substantially as described.

2. The combination of the body, cutters carried thereby, a plunger arranged to project the cutters, a spring for retracting the plunger, a sleeve on the shank connected to the plunger, and means for adjusting the sleeve in respect to the plunger, substantially as described.

3. The combination of a body, cutters carried thereby, a plunger having a head acting to project the cutters, a sleeve, a pin carried by the plunger and projecting through slots in the body and in the sleeve, said sleeve being threaded, threaded rings mounted in the threaded portion

of the sleeve and between which the pin projects, so that on turning the rings the plunger can be adjusted, substantially as described.



4. The combination of a body, movable cutters, a plunger for projecting the cutters, a sleeve connected to the plunger, a trigger pivoted to the sleeve and having two arms, a pusher and a stop, one arm of the trigger receiving the thrust of the pusher, and the other arranged to come in contact with the stop and trip the trigger so as to free it from the pusher, substantially as described.

5. The combination of a body, cutters carried by the body, a plunger within the body arranged to project the cutters, a sleeve connected to the plunger, a trigger pivoted to the sleeve having two arms, one of said arms being undercut, a pusher and a stop, the undercut arm of the trigger taking the thrust of the pusher, a spring tending to keep the arm in line with the pusher, the other arm being in line with the stop, whereby it is tripped so as to withdraw the trigger from the pusher, substantially as described.

6. The combination in a collapsible tap, of a body having a collar integral therewith, levers pivoted in recesses in said collar, cutters on said levers, a plunger within the body having a head acting to project the cutters and to hold them in the projected position, and a loose sleeve on the outside of the shaft operatively and adjustably connected to said plunger, substantially as described.

662,362. TONGUE-TIP. AMUND A. LERRAHEN, Carlisle, Minn. Filed Sept. 12, 1900. Serial No. 29,823. (No model.)

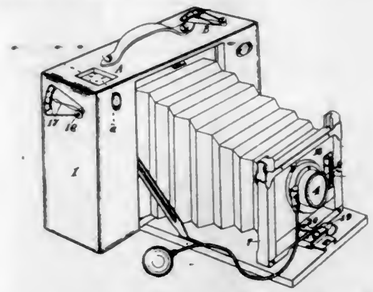


Claim.—The combination with a tongue of a tip comprising a plate including the upper and lower legs disposed on the opposite sides of the tongue, the lower leg being bifurcated, and having the extremities of the bifurcations connected to the alining perforations through the upper leg, a hook having a stem engaged with the perforations to hold the hook and the plate to the tongue, a keeper pivoted between the bifurcations of the lower leg, said keeper lying normally in engagement with the hook, a stem entering the recess in the tongue, and a spring encircling the stem and adapted to hold the stem normally projected.

662,363. PHOTOGRAPHIC FINDER. CHARLES P. MAGAGNOS and WILLIAM H. FULTON, Alameda, Cal. Filed Apr. 21, 1900. Serial No. 13,731. (No model.)

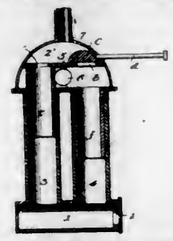
Claim.—1. In a photographic camera, provided with a sightway, a finder pivotally mounted within the camera, beneath the sightway, an external pointer connected with the finder and a scale to indicate the position of the latter in respect to the camera, substantially as specified.

2. In a photographic camera, provided with a sightway, a finder pivotally mounted within the camera, beneath the sightway, a main lens, an external pointer and scale to indicate the position of the finder in respect to the camera, and a second pointer and scale connected with and indicating the position of the main lens in respect to that of the finder, substantially as and for the purpose specified.



3. In a photographic camera, a main lens, a pivoted finder, and scales 14 and 15, with pointers, scale 14 indicating the position of the finder in respect to the camera, and scale 15 indicating the relative position of the main lens to that of the finder, all substantially as specified.

662,364. HEATING-DRUM. JAMES MAHEDY, Kellerton, Iowa. Filed May 10, 1900. Serial No. 16,171. (No model.)



Claim.—In a heating-drum, the combination with a smoke-box and the hood provided with a partition having openings therein, of tubes connecting the smoke-box with the hood and registering with the openings in the partition, an inlet to the hood arranged below the partition, an outlet from the hood arranged above the partition, a valve for closing either one of said openings in the partition, and vertically-movable sleeves located within the tubes and adapted to be moved alternately into engagement with the partition and in communication with the holes therein, substantially as set forth.

662,365. PRINTER'S RULE. CLARENCE C. MARDER, Chicago, Ill. Filed June 14, 1900. Serial No. 20,335. (No model.)



Claim.—1. A "round-corner" printer's rule having an end portion extending approximately at right angles to the body, the lower edges of the body and end portion being straight and substantially at right angles to each other, and the upper edges thereof, constituting the printing-face, extending on a curved line, substantially as described.

2. A "round-corner" printer's rule having an end portion extending approximately at right angles to the body, the upper edges of the end and body having a portion free from connection at the corner and inwardly deflected and curved, substantially as described.

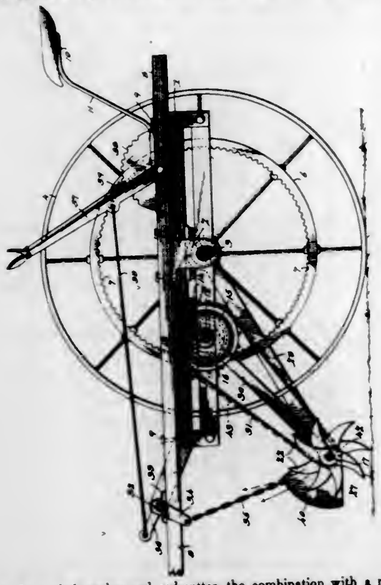
3. A "round-corner" printer's rule having an end portion extending approximately at right angles to the body and an incision in said end portion and body below the printing-face, said incision forming a free printing-face portion which is inwardly deflected and curved at the corner, substantially as described.

4. A "round-corner" printer's rule having a right-angular base or lower edge and a curved upper or printing edge, substantially as described.

662,366. CLOD-CRUSHER AND SOD-CUTTER. STEPHEN T. PAYNE, Louisville, Ky. Filed Mar. 10, 1900. Serial No. 8,217. (No model.)

Claim.—1. In a clod-crushing and sod-cutting machine, the combi-

nation with a main frame having driving-gears, a drive-shaft having gears adapted to engage with the driving-gears, said drive-shaft being laterally movable in its bearings, a clod-crushing and sod-cutting roller, operating connections between the latter and the drive-shaft, whereby said roller may be rotated, links connecting said roller with the main frame and means to raise and lower the roller and thereby automatically throw the drive-shaft into and out of gear with the driving-gears, substantially as described.



2. In a clod-crusher and sod-cutter, the combination with a main frame, supporting-wheels therefor, driving-gears rotated by said supporting-wheels, a clod-crushing and sod-cutting roller, link-arms connecting the latter to the spindles or axles of the supporting-wheels, a drive-shaft having gears to engage the driving-gears, bearings for said drive-shaft whereby the latter may be moved laterally into and out of gear with the driving-gears, operating connections between said drive-shaft and said roller, link-arms connecting said roller with said drive-shaft, and means for raising and lowering said roller, substantially as described.

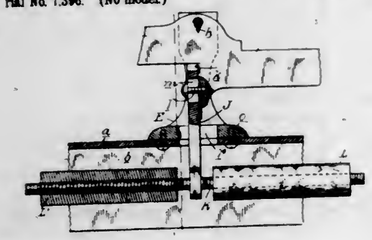
3. In a clod-crusher and sod-cuttor, the combination of a main frame, a flexibly-jointed clod-crushing and sod-cutting roller, supporting and operating connections between the latter and the main frame and means for raising and lowering said flexibly-jointed roller, substantially as described.

4. A clod-crushing and sod-cutting roller comprising the flexibly-jointed rod, and the series of teeth thereon, said teeth having their points arranged spirally, substantially as described.

5. A flexibly-jointed clod-crushing and sod-cutting roller having the concave guard thereon, in combination with means for rotating, supporting, and raising and lowering said roller, substantially as described.

6. A clod-crushing and sod-cutting machine comprising a supporting-frame, a flexibly-jointed roller, connections between the latter and the frame whereby said roller is supported and guided in advance of said frame and in the line of draft, and means for rotating said roller and for raising and lowering the same, substantially as described.

662,367. SCALE-BEAM. CHARLES G. STRUBLER, Detroit, Mich., assignor to Walter F. Stimpson, same place. Filed Mar. 5, 1900. Serial No. 7,396. (No model.)



Claim.—1. A golf-tee, comprising a base, an annular ball-seat thereabove and means for adjusting the height and diameter of said seat in relation to said base.

2. A golf-tee, comprising a coiled strip adapted to be adjusted into a spiral form and means for retaining said coil from expansion in diameter.

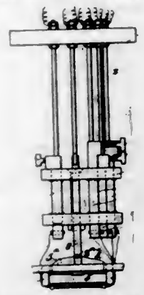
3. A golf tee, comprising a coiled strip adapted to be adjusted into spiral form, the outer coil being secured upon itself to form a retaining-band.

4. A golf-tee, comprising a coiled strip of paper adapted to be adjusted into spiral form, the outer coil being glued upon itself to form a retaining-band.

5. A golf-tee, comprising a base and an annular ball-seat having a telescopic connection with said base whereby said tee may be extended for use and collapsed for carrying

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662,369. TERMINAL CONNECTION FOR ELECTRIC LAMPS. ALEXANDER J. WURTS, Pittsburg, Pa., assignor to George Westinghouse, same place. Filed Jan. 27, 1900. Serial No. 3,050. (No model.)



Claim.—1. In an electric lamp of the type described, the combination with glowers and heaters and a supporting structure therefor having terminal rods or bars that project above said structure to different heights

and are provided with sockets and set-screws in their upper ends, and with laterally-disposed sockets in their lower ends, of a main support provided with depending rods the lower ends of which are seated in the corresponding sockets in the upper ends of the terminal bars or rods, and aluminium plugs removably seated in the lower sockets and having the heater and glower terminal wires fastened thereto.

2. In an electric lamp of the type described, the combination with one or more glowers and one or more heaters and a supporting structure having terminal rods or bars that project above said structure to different heights and also below said structure and are provided with sockets and fastening means in their upper ends and with sockets in their lower ends, of a main support provided with depending rods the lower ends of which are seated in the corresponding sockets in the upper ends of the terminal bars or rods, and aluminium plugs for removably fastening the glower and heater terminal wires to the lower ends of the rods.

3. In an electric lamp of the type described, the combination with one or more glowers and one or more heaters and a supporting structure therefor having terminal rods or bars that project above said structure and are provided with sockets and set-screws in their upper ends and with sockets and soft-metal plugs in their lower ends, of a main support provided with depending rods the lower ends of which are seated in the corresponding sockets in the upper ends of the terminal bars or rods, the glower and heater terminal wires being fastened to the lower ends of said bars or rods by means of the said sockets and plugs.

4. In an electric lamp of the type described, a removable terminal wire-binding device comprising a soft-metal plug to which the terminal wire is connected and a terminal piece having a socket with which the plug makes a sliding, frictional engagement.

5. A separable terminal wire-binding device comprising a rod or post having a hole or socket and an aluminium plug having the terminal wire fastened thereto and removably fitting into said hole or socket.

6. In an electric lamp of the type described, the combination with one or more glowers and one or more heaters, of terminal blocks or rods having sockets that are subjected to high temperatures and substantially non-oxidizable, soft-metal terminal plugs removably seated in said sockets, said plugs having sockets or recesses in which the ends of the terminal wires are rigidly seated.

7. In an electric lamp of the type described, the combination with one or more glowers and one or more heaters, of terminal blocks or rods having sockets that are subjected to high temperatures and tapered aluminium terminal plugs removably seated in said sockets.

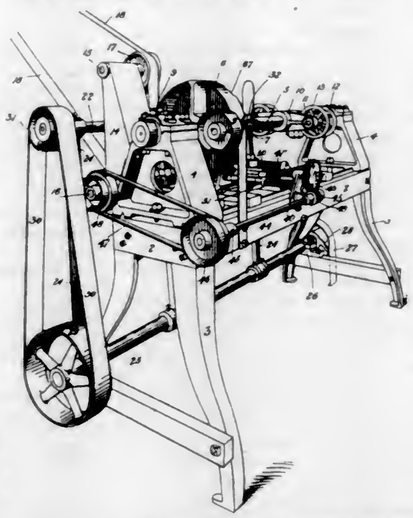
8. A terminal device comprising a terminal wire and a plug composed of soft, substantially non-oxidizable metal and having a socket in which the end of said wire is clamped by compression so as to provide an enlarged extension of said wire adapted for making detachable circuit connection with a perforated terminal piece.

662,370. CLOD-CRUSHER AND LAND-LEVELER. GEORGE E. BLAINE and PHILIP T. SOUTH, Dayton, Ohio. Filed May 16, 1900. Serial No. 16,950. (No model.)



Claim.—In a clod-crusher a top frame A and B mortised and bolted at the four corners and braced through the middle by means of plate F bolted to the sides of the frame A, with seat D E secured thereto, in combination with a series of blades C hinged to the under side of the frame-plates A, said blades held at any desired backward angle by means of springs *l* secured to the sides of the blades C by means of plates *y*, said springs connected to rear blades by means of screw-hook and tension of springs regulated by means of link chains substantially as set forth and described.

662,371. TURNING-LATHE. FRANK R. CLARK, St. Albans, W. Va., assignor to the Montague Manufacturing Company, same place. Filed Oct. 27, 1899. Serial No. 735,002. (No model.)



Claim.—1. A turning-lathe provided with a rotating work-supporting structure, oppositely-located independently-rotatable blank holding and centering devices thereon, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt and means for advancing the cutters toward the work, substantially as set forth.

2. A turning-lathe provided with a rotating work-supporting structure, oppositely-located independently-rotatable blank holding and centering devices thereon, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt and means for advancing the cutters toward the work and retracting them therefrom, substantially as set forth.

3. A turning-lathe provided with a rotating work-supporting structure, oppositely-located independently-rotatable blank holding and centering devices thereon, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work and means for arresting their forward travel, substantially as set forth.

4. A turning-lathe provided with a rotating work-supporting structure, oppositely-located independently-rotatable blank holding and centering devices thereon, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work and adjustably arranged means for arresting their forward travel at any desired point of operation, substantially as set forth.

5. A turning-lathe provided with a rotating work-supporting structure, oppositely-located independently-rotatable blank holding and centering devices thereon, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work and a holding device for retaining the supporting structure in operative position, substantially as set forth.

6. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with spindle-sockets, a longitudinally-adjustable chuck-head mounted on the shaft provided with centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-

shaft, a connecting-belt, and means for advancing the cutters toward the work, substantially as set forth.

7. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, and means for advancing the cutters toward the work, substantially as set forth.

8. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets secured to driving-shafts carrying pulleys, a driving-belt adapted to make driving-contact with one of the pulleys when in operative position, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt and means for advancing the cutters toward the work, substantially as set forth.

9. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work, means for locating the contained blank in proper range of the cutters and simultaneously imparting a rotary movement to the blank, substantially as set forth.

10. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work, means for locking the spindle-drum in operative position whereby the blank is located in range of the cutters and whereby the inoperative centering-chuck and spindle-socket are located in position for removal and renewal, substantially as set forth.

11. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located centering-chucks in alinement with the spindle-sockets, rotating cutters mounted on a supporting-shaft journaled in swinging arms pivotally mounted on a power-shaft, a driving-pulley on the power-shaft, a driven pulley on the cutter-shaft, a connecting-belt, means for advancing the cutters toward the work, and a spring-arm adapted to interlock with the spindle-drum and hold it in position, substantially as set forth.

12. A turning lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets secured to driving-shafts carrying pulleys, a driving-belt passing around upper and lower pulleys mounted in the frame of the machine and in the path of the spindle-socket pulleys, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located adjustable centering-chucks in alinement with the spindle-sockets, rotating cutters adjustably mounted on a driving-shaft, supporting-arms for the driving-shaft journaled on a power-shaft, means for transmitting power from the power-shaft to the cutter-driving shaft, feeding devices for the cutter-supporting mechanism adapted to be automatically thrown into gear when the blank is placed in position to be operated upon and means for disengaging such feeding devices.

13. A turning-lathe provided with a rotatable work-supporting shaft, a spindle-drum thereon provided with oppositely-located spindle-sockets secured to driving-shafts carrying pulleys, a driving-belt passing around upper and lower pulleys mounted in the frame of the machine and in the path of the spindle-socket pulleys, a longitudinally-adjustable chuck-head mounted on the shaft provided with oppositely-located adjustable centering-chucks in alinement with the spindle-sockets, rotating cutters adjustably mounted on a driving-shaft, supporting-arms for the driving-shaft journaled on a power-shaft, means for transmitting power from the power-shaft to the cutter-driving shaft, feeding devices for the cutter-supporting mechanism adapted to be automatically thrown into gear when the blank is placed in position to be operated upon, means for disengaging such feeding devices and means for returning the cutter-supporting mechanism and feeding devices to the initial position.

14. In a lathe of the class described provided with a constantly-driven cutter-shaft mounted on swinging arms, and a power-imparting belt adapted to be thrown into operative tension by movement of the work-supporting structure; feeding mechanism for the cutters consisting of a threaded shaft, gearing whereby such threaded shaft is rotated from the power-imparting belt when under tension, a nut adapted to engage the threaded shaft, and means connecting the nut with mechanism adapted to impart forward movement to the cutter-shaft arms.

15. In a lathe of the class described provided with a constantly-driven cutter-shaft mounted on swinging arms, and a power-imparting belt adapted to be thrown into operative tension by movement of the work-supporting structure; feeding mechanism for the cutters consisting of a threaded shaft, gearing whereby such threaded shaft is rotated from the power-imparting belt when under tension, a nut adapted to engage the threaded shaft, means connecting the nut with mechanism adapted to impart forward movement to the cutter-shaft arms and means for disconnecting the nut from the threaded shaft.

16. In a lathe of the class described provided with a constantly-driven cutter-shaft mounted on swinging arms, and a power-imparting belt adapted to be thrown into operative tension by movement of the work-supporting structure; feeding mechanism for the cutters consisting of a threaded shaft, gearing whereby such threaded shaft is rotated from the power-imparting belt when under tension, a nut adapted to engage the threaded shaft, means connecting the nut with mechanism adapted to impart forward movement to the cutter-shaft arms, means for disconnecting the nut from the threaded shaft and for retracting the cutter-shaft arms.

17. In a lathe of the class described provided with rotating cutters, mechanism for advancing the cutters, work-supporting mechanism provided with a spindle-drum, a feeding-screw, and a half-nut adapted to engage the screw; a sliding bar for the half-nut and a supporting-dog therefor mounted on a rock-shaft provided with an arm adapted to bear against the spindle-drum.

18. In a turning-lathe, in combination with a rotating work-supporting shaft, oppositely-located independently-rotatable blank holding and centering devices thereon and rotating cutters mounted on a supporting and driving mechanism; a rotating shaft provided with a threaded portion, a half-nut adapted to engage the thread thereof, connections therefrom to the cutter-supporting mechanism, a pivoted slide-bar adapted to support the half-nut in engagement, and a trigger adapted to support the slide-bar with means for dislodging the trigger, substantially as set forth.

19. In a lathe of the class described, a rotating threaded shaft, a half-nut adapted to engage the shaft having knocker-arms, connections from the nut to the cutter-supporting mechanism, a pivoted slide-bar adapted to support the half-nut in engagement, a trigger adapted to support the slide-bar mounted on a movable rod provided with adjustable nuts in the path of the knocker-arms, and means for raising the slide-bar.

20. In a lathe of the class described, a rotating threaded shaft, a half-nut adapted to engage the shaft having knocker-arms, connections from the nut to the cutter-supporting mechanism, a pivoted slide-bar adapted to support the half-nut in engagement, a trigger adapted to support the slide-bar mounted on a movable rod provided with adjustable nuts in the path of the knocker-arms, means for raising the slide-bar and a spring adapted to force the trigger into supporting engagement with the slide-bar.

21. In a lathe of the class described, a rotating threaded shaft, a half-nut adapted to engage the shaft having knocker-arms, connections from the nut to the cutter-supporting mechanism, a pivoted slide-bar adapted to support the half-nut in engagement, a trigger adapted to support the slide-bar mounted on a movable rod provided with adjustable nuts in the path of the knocker-arms, an intermittently-movable dog adapted to support the slide-bar and means for raising the dog.

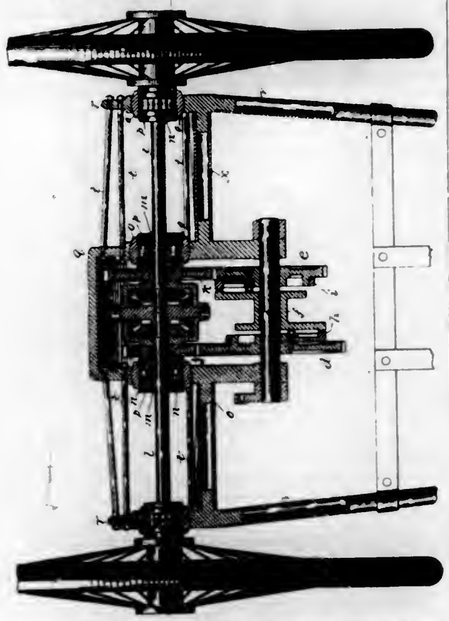
22. In a lathe provided with cutters mounted on a rotating shaft supported in pivoted arms, cams adapted to bear upon the arms to press them forward toward the blank and forwardly-traveling feeding mechanism connected with and adapted to impart motion to the cam-operating shaft.

23. In a lathe provided with cutters mounted on a rotating shaft supported in pivoted arms, cams adapted to bear upon the arms to press them forward toward the blank, forwardly-traveling feeding mechanism connected with and adapted to impart motion to the cam-operating shaft and means for disconnecting the feeding mechanism and for retracting the pivoted arms.

24. In a lathe provided with cutters mounted on a rotating shaft supported in pivoted arms, cams adapted to bear upon the arms to press them forward toward the blank, a cam-shaft, a lever secured to the shaft, and forwardly-traveling feeding mechanism connected with the lever and adapted to rotate the cam-shaft.

25. In a turning-lathe, the combination of a rotating work-supporting shaft, oppositely-located independently-rotatable blank holding and centering devices, a spindle-drum mounted on the shaft and carrying such devices, oppositely-located recesses on the periphery of the drum, a partially-rotatable spring-actuated arm mounted on a shaft provided with a raising-dog, a feed-nut-supporting bar adapted to be raised by the dog upon rotation of the drum, the arm being adapted to spring back to engage one of the recesses when the drum is at rest in operative position, permitting the dog and supporting-bar to fall by gravity, a spring locking-arm adapted to engage oppositely-located notches in the face of the drum; independent driving-pulleys mounted on the outer ends of the shafts of the blank holding and centering devices and a slack driving-belt adapted to come into contact with the driving-pulleys when the blank-holding devices are in operative positions and to be released from contact when the blank-holding devices are in positions of rest, with guiding-pulleys for the belt, substantially as set forth.

662,372. MOTOR-VEHICLE. THOMAS B. DOOLEY, Malden, Mass., assignor to Everett D. Wiggin, trustee. Filed Mar. 19, 1900. Serial No. 9,155. (No model.)



Claim.—1. A motor-vehicle frame provided with a centrally-divided axle, each inner and outer end of each divided part having bearings arranged in a box having its outer surface rounded to permit it to rock and brace-rods *t* between the bearings to stiffen and support them, as set forth.

2. A motor-vehicle frame, in combination with the divided axle of the vehicle, an equalizing mechanism thereon, a casing inclosing the said mechanism, disks *r* on the outer ends of the axles, and bracing devices between the casing and disks, substantially as disclosed.

3. A motor-vehicle frame, in combination with the divided axle of the vehicle, an equalizing mechanism thereon, a casing inclosing the said mechanism, disks *r* on the outer ends of the axles, and bracing devices between the casing and disks, and a ball-bearing connection of the frame with the axle, said ball-bearing connection being arranged at points coincident with the sides of the casing and said disks, substantially as disclosed.

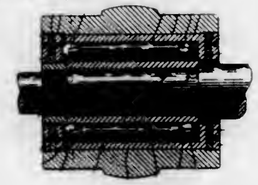
4. In a vehicle, the combination of a frame; a divided axle; wheels thereon; equalizing-gearing connecting the inner ends of the axle members; a casing for said equalizing-gearing; and bearings for the axle members having rounded exterior surfaces engaging said casing.

5. In a vehicle, the combination of a frame, a divided axle; wheels thereon; bearing for the outer ends of the axle members with rounded exteriors engaging the frame; equalizing-gearing connecting the inner ends of the axle members; a casing inclosing the equalizing-gearing; and bearings for the inner ends of the shaft members having rounded exteriors engaging the said casing.

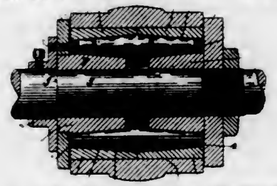
6. In a vehicle, the combination of a frame; a divided axle; wheels thereon; bearings for the outer ends of the axle members with rounded exteriors engaging the frame; equalizing-gearing connecting the inner ends of the axle members; a casing inclosing the equalizing-gearing; and brace-rods extending between the latter and the portions of the frame engaged by the bearings for the outer ends of the axle members.

662,373. ANTIFRICTION-BEARING. THOMAS B. DOOLEY, Malden, Mass. Filed Apr. 24, 1900. Serial No. 14,077. (No model.)

Claim.—A roller-bearing consisting of a shaft having a shoulder; a casing surrounding said shaft; two concentrically-disposed tubular sleeves fixed respectively to the exterior of the shaft and the interior of the casing and forming between them a symmetrical annular raceway having opposing bearing-faces parallel to each other and parallel to the axis of the shaft, and the inner sleeve of which abuts at one end against the shaft-shoulder and the outer sleeve of which has at one end thereof an internal annular flange; a take-up ring screwed into the casing and having its inner face in juxtaposition to the non-flanged end of the external sleeve; two independent circuits of relatively separated balls located, respectively, in opposite ends of the raceway, and one circuit of balls having bearings against the inner face of the flange and opposing faces of the two sleeves, and the other set of balls having bearings against the inner face of the take-up ring and the opposing faces of the two sleeves, a circuit of relatively separated cylindrical rollers having bearings against opposing faces of the two sleeves and having reduced conical ends fitting between adjacent balls of the two circuits of balls and terminating within the peripheral lines of said balls, and retaining said balls in separated relation and with their peripheries in bearing contact with the flange and take-up ring respectively; confining-rings screwed into opposite ends of the casing; and two dust-guards one of which is interposed between the confining-ring and the take-up ring at one end of the casing, and the other of which is interposed between the confining-ring and sleeve-flange at the other end of the casing substantially as described.



662,374. ANTIFRICTION-BEARING. THOMAS B. DOOLEY, Malden, Mass. Filed Apr. 24, 1900. Serial No. 14,078. (No model.)

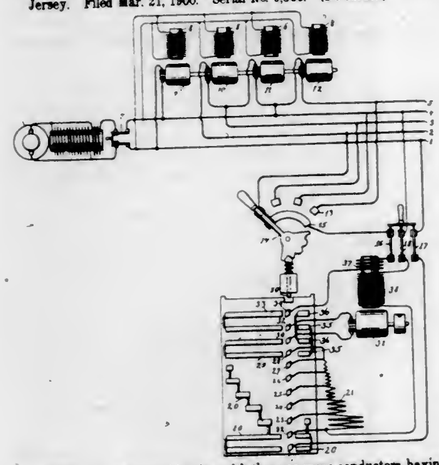


Claim.—1. A roller-bearing comprising a stationary member and a rotative member; two internally-conical sleeves fitting the interior of one member and two externally-tapered sleeves fitting the exterior of the other member and forming between them an annular raceway, the opposing bearing-faces of which are tapered on relatively oblique lines from the center inwardly toward opposite ends thereof, and one of which externally-tapered sleeves extends beyond the end face of one of the internally-conical sleeves; a roller-cage including two transversely-perforated rings located in opposite ends of the raceway between opposing sleeves; a plurality of double-cone rollers disposed between, and bearing against, the opposing faces of the two opposing sets of sleeves and having reduced journals loosely supported in the perforations in said rings; confining means in connection with one end of said cage; and confining and adjusting means in connection with the opposite end of said cage, and including a ring screwed upon the exterior of the extended externally-tapered sleeve, a collar in bearing engagement with said ring, and means between said ring and collar for locking the ring against rotation.

2. In a roller-bearing the combination, with a shaft and with a casing surrounding said shaft, of two externally-tapered sleeves and two internally-tapered sleeves, the former of which are secured to the shaft for rotation therewith and for adjustment longitudinally thereof and the latter of which are secured to the interior of the casing and the two opposing sets of sleeves being disposed to form between them a raceway of the form of a double cone; perforated rings surrounding the outer ends of the externally-tapered sleeve; double-cone rollers supported in said raceway and having reduced journals at opposite ends loosely contained in the perforations in said rings; a confining device screwed upon one end of the shaft and bearing against the outer end of one externally-tapered sleeve; a confining-ring screwed upon the outer end of the other externally-tapered sleeve with its inner face in juxtaposition to the outer face of the casing; a collar supported upon the shaft for adjustment longitudinally thereof and with its inner face in bearing engagement with said ring; a

set-screw extending through said collar for holding it in adjusted position on the shaft; and a pin on said collar entering a recess in said ring and holding the same against rotation with respect to the sleeve on which it is mounted.

662,375. MULTIPLE-VOLTAGE CONTROLLER. GANO S. DUNN, East Orange, N. J., assignor to the Crocker-Wheeler Company, of New Jersey. Filed Mar. 21, 1900. Serial No. 9,586. (No model.)



Claim.—1. The combination with three or more conductors having interconnecting means for maintaining them at different voltages, of a motor, a multiple-voltage switch and a controller between the motor and the conductors, and locking mechanism for the multiple-voltage switch which is operated by the controller and is released only when the controller is in open position, substantially as described.

2. The combination with three or more conductors having interconnecting means for maintaining them at different voltages, of a motor, a multiple-voltage switch and a controller between the motor and the conductors, and interlocking mechanism between the multiple-voltage switch and the controller, substantially as described.

3. The combination of a multiple-voltage switch and a controller, a notched guide-slot for the multiple-voltage switch-lever, a movable plate on the opposite side of the switch-lever from the notches in the guide-slot, a spring-pressed latch connected with the plate, and a notched disk carried by the controller, by which the multiple-voltage switch is locked by the controller, substantially as described.

4. The combination with three or more conductors having interconnecting means for maintaining them at different voltages, of a motor with two field-coils, a switch for connecting one of the field-coils to two of the conductors, and a switch for shifting the connections of the other field-coil between the conductors, substantially as described.

5. The combination with three or more conductors having interconnecting means for maintaining them at different voltages, of a motor with series and shunt field-coils, a switch for connecting the shunt field-coil to two of the conductors, and a switch for shifting the connection of the series field-coil and armature between the conductors, substantially as described.

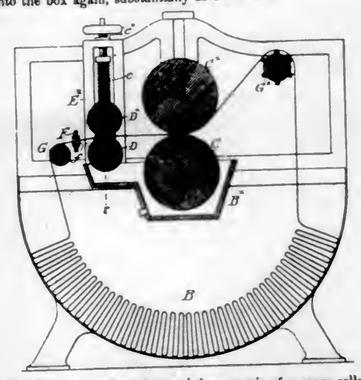
662,376. FLOOR. EDWARD GOEHST, Chicago, Ill. Filed Dec. 12, 1899. Serial No. 740,093. (No model.)



Claim.—A border for floors, composed of a plurality of boards having tapering grooves formed in their lower sides, said grooves having beveled sides, and extending transversely through said boards at opposing angles to each other, and wedges adapted to fit said grooves, substantially as set forth.

662,377. PIECE-WASHING MACHINE. CHARLES C. KENYON, Raritan, N. J., assignor of one-half to David R. Kenyon, same place. Filed Aug. 2, 1900. Serial No. 25,699. (No model.)

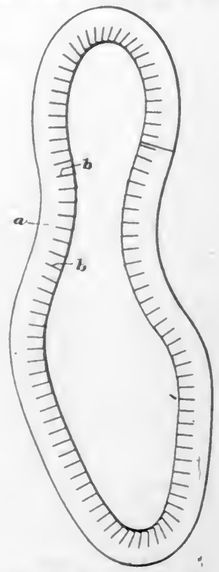
Claim.—1. The combination in a machine for washing fabrics, of a wash-box, a pair of squeeze-rolls mounted above the box, means for driving the squeeze-rolls, and a pair of rubbing-rolls mounted on one side of the squeeze-rolls, means for driving the said rolls, means for reciprocating one or both of the rolls, and guides for the fabric, the whole being constructed so that the fabric will pass from the wash-box between the rolls and into the box again, substantially as described.



2. The combination of a wash-box, a pair of squeeze-rolls mounted above the box, means for driving said squeeze-rolls, a pair of rubbing-rolls mounted on one side of the squeeze-rolls, cams for longitudinally reciprocating the said rubbing-rolls, means for revolving the rolls, guides in froot of the rubbing-rolls so that the continuous fabric will pass from the wash-box, between the rubbing-rolls and then between the squeeze-rolls, and again into the box, substantially as described.

3. The combination in a fabric-washing machine, of a wash-box, a pair of squeeze-rolls mounted above the box, means for driving the said squeeze-rolls, a pair of rubbing-rolls mounted on one side of the squeeze-rolls, means for rotating said rubbing-rolls, means for reciprocating each roll, guides for the fabric, and a collecting-trough for the liquid mounted directly under the rubbing and squeeze rolls, substantially as described.

662,378. WELT FOR BOOTS OR SHOES. WILLIAM A. KNIPE, Haverhill, Mass. Filed Oct. 10, 1900. Serial No. 32,639. (No model.)



Claim.—A welt-strip composed of a single thickness of material of uniform thickness from edge to edge, adapted to be trimmed and molded at its outer edge, and having transverse slits extending from its inner edge partly across the strip, which slits are inclined relatively to the sides of the strip, and subdivide the inner portion of the strip into rhomboidal tongues, each of which overlaps the adjacent tongue, the portion subdivided by said slits constituting a permanent part of a boot or shoe, adapted to form a non-distorting seat or bearing for an outer sole, without losing its continuity as a fastener-receiving portion of the welt, when the welt is bent to give its inner edge a salient curve.

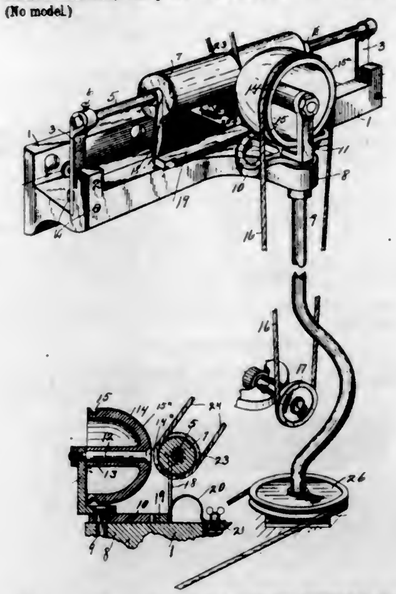
662,379. MILK-STRAINER. ERIK S. LAGERQUIST, Oxford Depot, N. Y. Filed Sept. 4, 1900. Serial No. 28,908. (No model.)



Claim.—1. A strainer, comprising a body portion having a bottom sloping toward the center, a rectangular extension attached to the center of said bottom and having sieve-covered openings, and having a sloping trough at the bottom of said extension, a circular opening in the lower end of said trough, a well attached to the bottom of said trough directly beneath the center of said opening and of greater diameter than the diameter of said opening, a removable screw-cap attached to the bottom of said well, substantially as described and shown.

2. In a straining device, the combination with the body A having a sloping bottom A′ provided with a rectangular extension B having strainer-openings B^3 arranged in the walls thereof, and having strainer material covering said strainer-openings; a sloping trough B′ formed in the bottom of the extension B; a cylindrical extension or well C permanently connected to the lower end of the sloping trough B′; a removable screw-cap C′ attached to the lower end of the well C; a circular opening B^2 in the bottom B^3 of the sloping trough B′ directly over the center of the well C, which opening B^2 is of a lesser diameter than the diameter of the well C; a flange A^3 attached to the outer circumference of the bottom of the body A, all substantially as described and shown.

662,380. VARYING-SPEED MECHANISM. HUGH B. MITCHELL, Canton, Ohio, assignor to Andrew M. McCarty, Albert Hoeffer, and Adam C. McDowell, same place. Filed Mar. 2, 1900. Serial No. 7,069. (No model.)



Claim.—1. The combination of an oscillating hemisphere rotatable upon its axis, a reciprocating cylinder held in frictional contact against the surface of the hemisphere, means for oscillating the hemisphere and means for imparting a reciprocating movement to the cylinder, substantially as and for the purpose specified.

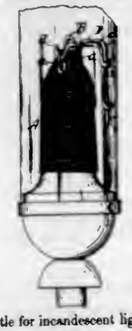
2. In a speed-varying device, a shaft or rod, a cylinder slidably mounted thereon, suspending-bars connected to the rod carrying the cylinder and located at either end thereof, a rack-bar carried by the suspending-rods, a toothed segment located to mesh with the rack-bar, a hemisphere a rock-shaft carrying an arm, a hemisphere-rod mounted upon the arm carried by the rock-shaft and means for imparting rotary motion to the hemisphere, substantially as and for the purpose specified.

3. In a speed-varying device, an oscillating hemisphere and a sliding cylinder located in frictional contact face to face with each other, and means for adjusting the degree of frictional contact, substantially as and for the purpose specified.

4. In a speed-varying device, a bracket or shelf, a rock-shaft provided with a bend or curve a hemisphere carried by the rock-shaft, and having a horizontal movement about the axis of the shaft supporting the hemisphere, means for rotating the hemisphere, and a slidable cylinder held in frictional contact with the hemisphere, substantially as and for the purpose specified.

5. The combination of the bracket 1, the spring-posts 3, the rod or bar 5 mounted in the upper ends of said posts, a cylinder slidably mounted upon the bar, an oscillating hemisphere bearing against the face of the cylinder and means for adjusting the frictional contact between the contact-faces of the hemisphere and cylinder, substantially as and for the purpose specified.

662,381. MANTLE AND MANTLE-SUPPORT FOR INCANDESCENT GAS-LIGHTS. MAX HERSKOVITZ and ABRAHAM T. HERSKOVITZ, Chicago, Ill. Filed Mar. 1, 1900. Serial No. 6,974. (No model.)



Claim.—1. A mantle for incandescent lights, having a stiff suspension-wire attached to its upper end at two opposite points and formed with a loop at each end outside the points of attachment.

2. A supporting-rod for mantles consisting of two bent hook-ended wires, one having a straight shank and the other having a shank with eyes embracing said straight shank, said wires being relatively adjustable substantially as described.

3. A mantle for incandescent gas-lights having at its upper end a suspension-wire, looped at its ends, and bent between the loops, so that it may be supported from the sides or center, substantially as described.

4. The combination with a mantle having a double-looped suspension-wire at its upper end, of a suspension-rod consisting of two relatively adjustable wires coupled together and terminating each in a suspension-hook, substantially as described.

REISSUES.

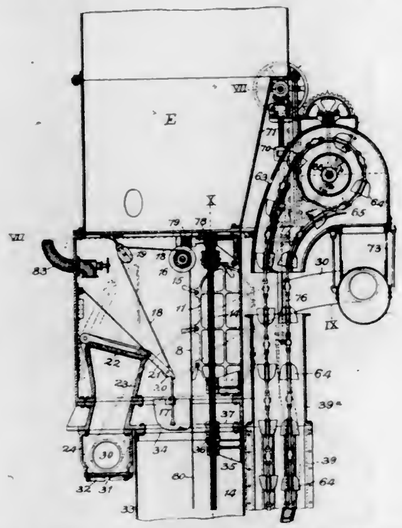
11,873. CAISSON. WILLIAM H. MCFADDEN, Pittsburg, Pa. Filed Oct. 5, 1900. Serial No. 32,103. Original No. 656,850, dated Aug. 28, 1900.

Claim.—1. In a caisson, the combination of an air-chamber provided with an air-lock, an open-ended working chamber, a tubular shaft or tunnel connecting the air and working chambers, formed of separable sections, and a submerging-tank arranged on the air-chamber, substantially as set forth.

2. In a caisson, the combination of an air-chamber, a working chamber, tubular shaft or tunnel connecting the air and working chambers, and a water-sealed discharge-opening from the air-chamber, substantially as set forth.

3. In a caisson, the combination of an air-chamber, a working chamber, a tubular shaft or tunnel connecting the air and working chambers, a discharge-box in the air-chamber and extending through the wall thereof, a pipe or tube for water under pressure intersecting the discharge end of the box, substantially as set forth.

4. In a caisson, the combination of an air-chamber, a working chamber, a tubular shaft or tunnel connecting the air and working chambers, a discharge-box in the air-chamber and extending through the wall thereof, the outer end of said box terminating in a pipe or tube for conducting a stream of water under pressure, and a sealing lid or cover for said box, substantially as set forth.



5. A caisson, having in combination, a working chamber having an open lower end, and a water-sealed U-shaped discharge-conduit having one arm opening within the working chamber and the other arm extending from the working chamber to a point above the level of the water, substantially as set forth.

6. A caisson, having in combination a working chamber having an open lower end, a water-sealed U-shaped discharge-conduit having one arm opening within the working chamber and the other arm extending from the working chamber to a point above the level of the water, and a hoisting mechanism operating in the U-shaped conduit, substantially as set forth.

7. A caisson, having in combination, a working chamber having an open lower end, a water-sealed conduit extending from the working chamber to a point above the level of the water and means for varying the height of the water column controlling the water seal, substantially as set forth.

8. A caisson, having in combination, a working chamber having an open lower end, a discharge-conduit extending from the working chamber to a point above the level of the water and provided, within the working chamber, with a receiving branch having an open upper end and means for maintaining the water within the conduit at a height not less than the level of water outside of the conduit, substantially as set forth.

9. A caisson, having in combination, a working chamber having an open lower end, a discharge-conduit extending from the working chamber to a point above the level of the water and provided with a receiving branch, a turning head, a conveyer connected to said head, said parts being so arranged that the material from the conveyer will be discharged into the branch in all positions of the turning head, substantially as set forth.

10. A caisson, having in combination, an air-chamber, a working chamber, a tubular shaft or tunnel connecting the air and working chambers, a discharge-conduit extending from the working chamber to a point above the level of the water, a conduit-head movably mounted on the air-chamber, an endless chain provided with buckets arranged within the conduit and head, a receiving branch having an open upper end connected to the conduit within the working chamber, and a digging mechanism movably mounted on the receiving branch, substantially as set forth.

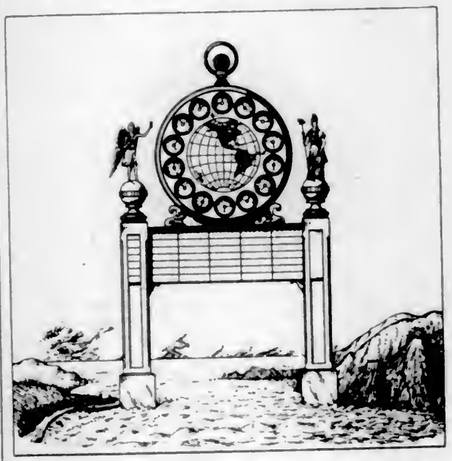
11. A caisson, having in combination, an air-chamber, a working chamber, a tubular shaft or tunnel connecting the air and working chambers, formed of separable sections, a discharge-conduit formed of separable sections extending from the working chamber to a point above the level of the water, and provided with a receiving branch within the working chamber, a digging mechanism within the working chamber, a power-shaft extending from the air-chamber to the working chamber formed of separable sections mounted in suitable bearings within the sections of the tubular shaft or tunnel, substantially as set forth.

12. A caisson, having in combination, an air-chamber, a working chamber, a tubular shaft or tunnel connecting the air and working chambers, a submerging-tank arranged on the air-chamber, a discharge-box arranged within the air-chamber and extending through the wall thereof, and a pipe or tube extending from the submerging-tank and intersecting the discharge end of the box, substantially as set forth.

13. The combination of a float or scow provided with guiding posts or supports, a caisson arranged between said supports, means for raising the caisson and supports movably mounted on the float for holding the caisson in raised position, substantially as set forth.

DESIGNS.

33,572. CALENDAR. MILTON C. HALL, Bakersfield, Cal. Filed Sept. 17, 1900. Serial No. 30,366. Term of patent 14 years.



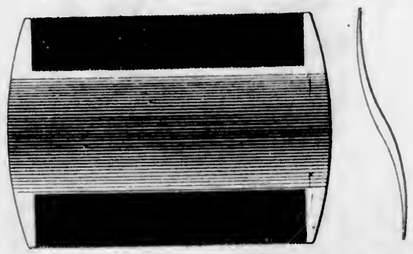
Claim.—The design for a calendar as herein shown and described.

33,573. COMB AND PENCIL HOLDER. FRANCIS J. FRENCH, Miles Grove, Pa., assignor of one-half to John R. Holliday, same place. Filed June 11, 1900. Serial No. 19,962. Term of patent 7 years.



Claim.—The design for a comb and pencil holder as herein shown and described.

33,574. COMB. FREDERICK WILLIAM GRELL, New York, N. Y. Filed June 12, 1900. Serial No. 20,078. Term of patent 14 years.



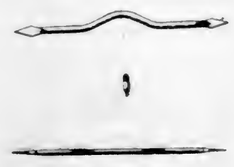
Claim.—The design for a comb substantially as shown and described.

33,575. BACK FOR BRUSHES OR SIMILAR ARTICLES. WILLIAM F. MARSHALL, Providence, R. I., assignor, by mesne assignments, to Bristol Manufacturing Co., Attleborough, Mass. Filed Oct. 8, 1900. Serial No. 32,456. Term of patent 3½ years.



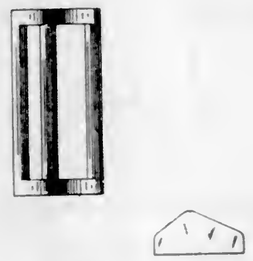
Claim.—The design for the back of a brush, or a similar article, as herein shown and described.

33,576. GARMENT-EYE. AMANDA M. MARSHALL, Newburg, N. Y. Filed Oct. 23, 1900. Serial No. 34,087. Term of patent 7 years.



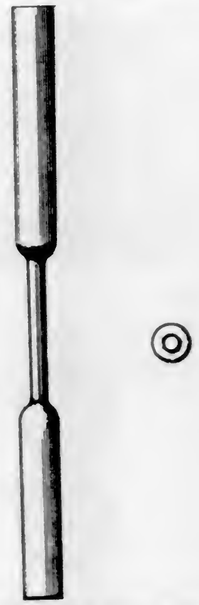
Claim.—The design for a garment-eye, as herein shown and described.

33,577. BUCKLE. JAMES L. POALK, Merchantville, N. J., assignor of one-half to Morris Lissner, Philadelphia, Pa. Filed Oct. 24, 1900. Serial No. 34,217. Term of patent 7 years.



Claim.—The design for a buckle, substantially as shown and described.

33,578. TUBE FOR CONCENTRATING MINERALS. THOMAS ROWLAND JORDAN, New York, N. Y., assignor to the Jordan Gravitation Company, of New York. Filed July 16, 1900. Serial No. 23,842. Term of patent 14 years.



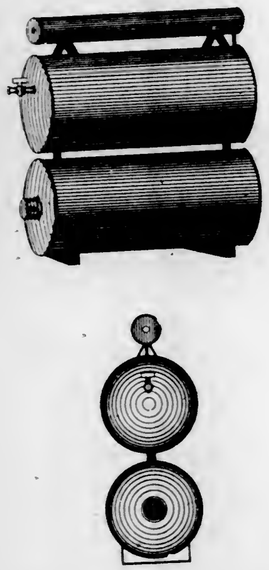
Claim.—The design for a tube for the concentration of minerals, &c., as herein shown and described.

33,579. TUBE FOR CONCENTRATING MINERALS. THOMAS ROWLAND JORDAN, New York, N. Y., assignor to the Jordan Gravitation Company, of New York. Filed July 16, 1900. Serial No. 23,843. Term of patent 14 years.



Claim.—The design for a tube for the concentration of minerals, &c., as herein shown and described.

33,580. SPRAYER-BODY. GEORGE F. CLARK, Utica, N. Y. Filed Oct. 27, 1900. Serial No. 34,667. Term of patent 3½ years.



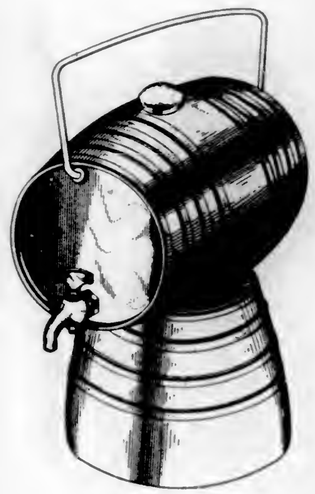
Claim.—The design for a sprayer-body, substantially as herein shown and described.

33,581. SPRAYER-BODY. GEORGE F. CLARK, Utica, N. Y. Filed Oct. 27, 1900. Serial No. 34,668. Term of patent 3½ years.



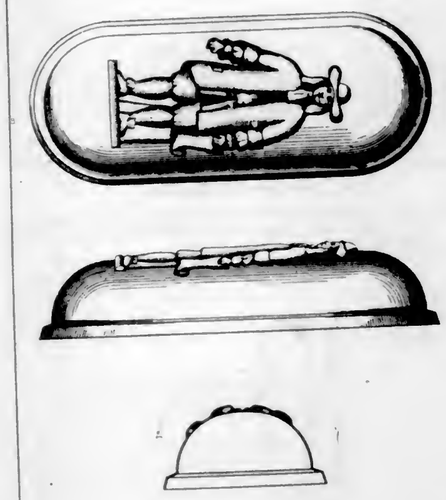
Claim.—The design for a sprayer-body, substantially as herein shown and described.

33,582. DISPENSING VESSEL. BENJAMIN FRANKLIN MERRIMANN, Webb City, Mo. Filed Oct. 26, 1900. Serial No. 34,516. Term of patent 14 years.



Claim.—The design for a liquor-dispensing vessel, as herein shown and described.

33,583. COVER FOR BAKE-PANS. FREDRICK HAMDON and CHARLES FREIHOFER, Philadelphia, Pa. Filed Oct. 13, 1900. Serial No. 33,011. Term of patent 14 years.



Claim.—The design for a cover of a baking-pan as herein described and as illustrated in the accompanying drawings.

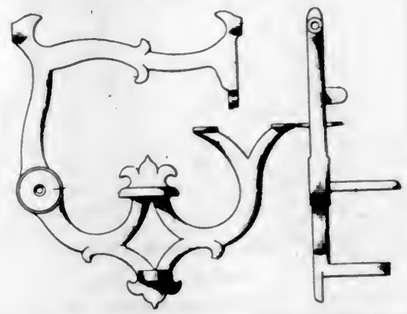
33,584. TOWEL-HOLDER. LOUIS MCCUTCHON, Havana, Cuba. Filed Oct. 26, 1900. Serial No. 34,517. Term of patent 14 years.

33,584.



Claim.—The design for the towel-holder, herein shown and described.

33,585. SEWING-MACHINE FRAME. HENRY J. HANCOCK, New York, N. Y., assignor of one-half to William S. Jessup, same place. Filed Oct. 25, 1900. Serial No. 34,396. Term of patent 14 years.



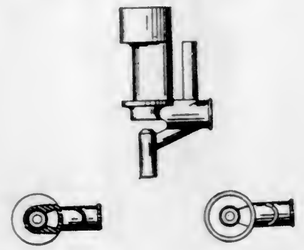
Claim.—The design for a sewing-machine frame, as herein shown and described.

33,586. WEATHER-VANE. DOUGLAS HAIGHT, Coshocton, Ohio. Filed Oct. 26, 1900. Serial No. 34,515. Term of patent 7 years.



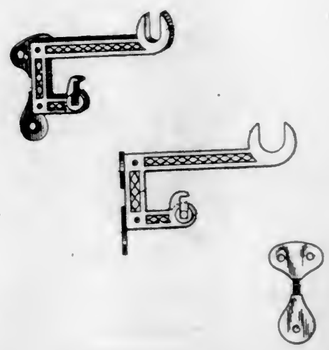
Claim.—The design for a weather-vane, substantially as herein shown and described.

33,587. VAPOR-BURNER. ISAAC N. MARQUIS, Rosedale, Kans., assignor to James H. Holman and Charles C. Gesick, Kansas City, Mo. Filed Aug. 22, 1900. Serial No. 27,733. Term of patent 7 years.



Claim.—The design for a vapor-burner, as herein shown and described.

33,588. BRACKET FOR CURTAIN-POLES AND WINDOW-SHADES. ALFRED ANDERSON, Chicago, Ill. Filed Oct. 27, 1900. Serial No. 34,670. Term of patent 3½ years.



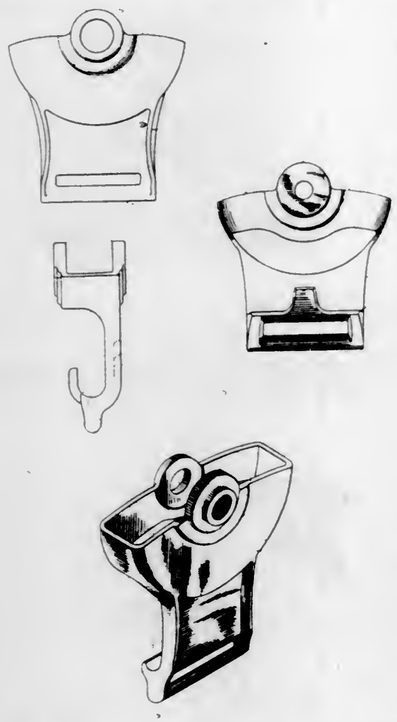
Claim.—The design for a bracket for curtain-poles and window-shades, substantially as herein shown and described.

33,589. TOOL HANDLE AND RECEPTACLE. EUGENE B. HIGGINS, East Orange, N. J. Filed June 5, 1900. Serial No. 19,173. Term of patent 14 years.



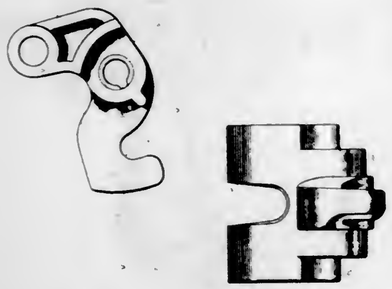
Claim.—The design for a tool handle and receptacle, substantially as shown and described.

33,590. DOOR-HANGER PULLEY-FRAME. PHILIP A. MYERS, Ashland, Ohio, assignor to F. E. Myers & Brother, same place. Filed June 20, 1900. Serial No. 21,021. Term of patent 14 years.



Claim.—The design for a door-hanger pulley-frame, as herein shown and described.

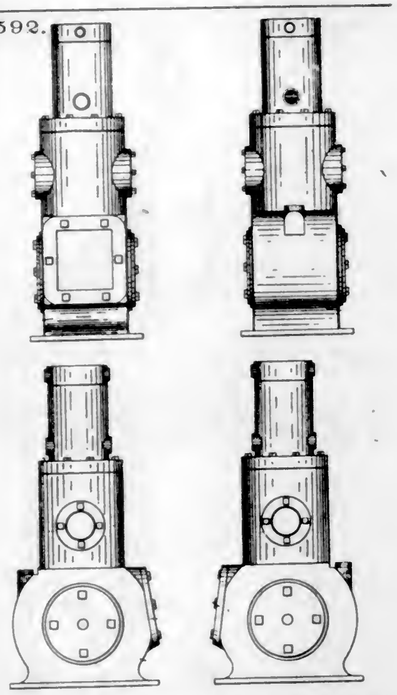
33,591. KNUCKLE FOR CAR-COUPLINGS. STEPHEN J. MEEKER, Newark, N. J. Filed Nov. 6, 1899. Serial No. 736,051. Term of patent 14 years.



Claim.—The design for a car-coupling knuckle, substantially as herein shown and described.

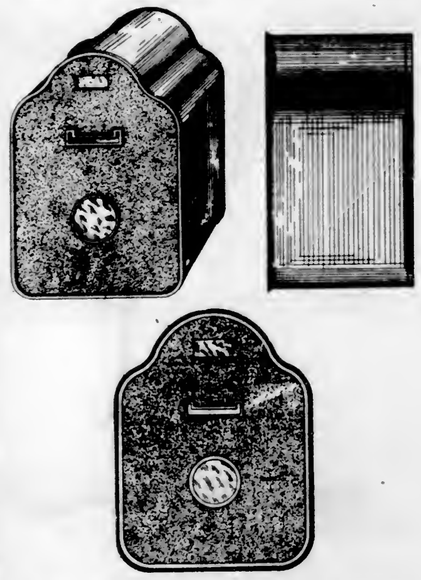
33,592. FRAME FOR GAS-ENGINES. GEORGE A. TIMBLIN, Lancaster, Pa., assignor of two-thirds to William F. Troast, same place, and Espy A. Timblin, Connellsville, Pa. Filed July 31, 1900. Serial No. 25,470. Term of patent 7 years.

33,592.



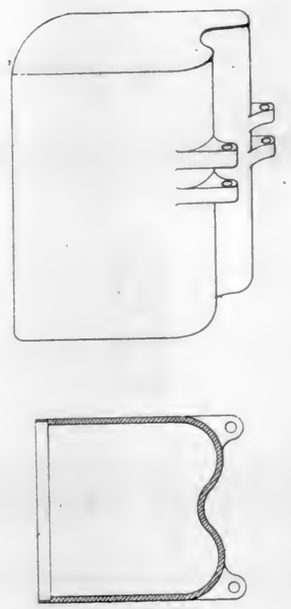
Claim.—The design for a frame for gas-engines, as herein shown and described.

33,593. CASE FOR SLOT-TELEPHONES. WILLIAM A. FOSS, Cleveland, Ohio, assignor to the American Toll Telephone Company, same place. Filed June 22, 1900. Serial No. 21,243. Term of patent 7 years.



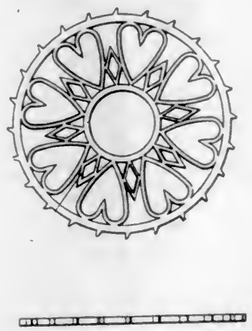
Claim.—The design for a case for slot-telephones, substantially as hereinbefore shown and described.

33,594. TELEPHONE-POLE BOX. WILLIAM D. GHARKY, Philadelphia, Pa. Filed Sept. 7, 1900. Serial No. 29,322. Term of patent 14 years.



Claim.—The design for a telephone-pole box, as herein shown and described.

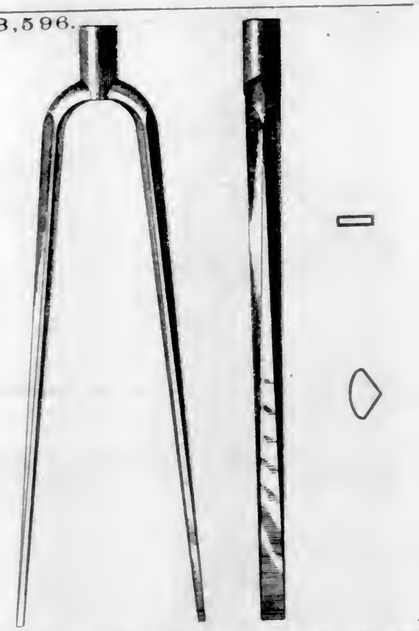
33,595. SPROCKET-WHEEL. WILLIAM E. NORTON, Minneapolis, Minn. Filed Oct. 5, 1900. Serial No. 32,189. Term of patent 7 years.



Claim.—The design for a sprocket-wheel, as herein shown and described.

33,596. FORK FOR BICYCLE OR LIKE TUBULAR FRAMES. WILLIAM H. FAUBER and ALBERT M. PRICE, Chicago, Ill.; said Price assignor to said Fauber. Filed Oct. 22, 1900. Serial No. 33,973. Term of patent 7 years.

33,596.



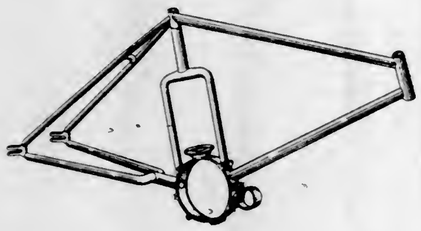
Claim.—The design for a fork for bicycle and like tubular frames substantially as herein shown and described.

33,597. FORK FOR BICYCLE OR LIKE TUBULAR FRAMES. ALBERT M. PRICE, Chicago, Ill., assignor to William H. Fauber, same place. Filed Oct. 22, 1900. Serial No. 33,974. Term of patent 7 years.



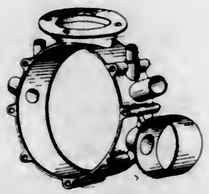
Claim.—The design for a fork for bicycle and like tubular frames substantially as herein shown and described.

33,598. FRAME FOR MOTOR-CYCLES. GEORGE M. HOLLEY, Bradford, Pa. Filed Oct. 25, 1900. Serial No. 34,394. Term of patent 14 years.



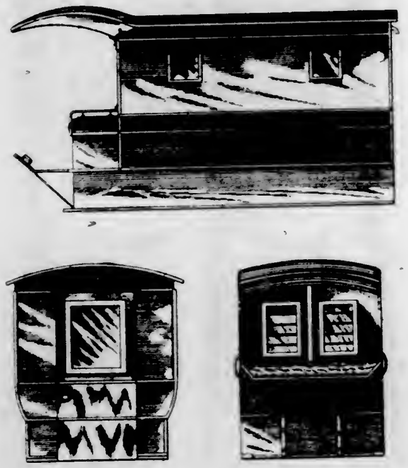
Claim.—The design for a frame for motor-cycles, substantially as herein shown and described.

33,599. CRANK-HANGER FOR MOTOR-CYCLES. GEORGE M. HOLLEY, Bradford, Pa. Filed Oct. 26, 1900. Serial No. 34,513. Term of patent 14 years.



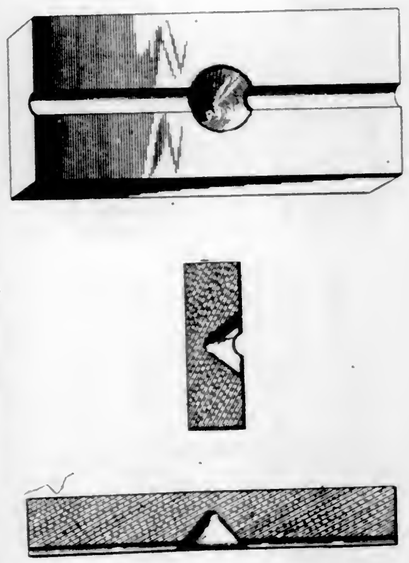
Claim.—The design for a crank-hanger for motor-cycles, substantially as herein shown and described.

33,600. WAGON-BODY. PATRICK J. REID, Chicago, Ill. Filed Oct. 15, 1900. Serial No. 33,172. Term of patent 14 years.



Claim.—The design for a wagon-body as herein shown and described.

33,601. FIRE-BRICK. WARREN M. BRINKERHOFF, Auburn, N. Y. Filed Oct. 25, 1900. Serial No. 34,397. Term of patent 14 years.



Claim.—The design for a fire-brick, substantially as herein shown and described.

33,602. HEADPIECE FOR GRAVES. EMILE BICK, New Haven, Conn. Filed Oct. 27, 1900. Serial No. 34,669. Term of patent 7 years.



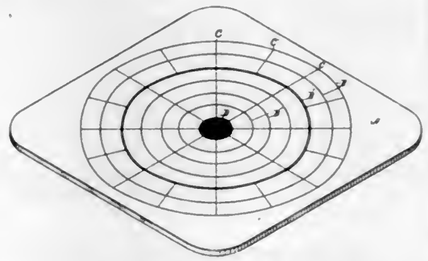
Claim.—The design for a headpiece for graves, substantially as shown and described.

33,603. SHEET-GLASS. WILLIAM BUTTLER, Redkey, Ind. Filed June 1, 1900. Serial No. 18,779. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

33,604. GAME-BOARD. FRANK D. FULLER, Chicago, Ill., assignor to the Ludington Novelty Company, Ludington, Mich. Filed Oct. 10, 1900. Serial No. 32,655. Term of patent 14 years.



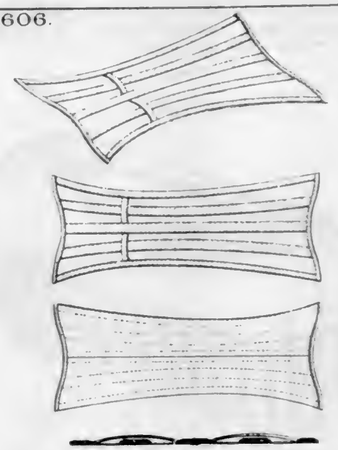
Claim.—The design for a game-board, as herein shown and described.

33,605. ARCH-SPRING FOR SHOES. JOHN SLATER, New York, N. Y. Filed Oct. 24, 1900. Serial No. 34,221. Term of patent 7 years.



Claim.—The design for an arch-spring, as herein shown and described.

33,606. SIDE SECTION OF CORSETS. ERWIN T. MUIR, Elgin, Ill. Filed Sept. 1, 1900. Serial No. 28,848. Term of patent 7 years.



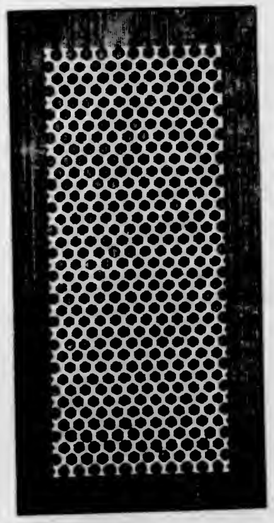
Claim.—The design for a side section of a corset substantially as herein shown and described.

33,607. RING. GUSTAVE A. HENCKEL, New York, N. Y., assignor to Henckel & Elcox. Filed Aug. 24, 1900. Serial No. 27,962. Term of patent 7 years.



Claim.—The design for a ring as shown and described.

33,608. RUG OR SIMILAR ARTICLE. LILLIAN M. ARMSTRONG, New York, N. Y., assignor to Frederick A. Constable and Hicks Arnold, same place. Filed Oct. 26, 1900. Serial No. 34,509. Term of patent 3½ years.



Claim.—The design for a rug or similar article substantially as shown and described.

33,609. LOAF OF BREAD OR SIMILAR ARTICLE. FREDRICK HANSON and CHARLES FREIHOFER, Philadelphia, Pa. Filed Sept. 29, 1900. Serial No. 31,585. Term of patent 14 years.



Claim.—The design for a loaf of bread or similar article as herein described and as illustrated in the accompanying drawing.

33,610. LOAF OF BREAD OR SIMILAR ARTICLE. CHARLES FREIHOFER and FREDRICK HANSON, Philadelphia, Pa. Filed Oct. 19, 1900. Serial No. 33,658. Term of patent 14 years.



Claim.—The design for a loaf of bread or similar article, as herein described and as shown in the accompanying drawing.

TRADE-MARKS

REGISTERED NOVEMBER 20, 1900.

35,448. CARBON-PAPER. TYPEWRITER CUSHION KEY COMPANY, Newark, N. J. Filed Oct. 24, 1900.

Silkarbon

Essential feature.—The word "SILKARBON." Used since August 15, 1900.

35,449. SACK COATS. SWEET, ORR & Co., Newburg, N. Y. Filed Oct. 25, 1900.

U-B-E-Z

Essential feature.—The letters "U, B, E, Z." Used since September 11, 1900.

35,450. SHIRTS, BED-ROBES, AND PAJAMAS. D. JONES & SONS, New York, N. Y. Filed Oct. 23, 1900.

EMPEROR

Essential feature.—The word "EMPEROR." Used since October 1, 1899.

35,451. CERTAIN NAMED WEARING-APPAREL. H. BLACK & Co., Cleveland, Ohio. Filed Sept. 10, 1900.

Wooltex

Essential feature.—The word "WOOLTEX." Used since July 17, 1900.

35,452. CORSETS AND BUST-FORMS. BORTREE CORSET COMPANY, Jackson, Mich. Filed Oct. 3, 1900.

COLONIAL.

Essential feature.—The word "COLONIAL." Used since May 1, 1900.

35,453. CERTAIN NAMED ARTICLES OF UNDERWEAR. HARRY LEE FORDING, Buffalo, N. Y. Filed Oct. 25, 1900.

Nap-Ko-Let

Essential feature.—The word "NAPKOLET." Used since April 1, 1900.

35,454. TANNED LEATHER. BENJAMIN D. EISENDRATH, Racine, Wis. Filed Oct. 24, 1900.

ARISTO

Essential feature.—The word "ARISTO." Used since July 20, 1900.

35,455. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 24, 1900.

1 B

Essential feature.—The figure "1" and letter "B." Used since 1875.

35,456. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 24, 1900.

2 B

Essential feature.—The figure "2" and letter "B." Used since 1875.

35,457. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Oct. 24, 1900.

2 P

Essential feature.—The figure "2" and letter "P." Used since 1875.

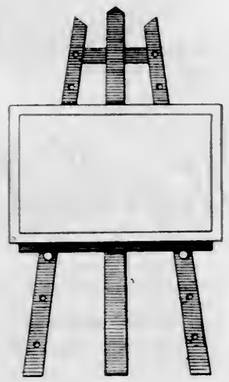
35,458. PAINT COMPOSITION. ARTHUR LEFFINGWELL RICE, Watertown, N. Y. Filed Oct. 26, 1900.

35,458.

POWDRPAINT

Essential feature.—The word "POWDRPAINT." Used since April 1, 1900.

35,459. PAINTS AND ENAMELS. GERSTENDÖRFER BROS., New York, N. Y. Filed Oct. 25, 1900.



Essential feature.—The representation of an easel. Used since 1882.

35,460. REFINED PETROLEUM. RICHARD C. CORNER, New York, N. Y. Filed Oct. 22, 1900.



Essential feature.—The representation of a ribbon having the ends formed into a bow. Used since October 1, 1900.

35,461. PORTLAND CEMENT. THE HAMMER SOCIETY, Tournai, Belgium. Filed Apr. 24, 1900

MCB

Essential feature.—The three letters "M C B." Used since January 1, 1896.

35,462. CERTAIN NAMED MEDICINAL PREPARATIONS. JOHN W. HANN, San Francisco, Cal. Filed Sept. 20, 1900.



Essential feature.—The representation of a rooster. Used since September 1, 1899.

35,463. PREPARATIONS FOR THE COMPLEXION. GEORGE T. BRANDON, Cleveland, Ohio. Filed Oct. 6, 1900.

Rev T A Brandon

Essential feature.—A facsimile of the signature "REV. T. A BRANDON." Used since 1880.

35,464. MINERAL WATERS AND DRINKS MADE FROM SAME. FRANCIS F. WHITTIER, Brookline, Mass. Filed Oct. 25, 1900.

OXO

Essential feature.—The letters "O X O." Used since July 1, 1900.

35,465. GIN. TANQUERAY, GORDON & COMPANY, Limited, London, England. Filed Oct. 22, 1900.



Chas Tanqueray & Co

Essential feature.—The representation of two crossed battle-axes and a pineapple on a crest-roll and the facsimile signature "CHAS. TANQUERAY & Co." Used since August, 1887.

35,466. BEER. NATIONAL BREWERY COMPANY, St. Louis, Mo. Filed Oct. 6, 1900.

Willuhafa

Essential feature.—The word "WILLUHAFA." Used since September 28, 1900.

35,467. SUBSTITUTE FOR COFFEE. WILHELMINE BREDOW, Schlittgheim, Germany. Filed July 31, 1900.



Essential feature.—A portrait of the registrant seated at a table with a cup of the beverage. Used since November 24, 1899.

35,468. COFFEE SUBSTITUTES. DAVID H. SMITH, Buffalo, N. Y. Filed Aug. 10, 1900.

CEREO

Essential feature.—The word "CEREO." Used since August 3, 1900.

35,469. JELLY, BUTTER, CIDER, AND BOILED CIDER MADE FROM APPLES. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Oct. 18, 1900.



Essential feature.—The representation of a branch of an apple-tree with the blossoms thereon. Used since October 11, 1900.

35,470. WINE, JELLY, AND PRESERVES MADE FROM WILD GRAPES. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Oct. 19, 1900.



Essential feature.—The representation of a branch of a grape-vine with the fruit attached. Used since October 11, 1900.

35,471. CERTAIN NAMED DAIRY PRODUCTS. NEW YORK CONDENSED MILK COMPANY, New York, N. Y. Filed Mar. 20, 1899.



Essential feature.—The word "STAG" and the picture of a stag. Used since February 9, 1894.

35,472. WHEAT-FLOUR. DULUTH UNIVERSAL MILL COMPANY, Duluth, Minn. Filed Oct. 18, 1900.

APEX

Essential feature.—The word "APEX." Used since October 2, 1900.

35,473. CANNED FRESH-WATER FISH. THE BUCKEYE FISH COMPANY, Cleveland, Ohio. Filed July 26, 1899.



Essential feature.—Two oppositely-curved lines, a scroll or ribbon extending obliquely across and between the same, and a contrasting superimposed circular figure. Used since May 1, 1899.

35,474. CANNED MEATS. FRED WOLFERMAN, Kansas City, Mo. Filed July 17, 1899.



Essential feature.—A heraldic device consisting of two griffins sejant upon a staff supporting with alternate right and left raised paws a medallion upon which are the letters "F. W." Used since July 1, 1899.

35,475. DRESSED POULTRY. PRIEBE & SIMATER, Minonk, Ill. Filed Sept. 25, 1900.

N. R. Z.

Essential feature.—The letter "R." in a diamond-shaped figure, with the letter "N." at its left point and the letter "Z." at its right point. Used since January, 1895.

35,476. CERTAIN NAMED GROCERIES. THE CUDAHY PACKING COMPANY, Chicago, Ill., and South Omaha, Nebr. Filed Sept. 25, 1900.



Essential feature.—The letter "C" and a diamond inclosing the same. Used since June, 1889.

35,477. CERTAIN NAMED GROCERIES. J. F. HUMPHREYS & COMPANY, Bloomington, Ill. Filed Sept. 10, 1900.

Wish Bone

Essential feature.—The picture of a broken wish-bone and the words "WISH BONE." Used since July 1, 1896.

35,478. CERTAIN NAMED GROCERIES. J. F. HUMPHREYS & COMPANY, Bloomington, Ill. Filed Sept. 10, 1900.

WEDDING RING

Essential feature.—The words "WEDDING RING" and the representation of a golden ring upon a field of deep blue. Used since March 1, 1895.

35,479. CERTAIN NAMED GROCERIES. J. F. HUMPHREYS & COMPANY, Bloomington, Ill. Filed Sept. 10 1900

Cost Mark

Co St

Essential feature.—The words "COST MARK" and two separate circles, one blank with a line through its center, leaving space for the cost and selling price of the package or article, the other with the letters "CO" above and "S T" below a line passing through its center. Used since September 1, 1899.

35,480. PIANOS. OTTO WISSNER, New York, N. Y. Filed Oct. 6, 1900.



Essential feature.—A monogram of the letters "O" and "W" surrounded by a wreath, which is supported on either side by cherubs. Used since January, 1890.

35,481. STOVES, RANGES, FURNACES, AND PARTS THEREOF. PITTSBURGH STOVE AND RANGE COMPANY, Pittsburg, Pa. Filed Sept. 17, 1900.



Essential feature.—The word "ETNA" and a representation of Mount Ætna. Used since 1855.

35,482. DAMPERS FOR HOT-AIR PIPES AND SMOKE-PIPES. THE S. M. HOWES COMPANY, Boston, Mass. Filed Oct. 25, 1900.

YANKEE

Essential feature.—The word "YANKEE." Used since August 20, 1900.

35,483. PIPES, PIPE-COUPLINGS, AND PIPE-FITTINGS. CENTRAL FOUNDRY COMPANY, Newark, N. J., and New York, N. Y. Filed Oct. 24, 1900.

SECURITY

Essential feature.—The word "SECURITY. Used since September, 1900.

35,484. PIPES, PIPE-COUPLINGS, AND PIPE-FITTINGS. CENTRAL FOUNDRY COMPANY, Newark, N. J., and New York, N. Y. Filed Oct. 24, 1900.

SANITAS

Essential feature.—The word "SANITAS." Used since September, 1900.

35,485. FIREARMS. REMINGTON ARMS COMPANY, Ilion, N. Y. Filed Oct. 23, 1900.



Essential feature.—The representation of a star in connection with the word "STAR." Used since October 9, 1900.

35,486. LATHE AND DRILL CHUCKS. WESTCOTT CHUCK COMPANY, Oneida, N. Y. Filed Oct. 23, 1900.

IXL

Essential feature.—The letters "I X L." Used since March 1, 1893.

35,487. MACHINES FOR WASHING BOTTLES. AUGUSTUS E. RICH, Fall River, Mass. Filed Oct. 20, 1900.

LITTLE WONDER

Essential feature.—The words "LITTLE WONDER." Used since December 15, 1885.

35,488. AGRICULTURAL MACHINERY. DEERING HARVESTER CO., Chicago, Ill. Filed Aug. 13, 1900.

D.H.Co.

Essential feature.—The letters and abbreviation "D.H.Co." Used since 1897.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia.

THE UNITED STATES, *ex rel.* THE BRONSON COMPANY *et al.*, *v.* DUELL, COMMISSIONER OF PATENTS.

Decided October 31, 1900.

MANDAMUS—JURISDICTION OF THE COMMISSIONER TO REGISTER TRADE-MARKS.

Upon a petition for a writ of mandamus to require the Commissioner to register a word as a trade-mark which he considered not a valid trade-mark and refused to register, *Held* that it was the duty of the Commissioner to pass upon the question whether or not the trade-mark was a lawful one and that mandamus does not lie to control his action. (*Seymour v. State of South Carolina*, 66 O. G., 1167.)

Mr. Walter F. Rogers and *Mr. Arthur S. Browne* for the relator.

Mr. W. A. Megrath for the respondent.

COLE, *Associate Justice*:

This is a petition for a writ of mandamus against the respondent to require him to register the compound word "Ever-Ready" as a trade-mark for coffee-mills.

The defendant demurs to the petition and assigns as ground thereof that it appears by the allegations of the petition that the Commissioner has refused to register the alleged trade-mark, and he insists that the law confers upon him a discretion to be exercised as to whether a trade-mark is entitled to registration and that such discretion cannot be controlled by mandamus.

The petitioners in response to this admit that the Commissioner has discretion in the premises in relation to certain matters, but that he declined registration in this case on the ground alleged by him that this is not a valid common-law trade-mark, and they contend that the respondent has no right or power under the law to inquire into that question or to refuse registration on that ground. It sufficiently appears by the petition that this is the ground upon which registration was refused in this case, and that it would have been registered had the Commissioner found it to be a valid common-law trade-mark.

The question therefore presented by the petition and demurrer is whether the Commissioner has jurisdiction to inquire whether a trade-mark offered for registration is a valid trade-mark at common law.

The determination of this question involves the construction of the Act of Congress of the 3d of March, 1881, relating t otrade-marks.

But this court is sa' ed the difficulty of attempting to construe this statute in the particular mentioned by the opinion of the Court of Appeals in the case of *Seymour* v. *South Carolina*, (66 O. G., 1167; 2 D. C. Appeals, 240.)

In that case, in the course of a very elaborate and searching opinion, Mr. Justice Shepherd, among other things, said:

> The Commissioner is required to decide the presumptive lawfulness of claim to the alleged trade-mark. This, in connection with the preceding portion of the third section aforesaid, can mean nothing less than that in all cases he shall inquire, first, if the applicant has actually used the trade-mark in lawful commerce with foreign nations or with the Indian tribes, and then, if he has the right to the use of it at all. If he finds that the alleged trade-mark is the name of the applicant, *or any other name which cannot be lawfully converted into a trade-mark at common law*, * * * he cannot admit it to registration. * * *

The above quotation, especially the part underscored, (it is not in italics in the report,) shows that the Court of Appeals decided in that case the exact point in controversy in this; but counsel for the relators contend that that part of the opinion is *obiter* and ought not to control the action of this court. It may be true that the South Carolina case might have been decided the same way it was without the expression of any opinion upon the point now in question; but it does not follow that for that reason the portion of the opinion referred to is *obiter*. Nothing is *obiter* if it appears from the report that the point in question was actually considered by the court, and it is very apparent from a reading of the whole opinion in that case that the point was discussed and considered by the court, and that renders the opinion as binding upon this court as if the point in question had been the only one in the case.

The statute mentioned, therefore, is not open to the construction of this court in the particular raised by the pleadings in this case, but it is its duty to follow the construction which it has already received by the Court of Appeals.

According to that construction it was the duty of the Commissioner of Patents to pass upon the question he has decided, and that being so mandamus does not lie to control his action, and the petition must be dismissed.

THE UNITED STATES, *ex rel.* BUFFALO PITTS COMPANY, *v.* DUELL, COMMISSIONER OF PATENTS.

Decided October 31, 1900.

1. MANDAMUS TO COMPEL THE COMMISSIONER TO REGISTER A TRADE-MARK—SECTION 13 OF TRADE-MARK ACT.

Where an applicant sought to register a trade-mark under section 13 of the trade-mark act for the purpose of registering abroad and the Commissioner refused to register it on the ground that it was not a lawful trade-mark, upon petition for

writ of mandamus to compel the Commissioner to register. *Held* that the Commissioner had jurisdiction to consider the question, and the petition denied.

2. SAME—SAME.

Held also that the whole trade-mark act must be read and construed together, and every requisite to registration required by the previous sections must be held to apply to registration under section 13.

Mr. J. Nota McGill for the relator.

Mr. W. A. Megrath for the respondent.

COLE, *Associate Justice:*

This is an application for a mandamus against the defendant requiring him to register the words "Buffalo Pitts" as a trade-mark.

The application for registration was made under the thirteenth section of the act. The application was denied by the respondent, as appears by the record, on the ground that it is not a valid common-law trade-mark, and that section 13 does not render registrable any trade-mark not entitled to registration under the earlier sections of the statute; in other words, that section 13 confers no additional rights and is meaningless. The relators, however, contend that any word or device a party may see fit to adopt is entitled to registration under this section without the exercise of any judgment or discretion whatever on the part of the Commissioner.

The first clause of the first section of the act considered in connection with the third section would probably be construed to authorize a resident of a foreign country or Indian tribe to register a trade-mark in this country that had been in use in such foreign country or Indian tribe, although it may not have been previously used in commerce with the United States, and the thirteenth section, read in the light of such construction, would authorize a citizen of the United States to register a trade-mark in this country for the purpose of obtaining registration in a foreign country, where registration here is a prerequisite to registration there, although the trade-mark may not have been previously used in commerce with foreign nations; but whether that be the correct construction of section 13 need not be determined in this case, because if no trade-mark can be registered under the provisions of sections 1 and 3 unless it be a valid trade-mark at common law neither could it under the thirteenth section. The whole act must be read and construed together and every requisite to registration required by the previous sections must be held to apply to registrations under section 13 unless that section either expressly or by necessary implication provides otherwise. It does not expressly provide otherwise, and the only modification of former sections by section 13 that could be contended for by implication is the one suggested entitling the trade-mark to registration, although it had not been used in commerce with foreign nations, if it was otherwise entitled to registration under the preceding provisions of the statute. As the respondent rejected this application on the ground that it did not describe a trade-mark valid at common law it falls under the same rule stated in the preceding case, and for the same reasons the petition in this case must also be dismissed.

THE UNITED STATES, *ex rel.* THE NEW YORK CONDENSED MILK COMPANY *et al.*, *v.* DUELL, COMMISSIONER OF PATENTS.

Decided October 31, 1900.

MANDAMUS TO COMPEL THE COMMISSIONER TO REGISTER A TRADE-MARK—SECTION 13 OF THE TRADE-MARK ACT.

The petition for a writ of mandamus must be denied in this case for the same reason given in the case of Buffalo Pitts Company.

Mr. Francis Forbes and *Mr. Arthur S. Browne* for the relators.

Mr. W. A. Megrath for the respondent.

COLE, *Associate Justice:*

This is also an application for a writ of mandamus to require the respondent to register a trade-mark.

The application for registration was denied upon the same grounds and for the same reasons as in the case of the Buffalo Pitts Company, and the writ of mandamus must be denied in this case for the same reason given in the last preceding case.

Revision of Classification.

(ORDER No. 1,378.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 31, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division XXXV, class 40, Advertising, abolish subclasses—
28. Display-cards. 52. Pattern-exhibitors.

In Division VIII, class 211, Store Furniture, establish subclasses—
34. Display-cards. 35. Pattern-exhibitors.

In Division XXXV, class 180. Accoutrements, abolish subclass 1, Accoutrements.

In Division XXIV, class 2, Apparel, establish subclass 150, Trimmings, shoulder-straps and chevrons.

In Division XIII, abolish all the subclasses of class 90, Gear-cutting, Milling, and Planing, and establish the following subclasses in lieu thereof:

CLASS 90.—GEAR-CUTTING, MILLING, AND PLANING.

1. Gear-cutting—
2. Intermeshing-generator,
8. Reciprocating-cutter—
10. Templet-guide,
9. Tooth-curve generating,
3. Rotating-cutter—
7. Axially-traveling,
5. Bevel gears.
6. Blank-pillar and cutter-slide,
4. Helical gears.
56. Indexing—
57. Index-heads.
11. Milling—
16. Adjustable cutter-axis—
17. Angular,
Movable cutter-axis—
14. Axial,
15. Lateral,
13. Pattern-controller,
12. Portable,
18. Stationary cutter-axis—
20. Rotating work-holder,
19. Vertical,
23. Tail-stocks.
21. Work-feeds—
22. Backlash-compensators.
24. Planing—
33. Broaching,
Curved surfaces—
30. Cycloids,
31. Laterally-moving cutter,
32. Laterally-moving work,
29. Roll-grooving,
Planers—
34. Reciprocating-bed—
37. Cross-rails,
Planing—
Planers—
Reciprocating-bed—
35. Rack-drive,
36. Screw-drive,
Reciprocating-cutter—
38. Horizontal—
40. Crank-drive,
39. Oscillating link-drive,
41. Rack-drive,
42. Screw-drive,
43. Vertical—
44. Crank-drive—
45. Inverted,
46. Rack-drive—
47. Inverted,
48. Reversing mechanisms,
49. Tool-feeds—
50. Clutch-boxes,
51. Stop mechanisms,
52. Tool-heads—
55. Cutter-lifters,
53. Oscillating double cutter,
54. Pivoted cutter-release,
25. Soft-metal—
26. Cylindrical stereotypes,
27. Double-rack cutter-drive,
28. Roller-feed.
59. Work-holders—
60. Machine-vises—
61. Angularly-adjustable jaws.
58. Work-tables.

C. H. DUELL,
Commissioner.

CLASS 90.—GEAR-CUTTING, MILLING, AND PLANING.

DEFINITIONS.

Class.

This class covers the three allied operations named, since gears are produced by either rotating milling-cutters or by reciprocating cutters similar to those used in planing-machines, and for the further reason that the work-indexing, work-supporting, and work-feeding devices employed in all three operations are structurally indistinguishable. Each of the general subclasses is separately defined.

Subclasses.

1. GEAR-CUTTING. Miscellaneous machines and devices for cutting gear-teeth on cylindrical, conical, or hemispherical blanks or for cutting separate cogs or teeth for subsequent insertion in such blanks.

2. GEAR-CUTTING, INTERMESHING-GENERATOR. Machines and devices in which the working faces of the teeth of the blank are "generated" by cutters which intermesh with the blank after the manner of a mating gear. Though the generating-cutter usually revolves, its cutting action is a planing or broaching rather than a milling action.

3. GEAR-CUTTING, ROTATING-CUTTER. Machines for producing gears, usually spur-gears, by means of rotating cutters which have the same section as the space between two teeth of the blank, there being also means for effecting a relative feeding movement between cutter and blank.

4. GEAR-CUTTING, ROTATING-CUTTER, HELICAL GEARS. Machines of the rotating-cutter type for producing worm-gearing or spiral gears.

5. GEAR-CUTTING, ROTATING-CUTTER, BEVEL-GEARS. Machines of the rotating-cutter type especially designed to produce bevel-gears.

6. GEAR-CUTTING, ROTATING-CUTTER, BLANK-PILLAR AND CUTTER-SLIDE. A type of rotating-cutter or "gear-milling" machines in which the blank-mandrel is adjustably supported upon an upright pillar, while the cutter is carried upon a slide traversing ways on the frame of the machine.

7. GEAR-CUTTING, ROTATING-CUTTER, AXIALLY-TRAVELING. Machines in which a gang of rotating cutters mounted on the same driving-mandrel have in addition to their rotary motion a rectilinear motion in a direction tangent to the synchrononously rotated blank, thus generating the tooth curve.

8. GEAR-CUTTING, RECIPROCATING-CUTTER. Machines in which the tooth outline is produced by a cutter which reciprocates in the direction of the length of the tooth, whether of a spur or bevel gear, since most of the devices will produce either by merely changing the angular adjustment of the blank-holder. The subclass also contains machines for "broaching" teeth or even complete gears by a single forward movement of the cutter.

9. GEAR-CUTTING, RECIPROCATING-CUTTER, TOOTH-CURVE GENERATING. Machines in which a reciprocating cutter, often of rack-tooth outline, is given also a tangential or rotary lateral movement such as will generate a theoretically correct tooth curve on the blank.

10. GEAR-CUTTING, RECIPROCATING-CUTTER, TEMPLET-GUIDE. Gear-planing machines, usually for producing bevel-gears, in which the tooth curve is determined by a "master-tooth" or templet, which controls the movement of either the cutter or the blank.

11. MILLING. Machines and devices for shaping material, usually metal, by means of toothed rotary cutters which actually sever portions of the material by a clean cut, as distinguished from rotary disks, etc., which merely abrade. Reciprocating cutters similar to files are not included in this class.

12. MILLING, PORTABLE. Machines readily movable from place to place, usually having special clamping means for attachment to the work and being frequently hand-driven.
(Note.—Search also in classes 77, BORING AND DRILLING, Drilling-machines, Portable, and 82, TURNING, Lathes, Portable.)

13. MILLING, PATTERN-CONTROLLER. Machines for producing predetermined forms in which the movement of either the cutter or the work is controlled by a pattern or templet.

14. MILLING, MOVABLE CUTTER-AXIS, AXIAL. Machines in which the cutter-axis may be moved in the direction of its length during the progress of the cut.

15. MILLING, MOVABLE CUTTER-AXIS, LATERAL. Machines in which the cutter-axis may be moved during the cut in a direction at an angle, usually a right angle, to its length. This motion is the necessary feed-motion.
(Note.—Search also the subclasses of Milling, portable, and Milling, pattern-controller, in this class.)

16. MILLING, ADJUSTABLE CUTTER-AXIS. Milling-machines in which the cutter-axis is capable of either longitudinal or lateral adjustment in substantially straight lines, the cutter-axis, however, remaining stationary during the cutting operation.

17. MILLING, ADJUSTABLE CUTTER-AXIS, ANGULAR. Machines in which the cutter-axis, though stationary during the cutting operation, is capable of angular adjustment in one or more planes.

18. MILLING, STATIONARY CUTTER-AXIS. Machines in which the cutters have rotary motion only, the feed being effected by moving the work.
(Note.—Search also in subclass Milling, pattern-controller, in this class.)

19. MILLING, STATIONARY CUTTER-AXIS, VERTICAL. Machines in which the cutter-axis is placed vertical to facilitate the use of "end mills," usually called "vertical" milling-machines.

20. MILLING, STATIONARY CUTTER-AXIS, ROTARY WORK-HOLDER. Machines with stationary cutter-axes having means for rotating the work on its own axis, so as to produce articles of circular cross-section or arc-shaped cuts.

21. MILLING, WORK-FEEDS. Devices for bringing the work into operative contact with the cutting mechanism, usually in machines with stationary cutter-axes.
(Note.—Search also in subclass Milling, pattern-controller, in this class.)

22. MILLING, WORK-FEEDS, BACKLASH-COMPENSATORS. Devices for removing backlash or wear from screw-feeds, rack-and-pinion feeds, etc., to prevent the work from drawing under the cutter.

23. MILLING, TAIL-STOCKS. Tail-stocks with angularly-adjustable centers or other features particularly adapting them to milling-machines.
(Note.—Search should also be made in class 82, TURNING, Lathes, Tail-Stocks.)

24. PLANING. Machines and devices for removing material, usually metal, from a work-piece, mainly by means of comparatively light cuts of a non-rotary tool or series of such tools, between which tools and the work-piece there is relative reciprocatory movement in substantially straight lines. The class also includes a few devices for producing plane surfaces in which there is relative rotation in the same plane as the surface acted upon between tool and work and for producing curved surfaces by modifying the reciprocatory rectilinear travel of either tool or work.

25. PLANING, SOFT-METAL. Machines and devices for operating on type-metal, stereotypes, battery-plates, etc. They are usually characterized by broad cutters which cover at one cut the entire surface to be finished and by correspondingly-modified driving means.
(Note.—Search should also be made in class 144, WOODWORKING, Planers, Reciprocating-Cutter.)

26. PLANING, SOFT-METAL, CYLINDRICAL STEREOTYPES. Machines for finishing the concave surfaces of stereotyped forms for cylinder-presses.
(Note.—Search also in subclasses under Planing, curved surfaces, in this class.)

27. PLANING, SOFT-METAL, DOUBLE-RACK CUTTER-DRIVE. Machines in which the broad cutter is actuated by a rack secured at each end thereof, the racks being driven by suitably-mounted pinions.

28. PLANING, SOFT-METAL, ROLLER-FEED. Machines in which the metal is fed past the cutters by rolls after the manner of wood-planing machines.
(Note.—For similar feeding devices search should also be made in class 144, WOODWORKING, in the subclasses under Feed and presser mechanisms, rolls, feed.)

29. PLANING, CURVED SURFACES, ROLL-GROOVING. Machines for scoring the surfaces of grinding and crushing rolls, etc., with longitudinal, helical, sinuous, or other grooves.

30. PLANING, CURVED SURFACES, CYCLOIDS. Special machines for producing rotary pump and blower pistons, etc., the cross-sectional outlines of which are made up wholly or in part of cycloidal curves.

31. PLANING, CURVED SURFACES, LATERALLY-MOVING CUTTER. Machines in which the curved surface is produced by a tool given a feeding movement in a curved path, the work meanwhile reciprocating in a path substantially perpendicular to the plane in which the tool moves.
(Note.—Search should also be made in Planing, curved surfaces, cycloids; Planing, curved surfaces, roll-grooving, and Planing, soft-metal, cylindrical stereotypes, in this class.)

32. PLANING, CURVED SURFACES, LATERALLY-MOVING WORK. Machines which give the work both lateral and longitudinal movement with reference to a relatively stationary cutter.
(Note.—Search should also be made in Planing, curved surfaces, cycloids; Planing, curved surfaces, roll-grooving, and Planing, soft-metal, cylindrical stereotypes, in this class.)

33. PLANING, BROACHING. Machines and appliances for finishing surfaces, cutting slots, etc., by a single forward movement of either tool or work, the tool having usually a succession of gradually-elevated cutting-points which effect the same result as continued reciprocations of a single pointed tool.

34. PLANING, PLANERS, RECIPROCATING-BED. Machines having a cutter-head mounted on a cross-rail or similar supporting device and a work-holding bed reciprocating on suitable ways to present the work to the cutter.

35. PLANING, PLANERS, RECIPROCATING-BED, RACK-DRIVE. Machines in which the bed is reciprocated by means of an attached rack with which meshes the reversely-rotated driving-gear.

36. PLANING, PLANERS, RECIPROCATING-BED, SCREW-DRIVE. Machines in which the bed is reciprocated by an intermeshing nut and longitudinally-arranged screw.

37. PLANING, PLANERS, RECIPROCATING-BED, CROSS-RAILS. Adjustable rails extending horizontally from the uprights of the planer above the reciprocating bed to support and provide feeding-ways for the cutter-head.

38. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL. Machines and devices, usually known to the trade as "shapers," in which the work is held stationary while the cutter is horizontally reciprocated to effect the cut.

39. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, OSCILLATNG LINE-DRIVE. Machines having a slotted link pivoted in a vertical plane, usually at its lower end, in an upright pillar, and movably connected at its upper end to the horizontal tool-carrying ram, the link being driven by suitable gearing and ordinarily affording a quick return for the cutter.

40. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, CRANK-DRIVE. Machines in which the cutter is horizontally reciprocated by a crank and connecting-rod.

41. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, RACK-DRIVE. Machines in which the horizontally-reciprocating cutter-carrying ram is actuated through an attached rack and suitable reversing driving mechanism.

42. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, SCREW-DRIVE. Machines in which the tool-head is actuated by screw-gearing, usually an attached nut and an intermeshing screw, with suitable reversing driving mechanism.

43. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL. Machines in which the work is usually clamped to a horizontal bed while the cutter is vertically reciprocated. This type of machine includes most of the tools known as "slotters" and "key-seaters."

44. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, CRANK-DRIVE. Machines of the "slotter" type having vertically-reciprocating cutter-heads actuated by a crank and connecting-rod.

45. PLANING, PLANERS, RECIPROCATING CUTTER, VERTICAL, CRANK-DRIVE, INVERTED. Machines with vertically-reciprocating cutter-carriers in which the work-holder is located at the top of the frame, while the actuating-crank is beneath the work-securing means—a type of machine frequently used for key-seating.

46. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, RACK-DRIVE. Machines in which the vertically-reciprocating cutter is actuated by means of an attached rack and a suitable intermeshing driving-train.

47. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, RACK-DRIVE, INVERTED. Machines with vertically-reciprocating cutter-carriers having a superposed work table or support with the rack-and-pinion cutter-driving means located beneath it.

48. PLANING, PLANERS, REVERSING MECHANISMS. Devices for changing the direction of motion of either the work-table or cutter-carrying ram of planers.

49. PLANING, PLANERS, TOOL-FEEDS. Devices for giving the tool-heads of planers, "shapers," etc., an intermittent-feed motion in a direction at right angles to the direction of the cut.

50. PLANING, PLANERS, TOOL-FEEDS, CLUTCH-BOXES. Devices for giving an impulse to the feeding mechanism of a planer at the beginning or end of a stroke and then yielding frictionally or positively disengaging during the remainder of the stroke; usually in the form of frictionally-engaging disks, one attached to the reversible driving-shaft and the other to a feed-rod and oscillating between fixed stops.

51. PLANING, PLANERS, TOOL-FEEDS, STOP MECHANISMS. Devices for disengaging the intermittent-feed mechanism at any predetermined point.

52. PLANING, PLANERS, TOOL-HEADS. Mechanisms for supporting, adjusting, and releasing the cutting-tools of planers.

53. PLANING, PLANERS, TOOL-HEADS, OSCILLATING DOUBLE CUTTER. Tool-heads supporting a pair of cutters or a two-edged single cutter in such a manner as to cut in both directions of travel, one cutting edge being swung out of contact with the work while the other is acting.

54. PLANING, PLANERS, TOOL-HEADS, PIVOTED CUTTER-RELEASE. Tool-heads and holders having cutters so pivoted as to rest against a backing-piece on the cutting stroke and swing clear of the work on the return stroke.

55. PLANING, PLANERS, TOOL-HEADS, CUTTER-LIFTERS. Devices for positively releasing the cutter and holding it out of contact with the work during the return stroke.

56. INDEXING. Complete devices, gear-trains, etc., for automatically spacing gears and other articles through aliquot parts of a circumference to produce a regular series of teeth or grooves.
(Note.—Search should also be made in Gear-cutting, this class, and in class 77, BORING AND DRILLING, Appliances, Work-Supports, Indexing.)

57. INDEXING, INDEX-HEADS. That portion of the indexing mechanism which includes an equally-divided disk or cylinder, means for intermittently rotating such divided part or a concentric engaging device, means for interlocking the said parts, and usually a center for supporting one end of the blank operated upon.
(Note.—Some form of indexing or spacing mechanism is essential to all gear-cutting and many milling machines, so that a complete search on such devices must necessarily cover both those main subclasses. The subclasses of Indexing and Index-heads include only such patents and cross-references as contain claims to and are therefore supposed to show novel features in such mechanisms. Search should also be made in Gear-cutting, this class, and in class 77, BORING AND DRILLING, Appliances, Work-Supports, Indexing.)

58. WORK-TABLES. Movable or stationary tables for supporting the work operated upon or the clamp for securing such work. They are usually provided with slots for securing work and with adjusting means.

59. WORK-HOLDERS. Miscellaneous devices for supporting or securing work-pieces while being acted upon by planing, milling, or gear-cutting cutters.

60. WORK-HOLDERS, MACHINE-VISES. Devices with movable gripping-jaws adapted to be secured to machine-tables to clamp the work while being acted upon.
(Note.—Search should also be made in Vises, in class 81, METAL-WORKING TOOLS.)

61. WORK-HOLDERS, MACHINE-VISES, ANGULARLY-ADJUSTABLE JAWS. Vises having adjustable jaws or jaw-pieces adapted to clamp work with non-parallel sides.

THE
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OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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(ORDER No. 1,382.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 19, 1900.

Under the provisions of section 487 of the Revised Statutes Oscar A. Michel, of New York, N. Y., is, with the approval of the Secretary of the Interior, hereby disbarred from practice before the United States Patent Office for gross misconduct.

C. H. DUELL,
Commissioner.

(ORDER No 1,383.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 20, 1900.

Under the provisions of section 487 of the Revised Statutes Arthur W. Crossley, of Boston, Mass., is, with the approval of the Secretary of the Interior, hereby disbarred from practice before the United States Patent Office for gross misconduct.

C. H. DUELL,
Commissioner.

Change of Title of Invention.

(ORDER No. 1,380.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 13, 1900.

In view of the numerous requests to change the title of invention after an application has been passed to issue, the omission of the following statement from the margin of the notice of allowance is directed:

The within title is that given by the Examiner in charge as most appropriate to your invention. Should you desire a change in the same, satisfactory reasons must be given therefor on or before the payment of the final fee.

C. H. DUELL,
Commissioner.

ORDER No. 1,381.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 13, 1900.

In order to avoid the numerous requests for change of title of invention after applications have been passed to issue, the Examiners are directed to indicate in their first letters to applicants, or as soon thereafter as practicable, any change which they desire applicants to make in the titles of their inventions.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED NOVEMBER 27, 1900.

Labels.

7,917.—Title: "LOUIS XV." (For Corsets.) *Harriet C. Watson*, New York, N. Y. Application filed November 1, 1900.

7,918.—Title: "ARM-PIT-EASE." (For a Toilet Preparation.) *Emma V. Pitkin*, New York, N. Y. Application filed October 24, 1900.

7,919.—Title: "DR. LA FAURE'S 33337 BALSAM." (For a Medicine.) *N. T. Pike*, Bainbridge, Ga. Application filed November 2, 1900.

7,920.—Title: "KILL-BUG." (For a Germicide.) *Mary Koch*, New York, N. Y. Application filed November 1, 1900.

7,921.—Title: "KOW-KURE." (For a Veterinary Medicine.) *Dairy Association*, Lyndon, Vt. Application filed November 2, 1900.

7,922.—Title: "LITTLE CASINO WHISKEY." (For Whisky.) *Abe Kodziesen*, New York, N. Y. Application filed November 6, 1900.

7,923.—Title: "KRETYUR." (For Whisky.) *Marcus Haugh & Co.*, Philadelphia, Pa. Application filed November 5, 1900.

7,924.—Title: "HERRMANN'S TIGER BRAND ROOT BEER." (For Root-Beer.) *J. F. Herrmann & Son*, Washington, D. C. Application filed October 31, 1900.

7,925.—Title: "HERRMANN'S TIGER BRAND GINGER ALE." (For Ginger-Ale.) *J. F. Herrmann & Son*, Washington, D. C. Application filed October 31, 1900.

7,926.—Title: "HERRMANN'S TIGER BRAND GINGER ALE." (For Ginger-Ale.) *J. F. Herrmann & Son*, Washington, D. C. Application filed October 31, 1900.

7,927.—Title: "TAKU TEA." (For Tea and Coffee.) *Sarah B. Greenhouse*, Camden, N. J. Application filed October 31, 1900.

7,928.—Title: "CAFÉ DES INVALIDES OR ANTIDOTE COFFEE." (For a Coffee-Blend.) *S. S. Pierce Company*, Boston, Mass. Application filed November 5, 1900.

7,929.—Title: "OUR DOCTORS BAKING POWDER." (For Baking-Powder.) *A. & G. Meyer*, Newburg, N. Y. Application filed November 2, 1900.

7,930.—Title: "CHAMPION." (For Mantles.) *Morris Shapiro*, New York, N. Y. Application filed October 31, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 20, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Nov. 12	Nov. 10	54
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Nov. 10	Nov. 9	124
106	II. Farm Stock, Products, etc.	Nov. 8	Nov. 8	139
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Nov. 1	Nov. 6	153
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Nov. 1	Nov. 5	144
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Oct. 26	Nov. 6	96
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Oct. 25	Oct. 15	258
240	VII. Velocipedes, Games, and Toys.	Oct. 24	Nov. 8	128
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Oct. 24	Nov. 7	127
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 24	Nov. 6	120
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Oct. 23	Nov. 9	98
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Oct. 23	Nov. 8	163
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207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 22	Nov. 8	139
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Oct. 22	Nov. 8	99
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 22	Nov. 8	177
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261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 22	Nov. 7	80
93	XXI. Textiles, etc	Oct. 22	Nov. 7	163
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 22	Nov. 6	129
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 22	Nov. 6	188
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Oct. 22	Nov. 6	294
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 22	Nov. 6	127
120	IX. Hydraulics, Fire-Extinguishers, etc.	Oct. 22	Nov. 6	102
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 22	Nov. 6	159
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 22	Nov. 6	106
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 22	Nov. 6	196
102	XIX. Stoves and Furnaces	Oct. 22	Nov. 6	199
253	X. Carriages and Wagons	Oct. 22	Oct. 31	159
	Between one and two months.			
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Oct. 20	Nov. 6	187
248	XVIII. Steam-Engineering, etc	Oct. 16	Nov. 5	177
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 15	Nov. 5	344
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 15	Nov. 1	196
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Oct. 12	Oct. 27	220
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 1	Oct. 3	176
	Between three and four months.			
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Total number of applications awaiting action.....5,856

Applications Under Examination—Continued.

Under one month.			
*Designs	Nov. 12	Nov. 16	24
†Trade-Marks	Nov. 12	Nov. 15	23
‡Labels and Prints	Nov. 17	Nov. 20	3

ISSUE OF NOVEMBER 27, 1900.

Patents	519—No.	662,382 to No. 662,900, inclusive.
Designs	12—No.	33,611 to No. 33,622, inclusive.
Trade-Marks	22—No.	35,489 to No. 35,510, inclusive.
Labels	14—No.	7,917 to No. 7,930, inclusive.
Prints	None.	
Reissues	1—No.	11,874.
Total issue	568	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1		Nevada		
Arizona Territory			New Hampshire	5	
Arkansas	3		New Jersey	23	1
California	13	1	New Mexico Territ'y		
Colorado	4		New York	80	13
Connecticut	29	1	North Carolina	1	
Delaware	1		North Dakota	1	
District of Columbia	7	3	Ohio	41	1
Florida	1		Oklahoma Territ'y		
Georgia	3	1	Oregon	1	
Hawaii			Pennsylvania	45	3
Idaho			Rhode Island	1	
Illinois	44	7	South Carolina		
Indian Territory	1		South Dakota	1	
Indiana	12		Tennessee	3	
Iowa	13		Texas	10	
Kansas	5		Utah	1	
Kentucky	2		Vermont	1	1
Louisiana			Virginia	3	
Maine	1		Washington	3	
Maryland	10	1	West Virginia	2	
Massachusetts	31	6	Wisconsin	7	
Michigan	10		Wyoming		
Minnesota	8	1	U. S. Army		
Mississippi	1	1	U. S. Navy		
Missouri	18		Total to citizens of the United States	452	35
Montana	2				
Nebraska	3				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina			Italy	1	
Australia			Japan		
Austria-Hungary	5		Java		
Barbadoes			Mexico		
Belgium	1		Netherlands		
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	9		Norway		
Chile			Queensland		
China			Russia	6	
Costa Rica			Scotland		
Cuba			South African Republic		
Denmark			South Australia		
Egypt			Spain		
England	18	1	Sweden		
Finland			Switzerland	1	
France	6		Venezuela		
Germany	28		Victoria		
Guatemala			Total to citizens of foreign countries	79	1
Haiti					
India					
Ireland	4				

PATENTS

GRANTED NOVEMBER 27, 1900.

662,382. ENVELOP. CHARLES W. ALLEN, Philadelphia, Pa. Filed Jan. 9, 1900. Serial No. 805. (No model.)



Claim.—1. An envelop provided with a perforated front, and flaps projecting from its front and back, the rear flap being wider than the front flap to form laterally-projecting perforated wings that are adapted to fold around the edges of the front flap, substantially as specified.

2. An envelop provided with flaps projecting from its front and back, the rear flap being wider than the front flap to form laterally-projecting wings that are adapted to fold around the edges of the front flap, all being so constructed that the flaps thus interfolded are adapted to be jointly folded against the body of the envelop, substantially as specified.

3. An envelop provided with flaps projecting from its front and back, the rear flap being wider than the front flap to form laterally-projecting perforated wings that are adapted to fold around the edges of the front flap, all being so constructed that the flaps thus interfolded are adapted to be jointly folded against the body of the envelop, substantially as specified.

662,383. SHUTTLE MECHANISM FOR SEWING-MACHINES. FREDERICK L. ALLEY and ERASTUS E. WINKLEY, Lynn, Mass. Filed July 18, 1896. Serial No. 599,655. (No model.)



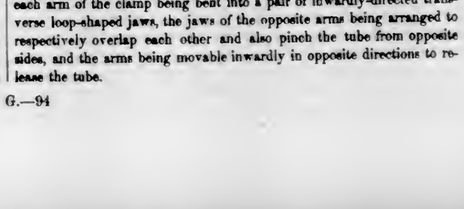
Claim.—1. A shuttle mechanism for sewing-machines having in combination a discoidal shuttle, a bobbin-case fitted therein, a rib extending across the face of the bobbin-case, a thread-groove formed in said rib, a swinging latch mounted on a fixed support and provided with a groove to engage the rib on the bobbin-case and cover the thread-groove therein, the rib and groove in the latch coöperating to hold the bobbin-case from rotation, substantially as described.

2. A shuttle mechanism for sewing-machines having in combination a discoidal shuttle, a bobbin-case fitted therein, a thread-groove in the face of the bobbin-case, a tension-spring lying in said groove and having a projection overlapping the face of the bobbin-case, and a screw extending through said projection and adjustably securing the spring to the bobbin-case, substantially as described.

3. A shuttle mechanism for sewing-machines having in combination a discoidal shuttle, a bobbin-case fitted therein, a thread-groove in the face of the bobbin-case, a tension-spring for the shuttle-thread lying in said groove and having upturned projecting shoulders, and means for holding said spring in position in said groove, substantially as described.

4. A shuttle mechanism for machines having in combination a discoidal shuttle, a circular bobbin-case fitted in said shuttle, and open at its inner side, a thread-receiving aperture in the rim of said bobbin-case located near and open at the inner side thereof, and a spring-clip carried by the bobbin-case for closing the inner side of said aperture, substantially as described.

662,384. STOCK-FEEDER. ADELBERT B. ARMSTRONG, East Otto, N. Y. Filed Apr. 6, 1900. Serial No. 11,871. (No model.)



Claim.—1. A stock-feeder, comprising a tank, a feed-pipe connected therewith and formed by independently-rotatable sections, lateral tubes carried by the sections, means for normally closing said tubes, and nipples inclosing the respective tubes.

2. A stock-feeding device, comprising a tank, a feed-pipe connected thereto, said pipe being formed by a plurality of sections, which are independently rotatable, each section also having an intermediate perforation, a tube or nipple in communication therewith, a clamp comprising a pair of blocks embracing the pipe, and one of the blocks having an opening to receive and support the tube or nipple, and means for normally closing the nipples.

3. In a stock-feeding device, a tank, a nipple, a flexible tube within the nipple and in communication therewith, and a spring-clamp, having jaws normally pinching the tube, and also movable inwardly in opposite directions to release the tube.

4. In a stock-feeding device, a tank, a nipple, a flexible tube within the nipple and in communication with the tank, and a spring-clamp, comprising opposite arms having an outward tension in opposite directions, and also inwardly-directed loop-shaped jaws receiving the tube and normally pinching the latter, said arms being movable inwardly in opposite directions to release the tube.

5. In a stock-feeding device, a tank, a pipe in communication therewith, and having a perforation, a nipple, a flexible tube within the nipple and having one end fitted in the perforation, and a substantially U-shaped spring-clamp embracing the pipe, and having opposite jaws normally pinching the tube, and also movable inwardly in opposite directions to release the tube.

6. In a stock-feeding device, a tank, a pipe in communication therewith and provided with a perforation, a nipple, a flexible tube within the nipple and having one end fitted in the perforation, and a substantially U-shaped spring-clamp embracing the pipe, and having opposite normally-overlapped loop-shaped jaws, which receive and pinch the tube, and are movable in opposite directions to release the tube.

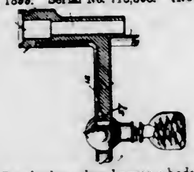
7. In a stock-feeder, a tank, a pipe in communication therewith and provided with a perforation, a nipple, a flexible tube within the nipple and having one end fitted in the perforation in the pipe, and a spring-clamp formed from a loop-shaped wire bent intermediate of its ends into a substantially U-shaped clamp embracing the tube, the free extremity of each arm of the clamp being bent into a pair of inwardly-directed transverse loop-shaped jaws, the jaws of the opposite arms being arranged to respectively overlap each other and also pinch the tube from opposite sides, and the arms being movable inwardly in opposite directions to release the tube.

8. In a stock-feeding device, a tank, a feed-pipe in communication therewith and provided with a perforation, a flexible tube having one end fitted in the perforation, a substantially U-shaped clamp embracing the pipe, and having jaws normally pinching the tube and movable in opposite directions to release the tube, a teat or nipple inclosing the tube and the clamp, and opposite blocks, having semitubular grooves to receive the pipe, and bolts connecting the blocks, one of the latter having an opening to receive the tube and the clamp, and the inner end of the teat or nipple being secured to the walls of the opening.

9. A stock-feeder, having a nipple, provided with a tube, and a clamp, having opposite jaws normally closing communication through the tube, and said jaws being movable inwardly in opposite directions, to open communication through the tube.

10. A stock-feeder, having a nipple, provided with a flexible tube, and a clamp, having opposite jaws normally pinching the tube to close communication therethrough, and said jaws being movable inwardly in opposite directions to release the tube and open communication therethrough.

662,385. **HYDROCARBON-BURNER.** ALFRED A. ARNOTT, New Haven, Conn., assignor of one-third to William A. Granville, same place. Filed May 26, 1899. Serial No. 718,395. (No model.)



Claim.—1. In a hydrocarbon-burner, a body member, provided with an oil-inlet and a vapor-outlet and having a continuous groove in the outside thereof beginning at the said oil-inlet and winding around the burner end of said body member terminating at the bottom end thereof; the combination therewith of a vaporizing-tube embedded in said groove and connecting the said oil-inlet and vapor-outlet, whereby the volatile oil is conveyed as a vapor to the vapor-outlet, substantially as described.

2. In a hydrocarbon-burner, a body member having a depending stem connected therewith and a groove upon the outside thereof terminating at the bottom of said stem; the combination therewith of a vaporizing-tube, embedded in said groove and joining the oil-inlet in said body member with the vapor-outlet, substantially as described.

3. In a hydrocarbon-burner, a body member having an oil-inlet and a vapor-chamber, with a groove around the said body member, extending from said oil-inlet and terminating at the bottom of said body member; the combination therewith of a vaporizing-tube embedded in said groove, having connection at one end with said oil-inlet and provided near the other end with a curved portion which enters the said vapor-chamber, substantially as described

4. In a hydrocarbon-burner, a body member having an oil-inlet and a vapor-chamber, with a groove around the said body member extending from said oil-inlet and terminating at the bottom of said body member; the combination therewith of a vaporizing-tube embedded in said groove, having connection at one end with said oil-inlet and provided near the other end with a curved portion which enters the said vapor-chamber, and a casement adapted to slide over the said body member and cover the same and said vaporizing-tube, substantially as described.

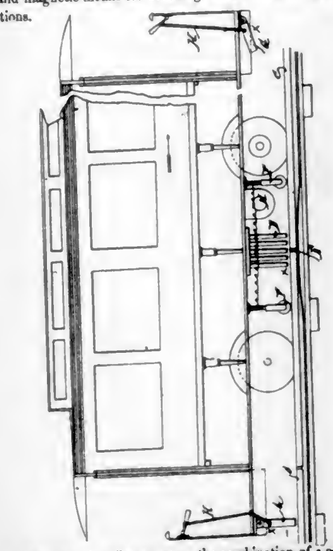
5. In a hydrocarbon-burner the combination with the body having a laterally-projecting member of a vaporizing-tube surrounding the said body and embedded in a groove in the said body and laterally-projecting member, substantially as described.

662,386. **ELECTRIC TRACTION FOR TRAMWAY OR SIMILAR VEHICLES.** ARTHUR BAISIEUX, Brussels, Belgium. Filed July 31, 1900. Serial No. 25,401. (No model.)

Claim.—1. In an electric-railway system, the combination, of a conduit formed of non-conducting and non-magnetizable material and embodying a series of insulated conducting sections or rails; a live magnetizable conductor movably located in said conduit and below said sections and in connection with a generator; a magnet carried upon the vehicle passing over said conduit and effective to move said conductor into contact with said sections; and means independent of the weight of the conductor for breaking contact between said conductor and sections.

2. In the electric traction for tramways and other similar vehicles the combination at the head and at the back of the vehicle of magnets allowed to approach the electrical conductor and having their poles fitted in an opposite situation relatively to the pole of the main magnet.

3. In an electric-railway system, the combination, of a conduit formed of non-conducting and non-magnetizable material and embodying a series of insulated conducting sections or rails; a live magnetizable conductor movably located in said conduit and below said sections and in connection with a generator; a magnet carried upon the vehicle passing over said conduit and effective to move said conductor into contact with said sections; and magnetic means for breaking contact between said conductor and sections.

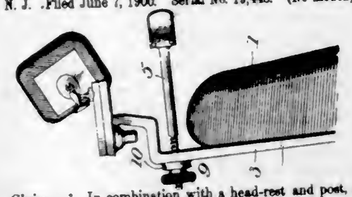


4. In an electric-railway system, the combination, of a conduit formed of non-conducting and non-magnetizable material and embodying a series of insulated conducting sections or rails; a live magnetizable conductor movably located in said conduit and below said sections and in connection with a generator; a magnet carried upon the vehicle passing over said conduit and effective to move said conductor into contact with said sections; and magnetic means also carried by the vehicle and manually operated for breaking contact between said conductor and sections.

5. In an electric railway, the combination, of a conduit having insulated conducting-sections; a magnetizable conductor movably located in said conduit; a magnet carried by the vehicle passing over said conduit and effective to move said conductor into contact with said conducting-sections; a contact device also carried by the vehicle for taking off the power-current from said conducting-sections; and means carried by the vehicle for breaking contact between said sections and conductor.

6. In an electric railway, the combination, of a conduit having insulated conducting-sections; a magnetizable conductor movably located in said conduit; a magnet carried by the vehicle passing over said conduit and effective to move said conductor into contact with said conducting-sections; a contact device also carried by the vehicle for taking off the power-current from said conducting-sections; and means carried by the vehicle for breaking contact between said sections and conductor, said means comprising an adjustable magnet shiftable toward and away from said sections.

662,387. **DENTAL HEAD-REST.** VINCENT W. BAKER, Plainfield, N. J. Filed June 7, 1900. Serial No. 19,448. (No model.)

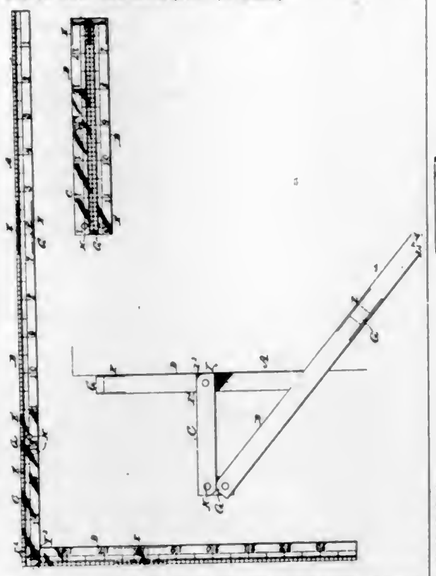


Claim.—1. In combination with a head-rest and post, a neck-rest, a threaded stem secured thereto and loosely fitted to the head-rest post so as to be capable of sliding, means for preventing rotation of the threaded stem and a knob threaded on the stem and confined in position on the head-rest post, substantially as described.

2. In combination with a head-rest and post, a neck-rest, a threaded stem secured thereto and loosely fitted to the head-rest post so as to be capable of sliding, means for preventing rotation of the threaded stem, a knob threaded on the stem, a socket on the head-rest post, and set-screws threaded in the socket and bearing in an annular groove of the knob, substantially as described.

3. In combination with a head-rest and post, a neck-rest, a threaded stem secured thereto and loosely fitted through an aperture in the head-rest post, said aperture and stem having corresponding flattened sides fitting together to prevent rotation of the stem, a socket on the head-rest post, a knob threaded on the stem and seated in the socket, and set-screws threaded in the socket and extending within an annular groove of the knob, substantially as described.

662,388. **RULER.** THOMAS C. BASSETT, Cedar Rapids, Iowa. Filed Aug. 25, 1900. Serial No. 28,085. (No model.)



Claim.—1. A rule having joints whereby it may be folded to a fraction of its extended length, and an intermediate joint limited to stop at a right angle, and breaking in a direction opposite to that of the adjacent joint which turns in the same plane.

2. A rule having a central joint by which it may be folded together, and an adjacent joint turning in the same plane but in an opposite direction, and limited to stop at a right angle, substantially as and for the purpose set forth.

3. A folding rule provided with flush joints breaking at the middle and quarter, and an intermediate flush joint turning in the same plane as the middle joint, but in the opposite direction, and limited to stop at a right angle, substantially as described.

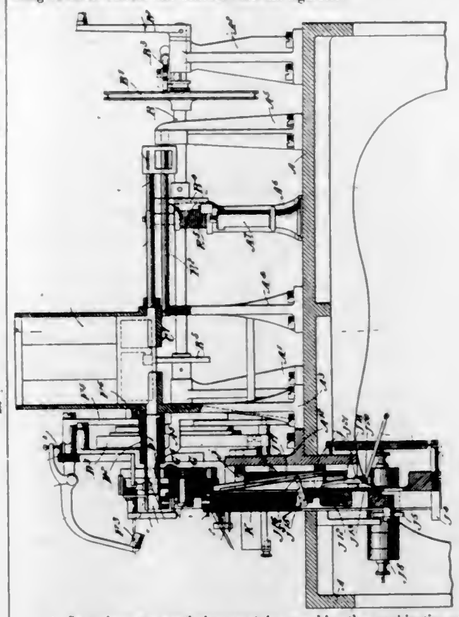
4. A rule having double joints, substantially as described, at the middle and quarter, and an intermediate, single joint turning in the same plane but in a direction opposite to that of the middle joint, and limited to stop at a right angle, substantially as described,

662,389. **CIGARETTE-MOUTHPIECE-APPLYING MACHINE.** JOSEPH S. BEKMAN, London, England. Filed Feb. 19, 1900. Serial No. 5,788. (No model.)

Claim.—1. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for moistening the retainer, means for presenting a strip to and contacting it with the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage the strip from the retainer and bring its under surface into contact with the cigarette.

2. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for presenting a strip to and contacting it with the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette.

3. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting a strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette.



4. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, a tapping and smoothing device and means for operating such device.

5. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, a tapping and smoothing device, means for operating such device and a stationary support for the end of the cigarette under treatment.

6. In a cigarette-mouthpiece-applying machine the combination of a holder for the cigarette, means for protruding the cigarette too far through the holder, means for partially returning the cigarette into the holder, a retainer for a strip, means for supplying adhesive to the retainer, means for automatically presenting the strip to and contacting it with the retainer, means for bringing the strip into more complete contact with the adhesive-coated surface of the retainer, means for moving the retainer with the strip into proximity with the cigarette, and a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, substantially as set forth.

7. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

8. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip, and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the con-

tainer, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

9. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a tapping and smoothing device and means for causing it to give a series of taps and then to rest upon the strip in process of application, substantially as set forth.

10. In a cigarette-monthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application, and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped substantially as set forth.

11. In a cigarette-mouthpiece-applying machine a holder, a plunger for protruding the cigarette too far through the holder, means for operating the plunger, a pivoted stop-lever for partially returning the cigarette into the holder, means for bringing the stop-lever into a definite position relatively to the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette and an inclined plane operating to raise the lifting device, substantially as set forth.

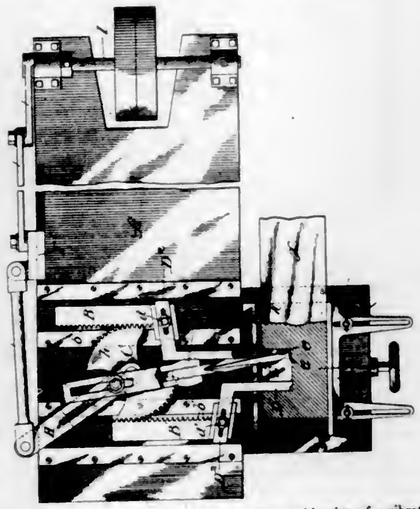
12. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a strip and a pin which engages with the strip, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a heated tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped, substantially as set forth.

13. In a cigarette-mouthpiece-applying machine a holder for the cigarette, means for intermittently rotating the holder, a retainer having accommodation for a plurality of strips and pins engaging with said strips, means for intermittently reciprocating and rotating the retainer, a spring-controlled band, means for intermittently supplying the band with adhesive, a container for the strips, means for intermittently reciprocating the container, a relieving-piston within the container, means for intermittently reciprocating the piston, a block having two projections for bringing the strip into intimate contact with the adhesive-coated surface of the retainer one projection having accommodation for the pin upon the retainer and the other being a spring, a lifting device to disengage a portion of the strip from the retainer and bring its under surface into contact with the cigarette, an inclined plane operating to raise the lifting device, a beated tapping and smoothing device, means for causing it to give a series of taps and then to rest upon the strip in process of application and a stationary curved support for the end of the cigarette under treatment arranged so that it is normally just clear of the tipped end and operates during the period in which the cigarette is tapped, substantially as set forth.

14. In a cigarette-mouthpiece-applying machine the combination of a flexible band a spring acting to keep said band normally straight, means for supplying the band with adhesive, a retainer having a circular surface to receive the adhesive, and means for intermittently reciprocating the retainer and bringing it into contact with the strip substantially as set forth.

15. In a cigarette-mouthpiece-applying machine, the combination of a counterbalanced tapping-lever, means for intermittently raising the lever, a spring to oppose the latter portion of the upward movement of the lever and to operate upon said lever for the first portion of its downward stroke, and a stop to intercept the spring after a portion of the stroke has been made, substantially as set forth.

662,390. MORTISING-MACHINE. WALTER BLACK, Chicago, Ill. Filed May 20, 1898. Serial No. 681,208. (No model.)



Claim.—1. In a mortising-machine, the combination of a vibrating or oscillating cutter, and two reciprocating cutting-chisels, one each side of the cutter and each having a straight line thrust in a plane approximately at right angles to the line of movement of the cutter and each having a stock with a continuing lateral shank diagonally extended at an incline approximately parallel with the chord of semi-arc through which the vibrating cutter moves on each side from the point of central rest, substantially as described.

2. In a machine of the class described, the combination of an oscillating cutter, two reciprocating chisels operating substantially at right angles thereto each provided with a cutting-stock for removing the stock transversely of the hole and having such cutting-stock provided with a right-angular flange for strengthening the cutters, substantially as described.

3. In a machine of the class described, the combination of an oscillating cutter provided with a central longitudinal outwardly-projecting rib and a web portion at right angles thereto extending laterally and below the plane of the rib such rib being arranged in a plane coincident with the side edge of the cutter, and two reciprocating cutting-chisels operating substantially at right angles to the movement of the oscillating cutter provided with right angular extending flanges which lie in a plane substantially with the outer portion of the oscillating cutter, substantially as described.

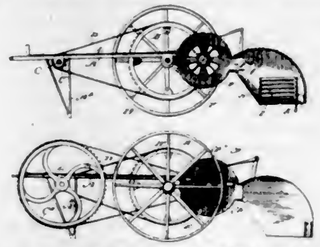
4. In a mortising-machine, a reciprocating chisel for removing the material transversely of the mortise having a stock provided with a cutting edge at its acting end, a continuing shank from the upper end of the stock extending laterally at an angle with the stock, and inwardly-extending lateral flange on the stock at right angles thereto with a cutting edge adjoining and at right angles to the cutting edge of the stock and having the lower portion of its inner face provided with a plurality of pointed or sharp projections, substantially as described.

5. In a mortising-machine, the conibination of a vibrating or oscillating central cutter, and two reciprocating cutting-chisels one on each side of the central cutter and each having a straight-line thrust in a plane approximately at right angles to the line of movement of the cutter and each having a stock with a continuing lateral shank diagonally extended at an incline approximately parallel with the chord of the semi-arc through which the central cutter swings on each side from the point of central rest and each cutting-chisel adjustable laterally by moving its shank in or out of its support, substantially as described.

6. In a mortising-machine, the combination of a vibrating or oscillating central cutter, and two reciprocating cutting-chisels one on each side of the central cutter and each having a straight-line thrust in a plane approximately at right angles to the line of movement of the central cutter and each having a continuing lateral shank diagonally extended at an incline approximately parallel with the chord of the semi-arc through which the cutter moves on each side from the point of central rest, a slot in each shank running parallel with the inclination of the shank, a reciprocating carrier for each chisel and to which the chisel is attached by the lateral shank and a clamping-bolt passing through the diagonal slot of each shank and permitting the adjustment of the shank on its support for a lateral adjustment of the chisel, substantially as described.

7. In a mortising-machine, a reciprocating chisel for removing the material transversely of a mortise having a stock provided with a cutting edge at its acting end, a continuing shank from the stock laterally at an angle with the stock, an inwardly-extending lateral flange from the stock and at right angles thereto and having an in and out curved cutting edge with the inner curve adjacent to the cutting edge of the stock and the outer curve terminating in the plane of the cutting edge of the stock, substantially as described.

662,391. INSECT-DESTROYER. BENJAMIN F. BROWN, Wedington, Ark. Filed Nov. 16, 1899. Serial No. 737,217. (No model.)



Claim.—1. A device of the character described comprising a frame, a casing thereon having horizontal flanges, a fan in said casing, means for operating said fan, a bracket secured to one of said flanges and provided with a shelf and a grate, a swinging hood covering or inclosing said grate, and a system of operating-levers for said hood, substantially as set forth.

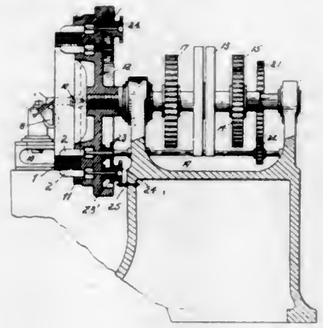
2. A device of the character described comprising a frame, a casing having horizontal flanges, a fan in said casing, means for operating said fan, a bracket secured to one of said flanges, and provided with a shelf, a grate on said shelf, a swinging hood inclosing said grate, and secured to the upper one of said flanges, a system of levers for said hood, a guard-plate depending from said shelf, substantally as set forth.

3. The combination of a frame, a casing thereon having horizontal flanges, a fan in said casing, means for operating the fan, a bracket secured to the lower horizontal flange and provided with a shelf, a grate on the shelf, a guard-plate depending from the shelf, and a hood mounted on the upper horizontal flange and adapted to extend over the grate.

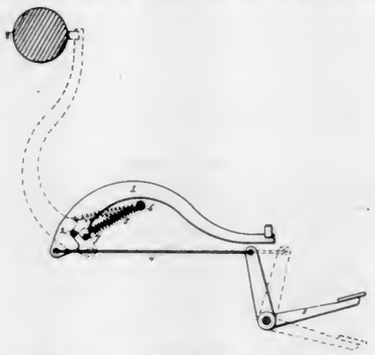
662,392. METHOD OF MAKING METAL WOOL. FRIEDRICH W. BUHNE, Freiburg, Germany. Filed Dec. 12, 1899. Serial No. 740,104. (No specimens.)

Claim.—1. The method of making metal chips consisting in cutting a plurality of chips from the edge of a metal band in the direction of the grain, the thickness of said band being a multiple of the thickness of the chip, substantially as described.

2. The method of making metal chips consisting in cutting a plurality of chips from the edge of a wound-up metal band in the direction of the grain, the thickness of said band being a multiple of the thickness of the chip, substantially as described.



662,393. TYPE-WRITING MACHINE. LEE S. BURRIDGE, New York, N. Y. Filed Aug. 1, 1899. Serial No. 725,776. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-lever operatively connected to a finger-key, with a spring adapted to draw the type-lever in one direction at its point of rest, and in the opposite direction when at the printing-point, substantially as shown and described.

2. In a type-writing machine, the combination of a type-lever operatively connected to a finger-key, with spring-mechanism constructed to actuate the type-lever in opposite directions at different points of its travel, substantially as shown and described.

3. In a type-writing machine, the combination of a type-lever pivoted on a fixed fulcrum and operatively connected to a finger-key, with a spring normally under tension and tending to actuate the type-lever toward the printing-point, substantially as shown and described.

4. In a type-writing machine, the combination of a substantially horizontal type-lever pivoted on a fixed fulcrum and intermediate mechanism connecting it to a finger-key, with a spring tending to balance the weight of the type-lever and intermediate mechanism at the normal point of rest, substantially as shown and described.

5. In a substantially "front-strike" type-writing machine, a type-lever connected to a key-lever and having substantially horizontal normal position, spring mechanism tending to return the two levers to the point of rest and constructed to become inactive at a point in the travel of said levers before they reach such point of rest, and means to counterbalance the weight of the type-lever at such point of rest, substantially as herein described.

6. In a type-writing machine, a type-lever connected to a key-lever in combination with spring mechanism constructed to act in one direction during a portion of the travel of the levers, and in the opposite direction during another portion of the travel, substantially as shown and described.

7. In a type-writing machine, the combination of a key-lever operatively connected to a "front-strike" type-lever, with a spring constructed to assist in depressing the key-lever when the key-lever is up, substantially as shown and described.

8. In a type-writing machine, the combination of a key-lever operatively connected to a type-lever, with spring mechanism constructed to assist in depressing the key-lever when the key-lever is up, and to assist

in return of the key-lever when the key-lever is depressed, substantially as shown and described.

9. In a type-writing machine, the combination of a type-lever operatively connected to a finger-key, with a spring constructed to draw the type-lever in one direction at its point of rest and in the opposite direction when at the printing-point and also to hold the type-lever on its fulcrum substantially as shown and described.

10. In a type-writing machine having type-levers which are substantially horizontal in normal position, the combination of spring mechanism constructed to return the type-levers during only a portion of their travel from the printing-point, with type-levers so constructed that their gravity will return them the remaining portion of their travel to a normal point of rest, and means to counterbalance the weight of the type-levers at such point of rest.

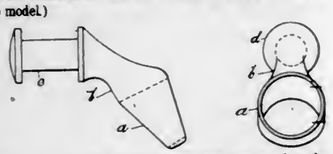
11. In a type-writing machine, a substantially horizontal type-lever constructed to print in a substantially vertical position, in combination with spring mechanism constructed to act in opposite directions during the travel of said type-lever.

12. In a type-writing machine a substantially "front-strike" type-lever substantially horizontal at its point of rest and having its fulcrum below the printing-point in combination with spring mechanism constructed to become inactive during a portion of the travel of said type-lever, and means to counterbalance the weight of the type-lever at such point of rest.

13. In a type-writing machine having its type-levers arranged in substantially horizontal position when at rest and adapted to be returned by gravity substantially from the printing-point to the normal position of rest, spring mechanism connected to such type-levers and arranged to become inactive at a point in the travel of the type-levers, and means to counterbalance the weight of the type-lever at such point of rest.

14. In a type-writing machine having its type-levers arranged to be returned by gravity substantially from the printing-point to the normal position of rest, spring mechanism connected to such type-levers and arranged to act in opposite directions during the travel of said type-levers.

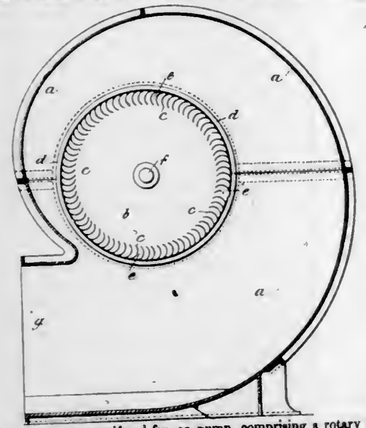
662,394. **AXLE-SLEEVE.** GEORGE DAMON, Cranford, N. J., and ELIAS S. PRETS, New York, N. Y. Filed Oct. 12, 1900. Serial No. 32,810 (No model.)



Claim.—1. An axle-sleeve comprising an envelop the surface of which constitutes more than half of a circumference, a body extending from said envelop, a journal carried by said body substantially as described.

2. An axle-sleeve comprising an envelop to completely encircle an axle, a body extending from said envelop, a journal carried by said body, substantially as described.

662,395. **CENTRIFUGAL FAN OR PUMP.** SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Sept. 21, 1898. Serial No. 691,495. (No model.)



Claim.—1. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

2. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and spaced apart a distance no greater than twice their radial depth, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

3. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber having a diameter equal to at least four times, and an axial length exceeding three times, the radial depth of the individual blades, and said blades in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

4. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades of a length approximating nine or more times their radial depth, said blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber of a diameter approximating ten times the radial depth of the individual blades, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

5. A centrifugal fan or pump, comprising a rotary member having numerous elongated thin blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section having their outer edges inclined forwardly, in the direction of rotation, whereby to carry the fluid with them rotatively and discharge it tangentially.

6. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section having their outer edges inclined forwardly, in the direction of rotation, to such effect that the outer or discharging area of the ports is less than their interior or inlet area, whereby to carry the fluid with them rotatively and discharge it tangentially.

7. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section curved in the direction of rotation, whereby to carry the fluid with them rotatively and discharge it tangentially.

8. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and said blades formed as curved plates having their outer and inner edges turned forward in the direction of rotation so that the blades are concave on their advancing sides.

9. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and said blades formed as curved plates having their outer edges turned forward in the direction of rotation, and arranged with a forward angle or lead, with their outer edges in advance of their inner edges, so that the outer or discharging area of the ports is less than their interior or inlet area.

10. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, a disk on which said blades are mounted at one end, and an annular support for the opposite ends of said blades, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

11. A centrifugal fan or pump comprising stationary and rotary members, the rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and the stationary member having an eye through which the fluid is drawn coincident with said intake-chamber and of a diameter substantially equal to that of said chamber, and having means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

12. A centrifugal fan or pump comprising stationary and rotary members, the rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and the stationary member having an eye through which the fluid is drawn coincident with said intake-chamber and of a diameter substantially equal to that of said chamber, and having means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades, and the aggregate effective area of the ports between the blades of said rotary member approximately equal to the area of said eye.

13. A centrifugal fan or pump comprising stationary and rotary members, the rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and the stationary member comprising a casing adapted to permit the tangential escape of the fluid discharged from said blades.

14. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and having an inlet-opening to said chamber of diameter approximately equal to the external diameter of the series of blades, so as to admit the inflowing fluid into the open ends of said ports.

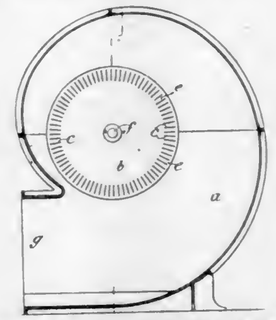
15. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and an annular support for the intake ends of the blades, such support engaging the outer edges thereof.

16. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and the blades being curved transversely at their intake ends to stiffen them.

17. A centrifugal fan or pump comprising stationary and rotary members, the rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends and the stationary member having an eye through which the fluid is drawn concentric with said intake-chamber and of a diameter approximately equal to the external diameter of the series of blades, so as to admit the inflowing fluid into the open ends of said ports.

662,396. **CENTRIFUGAL FAN OR PUMP.** SAMUEL C. DAVIDSON, Belfast, Ireland. Original application filed Sept. 21, 1898, Serial No. 691,495. Divided and this application filed Dec. 15, 1899. Serial No. 740,399. (No model.)

Claim.—1. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.



2. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated and substantially flat blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

3. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, and spaced apart a distance no greater than twice their radial depth, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

4. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber having a diameter equal to at least four times, and an axial length exceeding three times the radial depth of the individual blades, and said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

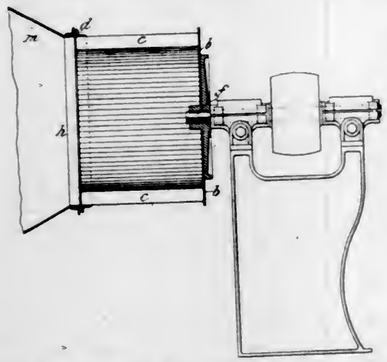
5. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades of a length approximately nine or more times their radial depth, said blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber of a diameter approximating ten times the radial depth of the individual blades, and said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

6. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and the stationary member having an eye through which the fluid is drawn concentric with said intake-chamber and of a diameter approximately equal to the external diameter of the series of blades, so as to admit the inflowing fluid into the open ends of said ports.

7. A centrifugal fan or pump comprising stationary and rotary members, the rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and the stationary member having an eye through which the fluid is drawn concentric with said intake-chamber and of a diameter approximately equal to the external diameter of the series of blades, so as to admit the inflowing fluid into the open ends of said ports.

8. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, said blades arranged radially of the axis of rotation so that when revolving in either direction they shall carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, and the blades being curved transversely at their intake ends to stiffen them.

662,397. **CENTRIFUGAL FAN OR PUMP.** SAMUEL C. DAVIDSON, Belfast, Ireland. Original application filed Sept. 21, 1898, Serial No. 691,495. Divided and this application filed May 21, 1900. Serial No. 17,366. (No model.)



Claim.—1. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions.

2. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and spaced apart a distance no greater than twice their radial depth, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially in all directions.

3. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber of a diameter equal to at least four times, and of an axial length exceeding three times the radial depth of the individual blades, and said blades in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions.

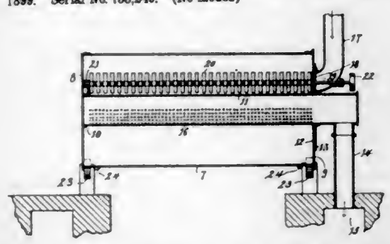
4. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section having their outer edges inclined forwardly in the direction of rotation, whereby to carry the fluid with them rotatively and discharge it tangentially, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions.

5. A centrifugal fan or pump, comprising a rotary member having numerous thin elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section curved in the direction of rotation, whereby to carry the fluid with them rotatively and discharge it tangentially, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions.

6. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, the ports between said blades being open at their intake ends, whereby the inflowing fluid may enter the open ends of said ports, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions.

7. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged lengthwise in approximately axial direction, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and said rotary member being uninclosed whereby the fluid discharged from its blades may freely escape tangentially therefrom in all directions, and a stationary member adapted to lead the fluid to said rotary member, and having an eye facing the open end of said intake-chamber.

662,398. **MALTING-DRUM.** JOHN F. DORNFELD, Milwaukee, Wis., assignor of one-half to Franklin B. Giesler, same place. Filed Oct. 11, 1899. Serial No. 733,249. (No model.)



Claim.—1. The combination, of a drum, an interior cylinder extending longitudinally of the drum at or near the center of said drum, and communicating with an opening or pipe through the end or head of the drum, an air pipe or opening leading directly into the drum through the end or head and communicating with the space between the center of the drum and the outer shell thereof, and in the upper portion of the drum, one of the pipes or openings adapted to serve as a medium for supplying air to the drum, and the other of said pipes or openings as an air-discharge.

2. The combination, of a drum, an interior cylinder extending longitudinally in the drum, said cylinder having a series of perforations on its under side only, an air shaft or pipe leading into the upper portion of the drum, and an air shaft or pipe leading from the interior cylinder, one of said shafts or pipes adapted to serve as a medium for supplying air to the drum, and the other of said shafts or pipes as an air-exhaust.

3. The combination, of a revoluble drum, an interior perforated cylinder extending longitudinally in the drum, an air shaft or pipe leading directly into the drum and independent of and non-revoluble with the drum, and an air shaft or pipe leading from the interior cylinder, one of said shafts or pipes adapted to serve as a medium for conducting air into the drum, and the other of said shafts or pipes as an air-exhaust.

4. The combination, of a revoluble drum, a stationary interior cylinder extending longitudinally in the drum, said cylinder having a series of perforations on its under side, stirring mechanism located in the upper portion of the drum, and adapted by its stirring operation to keep a clear space in said upper portion of the drum, an air shaft or pipe leading directly into the upper portion of the drum to the space which is maintained clear by the stirring mechanism, and an air shaft or pipe leading from the interior cylinder, one of said shafts or pipes adapted to serve as a medium for conducting air into the drum, and the other of said shafts or pipes as an air-exhaust.

5. The combination, of a revoluble drum, an interior perforated cylinder extending longitudinally in the drum, stirring mechanism located in the space between the interior cylinder and the outer shell of the drum, said stirring mechanism being mounted in bearings, which bearings are independent of and non-revoluble with the drum, an air shaft or pipe leading directly into the drum, and an air shaft or pipe leading from the interior cylinder, one of said shafts or pipes adapted to serve as a medium for conducting air into the drum, and the other of said shafts or pipes as an air-exhaust.

6. The combination, of a revoluble drum, one of the end pieces thereof having an opening therethrough, an interior perforated cylinder extending longitudinally in the drum and provided with a flange which covers

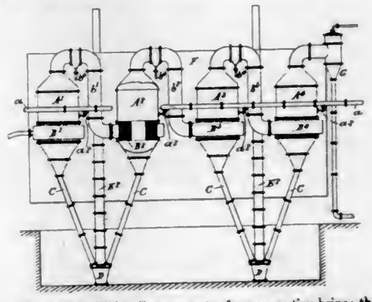
the opening in the end of the drum, and said flange having an opening registering with the opening in the end of the drum, an air shaft or pipe leading to the opening in the flange, and an air shaft or pipe leading from the interior cylinder, one of said shafts or pipes adapted to serve as a medium for conducting air into the drum, and the other of said shafts or pipes as an air-exhaust.

7. The combination, of a drum, having a perforated tube arranged longitudinally in its interior, an interior perforated cylinder extending longitudinally in the drum, an air shaft or pipe leading directly into the drum and having a branch pipe extending therefrom and adapted to be brought into register with the perforated tube, and an air shaft or pipe leading from the interior cylinder, one of the shafts or pipes adapted to serve as a medium for supplying air to the drum, and the other of the shafts or pipes as an air-discharge.

8. The combination, of a drum, a perforated interior cylinder at or near the center of the drum and extending longitudinally to a pipe or chamber for supply or discharge of air, a perforated tube at or near the outer shell of the drum and extending longitudinally within the body of the drum, and having an air-inlet from a pipe or chamber, and another pipe or chamber for the supply or discharge of air and having communication with a direct opening in the end of the drum, and communicating with the space above the center of the drum, and between said center and the outer shell of the drum.

9. The combination of a drum, stirring mechanism within the drum, an interior perforated cylinder at or near the center of the drum, and extending longitudinally to a pipe or chamber for supply or discharge of air, a perforated tube at or near the outer shell of the drum and extending longitudinally within the body of the drum, and having an air-inlet from a pipe or chamber, and another pipe or chamber for the supply or discharge of air and having communication with a direct opening in the end of the drum, said opening communicating with the space above the center of the drum and between said center and the outer shell of the drum.

662,399. **MULTIPLE-EFFECT EVAPORATING APPARATUS.** EDWARD J. DUFF, Liverpool, England, assignor of one-half to the United Alkali Company, Limited, same place. Filed Feb. 13, 1900. Serial No. 5,116. (No model.)



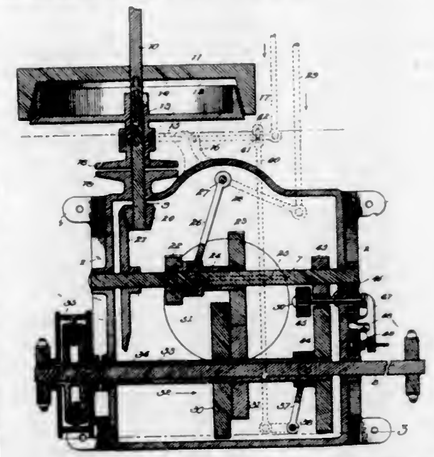
Claim.—In multiple-effect apparatus for evaporating brine; the combination of evaporating-chambers arranged side by side in groups of two, or more, legs, for the deposit of salt, from each group meeting in one boot of an elevator common to both, or all, of the said legs, tubes for the circulation of brine, a belt surrounding the tubes into which the heating agent passes, pipes or passages one leading from the top of each evaporating-chamber into the belt of the next succeeding evaporating-chamber, and means for feeding the evaporating-chambers separately with brine, substantially as hereinbefore described.

662,400. **GEARING FOR AUTOMOBILE VEHICLES.** LEONARD H. DYER, Washington, D. C., assignor of one-fourth to Frank L. Dyer, Montclair, N. J. Filed Apr. 26, 1899. Serial No. 714,513. (No model.)

Claim.—1. In a gearing for automobile vehicles, two shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

2. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

3. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.



4. In a gearing for automobile vehicles, two parallel shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

5. In a gearing for automobile vehicles, two shafts, gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

6. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a friction-clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

7. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

8. In a gearing for automobile vehicles, two parallel shafts, a plurality of pairs of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

9. In a gearing for automobile vehicles, two shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

10. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

11. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

12. In a gearing for automobile vehicles, two parallel shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

13. In a gearing for automobile vehicles, two shafts, gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

14. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

15. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

16. In a gearing for automobile vehicles, two parallel shafts, a plurality of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

17. In a gearing for automobile vehicles, two shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

18. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

19. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts and means for intermeshing said gears for transmitting power from one shaft to the other, substantially as set forth.

20. In a gearing for automobile vehicles, two parallel shafts, a plurality of pairs of gears thereon, a clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

21. In a gearing for automobile vehicles, two shafts, gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other.

22. In a gearing for automobile vehicles, two parallel shafts, gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

23. In a gearing for automobile vehicles, two shafts, a plurality of pairs of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

24. In a gearing for automobile vehicles, two parallel shafts, a plurality of pairs of gears thereon, a friction-clutch connecting one shaft with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, a stop on one of said shafts, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

25. In a gearing for automobile vehicles, two parallel shafts therefor, gears carried by said shafts, a shifting-lever therefor, and a tight metal receptacle surrounding said gears, said receptacle having an integral hollow standard rising from the bottom thereof and supporting said shifting-lever.

26. In a gearing for automobile vehicles, two parallel shafts therefor, gears carried by said shafts, shifting-levers therefor, and a tight metal receptacle surrounding said gears, said receptacle having integral hollow standards rising from the bottom thereof and supporting said shifting-levers.

27. In a gearing for automobile vehicles, the reversing-gear therefor, consisting of a driving-shaft, a pinion carried thereby, a driven shaft and gear carried thereby in line with said pinion, and an idle pinion carried normally to one side of said pinion and gear, a sleeve sliding upon said driving-shaft adapted to engage with said idle pinion and force it into engagement with said gear, substantially as set forth.

28. In a gearing for automobile vehicles, the reversing-gear therefor, consisting of a driving-shaft, a pinion carried thereby, a driven shaft, a gear carried thereby in line with said pinion, an idle pinion carried normally to one side of said pinion and gear, and means for engaging said idle pinion with said gears, and a spring for disengaging it from said gears, substantially as set forth.

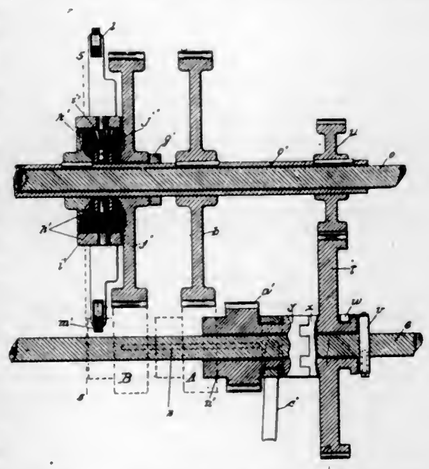
29. In a gearing for automobile vehicles, the reversing-gear therefor, consisting of a driving-shaft, a pinion carried thereby, a driven shaft, a gear carried thereby in line with the said gear, an idle pinion carried normally to one side of said pinion and gear, a sleeve sliding upon said driving-shaft adapted to engage with said gear whereby said idle pinion will be engaged with said pinion and gear, and a spring for disengaging it from said gears, substantially as set forth.

30. In a gearing for automobile vehicles, two shafts, a clutch connecting one shaft with the source of power, a pinion carried by said latter shaft, a clutch connecting the second shaft with the driving mechanism, a gear carried by said second shaft in line with said pinion, an idle pinion carried normally to one side of said pinion and gear, and means for engaging said idle pinion with said gear, substantially as set forth.

31. In a gearing for automobile vehicles, two parallel shafts therefor carrying gears, a clutch connecting one of said shafts to the source of power and carrying a disk 18, and a metal receptacle surrounding said gears, said receptacle carrying a disk 19 thereon.

32. In a gearing for automobile vehicles, two shafts, gears thereon, a bevel-gear 21 on one shaft, a bevel-pinion 20, and a clutch connecting with the source of power, a clutch connecting the other shaft with the driven mechanism, means for applying and disengaging said clutches *seriatim*, and means for intermeshing said gears for transmitting motion from one shaft to the other, substantially as set forth.

662,401. GEARING FOR AUTOMOBILE VEHICLES. LEONARD H. DYER, Washington, D. C., assignor of one-fourth to Frank L. Dyer, Montclair, N. J. Filed Apr. 26, 1899. Serial No. 714,514. (No model.)



Claim.—1. In an improvement in gearing, two shafts parallelly arranged, a gear rigidly fastened to one shaft, a second gear in mesh with the first gear but free to rotate about its supporting-shaft, a third gear rigidly keyed to one of the shafts and a fourth gear keyed to its shaft but capable of lateral or endwise movement thereon, means for intermeshing the fourth gear with the third gear and means for engaging the second gear with its supporting-shaft, substantially as set forth.

2. In an improvement in gearing, the driving and driven shafts, two gears rigidly connected to one of said shafts, a gear mounted loosely upon the other shaft and engaging with one of the aforementioned gears, and a gear rigidly connected to the said shaft but capable of endwise movement thereon, means for intermeshing this gear with one of the first gears and means for engaging the loose gear with its supporting-shaft, substantially as set forth.

3. In an improvement in gearing, two shafts parallelly arranged, two gears rigidly secured to one of said shafts, a gear constantly in mesh with one of the said gears and mounted loosely upon the second shaft, a fourth gear rigidly supported upon the same shaft and capable of endwise movement, means for intermeshing this gear with one of the aforementioned gears, and a clutch carried upon said shaft for rigidly connecting the loose gear with said shaft, substantially as set forth.

4. In an improvement in gearing, two shafts parallelly arranged, two gears rigidly connected to one of said shafts, a third gear intermeshed with one of the said gears and freely turning upon the second shaft, and a fourth gear mounted upon the same shaft and turning therewith but capable of endwise movement, means for intermeshing said fourth gear with one of the first-mentioned gears, and means attached to said fourth gear for locking the third gear to its shaft, substantially as set forth.

5. In an improvement in gearing, the shafts *o* and *e*, the gears *a* and *b'* supported thereon, the gear *t* supported upon the shaft *e* and free to turn thereon, one member *x* of a clutch secured to said gear *t*, the gear *a'* mounted upon said shaft *e* and turning therewith but capable of sliding thereon, the other clutch member *y* attached to said gear *a'*, and means for sliding the gear *a'* upon the shaft *e*, whereby it may be engaged with the gear *b'* or disengaged therefrom, and the jaws *y* engaged with the jaws *x*, substantially as set forth.

6. In an improvement in gearing, two shafts parallelly arranged, two gears of equal diameter mounted thereon, one of the said gears being secured thereto, intermediate mechanism interposed between the said shaft and the second gear for securing a reverse movement of the shaft, and a pinion carried by the second shaft, and commonly engaging either of said gears, substantially as set forth.

7. In an improvement in gearing, two shafts parallelly arranged, two gears of equal diameter mounted thereon, one of the said gears being secured thereto, normally inoperative intermediate mechanism interposed between the said shaft and the second gear for securing a reverse movement of the shaft, and common means carried by the second shaft for rotating either of said gears and bringing the intermediate mechanism into operation, substantially as set forth.

8. In an improvement in reversing-gears, two shafts parallelly arranged, a gear *f'* loosely mounted upon one of the shafts, a bevel-gear *j'* carried by the gear *f'*, a spider-frame *h'* mounted upon the same shaft adjacent to the gear *f'*, the bevel-gears *i* mounted upon said spider-frame and engaging with the bevel-gear *j'*, a fixed gear *k'* rigidly mounted upon the same shaft, and common means carried by the second shaft for rotating the gear *f'* and arresting the motion of the spider-frame *h'*, substantially as set forth.

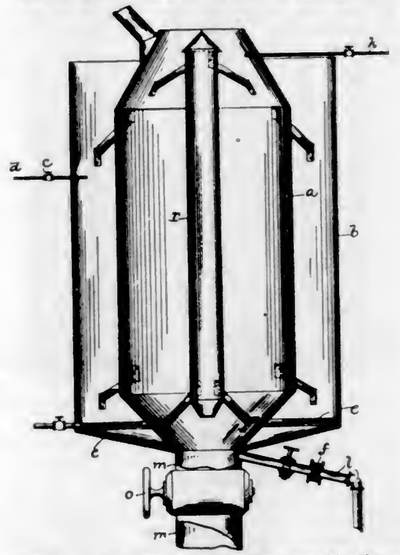
9. In an improvement in gearing, the two shafts, the fixed gear *b'*, and the loose gear *f'*, of equal size and pitch, a spider-frame *h'* mounted adjacent to the gear *f'*, a fixed gear *k'*, mounted adjacent to the spider-frame, gears within the spider-frame connecting the gears *f'* and *k'*, a gear *q'*, mounted upon the second shaft and turning therewith but capable of lateral movement thereon, and means for engaging the said gear with either of the gears *b'* and *f'*, and means for arresting the motion of the spider-frame.

10. In an improvement in gearing, the shafts *e* and *o*, the gear *f'* loosely mounted upon the shaft *o*, a spider-frame *h'* mounted adjacent thereto and engaging therewith, an arm or arms mounted upon said spider-frame and turning therewith, a gear *a'* rotating with the shaft *e* but capable of lateral movement thereon, an enlargement or hub *n'* upon the gear *a'* and means for engaging the gear *a'* with the gear *f'*, and the hub *n'* with the arms of the frame *h'*, substantially as set forth.

11. In an improvement in gearing, the shafts *o* and *e*, the gears *a* and *b'* supported thereon, the gear *t* supported upon the shaft *e* and free to turn thereon, one member *x* of a clutch secured to said gear *t*, the gear *a'* mounted upon said shaft *e* and turning therewith, but capable of sliding thereon, the other clutch member *y* attached to said gear *a'*, the gear *f'* loosely mounted on the shaft *o*, a spider frame *h'* mounted adjacent to the gear *f'*, a fixed gear *k'* mounted adjacent to the spider-frame, gears within the spider-frame connecting the gears *f'* and *k'* an arm or arms mounted upon said spider-frame and turning therewith, an enlargement or hub *n'* upon the gear *a'*, and means for shifting or sliding the said gear *a'* along the shaft *e'*, substantially as set forth.

12. In an improvement in gearing, two shafts parallelly arranged, a gear rigidly fastened to one shaft, a second gear in mesh with the first gear but free to rotate about its supporting-shaft, a clutch member upon said gear, a third gear rigidly supported upon one of the shafts, a loose gear adjacent thereto, normally inoperative intermediate mechanism interposed between said gear and its supporting-shaft, a gear keyed to the other shaft but capable of lateral or endwise movement thereon, a clutch member upon one face of the fourth gear, and a projection or hub *n'* upon the opposite face, substantially as set forth.

662,402. PROCESS OF MAKING GELATIN. EUGENE R. EDSON, Cleveland, Ohio, assignor to the Buckeye Fish Company, same place. Filed Oct. 30, 1899. Serial No. 735,275. (No specimens.)



Claim.—1. The process herein described, comprising the treatment of material of the character indicated with water at the temperature required to extract isinglass or gelatin from the material without destroying the congealableness of the resulting solution; then subjecting the said solution to a temperature low enough to congeal the same; then slicing the congealed mass, and, lastly, drying the resulting slices and exposing the latter, during the drying period, to a temperature low enough to prevent liquefying or molding of the slices, subtantially as and for the purpose set forth.

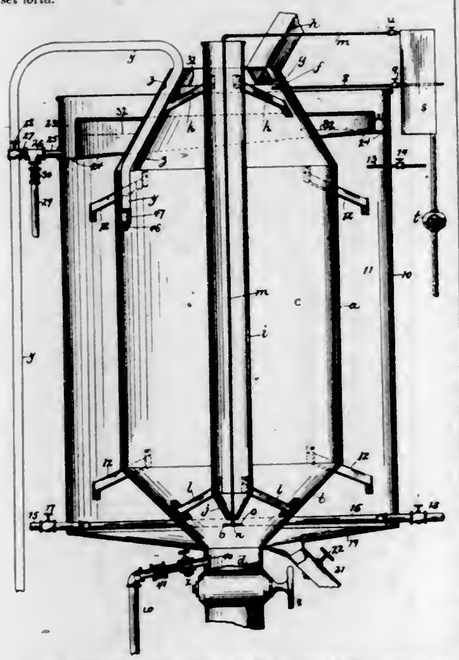
2. An improvement in the treatment of material of the character indicated to produce isinglass or gelatin, comprising a treatment of the material with water at the temperature required to extract gelatin-forming substance from the material without destroying the subsequent congealableness of the said gelatin-forming substance; then filtering the solution obtained before its reduction to a temperature low enough to congeal the same, and, after filtration, subjecting the filtered liquid to a temperature low enough to sufficiently congeal the same, to render it capable of being sliced, and then drying the resulting slices at the aforesaid lower temperature, substantially as and for the purpose set forth.

3. The process herein described, consisting in treating material of the character indicated with water at a suitably high temperature lower than 212° Fahrenheit and maintaining the mass properly heated at a temperature below the boiling-point until enough gelatin has been dissolved to form a solution of the consistency required to render it congealable by subjecting it to a sufficiently low temperature; then subjecting the solution to a suitable temperature lower than 50° Fahrenheit, and when the solution has congealed into a sliceable state then converting the congealed mass into thin slices, and lastly drying the resulting slices at the aforesaid temperature, substantially as and for the purpose set forth.

662,403. RENDERING APPARATUS. EUGENE R. EDSON, Cleveland, Ohio, assignor to the Buckeye Fish Company, same place. Filed Nov. 9, 1899. Serial No. 736,401. (No model.)

Claim.—1. Apparatus of the character indicated, comprising a receptacle for receiving the material to be treated; means for heating the material supplied to the receptacle; means for supplying the receptacle with a solvent; a valved residue-outlet leading from the lower end of the receptacle's chamber; a valved pipe in open relation with the lower end

of the said chamber above the valve in the aforesaid outlet, and a filter arranged in the line of the said pipe, substantially as and for the purpose set forth.



2. Apparatus of the character indicated, comprising a receptacle for receiving the material to be treated and the solvent employed in the treatment of the material; means for heating the material placed within the receptacle; a valved residue-outlet leading from the lower end of the said chamber; a valved pipe in open relation with the chamber at a point between the residue-outlet and the said chamber; a strainer at the receiving end of the pipe, and a filter arranged within the pipe outside of the valved portion of the pipe, substantially as and for the purpose set forth.

3. In apparatus of the character indicated, the combination, with the receptacle, wherein the material is to be treated, provided with a core *i* arranged within and centrally of the said receptacle, of a siphon-forming tube extending into the said receptacle, and means for guiding the said tube into the outer portion of the chamber of the receptacle between the aforesaid core and the surrounding wall of the said chamber, substantially as and for the purpose set forth.

4. In apparatus of the character indicated, the combination, with the receptacle in which the material is to be treated, which receptacle has an upper conical portion *f* and is provided with a core *i* arranged within and centrally of the said receptacle, of a siphon-forming tube adapted to extend into the said receptacle, and means, internally of the receptacle, for guiding the said tube into the outer portion of the chamber of the receptacle between the aforesaid core and the surrounding wall of the said chamber, substantially as and for the purpose set forth.

5. In apparatus of the character indicated, the combination, with a receptacle in which the material is to be treated, which receptacle has an upper conical portion, of the siphon-forming tube adapted to extend into the said receptacle, and the guide-forming open-ended sheath or casing *z* formed internally of and upon the aforesaid conical portion of the receptacle, substantially as and for the purpose set forth.

6. Apparatus of the character indicated, comprising a tank 10, a valved water-supply pipe arranged to discharge into the tank, means for supplying the heat necessary to boil the water within the tank; a receptacle arranged within and centrally of the tank and having its upper end provided with a material-inlet, a valved liquid-supply pipe arranged to discharge into the material-receiving chamber of the said inner receptacle, and means for draining the said chamber of solution that is formed within the chamber, substantially as and for the purpose set forth.

7. Apparatus of the character indicated, comprising a tank 10; a steam-coil 16 within the tank; a valved water-supply pipe 13 arranged to discharge into the tank; a receptacle arranged within and centrally of the tank and having its upper end provided with a material-inlet; a valved water-supply pipe arranged to discharge into the material-receiving chamber of the said inner receptacle; and means for draining the said chamber of solution that is formed within the chamber, substantially as and for the purpose set forth.

8. Apparatus of the character indicated, comprising a tank 10; a valved water-supply pipe 13 arranged to discharge into the tank; a receptacle arranged within and centrally of the tank and having an inverted-cone-shaped lower portion and a centrally-located core *i;* a valved residue-outlet *d* leading from the lower end of the inverted-cone-shaped lower portion of the said receptacle centrally of the bottom of the tank; a valved steam-coil 16 within the tank around the inner receptacle; a valved drain-pipe *w* leading from and in open relation with the lower end of the chamber of the aforesaid receptacle, and a valved water-supply pipe arranged to discharge into the upper portion of the said receptacle, substantially as and for the purpose set forth.

9. Apparatus of the character indicated, comprising a tank, a valved water-supply pipe arranged to discharge into the tank, a receptacle arranged within and centrally of the tank and having a centrally-located core, a valved residue-outlet leading from the lower end of the aforesaid inner receptacle centrally of the bottom of the tank, means for supplying the heat necessary to boil a body of water supplied to the aforesaid tank around the inner receptacle, a liquid-supply pipe arranged to discharge into the inner receptacle, an oil-outlet formed at the upper end of the inner receptacle, a valved air-conducting pipe or passage way arranged to discharge into the chamber of the inner receptacle, and means for supplying air under pressure to the said passage-way, substantially as and for the purpose set forth.

10. Apparatus of the character indicated, comprising a chamber for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper extremity, a hollow core arranged centrally of the material-receiving chamber of the receptacle and extending from the chamber's upper end into the lower portion of the chamber and closed at its lower end, an air-conducting pipe or passage-way arranged to discharge into the aforesaid chamber below the core, and means for supplying air under pressure to the said passage-way, substantially as and for the purpose set forth.

11. Apparatus of the character indicated, comprising a chamber for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper extremity; a hollow core arranged centrally of the material-receiving chamber of the receptacle, and extending from the chamber's upper end into the lower portion of the chamber and closed at its lower end; a pipe extending from outside of the receptacle downwardly through the said core and arranged to discharge in the lower portion of the aforesaid chamber; a tank or reservoir in open relation with the said pipe, a valve in the line of the said pipe between the tank or reservoir and the pipe's discharging end, and an air-pump connected with the said tank or reservoir, substantially as and for the purpose set forth.

12. Apparatus of the character indicated, comprising a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper end, and is provided with a valved residue-outlet at its lower end; means for heating the material introduced into the receptacle; means for draining the receptacle of solution that is formed therein and convertible into gelatin; a valved pipe extending downwardly into the the lower portion of the material-receiving chamber of the receptacle, and having its discharging end provided with a plurality of laterally-projecting arms; the check-valves within the said arms, and means for supplying air under pressure to the said pipe, substantially as and for the purpose set forth.

13. In apparatus of the character indicated, the combination, with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper extremity to permit the oil extracted from the material within the receptacle to overflow at the oil-outlet, of a water-receiving chamber arranged to receive the oil overflowing from the said oil-outlet, and means for boiling the water within the said chamber, substantially as and for the purpose set forth.

14. In apparatus of the character indicated, the combination with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper end to permit the oil extracted from the material within the receptacle to overflow at the oil-outlet: of a water-receiving chamber; means for boiling the water within the said chamber; means for conducting oil from the aforesaid oil-outlet into the said chamber, and a trough or receptacle connected with and arranged to receive the oil from the upper and oil-discharging end of the water-receiving chamber, substantially as and for the purpose set forth.

15. In apparatus of the character indicated, the combination with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has an oil-outlet at its upper end to permit the oil extracted from the material within the receptacle to overflow at the oil-outlet: of a water-receiving chamber; means for boiling the water within the said chamber; means for conducting oil from the aforesaid oil-outlet to the said chamber; a trough or receptacle connected with and arranged to receive the oil from the upper and oil-discharging end of the water-receiving chamber, and two valved drain-pipes connected with the last-mentioned trough or receptacle, substantially as and for the purpose set forth.

16. In apparatus of the character indicated, the combination with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle is provided with an oil-overflow at its upper end: of a water-receiving chamber surrounding and exposed to the said receptacle; means for boiling the water introduced into the said chamber and thereby generating the steam required to purify the oil received upon the water within the said chamber for an overflow of oil from the oil-outlet of the aforesaid receptacle, substantially as and for the purpose set forth.

17. In apparatus of the character indicated, the combination with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has its upper end open and adapted to discharge oil extracted and rising from the material within the receptacle: of a water-receiving chamber surrounding and exposed to the said receptacle below the latter's oil-discharging end; means for boiling the water within the said chamber, and a trough or receptacle formed at the upper end of the said chamber and arranged as required to receive oil overflowing from the top of the body of boiling water within the chamber, substantially as and for the purpose set forth.

18. In apparatus of the character indicated, the combination with a receptacle for receiving the material to be treated and the liquid employed in treating the material, which receptacle has its upper end open and adapted to discharge the oil extracted and rising from the material within the receptacle: of a water-receiving chamber surrounding and exposed to the said receptacle below the latter's oil-discharging end; means for boiling the water within the said chamber; a trough or receptacle formed at the upper end of the said chamber and arranged as required to receive oil overflowing from the top of the body of water within the chamber, which trough has its bottom deeper at one side of the water-receiving chamber, and two valved pipes connected with the deeper portion of the trough, substantially as and for the purpose set forth.

19. Apparatus of the character indicated, comprising a water-receiving tank, a receptacle arranged within and centrally of the said tank and adapted to receive material to be treated and the liquid employed in treating the material, which receptacle has its upper end provided with an oil-overflow arranged to discharge into the aforesaid tank, a heating-coil within the lower portion of the water-receiving tank, a valved water-supply pipe arranged to discharge into the inner receptacle, and a valved water-supply pipe arranged to discharge into the water-receiving chamber of the aforesaid tank, substantially as and for the purpose set forth.

20. Apparatus of the character indicated, comprising an inner receptacle *a* provided with an oil-overflow at its upper end, a water-receiving tank surrounding the said receptacle and having a bottom declining toward the said receptacle, a heating-coil within the chamber of the water-receiving tank, a water-supply pipe discharging into the upper portion of the chamber of the tank, and a valved drain-pipe in open relation with the said chamber and leading from the lower portion of the aforesaid declining bottom of the tank, substantially as and for the purpose set forth.

662,404. PROCESS OF EXTRACTING OIL. EUGENE R. EDSON, Cleveland, Ohio, assignor to the Buckeye Fish Company, same place. Filed Dec. 4, 1899. Serial No. 739,105. (No specimens.)

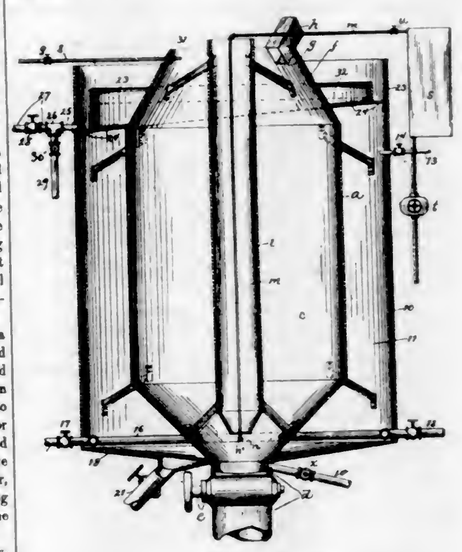
Claim.—1. The process of producing oil from material of the character indicated comprising, first, the extraction of the oil from the oil-containing material, and, secondly, the floating of the extracted oil upon a body of boiling water and treating the oil with the steam rising from the body of boiling water to effect the purification of the oil.

2. The process hereinbefore described of producing oil from material of the character indicated, consisting, first, in extracting the oil from the material at a comparatively high temperature lower than 212° Fahrenheit, and, secondly, in removing the extracted oil to a body of boiling water and there permitting the heavier impurities accompanying the oil to settle in the body of water and separating or removing the lighter impurities contained in the oil by vaporizing the said lighter impurities by the steam rising from the body of boiling water.

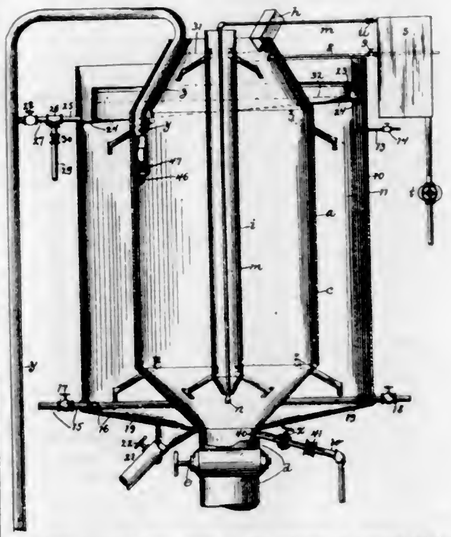
3. An improvement in producing oil from material of the character indicated, comprising the extraction of the oil from the material by a suitable treatment of the material with a suitable liquid, such, for instance, as water, and the introduction of air into the mass undergoing treatment.

4. An improvement in producing oil from fish and parts of fish, comprising the treatment of the oil-containing material with a suitable liquid, such, for instance, as water, at a suitable temperature below 212° Fahrenheit and introducing air under pressure into the lower portion of the mass undergoing treatment, substantially as and for the purpose set forth.

5. An improvement in producing oil from fish and parts of fish, comprising, first, the extraction of the oil from the oil-containing material and, secondly, floating the extracted oil upon a body of boiling water within a tank or container having an oil-overflow, and maintaining the required level of liquid within the said container by feeding water into the container during the treatment of the oil with the steam rising from the boiling water.



662,405. PROCESS OF MAKING GELATIN. EUGENE R. EDSON, Cleveland, Ohio, assignor to the Buckeye Fish Company, same place. Filed Dec. 16, 1899. Serial No. 740,495. (No specimens.)



Claim.—1. An improvement in the treatment of material of the character indicated, to produce gelatin and oil, comprising the treatment of the material with a suitable liquid at a suitable temperature, overflowing the oil issuing from the material and draining the gelatin solution from the mass, then suitably treating the remaining material with additional liquid and disintegrating the mass during the last-mentioned treatment, then permitting the mass to settle, and then again separately withdrawing oil and gelatin solution from the mass.

2. An improvement in the treatment of material of the character indicated, to produce gelatin and oil, comprising the treatment of the material with a suitable liquid at a comparatively high temperature lower than 212° Fahrenheit, then separately removing oil and gelatin solution from the mass, then treating the remaining material with additional liquid at a suitably high temperature lower than 212° Fahrenheit, and disintegrating the mass during the last-mentioned treatment, then permitting the mass to settle and then again withdrawing oil and gelatin solution therefrom.

3. An improvement in the treatment of material of the character indicated, to produce gelatin and oil, comprising the treatment of the material with a suitable liquid at a suitable temperature, and overflowing the oil and draining the gelatin solution from the mass, then suitably treating the remaining material with additional liquid and introducing air into the mass, then permitting the mass to settle and then again withdrawing oil and gelatin solution therefrom.

4. An improvement in the treatment of material of the character indicated, comprising the treatment of the material with water in a receptacle arranged within and centrally of a body of boiling water incapable of heating the mass to a temperature as high as 212° Fahrenheit, and thereby uninjurably extracting the oil and the gelatin-producible substance from the material, permitting the oil to rise within the mass, and then separately removing the oil and the gelatin solution from the mass, substantially as and for the purpose set forth.

5. An improvement in the treatment of material of the character indicated, consisting in treating the material within a receptacle surrounded by a body of boiling water and introducing air under pressure into the lower portion of the mass within the said receptacle during the treatment of the material, substantially as and for the purpose set forth.

6. An improvement in producing gelatin and oil from material of the character indicated, consisting in treating the material with water within a receptacle for several hours at a comparatively high temperature lower than 212° Fahrenheit, and overflowing oil and draining gelatin solution from the receptacle; then adding more water to the remaining material and treating the latter at a comparatively high temperature below the boiling-point and introducing air into the lower portion of the receptacle during the last-mentioned treatment, substantially as and for the purpose set forth.

7. An improvement in producing gelatin and oil from the material of the character indicated, consisting in placing the material with water within a receptacle and suitably heating the mass and thereby extracting oil and gelatin-producible substance from the material and permitting the extracted oil to rise within the receptacle and siphoning the gelatin solution from the receptacle below the risen oil, then adding water to the material remaining in the receptacle and again suitably heating the material and the added water and again draining gelatin solution from the receptacle, and then again adding water to the material still remaining in the receptacle and treating the said remainder at a suitable temperature and disintegrating the mass during the last-mentioned treatment, substantially as and for the purpose set forth.

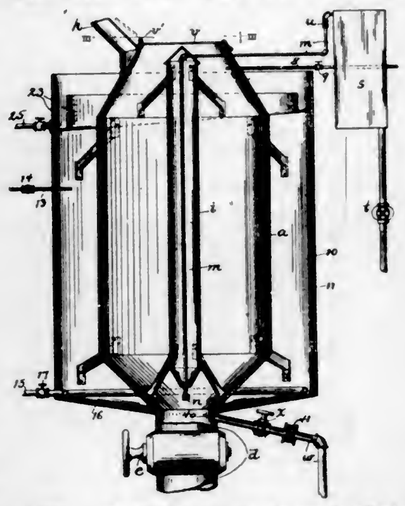
8. An improvement in producing gelatin and oil from material of the character indicated, consisting in treating the material with water within a receptacle at a suitable temperature below 212° Fahrenheit for a few hours, and overflowing the oil and siphoning the gelatin solution from the receptacle; then adding water to the material remaining in the receptacle and treating the said remaining material at a suitable temperature below 212° Fahrenheit and again draining gelatin solution from the receptacle, and then again adding water to the material still remaining in the receptacle and treating the said remainder at a suitable temperature for several hours and introducing air under pressure into the lower portion of the mass of material, substantially as and for the purpose specified.

9. An improvement in producing gelatin from fish parts or other material containing oil and a substance that is convertible into gelatin, consisting in treating the material with water within a receptacle at a comparatively high temperature lower, however, than 212° Fahrenheit, and permitting the oil to rise within the receptacle and removing the risen oil, and draining the water and the substance, that has dissolved in the water and that is convertible into gelatin, from the receptacle, and then exposing the gelatin solution to a temperature low enough to congeal the same without disintegrating the congealing liquid, and permitting the resulting product to dry at the said lower temperature.

10. An improvement in producing gelatin from fish parts or other material containing oil and a substance that is convertible into gelatin, consisting in treating the material with water within a receptacle at a comparatively high temperature below 212° Fahrenheit until the water has saturated with the substance convertible into gelatin, and permitting the oil to rise within the receptacle and then removing the oil from the receptacle, and draining the aforesaid saturated solution from the receptacle, and then exposing the said solution to a temperature below 50° Fahrenheit until the liquid has congealed or solidified and dried, substantially as and for the purpose specified.

662,406. PROCESS OF EXTRACTING OIL AND GLUE.

EUGENE R. EDSON, Cleveland, Ohio, assignor to the Buckeye Fish Company, same place. Filed Dec. 18, 1899. Serial No. 740,621. (No specimens.)



Claim.—1. The herein-described process of extracting oil and a glue-producible substance from the entrails, gills, ova and offal of fish, consisting in treating the material, within a receptacle, with water at a comparatively high temperature but below 212° Fahrenheit for a few hours, overflowing oil from the receptacle, and introducing air under pressure into the lower portion of the mass; then permitting the mass to settle; then draining the liquid, that holds glue-producible substance in solution, from the receptacle; then again supplying the receptacle with water and treating the material remaining in the receptacle for several hours at a comparatively high temperature below 212° Fahrenheit and disintegrating the material during the last-mentioned treatment, substantially as and for the purpose set forth.

2. An improvement in extracting oil and a glue-producible substance from the entrails, gills, ova and offal of fish, consisting in treating the material, with water, within a receptacle surrounded by a body of boiling water and having an oil-overflow at its upper end and maintaining the mass at a temperature below 212° Fahrenheit during the said treatment; disintegrating the material undergoing treatment and overflowing the oil from the said receptacle, screening the oil rising from the mass before the oil overflows to the body of boiling water, and draining the glue-producible solution from the receptacle, substantially as and for the purpose set forth.

3. An improvement in extracting oil and a glue-producible substance from the entrails, gills, ova and offal of fish, consisting in treating the material, within a receptacle, with water at a temperature between about 125° and 212° Fahrenheit, for a few hours; maintaining the temperature, during the said treatment, below 212° Fahrenheit; overflowing oil from the receptacle and disintegrating the mass during the said treatment; permitting the mass to settle after disintegration, and then draining the glue-producible solution from the receptacle.

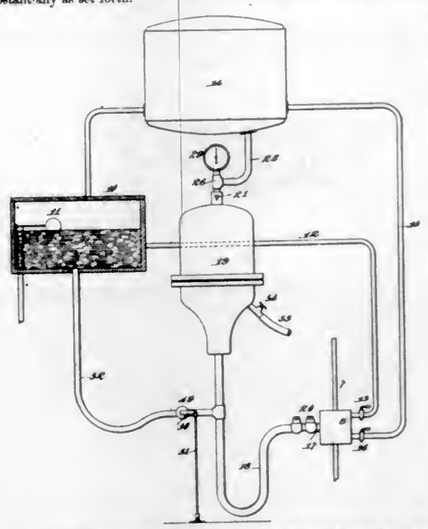
662,407. CARBONATOR.

GUSTAV A. FLESCHE and HENRY A. HALL, New York, N. Y., and JOHN DOHERTY, Ash Brook, N. J., assignors to the American Soda Fountain Company, Boston, Mass. Filed June 15, 1899. Serial No. 720,601. (No model.)

Claim.—1. In a carbonator, the combination with a counterbalanced mixing-chamber, of a pump supplying a liquid to said chamber, an overflow-pipe from the chamber, and a regulating-valve in said overflow-pipe, allowing for a discharge of liquid from the mixing-chamber when the latter becomes overbalanced, substantially as set forth.

2. In a carbonator, the combination with a counterbalanced mixing-chamber, of a source of liquid-supply, a pump for forcing liquid therefrom into the mixing-chamber, an overflow-pipe connecting the mixing-chamber with the liquid-supply and a regulating-valve in the overflow-pipe, permitting a discharge of liquid from the mixing-chamber when the latter becomes overbalanced, substantially as set forth.

3. In a carbonator, the combination with a counterbalanced mixing-chamber, of means for supplying a liquid and a gas thereto, an overflow-pipe from the mixing-chamber, and a regulating-valve adapted to be automatically opened when the mixing-chamber becomes overbalanced, to permit the gas-pressure to force out therefrom a quantity of the liquid, substantially as set forth.



4. In a carbonator, the combination with a counterbalanced mixing-chamber, of a source of liquid-supply, means for forcing liquid therefrom into the mixing-chamber and for forcing a gas into said chamber, an overflow-pipe leading from the chamber to the source of liquid-supply, and a regulating-valve arranged to be automatically opened when the mixing-chamber becomes overbalanced, to allow the gas-pressure to force a portion of the liquid back to the source of supply thereof, substantially as set forth.

5. In a carbonator, the combination with a mixing-chamber, of sources of liquid and of gas supply, means for simultaneously forcing liquid and gas therefrom into the chamber, an overflow-pipe connecting the chamber with the source of liquid-supply, and means for maintaining an approximately uniform quantity of liquid in said chamber by allowing for the return of excess gaseous liquid back to the source of supply, whereby the charged liquid entering the greater bulk thereof in such source of supply will be distributed throughout the same, substantially as and for the purpose set forth.

6. In a carbonator, the combination with a mixing-chamber, of a liquid-supply box, a gasometer, a pump for forcing liquid and gas into the mixing-chamber, an overflow-pipe leading from the mixing-chamber to the liquid-supply box, an automatic regulating-valve in said pipe, and a gas-pipe connecting the supply-box with the gasometer, substantially as set forth.

7. In a carbonator, the combination with a counterbalanced mixing-chamber, of means for supplying a liquid and gas to the same, a mechanical agitator mounted in said chamber, and connections for positively driving said agitator without affecting the balance of the mixing-chamber, substantially as set forth.

8. In a carbonator, the combination with a counterbalanced mixing-chamber, of means for supplying a liquid and gas to the same, a mechanical agitator mounted in said chamber, and a shaft having universal joints for driving said agitator without affecting the balance of the mixing-chamber, substantially as set forth.

9. In a carbonator, the combination with a counterbalanced mixing-chamber, of means for supplying a liquid and gas to the same, a mechanical agitator mounted in said chamber, and a telescoping shaft having universal joints for driving said agitator without affecting the balance of the mixing-chamber, substantially as set forth.

10. In a carbonater, the combination with a counterbalanced mixing-chamber, means for supplying a liquid and gas to the same, a mechanical agitator mounted in said chamber, comprising two inverted annular troughs, for the purpose mentioned, and means for operating said agitator, substantially as set forth.

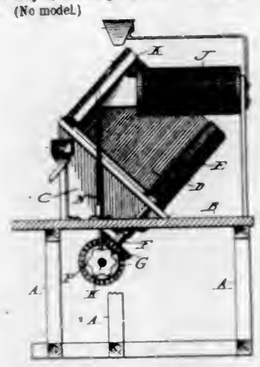
662,408. METHOD OF MANUFACTURING BRICKS FROM LIME AND SAND.

LADISLAUS GALECKI, PAUL LOPATIN, and JOHN LOPATIN, Warsaw, Russia. Filed July 7, 1899. Serial No. 723,077. (No specimens.)

Claim.—The herein-described process of making bricks and the like consisting in mixing together a heavy bituminous substance and soda, adding thereto cream of lime to produce a binder, mixing said binder with sand, and molding and drying the resulting product, substantially as described.

662,409. APPARATUS FOR SEPARATING GOLD FROM MAGNETIC SANDS.

ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Filed Mar. 19, 1900. Serial No. 9,269. (No model.)



Claim.—1. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece whose field of force is of a wavy or zigzag contour, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement of frond-like structures, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel in a direction transverse to the feed of the material thereon; substantially as set forth.

2. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece provided with wavy or zigzag grooves, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement and to assume the arrangement of frond-like structure, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel across the field in a direction transverse to the feed of the material thereon; substantially as set forth.

3. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece provided with wavy or zigzag grooves containing a filling of diamagnetic material, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement and to assume the arrangement of frond-like structure, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel in a direction transverse to the feed of the material thereon; substantially as set forth.

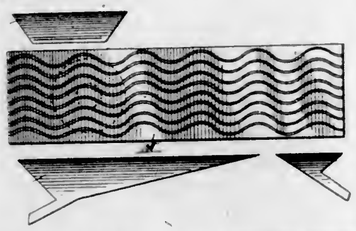
4. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece provided with wavy or zigzag grooves containing a filling of diamagnetic material, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement and to assume the arrangement of frond-like structures, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel in a direction transverse to the feed of the material thereon, and means for imparting a succession of slight vibrations to said apron, substantially as set forth.

5. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece provided with wavy or zigzag grooves containing a filling of diamagnetic material, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement and to assume the arrangement of frond-like structures, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel in a direction transverse to the feed of the material, and means for imparting a succession of slight vibrations to said apron, said means consisting of a plate underlying the apron and a rod and cam for jigging the plate, substantially as set forth.

6. Apparatus for separating gold from magnetic sand, comprising a magnet having a pole-piece provided with wavy or zigzag grooves containing a filling of diamagnetic material, means for energizing said magnet just sufficiently to cause the sand to lose its otherwise amorphous arrangement and to assume the arrangement of frond-like structures, an apron extending across the magnetic field and over which the material is fed, and means for causing said apron to travel in a direction transverse to the feed of the material thereon, and means for imparting a succession of slight vibrations to said apron, said means consisting of a plate of mag-

netic material interposed between the pole of the magnet and the apron, and a jigging device for said plate, substantially as set forth.

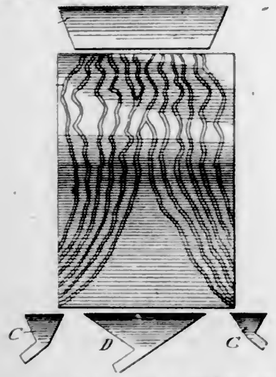
662,410. MAGNETIC SEPARATION. ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Original applications filed Mar. 19, 1900, Serial Nos. 9,268 and 9,269. Divided and this application filed Apr. 14, 1900. Serial No. 12,903. (No specimens.)



Claim.—1. The method of separating diamagnetic material from paramagnetic material, which consists in feeding the composite material upon a receiving-apron located in a magnetic field of a strength so graduated that the magnetic sand will arrange itself in moss-like or frond-like structures and in zigzag or wavy lines, and thereupon bodily moving the said structures along the zigzag or wavy lines of force established, so as to occasion a corresponding zigzag or sinuous travel of said structures and their concurrent progressive re-formation; substantially as described.

2. The method of separating diamagnetic material from paramagnetic material, which consists in feeding the composite material upon a receiving-apron located in a magnetic field of a strength so graduated that the magnetic sand will arrange itself in moss-like or frond-like structures and in unbroken zigzag or wavy lines, and thereupon bodily moving the said structures along the zigzag or wavy lines of force established, so as to occasion a corresponding zigzag or sinuous travel of said structures and their concurrent progressive re-formation; substantially as described.

662,411. MAGNETIC SEPARATOR. ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Filed Apr. 14, 1900. Serial No. 12,904. (No model.)

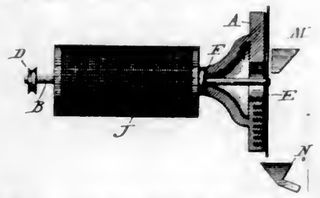


Claim.—1. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, in combination with a traveling screen or apron moving in front of the pole-piece, and means for jostling the apron; substantially as described.

2. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, said pole-piece having a transverse bend substantially midway of its length, so as to form corresponding inclines, in combination with a traveling screen or apron moving in front of the pole-piece; substantially as described.

3. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, said pole-piece having a transverse bend substantially midway of its length, so as to form corresponding inclines, in combination with a traveling screen or apron moving in front of the pole-piece, and means for causing the traveling band or apron to move over the pole-piece from below upwardly.

662,412. MAGNETIC SEPARATOR. ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Filed Apr. 14, 1900. Serial No. 12,905. (No model.)



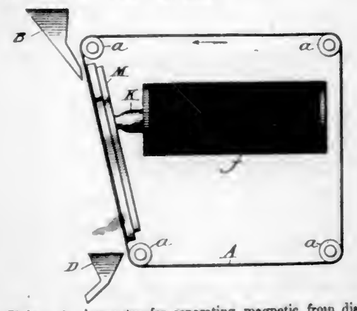
Claim.—1. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, in combination with a rotatory screen revolving in front of said pole-piece; substantially as described.

2. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, in combination with a rotatory screen revolving in front of said pole-piece, the pole-piece having a hollow core through which the shaft of the screen passes; substantially as described.

3. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece, having a series of grooves or recesses extending from one portion of the pole-piece, and terminating at another portion thereof so as to produce wavy, zigzag, or tortuous fields of force terminating abruptly, in combination with a rotatory screen revolving in front of said pole-piece; substantially as described.

4. Apparatus for separating magnetic from diamagnetic material, comprising a magnetic pole-piece A, grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, rotatory screen E, feed-hopper M, and receiving-hoppers N, P; substantially as described.

662,413. MAGNETIC SEPARATOR. ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Filed Apr. 14, 1900. Serial No. 12,906. (No model.)



Claim.—1. Apparatus for separating magnetic from diamagnetic material comprising a magnet pole-piece having a wavy, zigzag, or tortuous distribution of the effective lines of force, in combination with a traveling screen or apron passing in front of said pole-piece; substantially as set forth.

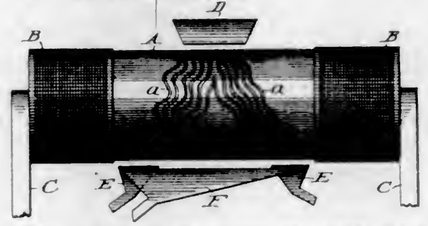
2. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, in combination with a traveling screen or apron passing in front of said pole-piece; substantially as described.

3. Apparatus for separating magnetic from diamagnetic material comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, the magnetic fields of force thus established finally diverging from each other, in combination with a traveling screen or apron moving in front of the pole-piece; substantially as described.

4. Apparatus for separating magnetic from diamagnetic material, comprising a magnet pole-piece grooved or recessed to produce a wavy, zigzag, or tortuous distribution of the effective lines of force, the magnetic fields of force thus established diverging from each other and leaving an intermediate space, in combination with a traveling screen or apron moving in front of the pole-piece, a feed-hopper, a collecting-hopper at the ends of the diverging fields of force, and a collecting-hopper for the intermediate space; substantially as described.

5. Apparatus for separating magnetic from diamagnetic materials, comprising a magnet pole-piece having the general configuration of bifurcations at the discharge end of the separator, said magnet-pole being grooved or recessed to produce wavy, zigzag, or tortuous fields of force, in combination with a traveling screen or apron, moving in front of the pole-piece from top to bottom thereof; substantially as described.

662,414. MAGNETIC SEPARATOR. ELMER GATES, Chevy Chase, Md., assignor to Theodore J. Mayer, Washington, D. C. Filed July 12, 1900. Serial No. 23,370. (No model.)



Claim.—1. A magnetic separator, comprising a magnetic cylinder having grooves or recesses in its periphery, said grooves or recesses having a zigzag or wavy arrangement, so as to provide corresponding wavy or zigzag magnetic fields of force, and a traveling apron passing over said cylinder; substantially as described.

2. A magnetic separator, comprising a magnetic cylinder having grooves or recesses in its periphery, said grooves or recesses having a zigzag or wavy arrangement, so as to provide corresponding wavy or zigzag magnetic fields of force, a traveling apron passing over said cylinder, and interposed rotatory shell between the cylinder and apron; substantially as described.

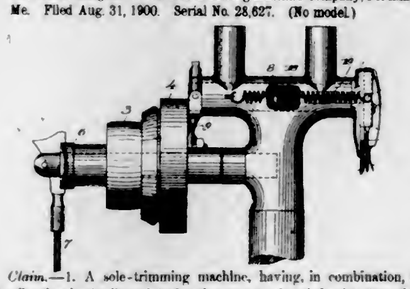
3. A magnetic separator, comprising a magnetic cylinder, having in its periphery grooves or recesses arranged to provide zigzag magnetic fields of force, said zigzag fields dividing and extending laterally beyond the range of fall of the non-magnetic portion of the material fed to the separator, and a traveling apron passing around the cylinder; substantially as described.

4. A magnetic separator, comprising the magnetic cylinder A, the energizing-coils B, the feed-hopper D, and the traveling apron G, the said cylinder being provided with grooves or recesses arranged in the general configuration of an inverted V; substantially as described.

5. A magnetic separator, comprising the magnetic cylinder A, the energizing-coils B, the feed-hopper D, and the traveling apron G, the said cylinder being provided with grooves or recesses arranged in the general configuration of an inverted V, the ends of said V extending laterally beyond the outer ends of the hopper and beneath the cylinder; substantially as described.

6. A magnetic separator, comprising the magnetic cylinder A, the energizing-coils B, the traveling apron G, the feed-hopper D, and the receiving-hoppers F and E, the said cylinder being provided with grooves or recesses arranged in accordance with the general configuration of an inverted V; substantially as described.

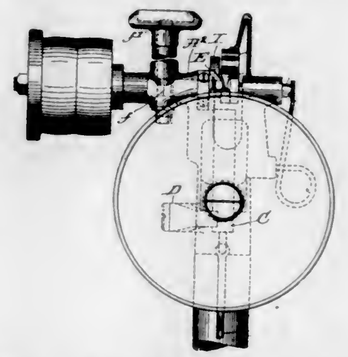
662,415. SOLE-TRIMMING MACHINE. LOUIS GODDU, Winchester, Mass., assignor to the Goddu Sewing Machine Company, Portland, Me. Filed Aug. 31, 1900. Serial No. 28,627. (No model.)



Claim.—1. A sole-trimming machine, having, in combination, a knife vibrating in the line of feed acting to cut a bevel shaving from the edge of a shoe-sole, a support for engaging the bottom of the sole, and means for actuating the knife, substantially as described.

2. A sole-trimming machine, having, in combination, a knife acting to cut a bevel shaving from the edge of a shoe-sole, a support for engaging the bottom of the sole, a spring-pressed gage for entering between the sole and welt, and means for vibrating the knife, support and gage in the line of feed, substantially as described.

662,416. STITCH-SEPARATOR. LOUIS GODDU, Winchester, Mass., assignor to the Goddu Sewing Machine Company, Portland, Me. Filed Aug. 31, 1900. Serial No. 28,630. (No model.)



Claim.—1. A stitch-separating machine having in combination, a work-support, an indenting-tool, and mechanism for imparting to the tool a plurality of indenting movements for each stitch interval to indent the material between adjacent stitches, substantially as described.

2. A stitch-separating machine having, in combination, work-feeding and stitch-separating devices, and mechanism for actuating said devices to impart to the stitch-separating device a plurality of indenting movements for each feed movement of the feeding device, substantially as described.

3. A stitch-separating machine having, in combination, a work-support, an indenting-tool having vertical and lateral movements with relation to the work-support, and mechanism for actuating the tool to give it backward and forward lateral movements to feed the work, and a plurality of upward and downward vertical indenting movements for each backward and forward lateral movement, substantially as described.

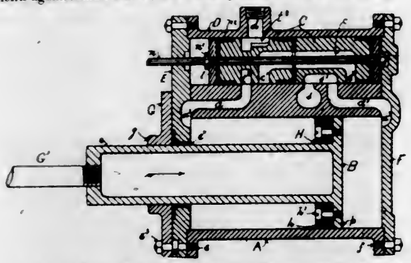
4. A stitch-separating machine having, in combination, a work-support, an indenting-tool, a lever to which the indenting-tool is secured, a pivot-pin capable of endwise movement upon which the lever is rigidly mounted, a cam bearing against the side of the lever to move the pin in one direction, a spring for moving the pin in the other direction, and a second cam engaging the lever for imparting thereto oscillatory movements whereby the indenting-tool is actuated to indent and feed the work, substantially as described.

5. A stitch-separating machine, having, in combination, a work-support, an indenting-tool, a lever to which the indenting-tool is secured, a pivot-pin capable of endwise movement upon which the lever is rigidly mounted, a cam bearing against the side of the lever to move the pin in one direction, a spring for moving the pin in the other direction, an adjustable stop for limiting the movement of the pin under the action of the spring, and a second cam engaging the lever for imparting thereto oscillating movements whereby the indenting-tool is actuated to indent and feed the work, substantially as described.

662,417. SINGLE-CYLINDER COMPOUND ENGINE. THOMAS GRANT, New York, N. Y., assignor of one-half to Hartwig A. Cohen, Dalamar, Nev. Filed June 12, 1899. Serial No. 720,311. (No model.)

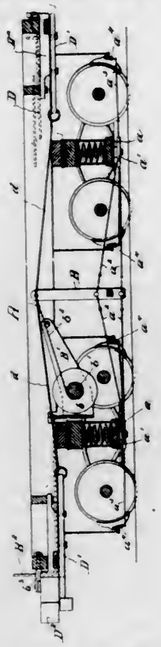
Claim.—1. A cylindrical slide-valve consisting of the combination of a valve-spindle n, having a collar n', a collar l, bearing against the collar n', a cup-shaped packing-ring m, surrounding said spindle and bearing against the collar l, a first portion t, of the valve recessed to receive a portion of the packing m, and turned to a smaller diameter to form a port t^2, said port being extended laterally by a cavity t^3, and said portion having another port c', a packing m', bearing against said portion t, with its turned-down edge lying in a recess formed in said portion, a second valve portion t', bearing against the packing m', and having a port c^2, communicating with the port c', a cup-shaped packing m^2, having its edge lying in a recess formed in the portion t', a collar l', bearing against the packing m^2,

and a nut n^2, screwed upon the said spindle for compressing all of said elements against said collar n', an exhaust-port s', formed in the portion t'.



2. A cylindrical slide-valve consisting of the combination of a valve-spindle n, having a collar n', a collar l, bearing against the collar n', a cup-shaped packing-ring m, surrounding said spindle and bearing against the collar l, a first portion t, of the valve recessed to receive a portion of the packing m, and turned to a smaller diameter to form a port t^2, said port being extended laterally by a cavity t^3, and said portion having another port c', a packing m', bearing against said portion t, with its turned-down edge lying in a recess formed in said portion, a second valve portion t', bearing against the packing m', and having a port c^3, communicating with the port c', a cup-shaped packing m^3, having its edge lying in a recess formed in the portion t', a collar l', bearing against the packing m^3, and a nut n^3, screwed upon the said spindle for compressing all of said elements against said collar n', an exhaust-port s', formed in the portion t'.

662,418. AUTOMATIC BRAKE. JAMES H. GREENWOOD, Boissevain, Canada, assignor of one-half to Thomas N. Morrison, William Long, Stewart Burrows, William Hanley, Robert F. Morrison, and John Morrow, same place. Filed Jan. 8, 1900. Serial No. 770. (No model.)



Claim.—1. A brake mechanism, comprising a suitable brake operatively mounted upon the frame of a car; a lever pivotally mounted in said frame; flexible connections between said lever and said brake; a friction-disk movably mounted in said frame and adapted to be moved into contact with the axle of the truck; a drum fixed upon said friction-disk; a chain connected to said drum and the upper portion of said lever, and a tripping device detachably connected to the succeeding car and adapted to release the friction-disk upon the separation of the cars, substantially as described.

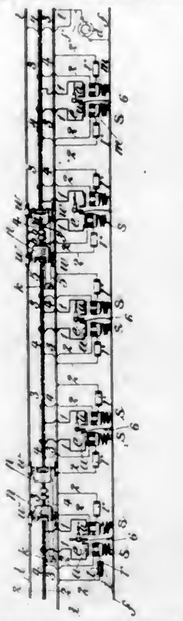
2. A brake mechanism, comprising a suitable brake operatively mounted upon the frame of a car; a lever pivotally mounted in said frame; flexible connections between said lever and said brake; a bracket pivotally mounted in said frame; a friction-disk journaled in said bracket and adapted to be moved into engagement with the axle of the truck; a drum fixed upon said friction-disk; a chain connected to said drum and the upper portion of said lever, and a tripping device detachably connected to the succeeding car and adapted to release the friction-disk upon the separation of the cars, substantially as described.

3. An automatic brake mechanism, comprising a suitable brake operatively mounted upon the frame of a car; a lever pivotally mounted in said frame; flexible connections between said lever and said brake; a friction-disk movably mounted in said frame and adapted to engage the axle of the truck; a drum fixed upon said disk; a chain connected to said drum and to said lever; a tripping-lever journaled in said frame and connected at one end with said friction-disk, the other end of said lever being adapted to engage a tripping-link, whereby the said disk is normally held in its raised position; and means for releasing said tripping-link from engagement with said levers, whereby the said disk will be moved automatically into engagement with the truck-axle, substantially as described.

4. An automatic brake mechanism, comprising a suitable brake operatively mounted upon the frame of a car; a lever pivotally mounted in said frame; flexible connections between said lever and said brake; a friction-disk movably mounted in said frame and adapted to be automatically moved into contact with the axle of the truck; a drum fixed upon said friction-disk; a chain connected to said drum and the upper portion of said lever; a draw-bar slidably mounted in said frame; and a suitable connection between said draw-bar and said lever, substantially as described.

5. In a car-brake, the combination with an axle, a brake mechanism having an upright lever B, and a draw-bar, of a pivoted bracket, a drum journaled in the free end of the bracket and provided with friction-disks arranged to be rotated by said axle, a chain attached to the drum and to said upright lever of the brake mechanism, a bar having slidable engagement with the draw-bar to move laterally therewith and also capable of a limited independent movement thereon, a connection between said slidable bar and the upright lever of the brake mechanism, and means for normally upholding the bracket and the drum carried thereby, substantially as described.

662,419. ELECTRIC RAILWAY. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed Apr. 5, 1900. Serial No. 11,645. (No model.)



Claim.—1. In a surface-contact system of electric railways a series of alternately-placed supply and energizing conductors constituting successive sections of a twin-rail system, substantially as described.

2. In a surface-contact system of electric railways alternately-placed supply and energizing conductors constituting successive sections of a twin-rail system and circuit connections between the current-feeder and said conductors whereby the current potential and polarity are the same at each when charged, substantially as described.

3. In a surface-contact system of electric railways a series of alternately-placed supply and energizing conductors constituting successive sections of a twin-rail system; electromagnetic switching devices; circuits and circuit connections including resistances for maintaining the potential and polarity of the current alike for any pair of such conductors, substantially as described.

4. In a surface-contact system of electric railways, a current feeder or main, a series of alternately-placed supply and energizing conducting-rails, the energizing-rails being of greater length than the supply-rails; electromagnetic switching-magnets electrically connected to the energizing-rails and each included in circuit with a resistance; in combination with a trolley-shoe adapted to bridge the space between the energizing and conducting rails as it passes thereover, the arrangement being such that the potential and polarity of the current is always alike at the rails as they are connected to the feeder or main, substantially as described.

5. In a surface-contact system of electric railways two substantially continuous sets of sectional rails or conductors arranged side by side, one set being connected to the coils of the switch-operating magnets and the other to the switches for conveying the working current to the motors on board the cars, the first set being so located with relation to the second that the sectional conductors which convey the working current to the motors on the cars are made alive before the conducting trolley or shoe reaches them, substantially as described.

6. In a surface-contact system of electric railways two sets of sectional rails or conductors arranged in parallel rows, one set being connected directly to the coils of the switch-operating magnets and the other to the switches for conveying the working current to the motors on board the cars; each rail or conductor of the first set being longer than its fellow rail or conductor of the second set; together with a trolley or shoe and circuit connections whereby each rail or conductor which conveys current to the motor on board a car is made alive before the trolley or shoe reaches it and without relation to the direction in which the car may be traveling, substantially as described.

7. In a surface-contact system of electric railways two parallel sets of sectional rails or conductors which are substantially continuous, each individual rail of one set being longer than its fellow of the other set; in combination with circuit connections to the switch-controlling magnets and switches whereby the working current is connected to the sectional rails or conductors which convey it to the motors on board the cars before the trolley or shoe makes contact therewith, no matter in which direction the car be running, substantially as described.

8. In a surface-contact system of electric railways two sets of sectional rails or conductors which are substantially continuous and individually of unequal lengths, and circuit connections between the coils of the switching electromagnets, the switches, and the sectional conductors; together with a trolley or contact-shoe adapted to bridge both sets of sectional rails or conductors, the arrangement being such that the potential at each of the parallel sectional conductors is always the same, substantially as described.

9. In a surface-contact system of electric railways a source of electrical energy included in circuit with a current feeder or main located beside the road-bed; normally open branch feeder-circuits connected to sectional rails or conductors located in the road-bed; switching-electromagnets and circuit connections therethrough for automatically connecting the branch feeders to the sectional rails or conductors; in combination with manual switching devices, one for each switching-magnet, having circuit connections for restoring the circuit through either of two adjacent sectional rails or conductors as desired, substantially as described.

10. In a surface-contact system of electric railways a current feeder or main, sectional service rails or conductors for supplying current to the motors; electromagnetic switching devices for automatically connecting the current feeder or main to the sectional rails or conductors; in combination with a manual switch for each electromagnetic switching device and circuit connections whereby the circuit may be restored to either of two adjacent sectional rails or conductors as desired, said manual switching device being secured in the box which surrounds or protects the electromagnetic switching devices and circuit connections, substantially as described.

11. In a surface-contact system of electric railways means for securing a two-part third rail in the road-bed, consisting of insulating-blocks grooved in their upper surface and adapted to sustain the two parts of the rail within the groove; together with a rigid insulating medium filling the space in the grooves between the sustained rails, substantially as described.

12. In a surface-contact system of electric railways a series of sectional rails or conductors arranged in pairs side by side and sustained by blocks of insulating material, said rails being held in place by the walls of the blocks and a rigid insulating medium put in place after the rails are laid in position, substantially as described.

13. In a surface-contact system of electric railways a series of grooved sustaining-blocks adapted to rest upon the roadway; in combination with L-shaped sectional rails or conductors adapted to be sustained by the lateral walls of the grooved blocks, together with an insulating medium filling the space between the inner faces of the rails, substantially as described.

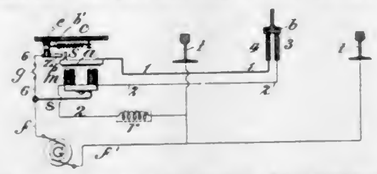
14. In a surface-contact system of electric railways a pair of tram-rails supported by cross-ties and united together at intervals by tie-rods, a series of grooved blocks of insulating material sustained by the ties in alinement with each other; a series of L-shaped sectional rails or conductors sustained by said blocks and held against the inner walls thereof by a rigid insulating medium; together with insulating blocks or wedges between the sectional rails and the tie-rods, substantially as described.

15. In a system of electric railways a water-tight switch-box provided with a removable supporting-frame beneath which is secured the switch-controlling electromagnets, the same being adapted to move vertically under the influence of magnetism and gravity; together with armatures rigidly secured by said frame over the poles of the magnets, substantially as described.

16. In a system of electric railways a water-tight switch-box provided with a removable supporting-frame beneath which is secured one or more pairs of switch-controlling electromagnets; together with armatures rigidly held in the frame, and guiding means for permitting the magnets to move vertically under the influence of magnetism and gravity, substantially as described.

17. In a system of electric railways a water-tight switch-box provided with a metallic cover; in combination with an electromagnetic switching device located in said box, together with a manual switch pivotally secured in the cover of the box, and circuit connections between said switch, the electromagnets and the sectional rails or conductors of the system, whereby the current may be reëstablished, at will, from the current-main through the operating electromagnet or magnets, by a motorman, substantially as described.

662,420. ELECTRIC RAILWAY. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed Apr. 5, 1900. Serial No. 11,646. (No model.)



Claim.—1. A contact system of electric railways having sectional rails or conductors located in the road-bed; a station-generator and a current feeder or main extending therefrom over the route; branch feeder-circuit closers and circuit connections for operatively connecting said current feeder or main with the sectional supply rails or conductors, and a manually-operative switch having an exposed operative part and circuit connections for effecting a reëstablishment of the feeder-circuit through feeder-circuit closers and sectional rails, substantially as described.

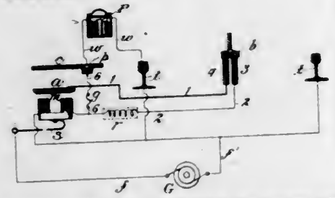
2. A contact system of electric railways having sectional rails or conductors located in the road-bed; a station-generator and a current feeder or main extending therefrom over the route; feeder-circuit closers and circuit connections for operatively connecting said current feeder or main with the sectional supply rails or conductors, and a manually-operative switch having an exposed operative part and circuit connections for transmitting the feeder-current to the sectional supply-rails, substantially as described.

3. A contact system of electric railways having sectional rails or conductors located in the road-bed; a station-generator and a current feeder or main extending therefrom over the route; feeder-circuit closers and circuit connections for operatively connecting said current feeder or main with the sectional rails or conductors, and a manually-operative switch for each circuit-closer having an exposed operative part and circuit connections for effecting a reëstablishment of the feeder-circuit; in combination with an automatic cut-out device located in the circuit of the manual switch, substantially as described.

662,421. ELECTRIC RAILWAY. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed Apr. 5, 1900. Serial No. 11,647. (No model.)

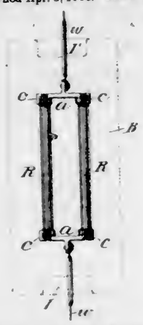
Claim.—1. A contact system of electric railways having sectional rails or conductors located in the road-bed; a station-generator and a cur-

rent feeder or main extending therefrom over the route; switching-magnets and circuit connections for operatively connecting said current feeder or main with the sectional rails or conductors; in combination with a switching-circuit in each switch-box including an exposed contact so arranged that circuit may be effected from an independent source of electrical energy to and through the switching-magnet in the switch-box, substantially as described.



2. A contact system of electric railways having sectional rails or conductors located in the road-bed; a station-generator and a current feeder or main extending therefrom over the route; switching-magnets and circuit connections for operatively connecting said current feeder or main with the sectional rails or conductors; in combination with a switching-circuit in each switch-box including an exposed contact and an automatic cut-out device; together with a portable source of electrical energy adapted to be connected in circuit with the switching circuit and magnet and to reëstablish the working circuit through said magnet or feeder terminal and its corresponding sectional supply-rail or conductor, substantially as described.

662,422. ELECTRICAL RESISTANCE. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed Apr. 5, 1900. Serial No. 11,648. (No model.)



Claim.—1. An electrical resistance and circuit connections therefor together with insulated conductors attached to said circuit connections, said resistance, circuit connections and the ends of the insulated conductors being wholly embedded in a non-absorbent insulating mass, substantially as described.

2. An electrical resistance having circuit connections with insulated conductors, said resistance and the attached ends of the insulated conductors being wholly embedded in an insulating mass, substantially as described.

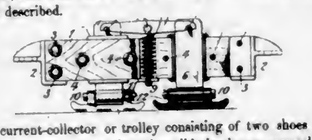
3. An electrical resistance composed of a conductor embedded in a mass of insulating material of box-like form; in combination with insulated conductors attached thereto and extending out of the mass, said mass being provided with one or more indentations or pockets for folding or winding the end conductors therein, substantially as described.

4. An electrical resistance embedded in a vitrified mass of box-like form; in combination with insulated conductors secured to the ends thereof and extending out of the mass, said mass being provided with indentations or pockets, one for each outwardly-extending conductor, substantially as described.

662,423. CURRENT-COLLECTOR. WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Original application filed Apr. 5, 1900, Serial No. 11,645. Divided and this application filed May 21, 1900. Serial No. 17,471. (No model.)

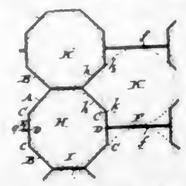
Claim.—1. A current-collector or trolley consisting of two contacting or conducting shoes yieldingly secured to a supporting-frame by vertical sliding standards and pivot-pins; in combination with an interconnecting yoke, substantially as described.

2. A current-collector or trolley consisting of two shoes pivotally secured to vertical standards adapted to slide in sleeves secured in a supporting-frame, said standards being yieldingly connected together, substantially as described.



3. A current-collector or trolley consisting of two shoes pivotally secured to vertical standards adapted to slide in sleeves secured in a supporting-frame; in combination with a pivoted interconnecting yoke and yielding means, as a spring, connecting said yoke with the supporting-frame, said spring tending always to hold the two shoes yieldingly in contact with the surface over which they pass, substantially as described.

662,424. EGG-CASE FILLER. WILLIAM H. HANSELL, Philadelphia, Pa. Filed June 21, 1900. Serial No. 21,030. (No model.)



Claim.—1. An egg-case filler formed of flexible material such as cardboard, comprising a series of strips cemented at intervals in their length weakened at intervals on both sides and bent transversely to their length to form a series of rows of clearly-defined octagonal compartments, and a series of interposed rows of clearly-defined polygonal-shaped compartments having ten flat sides and inwardly-projecting clearly-defined corners *k* as shown.

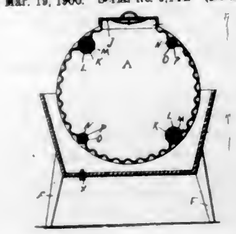
2. An egg-case filler consisting of a series of sections united together, each section being composed of a series of octagonal compartments connected together by spacing-strips and forming between them series of polygonal-shaped compartments having their side walls provided with inwardly-projecting corners diagonally arranged.

3. An egg-case filler consisting of a series of sections united together, each section being composed of a series of octagonal compartments connected together by spacing-strips, and forming between the octagonal compartments of two adjacent sections polygonal compartments each having four inwardly-projecting corners *k* formed at weakened portions of the strips and in which the distances between the corners diagonally measured are substantially equal.

4. An egg-case filler consisting of a series of sections forming octagonal compartments united together, each section consisting of two strips of flexible material superimposed and united together at the extreme ends and at intervals in the length between the ends on sides of the octagonal and in which the strips between the united parts are scored or weakened in opposite directions so that they may be separated or opened and bent outwardly at said parts to constitute octagonal-shaped compartments with clearly-defined outward free corners and forming between them a series of polygonal-shaped compartments having their side walls provided with inwardly-projecting corners diagonally arranged.

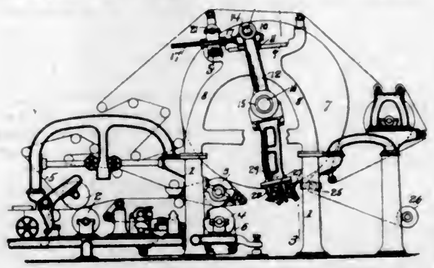
5. As an article of manufacture, a collapsible egg-case filler formed in its expanded condition with a series of rows of octagonal-shaped compartments separated by a series of rows of polygonal-shaped compartments having their walls weakened to form inwardly-directed corners or shoulders *k* at defined places when the collapsed filler is expanded.

662,425. WASHING-MACHINE. HENRY A. HARTMAN, Pittsburg, Pa. Filed Mar. 19, 1900. Serial No. 9,144. (No model.)



Claim.—A washing-machine, consisting of a cylindrical body portion having an unbroken corrugated lining about its inner circumference, two pairs of rubber-covered rollers of unequal diameter seated in grooves of said corrugations, straps for confining the rollers in said grooves and in contact with the corrugated lining, and alternately arranged with reference to one another, each pair of similar diameter being diametrically opposite each other, as set forth.

662,426. PAPER-MAKING MACHINE. VINCENT G. HAZARD, Wilmington, Del. Filed Jan. 3, 1900. Serial No. 211. (No model.)



Claim.—1. In a paper-making machine, the combination with a press-roll, of a drier-roll, and means for mounting the drier-roll so that it will be forced by gravity against the press-roll, the two rolls being arranged so that the press-roll supports a part of the weight only of the drier-roll, substantially as described.

2. In a paper-making machine, the combination with a press-roll, of a drier-roll, a pair of pivoted arms in which the drier-roll is mounted, the drier-roll being forced by gravity against the press-roll, the construction being such that the press-roll supports a part of the weight only of the drier-roll and means for supporting the arms, substantially as described.

3. In a paper-making machine, the combination with a press-roll, of a drier-roll, a pair of pivoted arms in which the drier-roll is mounted, said arms being arranged so that the drier-roll is forced by gravity against the press-roll and the press-roll bears a part of the weight only of the drier-roll, supports for the arms, and means for adjusting said supports, substantially as described.

4. In a paper-making machine, the combination with a press-roll, of a drier-roll, a pair of pivoted arms in which the drier-roll is mounted, said arms being arranged so that the drier-roll is forced by gravity against the press-roll and the press-roll bears a part of the weight only of the drier-roll, a pair of carriages, one for supporting each arm, a frame having ways in which the carriages move, and means for moving the carriages, substantially as described.

5. In a paper-making machine, the combination with a press-roll, of a drier-roll, a pair of pivoted arms in which the drier-roll is mounted, said arms being arranged so that the drier-roll is forced by gravity against the press-roll and the press-roll bears a part of the weight only of the drier-roll, a pair of carriages, one for supporting each of the arms, a frame having tracks on which the carriages are mounted, a shaft, and connections between the shaft and the carriages, and means whereby said shaft may be turned either by hand or power, substantially as described.

6. In a paper-making machine, the combination with a press-roll, of a drier-roll, a shaft on which the drier-roll is mounted, means for supporting the shaft so that the drier-roll will be forced by gravity against the press-roll and the press-roll bears a part of the weight only of the drier-roll, arms secured to the supporting means for the shaft, and suitable scraping-blades supported by the arms, substantially as described.

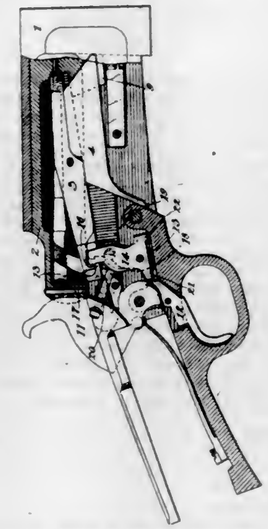
7. In a paper-making machine, the combination with a press-roll, of a drier-roll, a shaft on which the drier-roll is mounted, a pair of pivoted arms, bearings connected to the arms and supporting the shaft, a second pair of arms connected to the bearings, and scraping devices carried by the second pair of arms, substantially as described.

8. The combination with a press-roll, of a drier-roll, a suitable frame having tracks, carriages moving on the tracks, screws connected with the carriages, worm-gears mounted on the screws, a worm-shaft engaging the gears, means for rotating the worm-shaft, an arm pivoted in each of the carriages, and a drier-roll mounted in the arms, substantially as described.

9. The combination with a press-roll, of a drier-roll, a suitable frame having tracks, carriages moving on the tracks, screws connected with the carriages, worm-gears mounted on the screws, a worm-shaft engaging the gears, power and hand operated means for rotating the worm-shaft, an arm pivoted in each of the carriages, and a drier-roll mounted in the arms, substantially as described.

10. The combination with a press-roll, of a drier-roll, a suitable frame having tracks, carriages moving on the tracks, screws connected with the carriages, worm-gears mounted on the screws, a worm-shaft engaging the gears, power and hand operated means for rotating the worm-shaft, an arm pivoted in each of the carriages, a drier-roll mounted in the arms, and arms carrying scraping-blades secured to the arms carrying the drier-roll, substantially as described.

662,427. SAFETY LOCKING DEVICE RELEASED BY RECOIL. LEWIS L. HEPBURN, New Haven, Conn., assignor to the Marlin Fire Arms Company, same place. Filed June 14, 1900. Serial No. 20,272. (No model.)



Claim.—1. In a firearm in combination, a frame, a breech-block, a locking-bolt therefor, an inertia-piece carried by the frame interlocking with said locking-bolt and disengaged therefrom by the recoil of the gun, a carrier, and means on the carrier for retaining the inertia-piece after recoil.

2. In a firearm in combination, a frame, a breech-block, a locking-bolt therefor, an inertia-piece carried by the frame interlocking with said locking-bolt and disengaged therefrom by the recoil of the gun, a carrier, means on the carrier for retaining the inertia-piece after recoil, and means for returning said inertia-piece into engagement with the locking-bolt.

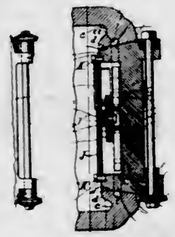
3. In a firearm in combination, a frame, a breech-block, a locking-bolt therefor, an inertia-piece pivotally supported on the frame, a hook at the upper end thereof, a shoulder on the locking-bolt engaged thereby, a carrier, and means on the carrier for temporarily retaining the inertia-piece after recoil.

4. In a fire arm in combination, a frame, a breech-block, a locking-bolt therefor, an inertia-piece carried by the frame and interlocking with said locking-bolt and disengaged therefrom by the recoil of the gun, a carrier, and means for temporarily engaging the inertia-piece with the carrier after recoil, said means comprising shoulders upon each of said parts, one of said shoulders being yielding and spring-controlled.

5. In a firearm in combination, a frame, a breech-block, a locking-bolt therefor, an inertia-piece carried by the frame and interlocking with said locking-bolt and disengaged therefrom by the recoil of the gun, a carrier, a spring-pressed stud on the inertia-piece and a shoulder on the carrier over which the stud passes upon the recoil of the gun and by which the inertia-piece is held against return eogagement with the locking-bolt until released by the movement of the carrier.

6. In a firearm, in combination, a frame, a breech-block movable therein, a locking-bolt associated with said breech-block and movable therein, means for actuating said parts, a cartridge-carrier coacting with said locking-bolt, a supplemental locking device in the form of an inertia-piece carried by the frame and normally in engagement with the locking-bolt, said supplemental locking device being displaced by the recoil of the gun, and means carried by the carrier for temporarily holding said supplemental locking device in its disengaged position and automatically releasing the same at each operation of the breech mechanism.

662,428. SAFE. HENRY D. HIBBARD, North Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, High Bridge, N. J., and New York, N. Y. Filed May 7, 1898. Serial No. 679,976. (No model.)



Claim.—1. A safe comprising an integral safe-body having a circular door-opening and made of hard, tough, unmachinable metal of increased thickness around such door-opening, said door-opening having an elongated joint-surface provided with a continuous groove adapted to perform the double function of inducing a uniformity of thickness of metal around said door-opening in the production of the casting and serving to receive the locking-bolts; and an integral door of channel-shaped cross-section also made of hard, tough, unmachinable metal and having a corresponding long joint-surface, substantially as described.

2. A safe comprising an integral safe-body made of hard, tough, unmachinable metal, and having a doorway and an abruptly-presented external bead or flange and an internal flange around such doorway, the two providing a long joint-surface at the jamb, the bearing-surface of said jamb containing a continuous groove contributing to restrict the body of metal at the jamb and aid in securing toughness thereof corresponding with the thickness and conditions at the other parts of the body, the bearing-face of the jamb being continuously tapered in front of said groove and having an offset in the rear thereof, and a door of a thickness approximating that of the body and having an internal flange, substantially as described.

3. A safe-door of channel-shaped cross-section made integral of hard, tough, unmachinable metal having flaring apertures through the flange for the passage of locking-bolts, and also having raised bearing-surfaces for said bolts, substantially as described.

4. A safe comprising a body having solid walls and made in one piece of hard, tough, unmachinable metal with a doorway and with an increased thickness of metal adjacent to such doorway, forming an elongated, tapering jamb-surface; and a door, channel-shaped in cross-section and made in one piece of similar material, the joint between said door and body being without steps in front of the bolts, and having a step in the rear of the bolts, substantially as described.

5. A burglar-proof safe comprising a body having a doorway with an elongated jamb-surface; a door having a flange provided with bolt-apertures, each of said parts made of a single piece of hard, tough, unmachinable material, ground to a tightly-matching condition; a hinge supporting said door on said body; and a series of locking-bolts located to be projected through said apertures in different directions from the door into the jamb, said door having surfaces of small area in position to support and guide the bolts, substantially as described.

6. A door comprising a body and a flange, said flange having bolt-apertures and said body having a series of raised bearing-surfaces located inside of said flange and in position to support the bolts in their working positions.

7. A safe-body having a doorway and a pair of flanges located around said doorway, and projecting in opposite directions whereby one projects forwardly of the body and the other projects rearwardly into the interior of such body thereby to form an elongated jamb, said jamb having bolt-receiving means therein.

8. A door comprising a body and a flange said flange having bolt-apertures and said body having a series of raised bearing-surfaces located inside of said flange and in position to support the bolts in their working position, and each of said apertures also having one or more raised bearing-surfaces coöperating with the bearing-surfaces of the body to support the bolts.

9. A safe-body having a doorway and a forwardly and a rearwardly extending flange located around said doorway and forming an elongated jamb, said jamb having a groove therein, the outer contiguous face of said forwardly-extending flange being substantially square with the jamb-surface.

10. An integral safe-body having a doorway and an external and an internal flange located around said doorway, said flanges projecting in opposite directions and forming an elongated jamb provided with a groove therein and with an offset at one side of said groove.

11. An integral safe-body having a doorway and an external and an internal flange located around said doorway and forming an elongated jamb provided with a groove located therein, and an offset located in the rear of said groove.

12. A safe-body provided with a doorway and having located around said doorway a flange or projection integral with a part of said body, with its outer face, contiguous to the jamb of such doorway, substantially square therewith, said projection having a distinct line of demarcation at its juncture-point with the body, and said jamb having a groove located therein.

13. A safe comprising a body having a doorway, and an external flange integral with a part of said body and located around said doorway and forming an elongated jamb, said jamb having a groove therein, and a door having an elongated joint-surface corresponding with that of said jamb and adapted to fit into said doorway, the outer marginal face of said door being substantially flush with the outer contiguous face of said flange.

14. A safe comprising an integral body having a doorway and an external and an internal flange located around said doorway and forming an elongated jamb provided with a groove therein and with an offset at one side of said groove; and a door channel-shaped in cross-section adapted to fit into said doorway and having an elongated joint-surface, and an offset adapted to register with said jamb-offset.

15. An integral safe-body formed in one piece and having a doorway, and provided around such doorway with an interiorly-located flange projecting rearwardly into the interior of said body and forming an elongated jamb having a bolt-receiving groove therein, the innermost face of said flange being free of juncture with the sides of said body.

16. An integral safe-door comprising a body and a flange, said flange having flaring bolt-apertures for the passage of locking-bolts, and said body having a centrally-located boss in position to coöperate with the inner ends of said bolts.

17. An integral safe-door comprising a body, and a flange forming with said body an elongated joint-surface having an offset, said flange having a series of bolt-receiving apertures located intermediate said offset and the body of said door.

18. A safe comprising a body provided with a doorway and having increased thickness around such doorway, the jamb of such doorway having therein an opening for the reception of a bolt and an offset in the rear of said opening; and an integral door adapted to fit into said doorway and comprising a body and a flange, said flange having an offset registering with the offset of the doorway-jamb, and also having a bolt-aperture intermediate its offset and body.

19. A safe comprising a body provided with a doorway and with an external and an internal bead or flange located around said doorway, the jamb of said doorway having therein an opening for the reception of a bolt and an offset in the rear of said opening; and an integral door adapted to fit into said doorway and comprising a body and a flange, said flange having an offset registering with the offset of the doorway-jamb and also having a bolt-aperture intermediate its offset and body.

20. A safe comprising a body provided with a doorway and with an external and an internal bead or flange located around said doorway, the jamb of said doorway having therein an annular groove for the reception of bolts and an offset in the rear of said groove; an integral door adapted to fit into said doorway and comprising a body and a flange, said flange having an offset registering with the offset of the doorway-jamb and also having a series of bolt-apertures intermediate its offset and body; and bolt mechanism in position to lock said door in its seat.

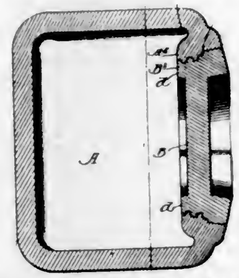
21. An integral door comprising a body and a flange, said flange having a series of rectangular flaring apertures for the passage of locking-bolts, and an offset in the rear of said apertures, and said door having a centrally-located boss coöperating with the inner ends of the bolts, and a plurality of raised bearing-faces in engagement with each of said bolts.

22. A safe comprising an integral body having a doorway and having increased thickness around such doorway, the outer marginal face of such body around the doorway being substantially square with the joint-surface of the doorway, said joint-surface having a groove located therein for the reception of bolts, and an integral door comprising a body and a flange, said flange having bolt-apertures for the passage of bolts, the outer marginal surface of said door being substantially square with the periphery thereof and flush with the outer marginal face of said body.

662,429. SAFE. HENRY D. HIBBARD, North Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, High Bridge, N. J., and New York, N. Y. Filed Nov. 14, 1898. Serial No. 696,394. (No model.)

Claim.—1. An integral safe or vault door having a recess extending over the major part thereof to form an annular flange and a body, the latter of reduced thickness as compared with the thickness of the door at the outer edge thereof, said door having its edge provided with an offset, and at one side of said offset with an elongated smooth joint-surface extending in an unbroken condition from said offset to the face of the door.

2. An integral safe or vault door having a recess extending over the major part thereof to form an annular flange and a body, the latter of reduced thickness as compared with the thickness of the door at the outer edge thereof, said door having its edge provided with an offset, and at one side of said offset with an elongated smooth joint-surface extending in an unbroken condition from said offset to the face of the door, the outer marginal face of said door being substantially square with said smooth joint-surface.



3. An integral safe or vault door comprising a body having an annular flange extending forwardly of said body and forming with such body an elongated joint-surface; a step or offset located at the periphery of the door; and threads located at one side of said offset, said door having a smooth elongated joint-surface extending in an unbroken condition from the outer face of said door to said threads or offset.

4. A safe-body made integral of metal of substantially uniform thickness and provided with an outwardly-extending flange and a rearwardly-extending flange, both around the door-opening and presenting an elongated joint-surface, the rearwardly-extending flange forming at its rear a recess whereby the thickness of the mass of metal around said opening will be substantially uniform with the other portions of the body, substantially as described.

5. A safe or vault body having a doorway, a door adapted to fit therein, said body having around said doorway and in contact with the edge of the door a projection integral with a part of such body and in position and adapted to yield with the metal of the door at the edge thereof when such door metal is, under high-explosive charges, moved laterally or radially, thereby to continuously preserve a tight metal-to-metal joint or contact between said projection and the door edge, the organization being such that said projection has a distinct line of demarcation at its juncture-point with the body.

6. A safe or vault body having a doorway, a projection located around said doorway and having its inner face forming a door-seat, such projection terminating with the outer edge of such door-seat whereby such projection does not extend beyond the door-seat, said projection having a distinct line of demarcation at its juncture-point with the safe-body, and a door adapted to fit into said seat in such manner that the metal of the projection will yield with the metal of the door at the edge thereof when the joint is subjected to the effect of high-explosive charges.

7. A safe or vault comprising a body having a doorway and provided around such doorway with a projection integral with a part of said body, and a door having, when in its closed position, its outer marginal face substantially flush with the contiguous outer face of such projection.

8. A safe or vault body having a doorway and provided around such doorway on the interior of the safe with a rearwardly-extending integral projection or flange prolonging the door-seat to form an elongated joint-surface, the innermost face of said flange being free of juncture with the sides of said body.

9. A safe or vault body having a doorway, the jamb thereof having relatively great depth obtained by providing such body with an integral rearwardly-extending projection located around such doorway on the interior of such body with a space formed between such projection and the walls of said body, whereby the thickness of the mass of metal around said doorway will be substantially uniform with the other portions of the body.

10. A safe or vault body having a doorway and provided around said doorway with an integral projection or flange extending beyond the body proper, the face of such flange being substantially square with the jamb-surface.

11. A safe or vault body having a front provided with a doorway, such front having a ring or projection of metal integral therewith and located around said doorway and projecting beyond the normal surface of said front and increasing the normal thickness of the front around the doorway thereby to provide such doorway with an elongated jamb-surface, the outer surface of said ring being substantially square with said jamb-surface, and an offset or step located in said jamb-surface.

12. A safe-body having a doorway, and provided around such doorway with a ring or projection of metal integral with a part of the body and projecting forwardly beyond the normal face of said body and with a ring or projection of metal also integral with a part of the body and projecting rearwardly into the interior of said body, said rings forming an elongated jamb.

13. A safe comprising an integral heat-treated body of metal approximately uniform in thickness and having inner and outer beads or flanges contiguous to the doorway, and forming an elongated jamb, and a door having its edge of increased thickness and corresponding with the thickness of such jamb, thereby providing an elongated joint-surface around the door, said door having its outer marginal surface flush with the outer face of the exterior flange of the body, substantially as described.

14. In a safe, the combination of an integral body of substantially uniform thickness having a doorway and provided around said doorway with a forwardly-extending increased portion or flange; and a door having, when in its closed position, its outer marginal face substantially flush with the outer face of such flange.

15. A safe-body having a doorway, and provided around such doorway with a ring or projection of metal integral with the body, and projecting forwardly beyond the normal face of said body, and with a ring or projection of metal also integral with the body, and projecting rearwardly into the interior of said body, said rings forming an elongated jamb, the outer surface of the outer ring or projection being substantially square with the jamb-surface, and the inner ring or projection forming a space located between said ring and the side walls of the body, whereby the thickness of the mass of metal around the doorway will be decreased, while an elongated jamb-surface is obtained.

16. An integral safe-door comprising a body having a pair of annular flanges, one extending forwardly of said body and the other rearwardly thereof, and forming with said body at the periphery thereof an elongated joint-surface; a step or offset located at said periphery, and threads located at one side of such offset, said door having a smooth elongated joint-surface extending in an unbroken condition from the outer face of the door inwardly to said offset or threads.

17. A safe-body made integral of metal of uniform thickness and provided with an outer flange and an inwardly-extending flange, both around the door-opening, and presenting an elongated joint-surface, the inner flange forming at its rear a recess A^2, whereby the thickness or mass of metal around said opening will be substantially uniform with the other portions of the body, in combination with a door having its outer marginal portion flush with the outer flange, substantially as described.

18. In a safe, an integral heat-treated door of metal, approximately uniform in thickness and having a recess extending over the major portion thereof, in combination with a body also integral of heat-treated metal, the bearing-surfaces matching with a long and tapered joint, and both door and body being slightly coned externally to be square with the joint and flush with each other, substantially as described.

19. An integral safe-door comprising a body having an annular flange projecting forwardly thereof and forming with such body an elongated joint-surface; a step or offset located at the periphery of the door, and threads located at one side of said offset, said door having a smooth elongated tapered surface at the other side of said offset and extending in an unbroken condition from said offset to the outer face of the door.

20. An integral safe-door comprising a body having an annular flange projecting forwardly thereof and forming with such body an elongated joint-surface, a step or offset located at the periphery of said door, threads located at one side of such offset; and means comprising gear mechanism located within the recess formed by said forwardly-extending flange for rotating said door.

21. An integral safe-door comprising a body having an annular flange projecting forwardly thereof and forming with the door an elongated joint-surface, a step or offset located at the periphery of said door, threads located at one side of said offset, said door having a smooth elongated tapered surface at the other side of said offset and extending in an unbroken condition from said offset to the outer face of the door; and means located in the recess formed by said flange, and comprising an internal gear and a pinion meshing therewith for rotating said door.

22. An integral safe-door comprising a body having a pair of annular flanges, one extending forwardly of said body and the other rearwardly thereof, and forming with such body at the periphery thereof an elongated joint-surface, a step or offset located at said periphery, and threads located at one side of such offset, said door having a smooth elongated tapered surface at the other side of such offset and extending in an unbroken condition from said offset to the outer face of the door.

23. An integral safe-door comprising a body having a pair of annular flanges, one extending forwardly of said body and the other rearwardly thereof, and forming with such body at the periphery thereof an elongated joint-surface, a step or offset located at said periphery, threads located at one side of such offset, said door having a smooth elongated tapered surface at the other side of such offset and extending in an unbroken

condition from said offset to the outer face of the door; and means located in the recess formed by said forwardly-extending flange for rotating said door.

24. An integral safe-door comprising a body having a pair of annular flanges, one extending forwardly of said body and the other rearwardly thereof, and forming with a part of such body at the periphery thereof an elongated joint-surface, a step or offset located at said periphery, threads located at one side of such offset, said door having a smooth elongated tapered surface at the other side of such offset and extending in an unbroken condition from said offset to the outer face of the door; and means comprising an internal gear and a pinion located in the recess formed by said forwardly-extending flange for rotating said door.

25. A safe or vault cast of the manganese steel herein specified and heat-treated substantially as herein set forth subsequent to said casting, thereby to render such metal tough, and comprising an integral body having a doorway and provided with an increased portion of metal around such doorway forming a jamb of greater length in the direction of its depth than the thickness of the walls of the body thereby forming an elongated jamb, the organization of the body being such, however, that while an increased portion of the metal is obtained around the doorway the metal of such body is nevertheless substantially uniform throughout thereby to facilitate such heat treatment, and an integral door channel-shaped in cross-section and having a joint-surface of greater depth than the thickness of the body of such door or of the walls of the safe-body, the organization being such, however, that while the door has an elongated joint-surface the thickness of such door is nevertheless substantially uniform throughout and with that of the safe-body thereby to facilitate the heat treatment of said door.

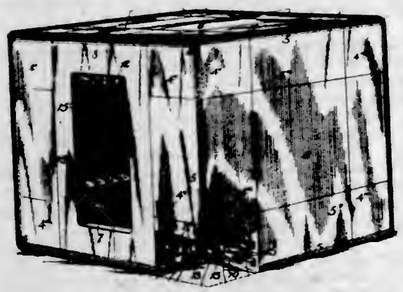
26. An integral safe-body cast of steel and heat-treated subsequent to such casting by heating such cast safe-body up to a predetermined temperature and then cooling the same, substantially as herein set forth.

27. An integral safe-body cast of the manganese steel herein specified and heat-treated subsequent to such casting by heating such cast safe-body up to a predetermined temperature and then cooling the same, substantially as herein set forth.

28. An integral safe-door cast of steel and heat-treated subsequent to such casting by heating such cast door up to a predetermined temperature and then cooling the same, substantially as herein set forth.

29. An integral safe-door cast of the manganese steel herein specified and heat-treated subsequent to such casting by heating such cast door up to a predetermined temperature and then cooling the same, substantially as herein set forth.

662,430. VAULT. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Filed Mar. 9, 1900. Serial No. 7,967. (No model.)



Claim.—1. A vault, the body of which comprises a plurality of angular and non-angular wall components having inwardly-extending projections; and means inclosing or encircling a plurality of projections of a plurality of components for securing them together under tension.

2. A vault, the body of which comprises a plurality of angular and non-angular wall components, each having along each of its edges a plurality of inwardly-extending projections; and means encircling or inclosing a plurality of projections of a plurality of components for holding said components together.

3. A vault, the body of which comprises a plurality of angular and non-angular wall components; and means shrunk on to parts or projections of said components for holding them together.

4. A vault, the body of which comprises a plurality of angular and non-angular wall components constructed and assembled so that the corners and edges of said body are free of joints or openings lengthwise of such edges or corners, each of said components having along each of its free edges a plurality of inwardly-extending projections; and a device located around each set of registering projections of a plurality of components for clamping said components together under tension.

5. A vault, the body of which is comprised of a plurality of angular and non-angular wall components, each of said components having along each of its edges a plurality of inwardly-extending projections, each provided with a slot; and a key located in each keyway formed by a plurality of communicating slots of a plurality of projections for locating said components in fixed alinement relatively to one another.

6. A vault, the body of which comprises a plurality of angular and non-angular wall components having inwardly-extending projections; means for locating the components in fixed alinement relatively to one another; and means encircling or inclosing a plurality of projections of a plurality of components for holding said components together.

7. A vault, the body of which comprises a plurality of angular and non-angular wall components, each of said components having a plurality of inwardly-extending projections, each provided with a slot or recess, the projections of one component registering with the projections of its companion components and the communicating slots thereof forming keyways; a key located in each keyway; and a link located on each set of registering projections for holding the components together.

8. A vault, the body of which comprises a plurality of angular and non-angular wall components, each of said components having along each of its free edges a plurality of inwardly-extending projections, each provided with a slot or recess, the projections of one component registering with the projections of its companion components and the communicating slots thereof forming keyways; a key located in each keyway; and a link shrunk on each set of registering projections for holding said components together under tension.

9. A vault, the body of which comprises a plurality of corner components, each comprehending a three-part rigid structure, a plurality of edge components each comprising a two-part rigid structure, and a plurality of intermediate non-angular components, each of said components having along each of its free edges a plurality of inwardly-extending projections, each having a slot therein, the projections of one component registering with the projections of its companion components and the communicating slots thereof forming keyways; keys located in such keyways for locating said components in fixed alinement relatively to one another; and links shrunk on each set of registering projections of a plurality of components for holding them together under tension.

10. A vault the body of which comprises a plurality of angular and relatively flat wall components, each component having a plurality of inwardly-extending projections, the projections of one component registering with those of another; and links shrunk on a plurality of contiguous projections for holding said components together.

11. A vault the body of which comprises a plurality of wall components, each having along its free edges a plurality of projections, the projections of one component registering with those of another; and a link shrunk on to each set of registering projections, each link being in juxtaposition to its companion link or links.

12. A vault comprising a plurality of wall components including a door-carrying component comprising a plate having a doorway and a pair of integral plates located at an angle thereto, and each of said components having inwardly-extending projections, the projections of one component registering with those of another component; and means for securing each set of registering projections together.

13. A vault, the body of which is composed of a plurality of plates, the corners of four of said plates being in juxtaposition; and each of said corners having an integral inwardly-extending projection; and means located on the interior of said body for connecting all of said projections.

14. A vault the body of which is composed of a plurality of plates, the corners of four of said plates being in juxtaposition, and each of said corners having an inwardly-extending projection; and a link shrunk on said projections for uniting the components together.

15. A vault the body of which is composed of a plurality of plates, the corners of four of said plates being in juxtaposition and each of said corners having an inwardly-extending projection having a pair of slots therein, the slots of one projection communicating with a pair of slots of a pair of projections and forming keyways, and keys located in said keyways.

16. A vault the body of which is composed of a plurality of plates, the corners of four of said plates being in juxtaposition, and each of said corners having an inwardly-extending projection, said projections having a pair of transversely-extending keyways; and a plurality of keys forming an integral cross-shaped member located therein.

17. A vault the body of which is composed of a plurality of plates, the corners of four of said plates being in juxtaposition, and each of said corners having an inwardly-extending projection, said projections having one or more keyways therein; a key or keys located therein and a link shrunk on said projections.

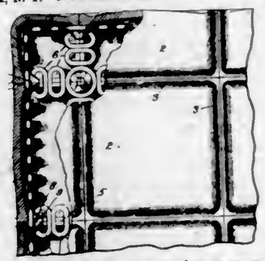
18. A vault the body of which is composed of wall components or plates so assembled that the corners of four plates are in juxtaposition, each of said components having along its free edges a plurality of projections, the projections of one plate coöperating with the projections of its companion plates, and the projections located at the corners of each plate coöperating with a plurality of projections of its companion plates, each set of coöperating projections having a keyway; a key located in said keyway for locating said plates in a fixed position relatively to one another; and a link shrunk on each set of coöperating projections for maintaining said plates in position.

19. A vault-wall component comprising a plate having a pair of integral plates extending at an angle thereto, each of said plates having along each of its edges a plurality of integral projections for the reception on the interior of said component of encircling clamping devices or links, the projections of said angularly-extending plates projecting toward each other.

20. A vault-wall component comprising a plate having a pair of integral plates extending at an angle thereto, each of said plates having along each of its edges a plurality of integral projections, the projections of said angularly-extending plates projecting toward each other, and each of said projections having a slot or groove therein.

21. A vault-wall component comprising a three-sided integral structure having substantially the shape of three sides of a hollow cube, and each of said sides having along each of its free edges a plurality of inwardly-extending integral projections for the reception of encircling clamping devices or links.

662,431. PLATE FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Filed Mar. 9, 1900. Serial No. 7,968. (No model.)



Claim.—1. A curved safe or vault plate or component adapted to be assembled with others of its kind to form a safe or vault, and having at one side at each edge thereof a projection extending at an angle to said plate, and each separated from, and free of juncture with, its companion projections whereby each can be encircled by a clamping device or link, each of said projections being adapted to register with similar projections of companion plates.

2. A concavo-convex safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having at one side thereof along each of its edges a plurality of projections extending at an angle to said plate, each of said projections being adapted to register with similar projections of companion plates.

3. A curved safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having at one side thereof along each of its edges a plurality of projections extending at an angle to said plate, each of said projections having a slot or recess and adapted to register with similar projections of companion plates.

4. A safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having each of its edges of greater area in cross-section than the web of such plate, and provided at each such edge at one side of said plate with a projection extending at an angle to said plate and each separated from, and free of juncture with, its companion projections, whereby each can be encircled by a clamping device or link, each of said projections being adapted to register with similar projections of companion plates.

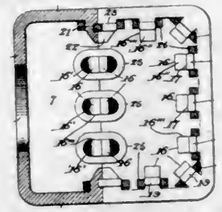
5. A safe or vault plate adapted to be assembled with others of its kind to form a safe or vault and having each of its edges of greater area in cross-section than the web of such plate, and provided at one side, along each such edge, with a plurality of projections extending at an angle to said plate, each of said projections being adapted to register with similar projections of companion plates.

6. A safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having each of its edges of greater area in cross-section than the web of such plate, and provided at one side along each such edge with a plurality of projections extending at an angle to said plate, each of said projections having a slot or recess and adapted to register with similar projections of companion plates.

7. A curved safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having each of its edges of greater area in cross-section than the web of such plate, and provided at one side along each such edge with a plurality of projections extending at an angle to said plate, each of said projections being adapted to register with similar projections of companion plates.

8. A curved safe or vault plate adapted to be assembled with others of its kind to form a safe or vault, and having each of its edges of greater area in cross-section than the web of such plate, and provided at one side along each such edge with a plurality of projections extending at an angle to said plate, each of said projections having a slot or recess and adapted to register with similar projections of companion plates.

662,432. SAFE. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Filed Mar. 9, 1900. Serial No. 7,969. (No model.)



Claim.—1. A safe or vault body composed of a plurality of wall components each having a plurality of inwardly-extending projections located adjacent to its edges, each separate from, and free of juncture with, its companion projections of the same component, the projections of one component registering with the projections of other components, and each plurality of registering projections having keyways located therein, and keys located in said keyways for locating said components in fixed alinement relatively to one another.

2. A safe or vault body comprised of a pluranty of wall components, each of said components having a plurality of inwardly-extending projections located along each of its free edges and adapted to register with similar projections carried by its companion components; and means for locating said components in fixed alinement relatively to one another.

3. A safe or vault body comprised of a plurality of wall components, each of said components having a plurality of separated inwardly-extending projections located along each of its free edges and adapted to register with similar projections carried by its companion components, each plurality of registering projections having a keyway, and a key disposed in said keyway for locating said components in fixed alinement relatively to one another.

4. A safe or vault body comprised of a plurality of wall components each having a plurality of inwardly-extending projections located adjacent to its free edges, each separated from, and free of juncture with, its companion projections of the same component, and means uniting under tension the projection of one component with the projection of another component.

5. A safe or vault body comprised of a plurality of wall components each having along each of its free edges a plurality of inwardly-extending projections, and means connecting under tension a projection of one component with a projection of another component.

6. A safe or vault body comprised of a plurality of wall components having inwardly-extending projections, and a device located around a plurality of projections of a plurality of components for clamping or holding such components together.

7. A safe or vault, the body of which consists of a plurality of members, and means shrunk on to parts of said members for connecting them under tension.

8. A safe or vault body comprised of a plurality of wall components each having along each free edge thereof a plurality of projections, and a link shrunk on each plurality of contiguous projections of a plurality of components.

9. A safe or vault body comprised of a plurality of wall components each provided along each of its free edges with a plurality of inwardly-extending projections, and means shrunk on a plurality of contiguous projections at a point substantially midway between the ends thereof and the outer faces of said components.

10. A safe or vault body comprising a plurality of wall components each of which consists of an angularly-formed member having a plurality of inwardly-extending projections located adjacent to its free edges, each separated from, and free of juncture with, its companion projections of the same component, and means inclosing or encircling a plurality of projections of a plurality of components for connecting said components.

11. A safe or vault body comprising a three-part structure, each of said parts having inwardly-extending projections, and means inclosing or encircling a plurality of projections of a plurality of said parts for uniting such parts.

12. A safe or vault body comprised of a plurality of wall components or plates disposed edge to edge, the joints between each of the plates being located away from the corners and edges of the structure, and means shrunk on to parts of said plates for securing them together under tension.

13. A safe or vault body comprised of a plurality of wall components having inwardly-extending projections; means for fixing the location of the components in proper alinement; and a device located around a plurality of projections of a plurality of components for clamping or holding said components together.

14. A safe or vault body comprised of a plurality of wall components having a plurality of inwardly-extending projections; means for locating the components in fixed alinement relatively to one another; and means shrunk on a plurality of projections of a plurality of components for connecting said components under tension.

15. A safe or vault body comprised of a plurality of wall components each having along each of its free edges a plurality of inwardly-extending projections each provided with a slot; a key located in each plurality of communicating slots of a plurality of components; and means encircling or inclosing each plurality of contiguous projections of a plurality of components for uniting said components.

16. A safe or vault body comprised of a plurality of wall components each having along each of its free edges a plurality of inwardly-extending projections, each of said components having one or more slots; a key located in each plurality of communicating slots of a plurality of components; and a link shrunk on each plurality of contiguous projections of said components.

17. A safe or vault body comprising a plurality of wall components assembled with the corners of a pair of said components intermediate the edges of another component, and means shrunk on parts of said components for uniting them under tension.

18. A safe or vault body comprising a plurality of wall members assembled so that the corners of a pair of members are located intermediate the edges of a companion member, each of said members having a projection; means for locating said members in fixed alinement relatively to each other; and means for securing said projections together.

19. A safe or vault body comprising a plurality of wall members, each of a pair of said members having its corner located intermediate the edges of a companion member, and each of said members having an inwardly-extending projection, the projections at the corners of said pair of members being contiguous to a projection of said companion member, and means for uniting said contiguous projections.

20. A safe or vault body comprising a plurality of wall members each of a pair of said members having a corner located intermediate the edges of a companion member, and each of said members having an inwardly-extending projection, the projections at the corners of said pair of members being contiguous to a projection of said companion member, and means shrunk on said contiguous projections for securing the components together.

21. A safe or vault body comprising a wall member having a projection located intermediate its edges; a pair of companion wall members each having its corner located intermediate the edges of said first member and provided with a projection contiguous to the projection of said first member, said series of contiguous projections forming a circular member; and means inclosing or encircling said projections for uniting said components.

22. A safe or vault body comprising a wall member having along each of its edges a series of projections each having a slot or groove therein; a plurality of wall components each also having along each of its free edges a plurality of projections each provided with a slot or groove, and each also having a projection located at the corner thereof and provided with a pair of slots running at right angles to each other; a key located in the slots of each set of contiguous projections for maintaining the components in fixed relation relatively to each other; and means for uniting said components.

23. A safe or vault body comprising a member having along its edges a series of projections each having a slot or groove therein; a plurality of wall components each also having along its free edges a plurality of projections each having a slot and each also having a projection located at the corner thereof and provided with a pair of slots running at right angles to each other; a key located in the slots of each set of contiguous projections for maintaining the components in fixed position relatively to each other; and means shrunk on said contiguous projections for uniting said components.

24. A safe or vault front having along each free edge thereof a plurality of integral projections extending inwardly therefrom.

25. A safe or vault front having along each free edge thereof a plurality of inwardly-extending integral projections each having a slot or groove therein.

26. A safe or vault wall component comprising a four-sided integral structure having a plurality of inwardly-extending integral projections along each free edge thereof.

27. A safe or vault wall component comprising a plate having four side plates integral therewith, each of said side plates having along each of its free edges a plurality of integral projections.

28. A safe or vault wall component comprising a four-sided integral structure having projections extending along the free edges thereof, each of said projections having a slot or groove, and one or more of said projections having a pair of slots or grooves.

29. A safe or vault the body of which comprises a plurality of wall components or plates constructed and assembled so that the corners and edges of said body are free of any joints or openings lengthwise of such corners or edges, each of said components having one or more inwardly-extending projections; the projection or projections of one component registering with the projection or projections of another component, and each set of registering projections having a keyway; a key located therein; and links shrunk unto said registering projections for maintaining the components in position.

30. A safe or vault plate or component adapted to be assembled with others of its kind to form a safe or vault, and having at one side at each edge thereof a projection extending at an angle to said plate, and each separated from, and free of juncture with, its companion projections, whereby each can be encircled by a clamping device or link, each of said projections being adapted to register with similar projections of companion plates.

31. A safe or vault plate or component adapted to be assembled with others of its kind to form a safe or vault, and having at one side at each edge thereof a projection extending at an angle to said plate, and each separated from, and free of juncture with, its companion projections, whereby each can be encircled by a clamping device or link, each of said projections having a slot or recess and adapted to register with similar projections of companion plates.

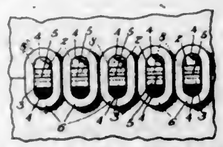
32. A safe or vault plate or component adapted to be assembled with others of its kind to form a safe or vault, and having at one side thereof along each of its edges a plurality of projections extending at an angle to said plate, each of said projections being adapted to register with similar projections of companion plates.

33. A safe or vault plate or component adapted to be assembled with others of its kind to form a safe or vault, and having at one side thereof along each of its edges a plurality of projections extending at an angle to said plate, each of said projections having a slot or recess adapted to register with similar projections of companion plates.

34. A safe or vault wall component comprising an angularly-formed integral plate having along each of its edges a plurality of inwardly-extending integral projections for the reception on the interior of said component of encircling clamping devices or links.

35. A safe or vault wall component comprising an angularly-formed integral plate having along each of its edges a plurality of inwardly-extending projections for the reception on the interior of said component of encircling clamping devices or links, each of said projections having a slot or groove therein.

662,433. **FASTENING FOR SAFE OR VAULT PLATES.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Filed Mar. 28, 1900. Serial No. 10,471. (No model.)



Claim.—1. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a part or projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure; and means encircling or inclosing said parts or projections for drawing or clamping the edge faces of said plates together with great force thereby to hold said plates under high initial resistance, and which initial resistance must be first overcome before said plates can be separated at the joint formed at such edges.

2. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a part or projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure; and a coupling device shrunk on to said parts or projections.

3. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure, and a link shrunk on said projections at a point substantially midway between the outer faces of said plates and the inner ends of said projections.

4. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a part or projection rigid with each of said plates, and located on the interior of the safe or vault when said plates are assembled in such structure; means encircling or inclosing said parts or projections for drawing or clamping the edge faces of said plates together with great force, thereby to hold said plates under high initial resistance, and which initial resistance must be first overcome before said plates can be separated at the joint formed at such edges; and means for locating said plates in fixed position or alinement relatively to each other.

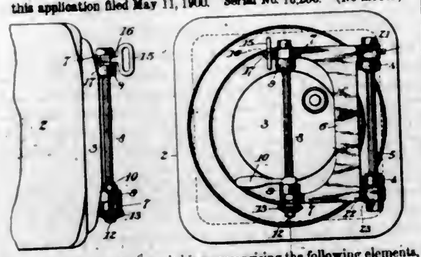
5. A safe or vault wall component or plate fastening comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure; means for locating said plates in fixed position or alinement relatively to each other; and means shrunk on said projections for securing the plates together.

6. A safe or vault wall component or plate fastener, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure, each of said projections having a slot or recess and forming with a recess of a companion projection a keyway; a key located therein; and means encircling or inclosing said projections for securing the plates together.

7. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure, each of said projections having a slot or recess forming with a recess of a companion projection a keyway; a key located in said keyway; and a link shrunk on said projections at a point substantially midway between the outer faces of said plates and the inner ends of said projections.

8. A safe or vault wall component or plate fastening, comprising, in combination with a plurality of safe or vault plates or wall components set edge to edge, a projection rigid with each of said plates and located on the interior of the safe or vault when said plates are assembled in such structure, said projections having their meeting faces provided with a keyway terminating at the outer, opposite sides of said projections; a key located in said keyway and having its ends substantially flush with the outer, opposite sides of said projections; and means for securing said plates together.

662,434. **SAFE-HINGE.** HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Original application filed May 7, 1898, Serial No. 679,776. Divided and this application filed May 11, 1900. Serial No. 16,250. (No model.)



Claim.—1. A safe or vault hinge comprising the following elements, a crane member, a pintle adapted to be supported by the body of a safe, a pintle adapted to be located in a line substantially centrally of the door, a device carried by said crane member for limiting the movement of the door relative to such member, eccentrically-operative means carried by said centrally-located pintle, and effective to overcome friction, inertia and air-pressure of the door and start all parts of such door open at the same time, and means carried by said crane member and located in position to coact with the body-pintle for adjusting said crane member and thereby the door relative to its doorway.

2. A safe or vault hinge comprising the following elements, a crane member, a pintle adapted to be supported by the body of a safe, a pintle adapted to be located in a line substantially centrally of the door, a device carried by said crane member for limiting the movement of the door relative to such member, and eccentrically-operative means carried by said centrally-located pintle, and effective to overcome friction, inertia and air-pressure of the door and start all parts of such door open at the same time.

3. A safe or vault hinge comprising the following elements, a crane member, a pintle adapted to be supported by the body of a safe, a pintle adapted to be located in a line substantially centrally of the door, means carried by said centrally-located pintle and effective to overcome friction, inertia and air-pressure of the door and start all parts of such door open at the same time, and means carried by said crane member and coacting with the body-pintle for adjusting said crane member and thereby the door relative to its doorway.

4. The combination with a safe or vault body having a doorway, and with a door therefor, of means for supporting said door on said body; and means for limiting the movement of said door relatively to said supporting means.

5. The combination with a safe or vault body having a doorway; and with a door therefor, of a crane-hinge supporting said door on said body; and means for limiting the movement of said door relatively to said hinge.

6. The combination with a safe or vault body having a doorway, with a door therefor, of a crane-hinge supporting said door on said body; and means comprising a set-gage for limiting the movement of said door relatively to said hinge.

7. The combination with a safe or vault body having a doorway, and with a door therefor, of a crane-hinge supporting said door on said body; and a combined handle and set-gage carried by said crane-hinge and effective to swing the door open, and also to limit the oscillatory movement of the door relative to said crane-hinge.

8. In a safe, the combination with a body, and a door, of a crane-hinge supporting said door on said body; a handle having a threaded shank tapped through the hinge at a point outside of its pivotal connection with the door and operative to perform the double function of a handle to swing the door open, and of a gage to limit the turning of the door relatively to its hinge, substantially as described.

9. The combination, with a safe or vault body having a doorway and with a door therefor, of a crane-hinge pivotally connected to said body; a pintle connecting said door with said hinge adjacent to the forward ends of the forwardly-extending arms thereof and located in a line substantially centrally of such door; and means carried by said centrally-located pintle, whereby when shifted into contact with the body it will overcome friction, inertia and air-pressure of the door and start all parts of such door from the jamb at one and the same time.

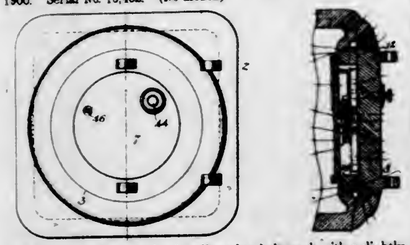
10. The combination, with a safe or vault body having a doorway and with a door therefor, of a crane-hinge pivotally connected to said door-body; a pintle connecting the door with said hinge adjacent to the forward ends of the forwardly-extending arms thereof and located in a line substantially centrally of such door; a pair of eccentric devices carried by said centrally-located pintle one in position to engage the safe-body above the door and the other in position to engage said safe-body below the door whereby when said devices are shifted into contact with said body they are effective to overcome friction, inertia, and air-pressure of the door and start all parts of such door open at one and the same time; and a lever secured to said centrally-located pintle for rotating the same and thereby said eccentric devices.

11. In a safe, the combination, with a body and a door, of a hinge connected to said body; a pin connecting said door with said hinge and having an eccentric portion; a handle rigidly secured to said pin for turning it; a wheel loosely mounted on said eccentric portion and operative to perform the double function of aiding to support the door and applying a great force through a short path to start the door from its closed position, substantially as described.

12. The combination with a safe or vault body having a doorway and forwardly-extending ears, and with a door, of a crane-hinge connected with said door; a pin or pintle connecting said hinge with the ears of said body; a bearing-block and an adjustable screw carried by said crane-hinge at its point of connection with one end of said pin or pintle; and a key and bearing-block carried by said hinge at its point of connection with the other end of said pin or pintle, whereby on the adjustment of said devices the door can be adjusted to properly fit its seat in the doorway.

13. The combination, with a safe or vault body having a doorway and with a door therefor, of a crane-hinge for supporting said door on said body; a pintle connecting said hinge with said body; and door-adjusting means carried by said hinge at its point of connection with the upper and lower ends of said pintle and including a key.

662,435. LOCKING MECHANISM FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman-Ely Safe Company, New York, N. Y. Original application filed May 7, 1898, Serial No. 679,976. Divided and this application filed May 12, 1900. Serial No. 16,402. (No model.)



Claim.—1. A safe-door having diverging bolts each with a slightly-inclined bearing-face adapted to engage a suitable recess in a safe-body; a rocking plate adapted when subjected to violence to move inwardly independently of the door and pivotally attached to the inner ends of said bolts to laterally move them and thereby force them outward with a toggle action; a device rigid or integral with said door and against which the inner ends of said bolts abut when in their locking position thereby to prevent the improper withdrawal of the bolts on the detachment of said rocking plate by violence; and a worm and connections for operating said rocking plate, substantially as described.

2. The combination, with a safe or vault body, and with a door therefor, of locking-bolts for said door; a device for shifting said bolts and having detachable connection with each of said bolts whereby when said device is subjected to violence it will automatically be detached therefrom without affecting the position of said bolts; a device integral or rigid with said door and against which the inner ends of said bolts abut when in their locking positions thereby to prevent the improper withdrawal of said bolts on the detachment of said device by violence; and means for operating said device.

3. The combination, with a safe or vault body, and with a door therefor comprising a body and a rearwardly-extending flange located in position to form a continuation of the edge of said body, of a back plate secured to said flange; a series of swinging, radially-shiftable bolts for said door; means embodying an actuator supported by said back plate for shifting said bolts, said actuator having pivotal, but detachable connection with each of said bolts whereby when subjected to violence it will be automatically separated therefrom without affecting the position of the bolts.

4. The combination, with a safe or vault body, and with a door therefor comprising a body and a rearwardly-extending flange located to form a continuation of the edge of said body, of a back plate secured to said flange; a series of bolts for the door; a rocking device supported by said back plate and provided with worm-teeth and detachably connected with said bolts whereby when it is subjected to violence it will be automatically separated from the bolts without affecting the position thereof; a worm in connection with said rocking device for shifting the same; and means for operating said worm.

5. An integral safe-door channel-shaped in cross-section having a centrally-located boss integral therewith in combination with bolts working through apertures in the flange of said door and abutting against said boss when in their locked position; and means for actuating said bolts.

6. A safe-door comprising a body and a flange, said flange having an offset and a plurality of bolt-apertures located intermediate said offset and the body of the door, in combination with bolts working in said apertures; and means for actuating said bolts.

7. A safe-door comprising a body and a flange, said flange having an offset and a series of tapered openings located intermediate said offset and the body of the door, in combination with bolts working in said apertures; and means for actuating said bolts.

8. A safe-door comprising a body and a flange, said flange having a step, and a plurality of bolt-openings intermediate said step and said body; a centrally-located boss rigid or integral with said door; and locking mechanism embodying a plurality of bolts working in said openings and adapted when in their locked position to have their inner ends abut against said boss.

9. The combination of a safe or vault body, having a doorway, the jamb of which is provided with bolt-receiving means and in the rear of said bolt-receiving means with an offset or step; a door comprising a body and a flange, said flange having an offset or step registering with the offset or step of said jamb, and also having a series of bolt-openings intermediate said step and door-body, a series of bolts working in said openings; and means for actuating said bolts.

10. The combination of a safe or vault body having a doorway, the jamb of which is provided with bolt-receiving means, and in the rear of said bolt-receiving means with a step; a door comprising a body and a flange, said flange having a step registering with the step of said jamb, and also having a plurality of bolt-openings intermediate said step and door-body; a centrally-located member rigid or integral with said door-body; a plurality of bolts working in said openings; and means for actuating said bolts, and comprising an actuator having detachable connection with said bolts whereby when it is subjected to violence it will be automatically separated therefrom.

11. The combination of a safe or vault body having a doorway, the jamb of which is provided with bolt-receiving means, and in the rear of said bolt-receiving means with a step; a door comprising a body and a flange, said flange having a step registering with the step of said jamb, and also having a plurality of bolt-openings intermediate said step and door-body; a centrally-located member integral with said door-body; a plurality of bolts working in said openings; a rocking actuator having connection with each of said bolts; and means for actuating said actuator.

12. The combination of a safe or vault body having a doorway, the jamb of which is provided with a bolt-receiving opening, and in the rear of said bolt-receiving opening with an offset or step; a door comprising a body and a flange, said flange having an offset or step registering with the offset or step of said jamb, and also having a series of bolt-openings intermediate said step and door-body; a centrally-located member on said door-body; a series of bolts working in said openings; a rocking plate having teeth on its periphery and pivotally connected with each of said bolts; a worm in operative connection with said rocking plate; and means for actuating said worm.

13. A burglar-proof safe or vault comprising a body and a door, said door having a series of locking-bolts located to be projected in different directions from the door into the jamb of said body; a worm-wheel rocking member pivoted directly to each of said bolts; a worm in mesh with said rocking member; and means for actuating said worm thereby to actuate the bolts.

14. A burglar-proof safe comprising a body and a door, said door comprising a body and a flange, and said flange having a series of bolt-openings; a series of bolts carried on said door and working in said openings; a worm-wheel rocking member pivotally connected to the inner ends of each of said bolts; a worm in mesh with the teeth of said rocking member; and means for actuating said worm and thereby the rocking member to actuate the bolts.

15. A burglar-proof door comprising a body and a flange, said flange forming a continuation of the edge of said body and having bolt-openings; a back plate secured to said flange; a series of bolts working in said flange-openings; a worm-wheel carried by said back plate and having connection with said bolts; and means for actuating said worm-wheel.

16. A burglar-proof door having a main portion of hard, tough, unmachinable material, such, for instance, as manganese steel, and a series of inserted pieces of softer material, as for instance, iron or low steel, securely embedded therein, in combination with a back plate carrying locking mechanism and secured in position by fastening devices engaging said inserted pieces, substantially as described.

17. In a burglar-proof safe, a series of locking-bolts in the door located to be moved out and in, and engaging in a suitable recess in the jamb, in combination with mechanism for causing said bolts to travel not only outward but also laterally, and with a part against which the inner ends of the several bolts abut when in their outward position, substantially as described.

18. In a burglar-proof safe, a series of locking-bolts in the door located to be moved out and in, and each having a broad bearing at its outer end engaging in a suitable recess in the jamb, in combination with mechanism for causing said bolts to travel not only outward but also laterally, and with a part against which said inner ends abut when in their outward position and with a rocking plate, and means for rocking said plate thereby to operate all of said bolts simultaneously, substantially as described.

19. In a burglar-proof safe, a series of locking-bolts in the door located to be moved out and in, and each having a broad bearing at its outer end engaging in a suitable recess in the jamb, in combination with mechanism for causing said bolts to travel not only outward but also laterally, and with a part against which the inner end of the several bolts abut when in their outward position, and with a rocking plate, and means for rocking it; headless pins connecting said rocking plate with said bolts, whereby said bolts may be operated so long as the mechanism is properly worked, but be disengaged from such bolts and leave them in a locked position if the back plate is detached by violence, substantially as described.

20. In a safe, the combination, with a body having a doorway, of an integral door therefor having a rearwardly-extending flange provided with bolt-openings; bolt mechanism comprising a plurality of radially and laterally shiftable bolts working in said openings; and means for shifting said bolts radially, and simultaneously with such radial movement, swinging said bolts laterally thereby to obtain a toggle action of said bolts.

21. In a safe, the combination, with a body having a doorway, of an integral door therefor having a rearwardly-extending flange provided with flaring bolt-openings; bolt mechanism comprising a plurality of radially and laterally shiftable bolts working in said openings; and gear mechanism for shifting said bolts radially, and simultaneously with such radial movement, swinging said bolts laterally thereby to obtain a toggle action of said bolts.

22. In a safe, the combination of a body having a doorway; a door therefor; a series of bolts; a worm-wheel having connection with each of said bolts; a worm in engagement with said worm-wheel; and clutch mechanism for actuating said worm.

23. In a safe, the combination of a body having a doorway; a door therefor; a series of bolts; a worm-wheel having connection with each of said bolts; a worm in engagement with said worm-wheel; and clutch mechanism for actuating said worm, said clutch mechanism having connection with and being controlled by lock mechanism.

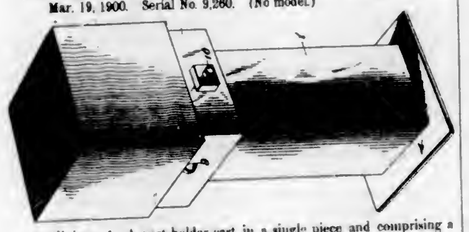
24. In a safe, the combination of a body having a doorway; a door therefor; a series of bolts for locking said door in said doorway; a worm-wheel having connection with each of said bolts; a worm-shaft for operating said worm-wheel; a gear loosely mounted on said worm-shaft and forming one member of a clutch; a sliding clutch member mounted on said worm-shaft; means embodying an intermeshing gear for rotating said worm-shaft; and means for sliding said last-mentioned clutch member into and out of engagement with said first-mentioned clutch member, whereby when it is in engagement therewith the worm-shaft can be rotated thereby to shift the bolts.

25. In a safe, the combination of a body having a doorway; a door therefor; bolt mechanism for locking said door in the doorway; a rocking actuator connected with said bolts; and means for rocking said actuator and embodying clutch mechanism and gear mechanism, one mechanism connected with and controlled by a lock mechanism, and the other adapted to operate said actuator on the unlocking of said lock mechanism.

26. In a safe, the combination of a body having a doorway provided with a bolt-receiving recess in its jamb; a door comprising a body and a flange, said flange having bolt-apertures communicating with the bolt-receiving recess of the jamb, and said door-body having a centrally-located projection; a back plate secured to said flange; a worm-wheel supported by said plate; a series of bolts working in said bolt-openings and connected with said worm-wheel; a worm-shaft having a worm in mesh with said worm-wheel; a gear loosely mounted on said shaft and forming one member of a clutch; a longitudinally-shiftable clutch member also mounted on said shaft and having connection with lock mechanism; a gear in mesh with said worm-shaft gear and having a spindle projecting through the door, whereby when said clutch members are in operative connection said gears may be operated to rotate said worm-wheel and thereby shift the bolts radially and laterally.

27. In a safe, the combination, of a safe-body having a doorway, the jamb of which is provided with a bolt-receiving opening having a beveled face; a door; a plurality of bolts, each having a beveled face cooperating with the beveled face of said bolt-opening; means for actuating said bolts, the organization being such that the engagement of the beveled faces of the bolts with the beveled face of said bolt-opening will draw the door tightly to its seat; and a stationary device rigid with said door and against which the inner ends of said bolts abut when in their locking position thereby to prevent the disengagement of the beveled faces of said bolts from the beveled face of said jamb-opening.

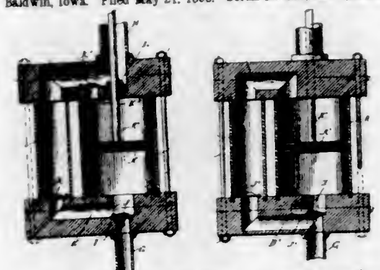
662,436. POST-HOLDER. JOHN M. HIBBARD, Helwig, Mo. Filed Mar. 19, 1900. Serial No. 9,260. (No model.)



Claim.—1. A post-holder cast in a single piece and comprising a rectangular post-socket composed of bottom and side walls, an elongated hollow anchor-box of less width than the socket and provided at its extremity opposite the socket with a surrounding lateral flange.

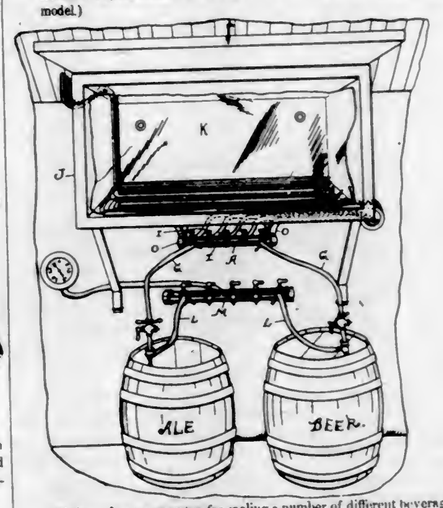
2. The combination with a post having a reduced lower end, of a post-holder comprising a hollow socket for the reception of the reduced end of the post, and an elongated hollow anchor-box of less width than the socket and terminating in a surrounding transverse flange, and a plurality of bolts disposed in different directions, lying in different planes and piercing the walls of the post-socket and the reduced portion of the post.

662,437. DOUBLE-ACTING FORCE-PUMP. INGRAM HOAGLAND, Baldwin, Iowa. Filed May 21, 1898. Serial No. 681,345. (No model.)



Claim.—In a force-pump, the combination, with two heads, one of which is provided with an inlet-perforation, and with two other perforations and three annular grooves in its inner face, one of the grooves being larger than the others, and with two channels communicating with the inlet-perforation and with the other two perforations, respectively, the larger groove being concentric to the inlet-perforation, and the other grooves being concentric to the smaller perforations, and the other head provided with a perforation, the outer portion of which forms the outlet and the inner portion is provided with a stuffing-box, and four other perforations and three annular grooves upon its inner surface, and with two channels, one of the grooves being larger than the others and concentric to the stuffing-box and inclosing two of the other perforations, and the other grooves being concentric to the two remaining perforations, respectively, one of the channels communicating with one of the two perforations outside the larger groove and with one of the perforations within the larger groove, and the other channel communicating with the other perforation outside of the larger groove and with the remaining perforation within the larger groove and with the outlet, of three cylinders secured between the heads, the ends of which fit within the corresponding grooves in the respective heads, a piston in the larger cylinder, the stem of which projects through the stuffing-box, and a series of valves, one of which is located in the inlet, one in each of the smaller perforations in the inlet-head, and one in the perforation in the outlet-head which communicates with the outlet-perforation.

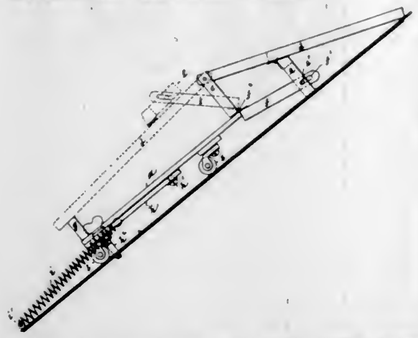
662,438. APPARATUS FOR COOLING LIQUIDS. WALTER C. HUCKINS, Dayton, Ohio. Filed Sept. 14, 1900. Serial No. 30,034. (No model.)



Claim.—In an apparatus for cooling a number of different beverages and maintaining them on draft, the combination with an ice-box, of a series of cooling-coils arranged within said ice-box in an oblong manner,

the said coils so arranged providing an uneven or corrugated surface upon which the ice is supported, the said uneven or corrugated surface being approximately the length and breadth of the body of ice, a manifold cock with which each of said coils so arranged has an independent connection, means on said manifold cock for independent connections, of a series of pipes leading from a like number of kegs, a series of enlarged chambers B within said manifold cock and forming enlarged feed-passages, a series of three-way keys in said manifold cock, the openings or ports from the chambers B to said keys being essentially smaller than the chambers B so that the force of the liquid in passing from said chambers B will be materially reduced, all arranged and operating substantially in the manner and for the purposes specified.

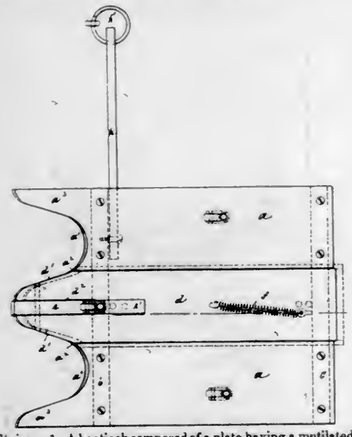
662,439. BOOTJACK. FERDINAND JAEGER, New York, N. Y. Filed Mar. 21, 1900. Serial No. 9,532. (No model.)



Claim.—1. A bootjack composed of a platform, uprights secured thereto, a crotched plate pivoted to the uprights, a foot pivoted to the crotched plate, and a hinged link that connects said foot to the platform, substantially as specified.

2. A bootjack composed of a platform, uprights secured thereto, a crotched plate pivoted to the uprights, a foot pivoted to the crotched plate, a hinged link that connects said foot to the platform, and a spring-controlled lever pivoted to the platform and adapted to be pivoted to the floor, substantially as specified.

662,440. BOOTJACK. FERDINAND JAEGER, New York, N. Y. Filed Mar. 23, 1900. Serial No. 9,878. (No model.)

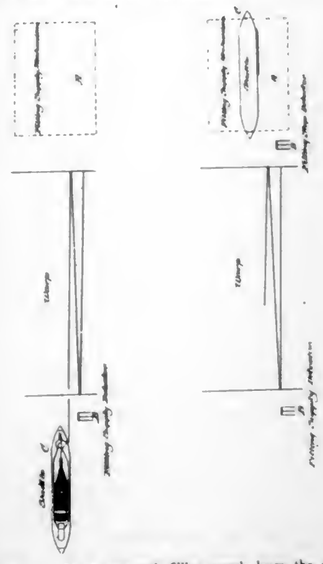


Claim.—1. A bootjack composed of a plate having a mutilated crotch, a longitudinally-movable slide forming the complement to said crotch, and means for locking said slide in its forward position, substantially as specified.

2. A bootjack composed of a pair of plates having mutilated crotches, an intermediate spring-actuated slide forming the complements to said crotches, a cam for locking the slide in its forward position, and means for limiting the movement of the slide, substantially as specified.

3. A bootjack composed of a crotched plate, a slide, rails for supporting the same, and vertically-movable spring-actuated casters projecting normally below said rails, substantially as specified.

662,441. FILLING-SUPPLY LOOM. OSCAR JANELLE, Manchester, N. H., assignor to Stephen N. Bourne, trustee, same place. Filed Jan. 2, 1900. Serial No. 52. (No model.)



Claim.—1. In an automatic filling-supply loom, the combination with filling-supply mechanism, of a filling-supply detector mounted on one side of the warp, connections between the filling-supply mechanism and the filling-supply detector for setting the former in motion, a filling-stop detector mounted on the other side of the warp, means for stopping the loom, and connections between the filling-stop detector and the stopping means, substantially as described.

2. In an automatic filling-supply loom, the combination with filling-supply mechanism, of a filling-supply detector mounted on one side of the warp, connections between the filling-supply mechanism and the filling-supply detector for setting the former in motion, a filling-stop detector mounted on the other side of the warp, means for stopping the loom, connections between the filling-stop detector and the stopping means and connections between the filling-supply detector and the filling-stop detector operative to prevent the latter from stopping the loom when the former operates to set the filling-supply mechanism in motion, substantially as described.

3. In an automatic filling-supply loom, the combination with bobbin-changing mechanism, of a filling-supply detector mounted on the opposite side of the warp from the bobbin-changing mechanism, connections between the bobbin-changing mechanism and the filling-supply detector for setting the former in motion, a filling-stop detector mounted on the other side of the warp from the filling-supply detector, means for stopping the loom and connections between the filling-stop detector and the stopping means, substantially as described.

4. In an automatic filling-supply loom, the combination with bobbin-changing mechanism, of a shuttle having its eye near one end thereof, a filling-stop detector mounted upon that side of the warp from which the shuttle-eye is most remote when the shuttle is boxed on that side of the loom, means for stopping the loom, connections between the filling-stop detector and the stopping means, a filling-supply detector mounted upon the opposite side of the warp from the filling-stop detector and connections between the bobbin-changing mechanism and the filling supply detector for setting the former in motion, substantially as described.

5. In an automatic filling-supply loom, the combination with filling-supply mechanism, a filling-supply detector, and operative connections therebetween; of a filling-stop detector, stopping means and operative connections therebetween; and a stop-preventer operated by the filling-supply detector to render the filling-stop detector inoperative when the former is operative, substantially as described.

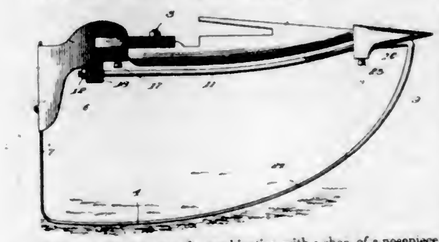
6. In a loom the combination with two filling-detectors mounted one on each side of the warp, said detectors having provisions to stop the loom on the second absence of filling, of connecting mechanism between said filling-detectors to render one of them inoperative on the second absence of filling when the other is operative, substantially as described.

7. In an automatic filling-supply loom, the combination with bobbin-changing mechanism, a filling-supply detector mounted on the opposite side of the warp from the bobbin-changing mechanism, a filling-supply-detector lever, a detector-shaft and connections between the bobbin-changing mechanism and the detector-shaft; of a stop-detector, mounted on the same side of the warp as the bobbin-changing mechanism, having a pawl, provision for dropping the pawl on the first absence of weft, a filling-stop-detector hammer; means operated by the filling-supply detector for lifting the pawl of the stop-detector during the stroke of the filling-stop-detector hammer next following the second absence of weft; stopping means and connections between the stopping means and the pawl, substantially as described.

8. In an automatic filling-supply loom, the combination with filling-supply mechanism, of a combined filling supply and stop detector mounted on one side of the warp, having provisions for setting the filling-supply mechanism in motion on the first absence of weft and for stopping the loom on the second absence of weft, a filling-stop detector mounted on the other side of the warp, having provision for stopping the loom on the second absence of weft, and connections between the combined filling supply and stop detector and the filling-stop detector for rendering the latter inoperative on the second absence of weft when the former had been operative on the first absence of weft substantially as described.

9. In an automatic filling-supply loom, the combination with filling-supply mechanism, a filling-supply detector, and operative connections therebetween; of a filling-stop detector, stopping means, and operative connections therebetween; take-up mechanism, and connections between the filling-stop detector and the take-up mechanism for stopping the take-up just before the stopping of the loom, substantially as described.

662,442. MOWING-MACHINE ATTACHMENT. DAVID M. JENNINGS, JAMES L. HENRY, and SILAS A. PRETWELL, Centralia, Mo. Filed Oct. 21, 1899. Serial No. 734,338. (No model.)



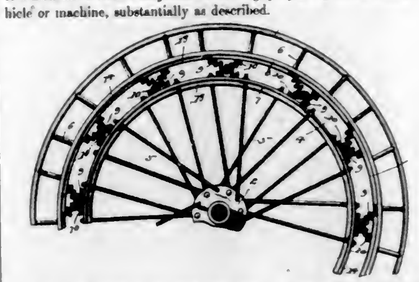
Claim.—1. In a mower the combination with a shoe, of a nosepiece, a bore or opening in the same in which the shoe is secured, a recess in said nosepiece adapted to receive the nose of the finger-guard, and means for securing the rear end of the shoe to the mower, substantially as shown and described.

2. In a mower the combination with a shoe, of a clamp comprising ribs on its rear face, a slot in its forward portion, a set-screw entering said slot, and a depending lug having an opening, said slot being adapted to receive and retain the finger-bar while the respective ends of the shoe are secured in the said lug and between the ribs on said clamp and means for securing the forward part of the shoe in the nosepiece, substantially as shown and described.

3. The combination with a shoe having a standard integral with and bent upward at right angles to the runner a series of bolt-openings in said standard of a clamp comprising ribs forming a groove on its rear face, in which the standard is adjustably secured by means of a bolt, a slot formed in the front face of the clamp, a set-screw extending into the same, and a lug depending from said clamp and provided with an opening in which the other end of the shoe is secured and means for securing the forward part of the shoe to the finger-guard, substantially as shown and described.

662,443. VEHICLE-WHEEL. JAMES N. JOHNSON, Hattiesburg, Miss., assignor of one-fourth to John Franklin Bennett, same place. Filed Mar. 17, 1900. Serial No. 9,051. (No model.)

Claim.—1. In a wheel of the class described, the combination with a hub, a rim, and inner and outer spokes, of an elastic girdle connected with the spokes and composed of concentric rings or bands, and the interposed springs disposed at an angle to the radius of the wheel, and having their ends located opposite different points of the periphery of the wheel and forming the sole connection between the rings or bands and adapted to rotate partially in reverse directions, said springs being also capable of being compressed and distended longitudinally by the strains to which the wheel is subjected in starting, propelling and stopping a vehicle or machine, substantially as described.



2. In a wheel of the class described, the combination with a hub, a rim, and inner and outer spokes, of a girdle composed of concentric rings or bands, and interposed springs forming the sole connection between the rings or bands and provided with a longitudinal series of transverse loops and arranged at an angle to the radius of the wheel with their ends opposite different points of the periphery of the latter and adapted to be distended and compressed longitudinally, substantially as and for the purpose described.

3. In a wheel of the class described, the combination with a hub, a rim, and inner and outer spokes, of a girdle composed of concentric rings or bands, and the oppositely-disposed interposed springs forming the sole connection between the rings or bands and arranged at an angle to the radius of the wheel with their ends opposite different points of the periphery of the latter and adapted to be compressed and distended longitudinally, substantially as and for the purpose described.

4. In a wheel of the class described, the combination with a hub, a rim, and inner and outer spokes, of a girdle composed of concentric rings or bands, and the interposed springs forming the sole connection between the rings or bands and arranged in pairs, the members of each pair being disposed in opposite directions and at an angle to the radius of the wheel, with their ends opposite different points of the periphery of the latter, substantially as and for the purpose described.

5. In a wheel of the class described, the combination of a ring or band having a central stiffening-rib and provided at opposite sides thereof with smooth portions, said ring or band being also provided with side flanges, and the springs secured to the smooth portions and supported by the side flanges, substantially as described.

6. A wheel of the class described comprising a hub, a rim, inner and outer spokes, and a girdle composed of inner and outer concentric rings or bands each provided with a central stiffening-rib and having outwardly-extending flanges forming smooth side faces, and springs interposed between the rings or bands and supported at their inner ends by the side flanges of the inner ring or band, substantially as described.

662,444. INSULATING COMPOSITION. CARL JUNG, Vienna, Austria-Hungary, assignor of two-thirds to Adolf Kittel and Adolf Brecher, same place. Filed Dec. 19, 1899. Serial No. 740,891. (Specimens.)

Claim.—1. As a new composition of matter, a mixture of undissolved raw caoutchouc and casein.

2. As a new composition of matter, a vulcanized mixture of caoutchouc and casein.

3. As a new composition of matter, a mixture of raw caoutchouc, casein and resin.

4. As a new composition of matter, a vulcanized mixture of caoutchouc, casein and resin.

5. As a new composition of matter, a mixture of undissolved raw caoutchouc, casein and a solid hydrocarbon.

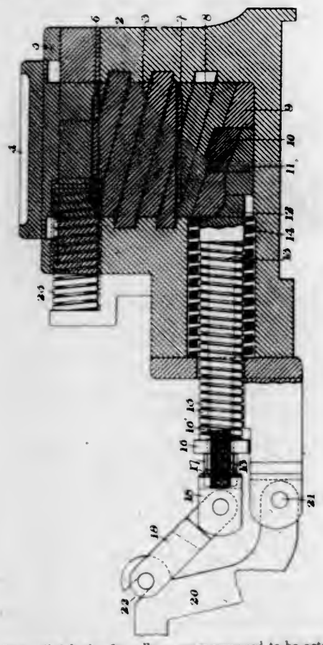
6. The process of preparing a rubber-like substance which consists in adding undissolved raw caoutchouc to casein and thoroughly kneading or mixing the mass.

7. The process of preparing a rubber-like substance which consists in adding undissolved raw caoutchouc to casein and thoroughly kneading or mixing the mass, and vulcanizing the same.

662,445. ROLL-RELIEVING DEVICE. CORNELIUS KUHLEWIND, Knoxville, Pa., assignor to the Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Filed Dec. 22, 1899. Serial No. 741,209. (No model.)

Claim.—1. A relief device, having a vertically-movable block, a screw arranged to be forced endwise by the movement of the block, a

non-rotatable innerly-screw-threaded socket surrounding the screw and a yielding pressure device acting upon the screw; substantially as described.



2. In a relief device for rolls, a screw arranged to be acted upon by the pressure on the bearings, a non-rotatable socket having inner screw-threads engaging the screw and a yielding spring and wedge system co-acting therewith; substantially as described.

3. In a relief device, a vertically-movable screw supported in a non-rotatable screw-threaded socket; a yielding pressure device arranged to hold the screw in place, and a hand-controlled device for releasing the yielding pressure device; substantially as described.

4. A relief device having a vertically-movable block held against rotation, an endwise-movable screw coacting therewith and arranged to be rotated by end pressure thereon, a wedge arranged to be actuated by the movement of the screw, and a yielding pressure device coacting with the wedge; substantially as described.

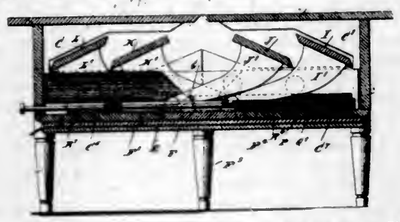
5. A relief device having a reciprocatory block held against rotation, a screw supported in a screw-threaded socket and arranged to bear against the block, a wedge coacting with the opposite end of the screw, a second spring-pressed wedge coacting with said wedge, and locking mechanism arranged to hold the wedges in place; substantially as described.

6. In a relief device for rolls, an endwise-movable screw, a wedge coacting with one end thereof, a non-rotatable socket for the screw, a spring-pressed wedge-block coacting with said wedge, a movable locking-block between the wedges, and a hand-controlled device arranged to release the locking-block when desired; substantially as described.

7. A relief device for rolls, having a non-rotatable socket, a screw arranged to revolve and move endwise therein, under the pressure of the bearings, and a yielding pressure device arranged to prevent rotation and movement of the screw until the pressure reaches a determined limit; substantially as described.

662,446. EXTENSION-TABLE. JOHN T. LA TURNO, Commerce, Mo. Filed Feb. 27, 1900. Serial No. 6,719. (No model.)

Claim.—1. An extension-table, comprising two separable connections, arms pivoted to swing in the arc of a circle at the central portion of the table and carrying auxiliary leaves rigid with the table-arms, so as to be capable of moving from an inclined position to a horizontal position, means for moving said leaves into position as the table-sections are moved apart, a locking device for locking the sections in position when the table is closed or extended by one or a plurality of leaves, the said locking device comprising a notched rail secured to one of the table-sections, a bolt for engaging the notches in the rail, a spring carrying said bolt at its free end and secured at the other end to the other table-section, and a spring-pressed rod under the control of the operator and having a wedge at one end adapted to slide under the free end of the spring to work the said bolt, substantially as shown and described.



2. An extension-table, comprising two separable sections, auxiliary leaves, arms rigidly carrying said leaves, a spring-pressed slide on which the arms are pivoted, to allow the arms to swing in an arc of a circle at the central portion of the table, and to move the said leaves from an inclined position to a horizontal position, the slide being free to move to closely join the leaves and the tops of the table-sections when the latter are slightly pushed toward each other, substantially as shown and described.

3. An extension-table, comprising two separable sections, tracks on said sections, arms pivoted to swing in the arc of a circle at the central portion of the table and carrying auxiliary leaves rigid with said arms, so as to be capable of moving from an inclined position to a horizontal position movable means carried by said arms and adapted to travel on said tracks to raise said auxiliary leaves as the sections are moved apart, and means whereby sundry of said auxiliary leaves, when in the horizontal position have a limited movement, for the purpose set forth.

4. An extension-table provided with sections slidably connected with each other, to permit of drawing the sections apart, arms pivoted to swing in the arc of a circle, and carrying auxiliary leaves rigid with the said arms, levers pivoted on the said arms, stops adapted to engage the free ends of the levers when the sections are drawn apart, to impart a swinging motion to the said arms to move the auxiliary leaves into position between the table-sections, and means whereby sundry of said auxiliary leaves when in position have a limited movement, for the purpose set forth.

5. An extension-table having a slide forming the fulcrum or pivot for the arms with longitudinal slot, provided with a spring to admit of the auxiliary leaves yielding and moving closer together when the edges of the leaves come to the end of the slot in the side of the table-sections.

6. An extension-table provided with separable sections, arms pivoted to swing in the arc of a circle at the central portion of the table and carrying auxiliary leaves rigid with the said arms, levers pivoted at one end on the said arms, and adapted to impart a swinging motion to the arms to move the auxiliary leaves into position on drawing the sections apart, tracks for the levers to travel on, shoulders at the ends of the tracks for the free ends of the levers to abut on; means whereby the auxiliary leaves when swung into position can be moved to closely join the auxiliary leaves and the tops of the table-sections, and a locking device for locking the table-sections in position, substantially as shown and described.

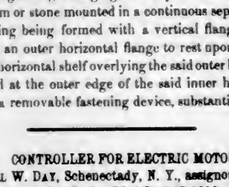
7. An extension-table comprising two separable sections, auxiliary leaves arms pivoted to swing and carrying said leaves, and a slide having a limited longitudinal sliding movement and on which sundry of said arms are pivoted, for the purpose set forth.

8. An extension-table provided with separable connections, table-arms pivoted to swing in the arc of a circle at the central portion of the table and carrying auxiliary leaves rigid with the table-arms, a slide forming the fulcrum or pivot for the arms, the said slide being spring-pressed and having longitudinal slots, and pins extending through said slots, whereby the slide has a limited longitudinal sliding movement, for the purpose set forth.

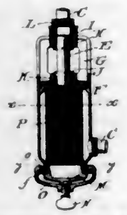
9. An extension-table, comprising two separable sections, arms pivoted to swing in the arc of a circle and carrying auxiliary leaves rigid with the table-arms, means for moving said auxiliary leaves into position as the table-sections are moved apart, and a locking device for locking the sections in position, the said locking device comprising a notched rail secured to one of the table-sections, a spring secured to the other table-section and carrying a pin or bolt at its free end for normally engaging the notches in the rail, a spring-pressed rod having a head for moving the spring to disengage the pin or bolt, and means for limiting the outward movement of the rod, substantially as described.

662,447. SHEET-METAL CAN. CHARLES LEFFLER, New York, N. Y. Filed Jan. 8, 1900. Serial No. 697. (No model.)

Claim.—A joint or seam for sheet-metal cans, consisting of the two abutting parts one of which is provided with a plurality of rows of punched burs, the burs in one row being opposite the spaces between the burs in adjacent rows; and the other part provided with corresponding rows of perforations, the burs on the one part being inserted through the perforations of the other, and clenched, substantially as described.



662,448. DRYING APPARATUS. MEREDITH LEITCH, Merchantville, N. J., assignor to the Warren Webster & Company, of New Jersey. Filed Nov 6, 1897. Serial No. 657,600. (No model.)



Claim.—1. The combination with the discharge-pipe for the water of condensation, of the valve for controlling the flow of said water of condensation, and a dirt-trap interposed between the outlet to said discharge-pipe and the valve, consisting of a body F provided with a frame G for connection with the discharge-pipe, and a sight or gage tube E carried by the frame G and extending into the body F.

2. The combination with the discharge-pipe for the water of condensation, of the valve for controlling the flow of said water of condensation, and a dirt-trap interposed between the outlet to said discharge-pipe and the valve, consisting of a body F provided with a frame G for connection with the discharge-pipe, and a sight or gage tube E carried by the frame G and extending into the body F and connected with the frame G and body F by nuts H, J, respectively.

662,449. FINGER-RING. CHARLES M. LEVY, New York, N. Y. Filed Jan. 25, 1900. Serial No. 2,753. (No model.)



Claim.—A finger-ring having a gem-box permanently mounted thereon, an initialed gem or stone mounted in a continuous separate setting, the said separate setting being formed with a vertical flange which fits inside the gem-box, an outer horizontal flange to rest upon the edge of the gem-box, an inner horizontal shelf overlying the said outer horizontal flange, and a bezel formed at the outer edge of the said inner horizontal shelf in combination with a removable fastening device, substantially as described.

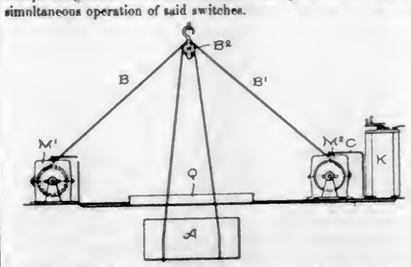
662,450. CONTROLLER FOR ELECTRIC MOTORS. JOHN B. LINN and MAXWELL W. DAY, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed Sept. 17, 1898. Serial No. 691,192. (No model.)

Claim.—1. A hoisting apparatus, provided with a number of motors acting upon a common load, means for regulating the motors to run at the same or different speeds as may be desired, and a common reversing-switch for all the motors.

2. A controlling device for a number of electric motors provided with a regulating-switch for each motor, handles for each switch, and interlocking means for the handles, such that each switch may be separately operated or all be moved by one handle.

3. In a controlling device for a number of electric motors, independent regulating-switches, a handle for each switch, and interlocking means for the handles such that a single handle may move all or only one of the switches.

4. A controlling device for a number of electric motors, comprising in combination a regulating-switch for each motor, independent means for operating said switches, and an interlocking device for effecting the simultaneous operation of said switches.



5. A controlling device for two motors, comprising a separate regulating-switch for each motor, a handle for each switch, and an interlocking mechanism between the handles, such that each switch may be actuated independently when the handles are not interlocked, and both switches may be operated by one handle when the interlock is effective.

6. In a controlling device for electric motors, the combination of a number of motors, a separate regulating-switch for each motor, and a common reversing-switch for all the motors.

7. An interlocking mechanism for the handles of switches, comprising a lug upon one of the handles, a pawl upon the other coöperating with the lug, and means for locking the pawl to the lug.

8. In combination two independent switches, separate handles for operating said switches, a lock for each of said handles, means for unlocking one of said handles and simultaneously interlocking the two handles, and means for unlocking the other handle.

9. In combination, two switches, independent handles for operating said switches, a locking-detent for each of said handles, a series of notches in coöperative relation with each of said detents, an interlocking device for locking the two handles together, means operating one of said detents, and a second means operating the other detent and said interlocking device.

10. A controlling device for electric motors, comprising in combination two independent controlling-switches, a shaft, a sleeve surrounding said shaft, means operatively connecting the shaft with one of said switches, means operatively connecting the sleeve with the other of said switches, independent means for rotating said sleeve and said shaft, and an interlocking device for locking the sleeve and shaft together.

11. In combination in a controlling device for electric motors, two independent controlling-switches, a reversing-switch, independent means for operating said switches, an interlocking device for effecting, when desired, the simultaneous operation of said controlling-switches, and a second interlocking device for preventing the operation of the reversing-switch when either of the controlling-switches is in operative position.

12. In combination in a controlling device for electric motors, two independent controlling-switches, a reversing-switch, independent means for operating said switches, an interlocking device for effecting, when desired, the simultaneous operation of said controlling-switches, and a second interlocking device for preventing the operation of the reversing-switch when either of the controlling-switches is in operative position, and for preventing the operation of either of the controlling-switches when the reversing-switch is open.

13. In combination in a controlling device for electric motors, a plurality of controlling cylinders, a reversing-cylinder, switch-contacts carried by each of said cylinders, means whereby the said controlling-cylinders may be operated independently or both together, and interlocking means for preventing the operation of the reversing-cylinder when the controlling-cylinders are in operative position.

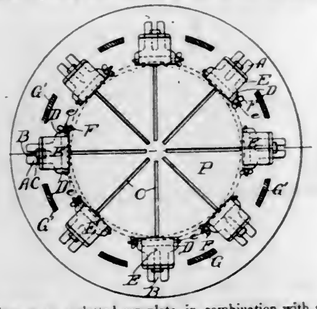
662,451. FEED-REGULATING DEVICE FOR PRESSES. GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass. Filed Sept. 1, 1900. Serial No. 28,755. (No model.)

Claim.—1. In a press, the combination with a slotted cap-plate, of means for controlling the feed of material through the slot in said head-plate, whereby the density of the compressed material may be varied, as and for the purpose set forth.

2. In a press, a slotted cap-plate, in combination with means for controlling the supply of material through the outer end of the slot in the cap-plate, whereby the density of the compressed material at the outer or peripheral surface thereof may be varied, as and for the purpose set forth.

3. In a press, a compression-chamber and a slotted cap-plate, in combination with means for adjustably regulating the feed of the material to be compressed through the outer end of the slot in the cap-plate, as and for the purpose set forth.

4. In a press, a slotted cap-plate, in combination with a deflector, and means for adjusting said deflector, as and for the purpose set forth.



5. In a press, a slotted cap-plate, in combination with a deflector, and means for varying the inclination of said deflector relative to the slot in said cap-plate, as and for the purpose set forth.

6. In a press, a slotted cap-plate, in combination with a deflector arranged adjacent to the outer end of the slot in said cap-plate, and means for adjusting said deflector toward and from the end of said slot, as and for the purpose set forth.

7. In a press, a slotted cap or head, in combination with a plate adjustably mounted thereon, and a deflector carried by said plate, as and for the purpose set forth.

8. In a press, a slotted cap or head, in combination with a plate mounted for adjustment toward and from the outer end of the slot in said cap or head, and a deflector carried by said plate, as and for the purpose set forth.

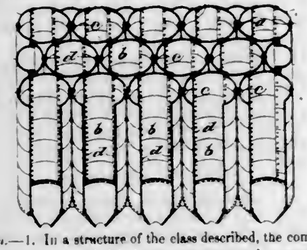
9. In a press, a slotted cap or head, in combination with a plate adjustably arranged adjacent to the outer end of the slot in said cap or head, and a deflector pivotally mounted upon said plate, as and for the purpose set forth.

10. In a press, a slotted cap or head, in combination with a plate adjustably arranged adjacent to the outer end of the slot in said cap or head, a deflector pivotally mounted in said plate, and means for securing said plate at any desired angle of inclination, as and for the purpose set forth.

11. In a press, a slotted cap or head, in combination with a plate adjustably mounted with reference to the outer end of the slot in said cap or head, said plate provided with ears, a deflector having pintles adapted to be received in said ears, and means for clamping said deflector in any desired inclination, as and for the purpose set forth.

12. In a press, a compression-chamber, a slotted cap-plate therefor, and a hopper for directing the material to be compressed to the slot in said cap-plate, in combination with a deflector for regulating the supply of material to the outer end of said slot, and means for adjusting said deflector, as and for the purpose set forth.

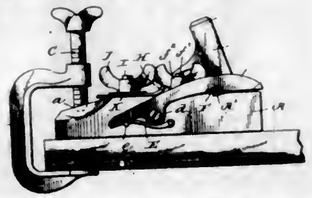
662,452. GRAIN-BIN. JAMES MACDONALD, Chicago, Ill. Filed Sept. 17, 1900. Serial No. 30,306. (No model.)



Claim.—1. In a structure of the class described, the combination of a series of juxtaposed cylindrical compartments, each composed in any given horizontal section of metal plates of equal curvature overlapping at their adjacent ends and where said ends are in contact with the adjacent bin, the compartment-sections of the several bins being secured together at such points of contact by vertical rows of rivets or bolts extending through, and uniting the overlapping portions of the sections composing said bins and thereby forming lateral ties and vertical supports for said bins.

2. In a structure of the class described, the combination of a series of juxtaposed cylindrical compartments, each composed in any given horizontal section of six metal plates of equal length and curvature overlapping at their adjacent ends in the surface of contact with the adjacent bin, the compartment-sections of the several bins being secured together at such points of contact by vertical rows of rivets or bolts extending through, and uniting the overlapping portions of the sections composing said bins and thereby forming lateral ties and vertical supports for said bins.

662,453. SAW-SET. WILLIAM MATHEWS, Conneaut, Ohio. Filed Aug. 16, 1900. Serial No. 27,108. (No model.)



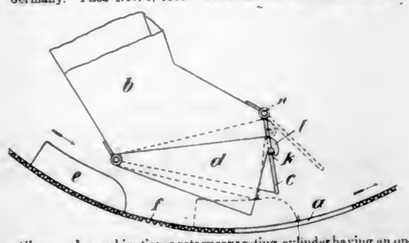
Claim.—1. In a saw-set, the combination of a base-plate having in its upper face a groove A′ and said base-plate affording on one side of said groove a support for the saw, a gage-plate adjustably secured on the base-plate on the opposite side of said groove, spring-pressed holding-jaws secured to said base-plate and adapted to hold the saw thereon, and a setting tool or hammer secured to said base-plate between said holding-jaws, substantially as described.

2. In a saw-set, the combination of a base-plate providing a support for a saw, clamping-jaws pivoted to said base-plate on the sides thereof, said jaws having lateral enlarged holding portions adapted to overhang the base-plate, springs acting to move the jaws toward the base-plate and a setting tool or hammer secured to the base-plate between the jaws, substantially as described.

3. In a saw-set, the combination of a base-plate, provided with a groove A′ in its upper face said upper face on one side of said groove forming a support for a saw, a gage-plate adjustably secured to the upper face of said base-plate on the other side of said groove, holding-jaws for the saw secured to said base-plate, a setting tool or hammer provided with a shank, and means for adjustably securing said shank to the base-plate independently of said gage, and on the side of the gage opposite said groove, substantially as described.

4. In a saw-set, the combination of a base-plate A having a groove A′ in the upper face thereof, the upper face on one side of said groove affording a support for a saw, holding-jaws D, D′, pivoted to the sides of said base-plate and having inwardly-projecting lateral enlargements D^2, springs E for moving said jaws to clamp the saw, a gage-plate F provided with slots and located on the base plate on the side of said groove opposite to the saw-supporting portion, screws passing through said slots in the gage-plate, set-nuts working on said screws, a setting tool or hammer G having a spring-shank, a screw I secured to the base-plate and passing through a slot in said shank, said slot being enlarged to permit the lateral and longitudinal adjustment of the setting-tool, and a nut working on said screw for clamping the setting-tool in adjusted positions, substantially as described.

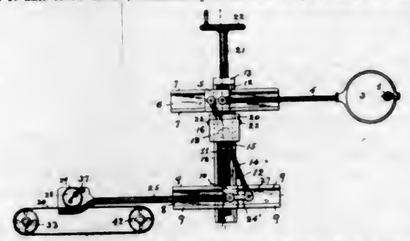
662,454. GRAIN-SORTING MACHINE. JOHANN MAYER, Cologne, Germany. Filed Nov. 9, 1899. Serial No. 736,396. (No model.)



Claim.—In combination, a rotary separating-cylinder having an opening in the periphery thereof, a stationary hopper located within the cylinder, and a discharge-chute outside the same with which said opening is adapted to aline, a flap pivoted to the mouth of the hopper within the cylinder, a catch adapted to automatically engage said flap, and a releasing device for the catch secured to the interior of the cylinder, substantially as described.

662,455. SPEED-CONTROLLING MECHANISM. STEPHEN MESSERER, Newark, N. J., assignor to the Messerer Automobile Company, of New Jersey. Filed Mar. 27, 1900. Serial No. 10,340. (No model.)

Claim.—1. In a speed-controlling mechanism, two parallel guides or ways, a movable slide in each guide or way, and a rod pivotally connected with each slide, combined with a vertically-movable pivot connected to said rod, means connected to one of the slides for reciprocating it, and means applied to the other slide for communicating motion to a shaft or axle to be driven, substantially as and for the purposes set forth.



2. The combination, with an axle or shaft to be driven, of a guide or way, a laterally-movable slide therein, means for driving the same, and an adjustable rod connected with said slide for regulating the speed of said axle or shaft, a pivoted bearing device through which said rod passes, a vertically-movable slide in which said bearing is pivoted, a guide or way upon which said slide is movably and adjustably arranged, means for adjusting said slide, and means attached to the lower end of said adjustable rod for communicating motion to the said axle or shaft to be driven, substantially as and for the purposes set forth.

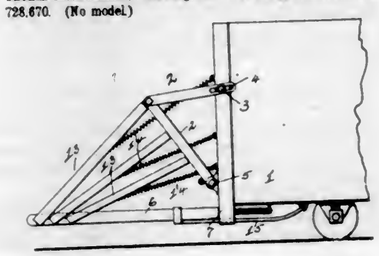
3. The combination, with an axle or shaft to be driven, of an adjustable rod for regulating the speed of said axle or shaft, and means for actuating said rod, of a pivoted bearing through which said rod passes, a vertically-movable slide in which said bearing is pivoted, a guide or way upon which said slide is movably and adjustably arranged, said bearing having an opening through which said rod passes, and having a lower forked or bifurcated end portion, a belt operatively connected with the axle or shaft to be driven, and means attached to the lower end of said adjustable rod for communicating motion to said belt, substantially as and for the purposes set forth.

4. The combination, with a driving-shaft of an engine, of an eccentric, a rod connected therewith, two parallel movable slides, ways or guides upon which said slides are movably arranged, an adjustable rod connecting said slides, a vertically-arranged guide or way, a vertically-movable slide therein carrying a bearing through which said adjustable rod passes, a push-rod connected with the lower end of said adjustable rod and with one of the parallel movable slides, and means upon the outer end of said push-rod for communicating motion to an axle or shaft to be driven, substantially as and for the purposes set forth.

5. The combination, with the driving-shaft of an engine, of an eccentric, a rod connected therewith, two parallel movable slides, guides or ways upon which said slides are movably arranged, an adjustable rod connecting said slides, a guide or way, and a vertically-movable slide therein carrying a bearing through which said adjustable rod passes, a push-rod connected with the lower end of said adjustable rod and to one of the parallel movable slides, an eccentric upon the outer end of the push-rod for communicating motion to the axle or shaft to be driven, and a belt with which said eccentric engages, substantially as and for the purposes set forth.

6. In a speed-controlling mechanism, a rod for regulating the speed of a shaft or axle to be driven, in combination, with a bearing device 15 having an opening through which said rod passes, and having a lower forked or bifurcated end portion, means for oscillating said rod, a guide or way, and a vertically-movable slide in which said bearing device is journaled, substantially as and for the purposes set forth.

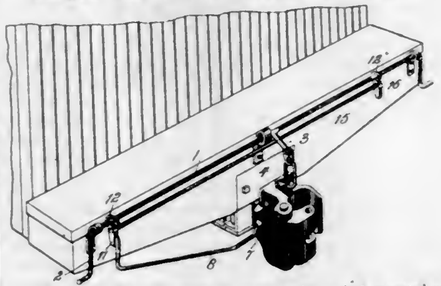
662,456. SAFETY DEVICE FOR STREET-RAILWAY CARS. THOMAS MULHOLLAND, Pittsburg, Pa. Filed Aug. 28, 1899. Serial No. 728,670. (No model.)



Claim.—1. In a safety device for street-cars, the combination of a plurality of arms hinged or pivotally secured on either side of the front end of a car and adapted to swing inwardly horizontally toward the front of said car, means to hold the said arms normally distended, and means to cause the same to swing inwardly, a series of angularly-disposed bars hinged or pivotally secured upon the front of said car on either side of the same, the said bars being adapted to be held normally distended by engagement on the outer side of horizontally-swinging bars, and means to cause the said angularly-disposed bars to swing inwardly toward the front of the car, substantially as set forth.

2. In a safety device for street-cars, the combination of a plurality of arms hinged or pivotally secured to the forward end of the car on either side the same, maintaining-bars adapted to hold said arms normally distended and in alinement with the sides of the car, the said maintaining-bars being normally held in position by retention-fingers, tension-springs secured to the inner side of said arms and to the front of the car and adapted when retracted to cause said arms to swing inwardly, and a series of angularly-disposed arms hinged or pivotally secured upon the front of the car, the said arms being adapted to be held normally distended by engagement with the horizontally-swinging arms each of said angularly-disposed arms being secured or attached to a tension-spring, adapted when retracted to cause said angularly-disposed arms to swing inwardly.

662,457. CAR-COUPLING. WILLIAM MCCONWAY and JOSEPH KELSO, Pittsburg, Pa., assignors to the McConway & Torley Company, same place. Filed Aug. 18, 1900. Serial No. 27,251. (No model.)



Claim.—1. The combination of a car-coupler, a shaft mounted on the end of the car and accessible from each side of the car and connected to the lock of the coupler, a rod movably mounted on the shaft and accessible from each side of the car, and a connection from said rod to the knuckle of the coupler, substantially as set forth.

2. The combination of a coupler, a lock-operating shaft movably mounted on the end of the car, two connected blocks or handles movably mounted on said shaft and a detachable connection from one of said handles to the knuckle of the coupler, substantially as set forth.

662,458. FLOOR. OSKAR NAGEL, New York, N. Y. Filed Oct. 19, 1899. Serial No. 734,122. (No model.)



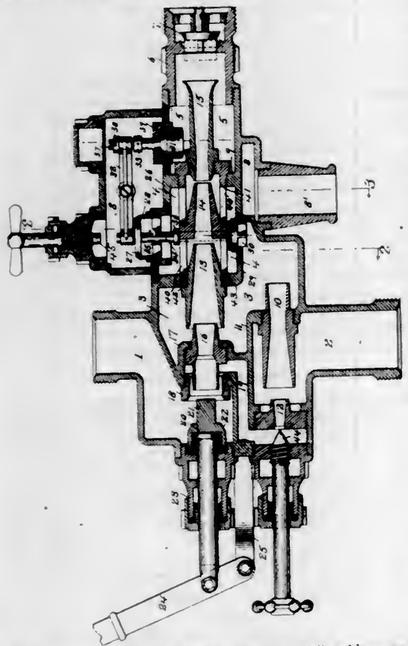
Claim.—A floor composed of a base roughened on its upper surface, a coating composed of a mixture of a solution of chlorid of magnesium, fluorid of calcium and oxid of magnesium on such roughened base and a layer on the coating composed of a mixture of oxid of magnesium, chlorid of magnesium, fluorid of calcium and sawdust in about the proportions given upon said coating, the sawdust having been hardened by means of a solution of chlorid of magnesium containining fluorid of calcium before being mixed with the oxid of magnesium, chlorid of magnesium and fluorid of calcium, substantially as set forth.

662,459. INJECTOR. HORACE T. NICK, Wadsworth, Ohio. Filed Sept. 7, 1899. Serial No. 729,689. (Model.)

Claim.—1. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, and lever connections between said device and valve, substantially as described.

2. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said

valve as the forcer is established, and a lever of the first class between said device and valve, substantially as described.



3. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and lever connections between said piston and valve, substantially as described.

4. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and a lever of the first class between said piston and valve, substantially as described.

5. In an injector having a delivery side substantially without overflow, the combination of an overflow-chamber on the receiving side and an overflow-valve therefor, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and lever connections between said piston and valve, substantially as described.

6. In an injector having a delivery side substantially without overflow, the combination of an overflow-chamber on the receiving side and an overflow-valve therefor, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and a lever of the first class between said piston and valve, substantially as described.

7. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close said valves as the forcer is established, and lever connections between said piston and valves, substantially as described.

8. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close said valves as the forcer is established, and connections between said piston and valves including a lever of the first class between the piston and overflow-valve, substantially as described.

9. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close said valves as the forcer is established, lever connections between said piston and overflow-valve, and means interposed between said valves for operatively connecting them, substantially as described.

10. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side to close said valves as the forcer is established, a lever of the first class interposed between said piston and overflow-valve, and means interposed between said valves for operatively connecting them, substantially as described.

11. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, and adjustable connections between said device and valve, substantially as described.

12. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, and adjustable lever connections between said device and valve, substantially as described.

13. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, a lever of the first class between said device and valve but disconnected from said device, and adjustable engaging means between said device and lever, substantially as described.

14. In an injector, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, and a lever of the first class between said device and valve but disconnected from said device, and adjustable means borne by the lever for engaging said device, substantially as described.

15. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and adjustable connections between said piston and valve, substantially as described.

16. In an injector, having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and adjustable lever connections between said piston and valve, substantially as described.

17. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, a lever of the first class interposed between said piston and valve but disconnected from said piston, and adjustable engaging means between said piston and valve, substantially as described.

18. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, a lever of the first class between said piston and valve but disconnected from said piston, and adjustable means borne by the lever for engaging said piston substantially as described.

19. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector and connected with the delivery side and adapted to be closed by the pressure thereof as the forcer is established, substantially as described.

20. In an injector having a delivery side substantially without overflow, the combination of an overflow-valve adapted to be opened by overflow on the receiving side of the injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and connections between said piston and valve, substantially as described.

21. In an injector having a delivery side substantially without overflow, the combination of an overflow-chamber on the receiving side, a forcer-tube opening at its side into the overflow-chamber, and an overflow-valve for said chamber connected with the delivery side and adapted to be closed by the pressure thereof as the forcer is established, substantially as described.

22. In an injector having a delivery side substantially without overflow, the combination of an overflow-chamber on the receiving side, a forcer-tube opening at its side into the overflow-chamber, an overflow-valve for said chamber, a piston adapted to be actuated by the pressure of the delivery side as the forcer is established, and connections between said piston and valve, substantially as described.

23. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, and a forcer-tube opening at its side into the overflow-chamber, said valves being connected with the delivery side and adapted to be closed by the pressure thereof as the forcer is established, substantially as described.

24. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a forcer-tube opening at its side into the overflow-chamber, a piston adapted to be actuated by the pressure of the delivery side as the forcer is established, and connections between said piston and valves, substantially as described.

25. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber, an overflow-valve therefor, and a valve between said chambers, said valves being connected with the delivery side and adapted to be closed by the pressure thereof as the forcer is established, substantially as described.

26. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber and an overflow-valve therefor, a valve between said chambers, a piston adapted to be actuated by the pressure of the delivery side as the forcer is established, and connections between said piston and valves, substantially as described.

27. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber, an overflow-valve therefor connected with the delivery side and adapted to be closed by the pressure thereof as the forcer is established, a valve between the lifter and forcer chambers, and means for operatively connecting said valves, substantially as described.

28. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber, an overflow-valve therefor, a piston adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, connections between said piston and valve, a valve between the lifter and forcer chambers, and means for operatively connecting said valves, substantially as described.

29. In an injector having a delivery side substantially without overflow, the combination of a lifter-chamber, an overflow-chamber, a valve controlling communication between said chambers and connected with the delivery side of the injector and adapted to be closed by the pressure thereof as the forcer is established, substantially as described.

30. The combination in an injector casing, of an overflow-chamber and a skeleton forcer-tube frame bearing a sectional forcer a portion whereof is detachably secured in the frame, said casing, overflow-chamber and tube-frame being so constructed as to permit the introduction and removal of said frame at the delivery end of the injector, substantially as described.

31. The combination, in an injector-casing, of an overflow-chamber and a skeleton forcer-tube frame bearing a sectional forcer having end sections detachably secured in the frame, said casing, overflow-chamber and frame being so constructed as to permit the introduction and removal of said frame at the delivery end of the injector-casing, substantially as described.

32. The combination of an overflow-valve on the receiving side of an injector, a closing device for the valve adapted to be actuated by the pressure of the delivery side as the forcer is established, and a lever of the first class interposed between said closing device and the valve, the fulcrum thereof being located at one side of its center and toward said closing device, substantially as described.

33. The combination of an overflow-valve on the receiving side of an injector, a piston adapted to be actuated by the pressure of the delivery side to close the valve as the forcer is established, and a lever of the first class connecting said piston and valve, the fulcrum thereof being located at one side of its center and toward the piston, substantially as described.

34. The combination of overflow-valve 27, delivery-chamber 5, piston 31, and lever 32, substantially as described.

35. The combination of overflow-valve 27, delivery-chamber 5, piston 31, and lever 32 provided with set-screw 37, substantially as described.

36. The combination with overflow-chamber 4 and delivery-chamber 5, of valve 27, piston 31, lever 32, and sectional forcer-tube 13, 14, 15, substantially as described.

37. The combination with lifter-chamber 3, overflow-chamber 4 and delivery-chamber 5, of valve 27, piston 31, lever 32, valve 27, and rod 34 interposed between said valves, substantially as described.

38. The combination with overflow-chamber 4 and delivery-chamber 5, of valve 27, piston 31, lever 32, valve 30, rod 34 interposed between said valves, and sectional forcer 13, 14, 15, substantially as described.

39. The combination with overflow-chamber 4, of sectional forcer-tube 13, 14, 15 borne by skeleton frame 40 provided with screw-threaded ring 41 for securing it in position, substantially as described.

40. The combination with overflow-chamber 4, of sectional forcer-tube 13, 14, 15 borne by skeleton frame 40 provided with screw-threaded ring 41 for securing it in an opening in one wall of the overflow-chamber and with ring 42 for engaging an opening in the opposite wall of said chamber, substantially as described.

41. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, and a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, substantially as described.

42. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, and a device adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established and to be in turn actuated in the opposite direction by said valve as the latter is opened by the overflow, substantially as described.

43. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, and a device disconnected from the valve and adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, substantially as described.

44. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, and a device disconnected from the valve and adapted to be actuated by the pressure of the delivery side to close said valve as the forcer is established, and to be in turn actuated in the opposite direction by said valve as the latter is opened by the overflow, substantially as described.

45. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side, and means interposed between said device and valve whereby when the former is thus actuated it will close the latter, substantially as described.

46. In an injector of the double-jet type, the combination of a forcer-tube opening at its side into the receiving side of the injector, an overflow-valve adapted to be opened by the overflow on the receiving side of the injector, a device adapted to be actuated by the pressure of the delivery side, and means interposed between said device and valve whereby when the former is thus actuated it will close the latter and when said valve is opened by the overflow it in turn actuates said device in the opposite direction, substantially as described.

662,460. INJECTOR. HORACE T. NICK, Wadsworth, Ohio. Filed Sept. 7, 1899. Serial No. 729,690. (Model.)

Claim.—1. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of lever connections between the valves, substantially as described.

2. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of a lever of the first class between the valves, substantially as described.

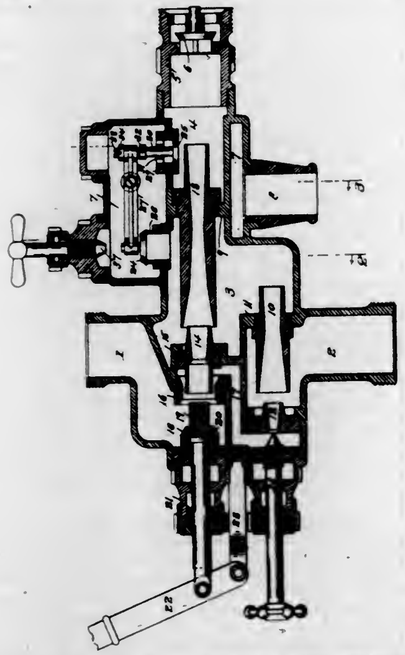
3. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of a lever of the first class between the valves, the fulcrum thereof being located at one side of its center and toward the secondary overflow-valve, substantially as described.

4. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of adjustable connections between the valves, substantially as described.

5. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of adjustable lever connections between the valves, substantially as described.

6. In an injector, the combination with a primary overflow-valve

adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of a lever of the first class between the valves but disconnected from one of them, and adjustable engaging means between said lever and said valve, substantially as described.



7. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of a lever of the first class between the valves but disconnected from the secondary valve, and adjustable engaging means between said lever and said valve, substantially as described.

8. In an injector, the combination with a primary overflow-valve adapted to be opened by overflow on the receiving side of the injector and a secondary overflow-valve adapted to be closed by the pressure of the delivery side as the forcer is established, of a lever of the first class between the valves but disconnected from the secondary valve, and adjustable means borne by the lever for engaging said valve, substantially as described.

9. The combination with water-chamber 3 and delivery-chamber 4, of overflow-valves 24, 25, and lever 27 between said valves, substantially as described.

10. The combination with water-chamber 3 and delivery-chamber 4, of overflow-valves 24, 25, and lever 27 between said valves and having its fulcrum at one side of its center and toward the valve 25, substantially as described.

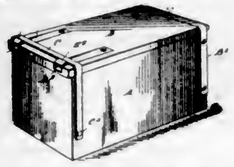
11. The combination with water-chamber 3 and delivery-chamber 4, of overflow-valves 24, 25, and lever 27 between said valves, the valve 25 being disconnected from but adapted to engage said lever, substantially as described.

12. The combination with water-chamber 3 and delivery-chamber 4, of overflow-valves 24, 25, and lever 27 between said valves, the valve 25 being disconnected from but adapted to engage said lever, and said lever being provided with set-screw 33, substantially as described.

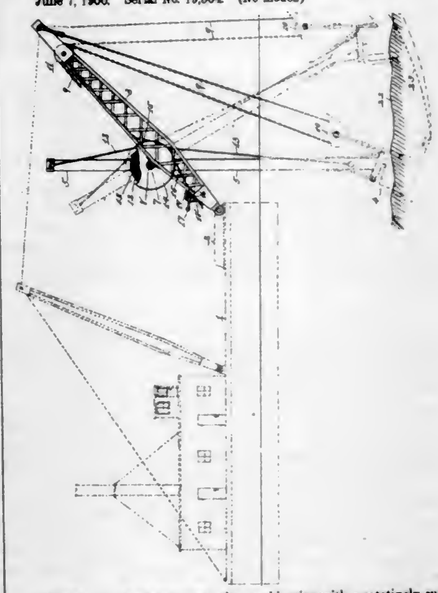
13. The combination with water-chamber 3 and delivery-chamber 4, of overflow-valves 24, 25, and lever 27 between said valves, the valve 25 being disconnected from but adapted to engage said lever, the fulcrum of said lever being at one side of its center and toward the valve 25, substantially as described.

662,461. **BOX-FASTENER.** JOHN J. NOSER, Luther, Mo. Filed Dec. 30, 1899. Serial No. 742,062. (No model.)

Claim.—The combination, with a box having a partition across its center, of a bail rigidly secured at one end, a bail pivotally secured at the other, stops on top of the partition, a cover for the box, the under face of which is adapted to engage with said stops, and one end is provided with a reduced portion to fit under the rigid bail, the top and bottom surfaces of the reduced portion being inclined upwardly toward the top of the cover, and the other end of the cover is recessed longitudinally, and spring-latches secured in said recesses in position to engage with the pivoted bail when it is swung over the end of the cover.



662,462. **DREDGE.** RALPH R. OSGOOD, Lansingburg, N. Y. Filed June 7, 1900. Serial No. 19,364. (No model.)



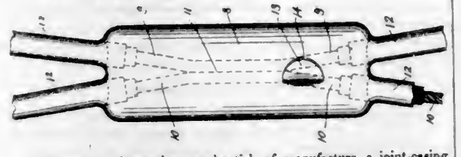
Claim.—1. In an excavator, the combination with a rotatively-supported sleeve; and a dipper-handle reciprocatory in said sleeve of means for swinging said handle; rotary mechanism supported on said sleeve for permitting and controlling the reciprocatory movements of the dipper-handle; means for controlling said rotary mechanism and causing a forward-swinging movement to induce an outward thrust of the dipper-handle.

2. In an excavator, the combination with a trunnion-supported sleeve; a dipper-handle reciprocatory in said sleeve; and means for oscillating said handle; of a drum rotatively mounted upon said trunnion-supported sleeve; a cable connection between said drum and the upper end of said handle leading to the forward side of the drum; and means for preventing rotation of said drum while a forward-swinging movement is imparted to said handle.

3. In an excavator, the combination with a trunnion-supported sleeve; of a dipper-handle reciprocatory therein; means for swinging the dipper-handle; a drum rotatively supported concentric with but independently of said sleeve; a cable connection between the upper end of said handle and said drum and adapted to be wound upon the drum; and means for preventing rotation of said drum.

4. In an excavator, the combination with a trunnion-supported sleeve; of a dipper-handle reciprocatory therein, means for swinging said dipper-handle; a drum rotatively supported concentric with but independently of said sleeve; cables oppositely wound upon said drum and connected with the dipper-handle near its opposite ends; and means for controlling the rotary movements of said drum.

662,463. **CASING FOR ELECTRICAL-CONDUCTOR JOINTS.** GEORGE H. PAUL, New York, N. Y. Filed June 2, 1900. Serial No. 18,816. (No model.)

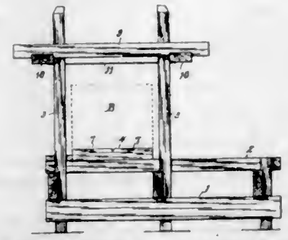


Claim.—1. As an improved article of manufacture, a joint-casing provided at its ends with openings through which the several conductors enter the casing, said casing being provided with grooves or marks so arranged and extended that said casing may be opened by slitting the same upon said grooves or marks, to receive the joint, substantially as shown and described.

2. As an improved article of manufacture, a tubular joint-casing provided at its opposite ends with openings through which the conductors enter said casing, said casing being longitudinally grooved from end to end, to communicate with the openings in both ends thereof, substantially as shown and described.

3. As an improved article of manufacture, a joint-casing provided at each end with two openings 15, upon its surface with a longitudinal groove 16, having end portions 17 which traverse the ends of said casing and communicate with transverse grooves 18, each of which communicates with the openings at one end of said casing whereby the parts 8ª, 8ᵇ 8ª are formed, which are relatively separable when said casing is opened upon the lines of said grooves, substantially as shown and described.

662,464. **APPARATUS FOR CUTTING BUTTER.** PLINY H. PEACOCK, Sheboygan, Wis. Filed June 25, 1900. Serial No. 21,491. (No model.)



Claim.—1. In combination, a frame having long horizontally-disposed parallel rails, posts therewith at corners of a parallelogram, the parallelogram being coincident wth a portion of the space between said rails, at one end thereof and not exceeding one-half of the length of the rails, a cutter-board having parallel grooves in its upper surface, the board being formed to rest within said parallelogram slidably and removably on the rails, and a cutter-frame provided with transverse cutters disposed to register with the grooves in the cutter-board when the board is within said parallelogram and the frame is placed on and about the posts.

2. In combination, a frame having long horizontally-disposed parallel rails, posts therewith at corners of a square the square being coincident at one end with substantially one-half of the space between said rails, a cutter-board having parallel and transverse parallel grooves in its upper surface, the board being adapted to rest on the rails within the square of the posts, and a cutter-frame in square form fitting movably vertically on and about the posts in an initial position and in a position acquired by being lifted off the posts and turned a quarter around from such initial position, the cutter-frame being provided with transverse parallel cutters disposed to register with the grooves in the cutter-board.

3. In combination, a frame having elongated parallel rails, a primary cutter-board adapted to rest removably on the rails and having means to prevent the board from movement laterally on the rails, an auxiliary cutter-board also capable of resting on said rails, and means adapted to secure the auxiliary cutter-board detachably to the primary cutter-board in a plane at a right angle to the primary cutter-board.

662,465. **COMMUTATOR.** EDWARD D. PRIEST and GEORGE L. SCHERMERHORN, Schenectady, N. Y., assignors to the General Electric Company, of New York. Filed June 30, 1900. Serial No. 22,128. (No model.)

Claim.—1. A commutator composed of segments of conducting material separated by insulation not extending to the general level of the segments.



2. A commutator for dynamo-electric machines, consisting of alternate strips of copper and mica, the mica being grooved out for a short distance below the level of the copper.

3. As an article of manufacture, a commutator composed of alternate strips of copper and mica adapted to be clamped upon a shell, the mica strips being narrower than the copper strips.

4. A commutator for dynamo-electric machines, consisting of alternate strips of copper and insulation, the insulation being grooved out for a short distance below the level of the copper.

5. A commutator having the insulation between segments cut down below the surface of the segments.

662,466. **LIGHTNING-ARRESTER FOR SAFETY CUT-OUTS FOR ELECTRIC CIRCUITS.** JOSEPH SACHS, Hartford, Conn. Filed Sept. 28, 1899. Serial No. 731,898. (No model.)



Claim.—1. The combination with a case, a safety-fuse within and extending through the case, and terminals at the ends of the case attached to the safety-fuse, of a base and circuit terminals connected therewith and adapted to receive the safety-fuse case at said terminals, a ground-terminal adjacent to and insulated from one of said case-terminals, and a device securing the same to said base and an electrical connection therefrom to ground, substantially as set forth.

2. The combination with a safety cut-out fuse, the case therefor and end metal circuit connections, of a current-retarder connected to one end metal terminal and to the cut-out fuse, a metal body adjacent to said terminal but free therefrom and a line from the same to ground, substantially as specified.

3. The combination with the safety cut-out fuse, the case therefor and end circuit-terminals thereto, of a choke-coil with one end connected to one terminal and the other end to the cut-out fuse, a metal body adjacent to but free from the terminal to which the choke-coil is connected and a line from the metal body to ground, substantially as specified.

4. The combination with the safety cut-out fuse, the tubular case therefor and an end cap to the case, of a choke-coil with one end connected to said end cap and the other end to the cut-out fuse, a sleeve surrounding the case and adjacent to but free from the end cap to which the choke-coil is connected and a line from the sleeve to ground, substantially as specified.

5. The combination with the safety cut-out, the case therefor, and a metal end cap, of a sleeve surrounding the said case and adjacent to said cap and a connection from said sleeve to ground, substantially as and for the purposes set forth.

6. The combination with the safety cut-out, the case therefor, and a metal end cap, of a sleeve surrounding the said case, and perforated insulating material between the said sleeve and the said metal end cap leaving an air-gap, and a connection from said sleeve to ground, substantially as and for the purposes set forth.

7. The combination with the safety cut-out, the case therefor and a metal end cap, of a sleeve surrounding the said case and an insulating-material separator between the said sleeve and the said metal end cap leaving an air-gap and a connection from said sleeve to ground, substantially as and for the purposes set forth.

8. The combination with the safety cut-out, the case therefor and a metal end cap, of a metal sleeve surrounding the case and adjacent to the end cap, and insulating material between the adjacent portions of the end cap and sleeve and leaving an air-gap, substantially as and for the purposes set forth.

9. The combination with the safety cut-out, the case therefor of insulating material and metal end caps, of a sleeve of metal surrounding the case of insulating material and adjacent to one end cap, a foundation-support, clips connected to the foundation-support for engaging and holding the safety cut-out at the metal end caps, electric connections from the

line to the metal end caps and a connection from the sleeve to the ground substantially as and for the purposes set forth.

10. The combination with the safety cut-out, the case therefor of insulating material and ends of conducting material, of a circularly-disposed layer of insulating material adjacent to one end, a foundation-support, clips connected to the foundation-support for engaging and holding the safety cut-out at the ends, electrical connections from the lines to the said ends of conducting material, and a metallic connection contacting with the surface of said circularly-disposed layer of insulating material and extending electrically to the ground, substantially as and for the purposes set forth.

11. The combination with the safety cut-out, the case therefor of insulating material and a metal end cap, of a sleeve of metal surrounding the case of insulating material and adjacent to the said end cap, a disk of metal formed with the end cap and another disk of metal formed with the said sleeve, the disks being adjacent to one another and in parallel planes, and a perforated disk of insulating material, such as mica, between the said disks and surrounding the case of insulating material, substantially as and for the purposes set forth.

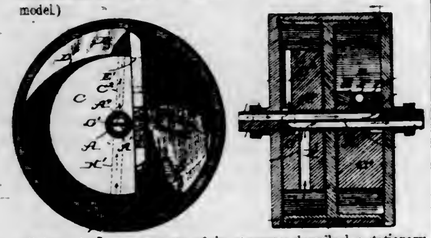
12. The combination with the safety cut-out, the case therefor of insulating material and metal end caps, of a sleeve of metal surrounding the case of insulating material and adjacent to one end cap, a disk of metal formed with the said end cap and another disk of metal formed with the said sleeve, the disks being adjacent to one another and in parallel planes, and a perforated disk of insulating material, such as mica, between the said disks and surrounding the case of insulating material, a foundation-support, clips connected to the foundation-support for engaging and holding the safety cut-out at the metal end caps, electric connections from the line to the metal end caps and a connection from the sleeve to ground, substantially as set forth.

13. The combination with a safety cut-out fuse, the holder therefor and circuit-terminals of conducting material, of a current-retarder connected to one terminal and to the fuse, and a metal body adjacent to one terminal, but electrically free therefrom, and a line from the same to ground, substantially as specified.

14. The combination with a safety cut-out fuse, the holder therefor and circuit-terminals of conducting material, of a choke-coil connected to one terminal and to the fuse and a metal body adjacent to one terminal, but electrically free therefrom, and a line from the same to ground, substantially as specified.

15. The combination with a safety cut-out fuse and the end metal circuit connections therefor, of a current-retarder connected in one line with the fuse and between the end metal circuit connections, and a metal body adjacent to one terminal but free therefrom, and a line from same to ground, substantially as set forth.

662,467. ROTARY-CYLINDER STEAM-ENGINE. GEORGE O. SANDERSON, Grant, Iowa. Filed Mar. 16, 1900. Serial No. 8,975. (No model.)

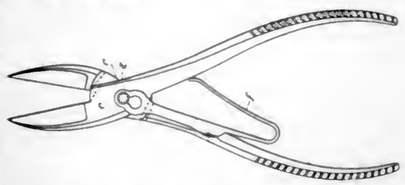


Claim.—1. In an apparatus of the character described, a stationary tubular shaft having a partition dividing it longitudinally and forming admission and exhaust passages opening at opposite ends of the shaft, the latter being further provided with admission and exhaust ports near each end communicating with said passages, chests fixedly held on said shaft and provided with opposite passages communicating with the ports in the shaft, and a cylinder rotatably mounted on said shaft, said cylinder being divided into compartments and having diametrically-arranged cut-offs, as set forth.

2. In an apparatus of the character described, a tubular shaft having a partition dividing it longitudinally into admission and exhaust passages and having ports communicating with said passages, the said passages opening at opposite ends of the shaft, a steam-chest fixedly held on said shaft near each end thereof and having passages registering with said ports, spring-pressed slidable pistons mounted on said chests, a cylinder divided into compartments rotatably mounted on said shaft and having inclined abutments adapted to ride over said piston, and a diametrically-arranged cut-off secured in each head of the cylinder, as set forth.

3. In an apparatus of the character described, the shaft, the chest fixedly held thereon, means for admitting and exhausting steam through the shaft and chest, a piston provided with an elongated slot through which a headed pin, secured to the chest, extends, and also provided with a recess in its rear end, a block secured to the chest and fitted in said recess, a spring located in the recess between the end wall of the same and the block, and a cylinder rotatably mounted on said shaft and having an abutment adapted to ride on said piston, as set forth.

662,468. COMBINED SEPARATING-SPRING AND LOCKING DEVICE FOR SHEARS OR THE LIKE. WILHELM SCHEERER, Tuttlingen, Germany, assignor to the Actien-Gesellschaft für Fein Mechanic, vormals Jetter & Scheerer, same place. Filed Jan. 13, 1900. Serial No. 1,377. (No model.)



Claim.—1. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separsting the handle portions of the members having an extension removably engaging one extremity of the pivot and thereby securing said members in the operative position.

2. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separating the handle portions of the members having an integral extension removably engaging one extremity of the pivot and thereby securing said members in the operative position.

3. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separating the handle portions of the members having an extension removably engaging one extremity of the pivot and thereby securing said members in the operative position, and means on said extension for retaining it in engagement with one of said handle portions of the members.

4. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separating the handle portions of the members having an extension containing an aperture at which portion the spring removably engages one extremity of the pivot and thereby secures said members in the operative position.

5. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separating the handle portions of the members having an extension containing a longitudinal slot at which portion the spring removably engages one extremity of the pivot and thereby secures said members in the operative position.

6. In an implement comprising a pair of pivoted members, the combination with said members, of a pivot secured to one of said members and projecting through the other member, said pivot having a head on its free extremity, a spring member for separating the handle portions of the said members having an extension containing a slot that has a wider part for admitting the head of said pivot and a narrower part at which portion the spring engages the said pivot and thereby removably secures the said members in the operative position.

7. In an implement comprising a pair of pivoted members, the combination with the said members and a pivot, of a spring member for separating the handle portions of the members having an extension removably engaging one extremity of the pivot and thereby securing said members in the operative position, said extension being transversely concave toward its contacting members at the pivotal part, thereby holding the members together with spring-pressure.

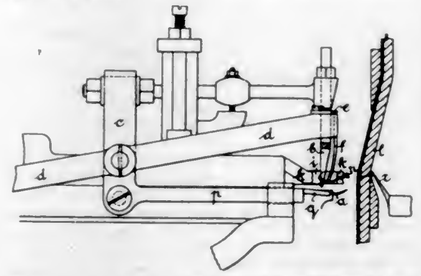
8. In an implement comprising a pair of pivoted members, the combination with said members and a pivot, of a U-shaped plate-spring member arranged between the handle portions of said members, one of the legs of said U-shaped spring being provided with an extension removably engaging one extremity of said pivot and thereby securing the members in operative position.

9. In an implement comprising a pair of pivoted members, the combination with said members and a pivot, of a U-shaped plate-spring member arranged between the handle portions of said members, said spring having one of its legs extended in a plane substantially at right angles with the leg the extension so formed being removably engaging one extremity of said pivot and thereby securing the members in operative position.

10. In an implement comprising a pair of pivoted members, the combination with said members and a pivot, of a U-shaped plate-spring member arranged between the handle portions of said members, said spring having one of its legs extended in a plane substantially at right angles with the leg, said extension removably engaging one extremity of said pivot and thereby securing the members in operative position, said extension being thereby retained in contact with the upper face of one of the handle portions of said members, the connected portion of the U-shaped member contacting with the inner face of said handle portion and the free extremity of said U-shaped member contacting with the inner face of the other said handle portion.

11. In an implement comprising a pair of pivoted members, the combination with said members and a pivot, of a U-shaped plate-spring member arranged between the handle portions of the members, said spring having one of its legs extended in a plane substantially at right angles with the leg, said extension removably engaging one extremity of said pivot and thereby securing the members in operative position, the said extension having a bent portion along the edge opposite to the free leg and in proximity to its connection with the U-shaped portion and being thereby retained in contact with one of said handle portions, the connected portion of the U-shaped member contacting with the inner face of said handle portion, and the free extremity of said U-shaped member contacting with the inner face of the other said handle portion of the members.

662,469. MACHINE FOR MAKING CARD-CLOTHING. LOUIS C. SCHNEIDER, Mittweida, Germany. Filed June 25, 1900. Serial No. 21,417. (No model.)



Claim.—1. In a machine for forming and inserting staples into the body of card-clothing, the combination of means for bending the rear portion of a completed staple out of the normal plane of the body portion thereof, staple-inserting means, and tooth-bending means, as set forth.

2. The combination with a curved piercing device *a* for piercing a curved hole in the body portion of a card-clothing, with means for bending the rear portion of a staple and for inserting the same in the body portion of the card-clothing.

3. The combination with wire severing and feeding devices, of staple-forming devices, means for bending the rear portion of the staple out of the normal plane of the staple, a staple-inserting device adapted to insert the said bent staple into the body portion of the card-clothing and means for bending the staple leg or legs to form a knee or knees.

4. In a machine for making card-clothing, the combination of means for laterally bending the rear portion of a staple out of the plane of the staple, means for maintaining the staple-points in position for entry into the card-clothing body portion, and means for inserting the staple into the said body portion.

5. In a machine for making card-clothing, the combination of means for forming the staple, means for laterally bending the rear portion of said staple out of the normal plane of the staple, means for inserting the said staple into the body portion of a card-clothing, and means for bending over the staple-points.

6. In a machine for making card-clothing, the combination of independently-moving staple grasping and bending means adapted to impart a lateral bend to the staple, means for effecting the insertion of the said staple into the body of card-clothing, and means for guiding the body portion into position to receive the staple.

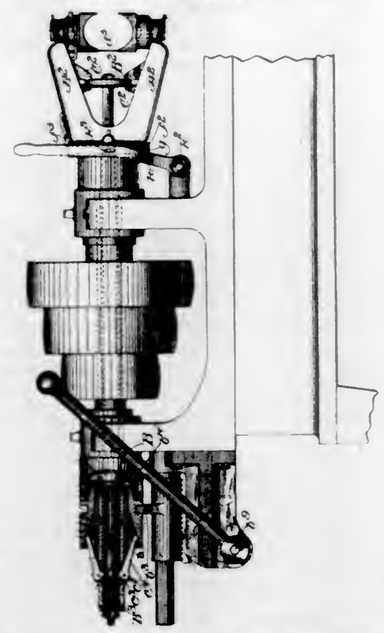
7. In a machine of the character described, the combination of staple forming and guiding jaws *k* combined with staple forming and grasping means *i*, *b*, a device *f* for laterally bending the rear portion of the staple, and means for producing a forward movement of the staple forming, grasping and bending devices to effect the insertion of the staple into the body portion of card-clothing.

8. In a machine for making card-clothing, the combination of means for imparting a lateral bend to a staple, means for maintaining the staple-points in position for entry into the body portion of the card-clothing, and automatic means for effecting the insertion of the staple into the said body portion and for removing the staple-point-maintaining means out of the way during the movement of the insertion of the staple.

9. In a machine of the character described, the combination of means for piercing curved holes, combined with staple-forming means and means for producing a lateral bend in the staple and staple-inserting means.

10. In a machine for making card-clothing the combination of staple-forming means, means for bending the rear portion of the staple laterally out of the normal plane of the staple, means for effecting the successive operation of the staple forming and bending means, and means for effecting the insertion of the staple by producing a forward movement of the staple-forming means.

662,470. CHUCK. WILLIAM SCOTT, Medford, Mass. Filed Mar 15, 1900. Serial No. 8,828. (No model.)



Claim.—1. The combination with the chuck members one of which is movable with relation to the other; of a main actuating device for the movable chuck member; and a supplemental actuating device adapted to be locked to the stationary chuck member at the end of a predetermined movement, said actuating devices together constituting variable locking means for connecting the supplemental actuating device with the movable chuck member after it has been locked to the stationary chuck member.

2. The combination with chuck members one of which is movable with relation to the other; of a main actuating device for the movable chuck member; a supplemental actuating device adapted to be locked to the stationary chuck member at the end of a predetermined movement; and means whereby said main and supplemental actuating devices and the movable chuck member are locked together in response to the pressure of the movable chuck member, substantially as described.

3. The combination with the movable and stationary chuck members; of a main actuating device for the movable chuck member; a supplemental actuating device; means for locking said supplemental actuating device to the stationary chuck member after said supplemental actuating device has been moved a predetermined distance; and compensating devices so arranged between said main and supplemental actuating devices and the movable chuck member that said parts are locked together in any of a number of predetermined relative positions in response to the pressure of the movable chuck member, but are capable of being unlocked in response to a movement of the main actuating member, as set forth.

4. The combination with the stationary and movable chuck members; of a main actuating device for the movable chuck member; a supplemental actuating device; said actuating devices constituting variable locking means for locking one chuck member to the other in any of a number of predetermined relative positions according to the pressure exerted by the movable chuck member; and means independent of said

actuating devices for adjusting the position of said movable chuck member with relation to the actuating device, as set forth.

5. The combination with the fixed and movable chuck members, of a main actuating device; a supplemental actuating device; one or more levers pivotally connected with said supplemental actuating device, the shorter arms of said levers engaging the movable chuck member and the longer arms of said levers engaging an inclined surface formed on said main actuating device whereby pressure upon the movable chuck member tends to force said levers into engagement with said inclined surface; retaining-notches for said levers formed on said inclined surface; and means for locking said supplemental actuating device to the stationary chuck member, as set forth.

6. The combination with the fixed and movable chuck members; of a main actuating device; a supplemental actuating device; one or more levers pivotally connected with said supplemental actuating device, one arm of the lever bearing against the movable chuck member substantially in line with the direction of movement thereof, and the other arm bearing against the main actuating member in a direction nearly transverse to the direction of movement thereof; and means for locking said supplemental actuating member to the fixed chuck member, as set forth.

7. The combination with the fixed and movable chuck members; of main and supplemental actuating devices for the movable member, the said actuating devices being capable of movement relative to each other; means for locking said supplemental actuating device to the stationary chuck member; and means for unlocking said supplemental actuating device in response to the relative movement aforesaid, as set forth.

8. The combination with the chuck members, one of which is movable with relation to the other; of main and supplemental actuating devices for closing the chuck; means for locking one of said actuating devices to one of the chuck members; and compensating devices for also locking said actuating devices to the other chuck member, the final locking position being determined by the relation between the resistance at the chuck-jaws and the pressure exerted upon the other actuating device.

9. The combination with the fixed and movable chuck members; of actuating mechanism for the movable chuck member comprising an outer sleeve provided with an operating-lever, said sleeve having an inclined inner surface; an inner sleeve, both of said sleeves surrounding the stationary chuck member and being longitudinally movable with relation thereto; a lever pivotally connected with said inner sleeve and bearing at one side of the fulcrum against the movable chuck member and at the other side of the fulcrum against the inclined inner surface of the other sleeve; and means for locking the inner sleeve to the stationary chuck member, as set forth.

10. In a chuck, the combination with a main actuator for the movable chuck member provided with an inclined surface having retaining-notches formed thereon; of a supplemental actuator provided with levers pivotally supported thereon and bearing at one end against said inclined surface and at the other end against a portion of the movable chuck member, said levers being so arranged that the wedging action of the inclined surface upon the levers will produce a movement of the movable chuck member relative to the supplemental actuator; and means for locking the supplemental actuator to the stationary chuck member, said locking means being operated by the main actuator, as set forth.

11. The combination with the movable chuck members; of a main actuator therefor provided with an operating device; a stationary chuck member; a supplemental actuator adapted to be locked to said stationary chuck member at the end of a predetermined movement of said supplemental actuator; and compensating levers arranged to coöperate with said actuators and said movable chuck member to lock the latter in variable positions relative to the stationary chuck member after the supplemental actuator has been locked to the stationary chuck member, as set forth.

12. The combination with chuck members mounted on a rotating shaft; of jaws rotatable with relation to said members; and means for rotating said jaws while the shaft is in motion, as set forth.

13. The combination with revolving chuck members; of chuck-jaws rotatable with relation thereto; and a non-rotatable actuating device for said jaws, as set forth.

14. The combination with revolving chuck members; of chuck-jaws rotatable with relation thereto; means for rotating said jaws by a step-by-step movement; and a non-rotatable actuator for said rotating means, as set forth.

15. In a chuck, the combination with revolving chuck members; of chuck-jaws rotatably connected with said members; a pawl carried by said revolving chuck members and adapted to coöperate with ratchet-teeth formed in one of said jaws; and a non-rotatable actuating device for operating the said pawl, substantially as described.

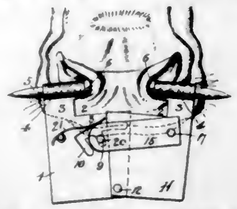
16. The combination with a rotatable chuck-jaw provided with ratchet-teeth; of a pawl-carrier rotatable therewith; a sleeve longitudinally movable with relation to the chuck and connected with said pawl-carrier to produce a reciprocating movement thereof; a non-rotatable collar to produce the longitudinal movement of said sleeve; and a lever coöperating with said collar, as set forth.

17. In a revolving chuck, the combination with a rotatable chuck-jaw provided with ratchet-teeth; of a pawl to coöperate with said teeth in producing the rotation of said jaw; a pawl-carrier surrounding said jaw and supported in the revolving chuck; a non-rotatable actuating device for said pawl-carrier; and a locking-stop coöperating with the jaw at the end of each operating movement of said pawl-carrier, as set forth.

18. The combination with a rotatable chuck-jaw; of a step-by-step rotating device therefor comprising a pawl carried by a reciprocating operating device; means for limiting the forward movement of said operating device; a locking-stop arranged to coöperate with the jaw at the end of each forward movement of said operating device; and means for unlocking the said stop in response to the rearward movement of said operating device, as set forth.

19. The combination with a revolving chuck member; of a chuck-jaw rotatable with relation to said member; a reciprocating operating device for said jaw connected with a sleeve longitudinally movable with relation to said chuck member but traveling therewith in its revolving movement, said sleeve being provided with an annular channel; a non-rotatable collar in said channel; and a lever having a stationary pivotal support and connected with said collar, as set forth.

662,471. **BLAB OR MUZZLE FOR WEANING CALVES OR COLTS, &c.** JOHN W. SRAY, Pidcoke, Tex., assignor of one-half to James A. Green, same place. Filed Apr. 19, 1900. Serial No. 13,435. (No model.)



Claim.—1. Two plates 1 and 11, hinged together at their inner corners and lower ends, and having recesses 2, extensions 3, and sleeves 4; plate 1, provided with an arched slot, and extending downwardly from said slot, recesses 9, 10; arms 14 and 15, hinged to plate 11, one on the front and the other on the rear face of said plate; bolt 20, working in said arch and recesses and having each end secured in the front ends of said arms; pins 5, provided with heads 6, and points 7, said pins, fitting in the sleeves 4, their heads resting against the inner ends of said sleeves and their points protruding beyond the outer ends of said sleeves, substantially as shown and described and for the purposes set forth.

2. Two plates 1 and 11, hinged together at their inner corners and lower ends, and having recesses 2, extensions 3, and sleeves 4; plate 1, provided with an arched slot, and extending downwardly from said slot, recesses 9, 10; arms 14 and 15, hinged to plate 11, one on the front and the other on the rear face of said plate; bolt 20, working in said arch and recesses and having each end secured in the front ends of said arms; a spring 21, holding said bolts in said recesses; pins 5, provided with heads 6, and points 7, said pins, fitting in the sleeves 4, their heads resting against the inner ends of said sleeves and their points protruding beyond the outer ends of said sleeves, substantially as shown and described and for the purposes set forth.

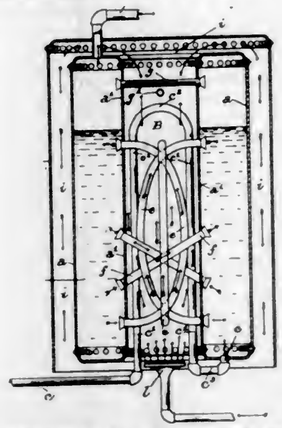
662,472. **STEAM-GENERATOR.** RICHARD M. SHAFFER, Baltimore, Md. Filed Mar. 1, 1900. Serial No. 6,912. (No model.)

Claim.—1. The combination in a steam-generator of an annular-shaped water-receptacle having a central passage; a plural number of tubes in said passage and communicating with the interior of said water-receptacle; and a shell surrounding the sides and top of said water-receptacle and covering the top of said central passage but open at the bottom.

2. The combination in a steam-generator of an annular-shaped water-receptacle having a central passage; a plural number of tubes, *e*, in said center passage and having their ends entered in the inner wall of said receptacle and curved outward toward the opposite side of said wall—said tubes overlapping each other at the center of said vertical passage; and a shell surrounding the sides and top of said water-receptacle and covering the top of said central passage but open at the bottom.

3. The combination of a generator having a central vertical passage; a plural number of tubes in said passage and entered in said generator; a shell surrounding the sides and covering the top and said central passage of said generator but open at the bottom; a water-supply pipe passing through said central passage before entering the generator.

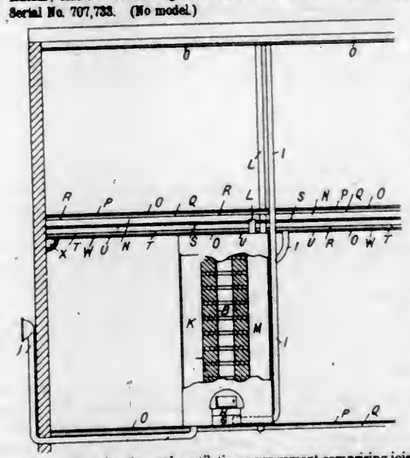
4. In a steam-generator, an annular or cylindrical water-receptacle having a central passage open at the top and bottom, and a shell surrounding the sides and top of said water-receptacle and being closed at its top and side and open at the bottom, the central passage of the water-receptacle being in communication with the interior of the shell.



5. In a steam-generator the combination with the water-receptacle provided with a central passage extending throughout its length and open at the top and bottom, a water-supply pipe passing upwardly and in a returned direction through said central passage and entering the water-receptacle at the bottom thereof, and a shell surrounding the top and sides of the water-receptacle, the central passage of the water-receptacle being in communication with said shell.

6. In a steam-generator, the combination of a cylindrical or annular water-receptacle provided with a passage extending therethrough, said passage being open at its top and bottom, a series of pipes extending in various directions across said passage and opening into the water-receptacle, a water-supply pipe extending into the said passage at the bottom thereof, up through the passage and in a returned direction down through the same and opening into the water-receptacle at the bottom thereof, and a shell surrounding the water-receptacle at the sides and top and provided with an open bottom.

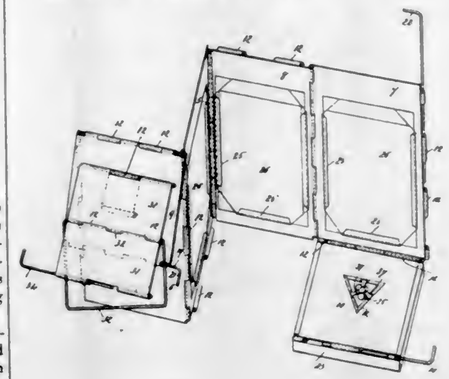
662,478. **VENTILATING AND HEATING APPARATUS.** ANDERS G. SÖDERLUND, Stockholm, Sweden, and FREDRIK W. LÖNNBECK, Ekenäs, Russia; said Söderlund assignor to said Lönnbeck. Filed Mar. 4, 1899. Serial No. 707,733. (No model.)



Claim.—1. A heating and ventilating arrangement comprising joists, a floor having openings, a ceiling having openings, a furnace, a furnace-flue, an air-heating apparatus having a flue with which the furnace-flue is connected, air-flues extending across the heating apparatus, a cold-air chamber located on one side of the heating apparatus, a hot-air chamber located on the other side of the heating apparatus, a foul-air room located beneath the furnace, a foul-air pipe connecting the space above the ceiling with the foul-air room, and a hot-air pipe connecting the hot-air chamber with the space beneath the floor.

2. A heating and ventilating arrangement comprising joists, a partition dividing the space between the joists, strips secured across the joists beneath and above the same, a ceiling having openings and secured to the lower strips, a floor having openings and secured to the upper strips, a furnace, a furnace-flue, an air-heating apparatus having a flue with which the furnace-flue is connected, air-flues extending across the heating apparatus, a cold-air chamber located on one side of the heating apparatus, a hot-air chamber located on the other side of the heating apparatus, a foul-air room located beneath the furnace, a foul-air pipe connecting the space beneath the partition with the foul-air room, and a hot-air pipe connecting the hot-air chamber with the space above the partition.

662,474. **COLLAPSIBLE LANTERN.** CHARLES H. STONEBRIDGE, New York, N. Y. Filed Mar. 3, 1900. Serial No. 7,165. (No model.)



Claim.—1. A collapsible lantern, comprising a plurality of pivotally-connected body members, two of which are detachably connected, a top member and a bottom member each pivotally connected to one of said body members, and means whereby the free edge of said top member and the free edge of said bottom member may each be detachably connected with one of said body members, and a storage-casing pivotally connected with one of said body members, and means for detachably connecting a free portion of said storage-casing with one of said body members, substantially as shown and described.

2. A collapsible lantern embodying a top member provided with a smoke-opening and a guard therefor, comprising a plurality of plates, one of which is pivotally connected with said top, and means for detachably connecting the other thereof with said top member, said guard-plates being pivotally connected together by means of a bail, substantially as shown and described.

3. In a collapsible lantern, a top member provided with a smoke-opening and with a continuous upturned flange surrounding said smoke-opening, said flange being formed into knuckles, and a collapsible guard comprising a plurality of pivotally-connected plates which are provided with knuckles through which knuckles and the knuckles into which said flange is formed, are passed pintles, substantially as shown and described.

4. In a collapsible lantern, a top member provided with a smoke-opening, said top member being formed into an upturned flange surrounding said smoke-opening, and a guard for said smoke-opening, comprising a plurality of loosely-connected plates, one of which is pivotally connected with said flange, and another of which is detachably connected with said flange, substantially as shown and described.

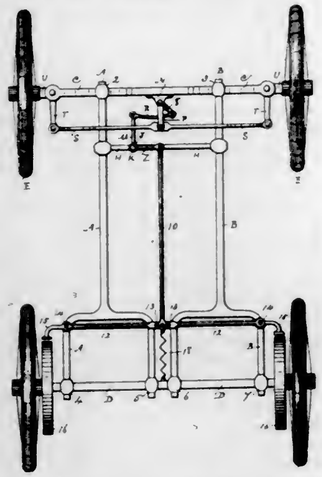
5. In a collapsible lantern, a top member provided with a smoke-opening, said top member being formed into an upturned flange surrounding said smoke-opening, and a guard for said smoke-opening, comprising a plurality of loosely-connected plates, one of which is pivotally connected with said flange, and another of which is detachably connected with said flange, and a bail which is connected with said plates, substantially as shown and described.

6. In a collapsible lantern, a body member provided with an aperture, and a plurality of socket-fingers pivoted thereto and surrounding said aperture, whereby said socket-fingers may be folded downwardly upon said bottom member, and whereby a candle or other similar device passed through said aperture will raise said socket-fingers and be maintained in upright position thereby, substantially as shown and described.

7. In a collapsible lantern, a candle-socket comprising a plate having a central aperture, and the edges whereof are formed into knuckles, surrounding said aperture, pintles turnably mounted in said knuckles, and socket-fingers connected with said pintles and arranged to be depressed or to be upwardly directed to form a socket whereby a candle may be supported, substantially as shown and described.

8. In a collapsible lantern, a top member provided with a smoke-opening and with a continuous upturned flange surrounding said smoke-opening, and a collapsible guard, comprising a plurality of pivotally-connected plates which are connected with said upturned flange, substantially as shown and described.

662,475. **STEERING AND BRAKE DEVICE FOR AUTOMOBILE CARRIAGES.** ARTHUR STRICKLAND, Hamilton, Canada. Filed Mar. 1, 1900. Serial No. 5,961. (No model.)

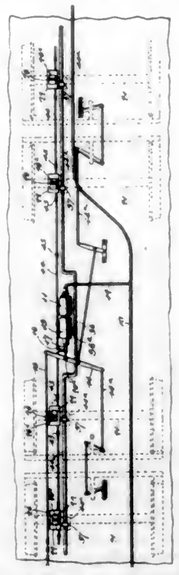


Claim.—1. The combination of a transverse bar secured to the framework of an automobile carriage, a vertical sleeve with inner steering-rod supported on said bar, a split bushing in the floor of the carriage for said sleeve, the steering-rod connected to arms T, by mechanism comprising transverse rods pivoted to said arms T, and to a crank pivoted to the front axle, an arm secured to the lower part of the vertical rod and a curved rod connecting said arm and crank by means of a lower side extension of said crank, for the purpose set forth.

2. The combination of a transverse bar secured to the framework of an automobile carriage, a vertical sleeve with inner steering-rod supported by said bar, a lower lever forming a part of the sleeve, transverse brake-rods pivoted at the outer parts of the rear part of said framework, rearwardly-curved ends as brakes to engage with the peripheries of the internal gear-wheels of the rear ground-wheels of the carriage, a rod connecting said lower lever to said transverse rods, slots in said rods to form said connection and to allow the rods to brake, a split bushing in the floor of the carriage for said sleeve and a foot-brake forming a part of the sleeve above the floor of the carriage, for the purpose set forth.

3. In an automobile carriage the steering and braking mechanism comprising a vertical rod with suitable handle, a vertical sleeve for said rod, the rod and sleeve capable of rotating independently and supported on a transverse bar of the metallic frame of the carriage and through a bushing in the carriage-floor, a forwardly-extending arm secured to the lower end of the rod, a rearwardly-extending crank pivoted to the front stationary axle, a rod pivoted to said arm and the other end of said rod pivotally connected to a lower side extension of said crank, transverse rods pivotally connected to the rearwardly-extending end of said crank, the outer ends of said rods pivotally connected to the projecting arms of the pivotally-connected hubs of the front wheels, combination with an upper foot-brake and a lower lever projecting from said sleeve, transverse rods pivotally connected to said frame, the outer ends of said rods curved to engage as brakes with the periphery of the internal gear-wheels connected to the rear ground-wheels, inner ends of said rods slotted and connected to the rear end of a central rod, the forward end of said rod pivotally connected to the lower lever of said sleeve and a spiral tension-spring connected to the rear end of said rod and to the rear axle of the carriage to disengage the brakes, as described.

662,476. **AUTOMATIC PRESSURE-RELIEF MECHANISM FOR RAILWAY AIR-BRAKES.** SAMUEL L. TERRY, Chicago, Ill., assignor of twelve twenty-fifths to J. W. Mastin, Denver, Colo., and George C. Mastin, Oak Park, Ill. Filed Oct. 4, 1899. Serial No. 732,529. (No model.)



Claim.—1. In a fluid-pressure railway-brake, the combination with a brake mechanism, of a relief-valve communicating with an element of said brake mechanism, a trip mechanism driven by a car-axle to normally assume an inoperative position relative to the relief-valve mechanism, and means controlled by the brake mechanism to position an element of the relief-valve in the path of said trip mechanism, said trip mechanism being actuated automatically on the stoppage of the car-axle to open the relief-valve, substantially as described.

2. In a fluid-pressure railway-brake, the combination of a brake mechanism, a relief-valve mechanism communicating with an element of the brake mechanism, an axle-actuated trip mechanism, and devices, connected to and operated by the brake mechanism, in operative relation to said relief-valve and in the path of an element of the trip mechanism, for actuation thereby, and to operate the relief-valve on the stoppage of the car-axle, substantially as described.

3. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination with a brake mechanism, of a relief-valve communicating with an element of the brake mechanism, an axle-actuated trip mechanism normally held by the rotation of the axle in an inoperative position with relation to the valve and adapted to, under certain conditions, assume its operative position without affecting the relief-valve, and mechanism controlled by the brake to interpose an element of the relief-valve in active relation to the trip mechanism, substantially as described.

4. In a fluid-pressure-actuated brake system for railway-trains, the combination of a pressure-relief pipe connected with a pressure-chamber of the brake apparatus, a series of relief-valves for said relief-pipe, said valves having movable operating elements, a series of axle-actuated independent trip mechanisms normally carried by the rotation of the car-axles out of operative relation to said relief-valve-operating elements and adapted, when said axles cease to rotate, to actuate said relief-valve-operating elements, and means, operated by the brake mechanism, at the period of initial movement thereof, to move said relief-valve-operating elements into position for operation by said axle-actuated trip mechanisms, substantially as described.

5. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination of a relief-valve to lessen pressure on a brake mechanism, a trip mechanism normally held by the rotative action of an axle free from said relief-valve, and means actuated by the brake mechanism and at the period of the application of the brake-shoes to move an element of the relief-valve in position for engagement by the trip mechanism, substantially as described.

6. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination of a normally-closed pressure-relief valve having a movable element, a trip mechanism controlled by the rotative action of a car-axle, and a valve-positioning device engaging with the movable element of the relief-valve and connected with a part of the brake mechanism to preliminarily position said element of the relief-valve in the path of the trip mechanism at the period of the application of the brake, substantially as described.

7. In a fluid-pressure-actuated brake system for railway-trains, the combination with a pressure-relief pipe connected with a pressure-chamber of the brake apparatus, of a series of relief-valves for said relief-pipe, said valves having operating-levers, of a series of independent trip mechanisms driven by the train-axles, said trip mechanisms being carried by the rotation of the train-axles out of operative relation to the said relief-valve levers, and adapted when said axles cease to rotate, to automatically operate said relief-valve levers, and means connected to the brake mechanism, and operative at the period of initial movement of the brake mechanism, to move said relief-valve levers into position for operation by said trip mechanism, substantially as described.

8. In an automatic pressure-relief mechanism for fluid-actuated brakes, a trip mechanism having a counterpoised movable trip geared to a car-axle and capable of an independent travel in a path around said axle on stoppage thereof, in combination with a relief-valve in communication with a pressure-chamber of a brake, and valve-positioning mechanism controlled by a part of the brake, to be interposed in the path of, and actuated automatically by said counterpoised trip as it moves independently of the car-axle, substantially as described.

9. In a fluid-pressure railway-brake, a trip mechanism comprising a casing loosely supported on the car-axle, a counterpoised trip guided in said casing to travel around the axle, and gearing between said trip and the axle for holding the trip in a raised position on the rotation of the axle and permitting said trip to drop on stoppage of the axle, in combination with a relief-valve in communication with an element of the brake mechanism, and means actuated by the application of the brake to position a part of the valve in the path of the trip mechanism, substantially as described.

10. In an automatic pressure-relief mechanism for fluid-actuated brakes, a trip mechanism comprising a counterpoised trip, means for guiding said trip to travel in a path concentric with the car-axle, and gearing between the trip and said axle, in combination with a relief-valve in communication with a pressure-chamber of the brake, and valve-positioning devices, substantially as described.

11. In an automatic pressure-relief mechanism for fluid-actuated brakes, a trip mechanism comprising a casing having a guideway, a counterpoised trip arranged to travel in said guideway and having a spindle, and gearing between said spindle and a car-axle, in combination with a relief-valve, and valve-positioning devices, substantially as described.

12. In an automatic pressure-relief mechanism for fluid-actuated brakes, a trip mechanism comprising a casing mounted loosely on an axle, a retainer connected to the casing and guided slidably on a part of a car-truck, and a counterpoised trip geared to an axle, in combination with a relief-valve, and valve-positioning devices, substantially as described.

13. In an automatic pressure-relief mechanism for fluid-actuated brakes, a relief-valve in communication with a pressure-chamber of a brake and having a jointed arm, combined with brake-actuated mechanism for moving an element of said arm at the period of the application of the brake mechanism, and a wheel-actuated trip mechanism driven from the car-axle to normally assume an inoperative position during the application of the brake and movable automatically on the stoppage of a car-axle to engage the valve-arm and open said relief-valve, as set forth.

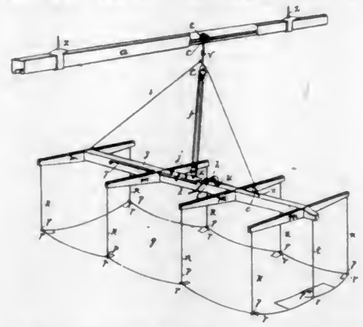
14. In an automatic pressure-relief mechanism for fluid-actuated brakes, a relief-valve in communication with a pressure-chamber of a brake, and a jointed brake-lever in active relation to said valve and having a movable arm held by a retractor out of the path of the trip mechanism, in combination with means actuated by a brake to position the valve-arm at the period of application of said brake, and a wheel-actuated trip mechanism, substantially as described.

15. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination with a brake-cylinder and its piston, of a valve-actuating rod connected and movable with said piston, a frictionally-held cam on said rod, a relief-valve having a yieldable arm in the path of said cam, and an axle-actuated trip mechanism, substantially as described.

16. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination with a piston of a brake-cylinder, of a valve-actuating rod connected operatively with said piston and movable endwise thereby, substantially at the period of the application of the brake mechanism, a normally-closed relief-valve in communication with the pressure-chamber of said brake, a cam engaged frictionally with said rod and movable a limited distance therewith and disposed in active relation with said relief-valve, and wheel-actuated trip mechanism, substantially as described.

17. In an automatic pressure-relief mechanism for fluid-actuated brakes, the combination of a valve-actuating rod connected operatively with an element of the brake mechanism, a normally closed relief-valve in communication with the pressure-chamber of said brake and provided with a yieldable arm, a cam having frictional engagement with said rod and arranged to actuate the yieldable arm without opening the relief-valve, means for limiting the travel of said cam with the valve-rod, and a wheel-actuated trip mechanism arranged to open the relief-valve on the arrestation of an axle, substantially as described.

662,477. **LIFTING DEVICE FOR INVALIDS.** CHARLES B. ULRICH, Duluth, Minn. Filed Nov. 17, 1899. Serial No. 737,290. (No model.)



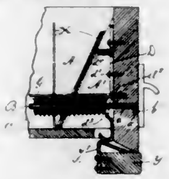
Claim.—1. In a lifting device, the combination of a support, a lifting-bar, a series of cross-arms engaged therewith, a pulley carried by said support, a pulley *j* attached to the lifting-bar, a guide-pulley *o* attached to the lifting-bar, a rope or cable engaged with said pulleys, a rotatable drum having a fixed engagement with said lifting-bar and connected with said rope, a pawl to hold the drum in normal position, gear to operate said drum, depending devices connected with the outer ends of the cross-arms, and a canvas or blanket engaged with said devices.

2. In combination, a support, a pulley connected with said support, a lifting-bar, a drum upon said bar, pulleys engaged with said bar on opposite sides of the drum, a rope passing over said pulleys and drum, means to rotate said drum to raise and lower the lifting-bar, depending cords suspended from the extremities of the cross-arms, and passing from extremity to extremity of the cross-arms, a canvas or blanket connected with said cords, and a depending cord suspended from the lower end of the lifting-bar to engage with the lower end of the canvas or blanket intermediate its lateral edges, substantially as described.

3. In a lifting device, a support, a lifting-bar, means connecting said bar with said support to raise and lower said bar, a series of cross-arms engaged with the lifting-bar, depending cords connected with the extremities of the cross-arms, a canvass or blanket provided with an elongated slit toward one end thereof engageable with said cords, and a cord connected with the lower extremity of the lifter-bar and with said canvas intermediate its edges and adjacent to said slit, substantially as described.

4. In a lifting device, the combination of a support, a lifting-bar provided with a series of cross-arms engaged therewith, a rotatable drum having a fixed engagement with said lifting-bar, pulleys on either side of said drum engaged with the lifting-bar, a pulley connected with the support, a rope or cable connecting said pulleys and said drum, a pawl to hold the drum in given position, gear to operate said drum, depending devices connected with the outer end of said cross-arms, a canvas or blanket engaged with said devices, and a device engaged with the pulley connected with said support and with one extremity of the lifter-bar to hold said bar from tilting.

662,478. **CARD-BOX.** GEORGE W. WEAVER, Rochester, N. Y. Filed May 15, 1899. Serial No. 716,857. (No model.)



Claim.—1. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than the said slot but smaller than said per-

foration, supporting apparatus narrower than said slot for said card-retainers, and means for holding said series of retainers in a fixed position.

2. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, a rod apparatus narrower than said slot for said card-retainers, and means for holding said series of retainers in a fixed position on said rod apparatus.

3. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations for supporting said beads, said rod being of less width than said slot, and means for holding said series of beads in a fixed position on said rod.

4. In a card-box, a drawer, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, a supporting apparatus narrower than said slot for said card-retainers, means for holding said series of retainers in a fixed position, and means for automatically operating said means for holding said card-retainers.

5. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations for supporting said beads, said rod being of less width than said slot, means for holding said series of beads in a fixed position, and means for automatically operating said means for holding said beads.

6. In a card-box, a drawer, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, supporting apparatus narrower than said slot for said card-retainers, means for holding said series of retainers in a fixed position, and means for automatically operating said means for holding said card-retainers.

7. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, each having a face extending to its edge adapted to fit closely against the side of the adjacent bead to the edge thereof, a rod passing through all the perforations for supporting said beads, said rod being of less width than said slot, and means for holding said series of beads in a fixed position on said rod.

8. In a card-box, a drawer, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated disks, each having a face extending to its edge adapted to fit closely against the side of the adjacent retainer to the edge thereof, a rod passing through all the perforations for supporting said disks, said rod being of less width than said slot, means for holding said series of disks in a fixed position on said rod, and means for automatically operating said means for holding said card-retainers.

9. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, a supporting apparatus narrower than said slot for said card-retainers, and a wedging device for compressing and holding said retainers closely together.

10. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the cards, a series of independently-movable card-retainers each wider than said slot but smaller than said perforations, a rod apparatus narrower than said slot for said card-retainers, and a wedging device for compressing and holding said retainers closely together on said rod apparatus.

11. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations for supporting said beads, said rod being of less width than said slot, and a wedging device for compressing and holding said beads closely together on said rod.

12. In a card-box, a drawer, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, supporting apparatus narrower than said slot for said card-retainers, means for holding said series of retainers in a fixed position, means for automatically operating said means for holding said card-retainers, and a wedging device for compressing and holding said retainers closely together.

13. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations, for supporting said beads, said rod being of less width than said slot, and a wedging device for compressing and holding said beads closely together on said rod.

14. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforations, a supporting apparatus for said retainers narrower than said slot and a wedging device for compressing and holding said retainers closely together on said rod.

15. In a card-box, a casing, a rod held longitudinally in said casing, and a series of beads strung on said rod, and a series of slotted cards adapted to be retained in said casing by said beads and rod.

16. In a card-box, the casing, the parallel rods held in said casing and the series of beads supported by said rods, and a series of slotted cards adapted to be retained in said casing by said beads and rods.

17. In a card-box, the casing A, the rod B, held longitudinally in the casing, the series of disks C strung on said rod, and the wedging device D on the inner side of the end of the casing and adapted to compress and hold the disks closely together.

18. In a card-box, the casing A, the rod B held longitudinally in the casing, the series of disks C strung on said rod, the wedging device D on the inner side of the end of the casing and adapted to compress and hold the disks closely together, and the sliding block A^3 provided with means for engaging between disks of said series.

19. In a card-box, the casing A, the rod B, held longitudinally in the casing, the series of disks C strung on said rod, the wedging device D on the inner side of the casing and adapted to compress and hold the disks closely together, the sliding block A^3 provided with means for engaging between disks of said series, and a supplementary device for increasing the available range of movement of the disks on the rod.

20. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of beads each having a perforation intersecting the edge of the bead and another perforation, two rods passing through the perforations, for supporting and guiding the beads, said rods being each of less width than said slot, and means for holding said series of beads in a fixed position with reference to said rods.

21. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, supporting apparatus narrower than said slot for said card-retainers, and means for limiting the movement of said retainers.

22. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of independently-movable card-retainers each wider than said slot but smaller than said perforation, a rod apparatus narrower than said slot for said card-retainers, and means for limiting the movement of said retainers.

23. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations for supporting said beads, said rods being of less width than said slot, and means for limiting the movement of said beads on said rod.

24. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, each having a face extending to its edge adapted to fit closely against the side of the adjacent bead to the edge thereof, a rod passing through all the perforations for supporting said beads, said rod being of less width than said slot, and means for limiting the movement of said beads on said rod.

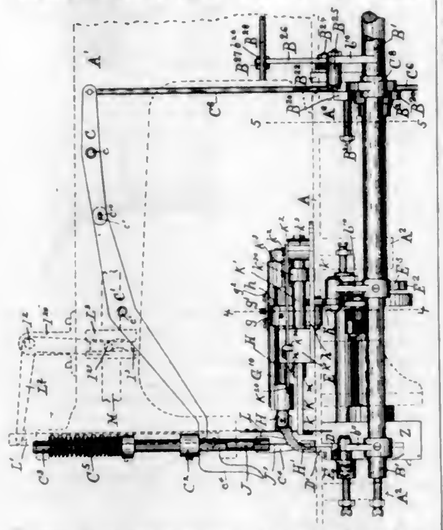
25. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of beads each having a perforation intersecting the edge of the bead and another perforation, two rods passing through the perforations, for supporting and guiding the beads, said rods being each of less width than said slot, and means for limiting the movement of said beads with reference to said rods.

26. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of perforated beads, a rod passing through all the perforations for supporting said beads, said rods being of less width than said slot, means for limiting the movement of said beads on said rod, and a supplementary device for increasing the range of movement of the beads with reference to said rod.

27. In a card-box, a casing, a series of cards each having a perforation and a slot narrower than the width of the perforation and extending therefrom to the edge of the card, a series of beads each having a perforation intersecting the edge of the bead and another perforation, two rods passing through the perforations, for supporting and guiding the beads, said rods being each of less width than said slot, means for limiting the movement of said beads with reference to said rods, and a supplementary device for increasing the range of movement of the beads with reference to said rods.

662,479. FEEDING MECHANISM FOR SEWING-MACHINES.

STILLMAN A. WEST, Rochester, N. Y., assignor to the Union Welt Insole Company. Filed Feb. 28, 1898. Serial No. 672,008. (No model.)



Claim.—1. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; and an upper feed mechanism comprising a rock-shaft above the level of the work-plate, and an upper feed-dog on said rock-shaft oscillating in an arc whose plane is substantially vertical, and a vertically-swinging frame for vibrating said rock-shaft to and from the lower feed mechanism substantially as described.

2. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; and an upper feed mechanism comprising a rock-shaft above the level of the work-plate, and an upper feed-dog on said rock-shaft oscillating in an arc whose plane is substantially vertical, and a vertically-swinging frame for vibrating said rock-shaft to and from the lower feed mechanism; and a spring connection between said frame and said rock-shaft adapted to permit the rock-shaft to tilt in order to adapt the position of the upper feed-dog automatically to different thicknesses of work substantially as described.

3. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; an upper feed mechanism having corresponding motions and comprising a swinging frame mounted on a suitable axis, a rock-shaft supported by said frame and carrying the upper feed-dog, an arm loosely mounted on the axis of the frame and connected to the operating mechanism, and a spring secured to the frame and exerting a pressure upon the arm substantially as described.

4. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; an upper feed mechanism having corresponding motions and comprising a swinging frame mounted on a suitable axis, a rock-shaft supported by said frame and carrying the upper feed-dog, an arm loosely mounted on the axis of the frame, formed at its inner end with a lug or shoulder, and connected at its outer end with the operating mechanism, a set-screw passing through the frame and engaged by the shoulder, and an elastic connection between the frame and the outer end of the arm substantially as described.

5. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; and an upper feed mechanism comprising a vertically-swinging frame having a yielding resistance, and an upper feed-dog supported by said frame and having an independent horizontal motion substantially as described.

6. In a sewing-machine, a lower feed mechanism having both a vertical and a horizontal motion; and an upper feed mechanism comprising a swinging frame, an upper feed-dog supported by said frame and having an independent horizontal motion, and means for varying the extent of therefrom to the edge of the card, a series of beads each having a perforation intersecting the edge of the bead and another perforation, two rods passing through the perforations, for supporting and guiding the beads, said rods being each of less width than said slot, means for limiting the movement of said beads with reference to said rods, and a supplementary device for increasing the range of movement of the beads with reference to said rods.

7. In a sewing-machine, a feed mechanism; and an adjustable cross-feed guide mechanism for the work operated upon, comprising the longitudinally-movable guide-bar K', the spring-lever K^2 extending substantially in the same direction as the bar K', and connected to said guide-bar, the notched holder-bar K^{2c}, and means upon said lever for engaging the notches of said bar, whereby the lever is held in different positions as desired substantially as described.

8. In a sewing-machine, an adjustable cross-feed mechanism comprising a plate against which the edge of the work is guided, a movable rod carrying said plate, a stationary notched bar, an operating hand-lever of resilient material and normally pressed against said bar, a projection on said lever for engaging the notches of the bar, and a link connecting one arm of the lever with the rod substantially as described.

662,480. AUTOMATIC CIRCUIT-CONTROLLER.

GEORGE H. WHITTINGHAM, Baltimore, Md. Filed Mar. 19, 1900. Serial No. 9,206. (No model.)

Claim.—1. The combination with a circuit-controller of two shunt-circuits around the same, a cut-out in each shunt, one of which is operated by the circuit-controller, substantially as described.

2. The combination with a circuit-controller of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, substantially as described.

3. The combination with a circuit-controller of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, one of the latter being operated by the circuit-controller.

4. The combination with a circuit-controller, of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, and a gage adapted to operate one cut-out in each shunt-circuit, substantially as described.

5. The combination with a circuit-controller, of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, and a gage adapted to operate successively one cut-out in each shunt-circuit, substantially as described.

6. The combination with a circuit-controller, of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, a gage adapted to operate one cut-out in each shunt-circuit and means for predetermining the interval between the operations of said cut-outs, substantially as described.

7. The combination with a circuit-controller, of two shunt-circuits around the same, one shunt-circuit containing one cut-out and the other containing two cut-outs, one of the latter being operated by the circuit-controller, a gage adapted to operate one cut-out in each shunt-circuit and

means for predetermining the interval between the operation of said cut-outs, substantially as described.

8. The combination with a circuit-controller, of a pressure-gage whose movable element is a curved tube, two arms hinged at one end to the free end of said tube, and at the other adapted to control respectively two circuits shunting said circuit-controller, and means for altering the angular relation of the arms, substantially as described.

662,481. MANUFACTURE OF MANTLES. OSCAR WIEDERHOLD, East Orange, N. J. Filed Jan. 20, 1900. Serial No. 2,224. (No specimens.)

Claim.—1. As a new and useful article of manufacture, a mantle comprising in its structure a refractory oxid having an affinity for oxygen, and a substance associated therewith capable of combining with oxygen to prevent further oxidation of the oxid, whereby shrinkage of the mantle is prevented, substantially as described.

2. As a new and useful article of manufacture, a mantle comprising in its structure a refractory-oxid and free carbon for preventing further oxidation of the oxid.

3. As a new and useful article of manufacture a mantle composed of thoria and free carbon.

4. As a new and useful article of manufacture an incandescible mantle composed of a suitable support, a refractory oxid and a highly-reducible material, substantially as described to prevent injurious oxidation of the mantle during the burning-off process.

5. As a new and useful article of manufacture, a flexible mantle composed of a flexible support, a refractory oxid and a material containing loosely-bound carbon having great affinity for oxygen, the said mantle being non-shrinkable by burning off.

6. As a new and useful article of manufacture, a flexible mantle composed of a flexible-collodion support, a refractory oxid and free carbon.

7. A new and useful composition of matter for impregnating mantles consisting of a refractory oxid and a carbonaceous material containing loosely-bound carbon capable of protecting the oxid from injurious oxidation.

662,482. CONDIMENT-HOLDER. JOHN B. WILLIAMSON, Louisville, Ky. Filed Jan. 27, 1900. Serial No. 3,008. (No model.)



Claim.—1. A condiment-holder comprising two receptacles, perforated lids or covers for said receptacles, a lever having a portion pivoted between and supported by said receptacles and a plate carried by said lever and adapted to be moved to cover one or the other of said perforated lids or covers.

2. A condiment-holder comprising two receptacles secured together, perforated lids or covers on said receptacles, a lever having a horizontal portion pivotally mounted between and supported by the receptacles, and a plate carried by said lever and adapted to close one or the other of said perforated lids or covers.

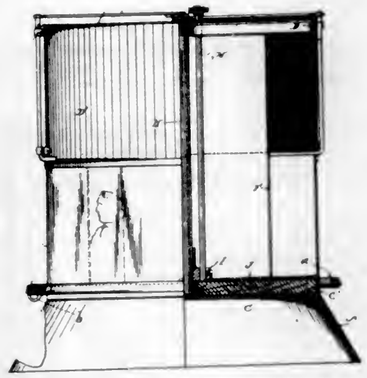
3. A condiment-holder comprising two receptacles secured together, a perforated lid or cover for each receptacle, a lever pivotally supported at one end between said receptacles, a plate approximately the size of one lid or cover and a sleeve on said plate pivotally mounted on the lever and a guide between said receptacles for guiding the plate from one lid or cover to the other.

4. A condiment-holder comprising two receptacles having flattened adjacent faces and provided each with a recess in its flat face, a projection on each receptacle to fit into the recess in the other receptacle, a lever pivotally mounted in said flattened faces, a plate or cover for the receptacles loosely attached to said lever and an endless band surrounding both of said receptacles and securing them together.

5. A condiment-holder comprising two united receptacles having flat abutting faces, said faces having transverse grooves or recesses, a lever mounted in said grooves, a cover for the receptacles loosely attached to said lever and means for preventing displacement of said lever.

662,483. PICTURE-HOLDER. EDWARD YOUNG, Jeffersonville, Ohio. Filed Aug. 1, 1899. Serial No. 725,752. (No model.)

Claim.—1. In a picture-holder, the combination with a base having a shaft or standard mounted thereon, a casing rotatably mounted upon said standard and having a substantially annular opaque portion and a substantially annular transparent portion, a picture-cylinder within said casing, means for supporting said picture-cylinder within the opaque portion of said casing and for releasing said picture-cylinder and for presenting it into view within the transparent portion of said casing.



2. In a picture-holder, the combination with a base having a fixed standard or shaft extending therefrom, of a pair of casings, one of which is transparent and the other of which is opaque, mounted on said standard, concentric cylinders mounted therein, a suitable support for holding said concentric cylinders within said opaque casing and for disengaging from said cylinders one at a time so that such disengaged cylinder may be presented to view.

3. In a picture-holder, the combination with a base having a shaft or standard projecting therefrom, of a casing rotatably mounted thereon, picture-cylinders mounted in said casing concentric to each other, and means to present one of said cylinders to view at a time, substantially as shown and described.

4. In a picture-holder, the combination with a base having a standard or shaft projecting therefrom, of a pair of casings rotatably mounted on said standard, one of which fits over the end of the other and one being opaque while the other is transparent, picture-cylinders mounted within said casings concentrically disposed to each other, means for holding said cylinders separated from each other and for holding pictures, means consisting of a lever, a pair of crank-rods and connecting-rods for engaging with said cylinders to hold them within said opaque casing and for disengaging from one of said cylinders at a time, whereby said released cylinder may present itself to view within said transparent casing, and an elevating-frame for removing all of said cylinders within said opaque casing where they may again be engaged by said holding mechanism, all substantially as shown and described.

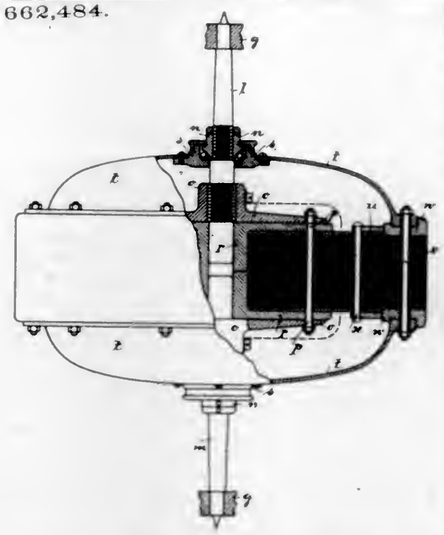
5. In a picture-holder, the combination with a base having a standard or shaft extending therefrom, of a pair of casings or cylinders one of which is transparent and the other of which is opaque, rotatably mounted on said standard, a longitudinally-slotted cylinder within said casings, picture-cylinders concentrically mounted about said cylinder, means for holding said concentric cylinders separated from each other and for also holding pictures in place upon them, an elevating-frame slidably mounted on said shaft, a rod connecting with said frame and adapted to move in said casings, said elevating-frame having arms or projections extending through the slots in said inner cylinder and extending beneath all of said concentric picture-cylinders, whereby they are moved from the transparent casing to the opaque casing, and means for holding said picture-cylinders in such position and for releasing one of said picture-cylinders at a time, all substantially as shown and described.

662,484. ELECTRIC TOP FOR GYROSCOPES. EMIL ZIEHL, Berlin, Germany. Filed Dec. 26, 1899. Serial No. 741,685. (No model.)

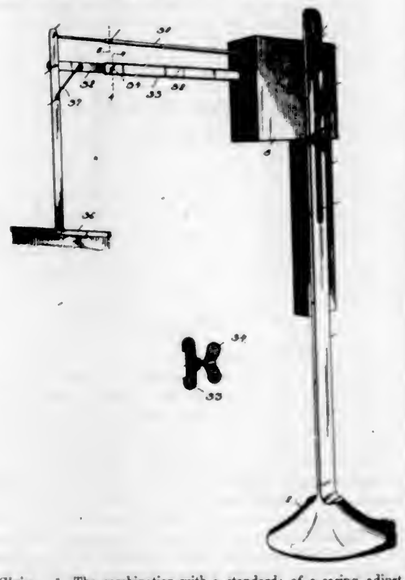
Claim.—1. An improved electric top comprising the axle, the bearings therefor, the rotary body carried by the axle and arranged to turn about the same and an inducing-body mounted on the axle, while said rotary body acts as induced part, the friction at the bearings of the shaft being greater than at the bearings between the shaft and rotary body.

2. In combination with a gyroscope having rings, an electric top having its axle-bearing in one of the rings and comprising the rotary body carried by the axle and arranged to turn about the same and an inducing-body mounted on the axle, while said rotary body acts as induced part, substantially as shown and described.

662,484.



662,485. FAN, &c. EUGENE E. ALEXANDER, Porterfield, Tenn. Filed May 18, 1900. Serial No. 17,141. (No model.)

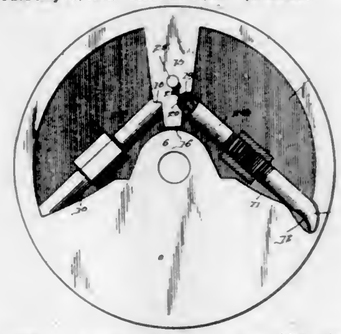


Claim.—1. The combination with a standard; of a casing adjustably secured thereto; an arm projecting therefrom; a strip adjustably secured within the arm; a rocking beam pivoted thereto; a drum journaled within the casing; a weighted cord thereon; an escapement-wheel; a gear between, and engaging with, said drum and escapement-wheel; a spring-controlled balance-wheel; an arm to the escapement engaging said wheel; a second arm thereto; and an extensible pitman pivoted to the said arm and to the rocking beam.

2. The combination with a slotted standard; of a casing; bolts extending therefrom and through the slot; means upon said bolts for clamping the casing to the standard; an arm extending from the casing; a strip slidably mounted thereto; a beam pivoted to the strip; means for rocking said beam against movement upon its pivot; a drum journaled within the casing; a weighted cord upon the drum; an escapement-wheel within the casing; a gear between and engaging with said drum and the escapement-wheel; a spring-controlled balance-wheel within the casing; a pin thereon; an escapement; a forked arm thereto engaging the pin; a second arm thereto; and an extensible pitman connecting said arm and the end of the rocking beam.

3. The combination with a slotted standard; of a casing; bolts projecting from the casing and adjustably secured within the slots; an arm projecting from the casing; a rocking beam adjustably secured to the arm; an escapement-wheel journaled within the casing; a drum; a weighted cord upon the drum; means for imparting motion from the drum to the escapement-wheel; an escapement; an arm thereto; a forked end to the arm; a pitman connecting the arm and the rocking lever; a balance-wheel; and a pin thereon engaged by said fork.

662,486. CRANK-WHEEL. FRANK BENJAMIN, Mildred, Minn. Filed May 29, 1900. Serial No. 18,432. (No model.)



Claim.—1. A crank-wheel for engines comprising a rim, a web extending inwardly of the rim from one edge thereof and having a lesser thickness than the rim, a counterbalance-weight within the inclosure of the rim, and an arm extending inwardly from and radially of the rim at a point diametrically opposite to the weight and separated from the hub and web by slight interspaces, said arm having an outwardly-directed wrist-pin adjacent to its free end, and all of the parts being formed integral.

2. A crank-wheel for engines comprising a web and a rim, the web extending inwardly from one edge of the rim, a counterbalancing-weight within the inclosure of the rim and lying wholly upon one side of the diameter of the rim, sockets being formed in the angles between the sides of the weight and the inner face of the rim, an arm extending inwardly and radially from the rim at its inner face and having a reduced inner end resulting in the formation of shoulders, sockets being formed at the inner ends of the shoulders, screw-jacks engaged with the corresponding sockets, and a wrist upon the outer face of the arm, the rim, the web, the weight and the arm being formed integral.

662,487. INVALID-BED. WILLIAM H. DONALDSON, Chicago, Ill. Filed May 24, 1900. Serial No. 17,860. (No model.)

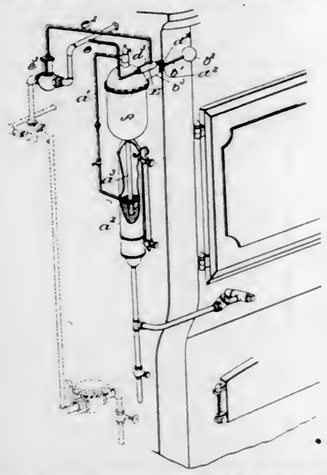


Claim.—1. A device of the class described comprising a frame designed to be placed on an ordinary bedstead and adapted to be supported by the slats thereof and composed of upper and lower sections, a flexible

mattress, hinges connecting the sections of the frame, corner-plates secured to one of the sections of the frame and provided with projecting flanges to overlap the joints, and having vertical guides, curved ratchets secured to the other section of the frame, and locking-pins mounted in the guides and engaging the curved ratchets, substantially as described.

2. A device of the class described comprising a frame designed to be placed on an ordinary bedstead and adapted to be supported by the slats thereof and having hinged sections connected at their upper edges, a plate secured to one of the sections and provided with a projecting guide or housing, a curved ratchet secured to the other section and provided at its outer end with a projecting lug arranged to engage the guide or housing, said ratchet being also provided at its inner face with recesses, and a vertically-movable locking-pin mounted in the guide or housing and engaging the recesses, substantially as described.

662,488. WATER-REGULATOR. LOUIS B. FULTON, Pittsburg, Pa., assignor to the Chaplin-Fulton Manufacturing Company, same place. Filed Nov. 6, 1897. Serial No. 657,631. (No model.)



Claim.—1. The combination with a casing, a water-pipe leading from the lower end of said casing and a fluid-supply pipe opening into the top of said casing, of a lever fulcrumed on said casing and having a displacement-body located within the latter, a pressure-valve, a pressure-pipe leading to said pressure-valve, and a controller-valve in the pressure-pipe normally held unseated and allowing the pressure to act on the pressure-valve, said controller-valve being seated to cut off pressure to the pressure-valve when the displacement-body is lowered within the casing.

2. The combination with the casing having water and fluid pipes opening, respectively, into the lower and upper ends thereof, a lever fulcrumed on said casing and having a finger projecting therefrom, a weight on said lever, a displacement-body carried by the lever and located within the casing, a controller-valve mounted in juxtaposition to the casing and having a projecting portion with which the finger is designed to engage, a pressure-valve, the seating or unseating of which is regulated by the controller-valve, and a pressure-pipe in which the latter valve is located, said pressure-pipe being connected to the pressure-valve, substantially as set forth.

3. The combination with the casing having water and fluid pipes opening, respectively, into the lower and upper ends thereof, a lever fulcrumed on said casing, one arm of said lever being within, and the other arm without, said casing, a lateral projection carried by said inner arm to which said outer arm is secured, a weight on said outer arm, a displacement-body carried by said inner arm, a pressure-valve, a pressure-pipe leading thereto, and a sliding controller-valve located in said pressure-pipe in juxtaposition to said casing, said lever being designed to engage and seat said controller-valve, substantially as set forth.

4. The combination with the casing having a lower water-pipe and an upper fluid-pipe, a lever-arm located within said casing, a fulcrum pivot-rod for said arm mounted within said casing and projecting at one end through said casing, an outer lever-arm fast on said pivot-rod, a weight on said outer lever-arm, a displacement-body carried by said inner arm, a finger carried by said outer arm, a pressure-valve, a pressure-pipe leading thereto, and a sliding controller-valve in said pressure-pipe having a projection designed to be engaged by said finger, substantially as set forth.

5. The combination with the casing having water and fluid pipes opening therein, a lever mounted in said casing having an arm outside of the latter, a displacement-body carried by said lever and located within said casing, a finger carried by said outer arm, a pressure-valve, a pressure-pipe leading thereto, a valve-casing mounted in said pressure-pipe and having inlet and outlet ports, and a sliding controller-valve located in the last-mentioned casing for controlling the ports thereof and having a projection designed to be engaged by said finger, substantially as set forth.

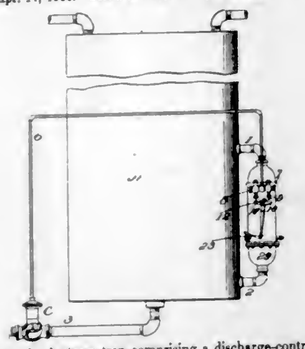
6. The controller-valve herein described comprising a casing having inlet and exhaust ports at opposite ends, a valve in said casing having lugs for closing said ports, and flanges adjoining said lugs formed with ports, substanitally as set forth.

7. The combination with the casing, a fluid-pipe opening into the upper end of said casing, and a water-pipe leading from a lower point of said casing, of a displacement-body and lever, a finger carried by the latter, a pressure-pipe, a valve at the end thereof, a controller-valve in said pipe having reduced ends, apertured flanges adjoining said ends, a casing for said valve having inlet and exhaust ports at its opposite ends, and a projection extending from said valve designed to be engaged by said finger, substantially as set forth.

8. The combination with a trap-casing, and water and fluid pipes, of a valve adapted to be positively seated and unseated by pressures acting in opposite directions, and means, operated by the water in said trap-casing, for directly controlling one pressure medium, as set forth.

9. The combination with a trap-casing, of a pressure-valve in a pipe leading from such casing, the seating of said valve being effected by pressure against its under side, a diaphragm to which such valve is connected, a pressure-pipe opening at one end adjacent to the diaphragm, and means for admitting pressure against the latter to effect the positive unseating of the pressure-valve, substantially as set forth.

662,489. STEAM-TRAP. LOUIS B. FULTON, Pittsburg, Pa., assignor to the Chaplin-Fulton Manufacturing Company, same place. Filed Apr. 17, 1900. Serial No. 13,177. (No model.)



Claim.—1. A steam-trap comprising a discharge-controlling valve capable of being positively unseated by the discharge-pressure, a pressure-pipe through which pressure is admitted to seat such valve as against the discharge-pressure, controlling means for positively exhausting and restoring pressure in the pressure-pipe, means actuated by the water-levels in the trap, and means, primarily operated by the last-mentioned means, having a movement independent thereof for periodically and positively operating said controlling means.

2. A steam-trap comprising a casing, a float therein, a discharge-controlling valve capable of being positively unseated by the discharge-pressure, a pipe for supplying pressure to seat such valve as against the discharge-pressure, means for alternately cutting off and restoring pressure in such pipe, and means, having a movement independent of but primarily actuated by said float, for positively operating the former means, as set forth.

3. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, means for positively cutting off and restoring pressure in such pipe, means primarily moved by the float for operating the pressure-controlling means, and auxiliary means for positively moving said float-operated means independently of the float, substantially as set forth.

4. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, means for cutting off and restoring pressure in such pipe, means for operating the latter means comprising a toggle primarily moved by the float, and means for positively moving and holding such toggle, as set forth

5. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, two valves, one for admitting, and the other for relieving, pressure in such pipe, and means for alternately operating said valves, as set forth.

6. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, two valves, one for admitting and the other for relieving pressure in such pipe, and means for alternately operating said valves comprising a toggle adapted to be primarily moved by the float, and means for positively moving and holding such toggle, as set forth.

7. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, two valves, normally held seated by pressure, one for admitting and the other for relieving pressure in such pipe, a lever for alternately positively unseating said valves, and a connection between said lever and float, as set forth.

8. A steam-trap comprising a casing, a float therein, a discharge-controlling valve capable of being positively unseated by the discharge-pressure, a pipe for supplying pressure to seat such valve as against the discharge-pressure, valve mechanism for alternately admitting and relieving pressure in such pipe, a lever for positively operating such valve mechanism, and means actuated by but having a movement independent of said float for operating said lever, as set forth.

9. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, valve mechanism for admitting and relieving pressure in such pipe, a lever for operating such valve mechanism, and means actuated by said float for operating said lever, comprising a toggle adapted to be primarily moved by the float, and means for positively moving and holding such toggle, as set forth.

10. A steam-trap comprising a casing, a float therein, a discharge-controlling valve, a pipe for supplying pressure to seat such valve, two valves, one for admitting and the other for relieving pressure in such pipe, a lever for alternately engaging said latter valves, and means for operating said lever comprising a toggle adapted to be moved by the float, and means for positively moving and holding such toggle, as set forth.

11. The combination with the casing and the valve-controlling mechanism, of the float in said casing, the toggle primarily moved by such float, and means for accelerating the final movements of and holding said toggle, as set forth.

12. The combination with the casing and the valve-controlling mechanism, of a float located in said casing, the toggle primarily moved by such float, and a spring for accelerating the final movements of and holding the toggle, as set forth.

13. The combination with the casing and the valve-controlling mechanism, of a float located in said casing, the toggle primarily moved by such float, a spring acting on the toggle, for accelerating the final movements of and holding the latter, and means for regulating the tension of such spring, substantially as set forth.

14. The combination with the casing and the pressure-controlling-valve mechanism, of a lever for operating such valve mechanism, the float within the casing, a toggle actuated by the float, a shaft to which the toggle is connected, and a connection between such shaft and the lever substantially as set forth.

15. The combination with the casing and the pressure-controlling-valve mechanism, of a lever for operating such valve mechanism, a float within the casing, a toggle actuated by the float, a shaft to which the toggle is connected, an arm on said shaft, and a link connecting said arm to said lever, substantially as set forth.

16. The combination with a chamber for receiving water of condensation, of a discharge-controlling valve designed to be automatically unseated by such water, of a trap having steam and water connections with such chamber, a pressure-pipe leading from said trap to and above said valve, valve mechanism for cutting off and restoring pressure in such pipe, a float operated by the water-levels in said trap, and means actuated by said float for operating said valve mechanism, substantially as set forth.

17. The combination with a chamber for receiving water of condensation, having an outlet-pipe, of a valve fitted in said pipe designed to be unseated by the water, a diaphragm, a pressure-pipe opening adjacent to such diaphragm for admitting pressure to positively seat said valve, a trap having steam and water connections with said chamber and to which the pressure-pipe is connected, valve mechanism for cutting off and restoring pressure in such pressure-pipe, a float operated by the water-levels in the trap, and means actuated by such float for operating said valve mechanism, substantially as set forth.

662,490. GAS-PROOF BUNG-HOLE STAVE WITH METAL LINING. FRANZ X. MAYER, Munich, Germany. Filed June 2, 1900. Serial No. 18,872. (No model.)

Claim.—In a bipartite bung-hole stave with a connecting metallic lining and a bush with bung-hole at said lining, the combination with the stave parts *a a* and the bush *s*, of parallel feathers *c c* forming lateral projections of said bush, and grooves *d d* provided in the adjacent straight grain-crossed parts of the stave halves *a a* and adapted to receive said feathers, substantially as described.



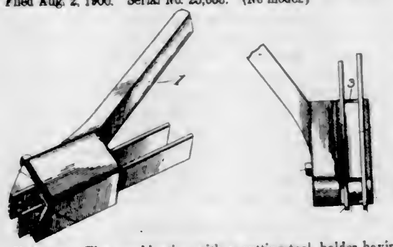
662,491. PORTABLE ELECTRICAL DEVICE. JOHN S. MEAD, Buffalo, N. Y., assignor of one-half to William Comerford, same place. Filed Jan. 30, 1900. Renewed Oct. 24, 1900. Serial No. 34,233. (No model.)



Claim.—1. An electrical, hand appliance, comprising a battery-case, a conical or tapering cap for closing said case at one end, adapted to receive an instrument-stock and electrically connect the same with the case, an insulator-disk located within said cap, a yielding contact-arm mounted on said disk in electrical connection with the battery and adapted to contact with a contact-terminal of the stock, and a push-button located within the tapering side of said cap, substantially as described and for the purpose set forth.

2. An electrical, hand appliance, comprising a battery-case, a conical or tapering cap for closing said case at one end, adapted to receive an instrument-stock and electrically connect the same with the case, an insulator-disk located within said cap, a yielding contact-arm mounted on said disk and having substantially the incline of the tapering side of the cap, the same being in electrical connection with the battery, and a push-button held between said contact-arm and cap, and operating within an opening in the tapering portion of said cap, substantially as described and for the purpose set forth.

662,492. CUTTING-TOOL. CHARLES P. MINGST, Evansville, Ind. Filed Aug. 2, 1900. Serial No. 25,633. (No model.)



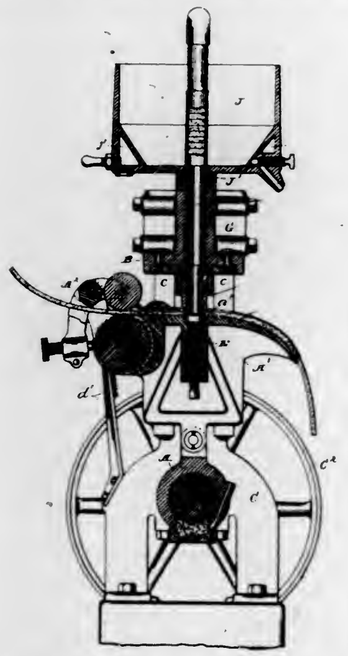
Claim.—1. The combination with a cutting-tool holder having a head provided with an opening, of a spacing-block in said opening and adapted for lateral movement therein, cutting-blades located in the open-

ing and on opposite sides of the spacing-block, and a clamping device for urging the blades and block laterally against one side of the opening and holding them there.

2. The combination with a cutting-tool holder having a head provided with an opening which has one side slanting from top to bottom, of cutting-blades having slanting sides, a spacing-block located between said blades in the opening and having slanting sides, and a clamping-screw for securing said blades and blocks.

3. The herein-described tool, comprising a holder having an opening which has one side slanting, cutting-blades tapered from their top to their bottom edges, one of which is located against the slanting side aforesaid, a spacing-block interposed between said blades and having its sides converging upwardly at the same angle as the sides of the blades against which it abuts, and a clamping-screw disposed substantially at right angles to said blades and block and adapted to secure them in the holder, said holder and block having their front ends slanting or inclined.

662,493. **WAD PUNCHING AND LUBRICATING DEVICE.** WILLIAM L. MORRIS, Cleveland, Ohio, assignor to the Austin Cartridge Company, same place. Filed Dec. 9, 1899. Serial No. 739,739. (No model.)



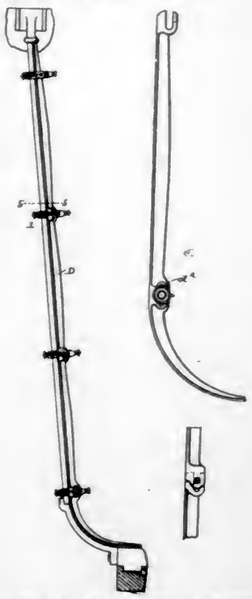
Claim.—1. The combination with a wad-punch, comprising a stationary and a reciprocable member, a tubular cutter secured to said stationary member, and a wad-conducting tube having communication with said hollow cutter, of a lubricant-reservoir, said tube passing through said reservoir and having lateral communication therewith, substantially as set forth.

2. The combination of a wad-punch comprising a lower reciprocable and an upper stationary member, the latter consisting of a hollow cutter, a wad-conducting tube having its bore in continuation of that of said plunger and a lubricant-reservoir, said tube passing through and having lateral communication with said reservoir, substantially as set forth.

3. The combination of a wad-punch comprising a lower reciprocable and an upper stationary member, the latter consisting of a hollow cutter, a wad-conducting tube having its bore in continuation of that of said cutter, and a lubricant-reservoir, said tube passing through said reservoir and provided with a helical opening communicating with the interior of said reservoir, substantially as set forth.

662,494. **WAD-CHUTE.** WILLIAM L. MORRIS, Cleveland, Ohio, assignor to the Austin Cartridge Company, same place. Filed Jan. 9, 1900. Serial No. 341. (No model.)

Claim.—1. The combination of a grooved guide, a wall composed of a plurality of sections, and brackets secured to and longitudinally adjustable upon said guide, supporting said wall opposite the groove in said guide, and provided with means for moving said wall toward and from said groove, substantially as set forth.



2. The combination of a grooved guide, a wall composed of a plurality of sections, a bracket for supporting contiguous ends of sections of said wall and longitudinally adjustable upon said guide, said bracket provided with a portion movable toward and from said groove and with means for securing said movable portion in a fixed position relatively to said guide, said wall supported by said movable portion, substantially as set forth

3. The combination of a groved guide, a wall composed of a plurality of sections, a bracket for supporting contiguous ends of sections of said wall and longitudinally adjustable upon said guide, said bracket provided with a cross-head, a double-end screw and nuts for actuating said cross-head, said contiguous ends supported by said cross-head, substantially as set forth.

4. A wad-chute consisting of the combination of a grooved guide, a movable wall of a width less than that of the groove in said guide, and means for adjusting said wall toward or from said groove, substantially as set forth.

5. A wad-chute consisting of the combination of a grooved guide, a bracket secured to said guide, a movable wall of a width less than that of the groove in said guide and supported by said bracket, the latter provided with means for adjusting said wall toward or from said guide, substantially as set forth.

6. A wad-chute comprising a grooved guide and a movable wall consisting of a plurality of separable sections, said wall being adjustable toward or from said guide, whereby the depth of the wad-race may be varied, substantially as set forth.

7. A wad-chute comprising a grooved guide and a movable wall consisting of a plurality of separable sections of a width less than that of the wad-race, said sections being adjustable toward and from said guide, whereby the depth of the wad-race may be varied, substantially as set forth.

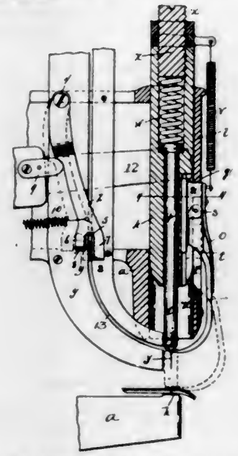
8. A wad-chute comprising a grooved guide and a movable bar forming one wall of the wad-race and consisting of a plurality of separable sections, contiguous ends of such sections being supported by a bracket, each of which is provided with means for adjusting the section end supported thereby toward and from the opposite race-wall, substantially as set forth.

9. A wad chute consisting of the combination with a wad-guide of a bar consisting of a plurality of sections, contiguous section ends being supported upon a bracket, that portion of the bracket supporting said ends being adjustably movable toward and from said guide, whereby the depth of the wad-race may be varied, substantially as set forth.

10. A wad-chute consisting of the combination of a grooved wad-guide, brackets secured to said guide, and a bar consisting of a plurality of sections, each bracket provided with movable portion and means for adjustably fixing same, the section ends being respectively supported upon one such portion, substantially as set forth.

11. A wad-chute consisting of the combination of a grooved wad-guide, brackets secured to said guide, and a bar consisting of a plurality of sections, each bracket provided with a movable cross-head and a threaded bolt secured to said cross-head having two set-nuts adapted to engage the bracket whereby said cross-head may be moved and its position fixed, each end of each bar-section secured to one such cross-head whereby said bar may be adjusted relatively to said wad-guide, substantially as set forth.

662,495. **STAPLE-SETTING MACHINE.** ROBERT MCKAY and FRANK R. WELTON, Detroit, Mich., assignors to the McKenney Button Fastening Company, same place. Filed Dec. 18, 1899. Serial No. 740,722. (No model.)



Claim.—1. In a fastener-setting machine, the combination with a case, of a reciprocatory plunger, a vertically-reciprocatory die-spindle and its die, a rotatable shaft, means to actuate the die-spindle operated by said shaft, an oscillatory fastener-holding device carried downward by the descent of said plunger to hold the fastener under the die, and means to lift said holding device, said fastener-holding device being oscillatory at right angles to said shaft, said fastener-holding device and said case provided with adjacent beveled faces to force said device outward when said spindle descends, and means to retract said device to normal position.

2. In a fastener-setting machine, the combination with a case, of a reciprocatory plunger engaged in said case, a die-spindle and its die carried by said plunger, a fastener-holding device to support a fastener under the die, a vertically-reciprocatory block with which said holding device is pivotally engaged and arranged to be depressed by the downward movement of the plunger, means to move the holding device out of normal position as the die-spindle descends, means to retract said device, and means to reverse the movement of said block when the spindle ascends, said block projecting through said case to carry the lower end of the fastener-holder device outside the case, said plunger having a free movement upward after the block has reached the limit of its upward movement.

3. In a fastener-setting machine, the combination with a reciprocatory die-spindle and its die, of a plunger carrying said spindle, a case about said plunger provided with an elongated opening, a block engaged in said plunger and actuated by the descent of the plunger, an arm to support a fastener under the die connected with said block, means to swing the arm out of normal position, means to retract said arm when the plunger rises, said block projecting through said case to carry the lower end of the fastener-holder device outside the case, and means to lift said block to the upper limit of said opening, said plunger having a free movement upward after the block has reached the limit of its upward movement.

4. In a fastener-setting machine for setting a two-pronged fastening, the combination with a fastener-runway provided with a channel, of an oscillatory fastener-dropper fulcrumed at its upper end, said dropper arranged to oscillate laterally and being vertically immovable at one side of said channel and having its lower end adjacent to the channel of the runway and means to laterally oscillate said dropper, the lower end of said dropper provided with flanges on opposite sides of said channel the one above the other, the upper flange of said dropper constructed and arranged upon the movement of the dropper in one direction to engage between the lower fastener and the next fastener thereabove and separate said fasteners, the lower flange arranged to drop a single fastening at a time on the opposite movement of the dropper.

5. In a fastener-setting machine for setting a two-pronged fastening, the combination with a fastener-runway provided with a channel, of an oscillatory fastener-dropper fulcrumed at its upper end, said dropper arranged to oscillate laterally and being vertically immovable at one side of said channel and having its lower end adjacent to the channel of said runway, the lower end of said dropper provided with flanges on opposite sides of said channel the one above the other and means to laterally oscillate said dropper, the upper flange constructed and arranged on the movement of the dropper in one direction to separate a single fastening toward the base of the runway and drop it to the lower flange upon one movement of the dropper, and the lower flange arranged to give a further drop to said fastening upon the opposite movement of said dropper.

6. In a fastener-setting machine for setting a two-pronged fastening, the combination with a fastener-runway provided with a channel, of a fastener-dropper fulcrumed at its upper end at one side of said channel and having its lower end adjacent to the channel of the runway, said dropper arranged to oscillate laterally and being vertically immovable, the lower end of said dropper provided with flanges on opposite sides of said channel the one above the other, means to swing said dropper in one direction whereby the upper flange will separate a single fastening at a time from the runway, and means to swing said dropper in the opposite direction to release a single fastening at a time from the lower flange.

7. In a fastener-setting machine, the combination of a fastener-runway provided with a channel, a die-spindle, means to actuate said spindle, a laterally-oscillatory fastener-dropper fulcrumed at its upper end at one side of said channel, and means to oscillate said dropper, the lower end of said dropper formed with two adjacent forks the one projecting below the other and located on opposite sides of said channel, and provided with an intervening recess, said forks provided at their lower ends with flanges projecting toward the runway.

8. In a fastener-setting machine, the combination with a fastener-runway, of a laterally-oscillatory fastener-dropper fulcrumed at its upper end at one side of said channel, the lower end of said dropper formed with two adjacent forks the one projecting below the other and located on opposite sides of said channel, and provided with an intervening recess, said forks provided at their lower ends with flanges projecting toward the runway, the upper flange upon the movement of the dropper in one direction arranged to engage between the lower fastening and the fastening next above, and the lower flange of the dropper arranged to engage the head of the lower fastener in the runway and hold it in position until the return movement of the dropper.

9. In a fastener-setting machine having a die-spindle and a fastener-runway provided with a channel, the combination of a lever to actuate the spindle, and a laterally-oscillatory fastener-dropper fulcrumed at its upper end at one side of said channel, the lower end of said dropper formed with two adjacent forks the one projecting below the other and located on opposite sides of said channel, and provided with an intervening recess, said forks provided at their lower ends with flanges projecting toward the runway, said dropper actuated in one direction by said lever, and means to retract said dropper.

10. In a fastener-setting machine, the combination with a support, provided with a case, of a recessed plunger reciprocatory in said case, a die-spindle carried by the plunger, a block projecting through the case and engaged in the recess of the plunger and depressed by the descent of the plunger, a fastener-holding arm pivotally engaged to said block, means to force said arm out of normal position, means to retract said block, and means to retract said arm, said plunger having a free movement upward after the block has reached the limit of its upward movement.

11. In a fastener-setting machine, the combination with a support, of a plunger, a die-spindle and its die carried by the plunger, a block depressed by the descent of the plunger, means to retract said block, an oscillatory fastener-holding arm pivotally engaged with said block, means to force the arm out of normal position as the spindle descends, and means to retract the arm, said arm forced downward by contact of said plunger with said block, and by further contact of the die-spindle with a fastener supported upon said arm, said plunger having a free movement upward after the block has reached the limit of its upward movement.

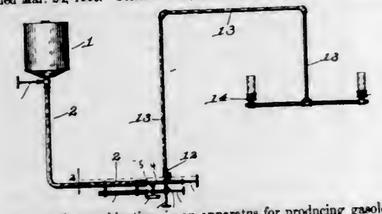
12. In a fastener-setting implement, the combination with a support provided with a slotted case, of a recessed plunger, a die-spindle carried by said plunger, a sliding block engaged in the recess of the plunger and projecting through the slotted case, an oscillatory arm engaged with said block, means to force the arm out of normal position upon the descent of the plunger, means to retract the arm, and means to raise the block to the upper limit of the slot in said case when the plunger rises.

13. In a fastener-setting machine, the combination with a support provided with a case, of a plunger reciprocatory in said case, an oscilla-

tory lever to actuate the plunger, a die-spindle, a sliding block intermediate of the ends of the plunger actuated by the descent of the plunger, means to retract said block, an oscillatory fastener-holding arm pivotally engaged at its upper end with said block and actuated by the descent of the spindle, means to retract said arm, means to move the lower end of the arm out of normal position, and means to restore said arm to normal position.

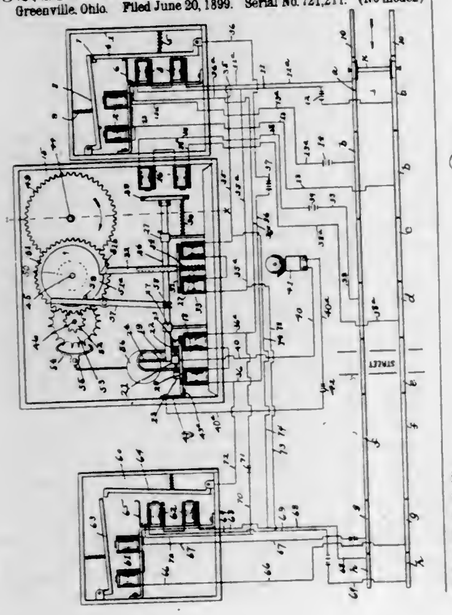
14. In a fastener-setting machine, the combination with a support, of a reciprocatory die-spindle, a lever to actuate said spindle, a fastener-runway, a laterally-oscillatory fastener-dropper fulcrumed at its upper end at one side of said channel, the lower end of said dropper formed with two adjacent forks the one projecting below the other and located on opposite sides of said channel, and provided with an intervening recess, said forks provided at their lower ends with flanges projecting toward the runway, said dropper actuated by the lever in one direction, a spring to actuate said dropper in the opposite direction, the upper flange of said forks arranged to engage between the lower fastener and the fastener thereabove, the lower flange arranged to engage the lower fastener and to release the lower fastener on opposite movements of the dropper.

662,496. CARBURETER. JOSEPH C. PEDEN, New Albany, Ind., assignor to the Aladdin Incandescent Gas Light Company, same place. Filed Mar. 24, 1900. Serial No. 10,038. (No model.)



Claim.—The combination, in an apparatus for producing gasolene-gas, of a reservoir, a pipe leading therefrom having a horizontal portion, a burner arranged beneath said horizontal portion, a branch extending from said pipe beyond said burner and provided with a pan on its lower end, a valve in said pipe the point of which is arranged opposite the open end of said burner, a second branch beyond the first containing a regulating-valve, a shut-off valve arranged to open and close the orifice leading to said branch, a mixer arranged directly above the point of the regulating-valve, and a pipe leading therefrom to the point of consumption.

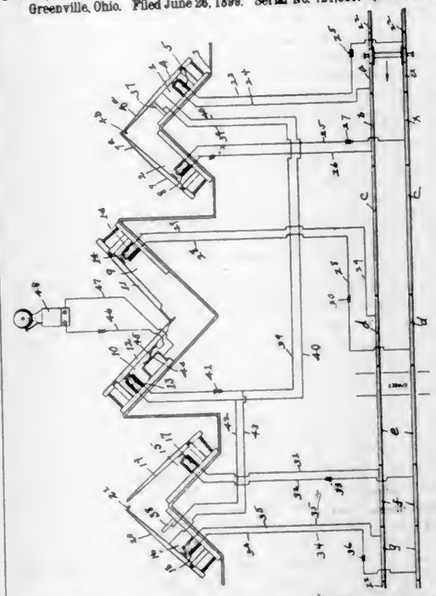
662,497. RAILWAY-CROSSING SIGNAL. NICHOLAS RATCHFORD, Greenville, Ohio. Filed June 20, 1899. Serial No. 721,211. (No model.)



Claim.—1. In a crossing-signal, the combination with a trackway having insulated oppositely-located sections on opposite sides of a street-crossing, of two sets of magnets 2 and 3 supported at right angles with each other on one side of the crossing and two similarly-arranged sets on the other side, a spring-actuated armature-bar for each set of magnets, one of said armatures being provided with a laterally-projecting end portion which is adapted when the remaining armature is down to engage the same and hold it in contact with its magnets and which is adapted when drawn inward to extend within the path of the remaining armature-bar and prevent the latter being closed against its magnets, thus preventing the complete simultaneous operation of both, wires connecting adjacent track-sections with each set of said magnets, an electric bell, magnets 18 and an armature-bar 20 therefor, wires 40 and 40ª connecting said bell respectively with said armature-bar 20 and a contact-plate 43 with which said armature-bar is adapted to contact when in contact with its magnets and wires connecting said magnets 18 with one pair of each set of said magnets 2 3 and 61 62 whereby the ringing of the bell is dependent on the complete operation of the armature-bar of said pair of magnets, substantially as specified.

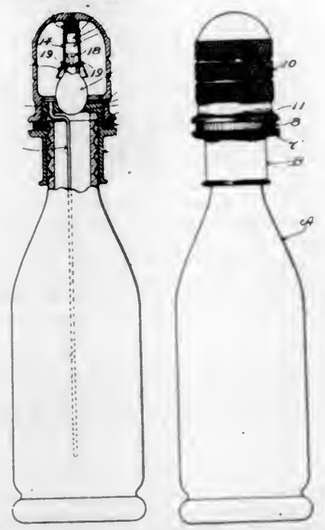
2. In a crossing-signal, the combination with a trackway having a plurality of insulated sections on opposite sides of a crossing, magnet pairs 16, 17 and 18, said magnets 16 being connected through wires with the track-sections which adjoin the street-crossing and said magnets 17 and 18 being similarly connected with those track-sections which are farthest away from the crossing, spring actuated armature-bars 20 and 31 for the magnets 17 and 18, a sliding spring-actuated latch-bar adapted to be attracted by the magnet 16 and normally extending in the path of the armature 20, a catch-arm 32 for the armature 31 and an electric alarm-bell adapted to ring when the armature 20 is in an operated position, of a train of automatically-operated gears and shafts, a disk on one of the latter having a peripheral notch and a pin projecting eccentrically from said disk, said armature-arm 32 adapted to normally engage said disk-notch, a lever fulcrumed so as to extend on one side of the center of the disk, said lever having a loose connection with said latch-bar 26 and said latch-bar adapted to be drawn out of the path of said armature 20 only when a current is established through the magnet 16, substantially as specified.

662,498. RAILWAY-CROSSING SIGNAL. NICHOLAS RATCHFORD, Greenville, Ohio. Filed June 26, 1899. Serial No. 721,869. (No model.)



Claim.—In a crossing-signal, the combination with a trackway having insulated rail-sections on opposite sides of a street-crossing, of an electric alarm-bell, pairs of electrical instruments 1 2 and 15 16, the instruments of each pair having extended armature-bars and so situated with relation to each other that the depression of one armature-bar of each pair prevents the depression of the other bar of that pair through engagement of their end portions, a pair of electrical instruments 9 and 10, the armature-bar of said instrument 9 adapted to contact with and retain the armature-bar of the instrument 10 in a closed position, wires connecting the magnets of the instruments 1, 2 15 and 16 with separate insulated track-rail sections, wires 39 and 40 connecting the armature-bar 4 and a contact-post of the instrument 1 with the magnet of the instrument 10, wires 28 and 29 connecting one of said track-sections adjacent to the street-crossing with the magnet 14 and wires 42, 43 connecting the armature-bar 20 and a contact-post of the instrument 16 with the wires 39 and 40 an electrical alarm-bell comprising a bell, an electrically-operated tapper and binding posts and wires 46 and 47 connecting the armature-bar of the instrument 10 and a contact-frame of said instrument through the alarm-bell, substantially as specified.

662,499. APPARATUS FOR CHARGING LIQUIDS WITH GASES. GUSTAF L. REENSTIERNA, Winchester, Mass. Filed Apr. 17, 1900. Serial No. 13,185. (No model.)



Claim.—1. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat for the reception of a charged capsule, the said top having a second opening through which gas may flow from the cap into the vessel, a removable cap for covering said top, and means within said cap for causing the escape of the gas from a capsule placed against said seat, substantially as described.

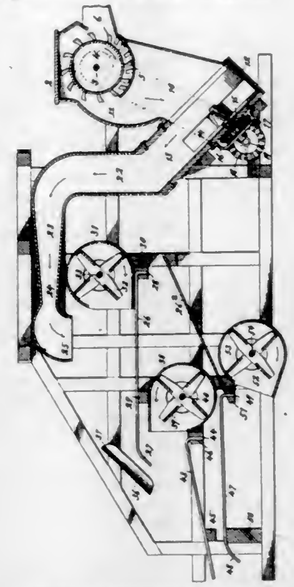
2. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat for the reception of a charged capsule, the said top having also a gas-discharge tube extending downwardly into the interior of the vessel, a removable cap for covering said top, and means within said cap for causing the escape of the gas from a capsule placed against said seat, substantially as described.

3. An apparatus for charging liquids, comprising a vessel having fixed to the upper end thereof a top constructed to permit passage of the contents of the vessel and inflow of gas from the cap, the liquid-discharging opening of said top constituting a seat for a capsule, a removable cap covering said fixed top, and means within said cap for causing the escape of the gas from a capsule placed against the said seat, substantially as described.

4. An apparatus for charging liquids comprising a vessel having fixed to the upper end thereof a top having a liquid-discharging opening constituting a seat to receive a gas-capsule, and also having a second opening to permit the passage of gas into the vessel, a flange on the exterior of said top, a packing on said flange, also at the exterior of said top, a removable hollow cap adapted to be secured on said top in contact with said packing to form a tight joint, and means within said cap for causing the escape into the cap of the gas in the capsule seated on the seat with which the opening in said top is provided, substantially as described.

662,500. GRAIN-SEPARATOR. CLARENCE L. RING, Conway, Kans. Filed Feb. 12, 1900. Serial No. 4,894. (No model.)

Claim.—1. In a separator, the combination of a threshing mechanism, a fan-casing below the same, a funnel arranged to conduct the discharge from the threshing mechanism to the fan-casing, a conveyer connected to the fan-casing having its discharge end wider than its receiving end, and having its top and bottom walls bent toward each other so as to provide a vertically-contracted throat, and a centrifugal fan located in said casing and adapted to force the grain and straw discharged into the casing up through the conveyer, substantially as described.



2. In a separator, the combination of a threshing mechanism, a fan-casing below the same, a funnel arranged to conduct the discharge from the threshing mechanism to the fan-casing, a conveyer connected to the fan-casing having its discharge end wider than its receiving end, and having its top and bottom walls bent toward each other so as to provide a vertically-contracted throat, a centrifugal fan located in said casing and adapted to force the grain and straw discharged into the casing up through the conveyer, and a segmental hood arranged at the discharge end of the conveyer to deflect the grain and straw downward, substantially as described.

3. In a separator, the combination of a threshing mechanism, a fan-casing below the same, a funnel arranged to conduct the discharge from the threshing mechanism to the fan-casing, a conveyer connected to the fan-casing having its discharge end wider than its receiving end, and having its top and bottom walls bent toward each other so as to provide a vertically-contracted throat, a centrifugal fan located in said casing and adapted to force the grain and straw discharged into the casing up through the conveyer, and a skeleton grate arranged below the discharge end of the conveyer through and upon which fall respectively the grain and the straw, substantially as described.

4. In a separator, the combination of a threshing mechanism, a fan-casing below the same, a funnel arranged to conduct the discharge from the threshing mechanism to the fan-casing, a conveyer connected to the fan-casing having its discharge end wider than its receiving end, and having its top and bottom walls bent toward each other so as to provide a vertically-contracted throat, a centrifugal fan located in said casing and adapted to force the grain and straw discharged into the casing up through the conveyer, a skeleton grate arranged below the discharge end of the conveyer through and upon which fall respectively the grain and the straw, and means to direct an air-blast rearwardly through the space between the discharge end of the conveyer and said grate to facilitate the separation of the straw and the grain, substantially as described.

662,501. SAFETY CUT-OUT FOR ELECTRIC CIRCUITS. JOSEPH SACHS, Hartford, Conn. Filed Sept. 28, 1899. Serial No. 731,897. (No model.)



Claim.—1. A safety-fuse comprising two connected portions in one line for the passage of the electric current, the one portion a section of material of low conductivity to be heated and the other portion a piece

of material of high conductivity connected by a joint fusible by an excess of heat of the low-conductivity section, substantially as specified.

2. The combination in a safety-fuse with circuit connections and the fuse-wire connected thereto, of a section of graphite, carbon or similar high-resistance heating material to which the fuse-wire is connected by a joint fusible by the action of excess of heat of the heating-section substantially as specified.

3. A safety-fuse comprising two connected portions in one line for the passage of the electric current, the one portion a section of material of low conductivity to be heated and the other portion a piece of material of high conductivity connected by a joint fusible by an excess of heat of the low-conductivity section, and a means for effecting a tension for the separation of the parts, substantially as specified.

4. A safety-fuse comprising two connected portions in one line for the passage of the electric current, the one portion a section of material of low conductivity to be heated and the other portion a piece of material of high conductivity connected by a joint fusible by an excess of heat of the low-conductivity section and a tubular case holding the said parts, and terminals to which the ends thereof are connected, substantially as specified.

5. The combination in an electric safety-fuse with a high-resistance heating-section, of a coiled wire connected electrically and mechanically by a fusible joint to and in one line with the high-resistance section and by which a tension is normally effected on the parts and a separation when the resistance-section has been heated to excess and the fusible joint melted, substantially as and for the purposes set forth.

6. The combination in a safety-fuse, with circuit connections and the fuse-wires, of a short section of graphite, carbon or similar high-resistance material interposed between the fuse-wires and to which the ends of the same are connected by a joint fusible by an excess of heat of the high-resistance material, substantially as specified.

7. The combination in a safety-fuse with circuit connections and the fuse-wires connected thereto, of a short intermediate section of graphite, carbon or similar high-resistance material electroplated and to which the respective ends of the fuse-wires are soldered, substantially as set forth.

8. The combination in a safety-fuse with the fuse-wires, of an interposed section of high-resistance material to which the fuse-wires are connected, circuit connections and coils connecting the respective circuit connections and the free ends of the fuse-wires, substantially as set forth.

9. The combination in a safety-fuse with a tubular case of insulating material and metal circuit connections or terminals at the respective ends thereof, of fuse-wires connected to the said terminals within the case and an interposed section of high-resistance material connected to the fuse-wires within the case by a joint fusible by an excess of heat of the high-resistance material, substantially as set forth.

10. The combination in a safety-fuse with a tubular case of insulating material and metal end caps forming circuit connections or terminals, of the fuse-wires, an interposed section of high-resistance material connected to the fuse-wires and coils connecting the ends of the fuse-wires to the end terminal caps, substantially as set forth.

11. The combination in a safety-fuse with a holder of insulating material and metal circuit connections or terminals at the respective ends thereof, of fuse-wires connected to the said terminals and an interposed section of high-resistance material connected to the fuse-wires by a joint fusible by an excess of heat of the high-resistance material, substantially as set forth.

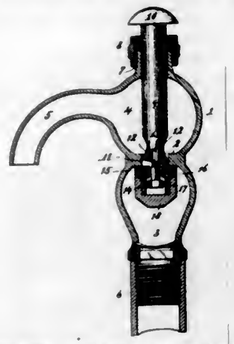
662,502. PROCESS OF HARDENING IRON OR STEEL. LUDWIG SCHRECKE, Magdeburg, Germany, assignor to Otto Gentsch, same place. Filed June 28, 1900. Serial No. 22,005. (No specimens.)

Claim.—The hereinbefore-described process for hardening steel and iron, consisting in the heating of the piece to be hardened within a coating composed of pounded charcoal, corn-flour, slaked lime and neat's-foot oil; then cooling the red-hot piece in water with an addition of sal-ammoniac and a layer of oil to exclude the air; then sinking the piece into a mud of argillaceous substances contained at the bottom of the vessel until the cooling is complete.

662,503. WATER-FAUCET. RICHARD H. W. SCHMIDT, Kansas City, Mo. Filed Feb. 19, 1900. Serial No. 5,807. (No model.)

Claim.—1. A water-faucet, comprising, a casement having a perforated partition, a rigid valve-stem projecting into the casement and through the partition-perforation, and a valve carried loosely by said stem so as to reciprocate and tilt thereon and adapted to be seated and close the perforation of the partition by the pressure of the water and unseated when the pressure is shut off, substantially as described.

2. A water-faucet, comprising a casement having a perforated partition, a valve-stem mounted in the casement and projecting into the perforation of the partition, and having its inner end more advanced at one side of its center than at any other point, and provided with an extension of smaller diameter which projects beyond said advanced point on the end of the stem and through the partition-opening, and a valve carried loosely by said extension and adapted to reciprocate and tilt thereon and be forced against the perforation of the partition by the pressure of the water and to be unseated gradually by the valve-stem or by gravity or atmospheric pressure when the water is shut off, substantially as described.



3. A water-faucet, comprising a casement, having a perforated partition, a valve-stem projecting movably therein and provided with an extension of smaller diameter having a head or enlargement at its inner end, and a valve mounted upon said extension so as to reciprocate thereon or tilt at an angle thereto, and adapted to be unseated when the pressure is shut off, and rest upon the enlargement of said extension, substantially as described.

4. A water-faucet, comprising a casement having a perforated partition, a valve-stem projecting movably therein, a bolt projecting from the stem to the opposite side of the partition, and a valve mounted upon said bolt and consisting of a compressible washer, a metallic washer inward of the same, and a metallic cap screwed to the metallic washer and completely enveloping the inner end of the bolt, substantially as described.

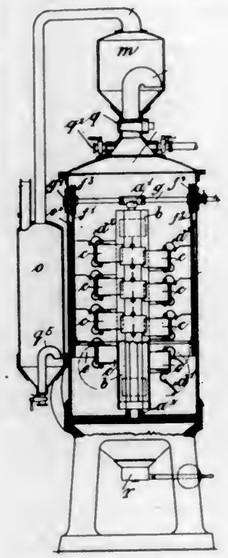
5. A water-faucet, comprising a casement having a perforated partition, a valve-stem projecting movably therein, a bolt projecting from the stem to the opposite side of the partition and provided with a head, and a valve mounted upon said bolt, and consisting of a compressible washer, a metallic washer between the partition and the head of the bolt, the bolt-passage of the latter being of smaller diameter than the head of the bolt to prevent the dislocation of the washer, and a metallic cap loosely enveloping the head of the bolt and screwed to said metallic washer, substantially as described.

662,504. ACETYLENE-GAS GENERATOR. PHILIPP SCHRECK, Versoix, Switzerland. Filed Nov. 6, 1899. Serial No. 735,979. (No model.)

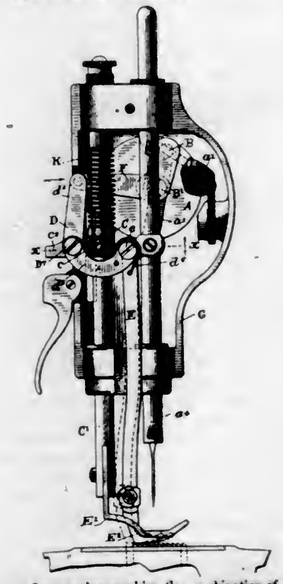
Claim.—1. In an acetylene-gas generator, in combination, the generator vessel b' having in its side a manhole, the drum b inside the said generator vessel, provided externally with carbid-chambers c arranged in screw form, the said chambered drum being rotatable in a horizontal plane to permit of being charged through the said manhole, all substantially as and for the purpose set forth.

2. In an acetylene-gas generator, in combination, the generator vessel b', containing a vertical drum b having fixed thereto externally carbid-chambers c arranged in screw form, x drop-door d' and a nosed lever d^2 pivoted to the outer end of each of the said chambers, the ring e suspended around the said drum, the said nosed levers projecting from the said chambers and being adapted to lock the said doors and the said ring to contact with and lift the said levers, and allow the said doors to drop and discharge the said carbid-chambers one by one, all substantially as and for the purpose set forth.

3. In an acetylene-gas generator, in combination, a generator vessel b' containing a vertical drum b having externally carbid-chambers c arranged in screw form and the outer ends of which are furnished with drop-doors d' locked by levers d^2 projecting from the said chambers, a ring e around the said chambers, adapted to rise and lift the said door-levers and thereby cause the doors to open one by one, a shaft g mounted crosswise in and having one end projecting through the said vessel, pulleys f^3, f^4 secured to the inner portion of the said shaft, from which the said ring is suspended by chains f', f^2, a ratchet-wheel secured to the outer end of the said shaft and a double-armed weighted lever i, i^2, i^3 loosely mounted thereon carrying a feed-pawl k in gear with the said ratchet-wheel, adapted to intermittently turn the said shaft and thereby raise the said ring and a gas-holder b^3 adjacent to the lever-arm i the movable part of which carries a stud k' adapted to contact with and depress the said arm, when required to impart motion to the shaft g, all substantially as and for the purpose set forth.



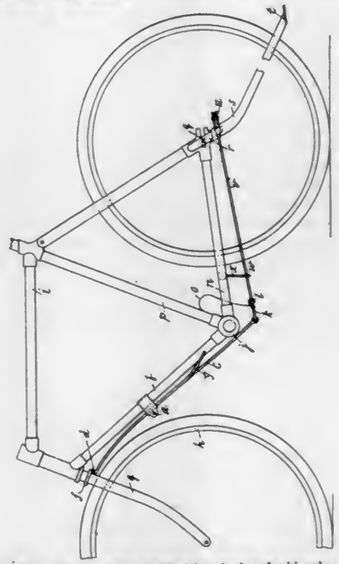
662,505. PRESSER-FOOT MECHANISM FOR SEWING-MACHINES. AURELIUS STEWARD, Bridgeport, Conn., assignor to The Wheeler & Wilson Manufacturing Company, same place. Filed July 25, 1900. Serial No. 24,806. (No model.)



Claim.—1. In a sewing-machine the combination of a spring-actuated vibrating presser bar and foot, a collar rigidly secured on said presser-bar, a bell-crank lever pivotally attached to said collar, a spring-actuated walking-foot pivotally attached to the horizontally-disposed arm of said bell-crank lever, and a link one end of which is pivoted to the vertically-disposed arm of said bell-crank lever and the other end of said link pivotally connected with a crank rigid with the needle-driving shaft whereby said vibrating foot and walking-foot are actuated, substantially in the manner and for the purposes set forth.

2. In a sewing-machine, the combination of a spring-actuated vibrating presser bar and foot, a collar rigidly secured on said presser-bar and provided with an arm C' adapted to enter a stationary guideway, whereby said presser-bar is restrained against turning, with a bell-crank lever pivoted around a pin rigid on said collar, a spring-actuated walking-foot pivotally connected to the horizontally-disposed arm of said bell-crank and a link one end of which is pivotally connected to the vertically-disposed arm of said bell-crank lever while the other end of said link is pivoted around a crank-pin rigid with the needle-driving shaft, whereby said walking-foot and vibrating foot are actuated, substantially as set forth.

662,506. SUPPORT AND LOCKING DEVICE FOR BICYCLES. CHARLES STRIDE, Chichester, England. Filed June 23, 1900. Serial No. 21,390. (No model.)



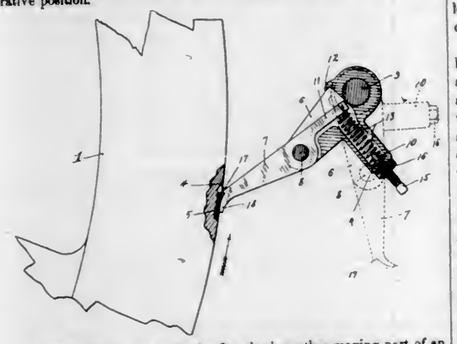
Claim.—In supporting and locking devices for bicycles, a lever pivoted to the under side of the bottom tube of the bicycle: a footpiece to enable downward pressure to be applied to the said lever below its pivoting-place: means for locking the front wheel by the upward action of upper end of said lever: a cross-bar below and free of the back fork: a link connecting the said cross-bar to the bottom end of the said lever: a spring connecting the said cross-bar to the crank-bracket: circularly-cross-sectioned lugs below the outer ends of the back fork: spurs with tubular ends to turn on the said lugs: rearwardly-pointing short levers on the said spurs: connecting-rods pivotally attached at one end to the short levers on the spurs and adjustably attached at the other end to the ends of the said cross-bar, and guides for the said connecting-rods, all substantially as described in the above specification, and exemplified by the accompanying drawings.

662,507. TRIP-LOCK FOR USE IN STARTING EXPLOSIVE-ENGINES. PAUL SWENSON, Hopkins, Minn. Filed Sept. 21, 1899. Serial No. 731,157. (No model.)

Claim.—1. The combination with a fly-wheel or other moving part of an explosive-engine, having a lock-notch or part affording a stop-shoulder, of an arm pivoted to a fixed support, a second arm pivoted to the first, and constituting therewith a toggle and formed at its free end to engage the said notch or stop-shoulder of said fly-wheel or running part, the pivot of the first toggle-arm being above the point of engagement with the free end of the toggle, a spring forcing said toggle toward a dead-center, and a stop holding said toggle from a dead-center, which toggle when released falls by gravity into an inoperative position.

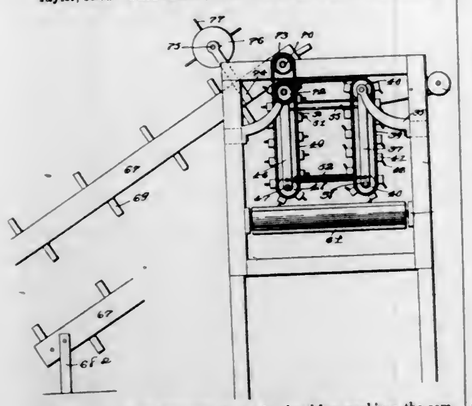
2. The combination with the fly-wheel or other moving part of an explosive-engine, having a notch or other part affording a stop-shoulder, of an arm 6 pivoted to a fixed support, the arm 7 pivoted to said arm 6 and formed at its free end with the heel or projection 17 and releasing-toe 18, said parts 17 and 18 coöperating with the notch or stop-shoulder of said fly-wheel, substantially as described, said arms 6 and 7 affording a toggle, a spring applied to said toggle to force the same toward a dead-

center, and a stop applied to said toggle to hold the same from its dead-center, which toggle, when released, is yieldingly thrown into an inoperative position.



3. The combination with the fly-wheel or other moving part of an explosive-engine, having the notch or other part 4 affording a stop-shoulder, of the arm 11 pivoted to the fixed support 9 and provided with the spring-pocket 10 and stop 12, the arm 7 pivoted to said arm 6 at 8 and having at its free end the heel 17 and toe 18 and at its inner end the tail extension 11 engageable with said stop 12 to hold the toggle formed by the arms 6 and 7 from a dead-center, and the spring 13 within said pocket 10 operating upon said tail extension 11, substantially as described.

662,508. BAND-CUTTER AND FEEDER. FRANCIS B. TAYLOR, Taylor, Iowa. Filed Feb. 27, 1900. Serial No. 6,692. (No model.)



Claim.—1. In an improved feeder for threshing-machines, the combination of two parallel endless conveyers, arranged to move vertically in different directions, means for swinging said conveyers jointly, a conveyer beneath the same, to move in a substantially-horizontal plane approximately at right angles to the said parallel conveyers, whereby grain passing between the parallel conveyers will be distributed from side to side of the horizontal conveyer, as the parallel conveyers swing laterally.

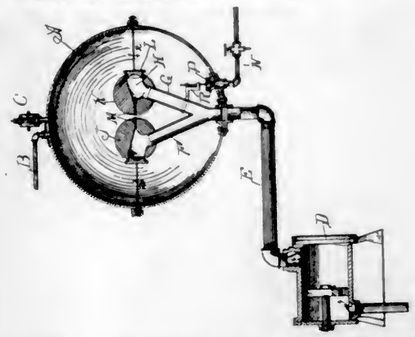
2. In an improved feeder for threshing-machines, the combination of two parallel endless conveyer-frames pivoted at their upper ends, yielding pressure devices for connecting their lower ends whereby the said lower ends are normally held toward each other and are capable of moving in a direction from each other, an endless conveyer on each of said frames, means for moving the endless conveyers vertically in different directions, means for swinging said conveyer-frames jointly, a conveyer beneath same, to move in a substantially horizontal plane at right angles to said parallel conveyer, whereby the grain passed between the parallel conveyers may be distributed from side to side of the horizontal conveyer as the parallel conveyers swing laterally.

3. In a self-feeder for threshing-machines, the combination with a conveyer leading to the threshing-cylinder, of two endless conveyers arranged parallel with each other above the central portion and at right angles to the conveyer leading to the cylinder, said conveyers being pivoted at their upper ends to swing laterally, teeth on one of the conveyers which incline upwardly when on the side between the two conveyers, and straight teeth on the other conveyer, means for driving the conveyer having straight teeth at a speed greater than the other conveyer, springs for holding the lower ends of said conveyers toward each other, means for swinging the conveyers jointly in a direction transversely of the conveyer leading to the cylinder, and means for discharging grain between the said conveyers, substantially as, and for the purposes stated.

4. In a band-cutter and self-feeder for threshing-machines, the combination of a shaft to be driven from the threshing-machine and having a pair of crank-arms thereon, a pitman connected with each crank-arm, a second shaft rotatably mounted adjacent to the first, a series of ratchet-wheels thereon, levers pivoted to the said shafts, and means for providing a limited sliding connection between said levers, and said pitman, pawls on each of said levers to engage said ratchet-wheels, a conveyer leading to the threshing-cylinder, and a device located above the conveyer leading to the threshing-cylinder, capable of being moved vertically by the grain carried on the conveyer, and a frame connected with said device, designed when in elevated position to engage the forward ends of said levers and hold them in elevated positions, substantially as, and for the purposes stated.

5. In a band-cutter and self-feeder for threshing-machines, the combination with a conveyer leading to a threshing-cylinder, of a shaft to be driven from the threshing-machine, and having a pair of crank-arms thereon, a pitman connected with each crank-arm, a second shaft rotatably mounted adjacent to the first, a series of ratchet-wheels thereon, levers pivoted to the said shafts, and means for providing a limited sliding connection between said levers and said pitman, pawls on each of said levers to engage said ratchet-wheels, and a centrifugal ball-governor geared to the first-mentioned shaft, a lever fulcrumed to a suitable support and connected with the ball-governor and having a cross-piece at its top, designed to pass under the said levers when the speed of the first-mentioned shaft is below a certain predetermined number of revolutions per minute, for the purposes stated.

662,509. APPARATUS FOR TREATING LIQUIDS WITH OZONE, &c. IVAN VAN DEN BROEK, Chicago, Ill., assignor, by mesne assignments, to C. E. Freeman and P. Anderson Valentine, same place. Filed May 26, 1899. Serial No. 718,439. (No model.)

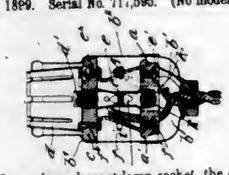


Claim.—1. In an apparatus of the class described, a chamber, a pipe for delivering a purifying-gas under pressure into said chamber, in combination with juxtaposited heads having slits arranged opposite each other in the proximate surfaces of said heads, and means for delivering the material into said chamber through said slits, and under pressure, whereby the material is atomized and expanded in the presence of the purifying-gas as and for the purpose set forth.

2. In an apparatus of the class described, a chamber, a pipe for delivering ozone under pressure into said chamber, heads arranged in said chamber in proximity to each other, and having juxtaposited elongated narrow or thin slits of equal area through the proximate portions thereof, in combination with means for delivering the material to be treated, in equal volume and under equal pressure, through said slots, whereby the material is delivered into said chamber in meeting jets or streams and is thereby atomized, as and for the purpose set forth.

3. In an apparatus of the class described, a closed chamber, means for delivering a purifying-gas under pressure into said chamber, a pump for delivering the material to be treated under pressure, a pipe delivering from said pump and extending into said chamber, said pipe terminating in two branch pipes of equal area, a head forming the terminal of each branch pipe, each head provided with a passage therethrough, each passage terminating in a narrow elongated slit or opening, the slit or opening in one head being presented toward and in close proximity to the slit or opening in the other head, whereby the material is delivered into said chamber in thin sheets or streams which meet each other, thereby becoming thoroughly atomized, as and for the purpose set forth.

662,510. INCANDESCENT-LAMP SOCKET. ERNEST P. WARNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed May 20, 1899. Serial No. 717,595. (No model.)



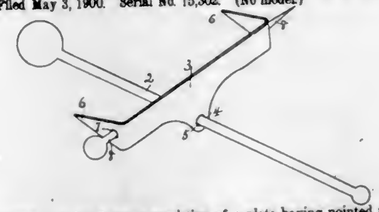
Claim.—1. In an incandescent-lamp socket, the combination with the base, of a base-plate contained therein, said base-plate supporting the switching and contact parts, and resilient arms b' b' mounted upon the base and having flange-tipped, spring-like ends adapted to engage with the upper edge or periphery of said base-plate, whereby said base-plate is held by said arms against removal from the base, substantially as set forth.

2. In an incandescent-lamp socket, the combination with the base, of a base-plate contained therein, said base-plate supporting the switching and contact parts, arms b' b' carried by the base, said arms having resilient flange-tipped ends adapted to engage the periphery of said base-plate to retain the same against removal from the socket, an inclosing shell fitting upon the base, and screws b^2 b^2 passing through the base and shell and having threaded engagement with said arms to secure the shell to the base, the base-plate being independent of said screws, substantially as set forth.

3. In a switch-socket, the combination with the base-plate a, of an insulating-plate c carrying the socket-terminals, posts e f uniting said plates and forming contact parts, a pair of spring contact-arms i' i' electrically united but normally disconnected from any electrically-energized part, the said arms being adapted respectively to electrically engage with the posts e f or open the circuit therebetween at two points, and a cam l adapted to be actuated and effect such engagement and disengagement of the contact-arms and posts, substantially as described.

4. In an incandescent-lamp socket, the combination with the base, of an insulating base-plate a contained therein, an upper insulating-plate c, two arms e f mounted upon the base-plate and supporting said upper plate, an inclosing shell b^2 mounted upon the base and having a shoulder b^4 engaging with the said upper plate c, a lamp-socket terminal d electrically connected with one of the said supporting-posts, the other of said supporting-posts being connected with one terminal of the leading-in wires, a second lamp-socket terminal d' connected with the other leading-in wire, a U-shaped contact-spring mounted between the said posts and normally disconnected from any current-carrying part, and a rotatable cam l adapted to spread the arms of said U-shaped spring apart to engage one with each of said posts, whereby the circuit from one post to the other is completed through said U-shaped spring, substantially as set forth.

662,511. HAT-FASTENER. JANE WARNER, Kansas City, Mo. Filed May 3, 1900. Serial No. 15,302. (No model.)

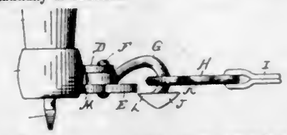


Claim.—A hat-fastener consisting of a plate having pointed perforated projections adapted to be thrust through the crown of the hat, a pin engaging said perforations, to secure said plate to the hat, a perforated extension on said plate extending below the junction of the crown with the brim of the hat, and a hat-pin engaged in the perforation in said extension and adapted to slide therein, substantially as set forth.

662,512. WHIFFLETREE-HOOK. ABNER K. WOLFE, Kansas City, Kans. Filed May 11, 1900. Serial No. 16,292. (No model.)

Claim.—1. A whiffletree-hook comprising a socket adapted to be secured upon the end of a whiffletree and provided with a lateral projection having a curved periphery, a hook pivoted upon the said projection and provided with a head having forwardly and rearwardly extending projections, one of which swings adjacent to the curved periphery of the lateral projection, the lateral projection being provided with a notch opposite to which the head of the hook may be swung, substantially as described.

2. A whiffletree-hook comprising a socket adapted to be secured upon the end of a whiffletree, two laterally-extending projections on the socket, one of which is provided with an arcuate-shaped periphery having therein a notch, a swinging hook having one end pivotally mounted between the two projections, the free end of the hook having forwardly and rearwardly extending tangs one of which is adapted to swing adjacent to the curved periphery of the lateral projection to a point opposite the recess therein, substantially as described.

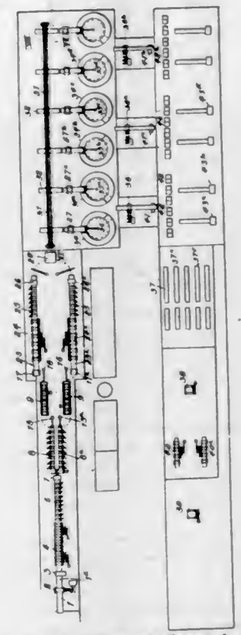


3. A whiffletree-hook comprising a socket adapted to be secured on the end of a whiffletree and being provided with a lateral projection having a peripheral recess or notch, a hook pivoted to the said projection and provided at its free end with an oblong head adapted to swing in close proximity to the lateral projection and to pass opposite the notch thereof, substantially as described

4. A whiffletree-hook comprising a body portion for securing to the end of a whiffletree and provided at its outer end with a tag-engaging hook and provided at right angles to the said hook, with a forwardly-extending projection, provided with a peripheral notch, a tag-engaging hook pivoted to the said projection and provided with an oblong head adapted to swing in close proximity to the projection and to pass opposite the notch thereof, substantially as described.

5. A whiffletree-hook comprising a body portion provided with a socket for the insertion of a whiffletree, the body portion being provided with a tag-engaging hook disposed in the axis of the whiffletree, and provided also, with two lateral projections disposed at right angles to the said axis, one of the said projections being provided near its rear end with a peripheral notch, a tag-engaging hook pivotally mounted between the two projections and having an oblong head on its free end adapted to swing in close proximity to the notched projection and to pass opposite the said notch, substantially as described

662,513. MANUFACTURE OF SHEET METAL. RICHARD G. WOOD, Allegheny, Pa. Filed Feb. 23, 1900. Serial No. 6,244. (No model.)



Claim.—1. As an improvement in the art of rolling metal sheets without changing the direction of feed, the method described herein, which consists in reducing an ingot by rolling without reheating into a plate or bar of a width approximately equal to the width desired in the

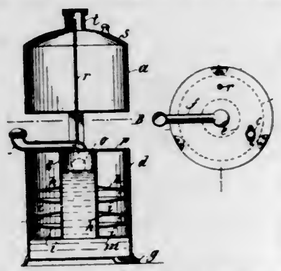
finished sheets and shearing such bar or plate into sections of suitable length for piling and further rolling in the same direction, substantially as set forth.

2. As an improvement in the art of rolling metal sheets without changing the direction of feed, the method herein described, which consists in reducing an ingot by rolling into a bar or plate of a width approximately equal to the width desired in the finished sheet, shearing such bar or plate in sections of suitable piling and rolling length, arranging the sections in piles, heating the piles and then rolling the piles lengthwise to reduce the thickness of the plates composing the piles without materially increasing the widths of the sheets, substantially as set forth.

3. As an improvement in the art of rolling metal sheets without changing the direction of feed, the method herein described, which consists in reducing an ingot by rolling into a bar or plate of a width approximately equal to the width desired in the finished sheet, shearing such bar or plate in sections of suitable piling and rolling length, arranging the sections in piles, heating the piles, then rolling the piles lengthwise to reduce the thickness of the plates composing the piles without materially increasing the widths of the sheets, shearing the piles into sections of suitable rolling length, opening up the sections, arranging the sheets in piles, heating the piles and then rolling lengthwise the piles to reduce the sheets in thickness without materially increasing the widths of the sheets, substantially as set forth.

4. As a step in the manufacture of sheet metal in packs, the method of preventing displacement of the sheets by inserting the pack between the opened reducing-rolls, screwing the rolls down onto the pack and compressing the sheets on each other from a line of bite intermediate of the ends of the pack to such ends, preliminary to the application of a reducing pressure, substantially as set forth.

662,514. CARBURETER. RICHARD WÜNSCHE, Herrnhut, Germany. Filed June 22, 1900. Serial No. 21,229. (No model.)



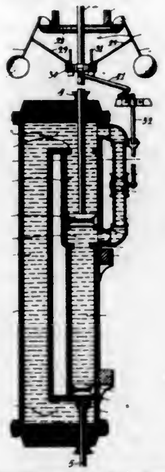
Claim.—Apparatus for generating gasolene-gas comprising in combination a reservoir *a* for the reception of liquid hydrocarbon, a generator *d* connected with the hydrocarbon-reservoir by means of a pipe *c*, said generator containing centrally a cylinder *e* adapted to be heated by steam or water, a number of dropping-rings *h*, *i* intermittingly secured to the outer wall of the heating-cylinder *e* and to the inner wall of the generator *d*, a gas-pipe *r* leading from the generator to the space above the level of the liquid hydrocarbon in the reservoir *a*, an air-admission pipe *n* at the lower end of the generator and a gas-outlet pipe *o* at the upper end of same, substantially as described and shown.

662,515. PISTON-STROKE REGULATOR. RODNEY H. YALE, Beatrice, Nebr. Filed Oct. 10, 1899. Serial No. 733,154. (No model.)

Claim.—1. In a reciprocating-rod mechanism, the combination with a rod divided into two sections of a stroke-regulator interposed between and connected with said sections, the same consisting of an inclosed casing containing a piston-chamber into which one section of the rod extends, a piston mounted on said section, within the chamber, having a valved opening, a body of liquid within said chamber, and a valve-controlled passage-way for passing said liquid from that part of said chamber being subjected to pressure to that part of said chamber not being subjected to pressure, substantially as set forth.

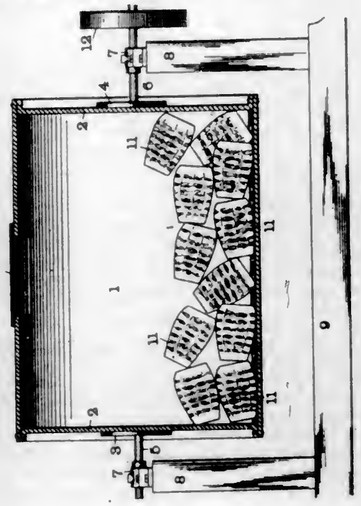
2. In a reciprocating-rod mechanism, the combination, with a rod divided into two sections, of a stroke-regulating device, the same comprising a stationary closed casing containing two intercommunicating cylinders of different diameters, disposed end to end, one cylinder containing a piston mounted on the power-section of the rod, and the other a piston on the working section thereof, a passage-way connecting the outer ends of said cylinders, a second passage-way connecting the outer ends of the power-cylinder, a valve in said last-mentioned passage-way, and a body of liquid within said cylinders and passage-ways, substantially as set forth.

3. The combination with two sections of a divided reciprocating rod, of a stroke-regulating device comprising a stationary closed casing containing two piston-chambers of unequal diameters, arranged end to end, an intermediate chamber between said piston-chambers, a piston within the larger chamber, mounted on the power-section of the rod, a piston within the smaller chamber mounted on the working section thereof, a passage-way connecting the outer ends of the piston-chambers, a second passage-way leading from said intermediate chamber to the opposite side of the power-piston, a valve for regulating said last-mentioned passage-way, and a body of liquid within said chambers and passage-ways, substantially as set forth.



4. In a windmill, the combination with the two sections of a divided pump-rod, of a stroke-regulating device comprising a closed casing secured on the windmill-frame, said casing containing two piston-chambers of unequal diameters, disposed end to end, a piston within the larger of said chambers, mounted on the power-section of the rod, another piston within the smaller chamber, mounted on the working section thereof, a passage-way connecting the outer ends of said piston-chambers, a second passage-way connecting the opposite ends of said power piston-chamber, and a valve within said last-mentioned passage-way, and means, operated by the wind, for automatically opening or closing said valve, substantially as set forth.

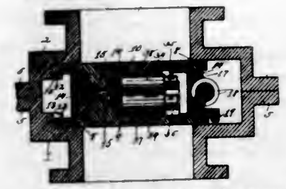
662,516. PROCESS OF FILLING INTERSTICES OF COB PIPES. HERMANN H. BARKLAGE, St. Charles, Mo. Filed May 9, 1900. Serial No. 16,020. (No specimens.)



Claim.—1. The process of filling the interstices of cob pipes, which consists in first distributing a plastic material in a thin layer out of contact with the pipes, and then agitating the pipes with their peripheries in contact with said layer of plastic material until the interstices of the pipes are filled.

2. The process of filling the interstices of cob pipes, which consists in first distributing a mixture of plaster-of-paris and water in a thin layer out of contact with the pipes and then agitating the pipes with their peripheries in contact with said layer of plaster-of-paris and water until the interstices of the pipes are filled.

662,517. VALVE. JAMES BARLOW, Watervliet, N. Y. Filed June 28, 1900. Serial No. 21,889. (No model.)



Claim.—1. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on the back of each gate; a carrier interposed between the inclines and connected with the gates; means for communicating rotatable movements to such carrier and gates, whereby the gates roll along such tracks; stops for arresting the rotatable movements of the gates when opposite their respective seats; releasive mechanism for disconnecting the carrier and gates when the movements of the gates are arrested by the stops, whereby the continued movement of the carrier along the seating-inclines forces the gates firmly to their respective seats, substantially as described.

2. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on the back of each gate; a lever-carrier interposed between the inclines, having at one end a fulcrum on the gates, at the other end a toothed segment, and opposite the seating-inclines operating connections therewith; releasing mechanism for locking the carrier against oscillatory movements relatively to the gate at certain periods, and for permitting such oscillatory movements at certain other periods; a screw-threaded stem engageable with the toothed segment whereby a rotary movement is communicated to the gates and carrier while locked together, and an oscillatory movement to the carrier when released; means for limiting the rotary movement of the gate when released from the carrier; means for operating the releasing mechanism, substantially as described.

3. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on the back of the gates; a pair of rolls extending transversely of the seating-inclines and engageable therewith, one roll with one incline and the other roll with the other incline; journal-supports on one of the gates for loosely supporting one end of each roll; a lever-carrier, interposed between and detachably secured to the gates, having at one end a fulcrum on the gates, at the other end a toothed segment and operatively engageable with the movable ends of the rolls whereby oscillatory movements of the lever-carrier will force the rolls up and down the inclines; a screw-threaded stem or worm engageable with the toothed segment of the carrier; means for limiting the rotary or track movements of the gates when opposite their seats, and means for releasing the lever-carrier from the gates at the end of their track movement, substantially as described.

4. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on the back of each gate; a lever-carrier interposed between the gates having at one end a fulcrum secured to one of the gates near its edge, at the other end a toothed segment and intermediately of its ends means for operatively engaging the seating-inclines; means for detachably securing the carrier to the gates with the toothed segment concentric to the gates; a screw-threaded stem or worm engageable with the toothed segment; means for releasing the carrier from the gates at the end of the track movement of the gates whereby the screw-threaded stem afterward communicates to the carrier an oscillatory movement independently of the gates, substantially as described.

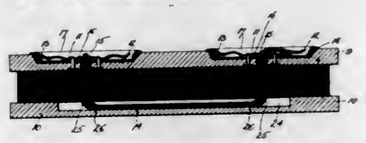
5. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on one or both of the gates; a lever-carrier interposed between the gates, having one end fulcrumed upon one or both of the gates, the other end provided with a toothed segment eccentric to its fulcrum, and the intermediate portion provided with means for operatively engaging the seating-inclines; a screw-threaded stem or worm engageable with the toothed segment; means for maintaining the carrier in a position such that its toothed segment will be concentric with the gates during a part of its movements; means for releasing the carrier from its concentric position during the remainder of its movements, substantially as described.

6. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on one or both of the gates; a lever-carrier interposed between the gates, having one end fulcrumed upon one or both of the gates, the other end provided with a toothed segment and the intermediate portion provided with means for operatively engaging the seating-inclines; a screw-threaded stem or worm engageable with the toothed segment; means for securing the carrier to the gates during their track movement and releasing the carrier at the end of such movement; and means for holding the gates against any track movement while oscillatory movements are imparted to the lever-carrier by the stem or worm, substantially as described.

7. In a valve, the combination with gate-seats and resistance-tracks leading toward such seats; of a pair of gates movable one on each track; a seating-incline on one or both of the gates; a lever-carrier interposed between the gates, having one end fulcrumed upon one or both of the gates, the other end provided with two toothed segments, one concentric to its fulcrum and the other concentric to the gates and the intermediate portion provided with means for operatively engaging the seating-inclines; a screw-threaded stem or worm engageable with the toothed segments; means for maintaining the carrier in fixed relation to the gates while the stem is in engagement with that segment which is concentric with the gates; means for releasing the carrier from the gates while the stem is in engagement with that segment which is concentric with the carrier-fulcrum, substantially as described.

8. In a valve, having a pair of gates rotatably movable toward their seats, and provided with carrying, stopping and seating mechanism comprising stops and a lever-carrier fulcrumed at one end upon one or both of the gates, and having on its other end a worm-actuated toothed segment; a retaining and releasing mechanism consisting of a latch and catch, one on the carrier and the other on one of the gates, interlocking with each other and a keeper for retaining the latch and catch in a locked position during the rotary movements of the gates, and releasing the latch from the catch at the end of such rotary movements, substantially as described.

662,518. BINDER. JOHN R. BARRETT, Chicago, Ill. Filed Dec. 27, 1897. Serial No. 663,668. (No model.)



Claim.—1. In a binder, the combination of a back 9, a plate 17 countersunk in said back, provided with outwardly-inclined sides and having a passage therethrough, and a cleat within said plate, having oppositely-extending arms, the said passage providing for the admission of a cord to said cleat, and said outwardly-inclined sides serving to guide the cord as it is moved around the ends of the cleat, substantially as described.

2. In a binder, the combination of a back 9, a plate 17 countersunk in said back, having its ends rounded and provided with a passage extending therethrough, and a cleat within said plate, having oppositely-extending arms, the said passage providing for the admission of a cord to said cleat and the rounded ends of said plate serving to guide the cord as it is moved around the ends of the cleat.

3. In a binder, the combination of backs, one of said backs having one or more retaining devices secured thereto, the other having a channel in its inner face, and a cord arranged in said channel and adapted to be secured at its ends to said retaining device or devices, substantially as described.

4. In a binder, the combination of backs, one of said backs having one or more retaining devices, the other having a channel 24 in its inner face, a cord arranged to lie in said channel and to be secured at its ends to said retaining device or devices, and means for retaining said cord in said channel, substantially as described.

5. In a binder, the combination of backs, one of said backs having one or more retaining devices, the other having a channel 24 in its inner face, a cord arranged to lie in said channel and to be secured at its ends to said retaining device or devices, and staples 25 for retaining said cord in said channel, substantially as described.

6. In a binder, the combination of backs, one of said backs having one or more retaining devices, the other having a channel 24 in its inner face, a cord arranged to lie in said channel and to be secured at its ends to said retaining device or devices, and staples 25 for retaining said cord in said channel, said staples having curved portions 26, substantially as described.

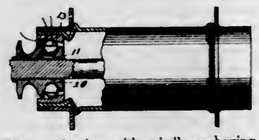
662,519. SHOESTRING-FASTENER. SETH BEACH, Toledo, Ohio. Filed June 14, 1900. Serial No. 20,282. (No model.)



Claim.—1. In a shoestring-fastener, the combination of a button, convexed upon its face and concaved upon the reverse side to form a cavity, and provided with an inwardly-rolled rim, a stem axial to the button and projecting outward from the cavity, a spring-bar diametric to the button, having its ends provided with orifices and resting upon the rim of the button, with the central body portion flexed toward the stem and secured to the end thereof.

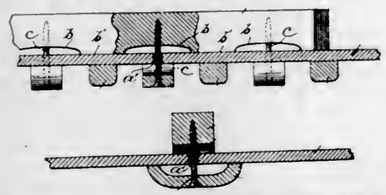
2. In a shoestring-fastener, the combination of a button provided with a cavity upon its rear face and a rim around the cavity, a button-stem central to the cavity and projecting axially to the rim to a distance within the cavity, a spring-bar diametric to the rim, having its ends provided with orifices and resting upon the rim of the button, with the central body portion flexed toward the stem and secured to the end thereof, and serrations formed upon the rim at the points of contact of the spring-bar, substantially as and for the purpose shown and described.

662,520. RETAINER FOR BALL-BEARINGS. WILLIAM H. BINNS, Chicago, Ill., assignor to the A. Featherstone & Company, same place. Filed Nov. 4, 1897. Serial No. 657,316. (No model.)



Claim.—The combination, with a ball-case having an external circumferential groove or raceway adapted to receive a plurality of balls, and an annular seat adjacent to said groove or raceway, of a plurality of balls in said groove or raceway, a retainer comprising an annular body having a radial flange to abut against said seat, and elastic fingers or projections projecting from said body between the balls parallel with the axis of the bearing, substantially as described.

662,521. PIANO-BRIDGE. JAMES H. BUTLER, Columbia Heights, Ill. Filed July 12, 1900. Serial No. 23,308. (No model.)

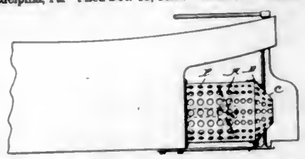


Claim.—1. The combination with a sounding-board having a number of openings, of a bridge-piece located on one surface thereof and having a number of recesses in its portion adjacent to the said board, a number of curved or arched pieces located on the surface of the sounding-board opposite the bridge-piece, and screws connecting the curved pieces and the bridge-piece and passing freely through the said openings in the sounding-board, substantially as described.

2. The combination with the sounding-board having a number of openings, of a bridge-piece located on one surface thereof and having segregate bearings thereon, a number of curved or arched pieces located transversely with respect to the bridge-piece on the opposite side of the sounding-board, and screws connecting the curved pieces and the bridge-piece and passing freely through the openings in the sounding-board, substantially as described.

3. The combination with a sounding-board of a series of ribs located a slight distance apart on one side thereof, a bridge-piece located on the opposite side of the sounding-board and having a series of recesses in its portion adjacent to said board, a number of curved or arched pieces located between the said ribs and transversely with respect to the bridge-piece, and screws connecting the curved pieces and the bridge-piece and passing freely through the sounding-board, substantially as described.

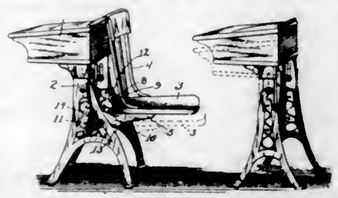
662,522. PROPELLER FOR BOATS. SAMUEL H. BUTTERWORTH, Philadelphia, Pa. Filed Dec. 13, 1899. Serial No. 740,223. (No model.)



Claim.—1. In combination with a boat and a propeller journaled at the stern thereof, a perforated casing inclosing said propeller, and a section of truncated-cone shape so attached to the casing as to be swung open, said section also being perforated, as and for the purpose set forth.

2. A propeller-casing consisting of a cylindrical section adapted to inclose the propeller, and a hinged section of truncated-cone shape, both sections being perforated, as specified.

662,523. SCHOOL-DESK. WILLIAM B. COGGER, Springfield, Ill., assignor to the American School Furniture Company, Jersey City, N. J. Filed July 27, 1899. Serial No. 725,221. (No model.)

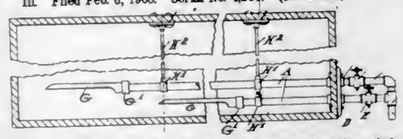


Claim.—1. In a school-desk the combination of the side frames of the desk having inturned edges, rigid bracket-arms both arranged between said side frames and having grooves in their outer sides into which the edges of the side frames fit, a chair-bottom securing said arms rigidly at a fixed distance apart, means for sliding said arms up and down on said side frames and means for tying said side frames together in the vicinity of said arms to prevent spreading, whereby said chair-bottom may hold said arms rigidly against the side frames, while said tying means pull the side frames inwardly against the arms, substantially as set forth.

2. In a school-desk the combination of the side frames of the desk having inturned edges, rigid arms arranged between said side frames and having grooves in their outer sides into which the edges of said side frames fit, a chair-bottom rigidly secured to said arms and holding them at a fixed distance apart, means for sliding said arms up and down on said side frames, and a bolt passing through said side frames and arms for preventing the side frames from spreading, said arms being slotted for the passage of said bolt, substantially as set forth.

3. In a school-desk the combination of the side frames having inturned edges, rigid arms arranged between said side frames and having grooves in their outer sides into which the edges of said side frames fit, the lugs 13 on the lower portions of said arms projecting outwardly and engaging around the edges of said side frames, a chair-bottom rigidly fixed to said arms and securing said arms at a fixed distance apart, means for sliding said arms up and down on said side frames and a bolt passing through said frames for preventing the side frames from spreading, substantially as set forth.

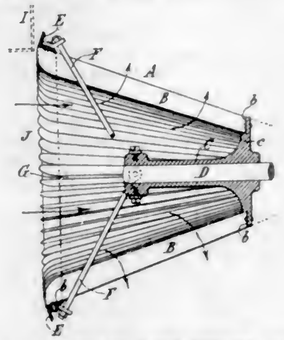
662,524. BOILER-CLEANER. GEORGE W. DANMANN, Athens, Ill. Filed Feb. 6, 1900. Serial No. 4,261. (No model.)



Claim.—1. In a boiler-cleaner, the combination of a reinforcing-plate secured to the boiler-head, nipples passing through the boiler-head and through said plate, couplings at the ends of said nipples abutting against the boiler-head and said reinforcing-plate, pipes screwing into the couplings inside of the boiler, curved induction-plates, and screw-couplings connecting said induction-plates with said pipes, as set forth.

2. In a boiler-cleaner, the combination of nipples passing through the boiler-head and through a reinforcing-plate secured thereon, couplings screwing onto said nipples and abutting against the boiler-head and against said reinforcing-plates, pipes screwing into the couplings within the boiler, induction-plates connected with said pipes, pipes screwing into the couplings external to the boiler and having a common outlet, and valves controlling the opening and closing of said pipes, as set forth.

662,525. CENTRIFUGAL FAN OR PUMP. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Nov. 28, 1899. Serial No. 738,506. (No model.)



Claim.—1. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed conical intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

2. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, in conical order and in substantially drum form, with their outer edges converging toward the apex of a cone, and inclosing within their inner edges a relatively large and practically-unobstructed intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

3. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed truncated conical intake-chamber, open at one end, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

4. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed truncated conical intake-chamber, open at the end having the greater diameter, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

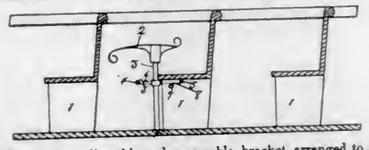
5. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed truncated conical intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, an operating-shaft, and a support for said rotary member connected to said shaft, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

6. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed conical intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, a hub, a support for one end of said rotary member fixed to said hub, and an annular support for the other end of said member connected to said hub, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

7. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form, so as to inclose within them a relatively large and practically-unobstructed conical intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, a hub, a support for the smaller end of said rotary member fixed to said hub, and an annular support for the larger end of said member connected to said hub, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

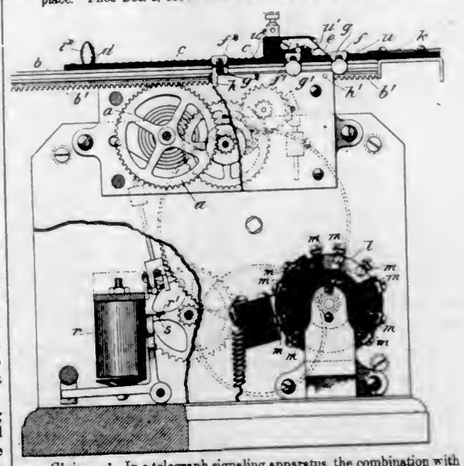
8. A centrifugal fan or pump, comprising a rotary member having numerous elongated blades arranged obliquely to the axis of rotation, and in substantially drum form so as to inclose within them a relatively large and practically-unobstructed conical intake-chamber, and in transverse section arranged, relatively to the axis and direction of rotation, to carry the fluid with them rotatively and discharge it tangentially, and said blades varying in width so as to form between them ports of varying depth, and a means for so mounting said rotary member as to permit the tangential escape of the fluid discharged from said blades.

662,526. PARTITION FOR PEWS. JOHN J. DILLON, Albany, N. Y. Filed Nov. 8, 1899. Serial No. 736,219. (No model.)



Claim.—An adjustable and removable bracket arranged to form a partition and divide a pew or settee into sittings, consisting of a standard having a pin or stud in its lower end arranged to be forced into the floor and having a socket-piece and a plate, the socket-piece being mounted adjustably in the plate, the plate being arranged to be temporarily attached to the seat and having means for attaching the same thereto, the standard passing through and being held upright in the socket and having a clamping device arranged to clamp the standard in the socket, the socket-piece being arranged crosswise of the seat in order that it may be extended at will, the vertical standard resting in the socket having an arm attached to the upper end of the standard and standing in a direction crosswise of said seat and extending beyond the edge thereof thus dividing the pew or settee into sittings substantially as described.

662,527. TELEGRAPH SIGNALING APPARATUS. EDWARD B. ELLICOTT, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 8, 1899. Serial No. 739,609. (No model.)



Claim.—1. In a telegraph signaling apparatus, the combination with a longitudinally-movable bar having a series of contact-points mounted

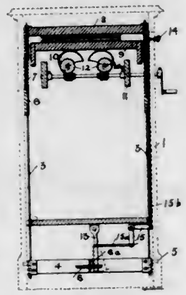
thereon, of means for moving the bar in the direction of its length, a contact-spring adapted successively to engage the contact-points as the bar is moved, an electric circuit, the contact-points of the bar being terminals for one side of the circuit and the contact-spring being the terminal of the other side of the circuit, whereby the circuit is made and broken alternately as the bar is moved, and guard-pieces carried by the movable bar and capable of being adjusted longitudinally of the bar, said guard-pieces being adapted to prevent engagement between the contact-spring and the contact-points of the bar, whereby signals may be transmitted, substantially as set forth.

2. In a telegraph signaling apparatus, the combination with a movable bar having a series of contact-points mounted thereon, constituting terminals for one side of an electric circuit, of a contact-spring forming a terminal for the other side of the circuit, said spring being adapted to engage successively with said contact-points, whereby the circuit is alternately made and broken, a spring-driven gear-train for moving the bar, guard-pieces adapted to slide to and fro on the bar and so to be adjusted to any desired point on the operative length of the bar, said guard-pieces serving to cover certain of the contact-points to prevent the engagement of the spring with such contact-points, whereby signals may be transmitted, as described.

3. The combination with an electric circuit, of a series of contact-points forming terminals for one side of said circuit, a stationary contact-spring *e* forming the terminal for the other side of the circuit, adapted to engage said contact-points, to make and break the circuit, a movable mounting for said contact-points and means for moving the same past the contact-spring, whereby said contact-points are successively caused to engage the stationary spring, and guard-pieces, adjustable relatively to said contact-points, for covering one or more of the points and preventing engagement of the spring therewith, substantially as and for the purpose specified.

4. The combination with an electric circuit, of a series of contact-points c c forming the terminals of one side of said circuit, a movable mounting for said contact-points, a stationary contact-spring *e* forming a terminal for the other side of the circuit, adapted to engage said contact-points, to make and break the circuit, means for moving the mounting of said contact-points, whereby the latter are caused successively to engage the contact-spring, and independent guard-pieces, each adapted to cover one or more of the contact-points, to prevent the engagement of the contact-spring with the points so covered, said guard-pieces being adjustable to occupy different positions relatively to the series of contacts, whereby a variety of signals may be transmitted, as described.

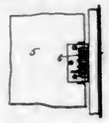
662,528. **LETTER-COPYING CABINET.** ERNEST FEIGE, Saginaw, Mich. Filed June 4, 1900. Serial No. 19,001. (No model.)



Claim.—1. In a letter-copying cabinet having a depressible upper platen operated by a foot-lever, and a thrust-resisting lower platen: the combination with pairs of thrust-resisting cams for supporting the lower platen and adjusting its height; of a right-hand worm and gear for rotating and automatically locking one pair of said cams; a left-hand worm and gear for rotating and automatically locking the other pair of cams; and a shaft extending outside the cabinet to revolve the worms, thereby simultaneously rotating said pairs of cams in opposite directions.

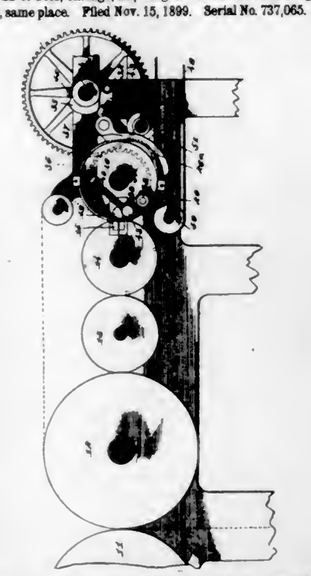
2. A letter-copying cabinet comprising in combination with a lower platen and a foot-operated upper platen; rotatable thrust-resisting cams for adjusting the operative distance between said platens to suit books of various thicknesses, said cams being arranged in pairs approximately near the middle of and below said lower platen; a right-hand worm and gear for rotating and automatically locking one pair of said cams; a left-hand worm and gear for rotating the other pair of said cams; and a shaft to simultaneously rotate said pairs of cams in opposite directions, for the purposes described.

662,529. **GRAIN-UNLOADING DEVICE.** ADOLPH J. FERRING, Concordia, Mo. Filed May 28, 1900. Serial No. 18,341. (No model.)



Claim.—In a device for the purpose set forth, the combination of a box adapted to contain grain and having a flaring bail whose diverging ends are pivoted to opposite sides of the box to support said box in a horizontal position when elevated, the box having a movable bottom, a spring-actuated hinge attaching the bottom to the box at one end, a spring-actuated locking-bolt mounted on said bottom at the other end thereof, guides on said bottom in alinement with said bolt and a cord attached to said locking-bolt and extending along the bottom of the box through said guides, whereby said bolt may be retracted to unlock the bottom and discharge the contents of the box.

662,530. **DELIVERY MECHANISM FOR PRINTING-PRESSES.** SAMUEL G. GOSS, Chicago, Ill., assignor to the Goss Printing Press Company, same place. Filed Nov. 15, 1899. Serial No. 737,065. (No model.)



Claim.—1. The combination with a cylinder provided with pins adapted to impale the lead edge of a sheet, a shaft journaled in said cylinder, fingers mounted on said shaft and adapted, when operated, to disengage said sheet from said pins, and an arm mounted on said shaft, of means for intermittently causing the end of said arm to travel in a circular path and to temporarily swing away from said circular path as said cylinder rotates, to partially rotate said shaft, substantially as described.

2. The combination with a cylinder provided with pins adapted to impale the lead edge of a sheet, and fingers carried by said cylinder and adapted, when operated, to disengage the lead edge of said sheet from said pins, of a fixed ring concentric with said cylinder and having in its interior surface a cam portion, a lever having a curved arm adapted to coact with said ring at said cam portion to form a complete circle, mechanism for intermittently operating said lever to throw its curved arm into and out of coaction with said ring, and mechanism connected with said fingers and adapted to contact the interior surface of said ring and of said curved arm when the same is in coöperative position with said ring, and to intermittently operate said fingers to disengage said sheet from said pins, substantially as described.

3. The combination with a cylinder provided with pins adapted to impale the lead edge of a sheet, a shaft journaled in said cylinder, and fingers mounted on said shaft and adapted, when operated, to disengage said sheet from said pins, of a fixed ring concentric with said cylinder and having a cam portion on its interior surface, a spring-seated arm mounted on said shaft and adapted at its outer end to contact the inner surface of said ring as said cylinder rotates, and means for intermittently prevent-

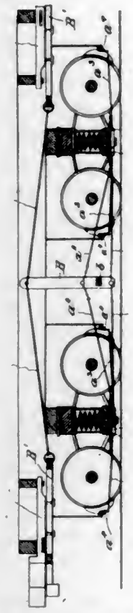
ing the end of said arm from contacting said cam portion of said ring and causing the same to follow a completely circular path as said cylinder rotates, substantially as described.

4. The combination with a cutting-cylinder provided with pins adapted to impale the lead edge of a sheet, a shaft journaled in said cylinder, and fingers mounted on said shaft and adapted, when operated, to disengage the lead edge of said sheet from said pins, of a fixed ring concentric with said cylinder and provided with a cam portion, a spring-seated arm mounted on said shaft and adapted, at its outer end, to contact with said ring as said cylinder rotates, and, when left free, to contact the cam portion of said ring, a curved lever adapted to coact with the interior of said ring to form a completely circular bearing for said arm, and a cam adapted to intermittently bear on said lever and throw the curved portion thereof away from coaction with said ring, substantially as described.

5. The combination with a cutting-cylinder adapted to act as a collecting-cylinder, of pins arranged in a plurality of rings on the periphery of said cylinder and adapted to impale a sheet at intervals throughout its length, substantially as described.

6. The combination with a cutting-cylinder adapted to act as a collecting-cylinder, of pins arranged in a plurality of rings on the periphery of said cylinder and adapted to impale the side and middle margins of a sheet at intervals throughout the length of the sheet, substantially as described.

662,531. **MECHANICAL BRAKE.** JAMES H. GREENWOOD, Boissevain, Canada, assignor of one-half to Thomas N. Morrison, William Long, Stewart Burrows, William Hanley, Robert F. Morrison, and John Morrow, same place. Filed Jan. 8, 1900. Serial No. 768. (No model.)

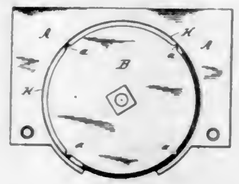


Claim.—The combination with a brake mechanism, and draw-bars slidably mounted on a car for connection with and disconnection from other similar draw-bars, of a hanger suspended between the car-trucks, a vertically-disposed lever fulcrumed at a point intermediate of its length to said hanger, short levers *a'* mounted on the trucks and each connected to the brake-beams thereon, connections between the short levers and the lower end of the vertically-disposed lever, and other connections between the upper end of the vertically-disposed lever and the draw-bars, substantially as described.

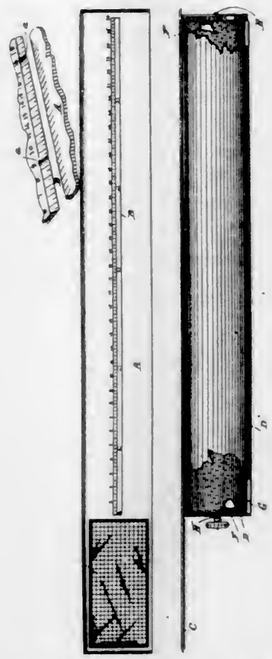
662,532. **FERTILIZING-MACHINE.** HENRY C. HAM, Liberty, Ind., assignor to the Rude Brothers Manufacturing Company, same place. Filed Sept. 7, 1900. Serial No 29,309. (No model.)

Claim.—In a fertilizing-machine provided with horizontal rotary disks, whereby the fertilizer is discharged, a disk having a beveled edge, but having one or more points where said edge is substantially rectangular in section, substantially as and for the purpose described.

662,532.



662,533. **COMPUTING-MEASURE.** CHARLES E. HARRINGTON and JOHN G. HARRINGTON, Peoria, Ill., assignors of one-third to Herman R. Alfs, same place. Filed May 14, 1900. Serial No. 16,620. (No model.)



Claim.—1. In a computing-measure for use in selling materials by lineal measurement, the combination of the body A, a chart at one end thereof having a set of vertical columns and a set of horizontal columns, the former showing at the top the selling price of goods per yard, the latter indicating the number of yards to be sold, the intersections of the several columns showing the aggregate price of the number of yards at the cost given in the price-columns, a longitudinal slot B in the body between the said chart and the farther end of said body, a measuring-scale adjacent to the said slot, a revoluble cylinder beneath the slot the same having horizontal columns thereon indicating at the extreme left the prices of goods per yard, each of said columns being divided into fractions of a yard with the price of each fraction indicated thereon at the rate shown in the left of each column, hangers D for supporting the said cylinder, a knob for turning the latter and a casing D' surrounding it, all being arranged substantially as set forth.

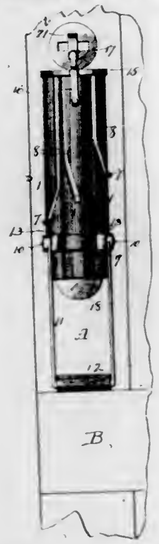
2. A computing-measure for use in selling materials by lineal measurement having a flat body A, a chart attached to the surface thereof at one end which indicates at a glance the aggregate cost of goods at the intersection of a price-per-yard column and a column showing the number of yards being sold, in combination with a measuring-scale on the said body, a slot adjacent to the scale, a revoluble cylinder having a chart thereon beneath the slot, said chart having horizontal columns indicated thereon on which prices per yard of goods are shown, said columns being divided into various fractions of a yard, each fraction having the price thereof indicated thereon whereby the dealer may ascertain the aggregate cost of a number of yards at a given price per yard by referring to the

stationary chart and may ascertain what the fractional part of a yard would cost, at the same price, on the revoluble chart.

3. In a computing-measure, the combination of a body A, a chart C thereon at one end having vertical columns indicating prices of goods per yard and horizontal columns indicating numbers of yards of goods to be sold, the intersections of the columns showing the aggregate cost of yards of goods so indicated, a longitudinal slot in the body between the chart C and the opposite end of the body, a measuring-scale adjacent to the slot, a cylindrical chart beneath the slot and readable through the latter, columns on the said cylindrical chart parallel with the slot, prices per yard indicated in the margin of the chart in said columns, and fractional parts of yards indicated in all of the columns and the cost of each fraction at the prices indicated in the respective columns, hangers D for the said cylinder, the stub-shafts H in the cylinder having their means of support in the said hangers D, means for turning the chart, means for holding the chart in place after movement and a casing for inclosing the chart the same being attached to the ends D substantially as shown and for the purposes described.

4. The combination with a store-counter having a notch cut therein, substantially as described, of a computing-measure in said notch which consists of a body A having a chart thereon at one end wherein are indicated vertical and horizontal intersecting columns the former showing prices of goods per yard, the latter showing numbers of yards of goods to be sold and having at the intersections of the said columns the aggregate cost of goods derived by a multiplication of the figures in the intersecting columns, the slot B in the body and a measuring-scale adjacent thereto, the revoluble chart beneath the slot having prices of goods per yard indicated thereon at its marginal edge and horizontal columns opposite said prices wherein fractional parts of a yard are measured off and the prices of each indicated thereon as set forth, means for supporting and revolving said chart and a casing for inclosing said chart, all as set forth and described.

662,534. **BURGLAR-ALARM.** WHEELER H. HOLMES, Pittston, Pa. Filed Mar. 23, 1900. Serial No. 9,837. (No model.)



Claim.—1. A burglar-alarm comprising a series of cylinders, a plunger in each cylinder, means for supporting a cartridge in each cylinder, springs for forcing the plungers against the cartridges and a sliding collar embracing said cylinders and constructed and arranged to compress the springs and then release the plungers successively when the collar is slid on the cylinders.

2. The combination with a cylinder having a slot therein and means in said cylinder for supporting a cartridge, of a plunger in said cylinder, a spring adapted to force the plunger against the cartridge, a lug on the plunger disposed in the slot in the cylinder, and means acting to successively engage the lug and force the plunger away from the cartridge, compress the spring and release the lug when moved to a predetermined position.

3. The combination with a support adapted to be removably connected to one sash of a window, of a cylinder on said support, means in said cylinder for supporting a cartridge, a plunger in said cylinder, a spring adapted to force the plunger against the cartridge, a lug on the plunger projecting through a slot in the cylinder, a band encircling the cylinder and adapted to be connected to the other sash, said band having a flaring portion thereon to permit the lug to escape when the band is moved to force the lug and plunger away from the cartridge.

4. The combination with a cylinder adapted to support a cartridge and means for removably connecting the cylinder to a window-sash, of a plunger in said cylinder, a lug on the plunger projecting through a slot in the cylinder, a removable plate adapted to cover the open end of the cylinder, a spring disposed between the plate and plunger to force the latter against the cartridge and means connected with the other sash constructed and arranged to first withdraw the plunger and compress the spring and then release the plunger, to explode the cartridge.

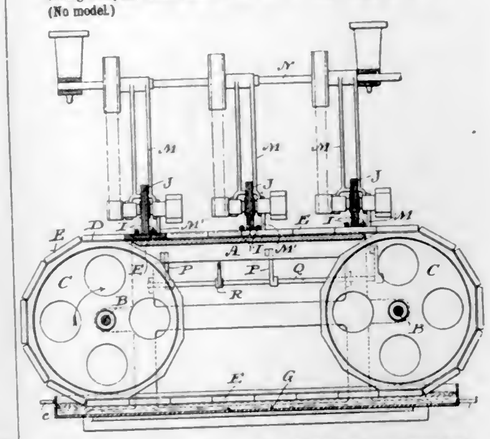
5. The combination with the upper and lower sashes of a window, of a series of cartridge-carrying cylinders connected with the upper sash, devices in each of said cylinders for exploding a cartridge, and a collar connected with the lower sash and embracing the series of cylinders for operating said devices successively to explode the cartridges one after the other in rapid succession, when either sash is opened.

662,535. **HAND-VISE.** CHARLES H. JENKINS, Lebanon, N. H., assignor of one-half to Frank B. Kendrick and William F. Davis, same place. Filed May 22, 1900. Serial No. 17,563. (No model.)



Claim.—A hand-vise, having parallel jaws provided with pairs of oblique slots, a block in which the said jaws are arranged and engaging said jaws through the medium of pins passed through said slots, and having a screw-threaded extension, and a rotatable handle having a collar *f* in positive engagement with the jaws, and a screw-threaded socket to receive and engage the screw-threaded projection of the block, substantially as described.

662,536. **GRINDING, POLISHING, OR BUFFING MACHINE.** JOSEPH KOENIG, Two Rivers, Wis., assignor to the Aluminum Manufacturing Company, same place. Filed July 31, 1899. Serial No. 725,658. (No model.)



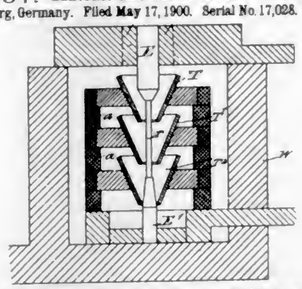
Claim.—1. A grinding, polishing and buffing machine comprising an endless train of holders, means for traveling same, a table arranged to support the upper stretch of said holders, and a series of grinding, polishing or buffing wheels arranged to have their axes out of line with each other to separately operate in successive order upon as many different divisions of the surface of the material carried by said holders.

2. A grinding, polising or buffing machine comprising a table provided with upwardly-projecting parallel bars and stops in pairs transversely of the bars, an endless train of holders having travel on the table between said bars, and grinding, polishing or buffing wheels arranged between the pairs of stops to work on material carried by said holders.

3. A grinding, polishing and buffing machine comprising an endless train of holders, means for traveling same, a table arranged to support the upper stretch of said holders, a series of grinding, polishing or buffing wheels arranged to have their axes out of line with each other to separately operate in successive order upon as many different divisions of the surface of the material carried by said holders, and means for simultaneously bringing all of the wheels in and out of working position.

4. A grinding, polishing or buffing machine, comprising an endless train of holders, means for traveling the same, grinding, polishing or buffing wheels, and means for imparting a vertical adjustment to the wheels coincident with a movement of the same in a direction transversely of the train of holders to come in or out of contact with material carried by said holders.

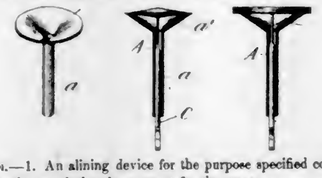
662,537. **ELECTRIC SMELTING-FURNACE.** HUGO KOLLER, Nuremberg, Germany. Filed May 17, 1900. Serial No. 17,028. (No model.)



Claim.—1. An electric furnace having vertically-disposed current-feed electrodes, a vertical series of superposed disconnected hopper-shaped electrodes, arranged between said feed-electrodes and means for insulating them one from the other and from the current-feed electrodes substantially as described

2. An electric furnace having vertically-disposed current-feed electrodes, a vertical series of superposed disconnected hopper-shaped electrodes arranged between said feed-electrodes and means for insulating them one from the other and from the current-electrodes, the lower smaller end of one hopper extending into the top larger mouth of the hopper below it substantially as described.

662,538. **DENTAL APPLIANCE.** DANIEL O. M. LE CRON, St. Louis, Mo. Filed Sept. 14, 1900. Serial No. 30,047. (No model.)



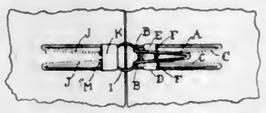
Claim.—1. An alining device for the purpose specified comprising a holder for the mandrel and a support for the stone.

2. An alining device for the purpose specified comprising a holder for the mandrel and a concave support for the stone.

3. An alining device for the purpose specified comprising a tubular shank receiving the mandrel and a cup-shaped head forming the support for the stone.

4. An alining device for the purpose specified comprising a holder for the mandrel and a stepped concave support for the stone.

662,539. **GARMENT FASTENING AND SUPPORTING DEVICE.** MABEL F. LOVING, St. Joseph, Mo. Filed Apr. 26, 1900. Serial No. 14,415. (No model.)

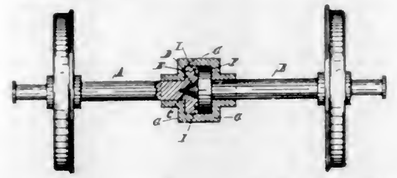


Claim.—1. In a garment fastening and supporting device, a metal strip, the ends thereof turned under, and then toward each other, forming the tubular turns thereof, the holders formed by curving the ends thereof, and the convexity across the middle thereof, all substantially as described and for the purpose specified.

2. The combination with a garment fastening and supporting device of a clasp turned under near its ends forming tubes or grips to receive the wires of a hook or eye, the inwardly-extended ends thereof adapted to hold the pointed ends of said wires, and the convexity across the middle of said clasp adapted to fit up under the hook-loop and prevent the unhooking of the device, substantially as described.

3. The combination in a metal clasp adapted to engage with a garment-fastening hook, of the duplicate grips near the ends thereof which ends are adapted to receive the wires of the hook, the duplicate ends thereof curved and extended toward each other forming holders to receive and protect the pointed ends of the hook-wires, and the convexity adapted to fit up under the hook-loop, substantially as described and for the purpose specified.

662,540. **AXLE FOR RAILWAY OR ROAD VEHICLES.** AUGUSTUS C. MASSEY, Los Angeles, Cal., assignor of one-half to Malcolm McDonald, same place. Filed May 29, 1899. Serial No. 718,788. (No model.)



Claim.—The combination with a divided axle having a central nose, a central socket, flanges on each division of the axle and box inclosing said parts, of the antifriction-rollers between the flanges, substantially as described and shown upon the annexed drawings.

662,541. **REFRIGERATING ARTICLE.** JOSEPH MISKOLCZY, New York, N. Y., assignor to the Misko Ice Company, same place. Filed July 31, 1899. Renewed Apr. 6, 1900. Serial No. 11,896. (No model.)



Claim.—1. As a new article of commerce, a portable refrigerating-body comprising a hermetically-sealed, air-exhausted holder, confining a mass of ice, substantially as described.

2. As a new article of commerce, a portable refrigerating-body, comprising an air-exhausted holder permanently impervious to intrusion of any extraneous fluid and containing frozen liquid, substantially as described.

3. As a new article of trade, a hermetically-sealed, air-exhausted, portable vessel, containing a body of ice, said vessel having a surface rendered conductive and a surface or surfaces rendered non-conductive, the vessel and the ice being presented together for use as a refrigerating-body, substantially as described.

4. As a new article of trade, a vessel or holder comprising an inner and an outer shell, with a mass of ice confined between the shells, the holder being hermetically sealed and practically exhausted of air, substantially as described.

5. The combination with a closed chamber, of a portable refrigerating-body, normally dry and having free conductive surface, the body comprising a hermetically-sealed, air-exhausted, suitably-shaped holder, confining a mass of ice, and in use having its exterior freely exposed, thereby effecting rapid cooling and condensation, substantially as described.

6. As a new article of commerce, a portable shell or holder practically exhausted of air and containing frozen liquid, substantially as described.

7. As an article of commerce, a tapering shell or holder practically exhausted of air and containing ice, substantially as described.

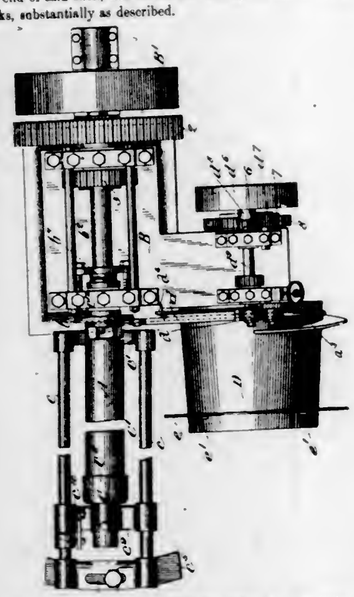
8. As an article of commerce, a hermetically-sealed shell or holder practically devoid of air and containing ice, the shell having a side or sides rendered non-conductive of heat, substantially as described.

9. As a new article of manufacture, a hermetically-sealed, portable vessel, practically exhausted of air and containing ice, the vessel being corrugated or provided with depressions, substantially as described.

662,542. **DEVICE FOR CUTTING TUBULAR METAL SHELLS.** CHARLES S. MORSE, Waterbury, Conn., assignor to the Benedict & Burnham Manufacturing Company, same place. Filed Oct. 31, 1899. Serial No. 735,370. (No model.)

Claim.—1. The combination of a carrier supported on a frame and movable longitudinally thereof for supporting one end of a metallic shell,

cutter-disks for cutting said shell one of said disks serving as a bearing for the other end of said shell, and means for moving the carrier toward the cutter-disks, substantially as described.



2. The combination of rotary cutters, means for supporting a metallic shell said means comprising a frame pivotally supported at one end and adjustable laterally at its opposite end, a carrier movable longitudinally of said frame, and means for adjusting said frame.

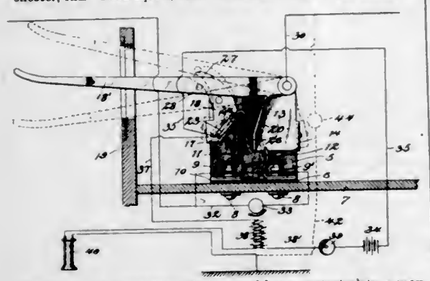
3. In a device for cutting shells of metal, the combination of cutter-disks between which the shell is cut, an adjustable frame, a socket upon the frame for supporting one end of the shell, means for moving said socket toward the cutter-disks, and a device for coiling the strip into which the shell is cut.

4. In a device for cutting cylindrical shells, the combination of cutter-disks between which the shell is cut and one of which supports one end of the shell, means for supporting the other end of the shell, means for feeding said shell longitudinally to the cutter-disks, and a device for regulating the amount of said feed.

5. In a device for cutting shells of metal, the combination of cutter-disks between which the shell is cut, means for feeding said shell to the disks, an adjustable frame supporting said means, and a device for regulating the amount of feed of said shell.

6. In a device for cutting shells of metal, the combination of cutter-disks, means for feeding a shell to said disks in order that it may be cut into a continuous strip, a drum onto which said strip is wound, a spirally-arranged flange at one end of said drum for winding the strip into a coil, and a removable flange at the opposite end of the drum, substantially as described.

662,543. TELEPHONE-SWITCH. LEVI M. NEHER, North Manchester, Ind. Filed Apr. 4, 1900. Serial No. 11,556. (No model.)



Claim.—1. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate and adapted to lie normally out of such contact, a second contact-plate, a contact-finger movably mounted independently of the switch-plate for contact with the second contact-plate and adapted to lie normally out of said contact, and a lever disposed for alternate operative engagement with the switch-plate and the finger to move them alternately into contact with their respective plates the switch-plate and the finger being normally in contact.

2. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate and adapted to lie normally out of contact therewith, a second contact-plate, a contact-finger movably mounted for contact with the second contact-plate and adapted to lie normally out of contact with the second contact-plate, and a lever in operative relation to the switch-plate and finger to move them into contact with their respective contact-plates, the finger and switch-plate lying normally in mutual contact.

3. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate, a second contact-plate, an independently-movable finger for contact with the second contact-plate, a lever in operative relation to the switch-plate and finger to move them alternately into contact with their respective plates, and a single means for holding the finger and switch-plate normally out of contact with their respective plates and in mutual contact.

4. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate, a second contact-plate, a finger for contact with the second contact-plate, a lever in operative relation to the switch-plate and finger to move them into contact with their respective contact-plates alternately, said finger and switch-plate being adapted for mutual contact normally, and means for holding the finger and switch-plate yieldably out of contact with their respective contact-plates and in contact with each other.

5. A telephone-switch comprising a contact-plate, a supporting-plate adjacent thereto, a switch-plate pivoted to the supporting-plate and adapted for movement into contact with the contact-plate, a rocker pivoted upon the supporting-plate, a contact-plate in the path of pivotal movement of the rocker in one direction, and a pivoted lever, said lever being disposed to engage the switch-plate and move it into contact with its contact-plate when the lever is moved in one direction, and to operate the rocker to engage the second contact-plate when moved in an opposite direction the switch-plate and rocker being movable into and out of electrical connection.

6. A telephone-switch comprising two contact-plates, a movable switch-plate for contact with one of the contact-plates and having means for holding it normally out of such contact, a rocker having fingers for contact with the second contact-plate and having means for holding it normally out of such contact, and a receiver-lever in operative relation to the switch-plate and rocker to move them alternately into contact with their respective contact-plates, said fingers and switch-plate being movable into and out of contact and lying normally in electrical contact.

7. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate, a second contact-plate, a movable finger for contact with the second contact-plate, a single means for holding the finger and switch-plate normally from contact with the contact-plates and in contact with each other, and a lever disposed to engage the switch-plate and finger alternately when moved in opposite directions and move them into contact with their respective contact-plates and out of mutual contact.

8. A telephone-switch comprising a contact-plate, a pivoted switch-plate having a projecting portion for contact with the contact-plate, a rocker having a finger, a contact-plate in the path of movement of the finger for contact thereby, means for holding the finger and switch-plate normally out of contact with their respective contact-plates and in mutual contact, and a pivoted lever disposed to alternately engage the projection of the switch-plate and the rocker as the lever is moved in alternate directions, and move the finger and switch-plate projection into contact with their respective contact-plates and out of mutual contact.

9. A telephone-switch comprising a contact-plate, a pivoted switch-plate for contact therewith, a second contact-plate, a pivoted rocker having a finger for contact with the second contact-plate, said rocker having also a cam, a lever disposed for engagement with the switch-plate to move it into contact with its contact-plate, a pin upon the lever for engagement with the cam alternately with the engagement of the lever with the contact-plate, to move the finger into contact with its contact-plate, and a single means for holding the finger and contact-plate normally out of contact with their respective contact-plates, and in mutual contact.

10. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate and adapted to lie normally out of such contact, a second contact-plate, contact-fingers insulated from each other and mounted for simultaneous movement into contact with the second contact-plate and adapted to lie normally out of such contact, and a lever in operative relation to the switch-plate and the fingers to move them alternately into contact with their respective contact-plates.

11. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate and adapted to lie normally out of such contact, a second contact-plate, contact-fingers insulated from each other and movably mounted for contact simultaneously with the second contact-plate and adapted to lie normally from contact therewith, and a lever in operative relation to the switch-plate and fingers to move them alternately into contact with their respective contact-plates, the fingers and switch-plate lying normally in mutual contact.

12. A telephone-switch comprising a contact-plate, a movable switch-plate for contact with the contact-plate, a second contact-plate, fingers insulated from each other and mounted for movement into contact with the second contact-plate, a lever in operative relation to the switch-plate and fingers to move them alternately into contact with their respective contact-plates, and a single means for holding the fingers and switch-plate normally out of contact with their respective plates.

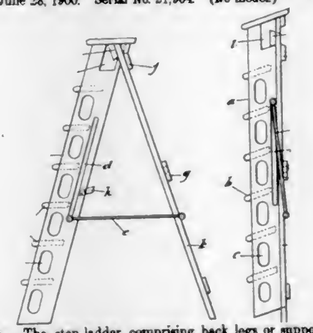
13. A telephone-switch comprising a contact, a movable contact for engagement with the first contact, a third contact, a fourth and movable contact for engagement with the third contact, a single means for moving the movable contacts into engement with their respective contacts alternately, and means for holding the movable contacts normally out of such engagement and in mutual engagement.

662,544. CAN. SAMUEL M. OKELL, Victoria, Canada. Filed Apr. 19, 1897. Serial No. 632,798. (No model.)



Claim.—The herein-described can or packing vessel consisting of an outer metallic shell, an earthenware receptacle conforming in shape to and adapted to be removably fitted within said metallic shell, said inner receptacle having imperforate sides and bottom whereby contact of the contents thereof with the outer metallic shell is prevented, an earthenware top for the inner receptacle adapted to permit the escape of vapor from said receptacle, and a cover for the metallic shell adapted to be rigidly and hermetically secured to the sides of said shell and to hold the top of the inner receptacle in place by contact therewith.

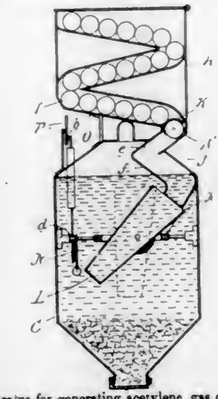
662,545. LADDER. HENRY OVENDEN, Tunbridge Wells, England. Filed June 28, 1900. Serial No. 21,984. (No model.)



Claim.—The step-ladder comprising back legs or supports having two bars or supports adapted to engage in an opening carried in the step-support, a projection upon the step-support portion of the ladder adapted to engage in a slot upon the back-leg portion of the ladder when in its closed position, stay-rods for connecting the two portions of the ladder together, sectional rods upon which said stay-rods are pivotally carried, a screw-collar or socket-piece for engagement upon the screwed ends of the said connecting-rods for the purpose of adjustment, substantially as described and illustrated herein and for the purpose set forth.

662,546. ACETYLENE-GAS GENERATOR. CHARLES PUDDEFOOT, Detroit, Mich. Filed Aug. 12, 1899. Serial No. 726,988. (No model.)

Claim.—1. An apparatus for generating acetylene gas comprising a generator-casing having a water-sealed introduction-tube for the carbid charge, and a submerged receptacle within said casing normally in a position to receive the charge from said introduction-tube and adapted to be automatically tilted by the weight of said charge into a position where the mouth of said receptacle is clear of the mouth of said introduction-tube.

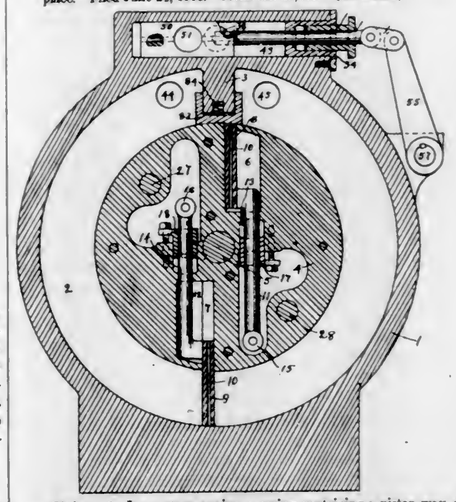


2. An apparatus for generating acetylene gas comprising a generator having a water-sealed introduction-tube for the carbid charge and a submerged receptacle pivotally secured within said generator-casing and counterbalanced to stand normally in an inclined position with its mouth beneath the lower end of said introduction-tube, said receptacle being adapted to be automatically tilted by the weight of the carbid charge therein into a position where its mouth clears said introduction-tube.

3. In an apparatus for generating acetylene gas the combination with a generator-casing having a water-sealed introduction-tube for the carbid charge of a pivoted submerged receptacle within said generator for receiving the carbid charge adapted to be automatically tilted by the weight of said charge, and a supporting-frame for said receptacle adapted to be tilted upon a transverse axis to dump said receptacle.

4. In an apparatus for generating acetylene gas the combination with the generator-casing C, having a water-sealed introduction-tube J, of the submerged receptacle L having the trunnions *a*, the frame M in which said trunnions *a* are journaled having the transverse trunnions *d*, the rock-arm N for said frame, and the operating-rod O substantially as and for the purpose described.

662,547. ROTARY ENGINE. VICTOR SANDAHL and GUSTAF SANDAHL, Boston, Mass., assignors of one-third to Edwin T. Freeman, same place. Filed June 21, 1900. Serial No. 21,075. (No model.)



Claim.—1. In a rotary engine, a casing containing a piston-way, a piston-hub rotating in an opening in said casing, piston-heads reciprocating within said hub into and from the piston-way, piston-rods for said piston-heads, shafts rotatably mounted within the piston-hub, levers upon said shaft, connecting means between said levers and piston-rods, a cam, a cam-roll on one of the levers on each shaft operated by the cam to operate their respective levers, for the purpose set forth.

2. In a rotary engine, a casing containing a piston-way, a piston-hub rotating in an opening in said casing, a piston-head reciprocating within said piston-hub, a lever carried by said piston-hub, yielding connecting means between said piston-head and the lever, and means to vibrate said lever to cause the reciprocations of the piston-head, for the purpose set forth.

3. In a rotary engine, a casing, a piston-way within the casing, a piston-hub, a piston-head reciprocated into and from the piston-way, a lever carried by said piston-hub, and means to operate said lever, adjustable connecting means between said lever and piston-head whereby the movements of the piston-head can be adjusted, for the purpose set forth.

4. In a rotary engine, a casing, a piston-way within the casing, a piston-head reciprocated into and from the piston-way, a piston-hub carrying said piston-head, a shaft rotatably mounted in said piston-hub, a lever adjustably mounted upon said shaft, connecting mechanism between the lever and the piston-head, a cam to vibrate said lever to cause the movement of the piston-head, for the purpose set forth.

5. In a rotary engine, a casing containing a piston-way, a piston-hub rotating in an opening in said casing, a piston-head in said piston-hub, and adjustable yielding means to move the piston-head into said piston-way and against the outer side thereof, for the purpose set forth.

6. In a rotary engine, a casing containing a piston-way, a piston-hub rotating in an opening in said casing, a piston-head reciprocating within said piston-hub, a lever carried by said piston-hub, adjustable yielding connecting means between said piston-head and the lever, and means to vibrate said lever to cause the reciprocations of the piston-head, for the purpose set forth.

7. In a rotary engine, a casing, a piston-way within the casing, a piston movable within the piston-way, a steam-chest, ports connecting the steam-chest and the piston-way, a valve controlling said ports to govern the direction of the movements of the piston, a passage in the casing to convey steam to the steam-chest, a valve controlling said passage, a driven shaft, connected mechanism between said shaft and the valve controlling said passage governed by the position of the valve in the steam-chest to cut off the supply of steam through said passage to the steam-chest, for the purpose set forth.

8. In a rotary engine, a driven shaft, means to drive said shaft, a passage conveying motive fluid to the engine to cause the driving of said shaft, a valve in said passage, automatic mechanism to operate said valve to open or to close said passage, automatic means to change the time of the movement of said valve in relation to the movement of said driven shaft, for the purpose set forth.

9. In a rotary engine, a driven shaft, means to drive said shaft, a valve to control the movement of the driven shaft, a passage conveying motive fluid to the engine to cause the driving of said shaft, a valve controlling said passage, connecting mechanism between the driven shaft and the passage-controlling valve to operate said valve to open and to close said passage, and connecting mechanism between said first valve and said second valve, whereby the movement of the second valve is governed by the movement of the first valve, for the purpose set forth.

10. In a rotary engine, a driven shaft, a reversing valve to control the direction of the rotation of the driven shaft, a passage conveying motive fluid to the engine, a valve controlling said passage, connecting mechanism between the driven shaft and the passage-controlling valve to operate said valve to open or close said passage, cams positioned by the movements of the reversing-valve, and intermediate mechanism connected to the passage-controlling-valve-operating mechanism, operated by said cams to regulate the time of the movement to open and close said passage, for the purpose set forth.

11. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve in said passage, a driven shaft, mechanism on said shaft to operate said valve, and means to automatically connect and disconnect said valve-operating mechanism and the valve, for the purpose set forth.

12. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve in said passage, a driven shaft, mechanism on said shaft to operate said valve, and connecting means between said valve-operating mechanism and the valve, and means to automatically adjust said connecting means, for the purpose set forth.

13. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve controlling said passage, a driven shaft, means on said shaft to operate said valve, and connecting means between said valve-operating means and the valve, and means to automatically adjust said connecting means, and to automatically disconnect said operating means and the valve, for the purpose set forth.

14. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve in said passage, a driven shaft, a valve to control the movement of the driven shaft, means on said shaft to operate said first valve, connecting means between said operating means and said first valve, and means governed by the position of said second valve, to disconnect said valve-operating means and said first valve, for the purpose set forth.

15. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve in said passage, a driven shaft, a valve to control the movement of the driven shaft, means on said shaft to operate said first valve, connecting means between said operating means and said first valve, and means governed by the position of said second valve, to adjust the connecting means between said valve-operating means and said first valve, for the purpose set forth.

16. In a rotary engine, a casing containing a piston-way, a piston, a passage conveying motive fluid to the piston-way, a valve in said passage, a driven shaft, a valve to control the movement of the driven shaft, means on said shaft to operate said first valve, connecting means between said operating means and said first valve, and means governed by the position of said second valve to adjust the connecting means between said valve-operating means and said first valve, and also to disconnect said valve-operating means and said first valve, for the purpose set forth.

17. In a rotary engine, a casing containing a piston-way, a rotating piston, and means to reverse the rotary movement of the piston, a passage conveying motive fluid to the piston-way, a cavity extending across said passage, a block in the cavity, a perforation in the block registering with said passage, operating mechanism to reciprocate the block whereby said perforation is reciprocated in either direction from said passage, and means to automatically govern said operating mechanism whereby the direction of the reciprocation of the perforation in the block is dependent upon the direction of the rotation of the piston, for the purpose set forth.

18. In a rotary engine, a driven shaft, a valve to control the movement of the driven shaft, a passage conveying the motive fluid to the engine, a valve controlling the supply of motive fluid through said passage, a rock-shaft and connecting mechanism between the rock-shaft and said supply-controlling valve, a cam upon the driven shaft rotated therewith, a cam-lever operated thereby, two cams positioned by the movements of said driven-shaft-controlling valve, two cam-levers operated by said latter cams, two arms upon the rock-shaft, one loosely mounted thereon and the other firmly mounted thereon, two pins, each controlled by one of the cam-levers which are operated by the driven-shaft-controlling valve, cams to lock said arms together in different relations to each other and connections between the loosely-mounted arm and the cam-lever operated by the cam on the driven shaft, whereby the supply-controlling valve will be moved in opposite directions from its central position and will supply and cut off motive fluid at opposite parts of the rotation of the driven shaft dependent upon the position of the reversing-valve, for the purpose set forth.

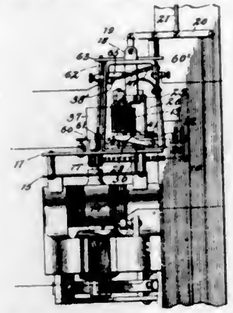
19. In a rotary engine, a driven shaft, a valve to control the movement of the driven shaft, a passage conveying the motive fluid to the engine, a valve controlling the supply of motive fluid through said passage, a rock-shaft and connecting mechanism between the rock-shaft and said supply-controlling valve, a cam upon the driven shaft rotated therewith, a cam-lever operated thereby, two cams positioned by the movements of said driven-shaft-controlling valve, two cam-levers, wedge-shaped at their ends, operated by said latter cams, two arms upon the rock-shaft, one loosely mounted thereon and the other firmly mounted thereon, two pins each controlled by the wedge-shaped portion of one of the cam-levers which are operated by the driven-shaft-controlling valve, cams to lock said arms together in different relations to each other and connections between the loosely-mounted arm and the cam-lever operated by the cam on the driven shaft, whereby the supply-controlling valve will be moved in opposite directions from its central position and will supply and cut off motive fluid at opposite parts of the rotation of the driven shaft dependent upon the position of the reversing-valve, for the purpose set forth.

20. In a rotary engine, a driven-shaft, a reversing-valve, to control the direction of the rotation of the driven shaft, a passage conveying motive fluid to the engine, a cavity extending across said passage, a block having a central perforation reciprocating in said cavity in either direction from a central position, and forming a valve to control the supply of motive fluid to the engine through said passage, a cam on the driven shaft, a separated connecting mechanism between said cam and the supply-controlling valve operated by said cam, two cams positioned by the movement of said reversing-valve, two locking-pins to lock said separated connecting mechanism together in different relative positions, and intermediate mechanisms between each reversing-valve cam and one of said pins controlling said pin, whereby the supply-controlling valve is reciprocated in opposite directions from its central position and supplies or cuts off motive fluid at opposite ends of its stroke dependent upon the position of the reversing-valve, for the purpose set forth.

662,548. PROCESS OF MANUFACTURING METALLIC SILICIUM. BERNHARD SCHEID, Frankfort-on-the-Main, Germany. Filed Sept. 9, 1899. Serial No. 730,024. (No specimens.)

Claim.—The process of manufacturing crystallized silicon which consists in mixing silicic acid, carbon, and a silicate of the alkalies, alkaline earths, or earths, and heating the mixture to such a temperature and under such conditions as to cause the production of silicon and avoid its volatilization and the formation of silicon carbon simultaneously therewith.

662,549. SEMAPHORE-OPERATING MECHANISM. JUDSON SHOECRAFT, Eskridge, Kans., assignor to Charles C. Gardiner, Bradford, Kans. Filed June 23, 1900. Serial No. 21,375. (No model.)



Claim.—1. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft for rotation by the motor, a follower adapted to move alternately with and free of the screw-shaft, means carried by the follower for engaging the follower with the shaft and disengaging it therefrom, means in the path of the follower for breaking the circuit of the motor separate means for operating the disengaging means, and connections between the follower and the semaphore.

2. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft for rotation by the motor, a follower adapted for engagement with and disengagement from the screw-shaft, electrically-operated means for engaging and disengaging the follower, a relay for making and breaking the circuits of the motor and the follower engaging and disengaging means, and means in the path of the follower for breaking the circuit of the motor prior to the breaking of the circuit of the follower engaging and disengaging means.

3. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft adapted for rotation by the motor, a separable follower adapted to move alternately with and free from the screw-shaft, electrically-operated means for closing the follower upon the screw-shaft, a circuit for said means, connections between the follower and semaphore, and means in the path of the follower for breaking the motor-circuit independently of the circuit of the engaging and disengaging means.

4. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft adapted for rotation by the motor, a separable follower adapted to move alternately with and free from the screw-shaft, means for holding the parts of the follower normally separated and free from the screw-shaft, electrically-operated means for closing the follower upon the shaft and for holding it operative with respect thereto, a circuit for said means separate from the motor-circuit and means operated by the follower for breaking the motor-circuit.

5. The combination with a semaphore, of an electric motor, connections between the motor and semaphore for operating the semaphore, a circuit including said motor, a screw-shaft for rotation by the motor, a follower adapted to move alternately with and free from the screw-shaft, means carried by the follower for engaging the follower with the shaft and disengaging it therefrom, and a brake for the motor operable by the follower.

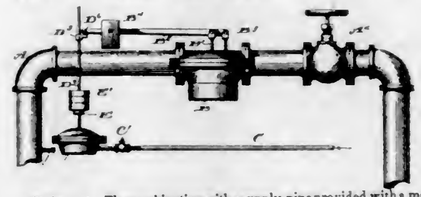
6. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft for rotation by the motor, a follower adapted to move alternately free from and with the screw-shaft, means carried by the follower for engaging the follower with the shaft and disengaging it therefrom, means in the path of the follower for breaking the motor-circuit, a brake mechanism for the motor operable by the follower, and connections between the follower and the semaphore.

7. The combination with a semaphore, of a follower connected therewith, a screw-shaft having operating means, electrically-operated means carried by and movable with the follower for engaging and disengaging it with respect to the screw-shaft, means operated by the follower for arresting the shaft-operating means, and means for subsequently operating the disengaging means to permit the follower to drop and operate the semaphore.

8. The combination with a semaphore, of an electric motor, a circuit including said motor, a screw-shaft adapted for rotation by the motor, a separable follower adapted to move alternately with and free from the screw-shaft, electrically-operated means for closing the follower upon the shaft, connections between the follower and semaphore, means in the path of the follower for breaking the motor-circuit, a brake-drum carried by the motor-shaft, a brake-lever for engagement with the brake-drum, and means in the path of the follower for operating the brake-lever.

9. The combination with a semaphore, of an electric motor, a screw-shaft for rotation by the motor, a follower adapted to move alternately with and free from the screw-shaft, electromagnetic means carried by the follower for engaging the follower with the shaft and for disengaging it therefrom, means in the path of the follower for breaking the circuit of the motor, separate batteries for the motor and the electromagnetic means, a two-point relay having a point in each battery-circuit to close the battery-circuits separately and simultaneously, said relay being adapted for connection with track-rails, and connections between the follower and the semaphore.

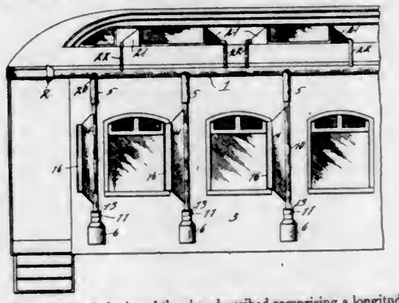
662,550. FLUID-PRESSURE REGULATOR. HENRY C. SISCO, Anderson, Ind. Filed Nov. 8, 1897. Serial No. 657,862. (No model.)



Claim.—1. The combination with a supply-pipe provided with a main pressure-regulator having an operating-lever under tension connected therewith, of an independent auxiliary regulating device under tension and comprising a chamber having therein a diaphragm, a rod carried by said diaphragm and extending therefrom, means detachably connecting said rod to the outer end of said regulator-lever to increase a fluid-supply, and a return-pipe extending from the supply-pipe from the regulator on the service side thereof at a low-pressure point of the same into communication with the diaphragm of said auxiliary device; substantially as specified.

2. The combination with a supply-pipe provided with a main pressure-regulator and having a weighted lever connected therewith, of an independent auxiliary regulating device comprising a chamber having therein a diaphragm, an upwardly-extending rod from said diaphragm, an adjustable tension device carried by said rod, an adjustable log on said rod removably connected with the outer end of said lever to increase a fluid-supply through said regulator, and a return-pipe extending from the supply-pipe at a low-pressure point of the same into communication with the lower portion of said auxiliary device; substantially as specified.

662,551. SPARK AND DUST ARRESTER FOR CARS. MAY STANLEY, Rosenberg, Tex., assignor of one-half to Benjamin R. Brown, same place. Filed Sept. 4, 1900. Serial No. 28,972. (No model.)



Claim.—1. A device of the class described comprising a longitudinal conduit having an end funnel, the top funnels arranged in pairs and designed to be located at the ends of the ventilating-openings of a car and connected with the said pipe or conduit, the vertical hoods or arresters pivotally mounted and designed to be arranged between the windows of a car and connected with the pipe or conduit, and receptacles arranged to receive the sparks and dust and located beneath the reversible hoods or arresters, substantially as described.

2. A device of the class described comprising a longitudinal conduit, a series of upright pipes connected with the conduit and provided with

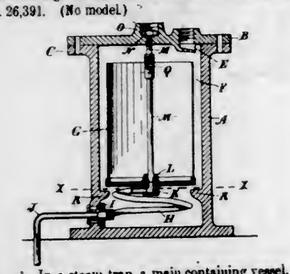
slotted sections capable of a limited rotary movement, and vertical arresters or hoods mounted on the slotted sections and communicating with the slots thereof, substantially as described.

3. In a device of the class described, the combination of a tube or pipe having a slot or opening, and a reversible hood or arrester mounted thereon and composed of sides arranged at an angle to each other, said hood or arrester being provided with tapering covered ends, substantially as described.

4. In a device of the class described, the combination of a pipe or tube having a slot or opening, and the reversible hood or arrester composed of sides arranged at an angle to each other and having flanges at their outer edges, said sides being provided with tapered ends extended beyond the flanges, and the tapering plates connecting the tapering ends, substantially as described.

5. In a device of the class described, the combination of a bracket having a bearing, a tube or pipe journaled in the bearing and provided above the same with a stop and having a threaded enlargement or cap 9, a receptacle having a threaded mouth screwing into the cap or enlargement 9, and a reversible hood or arrester mounted on the tube or pipe substantially as described.

662,552. STEAM-TRAP. JOSEPH ST. MARY, San Francisco, Cal., assignor to George M. Mahoney, same place. Filed Aug. 9, 1900. Serial No. 26,391. (No model.)

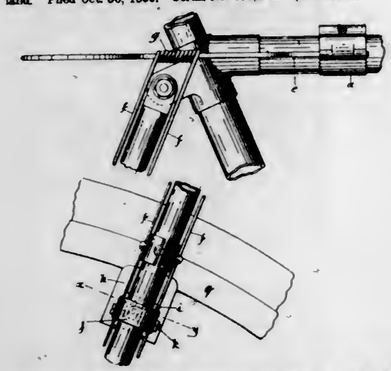


Claim.—1. In a steam-trap, a main containing vessel, an open float vessel therein, the latter poised and held by a coiled elastic pipe so as to move vertically without contact and thereby operate a valve in its bottom in the manner and for the purposes substantially as specified.

2. In a steam-trap, a main containing vessel, an open float therein, a flexible discharge-pipe on which the float is mounted and with which it communicates, an escape-passage in the bottom of the float and a fixed valve that opens and closes by the float's vertical movement, arranged and operating in the manner and for the purpose substantially as described.

3. In a steam-trap the combination of the flexible discharge-pipe H, the float G mounted thereon and supported thereby and the stationary stem M forming a valve to open and close a discharge-passage in the bottom of the float, operating in the manner and for the purposes substantially as specified.

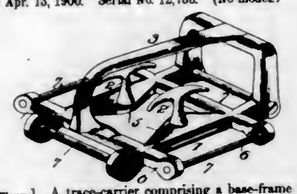
662,553. BICYCLE-BRAKE. WILLIAM G. TASSELL, London, England. Filed Oct. 30, 1899. Serial No. 735,232. (No model.)



Claim.—1. In brakes for velocipedes of the class herein described, in combination, a block or holder carrying the braking-surface, rods adjustably attached to said block, a spring bar or rod bent to the required shape and to which said connecting-rods are attached, a clip carrying the ends of said bent rod or bar, said block being attached to a clip or band adapted to slide upon the bearing or tube, substantially as described and illustrated herein and for the purpose set forth.

2. In brakes for wheels of the class hereir described, a spring rod or bar attached to the frame of the machine, a rod attached to the spring rod or bar aforesaid and carrying a braking-surface adjustably attached thereto, a collar or clip pivotally carrying the braking-surface, said collar or clip being secured to a suitable part of the frame of the machine, substantially as described and illustrated herein and for the purpose set forth.

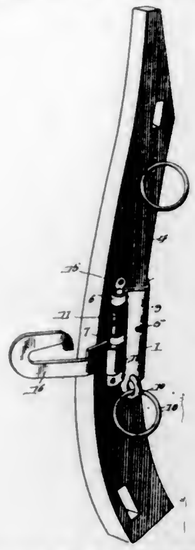
662,554. TRACE-SUPPORT. HENRY G. ADEN, Pomeroy, Iowa. Filed Apr. 13, 1900. Serial No. 12,738. (No model.)



Claim.—1. A trace-carrier comprising a base-frame of rectangular formation, pairs of lugs projecting from the four sides of the base-frame, pins or screws detachably fitted to the outer ends of the respective pairs of lugs, T projections springing from oppositely-disposed frame-bars, an end transverse guard, and a longitudinal guard disposed medially of the T projections, substantially as set forth.

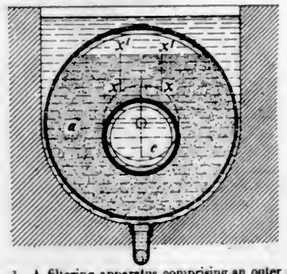
2. The herein-described trace-carrier comprising a base-frame of rectangular formation and having pairs of transversely-apertured lugs at its four sides and in the plane of the frame and forming prolongations of the respective frame-bars, an arch springing from the outer terminals of a pair of said lugs and constituting a transverse guard, a longitudinal guard having one end attached centrally to the horizontal portion of the transverse guard and its opposite end attached to the frame-bar remote from the transverse guard and parallel therewith, T projections disposed in parallel relation and upon opposite sides of a plane passing through the longitudinal guard and springing from inner extensions of the side bars of the frame, and pins or screws detachably fitted to the respective pairs of lugs and forming therewith and with the adjacent frame-bars loops for attachment with the device of the several straps of a harness, substantially as specified.

662,555. HAME AND TRACE CONNECTOR. CONVERSE AVERITT, Blakely, Ga., assignor of one-half to Thomas J. Bryant, same place. Filed May 29, 1900. Serial No. 18,438. (No model.)



Claim.—A device of the class described comprising a hame, a hame-plate constructed of a single piece of sheet metal folded upon itself to provide an outer leaf and an inner body portion and forming a rear bend and cut away thereat to provide eyes, the body portion being provided at the front with an approximately L-shaped extension arranged on the front edge and inner side of the hame, the transverse fastening device passing through the outer leaf, the body portion and the L-shaped extension and also through the hame, a pintle arranged in the said eyes and adapted to hinge a hame-hook to the hame-plate, and a depending eye or loop having a vertical shank interposed between the outer leaf and the body portion of the hame-plate and secured to both of the said parts and coöperating with the transverse fastening device in holding the outer leaf to the body portion, substantially as described.

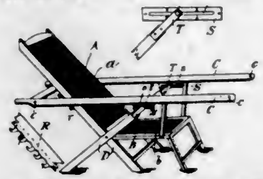
662,556. FILTERING APPARATUS. JOSEPH J. BRIX, Wiesbaden, Germany, assignor to Allgemeine Städtereinigungs-Gesellschaft mit Beschränkter Haftung, same place. Filed Apr. 28, 1899. Serial No. 714,863. (No model.)



Claim.—1. A filtering apparatus comprising an outer and an inner chamber, both having perforated walls, said inner chamber eccentric to the outer chamber and the latter partly filled with filtering material; in combination with a reservoir for the liquid to be filtered in which said filter is mounted so as to be immersed in the liquid therein, for the purpose set forth.

2. A filtering apparatus comprising a drum having perforated peripheral walls, an internal chamber having likewise perforated peripheral walls, the space between said drum and chamber partly filled with a granular filtering material; said drum having journals one of which is tubular and in communication with the internal chamber; in combination with a reservoir for the liquid to be filtered, through one of the walls of which the aforesaid tubular journal projects and in which reservoir the aforesaid filter is revolubly mounted so as to be immersed in the liquid therein, and means for feeding a cleansing liquid to the reservoir at a point below the filter, for the purpose set forth.

662,557. FOLDING CHAIR. GEORGE W. COLE, Bourpemouth, England. Filed July 6, 1897. Serial No. 643,584. (No model.)

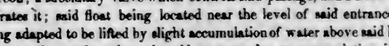


Claim.—1. In a foldable chair, the combination, with a back A, and a seat B hinged to the lower part of the said back and provided with front legs; of arms C extending beyond the opposite ends of the back and seat and provided with slotted plates at their middle parts, trestles D pivoted together and supporting the said back and provided with pins *t* which slide in the said slotted plates, and stays pivoted to the front part of the said seat and to the said arms in front of the slotted plates, substantially as set forth.

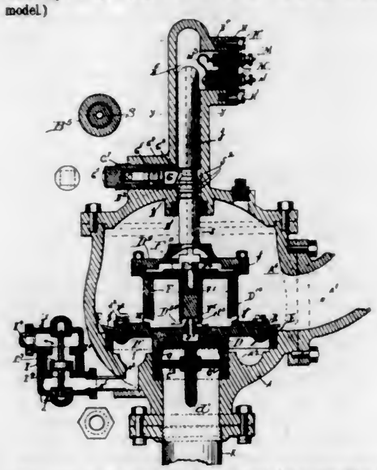
2. In a foldable chair, the combination, with a back A having toothed plates *r* secured to it, and a seat B hinged to the lower part of the said back and provided with front legs; of arms C extending beyond the opposite ends of the back and seat and provided with slotted plates at their middle parts, a bar P extending between the said arms and engaging with the said toothed plates behind the back, trestles D pivoted together and supporting the said back and provided with pins *t* which slide in the said slotted plates, and stays pivoted to the front part of the said seat and to the said arms in front of the slotted plates, substantially as set forth.

662,558. WIRE-BALE-BAND FASTENING. PETER K. DEDERICK, Loudonville, N. Y. Filed Dec. 7, 1898. Serial No. 493,031. (No model.)

Claim.—The herein-described bale-tie formed of wire having its end doubled back and twisted together at a point removed from the bend, one of the strands of the loop so formed being bent into a hook with a deep throat and overhanging point and the other strand being brought into proximity to the point of the hook, at a point intermediate the twist and the extremity of the tie, thereby forming a spring-guard for retaining the coöperating strand; substantially as described.



662,559. DRY-PIPE VALVE. WILLIAM B. ERB, Chicago, Ill. Filed July 31, 1896. Renewed June 16, 1899. Serial No. 720,845. (No model.)



Claim.—1. In combination with a dry-pipe fire-extinguisher system, a valve which controls the same comprising a body or chamber; a differential or two-seated main valve controlling entrance of the water to the chamber, the valve having a passage leading from its inner or discharge side into said interseat-space; a valve which controls said passage, and a buoy or float operatively connected to said valve to open the same when the buoy rises, and adapted to be lifted by accumulation of water in the main-valve chamber, the interseat-space having a drainage passage and outlet; a drainage-valve therein which is normally open, but adapted to be seated by a rapid discharge of water through such drainage-passage, the first-mentioned passage being restricted relatively to such drainage passage or outlet, whereby the valve in the latter passage is not closed by flow of water derived through the first-mentioned passage.

2. In combination with a dry-pipe fire-extinguisher system, a valve which controls the same comprising a body or chamber; a differential or two-seated main valve controlling entrance of water to the chamber, said valve having a passage leading from its inner or discharge side into said interseat-space; a drainage-passage from said interseat-space having a final outlet at a level between the two seats of the main valve; the passage from the main-valve chamber to the interseat-space being at its entrance and also at its highest point, slightly above the level of the outer seat, whereby said seat is kept water-sealed with slight pressure of water thereon; a subsidiary valve which controls said passage, and a float which operates it; said float being located near the level of said entrance and being adapted to be lifted by slight accumulation of water above said level; whereby the outflow through said passage due to accumulation in the chamber when the main valve is closed is feeble.

3. In a valve for controlling a dry-pipe fire-extinguisher system, the body or chamber; a differential or two-seated main valve controlling entrance to the chamber, the interseat-space having a drainage-outlet near the level of the upper seat, said main valve having a hollow chamber D^{16}, immediately above the level of said upper seat; ports leading into said chamber slightly above said level; a drainage-passage leading from within said chamber to the interseat-space; a float in said chamber, and a subsidiary valve operated thereby to control said drainage-passage, the outlet from the interseat-space being free when the main valve is closed.

4. In a dry-pipe fire-extinguisher, in combination with a valve-casing having bottom outlet and differential valve-seats encompassing the same and one encompassing the other, and a drainage-outlet from the interseat-space; the differential main valve adapted to seat on both seats and having above the outer seat and within the valve-chamber a chamber D^{16}, having ports D^{c}, leading into it from the main-valve chamber;

a drainage-passage leading from it through the body of the valve to the interseat-space, the inverted cup F within said chamber D^{10} adapted to operate as a buoy having the stem F' recessed at the end and carrying the valve F^3 at the limit of said recess, the outer lower margin of said stem being slightly lower thanthe lower outer margin of the cup; the nipple D^9 having the mouth of said drainage-passage in its upper end arranged to intrude into the recess in the stem of the float and to afford the seat for said valve.

5. In an automatic fire-extinguisher system, the water-controlling valve comprising a body or casing having discharge for water leading to the system, and having an upwardly-extending hollow stem for the guidance of the main-valve spindle, closed at the upper end, a differential or two-seated main valve within the casing, having its stem or spindle guided in the hollow stem of the body; drainage-passages from the cavity of the body leading into the cavity of the hollow main valve and thence into the interseat-space; a subsidiary valve within the main valve controlling said drainage-passages, the main-valve spindle having a duct affording air communication from the cavity of the hollow main valve above the subsidiary valve to the upper part of the cavity of the hollow guide-stem of the body.

662,560. **PAPER BOX.** JOHN FLOYD, Washington, D. C. Filed Mar. 21, 1900. Serial No. 9,520. (No model.)



Claim.—1. A paper box consisting of an exterior guide box or casing and an interior sliding box having open sides, a closed bottom and a closing end flap adapted to project into the outer box, and a pulling-tab integral with the closing-flap, located at the angle of the closing-flap, and adapted to lie within the outer box in alinement with the sliding box, and to spring upward when its end is moved free from the end of the outer box, substantially as described.

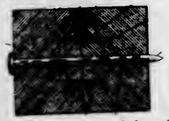
2. A paper box consisting of an exterior box or casing and an interior sliding box fitted therein and disconnected from the exterior box, said sliding box being composed of a single blank bent into rectangular conformation and provided with a closing-flap, and open sides, and a pulling-tab, located at the angle of the closing-flap, and integral therewith, and adapted to normally lie under and be concealed by the outer box, substantially as described.

3. A paper box consisting of an exterior box having open ends, and an interior box having open sides and an end-closing flap, and a pulling-tab having a support at the angle or joint of the closing-flap, integral with the interior box and composed of two leaves disposed at right angles to each other, as specified.

4. A paper box consisting of an exterior open-end box, and an interior sliding box having open sides, a closed bottom and a closing end flap adapted to project into the outer box, and a pulling-tab integral with the closing-flap, located at the angle of the closing-flap and midway of the width of the box, and formed of two leaves arranged at right angles to each other, one of said leaves standing in alinement with the closing-flap and the other in alinement with the end fold of the sliding box, substantially as and for the purpose specified.

5. A paper box consisting of an exterior open-end box, and an interior sliding box disconnected from the exterior box and having open sides, a closed bottom and a closing end flap, and a spring pulling-tab, integral with the closing-flap, adapted to lie under and be concealed within the outer box before the box is opened, and to spring upward and turned outward when free from restraint, substantially as specified.

662,561. **MOLD FOR CASTING RINGS.** WILLIAM H. FORD, Lowell, Mass., assignor of one-half to Cyrus W. Russell, same place. Filed Feb. 23, 1900. Serial No. 6,150. (No model.)



Claim.—1. A mold for casting, consisting of a block of charcoal in its natural state having a mold-cavity therein, a core also of charcoal within the cavity and integral with the mold-block.

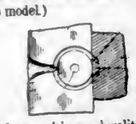
2. A mold for casting consisting of a block of charcoal in its natural state, said mold being formed in two parts each having a cavity and being provided with a core formed integral therewith.

3. A mold for casting consisting of a plurality of sections each section formed of a block of charcoal in its natural state having annular grooves cut therein and adapted to register.

4. A mold for casting consisting of a block of charcoal in its natural state in two substantially similar parts, each part having a flat face and each face having an annular groove forming thereby an integral core part, said grooves being adapted to register.

5. A mold for casting consisting of a block of charcoal in its natural state formed in a plurality of sections having cut grooves adapted to register, said sections being formed with an integral core part and a centering-hole.

662,562. **RING-MOLD.** WILLIAM H. FORD, Lowell, Mass., assignor of one-half to Cyrus W. Russell, same place. Filed Feb. 26, 1900. Serial No. 6,491. (No model.)



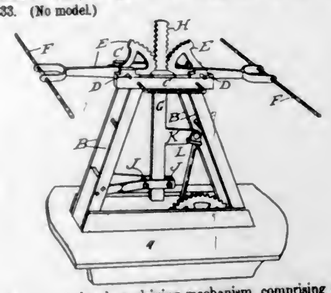
Claim.—1. A mold comprising a plurality of body-sections disposed face to face and each having a parti-annular chamber, said chambers registering to form a body-mold space, each chamber being cut away on a line making a chord to said parti-annular chamber, to thereby expose a part of each chamber, a core in said chamber, the face of the core constituting one wall of said chamber to thereby define the internal diameter of the ring, and a crown-mold section having a crown-mold space in communication with the body-mold space, said crown-mold section abutting the face of the body-section left by the cut as a chord and forming that portion of the other wall of the annular chamber which lies between the points where the chord cuts said annular chamber.

2. A mold comprising a plurality of body-sections disposed face to face and each having a parti-annular chamber of variable depths, said chambers registering to form a body-mold space, each chamber being cut away on a line making a chord to said annular chamber to thereby expose a part of each chamber, a core in said chamber, the face of the core constituting one wall of said chamber to thereby define the internal diameter of the ring, and a crown-mold section having a crown-mold space in communication with the body-mold space, said crown-mold section abutting the face of the body-section left by the cut as a chord and forming that portion of the other wall of the annular chamber which lies between the points where the chord cuts said annular chamber.

3. A mold comprising a plurality of body-sections disposed face to face and having parti-circular chambers registering to form a body-mold space, said sections being cut away on a line making a chord to the circle, to thereby expose part of the mold-space, a pin to unite the two sections, a core to define the internal diameter of the ring, and a crown-mold section having a flat face to fit against the body-sections of the mold, and having a mold-space in communication with the body-mold space.

4. A multipart mold consisting of two main separable substantially duplicate sections having like parti-annular chambers adapted to register one with the other, and a runway, said chambers being cut away on a line making a chord to said circular chambers to thereby expose a part of each chamber, a core centered in said chamber, and a third or auxiliary mold-section adapted to fit against the face of the mold material left by the cut made as a chord, said auxiliary mold-section having a projection surrounded by a space, said space communicating with the mold-space of each main section and defining the exterior shape of the crown of the ring to be cast, the said projection defining the size and location of the jewel-space in the crown, said auxiliary section being confined to the main section during casting.

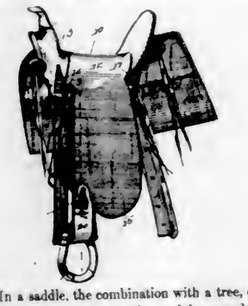
662,563. **HAND-CAR DRIVING MECHANISM.** NED HALL and CHARLES P. GRAY, San Marcos, Cal. Filed July 16, 1900. Serial No. 23,833. (No model.)



Claim.—1. A hand-car driving mechanism, comprising stanchions affixed to the car-platform, as shown; cross-timbers affixed to the oppositely-disposed stanchions; sectors pivotally mounted in said cross-timbers, having handles at their free ends; a double rack-bar between, meshing with said sectors; an arm affixed to said rack-bar; a pitman connected to said arm; and a yoke affixed to the stanchions; rollers mounted in said yoke, said rollers and yoke adapted to keep the movement of the rack-bar vertical.

2. A driving mechanism for hand-cars, comprising sectors having handles on the ends opposite the teeth, pivotally mounted in bearings affixed to the car; a double rack-bar between the sectors, meshing therewith, and having an arm; a pitman connected to said arm, and a guide adapted to keep the movement of the rack-bar vertical.

662,564. **RIDING-SADDLE.** FRANK O. HICKS, Dallas, Tex. Filed Dec. 4, 1899. Serial No. 739,145. (No model.)



Claim.—1. In a saddle, the combination with a tree, of a covering fixed thereon and comprising a seat portion and leg-guards formed integral, stirrup-straps connected directly to and suspended from the leg-guards and tree, and stirrups carried by the straps.

2. A saddle comprising a tree and a cover fixed thereon, said cover including a seat portion and leg-guards formed integral, and stirrups connected with the leg-guards and tree.

3. A saddle comprising a tree and a cover fixed thereon, said cover including a seat portion and leg-guards formed integral, perforations in the leg-guards, stirrup-straps having perforations adapted to aline with those of the leg-guards, and lacings passed through the alining perforations said stirrup-straps being connected also with the tree.

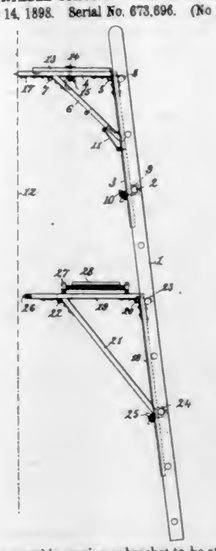
4. A saddle comprising a tree and a cover fixed thereon, said cover including a seat portion and leg-guards formed integral, stirrup-straps each having one end connected with the tree and the opposite end bifurcated and inclosing a portion of the adjacent leg-guard, alining perforations formed through each leg-guard and the adjacent stirrup-strap, and lacings engaging the perforations.

662,565. **MINER'S CANDLESTICK.** ALFRED HOWARD and JOSEPH HOWARD, Ouray, Colo. Filed May 14, 1900. Serial No. 16,667. (No model.)



Claim.—A miner's candlestick comprising a piercing member having a cutter, and a coacting member pivoted thereto having a lateral, under flange, a lateral top flange at one end, and a lateral top flange opposite one portion of the cutter, the former member having a portion of its cutting-blade adapted to engage with said under flange, and a portion having its cutting edge adapted to enter between said opposite top flange and said under flange, substantially as described and for the purpose set forth.

662,566. **PORTABLE STAGING.** JENKINS W. JONES, Woburn, Mass. Filed Mar. 14, 1898. Serial No. 673,696. (No model.)



Claim.—1. In a portable staging, a bracket to be attached to a ladder or other support, consisting of a supporting portion to be attached to and to lie against the ladder, hooks secured to the upper end of said portion and booked bolts adjustable within slotted perforations near the lower end of said portion, said hooks and booked bolts engaging the rungs of the ladder, whereby the supporting portion of the bracket is adjustably but rigidly secured to the ladder, a horizontal portion hinged to the upper end of the supporting portion, a brace hinged at its upper end to the horizontal portion and its lower ends adapted to be attached to the supporting portion, and means to firmly hold said parts in proper relation to each other when in use, whereby the bracket may be folded to occupy a small space when not in use and is secured firmly to the ladder when in use, for the purpose set forth.

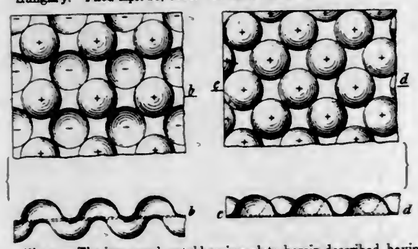
2. In a portable staging, a ladder, combined with a bracket to be firmly but adjustably secured thereto, said bracket consisting of a supporting portion to be attached to and to lie against the ladder, hooks secured to the upper end of said portion and hooked bolts adjustable within slotted perforations near the lower end of said portion, said hooks and hooked bolts engaging the rungs of the ladder, whereby the supporting portion of the bracket is adjustably but rigidly secured to the ladder, a horizontal portion hinged to the upper end of the supporting portion, a brace hinged at its upper end to the horizontal portion and its lower ends adapted to be attached to the supporting portion, and means to firmly hold said parts in proper relation to each other when in use, whereby the bracket may be firmly attached in its proper position to the ladder before raising the ladder, the ladder may be moved upon the building from place to place with the bracket attached thereto, and the bracket may be folded while still attached to the ladder, for the purpose set forth.

3. In a portable staging, a bracket to be attached to a ladder or other support, consisting of a supporting portion to be attached to and to lie against the ladder, means to firmly secure said portion to the ladder, a horizontal portion hinged to the upper end of the supporting portion, an antifriction-roll upon the free end of said horizontal portion, a brace hinged at its upper end to the horizontal portion, and its lower ends adapted to be attached to the supporting portion, and means to firmly hold said parts in proper relation to each other when in use, whereby the bracket may be folded to occupy a small space when not in use, and is secured firmly to the ladder when in use, for the purpose set forth.

4. In a portable staging, a ladder, combined with a plurality of brackets firmly secured thereto, each bracket consisting of a supporting portion to be attached to and to lie against the ladder, hooks secured to the upper end of said portion and hooked bolts adjustable within slotted perforations near the lower end of said portion, said hooks and hooked bolts engaging the rungs of the ladder, whereby the supporting portion of the bracket is adjustably but rigidly secured to the ladder, a horizontal

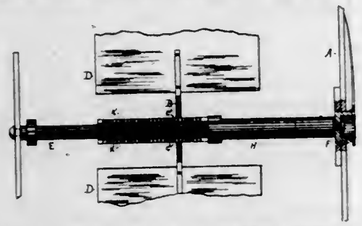
portion hinged to the upper end of the supporting portion, a brace hinged at its upper end to the horizontal portion and its lower ends adapted to be attached to the supporting portion, and means to firmly hold said parts in proper relation to each other when in use, and an antifriction-roll upon the free end of the horizontal portion of the lower bracket on the ladder, whereby the brackets may be firmly attached to the ladder in their proper places before the ladder is raised, and the ladder and attached brackets may be moved from place to place upon the building by the antifriction-roll moving on the building, substantially as and for the purpose set forth.

662,567. **METAL BEARING-PLATE.** ISABELLA VON LIPOWSKA, Krakau, and GUSTAV VON GELDERN-EGMOND zu ARCEN, Vienna, Austria-Hungary. Filed Apr. 25, 1900. Serial No. 14,344. (No model.)



Claim.—The improved metal bearing-plate herein described, having cup-shaped bulges formed thereon by stretching the metal outwardly from the basis of symmetry of the plate at predetermined points, the metal forming the bulges being thinner than the adjacent unstretched portions surrounding each cup-shaped bulge, and the plate retaining its original dimensions after the bulges are formed, substantially as described.

662,568. **SPEED-REGULATOR.** WILLIAM K. LORD, Mount Carmel, Pa. Filed Feb. 1, 1900. Serial No. 3,652. (No model.)



Claim.—1. The combination of a shaft with a capped pivot rotatable in a frame, a rod passing through and rotatable in said shaft, fan-blades mounted on said rod, an exteriorly-threaded cup-shaped element, a sleeve receiving one end of said shaft and having its capped pivot rotatable in said cup-shaped element, means for rotating said rod by the longitudinal movement of said sleeve, the frame having an interiorly-threaded portion adapted to receive the cup-shaped element and allow its rotation therein; substantially as shown and described.

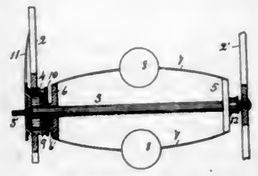
2. The combination of a shaft, a rod passing through and rotatable in said shaft, fan-blades and pinions mounted on said rod, a sleeve receiving one end of said shaft, and racks attached to said sleeve and engaging said pinions; substantially as shown and described.

3. The combination of a shaft, a rod passing through and rotatable in said shaft, fan-blades and pinions mounted on said rod, a sleeve receiving one end of said shaft, racks attached to said sleeve and engaging said pinions, and means for longitudinally moving said sleeve; substantially as shown and described.

4. The combination of a shaft, a rod passing through and rotatable in said shaft, fan-blades and pinions mounted on said rod, a sleeve receiving one end of said shaft, racks attached to said sleeve and engaging said pinions, a cup-shaped element rotatable in the frame and adapted to longitudinally move said sleeve, and a hand attached to said cup-shaped element to denote the speed; substantially as shown and described.

662,569. **SPEED-REGULATOR.** WILLIAM K. LORD, Mount Carmel, Pa. Filed Apr. 13, 1900. Serial No. 12,698. (No model.)

Claim.—1. In a device of the class described, the combination of a suitable frame portion, a cup-like element supported by said frame portion, adjustable with respect thereto, a friction-disk at its inner surface, a friction-disk within said cup-like element, and means for effecting frictional contact of the last-named friction-disk with the first-named friction-disk, as herein specified.



2. In a device of the class described, the combination of a suitable frame portion having a threaded opening, an exteriorly-threaded cup-like element disposed within said opening, a friction-disk arranged exteriorly to said cup-like element and adjacent to the inner surface thereof, and means for effecting frictional contact of said friction-disk with the inner surface of said cup-like element, as herein specified.

3. In a device of the class described, the combination of a suitable frame portion having a threaded opening, an exteriorly-threaded cup-like element disposed within said opening, a friction-disk, as 10, at its inner surface, suitably-supported friction-disks, as 6 and 9, one at each side of the disk 10, and means for effecting frictional contact of the disks 6 and 9 alternately with the disk 10, as herein specified.

4. In a device of the class described, the combination of a suitable frame portion, a cup-like element adjustably supported by said frame portion, a friction-disk at its inner surface, another friction-disk for cooperation with the first-named friction-disk, one of said friction-disks being formed from material of a less degree of hardness than the material from which the other is formed, and means for effecting frictional contact of one of said disks with the other disk, as herein specified.

5. In a device of the class described, the combination of suitable frame portions, a cup-like element adjustably supported by one of said frame portions, a friction-disk at its inner surface, a shaft journaled at one end in one of said frame portions and having at its opposite end an extended journal rotatably bearing in the crown of said cup-like element, a bracket fast on said shaft, a friction-disk loosely mounted on said shaft, springs connecting said bracket and said disk, a regulator-ball carried by each spring, the said friction-disk being adapted to engage the friction-disk on said cup-like element through distention of said springs, and means for rotating said shaft, as herein specified.

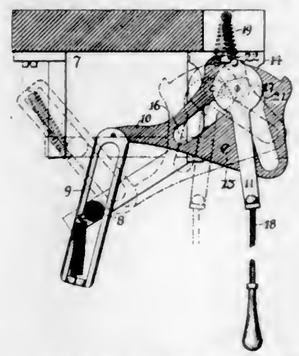
6. In a device of the class described, the combination of suitable frame portions, a cup-like element adjustably supported by one of said frame portions, a friction-disk, as 10, fast to the inner surface of said cup-like element, a shaft journaled at one end in one of said frame portions and having at its opposite end an extended journal rotatably bearing in the crown of said cup-like element, a bracket fast on said shaft, suitably-connected friction-disks, as 6 and 9, loosely mounted on said shaft one at each side of the disk 10, springs connecting said bracket and said disk 6, a regulator-ball carried by each spring, and means for rotating said shaft, as herein specified.

7. In a device of the class described, the combination of suitable frame portions, one of which has an opening the surrounding wall of which is provided with suitable threads, a cup-like element having exterior threads adapted to engage the threads with which the surrounding wall of said opening is provided, a friction-disk at its inner surface, a shaft journaled at one end in one of said frame portions and having at its opposite end an extended journal rotatably bearing in the crown of said cup-like element, a bracket fast on said shaft, a friction-disk, as 6, loosely mounted on said shaft, springs connecting said bracket and said friction-disk last named, a regulator-ball carried by each spring, and means for rotating said shaft, as herein specified.

8. In a device of the class described, the combination of suitable frame portions, one of which is provided with a dial, and has an opening the surrounding wall of which is provided with suitable threads, a cup-like element having exterior threads adapted to engage the threads with which the surrounding wall of said opening is provided, a friction-disk, as 10, fast to the inner face of said cup-like element, a shaft journaled at one end in one of said frame portions and having at its opposite end an extended journal rotatably bearing in the crown of said cup-like element, a bracket fast on said shaft, suitably-connected friction-disks, as 6 and 9, loosely mounted on said shaft, one at each side of said disk 10, springs connecting said bracket and said disk 6, a regulator-ball carried by each spring, the said cup-like element being provided with a pointer for coöperation with said dial, and means for rotating said shaft, as herein specified.

9. In a device of the class described, the combination of suitable frame portions, one of which is provided with a dial, a cup-like element adjustably supported by said dialed frame portion and having a pointer for coöperation with said dial, a shaft journaled at one end in one of said frame portions and at the other end in the crown of said cup-like element, centrifugally-operative parts carried by said shaft and capable of effecting adjustment of said cup-like element through frictional contact of one of said parts therewith, upon said shaft being rotated, and means for thus rotating said shaft, as herein specified.

662,570. **CEILING-SWITCH.** ERNEST A. LOWE, North Plainfield, N. J., assignor of one-half to Charles W. Leveridge, Plainfield, N. J. Filed June 4, 1900. Serial No. 18,995. (No model.)



Claim.—1. In an electric switch, the combination with a movable contact, of a lever provided with a knuckle-joint connection with said contact, and means connected to said lever which when operated in one direction will move said joint past its center and cause the switch to close and which when operated again in the same direction will move said joint past its center in a direction opposite to its first movement and thereby cause the switch to open.

2. In an electric switch, the combination with a movable contact, of a lever connected thereto and provided with divergent ways, a knuckle-joint connection between said contact and lever, an actuating device engaging said ways in a manner such that when moved in a certain direction it will traverse one of said ways and actuate the lever to close the switch, and when again operated in the same direction it will traverse the other one of said ways and actuate the lever to open the switch.

3. The combination with a movable contact in an electric switch, of a lever for operating said contact, a spring-flexed knuckle-joint connecting said contact and lever, a suspended tripping device for said lever, and means for guiding said device alternately to opposite sides of the pivot of said lever, whereby the lever is thrown successively in opposite directions.

4. The combination with a movable contact in an electric switch, of a pivoted lever provided with diverging slots, a tripping device suspended by a spring and having a projection entering said slots and a spring connection between said lever and said contact, substantially as and for the purpose set forth.

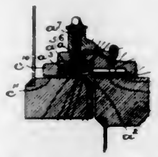
5. In an electric switch, the combination with a movable contact thereof, of an actuating-lever, a tripping device therefor, a slotted link hinged to said lever and connected to said movable contact, and springs connecting said contact to the end of the slotted link as and for the purpose set forth.

6. The combination with a movable contact in an electric switch, of a pivoted lever provided with slots diverging to opposite sides of the pivot, a suspended tripping device having a projection entering said slots, a stop for the lever so located as to determine the slot in which said projection shall come to rest, and a spring-flexed knuckle-joint connection between said lever and said movable contact of the switch.

7. A snap-action device consisting in the combination of a part to be moved, the pivoted lever provided with divergent slots, a tripping device having a spool thereon located in said slots, a spring suspension for said tripping device, a stop for limiting the motion of said lever in either direction, and a knuckle-joint connection between said lever and the part to be moved.

662,571. **SASH-LOCK.** SAMUEL C. MARTIN, Belleville, N. J. Filed Feb. 27, 1900. Serial No. 6,683. (No model.)

Claim.—1. In a sash lock or fastener, the combination, with a lock plate or shoe, of a spring-actuated locking lever or bolt having a vertically-adjustable movement and arranged and constructed to engage said lock plate or shoe, a lock nut or sleeve connected with said locking-lever, and an arm extending from one side of said nut or sleeve adapted to engage with said locking lever or bolt for retaining it in its locked or holding relation with said lock plate or shoe, substantially as and for the purposes set forth.



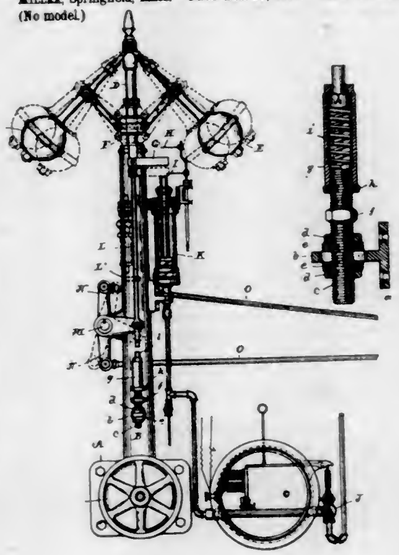
2. In a sash lock or fastener, the combination, with a lock plate or shoe, of a rotatable locking lever or bolt arranged and constructed to engage said lock plate or shoe, a screw-threaded post on which said locking lever or bolt is rotatably arranged, a lock nut or sleeve on said post, and an arm connected with said nut or sleeve adapted to engage said locking lever or bolt for retaining it in its locked or holding relation with said lock plate or shoe, substantially as and for the purposes set forth.

3. In a sash lock or fastener, the combination, with a lock plate or shoe, of a body-plate, a chambered cylindrical portion or extension on said plate, a locking lever or bolt having a chambered portion fitted over said cylindrical portion or extension on said plate, a spring within said chambered portions, said locking lever or bolt having a rotary movement on said cylindrical portion or extension of said body-plate, a lock nut or sleeve connected with said locking-lever, and an arm extending from one side of said nut or sleeve adapted to engage with said locking lever or bolt for retaining it in its locked or holding relation with said lock plate or shoe, substantially as and for the purposes set forth.

4. In a sash lock or fastener, the combination, with a lock plate or shoe, of a body-plate, a chambered cylindrical portion or extension on said plate, an upwardly-extending screw-threaded post in said chambered portion or extension, a locking lever or bolt rotatably arranged on said post, said locking lever or bolt having a chambered portion fitted over said cylindrical portion or extension on said body-plate, a spring in said chambered portions encircling said post, and a lock nut or sleeve on said post for retaining said locking lever or bolt in its locked or holding relation with said lock plate or shoe, substantially as and for the purposes set forth.

5. In a sash lock or fastener, the combination, with a lock plate or shoe, of a body-plate, a chambered cylindrical portion or extension on said plate, an upwardly-extending screw-threaded post in said chambered portion or extension, a locking lever or bolt rotatably arranged on said post, said locking lever or bolt having a chambered portion fitted over said cylindrical portion or extension on said body-plate, a spring in said chambered portions encircling said post, a lock nut or sleeve on said post, and an arm connected with said nut or sleeve adapted to engage said locking lever or bolt for retaining it in its locked or holding relation with said lock plate or shoe, substantially as and for the purposes set forth.

662,572. **CUSHION FOR ENGINE-GOVERNORS.** THOMAS D. MILLER, Springfield, Mass. Filed Dec. 29, 1897. Serial No. 664,160. (No model.)



Claim.—1. The combination of a ball-governor, a part operatively connected and movable as the balls are elevated or lowered, and a cushion device arranged to receive the thrust of such part, the cushioning device being mounted on a stationary and non-moving support, and being inoperative while the governor is moving at its normal speed, and also inoperative while varying from such normal speed inside of the desired predetermined limit of speed.

2. The combination of an engine-governor, a part moved by the governor, and a stationary cushion mounted on a stationary non-moving support arranged in the path of said part and disconnected therewith and in position to take the thrust when the governor exceeds its limit of normal motion.

3. In a cushion device for governors, the combination with a ball-governor of a lug attached to the stem, a suitable contact-piece, a barrel forming a way in which the same is mounted, means for adjusting the barrel and means for connecting the same to a governor-frame.

4. In a cushioning device for automatic engine-stops the combination with the governor of a cushion comprising a yieldable contact, a barrel forming a way in which the same is mounted, an adjustable stem supporting said barrel, a bracket in which the stem is mounted, and means for adjustably securing the same to the governor-frame.

5. The combination with a governor of a cushioning device comprising a part attached to a moving part of the governor, but not attached to the barrel or contact part *l*, a contact-piece *l*, a way in which the same is mounted, a spring to normally extend said contact, means for adjusting said spring, a bracket adjustably supporting said way and by means of which the same is attached to the governor.

6. The combination with the governor of a cushioning device, comprising a yieldable contact-plunger, a barrel in which the same is guided, a spring within the barrel, means for adjusting said spring, a stem supporting said barrel, a bracket in which the stem is mounted, means for adjusting the stem upon the bracket, means for connecting the same to a suitable part of the governor-frame.

7. The combination with the governor of a cushioning device comprising a threaded stem, a barrel engaging the upper threaded end thereof, a contact-plunger protruding from said barrel and yieldably retained therein, a bracket in which the lower end of the stem is mounted, means for affording lateral adjustment of said stem within the bracket, and means for providing vertical adjustment to said stem, substantially as shown and described.

662,573. REPRODUCING TYPE OR THE LIKE. WALTER H. B. MILLER, Oakland, Cal. Filed May 15, 1900. Serial No. 16,757. (No model.)



Claim.—1. The combination with a mold-box, means for reproducing type therein, spacing-blocks within said box and a movable side of the box capable of adjustment against the blocks, of means for removing the type and forming a nick in the cast including a device movably fitted to said movable side.

2. A device for producing complete copies of type and the like consisting of a mold-box having a movable side adjustable to fit opposite sides of the type, spacing-blocks fitting the space between said side and the fixed side of the box whereby an exact fitting of the mold to the type may be obtained, a dry impressionable surface forming the bottom of the mold adapted to receive and retain the impression of the face of the type when the latter is forced therein after being fitted to the mold, and a means for removing the type and forming a nick in the cast consisting of a slidable plate fitting in the side of the mold.

3. A device for casting complete copies of type and the like, consisting of a mold-box having a movable side between which and the fixed side of the box the type may be fitted, spacing-blocks adjustable in the channel thus formed to fit upon each side of the type, a bottom formed of enameled-surface blotting-paper, in which an impression of the type-face may be made by a blow or pressure, a cap fitting the top of said mold having an opening, a melting-pot and guides therefor, and a gate movable under the opening and means for opening said gate in unison with its adjustment to the molding-box.

662,574. AIR CONVEYER. EUGENE L. MCGARY, Pittsburg, Pa. Filed July 14, 1900. Serial No. 23,578. (No model.)

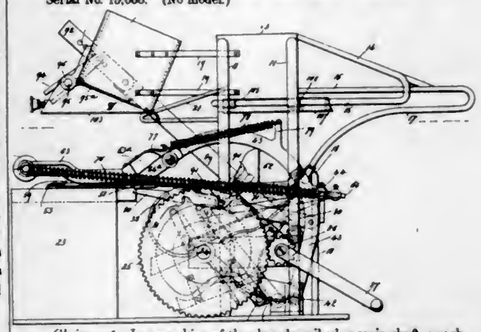
Claim.—1. In an air conveyer, comprising a conduit and a table having an air-passage formed therethrough, the combination, with said table, of a covering-strip running longitudinally with said table, but adjustable laterally with relation to the air-passages thereof; and means for securing said strip, substantially as described.



2. In an air conveyer, comprising a conduit and a table having air-passages formed therethrough, the combination, with said table, of a pair of covering-strips running longitudinally with said table, and adjustable laterally with relation to the air-passages thereof; and means for securing said strips, substantially as described.

3. In an air conveyer, comprising a conduit and a table having air-passages formed therethrough, the combination, with said table, of a pair of covering-strips running longitudinally with said table, and adjustable laterally with relation to the air-passages thereof; means for securing said strips; and a guide-rib running longitudinally with said table and between the proximate edges of said strips, substantially as described.

662,575. ADDRESSING-MACHINE. HERMAN F. NEHR, New York, N. Y., assignor to John Struse, same place. Filed May 1, 1900. Serial No. 15,033. (No model.)



Claim.—1. In a machine of the class described, a main shaft, a rocking frame, a spring-actuated card or stencil frame in operative connection with the rocking frame, a spring-actuated ink-roller frame in operative connection with the rocking frame, devices connected with the main shaft for operating the rocking frame, a drop-finger in operative connection with the rocking frame, and a disk connected with said main shaft and provided with fingers having pins which operate in connection with said drop-finger, substantially as shown and described.

2. In a machine of the class described, a frame or support, a main shaft mounted therein, a rocking frame mounted rearwardly of said main shaft, a spring-actuated card or stencil frame pivotally connected with said rocking frame, means for holding the card or stencil on said card or stencil frame, bars connected with said card or stencil frame and extending backwardly and connected by a shaft, a backwardly-directed guide over which said shaft is adapted to move, and forwardly-directed arms connected with the ends of said shaft and provided with spring-fingers which project over said card or stencil frame, substantially as shown and described.

3. In a machine of the class described, a frame, a main shaft mounted therein, a rocking frame mounted rearwardly of said main shaft and adapted to move forwardly and backwardly, a latch device connected with said rocking frame and operating in connection with the main shaft to prevent the movement of the rocking frame at a predetermined time, and a drop device connected with the rocking frame and operating in connection with the main shaft to draw said rocking frame forwardly at a predetermined time, substantially as shown and described.

4. In a machine of the class described, a frame, a rocking frame mounted therein adapted to move forwardly and backwardly, a spring-actuated card or stencil frame pivotally connected with said rocking frame and adapted to move backwardly and forwardly therewith, a spring-actuated roller-frame connected with said rocking frame and adapted to move forwardly and backwardly independently thereof and to swing therewith, and means for operating said parts, substantially as shown and described.

5. In a machine of the class described, a frame provided with a card or stencil holder having a slide-bottom, a card or stencil receiver mounted in front of said holder and having an open bottom, a rocking frame mounted beneath said holder, a spring-actuated card or stencil frame pivotally connected with said rocking frame and provided with means for actuating the slide-bottom of the holder, a longitudinally-movable spring-actuated ink-roller frame mounted in said rocking frame and adapted to move independently thereof and also to move therewith, a swinging ink-reservoir mounted in front of the card or stencil receiver, devices connected with said card or stencil frame for removing a card or stencil from said holder, and other devices connected with said card or stencil frame and with the ink-reservoir for placing said card or stencil in said receiver, substantially as shown and described.

6. In a machine of the class described, a main frame, a card or stencil holder supported thereby and provided with a slide-bottom, a rocking frame, a card or stencil frame pivoted thereto, a guide connected with the main frame, and means for operating said rocking frame, whereby said card or stencil frame is caused to travel upon said guide and engage said slide-bottom of the holder to move the same from its normal position, substantially as shown and described.

7. In a machine of the class described, a card or stencil holder provided with a slide-bottom, a card or stencil receiver in front thereof and provided with an open bottom, and with spring-actuated devices for holding a card or stencil therein, a rocking frame, a card or stencil frame pivoted thereto and provided with pivoted discharge devices, means for operating said rocking frame, whereby said slide-bottom is moved from normal position, and said card or stencil frame is brought into position to receive a card or stencil from said card or stencil holder, and means for operating said pivoted discharge devices, whereby the card or stencil is moved into a position to be received by said card or stencil receiver, and means for depositing said card or stencil within said card or stencil receiver, substantially as shown and described.

8. A machine of the class described, comprising a suitable frame or support a main shaft mounted therein a card or stencil receiver in front of said holder, a table or support beneath said receiver, a main rocking frame a card or stencil frame in operative connection with the main rocking frame and adapted to be moved beneath said card or stencil holder and to receive a card or stencil therefrom and to place the same upon the table or support, a spring-operated and longitudinally-movable ink-roller frame, also in operative connection with the main rocking frame and adapted to move the ink-roller over said card or stencil, means for inking said roller, and devices in operative connection with said main shaft and said main rocking frame for operating said parts, substantially as shown and described.

9. A machine of the class described, comprising a frame, a main shaft mounted therein, a card or stencil holder, a card or stencil receiver, a table or support arranged in a plane beneath said holder and said receiver, a movable card or stencil frame, in connection with the rocking frame, means for operating said card or stencil frame whereby it initially moves into position to receive a card or stencil from said card or stencil holder, secondarily moves into a position upon said table or support, and finally into a position wherein the card or stencil is received by said card or stencil receiver, an ink-supply, and means for supplying ink to the card or stencil when the card or stencil is upon said table or support, substantially as shown and described.

10. A machine of the class described, comprising a frame, a main shaft journaled therein, a card or stencil holder, and a card or stencil receiver supported in the upper portion of said frame the receiver being in front of the holder, a table or support arranged forwardly of and beneath said card or stencil receiver, a main rocking frame in connection with the main shaft, a movable card or stencil frame in connection with the rocking frame and ink-reservoir, a movable spring-operated ink-roller frame also in connection with the rocking frame and devices operated by said main shaft whereby said rocking frame is operated and the card or stencil frame is initially moved into a position to receive a card or stencil from said card or stencil holder, secondarily into a position upon said table or support, and finally into a position wherein the card or stencil is received by the card or stencil receiver, and devices whereby said ink-roller frame is operated in a predetermined phase of the operation of the card or stencil frame to ink the card or stencil, substantially as shown and described.

11. In a machine of the class described, a frame, a main shaft journaled therein, a main rocking frame in operative connection with said shaft, a card or stencil holder, a card or stencil receiver, a movable card or stencil frame, in operative connection with the rocking frame and formed to receive a card or stencil from the card or stencil holder, and embodying discharging members upon which the card or stencil directly rests, locking devices whereby the card or stencil is locked to the card or stencil frame, means for throwing said locking devices out of operation, and means for operating said discharging members to remove the card or stencil from the card or stencil frame and pass the same into the card or stencil receiver, substantially as shown and described.

12. In a machine of the class described, a frame, a main shaft mounted therein a main rocking frame in operative connection with said shaft a card or stencil holder, a card or stencil receiver, a movable card or stencil frame, in connection with the rocking frame and which receives the stencil from the stencil-holder, locking devices whereby the card or stencil is locked to the card or stencil frame, an ink-reservoir mounted adjacent said card or stencil receiver, an ink-roller frame, in operative connection with the rocking frame and arranged to pass over said card or stencil frame and to ink the card or stencil thereon, and means for simultaneously operating said card or stencil frame to move the same in position to receive a card or stencil from said card or stencil holder, and for operating said ink-roller frame to engage the roller with the ink-reservoir, substantially as shown and described.

13. In a machine of the class described, a frame, a main shaft journaled therein, a main rocking frame in connection with said shaft, a stencil or card holder, a stencil or card receiver, a table or support beneath said receiver, a card or stencil-frame adapted to receive a card or stencil from said holder and place it upon said table, a swinging ink-reservoir provided with a pad, a movable spring-operated inking-roller, said reservoir, said roller and said card or stencil frame being all in operative connection with the rocking frame, substantially as shown and described.

14. In a machine of the class described, a frame or support, a card or stencil holder, a card or stencil receiver, a table beneath said receiver, a main shaft, a rocking frame, a card or stencil frame in operative connection with said rocking frame, a longitudinally-movable spring-operated ink-roller frame in operative connection with said rocking frame, a swinging ink-reservoir supported by said receiver, and devices in operative connection with said main shaft for operating the rocking frame, the card or stencil frame, the ink-roller frame, and said reservoir, substantially as shown and described.

15. In a machine of the class described, a frame or support, a main shaft mounted therein, a card or stencil holder over said main shaft, a card or stencil receiver in front of said holder, a swinging ink-reservoir supported by said receiver, a rocking frame in operative connection with the main shaft, a longitudinally-movable and spring-operated card or stencil frame in operative connection with said rocking frame and adapted to receive a card or stencil from said holder and place it upon said table, a spring-operated longitudinally-movable ink-roller frame in operative connection with said rocking frame and provided with a roller adapted to receive ink from said reservoir and to ink said card or stencil, and devices operating in connection with said card or stencil frame so as to place said card or stencil in said receiver, substantially as shown and described.

16. In a machine of the class described, a main shaft a rocking shaft, a rocking frame connected with said rocking shaft, a card or stencil frame in operative connection with said rocking frame, a spring-operated ink-roller frame in operative connection with said rocking frame, a swinging ink-reservoir in operative connection with said main shaft, and devices connected with said main shaft and said rocking shaft for operating said rocking frame, substantially as shown and described.

17. In a machine of the class described, a frame, a main shaft, a card or stencil holder, a card or stencil receiver, a rocking shaft, a rocking frame connected with said rocking shaft, a card or stencil frame in operative connection with said rocking frame, a spring-operated ink-roller frame in operative connection with said rocking frame, a swinging ink-reservoir in operative connection with said main shaft, and devices connected with said main shaft and said rocking shaft for operating said rocking frame, and a rod or arm pivotally connected with the rocking frame and operating in connection with the main shaft, substantially as shown and described.

18. In a machine of the class described, a main shaft, a swinging ink-reservoir, a pivotally-supported bar in operative connection with said reservoir, a cam-disk on the main shaft, and a finger connected with said bar and provided with a pin which is operated upon by said cam-disk, substantially as shown and described.

19. In a machine of the class described, a main shaft, a rocking frame, a longitudinally-movable spring-operated ink-roller frame mounted in said rocking frame, a pivotally-supported link in operative connection with said ink-roller frame and provided with a curved finger, and an arm connected with the main shaft and operating in connection with said finger to move said ink-roller frame, substantially as shown and described.

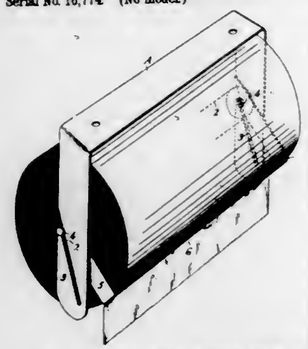
20. In a machine of the class described, a frame, a main shaft therein, a rocking frame operated by the main shaft a card or stencil holder, a card or stencil receiver, a card or stencil frame, operated by the rocking frame and devices operated by the main shaft and rocking frame whereby the card or stencil frame is raised into position to receive a card or stencil from the card or stencil holder, an ink-roller frame, devices operated by the main shaft and rocking frame for operating the same to ink a card or stencil in the card or stencil frame, devices operating in connection with the main shaft for locking the rocking frame during the movement of the ink-roller frame, and devices operating in connection with the main shaft for returning the rocking frame after the movement thereof, whereby the card or stencil frame receives a card or stencil from the card or stencil holder, substantially as shown and described.

21. In a machine of the class described, a frame, a main shaft mounted therein, a swinging ink-reservoir, a bar pivotally connected with said frame, a cam-disk mounted on said shaft and adapted to operate said bar, a member pivotally connected with said bar, and a finger pivotally connected with said member and adapted to operate said ink-reservoir, substantially as shown and described.

22. In a machine of the class described, a main shaft a rocking frame adapted to move forwardly and backwardly and operated by the main shaft and a spring-actuated ink-roller frame mounted therein and adapted to move forwardly and backwardly independently thereof and also to swing therewith, and means for operating said ink-roller frame independent of the means for operating the rocking frame, substantially as shown and described.

23. In a machine of the class described, a card or stencil frame provided rearwardly thereof with a movable shaft supported by bars connected therewith arms connected with said shaft and projecting in the direction of said frame, spring-fingers connected with said arms and extending over said frame, and spring-arms provided with backwardly-directed fingers connected with the front edge of said frame, said frame being open and provided at its opposite sides with inwardly-directed flanges, substantially as shown and described.

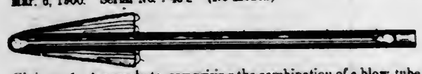
662,576. ROLL-PAPER HOLDER. TONY C. PHILLIPS, San Francisco, Cal., assignor to George H. Fuller, same place. Filed May 15, 1900. Serial No. 16,774. (No model.)



Claim.—1. The combination in a roll-paper holder, of a yoke including end arms having slots made diagonally therein, a paper-roll the journals of which are slidably supported and turnable in said slots, and a blade having arms bent at right angles therewith and secured to the arms of the yoke, and inclined with relation to the said slots whereby the blade stands at a tangent with the periphery of the roll and the latter is maintained in constant contact with the blade.

2. The combination of a yoke having end arms with slots made diagonally therein said slots opening through one edge of the arms and terminating short of the opposite edge, a paper-supporting roll having journals slidably mounted in the slots and having retaining-heads, a cutting-blade, and means for holding it at a tangent with the periphery of the paper-roll, said blade having its cutting edge so related to the lower end of the slots that the paper-roll is maintained in constant contact with said edge.

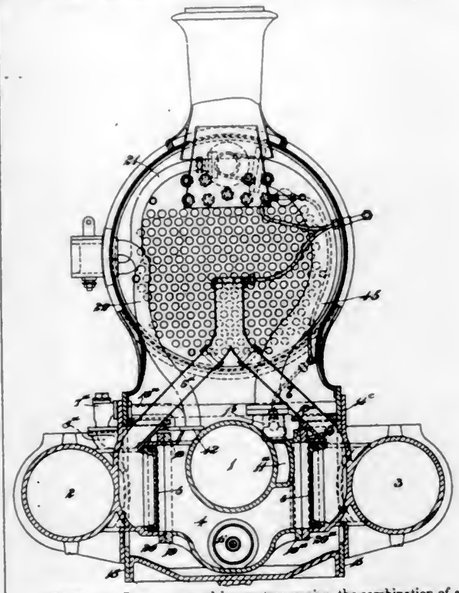
662,577. TOY. EDWIN L. RUTH and JOHN G. DAUBER, Loudonville, Ohio, assignors of one-fourth to Ora Kossuth Fisher, same place. Filed Mar. 6, 1900. Serial No. 7,464. (No model.)



Claim.—1. A parachute, comprising the combination of a blow-tube, a rod adapted to be inserted thereinto and provided upon its lower end with a head fitting the bore of said tube and upon its upper end with a head adapted to rest upon the upper end thereof, a collapsible parachute-body adapted to fold over the upper end of the rod and over the blow-tube, and cords connecting the lower edge or perimeter of the said parachute-body with the upper portion of the rod; whereby the rod and parachute may be projected into the air in folded condition and will descend in extended condition, substantially as shown and described.

2. A parachute, comprising the combination of a blow-tube, a rod adapted to be inserted thereinto and provided upon its lower end with a head fitting the bore of said tube and upon its upper end with a head of greater dimensions than the bore of said tube and adapted to rest upon the upper end thereof; a paper body forming a collapsible parachute and adapted to fold over the upper head of the rod and over the blow-tube, and cords connecting the lower edge or perimeter of the said paper body with the upper head of the rod; whereby the rod and parachute may be projected into the air in folded condition and will descend in extended condition.

662,578. COMPOUND LOCOMOTIVE-ENGINE. WALTER M. SMITH, Newcastle-upon-Tyne, England. Filed Jan. 6, 1899. Serial No. 701,318. (No model.)



Claim.—1. In a compound locomotive-engine, the combination of a high-pressure cylinder, two low-pressure cylinders arranged one at each side of said high-pressure cylinder, a receiver forming the exhaust-chamber of the high-pressure cylinder together with the steam-chests of the two low-pressure cylinders, said receiver being located between the low-pressure cylinders and extending around the sides and bottom of the high-pressure cylinder, cylindrical valve-seats located in said receiver and having ports communicating with passages leading to the respective ends of said cylinder, a pair of connected piston-valves arranged to work in said valve-seats and control said ports, additional passages forming communication between said receiver and the ends of the high-pressure cylinder, and non-return valves located in said passages adapted to close the latter during the normal compound working of the engine and each adapted to open the passage in which it is located when the pressure in the receiver exceeds the pressure in the corresponding end of the high-pressure cylinder, substantially as described.

2. In a compound locomotive-engine, the combination of three steam-cylinders, one high-pressure and two low-pressure, a receiver forming the exhaust-chamber of the high-pressure cylinder together with the steam-chests of the low-pressure cylinders, passages 9, 9^a respectively leading from the ends of the high-pressure cylinder, pipes 10, 10^a connected to said passages 9, 9^a and leading therefrom to accessible parts of the engine, passages 8, 8^a leading from the receiver to said accessible parts, and non-return valves 7, 7^a located at the junctions of said pipes 10, 10^a and passages 8, 8^a substantially as described.

3. In a compound locomotive-engine, the combination of a central high-pressure cylinder, two lower-pressure cylinders arranged outside the frames one at each side of said high-pressure cylinder, and a receiver forming the exhaust-chamber of the high-pressure cylinder together with the steam-chests of the two lower-pressure cylinders and located between the lower-pressure cylinders and extending around the sides and bottom of the high-pressure cylinder, the central high-pressure cylinder being supported at one end by the engine-framing and at the other end by transverse upper and lower girders and thereby held in position between the frames independently of the outside cylinders, substantially as described.

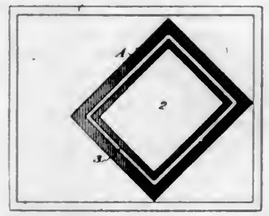
4. In a three-cylinder compound locomotive-engine, the combination with the engine-frame and transverse upper and lower girders connected thereto, of a central high-pressure cylinder, two outside low-pressure cylinders between which said high-pressure cylinder is arranged, and a receiver formed partly by the exhaust-chamber of the high-pressure cylinder and partly by the steam-chests of the low-pressure cylinders, said high-pressure cylinder having at its back end a transverse plate or flange 14 formed with flanges 14^a and 14^b attached to said engine-frame and at its front end upper and lower flanges 16 and 16^a attached to said upper and lower girders 17 and 17^a respectively and said high and low pressure cylinders having at their adjacent parts flanges 19 and 19^a on the sides of the one attached to corresponding flanges 20 and 20^a on the others, substantially as described.

5. In a compound locomotive-engine, the combination with the boiler and steam-receiver, of means for automatically admitting steam from said boiler to said receiver and for maintaining a predetermined pressure in the latter, said means comprising an admission-valve subjected on one side to the pressure of the boiler-steam, a cut-off valve subjected to the action of steam from the boiler at a regulated pressure, a loaded controlling-valve adapted to admit steam at such regulated pressure to said cut-off valve, means whereby the load on said controlling-valve can be varied to a predetermined extent at will, a piston on the end of the stem of the admission-valve and a cushioning-chamber in which said piston works, said chamber being formed with a small inlet and outlet orifice and adapted to contain cushioning liquid, substantially as described

6. In a compound locomotive-engine, the combination with the boiler and steam-receiver, of means for automatically admitting steam from said boiler to said receiver and for maintaining a predetermined pressure in the latter, said means comprising an admission-valve subjected on one side to the pressure of the boiler-steam, a cut-off valve subject to the action of steam from the boiler at a regulated pressure, a loaded controlling-valve adapted to admit steam at such regulated pressure to said cut-off valve, means whereby the load on said controlling-valve can be varied to a predetermined extent at will and means whereby a constant steady pressure can be maintained upon the cut-off valve, substantially as described.

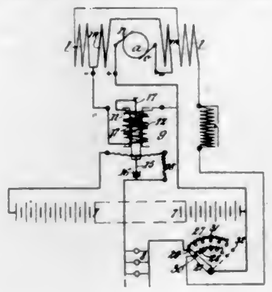
7. In a compound locomotive-engine, the combination with the boiler and steam-receiver, of means for automatically admitting steam from said boiler to said receiver and for maintaining a predetermined pressure in the latter, said means comprising an admission-valve subjected on one side to the pressure of the boiler-steam, a cut-off valve subject to the action of steam from the boiler at a regulated pressure, a loaded controlling-valve adapted to admit steam at such regulated pressure to said cut-off valve, means whereby the load on said controlling-valve can be varied to a predetermined extent at will, a valve upon the stem of the admission-valve adapted to prevent escape of steam into the outer air when it is closed, and a piston with packing-rings on said stem, substantially as described.

662,579. PROCESS OF PRODUCING PHOTOGRAPHIC MOUNTS. PAUL J. STUPARICH, San Francisco, Cal. Filed May 8, 1900. Serial No. 15,886. (No specimens.)



Claim.—The process of producing photographic mounts consisting in removing the center from the printing-plate and applying a shaded ink to the remaining portion of the plate to form a deepening tint from one side or angle to the other and bounding an uncolored center, and finally impressing the plate upon a card placed to receive the impression.

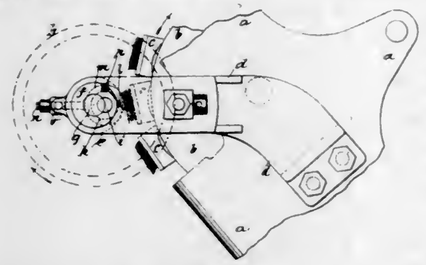
662,580. APPARATUS FOR ELECTRICALLY LIGHTING RAILWAY-CARRIAGES, &c. CHARLES VICARINO, Nancy, France. Filed Apr. 24, 1900. Serial No. 14,105. (No model.)



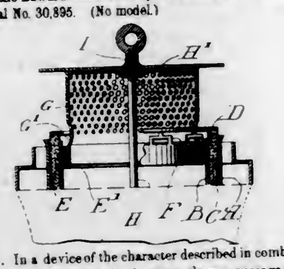
662,581. MECHANISM FOR STRIPPING TEETH OF REVOLVING FLATS OF CARDING-ENGINES. HENRY WALSH, Oldham, England. Filed Sept. 1, 1899. Serial No. 729,175. (No model.)

Claim.—In mechanism for stripping the teeth of revolving carding-engines, in combination two disks *f*, *f*, connected together eccentrically by a removable shaft *i* forming a crank-neck, two bearings *e* in which the said disks revolve, the tube *k* loosely mounted on the said neck, the

comb *l* secured direct to the periphery of the said tube, means for regulating the position and path of the said comb relative to the teeth of the cards and one of the said disks being formed with a shaft for rotating the said crank-disks, jointly in the said bearings, substantially as described.



662,582. LAMP-BURNER. FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Sept. 24, 1900. Serial No. 30,895. (No model.)



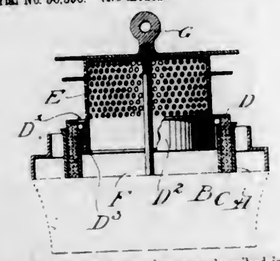
Claim.—1. In a device of the character described in combination, an inner and an outer wick-tube forming between them a passage for a wick, a stationary spreader cylindrical in form, a stationary annular wick guard and stop located above the wick and above the wick-tubes, and an annular gas-passage between the inner edge of said wick-guard and said spreader.

2. In a device of the character described in combination, an inner and an outer wick-tube forming between them a passage for a wick, a stationary spreader cylindrical in form, a stationary annular wick guard and stop located above the wick and above the wick-tubes, an annular depression in said spreader adjacent said wick-guard and the inner side of said wick and means for adjusting the position of the spreader.

3. In a device of the character described in combination, an inner and an outer wick-tube forming between them a passage for a wick, a stationary spreader cylindrical in form, a stationary annular wick guard and stop connected to said spreader located above the wick and above the wick-tubes, an annular depression in said spreader adjacent said wick-guard and the inner side of said wick, and means for adjusting the position of the spreader.

4. In a device of the character described in combination, an inner and an outer wick-tube forming between them a passage for a wick, a stationary spreader cylindrical in form, a stationary annular wick guard and stop located above the wick-tubes and in line with the wick, a space between the inner edge of said wick-guard and the spreader forming a gas-passage adjacent the inner side of the wick.

662,583. LAMP-BURNER. FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Sept. 24, 1900. Serial No. 30,896. (No model.)

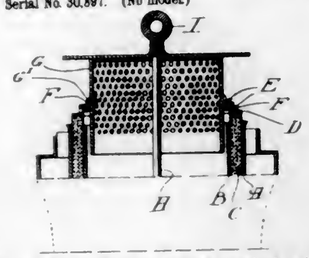


Claim.—1. In a device of the character described in combination, an inner and an outer wick-tube forming between them a wick-passage, a wick-guard resting upon and supported by the wick, perforations in said guard adjacent the inner side of said wick, a wall depending from said wick-guard said wall projecting into the inner tube but of considerably less diameter thereby affording an air opening or passage to the inner side of the wick, a spreader carried by said wick-guard, and means to limit the upward excursion of said wick-guard and spreader.

2. In a device of the character described in combination, an inner and an outer wick-tube forming between them a wick-passage, a wick-guard resting upon and supported by the wick, perforations in said guard adjacent the inner side of said wick, a wall depending from said wick-guard said wall projecting into the inner tube but of considerably less diameter thereby affording an air opening or passage to the inner side of the wick, means to center said wall with respect to said inner tube, a spreader carried by said wick-guard, and means to limit the upward excursion of said wick-guard and spreader.

3. In a device of the character described in combination, an inner and an outer wick-tube forming between them a wick-passage, a wick-guard resting upon and supported by the wick, perforations in said guard adjacent the inner side of said wick, a wall depending from said wick-guard said wall projecting into the inner tube but of considerably less diameter thereby affording an air opening or passage to the inner side of the wick, means carried by said wall for centering the same with respect to said inner tube, a spreader carried by said wick-guard, and means to limit the upward excursion of said wick-guard and spreader.

662,584. LAMP-BURNER. FRANK T. WILLIAMS, Meriden, Conn., assignor to the Edward Miller & Company, same place. Filed Sept. 24, 1900. Serial No. 30,897. (No model.)



Claim.—1. In a device of the character described, an inner and an outer wick-tube, a wick-space between said tubes, an annular movable wick-guard adapted to rest upon said wick the inner edge of said guard being turned upwardly to form a supporting-shoulder for a spreader, a spreader supported upon said upturned portion of the guard, perforations in the upturned portions of said guard, and an air-passage between said spreader and the said wick-tube.

2. In a device of the character described, an inner and an outer wick-tube, a wick-space between said tubes, an annular movable wick-guard adapted to rest upon said wick the inner edge of said guard being turned upwardly and inwardly to form a supporting-shoulder for a spreader, a spreader supported upon said upturned portion of the guard, perforations in the upturned portions of said guard, and an air-passage between said spreader and the said wick-tube.

3. In a device of the character described, an inner and an outer wick-tube, a wick-space between said tubes, an annular movable wick-guard adapted to project into the space between said wick-tubes, the edge of said guard being turned upwardly, and a perforated spreader concentric with said wick-tubes and guard.

662,585. PROCESS OF MANUFACTURING DIETHYL-ETHER. GEORGE H. BENJAMIN, New York, N. Y. Filed Jan. 3, 1899. Serial No. 700,906. (No specimens.)

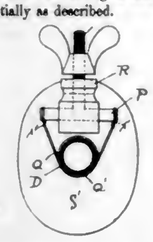
Claim.—1. The herein-described process of manufacturing diethyl-ether, which consists in subjecting a mixture of hydrogen-ethyl sulfate, ethylene, and hydrogen and oxygen to the action of heat.

2. The herein-described process of manufacturing diethyl-ether which consists in subjecting a mixture of hydrogen-ethyl sulfate, ethylene and water to the action of an electric current, whereby the water is decomposed into hydrogen and oxygen, and at the same time subjecting the mixture of hydrogen-ethyl sulfate, and hydrogen and oxygen so formed, to the action of heat.

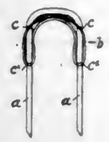
662,586. DEVICE FOR SECURING PIPES. FORTUNATO BERARDI, Naples, Italy. Filed Aug. 13, 1898. Serial No. 688,538. (No model.)

Claim.—A device for securing pipes and the like comprising a bracket, a rod passing through the same, a thumb-screw threaded upon

the upper end of said rod and adapted to bear against the upper side of the bracket, a cross-bar at the lower end of said rod and a wire adapted to encircle the pipe or the like and having its ends connected to the ends of said cross-bar, substantially as described.



662,587. INSULATED SUPPORT FOR ELECTRIC CONDUCTORS. CHARLES C. BLAKE, Portsmouth, N. H. Filed May 18, 1900. Serial No. 17,136. (No model.)

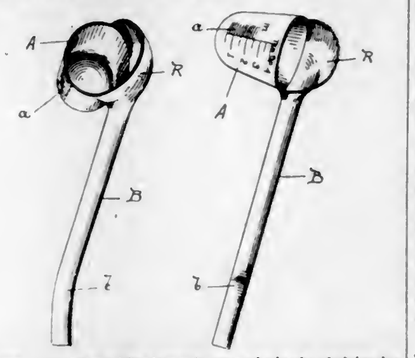


Claim.—1. An insulating device for supporting conductors, consisting of a staple with a flat head; with an insulating-strip covering the inner and outer surfaces of the upper part of the prongs with one thickness and the inner surface of the head with two thicknesses, the same being held to the surfaces of the staple by frictional pressure.

2. An insulating device for supporting conductors, consisting of a staple with a flat head; with an insulating-strip covering the inner and outer surfaces of the upper part of the prongs with one thickness and the inner surface of the head with two thicknesses all of which project from each side of the said staple, the same being held to the surfaces of the staple by frictional pressure.

3. Means for supporting electric conductors consisting of a double-pointed tack or staple having a substantially flat head, with an insulating-cushion composed of a comparatively long narrow and thin strip bent into a loop, and having four perforations or slits, each of the prongs of the staple projecting through two of said slits, the center and the two ends of the strip meeting under the head of the staple, as set forth.

662,588. DEVICE FOR MEASURING AND ADMINISTERING MEDICINES. WILLIAM O. BLOOM, Worcester, Mass. Filed Apr. 16 1900. Serial No. 12,968. (No model.)



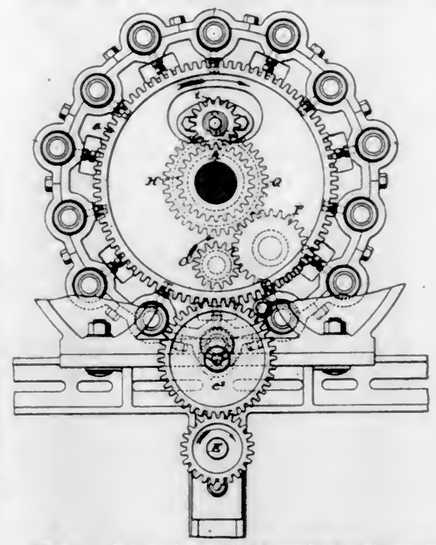
Claim.—1. As an article of manufacture, a device for administering medicinal, or other liquids, comprising a receiving-cup into which the liquid may be poured, a draining-cup, and a tube leading from the draining-cup, substantially as described.

2. As an article of manufacture, a device for administering medicinal, or other liquids, comprising a receiving-cup, a connected draining-cup, and a tube leading from the draining-cup, said parts being arranged so that by turning the device about the tube as an axis, the liquid will run from the receiving-cup into the draining-cup, and thence through the tube, substantially as described.

3. As an article of manufacture, a device for administering medicinal, or other liquids, comprising a graduated receiving-cup for receiving and measuring the quantity of liquid, a spoon-shaped draining-cup at the rear upper edge of the receiving-cup, and a tube leading from said draining-cup, substantially as described.

4. As an article of manufacture, a device for administering medicinal, or other liquids, comprising a receiving-cup A, having divisions or graduations at its front, a draining-cup R at the upper and rear edge of the receiving-cup, a tube B having a bent mouthpiece *b* leading from the draining-cup, said parts being formed from an integral piece of glass, and arranged with respect to each other so that by turning the device about its tube as an axis, the liquid will run from the receiving-cup into the draining-cup, and thence through the tube, substantially as described.

662,589. NAPPING-MACHINE. RICHARD C. BORCHERS, Philadelphia, Pa. Filed Feb. 8, 1900. Serial No. 4,453. (No model.)



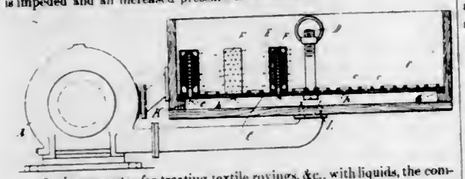
Claim.—1. In a napping-machine, the combination of a napping-drum carrying two alternating series of napping-rollers in planetary relation to the drum, the rollers of one series being differently clothed from those of the other series; two cleaning-drums situated the one outside and the other inside of the napping-drum, and each fitted with longitudinal zones of card-clothing; and positive actuating mechanism whereby each of the said cleaning-drums is positively rotated in such relation to the rotation of the napping-drum that the outside cleaning-drum comes into contact with and cleans the inner series of napping-rollers, while the inside cleaning-drum comes into contact with and cleans the outer series of napping-rollers, substantially as described.

2. In a napping-machine, the combination of a napping-drum carrying two alternating series of napping-rollers in planetary relation to the drum; a cleaning-drum situated on the inside of the napping-drum and having alternating zones which are clothed with or free from wires; means whereby the axis of this cleaning-drum is held immovably notwithstanding the revolution of the napping-drum outside of it; and means, substantially as described, whereby positive axial rotation is imparted to this cleaning-drum, the rate of this positive rotation being so related to the rate of rotation of the napping-drum as to compel the clothed zone of this cleaning-drum to come into contact with and clean only one of the two series of napping-rollers, substantially as described.

662,590. APPARATUS FOR DYEING, &c. RICHARD BRANDTS, München-Gladbach, Germany. Filed Apr. 2, 1898. Serial No. 676,262. (No model.)

Claim.—1. In apparatus for treating textile rovings, &c., with liquids, the combination of a base-plate provided with a series of openings for the passage of liquor, a series of hollow perforated bobbins for carrying the material to be treated communicating interiorly with the liquor-openings in said base-plate, and a series of hollow casings inclosing said bobbins and the material carried thereby and provided with openings for the escape of liquor of substantially less aggregate area than that of the

openings of the bobbins whereby the escape of the liquor at each bobbin is impeded and an increased pressure is obtained.

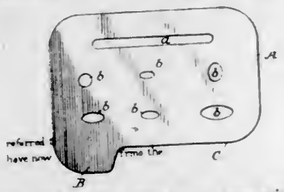


2. In apparatus for treating textile rovings, &c., with liquids, the combination of a vessel, a removable base-plate, provided with a series of openings for the passage of liquor, located in said vessel at a distance from the bottom thereof, a series of hollow perforated bobbins for carrying the material to be treated communicating interiorly with the liquor-openings in said base-plate, and a series of hollow casings inclosing said bobbins and the material carried thereby and provided with openings for the escape of liquor of substantially less aggregate area than that of the openings of the bobbins, whereby the escape of the liquor at each bobbin is impeded and an increased pressure is obtained.

3. In apparatus for treating textile rovings, &c., with liquor, the combination with a hollow perforated bobbin, upon which the material to be treated is wound, of the outer closed protecting and pressure-generating cylinder or shell, inclosing said bobbin and having openings for the escape of liquor of substantially less aggregate area than that of the perforations in the bobbin.

4. In apparatus for treating textile rovings, &c., with liquids, the combination of the base C provided with a series of openings *h*, a series of hollow perforated bobbins carried by said base C and communicating interiorly with the openings *h*, and a series of removable perforated casings E supported by said base C and inclosing the bobbins, the aggregate area of the perforations in any casing being less than the aggregate area of the perforations in the inclosed bobbin, substantially as and for the purposes described.

662,591. **ERASING-SHIELD FOR TYPE-WRITERS.** MARY A. BROWN, Washington, D. C. Filed Oct. 2, 1900. Serial No. 31,794. (No model.)



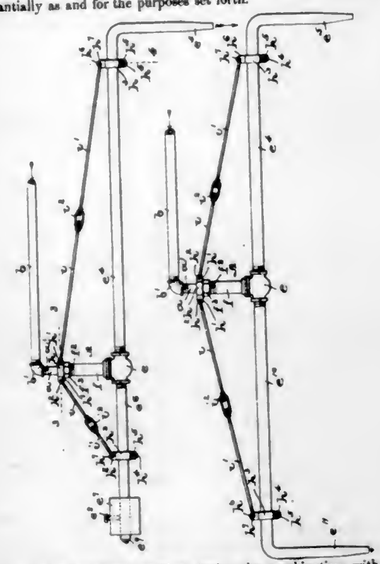
Claim.—As a new article of manufacture, a type-writer's erasing-shield consisting of a metal or other plate having a straight edge, C, and an extension, B, projecting beyond said edge and adapted to cover a portion of a line of type-writing when the edge C is arranged above and parallel to said line.

662,592. **OVERHEAD CARRIAGE-WASHER.** JOHN B. BURGER, Newark, N. J. Filed Aug. 16, 1899. Serial No. 727,381. (No model.)

Claim.—1. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece at the lower end of said stand-pipe, forming a bearing, a nut rotatively arranged on said end piece, having a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to the said nut on the lower end of said stand-pipe, and an outlet or discharge pipe connected with said casing, the said tubular end piece extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, substantially as and for the purposes set forth.

2. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece at the lower end of said stand-pipe, forming a bearing, a nut rotatively arranged on said end piece, having a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to the said nut on the lower end of said stand-pipe, an outlet-pipe extending from one side of said casing, the said tubular end piece extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, a rod extending from the opposite side of said casing, and a weight on said rod, substantially as and for the purposes set forth.

3. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece *c* at the lower end of said stand-pipe, provided with a cone-shaped bearing-surface, a nut *d* provided with an internal cone-shaped tubular portion, rotatively arranged on the cone-shaped bearing-surface of said end piece *c*, said nut *d* being provided with a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to said nut *d*, and an outlet or discharge pipe connected with said casing, the said tubular portion of said cone-shaped bearing extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, substantially as and for the purposes set forth.



4. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece *c* at the lower end of said stand-pipe, provided with a cone-shaped bearing-surface, a nut *d* provided with an internal cone-shaped tubular portion, rotatively arranged on the cone-shaped bearing-surface of said end piece *c*, said nut *d* being provided with a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to said nut *d*, an outlet or discharge pipe extending from one side of said casing, the said tubular portion of said cone-shaped bearing extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, a rod extending from the opposite side of said casing, and a weight on said rod, substantially as and for the purposes set forth.

5. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a fitting rotatably arranged on said stand-pipe, a second pipe or tube secured to said fitting and concentric with said stand-pipe, to provide a long bearing and prevent distortion, an outlet or discharge pipe connected with said fitting, a bearing on said stand-pipe extending into said fitting down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said fitting, a collar loosely arranged on said stand-pipe and above said fitting, and an adjustable tie-rod connection between said collar and a portion of said discharge-pipe, substantially as and for the purposes set forth.

6. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a fitting rotatably arranged on said stand-pipe, a second pipe or tube secured to said fitting and concentric with said stand-pipe, to provide a long bearing and prevent distortion, an outlet or discharge pipe extending from one side of said fitting, a bearing on said stand-pipe extending into said fitting down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said fitting, a counterbalance on the opposite side of said fitting, a collar loosely arranged on said stand-pipe and above said fitting, and adjustable tie-rod connections between said collar and a portion of said discharge-pipe and said counterbalance, substantially as and for the purposes set forth.

7. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece *c* at the lower end of said stand-pipe, provided with a cone-shaped bearing, a nut provided with an internal cone-shaped tubular portion, rotatively arranged on the cone-shaped bearing-surface of said end piece *c*, said nut being provided with a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to said nut *d*, an outlet or discharge pipe connected with said casing, the said tubular portion of said cone-shaped bearing extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, a collar loosely arranged on said stand-pipe and above said nut on said second pipe or tube, and an adjustable tie-rod connection between said collar and a portion of said discharge-pipe, substantially as and for the purposes set forth.

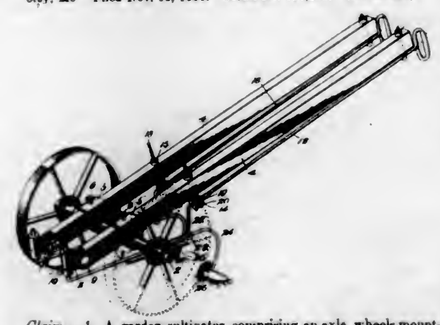
8. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a tubular end piece *c* at the lower end of said stand-pipe, provided with a cone-shaped bearing, a nut provided with an internal cone-shaped tubular portion, rotatively arranged on the cone-shaped bearing-surface of said end piece *c*, said nut being provided with a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, a casing secured to said nut *d*, an outlet or discharge pipe extending from one side of said fitting, the said tubular portion of said cone-shaped bearing extending down even to the axial line of said outlet or discharge pipe, or nearly so, for immersion in the water in said casing, a rod extending from the opposite side of said casing, a weight on said rod, a collar loosely arranged on said stand-pipe and above said nut on said second pipe or tube, and adjustable tie-rod connections between said collar and a portion of said discharge-pipe, and also a portion of said rod, substantially as and for the purposes set forth.

9. The herein-described fitting A for an overhead washer, consisting, essentially, of a stand-pipe *a*, a tubular end piece *c* at the lower end of said pipe *a*, provided with a cone-shaped bearing-surface, a nut *d* provided with an internal cone-shaped tubular portion, rotatively arranged on the cone-shaped bearing-surface of said end piece *c*, said nut being provided with a screw-threaded socket, a second pipe or tube secured in said socket and concentric with said stand-pipe, providing a long bearing to prevent distortion, a nut on the upper end of said second pipe or tube, and a casing *e* secured to said nut *d*, said end piece *c* extending down even, or nearly so, to the axial line of said casing *e*, substantially as and for the purposes set forth.

10. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a bearing portion on said stand-pipe, a fitting rotatably arranged on said bearing portion, an outlet or discharge pipe connected with said fitting, and said bearing portion extending down even to the axial line of said outlet or discharge pipe or nearly so for immersion in the water in said fitting, substantially as and for the purposes set forth.

11. In an overhead washing device, the combination, with a fixed supply-pipe, of a stand-pipe connected therewith, a bearing portion on said stand-pipe, a fitting rotatably arranged on said bearing portion, an outlet or discharge pipe connected with said fitting, and said bearing portion extending down even to the axial line of said outlet or discharge pipe or nearly so for immersion in the water in said fitting, and a counterbalance on the opposite side of said fitting, substantially as and for the purposes set forth.

662,593. **GARDEN-CULTIVATOR.** GEORGE W. CHASE, Kansas City, Mo. Filed Nov. 16, 1899. Serial No. 737,222. (No model.)



Claim.—1. A garden-cultivator, comprising an axle, wheels mounted thereon, bars mounted upon the axle, cultivating-hoes, shanks for said hoes and pivoted to the front ends of said bars to swing the hoes laterally, and rock-shafts carried by the bars and provided with crank-arms pivotally engaging said shanks, substantially as described.

2. A garden-cultivator, comprising an axle, wheels mounted thereon, bars mounted thereon, sleeves pivoted at the front ends of said bars to swing vertically, cultivating-hoes, shanks for said hoes, provided with arms journaled in said sleeves, and rock-shafts carried by the bars and provided with crank-arms pivotally engaging said shanks and adapted to swing transversely of the line of draft and to swing the said shanks correspondingly, substantially as described.

3. A garden-cultivator, comprising an axle, wheels therefor, bars mounted on the axle, sleeves pivoted to said bars to swing vertically, cultivating-hoes, shanks for said hoes provided with arms journaled in said sleeves, eyebolts secured to the bars, and rock-shafts journaled in said eyebolts and provided at their front ends with crank-arms pivotally engaging said shanks, substantially as described.

4. A garden-cultivator, comprising an axle, wheels, laterally adjustable sleeves upon the axle, bars adjustable in said sleeves at right angles to the axle, and cultivating appliances carried by said bars, substantially as described.

5. A garden-cultivator, comprising an axle, wheels, a divided sleeve journaled on the axle, laterally-adjustable sleeves mounted on the divided sleeve, bars adjustable in said laterally-adjustable sleeves, and cultivating appliances carried by said bars, substantially as described.

662,594. **WHEEL.** WILLIAM ESTY, Laconia, N. H. Filed Oct. 31, 1899. Serial No. 735,417. (No model.)

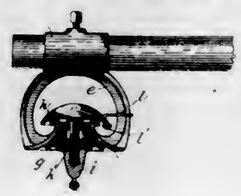


Claim.—1. A wheel having thrust receiving and transmitting radial load-sustaining spokes and tangential torsion-resisting spokes, both of said sets of spokes rigidly connecting the hub and felly of the wheel, substantially as set forth.

2. A wheel having wooden thrust receiving and transmitting radial load-sustaining spokes and metal tangential torsion-resisting spokes, both of said sets of spokes rigidly connecting the hub and felly of the wheel, substantially as set forth.

3. A wheel having thrust receiving and transmitting radial load-sustaining spokes and two sets of tangential torsion-resisting spokes, said two sets extending from the hub to the felly of the wheel in opposite directions, and all of said spokes rigidly connecting the hub and felly of the wheel, substantially as set forth.

662,595. **TROLLEY-WIRE SUSPENSION.** JOHN W. HAYNES, Manchester, Conn. Filed Mar 10, 1900. Serial No. 8,164. (No model.)

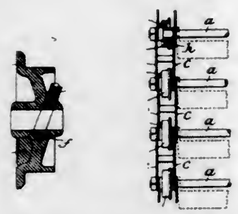


Claim.—1. In combination with a trolley-wire hanger, a cap and cone insulation in which the cap is provided with a locking-socket, and a latch loosely attached to the arm of the hanger and having its end adapted to engage the socket in the cap.

2. In combination with a trolley-wire hanger, a cap and cone insulation, a threaded shank connecting said cap and cone, locking-sockets in the cap, and a latch loosely attached to the arm of the hanger and having a hooked end engaging the socket in the cap.

3. In combination with a trolley-wire hanger, a cap-insulator having a threaded shank, a cone-insulator through which the shank passes, a wire-supporting ear having a threaded socket to receive the shank, a locking-socket in the cap-insulator, and means for locking said cap to the hanger against rotation.

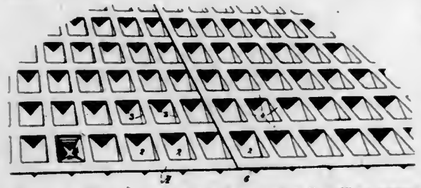
662,596. LUBRICATING CONVEYER-WHEEL. CHARLES W. HUNT, New York, N. Y. Filed Apr. 14, 1900. Serial No. 12,814. (No model.)



Claim.—1. A conveyer-wheel having an oil-cup on one side of its axis and a counterweight on the other side of its axis, whereby the oil-cup is brought uppermost as the wheel is relieved of pressure, substantially as shown and described.

2. In an endless-chain conveyer, the combination with the shafts or axles and links, of conveyer-wheels, each of said wheels having an oil-cup on one side of its axis and a counterweight on the other side of its axis, whereby the oil-cup is brought uppermost as the wheel is relieved of pressure, substantially as shown and described.

662,597. FLOOR, SIDEWALK, OR THE LIKE. PETER H. JACKSON, San Francisco, Cal. Filed Dec. 4, 1899. Serial No. 739,164. (No model.)

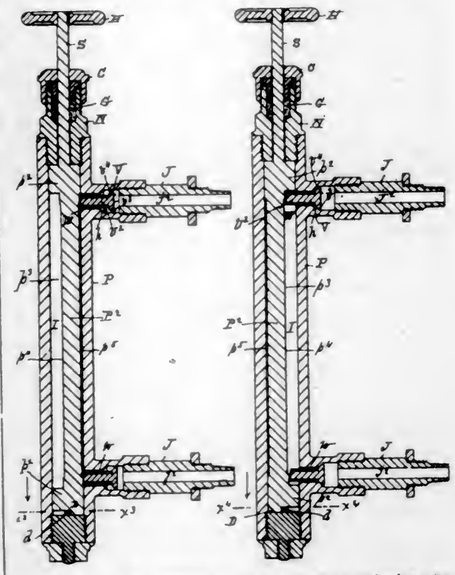


Claim.—1. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming the body, and plates of flat sheet metal embedded therein, farthest from the surface from which the pressure is exerted, said plates having rectangular openings in the direct line of strain, and said openings being filled with pillars of concrete forming continuations of the bodies upon opposite sides of the plate, and upturned metal flanges surrounding and inclosing the concrete pillars.

2. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming the body, and plates of flat sheet metal embedded therein in planes within that portion which is subjected to tensile strain, said plates having rectangular openings, two sides of which are at right angles with the lines of strain, and through which the body of concrete or like material above and below the plates is united, said openings having vertical upturned walls surrounding and inclosing the concrete pillars which extend through them.

3. The combination in a floor, roof, wall, or like structure which is subjected to weight or pressure from one side, of cement or concrete forming a body, plates of sheet metal embedded therein, said plates having rectangular openings with the sides parallel with the edges of the sheets, and upturned walls surrounding the openings, the edges of contiguous sheets being overlapped and the projecting walls of a line of openings of one sheet entering the openings of the other, said walls being afterward folded or interlocked.

662,598. WATER-LINE GAGE FOR STEAM-BOILERS. WALTER O. KNOWLSON, Troy, N. Y., assignor of one-half to Alonzo McConihe, same place. Filed July 30, 1900. Serial No. 25,270. (No model.)



Claim.—1. The combination with a water-line gage having a try-cock at its lower end, of a stand-pipe having laterally-arranged arms connecting it interiorly with said gage, and having also an upper and a lower laterally-arranged connecting-pipe each provided with a valve, the upper one of these last-named pipes being adapted to connect with a steam-boiler above the desired water-line thereof, and the other of said pipes adapted to connect with a boiler below the desired water-line thereof; a cam-rod which at each of its ends is adapted to journal within said stand-pipe, and between where thus journaled cut away eccentrically; and a stop in the lower end of said stand-pipe; and means substantially as described whereby said cam-rod may be rotated within said stand-pipe, as regulated by said stop to hold open the valves in the lateral pipes, substantially as, and for the purposes set forth.

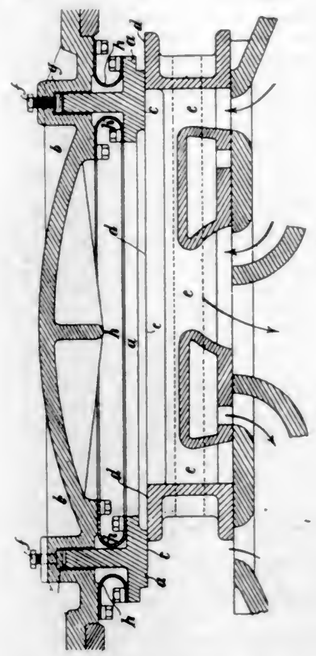
2. The combination with the gage T, arranged within the outer ends of the arms A, A, and provided with the try-cock *m*, of the stand-pipe P, having the stop-pin *d*, upwardly projected from its lower end and connecting with the arms A, A; the cam-rod P^2, provided with the hand-wheel H, and the journal parts p^2, p^3, and cut away eccentrically to said stand-pipe interior between its end journals, and provided with the segment D, upon its lower end; and the pipes J, J, each provided with the valve V, having the stem v^2, and adapted to connect said stand-pipe to a steam-boiler, substantially as, and for the purposes set forth.

3. The combination with a water-line gage having a try-cock at its lower end, of a stand-pipe connected interiorly to said gage at each of its ends; a laterally-arranged and interiorly-connected steam-pipe at each end of said stand-pipe provided with a valve; one of said steam-pipes being adapted to connect with a steam-boiler above the water-line, and the other steam-pipe adapted to connect with a steam-boiler below the water-line thereof; a cam-rod arranged to journal at each of its ends within said stand-pipe, and between where thus journaled to be cut away eccentrically; means substantially as described whereby said cam-rod may be rotated within said stand-pipe to engage with, and hold open said valves for the passage of water from the gage through the try-cock; and a stop in the bottom of said stand-pipe whereby the rotation of said piston may be regulated, substantially as, and for the purposes set forth.

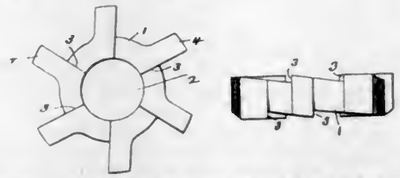
662,599. BALANCED SLIDE-VALVE. WOLDEMAR KRUNTSCHAK, St. Petersburg, Russia. Filed Mar. 7, 1900. Serial No. 7,625. (No model.)

Claim.—In a slide-valve the combination with a rib or flange provided with a vertical flange arranged between the back of the slide-valve and the steam-chest cover, a recess in the latter, in which the vertical flange fits freely and U-shaped metal strips arranged inside and outside between the steam-chest cover and the flange.

662,599.



662,600. WASHER. JOHN E. LENHULT, Leetes Island, Conn. assignor of one-half to Joseph Mattson, Branford, Conn. Filed Jan. 29, 1900. Serial No. 3,108. (No model.)



Claim.—1. A washer for the purpose substantially as described, having radial arms projecting therefrom and provided with teeth upon each side thereof, the face of said teeth being in line with one side of the said projecting arms, substantially as described.

2. A washer for the purpose substantially as described, having the circular body portion 7, with teeth 3 upon each side thereof; and the integral arms 8 projecting radially therefrom and forming a continuation of the said side teeth, substantially as described.

662,601. CARRIER FOR PNEUMATIC-DESPATCH-TUBE APPARATUS. ALBERT W. PEARSALL, New York, N. Y., assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed May 20, 1898. Serial No. 681,219. (No model.)

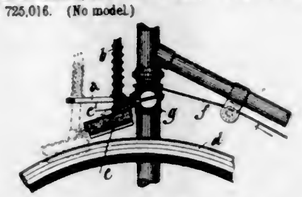


Claim.—1. In a carrier for pneumatic-despatch-tube apparatus, a buffer-head provided with a cavity opening through the side farthest from the body of the carrier, a flexible spreader located within said cavity, and means for adjusting the tension of said spreader.

2. In a carrier for pneumatic-despatch-tube apparatus, a buffer-head provided with a cavity opening through the side farthest from the body of the carrier, means for securing said buffer-head to the body of the carrier, a concave metallic disk located in said cavity, and means for compressing said disk to increase its diameter and thereby spreading said buffer-head.

3. In a carrier for pneumatic-despatch-tube apparatus, a buffer-head provided with a cavity, means for securing said buffer-head to the body of the carrier, a flexible metallic spreader consisting of two concave metallic disks located in said cavity bearing on each other, and means on the carrier for drawing said disks together and thereby spreading the head to the internal diameter of the tube.

662,602. VELOCIPEDE-BRAKE. WILHELM SCHMIDT, Heidelberg, and JOSEF BERBERICH, Neustadt, Germany. Filed July 24, 1899. Serial No. 725,016. (No model.)



Claim.—In a brake for velocipedes the combination with a brake-block, *c*, fastened to the lower end of a rod, *b*; of a guide-piece, *a*, attached to the front of the fork of the fore wheel, having a longitudinal slot, in which said rod slides forward, after the block is pressed on the tire, *d*, of the fore wheel and pulled forward by the latter on its rotation; a brake, *e*, for the rear wheel; and cords, *f*, connecting the brake-block, *c*, with the lever of the brake, *e*, said brake being thus actuated by the forward motion of the block *c*.

662,603. STICKY FLY-CATCHER. GEORGE A. SHAW, Stockport, England, assignor to the Kay Brothers, Limited, same place. Filed Aug. 31, 1899. Serial No. 729,143. (No model.)



Claim.—The improved fly-catcher consisting of thread-coated wire, coiled in the form of a spiral and coated with bird-lime or other sticky substance and contained within a protective case, out of which when pulled it will extend in the form of an elongated spiral substantially as described and illustrated.

662,604. GATE-LATCH. WILSON B. SHUMAKER, Fordyce, Ark. Filed Apr. 10, 1900. Serial No. 12,353. (No model.)

Claim.—1. In a latch, the combination of attaching means, a vertically-swinging latch member projecting laterally therefrom, and also slidable vertically thereon, a keeper for the swinging latch member, and means for preventing a vertically-slidable movement of the swinging latch member, during a vertical movement of the attaching means.

2. In a latch, the combination of attaching means, a vertically-swinging latch member projecting laterally therefrom, and also slidable vertically in opposite directions thereon, a laterally-projecting finger located below and connected to the swinging latch member, and a keeper, having a pair of superposed projections arranged in the paths of the swinging latch member and the finger, respectively.

3. In a latch, the combination of attaching means, a vertically-swinging latch member projecting laterally therefrom, and also slidable vertically in opposite directions thereon, a laterally-projecting finger connected to and located below the latch member, and a keeper having a pair of superposed projections, the finger being located between the projections and the latch member being in engagement with the upper projection in the locked position of the latch.



4. In a latch, the combination of attaching means, a vertically-swinging latch member projecting laterally from the attaching means, and also slidable vertically in opposite directions thereon, a laterally-projecting finger located below the latch member and also connected thereto, and a keeper having a pair of superposed projections for engagement with the latch member and the finger, respectively, the lower projection having its upper face inclined upwardly and away from the finger, forming a guide to raise the latter and the latch.

5. In a latch, the combination of attaching means, a vertically-swinging latch member projecting laterally therefrom, and also slidable vertically in opposite directions thereon, a finger located below and connected to the latch member, and a keeper, having a pair of superposed projections for engagement with the latch member and the finger, respectively, each projection being substantially V-shaped in cross-section.

6. In a latch, the combination with an attaching housing-plate, having a longitudinal slot, of a block slidable freely within the housing-plate, and having an intermediate rib projecting outwardly through the slot, and an intermediate recess in the back of the block, a bowed spring having one end fixed within the recess and its opposite end playing loosely against the back thereof, a vertically-swinging latch member carried by the projecting portion of the rib, and a keeper for the latch member.

7. In a latch, the combination with an attaching housing-plate, having an intermediate longitudinal slot, of a block freely and automatically slidable within the housing-plate, and provided with an intermediate rib projecting outwardly through the slot, a laterally-projecting vertically-swinging latch member pivoted or hinged to the upper end of the rib, and an integral outwardly-projecting finger at the lower end of said rib, and a keeper, comprising an attaching-plate, having a pair of superposed projections arranged transversely across the paths of the latch member and the finger, respectively, each projection being substantially V-shaped in cross-section, with the apex thereof disposed toward the slidable block.

662,605. HARROW. WALTER P. SMITH, Clarksville, Iowa. Filed Jan. 31, 1900. Serial No. 3,496. (No model.)

Claim.—1. In a harrow, the combination with a wheeled support, and a vertically-movable harrow-section, of a rock-shaft mounted upon the support, arms carried by the rock-shaft, radiating therefrom, and arranged in different planes, which are angularly disposed one with the other, flexible suspending connections between the respective arms and the harrow-section, and means for operating the rock-shaft.

2. In a harrow, the combination with a wheeled support, and a harrow-section, of pulleys mounted upon the support, a rock-shaft, also mounted upon the support, and in advance of the pulleys, forwardly-extending arms, and downwardly-extending arms, both of which are carried by the rock-shaft, flexible connections applied to the harrow, passing over the pulleys, and connected to the respective downwardly-extending arms, other flexible connections between the forwardly-extending arms and the harrow, a ratchet device for the rock-shaft, and means for operating the latter, to elevate the arms.

3. In a harrow, the combination with a wheeled axle, having a tongue, and a harrow-section, of an arched foot-rest, extending transversely of the tongue, and having its opposite ends supported upon the axle, pulleys mounted upon the opposite ends of the foot-rest, a rock-shaft mounted upon the tongue, located in advance of the foot-rest, and also projecting at opposite sides of the tongue, a ratchet-wheel provided upon the rock-shaft, a ratchet-lever for the ratchet-wheel, a ratchet-detent mounted upon the tongue, and located adjacent to the foot-rest, angularly-disposed arms provided at each end of the rock-shaft, flexible connections applied to the harrow-section, passed over respective pulleys, and connected to respective arms, and other flexible connections between some of the arms and the harrow-section.



4. In a harrow, the combination with a wheeled support, of a harrow-section loosely suspended from the support, vertically-disposed guides provided upon the support, and braces connected to the harrow-section and also slidably connected to the respective guides.

5. In a harrow, the combination with a wheeled support, of a harrow-section, loosely suspended from the support, vertically-disposed guides, provided upon the support, and braces connected to opposite sides of the harrow-section, extending transversely in opposite directions across the latter, and slidably connected to the respective guides.

6. In a harrow, the combination with a wheeled support, of a harrow-section, loosely suspended therefrom, vertically-disposed arched guide-rods provided at opposite sides of the support, and crossed braces connected to opposite sides of the harrow-section, the free end of each brace being provided with a link or ring, slidably engaging the respective guide-rod.

7. In a harrow, the combination with a wheeled support, and a harrow-section located outwardly from the support, of a vertically-movable arm pivoted to the support, means for raising the arm, a connection between said arm and the inner end of the harrow-section, and means for swinging upwardly and inwardly the outer end of the harrow-section.

8. In a harrow, the combination with a wheeled support, and an outer harrow-section, of means for elevating the inner end of the section, and means for swinging upwardly and inwardly the outer end of the section.

9. In a harrow, the combination with a wheeled support, and an outer harrow-section, of a standard, carried by the support, a vertically-movable arm pivoted to the standard, opposite flexible connections between the arm and the inner end of the harrow-section, opposite guides, carried by the support, and receiving the respective flexible connections, means for raising the pivotal arm, and means for elevating the outer end of the harrow-section.

10. In a harrow, the combination with a wheeled axle, of an outer harrow-section, a standard carried by the axle, an arm pivoted to move vertically upon the standard, means for raising the arm, opposite flexible connections between the arm and the inner end of the harrow-section, a bar supported upon the axle, and extending in a direction front and rear of the device, guides provided at opposite ends of the bar, and receiving the respective flexible connections, and means for elevating the outer end of the harrow-section.

11. In a harrow, the combination with a wheeled support, of an outer harrow-section, a standard carried by the support, an arm pivoted to the standard, and comprising opposite members embracing the standard, and a stirrup at the outer end of the arm, means for raising the arm, a flexible connection between the outer end of the arm and the inner end of the harrow-section, and means for elevating the outer end of the harrow-section.

12. In a harrow, the combination with a wheeled support, of an outer harrow-section, having a flexible connection with the support, and also having longitudinal toothed beams, means for elevating the outer end of the section, and brackets carried by the support, and to receive respective toothed beams, in the upright position of the harrow-section.

13. In a harrow, the combination with a wheeled support, of a harrow-section comprising toothed beams, means for elevating the outer end of the section, and opposite forked brackets carried by the support, and to engage respective toothed beams, in the upright position of the harrow-section.

14. In a harrow, the combination with a wheeled axle, of an outer harrow-section, comprising toothed beams, a bar carried by the outer end of the axle, and extending in front and rear thereof, forked brackets, carried at the opposite ends of the bar, and means for elevating the outer end of the harrow-section, the brackets receiving respective toothed beams, in the upright position of the harrow-section.

15. In a harrow, the combination with a wheeled axle, of an outer harrow-section, a standard rising from the outer end of the axle, a bar also carried by the outer end of the axle, and extending in front and rear thereof, brackets provided at opposite ends of the bar, and having guide-openings therein, an arm located above the bar, and pivoted to the standard, means for elevating the pivotal arm, flexible connections between the arm and the inner end of the harrow-section, said connections passing through the guide-openings of the respective brackets, and means for elevating the outer end of the harrow-section, the latter being engaged by the brackets, in the upright position of the section.

16. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed draw-bar, and a movable draw-bar, connected to the foldable section, and pivoted to swing vertically upon the main draw-bar, and means for rigidly connecting the draw-bar sections in the normal positions thereof.

17. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed main draw-bar, and a foldable draw-bar, connected to the foldable harrow-section, said foldable bar being located at one side of the main bar, and having a brace located at the opposite side thereof, and a common pivot-bolt connecting the foldable bar and the brace with the main draw-bar.

18. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed main draw-bar, a foldable draw-bar pivoted to the main bar, and also connected to the foldable harrow-section, and a seat carried by the main bar, and supporting the foldable bar, in the normal position thereof.

19. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a main draw-bar, a foldable draw-bar, connected to the harrow-section, and also pivoted to move vertically upon the main draw-bar, and a seat extending transversely from the main draw-bar, and supporting the foldable bar in its normal position, and having a shoulder for engagement with the outer side of the foldable bar.

20. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a main draw-bar, a foldable draw-bar connected to the foldable section and pivoted to the main draw-bar, and a latch to prevent accidental folding of the foldable draw-bar.

21. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a main draw-bar, a foldable draw-bar connected to the foldable section and pivoted to the main draw-bar, and a bell-crank latch mounted upon the main draw-bar and engaging the foldable draw-bar, and means for operating the latch.

22. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a main draw-bar, a foldable draw-bar connected to the foldable section and pivoted to the main draw-bar, and a spring-actuated bell-crank latch mounted upon the main draw-bar, and having a beveled or inclined catch-head engaging the upper side of the foldable bar, and means for operating the latch.

23. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a main draw-bar, a foldable draw-bar connected to the foldable section and also pivoted to the main draw-bar, and a spring-actuated latch, having an upwardly and forwardly inclined catch-head normally engaging the foldable draw-bar to lock the same, and located in the path of its downward movement for automatic operation thereby.

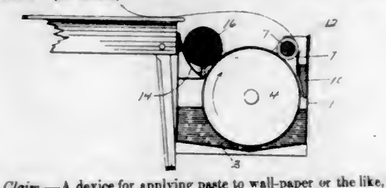
24. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed draw-bar, and a movable draw-bar connected to the foldable section, pivoted to swing vertically upon the main draw-bar, and provided with a lateral shoulder to abut against the adjacent outer end of the fixed draw-bar.

25. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed draw-bar, having a longitudinal notch or recess formed in the rear side thereof and extending outwardly through its outer end, and a movable draw-bar connected to the harrow-section, and also pivotally connected to the rear side of the fixed draw-bar, to fit within the notch or recess in the normal positions of the draw-bar sections.

26. The combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed draw-bar, and a movable draw-bar connected to the foldable harrow-section, and also pivotally connected to one side of the fixed draw-bar, and having a longitudinal brace pivoted to the opposite side of said fixed draw-bar, and a transverse brace between the movable draw-bar and the longitudinal brace, to abut against the adjacent end of the fixed draw-bar, in the normal positions of the draw-bar sections.

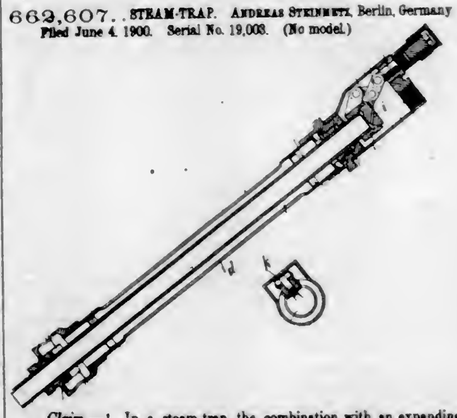
27. In a harrow, the combination with a wheeled support, and a vertically-foldable harrow-section, of a fixed draw-bar, a strap or bar projecting transversely in opposite directions at opposite sides of the fixed draw-bar, and provided at its opposite ends with upstanding shoulders to form opposite seats, and a movable draw-bar pivoted to one side of the fixed draw-bar and adapted to be supported by the adjacent seat, and provided with a longitudinal brace pivoted to the opposite side of the fixed draw-bar and adapted to be supported in the adjacent seat, and a transverse brace between the movable draw-bar and the longitudinal brace, to form a shoulder to abut against the adjacent outer end of the fixed draw-bar, in the normal positions of the draw-bar sections.

662,606. APPARATUS FOR APPLYING PASTE TO WALL-PAPER. ROBERT R. STANLEY, Kansas City, Mo., assignor of one-third to T. W. Johnson, Kansas City, Kans. Filed June 8, 1900. Serial No. 19,533. (No model.)



Claim.—A device for applying paste to wall-paper or the like, comprising, in combination, the paste-box 1, the trough-shaped bottom 3 thereof, the pasting-cylinder 4 mounted in said box, the inclined brackets 14, detachably secured to one inner side of said box for partially supporting a roll of paper, the rod 16 for weighting the roll, the slots 17 in the ends of said box for the ends of said rod, corrugated roller 7 rotatably mounted in contact with said cylinder, the brush-holder 10, the hooks 12 for attaching the brush-holder to the paste-box, and the brush 9, extending the length of said roller and contacting with a portion thereof; all substantially as described.

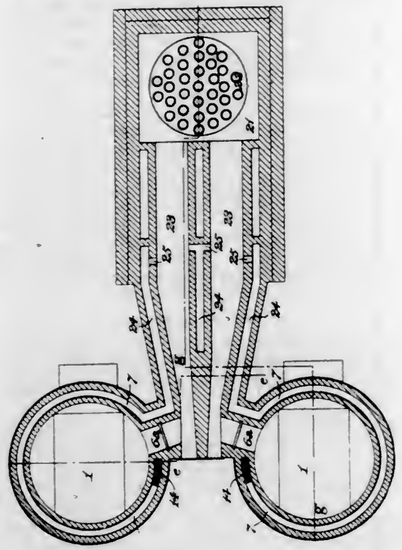
662,607. STEAM-TRAP. ANDREAS STEINMETZ, Berlin, Germany. Filed June 4, 1900. Serial No. 19,003. (No model.)



Claim.—1. In a steam-trap the combination with an expanding tube, a valve-seat fastened to same and a slotted tube embracing said expanding tube, of a valve, a curved arm fastened to said valve and linked to the valve-seat, a connecting-piece hinged with one end to the elbow of the curved arm and with the other to the case of the device, substantially as and for the purpose described.

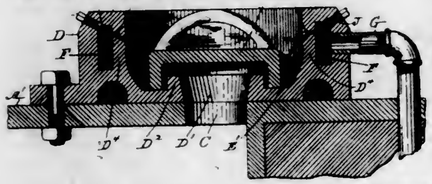
2. In a steam-trap the combination with an expanding tube, a slotted tube, a valve-seat and a valve, having a curved arm, of an intermediate connecting-piece hinged at one end to the elbow of said arm, and with the other end to an adjustable pin in the case of the device; substantially as, and for the purpose described.

662,608. GAS-FURNACE. WILLIAM SWINDELL, Allegheny, Pa. Filed Mar. 30, 1899. Serial No. 711,068. (No model.)



Claim.—The combination of two sources of gas-supply, two sources of heated-air supply, a furnace-chamber, two gas-flues, each leading from one of the gas-supply sources to the furnace-chamber, two air-supply flues, each leading from one of the air-supply sources and adjoining one side of one of the gas-flues, a central air-flue interposed between and adjoining the gas-flues, a flue connecting the central and lateral air-flues, and ports establishing communication between the gas and air flues.

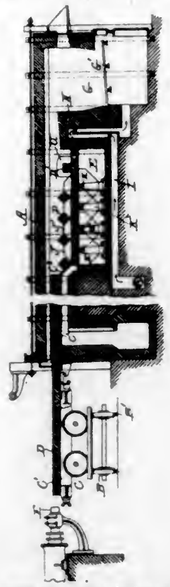
662,609. GAS-PRODUCER. JOHAN O. E. TROTZ, Worcester, Mass. Filed June 19, 1899. Serial No. 721,040. (No model.)



Claim.—1. In a gas-producer, a device combined with the cover thereof over each poke-hole, comprising a frame having a central, vertical opening therethrough and an annular chamber in the vertical, circular part thereof provided with a series of inclined ports through the inner, vertical wall of said chamber, arranged at short distances apart and pointing toward said poke-hole; said frame also being provided through the outer, vertical wall of its chamber with inclined openings, in alinement with the aforesaid ports, and provided with means for closing said inclined openings; the frame also having a steam-supply pipe connected with its annular chamber, and a suitable poke-hole cover, substantially as and for the purpose set forth.

2. In a gas-producer, a device combined with the cover thereof, over each poke-hole, comprising a frame having a central, vertical opening therethrough and an annular chamber in the circular, vertical, part thereof provided with a series of inclined ports through the inner vertical wall of said chamber, arranged at short distances apart and pointing toward said poke-hole; said frame also being provided through the outer vertical wall of its chamber with inclined openings, in alinement with the aforesaid ports and provided with means for closing said inclined openings; the frame also having a steam-supply pipe connected with its annular chamber, and an annular, upturned flange around its central opening to form an annular trough for the poke-hole cover to rest in, and said poke-hole cover as and for the purpose set forth.

662,610. REHEATING-FURNACE FOR STEEL INGOTS. JOHAN O. E. TROTZ, Worcester, Mass. Filed Jan. 20, 1900. Serial No. 2,107. (No model.)



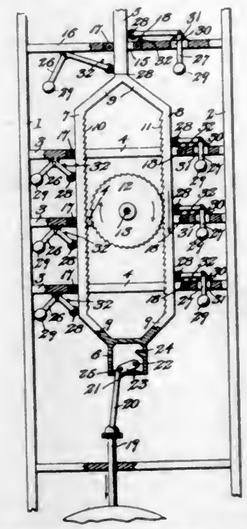
Claim.—1. In a reheating-furnace for ingots or blooms, having the usual working chamber just back of the fire-box, the combination of carriers located in said working chamber and consisting of a series of overlapping disks, having flat sides, and arranged vertically and in series, each about in line longitudinally with the tracks over which the ingots or blooms are fed forward through the furnace; said tracks, the same extending back longitudinally through the apparatus from the inner end of the working chamber; the transverse shafts upon which said carriers are mounted, and means for supporting and turning said shafts, substantially as and for the purpose set forth.

2. In a reheating-furnace for ingots or blooms having the usual working chamber just back of the fire-box, the combination of rotary, hollow carriers located in said working chamber and consisting of a series of overlapping disks, having flat sides, and arranged vertically and in series, each about in line longitudinally with the tracks over which the ingots or blooms are fed forward through the furnace; said tracks, the same extending back longitudinally through the apparatus from the inner end of the working chamber; the transverse shafts upon which said carriers are mounted, having means for maintaining a stream of water or other cooling medium through the same and said carriers, and means for supporting and turning said shafts, substantially as and for the purpose set forth.

3. In a reheating-furnace for ingots or blooms, having the usual working chamber back of the fire-box, the combination of the tracks, for supporting the ingots or blooms in place, the same extending back through the apparatus from the inner end of the working chamber, and the plunger for pushing said ingots or blooms through the furnace with rotary carriers located in the working chamber and consisting of a series of overlapping disks, having flat sides, and arranged vertically and in series, each about in line longitudinally with the tracks over which the ingots or blooms are fed forward through the furnace; the transverse shafts upon which said ingots or blooms are mounted, and means for supporting and turning said shafts, substantially as and for the purpose set forth.

662,611. MOTION-TRANSMITTER. JAMES C. WALKER, Waco, Tex. Filed July 19, 1900. Serial No. 24,210. (No model.)

Claim.—1. In a motion-transmitter, the combination with a reciprocatory converter mounted to have lateral movement, and a rotary element designed to be engaged during the opposite reciprocatory movements thereof, of an actuator, and a connecting device carried by the converter and operatively connected with the actuator, said connecting device being shiftable to the opposite sides of the center of the converter through the movement of the actuator.



2. In a motion-transmitting device, the combination with a reciprocatory converter provided with a pair of racks and a pinion mounted for alternate engagement with said racks, of a reciprocatory actuator, and a connecting device carried by the converter and operatively connected with the actuator, said connecting device being shiftable to opposite sides of the longitudinal center of the converter through the movement of the actuator.

3. In a motion-transmitting device, the combination with a converter having a pair of opposed racks, and an intermediate pinion, of a swinging link carried by the converter, means for connecting said link to a reciprocatory actuator, and means for limiting the movement of the link to position its swinging end in positions at opposite sides of the center of the converter during the opposite movements of the latter.

4. In a motion-transmitting device, the combination with a converter having a pair of opposed racks, and an intermediate pinion, of a link-block movable with the converter, a swinging link mounted upon the block, a reciprocatory actuator, a pitman pivotally connected to said actuator and link, respectively, and a pair of stops located to limit the movements of the link in opposite directions to position the swinging end of said link at opposite sides of the center of the converter for the purpose of shifting the point of application of power during the opposite movements of the converter.

5. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of antifrictional guide devices engaging the opposite sides of the converter, and means for maintaining the engagement of said devices with the converter during the shifting thereof.

6. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of pivoted guide devices engaging the opposite sides of the converter, and means for urging said devices in the direction of the converter to maintain an operative connection therewith during the shifting thereof.

7. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of counterbalanced guide devices operatively engaging the opposite sides of the converter.

8. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of counterweighted levers located beyond the opposite sides of the converter and provided with terminal antifrictional devices engaging the opposite sides of the converter.

9. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of counterweighted bell-crank levers located at opposite sides of the converter and provided with antifrictional rollers in contact therewith.

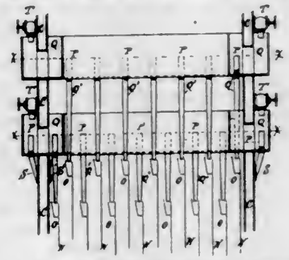
10. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of slotted guide-beams for said converter, oppositely active counterweighted bell-crank levers having bearing-arms located above and below the bearing-beams and in engagement, respectively, with the opposite sides of the converter.

11. In a motion-transmitting device, the combination with a reciprocatory converter, means for shifting the converter laterally and a rotary element arranged for engagement with said converter, of slotted guide-beams for the reception of the converter, antifriction-rollers carried by said beams within the opposite ends of the slots, and counterweighted bell-crank levers having antifriction-rollers opposed to the opposite sides of the converter, and means for limiting the movement of said levers.

12. In a motion-transmitting device, the combination with a converter comprising a pair of opposed racks, and a link-block, of a swinging link carried by the block, means for applying power to the link for the actuation of the converter, means for limiting the movement of the link to locate its free end at one side of the center of the converter to effect the shifting of the latter, and counterweighted guide devices maintaining an engagement with the converter during the shifting of the latter to prevent vibration thereof.

13. In a motion-transmitting device, the combination with a frame comprising uprights and slotted cross-beams provided with antifrictional rollers in the ends of the slots, of a converter comprising a pair of racks passed through said slots, a link-block located at one end of the converter, a shifting element carried by the link-block for the application of power, and counterweighted bell-crank levers carrying antifrictional rollers in contact with the opposite sides of the converter for the purpose of guiding the latter during its lateral movement.

662,612. LIQUID DISTRIBUTION FOR VAPORIZING, COOLING, AND AERATING APPARATUS. WILLIAM H. WRIGHTMAN, New York, N. Y. Filed Mar. 5, 1900. Serial No. 7,326. (No model.)



Claim.—1. In a liquid-cooling apparatus of the character herein set forth, the combination of a receiving-compartment for the liquid to be treated, a plurality of distributing-channels, and a plurality of overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottom of said compartment and extends downward to deliver the liquid-overflow into associate distributing-channels.

2. In a liquid-cooling apparatus of the character herein set forth, the combination of a receiving-compartment for the liquid to be treated, and a plurality of overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottom of said compartment and extends downward to a close proximity with the walls of the apparatus, substantially as set forth.

3. In a liquid-cooling apparatus of the character herein set forth, the combination of a receiving-compartment for the liquid to be treated, a plurality of rows or tiers of distributing-channels, said channels being so staggered that no one channel shall be directly beneath or can receive the overflow of the channels at higher levels, and a plurality of overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottom of said compartment, and extends downward to deliver the liquid-overflow into associate distributing-channels substantially as set forth.

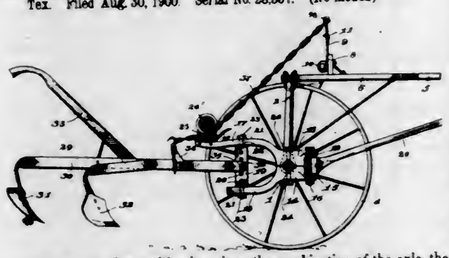
4. In a liquid-cooling apparatus of the character herein set forth, the combination of a plurality of receiving-compartments for the liquid to be treated set at different levels, a plurality of rows or tiers of distributing-channels, said channels being so staggered that no one channel shall be directly beneath or can receive the overflow of the channels at higher levels, and a plurality of overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottom of said compartments, the outlets of any one receiving-compart-

ment extending downward to deliver the liquid-overflow to any single row or tier of the said distributing-channels substantially as set forth.

5. In a liquid-cooling apparatus of the character herein set forth, the combination of the hollow liquid-transmitting walls, a plurality of attached receiving-compartments for the liquid to be treated, said compartments being set at different levels, and a plurality of overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottoms of said compartments substantially as and for the purposes set forth.

6. In a liquid-cooling apparatus of the character herein set forth, the combination of a receiving-compartment for the liquid to be treated, and a plurality of inclosed overflow-outlets, each of which is adjustable to a height of overflow-level independent of any inequalities of level of the bottom of said receiving-compartments and provided with serrated overflow edges substantially as set forth.

662,613. CULTIVATING-PLOW. CHARLES WELLS, Woodville, Tex. Filed Aug. 30, 1900. Serial No. 28,537. (No model.)



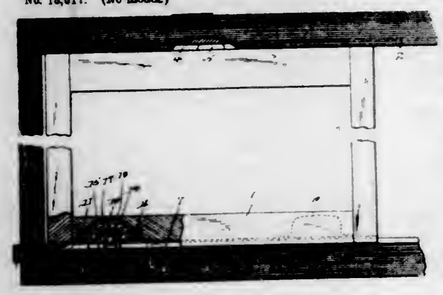
Claim.—1. In a cultivating-plow, the combination of the axle, the coupling comprising the two sections bolted together and secured one above the other on the axle, the vertical adjusting-bolt connecting said sections of the coupling and adapted to turn and the cultivator having the beam pivotally connected to said adjusting-bolt, the axis of said pivot being at right angles to that of said adjusting-bolt, substantially as described.

2. In a cultivating-plow, the combination of the axle, the coupling comprising the separable sections having the forwardly-extending lugs 15 and the rearwardly-extending arms, the bolt 16 in said lugs and connecting the front ends of said sections together, the adjusting-bolt connecting the rearwardly-extending arms of said sections together and adapted to turn therein, and the plow-beam pivotally attached to said adjusting-bolt, substantially as described.

3. In a cultivating-plow, the combination of the axle, the coupling comprising the sections bolted together and secured on the axle, said sections having the rearwardly-extending arms, the adjusting-bolt having the spindles at its upper and lower ends in openings in said rearwardly-extending arm, adapted to turn therein, said adjusting-bolt having the series of adjusting-openings, and the cultivator having its beam connected to said adjusting-bolt by a bolt disposed in one of said adjusting-openings, substantially as described.

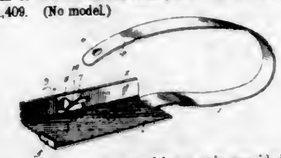
4. In a cultivating-plow, the combination of the axle, the coupling rigidly secured thereon, the coupling-bolt adapted to turn in said coupling, the cultivator having the beam pivotally connected to said coupling-bolt, the spring-pressed yoke mounted on the frame of the cultivating-plow, the chain attached thereto and engaging a hook on said beam, and the roller carried by the coupling and engaged by said chain, substantially as described.

662,614. BALL-BEARING DOOR FOR SHOW-CASES, &c. EVERETT A. WENTWORTH, Bar Harbor, Me. Filed May 31, 1900. Serial No. 18,617. (No model.)



Claim.—The combination of a rectangular frame provided with opposite grooves and having an opening at one end communicating with one of the grooves, a sliding door provided at one side with a groove and having means at the opposite side for engaging one of the grooves of the frame, a removable bar arranged in the other groove of the frame and extending into the groove of the door and passing through the said opening and projecting beyond the frame and adapted to be readily withdrawn to permit the door to be removed, a casing arranged in a recess of the door and provided with grooved arms registering with the groove of the door and receiving the bar, and balls arranged within the casing and adapted to bear against the bar, substantially as described.

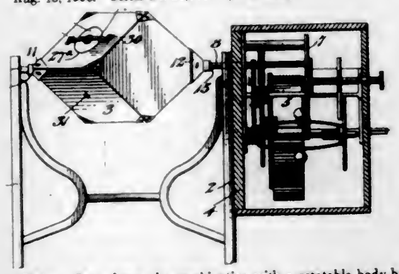
662,615. CAR-SEAL. THOMAS WHITE, Ogden, Utah, assignor of one-half to James Russell, same place. Filed Sept. 28, 1900. Serial No. 31,409. (No model.)



Claim.—1. A car-seal comprising a strip provided at one end with an eye, the casing arranged at the other end of the strip and composed of the flap 2 formed integral with the strip and folded inward over the same and provided with a resilient lip extending toward the inner end of the casing, and the flap 3 formed integral with the strip and folded over the flap 2 and provided at its outer end with the flange 5 closing the outer end of the casing, and the spring secured to the flap 2 in advance of the segmental lip and having its rear end free and deflected by the lip and extending beyond the same, substantially as described.

2. A car-seal comprising a flexible strip provided at one end with an eye, the casing arranged at the other end of the strip and having its inner end open and composed of the flap 2 arranged at one side of the strip and formed integral therewith and provided with the semicircular cuts spaced apart at their adjacent ends and forming a pair of forwardly and rearwardly extending lips diverging from the flap 2 toward the opposite wall of the casing, the flap 3 arranged at the opposite side of the strip and formed integral with the same and folded inward over the flap 2 and provided at its outer end with the flange 5 closing the outer end of the casing, and the spring secured at one end to the flap 2 at a point between the lips and the inner end of the casing and having its rear end free and deflected by one of the lips and terminating short of the other lip, substantially as described.

662,616. CHURN. JOHN W. WILSON, Pocahontas, Va. Filed Aug. 15, 1900. Serial No. 26,978. (No model.)

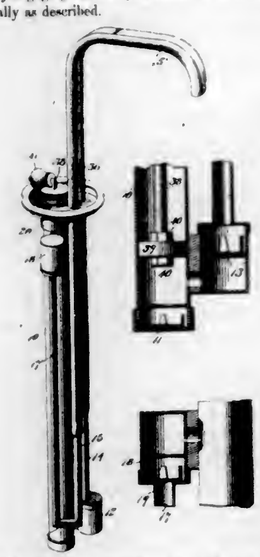


Claim.—In a churn, the combination with a rotatable body having a vent-opening in one of the walls thereof and a concave valve-seat in the inner surface surrounding said opening, of a freely-swinging arm pivotally hung at one end to the inner wall of the churn-body at one side of the opening, a convex valve arranged upon the swinging or free end of said arm, said convex valve being adapted to fit snugly in the concave valve-seat and thus cover and uncover the vent-opening as the body is rotated, and a keeper secured to the inner wall of the body intermediate the ends of the arm, said keeper passing over said arm to limit the swinging movement thereof.

662,617. OIL-PUMP. JOHN T. BRADFORD, Muncie, Ind., and ARTHUR R. GORDON, Delphos, Ohio. Filed Feb. 23, 1900. Serial No. 6,228. (No model.)

Claim.—1. A pump comprising a cylinder, a removable cage therein, a gasket retained by the cage, a piston-rod, and a reciprocatory valve within the cage and operatively related to the piston-rod.

2. An oil-pump comprising a cylinder, a cage secured removably in the cylinder, a piston-rod passing through the cylinder and cage, and a valve frictionally engaging with the piston-rod and reciprocable within the cage, substantially as described.



3. In an oil-pump, the combination of a cylinder provided at its upper end with a return-port, a cage removably held within said upper end of the cylinder and likewise having a return-port which registers with the port of the cylinder, a piston-rod, and a valve fitted to said piston-rod and reciprocable within the cage, substantially as described.

4. In an oil-pump, the combination of a cylinder provided with a return-port and with an internal seat, a gasket fitted to the seat, a cage provided with a return-port and fitted within the cylinder to engage tightly with the gasket and with its port in registration with the port of the cylinder, a piston-rod, and a valve frictionally engaging with the rod and reciprocable within the cage, substantially as described.

5. In an oil-pump, the combination of a cylinder provided with a return-port and an internal seat, a gasket occupying said seat, a cage provided with a port and fitted in the cylinder to engage the gasket and with its port in registration with the cylinder-port, a cap engaging with the cage to depress the same upon the gasket, a piston-rod, and a valve reciprocable with the rod and confined within the cage, substantially as described.

6. In an oil-pump, the combination with a cylinder, and a piston-rod having a removable piston, of a cage provided with two heads, one of which is removable, and the valve frictionally engaging with the piston-rod and reciprocable within the cage between the heads thereof, substantially as described.

7. In an oil-pump, the combination of a piston-cylinder and a piston having a removable head, of a cage removably confined within the cylinder and provided with two heads, one of which is held friction-tight within the cage and is removable therefrom, and a valve frictionally engaging with the piston-rod and disposed within the cylinder for reciprocation between the heads thereof, substantially as described.

8. In an oil-pump, the combination of a cylinder provided with a return-port, a gasket therein, a cage removably secured in the cylinder, a nipple, a cap screwed to the nipple and engaging with the cage, a piston-rod, a gasket clamped between the nipple and the cap, and a valve having a packing and frictionally engaging with the piston-rod, substantially as described.

662,618. COUPLING FOR STONEWARE PIPES. HORACE B. CAMP, Akron, Ohio. Filed Sept. 6, 1900. Serial No. 29,131. (No model.)

Claim.—1. An improved pipe-coupling consisting of a strip of fabric saturated with asphaltum wrapped about the adjacent ends of the pipe-sections in combination with a metallic band having interstices to permit the asphaltum to unite the layers of fabric and wrapped in alternate layers with the fabric about the pipe ends substantially as shown and described.

2. An improved pipe-coupling consisting of a strip of fabric saturated with asphaltum wrapped about the adjacent ends of the pipe-sections in combination with a metallic band having interstices to permit the asphaltum to unite the layers of fabric, and wrapped in alternate layers with the fabric about the pipe ends, the strip of fabric extending beyond the metallic band at the inner ply, and at the outer ply sufficiently to cover the metallic band, substantially as described.



662,619. BOX AND COVER. ABNER E. FOLTZ, Akron, Ohio. Filed Apr. 9, 1900. Serial No. 12,172. (No model.)



Claim.—As an improved article of manufacture, a box provided along near one of its ends with a series of perforations, a cover adapted to partially telescope said box provided near one of its ends which normally inclose the sides of said box, with oppositely-disposed perforations, and pins or equivalent means to form hinges to connect said cover and box and form a pivot therebetween, substantially as shown and described.

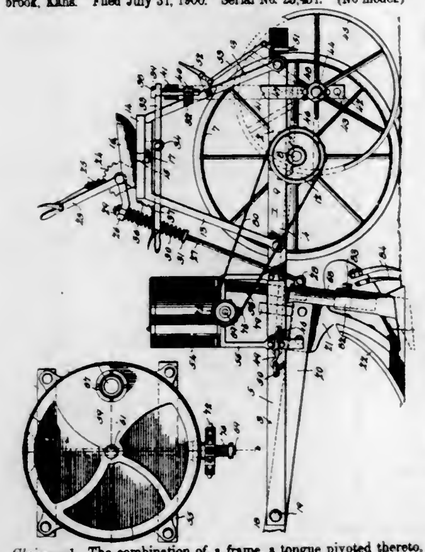
662,620. DRESS-CUTTING MEASURE. VINA H. GOFF, El Dorado Springs, Mo. Filed Nov. 5, 1898. Serial No. 695,640. (No model.)



Claim.—As an improved article of manufacture, a measure for use in delineating or defining waist or dress outlines, consisting of a body having two edges arranged at right angles to each other, the shorter edge having whole and half scale marks on opposite sides, and the longer edge provided with full-inch scale-marks on one side and fractional-inch scale-marks on the opposite side corresponding in space occupied and direction of numeration to the extent and direction of the full-inch scale-marks on the opposite side except those scales of actual inches located nearest the corner of the measure to make the measure self-computing, the said edges being connected at their inner portions by a member having an inner elongated curved edge for use in making the various curves in garments and merging into a short curve having a different arc, the said curved edge as an entirety having marked points and abbreviated words in juxtaposi-

tion thereto and designating-letters referring to the front and back of the waist, and a sleeve, an opening being formed through the body of the measure adjacent the intersecting angle of the two straight edges, the opposite walls of said opening being curved and divided by indicating-marks to define the curves of different parts of garments.

662,621. LISTER CORN-PLANTER. MASON T. HARDING, Overbrook, Kans. Filed July 31, 1900. Serial No. 25,451. (No model.)



Claim.—1. The combination of a frame, a tongue pivoted thereto, and having an extension projecting in rear of the pivot, and a plow attached to said rearward extension of the tongue, the latter serving as the plow-beam, substantially as described.

2. The combination of a frame having a covering-wheel centrally disposed therein and a laterally-shiftable seat supported on said frame, a seed-dropping mechanism, a plow to open a furrow in advance of said covering-wheel, a supporting-arm adapted to be swung to either side of the said frame, and a trailing wheel carried by said arm, substantially as described.

3. The combination of a frame having a covering-wheel centrally disposed therein, a seed-dropping mechanism, a plow to open a furrow in advance of said covering-wheel, a supporting-arm adapted to be swung to either side of the said frame, means to vertically adjust said supporting-arm and a trailing wheel carried by said arm, substantially as described.

4. The combination of a frame, a tongue pivoted thereto and having an extension projecting in rear of its pivot, a plow attached to said rearward extension of said tongue, and means to raise and lower the rear extension of the tongue and thereby raise and lower the plow, substantially as described.

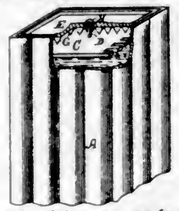
5. The combination of a frame, a seed-dropping mechanism thereon having a shifting-lever to throw the same in and out of gear, a tongue pivoted to the frame and having an extension projecting in rear of its pivot, a plow attached to the rearward extension of said tongue, the latter serving as the plow-beam, means to raise and lower the rear end of the tongue and thereby raise and lower the plow, and a tappet on said tongue to engage said shifting-lever when the same is raised, for the purpose set forth, substantially as described.

6. In a planter, the combination of a supporting-frame having a seed-dropping mechanism provided with a depending flexible seed-tube, a tongue pivoted to said supporting-frame and having an extension projecting in rear of its pivot, said extension serving as a beam for the attachment of a furrow-opener plow, and a seed-tube carried by the rear extension of the tongue and in which the lower end of the flexible seed-spout is disposed, and means to raise and lower the rear end of said tongue, substantially as described.

7. In a planter, the combination of the furrow-opening plow, the vertically-disposed seed-tube rigidly secured to the rear side of and supported by the standard of said furrow-opening plow, the subsoil-share, having the tubular standard vertically adjustable on the said seed-tube, and means to secure said tubular standard at any desired vertical adjustment on said seed-tube, substantially as described.

8. In a planter, the combination of a frame having a supporting-wheel centrally disposed thereon, a seed-dropping mechanism on the front portion of said frame, a plow to open a furrow in advance of said wheel, a rearward-extending lever, supported by said frame, a supporting-arm pivotally connected to said rearward-extending lever, adapted to be swung to either side of the frame, and to be raised and lowered by said lever, and a trailing wheel carried by said arm, substantially as described.

662,622. ELECTRIC BATTERY. ARTHUR W. HARRISON, Los Angeles, Cal., assignor of one-half to William A Fruhling, same place. Filed June 16, 1900. Serial No. 20,596. (No model.)

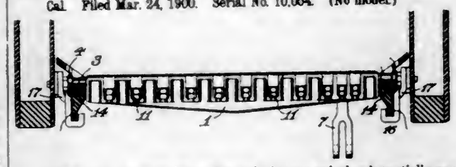


Claim.—1. In an electric battery, a case for containing the positive and negative elements and exciting liquid thereof, having corrugated sides and bottom; a top cover having its lower surface covered with downwardly-projecting points, and a hole centrally located therein extending therethrough, a buoyant cover adapted to rest on the liquid in said case, having a stem affixed to the top thereof; adapted to pass through the central hole in the top cover, substantially as described herein.

2. In an electric battery, a liquid containing receptacle, comprising a case of non-conducting acid-proof material, having corrugated sides and bottom, and a top having downwardly-projecting points.

3. In an electric battery, a top cover therefor, having its lower surface covered with downwardly-projecting points.

662,623. GRATE-BAR. TAYLOR W. HEINTZELMAN, Sacramento, Cal. Filed Mar. 24, 1900. Serial No. 10,054. (No model.)



Claim.—1. A grate-bar composed of two vertical, substantially parallel webs connected at intervals by transverse ribs and having inwardly-extending lips or flanges on their upper edges, the upper face of each web together with said lip or flange being segmental in cross-section, and a laterally and downwardly projecting fork the upper face of which constitutes a fuel-supporting member.

2. A grate-bar composed of two parallel webs, connected at intervals by transverse ribs and having lateral sockets for the reception of detachable fingers and a laterally and downwardly projecting fork provided with two widened tops separated by an air-space.

3. The combination of a plurality of grate-bars, each composed of two parallel webs connected at intervals by transverse ribs and provided with lateral sockets, and having a laterally and downwardly projecting fork, the upper face of which constitutes a fuel-supporting member, and a plurality of detachable fingers fitting in said sockets, each composed of parallel webs having laterally-projecting lips or flanges at their tops and connected by transverse ribs, the fingers of one grate-bar being interposed between those of an adjacent grate-bar and one of the fingers of one grate-bar projecting opposite to and in line with the fork of an adjacent grate-bar.

4. The combination of a plurality of grate-bars, side bearers supporting the ends of said grate-bars and having upwardly and outwardly inclined faces, and flexible supports by which said side bearers are suspended from the fire-box.

5. The combination of a plurality of grate-bars having end journals or trunnions, side bearers having sockets or bearings which receive the grate-bar trunnions, and means by which the side bearers are flexibly suspended from the fire-box.

6. The combination of a plurality of grate-bars having end journals or trunnions, side bearers having sockets or bearings which receive the grate-bar trunnions, brackets fixed to the fire-box, and hangers flexibly supported by said brackets and having supporting-faces which receive and suspend the side bearers.

662,624. ANIMAL-TRAP. GRANDVILLE F. JONES, Exeter, Nebr. Filed Jan. 26, 1900. Serial No. 2,899. (No model.)



Claim.—1. An animal-trap, comprising an entrance-compartment, and a confinement-compartment, a vertically-slidable door for the entrance-compartment, a vertically-tilting door for controlling the communication between the two compartments, a rock-shaft extending between the doors, and provided with oppositely-extending arms operatively connected to the respective doors, one of the arms being provided with a lateral foot for detachable engagement with the under side of a shoulder carried at the lower edge of the door.

2. An animal-trap, having an entrance-door, a tilting platform, a trip device between the platform and the door, another outwardly-swinging door located in one side of the trap, and a bait-holder carried by the door, the latter and the bait-holder being located adjacent to one end of the platform.

3. An animal-trap, having an entrance-door, means for tripping the latter, a second outwardly-swinging door located in one side of the trap, and a bait-holder carried by the latter door.

4. An animal-trap, having a vertically-movable door, a vertically-tilting platform, a trip device carried by the forward and upwardly tilting end of the platform, and having a supporting engagement with the door, a second outwardly-swinging door located at the opposite rear end of the platform and in one side of the trap, and a bait-holder carried by the inner side of the latter door and located above the platform.

5. An animal-trap, comprising an entrance-compartment, and a confinement-compartment, a vertically-slidable door for the entrance-compartment, and having a lateral shoulder at its lower edge, a vertically-tilting platform located within the entrance-compartment, a trip-rod carried by the forward end of the platform and in engagement with the door, a second door located at the opposite end of the entrance-compartment, a bait-holder carried by the latter door, a passage communicating between the two compartments, a hood or shield located within the confinement-compartment and partly inclosing the passage, a tilting door operating within the hood or shield, a rock-shaft extending between the tilting door and the slidable door, oppositely-extending arms carried by the rock-shaft and operatively connected to the respective tilting and slidable doors, and a lateral foot carried by one of the arms and engaging the under side of the shoulder on the sliding door.

662,625. TYPE-CASE. HARRY L. KEYTE, Merlin, Oreg. Filed Feb. 12, 1900. Serial No. 4,945. (No model.)

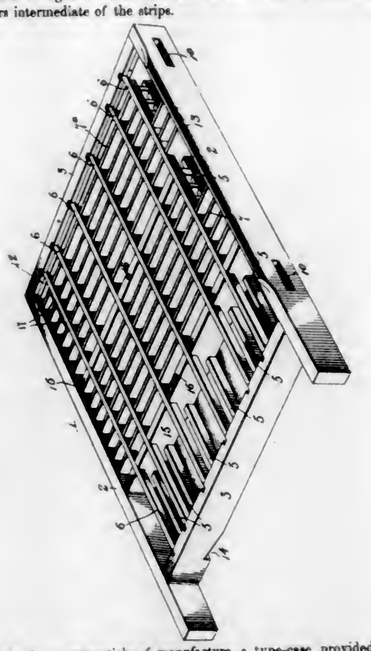
Claim.—1. As a new article of manufacture, the type-case having the longitudinal strips and a transverse slot, and a plurality of adjustable slats each notched to interlock with the longitudinal slats and adapted to be turned to a flat position for insertion or withdrawal through the slot in said case, substantially as and for the purposes described.

2. As a new article of manufacture, a type-case having longitudinal strips, and a plurality of adjustable slats interlocked with said strips, said case being provided with a slot disposed at an angle with respect to the normal positions of the slats, whereby the removal of the latter while in their normal positions is prevented.

3. As a new article of manufacture, a type-case provided with a horizontal transverse slot in one of its side bars, a plurality of longitudinal strips in the case, and a plurality of adjustable slats each having an interlocking engagement with the several longitudinal strips and normally disposed at right angles to the slot in the case.

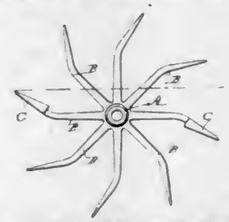
4. As a new article of manufacture, a type-case provided with upper and lower series of longitudinal strips located in the same vertical planes, and a plurality of adjustable slats located between the upper and lower series of longitudinal strips and notched for engagement with said strips the upper edges of said strips and slats being located in the same horizontal plane.

5. As a new article of manufacture, a type-case having a series of fixed longitudinal strips, adjustable transverse slats each having an interlocking engagement with the several strips, the upper edges of said strips and slats being located in the same horizontal plane and removable spacers intermediate of the strips.



6. As a new article of manufacture, a type-case provided with a transverse slot and having a series of fixed longitudinal strips, a series of adjustable slats each notched to interlock with the longitudinal strips and adapted to be turned to a flat position for insertion or withdrawal through the slot in the case, and movable spacers intermediate of the transverse slats and designed to prevent them from turning into position for withdrawal.

662,626. DRIVE-WHEEL AND MARKER FOR CORN-PLANTERS. LEROY J. LINDSAY, Seymour, Iowa, assignor of one-half to J. T. Phillips, same place. Filed June 4, 1900. Serial No. 19,063. (No model.)



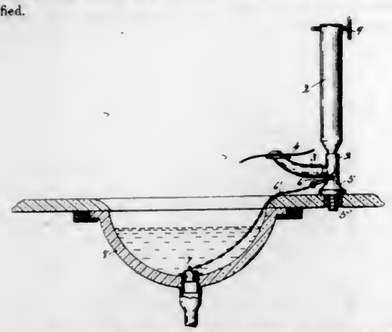
Claim.—1. A rimless wheel for automatic check-row corn-planters, consisting of a hub adapted to be fixed to a rotatable shaft and a plurality of spokes fixed to the hub to extend radially therefrom and the free and straight end portions of the spokes inclined forward relative to their main and fixed portions, as shown and described, to operate in the manner set forth for the purposes stated.

2. A rimless wheel for automatic check-row corn-planters consisting of a hub adapted to be fixed to a rotatable shaft, a plurality of spokes fixed to the hub at regular spaces apart and inclined forward at their free straight ends and straight feet or markers fixed to the inclined ends of some of the spokes, as shown and described, to operate in the manner set forth for the purposes stated.

662,627. SANITARY DISPENSER FOR PLASTIC SUBSTANCES. JOSEPH F. C. LUHAN, New York, N. Y. Filed Mar. 31, 1900. Serial No. 11,008. (No model.)

Claim.—1. A device of the class described, consisting of a reservoir, a delivery-spout detachably joined to said reservoir, a platform fixed to said delivery-spout at its outlet end, and means for producing a pressure

within said reservoir, in the direction of said delivery-spout, as herein specified.



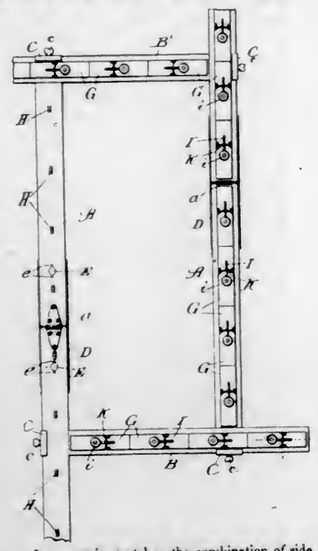
2. A device of the class described, consisting of a supporting medium, a reservoir of pliable or yielding material, a key for collapsing said reservoir, and a delivery-spout, the latter mounted on said supporting medium and detachably joined to said reservoir, as herein specified.

3. A device of the class described, consisting of a supporting medium, a reservoir of pliable or yielding material, a key for collapsing said reservoir, and a delivery-spout, the latter consisting of detachably-joined sections, one of which sections is fixed to said supporting medium and adapted to be detachably joined to said reservoir, as herein specified.

4. A device of the class described, consisting of a reservoir of pliable or yielding material, a key for collapsing said reservoir, a delivery-spout detachably joined to said reservoir, and a platform fixed to said delivery-spout at its outlet end, as herein specified.

5. A device of the class described, consisting of a reservoir, a delivery-spout detachably joined to said reservoir and composed of detachably-joined sections, a platform fixed to the delivery-spout at its outlet end, and means for producing a pressure within said reservoir in the direction of said delivery-spout, as herein specified.

662,628. **CURTAIN-STRETCHER.** WALTER A. MAYR, Chicago, Ill. Filed June 29, 1899. Serial No. 722,246. (No model.)



Claim.—1. In a curtain-stretcher, the combination of side bars and end bars, blocks movably mounted on the receiving-face of the bars and having movements parallel with such face so as to grasp a curtain between them and the bars, means for raising and lowering such blocks comprising a lever pivotally secured to the bar and a cam-block secured to the movable block for the engagement of the lever and cam to raise and lower the blocks bodily in parallel planes, substantially as described.

2. In a curtain-stretcher, the combination of side bars and end bars, blocks movably mounted thereon so as to grasp a curtain between them and the bars, means for raising and lowering such blocks comprising a stud secured to the bar, an operating-lever pivotally secured to the stud and a cam-block provided with an inclined groove having notches therein and arranged to be engaged by the operating-lever so as to raise and lower the block by the movements of the lever and hold the block in its raised and lowered position, substantially as described.

662,629. **GRINDING AND POLISHING DEVICE.** ISRAEL M. ROSE, Philadelphia, Pa. Filed July 21, 1900. Serial No. 24,381. (No model.)



Claim.—1. A device for grinding or sharpening cutlery and other articles consisting of a runner against the side of which said article is adapted to be placed during the grinding or sharpening action, and a bed connected with said runner on the side thereof, said bed being adapted to primarily receive motion from said article and impart the same to said runner.

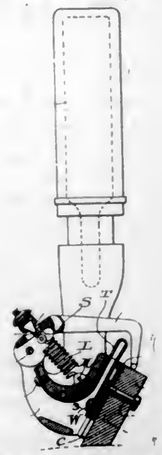
2. A grinding or sharpening runner, and a bed connected therewith on the side thereof, whereby the pressure and motion of an article to be ground or sharpened rested on said bed causes the movement of the latter, and the consequent rotation of said runner with said article in grinding or sharpening contact with the latter.

3. A grinding or sharpening device consisting of a runner, a shaft carrying the same, and a pulley on the side of said runner, said pulley being of less diameter than said runner and forming the motor of said runner by the movement of the article to be ground or sharpened in contact with the same.

4. In a grinding or sharpening device, a runner with a recess in its side, a web in said runner, a shaft on which said web is mounted, and a pulley connected with said runner and also mounted on said shaft, said pulley being located aside of said runner and being of less diameter than the same.

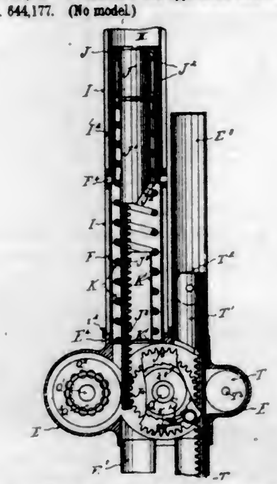
5. In a grinding or sharpening device, a runner, a pulley of soft material aside of said runner and being of less diameter, a shaft carrying said runner and pulley, and means for adjusting the density of said pulley.

662,630. **BRUSH-HOLDER FOR ELECTRIC MACHINES.** SIDNEY H. SHORT, Cleveland, Ohio, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed July 28, 1898. Serial No. 687,078. (No model.)



Claim.—In a brush-holder, a frame having one or more compartments, a brush mounted to slide in ways in each compartment, a lever pivotally mounted at one end upon said frame and arranged to bear at its free end upon said brush, a stud or bolt arranged to pass freely through a perforation in said lever, a spring connected at one end to said frame and at the other end to said stud or bolt, a nut having wedge-shaped portions mounted on said stud or bolt, the surface of said lever adjacent to the perforation therein being formed into a seat to receive the bearing edge of said wedge, as and for the purpose set forth.

662,631. **COUNTERBALANCE FOR EXPLOSION-ENGINES.** HERBERT B. STEELE, Malden, Mass., assignor to the Atlantic Motor Company, Portland, Me. Original application filed Jan. 18, 1897, Serial No. 619,545. Divided and this application filed July 12, 1897. Serial No. 644,177. (No model.)



Claim.—1. The combination in an explosion-engine of the gear J^4 engaged by the piston as specified, and the counterbalance T' having an antifriction-roll T^2 and connected with the said gear J^4 by a rack.

2. The combination of the gear J^4 engaged by the piston as specified, the counterbalance T', and its rack T and a roll bearing against the back of the rack to keep it in engagement with the said gear.

3. The combination in an explosion-engine of the piston J', the spring K, the rack J^3, the gear J^4 and the rack T bearing a counterbalance, as and for the purposes described.

4. In an explosive-engine, the combination with an explosion-cylinder, of a free flying piston therein, an equilibrating weight or counterbalance having a free rectilinear movement parallel with and opposite to that of said piston, a main shaft operatively connected with and intermittently rotated by said piston, and a freely-rotatable gear-wheel mounted on said main shaft and interconnecting said piston and weight; whereby movement of said piston will impart a reverse movement to said weight.

5. In an explosive-engine, the combination with an explosion-cylinder, of a free flying piston therein, an equilibrating weight or counterbalance having a free rectilinear movement parallel with and opposite to that of said piston, a main shaft operatively connected with and intermittently rotated by said piston, a freely-rotatable gear-wheel mounted on said main shaft and interconnecting said piston and weight; whereby movement of said piston will impart a reverse movement to said weight, and a spring to resist the flight of said piston and coact with said counterbalance.

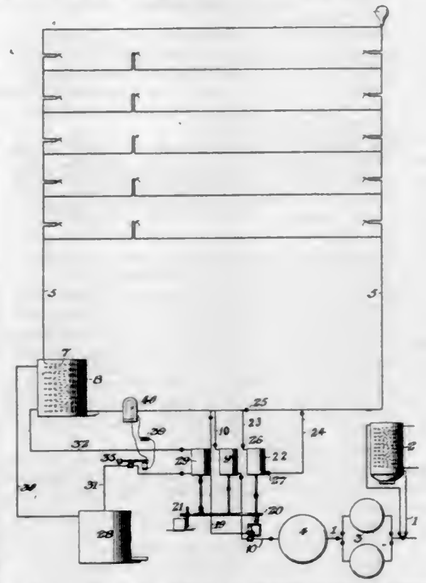
6. The combination in an explosion-engine of the piston, the spring K, the rack J^3, the gear J^4 and the rack T bearing a counterbalance, and means of converting the reciprocating motion of the piston to rotary motion.

7. The combination in an explosion-engine of the piston, the spring K, the rack J^3, the gear J^4, the rack T bearing the counterbalance T' and a ratchet l^2 connected to a shaft as Q, and a pawl as S engaging with said ratchet.

8. In an explosive-engine, the combination with an explosion-cylinder, of a free flying piston therein, an equilibrating weight or counterbalance mounted in parallelism with said piston and having reverse rectilinear movements relative thereto, a rotary shaft between said piston and counterbalance, a gear-wheel loosely mounted on said shaft and connecting said piston and counterbalance so as to impart the movements of the one to the other in opposite directions, and a clutch fixed on said shaft and so connected with said gear-wheel and piston as that intermittent impulses are imparted to the said rotary shaft.

662,632. **APPARATUS FOR SUPPLYING WATER TO OCCUPANTS OF BUILDINGS.** JONATHAN H. VAIL, Philadelphia, Pa. Filed Feb. 24, 1900. Serial No. 6,344. (No model.)

Claim.—1. A water supply installation for buildings, including, in combination, a series of pipes constituting a circulation pipe system, and provided with a series of spigots or outlets, means for maintaining the pipes constantly full of water, means for occasioning the repeated circulation of the water through the circulation pipe system, and a cooling agent so arranged with reference to a portion of the circulation pipe system that water circulated through the latter is caused to come repeatedly within the influence of said cooling agent, substantially as set forth.



2. A water supply installation for buildings, including, in combination, a series of pipes constituting a circulation pipe system, a valve controlled feed pipe or port opening thereinto, means for occasioning the repeated circulation of the water through the circulation pipe system, and a cooling agent, so arranged with reference to a portion of the circulation pipe system that the water circulated through the latter is caused to come repeatedly within the influence of said cooling agent, substantially as set forth.

3. In a water supply system, in combination, a series of connected pipes which form a circulation system through which water supplied thereto may repeatedly circulate,—a feed pipe a pump in circuit with said feed pipe, a circulation pump in circuit with said circulation system, a refrigerating circuit, the liquid in which cools the liquid in the circulation system, and a pump operative in connection with said refrigerating circuit, substantially as set forth.

4. In a water supply installation for a building, in combination, a series of pipes constituting a house circulation system or circuit through which water supplied thereto may continuously circulate, faucets or outlets connected to pipes of the system for drawing off water as required, means for supplying water to such house system or circuit and maintaining the water in such system or circuit at a regulation pressure, and mechanical means for occasioning the circulation, through such system or circuit, of the water supplied thereto, substantially as set forth.

5. In a water supply installation for a building, in combination, a series of pipes constituting a house circulation system or circuit through which water supplied thereto may repeatedly circulate, faucets or outlets connected to pipes of the system for drawing off water as required, means for supplying water to such house system or circuit and maintaining the water in such system or circuit at a regulated pressure, and a refrigerating agent or medium which cools the water within the pipes of the system, substantially as set forth.

6. In an apparatus for supplying water, under constant pressure, to a building, a system of circulating pipes mounted in said building, a feed pipe in communication with a source of supply and leading to said system of circulation pipes, a valve controlling said feed pipe, a casing, a diaphragm mounted in said casing and constituting one wall of a pressure chamber, mechanism connective of said diaphragm and said valve, a pressure pipe leading from the system of circulation pipes, to the pressure chamber, and a pump in communication with the feed pipe at a point between the valve and the system of circulation pipes, substantially as set forth.

7. In an apparatus for supplying water to occupants of a building, in combination, a series of pipes connected together and composing a normally closed circulation pipe system, a series of faucets connected to said pipes, a feed pipe adapted to supply water to the pipes of said circulation pipe system, means for automatically closing said feed pipe when the pressure in the circulation pipe system reaches a given strength, a circulation pump the action of which occasions the repeated circulation of the water through the pipes of the system, and a refrigerating or cooling agent under the influence of which the water is brought in its circulation, substantially as set forth.

8. In an apparatus for supplying water, in combination, a circulation pipe system, means for supplying water thereto, a refrigerating circuit, provided with means for occasioning the circulation of refrigerating fluid therethrough, and means controlled by the temperature of the water in the circulation pipe system for controlling the operation of the refrigerating circuit, substantially as set forth.

9. In an apparatus for supplying water to a building, a normally closed system of pipes constituting a circulation pipe system, a series of faucets connected therewith, a refrigerating circuit so arranged that the refrigerating material is brought into the presence of the circulation pipe system, a valve mounted in a pipe of the refrigerating circuit, a device sensitive to differences in temperature, mounted in the circulation pipe system, and operative appliances connective of said sensitive device and the valve in the refrigerating circuit, substantially as set forth.

10. In an apparatus for supplying water to buildings, a series of pipes constituting a circulation pipe system, a series of pipes connected together and constituting a refrigerating circuit, a temperature exchanger common to the circulation pipe system and the refrigerating circuit, a thermostat mounted in communication with the circulation pipe system, a valve mounted in the refrigerating circuit, a solenoid, having a core movable and controlled by the current in said solenoid, a connection between said core and said valve, and a battery in circuit with said thermostat and said core, substantially as set forth.

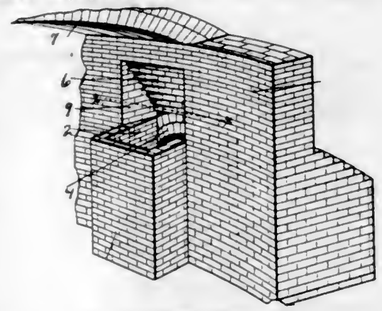
11. In an apparatus for supplying water to buildings, in combination, a series of pipes forming a circulation pipe system, a series of faucets connected to the pipes of said system, means for supplying water to said pipes, means for occasioning the circulation of the water through said pipes, a coil, formed as a part of the system, a boxing for said coil, a thermostat in communication with said circulation pipe system, a tank of refrigerant, a pipe leading from said boxing to said tank, a pipe leading from the tank to the boxing, a force pump in circuit with said last mentioned pipe, a valve mounted in said last mentioned pipe between the tank and the force pump, electrically operated mechanism which controls said valve, and a battery, line wires from which are in circuit with said electrically operated mechanism and said thermostat, substantially as set forth.

12. In an apparatus for supplying water to a building, a series of pipes constituting a circulation pipe system, a feed pipe for supplying water thereto, a valve mounted in said pipe, a device controlled by the pressure in the circulation pipe system which operates said valve when the pressure in the circulation system reaches a given strength, a refrigerating circuit the liquid of which is brought into the presence of a portion of a pipe of the circulation pipe system, a valve mounted in a pipe of the refrigerating circuit, a thermostat mounted in communication with a pipe of the circulating pipe system, electrical connections through which the movements of parts of the thermostat occasion corresponding movements of the valve in the refrigerating circuit, a force pump in communication with the feed pipe, and a force pump in communication with the refrigerating circuit, substantially as set forth.

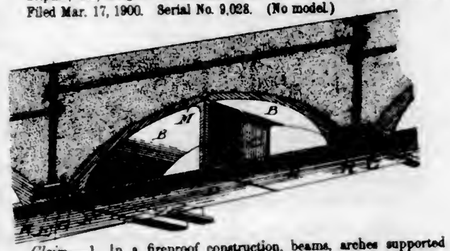
13. In an apparatus for supplying water to a building, a series of pipes constituting a circulation pipe system, a feed pipe for supplying water thereto, a valve mounted in said pipe, a device controlled by the pressure in the circulation pipe system which operates said valve when the pressure in the circulating system reaches a given strength, a refrigerating circuit the liquid of which is brought into the presence of a portion of a pipe of the circulation pipe system, a valve mounted in a pipe of the refrigerating circuit, a thermostat mounted in communication with a pipe of the circulating pipe system, electrical connections through which the movements of parts of the thermostat occasion corresponding movements of the valve in the refrigerating circuit, a force pump in communication with the feed pipe, and a force pump in communication with the refrigerating circuit, and a circulating pump in communication with the circulation pipe system, substantially as set forth.

662,633. **KILN-FURNACE.** LOUIS VINES, Louisville, Ohio. Filed July 10, 1900. Serial No. 23,004. (No model.)

Claim.—The combination of a kiln-wall provided with an arch, said arch located only in the outer portion of the kiln-wall, an inclined back wall located directly over the arch and extended upward and inward in an inclined direction from the arch, jamb-walls located upon either side of the inclined back, said jamb-walls diverging from the inclined back, parallel walls and a pocket-wall located below the inclined back, substantially as and for the purpose specified.



662,634. **FIREPROOF CONSTRUCTION.** WILLIAM WHITE, Philadelphia, Pa., assignor of one-half to Henry Wiederhold, same place. Filed Mar. 17, 1900. Serial No. 9,028. (No model.)

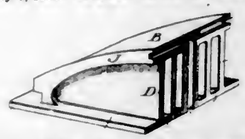


Claim.—1. In a fireproof construction, beams, arches supported thereon and having projections extending beyond the outer ends of the body portion of said arches and below said beams, and a filling upon said arches abutting against the sides of said beams, said filling also abutting against the upper faces of and backing said projections.

2. In a fireproof construction, beams, angle-irons secured to the lower edges thereof and at a little distance therefrom, arches supported upon said angle-irons and having projections extending below said beams, and a filling upon said arches and between said beams, said filling extending between the beams and angle-irons and abutting against said projections for the purpose of backing the same.

3. In a fireproof construction, beams, having arch-supports providing spaces between said beams and said supports, arches supported thereon and having projections extending below said beams, and a filling upon said arches and between said beams, said filling abutting against and supporting and backing said projections.

662,635. **FIREPROOF CONSTRUCTION.** WILLIAM WHITE, Philadelphia, Pa., assignor of one-half to Henry Wiederhold, same place. Filed May 9, 1900. Serial No. 16,002. (No model.)



Claim.—1. An arch-block for a fireproof construction having a base an upper side, upright walls or partitions joining the same, and an upright channel or keyway in the end of one of said walls or partitions.

2. An arch-block for a fireproof construction consisting of a base, and an upper side piece, said base having laterally-extending flanges, and said upper side piece having laterally-extending flanges of less width than the flanges of the base.

3. An arch-block for fireproof construction consisting of a base having laterally and rearwardly extending flanges, and an upper side piece having laterally and rearwardly extending flanges of less width than the flanges of the base.

4. An arch-block for fireproof construction consisting of a base, an upper side, said base and upper side being joined at one end of the arch-block, and a plurality of longitudinal upright walls or partitions extending between said base and upper side.

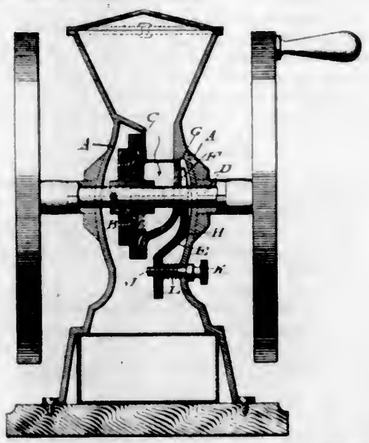
5. In a fireproof construction, the combination of a beam having flanges, arch-blocks having overhanging end flanges resting upon the flanges of said beam and provided at their ends with base-flanges extending below the flanges of said beam and adapted to meet the base-flange of an adjacent arch-block, lateral base-flanges upon said arch-blocks adapted to meet the lateral base-flanges of adjacent arch-blocks, said end base-flanges being situated below the flanges of the beam to provide a space, and a filling between said beams, upon and between said arch-blocks, and within the space between said flanges of the beam and the base-flanges of the arch-blocks.

6. In a fireproof construction, the combination with a beam having flanges, of arch-blocks, resting upon said flanges and provided with base-flanges extending below said beam and adapted to meet with the base-flanges of an adjacent arch, the upper faces of said base-flanges being situated below the beam and having a space therebetween, said arch-blocks abutting each other below and separated from each other above, and a filling of concrete or cement within said space between the blocks and extending in said space below the beam.

7. In a fireproof construction, the combination with a beam having flanges, of arch-blocks having shoulders resting upon said beam-flanges and provided with base-flanges, extending below the said beam-flanges and adapted to meet the base-flange of an adjacent arch-block, the upper faces of said base-flanges being situated below the beam forming a chamber, a space being provided between the sides of adjacent arch-blocks above the beam-flanges, and a filling in said space below said beam and resting partly upon said arch-blocks and the upper face of said beam-flanges.

8. In a fireproof construction, the combination with arch-blocks suitably supported and meeting at their inner ends, grooves in the upper ends of said arch-blocks, a key extending through the grooves of a plurality of arch-blocks, lateral flanges at the bases of said arch-blocks meeting lateral flanges of adjacent arch-blocks, said flanges being situated below the said keys, and a filling resting upon said arch-blocks and extending beneath said keys.

662,636. **GRINDING-MILL.** WILLIAM J. BUSBINGER, Philadelphia, Pa., assignor to Thomas Devlin & Company, same place. Filed Dec. 6, 1899. Serial No. 739,348. (No model.)

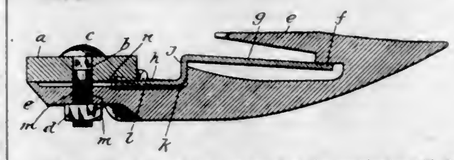


Claim.—1. The combination of a casing, a horizontal shaft carrying a runner-bur, a stationary bur supported on said shaft and movable to and from the runner-bur, an elbow-lever bifurcated at its upper end to freely embrace said shaft and bear against said stationary bur, and having an external angle resting freely against the inner surface of the casing and forming thereby a fulcrum, and means connected with its lower limb for adjusting and holding in position said lever.

2. The combination of a casing, a horizontal shaft carrying a runner-bur, a stationary bur supported on said shaft and movable to and from the runner-bur, an elbow-lever bifurcated at its upper end to freely embrace said shaft and bear against said stationary bur, and having an external angle resting freely against the inner surface of the casing and forming thereby a fulcrum, an adjustable pin passing through the casing and engaging the lower end of said lever and having a head outside of said casing in convenient reach of the operator and a pressure-spring on said pin interposed between said lever and the casing for holding said lever and pin in position.

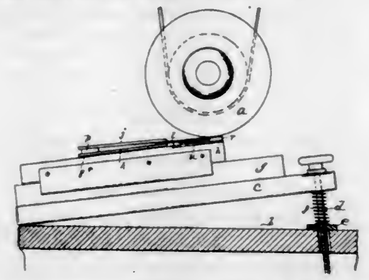
3. The combination of a casing formed with a feed-hopper and recessed at one end below said hopper, a horizontal shaft, a runner-bur, a stationary bur sustained on said shaft and movable thereon to and fro and from the runner-bur and formed with a feeding-throat, the walls of which fit within said recess so that the throat forms a flush continuation of the interior of the hopper, a bent lever having its upper end extending up into said recess, freely embracing the shaft and bearing against the outside of the feeding-throat and having the exterior angle of its bend resting against the wall of the casing and supporting and adjusting means engaging the lower limb of the lever and extending through the casing-wall within convenient reach of the operator.

662,637. **FINGER-GUARD FOR GRAIN-CUTTING MACHINERY.** SAMUEL K. DENNIS, Chicago, Ill., assignor to the Plano Manufacturing Company, same place. Filed Mar. 26, 1900. Serial No. 10,172. (No model.)



Claim.—In a device of the class described, the combination with the guard-finger *e* having the recess formed therein at its forward end, adapted to receive and hold from lateral displacement the end of the ledger-plate and the recess *l*; the finger-bar to which the finger is bolted; and the ledger-plate having its body shaped to fit in the forward recess in the guard-finger, and the tail *k* extending into the recess *l* beneath the finger-bar and tending to stand above the bearing-surface of the guard-finger, and coöperating with the finger-bar, whereby when the parts are bolted together, the ledger-plate is put under tension and held securely in place, substantially as and for the purpose described.

662,638. **CLAMPING DEVICE.** JAMES H. DOWNIE, Detroit, Mich. Filed June 4, 1900. Serial No. 18,984. (No model.)



Claim.—1. The combination with a support, of means to adjust the pitch or angle of the support, a reciprocatory carrier-plate carried upon said support, clamping-jaws upon said plate toward one end thereof to engage the work, and a work-bed upon said plate toward the opposite end thereof to support the work, and means to adjust the pitch or angle of the work-bed, said work-bed recessed upon its upper surface intermediate its forward and rear edges.

2. The combination with a grinding-wheel, of a reciprocatory carrier-plate, means to adjust the angle or pitch of said plate, clamping-jaws located upon said plate toward one end thereof to engage the work, a work-bed upon the opposite end of said holder to support the work, and means to adjust the pitch or angle of the work-bed independent of the clamping-jaws.

3. The combination with a grinding-wheel of a reciprocatory carrier-plate to carry the work under said wheel, a support for said plate, clamping-jaws upon said plate to engage the work at the forward ends of said jaws, and a work-bed upon the carrier-plate forward of the clamping-jaws, means to adjust the pitch or angle of the carrier-plate, and additional means to adjust the pitch or angle of the work-bed, said work-bed recessed upon its upper surface intermediate its forward and rear edges.

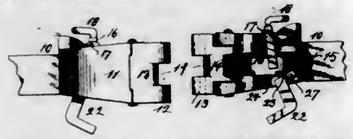
4. The combination with a grinding-wheel of a reciprocatory carrier-plate to carry the work under said wheel, a support for said plate, clamping-jaws upon one end of said plate, and a work-bed upon the carrier-plate forward of the clamping-jaws, and means to adjust the pitch or angle of the carrier-plate, said work-bed recessed upon its upper surface intermediate its forward and rear edges.

5. The combination with a grinding-wheel of a reciprocatory carrier-plate to carry the work under said wheel, a support for said plate, a sta-

tionary bed to carry said support, clamping-jaws upon one end of said plate, and a work-bed upon the carrier-plate forward of the clamping-jaws, means to adjust the pitch or angle of the carrier-plate, and means to give a yielding movement to one extremity of said carrier-plate.

6. The combination with a grinding-wheel of a reciprocatory carrier-plate to carry the work under said wheel, a support for said plate, a stationary bed to carry said support, clamping-jaws upon one end of said plate, and a work-bed upon the carrier-plate forward of the clamping-jaws, said clamping-jaws elevated at their rear edges above the carrier-plate to give a pitch or angle to the jaws, and said work-bed recessed upon its upper surface intermediate its forward and rear edges.

662,639. DRAW-HEAD. CHRISTOPHER GIBSON, Cincinnati, Ohio. Filed Aug. 18, 1900. Serial No. 27,241. (No model.)

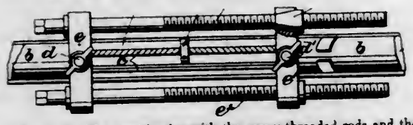


Claim.—1. A draw-head of the kind which couples and locks automatically by mutual contact and engagement of certain parts of its coupling with the corresponding parts of the coupling of a complementary draw-head, a support pivotally attached to its under side and adapted to occupy two positions, in one of which the support on one draw-head reaches partly under the complementary draw-head of an engaging set and operatively connected means on each draw-head intermediate said support and the operative parts of the coupling on each, which means are adapted to interact simultaneously in a manner that during the act of coupling, the operative parts of one coupling act upon the same means of the coupling on the other draw-head in a manner that the support on one draw-head is moved into operative position below the complementary draw-head substantially as shown and described.

2. In a draw-head, the combination of a coupling-knuckle, consisting of members 13 and 14 means to lock the same, a pivotal support 22 adapted to be projected below a complementary draw-head, a heel 27 thereon and means acting upon this latter whereby said support is operated by the coupling-knuckle for the purpose of moving it into operative position below the complementary draw-head.

3. In a draw-head, the combination of a coupling-knuckle consisting of members 13 and 14, means to lock the same, a pivotal support 22 having a heel 27, and a spring-actuated lever adapted to engage heel 27 of support 22 for the purpose of operating the same, all as shown and described.

662,640. RUBBER-TIRE SETTER. ARTHUR W. GRANT, Springfield, Ohio, assignor, by mesne assignments, to the Consolidated Rubber Tire Company, Jersey City, N. J. Original application filed Feb. 7, 1898, Serial No. 669,335. Divided and this application filed Sept. 23, 1899. Serial No. 731,376. (No model.)



Claim.—1. The combination with the screw-threaded rods and the cross-bars, of band-holding clamps connected to the bars, one of said bars being provided with slotted openings and tapered seats, and tapered nuts on said screw-threaded rods adapted to fit in said seats, substantially as and for the purpose specified.

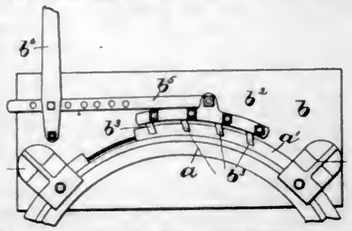
2. The combination with the screw-threaded rods and the cross-bars, of a double set of clamps on said cross-bars, one set of said clamps being adapted to hold the band, or bands, in tightening the same, and the other set to hold the same after they have been tightened substantially as specified.

3. The combination with a channel-rim, a rubber tire therein, and a band, or bands, passing through said wire, movable bars, each of said bars being provided with a double set of clamping devices, one set of said clamping devices being adapted to engage the ends of said band, or bands, and the other set to engage the said band, or bands, at a point removed from the ends, and means for forcibly moving said bars to cause the clamping devices to recede from each other substantially as specified.

4. The combination with a channel-rim, a rubber tire therein, having the band, or bands, extending through the same, movable bars each having a double set of clamping devices, one set of said clamping devices being adapted to engage the bands at the ends thereof and the other set at a point removed from the ends thereof, and a twisting device adapted to engage said bands between the said clamps, substantially as and for the purpose specified.

5. The combination with the cross-bars having the clamping devices, screw-threaded rods extending through said cross-bars, one of said cross-bars being provided with tapered openings, and tapered nuts fitted in said openings, said tapered openings being slotted to permit the screw-threaded rods to pass through when the tapered nuts are removed from said bars, substantially as specified.

662,641. DEVICE FOR EQUIPPING VEHICLE-WHEELS WITH RUBBER TIRES. ARTHUR W. GRANT, Springfield, Ohio, assignor, by mesne assignments, to the Consolidated Rubber Tire Company, Jersey City, N. J. Filed Sept. 23, 1899. Serial No. 731,377. (No model.)

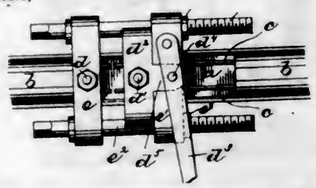


Claim.—1. In combination with a wheel-support, a pivoted lever, a pulling-bar adjustably connected to said lever, clamping devices connected with said pulling-bar, and flexible connections between said pulling device and the rubber tire, said flexible connections being formed integrally with said tire, substantially as specified.

2. In connection with pulling devices for rubber tires, pulling-strips of canvas or similar material formed into said tire, the ends of said strips being adapted to be cut off when the tire is pulled into position, substantially as specified.

3. The combination with a wheel-support, of a pivoted lever, a pulling-bar adjustably connected to said lever, a rubber tire, pulling-strips of canvas or similar material formed integrally with said tire and clamping devices on said pulling-bar to clamp said pulling-strips, for the purpose of closing the space between the ends of said tire, the ends of said pulling-strips being adapted to be cut off when the tire is pulled into position, substantially as specified.

662,642. DEVICE FOR EQUIPPING VEHICLE-WHEELS WITH RUBBER TIRES. ARTHUR W. GRANT, Springfield, Ohio, assignor, by mesne assignments, to the Consolidated Rubber Tire Company, Jersey City, N. J. Original application filed Feb. 7, 1898, Serial No. 669,335. Divided and this application filed June 13, 1900. Serial No. 20,151. (No model.)



Claim.—1. The combination with the screws, of the cross-bars adapted to be moved to and from each other by said screws, band-holding clamps on one of said cross-bars, and an auxiliary support attached to the other bar and provided with a band-holding device, and means for securing a limited movement of said auxiliary support to cause the clamping devices to approach each other independent of said screws, substantially as specified.

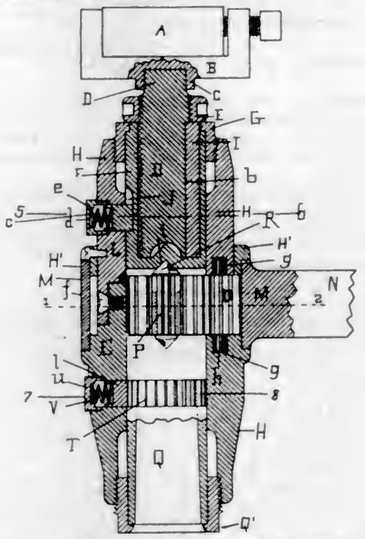
2. The combination with the cross-bars having the clamping devices connected thereto, and means for adjusting said cross-bars to or from each other, an auxiliary support connected to one of said cross-bars, a pivoted lever also on said cross-bar and pivotally connected to said auxiliary support, and clamping devices on said auxiliary support, substantially as specified.

3. In a tire-machine, the combination of cross-bars having clamping devices adapted to extend into the channel of the wheel and engage the bands extending through the tire therein, means for moving said bars to or from each other, and an auxiliary support for one of said clamping devices to permit a limited movement of said clamping devices independent of the movement of said bars, substantially as specified.

662,643. WALL-PLASTER AND CEMENT FOR BRICK WORK. WILLIAM S. GRISWOLD, Elyria, Ohio. Filed Apr. 6, 1900. Serial No. 11,792. (No specimens.)

Claim.—A composition of matter comprising calcined gypsum, cement, shale and limestone in combination in the proportions specified and in which is incorporated suitable fiber and stucco-retarder, all for the purposes as above set forth and substantially as described.

662,644. RATCHET-DRILL. CLARENCE B. GROFF, Camden, N. J. Filed Sept. 11, 1897. Serial No. 651,273. (No model.)



Claim.—1. A ratchet-drill of the kind specified, comprising a casing, a support upon which said casing is rotatably mounted, a drill-socket carried by said casing and rotatable relative thereto, means for holding the casing against rotation upon said support in one direction, means for holding the casing and drill-socket against relative rotation when the casing is rotated in the opposite direction, and an operating-lever rotatably mounted upon said casing and geared to said drill-socket to cause the latter to rotate in the opposite direction to that in which said operating-lever is rotated.

2. A ratchet-drill of the kind specified, comprising a casing, a support upon which said casing is rotatably mounted, a drill-socket carried by said casing and rotatable relative thereto, means for holding the casing against rotation upon said support in one direction, means for holding the casing and drill-socket against relative rotation when the casing is rotated in the opposite direction, an operating-lever rotatably mounted upon said casing and provided with a gear a pinion upon said casing meshing with said gear, and a gear upon said drill-socket meshing with said pinion.

3. A ratchet-drill of the kind specified, comprising a casing, a support upon which said casing is rotatably mounted provided with ratchet-teeth, a pawl carried by said casing and engaging said ratchet-teeth, a rotatable drill-socket carried by said casing and provided with ratchet-teeth extending oppositely to the ratchet-teeth of said support, a pawl mounted upon said casing and engaging said ratchet-teeth of the drill-socket, and an operating-lever rotatably mounted upon said casing and geared to said drill-socket to cause the same to rotate in the same direction when said operating-lever is rotated in either direction.

4. A ratchet-drill of the kind specified, comprising a casing, a sleeve rotatably mounted in one end thereof, a feed-screw situated within said sleeve, said feed-screw and sleeve having relative longitudinal movement but incapable of relative rotation, a feed-nut mounted upon said feed-screw and engaging said sleeve, a rotatable drill-socket carried by said casing, means for holding the casing against rotation upon said sleeve in one direction, means for holding the casing and drill-socket against relative rotation in the opposite direction, and an operating-lever rotatably mounted upon said casing and geared to said drill-socket to cause the same to rotate in the same direction when said operating-lever is rotated in either direction.

5. A ratchet-drill of the kind specified, comprising a casing, a rotatable sleeve mounted in one end thereof, a collar surrounding said sleeve and secured within the end of the casing, said collar engaging the said sleeve to prevent the same from movement outwardly with respect to the casing, a feed-screw and sleeve having relative longitudinal movement but incapable of relative rotation, a feed-nut mounted upon said feed-screw and engaging said sleeve, a rotatable drill-socket carried by said casing, means for holding the casing and sleeve against rotation in one direction, means for holding the casing and drill-socket against rotation in the opposite direction, and an operating-lever rotatably mounted upon said casing and geared to said drill-socket to cause the same to rotate in the same direction when said operating-lever is rotated in either direction.

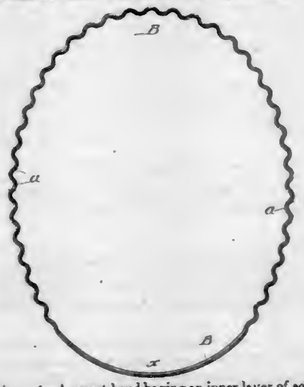
6. In a ratchet-drill of the kind specified, a casing, provided with an exterior bearing, a shoulder at one end thereof, a collar secured to said casing at the other end of said bearing, and a rotatable operating-lever having its hub mounted upon said bearing and provided with an internal gear, a drill-socket carried by said casing and rotatable relative thereto, a support for said casing, and gearing meshing with the internal gear of said hub to cause the drill-socket to rotate in the same direction when the operating-lever is rotated in either direction.

7. In a ratchet-drill of the kind specified, a casing provided with a relatively longitudinally-movable feed-screw at one end, a feed-nut mounted thereon and adapted to move the casing longitudinally relative to said feed-screw, an internal longitudinally-immovable drill-socket at the other end of said casing, a longitudinally-movable member mounted in said drill-socket, and means for moving said member longitudinally relative to the drill-socket by reason of the longitudinal movement of the feed-screw.

8. In a ratchet-drill of the kind specified, a casing, a longitudinally-movable sleeve mounted in one end thereof, a relatively longitudinally-movable feed-screw mounted in said sleeve, a feed-nut upon said feed-screw engaging the end of said sleeve, a longitudinally-immovable drill-socket in the other end of said casing, a longitudinal movable member mounted in said drill-socket and engaging the lower end of said sleeve.

9. In a ratchet-drill of the kind specified, a casing, a sleeve rotatably mounted in one end thereof and provided with ratchet-teeth, a pawl carried by said casing and engaging said ratchet-teeth, the length of said teeth being greater than the width of the pawl, a longitudinal movable feed-screw mounted in said sleeve, said sleeve and feed-screw being incapable of relative rotation, a feed-nut upon said feed-screw engaging the end of said sleeve, a rotatable longitudinally-immovable drill-socket carried by said casing, an operating-lever mounted upon said casing and geared to the drill-socket, means for causing said drill-socket to be rotated in the same direction when the operating-lever is moved in either direction, and a longitudinally-movable pin or analogous member mounted in said drill-socket and engaging said sleeve.

662,645. HAT SWEAT-BAND. FRED E. HALBERT, Chicago, Ill. Filed June 19, 1900. Serial No. 20,836. (No model.)



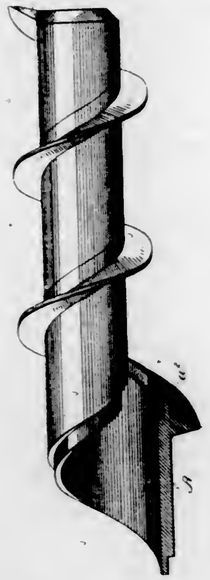
Claim.—1. A sweat-band having an inner layer of soft material and an outer layer of rigid strengthening material, said layers being coincidently bent to form comparatively rigid transverse head-engaging corrugations.

2. A sweat-band having an inner layer of soft material and an outer layer of rigid strengthening material secured thereto, said layers being coincidently corrugated transversely of their length along the sides and back portion of the band to form comparatively rigid head-engaging projections.

662,646. COAL-DRILL. MARTIN HARDCOG, Ottumwa, Iowa. Filed Feb. 7, 1900. Serial No. 4,351. (No model.)

Claim.—1. A drill made from a strip of metal provided on its outer face with a continuous longitudinal triangular-shaped rib and having its

edges formed to engage one with the other, for the winding of the strip on itself to bring the edges into engagement and form a hollow body having a smooth interior for the drill and to cause the rib to form a continuous elevating-spiral on the exterior face of the body, substantially as described.



2. A drill made from a strip of metal cut away at its edges to form shouldered laps and provided on its outer face with a continuous longitudinal triangular-shaped rib, for the winding of the strip on itself to bring the shouldered laps into engagement and form a hollow body having a continuous smooth interior for the drill and to cause the rib to form a continuous elevating-spiral on the exterior face of the body, substantially as described.

3. A drill made from a strip of metal cut away on its interior face to form a shouldered overlap and cut away on its exterior face to form a shouldered underlap and provided on its exterior face with a continuous longitudinal triangular-shaped rib, for the winding of the strip on itself to bring the shouldered laps into engagement and form a hollow body having a continuous smooth interior for the drill and to cause the rib to form a continuous elevating-spiral on the exterior face of the body and permitting the sharpening of the drill by grinding the rib, substantially as described.

662,647. CHAIR-SEAT. MARTIN V. B. HOWE, Gardner, Mass. Filed May 21, 1900. Serial No. 17,392. (No model.)

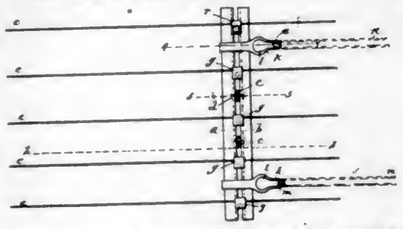


Claim.—1. As an article of manufacture, a chair-seat comprising a grooved seat-frame, a seat portion consisting of a supporting fabric, a bottom spline fitting into the groove of the frame for stretching and securing the supporting fabric in place, a top fabric, and a separate spline fitting into the groove above the bottom spline to hold the top fabric in place, substantially as described.

2. As an article of manufacture, a chair-seat comprising a grooved wooden seat-frame A, a supporting fabric 10 of woven-wire cloth, a top fabric supported by a woven-wire cloth, and independent splines for holding each of said fabrics in place on the seat-frame, substantially as described.

3. As an article of manufacture, a chair-seat consisting of a wooden seat-frame A having a groove B around its inner edge, a supporting fabric 10 of woven-wire cloth which is stretched and held in place by a spline 13 driven to the bottom of the groove B, and a top fabric 11 supported by said woven-wire cloth and secured in place by a spline 14 fitting into the groove B above the bottom spline 13, substantially as described.

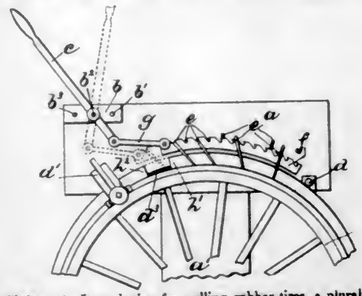
662,648. WIRE-FENCE CLAMP. ROBERT W. KIRK, Adrian, Mich., assignor of one-half to Henry N. King, same place. Filed June 11, 1900. Serial No. 19,853. (No model.)



Claim.—1. A fence-clamp comprising two angle-irons provided with spacing devices therebetween, means to connect said angle-irons, means to clamp the fence-wires against said angle-irons, and slotted ears having a sliding movement upon said angle-irons to connect a stretcher with said angle-irons.

2. A fence-clamp comprising two angle-irons provided with spacing devices therebetween, means to connect said angle-irons, means to clamp fence-wires against said angle-irons, and adjustable and movable ears formed with lips to engage the opposite edge of the angle-irons to connect a stretcher with said irons.

662,649. RUBBER-TIRE SETTER. ALVARO S. KROTZ, Springfield, Ohio, assignor to the Consolidated Rubber Tire Company, New York, N. Y. Filed Feb. 26, 1900. Serial No. 6,435. (No model.)



Claim.—1. In a device for pulling rubber tires, a plurality of U-shaped hooks the arms of one side of which are adapted to engage the under side of the tire and the arms of the other side of which pivotally engage with a pulling-bar and means of moving said bar, substantially as described.

2. In a rubber-tire-pulling machine for equipping vehicle-wheels with rubber tires, the combination of a notched bar with U-shaped hooks, one arm of which is adapted to engage said bar at the top thereof and the other arm and portion adjacent thereto adapted to engage the bottom and side of the rubber tire, and means for pulling said notched bar, substantially as described.

3. In a tire-pulling device, the combination of independent U-shaped hooks, a notched bar adapted to support said hooks, one arm of said hooks removably engaging and pivoting in said bar and the other arm engaging the tire and means for pulling said bar and hooks, substantially as specified.

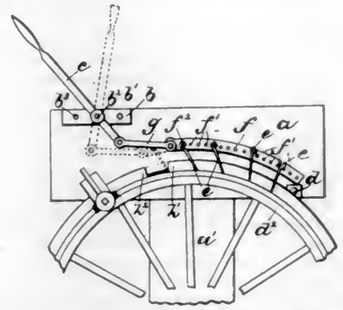
4. In a device for pulling rubber tires the combination with four or more U-shaped hooks to clamp the rubber tire on opposite sides of a bar adapted to engage the upper part of said hooks one arm of the U engaging over said bar and the other arm engaging under the tire substantially as specified and means for pulling said bar to a predetermined position.

5. In a machine for pulling rubber tires the combination of a notched bar connected to said rubber tire, a block with one or more pins and a lever having means to interchangeably pivotally engage any one of said pins, means for connecting said lever to the notched bars.

662,650. RUBBER-TIRE SETTER. ALVARO S. KROTZ, Springfield, Ohio, assignor to the Consolidated Rubber Tire Company, New York, N. Y. Filed Feb. 26, 1900. Serial No. 6,436. (No model.)

Claim.—1. In a pulling device, the combination with a series of pulling members, each of which consists of two prongs pivotally connected near their middle points, said prongs being so shaped as to conform to and grip the sides of the rubber tire, of a pulling-bar adapted to support

said pulling members and means for pulling said bar, substantially as specified.



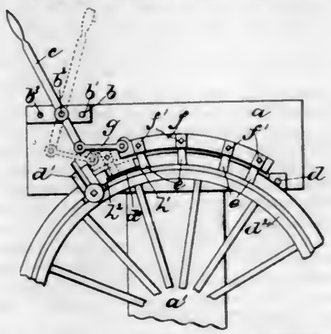
2. In a device for pulling rubber tires, the combination with a pulling-bar, of tools pivotally connected in pairs the lower ends of which are adapted to grip the rubber tire on the sides thereof, and the shanks of which pivotally engage said bar, and means for pulling said bar, substantially as specified.

3. In a pulling device for equipping vehicle-wheels with rubber tires, the combination with a pulling-bar formed with a series of holes, of tong-tools the shanks of which engage pins passing through said holes and means for pulling said bar and tongs for closing the space between the ends of said rubber tire, substantially as specified.

4. In a pulling device for rubber tires, the combination with a pulling-bar, of a series of tongs with their jaws formed to conform to the sides of the rubber tire and their upper ends removably, pivotally engaging said bar and means for pulling said bar, substantially as specified.

5. In a pulling device for rubber tires, the combination with a pulling-bar containing a series of holes, of a series of pulling-tongs, the jaws of which are adapted to grip the sides of the rubber tire and the shanks of which removably pivotally engage on opposite sides of the pulling-bar, pins passing through the holes in said bar and means for moving said bar, substantially as specified.

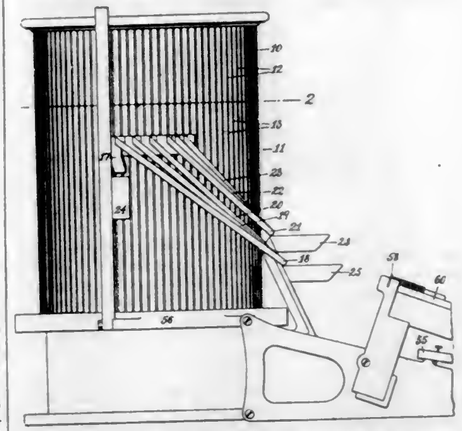
662,651. RUBBER-TIRE SETTER. ALVARO S. KROTZ, Springfield Ohio, assignor to the Consolidated Rubber Tire Company, New York N. Y. Filed Feb. 26, 1900. Serial No. 6,437. (No model.)



Claim.—1. In a rubber-tire-pulling machine, the combination of L-shaped hooks, shaped to conform to the bottom and lower part of the sides of the tire, and bent near the middle of their main stem forming a sloping shoulder practically conforming in slope with the upper part of the sides of the tire, said shoulders assisting to remove the hooks after the tire is in place, and means for pulling said hooks for the purpose of closing the rubber tire.

2. The tire-pulling device consisting of L-shaped hooks to engage the bottom and the lower part of the respective sides of said tire, said hooks being bent near the middle of their main stem forming a sloping shoulder practically conforming in shape to the upper part of the sides of said tire, said sloping shoulder assisting to remove the hooks after the tire is in place and permitting the upper ends of said hooks on opposite sides of said tire being brought more closely to each other, and a pulling-bar clamp to clamp said hooks at their upper ends and means for pulling said pulling-bar clamp.

662,652. TYPE COMPOSING AND DISTRIBUTING MACHINE. EMIL F. LINKE, Hartford, Conn., assignor to the Thorne Type Setting Machine Company, New York, N. Y. Filed Apr. 9, 1900. Serial No. 12,188. (No model.)



Claim.—1. In combination with a type-distributing machine and with a stick or typeway for composed lines of type, a segregating-channel for the justifying-spaces, a case therefor, located adjacent to the stick or typeway and means for diverting the said spaces from the segregating-channel to the case.

2. In combination with a type-distributing machine, a series of channels for segregating and assorting the justifying-spaces, a series of cases for containing the assorted spaces and means for diverting the said spaces from their respective channels and for guiding them to their respective cases.

3. In a type composing and distributing machine, the combination of a series of channels for segregating and assorting the justifying-spaces, a series of cases for containing the assorted spaces, located adjacent to the typeway of the composing-machine and means for diverting the said spaces from their respective channels and guiding them to their respective cases.

4. In a type composing and distributing machine, the combination of a series of channels for selecting and segregating the justifying-spaces from the distributing-matter, a series of hand-cases for containing the assorted spaces, arranged in convenient relation to the typeway of the composing-machine, and a series of switch-blocks and chutes leading from the said channels to their respective cases.

5. In a type composing and distributing machine, the combination of two channels warded upon opposite sides for the distribution of reversed or inverted spaces, with means for diverting from one of the channels the spaces distributed therein.

6. In a type composing and distributing machine, the combination of two channels for the same sort of type or spaces, having their selecting devices upon opposite sides of the channels, with means for diverting from one of the channels the type or spaces distributed therein.

7. In a type composing and distributing machine of the class specified, the combination of two receiving-channels reversely warded in the same combination, with means for diverting from one of the channels the spaces distributed therein for the purpose specified.

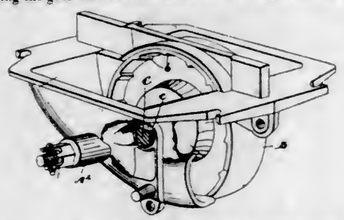
8. In a type composing and distributing machine of the class specified, the combination of two receiving-channels reversely warded in the same combination for receiving reversed or inverted type, a hand-justifying case, located adjacent to the typeway of the composing-machine, and means for diverting from one of the channels to the case the spaces received therein.

662,653. SEEDING-MACHINE. CHARLES MCLEOD, Toronto, Canada, assignor to the Massey-Harris Company, same place. Filed Sept. 19, 1899. Serial No. 731,020. (No model.)

Claim.—1. In a seeding-machine, the combination with the feed-run and grain-wheel, of a yieldingly-held gate located intermediately of the length of the feed-run adapted to have movement laterally of said wheel as and for the purpose specified.

2. In a seeding-machine, the combination with the feed-run and grain-wheel, of a gate extending through a slot in the narrowest part of the feed-run and projecting into the feed-run and a suitable spring for yieldingly holding the gate in position in the feed-run as and for the purpose specified.

3. In a seeding-machine, the combination with the feed-run and grain-wheel, of a gate extending through a slot in the narrowest part of the feed-run and projecting into the feed-run and provided with a stem extending into a hollow boss in the casing of the feed-run, and a spring for normally pressing the gate into the feed-run as and for the purpose specified.



4. In a seeding-machine, the combination with the feed-run and grain-wheel, of a gate extending through a slot in the narrowest part of the feed-run and projecting into the feed-run and provided with a stem extending into a hollow boss in the casing of the feed-run, a spiral spring extending between the end of the boss and the gate and nut on the threaded end of the stem provided with end notches and a cotter-pin extending through the threaded end of the pin or stem and the notches of the nut as and for the purpose specified.

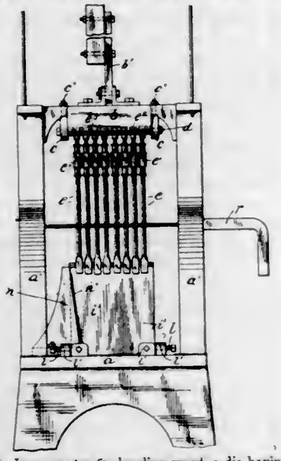
5. In a seeding-machine, the combination with the feed-run and grain-wheel, of a yieldingly-held gate located in the narrowest part of the feed-run and means for adjusting the gate as and for the purpose specified.

6. In a seeding-machine, the combination with the feed-run and grain-wheel, of a yieldingly-held gate located in the narrowest part of the feed-run and provided with a rounded upper end and a flat lower side meeting at an edge as and for the purpose specified.

7. A feed-run comprising a casing having a broad month at the upper end and a narrow central portion and a flaring arc-shaped discharge end for the run and a gate adapted to yield laterally situated in the narrowest part of the run as and for the purpose specified.

8. The combination with the feed-run, of the grain-wheel and axle, and the disk located adjacent to the wheel adapted to rotate therewith and substantially on the same arc as the arc of the feed-run as and for the purpose specified.

662,654. APPARATUS FOR BENDING WOOD. FRANK R. NEWTON, Charlevoi, Pa. Filed Feb. 2, 1898. Serial No. 668,813. (No model.)



Claim.—1. In apparatus for bending wood, a die having its upper part conforming to the unbent wood and its lower part conforming to the shape to be imparted to the wood, and its walls varying from the upper to the lower part of the die, and mechanism for forcing the entire portion of the blank to be bent transversely through said die at one time, substantially as set forth.

2. In apparatus for bending wood, a die having its upper part conforming to the unbent wood, and its lower part conforming to the shape to be imparted to the wood, and its walls varying from the upper to the lower part of the die, a plurality of plungers entering the top of the die and adapted to force the entire portion of the wood to be bent transversely through the die, substantially as set forth.

3. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, and a plurality of plungers adapted to swing sidewise with relation to the die and thereby to conform to the shape thereof as they pass through the same, substantially as set forth.

4. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, and a plurality of plungers adapted to swing sidewise with relation to the die and thereby to conform to the shape thereof as they pass through the same, the bases of said plungers being at different levels when entering the die, substantially as set forth.

5. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, and a plurality of plungers adapted to swing sidewise with relation to the die and thereby to conform to the shape thereof as they pass through the same, the bases of said plungers being at different levels when entering the die, and on the same level at the end of their stroke, substantially as set forth.

6. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, and a plurality of plungers adapted to reciprocate in the pass of said die, said plungers being formed in sections, and right and left hand sleeve-nuts connecting said sections, substantially as set forth.

7. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, a gage at one end of said die against which the end of the unbent blank abuts, and mechanism for forcing the entire portion of the wood to be bent transversely through said die at one time, substantially as set forth.

8. In apparatus for bending wood, a die having a pass with walls gradually conforming to the shape to be imparted to the wood, a gage with an inclined face against which the end of the wood abuts, and mechanism for forcing said wood through said pass, substantially as set forth.

9. In apparatus for bending wood, side dies, the inner contiguous faces of which form a pass gradually conforming to the shape to be imparted to the wood, a mold conforming in shape to the extreme inner end of said pass, and mechanism for forcing the wood through said pass into said mold, substantially as set forth.

10. In apparatus for bending wood, the combination of a suitable table, side dies supported thereon, the inner contiguous faces of said dies forming a pass gradually conforming to the shape to be imparted to the wood, a sliding mold conforming in shape to the extreme inner end of said pass, said table having a seat therein within which said mold fits, and mechanism for forcing the wood through said pass into said mold, substantially as set forth.

11. In apparatus for bending wood, the combination of a suitable table, side dies supported thereon, the inner contiguous faces of said dies forming a pass gradually comforming to the shape to be imparted to the wood, a sliding mold conforming in shape to the extreme inner end of said pass, and having a rib on its bottom face, said table having a seat therein adapted to receive said rib, and mechanism for forcing the wood through said pass into said mold, substantially as set forth.

12. In apparatus for bending wood, the combination of a suitable table, side dies supported thereon, the inner contiguous faces of said dies forming a pass gradually conforming to the shape to be imparted to the wood, a sliding mold conforming in shape to the extreme inner end of said pass, and having a V-shaped rib on its bottom face, said table having a V-shaped seat adapted to receive said rib, and mechanism for forcing the wood through said pass into said mold, substantially as set forth.

13. In apparatus for bending wood, the combination of a die having a pass with walls gradually conforming to the shape to be imparted to the wood, a suitable frame extending above the same, a reciprocating cross-head in said frame, and a plurality of swinging plungers suspended from said cross-head and entering the upper ends and adapted to pass through said die, substantially as set forth.

14. In apparatus for bending wood, the combination of a die having a pass therein with walls gradually conforming to the shape to be imparted to the wood, a suitable frame extending above the same, a reciprocating cross-head in said frame, a shaft carried by said cross-head and a plurality of swinging plungers suspended from said shaft and entering the upper ends and adapted to pass through said die, substantially as set forth.

15. In apparatus for bending wood, the combination of a die having a pass therein with walls gradually conforming to the shape to be imparted to the wood, a suitable frame extending above the die, a reciprocating cross-head mounted in said frame, a shaft carried by said cross-head, and a plurality of plungers having rings at the upper ends thereof engaging said shaft, substantially as set forth.

16. In apparatus for bending wood, the combination with a suitable frame, of a reciprocating cross-head, a shaft carried by said cross-head, a plurality of plungers having rings at the upper ends thereof engaging said shaft, liners between said rings, and a die having a pass therein with walls gradually conforming to the shape to be imparted to the wood, substantially as set forth.

17. In apparatus for bending wood, the combination with a suitable frame, of a die whose walls form a vertical pass, mechanism for forcing the wood to be bent down into said pass, and a guide-arm beyond said die and adapted to guide said wood therein, the pass of the die being open at the end toward said arm, substantially as set forth.

18. In apparatus for bending wood, the combination with a suitable frame, of a die whose walls form a vertical pass, mechanism for forcing the wood to be bent down into said pass, and a downwardly-projecting guide-arm beyond said die adapted to guide said wood therein, the pass of the die being open at the end toward said arm, substantially as set forth.

19. In apparatus for bending wood, the combination with a suitable frame, of a die, a plurality of swinging plungers adapted to enter said die, and yielding guides adapted to press against said plungers from opposite sides, substantially as set forth.

20. In apparatus for bending wood, the combination with a suitable frame, of a die, a plurality of swinging plungers adapted to enter said die, guides on opposite sides of said plungers, downwardly-extending arms on said guides, projections on said die upon which said arms are mounted, and springs interposed between said arms and heads on said projections, substantially as set forth.

21. In apparatus for bending wood, the combination with a suitable frame, of a die, a plurality of swinging plungers adapted to enter said die, guides on opposite sides of said plungers, downwardly-extending arms on said guides, said arms having inwardly-projecting ends bearing against said die, projections on said die upon which said arms are mounted, and springs interposed between said arms and heads on said projections, substantially as set forth.

22. In apparatus for bending wood, a die having opposing faces bearing on the sides only of the blank and contacting with it at different points, the distance between the opposing die-faces being substantially the same at all points, said faces being so formed as to compress longitudinally the fibers of the wood fed transversely therethrough.

23. In apparatus for bending wood, a die having opposing faces bearing on the sides only of the blank and contacting with it at different points, the points of engagement of said faces with a given point of the blank in its travel through the die forming a series of converging lines on said faces.

24. In apparatus for bending wood, a die having opposing faces bearing on the sides only of the blank and contacting with it at different points, the points of engagement of said faces with a given point of the blank in its travel through the die forming a series of converging lines on said faces, and mechanism for forcing the blank transversely through said die.

25. In apparatus for bending wood, a die having opposing faces bearing on the sides of the blank and contacting with it at different points, the distance between the opposing die-faces being substantially the same at all points, but the points of engagement of said faces with a given point of the blank in its travel through the die forming a series of converging lines on said faces.

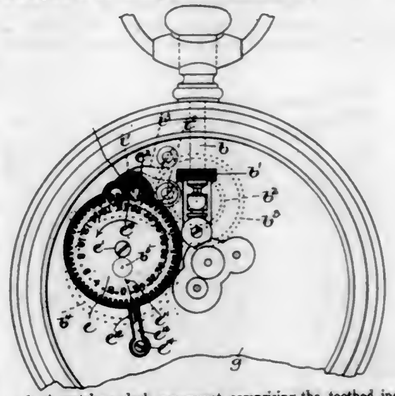
26. In apparatus for bending wood, a die having opposing faces bearing on the sides only of the blank and contacting with it at different points, said faces varying laterally from the plane of travel of the blank, and the points of engagement of said faces with a given point of the blank in its travel through the die forming a series of converging lines on said faces.

27. In apparatus for bending wood, a die having a pass formed by contiguous faces bearing on the sides of the blank and contacting with it at different points, said faces varying laterally from the plane of travel of the blank, the variation increasing in degree in the direction of travel of the blank, and the points of engagment of said faces with a given point of the blank in its travel through the die forming a series of converging lines on said faces.

662,655. WINDING-INDICATOR FOR WATCHES. OLOF OHLSON, Waltham, Mass., assignor to the American Waltham Watch Company, same place. Filed June 5, 1899. Serial No. 719,352. (No model.)

Claim.—1. In a watch or clock movement, a mainspring, an indicator for showing the length of time the spring has been running, means for winding the spring and resetting the indicator, and devices whereby the indicator may be automatically disconnected from the winding means during the forward movement of the winding devices prior to the cessation of the winding operation.

2. A watch or clock movement comprising in addition to the usual time-indicating mechanism, a mainspring, an indicator for showing the length of time the spring has been running, spring-winding mechanism, operative connections between said spring and the indicator, and between the winding mechanism and the indicator, and devices for automatically disconnecting said indicator from said connections when said indicator reaches a predetermined limit in either direction, whereby movement of the indicator may be stopped prior to the cessation of the winding operation or prior to the running down of the mainspring.



3. A watch or clock movement comprising the toothed indicator-wheel *e* having one tooth omitted, the pinion e^2 having pins e^2 for engaging the teeth of said wheel the arbor e^1 of said pinion, the pinion A loose on the said arbor, a friction-spring for frictionally engaging the pinion A with the arbor, and means for rotating the pinion e^2 or the pinion A.

4. In a watch or clock movement, the mainspring-barrel *a* having teeth a', the pinion *i* carried by a lever i', spring i^2 for holding the pinion *i* in engagement with the teeth a' of the barrel, said pinion *i* being constantly engaged with the pinion e^2, the winding-wheel click *c* carried by the lever i', the indicator-wheel *e*, the pinion e^2 having means for effecting rotation of the indicator-wheel and carried by the arbor e^1, and the pinion A frictionally engaged with the arbor e^1.

662,656. TROUSERS-HANGER. LAURISTON F. L. PYNCHON, Hartford, Conn. Filed June 8, 1900. Serial No. 19,651. (No model.)



Claim.—1. In combination a supporting bracket member, a frame-like member composed of branches extending back and forth providing jaws opening alternately at opposite ends thereof, said frame-like member being supported at one end by the bracket member whereby, beginning at the bracket member, each successive branch of the frame-like member is located farther from the support than the preceding branch.

2. In combination with a bracket member having a projecting part, a frame-like member composed of branches extending back and forth providing jaws opening alternately at opposite ends thereof and having two adjacent branches located at the extreme end of the frame-like member located on opposite sides of said projection from the bracket member.

3. In combination in a garment-hanger, a bracket member consisting of a back piece and a ledge, oppositely-disposed grooves formed in said ledge, one in the upper face and one at the outer edge, a frame-like member having adjacent branches adapted to rest in said grooves, and means for preventing movement of the frame-like member lengthwise of the branches.

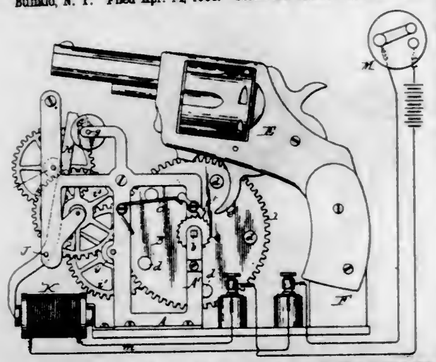
4. In combination with a bracket member consisting of a back piece and a ledge, an opening depthwise through the ledge, a groove extending crosswise of the ledge in its upper face and into said opening, a groove located in the front edge of the ledge, and a frame-like member having branches adapted to lie in said grooves, and a bent portion adapted to lie in said opening.

5. As an improved article of manufacture, a trousers-hanger comprising a bracket having a socket and a clamp, the latter formed of a rod of spring metal one end of which is bent at an angle to the plane of the clamp and fits said socket and the rest of the rod being bent back and forth to form substantially parallel jaws opening on opposite ends of the clamp.

6. As an improved article of manufacture, a trousers-hanger comprising a bracket having a socket and a rest adjacent to the socket and a clamp, the latter formed of a rod of spring metal one end of which is bent at an angle to the plane of the clamp and the portion adjacent to the bent portion supported by said rest, the balance of the rod being bent back and

forth to form substantially parallel jaws opening on opposite ends of the clamp.

662,657. ELECTRIC BURGLAR-ALARM. HENRY ROHRDANTZ, Buffalo, N. Y. Filed Apr. 14, 1900. Serial No. 12,806. (No model.)



Claim.—1. In a burglar-alarm, the combination with a rotary motor-drum having one or more tappets, and an alarm device having a trigger or actuating member arranged in the path of said tappets, of an electric circuit containing a make-and-break device and an electromagnet, a friction-wheel connected with said motor-drum by intermediate gearing, a brake-lever bearing against said friction-wheel and connected with the armature of said electromagnet, means for yieldingly holding said brake-lever against said friction-wheel, and a retracting device for said lever which is supplemental to said armature and which is operated from said motor-drum, substantially as set forth.

2. In a burglar-alarm, the combination with an alarm device having a trigger or actuating member, of a rotary motor-drum having a notched annular flange and one or more tappets arranged to trip said trigger, an electric circuit containing a make-and-break device and an electromagnet, a friction-wheel geared with said motor-drum, a brake-lever bearing against said friction-wheel and connected with the armature of said electromagnet, a retracting arm connected with said lever and bearing against said notched flange, and means for yieldingly holding said brake-lever against said friction-wheel and said retracting arm against said notched flange, substantially as set forth.

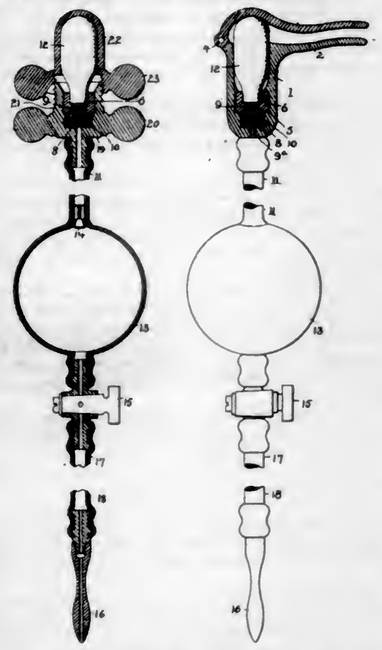
3. In a burglar-alarm, the combination with an alarm device having a trigger or actuating member, of a motor-drum having a notched annular flange and one or more tappets arranged to trip said trigger, an electric circuit containing a make-and-break device and an electromagnet, a friction-wheel geared with said motor-drum, a rock-shaft, a brake-lever mounted on said rock-shaft and bearing against said friction-wheel and carrying the armature of said electromagnet, a retracting arm mounted on said rock-shaft and bearing against the notched flange of the motor-drum, and a spring connected with an arm of said rock-shaft and tending to hold said brake-lever against said friction-wheel and said retracting arm against said notched flange, substantially as set forth.

662,658. INSTRUMENT FOR INJECTING GAS INTO THE HUMAN BODY. EMILE STERN, Paris, France, assignor to the Compressed Gas Capsule Company, of New Jersey. Filed Jan. 19, 1900. Serial No. 1,976. (No model.)

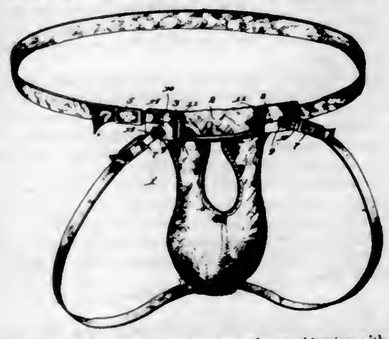
Claim.—1. As a therapeutic instrument, an elastic bulb communicating with a tube, having a nozzle at one end with a valve interposed in said tube in combination with a metal capsule containing gas under pressure, said capsule being contained within a capsule-discharging mechanism, a tubular connection between said capsule-discharging mechanism and said bulb, substantially as described.

2. As a therapeutic instrument, an elastic bulb communicating with a tube, having a nozzle at one end with a valve interposed in said tube in combination with a metal capsule containing gas under pressure, said capsule being contained within a capsule-discharging mechanism, a tubular connection between said capsule-discharging mechanism and said bulb; said capsule-discharging mechanism consisting of a chamber fitted with a suitable piercing instrument and elastic washers to receive the neck of the capsule with means to force said capsule against said washer and piercing instrument, substantially as described.

3. As a therapeutic instrument, an elastic bulb communicating with the tube, having a nozzle at one end with a valve interposed in said tube in combination with a metal capsule containing gas under pressure, said capsule being contained within a capsule-discharging mechanism, a tubular connection between said capsule-discharging mechanism and said bulb; said capsule-discharging mechanism consisting of a chamber fitted with a suitable piercing instrument and elastic washers to receive the neck of the capsule, and a wing-nut internally screw-threaded and having a dome to receive one end of the capsule, the same being adapted to screw over said chamber and when screwed down to force the neck of the capsule against the piercing instrument, substantially as described.



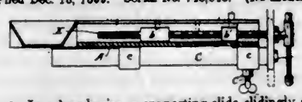
662,659. SUSPENSORY BANDAGE. LYNN C. THOMPSON, Darlington, Ind. Filed May 22, 1900. Serial No. 17,593. (No model.)



Claim.—1. In a suspensory bandage, the combination with a bag or sack, of waist and holding straps, fastening devices in the form of plates attached to the upper opposite portions of the bag or sack and having slotted seats therein, the one plate having two seats with one inclined upwardly toward the other, and the other plate provided with a single upwardly-inclined seat, and companion members adjustably connected to one of the waist-strap terminals and both of the holding-strap terminals and having movable tongues carrying projections to detachably engage the said seats.

2. In a suspensory bandage, the combination with a bag or sack, of waist and holding straps, fastening-plates secured to the upper opposite portions of the bag or sack, the one plate having a pair of seats and the other a single seat, and all the seats outstruck and slotted, the lower seat in the plate having the pair of seats being inclined upwardly toward the upper one of said pair of seats, and the single seat in the other plate similarly inclined in reverse direction, and slotted slides attached to the one terminal of the waist-strap and both upper terminals of the holding-straps and provided with freely-movable tongues having headed studs thereon to engage the said seats.

662,660. BENCH-VISE. WILLIAM VAN MANEN, Grand Rapids, Mich. Filed Dec. 18, 1899. Serial No. 740,813. (No model.)



Claim.—1. In a bench-vise, a supporting-slide slidingly secured to the bottom of the bench-top, a vertically-adjustable jaw secured to the end of said slide, a slide secured in a slot in the bench-top, and an actuating-screw for manipulating said slide and the vise-jaw, substantially as and for the purpose set forth.

2. In a bench-vise, a supporting-slide slidingly attached to the lower surface of the bench-top, a parallel slide secured to lie flush with the upper surface of the bench-top, a vertically-adjustable jaw secured to the end of the supporting-slide, an actuating-screw connecting the bench-jaw with the upper slide to actuate the one or the other, and adjustable bench-pins connected with the upper slide or with the jaw, substantially as and for the purpose set forth.

3. In a bench-vise, a supporting-slide, a jaw secured to said slide, a slide in the upper surface of the bench-top and parallel with the supporting-slide, an actuating-screw connecting the jaw and the upper slide, and a set-screw for setting the supporting-slide, substantially as and for the purpose set forth.

662,661. STOVE-DAMPER. JOHN C. WITCHER, Conroe, Tex., assignor of one-half to C. W. Nugent, same place. Filed Jan. 17, 1900. Serial No. 1,795. (No model.)



Claim.—1. A stove-damper comprising a recessed rectangular body-plate provided with a plurality of draft holes or openings, and a longitudinally-disposed slide seated within said recess and having its face flush with the face of the body-plate, said slide being of shorter length than the body-plate and provided with a plurality of ports, and a longitudinally-movable pivot-rod mounted within one edge of the body-plate entirely inside of the plane of said edge and connected with the slide.

2. A stove-damper comprising a rectangular body-plate provided with a plurality of draft holes or openings, a longitudinally-disposed slide-recess in one face thereof, and with a longitudinal channel in one side edge thereof, an adjustable regulating-slide seated flush within said recess and of a shorter length than the same, said slide being provided with a plurality of ports and at one edge with an offset lug, and a pivot-rod mounted for longitudinal movement within said channel at one edge of the body-plate and connected with the lug of the slide, substantially as set forth.

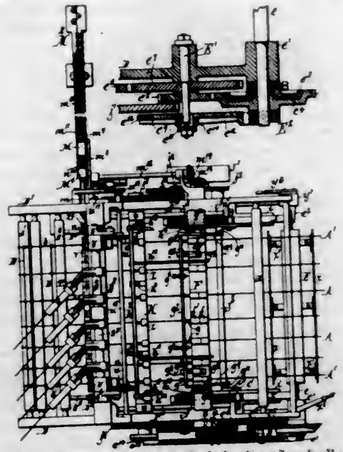
3. A stove-damper comprising a body-plate provided with a plurality of draft-holes and with a slide-recess in one side face thereof, an adjustable regulating-slide seated within said slide-recess and provided with a lug movable within a guide-recess in the body-plate, a rod-channel formed in one edge face of the body-plate and defined in part by guide-webs located in the plane of said edge, and a longitudinally-movable pivot-rod extending entirely through the channel and projecting beyond the ends of the damper to form journals, and means for connecting the lug of the slide to the rod at a point intermediate of the ends of the latter, means for securing an interlocking engagement between the slide and body-plate, and means for imparting rotary movement to the pivot-rod.

662,662. WIRE-FENCE MACHINE. DANIEL P. ANTHONY, Tecumseh, Mich. Filed Aug. 14, 1899. Serial No. 727,177. (No model.)

Claim.—1. A wire-gripper comprising a body having a longitudinal opening for the passage of the wire, a recess which intersects said opening and which has an inclined back, and a roller arranged transversely in the recess and adapted to bear with one side against the inclined back thereof and with its opposite side against the wire in said opening, substantially as set forth.

2. A wire-gripper comprising a body having a longitudinal opening for the passage of the wire, a recess which intersects said opening and which has an inclined back, a roller arranged transversely in said recess and adapted to bear with one side against the back thereof and with its opposite side against the wire in said opening, and a spring which holds the roller yieldingly in the narrow part of said recess, substantially as set forth.

3. A wire-gripper comprising a body having a longitudinal opening for the passage of the wire, a recess which intersects said opening and which has an inclined back, a roller arranged transversely in said recess and adapted to bear with one side against the back thereof and with the opposite side against the wire in said opening, and a shifting device whereby the roller is shifted into the wide part of said recess, substantially as set forth.



4. A wire-gripper comprising a body having a longitudinal opening for the passage of the wire, a recess which intersects said opening and which has an inclined back, a roller arranged transversely in said recess and adapted to bear with one side against the back thereof and with its opposite side against the wire in said opening, a spring whereby the roller is yieldingly held in the narrow part of said recess, and a movable shifting-pin which is guided in the body and whereby the roller may be shifted into the wide part of said recess, substantially as set forth.

5. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, and the reel upon which the fence is wound, of longitudinally-movable feed-grippers which grasp the main wires during their forward movement and feed the same forward and which release the main wires during their backward movement, and safety-grippers which move with the feed-grippers and which are constructed to grasp the main wires if the reel tends to pull the same forward through the feed-grippers during the forward movement of the latter and to release the main wires while moving backwardly with the feed-grippers, substantially as set forth.

6. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are secured to the longitudinal main wires, and the reel upon which the fence is wound, of longitudinally-movable feed-grippers which grasp the main wires during their forward movement and feed the same forward and which release the main wires during their backward movement, and detent-grippers which are constructed to release the main wires while the same are being moved forward by the feed-grippers and to grasp the main wires so as to prevent the reel from pulling the same forwardly during the backward movement of the feed-grippers, substantially as set forth.

7. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, and the reel upon which the fence is wound, of longitudinally-movable feed-grippers which grasp the main wires during their forward movement and feed the same forward and which release the main wires during their backward movement, safety-grippers which move with the feed-grippers and which are constructed to grasp the main wires if the reel tends to pull the same forward faster than the forward movement of the feed-grippers and to release the same while moving backwardly with the feed-grippers, and detent-grippers which are constructed to release the main wires during the forward movement of the feed-grippers and to grasp the main wires so as to prevent the reel from pulling the same forwardly during the backward movement of the feed-grippers, substantially as set forth.

8. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, and the reel upon which the fence is wound, of a longitudinally-movable carrier, feed-grippers mounted on said carrier and provided with rollers adapted to grasp the main wires during their forward movement and to release the same during their backward movement, safety-grippers arranged on said carrier and provided with gripping-rollers adapt-

od to grasp or release the main wires, a movable shifting-bar provided with shifting-pins, a stop with which said bar engages at the end of the forward movement of the carrier and is shifted so that its pins move the rollers of the safety-grippers into an inoperative position, a catch whereby the shifting-bar is held in its releasing position, a tappet adapted to engage with said catch at the end of the backward movement of said carrier and release the shifting-bar, a spring whereby the shifting-bar is moved forward when released to permit the rollers of the safety-grippers to grasp the main wires, detent-grippers arranged on a stationary support and provided with gripper-rollers adapted to grasp or release the main wires, a shifting-bar provided with shifting-pins adapted to release the detent-gripper rollers from the main wires, a shifting-rod connected at one end with the detent-gripper-shifting bar and adapted to be engaged by said carrier at the end of the backward movement of the latter for shifting the same into an operative position, a catch which holds the detent-releasing bar in its operative position, a tappet adapted to engage the last-mentioned catch and disengage the same from the detent-shifting bar at the end of the forward movement of the carrier, and a spring whereby the detent-shifting bar is shifted into its inoperative position when released by said catch, substantially as set forth.

9. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are connected with the longitudinal main wires, of a movable slide provided with grippers whereby the main wires are fed forwardly, two longitudinally-reciprocating carriages each of which is provided with adjustable stops adapted to engage against the front and rear sides of said slide, substantially as set forth.

10. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are connected with the longitudinal main wires, of a movable slide provided with grippers whereby the main wires are fed forwardly, two longitudinally-reciprocating carriages each of which is provided with a horizontal screw-rod passing through said slide, and screw-nuts arranged on each rod in front and in rear of the slide, substantially as set forth.

11. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, and the reel upon which the fence is wound, of a feed mechanism whereby the main wires are fed forward intermittently, and a friction-coupling whereby the reel is connected with the driving mechanism during the forward movement of the feed mechanism and disconnected therefrom during the backward movement thereof, substantially as set forth.

12. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, and the reel upon which the fence is wound, of a feed mechanism whereby the main wires are fed forward intermittently, a pair of coöperating friction-wheels one of which is connected with the reel and the other with the driving mechanism, a rock-lever connected with one arm to one of the friction-wheels, and a cam which is connected with the driving mechanism and which rocks said lever for engaging said friction-wheels when the feed mechanism moves forwardly and releases said lever for disengaging the friction-wheels when the feed mechanism moves backwardly, substantially as set forth.

13. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, of a feed mechanism whereby the main wires are fed intermittently past the fastening mechanism, and a feed mechanism whereby the stay-wires are fed across the main wires at the fastening devices, substantially as set forth.

14. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, of a feed mechanism whereby the main wires are fed past the fastening devices, a transversely-movable belt provided with a support and with adjusting-screws on the front and rear ends of the support, and a gripper arranged on said support between said screws, substantially as set forth.

15. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are fastened to the longitudinal main wires, of a feed mechanism which feeds the main wires past the fastening devices, a feed mechanism which feeds the stay-wires across the main wires, and a cutter mechanism which cuts off the lengths of stay-wires from the stock of wire, substantially as set forth.

16. The combination with a pair of clamping-jaws which are adapted to hold two crossing fence-wires, of a die arranged in one of said jaws and adapted to hold a staple-shaped tie-wire over the crossing of said fence-wires, and a die arranged in the other jaw and provided with two curling-faces which are adapted to engage with the ends of the tie-wire and curl the same around one of said wires on opposite sides of the other wire, substantially as set forth.

17. The combination with an upper and a lower clamping-jaw which are adapted to hold two crossing fence-wires, of an upper die arranged in a recess in the upper jaw and provided with a recess which receives a staple-shaped tie-wire and holds the same over the crossing fence-wires, and a lower die adapted to enter the recess of the upper die and provided with two curling-faces which are adapted to curl the ends of the tie-wire around one of said fence-wires on opposite sides of the other fence-wire, substantially as set forth.

18. The combination with the upper and lower clamping-jaws which are adapted to hold two crossing fence-wires, and each of which is provided with a recess, of a cutter arranged in the side of the upper jaw and provided with an opening for the passage of the tie-wire into the recess of the upper jaw and provided with a cutting edge adjacent to the opening of said cutter, whereby upon depressing the upper die a tie-blank is cut from the stock of wire and the blank is bent downwardly over the crossing fence-wires and the depending ends of the blank are inclosed by the bifurcation of the upper die and the recess of the lower die, and a lower die which is adapted to move upwardly into the bifurcation of the upper die and the recess of the lower die and which is provided with two curling-faces adapted to engage with the ends of the tie-wire and curl the same around one of the fence-wires on opposite sides of the other fence-wire, substantially as set forth.

19. The combination with the mechanism for feeding two fence-wires one across the other, of a twisting-disk provided with an axial opening through which one of said wires passes, and provided with a tangential groove which receives the other fence-wire, whereby upon rotating said disk the wire in its groove is twisted around the wire in its axial opening, substantially as set forth.

20. The combination with the mechanism for feeding two fence-wires one across the other, of a twisting-disk provided with an axial opening through which one of said fence-wires passes, and provided with a tangential groove in its face, which receives the other fence-wire, a hollow telescopic shaft through which the first-mentioned wire passes and which has a front section carrying the twisting-disk and a rear section journaled in a stationary bearing, a spline connecting said shaft-sections, a guide-plate arranged in front of the twisting-disk and provided with a notch for the passage of said wires, and a spring whereby the twisting-disk is yieldingly held against the guide-plate, substantially as set forth.

21. The combination with the mechanism for feeding two fence-wires one across the other, of a twisting-disk mounted on a hollow shaft through which one of the fence-wires passes and provided with a tangential groove which receives the other fence-wire, a gear-wheel provided with a pawl which engages with a shoulder on said shaft and turns the latter forwardly but which permits the gear-wheel to turn backwardly without the shaft, and a reciprocating gear-rack meshing with the gear-wheel, substantially as set forth.

22. The combination with the mechanism for feeding two fence-wires one across the other, of a twisting-disk provided with an axial opening through which one of said fence-wires passes and provided with a tangential groove in its face which receives the other fence-wire, a hollow telescopic shaft through which the first-mentioned wire passes and which has a front section carrying the twisting-disk and a rear section journaled in a stationary bearing, a spline connecting said shaft-sections, a guide-plate arranged in front of the twisting-disk and provided with a notch for the passage of said wires, a spring whereby the twisting-disk is yieldingly held in engagement with the guide-plate, a gear-wheel provided with a pawl which engages with a shoulder on said shaft upon moving the wheel forwardly, a gear-rack meshing with the gear-wheel, and a detent-pawl engaging with a notch in a collar on said shaft, substantially as set forth.

23. The combination with the mechanism for feeding a transverse stay-wire and a longitudinal main wire one across the other, of a tying device provided with upper and lower clamping-jaws adapted to grasp the crossing wires, transverse wire-guides arranged on opposite sides of the clamping-jaws and each guide provided with an upper guide-jaw which is normally arranged with its face below the face of the upper clamping-jaw, and a spring whereby the upper guide-jaw is yieldingly held in a depressed position, whereby upon feeding a wire through the guides and across the tying device and then closing the clamping-jaws the wire is first deflected upwardly between the wire-guides by the rise of the lower jaw and then the depressed parts of the wire on opposite sides of the tying device are drawn upwardly and raise the upper guide-jaws, thereby furnishing the stock from which to form a crimp in the transverse fence-wire and permit the same to pass around the main wire, substantially as set forth.

24. The combination with the mechanism whereby a transverse stay-wire and a longitudinal main wire are fed one across the other, of a tying device provided with upper and lower clamping-jaws adapted to grasp the crossing wires, transverse wire-guides arranged on opposite sides of the clamping-jaws and each guide provided with an upper guide-jaw, an upright rod arranged on each guide-jaw and sliding in a support, a spring whereby the guide-jaw is yieldingly held in a depressed position, and a stop which limits the downward movement of the guide-jaw, substantially as set forth

25. The combination with the mechanism whereby a transverse stay-wire and a longitudinal main wire are fed one across the other, of a tying device provided with upper and lower clamping-jaws adapted to grasp the crossing wires, transverse wire-guides arranged on opposite sides of the clamping-jaws and each guide provided with upper and lower guide-jaws, an upright rod arranged on each upper guide-jaw and sliding in a support, a spring whereby each upper guide-jaw is held in a depressed position, a pivot connecting the rear end of each lower guide-jaw with the adjacent support, and a spring whereby each lower guide-jaw is yieldingly held against the under side of the companion upper guide-jaw, substantially as set forth.

26. In a wire-fence machine, the combination with a transverse row of crimpers each of which consists of a pair of corrugated jaws between which one of the fence-wires is fed, and shifting mechanism whereby one jaw of each pair is moved toward its companion jaw and the wire between the same is crimped, substantially as set forth.

27. In a wire-fence machine, the combination with a transverse row of crimpers each of which consists of a stationary corrugated jaw and a movable corrugated jaw, and a reciprocating rod connecting the movable jaws, substantially as set forth.

28. In a wire-fence machine, the combination with the fastening devices whereby the transverse stay-wires are connected with the longitudinal main wires, the reel upon which the fence is wound, and the guide-rollers whereby the fence is supported between the fastening mechanism and the reel, of a transverse row of crimpers arranged between two of said rollers and each crimper consisting of a stationary corrugated jaw and a movable corrugated jaw, said jaws having rounded or beveled front ends and projecting with their upper sides above a straight line drawn from the bottom of one roller on one side of the crimpers to the bottom of the roller on the other side of the crimpers, substantially as set forth.

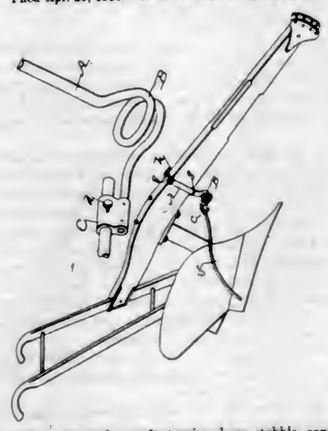
29. The combination with the reel-shaft, of a number of reel-bars arranged lengthwise of the shaft, links connecting the bars with the shaft, a sliding collar arranged on the shaft, rods connecting the outer ends of some of the links with said collar, and a lever connected with said collar, substantially as set forth.

30. The combination with the reel-shaft, of a number of reel-bars arranged lengthwise of said shaft, radial links connecting the bars with the shaft, a supporting-bar arranged lengthwise along the inner side of one of the reel bars, cranks arranged on the outer ends of the adjacent links and connected with said supporting-bar, and wire-attaching pins arranged on said bar and adapted to project beyond the adjacent reel-bar for receiving the ends of the fence-wires, substantially as set forth.

31. The combination with the reel-shaft, of a stationary bearing in which one end of the shaft is journaled, and a movable bearing in which the other end of the shaft is journaled, substantially as set forth.

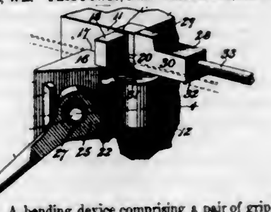
32. The combination with the reel-shaft, of a stationary bearing on one side of the frame in which one end of the reel-shaft is journaled, a movable bearing arranged on a foot pivoted to the opposite side of the frame, a short shaft journaled in the movable bearing, a bearing for the opposite end of the reel-shaft arranged on the inner end of the short shaft and having a laterally-extending recess, and a handle arranged on the outer end of the short shaft, substantially as set forth.

662,663. PLOW ATTACHMENT. ERNEST H. BARTELS, Elma, Iowa. Filed Apr. 23, 1900. Serial No. 13,872. (No model.)



Claim.—A plow attachment for turning down stubble, consisting of a rod-bearer having its upper rigid and straight part flat on one side and its lower part coiled, a socket having a screw-seat fixed to the free end of the coiled part and a set-screw fitted in said seat and a rod fitted in the socket, to operate in the manner set forth for the purposes stated.

662,664. ANGLE-BENDING MECHANISM. ROBERT BATES, Grand Rapids, Wis. Filed Feb. 16, 1900. Serial No. 5,453. (No model.)



Claim.—1. A bending device comprising a pair of grippers having their faces in substantially parallel relation, one of said grippers being movable in a direction oblique to the face of the other gripper while maintaining the parallel relation of the faces.

2. A bending device comprising a pair of grippers having their faces in substantially parallel relation, and means for shifting one of the grippers in a direction oblique to the faces without disturbing the parallelism thereof.

3. In an angle-bending mechanism, the combination with a pair of grippers having parallel faces, one of said grippers being movable in a plane oblique to the face of the other gripper without disturbing the parallel relation of the gripper-faces, and a bending-die coöperating with said grippers.

4. In an angle-bending mechanism, the combination with a pair of grippers having parallel faces, one of said grippers being movable in a direction oblique to the face of the other gripper without disturbing the parallel relation of the faces, and a lever operatively connected with the movable gripper to shift and lock the same

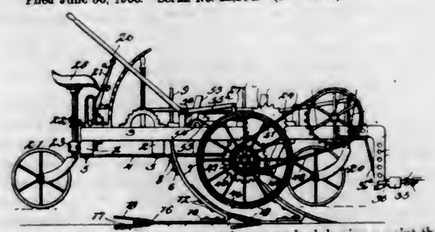
5. In an angle-bending-mechanism, the combination with a pair of grippers having parallel faces, one of said grippers being fixed and the other movable in a plane oblique to the faces of the grippers without disturbing the parallel relation of said faces, means for locking the movable gripper, and a pivoted bending-die having its axis of movement located in the plane of the face of the stationary gripper.

6. In an angle-bending mechanism, the combination with a stationary gripper having a guide-post provided with a face extending in a plane oblique to the face of the gripper, a shiftable gripper mounted to slide upon the post in the direction of the oblique face thereof and having a gripping-face disposed parallel to the gripping-face of the fixed gripper, and means for shifting the movable gripper upon the post.

7. In an angle-bending mechanism, the combination with a fixed gripper and a stationary post having a face located in a plane oblique to the face of the gripper, a movable gripper mounted upon the post and arranged to be shifted in the plane of the oblique face thereof, said movable gripper having a gripping-face retained constantly in parallel relation with the face of the stationary gripper, bearing-flanges extending from the movable gripper, an eccentric head arranged between said bearing-flanges, and a bending-die mounted to coöperate with the gripper.

8. In an angle-bending mechanism, the combination with a stationary gripper and a movable gripper having parallel gripping-faces, of a guide-post having a face disposed in a plane oblique with respect to the stationary gripper and supporting the movable gripper for movement in a plane oblique to the gripping-faces, means for shifting and clamping the gripper, and a pivoted bending-die having its axis of movement located in the plane of the stationary gripping-face, and means for operating said die.

662,665. CULTIVATOR. GEORGE L. BRADLEY, Pataha City, Wash. Filed June 30, 1900. Serial No. 22,214. (No model.)



Claim.—1. A cultivator comprising a standard having a point the horizontally-disposed rearward-diverging cutting wings or arms at the base

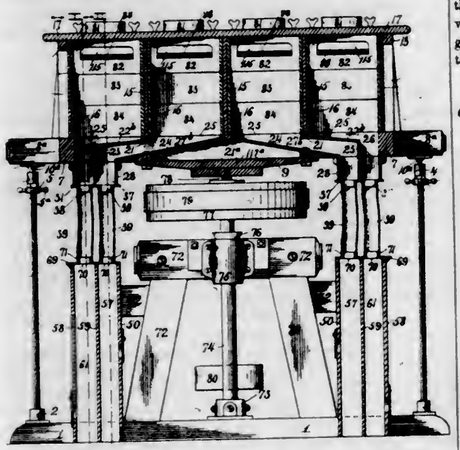
of the standard, and the surface-breakers projecting upward from said cutting wings or arms, substantially as described.

2. A cultivator comprising a beam, a standard having a point and the horizontally-disposed rearward-diverging wings or arms at the base of the standard, the latter having a vertical extension projecting above the beam to which it is attached to prevent weeds from clogging the cultivator, substantially as described.

3. The combination of a frame and supporting-wheels therefor, a series of cultivators each comprising a standard having a point and a pair of rearward-diverging cutting arms or wings at the base of the standard for the purpose set forth, shafts, means to rotate the same, and revoluble cutters coacting with the standards of the cultivators and carried by said shafts, substantially as described.

4. A cultivator having wings or arms adapted to operate under the surface of the soil, in combination with surface-breakers comprising arms 18, 19, arranged at an angle to each other and secured in openings in said cutting-wings, substantially as described.

662,666. **BOLTER.** WILLIAM L. BURNER, Columbus, Ohio, assignor to the Case Manufacturing Company, same place. Filed Feb. 27, 1900. Serial No. 6,750. (No model.)



Claim.—1. A bolter comprising a base-frame, the step-bearings mounted thereon, a screen-supporting frame, the brackets depending from the screen-supporting frame and having conical parts formed with rounded bearings, the screen-supporting rods loosely inserted in the step-bearings and having screw-threaded upper ends, the lock-nuts adjustable on the screw-threaded ends of the rods, and the nuts having sockets receiving the rounded bearings of the brackets and adjustable on the screw-threaded ends of the rods above the lock-nuts; substantially as described.

2. A bolter comprising side casings; each casing being constructed with an outer part having a front chamber and a front receptacle at one end of the casing, and an inner part having a rear chamber and three rear and two front receptacles at the other end of the casing, a screen having longitudinal sieve-compartments, a series of removable sieve-drawers located in each of the sieve-compartments, a screen-supporting frame constructed with transversely-partitioned outer and inner inclined bottoms extending toward the sides of the screen and the subframes each having a series of outer spouts inclined longitudinally in one direction toward the outer chamber of the casing and spout-sections in line with the front receptacles of the casing and a series of inner spouts inclined longitudinally in the other direction toward the inner chamber and spout-sections in line with the inner receptacles, and flexible sleeves connecting the inclined spouts with their chambers and the spout-sections with their receptacles; substantially as described.

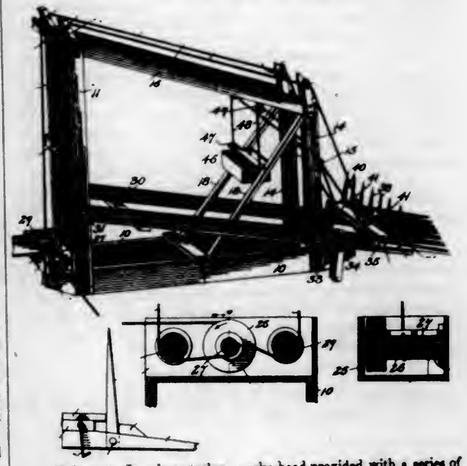
3. A sieve-drawer comprising lower and upper members, the lower member being constructed with a transverse partition dividing it into a forward spout-section and into a brush-chamber, and the upper member being constructed with a top having a feed-opening and a bridge-piece providing a discharge-opening over the partition of the lower member, a sieve-cloth located between the lower and upper members and inclined toward the discharge-opening and a reciprocating brush within the brush-chamber; substantially as described.

4. A sieve-drawer comprising lower and upper members, the lower member being constructed with a transverse partition dividing it into an end chamber and into a brush-chamber, and a partition dividing the end chamber into outer and inner spout-sections, the upper member being constructed with a carrying-board having a discharge-opening and inclined toward the discharge-opening thereof, and a bridge-piece providing a discharge-opening over the lower member, a sieve-cloth on the lower member inclined toward the discharge-opening of the bridge-piece and a reciprocating brush within the brush-chamber; substantially as described.

5. A sieve-drawer comprising lower and upper members, the lower member being constructed with transverse partitions dividing it into a rear spout-section, into an end chamber, and into a brush-chamber, and a partition dividing the end chamber into outer and inner spout-sections, the upper member being constructed with a carrying-board having a discharge-opening and inclined toward the discharge-opening thereof, and a bridge-piece providing a discharge-opening over the rear spout-section, a sieve-cloth inclined toward the discharge-opening of the bridge-piece and a reciprocating brush within the brush-chamber; substantially as described.

6. A sieve-drawer comprising a brush-chamber, the inclined longitudinal side strips, the inclined longitudinal rods, the brush-frame having longitudinal bars, and transverse bars formed with end recesses receiving the longitudinal rods upon which they slide, the brushes secured to the transverse bars, a centrally-arranged longitudinal bar having end depressions and secured to the transverse bars, a fixed transverse bar secured to the sieve-drawer, and a pendent pawl-frame secured to the fixed transverse bar carrying a pawl adapted to engage the centrally-arranged longitudinal bar which passes therethrough for automatically reciprocating the brush-frame; substantially as described.

662,667. **HAY-STACKER.** CHRISTOPHER C. CLOUSE, Albany, Mo., assignor of two-thirds to J. Clouse, Jr., and J. Clouse, Sr., same place. Filed Jan. 30, 1900. Serial No. 3,339. (No model.)



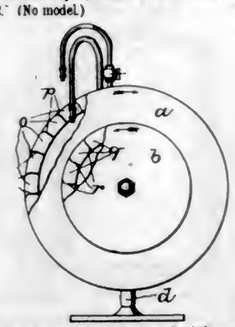
Claim.—1. In a hay-stacker, a rake-head provided with a series of fixed teeth, a series of pivoted teeth, a locking-rail movable into and out of engagement with one side of the pivoted teeth, and a stop-rail carried by the first-named series of teeth and disposed in the path of the pivoted teeth for engagement with the opposite side thereof, substantially as described.

2. A hay-stacker comprising a substantially rectangular frame and connected uprights at its corners, a pair of side bars pivotally mounted on said uprights at one end of the frame and a rake carried by the free ends of the side bars beyond the other uprights and constituting with the side bars a rake-frame, guide-pulleys located at the upper ends of the several uprights, a draft appliance located at the bottom of one end of the frame, cables operatively connected with the draft appliance, passed over the guide-pulleys and connected to the movable rake-frame, an open-ended casing inclosing the draft appliance, and a hauling-cable connected to the draft appliance and passing through the open end of the casing in a direction transverse to the plane of the stacker.

3. In a hay-stacker, the combination with a frame, of a pivoted rake-frame, and adjustable means carried by the rake-frame for determining the plane of its depressed position.

4. In a hay-stacker, the combination with a stacker-frame, and a swinging rake-frame, of adjustable legs carried by the rake-frame adjacent to its free extremity.

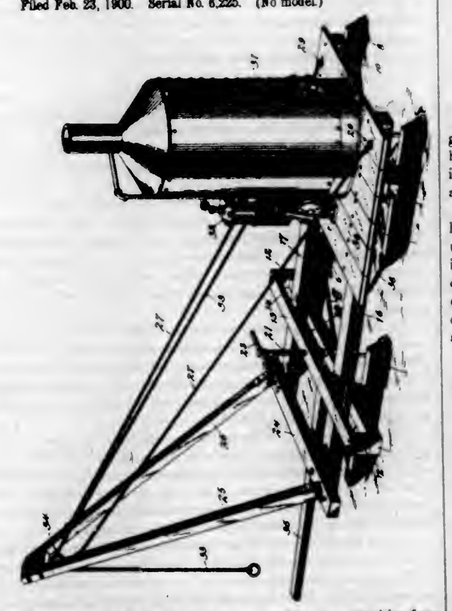
662,668. **NOVELTY FOR ADVERTISING OR SIMILAR PURPOSES.** CLAUDE R. CRANDALL, St. Louis, Mo., assignor to the Pasteur-Chamberland Filter Company, Dayton, Ohio. Filed Mar. 16, 1900. Serial No. 8,952. (No model.)



Claim.—1. In a machine such as described the combination of two wheels, one larger than the other, mounted independently and adjacent to each other on a horizontal shaft, with recesses in the outer edge of each, said recesses having radially-extended partitions, the outer ends of which in each wheel are bent in the opposite direction to those in the other wheel, and a water-supply on the same side of each wheel, the arrangement being such that the weight of the water in the recesses of one wheel overcomes the impact of the water-supply, whereas in the other said weight assists said impact causing the wheels to revolve in opposite directions, substantially as specified.

2. In a machine such as described, the combination of two wheels, recesses formed on the outer edges of each of said wheels as described, a horizontal shaft on which said wheels are mounted independently and adjacent to each other, a pedestal to the upright of which said shaft is attached, said upright a hollow pipe, and elbows at the upper end thereof, and two pipes connected thereto and extended and curved so that the open ends thereof, with nozzles thereon, lie over and adjacent to the recesses in said wheels at a common radial point on one and the same side of the vertical center of the said wheels, more or less removed from said center, and a water-supply inlet in the upright of said pedestal, substantially as and for the purpose specified.

662,669. **LOG-LOADING DEVICE.** ALBERT DAVIS, Duluth, Minn. Filed Feb. 23, 1900. Serial No. 6,225. (No model.)



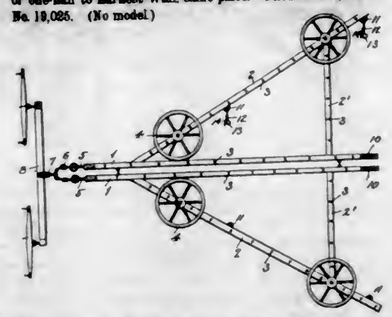
Claim.—1. A log-loader including a running-gear comprising front and rear bolsters provided with runners, sills pivotally mounted upon the rear bolster and having slidable connection with the front bolster, a rotatable king-bolt mounted in the front bolster, a flexible connection wound around the king-bolt and attached thereto, the ends of the connection being attached to the sills, a derrick mounted upon the sills and movable therewith with respect to the front bolster, a tackle connected with the derrick, and means connected with the king-bolt to rotate it alternately in opposite directions to shift the sills with respect to the front bolster.

2. A log-loader comprising a running-gear including front and rear bolsters, the front bolster having a guideway disposed longitudinally thereof, sills rigidly connected and pivotally mounted upon the rear bolster, said sills lying in the guideway of the front bolster and adapted for movement therein, means for moving the sills in the guideway, a cross-beam mounted upon the sills and movable therewith, a derrick mounted upon the cross-beam, and operating mechanism for the derrick carried by the sills.

3. A log-loader comprising a running-gear including bolsters, one of which is provided with a guideway, sills slidably disposed in the guideway and pivotally connected with the opposite bolster, a shaft having flexible connections with the sills and adapted for rotation to shift them in the guideway, a derrick mounted upon the sills and movable therewith, and operating mechanism for the derrick carried by the sills.

4. A log-loader comprising a running-gear including a front and rear bolster, a cross-piece mounted upon the front bolster and separated therefrom by an interspace to form a guideway, sills pivotally mounted upon the rear bolster and passed through the guideway for movement therein, a shaft journaled in the front bolster and the cross-piece mounted thereon, a flexible connection wound upon the shaft and attached at its ends to the sill, means for operating said shaft to move the sills in the guideway, a derrick mounted upon the sills and movable therewith, and operating mechanism for the derrick carried by the sills.

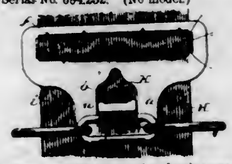
662,670. **HARROW.** GUY G. FLIGOR, Paragould, Ark., assignor of one-half to Earnest Wall, same place. Filed June 4, 1900. Serial No. 19,025. (No model.)



Claim.—1. A harrow consisting of two V-shaped parts hinged together, wheels journaled on the upper faces and near each end of the outer beams of said parts; said parts adapted to be folded together, and held in such position by suitable means, substantially as shown and described and for the purposes set forth.

2. A harrow, consisting of two V-shaped parts, hinged together, and having, extending from their lower faces, teeth; wheels, journaled on the upper faces and near each end of the side beams; eyes secured to the inner faces of the side beams; hooks, provided with eyes and springs to close said eyes, hinged in one set of said eyes and adapted to catch in the eyes of the opposite beam; handholds, secured to the rear ends of the center beams, means for securing to the front ends of said beams a team, substantially as shown and described and for the purposes set forth.

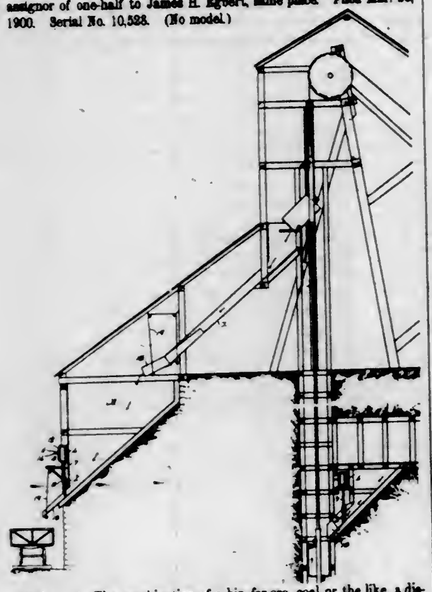
662,671. **TRACE-CARRIER.** JOSIAH B. GATHRIGHT, Louisville, Ky., assignor to Herrmann Brothers & Co., Tell City, Ind. Filed June 23, 1898. Serial No. 684,252. (No model.)



Claim.—A sheet-metal trace-carrier, having means for attaching it to a back-band and formed with an integral hook for the trace-chain and with an opening produced by striking said hook from the body of the

carrier, said opening being of the same size and shape as the metal forming said hook, and said hook having a wide base portion bent to be engaged by the trace-chain and a narrowed free end portion over which the chain is passed in securing it upon said base, and said free end portion being arranged approximately at right angles with the body of the carrier and terminating at about the center of the wider portion of said opening and approximately in the plane of said body, substantially as described and for the purposes set forth.

662,672. CHUTE-CLOSURE. JOHN S. HICKEY, Anaconda, Mont., assignor of one-half to James H. Egbert, same place. Filed Mar. 26, 1900. Serial No. 10,538. (No model.)



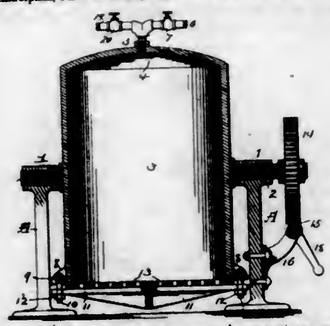
Claim.—1. The combination of a bin for ore, coal or the like, a discharge-chute connected with said bin, a cut-off gate disposed transversely in said chute and movable in a right line therein, said gate and the bottom of said chute being arranged at an acute angle with relation to each other and converging in the direction of the lower line of force represented by a moving mass descending the chute, the discharge portion of the chute extending beyond said gate, a motor connected to said gate and adapted to force the same through the said mass of material and thereby close the chute, and a hinged counterweighted apron at the discharge end of the chute, substantially as described.

2. The combination of a bin for ore, coal, or the like, a discharge-chute connected with said bin, a cut-off gate disposed transversely in said chute and movable in a right line therein, said gate and the bottom of said chute being arranged at an acute angle with relation to each other and converging in the direction of the line of force represented by a moving mass descending the chute, the lower discharge portion of the body of the chute extending a distance beyond the point at which the gate is located and a motor connected to said gate and adapted to force the same through the said mass of material and thereby close the chute, for the purpose set forth, substantially as described.

3. The combination of a bin for ore, coal or the like, a discharge-chute connected with said bin, a cut-off gate disposed transversely in said chute and movable in a right line therein, said gate and the bottom of said chute being arranged at an acute angle with relation to each other and converging in the direction of the lower line of force represented by a moving mass descending the chute, the discharge portion of the chute extending beyond said gate, a motor connected to said gate and adapted to force the same through the said mass of material and thereby close the chute, and a hinged apron at the discharge end of the chute, substantially as described.

4. The combination with a bin having a discharge-chute with an inclined bottom, and a cut-off gate disposed transversely in said chute and movable in a right line at an acute angle to the bottom of the chute, said cut-off gate being located at a distance from the discharge end of the chute, of a motor connected to the gate, for the purpose set forth, and a lever whereby the operation of said motor may be regulated, substantially as described.

662,673. DRIER. ALPHEUS V. HYBORE and JOHN T. HYBORE, Philadelphia, Pa. Filed May 26, 1900. Serial No. 18,128. (No model.)



Claim.—1. In an extractor, a receptacle open at one end provided with a perforated head extending across said open end, said receptacle provided at its other end with an inlet for compressed air.

2. An extractor consisting of an invertible receptacle open at one end, a removable perforated head extending across said open end and an air-inlet at the other end of the receptacle.

3. In an extractor, the combination of a receptacle open at one end and revolubly supported, means for rotating the same, a perforated plate removably secured on the open end of said receptacle and extending across said open end and means at the closed end of said receptacle for admitting air under pressure.

4. In an extractor, the combination with standards, of a tank or receptacle open at one end and revolubly supported on said standards, socketed enlargements at the open end of said tank or receptacle, bolts connected with said enlargements, a cross-brace adapted to be secured over the open end of said receptacle by means of nuts on said bolts, and a perforated plate secured between the open end of the receptacle and the brace and extending across said open end, and means at the closed end of said tank for the attachment of an air-inlet pipe.

5. An extractor comprising a cylinder closed at one end and having an opening at its other end equal in diameter to the diameter of the cylinder, a perforated plate removably attached to the cylinder and extending across said open end thereof and an inlet-pipe communicating with the other end of said cylinder.

6. In an extractor, the combination with a receptacle for material to be treated, of means for permitting the entrance into said receptacle of mixed air and liquid under pressure to pass through the material in said receptacle and means for permitting the discharge of the air and moisture containing the foreign substance extracted from the material treated.

662,674. HYDRAULIC BRICK-PRESS. JULIUS J. KOCH, St. Louis, Mo. Filed Apr. 6, 1891. Serial No. 387,869. (No model.)

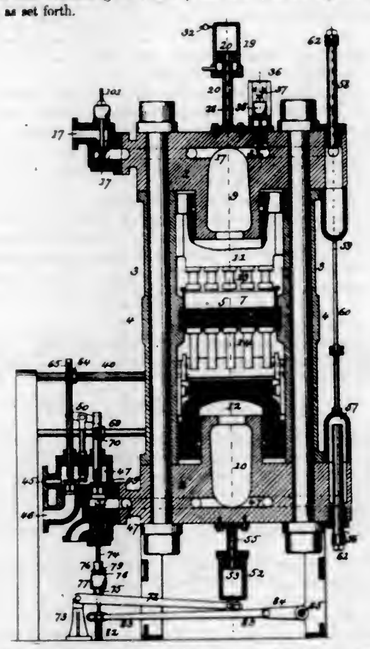
Claim.—1. In a hydraulic brick-press, the combination of an upper moving ram-cylinder, a stationary ram, a moving auxiliary raising-cylinder, a stationary piston therefor, and tie-rods connecting the ram-cylinder and the auxiliary raising-cylinder together, substantially as set forth.

2. In a hydraulic brick-press, the combination of an upper moving ram-cylinder, a stationary ram, a moving auxiliary raising-cylinder, a stationary piston therefor, an inwardly-opening check-valve 32, in the upper portion of the auxiliary raising-cylinder, and tie-rods connecting the ram-cylinder, and the auxiliary raising-cylinder together, substantially as set forth.

3. In a hydraulic brick-press, the combination of an upper moving ram-cylinder, a stationary ram, a moving auxiliary cylinder, a stationary piston therefor, the lower annular chamber, of the auxiliary raising-cylinder, being in constant communication, with the source of pressure-supply, and tie-rods connecting the ram-cylinder, and the auxiliary raising-cylinder together, substantially as set forth.

4. In a hydraulic brick-press, the combination of the upper ram-cylinder, the auxiliary raising-cylinder, the upper chamber of which is in communication through its hollow piston and rod, with a valve-chamber, a pair of valves in said chamber, controlling the pressure-supply to the upper chamber of the auxiliary cylinder, and tie-rods connecting the auxiliary and ram cylinders together, essentially as set forth.

5. In a hydraulic brick-press, the combination of the upper ram-cylinder, the auxiliary raising-cylinder, the lower annular chamber of which is in constant communication with the low-pressure accumulator, and the upper chamber of which is in communication, through its hollow piston and rod, with a valve-chamber, a pair of valves in said chamber, controlling the pressure-supply to the upper chamber of the auxiliary cylinder, and tie-rods connecting the auxiliary and ram cylinders together, essentially as set forth.



6. In a hydraulic brick-press, the combination with the auxiliary raising-cylinder for the upper ram-cylinder, of the valve-casing 24, valves 22 and 23, connected together by a rock-lever, and rod for operating the same, essentially as set forth.

7. In a hydraulic brick-press, the combination with the auxiliary raising-cylinder of upper ram, of the valve-casing 24, having chambers 25, 26, the valves 22 and 23, connected together by rock-lever 30, passing through elongated slots in the valve-stems, and rod 31, for operating the same, essentially as set forth.

8. In a hydraulic brick-press, the combination with the auxiliary raising-cylinder of the upper ram, of the valve-casing 24, having chambers 25, 26, the valves 22 and 23, connected together by rock-lever 30, connecting-rod 31, and actuating-lever 67, operated by lower mold-plunger connections, essentially as set forth.

9. In a hydraulic brick-press, the combination with the auxiliary raising-cylinder of the upper ram, of the valve-casing 24, having chambers 25, 26, the valves 22 and 23, connected together by rock-lever 30, connecting-rod 31, and holding-up lever 104, and cam 103, essentially as set forth.

10. In a hydraulic brick-press, the combination with the auxiliary raising-cylinder of the upper ram, of the valve-casing 24, having chambers 25, 26, the valves 22 and 23, connected together by rock-lever 30, connecting-rod 31, holding-up lever 104 and cam 103, and actuating-lever 67 operated by lower mold-plunger connections, essentially as set forth.

11. In a hydraulic brick-press, the combination of a relief-valve 33, held closed by a spring or its equivalent, the bell-crank lever 36, and the auxiliary raising-engine of the upper ram, connected to the lever 36, and adapted to operate the valve, substantially as set forth.

12. In a hydraulic brick-press, the combination of a relief-valve 33, held closed by a spring, or its equivalent, the bell-crank lever 36, and the auxiliary raising-engine of the upper ram, connected in an adjustable manner to the lever 36, substantially as set forth.

13. In a hydraulic brick-press, the combination of a relief-valve 33, held closed by a spring, or its equivalent, the bell-crank lever 36, elongated slot-and-pin connection, adjustable collar 35, and tie-rod 21, essentially as set forth.

14. In a hydraulic brick-press having an upper ram, the combination with the upper ram-chamber connected to a source of fluid under pressure, an auxiliary valve 18, interposed between the said ram-chamber and the source of fluid under pressure, and adapted to supply said upper ram-chamber with part of its compressing medium from the fluid under pressure, and means for supplying the chamber with the remainder of the compressor force from an independent source, substantially as set forth.

15. In a hydraulic press, having upper and lower ram-chambers, one ram-chamber being connected to a source of fluid under pressure, the combination of the auxiliary valve 18, arranged in the path between the two, and adapted to furnish part of the compressive force to said ram, and mechanical means adapted to furnish the remainder of the compressive force to said ram, such mechanical means being influenced in its action by the compressive force contained in the other ram-chamber, substantially as set forth.

16. In a hydraulic press, the combination with the upper ram, having connection with the low-pressure accumulator, of the auxiliary valve 18, arranged in the inlet-port between the two, the spring or its equivalent for holding said valve closed, lever 101, rod 100, and operating lever and tappet 99, 98, essentially as set forth.

17. In a hydraulic press, the combination with the upper ram, having connection with the low-pressure accumulator, of the auxiliary valve 18, arranged in the inlet-port between the two, the spring or its equivalent for holding said valve closed, lever 101, rod 100, adjustable connection 103, and operating lever and tappet 99, 98, essentially as set forth.

18. In a hydraulic brick-press, the upper ram having a circuitous port or passage 17, connecting with accumulator, ram-cylinder equalizer-chamber and overflow-tank, and provided with valves 18 and 33, essentially as set forth.

19. In a hydraulic brick-press, the combination of the relief-valve 126 on the side of the upper ram, and the operating tappet-rod 127, attached to the lower ram, and a yielding abutment, essentially as set forth.

20. In a hydraulic brick-press, the combination with a ram and ram-cylinder, of a lower mold-plunger, made separate from the ram, and adapted to be raised to its full height thereby, and mechanism for holding such plunger in its raised condition, to admit of an independent downward movement of the ram, substantially as set forth.

21. In a hydraulic brick-press, the combination of the disconnected lower mold-plunger, lever 39, detent-lever 42, and charger-carrying pin 44, and adapted to trip said detent, essentially as set forth.

22. In a hydraulic brick-press, the combination of the disconnected lower mold-plunger 14, with the lever 39 having a rearward extension in the path of the charger-operating mechanism, essentially as set forth.

23. In a hydraulic brick-press, the combination of the disconnected lower mold-plunger 14, with the lever 39, rock-shaft 40, and operating-arm 64, of the dividing-valve 48, of the lower ram, essentially as set forth.

24. In a hydraulic brick-press, the combination of the disconnected lower mold-plunger 14, with the lever 39, rock-shaft 40, operating-arm 64, and valves 48 and 49, united together by a rock-lever 50, so as to operate in unison, essentially as set forth.

25. In a hydraulic brick-press, the dividing-valve 48, between the high and low pressure supplies, having its valve-head arranged loosely to constitute a check-valve, essentially as set forth.

26. In a hydraulic brick-press, the inlet-valve 49, of the lower ram, having its valve-head arranged loosely to constitute a check-valve, essentially as set forth.

27. In a hydraulic brick-press, the combination of the inlet-valve 49, with the bell-crank lever 69, 70, and tappet on the charger-operating mechanism, essentially as set forth.

28. In a hydraulic brick-press, the combination of the inlet-valve 49, with the bell-crank lever 69, 70, and a spring-tappet 97, on the charger-operating mechanism, essentially as set forth.

29. In a hydraulic brick-press, the combination of the dividing-valve 48 and inlet-valve 49, connected together by rock-lever 50, with the bell-crank lever 69, 70, and tappet 97, on the charger-operating mechanism, essentially as set forth.

30. In a hydraulic brick-press, the lower ram having a circuitous port or passage 47, connecting the high and low pressure supplies, the ram-cylinder and the equalizer-chamber, and provided with valves 48, 49 and 51, essentially as and for the purpose set forth.

31. In a hydraulic brick-press, the combination with the lower ram-cylinder of a moving pulling-down auxiliary cylinder the piston of which is stationary, said cylinder being in constant connection with the low-pressure accumulator, essentially as set forth.

32. In a hydraulic brick-press, the combination with the lower ram-cylinder of a moving pulling-down auxiliary cylinder, the piston of which is stationary, said cylinder being in constant connection with the low-pressure accumulator, the relief-valve 80, and tappet 81, essentially as set forth.

33. In a hydraulic brick-press, the combination with the lower ram, of the exhaust-valve 51, a lever for operating the same, and an interposed compressible cushion, essentially as set forth.

34. In a hydraulic brick-press, the combination with the lower ram, of the exhaust-valve 51, a lever for operating the same, and an interposed compressible cushion, consisting of main spring 77, auxiliary spring 79, and fixed and loose collars 75 and 76, essentially as described.

35. In a hydraulic brick-press, the combination with the lower ram, of the exhaust-valve 51, a lever 83, for closing the same and an adjustable fulcrum for said lever, essentially as set forth.

36. In a hydraulic brick-press, the combination with the lower ram, of the exhaust-valve 51, a lever 83 for closing the same, adapted to be automatically operated by the descent of the lower ram-cylinder, and an adjustable fulcrum for said lever, essentially as set forth.

37. In a hydraulic brick-press, the combination with the lower ram, of the exhaust-valve 51, a lever 83, for closing the same, adapted to be automatically operated by the descent of the lower ram-cylinder, an adjustable fulcrum for said lever formed by a rock-arm 84, rock-shaft 85, lever 86, and adjusting-screw and hand-wheel 87, essentially as set forth.

38. In a hydraulic brick-press, the combination with its driving-shaft provided with a clutch mechanism, of a lifting-toe 115, on the upper ram-cylinder, and mechanism between the same and the clutch, so as to keep the clutch in gear during the normal action of the press.

39. In a safety-gear for hydraulic brick-presses, essentially as described, the toe 115, made movable out of the path of the lever 116, essentially as set forth.

40. In a clutch mechanism for brick-machines, the combination of a laterally-moving piece on a moving part of the press, the clutch-lever 114, and the automatically-moving abutment 122, essentially as set forth.

41. In a clutch mechanism for brick-machines, the combination of a laterally-moving piece on a moving part of the press, the clutch-lever 114, and the automatically-moving abutment and the yielding spring or connection 121, essentially as set forth.

42. In a hydraulic brick-press, the combination of the valves 48 and 49, rock-lever 50, and lever-arm 70, essentially as set forth.

43. In a hydraulic brick-press, the combination of the valves 48 and 49, rock-lever 50, and lever-arm 64, essentially as set forth.

44. In a hydraulic brick-press, the combination of the valves 48 and 49, rock-lever 50, and lever-arms 64 and 70, essentially as set forth.

662,675. **PNEUMATIC TOOL.** HERMAN LEINEWEBER and GEORGE LEININGER, Chicago, Ill. Filed Mar. 30, 1900. Serial No. 10,789. (No model.)



Claim.—1. In a pneumatic tool, the combination of the casing, partition separating the interior of the casing into two piston-chambers, piston-stem movable through an opening in said partition; pistons in said chambers on opposite ends of the piston-stem, air inlet and exhaust ports through the casing at the partition, and a slide-valve in the path of and actuated by the pistons, movable through a guide-opening in the partition across the said air inlet and exhaust ports and operating to open communication alternately between said chambers and the said inlet and exhaust ports, substantially as described.

2. In a pneumatic tool, the combination of the casing having the air-vents *b d*, partition separating the interior of the casing into two piston-chambers, piston-stem movable through an opening in said partition, pistons in said chambers on opposite ends of the piston-stem, air inlet and exhaust ports through the casing at the partition, and a slide-valve, in the path of and actuated by the pistons, movable through a guide-opening in the partition across the said air inlet and exhaust ports and operating to open communication alternately between said chambers and the said inlet and exhaust ports, substantially as described.

3. In a pneumatic tool, the combination of the casing A having the chambers A^2 A^3, partition A′ with guide-openings *e f*, and air inlet and exhaust ports at the partition, pistons B B^2, stem B′, slide-valve C having the end recesses *r r′*, vent-groove *s* and guide-groove *t*, and the guide-pin *v* engaging the guide-groove *t*, all constructed to operate substantially as and for the purpose set forth.

4. The combination with the casing A having the partition A′, the piston B^2, circumferentially-recessed piston B, connecting-stem B′, and the slide-valve, all constructed to operate as described, of an oiling-chamber *m* in the partition for the piston-stem, an oil-chamber *l* and oil-duct l^2 in the stem, and branch oil-ducts extending from the duct l^2 to the circumferential faces of the pistons, substantially as set forth.

662,676. **FASTENING DEVICE FOR GLOVES, &c.** EDWARD MAYNE, Brookline, Mass., assignor to Mollen Bray, Newton, Mass. Filed Mar. 12, 1900. Serial No. 8,264. (No model.)



Claim.—1. A fastening device for connecting an outer and an inner part, the same comprising a socket member bearing on and attached to the inner part and having ears forming the sides of a stud-receiving space, and a stud member comprising a ring located at the inner side of the outer part, and an attaching-eyelet passed through the outer part and engaged with the interior of the ring, the said ears and ring being formed to interlock.

2. A fastening device for connecting an outer and an inner part, the same comprising a socket member bearing on and attached to the inner part and having ears forming the sides of a stud-receiving space, and a stud member comprising a ring located at the inner side of the outer part, an attaching-eyelet passed-through the outer part and engaged with the interior of the ring, and a washer interposed between the ring and the inner side of the outer part and coöperating with the ring in forming an annular groove with rigid walls to receive the ears of the socket member.

3. A fastening device for connecting an outer and an inner part, the same comprising a socket member bearing on and attached to the inner part and having ears forming the sides of a stud-receiving space, and a stud member comprising a ring located at the inner side of the outer part, an attaching-eyelet passed through the outer part and engaged with the interior of the ring, and a washer interposed between the ring and the inner side of the outer part, and coöperating with the ring in forming an annular groove with rigid walls to receive the ears of the socket member, said ears being resilient and adapted to grasp the walls of said groove.

4. A stud member of a fastening device for connecting an outer and an inner part, the same comprising a ring, an attaching-eyelet passing through the said outer part and engaged at its inner end with the interior of the ring, and a washer interposed between the ring and the inner side of the outer part and coöperating with the ring in forming a rigid-walled annular groove.

5. A stud member of a fastening device for connecting an outer and an inner part, the same comprising a ring, an attaching-eyelet passing through the said outer part and engaged at its inner end with the interior of the ring, and a washer interposed between the ring and the inner side of the outer part and coöperating with the ring in forming a rigid-walled annular groove, said washer having an offset central portion forming one wall of the groove.

6. A socket member of a fastening device, comprising a plate having resilient ears separated by a stud-receiving space, said ears having downwardly-projecting stops for a stud member.

662,677. **HOOK AND EYE.** NEVADA MCMAHON, San Francisco, Cal. Filed Apr. 5, 1900. Serial No. 11,636. (No model.)



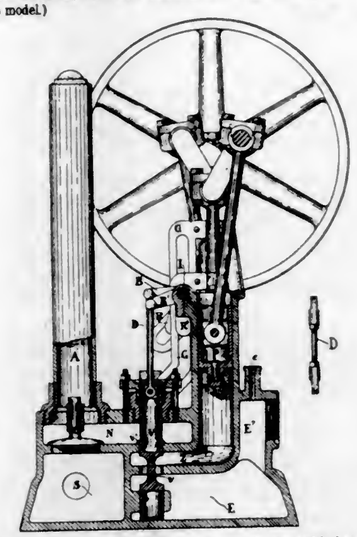
Claim.—1. In a hook-and-eye fastening, the hook formed by a bight of the wire having the exterior guards, the latter diverging to form exterior angles, united by a straight portion, and the base of the hook being turned downwardly and diverged to form rectangular loops.

2. In a hook-and-eye fastening, the hook portion formed by a curved bight of the wire, the base of which curves downwardly, thence forwardly, thence outwardly to form rectangular loops, thence curved upwardly convergent above the point of the hook, and thence diverging outwardly to form separated angles, thence extending across in an approximately straight line between said angles.

3. In a hook-and-eye fastening, an eye formed by bending a loop of wire of larger curvature than the point of the hook, said wire diverging from each side from the base of the eye to form angles, thence converging and extending parallel rearwardly, thence bent outwardly to form rectangular fastening-loops.

4. In a hook-and-eye fastening, a hook formed by bending wires substantially as shown to form a bight which comprises the hook, divergent portions of said wire upon each side and above the level of the hook and divergent and rectangular fastenings formed at front and rear upon opposite sides of the structure, and an eye formed by a curved bight adapted to enter between the guards and engage the hook, the wire diverging from the base of the eye to form exterior angles, thence converging, extending parallel and finally turned outward to form rectangular fastening-loops.

662,678. **HYDRAULIC ENGINE.** CAID H. PECK and FREDERIC LEACH, Elmira, N. Y., and NORMAN A. JOHNS, Huntington, Vt., assignors, by direct and mesne assignments, to Adelbert E. Carroll, New York, N. Y. Filed May 16, 1899. Renewed Apr. 6, 1900. Serial No. 11,897. (No model.)



Claim.—1. In a hydraulic engine, the combination, with the admission port or ports, of an inlet-passage leading thereto from the source of supply, a check-valve to prevent backflow from said passage, an air-chamber in communication with said passage, and valve mechanism whereby the flow from the passage to a port is suddenly checked and whereby the passage is closed to the port or ports after each cut-off for a period of time sufficient for the momentum of the water in said passage to be expended in compressing the air in said air-chamber.

2. In a hydraulic engine, the combination, with a cylinder or cylinders provided with a plurality of admission-ports, of a common supply-chamber, a separate inlet-passage leading from said chamber to each admission-port, a check-valve in each passage to prevent backflow to said chamber, a separate air-chamber for and in communication with each of said passages, and valve mechanisms whereby the flow from each inlet-passage to its admission-port is suddenly checked and whereby each said passage is given a period of cut-off sufficient for the momentum of the water in said passage to be expended in compressing the air in the air-chamber connected therewith.

3. In a hydraulic engine, the combination with the cylinder, of an inlet-passage from the source of supply, a check-valve to prevent backflow from said passage, an air-chamber in communication with said passage, a port to the cylinder, an exhaust-outlet, and valve mechanism whereby the inlet-passage and the exhaust-outlet are opened alternately to the port and whereby the inlet-passage is given a period of cut-off after each opening to the port sufficient for the momentum of the water in said passage to be expended in compressing the air in said air-chamber.

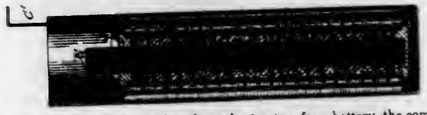
4. In a hydraulic engine, the combination with a cylinder or cylinders provided with a plurality of ports, of a common supply-chamber, a separate inlet-passage leading from said chamber to each port, a check-valve in each said passage to prevent backflow to said chamber, a separate air-chamber for and in communication with each said passage, a common exhaust-chamber, and valve mechanisms whereby each port is opened alternately to its corresponding inlet-passage and to the exhaust-chamber, and whereby each inlet-passage is given a period of cut-off after each opening to its port sufficient for the momentum of the water in said passage to be expended in compressing the air in the air-chamber connected therewith.

5. In a reciprocating hydraulic engine, the combination, with an admission-port to the cylinder, of an inlet-passage leading thereto from the source of supply, a check-valve to prevent backflow from said passage, an air-chamber in communication with said passage, and a valve mechanism, whereby the flow from the inlet-passage to the port is suddenly checked at or near the end of the piston-stroke and air is compressed in the air-chamber by the momentum of the water in said passage during the return stroke of the piston.

6. In a hydraulic engine, the combination, with the admission and exhaust ports, of an inlet-passage leading from the source of supply to the admission-port, a check-valve to prevent backflow from said passage, an air-chamber in communication with said passage, an exhaust-outlet positioned to retain water in the ports and against the piston when exhaust is cut off, and a valve mechanism to actuate the admission and exhaust at the proper periods as and for the purpose set forth.

7. In a hydraulic engine, the combination with a plurality of cylinders and their admission-ports, of a supply-chamber common to all the admission-ports, passages between said chamber and ports, a check-valve and air-chamber for each said passage, valve mechanisms coöperating with the check-valves whereby air is compressed in the air-chambers while the admission-ports are closed, a supply-pipe leading into the supply-chamber, a throttle-valve within said chamber to control the opening from said pipe to said chamber, and a governor actuated by the engine to regulate the throttle-valve.

662,679. **REVERSIBLE PRIMARY BATTERY.** LEON W. PULLEN, Camden, N. J., assignor to the Pullen Battery and Electrical Manufacturing Company, of New Jersey. Filed Sept. 16, 1899. Serial No. 730,669. (No model.)



Claim.—1. In a negative electrode structure for a battery, the combination of a central carbon-conductor, a hard sealing-stopper tightly surrounding the conductor at a distance from its upper end, a second hard sealing-stopper covering and surrounding the lower end of the conductor, a depolarizing mass surrounding the carbon conductor and interposed between the sealing-stoppers, an inclosing wrapper of a thin asbestos sheet surrounding the depolarizing mass and peripheries of the stoppers and tightly wrapped about them and upon itself to form a strong case, and a wrapping-strand tightly binding the asbestos wrapper at close intervals throughout its length to the depolarizing mass and to the stoppers and preventing undue expansion.

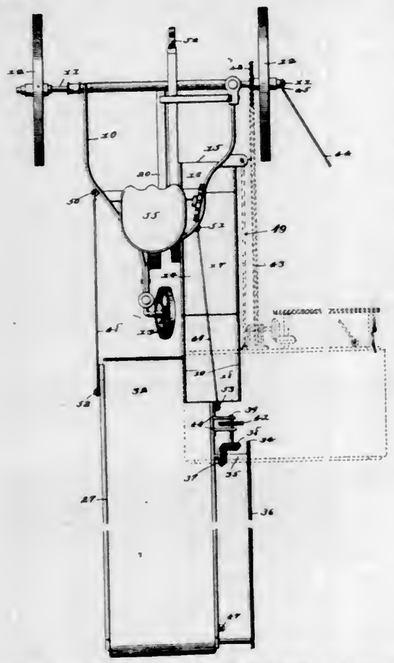
2. A negative electrode for a battery comprising a central conductor having its body embedded in a mass of depolarizing substance, and means for holding the depolarizing mass in position upon the central conductor consisting of two sealing-stoppers cemented to the central conductor, a wrapper of a thin asbestos sheet wrapped upon itself and tightly about the depolarizing mass, and a wrapping-strand of non-corrodible substance bound tightly upon the wrapper at close intervals throughout its entire length.

3. In a battery the combination of a case or box, a tubular zinc electrode, a central negative electrode structure comprising a conductor, a surrounding mass of depolarizing plastic material, a wrapper of non-corrodible flexible porous material for holding the depolarizing substance to the conductor and insulating it from the tubular zinc electrode, stoppers or sealing-plugs at top and bottom of the wrapper and forming sealed joints between it and the electrode conductor and completely shielding the latter at the bottom, a tight wrapping-strand of non-corrodible material binding the wrapper of flexible porous material to the depolarizing plastic material and plugs at close intervals throughout its entire length to prevent undue expansion, an electrolyte in which the said zinc electrode and the negative electrode structure are immersed, an unprotected conductor leading from the top of the battery-box to the bottom thereof and forming an electrical connection with the zinc electrode, and a body of mercury in contact with the lower part of the zinc electrode and terminal of the conductor.

4. In a battery, the combination of a case or box, a tubular zinc electrode, a central negative electrode structure comprising a carbon con-

ductor, a surrounding mass of depolarizing substance composed of pasty mixture of amorphous carbon graphite sulfate of manganese and concentrated sulfuric acid, and a flexible wrapper of asbestos for holding the soft depolarizing substance to the conductor and insulating it from the tubular zinc electrode, a tight wrapping-strand passed about the wrapper at close intervals in its length, wax stoppers at each end of the wrapper, and an electrolyte in which the said zinc electrode and the negative electrode structure are immersed.

662,680. ROAD-GRADER. CHARLES A. RAPP, Shannon City, Iowa. Filed Apr. 4, 1899. Renewed Apr. 21, 1900. Serial No. 13,883. (No model.)



Claim.—1. The combination with a road-grader, of a conveyer-frame, mounted on caster-wheels, a rod connected to the conveyer-frame at its outer end and to the axle of the main wheels for holding the conveyer against rearward movement, a rod connected to the inner end of the conveyer-frame and to the machine-frame for holding the inner end of the conveyer in position when in operation, an endless belt mounted on rollers in said conveyer-frame, a sprocket-wheel on the shaft carrying the roller at the outer end of the conveyer, a chain connecting said sprocket-wheel with a sprocket-wheel mounted on a shaft at the inner end of the conveyer, a bevel-wheel on said shaft meshing with a second bevel-wheel on a shaft mounted in suitable bearings on the side of the conveyer, a sprocket-gearing connecting with the main wheel of the machine, means for connecting the conveyer to the machine-frame whereby the conveyer may be carried in a line parallel with the machine proper, for the purposes stated.

2. In a road-grader, the combination of a suitable wheeled frame, a plow-beam pivotally mounted on said frame, a plow having a sharp, cutting forward section, a rearwardly and upwardly inclined section to elevate the soil, a horizontal section to extend over an endless conveyer, a conveyer-frame, mounted on a caster-wheel at its outer end and a second caster-wheel at its inner end, a rod connected to the side of the conveyer at its outer end and to the end of the axle of the main wheels to hold the outer end of the conveyer against rearward movement, a rod connected to the inner end of the conveyer and to the machine-frame to hold the inner end of the conveyer in position when in operation, an endless belt mounted on rollers in said conveyer-frame, a sprocket-wheel on the shaft carrying the roller at the outer end of the conveyer, a chain connecting said sprocket-wheel with a sprocket-wheel mounted on a shaft at the inner end of the conveyer, a bevel-wheel on said shaft meshing with a second bevel-wheel on a shaft mounted on suitable bearings on the side of the conveyer, and a sprocket-gearing connecting with the main wheel of the machine-frame, means for connecting the conveyer to the machine-frame whereby the conveyer may be carried in a line parallel with the machine proper, for the purposes stated.

662,681. CUPBOARD-LATCH. GEORGE W. SIGLEY, Havana, Ill. Filed Apr. 27, 1900. Serial No. 14,610. (No model.)



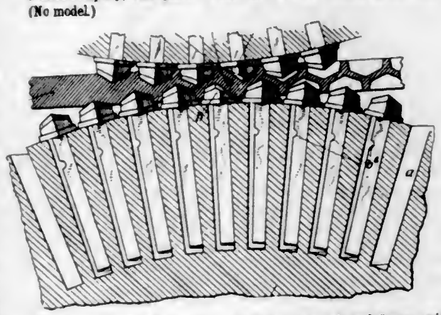
Claim.—1. A cupboard-fastening for double doors, comprising a keeper having a flattened head to enter the space formed between the meeting edges of the said doors, and catches secured to said doors in transverse alinement and having their latch-bolts constructed to overlap and to engage with the said keeper, substantially as set forth.

2. In a fastening for double doors of closets, cupboards and the like, a keeper having a flattened head and adapted to enter the space between the meeting edges of the door, corresponding catches adapted to be secured to the doors in transverse alinement and having the projecting ends of the latch-bolts cut away to overlap each other and engage with the said keeper, substantially as described.

3. In a fastening for double doors of closets, cupboards and the like, a keeper adapted to enter the space formed between the meeting edges of said doors, companion catches adapted to be secured to the doors in transverse alinement and having the projecting ends of the latch-bolts cut away to overlap each other and engage with the aforesaid keeper, the shoulders formed at the inner ends of the cut-away portions being beveled in an opposite direction to the beveled ends of the latch-bolts, substantially as set forth.

4. The herein-described fastening for double doors of closets, cupboards and the like, consisting of a threaded shank having a flattened head formed with an eye and its front end oppositely beveled, companion catches having the projecting ends of their latch-bolts cut away for a short distance from their outer ends to overlap each other and enter the eye of the said head, the shoulders formed at the inner ends of the cut-away portions being inclined reversely to the beveled ends of the latch-bolts, substantially as set forth.

662,682. APPARATUS FOR MANUFACTURING HONEYCOMB-FOUNDATIONS. EDWARD B. WEED, Medina, Ohio, assignor to the A. I. Root Company, same place. Filed Mar. 16, 1898. Serial No. 674,078. (No model.)



Claim.—1. A cell-die consisting of a head, shank and flange, said head being of a diameter greater than that of said shank, and said flange interposed between the base of the head and the contiguous end of the shank, substantially as set forth.

2. In a foundation-machine, the combination with a die-support provided with a series of equidistant grooves, of dies, each die having a shank portion and a head portion, said shank portion having a diameter less than the diameter of said head portion; each die further provided with a flange intermediate of said head and shank portions, the shank portions secured in said grooves and the flanges resting upon the surface of said support, substantially as set forth.

3. In a foundation-machine, the combination with a die-support provided with a series of equidistant grooves, of dies, each die having a shank portion and a head portion, said shank portion having a diameter less than the diameter of said head portion; each die further provided with a flange interposed between the base of said head portion and the contiguous end of the shank portion, and formed with inclined lateral surfaces, that portion of the flange nearest said shank portion being of greatest diameter; the shank portions secured in said grooves and the flanges resting upon the surface of said support with the lower edges of contiguous flanges in contact, substantially as set forth.

4. A honeycomb-foundation roll having cell-dies of varying degrees of protrusion from the roll-body, such variation being uniform, substantially as set forth.

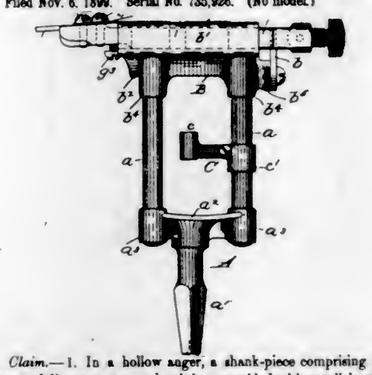
5. A honeycomb-foundation roll having cell-dies of varying degrees of protrusion from the roll-body such variation occurring at definite intervals, substantially as set forth.

6. A honeycomb-foundation roll having cell-dies of varying degrees of protrusion from the roll-body, the cell-dies of equal amount of protrusion being arranged in rows, substantially as set forth.

7. A honeycomb-foundation roll having cell-dies of varying degrees of protrusion, the cell-dies of equal amount of protrusion being arranged in parallel rows, substantially as set forth.

8. A honeycomb-foundation roll having cell-dies, certain dies having one of their respective faces cut away whereby a thicker wall is formed in the corresponding comb-foundation, substantially as set forth.

662,683. HOLLOW AUGER. ALBERT A. WOOD, Atlanta, Ga. Filed Nov. 6, 1899. Serial No. 735,926. (No model.)



Claim.—1. In a hollow auger, a shank-piece comprising a shank proper and divergent arms, a headpiece provided with parallel guides and perforated centrally of said guides, a flange projecting backwardly of said head around said perforation and parallel lugs included in said flange, spindles set in the said lugs in the back of said headpiece and secured in the free ends of the arms of the shank-piece, and jaws slidably mounted in said guides.

2. In a hollow auger, a headpiece carrying jaws and cutting mechanism, a shank-piece and spindles, one of which is cylindrical, joining said head and shank pieces, and a stop-arm clamped upon said cylindrical spindle and adapted to swing on its axis out of and into operative relation with the jaws.

3. In a hollow auger, a headpiece carrying jaws and cutting mechanism, a shank-piece and spindles one of which is cylindrical, joining said head and shank pieces, and a stop-arm clamped upon said cylindrical spindle and adapted to swing on its axis out of and into operative relation to the jaws and a lug projecting parallel to said axis from one side of the free end of said stop-arm.

4. In a hollow auger, a headpiece carrying jaws and cutting mechanism, a shank-piece and spindles one of which is cylindrical, joining said head and shank pieces, and a stop-arm clamped upon said cylindrical spindle and adapted to swing on its axis out of and into operative relation to the jaws, said stop-arm consisting of an arm having on one end a split clamping-hub projecting in one direction from one end of said arm and a stop-lug projecting from the opposite side of the other end of said arm.

5. In a hollow auger a body having parallel inwardly-facing guides formed on the base thereof, a sash adapted to slide in said guides but not fill same, a V-block mounted between the side bars of said sash and the projecting lips of the guides and adapted to slide therein and a right and left hand threaded screw engaging said sash and V-block and located constant relative to the guides and a knife carried on said sash.

6. In a hollow auger, a head or body, inwardly-facing channeled guides therein, a sash carrying on one end a V-faced jaw and having parallel side bars lying in but not filling said channeled guides, a cross-bar joining the ends of said side bars opposite said jaw, a concave V-faced jaw-block slidably mounted between the side bars of said sash and having its ends projecting between the overhanging lips of said channeled guides and a right and left hand threaded screw located constant relative to said frame and passing through and engaging the said V-faced concave jaw and the cross-bar of said sash, and a cutting-knife in operative relation to said jaws.

7. In a hollow auger, a jaw and a knife-recess therein, a projection upwardly from the bottom of said recess extending laterally thereof near its back end, a knife having a cutting edge at substantially the same angle to its edges as said projection is to the edges of said recess, and means for tilting said knife on said projection and securing it.

8. In a hollow auger, a jaw having a knife-recess, a rib extending laterally of said recess near its back end, a knife provided with a slot extending longitudinally, a screw adapted to pass through said slot and into said rib, a screw adapted to pass through said slot and into the bottom metal of said recess, and a screw passing upwardly through said bottom metal and adapted to bear on the lower side of said knife.

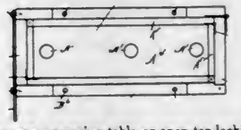
9. In a hollow auger, a jaw having a knife-recess, inclined and lying edgewise angularly to the frame, a rib extending laterally and angularly of said recess near its back end, a knife provided with a slot extending longitudinally and a cutting edge at the same angle to said slot as said rib is to said recess, a screw adapted to pass through said slot and into said rib, a screw adapted to pass through said slot and into the bottom metal of said recess, and a screw passing upwardly through said bottom metal and adapted to bear on the lower side of said knife.

10. In a hollow auger, a jaw having a knife-recess, a rib extending laterally along the bottom of said recess near one of its ends, a chip-clearing throat opening downwardly at the other of its ends, a shoe adapted to lie in said knife-recess and rest one of its ends on said rib and being downturned on its other end and entering said chip-clearing slot in contact with the contiguous border metal thereof, a knife adapted to lie in said recess upon said shoe, and means for tilting said shoe and knife upon said rib and securing same.

11. In a hollow auger, a jaw having a knife-recess, a rib extending laterally of said recess near its back end, a knife provided with a slot extending longitudinally, a shoe adapted to lie between said knife and the rib and bottom of said recess, a screw adapted to pass through said slot and shoe and into said rib, a screw adapted to pass through said slot and shoe and into the bottom metal of said recess, and a screw passing upwardly through said bottom metal and adapted to bear on the lower side of said shoe.

12. In a hollow auger, a jaw having a knife-recess, a rib extending laterally along the bottom of said recess, near one of its ends, a chip-clearing throat opening downwardly at the other of its ends, a shoe adapted to lie in said knife-recess and rest one of its ends on said rib and being downturned on its other end and entering said chip-clearing slot in contact with the contiguous border metal thereof, a longitudinally-slotted knife adapted to lie in said recess upon said shoe, a screw adapted to pass through said slot and shoe and into the bottom metal of said recess, and a screw passing upwardly through said bottom metal and bearing upon the under side of said shoe.

662,684. MACHINE FOR FORMING COMPOSITE BLOCKS. JOHN BROWER, Oakland, Cal. Filed Sept. 21, 1898. Serial No. 691,557. (No model.)



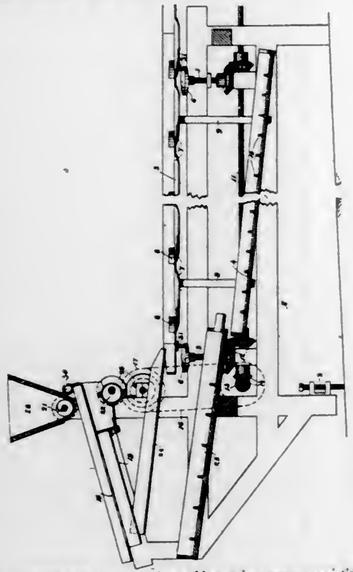
Claim.—In a press, a pressing-table, an open-top locking-frame thereon having a removable block closing one end thereof, and a lever pivoted upon one side of said frame and adapted to lie across the end closed by said removable block to hold said block in place, there being provided a catch for said lever when in locking position, in combination with a removable open-top casting-form inserted into said frame through the end closed by the removable block; substantially as described.

662,685. SEPARATOR AND AMALGAMATOR. IRA P. CLARKE, Alameda, Cal. Filed Feb. 28, 1900. Serial No. 6,833. (No model.)

Claim.—1. An apparatus for separating or concentrating material and amalgamating gold and silver, consisting of one or more tables over which the material to be acted upon is caused to pass, shafts having their upper ends inclined toward each other, and crank-pins carried thereby and connected with the tables whereby a gyratory motion of the table is produced.

2. An apparatus for separating gold and heavy material from lighter gangue consisting of an inclined table having depressions or pockets upon its surface, shafts journaled on a supporting-frame having the upper ends of those upon opposite sides inclined toward each other, crank pins or disks carried thereby and forming supports with which the table is connected, mechanism for rotating the shafts whereby an oscillating gyratory motion of the table is produced.

3. An apparatus for separating gold and valuable material from its gangue consisting of an inclined table having depressions or pockets formed in its surface, means for supplying material upon the upper end of the table, guides or wings by which the material is converted into the depressions during its movement down the table, inclined shafts journaled upon opposite sides of the frame with their upper ends approaching each other having crank pins or disks which form connection with and support for the table, and mechanism for rotating the shafts whereby an oscillating and gyratory motion of the table-surface is produced.



4. An apparatus for separating gold from its gangue consisting of superposed tables having depressions and riffles over which the material passes, said tables being connected so as to move in unison, shafts journaled upon the frame at each side of the tables, those upon one side inclining toward those upon the other and having crank pins or disks upon the upper ends which form connections with the uppermost table, mechanism whereby the shafts are rotated and a gyratory and oscillating motion of both tables is produced.

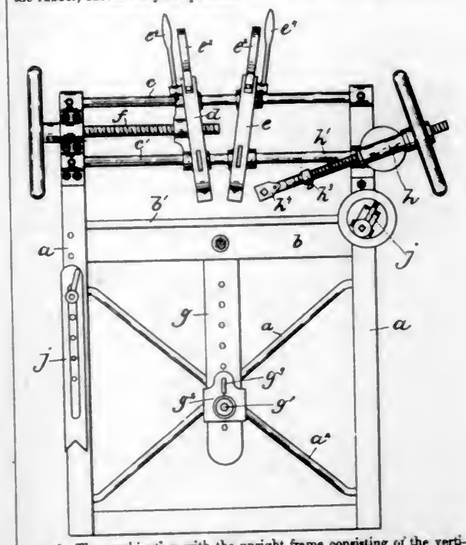
5. An apparatus for separating gold from its gangue consisting of superposed tables, means including convergent shafts and crank-pins carried thereby and connected with the tables whereby the latter are given an oscillatory and gyratory movement, chutes through which material is delivered upon both tables and shaking-screens located above the chutes adapted to separate and grade the material and deliver it independently into the chutes.

6. In an apparatus for recovering gold from its gangue, superposed screens, the upper one having a coarser mesh than the one below, means for supplying material to be separated upon the uppermost screen, means for producing a shaking movement of the screens, whereby material too coarse to pass the upper screen will be discharged over the rear end, the second-grade material will be discharged over the rear end of the lower screen, and the third grade will pass through said lower screen, an inclined chute into which the second-grade material is delivered, a similar chute into which the third grade is delivered and superposed gyratory oscillating pans and mechanism including convergent shafts and crank-pins carried thereby and engaging the pans by which the pans are actuated, said pans being so disposed that the finer material is delivered into the uppermost, and the second grade into the lowermost.

662,686. RUBBER-TIRE SETTER. SAMUEL W. COLLINS, Indianapolis, Ind., assignor, by mesne assignments, to the Consolidated Rubber Tire Company, Jersey City, N. J. Filed May 26, 1899. Serial No. 718,456. (No model.)

Claim.—1. In a rubber-tire machine, clamping-jaws mounted on transverse rods in a vertical main frame such as described, means for varying the distance between said jaws, a vertical wheel-support pivoted to a cross-bar or table in said frame below said rods and adjacent to said jaws and a tension device adjacent to said jaws, substantially as and for the purpose specified.

2. The combination, in a rubber-tire machine, with the band-holding devices, and means for adjusting the same, a tension device arranged adjacent thereto, said tension device being swivelly mounted as described, a wheel-clamp adjacent to said tension device, and a pivoted wheel-support adapted to be swung to different positions so that said swiveled tension device may be operated to tighten the bands and close the space in the rubber, substantially as specified.



3. The combination with the upright frame consisting of the vertical bars and a cross-bar and table as described, a wheel-support pivoted to said cross-bar, a wheel-clamp on said frame, and a pivoted brace for bracing said wheel-support when the wheel is in engagement with said wheel-clamp, substantially as specified.

4. In a rubber-tire machine, band-holding jaws pivoted together a connecting-bar on which their pivot is adjusted, a detachable tongue arranged between said jaws and held in position by said connecting-bar, a bow-spring to hold said jaws normally open and a cam and an adjustable hinged cam-face, for opening and closing said jaws with or without said tongue, substantially as and for the purpose specified.

662,687. BOILER-FEED REGULATOR. JAMES W. COPES, Philadelphia, Pa. Filed Sept. 9, 1899. Serial No. 730,036. (No model.)

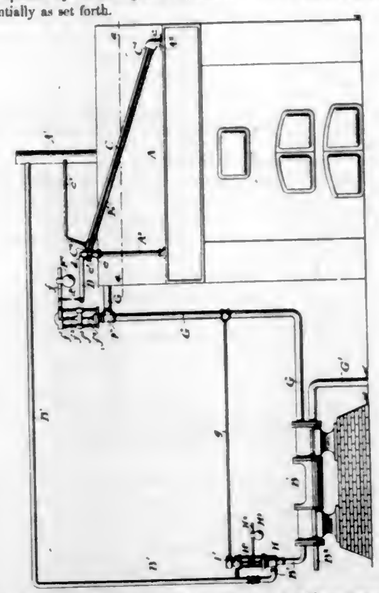
Claim.—1. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a fixed support for one end of said tube, a lever connected with the free end of said tube, a valve in operative relation with said lever, an adjustable support for the fulcrum of said lever, and means to adjustably shift the fulcrum of said lever by flexure of said support, substantially as set forth.

2. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a feed-water pipe for said boiler, a valve in said water-pipe, toggle-levers arranged to operate said valve, and means operatively connecting said expansible tube and said toggle-levers, substantially as set forth.

3. In a boiler-feed regulator, the combination with an expansible tube connected with the boiler above and below the normal water-level therein, of a feed-water pipe for said boiler, a valve in said water-pipe, a reciprocatory cross-head, fixed to the stem of said valve, toggle-levers arranged to reciprocate said cross-head, and means operatively connecting said expansible tube, and said toggle-levers, substantially as set forth.

4. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a fixed support A^3, for one extremity of said tube, a pivotal connection for the opposite extremity of said tube, a valve in operative relation with said pivotal connection, a fixed tension-rod E, a flexible standard A^2, a bearing e, in said standard through which said rod E, is entered, and a nut e', on said rod arranged to adjustably determine the relation of said standard A^2, and the pivoted extremity of said tube, substantially as set forth.

5. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a feed-water pump, a feed-water pipe for said boiler, a valve in said water-pipe, a toggle-lever connected at one extremity with the stem of said valve, a weight, adjustable upon the other extremity of said toggle-lever, and means operatively connecting said expansible tube and said toggle-lever, substantially as set forth.



6. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a feed-water pump, a feed-water pipe from said pump to said boiler, a valve in said water-pipe, a steam-pipe from said boiler to said pump, a valve in said steam-pipe, and hydraulic means connecting the valve in said water-pipe with the valve in said steam-pipe, in such relation with said expansible tube as to predetermine the cooperative actuation of said two valves by said expansible tube, substantially as set forth.

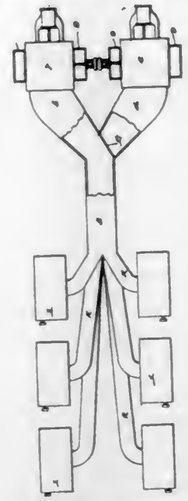
7. In a boiler-feed regulator, the combination with an expansible tube, connected with the boiler above and below the normal water-level therein, of a feed-water pump, a feed-water pipe from said pump, to said boiler, a valve in said water-pipe, a steam-pipe from said boiler to said pump, a valve in said steam-pipe, comprising a reciprocatory plunger, a piston operatively connected in axial alinement with said plunger, a cylinder containing said piston intermediate of its length, a pipe connection between one end of said cylinder and said water-pipe, a pipe connection between the other end of said cylinder and said steam-supply pipe, and means operatively connecting said expansible tube with the valve in said water-pipe; arranged to operate said two valves in predetermined relation, substantially as set forth.

662,688. APPARATUS FOR BALING COTTON. FRANK L. DYER, Washington, D. C., assignor to the American Cotton Company, New York, N. Y. Filed Nov. 18, 1897. Serial No. 658,895. (No model.)

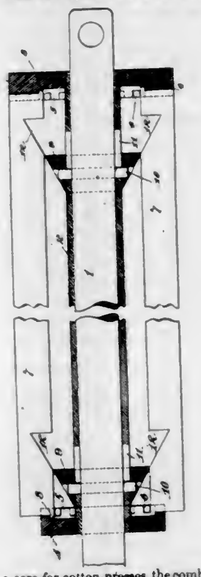
Claim.—1. In a cotton-baling apparatus, the combination of two rotary cotton-pressing appliances, two bat-formers arranged adjacent to each other and connected respectively with the cotton-pressing appliances, means for depositing cotton in said bat-formers in a light and fluffy state, and means for operating said bat-formers to form first in one a bat which is directed to one of the cotton-pressing appliances and then in the other a bat which is directed to the other cotton-pressing appliance, whereby such cotton-pressing appliances will be operated in alternation, substantially as set forth.

2. An improved apparatus for making cylindrical bales, comprising one or more continuously-operating gins, two bat-forming devices, and a single hand-operated element operating devices for directing the cotton from said gin or gins into, and for simultaneously starting, either bat-forming device, and a press adjacent to each bat-forming device for winding the sheet or bat produced thereby into a cylindrical bale, substantially as set forth.

3. An improved apparatus for making cylindrical bales, comprising one or more continuously-operating gins, a main flue connected therewith, two branch flues, a flap for directing cotton into either branch flue, a bat-forming device connected with each branch flue, means for operating said flap and for simultaneously starting the bat-former to which the cotton is directed, and a cylindrical baling-press adjacent to each bat-forming device and receiving the sheet or bat therefrom, substantially as set forth.



662,689. CORE FOR CYLINDRICAL-BALING PRESSES. FRANK L. DYER, Montclair, N. J., assignor to the American Cotton Company, New York, N. Y. Filed Nov. 9, 1899. Serial No. 736,352. (No model.)



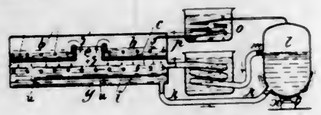
Claim.—1. In a core for cotton-presses, the combination of two disks having radial slots therein, a sleeve connecting said disks, a series of bars mounted in said slots, and means for moving said bars radially, substantially as set forth.

2. In a core for cotton-presses, the combination of two disks having radial slots therein, a series of parallel bars mounted in said slots, a sleeve connecting said disks, a spindle mounted within said sleeve, and means operated by said spindle for moving said bars radially, substantially as set forth.

3. In a core for cotton-presses, the combination of two disks having radial slots therein, a series of parallel bars mounted in said slots, a sleeve

connecting said disks, a spindle mounted within said sleeve, and a conical sleeve connected to said spindle and coöperating with notches in said bars for moving said bars radially, substantially as set forth.

662,690. PROCESS OF PRODUCING COLD. HERMANN GEPPERT, Carlsruhe, Germany. Filed Nov. 9, 1899. Serial No. 736,306. (No specimens.)



Claim.—1. The herein-described process of refrigeration, consisting in evaporating a volatile liquid, effecting the absorption of the vapor thus produced by an absorption liquid, effecting the disengagement of the vapor from the absorption liquid by heat, condensing the vapor and effecting a movement of circulation of the vapor by diffusion through a gaseous body other than the vapor of the volatile liquid referred to.

2. In a continuous process of refrigeration, the subprocess which consists in evaporating liquid in a circulating system which contains a gaseous fluid other than the vapor produced by evaporating the liquid, producing a movement of circulation of the vapor resulting from the evaporation by diffusion through the said fluid and maintaining the total pressure uniform in the circulating system.

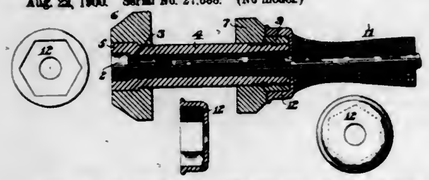
3. In the process of refrigeration, the subprocess which consists in expelling a vapor by heat, thereby producing a vapor-pressure, condensing the vapor in the presence of a gaseous body other than the vapor thereby producing at the place of condensation a total effective pressure greater than the mere vapor-pressure at that point, and effecting the flow of the condensed product, the evaporation thereof, the mechanical diffusion of the resulting vapor through the gaseous body and the absorption of said vapor into a liquid.

4. The herein-described continuous process of refrigeration consisting in continuously carrying out the following steps: evaporating a volatile liquid, absorbing the produced vapor by an absorption liquid, disengaging the vapor from the absorption liquid by heat and recondensing the same, the evaporation and absorption being performed in the presence of a gas or gases other than the vapor hereinbefore referred to, whereby the circulation of vapor will be effected by molecular diffusion through the said last-mentioned gas or gases and whereby the total effective pressure will be the same, or substantially so, in the various parts of the circulating system.

5. The herein-described continuous process of refrigeration which consists in evaporating a volatile liquid in an atmosphere containing a non-evaporating and non-absorbing gas, the evaporated gas passing by diffusion from the surface of the evaporator through a thin layer of said atmosphere to the opposite surface of the absorbing liquid.

6. The herein-described continuous process of refrigeration, which consists in evaporating a liquid, absorbing the produced vapor by an absorption liquid, expelling the vapor from the absorption liquid by heat, condensing the expelled vapor by refrigeration and returning the products of condensation for evaporation, the fluid circulation taking place in the presence of a gas other than that to be condensed, whereby substantially the same pressure will be maintained throughout the circulating system and a continuous flow of the fluid will take place.

662,691. MALLET. GEORGE B. GODDARD, Brockton, Mass. Filed Aug. 29, 1900. Serial No. 27,688. (No model.)

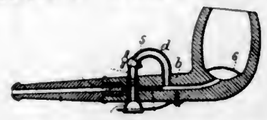


Claim.—1. In a mallet of the class described, the combination of a handle-bolt having a head at one end, and a portion of its length made cylindrical, or of uniform diameter, and the remaining portion made tapering; a sleeve inclosing the cylindrical portion of said handle-bolt, and fitting closely thereto for a distance from said bolt-head equal to about two-thirds the length of said sleeve, and not touching said bolt for the remaining portion of its length, and provided with a head at one end, and a male screw-thread at its other end, the collars 6 and 7, the former provided with a recess to receive the head of said sleeve; a plurality of rawhide disks between said collars; a clamping-nut fitted to the threaded end of said sleeve and a suitable covering inclosing that portion of the handle-bolt which projects beyond the threaded end of said sleeve to form a handle.

2. In a mallet of the class described, the combination of a smooth handle-bolt provided with a head at one end; a sleeve fitted thereon and provided with a head at one end and a male screw-thread on its other end, and having a portion of its bore at its threaded end frusto-conical; the collars 6 and 7 fitted to said sleeve and the former provided with a recess to receive the head of said sleeve; a plurality of rawhide disks between said collars; a clamping-nut fitted to the threaded end of said sleeve; and a suitable covering inclosing that portion of the handle-bolt which projects beyond the threaded end of said sleeve to form a suitable handle.

3. The combination of a mallet-head comprising two collars, a series of rawhide disks between said collars, and means for clamping said parts together; and a handle attached to said head and provided at its inner end with a cup-shaped hand-guard having a smooth circular exterior surface and constructed and arranged to entirely inclose the clamping-nut substantially as described.

662,692. TOBACCO-PIPE. WILLIAM N. HARING, Nyack, N. Y., assignor to himself and Arthur Merritt, same place. Filed Aug. 23, 1900. Serial No. 27,761. (No model.)



Claim.—1. In a tobacco-pipe, the combination with the stem, of an inverted removable U-shaped tube rising above the said stem with one end passing into the stem and forming a continuation of the opening therein and the other end passing through the stem and having an opening alining with the opening in the mouthpiece, and a tubular reservoir or trap forming a continuation at one end of the said tube and outside the stem and a cap for closing the orifice therein, substantially as set forth.

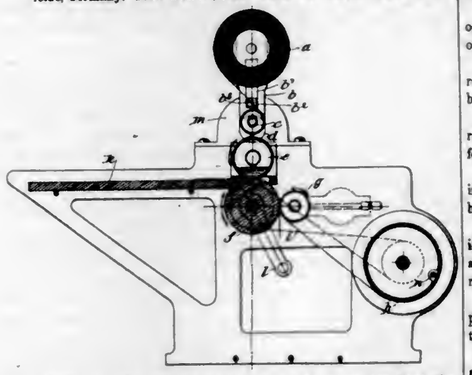
2. The combination in a tobacco-pipe with the stem, of a removable inverted-U-shaped tube tapering at one end and reduced at the other end and rising above the stem of the pipe with the tapering end passing into the stem adjacent to the bowl and forming a continuation of the opening in the stem and with the reduced end passing through the stem adjacent to the mouthpiece and having an opening in said reduced end, and a tubular reservoir or trap outside the stem and surrounding the reduced end of the said tube and screwing up into and through the said stem and having an opening alining with the opening in the said tube, and a spring-cap to cover the orifice in the said tubular reservoir, substantially as set forth.

3. The combination in a tobacco-pipe with the stem, of a removable inverted-U-shaped tube tapering at one end and reduced at the other end and rising above the stem of the pipe with the reduced end passing into the stem adjacent to the bowl and forming a continuation of the opening in the stem and with the reduced end passing through the stem adjacent to the mouthpiece and having an opening in said reduced end, a valve in the said inverted-U-shaped tube, a tubular reservoir or trap surrounding the reduced end of the said tube and screwing up into and through the said stem and having an opening alining with the opening in the said tube, and a spring-cap to cover the orifice in the said tubular reservoir, substantially as set forth.

4. A tobacco-pipe having the opening in the stem partially closed by a plug, a removable inverted-U-shaped tube of metal at one end passing through the stem beyond the said plug and at the other end reduced and passing into the stem beyond the opposite end of said plug, the said tube forming a continuation of the opening in the said stem and provided with a perforation adjacent to the opening in the mouthpiece and a tubular reservoir or trap formed as a continuation of the said tube and extending outside of and below the stem of the pipe and a spring-cap for closing the orifice in the said tubular reservoir or trap, substantially as set forth.

5. A tobacco-pipe having the opening in the stem partially closed by a plug, a removable inverted-U-shaped tube of metal at one end passing through the stem beyond the said plug and at the other end reduced and passing into the stem beyond the opposite end of said plug, the said tube forming a continuation of the opening in the said stem and provided with a perforation adjacent to the opening in the mouthpiece and a tubular reservoir or trap formed as a continuation of the said tube and extending outside of and terminating with a bell-shaped end below the stem of the pipe and a spring-cap having a saucer-shaped portion fitting against and for closing the orifice in the said tubular reservoir or trap, substantially as set forth.

662,693. COPYING-MACHINE. ADOLPH KLEIN, Gross-Lichterfelde, Germany. Filed Dec. 22, 1899. Serial No. 741,307. (No model.)

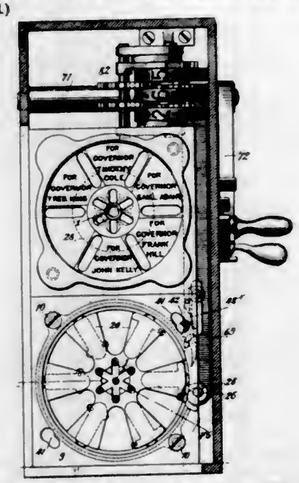


Claim.—1. In a copying-machine of the character described, the combination with the hollow pressure-roller *e* serving as a water-reservoir for moistening the copying-paper, of a paper-roller *a*, a cam *d*, a feed or guide roller mounted upon the shaft of said cam, an elastic drive-roller *f*, a hollow drying-roller *g* coated with absorbent material and adapted to be heated in any convenient manner, and a disk roller *h* for winding up the paper, provided with a retaining-rod *n*, substantially as set forth.

2. In the copying-machine of the character described, the combination with the paper-roller and the pressure-rollers, arranged so that the writings to be copied pass between the pressure-rollers with the face turned upward, of a drying-roller for drying the copies, in frictional engagement with one of said pressure-rollers, and means for heating said drying-roller, substantially as set forth.

3. In the copying-machine of the character set forth, the combination with the paper-roller *a*, journaled in the eccentric lever *b*, of said lever *b*, having slots *b'* therein, slide-blocks b^3 arranged in said slots and provided with clamps b^3, said slide-blocks engaging slots *m'* in the frame *m* of the machine, and a feed or guide roller mounted upon the shaft of the eccentric *d*, substantially as and for the purpose set forth.

662,694. REGISTERING APPARATUS. FRANK LAMBERT and SAUL ARONSON, New York, N. Y. Filed Feb. 12, 1898. Serial No. 670,066. (No model.)



Claim.—1. In a registering apparatus, a key free to be tilted in various directions, and means for locking the key when tilted in any one direction.

2. In a registering apparatus, a key free to be tilted in various directions, and means for independently recording any of said tiltings, and preventing further operation of the said key after it has been tilted, until it is reset.

3. A multiple tilting key free to rotate on its own axis, two registers independently actuated thereby, the operation of either of said registers being dependent upon the tilting of the key in a predetermined direction but independent of its rotation.

4. In a registering apparatus, a radially-movable multiple key, two or more registers actuated thereby, and means for preventing more than one register from being operated at a time.

5. In a registering apparatus, a radially-movable key, a series of registers independently operated thereby, the path of action of said key being in a different radial direction for each register.

6. In a registering apparatus, a multiple tilting key, a plurality of registers independently actuated thereby, the path of action of said key for the operation of each of said registers being predetermined.

7. In a registering apparatus, a tilting key, two or more registers independently operated thereby, the advance of any of the said registers being constant and equal for each operation of the key.

8. In a registering apparatus, a multiple pivoted key, a series of registers actuated thereby, and means for limiting the motion of the key in as many paths radial to its pivoting-point as there are registers in the series.

9. A multiple tilting key, a register operated thereby, and means for preventing two consecutive operations of the said register, without resetting the key.

10. A multiple tilting key, two or more registers operated thereby, and means for preventing two consecutive operations of any of said registers, without resetting the key.

11. In a registering apparatus, a multiple tilting key, and means for preventing two consecutive tiltings of said key, without resetting the machine.

12. In a registering apparatus, a multiple tilting key, a register actuated thereby, and positive means for preventing further action of said key when said register has advanced one unit, until the key is reset.

13. In a registering apparatus, a multiple tilting key, a register actuated thereby, and means for locking said key by the said register-actuator, when the register has advanced one unit.

14. In a registering apparatus, a multiple tilting key, registers actuated by said key, a resetting mechanism therefor, and means for preventing two consecutive operations of the same register, without resetting the machine.

15. A multiple tilting key, and a resetting device for said key, said resetting device participating in the tilting of said key.

16. A tilting key, a resetting device for said key, the angular position between the axis of the key and the bearing-face of said resetting device being the same in all tilted positions of the key.

17. A pivoted multiple key, and a resetting device placed below the pivot center of said key.

18. A nutating key and a spring-actuated resetting device therefor, mounted on said key.

19. A tilting key and a resetting device tilting therewith, and free to slide on the said key when tilted.

20. A multiple key, a spring-actuated resetting device therefor, said device and its spring being mounted directly on the said key.

21. A multiple key free to be tilted in various directions, and means to retain said key in tilted position, until reset.

22. A multiple key free to be tilted in various directions, a resetting-spring for said key, means for holding said key out of normal position against the action of said spring when the key is tilted, and means for releasing said key to allow said spring to return the key to its normal position.

23. A multiple key free to be tilted in various directions, and positive means to lock said key in tilted position.

24. A multiple key free to be tilted to a predetermined extent and in various directions, and means to reduce or limit the extent of tilting of said key in one or more directions, while the extent of tilting remains constant in other directions.

25. In a registering apparatus, a multiple key, two or more registers adapted to be independently actuated thereby, and means for resetting the said key in a normal position, said normal position being constant and independent of the register actuated.

26. In a voting-machine, a cell having a series of registers therein, a multiple tilting key adapted to actuate said registers, locking means for said registers, an indicator outside the cell, and connected to the said locking means, whereby the key can actuate the registers only when the indicator is set at the proper, predetermined position.

27. In a voting-machine, a group of tilting keys, a plurality of series of registers, each register of a series adapted to be operated by one of said keys, and means to vary and limit the total number of times the keys in said group may be operated in the aggregate.

28. In a voting-machine, a group of tilting multiple keys dependent upon each other, a series of registers adapted to be operated by the said keys, and means to prevent any of the said registers from being actuated twice in succession.

29. In a voting-machine, a group of tilting keys, a plurality of series

of registers, each register of a series adapted to be actuated by one of the said keys, and a totalizer to limit the aggregate number of motions of said keys.

30. In a voting-machine, a group of multiple keys, capable of being tilted in various definite directions, means for limiting the aggregate number of motions of said keys, and to independently record the number of motions of each of the keys in the various definite directions.

31. In a voting-machine, a group of tilting keys, a series of registers, all the registers of a series adapted to be operated by one of the said keys, a totalizer to limit the aggregate number of operations of the keys, and means to prevent any key from actuating a single register twice.

32. In a voting-machine, a tilting key, two registers adapted to be operated thereby, and interlocking means between the said registers, to allow the operation of only one of either of the said two registers.

33. In a voting-machine, a multiple key free to be tilted in various directions, a plurality of series of two registers each, adapted to be actuated by said key, and means for preventing the operation of one of the said registers after the other of the same series has been operated.

34. In a voting-machine, a series of voting-cells each provided with a key free to be tilted in various directions, a series of registers in each cell adapted to be actuated by a key, and means to prevent the operation of certain predetermined keys.

35. In a voting-machine, a key free to be tilted in various directions, a series of registers actuated thereby, a paper normally covered, and means for exposing a portion of said paper when said key is tilted in a predetermined direction.

36. In a voting-machine, a key free to be tilted in various directions, a paper normally covered, means for exposing a portion of said paper when said key is tilted in a predetermined direction, and means for recording the tiltings of said key in said predetermined direction.

37. In a voting-machine, a plurality of keys free to be tilted in various directions, a paper normally covered, and means to expose a portion of said paper when any one or more of said keys are moved in a predetermined direction.

38. In a voting-machine, a key free to be tilted in various directions, a paper normally covered, means to expose a portion of said paper when the key is tilted in a predetermined direction, and of recording the tilting of said key in said predetermined direction, with means for re-covering the paper after it has been exposed.

662,695. COMPOUND FOR RENDERING FABRICS WATER-REPELLENT. CHARLES LICHTENSTADT, Chicago, Ill. Filed Sept. 29, 1898. Serial No. 692,203. (No specimens.)

Claim.—A substance for use in rendering fabrics water-repellent, consisting of paraffin, a suitable softening water-repellent substance, and alcanna, substantially as described.

662,696. PLATE-MAGAZINE FOR CAMERAS. CARROLL H. PRATT and ALVIN D. COPELAND, Springfield, Mass. Filed Apr. 2, 1900. Serial No. 11,152. (No model.)



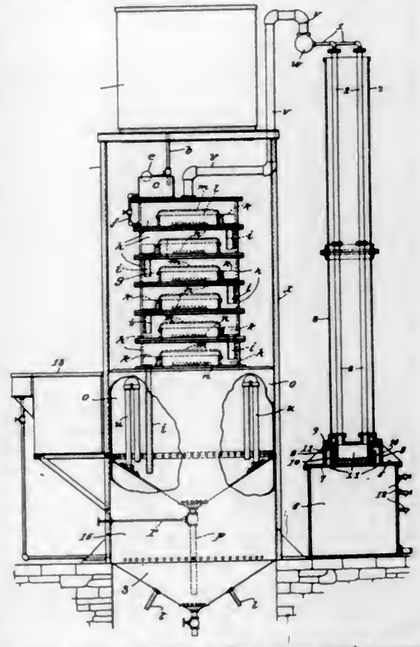
Claim.—1. In a camera-magazine, a plate-holding case, a series of plate-frames therein, a slide-box having a telescopic movement relative to said plate, one or more hooks on said slide-box for engaging the lower edge of one of said frames, and one or more spring-hooks thereon for engaging the upper edge of said frame, the latter being held between said hooks; a spring-plate hinged on the slide-box behind said plate whereby when the latter, by the movement of the box, is raised above said series of frames, the free end of said spring-plate may force the lower end of said plate-frame, held between said hooks, over the top of said series of frames in advance of the upper end of the frame, and into position to be pushed down on the opposite side of said series of frames by another movement of the slide-box, substantially as described.

2. In a camera-magazine, a plate-holding case, a series of plate-frames therein, a slide-box having an in-and-out movement relative to said plate-holding case, spring-hooks on said box adapted to snap over the upper and lower edges of one of said frames upon the inward movement of said box, from opposite sides of said frame, a spring-plate on said box adapted to force the lower end of said frame over the top of the other frames, at the end of the outward movement of said box, in advance of the opposite end of the frame, whereby upon the succeeding inward movement of the box said frame may be carried downward on the opposite side of said series of frames, substantially as described.

3. A magazine for cameras comprising an outer case having an opening in one side thereof, a plate-holding case rigidly secured within said outer case and having two open opposite sides, a slide-box having one open side and adapted to move vertically between said outer case and the plate-holding case, and on the latter, all of said openings being in registering position when a plate is in position for exposure; an opaque tubular curtain inclosing said slide-box and attached by its opposite ends to the latter and to the outer case, and a slide adapted to be interposed between said curtain and the wall of said slide-box, whereby the opening in the wall of the plate-holding case may be closed, substantially as described.

4. A magazine for cameras, comprising an outer case, a plate-holding case rigidly secured within the outer case, a slide-box adapted to move vertically between the outer case and said plate-holding case, a tabular protecting-curtain attached by one end to the end of the slide-box, and by its opposite end to the said outer case, whereby, when said slide-box is moved vertically out of said outer case, it will be entirely inclosed by said curtain, combined with means positively operated by the movement of said slide-box for moving a plate from one side of a series of plates in said plate-holding case upward and over the top of said series, and down on the other side thereof, substantially as described.

662,697. DISTILLING AND CONCENTRATING APPARATUS. WILLIAM L. ROWLAND, Philadelphia, Pa. Filed June 2, 1900. Serial No. 18,821. (No model.)

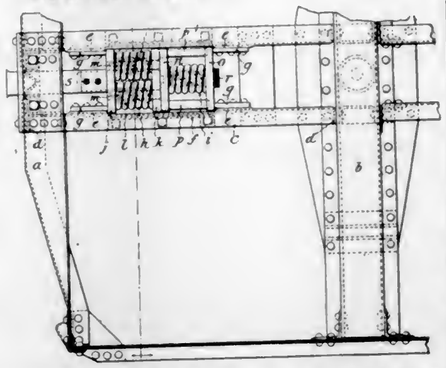


Claim.—1. In an ammonia distilling and concentrating apparatus, in combination, a primary and a secondary still the latter placed vertically above the former, a pipe leading from said secondary to said primary still, a valve on said pipe, U-shaped steam connections one end of which is open to the top of primary still and the other ends of which are open to the secondary still near its bottom, a concentrating-column as described placed vertically above the secondary still, a weak-liquor tank placed above the concentrating-column, a feed-tank placed between said weak-liquor tank and said concentrating-column, a float-valve automatically controlling the flow of liquor from the liquor-tank to the feed-tank, a connection leading from the feed-tank to the concentrating-column, a condenser consisting of a vertical shell inclosing vertical condensing-pipes and a condensing liquid, a connection leading from the top of the concentrating-column to the tops of said condensing-pipes, an absorber connected with the lower ends of said condensing-pipes, and a receiver beneath said absorber, all substantially as and for the purposes set forth.

2. The combination with a condensing-column consisting of a series of vertical condensing-pipes and a surrounding casing, of an absorber consisting of a shell or case furnished within with a chamber the lower end of which is open and the upper end of which is connected with the lower ends of the condensing-pipes and with passages outside said chamber leading from its top to and through its bottom, and a receiver beneath said absorber with which said passages connect.

3. The combination with a condensing-column consisting of a series of vertical condensing-pipes and a surrounding casing, of an absorber consisting of a shell or case furnished within with a chamber the lower ends of the walls of which are serrated, into which the lower ends of the condensing-pipes pass, and with openings leading from its top to and through its bottom, and a receiver beneath said absorber with which said openings connect.

662,698. DRAFT-RIGGING FOR RAILWAY-CARS. CHARLES T. SCHOEN, Philadelphia, and JOHN M. HANSEN, Bellevue, Pa., assignors to the Pressed Steel Car Company, Pittsburg, Pa. Filed June 30, 1900. Serial No. 22,220. (No model.)



Claim.—1. A draft-rigging sill, made of pressed steel, having top and bottom flanges, boxed-in ends, and a web, the web being embossed to provide elevations to receive the lug-plates, combined with such lug-plates, substantially as described.

2. A draft-rigging sill, having integral elevations, combined with relatively thin lug-plates, substantially as described.

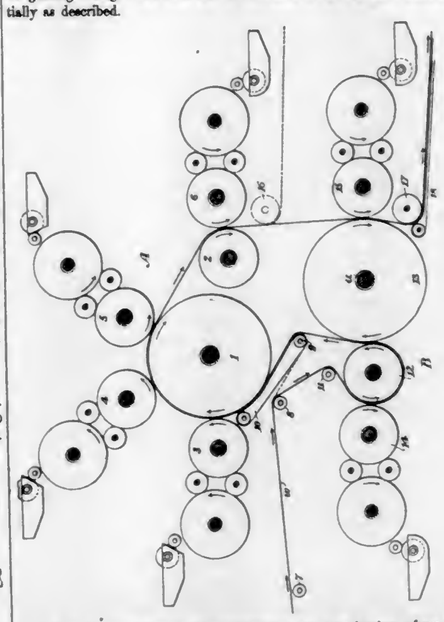
3. A draft-rigging sill, made of pressed steel, having top and bottom flanges, boxed-in ends, and a web, the web being embossed to form elevations to receive the lug-plates, and longitudinal hollow embossed ribs projecting from the web of the sill in an opposite direction from the elevations and between said elevations, substantially as described.

4. The combination of a pair of follower-plates, a pair of springs arranged between them, pins within said springs abutting against one of said follower-plates and passing through the other, a second pair of follower-plates, a spring arranged between them in tandem with the first-named springs, pins abutting against the outermost follower-plate of this pair and extending through holes in its mate, and means for connecting the parts with the draw-bar of a car, substantially as described.

5. The combination of a pair of springs, follower-plates between which they are arranged, pins extending from one of the plates through the other, a spring and a pair of follower-plates between which it is arranged, and pins extending from the outer follower-plate of this last-mentioned pair through the inner plate, the pins of the two plates abutting against opposite plates interposed between the springs, substantially as described.

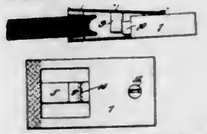
662,699. PRINTING-MACHINE. WALTER SCOTT, Plainfield, N. J. Original application filed Aug. 30, 1893, Serial No. 484,358. Divided and this application filed Nov. 23, 1894. Serial No. 529,729. (No model.)

Claim.—1. In a printing-press, the combination of a press having an impression-cylinder and a plurality of form-cylinders for coaction therewith in printing on one side of a web as it passes through once, a perfecting-press adapted to print on an independent web, said presses being arranged one over the other, and adjustable means intermediate said presses for guiding a single web from one to the other of said presses, substantially as described.



2. In a printing-press, the combination of a press having a form and an impression cylinder for printing on one side of a web, and an impression-cylinder and a plurality of form-cylinders for coaction with the last-named cylinder for printing a number of colors on the other side of the web, with a second perfecting-press, said presses being arranged one above the other, and adjustable web-guides between said presses, whereby two webs may be independently perfected or one web may be run through both machines, substantially as described.

662,700. INTERCHANGEABLE ADJUSTABLE BOOK-LOCK. JOSEPH W. SHEPPARD, New York, N. Y. Filed June 13, 1900. Serial No. 20,131. (No model.)



Claim.—1. An interchangeable, adjustable book-lock in which are comprised a lock-body having a fixed jaw and a movable jaw, said jaws being provided with holding-surfaces, the bolt of the lock being arranged to adjustably engage a catch-piece upon the movable jaw accommodating the lock to different thicknesses of books, and means for locking the jaws in different positions.

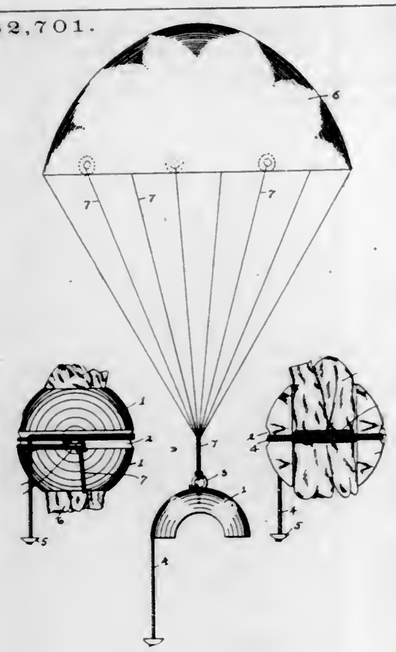
2. In a lock of the character herein specified, a body having grasping and holding jaws, in combination with means for locking the jaws in different closed positions.

3. An interchangeable, adjustable book-lock in which are comprised a lock-body provided with a serrated bolt, a fixed jaw having a grasping-surface; a movable jaw having a grasping-surface and a holding-block serrated correspondingly to the lock-bolt and means for locking said jaws in place.

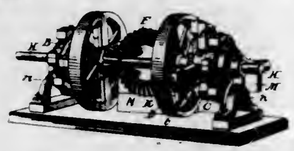
662,701. TOY PARACHUTE. CLARK SMITH, Columbus, Ohio. Filed Aug. 18, 1900. Serial No. 27,252. (No model.)

Claim.—In a parachute, the combination with a semicylindrical body 1 of a substantially concavo-convex form having a groove extending across its outer surface and a cord 4 connected with said body, of a parachute 6 of paper or similar material and strings leading from said parachute to said body, substantially as specified.

662,701.



662,702. REVERSIBLE FRICTION-CLUTCH GEARING. RICHARD J. SMITH, New Haven, Ohio. Filed Oct. 16, 1899. Serial No. 733,851 (No model.)



Claim.—In a reversible gear, the combination of a power-shaft, said shaft having grooves, pinion-wheels mounted loosely on the shaft, said wheels having beveled cog-hubs, a bevel gear-wheel suitably mounted and adapted to mesh with the beveled hubs of the pinion-wheels, sleeve secured stationary to the shaft and adapted to hold the pinion-wheels in mesh with the gear-wheel, hubs having suitable collars mounted on the shaft, said hubs being secured to the shaft by keys adapted to fit in the grooves of the shaft thereby allowing the hubs an oscillating movement, friction-blocks secured to the hubs and so positioned as to engage the flanges of the pinion-wheels, clamps secured to the collars of the hubs and levers secured to the clamps, as and for the purpose described.

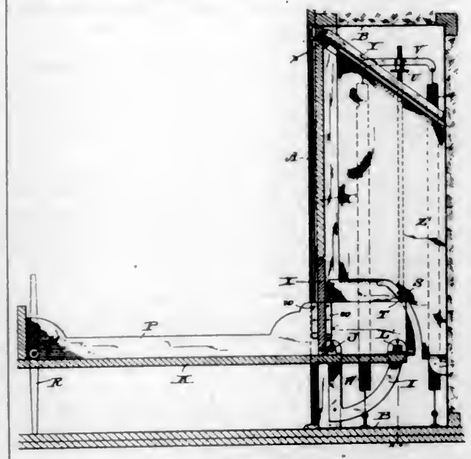
662,703. INDOXYL DERIVATIVES AND PROCESS OF MAKING SAME. AUGUST STOCK, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed July 5, 1898. Serial No. 685,156. (No specimens.)

Claim.—1. The herein-described process of manufacturing indoxyl derivatives, consisting in treating with sodium those derivatives of the ethers of aromatic ortho-amido-carbonic acid which contain at the nitrogen atom the group $-CH_2-C^{O}$, substantially as set forth.

2. As a new article of manufacture, the product obtained by treating with sodium the ethers of acetonylanthranil acid (indoxylmethylketone,) being a substance melting at 153°, easily soluble in alcohol, ether or hot benzene, soluble with difficulty in chloroform and forming indigo when heated with sulfuric acid or when melted with alkali and exposing the aqueous solution of this melt to the air, substantially as set forth.

662,704. WARDROBE-BEDSTEAD. CHARLES H. TESCH, Milwaukee, Wis. Filed Apr. 2, 1900. Serial No. 11,093. (No model.)

Claim.—1. A wardrobe-bedstead comprising a cabinet, a counterbalanced closed-bottom bed-frame in pivotal connection with the cabinet to serve as a closure for same when swung up out of use, cabinet-clearing swing-legs in connection with the foot portion of the bed-frame, and a jointed headboard having one section thereof loose in ways with which the side boards of the bed-frame are provided and its other section guided in the cabinet with which it is detachably connected, this headboard constituting a cabinet-closure when said bed-frame is swung down.



2. A wardrobe-bedstead comprising a cabinet, a counterbalanced closed-bottom bed-frame in pivotal connection with the cabinet to constitute a closure for same when swung up out of position for use, cabinet-clearing swing-legs in connection with the foot portion of the bed-frame, leg-controlled bed-frame latch-bolts, and a jointed headboard having one section thereof in connection with the side boards of the bed-frame and its other section guided in said cabinet.

3. A wardrobe-bedstead comprising a cabinet, a counterbalanced bed-frame in pivotal connection with the cabinet and having the foot ends of its side boards outwardly recessed, a shaft embodying sections in sliding connection and arranged in bearings to extend through said foot ends of the bed-frame side boards, legs in rigid connection with the outer ends of the shaft-sections, lateral lugs upon the inner sides of the legs, and raised inclined segmental lug-opposing tracks having their highest portions provided with lug-sockets.

4. A wardrobe-bedstead comprising a cabinet, a counterbalanced bed-frame in pivotal connection with the cabinet and having the foot ends of its side boards outwardly recessed, a shaft embodying sections in sliding connection and arranged in bearings to extend through said foot ends of the bed-frame side boards, legs in rigid connection with the outer ends of the shaft-sections, lateral lugs upon the inner sides of the legs, a raised inclined segmental track in opposition to each leg-lug provided with a countersunk screw-threaded lug-socket in its higher portion, and a filling-screw set in one or the other of the sockets.

5. A wardrobe-bedstead comprising a cabinet, a counterbalanced bed-frame in pivotal connection with the cabinet and having the foot ends of its side boards outwardly recessed, a shaft embodying sections in sliding connection and arranged to extend through said foot ends of the bed-frame side boards, bed-frame latch mechanism in connection with the shaft, legs rigid with the outer ends of the shaft-sections, lateral lugs upon the inner sides of the legs, and raised inclined segmental lug-opposing tracks having their higher portions provided with lug-sockets.

6. A wardrobe-bedstead comprising a cabinet, a counterbalanced bed-frame in pivotal connection with the cabinet and having the foot ends of its side boards outwardly recessed, a shaft embodying spring-controlled sections in sliding connection and arranged to extend through said foot ends of the bed-frame side boards, legs fast on the outer ends of the shaft-sections, lateral lugs upon the inner sides of the legs, and raised inclined segmental lug-opposing tracks having their higher portions provided with lug-sockets.

7. A wardrobe-bedstead comprising a cabinet, a counterbalanced bed-frame, retractive pivot-bolts connecting the bed-frame and cabinet, cabinet-clearing swing-legs at the foot portion of said bed-frame spring-bolts operative to automatically lock the aforesaid bed-frame in position for use, and means in connection with said legs for retracting the latter bolts.

8. A wardrobe-bedstead comprising a cabinet, a bed-frame in pivotal union with the cabinet, an angular yoke having a lower horizontal stretch in connection with the head end of the bed-frame and upper screw-threaded ends, nuts run on the yoke ends, cross-heads supported by the nuts, and counterbalance-springs joined at their upper ends to cross-head extremities.

9. A wardrobe-bedstead comprising a cabinet, a bed-frame in pivotal connection with the cabinet, hooks in connection with the head end of the bed-frame, an angular yoke-having screw-threaded upper ends and a horizontal lower stretch, the latter being engageable with the hooks, nuts run on the yoke ends, cross-heads supported by the nuts, counterbalance-springs joined at their upper ends to the cross-head extremities, and supports within said cabinet for said yoke when the latter is detached from said hooks.

10. A wardrobe-bedstead comprising a cabinet, a bed-frame in pivotal union with the cabinet, an angular yoke having a lower horizontal stretch in connection with the head end of the bed-frame cross-heads supported on vertical stretches of the yoke, and adjustable tension counterbalance-springs in union with the cross-heads.

11. A wardrobe-bedstead comprising a cabinet, a bed-frame in pivotal union with the cabinet, an angular yoke having a lower horizontal stretch in connection with the head end of the bed-frame, cross-heads supported on vertical stretches of the yoke, adjustable tension counterbalance-springs in union with the cross-heads, and screens arranged to shield the counterbalance mechanism

12. A wardrobe-bedstead comprising a cabinet provided with ventilating-openings and dampers for the same, a counterbalanced closed-bottom bed-frame in pivotal union with the cabinet to constitute a closure for same when swung up out of position for use, a jointed headboard having one section thereof in connection with side boards of the bed-frame and its other section guided in the cabinet, and damper-control mechanism operative incidental to opening and closing of the cabinet by said bed-frame.

13. A wardrobe-bedstead comprising a cabinet provided with ventilating-openings and dampers for the same, a closed-bottom counterbalanced bed-frame in pivotal union with the cabinet, and damper-control mechanism operative incidental to opening and closing of the cabinet by said bed-frame.

14. A wardrobe-bedstead comprising a cabinet, a counterbalanced closed-bottom bed-frame in pivotal union with the cabinet to constitute a closure for same when swung up out of use, means in conjunction with the bed-frame for supporting its foot when positioned for use, and other means for automatically closing the cabinet when said bed-frame is swung down.

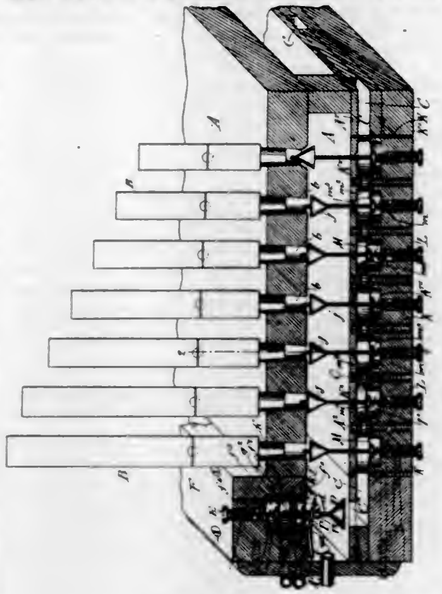
15. A wardrobe-bedstead comprising a cabinet, a counterbalanced closed-bottom bed-frame in pivotal union with the cabinet to constitute a closure for same when swung up out of use, longitudinally-grooved bars arranged in the cabinet, a jointed headboard having one section thereof in connection with the bed-frame, and draw-bolts on the other headboard-section engaging said bars.

662,705. PNEUMATIC VALVE-ACTION. CARL M. WELTE, New York, N. Y. Filed Apr. 12, 1900. Serial No. 12,558. (No model.)

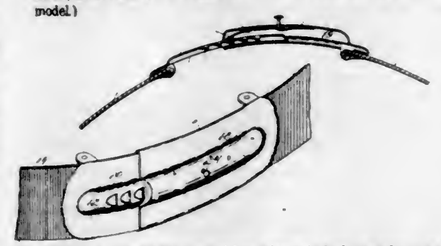
Claim.—1. In a pneumatic valve-action, the combination, with the wind-chest and a register-duct communicating with the same by means of a port, of a spring-actuated register-valve for controlling said port, two chambers, a vented flexible diaphragm closing one of said chambers and a second flexible diaphragm subdividing the other of said chambers, one of which subchambers is vented, and the other of which communicates with the wind-chest by means of a duct, a second valve, controlled by the valve-stem of the register-valve, and in turn controlling said duct, and ducts leading from the subchamber connected with the wind-chest and from the diaphragm-closed chamber to the tracker, substantially as set forth.

2. In a pneumatic valve-action, the combination, with the wind-chest having a pressure-chamber provided with ducts leading to the tracker or keyboard, and sounding devices mounted on the wind-chest, of valves arranged in the pressure-chamber of the wind-chest and directly controlling the sounding devices, and removable holders in which said valves are supported, said holders being provided with side openings which communicate with said ducts, substantially as set forth.

3. In a pneumatic valve-action, the combination, with the wind-chest provided with a pressure-chamber, ducts leading from the wind-chest to the tracker or keyboard, register-ducts, valves in the pressure-chamber for closing the inlet-ports of said register-ducts, means for operating said valves, and sounding devices on the wind-chest, provided with ports opening into the pressure-chamber, of valves in the pressure-chamber for directly closing the ports of the sounding devices, and removable holders for the last-named valves, fixed in the wind-chest directly opposite the sounding devices, said holders being provided with side openings which communicate with the tracker or keyboard duct, substantially as set forth.

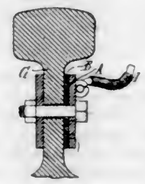


662,706. BUCKLE. SAMUEL BIENENZUCHT and ABRAHAM BIENENZUCHT, New York, N. Y. Filed Oct. 11, 1900. Serial No. 32,721. (No model.)



Claim.—A belt-buckle comprising telescopic body members, each of which members is provided at its outer face with a longitudinal projection and a corresponding channel in its inner face, the projection on the outer face of one member having depressions made therein, a spring secured at one end in the channel in the inner face of the opposing member, a latch pivoted in the same channel, fulcrumed between its ends, one end of which latch is normally pressed outward by said spring, the opposing end of the latch having a head adapted to enter any one of said depressions, and a pin connected with the latch where it connects with said spring, which pin extends out beyond the front face of the buckle, whereby the members of the buckle may be automatically slid in direction of each other and released from locking engagement when they are to be carried away from each other, the locking device being forward of the plane of the inner face of the inner member of the buckle, as set forth.

662,707. ELECTRICAL CONNECTOR. HENRY BLACKMAN, New York, N. Y. Filed June 6, 1899. Serial No. 719,531. (No model.)



Claim.—1. The improved electrical connection comprising two conducting parts, the adjacent surfaces of which are to be electrically connected, a separable conducting-plate interposed between said surfaces, packing means bounding said contacting surfaces on all sides to exclude corrosive agents therefrom, and means for pressing said conducting parts together to clamp said plate and packing between them.

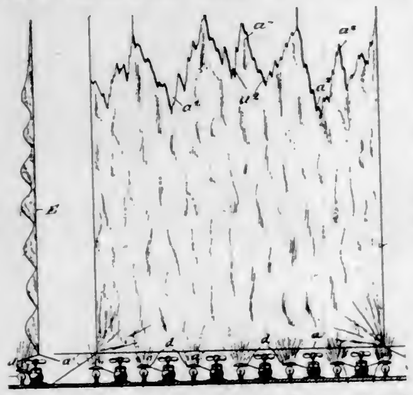
2. An electrical connector having a contact-surface formed with an aperture, combined with a packing-ring surrounding said contact-surface, and a second packing-ring within the first, said rings adapted when compressed against the surface with which said contact-surface is in contact, to exclude corrosive agents from said surfaces.

3. The improved electrical connection comprising two contacting surfaces, one of which is formed with an aperture, a protecting packing-ring surrounding such surfaces, and a second packing-ring within the first to prevent the entrance of corrosive agents between them.

4. The combination with two bodies having contact-surfaces, one of which is formed with an aperture, a packing-ring surrounding such surfaces, and a second packing-ring within the first, of means for holding such surfaces pressed together for effecting electrical contact between them.

5. A plate for electrically connecting surfaces comprising a conducting-body formed with an aperture, a packing-ring extending circumferentially around said body, and a packing-ring in said aperture.

662,708. THEATRICAL APPLIANCE. LINCOLN J. CARTER, Chicago, Ill. Filed Jan. 22, 1900. Serial No. 2,286. (No model.)



Claim.—1. In an appliance of the class described, the combination of a sheet of flexible material, air-supply mechanism arranged underneath so as to wave the same, and a light arranged to cast a glow or glows on the sheet, whereby during its waving it represents a sheet of fire, substantially as described.

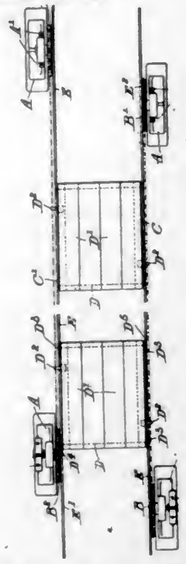
2. In an appliance of the class described, the combination of a sheet of flexible material arranged across a stage having its lower end drawn tight and its upper end cut in an irregular pattern to represent tongues of flame, fan mechanism arranged underneath the sheet so that in operation they give it a waving effect, light mechanism arranged to throw a glow or glare on the sheet so that during its waving it is cast into the light and shadows and represents a sheet of flame or fire, substantially as described.

3. In an appliance of the class described, the combination of a sheet of flexible material such as silk drawn across a stage, having its lower end drawn tant and its upper end loose and cut in an irregular or serrated manner so as to represent tongues of flame, invisible cords connecting a plurality of the tongues with the upper portion of the stage, a series of fans arranged directly under the sheet of silk so that in operation they give it a waving effect, light mechanism arranged underneath the sheet so as to throw a glare or glow on the portion of the sheet brought into the light at various periods and intervals and thereby represent a sheet of fire or flame, substantially as described.

4. In an appliance of the class described, the combination of a sheet of flexible material, means for waving the same, means for casting a glow or glare of light on the sheet, whereby during its waving motion it represents a sheet of fire or flame, substantially as described.

662,709. CONVEYER. ARTHUR C. CLAY, London, England. Filed Sept. 11, 1900. Serial No. 29,662. (No model.)

Claim.—1. In a conveyer the combination of parallel endless chains, supporting and driving wheels for the chains the wheels for one chain being in advance of those for the other chain and a traveling table attached to the chains the points of attachment being on opposite sides of the table and separated by a longitudinal distance equal to the advance between the two sets of wheels substantially as set forth.

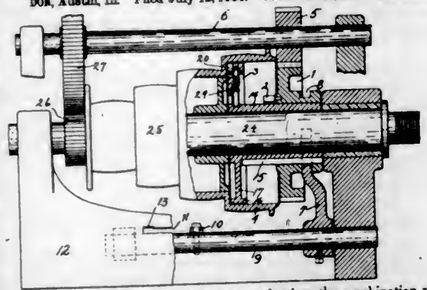


2. In a conveyer the combination of parallel endless chains, supporting and driving wheels for the chains the wheels for one chain being in advance of those for the other chain, a traveling table attached to the chains the points of attachment being on opposite sides of the table and separated by a longitudinal distance equal to the advance between the two sets of wheels, runner-wheels upon the table and guide-rails for the runner-wheels substantially as set forth.

3. In a conveyer the combination of parallel endless chains, supporting and driving wheels for the chains the wheels for one chain being in advance of those for the other chain, a traveling table attached to the chains the points of attachment being on opposite sides of the table and separated by a longitudinal distance equal to the advance between the two sets of wheels, runner-wheels upon the table, guide-rails for the runner-wheels, auxiliary guide-rails near the turning-points of the chains and rollers on the table to bear upon the auxiliary guide-rails substantially as set forth.

4. In a conveyer the combination of parallel endless chains, supporting and driving wheels for the top runs of the chains and similar wheels on a lower level for the bottom runs of the chains, the wheels for one chain being in advance of those for the other chain, a traveling table attached to the chains the points of attachment being on opposite sides of the table and separated by a longitudinal distance equal to the advance between the two sets of wheels, runner-wheels upon the table and guide-rails for the runner-wheels substantially as set forth.

662,710. SPEED-CHANGING MECHANISM. CARL C. CLEVERDON, Austin, Ill. Filed July 12, 1900. Serial No. 23,317. (No model.)

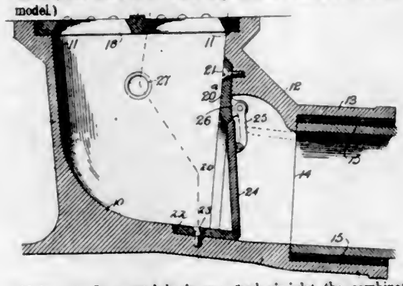


Claim.—1. In a speed-changing mechanism the combination with a rotatable shaft and a pulley loosely mounted thereon, of a gear mounted to slide lengthwise on the shaft and rotatively engaged therewith, means for moving said gear in either direction upon the shaft, a friction-clutch adapted to be operated by a movement of said gear in one direction to connect the pulley with the said shaft, a gear carried by and rotating with said pulley, a back shaft, and speed-reducing gears thereon, including a slow-running gear adapted to mesh with the slidable gear when it is moved in the opposite direction, to transmit motion to the shaft through said speed-reducing gears, substantially as set forth.

2. The combination with the driven shaft and a pulley loosely mounted thereon, of a train of speed-reducing gears driven from said pulley, a friction-clutch fixedly mounted on the driven shaft and adapted to engage and disengage said pulley, a longitudinally-slidable gear mounted on said driven shaft and partaking of the rotation thereof, said gear at one limit of its longitudinal movement engaging one of the speed-reducing gears, and provided with a device whereby at the other limit of its movement it effects engagement of the friction-clutch with the pulley, and means for so shifting said gear longitudinally, substantially as set forth.

3. The combination with the driven shaft and a hollow stepped pulley loosely mounted thereon, of a train of speed-reducing gears driven from said pulley, a friction-clutch fixedly mounted on the driven shaft and located within the largest step of the pulley, a gear splined on the hub of said friction-clutch and adapted to be slid into and out of said hollow pulley, said gear when out of the pulley engaging one of the train of speed-reducing gears, and when within the pulley causing the friction-clutch to engage the latter, and means for shifting said slidable gear, substantially as described.

662,711. CATCH-BASIN OR FRESH-AIR INLET. WILLIAM H. DEWAR, New York, N. Y. Filed July 14, 1900. Serial No. 23,624. (No model.)



Claim.—1. In a catch-basin or a fresh-air inlet, the combination, with a body having a removable top, the said body having its bottom inclined and concaved where it connects with the sides, a neck formed at the outlet of the body, the neck being provided with a hub, a ring attached to the inner surface of the said neck and to the bottom of the body of the basin or the fresh-air inlet, a valve adapted to normally close the opening in said ring, said valve being a back-pressure valve, and a link connection between the said valve and the said ring, for the purpose set forth.

2. In a catch-basin or a fresh-water inlet, the combination, with a body having an inclined bottom and a concaved surface where the bottom connects with the sides of the basin or the inlet, a removable cover for the basin or the inlet, consisting of an outer frame and longitudinal and transverse bars carried by said frame, the bars being triangular in cross-section and widest at the top, and the inner side face of said frame being inclined downward and outward, a neck at the outlet of the basin or inlet, and a hub forming a continuation of the neck, of a flushing-pipe which enters the basin or the air-inlet, at a point below the top and above the bottom thereof, a ring detachably attached to the neck and the bottom of the basin or inlet, a back-pressure valve normally closing the opening in the said ring, and a link connection between the said valve and the ring, for the purpose set forth.

662,712. SPLICE-JOINT FOR RAILWAY-RAILS. WILLIAM B. DODDRIDGE, St. Louis, Mo., assignor to the American Steel Foundry Company, same place. Filed Aug. 2, 1898. Serial No. 687,518. (No model.)



Claim.—A suspension splice-joint for railway-rails, consisting of the clamp or joint *a* having side walls on opposite sides of the rails, and an integrally-formed floor on which the rails rest between the ties, the joint having the walls on one side extended laterally to form integral splice-bars, the independent splice-bar *k* on the opposite side of the rails, having an enlarged flat foot engaging the floor and side wall and the split wedge *j* for jamming said bar between the rails and the opposite side wall of the joint, the joint extending around and embracing the adjacent ends of the rails between the ties, and bolts passed through the integrally-formed splice-bars and the web of the rail.

662,713. WINDOW-CLEANER. ERNEST M. FARMER, Cleveland, Ohio. Filed July 17, 1900. Serial No. 23,955. (No model.)



Claim.—1. In a window-cleaner, a receptacle having a handle, a longitudinal slot in its side terminating near each end of the receptacle, a core supported on the surface of said receptacle beyond the ends of the slot and a wicking extending around said core and having its ends projecting through the slot into the receptacle, substantially as described.

2. In a window-cleaner, a cylindrical receptacle having a handle attached to its under side, a longitudinal slot in one side near the top thereof, a core supported on the surface of said receptacle beyond the ends of the slot, a wicking supported in and extending through said slot into the receptacle, and extending around said core, walls extending longitudinally of the cylinder on the opposite side near the top thereof, a core supported between said walls, a rubber drier extending around the sides of said core, said rubber drier having enlarged lips projecting outwardly beyond the walls and core forming a continuous wall, substantially as described.

662,714. SKIRT. HENRY J. FEUCHTWANGER, Elmira, N. Y., assignor to the Elmira Skirt Company, same place. Filed Sept. 26, 1900. Serial No. 31,150. (No model.)



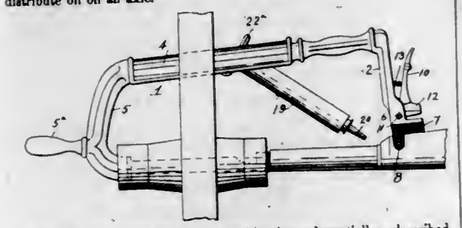
Claim.—1. In a skirt, the combination, substantially as described, of a hip portion of elastic material, a skirt portion secured to the bottom edge of said hip portion, and a band of greater elasticity than said hip portion, said band being secured to said hip portion at a point near the upper edge thereof.

2. In a skirt, the combination, substantially as described, of a hip portion of elastic material, which is larger around the bottom than at the top, a skirt portion secured to the bottom edge of said hip portion, and a waistband of greater elasticity than said hip portion, said band being secured to the top of said hip portion.

662,715. AXLE-LUBRICATOR. JAMES B. FOOTE, Fredericktown, Ohio. Filed Aug. 21, 1900. Serial No. 27,613. (No model.)

Claim.—1. In an axle-lubricating device, the combination, substantially as described, of a brace-shaped frame, an inwardly-disposed arm substantially parallel to the back of said brace-shaped frame, a guide

formed in the back member of said frame, an oil-can mounted to slide back and forth in said guide and constructed to be inclined downward to distribute oil on an axle.



2. In a lubricating device, the combination, substantially as described, of a chamber having one side cut away and a recess in one end, a piece of elastic material seated in said recess, an oil-can having a spout, seated in said chamber with its spout extending into said recess, and a clamp constructed to hold said oil-can in the position with its spout in said recess and to be operated to retract said spout.

3. In a lubricating device, the combination, substantially as described, of a guide member, means for holding said guide member parallel to an axle, an oil-can mounted to slide in said guide and constructed to be reciprocated back and forth in said guide to distribute oil on the axle.

4. In a lubricating device, the combination, substantially as described, of a guide member, an oil-can, and a clamp comprising two divergent arms secured together at one end and mounted to project through said guide, one of said arms being fitted with a stop on its free end to prevent its withdrawal from said guide, and the other arm being secured to said oil-can.

662,716. INTRA-UTERINE BATTERY. JOHN G. L. GAEDEKE, New York, N. Y. Filed July 31, 1900. Serial No. 25,380. (No model.)



Claim.—1. An intra-uterine battery consisting of connected sets of elements, one for engaging in the neck of the womb and the other the body thereof, as set forth.

2. An intra-uterine galvanic cell having a set of elements and a connecting support for the same, the support engaging the neck of the womb and the elements the body thereof, as set forth.

3. An intra-uterine battery having a set of elements formed of positive and negative wires twisted together at one end to form a support engaging the neck of the womb, the other element engaging the body of the womb, as set forth.

4. An intra-uterine battery having sets of elements formed of positive and negative wires having portions twisted together, to separate the sets of elements, as set forth.

5. An intra-uterine battery having elements flexibly connected with each other, one of the elements being cup-shaped and perforated, as set forth.

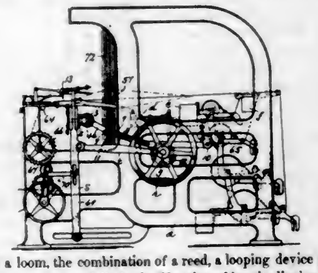
6. An intra-uterine battery having connected elements with the terminals normally spread apart, and means for temporarily holding the terminals closed for convenient insertion of the device in the womb, as set forth.

7. An intra-uterine battery having connected elements with the terminals normally spread apart, and means for temporarily holding the terminals closed for convenient insertion of the device in the womb, the said means consisting of gelatin, as set forth.

662,717. NEEDLE-LOOM. WILLIAM V. GEE, Philadelphia, Pa., assignor to Schaum & Uhlinger, same place. Filed Feb. 9, 1900. Serial No. 4,606. (No model.)

Claim.—1. In a loom, the combination of a reed, a looping device projecting substantially in the direction of longitudinal extension of the warp and toward the finished goods, and carrying means, one for the reed and the other for the looping device, movable each independently of the other, said looping device being disposed close to the reed, and the reed being movable relatively to the looping device to bring its front face in advance, and to the rear, of the extremity of the looping device, alternately, substantially as described.

2. In a loom, the combination of a reed, a looping device projecting substantially in the direction of longitudinal extension of the warp and toward the finished goods, and carrying means, one for the reed and the other for the looping device, movable each independently of the other, said looping device being disposed close to the reed, and said reed and the looping device being movable with their carrying means in opposite directions to bring the front face of said reed in advance, and to the rear, of the extremity of the looping device, alternately, substantially as described.



3. In a loom, the combination of a reed, a looping device projecting through the reed substantially in the direction of longitudinal extension of the warp and toward the finished goods, and carrying means, one for the reed and the other for the looping device, movable each independently of the other, said reed and the looping device being movable with their carrying means in opposite directions to bring the front face of said reed in advance, and to the rear, of the extremity of the looping device, alternately, substantially as described.

4. In a loom, the combination of a reed, looping devices having spurs and projecting through the reed substantially in the direction of longitudinal extension of the warp and toward the finished goods, and carrying means, one for the reed and the other for the looping device, movable each independently of the other, said reed and the looping device being movable with their carrying means in opposite directions to bring the front face of said reed in advance, and to the rear, of the extremity of the spur, alternately, substantially as described

5. In a loom, the combination, with the frame comprising a horizontal beam and with warp-controlling mechanism, of a batten disposed near said beam, longitudinally-movable looping-needles having spurs and mounted independently of said batten, filler-carrying needles carried by said batten, the spurs of said looping-needles and the filler-carrying needles being adapted to coact, means for actuating said needles, and guiding means for said looping-needles engaging the same at one end and arranged on said beam, said needles being pivotally mounted at their other ends, substantially as described.

6. In a loom, the combination, with the frame comprising a horizontal beam and with warp-controlling mechanism, of a movable batten disposed near said beam, longitudinally-movable and horizontal looping-needles extending over and transversely of said batten and having spurs, filler-carrying needles carried by said batten and movable transversely of said looping-needles, the spurs of said looping-needles and the filler-carrying needles being adapted to coact, means for actuating the filler-carrying needles, guiding means for said looping-needles arranged on said beam and engaging the forward ends of said needles, and means for actuating said looping-needles connected to the rear ends thereof, substantially as described.

7. In a loom, the combination, with the frame comprising horizontal beams, and with warp-controlling mechanism, of a movable batten disposed between certain of said beams, longitudinally-movable and horizontal looping-needles extending over and transversely of said batten and having spurs, filler-carrying needles carried by said batten and movable transversely of said looping-needles, the spurs of said looping-needles and the filler-carryjng needles being adapted to coact, means for actuating said filler-carrying needles, guiding means for said looping-needles arranged on a beam on one side of said batten, a carriage operatively guided on a beam on the other side of said batten, said looping-needles being connected to said carriage, means for reciprocating the carriage, and means for reciprocating the batten, substantially as described.

8. In a loom, the combination, with the frame comprising horizontal beams, and with warp-controlling mechanism, of a movable batten, longitudinally-movable and horizontal looping-needles extending over and transversely of said batten and having spurs, filler-carrying needles carried by said batten and movable transversely of said looping-needles, the spurs of said looping-needles and the filler-carrying needles being adapted to coact, means for actuating said filler-carrying needles, guiding means for said looping-needles arranged on one of said beams, parallel plates connecting the beams, a movable structure adapted to reciprocate on said plates, said looping-needles being connected to said movable structure, means for reciprocating said movable structure, and means for reciprocating the batten, substantially as described.

9. In a loom, the combination, with a frame comprising a horizontal beam and with warp-controlling mechanism, of a movable batten disposed near said beam, longitudinally-movable and horizontal looping-needles extending over and transversely of said batten and having spurs, filler-carrying needles carried by said batten and movable transversely of the looping-needles, means for actuating said needles, guiding means for said looping-needles mounted on said beam, said beam being arranged on one side of the batten, and supporting means for the looping-needles disposed on the other side of said batten, substantially as described.

10. In a loom, the combination, with the batten, of reciprocating bars arranged on said batten, an oscillating member, rods connecting said member and the bars, a shaft journaled in said batten, gearing connecting said shaft and said member, means for rocking said shaft, and needles carried by said bars, substantially as described.

11. In a loom, the combination, with the frame and with coacting filler-carrying and looping needles, of a reciprocating batten, a bar arranged on said batten, a drive-shaft, operative connection between said drive-shaft and said needles and the batten, respectively, driving means for said shaft, thread-supplying means for said filler-carrying needles, thread-guides on said bar, a beam disposed parallel to the batten and constituting a portion of said frame, tension devices mounted on said bar, rods projecting from said beam and engaging the thread between said guides, a rock-shaft mounted on said beam and provided with projections, push-rods also mounted on said beam, adapted to be engaged by said tension devices and to engage the projections of the rock-shaft to actuate the latter, and means, controlled by rock-shaft, for disconnecting said shaft from its driving means, substantially as described.

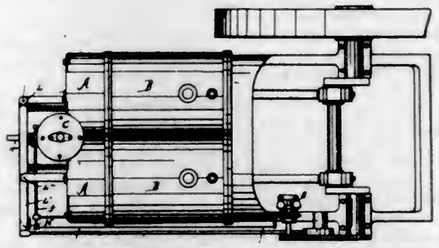
12. In a loom, the combination, with warp-controlling mechanism, of coacting looping and filler-carrying needles movable the one into operative proximity to the other to form loops of filler in the sheds of the warp, and means for actuating said needles, the loop-forming portion of the looping-needle being of appreciable thickness and being adapted, in forming the loops, to be disposed in proximity to and inside of the edge line of the warp, substantially as described.

13. In a loom, the combination, with a movable batten, a bar sustained on said batten, filler-carrying needles mounted on said batten, thread-supplying means, said bar having guides for the threads, and devices projecting from a stationary part of the loom and adapted to engage the thread between said guiding devices, substantially as described.

14. In a loom, the combination of a reed, a looping-needle, and carrying means, one for the reed and the other for the needle, movable each independently of the other, the point of said needle being adapted to be projected through the reed and to have its protruding portion engaged by, and maintain, loops in the filler, and said reed being movable past the point end of said needle from the other end thereof, substantially as described.

15. In a loom, the combination of a reed, a looping-needle extending through the same and having a spur, and carrying means, one for the reed and the other for the needle, movable each independently of the other, the spur of said needle being adapted to be projected through the reed and to have its protruding portion engaged by, and maintain, loops in the filler, and said reed being movable past the point end of said spur from the other end thereof, substantially as described.

662,718. EXPLOSIVE-ENGINE. OLIVER F. GOOD, Dayton, Ohio. Filed Aug. 25, 1900. Serial No. 27,965. (No model.)



Claim.—1. In an explosive-engine, the combination with two power-cylinders, of a head having two separate compression-chambers, an integral valve-box on said head and occupying a position midway of said head, a mixing-chamber, exhaust-chamber, and a passage E between said mixing-chamber and exhaust-chamber. two valves controlling the communication between said mixing-chamber, exhaust-chamber, and passage, an inwardly-opening valve for each compression-chamber in the cylinder-head and controlling the admission of explosive mixture from the passage E to said compression-chambers, and means for operating said valves.

2. In an explosive-engine, the combination with two power-cylinders, of a head having two separate compression-chambers, a valve-box common to both of said compression-chambers and located at a central point on the head, an admission and exhaust passage E in said valve-box common to both of said compression-chambers, a mixture-admissiom valve opening into each of said compression-chambers and controlling the admission of the explosive mixture and the exhaust of burned gases from and to said passage E, a mixing-chamber F and an exhaust-chamber F' communicating with said passage E, a gas-valve, and an air-inlet communicating with said chamber F, a lever operating in connection with each of the valves controlling the admission to the compression-chambers, one of said levers adapted to be operated by contact with the other of said levers, and an eccentric or cam rod connected to one of said levers.

3. In an explosive-engine, the combination with two power-cylinders, of a head or heads having two separate compression-chambers, a valve-box located on the outer surface of said head or heads at a point midway of the compression-chambers, an admission and exhaust passage in the middle of said box common to both of said compression-chambers, a mixing-chamber F, and an exhaust-chamber F' common to said admission and exhaust passage, valves controlling the communication between said admission-chamber, exhaust-chamber, and said passage, a gas-admission valve, and an air-inlet communicating with said mixing-chamber, a mixture-admission valve opening into each of the compression-chambers in the heads and controlling the admission of mixture to, and the exhaust of burned gases from said compression-chambers, a lever operating each of said mixture-admission valves, a projection on one of said levers adapted to be engaged by the other of said levers in the movement of said other lever, an eccentric or cam rod connected to one of said levers by which, movement is imparted to said levers, tappets projecting from said levers and governor-controlled tappets adapted to be actuated by said first-named tappets to open the gas-valve for the admission of gas to the mixing-chamber, substantially as described.

4. In an explosive-engine, the combination with two power-cylinders, of a head or heads having two separate compression-chambers which communicate with said power-cylinders, a valve-box located on said head, a combined mixture-admission and exhaust passage E in said box which is common to both of said compression-chambers, a mixing-chamber and an exhaust-chamber communicating with said passage E, valves controlling the communication between said chambers and passage, a gas-valve and an air-inlet communicating with the mixing-chamber, a mixture-admission valve opening into each of the compression-chambers in the heads and controlling the communication between said compression-chambers and the common passage E, a lever adapted to actuate each of said mixture-admission valves, one of said levers receiving its movement from the other of said levers, an eccentric-rod connected to one of said levers by means of which primary movement is imparted to said levers, a slide adapted to actuate the gas-admission valve, and tappets under the control of the levers and the governor respectively, by means of which said gas-valve is opened at predetermined times for the admission of gas to the mixing-chamber.

5. In an explosive-engine, the combination with two power-cylinders, of a head having two separate compression-chambers therein, communicating with said power-cylinders, a valve-box located in the center of said head, an admission and exhaust-passage E common to both of said compression-chambers, a mixing-chamber, and an exhaust-chamber communicating with said passage E, valves controlling the communication between said chambers and passage, a gas-admission valve and an air-inlet communicating with the mixing-chamber, valves J and J' opening into the compression-chambers and controlling the communication between said chambers and the passage E, levers adapted to alternately open said valves J and J', a connection between said levers and the eccentric, tappets O and O' on said levers, governor-controlled tappets adapted to be engaged by said tappets O and O', and a slide T controlled by said governor and adapted to be actuated to open the gas-valve through contact of the tappets O and O' with the governor-controlled tappets, substantially as shown and described.

662,719. ELECTRIC FIRE-ALARM. CHARLES L. HAIGHT, Poughkeepsie, N. Y. Filed Jan. 25, 1900. Serial No. 2,787. (No model.)

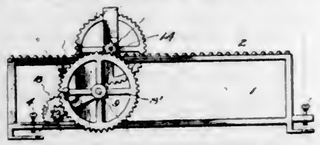


Claim.—1. An electric-circuit closer, comprising a casing, contact-plates held in said casing and spaced apart, the said plates being connected with the circuit-wires of an alarm, a contact-bar mounted to slide in the casing, the outer end of said bar having a flanged offset, a spring for moving said bar into engagement with the contact-plates, a binding-post secured to the offset of the bar, a binding-post secured to the casing, and a fusible connection between the two binding-posts normally holding the bar out of contact with the plates, substantially as specified.

2. An electric-circuit closer, comprising a casing of insulating material, contact-plates held in said casing and having their inner ends bev-

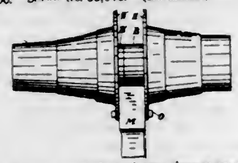
eled and spaced apart, and the outer ends connected to the circuit-wires of an alarm, a contact-bar mounted to slide longitudinally in the casing, and provided at its inner end with a head adapted to engage said beveled ends, the outer end of said bar having a flanged offset, a spring for moving said bar into engagement with the contact-plates, binding-posts, one of which is secured to the casing and the other is secured to said flanged offset, and a piece of fusible metal adapted to be secured to said binding-posts, to hold the contact-bar against the tension of its spring and its head out of engagement with the contact-plates, substantially as shown and described.

662,720. SAWING-MACHINE. WILLIAM HANSMANN, Manson, Iowa. Filed July 26, 1900. Serial No. 24,897. (No model.)



Claim.—In a transportable sawing-machine, the combination of an open main frame provided with fastening means and with a rack-bar, a saw-carrier frame mounted to travel in said main frame, a drive-shaft carrying a pinion and a drive-gear, a counter-shaft carrying a pinion meshing with the rack-bar, and a gear meshing with the first-named pinion, a saw-shaft pivotally mounted and carrying a saw and operated by the drive-gear, and means for adjusting the saw-shaft and saw and holding the same fixed in adjusted position, substantially as set forth.

662,721. WHEEL-HUB. CHARLES HEART, Frankton, Ind. Filed Oct. 15, 1900. Serial No. 33,078. (No model.)



Claim.—1. A hub consisting of two sleeves secured together, annular flanges adjacent the inner ends of the sleeves, a collar secured to the outer end of each sleeve, the peripheries of the collars flaring outwardly toward the center of the hub forming a space between the sleeves and collars, the ends of the collars terminating flush with the flanges on the sleeves, a band secured to each sleeve having its inner end flush with the inner ends of the collars and flanges on the sleeves, and an annular flange on the inner end of each band provided with apertures.

2. A hub consisting of two sleeves secured together, annular flanges adjacent the inner ends of the sleeves, a collar secured to the outer end of each sleeve, the peripheries of the collars flaring outwardly toward the center of the hub forming a space and terminating flush with the flanges on the sleeves, a band secured to each sleeve having its inner end flush with the inner ends of the collars and flanges on the sleeves, an annular flange on the inner end of each band provided with apertures, spokes positioned between the inner ends of the bands and rims of the two portions, and bolts passing through the apertures in the flanges and between each spoke for securing the spokes in position and further securing the two portions of the hub together.

662,722. SASH-HOLDER. OTTO F. HELFRITZ, Chicago, Ill. Filed Sept. 21, 1900. Serial No. 30,657. (No model.)



Claim.—1. A sash-lock comprising a casing, two locking-arms having convex outer edges, pivoted in said casing and held to rock toward and from each other, means for rocking said arms toward each other at their outer ends, so as to project said ends from the casing, and two keeper-bars adapted to hold the locking-arms retracted by their engagement with members of said arms at their rear ends.

2. A sash-lock comprising a casing, two locking-arms in said casing each having a convex serrated forward edge, and a laterally-bent finger at the opposite end, said arms being lapped and pivoted together intermediately of their ends, bent springs adapted to rock the outer ends of these arms toward each other and thus project them from the casing, and slidable keeper-bars which are exposed for manipulation through slots in the outer side of the casing, rear ends of the bent springs pressing the keeper-bars to hold them as adjusted.

3. A sash-lock comprising a rectangular casing open at the front, and apertured at the front side, two lapped and pivoted arms held to rock in the casing so as to project or retract forward curved and serrated edges of the arms, laterally-bent fingers on the rear portions of the arms adapted for manipulation through the casing-apertures, bowed springs engaging the ends of their front legs with notches in outer side edges of the locking-arms so as to press said arms toward each other, and means for holding the fingers folded toward each other, thus retracting the front edges of the locking-arms.

4. A sash-lock, comprising a casing, two locking-arms adapted to lap at adjacent edges and pivoted together at the rear ends of the lapped portions, the pivot passing through opposite perforations in the casing, laterally-bent finger-pieces on the rear portions of the locking-arms, bowed springs adapted to press the forward portions of the locking-arms toward each other, and thus project said portions beyond the open front of the casing, and keeper-bars longitudinally adjustable in the casing and adapted to hold the finger-pieces folded toward each other or release said fingers.

5. In a sash-locking device, the combination with a window-casement, a sash held to slide therein, and a serrated rack secured on the casement, of a sash-lock, comprising a casing, two locking-arms having convex serrated forward edges, and lapped and pivoted at their rear edges, finger-pieces on the rear portions of the locking-arms, bowed springs the forward legs of which engage with the locking-arms so as to normally press them toward each other, and longitudinally-slidable and rockable keeper-bars, spring-pressed by the rear legs of the bowed springs, so as to hold the finger-pieces rocked toward each other or release them.

662,723. MILEAGE-TICKET AND HOLDER THEREFOR. JENNIE C. HICKEY, Leipsic, Ohio. Filed Mar. 22, 1899. Serial No. 710,085. (No model.)



Claim.—1. The combination with a permanently-closed case having an opening therein, of a continuous ticket-slip in said case comprising a plurality of complementary portions each provided with indicating characters, the characters on one portion having no relation to the characters on another portion whereby it is impossible to tell from one portion how much of the slip remains in the casing, and a cover-plate over said opening for preventing the return to the case of a portion of the slip withdrawn, substantially as described.

2. The combination with a substantially flat permanently-closed case having an opening therein near one end, of a ticket-slip in said case comprising a plurality of complementary portions each having indicating characters, the characters on one portion bearing no relation to the characters on another portion whereby it is impossible to tell from one portion how much of the slip remains in the case, and a cover-plate over said opening and extending beyond the same for preventing the return to the case of a portion of the slip withdrawn, substantially as described.

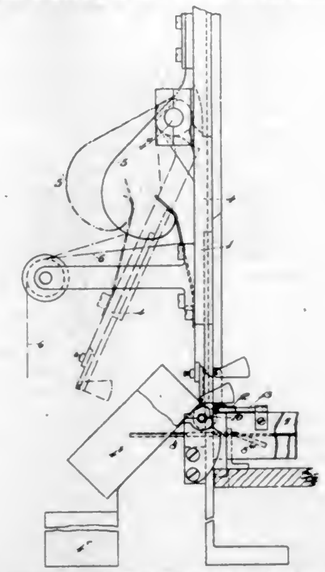
3. The herein-described permanently-closed ticket-slip case of substantially flat rectangular shape and having near one end an opening, and a cover-plate above said opening and extending beyond the same and spaced slightly from the case, substantially as described.

662,724. TYPE SETTING OR COMPOSING MACHINE. PHILIP E. HODGKIN and WALTER MAY, London, England. Filed Jan. 20, 1899. Serial No. 702,807. (No model.)

Claim.—1. A type-composing machine of the kind referred to wherein the board or upright in which the main and feeding type-channels leading to the packing device are formed is made in two portions, one of which is movable so that it can be moved away from the other portion of said board or upright and is grooved so as to form part of the type channel or channels, substantially as described for the purpose specified.

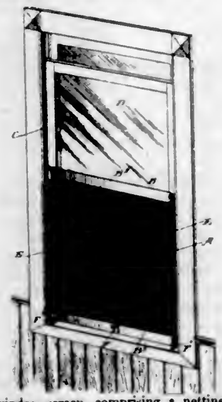
2. In a type-composing machine of the kind herein referred to, a board or upright formed with feeding and main type-channels and provided with a movable rear portion adapted to form the back and one side of the main channel, and means for moving said rear portion backward whereby type jammed between the sides of the channel will be released and allowed to fall, substantially as described.

3. In a type-composing machine, a board or upright formed with feeding and main type-channels and having a rear portion adapted to form the back and one side of the main channel and part of the feeding-channels, said rear portion being pivoted at its upper end, means adapted to turn said rear portion backward and upward, and means acting to close said rear portion, substantially as described for the purpose specified.



4. In a type-setting machine of the kind herein referred to, the combination of vertical and horizontal type-channels, an eccentric packing device arranged at the junction of the said channels, and a type-holder arranged at one side of and near the rear end of said horizontal type-channel and comprising a vertical side portion adapted to bear against one side of the adjacent type as they are successively received from said packing device, and a bottom side portion adapted to bear upon one of the side walls of the type-channel and a spring acting to press said holder against said type, substantially as described for the purpose specified.

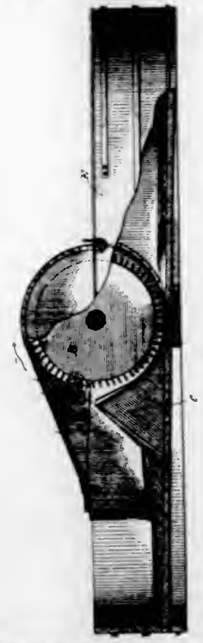
662,725. WINDOW-SCREEN. ELDRIDGE G. HOLDEN, San Antonio, Tex. Filed Apr. 16, 1900. Serial No. 13,057. (No model.)



Claim.—A window-screen, comprising a netting, a thin metallic frame for supporting the netting, the sides of the frame forming slides for engaging with the inner faces of the window-stops, the transverse crossbars of the frame and the netting being corrugated vertically, said corrugations acting as lateral springs for holding the slides in frictional contact with the stops and for permitting of using the screen on windows of different widths, and closing-pieces for said corrugations.

662,726. RAG-ENGINE. EDWARD A. JONES, Pittsfield, Mass. Filed Mar. 31, 1900. Serial No. 10,965. (No model.)

Claim.—1. A rag-engine, provided with a doctor, and flanges on opposite sides thereof, one serving to deflect the pulp thrown up by the beating-drum, and the other preventing the stock from accumulating and hardening around the doctor, substantially as shown and described.



2. A beating-engine, provided with a doctor, and deflecting-flanges at the rear of the beating-drum on opposite sides of the doctor and below the cover for the vat, as set forth.

3. A rag-engine, provided with a beating-drum, a doctor in the form of a bar arranged transversely at the rear upper portion of the beating-drum, means for adjusting said bar relatively to the beating-drum, and deflecting-flanges on opposite sides of the bar, substantially as described.

4. A rag-engine provided with a doctor in the form of a bar, caps into which extend the ends of said bar, and adjusting devices carried by the caps and adapted to engage the bar, substantially as described.

5. A rag-engine, provided with a doctor in the form of a wooden bar, and caps into which extend the ends of said bar, the caps having means for adjusting the bar relatively to the beating-drum, substantially as shown and described.

6. A rag-engine, provided with a doctor in the form of a wooden bar, caps into which extend the ends of said bar, the caps having means for adjusting the bar relatively to the beating-drum, and means on the caps for securing the bar in place after adjustment is made, substantially as shown and described.

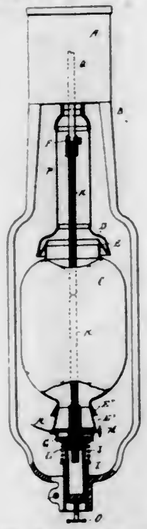
7. A rag-engine, provided with a doctor in the form of a wooden bar, caps into which extend the ends of said bar, ferrules on the ends of the bar, the caps having means for adjusting the bar relatively to the beating-drum, and means on the caps for securing the bar in place after adjustment is made, said adjusting and fastening means engaging the ferrules on the ends of the bar, substantially as shown and described.

662,727. ATTACHMENT FOR ARC-LAMPS. EDWIN E. JONES, Chatham, Canada. Filed May 26, 1900. Serial No. 18,176. (No model.)

Claim.—1. In an arc-lamp, the combination of a suitable frame, a globe supported in said frame, having a flaring opening at the bottom thereof, a lower-carbon holder, supported in the frame adjacent to the lower end of said globe, and a flexible metallic thimble seated upon said holder, and extending into engagement with the wall of the globe-opening and effecting air-tight joints at its respective terminals between said globe and holder.

2. In an arc-lamp, the combination of a suitable frame, a glass globe supported in said frame and open at its opposite ends; a hood suspended over the opening at the upper end of the globe carrying a flexible thimble which engages the wall of the globe-opening, a second flexible thimble engaging the wall of the opening at the bottom of the globe, a movable support for said lower thimble and means for exerting an upward pres-

sure upon said support to hold said upper and lower thimbles yieldingly in contact with the extremities of the globe.



3. In an arc-lamp, the combination with a suitable frame, a glass globe in said frame open at its opposite ends, flexible metallic thimbles supporting said globe at its opposite ends and effecting an air-tight closure of said openings and means for maintaining said thimbles yieldingly in contact with the globe.

4. In an arc-lamp, the combination with a suitable frame, a glass globe mounted on said frame and having a flaring opening at the lower end thereof, a carbon-holder adjacent to said opening, a flexible movable metallic thimble, mounted upon said carbon-holder, and extending into contact with the flaring opening of the globe, a flanged tube adjustably mounted in the frame, a second flanged tube adapted to slide within said first-mentioned tube and supporting said holder and a compressible spring interposed between the flanges of said tubes, whereby an upward pressure is exerted upon the holder to force said thimble into contact with the globe.

662,728. SHOE-STRETCHER. CLEMENTS B. KOSTERS, Buffalo, N. Y. Filed Feb. 7, 1900. Serial No. 4,349. (No model.)



Claim.—1. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts and a cam-lever for operating said wedge; the wedge being so connected to the lever as to travel in a straight direction upon the movement of said lever.

2. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts, a lever for operating said wedge, and a device connecting the members or parts and also forming a supporting-pivot for the lever.

3. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts, a lever for operating said wedge, and a device connecting the members or parts and also forming a support for the wedge and a pivot for the lever.

4. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts, a lever for operating said wedge, and a device connecting the members or parts and also forming a support for the rear of the wedge without interfering with its necessary movement to separate the members or parts.

5. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts, a cam-lever for operating said wedge, a device connecting the members or parts and also forming a support for the rear of the wedge without interfering with the necessary movement to separate the members or parts and a pivot for the cam-lever.

6. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts having a rear end provided with an elongated opening, a pin for securing said members or parts together near their rear end, and a bifurcated cam-lever pivotally mounted on said pin with the rear end of the wedge in its bifurcation and the pin passed through the elongated opening.

7. A shoe-stretcher comprising two members or parts, a means for separating said members or parts including a device having elongated openings, a lever having a cam portion, a pin passed through the members or parts the cam portion of the lever and one of the elongated openings in the device, and a pin passed through the cam portion of the lever and another elongated opening.

8. A shoe-stretcher comprising two members or parts, a means for separating the forward extensions of said members or parts, and a pin for securing the rear portions of said members or parts together and arranged to permit the movement necessary to separate the forward extremes.

9. A shoe-stretcher comprising two members or parts, a means for separating the forward extensions of said members or parts, and a pin for securing the rear portions of said members or parts together and arranged to permit the movement necessary to separate the forward extremes, said pin also serving as a support for the separating means.

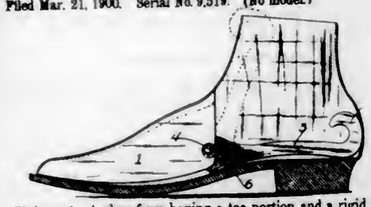
10. A shoe-stretcher comprising two members or parts, a means for separating the forward extensions of said members or parts, a lever for operating said means, and a pin for securing the rear portions of said members or parts together, and arranged to permit the movement necessary to separate the forward extremes, said pin also serving as a support for the separating means and a pivot for the lever.

11. A shoe-stretcher comprising two members or parts, a lever device for separating said members or parts and a pin for securing the members or parts together and forming a support for the device.

12. A shoe-stretcher comprising two members or parts, a lever device for separating said members or parts and a pin for securing the members or parts together and forming a support for the device; the members or parts and the lever device being in sufficient frictional contact to prevent the tension of the stretched shoe forcing the members together.

13. A shoe-stretcher comprising two members or parts, a wedge for separating said members or parts and a lever for operating said wedge; the members, wedge and lever being in sufficient frictional contact to prevent the tension of the stretched shoe pressing the members or parts together.

662,729. SHOE-FORM. CLEMENTS B. KOSTERS, Buffalo, N. Y. Filed Mar. 21, 1900. Serial No. 9,519. (No model.)



Claim.—1. A shoe-form having a toe portion and a rigid arm pivoted to said toe portion and serving as a heel portion when moved downward into place into the shoe, and means whereby the downward movement of said arm may automatically elevate the rear end of the toe portion.

2. A shoe-form having a toe portion, an arm adapted to assume a horizontal position and bear against the interior of the shoe-heel, and a cam on the forward end of the arm to elevate the rear of the toe portion when the arm is pressed downward into its horizontal position.

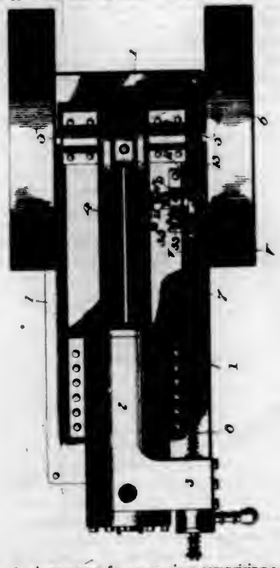
3. A shoe-form having a toe portion and an arm pivoted to said toe portion and serving as a heel portion when moved downward into place in the shoe; said arm having a cam at its forward end which may automatically elevate the rear of the toe portion upon the movement of said arm into position as a heel portion, and a hooked rear end forming a finger-grip for withdrawing the form from the shoe.

4. A shoe-form having a toe portion composed of upper and lower sections, and a heel portion pivoted to one of said sections and having a cam for separating said sections.

5. A shoe-form having a toe portion composed of upper and lower sections, a rivet or pin for connecting the forward portions of the sections; the upper section having a longitudinal recess at the rear, and the lower section a shallow top depression and a heel portion pivoted at its forward end in the longitudinal recess in the upper section, and having a cam part sliding in the depression in the lower section.

6. A shoe-form having a toe portion and a rigid one-piece arm pivoted to said toe portion and serving as a heel portion when moved downward into place into the shoe, and means integral with said arm whereby the downward movement of said arm may automatically elevate the rear end of the toe portion.

662,730. GOVERNOR FOR GAS-ENGINES. ARTHUR A. LAZIER, Buffalo, N. Y. Filed Jan. 18, 1900. Serial No. 1,877. (No model.)



Claim.—1. A governor for gas-engines comprising a stud having an axial bore, a casing, having means whereby it is geared to an engine, mounted on the stud, and formed with a rim having an exhaust-cam and with a radial slot in the web of the casing, an adjustable stem located in the axial bore, segmental toggle-levers pivotally supported in said casing, a bell-crank lever in said casing and having a plate located in engagement with the stem, a connecting-rod whereby the bell-crank lever is coupled to the segmental toggle-levers, an inner trip-rod working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental toggle-levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal position, and means arranged to press the outer trip-rod inward in position to bring its stop in engagment with the arm on the exhaust-valve rod.

2. A governor for gas-engines comprising a stud having an axial bore, a casing, having means whereby it is geared to an engine, mounted on the stud and formed with a rim having an exhaust-cam and with a radial slot in the web of the casing, an adjustable stem, spring, and pressure-pin located in the axial bore, segmental toggle-levers pivotally supported in said casing, a bell-crank lever in said casing and having a plate on which the pressure-pin impinges, a connecting-rod whereby the bell-crank lever is coupled to the segmental toggle-levers, an inner trip-rod working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental toggle-levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal outer position, and means arranged to press the outer trip-rod inward in position to bring its stop in engagement with the arm on the exhaust-valve rod.

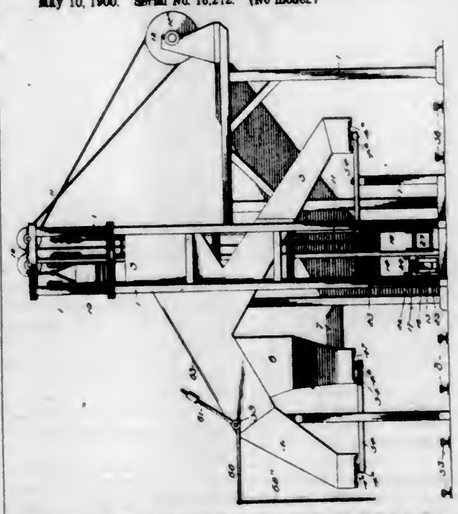
3. A governor for gas-engines comprising a stud having an axial bore, a casing, having means whereby it is geared to an engine, mounted on the stud, and formed with a small starting-cam, and with a radial slot in the web of the casing, an adjustable stem located in the axial bore, segmental toggle-levers pivotally supported in said casing, a bell-crank lever in said casing and having a plate located in engagement with the stem, a connecting-rod whereby the bell-crank lever is coupled to the segmental toggle-levers, an inner trip-rod, working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod, and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal position; and means arranged to press the outer trip-rod inward in position to bring its stop in engagement with the arm on the exhaust-valve rod.

4. A governer for gas-engines comprising a stud having an axial bore, a casing having means whereby it is geared to an engine, mounted on the stud and formed with a rim having a small starting-cam, a radial slot in the web of the casing, an adjustable stem, spring and pressure-pin located in the axial bore, segmental toggle-levers pivotally supported in said casing, a bell-crank lever in said casing and having a plate on which the pressure-pin impinges, a connecting-rod whereby the bell-crank lever is coupled to the segmental toggle-levers, an inner trip-rod working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental toggle-levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod, and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal position; and means arranged to press the outer trip-rod inward in position to bring its stop in engagement with the arm on the exhaust-valve rod.

5. A governor for gas-engines comprising a stud having an axial bore, a casing having means whereby it is geared to an engine, mounted on the stud, and formed with a rim having an exhaust-cam and a small starting-cam, and with a radial slot in the web of the casing, an adjustable stem located in the axial bore, segmental toggle-levers pivotally supported in said casing, a bell-crank lever in said casing, and having a plate located in engagement with the stem, a connecting-rod whereby the bell-crank lever is coupled to the segmental toggle-levers, an inner trip-rod working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental toggle-levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod, and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal position; a roller-shifting plate carrying the valve-rod roller, a hand-lever for moving the roller-shifting plate and means arranged to press the outer trip-rod inward in position to bring its stop in engagement with the arm on the exhaust-valve rod.

6. A governor for gas-engines comprising a stud, a casing having means whereby it is geared to an engine, mounted on the stud and formed with a rim having an exhaust-cam and with a radial slot in the web of the casing, segmental toggle-levers pivotally supported in said casing, an inner trip-rod working in the radial slot and having a cam-head, links whereby the inner trip-rod is connected with the segmental toggle-levers, suitable means for regulating the movement of the segmental toggle-levers, an exhaust-valve rod having an arm and a roller, an outer trip-rod arranged in the path of the exhaust-valve rod and provided with a cam-head and a stop, said cam-head of the outer trip-rod being arranged for engagement with the cam-head of the inner trip-rod when the latter is in its normal outer position, and means arranged to press the outer trip-rod inward in position to bring its stop in engagement with the arm on the exhaust-valve rod.

662,781. MINING-ELEVATOR. ROBERT LEE, Sherrard, Ill. Filed May 10, 1900. Serial No. 16,212. (No model.)



Claim.—1. In an elevator of the character described, the shaft-gate arranged to open and close a chute or pocket, having a pendent angular

extension adapted to be engaged by the bottom of the elevator-bucket in its descent, substantially as set forth.

2. In an elevator of the character described, the shaft-gate having outstanding frictional rollers adapted to engage the guideways in the shaft framework or structure, substantially as set forth.

3. In an elevator of the character described, the shaft-gate arranged to open and close a chute or pocket, having a pendent angular extension adapted to be engaged by the elevator-bucket in its descent, and frictional rollers outstanding from said gate and adapted to engage the guideways of the shaft-framework, substantially as set forth.

4. In an elevator of the character described, the shaft-gate having hung or pivoted thereon angular brackets or levers adapted to be tilted or moved into openings or slots in the shaft-framework, by the ascent and engagement of the elevator-bucket with said brackets or levers, substantially as set forth.

5. In an elevator of the character described, the shaft-gate having hung or pivoted thereon angular arms or levers adapted to engage slots or openings in the framework of the shaft, and right-angled pendent arms or brackets applied to said gate and adapted to be engaged by the elevator-bucket, substantially as specified.

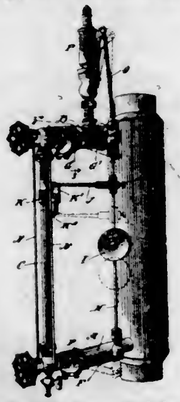
6. In an elevator of the character described, a shaft-gate having parallel connected-together counterbalancing-levers, with their inner ends connected to links attached to or carried by said gate, said levers being suitably pivoted or fulcrumed in position independent of said gate, substantially as specified.

7. In an elevator of the character described, a series of chutes for graduating different kinds of coal, with a hopper adapted to deliver its contents thereinto, and a slide or door, one of said chutes having its upper or receiving end adapted to be closed by said slide or door, substantially as set forth.

8. In an elevator of the character described, a series of chutes, with a feeding-hopper, one of said chutes having its receiving end adapted to be closed by a slide or door, and a counterbalancing-lever, having its axial rod or fulcrum provided with flexing or jointed arms connected by said door or slide, substantially as set forth.

9. In an elevator of the character described, the combination, with the bucket-gate and means for actuating it, of the air-cushion retarding device comprising sectional or jointed piston-rods connected to said gate-actuating means, and air-cushion cylinders adapted to be engaged by said piston-rods, substantially as set forth.

662,732. ATTACHMENT FOR WATER-GAGES. WILLIAM M. MCLEESE, New Albany, Ind. Filed July 3, 1900. Serial No. 22,447. (No model.)



Claim.—1. A water-gage, provided with shut-off valves in the steam and water inlet pipes, a weighted connection between the valves for holding the latter normally open, a support on the gage-glass and engaged by the connection, whereby the said connection will be sustained until the glass breaks, and a whistle connected with said connection, and set in operation upon the downward movement of the latter, as set forth.

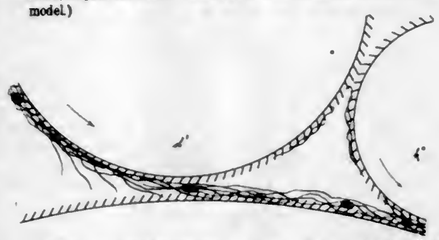
2. A water-gage, provided with shut-off valves in the steam and water inlets, a weighted rod connecting the valve-stem arms with each other, an arm on said rod, and a support on the gage-glass adapted to support the free end of said arm, as set forth.

3. A water-gage, provided with shut-off valves in the steam and water inlets, a weighted rod connecting the valve-stem arms with each other, an arm on said rod, a support on the gage-glass adapted to support said arm, a whistle, and a connection between the whistle and said rod, as set forth.

4. A water-gage, provided with shut-off valves in the steam and water inlet pipes, a connection between the valves for holding the latter normally open, a support on the gage-glass for sustaining said connection until the glass breaks, a whistle connected with said connection and operated upon the downward movement of the latter, and a retaining device for connecting the said support with one of the protecting-rods of the gage so as to prevent the latter from being lost when the gage-glass breaks, as set forth.

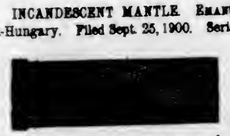
5. A water-gage provided with shut-off valves in the steam and water inlets, said valves having arms on their stems, a weighted rod connecting the said arms, an adjustable arm on the rod and projecting toward the gage, and an adjustable support on the gage and upon which the free end of the said arm normally rests, substantially as described.

662,733. APPARATUS FOR CARDING WOOL. HUBERT L. OFFERMANN, Leipsic, Germany. Filed Apr. 10, 1899. Serial No. 712,404. (No model.)



Claim.—In a carding-engine, a worker-cylinder, a brush-cylinder for feeding the material to the worker-cylinder, and a carding-drum arranged adjacent to the worker-cylinder at a distance sufficient to enable burs to pass unbroken between it and the worker-cylinder, while allowing the fibers which project from said cylinder to be seized by the carding-drum.

662,734. INCANDESCENT MANTLE. EMANUEL PIKHART, Vienna, Austria-Hungary. Filed Sept. 25, 1900. Serial No. 31,054. (No model.)

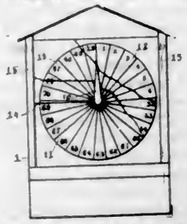


Claim.—1. A mantle for incandescent burners having one or more strengthening-seams near the top and extending around the mantle, the top of the mantle having an inner and outer thickness of mantle material, and a transverse seam extending through both inner and outer thicknesses of said material and below the top of the said strengthening seam or seams in the inner thickness.

2. A mantle for incandescent burners having one or more zigzag strengthening-seams near the top and extending around the mantle, the top of the mantle having an inner and outer thickness of mantle material, and a transverse seam extending through both inner and outer thicknesses of said material and below the top of the said strengthening seam or seams in the inner thickness.

3. A mantle for incandescent burners having multiple crossing strengthening seams near the top and extending around the mantle, the top of the mantle having an inner and outer thickness of mantle material, and a transverse seam extending through both inner and outer thicknesses of said material and below the top of the said strengthening-seams in the inner thickness.

662,735. TOY BANK. SHERMAN W. POTTERF, Dayton, Ohio. Filed May 21, 1900. Serial No. 17,495. (No model.)



Claim.—In a toy bank, the combination of a detachable index-dial, a dial-pointer to indicate the figures on said dial, a shaft 7 to which said dial-pointer is fixed, a ratchet-wheel 19 fixed to said shaft, a tilting shelf 16 above said shaft 7 and having its pivot on one side of said shaft 7, a ratchet-pawl pivoted to said tilting shelf and engaging with the ratchet-wheel 19, a locking-wheel 21 fixed to the shaft 7 for preventing independent movement of the dial-pointer 10, and a detent 22 on the tilting shelf 16, which engages with the locking-wheel 21, when the tilting shelf is in its normal position, and a chute above one extreme end of the tilting shelf 16 and through which the coins are deposited onto the end of said tilting shelf, substantially as and for the purposes specified.

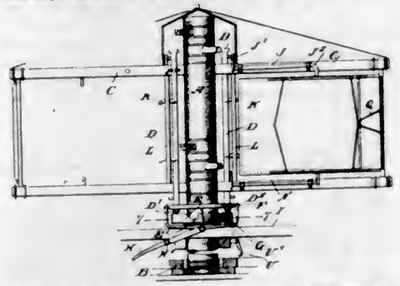
662,736. PICTURE-FRAME. LOUIS B. FRAHAR, New York, N. Y. Filed Mar. 5, 1900. Serial No. 7,297. (No model.)



Claim.—1. A picture-frame, comprising connected side and bottom channel-bars, and a top channel-bar having a hinged connection with one of the side bars, and a latch carried by the upper channel-bar and arranged for engagement with a keeper carried by the opposing side bar, for the purpose described.

2. A picture-frame, comprising a top, bottom and side members having grooves for the reception of pictures and their accompaniments, one of said members being detachable from the other members, and a V-shaped spring-latch having one of its members secured to the end of the detachable member, the other or free member of the latch having a reduced handle portion at its upper end adapted when the members of the latch are brought together to enter a space or recess at the latch end of the member, the opposing member of the frame being provided with a keeper having a recess adapted to be engaged by the handle portion of the latch when the body of the latch enters the groove in the said opposing member of the frame, substantially as described.

662,737. CURRENT-MOTOR. MARCIN PUSZKAR, New York, N. Y. Filed Sept. 14, 1900. Serial No. 30,014. (No model.)



Claim.—1. A current-motor comprising a plurality of arms connected to rotate in unison, vanes each having one end pivotally attached to the outer end of one of said arms, the vanes being adapted to swing on the arms freely, bars connecting said arms, stops having sliding movement on said bars and arranged to project into the path of the vanes to bring them into driving connection with the arms, bars mounted to slide on the arms and pivotally connected with said stops, and means for operating the sliding bars.

2. A current-motor comprising a plurality of arms connected to rotate in unison, vanes each having one end pivotally attached to the outer end of one of said arms, the vanes being adapted to swing on the arms freely, shafts extending longitudinally of the arms and carried thereby, said shafts having cranks arranged to project into the path of the vanes to bring them into driving connection with the arms, bars mounted to slide on the arms and operatively connected with said shafts, and means for sliding said bars.

3. A current-motor comprising a plurality of arms connected to rotate in unison, vanes each having one end pivotally attached to the outer end of one of said arms, the vanes being adapted to swing on the arms freely, stops movably secured to the arms and arranged to project into the path of the vanes, to bring them into driving connection with the arms, bars slidable transversely on said arms and operatively connected with the stops, a collar or ring normally engaging the ends of said bars and provided with alternating rises and depressions, means for normally compelling the collar to rotate with the arms, and a device for rendering the collar loose relatively to the arms.

4. A current-motor comprising a plurality of arms connected to rotate in unison, vanes each having one end pivotally attached to the outer end of one of said arms, the vanes being adapted to swing on the arms freely, stops movably secured to the arms and arranged to project into the path of the vanes, to bring them into driving connection with the arms, bars slidable transversely on said arms and operatively connected with the stops, a collar or ring normally engaging the ends of said bars and provided with alternating rises and depressions, a lever projecting from said collar and adapted to lock it to the arms, and a stop-lever arranged to engage the projecting portion of the lock-lever, to unlock the collar from the arms.

5. A current-motor comprising a plurality of arms connected to rotate in unison, and a series of vanes pivotally connected with said arms, each vane having a body or main plate and an end plate or flap adapted to fold thereon and pivotally connected with the vane at the pivot end thereof.

6. A current-motor comprising a plurality of arms connected to rotate in unison, and a series of vanes pivotally connected with said arms, each vane having a body or main plate, longitudinal side plates, and an end plate or flap adapted to fold on the main plate and pivotally connected with the vane at the pivot end thereof.

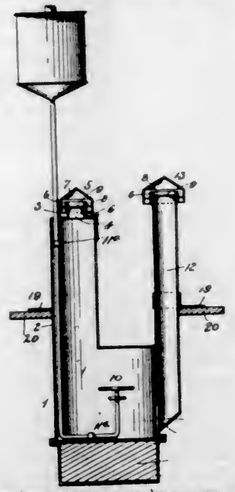
7. A current-motor comprising a plurality of arms connected to rotate in unison, and a series of vanes pivotally connected with said arms, each vane having a body or main plate, an end plate or flap adapted to fold thereon and pivotally connected with the vane at the pivot end thereof, a transverse plate hinged to the other end of the vane, and an operative connection between the end plate and the transverse plate.

8. A current-motor comprising a plurality of arms connected to rotate in unison, and a series of vanes pivotally connected with said arms, each vane having a body, an end plate or flap adapted to fold on one side of the body at the pivot end thereof, and a balancing-plate adapted to fold on the opposite side of the body at the free end thereof.

9. A current-motor, having a plurality of arms, connected to rotate in unison, and a series of vanes pivotally connected with said arms, each vane having at its pivot end a plurality of supplemental wings pivoted thereto

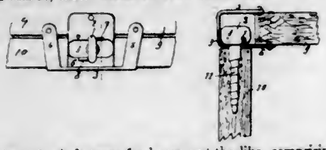
10. A current-motor comprising a rotary frame, vanes pivoted thereto, a set of movable stops adapted to engage the vanes directly, supplemental flaps or wings pivoted to the vanes, another set of movable stops adapted to engage the supplemental flaps, and devices for throwing both sets of stops into or out of action, and an independent device for operating one set of stops only.

662,738. WATER-TANK HEATER. CARL O. RASCHER, Davenport, Iowa. Filed May 8, 1900. Serial No. 15,921. (No model.)



Claim.—In a heater for water-tanks, a drum, a gasolene-burner therein, a cold-air pipe leading to the drum, a hot-air pipe rising from the drum, removable apertured disks in said pipes, and protecting-caps seated upon the outer ends of said pipes, substantially as described.

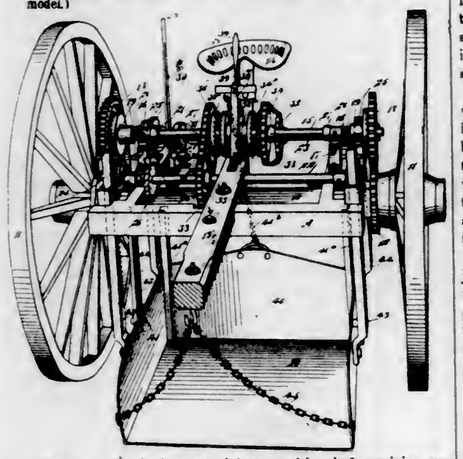
662,739. KNOCKDOWN BOX. ERNEST RASCHLÉ, Paris, France. Filed Jan. 10, 1900. Serial No. 978. (No model.)



Claim.—1. A fastener for boxes and the like, comprising two end members or legs converging from their free ends inwardly and both adapted for attachment to the same part of the box, the inner ends of said end members being spaced, and a central member extending from the inner end of one end member to the inner end of the other and constructed for attachment to another part of the box, the central member and the end members being located in different planes

2. A fastener for boxes and the like, comprising a central member having a slot and stops adjacent thereto, and spaced end members permanently connected with the central member at opposite sides thereof and located in a different plane from the central member, in combination with a locking-head constructed to pass through said slot and to turn into engagement with said stops.

662,740. SCRAPER. GEORGE E. RICHARDSON, Chief, Mich., assignor to himself and German D. Cook, same place, and John T. Richardson, Lake Ann, Mich. Filed Feb. 14, 1900. Serial No. 5,215. (No model.)



Claim.—1. A wheel-supported frame, a drive-shaft receiving motion from the supporting-wheels of the frame, lifting-shafts, a driving connection between the lifting-shafts and the drive-shaft for alternately operating the lifting-shafts, and a scraper having its forward end portion controlled by one of the lifting-shafts and its rear end portion controlled by the second lifting-shaft, the said shafts acting to raise the said scraper or permit the same to drop, as described.

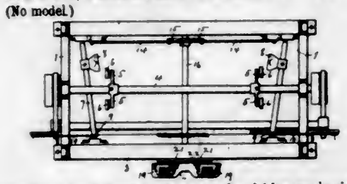
2. A wheel-supported frame, a drive-shaft, a driving connection between the supporting-wheels of the frame and the drive-shaft, driven shafts, a driving connection between the driven shafts and drive-shaft, said driving connection including a clutch and means for shifting the same, pinions carried by the driven shafts, a scraper, racks carried by the scraper and engaging with said pinions, ratchet-wheels carried by the driven shafts, dogs engaging with the said ratchet-wheels, and a trip device for the said dogs, for the purpose specified.

3. The combination, with a wheel-supported frame, a drive-shaft carried by the said frame and driven from a supporting-wheel of the frame, and a driven shaft at each side of the drive-shaft, the driven shafts being provided with pinions at their ends, wheels loosely mounted on the driven shaft, said wheels having clutch-faces, a clutch mounted on the drive-shaft and adapted for engagement with the clutch-surface of either of the loosely-mounted wheels, and a driving connection between the loosely-mounted wheels and the driven shafts, of a scraper, means for guiding the same, racks secured to the said scraper, engaging with the pinions on the driven shaft, ratchet-wheels carried by the driven shaft, dogs for the said ratchet-wheels, and a lever arranged to operate each of the said dogs in a manner to release either of them from engagement with a ratchet-wheel, for the purpose specified.

4. In a scraper, the combination with the lifting-shafts, and a ratchet-wheel on each shaft, of pivoted and spring-pressed pawls engaging the ratchet-wheels, and a lever for engaging the pawls to throw them out of engagement with the ratchet-wheels, substantially as described.

5. In a scraper, the combination with the lifting-shafts, and a ratchet-wheel on each shaft, of pivoted pawls provided with arms projecting beyond their pivots, springs arranged below the arms of the pawls for holding them in engagement with the ratchet-wheels, and a lever fulcrumed between the arms of the pawls and provided with a foot for engaging the said arms, substantially as described.

662,741. SHUTTLE-ACTUATING MECHANISM FOR LOOMS. BOZIL S. ROY, Worcester, Mass. Filed Mar. 9, 1898. Serial No. 673,169. (No model.)

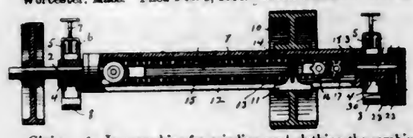


Claim.—1. The combination with the picking mechanism of a loom, of a rocking shaft and connected mechanism by which the rocking of said shaft will carry said picking mechanism into and out of action, a foot-treadle projecting from opposite sides of said rocking shaft, mechanism for automatically latching said treadle at each end of its rocking motion, and foot-plates hinged to said treadle and operatively connected to said latching mechanism, whereby the pressure applied to said foot-plates in depressing the treadle will disengage said latching mechanism, substantially as described.

2. The combination with the rocking picker-shaft of a loom provided with a projecting arm or shoe, of a movable bearing supporting said rocking picker-shaft, a rocking shaft operatively connected with said movable bearing, a foot-treadle attached to said shaft, foot-plates hinged to said treadle, fingers projecting from said foot-plates, a fixed plate provided with holes to receive said fingers, and springs applied to said foot-plates to carry said fingers into the holes in said fixed plate, thereby automatically locking said treadle at each end of its rocking movement, substantially as described.

3. The combination of picker-shafts 7, 7 carrying shoes 8, 8, and journaled in sliding boxes 12, 12, a rocking shaft 16 operatively connected with said sliding boxes, a foot-treadle attached to said shaft 16, a fixed plate 22 attached to the framework of the loom and provided with holes 23 and 24, foot-plates 19, 19 hinged to said foot-treadle and provided with fingers 21, 21, and springs adapted to carry said fingers into said holes as the foot-treadle is rocked, substantially as described.

662,742. MACHINE FOR GRINDING CARDS. BOZIL S. ROY, Worcester, Mass. Filed Feb. 5, 1900. Serial No. 3,927. (No model.)

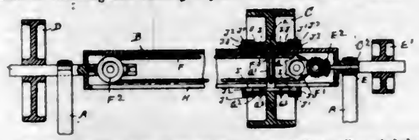


Claim.—1. In a machine for grinding card-clothing the combination of a hollow shaft journaled in boxes, means for the vertical and horizontal adjustment of said boxes, a spindle journaled in one of the gudgeons of said hollow shaft, differential gearing operatively connecting said spindle and said gudgeon, a plate supporting said differential gearing and an arm projecting from the journal-box of said gudgeon and engaging said plate, whereby said differential gearing is held in operative position as the journal-boxes are adjusted, substantially as described.

2. In a machine for grinding cards the combination of a hollow shaft, a grinding-wheel carried by said shaft and a traversing mechanism contained in said hollow shaft and operatively connected with said grinding-wheel, a spindle journaled in one of the gudgeons of said hollow shaft, intermediate gearing between said spindle and said gudgeon, a case hung upon said gudgeon and inclosing said gearing, a spur projecting from said case, a slotted arm attached to the journal-box of said gudgeon and engaging said spur and means for the adjustment of said journal-box, substantially as described.

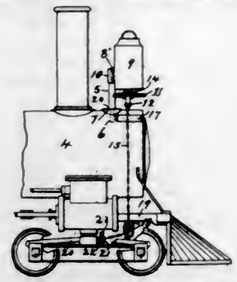
662,743. MECHANISM FOR GRINDING CARDS. SYLVANUS B. ROY, Worcester, Mass. Filed Nov. 3, 1899. Serial No. 735,727. (No model.)

Claim.—1. In a card-grinding mechanism, the combination of a hollow arbor provided with a longitudinal slot, a T-shaped key having its stem extending through said longitudinal slot and its head attached to a grinding-roll, a grinding-roll attached to said key and carried upon said arbor, means for imparting a reciprocating motion to said key, whereby said grinding-roll is traversed along said arbor, said grinding-roll having an internally-tapered hub, a tapered bushing inserted between said hollow arbor and said tapered hub, said bushing having an opening on one side to receive the stem of said T-shaped key and having a series of equidistant longitudinal grooves V-shaped in their longitudinal section, whereby the bushing is of uniform thickness at the bottom of said grooves, and means for retaining said bushing in place, substantially as described.



2. The combination with an arbor and a grinding-roll carried thereon, said roll having an internally-tapered hub, tapered bushings inserted between said hub and said arbor, screw-threaded collars engaging said hub, screws carried by said collars and held in screw-threaded holes in the ends of said bushings, substantially as described.

662,744. HEADLIGHT. JOSEPH J. SHIPLEY, Washington, D. C. Filed Apr. 13, 1899. Serial No. 712,886. (No model.)



Claim.—1. In combination with a car or vehicle, a headlight, a truck, a flexible connection between the headlight and the truck automatically operated by the truck, and which is adjustably secured to said truck for turning said headlight at an angle coincident with a railway-curve.

2. In combination with a car or vehicle, a headlight, a truck, a flexible connection between the headlight and the truck, adjustably secured on the opposite sides of the truck, and automatically turning the headlight coincident with a railway-curve or roadway.

3. In combination with a car or vehicle, a headlight, a truck, a flexible connection between the headlight and the truck adjustably secured to the truck near the opposite sides thereof, the opposite ends of said flexible connection being secured to an adjustable link on an arm for turning a headlight or lantern toward the center of a railway or roadway.

4. In combination with a car or vehicle, a headlight, a truck, a flexible connection between the headlight and the truck adapted to automatically turn a headlight coincident with the curve of a railway-track through the medium of an adjustable link and an arm for supporting said link secured upon a standard as shown.

5. In combination with a car or vehicle, a removably-secured headlight, a truck, a flexible connection between the headlight and the truck for turning the headlight at an angle coincident with the curve of a railway or roadway.

662,745. DEVICE FOR PREVENTING HORSES FROM CRIBBING. ALFRED THOMPSON and CARL THOMPSON, Fort Ransom, N. D. Filed Apr. 12, 1900. Serial No. 12,544. (No model.)

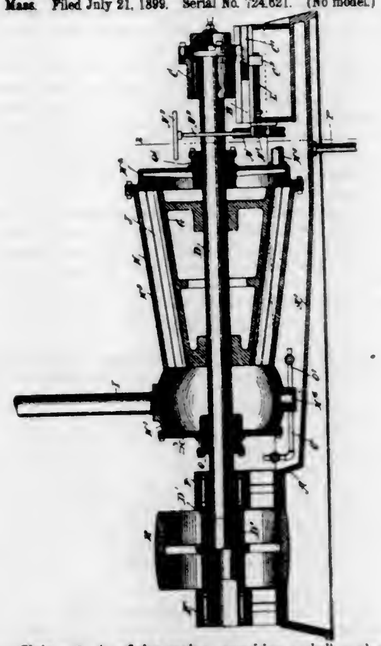


Claim.—1. A device to prevent horses from cribbing, comprising a rotary part arranged above and extending along the front board of a manger, the said rotary part being substantially oval in cross-section, substantially as specified.

2. A device for preventing cribbing of horses, consisting of a rotary part, comprising two bars spaced apart, plates to which the ends of said bars are connected, a metal sheathing extended over the bars, bearing-lugs on the plates, and sockets or bearings for receiving said lugs, substantially as specified.

3. A device for preventing cribbing of horses, comprising two bars spaced apart and having recesses and channels at their ends, bearing-plates having lugs on the inner sides to engage in the recesses formed in the ends of the bars while the plates are seated in the channels, bearing-lugs on the outer sides of said plates, and plates adapted to be attached to the sides of a stall and to receive the bearing-lugs on the first-named plates, substantially as specified.

662,746. REFINING-ENGINE. CHARLES E. TORRANCE, Northampton, Mass., assignor to the E. D. Jones & Sons Company, Pittsfield, Mass. Filed July 21, 1899. Serial No. 724,621. (No model.)



Claim.—1. A refining-engine comprising a shell, a plug in said shell, a shaft rigidly attached to said plug, a driving-pulley having its axis in alinement with said shaft, independent fixed bearings for the pulley arranged concentrically to the shaft, the pulley being journaled in said bearings said shaft being arranged slidably within the pulley but held to turn therewith, and means for adjusting the shaft longitudinally substantially as set forth.

2. A refining-engine comprising a shell, a plug in said shell, a shaft rigidly attached to said plug, a driving-pulley having its axis in alinement with said shaft, two independent fixed bearings for the pulley one arranged on each side of the same concentrically to the shaft, the pulley being journaled in said bearings, means for connecting the shaft to the pulley for a rotation therewith but free longitudinal movement within the same, and means for adjusting said shaft longitudinally, substantially as described.

3. A refining-engine comprising a shell, a plug in said shell, a shaft rigidly attached to said plug, a driving-pulley having its axis in alinement with said shaft, two independent fixed bearings for the pulley one arranged on each side of the same concentrically to the shaft, a sleeve rigidly connected to the pulley and having its ends extended on each side of the same and turning in the fixed bearings, the said shaft being extended into said sleeve and connected to it for positive rotation but longitudinally adjustable within the same, and means for imparting an endwise adjustment to the shaft, substantially as described.

4. A refining-engine comprising a shell, a plug in said shell, a shaft rigidly attached to said plug, a driving-pulley having its axis in alinement with said shaft, two independent fixed supports for said pulley provided with roller-bearings, one of said supports being arranged on each side of the pulley, a sleeve rigidly connected to the pulley, and having its ends

extended on each side of the same and turning in said roller-bearings, the said shaft being extended into said sleeve and connected to it for positive rotation, but longitudinally adjustable within the same, and means for imparting an endwise adjustment to the shaft, substantially as described.

5. A refining-engine provided with a plug, the rim of which has longitudinal slots L-shaped in cross-section, blades having L-shaped ends for engaging said slots, and keys driven into the slots at the back of said L-shaped ends of the blades, substantially as shown and described.

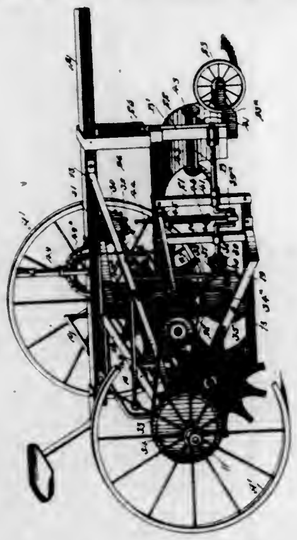
6. A refining-engine provided with a plug, the rim of which has longitudinal slots L-shaped in cross-section, laminated filling-blocks on said rim, blades having L-shaped ends for engaging said slots, lugs for engaging recesses in said laminated blocks, and keys for engaging said slots at the back of the L-shaped ends of the blades, substantially as shown and described.

7. A refining-engine comprising a bed-plate having an inclined bottom, a discharge-pipe leading from the lower end of said bottom, a shell above the said inclined bottom and through which extends a shaft, a plug on said shaft within said shell, inlets and outlets for the shell, and a collecting-box on said shell and having its outlet-opening on said bed-plate at the upper end of the bottom thereof, substantially as shown and described.

8. In an engine substantially as described, the combination of a shell, a shaft passing through the shell, and having a plug rigidly attached to the shaft and rotatable in the shell, a pulley for driving the shaft arranged concentrically thereto, and a fixed bearing supporting the pulley and receiving the lateral pull and strain of its belt independently of the shaft, said shaft being extended concentrically within the pulley and connected to it for a positive rotation but free longitudinal adjustment substantially as described.

9. A refining-engine, comprising a bed-plate, having fixed bearings and a thrust-bearing, a shell on said bed-plate, a plug in said shell, a shaft for said plug, and having one end mounted in said thrust-bearing, and a pulley having a sleeve extending beyond each side thereof and mounted in the fixed bearings, the said sleeve having the other end of the shaft slidably inserted therein, but held to turn therewith, as set forth.

662,747. COTTON-CHOPPER. MILLARD F. WALKER, Flatonia, Tex. Filed Mar. 15, 1900. Serial No. 8 777. (No model.)



Claim.—1. In a cotton-chopper, a shaft, means for driving said shaft, a crank-arm formed upon the shaft, a hoe connected with the shaft, and a tension device connected with the crank-arm, the tension device acting to impart an accelerated downward movement to the hoe, as specified.

2. In a cotton-chopper, a shaft, driving-gears for said shaft, one of which gears is adjustable and provided with a flange-clutch adapted to engage with a second clutch secured on the said shaft, a hoe attached to the said shaft, a crank-arm formed in the shaft between the hoe and the clutches, and a tension device connected with the crank-arm, for the purpose set forth.

3. In a cotton-chopper, spur-wheels arranged for engagement with the ground, a hoe, a shaft to which the hoe is attached, the said shaft being provided with a crank-arm, a driving connection between the spur-wheels and the hoe-shaft, and a tension device applied to the crank-arm of the said shaft, for the purpose set forth.

4. In a cotton-chopper, a shaft, a hoe carried by said shaft, having friction-wheels at its ends, and means, substantially as described, for accelerating the movement of the hoe in direction of the ground.

5. In a cotton-chopper, a hoe, a shaft to which the hoe is attached, a clutch secured to the said shaft, a second spring-controlled clutch loosely mounted on the shaft, a lantern-wheel connected with the loosely-mounted clutch, a shifting mechanism for the clutch, a driven shaft, means for imparting movement to the said driven shaft from the supporting-wheels of the machine, and a gear carried by the driven shaft, the teeth whereof mesh with the teeth of the lantern-wheel, for the purpose set forth.

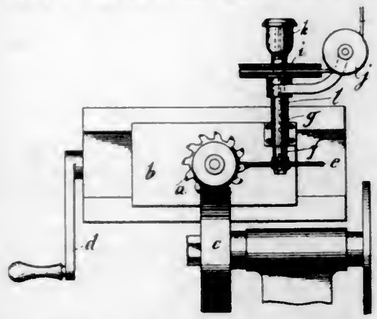
662,748. TOOL-HANDLE. WITTHROP E. WOOD, Boston, Mass. Filed Sept. 22, 1898. Serial No. 691,534. (No model.)



Claim.—1. In an instrument of the class described, the combination of the following instrumentalities, viz: a handle having a socket of substantially the length of the tool, a tube fitted into said socket and provided with a substantially long longitudinal slot extended from the rear toward the front end of the hollow handle, a transverse slot extended from the longitudinal slot, and a shorter longitudinal slot extended from said transverse slot back toward the rear end of the handle, and a tool of the class described provided with a stud or projection movable in said slots and engaging the shorter longitudinal slot when projected from the handle and in its operative position, the said shorter longitudinal slot acting to lock said tool to the handle, substantially as described.

2. In an instrument of the class described, the combination of the following instrumentalities, viz: a handle having a substantially long socket enlarged at its inner or rear end, a metal tube fitted tight in said socket and enlarged at its rear end, said tube having a substantially long longitudinal slot, a transverse slot extended therefrom near the front end of the handle and a shorter longitudinal slot extended from said transverse slot back toward the rear of the handle, a tool provided with a stud or projection movable in said slots and locked against rotation independent of the handle in its projected position, and a friction device movable with the tool and engaging the inner wall of the tube, substantially as described.

662,749. ROTARY-CUTTER CLEANER. JOHN F. ARTHUR, New York, N. Y. Filed Aug. 21, 1900. Serial No. 27,595. (No model.)

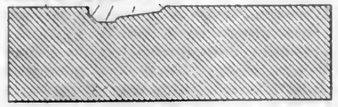


Claim.—1. A rotary-cutter cleaner, consisting of a brush held and arranged to move in a plane transverse to the plane of rotation of the cutter, and sidewise through the spaces between the cutter-teeth, and means for imparting motion to the brush to cause it to sweep over the edges and the cutting-faces of the teeth of the rotary cutter.

2. A rotary-cutter cleaner consisting of a circular brush, a shaft upon which the brush is mounted, a bracket or other holder for the shaft adapted to hold the brush relatively to the rotary cutter to be cleaned so that its plane of rotation will be transverse to the plane of rotation of the cutter with the edge of the brush moving sidewise through the spaces between the cutter-teeth, and means for rotating the brush.

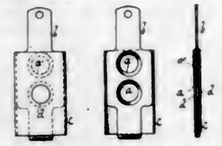
3. A rotary-cutter cleaner and lubricator, consisting of a circular brush, the hub of which is perforated from the central opening to the roots of the bristles, a bored shaft upon which the brush is mounted having lateral holes opening into the perforations of the hub of the brush, an oil-cup attached to the open end of the shaft, means for rotating the brush-shaft, and a support for said shaft adapted to hold the brush so that its path of rotation will be transverse to and enter the path of the cutting-teeth of the rotary cutter.

662,750. DIE FOR SHAPING CARPENTERS' DRAWING-KNIVES. ISRAEL S. BAILEY, Southington, Conn. Filed July 16, 1900 Serial No. 23,719. (No model.)



Claim.—A plating or shaping die for use in the production of drawknives from previously-welded blanks, the said die having a back-bevel portion which produces the bevel upon the rib of the knife, a rib portion which produces the rib of the knife, a blade portion which produces the blade of the knife, and a blade-bevel portion which produces the bevel upon the blade of the knife, and which has the further function of crowding the blade portion of the blank inward toward the rib portion thereof, so that the knives produced in the die will be substantially uniform in width, and so that unwelding will be avoided.

662,751. CIGAR-CUTTER. RUDOLPH F. BARTEL, Bayonne, N. J. Filed Jan. 4, 1900. Serial No. 374. (No model.)



Claim.—1. The herein-described cigar-cutter, consisting of a case or sheath provided in its opposite sides with openings that register with each other, and a reciprocating cutter-slide inclosed in said case or sheath in frictional contact therewith on all sides and having a plurality of perforations provided with oppositely-facing double-acting cutter edges at said perforations, the said cutter-slide being arranged to extend beyond both ends of said sheath or case, whereby it is adapted to be pushed in opposite directions to cut off the tip end of a cigar in both directions of movement, substantially as described.

2. The herein-described cigar-cutter, consisting of a flattened case or sheath provided in its opposite sides with openings that register with each other, and a flattened cutter-slide inclosed in said sheath or case in frictional contact therewith on all sides and provided with a plurality of perforations, each having double-acting cutter edges adapted to cut off the tip end of a cigar in both directions of slide movement, the said cutter-slide being arranged to extend beyond both ends of said sheath or case to be pushed therein upward and downward, substantially as described.

662,752. TRANSMISSION OF ELECTRICAL IMPULSES. FREDERICK BEDELL, Ithaca, N. Y. Filed July 6, 1899. Serial No. 722,942. (No model.)



Claim.—1. The method of transmitting intelligence which consists in generating dynamically a series of unidirectional impulses of electromotive force, transmitting over a circuit code-determined current impulses each complete from zero to zero and receiving the transmitted impulses by means of suitable receiving apparatus.

2. The method of transmitting intelligence which consists in generating dynamically a series of unidirectional impulses of electromotive force which impulses fall gradually to zero, and transmitting certain current impulses in accordance with a prearranged code by interrupting the circuit at moments of zero current.

3. The method of transmitting intelligence which consists in generating two unidirectional electromotive forces of opposite direction which periodically and simultaneously vary from zero to a maximum, and transmitting certain complete current impulses by means of a selective device which interrupts the circuit at instants of zero current and determines the transmission of either a positive or negative impulse.

4. The method of transmitting electric currents which consists in generating two series of unidirectional impulses of electromotive force, one positive and the other negative, and both having coincident zero and maximum points, and transmitting between successive zero-points either a positive or a negative current impulse as desired.

5. The method of transmitting intelligence which consists in generating dynamically one or more series of unidirectional impulses of electromotive force which impulses fall gradually to zero and rise gradually therefrom, and transmitting code-determined current impulses over a transmitting-line to apparatus adapted to receive the transmitted impulses.

6. The method of transmitting electric currents in unidirectional impulses which consists in applying to the line a direct electromotive force of constant value, modifying the effect of the same by means of an alternating electromotive force having a maximum value equal to the constant value of the direct electromotive force, and transmitting certain complete current impulses by means of a suitable selective device.

7. The method of transmitting electric currents which consists in deriving from the same generating apparatus direct and alternating electromotive forces, applying the direct electromotive force to a line-circuit and modifying its effect by means of the alternating electromotive force so as to produce a continuous series of unidirectional current impulses, and transmitting certain complete current impulses by means of a suitable selective device.

8. The method of telegraphing which consists in deriving a direct electromotive force from the commutator of a dynamic generating apparatus and deriving an alternating electromotive force from the secondary of a transformer whose primary is connected to alternating collecting-rings on said apparatus, superposing said direct and alternating electromotive forces so as to produce a continuous series of unidirectional current impulses, and transmitting code-determined current impulses over a line-circuit to suitable receiving apparatus.

9. The method of telegraphing which consists in applying to the line a direct electromotive force of constant value, modifying the effect of the same by means of an alternating electromotive force having graduated maximum points and a maximum value equal to the constant value of the direct electromotive force whereby the resulting current will consist of a series of unidirectional impulses having graduated zero-points, and transmitting code-determined impulses over a line-circuit to suitable receiving apparatus.

10. The method of transmitting electric currents which consists in applying to the line a direct electromotive force of constant value, and modifying the effect of the said electromotive force on each side of an intermediate or neutral point by means of an alternating electromotive force having a maximum value equal to one-half of the constant value of the direct electromotive force, whereby between the said neutral point and each branch of the line there is a series of unidirectional impulses of electromotive force, those on the one side being opposite in direction to those on the other side, but both having coincident maximum and zero points, and transmitting over the line either a positive or a negative current impulse at will.

11. The method of telegraphing which consists in transmitting over a circuit a series of dynamically-generated current impulses rising and falling in value with minimum line reaction between said impulses, and interrupting the circuit at said moments of minimum line reaction according to a predetermined code.

12. The method of telegraphing which consists in generating dynamically a continuous uninterrupted series of unidirectional impulses of electromotive force and transmitting to suitable receiving apparatus code-determined current impulses corresponding respectively to said impulses of electromotive force.

13. The method of telegraphing which consists in generating dynamically one or more continuous series of unidirectional impulses of electromotive force having a gradually rising and falling value, and transmitting over a circuit code-determined current impulses each complete from zero to zero without interrupting or short-circuiting the line or generator circuit except according to the requirements of the code.

14. The method of telegraphing which consists in transmitting over a circuit a series of direct-current impulses, each impulse being derived from the same source of dynamically-generated electromotive force as the preceding impulse and having a gradually rising and falling value, and interrupting the circuit at moments of zero current according to a predetermined code.

15. The method of telegraphing which consists in generating dynamically two series of impulses of electromotive force gradually rising and falling in value, all the impulses of each series being of the same polarity and derived from the same generating-coils, and transmitting certain current impulses, according to a predetermined code, to a suitable receiver at a distant point.

16. The method of telegraphing which consists in generating dynamically a series of current impulses, transmitting said impulses over a circuit and interrupting the circuit between said impulses according to a predetermined code, at moments when the current is changing at a minimum rate.

17. The method of telegraphing which consists in generating dynamically a series of current impulses of one polarity, rising and falling

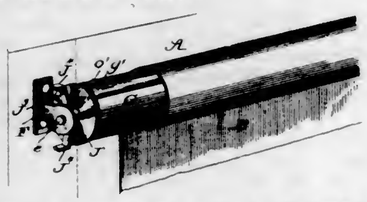
in value with a minimum rate of change when at or near the zero-points, transmitting said impulses over a circuit, and interrupting the circuit at moments of zero current according to a prearranged code.

18. The method of transmitting intelligence which consists in applying to a circuit a direct electromotive force of constant value, modifying the effect of the same by means of an alternating electromotive force having a maximum value equal to the constant value of the direct electromotive force, whereby a series of unidirectional impulses of electromotive force is impressed upon the circuit, and interrupting said circuit at moments of zero current, said moments being coincident with natural maximum points of the alternating electromotive force.

19. The method of transmitting intelligence which consists in applying to a circuit a direct electromotive force, modifying the effect of the same by means of an alternating electromotive force, whereby a series of impulses of electromotive force is impressed on the circuit, and interrupting the circuit between successive impulses at natural maximum points of the alternating electromotive force.

20. The method of transmitting intelligence which consists in applying to a circuit a direct electromotive force, modifying the effect of the same by means of an alternating electromotive force having graduated maximum points whereby the resulting current will consist of a series of impulses having graduated maximum and minimum points, and interrupting the circuit at said minimum points in accordance with a predetermined code.

662,753. CURTAIN-ROLLER. BENJAMIN F. BELL, Nashville, Tenn., assignor of one-half to Joseph Wolf, same place. Filed Aug. 13, 1900. Serial No. 26,753. (No model.)



Claim.—1. In a curtain-roller the combination substantially as described, of the roller, the cap-plate at the end thereof, and provided centrally with an opening or bearing, the pawls carried by said cap-plate, the projecting pin or portion arranged to revolve or travel with the roller as the latter is turned, the casing provided with longitudinal slots having one end fitting and held upon the roller and its other end provided with a cap-plate having a central opening or bearing, the nut-holding sleeve having a longitudinal slot and fitting within the central opening in the cap-plate and in the end plate of the casing and provided at its outer end with an arm to abut the bracket and limit the turning of the sleeve, said sleeve being also provided at its outer end with inwardly-projecting ears perforated to receive the end of the screw-shaft, the screw-shaft suitably connected at its inner end with the roller and extended within the nut-holding sleeve, the nut in said sleeve and threaded on the screw-shaft and provided with an arm or portion projecting through the slot in said sleeve and beyond the latter, the stop-ring fitted within the casing and having outwardly-projecting portions which operate in the slots of the casing and an inwardly-projecting portion arranged to engage the lug on the nut when the latter is adjusted to set its lug into the path of said projection, the connecting-sleeve held upon the inner end of the nut-holding sleeve, and the roller-actuating spring secured at one end to the roller and at its other end to the connecting-sleeve all substantially as set forth.

2. The combination of the curtain-roller, the screw-shaft held to and turning with the roller, the nut-holding sleeve held from turning with the roller and provided with a longitudinal slot and fitting over the screw-shaft, and the nut threaded on the screw-shaft within said sleeve and having a lug or arm extending through the slot in the sleeve in position for engagement by projections or portions carried by the roller, and the said projections or portions.

3. The combination of the curtain-roller, the screw-shaft turning with the roller, a projection or portion moving with the roller as the latter is turned, a nut threaded on the screw-shaft and having a projecting lug or portion arranged for engagement by the projection or portion carried by the roller, and means for holding the said nut from turning with the screw substantially as set forth.

4. The combination substantially as described of the roller, the casing secured on the end thereof, the stop-ring held in and to said casing and adjustable therein in the direction of length of the casing and provided with the stop portion to engage the nut, the nut and means for adjusting the nut into and out of the path of the projection on the stop-ring substantially as set forth.

5. The combination of the curtain-roller provided with a screw-shaft and with means for engagement with a projection on a nut operating on said shaft, the nut having the projection, the sleeve engaged with said nut, and means carried by the sleeve for engagement with the curtain-bracket whereby to limit the turning of the sleeve substantially as set forth.

6. The combination of the roller having a cap-plate provided with a central opening, the nut-holding sleeve fitting at its inner end in said opening, the casing secured to the roller and supporting the outer end of said sleeve, the nut operating in said sleeve, the screw carried by the roller and engaging said nut, and projections or portions on the casing for engagement by the projection of the nut substantially as set forth.

7. In a curtain-roller the combination of the screw-shaft and the nut traveling thereon, the casing having a longitudinal slot, and the stop-ring having a portion operating in the slot of the casing substantially as set forth.

8. The improvement in curtain-rollers comprising the screw, the nut thereon, the casing fitting over the screw and nut and having diametrically opposite longitudinally-extended slots, and the stop-ring having portions operating in the opposite slots of the casing substantially as set forth.

662,754. CYANMETHYL-ANTHRANILIC ACID AND PROCESS OF MAKING SAME. FRITZ BENDER, Frankfort-on-the-Main, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim-on-the-Main, Germany. Filed July 28, 1900. Serial No. 25,145. (No specimens.)

Claim.—1. The process of making a cyanmethyl-anthranilic acid which consists in the reaction between anthranilic acid formic aldehyde and hydrocyanic acid, substantially as described.

2. As a new product, a cyanmethyl-anthranilic body, which can be obtained from anthranilic acid, hydrocyanic acid, and formic aldehyde, and which melts at about one hundred and eighty-four (184°) degrees centigrade, dissolves in a cold aqueous solution of caustic soda, and can be precipitated from this solution by hydrochloric acid and which, in the form of its ethyl ester, is a crystalline substance melting at about eighty-nine (89°) degrees centigrade, and in the form of its methyl ester is a crystalline substance melting at about one hundred and six (106°) degrees centigrade, substantially as described.

3. As a new product, a cyanmethyl-anthranilic body which can be obtained from anthranilic acid, hydrocyanic acid and formic aldehyde and which may be converted into phenyl-glycocol-ortho-carboxylic acid by saponification with hot dilute caustic-soda solution and subsequent treatment with hydrochloric acid.

662,755. PROCESS OF MAKING PHENYL-GLYCOCOL-ORTHO CARBOXYLIC ACID. FRITZ BENDER, Frankfort-on-the-Main, Germany, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim-on-the-Main, Germany. Filed July 28, 1900. Serial No. 25,146. (No specimens.)

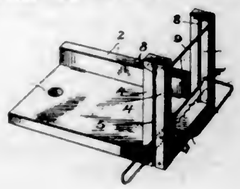
Claim.—1. The process of manufacturing a hereinbefore-defined phenyl-glycocol-ortho-carboxylic acid body which consists in treating anthranilic acid with hydrocyanic acid and formic aldehyde and saponifying the resulting product, substantially as described.

2. The process of manufacturing phenyl-glycocol-ortho-carboxylic acid from anthranilic acid, formic aldehyde and hydrocyanic acid, generating the hydrocyanic acid required within the melt from potassium cyanid and the hydrochlorid of anthranilic acid and saponifying the resulting product by means of caustic soda, substantially as described.

3. The improvement in the process of manufacturing a hereinbefore-defined phenyl-glycocol-ortho-carboxylic acid body which consists in saponifying a hereinbefore-defined cyanmethyl-anthranilic acid body, substantially as described.

4. The improvement in the process of manufacturing a hereinbefore-defined phenyl-glycocol-ortho-carboxylic acid body which consists in saponifying a hereinbefore-defined cyanmethyl-anthranilic acid body with caustic soda, substantially as described.

662,756. BREAD-CUTTER. HERBERT B. BINGHAM, Nashua, N. H. Filed Dec. 20, 1899. Serial No. 741,039. (No model.)



Claim.—1. In a bread-cutter, the combination with a base-board, of a knife-guide pivoted at one end thereof to fold flat thereon, and a bread-guide pivoted to and adapted to fold upon the top of the base at a right angle to the knife-guide in position to serve, when in its raised or operative position, as a stop to hold the knife-guide in its vertical or operative position, substantially as described.

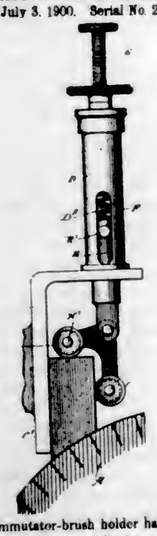
2. A bread-cutter comprising a base, a knife-guide having an upright at each side of the base, and a slice-gage comprising a bail or U-shaped bar having its arms pivoted inside the uprights, the bail depending in a position to bring it but slightly above the horizontal plane of the base, and being adjustable on its pivots and secured in any adjustment by frictional contact with the uprights, substantially as described.

662,757. JAR-CLOSURE. MAX BIRNEY, New Whatcom, Wash. Filed Dec. 13, 1899. Serial No. 740,196. (No model.)



Claim.—The combination with a jar having a continuous, radially-extending flange at its mouth and adjacent locking-flanges forming continuations of the lower edge of the first-named flange, the locking-flanges being separated at their ends by interspaces and having their lower edges slanted in the same direction rotatably of the jar, and the first-named flange extending radially to an extent equal to the radial extension of each locking-flange, a cover adapted to rest upon the upper edge of the jar and having its upper face concaved, and a rigid clamping-plate having a central arc-shaped portion shaped to fit the depression of the cover, the ends of the plate being turned downwardly and inwardly to engage under the locking-flanges, and which inturned portions are of a width to enter and fit the interspaces between the locking-flanges, and the separation of the ends of the inturned portions being greater than the separation of the rear walls of the interspaces and less than the diameter of the jar through the locking-flanges, whereby, when the inturned ends are engaged with the flanges, they may be operated rotatably to draw the plate downwardly and clamp the cover on the jar, and when the inturned ends are engaged with the interspaces between the locking-flanges, the plate may be moved longitudinally to disengage one inturned end over the first-named flange.

662,758. COMMUTATOR-BRUSH HOLDER. HARRY BISHOP, New York, N. Y. Filed July 3, 1900. Serial No. 22,453. (No model.)



Claim.—1. A commutator-brush holder having a follower pressing the conductor and consisting of an angular lever, and rollers on the ends of the lever on opposite sides of the lever's fulcrum, the rollers being arranged to engage one end and the outer face of the conductor to hold the latter against its seat and against the commutator, and at the same time prevent movement of the conductor from its seat.

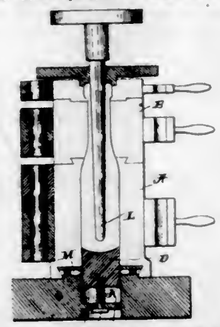
2. A commutator-brush holder having a follower, and a spring-pressed support on which the follower is fulcrumed, the follower comprising an angular lever and rollers on the ends of the lever, the rollers engaging one end and the outer face of the brush or conductor, as set forth.

3. A commutator-brush having a spring-pressed movable support, an angular lever fulcrumed on said support, and rollers journaled on the ends of the lever on opposite sides of the fulcrum, one of the rollers engaging one end of the conductor and the other the outer face thereof, as set forth.

4. A commutator-brush holder, comprising a holder having a seat for the brush or conductor, a cylinder on said holder, a slide movable in said cylinder and arranged to move approximately parallel to said seat, a spring for pressing said slide, means for adjusting the tension of said spring, and a follower pivoted on said slide and having a plurality of members for engaging and pressing adjacent faces of the brush, as set forth.

5. A commutator-brush holder, comprising a holder having a seat for the brush or conductor, a cylinder on said holder, a slide movable in said cylinder and arranged to move approximately parallel to said seat, a spring for pressing said slide, means for adjusting the tension of said spring, a follower pivoted on said slide and having a plurality of members for engaging and pressing adjacent faces of the brush, and lugs projecting from the slide and extending through slots in said cylinder, to hold the slide against turning and to permit of manually moving the slide, as set forth.

662,759. MOLD FOR MANUFACTURING PRESSED AND BLOWN NARROW-NECK BOTTLES. CHARLES E. BLUE, Wheeling, W. Va., assignor of seven-sixteenths to Arthur G. Hubbard and Louis V. Blue, same place. Filed Sept. 4, 1900. Serial No. 28,942. (No model.)



Claim.—1. An upright narrow-neck press-mold composed of upper narrow-neck and lower body sections, said sections being separable, and the body-section having a downwardly-yielding bottom under the pressure of the forming operation.

2. An upright narrow-neck press-mold composed of relatively separable upper narrow-neck and lower body sections, the body-section having a downwardly-yielding bottom under the pressure of the forming operation, and of a diameter equal to the diameter of the interior of the lower end of the said body-section.

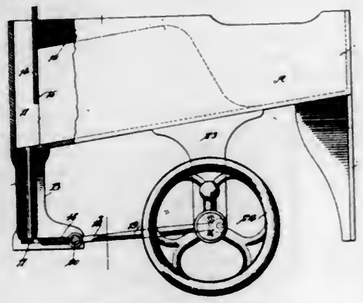
3. An upright narrow-neck press-mold composed of relatively separable upper narrow-neck and lower body sections, the body-section having a yielding bottom, and a locking member for holding the bottom in its depressed position.

662,760. BOTTLING-MACHINE. CHARLES H. BOGART, New York, N. Y. Filed Jan. 26, 1900. Serial No. 2,863. (No model.)

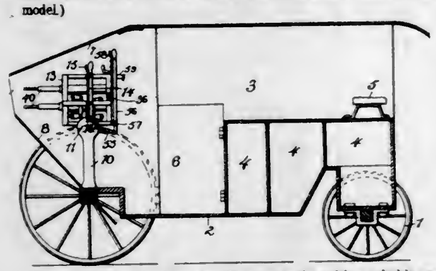
Claim.—1. The combination of the tank having vertical partitions terminating short of one end of the tank so as to form at one end thereof, a chamber communicating with the series of compartments produced by the partitions, a series of outlets, one in operative relation to each of said compartments, and a gate regulating simultaneously the communication of all the compartments with the chamber.

2 The combination of the tank having an inclined bottom and vertical partitions terminating short of the lower end of the bottom so as to form at the lower end of the tank, a chamber communicating with the series of compartments produced by the partitions, a series of outlets, one in operative relation to each of said compartments, a gate regulating simultaneously the communication of all the compartments with the chamber, and another gate controlling the discharge from the outlets.

3. In a bottling-machine, the combination, with an inclined tank, a series of partitions located within the said tank, terminating short of the deeper end of the tank and forming thereby a vertical chamber, nozzles extending downward from the said chamber, and a slide mounted in the said chamber adjacent to the end of the said partitions, of a gate or slide, a support for the said gate or slide, said gate or slide being common to all of the nozzles and arranged to simultaneously cover or uncover the outlets of the same, a crank-shaft, a connecting-rod pivoted to the crank-arm of the said shaft, having a pivotal connection with the central portion of the gate or slide for the nozzles, and means for rotating the crank-shaft, as set forth.



662,761. MACHINE-GUN. MARK H. BOWMAN and WILLIAM O. HUGHES, Pinkstaff, Ill. Filed Apr. 5, 1900. Serial No. 11,686. (No model.)



Claim.—1. In a machine-gun, the combination with a suitable support; of a gun-mount comprising uprights rising from the support and having toothed segments, a framework hinged to the uprights on a line through the centers of said segments and carrying the guns proper, a tilting-lever secured to each end of the framework, a thumb-lever and bolt therefor which latter engages the teeth of the segment as the framework is tilted, and means for adjusting the inclination of the guns within the framework, as and for the purpose set forth.

2. In a machine-gun, the combination with a gun-mount comprising uprights having toothed segments, a framework hinged to the uprights on a line through the centers of said segments, a tilting-lever secured to the framework, and a thumb-lever and bolt therefor which latter engages the teeth of the segment as the framework is tilted; of the guns proper mounted in said framework, and independent means for adjusting them vertically and horizontally therein, substantially as and for the purpose set forth.

3. In a machine-gun, the combination with a gun-mount comprising uprights having toothed segments, a framework hinged to the uprights on a line through the centers of said segments, a tilting-lever secured to the framework, and a thumb-lever and bolt therefor which latter engages the teeth of the segment as the framework is tilted; of the guns proper mounted in said framework with their rear ends held in a movable bar thereof, screws for adjusting this bar vertically, and means for adjusting the guns horizontally within said bar, as and for the purpose set forth.

4. In a machine-gun, the combination with the gun-mount comprising an open framework, a fulcrum-bar across its front, and the guns proper resting intermediate their lengths on said fulcrum-bar and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, springs supporting the uprights, and screws in the framework bearing downward upon them, as and for the purpose set forth

5. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front and having notches, and the guns proper having grooves intermediate their lengths, resting in the notches of said fulcrum-bar; of a grooved bar at the rear of the framework loosely supporting said rear ends, uprights at the ends of this bar, springs supporting the uprights, and screws in the framework bearing downward upon them, all as and for the purpose set forth.

6. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front and having notches, and the guns proper having grooves intermediate their lengths resting in the notches of said fulcrum-bar and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, springs supporting the uprights, and screws in the framework bearing downward upon them, as and for the purpose set forth.

7. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front, and the guns proper resting intermediate their lengths on said fulcrum-bar and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, the latter having tenons loosely fitting sockets in the uprights, expansive springs between the rear ends of the guns and between the outermost guns and the uprights, and screws through the framework against the uprights, as and for the purpose set forth.

8. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front and having notches, and the guns proper having grooves intermediate their lengths resting in the notches of said fulcrum-bar; of a grooved bar at the rear of the framework loosely supporting said rear ends, uprights at the ends of this bar, the latter having tenons loosely fitting sockets in the uprights, expansive springs between the rear ends of the guns and between the outermost guns and the uprights, and screws through the framework against the uprights, substantially as and for the purpose set forth.

9. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front and having notches, and the guns proper having grooves intermediate their lengths resting in the notches of said fulcrum-bar and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, the latter having tenons loosely fitting sockets in the uprights, expansive springs between the stubs at the rear ends of the guns and between the outermost guns and the uprights, and screws through the framework against the uprights, as and for the purpose set forth.

10. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front, a keeper-bar in the framework above the fulcrum-bar, and the guns proper resting intermediate their lengths on said fulcrum-bar and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, means for adjusting the height of the uprights and with them that of the bar, and means for adjusting the position of the rear ends of the guns within said groove, substantially as described.

11. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum-bar across its front and having notches, a keeper-bar in the framework above the fulcrum-bar and having notches registering with those therein, and the guns proper having grooves intermediate their lengths resting in the notches of said fulcrum-bar; of a grooved bar at the rear of the framework loosely connecting said rear ends, uprights at the ends of this bar, means for adjusting the height of these uprights and with them that of the bar, and means for adjusting the position of the rear ends of the guns within said groove, substantially as and for the purpose set forth.

12. In a machine-gun, the combination with a gun-mount comprising an open framework, a fulcrum across its front and having notches, a keeper-bar in the framework above the fulcrum-bar and having notches registering with those therein, and the guns proper having grooves intermediate their lengths resting in the notches of said fulcrum-bar and keeper and having stubs at their rear ends; of a grooved bar at the rear of the framework in whose groove said stubs are seated, uprights at the ends of this bar, means for adjusting the height of the uprights and with them that of the bar, and means for adjusting the position of the stubs at the rear ends of the guns within said groove, substantially as described.

13. In a machine-gun, the combination with a gun-mount, and means for supporting it and permitting it to be tilted bodily; of a series of guns arranged in a plurality of banks, beneath each bank a rock-shaft, levers thereon connected with the breech-blocks, levers on all the shafts connected by a link, an arm on one shaft, a loading-lever connected with said arm and having a thumb-lever operating a bolt moving over a toothed rack, and means for firing the guns, as and for the purpose set forth.

14. In a machine-gun, the combination with the gun-mount and means for supporting it; of a series of guns arranged in a plurality of banks, beneath each bank a rock-shaft, levers thereon connected with the breech-blocks, levers on all the shafts connected by a link, an arm on one shaft, a loading-lever connected with said arm and having a thumb-lever operating a bolt moving over a toothed rack, means for adjusting the ineli-

nation of the banks of guns within the framework, and means for firing the guns, as and for the purpose set forth.

15. In a machine-gun, the combination with the gun-mount and means for supporting it; of a series of guns arranged in a plurality of banks, beneath each bank a rock-shaft, levers thereon connected with the triggers, levers on all the shafts connected by a link, an arm on one shaft, a firing-lever connected with said arm and having a thumb-lever operating a bolt moving over a toothed rack, means for adjusting the inclination of the banks of guns within the framework, and means for loading the guns, as and for the purpose set forth

16. In a machine-gun, the combination with the gun-mount and means for supporting it and permitting it to be tilted bodily; of a series of guns arranged in a plurality of banks, beneath each bank a rock-shaft, levers thereon connected with the triggers, levers on all the shafts connected by a link, an arm on one shaft, a firing-lever connected with said arm and having a thumb-lever operating a bolt moving over a toothed rack, and means for loading the guns, as and for the purpose set forth.

17. In a machine-gun, the combination with the gun-mount framework, a series of fulcrum-bars therein having notches in their upper edges, a series of keeper-bars also therein having notches registering with those in the fulcrum-bars, and chucks in the framework for holding said series removably in place; of a series of guns whose bodies rest in said notches, bars to which their rear ends are removably attached, and means for adjusting the position of said rear ends, as and for the purpose set forth.

18. In a machine-gun, the combination with the gun-mount framework, a series of fulcrum-bars therein having notches in their upper edges, a series of keeper-bars also therein, and chucks in the framework for holding said series removably in place; of a series of guns whose bodies have grooves which rest in said notches, bars to which their rear ends are removably attached, and means for adjusting the position of said rear ends, as and for the purpose set forth.

662,762. CLIP FOR HOLDING ROLLS OR SPOOLS. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, same place. Original application filed July 25, 1900, Serial No. 24,799. Divided and this application filed Oct. 9, 1900. Serial No. 32,496. (No model.)



Claim.—1. A clip for holding rolls, spools, &c., constructed of a single piece of sheet metal provided with the curved spring-fingers, the portion extending tangentially of the fingers, and the flange extending substantially parallel with said tangential portion.

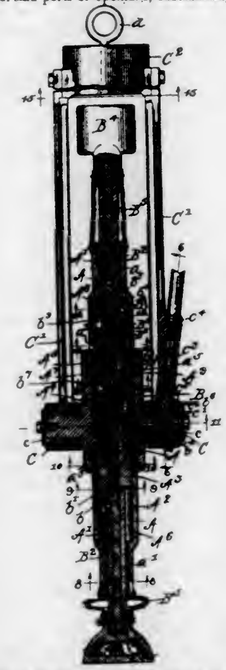
2. A clip for holding rolls, spools, &c. composed of a single piece of sheet metal having the curved spring-fingers, a portion extending tangentially of said fingers, the flange extending over the said tangential portion, and a projecting lug or ear.

3. A clip for holding rolls, spools, &c., composed of a single piece of sheet metal having the curved body provided with a tangential portion, the flange extending over the outer side of the latter and the curved elastic fingers at the ends of the body.

662,763. IMPACT-ENGINE. BYRON R. CARTER, Hinsdale, Ill. Filed July 19, 1900. Serial No. 24,138. (No model.)

Claim.—1. In an impact-engine, the combination of a casing within which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in bearings formed in the casing of said engine, a piston on said rod fitted to the cylinder in said casing, passages in said rod or stem which communicate with the cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers and valves in said valve-chambers which control said ports or openings, substantially as described.

2. In an impact-engine, the combination of a casing within which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in bearings formed in the casing of said engine, a piston on said rod or stem fitted to the cylinder in said casing, passages in said rod or stem which communicate with the cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers and valves in said valve-chambers operated by the movement of said rod or stem which control said ports or openings, substantially as described.



3. In an impact-engine, the combination of a casing within which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing, a piston on said rod or stem fitted to the cylinder in said casing, passages in said rod or stem which communicate with the cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers, valves in said chambers which control the ports or openings to said passages by movement of said rod or stem relatively to said valves, said valves being of lengths differing from their respective valve-chambers by amounts less than the travel of the piston, substantially as described.

4. In an impact-engine, the combination of a casing within which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in bearings formed in said casing, a piston on said rod or stem fitted to the cylinder in said casing, passages in said rod or stem which communicate with the cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers, valves in said valve-chambers which control said ports or openings to said passages, said valves consisting of sleeves fitted to and longitudinally movable on said rod or stem, the difference between the lengths of which and of their respective chambers is less than the travel of the piston and ports or openings in said valves adapted to be brought into register with those to the passages in the rod or stem by longitudinal movement of said valves relatively to said rod or stem, substantially as described.

5. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of which is provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to bear-

ings in the casing of said engine, a piston on said rod or stem fitted to the cylinder in said casing, passages in said rod or stem which communicate with said cylinder on opposite sides of said piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers, valves in said chambers which control said ports or openings to said passages, said valves consisting of sleeves fitted to and longitudinally movable on said rod or stem, ports or openings in said valves adapted to be brought into register with the ports or openings to the passages in said rod or stem and means to maintain said valves in fixed angular adjustment on said rod or stem, substantially as described.

6. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of which is provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in bearings formed in the casing of said engine, a piston on said rod or stem fitted to the cylinder in said casing, means to maintain said rod or stem in fixed angular position relatively to said casing, passages in said rod or stem which communicate with the actuating-cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the admission and exhaust valve chambers, valves in said chambers which control said ports or openings to the passages in said rod or stem, said valves consisting of sleeves fitted to and longitudinally movable on said rod or stem, ports or openings in said valves adapted to be brought into register with the ports or openings to the passages in said rod or stem by longitudinal movement of said valves on said rod or stem and means to maintain said valves in fixed angular adjustment on said rod or stem, substantially as described.

7. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of which is provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, one of said bearings comprising at least one flat side, a piston on said stem fitted to the actuating-cylinder, passages which connect said valve-chambers with said actuating-cylinder on opposite sides of the piston and valves which control said passages, substantially as described.

8. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, one of said bearings comprising curved and flat sides, a piston on said rod or stem fitted to the actuating-cylinder, passages which connect the valve-chambers with the actuating-cylinder on opposite sides of the piston and valves which control said passages, substantially as described.

9. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, means to maintain said rod or stem in fixed angular adjustment relatively to said casing, passages in said rod or stem, which communicate with the actuating-cylinder on opposite sides of said piston, ports or openings which connect each of said passages with said valve-chambers, valves which control said ports or openings, said valves consisting of sleeves fitted to and longitudinally movable on said rod or stem, ports or openings in said valves adapted to be brought into register with the ports or openings to the passages in said rod or stem by movement of said sleeves longitudinally of said stem and ribs or keys on the interiors of said valve-chambers which engage grooves formed longitudinally in the surface of said valves, substantially as described.

10. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, one of said bearings comprising non-interchangeable flat and round surfaces, a piston on said rod or stem fitted to the actuating-cylinder, passages formed in said rod or stem which communicate with the actuating-cylinder on opposite sides of the piston, ports or openings which connect each of said passages with the valve-chambers, valves which control said ports or openings, said valves consisting of sleeves fitted to and longitudinally movable on said stem, ports or openings in said sleeves adapted to be brought into register with the ports or openings to the passages in said rod or stem by movement of said sleeves longitudinally of said rod or stem and ribs or keys on the interiors of said valve-chambers which engage grooves formed longitudinally in the surfaces of said sleeves, substantially as described.

11. In an impact-engine, the combination of a casing in which are formed an actuating-cylinder and separate valve-chambers, one of said valve-chambers being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, a piston on said rod or stem fitted to the actuating-cylinder, a bore formed longitudinally in said rod or stem, a rod secured in said bore, grooves formed longitudinally in the surface of said smaller rod forming longitudinal passages in the main rod or stem, holes which connect said passages with the actuating-cylinder on opposite sides of the piston, respectively, ports or openings which connect each of said passages with the valve-chambers and valves which control said ports or openings, substantially as described.

12. In an impact-engine, the combination of a casing comprising three sections secured together by screw-threads and keys to prevent relative movement of the sections of said casing, heads clamped between the sections of said casing, which divide the interior of said casing into an actuating-cylinder and separate valve-compartments, one of said valve-compartments being provided with a controlled passage for the admission of fluid under pressure and the other with an exhaust-opening, a rod or stem fitted to and longitudinally movable in suitable bearings in the casing of said engine, a piston on said rod or stem fitted to the actuating-cylinder, passages in said rod or stem which respectively communicate with the actuating-cylinder on opposite sides of the piston on said rod or stem, ports or openings which connect each of said passages with the valve-chambers and valves which control said ports or openings, substantially as described.

13. The combination with an impact-engine, comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of a supporting-frame in which the casing of said engine is pivotally supported so that it may be turned end for end, substantially as described

14. The combination with an impact-engine comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of a supporting-frame in which the casing of said engine is pivotally mounted, the means for so mounting said casing in said frame comprising trunnions formed on one thereof adapted to engage suitable bearings in the other thereof, substantially as described.

15. The combination with an impact-engine of the type described, of a supporting-frame provided with bearings to which are fitted trunnions formed on the casing of the engine, the passage admitting fluid under pressure to said engine comprising sections formed in one of the trunnions on the casing and in the supporting-frame, both of which communicate with an opening formed around the bearing of said trunnion. substantially as described.

16. The combination with an impact-engine of the type described, of a supporting-frame therefor comprising arms in which are formed bearings to which are fitted trunnions on the casing of the engine, the passage for the admission of fluid under pressure to said engine comprising sections formed in one of said trunnions and in the supporting-arm in which said trunnion is mounted, both of which communicate with an opening formed around the trunnion-bearing, substantially as described.

17. The combination with an impact-engine, of the type described, of a frame provided with bearings to which trunnions formed on the casing of the engine are fitted, the passage for the admission of fluid under pressure to said engine comprising sections formed in one of the trunnions on the casing and in the supporting-frame, both of which communicate with an opening formed around the trunnion-bearing, the trunnion-bearing containing said opening being bushed on both sides and cupped-leather packing secured between said bushings and the ends of the recesses in which they are secured adapted to render said bearings tight against pressure in the opening in said bearing, substantially as described.

18. The combination with an impact-engine comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of an inertia-weight and connection between said inertia-weight and the casing of the engine, substantially as described.

19. The combination with an impact-engine, comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of a supported inertia-weight and rigid connection between said inertia-weight and the casing of said engine, substantially as described.

20. The combination with an impact-engine, comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of an inertia-weight and arms thereon in which the casing of said engine is pivoted, substantially as described.

21. The combination with an impact-engine, comprising a casing a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of a supported inertia-weight and rigid arms thereon in which the casing of said engine is pivoted, substantially as described.

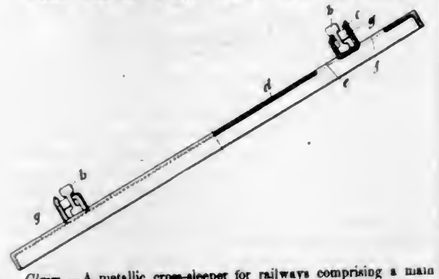
22. The combination with an impact-engine of the type described, of an inertia-weight, arms thereon in which the casing of the engine is pivotally mounted, the means for so mounting said engine-casing in said arms comprising trunnions formed on one thereof adapted to engage bearings in the other thereof, the passage admitting fluid under pressure to said engine comprising a section formed in one of the trunnions, substantially as described.

23. The combination with an impact-engine of the type described, of an inertia-weight, arms thereon provided with bearings, trunnions on the casing of said engine fitted to said bearings, the passage admitting fluid under pressure to said engine comprising sections formed in a trunnion on the engine-casing and in the supporting-arm in which said trunnion is mounted, both of which communicate with an opening formed around the trunnion or its bearing, substantially as described.

24. The combination with an impact-engine of the type described, of an inertia-weight, arms rigidly secured thereto, said arms being provided with bearings to which are fitted trunnions formed on the engine-casing, the passage admitting fluid under pressure to said engine comprising sections formed in a trunnion and in the supporting-arm in which said trunnion is mounted, both of which communicate with an opening formed around the trunnion or its bearing, substantially as described.

25. The combination with an impact-engine comprising a casing, a rod or stem fitted to and longitudinally movable in suitable bearings in said casing and means to impart a reciprocating movement to said rod or stem, of an inertia-weight, rigid arms thereon, to which the casing of the engine is connected, a flexible rope or the like attached to said inertia-weight, a pulley over which said rope passes and a counterbalance-weight secured to a rope on the opposite side of said pulley from the inertia-weight, substantially as described.

662,764. METALLIC CROSS-SLEEPER. PAUL CAZES, Bayonne, France. Filed Mar. 16, 1899. Serial No. 709,362. (No model.)



Claim.—A metallic cross-sleeper for railways comprising a main body, U-shaped in inverted cross-section, the top being flat and having partially stamped or projected therefrom lugs *c* and *d* of angular cross-section, the lug *d* being bent upward and horizontally to bring its end into contact with the web of a rail resting transversely on the sleeper, and the lug *c* being bent upward to about the level of the top of the web, whereby the rail may be tightly clamped between said lugs by the insertion of a wedge *g* between the web of the rail and the lug *c*, substantially as described.

662,765. CONDENSING APPARATUS. JOHN F. CHASE, St. Petersburg, Fla. Filed Aug. 29, 1900. Serial No. 28,463. (No model.)

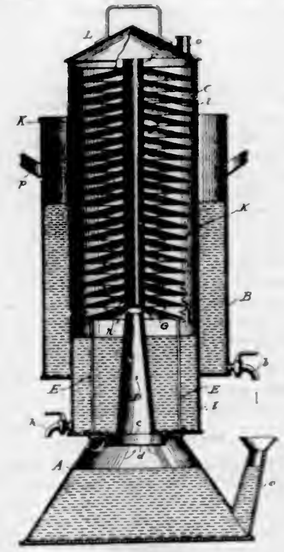
Claim.—1. A water still or condenser, comprising a closed vessel having an inlet for steam, and an inlet for air, and a series of disks arranged one above the other and graduated in size from the top disk downward and forming condensing-surfaces.

2. A water still or condenser comprising a vessel having an inlet for steam, and a series of conical disks arranged one above the other within said vessel, said disks being of progressively greater diameter from the bottom disk upwardly.

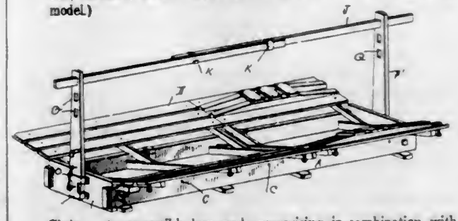
3. A condenser comprising a vessel having an inlet for steam, a reservoir or water-jacket surrounding said vessel, and a series of conical disks graduated in diameter from the top disk downwardly and formed with openings, whereby the steam may escape from one to the other of the disks in the series.

4. A condenser comprising a vessel having an opening in its bottom, a tube projecting from said opening within the vessel, a vertical post, a disk secured to said post, uprights for supporting said disk, and a series of conical disks having openings therein arranged one above the other on said post, said disks being of progressively greater diameter from the bottom one upward.

5. A condenser comprising a vessel having an inlet for steam and an inlet for air, a tapered tube communicating with said steam-inlet, conical disks having openings therein arranged one above the other on said post so that the openings in no two adjacent disks register, and a reservoir or water-jacket surrounding said vessel.

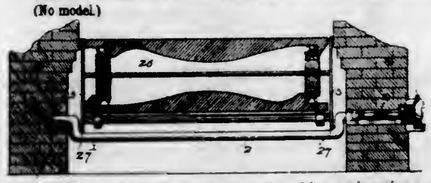


662,766. COMBINATION HAY AND STOCK RACK. DANIEL M COX, Moulton, Iowa. Filed May 10, 1900. Serial No. 16,246. (No model.)



Claim.—A convertible hay-rack, comprising in combination with the bed having longitudinal pieces A and end pieces with recessed ends into which the ends of said side pieces are seated, the wings having bolts secured to the cross-pieces thereof, and designed to engage in apertures C in said pieces A, the standards P and socket-plates secured to the cross-pieces of said bed, said standards having apertures therein, the extensible bars having bracket-straps for supporting the inner ends of said bars, and allowing same to slide longitudinally in contact with each other, the outer ends of said bars adjustably held in said apertured standards, as set forth.

662,767. MECHANISM FOR RAISING OR LOWERING GRATES. PAUL L. CROWE, Duluth, Minn. Filed Mar. 12, 1900. Serial No. 8,329. (No model.)



Claim.—1. A supporting mechanism for raising and lowering grates comprising a crank-shaft having an elongated crank portion upon which the grate and its frame rest, the offset shouldered portions forming said crank being arranged sufficiently far apart to come entirely outside the grate and its frame, journals formed at the ends of the said shaft, journal-bearings mounted in the walls of a furnace for supporting the said jour-

nals, and means engaging the said shaft for rotating the same, whereby the crank portion may be adjustably held at different angles to support the grate and its frame at different heights.

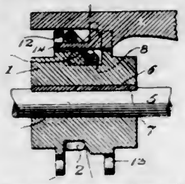
2. A mechanism for raising and lowering the end of a grate comprising a crank-shaft, journals formed upon the ends thereof, a journal-bearing mounted in one wall of a furnace for engaging one end of the said crank-shaft, the said bearing having inclosing walls upon three sides, and a combined journal-bearing and bracket-plate engaging the journal at the other end of the shaft, and means mounted upon the said journal and bracket for actuating the said shaft, substantially as described.

3. Means for adjusting the distance between the end of a grate and a bridge-wall comprising a crank-shaft journaled in the walls of a furnace, an elongated crank portion formed upon the said shaft for supporting the frame of the grate, bearing blocks or pieces mounted in the furnace-wall and supporting the ends of the said shaft, walls forming a strengthening bearing portion, and lateral lugs forming a bracket for supporting a gearing, a worm-gearing mounted upon the said shaft and in the said bracket for actuating the shaft, substantially as described.

4. In a mechanism for raising and lowering a grate with respect to the bridge-wall of a furnace, the combination with a grate-frame, of a shaft supporting the same, the said shaft having a central crank portion, bearings under each end of the said shaft, one of said bearings being formed with a base-plate, vertical strengthening-walls, a bearing formed between some of said walls, a pin for holding the shaft in place in the said bearing, a bracket formed upon the said bearing-piece, a shaft mounted in the said bracket, a worm carried by the said shaft, a worm-gear upon the end of the crank-shaft for engaging the said worm, whereby it may be adjusted to different positions for altering the height of the crank and thereby raising or lowering the grate-frame, substantially as described.

662,768. SPROCKET-WHEEL FOR USE ON CHAIN GRATES.

PAUL L. CROWE, Duluth, Minn. Filed Mar. 12, 1900. Serial No. 8,330. (No model.)



Claim.—1. A sprocket-wheel comprising a body portion forming a hub, a series of alternately-arranged link-engaging sprocket-teeth, flanges upon each side of said teeth for limiting a chain which may engage the said wheel, the said sprocket-teeth having an approximately pyramidal form so as to extend into the links of a chain and also to embrace the said links between each pair of the teeth for actuating the said chain.

2. A sprocket-wheel comprising a hub portion, a series of sprocket-teeth arranged alternately upon each side of the wheel so as to project into the links of a chain from opposite sides, flanges formed outside the teeth, said flanges having a series of peripheral depressions or recesses for accommodating attaching means upon grate-bars when the said wheel is used for driving a traveling grate.

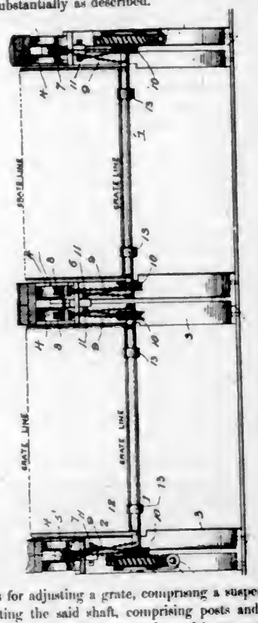
3. A sprocket-wheel comprising a hub portion, a series of pyramidal sprocket-teeth arranged upon each side of the central plane of the wheel, the side and end faces of the said teeth slanting toward each other from the base of the teeth, and the ends of the teeth upon opposite sides extending slightly past each other, flanges arranged upon each side of the teeth, said flanges having peripheral notches for engaging grate-bars when the wheel is used to drive a traveling chain grate, the construction being such that the links of an ordinary chain may be engaged by the pyramidal teeth, the teeth extending into the said links and each adjacent pair of teeth embracing the ends of the said links for firmly engaging the chain when driving it, substantially as described.

662,769. APPARATUS FOR RAISING OR LOWERING GRATES.

PAUL L. CROWE, Duluth, Minn. Filed Mar. 24, 1900. Serial No. 10,100. (No model.)

Claim.—1. Means for raising and lowering a grate, comprising a shaft suspended upon chains, a pivoted grate-frame resting upon said shaft, a rigid frame for supporting the chains, pulleys or sheaves mounted upon the shaft and said frame for engaging the lifting-chains, and means for rotating the shaft to wind or unwind the lifting-chains for raising and lowering the grate.

2. In a mechanism for raising and lowering one end of a grate, the combination with a suitable rigid frame, of sheaves or pulleys mounted thereon, a shaft supported from the said frame, chains for adjustably holding the shaft in place, sheaves or pulleys upon the shaft, one end of each of said chains being secured to the shaft, the chains being passed over and around the said sheaves or pulleys and secured at their other ends to the rigid supporting-frames, and means for rotating the shaft, whereby the chains will be wound and unwound thereon for drawing the shaft nearer to the sheaves upon the rigid supporting-frame or increasing the distance between them, substantially as described.



3. Means for adjusting a grate, comprising a suspended shaft, rigid frames supporting the said shaft, comprising posts and channel-beams mounted upon the said posts, sheaves mounted between the said channel-beams, loose pulleys upon the shaft, chains secured at one of their ends to the shaft and passing over the sheaves on the channel-beams and around the pulleys on the shaft, their other ends being secured to eyes upon the said posts, and means for rotating the shaft for winding and unwinding the chain, the construction being such that the grate and pivoted grate-frame resting upon the shaft may be raised or lowered by means of the said chains and rotating shafts.

4. In a furnace, the combination with two or more grate-sections, of shafts located beneath the same, sheaves or pulleys mounted upon a suitable rigid frame, and idler-pulleys on the said shafts, chains secured to the said shafts at one of their ends and passing over the shafts on the frame and around the loose pulleys on the shaft, their other ends being fastened to the said frame, and means for revolving the shafts to wind or unwind the chains, whereby the grate-sections may be elevated or depressed to a greater or less extent, as may be desired.

5. A grate-adjusting mechanism, comprising a revoluble shaft, a supporting-frame, sheaves or pulleys upon the said frame and upon the said shaft, chains secured to the shaft and frame and passing about the said pulleys or sheaves, worm-gears secured to the shaft, a worm for engaging the said gear, and means for turning the worm, whereby the shaft may be revolved and the chains wound or unwound to raise or lower the grate, substantially as described.

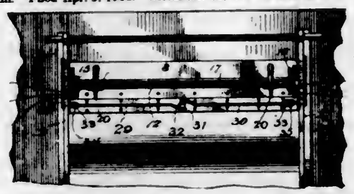
6. In a mechanism for raising and lowering grates, the combination with a supporting-frame, of a revolving shaft suspended therefrom, sheaves or loose pulleys mounted upon the said frame and the said shaft, chains passing over the pulleys and secured at their ends to the frame and the said shaft, means for rotating the shaft comprising a worm-gear secured thereto, a frame or hanger suspended from the said shaft having journal-bearings formed therein, a shaft mounted in the said journal-bearings, a worm carried by the said shaft and meshing with the worm-gear, the construction being such that by turning the shaft carrying the worm the grate-supporting shaft may be revolved for winding or unwinding the chains and thereby raising or lowering the pivotal grate-carrying frame resting thereon, substantially as described.

7. In a mechanism for raising and lowering grates, the combination with a supporting-frame, of a revolving shaft suspended therefrom, sheaves or loose pulleys mounted upon the said frame and the said shaft, chains passing over the pulleys and secured at their ends to the frame and the said shaft, antifriction pulleys or rollers interposed between the shaft and

the pivotal grate-frame resting thereon, means for rotating the shaft comprising a worm-gear secured thereto, a frame or hanger suspended from the said shaft having journal-bearings formed therein, a shaft mounted in the said journal-bearings, a worm carried by the said shaft and meshing with the worm-gear, the construction being such that by turning the shaft carrying the worm the grate-supporting shaft may be revolved for winding or unwinding the chains and thereby raising or lowering the pivotal grate-carrying frame resting thereon, substantially as described.

662,770. FUEL-FEEDING HOPPER.

PAUL L. CROWE, Duluth, Minn. Filed Apr. 5, 1900. Serial No. 11,700. (No model.)



Claim.—1. A feed-hopper for furnaces, comprising end plates having guide depressions or grooves formed therein, the said plates also having recesses or depressions formed below said grooves, and a front plate having means for engaging the said grooves and the said recesses, whereby it may be adjusted to different heights and at different angles.

2. A hopper for furnaces, comprising end plates and an adjustable front plate, the end plates being provided with angular depressions or grooves, racks mounted in said grooves and means upon the said front plate for engaging the said racks, whereby the front plate may be adjusted to a greater or less distance from the front of the furnace.

3. A fuel-hopper for furnaces, comprising end plates having grooves formed therein which are arranged approximately upon a right angle, racks mounted in the said grooves, a front plate mounted between the end plates, a shaft extending along the front of the said plate, depending hook-shaped projections upon the plate adapted to overhang the said shaft, gear-wheels upon the ends of said shaft for engaging the said racks, and means for locking the plate in its different adjusted positions, substantially as described.

4. A feed-hopper for furnaces, comprising end plates extending at right angles from the furnace-front, an adjustable front plate between the said end plates, a hollow shaft extending along the front of the said plate and having pinions at its ends engaging racks in guide-grooves formed in the end plates, hooked projections upon the plate overhanging the said shaft, loose pinions mounted upon the shaft near the ends thereof, racks upon the said plate engaging the said loose pinions, and means for turning the pinions, whereby the plate may be raised or lowered edgewise, substantially as described.

5. A fuel-feed hopper for furnaces comprising in its construction stationary end plates, an adjustable front plate arranged between them, a hollow shaft extending along the front of the said plate and adapted to engage at its ends guide grooves or depressions formed upon the inner surfaces of the end plates, bolts or latches secured upon the said plate near the lower end thereof for holding the plate at different angles, the said latches engaging elongated recesses in the end plate, substantially as described.

6. In a fuel-feeding hopper for furnaces, the combination of end plates having angular grooves or depressions, and elongated recesses, a front plate mounted between the end plates, means for adjusting the position of the front plate in the angular grooves, and means for adjusting the lower edge of the said plate opposite different elongated recesses to vary the angle of the plate, substantially as described.

7. In a fuel-feeding hopper for furnaces, the combination with end plates having guiding depressions or grooves formed therein, of an adjustable front plate mounted between them and carrying a hollow shaft, rigid pinions mounted upon the ends of said shaft for engaging racks in the guide-grooves of said end plates, loose pinions near the ends of the said shaft, a bar connecting the said loose pinions so that they will operate simultaneously, a handle upon one loose pinion for rotating the same, means for locking the said handle in different positions, draw-bars mounted in the said hollow shaft, and means for reciprocating them to lock the front plate in different positions in the guide-grooves, substantially as described.

8. In a fuel-feeding hopper for furnaces, the combination of end plates having guide-grooves and racks formed therein, an adjustable front plate mounted between the same, hook-like projections formed upon the front of said plate one of the said projections having a series of apertures formed therein, a hollow shaft for holding the said plate in position, the hook projections overhanging said shaft and guiding said plate in its movement with respect to the same, loose pinions upon the shaft, a bar connecting the same, a handle upon one of said pinions for rotating it, said handle having an aportare formed therein, a pin for adjusting the handle and holding it in place, the said pin engaging one of the apertures in the hooked projection on the front plate, and handles upon the said plate for moving it upon the said hollow shaft, substantially as described.

9. A fuel-feeding hopper for furnaces, comprising end plates having guide-grooves formed therein, racks constructed within said grooves, a series of apertures being formed in the said grooves, an adjustable plate mounted between said end plates and forming the front wall of the hopper, a hollow shaft extending along the front of the hopper for supporting the same in position, fixed pinions upon the ends of the said shaft, draw-bars mounted interiorly of the shaft adapted to engage the apertures in the guide-grooves, a lever moving one of the said draw-bars and having one end projecting through a slot in the hollow shaft, a loose collar secured to the draw-bar and connected with the said lever, and spring-actuated means for engaging the collar and holding the draw-bars normally in their outer position, substantially as described.

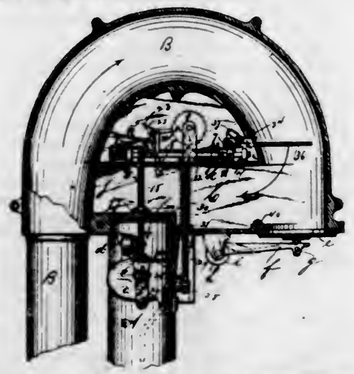
10. In a fuel-feeding hopper for furnaces, the combination of end plates having guiding-grooves and racks therein, the said plates also having a series of elongated recesses below said groove, an adjustable front plate arranged between the end plates, means for raising and lowering the said plate, and means for tipping the lower edge thereof and holding the same in its adjusted position, comprising reciprocating rods secured to the said plate and adapted at their ends to engage the elongated recesses in the end plates, a lever connected with the said rods and pivoted to the said plates for moving them back and forth, a handle upon the said lever, the elongated depressions permitting the plate to be adjusted vertically without interfering with the locking-rods, substantially as described.

11. In a fuel-feeding hopper for furnaces, the combination with end plates having guiding-grooves therein, the said grooves being provided with apertures, of an adjustable plate adapted to be arranged in different positions between the end plates, locking means on said plate for engaging the apertures in the guiding-grooves, the construction being such that the plate may be tipped horizontally to form a hopper-floor or may be arranged at an incline to regulate the flow of the feed, the said plate being also provided with a series of cooling-apertures, whereby when it is forced up against the furnace-front it may be employed as a fire-door, substantially as described.

12. A hopper comprising a fixed rear wall provided with a discharging-port; forwardly-extending end plates fixed to said rear wall, said end plates having guide grooves or channels formed in their opposing faces; racks within said grooves at the lower edges thereof; a series of elongated recesses below said grooves, an adjustable front plate arranged between said end plates, means engaging said front plate and said elongated recesses for adjustably holding the lower portion of said front plate in a predetermined position; means for raising and lowering said plate and adjustably locking the same in a predetermined position, and handles upon said front plate, substantially as described.

662,771. PNEUMATIC-CASH-CARRIER TERMINAL.

FREDERICK C. CUTTING, Rochester, N. Y.. Filed Mar. 30, 1900. Serial No. 10,774. (No model.)



Claim.—1. In a pneumatic-cash-carrier terminal comprising an air-tube for transmitting a cash-box from, and an air-tube for returning a cash-box to the sales-station, closed respectively by an inlet and an exit lid or valve and being connected with each other by a suitable air-passage formed on its bottom to receive and receiving one branch of the transmitting air-tube, a valve adapted to control the passage of air through the air-tubes,

mounted upon a spindle having a notch or annular groove suitably located to be engaged by a latch and to support said valve when elevated from its seat, substantially as specified.

2. In a pneumatic-cash-carrier terminal comprising an air-tube for transmitting a cash-box from, and an air-tube for returning a cash-box to the sales-station, closed respectively by an inlet and exit lid or valve and being connected with each other by a suitable air-passage formed on its bottom to receive and receiving one branch of the transmitting-tube, in combination with a valve adapted to control the passage of air through said air-tubes, and the elemental means or mechanism hereinbefore specified for automatically opening, holding open and closing said valve over the end of the transmitting air-tube at its entrance to the said air-passage, substantially as described.

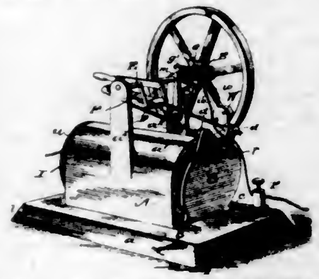
3. In a pneumatic-cash-carrier terminal of the class described, the combination of a valve adapted to control the passage of air through the air-tubes, a spindle passed perpendicularly through said valve at its center, suitable bearings in said terminal to support said spindle in a vertical position and allow it to be moved freely up and down therein, an annular groove in said spindle adapted to be engaged by a latch to support the said valve when elevated from its seat, and a lever properly pivoted or fulcrumed at one end and connected at its other end to the inlet-valve and actuated by the opening of the inlet-valve to move said spindle up through its bearings, all constructed and combined in and with said terminal substantially as specified and for the purposes described.

4. In a pneumatic-cash-carrier terminal of the class described, the combination of a valve secured to a spindle having an annular groove suitably located to engage with a latch whereby said valve may be supported in a position elevated from its seat to control the passage of air through the air-tubes, said spindle being journaled in suitable bearings to be moved freely therein and adapted to be automatically raised when the inlet-valve is opened, through the medium of a lever suitably located within the transmitting-tube, properly fulcrumed and secured at one end to the inlet-valve, with an axle journaled in the side of the transmitting air-tube, having an arm secured thereto and projected downward into the passage-way in said tube traveled by the cash-box, and normally kept in such passage-way by the action of a spring resting down upon a collar secured to a rod the foot of which stands upon the cam secured to said axle, a cam secured to said axle adapted to raise the rod resting thereon, a rod having its lower end resting upon the last-described cam and passed vertically through the air-chamber connecting the air-tubes and supported in suitable bearings to be moved easily up and down therein, and provided with a slot in its upper end through which is passed the arm projected from the cam adapted to move a sliding bar, a spring adapted to return said rod last mentioned to its lowest position, a cam provided with an arm adapted to be passed through the slot in the rod last above described and secured to said terminal in suitable bearings so that it will be rocked through the agency of its projected arm when the said rod is raised and lowered, releasing its engagement with the latch riding upon it when raised and again engaging itself with said latch when lowered, a latch riding upon the last above-described cam, adapted to be engaged with and released from said cam and secured on an axle to a sliding bar, the sliding bar last above mentioned suitably mounted to be moved freely longitudinally in one direction by the rocking of the last-described cam while engaged with said latch and in the opposite direction by a spring suitably secured thereto, a spring returning said sliding bar to its normal position when the latch secured to said bar releases its engagement with the cam upon which it rides, a pawl pivotally secured to said sliding bar adapted to engage with the teeth of a ratchet-wheel, a spring for forcing said pawl up into engagement with the teeth of said ratchet-wheel when the said sliding bar starts upon its return to its normal position by the action of the spring upon it, a ratchet-wheel mounted upon an axle supported in suitable bearings and adapted to be turned one tooth by the said pawl when said sliding bar is returned to its normal position by the agency of said spring, means for throwing said pawl out of engagement with said ratchet-wheel when said sliding bar is in its normal position, a rod secured to said ratchet-wheel adapted to engage with the arm of the latch for supporting the valve controlling the passage of air through the air-tubes and to hold said latch out of engagement with the annular groove on the spindle of said valve until said ratchet-wheel is turned one tooth, a latch mounted in suitable bearings adapted to support said valve and provided with an arm for holding it out of engagement with said annular groove until said ratchet-wheel is turned one tooth, and a spring for throwing said latch into engagement with said annular groove when said ratchet-wheel is turned one tooth, all combined, arranged and adjusted relatively to one another substantially as specified and for the purposes described.

5. In a pneumatic-cash-carrier terminal of the class described, the combination of a valve secured to a spindle having an annular groove suitably located to engage with a latch, said valve being adapted to control the passage of air through the air-tubes, a latch for supporting said valve in a position elevated from its seat and adapted to be relieved of said support when a cash-box placed in transit at the salesman's station or the last of a series of cash-boxes so placed in transit is returned to the same station, and means for automatically relieving the said latch of the support of said valve when a cash-box placed in transit at the sales-station or the last of a series of cash-boxes so placed in transit is returned to the same station, comprising the following elements: arm 36 secured to axle 35 and normally extending across the path traveled by the cash-boxes on their return to the sales-station, axle 35 suitably journaled and adapted to be turned in one direction by arm 36 and in the opposite direction by spring 16 and to actuate cam 37 which is secured to said axle, spring 16 adapted to return axle 35 to its normal position when it has been revolved by arm 36 by the passage of a cash-box through the tube B, cam 37 secured to said axle and adapted to move sliding bar 6 in its bearings back and forth longitudinally, wheel 34 secured to said sliding bar, sliding bar 6 carrying pawl 8 which is pivotally connected thereto, pawl 8 provided with shoulder 12, set-screw 14, spring 10', ratchet-wheel 9' mounted upon an axle and suitably journaled and carrying rod 22, rod 22 and suitable supports for said sliding bar, all combined, constructed and adjusted relatively to one another substantially as specified and for the purposes described.

6. In a pneumatic-cash-carrier terminal of the class described a twin ratchet-wheel comprising two independent ratchet-wheels united with each other or made integral upon an axle, each formed with teeth adapted to be engaged by a pawl and cut to revolve the wheels in opposite directions when alternately acted upon by its pawl, and having a rod projected from the adjoining planes of said wheels near their periphery, constructed and adjusted substantially as shown and for the purposes specified.

662,772. ELECTRIC MOTOR. JOSEPH DARLING, Chicora, Pa. Filed Sept. 1, 1900. Serial No. 28,774. (No model.)



Claim.—1. In an electric motor, the combination with an electromagnet; of an armature having a rocking axis directly at the pole of the said magnet, an arm rigidly attached to the other end of the armature and extending at right angles to a point near the opposite end of the electromagnet, a crank-shaft arranged at right angles to the electromagnet above said arm, and a connecting-rod arranged on the opposite side of the crank-shaft from the armature and connecting the crank-shaft to the extended armature-arm substantially as described.

2. In an electric motor, the combination with an electromagnet; of an armature having a rocking axis directly at the pole of said magnet, an arm rigidly attached to the swinging end of the armature and provided with adjusting-nuts as described and extending to a point near the opposite end of the magnet, a crank-shaft at right angles to the electromagnet, and a pitman arranged on the opposite side of the crank-shaft from the armature and connecting the armature-arm to the crank-shaft substantially as described.

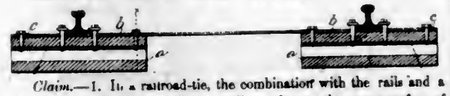
3. The combination with the electromagnet, and the armature having a rocking axis against the end of the said magnet; of an arm composed of a bent rod having its two ends screw-threaded and separately connected by nuts to the swinging end of the armature and a crank-shaft arranged at right angles to the electromagnet, and a pitman arranged on the opposite side of the crank-shaft from the armature and connecting the armature to the crank-shaft substantially as described.

4. In an electric motor, the combination with the rotary shaft; of a reversing-switch having two branches embracing said shaft, a rotating contact moving with the said shaft and arranged between the two branches of the switch and a centrifugal governor attached to and automatically adjusting said rotating contact for a longer or shorter contact with the branches of the switch substantially as described.

5. In an electric motor, the combination with the rotary shaft; of a reversing-switch having two branches embracing said shaft, and a lever-handle for adjusting said switch, a rotating contact moving with said shaft and arranged between the two branches of the switch, a radially-sliding bar connected to the rotating contact and bearing a weight at its outer end, and a spring and means for adjusting it, said spring being connected to the weight and arranged to draw it against centrifugal action substantially as described.

6. In an electric motor, a revolving shaft, a brush-arm or switch at right angles thereto, a rotating and sliding contact between the brush and the shaft, and a centrifugal governor arranged to throw the rotating contact away from the brush and toward the center of the shaft as described.

662,773. RAILROAD-TIE. EDWARD DAVIS, Brazil, Ind. Filed Dec. 27, 1899. Serial No. 741,742. (No model.)



Claim.—1. In a railroad-tie, the combination with the rails and a hollow base-block, of a metallic plate disposed upon the upper surface of said base-block, a metallic plate disposed within the hollow of said base-block, a plurality of bolts connecting said plates and a plurality of flanged bolts, substantially as described.

2. In a railroad-tie, the combination with the rails and a hollow base consisting of a plurality of sections, of a metallic plate disposed upon the upper surfaces of said sections and connecting the same, a metallic plate within the hollow of each of said sections, a plurality of bolts connecting said upper plate and said plurality of plates, and a plurality of flanged bolts, substantially as described.

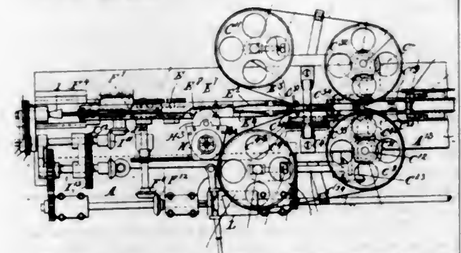
662,774. TOW-LINE OPERATOR AND ALARM. FRANKLIN P. DAVIS, Mobile, Ala. Filed July 26, 1900. Serial No. 24,926. (No model.)



Claim.—1. An automatic tow-line operator adapted to be attached to a yacht or other vessel, comprising a reel having one end of the line secured thereto in operative connection with an audible signal on the reel, and the other end attached to a skiff or boat to be towed, a stop-knot at a predetermined point in the line, a spring in the reel to automatically turn the latter relative to the movement of the skiff and yacht, and means engaged by the knot to stop the turning of the reel and to leave the end of the line nearest the knot free to operate the skiff.

2. The combination, with the casing having a removable top an eye in the casing and means for attaching the casing in a flat position to a yacht or other vessel, of the spring-controlled reel, a line extending through the eye and having one end secured to the reel and operated by the movement of the yacht or vessel to actuate an audible signal on the reel, a knot at a predetermined point in the line to limit the recoil of the latter through the eye, and to leave the portion of the line from the knot outside the casing free.

662,775. CIGARETTE-MAKING MACHINE. LOUIS DAVIS and HERMAN HENDRIES, London, England. Filed Nov. 21, 1899. Serial No. 737,727. (No model.)



Claim.—1. In a cigarette-making machine the combination of a picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, a support in which the roller is mounted and means for oscillating the hopper and rotating the roller, substantially as set forth.

2. In a cigarette-making machine the combination of a picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, pins or teeth on the periphery of the roller, a roller journaled at the base of the hopper so that its periphery is just clear of the teeth on the picking-roller, a support in which the several parts are mounted, and means for oscillating the hopper and rotating the picking-roller, substantially as set forth.

3. In a cigarette-making machine the combination of a slow-speed picking-roller, a hopper pivotally mounted upon the axle of such roller so that a portion of the periphery of the roller forms a bottom to the hopper, pins or teeth on the periphery of the roller, a roller journaled at the base of the hopper so that its periphery is just clear of the teeth on the picking-roller, a high-speed picking-roller the teeth of which intercalate with those on the slow-speed picking-roller, a support in which the several parts are mounted and means for oscillating the hopper and rotating the picking-rollers, substantially as set forth.

4. In a cigarette-making machine feeding and disintegrating mechanism comprising a conveyer-band, feed-rollers situated in proximity to the band so that they receive tobacco therefrom, a high-speed picking-roller having pins upon its periphery situated beneath the feeding-rollers, a hopper beneath the picking-roller, means for oscillating the hopper, a slow-speed picking-roller situated so that a portion of its periphery forms a bottom to the hopper, a roller journaled at the base of the hopper and operating to pack the tobacco upon the teeth of the slow-speed picking-roller, a high-speed picking-roller the teeth of which intercalate with those on the slow-speed picking-roller, a support in which the several parts are mounted, and means for driving the conveyer-band and the rollers, substantially as set forth.

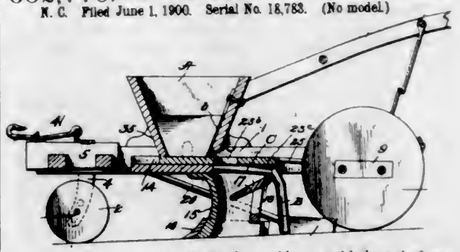
5. In a cigarette-making machine the combination of a traveling band, a presser-roller above the band with its lower surface adjacent thereto so that it compresses tobacco carried by the band in a vertical plane, endless compressing-bands with approximately vertical sides operating to compress the tobacco laterally, a cover-plate between the presser-roller and the compressing-bands, grooved filler-forming rollers situated between the compressing-bands and means for driving the pressing-bands, the presser-roll, the filler-forming rollers, and the compressing-bands, substantially as set forth.

6. In a cigarette-making machine, the combination of a paste-reservoir, a weighted float within the reservoir, grinding-rollers within the reservoir, means for operating the rollers, a slot in the wall of the reservoir near the base thereof, a pasting-wheel in the reservoir, part of said wheel protruding through the slot, scrapers attached to the reservoir and arranged to operate on the top and bottom surfaces of the pasting-wheel, a scraper arranged to operate upon the pasting edge of said wheel and means for driving the pasting-wheel, substantially as set forth.

7. In a cigarette-making machine a "cut-off" device comprising a carriage, a spindle mounted in the carriage, a spur-wheel eccentrically mounted on the spindle, a knife-blade secured to the spur-wheel, a second spindle mounted upon the frame of the machine, a spur-wheel eccentrically mounted upon the second spindle and gearing with the spur-wheel on the first spindle and means for driving the spindles and for reciprocating the carriage, substantially as set forth.

8. In a cigarette-making machine a "cut-off" device comprising a carriage, a spindle mounted on the carriage, a spur-wheel eccentrically mounted on the spindle, a knife-blade secured to the spur-wheel at a point remote from the spindle, a second spindle mounted upon the frame of the machine, a spur-wheel eccentrically mounted upon the second spindle and capable of lateral motion thereon, said spur-wheel gearing with the spur-wheel on the first spindle, arms upon the carriage operating to effect the lateral movement of the spur-wheel on the second spindle, means for reciprocating the carriage, and means for driving the second spindle, substantially as set forth.

662,776. SEED-PLANTER. EDWARD B. DIXON, Grantsborough, N. C. Filed June 1, 1900. Serial No. 18,783. (No model.)

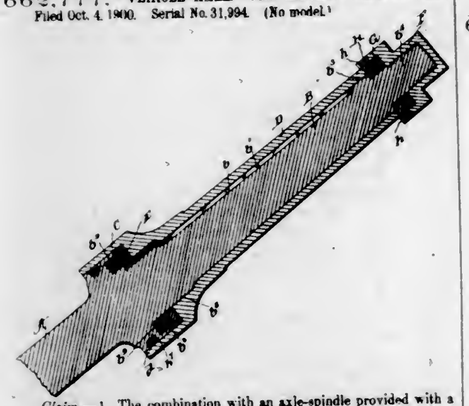


Claim.—1. In a seed-planter, the combination with the main frame, of a seed-hopper, a seed-discharge tube, a scatter-plate mounted in said discharge-tube and capable of adjustment, an interchangeable seed-spout provided with an apron to project over the upper end of said seed-discharge tube, and means for feeding the seed from said hopper to said discharge-spout, substantially as set forth.

2. In a seed-planter, the combination with the main frame, of a seed-hopper, a seed-discharge tube provided at its lower end with a plow, an interchangeable seed-spout provided with an apron to project over and close the upper end of the seed-discharge tube, and means for feeding the

seed from the hopper to the seed-discharge spout, substantially as set forth.

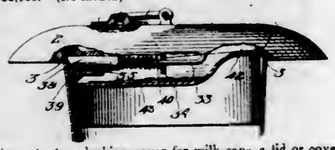
662,777. VEHICLE-AXLE. JOHN L. DOLSON Charlotte, Mich. Filed Oct. 4, 1900. Serial No. 31,994. (No model.)



Claim.—1. The combination with an axle-spindle provided with a bearing-shoulder b^5 having a portion thereof flat and provided with a stop-shoulder b^3 at the rear thereof, said shoulder b^3 being provided with a forwardly-projecting annular flange b^4, of a cushion seated in the chamber formed by the stop-shoulder b^3 and the flange b^4 and projecting outwardly therefrom, a washer placed upon the spindle and having a flat portion to engage the flat portion of the bearing-shoulder, and a box mounted upon said spindle and having its inner end held in frictional engagement with the washer and provided with a cup-flange which surrounds and incloses said washer, cushion, and the cushion-chamber, substantially as set forth.

2. The combination with an axle-spindle having an annular shoulder at its outer end and a screw-threaded extension, of a chambered nut having a notch or recess in one of its walls, a cushion seated in the chambered portion of said nut, and a washer confined between the cushion and the outer end of the box and provided with a lug to engage said notch or recess, substantially as and for the purpose set forth.

662,778. LOCKING-COVER FOR MILK-CANS. CHARLES M. DRAVO and THOMAS B. MILLER, McKeesport, Pa. Filed Apr. 21, 1897. Serial No. 633,155. (No model.)



Claim.—1. In a locking-cover for milk-cans, a lid or cover having locking mechanism therein provided with an exposed keyhole, and a movable handle or grip for said lid or cover adapted to close over the said keyhole, substantially as described.

2. In a locking-cover for milk-cans, a lid or cover having a locking mechanism therein; an escutcheon on the upper surface of one side of the same having a keyhole therein with enlargements on opposite sides thereof; and a movable grip or handle having a central bent portion to fit between said enlargements and cover said keyhole; substantially as described.

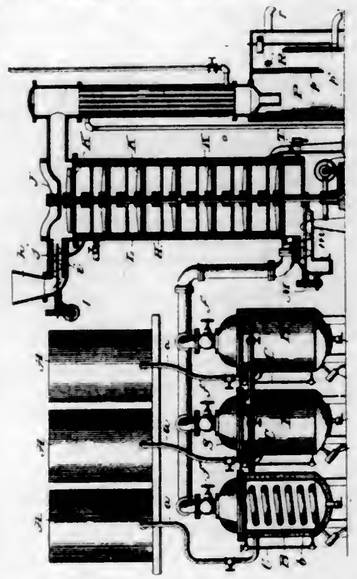
3. A milk-can with a tapered neck having an upper surrounding rim into which the upper edge of the said neck is swaged, said rim forming a concealed shoulder; a lid or cover having a straight flange with its lower edge bearing against the tapered neck at a point below the upper edge of said neck; and an automatically-operating bolt carried by the said lid or cover and adapted to engage the lower portion of the rim and be inclosed within the space between the neck and the flange of the lid or cover; substantially as described.

662,779. METHOD OF PURIFYING ALBUMEN. GEORG EICHELBAUM, Berlin, Germany. Filed May 27, 1899. Serial No. 718,468. (No specimens.)

Claim.—1. The process of purifying vegetable and animal albuminoid substances which consists in heating such substances together with an alcoholic liquor containing a decolorizing agent under pressure to a temperature above the boiling-point of alcohol.

2. The process of purifying vegetable and animal albuminoid substances which consists in heating such substances together with an alcoholic liquor containing sulfurous acid under pressure to a temperature above the boiling-point of alcohol.

662,780. PROCESS OF OBTAINING CALCIUM ACETATE. VICTOR L. EMERSON, Baltimore, Md., and WILLIAM R. EMERSON, Washington, D. C. Filed Nov. 9, 1899. Serial No. 736,387. (No specimens.)



Claim.—1. The formation of a metallic acetate by bringing into contact acetic-acid vapors with a suitable lime base, while said substance is in a heated state, the temperature being maintained at or above the boiling-point of water by a source of heat independent from the latent heat of the acid-vapors, substantially as described.

2. The process of forming a metallic acetate, which consists in heating lime to a temperature above the boiling-point of water and subjecting it to the action of pyroligneous-acid vapors while in a heated state, and combining the acid constituent and lime, substantially as described.

3. The process of forming a metallic acetate, free from tarry matter, which consists in maintaining the lime base, being subjected to the action of the acid-vapors, at a temperature sufficiently high to prevent the tarry matter, watery vapors or other foreign substances from being condensed upon the material treated by an independent source of heat, substantially as described.

4. The process of forming a metallic acetate, which consists in keeping the base in a dry, heated state, subjecting it to a sufficiently high temperature to enable it to resist the condensation of foreign matter and aqueous vapors brought into contact therewith, thus obviating the necessity of roasting the product to evaporate or fix the foreign substances, substantially as described.

5. In the process of forming metallic acetates, the bringing of metallic acid-vapors into contact with a finely-divided lime base and agitating said metallic base while the same is in a heated state and in contact with the acid-vapors, and condensing separately the aqueous vapors carrying foreign matter, substantially as described.

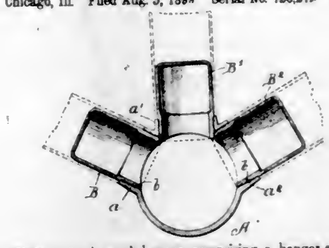
6. The process of heating calcium or other metallic substance to a temperature above the boiling-point of water by a source of heat independent of the direct application of latent heat contained in the crude acid-vapor being treated, and subjecting said metallic substance to the action of acetic-acid vapors while in such a heated state, to form the salts of the metal, substantially as described.

7. The herein-described process of making an acetate of a lime base, which consists in bringing the vapors of crude acetic acids in contact therewith and keeping the said base at or above the temperature of said vapors, substantially as described.

8. The herein-described process of forming a metallic acetate, which consists in subjecting a metallic base to the action of acetic-acid vapors and maintaining said base at a temperature sufficiently high to prevent the aqueous vapors or the vapors of other foreign matter which have a volatile point below 100° centigrade, from becoming condensed upon said base, substantially as described.

9. The herein-described process of making an acetate of a metallic base, which consists in first separately heating the metallic base to at least 100° centigrade, whereby hydration thereof is prevented, then bringing the vapors of acetic acid in contact with said hot base and maintaining the temperature of said base by a heat-supply independent of the heat of the acid-vapor itself, as set forth.

662,781. BICYCLE CRANK-HANGER. WILLIAM H. FAUBER, Chicago, Ill. Filed Aug. 5, 1899. Serial No. 726,272. (No model.)

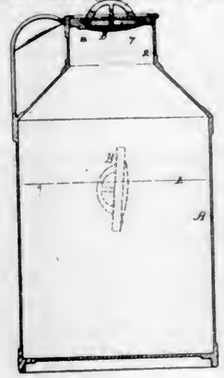


Claim.—1. A crank-hanger comprising a hanger-sleeve provided with short integral annular flanges provided with interior screw-threads, and thimbles, the outer parts of which are smooth and cylindric to enter the ends of frame-tubes, and the inner parts of which enter said flanges and are screw-threaded to engage the same, the outer smooth parts of the thimbles being longer than the inner screw-threaded parts and smaller in diameter than the external diameter of the flanges, and the said inner screw-threaded ends of the thimbles being contained within and entirely covered by the flanges and being secured to the flanges by brazing.

2. A crank-hanger comprising a hanger-sleeve provided with short integral annular flanges provided with interior screw-threads, and thimbles, the outer parts of which are smooth and cylindric to enter the ends of frame-tubes, and the inner parts of which enter the flanges and are screw-threaded to engage the same, said screw-threaded parts of the thimbles being made of a diameter no greater than that of the smooth parts thereof, the outer smooth parts of the thimbles being longer than the inner screw-threaded parts and smaller in diameter than the external diameter of the flanges, and the said inner screw-threaded ends of the thimbles being contained within and entirely covered by the flanges and being secured to the flanges by brazing.

3. A crank-hanger comprising a hanger-sleeve provided with short integral annular flanges provided with interior screw-threads, and thimbles, the outer parts of which are smooth and cylindric to enter the ends of frame-tubes and the inner parts of which enter the flanges and are screw-threaded to engage the same, the walls of the parts of the thimbles containing the threads being made of greater thickness than the walls of the other parts thereof, the outer smooth parts of the thimbles being longer than the inner screw-threaded parts and smaller in diameter than the external diameter of the flanges, and the said inner screw-threaded ends of the thimbles being contained within and entirely covered by the flanges and secured to the flanges by brazing.

662,782. STOPPER FOR MILK-CANS. ALVAN B. FISHER, Rutland, Mass., assignor of one-half to Frederic B. Stearns, same place. Filed July 5, 1900. Serial No. 22,560. (No model.)



Claim.—1. An internal closing-stopper for cans, consisting of an externally complete and creaseless disk-shaped body integrally composed of two opposite disk plates united at their periphery by a solid circular rim portion, and embracing between said portions a hollow interior, air chamber or space, said rim portion having a preponderance or weight at one side of its circle, whereby said stopper is caused to assume an edgewise upward position when floating, as shown and described.

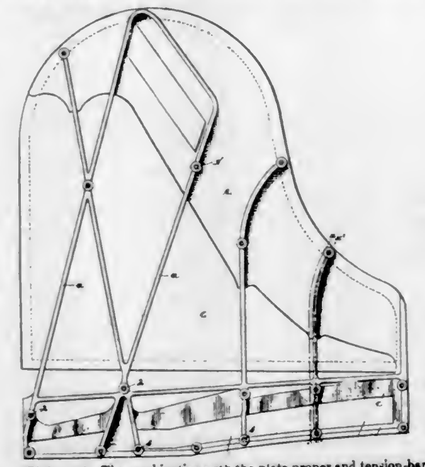
2. An internal closing-stopper for cans, composed of water-resisting material, such as india-rubber, and comprising upper and lower disk-face portions, an interior hollow or air chamber for floating said stopper, a solid circumferential rim, and provided with a rigid or stiff skeleton frame embedded within said rim, substantially as set forth.

3. An internal closing-stopper for cans, consisting of a flat circular discoidal body of impervious material embodying an upper and lower surface-shell united by a solid peripheral rim portion, and central brace, and having a hermetically-closed interior hollow or air chamber, rendering said stopper buoyant, a counterweight embedded in and inclosed by said body material at or near one edge and a handle integral upon the disk face, for the purposes set forth.

4. An internal closing-stopper for cans, comprising the hollow, floatable discoidal-shaped body having a solid peripheral rim or edge circle made of comparatively hard rubber or non-pervious material, said circle provided with an integral peripheral edge facing of soft elastic material inseparably united to and forming a part of the rim-circle without any intervening joint fissure or crevice, substantially as shown and described.

5. The combination with a sheet-metal milk-can having a cylindrical neck provided with the inwardly-projecting annular lip, lining bead or offset within the neck-opening; of the floatable internal closing-stopper consisting of the circular discoidal body composed of upper and lower disk shells integrally united with a solid peripheral rim adapted to fit within said neck; said stopper counterweighted to float edgewise upward, and provided upon its disk face with an integrally-united handle, said stopper being exteriorly smooth and devoid of joints or creases, substantially as shown and described.

662,783. PIANOFORTE. LOUIS GASSARD, Toronto, Canada, assignor to Thomas Gabriel Mason, same place. Filed Apr. 21, 1900. Serial No. 13,759. (No model.)



Claim.—1. The combination with the plate proper and tension-bars, of a composite pin-block comprising an independent encompassing iron frame made up of the inner and outer sides independent of the plate proper and the wooden pin-block proper suitably held therein and detachable means for securing the inner and outer sides of the frame to the various bars of the plate as and for the purpose specified.

2. The combination with the plate proper and tension-bars, of a composite pin-block comprising an independent encompassing iron frame made up of the inner and outer sides independent of the plate proper and the wooden pin-block proper suitably held therein and bolts extending through the tension-bars and the inner and outer sides of the frame whereby it is secured to the plate as and for the purpose specified.

3. The combination with the plate proper and tension-bars, of a composite pin-block comprising an independent encompassing iron frame provided with the inwardly-extending retaining-flanges at the bottom of the side walls and the upper overhanging flange at the inner side of one side wall and having the point of the frame extending into corresponding re-

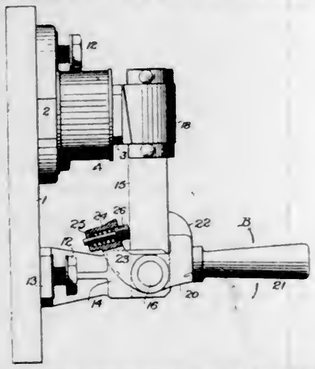
cesses in the tension-bars, the pin-block proper comprised of a plurality of layers of wood fitting on top of the bottom flanges of the frame and within the upper flange and means for securing the composite pin-block to the tension-bars as and for the purpose specified.

4. The combination with the sounding-board, of a rim having grooved sides, such rim being fastened to the edges of the frame and of the sounding-board, said board being left free to vibrate all around as and for the purpose specified.

5. The combination with the plate and sounding-board and means for holding the sounding-board in position, of the resonator suitably secured to the frame and the pilot-pin extending through the plate, sounding-board and resonator as and for the purpose specified.

6. The combination with the plate proper and tension-bars, of a composite pin-block comprising an independent encompassing iron frame provided with the lower flanges at its sides and the upper overhanging flange on one side and having the frame extending into corresponding recesses in the tension-bar, and means for securing the composite pin-block to the tension-bars as and for the purpose specified.

662,784. **APPARATUS FOR INTERRUPTING RELATIVELY HIGH POTENTIAL CIRCUITS.** WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed Nov. 20, 1899. Serial No. 737,587. (No model.)



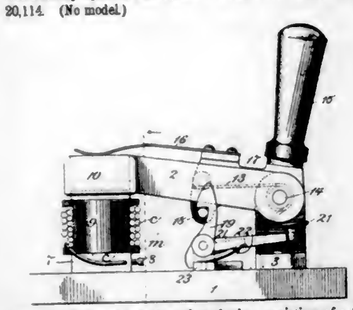
Claim.—1. Means for interrupting relatively high potential electrical circuits without dangerous or damaging arcing, consisting of two circuit-interrupting terminals located in the circuit to be interrupted, one of said terminals being provided with an operating-handle; in combination with means for setting up or establishing an electromagnetic field about said terminals, in which field the magnetic lines of force are caused to flow in substantially the same direction as does the current-flow; said terminals being each provided with a series of fingers adapted to interrupt the circuit at a number of points, substantially as described.

2. Means for interrupting relatively high potential electrical circuits without dangerous or damaging arcing, consisting of two circuit-interrupting terminals located in the circuit to be interrupted, one of said terminals being provided with an energizing coil or coils adapted to set up or establish an electromagnetic field in which the magnetic lines of force tend to flow in substantially the same direction as does the current to be interrupted and the other with an operating-handle, said terminals being so constructed as to interrupt the circuit at a number of points, substantially as described.

3. Means for interrupting relatively high potential electrical circuits without dangerous or damaging arcing, consisting of two circuit-interrupting terminals located in the circuit to be interrupted, one of said terminals being in the nature of a bipolar electromagnet having coils in circuit with a source of electrical energy and adapted to establish a magnetic field at the poles of the bipolar magnet in which the magnetic lines of force tend to flow in substantially the same direction as does the current-flow to be interrupted, the other terminal being in the nature of a movable armature and both terminals provided with fingers adapted to interrupt the circuit at a number of points, substantially as described.

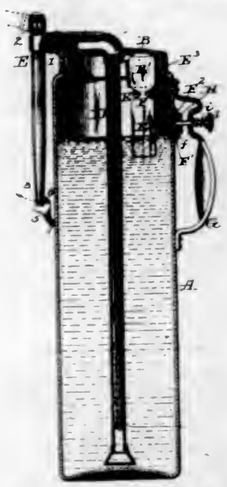
4. Means for interrupting relatively high potential electrical circuits without dangerous or damaging arcing, consisting of two circuit-interrupting terminals located in the circuit to be interrupted, one of said terminals being a stationary electromagnet, the coils of which are connected in series relation with the source of current-supply and the core or cores thereof; the other or movable terminal being connected to the translating devices and source of current-supply, the arrangement being such that the magnetic lines of force of the stationary terminal tend to flow in substantially the same direction as does the current-flow through the poles thereof and the movable terminal, substantially as described.

662,785. **APPARATUS FOR RUPTURING HIGH-POTENTIAL ELECTRICAL CIRCUITS WITHOUT DANGEROUS ARCING.** WILLIAM GRUNOW, Jr., Bridgeport, Conn., assignor to the McElroy-Grunow Electric Railway System, same place. Filed June 13, 1900. Serial No. 20,114. (No model.)



Claim.—A current-interrupting device consisting of a fixed and a movable terminal, the fixed terminal being the poles of a horseshoe-magnet and the movable terminal being, when in contact, located wholly between said poles and in the complete or closed magnetic field, the arrangement being such that the magnetic lines of force flow entirely through and around the movable terminal and in a direction parallel to the movement thereof at all parts of its movement; in combination with means for effecting said movement, substantially as described.

662,786. **FIRE-EXTINGUISHER.** CHARLES R. HARRIS, Williamsport, Pa., assignor to the Harris Safety Company, New York, N. Y. Filed Oct. 12, 1899. Serial No. 733,411. (No model.)



Claim.—1. In a chemical fire-extinguisher, the combination with a tank, an acid-holder therein and means for liberating the acid, of a jointed nozzle, and a cap for automatically closing the nozzle when the latter is not in use.

2. In a chemical fire-extinguisher, the combination with a tank and an acid-holder therein, of a discharge-nozzle and a hinged cap adapted to normally press against the free end of the discharge-nozzle when the apparatus is not in use and to automatically swing away therefrom when the apparatus is put into operation.

3. The combination with a tank, of a holder therein, an acid vessel supported by and suspended from said holder and comprising two communicating parts connected by a small neck of frangible material, the lower part of the vessel depending from the holder and means for applying lateral pressure to said lower part of the vessel to separate it from the part mounted in the holder by breaking the frangible neck.

4. The combination with a tank, of a fixed holder therein, an acid vessel suspended from said holder, said vessel made in two compartments connected by a restricted neck and means for applying pressure laterally against one part of the vessel for separating or detaching the compartments so as to form a restricted outlet for each compartment to liberate their contents gradually.

5. The combination with a tank having a conical ring or seat therein, of a glass vessel having a conical upper part supported by said ring or seat, said vessel comprising two parts connected by a restricted neck, the lower part of the vessel projecting below the ring or seat, a plunger bearing against the lower part of the vessel and means for actuating the plunger to sever the lower from the upper part of the vessel at the restricted neck

662,787. **TUBING.** CHARLES HARVEY, Yardley, England. Filed May 28, 1900. Serial No. 18,312. (No model.)



Claim.—1. A composite tube consisting of compressed fiber and a seamless metallic covering therefor drawn therewith.

2. A composite tube, consisting of compressed fiber and a seamless covering of ductile metal drawn therewith.

3. A composite tube consisting of a non-metallic foundation with a seamless covering of metallic material drawn therewith.

4. A composite tube, consisting of a non-metallic foundation with a seamless covering of ductile metal drawn therewith.

5. A composite tube, consisting of an inner section of paper and a seamless outer section of metallic material drawn therewith.

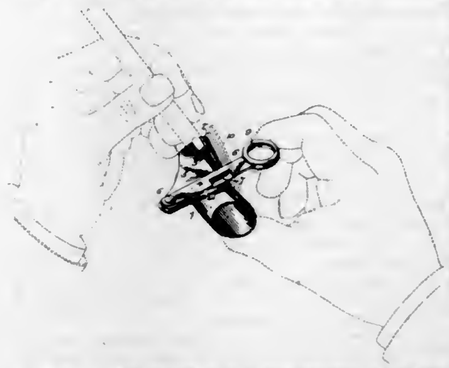
6. A composite tube, consisting of an inner section of paper and a seamless outer section of ductile metallic material drawn therewith.

7. A composite tube consisting of compressed pulp and a seamless covering of metallic material drawn therewith.

8. A composite tube consisting of compressed pulp and a seamless covering of ductile material drawn therewith.

9. A composite tube consisting of compressed fiber and a seamless covering of thin metallic material drawn therewith.

662,788. **PENCIL-SHARPENER.** CLARKE F. HESS, Fernwood, Pa. Filed May 19, 1900. Serial No. 17,261. (No model.)

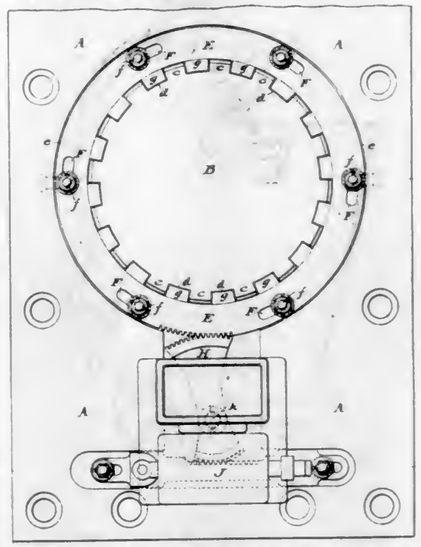


Claim.—1. The combination in a pencil-sharpener, of the frame having an integral and flexible portion adapted to the thumb of the hand, and an integral part forming a receptacle for the pencil, said receptacle providing for the projection of a portion of the pencil, and a knife pivoted at one end of the frame and serving to cut the pencil, said knife having a handle at the opposite end whereby it may be operated by the forefinger of the hand and being free to swing clear of the frame so that it may be sharpened when necessary, substantially as described.

2. In a pencil-sharpener, a frame having an integral and flexible portion adapted to the thumb of the hand, an integral portion to receive the pencil, said latter portion having a slot or opening through which the pencil may project, and a flat portion between the thumb-piece and the pencil-receptacle, in combination with a knife pivoted to the flat portion of the frame and adapted to be moved across said flat portion to cut the projecting part of the pencil, substantially as described.

3. The combination in a pencil-sharpener, of an approximately cylindrical and flexible receptacle adapted to receive the thumb of the hand, a conical pencil-receptacle, a flat portion integral with and joining said receptacles, a knife pivoted to the flat portion of the frame and movable across the surface of the same, and a stop and guide for the knife formed by a bent-up portion of said frame, substantially as described.

662,789. **INTERLOCKING DEVICE FOR SAFE-DOORS.** WILLIAM H. HOLLAR, Philadelphia, Pa., and WILLIAM CORRY, Cincinnati, Ohio; said Corry assignor to said Hollar. Filed May 31, 1900. Serial No. 18,480. (No model.)



Claim.—The locking mechanism for circular safe-doors, which consists in the combination of a circular non-rotatable door with a series of lugs formed integrally around the inner edge thereof; an internally-serrated annulus, fitted to the inner edge of the door-aperture, the serrations of which consist of a series of lugs projecting into the door-opening and capable of interlocking and interspacing with the lugs around the inner edge of the door according to the rotative position of the annulus; and means for rotating the annulus so as to lock or unlock the door, substantially as described.

662,790. **TYPE-WRITING MACHINE.** EDWARD A. HOPKINS, New York, N. Y., assignor to the Elliott & Hatch Book Typewriter Company, of New York. Filed June 30, 1900. Serial No. 22,196. (No model.)

Claim.—1. In a type-writing machine, the combination of an ink-ribbon, two winding-spools attached to opposite ends thereof, alternately-acting mechanisms, serving respectively to shift the spools in an axial direction and to turn the spools, whereby the ribbon is fed longitudinally in an unchanging path and then shifted laterally preparatory to its travel in a new path.

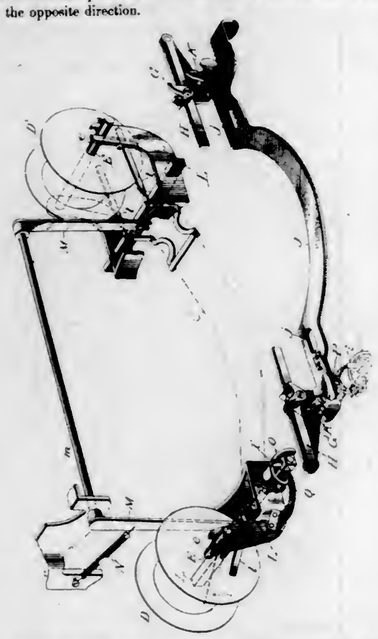
2. In a type-writing machine, the combination of an ink-ribbon, of mechanism actuated from the finger-keys for feeding the ribbon step by step longitudinally, and means acting independently of the above-named mechanism for shifting the same laterally at intervals, whereby the longitudinal and lateral movements of the ribbon are effected wholly independent of each other.

3. In a type-writer, an ink-ribbon, two spools between which the ribbon is wound to and fro, mechanism for turning the respective spools alternately and in opposite directions, shifting mechanism for throwing the feed devices of the respective spools alternately into and out of action, and means for moving the spools endwise, actuated by said shifting mechanism.

4. In a type-writer, the combination of an ink-ribbon, the two spools and their ratchet-wheels, the pawls and their operating devices, the shifting frame to which they are attached, means for feeding the spools endwise in unison, and means connected with the shifting frame for effecting said movement of the spools in the act of reversing the direction of the ribbon-feed.

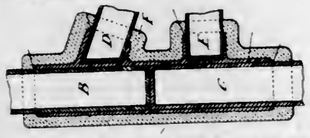
5. In a type-writer, the spools, their feed mechanism, the sliding frame for reversing the action of said feed mechanism, a cam and connections for shifting the spools endwise, and a device connected with the sliding frame for rotating the cam step by step in the act of reversing the feed mechanism.

6. In a type-writer, two ribbon-carrying spools, movable in an axial direction, connections to insure equal movement of the two spools, a spring tending to move the spools in one direction and a stepped cam to move them in the opposite direction.



7. In a type-writer, two ribbon-carrying spools movable in an axial direction, connecting devices to secure their equal movement, a spring connection tending to move them axially in one direction, a cam controlling their to-and-fro motion, means for reversing the rotation of the spools and at the same time actuating the cam.

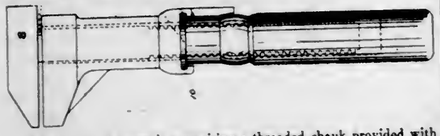
662,791. **METHOD OF UNITING METAL SURFACES BY MEANS OF FLUID-PRESSURE.** CARL HUBER, Carlsruhe, Germany. Filed Jan. 29, 1900. Serial No. 3,207. (No model.)



Claim.—1. In a method of uniting metal surfaces by means of fluid-pressure, hermetically inclosing the contiguous surfaces to be united by the application of plastic impervious packing material over the meeting edges of the surfaces and subjecting the whole to liquid-pressure in a chamber, substantially as described.

2. In a method of uniting the surfaces of metal tubular objects by means of fluid-pressure, hermetically inclosing the contiguous surfaces of the tubular objects by the application of plastic impervious material over the joint between the two surfaces and subjecting the whole to liquid-pressure in a chamber, substantially as described.

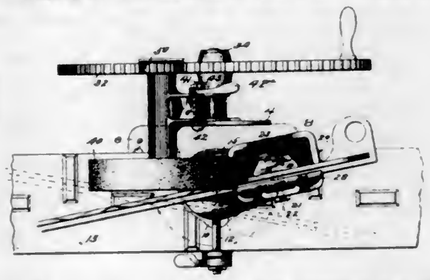
662,792. **WRENCH.** MANETHO C. JACKSON, Denver, Colo., assignor of one-half to John McDonough, same place. Filed Mar. 6, 1900. Serial No. 7,586. (No model.)



Claim.—1. A wrench comprising a threaded shank provided with a jaw, a hollow handle threaded to engage the threads of the shank, and in which the latter telescopes, and a sliding jaw provided with an opening through which the shank passes, the shank and jaw opening being shaped to prevent the jaw from turning independently of the shank, the handle being revolubly interlocked with the sliding jaw which is grooved to receive a shoulder on the handle, the grooves being open on one side to receive the handle-shoulder, the space between the grooves on the opposite side being contracted to lock the shoulder against escape from the jaw.

2. In a wrench, the combination of a hollow interiorly-threaded handle, a jaw having a threaded shank to engage the handle and telescope therein, a jaw slidingly mounted on the shank, having a grooved socket open on one side to receive a shoulder formed on the handle extremity, the socket being contracted on the opposite side to prevent the shoulder from slipping out, the sliding jaw being also provided with a thumb and finger piece overlapping the handle for the purpose set forth.

662,793. **MOWER-KNIFE GRINDER.** RICHARD G. KENNEDY, Pittsburg, Pa. Filed June 7, 1900. Serial No. 19,389. (No model.)



Claim.—1. In a mower-knife grinder, the combination of the base forming the bed-plate, the split standard pivoted thereto, the swivel-plate mounted thereon, and the adjustable knife-holder, substantially as described.

2. In a mower-knife grinder, the combination of the base, the vertical side or wall formed thereon, the arced or segmental flange formed on said wall, the split standard, a bolt and cam carried thereby, said bolt engaging said flange, and a grinding-wheel, substantially as described.

3. In a mower-knife grinder, the combination of the base, a vertical wall or side formed thereon, and having an opening in its face, a split standard-arm secured in said opening, said standard-arm forming a bearing on its lower end for the gear-wheel, and a journal for the shaft of the grinding-wheel, and a grinding-wheel, substantially as described.

4. In a mower-knife grinder, the combination of the base, the arms 8, the vertical side or wall formed on said base, the split standard carried therein, the oblique side formed on said base, provided with a vertical slot, a bolt carried in said slot, a catch carried on said bolt, a cam-wrench lever on said bolt, all arranged in such a manner that the plates 8 are held under the rim of the mower-wheel, the oblique side resting on the tread of the mower-wheel, substantially as described.

5. In a mower-knife grinder, the combination of the base, a bed-plate formed thereon, a swivel-plate carried on said bed-plate, a knife holder mounted on said swivel-plate, a vertically-adjustable clip carried by said knife-holder, and means for holding said clip in an upright and in adjusted position, substantially as described.

6. In a mower-knife grinder, the combination of the base, split standard-arm mounted therein, a grinding-wheel recessed on both faces, a retaining-washer in the inner recess, nibs in said retaining-washer, a hollow spindle, a pinion, nibs in the inner face of said pinion, and notches in the ends of said spindle, and the securing-bolt, substantially as and for the purposes set forth.

7. The means herein described of grinding mower-knives consisting of the pivoted knife-holder by which either side of the cutting edge of the knife may be applied to the grinding-wheel, in combination with the grinding-wheel, and pivoted split standard, substantially as described.

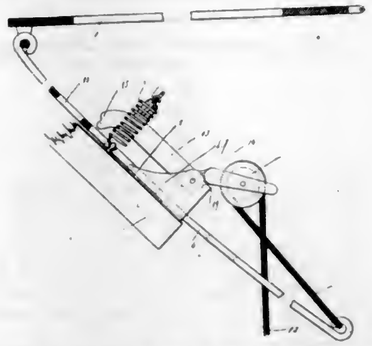
8. The combination in a machine for grinding mower-knives, consisting of the pivoted swivel-plate, the pivoted knife-holder, the vertically-adjustable clip carried thereby, and means of vertical adjustment on said clip, substantially as described.

9. In a machine for grinding mower-knives, the combination of a base, a split standard pivotally secured thereto, a grinding-wheel, means for securing said standard in any position within its limit of adjustment, substantially as described

10. The combination in mower-knife-grinding machines of the sectional standard-arm, having a journal and a bearing at each end for the purpose described, the intermediate hollow steel spindle having notches

at each end, pinion or washer having recesses or seats to correspond to the ends and to hold the hollow shaft in position, projecting nibs in said recesses to correspond with said notches in the shaft and to fit therein, a securing-bolt passing through the pinion, the hollow spindle and the washer by which all the parts are solidly secured together for joint operation as set forth.

662,794. **APPARATUS FOR OPENING OR CLOSING WINDOWS.** EMILE KIEBBE, Lodz, Russia. Filed Feb. 7, 1900. Serial No. 4,396. (No model.)



Claim.—In a device of the class described, the combination with a window or frame, mounted on horizontal pivots, of a fixed support below said frame provided with a guideway, a bar mounted to slide in said guideway and provided with a series of recesses, a lever pivoted intermediate of its ends to the fixed support, a spring having a normal tendency to cause one end of the lever to engage one of the recesses in the bar, a pulley journaled in the other end of the lever, and a cord attached to the lower end of the bar, passing around the pulley and hanging down to be grasped by the operator, substantially as described.

662,795. **WASHING-MACHINE.** JOSEPH G. KINCAID, Hiawatha, Kans. Filed Aug. 23, 1900. Serial No. 27,829. (No model.)



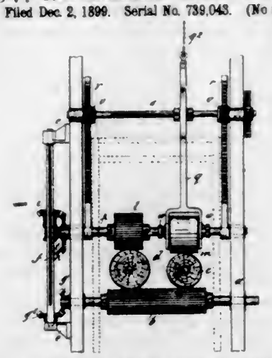
Claim.—In a washing-machine, the combination with a box or body having a top opening covered by a hinged lid with arms oscillatably suspended therefrom, and movable therewith, said arms projecting above the lid, and a rubber-head carried by said arms, of an upwardly-projecting inwardly-inclined support extending transversely across the top portion of one end of the box or body and having slots opening out of the upper edge portion thereof near the opposite ends, and a reciprocable frame including side bars having unconnected terminals attached to the upper portions of the said arms, the side bars being freely slidable in the slots in the support and connected at the terminals opposite those attached to the arms, the engagement of the bars with the arms maintaining the frame at a proper and positively working angle.

662,796. **FOUNTAIN-PEN.** SAMUEL KRAUS, New York, N. Y., assignor to the Eagle Pencil Company, same place. Filed Sept. 28, 1900. Serial No. 31,343. (No model.)



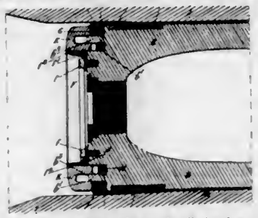
Claim.—A hard-rubber cap for fountain-pens, having its mouth or open end which fits upon the pen-handle, encircled and tightly bound by a metallic ring, seated in and filling an annular external groove in the body of said cap, as hereinbefore shown and set forth.

662,797. **FEED MECHANISM.** GOTTLIEB KUNZ, Schwaben, Germany. Filed Dec. 2, 1899. Serial No. 739,043. (No model.)



Claim.—In an adjustable feeding device for roller-frames, the combination of the grooved feed-roller, supporting and feeding the beams to be cut, of a pressure-roller, the shaft of which is journaled in vertically-adjustable supports, said pressure-roller comprising an inner roller, a slot in the same through which the shaft of the roller extends, an outer casing rotatably fitted around the inner roller and adapted to roll and press upon the beam to be cut and a lifting-fork the branches of which are secured to said inner roller, substantially as and for the purpose set forth.

662,798. **PROJECTILE FOR ORDNANCE.** HIRAM S. MAXIM, London, England, assignor to the Vickers, Sons & Maxim, Limited, same place. Filed Nov. 6, 1899. Serial No. 735,975. (No model.)



Claim.—1. The combination with a projectile having a pocket therein containing an expressible substance, of a semiplastic ring and means actuated by the pressure of the explosive charge of the gun applied behind said projectile and independent of other explosive means for forcing said expressible substance into engagement with said ring for expanding the latter, as and for the purpose set forth.

2. The combination with a projectile having a pocket therein containing an expressible substance, of a semiplastic ring at one end of said projectile, and a movable base-piece for forcing said expressible substance into engagement with said ring, and expanding the latter, the said base-piece being actuated directly by the explosion of the propelling charge in the gun behind the projectile and independent of other explosive means, as and for the purpose set forth.

3. The combination with a projectile having a pocket therein containing an expressible substance, of a semiplastic ring at the end of said projectile, and a movable base-piece, one part of which engages said ring, and another part of which fits within said pocket, whereby upon the application of pressure upon the rear side of said base-piece, said ring is spread by said base-piece and said expressible substance is forced in engagement therewith to further expand said ring, as and for the purpose set forth.

4. The combination with a projectile having a recess therein, of a semiplastic ring in said recess, and a movable base-piece for forcing an expressible substance into said recess during the passage of the projectile along the bore of the gun, the said base-piece being actuated directly by the explosion of the propelling charge in the gun behind the projectile and independent of other explosive means.

5. The combination with a projectile having a recess therein containing a semiplastic ring, a groove containing an expressible substance and passages between said groove and recess, of a movable base-piece having annular flanges thereon, one of which is adapted to enter said recess and the other of which is adapted to enter said annular groove, as and for the purpose set forth.

6. The combination with a projectile having a recess therein, containing a semiplastic ring, a groove containing an expressible substance

and passages between said groove and recess, of a movable base-piece having two concentric flanges thereon, the outer one adapted to enter the recess containing the semiplastic ring and the inner one to enter the groove containing the substance to be forced into said recess through said passages, the quantity of the expressible substance in said groove being such that it only partially fills the same, so as to permit the said movable base-piece to advance a short distance before acting upon and forcing the substance from said groove, as and for the purpose set forth.

7. The combination with a projectile having a recess therein containing a semiplastic ring, a groove containing an expressible substance and passages between said groove and recess, of a movable base-piece in the form of a ring, having two circular flanges thereon which flanges are adapted to enter, respectively, the recess containing the plastic ring and the groove containing the substance to be forced into said recess through said passages, the flange that enters the recess containing the semiplastic ring being of greater width than the other flange, as and for the purpose set forth.

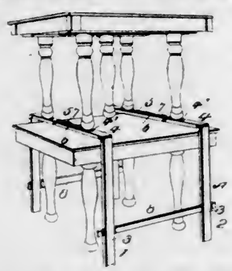
8. The combination with a projectile having a recess therein, containing a semiplastic ring, a groove containing an expressible substance and passages between said groove and recess, of a movable base-piece having two concentric flanges adapted to lie within said recess and groove and packing-pieces adapted to tightly fit said recesses and groove, as and for the purpose set forth.

9. In a projectile for ordnance, the combination with a semiplastic ring, a movable base-piece having two concentric flanges, and a recess and a groove in the projectile for receiving said flanges, the said groove containing an expressible substance and communicating with said recess of packing-pieces adapted to tightly fit the recess and the groove, the said packing-piece for the recess being of greater width than the flange of the base-ring entering said recess and weakened at its outer periphery substantially as described.

10. In a projectile for ordnance, the combination with a semiplastic ring and a movable metallic base-ring, having two circular flanges thereon adapted to respectively engage with a recess and an annular groove in the projectile, of a dished ring for securing the said base-ring to the projectile and of a gas-check interposed between said dished ring and the base-ring substantially as and for the purpose specified.

11. In a projectile for ordnance, the combination of a semiplastic ring, of a movable base-piece having two circular flanges thereon for engaging respectively with an annular recess and an annular groove in the projectile, of a metal driving-band and of a fibrous band interposed between said semiplastic ring and the driving-band substantially as and for the purpose specified.

662,799. TABLE-SUPPORT. FRANK A. MILLIKAN, Warren, Ohio.
Filed May 4, 1900. Serial No. 15,512. (No model.)



Claim.—1. A device constructed to permit of its being extended over a table to support a second or superposed table above the first, comprising extensible cross-pieces upon which the superposed table is designed to rest, and supports for such cross-pieces.

2. A device constructed to permit of its being extended over a table to support a second or superposed table above the first, composed of a plurality of frames having cross-pieces upon which the superposed table is designed to rest, and means connecting said frames for adjusting them relatively to each other, as set forth.

3. A device constructed to permit of its being extended over a table to support a second or superposed table above the first, composed of two frames having extensible cross-pieces upon which the superposed table is designed to rest, and means for adjusting said frames relatively to each other, as set forth.

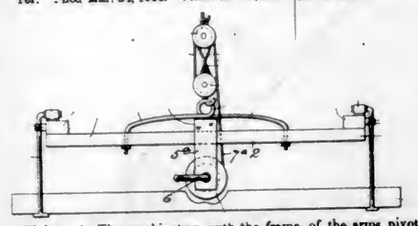
4. A device constructed to permit of its being extended over a table to support a second or superposed table above the first, composed of two frames having cross-pieces upon which the superposed table is designed to rest, uprights supporting said cross-pieces at their ends, and side bars adjustably connecting the uprights of the frames, as set forth.

5. A device constructed to permit of its being extended over a table to support a second or superposed table above the first, composed of two frames adapted to hold the superposed table thereon, means for adjusting each frame longitudinally, and means for relatively adjusting the frames laterally, as set forth.

6. A device of the character specified, for supporting tables, comprising cross-pieces having grooves in their upper surfaces, and supports for such cross-pieces, as set forth.

7. A table-support composed of frames having cross-pieces formed with grooves in their upper surfaces, supports for said cross-pieces, and means for relatively adjusting said frames, as set forth.

662,800. WAGON-BED HOIST. ABRAHAM MOYER, Antlers, Ind. Ter. Filed Mar. 24, 1900. Serial No. 10,090. (No model.)



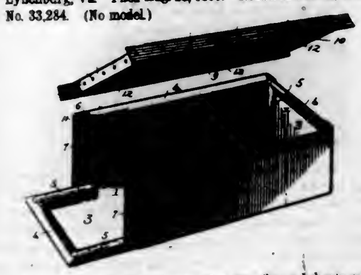
Claim.—1. The combination, with the frame, of the arms pivoted to the frame to swing crosswise and having ends to engage a wagon-bed, and the springs for holding the arms in various positions.

2. In a wagon-bed hoist, the combination, with the hoisting-rigging, the frame having two pairs of side hangers, a shaft extending through all the hangers, a windlass on the shaft between the hangers of one pair, the arms pivoted to the ends of the frame, and a suspending device connecting the frame with the said rigging, substantially as set forth.

3. The combination, with the frame composed of longitudinal and cross beams, of the arms pivoted to certain of the cross-beams, the suspending device, and the springs secured to said certain cross-beams to control the movement of the arms.

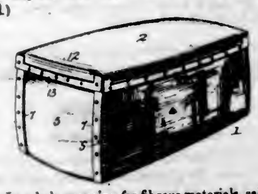
4. The combination, with the frame, and the arms pivoted thereto, of the corrugated springs for adjustably holding the arms in various positions.

662,801. METALLIC BALE-COVERING. THOMAS T. MUNFORD, Lynchburg, Va. Filed Aug. 28, 1899. Renewed Oct. 16, 1900. Serial No. 33,284. (No model.)



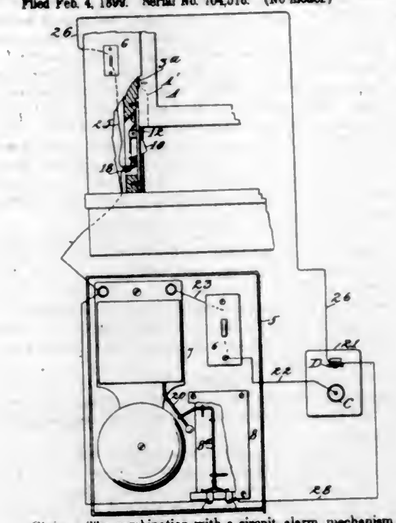
Claim.—In a metallic bale-covering, two flapped sheets, one of which forms the bottom, sides and ends, and the other the top, combined with fastening devices as described, and strips, secured at the outer edges of the sides and ends, adapted to stiffen the body and conceal within the covering the line of fastening devices, substantially as set forth.

662,802. BALE-COVERING. THOMAS T. MUNFORD, Lynchburg, Va. Filed Aug. 28, 1899. Renewed Oct. 16, 1900. Serial No. 33,285. (No model.)



Claim.—In a bale-covering for fibrous materials, said covering being made of fabric, the combination of a body forming the bottom, sides and ends, and comprising side flaps and end flaps, the side flaps having extensions adapted to be bent over the end flaps and secured thereto; reinforcing-strips fastened to the exposed edges of the side and end flaps; a cover composed of a blank having side flaps and end flaps; reinforcing-strips fastened to the exposed edges of the side flaps and end flaps of the cover; and means for securing the extensions of the side flaps to the end flaps of the covering, substantially as set forth.

662,803. BURGLAR-ALARM. JUNIUS L. MURPHY, Denver, Colo. Filed Feb. 4, 1899. Serial No. 704,516. (No model.)



Claim.—The combination with a circuit, alarm mechanism located therein and provided with a vibrating arm, and a circuit-closing device adapted to be operated by the window or door, of means for closing the circuit automatically independently of the said circuit-closer, said means comprising two contacts located in the circuit, and an arm fulcrumed intermediate its extremities, one of which is forked while the other projects into the path of the vibrating arm of the alarm device, the forked extremity being located adjacent said contacts and normally disengaged therefrom, the arrangement being such that when the vibrating arm acts on the circuit-closing device, the latter is actuated causing the forked extremity to bridge the space between the two contacts thus closing the circuit independently of the circuit-closer actuated by the door or window.

662,804. PROCESS OF TANNING. CARL O. NATUSCH, Hamburg, Germany. Filed July 21, 1899. Serial No. 724,710. (No specimens.)

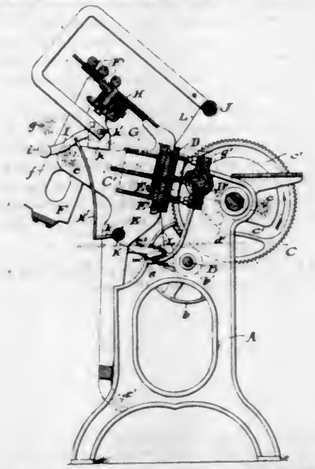
Claim.—The process of quick tanning which consists in immersing the hides in a decoction of tanning containing materials at a temperature of 36° to 42° Celsius, of about the strength specified; cooling the same; restoring the temperature and again cooling; adding a solution of potassium dichromate to the said liquor and allowing the hides to remain in the resulting solution till the hides are completely tanned, substantially as described.

662,805. INK-RIBBON MECHANISM. SAMUEL A. NEIDICH, Philadelphia, Pa. Filed Sept. 6, 1900. Serial No. 29,155. (No model.)

Claim.—1. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to imprint from said type-form through said ink-ribbon, and means to reink said ribbon solely in the region from which the impression is made, substantially as set forth.

2. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon solely in the region from which the impression is made, substantially as set forth.

3. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to imprint from said type-form through said ink-ribbon, means to contemporaneously reink said ribbon in the region from which the imprint is made, means to slacken said ribbon while the impression is being made, and means to tighten said ribbon after the impression is made, substantially as set forth.



4. In a printing-press, the combination with an ink-ribbon, of means to support the opposite extremities of said ribbon in invariable relation with the type-form, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon, solely in the region from which the impression is made, substantially as set forth.

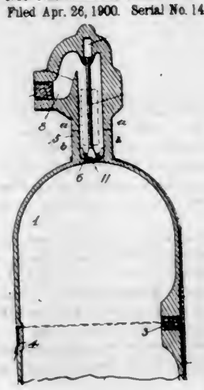
5. In a printing-press, the combination with an ink-ribbon, of feed-rollers mounted in invariable relation with the type-form of said press, and arranged to respectively support the extremities of said ribbon, means to intermittently progress said ribbon between the type-form and the platen opposed thereto, by rotation of said feed-rollers, means to imprint from said type-form through said ink-ribbon, and means to contemporaneously reink said ribbon solely in the region from which the impression is made, substantially as set forth.

6. In a printing-press, the combination with an ink-ribbon, of means to extend said ribbon between the type-form of the press and the platen opposed thereto, means to alternately slacken and tighten said ribbon, means to imprint from said type-form through said ribbon when slackened, and means to intermittently shift said ribbon when tightened, substantially as set forth.

7. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press, and the platen opposed thereto, and means to tighten said ribbon during its progression and slacken said ribbon when at rest, substantially as set forth.

8. In a printing-press, the combination with an ink-ribbon, of means to intermittently progress said ribbon between the type-form of said press and the platen opposed thereto, means to tighten said ribbon during its progression and slacken said ribbon when at rest, comprising a dofter-frame, and means to oscillate said frame, substantially as set forth.

662,806. NON-REFILLABLE BOTTLE. ROBERT H. NEWSON, Nashville, Tenn. Filed Apr. 26, 1900. Serial No. 14,429. (No model.)



Claim.—1. In a non-refillable bottle, the combination with a neck provided with a discharge-opening in its side, of a baffle-plate arranged between the discharge-opening and the main passage through the neck, a valve-seat formed in the neck provided with recesses, a valve located in said neck and of the same diameter as the neck and provided with prongs adapted to fit in said recesses when the valve is seated on its seat, and a guide-stem connected to said valve and projecting into a socket in the upper end of the neck, substantially as set forth.

2. The combination with a non-refillable bottle provided with a valve operating to allow the discharge of a liquid through the neck of the bottle and to prevent its introduction into the bottle through the neck, said bottle being provided with a filling-aperture in its side, of a stopper to close said filling-aperture, a shield to cover said stopper, and a wire wound around the neck, passed through the shield, and wound around the bottle to secure the shield over the stopper, substantially as set forth.

662,807. SHOE-FORM. WALTER L. C. NILES, Lynn, Mass. Filed Jan. 15, 1900. Serial No. 1,432. (No model.)

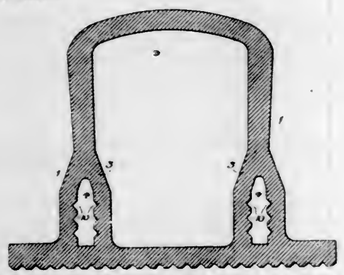


Claim.—1. A shoe-form comprising a hollow fore part shaped to support a vamp and instep of a shoe, a brace-rod comprising sliding telescoping members, a lateral brace connected to the sides of the fore part at or near the top, and a brace-rod pivotally connected with said lateral brace, substantially as described.

2. A shoe-form comprising a hollow fore part shaped to support the vamp and instep of a shoe, a brace-rod comprising sliding spring telescoping members, a lateral brace connected to the sides of the fore part at or near the top, and a pintle pivotally connecting the brace-rod and brace, substantially as described.

3. A shoe-form comprising a hollow fore part shaped to support the vamp and instep of a shoe, a lateral brace connecting the sides of the fore part near the top thereof, said brace having a rearwardly-extending projection, a brace-rod comprising a tubular member pivoted to the projection of the lateral brace, a plunger slidingly fitted in the tubular member, and a spring connecting said members, substantially as described.

662,808. FIREPROOF FLOOR CONSTRUCTION. MICHAEL J. O'MEARA, Philadelphia, Pa. Filed July 7, 1900. Serial No. 22,783 (No model.)



Claim.—1. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having arched tops, flat bottom portions and side walls of an inverted-Y shape in cross-section, the double portions of said walls joining the bottom portion of the lintels, and filling material disposed between said lintels.

2. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having arched tops, flat bottom portions and side walls of an inverted-Y shape in cross-section, the double portions of said walls joining the bottom portion of the lintels, filling material disposed between said lintels, and a metallic reinforce arranged within said filling material.

3. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having arched tops, flat bottom portions and side walls of an inverted-Y shape in cross-section, said side walls being recessed to fit the beam-flanges at the point where they join the bottom portion of the lintel, said notches being made in the double portion of the wall whereby an increased bearing-surface for the lintel is provided, and filling material disposed between said lintels.

4. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having arched tops, flat bottom portions and side walls of an inverted-Y shape in cross-section, said side walls being recessed to fit the beam-flanges at the point where they join the bottom portion of the lintel, said notches being made in the double portion of the wall whereby an increased bearing-surface for the lintels is provided, filling material disposed between said lintels, and a metallic reinforce arranged within said filling material.

5. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having hollow walls, metallic reinforcing rods or wires adapted to said hollow walls, and suitable filling material for holding said rods or wires in place.

6. In a fireproof floor structure, the combination of the floor-beams, hollow lintels supported by the flanges of said beams, said lintels having hollow walls, metallic reinforcing rods or wires adapted to said hollow walls, filling material for holding said rods or wires in place, and filling material disposed between said lintels.

7. In a fireproof floor structure of the character described, a lintel having hollow side walls, the spaces formed in said walls adapted to receive metallic reinforces with a grouting to hold such reinforces in place, the inner walls of said spaces being scored or grooved whereby the grouting placed therein will be keyed in place, substantially as described.

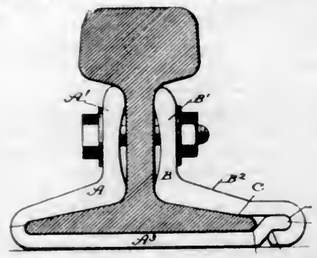
8. As a new article of manufacture, a hollow lintel for fireproof floor construction having an arched top, a flat bottom portion and side walls of an inverted-Y shape in cross-section.

9. As a new article of manufacture, a hollow lintel for fireproof floor construction having an arched top, a flat bottom portion and side walls of an inverted-Y shape in cross-section, said walls being recessed to fit the beam-flanges.

10. As a new article of manufacture, a hollow lintel for fireproof floor construction having hollow side walls for the reception of a metallic reinforce, with provision for retaining said reinforce in place.

11. As a new article of manufacture, a hollow lintel for fireproof floor construction, said lintel having hollow side walls for the reception of metallic wires or rods and notched portions at the ends of said lintels through which said rods or wires may project, with provision for retaining said rods or wires in place.

662,809. RAIL-JOINT. JAMES S. PATTEN, Baltimore, Md. Filed Apr. 21, 1900. Serial No. 13,741. (No model.)

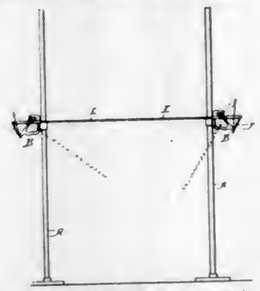


Claim.—1. The combination in a rail-joint with the rail, of the chair composed of the clasp-section having an upright fish-plate, a laterally-opening seat for one edge of the rail, and a base-plate having, at its edge opposite said seat, an upturned portion having an incline upon which the base of the rail operates, and a laterally-projecting elevated web, and the clamping-section having a fish-plate and a base-plate provided at its outer edge with a hook to engage the web of the clasp-section, said base-plate of the clamping-section being provided on its under side with a downwardly-extending fulcrum portion arranged to bear upon the base of the rail and press the edge of the latter down upon the inclined surface of the base of the clasp-section, all substantially as and for the purposes set forth.

2. In a rail-joint, the chair composed of the clasp-section having a fish-plate, a laterally-opening seat for one edge of the rail-base, and a base-plate provided at its edge opposite said seat with an upturned portion having an inclined surface on its inner upper face against which the edge of the rail-base may bear and provided with a laterally-projecting web beyond said inclined surface, and the clamping-section having a fish-plate and a base-plate provided on its under side near its outer edge with a depending projection to bear upon the base of the rail over the inclined surface of the base of the clasp-section and having at its outer edge a returned portion forming a hook adapted to engage over the web at the outer edge of the base of the clasp-section, substantially as set forth.

3. A chair for rail-joints comprising the clasp-section having a laterally-opening seat for the edge of the rail-base, and a base-plate provided near its free edge with an inclined surface adapted to operate by a wedging action upon the edge of the rail, and the clamping-section having a base-plate adapted at its outer edge to engage with that of the base of the clasp-section and provided on its under side with means by which to press upon the base of the rail and force the rail into the seat of the clasp-section, substantially as set forth.

662,810. JUMPING-BAR. THOMAS F. PEAK, Philadelphia, Pa. Filed Feb. 16, 1900. Serial No. 5,468. (No model.)



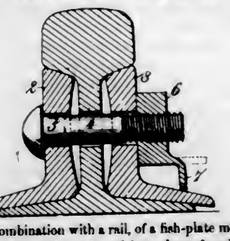
Claim.—1. In a jumping-bar, standards, a retaining apparatus adapted to be adjustably secured upon the standards, cross-rods pivoted to said retaining apparatus, guides formed with the retaining apparatus for the purpose of guiding the cross-rods to their normal position, and an elastic means for returning and holding the cross-rods in their normal position, as specified.

2. In a jumping-bar, the combination of suitable standards with a retaining apparatus, collars formed with said retaining apparatus, means for adjusting the collars upon the standards, cross-rods extending between the standards and in their normal position being at right angles thereto, sockets into which the outer ends of the cross-rods are secured, extensions formed with the retaining apparatus, pivotal connections between said extensions and said sockets, elastic connections between the extreme outer ends of the sockets and retaining apparatus, and guides formed with the retaining apparatus for the proper guiding of the cross-bars to their normal position, substantially as shown and specified.

3. In combination with a swinging jumping-rod, a lever operated by the rod, and suitable connections whereby the movement of the lever sounds an alarm.

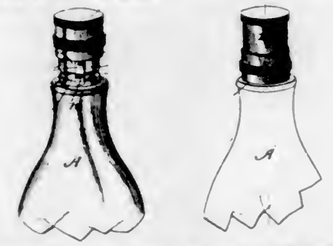
4. In combination with a device of the character described, a spring-clip secured to one of the rods L and adapted to grasp the other rod L with slight pressure to retain the said rods in perfect alinement and in their normal position, said pressure being so slight as to permit the rods to yield to a slight touch so as to disengage the said spring-clip from the opposite rod so that when the rods return they will be held out of alinement until replaced by hand, substantially as described and for the purpose specified.

662,811. NUT-LOCK. JOHN A. PEER and WILLIAM E. PROTSMAN Bloomington, Ill. Filed Jan. 8, 1900. Serial No. 754. (No model.)



Claim.—The combination with a rail, of a fish-plate mounted at each side of said rail and against the web and base thereof and one of which is provided with an elliptical-shaped opening and the other of said plates provided with an annular opening, a bolt extending through the web of said rail and said openings and formed at one end adjacent to the head thereof with an elliptical enlarged portion which is adapted to be seated within the elliptical-shaped opening of the fish-plate to prevent the turning of the bolt, a nut mounted upon the said bolt and adapted to engage one of the said fish-plates, and a longitudinally-extending rectangular-shaped wing formed integral in a rounded manner with the outer lower corner of said nut and adapted to be bent downwardly to engage the base of one of the said fish-plates to prevent the turning of the nut, substantially as herein shown and described.

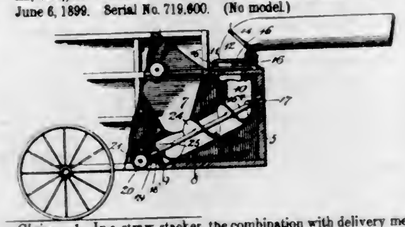
662,812. BOTTLE-CLOSURE. JOHN F. PERRY, Chicago, Ill., assignor of one-half to George W. Hallock, same place. Filed Jan. 5, 1900. Serial No. 504. (No model.)



Claim.—1. A bottle-closure comprising a cap adapted to fit over the mouth of the bottle-neck and provided on its outer side at or near its upper end with a downwardly-facing shoulder and at its lower end with tongues which spring normally outward at the lower end of the cap, and the sleeve fitting on said cap and slidable longitudinally thereon toward and from the downwardly-facing shoulder and adapted to be adjusted over the tongues and press the same into engagement with the bottle-neck, such sleeve being formed and adapted to cover the tongues and hide the same from view in the locked adjustment of the sleeve, said sleeve being held from accidental displacement by the upper shoulder and the outwardly-sprung tongues of the cap substantially as set forth.

2. A bottle-closure comprising the cap provided on its outer side at or near its upper end with a downwardly-facing stop-shoulder and having at its lower end the tongues sprung normally outward, and the fastening device held between said shoulder and tongues and slidable longitudinally along the cap whereby it may be adjusted to press the tongues into engagement with the bottle-neck, substantially as set forth.

662,813. STRAW-STACKER. CHARLES H. PETTIJOHN, Litchfield, Ill., assignor of one-fourth to Warren A. Watts, same place. Filed June 6, 1899. Serial No. 719,600. (No model.)



Claim.—1. In a straw-stacker, the combination with delivery mechanism, of a casing adapted to receive material therefrom, a portion of said casing being adapted to receive a worm, and a second portion leading therefrom and lying at an angle thereto, and a conveying-worm having a straight axis and disposed within the first-named portion of the casing and projecting into and transversely of the second portion, said worm having a varying pitch and having that portion transversely of the casing reduced in diameter to fit against the outer curve of the upturned portion.

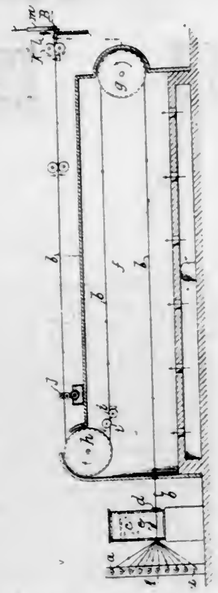
2. The combination with delivery mechanism, of a casing adapted to receive material therefrom and having a turned discharge end and a conveyer-worm in said casing, said worm having a straight axis and extending into and transversely of the turned portion and adapted to engage said material and force it through the casing.

3. The combination with delivery mechanism, of a casing adapted to receive material therefrom, said casing having its discharge end turned at an angle thereto, a conveyer-worm within the casing extending into and transversely of the turned end and having its diameter reduced therein, said worm having a straight axis, and said worm being adapted to receive and force said material through the casing.

4. The combination with delivery mechanism, of a slanting casing having its upper end turned at an angle thereto, a conveyer-worm rotatable in said casing and projecting at one end into and transversely of

the turned end of the casing, and within which turned end it is reduced in diameter to fit the outer curve of the upturned end, the pitch of said worm diminishing constantly from its lower to its upper end to engage the said material and compress and force it through the casing and the axis of the worm being straight.

662,814. PROCESS OF MANUFACTURING MATCHES. ALOIS PFISTER, St. Pölten, Austria-Hungary. Filed June 23, 1900. Serial No. 21,369. (No model.)



Claim.—1. The process, which consists in bunching a suitable number of threads of fibrous material, passing the bunch of threads through a liquid adhesive containing wood-pulp, consolidating the bunch of threads so treated and stripping therefrom the excess of adhesive and wood-pulp and then drying, polishing and paraffining the said bunch of threads, for the purpose set forth.

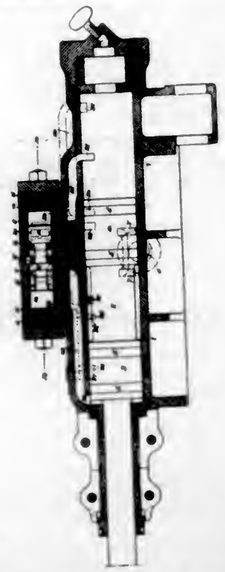
2. The process, which consists in impregnating threads of fibrous material with coloring-matter and with a compound that will prevent glowing, bunching a suitable number of such threads, passing them through a liquid adhesive containing coloring-matter and wood-pulp, consolidating the bunch of threads so treated and stripping therefrom the excess of adhesive and wood-pulp, then drying, polishing and paraffining said bunch of threads, for the purpose set forth.

662,815. IMPACT-TOOL. THOMAS H. PHILLIPS, St. Davids, Pa. Filed May 16, 1900. Serial No. 16,883. (No model.)

Claim.—1. The combination in an impact-tool, of the cylinder and its piston, having a steam-supplying groove, the valve-chest and its valve, and steam inlet and exhaust passages whereby the piston controls the flow of steam into the valve-chest and when the piston occupies a position at that end of the cylinder which is lowermost and the valve occupies a like position in the valve-chest the under side of the piston will be open to the steam passing through the valve-chest and the upper side of the piston will be open to the exhaust, substantially as specified.

2. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest having a valve which controls the exhaust from both ends of the cylinder, a passage whereby the piston controls the admission of steam to the rear end of the cylinder at a fixed point in the rear stroke, and other passages controlled in part by the piston and in part by the valve, whereby the cutting off of the flow of steam to the rear end of the cylinder is effected at a more advanced point in the forward stroke, substantially as specified.

3. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest and its valve, a passage whereby the piston controls the admission of steam to the rear end of the cylinder at a fixed point in the rear stroke, and other passages controlled in part by the piston and in part by the valve whereby the cutting off of the flow of steam to the rear end of the cylinder is effected at a more advanced point in the forward stroke of the piston, one of said valve-controlled passages also serving as an exhaust-passage from the rear end of the cylinder, substantially as specified.



4. The combination in an impact-tool, of the cylinder and its piston having a steam-supplying groove, the valve-chest having a single valve and passages whereby full-pressure steam acting upon one end of the valve is resisted by reduced-pressure steam acting upon the opposite end of the valve, substantially as specified.

5. The combination in an impact-tool, of the cylinder and its piston having a steam-supplying groove, the valve-chest having a single valve and passages providing communication between each end of the cylinder and the opposite end of the valve-chest whereby the pressure of expanded steam upon one end of the valve is overcome by full-pressure steam acting upon the other end of the valve and movement of the valve is thereby caused, substantially as specified.

6. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest and its valve, and a passage leading from the forward end of the cylinder to the rear end of the valve-chest, and serving both to convey steam to the valve-chest and to exhaust it therefrom, substantially as specified.

7. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest and its valve, and a passage leading from the rear end of the cylinder to the forward end of the valve-chest, and serving both to convey steam to the valve-chest and to exhaust it therefrom, substantially as specified.

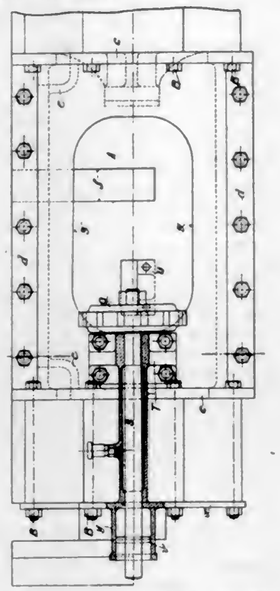
8. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest and its valve, and passages leading from each end of the cylinder to the opposite end of the valve-chest, and serving both to convey steam to the valve-chest and to exhaust it therefrom, substantially as specified.

9. The combination of the cylinder and its piston having a steam-supplying groove, the valve-chest and its valve, a passage leading from the forward end of the cylinder to the rear end of the valve-chest and serving both to convey steam to the valve-chest and to exhaust it therefrom, said passage having two ports located in the cylinder, one in advance of the other, substantially as specified.

10. The combination of the cylinder and its piston having a steam-supplying groove, a valve-chest having a valve which controls the admission of steam to and its exhaust from both ends of the cylinder, a steam-inlet passage leading from the valve-chest to the cylinder, and controlled as to its cylinder end by the piston, and as to its valve-chest end by the valve, whereby after the cylinder end of the passage has been closed by the piston, steam will be used expansively in the end of the cylinder communicating with said passage until there is a movement of the valve controlling its steam-chest end, substantially as specified.

11. The combination of the cylinder and its piston having a steam-supplying groove, a valve-chest having a valve which controls the admission of steam to and its exhaust from both ends of the cylinder, steam-inlet passages, one for the front end of the cylinder and the other for the rear end of the cylinder, said passages leading from the cylinder to the valve-chest, and being controlled as to their cylinder ends by the piston and as to their valve-chest ends by the valve, whereby steam will be used expansively in each end of the cylinder after the cylinder end of its corresponding passage has been closed by the piston and until there has been movement of the valve controlling its valve-chest end, substantially as specified.

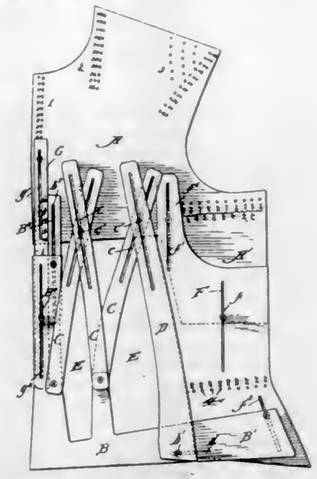
662,816. CLUTCH. ALFRED PITON, Lille, France. Filed Jan. 13, 1900. Serial No. 1,383. (No model.)



Claim.—In the improved clutch device for motors, the combination with the clutch or coupling drum, made of two semicylinders provided with means to secure the motors thereto, said semicylinders being suitably secured together; a recess and an aperture in the upper semicylinder, another aperture in the lower semicylinder adapted to be closed by means of a plate and serving to make the clutch accessible, of a friction-clutch embodying: a pulley C having a cylinder *l* and provided with three recesses, pins *r* engaging two of said recesses, the other recess receiving the ears of a blade O; pivoted levers M between which said ears may be passed; a sleeve upon which said pulley is keyed, said sleeve keyed on the common shaft of the motors, a friction-drum; a clutch-collar keyed on cylinder *l* and adapted to slide on the latter, a wedge L on said collar adapted to move between the pivoted levers M, a tightening-blade O lined with leather, and a protecting-plate; and of starting device embodying: a sprocket or chain wheel, another wheel actuated by the same and keyed on the common shaft of the motors, said wheel actuated by means of a shaft, provided with pins adapted to engage the notches of a crank; and a bearing connecting the shaft to the coupling-drum by means of bolts, or equivalents, substantially as set forth.

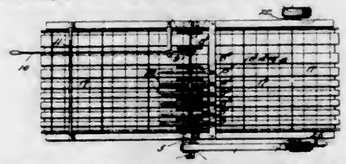
662,817. DRESS-CHART. JOHN B. PLANT, Pawtucket, R. I. Filed Jan. 26, 1900. Serial No. 2,892. (No model.)

Claim.—1. In combination in a dress-cutting chart, a pattern-sheet for the front of the waist consisting of a main section A having a rear extension, a part F having a sliding connection thereto and forming a continuation of the same, an angle-piece having one member secured to the part F near the lower edge thereof, and the other member extending at right angles thereto in line with the front edge of the part A, means for connecting said latter member adjustably to said edge, and dart-sections pivoted to the angle-piece, said sections being slotted and arranged in pairs the members of each pair converging toward a common pivotal point, a pivot common to each pair of sections extending through the slots therein whereby a sliding pivotal connection is provided, said pieces crossing an opening space formed by the angle-piece, the section A and the piece F, and defining dart-openings, said pieces shifting both longitudinally and laterally as the angle-piece is moved to change the shape of the dart-openings, substantially as described.



2. In combination in a dress-cutting chart, a main section, a section F forming a continuation of the rear thereof having a sliding connection thereto, an angle-piece having one member connected to the part F and the other member extending in line with the front edge of section A, said angle-piece forming with the lower edge of the part A and the inner edge of part F, a central open space, dart-pieces pivoted to the angle-piece crossing said space and slidably connected in pairs to the part A, and means for adjustably supporting the angle-piece from the part A, said dart-pieces moving laterally and longitudinally as the angle-piece is adjusted, one of said dart-pieces having an independent lateral adjustment.

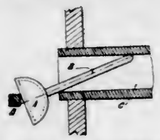
662,818. SHINGLE-JOINTER. JOHN RANDALL, Gate, Wash. Filed Aug. 4, 1899. Serial No. 726,106. (No model.)



Claim.—1. In a shingle-jointer, the combination of a main frame, a shaft or arbor mounted transversely on the main frame and carrying a series of saws, a bed-supporting frame hinged or pivotally mounted at one end within the main frame beneath the saws and carrying an endless conveyer-bed composed of a series of endless carriers, a transverse series of tension-springs mounted on the main frame one above each carrier and adapted to bear upon the shingles as they pass beneath the saws, and means for supporting and adjusting the free end of the bed-supporting frame, whereby the tension of said springs may be increased or diminished, substantially as set forth.

2. In a shingle-jointer, the combination of a main frame, a shaft or arbor mounted transversely on the main frame and carrying a series of saws, an endless-bed-supporting frame hinged or pivotally mounted at one end within the main frame beneath the saws, transverse shafts at the ends of said bed-supporting frame and carrying sprockets, the transverse shaft at the free end of the frame having also at one end a gear, an endless bed composed of a series of endless carriers passing around said sprockets, a transverse series of tension-springs mounted on the main frame one above each carrier and adapted to bear upon the shingles as they pass beneath the saws, means for adjusting and supporting the free end of the bed-supporting frame, whereby the tension of said springs may be varied, a drive-shaft mounted in the main frame and carrying pulleys at each end, a counter-shaft also mounted in the main frame and carrying at one end a pulley and at the other end a gear adapted to engage the said gear upon the transverse shaft at the free end of the bed-supporting frame, and belts connecting the pulleys of the drive, counter and saw shafts, substantially as set forth.

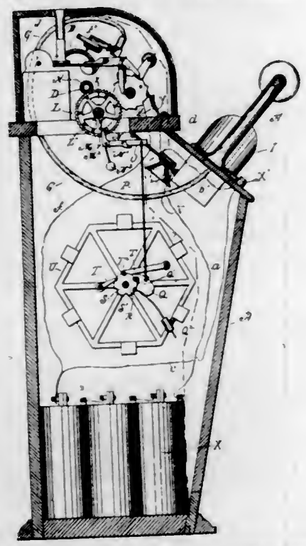
662,819. TUBE-STOPPER. SYLVAIN L. RAVIER and ARMAND JANET, Paris, France. Filed Sept. 29, 1899. Serial No. 732,123. (No model.)



Claim.—1. In a device of the character set forth, the combination with the tube of a water-tube boiler, of a rod, a suitable metal head on said rod, and means for normally holding said head in front of the opening of the tube, substantially as and for the purpose set forth.

2. In a device of the character described, the combination with the tube of a water-tube boiler, of a rod movably inserted into one end of said tube, a suitably-shaped metal head on the end of said rod outside the tube and adapted to be applied against and completely close the mouth of the latter, a coating of suitable material on said metal head and means for preventing the rod from completely leaving the tube, substantially as and for the purpose set forth.

662,820. PICTURE-EXHIBITOR. EDWIN A. REEVES, New Haven, Conn. Filed Apr. 25, 1899. Serial No. 714,443. (No model.)



Claim.—1. The combination with a picture-exhibitor consisting of a rotary shaft having mounted thereon a series of illustrations and mechanism for rotating said shaft; of a sound-reproducing machine having a rotary shaft carrying a tripping device adapted, upon the operation of said sound-reproducing machine, to engage said mechanism, said mechanism being adapted, upon disengagement from said tripping device, to rotate said shaft of said exhibitor, substantially as described.

2. The combination with a picture-exhibitor consisting of a rotary shaft having mounted thereon a series of illustrations and mechanism for rotating said shaft; of a sound-reproducing machine having a rotary shaft carrying a series of tripping devices adapted upon the operation of said sound-reproducing machine to successively engage said mechanism, said mechanism being adapted upon disengagement from each of said tripping devices, to partially rotate said shaft of said exhibitor, substantially as described.

3. The combination with a picture-exhibitor consisting of a rotary shaft, having a series of illustrations mounted thereon, and mechanism for rotating said shaft; of a sound-reproducing machine, having a rotary shaft carrying a series of tripping devices irregularly spaced from each other, which upon the operation of said sound-reproducing machine successively engage said mechanism, said mechanism being adapted, upon disengagement from each of said tripping devices to partially rotate said shaft of said exhibitor, substantially as described.

4. The combination with a picture-exhibitor consisting of a rotary shaft, having a series of illustrations mounted thereon, a weighted lever having a pawl-and-ratchet engagement with said shaft and mechanism for raising said weighted lever; of a sound-reproducing machine having a rotary shaft carrying a series of tripping devices adapted upon the operation of said sound-reproducing machine to successively engage said mechanism, said mechanism upon disengagement from said tripping devices permitting the fall of said weighted lever, substantially as described.

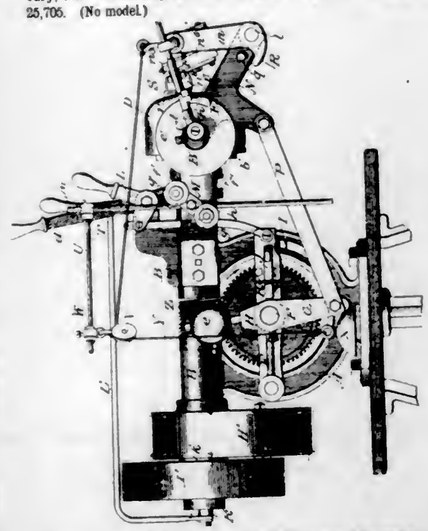
5. The combination with a picture-exhibitor consisting of a rotary shaft having a series of illustrations mounted thereon, a weighted lever having a pawl-and-ratchet engagement with said shaft, and a supplementary lever for raising said weighted lever; of a sound-reproducing machine having a rotary shaft carrying a disk, with a series of strips adapted upon the operation of said sound-reproducing machine to successively engage said supplementary lever, said lever upon disengagement from each of said strips permitting the weighted lever through its pawl-and-ratchet connection to partially rotate said shaft of said exhibitor, substantially as described.

6. The combination with a picture-exhibitor consisting of a rotary shaft having a series of illustrations mounted thereon and mechanism for rotating said shaft; of a sound-reproducing machine having a rotary shaft carrying a series of trips; and a lever having a rule-joint, adapted upon the rotation of said shaft of said sound-reproducing machine to be engaged by said trips, and when so engaged in one direction said lever being bent at said joint, and in the opposite direction said lever engaging and operating said mechanism, substantially as described.

7. The combination with a picture-exhibitor consisting of a rotary shaft having a series of illustrations mounted thereon and mechanism for rotating said shaft; of a sound-reproducing machine, having a record and pivoted reproducer; an electric light for illuminating said illustrations, one terminal of the circuit of said light being fixed, and the other terminal pivoted to swing simultaneously with said reproducer, said pivoted terminal being adapted to be swung into contact with said fixed terminal, when said reproducer is in operative contact with said record, and mechanisms for operating said sound-reproducing machine and picture-exhibitor in timed relation with each other, substantially as described.

8. In a picture-exhibitor the combination with a rotary shaft having a series of illustrations mounted thereon; a ratchet-wheel rigidly mounted on said shaft; a weighted lever carrying a pawl for engagement with said ratchet; a disk provided with one or more lateral pins; a tripping-lever tripped by said pins, and connected to said weighted lever to raise the same to engage said ratchet, and mechanism for rotating said disk, substantially as described.

662,821. HAT-POUNCING MACHINE. CHARLES H. REID, Danbury, Conn. Filed May 10, 1899. Renewed Aug. 2, 1900. Serial No. 25,705. (No model.)



Claim.—1. In a hat-machine, the combination of a hat-support, and automatic, irregular-motion-transmitting means for driving the same, substantially as specified.

2. In a hat-machine, the combination of a primary driver, a hat-support, and an automatic, irregular-motion-transmitting driving connection for rotating the hat-support fast and slow alternately, substantially as specified.

3. In a hat-machine, the combination of a primary driver, a hat-support, an automatic, irregular-motion-transmitting driving connection for driving the hat-support fast and slow alternately, and means for coupling the hat-support to the primary driver and the said driving connection alternately, substantially as specified.

4. In a hat-machine, the combination of a primary driver, a hat-support, differential-motion, power-transmitting means arranged to be actuated by the primary driver, and means for fixing the hat-support with respect to the primary driver and the differential-motion power-transmitting means, alternately, substantially as specified.

5. In a hat-machine, the combination of a primary driver, a hat-support, differential-motion, power-transmitting means arranged to be actuated by the primary driver, and a movable key adapted in one position to fix the hat-support with respect to the primary driver and in another position to fix said support with respect to the differential-motion power-transmitting means, substantially as specified.

6. In a hat-machine, the combination of a shaft having mounted thereon a hat-block, a pulley loose on the shaft, and differential-motion gearing between the pulley and shaft for converting the regular rotary motion of the former into an irregular rotary motion and imparting such irregular motion to the latter, substantially as specified.

7. In a hat-machine, the combination of a shaft having mounted thereon a hat-block, a pulley loose on the shaft, differential gearing connected with the pulley and adapted to be connected to the shaft, and a movable key adapted in one position to fix the pulley to the shaft and in another position to connect the differential gearing to said shaft, substantially as specified.

8. In a hat-machine, the combination of a shaft having mounted thereon a hat-block, a pulley loose on the shaft, an annular gear loose on the shaft, differential gearing interposed between the pulley and the loose, annular gear, a movable key adapted in one position to fix the pulley to the shaft and in another position to fix the annular gear to the shaft, and a handle connected to said key, substantially as specified.

9. In a hat-machine, the combination of a shaft having mounted thereon a hat-block, a pulley loose on the shaft and having gear-teeth on its hub, an annular gear loose on the shaft, gear-wheels mounted side by side on eccentric centers and intermeshed with the pulley-hub and loose, annular gear, respectively, a link interposed between and connecting the side-by-side gear-wheels, and a movable key adapted in one position to fix the pulley to the shaft and in another position to fix the loose, annular gear to said shaft, substantially as specified.

10. In a hat-machine, the combination of a hollow and slotted shaft having mounted thereon a hat-block, a pulley loose on the shaft and having a seat in its inner end, an annulus loose on the shaft and having a seat in its side adjacent to the pulley, differential power-transmitting means interposed between the loose pulley and annulus, a key movable in the slot of the hollow shaft and adapted in one position to enter the seat of the pulley and in another position to enter the seat of the annulus, and a slide arranged within the hollow shaft and connected to the key, substantially as specified.

11. In a hat-machine, the combination of a framework, a primary driver, a hat-support, power-transmitting means arranged to be actuated by the primary driver, a movable key for fixing the hat-support with respect to the primary driver and the power-transmitting means, alternately, a hand-lever fulcrumed on the framework, and a connection between said lever and the key, substantially as specified.

12. In a hat-machine, the combination of a framework, a hollow and slotted shaft having mounted thereon a hat-block, a pulley loose on the shaft and having a seat in its inner end, an annulus loose on the shaft and having a seat in its side adjacent to the pulley, differential, power-transmitting means interposed between the loose pulley and annulus, a hand-lever pivoted on the framework, a rod connected to the hand-lever, a slide arranged in the hollow shaft and journaled in said rod, and a key connected to the slide and movable in the slot of the hollow shaft; said key being adapted in one position to enter the seat of the pulley and in another position to enter the seat of the annulus, substantially as specified.

13. In a hat-pouncing machine, the combination of a hat-support, a pouncer for operating against a hat on the support, an automatic, irregular-motion-transmitting means for driving the support whereby certain parts of a hat thereon are automatically subjected to the action of the pouncer to a greater extent than other parts thereof, substantially as specified.

14. In a hat-pouncing machine, the combination of a primary driver, a hat-support, a pouncer for operating against a hat on the support, and automatic, irregular-motion-transmitting means for driving the hat-support by the primary driver, substantially as specified.

15. In a hat-pouncing machine, the combination of a primary driver, a hat-support, a pouncer for operating against a hat on the support, differential, power-transmitting means arranged to be actuated by the primary driver, and means whereby the hat-support may be connected to the primary driver and the differential power-transmitting means, alternately, substantially as specified.

16. In a hat-pouncing machine, the combination of a shaft, automatic, irregular-motion-transmitting means for driving the same, a pouncer, and an oblong hat-block so arranged on the shaft that its flat or substantially flat sides will be presented to the pouncer incident to the slow motions of the shaft, and its rounded ends will be presented to said pouncer incident to the fast motions of the shaft, substantially as specified.

17. In a hat-pouncing machine, the combination of a shaft, automatic, irregular-motion-transmitting means for driving the same, an oblong hat-block secured on the shaft and having a socket, and a dowel-pin connected to the shaft and arranged in the socket of the hat-block; said dowel-pin being so arranged that the flat sides of the hat-block will be presented to the pouncer incident to the slow motions of the shaft, and its rounded ends will be presented to said pouncer incident to the fast motions of the shaft, substantially as specified.

18. In a hat-pouncing machine, the combination of a primary driver, a shaft having mounted thereon a hat-block, differential, power-transmitting means for driving the latter by the former, a power-transmitting wheel adapted to receive motion from said shaft, a swinging lever in which said wheel is journaled, a crank rigid on the shaft of said wheel, a series of levers connected with and actuated by said crank, and a pouncer carried by the outer of said levers, substantially as specified.

19. In a hat-pouncing machine, the combination of a primary driver, a shaft having mounted thereon a hat-block, differential, power-transmitting means arranged to be actuated by the primary driver, means for fixing the shaft with respect to the primary driver and the power-transmitting means, alternately, a power-transmitting wheel adapted to receive motion from said shaft, a swinging lever in which said wheel is journaled, a crank rigid on the shaft of said wheel, a series of levers connected with and actuated by said crank, and a pouncer carried by the outer of said levers, substantially as specified.

20. In a hat-pouncing machine, the combination of a shaft having mounted thereon a hat-block, a power-transmitting wheel adapted to receive motion from said shaft, a swinging lever in which said wheel is journaled, a crank rigid on the shaft of said wheel, a series of levers connected with and actuated by said crank, a pouncer supported by the outer of said levers, a pouncer-actuating shaft forming the main pivot of the series of levers, and a connection between said shaft and the pouncer, substantially as specified.

21. In a hat-pouncing machine, the combination of a series of levers supported by the frame of the machine, a pouncer carried by the outer of said series, a pouncer-actuating shaft forming the main pivot of the series of levers, and a driving connection between said shaft and the pouncer, substantially as specified.

22. In a hat-pouncing machine, the combination of a series of levers supported by the frame of the machine, a pouncer carried by the outer of said series, a pouncer-actuating shaft comprising an end portion forming the main pivot of the series of levers, an intermediate, enlarged portion having an outer oblique face, and an outer portion disposed at right angles to the oblique face of the enlargement, a sleeve loosely mounted on said outer portion of the shaft and having an angular arm, and a connection between said arm of the sleeve and the pouncer, substantially as specified.

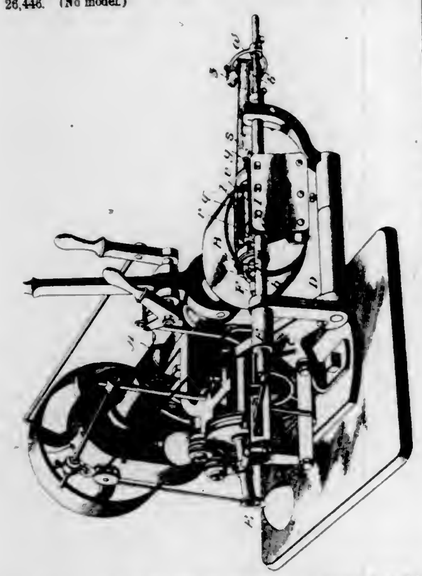
23. In a hat-pouncing machine, the combination of a series of levers, supported by the frame of the machine, a pouncer carried by the outer of said series, a pouncer-actuating shaft comprising an end portion forming the main pivot of the series of levers, an intermediate, enlarged portion having an outer oblique face, and an outer portion disposed at right angles to the oblique face of the enlargement, a sleeve loosely mounted on said outer portion of the shaft and having an angular arm, a sleeve adjustably fixed on said arm, a second sleeve connected in a swiveled manner to the adjustable sleeve, and a connection between the latter sleeve and the pouncer, substantially as specified.

24. In a hat-pouncing machine, the combination of a hat-support, a pouncer for operating against a hat on the support, means for actuating the pouncer, means for moving the pouncer over the hat, and automatic, irregular-motion-transmitting means for driving the hat-support, substantially as specified.

25. In a hat-pouncing machine, the combination of a primary driver, a shaft having mounted thereon a hat-block, differential, power-transmitting means arranged to be actuated by the primary driver, means for fixing the shaft with respect to the primary driver and the power-transmitting means, alternately, a power-transmitting wheel adapted to receive motion from said shaft, a swinging lever in which said wheel is journaled, a crank rigid on the shaft of said wheel, a series of levers connected with and actuated by said crank, a pouncer carried by the outer of said levers, a pouncer-actuating shaft forming the main pivot of the series of levers, and driving connections between said shaft and the pouncer, substantially as specified.

26. In a hat-pouncing machine, the combination of a hat-support, a pouncer for operating against a hat on the support, means for actuating the pouncer, means for moving the pouncer over the hat, differential power-transmitting means calculated to impart an irregular rotary motion to the hat-support, a primary driver, and means for fixing the hat-support with respect to the primary driver and the differential power-transmitting means, alternately, substantially as specified.

662,822. HAT-POUNCING MACHINE. CHARLES H. REID, Danbury, Conn. Filed May 10, 1899. Renewed Aug. 9, 1900. Serial No. 26,446. (No model.)



Claim.—1. A pouncing-pad, the pad proper of which is backed by yielding strips arranged side by side against the pad proper, substantially as specified.

2. A pouncing-pad, the pad proper of which is backed by yielding strips disposed at opposite sides of a center of the same, substantially as specified.

3. In a pouncing-pad, a body, a pad proper arranged on and connected to the body, and a rock strip journaled in the body and backing the intermediate portion of the pad proper, substantially as specified.

4. A pouncing-pad, the pad proper of which is backed by rock strips disposed at opposite sides of a center of the same whereby said pad proper is enabled to give inwardly, substantially as specified.

5. A pouncing-pad comprising a body, a pad proper, and rock strips journaled in the body and arranged side by side in rear of the pad proper, substantially as specified.

6. A pouncing-pad comprising a body made up of end blocks and longitudinal connecting-rods, a pad proper, longitudinal rock strips loosely mounted on the rods and arranged side by side behind the pad proper, and means for securing the pad proper on the body, substantially as specified.

7. A pouncing-pad comprising a body having its end blocks provided with rabbets, retaining-plates, a pad proper having its ends arranged in the rabbets of the end blocks and between the retaining-plates and said blocks, a piece of pouncing material arranged over the face of the pad proper, and clips securing said pouncing material and the retaining-plates on the end blocks of the body, substantially as specified.

8. A pouncer comprising a lever, and a pouncing-pad carried by and movable with the levers; said pad having its face arranged in a plane parallel to that of the throw of the lever, and its greatest length disposed in the direction of said throw, whereby it is moved both endwise and crosswise incident to the throw of the lever, substantially as specified.

9. A pouncer comprising levers, and a pouncing-pad loosely mounted and susceptible of rocking transverse on the levers; said pad having its face arranged in a plane parallel to that of the throw of the levers, and its greatest length disposed in the direction of said throw, whereby it is moved both endwise and crosswise incident to the throw of the lever, substantially as specified.

10. A pouncer comprising a body, levers pivotally connected and movable over the face of the body, and a pouncing-pad connected and movable with the levers; said pad having its face arranged in a plane parallel to that of the throw of the levers, and its greatest length disposed in the direction of said throw, substantially as specified.

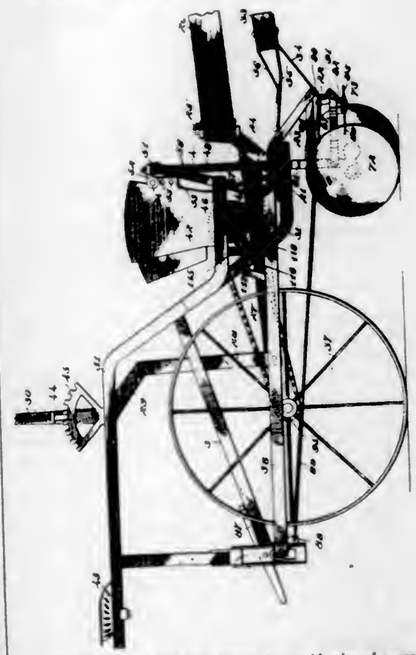
11. A pouncer comprising a body, levers pivotally connected to and movable over the face of the body, and a pouncing-pad loosely mounted and susceptible of rocking transversely on the levers and having a pad proper and a backing therefor consisting of rock strips; said pad having its face arranged in a plane parallel to that of the throw of the levers, and its greatest length disposed in the direction of said throw, substantially as and for the purpose specified.

12. A pouncer comprising a body, levers pivotally connected thereto, and a pouncing-pad connected to said levers and having its greatest length disposed in the direction of the throw thereof, substantially as specified.

13. A pouncer comprising a resilient support, a body connected to said support, levers pivotally connected to the body, and a pouncing-pad carried by and movable with said levers, substantially as specified.

14. A pouncer comprising a body, levers pivotally connected to the body and movable over the face of the same, a plate J arranged at the opposite side of the levers with reference to the body and movable with said levers; said plate having a curvilinear slot, a plate K, a connection between the plate K and body extending through the slot of plate J, a rod, and a pouncing-pad loosely mounted and adapted to rock on said rod, substantially as specified.

662,823. GRAIN-DRILL. JOHN W. RHODES, Havana, Ill. Filed Apr. 16, 1900. Serial No. 13,046. (No model.)



Claim.—1. In a seeding-machine, the combination of a rear wheel-frame, wheels mounted therein, a furrow-opener frame pivotally connected with said wheel-frame forward of said wheels, a tongue pivotally connected with said furrow-opener frame, and means connected with the tongue for lifting said furrow-opener frame, substantially as described.

2. In a grain-drill, the combination of a wheel frame or frames, a furrow-opener frame in front thereof and pivotally connected thereto, a tongue pivotally connected with said furrow-opener frame, and a seat-support rigidly secured to said furrow-opener frame, substantially as described.

3. In a grain-drill, the combination of a wheel frame or frames, a furrow-opener frame in front thereof and pivotally connected thereto, a tongue pivotally connected with said furrow-opener frame, a seat-support rigidly secured to said furrow-opener frame, and a lifting-lever mounted on said seat-support and connected with said tongue, substantially as described.

4. In a grain-drill, the combination of a wheel frame or frames, a furrow-opener frame in front thereof and pivotally connected thereto, draft devices connected with said furrow-opener frame, and a tongue disconnected from said draft devices and pivotally connected with said furrow-opener frame, substantially as described.

5. In a grain-drill, the combination of a furrow-opener frame, a tongue pivotally connected therewith, wheels arranged back of the furrow-opener frame, draft devices connected with said furrow-opener frame and lifting mechanism for said furrow-opener frame, substantially as described.

6. In a grain-drill, the combination of a wheel frame or frames, a furrow-opener frame, one or more furrow-openers carried by said furrow-opener frame, said furrow-openers being vertically adjustable, and means substantially preventing angular adjustment of said furrow-openers with reference to said furrow-opener frame, substantially as described.

7. In a grain-drill, the combination of supporting devices, one or more furrow-openers carried thereby, said furrow-openers being vertically adjustable, and means for preventing forward or backward tipping of said furrow-openers when adjusted vertically, substantially as described.

8. In a grain-drill, the combination of a furrow-opener frame, one or more vertically-adjustable furrow-openers carried thereby, and means preventing said furrow-openers from tilting forward or backward independently of the supporting devices, when adjusted vertically, substantially as described.

9. In a grain-drill, the combination of a furrow-opener frame, one or more furrow-opener standards, furrow-openers carried by said standards, said furrow-openers being vertically adjustable, and parallel bars carried by said furrow-opener frame and connected with said furrow-opener standards, for preventing angular adjustment of said standards with reference to the furrow-opener frame, substantially as described.

10. In a seeding-machine, the combination of a rear wheel-frame, wheels mounted therein, a furrow-opener frame pivotally connected with said wheel-frame forward of said wheels, furrow-openers connected with said furrow-opener frame, said furrow-opener frame being supported on said furrow-openers alone when the machine is in operation, and a tongue pivotally connected with said furrow-opener frame, substantially as described.

11. In a grain-drill, the combination of wheel and furrow-opener frames, a tongue pivoted to said furrow-opener frame, a lifting-lever connected with the tongue for raising said furrow-opener frame to an inoperative position, seed-dropping mechanism operated by the movement of the machine, and means for automatically throwing said seed-dropping mechanism out of operation when the furrow-opener frame is raised to an inoperative position, substantially as described.

12. In an agricultural implement, the combination of one or more disk furrow-openers, said furrow-openers being vertically adjustable, and a scraper for each of said disks, said scrapers being supported independently of said disks and being adjustable similarly thereto, whereby said scrapers may engage said disks in their various positions of adjustment, substantially as described.

13. In an agricultural implement, the combination of a furrow-opener frame, one or more disk furrow-openers supported thereby, vertically-adjustable standards supporting said furrow-openers, a link pivotally connected to each of said standards and to the furrow-opener frame, scrapers supported on said links, and means for operating said scrapers, substantially as described.

14. In an agricultural implement, the combination of a furrow-opener frame, one or more disk furrow-openers supported by vertically-adjustable standards, a link pivotally connected to each of said standards and to the furrow-opener frame, scrapers supported on said links, and means for operating said scrapers from the same pivot-line on which the link is attached to the furrow-opener frame, substantially as described.

15. In a seeding-machine, the combination of a rear wheel-frame, wheels mounted therein, a furrow-opener frame pivotally connected with said wheel-frame forward of said wheels, a tongue pivotally connected with said furrow-opener frame, and means connected with the rear end of said tongue for lifting said furrow-opener frame, substantially as described.

16. In a seeding-machine, the combination of a rear wheel-frame, wheels mounted therein, a furrow-opener frame pivotally connected with said wheel-frame forward of said wheels, a tongue pivotally connected with said furrow-opener frame, means for lifting said furrow-opener frame, and a seat-support rigidly secured to said furrow-opener frame, substantially as described.

17. In an agricultural implement, the combination of a plurality of disks connected with a common frame and vertically adjustable independently of each other, a scraper for each of said disks, and means controlled by the driver for adjusting said scrapers simultaneously, substantially as described.

18. In a seeding-machine, the combination of a rear wheel-frame, wheels mounted therein, a furrow-opener frame pivotally connected with said wheel-frame forward of said wheels, a tongue pivotally connected with said furrow-opener frame, means connected with the rear end of said tongue for lifting said furrow-opener frame, and a seat-support rigidly secured to said furrow-opener frame, substantially as described.

19. In a grain-drill, the combination of a machine-frame, a furrow-opener frame, a furrow-opener, spring mechanism between said machine-frame and the furrow-opener, said furrow-opener being adjustable in a vertical plane, and means substantially preventing forward and backward tipping of said furrow-opener in relation to the furrow-opener frame when adjusted vertically, substantially as described.

20. In a grain-drill, the combination of a machine-frame, a furrow-opener frame, a furrow-opener, spring mechanism between said machine-frame and the furrow-opener, said furrow-opener being adjustable in a vertical plane, means substantially preventing forward or backward tipping of said furrow-opener in relation to the furrow-opener frame when adjusted vertically, and means for adjusting said spring mechanism, substantially as described.

21. In a grain-drill, the combination of a machine-frame, a furrow-opener frame, a furrow-opener standard supported thereby and movable independently thereof only in a vertical plane, a furrow-opener carried by said standard, and means substantially preventing forward or backward tipping of said furrow-opener in relation to the furrow-opener frame when adjusted, substantially as described.

22. In a grain-drill, the combination of a machine-frame, a furrow-opener frame, a furrow-opener standard supported thereby and movable independently thereof only in a vertical plane, a furrow-opener carried by said standard, means substantially preventing forward or backward tipping of said furrow-opener in relation to the furrow-opener frame when adjusted vertically, and a spring on said standard, substantially as described.

23. In a grain-drill, the combination of a machine-frame, a furrow-opener frame, a furrow-opener standard supported thereby and movable independently thereof only in a vertical plane, a furrow-opener carried by said standard, means substantially preventing forward or backward tipping of said furrow-opener in relation to the furrow-opener frame when adjusted vertically, a spring on said standard, and means for adjusting said spring, substantially as described.

24. In a grain-drill, the combination of wheel and furrow-opener frames, one or more furrow-opener standards carried by said furrow-opener frame, said standards being normally in a vertical position, furrow-openers carried by said standards, and parallel bars pivoted to said standards and to the furrow-opener frame, substantially as described.

25. In a grain-drill, the combination of wheel and furrow-opener frames, one or more furrow-opener standards carried by said furrow-opener frame, said standards being normally in a vertical position, furrow-openers carried by said standards, and means for preventing said standards from moving laterally independently of the furrow-opener frame, substantially as described.

26. In a grain-drill, the combination of wheel and furrow-opener frames, one or more furrow-opener standards carried by said furrow-opener frame, said standards being normally in a vertical position, furrow-openers carried by said standards, and parallel bars pivoted to said standards and to the furrow-opener frame, one of said bars having its ends bifurcated to provide extended bearings at the sides of said standards, thereby preventing lateral movement thereof, substantially as described.

27. In a grain-drill, a frame, a furrow-opener-supporting frame suitably connected thereto, means carried by said frame for elevating said furrow-opener frame, a series of vertically-adjustable furrow-opener standards mounted in the furrow-opener frame, an adjustable spring mechanism mounted on said standards, a series of furrow-openers connected to said standards, means connected to said standards and said frame and adapted to prevent the tipping of said openers when adjusted vertically, and means connected to said furrow-opener frame and adapted to engage said openers for scraping the same.

28. In a grain-drill, a frame, a furrow-opener-supporting frame suitably connected thereto, means carried by said frame for elevating said furrow-opener frame, a series of vertically-adjustable furrow-opener standards mounted in the furrow-opener frame, an adjustable spring mechanism mounted on said standards, a series of furrow-openers connected to said standards, means connected to said standards and said frame and adapted to prevent the tipping of said openers when adjusted vertically, means connected to said furrow-opener frame and adapted to engage said openers for scraping the same, and means carried by said frames for operating said scraping mechanism.

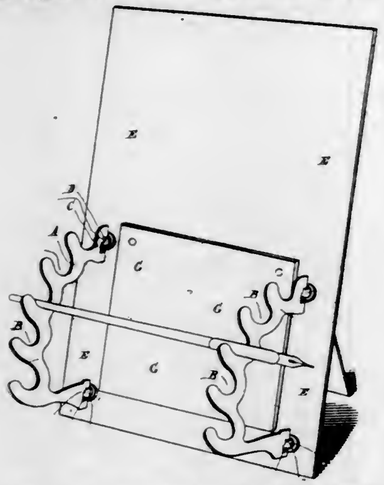
29. In a grain-drill, a furrow-opener-supporting frame, a series of standards mounted therein and adjustable vertically independent of said frame, a spring mechanism mounted on said standard, means for adjusting said spring mechanism, a series of furrow-openers connected to said standards, means connected to said frame and adapted to engage said openers for scraping the same, and means for bringing said scraping mechanism into operative engagement with said openers.

30. In a seeding-machine, the combination of a supporting-frame,

one or more furrow-opener standards carried thereby, furrow-openers carried by said standards, and draft devices connected with said standards or standard for drawing the furrow-openers through the ground, substantially as described.

31. In a seeding-machine, the combination of a supporting-frame, one or more furrow-opener standards carried thereby, furrow-openers carried by said standards, draft devices, and links connected with said draft devices and with said standards, substantially as described.

662,824. ADVERTISING-RACK. FREDERICK H. ROSHER, Caterham, England. Filed May 8, 1900. Serial No. 15,970. (No model.)

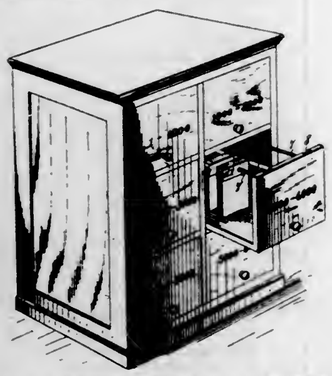


Claim.—1. An advertising-rack comprising a back board having brackets hinged thereto at opposite sides, said brackets being arranged to be folded over upon the face of the back board, and means for locking said brackets in a position at right angles to the back board.

2. An advertising-rack comprising a back board having an advertising-space and a calendar, brackets hinged to opposite sides of the back board and adapted to be folded over upon the face of the latter, and means for locking said brackets in a position at right angles to the back board, substantially as described.

3. An advertising-rack comprising a back board having an advertising-space and a calendar, slotted loops attached to opposite sides of the back board, notched brackets supported by said loops and adapted to be folded over upon the face of the back board, and means for locking said brackets in a position at right angles to the back board, substantially as described.

662,825. FILE-CASE. HENRY J. SCHINDLER, Warren, Pa. Filed Mar. 17, 1900. Serial No. 9,098. (No model.)



Claim.—1. A file-case comprising a box or casing having an open side and top and provided with rigid ends, a rod pivotally attached at one end to one end of the box or casing and supported at its free end on the other end of said box or casing, and a support arranged parallel to said rod but below the plane thereof, substantially as described.

2. A file-case comprising a box or casing having an open side and top and rigid ends, a rod pivotally attached at one end to one end of the box or casing and supported at its free end on the other end of said box or casing, and a support arranged parallel to said rod but below the plane thereof, in combination with a stub-pad perforated near its upper edge and to one side of its vertical center, said pad being suspended from the pivoted rod which passes through the said perforation, the arrangement being such that when the pad is turned up to a vertical position its upper edge will rest on the described support and the pad will be held upright, substantially as described.

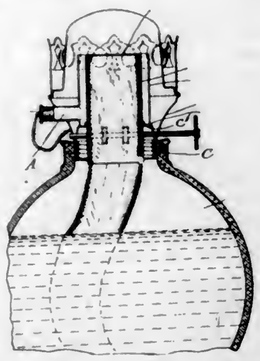
3. A file-case, comprising a box or casing having an open side and top and rigid ends, a rod pivotally attached at one end to one end of the box or casing and supported at its free end on the other end of said box or casing, and a support arranged parallel to said rod but below the plane thereof, in combination with a stub-pad perforated near its upper edge and to one side of its vertical center, said pad being suspended from the pivoted rod which passes through the said perforation in such manner that when the pad is turned to a vertical position its upper edge will rest on the support and the pad will be held upright, the free ends of the leaves of the stub-pad being coated on one side with an adhesive, substantially as described and for the purpose specified.

4. A file-case comprising a box or casing having an open side and top and rigid ends, a rod pivotally attached at one end to one end of the box or casing and resting at its free end in a vertical groove in the opposite end of the box or casing, a spring-catch fixed in said groove and operating to normally hold the end of the rod in said groove, and a support arranged parallel to the rod but below the plane thereof, substantially as described.

5. A file-case comprising a box or casing having an open side and top and rigid ends, one of said ends being vertically slotted through its upper edge and the opposite end provided on its inner face at a corresponding point with a vertical groove, a plate fixed to the box or casing and provided with two perforated lugs projecting into the slot, a rod pivoted at one end between said lugs and resting at its free end in the said groove, and a support arranged parallel to the rod but below the plane thereof, substantially as described.

6. A file-case comprising a box or casing having open sides and top and provided with a central vertical longitudinal partition terminating at a point beneath the upper edges of the ends of the box or casing, and rods arranged on opposite sides of and parallel to said partition and above the upper edge of the latter, said rods being each pivotally attached at one end to one end of the box or casing and resting at its free end on the opposite end of said box or casing, substantially as described.

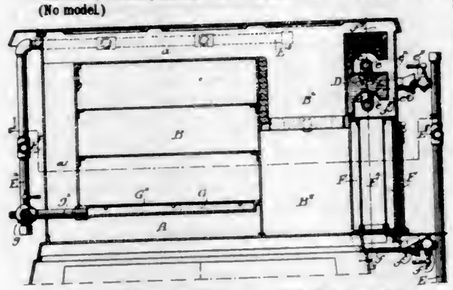
662,826. BURNER FOR OIL-LAMPS. JAMES SHARPLES, Birmingham, England. Filed May 23, 1900. Serial No. 17,721. (No model.)



Claim.—1. A burner comprising a wick-tube, an imperforated funnel surrounding the same having its lower end closed about said wick-tube, a wick-spindle located entirely outside of said funnel, a passage leading to the lower part of said funnel said passage being adapted to be closed to the outside atmosphere.

2. A burner comprising a wick-tube, a funnel surrounding the same, a diaphragm closing the lower end of said funnel, a spindle located below said diaphragm, a passage leading from the lower part of the funnel and a removable stopper closing the end of said passage.

662,827. COMBINED GAS AND COAL RANGE. HOWARD R. SHEPPARD, Philadelphia, Pa. Filed Aug. 27, 1898. Serial No. 689,670. (No model.)



1. *Claim.*—The combination in a range, of the fire-chamber, a water-back in front of and having a straight wall forming one side of the fire-chamber, said water-back adapted to be heated by the fire therein, the portion of said water-back opposite the straight wall having one or more grooves at the back, with perforated gas-pipes extending into said grooves whereby the water can be heated from a gas-flame or from fire in the fire-chamber, substantially as described.

2. The combination in a range, of the fire-chamber, a water-back having a straight wall forming one side of said fire-chamber and adapted to be heated thereby, said water-back having on its opposite side two longitudinal grooves with arched tops, and perforated gas-pipes adapted to said grooves, substantially as described.

3. The combination in a range, of the fire-chamber, a water-back arranged in front of the same, a vertically-arranged broiling device located directly beneath the water-back, and means for supplying heat to the broiling device, said water-back having an arched bottom adapted to receive the products of combustion passing from said broiler whereby the water-back may be heated, substantially as described.

4. The combination with a range of the character described, and a water-back therein, of a broiling device consisting of a gas-heated chamber located beneath the water-back, said chamber being formed by a solid back plate and a perforated front plate and having a space on one side of said front plate in communication with the gas-heated chamber through the perforations in the front plate, and from which space the products of combustion from the broiling device pass to the water-back, and a gas-pipe communicating with said gas-chamber, substantially as described.

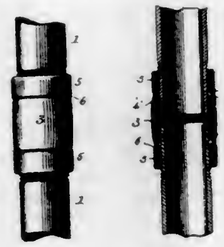
5. The combination with a range of the character described and a water-back therein, of a gas-heated broiling device located in the front portion of the range directly beneath the water-back, said broiling device consisting of two chambers arranged face to face with a space between them, the back plates of each chamber being solid, and the front plates being perforated, said front plates facing the space between the chambers from which space the products of combustion pass to the water-back, with a gas-pipe communicating with said chambers, substantially as described.

6. The combination in a range having a fire-chamber, a water-back at one side of the fire-chamber, said water-back being recessed at the back, gas-pipes in the recesses, a broiler mounted directly under the water-back, consisting of two chambers arranged face to face with a space between them, from which space the products of combustion pass to the water-back, the faces of the said chambers being perforated, a gas-pipe communicating with the said chambers, and a passage around the water-back communicating with the space between the chambers, so that the said water-back can be heated either by fire in the fire-chamber of the range, or by gas from the pipe in the recess of the water-back, or by the products of combustion from the broiler or by any two or all of all said sources of heat, substantially as described

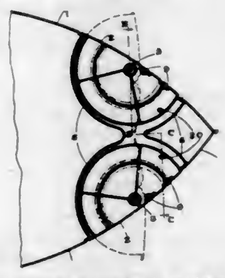
7. The combination in a range having a fire-chamber, a water-back at one side of the water-chamber, said water-back being recessed at the back, a gas-pipe in the recess, a broiler mounted directly under the water-back, a gas-pipe communicating with said broiler, the passage around the water-back communicating with said broiler, whereby a passage is formed from the broiler to the water-back, so that the products of combustion from said broiler may heat the water-back, or said water-back may be heated by the fire in the fire-chamber, or by gas from the pipe in the recess of the water-back, or by any two or all of said sources of heat, substantially as described.

662,828. PIPE-JOINT. WILLIAM SHUEY, Wellsburg, W. Va. Filed Feb. 3, 1900. Serial No. 3,844. (No model.)

Claim.—In a pipe connection, an exteriorly-threaded pipe, an interiorly-threaded collar, and an interiorly-threaded ring adapted to move upon the threaded end of the pipe, said collar and ring having coacting beveled and overlapping edges arranged to form both a joint and a packing-space, the latter by the reverse level of a member of the connection, as described, all combined, substantially as set forth.



662,829. APPARATUS FOR ARRESTING MOTION OF NAVIGABLE VESSELS. HENRY SIMPSON, Liverpool, England. Filed Aug. 23, 1900. Serial No. 27,801. (No model.)



Claim.—1. Apparatus for arresting the motion of navigable vessels consisting of a pair of arresters of approximately semicylindrical shape located side by side in similarly-shaped cavities formed in the bow of the vessel, and pivotally connected thereto centrally of the arc forming the semicylindrical side, the approximately flat sides of which arresters form, when closed, a continuation of the vessel's skin, and when open, retarding-surfaces on opposite sides of the vessel, and means for operating and holding the said arresters; substantially as described.

2. In combination, a pair of arresters located in cavities lying side by side in the bow of the vessel, and automatically-operating hinged doors closing a part of said cavities, the said doors and arresters forming when closed a continuation of the vessel's skin.

3. In combination, the arresters located side by side at the same level, the holding devices, and the operating-bar adapted to give angular movement to the arresters and to release the holding devices; substantially as described.

4. In combination, the arresters, the means for holding and rotating them, and the hinged side doors of the cavities in which the arresters are located which are adapted to be closed and held closed by projections on the arresters; substantially as described.

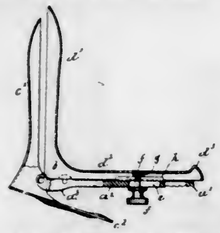
5. In combination, the arresters, the holding devices, and the operating-bar adapted to give angular movement to the arresters, said bar being capable of limited movement from its extreme position prior to its operation of the arresters, during which movement it is adapted to release the holding devices; substantially as described.

6. In combination, the arresters, the holding-bolts capable of axial movement and provided with cam-plates, and the operating-bar connected to the arrester-levers by links pivoted to a head capable of limited axial movement relatively to the bar, said bar being also provided with a fixed head carrying rollers which by contact with the cam-plates raise the bolts before the arresters are operated; substantially as described.

7. In combination with the holding and rotating devices, the hollow water-tight buoyant arresters whose interiors are in communication with a pump by means of a passage through their spindles; substantially as described.

8. In combination with the ship having the cavities therein side by side or at the same level and the arresters pivoted centrally of their length in the said cavities, the inner arms of said arresters extending part way across the vessel's bow when the arresters are in operation and each with its end opposite the inner end of the other arrester, substantially as described.

662,830. SPECULUM. JOHN SKLAR, New York, N. Y. Filed June 28, 1900. Serial No. 21,970. (No model.)



Claim.—1. A speculum comprising members with handle-shanks, one of the shanks having rails for adjustably engaging the other shank, said second shank being made to straddle the rails substantially as described.

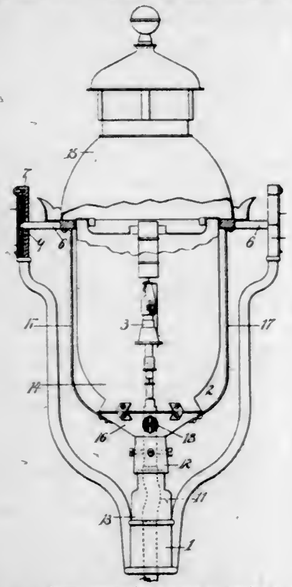
2. A speculum comprising members with shanks, one of the shanks having a slot *e* and rails *h* at the sides of the slot and the other shank being adapted to slide on or adjustably engage the rails, and a screw-fastening extended through the slot and made to connect the shanks substantially as described.

3. A speculum comprising members with shanks, one of the shanks having guide-rails, and the other shank being made to straddle and slide on the guide-rails, and a screw-fastening for the members substantially as described.

4. A speculum comprising members with shanks, one of the shanks having rails, and the other shank being made adjustable and reversible on the rails, and a fastening for the shanks substantially as described.

5. A speculum comprising members with shanks, one of the shanks having rails and the other shank being made to straddle the rails and to be reversible on the first-named shank and adjustable in both its original and reversed position substantially as described.

662,831. ANTIVIBRATION LAMP FOR WELSBACH OR OTHER INCANDESCENT LIGHTS. VICTOR H. SLINACK and EDWARD S. SANDERSON, Philadelphia, Pa., assignors to the Pennsylvania Globe Gas Light Company, same place. Filed Mar. 22, 1899. Serial No. 710,031. (No model.)



Claim.—1. A lamp comprising a support having a pair of arms each equipped at its end with a fixed housing, a lantern, and springs arranged in the housings and attached to the lantern and to the inner walls of the housings, substantially as described.

2. A lamp comprising a support having arms, housings fixed immovably on the arms and provided with apertures, a lantern provided with lugs penetrating said apertures, and springs arranged radially in the housings and connected with the inner wall thereof and with the lugs, substantially as described.

3. A lamp comprising a lantern consisting of a base and dome connected by rods and a globe interposed between the base and dome, a pair of arms rising from a support and each provided at its end with an immovable housing, and radially-arranged springs interposed between the lantern and the inner wall of the housing, substantially as described.

4. A lamp comprising arms rising from a hollow support, a lantern, springs interposed between the lantern and arms, a flexible gas connection for the lantern rising through the hollow support, and sleeves of different diameters inclosing the connection and arranged the larger above the smaller and interposed between the support and lantern and constructed to permit of motion of the latter and to shed water to the outside of the support, substantially as described.

662,832. LOOPER MECHANISM FOR SEWING-MACHINES. ARTHUR SPEAR, Chicago, Ill., assignor to E. N. Gilfillan, same place. Filed Oct. 16, 1899. Serial No. 733,738. (No model.)



Claim.—1. In a sewing-machine the combination of a needle-bar, a lever for operating said bar, a lever connected at one end to said first lever, a looper or hook, a shaft for operating said hook or looper, a slotted crank on said shaft a stud on the other end of said second lever engaging in said slot for imparting a fast and slow rotation to said shaft, and an operating-crank having a wrist-pin engaging said second lever at a point between its points of connection with said first lever and slotted crank, substantially as set forth.

2. In a sewing-machine the combination of a needle-bar, a looper-shaft, a vertical lever operatively connected to said needle-bar and having its upper end confined to an upright rectilinear movement and its lower end provided with sliding crank connection with said looper-shaft, and an operating-crank connected with said lever at an intermediate point, substantially as set forth.

3. In a sewing-machine the combination of a needle-bar, a looper-shaft, a pivoted lever operatively connected to said needle-bar, a vertical lever having its upper end jointed to said pivoted lever and such jointed end being confined to an upright rectilinear movement and its lower end provided with sliding crank connection with said looper-shaft, and an operating-crank connected with said vertical lever at an intermediate point, substantially as set forth.

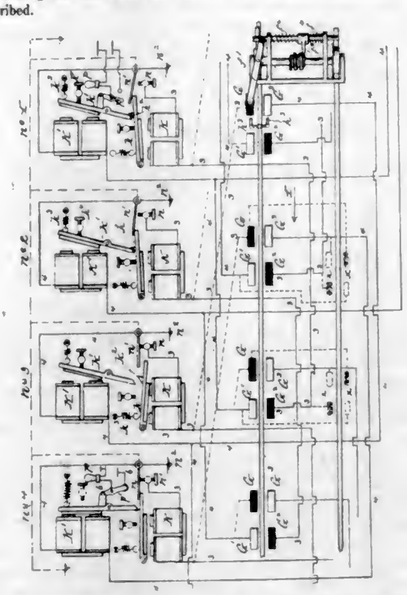
662,833. RAILWAY SIGNALING. SAMUEL D. STROHM, Philadelphia, Pa., assignor to the Strohm Automatic Electric Safety Block System Company, same place. Filed Aug. 29, 1891. Renewed June 5, 1900. Serial No. 19,171. (No model.)

Claim.—1. In a railway signaling system, the combination of station electromagnetic devices, two series of pairs of contact-plates arranged along the line of way and parallel therewith, the plates of each pair extending end to end, connections between said plates and the station electromagnetic devices, an engine or car, a laterally-adjustable frame carried thereby, means for adjusting said frame, a brush elastically mounted in said frame and making contact with either of said series of plates, and circuit connections for said brush, substantially as described.

2. In a railway signaling system, the combination of station electromagnetic devices, to each of which extend two partial circuits from contact-plates in the front and rear thereof, one of said circuits being permanently grounded and the other having a ground which is broken by the operation of the permanently-grounded circuit, two series of pairs of contact-plates to which said partial circuits are connected, the plates of each pair extending end to end, an engine or car, and a brush carried thereby and adjustable laterally to engage either series of contact-plates, substantially as described.

3. An engine or motor-car having a partial circuit including a source of electrical supply, a contact-brush, power-controlling mechanism, a separate closed lamp or signal circuit including an electric switch under the control of said power-controlling mechanism, and a visual signal under the control of said electric switch, substantially as described.

4. An engine provided with a movable or shifting contact-brush, a movable or shifting injection pipe or nozzle adjacent to and in line with said brush and having communication with the steam-supply, and means for shifting both the brush and injection-pipe together, substantially as described.



5. In an engine, the combination of a brush C, pipe A, having valve A' and nozzle A^2, sliding rod E, and the lever A^3 connecting the rod E and valve A', substantially as described.

6. The combination of track electrical contact-plates, an engine having a shifting contact-brush for said plates, a shifting steam or air ejector nozzle provided with a cut-off, devices operated by the backward and forward movements of the engine for shifting said brush and ejector-nozzle together, and mechanism for said cut-off actuated during the contact of said brush and a plate, to eject a blast of air or steam on the plate, substantially as described.

7. An engine having a movable support c^3, an electrical contact-brush C, a vertically-moving bar E, and a pipe A adjacent to and in line with brush C, mounted on said support, a normally-closed cut-off for said pipe A, and means for opening said pipe A when the brush C makes an electrical contact with a contact-plate, substantially as described.

8. In combination with a line of contact-plates located at intervals along the line of way of a railroad, an engine having a contact-brush and a steam pipe or nozzle adjacent to and in line with said brush, a normally-closed cut-off in said steam-pipe, and means for automatically opening said cut-off when the brush makes contact with said plates, substantially as described.

9. A railway having station electromagnetic devices in partial circuits and having contact-plates, and an engine or train having electromagnetic devices in a partial circuit with contact-brushes for said plates, means for controlling the power-supply for the engine or train in connection with devices automatically controlled by the forward and backward motion of the engine or train for automatically controlling the movement of the train or engine as it passes the stations in either direction of its movements, substantially as described.

10. A railway having station partial circuits including electromagnetic devices and contact-plates, and engines having partial circuits including electromagnetic devices and contact-brushes for said plates, power-supply mechanism controlled by said electromagnetic devices on the engine, and devices automatically controlled by the motion of the train or engine and all arranged to operate to control the forward and backward movements of the engine or train as it passes a station, substantially as described.

11. A railway provided with station partial circuits including electromagnetic devices and two sets of contact-plates and an engine or train having partial circuits with electromagnetic devices and contact-brushes for said plates, devices automatically controlled by the forward and backward motion of the engine or train for changing the electrical contact of said brushes with said plates, substantially as described

12. In a railway, track-contacts therefor, an engine or train having contact-brushes and devices automatically controlled by the backward and forward movements of the engine or train for changing the electrical contact of said brushes with respect to the track-contacts, substantially as described.

13. An engine or train having shiftable contact-brushes and mechanism controlled by the forward and backward motions of the engine or train for automatically shifting said brushes when the engine reverses its direction of travel, substantially as described.

14. A railway having station electromagnetic devices, two separate parallel circuits for said devices, one of which circuits is always grounded, and the other is normally grounded and adapted to be broken, two separate sets of contact-plates for said station electromagnetic devices, a brush carried on the engine or car and making contact with either of said sets of plates, and automatic means controlled by the movements of the engine or car for shifting said brush to either of said sets of contact-plates, substantially as described.

15. A railway-station provided with two or more magnets, partial circuits and contact-plates located adjacent to the tracks, a train or engine having a partial circuit, magnetic devices, power-controlling mechanism, contact-brushes, and mechanism controlled by the forward and backward movements of the engine or train for changing the contact of said brushes, substantially as described.

16. A railway-station provided with magnets having interlocking armatures, partial circuits and contact-plates, and an engine or train having a partial circuit, magnetic devices, power-controlling mechanism, contact-brushes and devices controlled by the forward and backward motion of the engine or train for changing the contact of said brushes, substantially as described.

17. A locomotive or train provided with a battery or generator circuit, one or more contact-brush circuit connections between said source of electrical power and brushes, and mechanism controlled by the forward and backward movements of the locomotive or train for automatically changing the contact of said brushes, substantially as described.

18. The combination with a locomotive or train, of an electromagnet and armature, an electrical generator, a lever having connection with the power-supply of the locomotive and the brakes and which is also connected to said armature and designed and adapted to be moved by mechanism on the engine, which mechanism is actuated by elevations or inclines along the railway, brushes on said engine and devices under the control of the forward and backward movement of the locomotive or train for changing or diverting the current of said electric generator as the train or engine reverses its direction of travel, substantially as described.

19. The combination of a railway having two sets of oppositely-located contact-plates, circuit 18 connecting therewith, the said circuit including stop t', movable circuit-closer t, and a ground connection, a crossing line of railway having its tracks in an open circuit including a generator and magnet controlling said movable circuit-closer t, and closed by a passing train, and contact-brushes on said train, substantially as described.

20. In a system of railway signaling, the combination of electromagnetic devices, a brush carried by the engine or car, two series of contact-plates in the line of way with either of which said brush makes contact to complete a circuit to actuate said electromagnetic devices, automatic means controlled by the movements of the engine or car for shifting the brush to either of the series of contact-plates, an electric lamp-signal controlled by said electromagnetic devices, and a source of electric supply for said signal, substantially as described.

21. In a system of railway signaling, the combination of electromagnetic devices, a brush carried by the engine or car, two series of contact-plates in the line of way with either of which said brush makes contact to complete a circuit to actuate said electromagnetic devices, automatic means controlled by the movements of the engine or car for shifting the brush to either of the series of contact-plates, a partial circuit in the engine or car connected with said brush, an electric lamp-signal in said partial circuit, and a source of electric supply for said signal, substantially as described.

22. In combination with electromagnetic station appurtenances for a railway, two series of contact-plates connected with said station appurtenances, a lamp-signal at each station controlled by said station appurtenances, a brush carried on the engine or car and making contact with either series of contact-plates to operate said appurtenances, and automatic means controlled by the movements of the engine or car for shifting the brush to either of the series of contact-plates, substantially as described.

23. In a railway, station electromagnetic devices, contact-plates, circuit connections, and an engine or motor-car, a brush thereon, means automatically actuated by the reverse movements of the engine for shifting said brush, electromagnetic devices, and circuit connections, substantially as described.

24. A railway having station electromagnetic devices in partial cir-

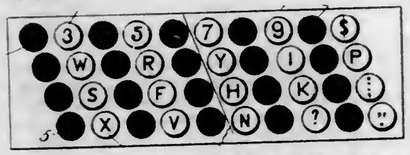
cuits, two sets of oppositely-arranged contacts-plates at differently-located stations and included directly in said circuits, an engine or train having partial circuits and a contact-brush, and mechanism automatically controlled by the forward and backward motion of the engine for shifting said brush for different lines of said contact-plates, substantially as described.

25. A railway having station electromagnetic devices, two sets of oppositely-located contact-plates and circuit connections arranged to directly interlock said plates and magnetic devices, and an engine, motor-car or train having a partial circuit with a contact-brush automatically controlled by the forward and backward motion of the engine and adapted to be shifted for contact with different lines of said contact-plates, substantially as described.

26. In a railway, contact-plates therefor, an engine or motor-car, a contact-brush thereon, motive-power-controlling devices, means under the control of the forward and backward movements of the engine for automatically shifting said brush, and controlling devices in relation to said contact-plates, substantially as described.

27. In an engine or motor-car, a contact-brush, motive-power-controlling devices, a sliding support for said brush and device, and mechanism for automatically shifting said support when the direction of travel of the engine or car is reversed, substantially as described.

662,834. TOUCH-TYPE-WRITING KEYBOARD. BARON P. TCHERKASSOV, St. Petersburg, Russia. Filed June 9, 1900. Serial No. 19,705. (No model.)



Claim.—1. In a type-writing machine, a keyboard made up of a number of blank key-tops arranged in sets, the tops in one set being relatively smooth and those in another set being relatively rough, whereby one set is distinguishable from another by the touch of the operator.

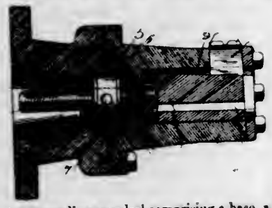
2. In a type-writing machine, a keyboard made up of a number of blank key-tops arranged in sets alternating with each other, the tops in one set being relatively smooth and those in another set being relatively rough, whereby one set is distinguishable from the next adjacent set or sets by the touch of the operator.

3. In a type-writing machine, a keyboard made up of a number of blank key-tops arranged in sets alternating one with the other across the keyboard, the tops of one set being relatively smooth and those in the adjacent set or sets being relatively rough, and thereby distinguishable by the touch of the operator, and the tops in one set being also of a distinctive color from those in the next set or sets.

4. In a type-writing machine, a keyboard made up of a number of blank key-tops arranged in sets across the keyboard, the tops in one set having smooth or polished surfaces and those in another set having rough or unpolished surfaces whereby one set is distinguishable from another set by the touch of the operator.

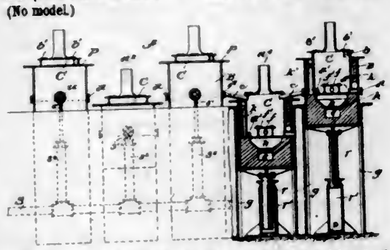
5. In a type-writing machine, a keyboard made up of a number of blank key-tops arranged in sets, the tops in one set having relatively smooth surfaces and those in another set having caps of rubber thereon producing relatively rough surfaces.

662,835. MANDREL. JAMES THOMAS and WILLIAM R. THOMAS, Catasauqua, Pa. Filed Sept. 24, 1900. Serial No. 30,959. (No model.)



Claim.—An expanding mandrel comprising a base, a jaw-casing secured thereto, the said base and casing having an opening formed between them for receiving a revolving nut, and an elongated segmental opening formed between them to accommodate an operating lever or rod for turning said nut, a screw engaging the internal threads of the said nut, a mandrel carried upon the inner end of said screw and arranged within a recess in the jaw-casing, jaws mounted in recesses in said casing and engaging inclined dovetailed ways formed upon the said mandrel, gripping-teeth formed upon the said jaws, and a ring or plate secured to the end of the said jaw-casing for holding the jaws in proper position, substantially as described.

662,836. APPARATUS FOR REFINING AND DESILVERIZING LEAD. STEPHEN TREDINNICK, Butte, Mont., assignor of one-fourth to Adolph Wetzstein, same place. Filed Apr. 2, 1900. Serial No. 11,275. (No model.)



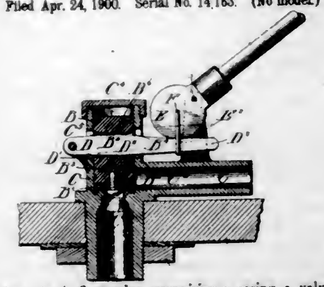
Claim.—1. An apparatus for refining and desilverizing lead, comprising a series of kettles, means for connecting the kettles for effecting the discharge of the contents of one into another, hydraulic cylinders on which the kettles are mounted, a fluid-tank, a pump, connections between the tank and pump and pump and cylinders to supply fluid to raise the cylinders, and connections for exhausting the fluid from the cylinders back to the tank, substantially as set forth.

2. An apparatus for refining and desilverizing lead, comprising a series of kettles adapted to communicate one with the other, means for raising and lowering the kettles, nozzles for injecting a current of steam or the like into the kettles, a steam-pipe, and expansion-joints between the nozzles and steam-pipe, substantially as set forth.

3. An apparatus for refining and desilverizing lead, comprising a series of independently-movable kettles, and hydraulic mechanism comprising cylinders, a source of fluid-supply, and supply and return connections for raising and lowering the kettles, said connections being valved for controlling the supply or exhaust to and from one, all or any desired number of the cylinders, substantially as set forth.

4. In an apparatus for desilverizing and refining lead, a series of kettles having inlet and outlet passages, removable spouts for connecting the outlet-passage of one kettle with the inlet-passage of another kettle, and means for raising and lowering the kettles, substantially as set forth.

662,837. FLOAT-VALVE. EDWARD A. VALIQUETTE, Rutland, Vt. Filed Apr. 24, 1900. Serial No. 14,163. (No model.)

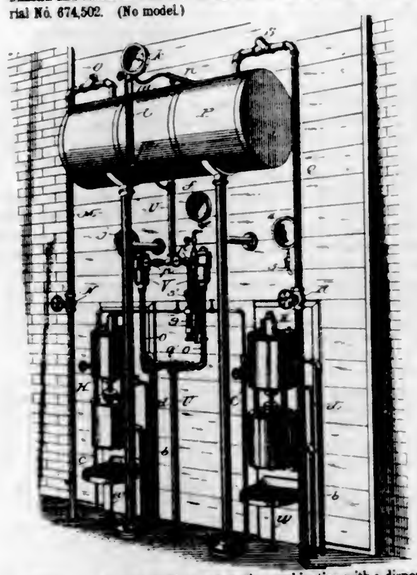


Claim.—1. A float-valve comprising a casing, a valve therein, a pivoted valve-lever adapted to operate said valve, a float-lever pivoted above said valve-lever, and a valve-lever-locking contact-face carried by said float-lever beyond its pivotal point at the opposite side from said float to travel and press downward upon a face of said valve-lever to close and lock said valve during the upward movement of said float; substantially as specified.

2. A float-valve comprising a casing provided with oppositely-disposed vertical slots, a reciprocating valve fitting said casing, a lever pivoted adjacent to one of said slots and passing through said valve and opposite slot, and a pivoted float-lever provided with a cam projection beyond its pivotal point at the opposite side from said float to travel upon and depress the free end of said valve when the float is elevated; substantially as specified.

3. A float-valve comprising a casing provided with an inlet portion having a valve-seat at its upper part, a lateral discharge extending therefrom, a vertical valve-case provided with oppositely-disposed slots, a slotted valve located within said casing, an operating-lever pivoted adjacent to one of the slots in said casing and passing through said valve and the opposite slot, a float-lever and float pivotally mounted above the free end of said valve-lever, a projection beyond the pivotal point of the float-lever disposed at the opposite side from said float and adapted to travel upon said valve-lever, and a bail pivoted in said projection and embracing the valve-lever to elevate the same; substantially as specified.

662,838. PNEUMATIC LUBRICATING SYSTEM. ELMER L. VANDREBAR and JAMES L. PILLING, Chicago, Ill. Filed Mar. 19, 1898. Serial No. 674,502. (No model.)



Claim.—1. In a lubricating system the combination with a dispensing-tank and a compressed-air receiver, of a reduction-valve and a check-valve interposed between said dispensing-tank and receiver for establishing a predetermined constant and uniform pressure in the dispensing-tank, substantially as described.

2. In a lubricating system the combination with a dispensing-tank and a compressed-air receiver, of a reduction-valve and a relief-valve for establishing and maintaining a predetermined constant and uniform pressure in said dispensing-tank, substantially as described.

3. In a lubricating system the combination with a dispensing-tank and a compressed-air receiver, of a relief-valve communicating with the dispensing-tank, and a reduction-valve interposed between said dispensing-tank and receiver for establishing a predetermined constant and uniform pressure in said dispensing-tank, substantially as described.

4. In a lubricating system the combination with a dispensing-tank and a compressed-air receiver, of an air-supply line connecting the two, a reduction-valve and a check-valve for governing the supply of compressed air, and a relief-valve communicating with the dispensing-tank, substantially as described.

5. In a lubricating system the combination with a dispensing-tank and a compressed-air receiver, of an air-compressor for charging said receiver, an air-supply line connecting receiver and dispensing-tank, a reduction-valve in the supply-line, and a relief-valve communicating directly with the dispensing-tank, substantially as described.

6. In a lubricating system the combination with an oil-reservoir, a dispensing-tank and an air-receiver, of interposed air and oil pipe connections, a relief-valve communicating directly with said dispensing-tank, and reduction-valves for governing the constant uniform delivery of compressed air from said air-receiver to the reservoir and dispensing-tank, substantially as described.

7. In a lubricating system the combination with an oil-reservoir, an oil-supply line containing a check-valve, a dispensing-tank, and a compressed-air receiver, of air-supply lines connecting the latter receiver with said dispensing-tank and reservoir, a reduction-valve interposed between the receiver and dispensing-tank for maintaining a constant uniform pressure in the latter, and a three-way cock between said receiver and oil-reservoir, substantially as described.

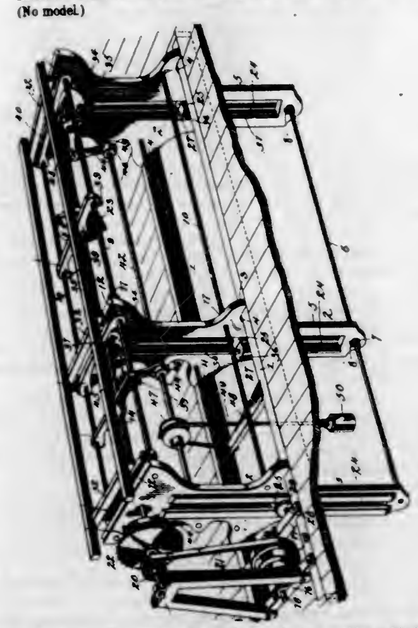
8. In a lubricating system the combination with a main filter, an oil-reservoir, a dispensing-tank and a compressed-air receiver, of a discharge-pipe between said filter and oil-reservoir, an oil-supply line containing a check-valve between the latter and the dispensing-tank, an air-supply line equipped with a reduction-valve between the air-receiver and dispensing-tank for maintaining a constant uniform pressure in the latter, and a valved air-pipe from the air-receiver to said oil-reservoir, substantially as described.

9. In a lubricating system the combination with a main filter, an oil-reservoir, a dispensing-tank and a compressed-air receiver, of a discharge-pipe connecting said filter and oil-reservoir, a check-valve, a three-way cock and an air-port in said filter discharge-pipe, an oil-supply line between said reservoir and the dispensing-tank, an air-supply line running through a reduction-valve between the dispensing-tank and air-receiver, and an air-pipe from the latter receiver terminating in the three-way cock aforesaid in filter discharge-pipe, substantially as described.

10. In a lubricating system the combination with a main filter, an oil-reservoir, a dispensing-tank and a compressed-air receiver, of air and oil pipe connections between said filter, reservoir, dispensing-tank and receiver, reduction-valves for controlling deliveries from said receiver, an oil-feed pipe leading from the dispensing-tank through a secondary filter, a main oil-feed line, and an oil-return line, the latter discharging into the main filter aforesaid, substantially as described.

11. In a lubricating system the combination with a main filter, an oil-reservoir, a dispensing-tank and a compressed-air receiver, of air and oil pipe connections between said filter, reservoir, dispensing-tank and receiver, a reduction-valve located in each of the air-pipes for controlling deliveries from said receiver, an oil-feed pipe leading from the dispensing-tank, oppositely-disposed branches in the latter running through secondary pressure-filters, a main oil-feed line, and an oil-return line the latter discharging into the main filter aforesaid, substantially as described.

662,839. MACHINE FOR SAWING OFF AND GAINING STAVES. LOUIS D. VOGEL, Omaha, Nebr. Filed Aug. 10, 1900. Serial No. 26,506. (No model.)



Claim.—1. The combination of the standards, a rocking table having supporting rocking arms, and supporting-pivots for said rocking arms, adjustable thereon and vertically adjustable in said standards, substantially as described.

2. In a machine of the class described, the combination with a shaft carrying saws and work-heads, of a supporting-frame, a rocking table having rocking arms, and supporting-pivots for said rocking arms, said supporting-pivots being vertically adjustable in said supporting-frame and on said rocking arms, substantially as described.

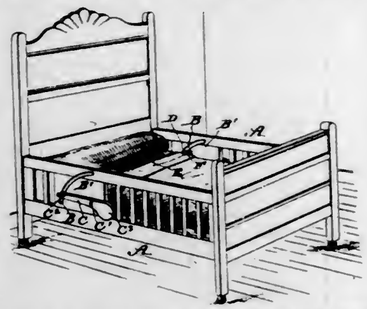
3. In a machine of the class described, a supporting-frame having vertical standards, in combination with blocks vertically adjustable in guides in said standards, pivots in said blocks, and a rocking frame having supporting-arms secured to said pivots, the latter being adjustable on said supporting-arms, substantially as described.

4. In a machine of the class described, the combination of a base-frame, vertical standards adjustable longitudinally on said base-frame, a shaft carrying saws and work-heads, and journaled in said adjustable standards, a rocking table having rocking arms, and supporting-pivots for said rocking arms, adjustable on the latter and on said standards, substantially as described.

5. In a machine of the class described, the combination of a base-frame, vertical standards adjustable longitudinally on said base-frame, a rock-shaft having its bearings in said standards and provided with adjustable rocking arms, a rocking table pivotally supported by said adjustable standards, links connecting said rocking table to the rocking arms of the rock-shaft and means to actuate the latter, substantially as described.

6. In a machine of the class described, the combination of a base-frame, standards adjustable longitudinally thereon, a rocking table carried by said standards, rods connecting said standards on which the latter are adjustable, a shaft for saws and the like having its bearings in said standards, and yokes connecting said shaft and rods, for the purpose set forth, substantially as described.

662,840. BEDCLOTHES-HOLDER. CHARLES J. WADE, Washington, D. C. Filed Aug. 11, 1900. Serial No. 26,591. (No model.)



Claim.—1. In a bedclothes-holder the combination of a bed-frame having its opposite side guards provided with segmental slots, the opposite swinging arms pivoted outside the said guards and swinging alongside the said slots and the cross connection secured to the swinging arms, substantially as set forth.

2. In a bedclothes-holder the combination of the bed-frame and the opposite pivoted arms provided at one end with means for holding the bedclothes and counterbalanced at their other ends, substantially as set forth.

3. The combination of the bed-frame having the curved slots and the arms pivoted between their ends to said bed-frame and arranged at one end to move along said slots, and a cross connection uniting such ends of the arms, said arms being counterbalanced at their other ends, substantially as set forth.

4. The combination in a bedclothes-holder, of a cross connection for securing the upper edge of the bedclothes, supports for the ends of said cross connection, the clamps for holding the bedclothes folded over said connection, and the carriers for said clamps secured to the cross connection, substantially as set forth.

5. In a bedclothes-holder, the combination of the bed-frame, the opposite arms arranged to swing at their free ends, and the swinging cross connection between said arms and arranged to carry the bedclothes, said connection being held in operation to the swinging ends of the arms whereby it will swing therewith, substantially as set forth.

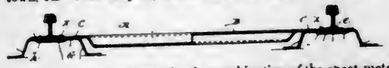
6. A bedclothes-holder, having a cross connection on which the bedclothes may be looped or folded, movable supports for the ends of said cross connection, clamps for holding the bedclothes folded on the cross connection and means connecting the clamps with the cross connection whereby the latter may be held in the rear portion of the loop or fold of the bedclothing so the portion of the loop or fold in front of the connection may fall loosely as the connection rises and falls, substantially as set forth.

7. In a bedclothes-holder, the combination of the bed-frame, the cross line or connection and swinging supports to which said connection is secured, the connection being held at the outer end of said swinging supports, said supports being pivoted to the bed at a point between the foot thereof and the upper edge of the bedclothes and approximately in line with the hip-joint of a child occupying the bed, substantially as and for the purpose set forth.

8. In a bedclothes-holder the swinging support pivotally supported and arranged at one end to rise and fall above the bed, and a cross connection held to the swinging portion of said support, whereby it may swing therewith as it rises and falls above the bed, substantially as set forth.

9. The combination substantially as described, of the bed-frame, the swinging supports, the cross connection secured to and extending between said supports, and from side to side of the bed-frame, and curved guides through which such connection passes, substantially as set forth.

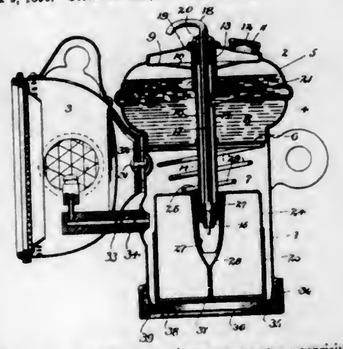
662,841. METALLIC RAILROAD-TIE. JACOB S. WARLEY, Pottstown, Pa. Filed May 28, 1900. Serial No. 18,310. (No model.)



Claim.—1. In a railroad-tie, the combination of the sheet-metal sill-plates, having depressions in their upper surfaces, of the sheet-metal tie-plates having flat end portions, provided with depressed rail-seats engaging such sill-plate depressions to provide an uninterrupted bearing-surface for the rails, said sill-plates having diagonally-located stop-lugs, and a locking-lug, for the rails, together with means for providing a pivotal connection of sill and tie plates, substantially as specified.

2. In a railroad-tie, the combination of the sheet-metal sill-plates having depressions in their upper surfaces, and a central bearing in said depression, of the sheet-metal tie-plates having flat end portions provided with depressed rail-seats engaging said sill depressions, and having a pivotal projection engaging said central bearing, said tie-plates having also A-form middle portions lying below the planes of said end portions thereof, in position to have their inclined sides ballasted in the road-bed, and said sill-plates having diagonally-located stop-lugs, and spring locking-lug, for the rails, substantially as specified.

662,842. ACETYLENE-GAS LAMP. SERN P. WATT, Chicago, Ill., assignor to the Hine-Watt Manufacturing Company, same place. Filed Oct. 9, 1899. Serial No. 733,077. (No model.)



Claim.—1. An acetylene-gas lamp or generator comprising a water-chamber, a carbid or generating chamber having a gas-outlet, a carbid-holding device consisting of two open-ended cups inverted and sliding upon each other, both said cups having one closed end except that the upper one is provided at its top with a combined water-inlet and gas-outlet forming communication between said passage and the interior of the carbid-holding device, and a valve-governed water-supply pipe communicating with the water-chamber and the generating-chamber and extending into said top opening in the carbid-cup, said pipe being of slightly less diameter than said opening.

2. A carbid-holding receptacle for a gas lamp or generator comprising, in combination with a generating-chamber, an inverted cup therein adapted to contain carbid, normally closed at its bottom and at its top except for a single opening, a valve-governed water pipe or passage extending into said opening to admit water thereto, a water-distributer within the cup, separate and removable therefrom, and communicating with said top opening, combined with a valve-governed supply-pipe communicating with the water-chamber and the generating-chamber and extending into said top opening in the carbid-cup, said pipe being of slightly less diameter than said opening.

3. A carbid-holding receptacle for a gas lamp or generator comprising an inverted cup adapted to contain carbid and normally closed at its bottom, such cup having a single top opening, a water-distributer separate from and independent of the cup but communicating with such opening, a valve-governed water pipe or passage for directing water into such opening, said water-distributer communicating with such opening and comprising perforated plates in close proximity and having an outer fibrous covering through which the water is distributed and the gas filtered.

4. A carbid-holding receptacle for a gas lamp or generator comprising an inverted cup having a removable closure at its lower end and normally closed except for a single top opening, a tube communicating with such opening and secured to the cup, in combination with a valve-governed supply-pipe communicating with the water-chamber and extending into said tube, such pipe being of slightly less diameter than said tube.

5. A carbid-holding receptacle for a gas lamp or generator comprising an inverted cup closed at the top except for a single opening, a closure for the bottom of the cup, a tube secured in such opening, a water-distributer within the cup and a valve-governed water-pipe extending into such tube and of slightly less diameter thereby providing an annular space for the escape of gas from within the cup.

6. A carbid-holding receptacle for a gas lamp or generator comprising an inverted cup closed and imperforate at its top except for a single opening, a closure for the bottom of the cup, a tube secured in such opening and depending part way in the cup, a water-distributer independent of the cup and its closure and attachable to and removable from such tube which forms a guide and support for the distributer and means for feeding water through said top opening in the cup.

7. An acetylene-gas lamp or generator comprising a water-chamber, a generating-chamber having a gas-outlet, a hollow stem communicating with the water-chamber and extending into the generating-chamber, a valve-seat in the lower end of the stem and entirely within the generating-chamber, a valve therein having a valve-stem longitudinal of such hollow stem, and a carbid-holding receptacle located in the generating-chamber and normally closed and imperforate except for a top opening into which the stem extends and nearly fills, and a removable water-distributer within the receptacle and into which the hollow stem and valve extends.

8. An acetylene-gas lamp or generator comprising a water-chamber, a generating-chamber having a gas-outlet, a hollow stem communicating with the water-chamber and extending into the generating-chamber, a valve in said stem for governing the water-feed, and a carbid-holding receptacle located in the generating-chamber and normally closed except for a top opening formed by a depending tube into which the stem extends and a water-distributer removably secured to, but physically independent of, the tube and of the receptacle.

9. An acetylene-gas lamp or generator comprising a water-chamber, a generating-chamber having a gas-outlet, a hollow stem communicating with the water-chamber and extending into the generating-chamber, a valve-seat in the lower end of the stem, and entirely within the generating-chamber, a valve therein having a stem longitudinal of the hollow stem, and a carbid-holding receptacle located in the generating-chamber and normally closed except for a top opening into which the stem extends, and a water-distributer within such receptacle and into which the hollow stem and the valve extends, whereby the distributer constitutes both a water-distributer proper and a filter for the gas.

10. An acetylene-gas lamp or generator comprising a water-chamber, a generating-chamber having a gas-outlet, a hollow stem extending into and communicating with the water-chamber and communicating with the generating-chamber, such stem having an indentation, a valve seating in such stem and having a valve-stem extending longitudinally within the hollow stem in contact with such indentation.

11. In a water-chamber for acetylene-gas lamps, the combination with the shell or casing forming the water-chamber having a water-inlet in its top portion, of a splash-diaphragm arranged within the casing and below the water-inlet, said diaphragm having an opening for communication with the chamber below the diaphragm.

12. In a water-chamber for acetylene-gas lamps, the combination with the shell or casing forming the water-chamber having a water-inlet in its top portion, with a cap normally closing the inlet, of a splash-diaphragm arranged within the casing and below the water-inlet, said diaphragm having an opening communicating with the space above and below the diaphragm, which opening is located out of alinement with the water-inlet.

13. The combination with a casing containing a top water-chamber and a generating-chamber below provided with a gas-outlet, such chambers having a communicating passage, a sleeve secured in the top of the water-chamber and having a screw-threaded bore, a governing-valve for such passage comprising a rotatable rod seating at its lower end in such passage, and a screw 19 screwing into said sleeve and provided with a head 20 abutting the top of the sleeve when the valve is seated.

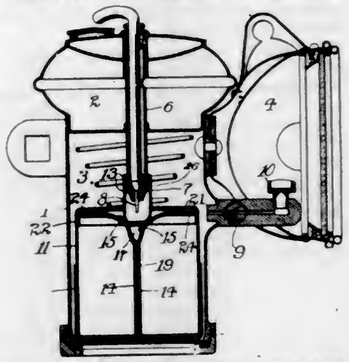
14. The combination, with a water-chamber and a gas-generating chamber having an outlet, of a hollow stem 14 communicating with said chambers, a valve-seat 15 in said stem, and a valve having a stem 17 and a long taper 22 and a short taper 23 seating in said seat.

15. The combination with a water-chamber and a gas-generating chamber having an outlet, of a hollow stem 14 communicating with said chambers and projecting in the generating-chamber, a seat 15 in the stem, a valve governing the water-feed through the stem, an inverted carbid-cup 24 located in the generating-chamber and having an opening 26 in its top, a telescoping upright cup 25, a depending tube 27 in said opening and a water-distributer connected to said tube.

16. The combination, with a water-chamber, an acetylene-gas-generating chamber having a passage communicating with the water-chamber, of a valve-seat in such passage and a valve seating at its end on said seat and having a double taper thereat.

17. The combination, with a water-chamber, an acetylene-gas-generating chamber with a communicating passage between the chambers, of a valve-seat located in such passage and having a tapered bore, and a valve comprising a rod or stem whose end is double-tapered to seat in said seat, the taper at the extreme end being long and gradual and the taper thereabove being short and abrupt.

662,843. ACETYLENE-GAS GENERATOR. SERN P. WATT, Chicago, Ill., assignor to the Hine-Watt Manufacturing Company, same place. Filed Jan. 27, 1900. Serial No. 3,052. (No model.)



Claim.—1. A carbid-holder comprising a cup, a water-distributer therein flat at its lower portion and spread laterally toward the top, a cover for the cup and an opening in the top of the cup for the entrance of water and passage of gas.

2. A carbid-holder comprising an inverted cup, a water-distributer therein, a disk connected to the upper end of the distributer and normally within, and at the closed end of, the cup, such disk being withdrawable with the distributer and a cover for the open end of the cup.

3. A carbid-holder comprising an inverted cup with a central opening in its top, an impervious disk slidable within the cup and also having a central opening, a water-distributer secured to the disk, and means for feeding water through such openings.

4. A carbid-holder comprising an inverted cup having a central opening, a flanged impervious disk slidable within the cup, also having a central opening, and normally positioned at the top of the cup, and a water-distributer secured to the disk and removable together with it, the disk being of the same diameter as the cup and adapted to clean the cup of residue when withdrawn.

5. A carbid-holder comprising an inverted cup closed at its top except for a water-admission opening, a solid, impervious disk slidable within the cup and of the same dimensions as the interior of the cup to scrape the sides thereof, such disk being provided with an opening registering with said water-admission opening, and a water-distributer physically independent of the disk but secured thereto below said opening and removable therewith from the cup.

6. A carbid-holder comprising an inverted cup having a top opening for admission of water, and a water-distributer located in the cup and consisting of perforated plates in close proximity at the lower end of the distributer and spread laterally near the top, one of such plates having a cavity and impressions or channels leading from the cavity to the bottom corners of the plates for the perfect and uniform distribution of water.

7. A carbid-holder comprising an inverted cup, a disk within the cup and of the same diameter, a downwardly-projecting marginal flange on the disk, and a water-distributer consisting of two plates in close proximity at their lower ends and spread apart laterally at the top which is contained and secured to the disk and flange.

8. A carbid-holder comprising an inverted cup having a top opening, a marginally-flanged disk having an opening registering with said top opening and slidable within the cup, a water-distributer consisting of two plates in close proximity at their lower ends and spread apart laterally at the top, and a fabric covering on the outside of the plates and extending partially over the top edges thereof, the top part of the distributer being held to the disk and such extended portions of the covering being clamped thereagainst.

9. A carbid-holder comprising an inverted cup having a top opening, a tube therein, a marginally-flanged disk having an opening receiving such tube, a water-distributer secured to such disk and removable therewith, and a cover for the cup.

10. In a carbid-holder comprising a cup 11, a cover 12, water-distributer plates 14, with spread portions 15, a covering 16 on the plates and having portions 24 turned over the top edges of the plates, a disk 21, with a central opening 23 and flange 22, a tube 13 in a central top opening of the cup and passing through opening 23 and means for admitting water through such tube.

11. A carbid-holder comprising a cup 11, having a central top opening, a tube 13 in such opening and extending above and below the top of the cup, a cover 12, a disk 21 with a flange 22 and central opening 23, and a water-distributer consisting of plates 14, with upper spread portions 15 secured to the disk, such plates having grooves 18 leading from a common cavity 17 to the bottom corners of the water-distributer.

12. A carbid-holder comprising an inverted cup having a top opening, a closure for the bottom of the cup, and a tube extending in such opening and provided with a side slot.

13. A carbid-holder comprising an inverted cup having a top opening, a closure for the bottom of the cup, and a water-guide tube or gas-passage in such opening and provided with a side slot along its full length.

14. A carbid-holder comprising an inverted cup which is closed at its top except for a single opening, a disk slidable within the cup and having an opening registering with the opening of the cup, a water-distributer connected to the disk and located within the cup and a cap or closure for the open end of the cup.

15. A carbid-holder comprising an inverted cup which is closed at its top except for a single opening and a water-distributer therein substantially flat and vertical at its lower portion and spread laterally toward the top approaching a substantially horizontal position, and means for feeding water to the holder through the said opening.

16. In an acetylene-gas lamp or generator, the combination, with a gas-generating chamber, of a disk slidable within the generating-chamber and solid and impervious except for a water-admission port or opening, such disk being normally located at the top of such chamber, and a water-distributer secured to the disk and arranged below said opening to receive and distribute the water.

17. A water-distributer for acetylene-lamps comprising perforated plates in close proximity having impressions or channels leading from the top, where water is applied, to the bottom corners of the plates for the perfect and uniform distribution of water and an outside covering of filtering material.

662,844. BUTTON FOR GLOVES. CARL R. WEIDMÜLLER, Chemnitz, Germany. Filed June 20, 1900. Serial No. 20,989. (No model.)



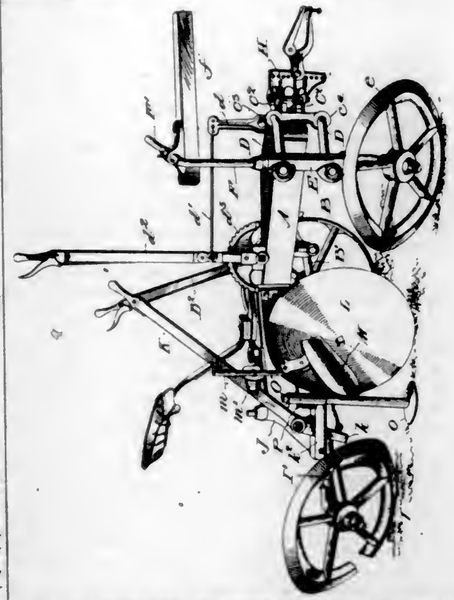
Claim.—1. A button comprising a socket member composed of a hollow socket or body proper having an annular groove and an opening in its head, a face or front secured to the body or socket, and a washer, the walls of the opening of which are radially slitted or notched, thereby rendering said walls elastic, said washer being adapted to be pressed over the body until said elastic walls snap into the annular groove of the body, substantially as described.

2. A button comprising a stud member composed of a hollow stud with an annular flange and two exterior annular grooves, the stud being also slotted inward from the end and beyond the outer annular groove, rendering that portion compressible and elastic and leaving that portion in which the inner annular groove is formed rigid, and a washer having a central opening with slitted or notched walls adapted to snap into the inner annular groove when the washer is pressed over the end of the hollow stud, substantially as described.

662,845. RIDING DISK PLOW. EDMUND C. WESTERVELT and CHARLES W. CLAPP, South Bend, Ind. Filed Mar. 17, 1900. Serial No. 9,106. (No model.)

Claim.—1. In a wheeled plow, the combination of a frame, the laterally-adjustable casting attached to the front side of the frame, the crank-shafts journaled in said casting, and the sleeve supported by said crank-shafts; with the furrow-wheel shaft journaled in said sleeve having a furrow-wheel on its lower end and its upper end cranked for the attachment of the tongue, substantially as described.

2. In a wheeled plow, the combination of a frame, the laterally-adjustable casting attached thereto, the upper and lower crank-shafts attached to said casting, the sleeve suspended on said crank-shafts, and the furrow-wheel shaft journaled in said sleeve having an inclined staggered furrow-wheel on its lower end and its upper end cranked for the attachment of the tongue.



3. In a wheeled plow, the combination of the frame, the casting attached to the front end thereof provided with lugs for the attachment of a clevis and with upper and lower eyes, the crank-shafts journaled in said eyes, and the furrow-wheel supported by said shafts.

4. In a wheeled plow, the combination of the frame, the laterally-adjustable casting attached to the front end thereof provided with lugs for the attachment of a clevis and with upper and lower eyes, the crank-shafts journaled in said eyes, the sleeve suspended from said crank-shafts, the furrow-wheel shaft journaled in said sleeve, and means for adjusting the sleeve.

5. In a wheeled plow, the combination of the frame, the casting attached to the front end thereof and provided with upper and lower eyes, the upper and lower crank-shafts journaled in said eyes, the vertical sleeve supported by said crank-shafts, the furrow-wheel shaft journaled in said sleeve having a furrow-wheel on its lower end and its upper end cranked for the attachment of a tongue, and the means for rocking said crank-shafts to adjust the furrow-wheel vertically.

6. The combination of the frame, the laterally-adjustable casting attached to the front end thereof, the upper and lower crank-shafts journaled on said casting, the vertical sleeve supported by said crank-shafts, the furrow-wheel shaft journaled in said sleeve having a furrow-wheel on its lower end and its upper end cranked for the attachment of a tongue, and the crank-arm, rod, lever and segment for rocking and locking said crank-shafts to adjust the furrow-wheel vertically.

7. In a riding-plow, the combination of a pair of laterally and independently adjustable castings attached to the front bar of the frame and respectively provided with means for the attachment of a clevis or tree, substantially as and for the purpose described.

8. In a riding-plow, the combination of a pair of laterally and independently adjustable castings attached to the front bar of the frame and respectively provided with means for the attachment of a clevis; with the furrow-wheel, the supports therefor attached to and supported by one of said castings, and means for vertically adjusting said furrow-wheel.

9. In a riding-plow, the combination of a pair of laterally-adjustable castings attached to the front bar of the frame and respectively provided with means for the attachment of a clevis or tree, upper and lower crank-shafts attached to one of said castings, the furrow-wheel supported by said crank-shafts, and means for vertically adjusting said furrow-wheel.

10. In a riding-plow, the combination of a pair of castings attached to the front bar of the frame and respectively provided with means for the attachment of a clevis or tree, the upper and lower crank-shafts attached to one of said castings, a vertical sleeve supported by said crank-shafts, the furrow-wheel shaft journaled in said sleeve carrying a furrow-wheel on its lower end, a tongue attached to the upper end of said furrow-wheel shaft, and means for vertically adjusting said furrow-wheel.

11. In a wheel-plow, the combination of the caster-wheel mounted on a crank-shaft adapted to swing horizontally; with a lever pivoted beside the crank-shaft and having a projecting lower end which is adapted to limit the swing of the shaft when the lever is adjusted in one position and to hold the caster in alinement in the furrow when the lever is adjusted to its other position, for the purpose and substantially as described.

12. In a wheel-plow, the combination of the rear caster-wheel, the crank-shaft carrying the same, a lever pivoted beside the shaft and adapted to have its lower end project into the path of the shaft when the lever is adjusted in one position for the purpose of forcing the caster-wheel into alinement in the furrow and retaining it in such position, for the purpose and substantially as described.

13. In a wheel-plow, the combination of the frame, the land-wheel, the casting attached to the front of the frame, the shaft supported on said casting having a furrow-wheel journaled on its lower end and its upper end bent over the frame for the attachment of the tongue; and means for adjusting the furrow-wheel vertically; with the horizontally-swinging caster-wheel attached to the rear end of the frame and the pivoted lever beside the caster-wheel adapted to force it into alinement and hold it in alinement with the furrow, all substantially as described.

14. In a wheel-plow, the combination of the frame, the land-wheel, the laterally-adjustable casting attached to the front of the frame, the crank-shafts on said casting, a sleeve supported by said crank-shafts, a shaft journaled in the sleeve having a furrow-wheel journaled on its lower end, and means for adjusting the furrow-wheel vertically; with the caster-wheel attached to the rear end of the frame by a horizontally-swinging crank-axle, and the lever pivoted to the frame beside the caster-wheel and adapted to force the same into alinement and hold it in alinement with the furrow, all substantially as described.

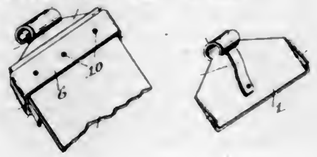
15. In a disk plow, the combination of the frame, the land-wheel, the casting attached to the front of the frame, a shaft supported from said casting having a furrow-wheel journaled on its lower end and its upper end bent over the frame for the attachment of a tongue and means for adjusting the furrow-wheel vertically, and a plow attached to the frame in rear of the furrow-wheel, with the horizontally-swinging caster-wheel attached to the rear end of the frame, and the lever pivoted to the frame beside the caster-wheel adapted to force and hold it in alinement with the furrow, all substantially as described.

16. In a disk plow, the combination of the frame, the land-wheel, the laterally-adjustable casting attached to the front of the frame, the crank-shafts on said casting, a furrow-wheel supported from said crank-shafts, and means for adjusting the furrow-wheel vertically, the disk plow attached to the frame in rear of the furrow-wheel, the caster-wheel attached to the rear end of the frame, and the lever pivoted beside the caster-wheel and adapted to force and hold it in alinement with the furrow, all substantially as described.

17. In a disk plow, the combination of the frame, the land-wheel, the casting attached to the front of the frame, the crank-shafts on said casting, a sleeve supported by said crank-shafts, a shaft journaled in the sleeve having a furrow-wheel journaled on its lower end and its upper end bent over the frame for the attachment of a tongue, and means for adjusting the furrow-wheel vertically, a disk plow attached to the frame in rear of the furrow-wheel, an adjustable scraper for said disk, the caster-wheel attached to the rear end of the frame and the lever pivoted to the frame beside the caster-wheel and adapted to force and hold it in alinement with the furrow, all substantially as described.

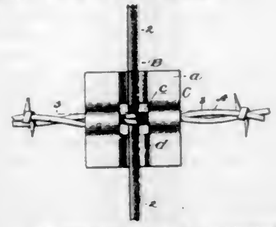
18. In a disk plow, the combination of the frame, the land-wheel, the laterally-adjustable casting attached to the front of the frame, the crank-shafts on said casting, a sleeve supported by said crank-shafts, a shaft journaled in the sleeve having a furrow-wheel journaled on its lower end and its upper end bent over the frame for the attachment of a tongue and means for adjusting the furrow-wheel vertically, a disk plow attached to the frame in rear of the furrow-wheel, with a horizontally-disposed cutter in the furrow behind said disk, the caster-wheel attached to the rear end of the frame, and the lever pivoted to the frame beside the caster-wheel and adapted to force and hold it in alinement with the furrow, all substantially as described.

662,846. WEDGE-BUCKLE. LEE WHITE, Lindall, Tex. Filed Aug. 10, 1900. Serial No. 26,467. (No model.)



Claim.—In a wedge-buckle, the combination, with the stiff plate having wedge-shaped side jaws, of the strap having an inwardly-curved spring portion terminating in projections and flanges which engage the jaws, and adapted to be straightened outwardly in clamping a belt or band between the plate and strap.

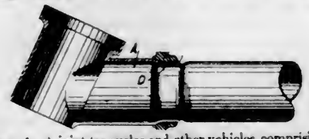
662,847. LOCK-PLATE. ALPHEUS H. WOOD, Amarillo, Tex. Filed Mar. 22, 1900. Serial No. 9,719. (No model.)



Claim.—1. In a fence-stay fastener, the combination of a wire-fence runner, a stay intersecting the same, and the sheet-metal lock-plate having the flat main portion *a*, all of which lies in the same plane, provided with a central aperture *c* receiving the intersecting portions of the runner and stay, and also having the straight channels *b*, *d*, of concavo-convex form in cross-section, disposed at opposite sides of the main portion *a* and in line with the horizontal and vertical axes thereof and receiving the runner-wire and the stay, respectively; the portions of the plate forming the channels being flattened against the runner-wire and stay whereby the portions of the wire and stay in the aperture *c* of the plate are sprung-bent, as and for the purpose set forth.

2. As an improved article of manufacture, the herein-described sheet-metal lock-plate having the flat main portion *a*, all of which lies in the same plane, provided with a central aperture *c*, and also having the straight channels *b*, *d*, of concavo-convex form in cross-section, arranged at opposite sides of the main portion *a* and in line with the horizontal and vertical axes, respectively, thereof; the said channels intersecting the aperture *c*, substantially as and for the purpose set forth.

662,848. CYCLE-FRAME JOINT. EDWARD G. WOOD, Liverpool, England. Filed Dec. 23, 1898. Serial No. 700,134. (No model.)



Claim.—1. A joint for cycles and other vehicles, comprising a socket and tube, a depression formed in the tube below the normal contour thereof, a reduced end formed on the socket and adapted to fit into said tube depression, screw-threads formed exteriorly of the said reduced portion, and a nut adapted to screw thereon, said nut having a coned inner surface at one end adapted to bear against the shoulder on the socket formed at the reduced portion, substantially as described.

2. A joint for cycles and other vehicles, comprising a split socket and a tube, a depression formed in the tube at a point intermediate its length, a reduced end formed on the socket made smooth inside and provided with threads on the outside, and a nut adapted to be screwed on said threads and against the shoulder formed by the reduced portion, the structure being such that the socket can be sprung over the end of the tube and its reduced end be brought into the depression of the tube for clamping, substantially as described.

662,849. METHOD OF OBTAINING EXTRACT OF SHRIMPS. CHRISTIAN ARENDT and WILHELM HÖNICKE, Büsum, Germany. Filed Feb. 6, 1900. Serial No. 4,240. (No specimens.)

Claim.—1. A method of obtaining an extract of shrimps, prawns or the like, consisting in depriving the shrimps of their fish-like taste and odor by washing them in vinegar, further extracting the nutritive elements of same by means of warm water having a temperature of about 50° to 60° centigrade, then clearing the broth which has been pressed out by means of wood-shavings, filtrating the broth with pulverized clay, adding to the semiconcentrated mass a preparation of creatin and pepsin in order to augment the nutritive value of same, and boiling down the extract in a vacuum at as low a temperature as possible, substantially as described.

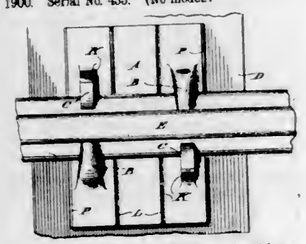
2. A method of obtaining an extract of shrimps, prawns or the like,

consisting in depriving the shrimps of their fish-like taste and odor by washing them in vinegar and water, further extracting the nutritive elements of same by means of warm water having a temperature of about 50° to 60° centigrade, then clearing by means of wood-shavings the broth which has been pressed out, filtrating the latter with pulverized clay, adding to the semiconcentrated mass a preparation of creatin and pepsin in order to augment the nutritive value of same, and boiling down the extract in a vacuum at as low a temperature as possible, substantially as described.

3. A method of obtaining an extract of shrimps, prawns or the like, consisting in depriving the shrimps of their fish-like taste and odor by washing them in vinegar, further extracting the nutritive elements of same by means of warm water having a temperature of about 50° to 60° centigrade, then clearing by means of wood-shavings which have been previously heated with boiling water containing soda the broth which has been pressed out, filtrating the latter with pulverized clay, adding to the semiconcentrated mass a preparation of creatin and pepsin in order to augment the nutritive value of same, and boiling down the extract in a vacuum at as low a temperature as possible, substantially as described.

4. A method of obtaining an extract of shrimps, prawns or the like, consisting in depriving the shrimps of their fish-like taste and odor by washing them in vinegar and then in water, further extracting the nutritive elements of same by means of warm water having a temperature of about 50° to 60° centigrade, then clearing by means of wood-shavings which have been previously heated with boiling water containing soda the broth which has been pressed out, filtrating the latter with pulverized clay, adding to the semiconcentrated mass a preparation of creatin and pepsin in order to augment the nutritive value of same, and boiling down the extract in a vacuum at as low a temperature as possible, substantially as described.

662,850. TIE-PLATE. HENRY W. AVERY, Cleveland, Ohio. Filed Jan. 5, 1900. Serial No. 433. (No model.)

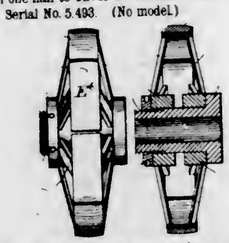


Claim.—1. A railroad-tie plate having a pair of lugs, one on each side of the rail position thereof, said lugs being adapted to clasp a rail-flange, the points directly opposite said lugs having spike-holes with reinforcing-lugs for the spikes, substantially as described.

2. A railroad-tie plate having two lugs one on each side of the rail-line thereof, said lugs being adapted to clasp a rail-flange, spike-hbles with reinforcing-lugs behind them opposite said lugs, and drain-gutters between said lugs passing from edge to edge of said plate beneath the rail-flange, substantially as described.

3. A railroad-tie plate having upon its upper side a lug on each side of the rail-line thereof, said lugs projecting toward the said rail-line and adapted to confine a rail-flange beneath them, spike-holes with reinfoteing-lugs behind them opposite said lugs, and a marginal flange with transverse webs upon its lower side, substantially as described.

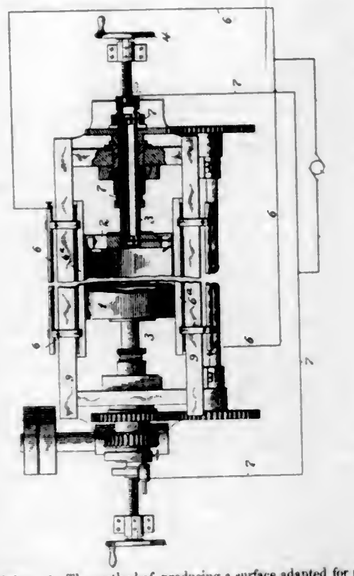
662,851. EXPANSIBLE PULLEY. JOHN FLORENCE, Newnan, Ga., assignor of one-half to Oliver A. Robbins, Charlotte, N. C. Filed Feb. 16, 1900. Serial No. 5,493. (No model.)



Claim.—1. An expansion-pulley comprising a rim composed of segmental sections; flexible spokes fixed to said sections; a threaded hub; and nut engaging said hub for causing the expansion of said sections by compression, substantially as described.

2. An expansion-pulley comprising a rim composed of segmental sections; flexible spokes fixed to said sections; a threaded hub; an expander fitting within said rim; and a nut engaging said hub arranged to compress said expander within said rim, substantially as described.

662,852. METHOD OF PRODUCING SURFACES FOR PRINTING, &c. EDWARD HETT, New York, N. Y. Filed Nov. 1, 1899. Serial No. 735,485. (No specimens.)



Claim.—1. The method of producing a surface adapted for use as a printing or drawing or transferring or engraving surface which consists in constructing a base with a surface of the predetermined size, shape, smoothness and finish required in the completed printing or drawing or transferring or engraving surface, placing the said base as a cathode in an electrolytic bath, electrolytically depositing the desired surface thereon from any suitable anode, and during the operation changing the relative position of any member of the electrolytic bath relative to another member to equalize the conditions to which the different parts of the surface of the cathode are subjected in the electrolytic bath, and maintaining during the operation such conditions as will result in a planographic surface, substantially as described.

2. The method of producing a surface adapted for use as a printing or drawing or transferring or engraving surface which consists in constructing a base with a surface of the smoothness predetermined size, shape and finish required in the completed printing or drawing or transferring or engraving surface, placing the said base as a cathode in an electrolytic bath, electrolytically depositing the desired surface thereon from any suitable anode, and during the operation imparting a uniform movement to the said cathode in the electrolytic fluid, and maintaining during the operation such conditions as will result in a planographic surface, substantially as described.

3. The method of producing a curved surface adapted for use as a curved printing or drawing or transferring or engraving surface which consists in constructing a curved base with a surface of the predetermined size, curvature, shape, smoothness and finish required in the completed curved printing or drawing or transferring or engraving surface, placing the said base as a cathode in an electrolytic bath and electrolytically depositing the desired surface thereon from any suitable anode during the operation turning the said cathode in the electrolytic fluid, and maintaining during the operation such conditions as will result in a planographic surface, substantially as described.

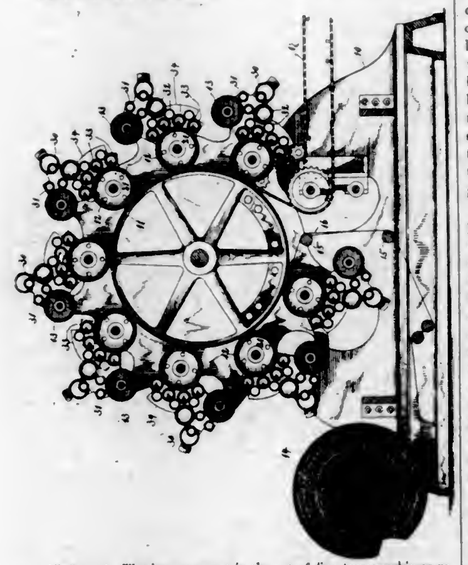
4. The method of producing a surface adapted for use as a printing or drawing or transferring or engraving surface which consists in constructing a base with a surface of the predetermined size, shape, smoothness and finish required in the completed printing or drawing or transferring or engraving surface, placing the said base as a cathode in an electrolytic bath and electrolytically depositing the desired surface thereon from any suitable anode, and maintaining during the operation such conditions as will result in a planographic surface, substantially as described.

5. The method of producing a printing-surface which consists in constructing a base with a surface of the predetermined size, shape, smoothness and finish required in the completed surface, placing the said base as a cathode in an electrolytic bath and electrolytically depositiug the desired surface thereon from any suitable anode imparting a design to said completed surface after the lithographic manner and developing the surface into a printing-surface of the character described.

6. The method of producing a lithographic printing-surface which consists in constructing a base with a surface of the predetermined size, shape, smoothness and finish required in the completed surface, placing the said base as a cathode in an electrolytic bath and electrolytically depositing the desired surface thereon from any suitable anode, imparting a design to said completed surface after the lithographic manner and developing the surface into a lithographic printing-surface.

7. The method of producing a printing-surface which consists in constructing a base with a surface of the predetermined size, shape, smoothness and finish required in the completed surface, placing the said base as a cathode in an electrolytic bath and electrolytically depositing the desired surface thereon from any suitable anode, and during the operation maintaining such conditions as will result in a planographic surface, imparting a design to said completed surface after the lithographic manner and developing the surface into a printiug-surface of the character desired.

662,853. METHOD OF PRINTING AND MAKING PRINTING-FORMS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,649. (No model.)



Claim.—1. The improvement in the art of fine typographic or relief printing, which consists in constructing a blank surface by accurately shaping and sizing and finishing it to the exact shape and size and finish desired in the printing-surface, etching out or otherwise suitably removing or working down to lower planes or levels the non-printing portions of the blank surface without affecting the plane of the printing portions, whereby is attained an accurately and uniformly type-high printing-form; inking such printing-form in the printing-press with uniform inking-surfaces; and printing from such form upon paper or similar material by compressing the paper between such printing-surface and an impression device having a hard surface such as is suitable for typographic printing and which surface is uniform and uniformly yielding and resistant at all points, whereby clear and uniform and artistic typographic or relief printing may be achieved without make-ready and with reduced pressure.

2. The improvement in the art of fine typographic or relief printing, which consists in constructing a curved circumferentially-continuous blank surface by accurately shaping and sizing and finishing it to the exact shape and size and finish desired in the printing-surface, etching out or otherwise suitably removing or working down to lower planes or levels the non-printing portions of the blank surface without affecting the plane of the printing portions, whereby is attained an accurately and uniformly type-high printing-form; inking such printing-form in the printing-press with uniform inking-surfaces; and printing from such form upon paper or similar material by compressing the paper between such printing-surface and an impression device having a hard surface such as is suitable for typographic printing and which surface is uniform and uniformly yielding and resistant at all points, whereby clear and uniform and artistic typographic or relief printing may be achieved without make-ready and with reduced pressure.

3. The improvement in the art of fine typographic or relief printing, which consists in constructing a blank surface by accurately shaping and sizing and finishing it to the exact shape and size and finish desired in the printing-surface, accurately shaping and sizing and finishing the back of the form to the exact shape and size of the form-support in a printing-press, etching out or otherwise suitably removing or working down to lower planes or levels the non-printing portions of the blank surface without affecting the plane of the printing portions, whereby is attained an accurately and uniformly type-high printing-form; mounting the form directly upon the support in the printing-press; inking such printing-form in the printing-press with uniform inking-surfaces; and printing from such form upon paper or similar material by compressing the paper between such printing-surface and an impression device having a hard surface such as is suitable for typographic printing and which surface is uniform and uniformly yielding and resistant at all points, whereby clear and uniform and artistic typographic or relief printing may be achieved without make-ready and with reduced pressure.

4. The improvement in the art of making fine typographic or relief printing-forms, which consists in making a blank surface by accurately shaping and sizing and finishing a suitable base to the exact uniform shape and size and finish which will adapt it when provided with a suitable coating to cooperate subsequently as a printing-form with the other parts of the press in the printing; applying to the base a uniformly thick even layer or coating of material adapted to form a relief printing-surface, whereby the characteristics as to size and shape of the surface of the blank are determined by those of the base; and then transforming said blank into a relief printing-surface by removing or working down the non-printing portions of the surface of the blank without affecting or destroying the portions of the original surface of the blank which are to form the printing-surface, whereby is attained an accurately and uniformly type-high relief printing-form adapted to produce clear and artistic typographic or relief printing without make-ready, substantially as described.

5. The improvement in the art of making fine typographic or relief printing-forms, which consists in making a blank surface by accurately shaping and sizing and finishing a suitable base to the exact uniform shape and size and finish which will adapt it when provided with a suitable coating to cooperate subsequently as a printing-form with the other parts of the press in the printing; integrally applying to the base by electrodeposition a uniformly thick even layer or coating of material adapted to form a relief printing-surface, whereby the characteristics as to size and shape of the surface of the blank are determined by those of the base; and then transforming said blank into a relief printing-surface by removing or working down the non-printing portions of the surface of the blank without affecting or destroying the portions of the original surface of the blank which are to form the printing-surface, whereby is attained an accurately and uniformly type-high relief printing-form adapted to produce clear and artistic typographic or relief printing without make-ready, substantially as described.

6. The improvement in the art of making fine typographic or relief printing-forms, which consists in making a blank surface by accurately shaping and sizing and finishing a suitable base to the exact uniform shape and size and finish which will adapt it when provided with a suitable coating to cooperate subsequently as a printing-form with the other parts of the press in the printing; integrally applying to the base by electrodeposition a uniformly thick even layer or coating of zinc, whereby the characteristics as to size and shape of the surface of the blank are determined by those of the base; and then transforming said blank into a relief printing-surface by removing or working down, as by etching, the non-printing portions of the surface of the blank without affecting or destroying the portions of the original surface of the blank which are to form the printing-surface, whereby is attained an accurately and uniformly type-high relief printing-form adapted to produce clear and artistic typographic or relief printing without make-ready, substantially as described.

7. The improvement in the art of preparing blank printing-forms, which consists in accurately sizing and shaping and finishing a suitable base to the exact size and shape and finish which will adapt it when provided with a suitable coating or surface to cooperate subsequently as a printing-surface with other similar printing-forms and the other parts of a multicolor-press in the printing, and applying to the base a uniformly thick even layer or coating of material adapted to form a printing-surface of the character desired, whereby the characteristics of the surface of the blank as to size and shape are determined by those of the base, substantially as described.

8. The improvement in the art of preparing blank printing-forms, which consists in accurately sizing and shaping and finishing a suitable

base to the exact size and shape and finish which will adapt it when provided with a suitable coating or surface to coöperate subsequently as a printing-surface with the other parts of a press in the printing, and applying to the base a uniformly thick even layer or coating of zinc adapted to form a printing-surface of the character desired, whereby the characteristics of the surface of the blank as to size and shape are determined by those of the base, substantially as described.

9. The improvement in the art of preparing blank printing-forms, which consists in accurately sizing and shaping and finishing a suitable base to the exact size and shape and finish which will adapt it when provided with a suitable coating or surface to coöperate subsequently as a printing-surface with other similar printing-forms and the other parts of a multicolor-press in the printing, and applying to the base a uniformly thick even layer or coating of material adapted to form a relief printing-surface, whereby the characteristics of the surface of the blank as to size and shape are determined by those of the base, substantially as described.

10. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base a separate removable coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base a second removable coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

11. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base a separate removable coating, making said coating into a relief printing-surface, entirely removing the coating from the base, integrally applying to the base a second removable coating and making said second coating into a relief printing-surface, a fresh and unused surface being thus presented for each design.

12. The improvement in the art of preparing printing-forms which consists in taking a printing-form composed of a base and an exteriorly integrally applied removable coating made or adapted to be made into a relief printing-surface, entirely removing the coating from the base, and integrally applying to the base a second removable coating, and making said second coating into a relief printing-surface, a fresh and unused surface being thus presented for a new design.

13. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base by chemical deposition a separate removable coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base by chemical deposition a second removable coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

14. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base by electrodeposition a separate removable metallic coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base by electrodeposition a second removable metallic coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

15. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base a separate removable metallic coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base a second removable metallic coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

16. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base a separate removable zinc coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base a second removable zinc coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

17. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base by electrodeposition a separate removable zinc coating, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base by electrodeposition a second removable zinc coating adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

18. The improvement in the art of making relief printing-forms which consists in making a suitable base for the printing-form, integrally applying to said base a separate removable coating of material different from that of the base, making said coating into a relief printing-surface, entirely removing the coating from the base and integrally applying to the base a second removable coating of different material from that of the base adapted to be made into a relief printing-surface, a fresh and unused surface being thus presented for each design.

19. The improvement in the art of preparing printing-forms which consists in taking a printing-form composed of a base and an exteriorly integrally applied removable metallic coating made or adapted to be made into a relief printing-surface, entirely removing the coating from the base, and integrally applying to the base a second removable metallic coating, and making said second coating into a relief printing-surface, a fresh and unused surface being thus presented for a new design.

20. The improvement in the art of preparing printing-forms which consists in taking a printing-form composed of a base and an exteriorly integrally applied removable metallic coating made or adapted to be made into a relief printing-surface, entirely removing the coating from the base, and integrally applying to the base by electrodeposition a second removable metallic coating, and making said second coating into a relief printing-surface, a fresh and unused surface being thus presented for a new design.

21. The improvement in the art of preparing printing-forms which consists in taking a printing-form composed of a base and an exteriorly integrally applied removable coating of material different from that of the base and made or adapted to be made into a relief printing-surface, entirely removing the coating from the base, and integrally applying to the base a second removable coating, and making said second coating into a relief printing-surface, a fresh and unused surface being thus presented for a new design.

22. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base a separate removable coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base a second removable coating of predetermined thickness adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

23. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base a separate removable coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, integrally applying to the base a second removable coating of predetermined thickness and making said second coating into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

24. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base by chemical deposition a separate removable coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base by chemical deposition a second removable coating of predetermined thickness adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

25. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base a separate removable metallic coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base a second removable metallic coating of predetermined thickness adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

26. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base by electrodeposition a separate removable metallic coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base by electrodeposition a second removable metallic coating of predetermined thickness adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

27. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base by electrodeposition a separate removable zinc coating of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base by electrodeposition a second removable zinc coating adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

28. The improvement in the art of preparing printing-forms which consists in making a strengthening-base of predetermined shape and dimensions, integrally applying to said base a separate removable coating of material different from that of the base and of predetermined thickness, making said coating into a relief printing-surface, entirely removing the coating from the base without substantially affecting the shape or dimensions of the base, and integrally applying to the base a second removable coating of material different from that of the base and of predetermined thickness adapted to be developed into a relief printing-surface, the size of the printing-form being determined by the size of the base and a fresh surface presented for each new design.

29. The improvement in the art of printing which consists in making the strengthening-base of a printing-form of predetermined shape and size, integrally applying to said base a separate removable coating of predetermined thickness, making the said coating into a relief printing-surface, printing the desired edition therefrom, entirely removing the coating from the base without substantially affecting the shape and size of the base, integrally applying to the base a second removable coating of predetermined thickness, making said second coating into a relief printing-surface and printing the desired edition therefrom and so on, the size of successive printing-forms being determined by the size of the base and a fresh surface presented for each design.

30. The improvement in the art of printing which consists in making the strengthening-base of a printing-form of predetermined shape and size, integrally applying to said base a separate removable coating of predetermined thickness, making the said coating into a printing-surface of the character desired, printing the desired edition therefrom, entirely removing the coating from the base without substantially affecting the shape and size of the base, integrally applying to the base a second removable coating of the same predetermined thickness as the previous coating, making said second coating into a printing-surface of the character desired and printing a second color or design therefrom upon the edition printed by the previous printing-surface, whereby accurate register of the designs is attained, the size of the successive printing-surfaces being determined by the size of the permanent base.

31. The improvement in the art of printing which consists in making the strengthening-base of a printing-form of predetermined shape and size, integrally applying to said base a separate removable coating of predetermined thickness, making the said coating into a printing-surface of the character desired, placing said printing-surface in a predetermined seat in a press and printing the desired edition therefrom, entirely removing the coating from the base without substantially affecting the shape and size of the base, integrally applying to the base a second removable coating of the same predetermined thickness as the previous coating, making said second coating into a printing-surface of the character desired, placing said second printing-surface in the same predetermined seat in the press that carried the former printing-surface, and printing a second color or design therefrom upon the edition printed by the previous printing-surface, whereby accurate register of the designs is attained, the size of the successive printing-surfaces being determined by the size of the permanent base.

32. The improvement in the art of printing which consists in making the strengthening-base of a printing-form of predetermined shape and size, integrally applying to said base a separate removable coating of predetermined thickness, transferring a design to said coating in accurate predetermined position both longitudinally and transversely, making the said coating into a printing-surface of the character desired, placing said printing-surface in a predetermined seat in a press and printing the desired edition therefrom, entirely removing the coating from the base without substantially affecting the shape and size of the base, integrally applying to the base a second removable coating of the same predetermined thickness as the previous coating, transferring a design to said second coating in accurate predetermined position both longitudinally and transversely, making said second coating into a printing-surface of the character desired, placing said second printing-surface in the same predetermined seat that carried the former printing-surface and printing a second color or design therefrom upon the edition printed by the previous printing-surface, whereby accurate register of the designs is attained, the size of the successive printing-surfaces being determined by the size of the permanent base.

33. The improvement in the art of printing which consists in making the strengthening-base of a printing-form of predetermined shape and size, integrally applying to said base by electrodeposition a separate removable metallic coating of predetermined thickness, making the said coating into a relief printing-surface, printing the desired edition therefrom, entirely removing the coating from the base without substantially affecting the shape and size of the base, integrally applying to the base by electrodeposition a second removable metallic coating of predetermined thickness, making said second coating into a relief printing-surface and printing the desired edition therefrom and so on, the size of successive printing-forms being determined by the size of the base and a fresh surface presented for each design.

34. The improvement in the art of multicolor-printing which consists in preparing a series of printing-forms by first preparing a series of bases of predetermined shape and size fixed so as to adapt the forms to coöperate with each other and the other parts of the press and print in register, integrally applying to said bases separate removable coatings of predetermined thickness, making said coatings into relief printing-surfaces adapted to register in printing the various colors of the design, printing the desired edition therefrom in register, removing the coatings from the series of bases without substantially affecting the shape and size of the bases, integrally applying to said bases second removable coatings of predetermined thickness, making said second coatings into relief printing-surfaces adapted to register in printing the various colors of a design, printing the desired edition therefrom and so on, whereby accurate register in the printing is attained, the size of each series and of successive series of printing-forms being determined by the size of the permanent bases.

35. The improvement in the art of multicolor-printing which consists in preparing a series of printing-forms by first preparing a series of bases of the same predetermined shape and size fixed so as to adapt the forms to coöperate with each other and the other parts of the press and print in register, integrally applying to said bases separate removable coatings of the same predetermined thickness, making said coatings into relief printing-surfaces adapted to register in printing the various colors of the design, printing the desired edition therefrom in register, removing the coatings from the series of bases without substantially affecting the shape and size of the bases, integrally applying to said bases second removable coatings of the same predetermined thickness, making said second coatings into relief printing-surfaces adapted to register in printing the various colors of a design, printing the desired edition therefrom and so on, whereby the proper shape and size of printing-form for exact register and proper printing in the press having been once accurately attained is permanently maintained throughout the subsequent printing operations.

36. The improvement in the art of multicolor-printing which consists in preparing a series of printing-forms by first preparing a series of bases of predetermined shape and size fixed so as to adapt the forms to coöperate with each other and the other parts of the press and print in register, integrally applying to said bases by electrodeposition separate removable metallic coatings of predetermined thickness, making said coatings into relief printing-surfaces adapted to register in printing the various colors of the design, printing the desired edition therefrom in register, removing the coatings from the series of bases without substantially affecting the shape and size of the bases, integrally applying to said bases by electrodeposition second removable metallic coatings of predetermined thickness, making said second coatings into relief printing-surfaces adapted to register in printing the various colors of a design, printing the desired edition therefrom and so on, whereby accurate register in the printing is attained, the size of each series and of successive series of printing-forms being determined by the size of the permanent bases.

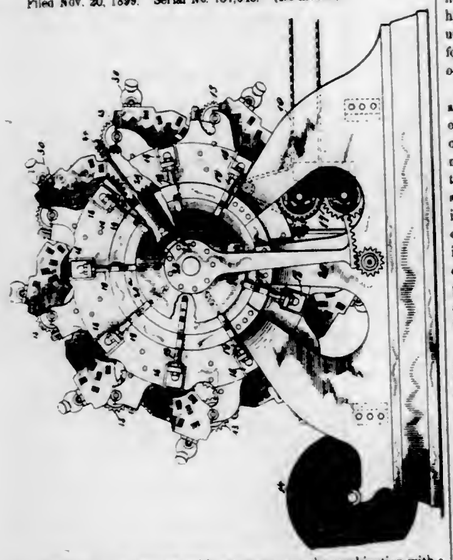
37. The improvement in the art of multicolor-printing which consists in preparing a series of printing-forms by first preparing a series of bases of the same predetermined shape and size fixed so as to adapt the forms to coöperate with each other and the other parts of the press and print in register, integrally applying to said bases by electrodeposition separate removable metallic coatings of the same predetermined thickness, making said coatings into relief printing-surfaces adapted to register in printing the various colors of the design, printing the desired edition therefrom in register, removing the coatings from the series of bases without substantially affecting the shape and size of the bases, integrally applying to said bases by electrodeposition second removable metallic coatings of the same predetermined thickness, making said second coatings into relief printing-surfaces adapted to register in printing the various colors of a design, printing the desired edition therefrom and so on, whereby the proper shape and size of printing-form for exact register and proper printing in the press having been once accurately attained is permanently maintained throughout the subsequent printing operations.

38. The improvement in the art of fine multicolor typographic or relief printing, which consists in constructing a series of blank surfaces by accurately sizing and shaping and finishing each one of them to the exact size and shape and finish desired in the printing-surfaces, thereby accurately and exactly adapting the surfaces to coöperate subsequently as printing-surfaces with the other parts of the printing-press in the printing; etching out or otherwise suitably removing or working down the non-printing portions of each one of the blank surfaces without affecting the printing portions of those surfaces, whereby is attained a series of accurately and uniformly type-high printing-forms; inking such printing-

forms in the printing-press with a series of uniform inking-surfaces; and printing from such forms upon paper or similar material and in approximately instantaneous succession by compressing the paper between such printing-surfaces in series and a common impression device having a hard surface such as is suitable for typographic printing and which surface is uniform and uniformly yielding and resistant at all points, whereby clear and uniform and artistic multicolor typographic or relief printing may be achieved without make-ready and with reduced pressure and economically.

39. The improvement in the art of multicolor typographic or relief-plate printing, which consists in constructing a series of identically-curved circumferentially-continuous blank surfaces by accurately sizing and shaping and finishing them all to the one and the same exact size and shape and finish desired in the printing-surfaces, thereby accurately and exactly adapting the surfaces to coöperate subsequently as printing-surfaces with the other parts of the printing-press in the printing; etching out or otherwise suitably removing or working down the non-printing portions of the blank surfaces without affecting the printing portions, whereby is attained a series of curved circumferentially-continuous printing-forms, the printing portions of whose surfaces are accurately and uniformly type-high; inking such printing-forms in the printing-press with a series of uniform inking-surfaces, and printing from such printing-forms upon paper or similar material in approximately instantaneous succession by compressing the paper between such printing-surfaces in series and a central impression-drum having a hard surface such as is suitable for typographic printing and which surface is uniform and uniformly yielding and resistant at all points, whereby clear and uniform and artistic multicolor typographic or relief printing may be achieved without make-ready and with reduced pressure and economically.

662,854. PRINTING-PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,648. (No model.)



Claim.—1. In a typographic printing-press, the combination with a printing-form having the printing portions of its surface all lying accurately and uniformly in the one and the same original type-high surface of the form and integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press, and removed without affecting the printing portions, of a suitable inking mechanism including form-inking rollers having uniform surfaces, and an impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate printing may be achieved without make-ready, substantially as described.

2. In a typographic printing-press, the combination with a curved printing-form having the printing portions of its surface all lying accurately and uniformly in the one and the same original curved type-high surface of the form and integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform curved surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a suitable inking mechanism including form-inking rollers having uniform surfaces, and an impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate printing may be achieved without make-ready, substantially as described.

3. In a typographic printing-press, the combination with a curved circumferentially-continuous printing-form having the printing portions of its surface all lying accurately and uniformly in the one and the same original curved circumferentially-continuous type-high surface of the form and integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform curved circumferentially-continuous surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press, and removed without affecting the printing portions, of a suitable inking mechanism including form-inking rollers having uniform surfaces, and an impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate printing may be achieved without make-ready, substantially as described.

4. In a multicolor typographic printing-press, the combination with a series of printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

5. In a multicolor typographic printing-press, the combination with a series of curved printing-forms all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original curved type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform curved surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

6. In a multicolor typographic printing-press, the combination with a series of curved circumferentially-continuous printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original curved circumferentially-continuous type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform curved circumferentially-continuous surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

7. In a typographic printing-press, the combination with an interior form-support and an exterior removable and replaceable hollow printing-form, having the printing portions of its surface all lying accurately and uniformly in the one and the same original type-high surface of the form and integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape, accurately adapting it to coöperate with the other parts of the press, and removed without affecting the printing portions, of a suitable inking mechanism including form-inking rollers having uniform surfaces, and an impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate printing may be achieved without make-ready, substantially as described.

8. In a multicolor typographic printing-press, the combination with a series of interior form-supports and a series of exterior removable and replaceable hollow printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

9. In a multicolor typographic printing-press, the combination with a series of interior form-supports and a series of exterior removable and replaceable hollow curved circumferentially-continuous printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms, each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

10. In a multicolor typographic printing-press, the combination with a series of identically-shaped printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

11. In a multicolor typographic printing-press, the combination with a series of identically-shaped curved circumferentially-continuous printing-forms, all the printing portions of the surface of each one of which lie accurately and uniformly in the one and the same original curved circumferentially-continuous type-high surface of the form and are integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform curved circumferentially-continuous surface had received its otherwise final size and shape accurately adapting it to coöperate with the other parts of the press and removed without affecting the printing portions, of a series of suitable inking mechanisms each including form-inking rollers having uniform surfaces, and a common impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate multicolor printing may be achieved without make-ready, substantially as described.

12. In a typographic printing-press, the combination with an interior form-support and an exterior removable and replaceable hollow printing-form comprising an inner strengthening-shell and an outer surface layer of different material, the two firmly united together, and having the printing portions of its surface all lying accurately and uniformly in the one and the same original type-high surface of the form and integral with the non-printing portions which lie below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final size and shape, accurately adapting it to coöperate with the other parts of the press, and removed without affecting the printing portions, of a suitable inking mechanism including form-inking rollers having uniform surfaces, and an impression device having a hard surface suitable for typographic printing, which surface is uniform and uniformly yielding and resistant at all points, whereby uniform typographic or relief-plate printing may be achieved without make-ready, substantially as described.

13. In a typographic printing-press, the combination with an impression device having a uniform and uniformly-yielding surface suitable for typographic printing, of an accurately-shaped form-support, a tubular relief or typographic printing-form accurately fitted interiorly to the form-support and having the printing portions of the printing-surface all lying accurately and uniformly in the one and the same original type-high surface of the form and integral with the non-printing portions which are below that surface, the non-printing portions having been removed or etched out after the original uniform surface had received its otherwise final shape accurately adapting it to coöperate with the corresponding parts of the press and removed without affecting the printing portions, whereby clear and uniform printing may be obtained with little pressure and without make-ready, substantially as described.

14. A printing-form comprising a suitable base, the base having a coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

15. A printing-form comprising a suitable base, the base having a deposited coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

16. A printing-form comprising a suitable base, the base having a chemically-deposited coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

17. A printing-form comprising a suitable base, the base having an electrodeposited coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

18. A printing-form comprising a suitable base, the base having an electrodeposited metallic coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

19. A printing-form comprising a suitable base, the base having a chemically-deposited zinc coating thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

20. A printing-form comprising a suitable base of predetermined shape and dimensions, the base having a coating of predetermined thickness thereon, which coating is substantially integral with the base and is adapted to be made into a relief printing-surface and is entirely removable and renewable upon the base for each new design.

21. A printing-form comprising a base, the base having a separate relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

22. A printing-form comprising a curved base, the base having a separate relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

23. A printing-form comprising a circumferentially-continuous curved base, the base having a separate relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

24. A printing-form comprising a cylindrical base, the base having a separate relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

25. A printing-form comprising a tubular base, the base having a separate relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

26. A printing-form comprising a base, the base having a separate deposited relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

27. A printing-form comprising a base, the base having a separate electrodeposited relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

28. A printing-form comprising a base, the base having a separate electrodeposited metallic relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

29. A printing-form comprising a base, the base having a separate electrodeposited zinc relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

30. A printing-form comprising a cylindrical base, the base having a separate electrodeposited metallic relief printing-surface thereon, which printing-surface is substantially integral with the base and which may be entirely removed from the base and renewed thereon for each new design.

31. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

32. A printing-form comprising a curved base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

33. A printing-form comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

34. A printing-form comprising a tubular base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

35. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

36. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

37. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

38. A printing-form comprising a curved base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

39. A printing-form comprising a curved base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

40. A printing-form comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

41. A printing-form comprising a curved tubular base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

42. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

43. A printing-form comprising a base of predetermined shape and dimensions, the base having a separate zinc relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

44. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

45. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a curved base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

46. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, for each new design without substantially affecting the predetermined shape and dimensions of the base.

47. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a tubular base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

48. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a curved base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

49. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a curved base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

50. In a printing-press the combination with a suitable impression device of a series of printing-forms each comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

51. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

52. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

53. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

54. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a tubular base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

55. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

56. In a printing-press the combination with a suitable impression device, of a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

57. In a printing-press the combination with a suitable impression device, of a series of form-supports, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

58. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

59. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

60. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved circumferentially-continuous base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

61. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a tubular base of predetermined shape and dimensions, the base having a separate relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

62. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate chemically-deposited relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

63. In a printing-press, the combination with a suitable impression device of a series of form-supports of the same size and shape having preëstablished seats in the press by means of which the supports may be brought into predetermined coöperating relationship with reference to each other and to the other parts of the press, a series of removable and replaceable printing-forms accurately fitting preëstablished seats upon the supports, each form comprising a curved base of predetermined shape and dimensions, the base having a separate electrodeposited metallic relief printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon for each new design without substantially affecting the predetermined shape and dimensions of the base.

64. A printing-form comprising a printing-surface and an integrally-united bearer-surface substantially as described.

65. A curved printing-form comprising a printing-surface and an integrally-united bearer-surface substantially as described.

66. A curved circumferentially-continuous printing-form comprising a printing-surface and an integrally-united bearer-surface substantially as described.

67. A printing-form comprising a base and a separate integrally-applied coating provided with a printing-surface and an integrally-united bearer-surface substantially as described.

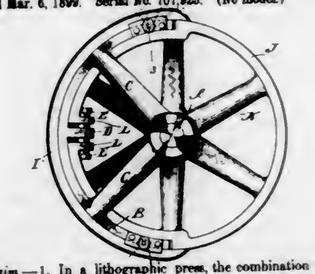
68. A curved printing-form comprising a base and a separate integrally-applied coating provided with a printing-surface and integrally-united bearer-surface substantially as described.

69. A curved circumferentially-continuous printing-form comprising a base and a separate integrally-applied coating provided with a printing-surface and an integrally-united bearer-surface substantially as described.

70. A printing-form comprising a base and a separate integrally-applied removable and replaceable coating provided with a printing-surface and an integrally-united bearer-surface substantially as described.

71. A printing-form comprising a printing-surface and integrally-united bearer-surfaces substantially as described.

662,855. PRINTING-PRESS. EDWARD HETT, New York, N. Y. Filed Mar. 6, 1899. Serial No. 707,923. (No model.)



Claim.—1. In a lithographic press, the combination with a form-supporting device, of a curved circumferentially-discontinuous inflexible hollow shell-like removable and replaceable printing-form having an outer surface adapted to receive a lithographic drawing or transfer, the printing-form being of shape and dimensions permanently fixed so as to permanently adapt the form to the coöperating parts of the press, substantially as described.

2. In a lithographic press, the combination with a suitable impression surface or surfaces, and suitable inking and dampening mechanisms, of a series of form-supporting devices and a series of curved circumferentially-discontinuous inflexible hollow shell-like removable and replaceable printing-forms having outer surfaces adapted to receive a lithographic drawing or transfer, the printing-forms being of shape and dimensions permanently fixed so as to permanently adapt the forms to the coöperating parts of the press, substantially as described.

3. In a lithographic press, the combination of a form-supporting device adapted to be placed in position in a press, and a series of inflexible removable and replaceable curved circumferentially-discontinuous hollow shell-like printing-forms having outer surfaces adapted to receive a lithographic drawing or transfer, the printing-forms being each of exactly the same shape and dimensions as the others so as to occupy, when placed upon the supporting device, exactly the same position and space in the press as any one of the others when thus placed, substantially as described.

4. In a lithographic press, the combination of a series of form-supporting devices each having a preëstablished seat for printing-forms which occupies the same position upon the support and is of the same shape and dimensions as those of the other form-supports, and a series of inflexible removable and replaceable curved circumferentially-discontinuous hollow shell-like printing-forms having outer surfaces adapted to receive a lithographic drawing or transfer, the printing-forms being each of exactly the same shape and dimensions as the others so as to be interchangeable one with another, so that each, when placed upon a supporting device, will occupy exactly the same position and space in the press as any of the others would occupy if placed upon the said supporting device, substantially as described.

5. In a lithographic press, the combination, with a suitable impression surface or surfaces, and suitable inking and dampening mechanisms, of a series of form-supporting devices and a series of curved circumferentially-discontinuous inflexible hollow shell-like removable and replaceable printing-forms having outer surfaces adapted to receive a lithographic drawing or transfer, the printing-forms being of shape and dimensions permanently fixed so as to permanently adapt the forms to the coöperating parts of the press, and guiding means with reference to which the positions of the forms upon the supports are fixed both longitudinally and circumferentially, substantially as described.

6. In a lithographic press, the combination with a form-supporting device, of a curved circumferentially-discontinuous inflexible hollow shell-like removable and replaceable composite printing-form having an outer surface of suitable lithographic material adapted to receive a lithographic drawing or transfer, and an inner strengthening-shell, substantially as described.

7. In a lithographic press, the combination with a form-supporting device, of a curved circumferentially-discontinuous inflexible hollow shell-like removable and replaceable composite printing-form having an outer electrodeposited surface adapted to receive a lithographic drawing or transfer, and an inner strengthening-shell the printing-form being of shape and dimensions permanently fixed so as to permanently adapt the form to the coöperating parts of the press, substantially as described.

8. A printing-form comprising a curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous curved printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, the printing-form being of shape and dimensions permanently fixed so as to permanently adapt the form to the coöperating parts of the press, substantially as described.

9. A printing-form comprising a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous curved printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, substantially as described.

10. A printing-form comprising a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous curved printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, the surface being adapted to receive a drawing or transfer of a design and to be thereafter developed into a printing-surface for that design of the character desired, substantially as described.

11. In a printing-press, the combination with a suitable impression mechanism of a series of printing-forms and means for supporting them in the press in a coöperating relationship to the impression mechanism and to one another, the printing-forms comprising each a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous curved printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, substantially as described.

12. A printing-form comprising a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous electrodeposited printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, substantially as described.

13. A printing-form comprising a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous electrodeposited planographic printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, substantially as described.

14. A printing-form comprising a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous electrodeposited printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, the surface being adapted to receive a drawing or transfer of a design and to be thereafter developed into a printing-surface for that design of the character desired, substantially as described.

15. In a printing-press, the combination with a suitable impression mechanism of a series of printing-forms and means for supporting them in the press in a coöperating relationship to the impression mechanism and to one another, the printing-forms comprising each a circumferentially-discontinuous curved base of predetermined shape and dimensions, the base having a separate circumferentially-discontinuous electrodeposited printing-surface of predetermined thickness thereon, which surface is substantially integral with the base and which may be entirely removed from the base and be renewed thereon, to present a fresh surface of predetermined size for each new design, substantially as described.

16. A printing-form comprising a circumferentially-discontinuous curved base, of predetermined shape and dimensions, the base having a thin coating thereon, which coating is substantially integral with the base and is adapted to be made into a printing-surface and which is entirely removable and renewable upon the base for each new design, the size of the form being determined by the size of the base, substantially as described.

17. A printing-form comprising a circumferentially-discontinuous curved base, of predetermined shape and dimensions, the base having a thin planographic coating thereon, which coating is substantially integral with the base and is adapted to be made into a printing-surface and which is entirely removable and renewable upon the base for each new design, the size of the form being determined by the size of the base, substantially as described.

18. A printing-form comprising a circumferentially-discontinuous curved base, of predetermined shape and dimensions, the base having a thin electrodeposited zinc coating thereon, which coating is substantially integral with the base and is adapted to be made into a printing-surface and which is entirely removable and renewable upon the base for each new design, the size of the form being determined by the size of the base, substantially as described.

19. A printing-form comprising a curved circumferentially-discontinuous base of predetermined shape and dimensions, fixed so as to permanently adapt the form to the coöperating parts of the press, the base having a separate removable planographic surface thereon, which surface is substantially integral with the base and is adapted to receive a drawing or transfer of a design to be thereafter developed into a printing-surface for the design of the character desired, and which surface can be removed from and then renewed on the base without substantially affecting the shape or dimensions of the form, substantially as and for the purposes set forth.

20. In a press, the combination, with a suitable impression-surface, of a printing-form comprising a curved base of predetermined shape and dimensions, fixed so as to permanently adapt the form to the coöperating parts of the press; the base having a separate removable curved circumferentially-discontinuous printing-surface thereon, which printing-surface is substantially integral with the base and can be removed from and then renewed on the base without substantially affecting the shape and dimensions of the form, substantially as and for the purposes set forth.

21. In a press, the combination, with a suitable impression-surface, of a planographic printing-form comprising a curved base of predetermined shape and dimensions, fixed so as to permanently adapt the form to the coöperating parts of the press, the base having a separate removable curved circumferentially-discontinuous electrodeposited zinc printing-surface thereon, which printing-surface is substantially integral with the base and can be removed from and then renewed on the base without substantially affecting the shape or dimensions of the form, substantially as and for the purposes set forth.

22. In a printing-press, the combination, with suitable impression mechanism, of a series of printing-forms mounted in the press in a coöperating relationship to the impression mechanism and to one another, the printing-forms comprising each a base of predetermined shape and dimensions, fixed so as to permanently adapt the form to the coöperating parts of the press, the base having a separate removable curved circumferentially-discontinuous printing-surface thereon, which printing-surface is substantially integral with the base and can be removed from and then renewed on the base without substantially affecting the shape or dimensions of the form, substantially as and for the purposes set forth.

23. In a printing-press, the combination, with an impression-drum having a series of impression-surfaces adapted to carry sheets of paper, of a series of printing-forms mounted in the press, in a coöperating relationship to the impression-drum and to one another, the printing-forms comprising each a base of predetermined shape and dimensions, fixed so as to permanently adapt the form to the coöperating parts of the press, the base having a separate removable curved circumferentially-discontinuous printing-surface thereon, which printing-surface is substantially integral with the base and can be removed from and then renewed on the base without substantially affecting the shape or dimensions of the form, substantially as and for the purposes set forth.

24. In a lithographic printing-press, the combination, with an impression-drum having a series of impression-surfaces adapted to carry sheets of paper, and a series of suitable inking and dampening mechanisms, of a series of lithographic printing-forms mounted in the press in a positive relationship to the impression surface or surfaces and to one another, the printing-forms comprising each a curved base of predetermined shape and dimensions fixed so as to permanently adapt the forms to the coöperating parts of the press, the base having a separate removable curved circumferentially-discontinuous printing-surface thereon, which printing-surface is substantially integral with the base and can be removed from and then renewed on the base without substantially affecting the shape or dimensions of the form, substantially as and for the purposes set forth.

25. The combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form constructed interiorly to fit the support and removable therefrom and of exterior electrolytically-deposited planographic zinc surface suitable to receive a design as by the lithographic process of transferring and to be thereafter developed by etching or in other suitable manner into a printing-surface for that design of the character desired, the printing-form being composite and consisting of an inner strengthening-base faced exteriorly with copper and an outer printing-surface of electrolytically-deposited zinc.

26. The combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form constructed interiorly to fit the support and removable therefrom and of exterior electrolytically-deposited planographic zinc surface suitable to receive a design as by the lithographic process of transferring and to be thereafter developed by etching or in other suitable manner into a printing-surface for that design of the character desired, the printing-form being composite and consisting of an inner strengthening-base of aluminium faced exteriorly with copper and an outer printing-surface of electrolytically-deposited zinc.

27. In a printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support and a printing-surface of different material formed on or applied to the curved base and integral therewith, substantially as described.

28. In a printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support and a zinc surface formed on or applied to the curved base and integral therewith, substantially as described.

29. In a printing press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support and a zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

30. In a printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with electrolytically-deposited copper and permanently adapted to fit the interior support and a printing-surface of different material formed on or applied to the curved base and integral therewith, substantially as described.

31. In a printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible base of aluminium faced exteriorly with electrolytically-deposited copper and permanently adapted to fit the interior support and a zinc surface formed on or applied to the curved base and integral therewith, substantially as described.

32. In a printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with electrolytically-deposited copper and permanently adapted to fit the interior support and a zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

33. In a planographic printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support and a thin planographic zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

34. In a planographic printing-press, the combination with an interior form-support, of an exterior curved circumferentially-discontinuous inflexible printing-form applicable to and removable from the support, the printing-form being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with electrolytically-deposited copper and permanently adapted to fit the interior support and a thin planographic zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

35. In a printing-press, the combination with a suitable impression-surface and a series of inking mechanisms, of a series of interior form-supports and a series of exterior curved circumferentially-discontinuous inflexible printing-forms, each form applicable to and removable from its support and adjustable longitudinally and circumferentially, the printing-forms being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support, and a zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

36. In a printing-press, the combination with an impression-drum having a series of discontinuous impression-surfaces and with a series of inking mechanisms, of a series of interior form-supports and a series of exterior curved circumferentially-discontinuous inflexible printing-forms, each form applicable to and removable from its support and adjustable longitudinally and circumferentially, the printing-forms being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with electrolytically-deposited copper and permanently adapted to fit the interior support, and a zinc printing-surface electrolytically deposited on the curved base and integral therewith, the printing-forms being arranged on the impression-face of the drum and rotating positively therewith, substantially as described.

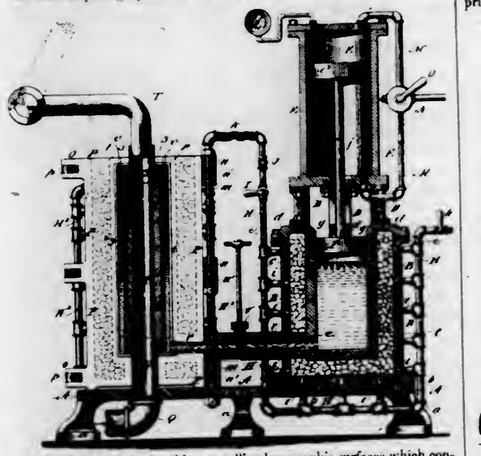
37. In a planographic printing-press, the combination with a suitable impression-surface and a series of inking and dampening mechanisms, of a series of interior form-supports and a series of exterior curved circumferentially-discontinuous inflexible printing-forms, each form applicable to and removable from its support and adjustable longitudinally and circumferentially, the printing-forms being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support, and a thin planographic zinc printing-surface electrolytically deposited on the curved base and integral therewith, substantially as described.

38. In a planographic printing-press, the combination with an impression-drum having a series of discontinuous impression-surfaces and with a series of inking and dampening mechanisms, of a series of interior form-supports and a series of exterior curved circumferentially-discontinuous inflexible printing-forms, each form applicable to and removable from its support and adjustable longitudinally and circumferentially, the printing-forms being composite and consisting of an inner inflexible curved base of aluminium faced exteriorly with copper and permanently adapted to fit the interior support, and a thin planographic zinc printing-surface electrolytically deposited on the curved base and integral therewith, the printing-form being arranged on the impression-face of the drum and rotating positively therewith, substantially as described.

39. In a printing-press, the combination with a two-part interior form-supporting roller having a full roller J fixed to the shaft and a sectional roller B loose on the shaft but adapted to be adjusted circumferentially on the roller J and to be held fixed in such adjustment, of an exterior curved circumferentially-discontinuous printing-form, applicable to and removable from the sectional roller B of the support and adjustable longitudinally on the sectional roller B, substantially as described.

662,856. METHOD OF CASTING PRINTING-CYLINDERS. EDWARD HETT, New York, N. Y. Filed Jan. 5, 1899. Serial No. 701,196. (No model.)

Claim.—1. The method of making metallic planographic surfaces, which consists in preparing a suitable mold, heating the face of the mold which is to form the planographic surface to a high temperature, but not above that at which the metal being cast solidifies, cooling the face of the mold which is opposite that which is heated, and filling the mold with molten metallographic metal, whereby a printing-form having a perfect and uniform planographic surface is produced, substantially as described.



2. The method of making metallic planographic surfaces which consists in preparing a suitable mold, heating the face of the mold which is to form the planographic surface to a high temperature, but not above that at which the metal being cast solidifies, cooling the opposite face of the mold, filling the mold with molten metallographic metal and subjecting the molten metal in the mold to great pressure, whereby a perfect and uniform planographic surface is produced, substantially as described.

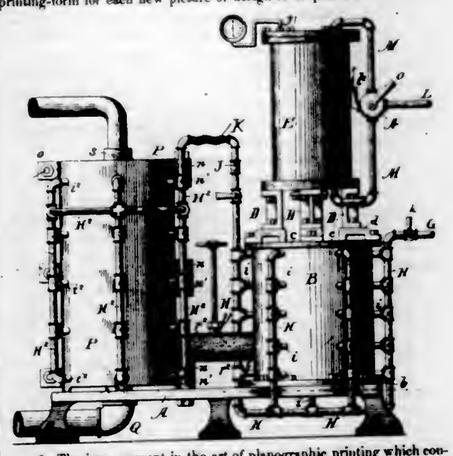
3. The method of making metallic planographic surfaces which consists in preparing a suitable mold, heating the face of the mold which is to form the planographic surface to a high temperature, but not above that at which the metal being cast solidifies, cooling the opposite face of the mold, filling the mold with molten metallographic metal, subjecting the metal in the mold to great pressure and maintaining such pressure until the metal in the mold has entirely set, whereby a perfect and uniform planographic surface is produced, substantially as described.

4. The method of making metallic printing-forms which consists in preparing a suitable mold, heating the face of the mold which is to form the printing-surface, cooling the opposite face of the mold, filling the mold with molten metallographic metal, whereby a perfect and uniform planographic surface is produced, transferring a design to said surface after the lithographic manner of transferring, and developing said surface into a printing-surface of the character desired.

5. The method of making metallic printing-forms which consists in preparing a suitable mold, heating the face of the mold which is to form the printing-surface, cooling the opposite face of the mold, filling the mold with molten metallographic metal, subjecting the molten metal in the mold to great pressure, whereby a perfect and uniform planographic surface is produced, transferring a design to said surface after the lithographic manner of transferring, and developing said surface into a printing-surface of the character desired.

662,857. **ART OF PRINTING.** EDWARD HETT, New York, N. Y. Original application filed Jan. 5, 1899, Serial No. 701,196. Divided and this application filed Apr. 6, 1899. Serial No. 711,991. (No model.)

Claim.—1. The improvement in the art of printing which consists in permanently shaping interiorly a hollow inner strengthening-shell for a printing-form so as to permanently adapt the form to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in a casting made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of said inner shell by making a casting of suitable material thereon from said molding-surface, transferring a design to the surface of the printing-form thus produced, developing said surface into a printing-surface of the character desired, printing the desired edition therefrom in the press, removing the outer surface of the printing-form without affecting the interior shape or dimensions of the inner strengthening-shell, integrally applying a second coating to said inner strengthening-shell by casting as before, transferring a design to the surface of the second printing-form thus produced, developing said surface into a second printing-surface and printing therefrom as before, and so on, whereby the exact shape and size of the printing-form for proper handling and support and exact register and proper printing in the press are attained and reliably and cheaply maintained throughout a series of successive printing operations and a fresh and unused printing-surface is presented by the printing-form for each new picture or design to be printed.



2. The improvement in the art of planographic printing which consists in permanently shaping interiorly a hollow inner strengthening-shell for a printing-form so as to permanently adapt the form to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in a casting made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of said inner shell by making a casting of suitable material thereon from said molding-surface, transferring a design to the surface of the printing-form thus produced, developing said surface into a planographic printing-surface, printing the desired edition therefrom in the press, removing the outer surface of the printing-form without affecting the interior shape or dimensions of the inner strengthening-shell, integrally applying a second coating to said inner strengthening-shell by casting as before, transferring a design to the surface of the second printing-form thus produced, developing said surface into a second planographic printing-surface and printing therefrom as before, and so on, whereby the exact shape and size of the printing-form for proper handling and support and exact register and proper printing in the press are attained and reliably and cheaply maintained throughout a series of successive printing operations and a fresh and unused planographic surface is presented by the printing-form for each new picture or design to be printed.

3. The improvement in the art of printing which consists in permanently shaping interiorly a plurality of hollow inner strengthening-shells for a plurality of printing-forms so as to permanently adapt the forms to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in the castings made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of each of said inner shells by making a casting of suitable material thereon from said molding-surface, transferring the design to the surface of the printing-forms thus produced, developing said surfaces into printing-surfaces of the character desired, mounting said printing-surfaces in a suitable press in predetermined relation to each other and to the coöperating parts of the press and printing the desired edition therefrom, whereby the exact shape and size of the printing-forms for proper handling and support and exact register and proper printing in the press are reliably attained for the operation of printing a multicolor design.

4. The improvement in the art of planographic printing which consists in permanently shaping interiorly a plurality of hollow inner strengthening-shells for a plurality of printing-forms so as to permanently adapt the forms to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in the castings made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of each of said inner shells by making a casting of suitable material thereon from said molding-surface, transferring a design to the surface of the printing-forms thus produced, developing said surfaces into a second printing-surface and printing therefrom as before, and so on, whereby the exact shape and size of the printing-forms for proper handling and support and exact register and proper printing in the press are attained and reliably and cheaply maintained throughout a series of successive printing operations and a fresh and unused planographic printing-surface is presented by the printing-forms for each new picture or design to be printed.

5. The improvement in the art of printing which consists in permanently shaping interiorly a plurality of hollow inner strengthening-shells for a plurality of printing-forms so as to permanently adapt the forms to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in the castings made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of each of said inner shells by making a casting of suitable material thereon from said molding-surface, transferring the design to the surface of the printing-forms thus produced, developing said surfaces into printing-surfaces of the character desired, mounting said printing-surfaces in a suitable press in predetermined relation to each other and to the coöperating parts of the press, printing the desired edition therefrom, removing the outer surface of the printing-forms without affecting the interior shape or dimensions of the inner strengthening-shells, integrally applying a second coating to each of said inner strengthening-shells by casting as before, transferring the design to the surface of each of the second printing-forms thus produced, developing said surfaces into a second set of printing-surfaces and printing therefrom as before, and so on, whereby the exact shape and size of the printing-forms for proper handling and support and exact register and proper printing in the press are attained and reliably and cheaply maintained throughout the operation of printing a multicolor design and throughout a series of successive printing operations and a fresh and unused printing-surface is presented by the printing-forms for each new picture or design to be printed.

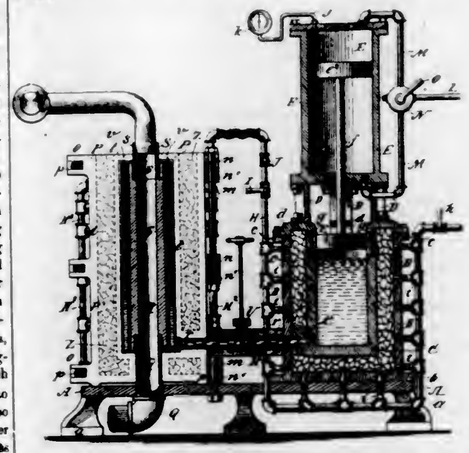
6. The improvement in the art of planographic printing which consists in permanently shaping interiorly a plurality of hollow inner strengthening-shells for a plurality of printing-forms so as to permanently adapt the forms to the interior form-supporting devices of the press, forming a molding-surface of such a nature that it will produce in the castings made therefrom a uniformly-finished surface adapted to have a design transferred thereto after the lithographic manner of transferring, integrally applying a separate coating to the outer surface of each of said inner shells by making a casting of suitable material thereon from said molding-surface, transferring the design to the surface of the printing-forms thus produced, developing said surfaces into planographic printing-surfaces, mounting said printing-surfaces in a suitable press in predetermined relation to each other and to the coöperating parts of the press, printing the desired edition therefrom, removing the outer surface of the printing-forms without affecting the interior shape or dimensions of the inner strengthening-shells, integrally applying a second coating to each of said inner strengthening-shells by casting as before, transferring the design to the surface of each of the second printing-forms thus produced, developing said surfaces into a second set of planographic printing-surfaces and printing therefrom as before, and so on, whereby the exact shape and size of the printing-forms for proper handling and support and exact register and proper printing in the press are attained and reliably and cheaply maintained throughout the operation of printing a multicolor design and throughout a series of successive printing operations and a fresh and unused planographic printing-surface is presented by the printing-forms for each new picture or design to be printed.

662,858. **MACHINE FOR CASTING PRINTING-CYLINDERS.** EDWARD HETT, New York, N. Y. Original application filed Jan. 5, 1899, Serial No. 701,196. Divided and this application filed Apr. 6, 1899. Serial No. 711,992. (No model.)

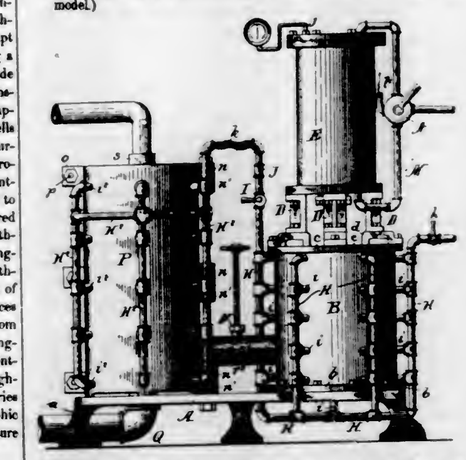
Claim.—1. In an apparatus for casting planographic surfaces, the combination with a mold having the face which forms the planographic surface constructed with sharply-outlined microscopic elevations and depressions, of means for heating said face, and means for cooling the opposite face of the mold, whereby a perfect and uniform planographic surface is produced, substantially as described.

2. In an apparatus for casting planographic surfaces, the combination with a mold having the face which forms the planographic surface constructed with sharply-outlined microscopic elevations and depressions and means for filling the mold with molten metal and subjecting the metal in the mold to great pressure, whereby a perfect and uniform planographic surface is produced, substantially as described.

3. In an apparatus for casting planographic surfaces, the combination with a mold having a cylindrical outer molding-surface consisting of sharply-outlined microscopic elevations and depressions and a slightly tapered or conical inner surface, of means for heating the outer molding-surface, means for cooling the inner surface, and means for filling the mold with molten metal and subjecting the mold to great pressure, whereby a perfect and uniform planographic surface is produced, substantially as described.



662,859. **PRINTING-CYLINDER.** EDWARD HETT, New York, N. Y. Original application filed Jan. 5, 1899, Serial No. 701,196. Divided and this application filed Apr. 6, 1899. Serial No. 711,993. (No model.)



Claim.—1. As a new product, a printing-form cast of metallographic metal in a mold which is heated at the part serving to shape the printing-surface of the form and cooled at the part serving to shape the back of the form, said form having a uniform planographic surface accurately formed exteriorly both as to shape and as to surface character and texture in the mold so as to adapt said printing-form to receive a design after the lithographic manner of transferring, to be transformed into a printing-surface for that design of the character desired, and to coöperate with the other parts of the press in printing.

2. As a new product a printing-form cast of metallographic metal under pressure and in a mold which is heated at the part serving to shape the printing-surface of the form and cooled at the part serving to shape the back of the form, said form having a uniform outer planographic surface accurately formed exteriorly both as to shape and as to surface character and texture in the mold so as to adapt said printing-form to receive a design after the lithographic manner of transferring, to be transformed into a printing-surface for that design of the character desired, and to coöperate with the other parts of the press in printing.

3. As a new product, a planographic printing-form cast of metallographic metal under pressure and in a mold which is heated at the part serving to shape the printing-surface of the form and cooled at the part

serving to shape the back of the form, said form having a uniform outer planographic printing-surface accurately formed exteriorly both as to shape and as to surface character and texture in the mold so as to adapt said printing-form to receive a design and be developed into a lithographic printing-surface for that design and to coöperate with the other parts of the press in printing.

4. As a new product, a tubular printing-form cast of metallographic metal under pressure and in a mold which is heated at the part serving to shape the printing-surface of the form and cooled at the part serving to shape the back of the form, said form having a uniform continuous cylindrical planographic surface accurately formed exteriorly both as to shape and as to surface character and texture in the mold so as to adapt said printing-form to receive a design after the lithographic manner of transferring, to be transformed into a printing-surface for that design of the character desired, and to coöperate with the other parts of the press in printing.

5. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell accurately prepared internally to fit the supporting parts of the press, and a suitable envelop integrally cast on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer planographic surface accurately formed exteriorly in the casting-mold so as to adapt said surface to the coöperating printing parts of the press, substantially as described.

6. As a new product, a composite tubular planographic printing-form having a permanent inner strengthening-shell accurately prepared internally to fit the supporting parts of the press, and a suitable envelop integrally cast under pressure on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer planographic printing-surface accurately formed in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

7. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell accurately prepared internally to fit the supporting parts of the press, and an envelop integrally cast on the outer side of the inner strengthening-shell and shrunk on said shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

8. As a new product, a composite printing-form having a permanent inner strengthening-shell of copper accurately prepared internally to fit the supporting parts of the press, and a zinc envelop integrally cast on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

9. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell of copper accurately prepared internally to fit the supporting parts of the press, and a zinc envelop integrally cast under pressure on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

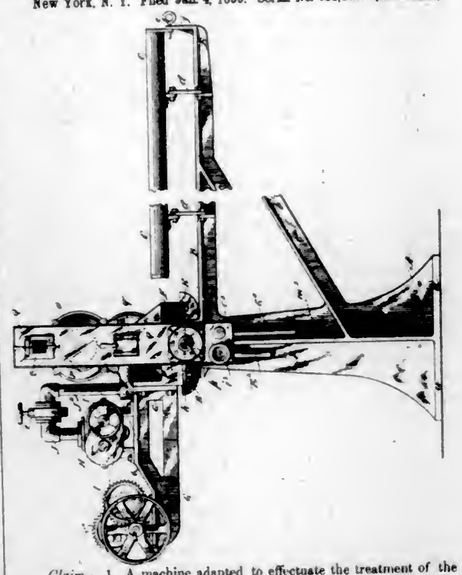
10. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell of copper accurately prepared internally to fit the supporting parts of the press, and a zinc envelop integrally cast under pressure on the outer side of the inner strengthening-shell and shrunk on said shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

11. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell accurately prepared internally with a tapering bore tapering from end to end to fit the supporting parts of the press, and a metal envelop integrally cast on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform outer planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating parts of the press, substantially as described.

12. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell accurately prepared internally to fit the supporting parts of the press, and a circumferentially-continuous cast-metal envelop integrally cast on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform circumferentially-continuous outer planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

13. As a new product, a composite tubular printing-form having a permanent inner strengthening-shell accurately prepared internally with a tapering bore tapering from end to end to fit the supporting parts of the press, and a circumferentially-continuous cylindrical cast-metal envelop integrally cast on the outer side of the inner strengthening-shell, which envelop may be removed from the shell and be renewed thereon to present a fresh surface of predetermined size for each new design, the envelop having a uniform and circumferentially-continuous cylindrical outer planographic printing-surface accurately formed exteriorly in the casting-mold so as to adapt said printing-surface to the coöperating printing parts of the press, substantially as described.

662,860. APPARATUS FOR ETCHING ROLLS. EDWARD HETT, New York, N. Y. Filed Jan. 4, 1899. Serial No. 701,103. (No model.)



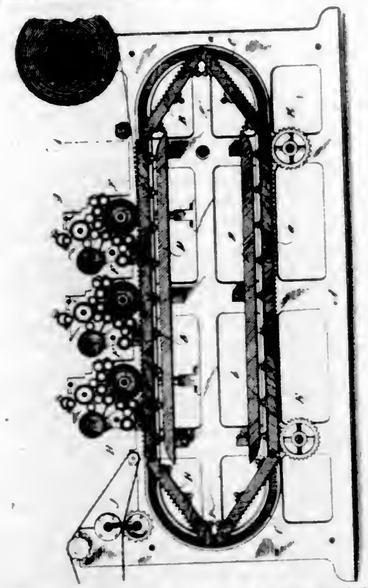
Claim.—1. A machine adapted to effectuate the treatment of the external surface of a cylindrical shell or roll, and having a support for said roll, and means for heating the roll, two troughs for containing material for treating the roll exteriorly, the roll-support being mounted in a movable frame whereby the roll may be moved to a position over either trough, and means for revolving said roll, substantially as set forth.

2. A machine adapted to effectuate the treatment of the external surface of a cylindrical shell or roll, consisting of a movable support for said roll, two troughs or receptacles, one for containing liquid for treating the surface of the roll and the other for containing washing liquid, and said support arranged to move the roll over each trough, and means for revolving said roll while in either of such positions, substantially as set forth.

3. The combination with an oscillatory frame, a shaft for supporting a hollow roll, a motor, and driving mechanism connecting said motor and shaft for revolving the roll on the shaft, the oscillatory frame carrying the shaft and motor and driving mechanism, of a suitable blower, for supplying a blast of air, mounted on said oscillatory frame, and a gas-supply pipe carried by the supporting-shaft, and within the roll, and having outlets in the same, and such gas-supply pipe being flexibly connected with a stationary source of supply, substantially as set forth.

662,861. PRINTING-PRESS. EDWARD HETT, New York, N. Y. Filed Mar. 6, 1899. Serial No. 707,925. (No model.)

Claim.—1. The combination of a continuous cylindrical printing-surface with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as described.



2. The combination of a series of continuous cylindrical printing-surfaces with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as described.

3. The combination of a continuous cylindrical printing-surface with a series of flat impression-surfaces connected together in an endless series each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivering devices for printing on the web, substantially as described.

4. The combination of a series of continuous cylindrical printing-surfaces with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivering devices for printing on the web, substantially as described.

5. The combination of a continuous cylindrical planographic printing-surface with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as described.

6. The combination of a series of continuous cylindrical planographic printing-surfaces with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as described.

7. The combination of a series of continuous cylindrical planographic printing-surfaces with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivering devices for printing on the web, substantially as described.

8. The combination of a tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

9. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

10. The combination of a planographic tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

11. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

12. The combination of a tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as described.

13. The combination of a series of tubular printing-surfaces, each having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as described.

14. The combination of a planographic tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as described.

15. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces connected together in an endless series, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as described.

16. The combination of a tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

17. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

18. The combination of a planographic tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

19. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

20. The combination of a tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

21. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

22. The combination of a planographic tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

23. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

24. The combination of a tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, suitable paper controlling and delivery devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

25. The combination of a planographic tubular printing-surface having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, suitable paper controlling and delivery devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

26. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, with a series of flat impression-surfaces pivoted together in an endless chain and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, suitable paper controlling and delivery devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

27. The combination of a tubular printing-surface having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

28. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

29. The combination of a planographic tubular printing-surface having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as set forth.

30. The combination of a series of planographic tubular printing-surfaces each having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as set forth.

31. The combination of a tubular printing-surface having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

32. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

33. The combination of a planographic tubular printing-surface having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

34. The combination of a series of planographic printing-surfaces each having an interior support from which it is removable, and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain and corresponding in length to the circumference of the printing-surfaces and driven positively therewith, and suitable paper controlling and delivery devices for printing on the web, substantially as set forth.

35. The combination of a tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, substantially as set forth.

36. The combination of a series of tubular printing-surfaces each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, substantially as set forth.

37. The combination of a planographic tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, substantially as set forth.

38. The combination with a series of planographic tubular printing-surfaces each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, substantially as set forth.

39. The combination of a tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

40. The combination of a series of tubular printing-surfaces, each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

41. The combination of a planographic tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

42. The combination of a series of planographic tubular printing-surfaces, each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, substantially as set forth.

43. The combination of a tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

44. The combination of a series of tubular printing-surfaces, each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

45. The combination of a planographic tubular printing-surface having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surface, said chain of impression-surfaces being driven positively with the printing-surface and arranged to move in a straight line under the printing-surface during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

46. The combination of a series of planographic tubular printing-surfaces, each having an interior support from which it is removable and adapted to rotate in a fixed position during the operation of printing, with a series of flat impression-surfaces pivoted together in an endless chain, each corresponding in length to the circumference of the printing-surfaces, said chain of impression-surfaces being driven positively with the printing-surfaces and arranged to move in a straight line under the printing-surfaces during the operation of printing, and suitable paper controlling and delivering devices for printing on the web, and suitable paper-cutting devices, substantially as set forth.

47. The combination with a series of continuous cylindrical printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, and means for simultaneously separating the printing-surfaces from the impression-surfaces, substantially as described.

48. The combination with a series of continuous cylindrical planographic printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, and meansfor simultaneously separating the printing-surfaces from the impression-surfaces, substantially as described.

49. The combination with a series of continuous cylindrical printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, means for simultaneously separating the printing-surfaces from the impression-surfaces, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

50. The combination with a series of continuous cylindrical planographic printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, means for simultaneously separating the printing-surfaces from the impression-surfaces, and suitable paper controlling and delivering devices for printing on the web, substantially as set forth.

51. The combination with a series of continuous cylindrical printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, a series of inking mechanisms, one for each printing-surface, means for simultaneously separating the printing-surfaces from the impression-surfaces, and means for simultaneously separating the inking mechanisms from the printing-surfaces, substantially as described.

52. The combination with a series of continuous cylindrical printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, a series of inking mechanisms, one for each printing-surface, means for simultaneously separating the printing-surfaces from the impression-surfaces, means for simultaneously separating the inking mechanisms from the printing-surfaces, and suitable paper controlling and delivering devices for printing on the web, substantially as described

53. The combination with a series of continuous cylindrical planographic printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, a series of inking and damping mechanisms, one for each printing-surface, means for simultaneously separating the printing-surfaces from the impression-surfaces, and means for simultaneously separating the inking and damping mechanisms from the printing-surfaces, substantially as set forth.

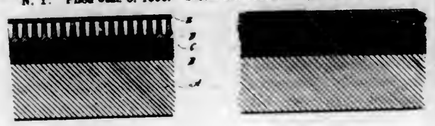
54. The combination with a series of continuous cylindrical planographic printing-surfaces, of a series of flat impression-surfaces connected together in an endless chain, a series of inking and damping mechanisms, one for each printing-surface, means for simultaneously separating the printing-surfaces from the impression-surfaces, means for simultaneously separating the inking and damping mechanisms from the printing-surfaces, and suitable paper controlling and delivering devices for printing on the web, substantially as described.

55. The combination of a circumferentially-continuous curved printing-surface with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as described.

56. The combination of a series of circumferentially-continuous curved printing-surfaces with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surfaces and driven positively therewith, substantially as described.

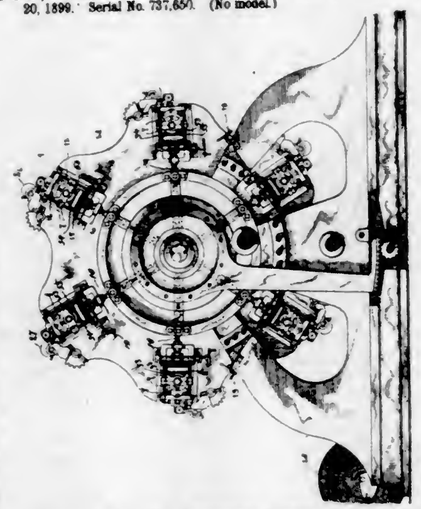
57. The combination of a circumferentially-continuous curved planographic printing-surface with a series of flat impression-surfaces connected together in an endless series, each corresponding in length to the circumference of the printing-surface and driven positively therewith, substantially as described.

662,862. PRINTING-PRESS, &c. EDWARD HETT, New York, N. Y. Filed Jan. 5, 1899. Serial No. 701,200. (No model.)



Claim.—An impression surface or platen for printing-presses or the like having a support of iron or other metal, a base or foundation layer of hard rubber, an inner intermediate layer of continuous soft rubber, an outer intermediate layer consisting of pillared or sponge or other open-work rubber, and a continuous facing layer of soft rubber, all integrally connected together, substantially as set forth.

662,863. PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,650. (No model.)



Claim.—1. In a press a support for a printing-form or its mandrel having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form or its mandrel, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form or its mandrel or both to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

2. In a press the combination of a printing-form, an impression-surface, a support for a printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for exerting pressure between the printing-form and the impression-surface.

3. In a press the combination of a printing-form, an impression-surface, and means for supporting the printing-form and for controlling the pressure between it and the impression-surface, a portion of said supporting or pressure means being permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

4. In a press the combination of a printing-form, an impression-surface, and means both for supporting the printing-form and for controlling the pressure between it and the impression-surface, a portion of said supporting and pressure means being permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

5. In a press a support for a printing-form or its mandrel having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form or mandrel, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form or mandrel or both to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for locking the support in its supporting position.

6. In a press a support for a printing-form or its mandrel having a portion removable from the path of the printing-form or mandrel, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form or mandrel to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

7. In a press a support for a printing-form or its mandrel having a portion removable from the path of the printing-form or mandrel, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form or mandrel to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in the direction of the axis of the printing-form.

8. In a press a support for a printing-form having a portion removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in a direction transverse to the axis of the printing-form.

9. In a press a support for a printing-form having a portion removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, and a stop, for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in the direction of the axis of the printing-form.

10. In a press a support for a printing-form having a portion removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, and a stop, for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in a direction transverse to the axis of the printing-form.

11. In a press a frame for carrying a printing-form or mandrel having two bearing-arms adapted to move toward or away from each other and adapted, when brought together to form a bearing for the shaft of the printing-form or mandrel, and, when separated, to permit the lateral removal or insertion of the printing-form or mandrel from or into the press, and means for moving said arms toward or away from each other.

12. In a press the combination of an impression-surface, a printing form, a frame for carrying the printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form, and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, means for moving said arms toward or away from each other and means for moving the frame to move the printing-form into or out of printing position and to regulate the pressure.

13. In a press a frame for carrying a printing-form or mandrel having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form or mandrel, and, when separated, to permit the lateral removal or insertion of the printing-form or mandrel from or into the press, means for moving said arms toward or away from each other, and means for locking the bearing-arms in their supporting position.

14. In a press the combination of an impression-surface, a printing-form, a frame for carrying the printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form, and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting position, and means for moving the frame to move the printing-form into or out of printing position and to regulate the pressure.

15. In a press a frame for carrying a printing-form or mandrel having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form or mandrel, and, when separated, to permit the lateral removal or insertion of the printing-form or mandrel from or into the press, means for moving said arms toward or away from each other and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

16. In a press the combination of an impression-surface, a printing-form, a frame for carrying the printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form, and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting position, a stop, upon which the frame is adapted to slide and with which it engages, to hold the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in a direction parallel with the axis of the printing-form or transverse thereto, and means for moving the frame along the stop to move the printing-form into or out of printing position and to regulate the pressure.

17. In a press a frame for carrying a printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated to permit the lateral removal or insertion of the printing-form from or into the press, two rods oppositely screw-threaded at their opposite ends, nuts connected with the bearing-arms and engaging with said rods, the nuts of one arm engaging with one set of the screw-threaded ends of said rods and the nuts of the other arm engaging with the oppositely-screw-threaded ends of said rods and means for rotating the said rods to move the said arms toward or away from each other.

18. In a press a frame for carrying a printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, two rods oppositely screw-threaded at their opposite ends, nuts connected with the bearing-arms and engaging with said rods, the nuts of one arm engaging with one set of the screw-threaded ends of said rods and the nuts of the other arm engaging with the oppositely-screw-threaded ends of said rods and means for rotating the said rods to move the said arms toward or away from each other, said means including a worm and worm-wheel, whereby the said arms will be locked in their supporting position.

19. In a press a frame for carrying a printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, two rods oppositely screw-threaded at their opposite ends, nuts connected with the bearing-arms and engaging with said rods, the nuts of one arm engaging with one set of the screw-threaded ends of said rods and the nuts of the other arm engaging with the oppositely-screw-threaded ends of said rods, a gear upon each of said rods, a common gear-wheel arranged between the said gear-wheels mounted upon the rods and meshing therewith, and means for driving said common gear-wheel, the said means including a worm and worm-wheel, whereby the two bearing-arms may be moved toward or away from each other and the said arms will be locked in their supporting position.

20. In a press a frame for carrying a printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, two rods oppositely screw-threaded at their opposite ends; nuts connected with the bearing-arms and engaging with said rods, the nuts of one arm engaging with one set of the screw-threaded ends of said rods and the nuts of the other arm engaging with the oppositely-screw-threaded ends of said rods, a gear on each rod, a common gear-wheel mounted upon the framework of the press between the said two gear-wheels and adapted to mesh with each, said common gear-wheel having its teeth wide enough to permit the movement of the gears, as the frame moves to carry the printing-form into or out of printing-position, without interfering with the meshing of the said gear-wheels with one another, means mounted upon the framework of the press for driving said common gear-wheel, the said means including a worm and worm-wheel, whereby the two bearing-arms may be moved toward or away from each other and the said arms will be locked in their supporting position and the frame may be moved without interfering with the means for moving the bearing-arms.

21. In a press a frame for carrying a printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, two rods oppositely screw-threaded at their opposite ends, nuts connected with the bearing-arms and engaging with said rods, the nuts of one arm engaging with one set of the screw-threaded ends of said rods and the nuts of the other arm engaging with

the oppositely-screw-threaded ends of said rods, a gear on each rod, a common gear-wheel mounted upon the framework of the press between the said two gear-wheels and adapted to mesh with each, said common gear-wheel having its teeth wide enough to permit the movement of the gears, as the frame moves to carry the printing-form into or out of printing position, without interfering with the meshing of the said gear-wheels with one another, means mounted upon the framework of the press for driving said common gear-wheel, the said means including a worm and worm-wheel, whereby the two bearing-arms may be moved toward or away from each other and the said arms will be locked in their supporting position and the frame may be moved without interfering with the means for moving the bearing-arms, a stop, upon which the frame is adapted to slide and with which it engages, to hold the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position in a direction parallel with the axis of the printing-form or transverse thereto, and means for moving the frame along the stop to move the printing-form into or out of printing position and to regulate the pressure.

22. In a press a support for a curved printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

23. In a press the combination of a curved printing-form, an impression-surface, a support for a printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for exerting pressure between the printing-form and the impression-surface.

24. In a press a support for a curved printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for locking the support in its supporting position.

25. In a press a support for a curved printing-form having a portion removable from the path of the printing-form, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

26. In a press the combination of an impression-surface, a curved printing-form, a frame for carrying the printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the printing-form and, when separated, to permit the lateral removal or insertion of the printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting position, and means for moving the frame to move the printing-form into or out of printing position and to regulate the pressure.

27. In a press a support for a printing-cylinder having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-cylinder, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-cylinder to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

28. In a press the combination of a printing-cylinder, an impression-surface, a support for a printing-cylinder having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-cylinder, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-cylinder to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for exerting pressure between the printing-cylinder and the impression-surface.

29. In a press a support for a printing-cylinder having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-cylinder, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-cylinder to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for locking the support in its supporting position.

30. In a press a support for a printing-cylinder having a portion removable from the path of the printing-cylinder, when the latter is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-cylinder to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-cylinder rigidly in place when in printing position for preventing the giving of the cylinder while in such position.

31. In a press the combination with a tubular printing-form and a mandrel therefor, the tubular printing-form being removable from and replaceable on the mandrel, of a support for the mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press onto the mandrel and into working position in the press, to permit the tubular printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

32. In a press the combination with a tubular printing-form and a mandrel therefor, the tubular printing-form being removable from and replaceable on the mandrel, of a support for the mandrel and tubular printing-form having a portion removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press onto the mandrel and into working position in the press, to permit the tubular printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, means for locking the support in its supporting position and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

33. In a press the combination of a shaft, a hollow mandrel adapted to fit thereon and removable therefrom and replaceable thereon, a hollow tubular printing-form adapted to fit upon the mandrel in the press and removable therefrom and replaceable thereon, and a support for the shaft, mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form or the hollow mandrel when the form or the mandrel or both are removed laterally from the press or are inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

34. In a press the combination of a shaft, a hollow mandrel adapted to fit thereon and removable therefrom and replaceable thereon, a hollow tubular printing-form adapted to fit upon the mandrel in the press and removable therefrom and replaceable thereon, and a support for the shaft, mandrel and tubular printing-form having a portion removable from the path of the tubular printing-form or the hollow mandrel when the form or the mandrel or both are removed laterally from the press or are inserted from the side of the press into working position therein, to permit the printing-form to be inserted laterally into working position in the press or to be removed laterally therefrom, means for locking the support in its supporting position and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

35. In a multicolor-press the combination of a series of printing-forms, a support for each printing-form, having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press.

36. In a multicolor-press the combination of a series of printing-forms, a support for each printing-form, having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press and means for locking each support in its supporting position.

37. In a multicolor-press the combination of a series of printing-forms, a support for each printing-form, having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for holding the printing-form rigidly in place when in printing position for preventing the giving of the form while in such position.

38. In a multicolor-press the combination of suitable impression-sur-

face, a series of printing-forms, a frame for carrying each printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together to form a bearing for the shaft of the said printing-form and, when separated, to permit the lateral removal or insertion of the said printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting positions, and means for moving each frame to move its corresponding printing-form into or out of printing position and to regulate the pressure between the said printing-form and its impression-surface.

39. In a multicolor-printing press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, and means for exerting pressure between the printing-forms and the impression-drum.

40. In a multicolor-printing press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom without dismantling the press, means for locking each support in its supporting position, and means for exerting pressure between the printing-forms and the impression-drum.

41. In a multicolor-printing press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, means for holding the printing-forms rigidly in place when in printing position for preventing the giving of the forms while in such position and means for exerting pressure between the printing-forms and the impression-drum.

42. In a multicolor-press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a frame for carrying each printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together, to form a bearing for the shaft of the said printing-form and, when separated, to permit the lateral removal or insertion of said printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting positions, and means for moving the frames to move the printing-forms into or out of printing position and to regulate the pressure between the printing-forms and the impression-drum.

43. In a multicolor-press the combination of a series of tubular printing-forms, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, and a support for each mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed laterally directly therefrom without dismantling the press.

44. In a multicolor-press the combination of a series of tubular printing-forms, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, and a support for each mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed laterally directly therefrom without dismantling the press, and means for locking each support in its supporting position.

45. In a multicolor-press the combination of a series of tubular printing-forms, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, and a support for each mandrel and tubular printing-form having a portion removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed laterally directly therefrom and means for holding the printing-forms rigidly in place when in printing position for preventing the giving of the forms while in such position.

48. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, a frame for carrying each printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together to form a bearing for the shaft of the said printing-form and, when separated, to permit the lateral removal or insertion of the said printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting positions, and means for moving each frame to move its corresponding printing-form into or out of printing position and to regulate the pressure between the said printing-form and the impression-drum.

47. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, a support for each mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press laterally and directly onto the mandrel and into working position in the press, to permit the printing-forms to be inserted laterally directly into working position in the press or to be removed laterally directly therefrom without dismantling the press, and means for exerting pressure between the printing-forms and the impression-drum.

48. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, a support for each mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed laterally directly therefrom without dismantling the press, means for locking each support in its supporting position, and means for exerting pressure between the printing-forms and the impression-drum.

49. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, a support for each mandrel and tubular printing-form having a portion permanently secured to the said support but movable thereon so as to be removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed directly therefrom without dismantling the press, means for preventing the springing or giving of the printing-forms when in printing position and means for exerting pressure between the printing-forms and the impression-drum.

50. In a multicolor-press the combination of an impression-surface, a series of printing-forms, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, and preëstablished guides by means of which the printing-form may be seated in the press in accurate predetermined position both longitudinally and transversely and may be brought into accurate relationship with coöperating parts of the press for the purpose of register.

51. In a multicolor-press the combination of an impression-surface, a series of printing-forms, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed therefrom, and means for holding the printing-forms rigidly in place when in printing position for preventing the giving of the forms while in such position, and preëstablished guides by means of which the printing-forms may be seated in the press in accurate predetermined position both longitudinally and transversely and may be brought into accurate relationship with coöperating parts of the press for the purpose of register.

52. In a multicolor-press the combination of an impression-surface, a series of printing-forms, a support for each printing-form, a frame for carrying each printing-form having two bearing-arms adapted to move toward or away from each other and adapted, when brought together to form a bearing for the shaft of the said printing-form and, when separated, to permit the lateral removal or insertion of the said printing-form from or into the press, means for moving said arms toward or away from each other, means for locking the bearing-arms in their supporting positions, and means for moving each frame to move its corresponding printing-form into or out of printing position and to regulate the pressure between the said printing-form and its impression-surface, and preëstablished guides by means of which the printing-forms may be seated in the press in accurate predetermined position both longitudinally and transversely and may be brought into accurate relationship with coöperating parts of the press for the purpose of register.

53. In a multicolor-press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, and means for exerting pressure between the printing-forms and the impression-drum and preëstablished guides by means of which the printing-forms may be seated in the press in accurate predetermined position both longitudinally and transversely and may be brought into accurate relationship with coöperating parts of the press for the purpose of register.

54. In a multicolor-printing press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, means for locking each support in its supporting position, and means for exerting pressure between the printing-forms and the impression-drum and preëstablished guides by means of which the printing-forms may be seated in the press in accurate predetermined position both longitudinally and transversely and may be brought into accurate relationship with coöperating parts of the press for the purpose of register.

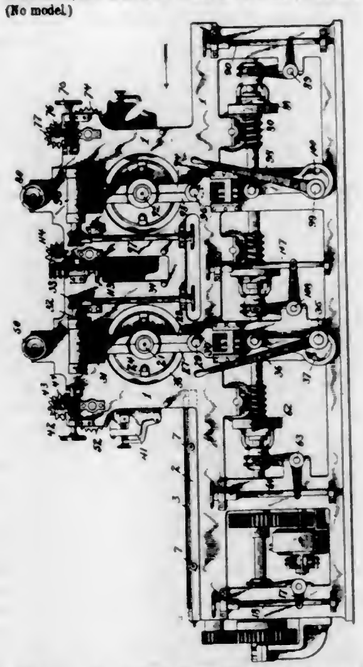
55. In a multicolor-printing press the combination of an impression-drum, a series of printing-forms arranged circumferentially around the drum, a support for each printing-form having a portion removable from the path of the said printing-form, when it is removed laterally from the press or is inserted from the side of the press into working position therein, to permit the printing-forms to be inserted laterally into working position in the press or to be removed laterally therefrom, means for holding the printing-forms rigidly in place when in printing position for preventing the giving of the forms while in such position and means for exerting pressure between the printing-forms and the impression-drum and guiding means with reference to which the tubular printing-forms may be brought into accurate predetermined relationship with the coöperating parts of the press for the purpose of register.

56. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, preëstablished guides with reference to which the tubular printing-forms may be seated on their mandrels in accurate predetermined position both longitudinally and circumferentially, a support for each mandrel and tubular printing-form having a portion removable from the path of the tubular printing-form when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press laterally and directly onto the mandrel and into working position in the press, to permit the printing-forms to be inserted laterally directly into working position in the press or to be removed laterally therefrom, means for exerting pressure between the printing-forms and the impression-drum and guiding means with reference to which the tubular printing-forms may be brought into accurate predetermined relationship with the coöperating parts of the press for the purpose of register.

57. In a multicolor-press the combination of an impression-drum, a series of tubular printing-forms arranged circumferentially around the drum, a mandrel for each printing-form, the tubular printing-forms being removable from and replaceable upon the mandrels, preëstablished guides with reference to which the tubular printing-forms may be seated on their mandrels in accurate predetermined position both longitudinally and circumferentially, a support for each mandrel and tubular printing-form having a portion removable from the path of the tubular printing-form, when the latter is removed laterally off from the mandrel in the press or is inserted from the side of the press directly onto the mandrel and into working position in the press, to permit the tubular printing-forms to be inserted laterally directly into working position in the press or to be removed directly therefrom, means for holding the printing-forms rigidly in place when in printing position for preventing the giving of the forms while in such position means for exerting pressure between the printing-forms and the impression-drum and guiding means with reference to which the tubular printing-forms may be brought into accurate predetermined relationship with the coöperating part of the press for the purpose of register

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662,864. MACHINE FOR MAKING PRINTING-SURFACES. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,651. (No model.)



Claim.—1. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form, through the intermediation of the conveying-surface.

2. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form: a curved shell-like secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface.

3. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a removable and replaceable basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface.

4. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a removable and replaceable conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form, through the intermediation of the conveying-surface.

5. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a removable and replaceable basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a removable and replaceable conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface.

6. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a rotary secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface.

7. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface, and guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position.

8. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a rotary secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface, and guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position.

9. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a removable and replaceable conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; an accurately-preëstablished seat for the conveying-surface; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form, through the intermediation of the conveying-surface.

10. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a removable and replaceable basic surface having one or more designs adapted to be imposed upon the primary printing-form; an accurately-preëstablished seat for the basic surface; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; an accurately-preëstablished seat for the conveying-surface; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface.

11. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a removable and replaceable basic surface having one or more designs adapted to be imposed upon the primary printing-form; an accurately-preëstablished seat for the basic surface; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface, and guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position.

12. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a removable and replaceable conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; an accurately-preëstablished seat for the conveying-surface; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form, through the intermediation of the conveying-surface, and guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position.

13. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a removable and replaceable secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; an accurately-preëstablished seat in which said secondary printing-form and successive secondary printing-forms may be mounted; an accurately-preëstablished seat for the conveying-surface; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form.

14. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; an accurately-preëstablished seat for the basic surface; a removable and replaceable secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; an accurately-preëstablished seat in which said secondary printing-form and successive secondary printing-forms may be mounted; an accurately-preëstablished seat for the conveying-surface; and means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form.

15. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a removable and replaceable secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; an accurately-preëstablished seat in which said secondary printing-form and successive secondary printing-forms may be mounted; an accurately-preëstablished seat for the conveying-surface; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface, and guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position.

16. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form, a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface and inking devices for the primary printing-form.

17. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a rotary secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface, and inking devices for the primary printing-form.

18. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form; guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position, and inking devices for the primary printing-form.

19. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying-surface; guides with reference to which said bodies may be brought into accurate predetermined operating relation for the purpose of imposing the design or designs upon the secondary printing-form in accurate predetermined position, and inking devices for the primary printing-form.

20. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a removable and replaceable basic surface having one or more designs adapted to be imposed upon the primary printing-form; an accurately-preëstablished seat for the basic surface; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a conveying-surface adapted to receive the design or designs of the primary printing-form and to impart them to the secondary printing-form; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form through the intermediation of the conveying surface, and inking devices for the primary printing-form.

21. In a machine for making printing-surfaces, the combination of a primary printing-form adapted to have a design or designs imposed upon it; a basic surface having one or more designs adapted to be imposed upon the primary printing-form; a secondary printing-form adapted to receive the design or designs imposed upon the primary printing-form; a removable and replaceable conveying-surface adapted to receive the design or designs of the primary printing-form and impart them to the secondary printing-form; an accurately-preëstablished seat for the conveying-surface; means for imparting the design or designs from the basic surface to the primary printing-form and from the primary printing-form to the secondary printing-form, through the intermediation of the conveying-surface, and inking devices for the primary printing-form.

22. In a machine for making printing-surfaces, the combination of a basic surface accurately mounted in predetermined position in the machine; a support having an accurately-preëstablished seat for a conveying-surface; a primary printing-form; a support having an accurately-preëstablished seat for a secondary printing-form in which successive printing-forms may be mounted; and means for effecting contact between the primary printing-form and a basic surface; between a conveying-surface seated on its support and the primary printing-form, and between said conveying-surface and a secondary printing-form seated on its support.

23. In a machine for making printing-surfaces, the combination of a basic surface accurately mounted in predetermined position in the machine; a support having an accurately-preëstablished seat for a conveying-surface; a primary printing-form; a support having an accurately-preëstablished seat for a secondary printing-form in which successive printing-forms may be mounted; means for effecting contact between the primary printing-form and a basic surface; between a conveying-surface seated on its support and the primary printing-form, and between said conveying-surface and a secondary printing-form seated on its support, and guiding means with reference to which said bodies may be brought into accurate predetermined coöperating relation with a view to register in printing.

24. In a machine for making printing-surfaces, the combination of a support adapted to receive a removable and replaceable basic surface and a removable and replaceable conveying-surface, said support having guides with reference to which said surfaces may be seated successively on the support in accurate predetermined position; a support for a primary printing-form having guides with reference to which successive primary printing-forms may be accurately seated on said support in accurate predetermined position; a support for a secondary printing-form having guides with reference to which successive secondary forms may be accurately seated on said support in accurate predetermined position; and means for bringing together said bodies seated on their supports in the prescribed sequence.

25. In a machine for making printing-surfaces, the combination of a support adapted to receive a removable and replaceable basic surface and a removable and replaceable conveying-surface, said support having guides with reference to which said surfaces may be seated successively on the support in accurate predetermined position; a support for a primary printing-form having guides with reference to which successive primary printing-forms may be accurately seated on said support in accurate predetermined position; a support for a secondary printing-form having guides with reference to which successive secondary printing-forms may be accurately seated on said support in accurately-predetermined position; means for bringing together said bodies seated on their supports in the prescribed sequence.

26. In a machine for making printing-surfaces, the combination of a basic surface accurately mounted in predetermined position in the machine; a support having an accurately-preëstablished seat for a conveying-surface; a primary printing-form; a support having an accurately-preëstablished seat for a secondary printing-form in which successive printing-forms may be mounted; means for effecting contact between the primary printing-form and a basic surface; between a conveying-surface seated on its support and the primary printing-form, and between said conveying-surface and a secondary printing-form seated on its support, and inking devices for the primary printing-form.

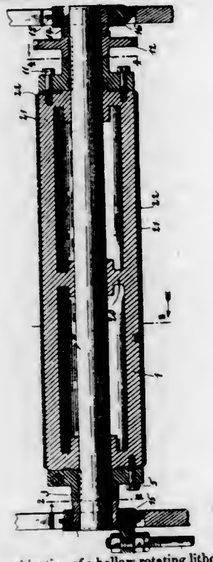
27. In a machine for making printing-surfaces, the combination of a support adapted to receive a removable and replaceable basic surface and a removable and replaceable conveying-surface, said support having guides with reference to which said surfaces may be seated successively on the support in accurate predetermined position; a support for a primary printing-form having guides with reference to which successive primary printing-forms may be accurately seated on said support in accurate predetermined position; a support for a secondary printing-form having guides with reference to which successive secondary printing-forms may be accurately seated on said support in accurately-predetermined position; means for bringing together said bodies seated on their supports in the prescribed sequence, and inking devices for the primary printing-form.

28. In a machine for making printing-surfaces the combination of a rotatable secondary printing-form; primary and secondary inking devices carried in movable frames on opposite sides of the printing-form for said printing-form; and a surface having one or more designs adapted to be imparted to said printing-form.

29. In a machine for making printing-surfaces, the combination of a secondary printing-form; primary and secondary inking devices for said form; a primary printing-surface; a conveying-surface; and means for bringing together said bodies in the prescribed sequence.

662,865. PRINTING FORM AND PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,652. (No model.)

Claim.—1. In a press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.



2. In a press a combination of a bollow rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

3. In a press a combination of a rotating lithographic metallic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

4. In a press the combination of a rotating lithographic aluminium printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

5. In a press the combination of a bollow rotating lithographic metallic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

6. In a press the combination of a bollow rotating lithographic aluminium printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

7. In a press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having a continuous unbroken exterior surface for printing.

8. In a press a combination of a bollow rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having a continuous unbroken exterior surface for printing.

9. In a press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an exterior removable and renewable coating to provide the surface for printing.

10. In a press the combination of a rotating lithographic metallic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an exterior removable and renewable coating to provide the surface for printing.

11. In a press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an electrolytically-deposited coating to provide the surface for printing.

12. In a press a combination of a rotating lithographic metallic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an electrolytically-deposited coating to provide the surface for printing.

13. In a press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form being accurately sized and shaped and finished to adapt it to the coöperating parts of the press.

14. In a press a combination of a rotating lithographic metallic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form being accurately sized and shaped and finished to adapt it to the coöperating parts of the press.

15. In a press the combination of a rotating printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

16. In a press the combination of a rotating printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having a continuous unbroken exterior surface for printing.

17. In a press the combination of a rotating printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an exterior removable and renewable coating to provide the surface for printing.

18. In a press the combination of a rotating printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form having an electrolytically-deposited coating to provide the surface for printing.

19. In a press the combination of a rotating printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, with preëstablished guides with reference to which the printing-form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, said printing-form being accurately sized and shaped and finished to adapt it to the coöperating parts of the press.

20. In a printing-press the combination of a series of rotating printing-forms each having a body of such strength as to be capable of itself withstanding the pressure incident to printing, with devices for inking the forms, and guides with reference to which said forms may be arranged in accurate predetermined relation with the coöperating parts of this press and without the usual empiric adjustment.

21. In a printing-press the combination of a series of rotating printing-forms each having a body of such strength as to be capable of itself withstanding the pressure incident to printing, with devices for inking the forms and guides with reference to which said forms may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment, each of said forms having a continuous unbroken exterior surface for printing.

22. In a printing-press the combination of a lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, said body having the exact size and shape and being of uniform height and plane such as will adapt it when provided with a suitable coating to coöperate subsequently as a printing-surface with the other parts of a press in printing, said body being provided with a uniformly thick even layer or coating of material adapted to provide a surface for printing, the characteristics of the surface of the printing-form as to size and shape and height and level being determined by those of the base and preëstablished guides with reference to which said form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

23. In a printing-press the combination of a rotating lithographic printing-form having a body of such strength as to be capable of itself withstanding the pressure incident to transferring and printing, said body having the exact size and shape and being of uniform height and plane such as will adapt it when provided with a suitable coating to coöperate subsequently as a printing-surface with the other parts of a press in printing, said body being provided with a uniformly thick even layer or coating of material adapted to provide a surface for printing, the characteristics of the surface of the printing-form as to size and shape and height and level, being determined by those of the base and preëstablished guides with reference to which said form may be arranged in accurate predetermined relation with the coöperating parts of the press and without the usual empiric adjustment.

662,866. PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,653. (No model.)



Claim.—1. In a press, a printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

2. In a press, a printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve on the shaft, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft and reliably to the same position, substantially as described.

3. In a press, a printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve that is adjustable on the shaft, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft and reliably to the same adjustable position, substantially as described.

4. In a press, a hollow printing-form or form-support of substantial pressure-resisting thickness in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

5. In a press a hollow printing-form or form-support of substantial pressure-resisting thickness and the surface of which is continuous or unbroken, in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

6. In a press, a cylindrical printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

7. In a press, a cylindrical printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve on the shaft, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft and reliably to the same position, substantially as described.

8. In a press, a cylindrical printing-form or form-support in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve that is adjustable on the shaft, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft and reliably to the same adjustable position, substantially as described.

9. In a press, a hollow cylindrical printing-form or form-support of substantial pressure-resisting thickness in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

10. In a press a hollow cylindrical printing-form or form-support of substantial pressure-resisting thickness and the surface of which is continuous or unbroken, in combination with a carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

11. In a multicolor-press, the combination of an impression-drum, a series of printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby

the printing-forms or form-supports may be readily mounted on and dismounted from the shaft, substantially as described.

12. In a multicolor-press, the combination of an impression-drum, a series of printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve on the shaft, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft and reliably to the same position, substantially as described.

13. In a multicolor-press, the combination of an impression-drum, a series of printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar tapered internally and carried on an externally-tapered sleeve that is adjustable on the shaft, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft and reliably to the same adjustable position, substantially as described.

14. In a multicolor-press, the combination of an impression-drum, a series of hollow printing-forms or form-supports of substantial pressure-resisting thickness arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft, substantially as described.

15. In a multicolor-press, the combination of an impression-drum, a series of hollow printing-forms or form-supports of substantial pressure-resisting thickness and the surfaces of which are continuous or unbroken, arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft, substantially as described.

16. In a multicolor-press, the combination of an impression-drum, a series of cylindrical printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft, substantially as described.

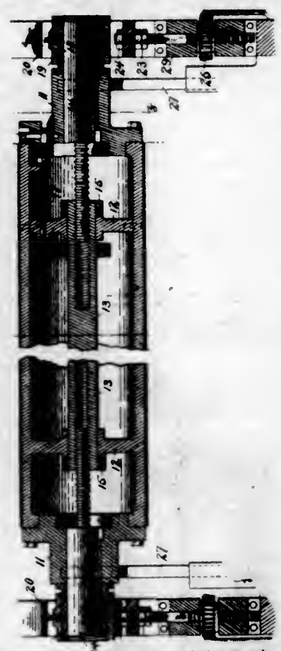
17. In a multicolor-press, the combination of an impression-drum, a series of cylindrical printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end and beyond the size of the outer bolt-head or securing-nut, the hub or collar being tapered internally and carried on an externally-tapered sleeve on the shaft, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft and reliably to the same position, substantially as described.

18. In a multicolor-press, the combination of an impression-drum, a series of cylindrical printing-forms or form-supports arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, the hub or collar tapered internally and carried on an externally-tapered sleeve that is adjustable on the shaft, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft and reliably to the same adjustable position, substantially as described.

19. In a multicolor-press, the combination of an impression-drum, a series of hollow cylindrical printing-forms or form-supports of substantial pressure-resisting thickness arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-forms or form-supports may be readily mounted on and dismounted from the shaft, substantially as described.

20. In a multicolor-press, the combination of an impression-drum, a series of hollow cylindrical printing-forms or form-supports of substantial pressure-resisting thickness and the surfaces of which are continuous or unbroken, arranged circumferentially around the impression-drum, carrying-shafts for the printing-forms or form-supports, each carrying-shaft having at one end a supporting hub or collar adapted to be bolted to an internally-depending flange of the cylindrical printing-form or form-support, the hub or collar having circumferentially elongated or slotted bolt-holes enlarged at one end beyond the size of the outer bolt-head or securing-nut, whereby the printing-form or form-support may be readily mounted on and dismounted from the shaft, substantially as described.

662,867. PRINTING FORM AND PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,654. (No model.)



Claim.—1. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having a retractile journal end and means to retract the same located within the printing-form, whereby the printing-form may be mounted and dismounted, substantially as described.

2. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having retractile journal ends and means to retract the same located within the printing-form, whereby the printing-form may be mounted and dismounted, substantially as described.

3. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having a central portion that is held from longitudinal motion in the printing-form and a journal portion that is capable of longitudinal motion in the printing-form and means for moving the journal portion longitudinally in the printing-form, whereby the said journal portion may be retracted and the printing-form mounted and dismounted, substantially as described.

4. In a press, a tubular roller in combination with a shaft having a central portion that is held from longitudinal motion in the roller and a journal portion that is capable of longitudinal motion in the roller and means located within the roller for moving the journal portion longitudinally in the roller, whereby the said journal portion may be retracted and the roller mounted and dismounted, substantially as described.

5. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having a central portion that is held from longitudinal motion in the printing-form and a journal portion that is capable of longitudinal motion in the printing-form and means located within the printing-form for moving the journal portion longitudinally in the printing-form, whereby the said journal portion may be retracted and the printing-form mounted and dismounted, substantially as described.

6. In a press, a tubular roller in combination with a shaft having a central portion that is held from longitudinal motion in the roller and two journal portions that are capable of longitudinal motion upon the central portion and means for so moving them longitudinally upon the central portion, whereby the said journal portions may be retracted and the roller mounted and dismounted, substantially as described.

7. In a press, a tubular roller in combination with a shaft having a central portion that is held from longitudinal motion in the roller and two journal portions that are capable of longitudinal motion upon the central portion and means located within the roller for so moving them longitudinally upon the central portion, whereby the said journal portions may be retracted and the roller mounted and dismounted, substantially as described.

8. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, a journal end of which is retractile and means to retract the same, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

9. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, both the journal ends of which are retractile and means to retract the same, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

10. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, a journal end of which is retractile and means located within the printing-forms to retract the same, and a series of lateral guides, whereby the printing-forms may be mounted and the entire series mounted always in exact lateral position, substantially as described.

11. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, both the journal ends of which are retractile and means located within the printing-forms to retract the same, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

12. In a press, a tubular roller having supporting and guiding end hubs 11 and internal flanges or hubs 12, in combination with a shaft having a central portion 13 provided with collars 15 and retractile journal portions 14, and means for revolving the central portion 13 and thereby moving the journal portions in or out, substantially as described.

13. In a press, a tubular roller having supporting and guiding end hubs 11 and internal flanges or hubs 12, in combination with a shaft having a central portion 13 provided with collars 15 and retractile journal portions 14, and a revoluble key-shaft 16 and mechanism mounted within the roller connecting said key-shaft with the central portion 13, whereby the central portion 13 of the shaft may be rotated and the journal ends 14 thereby moved in or out, substantially as described.

14. In a press, a tubular roller having a surface that is continuous or unbroken in combination with a shaft having a retractile journal end and means to retract the same and suitable lifting devices, whereby the roller may be mounted and dismounted, substantially as described

15. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having a retractile journal end and means to retract the same and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described.

16. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having retractile journal ends and means to retract the same and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described.

17. In a press, a cylindrical printing-form having a surface that is continuous or unbroken in combination with a shaft having a retractile journal end and means to retract the same and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described,

18. In a press, a cylindrical printing-form having a surface that is continuous or unbroken in combination with a shaft having retractile journal ends and means to retract the same and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described.

19. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having a retractile journal end and means to retract the same located within the printing-form and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described.

20. In a press, a tubular printing-form having a surface that is continuous or unbroken in combination with a shaft having retractile journal ends and means to retract the same located within the printing-form and suitable lifting devices, whereby the printing-form may be mounted and dismounted, substantially as described.

21. In a press, a tubular roller in combination with a shaft having a central portion that is held from longitudinal motion in the roller and two journal portions that are capable of longitudinal motion upon the central portion and means for so moving them longitudinally upon the central portion and suitable lifting means, whereby the said journal portions may be retracted and the roller mounted and dismounted, substantially as described.

22. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, a journal end of which is retractile and means to retract the same, and a series of lateral guides and suitable lifting devices, whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

23. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, both the journal ends of which are retractile and means to retract the same, and a series of lateral guides, and suitable lifting devices whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

24. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, a journal end of which is retractile and means located within the printing-forms to retract the same, and a series of lateral guides, and suitable lifting devices whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

25. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having a supporting-shaft, both the journal ends of which are retractile and means located within the printing-forms to retract the same, and a series of lateral guides, and suitable lifting devices whereby the printing-forms may be mounted and dismounted and the entire series mounted always in exact lateral position, substantially as described.

26. In a press, a tubular roller having supporting and guiding end hubs 11 and internal flanges or hubs 12, in combination with a shaft having a central portion 13 provided with collars 15 and retractile journal portions 14, and means for revolving the central portion 13 and thereby moving the journal portions in or out, and suitable lifting devices substantially as described.

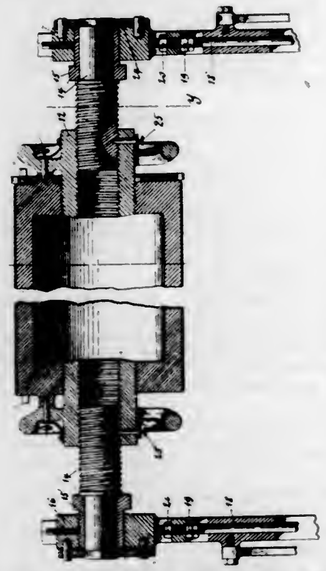
27. In a press, a tubular roller having supporting and guiding end hubs 11 and internal flanges or hubs 12, in combination with a shaft having a central portion 13 provided with collars 15 and retractile journal portions 14, and a revoluble key-shaft 16 and mechanism mounted within the roller connecting said key-shaft with the central portion 13, whereby the central portion 13 of the shaft may be rotated and the journal ends 14 thereby moved in or out, and suitable lifting devices, substantially as described

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662,868. PRINTING FORM AND PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,655. (No model.)

Claim.—1. In a press, a tubular roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller and means to retract the same whereby the roller may be mounted and dismounted and removable bearings for said retractile journal-shaft

and means for locking said bearings in operative position, substantially as described.



2. In a press, a tubular printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same whereby the printing-form may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

3. In a press, a tubular roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, both of said journal-shafts being retractile from the roller, and means to retract the same, whereby the roller may be mounted and dismounted and removable bearings for said retractile journal-shafts and means for locking said bearings in operative position, substantially as described.

4. In a press, a tubular printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, both of said journal-shafts being retractile from the roller, and means to retract the same, whereby the printing-form may be mounted and dismounted and removable bearings for said retractile journal-shafts and means for locking said bearings in operative position, substantially as described.

5. In a press, a cylindrical roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same whereby the roller may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

6. In a press, a cylindrical printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same, whereby the printing-form may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

7. In a press, a cylindrical roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same mounted upon the journal-shaft proper, whereby the roller may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

8. In a press, a cylindrical printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same mounted upon the journal-shaft proper, whereby the printing-form may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

9. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, one of which is retractile therefrom, and means for retracting the same, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

10. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, both of which are retractile therefrom, and means for retracting the same, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

11. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, one of which is retractile therefrom, and means for retracting the same mounted upon the journal-shaft proper, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

12. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, both of which are retractile therefrom, and means for retracting the same mounted upon the journal-shafts proper, and a series of lateral guides, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

13. In a press, the roller 10 having a surface that is continuous or unbroken, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12 and removable bearings 15, substantially as described.

14. In a press, the roller 10 having a surface that is continuous or unbroken, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12, and means for locking the inner journal extensions or hubs to the roller and to the journal-shaft proper and unlocking them therefrom, substantially as described.

15. In a press, the roller 10 having a surface that is continuous or unbroken, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12, and locking devices 24, substantially as described.

16. In a press, a tubular roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller and means to retract the same and suitable lifting devices whereby the roller may be mounted and dismounted, substantially as described.

17. In a press, a tubular printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same and suitable lifting devices whereby the roller may be mounted and dismounted, substantially as described.

18. In a press, a tubular roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, both of said journal-shafts being retractile from the roller, and means to retract the same and suitable lifting devices, whereby the roller may be mounted and dismounted, substantially as described.

19. In a press, a roller or printing-form in combination with two short journal-shafts supporting the roller or printing-form at its ends, one of said journal-shafts being retractile from the roller, and means to retract the same, whereby the roller or printing-form may be mounted and dismounted, and adjustable and removable bearings for said retractile journal-shaft and means for locking said bearings in adjusted operative position, substantially as described.

20. In a press, a cylindrical roller having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same and suitable lifting devices whereby the roller may be mounted and dismounted, substantially as described.

21. In a press, a cylindrical printing-form having a surface that is continuous or unbroken, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same, and suitable lifting devices whereby the printing-form may be mounted and dismounted, substantially as described.

22. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, one of which is retractile therefrom, and means for retracting the same, and a series of lateral guides, and suitable lifting devices whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

23. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, both of which are retractile therefrom, and a series of lateral guides, and suitable lifting devices, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

24. In a printing-press, in combination with suitable impression surface or surfaces and a series of suitable inking mechanisms, a series of tubular printing-forms, the printing-forms having a surface that is continuous or unbroken and having two short journal-shafts supporting the printing-form at its ends, both of which are retractile therefrom, and means for retracting the same mounted upon the journal-shafts proper, and a series of lateral guides, and suitable lifting devices, whereby the printing-forms may be mounted and dismounted, and mounted always accurately in the same relative position laterally with respect to one another, substantially as described.

25. In a press, the roller 10, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12 and removable bearings 15, substantially as described.

26. In a press, a tubular roller, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same, whereby the roller may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

27. In a press, a tubular printing-form, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same, whereby the printing-form may be mounted and dismounted and removable bearings for said retractile journal-shaft and means for locking said bearings in operative position, substantially as described.

28. In a press, the roller 10, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12, and suitable lifting devices, substantially as described.

29. In a press, a tubular roller, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same, whereby the roller may be mounted and dismounted, and suitable lifting devices, substantially as described.

30. In a press, a tubular printing-form, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same, whereby the printing-form may be mounted and dismounted, and suitable lifting devices, substantially as described.

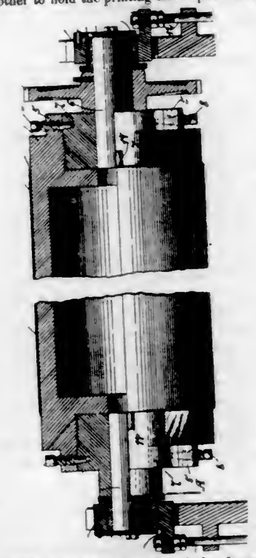
31. In a press, the roller 10, in combination with two short journal-shafts 14 having retractile inner extensions or hubs 12, and adjustable lateral guides, substantially as described.

32. In a press, a tubular roller, in combination with two short journal-shafts supporting the roller at its ends, one of which journal-shafts is retractile from the roller, and means to retract the same, whereby the roller may be mounted and dismounted, and adjustable lateral guides, substantially as described.

33. In a press, a tubular printing-form, in combination with two short journal-shafts supporting the printing-form at its ends, one of which journal-shafts is retractile from the roller and means to retract the same, whereby the printing-form may be mounted and dismounted, and adjustable lateral guides, substantially as described.

662,869. PRESS. EDWARD HETT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,656. (No model.)

Claim.—1. In a press, the combination of a printing-form or a support therefor provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at said end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shaft, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shaft to enable the printing-form to be inserted or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shaft.



2. In a press, the combination of a printing-form or a support therefor provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at each end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shafts to enable the printing-form to be inserted or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shafts

3. In a press, the combination of a printing-form or a support therefor provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at said end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shaft, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shaft to enable the printing-form to be inserted or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shaft, and means for locking a ring-sector to a segmental projection to hold the printing-form firmly upon the shaft and for unlocking them.

4. In a press, the combination of a printing-form or a support therefor provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at each end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shafts to enable the printing-form to be inserted in or removed from the shafts, and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shafts, and means for locking the ring-sectors to the segmental projections to hold the printing-form firmly upon the shafts and for unlocking them.

5. In a press, the combination of a printing-form or a support therefor provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form and interiorly screw-threaded, a shaft at each end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft, exteriorly screw-threaded and adapted to fit and turn within the screw-threade

of the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shafts to enable the printing-form to be inserted upon or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other, the screw-threads of the two parts intermeshing, to hold the printing-form upon the shafts.

6. In a press, the combination of a printing-form or a support therefor provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at each end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shafts to enable the printing-form to be inserted in or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shafts, means for locking the ring-sectors to the segmental projections to hold the printing-form firmly upon the shafts and for unlocking them, and means for rotating the united printing-form and shafts.

7. In a press, the combination of a printing-form or a support therefor provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at said end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shaft, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shaft to enable the printing-form to be inserted or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shaft, and a lock for temporarily preventing the shaft from rotating during the insertion or removal of the printing-form.

8. In a press, the combination of a printing-form or a support therefor provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a shaft at each end of the printing-form having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-form may pass between the segmental projections of the shaft to enable the printing-form to be inserted in or removed from the shaft and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-form upon the shafts, and a lock for temporarily preventing the shafts from rotating during the insertion or removal of the printing-form.

9. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts, one for each printing-form, each shaft having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted in or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts.

10. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts one at each end of each printing-form, having oppositely-disposed segmental projections concentric with the center of the shafts and adapted to fit and turn within the ring-like sectors of the printing-forms, to hold the printing-forms upon the shafts, all arranged and adapted so that the ring-sectors of the printing forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts.

11. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts, one for each printing-form, having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts, and a lock for each shaft for temporarily preventing it from rotating during the insertion or removal of its printing-form.

12. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts one at each end of each printing-form, having oppositely-disposed segmental projections concentric with the center of the shafts and adapted to fit and turn within the ring-like sectors of the printing-forms, to hold the printing-forms upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts, means for locking the ring-sectors to the segmental projections to hold the printing-forms firmly upon the shafts and for unlocking them, and means for rotating the united printing-forms and shafts.

13. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form and interiorly screw-threaded, a series of shafts one at each end of each printing-form, having oppositely-disposed segmental projections concentric with the center of the shafts exteriorly screw-threaded and adapted to fit and turn within the screw-threads of the ring-like sectors of the printing-forms, to hold the printing-forms upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other, the screw-threads of the two parts intermeshing to hold the printing-forms upon the shaft.

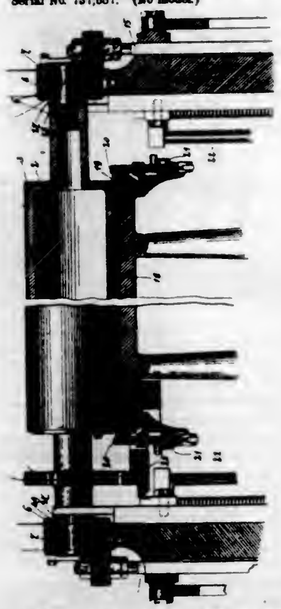
14. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts one at each end of each printing-form, having oppositely-disposed segmental projections concentric with the center of the shafts and adapted to fit and turn within the ring-like sectors of the printing-forms, to hold the printing-forms upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or withdrawn from the shafts and the segmental projections and the ring-sectors may be turned one with the other to hold the printing-forms upon the shafts, means for locking the ring-sectors to the segmental projections to hold the printing-forms firmly upon the shafts and means for unlocking them.

15. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at one end with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts, one for each printing-form, having oppositely-disposed segmental projections concentric with the center of the shaft and adapted to fit and turn within the ring-like sectors of the printing-form to hold the printing-form upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or removed from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts, and a lock for each shaft for temporarily preventing it from rotating during the insertion or removal of the printing-form.

16. In a multicolor-press the combination of an impression-drum, a series of printing-forms or supports therefor arranged concentrically around the periphery of the drum, each printing-form provided at its ends with projections shaped like opposite sectors of a ring concentric with the center of the printing-form, a series of shafts one at each end of each printing-form, having oppositely-disposed segmental projections concentric with the center of the shafts and adapted to fit and turn within the ring-like sectors of the printing-forms, to hold the printing-forms upon the shafts, all arranged and adapted so that the ring-sectors of the printing-forms may pass between the segmental projections of the shafts to enable the printing-forms to be inserted or withdrawn from the shafts and the segmental projections and the ring-sectors may be turned one within the other to hold the printing-forms upon the shafts, and a lock for each shaft for temporarily preventing it from rotating during the insertion or removal of its printing-form.

17. In a multicolor-press the combination with an impression-drum and a series of printing-forms arranged concentrically around the periphery of the drum, a radial rod for moving printing-forms radially outward from the drum or inward toward it, to aid in the removal or insertion of printing-forms in the press, a swinging arm mounted on the end of the radial arm, a stop on the rod to prevent the arm from moving in one direction beyond the line of the rod, and connections at the end of the radial arm for engaging with two points upon the printing-form to hold the printing-form in the radial line along which the printing-form is to move inward or outward as it is inserted or removed from the press.

662,870. PRESS. EDWARD HEFT, New York, N. Y. Filed Nov. 20, 1899. Serial No. 737,657. (No model.)



Claim.—1. The combination of a printing-form, journals therefor, bearings for the journals, the journals and bearings being removable from their supporting-boxes, and supporting-boxes each adapted to receive and support a bearing, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes.

2. The combination of a printing-form, journals therefor, bearings for the journals, the journals and bearings being removable from their supporting-boxes, and supporting-boxes each adapted to receive and support a bearing, a cover for each box removable from the path of the journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in position, and means for moving the boxes toward or away from the impression-surface to regulate the pressure, whereby the printing-form with its journals and bearings may be removed from their boxes and replaced therein or in similar supporting-boxes and be firmly held in the boxes.

3. The combination of a printing-form, journals therefor, bearings for the journals, the journals and bearings being removable from their supporting-boxes, supporting-boxes each adapted to receive and support a bearing, a hinged cover for each box adapted to swing out of the path of the journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in its closed position, and means for moving the boxes toward or away from the impression-surface to regulate the pressure, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes and be firmly held in the boxes.

4. The combination of a printing-form, journals therefor, bearings for the journals, having parallel sides, the journals and bearings being removable from their supporting-boxes, supporting-boxes each having a seat with parallel walls into which a bearing is adapted to snugly fit, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in position, and means for moving the boxes toward or away from the impression-surface to regulate the pressure, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes and be firmly held in the boxes.

5. The combination of a printing-form, journals therefor, bearings for the journals, having parallel sides, the journals and bearings being removable from their supporting-boxes, supporting-boxes each having a seat with parallel walls into which a bearing is adapted to snugly fit, a hinged cover for each box adapted to swing out of the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover into position, and means for moving the boxes toward or away from the impression-surface to regulate the pressure, whereby the printing-form with its shaft and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes and be firmly held in the boxes.

6. The combination of a printing-form, a journal at each end of the printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearing being removable from its supporting-box, and supporting-boxes adapted to receive and support the bearings, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes.

7. The combination of a printing-form, a journal at each end of the printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearings being removable from its supporting-box, supporting-boxes adapted to receive and support the bearings, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, and means for locking the cover in position, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes and be firmly held in the boxes.

8. The combination of a printing-form, a journal of hardened steel at each end of the printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearing being removable from its supporting-box, supporting-boxes adapted to receive and support the bearings, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes.

9. The combination of a printing-form, a journal of hardened steel at each end of the printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearing being removable from its supporting-box, supporting-boxes adapted to receive and support the bearings, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in position, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes and be firmly held in the boxes.

10. The combination of a printing-form, a journal at each end of the printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, having parallel sides, each journal and its bearing being removable from its supporting-box, supporting-boxes having seats with parallel walls into which the bearings are adapted to snugly fit, a hinged cover for each box adapted to swing out of the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, and means for locking the cover in its closed position, whereby the printing-form with its journals and bearings may be removed from their boxes and be replaced therein or in similar supporting-boxes.

11. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals for the printing-forms, bearings for the journals, each journal and its bearing being removable from their supporting-boxes, and supporting-boxes for the bearings, each supporting-box adapted to receive and support a bearing, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press.

12. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals for the printing-forms, bearings for the journals, each journal and its bearing being removable from their supporting-boxes, and supporting-boxes for the bearings, each supporting-box being adapted to receive and support a bearing, a cover for each box removable from the path of the journal and bearing, as they are inserted into or removed from the box,

to permit such insertion or removal, and means for locking the cover in position, means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

13. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals for the printing-forms, bearings for the journals, each journal and its bearing being removable from their supporting-boxes, and supporting-boxes each having a seat with parallel walls into which a bearing is adapted to snugly fit, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in position, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

14. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, a journal at each end of each printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearing being removed from its supporting-boxes, supporting-boxes adapted to receive and support the bearings, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby the printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

15. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, a journal at each end of each printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, each journal and its bearing being removable from its supporting-box, supporting-boxes adapted to receive and support the bearings, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box to permit such insertion or removal, means for locking the covers in position, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

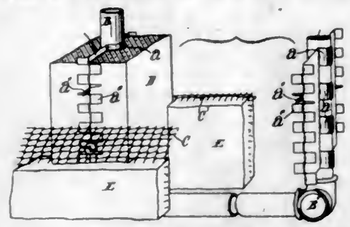
16. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals of hardened steel at the ends of the printing-forms removably secured thereto but adapted, when secured, to form an integral part of the printing-forms, bearings for the journals, each journal and its bearing being removable from their supporting-boxes, supporting-boxes for the bearings, each supporting-box being adapted to receive and support a bearing, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

17. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals of hardened steel at the ends of the printing-forms removably secured thereto but adapted, when secured, to form an integral part of the printing-forms, bearings for the journals, each journal and its bearing being removable from its supporting-box, supporting-boxes adapted to receive and support the bearings, a cover for each box removable from the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in position, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

18. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, a journal at each end of each printing-form removably secured thereto but adapted, when secured, to form an integral part of the printing-form, bearings for the journals, having parallel sides, each journal and its bearing being removable from its supporting-box, supporting-boxes having seats with parallel walls into which the bearings are adapted to snugly fit, a hinged cover for each box adapted to swing out of the path of its journal and bearing, as they are inserted into or removed from the box, to permit such insertion or removal, means for locking the cover in its closed position, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

19. In a multicolor-press the combination of an impression-drum, a plurality of printing-forms arranged concentrically around the same, journals for the printing-forms, bearings for the journals, each journal and its bearing being removable from their supporting-boxes, supporting-boxes for the bearings, each supporting-box being adapted to receive and support a bearing, preëstablished guides with reference to which the printing-form may be seated in the press and with reference to which it may be brought into accurate predetermined relation with the coöperating parts of the press for the purpose of register, and means for moving the boxes toward or away from the impression-drum to regulate the pressure, whereby printing-forms with their journals and bearings may be removed from their supporting-boxes and be replaced therein or in similar supporting-boxes in the press and be firmly held in the boxes.

662,871. **FIREPROOF STRUCTURE.** DAVID KILPATRICK, Los Angeles, Cal. Filed Nov. 13, 1899. Serial No. 736,874. (No model.)



Claim.—1. A fireproof structure comprising a concrete pier; metal anchors partially embedded in said pier; lathing secured to projecting portions of said anchors; and plastering on said lathing.

2. A fireproof structure comprising a concrete pier; sheet-metal strips partially embedded in said pier and having portions projecting from the pier; lathing secured to said pier by the projecting portions of said strips; and plastering on said lathing.

3. A fireproof structure comprising an upright post; a concrete body around said post; sheet-metal strips partially embedded in said concrete body and having portions projecting from said body; and lathing secured to said body by said projecting portions.

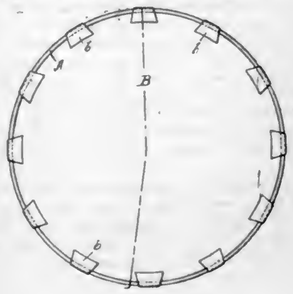
4. A fireproof structure comprising a post; a concrete body around said post; sheet-metal strips contacting with said post and partially embedded in the concrete body and having portions projecting from said body; and lathing secured to said body by said projecting portions.

5. A slab for structural purposes comprising a strip of metallic lathing and a coat of cement or plaster thereon with beveled and ridged edges.

6. A wall comprising concrete piers with metallic anchors projecting from the piers; slabs composed of lathing and a stiffening coat of cement or plaster on the inner side of said lathing between said piers and a coating over the outside of said lathing.

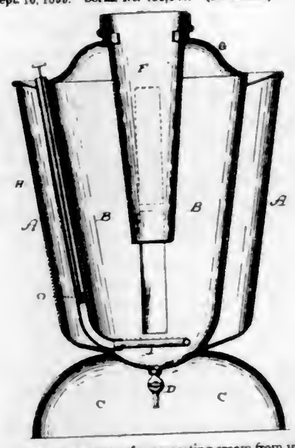
7. A wall comprising concrete piers with metallic anchors projecting from the pier; slabs composed of lathing and a stiffening coat of cement or plaster on the inner side of said lathing between said piers with spaces around the edges of said coat; cement or plaster in said spaces; and a coating over the outside of said coat.

662,872. **SIGNAL-DISK.** EDWARD M. KLEIN, Reading, Pa. Filed Oct. 12, 1900. Serial No. 32,870. (No model.)



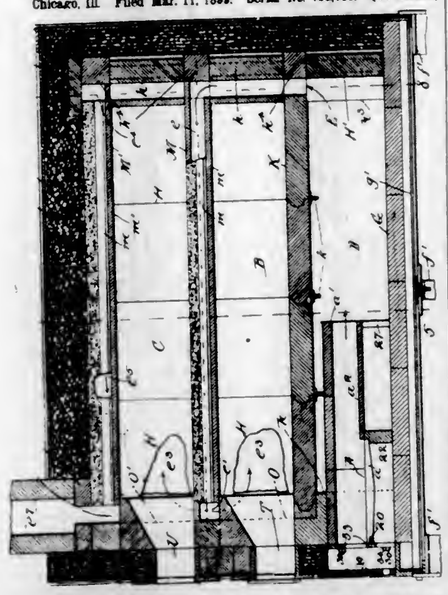
Claim.—As a new article of manufacture, a signal device comprising a ring or frame and a sheet of celluloid or like elastic material having its edges bent over and conformed to the said ring or frame to unite the two, substantially as set forth.

662,873. **CREAM-SEPARATOR.** CLAUDE H. KNIGHT, Parker, S. D. Filed Sept. 16, 1899. Serial No. 730,687. (No model.)



Claim.—In an apparatus for separating cream from milk, an outside receiving vessel for water or ice, a milk-receiver provided with an outlet at its bottom to draw off the milk, and a vertical water-cooler which extends from the top of the receiver down into the center of the milk-receiver, combined with air-pipes, pistons in said air-pipes for forcing the air down into the receiver, and a perforated pipe which is placed in the bottom of the milk-receiver and communicates with the air-pipes, and through which the air is forced into the mixture of the milk and water contained in the milk-receiver, substantially as shown and described.

662,874. **BAKE-OVEN.** JOHN I. MARSHALL and JOHN FAULDS, Chicago, Ill. Filed Mar. 11, 1899. Serial No. 708,783. (No model.)



Claim.—1. A bake-oven having its walls and baking-chamber ceiling formed of hollow tiles arranged so that their chambers form smoke-flues leading upwardly at the back of the oven, forwardly through the baking-chamber ceiling, and backwardly through side walls of the baking-chamber.

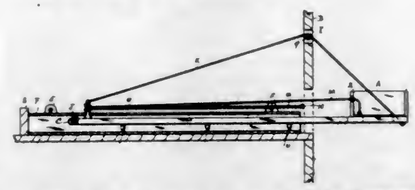
2. A bake-oven having its walls and baking-chamber ceiling formed of hollow tiles arranged to constitute smoke-flues running through an end, and the sides of the ceiling of the baking-chamber.

3. A bake-oven having its walls formed of hollow tiles having inner and outer chambers, such tiles being so arranged that the inner chambers of certain of them constitute smoke-flues, the outer chambers of the tiles forming dead-air spaces.

4. A bake-oven having its walls formed of hollow tiles having inner and outer chambers, their outer faces being concave, such tiles being so arranged that the inner chambers of certain of them constitute smoke-flues, the outer chambers of the tiles forming dead-air spaces.

5. In a bake-oven, in combination, a heating-chamber, and a furnace located within such chamber and comprising an ash-box, a grate supported thereby, a pair of bars supported by the side walls of the ash-box and extending back of such box and having an upstanding flange at their outer edges, an arch carried by such bars, such arch inclosing the grate and extending back thereof to form a combustion-flue, and a floor for such flue.

662,875. **FIRE-ESCAPE.** WALTER NEWBURN, Hamilton, Canada. Filed July 7, 1900. Serial No. 22,812. (No model.)



Claim.—1. In a fire-escape, a balcony, parallel arms supporting said balcony and extending a distance in the interior of a building, casings or guides for said arms firmly secured to the floor and walls of a hallway in the building, guy-cables secured to the upper and the rear parts of the arms there being longitudinal openings in the tops of said guides for the fastenings of the cables to slide in said cables supported on elevated rollers, the outer ends of said cables secured to the balcony to support the same when drawn out, and means in the balcony whereby the same may be drawn outward or inward to position.

2. In a fire-escape, a balcony, parallel arms extending from the balcony into the interior of a building, stationary guides for said arms, guy-cables secured to said arms and to the balcony, said cables suspended over elevated rollers to support the balcony, openings in the guides to allow the guy-cable fastenings to operate therein, a cable-pulley connected to the upper part of one of said arms, an operating-cable, one end of the cable attached to the building and passed over said pulley and extended to the balcony to draw the balcony outward, as described.

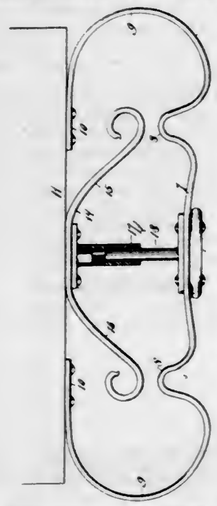
3. A fire-escape comprising horizontal stationary guides, arms capable of sliding in said guides, a balcony on the outer ends of the arms, suspended guy-cables attached to the inner ends of said arms and to the outer parts of the balcony and means in the balcony whereby the same may be drawn outward and inward to position against the wall of the building, as described.

4. A fire-escape, comprising a balcony, horizontal arms supporting said balcony and extending into the interior of the building, parallel and stationary guides in the building for said arms, rollers in the guides to support the arms, rollers at the inner ends of the arms to engage with the upper parts of the guides, suspended guy-cables attached to the arms and to the balcony, to support the same, and means in the balcony for drawing the same outward and inward to position, as described.

5. In a fire-escape, a balcony, horizontal and parallel arms, extending from the balcony into the building, stationary guides, rollers in the guides to support the arms, rollers at the inner ends of the arms to engage with the upper parts of the guides, guy-cables loosely suspended above said arms and attached to said arms and to the balcony to support the same, there being longitudinal openings in the guides to allow the guy-cable fastenings to operate, a cable-pulley connected to the upper part of one of said arms, an operating-cable, one end of the cable attached to the building and passed said pulley and extended to the balcony to draw the balcony outward from the building, and an operating-cable over a pulley above the inner end of a guide, one end of said cable attached to one of said arms and the other end extending to and in the balcony, to draw the frame inward, as described.

662,876. **SPRING FOR VEHICLES.** WILLIAM PARFREY, New York, N. Y. Filed Mar. 5, 1900. Serial No. 7,373. (No model.)

Claim.—1. A vehicle-spring consisting of a horizontal portion 7, two bent portions 8, adjacent thereto, two circular portions 9, each describing substantially a half-circle, and extensions 10 adapted to be secured to the bed of a vehicle, substantially as and for the purpose set forth.

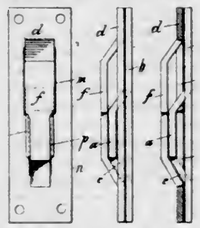


2. A vehicle-spring, consisting of a horizontal portion 7, two bent portions 8, two circular portions 9, and extensions 10, and lateral extensions 12, substantially as and for the purpose set forth.

3. A vehicle-spring comprising a spring 5, having horizontal portion 7, bent portions 8, circular portions 9, and extensions 10, and a supplemental spring 14, having leaves 15 and 16 adapted to coact with said bent portions 8, substantially as and for the purpose described.

4. The herein-described spring for vehicles, and steadying device therefor, comprising spring 5, having horizontal portion 7, bent portions 8, circular portions 9, and extensions 10, and a supplemental spring 14, with leaves 15 and 16, coacting with said spring 5, and a steadying device, comprising socket 17, and standard 18, substantially as and for the purpose described.

662,877. DEVICE FOR INTERLOCKING REMOVABLE PARTS OF FURNITURE. ANDREAS REHM, Vienna, Austria-Hungary. Filed Aug. 16, 1900. Serial No. 27,071. (No model.)

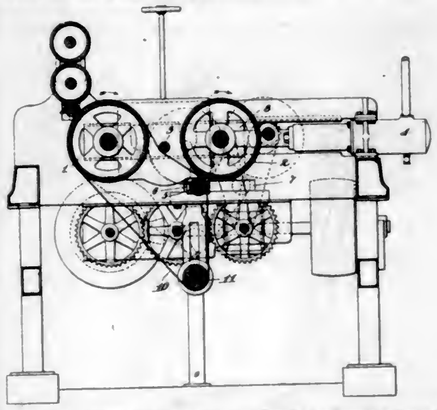


Claim.—A furniture-lock of the kind described comprising a male plate having a projecting piece stamped out from it but remaining attached at its ends, said projection comprising a narrow lower portion and a wider upper portion, leaving a correspondingly-shaped opening in the plate, and a female plate having a correspondingly-shaped part stamped out therefrom which remains attached at each end, leaving a similar aperture, substantially as described.

662,878. COTTON-PRESS. HAAKON S. RINGI, Chicago Heights, Ill., assignor to the American Cotton Company, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,373. (No model.)

Claim.—1. The combination with two baling-rolls and a core mounted between them, of an idler mounted adjacent to one of said rolls, an endless belt passing over the other roll, beneath the core and around the idler, and means for driving the baling-rolls so as to move the operative or upper face of the belt toward the idler, substantially as set forth.

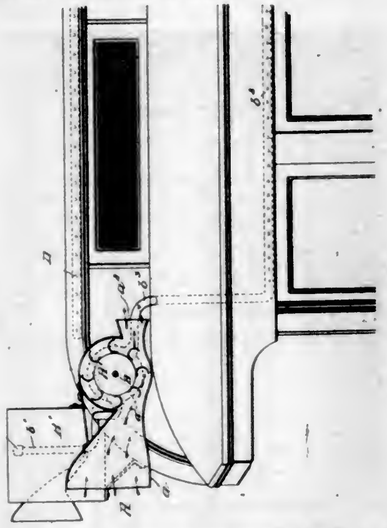
2. In a cotton-press, the combination with a stationary baling-roll, a movable baling-roll, and a core mounted between them, of an idler mounted adjacent to one of said baling-rolls, an endless belt passing around the other baling-roll, beneath the core and over the idler, and means for rotating the baling-rolls to drive the operative or upper face of the belt toward the idler, substantially as set forth.



3. In a cotton-press, the combination with a stationary baling-roll, a movable baling-roll, and a core mounted between the same, of an idler movable with the movable baling-roll, and an endless belt passing over the stationary baling-roll, beneath the core and around the idler, substantially as set forth.

4. In a cotton-press, the combination with a stationary baling-roll, a movable baling-roll, and a core mounted between the same, of an idler movable with the movable baling-roll, an endless belt passing over the stationary baling-roll, beneath the core and around the idler, and means for rotating the baling-rolls to drive the upper or operative face of the belt toward the idler, substantially as set forth.

662,879. CAR-VENTILATOR. ALEXANDER ROSS, Montreal, Canada, assignor of one-half-to Alexander Walker, same place. Filed Jan. 8, 1900. Serial No. 689. (No model.)



Claim.—1. A car-ventilating apparatus comprising an air-purifying chamber having an external-air intake; mechanism for discharging the air from said chamber into the car; an independent intake extending in the same direction as said chamber-intake; and an air-motor in said independent intake coupled to and operating the discharge mechanism.

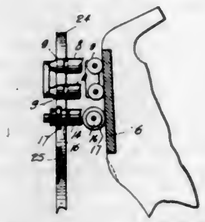
2. A ventilating apparatus for cars, comprising a wind-driven or air motor; a ventilating-fan actuated solely by said motor; an air-chamber partially filled with water; an air-inlet therefor, said inlet being open in the direction of movement of the car, the other end of said inlet being below the surface of the water; a pipe leading from said chamber to said fan; and a pipe leading from the fan to the interior of the car, whereby the air-inflow into said chamber will be positively discharged proportionately to its ingress regardless of the wind velocity and car speed.

3. A ventilating apparatus for cars, comprising a wind-driven or air motor; a ventilating-fan actuated solely by said motor; an air-chamber partially filled with water; an air-inlet therefor, said inlet being open in the direction of movement of the car, the other end of said inlet being below the surface of the water; a pipe leading from said chamber to said fan, the inlet end of said pipe being above the surface of the water; and a pipe leading from the fan to the interior of the car, whereby the air-inflow into said chamber will be positively discharged proportionately to its ingress regardless of the wind velocity and car speed.

4. In a car-ventilating system, an elevated tank adapted to be partly filled with water, and an external-air-collecting funnel disposed in front of the tank and provided with a spout which terminates in said tank below the normal water-line therein and is thereby adapted to be submerged in the water of the tank, combined with a wind-driven motor-fan having its intake open in the same direction as the intake of the collecting-funnel, a suction and forcing fan driven thereby, and an air-pipe connecting the tank above its water-line with a casing of said suction and forcing fan, and a distributing-pipe leading from the suction and forcing fan, substantially as described.

5. In a car-ventilating system, the double fan-casing having two compartments, one of which has a normally open outlet at one side thereof and a collecting-hood on its other side and opening in the direction of movement of the car, a single fan-shaft extending through both compartments of said fan-casing, a motor-fan mounted on the shaft, within one compartment, and provided with curved blades facing in one direction, and a suction and forcing fan fast with said fan-shaft, within the other compartment, and having curved blades which face in a reverse direction to the blades on the motor-fan, combined with an air-purifying tank having its air-intake opening in the same direction as the motor-fan intake, a pipe connecting said tank with the suction and forcing fan, and a distributing-pipe leading from the suction and forcing fan, substantially as described.

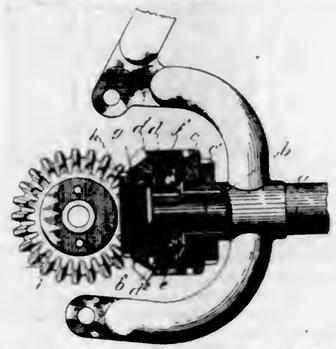
662,880. INKING-ROLL TRUCK FOR PRINTING-PRESSES. JOHN H. SCHUEHLER, Denver, Colo., assignor of one-half to William M. Caldwell, same place. Filed Apr. 12, 1900. Serial No. 12,586. (No model.)



Claim.—1. The combination with an auxiliary inking-roller for printing-presses, and spring-actuated rods connected with said roller and having a tendency to hold the latter against the printing-surface, of a truck composed of two parts, namely, a low-tread part and a high-tread part, a connection between the two truck parts whereby they are normally held in contact but allowed to separate, and a track having a truck outwardly beveled at its lower portion in the path of the high-tread part of the truck whereby as the high-tread truck part reaches this bevel in its downward travel, the spring-actuated rods, acting on the roller, pull the high-tread part on each end of the roller, from the track whereby as the roller moves upwardly each high-tread truck part travels outside the track allowing the roller to engage the printing-surface.

2. The combination with an auxiliary inking-roller for printing-presses, and spring-actuated rods connected with said roller and having a tendency to hold the latter against the printing-surface, of a truck mounted on each extremity of the roller, each truck being composed of two parts, namely, a low-tread and a high-tread part, the latter having a rounded or beveled inner corner, a connection between the two parts of each truck whereby they are normally held in contact but allowed to separate, and a track for the truck outwardly beveled at its lower portion in the path of the high-tread part of the truck whereby as the high-tread part reaches this bevel in its downward movement, the spring-actuated rods acting on the roller pull the high-tread part from the truck bringing the roller in contact with the printing-surface ready for its upward movement.

662,881. BACK-PEDALING BRAKE. HERBERT P. SEYMOUR, Hartford, Conn., assignor, by mesne assignments, to the American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed Apr. 23, 1898. Serial No. 678,556. (No model.)



Claim.—1. In a gear-driven vehicle, a connecting-shaft included in the driving means, a recess in the shaft, a gear mounted on and driven by said shaft and having a limited reverse rotary movement independent thereof, an arm thereon of a width less than the width of said recess, a brake-drum secured to a frame member, a brake-ring carried by the shaft with one end connected to the shaft and the other connected to the gear which is movable thereon, and a driving-wheel of the vehicle operatively connected with said gear on the connecting-shaft.

2. In a gear-driven vehicle, a tubular frame member, a connecting-shaft extending through said member, a cone on said shaft having a recess, a gear mounted on and driven by said shaft and having a limited reverse rotary movement independent thereof, an arm extending from the gear into and of a width less than said recess, a brake-drum secured to a frame member, a brake-ring located on the cone with one end in the path of movement of said arm and the other end resting against a shoulder on the cone, and a driving-wheel of the brake operatively connected with said gear on the connecting-shaft.

3. In a gear-driven vehicle, a connecting-shaft included in the driving means, a bevel-gear mounted on and having a limited reverse rotary movement independent of said shaft and driven thereby, an arm extending from the back of said gear into a brake-drum, a brake-drum secured to a frame member, a brake-ring with one end located in the path of movement of said arm and the opposite end resting against a shoulder on the connecting-shaft, and a driving-wheel of the vehicle having a bevel-gear in mesh with the bevel-gear on the connecting-shaft.

4. In a gear-driven vehicle, a connecting-shaft included in the driving means, a cone secured to said shaft, a bevel-gear located in a peripheral recess in the connecting-shaft and having a limited reverse rotary movement independent thereof, an arm projecting from the back of said gear into a brake-drum, the brake-drum secured to a frame member, a brake-ring located in the drum with one end in the path of movement of said arm and the opposite end resting against a shoulder on the shaft, and a driving-wheel of the vehicle having a bevel-gear in mesh with the bevel-gear on the connecting-shaft.

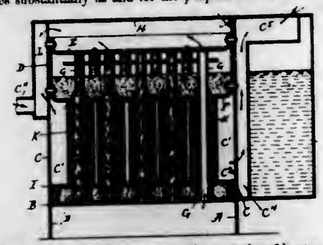
5. In a gear-driven vehicle, a connecting-shaft included in the driving means, a cone secured to the shaft and having a recess in the periphery thereof, a bevel-gear secured to the shaft and having an arm extending from the back of said gear into the recess in the cone, a brake-drum secured to the frame of the machine, a brake-band supported by the cone and with one end in engagement therewith and the opposite end resting against the arm on the gear, and a driving-wheel of the vehicle having a bevel-gear in mesh with the gear on the connecting-shaft.

6. In a gear-driven vehicle, a connecting-shaft included in the driving means, a bevel-gear mounted on and having a limited reverse rotary movement independent of said shaft and driven thereby, an arm extending from said gear into a brake-drum, the brake-drum secured to a frame member, a brake-ring with one end located in the path of movement of said arm and the opposite end resting against a shoulder on the connecting-shaft, and a bevel-gear in mesh with the bevel-gear on the connecting-shaft.

662,882. STEAM-GENERATOR. LORING D. SHAW, Chelsea, Mass., assignor of three-eighths to Thomas W. Gowen, Malden, Mass. Filed Sept. 17, 1900. Serial No. 30,226. (No model.)

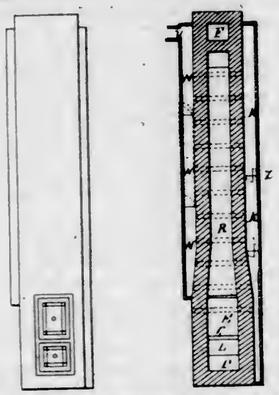
Claim.—1. In a steam-generator, in combination a series of heater-tubes G, leading from the fire-pot to a smoke-chamber a series of water-tubes surrounding said heater-tubes and a series of open-ended deflector-

tubes O, arranged in the annular spaces between the heater-tubes and water-tubes substantially as and for the purpose set forth.



2. In a steam-generator in combination, a series of heater-tubes leading from the fire-pot to the smoke-chamber a series of water-tubes leading from the upper and lower water-spaces and surrounding the said heater-tubes, a heater or exhaust chamber in which said water and heater tubes are arranged, a conduit connecting said smoke-chamber and exhaust-chamber with the steam-exhaust and a valve or gate for direct or indirect exhaust of the heated products from the furnace substantially as and for the purpose set forth.

662,883. **HOT-AIR FURNACE.** ANDERS G. SÖDERLUND, Stockholm, Sweden, and FREDRIK W. LÖNNBECK, Ekenäs, Russia; said Söderlund assignor to said Lönnbeck. Filed Aug. 12, 1899. Serial No. 726,991. (No model.)

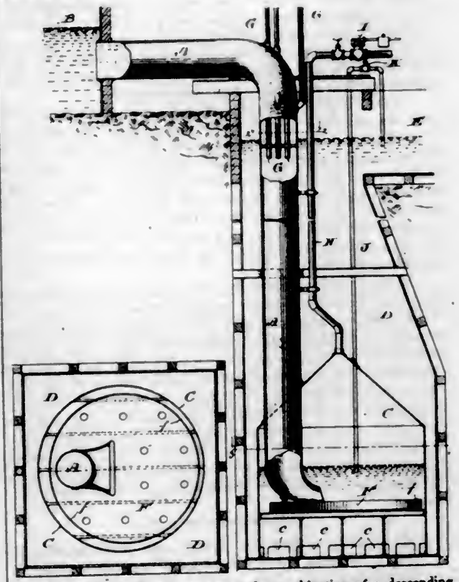


Claim.—In an air-heating apparatus, the combination of a masonry casing, a furnace therein, a series of claywork baffle-plates extending alternately from opposite extremities of said casing, and arranged in staggered relation forming a circuitous flue for the products of combustion from said furnace, a smoke-outlet with which said flue communicates, an outer casing forming with said masonry casing hot-air and cold-air chambers on opposite sides of said masonry casing respectively, a series of tubes embedded in said baffle-plates, and providing communication between the hot and cold air chambers respectively and a vertical series of adjustable dampers arranged in the said hot and cold air chambers and adapted to control the length of the path of the air through said heating-tubes, substantially as set forth.

662,884. **HYDRAULIC AIR-COMPRESSOR.** FRED C. STARKE, Milwaukee, Wis., assignor of two-thirds to Claude L. Franklyn and John K. Russell, same place. Filed July 30, 1900. Serial No. 25,234. (No model.)

Claim.—1. In a hydraulic air-compressor the combination of a compressed-air chamber, an ascending water-conduit into which said chamber opens at the bottom, a spreading-table in said chamber above the outlet-opening at the bottom thereof, a descending conduit having a water-intake opening and air-inlet at the upper end and a lateral outlet-opening at its lower end which projects into one side of said chamber over said table and is directed across said table toward the opposite side of said chamber and an air-delivery pipe leading out of the upper part of said chamber, substantially as and for the purposes set forth.

2. In a hydraulic air-compressor the combination of an ascending water-conduit, a chamber opening at or near the bottom into the lower part of said conduit, an air-delivery pipe leading out of the upper part of said chamber, a horizontally-disposed water-spreading table inclosed in said chamber above the outlet-opening from the bottom thereof and having an upturned rim, a descending conduit or pipe having a water-intake opening above the upper outlet end of the ascending conduit, and a laterally-directed discharge-opening at its lower end which projects at one side of said chamber over said table and air-inlets leading from a point above the level of the water-supply into the upper end of the descending conduit below the level of the water-supply, substantially as and for the purposes set forth.



3. In a hydraulic air-compressor the combination of a descending water conduit or pipe having a water-intake opening and air-inlets at the upper end and a laterally-directed and horizontally-extended discharge-opening at the lower end, an air-separating chamber into one side of which the lower end of said conduit or pipe projects and opens, an ascending water-conduit leading out of the lower part of said chamber and having a discharge-opening below the water-intake opening at the upper end of the descending conduit, a horizontally-disposed spreading-table located in said chamber between its outlet and the discharge-opening of the descending conduit, and an air-delivery pipe leading out of the upper part of said chamber, substantially as and for the purposes set forth.

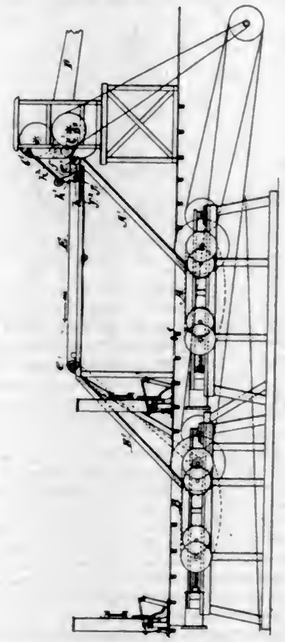
4. In a hydraulic air-compressor the combination of a separating-chamber, an ascending water-conduit with which said chamber communicates at the bottom, a perforated spreading-table arranged horizontally in said chamber above its outlet, a space being left all around between it and the walls of said chamber, a descending water conduit or pipe extending above the ascending conduit and having at its upper end a water-intake and air-inlet and at its lower end, which projects into said chamber, a lateral discharge-opening directed across said table toward the opposite side of said chamber, and an air-delivery pipe leading out of the upper part of said chamber, substantially as and for the purposes set forth.

5. In a hydraulic air-compressor the combination of a separating-chamber, an ascending water-conduit with which said chamber communicates at the bottom, a descending water-conduit having at its upper end a water-intake and air-inlet and at its lower end, which projects into one side of said chamber, a laterally-directed discharge-opening, a water-spreading table arranged horizontally in said chamber directly below the discharge-opening of said descending conduit, a space being left all around said table and the walls of said chamber and said space being narrower on the side of said table toward which the water is discharged from the descending conduit and increasing in area toward the other side, and an air-delivery pipe leading out of said chamber, substantially as and for the purposes set forth.

6. In a hydraulic air-compressor the combination of a separating-chamber, an ascending water-conduit with which said chamber communicates at the bottom, a spreading-table arranged horizontally in said chamber above the bottom, a descending water-pipe bent horizontally and terminating in an intake-opening at its upper end and projecting into said chamber and having a lateral discharge-opening over said spreading-table at its lower end, air-inlet pipes leading through the wall of said descending pipe at or near the bend or elbow at its upper end from a point above to a point below the level of the water-supply, and an air-delivery pipe leading out of the upper part of said chamber, substantially as and for the purposes set forth.

7. In a hydraulic air-compressor the combination of a separating-chamber having a conical top and an outlet around the bottom, an ascending water-conduit into which said outlet opens, an air-delivery pipe leading out of the apex of said chamber, a spreading-table within said chamber above the outlet at the bottom thereof and a descending pipe having a water-intake and air-inlet at its upper end and a lateral discharge-opening at its lower end which projects at one side of said chamber over said table, substantially as and for the purposes set forth.

662,885. **MECHANISM FOR PRODUCING CYLINDRICAL COTTON BALES.** MAGNUS SWENSON, Chicago, Ill., assignor, by mesne assignments, to the American Cotton Company, New York, N. Y. Filed Oct. 14, 1895. Serial No. 565,556. (No model.)



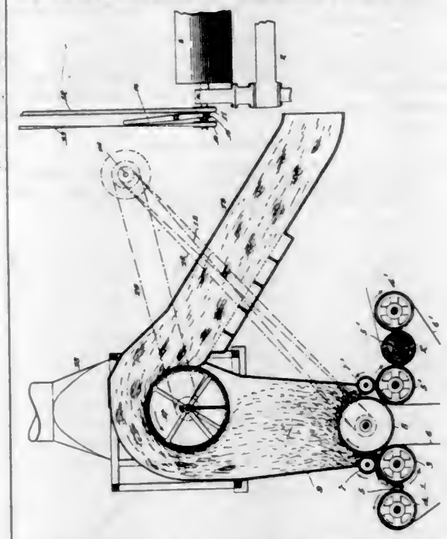
Claim.—1. The combination, as herein set forth, of a condenser with two sets of rotary cotton-pressing appliances arranged tandem fashion, an inclined feed-chute for receiving the bat directly from the condenser and delivering it to one of the said rotary cotton-pressing appliances and an adjustable conveyer for intercepting the bat and conducting it forward and delivering it to the other of said rotary cotton-pressing appliances.

2. The combination, as herein set forth, of the two inclined feed-chutes A′ and B′ and two sets of rotary cotton-pressing appliances, with the condenser C, and the adjustable endless carrier E, as and for the purpose set forth.

662,886. **COTTON-BALING APPARATUS.** MAGNUS SWENSON, Chicago, Ill., assignor to the American Cotton Company, New York, N. Y. Filed Aug. 15, 1899. Serial No. 727,260. (No model.)

Claim.—1. In a cotton-baling apparatus, the combination of two rotary cotton-pressing appliances, two bat-formers arranged adjacent to each other and connected respectively with the cotton-pressing appliances, a perforated cylinder mounted above the bat-formers and by which the cotton will be deposited into the bat-formers in a light and fluffy state and means for operating said bat-formers to form first in one a bat which is directed to one of the cotton-pressing appliances and then in the other a bat which is directed to the other cotton-pressing appliance, whereby such cotton-pressing appliances will be operated in alternation, substantially as set forth.

2. In a cotton-baling apparatus, the combination of two cotton-presses arranged in line, two bat-formers arranged in line above said presses and connected respectively therewith, means for depositing cotton in the bat-formers in a light and fluffy state and means for operating said bat-formers to form first in one a bat which is directed to one of the cotton-pressing appliances and then in the other a bat which is directed to the other cotton-pressing appliance, whereby such cotton-pressing appliances will be operated in alternation, substantially as set forth.



3. In a cotton-baling apparatus, the combination of two cotton-presses arranged in line, two bat-formers arranged in line above said presses and connected respectively therewith, a perforated cylinder mounted above the rollers for depositing cotton therein in a light and fluffy state and means for operating said bat-formers to form first in one a bat which is directed to one of the cotton-pressing appliances and then in the other a bat which is directed to the other cotton-pressing appliance, whereby such cotton-pressing appliances will be operated in alternation, substantially as set forth.

4. In a cotton-baling apparatus, the combination of two cotton-presses, a roller mounted above each of said presses and constituting one of the movable elements of a bat-former for each press, a moving surface coöperating with each of said rollers and movable in an opposite direction from the peripheries thereof, said surface constituting the other element of the bat-former for each press, and means for depositing the cotton into said bat-formers in a light and fluffy state, substantially as set forth.

5. In a cotton-baling apparatus, the combination of two cotton-presses, a roller mounted above each of said presses and constituting one of the movable elements of a bat-former for each press, a moving surface coöperating with each of said rollers and movable in an opposite direction from the peripheries thereof, said surface constituting the other element of the bat-former for each press, and a perforated cylinder for depositing the cotton into said bat-formers in a light and fluffy state, substantially as set forth.

6. In a cotton-baling apparatus, the combination of two cotton-presses, a combined pressure and bat-forming roller for each press, a movable surface coöperating with either of said rollers for forming in conjunction therewith a sheet or bat for either press, and means for depositing cotton between either of said rollers and said surface in a light and fluffy state, substantially as set forth.

7. In a cotton-baling apparatus, the combination of two cotton-presses, a combined pressure and bat-forming roller for each press, a movable surface coöperating with either of said rollers for forming in conjunction therewith a sheet or bat for either press, and a perforated cylinder for depositing cotton between either of said rollers and said surface in a light and fluffy state, substantially as set forth.

8. In a cotton-baling apparatus, the combination of two cotton-presses arranged end to end, a combined pressure and bat-forming roller for each press, a drum mounted between said rollers and coöperating alternately therewith, and means for depositing cotton in a light and fluffy state between said drum and either of said rollers, substantially as set forth.

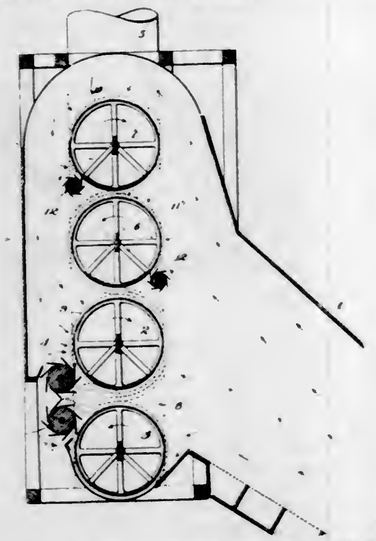
9. In a cotton-baling apparatus, the combination of two cotton-

presses arranged end to end, a combined pressure and bat-forming roller for each press, a drum mounted between said rollers and coöperating alternately therewith, and a perforated cylinder for depositing cotton in a light and fluffy state between said drum and either of said rollers, substantially as set forth.

10. In a cotton-baling apparatus, the combination of two cotton-presses arranged end to end, a combined pressure and bat-forming roller for each press, a drum mounted between said rollers and coöperating alternately therewith, and means for reversing the rotation of said drum, substantially as set forth.

11. In a cotton-baling apparatus, the combination of two cotton-presses arranged end to end, a combined pressure and bat-forming roller for each press, a drum mounted between said rollers and coöperating alternately therewith, means for reversing the rotation of said drum, and a perforated cylinder mounted above said drum and rollers, substantially as set forth.

662,887. COTTON-CONDENSER. MAGNUS SWENSON, Chicago, Ill., assignor to the American Cotton Company, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,383. (No model.)



Claim.—1. An improved condenser comprising in combination a condenser-cylinder on which a sheet or bat is formed, means for withdrawing the sheet or bat therefrom, and a second condenser-cylinder adjacent to the first and on which a sheet or bat is formed, the sheet or bat from the second condenser-cylinder being directed to and carried around by the first and being removed from the same by the bat-withdrawing device, substantially as set forth.

2. An improved condenser comprising in combination a condenser-cylinder on which a sheet or bat is formed, means for withdrawing the sheet or bat therefrom, a second condenser-cylinder adjacent to the first and on which a sheet or bat is formed, the sheet or bat from the second condenser-cylinder being directed to the first and being removed from the same by the bat-withdrawing device, and a third condenser-cylinder adjacent to the second and on which a sheet or bat is formed which is directed successively to the second and first condenser-cylinders and removed from the latter by the bat-withdrawing device thereof, substantially as set forth.

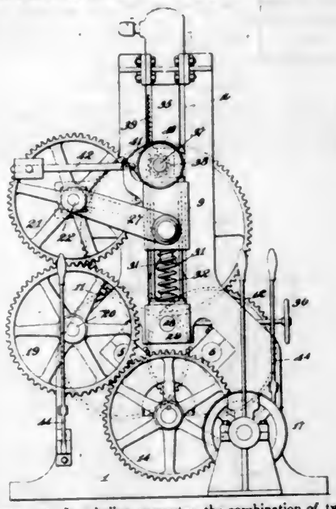
3. In a condenser, the combination of a condenser-cylinder, a doffer-roll coöperating therewith, and a second condenser-cylinder adjacent to the first and feeding a sheet or bat to and which is carried around by the first cylinder, substantially as set forth.

4. In a condenser, the combination of a condenser-cylinder, a doffer-roll coöperating therewith, a second condenser-cylinder adjacent to the first and feeding a sheet or bat to and which is carried around by the first cylinder, and a doffer-roll for the second cylinder, substantially as set forth.

5. In a condenser, the combination of a condenser-cylinder, a doffer-roll therefor, and two additional condenser-cylinders arranged in line adjacent to the same and forming separate sheets or bats which are directed to the first cylinder, substantially as set forth.

6. In a condenser, the combination with a pair of condenser-cylinders and doffer-rolls, of an additional cylinder arranged adjacent to one of said cylinders and forming a separate sheet or bat which is directed to the adjacent cylinder, substantially as set forth.

662,888. APPARATUS FOR BALING COTTON. MAGNUS SWENSON, Chicago, Ill., assignor to the American Cotton Company, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,384. (No model.)



Claim.—1. In a baling apparatus, the combination of two baling-rolls mounted in fixed bearing-boxes, side by side, a baling-roll movable vertically toward and away from the stationary baling-rolls, a core on which the bale is formed, springs connecting the core with the bearings of the movable roll, and guides connecting the core-bearings with the bearings of the movable roll permitting a relative movement of said bearings, substantially as set forth.

2. In a baling apparatus, the combination of a pair of baling-rolls mounted in stationary bearing-boxes, a movable baling-roll coöperating with the stationary baling-rolls, gears on the shafts of the stationary baling-rolls, a fixed counter-shaft, a pinion engaging both of said gears and carried by the counter-shaft, connections between the counter-shaft and the movable roll for rotating the latter, a gear carried by the shaft of the movable baling-roll, a sliding counter-shaft mounted in movable bearings, a pinion on the sliding counter-shaft for engaging the gear on the movable baling-roll, and connections between the fixed counter-shaft and the sliding counter-shaft, substantially as set forth.

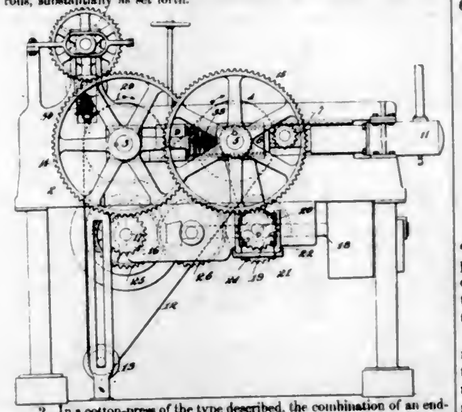
3. In a baling apparatus, the combination of a pair of baling-rolls mounted in stationary bearing-boxes, a movable baling-roll coöperating with the stationary baling-rolls, overlapping gears on the shafts of the stationary baling-rolls, a fixed counter-shaft, a double-faced pinion engaging both of the overlapping gears and carried by the counter-shaft, connections between the counter-shaft and the movable roll for rotating the latter, a gear carried by the shaft of the movable baling-roll, a sliding counter-shaft mounted in movable bearings, a pinion on the sliding counter-shaft engaging the gear on the movable baling-roll, and connections between the fixed counter-shaft and the sliding counter-shaft, substantially as set forth.

4. In a baling apparatus, the combination of a stationary baling-roll, a movable baling-roll mounted above the same and coöperating therewith, a single-acting hydraulic cylinder for applying pressure to the movable baling-roll, and means for resisting downward movement of the movable baling-roll, substantially as set forth.

5. In a baling apparatus, the combination of a stationary baling-roll, a movable baling-roll mounted above the same and coöperating therewith, a single-acting hydraulic cylinder for applying pressure to the movable baling-roll, and a brake device carried with the movable baling-roll for resisting downward movement thereof, substantially as set forth.

662,889. COTTON-PRESS. MAGNUS SWENSON, Chicago, and HAAKON S. RINGI, Chicago Heights, Ill., assignors to the American Cotton Company, New York, N. Y. Filed Feb. 24, 1900. Serial No. 6,389. (No model.)

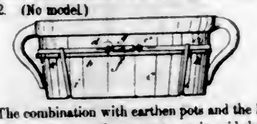
Claim.—1. In a cotton-press of the character described, the combination with two baling-rolls, a core between them, and means for operating said rolls, of a pair of compression-rollers adjacent to the baling-rolls and between which the sheet or bat is passed before being fed to the core, connections between said compression-rollers and the baling-rolls for driving said compression-rollers, and a clutch in such connections for stopping the compression-rollers without arresting the rotation of the baling-rolls, substantially as set forth.



2. In a cotton-press of the type described, the combination of an endless belt having a loop or bight in which the bale is formed, and a baling-roll over which the belt passes, said baling-roll being provided with curved or rounded surfaces coincident with the edges of the belt, substantially as set forth.

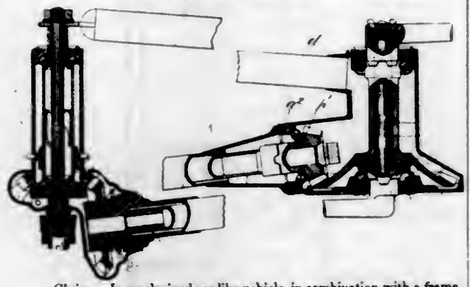
3. In a cotton-press, the combination of a pair of baling-rolls mounted in the same plane, one of said rolls having curved or rounded edges, a core mounted between said baling-rolls, and a belt passing over the rolls and adjacent to the core, the edges of said belt being located coincident with the curved or rounded surfaces of the baling-roll, substantially as set forth.

662,890. ADJUSTABLE METAL FITTING FOR EARTHENWARE. REINHOLD BORSDORF, Pulsnitz, Germany. Filed Nov. 13, 1899. Serial No. 736,832. (No model.)



Claim.—The combination with earthen pots and the like, an annular shoulder on the external surface thereof, recesses in said shoulder, a downwardly-projecting circular rib on the bottom edge of the pots, corresponding recesses in said rib, a concentric circular rib on the bottom surface of the pots, and corresponding recesses in said rib, of a circular metal band fitted around the pots and resting on the said annular shoulder, a plurality of bands suitably secured to said circular band and extending downwardly and across the bottom surface of the pots through the said recesses, and means for easily and readily tightening and loosening said circular band, substantially as and for the purpose set forth.

662,891. CHAINLESS VELOCIPEDE. JAMES S. COPELAND, Hartford, Conn. Filed Apr. 23, 1898. Serial No. 678,555. (No model.)



Claim.—In a velocipede or like vehicle, in combination with a frame, wheels and driving mechanism, a driving-wheel axle threaded at both ends, mounted at one end in a frame member and at the other in a removable latch, a sleeve surrounding the axle and supporting bearing-cones, a wheel-hub surrounding the sleeve and containing bearing-cases, a sleeve screwed into the latch and onto the axle and abutting against the first sleeve and then secured by a lock-nut, the first sleeve abutting at the other end against the frame member and secured by a lock-nut on the axle on the outer side of the frame member.

662,892. MOISTENING DEVICE. HARRY B. DALTON, Kansas City, Mo. Filed Dec. 13, 1897. Serial No. 661,625. (No model.)



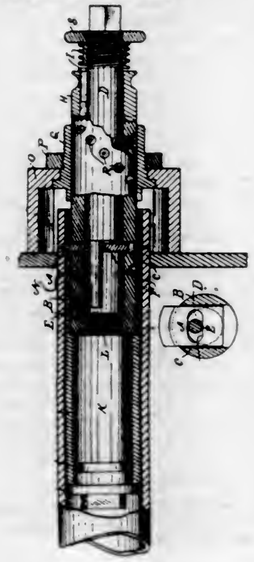
Claim.—1. A moistening device comprising a rectangular receptacle provided with two perforated parallel walls, a guide-plate disposed oppositely to each of said perforated walls, a bolt extending through the receptacle and securing the guard-plates thereto, and supporting devices on the receptacle adapted to engage the walls of a packing-case, substantially as described.

2. A moistening device comprising a perforated receptacle for moistening material, an imperforate guard covering the perforated receptacle and secured thereto but provided with an intervening air-space for the escape of moisture around the edges of the guard, and supporting means for the receptacle, substantially as described.

3. A moistening device comprising a perforated receptacle for moistening material, an imperforate plate covering the said perforations but out of direct contact with the receptacle, a guiding-tube on each end of the receptacle, two pointed devices mounted in each of said tubes, and a spring in each of said tubes bearing against the two pointed devices located therein, substantially as described.

4. A moistening device comprising a rectangular receptacle provided with two perforated walls, an imperforate guard-plate covering each of said perforated walls but having an air-space between the receptacle and the guard-plates, a bolt passing through the receptacle and secured to the guard-plates, two tubes secured one to each end of the receptacle, two pointed bolts mounted in each tube with the pointed ends out, and a spring in each tube bearing against the two bolts tending to force them outwardly, substantially as described.

662,893. BOILER-TUBE CUTTER. DAVID E. DAVIS, Milwaukee, Wis., assignor of one-half to Wallace C. Davis, same place. Filed Mar. 15, 1900. Serial No. 8,763. (No model.)



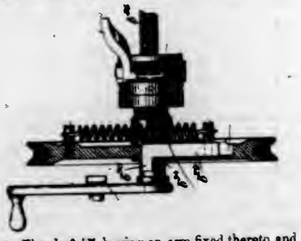
Claim.—1. In a boiler-tube cutter, the combination with the supporting-sleeve B of the cutting-tool; and the operating-shank D, of a separate extension bearing or trunnion K removably affixed to said tool-supporting sleeve; and a removable extension-sleeve J, supported by and upon said trunnion, substantially as and for the purpose specified.

2. In a boiler-tube cutter, the combination with a tool-supporting sleeve B, and an operating-shank D, of a separate extension bearing or trunnion K connected at one end by screw-threaded joint to said tube-supporting sleeve; an extension-sleeve J supported by and upon said trunnion and one or more series of ball-bearings, interposed between said trunnion and said sleeve, substantially as and for the purpose specified.

3. In a boiler-tube cutter, the combination with a tool-supporting sleeve and an operating-shank, of an extension-bearing, consisting of a trunnion rigidly affixed to said supporting-sleeve; and an inclosing sleeve supported upon said trunnion; and a screw-threaded gage-collar adjustably secured by screw-threads to a corresponding thread formed upon the periphery of said tool-supporting sleeve, substantially as and for the purpose specified.

4. In a boiler-tube cutter, the combination with a tool-supporting sleeve; an operating-shank; a trunnion rigidly affixed to said tool-supporting sleeve; a revoluble sleeve supported by and upon said trunnion; a gage-collar adjustably secured to said tool-supporting sleeve; a serrated feed-collar, the teeth of which are adapted to mesh with corresponding teeth formed in one end of said tool-supporting sleeve; an adjustable hand-nut having screw-threaded bearings on the operating-shank; and a tension-spring interposed between said hand-nut and the opposing end of said feed-collar, all substantially as and for the purpose specified.

662,894. CLUTCH-PULLEY. WILLIAM W. DIXON, Boston, Mass., assignor to the Reece Button Hole Machine Company, Portland, Me. Filed Apr. 29, 1898. Serial No. 679,175. (No model.)



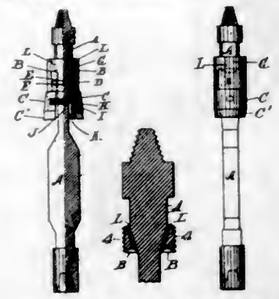
Claim.—1. The shaft b^{30}, having an arm fixed thereto and provided with a tooth, combined with a clutch-starting pulley mounted loosely on said shaft and provided at its inner side with a pocket or guideway, a bunter fitted to slide in said pocket or guideway, and a spring connected with said pulley and with said bunter and adapted to move the same longitudinally, said guideway and bunter being located wholly within the periphery of the said pulley, combined with means to move said pulley longitudinally on said shaft to effect the engagement of the said bunter with the tooth of the said fixed arm to start the shaft, the opposite movement of the said pulley causing the bunter to retire from said tooth, leaving the pulley free to be turned on the said shaft, substantially as described.

2. A starting-clutch device for buttonhole-sewing machines, the same consisting of a pulley adapted to be rotated constantly at a high speed about a shaft, said shaft having an arm provided with a rigid lump or tooth, a spring-supported bunter carried by said pulley, and means to change the position of said rapidly-rotating pulley in the direction of the axis of rotation of the said shaft to cause the bunter to engage at proper times the lump or tooth of the arm connected with the shaft, said pulley starting the shaft at a faster speed, said bunter yielding to the blow caused by engaging said lump or tooth and taking with it quickly the shaft.

3. A starting-clutch device for buttonhole-sewing machines, consisting of a shaft, having fast thereon an arm provided with a rigid tooth or lump, a pulley loosely mounted on said shaft and adapted to be constantly rotated at a high speed, the said pulley having on its inner face a pocket, an aperture through the pulley at the mouth of the said pocket, a spring-supported bunter having a shank fitted to slide in said pocket, the head of said bunter projecting through said aperture and extending beyond the outer face of the pulley, and means to shift the rapidly-rotating pulley longitudinally of the shaft to cause the bunter to engage at the proper time the lump or tooth on the said arm connected to the shaft, said bunter yielding under the impact of the blow caused by striking the tooth.

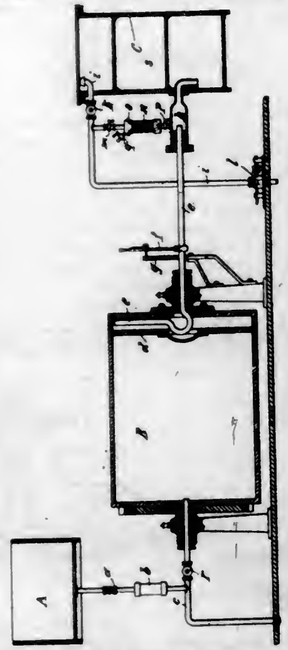
662,895. UNDERREAMER. WALTER DUNCAN, Los Angeles, Cal., assignor of one-half to Anthony H. Hedley, same place. Filed Apr. 4, 1900. Serial No. 11,547. (No model.)

Claim.—1. The herein-described underreamer, comprising the body A, provided with grooves B, one on each side thereof, and holes E and J therethrough, and channels L therein; cutters C, one on each side of body A near the top thereof, said cutters having sockets H; and holes D therethrough, and chamfers C' in the lower outer periphery thereof; spring I adapted to fit in said sockets and pass through hole J; pin F adapted to pass through holes D in the cutters, and hole E in body A, and collar G adapted to screw on body A and keep pin F in position, and to keep cutters C from having too great expansion.



2. The herein-described underreamer, comprising a shaft, circular at the top and bottom and reduced in size intermediate the circular portions, and having holes therethrough and channels therein, as shown; a groove in each side of the bottom of the upper circular portions; cutters having upper circular ends adapted to fit in said grooves; said cutters having holes extending through the upper ends, and sockets in the lower ends on the inner sides, and a chamfer around the outer lower edges thereof; a pin extending through a hole in the shaft and into the holes in the upper ends of said cutters; a spiral spring extending through a hole in the shaft, and having its ends housed in the sockets in the lower ends of said cutters; and a collar adapted to be screwed onto the upper circular part of the shaft and to project over the upper portion of the cutters.

662,896. TANNING APPARATUS. CARL J. M. FLEETWOOD, Freiberg, Germany. Filed Nov. 20, 1899. Serial No. 737,625. (No model.)



Claim.—1. In a tanning apparatus, the combination with a rotary tanning-drum, of a liquor-outlet pipe leading therefrom and adjustable independently of the drum, a filter in communication with the drum by means of said pipe, a testing-chamber communicating with said pipe, and a pump for drawing the liquor from the tanning-drum and through the filter, substantially as described.

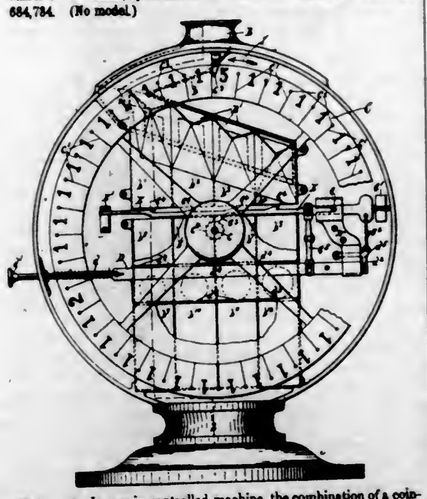
2. In a tanning apparatus, the combination of a rotary drum, a liquor-outlet pipe, with one end arranged therein, means to effect the movement or adjustment of said pipe independently of said drum, and a receptacle or vat adapted to contain filtering material, having communication with said pipe and an outlet-pipe for said vat or receptacle, connecting with a testing device and a pump for delivering the liquor thus purified or regenerated to the required destination, substantially as specified.

3. In a tanning apparatus, the combination of a rotary drum, means to supply the same with the tanning liquor, a separately movable or adjustable pipe with one end arranged interiorly of said drum, a vat or receptacle adapted to contain a filtering material, an air-tight pipe or nozzle connecting the aforesaid pipe and vat, an outlet-pipe for said vat connecting with a pump to deliver the liquor to required additional vats or vessels, substantially as described.

4. In a tanning apparatus, a rotary drum, a means for the supply of the liquor thereto, a separately movable or adjustable pipe, with one end arranged interiorly of said drum, an air-tight chamber or pipe communicating with said pipe, a receptacle or vat to contain a filtering material, an outlet-pipe for said vat, a testing device connected to said outlet-pipe, a pump connecting with said outlet-pipe, and a series or number of additional vats or vessels having pipe connections with said pump, substantially as set forth.

5. In a tanning apparatus, the combination of a rotary drum, means for the supply of the liquor thereto, a separately movable or adjustable pipe, with one end arranged within said drum, an air-tight chamber or pipe connecting with the aforesaid pipe, a vat or receptacle adapted to contain a filtering material and connected with said chamber, an outlet-pipe for said vat, a testing device connected with said outlet-pipe, a pump connected with said outlet-pipe, a series of additional vats or vessels having valved discharge-pipes, an additional pipe connecting with said discharge pipes and tanks, one at each end thereof, and with a pipe connecting with said rotary drum at its supply end and further pipes additional to discharge into said additional vats or vessels and into said end tanks, substantially as specified.

662,897. COIN-CONTROLLED MACHINE. JASON G. FRANCE and JAMES R. PEARSALL, Syracuse, N. Y. Filed June 30, 1898. Serial No. 684,784. (No model.)



Claim.—1. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, and a reciprocating controlling member for rotating the indicating-wheel, said controlling member being connected to the operating-piece and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose described.

2. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, and a reciprocating pivoted controlling member for rotating the indicating-wheel, said controlling member being connected to the operating-piece and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose specified.

3. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a reciprocating controlling member for rotating the indicating-wheel, said controlling member being normally arranged in its inoperative position and movable by the coin into its operative position, and a pivoted lever having its opposite ends connected to the operating-piece and the controlling member, substantially as and for the purpose described.

4. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, a pinion for actuating the indicating-wheel, an operating-piece, and a reciprocating controlling member connected to the operating-piece and provided with a shoulder or tooth for engaging and rotating the pinion, said controlling member being normally arranged in its inoperative position and movable by the coin for forcing its engaging shoulder or tooth into operative position, substantially as and for the purpose set forth.

5. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, a pinion for actuating the indicating-wheel, a reciprocating operating-piece, a reciprocating pivoted controlling member connected to the operating-piece and provided with a shoulder or tooth for engaging and rotating the pinion, said controlling member being normally arranged in its inoperative position and movable by the coin for forcing its engaging shoulder or tooth into operative position, and a pivoted lever having its opposite ends connected to the operating-piece and the controlling member, substantially as and for the purpose specified.

6. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a pair of slotted supports, and a controlling member provided with a substantially horizontal pivot movable in a substantially horizontal plane in the slot of one of the supports, said controlling member having one end movable in a substantially vertical plane in the slot of the other support, and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose described.

7. In a coin-controlled machine, the combination of a plurality of coin-guides, an indicating-wheel, an operating-piece, and a pivoted controlling member connected to the operating-piece and having one end provided with a counterbalance and its opposite end provided with a plurality of laterally-projecting shoulders extending into the paths of the coin movable through the coin-guides, said controlling member being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose set forth.

8. In a coin-controlled machine, the combination of a plurality of coin-guides, an indicating-wheel, an operating-piece, a pair of slotted supports, and a controlling member provided with a substantially horizontal pivot movable in a substantially horizontal plane in the slot of one of the supports, and having one end provided with a counterbalance and its opposite end movable in a substantially vertical plane in the slot of the other support and provided with a plurality of laterally-projecting shoulders extending into the paths of the coin movable through the coin-guides, said controlling member being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose specified.

9. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a stop for normally preventing the operation of the operating-piece, and means connected to the operating-piece and movable by the coin for forcing the stop out of its normal position, substantially as and for the purpose described.

10. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a stop for normally preventing the operation of the operating-piece, and a pivoted controlling member connected to the operating-piece and having one end connected to the stop for forcing the same out of its normal position and its other end arranged in the path of the coin and movable thereby, substantially as and for the purpose specified.

11. In a coin-controlled machine, the combination of a frame, a coin-chute, an indicating-wheel, a reciprocating operating-piece, a stop pivotally connected to the frame and normally engaged with the operating-piece for preventing the operation thereof, and means connected to the operating-piece and movable by the coin for forcing the stop out of its normal position, substantially as and for the purpose described.

12. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a stop for normally preventing the operation of the operating-piece, and means for rotating the indicating-wheel and moving the stop out of its operative position, said means being connected to the operating-piece and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose specified.

13. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, an operating-piece, a reciprocating pivoted controlling member for rotating the indicating-wheel and moving the stop out of its operative position, said controlling member being connected to the

operating-piece and being normally arranged in its inoperative position and movable by the coin into its operative position, and a pivoted lever having its opposite ends connected to the operating-piece and the controlling member, substantially as and for the purpose set forth.

14. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel, a pinion for actuating the indicating-wheel, a reciprocating operating-piece, a stop for normally preventing the operation of the operating-piece, a reciprocating pivoted controlliog member for moving the stop from its operative position, said controlling member beiug connected to the operating-piece and provided with a shoulder or tooth for engaging and rotating the pinion, and being normally arranged in its inoperative position and movable by the coin for moving said stop out of its operative position and forcing said engaging shoulder or tooth into operative position, and a pivoted lever having its opposite ends connected to the operating-piece and the controlling member, substantially as and for the purpose described.

15. In a coin-controlled machine, the combination of a plurality of coin-guides, an indicating-wheel, a pinion for actuating the indicating-wheel, an operating-piece, a stop for normally preventing the operation of the operating-piece, and a pivoted controlling member for moving the stop from its operative position, said controlling member being connected to the operating-piece and provided with a shoulder or tooth for engaging and rotating the pinion and additional shoulders extending into the paths of the coin movable through the coin-guides, and being normally arranged in its inoperative positiou and movable by the coin into its operative position, substantially as and for the purpose specified.

16. In a coin-controlled machine, the combination of a coin-chute, an indicating-wheel having a series of shoulders, a stop arranged in the path of the shoulders, said stop being movable in one direction by the shoulders and being prevented from movement in the opposite direction beyond its normal position, an operating-piece, and means for rotating the indicating-wheel, said means being connected to the operating-piece and actuated thereby and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose specified.

17. In a coin-controlled machine, the combination of a frame having one of its walls provided with a display portion, a coin-chute, an indicating-wheel, and an operating-piece for actuating the indicating-wheel, said operating-piece having a shoulder for supporting the coin in alinement with said display portion, substantially as and for the purpose set forth.

18. In a coin-controlled machine, the combination of a frame having one of its walls provided with a display portion, a coin-chute, an indicating-wheel, an operating-piece for actuating the indicating-wheel, said operating-piece having a shoulder for supporting the coin in alinement with said display portion, and a second shoulder arranged above the first shoulder and out of alinement therewith for preventing engagement of the coin with the first shoulder, substantially as and for the purpose described.

19. In a coin-controlled machine, the combination of a frame having a portion of one of its walls provided with a display portion, a plurality of coin-guides, an indicating-wheel, and an operating-piece for actuating the indicating-wheel, said operating-piece having a plurality of shoulders for supporting the coin in alinement with said guides and display portion, substantially as and for the purpose set forth.

20. In a coin-controlled machine, the combination of a frame having a portion of oneof its walls provided with a display portion, a plurality of coin-guides, an indicating-wheel, an operating-piece for actuating the indicating-wheel, said operating-piece having a plurality of shoulders for supporting the coin in alinement with said guides and display portion, and a second plurality of shoulders arranged above the first shoulders and out of alinement therewith for preventing engagement of the coin with the first shoulders, substantially as and for the purpose described.

21. In a coin-controlled machine, the combination of a frame having one of its walls provided with a display portion, a coin-chute, an indicating-wheel, an operating-piece for actuating the indicating-wheel, said operating-piece having a shoulder for supporting the coin in alinement with said display portion, and means for rotating the indicating-wheel, said means being connected to the operating-piece and actuated thereby and being normally arranged in its inoperative position and movable by the coin into its operative position, substantially as and for the purpose specified.

22. In a coin-controlled machine, the combination of a frame having a portion of one of its walls provided with a display portion, a coin-guide, an indicating-wheel, an operating-piece having a shoulder for supporting the coin in alinement with said guide and display portion, and a controlling member for rotating the indicating-wheel, said controlling member being connected to the operating-piece and provided with a shoulder extending into the path of the coin movable through the coin-guide, substantially as and for the purpose set forth.

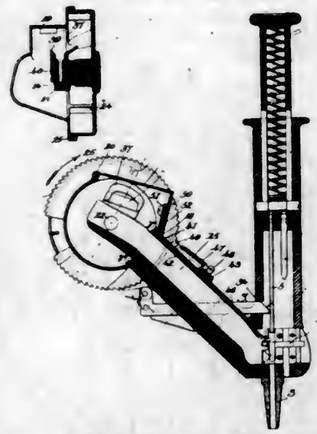
23. In a coin-controlled machine, the combination of a frame having one of its walls provided with a display portion, a coin-chute, an indicating-wheel, an operating-piece for actuating the indicating-wheel, said operating-piece having a shoulder for supporting the coin in alinement with said display portion, a stop for normally preventing the operation of the operating-piece, and means movable by the coin for forcing the stop out of its normal position, substantially as and for the purpose described.

24. In a coin-controlled machine, the combination of a frame having one of its walls provided with a display portion, a coin-chute, an indicating-wheel, an operating-piece for actuating the indicating-wheel, said operating-piece having a shoulder for supporting the coin in alinement with said display portion, a stop for normally preventing the operation of the operating-piece, and a controlling member for rotating the indicating-wheel and forcing the stop from its operative position, said controlling member being connected to the operating-piece, substantially as and for purpose specified.

25. The combination of a frame having one of its walls provided with a display portion, a plurality of coin-guides, an indicating-wheel, a pinion for actuating the indicating-wheel, a reciprocating operating-piece having a plurality of shoulders for supporting the coin in alinement with said display portion and a second plurality of shoulders arranged above the first shoulders and out of alinement therewith for preventing engagement of the coin with the first shoulders, a stop for normally preventing the operation of the operating-piece, a reciprocating pivoted controlling member for rotating the indicating-wheel and moving the stop from its operative position, said controlling member being connected to the operating-piece and provided with a shoulder or tooth for engaging and rotating the pinion, and being normally arranged in its inoperative position and movable by the coin for moving said stop out of its operative position and forcing said engaging shoulder or tooth into operative position, and a pivoted lever having its opposite ends connected to the operating-piece and the controlling member, substantially as and for the purpose described.

26. The combination of a frame having display portions, a coin-chute, a wheel having an indicating-surface movable in alinement with one of the display portions, and an operating-piece for actuating the indicating-wheel, said operating-piece naving a shoulder for supporting the coin in alinement with the other display portion, substantially as and for the purpose set forth.

662,898. HAND NAILING IMPLEMENT. EDWARD F. GRANDY, Everett, MASS. Filed Feb. 1, 1899. Serial No. 704,099. (No model.)



Claim.—1. In a hand nailing implement, the combination with a tack-driver, of a tack-feeding mechanism comprising a hopper secured upon one side of the raceway, and a tack-lifting device secured to the other side of the raceway, the hopper and tack-lifting device being in open communication with each other above and below the raceway, a deflecting-plate secured to the raceway and projected into the tack-lifting device and a yoke-shaped guard-plate located substantially in the plane of the open side of the tack-lifting device and spanning the deflecting-plate and acting to regulate the flow of tacks to the raceway, substantially as described.

2. In a hand nailing implement, the combination with a tack-driver, of a tack-feeding mechanism comprising a hopper, a raceway and a tack-lifting device, a deflecting-plate secured to the raceway and projected into the tack-lifting device, and a guard-plate located above the deflecting-plate and acting to cause an even flow of tacks to the raceway.

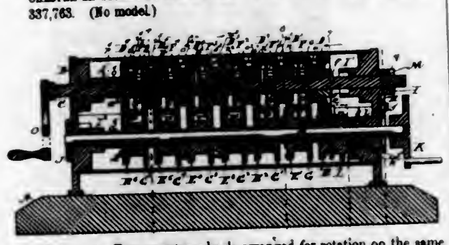
3. In a hand nailing implement, the combination with a hopper and raceway, of a combined clearer and striker, the clearer arranged to reciprocate along the upper surface of the raceway, and the striker arranged to reciprocate through an opening in the hopper to strike the tacks in said hopper, substantially as described.

4. In a hand nailing implement, the combination with a tacker and raceway, of a hopper secured to one side of the raceway, and a tack-lifting wheel secured to the opposite side of the raceway in open communication with each other, a slide-bar arranged to reciprocate in a guide secured to the raceway, said slide-bar having a beveled end projected into the tacker in the line of movement of the plunger, and carrying at its opposite end a spring-pawl arranged to engage ratchet-teeth on the tack-lifting wheel, a clearer reciprocating along the upper surface of the raceway, and means whereby the reciprocations of the plunger will reciprocate the slide-bar to rotate the tack-lifting wheel and reciprocate the clearer, substantially as described.

5. In a hand nailing implement, the combination with a hopper, of a raceway leading therefrom, a striker acting to force the tacks below the raceway backward into the hopper, and means for actuating the striker, substantially as described.

6. In a hand nailing implement, the combination with a hopper, of a raceway leading therefrom, a clearer and a striker acting respectively on the tacks above and below the raceway to force the tacks backward into the hopper, and means for actuating the clearer and striker, substantially as described.

662,899. COUNTING-REGISTER. HENRY WEIN, Malden, and CHESTER M. SPALDING, Boston, Mass. Filed Jan. 22, 1890. Serial No. 337,763. (No model.)



Claim.—1. Two register-wheels arranged for rotation on the same supported shaft, the first having its number representations located for display in the place of decimal notation next lower than that in which the second has its number representations so located, combined with intermediate gearing constructed and arranged to connect said register-wheels and actuate the second from the first through a driving gear-wheel engaging with it and on another supported shaft, the disengagement width of the gearing connecting the driving gear-wheel to the first register-wheel being greater, as the gears on one shaft are moved sidewise in one direction, than that of its own connection to the second register-wheel, and combined with said driving gear-wheel and said shafts and with means to give the gear-wheels on one shaft a limited sidewise motion in said direction relative to those upon the other, said excess of disengagement width being such as to permit the disengagement thereby of the driving gear-wheel from the second register-wheel but not from the first, combined also with means of rotating the register-wheels when so disconnected and the gearing connected with the first register-wheel, and means of reëngaging the second register-wheel with the gearing connecting it to the first, the various parts being constructed and arranged substantially as described.

2. A Geneva-gear register-wheel mounted on a supported shaft and connected for rotation with a Geneva driver on another supported shaft, said parts being combined with another register-wheel mounted on the same shaft as the first, and with intermediate gearing connecting the latter register-wheel to the driver to rotate it, and with means of giving a limited sidewise movement to the gears on one shaft relative to those on the other, the disengagement width, in said movement of the register-wheel first named in its connection with the driver being such, relative to that of the parts of the gearing connecting the other register-wheel with the driver which change their relative positions in said movement, as to leave for the purposes described, the driver after said movement connected with the latter register-wheel but disconnected from the other, all said parts being constructed and arranged substantially as described.

3. Two or more register-wheels arranged to show when rotated each its number representations at one of two or more observation-sections located in different consecutive places of decimal notation, each register-wheel showing number representations in a lower decimal place being connected to the register-wheel showing number representations in the next higher decimal place by gearing adapted to be actuated by the former register-wheel and thereby to actuate the latter register-wheel intermittent partial rotations, and lock it in place from rotation as described in the intervals between the same, one partial rotation at each rotation of said former register-wheel, but adapted not to be rotated by the register-wheel actuated by it when so locked, combined with mechanism adapted to disengage, for the purposes described, the register-wheels from the gearing which actuates them but not from the gearing they actuate, the several wheels and gears being provided with suitable supporting-shafts and means of holding them in place subject to the action of such mechanism, substantially as described.

4. A series of register-wheels D, D′, &c., on shaft C, each constructed and arranged to engage one of the drivers E, E′, &c., on shaft C′ to each of which register-wheels, except the one in the highest place of decimal notation, is attached one of the intermediate gears F, F′, &c., each arranged on shaft C to rotate one of the intermediate gears G, G′, &c., each attached to one of the drivers, each of which register-wheels has attached to it, and its attached intermediate gear, one of the wheel-pins o, o′, &c., combined with the case B having bearings for shafts C and C′ constructed to allow the shaft C to be moved longitudinally, as described, on which shaft are shaft-pins n, n′, &c., each in position to enter the circle of rotation of one of the wheel-pins in the longitudinal motion of shaft C, all combined with projection *f* on shaft C and with a series of springs u, u′, &c., arranged and attached as described to apply friction to each disengaged register-wheel, all said parts being constructed and arranged substantially as described.

5. The register-wheel D on shaft C and driver E on shaft C′, case B, means of ungearing wheel D from driver E by sidewise motion of the one relative to the position of the other, and of rotating wheel D for restoration, combined with the spring u having a support independent of wheel D holding it in position not to bear substantially on wheel D when engaged with driver E, when, of the spring and wheel D, an incline on the one is located in position to be presented to a projection of the other in the relative motion of the wheel to the position of the spring in the direction required for ungearing, in manner to raise the spring onto said projection to bear upon wheel D in its ungeared position as described.

6. Two Geneva-gear register-wheels combined with and arranged for rotation on the same supported shaft, and combined with and connected by intermediate gearing toothed to rotate, through a driver as part of it on another supported shaft, one register-wheel from actuation of the other one-tenth of a rotation to each complete rotation of the actuating register-wheel, said driver and shaft being included in the combination, the gearing connecting the driver and the actuating register-wheel having a greater disengagement width, as the gears on one shaft are moved sidewise in one direction relatively to those on the other, than the gearing has which connects the driver and said actuated register-wheel, combined with means of giving such sidewise motion to the gears on one shaft relative to the gears on the other limited to cease when the driver and actuated register-wheel are disconnected but before the disconnection of the driver and actuating register-wheel, and with means to rotate said register-wheels and the gear-wheels left connected with the actuating register-wheel, and with means of reëngaging said actuated wheel and driver, all said parts being constructed and arranged substantially as described.

7. In a counting-register a Geneva-gear register-wheel arranged on a supported shaft to engage with and be rotated by a Geneva driver on another supported shaft, means of ungearing the register-wheel from the driver and restoring said wheel while ungeared, all combined with a friction-spring, attached to a support independent of the register-wheel, and located and arranged to bear upon said wheel when ungeared, substantially as described.

8. Lever H pivoted to and combined with case B and having the teeth *g* and *r*, shaft C having the depression A and shaft C′ having a socket *s*, driver E attached to shaft C′ and register-wheel D all said parts being combined, and constructed and arranged substantially as described.

9. The combination of the lever H having the tooth *g*, case B, shaft C having depression A, and one or more of the register-wheels D, D′, &c., with means of keeping the same in place on shaft C.

10. The case B, shafts C and C′, register-wheel D, driver E, and the projection N on driver E located opposite the tooth of the driver in position to prevent wheel D and driver E from disengagement toward the side on which the projection is located when said driver is engaged by said tooth with wheel D.

11. In a counting-register a register-wheel and a driving gear-wheel which are adapted for engagement as gears and mounted on two supported shafts located relatively to each other in position to permit the engagement of said wheels as gears when brought in line together thereon, combined with said shafts, and with means of moving one of said wheels sidewise relatively to the other into gear engagement, combined also with an ineline *t* arranged for the purposes described at the edge of the gear periphery of one of said gears which edge the other passes when the gears are moved sidewise relatively to each other into gear engagement.

12. The shaft C having one or more of the shaft-pins *n*, *n*′, &c., thereon, each arranged in position to be projected into the circle of rota-

tion of one of the wheel-pins *o*, *o'*, &c., each on one of the register-wheels D, D', &c., by longitudinal motion of the shaft relatively to the register wheel or wheels thereon substantially as described, combined with the key M and case B having the slot *q*, in which the key is adapted to move, for the purposes described.

13. Slotted washer *s* combined with shaft C having bearings in case B and arranged for longitudinal motion therein and having the shaft-pin *n*, and with the register-wheels D. D'. and intermediate gear F and pin o.

14. Two register-wheels each adapted to bring to view at an observation-section, by its own rotation on a supported shaft, a series of number representations consecutively in a predetermined order, one wheel showing its series in one place of decimal notation, and the other its series in the next higher place, the wheel showing its series in the higher place being connected to and actuated by the other wheel through gearing adapted to communicate to the actuated wheel at each rotation of the actuating-wheel required to show its series at its observation-section, a partial rotation required to change the number representation brought to view by the actuated wheel, and adapted also to lock in place from rotation as described the actuated wheel showing such number representation until its next partial rotation to change the same, combined with means to disengage the actuated wheel from the connecting-gearing while the other wheel remains connected therewith, and, in the period of such disconnection, to rotate the two register-wheels, independently of each other, together with the connecting gear-wheels into the predetermined angular position required for the beginning of their rotation, and with means to reëngage in this position the actuated wheel with the gearing connecting it with the actuating register-wheel.

15. A series of register-wheels combined with and arranged on a shaft in consecutive places of decimal notation, and combined with gearing, connectieg each register-wheel in a lower decimal place with one in the next higher decimal place, and adapted as described to transmit intermittent partial rotations to the register-wheel in the higher place from the register-wheel in the lower place, and to lock from rotation the said register-wheel in the higher place between such partial rotations by one of the wheels of said connecting-gearing mounted on another shaft, combined with said shaft and with means to disengage each register-wheel from its locking gear-wheel without disengaging it from the gearing used to connect it with the register-wheel in the next higher decimal place, and to rotate each register-wheel, while so disengaged, and its connected gearing for the purposes described, and reëngage it with the locking gear-wheel, all said parts being constructed and arranged substantially as described.

662,900. CHUCK-OPERATING DEVICE. AUGUSTUS F. KUMMEL and CLARENCE L. GOODRICH, Hartford, Conn., assignors to The Pratt & Whitney Company, same place. Filed Feb. 5, 1900. Serial No. 4,115. (No model.)

Claim.—1. A rotatable work-carrier provided with laterally-movable jaws, a pinion provided with right and left hand threads for moving two or more of the jaws, and means for operating the pinion while the carrier is rotating.

2. A rotatable work-carrier, provided with laterally-movable jaws, a pinion having right and left hand threads for moving two or more of the jaws simultaneously, and a plunger mounted in a substantially concentric relation to the carrier for engaging with and rotating the pinion.

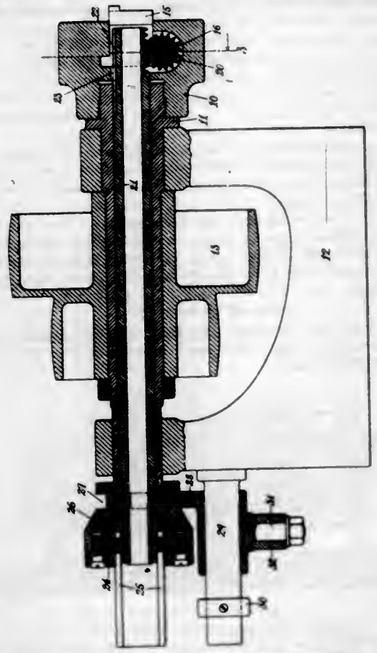
3. In combination with a rotatable carrier, provided with a pair of oppositely-disposed laterally-movable jaws, a pinion provided with right and left hand screw-threads for moving the jaws to and from each other, and a plunger operable from the rearward end of the carrier provided with teeth for engaging with those of the pinion and serving as a rack therefor.

4. In combination with a rotatable spindle, a chuck removably attached to the spindle and provided with laterally-movable jaws, a pinion provided with right and left hand screw-threads for opening and closing the jaws, and a plunger mounted in the spindle and provided with teeth for engaging with those of the pinion, whereby different chucks may be employed with the same spindle and plunger.

5. A rotatable work-carrier, provided with work-gripping jaws, a worm-wheel operatively connected with the jaws to open and close them upon the work, a plunger provided with a worm-thread for engaging with the worm-wheel, and means for arresting the rotation of the plunger with relation to that of the carrier, for operating the jaws.

6. A rotatable work-carrier provided with work-gripping jaws, a worm-wheel provided with right and left hand screw-threads engaging with the respective jaws for moving them simultaneously toward or from the center of rotation, a plunger provided with a worm-thread for engaging with the worm-wheel, and means for arresting the rotation of the plunger with relation to the rotating carrier, whereby the jaws of the work-carrier may be operated while rotating.

7. A rotatable work-carrier, provided with work-gripping jaws, a worm-wheel operatively connected with a plurality of the jaws to open and close them upon the work, a plunger journaled concentrically with the carrier, and provided with a worm-thread for engaging with the worm-wheel, the plunger being provided with a friction-disk, and means for applying friction thereto to arrest its rotation with relation to that of the carrier.



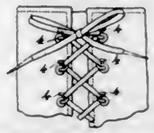
8. A rotatable work-carrier, provided with work-gripping jaws, a worm-gear for operating the jaws, a plunger having a worm-thread for operating the gear, mounted concentrically with the carrier, and arranged for longitudinal and rotary movement relative thereto, with means for imposing frictional resistance to the rotation of the plunger for the purpose specified.

9. A rotatable work-carrier, provided with work-gripping jaws, a worm-gear for operating the jaws, and a plunger provided with a worm-thread for operating the gear, and with a shoulder for receiving the thrust of the worm-thread.

10. A rotatable work-carrier, provided with work-gripping jaws, a worm-gear for operating the jaws, and a plunger provided with a worm-thread for operating the gear and with a thrust-collar supported for longitudinal movement between the shoulders of the carrier.

REISSUES.

11,874. LACING-HOOK FOR SHOES. HARRISON H. EATON, Cleveland, Ohio, assignor to the United Shoe Machinery Company, Paterson, N. J. Filed Sept. 6, 1900. Serial No. 29,192. Original No. 654,237, dated July 24, 1900.

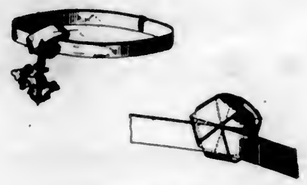


Claim.—1. A lacing-hook struck up from a single piece of wire and having a tubular shank, a collar about the top of the shank and a hook having its base centrally of the collar, and closing the top of said shank and extending upward and outward by the curves *a*, *a* and *b*, *b* to a position wholly outside the collar in its main portion, substantially as described.

2. A lacing-hook struck up from a single piece of wire and having a tubular shank, a collar about the top of the shank and a hook having its base centrally of the collar and closing the top of said shank and extending upward and outward by the curves *a*, *a* and *b*, *b* to a position wholly outside the collar in its main portion and provided with a dip, *d*, *d*, substantially as described.

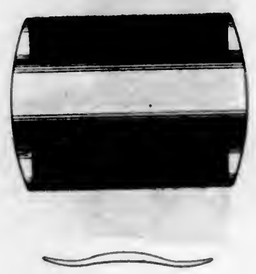
DESIGNS.

33,611. BRACELET. ISAAC V. ARVONEN, Calumet, Mich. Filed Apr. 14, 1900. Serial No. 12,940. Term of patent 7 years.



Claim.—The design for a bracelet herein shown and described.

33,612. COMB. FREDERICK W. GRELL, New York, N. Y., assignor to the American Hard Rubber Company, same place. Filed Aug. 31, 1900. Serial No. 28,714. Term of patent 14 years.



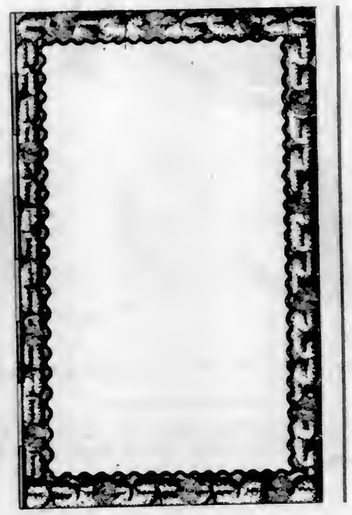
Claim.—The design for a comb substantially as described and shown.

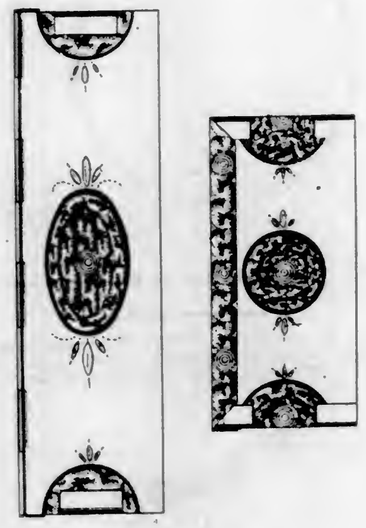
33,613. AIR-CUSHION. DANIEL HOGAN, New York, N. Y., and CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., assignors to the Meinecke & Company, New York, N. Y. Filed Nov. 1, 1900. Serial No. 35,181. Term of patent 14 years.



Claim.—The design for an air-cushion, as herein shown and described.

33,614. BOX OR RECEPTACLE. GUSTAV A. KRUTTSCHNITT, Newark, N. J. Filed Oct. 30, 1900. Serial No. 34,953. Term of patent 3½ years.





Claim.—The design for a box or receptacle, substantially as herein shown and described.

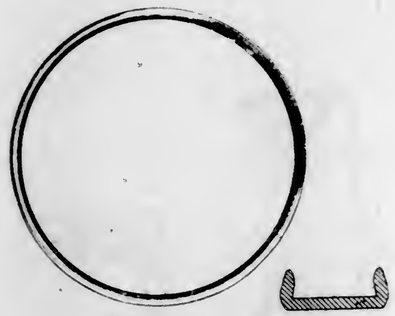
33,615. HOOF-PAD. CHARLES FRANK SMITH, Copenhagen, N. Y., assignor to Roderick W. McRae, Lowville, N. Y. Filed Oct. 26, 1900. Serial No. 34,512. Term of patent 7 years.

33,615.



Claim.—The design for a hoof-pad, substantially as shown and described.

33,616. VEHICLE-TIRE CHANNEL-RIM. JOHN G. WEBB, Springfield, Ohio. Filed Apr. 23, 1900. Serial No. 14,060. Term of patent 14 years.



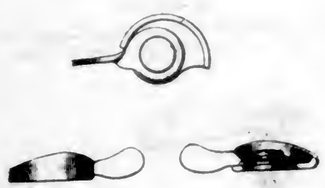
Claim.—The design for a vehicle-tire channel-rim, substantially as shown and described.

33,617. SAW-HANDLE. EDWIN F. SHAW, Philadelphia, Pa., assignor to the Henry Disston & Sons, Incorporated, same place. Filed Aug. 15, 1900. Serial No. 26,995. Term of patent 14 years.



Claim.—The design for a saw-handle as herein described and as illustrated in the accompanying drawing.

33,618. CAM FOR SASH-FASTENERS. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Aug. 3, 1900. Serial No. 25,841. Term of patent 14 years.



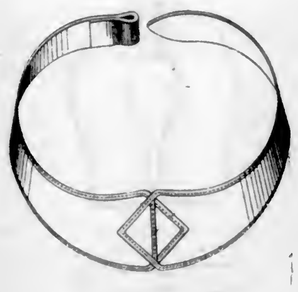
Claim.—The design for a cam for a sash-fastener herein shown and described.

33,619. STEEL RANGE. JOSEPH LÉON GOBEILLE, Cleveland, Ohio, assignor to the Youngstown Range and Stove Company, Youngstown, Ohio. Filed Oct. 24, 1900. Serial No. 34,220. Term of patent 7 years.



Claim.—The design for a range, substantially as described.

33,620. BELT. JOHN STEMBER, New York, N. Y. Filed Oct. 24, 1900. Serial No. 34,218. Term of patent 3½ years.



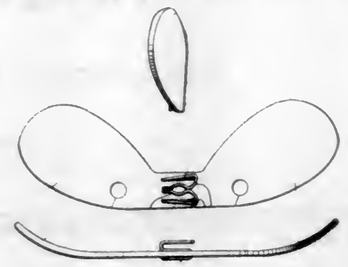
Claim.—The design for a belt herein shown and described.

33,621. BELT. WILLIAM WASSERSTROM, New York, N. Y. Filed Nov. 3, 1900. Serial No. 35,431. Term of patent 3½ years.



Claim.—The design for a belt herein shown and described.

33,622. BOW-SHIELD. IRVING V. PERRINE, East Orange, N. J., assignor to the Causey & Blanchard, New York, N. Y. Filed Oct. 26, 1900. Serial No. 34,508. Term of patent 3½ years.



Claim.—The design for a bow-shield, herein shown and described.

TRADE-MARKS

REGISTERED NOVEMBER 27, 1900.

35,489. BLACKBOARDS. C. F. WEBER COMPANY, Chicago, Ill. Filed Nov. 2, 1900.

HYLOPLATE

Essential feature.—The word "HYLOPLATE." Used since December 15, 1895.

35,490. TYPE-WRITER MANUALS AND REFERENCE-SHEETS USED THEREWITH. BATES TORREY, Boston, Mass. Filed Nov. 2, 1900.

TOUCHART

Essential feature.—The word "TOUCHART." Used since September 19, 1900.

35,491. BUCKLES, BUTTONS, AND CLASPS. AMERICAN STEEL BUCKLE CO., Baltimore, Md. Filed Oct. 30, 1900.

AGO

Essential feature.—The word "AGO." Used since October 10, 1900.

35,492. CERTAIN NAMED RUBBER GOODS. THE ALDEN RUBBER COMPANY, Barberton, Ohio. Filed July 16, 1900.

ARC

Essential feature.—The word "ARC." Used since August 1, 1899.

35,493. SHIRTS. CRUM & RUSHMORE, New York, N. Y. Filed Nov. 1, 1900.

KITE TAIL

Essential feature.—The words "KITE TAIL." Used since August 10, 1900.

35,494. DRILLINGS AND SHEETINGS. GEORGE WOOLLEY & CO., Manchester, England. Filed Oct. 30, 1900.



ARROWS

Essential feature.—The word "ARROWS" and a representation of arrows and arrow-heads. Used since January, 1871.

35,495. CERTAIN NAMED MUSICAL INSTRUMENTS. AEOLIAN COMPANY, Meriden, Conn., and New York, N. Y. Filed Oct. 30, 1900.

ORCHESTRELLE

Essential feature.—The word "ORCHESTRELLE." Used since November 6, 1894.

35,496. ASBESTOS CELLULAR-PIPE AND BOILER COVERING. H. W. JOHNS MANUFACTURING COMPANY, New York, N. Y.; Boston, Mass.; Philadelphia and Pittsburg, Pa.; Columbus, Ohio, and Chicago, Ill. Filed Oct. 4, 1900.

ASBESTOCEL

Essential feature.—The word "ASBESTOCEL." Used since July, 1900.

35,497. CONFECTIONERY IN TABLET FORM. THE GARDNER-LUCAS COMPANY, New York, N. Y. Filed July 17, 1900.



Essential feature.—A monogram composed of the letters "GLC." Used since October, 1898.

35,498. CERTAIN NAMED FOODS AND RELISHES. THE M. A. GEDNEY PICKLING COMPANY, Minneapolis, Minn. Filed Sept. 17, 1900.

HIAWATHA

Essential feature.—The word "HIAWATHA." Used since September 1, 1898.

35,499. NON-ALCOHOLIC BEVERAGES. THE NAVENA CO., Milton, Mass. Filed Aug. 21, 1900.

NAVENA

Essential feature.—The word "NAVENA." Used since August 17, 1900.

35,500. MALT EXTRACTS. D. LUTZ & SON BREWING COMPANY, Allegheny, Pa. Filed Nov. 3, 1900.

Lifinia

Essential feature.—The word "LIFINIA" in characteristic rope lettering. Used since July 1, 1900.

35,501. CATTLE-FOOD. AMERICAN MILLING COMPANY, Philadelphia, Pa. Filed Oct. 30, 1900.

SUCRENE

Essential feature.—The word "SUCRENE." Used since September, 1899.

35,502. CERTAIN NAMED MEDICINES. BORSCHERDT & ROTKOWITZ, New York, N. Y. Filed Oct. 30, 1900.

SILA

Essential feature.—The word "SILA." Used since October 1, 1899.

35,503. CERTAIN NAMED MEDICINE. E. M. REGIS & CO., Haverhill, Mass. Filed Oct. 24, 1900.

REX

Essential feature.—The word "REX." Used since July, 1880.

35,504. SIZING AND FINISHING PREPARATIONS FOR TEXTILE FABRICS. M. WARNIER & CO., New York, N. Y. Filed Oct. 30, 1900.

HERBOSINE

Essential feature.—The word "HERBOSINE." Used since March, 1900.

35,505. SIZING AND FINISHING PREPARATIONS FOR TEXTILE FABRICS. M. WARNIER & CO., New York, N. Y. Filed Oct. 30, 1900.

GLYCINE

Essential feature.—The word "GLYCINE." Used since September, 1900.

35,506. SEWING-MACHINES, ATTACHMENTS, AND ACCESSORIES. THE NEW HOME SEWING MACHINE COMPANY, Orange, Mass., and New York, N. Y. Filed Oct. 31, 1900.

PAN-AMERICAN

Essential feature.—The compound word "PAN-AMERICAN." Used since November 15, 1890.

35,507. ENAMELED-STEEL UTENSILS FOR CULINARY AND SURGICAL PURPOSES. ROTHSCHILD, MEYERS & Co., New York, N. Y. Filed Aug. 14, 1900.



ELITE

Essential feature.—The representation of a shield having its field divided by a vertical stripe, a series of horizontal bars extending across the dexter and sinister sides of said field, a wreath disposed below and partly surrounding said shield, and a crown disposed above the shield, together with the word "ELITE." Used since January 1, 1890.

35,508. ANTIFRICTION METAL. WILLIAM A. HARDY, Fitchburg, Mass. Filed Nov. 2, 1900.



Essential feature.—The monogram "W A H." Used since October 1, 1900.

35,509. LUMBER. J. J. NEWMAN LUMBER COMPANY, Hattiesburg, Miss. Filed Aug. 4, 1900.



Essential feature.—The figure of a negro made up from parts of a tree or shrub and surmounted by a head. Used since 1895.

35,510. EXPLOSIVES. DELTA POWDER COMPANY, Redwood City, Cal. Filed Oct. 30, 1900.

DELTITE

Essential feature.—The word "DELTITE." Used since October 6, 1900.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE MURMANN.

Decided October 29, 1900.

1. AMENDMENT—REQUIREMENT OF DIVISION.

Where an amendment is presented which in the opinion of the Examiner covers two distinct and independent inventions, he should not admit it until the question of division has been disposed of. (*Ex parte Bailey*, 52 O. G., 608, and *ex parte Richter*, 85 O. G., 1908.)

2. SAME—SAME—APPLICATION INCORRECTLY CLASSIFIED.

Where an amendment is filed which proposes to cancel all the claims and substitute others which the Examiner states cover two distinct inventions, neither of which is examinable in his division, he should not admit the amendment and require division, but he should transfer the application so that the Examiner to whom it is transferred may comply with the practice of the Office and give the applicant an intelligent cursory examination to aid him in dividing.

ON petition.

MANUFACTURE OF HARD-ROLLER CASTINGS.

Application of Ernst Murmann filed March 2, 1899, No. 707,496.

Messrs. Knight Bros. for the applicant.

DUELL, *Commissioner:*

This case comes before the Commissioner upon a petition from the Examiner's requirement of division under the provisions of Rule 41 of the Rules of Practice. When this application was originally filed, it contained one claim, which reads as follows:

Hard cast rollers and the method of making the same, in which the roller is cast entirely of hard material in which are secured by casting or welding wrought-iron rings or similar devices to allow of the adaptation of the hard cast rollers for any desired purpose, so as to do away with chilled castings and to produce rollers of great hardness which can be easily worked upon the inside.

The Examiner objected to the form of this claim and also refused it on references. After several actions on the case, which need not be here specified, the applicant presented three claims, which read as follows:

1. The method of making hard cast rollers with soft inner parts, consisting in casting white iron mixed with a sufficient quantity of wrought-iron or steel, around rings of soft wrought-iron upon a suitable core, substantially as described.
2. The process of making hollow rollers, with hard cast bodies and soft inner parts, which consists in mounting upon a suitable core rings of wrought-iron with grooved peripheries, casting upon the same a body of hard cast-iron and subsequently finishing the roll by turning the interior surfaces of the rings to fit the required shaft.
3. The hollow roller herein described consisting of the hollow body 1 of hard cast-iron and the internal rings 2, 2, on which the body is cast and to which it is united as described.

The Examiner entered this amendment and required division between claims 1 and 2 and claim 3 and stated that applications for metallurgical processes are examinable in Division III and applications for crushing-rollers in Division XXV.

Besides complaining of the requirement of division, applicant contends that he should have had a cursory examination of these claims to show him the state of the art, so that he might judge of the propriety of dividing his application.

It seems to me that the Examiner of Division XIII, where this case is now classified, was in error in admitting the amendment containing the three claims above quoted, if in his opinion division should be required. It is the settled practice of the Office that in such a case amendments should not be entered. (See *ex parte Bailey*, 52 O. G., 608, and *ex parte Richter*, 85 O. G., 1908.) Furthermore, if the Examiner's contention is correct, and it is assumed that it is, that one set of claims is examinable in Division III and another in Division XXV, he should not have acted on the case, but should have transferred it to one of these divisions, so that the Examiner to whom it was transferred could comply with the practice of the Office and give the applicant an intelligent cursory examination to aid him in dividing. It may be that when this is done the Examiner would cite references which would show applicant that one set of the claims was not patentable, and thus dispose of the question of division.

The amendment above referred to having been entered, it will stand. The Examiner of Division XIII, however, is directed to transfer the application to Division III, and the Examiner of the latter division will act upon it, giving applicant an examination showing the state of the art, so that he can determine whether he shall further prosecute the two sets of claims. Of course if the Examiner of this division is of the opinion that the case should be divided he will so state.

The petition from the action of the Examiner of Division XIII requiring division is dismissed without prejudice to the applicant to renew it, should the Examiner of Division III make this requirement and applicant desire to prosecute all the claims in this application.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

LOCKE *v.* BOCH.

Decided October 2, 1900.

1. INTERFERENCE—PRIORITY—PATENTEE AND APPLICANT.

Upon a review of the testimony, *Held* that the presumption founded upon the patent of the senior party more than counterbalances all the evidence produced for the junior party and applicant, and the decision of the Commissioner awarding priority to the patentee affirmed.

2. SAME—SAME—SAME—ANALOGY BETWEEN INFRINGEMENT SUIT AND INTERFERENCE CASE—BURDEN OF PROOF.

In trying the question of priority of invention in an interference case between an applicant and a patentee the principle to be applied is substantially analogous to that which is applicable in a case of infringement where the defense is that the patentee is not the original and first inventor. In all such cases it is a fundamental principle of patent law that to invalidate or supersede a patent by prior invention the proof must establish the fact beyond reasonable doubt.

3. SAME—SAME—SAME—APPLICANT'S DELAY IN FILING APPLICATION—PRESUMPTION.

Where the applicant alleged that he made the invention in 1892, yet he did not apply for a patent until 1898, after his opponent had obtained a patent, and in the interim he had filed several other applications, *Held* that it is reasonable to suppose that if applicant had in his possession the invention at the time alleged he would have applied for a patent earlier and not have held the invention unprotected for more than five years and until after another had applied for and obtained a patent for the same thing.

Mr. H. P. Denison and *Mr. Irving Williamson* for the appellant.

Mr. Hubert Howson and *Mr. Robert T. Frazier* for the appellee.

ALVEY, *J.*:

The appeal in this case is from a decision of the Commissioner of Patents in a matter of interference declared as between an application for a patent filed by Frederick M. Locke, the appellant, and a patent issued to John W. Boch, the appellee, in respect of claims of invention for improvements in porcelain or earthenware insulators and the mode of manufacturing thereof.

It appears that, on the 23d of October, 1897, an application was filed for patent by John W. Boch, for an alleged invention by him of improvements in porcelain or earthenware insulators and the mode of manufacturing the same, according to specification and claim accompanying the petition. In due course of proceeding, on the 8th day of March, 1898, a patent was issued on this application to Boch for the alleged invention as claimed, the patent being No. 600,475. The claim for which the patent issued is as follows:

1. The mode herein described of making a petticoat-insulator by molding it in two or more parts of clay, coating them with glazing material, fitting them together, supplying extra glazing material at the joints between the petticoats and firing the united and coated parts with the petticoats uppermost, so that the glazing material will be melted and flow into and fill all the spaces between the parts, substantially as described.

2. The mode herein described of making a petticoat-insulator by molding it in two or more parts of clay, fitting them together, supplying glazing material at the joints between the petticoats, and then firing with the petticoats uppermost, whereby the clay will become vitrified, and at the same operation the glazing material will be melted and flow into and fill the spaces between the parts, substantially as described.

3. The mode herein described of making a petticoat-insulator, by molding it in two or more parts of clay, biscuit-firing the parts separately, fitting them together, supplying glazing material at the joints between the petticoats, and firing, with the petticoats uppermost, so that the glazing material will be melted and flow into and fill all the spaces between the parts, substantially as described.

4. As a new article of manufacture, a porcelain or earthenware insulator made of two or more parts fitted one within the other with extra glaze introduced to fill all the spaces where the parts are to be united and forming an intermediate solid layer or layers of glaze between the conductor and pin, substantially as described.

Subsequently, that is to say, on the 22d day of March, 1898, an application was filed by Frederick M. Locke for a patent for the same invention of that for which the patent had issued to Boch; the specifications, drawings and claim filed with this latter application being an exact copy of those issued with and attached to the patent to Boch.

Such being the condition of proceedings in the Patent Office, an interference was declared as between the alleged prior invention of Locke and the invention covered by the patent to Boch. The issue was defined and declared in four counts, and in the exact terms of the respective claims set forth by both Boch and Locke, as we have just recited them, the first three of which define the method of making the insulator of the issue of interference, and the fourth defines, as a new article of manufacture, the insulator produced by the method described. The serial number of this interference is 19,468. But there was a prior interference as between applications of these parties, being Serial No. 18,969, in which the issue was as for—

an insulator formed of two or more shells of suitable insulating material, and which are secured together by inserting one into the other, and then fusing them so as to form practically but a single piece.

It was in respect to this issue in No. 18,969, that the greater part of the evidence in the present record was taken. That interference, No. 18,969, as we gather from the statement of the parties, was dissolved by the Commissioner of Patents, and it, therefore, presents no question on this appeal. Upon the dissolution of that interference, it was stipulated between the parties—

that all the testimony and exhibits of either party in interference No. 18,969, might be used, so far as applicable, as testimony and exhibits in this interference, No. 19,468, unless counsel for the respective parties shall agree to omit parts thereof.

In the present interference, Boch is entitled to the position of senior party upon the record, and the burden of proof is upon Locke to show the fact of priority of invention of the subject-matter of the interference, clearly and beyond all reasonable doubt, to enable him to overcome the effect of the patent to Boch.

In his preliminary statement, Boch states that he conceived the invention of the issue in or about the month of July or August, 1896, and that he explained it to others at that time. That he made illustrative drawings in April or May, 1897, and insulators of the construction described were made early in July, 1897.

Locke, in his preliminary statement, says, that he conceived the invention set forth in the several issues of the interference in September, 1892, and that, at the same time, he fully explained and described the invention to others, and immediately thereafter, and as soon as it could be done, he made a full-sized working model, and that the same was

successfully operated at Victor, N. Y.; and that, at the same time, this model was shown and explained to others, and that it is still in his possession. That he made no drawings or sketches which show the issue herein; but that he commenced to place insulators upon the market embodying the issue herein in September and October, 1896, and since that time many thousands have been placed upon the market and put into use.

The record in this case is quite voluminous, but only a comparatively small part of the testimony, documentary evidence and exhibits therein contained really apply to issues of this case. Indeed, that portion of the evidence, that is to say, the testimony of witnesses, that appears to be relevant, is of such conflicting and doubtful character as to make it impossible to base any satisfactory conclusion thereon. Each party charges the other with flagrant attempt to sustain his case by the most unmitigated falsehood and perjury. If there be ground for the gross imputation that we find mutually cast upon parties and witnesses in the briefs of counsel, we should best dispose of the case by holding that neither party had, by satisfactory evidence, succeeded in showing that he is entitled to what is defined as the invention by the issues of interference. This, however, cannot be done as the case is presented. There has been a patent issued to Boch, and that, as between Boch and Locke, is sufficient to secure to the former the right to the invention until overcome or superseded by clear and unquestionable evidence that the right belongs to Locke, by virtue of priority of invention. If, therefore, Locke cannot show, beyond reasonable doubt, that he made the invention, and that, too, prior to the date of the application by Boch, he certainly, as between himself and Boch, is not entitled to be declared the prior inventor, whatever may be thought of the evidence produced on the part of Boch as to the date of the invention patented by him.

Upon the evidence introduced into the case by stipulation, the question of the rights of the parties was very fully considered by the tribunals of the Patent Office. The Examiner of Interferences, having passed upon the evidence in the preceding interference, No. 18,969, and concluded in that case that Locke was entitled to priority of invention, adhered to that opinion in this case, though he did not examine the evidence as applied to the issues of this case, by any special analysis of the facts. Upon appeal to the Examiners-in-Chief by Boch, the decision of the Examiner of Interferences was reversed by a unanimous decision of the Board; and, upon full examination of the evidence the Board concluded that the right of priority was with Boch. In view of all the evidence they said:

Boch may or may not be entitled to the patent which he now holds, but, as between him and Locke, he is, in our opinion, first, and, of the two, the only one to make the invention of this interference.

On appeal by Locke to the Commissioner of Patents, the latter, upon full review of the evidence, affirmed the decision of the Examiners-in-Chief; and in the conclusion of his opinion said:

Locke has signally failed to sustain the burden upon him to overcome Boch's patent. I do not find that Locke is an inventor of the subject-matter of the issue at all, and I fully agree with the conclusion of the Examiners-in-Chief that, as between Boch and Locke, Boch is the first and the only inventor who made the invention covered by the issue of this interference.

This court is not called upon to go the length that the Commissioner has gone, and declare that Locke did not invent the subject-matter of the interference at all; the question on this appeal being one of priority of invention only. Locke alleges in his preliminary statement that he conceived the invention of the issues of the interference in September, 1892, and that he fully explained and described the same to others at the time, and that he immediately thereafter made a full-sized working model, and successfully operated the same at Victor, N. Y. We do not find that these allegations have been sustained by him. The testimony that he offers to support these allegations is so completely discredited by direct conflict with the testimony of other witnesses, and by the circumstances of the case, that no safe conclusion can be based thereon. Locke undertook to prove, by his witness Lapp, that the insulator of the interference, claimed to have been made by him in September, 1892, was in fact made in August or September of that year. But on further examination of the witness by Boch, he was asked this question:

11 Q. In your former deposition you stated that a certain small insulator which was broken in Mr. Denison's office in your presence, and which was offered as an exhibit, "Locke's Exhibit Locke's Two-Shell Insulator, 1892," was made in August or September, 1892; was that the truth?
Ans. I believe it was.

That answer was followed with the following question:

12 Ques. Now, isn't it the fact, Mr. Lapp, that that specific insulator was made in the latter part of 1897 or the spring of 1898?
Ans. *I do not know.*

Lapp was the only witness examined by Locke to corroborate his own statement as to the time of making the model or insulator in question, or that it was made in 1892; and apart from the statement of Locke and the testimony of his witness Lapp, there is no evidence as to when it was in fact made. Indeed, the evidence would seem to show it to be quite improbable that the insulator was made in 1892. For after the alleged time of making the insulator of this interference, Locke was before the Patent Office with applications for patents for insulators, and yet nothing was disclosed in regard to this particular insulator of 1892, which he says he not only then invented, but he then made and successfully operated. It is but reasonable to suppose that if Locke had in his possession this valuable improvement in insulators during the time he alleges he had, he would have applied for a patent therefor, as he did for several other inventions of the kind, and not held this particular invention unprotected for more than five and a half years before making application for a patent, and not making the application for the patent until after another person had applied for and obtained a patent for a similar invention. It is, moreover, natural to presume that, having made a successful working model of the invention as he has stated, he would have produced and shown it to the peo

ple of the Westinghouse Company when he went to see them upon the subject of insulators in August, 1896, or he would have shown it to his patent attorney earlier than he did. But he made no such disclosure of what he has since claimed as his invention.

In the testimony of Locke he states that he went to Pittsburg to see the Westinghouse Electric and Manufacturing Company, on August 21, 1896, and that he took with him a blue-print of his two-shell insulators, which, as he says, was made from one of the drawings that had been made August 10, 1896. This blue-print was shown to the general manager of the company, and to Mr. Skinner, the electrical engineer of the company, and they looked it over very closely, asking how it was made; and when he described it to them, he says, the general manager exclaimed:

I declare, he has got it.

He says this remark was made in reference to an insulator made of two or more shells, and nested together in such a way that when fused they would form a single piece. After this, that is to say, on the 10th of October, 1896, Locke wrote to the Westinghouse Company that he had sent it by express three samples of his combination *porcelain-and-glass insulators*. And when Mr. Skinner was examined with reference to the interview referred to by Locke, he says:

I recall the fact that Mr. Locke came to the works in the summer of 1896, and explained to me his scheme of making an insulator in two parts, *one part of glass* and the other of porcelain, cemented together. I do not recall any statement made by him at that time as to making an insulator in two parts, each consisting of porcelain and cemented together with a glaze, or fused together. Mr. Locke did mention a cement consisting of either paraffin and spar, or paraffin and sulfur. I recall this matter particularly on account of the theory advanced by Mr. Locke that mixing a large proportion of spar with the paraffin would raise the melting-point of the combination.

It is very manifest from this evidence that, in the interview with the manager and Mr. Skinner at the Westinghouse works in August of 1896, Locke referred alone to his proposed insulator composed of two parts, one of porcelain and the other of glass, and that he did not refer at all to the insulator described in the issue of this interference. And that being so, it is certainly remarkable, if the insulator of the present issue had been before that time invented and a completed model thereof made and put into practical operation, as alleged by Locke, that he should have omitted all reference thereto. Indeed, the omission gives rise to but one inference, and that is, that the invention as represented by Locke did not then exist; though he may have been experimenting at the time with the two-shell porcelain parts and the method of cementing or fusing them together; and that fact would seem to be indicated by the terms of the letter to the Westinghouse Electric Company, of October 14, 1896.

In addition to the facts and circumstances to which we have referred, there are many other circumstances in evidence that tend strongly to negative the allegation that the insulator of the issue of this interference was invented and made by Locke in 1892. But it is unnecessary to refer to such additional facts and circumstances specifically, as the presumption founded upon the patent held by Boch greatly more than counterbalances all the evidence produced by Locke.

To avoid issuing patents for the same or similar inventions to different persons, and thus preventing injury to patentees and to the public, the interference proceeding has been carefully provided for by statute as a preliminary proceeding and in trying the question of anticipation or priority of invention, on an issue of interference, where the supposed interference of an application is with an unexpired patent, the principle to be applied is substantially analogous to that which is applicable in a case of infringement, where the defense is that the patentee is not the original and first inventor, or that the claim of invention had been in public use for more than two years. In all such cases, it is a fundamental principle of the patent law, that, to invalidate or supersede a patent by prior invention or use, the proof must establish the fact beyond reasonable doubt.

The burden of proof rests upon him (the defendant), and every reasonable doubt should be resolved against him. (*Coffin* v. *Ogden*, 18 Wall., 120, 124.)

The principle, and the force of its application, as against conflicting and questionable evidence, are very fully and clearly stated by Mr. Justice Brown, in the case of *The Barbed Wire Patent*, (58 O. G., 1555; 143 U. S. 275, 284.) That was a case of infringement, and the defense was that the invention covered by the patent had been anticipated by certain unpatented devices that had been in public use for such time as to preclude the right of the patentee. The Court said:

We have now to deal with certain unpatented devices, claimed to be complete anticipations of this patent, the existence and use of which are proven only by oral testimony. In view of the unsatisfactory character of such testimony, arising from the forgetfulness of witnesses, their liability to mistake, their proneness to recollect things as the party calling them would have them recollect them, aside from the temptation to actual perjury, courts have not only imposed upon defendants the burden of proving such devices, but have required that *the proof shall be clear, satisfactory and beyond a reasonable doubt.* Witnesses whose memories are prodded by the eagerness of interested parties to elicit testimony favorable to themselves are not usually to be depended upon for accurate information. The very fact, which courts as well as the public have not failed to recognize, that almost every important patent, from the cotton-gin of Whitney to the one under consideration, has been attacked by the testimony of witnesses who imagined they had made similar discoveries long before the patentee had claimed to have invented his device, has tended to throw a certain amount of discredit upon all that class of evidence, and to demand that it be subjected to the closest scrutiny.

The Court then cites with approval the principle laid down in the case of *Coffin* v. *Ogden*, to which we have already referred.

It follows from what we have said that, in our opinion, the decision of the Commissioner of Patents ought to be affirmed, *and it is so ordered.* And the proceedings and decision of this court are hereby directed to be certified to the Commissioner of Patents to be entered of record as provided by law.

Decision of Commissioner of Patents affirmed, and decision of this court directed to be certified, etc.

THE

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OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., November 24, 1900.

SIR: The Secretary of the Interior has ordered that Thomas R. Fletcher, of Shelbyville, Ind., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk

The Commissioner of Patents.

Change of Title of Invention.

ORDER No. 1,381.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 13, 1900.

In order to avoid the numerous requests for change of title of invention after applications have been passed to issue, the Examiners are directed to indicate in their first letters to applicants, or as soon thereafter as practicable, any change which they desire applicants to make in the titles of their inventions.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED DECEMBER 4, 1900.

Labels.

7,931.—Title: "THREE BOYS." (For Tobacco.) *Finzer Brothers Tobacco Company*, Louisville, Ky. Application filed November 12, 1900.

7,932.—Title: "COLONEL DAVENPORT." (For Cigars.) *Niels P. Petersen*, Davenport, Iowa. Application filed October 4, 1900.

7,933.—Title: "PRISAN." (For Bottled Beer.) *Peter J. Serwazi*, Philadelphia, Pa. Application filed November 9, 1900.

7,934.—Title: "LAUREL LABEL." (For Malt Beverages.) *Toledo Brewing and Malting Company, Limited*, Toledo, Ohio. Application filed November 10, 1900.

7,935.—Title: "GENUINE POLLAWATTEE TEA." (For Ceylon Tea.) *Eppens, Smith & Wiemann Company*, New York, N. Y. Application filed November 12, 1900.

7,936.—Title: "PRIZE MEDAL." (For Tea.) *Milliken Tomlinson Company*, Portland, Me. Application filed November 6, 1900.

7,937.—Title: "DEMONET'S OYSTER COCKTAIL SAUCE." (For a Sauce.) *Jules A. Demonet*, Washington, D. C. Application filed November 12, 1900.

7,938.—Title: "WHEAT GERM." (For a Food.) *W. T. Stover*, York, Pa. Application filed October 15, 1900.

7,939.—Title: "HEARTS-EASE." (For Canned Sugar-Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 8, 1900.

7,940.—Title: "HONEY COMB." (For Canned Sweet Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 8, 1900.

7,941.—Title: "TOMATOES." (For Canned Tomatoes.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 8, 1900.

7,942.—Title: "FERTÉ'S CELERY HEADACHE TABLETS." (For a Tablet.) *Emil P. Ferté*, Butte, Mont. Application filed November 13, 1900.

7,943.—Title: "DERMA (I. MCG. A.) TONE." (For a Medicine.) *Irwin McGregor Adams*, New York, N. Y. Application filed October 23, 1900.

7,944.—Title: "RED CROSS CAPILLARIES." (For a Hair-Tonic.) *Red Cross Chemical Company*, Portland, Me., and Boston, Mass. Application filed November 5, 1900.

7,945.—Title: "STANSBURY'S HAIR RESTORER AND DANDRUFF CURE." (For a Hair-Restorer.) *Harry Stansbury*, Kansas City, Mo. Application filed October 25, 1900.

7,946.—Title: "SOZO." (For a Furniture Polishing and Cleaning Compound.) *Sozo Supply Company*, Newark, N. J. Application filed November 6, 1900.

7,947.—Title: "INKERINE PASTE." (For a Paste.) *Hugo Mock*, St. Paul, Minn. Application filed November 1, 1900.

7,948.—Title: "BELLAMY'S IRON GRASP CEMENT." (For Cement.) *Frank E. Bellamy*, Ames, Iowa. Application filed November 10, 1900.

Prints.

277.—Title: "DEMONET'S." (For Confectionery.) *Jules A. Demonet*, Washington, D. C. Application filed October 30, 1900.

278.—Title: "JADWAY'S ELIXIR FOR INFANTS." (For a Medicine.) *Mrs. C. W. Wilson*, York, Pa. Application filed October 4, 1900.

279.—Title: "MOTORCYCLE AND MOTORETTE BACKS BICYCLE PLAYING CARDS." (For Playing-Cards.) *The United States Playing Card Company*, Cincinnati, Ohio. Application filed November 10, 1900.

280.—Title: "NEVERBREAK." (For Corset-Clasps.) *Jacob A. Datz*, Philadelphia, Pa. Application filed October 25, 1900.

281.—Title: "THE INDIAN LEATHER CO." (For Sole-Leather.) *The Indian Leather Co.*, Boston, Mass. Application filed October 17, 1900.

282.—Title: "THE INDIAN LEATHER CO." (For Sole-Leather.) *The Indian Leather Co.*, Boston, Mass. Application filed October 17, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business November 27, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Nov. 17	Nov. 17	134
106	II. Farm Stock, Products, etc.	Nov. 15	Nov. 16	139
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Nov. 12	Nov. 15	40
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Nov. 8	Nov. 13	132
240	VII. Velocipedes, Games, and Toys.	Nov. 7	Nov. 14	137
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Nov. 5	Nov. 13	139
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Nov. 1	Nov. 13	98
108	XIX. Stoves and Furnaces	Oct. 31	Nov. 13	209
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Oct. 30	Nov. 17	135
228	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 30	Nov. 14	120
98	XXI. Textiles, etc	Oct. 30	Nov. 13	148
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30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 29	Oct. 15	194
128	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 22	Nov. 14	116
346	I. Tillage and Fences	Oct. 29	Nov. 14	127
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Oct. 29	Nov. 14	87
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Oct. 29	Nov. 14	267
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Oct. 29	Nov. 14	107
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Oct. 29	Nov. 13	114
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Oct. 29	Nov. 13	149
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Oct. 29	Nov. 13	165
120	IX. Hydraulics, Fire-Extinguishers, etc.	Oct. 29	Nov. 13	116
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Oct. 29	Nov. 13	137
255	XII. Mechanical Engineering, Store-Service, etc.	Oct. 29	Nov. 13	196
248	XVIII. Steam-Engineering, etc	Oct. 29	Nov. 9	151
258	X. Carriages and Wagons	Oct. 29	Nov. 1	137
158	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Oct. 28	Nov. 15	115
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Oct. 28	Nov. 14	106
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105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Oct. 26	Nov. 10	199
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Oct. 25	Oct. 15	282
128	XXIV. Sewing-Machines, Apparel, and Toilet.	Oct. 23	Nov. 7	196
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Oct. 22	Nov. 8	236
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 20	Oct. 16	178
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 15	Nov. 5	276
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Under one month.			
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†Trade-Marks	Nov. 22	Nov. 24	12
‡Labels and Prints	Nov. 27	Nov. 27	2

ISSUE OF DECEMBER 4, 1900.

Patents	502—	No. 662,901 to No.	663,402, inclusive.
Designs	51—	No. 33,623 to No.	33,673, inclusive.
Trade-Marks	44—	No. 35,511 to No.	35,554, inclusive.
Labels	18—	No. 7,931 to No.	7,948, inclusive.
Prints	6—	No. 277 to No.	282, inclusive.
Reissues	2—	No. 11,875 to No.	11,876, inclusive.
Total issue	623		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	----	Nevada	1	----
Alaska Territory	1	----	New Hampshire	3	----
Arizona Territory	1	----	New Jersey	20	2
California	17	2	New Mexico Territ'y	----	----
Colorado	8	----	New York	87	10
Connecticut	12	1	North Carolina	1	----
Delaware	----	----	North Dakota	----	----
District of Columbia	5	2	Ohio	32	7
Florida	2	1	Oklahoma Territ'y	1	----
Georgia	3	2	Oregon	----	----
Hawaii	----	----	Pennsylvania	63	5
Idaho	----	----	Rhode Island	5	----
Illinois	44	3	South Carolina	1	----
Indian Territory	----	----	South Dakota	1	----
Indiana	17	----	Tennessee	4	1
Iowa	10	2	Texas	5	----
Kansas	3	----	Utah	----	----
Kentucky	6	1	Vermont	1	----
Louisiana	4	----	Virginia	5	1
Maine	3	7	Washington	6	----
Maryland	4	----	West Virginia	5	1
Massachusetts	34	5	Wisconsin	13	----
Michigan	26	1	Wyoming	----	----
Minnesota	8	1	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	20	4	Total to citizens of the United States	491	60
Montana	1	1			
Nebraska	4	----			

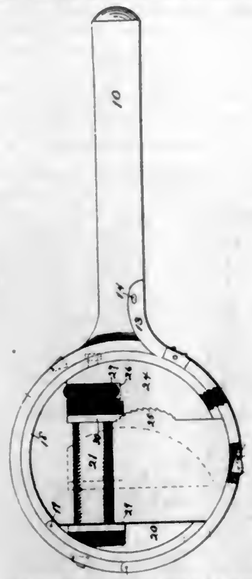
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	----	----
Australia	----	----	Japan	----	----
Austria-Hungary	2	----	Java	----	----
Barbadoes	----	----	Mexico	----	----
Belgium	1	----	Netherlands	----	----
Brazil	----	----	New South Wales	1	----
British Guiana	1	----	New Zealand	1	----
Canada	2	----	Norway	----	----
Chile	----	----	Queensland	----	----
China	----	----	Russia	2	----
Costa Rica	----	----	Scotland	1	----
Cuba	----	----	South African Republic	----	----
Denmark	1	----	South Australia	1	----
Egypt	----	----	Spain	----	----
England	22	5	Sweden	----	----
Finland	----	----	Switzerland	4	----
France	7	----	Venezuela	----	----
Germany	15	3	Victoria	----	----
Guatemala	----	----	Total to citizens of foreign countries	62	8
Haiti	----	----			
India	----	----			
Ireland	1	----			

PATENTS

GRANTED DECEMBER 4, 1900.

662,901. NUT OR PIPE WRENCH. WALTER S. ARMSTRONG, Ruthven, Iowa. Filed Feb. 8, 1900. Serial No. 4,458. (No model.)



Claim.—1. A wrench comprising the handle, the hinged ring thereon, the hinged jaw-ring mounted loosely in the handle-ring, pawl-and-ratchet connections between the rings, and jaws on the jaw-ring.

2. A wrench comprising the handle, the ring thereon and formed with a movable section locked to the handle, the jaw-ring mounted loosely in the handle-ring and provided with a movable section and a movable jaw in opposition to said movable section, and pawl-and-ratchet connections between the rings.

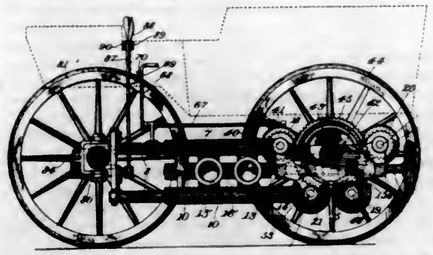
3. A wrench comprising the handle, the ring thereon, the jaw-ring mounted loosely in the handle-ring, and formed with peripheral notches, the dogs on the handle-rings so shaped and arranged as to engage one or another of the notches of the jaw-ring and jaws on the jaw-ring, both of which jaws are movable radially relative to a common axis.

4. A wrench comprising the handle-ring constructed in sections hinged together and formed with an inner groove, a spring-latch for connecting the free end of one section of said ring to the handle, a jaw-ring constructed in sections hinged together and formed with a peripheral tongue shaped and arranged to slide rotatably in the groove of the handle-ring, the pawl-and-ratchet connections between the rings and the jaws on the jaw-ring, one of which jaws is fixed to the hinged section of the jaw-ring, the remaining jaw being adjustable relative to the fixed jaw.

5. In a wrench a jaw-ring constructed in sections hinged together and mounted for rotary movement, a jaw on one section of the jaw-ring, a stem transversely of and connecting both sections of the jaw-ring and a jaw mounted for travel on the stem.

6. In a wrench a jaw, a stem mounted at right angles thereto, a jaw mounted for travel longitudinally of the stem, a nut on the stem and arranged to travel thereon and move the latter jaw, and a ring whereon the first jaw and stem are mounted and by which they are moved rotatably, which ring is formed in sections hinged together and detachably connected by said stem.

662,902. MOTOR-VEHICLE. HORACE L. ARNOLD, New York, N. Y., assignor to John A. Hill, same place. Filed Mar. 8, 1900. Serial No. 7,765. (No model.)



Claim.—1. A motor-vehicle comprising a motor; a set of spiral driving-gears actuated by said motor; a set of spiral driven gears in mesh with said spiral driving-gears; shafts upon which the spiral driven gears are loosely mounted; clutches for locking any desired spiral driven gear to its shaft; means for actuating said clutches; and gearing for connecting the spiral driven gears with an axle of the vehicle.

2. In a motor-vehicle, the combination, with a motor, of a shaft driven by said motor and carrying a series of spiral gears; a series of shafts; a series of loosely-mounted spiral gears carried by said shafts; a series of devices for locking the loosely-mounted gears individually to their shafts; an axle; and gearing connecting said axle with said shafts.

3. In a motor-vehicle, the combination, with a motor, of a shaft driven by said motor; a series of spiral gears located at intervals on said shaft, some of said gears having threads of different inclination from the others; a series of shafts; a series of loosely-mounted spiral gears carried by said shafts; a series of clutches for locking the loosely-mounted spiral gears individually to their shafts; an axle; and gearing connecting said axle and said shafts.

4. In a motor-vehicle, the combination, with a motor, of a shaft driven thereby; a series of spiral gears located at intervals on said shaft; a series of shafts; a series of spiral gears loosely mounted on said shafts; a series of clutches for connecting at will the spiral gears to their shafts; gearing for connecting said shafts and an axle of the vehicle; a series of levers for operating the clutches; and means for actuating said levers.

5. A motor-vehicle comprising a motor; a traction-wheel axle; spiral gears for driving said axle at different speeds; a series of shafts; spiral gears loosely mounted on said shafts; a series of clutches for connecting the loosely-mounted gears with their shafts; a series of pivoted levers for actuating the clutches; and means for operating the levers.

6. The combination, with a shaft carrying spiral gears one of which is of reverse pitch to that of the other, of a motor for driving said shaft; a series of spiral gears intermeshed with the gears of said motor-driven shaft; shafts on which said spiral gears are loosely mounted; means for coupling at will any of said spiral gears to its shaft; pinions carried by each of said shafts; a driving-axle; and gearing mounted on said axle and in engagement with said pinions.

7. The combination, with a motor, of a shaft having spiral gears driven by said motor; shafts having loosely-mounted spiral gears located at one side of the motor-shaft; shafts having loosely-mounted spiral gears located at the other side of said motor-shaft; clutches in all of said shafts; means for actuating said clutches to connect the loosely-mounted spiral gear desired to its shaft; a driving-axle; and gearing for operating said axle and in engagement with the pinions carried by the shafts.

8. In a motor-vehicle, the combination, with a series of spiral gears geared to the driving-axle of said vehicle, of a series of clutches connecting said gears with their shafts, and means for actuating said clutches, the construction being such that but one clutch can be actuated at a time.

9. The combination, with a driving-shaft having a series of spiral

gears located at intervals thereon, of a series of shafts; a series of loosely-mounted spiral gears carried by said shafts; a series of clutches; gearing connecting said spiral gears with an axle; a series of pivoted levers for actuating said clutches; a shaft having fingers for operating said levers; and means for actuating said shaft.

10. The combination, with a driving-shaft having a series of spiral gears one being of reverse pitch to that of another, of a series of loosely-mounted spiral gears constantly in engagement with the spiral gears of the driving-shaft; a series of shafts by which the loosely-mounted spiral gears are carried; means for locking at will any of said gears to its shaft; a series of pinions, one secured to each shaft; an axle; and gearing for driving said axle and in engagement with the pinions of said shafts.

11. The combination, with an axle, of gearing carried by said axle; a motor; a shaft driven by the motor and carrying a series of spiral gears; a series of shafts some located on one side and others on the opposite side of the motor-driven shaft; a series of spiral gears loosely mounted on said shafts; clutches for connecting at will any of said spiral gears to its shaft; levers for actuating said clutches; a shaft having fingers so disposed thereon that but one clutch-actuating lever can be operated at a time; and means for actuating said shaft.

12. The combination, with a series of clutches, of means for actuating said clutches, and a shaft having a series of fingers disposed at different angles to its axis for operating the clutch-actuating means, some of said fingers being yielding in one direction and rigid in the other direction.

13. The combination, with a series of clutches, of pivoted levers for actuating said clutches, and a shaft having a series of fingers disposed at different angles to its axis for operating said levers, some of said fingers being yielding in one direction and rigid in the other direction.

14. The combination, with a series of shafts, of gears loosely mounted on said shafts; clutches for coupling said gears to their shafts; a shaft having a series of fingers, some of which are yielding in one direction and rigid in the other; and means for actuating said shaft.

15. The combination, with a series of shafts, of gears loosely mounted on said shafts; clutches for coupling said gears to their shafts; pinions fixed to said shafts; an axle; gearing driven by said pinions; means for actuating the clutches; and a shaft having a series of fingers disposed at different angles to its axis for operating the clutch-actuating means.

16. The combination, with a series of shafts, of gears loosely mounted on said shafts; clutches for coupling said gears to their shafts; a series of pinions some of which are of different diameter from others, secured to said shafts; means for actuating said clutches; a shaft having a series of fingers disposed at different angles to its axis for operating the clutch-actuating means; and a lever and connections for actuating said shaft.

17. The combination, with a motor, of a shaft driven thereby and carrying a series of spiral gears one of which has a thread of greater inclination than the threads of the others; a series of shafts; spiral gears loosely mounted on said shafts and meshing with the spiral gears on the motor-driven shaft; friction-clutches for locking any of said gears to its shaft when desired; pinions splined to said shafts; pivoted levers for actuating said clutches; a shaft carrying a series of fingers, each disposed at a different angle to its axis, for operating the clutch-actuating levers; rack-and-pinion mechanism for actuating said finger-carrying shaft; and gearing connecting the pinions on the shafts with the driving-axle of a vehicle.

18. The combination, with a motor, of a shaft having a quick-speed worm or spiral gear and a series of slower-speed worms or spiral gears located at intervals thereon; spiral gears or worm-wheels in mesh with the worms on the motor-driven shaft; a series of shafts to which said spiral gears or worm-wheels are loosely connected; clutches for locking said gears to their shafts; means for actuating the clutches; and gearing connecting said shafts with the driving-axle of a vehicle.

19. The combination, with an axle, of a train of gearing for driving said axle at different speeds; a series of clutches for coupling certain elements of said train to their shafts; means for separately actuating said clutches; a shaft carrying a series of fingers disposed at various angles thereto; and means for operating said shaft.

20. The combination, with the driving-axle of a vehicle, of a motor; a train of gearing actuated by the motor and constructed to drive said axle at different speeds; a series of clutches for coupling certain elements of said train to their shafts; means for actuating said clutches each at a different time; a shaft carrying a series of fingers disposed at various angles to its axis; and means for actuating said shaft to set the desired clutch.

21. The combination, with the sectional driving-axle of a vehicle, of compensating gearing connected to said axle; a series of shafts carrying pinions each in mesh with a gear carried by said driving-axle; a series of loosely-mounted spiral gears; toggles located in the hubs of said gears; a divided ring actuated by each of said toggles and adapted when expanded to clutch a spiral gear to its hub; means for actuating the toggles; and means for driving the spiral gears.

22. In a motor-vehicle, the combination, with a motor, of a shaft driven by said motor; a series of spiral gears located at intervals on said shaft; a series of hollow shafts located above and below the motor-shaft; a series of spiral gears loosely mounted on hubs secured to said shafts; a series of toggles; a series of expansible rings located between the spiral gears and their hubs; a sleeve carrying a cone mounted in each of said shafts; pivoted levers for actuating said sleeves; a shaft having fingers disposed at various angles to its axis; a pinion on said shaft; a rack in engagement with said pinion; and a lever connected to said rack.

23. In a motor-vehicle, the combination, with a motor, of a shaft carrying a quick-speed spiral gear; two slow-speed spiral gears; a slow-speed spiral gear of reverse pitch from that of the other gears; a series of shafts journaled in the framework of the vehicle; a series of spiral gears constantly in mesh with the spiral gears of the motor-shaft and loosely mounted on their shafts; means for clutching said spiral gears one at a time to their shafts; a series of pinions carried by the shafts; and gearing connecting said pinions with the driving-axle of the vehicle.

24. In a motor-vehicle, the combination, with the driving-axle thereof, of gearing connected to said axle; a series of shafts carrying pinions intermeshed with said gearing; a series of spiral gears loosely mounted on said shafts; a series of clutches for coupling any one of said spiral gears to its shaft; a rock-shaft carrying a series of fingers disposed at various angles to its axis; means for actuating said rock-shaft; and a lever under control of the operator, for operating the rock-shaft-actuating means.

662,903. KITCHEN-CABINET. LEVI ARNOLD, Blackwell, Okla. Filed Apr. 24, 1900. Serial No. 14,165. (No model.)



Claim.—1. In a device of the class described, the combination of a hopper having a cylindrical extension, and a circular cut-off pivotally mounted within the cylindrical extension and provided at one of its edges with a projecting lip arranged at an angle to the plane of the cut-off and adapted to move through the material and agitate the same, substantially as described.

2. In a device of the class described, the combination of a hopper having a cylindrical extension, and a pivoted cut-off consisting of a disk provided at one edge with a depending tapering lip or cutter arranged at an angle to the plane of the cut-off and adapted to cut its way through the material, to agitate the same, and to facilitate the closing of the cut-off, substantially as described.

3. In a device of the class described, the combination of a hopper having a cylindrical portion, a cut-off consisting of a disk arranged within the hopper, a pivot carrying the cut-off and provided with an exterior arm, said arm being curved upward and laterally and terminating at a point below the pivot at one side of the same, and a coiled spring arranged below and connected with the outer end of the arm, whereby the pivot will serve as a stop to prevent the spring from swinging beyond the center, substantially as described.

4. In a device of the class described, the combination of a hopper, a cut-off arranged within the hopper and provided with a lip or cutter disposed at an angle to the plane of the cut-off, a pivot journaled on the hopper and carrying the cut-off and provided with an exterior arm extended laterally and downwardly, a stop fixed to the hopper and arranged to be engaged by the cut-off and a spring located at the outer end of the arm and at a point below the pivot and holding the cut-off against the stop, substantially as and for the purpose described.

5. In a device of the class described, the combination of a hopper having a cylindrical portion, upper and lower cut-offs consisting of disks, the upper cut-off being provided at its periphery with a depending lip or cutter, pivots carrying the cut-offs and provided with exterior arms curved upward and laterally and terminating at points below the pivots, stops arranged to be engaged by the cut-offs and springs connected with the outer ends of the arms and located below the same and holding the cut-offs against the stops, substantially as and for the purpose described.

6. In a device of the class described, the combination of a bin or receptacle having an extension, a sifter having a handle, a casing mounted on the sifter at the top of the handle, a spring-actuated pin or bolt guided by the casing and adapted to engage the extension of the bin or receptacle, and a bell-crank lever engaging the pin or bolt and provided at its angle with a depending portion resting upon the handle of the sifter, substantially as described.

662,904. REPEATING MECHANISM FOR CLOCKS. HARLOW W. BAILEY and WILLIAM J. PARKINSON, Buffalo, N. Y. Filed Feb. 6, 1900. Serial No. 4,213. (No model.)



Claim.—1. A repeating mechanism for clocks and watches consisting essentially of a pivoted operating-lever-spring carrier upon the operating-lever, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments means for holding the toothed segments when not in operation and for releasing the same, a bell and interposed means between the bell and toothed segments for ringing the same.

2. A repeating mechanism for clocks and watches consisting essentially of a retarding-train a pivoted operating-lever connected with the retarding-train, a spring-carrier upon the operating-lever, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier, tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments, means for holding the toothed segments when not in operation and for releasing the same a bell and interposed means between the bell and toothed segments for ringing the same.

3. A repeating mechanism for clocks and watches consisting essentially of a retarding-train a pivoted operating-lever connected with the retarding-train a spring-carrier upon the operating-lever, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier, tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments, a coupler-disk upon the central clock-arbor provided with a circular groove, a circular spring within the groove and a slot through the disk at the free end of the spring, a toothed quarter-disk rigid with the minute-cam and provided with a pin adapted for movement in the slot of the coupler-disk and against its spring, a spring V-shaped pawl adapted for engagement with the teeth of the quarter-disk, a twelve-toothed disk upon the central clock-arbor and adjacent to the quarter-cam, a spring-pawl pivoted upon the quarter-cam and adapted for operative engagement with the twelve-toothed disk, a twelve-toothed star-wheel upon the central clock-arbor and rigid with the hour-cam and the twelve-toothed disk, a spring V-shaped pawl adapted for operative engagement with the star-wheel, an abutment on the casing for operative engagement with the spring-pawl on the quarter-cam, means for holding the toothed segments when not in operation and for releasing the same a bell and interposed means between the bell and toothed segments for ringing the same all combined and operating as and for the purpose stated.

4. A repeating mechanism for clocks and watches consisting essentially of a retarding-train a pivoted operating-lever connected with the retarding-train a spring-carrier upon the operating-lever, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier, tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments, a twelve-toothed disk upon the central clock-arbor and adjacent to the quarter-cam, a spring-pawl pivoted upon the quarter-cam and adapted for operative engagement with the twelve-toothed disk, a twelve-toothed star-wheel upon the central clock-arbor and rigid with the hour-cam and the twelve-toothed disk, a spring V-shaped pawl adapted for operative engagement with the star-wheel, an abutment on the casing for operative engagement with the spring-pawl on the quarter-cam, means for holding the toothed segments when not in operation and for releasing the same a bell and interposed means between the bell and toothed segments for ringing the same all combined and operating as and for the purpose stated.

5. A repeating mechanism for clocks and watches consisting essentially of a retarding-train a pivoted operating-lever connected with the retarding-train a spring-carrier upon the operating-lever, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier, tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments, a coupler-disk upon the central clock-arbor provided with circular groove, a circular spring within the groove and a slot through the disk at the free end of the spring, a toothed quarter-disk rigid with the minute-cam and provided with a pin adapted for movement in the slot of the coupler-disk and against its spring, a spring V-shaped pawl adapted for engagement with the teeth of the quarter-disk, a twelve-toothed disk upon the central clock-arbor and adjacent to the quarter-cam, a spring-pawl pivoted upon the quarter-cam and adapted for operative engagement with the twelve-toothed disk, a twelve-toothed star-wheel upon the central clock-arbor and rigid with the hour-cam and the twelve-toothed disk, a spring V-shaped pawl adapted for operative engagement with the star-wheel, an abutment on the casing for operative engagement with the spring-pawl on the quarter-cam, means for holding the toothed segments when not in operation and for releasing the same a bell and interposed means between the bell and toothed segments for ringing the same all combined and operating as and for the purpose stated.

6. A repeating mechanism for clocks and watches consisting essentially of a pivoted operating-lever carrying an integral segment-gear, a retarding-train in engagement with the segment-gear on the operating-lever, and an integral radial arm provided at its outer end with a spring-carrier, hour, quarter and minute toothed segments pivoted on a common axis with the operating-lever and adapted for operative engagement with the spring-carrier, tails upon the inner ends of the toothed segments, hour, quarter and minute cams pivoted upon the central clock-arbor and adapted for operative engagement with the tails upon the toothed segments, individual spring-pressed pawls for engaging and holding the toothed segments when not in operation, a releasing device for disengaging the spring-pawls from the toothed segments to permit them to operate, individual sliding and swinging spring-pressed hammer-trips adapted for operative engagement with the toothed segments and the bell-hammer for audibly indicating the hour, quarter and minute.

7. In a repeating mechanism for clocks and watches the combination with the coupler-disk 63 upon the central clock-arbor provided with the circular groove 64, the circular spring 66 within the groove 64 and the slot 65 within the disk, of the quarter-disk 68 provided with the three teeth 69, 70 and 71, the spring V-shaped pawl 95, 97, adapted for operative engagement with the teeth 69, 70 and 71, the pin 72 on the quarter-disk 68 adapted for movement in the slot 65 of the coupler-disk 63 and against the spring 66 and the minute-cam 73 rigid with the quarter-disk, for jumping the minute-cam forward so that it can safely hold the tailpiece of the minute-segment 24 and prevent the teeth of such segment from passing the hammer-trip 119.

8. In a repeating mechanism for clocks and watches the combination with the star-wheel 90 having teeth 91, the spring V-shaped pawl 92, 94, the hour-cam 87 and the twelve-toothed disk 86, of the quarter-cam 75, 76, 77, 78, the spring-pawl 80 pivoted to the quarter-cam, and the abutment 144 mounted upon the casing, the star-wheel, hour-cam and twelve-toothed disk being rigidly connected all operating to jump the hour-cam, one step forward for one complete revolution of the central clock-arbor upon which it is mounted.

9. In a repeating mechanism for clocks and watches the combination with the star-wheel 90 having teeth 91, the spring V-shaped pawl 92, 94, the hour-cam 87 having the circular steps 88 each provided with the end extensions 89 and the twelve-toothed disk 86, of the quarter-cam 75, 76, 77, 78 the spring-pawl 80 pivoted to the quarter-cam and the abutment

144 mounted upon the casing, the star-wheel, hour-cam and twelve-toothed disk being rigidly connected all operating to jump the hour-cam one step forward for one complete revolution of the central clock-arbor upon which it is mounted.

10. In a repeating mechanism for clocks and watches the combination with the coupler-disk 63 upon the central clock-arbor, provided with the circular groove 64, the circular spring 66 within the groove 64 and the slot 65 within the disk of the quarter-disk 68 provided with the three teeth 69, 70 and 71, the spring V-shaped pawl 95, 97, adapted for operative engagement with the teeth 69, 70 and 71, the pin 72 on the quarter-disk 68 adapted for movement in the slot 65 of the coupler-disk 63 and against the spring 66, the minute-cam 73 rigid with the quarter-disk and provided with the orifice 74, and the quarter-cam 75, 76, 77, 78, rigid with the minute-cam 73 and provided with the pin 143 adapted for engagement with the orifice 74 in the minute-cam 73, all operating to jump the quarter-cam forward so that the proper cam-surface will be safely presented to the tail 42 of the quarter-segment 35.

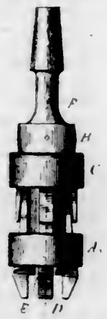
11. In a repeating mechanism for clocks and watches the combination with the hour-segment having the pin 50, the quarter-segment having the pin 41, the minute-segment having the pin 30, and the studs 137, 138 and 139 on the casing, of the spring-carrier upon the outer end of the radial arm 14 consisting of the plate 15 pivoted upon the radial arm 14 and having the curved outer edge 22^a and the raised triangular carrier 17 at one end of same, the right-angled arm 18 of the plate 15 carrying the spring 20 working loosely in the post 21, the triangular carrier being adapted for successive engagement with the pins 50, 41, and 30 and the curved outer edge 22^a of the plate 15 being adapted for contact with the studs 137, 138 and 139 substantially as and for the purpose stated.

12. In a repeating mechanism for clocks and watches the combination with the spring-pawls 99, 100 and 101 adapted for holding engagement with the hour, quarter and minute segments of the releasing device consisting of the angular plate having the long lower arm 108 and the short upper arm 109, the rigid rod 111 extending across in front of the pawls, the short pin 112 adapted for engagement with the spur 22 upon the radial arm 14 upon which the spring-carrier is mounted all operating substantially as and for the purpose stated.

13. In a repeating mechanism for clocks and watches the combination with the toothed hour, quarter and minute segments and the pin 127 upon the casing of the spring-pressed hammer-trips 117, 118 and 119, provided with the central elongated slots 120 the angular spring-seats 121 at one end and the tapering projections 122 at their other ends, the post 123 upon which the hammer-trips have a sliding and swinging motion, the spring-pressed pivoted arbor 128 having the inclined pins 129 adapted to receive the impulse of the sliding hammer-trips and the hammer 130, 131, rigid upon the pivoted arbor all operating substantially as and for the purpose stated.

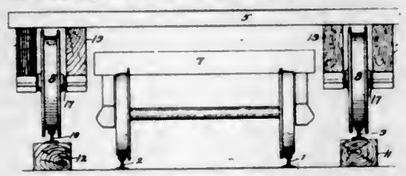
14. In a repeating mechanism for clocks and watches the combination with the hour, quarter and minute segments of the washers 31 and 45 interposed between the segments and provided with the extensions 32 and 46 with open slotted ends and the rigid pin 33 on the casing adapted for holding engagement with the slotted ends of the washer extensions substantially as and for the purpose stated.

662,905. **TOOL-HOLDER AND WRENCH.** FRANCIS W. BANAN, Oakland, Me. Filed Aug. 20, 1900. Serial No. 27,518. (No model.)



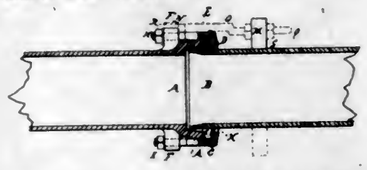
Claim.—In a tool-holder, the spindle F having parallel grooves, in which rest the curved jaws D, the jaws D carrying the boss E, in combination with the sliding ring C having wedge-shaped projections projecting downward, and of a size, and shape, suitable for entering tapering grooves in stationary ring A, as and for the purpose specified.

662,906. **PORTABLE DERRICK.** WILLIAM BAPTIST, New Orleans, La. Filed Aug. 5, 1899. Serial No. 726,223. (No model.)



Claim.—A main track, a supplemental track-section of greater gage than the main track arranged on either side of the main track parallel thereto and at a greater elevation than said main track, in combination with cars to travel on the main track, a platform carried thereby, pairs of blocks depending from the platform, and a double-flanged wheel journaled in each pair of blocks at the gage of the supplemental track-section, said pairs of blocks being so spaced that the platform may rest on the cars therebetween and be carried thus until the platform is elevated by the double-flanged wheels riding on the supplemental track, substantially as described.

662,907. **HUB AND SPIGOT PIPE AND JOINT.** REINHOLD BOEKLEN, New York, N. Y. Filed July 13, 1897. Renewed Apr. 6, 1900. Serial No. 11,894. (No model.)



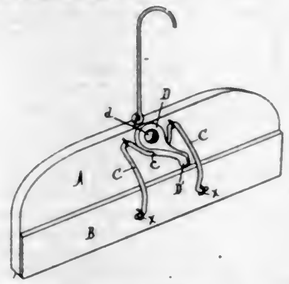
Claim.—1. In a hub and spigot pipe joint the combination which consists of the spigot end of one pipe, and the hub end of a joining pipe with a short and enlarged bell to pass with a space allowed between and over said spigot, said bell at its outer rear part with the pipe provided with radial bolt projections and on its end with a concave face provided with a cap with a socket to pass over the said bell and with an inward flange passing loosely over the spigot and having an inner opposite concave face to the bell and an elastic packing between said faces and over the spigot the cap being provided with screw-bolts to connect and engage with the bolt projections for drawing the cap to the bell and powerfully clamping the packing between said concave faces to cause the concentrated grip of the spigot substantially as and for the purpose herein set forth.

2. In a hub and spigot pipe joint, the combination of the spigot end of one pipe, and the hub end of a joining pipe, having a short bell over the spigot with an accommodating space between, to place therein the spigot for short curves and said bell having a concave face on its end connected by bolts with a cap having a hub to pass over its outer periphery and an inward flange with an enlarged opening over the spigot covered inside with a closely-fitting washer K and said inward flange with an inner opposite concave face to the face of the bell and an elastic packing between said concave faces and over the spigot substantially as and for the purposes herein set forth.

3. In a hub and spigot pipe joint the combination with the spigot end of one pipe and the hub end of a joining pipe having a bell over the spigot and with it a cap connected with bolts over the spigot and having between the cap and bell an elastic packing, of radial opposite bolt projections M on the periphery of the spigot end beyond the joint and corresponding bolt projections N on the hub end and from each projection M to N a screw O with adjusting-nuts P to adjust and hold the spigot end from the bottom of the bell of the hub end the required distance to allow for expansion before and during the clamping and tightening of the packing of the joint and for other purposes substantially as herein set forth.

662,908. **GARMENT-HANGER.** ALLEN BOUCHER, Rochester, N. Y., assignor to the Caldwell Manufacturing Company, of New York. Filed Apr. 17, 1899. Serial No. 713,424. (No model.)

Claim.—A garment-hanger consisting of the body-piece A having a strip B along its lower edge, arms C, C, pivotally connected to said strip and to said body-piece and having the curved connecting-piece c integral with said arms, the plane of said curved connecting-piece being at an angle to the plane of the adjacent face of said body-piece, and the rotary pressure-arm D pivoted to said body-piece and adapted to press against said curved connecting-piece so that said connecting-piece moves toward or away from said body-piece and thereby to produce variable pressure of said strip against said body-piece, according to the position of said clamping-arm, substantially as described.

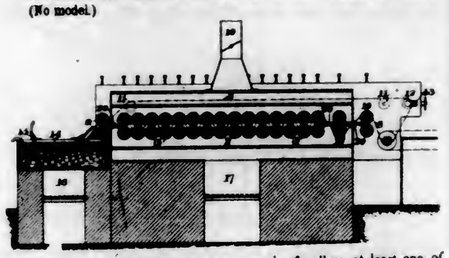


662,909. **ACETYLENE-GAS BURNER.** JOHN W. BRAY, Leeds, England. Filed July 10, 1900. Serial No. 23,156. (No model.)



Claim.—An acetylene-burner comprising the lower part having a recess T in its upper side, and an upper part having the divergent ends C', C^2, provided with inwardly-directed openings for the gas and with laterally-extending openings for the air communicating with the gas-openings, said upper portion having also a channel H extending from side to side thereof, said channel forming with the bottom of the recess of the lower part of the burner a conduit to direct the gas laterally, substantially as described.

662,910. **APPARATUS FOR APPLYING COATINGS.** CLARENCE R. BRITTON, Cleveland, Ohio. Filed June 23, 1899. Serial No. 721,628. (No model.)



Claim.—1. In coating apparatus, a pair of rollers, at least one of which is provided with the coating metal, the rollers being arranged to receive the sheet or plate between them, means for heating the coating material, and mechanism for moving at least one of the rollers relatively to the sheet to apply the coating by abrasive action; substantially as described.

2. In coating apparatus, a pair of rolls, at least one of which is provided with a coating material, means for heating the coating material to a temperature slightly below its fusing-point, the rollers being arranged to receive the sheet or plate between them, and mechanism for moving at least one of the rollers relative to the sheet, to apply the coating by abrasive action; substantially as described.

3. Apparatus for coating metal articles with metal, comprising a movable block having a coating of easily-fusible metal, means for heating the coating metal to a temperature slightly below its fusing-point, and power-actuated mechanism arranged to move the block in contact with the article to be coated, while under pressure; substantially as described.

4. In coating apparatus, a furnace-chamber containing rolls, at least a part of which are covered with a coating metal, means for rotating the rolls, and mechanism arranged to give the rolls an endwise movement during rotation; substantially as described.

5. In coating apparatus, a fluxing-bath, tinning-rolls within a furnace-chamber to which the sheets pass from the bath, and mechanism for moving the rolls endwise during rotation; substantially as described.

6. In coating apparatus, a furnace-chamber containing rotatory rolls, at least a part of which are covered with a coating metal, means for giving the rolls an endwise movement, and a cooling-table to which the sheets pass from the furnace; substantially as described.

662,911. **ELECTRIC HEATER.** JOHN E. BROWN, Philadelphia, Pa., assignor of one-third to John J. Shanfelter, same place. Filed Jan. 24, 1900. Serial No. 2,564. (No model.)

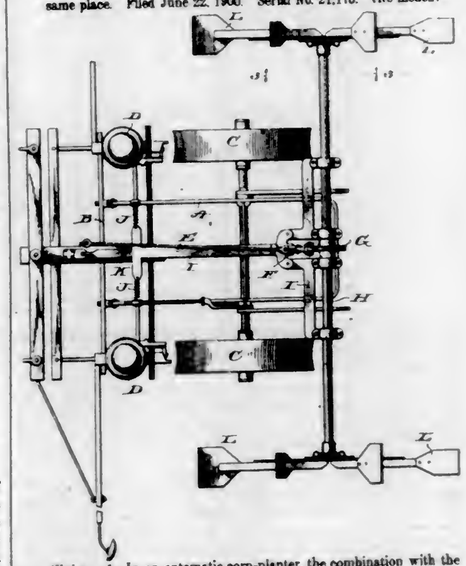


Claim.—1. A chamber formed of material that is a non-conductor of electricity and fireproof and composed of top, bottom and rear walls and a slotted ear within the same, and a resistance-coil supported in the slot of said ear, said walls and ear being integral.

2. An electric heater consisting of a chamber formed of material that is a non-conductor of electricity and fireproof and composed of top, bottom and rear walls, slotted ears projecting into and formed integral with said chamber, and a resistance composed of coiled sections, and reduced necks joining said sections and fitted in the slots of said ears.

3. A chamber formed of material that is a non-conductor of electricity and fireproof and composed of top, bottom and rear walls and a slotted ear within the same, a resistance supported in the slot of said ear, and a case receiving said chamber, and spaced therefrom to form an air-passage.

662,912. **AUTOMATIC CORN-PLANTER.** CHAUNCEY I. BURT, Davenport, Iowa, assignor to the Implement Manufacturing Company, same place. Filed June 22, 1900. Serial No. 21,175. (No model.)



Claim.—1. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a marker comprising a shaft and marker-wheels capable of a limited rotation in either direction independent of each other, substantially as described.

2. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a marker comprising a shaft, marker-wheels and means for yieldingly centering said marker-wheels with relation to each other, substantially as described.

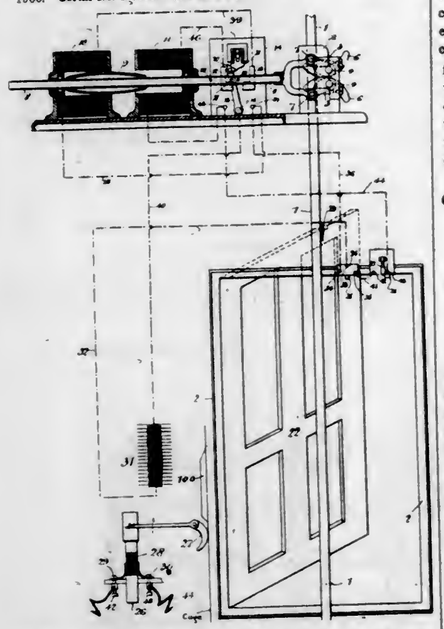
3. In an automatic corn-planter, the combination with the planter and the seed-dropping mechanism thereof, of a trailing marker flexibly connected with a planter and operatively connected with the seed-dropping mechanism, said marker comprising marker-wheels capable of a limited rotation in either direction independent of each other, substantially as described.

4. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a trailing marker flexibly connected with the planter, said marker comprising a shaft operatively connected with said seed-dropping mechanism, marker-wheels on said shaft and means for yieldingly centering said wheels with relation to each other, substantially as described.

5. In an automatic corn-planter, the combination with the planter and its seed-dropping mechanism, of a marker comprising a shaft operatively connected with the seed-dropping mechanism, marker-wheels loosely

mounted upon the ends of said shaft, spiders rigidly mounted upon said shaft adjacent to the marker-wheels, projections on the marker-wheel hubs, curved rods passing through a pair of said projections and an arm of the spider, and coil-springs sleeved upon said rods and confined between said projections and the arms of the spider, substantially as described.

662,913. ELEVATOR. JOHN BUSH, London, England, assignor of one-half to Arthur David Jenkins, Borough, England. Filed Apr. 11, 1900. Serial No. 12,463. (No model.)



Claim.—1. The combination of a part controlling the movement of the cage, devices for holding this part against movement, mechanism for putting the devices into and out of action, two electric circuits controlling said mechanism one in one direction and the other in the other, a door, and two double-acting switches in the circuits one operated by said mechanism and the other by the door, the arrangement being such that both circuits are normally broken but one or other is momentarily closed when the door is opened or shut.

2. The combination of a part controlling the movement of the cage, devices for holding this part against movement, mechanism for putting the devices into and out of action, two electric circuits controlling said mechanism one in one direction and the other in the other, a door, a bolt engaging with the door and forming part of one of the circuits breaking it when shut and closing it when withdrawn and two double-acting switches in the circuits one operated by the mechanism and the other by the door, the arrangement being such that both circuits are normally broken but one is momentarily closed when the door is opened and the other is momentarily closed when the door is shut and bolted.

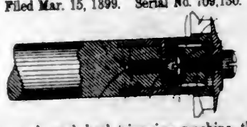
3. The combination of a part controlling the movement of the cage, devices for holding this part against movement, a rod whose movement puts the devices into and out of action, a core on the rod, two electromagnets in which the core works, electric circuits through the magnets, a door, and two double-acting switches in the circuits one operated by the rod and the other by the door, the arrangement being such that both circuits are normally broken, but one or other is momentarily closed when the door is opened or shut.

4. The combination of a part controlling the movement of the cage, devices for holding this part against movement, a rod whose movement puts the devices into and out of action, a core on the rod, two electromagnets in which the core works, electric circuits through the magnets, a door, a bolt engaging with the door and forming part of one of the circuits closing it when withdrawn and breaking it when shut and two double-acting switches in the circuits one operated by the rod and the other by the door, the arrangement being such that both circuits are normally broken but one is momentarily closed when the door is opened and the other is momentarily closed when the door is shut and bolted.

5. The combination of a rope or bar controlling the movement of the cage, pivoted grippping-jaws engaging with the rope or bar, cams connected to the jaws, rollers acting on the cams, a rod carrying the rollers, a core on the rod, two electromagnets in which the core works, electric circuits through the magnets, a door, and two double-acting switches in the circuits one operated by the rod and the other by the door, the arrangement being such that both circuits are normally broken but one or other is momentarily closed when the door is opened or shut.

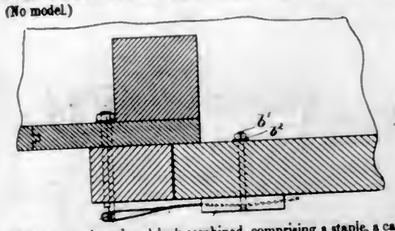
6. The combination of a rope or bar controlling the movement of the cage, pivoted gripping-jaws engaging with the rope or bar, cams connected to the jaws, rollers acting on the cams, a rod carrying the rollers, a core on the rod, two electromagnets in which the core works, electric circuits through the magnets, a door, a bolt engaging with the door and forming part of one of the circuits breaking it when shut and closing it when withdrawn and two double-acting switches in the circuits one operated by the rod and the other by the door, the arrangement being such that both circuits are normally broken but one is momentarily closed when the door is opened and the other is momentarily closed when the door is shut and bolted.

662,914. MOUNTING FOR ROTARY CUTTERS. HERBERT L. CASAVANT, Lynn, Mass., assignor of one-half to George W. Casavant, same place. Filed Mar. 15, 1899. Serial No. 709,130. (No model.)



Claim.—In a sole and heel trimming machine, the combination with the cutter-shaft having the reduced end and shoulder constituting a cutter-seat, and the cutter, of the cutter-mounting comprising, essentially, the sleeve fitted upon said reduced end and provided with the expansible arbor receiving thereon the cutter, means to fix the said sleeve on the said reduced end, the plug within the said arbor, the shield, and the screw passing through the said shield and taking into the said plug, substantially as described.
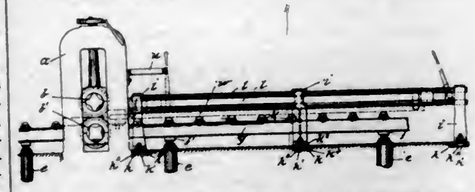
662,915. SEAL-LOCK. GEORGE D. DANFORTH, Tyngsborough, Mass. Filed May 5, 1899. Renewed Apr. 30, 1900. Serial No. 14,918. (No model.)



Claim.—1. A seal and lock combined, comprising a staple, a casing having a passage-way that is curved in opposite or reverse directions, said passage-way being provided with a contracted mouth at each end, and integral catches projecting one into each curve of the passage-way, and a ribbon adapted to be folded around the staple and to have its end or ends passed into or through said passage-way, said ribbon being formed with apertures to receive said catches.

2. A seal comprising a staple, a casing, and a ribbon adapted to be secured in said casing and bent around said staple, said staple being provided with a knife-edge facing toward the bend of the ribbon, substantially as described.

662,916. DEVICE FOR HOLDING ROUNDS IN ROLLING-MILLS. JOSEPH DASCHBACH, Pittsburg, Pa. Filed Apr. 4, 1899. Serial No. 711,641. (No model.)



Claim.—1. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a guideway extending longitudinally in

front of the rolls, a carriage traveling on the guideway, gripping mechanism and grip-closing mechanism supported on and moving with the carriage, and grip-releasing mechanism in position to engage the grip-closing mechanism at the end of the travel of the carriage.

2. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a guideway extending longitudinally in front of the rolls, a carriage free to move on the guideway and independent of the other mechanism, gripping mechanism and grip-closing mechanism supported on and moving with the carriage, and a feed-table in line with the rolls.

3. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a guideway extending longitudinally in front of the rolls, a feed-table in line with the rolls, a carriage traveling on said guideway, levers mounted on said carriage and having jaws depending therefrom, in proximity to the feed-table, and a wedge adapted to operate said levers.

4. The combination with suitable rolls, of a guideway extending longitudinally in front of the rolls, a carriage traveling on said guideway, grasping-jaws on said carriage and a wedge on the carriage adapted to close the jaws, and an operating-lever on said carriage connected to said wedge.

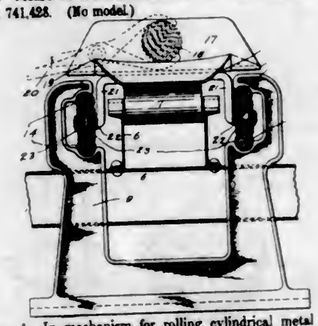
5. The combination with suitable rolls, of a guideway extending longitudinally in front of the rolls, a carriage traveling on said guideway, grasping-jaws on said carriage and a wedge on the carriage adapted to close the jaws, an operating-lever on said carriage connected to said wedge, and a stationary stop-frame in the course of said lever.

6. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a feed-table in line with said rolls, a transversely-movable guideway arranged in front of said rolls, a carriage traveling on said guideway, and gripping and grip-closing mechanism supported on and moving with said carriage.

7. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a movable feed-table in line with said rolls, a guideway extending longitudinally in front of the rolls, a carriage traveling on said guideway and gripping mechanism supported on and moving with the carriage.

8. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls, of a movable feed-table in line with the rolls, a transversely-movable guideway arranged in front of said rolls, a carriage traveling on said guideway, and gripping mechanism supported on and moving with the carriage.

662,917. DEVICE FOR HOLDING ROUNDS FOR ROLLING-MILLS. JOSEPH DASCHBACH, Pittsburg, Pa. Filed Dec. 23, 1899. Serial No. 741,428. (No model.)



Claim.—1. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls and a feed-table, of guide rods or bars, supports therefor, and a buggy mounted on the guide-rods having side wings projecting over the guide-rods and their supports.

2. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls and a feed-table, of guide rods or bars, supports therefor, and a buggy mounted on the guide-rods having an upwardly-projecting rear plate and wings projecting laterally over the guide-rods and their supports.

3. In mechanism for rolling cylindrical metal bars, the combination with suitable rolls and a feeding-table, of guide-rods and a buggy mounted thereon having a body provided with laterally-projecting side wings, a downwardly-inclined front end and an upwardly-projecting rear end.

662,918. AUTOMATIC SIGNAL FOR RAILWAY-CROSSINGS. JULIUS R. DEAN, Easton, Pa. Filed July 25, 1900. Serial No. 24,812. (No model.)

Claim.—1. In an automatic signal, the combination of a pivoted semaphore, a sliding weight carried by the semaphore and adapted to move from one side of the pivotal point to the other to hold the semaphore in a given position, and means for operating the semaphore, substantially as described.

2. In an automatic signal, the combination of a pivoted semaphore provided with a guide extending across the pivotal point, a sliding weight mounted on the guide and adapted to shift automatically its position from one side of the pivotal point to the other as the semaphore is oscillated, a depressible device adapted to be engaged by the wheels of a train, and connections between the depressible device and the semaphore, substantially as described.



3. An automatic railway-signal comprising a depressible bar hinged at one end and having a slotted connection at the other end with a suitable support, a horizontal lever fulcrumed between its ends and having an approximately L-shaped arm extending beneath one of the rails and connected with the said bar, signals, and connections between the signals and the said lever, substantially as described.

4. An automatic railway-signal comprising a pivoted semaphore, a series of levers fulcrumed on suitable supports, connections between the levers, a flexible connection extending from one of the levers to the semaphore, and an operating device connected with the said levers, substantially as described.

5. In a railway-signal, the combination of the pivoted semaphore 25, the lever 16 fulcrumed between its ends, a flexible connection extending from the lower end of the lever 16 to the upper end of the semaphore, a bell connected with the said lever 16, the lever 13 fulcrumed on a suitable support and connected with the lever 16, a depressible device, an approximately horizontal lever extending from the depressible device, and connections between the horizontal lever and the said lever 13, substantially as described.

6. In a railway-signal, the combination of the pivoted semaphores 25 and 28, the end levers pivoted between their ends, flexible connections between the levers and the semaphores, an approximately T-shaped lever connected with the said levers, and a depressible device connected with and adapted to actuate the T-shaped lever, substantially as described.

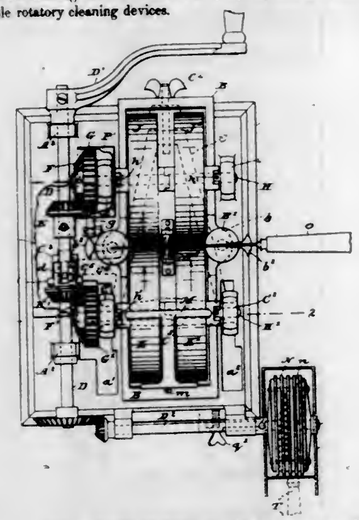
7. In an automatic signal, the combination of a pivoted semaphore, a movable weight mounted thereon and adapted to shift its position to hold the semaphore in either of its positions, and means for operating the semaphore, substantially as described.

662,919. CUTLERY-POLISHING MACHINE. CHRISTIAN F. DILG and CHARLES H. J. DILG, New York, N. Y. Filed July 3, 1895. Serial No. 554,903. (No model.)

Claim.—1. In a cutlery-polishing machine, the following elements; shafts of two rotatable cleaning devices, means to move one shaft forward and backward (parallel to the other) and rigidly hold the same in any desired position; a main operating-shaft located below the plane of the two said shafts; and stationary and shifting means to similarly rotate the stationary and movable shafts in opposite directions whether the same are moving forward or back or lying adjacent or apart; and detachable rotatory cleaning devices.

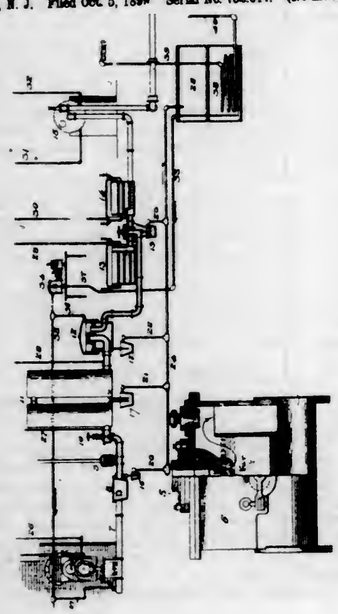
2. In a cutlery-polishing machine, the following elements; shafts of

two rotatable cleaning devices, one shaft mounted in a movable carriage constructed and arranged to contain the cleaning devices the other shaft being supported directly by the base of the machine; means to move one shaft forward and backward (parallel to the other) and rigidly hold the same in any desired position; stationary and shifting means to similarly rotate the stationary and movable shafts in opposite directions whether the same are moving forward or back or lying adjacent or apart; and detachable rotatory cleaning devices.



3. In a cutlery-polishing machine, the following elements; shafts of two rotatable cleaning devices, means to move one shaft forward and backward (parallel to the other), and rigidly hold the same in any desired position; stationary and shifting means to similarly rotate the stationary and movable shafts in opposite directions, whether the same are moving forward or back or lying adjacent or apart; detachable rotatory cleaning devices and means located above and intermediate of said shafts to support the article to be cleaned.

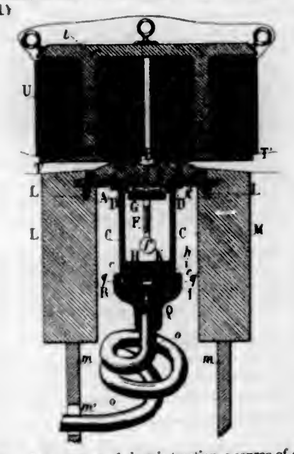
662,920. **GAS-MAKING APPARATUS.** ROBERT M. DIXON, East Orange, N. J. Filed Oct. 5, 1899. Serial No. 732,617. (No model.)



Claim.—1. In an apparatus for the manufacture of gas, the combination with the liquid-sealing portions thereof, of a receptacle for the tar generated by the apparatus, and means for producing circulation of the tar from said receptacle to the sealing portions of the apparatus, and back to the tar-receptacle, substantially as set forth.

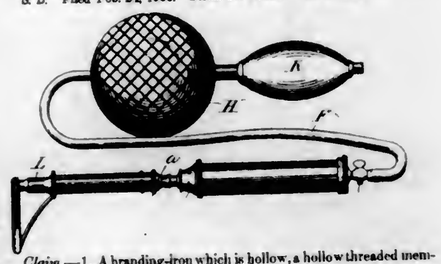
2. In apparatus for the manufacture of gas, provided with liquid-sealing portions, the combination with its tar-well, adapted to receive tar generated by the apparatus, of a suction-pipe, pump and tar-delivery pipe, operatively connected with the sealing portions, and a cooling-coil adapted to reduce the temperature of the tar so as to render it available for use in the sealing portions, while the apparatus is in operation, substantially as set forth.

662,921. **APPARATUS FOR ELECTRIC TRACTION.** HENRI DOLTER, Paris, France. Filed July 6, 1899. Serial No. 722,913. (No model.)



Claim.—In a system of electric traction, a source of electric energy, a conduit wherein the source is located, a box of insulating substance located in said conduit, two magnetic contact-pieces supporting said box, a non-magnetic piece separating the magnetic pieces from each other, a conductor located in the insulating-box and normally in electric connection with the source of energy, and a pendulum adapted to be elevated when the magnetic pieces are magnetized to thereby complete the circuit from the conductor through said magnetic pieces, substantially as and for the purposes described.

662,922. **BRANDING-IRON.** WILLIAM B. DUDLEY, Hot Springs, S. D. Filed Feb. 24, 1900. Serial No. 6,408. (No model.)

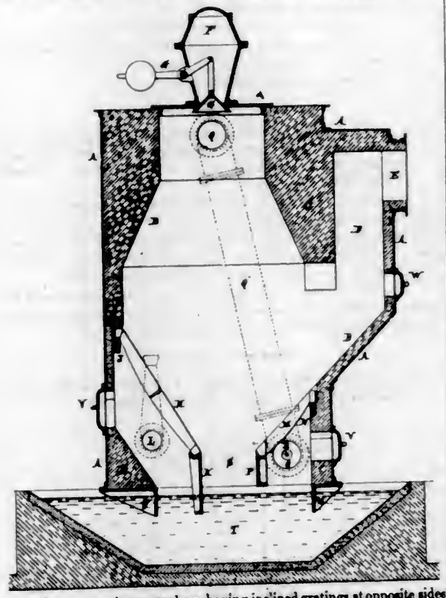


Claim.—1. A branding-iron which is hollow, a hollow threaded member secured thereto, a central and circumferentially-perforated tube extending longitudinally into said iron, and through a portion of the length of said member, with a communicating passage-way about the outer surface of the inner tube, and the inner walls of the iron and said member, the hollow threaded cylinder designed to be connected to the threaded end of said member, and the central tube passing through said cylinder, and designed to communicate with the tube in the branding-iron, and means for supplying gas to the inner tubes, as set forth.

2. A branding-iron, comprising in combination with the hollow member L which is internally threaded, the hollow iron connected thereto, a central tube extending into the interior of said iron, said tube being circumferentially perforated, a platinum-wire gauze wound about said perforated tube, one end of the latter extending through a portion of said member, the cylinder having a central tube projecting beyond its ends,

one end of said cylinder designed to be connected to said member and the meeting ends of the interior tubes brought into communication, the cap to the cylinder having exhaust-ports, and means for supplying gas to the interior tubes, as set forth.

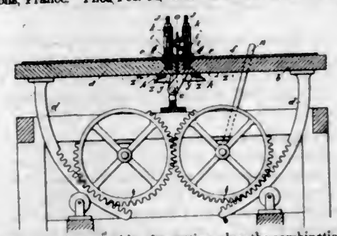
662,923. **GAS-PRODUCER.** EDWARD J. DUFF, Liverpool, England. Filed July 17, 1900. Serial No. 23,913. (No model.)



Claim.—1. A gas-producer having inclined gratings at opposite sides of the lower portion of the producer-casing, and a space between the gratings communicating with a water-sealed-bottom trough, an inlet for air or air and steam beneath the gratings on one side, a pipe leading from the upper portion of the fuel-bed and communicating with a space beneath the gratings on the other side; and a side flue extending upward from about half the height of the fuel-bed substantially as and for the purposes herein set forth.

2. A gas-producer having gratings in the lower portion of the casing, two separate spaces below the fuel-bed, means for the admission of air for supporting combustion to one space, a pipe leading from the upper portion of the fuel-bed to the other separate space and a side flue extending upward from about half the height of the fuel-bed, substantially as and for the purpose set forth.

662,924. **MACHINE FOR CUTTING GLASS.** CHARLES DUGON, Lyons, France. Filed Feb. 14, 1900. Serial No. 5,162. (No model.)



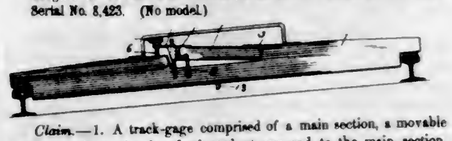
Claim.—1. In a machine for cutting glass the combination of a pair of half-tables forming when joined together a horizontal table, and a common axle to which such half-tables are hinged, said axle being arranged parallel to the line of junction of said half-tables but outside a vertical plane passing through said line so as to separate the glass by the inclination and change of level of said half-tables at the point of separation, substantially as herein set forth.

2. In a machine for cutting glass the combination of a pair of half-tables forming when joined together a horizontal table, a common axle to which such half-tables are hinged, and means for separating and joining the two half-tables consisting of pairs of toothed wheels gearing together and pairs of toothed segments fixed to the half-tables and gearing with the toothed wheels, substantially as herein set forth.

3. In a machine for cutting glass the combination of a pair of half-tables forming when joined together a horizontal table, a common axle to which such half-tables are hinged, means for separating and joining the two half-tables consisting of pairs of toothed wheels gearing together, and pairs of toothed segments fixed to the half-tables and gearing with the toothed wheels, an upwardly-pressed clamping-bar embedded in each half-table near the line of junction of said half-tables, and an adjustable downwardly-pressed clamping-bar mounted in a frame carried by each half-table and coöperating with the upwardly-pressed clamping-bars to grip the sheet of glass, substantially as herein set forth.

4. In a machine for cutting glass, the combination of a pair of half-tables forming when joined together a horizontal table, a common axle to which such half-tables are hinged, means for separating and joining said half-tables consisting of pairs of toothed wheels gearing together, and pairs of toothed segments fixed to the half-tables and gearing with the toothed wheels, an upwardly-pressed clamping-bar embedded in each half-table near the line of junction of said half-tables, an adjustable downwardly-pressed clamping-bar mounted in a frame carried by each half-table and coöperating with the upwardly-pressed clamping-bars to grip the sheet of glass, a slide mounted in one of said frames, a carriage mounted on said slide and a glazier's diamond adjustably mounted in said carriage and acting to cut the glass along the line of junction of the half-tables substantially as herein set forth.

662,925. **TRACK-GAGE.** SAMUEL FIERBAUGH, Huntington, W. Va., assignor of one-half to J. C. Miller, same place. Filed Mar. 12, 1900. Serial No. 8,423. (No model.)

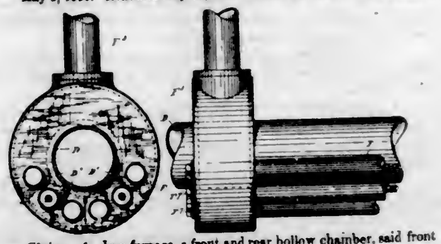


Claim.—1. A track-gage comprised of a main section, a movable section carrying a level and pivoted at one end to the main section, means for normally elevating the free end of the level-carrying section, a movable latch device consisting of a part carried by the main section and having a series of notches adapted to engage and prevent the free end of the level-carrying section springing upward, a screw device connecting the free end of the level-carrying section to the main section and adapted to restrict its upward movement, and an elevation-indicator.

2. In a track-gage, the combination of a main section, a level-carrying section pivoted thereto, a spring normally pressing the free end of said section upward, a spring-catch carried by one section and adapted to normally engage the other section, a screw device carried by the main section and engaging the movable section, and an elevation-indicator.

3. In a track-gage, the combination of a main section, a supplemental section pivoted at one of its ends to the main section and having its free end normally pressed upward, a vertical screw carried by the main section, a notched plate carried by the movable section and having one end project over the main section, said projecting end engaging the screw, a nut carried by the screw, and an elevation-indicator, substantially as described and for the purpose set forth.

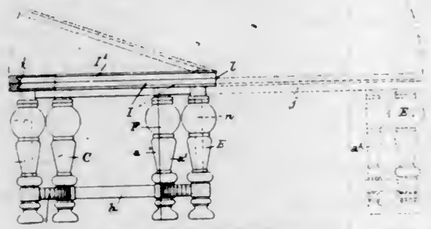
662,926. **FURNACE.** FRANK J. FOVEAUX, Alameda, Cal. Filed May 5, 1899. Renewed July 16, 1900. Serial No. 23,824. (No model.)



Claim.—1. In a furnace, a front and rear hollow chamber, said front chamber having an opening therethrough, an air-pipe extending through said opening and above the grate-bars and having its under surface provided with perforations, a cluster of water-tubes about the under side of said pipe and opening into said chambers, said tubes being separated on lines corresponding with the lines of the perforations in the air-pipe to permit the egress of the air, and connecting water-channels between the said chambers and the water-space of the boiler; substantially as described.

2. In a furnace, a series of water-tubes, front and rear lakes into which said tubes open, a front and rear hollow chamber, said front chamber having an opening therethrough, an air-pipe extending through said opening and above the grate-bars and having its under surface provided with perforations, a cluster of water-tubes about the under side of said pipe and opening into said chambers, said tubes being separated on lines corresponding with the lines of the perforations in the air-pipe to permit the egress of the air, and connecting water-channels between the said chambers and the said corresponding lakes; substantially as described.

662,927. **CONVERTIBLE BILLIARD AND POOL TABLE.** FRANCIS X. GAFTER, Baltimore, Md. Filed June 20, 1899. Serial No. 721,187. (No model.)

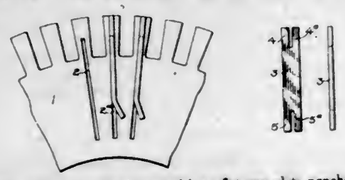


Claim.—1. A billiard-table, comprising a top having openings for the passage of the balls, and legs supporting said top and formed with passages adapted to receive the balls that pass through the openings in the top.

2. The combination of a table having extension-slides; a table-top in two sections—one section rigidly secured to the table-frame, and each section provided on one surface with a billiard-cushion and having in each corner an opening, *m*; a hinge uniting the two sections, so that the movable section may be folded over on top of the rigid section and the billiard-cushions of both sections confront each other and legs having ball-passages which receive the balls that pass through the corner openings in the table-top.

3. A billiard-table, comprising a top formed with openings for the passage of the balls, legs supporting said top and formed with ball-passages extending therethrough adapted to receive the balls that pass through the openings in the top, and braces connecting said legs and formed with passages leading from the passages in the legs to a common discharge-opening.

662,928. **SPACE-BLOCK FOR ARMATURES.** HENRY GEISENHÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Jan. 18, 1900. Serial No. 1,956. (No model.)



Claim.—1. A space-block, comprising a flat core-plate punched and having secured thereto a space-piece supported on the core-plate edge on and locked thereto by overhanging walls.

2. A space-block, comprising a flat core-plate punched to receive a space-piece, and a space-piece secured thereto edge on, and locked in position by being pushed over the plate.

3. A space-block, comprising a core-plate punched with radial slots, space-pieces adapted to be inserted into the radial slots, the space-pieces being slotted to permit movement relatively to the core-plate, and locked thereto by the walls of said slot.

4. A space-block, comprising a core-plate radially slotted, space-pieces within the slots projecting on both sides of the core-plate and locked thereto by lateral projections.

5. A space-block, comprising a core-plate, space-pieces extending through radial slots in the core-plate, lateral projections on the space-pieces, and corresponding enlargements in the slots to permit assembling, and a slot in the outer end of the space-piece to permit its movement in the radial slot to lock it in position.

6. A space-block, comprising a space-plate and space-pieces secured thereto by integral lateral extensions from the space-pieces at both sides of the plate.

7. A space-block, comprising a space-plate and space-pieces extending through the plate edgewise, and locked thereto by lateral extensions at both sides of the plate.

8. A space-block, comprising a slotted space-plate, and space-pieces set edgewise in the slots projecting on opposite sides of the plate and locked in place by the slot-walls.

9. A space-block composed of punchings of sheet metal and comprising a slotted core-plate and space-pieces set edgewise in the slots and anchored at both sides of the plate.

10. A lamination and a slotted space-piece which spans it.

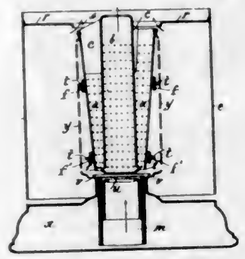
11. A lamina, a slotted space-piece which spans it, and integral lateral extensions from the space-piece on opposite sides of the slot, which secure the space-piece to the lamina.

662,929. **PROCESS OF MANUFACTURING SOLID SUBSTANCES FROM FIBROUS MATERIAL AND PRODUCT THEREOF.** WILLIBALD GELINEK, Mersdorf, Austria-Hungary. Filed July 30, 1900. Serial No. 25,340. (No specimens.)

Claim.—1. The process for the manufacture of compressed or solid substances which consists in first preparing an impregnating substance of coal-tar, colophony, asbestos, kaolin, infusorial earth and lime, then mixing this with fibrous material, and while hot, compressing the plastic mass thus obtained, under high pressure, substantially as described.

2. A composition for the manufacture of a compressed or solid substance consisting of fibrous materials, with coal-tar, colophony, asbestos, kaolin, infusorial earth and lime, substantially as described.

662,930. **PETROLEUM-LAMP.** MARCEL GERVAIS, Paris, France. Filed Nov. 27, 1899. Serial No. 738,348. (No model.)



Claim.—1. A vaporizer consisting essentially of two concentric perforated metal tubes, having between them an inverted conical annular space, and a wick entering into the lower end of said annular space, whereby the vapors given off from this wick rise and expand in said space and are further heated between the layers of flame which are formed on the surface of the perforated tubes, and finally burn at the top of said tubes between two currents of air, one outside the tubes and the other rising through the inner tube.

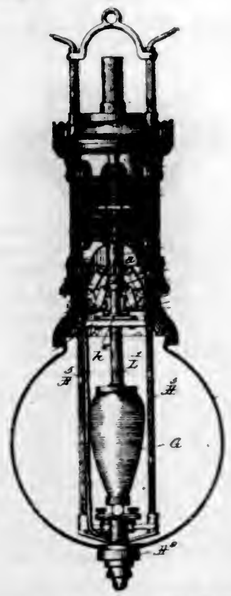
2. In a vaporizer, the combination with two concentric perforated metal tubes forming one structure, of two sets of pivots thereon, forks engaged at one end with said pivots and hinged at the other end, a prolongation on one of said forks, and means for raising and lowering said prolongation.

3. In a vaporizer, the combination with two concentric perforated metal tubes forming one structure, of two sets of pivots thereon, forks engaged at one end with said pivots and hinged at the other end, a prolongation of one of said forks terminating in a pin, an upright guide for said pin, and an eccentric engaging said pin to lift and lower it.

4. In a vaporizer, the combination with an annular plate, of two concentric perforated metal tubes between which the heated gases burn, the said tubes being concentric with said plate, the inner tube extending above the outer one, and the upper end of the outer tube rising approximately to the plane of the inner edge of said annular plate, but leaving an annular opening between them, whereby said plate serves to modify the action of the flame by controlling and directing the external current of air feeding said flame.

5. The combination with a vaporizer comprising two perforated concentric tubes between which the heated gases burn, the inner tube extending above the outer one, of a plate r perforated with holes and having a central opening fitting freely around and in the same plane as the exterior tube of the vaporizer, but sufficiently close to diminish the action of the external current of air and permit the internal current through the inner tubes to produce a more extended flame.

662,931. **ELECTRIC-ARC LAMP.** FREDERICK A. GILBERT, Brookline, and EMIL O. LUNDIN, Beachmont, Mass., assignors to the General Electric Company, of New York. Filed July 22, 1898. Serial No. 686,576. (No model.)



Claim.—1. In an electric-arc lamp, a tube for receiving and permitting vertical movement therein of the upper carbon, a clutch mounted wholly upon said tube, and means for preventing lateral movement of the clutch relatively to the axis of the tube.

2. In an electric-arc lamp, a tube for the upper carbon, a support mounted to slide upon said tube and having opposite, depending arms, and clamping means for the carbon, pivotally mounted on said arms below the tube and preventing lateral movement of the carbon.

3. In an electric-arc lamp, a tube for the upper carbon, and a clutch mounted wholly on said tube, the clutch including clamping-jaws for the carbon, and a supporting member for said jaws, concentric with and longitudinally guided by the tube and movable thereon, to control the feed of and position the carbon laterally.

4. In an electric-arc lamp, a tube for receiving and permitting vertical movement therein of the upper carbon, clutch mechanism including two relatively-movable members mounted on the tube one in sliding relation thereto, jaws carried by one of said members below the end of the tube, to engage the carbon, and connections between said jaws and the other member, whereby relative movement of said members will cause said jaws to clamp or release the carbon.

5. In an electric-arc lamp, a tubular receiver for and in which the upper carbon is vertically movable, and a clutch mounted wholly upon the receiver, said clutch comprising a yoke adapted to slide on the receiver and having lateral arms depending below the tube, bell-crank levers fulcrumed on said arms, clamping-jaws pivotally mounted on said levers and adapted to clamp the carbon, and operating-links pivotally connected with the outer ends of the levers and to the tubular receiver.

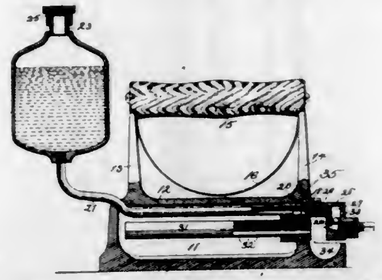
6. In an electric-arc lamp, a tube to receive and permit vertical movement therein of the upper carbon, and a clutch mounted wholly upon the tube, said clutch comprising clamping means for the carbon, a support therefor mounted to slide on the tube, connections between said clamping means and the tube, fulcrumed upon the latter, and a fixed stop to engage said clamping means and move the support on the tube, to thereby release the carbon.

7. In an electric-arc lamp, a tube to receive and permit verticzl movement therein of the upper carbon, and a clutch mounted wholly upon the tube, said clutch comprising clamping-jaws for the carbon, levers upon which the jaws are pivoted, a support for said levers, mounted to slide upon the tube, links connecting the tube and the outer ends of the latter, a fixed stop to normally engage the jaws and move the support on the tube, to release the carbon, and auxiliary means to engage and move the levers when the jaws are in engagement with and more widely separated by the carrier attached to the upper end of the carbon.

8. In an electric-arc lamp, a carbon-receiving tube, and a clutch mechanism consisting of two relatively-movable yoke-like members mounted upon said tube one in sliding relation thereto, bell-crank levers pivotally mounted on one member and having clamping-jaws pivoted upon their lower ends, and links fulcrumed at one end on the other yoke-like member and pivotally connected at their other ends with the upper portions of said levers.

9. In an electric-arc lamp, a movable tubular controlling member for the upper carbon, and in which the latter is vertically movable, a clutch mechanism carried wholly by said controlling member, the clutch being positively held against lateral shifting, and a fixed stop mounted independentiy of and to engage the clutch mechanism to release the carbon.

662,932. **SAD-IRON.** SOLOMON L. GROSS, Des Moines, Iowa. Filed Feb. 2, 1898. Renewed Apr. 7, 1900. Serial No. 11,996. (No model.)



Claim.—1. A vapor-burning sad-iron, comprising an oil-tank, a sad-iron provided with a cavity, a generator mounted in the rear of said sad-iron and opening to the cavity therein, a supply-pipe connecting the tank and generator and carrying the tank, a burner fixed to the generator and extended into the cavity of the sad-iron and provided with downwardly-opening flame-ports, a trap-chamber in the generator at the discharge end of the supply-pipe and of greater diameter than said pipe, a minute communicating passage horizontally positioned in the upper portion of the generator and leading from the upper portion of the trap opposite the supply-pipe, a screen in the trap, a well vertically formed in the rear portion of the generator, and receiving the discharge end of the communicating passage, a passage 29 and discharge-port at the lower end of the well, a needle-valve controlling the discharge-port, and a generating-ball in the lower end of the well, which ball is of slightly-less diameter than the well.

2. In a sad-iron, the generator having the cylindrical well, a horizontal discharge-passage below said well and an oblique passage leading from a point at one side of the central vertical plane of the well to and communicating with the horizontal discharge-passage near the terminal thereof, a needle-valve mounted in and controlling the horizontal discharge-passage, a spherical ball of slightly less diameter than the well mounted loosely in and resting on the bottom of said well, the point of contact of the ball and well-bottom being at the central vertical plane of the well, means for supplying fluid to the generator and a burner attached to the generator.

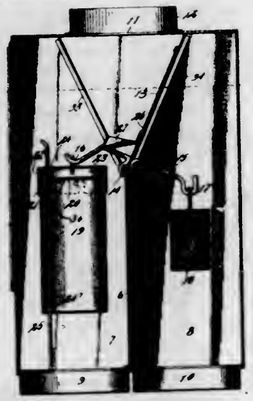
3. In a device of the class described, a generator having a trap and a well, a minute passage between said trap and well, a vaporizing-ball located in said well, a discharge-port communicating with the well, and a needle-valve controlling said discharge-port.

662,933. **AUTOMATIC RAIN-WATER CUT-OFF.** JOSEPH HAKE, Louisville, Ky. Filed Sept. 27, 1900. Serial No. 31,315. (No model.)

Claim.—1. A device of the class described comprising a casing having a central partition forming two compartments, a waste-pipe leading from one compartment, a cistern-pipe leading from the second compartment, a feed-opening above the partition a valve pivoted with its lower edge at the upper edge of the partition and adapted for movement to cause its upper edge to lie ultimately on opposite sides of the feed-opening, a rocker fixed to the valve and projecting at opposite sides thereof, a weight at one end of the rocker adapted to hold the valve normally in a predetermined position, a bucket attached to the opposite end of the rocker and adapted to receive water from the feed-pipe to move the valve against the tendency of the weight, said valve having openings therein, and a spout disposed to receive water through the openings and discharge to the bucket.

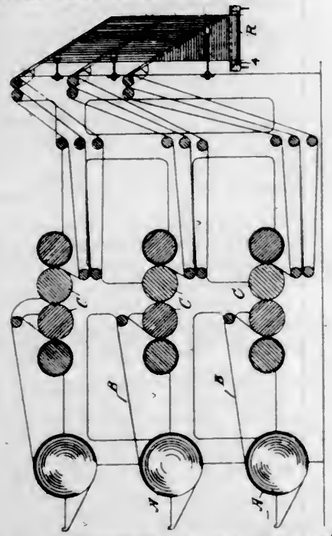
2. A device of the class described comprising a casing having separate water-passages, a feed-opening, a pivoted valve adapted for move-

ment to communicate the feed-opening with the passages alternately, a rocker fixed to the valve, a weight at one end of the rocker to hold the valve to direct water to the passage at the opposite side from the weight, a bucket at the opposite end of the rocker, said bucket having a lining openings in its top and bottom for entrance and discharge of water, and a fixed rod passed through the openings for movement therein as the bucket is reciprocated, to clear the openings.



3. A device of the class described comprising a casing having separate water-passages, a feed-opening, an outlet-opening for each passage, a pivoted valve adapted for movement to communicate the feed-opening with the passages alternately, a weight attached to the valve at one side thereof and adapted to hold the valve to direct water from the feed-opening to the passage at the opposite side of the valve from the weight, a bucket connected at the opposite side of the valve from the weight, a spout on the valve and having its discharge end disposed over the bucket, openings in the valve leading to the spout, alining perforations in the top and bottom of the bucket, and a rod passed through the perforations for movement therein as the bucket is raised and lowered, said rod fitting the perforations loosely and adapted to clear them of obstructions.

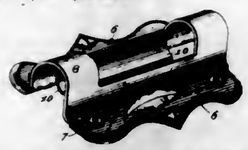
662,934. PRINTING-PRESS. HENRY HARTT, Chicago, Ill. Filed Dec. 23, 1899. Serial No. 741,387. (No model.)



Claim.—1. The combination with a series of presses and common cutting-cylinders therefor, of a former for each press, said formers being disposed with their apexes in a line parallel with the initial direction of movement of webs when passing from said formers to the cutting-cylinders.

2. The combination with a press or presses adapted to deliver two or more printed webs which are required to be folded together, of devices for giving each web independently a longitudinal fold, means for causing such longitudinally-folded webs to be fully inserted one within another, and cutting-cylinders to which such longitudinally-folded and fully-inserted webs pass.

662,935. PLUMBER'S TAG OR CLAMP-STAY. HARRY H. HIBBERD and GEORGE V. HIBBERD, Wheeling, W. Va. Filed Mar. 30, 1899. Serial No. 711,107. (No model.)



Claim.—1. A plumber's tag comprising separated base portions that do not meet, side walls extending upwardly therefrom, end and intermediate curved circular straps integral with said base portions and side walls respectively, at intermediate points in their circumference, and deflected respectively upward and downward from said intermediate points of connection with the base portions and walls, the downwardly-deflected strap being severed and its ends spaced apart to permit flexure of the other straps upon relative movement of the base portions.

2. A plumber's tag or pipe-clamp struck up from a single piece of metal, comprising base portions spaced apart, side walls, straps extending in opposite directions from the base portions and walls respectively, the downwardly-extending strap being severed and having its ends spaced apart to render the structure transversely elastic.

3. A plumber's tag or pipe-support comprising separate base portions spaced apart, and curved clamping-straps extending upwardly, a curved clamping-strap extending downwardly between the base portions, and conforming to the periphery of the pipe to be clamped, the downwardly-extending strap being divided longitudinally of the tag or clamp, and its approaching ends being spaced apart to render the structure transversely elastic.

4. In a plumber's tag or clamp, the combination with the base-flanges and inverted-U-shaped clamping-straps integral with and extending upwardly from the ends of said base-flanges, of side walls extending upwardly from the base-flanges and connecting said end straps, and a curved clamping-strip extending downwardly and inwardly from each of said side walls.

662,936. TONGS. FRED HOEFNER, New Melle, Mo. Filed July 25, 1896. Serial No. 600,552. (No model.)



Claim.—A device of the class described, comprising a pair of levers having extensions disposed at right angles thereto and pivoted together at their angles, each extension terminating in an arm which is disposed at right angles to the extension and extends back in the same direction as the lever of which it forms a part and in substantially parallel relation thereto and in the same plane therewith and said arms extending in opposite directions to each other and lying in substantial alinement with each other when the extensions are in coincidence, and antifriction-rollers journaled on said arms and having their axes of rotation extending in the same direction as the arms.

662,937. ADVERTISING APPARATUS. DELMAR G. HURD, Lowell, Mass., assignor of one-half to Michael J. Burns, same place. Filed Mar. 6, 1900. Serial No. 7,460. (No model.)

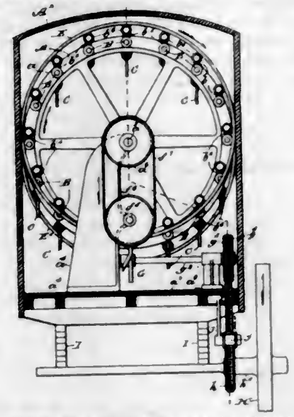
Claim.—1. In an advertising apparatus, the combination with a suitable case, having sight-openings at opposite sides thereof, and a cylinder arranged between said sight-openings and consisting of a central horizontal shaft, and heads, fast on said shaft, of sign-plates, suspended between said heads, parallel with said shaft each sign-plate being free to swing between said heads and between the next adjacent sign-plates and adapted to maintain a vertical position at all times and to present its opposite faces at said opposite sight-openings in close proximity thereto as said cylinder is revolved.

2. In an advertising apparatus, the combination with a suitable case, having sight-openings at opposite sides thereof, and a cylinder arranged between said sight-openings and consisting of a central horizontal shaft, heads, fast on said shaft, and bars connecting said heads, parallel with said shaft, of sign-plates, suspended from said bars, each sign-plate being free to swing between said heads and between the bars of the next adjacent sign-plates and adapted to maintain a vertical position at all times and to present its opposite faces at said opposite sight-openings in close proximity thereto as said cylinder is revolved.

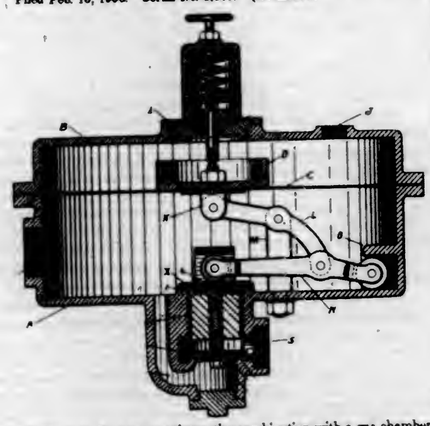
3. The combination with a cylinder consisting of heads, a central, horizontal shaft on which said heads are fast, and bars, arranged parallel with said shaft and journaled in said heads and free to turn therein, of plates and clips rigidly secured to said plates and adapted to engage said bars, said bars having one or more flat faces and said clips having corresponding inner faces to prevent said plates from turning on said bars.

4. The combination, in an advertising apparatus, of a case, having opposite sight-openings, a cylinder, consisting of heads, a shaft, on which said heads are fast, and bars, journaled in said heads, parallel with said shaft, and having at opposite ends oppositely-projecting radial arms, provided with studs, plates, rigidly secured to the said bars, and guiding means adapted to keep every position of each plate parallel with every other position of the same when said cylinder is rotated, said shaft being arranged horizontally between said sight-openings.

5. The combination in an advertising apparatus, of a case, having opposite sight-openings, a cylinder consisting of heads, a central horizontal shaft, on which said heads are fast, said shaft being arranged between said sight-openings, and bars, journaled in said heads parallel with said shaft and having at opposite ends oppositely-projecting radial arms, provided with studs, arranged parallel with said bars, plates, rigidly secured to said bars, and stationary guide-rings, arranged at opposite ends of said cylinder and having their corresponding curved surfaces in contact with said studs, said rings being eccentric to said cylinder but having their centers in the same plane with the center of said cylinder, to keep every position of each plate parallel with every other position of the same when said cylinder is rotated.



662,938. GAS-REGULATOR. CHARLES JACOBSON, Warren, Pa. Filed Feb. 13, 1900. Serial No. 5,065. (No model.)



Claim.—1. In a gas-regulator, the combination with a gas-chamber having an inlet and outlet and a diaphragm, of a valve controlling the inlet of gas, a weight supported upon the diaphragm, a lever connected with the valve and having its opposite end fulcrumed, said lever having a roller bearing at each end, and a second lever connected with the diaphragm and having its opposite end connected with the first-named lever at a point between the opposite ends of the latter whereby the valve is opened by the depression of the diaphragm and is closed by gas-pressure upon said diaphragm.

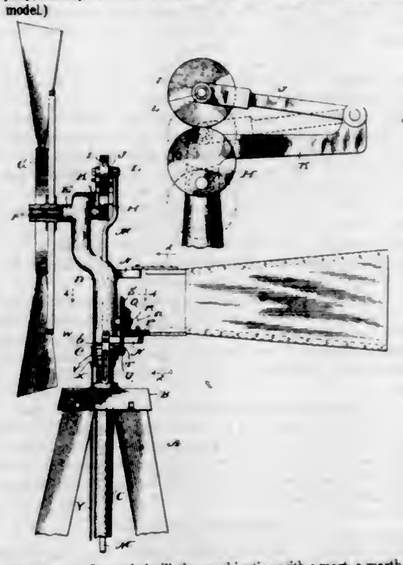
2. In a gas-regulator, the combination of a gas-chamber, a controlling-valve and a diaphragm, of a lever having one end connected with the valve and the opposite end fulcrumed, rollers journaled in the ends of said lever, a standard or support, and a second lever connected at one end with the diaphragm, and fulcrumed to said standard or support, and having its opposite end pivotally connected with the first-named lever at a point between the ends of the latter, whereby the sinking of the diaphragm raises the valve to admit gas and the ascent of the diaphragm, by gas-pressure, closes said valve and cuts off the gas-supply.

3. In a gas-regulator, the body or case having a gas inlet and outlet, a valve having a loop or eye, and a weighted diaphragm, in combination with means for operating the valve consisting of a pair of connected levers one of which has its free end connected with the diaphragm and the other has its free end loosely and movably connected with the eye or loop of the valve and said first-named lever fulcrumed between its ends whereby the weighted diaphragm opens the valve and gas-pressure closes it.

4. The combination with a gas-chamber, a diaphragm and a gas-controlling valve having a stem provided with an eye or loop, of a lever having a rolling connection with said eye or loop and having a rolling fulcrum at the opposite end, and a second lever fulcrumed between its ends, having one end connected with the diaphragm and the opposite end connected with the first-named lever at a point between the opposite ends of the latter.

5. The combination with a gas-chamber having an inlet and outlet and a valve-controlled passage from the inlet to the chamber, of a valve consisting of a body having wings forming gas-passages, a disk secured to the body and to seat within the gas-chamber to prevent the escape of gas through the said gas-passages said disk having an open eye or loop, a second disk separated from the lower side of the body whereby the lower ends of the gas-passages are normally open to receive gas from the main inlet, said lower disk seating upon and closing the entrance to the lower gas-passage, and means for operating the valve including a pair of levers one loosely and movably connected with said eye or loop and the other connected with the diaphragm and also connected with the first-named lever at a point between the ends of the latter.

662,939. WINDMILL. JAMES B. JARMIN, Osceola, Nebr., assignor, by mesne assignments, to the Implement Manufacturing Company, Davenport, Iowa. Filed Nov. 18, 1899. Serial No. 737,508. (No model.)



Claim.—1 In a windmill, the combination with a mast, a masthead and a vane pivoted to said masthead, of a gear connection between said

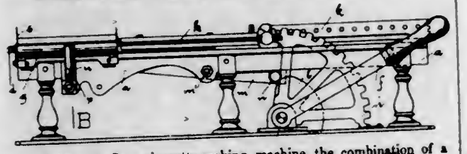
masthead and vane, a sleeve upon the mast, a connection between said sleeve and the gear on the masthead for rotating the same, and a rod for operating and controlling the movement of said sleeve manually, whereby the relative angular positions of said vane and the masthead may be adjustably regulated and held positively in such adjusted positions, substantially as described.

2. In a windmill, the combination with a mast, a masthead and a vane pivoted to said head, of a gear connection between said vane and head, a segment attached to the gear on the masthead, a sleeve upon the mast and movable longitudinally thereof, a chain attached at its ends, respectively, to said sleeve and the segment for imparting movement to said gear connection, and a rod for actuating and manually controlling the movement of the sleeve whereby the relative angular positions of said vane and the masthead may be adjustably regulated and held positively in such adjusted positions, substantially as described.

3. In a windmill, the combination with a mast, a masthead and the vane pivoted to the masthead, of a gear connection between said vane and masthead, a segment upon the masthead-gear, a counterweight attached to said gear, a sleeve slidingly, but non-rotatively, mounted upon the mast, a ring loosely mounted on said sleeve, a chain connecting said ring and segment, said ring being connected, so as to rotate, with the masthead, and a rod for actuating said sleeve, substantially as described.

4. In a windmill, the combination with a mast, a masthead and the vane pivoted to the masthead, of a gear connection between said vane and masthead, a segment upon the masthead-gear, a counterweight attached to said gear, a sleeve slidingly, but non-rotatively, mounted upon the mast, a ring loosely mounted on said sleeve, a chain connecting said ring and segment, a slotted bar rigidly secured at one end to the masthead, a bolt rigidly secured to said ring and working freely in the slot in said bar, and a rod for actuating the sleeve, substantially as described.

662,940. **CIGARETTE-MAKING MACHINE.** GEORG A. JASMATZI, Dresden, Germany. Filed Oct. 29, 1897. Serial No. 656,794. (No model.)



Claim.—1. In a cigarette-making machine, the combination of a channel *c* and a hinged cover adapted to coöperate therewith, of a driver adapted to be reciprocated into and out of the said channel, a slide connected with the driver, a spindle, means intermediate the spindle and the hinged cover whereby the latter will be closed when the spindle is turned, a sector on the spindle engaging with and adapted to reciprocate the slide, and means for effecting the operation of the sector from the spindle at a point in the turning movement of the latter after the cover has been closed, all as and for the purpose set forth.

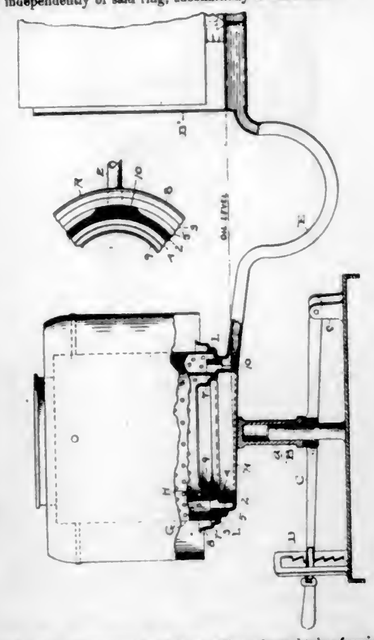
2. In a cigarette-making machine, the combination of a channel *c*, and a hinged cover adapted to coöperate therewith, of a driver adapted to be reciprocated into and out of the said channel, a slide connected with the driver, a spindle, means intermediate the spindle and the hinged cover whereby the latter will be closed when the spindle is turned, a sector on the spindle engaging with and adapted to reciprocate the slide, and means for effecting the operation of the sector from the spindle at a point in the turning movement of the latter after the cover has been closed, a tube arranged to receive and hold a paper tube in position for receiving the tobacco from the channel, a two-armed lever *q*, a finger on one end of said lever adapted to hold the paper tube on its supporting-tube and a finger on the opposite end of the lever *q* adapted to be engaged by the slide as set forth, and for the purpose specified.

3. In a cigarette-making machine, the combination of a spindle, the driver *h*, the slide thereof, and the toothed sector engaging with said slide, with a cam-disk *l*, the two-armed lever *m*, a cam or lever *p*, one end of which is adapted to be depressed by the lever *m*, the tobacco-channel *c*, and the cover *g* adapted to be closed by the other end of the cam or lever *p*.

4. In a cigarette-making machine, the combination of a spindle, the driver *h*, the slide thereof, and a toothed sector engaging with said slide, with a two-armed lever *q* adapted to be operated by the slide, the tube *d*, a finger on the two-armed lever adapted to hold the paper tube fast on the tube *d*, and means for varying the length of the rear side of the slide, for the purpose specified.

662,941. **HYDROCARBON-BURNER.** WILLIAM R. JEAVONS, Cleveland, Ohio. Filed May 25, 1898. Serial No. 681,651. (No model.)

Claim.—1. The combination in a burner with perforated tubes forming a combustion-chamber, an imperforate oil and vapor trough below said combustion-chamber and in communication therewith, of a ring of capillary material in said trough supported with its bottom edge intermediate the top and bottom of said trough, and means to supply oil directly to the trough below the said ring, whereby with high level of oil the capillary ring will be supplied with oil and with low level of oil vaporation may occur inoependently of said ring, substantially as described.



2. The combination in a burner with perforated tubes forming a combustion-chamber, and an imperforate oil and vapor trough below said combustion-chamber, and in communication therewith, of a ring of capillary material supported in said trough above the bottom thereof, whereby a vaporizing area is provided in said trough on a lower plane than the bottom of said ring, and an oil-supply pipe adapted to discharge oil directly onto the said vaporizing area below the said ring, and the top of said capillary ring extending upward to a point of proximity to the lowest perforations in the combustion-tubes, substantially as described.

3. In a burner, the combination with perforated tubes forming a combustion-chamber, and an imperforate oil and vapor trough below said combustion-chamber and in communication therewith, of a ring of capillary material supported in said trough above the bottom thereof, whereby a vaporizing area is provided in said trough below the bottom edge of said ring, and the said capillary ring constructed and arranged to leave a vapor-distributing space adjacent to one of its sides and its top edge extending upward to a point that will be in close proximity to flame-jets occurring at the lowest air-inlets of the combustion-chamber, and a pipe for supplying oil having its discharge-opening to said trough on a lower plane than the base of the said capillary ring, substantially as described.

4. In a burner, the combination with perforated tubes forming a combustion-chamber, and an oil and vapor trough below said combustion-chamber and in communication therewith, of a ring of capillary material at one side of said trough above the bottom thereof, whereby a vaporizing area is provided in said trough below the bottom edge of said ring, an oil-supply pipe having its discharge-opening to said trough on a lower plane than said capillary ring, and the said capillary ring arranged in relation to said parts to provide a vapor-distributing channel of greater depth than width and having its top edge in close proximity to the plane of the lowest air-inlets to the combustion-chamber, substantially as described.

5. In a burner, the combination with the perforated tubes forming a combustion-chamber and a base forming an imperforate trough, of a capillary ring in said trough in position to leave a free oil or vapor way around the trough on a lower plane than the bottom of the said ring and in the direct line of heat radiation from the combustion-chamber downward, and an oil-supply pipe arranged to deliver the oil to said trough below the capillary ring, substantially as described.

6. The combination with an imperforate oil and vapor trough, and an oil-feed pipe communicating therewith, of a capillary ring in said trough in

position to leave a vapor space or chamber adjacent to its inner side and supported with its bottom edge above the bottom of the trough, thereby affording an oil and vapor passage under the capillary ring from the feed-pipe to the said vapor space or chamber, and a feed-pipe in position to deliver oil to the trough at a plane lower than the bottom of the capillary ring, substantially as described.

7. In a burner, the combination with perforated tubes forming a combustion-chamber, an oil and vapor trough below said combustion-chamber having its bottom depressed at one side, and an oil-feed pipe communicating with said depressed side, of a capillary ring in said trough in position to leave a vapor space or chamber adjacent its inner side and supported with its lower edge above said depressed side whereby a free oil and vapor passage is provided under the capillary ring from the feed-pipe to the said vapor space or chamber, substantially as described.

8. In a burner, the combination, of an oil and vapor trough, a lighting-ring therein, the said trough constructed to provide a rest portion for the lighting-ring, a section of said rest portion recessed to a lower plane than the bottom of the lighting-ring and the oil-feed pipe communicating with said recessed section, substantially as described.

9. The combination with an oil and vapor trough having a capillary ring therein above its bottom, of an oil-reservoir provided with means for maintaining a substantially constant oil-level communicating with said trough, and means for changing the relation of the trough and the oil-level maintained by said reservoir, whereby the base of said ring may be maintained above or below the oil-level substantially as described.

10. The combination with an oil and vapor trough and a capillary ring supported in said trough above its bottom, of an oil-reservoir provided with means for maintaining a substantially fixed oil-level communicating with said trough and means for changing the relation of the trough and the oil-level maintained by said reservoir whereby the base of said ring may be maintained above or below the oil-level, substantially as described.

11. The combination with an annular oil and vapor trough gradually increasing in depth to one side, of a capillary ring supported with its bottom above the bottom of the said trough, whereby an inclined vaporizing area is provided in said trough on a lower plane than the bottom of said capillary ring, substantially as described.

12. The combination with perforated tubes forming a combustion-chamber and an oil and vapor trough provided with an oil-inlet and having its bottom gradually inclined upward from said oil-inlet, of a capillary ring in said trough with its bottom supported above the bottom of the said trough and its top extending upward to a point of proximity to the lowest perforations in the combustion-tubes, means for maintaining an oil-level and means for changing the relation of the oil-level and the trough, whereby the oil may be maintained at a level for supplying the capillary ring or may be maintained at a level below the ring over a greater or less area of the inclined bottom of the trough, substantially as described.

13. The combination with an oil and vapor trough provided with an oil-inlet and having a gradual incline upward in its bottom from said oil-inlet, of a capillary ring in said trough above its bottom, means for maintaining an oil-level and means for changing the relation of the oil-level and trough whereby the oil-level may be maintained above the bottom of the capillary ring or below the bottom of said ring over a greater or less area of the inclined bottom of the said trough, substantially as described.

14. In a burner, the combination with perforated tubes forming a combustion-chamber, of an oil and vapor trough having its walls constructed and arranged to engage the lower edges of said tubes and support them at a point intermediate its top and bottom, and the portions of the base above the bottom edges of the said tubes extended outwardly and forming annular chambers about the lower ends of said tubes exterior to said combustion-chamber, substantially as described.

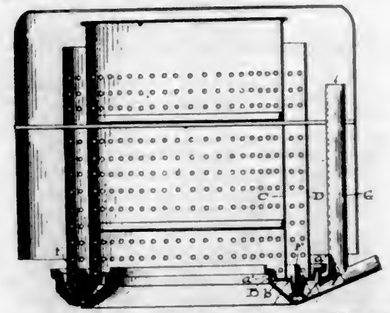
15. In a burner the combination with perforated tubes forming a combustion-chamber, of an oil and vapor trough below said combustion-chamber and in communication therewith and having seats for the said tubes and flanges on said seats extended upwardly in proximity to said tubes and forming annular spaces or chambers exterior to said combustion-chamber, substantially as described.

662,942. **BURNER.** WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Dec. 16, 1898. Serial No. 699,457. (No model.)

Claim.—1. In a burner, an oil and vapor trough and a feed-pipe therefor, a perforated member or partition extending across the trough and having a depressed portion for the reception of the lighting ring or wick, substantially as described.

2. In a burner, perforated tubes forming a combustion-chamber, an oil and vapor trough below said chamber and a perforated partition extending across said trough and constructed to support a lighting-ring, substantially as described.

3. Perforated tubes forming a combustion-chamber, an oil and vapor trough below said chamber and an oil-feed pipe communicating therewith, a perforated partition supported above the bottom of the said oil and vapor trough, and having a trough-shaped depression for the reception of a lighting ring or wick, substantially as described.



4. An oil and vapor trough and a perforated partition extended across the said trough and forming with said trough an inclosed vapor-distributing chamber between them, and the said partition having a depressed portion to receive a lighting-ring, substantially as described.

5. Perforated tubes forming a combustion-chamber, a perforated member or partition having seats for the said tubes and formed with a depressed portion for a lighting ring or wick, and an oil-trough below said perforated member and forming therewith an inclosed vapor-distributing chamber, and an oil-supply for said trough, substantially as described.

6. Perforated tubes forming a combustion-chamber, an oil and vapor trough below said chamber and an oil-supply therefor, a member spanning the trough and formed with a trough-shaped depression, a lighting-ring in the said depression, and openings through the depressed portion of said member for supplying oil to said lighting-ring, substantially as described.

7. In a burner, an oil and vapor trough provided with seats, a perforated member spanning said trough, thereby forming a vapor-distributing chamber between said parts, the said perforated member loosely resting on said seats whereby it may be removed to give access to the trough for cleaning, substantially as described.

8. The oil and vapor trough, a removable perforated member supported by said trough above its bottom and forming an inclosed vapor-distributing chamber between said parts, perforated tubes forming a combustion-chamber and an oil-supply for said trough, substantially as described.

9. Perforated tubes forming a combustion-chamber, an oil and vapor trough below said chamber, a perforated partition arranged across said trough to form an inclosed chamber therewith, a lighting-ring, means for supplying air to said inclosed chamber, and means for supplying oil to said lighting-ring, substantially as described.

10. An oil and vapor trough, a perforated partition above the bottom of said trough adapted to support the lighting-ring and forming with said trough an inclosed chamber, an air-duct communicating with said chamber and extending to a higher plane, whereby on the heating of the parts and duct the draft condition of said duct will be adverse to the flow of air to said inclosed chamber, substantially as described.

11. An oil and vapor trough, a perforated partition above the bottom of said trough adapted to support the lighting-ring and forming with said trough an inclosed chamber, an air-duct communicating with said chamber having its air-entrance at a higher plane than the body of the duct, whereby on the heating of the parts and duct the draft conditions of said duct will be adverse to the flow of air to said inclosed chamber, a lighting-ring, and means to supply oil thereto, substantially as described.

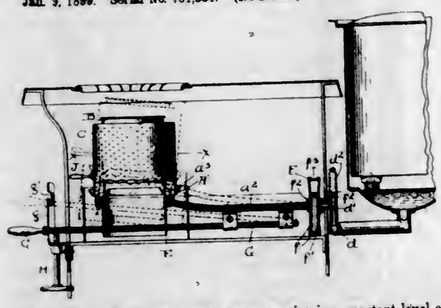
12. Perforated tubes forming a combustion-chamber, said chamber having air-supply of substantially constant volume, a lighting device and a holder therefor constructed and arranged to provide air-inlet openings in close proximity to said lighting device, a wall forming an air-supply chamber about said openings, means for diminishing or stopping the flow of air to said air-chamber and means for supplying oil to said lighting device, substantially as described.

13. Perforated tubes forming a combustion-chamber, a lighting device and a holder therefor constructed and arranged to provide air-inlet openings in close proximity to said lighting device, a wall forming an air-supply chamber about said openings, means for automatically diminishing the flow of air to said air-chamber relative to the heat of the combustion-chamber and means for supplying oil to said lighting device, substantially as described.

14. Perforated tubes forming a combustion-chamber, a lighting device and a holder therefor constructed and arranged to provide air-inlet

openings in close proximity to said lighting device, a wall forming an air-chamber about said openings, means for automatically diminishing the flow of air to said air-chamber upon the heating of the parts, and means for supplying oil to said lighting device, substantially as described.

662,943. BURNER. WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Jan. 9, 1899. Serial No. 701,551. (No model.)



Claim.—1. A reservoir, and means to maintain a constant level of oil therein, an oil and vapor trough, a feed-pipe for supplying the oil to the said trough constructed and arranged for limiting the supply of oil to approximately the volume required by the burner, and an auxiliary reservoir communicating with said supply-pipe and means for moving the bottom of the trough above or below the maintained oil-level and above and below the level of oil in said auxiliary reservoir, substantially as described.

2. A reservoir, and means to maintain a constant level of oil therein, an oil and vapor trough, an oil-supply pipe from said reservoir communicating with said trough and having its oil-passage contracted at a point intermediate the reservoir and the trough for limiting the flow of oil therethrough, and an auxiliary reservoir communicating with said supply-pipe at a point intermediate the said contracted portion and the said trough and means for changing the elevation of the trough in relation to the said reservoir, substantially as described.

3. An oil and vapor trough having an oil-feed pipe, a reservoir having an oil-delivery pipe, two thin metallic disks secured at their outer edges, and each having a central opening and the said feed-pipe fastened about the opening of one of said disks and the said oil-delivering pipe fastened about the opening of the other of said disks, thereby forming a flexible coupling for said pipes, and means for changing the relation of the said reservoir and the said trough, substantially as described.

4. In a vapor-stove, an oil and vapor trough, an oil receptacle or reservoir having a flexible metallic wall, a pipe having one of its ends fixed to said flexible wall and its other end communicating with said oil and vapor trough and an oil-way through said wall to the bore of the pipe, substantially as described.

5. In a burner, the perforated tubes forming a combustion-chamber, an oil and vapor trough below said combustion-chamber and provided with seats for said tubes, and means for supporting the said tubes slightly above the said seats, whereby a sheet of air of limited volume may pass into the said chamber between the lower edges of said tubes and said seats, substantially as described.

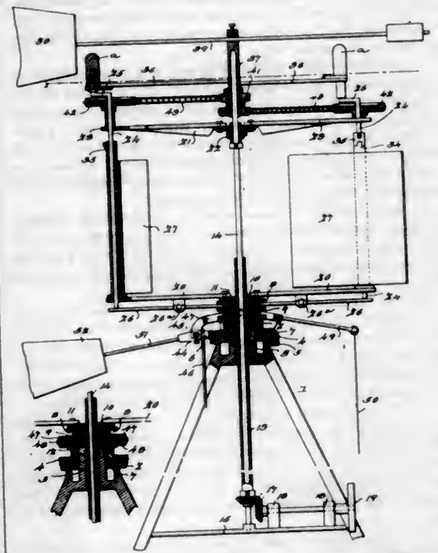
6. In a burner, the perforated tubes forming a combustion-chamber, an oil and vapor trough below said combustion-chamber and provided with seats for said tubes, means for supporting the said tubes in position for leaving a narrow air-passage between their bottom edges and the said seats and means for raising and lowering the said tubes to and from said supported position, substantially as described.

7. In a burner, the perforated tubes forming a combustion-chamber, an oil and vapor trough below said combustion-chamber and provided with seats for said tubes, means for supporting the said tubes above said seats and in such relation thereto as will leave a narrow air-passage between the bottom edges of said tubes and said seats, substantially as described.

8. In a burner, an oil and vapor trough provided with seats, perforated tubes forming a combustion-chamber normally resting on said seats, supports for temporarily holding the tubes in raised position with their bottom edges slightly above said seats whereby a narrow air-passage or crack is provided between said parts, and means for moving said tubes into raised position, substantially as described.

662,944. WIND-MOTOR. CHARLES J. JONES, Topeka, Kans. Filed Jan. 18, 1900. Serial No. 1,932. (No model.)

Claim.—1. The fan, having the pivotal support, with angular sides, in combination with compressing-springs turning with said vane and bearing on said angular sides, substantially as described.



2. In a wind-motor, a series of orbitally-movable fans, pivotal supports therefor, connected together in series and adapted to move in unison, said pivotal supports having angular sides, compressing-springs turning with said fans and bearing on said angular sides, a pressure-vane, operating connections between said orbitally-movable supports and the pressure-vane, and a frame to maintain the parts in their operative relationship to each other, substantially as described.

3. In a wind-motor, a series of orbitally-movable fans, pivotal supports therefor, connected together in series and adapted to move in unison, means to lock said fans to said supports, a pressure-vane, a movable support therefor, operating connections between said orbitally-movable supports and the pressure-vanes, for the purpose set forth and a frame to maintain the parts in their operative relationship to each other, substantially as described.

4. The combination, of a series of orbitally-movable fans, supports therefor, connected together in series and adapted to move in unison, means to lock said fans to said supports, a pressure-vane, a revoluble support to which said pressure-vane is pivoted, and having a set-vane, and operating connections between said orbitally-movable supports and the pressure-vanes, for the purpose set forth and a frame to maintain the parts in their operative relationship to each other, substantially as described.

5. The combination, in a wind-motor, of a revoluble supporting-frame, a set-vane pivoted centrally with relation to the said supporting-frame, but revoluble independently thereof, a series of fans revoluble on supports carried by the revoluble supporting-frame, said series of fans being connected together and caused to turn axially in unison, connections between the set-vane and said series of fans, to set the latter when said set-vane turns, locks to secure the fans to their supports, a pressure-vane and operative connections, actuated by the pressure-vane, to unlock the fans from their supports and render them free to turn independently thereof substantially as described.

662,945. NON-REFILLABLE BOTTLE. ABRAHAM I. KENDRICK, South Norwalk, and WILLIAM J. WILEY, Danbury, Conn., assignors of one-third to Harry McLachlan, Danbury, Conn. Filed Jan. 22, 1900. Serial No. 2,366. (No model.)



Claim.—1. A non-refillable bottle whose mouth is surmounted by a perforated hood closed at the top and sides and open at the ends, substantially as set forth.

2. A non-refillable bottle provided with a shoulder on the inside of its neck and having its mouth surmounted by a perforated hood closed at the top and sides and open at the ends, whereby the cork may be introduced through one of said ends and depressed against said shoulder by a suitable tool introduced through the perforated hood, substantially as set forth.

662,946. STOVE-SHELF. JOHN A. KLINE, Reading, Pa. Filed July 18, 1900. Serial No. 24,087. (No model.)



Claim.—1. The combination with a plate and a bearing-bar below the plate, of a shelf and a supporting device extended under the plate from the shelf, said supporting device being formed with a pair of opposed bearing-lugs for engagement with the bar at the same time, and with a cam-face to facilitate the engagement of the lugs with the bar.

2. The combination with a plate and a bearing-bar, of a shelf and a supporting device extending under the plate from the shelf, said device being formed with a pendent bearing-lug, a second and somewhat shorter lug, and a cam-face extending to the end of the last-named lug to facilitate the engagement of the lugs with the bar.

3. The combination with a plate and a bearing-bar, of a shelf having a supporting device formed with a flat bearing-face upon its upper side for engagement with the under side of the plate, and with a pair of pendent bearing-lugs for engagement with the bearing-bar at the same time.

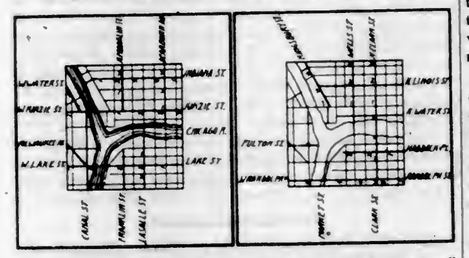
4. The combination with a plate provided with a pendent flange having an angular aperture defining a bearing-bar, of a shelf provided with a hook having a lateral extension for engagement with the flange, and a bearing-lug disposed to engage the bar.

5. The combination with a plate provided with a flange having an aperture defining a bearing-bar, of a shelf provided with a hook having a terminal laterally-extending lug disposed in a plane parallel with the plane of the shelf and at right angles to the hook, and a pendent bearing-lug arranged to engage the bar.

6. The combination with a plate having a flange provided with an angular aperture defining a bearing-bar, of a shelf having a hook formed on its upper side with a flat bearing-surface disposed in a plane parallel with the shelf, a lateral extension at the extremity of the hook, and a pair of pendent bearing-lugs for engagement with the bar.

7. The combination with a plate provided with a pendent flange having a pair of openings defining bearing-bars and formed with oppositely-disposed extensions at their upper ends, of a shelf provided with a pair of hooks having oppositely-disposed lateral extensions at their ends and flat bearing-faces formed on their upper sides, and a pair of pendent bearing-lugs formed upon the under side of each hook for engagement with the bearing-bars.

662,947. TOPOGRAPHIC MAP, CHART, &c. MARIUS C. KRARUP, Chicago, Ill. Filed Nov. 1, 1899. Serial No. 735,484. (No model.)



Claim.—1. A topographic chart comprising a plurality of maps all delineating by lines or marks the same topographic features of a selected area, but each varying from the other in the relative conspicuousness of the lines or marks delineating certain sets of features, substantially as described.

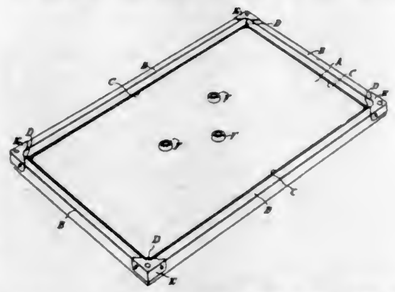
2. A topographic chart comprising a plurality of maps each describing the same topographic features of a selected area, completely by delineation and incompletely by relatively conspicuous lines or marks, said conspicuous lines or marks on each map representing a different set of topographic features from those conspicuously represented on the other maps, substantially as described.

3. A topographic chart comprising a plurality of maps each containing delineations that symbolize completely, in extent and in number, the topographic features of a selected area, but varying in the relative prominence or conspicuousness accorded various topographic features, substantially as described.

4. A topographic chart comprising a plurality of maps each containing delineations descriptive of the same topographic features of a selected area, the delineation of different sets of features being relatively conspicuous on the different maps and each map containing the names or designations of the set of features made conspicuous thereon, whereby the plurality of charts combinedly contains all of the topographic features of the selected area and the names by which said features are designated, substantially as described.

5. The topographic chart for graphically delineating the topographic features of a selected area consisting in a series of maps all delineating the same topographic features of a selected area, but each showing conspicuously certain features that are shown inconspicuously on the other maps, substantially as and for the purpose described.

662,948. BILLIARD GAME. HENRY H. LAWRENCE and ORSON S. PHILBRICK, Oakland, Cal.; said Philbrick assignor to H. H. Lawrence, Jr., same place. Filed Jan. 29, 1900. Serial No. 3,230. (No model.)



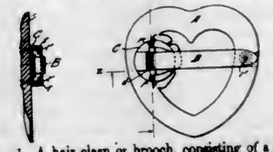
Claim.—1. In a game-table having raised corners, a hook extending diagonally and inwardly from each corner in a horizontal plane, a single continuous wire cushion passing through the hook end of each hook and engaged thereby, and means for drawing each hook outwardly, whereby the wire is stretched evenly; substantially as described.

2. In a game-table having side rails, a hook extending through a corner of said rails, and supported by the same, said hook engaging a cushion, means upon the outside of said rails for engaging the hook and holding it in position, and a corner-piece fastened to the table and extending about and protecting the said projecting hook end and its securing member; substantially as described.

3. In a game-table having side rails, a hook extending through a corner of said rails and supported by the same, said hook engaging a cushion, means upon the outside of said rails for engaging the hook and holding it in position and also for drawing said hook outwardly to tighten the cushion, and a removable corner-piece fastened to the table and extending about the said projecting hook end and its securing member, whereby said hook end is protected, while the corner-piece can be removed to permit adjustment of the hook; substantially as described.

4. In a game-table having side rails provided with a corner cut away to form a square shoulder, a hook extending through said corner and supported by the same, said hook engaging a cushion and having on its outer end a nut which bears against said shoulder, and a corner-piece removably secured to said table and comprising a top plate resting upon the said rails and side wings resting against the rail sides, whereby said corner-piece covers and protects the projecting hook end; substantially as described.

662,949. HAIR-FASTENER. BENEDICT P. LEDERER, Providence, R. I. Filed Sept. 7, 1900. Serial No. 29,271. (No model.)



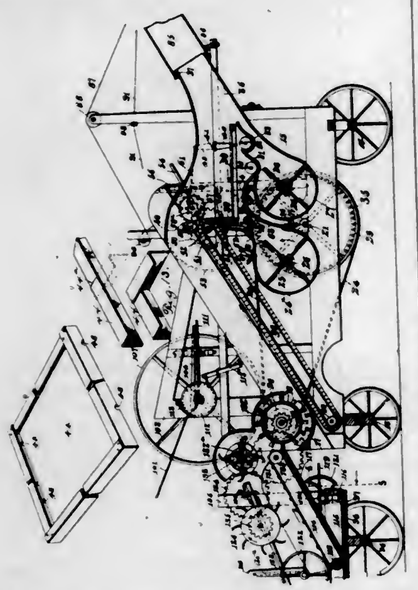
Claim.—1. A hair clasp or brooch, consisting of a body, an inclosing shell with rectangular bearings, a pin-tongue having a T-shaped base rectangular in cross-section mounted in said bearings, a pin projecting

from the back of the clasp-body adapted to register with an opening in the pin-tongue, the said shell inclosing the bearing and pivot of the tongue, as set forth.

2. In a hair clasp or brooch, the combination of a body, an inclosing case attached to said body, a pin-tongue capable of positive action mounted in bearings in said case, a pin projecting from the back of the clasp-body and adapted to register with an opening in the pin-tongue, and tubes inclosing the pins which secure the case to the body, as and for the purpose specified.

3. The hair clasp or brooch herein described consisting of a body of frangible material, an inclosing shell attached to said body, pins for securing said parts together, tubes inclosing said pins, a pin-tongue mounted in bearings within said shell, and a spring placed over the pivot of the pin and held by said shell, all substantially as shown and described.

662,950. **THRESHING MACHINERY.** CHARLES A. LONG, Pomeroy, Wash. Filed Feb. 16, 1899. Renewed Oct. 29, 1900. Serial No. 34,800. (No model.)



Claim.—1. In a threshing-machine, the combination of a threshing-cylinder, the riddle and stacker fans having their shafts journaled in the same horizontal plane and provided with gear-pinions, a power-driven jack-wheel carried by a shaft mounted between, and independently of, the riddle and stacker fans and provided with a smooth belt-surface and with an internal gear with which meshes the gear-pinions on the shafts of the stacker and riddle fans, an endless elevator, a belt between the belt-surface of the jack-wheel and the threshing-cylinder shaft, and a friction drive-wheel fast with a shaft of said elevator and engaging frictionally with said belt directly over the jack-wheel, substantially as described.

2. In a threshing-machine, the combination with a riddle, and an endless inclined conveyer, of a primary beater arranged in rear of the delivery end of the conveyer, an auxiliary beater situated over the delivery end of the conveyer and, in front of the primary beater, and a lever hung concentric with the delivery end of the conveyer and having both beaters journaled thereon for the purpose described, substantially as set forth.

3. In a threshing-machine, the combination with a riddle, an endless inclined conveyer, and a driving-roller therefor, of a primary beater situated over the riddle, contiguous to the delivery end of the conveyer, and geared to said driving-roller, an auxiliary beater situated between the primary beater and delivery end of the conveyer and geared directly to the primary beater to rotate in an opposite direction thereto, and means for adjusting the primary and auxiliary beaters simultaneously with relation to the conveyer, substantially as described.

4. In a threshing-machine, the combination with a riddle, and a blast-fan, of pliable deflectors in continuation of the fan-casing and forming a wind-throat to deliver a blast upon the riddle, one of said deflectors being supported and adjustable at points intermediate of its ends to vary the cross-sectional area and the contour of said throat, substantially as described.

5. In a threshing-machine, the combination with a riddle, and a blast-fan, of the deflectors forming a wind-throat in continuation of the fan-casing, one of said deflectors presenting concave and convex surfaces in front of the riddle and adjustable in relation to the other deflector to vary its contour and the cross-sectional area of the wind-throat, substantially as described.

6. In a threshing-machine, the combination with a riddle, and a blast-fan, of deflectors forming a wind-throat in continuation of the fan-casing, one of said deflectors being pliable and adjustably supported at different points along its length to maintain the deflector in position to present convex and concave surfaces, for the purpose described, substantially as set forth.

7. In a threshing-machine, the combination of a machine-casing having deflector-slots, a fan, a riddle, and the pliable adjustable deflectors forming a wind-throat in continuation of the casing, each pliable deflector having its ends provided with threaded stems, which pass through said slots and are held by clamping-nuts, whereby each deflector has its end portions slidably supported relative to the fan-casing and the plane of the riddle, to vary the curvature and cross-sectional area of the blast-passage, substantially as described.

8. In a threshing-machine, the combination with a riddle, and a blast-fan, of the deflectors forming a wind-throat in continuation of the fan-casing, one of said deflectors being pliable and presenting a convex surface to the other deflector, and said pliable deflector being slidably supported at its ends and at an intermediate portion to vary the cross-sectional area and the contour of said throat, substantially as described.

9. In a threshing-machine, the combination with a riddle, and a blast-fan, of the pliable curved deflectors forming a wind-throat in continuation of the fan-casing and each supported slidably with relation to the fan-casing and the riddle, each deflector being adjustable independently of the other and provided with means for clamping the same in place, substantially as described.

10. In a threshing-machine, the combination with a riddle, and a blast-fan, of the pliable curved deflectors forming a wind-throat in continuation of the fan-casing, and an intermediate baffle or divider arranged in said wind-throat each deflector being slidably confined at its end portions and pliable between the confining-points for adjustment laterally with relation to the baffle or divider, for the purpose described, substantially as set forth.

11. A flat riddle for threshing-machines comprising two metallic frame-sections, each having its bars right-angled in cross-section, thereby forming horizontal and vertical flanges, said sections being fitted one within the other, with their respective horizontal and vertical flanges opposed to each other, a screening material having its edges bent over the sides of the bars of the inner section, and rivets, connecting the horizontal flanges of the said sections together and clamping the edges of the screening material between the proximate sides of said frame-sections, substantially as described.

12. In a threshing-machine, a riddle-frame consisting of complemental members, each member formed of a cross-sectionally-angular metallic bar, one flange of which is slitted and the other flange is bent at intervals for the slitted flange to overlap the other flange at the corners of the frame member, one of said members being fitted one within the other to lie in the same plane thereof and having its flanges overlapped by corresponding flanges of the outer member, a foraminous material clamped between the angular lapping flanges of the companion members of said frame, and transverse fastenings uniting the two frame members and the foraminous material, substantially as described.

13. In a threshing-machine, the combination with a riddle-fan and the screw conveyers, of the adjustable pliable deflectors forming a wind-throat in continuation of the riddle-fan casing, one of said deflectors curved to form a housing for the screw conveyer, substantially as described.

662,951. **MANUFACTURE OF ALLOYS OF ALUMINIUM AND MAGNESIUM.** LUDWIG MACH, Jena, Germany. Filed July 12, 1899. Serial No. 723,559. (No specimens.)

Claim.—1. The art of producing a workable aluminium-magnesium alloy which consists in alloying the two metals in the proportion of one hundred parts of aluminium to not less than two nor more then ten parts of magnesium and then modifying the resultant alloy by mechanical compression, substantially as set forth.

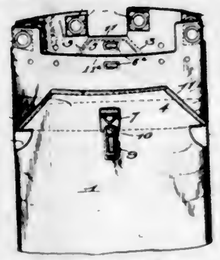
2. The art of producing a workable aluminium-magnesium alloy which consists in alloying the two metals in the proportion of one hundred parts of aluminium to not less than two nor more than ten parts of magnesium and then modifying the resultant alloy by compressing it and alternately heating and cooling it, substantially as set forth.

3. The art of producing a workable aluminium-magnesium alloy which consists in alloying the two metals in the proportion of less than ten (10) per cent. and more than two (2) per cent. of magnesium to one hundred (100) per cent. of aluminium and subsequently compressing the alloy, substantially as set forth.

662,952. **PROCESS OF MAKING ALUMINIUM ALLOYS.** LUDWIG MACH, Berlin, Germany. Filed Aug. 8, 1900. Serial No. 26,256. (No specimens.)

Claim.—A process of manufacture of a workable aluminium alloy consisting in adding from two to ten parts of magnesium to every one hundred parts of melted aluminium and then suddenly chilling the alloy thus obtained.

662,953. **MAIL BAG OR POUCH.** JOSEPH B. MAY, Lexington, Ky. Filed Mar. 26, 1900. Serial No. 10,239. (No model.)



Claim.—1. In a folded-end mail-bag, the combination, with a main portion of one kind of material, of a cap of a more flexible material secured thereto, the upper corners of the main portion being cut away, thereby forming tapering front and rear portions, and the top of the cap being provided with front and rear extensions, the front extensions being separated so as to leave an open space in the center of the top edge of the cap, substantially as described.

2. In a folded-end mail-bag, the combination, with a main portion of one kind of material, of a cap of a more flexible material secured thereto, the top of the cap being provided with gromets and cut away at the central front and rear edges, the front space being wider than the rear space, for the purpose set forth, substantially as described.

3. In a folded-end mail-bag, the combination, with a main portion of one kind of material, of a cap of a more flexible material secured thereto, the top of the cap being provided with front and rear extensions, each of said extensions commencing near the edges but terminating short of the center of the cap so as to leave an open space at that point, the front space being wider than the rear space, substantially as described.

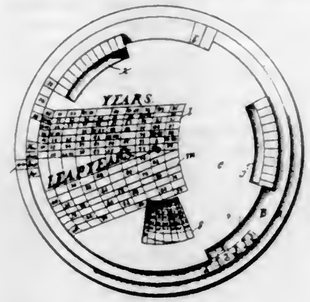
4. In a folded-end mail-bag, the combination, with a main portion of one kind of material, of a cap of a more flexible material secured thereto, the upper corners of the main portion being cut away upon the lines of the fold, thereby forming tapering portions, the front portion being shorter than the rear and the upper edge of the cap being provided with extensions, and provided with gromets or openings, and a transversely-arranged staple rigidly secured to the shorter tapering portion and projecting outwardly for the reception of the gromets of the cap, substantially as described.

5. In a mail-bag, the combination, with a main portion, each of the upper corners of which is cut away diagonally of a cap of more flexible material secured to the interior of the cut-away portion, the upper edge of which is provided with gromets, a binding-strip secured upon the raw edges of the cut-away portion, and a transversely-arranged staple secured to the front portion of the bag in position to pass through the gromets and be secured therein, substantially as described.

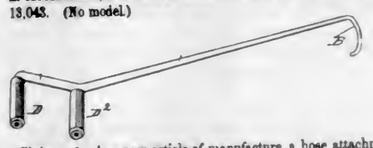
662,954. **CALENDAR.** FREDERICK B. MOELLER, Philadelphia, Pa. Filed Sept. 29, 1900. Serial No. 31,522. (No model.)

Claim.—1. A calendar comprising a plate having represented thereon a group of the last figures of the common-year dates of a century and a separate group of the last figures of the leap-year dates of a century, a second plate having the first figures of several centuries marked thereon and adapted for alinement with the figures of the groups of the first plate interchangeably, the second plate having also month-names thereon, and a third plate below the second plate and having a plurality of columns of figures thereon and having a pointer for alinement with the month-names interchangeably, the several plates being pivotally connected for adjustment with respect to each other, and the first two plates having openings for alinement to expose groups of figures of the third plate.

2. A calendar comprising a plate having represented thereon a group of the last figures of the common-year names of a century and a separate group of the last figures of the leap-year dates of a century, a second plate having the first figures of several centuries marked thereon and adapted for alinement with the figures of the groups of the first plate interchangeably, the second plate having also month-names thereon, the names of certain months being repeated in different positions, and a third plate below the second plate and having a plurality of columns of figures thereon and having a pointer for alinement with the month-names interchangeably, the first plate being formed to expose different of the repeated month-names as the century first figures are shifted from one to the other of the groups of last century figures, the several plates being pivotally connected and the first and second plates having openings therein for alinement to expose groups of figures on the third plate to correspond to the century and year indicated by the first and second plates.



662,955. **HOSE ATTACHMENT FOR STOPPING FLOW.** GEORGE E. MCCLELLAND, Des Moines, Iowa. Filed Apr. 16, 1900. Serial No. 13,043. (No model.)



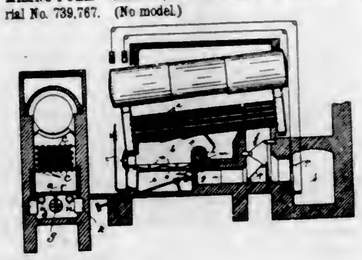
Claim.—1. As a new article of manufacture, a hose attachment consisting of a straight lever having an inclined extension at one end and mating clamps projecting laterally from the ends of said inclined extensions and means at the other end of the lever for detachably fastening it to a hose in the manner set forth for the purposes stated.

2. A device for doubling and clamping flexible hose consisting of a straight lever having a hook extended at right angles from one end, an inclined extension at the other end and straight and mating lateral projections at the ends of said inclined extension and rollers on said lateral extensions, to operate in the manner set forth for the purposes stated.

662,956. **ANTI-INCRUSTATION COMPOUND.** JOSEPH H. MCMAKEN, Toledo, Ohio, assignor of one-half to Jesse Sisson, same place. Filed Sept. 22, 1900. Serial No. 30,821. (No specimens.)

Claim.—The anti-incrustation compound for boilers composed of the following ingredients, viz: caustic soda, wood-charcoal, gum-catechu, linseed-oil cake, oak-bark and English soda-ash, in substantially the proportions named, said ingredients being thoroughly mixed and reduced to powdered form.

662,957. **FURNACE FOR PREVENTING SMOKE AND ECONOMIZING FUEL.** EMIL OTT, Berlin, Germany. Filed Dec. 9, 1899. Serial No. 739,767. (No model.)

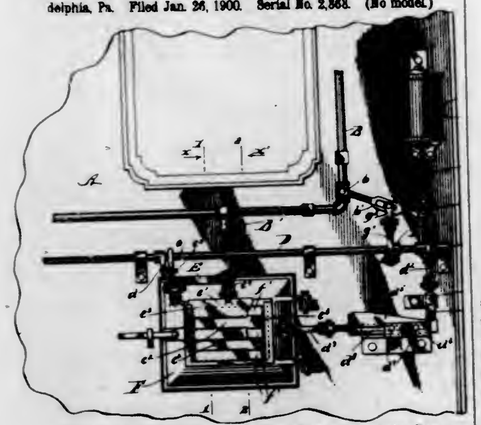


Claim.—1. In a furnace, the combination of a chamber connecting the ash-pit and the channel which leads the fire-gases to the chimney, air-pipes opening into that chamber, a fan in that chamber adapted to draw fire-gases and fresh air into that chamber and to force the mixture of same into the ash-pit, and means to saturate said mixture with water before passing through the grate, substantially as set forth.

2. In a furnace, the combination of a chamber connecting the ash-pit and the channel which leads the fire-gases to the chimney, air-pipes opening into that chamber, a fan in that chamber adapted to draw fire-gases and fresh air into that chamber and to force the mixture of same into the ash-pit, a water-pipe located in the ash-pit provided with holes adapted to distribute water in a finely-divided state, substantially as set forth.

3. In a new and improved furnace for flame-tube boilers the combination with fire-grates in the flame-tubes, of a casing opening into the ash-pit below said fire-grates, a conduit connecting the interior of said casing with the channel leading the fire-gases to the smoke-flue, a fan in that conduit adapted to draw fire-gases and fresh air through said casing, ash-pits and fire-grates and means to mix or combine said gases and air with water in a finely-divided state before entering the grates, substantially as set forth.

662,958. **SMOKE-CONSUMER.** JACOB ORMEROD and RUFUS KING, New York, N. Y.; said Ormerod assignor to William W. Goodwin, Philadelphia, Pa. Filed Jan. 26, 1900. Serial No. 2,868. (No model.)



Claim.—A smoke-preventing device and operating mechanism comprising a supply-pipe and steam-injectors, an oscillating shaft, rods and levers suitably connected to the piston of a dash-pot, in combination with a longitudinally-movable wedge mounted upon a supporting-frame fastened to the face of the boiler, a rod connecting the wedge to the fire-door and adapted to move the said wedge when the door is open, and a leg engaging upon the upper edge of said wedge and connected to a depending arm on said oscillating shaft and employed as a means to turn the shaft when the door is open, substantially as described.

662,959. **TAIL-CONTROLLER.** SAMUEL PARKS, New York, N. Y. Filed Apr. 16, 1900. Serial No. 13,111. (No model.)

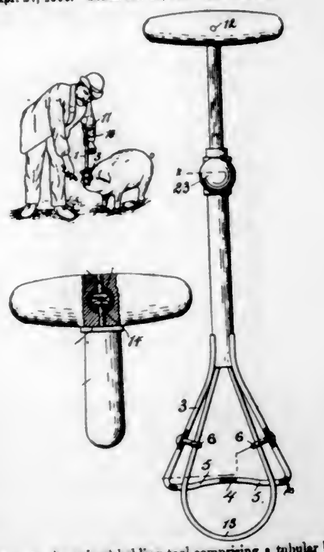


Claim.—1. A tail-controller, comprising an elongated, tapered body portion having a longitudinal, tapered channel, and a handle carried by said body portion, as herein specified.

2. A tail-controller, comprising an elongated body portion having a longitudinal channel, and a handle carried by, and inclined rearwardly to the plane of, said body portion, as herein specified.

3. A tail-controller, comprising an elongated body portion, semitubular in cross-section, and tapered from the front end to the rear end thereof, and a handle carried by, and inclined rearwardly to the plane of, said body portion, as herein specified.

662,960. **ANIMAL-HOLDER.** JAMES P. PATTON, Lancaster, Mo. Filed Apr. 27, 1900. Serial No. 14,621. (No model.)



Claim.—1. An animal-holding tool comprising a tubular body with a hole in its side, a triangular open fixed jaw projecting below the lower end of the body, and a boss surrounding the body and having a threaded aperture registering the said hole; combined with a stem movable through the body and carrying a movable jaw at its lower end extending through the fixed jaw, and a handle having a threaded shank taking into the aperture and adapted to bear frictionally against the stem, as and for the purpose set forth.

2. An animal-holding tool comprising a tubular body, and a triangular frame whose sides are connected with the body and whose cross-bar forms a fixed jaw and is bowed slightly upward and provided with two slots nearly meeting at the center of this bar; combined with a stem movable through said body and having a handle at its upper end, and a wire forming a movable jaw and having its center below the fixed jaw and its ends passing through said slots and connected with the stem, as and for the purpose set forth.

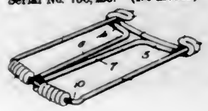
3. An animal-holding tool comprising a tubular body, a triangular frame attached to its lower end and whose cross-bar forms a fixed jaw, and eyes swiveled within its side bars; combined with a stem movable within the body, and a movable jaw whose center coacts with the fixed jaw, and whose arms pass through said eyes and are connected with the stem, as and for the purpose set forth.

662,961. **SOLVENT MATERIAL FOR TREATING SURFACES OF CELLULOID.** ADENOR N. PETIT, Newark, N. J. Filed Oct. 27, 1899. Serial No. 734,933. (No specimens.)

Claim.—1. A material for treating the surface of celluloid, consisting of a solvent of celluloid and a fatty acid or similar material, substantially as set forth.

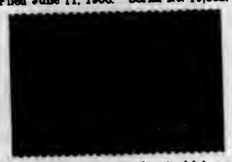
2. A material for treating celluloid surfaces consisting of amyl acetate and oleic acid, substantially as set forth.

662,962. **SAFETY-PIN.** THOMAS W. PITTS, Gainesville, Fla. Filed Sept. 14, 1899. Serial No. 730,425. (No model.)



Claim.—The herein-described safety-pin, comprising a frame having at one end a cross-head carrying keepers on each extremity, and a pair of resilient coiled knuckles at the other end of said frame, extending at right angles from the stem of said frame in substantially the plane of the cross-head, said knuckles surrounding and embracing a bowed pintle carrying upon each end a pin, whereby the coiled knuckles have a tendency to open or close the pin members and retain them within the keepers.

662,963. **FABRIC FOR JACKETS FOR PNEUMATIC TIRES.** EDWARD E. PRESTON and GEORGE D. KENDRICK, Leicester, England, assignors of one-half to Trion Horace Baker and Albert Hollingworth, same place. Filed June 11, 1900. Serial No. 19,802. (No model.)



Claim.—1. A two-ply fabric, each ply of which consists of a single thread formed into a series of parallel inextensible threads with looped edges, with their adjacent faces connected as described, the series of threads in one ply disposed at an angle or presented obliquely to the series of threads in the other series substantially as and for the purpose described.

2. A fabric, consisting of two series of parallel inextensible threads, the threads in one series being at an angle with the threads in the other series, each series of threads being formed out of a single thread which runs alternately from one side to the other and from opposite edges of the fabric where it is bent or doubled before returning in the opposite direction, thereby forming a looped selvaged edge to the fabric substantially as and for the purpose described.

3. An endless flat fabric consisting of two series of parallel threads one series being disposed at an angle to the other series and each series being formed out of a single thread which runs alternately from one side of the fabric to the other in opposite directions being bent or doubled before returning so as to form a loop selvaged edge to the fabric and the ends of the single thread being connected substantially as described.

4. The process of forming a fabric of the character specified, which consists in laying a single thread in equal lengths from right to left and vice versa alternately, the thread being bent or doubled each time before returning whereby to form a looped edge, causing the series of parallel threads to run in an oblique direction, and laying another similarly-produced fabric thereon so that its series of parallel threads are disposed at an angle to the other series.

662,964. **MEANS FOR FACILITATING PRODUCTION OF STEAM.** JOSEPH L. M. A. REES, Antwerp, Belgium. Filed Mar. 30, 1900. Serial No. 10,842. (No model.)



Claim.—1. In a steam-generator, in combination the tubes, a flat metal bar inserted in the said tubes, and inclined plates upon the said bar.

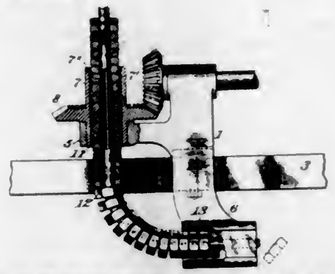
2. In a steam-generator, in combination the tubes, a flat metal bar arranged vertically in the said tubes, means to press the said bar against the topmost generating-line of the tubes and inclined plates upon the said bar.

3. In a steam-generator, in combination the tubes, a flat metal bar arranged vertically in the said tubes, the said bar being pressed against the topmost generating-line of the tubes and leaving a free space at the lower portion of the tubes, two wedges supporting the bar at its two extremities and inclined plates placed at intervals upon the said bar.

662,965. **NUT-TAPPING MACHINE.** ADDISON H. RICE, Ocean Grove, N. J. Filed Feb. 2, 1899. Renewed Oct. 11, 1899. Serial No. 733,326. (No model.)

Claim.—1. In a nut-tapping machine, the combination, with a threading-tool having an extended shank or arm, of two guides located the one transversely to the other, and so combined with the threading-tool and its shank that while nut-blanks are being threaded by the tap in one said guide, nuts carried on the shank of the tap in the other said guide operate for holding the tap in place, and means for rotating one of the guides with relation to the other guide.

2. In a nut-tapping machine, the combination, with a threading-tool having a transversely-extending shank, of two guides located the one transversely to the other, and so combined with the threading-tool and its shank that while nut-blanks are being threaded by the tap in one said guide, nuts carried on the shank of the tap in the other guide may operate for holding the tap in place, and means for rotating one of the guides with relation to the other guide.



3. In a nut-tapping machine, the combination, with a tap and a nut-blank holder, of means for rotating one of said parts relatively to the other, and a guide through which the threaded blanks pass and are discharged over the shank of the tap, said blanks serving to fix and centralize the tap.

4. In nut-tapping mechanism, the combination, with a tap and with a nut-blank holder, one of said members being revoluble with reference to the other, of means whereby said tap may be sustained in operative position by the work being operated upon by the tap.

5. In nut-tapping mechanism, the combination, with a tap, of means carried by the machine in which said tap is mounted for receiving the work being operated upon by the tap, said work serving to centralize and locate the tap properly in its operative position; and a guide through which the work is discharged over the shank of the tap.

6. In a nut-tapping machine, a tap arranged to operate upon the work and to be held in fixed relation to the other parts of the machine solely thereby, and having the blanks fed thereto continuously and without interruption; a driver for turning the nut-blanks and adapted to hold them against lateral movement; and means for rotating the driver.

7. In a nut-tapping machine, the combination, with a tap having a shank adapted to receive the nuts and arranged to coöperate with said nuts to steady and fix the position of said tap, of a guide disposed to receive the said shank and nuts and to coöperate with said parts to hold the shank and tap in operative relation; a nut-driver; and means for rotating said driver.

8. In a nut-tapping machine, the combination, with a fixed tap having a projecting shank adapted to receive the threaded nuts and arranged to act jointly therewith and maintain the tap in a normal position, of a guide disposed to receive the projecting end of the shank and the nuts mounted thereon and to coöperate with the latter to hold the shank end tap in operative relation; a nut-driver; and mechanism for rotating said driver.

9. In a nut-tapping machine, the combination, with a fixed tap, of a feed device coöperating with the receiving end of the tap and upon which device the blanks are strung; a nut-blank driver; and mechanism for rotating said driver.

10. In a nut-tapping machine, the combination, with a fixed tap, of a feed-rod detachably coupled to the receiving end of said tap; a nut-driver; and actuating mechanism for rotating said driver about the tap continuously in the same direction.

11. In a nut-tapping machine, the combination, with a fixed tap having a curved shank to receive the nuts and adapted to coöperate with said nuts and hold the tap in normal position, of a nut-blank driver for receiving the nut-blanks and preventing lateral movement thereof, the nut-blanks within said driver serving to center said tap, and means for rotating said driver.

12. In a nut-tapping machine, the combination, with a tap having a laterally-projecting shank, of a guide coöperating with such shank portion of the tap; a nut-driver; and means for rotating said nut-driver.

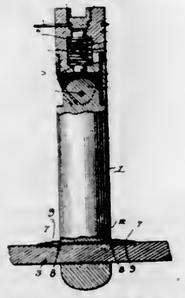
13. In a nut-tapping machine, the combination, with a guide, of a sleeve adjustably applied to said guide; a tap having a shank to receive the threaded nuts and coöperating with the sleeve to hold the shank and tap in proper position; a revoluble nut-driver for receiving the nut-blanks and adapted to hold them against lateral movement; and mechanism for rotating said driver.

14. In a nut-tapping machine, the combination, with a guide, of a tap having a curved shank passing through said guide; a feed device coupled to the receiving end of the tap; a nut-driver; and mechanism for rotating said driver.

15. A nut-tapping machine comprising a frame provided with a guide

and two angularly-disposed bearings; a tap having a curved shank passing into said guide; a feed device coupled to the receiving end of the tap; a revoluble nut-blank driver mounted in one of said bearings and having gearing, said driver encircling the tap; a shank journaled in the other bearing; and a gear applied to said shaft and in mesh with the gear of the nut-driver.

662,966. WRENCH. SAMUEL B. J. ROBERTSON, Lutcher, La. Filed Apr. 16, 1900. Serial No. 13,087. (No model.)



Claim.—1. A wrench comprising a stock or shank, a jaw hingedly connected with the same and adapted to be arranged at an angle, and a rotary sleeve mounted at the joint and provided with a cut-away portion or recess adapted to be arranged at either side of the joint, to permit the jaw to be disposed at an angle and capable of being carried away from such positions to lock the jaw rigid with the shank or stock, substantially as described.

2. A wrench comprising a shank, a ratchet-piece hinged to the shank, a jaw provided with ratchet-teeth arranged to be engaged by those of the ratchet-piece, and a rotary sleeve mounted on the shank and arranged to lock the ratchet-piece rigid with the same, and adapted to release the ratchet-piece to permit the jaw to be arranged at an angle, substantially as described.

3. A wrench comprising a shank, a jaw, and a handle extending through an opening of the shank and provided at opposite sides with depressible rigid catches detachably retaining the handle in the said opening, substantially as described.

4. A wrench comprising a shank having a socket, a removable socket-piece fitting in the socket and adapted to receive a nut, and a catch consisting of a yoke-shaped body extending around one side of the jaw and having one end fitted in a recess thereof, the other end of the yoke being extended through the adjacent side of the jaw and detachably engaging the socket-piece, said yoke being provided with a handle located at the engaging end and adapted to be drawn outward to release the removable socket-piece without detaching the catch, substantially as and for the purpose described.

5. A wrench comprising a shank, a jaw provided with ratchet-teeth, a ratchet-piece connected with the shank and adapted to interlock with the teeth of the jaw, a stem composed of inner and outer swivel-sections connected respectively with the ratchet-piece and the jaw, and a coiled spring arranged on the inner ends of the sections and fixed to one of them and adapted to turn on the other, said spring serving to connect the sections, substantially as described.

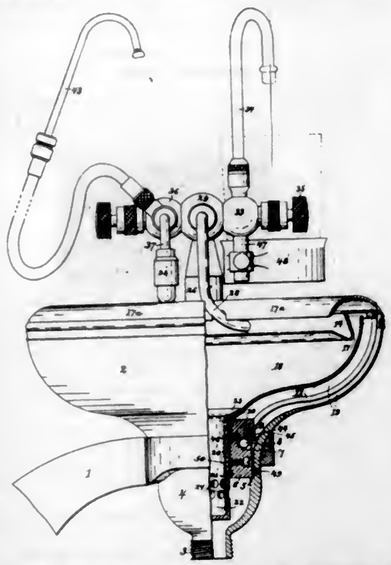
662,967. FOUNTAIN-SPITTOON. HORACE G. ROSE, Canton, Ohio, assignor to Andrew M. McCarty, Albert Hoeffer, and Adam C. McDowell, same place. Filed Mar. 23, 1900. Serial No. 9,854. (No model.)

Claim.—1. In a spittoon of the class described, an inner and outer bowl spaced one from the other, an annular rotatable trough located within the inner bowl and provided with apertures and a supply-pipe for said rotatable trough, substantially as and for the purpose specified.

2. The combination of two bowls one located within the other, a supporting-block located within the lower portion of the outer bowl, a hub located and supported by the block, grooves or ways formed in the supporting block and hub, antifriction-balls located in said grooves or ways, arms extended from the hub, an annular trough carried by the arms and rotatable with the arms and hub, substantially as and for the purpose specified.

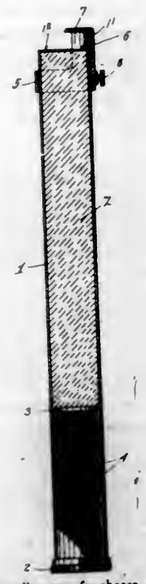
3. The combination of an outer and inner bowl, a hub, a support for the hub, arms extended upward from the hub between the outer and inner bowls and carrying a trough, said trough located within the inner bowl and provided with apertures, substantially as and for the purpose specified.

4. The combination of an inner and outer bowl, the inner bowl provided with a hollow extension, a removable cup suspended by the inner bowl and provided with a closed bottom and apertures formed in the cup above its closed bottom, substantially as and for the purpose specified.



5. The combination of an inner and outer bowl, a rotatable trough located within the inner bowl and provided with a flange, a ring means for rotatably supporting the same, said ring provided with headed studs, and eyes formed in the trough-flange to receive the headed studs, substantially as and for the purpose specified.

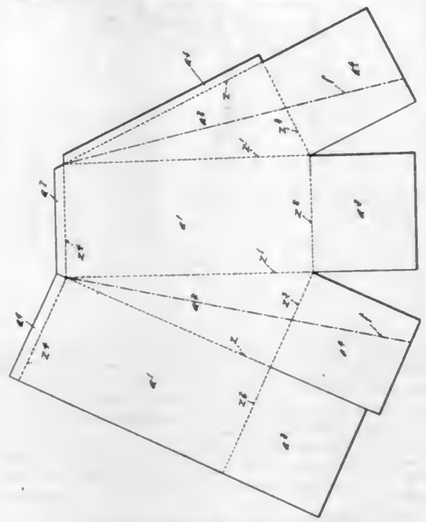
662,968. SAMPLING-TUBE FOR CHEESE. HENRY G. ROTH, Minneapolis, Minn. Filed Aug. 31, 1900. Serial No. 28,640. (No model.)



Claim.—1. A sampling-case for cheese, &c., comprising the tube 1, the collar 5 adjustable on one end of said tube, and provided with the projecting segment 6 terminating in the stop-flange 7, the disk-like knife 10 pivoted at 9 to one side of said tube and serving as a closure for that end of the tube, and a spring-pressed follower in the other end of said tube, substantially as described.

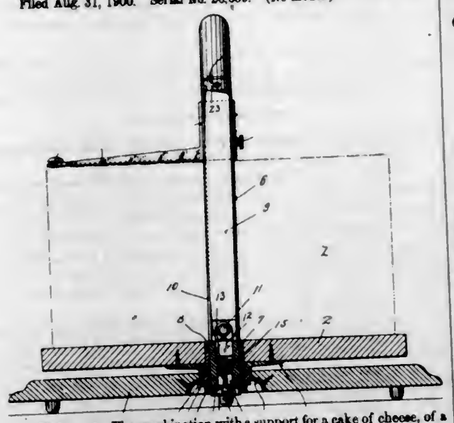
2. In a sample-case for cheese, &c., the combination with the tube 1 having the spring-pressed collar, at one end, and the removable cap 2 permitting of the removal thereof, of the disk-like knife 10 pivoted to one side of the delivery end of the tube as at 9, said knife having the finger-piece 12 and said tube having the retaining-hook 13, and the ring 5 on said tube 1 formed with the projecting segment 6 terminating in the stop-flange 7, said parts operating substantially as described.

662,969. CARTON OR BOX. HENRY G. ROTH, Minneapolis, Minn. Filed Jan. 22, 1900. Serial No. 2,308. (No model.)



Claim.—A blank for forming a wedge-shaped carton or box, comprising the sections a' and a^2 having, respectively, the flap extensions a^3 and a^4, the sides a^2 being in the form of right-angled triangles inscribed by the creases z, z' and z^2, whereby a carton or box having a base extended at a right angle to one of its diverging sides may be formed, substantially as described.

662,970. CHEESE-CUTTER. HENRY G. ROTH, Minneapolis, Minn. Filed Aug. 31, 1900. Serial No. 28,639. (No model.)



Claim.—1. The combination with a support for a cake of cheese, of a slotted centering-tube projecting therefrom, a yielding fulcrum-block within said tube, and a knife pivoted to said yielding fulcrum-block and provided with a convex or rocker-shaped cutting edge, said parts operating substantially as described.

2. The combination with a support for a cake of cheese, of a slotted centering-tube projecting therefrom, a yielding fulcrum-block within the lower end of said tube, a knife pivoted to said yielding fulcrum-block, and a handpiece on the said knife which under the yielding movement of said fulcrum-block, is engageable and disengageable with the upper end portion of said centering-tube, substantially as described.

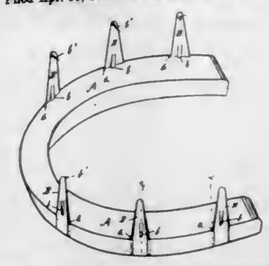
3. The combination with a cutting board or support, of a yielding fulcrum, and a knife coöperative with said fulcrum, said knife and board being arranged for a rocker action of the knife on said cutting-board under the yielding action of said fulcrum, substantially as described.

4. The combination with a cutting board or support, of a yielding fulcrum, and a knife with a convex or rocker-shaped cutting edge, pivotally connected to said yielding fulcrum, and coöperating with the said cutting-board in the cutting action, substantially as described.

5. The combination with a cutting board or support for a cake of cheese, of a slotted centering-tube projecting therefrom, a spring-held fulcrum-block within the lower end of said tube, and a knife pivoted to said fulcrum-block and provided with a convex or a rocker-shaped cutting edge, substantially as described.

6. The combination with a support for a cake of cheese, of a swiveled centering-tube slotted to pass a knife, of a knife pivoted within the said tube and working through the slot thereof, and a straight-edge rigidly but removably securable to the said tube, said knife and straight-edge having common pivotal movements with said tube, substantially as described.

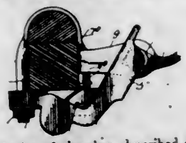
662,971. NAILLESS HORSESHOE. JOHN F. RUPERT, Connellsville, Pa. Filed Apr. 16, 1900. Serial No. 13,084. (No model.)



Claim.—1. The combination in a nailless horseshoe, of a shoe having vertical dovetailed slots in its outer edge, with hooks adapted to engage said slots having spring-tongues adapted to engage the upper surface of the shoe, substantially as and for the purpose set forth.

2. A hook for nailless horseshoes, comprising a vertical portion having the edges thereof beveled outward so as to engage vertical dovetailed slots in a horseshoe, an inwardly-projecting hook on its upper end, and a tongue adapted to engage the upper surface of the shoe, substantially as and for the purpose set forth.

662,972. THILL-COUPLING. DANIEL E. RUSSELL, Dunbarton, Wis. Filed Apr. 12, 1900. Serial No. 12,612. (No model.)



Claim.—1. A device of the class described comprising a bearing-plate designed to be arranged beneath the axle-clip of an axle and provided at its ends with openings to receive the sides of the said axle-clip, and a spring-actuated locking-arm located at one side of the axle-clip and arranged to engage the head of a bolt or pin and provided with a pintle disposed transversely of the bearing-plate and arranged in the bearing of the same, substantially as described.

2. A device of the class described comprising a bearing-plate provided at its ends with openings to receive the sides of an axle-clip and having a bearing between the same, and the approximately L-shaped locking-arm, arranged to engage the adjacent end of a bolt or pin and provided with a pintle arranged in the bearing of the bearing-plate, substantially as described.

3. A device of the class described comprising a bearing-plate provided at its ends with slots to receive the sides of an axle-clip and having an intermediate bearing portion, and a spring-actuated locking-arm located at one side of the axle-clip and provided with a transverse pintle

extending through the intermediate bearing of the said plate and having a nut, substantially as described.

4. A device of the class described comprising a bearing-plate designed to be arranged beneath the clip-plate of an axle-clip, the locking-arm located at one side of the axle-clip and adapted to engage the head of a bolt or pin and provided with a pintle arranged in the bearing of the said plate, and a coiled spring disposed on the pintle and provided at its inner and outer ends with arms, the inner arm being arranged to engage the axle, and the outer arm being hook-shaped and engaging the said locking-arm, substantially as described.

5. A device of the class described comprising a substantially L-shaped locking-arm having a flanged outer portion and provided with an extension, a pintle extending from the inner portion of the locking-arm, a bearing-plate adapted to receive the pintle and provided with openings for the reception of the sides of an axle-clip, and a coiled spring disposed on the pintle and engaging the locking-arm, substantially as described.

6. In a device of the class described, the combination with an axle, an axle-clip, a bearing-plate secured to the lower face of the clip-plate of the axle-clip, a locking-arm located at one side of the axle-clip and provided at its rear portion with a transverse pintle mounted on the bearing-plate, the rear end of the locking-arm being arranged to engage the lower face of the axle, and a spring mounted on the pintle and adapted to throw the front portion of the locking-arm forward, substantially as described.

662,973. SHAVING-BRUSH. EDWIN J. SAMSON and LOUIS LEVI, New York, N. Y. Filed Mar. 16, 1900. Serial No. 8,992. (No model.)



Claim.—1. A shaving-brush comprising a hollow handle serving as a receptacle for powdered soap, a suitable holder provided with bristles, a feeding-tube extending longitudinally through the holder and entering the bristles, and a coupling adjustably connecting the hollow handle to the bristle-holder, the central portion of said coupling being solid but provided with a hole which, by suitable adjustment of the holder with relation to the handle, can be placed in communication with the feeding-tube to furnish a supply of soap to the bristles.

2. The combination with the bristle-holder, a cementing substance fixing the bristles in the holder and provided with an opening longitudinally through it and a tube arranged in said opening and furnishing a communication between the bristles and the top of the holder, of a hollow handle having a removable cap, and a coupling fixed to the bottom of the handle and provided with a solid central portion with a hole pierced through it, and also provided with a depending screw-threaded portion adapted to screw into the top of the holder.

3. The combination with the hollow handle having a removable cap and a bottom pierced with a hole through it, to one side of its center, said bottom piece having a depending screw-threaded member, of a bristle-holder provided with bristles, a removable tube extending through said holder into the bristles with its upper end to one side of the longitudinal center of the holder.

4. The combination with the hollow handle provided with a bottom piece pierced with a hole through it, to one side of its center, said bottom piece having a depending screw-threaded member, of a bristle-holder provided with bristles, a tube extending through the holder into the bristles with its upper end to one side of the longitudinal center of the holder and provided with a solid offset.

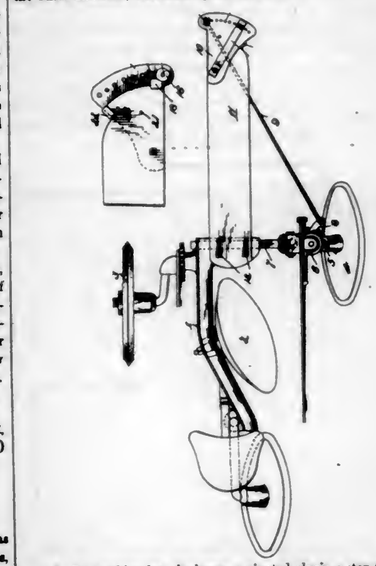
662,974. PLOW. NEWELL SANDERS, Chattanooga, Tenn., assignor to the Chattanooga Plow Company, same place. Filed Jan. 20, 1900. Serial No. 2,201. (No model.)

Claim.—1. In combination, a beam, a clevis pivoted thereto free to turn when side draft takes place, an adjustable wheel and a connection between the clevis and said wheel for positively adjusting the same in changing the direction of the plow, substantially as described.

2. In combination, a plow-beam, a pivoted clevis free to turn when side draft takes place, a pivotally-supported wheel and a connection between the clevis and wheel for positively adjusting the wheel as the clevis is turned, substantially as described.

3. In combination, a plow-beam, a pivoted clevis free to turn when side draft takes place, a wheel having a spindle journaled so as to turn, an arm connected with the spindle and a rod connecting the clevis and arm to positively operate the arm as the clevis is turned, substantially as described.

4. In combination, a plow-beam, a clevis pivoted thereto, a stop for the clevis, a means of connection for the doubletree adapted to keep the clevis limited by its stop to normal position during forward draft or side draft in one direction, and a connection between the clevis and an adjustable wheel adapted to move the wheel when side draft takes place in the other direction, substantially as described.



5. In combination, the beam, a pivoted clevis, a stop for limiting the movement of the clevis in one direction, a series of holes for the variable hitch, said holes being arranged relatively to the pivot of the clevis and the stop to cause the draft to hold the clevis in normal position against the stop, and an adjustable wheel with a connection between the same and the clevis, substantially as described.

6. In combination, the beam having a curved edge, a clevis pivoted to the beam and having a guide engaging the curved edge, an adjustable wheel and a connection between the same and the clevis, substantially as described.

7. In combination, a plow-beam, a clevis pivoted near one edge of the same and having a series of holes near its front edge extending from one edge of the beam toward the other, a stop for the clevis, an adjustable wheel and a connection between the wheel and clevis, substantially as described.

8. In combination, the beam, a clevis pivoted to and resting upon the beam and having a broad surface upon which the doubletree may rest, and a doubletree-strap, substantially as described.

9. In combination, the beam, a clevis pivoted thereto and free to turn under side draft, an adjustable wheel, a connection between said wheel and the clevis to positively turn the wheel as the clevis is turned, and means by which the clevis may be fixed to the beam, substantially as described.

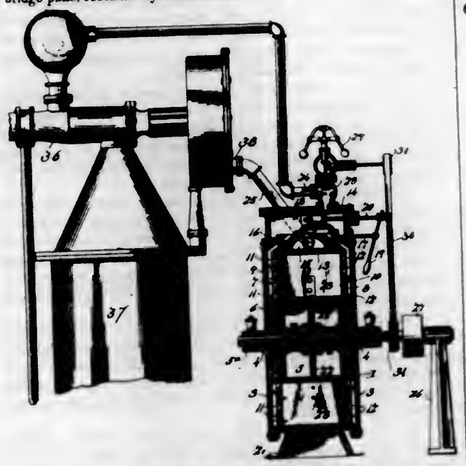
10. In combination, the beam, a clevis comprising a flat plate pivoted thereto and resting upon the beam, and a strap held by the pivot-bolt of the clevis and adjustable on said clevis, substantially as described.

662,975. ROTARY MOTOR. ADELBERT SAUER, Pittsburg, Pa. Filed Feb. 6, 1899. Serial No. 704,680. (No model.)

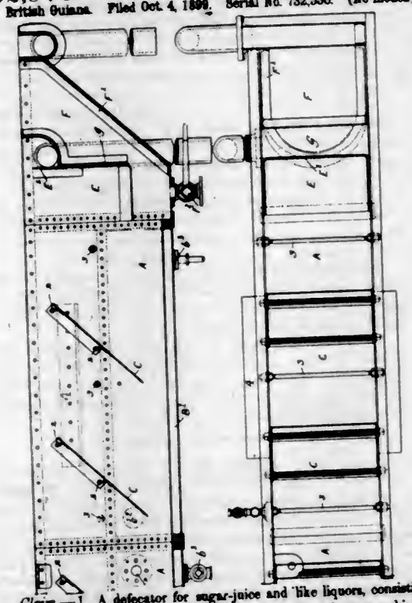
Claim.—1. In a rotary motor, a casing having its heads or plates provided with inlet and exhaust chambers on opposite sides of the piston-chamber and with the perforated partitions between the piston-chamber and said inlet and exhaust chambers, respectively, in combination with a rotary piston arranged within said piston-chamber and having the wings or blades lying obliquely to the axis of the piston-shaft, the row of perforations in each partition being each equal in length to one blade, substantially as described.

2. In a rotary motor, a casing having a piston-chamber and having its head on each side recessed or cut away and provided with perforated partitions or walls extending from the shoulders formed by said recessing so as to form between the heads and said partitions or walls inlet and exhaust chambers on opposite sides of the piston-chamber, in combination with a rotary piston arranged within the piston-chamber and provided with blades or wings lying obliquely to the axis of the piston-shaft, said piston having a hub arranged flush with said shoulders in the heads.

3. In a rotary motor, a casing having the inlet and exhaust chambers in the heads or plates thereof, the chambered bridge-plate provided with ports which establish communication between a valve-chest and the chambers of said heads and the perforated partitions fixed in the casing and separating the piston-chamber from the exhaust and inlet chambers, combined with a rotary piston mounted in the piston-chamber between the perforated partitions and having the oblique wings or blades arranged to sweep close to said partitions, and a reversible valve seated on the bridge-plate, substantially as described.



662,976. EVAPORATING-PAN. FREDERIC L. SCARD, Demerara, British Guiana. Filed Oct. 4, 1899. Serial No. 732,530. (No model.)

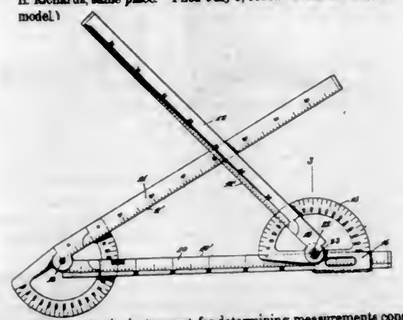


Claim.—1. A defecator for sugar-juice and like liquors, consisting of a heating vessel having an inlet for the juice at one end, scum and juice separating plates at spaced distances apart within the vessel, each terminating below the top and above the bottom thereof, whereby the scum is caused to flow above the plates and the juice below the same, and a partition near the opposite end of the vessel and terminating above the bottom and forming a chamber on one side thereof for receiving the scum flowing from the inlet end of the vessel above the plates, and a chamber on the other side thereof for receiving the clear juice flowing below said plates, substantially as described.

2. A defecator for sugar-juice and like liquors comprising a main vessel having an inlet for the juice at one end, scum and juice separating plates within said vessel at spaced distances apart, a plurality of independent steam-jacketed chambers for heating the vessel, each provided with a separate steam-supply valve, and scum and juice separating chambers at the opposite end of said vessel, substantially as described.

3. A defecator for sugar-juice and like liquors, comprising a main vessel with inclined scum and juice separating plates at spaced distances apart, steam-jacketed chambers and scum and juice separating chambers at the end of the vessel, substantially as set forth.

662,977. INSTRUMENT FOR DETERMINING MEASUREMENTS. CHARLES F. SCHNELL, Hartford, Conn., assignor of one-half to Francis H. Richards, same place. Filed July 5, 1899. Serial No. 722,800. (No model.)

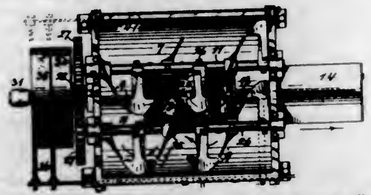


Claim.—1. An instrument for determining measurements consisting of a graduated straight-edge; a scale pivoted directly to said straight-edge and carrying a protractor, the pivot of said scale being on a line with one edge of the straight-edge and with the opposing edge of the scale; a third scale; a protractor having a slide bent to fit around the straight-edge, to which protractor the third scale is directly pivoted, the pivot being on a line with the opposing edges of the straight-edge and said third scale; and a spring for frictionally retaining the protractor-slide upon the straight-edge.

2. In an instrument for determining measurements, the combination, with a pair of scales one constituting a straight-edge, of a third scale; a sheet-metal protractor having an integral slide bent to fit around one of said scales; and a spring carried in the channel of the protractor-slide and serving to retain the same in frictional engagement with one of said scales.

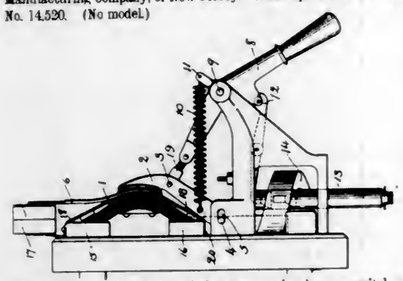
3. In an instrument of the class described, the combination, with a graduated straight-edge consisting of a solid integral body, of a scale connected to one end of said straight-edge by a rule-joint, the axis of said joint being on a line with the edge of the straight-edge and with the edge of said scale; a third scale; a sheet-metal protractor having an integral slide bent to fit around the straight-edge and to which said third scale is pivoted with its axis on a line with the edges of said third scale and said straight-edge; and a spring located in the channel of the slide and bearing against the back of the straight-edge and adapted frictionally to hold the slide in engagement therewith.

662,978. MIXING-MACHINE. CHARLES G. SCHMIDT, Cincinnati, Ohio. Filed Jan. 17, 1900. Serial No. 1,725. (No model.)



Claim.—In a mixing-machine, the combination of two parallel shafts carrying rotary agitating-blades and so spaced that the circular paths of these blades partly overlap each other, a vessel within which they operate, the lower part of which is shaped to conform to these paths, the shape being substantially that of two half-circular curves intersecting each other at a point below their centers, a discharge-opening 13 in this curved lower part of the vessel, a slide fitted to opening 13 and between the longitudinal edges 15 thereof which are beveled and support the same, the inner surface of this slide being even with the inner surface of the vessel, to the shape of which it conforms and of which it constitutes an unbroken continuation, both opening 13 and the slide therefor extending to one of the ends of the vessel, so as to permit movement of the slide in and out on the longitudinal edges 15 of the opening which thus form guideways for the slide, means for so moving the slide and means to confine the same vertically to the guideways.

662,979. AUTOMATIC MAGNETIC CIRCUIT-BREAKER. WILLIAM M. SCOTT, Philadelphia, Pa., assignor to the Cutter Electrical and Manufacturing Company, of New Jersey. Filed Apr. 27, 1900. Serial No. 14,520. (No model.)



Claim.—1. In an electric switch, a supporting-base, a switch-supporting arm mounted thereon, having limited rotative and translative movement relative thereto, a lever in operative relation to said switch-supporting arm, and spring means for controlling the movement of said switch-arm in relation to said base and operating-lever, substantially as described.

2. In an electric switch, the combination of a switch-supporting member on a laterally-movable fulcrum, a lever in operative relation with said supporting member, spring means for actuating the same, latching means for normally restraining said actuation, and automatic magnetic means for releasing the restraining means, substantially as described.

3. In an electric switch the combination of a switch-supporting member, having a laterally-movable fulcrum carrying a main-switch bridge and a supplemental bridge in shunt therewith, and a manually-operative lever having toggle-joint connection with the switch-supporting member, substantially as described.

4. In an electric switch, the combination of a switch-supporting member having a laterally-movable rotatable bearing, and a manually-operative actuating-lever in operative relationship with the switch-supporting member, substantially as described.

5. In an electric switch, the combination of a switch-supporting member connected with the base by slot-and-projection engagement so as to permit of a limited rotative and translative movement of said member, and a hand-lever having operative relationship with the switch-supporting member, substantially as described.

6. In an electric switch, the combination of a switch-supporting member connected with the base by slot-and-projection engagement so as to permit of a limited rotative and translative movement of said member, and a hand-lever having toggle-joint connection with the switch-supporting member, substantially as described.

7. In an electric switch, the combination of a main bridge and a supplemental bridge, a switch-supporting member for carrying same, having pin-and-slot engagement with the base so that said member may have a limited rotative and translative movement to procure the first separation of the main bridge from its coöperative fixed contacts at the end most remote from the point at which the circuit is finally opened, subtantially as described.

8. The combination of a main and supplemental electric switch, a switch-supporting member for same, having a limited rotative and translative movement, the main and supplemental switches being so disposed and supported that the main-switch member is first disconnected from the circuit at the end most remote from the point at which the circuit is finally opened by the supplemental switch, substantially as described.

9. The combination of a main switch and supplemental switch the contacts of which are substantially in vertical alinement, the movable contacts being so disposed and supported upon a switch-supporting member having limited rotative and translative movement, that the main-switch member is first disconnected from the circuit at the end most remote from the point at which the circuit is finally opened by the supplemental switch, substantially as described.

10. In an electric switch, a supporting-base, a switch-supporting arm mounted thereon, having limited rotative and translative movement relative thereto, a lever in operative relation to said switch-supporting arm, spring means for controlling the movement of said switch-supporting arm in relation to said base and operating-lever, and adjustable means for limiting the translative movement of its rotative bearing, substantially as described.

11. In an electric switch, the combination of a switch-supporting member on a laterally-movable fulcrum, adjustable means for limiting the lateral movement of said fulcrum, a lever in operative relation with said supporting member, spring means for actuating the same, latching means for normally restraining said actuation, and automatic magnetic means for releasing the restraining means, substantially as described.

12. In an electric switch the combination of a switch-supporting member, having a laterally-movable fulcrum, carrying a main-switch bridge and a supplemental bridge in shunt therewith, adjustable means for limiting the lateral movement of said fulcrum, and a manually-operative lever having toggle-joint connection with the switch-supporting member, substantially as described.

13. In an electric switch, the combination of a switch-supporting member having a laterally-movable rotatable bearing, adjustable means for limiting the lateral movement of said rotatable bearing, and a manually-operative actuating-lever in operative relationship with the switch-supporting member, substantially as described.

14. In an electric switch, the combination of a switch-supporting member connected with the base by slot-and-projection engagement so as to permit of a limited rotative and translative movement of said member, adjustable means for limiting the translative movement of the projection in the slot, and a hand-lever having toggle-joint connection with the switch-supporting member, substantially as described.

15. In an electric switch, the combination of a switch-supporting member connected with the base by slot-and-pin engagement so as to permit of a limited rotative and translative movement of said member, a movable eccentric bushing for said pin as means for adjusting the position of said engagement with respect to the switch-supporting member, and a hand-lever having toggle-joint connection with the switch-supporting member, substantially as described.

16. In an electric switch the combination of a switch-supporting member having two independently-adjustable points of support, and a manually-operative actuating-lever for operating the same, one of the adjustable points of support of the supporting member being with the base, and the other being with the manually-operative actuating member, substantially as described.

17. In an electric switch the combination of a switch-supporting member, and a manually-operative actuating-lever in operative relationship with the switch-supporting member, the switch-supporting member having adjustable connection with the base, and an adjustable connection with the manually-operative actuating member, substantially as described.

18. In an electric switch the combination of separable coöperative contacts, a movable contact-supporting member, and a manually-operative actuating-lever having adjustable connection with the contact-supporting member, and the contact-supporting member also having adjustable rotatable connection with the base, substantially as described.

19. In an electric switch the combination of a supporting-base, a movable switch-supporting member and a manually-operative actuating member, the switch-supporting member having one adjustable point of support with the base and another adjustable point of support with the manually-operative actuating member, substantially as described.

20. In an electric switch the combination of a switch-supporting member having adjustable connection with the base, and a manually-operative actuating member having adjustable operative relationship with the switch-supporting member, substantially as described.

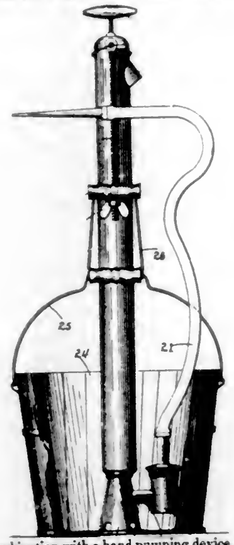
21. In an electric switch the combination of a base, a switch-supporting member having adjustable rotative connection therewith, and a hand-lever having an adjustable toggle-joint connection with the switch-supporting member, substantially as described.

22. In an electric switch the combination of a base, separable coöperative contacts, a movable contact-supporting member, said supporting member having two movable points of support, each point independently adjustable for the purpose of securing equally-efficient engagement of all of the separable coöperative contacts.

662,980. PUMPING DEVICE. CHARLES S. SHEPARD, Cherry Creek, N. Y. Filed Oct. 2, 1899. Serial No. 732,295. (No model.)

Claim.—1. A hand pumping device comprising a pump having a barrel provided with a screw-threaded nozzle, a cone-shaped casing having its widest part at the bottom, a screw-threaded upper portion fastened to the top edge of the casing extending downward into the interior of said casing and adapted to screw upon said nozzle, a tubular screw-threaded lower portion fastened at its top edge to an intermediate portion of the interior of said casing, a screw-cap upon said lower portion having an opening, a ball within said lower portion, a supplementary casing, a strip of material extending across above the ball, a horizontal tube unprovided with a valve and connecting to the main casing above said strip and to an intermediate part of the supplementary casing, a screw-threaded tubular part within the upper portion of the supplementary casing having a partially-closed lower end, a hose or pipe having a screw-threaded metal portion adapted to screw into the screw-threaded tube of the supplementary casing, a ball within said tubular part normally seated in the opening of the partially-closed lower end of the screw-threaded tubular part, and a strip of material extending across and connected at its ends to the sides of the screw-threaded metal portion of the hose or pipe for limiting the upward movement of the ball under pressure of the liquid, as set forth.

2. The combination with a hand pumping device having a projection or pin, of a screw-threaded rod having an eye at its upper end fitting over said projection or pin, a handle longitudinally movable on said rod, hooks extending from said handle upon which a pail is adapted to be supported and a thumb-screw upon the rod below the handle, as set forth.

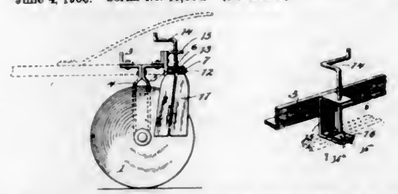


3. The combination with a hand pumping device, of a screw-threaded rod supported from said pumping device, a handle longitudinally movable on said rod, hooks extending from said handle upon which a pail is adapted to be supported and a thumb-screw upon the rod below the handle, as set forth.

4. The combination with a hand pumping device, of a rod supported from said pumping device, and an attachment mounted on said rod and having hooks adapted to catch over the bail of a pail, as set forth.

5. The combination with a hand pumping device of a screw-threaded rod supported from said pumping device, a handle longitudinally adjustable on said rod, and hooks extending from said handle and adapted to catch over the bail of a pail, as set forth.

662,981. DISK HARROW. SMITH S. SIMS, Beatrice, Nebr. Filed June 4, 1900. Serial No. 19,064. (No model.)



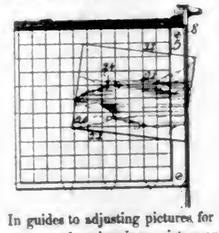
Claim.—1. The combination with a harrow-disk, of a pair of scrapers disposed one in rear of the other and adapted to operate on different portions of the surface of the disk and means for alternately pressing said scrapers against the surface of the disk, substantially as described.

2. The combination with a harrow-disk, of a pair of scrapers disposed one in rear of the other and adapted to operate on different portions of the surface of the disk, a lever and connections to press said scrapers alternately against the disk, and a spring to normally engage one of said scrapers with the disk, and to disengage the other therefrom, substantially as described.

3. In a disk harrow, the combination of longitudinally-movable bars, disk-scrapers attached thereto, a lever for simultaneously moving said bars in opposite directions, whereby the respective scrapers attached to said bars will be alternately engaged with the harrow-disks, substantially as described.

4. In a disk harrow, the combination of longitudinally-movable bars, disk-scrapers attached thereto, connections moving said bars in opposite directions, and a spring for keeping the scrapers of one of said bars normally in engagement with the harrow-disks, substantially as described.

662,982. GUIDE FOR PICTURE-TRIMMING. PERLEY E. STEVENS, St. Paul, Minn. Filed Mar. 13, 1900. Serial No. 8,476. (No model.)



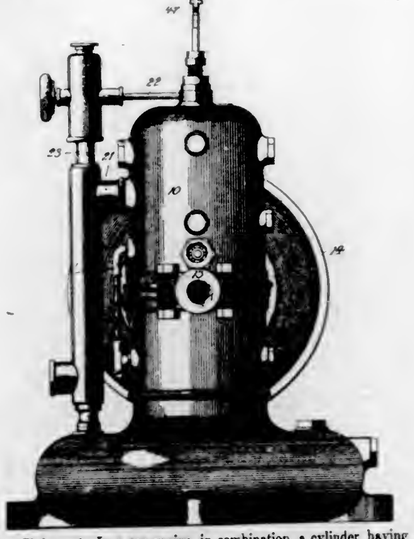
Claim.—1. In guides to adjusting pictures for trimming, a table to support the picture; means for trimming a picture on a line having a fixed relation to the table; a transparent guide having lines or marks upon it by which to adjust the picture, and means for locating this adjusting-guide in a fixed relation to the trimming-line while the guide is in service, substantially as described.

2. In guides to adjusting pictures for trimming, a table having a raised ledge along one side; and a transparent sheet located upon the table and hinged at one edge to swing from the table; the said sheet having guide-markings upon it and shaped at one edge as a trimming-cutter guide, substantially as described.

3. In guides to adjusting pictures for trimming, a table; means for guiding a trimming-blade to cut on a line having a fixed relation to the table; a transparent sheet having guide-markings upon it, and means for locating the sheet when in service, with its guide-lines in a fixed relation to the trimming-line, substantially as described.

4. In guides to adjusting pictures for trimming, a transparent sheet having guide-lines upon it; a paper-trimming device, and means for locating the guide-sheet in a fixed relation to the cutting-guide of the trimming device, substantially as described.

662,983. SPEED-GOVERNOR FOR EXPLOSIVE-ENGINES. BENJAMIN F. STEWART, Chicago, Ill. Filed Sept. 20, 1900. Serial No. 30,538. (No model.)



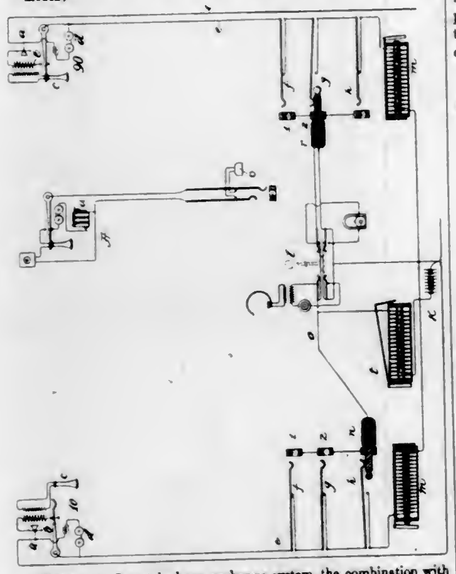
Claim.—1. In a gas-engine, in combination, a cylinder having an induction-port, a normally-closed valve therefor, and having a tubular stem, a reciprocating piston, a rod secured to the piston and passing through the valve-stem, a finger pivotally carried by the rod and so disposed as to normally engage the end of the valve-stem, and a laterally-projecting weighted arm carried by the finger.

2. In a gas-engine, in combination, a cylinder having an induction-port, a normally-closed valve therefor, and having a tubular stem, a reciprocating piston, a rod secured to the piston and passing through the valve-stem, a head adjustably mounted upon the rod, a finger pivotally carried by the head and so disposed as to normally engage the end of the valve-stem, and a laterally-projecting weighted arm carried by the finger.

3. In a gas-engine, in combination, a cylinder having an induction-port, a normally-closed valve therefor, having a tubular stem, a reciprocating piston, a rod secured to the piston and passing through the valve-stem, a weighted finger pivotally carried by the rod and so disposed as to normally engage the end of the valve-stem, and a spring for holding the finger in its normal position.

4. In a gas-engine, in combination, a cylinder having an induction-port, an inwardly-open spring-closed valve for such port having a tubular stem, a reciprocating piston, a rod fixed in the piston and extending through the valve-stem, a pair of fingers pivotally carried by the outer end of the rod and each having an end adapted to bear against the end of the valve-stem, a weighted arm projecting laterally from each finger, a spring for holding the fingers in line with the valve-stem, and means for varying the tension of the spring, substantially as and for the purpose specified.

662,984. **TELEPHONE-EXCHANGE SYSTEM.** ALFRED STROMBERG, Chicago, Ill. Filed Oct. 18, 1899. Serial No. 733,969. (No model.)

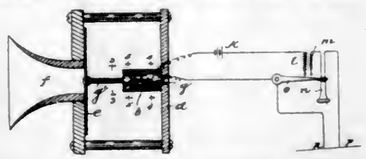


Claim.—1. In a telephone-exchange system, the combination with a plurality of metallic-circuit telephone-lines each extending by both of its limbs from a subscriber's station to an exchange, limbs of the metallic telephone-lines being directly connected together at the exchange, independently of cord connecting apparatus, of a single cord-strand provided with suitable connecting means adapted to connect the remaining limbs of the metallic-circuit telephone-lines, the telephonic circuit between the subscribers thereby comprising the limbs of the metallic lines that are directly connected at the exchange and the single cord-strand with the remaining limbs united thereby, battery-transmitters being provided at the substations, a common battery for supplying said transmitters connected in bridge at the exchange between the cord-strand and the directly-united limbs of the telephone-lines, the directly-united limbs of the telephone-lines being free of direct connection except at the exchange where they are directly connected with one terminal of the battery, and an indicator in the same bridge with the battery, substantially as described.

2. In a telephone-exchange system, the combination with a plurality of metallic-circuit telephone-lines each extending by both of its limbs from a subscriber's station to an exchange, limbs of the metallic telephone-lines being directly connected together at the exchange, independently of cord connecting apparatus, of a single cord-strand provided with suitable connecting means adapted to connect the remaining limbs of the metallic-circuit telephone-lines, the telephonic circuit between the subscribers thereby comprising the limbs of the metallic lines that are directly connected at the exchange and the single cord-strand with the remaining limbs united thereby, battery-transmitters being provided at the substations, a battery for supplying said transmitters having one terminal connected to those terminals of the limbs of the telephone-lines that are directly united, the directly-united limbs of the telephone-lines being free of direct connection except at the exchange where they are directly connected with one terminal of the battery, the remaining terminal of the battery being directly connected with the cord-strand, and a clearing-out indicator included in circuit with the said battery, the said clearing-out drop and battery being in a bridge of the united telephone-lines, substantially as described.

3. In a telephone-exchange system, the combination with a plurality of metallic-circuit telephone-lines each extending by both of its limbs from a subscriber's station to an exchange, limbs of the metallic telephone-lines being directly connected together at the exchange, independently of cord connecting apparatus, of an additional telephone-line normally disconnected from the limbs of the aforesaid telephone-lines, a single cord-strand provided with suitable connecting means adapted to connect the remaining normally-disconnected limbs of the first-aforesaid telephone-lines, the telephonic circuit between the subscribers of the said metallic telephone-lines thereby comprising the limbs of the metallic lines that are directly connected at the exchange and the single cord-strand with the remaining limbs united thereby, the connecting means employed with the cord comprising in part a connecting-plug having two contacts, one of which is connected with the said cord-strand, while the other is connected by an additional cord-strand with the directly-united terminals of the telephone-lines whereby the said additional telephone-line may be united in telephonic circuit with metallic-circuit telephone-lines that have directly-connected limbs, substantially as described.

662,985. **TELEPHONE-TRANSMITTER.** ALFRED STROMBERG, Chicago, Ill. Filed Feb. 24, 1900. Serial No. 6,345. (No model.)



Claim.—1. In a battery telephone-transmitter, the combination with an electrode of solid material, of a second electrode of solid material, and means for effecting a substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, without subjecting the first-aforesaid electrode to varying pressure, substantially as described.

2. In a battery telephone-transmitter, the combination with an electrode, of a second comminuted electrode, and means for effecting the substantially rectilineal reciprocation of one of said electrodes through the agency of sound-waves, substantially as described.

3. In a battery telephone-transmitter, the combination with a stem formed in sections of conducting and insulating material, the conducting material constituting an electrode of the transmitter, of a second electrode of solid material in engagement with the conducting and insulating portions of the said stem, and means for effecting the substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, substantially as described.

4. In a battery telephone-transmitter, the combination with a stem formed in sections of conducting and insulating material, the conducting material constituting an electrode of the transmitter, of a second comminuted electrode in engagement with the conducting and insulating portions of the said stem, and means for effecting the substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, substantially as described.

5. In a battery telephone-transmitter, the combination with a reciprocating electrode of a second comminuted electrode in contact therewith, and means for effecting the substantially rectilineal reciprocation of the first-aforesaid electrode through the agency of sound-waves without varying the pressure between the electrodes, substantially as described.

6. In a battery telephone-transmitter, the combination with an electrode, of a second comminuted electrode, means for effecting the substantially rectilineal reciprocation of one of said electrodes through the agency of sound-waves, and a containing vessel for the comminuted electrode, the comminuted electrode surrounding the remaining electrode, substantially as described.

7. In a battery telephone-transmitter, the combination with a stem formed in sections of conducting and insulating material, the conducting material constituting an electrode of the transmitter, of a second comminuted electrode in engagement with the conducting and insulating portions of the said stem, means for effecting the substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, and a containing vessel for the comminuted electrode, the comminuted electrode surrounding the remaining electrode, substantially as described.

8. In a battery telephone-transmitter, the combination with a reciprocating electrode of a second comminuted electrode in contact therewith, means for effecting the substantially rectilineal reciprocation of the first-aforesaid electrode through the agency of sound-waves without varying the pressure between the electrodes, and a containing vessel for the comminuted electrode, the comminuted electrode surrounding the remaining electrode, substantially as described.

9. In a battery telephone-transmitter, the combination with a diaphragm to be actuated by sound-waves, of a substantially rectilineal reciprocating electrode actuated thereby, a second electrode engaging the reciprocating electrode, and means whereby the resistance of the circuit including the said electrodes may be varied without subjecting the second electrode to varying pressure.

10. In a battery telephone-transmitter, the combination with a diaphragm to be actuated by sound-waves, of a substantially rectilineal reciprocating electrode actuated thereby and a second comminuted electrode engaging the reciprocating electrode, substantially as described.

11. In a battery telephone-transmitter, the combination with an electrode of solid material, of a second electrode of solid material, and means for effecting a substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, without varying the pressure between said electrodes, the electrodes being so relatively disposed as to have the area of contact between the same decreased upon an increase in the force of sound-waves, and to have a relative increase of the area of contact between the electrodes effected upon a decrease in the force of the sound-waves, substantially as described.

12. In a battery telephone-transmitter, the combination with an electrode, of a second comminuted electrode, and means for effecting a substantially rectilineal reciprocation of one of said electrodes through the agency of sound-waves, the electrodes being so relatively disposed as to have the area of contact between the same decreased upon an increase in the force of sound-waves, and to have a relative increase of the area of contact between the electrodes effected upon a decrease in the force of the sound-waves, substantially as described.

13. In a battery telephone-transmitter, the combination with a stem formed in sections of conducting and insulating material, the conducting material constituting an electrode of the transmitter, of a second electrode of solid material in engagement with the conducting and insulating portions of the said stem, and means for effecting the substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, the electrodes being so relatively disposed as to have the area of contact between the same decreased upon an increase in the force of sound-waves, and to have a relative increase of the area of contact between the electrodes effected upon a decrease in the force of the sound-waves, substantially as described.

14. In a battery telephone-transmitter, the combination with an electrode, of a second comminuted electrode, a diaphragm to which one of the electrodes is secured, and means interposed between the said diaphragm and its attached electrode to effect a greater substantially rectilineal reciprocating movement of said electrode with relation to the movement of the diaphragm, substantially as described.

15. In a battery telephone-transmitter, the combination with an electrode, of a second comminuted electrode, and means for effecting the substantially rectilineal reciprocation of one of said electrodes through the agency of sound-waves, without subjecting the comminuted electrode to varying pressure, substantially as described.

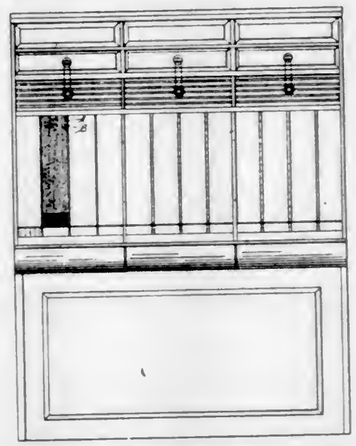
16. In a battery telephone-transmitter, the combination with an electrode, of a portion of insulated material united therewith, a second electrode in engagement with the aforesaid electrode and the said portion of insulating material, and means for effecting the substantially rectilineal reciprocation of one of the electrodes through the agency of sound-waves, substantially as described.

662,986. **TELEPHONE-EXCHANGE SYSTEM AND APPARATUS.** ALFRED STROMBERG, Chicago, Ill. Filed June 6, 1900. Serial No. 19,287. (No model.)

Claim.—1. In a telephone-exchange system, the combination with the limbs of a metallic-circuit telephone-line, of a line-switch provided on a switchboard, one limb of the line being provided with a loop at said line-switch, which is connected with the said switch, the other limb of the line being also provided with a loop at said line-switch, but free of direct connection with said line-switch, substantially as described.

2. In a telephone-exchange system, the combination with the limbs of a metallic-circuit telephone-line, of a plurality of line-switches provided on a switchboard, one limb of each line being provided with a loop at, and connected with, each of said line-switches, the other limb of the line being also provided with a loop at each line-switch, but free of direct connection therewith, the said loops being twisted, substantially as described.

3. In a telephone-exchange system, the combination with a plurality of metallic telephone-lines extending to and from the exchange, one limb of each of the metallic telephone-lines being connected directly together at the exchange, independently of cord connecting apparatus, of a single cord-strand provided with suitable connecting means adapted to connect the remaining limbs of the metallic-circuit telephone-lines, a telephonic circuit between the subscribers thereby comprising the limbs of the metallic lines that are directly connected at the exchange, and the single cord-strand with the remaining limbs united thereby, a common battery connected in bridge at the exchange between the cord-strand and the directly-united limbs of the telephone-lines, and an indicator in the same bridge with the battery; the limbs of the telephone-lines that are not permanently connected being each provided with a loop extending to and connected with a line-switch at the exchange, the directly-connected limbs of the line being also provided with a loop extending parallel with the loop that is connected with the switch to avoid induction, substantially as described.



4. In a telephone-exchange system, the combination with a plurality of metallic telephone-lines extending to and from the exchange, one limb of each of the metallic telephone-lines being connected directly together at the exchange, independently of cord connecting apparatus, of a single cord-strand provided with suitable connecting means adapted to connect the remaining limbs of the metallic-circuit telephone-lines, a telephonic circuit between the subscribers thereby comprising the limbs of the metallic lines that are directly connected at the exchange, and the single cord-strand with the remaining limbs united thereby, a common battery connected in bridge at the exchange between the cord-strand and the directly-united limbs of the telephone-lines, and an indicator in the same bridge with the battery; the limbs of the telephone-lines that are not permanently connected being each provided with a loop extending to and connected with a line-switch at the exchange, the directly-connected limbs of the line being also provided with a loop extending parallel with the loop that is connected with the switch to avoid induction, the said loops being twisted, substantially as described.

5. In a telephone-exchange system, the combination with a plurality of metallic telephone-lines extending to and from the exchange, one limb of each of the metallic telephone-lines being connected directly together at the exchange, independently of cord connecting apparatus, of a single cord-strand provided with suitable connecting means adapted to connect the remaining limbs of the metallic-circuit telephone-lines, a telephonic circuit between the subscribers thereby comprising the limbs of the metallic lines that are directly connected at the exchange, and the single cord-strand with the remaining limbs united thereby, a common battery connected with the directly-united limbs of the metallic lines, and with the cord-strand and an indicator in the circuit with the battery and cord-strand; the limbs of the telephone-lines being each provided with a loop, a switch connected with one of the loops of each line, the companion loop of the directly-connected limb extending parallel with the aforesaid loop that is connected with the switch to avoid induction, the said loops being twisted, substantially as described.

6. In a telephone-exchange system, the combination with a plurality of telephone-lines extending from subscribers' stations to an exchange, one limb of each of the lines being permanently connected together at the exchange independently of cord connecting apparatus, of a single cord-strand provided with a single connecting means adapted to connect the remaining limbs of the lines, the telephonic circuit between the subscribers thereby comprising the limbs of the lines that are directly connected at the exchange and the single cord-strand with the remaining limbs united thereby, and line-switches connected with limbs that are connected through

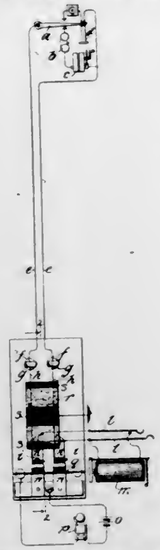
the agency of the cord-strand, the limbs of the lines extending along the switchboard, the said limbs being provided with parallel loops, the loops of the permanently-united limbs being free of direct connection with the line-switches, while the loops of the remaining limbs have direct connection with the line-switches, the said loops cooperating to prevent cross-talk, substantially as described.

7. In a switchboard, the combination with a front vertical support formed in one integral piece provided with a plurality of horizontal rows of plug-openings, of a rear vertical support united to the aforesaid support, and a plurality of rows of line-springs mounted in the rear vertical support contiguous to the said openings, whereby the plug-openings may be brought closer together vertically as well as horizontally, substantially as described.

8. In a multiple switchboard, the combination with a front vertical support formed in one integral piece provided with a plurality of horizontal rows of test-thimbles, of a rear vertical support, a plurality of rows of line-springs mounted in the rear vertical support contiguous to the said thimbles, and conductors C attached to the test-thimbles and engaging the rear vertical support, whereby the said conductors C act to unite the vertical supports and at the same time convey current to the test-thimbles, substantially as described.

9. In a multiple switchboard, the combination with a front vertical support provided with a plurality of horizontal rows of test-thimbles, of a rear vertical support, a plurality of rows of line-springs mounted in the rear vertical support contiguous to the said thimbles, and conductors C attached to the test-thimbles and engaging the rear vertical support, whereby the said conductors C act to unite the vertical supports and at the same time convey current to the test-thimbles, substantially as described.

662,987. CIRCUIT-PROTECTOR. ALFRED STROMBERG, Chicago, Ill. Filed June 28, 1900. Serial No. 21,878. (No model.)



Claim.—1. The combination with a fuse for inclusion in the circuit to be protected thereby, of a grounded lightning-arrester terminal opposed to the said fuse which constitutes a second lightning-arrester terminal, the grounded terminal having its surface that is opposed to the fuse partially faced with insulating material, and means for maintaining the fuse under tension, substantially as described.

2. The combination with a fuse for inclusion in the circuit to be protected thereby, of a grounded lightning-arrester terminal composed of carbon opposed to the said fuse which constitutes a second lightning-arrester terminal, the grounded terminal having its surface that is opposed to the fuse partially faced with insulating material, and means for maintaining the fuse under tension, substantially as described.

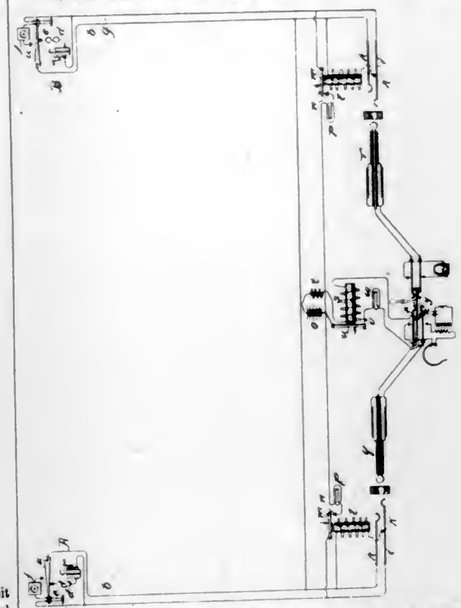
3. The combination with a fuse for inclusion in a protected circuit, of a spring *k* for maintaining the same under tension, an alarm-circuit, a signal device included in said alarm-circuit, and a spring *n* constituting one terminal of said alarm-circuit, a contact *q* constituting the remaining terminal of the said alarm-circuit and normally out of contact with the contact-spring *n*, the spring *k* serving upon the rupture of the fuse held under tension thereby to engage the spring *n* with the terminal *q* to close the said alarm-circuit, substantially as described.

4. The combination with a fuse for inclusion in the circuit to be protected thereby, of a grounded lightning-arrester terminal opposed to the said fuse, which fuse constitutes the second lightning-arrester terminal, the surface of the grounded lightning-arrester terminal that is opposed to the fuse being partially faced with insulating material to prevent the fuse from coming in contact with the grounded lightning-arrester terminal, substantially as described.

5. The combination with a fuse for inclusion in the circuit to be protected thereby, of a grounded lightning-arrester terminal composed of carbon opposed to the said fuse, which fuse constitutes the second lightning-arrester terminal, the surface of the grounded lightning-arrester terminal that is opposed to the fuse being partially faced with insulating material to prevent the fuse from coming in contact with the grounded lightning-arrester terminal, substantially as described.

6. The combination with a fuse for inclusion in the circuit to be protected thereby, of a grounded lightning-arrester terminal opposed to the said fuse which constitutes a second lightning-arrester terminal, the grounded terminal having its surface that is opposed to the fuse partially faced with insulating material that is in engagement with the fuse and terminal, and means for stretching the fuse across the grounded terminal and pressing the same against the insulating material and grounded terminal, whereby the fuse is placed close to the grounded terminal but maintained out of contact therewith, substantially as described.

662,988. TELEPHONE-EXCHANGE SYSTEM. ALFRED STROMBERG and WILLIAM M. DAVIS, Chicago, Ill., assignors to the Stromberg-Carlson Telephone Manufacturing Company, same place. Filed June 28, 1900. Serial No. 21,894. (No model.)



Claim.—1. In a telephone-exchange system, the combination with subscribers' lines extending from substations to an exchange, of a source of calling-current at each subscriber's station, a clearing-out indicator at the exchange, associated with united telephone-lines, a battery included in a normally open circuit with the helix of the clearing-out-indicator magnet, the armature of said magnet serving to close circuit through the battery and helix when actuated through the agency of the source of current at a subscriber's station, and an operator's switching appliance having normally closed separable contacts also included in circuit with the said battery and helix, the said contacts of the operator's switching appliance serving, when separated, to open the circuit previously closed by the armature of the clearing-out-indicator magnet to cause a restoration of the clearing-out indicator, substantially as described.

2. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from substations to an exchange and there united in a telephonic circuit, of a source of calling-current at each substation, a clearing-out indicator at the exchange adapted to be operated by current transmitted over the telephone-line from a substation, a battery, means whereby the magnet of the clearing-out indicator may include its helix in circuit with said battery when said magnet is operated to maintain the clearing-out indicator in an actuated condition, and an operator's listening-key adapted to exclude the battery from circuit with the clearing-out-indicator magnet, whereby the clearing-out indicator is restored, substantially as described.

3. In a telephone-exchange system, the combination with subscribers' lines extending from substations to an exchange, of a source of calling-current at each subscriber's station, a clearing-out indicator at the exchange, associated with united telephone-lines, a battery included in a normally open circuit with the helix of the clearing-out-indicator magnet, the armature of said magnet serving to close circuit through the battery and helix when actuated through the agency of the source of current at a subscriber's station, and an operator's listening-key having normally closed separable contacts also included in circuit with the said battery and helix, the said contacts of the operator's listening-key serving, when separated, to open the circuit previously closed by the armature of the clearing-out-indicator magnet to cause a restoration of the clearing-out indicator, substantially as described.

4. In a telephone-exchange system, the combination with telephone-lines extending from substations to an exchange and there united in a telephonic circuit, of a source of calling-current at each substation, a line-indicator for each line, a clearing-out indicator at the exchange adapted to be operated by current transmitted over the telephone-line from a substation, a battery, means whereby the magnet of the clearing-out indicator may include its helix in circuit with said battery when said magnet is operated to maintain the clearing-out indicator in an actuated condition, and an operator's switching appliance adapted to exclude the said battery from circuit with the clearing-out-indicator magnet, substantially as described.

5. In a telephone-exchange system, the combination with subscribers' lines extending from substations to an exchange, of a source of calling-current at each subscriber's station, a line-indicator associated with each line, a clearing-out indicator at the exchange, associated with united telephone-lines, a battery included in a normally open circuit with the helix of the clearing-out-indicator magnet, the armature of said magnet serving to close circuit through the battery and helix when actuated through the agency of the source of current at a subscriber's station, and an operator's switching appliance having normally-closed separable contacts also included in circuit with the said battery and helix, the said contacts of the operator's switching appliance serving, when separated, to open the circuit previously closed by the armature of the clearing-out-indicator magnet to cause a restoration of the clearing-out indicator, substantially as described.

6. In a telephone-exchange system, the combination with telephone-lines extending from substations to an exchange and there united in a telephonic circuit, of a source of calling-current at each substation, a line-indicator for each line, a clearing-out indicator at the exchange adapted to be operated by current transmitted over the telephone-line from a substation, a battery, means whereby the magnet of the clearing-out indicator may include its helix in circuit with said battery when said magnet is operated to maintain the clearing-out indicator in an actuated condition, and an operator's listening-key adapted to exclude the battery from circuit with the magnet of the clearing-out indicator, substantially as described.

7. In a telephone-exchange system, the combination with subscribers' lines extending from substations to an exchange, of a source of calling-current at each subscriber's station, a line-indicator associated with each line, a clearing-out indicator at the exchange, associated with united telephone-lines, a battery included in a normally open circuit with the helix of the clearing-out-indicator magnet, the armature of said magnet serving to close circuit through the battery and helix when actuated through the agency of the source of current at a subscriber's station, and an operator's listening-key having normally closed separable contacts also included in circuit with the said battery and helix, the said contacts of the operator's listening-key serving, when separated, to open the circuit previously closed by the armature of the clearing-out-indicator magnet to cause a restoration of the clearing-out indicator, substantially as described.

8. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from substations to an exchange and there united in telephonic circuit, of a clearing-out indicator at the exchange, a battery, means controlled by the magnet of the clearing-out indicator for including the helix of said magnet in circuit with said battery to maintain the clearing-out indicator in its actuated condition, and an operator's listening-key adapted to exclude the battery from circuit with the helix of said magnet to restore the clearing-out indicator, substantially as described.

9. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from substations to an exchange and there united in telephonic circuit, of a clearing-out indicator at the exchange, a battery, means controlled by the magnet of the clearing-out indicator for including the helix of said magnet in circuit with said battery to maintain the clearing-out indicator in its actuated condition, and an operator's switching appliance adapted to exclude the said battery from circuit with the helix of the said magnet, substantially as described.

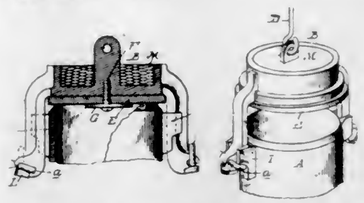
10. In a telephone-exchange system, the combination with a subscriber's telephone-line extending from a substation to an exchange, of an indicator at the exchange, a battery, means controlled by the magnet of said indicator for including the helix of said magnet in circuit with said battery to maintain the said indicator in its actuated condition, and an operator's listening-key adapted to exclude the battery from circuit with the helix of said magnet to restore said indicator, substantially as described.

11. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from substations to an exchange and there united in a telephonic circuit, of a source of calling-current, a clearing-out indicator at the exchange having an operating-helix and adapted to be operated at a substation, an operator's listening-key at the exchange, and means whereby the said listening-key may deënergize said helix to restore the clearing-out indicator after actuation, substantially as described.

12. In a telephone-exchange system, the combination with a subscriber's telephone-line extending from a substation to an exchange, of a source of calling-current, an indicator at the exchange having an operating-helix and adapted to be operated from a substation, an operator's listening-key at the exchange, and means whereby the said listening-key may deënergize said helix to restore the indicator after actuation, substantially as described.

13. In a telephone-exchange system, the combination with subscribers' telephone-lines extending from substations to an exchange and there united in a telephonic circuit, of a source of calling-current, a clearing-out indicator at the exchange having an operating-helix and adapted to be operated at a substation, an operator's switching appliance at the exchange, and means whereby the said switching appliance may deënergize said helix to restore the clearing-out indicator after actuation, substantially as described.

662,989. VALVE. WILLIAM TAYLOR, Detroit, Mich., assignor to the Ideal Manufacturing Company, same place. Filed Jan. 29, 1900. Serial No. 3,204. (No model.)



Claim.—1. The combination with a valve and the seat-fitting therefor, of guide-arms on the one embracing the other, guide lugs or shoulders on the latter for guiding said arms and movable catches attached at the end of said arms adapted in one position to prevent the disengagement of said arms from said lugs and in another position to permit said arms to pass freely between said guide-lugs.

2. The combination with a valve and the seat-fitting therefor, of a guide-arm on the one engaging a channel in the other, and a catch pivoted to the side of said arm adapted when turned in one position to permit of the engagement or disengagement of said arm from said guide-channel, and in another position to lock said arm from disengagement.

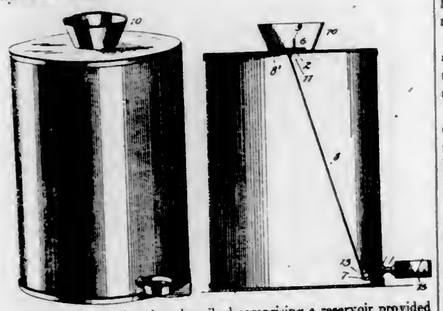
3. The combination with a valve and the seat-fitting therefor, of an arm on the one extending between guide-lugs on the other, and a pivotal catch on said arm comprising a U-shaped wire loop embracing said arm with its central portion engaging a slot therein, a turned lug or flange on said arm for retaining said loop and a lug or stop for said loop in its locking position.

662,990. STOCK-WATERER. JOHN H. THORNBURGH, Knightstown, Ind. Filed Sept. 22, 1900. Serial No. 30,810. (No model.)

Claim.—1. A device of the class described comprising a reservoir having discharge and filling openings, a drinking-receptacle connected with the discharge-opening, the upper and lower cut-offs located respectively at the filling and discharge openings, and a connecting device secured to each of the cut-offs, whereby the cut-off at the discharge-opening is positively opened and closed by the other cut-off, substantially as described.

2. A device of the class described comprising a reservoir having discharge and filling openings, a drinking-receptacle connected with the discharge-opening, an upper hinged cut-off arranged over the filling-opening, a lower hinged cut-off located within the tank adjacent to the discharge-opening, and a rod connecting the cut-offs and arranged to close

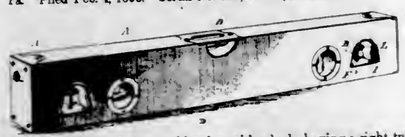
the lower cut-off automatically when the upper one is opened, substantially as described.



3. A device of the class described comprising a reservoir provided with discharge and filling openings, a drinking-receptacle connected with the reservoir at the discharge-opening, a flaring flange or ring surrounding the filling-opening, a hinged cut-off located within the flange or ring and arranged over the filling-opening, a lower cut-off arranged to cover the discharge-opening, and means for connecting the cut-offs, whereby the lower one will be operated by the upper one, substantially as described.

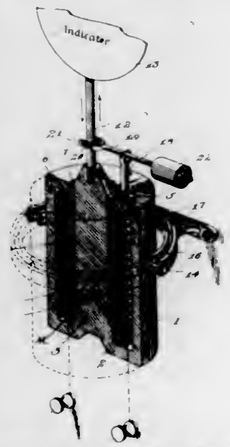
4. A device of the class described comprising a reservoir, a drinking-receptacle connected with the same, means for controlling the flow of water, and a removable mat arranged within the drinking-receptacle and provided with spurs, substantially as and for the purpose described.

662,991. **SPIRIT-LEVEL.** JOSIAH H. VAN LUVAN, West Pittston, Pa. Filed Feb. 4, 1898. Serial No. 669,167. (No model.)



Claim.—In a level, the combination with a body having a sight-tube and leveling-tubes, the sight-tube being provided with a lens and centering-wires located near one side of the body, and the body being recessed at each end of the tube toward the opposite side, a plate on each end of the body, perforated to register with the sight-tube, a shutter pivotally secured to said plate in position to fit in said recess and be moved over the end of the sight-tube, and means for supporting the level in a horizontal position on an inclined surface.

662,992. **ELECTRIC-CURRENT INDICATOR.** HARRY M. WARREN, Schenectady, N. Y. Filed Dec. 9, 1899. Serial No. 739,839. (No model.)



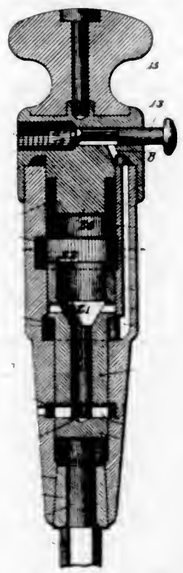
Claim.—1. In an electric-current indicator, the combination with an indicator mechanism of a cylindrical shell having closed bottom and central conical projection thereon, of a solenoid or helix, a tube within the helix, and the conical projection, and counterbalanced core inside said tube having conical hollow in its bottom and connected with the indicating mechanism, substantially as described.

2. In an electric-current indicator, the combination with a solenoid, a core therein, the top of which is conical, counterbalancing devices connected to the core, and a pointer-operating rod connected to the core, substantially as described.

3. In an electric-current indicator, a bracket securable to a wall or other support and provided with a horizontal ring, a cylinder secured in said ring, a solenoid in the cylinder, a core in the solenoid, a counterbalancing-lever pivoted to the cylinder and connected to the core and an operating-rod connected to the core, substantially as described.

4. The herein-described electric-current indicator, comprising the cylinder with closed bottom having central projection with conical top, the ring partially closing the top of the cylinder, the tube inserted in the ring and over the central bottom projection, the helix between the cylinder and tube, the core in the tube having the conical hollow in its bottom and suspended in mercury, the pointer-operating rod secured to the core, and the counterbalancing-lever connected to the rod by a joint permitting true vertical movement of the core and rod, these parts being arranged and combined, substantially as described.

662,993. **PNEUMATIC HAMMER.** DANIEL S. WAUGH, Marion, Ohio. Filed Nov. 15, 1899. Serial No. 737,105. (No model.)



Claim.—1. An automatic hammer comprising a casing provided with separate interior supply-chamber and an expansion-chamber spaced apart, and a tubular reciprocatory hammer working within the casing, said hammer being open at one end and provided with induction and eduction ports, and also having an exterior shoulder of less area than the remaining surface exposed to the motive agent, substantially as set forth.

2. In an automatic hammer, a casing having an expansion-chamber located intermediate the ends of the main chamber in which the hammer reciprocates, the said expansion-chamber being offset laterally from the main chamber, substantially as specified.

3. An automatic hammer comprising a casing provided with separate interior supply and expansion chambers spaced apart, and a tubular reciprocatory hammer working within the casing, said hammer being open at its inner end, and provided with induction and eduction ports and having an exterior shoulder of less area than the remaining surface exposed to the motive agent, and a cushion-plug arranged to enter the open end of the hammer at the inner or upper end of the stroke of the hammer, substantially as specified.

4. An automatic hammer comprising a casing provided with the separate interior supply-chamber and expansion-chamber spaced apart, and also provided near one end with a transverse supply-passage, a pressure-seated

valve with its stem disposed lengthwise of said passage and projecting outside of the casing, and a hammer or plunger slidably fitted within the casing and reciprocated solely by the pressure of the motive fluid admitted to the latter, as and for the purposes set forth.

5. In a fluid-actuated hammer, the combination of a casing having means for admitting and exhausting motive fluid, a hollow plunger or hammer provided with ports and slidably fitted within the casing for reciprocation solely by pressure of motive fluid therein, said plunger or hammer serving as a valve to control the admission and exhaust of the motive fluid, and means for reducing the area of the surface on said plunger exposed to the pressure of the motive fluid at one limit of movement of said plunger or hammer within the casing, as and for the purposes set forth.

6. In a fluid-actuated hammer, the combination of a casing having an expansion-chamber, and means for admitting and exhausting motive fluid, and a hollow plunger or hammer provided with ports and slidably fitted within said casing to traverse the expansion-chamber and to control the admission and exhaust of motive fluid to and from the same, said plunger or hammer being reciprocated solely by the pressure of motive fluid against variable areas of working faces on the plunger, and the latter also controlling the admission and exhaust of motive fluid to and from the casing, as and for the purposes set forth.

7. In a fluid-actuated hammer, the combination of a casing provided with a projecting portion and having a supply-passage and provided with an exhaust-port, and a reciprocating plunger or hammer provided at its head with an expansion-chamber to receive the projecting portion and having an opening or passage communicating with the chamber and adapted to communicate also with the exhaust-port, substantially as described.

8. In a fluid-actuated hammer, the combination of a casing provided with a supply-passage and exhaust-port and having a projecting portion, and a reciprocating plunger or hammer having an expansion-chamber to receive the projecting portion and provided with an opening or passage communicating with the chamber and adapted to communicate with the exhaust-port, said hammer or plunger being provided with an exterior shoulder, substantially as and for the purposes described.

9. In a fluid-actuated hammer, the combination of a casing having a longitudinal supply-passage and provided with an exhaust-port, a reciprocating hammer or plunger having an expansion-chamber and provided with a longitudinal opening extending from the said chamber and adapted to register with the exhaust-port at the end of the stroke, said hammer or plunger being provided with an exterior shoulder, and a plug arranged within the casing and having a reduced portion adapted to extend into the expansion-chamber at the inner portion of the stroke, substantially as described.

10. In a fluid-actuated hammer, the combination of a casing having a supply-passage and provided with an exhaust-port, a valve for controlling the admission of air, a reciprocating hammer or plunger having an expansion-chamber at its head and provided with a longitudinal opening communicating with the chamber and having transverse apertures, said hammer or plunger being provided with an exterior shoulder, and a plug arranged within the casing and adapted to extend into the expansion-chamber to reduce the area of pressure at the head of the hammer or plunger, substantially as described.

11. In a fluid-actuated hammer, the combination of a casing, a reciprocating plunger or hammer provided at its head with an expansion-chamber, and a plug mounted within the casing and arranged to extend into the expansion-chamber at the inner portion of the stroke of the hammer or plunger, whereby the area of pressure at the head of the same is reduced, substantially as described.

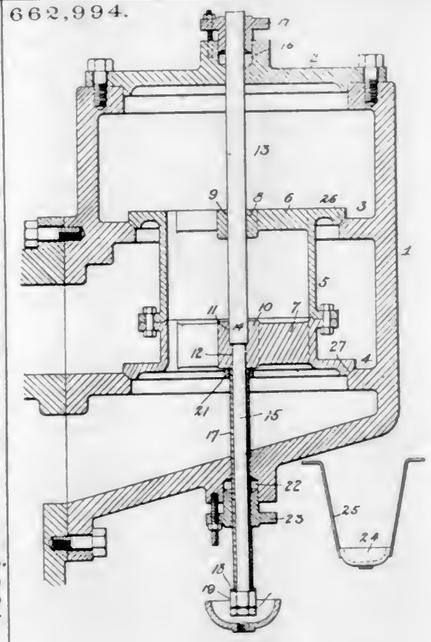
662,994. **STEAM-ENGINE VALVE.** EDGAR A. WEIMER, Lebanon, Pa. Filed Sept. 17, 1900. Serial No. 30,296. (No model.)

Claim.—1. A steam-engine puppet-valve having a rod extending through the center thereof and through both ends of the valve-case, whereby the valve is guided to its seat, and means on the free end of the rod outside the case for tightening the valve on the rod.

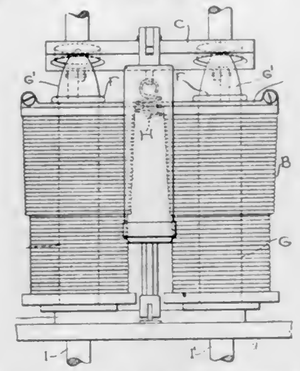
2. A steam-engine puppet-valve having an upper and a lower bearing-face, a rod extending through the center of the valve and through opposite ends of the valve-case, concentric horizontal seats in the case engaged by the valve, whereby the valve is guided to its seat, and means on the free end of the rod outside the case for tightening the valve on the rod.

3. A steam-engine valve having an upper and a lower spider, the hub of the latter provided with a counterbore, a valve-rod of different diameters seated in said counterbore, a sleeve surrounding the reduced part of the rod, adjusting-nuts below the sleeve, and both ends of the valve-rod extending through the valve-case.

662,994.



662,995. **ELECTRIC-ARC LAMP.** OZRO N. WISWELL, Lynn, Mass., assignor to the General Electric Company, of New York. Filed May 4, 1899. Serial No. 715,508. (No model.)



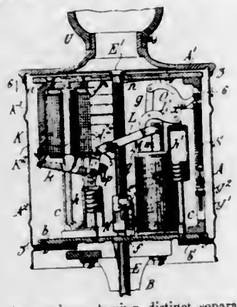
Claim.—1. In an electric-arc lamp, the combination of a feed-regulating magnet provided with a core and armature, one of which is permanently fixed and the other movable, the two having cooperating faces shaped to produce a sudden decrease of the magnetic reluctance of the circuit and thereby afford a sharp increase of pull at or near the feeding-point of the lamp.

2. In an electric-arc lamp, the combination of a feed-regulating magnet having a paraboloidal pole-tip, and an armature surrounding the pole-tip, the pole-tip being provided with an enlargement of magnetic material at or near the feeding-point for exerting a sharp increase of pull.

3. In an electric-arc lamp, the combination of a core having a paraboloidal pole-tip, a winding therefor, an armature containing a hole for the reception of the pole-piece, and a ring of magnetic material for modifying the action of said pole-piece.

4. In an electric-arc lamp, the combination of a pair of magnets, each magnet having a core with a paraboloidal pole-tip, means for holding the cores in alinement, a moving armature, and a split magnetizable ring located between the armature and the said means for modifying the action of the pole-pieces.

662,996. ELECTRIC-ARC LAMP. JAMES J. WOOD, Fort Wayne, Ind. Filed Dec. 4, 1899. Serial No. 739,111. (No model.)



Claim.—1. An arc-lamp having distinct separating and feeding magnets, a lever connected at its normal fulcrum-axis to said separating-magnet and operated by said feeding-magnet, a resistance-shunt around the arc, and a cut-out adapted to be operated solely by the excitation of the separating-magnet to break said resistance-shunt independently of movements of the feeding-magnet.

2. An arc-lamp having distinct separating and feeding magnets, a lever connected at its normal fulcrum-axis to said separating-magnet and operated by said feeding-magnet, and a cut-out operated by an abnormal excitation of said feeding-magnet, whereby said cut-out is operated independently of movements of said separating-magnet.

3. In an arc-lamp, the combination with distinct separating and feeding magnets and a resistance-shunt, of a lever connected at its normal fulcrum-axis to said separating-magnet and operated by said feeding-magnet, and a cut-out operatively connected to said magnets for closing said shunt upon either an abnormal excitation of the feeding-magnet, or a demagnetization of the separating-magnet.

4. An arc-lamp having distinct separating and feeding magnets, a feeding device, a feeding-lever connected at its normal fulcrum-axis to the separating-magnet, connected for normal operation to the feeding-magnet so as to be moved by either magnet, and connected at an intermediate point to said feeding device to communicate the movement of either magnet thereto, a resistance-shunt, and a cut-out therefor operatively connected to said magnets for closing said shunt upon either an abnormal excitation of the feeding-magnet or a demagnetization of the separating-magnet.

5. An arc-lamp having distinct separating and feeding magnets, a feeding device, a feeding-lever connected at one end to the separating-magnet and at the other end to the feeding-magnet so as to be moved by either magnet, and connected to said feeding device to communicate the movement of either magnet thereto, a resistance-shunt, and cut-out contacts therefor operatively connected to the separating-magnet, and means whereby the excitation of said magnet first separates said contacts and thereafter communicates motion to said lever.

6. An arc-lamp having distinct separating and feeding magnets, a feeding device, a feeding-lever connected at one end to the separating-magnet and at the other end to the feeding-magnet so as to be moved by either magnet, and connected to said feeding device to communicate the movement of either magnet thereto, the connection between said lever and separating-magnet being made through a lost-motion device, a resistance-shunt, and cut-out contacts therefor operatively connected to the separating-magnet within the limits of said lost-motion device, whereby the first movement of said magnet operates said contacts until the lost motion is taken up, and thereafter is communicated to said lever.

7. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a resistance-shunt, and two cut-outs therefor operatively connected to the respective magnets, so that the one is operated by movements of said separating-magnet, and the other by extreme movements of said lever around its point of connection with said separating-magnet.

8. An arc-lamp having distinct separating and feeding magnets, a lever connected at its normal fulcrum-axis to said separating-magnet and operated by said feeding-magnet, a resistance-shunt and two cut-outs therefor operatively connected to the respective magnets, so that the one is operated by movements of said separating-magnet, and the other by extreme movements of said lever around its point of connection with said separating-magnet.

9. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a resistance-shunt, and cut-out contacts therefor comprising an insulated contact-piece, a contact operatively connected with said separating-magnet to break contact with said insulated piece upon the excitation of said magnet, and a contact-piece connected with said lever to be moved by extreme movements thereof aronnd its point of connection with the separating-magnet, both said contacts adapted to touch said insulated contact-piece for closing said resistance-shunt.

10. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a resistance-shunt, and cut-out contacts therefor comprising an insulated contact-piece, a contact connected with the armature of said separating-magnet, and a contact-piece connected with said lever to be moved by extreme movements thereof around its point of connection with the separating-magnet, both said contacts adapted to touch said insulated contact-piece for closing said resistance-shunt.

11. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, its connection with said separating-magnet being made through a lost-motion device, whereby the initial movement of said magnet will take up the lost motion thereof before moving said lever, a retarding device for retarding the movement communicated to said lever, a resistance-shunt, and a cut-out therefor operated by said initial movement while taking up such lost motion.

12. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a bridge-piece J connecting the armature of said separating-magnet to said lever, a resistance-shunt, and cut-out contacts therefor comprising a contact-piece fixed to said bridge-piece, and a contact on said armature adapted to touch said contact-piece.

13. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a bridge-piece J connecting the armature of said separating-magnet to said lever, a resistance-shunt, and cut-out contacts therefor comprising a contact-piece p fixed to and insulated from said bridge-piece, and a contact on said armature adapted to touch said insulated contact-piece.

14. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a bridge-piece J connecting the armature of said separating-magnet to said lever and having a lost-motion connection with said armature, a resistance-shunt, and a cut-out therefor comprising a contact-piece fixed to said bridge-piece, and a contact on said armature adapted to make or break contact with said contact-piece during the movements of said armature in taking up lost motion.

15. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a bridge-piece J connecting the armature of said separating-magnet to said lever, a resistance-shunt, and cut-out contacts therefor comprising a contact-piece p fixed to said bridge-piece, a contact on said armature adapted to touch said contact-piece, and a contact-piece q frictionally mounted and adapted to be moved into or out of contact with said piece p by extreme vibratory movements of said lever.

16. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a resistance-shunt, and cut-out contacts therefor comprising a contact-piece p and a contact-piece q, the latter frictionally mounted and adapted to be moved into or out of contact with the piece p by extreme angular movements of said lever.

17. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a resistance-shunt, and cut-out contacts comprising a contact-piece p and a contact-piece q, the latter frictionally pivoted at the point of connection between said lever and separating-magnet, and adapted to be moved into or out of contact with the piece p by extreme angular movements of said lever.

18. An arc-lamp having distinct separating and feeding magnets, a lever L connected thereto at different points, a bridge-piece J connecting the armature of said separating-magnet to said lever, a resistance-shunt, and cut-out contacts therefor comprising a contact-piece connected to said shunt having a concave contact-arm p^2, and a contact on the armature k of said separating-magnet consisting of a roller k' adapted to touch said concave arm.

19. An arc-lamp feeding-magnet combined with a retracting-spring, and an interposed lever adapted to vary the mechanical advantage at which the spring stress is communicated to the magnet, in such manner as to render such stress most effective when the armature is retracted, and progressively less effective as the armature is attracted.

20. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, and a retracting-spring for the feeding-magnet adapted to diminish its retractile stress during the attracting movement of said magnet.

21. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a feeding device connected to said lever at an intermediate point, and a retracting-spring for the feeding-magnet adapted to diminish its retractile stress during the attracting movement of said magnet.

22. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a feeding-clutch connected to said lever at an intermediate point so as to be moved by either magnet, and a retracting-spring for the feeding-magnet adapted to diminish its retractile stress during the attracting movement of said magnet.

23. An arc-lamp having distinct separating and feeding magnets, a feeding-lever connected to said magnets at different points, a retracting-spring for the feeding-magnet adapted to diminish its retractile stress during the attracting movement of said magnet, a resistance-shunt, and cut-out contacts for closing said shunt arranged to be operated by an abnormal attraction of said feeding-magnet.

24. An arc-lamp having distinct separating and feeding magnets, and a feeding-lever connected at its normal fulcrum-axis to said separating-magnet and connected for normal operation to said feeding-magnet, said separating-magnet being constructed with a magnetic circuit having only one gap, the armature thereof being hinged at one end, said gap existing between the free end of said armature and the pole-piece of the magnet, and the armature having an opening through which the pole-piece projects.

25. An arc-lamp having distinct separating and feeding magnets, and a feeding-lever connected to said magnets at different points, said separating-magnet being constructed with a fixed frame and an armature hinged at one end to said frame, and free to move at its other toward the pole-piece of the magnet, its hinge-joint shaped to diminish the magnetic resistance of said joint during the movement of attraction.

26. An arc-lamp having distinct separating and feeding magnets, and a feeding-lever connected to said magnets at different points, said separating-magnet being constructed with a fixed frame and an armature hinged at one end to said frame with a hinge-joint having an angular gap when the magnet is unattracted and arranged to close said gap by the attracted movement of said magnet.

27. An arc-lamp having distinct separating and feeding magnets, and a feeding-lever connected to said magnets at different points, said separating-magnet being constructed with a fixed frame and an armature hinged at one end to said frame with a knife-edge joint, the frame being formed with a knife-edge and the armature with a groove receiving it and leaving an angular gap when the magnet is unattracted, and arranged to close said gap by the attracted movement of said magnet, and a projection on the frame loosely engaging the armature to prevent its dropping off when unattracted.

28. In an arc-lamp, a feeding-clutch having its barrel cut away internally to reduce its contact with the feed-rod to a plurality of points of contact on the opposite side from the shoe, and having not more than two contact-points arranged on one side of the horizontal plane of the middle of said shoe, and one or more contact-points on the other side of said plane.

29. In an arc-lamp, a feeding-clutch having only five points of contact with the feed-rod, namely the shoe on one side of the rod, and two pairs of contact-points on the other side thereof, arranged above and below the level of said shoe.

30. A carbon-clamp for an arc-lamp comprising an elliptical ring having three points of contact with the carbon, one a clamping-screw, and the others formed in the ring as surfaces convex in vertical planes and concave in horizontal planes and making tangential contact with the cylindrical surface of the carbon.

31. In an arc-lamp, a tubular negative-carbon holder adapted to let the carbon project beneath it, combined with a dust-cup having a tubular extension adapted to inclose the pendent portion of the carbon.

32. In an arc-lamp, the drop-frame formed with a globe-holder, a tubular negative-carbon holder adapted to let the carbon project beneath said frame, and a dust-cup fitting beneath said globe-holder, having a tubular extension adapted to inclose the pendent portion of the carbon, and extended up within the cup to prevent dust falling into it.

33. In an arc-lamp, the mechanism-case having top and bottom plates, the latter being of insulating material and a shell A^3, said shell being formed with an internal bead to make a close fit with the annular projection b' of the bottom plate.

34. An arc-lamp having distinct separating and feeding magnets, and a feeding-lever connected to said magnets at different points, a bridge-piece for connecting the normal fulcrum-axis of said lever to the separating-magnet, and a guide having a notch or recess for properly locating such fulcrum-axis during its movement by said magnet.

35. An arc-lamp having distinct separating and feeding magnets, a resistance-shunt, and a cut-out therefor, means for operating said cut-out to close said shunt by an abnormal excitation of said feeding-magnet, and means for maintaining a closure of said shunt beyond the period of such abnormal excitation.

36. An arc-lamp having distinct separating and feeding magnets, a resistance-shunt, and a cut-out therefor, means for operating said cut-out to close said shunt by an abnormal excitation of said feeding-magnet, and means for maintaining said shunt closed until the completion of a normal retractile movement of said magnet.

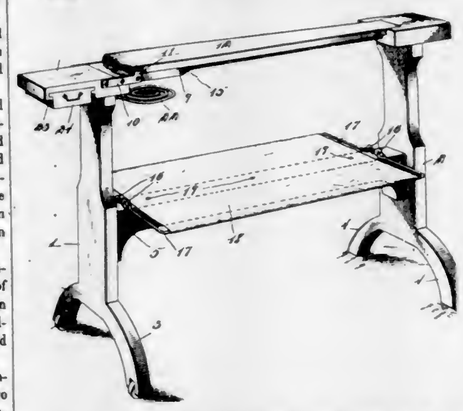
37. An arc-lamp having distinct separating and feeding magnets, a resistance-shunt, and cut-out contacts therefor operated to close said shunt by an abnormal excitation of said feeding-magnet, one of said contacts frictionally mounted to retain any position to which it is moved, and connected to said feeding-magnet to be moved upon an abnormal attraction thereof, and upon a retraction thereof, to maintain a prolonged closure of said shunt between said movements.

38. In a clutch-feed arc-lamp, the combination with a clutch-lever of a fixed abutment for limiting its upward movement and an abutment for tripping the clutch, consisting of a plate fastened by a set-screw and vertically adjustable.

39. In a clutch-feed arc-lamp, the combination with a clutch having a clutch-lever, of a standard f' having a slot in which the tail of said lever may move, and a vertically-adjustable abutment f for closing the lower end of said slot.

40. In a clutch-feed arc-lamp, the combination with a clutch having a clutch-lever, a standard f' having a slot in which the tail of said lever may move, and a vertically-adjustable abutment f for closing the lower end of said slot, consisting of a plate bent at its upper end to enter said slot, and having a set-screw for adjustably clamping it to said standard.

662,997. IRONING-TABLE. JAMES F. WREN and NANCY E. GRANT, Mineola, Tex. Filed June 16, 1900. Serial No. 20,611. (No model.)



Claim.—1. In an ironing stand or table, the combination with parallel standards; of a horizontal bar connecting the standards; one or more ironing-boards supported by said standards; and pivoted frames projecting from opposite sides of said bar, and connected by a single flexible covering secured centrally to said horizontal bar, and having its side edges secured to said frames.

2. In an ironing-table, the combination with parallel standards; of a horizontal bar or brace connecting said standards; a block secured to the upper end of one of said standards; an ironing-board hinged to said block; a second board pivotally secured to said first-named board; and a block secured to the upper end of the other standard and recessed to form seats 13 and 14 to receive the free ends of both of said boards.

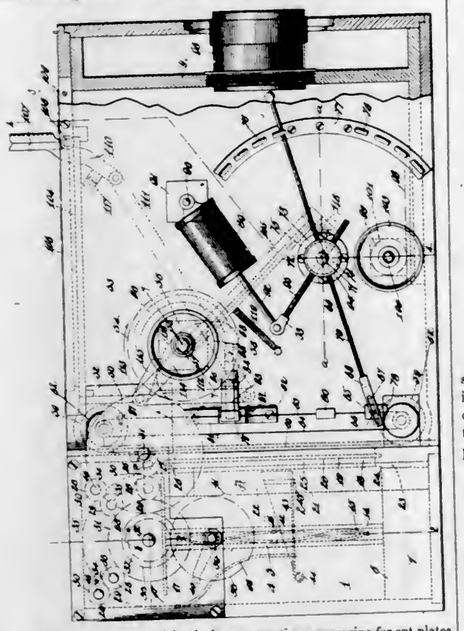
662,998. PHOTOGRAPHIC CAMERA. JOHN S. WRIGHT, Duxbury, and CHARLES S. GOODING, Brookline, Mass. Filed Aug. 19, 1899. Serial No. 727,858. (No model.)

Claim.—1. In a camera, a mirror, fast to a rock-shaft having bearings in the casing of said camera, a finder, a cover for said finder pivoted to said casing, and operative mechanism connecting said mirror and said cover, whereby, when the mirror is raised the cover will be closed and vice versa, in combination with mechanism for alternately raising and lowering said mirror, substantially as described.

2. In a camera, a mirror fast to a rock-shaft having bearings in the casing of said camera, a finder, a cover for said finder and operative mechanism connecting said mirror and cover, whereby when the mirror is raised, the cover will be closed and vice versa, in combination with an arm fast to said rock-shaft, a rotatable cam 116 and means for rotating said cam.

3. In a camera, a magazine for cut plates or films, having two chambers therein, and mechanism for carrying a cut plate or film from one to the other of said chambers, in combination with a mirror pivoted to the casing of said camera, a finder, a cover for said finder pivoted to said casing, and operative mechanism connecting said mirror and said cover, substantially as described.

4. In a camera, a slotted curtain, actuating mechanism for imparting motion to said curtain in opposite directions, and means for locking said actuating mechanism; a mirror fast to a rock-shaft having bearings in the casing of said camera, a finder, a cover for said finder, and operative mechanism connecting said mirror and cover, whereby when the mirror is raised the cover will be closed, and vice versa, in combination with mechanism for raising said mirror and mechanism for unlocking said curtain-actuating mechanism, substantially as described.



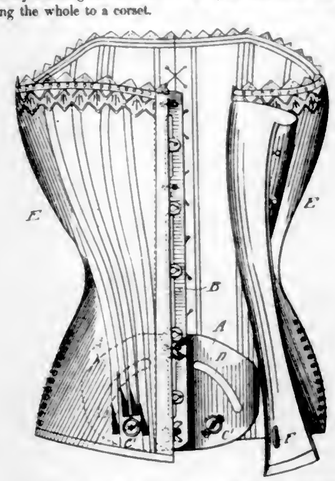
5. A camera, comprising in its construction a magazine for cut plates or films, having two chambers therein, and mechanism for carrying a cut plate or film from one to the other of said chambers, a slotted curtain, actuating mechanism for imparting motion to said curtain in opposite directions, and means for locking said curtain-actuating mechanism; in combination with mechanism for automatically unlocking said curtain-actuating mechanism and imparting motion to said cut-plate-carrying mechanism, substantially as described.

6. A camera, comprising in its construction, a magazine for cut plates or films, having two chambers therein and mechanism for carrying a cut plate or film from one to the other of said chambers; a slotted curtain, actuating mechanism for imparting motion to said curtain in opposite directions, and means for locking said curtain-actuating mechanism; a mirror fast to a rock-shaft having bearings in the casing of said camera, a finder, a cover for said finder, and operative mechanism connecting said mirror and cover, whereby when the mirror is raised the cover will be closed, and vice versa; in combination with mechanism for imparting motion to said cut-plate-carrying mechanism, and mechanism for raising and lowering said mirror, substantially as described.

7. A camera, comprising in its construction, a magazine for cut plates or films, having two chambers therein and mechanism for carrying a cut plate or film from one to the other of said chambers; a slotted-curtain-actuating mechanism for imparting motion to said curtain in opposite directions, and means for locking said curtain-actuating mechanism, a mirror fast to a rock-shaft having bearings in the casing of said camera, a finder, a cover for said finder, and operative mechanism connecting said mirror and cover, whereby when the mirror is raised, the cover will be closed, and vice versa; in combination with a cam 86, for unlocking said curtain-actuating mechanism, gears 54, 50, and 36 for imparting motion to said cut-plate-carrying mechanism, and cam 116 for raising and lowering said mirror, substantially as described.

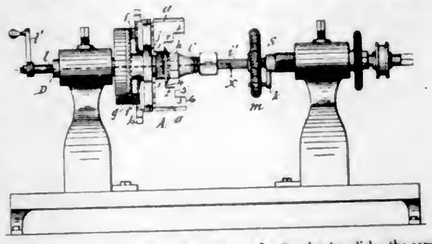
662,999. **CORSET.** ROBERT L. YOUNG, Glasgow, Scotland. Filed May 26, 1900. Serial No. 18,149. (No model.)

Claim.—1. An attachment for corsets comprising a thin wide abdomen-plate of suitable curvature, a flat narrow arm of the curvature of the sternum having lacing-eyes formed near each end, means for firmly but detachably securing said arm to the said plate and means for detachably securing the whole to a corset.



2. An attachment for corsets consisting of an abdominal plate of suitable curvature, a flat narrow arm of the curvature of the sternum having lacing-holes near each end, means for firmly, but detachably securing one end of said arm to said plate, means for detachably securing the whole to a corset and elongated openings in the arm and plate for ventilation purposes.

663,000. **VALVE-REPAIRING MACHINE.** MORTIMER A. ACKLES, Skaneateles, N. Y. Filed Feb. 17, 1900. Serial No. 5,599. (No model.)



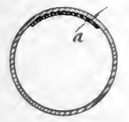
Claim.—1. In a machine for refacing flat-faced valve-disks, the combination of a chuck having synchronously radially adjustable jaws formed with screw-threaded stepped gripping-faces presented toward the axis of the chuck to grip between them the screw-threaded attaching end of the stuffing-box containing the valve-disk and its stem, an annular cutter sustained in the axis of the chuck and means for revolving the valve-stem as set forth.

2. The within-described machine for refacing flat-faced valve-disks of different dimensions, which machine consists of a chuck having synchronously radially adjustable jaws formed with screw-threaded stepped gripping-faces presented toward the axis of the chuck, to grip between them the screw-threaded attaching end of the stuffing-box with the valve-disk fastened therein, each of said jaws formed with flat faces adjacent to the gripping-faces and in planes at right angles to the axis of the chuck to serve as seats for the flange of the stuffing-box, an annular cutter sustained revolubly in the axis of the chuck and means for revolving said cutter as set forth.

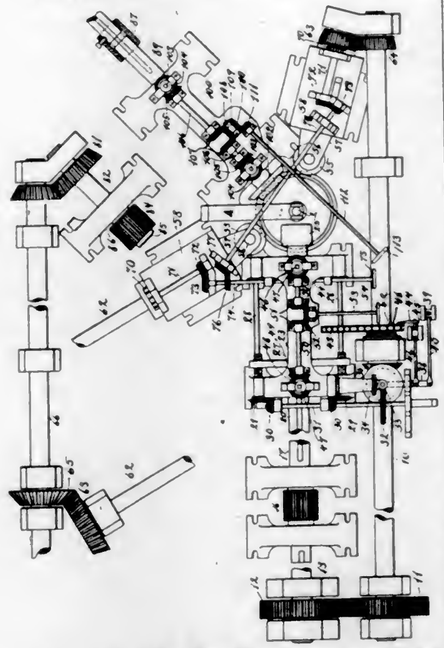
3. In a machine for refacing beveled valve-disks, the combination of a chuck having synchronously radially adjustable jaws mounted reversibly on their seats, and cutters mounted detachably on said jaws at one end of each, and each of said cutters having cutting-faces beveled in opposite directions, all constructed and combined to increase the range of adjustment of said cutters in relation to their distances from the axis of the chuck as set forth.

663,001. **SELF-HEALING PNEUMATIC TIRE.** EDWARD ARTHUR, London, England. Filed Dec. 18, 1899. Serial No. 740,792. (No specimens.)

Claim.—The improvements in or connected with self-healing pneumatic tires consisting in the composition of a material for rendering such tires self-healing in the event of puncture, said composition being produced by dissolving raw rubber, in benzin or naphtha and adding thereto, either coal-tar, or Stockholm or archangel tar, or pitch softened by mineral oil in or about the proportions hereinbefore stated, said composition being fashioned into strips and applied by solution or other means to either the outer periphery of the inner tube or the inside of the outer casing said strips being further held in place by means of the ordinary outer cover substantially as hereinbefore described and shown.



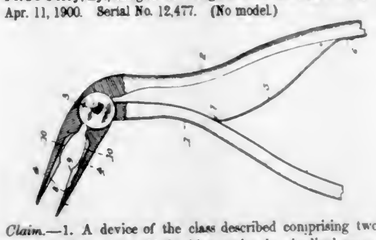
663,002. **MACHINE FOR ROLLING CAR-WHEELS.** MICHAEL BAACKES, Cleveland, Ohio. Filed Mar. 3, 1899. Serial No. 707,588. (No model.)



Claim.—1. In a machine for rolling car-wheels, the combination of a drive-shaft, a pair of web-rolls connected to be driven from the said shaft, means for feeding said rolls together, means for moving said rolls radially in their relation to the wheel-blank and connected to the drive-shaft, clutch mechanism in the connection between the drive-shaft and the radial-movement means, and a stop mechanism connected to be operated from the drive-shaft and connected to said clutch mechanism to automatically disengage the latter at the extremes of the radial movement of the rolls, substantially as set forth.

2. In a machine for rolling car-wheels, the combination of a pair of rolls and their shafts, means for rotating said rolls, means for feeding said rolls toward and from each other, a yoke engaging said shafts, a screw-shaft engaging a threaded opening in said yoke, a bevel-gear and a sprocket-wheel upon said screw-shaft, a shaft provided with a bevel-gear engaging said latter gear and with a worm-gear, a worm-shaft engaging said worm-gear and provided with a miter-gear, a drive-shaft, miter-wheels loose upon said shaft and engaging the former miter-gear and provided with half-clutches upon their faces, a clutch-sleeve sliding upon and turning with the drive-shaft between said half-clutches, a clutch-lever engaging said sleeve, a hand-lever, a link-rod connected to the lower end of said hand-lever and to the clutch-lever, a sprocket-wheel loose upon the drive-shaft, a sprocket-wheel upon the screw-shaft, a sprocket-chain passing around said wheels and provided with a projecting lug, a bell-crank having one arm in the path of said lug, and a link-rod connected to the other arm of the bell-crank and to the clutch-lever, substantially as set forth.

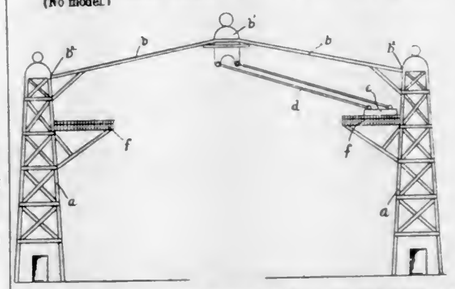
663,003. **TOBACCO-SUCKER REMOVER.** THOMAS J. BARGER, Ford's Ferry, Ky., assignor to George W. Robinson, Marion, Ky. Filed Apr. 11, 1900. Serial No. 12,477. (No model.)



Claim.—1. A device of the class described comprising two jaws tapering to a point and provided with tapering longitudinal grooves and adapted to engage a shoot or sucker, and means for operating the jaws, substantially as described.

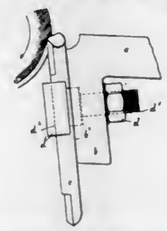
2. A device of the class described comprising two bars or members pivoted together between their ends, and provided at their outer ends with tapering jaws, having longitudinal grooves and recessed at their inner portions to provide an opening, substantially as and for the purpose described.

663,004. **AERIAL RECREATION APPARATUS, &c.** FREDERICK A. BELLAMY, London, England. Filed July 9, 1900. Serial No. 23,017. (No model.)



Claim.—In aerial recreation apparatus, the combination of two towers having platforms projecting from the opposing sides thereof, provided with car retaining and releasing devices and elevating mechanism of a bridge spanning the space between said towers; said bridge having its ends joined to the upper ends thereof, and having a central apex; and oscillating beams or pendulums swung from said bridge; and a car swung from the ends of said oscillating beams or pendulums, whereby it is always enabled to maintain its equilibrium irrespective of the position assumed by the oscillating beams or pendulums, substantially as specified.

663,005. **HOLDER FOR TURNING AND BORING TOOLS.** CONRAD BOLTSHAUSER-SCHMID, Zurich, Switzerland, assignor to S. Steiner & Co., same place. Filed June 23, 1900. Serial No. 21,353. (No model.)

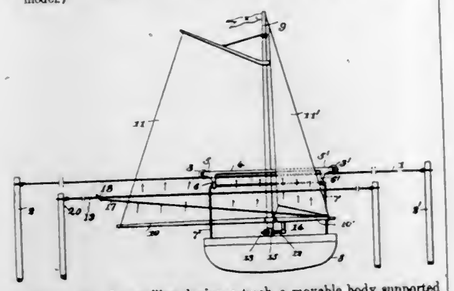


Claim.—1. A reversible elbow-shaped tool-holder for lathes having a long and a short arm each adapted for attachment to a tool-rest, and means for clamping a cutting-tool against either arm in varying positions, substantially as described.

2. A reversible elbow-shaped tool-holder for lathes having a long and a short arm each adapted for attachment to a tool-rest, and means

for clamping a cutting-tool against either arm, and in varying inclined positions against the short arm, substantially as described.

663,006. TRACK-SUPPORTED SAILING DEVICE. GEORGE BREED, Philadelphia, Pa. Filed Aug. 28, 1900. Serial No. 28,326. (No model.)



Claim.—1. In a sailing device, a track, a movable body supported upon said track, a sail carried by said movable body, and mechanism for tacking said sail and changing the course of said movable body, substantially as specified.

2. In a sailing device, a track, a movable hull having wheels running upon said track, a sail carried by said movable hull, and mechanism for tacking said sail and changing the course of said movable hull, substantially as specified.

3. In a sailing device, a track, a movable body having wheels running upon said track, a sail carried by said movable body, and adjustable mechanism for setting and holding said sail to the wind on different tacks, substantially as specified.

4. In a sailing device, a track, a truck which runs upon said track, a hull or body carried by said truck along said track, a sail for moving said hull or body, and a device for holding the sail to the wind on different tacks, substantially as specified.

5. In a sailing device, a track, a truck which runs upon said track, a hull or body carried by said truck along said track, a sail for moving said hull or body, mechanism for preventing said hull and sail from capsizing, and a device for setting and holding said sail to the wind on different tacks, substantially as specified.

6. In combination, a track, a truck movable upon said track, a sailing device having a swiveled or rocking connection with said truck, and tacking mechanism which changes the course of said sailing device, substantially as specified.

7. In combination, a track, a sailing device movable upon said track, mechanism for setting and holding said sailing device to the wind on different tacks, and mechanism for bringing said sailing device about on the reverse tack, substantially as specified.

8. In combination, a track, a sailing device supported upon said track substantially on the line of mean wind pressure, and tacking mechanism for changing the course of said sailing device, substantially as specified.

9. In combination, a track, a sailing device movable upon said track, and a spring which holds said sailing device on different tacks while permitting it to be brought about, substantially as specified.

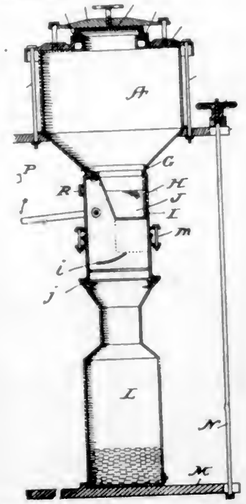
10. In a sailing device, a track, a movable body having wheels which run upon said track, a sail carried by said body for moving the same, a spring permitting said sail to be brought about and holding the same on different tacks, and mechanism for setting said sail to the wind, substantially as specified.

11. In combination, a pivoted adjustable support, a spool carried by said support and adjusted thereby, a spring having a fixed connection for supporting it and a movable connection or bearing upon said spool, said spool and spring being relatively movable, for the purpose set forth.

12. In combination, a suspended track, a truck movable upon said track, and a sailing device having a swiveled or rocking connection with said truck approximately on the line of mean wind pressure, substantially as specified.

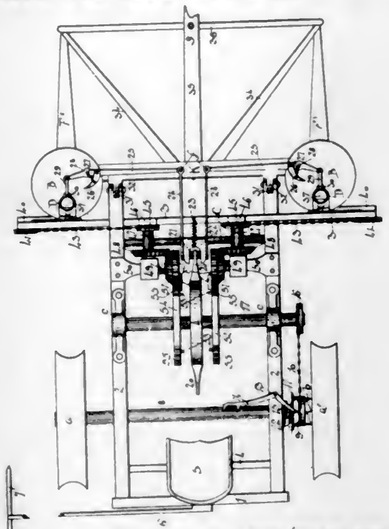
663,007. ACETYLENE-GAS GENERATOR. CHRISTOPHER M. BRIDGES, San Francisco, Cal. Filed June 25, 1900. Serial No. 21,564. (No model.)

Claim.—1. In a feeder for acetylene-gas machines, the reservoir for holding carbid, and a reservoir for holding water, combined with a box placed below the chamber for holding the carbid, a stationary chute placed in said box, and having a discharge-opening at its bottom, combined with an oscillating gage having an opening at its top to receive the carbid and an opening at its lower end to discharge it, the stationary partition arranged opposite the discharge-opening from the gage, and means for moving the gage, substantially as described



2. In a feeder for acetylene-gas machines, the chamber A for holding the carbid, and which is secured to a suitable framework, the box H connected to the lower end of the carbid-chamber, and a chamber for holding water placed below the box, combined with a stationary chute J secured in the top of the box, and which chute is provided with an opening at its lower end, a pivoted gage K having an opening through its top to receive the carbid, and an opening through its bottom to discharge it, a partition i placed below the gage and which is separated a slight distance therefrom, and means for operating the gage, substantially as set forth.

663,008. CORN-PLANTER. GEORGE L. BUCKLEY, Harlan, Iowa. Filed Oct. 10, 1898. Serial No. 693,153. (No model.)

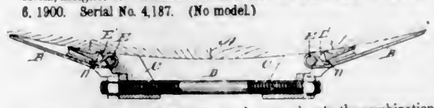


Claim.—1. The combination with a wheel-supported frame, of a runner-frame pivotally secured thereto, seed-reservoirs secured to said runner-frame, seed-feeding mechanism within said reservoirs, an oscillating tube below said seed-feeding mechanism, said tubes being slotted above, a shelf entering said tubes near the upper end, a shelf below said tube near the lower end, a lever to oscillate said tube, and mechanism to oscillate said levers, as and for the purpose set forth.

2. The combination with a wheel-supported frame, of a drive-shaft journaled in said frame, belt connection between said drive-shaft and one of said supporting-wheels, a supported stub-shaft, partially-toothed disks secured to said drive-shaft, suitably-supported mutilated gears working in conjunction with said disks and said stub-shaft connecting said drive-shaft to said stub-shaft to intermittently rotate said stub-shaft, a supported marker revolving in a plane at right angles to the path of said wheel-supported frame, and belt connection between said marker and said intermittently-revolving shaft to intermittently impart a rotary motion to said marker.

3. The combination with a wheel-supported frame, of a forward runner-frame pivotally secured to said wheel-supported frame, runners secured to said runner-frame, seed-reservoirs secured to said runners, seed-feeding mechanism within said reservoirs, a pivoted lever actuating said seed-feeding mechanism, a rock-arm secured to said pivoted lever, a drive-shaft in belt connection with one of said supporting-wheels, a disk upon said shaft provided with projections adapted to engage said rock-arm, partially-toothed disks upon said drive-shaft, a pinion adapted to receive the peripheral edge of said partially-toothed disks to be intermittently rotated by said disks, and a supported marker rotating at right angles to the path of said wheel-supported frame in belt connection with said mutilated gear, all arranged substantially as and for the purpose set forth.

663,009. COUPLING DEVICE. WARREN R. CANNON, Kalamazoo, Mich., assignor of one-third to Homer MANVEL, same place. Filed Feb. 6, 1900. Serial No. 4,187. (No model.)



Claim.—1. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by an outer and inner web; inclined ways E′ on said cheeks; a pin E arranged between the cheeks and engaging the said inclined ways; a hoop or band looped inwardly around said pin; an outwardly-projecting ridge *n* on the inner web; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting substantially as described for the purpose specified.

2. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by an outer and inner web; inclined ways E′ on said cheeks; a pin E arranged between the cheeks and engaging said inclined ways; a hoop or band looped inwardly around said pin; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting for the purpose specified.

3. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by an outer and inner web; a pin E arranged and engaged between the cheeks; a hoop or band looped inwardly around said pin; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting for the purpose specified.

4. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by an outer and inner web; a pin E arranged and engaged between the cheeks; a hoop or band looped inwardly around said pin; and means for joining and drawing the "lugs" together, all coacting for the purpose specified.

5. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by a web; inclined ways E′ on said cheeks; a pin E arranged between the cheeks and engaging the said inclined ways; a hoop or band looped inwardly around said pin; an outwardly-projecting ridge *n* on the inner web; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting for the purpose specified.

6. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by a web; inclined ways E′ on said cheeks; a pin E arranged between the cheeks and engaging said inclined ways; a hoop or band looped inwardly around said pin; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting for the purpose specified.

7. In a coupling device for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by a web; a pin E arranged and engaged between the cheeks; a hoop or band looped inwardly around said pin; and a screw-threaded bolt for joining and drawing the "lugs" together, all coacting for the purpose specified.

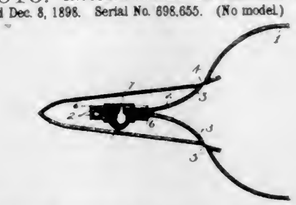
8. In a coupling device, for hoops or bands, the combination of a pair of "lugs" C having sides or cheeks joined together by a web; a pin E arranged and engaged between the cheeks; a hoop or band looped inwardly around said pin; and means for joining and drawing the "lugs" together, all coacting for the purpose specified.

9. In a coupling device, a "lug" having sides or cheeks having inclined ways E′; the said cheeks being joined together by a suitable web, said web having a transverse ridge *n* thereon; a pin E adapted to extend between the cheeks and engage the inclined ways on each side and engage within a fold of a band or hoop, the free end of which rests upon the said web as specified.

10. In a coupling device, a "lug" having sides or cheeks having inclined ways E′; the said cheeks being joined together by a suitable web; a pin E adapted to extend between the cheeks and engage the inclined ways on each side and engage within a fold of a band or hoop, the free end of which rests upon the said web as specified.

11. In a coupling device, a "lug" having sides or cheeks joined together by a suitable web; a pin E arranged between the cheeks and engaging the same and adapted to receive a fold or loop in a band or hoop, the free end of which rests upon said web, as specified.

663,010. TROUSERS-GUARD. LEO CAUFFMAN, Rochester, N. Y. Filed Dec. 8, 1898. Serial No. 698,655. (No model.)



Claim.—The combination with the trousers-leg, of the tabs secured to the inner sides of the leg upon the inturned portions extending upon the forward sides of the seams, and the detachable ball-and-socket fastening devices between said tabs, one member being secured to each tab.

663,011. HORN FOR USE ON TALKING-MACHINES. JAMES R. CHALLEN, Jr., Newark, N. J. Filed June 7, 1900. Serial No. 19,361. (No model.)



Claim.—1. The combination with a horn-shaped device for receiving and concentrating sound, of a concentric spiral rib or flange attached to the inner walls thereof extending from the larger to the smaller diameters thereof, substantially as described.

2. The combination with a sound-horn of a concentric spiral rib or flange attached to the inner walls thereof, extending from the smaller to the larger diameters of the said horn for the purposes described.

3. The combination with a sound-horn, of a concentric spiral rib or flange attached to the inner walls thereof, extending from the smaller to the larger end and increasing in width proportionately to the smaller and larger diameters of the said horn, substantially as and for the purposes described.

4. In a horn for delivering and amplifying sound, a concentric spiral rib or flange attached to the inner walls thereof, and extending from the smaller to the larger end, increasing in width proportionately to the increase in diameter of the horn and inclined at an angle toward the smaller end, substantially as described and for the purposes set forth.

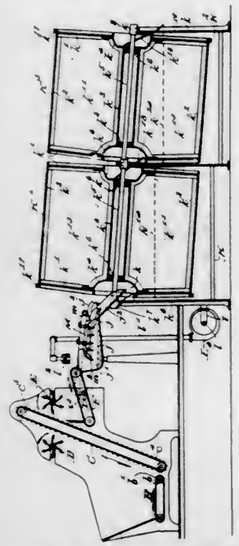
5. The combination in a recording and reproducing sound-horn for phonetic purposes, of a concentric spiral rib or flange attached to the inner walls thereof, said flange increasing in width proportionately with the minimum and maximum diameters of the horn, and inclined at an angle toward the sides of the said horn, substantially as and for the purposes described.

663,012. DYEING-MACHINE. HENRY W. CHUECH, Lowell, Mass. Filed Mar. 22, 1899. Serial No. 710,035. (No model.)

Claim.—1. In a dyeing apparatus, a hollow, perforated, rotary cylinder, provided with longitudinal compartments and having an inclined axis and having in its lower end a central opening of less diameter than the internal diameter of said cylinder, in combination with a tank and an inclined discharge-chute extending into said opening and beyond said tank.

2. In a dyeing apparatus, two or more hollow, perforated, rotary cylinders, provided with longitudinal compartments, and having their axes inclined downward and having in their adjacent ends central openings of less diameter than the internal diameters of said cylinders, respectively, in combination with an equal number of tanks in each of which one of

said cylinders is arranged, and inclined chutes, extending into the adjacent openings, to conduct stock from each of said cylinders to the following cylinder.



3. The combination of suitable opening and feeding devices, a tank, a hollow, perforated, rotary cylinder, provided with longitudinal compartments and having an inclined axis and provided in its ends with central openings of less diameter than the internal diameter of said cylinder, an inclined chute, arranged to conduct stock from said feeding devices into the opening in the upper end of said cylinder, and another inclined chute, extending into the opening in the lower end of said cylinder and beyond said tank, to discharge stock from said cylinder.

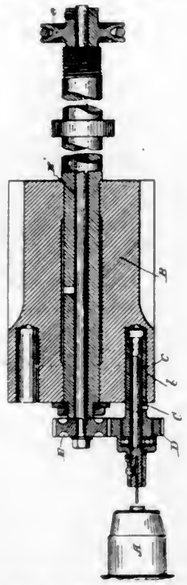
4. The combination of suitable opening and feeding devices, a tank, a hollow, perforated, rotary cylinder, provided with longitudinal compartments and having an inclined axis and provided in its ends with central openings of less diameter than the internal diameter of said cylinder, an inclined chute, arranged to conduct stock from said feeding devices into the opening in the upper end of said cylinder, another inclined chute, extending into the opening in the lower end of said cylinder and beyond said tank, to discharge stock from said cylinder, and moistening devices, arranged between said first-named chute and said opening and feeding devices, and connected with said tank.

663,013. **AUTOMATIC LATHE ATTACHMENT.** JAMES R. CLYNE, Cleveland, Ohio, assignor to the Cleveland Machine Screw Company, same place. Filed July 17, 1899. Serial No. 724,096. (No model.)

Claim.—1. The combination of a turret having a plurality of tool-holding bores, a spindle journaled in said turret and having its axis coincident with the turret-axis, means for driving said spindle independently of said turret, a sleeve seated in and removable from one of said tool-holding bores, a spindle mounted in said sleeve, having its axis parallel with said turret-axis and having a gear secured to its outer end, and a pinion secured to the outer end of said first-named spindle meshing with said gear, said sleeve, spindle and gear being removable bodily as a unitary structure, without disturbing the position of said pinion, substantially as set forth.

2. The combination of a turret having a plurality of tool-holding bores located equidistantly from its axis, a spindle journaled in said turret and having its axis coincident with the turret-axis and provided with a driving-pulley formed or secured thereon, a sleeve seated in and removable from one of said tool-holding bores, a spindle mounted in said sleeve, having its axis parallel with said turret-axis and having a gear secured to its outer end, a pinion secured to said first-named spindle meshing with said gear, and a tool-holder operatively connected with or secured to said last-named spindle, said sleeve, spindle and gear being removable bodily as a unitary structure without disturbing the position of said pinion, substantially as set forth.

3. The combination with a rotating spindle, having a pinion at one end; and a turret mounted axially to freely rotate thereon, and having tool-holding bores; of a spindle-carrying sleeve removably secured in one of said bores, said sleeve forming the sole support for a spindle and a gear for driving said spindle, said sleeve, spindle and gear forming a substantially unitary structure and removable bodily from said bore, said gear and said pinion having normally a coöperating relationship which is disengaged by the removal of said sleeve, substantially as described.



4. The combination of the turret B, the spindle E journaled in and rotatable independently of said turret, the pinion E secured to said spindle, the spindle C journaled in said turret and provided with the driving-gear D meshing with pinion E, the spindle C and gear D being removable bodily as a unitary structure, without disturbing the position of the pinion E, substantially as set forth.

663,014. **CORSET-COVER.** KATHERINE A. DEKRING, Fernando, Cal. Filed Aug. 8, 1900. Serial No. 26,294. (No model.)



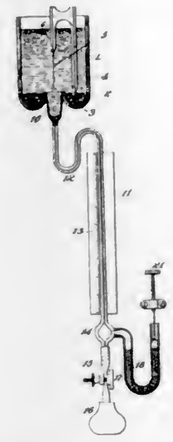
Claim.—As a new article of manufacture, the herein-described corset-cover A, having the bust-distending fronts B, said fronts having vertical plaits in the upper and lower portions thereof, adapted to form vertical stay-pockets, and provide central transverse fullness to the front, and also transverse stay-pockets, closed at the back side, the front side being folded over, as described, and a transverse plait, centrally disposed, in the back part thereof, adapted to provide vertical fullness to the central portion of said front.

663,015. **ELECTRIC METER.** THOMAS A. EDISON, Llewellyn Park, N. J. Filed Mar. 17, 1899. Serial No. 709,446. (No model.)

Claim.—1. In an electric meter, the combination with an electrolytic cell having a metallic mercury electrode therein and a solution of a soluble mercury salt, of an electrode on which metallic mercury will be deposited by the electrolytic action of the current to be measured, a capillary tube connected to said cell for measuring the mercury deposited on said electrode, and a pump for forcing the mercury from and drawing it into said tube, substantially as set forth.

2. In an electric meter, the combination of an electrolytic cell, the electrodes therein, a receiving-cup in the bottom of said cell, a capillary tube connected to said cup, and a bend in said tube immediately below the cup, substantially as set forth.

3. In an electric meter, the combination of an electrolytic cell, the electrodes therein, a receiving-cup in the bottom of said cell, a capillary tube connected to said cup, a bulb at the bottom of said tube, and a pump connected to said bulb, substantially as set forth.



4. In an electric meter, the combination of an electrolytic cell, the electrodes therein, a receiving-cup in the bottom of said cell, a capillary tube connected to said cup, a bulb at the bottom of said tube, and a pump connected to said bulb, said pump having a mercury-piston, substantially as set forth.

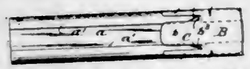
5. In an electric meter, the combination of an electrolytic cell, the electrodes therein, a receiving-cup in the bottom of said cell, a capillary tube connected to said cup, a bulb at the bottom of said tube, a pump connected to said bulb, said pump having a mercury-piston, a plunger for operating said mercury-piston, and a thumb-screw for manipulating said plunger, substantially as set forth.

6. The combination with an electric meter having an electrolytic cell and connected in a shunt to the line, of a resistance in series with the cell, the resistance of the latter being enormously greater than that of the cell, whereby variations of the cell due to changes in load are rendered negligible, substantially as set forth.

7. The combination with an electric meter having an electrolytic cell arranged in shunt to the line, of a resistance enormously greater than that of the cell in series therewith, a section of said resistance being made of a metal the resistance of which changes inversely with the resistance of the cell by changes in temperature, substantially as set forth.

8. The combination with an electric meter employing an electrolytic cell connected in a shunt around a resistance in the line, of a resistance in series with the cell made of two sections, one corresponding to the resistance in the main line and the other compensating for variations in the resistance of the cell due to changes in temperature, substantially as set forth

663,016. **COIN-HOLDER FOR POCKET-BOOKS, PURSES, &c.** MOSES H. EISEMAN, Chicago, Ill. Filed Feb. 17, 1900. Serial No. 5,574. (No model.)



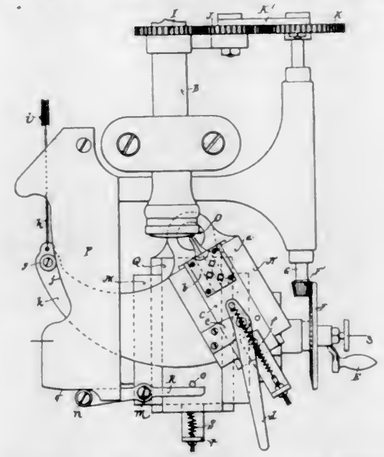
Claim.—1. The combination of a coin-holder with a pocket-book, such coin-holder consisting of a coin-receptacle inserted between the inner and the outer cover of one flap of the pocket-book and a retaining device yieldingly held in an extended position closing the outer end of the coin-receptacle and provided with a handle operative through the outer cover of the flap to retract such retaining device without opening the pocket-book; substantially as described.

2. The combination of a coin-holder with a pocket-book, such coin-holder consisting of a coin-receptacle inserted between the inner and the outer cover of one flap of the pocket-book, the coin-receptacle comprising a blank bent up to obtain grooves in which the coin slides and a retaining device yieldingly held in an extended position closing the outer end of the coin-receptacle and provided with a handle operative through the outer cover of the flap to retract such retaining device without opening the pocket-book and also provided with retaining projections which are extended into the path of the coin back of the one released thereby retaining them; substantially as described.

3. A coin-holder consisting of a blank bent up along the edges of the sides, to form grooves, a stop at the inner end of the holder to retain coin therein and a retaining device yieldingly held in an extended position closing the outer end of the holder, a fulcrum on which the retaining device turns, retaining projections on the retaining device back of the fulcrum thereof, such retaining projections adapted to be retracted from the path of the coin when the outer end of the coin-holder is closed by the retaining device and to be projected into the path of the coin when the retaining device is retracted to permit a coin to pass from the holder and such retaining device being provided with a handle by which it may be operated; substantially as described.

4. A coin-holder consisting of a blank bent up to obtain grooves, a stop at the inner end of the holder and a retaining device yieldingly held in an extended position at the outer end of such holder, retaining projections yieldingly held in a retracted position and attached to the retaining device, a fulcrum between the outer end of the retaining device and the retaining projections attached thereto, and the retaining device provided with a handle, in combination with a pocket-book between the outer and inner covers of one flap whereof the coin-holder is inserted; substantially as described.

663,017. **ENGRAVING-MACHINE.** CHARLES H. FIELD, Providence, R. I. Filed Mar. 13, 1899. Serial No. 708,976. (No model.)



Claim.—In an engraving-machine, the combination of the traversing block M, the slide Q in the traversing block, the lever R pivoted to the traversing block and engaging at its outer end with the said slide Q, the stationary guide-surfaces q and j, means for holding the outer end of the lever R against the guide-surface q, the screw D for causing the lateral movement of the traversing block and the movement of the outer end of the lever R along the guide-surface q, to impart endwise movement to the slide Q, and the graver-carriage N, pivoted to the slide Q, and provided with the arm k adapted to bear against the guide-surface j, for changing the direction of the axis of the graver-carriage, whereby the operation of the graver-tool will be regulated from guide-surfaces having a fixed relation to each other, so that they may be advantageously formed upon an integral plate, substantially as described.

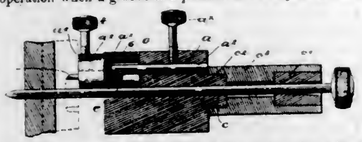
663,018. **APPARATUS FOR MAKING MOLDS FOR RINGS, &c.** WILLIAM H. FORD, Lowell, Mass. Filed Mar. 10, 1900. Serial No. 8,121. (No model.)

Claim.—1. In a mold-cutter, a tool-carrier, a cutting-tool supported thereby, and a centering-pin in coöperative relation with the tool-carrier and adapted to constitute a pivot or support for the mold material to be cut.

2. In a mold-cutter, a tool-carrier, a cutting-tool supported thereby and adjustable with relation thereto, and a centering-pin in coöperative relation with the tool-carrier and adapted to constitute a pivot or support for the mold material to be cut.

3. In an apparatus of the class specified, a tool-carrier, centering means in coöperative relation therewith and adapted to constitute a support for the mold material to be cut, a tool mounted for adjustment lon

gitudinally of the axis of rotation of said tool-carrier, and means to arrest the approach of the mold material toward said tool-carrier to stop the cutting operation when a groove of a predetermined depth has been cut.



4. In an apparatus of the class specified, a tool-carrier, a longitudinally-movable centering-pin guided by said tool-carrier and constituting a pivotal support for the mold material, a tool-holder, a cutting-tool mounted thereon and serving to cut a groove in the face of said material, and means for stopping the feed of the mold material when a groove of a predetermined depth has been formed therein.

5. In an apparatus of the class specified, a tool-carrier, a centering-pin for the mold material movable longitudinally of the axis of the tool-carrier and constituting the sole support for said mold material, a tool-holder having its shank supported by the tool-carrier, said shank being in parallelism with said centering-pin, a tool adjustable longitudinally in said tool-holder, a device for holding the tool in its adjusted position, and means for stopping the feed of the mold material when a groove of predetermined depth has been formed therein.

6. In an apparatus of the class specified, a tool-carrier, means to serve as a stop for the mold material when provided with a groove of the required depth, a centering-pin occupying a position in the longitudinal center of the tool-carrier and constituting the sole support for the mold material, a cutting-tool sustained in said tool-carrier, means for adjusting said cutting-tool longitudinally and also toward and from said centering-pin, and means to hold said tool in its adjusted position.

7. In a mold-cutter, a tool-carrier provided with a central opening, a tool-holder, a tool carried thereby and eccentric thereto, and means to adjust said holder to place said tool at any desired distance from the center of rotation of the tool-carrier.

8. In a mold-cutter, a tool-carrier, a longitudinally-movable centering pin or device occupying a position in the longitudinal center of said tool-carrier, a size-disk applied to said centering pin or device and a tool or blade adjustable to meet the edge of said disk to define the interior diameter of the groove to be cut.

9. A size-disk having a central opening and presenting ends varying in diameter to thereby enable each disk to be used to indicate two diameters.

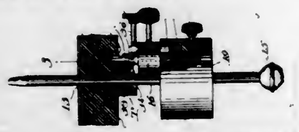
10. In a mold-cutter, a centering-pin, a cutter movable in a circle outside said centering-pin, and a double-ended size-disk.

11. In a mold-cutter, a tool-carrier, a tool, means connected to the carrier acting to temporarily hold said tool preparatory to adjustment, and a device to clamp said tool in adjusted position.

12. In a mold-cutter, a rotatable cutter-carrier, and a tool-holder mounted therein and adapted to receive a cutting-tool, said holder being rotatable in said cutter-carrier about a center parallel with the center of rotation of said cutter-carrier to thereby enable the tool in said holder to be put at any desired distance from the center of rotation of said cutter-carrier.

13. A tool-carrier having a longitudinal opening, a tool carried by said tool-carrier and adapted to cut a mold-groove, a centering-pin to carry mold material and adapted to enter and be slid in said opening while the tool is acting to cut the mold-groove in said material.

663,019. MOLD-CUTTER. WILLIAM H. FORD, Lowell, Mass., assignor of one-half to Cyrus W. Russell, same place. Filed Aug. 26, 1899. Serial No. 728,566. (No model.)



Claim.—1. In a mold-cutter, a cutting-tool standing in a line parallel with the center of rotation of the cutter-body, means to hold and center the material to be provided at its face with a circular mold-cavity, and a cylindrical templet having a cam-shaped end to define the position of the cutter and mold material with relation each to the other in accordance with the shape of the cam at the end of the templet to thereby enable the tool to cut into the face of the material a groove varying in depth to constitute part of a mold-space to enable the casting in said space of a ring varying in width.

2. In an apparatus for cutting mold-grooves of varying depth, a body carrying a tool to cut a groove in mold material, a centering-pin to center and guide the mold material to be cut, a templet interposed between said body and the mold material and occupying a central position with relation to the orbit of the tool and presenting a cam-face to control the extent of movement of the face of the material toward the body holding the cutter to thereby enable said cutter to cut a mold-groove of varying depth.

3. In a mold-cutter, a rotatable body portion, a cutter connected therewith and extended therefrom in a line parallel to the axis of rotation of said body, a centering device to center the mold material with relation to the center of rotation of the body, and a templet having a cam-face and having a common center with the mold material and body, the relative rotation of the body and material enabling the cutting by the tool of a circular groove of varying depth.

4. In a mold-cutter, a circular depth-regulating templet having at one side a cam-face and adapted to be seated at its other side upon the mold material, a body, a cutter mounted to project therefrom and to attack the mold material outside the part of the mold material with which the templet contacts, and a templet-support meeting the cam-face of the templet whereby by rotation of the body or material a circular groove of varying depth may be cut in the face of the mold material.

5. In a mold-cutter, a templet having a cam end, a cutter controlled by the templet, a body portion to which the cutter is connected, and means for supporting the body portion, the templet, and the mold material to be operated upon, in coaxial relation the templet occupying a position between the body of the cutter and the mold material.

6. In a mold-cutter, a rotatable body portion, a tool-holder supported thereby and having a cutter or tool mounted eccentrically thereon, means for confining the tool-holder in an adjusted position, means for adjusting the cutter or tool independently of the holder, a templet having a cam-shaped end, and a templet-support coöperating with the cam-face of the templet.

7. In an apparatus for cutting molds, a body portion, a centering device to center the mold material, a mold-cutter carried by the body portion and parallel with the longitudinal axis of the centering device, a templet guided by the centering device and movable longitudinally of the axis of said centering device during the operation of cutting a mold-space, the mold material moving with the templet in its longitudinal motion, whereby the cutter is made to cut a groove of irregular depth.

8. In a mold-cutter, a body portion having a spindle, a templet centered by the spindle and presenting a cam-face, a cutter disposed in parallelism to the spindle and a fixed projection coöperating with the cutter and located to travel in contact with the cam-face of the templet.

9. In a mold-cutter, a body portion, a spindle carried thereby and adapted to support the mold material, a circular templet having a cam end, and supported by the spindle between the mold material and the body portion, a post upon the body portion provided with a cutter, and a projection coöperating with the cutter and located to engage the working face of the templet.

10. In a mold-cutter, a templet having a surface to regulate the depth of cut to be made into the face of the mold material, a cutter, a hub encircling the shank of the cutter and having a projecting portion to engage the said depth-regulating surface of the templet, and means for supporting the templet and the cutter.

11. In an apparatus for cutting molds, a body portion, a centering device to center the mold material, a mold-cutter carried by the body portion and occupying a position parallel with the longitudinal axis of the centering device, and a templet rotative with the mold material during the action of the cutter in cutting the mold-space, and means coöperative with the cutter for bearing against the working face of the templet, whereby the mold material is moved longitudinally of its axis of rotation during the cutting of the mold-space, to thereby vary the depth of said space.

12. In a mold-cutter, a templet comprising a core and a wall detachably connected therewith and presenting a cam-shaped end.

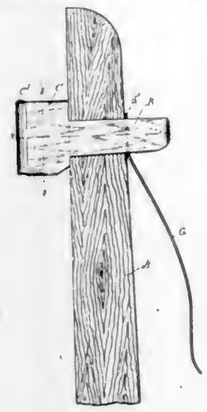
13. In a mold-cutter, a templet comprising a core and a ring detachably connected to the core, said ring varying in width and presenting at its acting face a cam-surface.

14. In a mold-cutter, the combination with a cutting-tool, of a templet comprising a core, and a ring having a cam-face, one of the parts having a pin to enter the mold material.

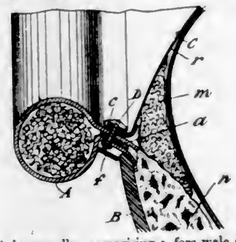
15. In a mold-cutter, a cutter-body having a longitudinal opening, a tool movable with said body, a centering-pin adapted to enter the longitudinal opening of said body loosely, a templet connected with said centering-pin, and a templet-support to sustain said templet in the longitudinal movement of the pin during the rotation of the tool-carrier.

663,020. LOOM-PICKER. LAURENCE Z. FORGUES and ALPHONSE LAVOIE, Salem, Mass. Filed Sept. 17, 1900. Serial No. 30,218. (No model.)

Claim.—In a loom-picker, the combination with a picker-staff of a metal shell or casing C, a filling contained therein, forked metal binders B, B, made integral with said casing, a nut or block E, adapted to interlock with the open-ended portion of the binder and provided with a set-screw F, and a spring G interposed between the rear portion of the staff and the end of the set-screw substantially as herein set forth and described.



663,021. HORSE-COLLAR. JOHN FRY and JOHN W. BARNES, Liverpool, England. Filed Nov. 10, 1898. Serial No. 696,040. (No model.)



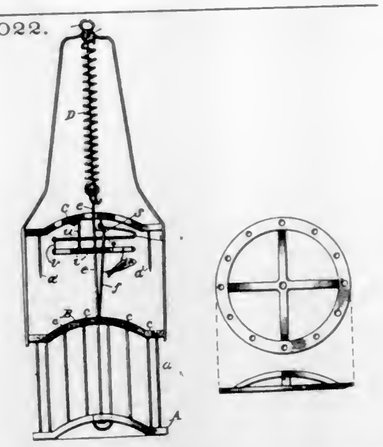
Claim.—A horse-collar comprising a fore-wale and an after-wale, and having an apron or seam-protector c applied to the edge of the cover of the after-wale, alined lacing-holes through said parts, the lace D formed with loops extended through said lacing-holes, said seam-protector folded back upon itself and around the cover edge and under the cover, whereby the lacing is covered and the edge of the after-wale cover bound and the free edge of the protector lies under the cover of the after-wale, lacing-holes in the folded-under portion of the protector in line with the before-mentioned holes to also receive the loops of the lace D, said loops being further adapted to be passed through the other portions of the collar-neck and to be interlaced and secured to make a seam, substantially as shown and described.

663,022. TRAP FOR GAME, &c. DEE T. GRANBERY, Memphis, Tenn. Filed July 26, 1900. Serial No. 24,957. (No model.)

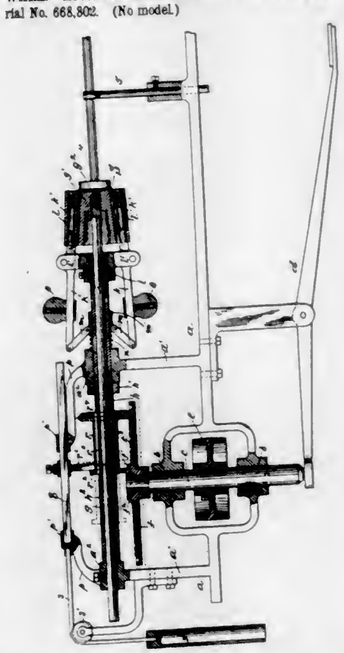
Claim.—1. In a trap for fish and other animals, a plate having a series of spears mounted thereon, a perforated plate in position to admit said spears through its perforations, a plate located above said perforated plate and firmly connected therewith, a central, vertical rod and a retracting-spring, supported above the last-mentioned plate, another central rod connected with the first-mentioned rod and also with the retracting-spring and with the said plate which carries the spears, a catch secured to the last-mentioned rod, a pivoted trigger and devices connected therewith adapted to connect with said catch and also to release said rod to which said catch is secured, substantially as and for the purposes described.

2. The combination with a top plate and a perforated plate, firmly connected by rods with said top plate, of a vertical, central rod and a retracting-spring thereon, supported above said top plate, another rod *e*, provided with a catch and connected with the first-mentioned rod and spring, a pivotally-mounted trigger connected with a support carried by said top plate, a metallic strip loosely connected with said top plate and with said trigger and adapted to connect with catch and also to release said rod *e* on a movement of said trigger substantially as set forth and described.

663,022.



663,023. MACHINE FOR FINISHING ARTICLES OF GLASSWARE. AUGUSTUS H. HEISEY, Idlewood, Pa. Filed Feb. 2, 1898. Serial No. 668,802. (No model.)



Claim.—1. In apparatus for finishing articles of glassware, the combination with the finishing-tools, of the rotary shaft on which said tools are mounted, and means whereby the shaft, when it starts, can be driven at a speed less than normal, and the rate of speed thereof automatically and gradually increased until it reaches the normal rate.

2. In apparatus for finishing articles of glassware, the combination with the rotary shaft, of the finishing-tools, mounted thereon to move radially under the influence of the centrifugal force, and means whereby the shaft, when it starts, can be driven at a speed less than normal, and the rate of speed thereof automatically and gradually increased until it reaches the normal rate.

3. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, mechanism for driving said shaft at a uniformly gradually-increasing speed, tools on said shaft and rotating therewith, a support for the article to be finished, the centrifugal force carrying said tools into contact with the article, substantially as set forth.

4. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, a vertically-movable shaft, mechanism for rotating said shaft and for raising and lowering same, a disk on said vertical shaft having a spiral guideway formed therein, a contact member on said first-mentioned shaft adapted to engage said spiral guideway, swinging levers on said first-mentioned shaft, tools on said levers, and a support for the article to be finished, the centrifugal force carrying said tools into contact with said article, substantially as set forth.

5. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, a vertically-movable shaft, mechanism for rotating said shaft and for raising and lowering same, a disk on said vertical shaft having a spiral guideway formed therein, a sliding contact member on said first-mentioned shaft adapted to engage said spiral guideway, swinging levers on said first-mentioned shaft, tools on said levers, and a support for the article to be finished, the centrifugal force carrying said tools into contact with said article, substantially as set forth.

6. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, a vertically-movable shaft, mechanism for rotating said shaft and for raising and lowering same, a disk on said vertical shaft having a spiral guideway formed therein, a sliding contact member on said first-mentioned shaft adapted to engage said spiral guideway, mechanism for moving said contact member along said shaft toward the center of said disk, swinging levers on said first-mentioned shaft, tools on said levers, and a support for the article to be finished, the centrifugal force carrying said tools into contact with said article, substantially as set forth.

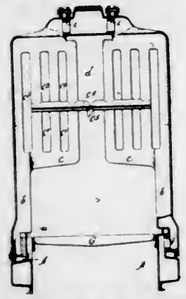
7. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, a vertically-movable shaft, mechanism for rotating said shaft and for raising and lowering same, a disk on said vertical shaft having a spiral guideway formed therein, a sliding contact member on said first-mentioned shaft adapted to engage said spiral guideway, a weight for moving said contact member along said shaft toward the center of said disk, swinging levers on said first-mentioned shaft, tools on said levers, and a support for the article to be finished, the centrifugal force carrying said tools into contact with said article, substantially as set forth.

8. In apparatus for finishing articles of glassware, the combination with a suitable frame, of a rotary shaft, a vertically-movable shaft, mechanism for rotating said shaft and for raising and lowering same, a disk on said vertical shaft having a spiral guideway formed therein, a sliding sleeve on said shaft, a contact member on said sleeve adapted to engage said spiral guideway, a sliding rod, connections between said rod and sleeve, a weight connected to one end of said rod, swinging levers on said first-mentioned shaft, tools on said levers, and a support for the article to be finished, the centrifugal force carrying said tool into contact with said article, substantially as set forth.

663,024. PROCESS OF STRIPPING TIN FROM TINNED IRON AND RECOVERING THE METALS. HENRY W. HEMINGWAY, London, England. Filed May 7, 1900. Serial No. 15,820. (No specimens.)

Claim.—The herein-described process for stripping tin from tinned iron and recovering the tin, consisting in treating the tinned iron with a solution of persulfate of iron, continuing to add iron until the persulfate is converted into protosulfate and the tin thrown down as a precipitate, collecting the latter and recovering the tin therefrom.

663,025. SECTIONAL BOILER. ALEXANDER T. HENDERSON, Reading, Pa. Filed Mar. 19, 1900. Serial No. 9,178. (No model.)

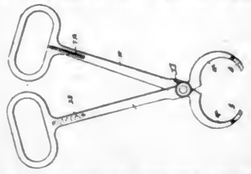


Claim.—1. A steam or water heater comprising a water-base, a top header, a series of hollow sections arranged side by side, and parallel nipples extending from the same side of each section and connecting respectively with said top and bottom headers, said bottom header being arranged directly under the heater-sections and vertically overlapping the offset lower ends of the latter substantially as set forth.

2. In a steam or hot-water heater the combination of a water-base and a series of vertical heater-sections having their connecting-legs offset to vertically overlap said water-base and form an inner wall substantially in line with the inner wall of said water-base, said overlapping portions of the sections and water-base being provided with horizontal nipple connections.

3. In a steam or hot-water heater the combination of a water-base and a series of vertical heater-sections having their connecting-legs offset to vertically overlap said water-base and form an inner wall substantially in line with the inner wall of said water-base, said overlapping portions of the sections and water-base being provided with horizontal nipple connections and perforated bolting plates or flanges outside of the waterways for the passage of horizontal clamping-bolts.

663,026. HOSE SPANNER AND TONGS. DENNIS HEFTI, Edwardsville, Ill. Filed Sept. 20, 1900. Serial No. 30,639. (No model.)

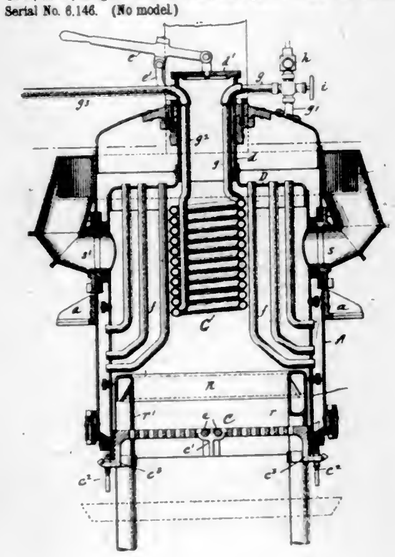


Claim.—1. A pair of hose-tongs, comprising opposite substantially duplicate members, each of the latter having a straight shank, a handle at one end, and a substantially semicircular jaw at the opposite end thereof, one member having a keyhole-slot in its shank and adjacent to the jaw, and the other member having a lateral pivot-pin located adjacent to its jaw and pivotally received within the keyhole-slot of the first-mentioned member, and a lateral lug or projection on the pivot-pin and normally lying at the outer side of the member having the keyhole-slot.

2. A pair of hose-tongs, comprising pivotally-connected members, which swing in parallel planes, and are provided with substantially semicular jaws at corresponding ends, and loop-shaped handles at the opposite ends thereof, said handles being alined and forming a single handle in the normal position of the tongs.

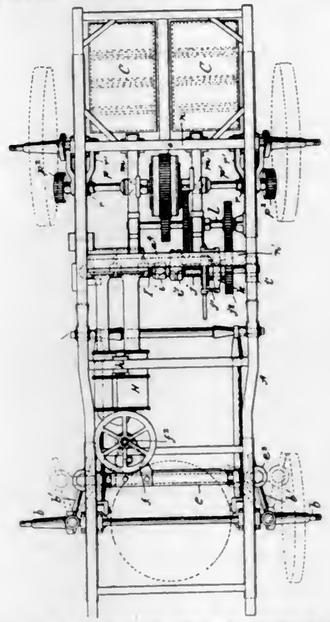
3. A pair of hose-tongs, comprising opposite members having a common intermediate pivotal connection, one of the members having a groove or gutter in its inner face, and a rib upon the inner face of the other member, the rib being received within the gutter in the closed position of the tongs.

663,027. STEAM-GENERATOR. ARTHUR HERSCHMANN, New York, N. Y., assignor to L. C. Weir, same place. Filed Feb. 23, 1900. Serial No. 6,146. (No model.)



Claim.—In a vertical steam-boiler, the combination of a fire-chamber provided with a nest of vertical tubes arranged in a circle around an axial fuel-passage, a cylindrical baffler in the form of a coiled tube, lining the circular nest of tubes and giving shape to the fuel-passage, and two smoke-flues arranged at diametrically opposite points substantially as and for the purpose set forth.

663,028. SELF-PROPELLING VEHICLE. ARTHUR HERSCHMANN, New York, N. Y., assignor to L. C. Weir, same place. Filed Mar. 19, 1900. Serial No. 9,279. (No model.)



Claim.—1. In a self-propelling vehicle the combination with the main frame and an engine attached thereto at two points on its upper side and one point on its lower side, substantially as described, and for the purpose set forth.

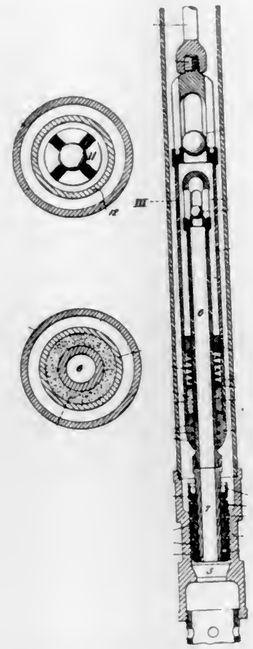
2. In a self-propelling vehicle, the combination of a main frame, an engine or motor located on one side of the center line thereof, a shaft extending transversely of the main frame, gearing on one end of said shaft and connected to the drive-wheels, the engine being connected at the other end of the shaft and a flexible joint in the shaft located between said gearing and the engine.

3. In a self-propelling vehicle, the combination of a driving-wheel inclined from the vertical position, an axle therefor a pinion engaging said driving-wheel, the axis of the pinion and the axle being tilted to stand at right angles to the plane of the wheel, and an arm pivoted upon the axle and supporting the pinion, substantially as described.

4. In a self-propelling vehicle, the combination of two driving-wheels, two inclined shafts carrying pinions engaging with the driving-wheels, a gear-wheel connected with each of said shafts, a universal joint in each shaft, brackets supporting the gear-wheel and two frame-pieces from which said brackets depend, substantially as described.

663,029. OIL-WELL PUMP. JAMES HORSLEY, Glade Mills, Pa., assignor of one-half to Charles E. Perkins, same place. Filed Aug. 19, 1898. Serial No. 689,037. (No model.)

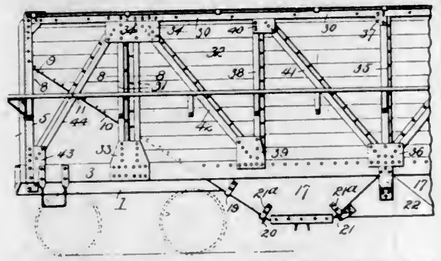
Claim.—1. In an oil-well pump, the combination of a hollow stationary plunger provided at its lower end with a series of expansible packing-rings with intervening separators and a securing-nut, such rings being adapted to be expanded by pressure of the contained fluid and to be set in the main tubing of the well, a check-valve at the upper end of the stationary plunger with a surrounding cage projecting outwardly beyond the stationary plunger, an outer inclosing section constituting a reciprocating plunger provided with a check-valve at its upper end mounted in a cage, an operating-rod secured to the top of the cage by which the reciprocating plunger is actuated, a coupling connecting the lower end of the reciprocating plunger with a downwardly-extending packing-chamber, such coupling embracing the stationary plunger and adapted to engage with the cage of the check-valve of the stationary plunger, and a compressible packing substance inclosed in the packing-chamber, substantially as set forth.



2. In an oil-well pump, the combination of a hollow stationary plunger provided at its lower end with a series of expansible packing-rings with intervening separators and a securing-nut, such rings being adapted to be expanded by pressure of the contained fluid and to be set in the main tubing of the well, a check-valve at the upper end of the stationary plunger with a surrounding cage projecting outwardly beyond the stationary plunger, an outer inclosing section constituting a reciprocating plunger provided with a check-valve at its upper end mounted in a cage, an operating-rod secured to the top of the cage by which the reciprocating plunger is actuated, a coupling connecting the lower end of the reciprocating plunger with a downwardly-extending packing-chamber, such coupling embracing the stationary plunger and adapted to engage with the cage of the check-valve of the stationary plunger, and an externally-tapering terminal plug at the extremity of the packing-chamber embracing the stationary plunger and provided with internal annular packing-rings, and a compressible sponge packing, a follower, and a coiled spring surrounding the stationary plunger and inclosed between the coupling and the terminal plug, substantially as set forth.

3. The combination, with a line of tubing having a coupling provided with an internal tapered seat, of a hollow stationary plunger provided at its lower end with a series of expansible packing-rings with intervening separators and a securing-nut, such rings being adapted to be expanded by pressure of the contained fluid and to be set in the internally-tapered coupling, a check-valve at the top of the stationary plunger with a surrounding cage projecting outwardly beyond the stationary plunger, an outer inclosing section constituting a reciprocating plunger provided with a check-valve at its upper end mounted in a cage, an operating-rod secured to the top of the cage by which the reciprocating plunger is actuated, a coupling connecting the lower end of the reciprocating plunger with a downwardly-extending packing-chamber, such coupling embracing the stationary plunger and adapted to engage with the cage of the check-valve of the stationary plunger, an externally-tapering terminal plug at the extremity of the packing-chamber embracing the stationary plunger and provided with internal annular packing-rings, and a compressible sponge packing, a follower, and a coiled spring surrounding the stationary plunger and inclosed between the coupling and the terminal plug, substantially as set forth.

663,030. DOUBLE-HOPPER-BOTTOM CAR. GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed Aug. 17, 1900. Serial No. 27,161. (No model.)



Claim.—1. The combination with the inclined hopper-plates provided with inturned flanges at their lower edges for supporting the inclined floor of the car, and straps which extend under the inclined floor, their ends being bent up against the outer faces of said inclined hopper-plates; substantially as described.

2. The combination with the side sills, of inclined hopper-plates secured thereto, the lower inclined edges of said hopper-plates being flanged inwardly to support the inclined floor of the car, and straps for tying said hopper-plates in position; substantially as described.

3. The combination with a center sill, of a plate 26 provided with a flange 27 on its lower edge, and a flange 27ª on its inclined edge, said latter flange forming a floor-support; substantially as described.

4. The herein-described side framing for cars, the same consisting of upper and lower chords, posts and diagonals, said posts and diagonals being in the form of Z-bars; substantially as described.

5. In a framing for car sides, the combination with upper and lower chords, of Z-bars, vertical posts therebetween, Z-bar diagonals, and connection-plates; substantially as described.

6. A side framing for cars consisting of a side sill forming the lower chord of a trussed structure, a rolled member forming the upper chord of the trussed structure, parallel Z-bars forming a vertical post in the transverse plane of the bolster, and intermediate posts and diagonals; substantially as described.

7. A trussed side frame for cars comprising a channel side sill forming the lower chord, an angle-rail forming the upper chord, Z-shaped vertical posts and diagonals, connection-plates for securing said posts and diagonals to the upper and lower chords, and a side wall which is secured to said vertical posts and diagonals; substantially as described.

8. A trussed side frame for cars comprising a channel side sill forming the lower chord, an angle-rail forming the upper chord, Z-shaped vertical posts and diagonals, connection-plates for securing said posts and diagonals to the upper and lower chords, a side wall which is secured to said vertical posts and diagonals, and furring-strips between the angle-rail and the side wall; substantially as described.

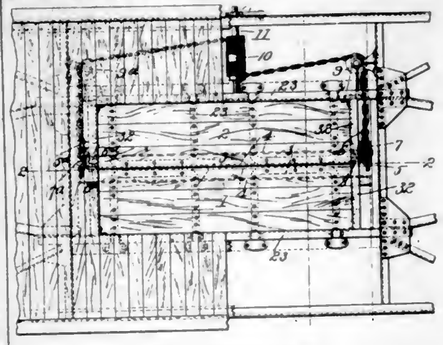
9. In a trussed side framing for cars, the combination with a channel side sill, vertical posts and diagonals secured thereto, and an angle-rail to which the upper ends of said posts and diagonals are secured, said angle-rail having its horizontal member extending inwardly and its vertical member extending downwardly, furring-strips inclosed by said members, and a side wall which is secured to said furring-strips and to said vertical posts and diagonals; substantially as described.

663,031. OPERATING MECHANISM FOR CAR-DOORS. GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed Sept. 4, 1900. Serial No. 28,900. (No model.)

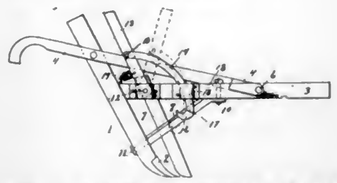
Claim.—1. The herein-described door comprising a U-shaped frame to which the panels of the doors proper are secured, and a reinforcing-angle arranged along the closing edge of the door, said reinforcing-angle projecting beyond the edges of said panel proper; substantially as described.

2. The combination with oppositely-swinging doors, of reinforcing-angles projecting beyond the ends thereof, chains or cables attached to the projecting ends of said angles, sheaves over which said chains or cables pass, and a main drum upon which said chains or cables are wound; substantially as described.

3. The combination with the center sills and cross-beams forming the side and end walls of an exit-opening, of doors hinged to said center sills, reinforcing-angles arranged along the closing edges of said doors and projecting beyond said cross-beams, sheaves mounted upon said cross-beams, cables secured to said projecting ends of the reinforcing-angles, and passing over said sheaves, a main drum around which said chains or cables pass, and a pawl-and-ratchet mechanism coöperating with said main drum; substantially as described.



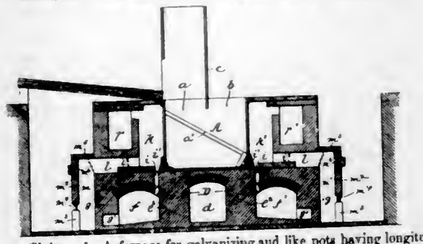
663,032. PLOW. AMOS H. LAUGHLIN, Tariff, W. Va. Filed Apr. 4, 1900. Serial No. 11,431. (No model.)



Claim.—1. In a plow, the combination with the beam, standard and plow-point, of a cutter mounted in the beam and extending downwardly at an angle in advance of the plow-point, a colter sharpened on its lower edge crossing said cutter nearly at right angles thereto, the ends of said colter being secured in the plow-beam and standard respectively.

2. The combination with a plow-beam, standard and plow-point, of a cutter having a sharpened forward edge and standing in advance of the plow-point, a colter having a sharpened lower edge crossing said cutter nearly at right angles thereto, a curved arm having a sharpened hook at its lower end adapted to be moved to a position adjacent the meeting edge of said colter and cutter and a lever for actuating said arm.

663,033. GALVANIZING-FURNACE. HARRY R. LYNCH, Versailles, Pa. Filed June 2, 1899. Serial No. 719,059. (No model.)



Claim.—1. A furnace for galvanizing and like pots having longitudinally-extending gas-supply flues on each side of and below the level of the pot, combustion-chambers on each side of the pot and extending up the walls thereof, outlet-flues extending longitudinally of the pot outside of the combustion-chambers, and gas-ports leading from the gas-supply flues vertically into the combustion-chambers and air-supply ports leading horizontally into the same, substantially as set forth.

2. A furnace for galvanizing and like pots, having longitudinally-extending gas-supply flues on each side of and below the level of the pot, combustion-chambers on each side of the pot and extending up the walls thereof, outlet-flues extending longitudinally of the pot outside of the combustion-chambers, gas-ports leading from the gas-supply flues vertically into the combustion-chambers and air-supply ports leading horizontally into the same, and sliding tiles in the air-ports for regulating the gas-ports, substantially as set forth.

3. A furnace for galvanizing and like pots, having longitudinally-

extending gas-supply flues on each side of and below the level of the pot, combustion-chambers on each side of the pot and extending up the walls thereof, outlet-flues extending longitudinally of the pot outside of the combustion-chambers, gas-ports leading from the gas-supply flues vertically into the combustion-chambers and air-supply ports leading horizontally into the same, a cross-port at the end of the furnace with which the outlet-ports communicate and a tunnel escape-flue extending longitudinally under the pot, substantially as set forth.

4. A furnace for galvanizing and like pots, having a substructure supporting the pot provided with a longitudinally-extending waste-product tunnel under the same and longitudinally-extending gas-flues on each side of said tunnel, combustion-chambers on each side of the pot, gas-ports leading from the gas-flues upwardly into the combustion-chambers, and flues connecting the combustion-chambers with the waste-product tunnel, substantially as set forth.

5. A furnace for galvanizing or like pots, having a substructure supporting the pot and provided with gas-flues extending longitudinally thereof and having floors inclined outwardly and downwardly, combustion-chambers extending along the sides of the pot and gas-supply ports leading upwardly from the gas-flues into said combustion-chambers, substantially as set forth.

6. A furnace for galvanizing or like pots, having a substructure supporting the pot and provided with gas-flues extending longitudinally thereof and having floors inclined outwardly and downwardly, combustion-chambers extending along the sides of the pot, gas-supply ports leading upwardly from the gas-flues into said combustion-chambers, and pockets in the gas-flues extending part way through the side walls, substantially as set forth.

7. A furnace for galvanizing and like pots, having gas-supply flues on each side of and below the level of the pot, combustion-chambers on each side of the pot and extending up the walls thereof, outlet-flues extending longitudinally of the pot outside of the combustion-chambers, gas-ports leading from the gas-supply flues vertically into the combustion-chambers and air-supply ports leading horizontally into the same, and air-chambers extending longitudinally of the furnace outside the gas-supply flues and communicating with the air-ports, substantially as set forth.

8. A furnace for galvanizing or like pots, having on each side thereof below the level of the same, longitudinal gas-supply flues, each extending part way of the length of the furnace, combustion-chambers extending along the sides of the pot, ports leading from the respective gas-supply flues vertically into said combustion-chambers, and longitudinally-extending outlet-flues outside the combustion-chambers and communicating therewith, each gas-supply flue having its own combustion-chambers and outlet-flue, substantially as set forth.

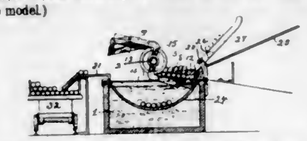
9. A furnace for galvanizing or like pots, having longitudinally-extending gas-supply flues below the level of the pot and extending part way of its length, combustion-chambers extending along the sides of the pot, ports leading from the gas-supply flues into the respective combustion-chambers, air-ports leading horizontally into the combustion-chambers, longitudinally-extending outlet-flues with which the respective combustion-chambers communicate, an escape-tunnel, and cross-flues communicating with the outlet-flues and opening downwardly into the escape-tunnel, substantially as set forth.

10. A furnace for galvanizing or like pots, having longitudinally-extending gas-supply flues below the level of the pot, combustion-chambers extending along the sides of the pot, ports leading from the gas-supply flues into the combustion-chambers, longitudinally-extending outlet-flues outside the combustion-chambers with which they communicate, an escape-tunnel, and a cross-flue communicating with the outlet-flues and opening downwardly into the escape-tunnel, the end wall of the pot being exposed within such cross-flue, substantially as set forth.

11. A furnace for galvanizing or like pots, having longitudinally-extending gas-supply flues *e*, *e'* below the level of the pot, and extending part way of its length, combustion-chambers *h*, *h'* extending along the sides of the pot, ports *i*, leading from each gas-supply flue into the respective combustion-chambers, air-ports *l*, longitudinally-extending outlet-flues *p*, *p'* with which the respective combustion-chambers communicate, a waste-product tunnel extending longitudinally under the pot, and a cross-flue *s*, communicating with the outlet-flues and opening downwardly into the waste-product tunnel, substantially as set forth.

12. A furnace for galvanizing or like pots, having longitudinally-extending gas-supply flues below the level of the pot, combustion-chambers extending along the sides of the pot, ports leading from the gas-supply flues into the combustion-chambers, longitudinally-extending outlet-flues with which the respective combustion-chambers communicate, a waste-product tunnel extending longitudinally under the pot, a cross-flue communicating with the outlet-flues and opening downwardly into the waste-product tunnel, the wall d^3 dividing the waste-product tunnel into two sections and having the portion *t* extending under the cross-flue, and the deflecting-plate *t'* supported on the wall *t*, substantially as set forth.

663,034. APPARATUS FOR DIPPING PIPES OR BARS. HARRY R. LYNCH, Versailles, Pa., assignor to the National Tube Company, New York, N. Y., and Pittsburg, Pa. Filed Oct. 28, 1899. Serial No. 735,062. (No model.)



Claim.—1. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same, arms carried thereby and adapted to sweep through the tank, said arms having supporting-faces inclined rearwardly from the radius passing through their points of attachment to the shaft.

2. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same, arms secured to said shaft and inclined rearwardly from the radius passing through their points of attachment to the shaft to form supporting-faces to receive the pipes and lower them gradually into the tank.

3. In apparatus for dipping pipes and bars, the combination with a tank having skeleton supports therein, of a rotary shaft above the same, arms secured to said shaft and inclined rearwardly from the radius passing through their points of attachment to the shaft to form supporting-faces to receive the pipes and lower them gradually into the tank.

4. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same, arms secured to said shaft and inclined rearwardly from the radius passing through their points of attachment to the shaft to form supporting-faces to receive the pipes and lower them gradually into the tank, the opposite faces of the arms being inclined at a lesser angle to the radius than the supporting-faces to sweep the pipes previously dipped out of the tank.

5. In apparatus for dipping pipes and bars, the combination of a tank, a rotating shaft above the same carrying arms adapted to sweep through the tank, the front or lower faces of such arms being straight and adapted to contact with the pipes in the tank and push the same therefrom, and the upper faces of said arms being inclined with reference to the lower faces.

6. In apparatus for dipping pipes and bars, the combination of a tank having skeleton supports therein, and a rotating shaft above the tank carrying arms adapted to sweep through the tank, the front or lower faces of such arms being straight and adapted to contact with the pipes in the tank and push the same therefrom, and the upper faces of said arms being inclined with reference to the lower faces.

7. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same carrying an arm at each end adapted to sweep through the tank, the arm at one end of the shaft being in a different plane from that of the arm at the other end of the shaft to provide for entering one end of the pipes into the tank in advance of the other end.

8. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same carrying an arm at each end adapted to sweep through the tank, the arm at one end of the shaft having an inclined supporting-face, and the arm at the other end of the shaft having an inclined supporting-face lying in a different plane from that of the supporting-face of the first-named arm.

9. In apparatus for dipping pipes and bars, the combination with a tank, of a rotary shaft above the same carrying sweeping-arms, and arms pivotally mounted at the side of the tank to normally lie in substantially a horizontal position and movable to deliver the pipes onto the sweeping-arms.

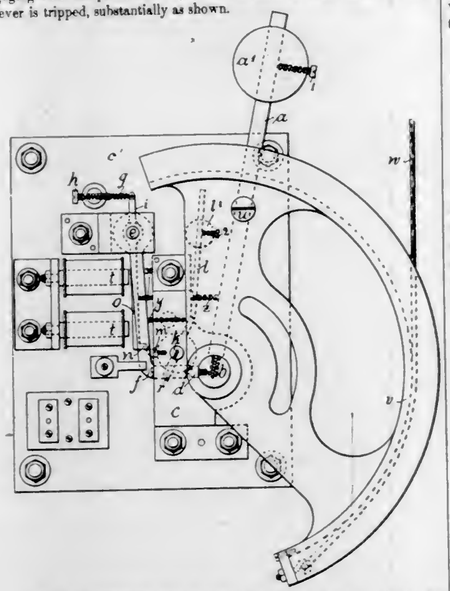
10. In apparatus for dipping pipes and bars, the combination with a tank, of an inclined way leading to the same, arms pivotally mounted at the side of the tank to lie in substantially a horizontal position, and a shaft mounted above the tank and carrying sweeping-arms adapted to engage with the pivoted arms and cause the delivery of the pipes from the inclined way onto the sweeping-arms.

11. In apparatus for dipping pipes and bars, the combination with a tank, of an inclined way leading to the same, arms pivotally mounted at the side of the tank to lie in substantially a horizontal position, a shaft mounted above the tank and carrying sweeping-arms, pins on said arms adapted to engage with the pivoted arms to cause the delivery of the pipes from the inclined way onto the sweeping-arms.

663,035. APPARATUS FOR DISCONNECTING MACHINERY. ALFRED MAUL, Dresden, Germany. Filed Jan. 3, 1900. Serial No. 288. (No model.)

Claim.—1. In a mechanism such as described, a larger weighted lever, a turning pivot to which the lever is secured, and which is provided

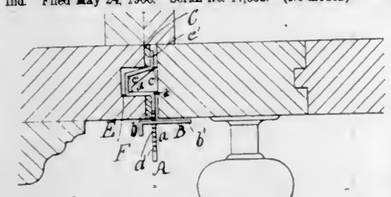
with a tooth, combined with the pivoted pawl with which the tooth engages, and an electromagnet and its armature, a shorter weighted lever, a pivot to which the shorter lever is connected, and which is also provided with a tooth to engage with the armature, and a projection for engaging with the pawl, whereby when the smaller lever falls, the larger lever is tripped, substantially as shown.



2. In a mechanism such as described, a longer weighted lever, the pivot to which the lever is connected and which is provided with a tooth for engaging with the pawl, a pivoted pawl, an electromagnet and its armature, combined with a second shorter weighted lever, a pivot to which it is connected and which is provided with a tooth for engaging with the armature, and a projection for engaging with the pawl, and a segment connected to the pivot to which the longer weighted lever is secured, substantially as described.

3. In a mechanism such as described, the longer weighted lever, the turning pivot to which it is secured, the segment secured to the pivot, the tooth *d* also secured to the pivot, the pawl *f* which engages the tooth upon the pivot and has a projection *s*, an electromagnet, and its armature provided with a lug upon its lower end, combined with a shorter pivoted and weighted lever, the pivot to which it is secured and which is provided with a tooth *m*, which engages with the lug upon the armature, a spring connected to the upper end of the pawl so as to force its lower end toward the pivot *b*, and the projection *r* secured to the pivot of the shorter lever for striking against the projection on the pawl, and the regulating set-screws for limiting the movement of the levers, substantially as set forth.

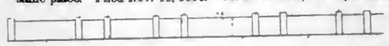
663,036. DOOR-FASTENER. BURTON C. MITCHELL, Richmond, Ind. Filed May 24, 1900. Serial No. 17,832. (No model.)



Claim.—1. A door-fastener, comprising a single piece of resilient sheet metal, bent between its ends as specified, and formed into a spring projection, adapted to be fitted into the latch-mortise of a jamb-plate, by reason of its form and resiliency retain its position in said mortise, and having a notched or perforated wing extending beyond the door and door-jamb, to which it is applied, and a key formed and adapted as described, to engage such notches or perforations, and prevent the said door from being opened, all substantially as and for the purpose set forth.

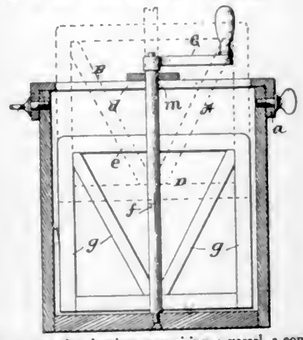
2. In a door-fastener, the combination of the plate A, bent with the proximately rectangular bend *c c'*, *d d'*, and the wings *a* and *a'* so as to form a spring, adapted as set forth to the latch-mortise of a jamb-plate, and to hold itself in position by reason of its form and resiliency, and having its wing *a*, formed and adapted to be engaged by a key as specified, with a key adapted and formed to engage the said wing *a*, all substantially as and for the purpose set forth.

663,037. METHOD OF APPLYING STAY-STRIPS TO BOXES. THOMAS MORGAN, Worcester, Mass., assignor to Clarence W. Hobbs, same place. Filed Nov. 11, 1898. Serial No. 696,128. (No model.)



Claim.—The within-described method of attaching stay-strips to the corners of boxes, and consisting in attaching a series of stay-strips to one side of a strip of paper covering adapted to be wound around the outside of the box, with said stay-strips arranged at intervals corresponding to the distances between the corners of the box; rendering the said covering-strip and the stay-strips attached thereto adhesive and winding the same around the outer surface of the box with the stay-strips applied to the corners of the box, substantially as described.

663,038. DOUGH-MIXER. JOHN MCLAUGHLIN, Gloucester, Mass. Filed Apr. 12, 1900. Serial No. 12,593. (No model.)

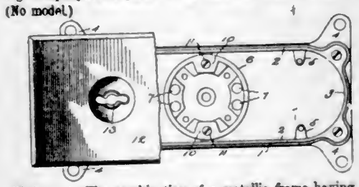


Claim.—1. A dough-mixer comprising a vessel, a combined bearing and scraper frame extending across the upper open end thereof and connected thereto, a mixing-dasher having a projecting shaft, the said bearing and scraper frame having a longitudinal slot of a length equal to the width of the dasher and of a width equal to the thickness of the dasher whereby the dasher may be moved vertically therethrough, substantially as described.

2. A dough-mixer comprising a vessel or tub, a dasher therein provided with a projecting operating-shaft, and a combined bearing and scraper frame connected to the upper end and extending across the vessel or tub, the said bearing and scraper frame having a longitudinal slot of a size to permit the passage of the dasher therethrough, and the opposite sides of the center of the said slot provided with curved portions to provide a bearing for the said shaft, whereby when the dasher is withdrawn the bearing-frame will perform the action of a scraper for removing the dough therefrom, substantially as described.

3. A combined bearing and scraper frame for dough-mixers comprising a frame provided with vessel-attaching members and with a longitudinal slot extending thereacross, substantially as described.

663,039. FLUSH-SWITCH SUPPORT. CHARLES G. PERKINS, Hartford, Conn., assignor to The Perkins Electric Switch Manufacturing Company, same place. Filed June 28, 1900. Serial No. 21,961. (No model.)



Claim.—1. The combination of a metallic frame having lugs projecting inwardly therefrom with the outer faces of the lugs in a plane below the outer edge of the frame and an insulating-receptacle having recesses that open from the back edge of the receptacle and that are adapted to receive the lugs, substantially as specified.

2. The combination of a metallic frame having lugs projecting inwardly therefrom with the outer faces of the lugs in a plane below the outer edge of the frame, an insulating-receptacle having recesses that open from the back edge of the receptacle and that are adapted to receive the lugs, and screws passing through perforations in the receptacle-walls into the lugs, substantially as specified.

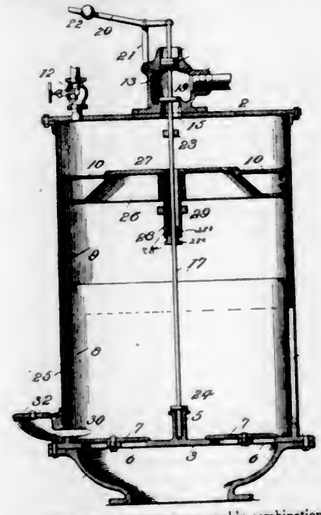
3. The combination of a metallic frame having wings projecting outwardly therefrom and lugs extending inwardly therefrom, with the outer faces of the lugs in a plane below the outer edge of the frame, an insulating-receptacle having recesses that open from the back edge of the receptacle and that are adapted to receive the lugs, and screws passing through perforations in the receptacle-walls into the lugs, substantially as specified.

663,040. BOTTLE-STOPPER. DARIUS T. PHILLIPS, Chicago, Ill., assignor to the Eclipse Stopper Company, same place. Filed Jan. 8, 1900. Serial No. 655. (No model.)



Claim.—The combination of a bottle having a head formed exteriorly with segmental locking-shoulders and guide-grooves extending from the ends of the shoulders short of the top whereby stops are formed, and a non-detachable cap for closing the bottle said cap being formed in one piece and of flexible material and having a pouring-opening in its side and adapted to be slipped over the said head and then indented under the locking shoulders to engage the same and hold the cap tightly in closing position, the cap being rotatable to carry its said indentations beyond the ends of the shoulders and into the guide-grooves permitting it to be raised, the stops at the ends of the grooves confining the cap to movement in a vertical direction sufficient only to bring the pouring-opening above the bottle-head.

663,041. STEAM VACUUM-PUMP. EDWIN R. RAYNER, Piqua, Ohio, assignor to Augustus G. Kerns, same place. Filed Jan. 29, 1900. Serial No. 3,246. (No model.)



Claim.—1. In a steam vacuum-pump, and in combination, with the casing, provided with the valve-controlled inlet and outlet openings, and a piston mounted for reciprocation within the said casing, a valve-casing having a steam-inlet and a valve-seat and cylinder upon opposite sides of the said steam-inlet, a rod provided with stops to be alternately engaged by means of the piston, a valve and a piston secured to the said rod and adapted to coöperate with the seat and cylinder of the aforesaid valve-casing, said valve being of greater superficial area than the piston connected therewith, substantially as and for the purpose specified.

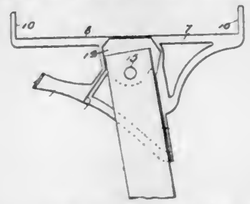
2. In a steam vacuum-pump, a casing provided at its lower end with valve-controlled inlet and outlet openings, and having a guide applied to its lower head, a valve-casing applied to the upper head and formed with a steam-inlet, a valve-seat and a cylinder, a rod passing through the casing and having its lower end coöperating with the guide applied to the lower head thereof, a valve and a piston secured to the upper end of said rod and coöperating with, respectively, the valve-seat and cylinder of the aforesaid valve-casing, upper and lower stops secured to said rod, a piston mounted for reciprocation within the casing and having a centrally-disposed opening, and a puppet-valve for controlling the opening in the piston and having its stem provided with a stop, the supply of the steam being automatically admitted and shut off by the action of the piston, substantially in the manner specified.

3. In a steam vacuum-pump, a casing provided with valve-controlled inlet and outlet openings, and having a valve-controlled steam-inlet, a piston mounted for reciprocation within the casing and having a pendent wall to enter an annular space provided at the lower end of the casing and containing a sealing liquid, said piston controlling the admission of the steam and provided with a valve-controlled opening, substantially as set forth.

4. In a steam vacuum-pump, a casing provided at its lower end with valve-controlled inlet and outlet openings for the water to be elevated, and provided at its upper end with a valve-controlled inlet-opening for the motive agent, an inner wall secured to the lower portion of the casing and spaced therefrom, said space being adapted to receive a sealing liquid, an annular piston mounted for reciprocation within the casing and having a pendent wall extending into the space formed between the inner and outer walls of the casing, said piston being adapted to alternately open and close the valve regulating the admission of the steam, and a valve applied to the piston for controlling the opening thereof, substantially as set forth.

5. The herein-described steam vacuum-pump, comprising a casing, having an annular space at its lower end and provided with valve-controlled inlet and outlet openings, a valve-casing applied to the upper head of the casing, and formed with an inlet-opening, a valve-seat and a cylinder, a counterbalanced rod passing through the casing and coöperating with a lower guide thereof, and having upper and lower stops, a piston and a valve secured to the upper portion of said rod and coöperating with the valve-seat and cylinder of the said valve-casing, an annular piston mounted for reciprocation within the casing, and having a pendent wall extending into the aforesaid annular space of the casing, and a puppet-valve applied to said piston, substantially as set forth.

663,042. STEP-LADDER. CAMPBELL RIVERS, St. Louis, Mo. Filed Nov. 28, 1899. Serial No. 738,546. (No model.)



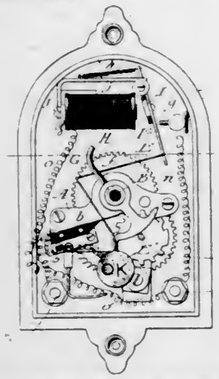
Claim.—1. A ladder, comprising side members, castings secured to said ladder and provided with pockets, the latter having opposite inclined flat bearing-surfaces, legs or supports located in said pockets, and having upper flat ends, the edges of said legs adapted to coöperate with the bearing-surfaces of said pockets, and on each side a single bolt passing through one of said castings, the upper end of one of the legs proper, and a side member of the latter, as and for the purpose described.

2. A ladder, comprising side members, castings secured to said ladder and provided with pockets, extensions forming parts of said castings, lugs forming parts of said extensions and arranged at right angles to the latter, and adapted to coöperate with the side members of the ladder fastening devices passed through said lugs and into the edges of the side members, said pockets having opposite inclined flat bearing-surfaces, legs or supports located in said pockets, and having upper flat ends, the edges of said legs adapted to coöperate with the bearing-surfaces of said pockets, and on each side a single bolt passing through one of said castings, the upper end of one of the legs proper, and a side member of the ladder, as and for the purpose described.

663,043. RETURN-SIGNAL DEVICE FOR CALL-BOXES. JOSEPH S. ROBINSON and HENRY M. ROBINSON, Chicago, Ill. Filed Feb. 12, 1900. Serial No. 4,973. (No model.)

Claim.—1. In an electric call-box, the combination with the call mechanism, of an electromagnet, an armature therefor normally held out

of engagement with said magnet, a wire connected to said armature having a return-bend therein, and a bar sliding upon said wire, actuated by the call mechanism and arranged to engage the return-bend in the said wire during its movement to move the armature into engagement with the poles of the electromagnet.



2. In an electric call-box, the combination with an automatically-returnable revoluble spindle, and arm projecting therefrom, of signaling devices which include a transverse stretch of wire having a suitable return-bend made therein engageable by said arm, a shunt-bar to which said wire is attached at one end, and a normally-demagnetized magnet which is magnetized when said shunt-bar is moved and holds the same and said signaling devices out of their normal positions until said circuit is opened.

3. In an electric call-box the combination with an automatically-returnable revoluble spindle, and arm projecting therefrom, of a pawl having a horizontal stretch having a suitable return-bend made therein, and extending downward from said transverse stretch a suitable distance and carrying suitable registering indicia thereon, a shunt-bar to which one end of the transverse stretch of said wire is secured, and a normally-depolarized magnet which is magnetized when said shunt-bar is moved and holds the same and said signaling devices out of their normal positions until said circuit is opened.

4. In an electric call-box, the combination with the call mechanism, of an electromagnet, an armature therefor, an electrically-connected stop-post, a spring for normally holding the armature in contact with said stop-post, a wire connected to said armature having a return-bend therein, and carrying signaling devices on its free end, and means actuated by the call mechanism for moving said wire to actuate the signaling devices, and move the armature out of contact with the stop-post and into the field of the electromagnet.

663,044. **RETAINING-BAND FOR UMBRELLAS.** JOHN ROSE, Philadelphia, Pa., assignor to the John Rose Company, Camden, N. J. Filed Aug. 4, 1899. Serial No. 726,087. (No model.)



Claim.—1. A retaining-band for umbrellas comprising a fabric band, a headed pin permanently attached to the band, and a plate having a concave outer face, with slots for the reception of the band on opposite sides thereof, the plate having a convex inner face with an opening therein for the reception of the headed pin, substantially as described.

2. A fastening-band for umbrellas comprising a fabric band, a headed pin permanently attached to the band, a plate having a concave outer face, and slots near its edges for the reception of the band, the plate having a convex inner face, an opening in the convex portion for the reception of the headed pin, and slits extending radially from the opening, the band being passed from the inside through one slot over the outer face of the plate, and thence inward through the other slot, substantially as described.

3. In a fastening device, the combination of a ball member of a ball-and-socket fastener, and a socket member formed with a central concavo-convex portion with a central opening and having integral extensions and transverse openings adapted to receive and adjustably hold the belt or other article, substantially as and for the purpose set forth.

4. A retaining-band for umbrellas, comprising a fabric band, a headed pin secured to the band, and a plate formed with a concavo-convex central portion having a central opening therein to receive the headed pin, said central portion being provided with radial slots, and oppositely-extended end portions having slots for the reception of the band, substantially as shown and described.

5. A fastening-band for umbrellas, comprising a fabric band, a headed pin secured to the band, a plate having a concavo-convex portion formed therein with a central opening to receive the headed pin and having radial slots leading therefrom and formed with slots near its respective ends to receive the band, the band being passed from the inside through one end slot over the outer face of the plate and thence inward through the other end slot, substantially as shown and described.

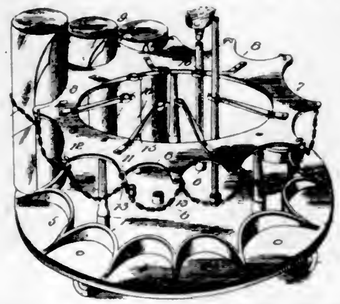
663,045. **COMPOSITION FOR MATCHES.** SIGMUND A. ROSENTHAL, London, England. Filed Oct. 9, 1899. Serial No. 733,027. (No specimens.)

Claim.—1. Igniting composition for matches consisting essentially of thiosulfate of copper, sulfocyanid of copper, an oxidizing agent, a gritty filler and a binding agent, in about the proportions set forth.

2. Igniting composition for matches consisting of thiosulfate of copper, sulfocyanid of copper, an oxidizing agent, a gritty filler, sulfid of antimony, calcium sulfate, sulfur and a binding agent in about the proportions set forth.

3. Igniting composition for matches consisting of thiosulfate and sulfocyanid of copper, chlorate of potash, pulverized glass, sulfid of antimony, sulfate of calcium, sulfur and a binding agent in or about in the proportions set forth.

663,046. **GOODS-EXHIBITOR.** CHARLES M. SCHAEFFER, West Reading, Pa. Filed Mar. 22, 1900. Serial No. 9,765. (No model.)



Claim.—1. A goods-exhibitor or display-stand, comprising in its organization a platform or lower support provided upon its top side with a series of seats, a support located above the platform and connected therewith and having its outer edge notched or formed with depressions corresponding in number and position with the seats of the platform, the respective notches and seats alining vertically and constituting individual holders, and retainers coöperating with the holders and consisting of short lengths of chain or analogous flexible connection having one end permanently attached to the horn or projection at one side of a notch or depression in the upper support and adapted to have its opposite end detachably connected with the adjacent horn or projection at the opposite side of the notch or depression, substantially as set forth.

2. A goods-exhibitor and display-stand, comprising a platform having a series of seats around the outer portion of its top side formed by approximately U-shaped flanges which gradually decrease in depth from their inner to their outer ends, which latter merge into the plane of the platform, a support located above the platform and connected therewith and having notches or depressions in its outer portion corresponding in number and position with the seats of the platform, and individual retainers for each of the notches or depressions to the upper support and permanently attached at one end to the horn or projection at one side of the depression and adapted to make detachable connection with the horn or projection at the opposite side of the depression, substantially as specified.

3. In a goods-exhibitor, a platform provided upon its top side with inner and outer sets of seats, a support located above the platform and connected therewith and having notches or depressions in its outer portion corresponding in number and position with the outer set of seats of the platform, and arms projecting inward from the said support and provided at their inner or free ends with clips or engaging devices to coöperate with the aforesaid inner sets of seats, substantially as set forth.

4. In combination with a goods-exhibitor comprising a platform having a central opening and mounted upon casters for rotation and movement over a surface, a fixed socket, a spindle telescopically related with reference to the socket and adapted to enter the opening of the platform and constitute a vertical axis for the exhibitor to rotate about, and a spring normally exerting an upward pressure upon the spindle to hold it in engagement with the platform, substantially as described.

5. In combination with a goods-exhibitor comprising a platform having a central opening and mounted upon casters for rotation and movement over a surface, a fixed socket having an inner flange, a spindle movable within the socket and having an outer flange at its lower end and adapted to enter the opening of the platform and constitute a vertical axis therefor, and a spring located within the socket and normally exerting an upward pressure against the spindle, substantially as set forth.

6. In combination with a goods-exhibitor comprising a platform provided with a central opening, and a race in its lower side concentric with said opening and mounted upon casters, a relatively-fixed socket having an inner flange at its upper end and a race in its upper edge corresponding with the race of the platform, a spindle movable within the socket and having an outer flange at its lower end and a caster-ball in its top end, a spring located within the socket and exerting an upward pressure against the spindle to hold it projected and within the opening of the aforesaid platform, and antifriction-balls located in the aforesaid races, substantially as set forth.

663,047. **ELASTIC HUB AND AXLE.** FRANK SCHMITZ, Chicago, Ill. Filed Feb. 19, 1900. Serial No. 5,688. (No model.)

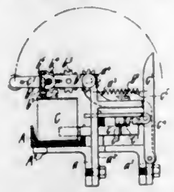


Claim.—1. The combination with an axle-box, an axle vertically guided therein having guiding-legs at its opposite ends, of longitudinally-adjustable caps upon the ends of the axle-box and adapted to bear upon said guiding-legs, and a bearing-cone adjustably secured upon the axle-box and capable of longitudinal adjustment thereon to tighten the caps upon the axle; substantially as described.

2. The combination with an axle-box and an axle vertically guided therein having guiding-legs, near its ends, of bearing-cones secured upon the ends of the axle-box and longitudinally adjustable thereon and means adjustable by and with said cones for engaging the guiding-legs of the axle to prevent oscillation of the axle with respect to the axle-box; substantially as described.

3. The combination with a channeled axle-box, of an axle guided therein having guide-legs near the opposite ends of the axle-box and caps arranged upon the ends of the axle-box and extending around the sides thereof, said caps being guided both upon the ends and sides of the axle-box and bearing upon the guide-legs of the axle; substantially as described.

663,048. **CAN-NUMBERING MACHINE.** CHARLES W. SLEEPER, Lancaster, N. H., assignor to the Sleeper Machine Company, of Maine. Filed Aug. 23, 1900. Serial No. 27,808. (No model.)



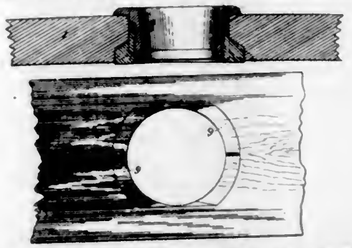
Claim.—1. In a can-numbering machine the oscillating arms b' carrying the cross-shaft b^3, type-blocks b^4 mounted on said cross-shaft ink-pad b^5, means for feeding the cans and retaining them in position to be acted upon by the printing mechanism, and means for removing the numbered cans substantially as described.

2. In a can-numbering machine the conveyer-trough A with endless belt A^2 adapted to move continuously therein, oscillating arms b' with type-carrying mechanism mounted thereon, turnstile c and means for alternately locking and unlocking said turnstile at each oscillation of said arms b' substantially as described.

3. In a can-numbering machine the conveyer-trough A with endless belt A^2 adapted to move continuously therein, oscillating arms b' with type-carrying mechanism mounted thereon, turnstile c provided with lugs c', latch-bolt c^2 provided with lugs c^3 c^4 and means for giving said latch-bolt reciprocating motion at each oscillation of said arms b' substantially as described.

4. The can-numbering device above described consisting of the conveyer-trough A, with endless belt A^2 adapted to move continuously therein, oscillating arms b', carrying the shaft b^3 with the type-blocks b^4 mounted thereon, gears a^4 b^2 b^1 for preserving the upright position of said type-blocks during the oscillation of said arms b', ink-pad b^5, turnstile c provided with the lug c', latch-bolt c^2 provided with the lugs c^3 c^4, oscillating lever c^5 pivoted to said latch-bolt and operated by the arms b' and spring c^6 substantially as described.

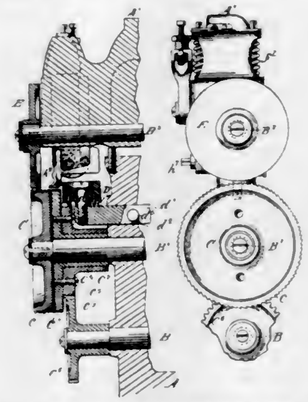
663,049. **BUNG AND BUNG-BUSHING.** GODFREY STAIGER, Toledo, Ohio. Filed Apr. 23, 1900. Serial No. 13,860. (No model.)



Claim.—1. A bung-bushing comprising a pair of screw-threaded rings adapted to engage each other, flanges on said rings adapted to clamp between them the margin of the bung-hole, mutilated flange portions at opposite sides of the inner ring, whereby the inner ring may be passed through the bung-hole, spurs on the flange of the inner ring adapted to engage the inner side of a stave, and a tapered portion upon the outer ring in the angle of the flange and ring.

2. In a bung and bung-bushing, a stave having a circular aperture therethrough, beveled or chamfered margins for said opening on opposite sides thereof on the inner side of the stave, a bushing-ring of approximately the same diameter as the opening, a flange for said bushing-ring having portions cut away at opposite sides of the ring, whereby the ring may be passed edgewise through the opening, the remaining portions of the ring conforming to said chamfered portions of the margin of the opening, an outer flanged ring, and means for engaging said rings together and for clamping the margin of the opening between the flanges of said two rings.

663,050. **CHANNELING-MACHINE.** CHARLES P. STANBON, Lynn, Mass. Filed Oct. 19, 1898. Serial No. 693,969. (No model.)



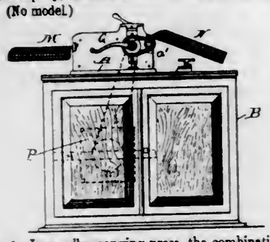
Claim.—1. In a machine for operating on shoe-soles, the combination with a presser and a feed roll and mechanism to rotate said rolls, of a gage-roll mounted on a slide, means under control of the operator to advance and retract said slide toward and from the feed-roll, and a gear connection between the feed-roll and gage-roll whereby the gage-roll is driven by the feed-roll, substantially as described.

2. The combination with a knife-support and a threaded adjusting extension connected therewith, of means to raise and lower said support and extension, and a spring friction device engaging the extension to prevent its accidental turning, substantially as described.

3. The combination with a knife-support, provided with a clamp-bearing, of a knife-holder arranged in said bearing, said knife-holder comprising a headed cylinder, a disk provided with a shank or stem, said stem

having an internal threaded bearing, and a threaded bolt engaging the threaded bearing of the shank or stem of the disk and arranged to move said disk toward and away from the head of the cylinder, substantially as described.

663,051. ROLLER COPYING-PRESS. FRED W. TOBEY, Cincinnati, and ALEXANDER DOM, Hartwell, Ohio, assignors to the Globe-Wernicke Company, Cincinnati, Ohio. Filed Nov. 20, 1899. Serial No. 737,606. (No model.)



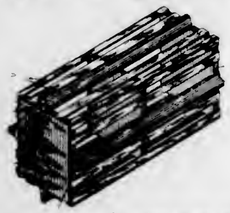
Claim.—1. In a roller copying-press, the combination of a bottom wetting-roll, a pan of water in which said roll is partly submerged and two superimposed copying-rolls, the lower one of which is in contact with the wetting-roll, means for regulating the pressure between the two upper rolls, means for automatically separating all of the rolls when the pressure on the uppermost roll is released, and independent means for regulating the pressure of the lower roll against the middle roll, whereby the paper passed between the wetting-roll and the middle roll is wet and then subjected to pressure to wring out the excess of moisture and finally passes between the two upper rolls in contact with the paper to be copied, substantially as described.

2. In a roller copying-press, the combination of a base, a roll of copying-paper supported and journaled upon said base, a water-receptacle likewise supported upon said base with an opening under it for the passage of the paper from the roll, a case resting upon said base and hinged thereto at one end, three rolls journaled in said case in vertically-sliding journals, the lowermost roll being provided with an absorbent surface and partially submerged in the water-receptacle, the middle roll having bearing contact with the lower roll and the top roll, springs normally tending to separate the three rolls, and means for imparting pressure to all of the rolls at their contact-points in varying degrees of tension, whereby the copying-paper is first passed under the water-receptacle, thence between the lower roll and the middle roll where it is wet and the excess moisture pressed out, and finally passed with the written matter to be copied between the two upper rolls, substantially as described.

3. In a roller copying-press, the combination of a water-receptacle, a bottom wetting-roll in sliding journal-boxes said roll being partly submerged in the water of the receptacle, two superimposed rolls in sliding journal-boxes of greater width than that of the lower roll, springs interposed between said journal-boxes, set-screws for the lower journal-boxes, and cam mechanism for the upper journal-boxes, substantially as and for the purpose specified.

4. In a roller copying-press, the combination of the base A, the paper-roll *k* and water-pan D, the case C hinged at one end to the base A and latched to it at the other end, the wetting-roll E adjustably journaled in the case C, and the wringing and copying rolls F G adjustably mounted above the roll E, the carrying-off roll O journaled in the case C, and the cams J for exerting pressure upon the topmost roll F, substantially as described.

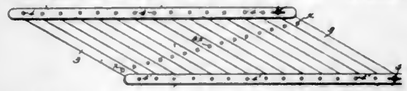
663,052. CRATE. HENRY B. TODD, Avon Park, Fla. Filed Oct. 6, 1897. Serial No. 654,260. (No model.)



Claim.—1. A packing box or crate having two flat opposing bearing-surfaces upon which the box is adapted to rest, and a single shield located on and extending in a straight line across each of the other surfaces of the crate and having a comparatively narrow outer edge whereby a tipping movement is caused with the box resting on these strips.

2. A packing box or crate composed in part of thin strips of material and having two flat opposing bearing-surfaces on which the box is adapted to rest, and a single shield located on and extending in a straight line across each of the other surfaces of the crate and having a comparatively narrow edge, whereby a tipping movement is caused with the box resting on these strips.

663,053. BOILER-MAKER'S SPACER. CHARLES J. WAGNER, St. Louis, Mo. Filed Aug. 30, 1900. Serial No. 28,568. (No model.)



Claim.—1. In a boiler-maker's layer-out, or spacer, the movable pivotally-connected frame having two parallel longitudinal parts, to which three or more connecting parts are equally spaced and movably attached near their ends and provided with holes or openings that run across the frame on a line diagonal to the parallel longitudinal parts, substantially in the manner shown and described and for the purposes set forth.

2. In a boiler-maker's layer-out, or spacer, the movable pivotally-connected frame having two parallel longitudinal parts, to which three or more connecting parts are equally spaced and movably attached near their ends and provided with holes or openings that run across the frame on a line diagonal to the parallel longitudinal parts in combination with one or more clamps, all substantially in the manner shown and described and for the purposes specified.

663,054. ACETYLENE-GAS GENERATOR. ARNOLD WEGMANN-HAUSER, Zurich, Switzerland. Filed May 10, 1899. Serial No. 716,280. (No model.)



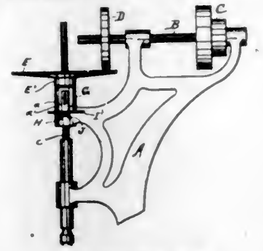
Claim.—1. An acetylene-gas producer, comprising a vessel, a producing-chamber supported therein with its upper open end and its lower grated end at a suitable distance from the opposite heads of said vessel, an open-ended chamber of less cross-sectional area than the producing-chamber, supported in the open end thereof so as to project a suitable distance into the same, a carbid-feed pipe having its outlet within the open-ended chamber, and means for deflecting the gas evolved at the grated end of the producing-chamber toward the walls thereof, substantially as and for the purposes set forth.

2. An acetylene-gas producer, comprising a vessel, a producing-chamber supported therein with its upper open end and its lower grated end at a suitable distance from the opposite heads of said vessel, an open-ended feed-chamber of less cross-sectional area than the producing-chamber, supported in the open end thereof so as to project a suitable distance into the same, a carbid-feed pipe having its outlet within the open-ended chamber, and a deflecting-cone whose base is of substantially the same diameter as that of said open-ended chamber, said cone supported in the producing-chamber between its grated end and the open-ended chamber, substantially as and for the purpose set forth.

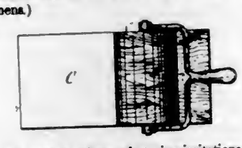
3. The combination with the vessel *a*, the producing-chamber *b*, the open-ended chambers 3 and 4 and the deflector 2 arranged in said vessel and relatively to one another for operation as described, and the carbid-feed pipe 1 extending into chamber 4, substantially as and for the purpose set forth.

663,055. DRILL-PRESS. CHRISTIAN J. WEINMAN, Dayton, Ohio. Filed Sept. 14, 1900. Serial No. 30,068. (No model.)

Claim.—In a drill, the combination with a drill-rod, and a friction-disk for driving said rod, of a movable and a fixed collar surrounding said drill-rod below the friction-disk, antifriction-bearing between the friction-disk and the movable collar, cam-surfaces between the movable and the fixed collars, an arm projecting from the movable collar, an upright post inclosing said arm, a rigidly-attached segmental plate having a slot therein through which the said upright post projects, and means for securing said upright post at any position within the slot in said segmental plate, substantially as and for the purposes specified.

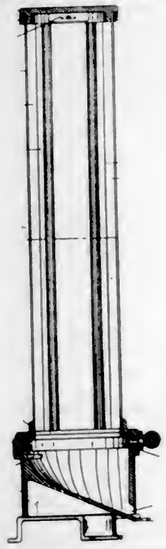


663,056. PROCESS OF MAKING ARTIFICIAL LUMBER. JAMES A. WHEELER, Oswego, N. Y. Filed Aug. 21, 1899. Serial No. 727,940. (No specimens.)



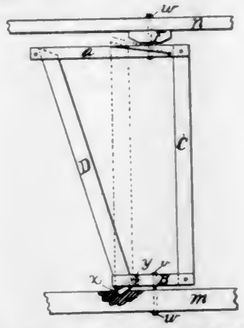
Claim.—The process of manufacturing imitations of natural lumber, the same consisting in preparing a plastic cement, tinging said cement corresponding to the color of the wood to be imitated, molding said cement in the form of a board or plank smoothing the surface thereof and drying and hardening the same, then taking a board of the natural wood, planing the same to expose the grain thereof, spreading over the planed surface a coat of thin coloring-matter to fill the grain and pores, removing the surplus coloring-matter from said surface, then running over said surface an elastic transferring-roller and thereby producing an imprint of the grain on the roller, and then running said roller over the smooth surface of the aforesaid molded board or plank and thereby transferring the aforesaid imprint on the artificial board or plank substantially as set forth.

663,057. DELIVERY MECHANISM. SETH WHEELER, Castleton, N. Y. Filed June 29, 1898. Serial No. 684,737. (No model.)



Claim.—In a delivery apparatus, the combination of a magazine adapted to contain overlapping articles, a rotatable supporting-plate beneath the magazine having a delivery-opening, a chute beneath said plate having a restricted opening, and a device within said chute for engaging articles dropping from the magazine to properly present them to the opening of the chute.

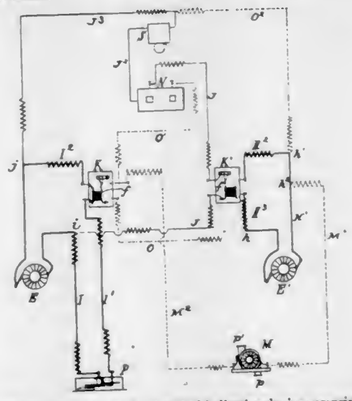
663,058. CATTLE-STANCHION. ARTHUR W. WILTSIE and EDWIN J. CAMPBELL, Hannibal, N. Y. Filed Sept. 9, 1899. Serial No. 730,042. (No model.)



Claim.—1. In a stanchion, the base-plate having a recess formed in its top, the top and lower cross bars or rods of the stanchion, suitable pivots upon which the stanchion turns, and the upright bar C connecting the ends of the top and bottom bars, and a swinging attachment connected to the lower cross-head, and by means of which the bar is connected to the cross-head and is given a vertical movement or play, whereby when the bar is moved into a vertical position its end is withdrawn from the recess in the base-plate, substantially as shown.

2. In a cattle-stanchion, the stationary frame having a socket in its base portion, a movable frame pivotally mounted on a vertical axis in the stationary frame, and comprising upper and lower bars having vertically-alined openings and connected rigidly by an upright stanchion-bar, a movable stanchion-bar having reversely-beveled ends projecting through the openings in the upper and lower bars, and pivotally connected to the lower bar of the movable frame, and projecting therethrough for engagement with the socket, and a latch-bar engaging the free end of the pivoted stanchion; the parts being so arranged that when the movable stanchion-bar is swung inward, the movable frame is free to turn, and when said stanchion is moved outward its lower end engages the socket in the base of the stationary frame and serves to lock the movable frame, substantially as set forth.

663,059. AUTOMATIC ELECTRICAL APPARATUS FOR INDICATING LEAKS IN SHIPS. WLADIMIR W. ZVORIKIN and SERGE DE BLUMENTHAL, Moscow, Russia. Filed Mar. 24, 1899. Serial No. 710,387. (No model.)



Claim.—1. An automatic electrical indicating device comprising two sources of electric energy, primary circuits for said sources, relays included in said circuits, and secondary circuits respectively connecting the relay of one primary circuit to the other primary circuit, and signal devices in the secondary circuits, substantially as described, whereby when either source of energy fails the signal device will be operated by the other source.

2. An automatic electrical indicating device comprising two sources of electric energy, normally-closed primary circuits therefor, a relay in each of said circuits, a secondary circuit connected to each source of electric energy and including the relay in the primary circuit of the other

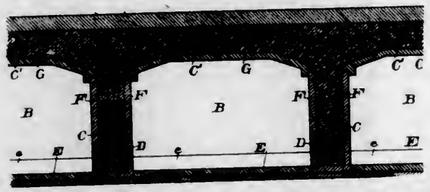
source of electric energy, and signal devices connected in said secondary circuits, substantially as described.

3. In an automatic electrical indicating device, the combination with two sources of electric energy, a closed circuit for each, and a relay in each of said circuits, of a circuit-breaker included in one of the said closed circuits, secondary circuits each connected to one of the circuits of the sources of electric energy and to the relay in the other circuit, and signal devices in said secondary circuits, substantially as described.

4. In an automatic electrical indicating device, the combination with two sources of electric energy, a closed circuit for each, and a relay in each of said circuits, of a circuit-breaker included in one of said closed circuits, and a motor arranged in a shunt-circuit from the other closed circuit, said shunt-circuit including the relay of the circuit which includes the circuit-breaker, substantially as described.

5. In an automatic electrical indicating device, the combination with two sources of electric energy, a closed circuit for each, and a relay in each of said circuits, of a circuit-breaker included in one of said closed circuits, a shunt-circuit from the other closed circuit including the relay of the first-named closed circuit, a motor in said shunt-circuit, secondary circuits branching respectively from one of the closed circuits and including the relay of the other closed circuit, and signal devices in said secondary circuits, substantially as described.

663,060. FIREPROOF FLOOR CONSTRUCTION. CHARLES F. BURNYE, Pittsburg, Pa. Filed Jan. 6, 1900. Serial No. 589. (No model.)



Claim.—1. In fireproof floor construction, an arch composed of concrete containing hollow refractory centers in its lower portion, said centers being supported by the concrete and having tile bottoms, and tension-rods extending through the concrete between the centers, the concrete forming a compression member.

2. In fireproof floor construction, an arch composed of concrete containing hollow refractory centers in its lower portion, said centers being supported by the concrete and having bases extending to the ceiling below, and tension-rods extending through the concrete between the centers, the concrete forming a compression member.

3. In fireproof floor construction, an arch composed of concrete containing hollow refractory centers in its lower portion, said centers being supported by the concrete and the bases of the centers extending to the ceiling below and having flanges *b* constituting the bases of the intervening concrete-filled spaces, and tension-rods extending through the concrete between the centers, the concrete forming a compression member.

4. In fireproof floor construction, an arch composed of concrete containing hollow refractory centers in its lower portion, said centers being supported by the concrete and having tile bottoms, tension-rods extending through the concrete between the centers, the concrete forming a compression member, and ceiling-tiles at the bottom of said structure.

5. In fireproof floor construction, an arch composed of concrete containing hollow refractory centers in its lower portion, said centers being supported by the concrete and having tile bottoms, and a tension-rod for each arch extending through each of the concrete fillings between the refractory centers, the concrete structure forming a compression member.

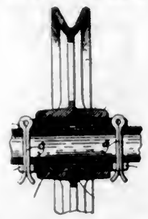
6. In fireproof floor construction, a concrete arch having a permanent refractory center supported by the said concrete, said center having a tile bottom.

7. In fireproof floor construction, a concrete arch having permanent refractory centers supported by the said concrete, the concrete being inclosed at the bottom and sides by extensions from said refractory centers.

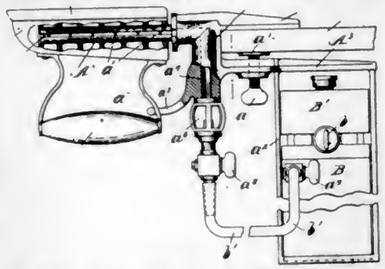
663,061. HARROW. HENRY J. CASE, Owasco, N. Y., assignor to the Adriance, Platt & Company, Poughkeepsie, N. Y. Filed Apr. 2, 1900. Serial No. 11,212. (No model.)

Claim.—1. The combination with the tooth-bar and the wheel having its hub arranged to surround the same, of cylindrical bushings upon which the hub turns and which are arranged in both ends of the hub and secured to the tooth-bar, and means whereby the wheel is retained against lateral displacement on the bushings, substantially as set forth.

2. The combination with the tooth-bar and the wheel having its hub provided between the ends thereof with an inwardly-projecting flange, of cylindrical bushings upon which the hub turns and which are secured to the tooth-bar within said hub on opposite sides of the flange thereof, substantially as set forth.



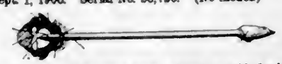
663,062. FLAT-IRON HOLDER AND HEATER WITH GAS-GENERATING ATTACHMENT. AMALIE VON CHEGOR, New York, N. Y. Filed Sept. 20, 1900. Serial No. 30,547. (No model.)



Claim.—1. A bracket adapted to be secured to the edge of a table or ironing-board and provided with an air-inlet, an air-passage and an outwardly-extending hook, a hollow tube or supporting-arm extending outwardly from and formed integrally with the said bracket, minute holes formed along the side of the said supporting-arm adapted to eject gas, and a flat-iron adapted to engage and rest upon the aforesaid supporting-arm, and a handle formed upon the said flat-iron adapted to engage with the said hook, in combination with a gas generator and reservoir mounted upon and held within a depending frame secured to the under side of the aforesaid bracket, and a flexible tube adapted to suitably connect the gas-reservoir and passage leading to the hollow tube for the purpose of supplying gas to the said hollow tube and thereby affording a means for heating the said flat-iron, substantially as described.

2. A bracket adapted to be secured to the edge of a table or ironing-board and provided with an air-inlet, an air-passage and an outwardly-extending hook, a hollow supporting-arm extending outwardly from and formed integrally with the said bracket, the said hollow supporting-arm having a series of minute holes along its side, a flat-iron adapted to engage and rest upon the aforesaid hollow supporting-arm and a handle formed upon said flat-iron adapted to engage with the said hook, in combination with a bearing-arm adapted to engage the said table or ironing-board, a supporting-arm supplied with a tightening-screw adapted to engage the under side of the said table or ironing-board, and a depending frame integrally fastened to the said supporting-arm and providing a means for carrying the gas generator and reservoir, substantially as described.

663,063. HAT-FASTENER. MARJORIE CLAUSEN, Hackensack, N. J., assignor of one-fourth to Behrend Wintjen, New York, N. Y. Filed Sept. 1, 1900. Serial No. 28,726. (No model.)

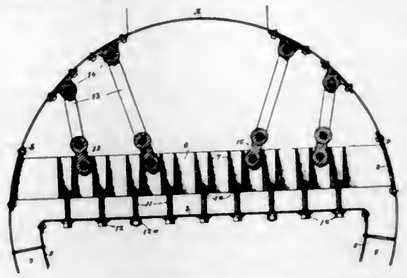


Claim.—1. A hat-pin comprising a shank provided with an enlarged tapered point having a winding-rib thereon after the manner of a screw-thread and a removable head, substantially as set forth.

2. A hat-pin comprising a shank provided with a screw-like point and with a recess near its opposite end, a removable head and a spring-catch carried by the removable head for engaging the recess in the shank to hold the head in position, substantially as set forth.

3. A hat-pin comprising a shank provided with a screw-like point at one end, a squared portion terminating in a point at the opposite end, a recess intermediate of the squared portion and the shank, a removable head provided with a squared socket for engaging the squared portion on the shank and a spring-catch carried by the head for engaging the recess in the shank to hold the head in position, substantially as set forth.

663,064. STEAM-BOILER CROWN-BAR. EDWIN CLAY, Wadsworth, Nev. Filed Sept. 12, 1900. Serial No. 29,755. (No model.)



Claim.—1. A crown-bar for boilers consisting of a single integral structure including parallel side plates, and transverse connecting members adapted to receive the crown-sheet stay-bolts, said plates having the ends formed to fit the interior of the boiler-shell, and rivets by which the bars are secured thereto.

2. Crown-bars for boilers consisting of parallel plates in planes at right angles of the crown-sheet having flanged ends by which they are secured to the interior of the boiler-shell, transverse ribs integral with the plates and connecting said bars having screw-threaded holes in the bottom and stay-bolts passing through corresponding holes in the crown-sheet and into said holes in the crown-bars.

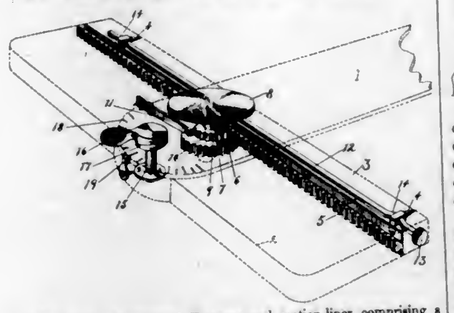
3. Crown-bars for boilers consisting of a single integral structure including parallel plates with transverse connecting-ribs adapted to receive the crown-sheet stay-bolts and end extensions fitting the interior of the boiler-shell, all parts being made integral of cast-steel.

4. Crown-bars for boilers, consisting of parallel vertically-disposed plates with integral transverse connecting-ribs and end plates fitting and adapted to be secured to the exterior shell of the boiler above the crown-sheet, stay-rods pivotally secured at both ends and connecting the arch of the boiler with the crown-bars intermediate of their length, and bolts passing through the crown-sheet and into the transverse ribs of the crown-bars.

5. As an article of manufacture, combined crown-bars consisting of separated plates formed with integral transverse stays substantially as herein described.

6. Crown-bars for boilers consisting of a single integral structure including parallel plates vertical edgewise, and intermediate connecting-ribs in pairs with bottoms perforated for stay-bolts.

663,065. DRAWING INSTRUMENT. CHARLES S. COX, Elizabeth, N. J. Filed Jan. 4, 1899. Serial No. 701,098. (No model.)



Claim.—1. A combined T-square and section-liner, comprising a cross-head and connected blade, a bar having a sliding dovetail connection with said head and being provided with a rack on that edge located within the latter, a pinion located within a recess in the cross-head and engaging with said rack, and an operating-spindle carried by the cross-head having connection with said pinion to operate the same and being arranged with one end projecting above the upper surface of the cross-head to be operated, substantially as and for the purpose set forth.

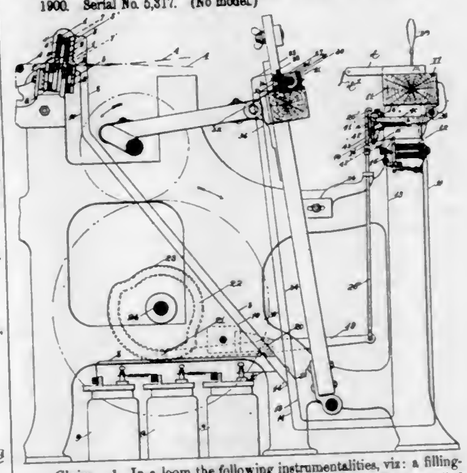
2. A combined T-square and section-liner, comprising a cross-head and connected blade, a bar having a sliding dovetail connection with said head and being provided with a rack on that edge located within the latter, a pinion located within a recess in the cross-head and engaging with said rack, an operating-spindle carried by the cross-head having connection with said pinion to operate the same and being arranged with one end projecting above the upper surface of the cross-head to be operated, a second toothed or notched disk secured on said spindle at a point within the cross-head, and a spring-click engaging with said toothed or notched disk, substantially as and for the purpose set forth.

3. A combined T-square and section-liner, comprising a cross-head and connected blade, a bar having a sliding connection with said head and provided with pins movably supported within recesses in one side thereof, means for engaging with and moving said pins to and from a position with their ends extending beyond the surface of the bar, and means for operating the said head and connected blade with a step-by-step movement relative to said bar.

4. A combined T-square and section-liner, comprising a cross-head and connected blade, a bar having a sliding connection with said head and provided with a pin movably supported within a recess in one side thereof, a sliding rod supported by the cross-head having a bent or cam portion for engaging with and moving said pin to and from a position with its end extending beyond the surface of the bar, and means for operating the said head and connected blade with a step-by-step movement relative to said bar.

5. A combined T-square and section-liner, comprising a cross-head and connected blade, a bar having a sliding connection with said head and provided with pins movably supported within recesses in one side thereof, an operating-bar operatively connected with said pins to move the same to and from a position with their ends extending beyond the surface of the bar, and means for operating the said head and connected blade with a step-by-step movement relative to said bar.

663,066. LOOM. RANDOLPH CROMPTON, Worcester, Mass., assignor to the Crompton & Knowles Loom Works, same place. Filed Feb. 15, 1900. Serial No. 5,317. (No model.)



Claim.—1. In a loom the following instrumentalities, viz: a filling-changing mechanism, a warp stop mechanism, and electrically-controlled devices common to the filling-changing and warp stop mechanisms for operating the filling-changing mechanism when the filling has become exhausted to a predetermined amount and to stop the loom when a fault occurs in the warp.

2. In a loom the following instrumentalities, viz: a series of warp-detectors to detect an abnormal condition in the warp-threads, a filling-detector to detect the exhaustion of the filling to a determined amount, a stopping mechanism, a filling-changing mechanism, and electrically-controlled means common to said mechanisms to stop the loom on occurrence of a defect in the warp and to actuate the filling-changing mechanism when the filling has to be changed.

3. In a loom the following instrumentalities, viz: a series of warp-detectors to detect an abnormal condition in the warp-threads, a filling-detector to detect the exhaustion of the filling to a determined amount, a stopping mechanism, a filling-changing mechanism, and electrically-controlled means common to the said two mechanisms to stop the loom on occurrence of a defect in the warp and to operate the filling-changing mechanism when the filling is to be changed, and means to stop the loom on breakage of the filling.

4. In a loom the following instrumentalities, viz: a warp stop mechanism made operative on occurrence of a defect in the warp, a filling-changing mechanism for changing the filling when the same has become

exhausted to a determined amount, and electrically-actuated devices for placing one of said mechanisms under control of the other.

5. In a loom the following instrumentalities, viz: an electrically-controlled warp stop mechanism made operative on the occurrence of a defect in the warp, an electrically-controlled filling-changing mechanism made operative on the depletion of the filling to a determined amount, and devices common to the warp stop and filling-changing mechanism to place the latter under control of the former when both of said mechanisms are simultaneously operated.

6. In a loom the following instrumentalities, viz: a series of warp-detectors adapted to be maintained in inoperative position by normal condition of the warp-threads, a filling-detector, a stopping mechanism, a filling-changing mechanism, and an intermediate device between the warp and filling detectors and the stopping and filling-changing mechanism to determine which of said mechanisms shall operate.

7. In a loom the following instrumentalities, viz: a series of warp-detectors adapted to be maintained in inoperative position by normal condition of the warp-threads, a filling-detector, a stopping mechanism, a filling-changing mechanism and an electrically-controlled device intermediate said warp and filling detectors and said stopping and filling-changing mechanism to determine which of the said mechanisms shall be made operative.

8. In a loom the following instrumentalities, viz: an electrically-controlled warp stop mechanism made operative on the occurrence of a defect in the warp, and electrically-controlled filling-changing mechanism operative on depletion of the filling to a predetermined amount and devices under the control of the warp stop mechanism to arrest the actior of the filling-changing mechanism when both of said mechanisms are operative at the same time.

9. In a loom the following instrumentalities, viz: a series of warp-detectors adapted to be maintained in inoperative position by normal condition of the warp-threads, a filling-detector, a stopping mechanism, a filling-changing mechanism, an actuator for said mechanism and electrically-controlled intermediate devices for placing one or the other of said mechanisms under control of the actuator.

10. In a loom the following instrumentalities, viz: a series of warp-detectors, a filling-detector, a stopping mechanism, a filling-changing mechanism, an actuator for said mechanisms, intermediate devices for placing the stopping or filling-changing mechanism under control of the actuator, an electric circuit including the warp and filling detectors, an electromagnet and armature, and connections between the latter and the intermediate devices.

11. In a loom the following instrumentalities, viz: an electrically-controlled warp stop mechanism, an electrically-controlled filling-changing mechanism at one end of the lay, a filling-detector at the opposite end of the lay, an actuator for said mechanisms, and devices to delay the actuation of the filling-changing mechanism until the shuttle arrives at the changing end of the lay.

12. In a loom the following instrumentalities, viz: a series of warp-detectors, a filling-detector, an electromagnet in electric circuit with said warp and filling detectors, a stopping mechanism, a filling-changing mechanism, an armature for said electromagnet, an actuator, intermediate devices between the stopping and filling-changing mechanisms and actuator controlled by the armature for operating the stopping or filling-changing mechanism according as the filling or warp detectors have indicated.

663,067. CAN. ELMER E. DAVENPORT and JAMES E. ROBINSON, Chicago, Ill.; said Robinson assignor of three-tenths to said Davenport and Jay D. Miller, same place. Filed Sept. 22, 1900. Serial No. 30,866. (No model.)



Claim.—1. A sheet-metal can having its upper edge substantially in line with the walls of said can, and adjacent said upper edge and on the outside thereof a circular lip consisting of the walls of said can doubled upon themselves, the doubled upper edge of said lip being extended above the level of the upper edge of the can substantially as described

2. In combination with the upper edge and walls of a sheet-metal can, a circular lip surrounding said edge and consisting of the walls of said can doubled upon themselves, the upper folded edge of said lip being extended above the level of the upper edge of the can substantially as described.

3. The combination of the upper edge and walls of a sheet-metal can, a circular lip surrounding said edge and consisting of the walls of said can doubled upon themselves, the upper folded edge of said lip being extended above the level of the upper edge of the can, with a cover having its edge turned downward, and a ribbon of solder material between said edge of the cover and the surrounding doubled lip substantially as described.

4. The combination of the upper edge and walls of a sheet-metal can, a circular lip surrounding said edge and consisting of the walls of said can doubled upon themselves, the upper folded edge of said lip being extended above the level of the upper edge of the can, with a cover having its edge turned downward and supporting the edge of the doubled lip bent down upon said cover substantially as described.

663,068. DENTAL ELEVATOR. XAVER DÖDEL, San Francisco, Cal. Filed Feb. 11, 1898. Renewed May 8, 1900. Serial No. 15,948. (No model.)



Claim.—A handle for use upon tools having polygonal shanks, said handle having a socket corresponding in cross-section to the figure formed by a plurality of superposed plates with their edges not coincident, each of said plates corresponding to the cross-section of the said polygonal tool-shank; substantially as described.

663,069. PROCESS OF BLEACHING NUTS. DANIEL FARRELL, San José, Cal., assignor to the Anderson Prune Dipper Company, same place. Filed Jan. 14, 1899. Serial No. 702,123. (No specimens.)

Claim.—1. In the art of cleansing and bleaching nuts, the steps consisting in mixing a compound solution of chlorid of lime and sal-soda in a dipping vessel, adding a weak acid thereto and immediately plunging the nuts into the solution and removing them and finally washing them.

2. In the art of washing and bleaching nuts, the steps, consisting in mixing a compound solution of chlorid of lime and sal-soda in a dipping vessel, adding a weak acid thereto whereby potentially effective chlorin is liberated, and plunging the nuts in an open-work basket into the solution and immediately removing them.

663,070. CAR-SEAL. THOMAS FILDES, Chicago, Ill. Filed Apr. 20, 1899. Serial No. 713,731. (No model.)



Claim.—1. A car-seal comprising an inclosing box open at one end, a strip attached to the box and having one end extending into said box toward the closed end thereof, a holding-hook at or near the other end of the strip adapted to engage over said first-mentioned end, and a guard-toegue projecting from the face of the hook end of the strip beyond the opposing face of the other end of the strip between said holding-hook and the open end of the box, said tongue extending toward the open end of the box and serving as a guard for the holding-hook, substantially as described.

2. A car-seal comprising an inclosing box open at one end, and a strip of suitable material attached to the box and having one end extending into said box toward the closed end, and having a holding-hook and a guard-tongue formed upon the other end and both extending toward the open end of the box, said holding-hook adapted to engage the other end of the strip and said guard-tongue projecting from the face of the end on which it is formed beyond the opposing face of the other end between the holding-hook and the open end of the box, substantially as described.

3. A car-seal comprising a strip of suitable material having formed upon one end a holding-hook and a guard-tongue each projecting toward the other end of the strip, and upon the other end of the strip means for engaging said tongue, and wings provided at or near one end of the strip and adapted to be turned up to form a box inclosing the interlocking parts, substantially as described.

4. A car-seal comprising an inclosing box, a strip secured near one end to one side of said box and having a perforated spring engaging portion within the box normally deflected toward the opposite side of the box, a holding-hook at the other end of said strip adapted to engage with said spring portion, and a guard-tongue near the hook end of said strip and adapted to enter the perforation in said engaging portion and serve as a guard to prevent the disengagement of the holding-hook, substantially as described.

663,071. COMPOUND FOR EXTERMINATING WEEDS. ALEXANDER BESAW, West Depere, Wis. Filed Aug. 3, 1899. Serial No. 725,989. (No specimens.)

Claim.—A compound for exterminating weeds, consisting of benzole, a volatile vehicle, and a fertilizing ingredient, substantially as described.

663,072. SOLE-LEVELING MACHINE. FREDERICK W. COY, Boston, Mass. Filed Aug. 21, 1899. Serial No. 727,907. (No model.)



Claim.—1. The combination with a roll-carrier, of a rigid shaft supported in said carrier, a leveling-roll formed of a plurality of sections carried by said shaft, and spring-rods connecting the sections of the leveling-roll, substantially as described.

2. The combination with a roll-carrier, of a rigid shaft supported in said carrier, a leveling-roll formed of a plurality of sections carried by said shaft and means for yieldingly forcing the sections of the roll together, substantially as described.

3. The combination with a roll-carrier, of a rigid shaft supported in said carrier, a sole-leveling roll carried by said shaft formed of a plurality of sections, and means whereby said sections may be permitted to conform to the varying contour of the bottom of the sole, or rigidly clamped together as desired, substantially as described.

4. The combination with a roll-carrier, of a rigid shaft supported in said carrier, a sole-leveling roll carried by said shaft formed of a plurality of sections, an elastic cushion supporting the sections of the roll, and means to connect the sections of the roll together, substantially as described.

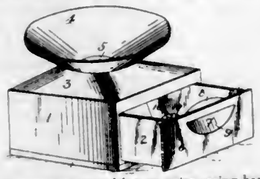
5. The combination with a roll-carrier, of a rigid shaft supported in said carrier, a sole-leveling roll carried by said shaft formed of a plurality of yielding sections, and means to regulate the extent of the yielding movement of said sections, substantially as described.

663,073. CIGAR. JOHN W. COUGHTRY, Syracuse, N. Y., assignor of one-half to Willard C. Lipe, same place. Filed Jan. 4, 1900. Serial No. 318. (No model.)



Claim.—A cigar comprising a filling and a wrapping consisting of a plurality of layers forming a wrapper and a binder wound spirally around the filling all of the layers of the edge toward the tucked end of the cigar overlying all of the layers of the edge toward the tip end thereof, and the outer layer or wrapper extending beyond the binder, whereby if the wrapper becomes broken the binder will protect it from unwinding.

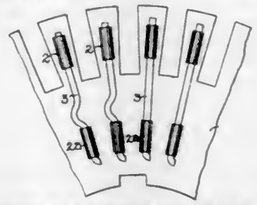
663,074. CUSPIDOR. CHRISTOPHER C. FINLAYSON, Bisbee, Ariz. Filed June 14, 1900. Serial No. 20,292. (No model.)



Claim.—A cuspidor comprising an outer casing having a funnel or mouth, a sliding drawer fitting the outer casing and occupying the entire space within said casing, compartments for antiseptic material in the corners of said drawer, said compartments having perforated hinged covers, and the funnel or mouth of said cuspidor extending down within the casing beyond the top to direct the refuse into the drawer without soiling the sides of the casing, substantially as described.

663,075. SPACE-BLOCK FOR ARMATURES. HENRY GEISENHÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed July 28, 1900. Serial No. 25,074. (No model.)

Claim.—1. A ventilating-plate for an electric machine, provided with spacing-stripe inserted in sockets struck up from the face of the plate through which the space-tripe extend.



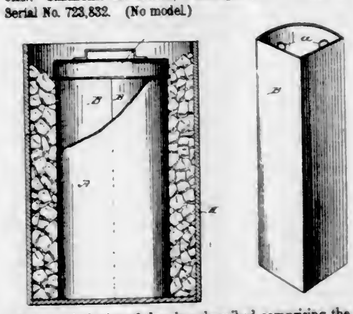
2. A space-plate for an armature, formed of sheet metal having radial sockets struck up from its face, and provided with space-strips pushed through said sockets and anchored in place.

3. A space-plate for an armature, having tubular sockets struck up from its face, space-strips adapted to be pushed through said sockets, and means for locking the space-strips in place.

4. A space-plate for an armature, having a plurality of radial sockets struck up from its face, and space-stripe within said sockets bent out of alinement after insertion to prevent displacement under radial thruste.

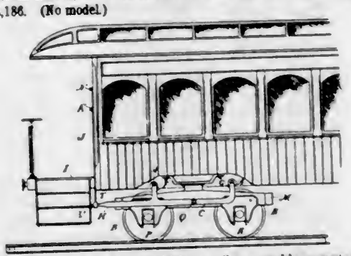
5. An armature for an electric machine, provided at intervals in its length with core-plates having space-strips secured thereto, two such core-plates being placed face to face to provide a sufficient ventilating-space.

663,076. MULTIPLEX ICE-CREAM PACKING AND SHIPPING CAN. SEBASTIAN GOLDSMITH, Washington, D. C. Filed July 14, 1899. Serial No. 723,832. (No model.)



Claim.—A device of the class described comprising the tub or ice-receiver, the interlying shell or receptacle, the individual packing-cans fitting together at their inner faces and forming a solid structure of the configuration of the shell or receptacle and extending from the center thereof to the periphery of the same and having their upper edges flush with the upper edges of the said shell or receptacle, and a common closure fitting against the upper edges of the individual cans and the shell or receptacle and adapted when removed to expose the contents of all of the individual cans, said shell or receptacle forming a jacket to protect the individual cans and being capable of use independently of the same, said individual cans being adapted to be removed and replaced without affecting the position of the ice, substantially as and for the purpose described.

663,077. SAFETY-INDICATOR FOR RAILWAY-WHEELS. PATRICK A. HARTE, San Francisco, Cal. Filed Aug. 27, 1900. Serial No. 28,186. (No model.)



Claim.—1. In a railway-vehicle, a roller movably mounted above the wheel flange or flanges, adapted to be thrown into contact with said wheel-flange, and means leading upward to a point in the car within con-

venient reach of an operator, whereby the said roller can be applied at will to or removed from contact with the wheel-flange, substantially as specified.

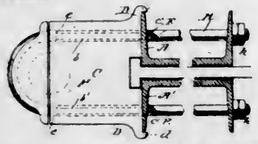
2. In a railway-vehicle, a pivoted bar mounted on the truck near the wheel-flanges, a roller or rollers carried by said bar, adapted to come into rolling contact with the wheel-flange, and a rod extending from said pivoted bar upward within convenient reach of an operator on the car, substantially as specified.

3. In a railway-vehicle, a pivoted bar mounted on the truck, rollers mounted on said bar directly over the wheel-flanges, a rod attached to said bar extending upward through the car-platform, by which said rollers can be applied to or removed from the wheel-flanges, and means for holding said rollers out of contact with the wheel-flanges, substantially as specified.

4. In a railway-vehicle, a pivoted bar mounted on the truck, rollers mounted on said bar directly over the wheel-flanges, a rod attached to said bar extending upward through the car-platform, by which said rollers can be applied to or removed from the wheel-flanges, means for holding said rollers out of contact with the wheel-flanges, and means to permit lateral motion between said rod and said pivoted bar, substantially as specified.

663,078. GANG-FRAME FOR STONE-SAWING MACHINES.

GEORGE D. HUNTER, Bloomington, Ind. Filed Dec. 14, 1899. Serial No. 740,308. (No model.)



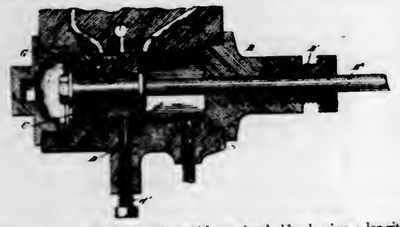
Claim.—1. In a stone-sawing machine, the combination with the channel gang-beams arranged back to back, of a casting having projections overlapping the edges of the channel-beams, bolts passing through the casting and flanges of the channel-beams, a saddle on the ends of the casting and U-bolts passing through the casting around the saddle and through the channel-beam flanges, substantially as described.

2. In a stone-sawing machine, the combination with the gang channel-beams, of a casting having projecting flanges at opposite sides engaging the outer edges of the outer flanges of the channel-beams, bolts securing the casting to the outer flanges of the channel-beams, a saddle and a U-shaped bolt passing through the casting around the saddle and through the channel-beam flanges, substantially as described.

3. In a stone-sawing machine the combination with gang-beams arranged back to back, of a casting having projections overlapping the edges of the channel-beams, a saddle on the ends of the casting, means for securing the casting to the beams, and bolts secured to the flanges of the beams and engaging the saddle, substantially as described.

663,079. STEAM-ENGINE VALVE.

GEORGE D. HUNTER, Bloomington, Ind. Filed June 7, 1900. Serial No. 19,450. (No model.)



Claim.—1. The combination with a valve-holder having a longitudinal channel and a transverse channel of greater depth than the longitudinal channel, of a valve loosely seated in the longitudinal channel and fashioned to form a space between the holder and the valve, and means to prevent the longitudinal movement of the valve, substantially as described.

2. The combination with a valve-holder having a longitudinal channel and a transverse channel, a valve located in said longitudinal channel and projecting beyond the end of the holder, and fashioned to form a space between the valve and the holder, substantially as described.

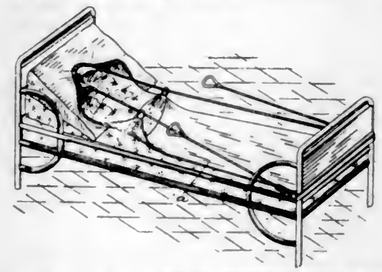
3. The combination with a steam-chest, of a valve-holder therein, an outwardly-movable valve carried by the holder, said holder being fashioned to admit steam behind the valve, and means for holding the holder and valve against the steam-chest wall, substantially as described.

4. In a steam-valve, the combination with a cylinder, of a holder therein having a series of longitudinal grooves and a transverse recess or groove, of a valve spanning the said transverse recess or groove and loosely carried by the holder engaging the projection on the valve and a spring-pin opposite the valve engaging the holder, substantially as described.

5. The combination with a holder having a transverse recess, of a valve loosely seated in the side of the holder having a depending portion engaging the walls of the said recess and fashioned to form a space between the holder and the valve for the purposes specified.

663,080. CONFINEMENT-MANTLE.

ALFRED JAEB, Berlin, Germany, assignor of one-half to Georg Lemke, same place. Filed Aug. 29, 1900. Serial No. 28,459. (No model.)



Claim.—1. In combination, the confinement-mantle composed of a sheet adapted to go under the patient while in a lying posture and having a collar-piece to fit about the neck and shoulders, pulleys with means for attaching them at or near the foot of the bedstead and cords passing around said pulleys one and of said cords being attached to the collar-piece and the free ends of the cords being provided with handles, substantially as described.

2. In combination, the confinement-mantle composed of a sheet adapted to go under the patient while in a lying posture and having a collar-piece to fit about the neck and shoulders, pulleys with means for attaching them at or near the foot of the bedstead and cords passing around said pulleys, one end of said cords being attached to the collar-piece and the free ends of the cords being provided with handles and a back-supporting strap or belt *g* extending transversely of the mantle and having means for engaging the said cords, substantially as described.

3. In combination, the confinement-mantle composed of a sheet adapted to go under the patient while in a lying posture and having a collar-piece to fit about the neck and shoulders, pulleys with means for attaching them at or near the foot of the bedstead and cords passing around said pulley, one end of said cords being attached to the collar-piece and the free ends of the cords being provided with handles, said mantle having means located adjacent to the back of the patient for engaging the cords, substantially as described.

4. In combination, with the mantle and pulling-cords, the pulleys and the flexible strap carrying the pulleys and adapted to be placed around the footboard of the bed, substantially as described.

5. In combination the short mantle having the collar portion to fit about the neck and shoulders of the patient and with its main portion extending under the back, the cords attached to the collar portion, the pulleys with means for attaching them to a bedstead, the free ends of the cords having handles, substantially as described.

6. The combination of the confinement-mantle with the back-supporting strap or belt *g* attached to or engaging at its ends with the pulling-cords *d* in the described manner and for the purpose mentioned.

7. The mantle *a* in a shorter arrangement for lifting the patient in the described manner and for the purpose mentioned.

8. The combination of a confinement-mantle with a strap *i* bearing the pulleys *e* for the pulling-cords *d* in the described manner and for the purpose mentioned.

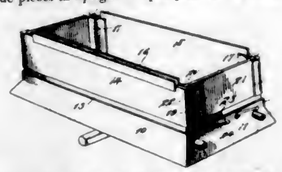
663,081. FEED-BOX.

ROBERT C. JARVIS, Chicago, Ill. Filed Feb. 10, 1900. Serial No. 4,783. (No model.)

Claim.—1. A feed-box comprising a base, a flange extending upward from the bottom of the base, side pieces having hinged connection with the said flanges, and end pieces having sliding engagement with the side pieces.

2. In a feed-box, a base, side pieces hinged to the base and arranged to fold over the same, an interlocking connection between the side pieces, slideways carried by the said side pieces, and end pieces adapted to enter the said slideways and hold the side pieces in an upright position.

3. A feed-box consisting of a bottom, a side flange and end flanges outwardly and downwardly projected from the said bottom, side pieces hinged to the base portion of the box, slideways carried by the side pieces of the box, and removable end pieces arranged to enter the said slideways and hold the side pieces in upright or open position, as specified.



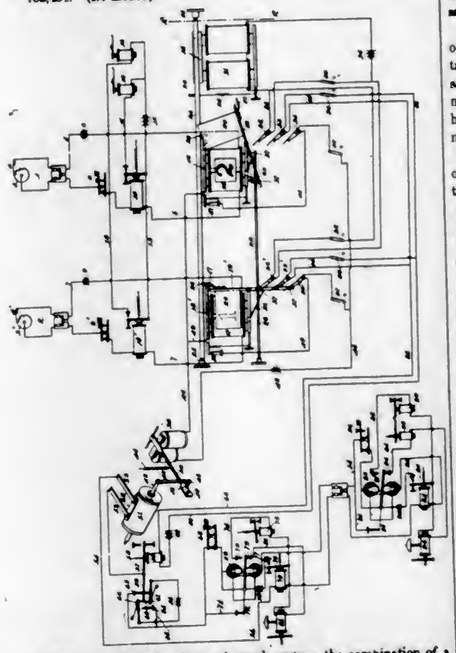
4. The combination, with a feed-box, of rods secured thereto and movably connected with each other, the inner ends of said rods being located about centrally with respect to the feed-box, and a clamping device carried by said inner ends and adapted to fasten the box upon a tongue or pole.

5. The combination, with a feed-box, of rods arranged to slide thereon and provided at their adjacent ends with pivotally-connected heads forming together a clamp for a tongue or pole, and a device for locking said rods together.

6. In a feed-box, flanges extending outward from the sides and the ends of the box, rods arranged in pairs, having sliding movement in the said flanges, the inner ends of the rods of each pair being provided with heads having pivotal connection and arranged for clamping engagement with a tongue or a pole, and a lock-lever connected with a head of each pair of rods, and arranged for clamping engagement with the opposing heads of the same pairs of rods, as set forth.

663,082. FIRE-ALARM TELEGRAPH APPARATUS.

WILLIAM H. KIERAN, Bayonne, N. J., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed Oct. 4, 1899. Serial No. 732,451. (No model.)



Claim.—1. In a fire-alarm telegraph system, the combination of a street-circuit, a repeater-magnet controlled thereby, a joker-transmitter magnet operated from the repeater-magnet, a joker transmitting apparatus under the control of the joker-magnet, and a joker-circuit controlled by said transmitting apparatus, substantially as set forth.

2. In a fire-alarm telegraph system, the combination of a street-circuit, a repeater-magnet controlled by said circuit, a repeater-circuit controlled by the armature of said repeater-magnet, a joker-magnet in said repeater-circuit, a joker-transmitter controlled by the joker-magnet, and a joker-circuit extending to an engine-house and controlled by said joker-transmitter, substantially as set forth.

3. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet for each circuit, a joker-transmitter magnet, repeater-circuits controlled by the repeater-magnets and including said joker-transmitter magnet, a joker-transmitter controlled by the joker-magnet, and a joker-circuit controlled by the joker-transmitter, substantially as set forth.

4. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet for each circuit, a joker-transmitter magnet, repeater-circuits controlled by the repeater-magnets and including said joker-transmitter magnet, a joker-transmitter controlled by the joker-magnet, a joker-circuit controlled by the joker-transmitter, and a non-interference mechanism for locking the armature of the inactive repeater-magnet, substantially as set forth.

5. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet for each of said circuits, a joker-circuit controlled by said repeater-magnets, a non-interference device for locking the armatures of the repeater-magnets in an inactive position, a non-interference magnet controlling said device, and a circuit-controllingdevice actuated upon the operation of one of said repeater-magnets to allow the non-interference magnet to effect the locking of the armatures of the non-actuated repeater-magnets, substantially as set forth.

6. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet for each of said circuits, a joker-circuit controlled by said repeater-magnets, a non-interference device for disabling the repeater-magnets to prevent them from actuating the joker-circuit, and means controlled by the operation of one of said repeater-magnets to cause the non-interference device to lock the other repeater-magnets, substantially as set forth.

7. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet for each of said circuits, a joker-circuit controlled from the armatures of said repeater-magnets, a non-interference device, a shutter-lever locked against movement by the armature of each repeater-magnet, a non-interference device, and a circuit-controlling mechanism operated by the shutter-levers of the repeater-magnets to actuate said non-interference device, substantially as set forth.

8. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet in each circuit, a shutter-lever controlled by each repeater-magnet, a non-interference shaft mounted above said repeater-magnets, arms on said shaft to engage the shutter-levers, a magnet for operating said shaft, and circuit-controlling devices operated by the shutter-levers for effecting the operation of the non-interference magnet, substantially as set forth.

9. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet in each circuit, a repeater-circuit controlled by the armatures of said repeater-magnets, a joker-magnet in said repeater-circuit, a joker-circuit controlled by the joker-magnet, and a circuit-controlling device for making the repeater-circuit operative controlled from the operation of any one of said repeater-magnets, substantially as set forth.

10. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet in each circuit, a repeater-circuit controlled by said repeater-magnets, a joker-magnet in said repeater-circuit, a joker-circuit controlled by the joker-magnet, and circuit-controlling devices for completing the repeater-circuit, said devices being under the control of the respective repeater-magnets, substantially as set forth.

11. In a fire-alarm telegraph system, the combination of a plurality of street-circuits, a repeater-magnet in each circuit, a shutter-lever controlled by each magnet, a repeater-circuit controlled by said magnets, a joker-magnet in said circuit, a joker-circuit controlled by the joker-magnet, and a circuit-closing device operated by each shutter-lever for closing the repeater-circuit at each repeater-magnet, substantially as set forth.

12. In a fire-alarm telegraph system, the combination of a street-circuit, a repeater-magnet in said circuit, a repeater-circuit controlled by the armature of said repeater-magnet, a joker-magnet in said repeater-circuit, an escapement device actuated by said joker-magnet, a joker-transmitter controlled by said escapement device, and a joker-circuit controlled by said transmitter, substantially as set forth.

13. In a fire-alarm telegraph system, the combination of a street-circuit, a repeater-magnet controlled by said circuit, a repeater-circuit controlled by said repeater-magnet, a joker-magnet in said repeater-circuit, a joker-circuit controlled by said joker-magnet, telegraphic apparatus in the joker-circuit, a polarized relay for disabling said telegraphic apparatus, a pole-changer for reversing the current in the joker-circuit, and a circuit-controlling device under the control of the repeater-magnet for actuating said pole-changer, substantially as set forth.

14. In a fire-alarm telegraph system, the combination with a street-circuit and a repeater-magnet controlled thereby, of a joker-circuit, a joker-transmitter controlled by the repeater-magnet, a polarized relay in the

joker-circuit, a telegraph-key connected to said relay, a shunt around said key adapted to be broken by reversal of current in the relay, and a pole-changer in the joker-circuit controlled by the repeater-magnet, substantially as set forth.

15. In a fire-alarm telegraph system, the combination with a street-circuit and a repeater-magnet controlled thereby, of a joker-circuit, a joker-transmitter controlled by the repeater-magnet, a polarized relay in the joker-circuit, a telegraph-key connected to said relay, a shunt around said key adapted to be broken by reversal of current in the relay, a pole-changer in the joker-circuit controlled by the repeater-magnet, a sounder connected to the front stop of said polarized relay, and a bell connected to the back stop of said polarized relay, substantially as set forth.

16. In a fire-alarm telegraph system, the combination with a street-circuit and a repeater-magnet controlled thereby, of a joker-circuit, a joker-transmitter controlled by the repeater-magnet, a polarized relay in the joker-circuit, a telegraph-key connected to said relay, a shunt around said key adapted to be broken by reversal of current in the relay, a pole-changer in the joker circuit controlled by the repeater-magnet, a sounder connected to the front stop of said polarized relay, and a bell and register connected to the back stop of said polarized relay, substantially as set forth.

17. In a fire-alarm telegraph system, the combination with a street-circuit and a repeater-magnet controlled thereby, of a joker-circuit, a joker-transmitter controlled by the repeater-magnet, a polarized relay in the joker-circuit, a telegraph-key connected to said relay, a shunt around said key adapted to be broken by reversal of current in the relay, a pole-changer in the joker-circuit controlled by the repeater-magnet, a sounder connected to the front stop of said polarized relay, a bell connected to the back stop of said polarized relay, and a direct relay in the joker-circuit for actuating said sounder, substantially as set forth.

18. In a fire-alarm telegraph system, the combination with a street-circuit and a repeater-magnet controlled thereby, of a joker-circuit, a joker-transmitter controlled by the repeater-magnet, a polarized relay in the joker-circuit, a telegraph-key connected to said relay, a shunt around said key adapted to be broken by reversal of current in the relay, a pole-changer in the joker-circuit controlled by the repeater-magnet, a sounder connected to the front stop of said polarized relay, a bell connected to the back stop of said polarized relay, and a direct relay in said joker-circuit for actuating the sounder and bell, substantially as set forth.

663,083. DOCUMENT HOLDER OR FILE. RICHARD KOLB, Bamberg, Germany. Filed Aug. 28, 1900. Serial No. 28,287. (No model.)



Claim.—1. A paper-file comprising a stiff back, a stud-screw hinged to said back, a clamping-plate having a nut fitting said stud-screw, a curved wire or handle hinged to the said clamping-plate, a slotted plate on said handle, a spring tending to keep the said handle in a horizontal position, a chain secured to the stiff back at two points, a holder movably fastened to said chain, and a hook on said holder adapted to enter any one of the slots in the slotted plate, substantially as and for the purposes set forth.

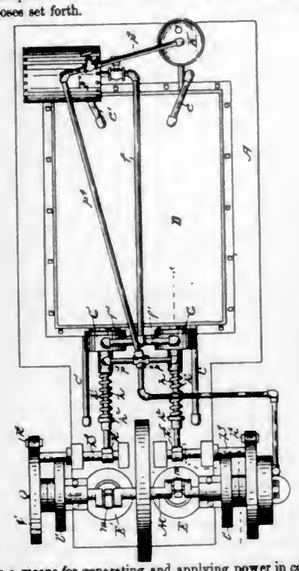
2. A paper-file comprising a stiff back, a stud-screw hinged to said back, a clamping-plate adapted to move on said stud-screw, a slotted handle hinged to said plate, a holder adapted to engage with the slots of said handle, a chain fastened to said back plate and said holder, and means for keeping the handle bent toward the stiff back, substantially as and for the purposes set forth.

663,084. STEAM-GENERATOR. DANIEL G. LANGLANDS, Newfields, N. H. Filed Mar. 29, 1900. Serial No. 10,659. (No model.)

Claim.—1. In a steam-generator, a generator-chamber having a valveless outlet and a water-spraying device adapted to deliver water into said chamber in the form of spray, an intermittently-operating valve located to control the operation of said water-spraying device and means whereby said valve is intermittently operated, as set forth.

2. In a steam-generator, a generator-chamber having a valveless outlet and means for spraying water located to deliver spray into said chamber, an intermittently-operating valve located to control the passage of water to said water-spraying means, means for operating said valve, and means for heating said chamber, as set forth.

3. In a steam-generator, a generator-chamber, means for heating said chamber and means for intermittently supplying water thereto in the form of spray, said means consisting of a chamber having a water-inlet and an air-inlet and an outlet leading to said generator-chamber and common to both air and water, and a valve adapted to close said outlet and means whereby it is operated intermittenty, all arranged together and adapted for the purposes set forth.



4. As a means for generating and applying power in combination a generator-chamber and means for heating it, a water-spraying device located to spray water into said chamber, means for intermittently feeding water thereto, an engine cylinder and piston and a valveless pipe conecting said chamber with said cylinder whereby separate charges of water are sprayed into said chamber, flashed into steam and immediately pass to said cylinder and into contact with said piston, as set forth.

5. As a means for generating and applying power two or more generator-chambers each provided with means for heating it and having a valveless outlet adapted to be connected directly to an engine-cylinder, each chamber being also provided with an inlet and means whereby water may be sprayed therethrough, and a valve controlling said inlet, in combination with means for operating said valves intermittently whereby water may be sprayed into each chamber alternately and the steam from each chamber alternately led to an engine-cylinder as set forth.

6. As a means for generating and applying power, a steam-generator consisting of two generator-chambers and means for heating them, each generator-chamber having a valveless outlet adapted to be connected to an engine-cylinder, each chamber being also provided with an inlet and means for spraying water therethrough, a valve controlling said inlet and means for reciprocating said valve intermittently, and each valve in an opposite direction to that in which the other is moving in combination with one or more engine-cylinders each provided with a piston and a suitable exhaust whereby the steam made alternately in each chamber is led directly and without the intervention of any valve to one side of a piston and having there exerted its force is exhausted therefrom, all as set forth.

7. In a steam-generator in combination with a generator-chamber a water-spraying device located and adapted to spray water intermittently into said chamber, and consisting of a conical chamber a conical valve adapted to reciprocate therein to open and close the passage to said generator-chamber, and means whereby said valve is reciprocated, and a water-inlet and an air-inlet both leading into said conical chamber, as and for the purposes set forth.

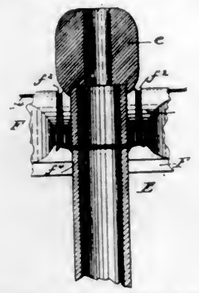
663,085. CLOCK-CHIME. ROWLAND H. MAYLAND, Freeport, N. Y., assignor to the Bawo & Dotter, New York, N. Y. Filed Jan. 5, 1900. Serial No. 422. (No model.)

Claim.—1. A tubular bell having a metallic weight or load secured to the annular end of the tube and exterior to the bore of the tube.

2. A tubular bell having a metallic weight or load transversely disposed in relation to the tube and exterior to its bore, and a suitable connection between the weight or load and adjacent parts of the tube.

3. A chime device consisting of a tubular body and a resonant weight or load beyond one end thereof and secured in intimate contact with the end surface of said tubular body.

4. A chime device consisting of a tubular body, a weight or load beyond one end thereof and secured in contact with the end of said tubular body, and a device for striking the said weight or load.



5. The combination in a chime mechanism of a number of chime devices, and a rack from which said tubes are suspended, said rack comprising a horizontally-arranged base, provided with notches, a number of arms extending out from said base, each provided with a notch and a cord for each chime-tube which cord passes through the chime-tube and is placed in two of the notches in the base and the notches of the two arms between which the tube is suspended.

6. A rack for suspending chime devices consisting of a base having a number of notches or cut-out portions, arms extending outwardly from said base and each provided with a notch at its end.

7. The combination with chime devices of means for suspending them, said means comprising a base provided with notches, arms extending from the base and each having a notch at its end, and a cord which is passed through each arm and placed in a notch or notches in the base and the notches of two arms between which the tube is suspended.

663,086. DENTAL HANDPIECE. HUGH B. MITCHELL, Canton, Ohio, assignor to Andrew M. McCarty, Albert Hoeffer, and Adam C. McDowell, same place. Filed Apr. 2, 1900. Serial No. 11,092. (No model.)



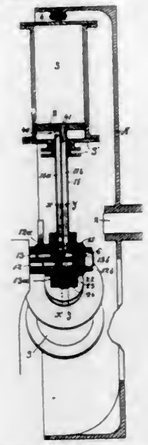
Claim.—1. In a stop attachment for dental handpieces, the combination of a handpiece provided with a rotatable shaft, having connected thereto fins, a cylinder connected to the handpiece and having located therein a sliding clutch said sliding clutch provided with the annular groove and the slot 8, the sliding plate provided with recesses, lugs located upon the cylinder and in the grooves of the sliding plate, and a shaft provided with fingers located in the slot of the sliding clutch, substantially as and for the purpose set forth.

2. The combination of a handpiece, a cylinder connected thereto, a sliding clutch located in the cylinder and a sliding plate connected to the cylinder, means for sliding the clutch with the plate, a bar pivotally connected to the sliding plate and provided with a roughened upper surface, and grooves located upon the edges of the sliding plate to receive the members of the rod or bar, and means for connecting the sliding clutch with the tool-shaft, substantially as and for the purpose specified.

3. The combination of a handpiece, a cylinder connected thereto, said cylinder provided with a flat or plain surface formed upon a portion of its periphery, lugs located upon the flat or plain surface, a sliding plate provided with open slots and the lugs located in the open slots, a pin or point connected to the sliding plate and adapted for engagement with an annular groove formed upon the periphery of the sliding clutch and the sliding clutch located intermediate the power-shaft and the tool-shaft, substantially as and for the purpose specified.

663,087. REVOLVING-CYLINDER ENGINE. JAMES D. MCFARLAND, Jr., San Francisco, Cal., assignor of one-half to John Bruckman, same place. Filed Sept. 4, 1900. Serial No. 28,931. (No model.)

Claim.—1. An engine consisting of radially-disposed cylinders with pistons and piston-rods having independent passages longitudinally therethrough, one of said passages connecting with the closed cylinder-space upon one side of the piston and the other with the cylinder-space upon the other side of the piston, connections between the inner end of said piston-rods, and a shaft having inlet and exhaust passages made through it, and an interposed sleeve having slots or channels coincident with the supply-passages in the shaft and adapted to register with the passages in the piston-rods to provide for inlet and exhaust of the actuating fluid.



2. In an engine radially-disposed cylinders, revolvble rims to which the outer ends of said cylinders are connected and with which they are revolvble, an eccentrically-located shaft having passages therein through which the propelling medium under pressure is admitted and exhausted, a sleeve surrounding the shaft and having passages coincident with those in the latter, and concentric rings surrounding the sleeve and turnable about the passages therein and piston-rods connecting therewith, said rods having independent openings longitudinally therethrough, one of which communicates with the cylinder-space upon one side of the piston, and the other with the cylinder-space upon the opposite side.

3. The combination in an engine of a series of radially-disposed cylinders having closed ends, a wheel, a central shaft with relation to which it is turnable, and with the rim of which wheel the cylinders are connected, a second shaft eccentrically located with relation to the first shaft having inlet and outlet passages for the propelling medium, hollow piston-rods extending through stuffing-boxes in the inner heads of the cylinders and having independent passages therethrough communicating respectively with the cylinder-chambers upon opposite sides of the piston, rings inclosing the supply-shaft with which rings the hollow piston-rods connect, a sleeve interposed between the rings and the shaft having slots which coincide periodically with the passages in the shaft, and thus leading to the hollow piston-rods whereby the propelling medium is alternately admitted and exhausted from opposite sides of the piston.

663,088. APPARATUS FOR MAKING CHLORIN. PAUL NAEF, New York, N. Y. Original application filed Aug. 7, 1897, Serial No. 647,463. Divided and this application filed Apr. 24, 1900. Serial No. 14,129. (No model.)

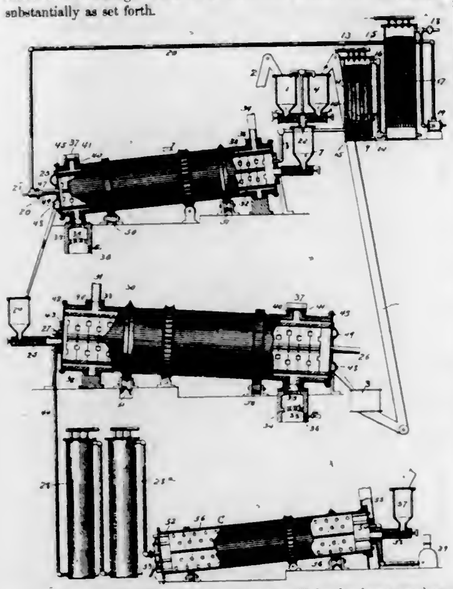
Claim.—1. The combination with a furnace, of a hopper communicating therewith, two hoppers communicating with said first-mentioned hopper, a gas-outlet at one end of said furnace, a discharge-pipe communicating with the other end of said furnace, and means for injecting a gas into the outlet end of said furnace, substantially as set forth.

2. The combination with a furnace, of two hoppers for containing chlorid of ammonium and oxid of magnesium respectively, a third hopper adapted to receive said chemicals from the first-mentioned hoppers and discharge them into the furnace, a pipe for conducting ammonia from the furnace and pipes connected with said ammonia-pipe and communicating with the hoppers so as to receive ammonia from the latter, substantially as set forth.

3. The combination with a furnace and means for mixing chlorid of ammonium and oxid of magnesium and discharging the same into said furnace, of a pipe for conducting ammonia from the furnace, and a washer with which said pipe communicates, said washer comprising a cylinder, a series of pipes therein, absorbent material in the cylinder above and below said pipes and means for discharging water into the top of the cylinder, substantially as set forth.

4. The combination with a revolvble cylinder having a number of independent longitudinal peripheral flues or passages, an annular flue or passage encircling said cylinder and communicating with the longitudinal flues or passages, a furnace communicating with said annular flue or passage, another annular flue or passage encircling the other end of the cylinder and communicating with said independent longitudinal flues and a

stack communicating with said last-mentioned annular flue or passage, substantially as set forth.



5. The combination with a revoluble cylinder having a number of independent longitudinal peripheral flues, a series of rings secured together and encircling one end of said cylinder and forming an annular flue communicating with the longitudinal flues, a furnace communicating with said annular flue, another series of rings secured together and encircling the other end of the cylinder and forming another annular flue communicating with said independent longitudinal flues and a stack communicating with said last-mentioned annular flue, substantially as set forth.

6. The combination with a revoluble furnace, of a ring secured to and partially closing one end thereof, so as to leave a small opening, a small fixed plate abutting against said ring supported independently of the furnace and cooperating with said ring to close the small opening in the end of the furnace and inlet and outlet devices communicating with the furnace through said small fixed plate, substantially as set forth.

7. The combination with a revoluble furnace, of two hoppers for containing chlorid of ammonium and oxid of magnesium respectively, a third hopper communicating with the first two and with the furnace, a pipe for discharging gas into the discharge end of the furnace, a pipe for conducting ammonia from the inlet end of the furnace, a second furnace, a hopper communicating therewith, means for conducting the mixture of chlorid and oxid of magnesium from the first furnace to said last-mentioned hopper, means for injecting air into said second furnace, a hopper communicating with said second furnace to receive oxid of magnesium therefrom, an elevator for conveying oxid of magnesium from said last-mentioned hopper to one of the first-mentioned hoppers, a chlorin-absorber and a pipe for conducting chlorin from said second furnace to said absorber, substantially as set forth.

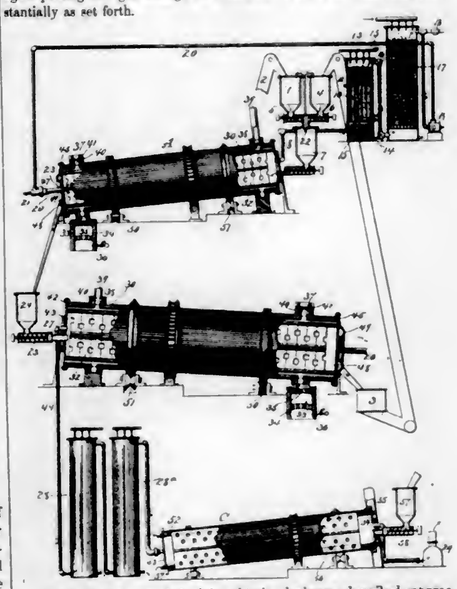
8. The combination with a revoluble furnace and a pipe communicating with the discharge end thereof, of two hoppers for containing chlorid of ammonium and oxid of magnesium respectively, a third hopper, two conveyers for conducting the chemicals from the first-mentioned hoppers into the third hopper, and a conveyer for conducting the mixed chemicals from the third hopper to the furnace.

9. The combination with a cylinder mounted to revolve, of a stationary hollow ring closing against the end plate of the cylinder, said end plate having holes communicating with the interior of the cylinder and with the chamber in the stationary hollow ring and means for conducting material from the chamber of said hollow ring.

10. In an apparatus for making chlorin, the combination with a furnace, of a washer communicating therewith, said washer comprising a cylinder having layers of material therein for bringing gas and liquid into intimate contact, means for conducting gas from the furnace to said cylinder, means for discharging water into said cylinder, and cooling-pipes in the cylinder.

663,089. METHOD OF MAKING CHLORIN. PAUL NAEF, New York, N. Y. Filed Aug. 7, 1897. Serial No. 647,463. (No specimens.)

Claim.—1. In the process of obtaining chlorin the herein-described subprocess, consisting in passing chlorid of ammonium and oxid of magnesium in a finely-divided condition through a container, heating the compound; passing gas through the container in the opposite direction to drive off the ammonia; separating the ammonia from said gas and then again passing said gas through the container to drive off ammonia, substantially as set forth.



2. In the process of obtaining chlorin, the herein-described subprocess, which consists in agitating chlorid of ammonium and oxid of magnesium, simultaneously heating the same at a constant temperature; conducting gas through the same; subsequently subjecting the resultant compound at a constant, but higher temperature to the action of air, the operations being carried on continuously and simultaneously.

3. In the process of obtaining chlorin, the herein-described subprocess consisting in passing chlorid of ammonium and oxid of magnesium in a finely-divided condition through a heated container; driving off the ammonia; discharging the resultant mixture of chlorid and oxid of magnesium into another heated container and injecting air into said last-mentioned container to decompose said chlorid of magnesium and drive off the chlorin, the operation being carried on continuously, substantially as set forth.

4. In the process of obtaining chlorin, the herein-described subprocess consisting in passing chlorid of ammonium and oxid of magnesium in a finely-divided condition through a heated container; driving off the ammonia; discharging the resultant mixture of chlorid and oxid of magnesium into another container; injecting air into said second cylinder to decompose said chlorid of magnesium therein and drive off the chlorin, and again passing the resultant oxid of magnesium with chlorid of ammonium through the first container the operation being carried on continuously, substantially as set forth.

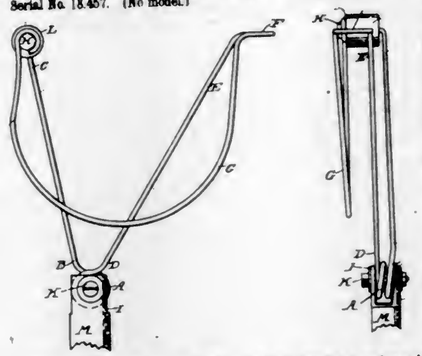
5. The herein-described process consisting in passing chlorid of ammonium and oxid of magnesium in a finely-divided condition through a heated container; driving off the ammonia; discharging the resultant mixture of chlorid and oxid of magnesium into a second heated container; decomposing the chlorid of magnesium in the second container to drive off the chlorin and creating a partial vacuum in the apparatus the operation being carried on continuously, substantially as set forth.

6. The herein-described process consisting in passing chlorid of ammonium and oxid of magnesium in a finely-divided condition through a heated container; driving off the ammonia; discharging the resultant mixture of chlorid and oxid of magnesium into a second heated container; decomposing the chlorid of magnesium in the second container to drive off the chlorin gas, and passing the chlorin gas through an absorber, the operations being carried on continuously, substantially as set forth.

7. In the process of obtaining chlorin, the herein-described subprocess consisting in passing a mixture of chlorid and oxid of magnesium in a finely-divided condition continuously through a container and injecting continuously heated air into said container to decompose the chlorid of magnesium and drive off the chlorin, substantially as set forth.

8. In a process for obtaining chlorin, the subprocess of evolving ammonia from ammonium chlorid, which consists in gradually heating a mixture of said chlorid and magnesium oxid in contact with steam and afterward heating the mixture further without contact of steam.

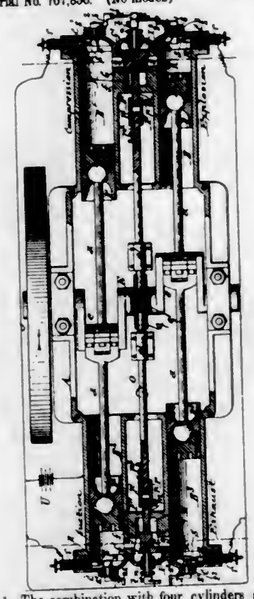
663,090. TARGET-THROWING APPARATUS. CORNELIUS W. PIKE and JOHN P. PIKE, Birmingham, England. Filed May 29, 1900. Serial No. 18,457. (No model.)



Claim.—1. In combination with a suitable handle, a spring-grip comprising a wire having a portion coiled upon itself and secured to said handle, and having outwardly-diverging straight arms, and a U-shaped bent portion extending between said arms, substantially as described.

2. In combination with a suitable handle, a grip comprising a single piece of wire coiled upon itself with said coil secured to said handle, the wire diverging outwardly from said coil to form straight arms, an angular bent portion at the extremity of one of the arms, a loop formed at the extremity of the other arm, the wire from the extremity of the loop being extended across in a U-shaped bend to the extremity of the angular bent portion around which it is twisted, and a roller journaled on said angular bent portion, substantially as described.

663,091. GAS-ENGINE. ALBERT D. GARRETSON, Buffalo, N. Y., assignor to the Garretson Engine Company, same place. Filed Mar. 6, 1899. Serial No. 707,830. (No model.)



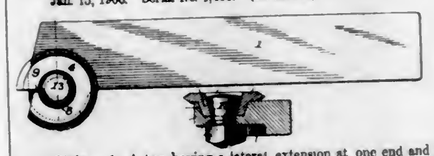
Claim.—1. The combination with four cylinders arranged in two pairs, the cylinders of one pair being arranged in line with the cylinders of the other pair, the pistons arranged in the cylinders, and the crank-shaft arranged transversely between the two pairs of cylinders and connected with said pistons, of two valve-chests one of which is arranged adjacent to each pair of cylinders and which has a valve-seat, ports leading from the side of the seat to the working ends of the adjacent pair of cylinders, a fuel-chamber at one end of the valve-seat and an exhaust-chamber at the opposite end of the valve-seat, rotary valves arranged in said valve-seats and each provided with a fuel-port which extends from the side of the valve to the fuel-chamber and with an exhaust-port which extends from the side of the valve to the exhaust-chamber, a valve-shaft arranged lengthwise between the two pairs of cylinders and connected at opposite ends with said valves, and gearing connecting the crank-shank with the central part of the valve-shaft, substantially as set forth.

2. The combination with four cylinders arranged in pairs, the cylinders of one pair being axially in line with the cylinders of the other pair, the pistons arranged in the cylinders, and the crank-shaft connected with the pistons, of two valve-chests one of which is arranged adjacent to each pair of cylinders and which has a conical-valve seat, a port leading from the side of the seat to the working ends of the adjacent pair of cylinders, a fuel-chamber at one end of the valve-seat and an exhaust-chamber at the opposite end of the valve-seat, the ports of one pair of cylinders opening into the lower side of their companion valve-seat while the ports of the other pair of cylinders open into the upper side of their companion valve-seat, conical valves arranged in the valve-seats and each provided with fuel and exhaust ports whereby the ports of the adjacent pair of cylinders are successively placed in communication with the fuel and exhaust chambers, the ports in one valve being arranged reversely to the ports in the other valve, and a valve-shaft connected at its ends with said valves and geared at its middle with said crank-shaft, substantially as set forth.

3. The combination with the cylinder, the piston, the crank-shaft connected with the piston, and the rotary valve, of a pair of electric contacts arranged in the cylinder one of which is movable toward and from the other, a rock-shaft extending into the cylinder and carrying the movable contact at its inner end and a rock-arm at its outer end, and a trip-arm which turns with the valve and which engages with the rock-arm for turning the rock-shaft and operating said contacts to produce a spark, substantially as set forth.

4. The combination with four cylinders arranged in pairs, the cylinders in one pair being axially in line with the cylinders in the other pair, the pistons arranged in the cylinders and the crank-shaft connected with the pistons, of two valve-chests one of which is arranged above and between each pair of cylinders, two rotary valves one of which is arranged in each chest and controls the fuel-supply and the exhaust of the companion pair of cylinders, a valve-shaft geared to the crank-shaft and connected with said valves, a pair of electric contacts arranged in each cylinder and one of which is movable toward and from the other, rock-shafts journaled in the heads of the cylinders and each carrying the movable contact of the respective cylinder at its inner end and provided at its outer end with a rock-arm, spindles secured to said valves and extending through the valve-chests, a single trip-arm secured to one of said spindles and adapted to engage successively with the rock-arms of the adjacent cylinders and double trip-arms projecting in diametrically opposite directions from the other spindle and each adapted to engage with one of the rock-arms of the other pair of cylinders, said double trip-arms being arranged at right angles to the single trip-arm, substantially as set forth.

663,092. THREADING-TOOL. HUGH HILL, Anderson, Ind. Filed Jan. 15, 1900. Serial No. 1,488. (No model.)



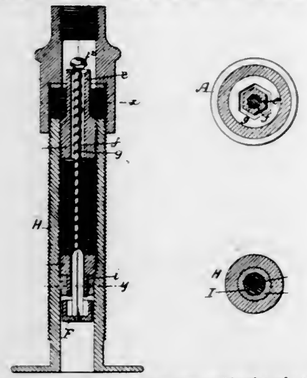
Claim.—1. A bar having a lateral extension at one end and provided with a tapered recess partly in the extension and partly in the bar, and a bolt-hole extending centrally from the bottom of said recess, said bar and extension being partly cut away on one face to form a recess 3, combined with a circular cutter fitting against the face of the bar opposite that having the recess 3 and having a tapered shank to seat in the tapered recess, said shank having a central tapered bore registering with said bolt-hole, a bolt extending through said bolt-hole and having a tapered head fitting in the tapered bore of the shank, and a nut on the bolt engaging the bottom of the recess 3, and projecting beyond the face of the bar, substantially as and for the purpose set forth.

2. A holder provided with a tapered recess and a bolt-hole extending centrally therefrom, combined with a cutter having a slitted tapered shank fitting within said recess, said shank having a central tapered bore registering with said bolt-hole, a bolt extending through said hole and hav-

ing a tapered head fitting in said tapered bore, and a nut on the bolt adapted to draw the tapered head within the tapered bore and expand the shank within its seat, substantially as set forth.

3. A holder provided with a tapered recess and a bolt-hole extending centrally therefrom, combined with a notched circular cutter provided with a tapered shank to seat in said recess, said cutter and shank being slitted, and the shank having a central, tapered bore, a bolt extending through said hole and having a tapered head fitting within the tapered bore of the shank, and a nut on the bolt adapted to engage the holder and draw the head within the bore to expand the shank within its seat, substantially as set forth.

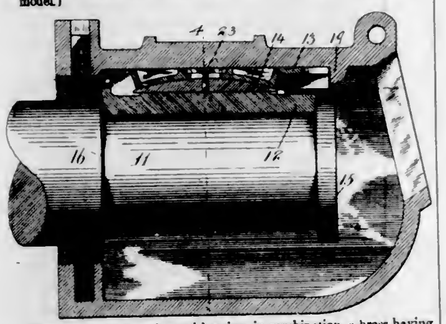
663,093. VALVE FOR INFLATION. ROLAND C. HILTON, New Bedford, Mass., assignor of one-fourth to James M. Willis, Jr., same place. Filed July 10, 1900. Serial No. 23,117. (No model.)



Claim.—1. In a valve for inflation, the combination of a tube screw-threaded both internally and externally with right-hand screw-threads, a valve-seat carrier secured within said tube, a hollow screw-plug adjustably retained within said tube and having a polygonal head, with a valve having its stem passing through the valve-seat carrier and through the screw-plug, its head normally resting upon said plug, and a casing adapted to engage the screw-threaded tube and the polygonal head of the screw-plug, substantially as described.

2. The combination of a casing having internally a polygonal socket, with the tube H having right-hand screw-threads both externally and internally, a valve-seat carrier secured within said tube, a hollow screw-plug adjustably retained within said tube and having a polygonal head, with a valve having its stem passing through the valve-seat carrier and through the screw-plug, its head normally resting upon said plug, and a spring coiled around the valve-stem and sustaining its weight, substantially as described.

663,094. BEARING FOR CAR JOURNAL-BOXES. JAMES M. HOPKINS, Chicago, Ill. Filed Sept. 17, 1900. Serial No. 30,352. (No model.)



Claim.—1. In a car journal-bearing, in combination, a brass having a flat upper surface, and a key comprising an upper member adapted to receive the bearing-surface of a journal-box and having a longitudinally-concave lower face, and a lower member interposed between the upper member and the brass and having its contacting faces conforming thereto and being in sliding engagement therewith.

2. In a car journal-bearing, in combination with a brass and a key member adapted to so interlock and to so engage a journal-box that neither is capable of material longitudinal movement, an intermediate key member having a flat bottom face and a longitudinally-convex top face, the faces of the two first-mentioned members which contact with such third member conforming thereto and being in sliding engagement therewith.

3. In a car journal-bearing, the combination with a brass and a key member, each adapted to be fixed against material longitudinal movement, of a second key member interposed directly between such two first-mentioned members and having a longitudinally-convex face and being capable of free longitudinal movement, the meeting faces of the three members conforming each to the other.

4. In a car journal-bearing, in combination, a brass and a wedge member adapted to vary their angular relation in vertical plane, and a slidable member interposed therebetween, the wedge member being adapted to engage a journal-box to prevent its forward movement, the brass being adapted to engage a journal-box to prevent its backward movement, and the wedge and brass being interengaged to prevent the backward movement of the former and the forward movement of the latter.

5. In a car journal-bearing, in combination, a brass adapted to engage the walls of a journal-box to limit its backward movement, a wedge member adapted to engage a journal-box to limit its forward movement, such brass and wedge member interlocking intermediate of their ends to limit their forward and rearward movement respectively, but to permit them to change their angular relation longitudinally; and a slidable member interposed between the brass and wedge member.

6. In a car journal-bearing, in combination, a brass; a member slidable thereupon and having pendent lateral flanges, and having its upper face longitudinally convex; and a wedge member having its lower face concave complementary to the convex face of the slidable member and being adapted to engage the top wall of a journal-box.

7. In a car journal-bearing, in combination, a brass, a wedge member adapted to fit within the top of a journal-box so as to be incapable of angular movement relatively thereto, and a slidable member interposed between the brass and wedge member and engaging both to prevent their relative angular movement in a horizontal plane.

663,095. INCANDESCENT BODY FOR ELECTRIC GLOW-LAMPS. ALEXANDER JUST, Vienna, Austria-Hungary. Filed Sept. 20, 1900. Serial No. 30,620. (No specimens.)

Claim.—1. An incandescible body composed of an intimate mixture of a conductor of electricity and a refractory nitrid of a metalloid, substantially as set forth.

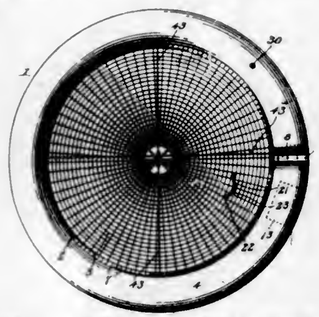
2. An incandescible body comprising a mixture of nitrid of boron, silicon and a carbonaceous material, substantially as described.

3. An incandescible body comprising a mixture of nitrid of boron and carbon, substantially as set forth.

4. An incandescible body comprising boron, carbon and nitrid of boron, substantially as set forth.

5. An incandescible body comprising boron, silicon, carbon and a refractory nitrid of a metalloid, substantially as set forth.

663,096. LIFE-PRESERVER. HENRY C. LAVERY, West Superior, Wis. Filed Feb. 28, 1900. Serial No. 6,846. (No model.)



Claim.—1. A life-preserver comprising a float-body having an inflatable member, and an automatically-operating, normally-inactive inflating mechanism having communication only with the interior of said inflatable member, substantially as set forth.

2. A life-preserver comprising a float-body having an inflatable member, and automatically-operating inflating mechanism housed entirely within said inflatable member, and having communication only with the interior thereof, substantially as set forth.

3. A life-preserver comprising a float-body having an inflatable member, inflating mechanism associated with such inflatable member, and means for normally restraining the inflating mechanism by the support of the float-body, substantially as set forth.

4. A life-preserver comprising a float-body having an inflatable member, inflating mechanism associated with the inflatable member, and means for automatically setting the inflating mechanism into action by the removal of the float-body from its support, substantially as set forth.

5. A life-preserver comprising a float-body having an inflatable member, inflating mechanism housed entirely within said inflatable member and having no exterior communication, and means for normally restraining the inflating mechanism by the support of the float-body, substantially as set forth.

6. A life-preserver comprising a float-body having an inflatable member, inflating mechanism housed entirely within the inflatable member, and means, exterior to said inflatable member, for normally restraining the inflating mechanism by the support of the body, substantially as set forth.

7. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism housed entirely within said rim and having communication only with the interior thereof, and means, exterior to the rim, for normally restraining the inflating mechanism, substantially as set forth.

8. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism housed within said rim, and means, exterior to the rim, for normally restraining the inflating mechanism by the support of the body, substantially as set forth.

9. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism housed within said rim and having a trip, and an exterior restraining device coöperating with said trip and held in operative position by the support of the body, substantially as set forth.

10. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism arranged within said inflatable rim and having a trip-lever, and a restraining-lever supported on the body exterior to the rim and held in operative relation to said trip-lever by the support of the body in an inoperative position, substantially as set forth.

11. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism housed within said rim and having a trip-lever, and a restraining-lever loosely mounted upon the float-body exterior to the rim thereof, and adapted to be held against the rim in operative relation to the trip-lever by the support of the float-body in its inoperative position, substantially as set forth.

12. A life-preserver comprising a float-body having an inflatable rim, inflating mechanism including an interior receptacle within the rim and a valve device for the receptacle having a trip-lever adapted to be folded upon the receptacle, and a restraining-lever pivotally mounted on the float-body exterior to the rim and adapted to be held against the latter to press upon the trip-lever when the float-body is supported in its inoperative position, substantially as set forth.

13. A life-preserver comprising a float-body having an inflatable rim, provided with a separate chemical-compartment, an inflating mechanism mounted within said chemical-compartment and essentially comprising a chemical-receptacle and a spring-actuated valve or stopper device for the chemical-receptacle, said device including a trip-lever adapted to be folded upon the exterior of the receptacle, and a restraining-lever pivotally mounted on the float-body and adapted to be held against the rim to exert a pressure upon the trip-lever in its folded position, substantially as set forth.

14. In a life-preserver, the combination with a holder and a retaining device, of a float-body adapted to be held by said holder in an inoperative position, and provided with an inflatable rim, an inflating mechanism mounted within said rim and including a trip-lever, and a restraining-lever pivotally mounted upon the float-body exterior to the rim and adapted to be held by the said retaining device in a position against the rim to hold the latter upon the trip-lever, substantially as set forth.

15. In a life-preserver, the float-body comprising a stiffening-frame, a flexible bottom piece arranged within said frame, and an annular inflatable float-rim having a pivotal connection with said stiffening-frame, substantially as set forth.

16. In a life-preserver, the combination of a reversible float-body, a signal-staff fitted to the body and projecting from both sides thereof, and bracing connections between the staff and each side of the body, substantially as set forth.

17. In a life-preserver, the combination of a reversible float-body, and a signal-staff fitted to the body and projecting from both sides thereof, said signal-staff being arranged to fold upon the body, substantially as set forth.

18. In a life-preserver, the reversible float-body, the signal-staff fitted centrally to the body and projecting at both sides thereof, said signal-staff being capable of folding upon the body, and guy-line connections between the opposite ends of the signal-staff and the float-body, substantially as set forth.

19. In a life-preserver, the float-body, the folding signal-staff centrally connected with the body and projecting at both sides thereof, said signal-staff being provided at opposite ends thereof with attaching-ears, one of which forms a runner, and guy-lines arranged upon both sides of the float-body and connecting the same with the attaching-ears at the ends of the signal-staff, one of said guy-lines at each side of the float-body being continuous and adapted to have a separable interlocking connection with the runner-ear at such side of the body, substantially as set forth.

20. In a life-preserver, the float-body, and a signal-staff connected with the body and projecting from both sides thereof, said signal-staff being provided at each end with a torch, substantially as set forth.

21. In a life-preserver, the float-body, and a signal-staff connected with the body and projecting from both sides thereof, said signal-staff being provided at each end with a gas-torch and with means for supplying either of said torches with an illuminating-gas, substantially as set forth.

22. In a life-preserver, the float-body, a signal-staff connected to said body and projecting from both sides thereof, said signal-staff being provided at each end with a gas-burner or torch, and adapted to contain a gas-producing agent, and a manually-operated valve device for admitting liquid into either end of the staff, substantially as set forth.

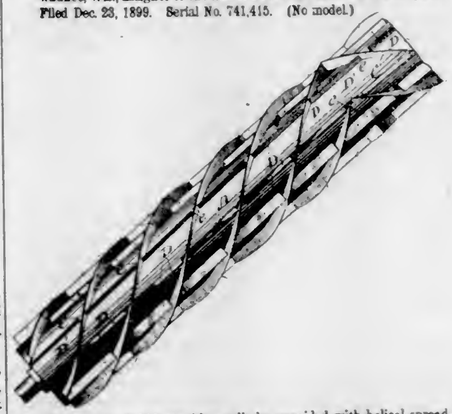
23. In a life-preserver, the float-body, a signal-staff fitted to the float-body and adapted to contain a gas-producing agent, said signal-staff being further provided with a burner-head in communication with the interior of the staff, and a valve device for admitting liquid into the staff, substantially as set forth.

24. In a life-preserver, the float-body, a tubular signal-staff fitted to the body and projecting from both sides thereof, said staff being adapted to contain a gas-producing agent, a burner-head fitted to each end of the signal-staff and provided with a gas-passage and a liquid-passage, said liquid-passage being open at both ends and having a lateral port communicating with the gas-passage, a burner in communication with the gas-passage of each head, and a single manually-operated valve-stem extending through the signal-staff and carrying controlling-valves respectively working in the liquid-passages of the opposite burner-heads, and also arranged to cover and uncover the said lateral ports, substantially as set forth.

25. A life-preserver having an inflatable member, inflating mechanism housed within said inflatable member and having communication only with the interior of said inflatable member, said mechanism being provided with a trip, and means, exterior to the inflatable member, coöperating with said trip to normally restrain the inflating mechanism, substantially as set forth.

26. A life-preserver having an inflatable member inflating mechanism housed within said inflatable member and having communication only with the interior of said inflatable member, said mechanism being provided with a trip-lever, and means, exterior to the inflatable member, coöperating with said trip-lever to normally restrain the inflating mechanism, substantially as set forth.

663,097. HIDE-WORKING CYLINDER. NICOLAUS LEIDGEN, Milwaukee, Wis., assignor of one-half to Edward H. Munkwitz, same place. Filed Dec. 23, 1899. Serial No. 741,415. (No model.)



Claim.—1. A hide-working cylinder provided with helical spreading-blades winding in opposite directions from about the middle toor toward its ends, and with rearwardly-inclined scraping-blades arranged lengthwise of the cylinder between said spreading-blades, spaces being left between the ends of said scraping-blades and the spreading-blades, substantially as and for the purposes set forth.

2. A hide-working cylinder provided with helical spreading-blades winding in opposite directions from about the middle toward the ends of the cylinder, and with scraping-blades arranged between the spreading-blades, and slightly inclined lengthwise in the same direction as the adjacent spreading-blades, said scraping-blades being inclined rearwardly toward their working edges and spaces being left between their ends and the sides of the adjacent spreading-blades, substantially as and for the purposes set forth.

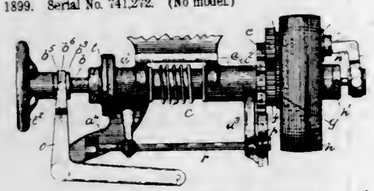
3. A hide-working cylinder provided with helical spreading-blades winding in opposite directions from about the middle of the cylinder toward its ends, and with rearwardly-inclined scraping-blades arranged lengthwise of the cylinder between said spreading-blades and composed of metals of different degrees of hardness, the harder metal being on the front side, substantially as and for the purposes set forth.

4. A hide-working cylinder provided with helical spreading-blades winding continuously in opposite directions from about the middle of the cylinder toward its ends and arranged perpendicular to the surface of the cylinder-body, and with scraping-blades arranged lengthwise of said cylinder between said spreading-blades which are composed of metals of different degrees of hardness, the softer metal being placed on the front side of said blades, substantially as and for the purposes set forth.

5. A hide-working cylinder provided with helical spreading-blades winding in opposite directions from about the middle of the cylinder toward its ends, and with rearwardly-inclined scraping-blades arranged lengthwise of the cylinder between said spreading-blades, both sets of blades being composed of metals of different degrees of hardness, the harder metal being placed on the front side of the scraping-blades and on the back side of the spreading-blades, substantially as and for the purposes set forth.

6. A hide-working cylinder provided with helical spreading-blades winding in opposite directions from about the middle toward the ends of said cylinder, and with rearwardly-inclined scraping-blades arranged lengthwise of said cylinder between said spreading-blades, substantially as and for the purposes set forth.

663,098. **CHANGE-SPEED MECHANISM.** GEORGE L. MASON, Warehouse Point, and GEORGE E. WITHERELL, Hartford, Conn., assignors to the Hartford Machine Screw Company, Hartford, Conn. Filed Dec 22, 1899. Serial No. 741,272. (No model.)



Claim.—1. In a change-speed mechanism, in combination, a shaft, a gear-wheel loosely mounted on the shaft, means for preventing said gear from rotating, a gear fast to the shaft, a pulley loose on the shaft, a coupling-pinion mounted on said pulley and in mesh with both of said gear-wheels which are differential, a clutch to clamp the coupling-pinion to the pulley, and means for operating the clutch.

2. In combination in a change-speed mechanism, a shaft, a ratchet-wheel borne on the shaft, a gear-wheel fast to said ratchet-wheel and also borne on the shaft, a gear-wheel fast to the shaft, a pulley loose on the shaft, a coupling-pinion mounted on said pulley and in mesh with both of said gear-wheels which vary in number of teeth, a clutch in operative relation to said coupling-pinion, adapted to secure the pinion to the pulley, and means for operating said clutch.

3. In combination in a change-speed mechanism, a shaft, a pulley loosely mounted on the shaft, intermeshing gears and pinion borne by the shaft and pulley for varying the speed between said shaft and pulley, means for causing said gear and pinion to operate for the purpose specified, a shifter-rod extending through the shaft, and connections between said shifter-rod and pinion, adapted for gripping and releasing action of the pinion and for clamping the pulley to the shaft.

4. In a change-speed mechanism, in combination, a shaft, a gear-wheel loosely mounted on the shaft, means for preventing said gear from rotating, a gear fast to the shaft, a pulley loose on the shaft, a coupling-pinion mounted on said pulley and in mesh with both of said gear-wheels which vary in number of teeth, a clutch including a friction-surface located on each side of said coupling-pinion, and means for operating the clutch.

5. In combination, a shaft, a pulley loosely mounted on the shaft, a gear secured to the shaft, a pinion mounted on the pulley and in mesh with said gear, a clutch including a friction-surface located on opposite sides of said pinion, and means for operating the clutch.

6. In a speed-changing mechanism in combination with a shaft and gears and a pulley mounted on said shaft, a pinion-shaft loosely mounted in the pulley, a pinion mounted on the pinion-shaft and in mesh with the gears on the other shaft, and means for causing a movement, lengthwise of the pinion-shaft, between the pulley and said pinion-shaft for clamping the pinion to the pulley.

7. In a speed-changing mechanism in combination with a shaft and a pulley and gears mounted on the shaft, a pinion-shaft mounted in the pulley and supporting two friction-disks, a coupling-pinion mounted on the pinion-shaft and located between said friction-disks, and means for causing a movement, lengthwise of the pinion-shaft, between said shaft and pulley for clamping the pinion to the pulley.

8. In combination in a change-speed mechanism, a shaft, a gear-wheel loosely mounted on the shaft, means for preventing said gear-wheel from rotating, a gear fast to the shaft, a pulley loose on the shaft, a pinion-shaft mounted in the pulley, a pinion mounted on the pinion-shaft and in mesh with the gears on the other shaft, and means for causing a movement, lengthwise of the pinion-shaft, between said shaft and pulley to clamp the pinion to the pulley.

9. In combination in a change-speed mechanism, a shaft, a pulley loosely mounted on the shaft, a train of gears connecting the pulley and shaft and including a pinion mounted on a pinion-shaft in the pulley, the pinion-shaft, a cam-lever pivoted on the pinion-shaft, and means for operating the cam-lever to clamp the pinion to the pulley.

10. In combination in a change-speed mechanism, a shaft, a pulley loosely mounted on the shaft, a train of gears connecting the pulley and including a pinion on a pinion-shaft mounted in the pulley, the pinion-shaft, a cam-lever pivoted to the pinion-shaft and means for operating the cam-lever to cause a movement, lengthwise of the pinion-shaft, between the pulley and shaft whereby the pinion is clamped to the pulley.

11. In combination in a change-speed mechanism, a shaft, a pulley loosely mounted on the shaft, a train of gears operatively connecting the pulley and shaft and including a pinion on a pinion-shaft mounted in the pulley, a cam-lever mounted on the pinion-shaft, a shipper-rod extending through the main shaft, and operative connections between the shipper-rod and the pinion-shaft, whereby the pinion is clamped to the pulley.

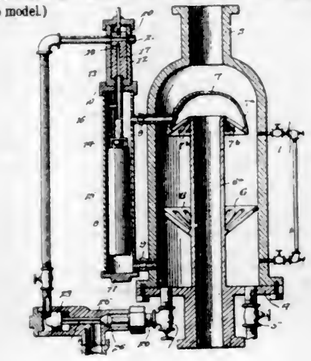
12. In combination in a change-speed mechanism including a shaft, pulley and train of connecting-gears, a ratchet operatively connected with said parts, a pawl mounted in operative relation to the ratchet, and means arranged for locking the pawl against pressure from the ratchet in returning the pawl to its engaged position, for withdrawing the point of the pawl from the shoulder, and for lifting it from contact with the ratchet.

13. In combination in a change-speed mechanism including a shaft, pulley and train of connecting-gears, a ratchet-wheel operatively connected with said parts, a pawl-shaft, and a pawl eccentrically mounted on said shaft and engaging the ratchet, and means for rotating the pawl-shaft.

14. In combination in a change-speed mechanism including a shaft, pulley and train of connecting-gears, a ratchet-wheel operatively connected with said parts, a pawl-shaft, a pawl having a recess and eccentrically mounted on the shaft and engaging the ratchet, and interengaging parts carried by the pawl-shaft, adapted to engage and raise the pawl during the movement of the pawl-shaft.

15. In a device of the class specified comprising a shaft, pulley and train of connecting-gears, and a ratchet-wheel operatively connected with said parts, a pawl eccentrically mounted on a pawl-shaft and adapted to be moved out of engagement with the teeth of the ratchet upon rotation of said shaft, and interengaging parts between the ratchet and its operating means adapted to raise the pawl after it has been disengaged from the ratchet.

663,099. **STEAM AND WATER SEPARATOR.** WILLIAM H. REYNOLDS, Galveston, Tex. Filed June 18, 1900. Serial No. 20,743. (No model.)



Claim.—1. In a steam and water separator, a casing having an upper and a lower steam inlet and outlet, a steam-conveying pipe or tube extending from the bottom upwardly into the casing and having a baffle-cap on the upper extremity thereof and an intermediate inverted conical grate, and means for relieving the casing of water of condensation.

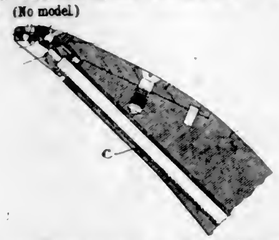
2. In a steam and water separator, a casing having an upper and a lower steam inlet and outlet, a steam-conveying pipe or tube extending from the bottom upwardly into the casing and having a baffle device on the upper extremity thereof which permits communication with the upper part thereof and an intermediate open device to prevent upward splashing of the water of condensation, and means for relieving the casing of water of condensation automatically controlled by the rise of the water of condensation in the casing.

3. In a steam and water separator, a casing having a steam inlet and outlet and a pipe or tube extending centrally upward thereinto from the bottom and terminating short of the top, an upper closed baffle-cap on the pipe or tube having a lower open portion below the upper terminal of the latter to permit communication with the said pipe or tube, and means controlled by the level of the water of condensation in the casing for automatically relieving the casing of said water and having communication with the upper closed portion of the cap and the lower portion of the casing.

4. In a steam and water separator, a casing having upper and lower steam inlet and outlet, a steam-conveying pipe or tube extending from the bottom upwardly into the casing and provided with a baffle-cap having a periphery overhanging the upper portion of said pipe or tube, ribs with openings between them connecting the under lower portion of the cap with the upper part of the pipe or tube, and means for relieving the casing of water of condensation.

5. In a steam and water separator, a casing having upper and lower steam inlet and outlet, a steam-conveying pipe or tube extending from the bottom upwardly into the casing and provided with a baffle-cap having a periphery overhanging the upper portion of said pipe or tube, ribs with openings between them connecting the under lower portion of the cap with the upper part of the pipe or tube, and an inverted conical ribbed grate, all integral with said pipe or tube, and means for relieving the casing of water of condensation.

668,100. **SEWING-MACHINE HORN.** JOHN H. RICHARDSON, Lawrence, Mass. Filed June 14, 1899. Renewed Apr. 28, 1900. Serial No. 14,759. (No model.)



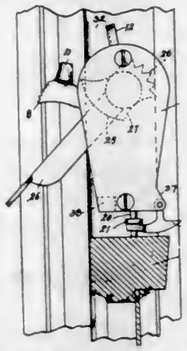
Claim.—1. An inclined sewing-machine horn having a whirl mounted to rotate in a substantially horizontal plane, a hollow rotary shaft within the horn and having a pinion at its upper end provided with the thread-passage, said pinion being operatively connected with the whirl and serving not only to rotate the whirl but also to guide the thread thereto, both the shaft and the whirl being located entirely within the horn, whereby the thread in its passage to the whirl, will be also retained entirely within the horn and away from possibility of abrasion by any portion of a shoe placed on said horn.

2. A sewing-machine comprising a whirl having a needle-orifice b^3 having parallel walls which are inclined, one side of the orifice conforming approximately to the curvature or inclination of the needle at the pointed end of the latter.

663,101. **SASH-LOCK AND BURGLAR-ALARM.** SAMUEL RITCHIE, Tomahawk Lake, Wis., assignor of one-third to Eugene R. Le Fevre, same place. Filed Sept. 13, 1900. Serial No. 29,865. (No model.)

Claim.—1. The combination of a casing or support, a movable alarm-actuating device, alarm mechanism adapted to be sounded by the actuating device, when said device is moved in one direction, and a medially-pivoted lever having one arm in position to be actuated by a movable device and thereby move the alarm-actuating mechanism in one direction to sound the alarm, and said alarm-actuating device being in position to be engaged by another movable device, and likewise sound the alarm.

2. The combination of a casing or support, a movable alarm-actuating device projecting from the casing, and provided above its lower extremity with an enlargement, alarm mechanism adapted to be sounded by the actuating device, when said device is moved in one direction, and a medially-pivoted lever having one arm in position to be actuated by a movable device, and having its other arm engaging the enlargement of the actuating device, whereby when the movable device acts on one arm of the lever the other arm thereof is caused to act on the enlargement of the actuating device, and thereby move said device in one direction to sound the alarm, and the end of said alarm-actuating device being in position to be engaged by another movable device and to be likewise caused to sound the alarm.

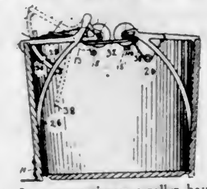


3. The combination of a casing or support, alarm mechanism carried thereby and adapted to be actuated by a movable device, and a lever pivoted to the casing, said lever provided at one end with an enlargement the opposite edges of said enlargement adapted, when the lever is turned in one direction, to clamp the casing in the groove of the window-frame.

4. The combination of a casing or support, alarm mechanism carried thereby and adapted to be actuated by a movable device, a pivoted lever provided at one end with an enlargement, one edge of said enlargement provided with a series of teeth adapted, when the lever is turned in one direction, to engage into the side wall of a groove in the device to which the casing is applied, and the opposite edge of said enlargement being in the form of a cam adapted at the same time to engage the opposite side wall of the groove, and thereby lock the casing releasably in position.

5. The combination of a casing or support provided upon its inner side, at the lower lateral edge of said side, with an outstanding stop, a space being formed between said stop and the side of the casing, a lever pivoted to the casing and provided at one end with means for locking the casing in the grooveway of a window-frame, or other device, and the other end of said lever adapted, when the device is not in use, to fit in the space between the stop and the side of the casing, and locking mechanism and alarm mechanism carried by the casing.

663,102. **MOP-WRINGER.** DAVID M. ROGERSON, Jamestown, N. Y. Filed Feb. 12, 1900. Serial No. 4,903. (No model.)



Claim.—1. In a mop-wringer, a roller having suitable springs to give pressure thereto and suitable supports therefor, an adjustable frame having suitable supports therefor, a roller mounted in said frame, a ratchet to adjust and hold said frame and roller, substantially as shown and described.

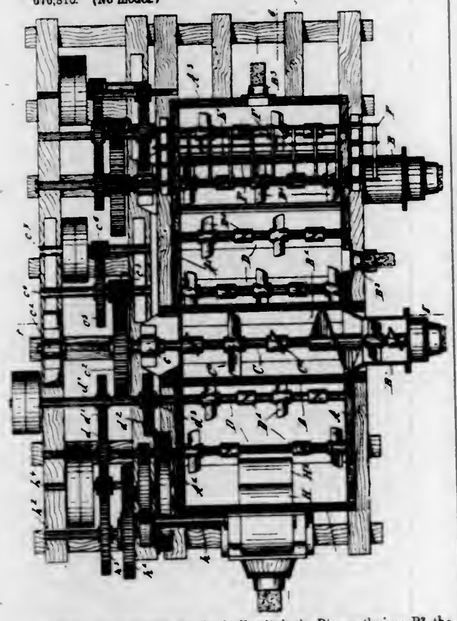
2. In a mop-wringer, an adjustable frame supported on brackets and having a spring-ratchet for adjusting said frame, a roller supported in said frame, a second roller supported on brackets parallel to said first roller, springs attached to the roller-pins of said second roller to give a spring-pressure thereto, said roller-pins supported in slots made at the angle of the spring-pressure, as shown and for the purpose specified.

3. A mop-wringer having brackets provided with raised wrists, an adjustable frame hung on said wrists, a roller supported on said frame, a spring-ratchet for adjusting said frame, a spring-pressed roller supported on brackets and parallel to said frame-roller, slots made in said brackets

at the angle of the spring-pressure, a spring locking-bar on said adjustable frame and a projection on the opposite bracket to receive said bar, as shown and described.

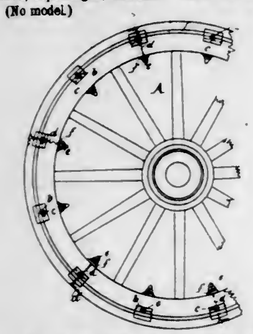
4. In combination with a mop-pail having two footholds, a mop-wringer having a spring-pressed roller supported on brackets, an adjustable frame supported on brackets and having a roller mounted in said frame, a spring-ratchet for adjusting said roller to said spring-pressed roller, substantially as shown and described.

663,103. COMBINED SUMP, MIXING-MILL, AND BRICK-PRESS. CARL SCHLICKEYSEN, Berlin, Germany. Filed Apr. 7, 1898. Serial No. 676,810. (No model.)



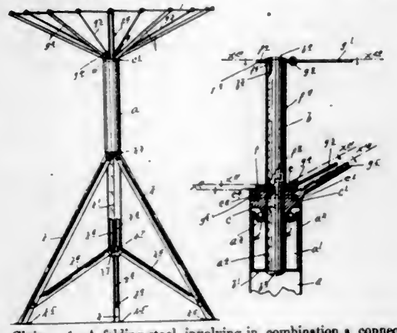
Claim.—In combination, the inclined planks B', mouthpiece B^2, the shafts C having the wings C' and adapted to force the material out through the mouthpieces B^2, the series of shafts D above and parallel with the shafts C and having wings thereon, the ledges D^2 extending up between the shafts D, the series of rotary ledges E above the shafts D with means for operating them and the grates F above the ledges E with operating means therefor, substantially as described.

663,104. INDIA-RUBBER TIRE FOR VEHICLES. HANS C. P. SIVERSLETH, Copenhagen, Denmark. Filed Jan. 30, 1900. Serial No. 3,374. (No model.)



Claim.—In a vehicle-wheel, the combination with the felly or rim of a rubber tire encircling the same, cramps seated in said felly for holding the tire against lateral displacement and headed bolts passing radially through the felly, cramps, and tire, substantially as described.

663,105. CONVERTIBLE STOOL AND CANE. CARL G. SKOOG, ADOLPH T. ROSEN, and FRANK G. LILYGREEN, St. Paul, Minn.; said Rosen and Lilygreen assignors to said Skoog. Filed Feb. 27, 1900. Serial No. 6,675. (No model.)

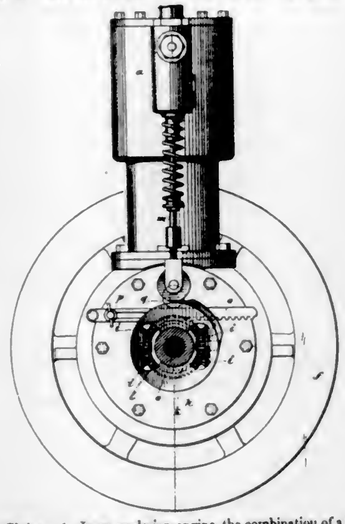


Claim.—1. A folding stool, involving in combination a connected series of toggle-levers, a central spindle or stem, a series of tension-rods connecting alternate joints of said toggle-levers to said spindle or stem, a corresponding series of compression-rods pivoted to a part on said spindle and sliding at their outer ends on said tension-rods, a fixed part on said spindle below the inner ends of said tension-rod, and a series of toggle-breaking rods connecting the intermediate joints of said toggle-levers to said part fixed against sliding movement on said spindle, whereby said toggle-levers will be antomatically buckled when said tension and compression rods are pressed upward, substantially as described.

2. In a folding stool, the combination with a tube *a*, of folding legs attached to the lower end thereof, the spindle *b* having the vertically-spaced hinged disks *f* and f^3, to which the folding parts of the seat are attached, the bearing-cone *c* on said spindle, the ball-race a^3 and washer *b'* on said spindle, the sleeve a^4 spacing said washer *b'* and cone *c*, and the sleeve *a'* spacing said washer *b'* and said ball-race a^3, substantially as described.

3. In a stool, the combination with the seat and the standard *k* provided with vertically-slotted flanges, of the legs *k* pivoted to the flanges of said standard and embracing the same, and the links k^4 pivoted at their outer ends between the flanges of said legs *k* and pivoted at their inner ends in the longitudinal slots k^5 of said flanges, whereby when the legs are folded said links embrace said flanges, and said legs embrace said links and said flanges, substantially as described.

663,106. EXPLOSION-ENGINE. HENRY W. STRUSS, New York, N. Y. Filed Dec. 8, 1899. Serial No. 739,732. (No model.)

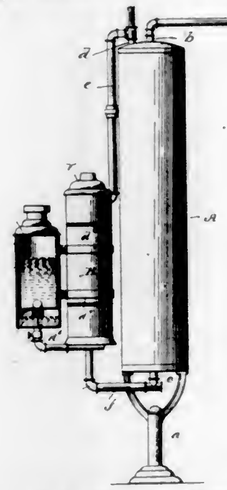


Claim.—1. In an explosion-engine, the combination of a governing-valve, a shaft a cam for operating the governing-valve and an epicyclic gear for rotating the cam comprising in its structure a traveling wheel or gear *i* for rotating the cam and a fixed gear *l* and a rotatable gear carried by the shaft and engaging with the said traveling wheel or gear.

2. In an explosion-engine, the combination of a governing-valve, a shaft a cam for operating the governing-valve and an epicyclic train for rotating the cam comprising in its structure a traveling wheel or gear for rotating the cam and an adjustable gear fixed upon some stationary part of the engine and a rotatable gear carried by the shaft engaging with the said traveling wheel or gear and means for adjusting the adjustable gear to shift the cam to effect a reversal of the engine.

3. In an explosion-engine, the combination of a suitable main shaft, a valve for governing the exhaust from the cylinder, a cam *h* for operating the exhaust-valve and provided with a bevel-gear and means for driving the said cam, comprising a stationary gear fixed to the frame of the engine and meshing with the gear of the cam and a rotatable gear likewise meshing therewith and driven from the main shaft of the engine, substantially as described.

663,107. APPARATUS FOR HEATING WATER. RUSSELL THAYER, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Company, same place. Filed July 25, 1900. Serial No. 24,830. (No model.)



Claim.—1. A water-heater comprising the combination with a boiler, of a heater embodying a shell having superposed hot and cold water spaces, a source of heat below the heater, a feed-water pipe passing up through said source into the heater and connecting the boiler with the cold-water space, nested pipes connecting the hot and cold water spaces, and a connection from the hot-water space to the boiler, substantially as described.

2. A water-heater comprising a double-jacketed casing lined with a non-heat-conducting medium, superposed hot and cold water spaces, a heat source below the heater, a feed-water pipe passing up through said heat source into the heater and connecting with the cold-water space, hot-water flues extending from the hot-water space to near the heat source, pipes connecting said hot and cold water spaces and inclosed within the flues, and an outlet for the hot water, substantially as described.

663,108. MUZZLE. JAMES C. TODD, Philadelphia, Pa. Filed June 12, 1900. Serial No. 20,043. (No model.)

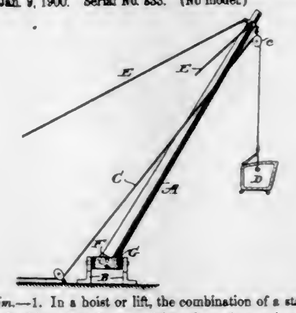


Claim.—1. A muzzle including a folded strap the members whereof cross each other at a point in their length to form independent loops one adapted to embrace the jaws and the other the rear portion of the head of the animal the said members being united at their point of crossing.

2. A muzzle including two flexible loops connected at their meeting portions one of said loops adapted to embrace the nose and jaws of the animal and the other fitted to the rear portion of the head back of the ears.

3. A muzzle including a strap folded to form a loop or bight and having its members brought together flatwise and secured at the point of crossing, said members thence extended in opposite directions and adapted to form a second loop, and means for detachably uniting the free ends of said members.

663,109. HOIST OR LIFT. BERNARD TUCKER, Philadelphia, Pa. Filed Jan. 9, 1900. Serial No. 853. (No model.)



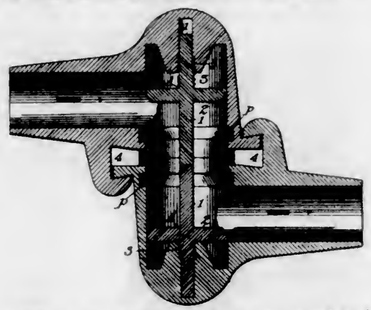
Claim.—1. In a hoist or lift, the combination of a stationary frame B provided with sockets *b*, an upright pole, a frame pivoted to said upright pole on a horizontal axis and carrying trunnions *g* adapted to fit the sockets of the frame B and arranged at substantially right angles to the pivots of the upright pole, whereby said upright pole and its frame are removably supported by said stationary frame and may be removed together therefrom, without the disconnection of parts.

2. In a hoist or lift, the combination of the pole A for the hoisting-rope, the ring F carried by the base of the pole and provided with the trunnions *f*, and the ring G having sockets *e* for the trunnions *f* and trunnions *g* arranged at substantially right angles to the trunnions *f* of the ring F substantially as and for the purpose described.

3. In a hoist or lift, the combination of the pole A for the hoisting-rope, the ring F carried by the base of the pole and provided with the trunnions *f*, the ring G having sockets *e* for the trunnions *f* and trunnions *g* arranged at substantially right angles to the trunnions *f* of the ring F, and the locking-plate I for securing the trunnions *f* in the sockets *e* substantially as and for the purpose described.

4. In a hoist or lift, the combination of the pole A for the hoisting-rope, the ring F carried by the base of the pole and provided with the trunnions *f* and trunnions *g* arranged at substantially right angles to the trunnions *f* of the ring F, and the detachable lock between the rings F and G substantially as and for the purpose described.

663,110. AIR-BRAKE COUPLING. BENSON VAUGHN, New Castle, Pa. Filed Feb. 10, 1900. Serial No. 4,837. (No model.)



Claim.—1. In a train-pipe coupler, a valve adapted to close the port in said coupler and having a rearwardly-extending stem said stem having a screw-threaded portion adapted to engage a threaded recess in the rear of the coupler, whereby said valve may be held open, substantially as described.

2. In a train-pipe coupler a valve adapted to close the port in said

coupler and having a forwardly-extending stem adapted to engage a similar stem on the valve in the other coupler: said valve having also a rearwardly-extending stem having a screw-threaded portion adapted to engage a threaded recess in the rear of the coupler, whereby said valve may be held open, substantialy as described.

663,111. CENTRIFUGAL LIQUID-SEPARATOR. JOHN J. BERRIGAN, Avon, N. Y., assignor to The De Laval Separator Company, of New Jersey. Filed Oct. 22, 1898. Serial No. 694,250. (No model.)



Claim.—1. In a centrifugal liquid-separator, in combination, a plurality of independent separate upright blades intersecting the radial line, a notched surface the blades being adapted to be supported by said notched surface, and means to maintain the inner end of the blades.

2. In a centrifugal liquid-separator, in combination, a plurality of independent separate upright blades intersecting the radial line of the bowl, a surface provided with notches equal in number to the blades and in which the blades are adapted to be placed and held.

3. In a centrifugal liquid-separator, in combination, a plurality of independent separate upright blades intersecting the radial line of the bowl, a surface provided with notches equal in number to the blades and in which the blades are adapted to be placed and held, and means to maintain the inner ends of the blades in position.

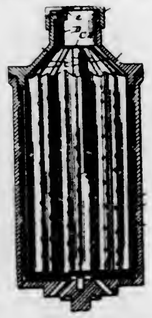
4. In a centrifugal liquid-separator, in combination, a plurality of independent separate curved upright blades intersecting the radial line of the bowl, a notched surface the blades being adapted to be supported by said notched surface.

5. In a centrifugal liquid-separator, in combination, a plurality of independent separate curved upright blades intersecting the radial line, a notched surface the blades being adapted to be supported by said notched surface, and means to maintain the inner end of the blades in position.

6. In a centrifugal liquid-separator, in combination, a plurality of independent separate curved upright blades intersecting the radial line of the bowl, a surface provided with notches equal in number to the blades and in which the blades are adapted to be placed and held.

7. In a centrifugal liquid-separator, in combination, a plurality of independent separate curved upright blades intersecting the radial line of the bowl, a surface provided with notches equal in number to the blades and in which the blades are adapted to be placed and held, and means to maintain the inner ends of the blades in position.

663,112. CENTRIFUGAL CREAM-SEPARATOR. JOHN J. BERRIGAN, Avon, N. Y., assignor to The De Laval Separator Company, of New Jersey. Filed May 24, 1900. Serial No. 17,779. (No model.)

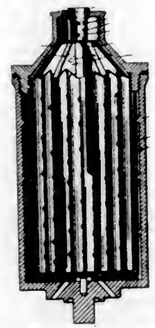


Claim.—1. In a centrifugal cream-separator of the character described, a bowl provided with an open-mouthed neck, the recessed portion below the top of the neck adapted to receive the cream-outlet and provided with a flanged portion upwardly extending therefrom and flush with the top of the neck of the bowl.

2. In a centrifugal cream-separator of the character described, a bowl provided with an open-mouthed neck and with an inwardly-projecting portion below the neck of the bowl adapted to receive the cream-outlet and an upwardly-extending flanged portion extending therefrom and around the upper surface of the neck of the bowl, and a cap provided with a central orifice and a cut-away portion corresponding with the inwardly-projecting portion on the upper surface of the neck of the bowl.

3. In a centrifugal cream-separator of the character described, a bowl provided with the open-mouthed portion with an inwardly-projecting portion below the top of the neck adapted to receive the cream-outlet, and upwardly-extending flange portion extending therefrom and around the upper surface of the neck of the bowl, the neck of the bowl being threaded, and a cap provided with a central orifice and a cut-away portion corresponding with the inwardly-projecting portion on the upper surface of the neck of the bowl, said cap being threaded and adapted to mesh with threads on the neck of the bowl.

663,113. CENTRIFUGAL CREAM-SEPARATOR. JOHN J. BERRIGAN, Avon, N. Y., assignor to The De Laval Separator Company, of New Jersey. Filed May 24, 1900. Serial No. 17,780. (No model.)



Claim.—1. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl, said pipe having lateral orifices opening into the space between the plate and cover, and removable means to secure said pipe to the cover of the bowl.

2. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl, said pipe having lateral orifices adjacent to the upper surface of the conical plate, said pipe being threaded at its end and a nut to secure said threaded end to to the cover of the bowl.

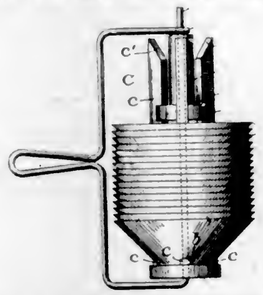
3. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl and removable means to secure said pipe to the cover of the bowl, a second pipe extending through said plate and adapted to register with the cream-discharge-outlet orifice of the bowl.

4. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl, said pipe having lateral orifices adjacent to the upper surface of the conical plate, and removable means to secure said pipe to the cover of the bowl, a second pipe extending through said plate and adapted to register with the cream-discharge-outlet orifice of the bowl.

5. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl, said pipe being threaded at its end, a nut to secure said threaded end to the neck of the bowl, a second pipe extending through said plate and adapted to register with the cream-discharge-outlet orifice of the bowl.

6. In a centrifugal cream-separator of the character described, in combination with a conical plate, a pipe secured to and projecting from the upper surface of said plate adapted to pass through the orifice in the cover of the bowl, said pipe having lateral orifices adjacent to the upper surface of the conical plate, said pipe being threaded at its end, a nut to secure said threaded end to the neck of the bowl, a second pipe extending through said plate and adapted to register with the cream-discharge-outlet orifice of the bowl.

663,114. DEVICE FOR ASSEMBLING OR DISASSEMBLING THE PARTS OF CENTRIFUGAL LIQUID-SEPARATORS. JOHN J. BERRIGAN, Avon, N. Y., assignor to The De Laval Separator Company, of New Jersey. Filed June 29, 1900. Serial No. 22,042. (No model.)



Claim.—1. A device for removing and replacing disks or rings of a centrifugal separator of the character described, consisting essentially of a guiding and supporting device adapted to register with and form a prolongation of the disk-supporting device.

2. A device for removing and replacing disks or rings of a centrifugal separator, of the character described, consisting essentially of a guiding and supporting device adapted to register with orifices in the disks and with the shaft.

3. A device for removing and replacing disks or rings of a centrifugal separator of the character described, provided with a guiding and supporting device adapted to register with a disk-supporting device and a support for said guiding and supporting device adapted to register with the shaft.

4. A device for removing and replacing disks or rings of a centrifugal separator of the character described, provided with a guiding and supporting device adapted to register with orifices in the disks and a support for said guiding and supporting device adapted to register with the shaft.

5. A device for removing and replacing disks or rings of a centrifugal separator of the character described, consisting essentially of an extended support, having different parts of its periphery in cross-section at different radial distances from the longitudinal axis of the support, and adapted to register with and form a prolongation of the disk-supporting device.

6. A device for removing and replacing disks or rings of a centrifugal separator of the character described, consisting essentially of an extended support, having different parts of its periphery in cross-section at different radial distances from the longitudinal axis of the support, and adapted to register with the disks and with the shaft.

7. A device for removing and replacing disks or rings of a centrifugal separator of the character described, consisting essentially of a main body portion and a projecting longitudinal portion adapted to register with the disks.

8. A device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the disk-supporting devices.

9. A device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the disk-supporting devices, and a device adapted to register with the shaft.

10. A device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft.

11. A device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft, and a central rod adapted to enter said tubular shaft.

12. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the disk-supporting devices, of a handle removably connected with said device.

13. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the disk-supporting devices, and a device adapted to interlock with the tubular shaft, of a handle removably connected with said removing and replacing device.

14. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft, of a handle removably connected with said device.

15. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft, and a central rod adapted to enter said tube and shaft, of a handle removably connected with said device.

16. A device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart and having their lower ends beveled to correspond to the bevel upon the projection on the tubular shaft of the machine and a central rod adapted to enter said tubular shaft.

17. A device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projection on the tubular shaft of the machine, a central rod adapted to enter said tubular shaft and a projecting surface on the end of said rod adapted to be seated on the end of said tubular shaft.

18. A device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft and a central rod adapted to enter said tube and shaft, there being an orifice through the length of said central rod.

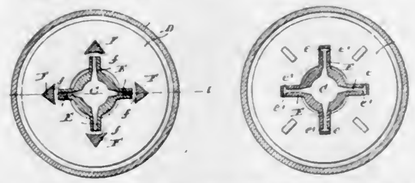
19. A device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projection on the tubular shaft of the machine, a central rod adapted to enter said tubular shaft and a projecting surface on the end of said rod adapted to be seated on the end of said tubular shaft, there being an orifice through the length of said central rod and said projecting surface.

20. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator, of the character described, consisting essentially of a plurality of rods spaced apart adapted to register with the projections on the tubular shaft and a central rod adapted to enter said tube and shaft, there being an orifice through the length of said central rod, of a handle one member of which passes through said orifice and interlocks with the remainder of the handle.

21. A device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods, provided with braces to space them apart, adapted to register with the projection on the tubular shaft, and a central rod adapted to enter said tubular shaft, said braces being adapted to seat upon the end of said tubular shaft, there being an orifice through the length of said central rod and through said braces.

22. The combination with a device for removing and replacing disks or rings of a centrifugal liquid-separator of the character described, consisting essentially of a plurality of rods, provided with braces to space them apart, adapted to register with the projection on the tubular shaft, a central rod, extending from one of the braces, and adapted to enter said tubular shaft, said brace being adapted to seat upon the end of said tubular shaft, there being an orifice through the length of said central rod and through said braces, of a handle one member of which passes through said orifices and interlocks with the remainder of the handle.

663,115. CENTRIFUGAL LIQUID-SEPARATOR. JOHN J. BERRIGAN, Avon, N. Y., assignor to The De Laval Separator Company, of New Jersey. Filed Dec. 19, 1899. Renewed Aug. 29, 1900. Serial No. 28,427. (No model.)

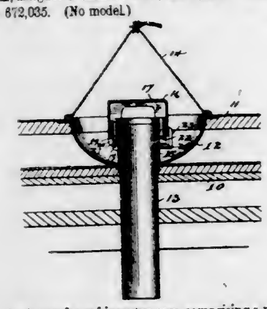


Claim.—1. In a centrifugal liquid-separator, the combination with a division contrivance consisting of plates extending from near the periphery of the bowl toward the axis thereof, and intersecting both radial horizontal and radial vertical lines of the bowl, of a plurality of inlet devices opening between adjacent plates of the division contrivance between the outer and inner extremities of the division contrivance, means to direct the discharge from said inlet devices at an angle with the radius of the bowl.

2. In a centrifugal liquid-separator, the combination with a division contrivance, consisting of plates extending from near the periphery of the

bowl toward the axis thereof, and intersecting both radial horizontal and radial vertical lines of the bowl of a plurality of inlet devices, opening between adjacent plates of the division contrivance between the outer and inner extremities of the division contrivance, deflectors secured to said plates in alinement with said inlet devices, said deflectors being adapted to direct the movement of the incoming liquid in a path at an angle with the radius of the bowl.

663,116. TRAP FOR REFRIGERATOR-CARS. PETER BROMAN, Chicago, Ill., assignor to Armour & Co., same place. Filed Feb. 28, 1898. Serial No. 672,035. (No model.)

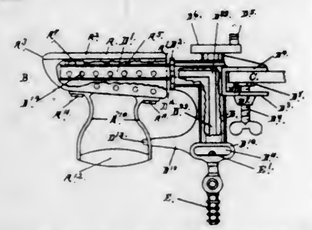


Claim.—1. A trap for refrigerator-cars, comprising a waste-pipe having an unobstructed interior and a cap of larger diameter than the pipe, having a permanent hinged connection with said pipe and provided with an automatically-engaging locking mechanism, comprising a lug upon the exterior of the waste-pipe, having a beveled upper surface and a pivoted bail connected with the cap and having a locking-pin upon its swinging end beveled on its under surface, the under surface of the lug and the upper surface of the pin being adapted to engage and resist upward motion of the cap upon its hinge, except when the bail is oscillated manually out of register with the lug, substantially as described.

2. A trap for refrigerator-cars, comprising a waste-pipe having an unobstructed interior and provided externally with vertically-slotted lugs, and a cap of larger diameter than said waste-pipe, having internal centering-flanges whereby its body is supported clear of the waste-pipe and centered thereon, and provided with a pivot-pin engaging said slotted lug, substantially as described.

3. A trap for refrigerator-cars, comprising a waste-pipe having an unobstructed interior, and provided externally on one side with vertically-slotted lugs and on the other side with a locking-lug having a beveled upper surface, and a cap of larger diameter than the waste-pipe, provided with a pivot-pin engaging said slotted lug, internal flanges or projections to bear against the sides and end of the waste-pipe and thereby center the body of the cap relatively to said pipe and support it clear of the same, and having a pivoted bail provided with a locking-pin beveled on its under surface, the upper surface of said pin and the under surface of the locking-lug being adapted to engage and prevent upward motion of the cap, substantially as described.

663,117. FLAT-IRON HEATER AND HOLDER. AMALIE VON CHIGOR, New York, N. Y. Filed Sept. 21, 1899. Serial No. 731,176. (No model.)



Claim.—1. The bracket D, provided with the air-inlet D^{11}, the air-passage D^{22} and a hook D^{13}, a Bunsen-burner tube D′ supported by said bracket, said tube having a series of holes D^{14} along its side, and the flat-iron A^9 to receive the burner-tube and a handle A^{10} to contact with the hook D^{13}, as and for the purpose specified.

2. The bracket D, having an air-inlet D^{11} and a gas-outlet E′ cooperating with said inlet and having a hook D^{13}, in combination with the Bunsen-burner tube D′ having a series of holes along its side, and a flat-iron constructed to surround the Bunsen-burner tube and be heated thereby through the impingement of the Bunsen flame on the bottom of the flat-iron, as and for the purpose specified.

3. The bracket D, for supporting the Bunsen-burner tube D′ and having recess D^{11}, passage D^{22}, and gas-outlet E′, in combination with the Bunsen-burner tube D′ for supporting and holding the flat-iron A, bottom side up and in a horizontal position and the ventilated flat-iron A, having recess A^9 for receiving the Bunsen-burner tube D′, as set forth.

4. The bracket D, for supporting the Bunsen-burner tube D′ and having the recess D^{16} for receiving the finger F^2, and the gas-passage D^{22}, leading into the Bunsen-burner tube D′, in combination with the Bunsen-burner tube D′ for heating and supporting the flat-iron A, bottom side up and in a horizontal position and the ventilated flat-iron A, having the recess A^9, as set forth.

5. The bracket D having an air-passage D^{11}, a gas-passage D^{22}, and a hook D^{13}, in combination with the Bunsen-burner tube D′ and a plate F to be supported by said tube and having a finger F^2 to enter the recess in the member D^2, as set forth.

6. The bracket D, having arms D^4, D^4 and the screw D^5 cooperating with said arms, the bracket having also gas and air passages and carrying a hook D^{13}, the Bunsen-burner tube D′ mounted on the bracket D in combination with a flat-iron formed to receive the Bunsen-burner tube and to rest against the hook D^{13}, as set forth.

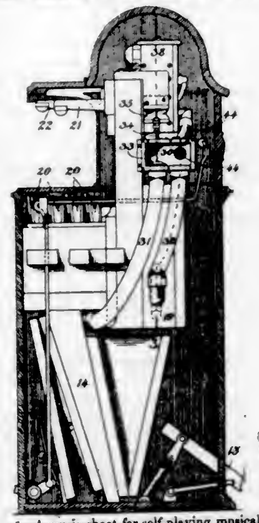
7. The bracket D, having gas and air passages and carrying a hook D^{13} and the Bunsen-burner tube D′ mounted on the said bracket, in combination with a flat-iron recessed to receive said Bunsen-burner tube when the iron is in an inverted position and having a handle to contact with the member D^{13}, as set forth.

8. The bracket D, having passage D^{22}, recess D^{11}, finger D^{13}, and gas-outlet E′, in combination with the Bunsen-burner tube D′, and flat-iron A, having hood B, provided with holes B′, and handle-support A^{10}, as set forth.

9. The bracket D, having passage D^{22}, recess D^{11}, finger D^{13}, and gas-outlet E′, for supporting the Bunsen burner D′, in combination with the Bunsen burner D′, and flat-iron A, having recess A^9, stanchions A^8, screw-lugs A^6, and handle-support A^{10}, to hold the flat-iron in a reversed position as set forth.

10. The bracket D, having passage D^{22}, recess D^{16}, and Bunsen burner D′, in combination with the plate F, having rings F′, and finger F^2, as set forth.

663,118. PNEUMATIC PIANO-PLAYING ACTION. JAMES W. CROOKS, Boston, Mass., assignor, by direct and mesne assignments, to said Crooks, and Ernest M. Skinner and Winchester Veazie, trustees, same place. Filed May 16, 1900. Serial No. 16,919. (No model.)



Claim.—1. A music-sheet for self-playing musical instruments having openings therein for notes to be accented, openings therein for notes which are not to be accented, and supplemental openings therein for controlling the accent of the notes to be accented, the front edges of the openings for the notes to be accented lying in or nearly in a direct transverse line with the front edges of said supplemental openings and slightly to the rear of the front edges of the openings for the notes which are not to be accented, the said supplemental openings being designed to communicate with a supplemental passage in the tracker-board of the instrument through which the mechanism for operating the keys for the notes to be accented is controlled.

2. In an automatic piano-player, the combination with the tracker-board having a series of main passages therein communicating with the air or vacuum chamber containing the primary or key pneumatics and having a supplemental passage therein through which the tension in said chamber may be varied, of a music-sheet traversing said tracker-board having openings therein for the notes to be accented, openings therein for the notes which are not to be accented and supplemental openings therein for controlling the accent of the notes to be accented, the front edges of the openings for the notes to be accented registering with the main passages in said tracker-board simultaneously with the registration of the front edges of said supplemental openings with the supplemental passage in said tracker-board and slightly after the registration of the openings for the notes which are not to be accented with said main passages.

3. In a pneumatic piano-playing action controlled by a perforated music-sheet, the combination with the wind-chest of the key-operating pneumatics, the exhaust-chamber connected with said wind-chest, and means for normally maintaining a lesser degree of exhaustion in the wind-chest than in the exhaust-chamber, of an auxiliary or independent passage directly connecting the wind-chest with the exhaust-chamber, a valve in said passage for closing the same, a pneumatic for opening said valve to increase the degree of exhaustion in the wind-chest at the instant that the theme-notes are to be sounded, a tracker-board provided with a supplemental duct, pneumatic devices connected with said supplemental duct for controlling the action of the valve-opening pneumatic, and a music-sheet having supplemental perforations arranged to register with the said supplemental duct of the tracker-board, said supplemental perforations being arranged in or nearly in a transverse line with the theme-note perforations, substantially as described.

4. The combination with a tracker-board having a supplemental duct connected with pneumatic mechanism for emphasizing or accentuating the theme-notes of a piece of music, of a music-sheet having the accompaniment-note perforations arranged slightly in advance of the theme-note perforations, and provided with a series of supplemental perforations adapted to register with the supplemental duct of the tracker-board, said supplemental perforations being arranged substantially in a transverse line with the theme-note perforations and in the rear of the accompaniment-note perforations, substantially as described.

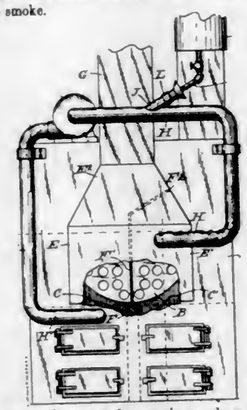
5. In an automatic piano-player, the combination with a main passage connecting the wind-chest of the key-pneumatics with the main exhaust-chamber, a second or independent passage also connecting said wind-chest with the main exhaust-chamber, a valve for normally closing said second or independent passage, and a tracker-board having in addition to its main passages, a supplemental duct or passage, of an independent box or chest located outside of the wind-chest of the key-pneumatics and connected with said independent passage and with the supplemental duct of the tracker-board, said independent box or chest containing governing-pneumatics controlled by said supplemental tracker-board duct and acting through intermediate mechanism to actuate the valve of the said independent passage and thereby vary the degree of exhaustion or tension in the wind-chest of the key-pneumatics, substantially as described.

6. In an automatic piano-player, the combination with a main passage connecting the wind-chest of the key-pneumatics with the main exhaust-chamber, a second or independent passage also connecting said wind-chest with the main exhaust-chamber and provided with an intermediate vacuum-box 30 containing a valve for normally closing said second or independent passage, and a tracker-board having in addition to its main passages a supplemental duct or passage, of an independent box or chest located outside of the wind-chest of the key-pneumatics and connected with said independent passage and with the supplemental duct of the tracker-board, said independent box or chest containing governing-pneumatics controlled by said supplemental tracker-board duct and acting through intermediate mechanism to actuate the valve of the said independent passage and thereby vary the degree of exhaustion or tension in the wind-chest of the key-pneumatics, substantially as described.

663,119. PROCESS OF CONSUMING SMOKE. FREDERIC A. CURTIS, Anderson, Ind., assignor, by direct and mesne assignments, of three-fourths to William J. Little, same place, Frank J. Ley, Gas City, and Thomas K. Clark and Lewis N. Cook, Marion, Ind. Filed Feb. 26, 1900. Serial No. 6,441. (No model.)

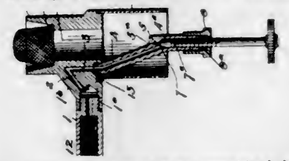
Claim.—1. The process of consuming smoke as fuel, consisting in drawing smoke from a furnace, then atomizing oil at its normal temperature in whirling or crossing currents and simultaneously reducing the temperature of the smoke and mixing the same with the atomized oil, then forcing the resultant mixture at low temperature into a furnace, and then igniting the oil elements of the mixture whereby the smoke may be consumed.

2. The process of consuming smoke and unburned gases of imperfect combustion, consisting in drawing off the smoke and gases from a coal-burning furnace through the heating-channels, then breaking up or atomizing oil and mixing the same and atmospheric air at their normal temperatures with the smoke in whirling or crossing currents, then causing these elements to be further mixed, then forcing the resultant mixture into a furnace where the oily elements thereof are ignited and the temperature of the whole raised thereby to the combustion-point, thereby consuming the smoke.



3. The improved process of consuming smoke as a fuel, which process consists in intercepting the smoke after having passed through the heating-channels from a furnace, then reducing the temperature of the smoke, then atomizing or breaking up oil at its normal temperature in whirling or crossing currents and simultaneously mixing the same with the smoke and also with atmospheric air at its normal temperature, then forcing the mixture into a furnace, and then raising the temperature of the smoke by igniting the oily elements of the mixture and thereby consuming the smoke and other elements of the mixture.

663,120. INCANDESCENT VAPOR-BURNER. JOSEPH M. DENSMORE, Kansas City, Mo., assignor of one-half to E. O. Loveland, same place. Filed Apr. 5, 1900. Serial No. 11,702. (No model.)

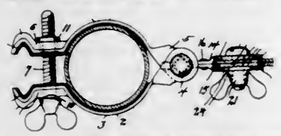


Claim.—A hydrocarbon-vapor burner, comprising in its construction an annular shell or incasement having a vertical mixing-chamber, a combustion-chamber located above the mixing-chamber, a seat or extension formed on one side of the incasement in line with the mixing-chamber and provided with a vaporizing-chamber, a hydrocarbon-supply pipe connected with the outer end of the seat or extension for supplying oil directly to said vaporizing-chamber, a siphon-passage in said seat or extension composed of upwardly and diagonally and vertically extending branches leading from the vaporizing-chamber inwardly to near the top of the mixing-chamber and thence downwardly and opening through the base of the shell, a pendent pipe in communication with said passage and extending diagonally to a point below the mixing-chamber and having a valve-controlled discharge at its lower end, and an annular shield inclosing the said pendent pipe and serving to receive the vapor therefrom and to act as a shield or guard to protect the same and the burner from sudden currents of air, and as an auxiliary mixing-chamber in which the vapor is initially admixed with air before entering said mixing-chamber, substantially as described.

663,121. LAMP-BRACKET. WALTER J. FROST, Kenosha, Wis., assignor to the Badger Brass Manufacturing Company, same place. Filed Mar. 17 1900. Serial No. 9,126. (No model.)

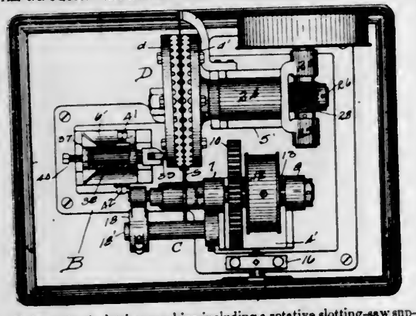
Claim.—1. An adjustable bracket for vehicle-lamps, comprising a pair of clamping-jaws, each jaw consisting of a sheet-metal strap-form member, provided at a point intermediate of its length with a gripping portion adapted to engage a support, a pair of pivot-ears formed integrally with one of its ends and arranged in planes parallel with each

other and with the plane of movement of the jaw and at its opposite end with an integral extension terminating in a second differently-shaped gripping portion adapted to engage a support, a clamping-bolt arranged to extend through the extensions of the clamping-jaws at a point between the two gripping portions thereof, an adjustable bracket-arm consisting of two stamped plate members rigidly united, with corresponding parts in register with each other, each provided at one end with a crease to form a pivot-socket and at its opposite end with an apertured clamping-ear, a rigid bracket-arm adapted to be permanently secured to the lamp and provided at its projecting end with a slotted ear adapted to fit between the clamping-ears of the adjustable bracket, interfitting projections and recesses formed upon the meeting faces of the adjustable and rigid bracket-ears, a clamping-bolt extended through said ears and a combined pintle and clamping-bolt extended through the ears of the clamping-jaws and the socket formed between the two members of the adjustable bracket-arm, said socket-recesses and an ear of one of the clamping-jaws being made of non-circular form in cross-section and the combined pintle and clamping-bolt being made of corresponding non-circular form in cross-section, substantially as and for the purposes described.



2. In a lamp-bracket, an adjustable bracket-arm consisting of two plate members rigidly united face to face, with corresponding parts in register with each other, each provided at one end with a transversely-extending crease forming a pivot-socket recess of non-circular form in cross-section, and at its opposite end with an apertured clamping-ear and series of radial corrugations surrounding said apertures upon the proximate faces of said ears, substantially as described.

663,122. SLOTTING-MACHINE. REINHOLD HAKEWESSELL, Hartford, and EDWIN C. HENN, Bloomfield, Conn. Filed Apr. 24, 1900. Serial No. 14,185. (No model.)



Claim.—1. A slotting-machine including a rotative slotting-saw supported for adjustment longitudinally and transversely of its axis of rotation; a spindle supported in parallelism with the axis of the saw; two blank-grasping disks one of which is fixed to said spindle and the other of which is loosely mounted on the same spindle for tilting movement, and each of which disks has, removably secured to the inner face thereof, a ring having on one side face a series of radially-disposed recesses of one size and having in its opposite side face a similar series of recesses of another size, whereby the grasping-disks may be adapted to different-sized screw-blanks by reversing the rings; a slide supported for adjustment longitudinally of the axis of the disks; and a bunter adjustably mounted on said slide and bearing against the loosely-supported disk.

2. In a screw-blank-slotting machine the combination, with slotting means, of screw-blank carrying and presenting means including a spindle-supporting slide; a spindle mounted in bearings on said slide; means for rotating said spindle; two blank-grasping disks one of which is fixed to, and the other of which is tiltably mounted on, the same spindle; means for holding one disk in oblique relation to the other; and an ejector fixedly mounted on the slide and extending between the adjacent faces of the two disks in position to engage and eject successive screws during the rotation of said disks.

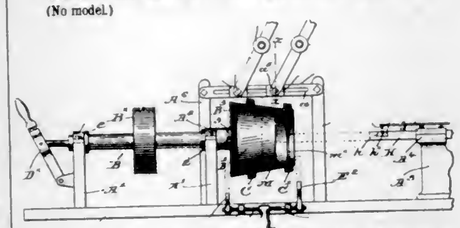
3. In a slotting-machine the combination, with a rotative slotting-saw and with independent means for adjusting the same in the plane of its rotation and transversely of said plane, of a spindle supported in parallelism with the axis of rotation of the saw; two blank-grasping disks, one of which is fixed to, and rotates with, said spindle, and the other of which is tiltably mounted upon said spindle for vertical movement; a worm-wheel fixed to this spindle; a driving-shaft having a worm meshing with the worm-wheel; a slide supported in coöperative relation with the tiltable disk; a bunter mounted on said slide and engaging the outer face of the tiltable disk; and means for rotating the saw and driving-shaft.

4. A screw-blank-slotting machine embodying a rotative saw; means for rotating said saw; a disk-carrying spindle disposed in parallelism with the axis of the saw and having a worm-wheel fixed to one end thereof; two work-grasping disks one of which is fixed securely to, and the other of which is tiltably mounted upon, this same spindle; means including a worm for rotating the spindle; and a disk-closing device supported independent of the spindle and embodying a roller in bearing engagement with the tiltable disk and effective for retaining said disk with its grasping-face in oblique relation to the grasping-face of the other disk.

5. In a screw-blank-slotting machine the combination with a rotative saw, of rotating screw-blank carrying and presenting means consisting of a spindle, two approximately-concentric obliquely-disposed disks one fixed to, and the other loosely mounted on, this same spindle and each having a blank-grasping ring removably secured to the inner face thereof, and each ring having two series of radially-disposed blank-receiving recesses of different sizes on opposite side faces, respectively, thereof; and a bunter in operative engagement with one disk.

6. In a screw-blank-slotting machine, the combination, with the bed thereof having three horizontal slideways, two of which are in substantial parallelism and one of which is disposed transversely of the other two, of three independent carriers or slides supported for adjustment one in each slideway; a horizontally-disposed spindle mounted in bearings on the first slide and having a saw fixed thereto; a horizontal spindle mounted in bearings on the second slide and having two blank-grasping disks one of which is fixed thereto and the other of which is tiltably mounted thereon and both of which have their peripheries adjacent the periphery of said saw; rotating mechanisms in connection with the two spindles; a disk-closing device supported on the third slide in operative relation with the face of the tiltable disk and adapted for retaining those portions of the disks adjacent said saw in closed relation; and adjusting means in direct connection with said disk-closing means and adapted for adjusting the same with relation to the disks independent of the adjustment of the slide carrying such means.

663,123. APPARATUS FOR MAKING PAILS OR THE LIKE. RUSSELL C. HILL, Keene, N. H. Filed May 31, 1900. Serial No. 18,577. (No model.)



Claim.—1. In an apparatus of the class described, a frusto-conical support to receive thereupon and sustain a pail-body, said support having a recess in its outer end, the smaller end of the pail-body projecting beyond the recessed end of the support, a follower movable into said recess, to receive the pail-bottom, and means to actuate the follower and move the bottom out of the recess and set it in position in the projecting end of the pail-body, while the latter is in position on the support.

2. In an apparatus of the class described, a rotatable frusto-conical support adapted to be inserted in the pail-body, an annular roughened holding-rib on said support near its larger end, to engage and hold the body in position thereon, leaving a clearance between the support and body intermediate the rib and the smaller end of the support, and means to scour the ends of the pail-body while on the support.

3. In an apparatus of the class described, a rotatable frusto-conical support shorter than the depth of the pail-body and adapted to be inserted therein, said support having a recessed smaller end, a follower movable into said recess, means to move the follower longitudinally to set the bottom in place in the pail-body, and a croze-cutter mounted beyond the recessed end of the support and movable into position within the projecting end of the pail, to cut the bottom-croze therein before the bottom is set by the follower.

4. In an apparatus of the class described, a rotatable frusto-conical support for the pail-body, means carried thereby to set the bottom in the pail-body, hoop-setting means mounted adjacent the support, and movable into position to set the hoops on the pail, and croze-cutter means movable into the smaller end of the pail-body while on the support, to cut the bottom-croze therein.

5. In an apparatus of the class described, a rotatable frusto-conical support for the pail-body, means carried thereby to set the bottom in the pail-body, and hoop-setting means mounted adjacent the support and movable longitudinally thereof and also capable of movement into position to engage and set the hoops.

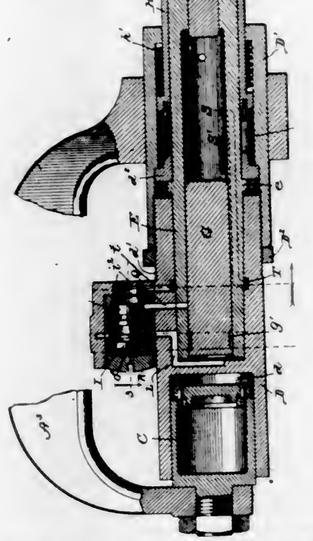
6. In an apparatus of the class described, a base, a rotatable frusto-conical support for the pail-body, mounted thereon, means carried by said support to set the bottom while the pail-body is held thereon, hoop-setting means carried by the base adjacent the support and movable into position relatively thereto to set the hoops, and a croze-cutting device also mounted on the base, and movable independently into position to act upon the pail-body while held on the support.

7. In an apparatus of the class described, a rotatable frusto-conical support to receive the pail-body thereupon, an annular, external rib on the larger end of the support, to provide a clearance between the support and the inner surface of the pail-body, and hoop-setting means to set the hoops while the body is held on the support, the clearance permitting the larger end of the body to give when the upper hoop is set.

8. In an apparatus of the class described, a rotatable, frusto-conical support to receive the pail-body thereupon, a hollow shaft to which the support is secured, the smaller end of the latter being recessed, a follower movable into and out of said recess, an actuating-rod secured to the follower and extended through the shaft, and means to permit longitudinal movement of said rod while rotatable with the shaft.

9. In an apparatus of the class described, a support adapted to be inserted within the pail-body and shorter than the latter, means to cut the bottom-croze while the body is on the support, and means carried by the support to set the pail-bottom after the bottom-croze has been cut.

663,124. PNEUMATIC RIVETER. HENRY J. KIMMAN, Chicago, Ill. Filed Feb. 19, 1900. Serial No. 5,828. (No model.)



Claim.—1. In a machine of the class described, the combination of a main cylinder, a hammer-cylinder secured therein, and means for moving the main cylinder forwardly, substantially as described.

2. In a machine of the class described, the combination of a supporting portion, a main piston attached to the supporting portion, a main cylinder slidingly mounted on the main piston, and a hammer-cylinder mounted in the main cylinder, substantially as described.

3. In a machine of the class described, the combination of a supporting portion, a pneumatic hammer, means for moving the pneumatic hammer with its operating-tool forward to contact the work, an anvil, and clamping mechanism for grasping the work to be operated upon between it and the anvil, substantially as described.

4. In a machine of the class described, the combination of a main supporting-frame, a main piston secured to the supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder provided with an operating-tool and a piston-hammer secured in the main sliding cylinder and adapted to be fed to the work by the movements thereof, an anvil adapted to receive one end of the rivet, and clamping mechanism for clamping the two between it and the anvil, substantially as described.

5. In a machine of the class described, the combination of a main supporting-frame provided with a main cylinder, an anvil adapted to receive one end of a rivet, a hammer-cylinder movably mounted in the main cylinder and provided with an operating-tool adapted to contact the other end of the rivet and finish the same, a piston-hammer within the hammer-cylinder to contact with the operating-tool, means for moving the hammer-cylinder forward to its work, and a cylindrical clamping-piston arranged to be operated by fluid-pressure to clamp the work between it and the anvil, substantially as described.

6. In a machine of the class described, the combination of a main frame, a main piston secured to the main frame, a main cylinder slidingly mounted on the piston and in the main frame, and a hammer-cylinder secured to the main cylinder, substantially as described.

7. In a machine of the class described, the combination of a supporting-frame, an anvil secured to the supporting-frame to receive one head of a rivet, a main piston secured to the supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder secured in the main cylinder and provided with an operating-tool arranged to contact the rivet and a reciprocating hammer, and a cylindrical clamping-piston movably mounted in an annular pressure-chamber in the main cylinder for clamping the work to be operated upon between it and the anvil, substantially as described.

8. In a machine of the class described, a main supporting-frame, an anvil in the supporting-frame adapted to receive one end of a rivet, a piston for the main cylinder secured to the main supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder secured in the main cylinder and provided with an operating-tool and reciprocating hammer, and a clamping-piston slidingly mounted in an annular pressure-chamber between the main cylinder and the reciprocating hammer to clamp work between it and the anvil, substantially as described.

9. In a machine of the class described, a main supporting-frame provided with an anvil portion adapted to receive a rivet, a main piston for the main cylinder secured to the main supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder secured in the main cylinder and provided with a heading-tool and reciprocating hammer, and a cylindrical clamping-piston slidingly mounted on the hammer-cylinder, substantially as described.

10. In a machine of the class described, a main supporting-frame provided with an anvil portion adapted to receive a rivet, a main piston for the main cylinder secured to the main supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder secured in the main cylinder and provided with a heading-tool and reciprocating hammer, a cylindrical clamping-piston slidingly mounted on the hammer-cylinder, and valve mechanism for simultaneously admitting motive fluid into the pressure-chambers of the main, hammer, and clamping cylinders, substantially as described.

11. In a machine of the class described, a main supporting-frame provided with an anvil portion adapted to receive a rivet, a main piston for the main cylinder secured to the main supporting-frame, a main cylinder slidingly mounted on the main piston, a hammer-cylinder secured in the main cylinder and provided with a heading-tool and reciprocating hammer, a cylindrical clamping-piston arranged in an annular pressure-chamber between the main and hammer cylinders, valve mechanism for simultaneously admitting motive fluid into the pressure-chambers of the main, hammer, and clamping cylinders, and spring mechanism for retracting the cylindrical clamping-piston, substantially as described.

12. In a machine of the class described, the combination of a main supporting-frame, an anvil secured thereto and adapted to receive one end of a rivet to be operated upon, a main piston secured to the supporting-frame, a main cylinder slidingly mounted on the main piston and in the supporting-frame, a hammer-cylinder secured in the main cylinder and provided with a heading-tool and reciprocating hammer, a cylindrical clamping-piston slidingly mounted in an annular space between the hammer and main cylinders, a controlling-valve for governing the inlet and exhaust of fluid-pressure to the hammer-cylinder, and a throttle-valve for opening and closing communication with the supply of motive fluid and the controlling-valve of the hammer-cylinder and the pressure-chambers of the main and clamping cylinders, substantially as described.

13. In a machine of the class described, the combination of a main supporting-frame, an anvil secured thereto and adapted to receive one end

of a rivet to be operated upon, a main piston secured to the supporting-frame, a main cylinder slidingly mounted on such piston and in the supporting-frame, a hammer-cylinder secured in the main cylinder and provided with a heading-tool and reciprocating hammer, a cylindrical clamping-piston slidingly mounted on the hammer-cylinder and in an annular space between the hammer and main cylinders, a controlling-valve for governing the inlet and exhaust of fluid-pressure to and from the hammer-cylinder, a throttle-valve for opening and closing communication with the supply of motive fluid and the controlling-valve of the hammer-cylinder and the pressure-chambers of the main and clamping cylinders, and a helical spring surrounding the cylindrical clamping-piston for retracting such piston, substantially as described.

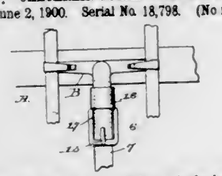
14. In a machine of the class described, a supporting-frame, a main piston secured to the supporting-frame, a main cylinder slidingly mounted thereon and made in two parts, a hammer-cylinder secured in one of such parts and extending through the other part so as to form an annular pressure-chamber, a heading-tool and reciprocating hammer in such hammer-cylinder, and a cylindrical clamping-piston mounted in the annular pressure-chamber between the hammer-cylinder and the main cylinder, substantially as described.

15. In a machine of the class described, the combination of a supporting-frame, a main piston secured to the supporting-frame, a main cylinder made in two parts slidingly mounted on the main piston one part of which is provided with a tapered inner bore, a hammer-cylinder provided with a tapered end fitting the tapered bore of one portion of the main cylinder and extending through the other portion of the main cylinder so as to provide an annular pressure-chamber, a heading-tool and reciprocating hammer in such hammer-cylinder, and a cylindrical clamping-piston slidingly mounted in the annular pressure-chamber between the hammer and main cylinder, substantially as described.

16. In a machine of the class described, the combination of a main supporting-frame, an anvil secured thereto to receive one end of a rivet, a main piston secured to the supporting-frame, a main cylinder made in two portions, one—a rear portion—slidingly mounted on the main piston and the other—the forward portion—having screw-threaded engagement with such rear portion, a hammer-cylinder secured in the rear portion of the main cylinder provided with a heading-tool and reciprocating piston and providing an annular pressure-chamber between it and the forward portion of the main cylinder, and a cylindrical clamping-piston slidingly mounted on the hammer-cylinder in the annular pressure-chamber between the hammer and the forward extension of the main cylinder, substantially as described.

17. In a machine of the class described, a reciprocating frame portion provided with an anvil adapted to receive one end of a rivet, a main piston rigidly secured to the main supporting-frame, a main cylinder, a hammer-cylinder, a heading-tool and a reciprocating piston in such hammer-cylinder, and a cylindrical clamping-piston in the annular pressure-chamber, substantially as described.

663,125. **CHECKREIN-GUIDE.** JOHN B. LEIGHTON, Brockton, Mass. Filed June 2, 1900. Serial No. 18,798. (No model.)



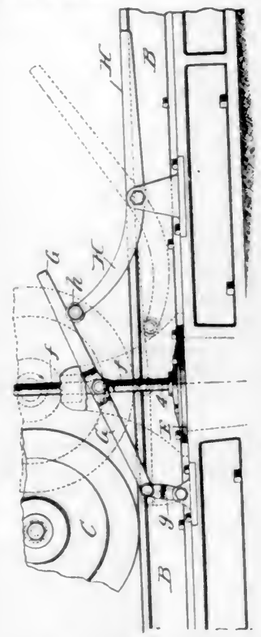
Claim.—A checkrein-guide comprising a body having checkrein-loops, and provided between said loops with a transverse shank, the forward end of said shank being curved downward, and said curved end having an opening to receive the tongue of a buckle or other pivot.

663,126. **AIR-COMPRESSOR.** HENRY LIETHEGENER, St. Louis, Mo., assignor of one-half to Joseph Zentner and Adam Klemm, same place. Filed May 7, 1900. Serial No. 15,800. (No model.)

Claim.—1. The combination with a rolling weight, of a lever G in the path thereof and engaged and depressed thereby, a plunger connected to said lever, and a lever H in the path of said rolling weight and acting when depressed to raise the lever G, substantially as described.

2. In an air-compressor, the combination of a track, a rolling weight on said track, means for operating said weight, a compressing-cylinder adjacent said track, a plunger therein, a lever fulcrumed beside said track connected to said plunger and arranged so as to be engaged and depressed by said weight, a second lever fulcrumed adjacent said track in position to be engaged and depressed by said weight, said second lever engaging said first lever and acting when depressed by said weight to raise said first lever and plunger, substantially as described.

3. In an air-compressor, the combination of a track, a rolling weight on said track, means for operating said weight, a compressing-cylinder beside said track, a plunger therein having a rod extending up beside the track, a lever having a fulcrum at one end beside the track connected intermediate its ends to said plunger and having its free end extending in position to be engaged and depressed by said weight, a bent lever fulcrumed beside said track intermediate its ends and having its one end slidably engaging the free end of the first lever and its other end extending in position to be engaged and depressed by said weight, said second lever acting when depressed by said weight to raise said first lever and said plunger, substantially as described.



663,127. **MANTLE-SUPPORT.** JOSEPH LOEB, Chicago, Ill., assignor to the Cosmopolitan Incandescent Gas Light Company, same place. Filed June 19, 1900. Serial No. 20,848. (No model.)

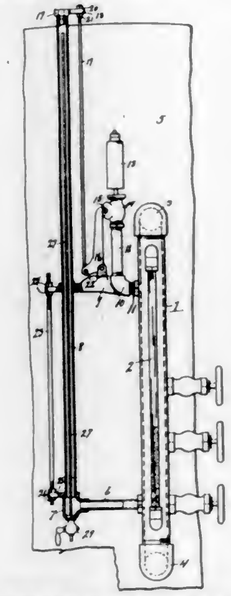


Claim.—1. In a device of the character described, the combination of a casing, a removable end cap therefor provided on its inner surface with a gauze-cap seat and having an external flange *f* receiving the casing, a sealing-strip projecting above said flange, a gauze cap removably supported on said seat, and a mantle-standard supported by said gauze cap, substantially as and for the purpose set forth.

2. In a device of the character described, the combination of a casing, a removable end cap therefor provided on its inner surface with a gauze-cap seat, a gauze cap removably supported on said seat and provided with a circumferential groove, and a mantle-standard provided at its upper end with means for connection with a mantle and having at its base an unclosed clampingly-acting curved part *b* engaging the gauze cap at said groove, substantially as and for the purpose set forth.

663,128. **LOW-WATER ALARM.** JAMES E. MCKAY, Detroit, Mich. Filed July 12, 1900. Serial No. 23,298. (No model.)

Claim.—1. In a low-water alarm, the combination of a water-column communicating at its opposite ends with the steam and water spaces of the boiler respectively, an expansible tube standing adjacent to and communicating at its lower end with the normal water-space of said column, a second tube within said expansible tube and opening through the lower end thereof, a whistle communicating with the steam-space of said column, a valve to control said whistle, a bell-crank lever, one end of which is adapted to actuate said valve, a connecting-rod attached at its upper end to the upper end of said expansible tube and having its lower end pivoted to said lever.



2. In a low-water alarm, the combination of an expansible tube communicating at its lower end with the normal water-space of the boiler, a whistle communicating with the steam-space of the boiler, a valve to control said whistle, a lever adapted to actuate said valve, a coupling-rod connecting the upper end of said expansible tube to said lever, a second tube standing within and terminating at the upper end of said expansible tube, the lower end of the inner tube opening through the bottom of said expansible tube and a valve to control said opening.

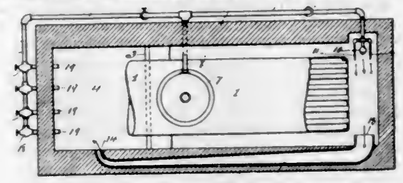
3. In a low-water alarm, the combination of an expansible tube communicating with the normal water-space of the boiler, a second tube standing within said expansible tube terminating at the upper end of and having an opening through the lower end, an alarm, a lever adapted to actuate said alarm and a connecting-rod attached to the upper end of said expansible tube and to said lever.

4. In a low-water alarm, the combination of an expansible tube communicating at its lower end with the normal water-space of the boiler, a whistle communicating with the steam-space of the boiler, a valve to control said whistle, a fixed bracket, a lever adapted to actuate said valve fulcrumed on said bracket, a coupling-rod connecting the upper end of said expansible tube to said lever and a tie-rod connecting the bracket carrying said lever directly to the lower end of said expansible tube.

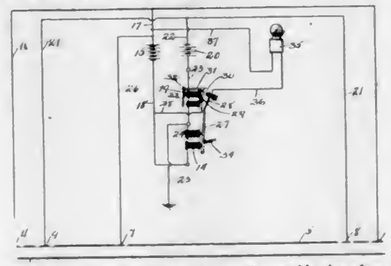
5. In a low-water alarm, the combination of a fixed bracket supporting a whistle which communicates with the steam-space of a boiler, a valve for controlling said whistle and a lever pivoted on said bracket and engaging the stem of said valve, an expansible tube communicating at its lower end with the normal water-space of the boiler and passing freely through the outer end of said bracket, a bracket extending from the lower end of said expansible tube, a tie-rod extending from said lower bracket to said upper bracket and threaded at its ends in each and a connecting-rod extending from the upper end of said expansible tube to said valve-actuating lever.

663,129. **SMOKE-CONSUMER FOR BOILER OR OTHER FURNACES.** SAMUEL NOCK, Pittsburg, Pa. Filed Apr. 30, 1900. Serial No. 15,023. (No model.)

Claim.—The herein-described smoke-consumer for boiler and other like furnaces, consisting of the series of steam-jets arranged to direct a current across the rear ends of the smoke-flues of the boiler, a nozzle arranged in connection with the said jets used to form a draft toward a smoke-flue in alinement with the steam-jets and located in the opposite wall of the setting, the said flue leading from the rear of the setting to the fire-chamber, and a series of combined steam-jets 23 and air-mixers arranged at the front and leading into the fire-chamber 4, all arranged and combined for service, substantially as and for the purpose described.



663,130. **ELECTRICAL APPARATUS FOR CONTROLLING SIGNAL OR OTHER CIRCUITS.** HOMER A. PARRISH, Jackson, Mich., assignor to the Parrish Signal Company, same place. Filed Aug. 11, 1899. Serial No. 726,938. (No model.)



Claim.—1. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, means normally retaining said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said retaining mechanism, means made effective by the passage of a train for supplying a current to said controlling mechanism, means for automatically varying the strength of the current supplied to said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, and means operated by the passage of the train for actuating said setting mechanism, substantially as described.

2. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, means normally retaining said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said retaining mechanism, a normally open track-circuit which includes said controlling mechanism and is adapted to be closed by the passage of the train, means for supplying a current to the circuit which includes said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, a normally open track-circuit which includes said setting mechanism and is adapted to be closed by the passage of a train, means for supplying a current to the latter circuit, and means for automatically varying the strength of the current supplied to said controlling mechanism, substantially as described.

3. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, means normally retaining said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said retaining device, a normally open track-circuit which includes said controlling mechanism and is adapted to be closed by the passage of a train, a battery for partially energizing said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, a normally open track-circuit which includes said setting mechanism and is adapted to be closed by the passage of a train, a battery in said latter circuit, and means operated by the passage of the train for automatically increasing the current supplied to the controlling mechanism, substantially as described.

4. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, means normally retaining said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said retaining device, a normally open track-circuit which includes said controlling mechanism and is adapted to be closed by the pas-

sage of a train, a battery for partially energizing said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, a normally open track-circuit which includes said setting mechanism and is adapted to be closed by the passage of a train, a battery in said latter circuit, and means operated by the passage of the train for connecting both said batteries in circuit with said controlling mechanisms, substantially as described.

5. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, means normally retaining said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said retaining device, a normally open track-circuit which includes said controlling mechanism and is adapted to be closed by the passage of the train, a battery for partially energizing said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, a normally open track-circuit which includes said setting mechanism and is adapted to be closed by the passage of a train, a battery in said latter circuit, and means operated by the passage of the train for connecting both said batteries in series in a metallic circuit including said controlling and setting mechanism, substantially as described.

6. In a signaling apparatus, the combination of an electrically-operated signal, a circuit-closing device for establishing a circuit which actuates said signal, a locking device normally acting to retain said circuit-closing device out of operative position, electromagnetic mechanism which controls the operation of said locking mechanism, a normally open track-circuit which includes said controlling mechanism, electromagnetic mechanism for setting said circuit-closing device, a normally open track-circuit which includes said setting mechanism, and a battery in each of said track-circuits, said circuits being arranged to be closed by the passage of a train, the connections being such that after one of said track-circuits is established, and before the other is closed, a third circuit is automatically established through both batteries and the controlling and setting mechanisms, substantially as described.

7. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being at a considerable distance from the crossing, at each side thereof, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-sections and the rail-section near the crossing, a second circuit including the inner rail-sections at the opposite sides of the crossing, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, means for supplying a weak current to said controlling mechanism when the second circuit alone is closed, means for simultaneously operating said controlling and setting mechanisms, and means for increasing the current supplied to said controlling mechanism when said setting mechanism is operated simultaneously therewith, substantially as described.

8. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being at a considerable distance from the crossing, at each side thereof, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-sections and the rail-section near the crossing, a second circuit including the inner rail-sections at the opposite sides of the crossing, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, means for supplying a weak current to said controlling mechanism when the second circuit alone is closed, means for supplying a current to said setting mechanism when the first circuit alone is closed, and means operated by the passage of a train for establishing a closed metallic circuit which includes said controlling and setting mechanisms, substantially as described.

9. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being at a considerable distance from the crossing, at each side thereof, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-sections and the rail-section near the crossing, a second circuit including the inner rail-sections at the opposite sides of the crossing, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, a battery in each of said first and second circuits, the battery in said second circuit being insufficient alone to fully energize the controlling mechanism, and means operated by the passage of a train for establishing a third metallic circuit which includes both said batteries in series and the controlling and setting mechanisms, said third circuit being established after the closing of one of said track-circuits and before the other of said track-circuits is closed, substantially as described.

10. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being at a considerable distance from the crossing, in proximity to each other, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-section and the rail-section near the crossing, a second circuit including the intermediate rail-section, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, means for supplying a weak current to said controlling mechanism when the second circuit alone is closed, means for simultaneously operating said controlling and setting mechanisms, and means for increasing the current supplied to said controlling mechanism when said setting mechanism is operated simultaneously therewith, substantially as described.

11. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being arranged along the railway in proximity to each other, at a considerable distance from the crossing, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-section and the rail-section near the crossing, a second circuit including the intermediate rail-section, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, means for supplying a weak current to said controlling mechanism when the second circuit alone is closed, means for supplying a current to said setting mechanism when the first circuit alone is closed, and means operated by the passage of a train for establishing a closed metallic circuit which includes said controlling and setting mechanisms, substantially as described.

12. In a crossing signaling apparatus, the combination of a series of insulated rail-sections, two of said rail-sections being arranged along the railway in proximity to each other, at a considerable distance from the crossing, and another of said rail-sections being near said crossing, a first track-circuit which is normally open and includes the outermost rail-section and the rail-section near the crossing, a second circuit including the intermediate rail-section, an electrically-operated signal arranged near the crossing, a circuit-closing device for establishing a circuit which actuates said signal, setting mechanism in the first circuit for setting said circuit-closing device, controlling mechanism in said second circuit, retaining devices operated thereby for normally retaining said circuit-closing device out of operative position, a battery in each of said first and second circuits, the battery in said second circuit being insufficient alone to fully energize the controlling mechanism, and means operated by the passage of a train for establishing a third metallic circuit which includes both said batteries in series and the controlling and setting mechanisms, said third circuit being established after the closing of one of said track-circuits and before the other of said track-circuits is closed, substantially as described.

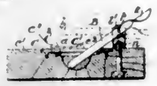
13. In a signaling apparatus, the combination of an electrically-operated signal, a signal-circuit therefor, a circuit-closing device for the signal-circuit, controlling mechanism for operating said circuit-closing device, a plurality of batteries for supplying electricity to said controlling mechanism, the current of one of said batteries alone being insufficient to operate said controlling mechanism to close the signal-circuit, and means operated by the passage of a train for supplying the current from a plurality of said batteries to said controlling mechanism, substantially as described.

14. In a signal apparatus, the combination of an electrically-operated signal, a normally open signal-circuit which includes said signal, controlling mechanism for closing said signal-circuit, a circuit which includes said controlling mechanism and is closed by the passing of a train, a battery adapted to be placed in circuit with said controlling mechanism and with said signal, and means operated by the passing of a train for automatically placing said battery in circuit with said signal, substantially as described.

663,131. **DEVICE FOR INKING DRAFTSMEN'S PENS.** HARFORD W. H. POWEL, Newport, R. I. Filed Apr. 27, 1899. Serial No. 714,659. (No model.)

Claim.—1. The combination of an ink-well, a blade, a support for presenting said blade in an exposing position, and means for operating said blade substantially as described.

2. The combination with an ink-well of an ink-carrying blade, and mechanical connections with the well whereby said blade can be placed alternately in an ink-immersed and in an exposing pen-charging position, substantially as described.



3. The combination of an ink-well, a movable ink-carrying blade, and mechanical connections whereby said blade may be actuated by one hand, substantially as described.

4. The combination of an ink-well and a pivotally-connected ink-carrying blade, substantially as described.

5. The combination of an ink-well, an ink-carrying blade, a pivotal connection, and a finger-key, substantially as described.

6. The combination with an ink-well of a movable arm provided with a "chuck" or blade-engaging parts, and a removable blade adapted to be chucked or engaged therewith, substantially as described.

7. The combination of an ink-well, a perforated cover, a connected ink-carrying blade adapted to move through the perforation of said cover, and means for closing said perforation when the blade is exposed substantially as described.

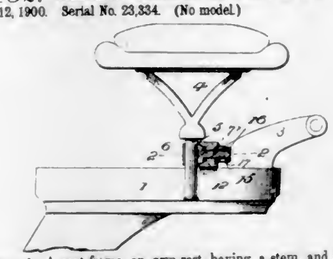
8. The combination of an ink-well, a movably-attached ink-carrying blade, and a covering part operative to close said well when said blade is therein projected, substantially as described.

9. The combination of an ink-well, an ink-well cover provided with an aperture communicating with said well, an ink-carrying blade operatively connected therewith, and attached to said blade, a subsidiary cover adapted, when the blade is immersed, to close said aperture substantially as described.

10. The combination of an ink-well an ink-carrying blade, and mechanical connections whereby said blade, alternately may be immersed in said well and moved to and from a pendent exposed position, substantially as described.

11. The combination with a friable inkstand-cover, having an aperture, of an attached hinge-arm of non-friable material, and an ink-carrying blade thereby operatively connected, substantially as described.

663,132. **ARM-REST.** FRANK RITTER, Rochester, N. Y. Filed July 12, 1900. Serial No. 23,334. (No model.)



Claim.—1. A seat-frame, an arm-rest having a stem, and a split clamp embracing the stem, said stem being adjustable lengthwise in the clamp, and the clamp rotatably connected to the seat-frame.

2. A seat-frame having an approximately conical socket, an arm-rest having a stem, and a split clamp embracing the stem, the split parts of the clamp having an approximately conical form and rotatably connected to the seat-frame in the socket.

3. A seat-frame, an arm-rest having a stem, a clamp embracing the stem, said stem being adjustable lengthwise of the clamp, and the clamp rotatably connected to the seat-frame, and a handle to operate the clamp under every adjustment, said clamp having a split wedge-formed part, and a coacting socket, the handle being adapted to draw the clamp into said socket to close said clamp.

4. A seat-frame, an arm-rest having a stem, a clamp embracing the stem, said stem being adjustable lengthwise of the clamp, and the clamp rotatably connected to the seat-frame, and a handle to operate the clamp under every adjustment, said clamp having a split wedge-formed part, and a coacting socket, the handle being adapted to draw the clamp into said socket to close said clamp, and said part and socket having an approximately conical form and the wedge-formed part slightly cut away to provide for its lateral movement in the socket.

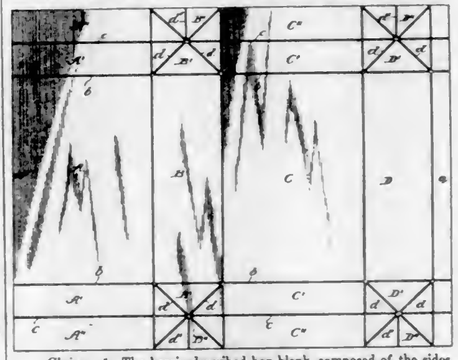
5. A seat-frame, an arm-rest having a stem, a clamp embracing the stem, said stem being adjustable lengthwise of the clamp, and the clamp rotatably connected to the seat-frame, and a handle to operate the clamp under every adjustment, said clamp having an unequally-split wedge-formed part, and a coacting socket, the handle being adapted to draw the clamp into said socket to close said clamp, and said part and socket having an approximately conical form and the larger wedge-formed part slightly cut away to provide for its lateral movement in the socket.

6. A seat-frame, an arm-rest having a stem, a clamp embracing the stem, said stem being adjustable lengthwise in the clamp, and the clamp rotatably connected to the seat-frame, a handle to operate the clamp under every adjustment, said handle being rotatably connected to the clamp, and a fixed washer on the clamp-stem contiguous the handle.

7. A seat-frame having a socket, an arm-rest having a stem, a clamp embracing said stem and provided with a wedge-shaped part having an extension, a handle operatively connected to the stem to draw the clamp-wedge into the socket in the seat-frame.

8. A seat-frame having a socket, an arm-rest having a stem, a clamp embracing said stem and provided with a wedge-shaped part having an extension, a handle operatively connected to the stem to draw the clamp-wedge into the socket in the seat-frame, said wedge part being split and the handle connected with one of the parts.

663,133. **PAPER BOX.** COLUMBUS G. SHIPLEY, Jr., Dayton, Ohio, assignor to the J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Filed Oct. 4, 1899. Serial No. 732,485. (No model.)



Claim.—1. The herein-described box-blank, composed of the sides A B C D, the end extensions A′ B′ C′ D′ thereof separated therefrom by the creases *b*, and the supplemental end extensions A″ C″ separated from the extensions A′ C′ by the creases *c* parallel with the creases *b*, the extensions B′ being provided with the diagonal creases *d d*, substantially as and for the purpose set forth.

2. The herein-described box-blank, composed of the sides A B C D, the end extensions A′ B′ C′ D′ thereof separated therefrom by the creases *b*, and the supplemental end extensions A″ B″ C″ D″ separated from the extensions A′ B′ C′ D′ by the creases c parallel with the creases *b*, the extensions B′ B″ and D′ D″ being provided with the diagonal creases *d d*, and the extensions B″ D″ with the creases *d′*, substantially as and for the purpose set forth.

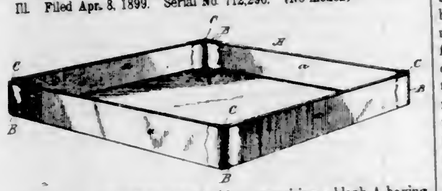
3. The herein-described paper box, composed of the side walls A B C D, end extensions thereof A′ B′ C′ D′ constituting the end walls of the closed box, and supplemental extensions A″ C″ constituting pasting-flaps and having their inner faces pasted together to close the end of the box and bent downward upon and secured to the end wall of the box, substantially as set forth.

4. The herein-described paper box, composed of the side walls A B C D, the end extensions A′ B′ C′ D′ thereof constituting the end walls of the box, and the supplemental extensions A″ B″ C″ D″, the extensions A″ C″ constituting pasting-flaps having their inner faces pasted together with the extensions B″ D″ interposed between them, to close the end of the box, substantially as set forth.

5. The herein-described paper box, composed of the side walls A B C D, the end extensions A′ B′ C′ D′ thereof constituting the end walls of the box, and the supplemental extensions A″ B″ C″ D″, the extensions A″ C″ constituting pasting-flaps having their inner faces pasted together with the extensions B″ D″ interposed between them, to close the end of the box, and bent down upon and secured to the end wall of the box, substantially as set forth.

6. The herein-described box, comprising side walls A, B, C, D, end extensions A′, B′, C′, D′, separated from the side walls by creases *b* and each provided with a crease parallel with the creases *b* and providing supplemental end extensions A″, B″, C″, D″, the extensions B′, B″ and D′, D″ having diagonal creases *d* intersecting at the creases c and the supplemental extensions B″, D″ having vertical creases *d′* terminating at the intersection of the creases *d* and *c*, and said supplemental extensions being adapted to be pasted together, substantially as described.

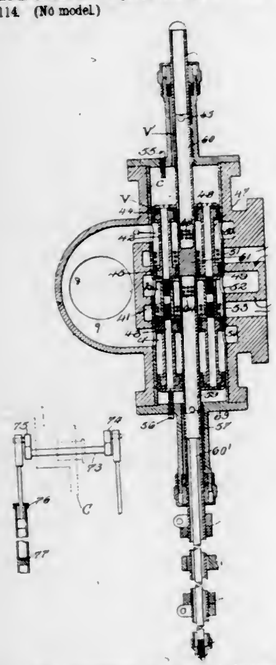
663,134. PAPER BOX. GEORGE E. SIMON, Anderson, Ind., assignor to the J. W. Sefton Manufacturing Company, same place and Chicago, Ill. Filed Apr. 3, 1899. Serial No. 712,296. (No model.)



Claim.—1. The herein-described box comprising a blank A having sides *a*, *a*, and corner-securing means for the sides *a*, *a*, consisting of metal plates B having securing-prongs b^3, said plates being bent over the ends of the sides against the inner and outer faces thereof and secured by said prongs which pass through the sides, said plates forming loops at the ends of the sides, and substantially U-shaped coupling-pins each leg of which enters one loop, substantially as described.

2. The herein-described corner-fastener for boxes and box-lids, consisting of two bent plates B having securing-prongs b^3 and adapted to embrace the inner and outer faces of the end of the box or box-lid side and form loops projecting beyond the ends of the sides, and a U-shaped coupling-pin C each leg of which is adapted to enter one loop, substantially as described.

663,135. FLUID-MOTOR. IRA H. SPENCER, Hartford, Conn., assignor to the L. E. Rhodes Company, same place. Filed Jan. 2, 1900. Serial No. 114. (No model.)



Claim.—1. The combination, with a valve-chest, of two concentrically-disposed reciprocatory valves one of which extends entirely through the center of the other and has two relatively-separated fluid-chambers at opposite ends thereof each chamber of which has the same cross-sectional area at both ends and has port-openings at opposite ends thereof; a fluid-check supported centrally for adjustment longitudinally of, and in axial alinement with, one of said valves and having means at one end thereof located outside the valve-chest whereby to adjust the same; and a valve-stroke-limiting device adjustably secured in the valve-chest in the path of movement of the outer valve.

2. In a motor, the combination, with a valve-chest having a perforated valve-receiving cylinder of uniform internal diameter from end to end, and also having a central exhaust-chamber surrounding the valve-cylinder and a pressure-fluid chamber having portions surrounding opposite ends of the valve-cylinder, and which chest also has two horizontal fluid-passages located, respectively, at opposite sides of the exhaust-chamber and separated therefrom and from the pressure-fluid chamber by bridge-walls surrounding the valve-cylinder; of a balanced fluid-actuated main valve wholly located within the valve-cylinder and having three fluid-compartments of substantially corresponding areas the middle one of which is in constant communication with the exhaust-chamber and the two end ones of which are in constant communication with opposite ends, respectively, of the pressure-fluid chamber; a mechanically-actuated primary valve extending concentrically entirely through the main valve and having a tubular portion extending through the valve-chest, and also having at opposite ends thereof fluid-chambers each of which are of the same cross-sectional area at both ends and both of which have at their outer ends a port-opening in constant communication with the space between the end of the valve and extreme end of the valve-cylinder, and each of which has port-openings at its inner end alternately communicative with the pressure-chamber and exhaust-chamber; a fluid-check located in one of the fluid-chambers of the primary valve and having a stem extending entirely through the tubular portion of said valve and also having a screw-threaded bearing in a cap fixed to the outer end of said tubular portion whereby said check may be adjusted longitudinally of the fluid-chamber to regulate the effective area of the port-opening thereof; and a valve-stroke limiter adjustably supported within the valve-cylinder in the path of movement of the main valve.

3. The combination, with the valve-chest, of a main valve comprising two skeleton-like end portions and a skeleton-like middle portion, each end portion of which consists of two centrally-perforated disks, a plurality of tubular separators connecting the two disks, two packing-rings having annular flanges of different diameters overlapping the outer and inner edges of the disks; and the middle portion of which consists of a plurality of tubular separators interposed between the two end portions and having internal screw-threaded outer and inner ends; and a plurality of screws extending through the disks and separators of each end portion and having screw-threaded bearings in the tubular separators of the middle portion.

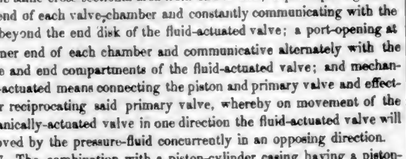
4. In a motor, the combination, with a valve-chest, and with a fluid-actuated main valve working in said chest, of a mechanically-actuated primary valve for controlling the movements of the main valve and having a fluid-chamber at one end thereof with port openings or perforations leading therefrom; actuating means for the primary valve; and a fluid-check extending into the fluid-chamber and adjustable longitudinally thereof from a point outside the valve-chest for controlling the ingress and egress of fluid to and from the fluid-chamber.

5. In a motor of the class specified, the combination, with a valve-chest having a pressure-fluid chamber and an exhaust-chamber, of two coöperative concentrically-disposed valves working in said chest and one of which is fluid-actuated and the other of which is mechanically actuated and controls the movements of the former, and the mechanically-actuated valve of which has two independent fluid-chambers having ports or perforations at their outer ends in constant communication with the spaces at opposite ends of said fluid-actuated valve and having ports or perforations at their inner ends each of which communicates alternately with the pressure-fluid and exhaust chambers; means for shifting the primary valve alternately in opposite directions to bring the ports at the inner ends of its chambers into communication alternately, with the pressure-fluid chamber and exhaust-chamber of the chest; and a fluid-check extending into a fluid-chamber in said primary valve and adjustable longitudinally thereof for regulating the effective area of a port in the primary valve, and having its adjusting means located outside the valve-chest whereby the same may be adjusted without stopping the mechanism.

6. A motor of the class specified embodying a piston-cylinder casing; an open-ended piston-cylinder supported intermediate its ends in said casing whereby to form annular fluid-ways around both ends of the cylinder; a piston working in said cylinder; a valve-chest secured to the cylinder-casing at one side thereof and having a symmetrical valve-cylinder-receiving bore extending from end to end thereof; a valve-cylinder in said bore; a pressure-fluid chamber surrounding opposite ends of said cylinder, an exhaust-chamber surrounding the central portion of said valve-cylinder; two horizontal fluid-ways surrounding intermediate portions of said valve-cylinder and communicating with the annular fluid-ways surrounding opposite ends of the piston-cylinder and separated from the pressure-fluid chamber and exhaust-chamber by horizontal bridge-walls having valve-controlled openings; perforations leading from the interior of the valve-cylinder to the pressure-chamber, exhaust-chamber, and horizontal fluid-ways of the valve-chest; a fluid-actuated valve embodying two end and one middle compartment of corresponding effective areas separated by equidistant disks of the same inner and outer surface areas and the two end compartments of which constantly communicate, through the end perforations of the valve-cylinder, with the opposite ends of the pressure-fluid chamber, and the middle compartment of which is constantly in communication with the exhaust-chamber and alternately communicates with the horizontal fluid-ways; a primary valve extending centrally entirely through the fluid-actuated valve two central relatively-separated fluid-chambers in opposite ends of the primary valve, and each of which is of the same cross-sectional area from end to end; a port-opening at the outer end of each valve-chamber and constantly communicating with the space beyond the end disk of the fluid-actuated valve; a port-opening at the inner end of each chamber and communicative alternately with the middle and end compartments of the fluid-actuated valve; and mechanically-actuated means connecting the piston and primary valve and effective for reciprocating said primary valve, whereby on movement of the mechanically-actuated valve in one direction the fluid-actuated valve will be moved by the pressure-fluid concurrently in an opposing direction.

7. The combination with a piston-cylinder casing having a piston-cylinder supported therein and having annular separated fluid-ways communicating with opposite ends of said cylinder, of a valve-chest secured to the side of said casing and having a perforated valve-cylinder, of uniform diameter from end to end, therein; two relatively-separated horizontal ports surrounding central portions of said valve-cylinder and communicating, respectively, with the fluid-ways surrounding opposite ends of the piston-cylinder; an annular exhaust-chamber disposed between the two horizontal ports and surrounding the middle portion of the valve-cylinder; a pressure-fluid chamber in said valve-chest surrounding opposite ends, respectively, of the valve-cylinder; horizontal walls surrounding those portions of the valve-cylinder intermediate the pressure-fluid chamber, the ports, and exhaust-chamber; a fluid-actuated main valve disposed in said valve-cylinder and consisting of four centrally-perforated disks of corresponding diameters connected together to form two end compartments and one middle compartment of corresponding areas, the two end compartments of which are at all times in communication with the pressure-fluid chamber and the middle compartment of which is at all times in communication with the exhaust-chamber and one or the other ports at one or the other side of said exhaust-chamber; a mechanically-actuated primary valve extending entirely through the central perforations of the four disks; two relatively-separated vertically-alined fluid-chambers centrally contained in opposite ends of said primary valve and each chamber of which is of the same diameter from end to end; two port-openings communicating with opposite ends, respectively, of each primary-valve fluid-chamber, the outer ports of which primary-valve chambers are in constant communication with the space outside of the two end disks of the main valve, and the inner ports of which chambers are so disposed that when the main valve is in its lowest position the inner port of the upper valve-chamber will communicate with the upper end compartment of the main valve and with the pressure-fluid chamber, and the inner port of the lower valve-chamber will communicate concurrently with the middle compartment of the main valve and with the exhaust-chamber; a piston supported in the piston-cylinder and having a piston-rod; and an actuating-connector between the piston-rod and primary valve.

663,136. BOTTLE-FILLING DEVICE. LEOPOLD P. STRAUBE, Chicago, Ill.; assignor of one-half to Robert M. Mahler, same place. Filed Mar. 30, 1900. Serial No. 10,783. (No model.)



Claim.—1. The combination with a supply-pipe having a lateral discharge-orifice, of a cylindrical valve thereon having a lateral discharge-orifice normally out of registration with said first-named orifice, means for yieldingly holding said valve in its normally-closed position, said valve being left free to be rotated by the bottle and its contents to cut off the supply automatically when the bottle is filled, and a nipple projecting from the orifice of said valve and adapted to receive the vessel to be filled, substantially as and for the purpose set forth.

2. The combination with a supply-pipe having a lateral discharge-orifice, of a cylindrical valve thereon having a lateral discharge-orifice normally out of registration with said first-named orifice, means for yieldingly holding said valve in its normally-closed position, a nipple projecting from the orifice of said valve and adapted to receive a vessel to be filled and stops located to limit the rotation of the valve in each direction after the supply has been cut off, substantially as and for the purpose set forth.

3. The combination with a main supply-pipe, of a union connected therewith, a branch supply-pipe connected with said union and provided with a lateral discharge-orifice, an end cap for said branch supply-pipe, a cylindrical valve upon said branch supply-pipe provided with a laterally-projecting nipple, a spring for normally holding said nipple out of registration with said orifice, and stops on said valve for limiting the rotation thereof in both directions, said stops being disposed to allow the valve to rotate far enough in either direction to cut off automatically, substantially as and for the purpose set forth.

4. The combination with a supply-pipe provided with a lateral discharge-orifice, of a cylindrical valve thereon provided with a laterally-projecting nipple, spring bottle-neck-receiving retainers connected with said nipple, means for yieldingly holding said valve normally closed, and stops for limiting the movement of said valve, substantially as and for the purpose set forth.

5. The combination with a supply-pipe having a lateral discharge-orifice, of a filling in said pipe having inclined surfaces for conducting the liquid to said discharge-orifice, an end cap for said pipe, a cylindrical valve upon said pipe, a spring for normally holding said valve in its closed position, and stops for limiting the movement of said valve, substantially as and for the purpose set forth.

6. The combination with an integrally-formed supply-pipe having lateral discharge-orifices, of a plurality of valves thereon having discharge-orifices normally out of registration with said first-named orifices, a loose collar on said supply-pipe and in contact with and separating adjacent valves, nipples connected with said valves at their discharge-orifices, means for yieldingly holding said valves in a closed position, and an end cap for said pipe, substantially as and for the purpose set forth.

7. The combination with a supply-pipe having a lateral discharge-orifice, of a cylindrical valve thereon having a lateral discharge-orifice, a stop-bearing rod adjacent to said supply-pipe, a stop carried by said rod, a stop on said valve adapted to engage said first-named stop, an adjustable standard on said rod, a spring connecting said standard to said valve, and a nipple at the discharge-orifice of said valve, substantially as and for the purpose set forth.

663,137. CREAM AND FINGER GUARD FOR FREEZERS. HARRIET H. TURNER, Rochester, N. Y. Filed Mar. 22, 1900. Serial No. 9,733. (No model.)



Claim.—1. In a freezer, the combination with an outer pail or receptacle, and an inner freezing-cylinder having the cover, of a ring supported centrally in the receptacle surrounding the upper end of the cylinder and extending above the top thereof and provided with recessed portions upon its opposite sides extending beneath the said cover.

2. In a freezer, the combination with an outer pail or receptacle, and an inner freezing-cylinder having the cover, of a ring adapted to surround the upper end of the cylinder having the outwardly-extending recessed portions arranged upon opposite sides and adapted to engage the sides of the receptacle to support the ring centrally therein.

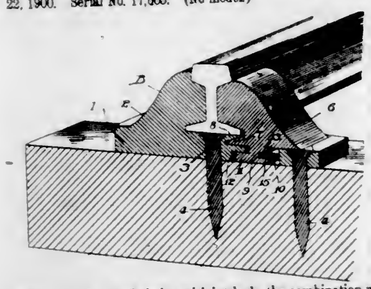
3. In a freezer, the combination with an outer pail or receptacle, and an inner freezing-cylinder having the cover, of a ring surrounding the upper end of the cylinder and projecting above the latter having the outwardly-extending recessed portions provided upon its opposite sides, and the wings located upon the exterior of the ring adapted to engage the sides of the receptacle to center the ring therein.

4. In a freezer, the combination with an outer pail or receptacle having the sloping sides, an inner freezing-cylinder mounted therein, of a ring surrounding the upper end of the latter and projecting above the top thereof provided with the recesses at its sides having the tapering edges adapted to engage the walls of the receptacle to support the ring centrally therein, operating devices connected to the cylinder and a support for said devices extending across the top of the receptacle and engaging the upper edge of the ring.

5. In a freezer, the combination with an outer pail or receptacle having the sloping sides provided with an aperture, and an inner freezing-cylinder mounted in the receptacle, of a ring surrounding the upper end of the cylinder provided with the recessed portions upon its opposite sides having the tapered edges engaging the sides of the receptacle, a lug or projection extending downwardly at the lower edges of one of the recesses having a threaded aperture adapted to register with the aperture

in the side of the receptacle, and a drainage-tube having the threaded end adapted to engage therewith.

663,138. COMBINED RAIL CHAIR AND JOINT LOCK. GEORGE T. THOMPSON and ANTHONY J. LECHLER, Philadelphia, Pa. Filed May 22, 1900. Serial No. 17,605. (No model.)



Claim.—1. In a rail chair and joint lock, the combination with the base-plate provided with a rail-supporting portion, a locking-groove extending from the edge of said rail-supporting portion, and a stationary clamping-jaw thereon embracing one side of the rail opposite the locking-groove, of the oppositely-arranged movable clamping-jaw mounted on the base-plate, and provided with a locking-tongue to engage the locking-groove beneath the rail-supporting portion of the base-plate, and means to maintain the said parts in locked relation to each other and to the interposed rail.

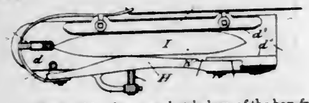
2. In a rail chair and joint lock, the combination with the base-plate having a portion adapted for supporting contact with the rail, its locking-groove beneath the rail-supporting portion, the socket and stationary clamping-jaw, of the oppositely-arranged clamping-jaw movable in the socket in the base-plate, its locking-tongue, means to maintain said parts in locked relation against an interposed rail, studs on the opposing jaws adapted to enter suitably-disposed slots in the webs of the rail and means to lock them therein.

3. In a rail chair and joint lock, the combination with the base-plate having a portion adapted for supporting contact with the rail, its locking-groove beneath the rail-supporting portion, the socket and stationary clamping-jaw, of an oppositely-arranged movable clamping-jaw provided with a depending end adapted to enter the socket in the base-plate, a beveled tongue on the movable jaw adapted to register with the said locking-groove in the base-plate, and means to maintain said parts in locked relation against an interposed rail.

4. In a rail chair and joint lock, the combination with the base-plate and the stationary jaw thereon, the said plate being provided with an aperture and keyway, and with a groove and offset adjacent to the rail-supporting portion of the plate, of the movable jaw provided with the beveled tongue adapted to enter the said groove, a depending portion on said movable jaw fitted to said aperture and provided with a rib adapted to enter the said offset, and with a groove in line with the keyway in the base-plate, and a wedge or key adapted to be inserted in the keyway, and interlocked with the groove last named, substantially as described.

5. In a rail chair and joint lock, the combination of the base-plate having a rail-supporting portion and a stationary jaw rising therefrom, a locking-groove extending from one edge of and beneath the rail-supporting portion, a movable jaw, said base-plate being extended beyond the locking-groove to provide a support for a movable jaw and means to maintain said parts in locked relation.

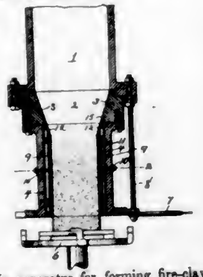
663,139. SHUTTLE-CHECK FOR LOOMS. WALTER W. TURBY and WILLIAM H. BROOMHEAD, Fall River, Mass., assignors of one-half to Leontine Lincoln, same place. Filed May 21, 1900. Serial No. 17,397. (No model.)



Claim.—1. The combination, in a shuttle-box, of the box-front thereof, with a shuttle-binder having a swell on its inner face, the outer end of the binder being free to vibrate about its pivot or hinge at the inner end of the binder, said pivot or hinge being of flexible material and having a longitudinal slot therein whereby the binder can be adjusted endwise and secured to the hinge by the use of a bolt; means to hold the binder in binding contact with the shuttle; a check-strap, one of whose ends is attached to the free end of the binder, while the other end of the strap is suitably anchored; a picker-stick; and means to operate the picker-stick.

2. In a loom, a box-front of a shuttle-box, a shuttle-binder, the outer end of which is free to vibrate about a pivot or hinge of flexible material at the inner end of the binder; means to hold the binder in binding contact with the shuttle; a check-strap, one of whose ends is attached to the free end of the binder, and the other end of the strap being secured to a runner; a picker-stick, and means to operate the picker-stick; in combination with the following but opposite parts; a box-front of a shuttle-box; a shuttle-binder, the outer end of which is free to vibrate about a pivot or hinge of flexible material, at the inner end of the binder; means to hold the binder in binding contact with the shuttle; a check-strap, one of whose ends is attached to the free end of the binder, and the other end of the strap being secured to said runner; a picker-stick, and means to operate the picker-stick.

663,140. DIE FOR FORMING CLAY. WILLIAM WALKER, Allegheny, and HARRY W. CROFT, Pittsburg, Pa. Filed June 18, 1900. Serial No. 20,687. (No model.)



Claim.—1. In apparatus for forming fire-clay or like blocks, the combination of a die provided with convex inner faces, removable lining-plates for said die, provided with convex inner faces and acute-angled edges corresponding to and adapted to closely fit the curved inner faces of the die.

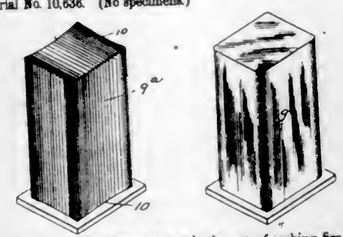
2. In apparatus for forming fire-clay or like blocks, the combination of a die and removable lining-plates for said die, provided with projecting lips 13 on the edges thereof.

3. In a press for forming fire-clay or like blocks, the combination with a press, of the bowl provided with inclined sides, the die or nozzle secured thereto, and the removable lining-plates fitted in the die and provided at their upper ends with beveled or inclined surfaces to form a continuation of the inclined sides of the bowl.

4. In a press for forming fire-clay or like blocks, the combination with a press, of the bowl provided with inclined sides and projecting shoulders 15, the die or nozzle secured thereto, and the removable lining-plates fitted in the die and abutting against said shoulders, and provided at their upper ends with beveled or inclined surfaces to form a continuation of the inclined sides of the bowl.

5. A stool for use in forming fire-clay or like blocks, comprising a horizontal frame and depending legs secured thereto, two opposite sides of said frame being provided with slightly-concave top surfaces.

663,141. FORMING CLAY BLOCKS. WILLIAM WALKER, Allegheny, and HARRY W. CROFT, Pittsburg, Pa. Filed Mar. 29, 1900. Serial No. 10,636. (No specimens.)



Claim.—1. The improvement in the art of making fire-clay or like blocks, consisting in forming the blocks with one or more slightly-concave faces, maintaining said block in such form for such a period of time that its shape shall become fixed, and then drying or burning the same, the degree of concavity being such that the expansion of the block in drying or burning will form substantially flat or parallel faces.

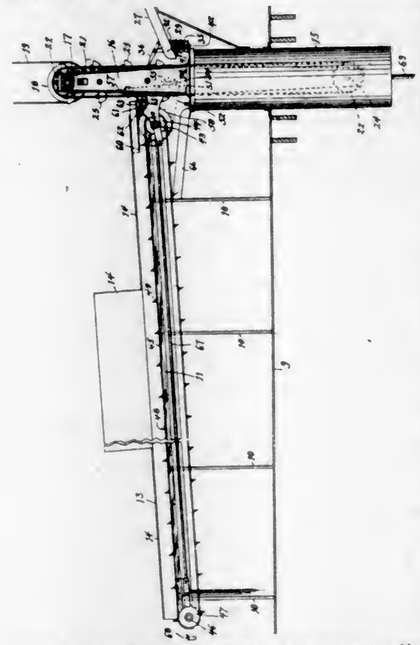
2. The improvement in the art of making fire-clay or like blocks, consisting in forming the blocks under pressure with one or more slightly-concave faces, maintaining such pressure for such a period of time that the form of the block shall become fixed, and then drying or burning the same, the degree of concavity being such that the expansion of the block in drying or burning will form substantially flat or parallel faces.

3. The improvement in the art of making fire-clay or like blocks, consisting in forming the blocks under pressure with opposing side faces slightly concave, and then drying or burning the same, the degree of concavity being such that the expansion of the block in drying or burning will form substantially flat or parallel faces.

4. The improvement in the art of making fire-clay or like blocks, consisting in forming the blocks under pressure with slightly-concave side faces, cutting off one end to form a slightly-concave end face, and subsequently permitting them to expand in drying or burning to form substantially flat or parallel side and end faces.

5. The improvement in the art of making fire-clay or like blocks, consisting in forming the blocks under pressure with slightly-concave side faces, cutting off one end to form a slightly-concave end face, smoothing said end face to impart the desired glaze, and subsequently permitting them to expand in drying or burning, forming substantially flat or parallel side and end faces.

663,142. MACHINE FOR CLEANING LYE FROM THE EXTERIOR OF LYE-CONTAINING CANS. FRED WARNING, Milwaukee, Wis., assignor to Isaac Myers, same place. Filed Aug. 31, 1900. Serial No. 28,669. (No model.)



Claim.—1. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in said cylinder, buckets connected to the conveyer, a delivering-trough, mechanism acting successively on the cans in the trough so as to force a can into a bucket as each bucket is brought into position to receive a can, and a guard in position to prevent a can from rolling out of a bucket when a can is deposited in the bucket.

2. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in said cylinder, buckets connected to the conveyer, a delivery-trough, a hub having a series of fingers radiating therefrom and extending into the trough and engaging a can, and means for intermittently rotating the hub so as to force a can from the trough into a bucket which has been brought into position to receive said can.

3. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying cans through the water contained in said cylinder, said conveyer provided, at intervals apart, with projecting pins, buckets connected to the conveyer, a delivery-trough, a shaft having a hub mounted thereon, said hub provided with a series of fingers radiating therefrom and extending into the trough and engaging a can, a pinion loose on the shaft, a rack-bar engaging the teeth of the pinion, a rocking beam having the rack-bar pivoted to one end thereof, and having its opposite end in position to be engaged by the projecting fingers of the conveyer, and means for clutching the pinion fast to the shaft on the movement of the rack-bar in one direction, and for allowing said pinion to run loose on the shaft upon the movement of said rack-bar in the opposite direction.

4. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying cans through the water contained in said cylinder, said conveyer provided, at intervals apart, with projecting pins, buckets connected to the conveyer, a delivery-trough, a shaft having a hub mounted thereon, said hub provided with a series of fingers radiating therefrom and extending into the trough and engaging a can, a pinion loose on the shaft, a ratchet-wheel fast on the shaft, a pawl pivoted to the pinion and engaging the teeth of the ratchet-wheel, a spring-controlled rack-bar engaging the pinion, and a rocking beam, having the rack-bar pivoted to one end thereof, and having its opposite end in position to be engaged by the projecting fingers of the conveyer.

5. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and discharging the cans therefrom.

6. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and thereby discharging the cans therefrom, and a carrier for receiving the cans as they are discharged from the buckets, and conducting the said cans to a place of deposit.

7. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and thereby discharging the cans therefrom, a trough to receive the cans as they are discharged, and a carrier adapted to receive the cans from the receiving-trough, and conducting said cans to a place of deposit.

8. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conducting cans through the water contained in the cylinder, a carrier for receiving the cans from the cylinder, and for conducting said cans to a place of deposit, and a drip-trough beneath the carrier and adapted to convey any water which may drip from the cans back to the water-containing cylinder.

9. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, a carrier for receiving the cans from the cylinder, and conducting said cans to a place of deposit, and a heating apparatus for heating the cans as they are carried along by the carrier.

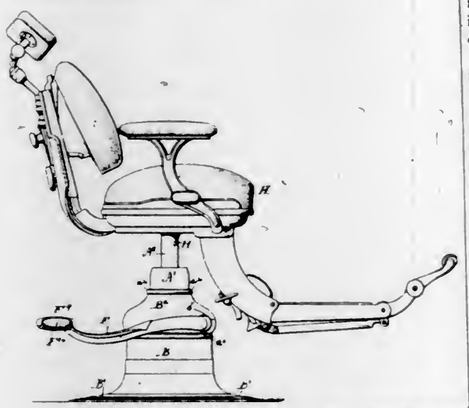
10. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, a shaft, a tilting lever or levers extending therefrom and adapted to act on a bucket, after said bucket has passed through the water, and thereby tilt the bucket so as to discharge the can therefrom, and means for returning the tilting lever or levers to its or their normal position.

11. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, a shaft, a tilting lever or levers extending therefrom and adapted to act on a bucket, after said bucket has passed through the water, and thereby tilt the bucket so as to discharge the can therefrom, an arm extending from the shaft, and a coiled spring having one end connected to the arm and its opposite end connected to a fixed part.

663,143. SUPPORTING AND ELEVATING MECHANISM FOR DENTAL CHAIRS. BASIL M. WILKERSON, Baltimore, Md., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Nov. 25, 1898. Serial No. 697,344. (No model.)

Claim.—1. The combination, in a dental-chair base, of the cylin-

drical pedestal having a closed bottom and forming an oil-reservoir, a supporting-frame consisting of an outer cylindrical section and an inner cylindrical section, the said outer section having supporting and rotating connection with said pedestal, and the inner section extending above the top of the outer section and connected thereto by a horizontal web located below the top of the pedestal and above the oil in the reservoir, and a detachable cap closing the space between the inner and outer sections of the supporting-frame above said horizontal web, substantially as and for the purpose described.



2. The combination, in a dental-chair base, of the supporting-frame consisting of connected inner and outer cylindrical sections, the inner section extending above the outer section, a chair-body-supporting plunger mounted to move up and down in the said inner section of the supporting-frame, plunger-elevating mechanism mounted in the supporting-frame and an operating-lever for said mechanism pivotally connected to said supporting-frame, and a cap detachably connected with said supporting-frame, and closing the space between the inner and outer sections thereof, said cap being independent of said elevating mechanism and its operating-lever, whereby when said cap is detached, the said elevating mechanism is exposed to view and the operation of the same is not interfered with, substantially as described.

3. The combination, in a dental-chair base, of the non-rotatable pedestal, a supporting-frame having bearing therein and adapted to be horizontally rotated relatively thereto, a clamp located between said supporting-frame and said pedestal, a spring acting upon said clamp to cause it to normally lock the supporting-frame against rotation, a lever, and connections between said lever and said clamp by which said clamp may be actuated against the stress of its spring to release the supporting-frame and leave it free to be rotated, substantially as and for the purpose described.

4. The combination, in a dental-chair base, of the non-rotatable pedestal, a supporting-frame having bearing in said pedestal and adapted to be rotated therein, a vertical clamp-rod mounted in said supporting-frame and capable of being horizontally turned but having no endwise movement, a horizontally-movable clamp for locking said supporting-frame to the pedestal, said clamp being actuated by the turning of said clamp-rod, and means also carried by said supporting-frame for operating said clamp-rod, substantially as and for the purpose described.

5. The combination, in a dental-chair base, of the non-rotatable pedestal, a supporting-frame having bearing in said pedestal and adapted to be horizontally rotated therein, a clamp-rod mounted to turn in bearings in said supporting-frame, a clamp actuated by said clamp-rod, a spring acting upon said clamp-rod for normally causing said clamp to clamp said supporting-frame to the pedestal against rotation therein, and means for turning said clamp-rod against the stress of said spring for unclamping said supporting-frame and permitting the same to be rotated, substantially as described.

6. The combination, in a dental-chair base, of the non-rotatable pedestal, a supporting-frame having bearing in said pedestal and adapted to be horizontally rotated therein, a clamp-rod mounted to turn in bearings in said supporting-frame, a clamp actuated by said rod, a bell-crank lever connected to said clamp-rod, a spring connected to one arm of said bell-crank lever for causing said clamp to normally clamp said supporting-frame to the pedestal against rotation, and a controlling-lever for acting upon the other arm of said bell-crank lever for unclamping said supporting-frame and permitting the same to be rotated, substantially as described.

7. The combination, in a dental-chair base, of the non-rotatable pedestal, a supporting-frame having bearing in said pedestal and adapted to be horizontally rotated therein, a vertical clamp-rod mounted to turn in bearings in said supporting-frame and having a cam-surface, a clamp-block mounted to slide horizontally in a bearing in said supporting-frame and adapted to bear against said pedestal, said clamp-block being borne upon by the cam-surface of said clamp-rod, and means for actuating said clamp-rod for causing the clamp-block to clamp and unclamp the supporting-frame to and from the pedestal, substantially as described.

8. In a dental-chair-body support, the combination of the plunger, the cylinder in which said plunger is movable up and down, a buffer-rod fitted in the lower end of said plunger, and means for normally projecting said buffer-rod from said plunger, substantially as and for the purpose described.

9. In a dental-chair-body support, the combination of the plunger formed with an oil-chamber in its lower end, the cylinder in which said plunger moves up and down, a buffer-rod having a head movable up and down in said oil-chamber, the oil being adapted to pass said head to and from said oil-chamber, whereby when the buffer-rod strikes the bottom of said plunger-cylinder, the oil confined in the oil-chamber gradually escapes and cushions the final downward movement of the plunger, substantially as described.

10. In a dental-chair-body telescopic supporting-plunger, the combination of the fixed plunger-cylinder, the cylindrical plunger member movable up and down therein, the guide-cylinder connected to said cylindrical plunger member and movable up and down therewith and surrounding said fixed plunger-cylinder, a buffing device on the lower end of said guide-cylinder, the piston member of the plunger movable up and down in said cylindrical member and said guide-cylinder, and a buffing device located between the top of said guide-cylinder and the bottom of said piston member, substantially as and for the purpose described.

11. The combination, in a dental-chair base, of a vertically-movable chair-body-supporting plunger, clamping mechanism therefor comprising a horizontally-movable toggle-lever, a spring acting upon said toggle-lever for causing the same to normally clamp said plunger and means for unclamping said toggle-lever, the said clamping mechanism acting to clamp the plunger against upward and downward and lateral movement at all times except when acted upon by the means for unclamping it, substantially as described.

12. The combination, in a dental-chair base, of a telescopic supporting-plunger, separate locking devices for each member of said telescopic plunger, a horizontally-movable toggle-lever for simultaneously operating said locking devices, and means for actuating said toggle-lever, substantially as and for the purpose set forth.

13. The combination, in a dental-chair base, of a telescopic supporting-plunger, separate clamping devices for each member thereof, a toggle-lever, a spring acting upon said toggle-lever for causing the clamping devices to normally clamp the telescopic supporting-plunger, and means for simultaneously unclamping said clamping devices, substantially as and for the purpose described.

14. The combination, with a chair-body-supporting plunger, of clamping mechanism therefor comprising a toggle-lever, the outer member of which is composed of two parts having sliding connection with each other, and an adjustable fulcrum-piece against which one part of said outer member of the toggle-lever has bearing, substantially as and for the purpose described.

15. The combination, in a dental-chair base, of a telescopic supporting-plunger, separate locking devices for each member thereof, a toggle-lever, one member of which is provided with two arms, a spring acting upon the toggle-lever through one of its arms for causing the separate locking mechanisms to simultaneously grip the respective members of the telescopic plunger, and means for acting upon the toggle-lever through its other arm for causing said locking mechanisms to release the said plunger members, substantially as and for the purpose set forth.

16. The combination, in a dental-chair base, of the supporting-frame, the telescopic plunger movable up and down therein, the clamp-bar arranged parallel with the outer member of the telescopic plunger, the clamp-block fitted to move in an opening in the outer member of the telescopic plunger to bear upon the inner member thereof and be acted upon by the clamp-bar, and a toggle-lever for simultaneously causing the clamp-bar and clamp-block to clamp the members of the plungers together and to the supporting-frame, substantially as and for the purposes described.

17. The combination, in a dental-chair base, of the supporting-frame, a telescopic plunger movable up and down in a cylinder of said supporting-frame, a clamp-bar arranged parallel with the outer member of said telescopic plunger to which said clamp-bar is connected in such a way as to be capable of being rocked horizontally, means for horizontally rocking said clamp-bar to force it to clamp the outer member of the telescopic plunger to the said supporting-frame, and means for transmitting the movement of said clamp-bar to the inner member of said telescopic plunger, whereby when the clamp-bar is actuated the members of the telescopic plunger are simultaneously clamped in the supporting-frame in any position of vertical adjustment they may occupy, substantially as described.

18. In elevating mechanism for dental chairs, the combination of the pump-cylinder and its top or gland, the piston movable up and down therein and formed with an inclosed oil-space and an exposed oil-recess, and also having a passage-way between said oil-space and said oil-recess, the said passage-way opening into the oil-space a short distance above its lower end, whereby just before the piston reaches the end of its upstroke the said passage-way is closed and the oil confined in the oil-space serves to cushion the piston at the end of its upstroke, substantially as described.

19. The combination, in a dental-chair base, of the supporting-frame having an outer cylindrical section the upper end of which is open, a cap detachably connected with said supporting-frame for closing its upper open end, an upright plunger-cylinder and a pump-cylinder mounted in said supporting-frame, a communicating tube between said cylinders, and an outlet-valve-containing plug detachably connected to the top of said communicating tube, the top of said plug being located in a line substantially on a level with the top of the outer cylindrical section of the supporting-frame, whereby when said cap is removed the said outlet-valve-containing plug is exposed and may be readily detached from said communicating tube, substantially as and for the purpose described.

20. The combination, in a dental-chair base, of the pedestal, a supporting-frame mounted therein, a plunger-cylinder fixed to said supporting-frame, a casting having detachable connection with said supporting-frame, pump and its valves carried by said casting, a passage-way in said supporting-frame communicating with the plunger-cylinder, a passage-way in said casting communicating with the pump, said passage-ways being adapted to register with each other when the casting is in place, and a bolt passing through said casting into said supporting-frame for detachably connecting said casting to said supporting-frame, the head of said bolt extending above the top of the pump in a readily-accessible position, whereby the casting, the pump and its valves may be removed as a whole from the base without disturbing other mechanisms contained within said base, substantially as described.

21. In elevating and lowering mechanism for dental chairs, the combination of the outlet or lowering valve the stem of which projects above the top of the plug in which the valve is mounted, and a flanged cap secured to said valve-stem above said valve-plug, substantially as and for the purpose described.

22. In elevating and lowering mechanism for dental chairs, the combination of the outlet or lowering valve the stem of which projects above the top of the plug in which the valve is mounted, and a flanged cap secured to said valve-stem above said valve-plug, the flange of said cap loosely surrounding the top of said valve-plug, whereby the oil escaping from around the valve-stem when the valve is opened, strikes against the flanged cap and is thereby deflected downwardly, substantially as described.

23. In a dental-chair base, the combination of the pedestal, a supporting-frame mounted to rotate horizontally therein, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, clamping mechanism for the same, plunger elevating and lowering mechanism, and a single operating-lever for controlling all of said mechanisms, substantially as and for the purposes described.

24. In a dental-chair base, the combination of the pedestal, a supporting-frame mounted to rotate horizontally therein, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, clamping mechanism for the same, plunger-elevating mechanism, and a single operating-lever for controlling all of said mechanisms, substantially as and for the purposes described.

25. In a dental-chair base, the combination of the pedestal, a supporting-frame mounted to rotate horizontally therein, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, clamping mechanism for the same, plunger-lowering mechanism, and a single operating-lever for controlling all of said mechanisms, substantially as and for the purposes described.

26. In a dental-chair base, the combination of the pedestal, a supporting-frame mounted to rotate horizontally therein, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, elevating and lowering mechanism therefor, and a single operating-lever for controlling all of said mechanisms, substantially as and for the purposes described.

27. In a dental-chair base, the combination of the pedestal, a supporting-frame mounted to rotate horizontally therein, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, mechanism for locking said plunger, and a single operating-lever for controlling said mechanisms, substantially as and for the purpose described.

28. The combination, in a dental-chair base, of the pedestal, the supporting-frame supported by and adapted to rotate horizontally therein, mechanism for clamping the supporting-frame to said pedestal, the chair-body-supporting plunger vertically adjustable in the supporting-frame, mechanism for elevating the supporting-plunger, and a single lever for both operating the plunger-elevating mechanism and for controlling the mechanism for clamping the supporting-frame to the pedestal, substantially as set forth.

29. The combination, in a dental-chair base, of the pedestal, a supporting-frame mounted to rotate horizontally therein, a vertically-adjustable supporting-plunger, elevating mechanism for the same, automatic clamp mechanism for normally locking said supporting-frame to said pedestal, and means for releasing said automatic clamp mechanism for permitting said supporting-frame to be rotated, said means being under the control of the operating-lever of the plunger-elevating mechanism, substantially as and for the purpose described.

30. In a dental-chair base, the combination of the supporting-frame, the plunger, plunger-elevating mechanism, a post mounted upon said supporting-frame and having horizontal turning connection therewith, and an operating-lever for said plunger-elevating mechanism connected at its inner end to said post by a horizontal pivot, whereby said operating-lever may be rocked vertically independently of said post and be moved horizontally therewith, substantially as and for the purposes described.

31. The combination, in a dental-chair base, of the vertically-adjustable supporting-plunger, the fixed plunger-cylinder, the pump, an operating-lever for actuating said pump by vertical movement, a communicating passage-way between said pump and said fixed plunger-cylinder, an outlet-valve in said passage-way, a pivoted arm bearing upon the stem of said outlet-valve and adapted to be rocked downwardly for tripping said outlet-valve by horizontal movement of said operating-lever, substantially as described.

32. The combination, in a dental-chair base, of a vertically-adjustable supporting-plunger, plunger-clamping mechanism, a horizontally-rocking lever connected to said plunger-clamping mechanism and provided with two arms, a spring connected to one arm of said lever for causing the plunger-clamping mechanism to normally clamp the plunger, plunger-elevating mechanism, an operating-lever therefor, and a controlling-arm actuated by said operating-lever and adapted to bear upon the free arm of said plunger-clamping-mechanism lever, whereby when the operating-lever is moved into a position for operating the plunger-elevating mechanism, the plunger-clamping mechanism is automatically unclamped, substantially as described.

33. The combination, in a dental-chair base, of a vertically-adjustable supporting-plunger, plunger-clamping mechanism, plunger-elevating mechanism and plunger-lowering mechanism, a lever connected to said plunger-clamping mechanism, a spring connected to said lever for causing the plunger-clamping mechanism to normally clamp the plunger, a single operating-lever for the plunger elevating and lowering mechanisms, and connections between said operating-lever and said lever of the plunger-clamping mechanism, whereby when the operating-lever is moved to operate either the plunger-elevating mechanism or the plunger-lowering mechanism, the plunger-clamping mechanism is automatically unclamped, substantially as described.

34. The combination, in a dental-chair base, of the pedestal, the supporting-frame rotatably mounted therein, mechanism for clamping said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, clamping mechanism for the same, plunger-elevating mechanism, plunger-lowering mechanism, a lever, a spring connected to said lever for causing the supporting-frame-clamping mechanism and the plunger-clamping mechanism to normally act, a single operating-lever and connections, whereby when said operating-lever is moved in one direction to operate either the plunger-elevating mechanism or the plunger-lowering mechanism the plunger-clamping mechanism is automatically unclamped and the clamping mechanism for the supporting-frame is undisturbed, and when said operating-lever is moved in the opposite direction, said clamping mechanism for the supporting-frame is unclamped, substantially as described.

35. In a dental-chair base, the combination of the pedestal, the supporting-frame mounted to rotate horizontally therein, mechanism for clamping the supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, mechanism for elevating said supporting-plunger, and a single lever which operates said plunger-elevating mechanism when moved vertically and unclamps the supporting-frame-clamping mechanism when moved horizontally in one direction, substantially as and for the purpose described.

36. The combination, in a dental-chair-base, of the pedestal, the supporting-frame rotatably connected with said pedestal, the vertically-adjustable chair-body-supporting plunger, locking mechanism between the pedestal and the supporting-frame, plunger elevating, lowering and clamping mechanism, and a single operating-lever for controlling all of these mechanisms, said operating-lever having its pivotal and operative connections inside said base, substantially as and for the purpose described.

37. The combination, in a dental-chair base, of the pedestal, the supporting-frame rotatably connected therewith, the vertically-adjustable chair-body-supporting plunger, locking mechanism between said pedestal

and said supporting-frame, plunger elevating and lowering mechanism, a single operating-lever for controlling all of these mechanisms pivoted to said supporting-frame, and a cap connected with said supporting-frame and inclosing the pivotal and operative connections of said operating-lever, said cap being provided with an aperture through which said operating-lever projects, substantially as and for the purpose described.

38. An operating-lever for dental chairs pivoted to rock vertically and turn horizontally and provided with an arm which moves vertically with said lever, and with a controlling-arm which moves horizontally with said lever but is not affected by vertical movement of the same, substantially as and for the purpose described.

39. The combination, in a dental-chair base, of a vertically-movable chair-body-supporting plunger, clamping mechanism therefor comprising a horizontally-movable toggle-lever, a spring acting upon said toggle-lever for causing the same to normally clamp said plunger, and means under the control of the operating or elevating lever of the chair for unclamping said toggle-lever, substantially as described.

40. An operating-lever for dental chairs having a flange thereon inside the chair base or pedestal for the purpose of deflecting all oil on the inner portion of the lever into the oil-reservoir and preventing the same from reaching that portion of the lever which projects outside of said base or pedestal, substantially as described.

41. The combination, in a dental-chair base, of the vertically-adjustable supporting-plunger, the pump for elevating said plunger, an operating-lever for said pump, and a piston-rod having ball-and-socket connection with said operating-lever and also with the piston of said pump, whereby said operating-lever may be moved horizontally as well as rocked vertically, substantially as described.

42. In an elevating-machine having a base and rotating pedestal, a seat-elevating pump, plunger-tubes, a valve independent of the pump normally closing the outlet from the tubes, a lever, and mechanism intermediate the lever and valve movable directly by the lever against the valve to open the same, said mechanism comprising an adjustable piece, and pedestal-locking mechanism, the lever being operative to control both the outlet-valve and the pedestal-locking mechanism and also to open the valve without affecting the said locking mechanism.

43. In a dental-chair base, the combination of the non-rotatable pedestal, a supporting-frame mounted to rotate horizontally in respect thereto, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, lowering mechanism therefor, and a single lever for operating or controlling both of said mechanisms, substantially as and for the purpose described.

44. In a dental-chair base, the combination of the non-rotatable pedestal, a supporting-frame mounted to rotate horizontally in respect thereto, mechanism for locking said supporting-frame to said pedestal, a vertically-adjustable supporting-plunger, lowering mechanism therefor, and a single lever for operating or controlling both of said mechanisms, and which when actuated to operate the supporting-frame-locking mechanism does not affect the plunger-lowering mechanism, substantially as and for the purpose described.

663,144. BAGGAGE-CAR. JOHN R. WOOD, Burlington, Iowa. Filed Jan. 31, 1900. Serial No. 3,458. (No model.)



Claim.—1. In a car of the class described, a sill provided with a recess at its outer upper edge, bearing-brackets located in said recess, a roller journaled in said brackets, holding means located in said recess for preventing the roller from rotating outwardly but permitting it to rotate inwardly, and a protecting plate or plates secured to said sill and covering said recess and the brackets and holding means located therein, substantially as described.

2. In a car of the class described, a sill portion provided with a recess d' at its outer upper edge and at the side door of the car, bearing-brackets in said recess, a roll portion mounted in said bearing-brackets, pawl-and-ratchet mechanism also located in said recess to prevent the roll rotating outwardly but permitting it to rotate inwardly, a wear-plate at the door-opening on the upper part of the sill, and a second outer wear-plate arranged adjacent to the baggage-roll and covering said pawl-and-ratchet mechanism to protect the same, substantially as described.

3. In a car of the class described, a sill provided with a recess at its outer upper edge, bearing-brackets located in said recess, a roller journaled in said brackets, and a separate protecting plate or plates secured to said sill and covering said recess and the bearing-brackets therein, substantially as described.

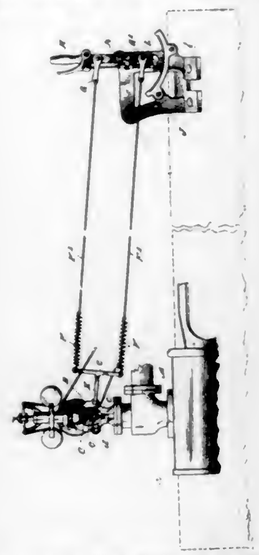
4. In a car of the class described, a sill provided with a recess at its outer upper edge, bearing-brackets located in said recess, a roller journaled in said brackets, a ratchet-and-pawl mechanism located in said recess to prevent the roller rotating outwardly but permitting it to rotate inwardly, and a protecting plate or plates secured over said recess, bearing-brackets and ratchet-and-pawl mechanism, substantially as described.

663,145. CHAIN-GEAR PARALLEL CARPENTER'S VISE. EDWARD J. ZWART, St. Louis, Mo. Filed Apr. 27, 1899. Renewed July 5, 1900. Serial No. 22,607. (No model.)



Claim.—In a vise, the combination with the bench on legs, two alined nuts removably secured in one front leg, a guide-channel, a bar sliding therein, and a movable jaw attached to said bar; of two screws threaded through said nuts, the uppermost having a threadless portion journaled through said jaw and a head and hand-rod at its outer end, a head at the outer end of the lowermost screw extending into a depression in the inner face of said jaw, a plate removably attached to the inner face of the jaw and having an opening embracing the shank of the screw adjacent its head, sprocket-wheels fast on the two screws at the inner side of said jaw, and a chain connecting them, as and for the purpose set forth.

663,146. REGULATOR FOR TRACTION-ENGINES. GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 6,967. (No model.)



Claim.—1. In a regulator for traction-engines, the combination with the governor, of projections on the valve-stem thereof, a tilting lever embracing the valve-stem between the projections, angular extensions on the lever extending in opposite directions, an actuating-lever and yielding connections between said actuating-lever above and below the fulcrum thereof and with opposite ends of the extensions on said other lever, substantially as described.

2. In a traction-engine, the combination with the governor, of a tilting lever attached to the valve-stem of said governor, and having opposite projections on its opposite end, springs connected with the ends of the said opposite projections, an actuating-lever, rods connecting the springs with the actuating-lever, and a pivot for the actuating-lever located between said rods, substantially as described.

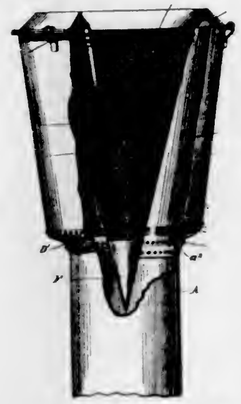
3. In a traction-engine, the combination with the engine and its governor, of a tilting lever arranged to engage with the valve-stem of the governor opposite projections on the rear end of the lever, a frame secured to the engine, an actuating-lever pivoted in said frame and connections between the opposite ends of the actuating-lever and opposite ends of the projections on the said other lever comprising yielding portions, substantially as described.

663,147. CAB FOR TRACTION-ENGINES. GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 6,970. (No model.)



Claim.—In a traction-engine or the like, the combination with the engine and water-tanks in rear thereof arranged substantially as described, of a cab supported around the tanks comprising the side plates C secured directly to the outer faces of the tanks, a top and front connected to said sides, and curved protecting-plates C^2 arranged substantially as and for the purpose set forth.

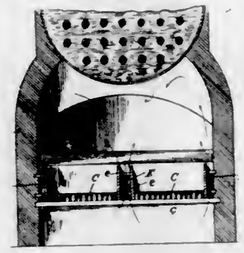
663,148. SPARK ARRESTER AND EXTINGUISHER. GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 6,971. (No model.)



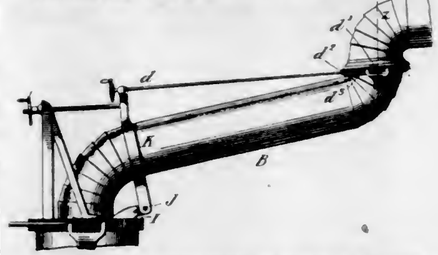
Claim.—In a spark-arrester, the combination with a stack, of a casting secured to the upper edge thereof, a tapered cylindrical casing supported from the upper edge of the casting, an outwardly-extending flange on the upper edge of the casing, an inverted-V-shaped annular ring, a flange on one edge of the V adapted to rest on the corresponding flange of the casing, a deflector secured to the opposite edge of the V so as to be detachable therewith, means for temporarily retaining the ring on the casing comprising clips exterior of the casing arranged to overlie the flange of the ring, and a partition provided with openings at its lower end secured to the casting and extending upwardly between and unattached to the deflector and casing to a point directly beneath and in the hollow of the annular ring, substantially as and for the purpose described.

663,149. SMOKE-PREVENTING FURNACE. GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 1, 1900. Serial No. 6,972. (No model.)

Claim.—In a boiler-furnace, the combination with the boiler, of a casing therefor having inwardly-converging side walls abutting against the bottom portion thereof so as to leave a longitudinally-disposed uninterrupted combustion-chamber therebeneath, grates located below the combustion-chamber, an air-inlet below the grates, and longitudinally-disposed plates extending the entire length of the furnace properly spaced apart to form through unobstructed air-flues extending from a plane below to a plane above the respective planes of the grates, whereby thin sheets of air are caused to eject upwardly above the air-flues into the combustion-chamber, substantially as described.



663,150. PNEUMATIC STRAW-STACKER. GEORGE F. CONNER, Port Huron, Mich. Filed Feb. 14, 1899. Serial No. 705,469. (No model.)



Claim.—1. In a pneumatic stacker, the combination of suitable supporting means, a pipe-section supported thereby having at its end an elbow, a second elongated straight rigid pipe-section supported by said first pipe-section and having an elbow having a swivel connection with the first-pipe-section elbow, substantially as described.

2. In a pneumatic stacker, the combination of a rigid pipe-section having an elbow, a second section supported by the first pipe-section and having an elbow, a swivel connection between said elbows, and means for swinging said second section from a position over and in line with the first section to a position outwardly beyond and in the longitudinal plane of said first section, substantially as described.

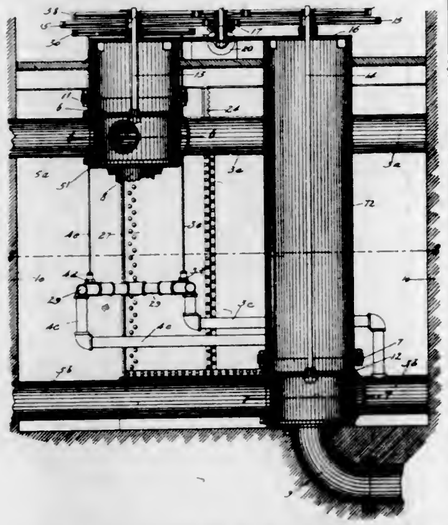
3. In a pneumatic stacker-pipe, the combination of an inner rigid pipe-section having an elbow, an outer rigid pipe-section supported by said inner pipe-section and having an elbow, a swivel connection between said elbows, and means for swinging said outer pipe-section on said swivel connection in a complete circle whereby the delivery end of the pipe can be adjusted to different distances from the feed end of the pipe, substantially as described.

4. In a pneumatic stacker, the combination of an inner pipe-section, having an elbow, an outer pipe-section supported by said inner section and having an elbow, a swivel connection between said elbows, a gear carried by said outer-section elbow, a pinion mounted on the inner section and meshing with said gear, and means for operating said pinion for swinging said outer section whereby the delivery end of the pipe can be adjusted to different distances from the feed end of the pipe, substantially as described.

5. In a pneumatic stacker-pipe, the combination of an inner pipe-section having an elbow, an outer pipe-section having an elbow, a ball-race secured to one of said elbows, a ball-race secured to the other elbow and provided on its outer part with gear-teeth, a gear mounted on the first-mentioned pipe-section and meshing with the gear-teeth on said ball-race, means for operating said gear and balls between said races, substantially as described.

6. In a pneumatic stacker-pipe, the combination of an inner pipe-section, having an elbow, an outer pipe-section having an elbow, a ball-bearing connection between said elbows the same constituting the means for supporting and retaining the outer pipe-section on the inner pipe-section, and means for swinging said outer pipe-section on the inner pipe-section, substantially as described.

663,151. APPARATUS FOR APPLYING SEWAGE TO BACTERIA-BEDS. FRANK A. BARBOUR, Brockton, Mass., assignor of one-half to Frank H. Snow, same place. Filed May 19, 1900. Serial No. 17,193. (No model.)



Claim.—1. In an apparatus for disposing of sewage or other impure liquid, a plurality of purification-beds, a float or floats actuated by the back-flooding of the liquid, mechanism actuated by said float or floats to control the flow of liquid to said beds, and mechanism actuated by said float or floats to control the discharge from said beds, substantially as described.

2. In an apparatus for disposing of sewage or other impure liquid, a plurality of purification-beds, pipes which conduct the impure liquid to the several beds and drains leading from the several beds, one gate which controls the flow of the liquid to the beds and a second gate which controls the flow from the beds, a float actuated by the back-flooding of the liquid, and mechanism connected with both of said gates whereby the same float will actuate both gates, substantially as described.

3. In combination with a float-chamber, a main float, a detent which temporarily restrains the said float from rising with the liquid, an auxiliary float, means by which the auxiliary float can be adjusted so as to rise when the liquid in the float-chamber has reached a predetermined height, and means by which the movement of the auxiliary float will release the detent from the main float, substantially as described.

4. In combination with a float-chamber, a main float, a float-rod, an eccentrically-pivoted roll which normally binds the float-rod and prevents the float from rising, an auxiliary float, a guide to which said auxiliary float is adjustably secured and which may be adjusted so as to float only when the liquid rises to a predetermined height and pivotal connection between said guide and said detent whereby when the auxiliary float rises it will cause the release of the detent and permit the main float to rise, substantially as described.

5. In an apparatus for disposing of sewage or other impure liquid, a plurality of purification-beds, a chamber into which the impure liquid is conducted, conduits leading therefrom to the several beds, an intermittently-revolving gate in said chamber with an outlet-opening which registers successively with said conduits, underdrains leading from said beds, a chamber to which said underdrains lead and having an outlet therefrom, an intermittently-revolving gate in said chamber with an opening which registers successively with said underdrains, a float-chamber, a back-flooding conduit from each of said underdrains to said float-chamber, valves to said back-flooding conduits, mechanism by which the valve in the back-flooding conduit connected with the bed about to be filled is opened and all the other back-flooding valves are closed, a float in the float-chamber, means by which the said float is kept on its seat until the liquid in the bed being filled has risen to a predetermined height and then is lifted, mechanism actuated by the rising of the float to revolve said gates so as to close the flow to the bed which has been filled and open passage to another bed, and open the underdrain connection from one of the filled beds to the outlet-conduits, substantially as described.

6. In an apparatus for disposing of sewage or other impure liquid, a plurality of purification-beds, two intermittently-revolving gates one of which controls the flow of the impure liquid to the beds and the other of which controls the outlet from said beds, a float-chamber with valve connections leading to said beds, a float in said float-chamber operated by the back-flood from the beds, and mechanism actuated by said float whereby when the float rises the said gates will be rotated and shift the delivery of the impure liquid from one bed to another and shift the outlet-flow from one bed to another, substantially as described.

7. In an apparatus for disposing of sewage or other impure liquid, a plurality of purification-beds, a revolving gate which controls the flow to said beds, mechanism by which a part of the beds may be kept in commission at a time and a part left out of commission, a shaft on which said gate is fixed, intermittently-actuating mechanism, means for locking said gate-shaft to said actuating mechanism so that the gate will be intermittently rotated and which when unlocked permit the shaft and gate to be revolved independently of the said actuating mechanism, substantially as described.

8. In an apparatus for disposing of impure liquid, a plurality of purification-beds, a rotary gate, a shaft on which said gate is fixed, a driven wheel secured to said shaft by a friction-clutch, a mutilated gear-wheel locked to said shaft, a driving-shaft, a wheel fixed thereon which normally drives the said clutch-secured wheel, a second wheel secured to said driving-shaft which engages with the teeth on said mutilated gear-wheel at certain parts of its rotation, the relative sizes of said wheels being such that when the mutilated gear is in engagement the speed of the gate-shaft will be accelerated, substantially as described.

9. In combination with a rotary gate, a shaft on which the gate is mounted, a mutilated gear-wheel on said shaft, a central hub on said gear-wheel having a series of radial slots therein, said shaft being rotatably adjustable in said hub, and a lever pivoted on said shaft by which the shaft and gate may be rotated and which engages with any one of said slots to lock the shaft in its adjusted position relative to the gear, substantially as described.

10. In combination with a rotary gate, a shaft on which the gate is mounted, a mutilated gear-wheel on said shaft, said shaft being rotatably adjustable in central bearings in said gear-wheel, and means by which said shaft may be locked in its adjusted positions so as to rotate with said wheel, substantially as described.

11. In combination with a plurality of beds for purification of impure liquid, a plurality of back-flood pipes leading therefrom and each provided with a valve, one of which is open and the others closed, a ring-pipe with which each of said back-flooding pipes connects, a float-chamber and a float therein, a pipe connecting said ring-pipe with said float-chamber, and mechanism actuated by the rising of the float whereby said open valve will be closed and one of the closed valves will be opened, substantially as described.

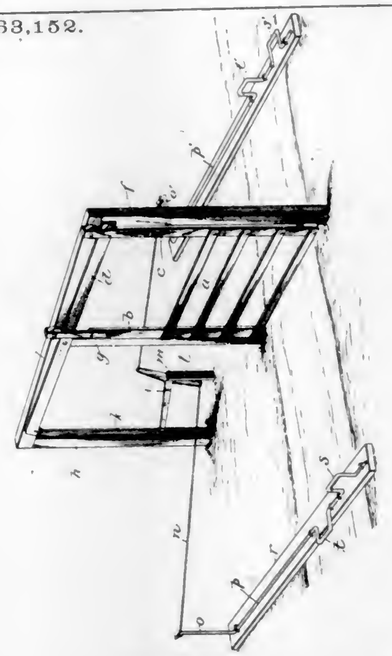
12. In combination with a plurality of beds for liquid deposit, a plurality of back-flood pipes leading therefrom each provided with a rotary valve one of which is opened and the other closed, a ring-pipe with which each of said back-flood pipes connects, a float-chamber and a float therein, a pipe connecting said ring-pipe with said float-chamber, a rod connected with each of said valves, cross-heads on said rods, an intermittently-rotative interlocking device or wheel which engages with said cross-heads and at each movement closes the open valve and opens one of the closed valves, substantially as described.

13. In an apparatus for disposing of sewage or other impure liquid, a purification-bed, an outlet-conduit therefrom, a gate to said outlet, a float, mechanism actuated by said float to open said gate, and adjustable mechanism by which said float actuates said gate-opening mechanism when the liquid rises in the bed to a predetermined height, substantially as described.

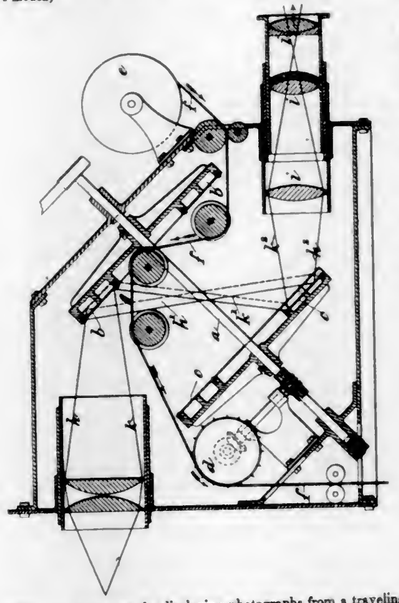
663,152. FARM-GATE. FREDERICK BARDEN, Eagle Grove, Iowa. Filed July 8, 1899. Serial No. 723,203. (No model.)

Claim.—A gate comprising a frame including end uprights and an intermediate upright, a cross-beam secured to the tops of the uprights, a track pivoted to the intermediate upright below the cross-beam, a gate having hangers slidably engaged with the track, a stop upon one of the end uprights to limit the movement of the gate in one direction, a post adjacent the opposite end upright, a T-lever having its head pivoted to the post and lying with its stem extending in front of the adjacent upright, a rock-shaft at each side of the frame having cranks, connecting-rods connecting the cranks with the head of the T-lever, one of said rods passing between the uprights for engagement by the gate to limit its movement in that direction, and a connection between the stem of the T-lever and a pivoted rail, whereby when the crank-shafts are operated, the gate will be given limited sliding movement.

663,152.



663,153. APPARATUS FOR DISPLAYING PHOTOGRAPHS. MARK BARR, Bowdon, England. Filed May 11, 1899. Serial No. 716,395. (No model.)

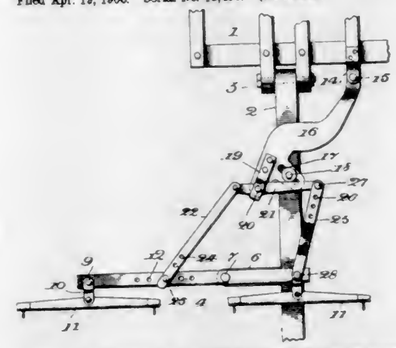


Claim.—1. Apparatus for displaying photographs from a traveling film comprising means of causing the film to travel uniformly, suitable projecting lenses, two revolving mirrors having helical surfaces, the one arranged to reflect rays from a source of light onto the film, these rays being caused by the continuous change of position of the reflecting-surface to travel with and through the film; the other mirror arranged to receive the rays passed through the film and by the continuous change of position of its reflecting-surface to cause these traveling rays when reflected to pass through the projecting lenses and form a stationary image on a screen, and mechanism for revolving the mirror, substantially as described.

2. Apparatus for displaying photographs from a traveling film comprising means for causing the film to travel uniformly, projecting lenses, a revolving mirror having a helical surface arranged to reflect rays passed through the traveling film, which would otherwise seem to travel along a screen, by the change of position of the reflecting-surface to pass through the projecting lens so as to render the image on the screen stationary, and mechanism for revolving the mirror, substantially as described.

3. Apparatus for displaying photographs, comprising a film, mechanism for causing the film to travel uniformly, a projecting lens, a revolving mirror having a helical surface arranged to reflect rays passed through the traveling film, and mechanism for revolving the mirror; substantially as described.

663,154. DRAFT-EQUALIZER. GUSTAV A. BELTZ, Renville, Minn. Filed Apr. 19, 1900. Serial No. 13,450. (No model.)



Claim.—1. The combination with the pole, of the brackets connected to said pole and projecting to one side thereof, the main equalizing bar or lever pivotally mounted on said brackets, the draft-lever swiveled upon said pole with its inner end connected adjacent to the connected end of the pole, the pivoted cross-bar carried on the outer end of said draft-lever, and the equalizing-links pivotally connected to the ends of said cross-bar and to the main equalizing bar or lever, substantially as described.

2. The combination with the pole, of the draft-lever having its inner end connected adjacent to the connected end of the pole, the main equalizing bar or lever supported from said pole, the cross-bar pivotally supported in the outer end of said draft-bar, and the adjustable equalizing-links connecting said cross-bar with the equalizing bar or lever, substantially as described.

3. The combination with the pole, of the draft-lever swiveled upon said pole with its inner end connected adjacent to the connected end of the pole, the adjustable main equalizing bar or lever supported from said pole, the cross-bar pivoted in the outer end of the draft-lever, and the adjustable equalizing-links connected to the ends of said bar and to the main equalizing bar or lever, substantially as described.

663,155. MANUFACTURE OF SHEET METAL. JOHN F. BUDKE, Cannonsburg, Pa. Filed Dec. 1, 1899. Serial No. 738,862. (No model.)

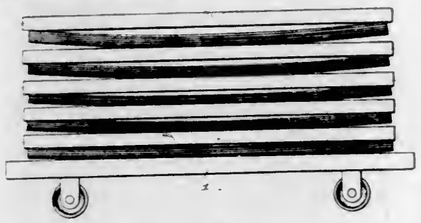


Claim.—1. As an improvement in the art of manufacturing sheet metal, the method herein described, which consists in pickling and cleaning the sheets as they come from the hot rolls, cold-rolling the pickled sheets, and then annealing the cold-rolled sheets, substantially as set forth.

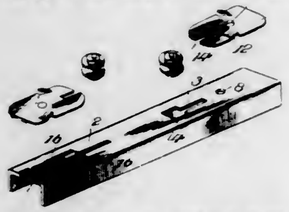
2. As an improvement in the art of manufacturing sheet metal, the method herein described, which consists in pickling and cleaning the sheets as they come from the hot rolls, cold-rolling the sheets, wetting the rolls and sheets during the rolling operation, and annealing the rolled sheets, substantially as set forth.

663,156. METHOD OF STRAIGHTENING METAL SHEETS. JOHN F. BUDKE, Cannonsburg, Pa. Filed Dec. 1, 1899. Renewed Oct. 26, 1900. Serial No. 34,473. (No model.)

Claim.—As an improvement in the art of straightening metal sheets the method herein described which consists in arranging the sheets in piles with a series of interposed rigid straightening beds or plates, and then subjecting the sheets to sufficient heat to render the sheets pliable under the superincumbent weight and thereby permit the straightening of the same, substantially as set forth.



663,157. METAL RAILROAD-TIE. JOHN W. COOPER, Park Ridge, N. J. Filed Apr. 12, 1900. Serial No. 12,610. (No model.)



Claim.—1. In combination with a railway-tie having a longitudinal slot, a chair having pivotal connection with the tie and provided at diagonally opposite points with lugs to engage over the base portion of the rail and formed with a slot to come opposite the slot in the tie, and a fastening slidable in the slots of the chair and tie and adapted to secure the chair when properly positioned, substantially as set forth.

2. A railway-tie having a longitudinal slot enlarged in its length, a chair provided with an open-ended slot and having lugs disposed at diagonally opposite points, a pivot-fastening applied to the said chair and adapted to pass through the enlarged portion of the slot of the tie and enter the reduced portion of said slot, and a second fastening to coöperate with the slots of the chair and tie to secure the former in position and adapted to have its head passed through the enlarged portion of the slot in the tie, substantially as set forth.

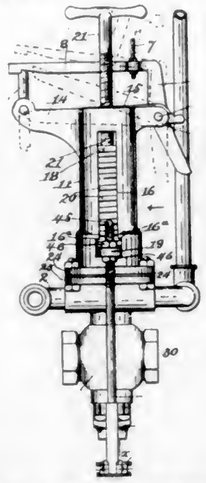
3. A railway-tie provided with a longitudinal slot having a portion enlarged, a chair having diagonally-disposed lugs and an open-ended slot, coöperating corrugations or teeth upon the meeting faces of the tie and chair, a pivot-fastening applied to the chair and adapted to pass through the enlarged portion of the slot in the tie and enter the narrow portion of said slot, and a second fastening coöperating with the slots of the chair and tie to secure said chair in place, substantially as set forth.

4. A metallic railway-tie having longitudinal slots of different lengths in its end portions and a pivot-opening in the end having the shorter slot, chairs having diagonally-disposed lugs and open-ended slots, means for pivotally connecting one of the chairs to the end portion of the tie having the pivot-opening, a pivot-fastening applied to the other chair and slidable in the longer slot of the tie, and fastenings movable in the slots of the tie and chairs, substantially as set forth.

663,158. GAS-REGULATOR FOR STEAM-BOILERS. WILLIAM H. DOWNING, Wittens, Ohio. Filed May 31, 1900. Serial No. 18,649. (No model.)

Claim.—1. In a gas-regulator, the combination, with the barrel, a spring contained therein, a lever having one end pivoted to the barrel and extending across the top thereof with the other end left free, the diaphragm operated by the spring, the gas-valves actuated by the diaphragm, and a set-screw reaching through the lever and engaging said spring, of the trigger-pawl pivoted to the barrel, and the trigger-arm pivoted to the barrel and having a free end to engage the pawl and hold it in engagement with the free end of the said lever.

2. The combination, with a gas-regulator having a barrel, a spiral spring in the barrel, a yoke slidable in the barrel against the spring and projecting outside the barrel, a diaphragm operating against the yoke, and the gas-valves actuated by the diaphragm, of the trigger mechanism upon the barrel and connected with the spring to operate the latter, and means connecting the projecting ends of the yoke with the regulator-valve stem to operate the valves thereof.



3. The combination, with a gas-regulator having a barrel and an expansion-pipe, a spring in the barrel, a diaphragm operated by the spring, the gas-valves actuated by the diaphragm, a yoke slidable in the barrel against the spring and having ends projecting outside the barrel, and the trigger mechanism connected to the spring, of means connecting the projecting ends of the yoke with the valve-stem of the regulator upon the outside of the latter so that the movement of the expansion-pipe imparted to the trigger mechanism will operate the said valve-stem.

4. In a gas-regulator for steam-boilers, the combination of the valve-casing having a diaphragm-chamber secured thereto, steam-passages to and from the chamber, a diaphragm above the passages, a barrel secured over said chamber, a yoke in the barrel having a disk engaging the diaphragm, a spiral spring in the barrel operated by the yoke, the trigger mechanism operated by an expansion-pipe to release the spring, the hanger depending from the said casing, the valve-stem working through the hanger and having valves and provided with a flanged collar, fulcrum-levers pivoted to the said hanger and engaging the collar, and the connecting-rods pivoted to the said levers and adjustably secured to the said yoke to operate the levers and to vary the throw of the valve-stem.

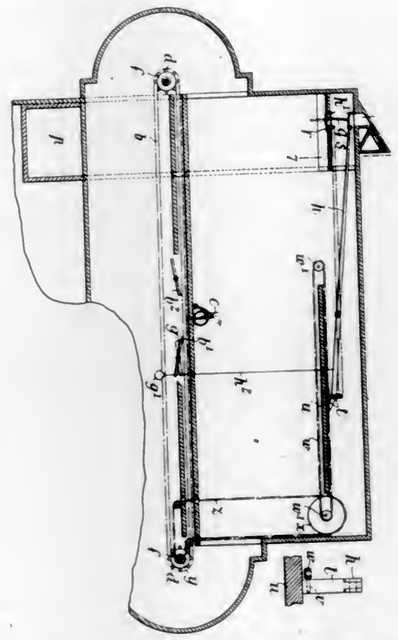
5. The combination, with the barrel having a trigger-controlled spring therein, a yoke slidable in the barrel against the spring and having a depending disk, a valve-stem carrying valves and terminating in a collar, and the valve-casing, of the chamber having a depending screw-lug and connecting the barrel and the valve-casing, a diaphragm in the chamber engaged by the said disk, and the rods and levers connecting the valve-stem collar with the yoke.

6. A gas-regulator for steam-boilers, comprising a barrel having opposite slots, a spring in the barrel, a lever pivoted to and working across the top of the barrel and having a set-screw engaging the spring, a trigger mechanism pivoted to the barrel and holding the lever in position to compress the spring, a valve-casing, a valve-stem carrying valves in the casing and terminating at one end in a flanged collar, a diaphragm-chamber in communication with the boiler and provided with a screw-leg connecting the barrel with said casing and having an expansion-pipe, a diaphragm in the chamber operated by the spring, a yoke slidable vertically against said spring and having ends projecting through the barrel-slots, a screw-disk depending from the yoke against the diaphragm, fulcrumed levers hung from the casing and engaging the valve-stem collar, and the rods connecting the fulcrum-levers with the projecting ends of the yoke.

663,159. COIN-CONTROLLED RACE GAME. JOHN DUNDON, Cork, Ireland. Filed Aug. 31, 1899. Serial No. 729,067. (No model.)

Claim.—1. In apparatus for playing a race game the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, means for normally locking the belts or chains against movement in one direction and coin-freed mechanism for disengaging the said locking means, substantially as described.

2. In apparatus for playing a race game the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, a weighted plate or catch for normally locking the belts or chains against movement in one direction and coin-freed mechanism for removing the plate or catch from the belts or chains, substantially as described.



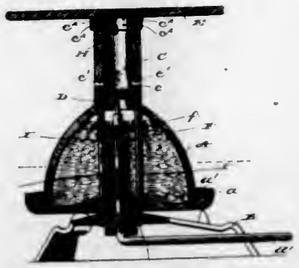
3. In apparatus for playing a race game the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, a weighted plate or catch for normally locking the belts or chains against movement in one direction, a lever, connected to the plate or catch and a coin-receptacle carried by the said lever, substantially as described.

4. In apparatus for playing a race game the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, means for normally locking the belts or chains against movement in one direction, a lever connected to the plate or catch, a coin-receptacle carried by the said lever and means whereby the belts or chains are not locked till the said figures have gone a predetermined number of laps, substantially as described.

5. In apparatus for playing a race game, the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, a plate or catch for normally locking the belts or chains against movement in one direction, a lever connected to the plate or catch, a coin-receptacle carried by the said lever, additional pulleys or chain-wheels engaging the belts or chains, a shaft carrying them, ratchet mechanism for operating the shaft from the said pulleys or wheels, an eccentric or crank, a driving-catch operated by the eccentric or crank, a toothed wheel operated by the driving-catch, a weighted arm on the toothed wheel and a lever on the coin-receptacle for discharging the coin, substantially as described.

6. In apparatus for playing a race game, the combination of endless belts or chains, figures carried thereby, pulleys or wheels carrying the belts or chains, means for enabling two or more persons to impart independent movement to the belts or chains, means for normally locking the belts or chains against movement in one direction, a lever connected to the plate or catch, a coin-receptacle pivoted to the said lever, a pin against which the receptacle impinges and is tipped to discharge the coin, a leg at one end of the lever and a traveling belt or chain having a projection thereon operated from one of the handles, substantially as described.

663,160. ALCOHOL-STOVE. JOHN S. DUNLAP, Chicago, Ill. Filed Nov. 13, 1899. Serial No. 736,849. (No model.)



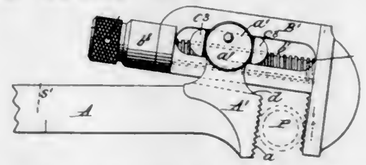
Claim.—1. A vapor-stove comprising the following elements in combination: a substantially dome-shaped reservoir, a mixing-chamber above the same and communicating therewith by means of a duct, a valve carried by the bottom of the reservoir and movable toward and from the said duct, and stay-rods connecting the top and bottom of the reservoir whereby the latter is prevented from expanding and causing an improper operation of the valve, substantially as described.

2. A vapor-stove comprising the following elements in combination, a reservoir, a mixing-chamber secured to the reservoir-top, a valve-guide extending through the reservoir-base into the reservoir and having within the reservoir a screw-thread, and a valve extending up through said valve-guide and having a screw-thread coöperating with said thread on the valve-guide, said valve controlling a port leading from the reservoir to the mixing-chamber, substantially as described.

3. A vapor-stove comprising the following elements in combination, a reservoir having a screw-threaded opening in the top and a screw-threaded opening in the bottom, a mixing-chamber above the reservoir and having a screw-threaded plug screwed into said opening in the reservoir-top, and also having a port connecting with the reservoir, a valve-guide screwed into said opening in the reservoir-bottom, and a valve working in said valve-guide and controlling said port, substantially as described.

4. A vapor-burner comprising a reservoir, a mixing-chamber secured to said reservoir-top, a valve-guide extending through the reservoir-base into the reservoir, a support for the reservoir held in place by said valve-guide, and a valve in said guide for controlling a port connecting the mixing-chamber and reservoir, substantially as described.

663,161. WRENCH. JAMES FATKIN, Gulch, Colo. Filed Apr. 25, 1900. Serial No. 14,242. (No model.)

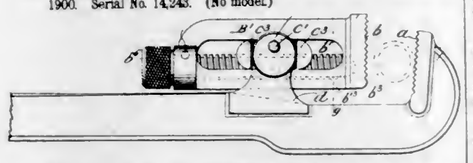


Claim.—1. A wrench, comprising an operating-handle provided with a fixed jaw, cheek-pieces projecting from said handle, a slotted movable jaw adapted to slide between the cheek-pieces, a nut adapted to rock upon a center between the cheek-pieces and having projecting portions adapted to engage the outer edges of the cheek-pieces to sustain the thrust upon the movable jaw, and a screw carried by the movable jaw and engaging said nut; substantially as described.

2. A wrench, comprising an operating-handle provided with a fixed jaw, cheek-pieces projecting from said handle on each side of said jaw, a movable jaw provided with a slotted body portion, a nut in said slotted body portion and provided with a threaded groove, said nut being loosely pivoted between the cheek-pieces and having projections to engage the edges of the latter, the said slotted body portion of the movable jaw being provided with a longitudinal groove, and a screw seated partially in said groove and engaging the threaded groove of the nut, substantially as described.

3. A wrench, comprising an operating-handle provided with a fixed jaw, cheek-pieces projecting from said handle on each side of the jaw, a movable jaw provided with a slot, a nut in said slot, a screw carried by the movable jaw and provided with a collar, and a ferrule bearing against said collar to retain the screw in proper position in the movable jaw and receive the thrust of the screw, substantially as described.

663,162. WRENCH. JAMES FATKIN, Gulch, Colo. Filed Apr. 25, 1900. Serial No. 14,243. (No model.)



Claim.—1. A wrench, comprising a handle provided with cheek-pieces projecting therefrom and a fixed jaw formed at an angle to said handle beyond said cheek-pieces, a movable jaw provided with a longitudinal slot, and adapted to travel toward and from the fixed jaw in the space between the cheek-pieces and said fixed jaw, said movable jaw fitting between the said cheek-pieces, a nut in the slot of said jaw and pivotally connected with the cheek-pieces, said nut having lateral projections or lugs to engage the outer edges of the cheek-pieces, and a screw carried by said jaw and engaging said nut, substantially as set forth.

2. A wrench comprising an operating-handle provided with cheek-pieces projecting therefrom and a fixed jaw formed at an angle to said handle beyond the cheek-pieces, a movable jaw provided with a longitudinal slot, said movable jaw fitting between said cheek-pieces, and having its clamping-face substantially parallel to the clamping-face of the fixed jaw, a nut in the slot of the movable jaw, and having laterally-projecting portions at opposite ends embracing said cheek-pieces, and a screw carried by the movable jaw and engaging said nut: substantially as set forth.

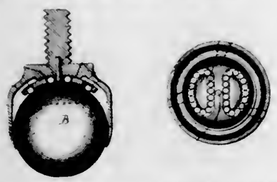
663,163. WRENCH. JAMES FATKIN, Gulch, Colo. Filed Apr. 25, 1900. Serial No. 14,244. (No model.)



Claim.—1. A wrench, comprising a handle having a fixed jaw, a longitudinally-slotted movable jaw adapted to travel toward and from the fixed jaw, a nut traversing the movable jaw transversely through the slot, said nut being provided with trunnions one of which is larger than the other, cheek-pieces projecting from the wrench-handle and having apertures or journal-bearings corresponding respectively to the trunnions, and a feed-screw passing through said nut and receiving the thrust of the movable jaw; subsantially as described.

2. A wrench, comprising a handle having a fixed jaw, a longitudinally-slotted movable jaw adapted to travel toward and from the fixed jaw, a nut traversing the movable jaw transversely through the slot, said nut being provided with trunnions one of which is larger than the other, and having flattened sides between said trunnions corresponding to the width of the slot of the movable jaw, cheek-pieces projecting from the wrench-handle and having apertures or journal-bearings corresponding respectively to the trunnions, and a feed-screw passing through said nut and receiving the thrust of the movable jaw; substantially as described.

663,164. BALL-CASTER. WILLIAM H. FAUBER, Chicago, Ill. Filed Aug. 5, 1899. Serial No. 726,273. (No model.)



Claim.—1. A ball-caster comprising a part having a concave bearing-surface, a spherical body, a plurality of antifriction-balls, and a generally horizontal plate between said body and concave bearing-surface provided with two endless races for the balls, one on each side of the center of said plate, and the adjacent parts of which races extend through the plate and are generally parallel with each other and with the plane of rotation of the spherical body, the part of the concave bearing-surface adjacent to the parallel portions of the races being located at a distance from the spherical body, when the caster is in its operative position, equal to the diameter of the antifriction-balls, and the remaining portions of the spherical body and the concave bearing-surface being located at a greater distance apart.

2. A ball-caster comprising a part having a concave bearing-surface, a spherical body, antifriction-balls, and a shifting guide-plate for said antifriction-balls, constructed to guide the balls successively away from and toward the space between the spherical and concave bearing-surfaces.

3. A ball-caster comprising a part having a concave bearing-surface, a spherical body, antifriction-balls, and a shifting guide-plate located between said body and the bearing-surface provided with an endless race or guide-groove for said balls, a part of which groove extends through the plate.

4. A ball-caster comprising a part having a concave bearing-surface, a spherical body, two sets of antifriction-balls, and a rotating guide-plate pivoted to said part concentrically of said bearing-surface, and provided with two grooves or races within which said balls travel, one of said grooves being located on each side of the center of the plate.

5. A ball-caster comprising a part having a concave bearing-surface, a spherical body, antifriction-balls, and a shifting guide-plate interposed between said bearing-surface and spherical body, and provided with an endless race within which said balls are seated, a portion of said race having its sides located in parallel planes and acting to guide the balls in a path parallel with the plane of rotation of the spherical body.

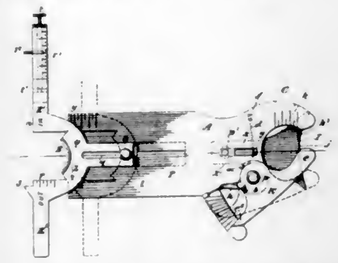
6. A ball-caster comprising a part having a concave bearing-surface, a spherical body and antifriction-balls, of a shifting guide interposed between said bearing-surface and spherical body, and provided with two endless races within which said balls are seated, portions of said races being parallel with each other and adapted to guide the balls in parallel paths across said concave bearing-surface.

7. A ball-caster cotaprising a part having a concave bearing-surface, a spherical body, antifriction-balls, a shifting guide-plate between said body and bearing-surface provided with a guide-groove or ball-race having parallel side walls which extend therethrough and within which said antifriction-balls travel, said balls having a diameter greater than the thickness of the said plate.

8. A ball-caster comprising a part provided with a concave bearing-surface, a spherical body, two sets of antifriction-balls, a guide-plate between said body and the bearing-surface which is rotatively mounted on a pin which projects f · said bearing-surface, said plate being provided at each side of the center thereof with an endless groove or race in which said antifriction-balls travel, and the balls only which at a given time occupy the adjacent parts of the grooves receiving the weight brought upon the caster.

9. A ball-caster, comprising a part provided with a concave bearing-surface, a spherical body, two sets of antifriction-balls between said spherical body and the bearing-surface, and a rotative plate interposed between said supporting-roller and bearing-surface which is provided with two endless guide-grooves or races, within which said balls travel, the parts of said grooves adjacent to the center of the plate being parallel with each other and adapted to guide the balls in parallel paths across said concave surface.

663,165. NOSE-GAGE. ABRAM M. FRANKEL, New York, N. Y. Filed Aug. 1, 1899. Serial No. 725,771. (No model.)



Claim.—1. In a nose-gage, the plate A having the arm C, provided with scale *k* and arm H provided with scale *w*; the plate E having the arms *e* and e^2 pivoted on the plate A; in combination with the plate I movably attached to the plate A and with suitable means for regulating the movement of the arm *e* and the edge *j* of the plate I along the plate A, substantially as and for the purposes set forth.

2. In a nose-gage, the plate A having the arm C provided with scale *k* and the arm H provided with the scale *w*; the plate E pivoted at *p* on the plate A and having arms *e* and e^2; in combination with the plate I movably attached to the plate A by means of a pivot *p'* rigidly attached to plate A, the said plate I moving freely back and forth on said pivot by means of the slot *x'*, and being held in place by the head of the pivot *p'*, with the springs *d* and *h* for regulating the movement of the arm *e*, and the edge *j* of the plate I along the plate A, substantially as and for the purposes set forth.

663,166. PROCESS OF MAKING EXPLOSIVES. ADAM C. GIRARD, Paris, France. Filed Feb 3, 1900. Serial No. 3,824. (No specimens.)

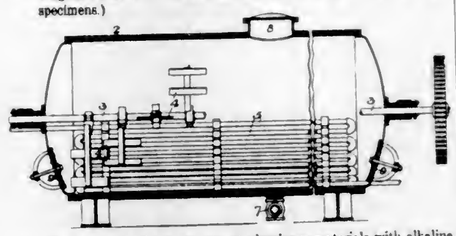
Claim.—1. In the manufacture of explosives, the process consisting in solidifying an oil by dissolving therein a suitable soap, and then adding a chlorate to support combustion.

2. In the manufacture of explosives, the process consisting in solidifying an oil by dissolving therein a suitable soap, then adding a chlorate to support combustion, and nitronaphthalene as a combustible body.

3. In the manufacture of explosives, the process consisting in solidifying an oil by dissolving therein a suitable dry soap, then adding a chlorate to support combustion, and nitronaphthalene as a combustible body.

4. In the manufacture of explosives the process consisting in solidifying the oil employed in such manufacture by adding dry soap thereto and heating the mixture, then filtering the liquid product and adding a chlorate to support combustion.

663,167. METHOD OF MAKING ALUMINA. CHARLES M. HALL, Niagara Falls, N. Y. Filed May 26, 1900. Serial No. 18,174. (No specimens.)

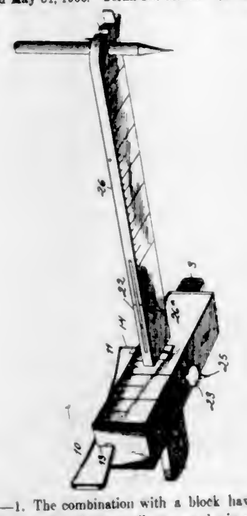


Claim.—1. In the treatment of aluminous materials with alkaline caustic liquor in a digester for conversion into sodium aluminate, the improvement which consists in adding lime to the mixture under treatment in the digester whereby any carbonate of soda present in the caustic liquor is decomposed, and the silica eliminated; substantially as described.

2. The method herein described for converting aluminous material into sodium aluminate, which consists in treating such material in a digester with carbonate of soda and lime; substantially as described.

3. The method herein described for converting aluminous material into sodium aluminate, which consists in treating such material in a digester with carbonate of soda and lime; the lime being in sufficient proportion to combine with the carbonic acid of the carbonate of soda and with the silica of the aluminous material; substantially as described.

663,168. CARPENTER'S TOOL. ELIHUE M. HEMBREE, Roanoke, Ga. Filed May 31, 1900. Serial No. 18,572. (No model.)

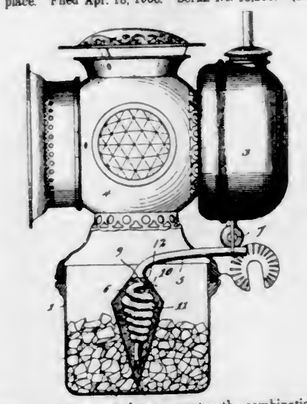


Claim.—1. The combination with a block having a slotted recess or socket in each end, and a centrally-arranged pin projecting from said block, of a scribe-bar adjustably secured in one recess and carrying a point or pin which projects through the slot, and a gage-bar in the other recess, said scribe-bar and gage-bar being adapted to be adjusted toward and away from each other and toward and away from the central pin on the block.

2. In combination with a gage-block provided with a transverse slot extending therethrough, of a bar adjustably secured in said slot, a set-screw for retaining said bar in a predetermined adjustment, a pin projecting from said set-screw, and a pivoted spring-retained finger carried by one end of said bar, and adapted to retain a pencil in an opening in the bar by frictional contact whereby the point on the set-screw and the point on the pencil will form two points of a compass.

3. The combination with a gage-block having a transverse slot extending therethrough, of a bearing-plate in said slot having slotted right-angular flanges, pins engaging said slotted flanges, a bar adjustably secured in said slot, and adapted to be held therein by contact with the plate, means forcing said plate tightly against the bar and carrying a pivoted point or pin, and a marker carried by the said bar.

663,169. ACETYLENE-GAS GENERATOR. WILLIAM HINGE, Kenosha, Wis., assignor to the Badger Brass Manufacturing Company, same place. Filed Apr. 18, 1900. Serial No. 13,299. (No model.)



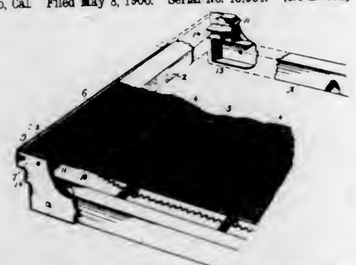
Claim.—1. In an acetylene-generator, the combination with a generating-chamber, a source of liquid-supply under pressure and a supply-duct conveying the liquid into the generating-chamber, of means for controlling and distributing the liquid within the generating-chamber, comprising an elongated closed distributing-chamber located within the generating-chamber, arranged to extend at its lower portion into the body of carbid therein and communicating at its upper portion with the liquid-supply duct, a discharge-outlet located at the upper part of said distributing-chamber and a pressure-coil arranged within the distributing-chamber and surrounded by water therein, and communicating at its upper end with the discharge-outlet thereof, the intaking end of said coil communicating with the lower portion of the distributing-chamber, as and for the purposes described.

2. In an acetylene-generator, the combination with a generating-chamber, a liquid-reservoir elevated with reference to said generating-chamber and a supply-duct leading from the reservoir and extending into the generating-chamber, of means for controlling and distributing the liquid, comprising a distributing-chamber provided with a conical lower end portion arranged to extend into the body of carbid and communicating at its upper end with the supply-pipe leading from the reservoir, a discharge-outlet located in the upper part of said distributing-chamber and arranged to discharge the liquid upon the conical exterior thereof, and a pressure-coil arranged within the distributing-chamber and communicating at its upper end with the discharge-outlet, the upper portion of said coil consisting of approximately horizontally-disposed coils and the lower intaking end being arranged to communicate with the interior of the distributing-chamber near the bottom thereof, as and for the purposes described.

3. In an acetylene-generator, the combination with a generating-chamber, a liquid-reservoir elevated with reference to said generating-chamber and a supply-duct leading from the reservoir and extending into the generating-chamber, of means for controlling and distributing the liquid, comprising a distributing-chamber provided with a conical lower end portion arranged to extend into the body of carbid and communicating at its upper end with the supply-pipe leading from the reservoir, a discharge-outlet located in the upper part of said distributing-chamber and arranged to discharge the liquid upon the conical exterior thereof, and a pressure-coil arranged within the distributing-chamber and communicating at its

upper end with the discharge-outlet thereof, said coil comprising a plurality of horizontally-disposed turns and being formed to conform as a whole approximately to the internal shape of the distributing-chamber, but of smaller size in all its dimensions than the corresponding dimensions of the distributing-chamber, so as to be insulated by the liquid of the distributing-chamber from the heat of the generating-chamber and arranged to communicate at its lower end with the lower portion of the distributing-chamber, substantially as and for the purposes described.

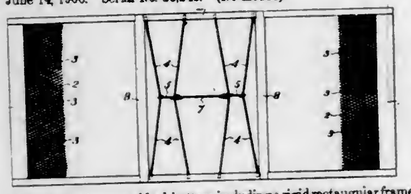
663,170. BED-BOTTOM ATTACHMENT. JOHN HOEY, San Francisco, Cal. Filed May 8, 1900. Serial No. 15,901. (No model.)



Claim.—1. The combination with a wire bed-bottom including a mattress, longitudinal side bars and transverse end bars, of caps including a double series of parallel horizontal flanges and vertical transverse flanges connecting the same and forming housings for the ends of both the side bars and end bars, said caps having vertically-disposed exterior covering-plates and the uppermost horizontal flange of each cap terminating short of the outer end of the companion flange to enable the edges of the mattress to be brought out flush with the ends of the end bars so that said edges may be extended over the uppermost flange of the cap.

2. The combination with the side rails and transverse bars of a bed-bottom, of a cap or housing for said bars including a double series of parallel horizontal flanges, one series of flanges forming a housing for the end bar and the other series forming a housing for the side rail said latter housing having its flanges extended beyond those of the other series, vertical transverse end flanges connecting the horizontal flanges, said cap or housing having a centrally-located bridge or extension for raising the end bars above the side rails, and having an exterior covering-plate.

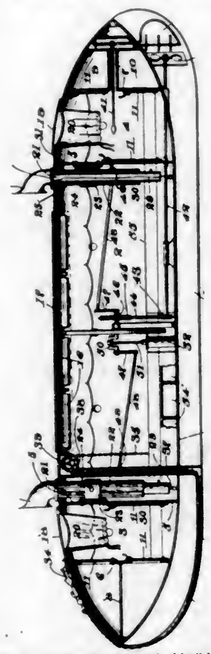
663,171. BED-BOTTOM. JOHN HOEY, San Francisco, Cal. Filed June 14, 1900. Serial No. 20,246. (No model.)



Claim.—An improved bed-bottom including a rigid rectangular frame, a fabric connected with the end bars of the frame and unconnected with the side bars thereof, means for reducing the strain of the fabric upon the end rails and dividing said strain between the end rails and side rails consisting of elastic cables extending transversely across from one side rail to the other beneath and in contact with the central portions of the fabric whereby the tension of said cables acts upon the frame at right angles to the tension of the fabric, means for connecting the transverse cables in pairs so that the cables of each pair may be drawn toward each other and their tension increased, and means for connecting one pair of cables with the other.

663,172. LIFE-BOAT. MARIUS P. HOY, Tacoma, Wash., assignor of one-half to Chauncey S. Upright, same place. Filed June 9, 1899. Serial No. 719,995. (No model.)

Claim.—1. A life-boat comprising a hull made cylindrical and tapered at its ends, bulkheads mounted in the said boat dividing it into various compartments, an anchor for holding the boat in place, when desired, a tube extending into one of the compartments for accommodating the anchor-chain, a groove in the keel of the boat connected with the said tube and extending to the end of the boat, whereby when the anchor is carried by the boat, the chain will lie in the said groove and the said tube and a pulley in the said tube over which the chain may be pulled from the interior of the boat to raise and lower the anchor, substantially as described.

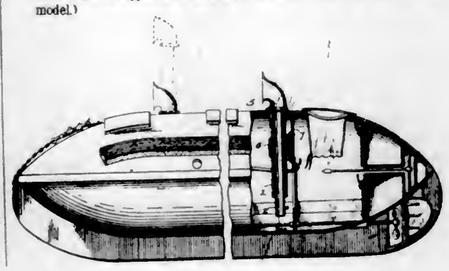


2. A life-boat comprising a cylindrical hull having a central and end compartments, bulkheads separating said compartments, hatchways in the hull leading out from said central compartment, and hatchways or openings in the bulkheads, whereby access may be had to the end compartments from the central one, and sliding doors for covering the hatches in the hull and sliding pivoted doors for closing the bulkheads and openings or hatches, substantially as described.

3. A life-boat comprising a cylindrical hull having a central compartment and end compartments, a series of hatchways arranged at the top of the central compartment, sliding doors, conforming to the shape of the cylindrical hull and extending over said hatchways, whereby they all may be closed by the operation of a single pair of doors, bulkheads dividing the end compartments from the central compartment, hatchways or openings in said bulkheads for permitting access to the end compartments from the central one, said hatchways being triangular in shape, and approximately triangular doors pivotally secured to the bulkheads for closing the triangular hatchways, the structure being such that the shape of the doors will permit of their being moved sufficiently far, in the cylindrical hull, to one side or the other of the openings to afford proper communication between the compartments, substantially as described.

4. In a boat, the combination with a suitable hull, of compartments formed therein, air-tubes entering the main compartment of the boat, guy-rods for supporting a mast in one of the tubes, substantially as described.

663,173. MEANS FOR VENTILATING BOATS. MARIUS P. HOY, Tacoma, Wash., assignor of one-half to Chauncey S. Upright, same place. Original application filed June 9, 1899, Serial No. 719,995. Divided and this application filed Apr. 14, 1900. Serial No. 12,878. (No model.)



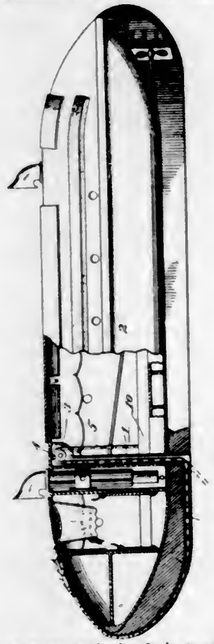
Claim.—1. A mechanism for supplying air to the interior of a boat, comprising inner and outer telescoping tubes, a support for holding the outer tube at different heights, and means for holding the inner tube so as to collect the air from different directions.

2. A ventilating apparatus for boats, comprising an outer corrugated tube and an inner telescoping tube, a bracket for supporting the said tubes, set-screws in the bracket for engaging the outer tube to hold the same at different heights, the ends of the said tubes being open to form a passage-way for air entering the boat.

3. A ventilating mechanism for boats, comprising an outer corrugated tube and an inner telescoping tube, a bracket inclosing the outer tube and supporting the same in the boat, set-screws mounted in the bracket and adapted to engage the corrugations of the outer tube for holding it at different adjusted heights, a projection secured to the inner tube and adapted to engage any one of the corrugations of the outer tube, whereby the inner tube may be turned to receive air from different quarters, and an air-receiving funnel secured to the upper end of the inner tube for collecting the air, substantially as described.

4. A ventilating mechanism for boats, comprising an outer tube, a bracket for adjustably supporting the same, an inner tube moving in the said outer tube, an air-collecting funnel upon the upper end of the inner tube, a projection upon the inner tube for engaging corrugations formed upon the outer tube to hold the said funnel in different directions, a damper in the inner tube, and means extending into the boat for operating the said damper, whereby the quantity of air introduced through the tubes may be controlled, substantially as described.

663,174. ANCHOR MECHANISM FOR BOATS. MARIUS P. HOY, Roseiale, Wash., assignor of one-half to Chauncey S. Upright, Tacoma, Wash. Original application filed June 9, 1899, Serial No. 719,995. Divided and this application filed June 9, 1900. Serial No. 19,773. (No model.)

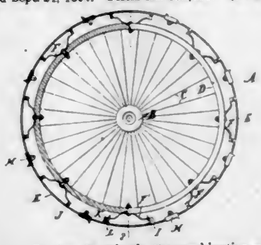


Claim.—1. An anchor mechanism for boats, comprising an anchor, a chain carrying the same, an inclosing tube arranged in the boat for receiving the anchor-chain and extending upwardly through the boat, the said tube being open at the bottom to the water, a pulley-housing at the top of the tube, a pulley located in said housing, the said housing having an opening through which the chain may pass into the boat so that the anchor may be hoisted or lowered from the inside of the boat, substantially as described.

2. An anchor mechanism for boats, comprising an anchor, a chain carrying the same, a vertical tube arranged in the hull or body of the boat, open to the water at its lower end and extending a suitable distance above the water interiorly of the boat, a sprocket wheel or pulley arranged at the upper end of the tube for movably supporting the chain, and a hook upon the prow of the boat, for supporting the anchor when not in use, the said chain being adapted, when the anchor is secured to the hook, to lie in a groove formed in the keel of the boat, substantially as described.

3. An anchor mechanism for boats, comprising a chain carrying an anchor, a tube mounted in the boat and extending through the keel thereof, the said keel being also provided with a chain-receiving groove which extends forward to the prow of the boat, the said tube being arranged at a point about midway between the bow and center of the boat, a pulley mounted in the upper end of the tube over which the chain may be pulled for raising or lowering the anchor, a box or casing in the boat for receiving the loose end of the chain, and a hook upon the prow of the boat for receiving the anchor when not in use, substantially as described.

663,175. WHEEL AND TIRE. THOMAS J. KETCHAM, Matamoras, Pa. Filed Sept. 21, 1897. Serial No. 652,430. (No model.)



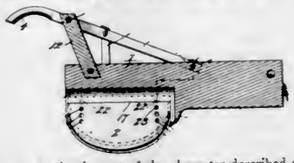
Claim.—1. In tires for wheels, the combination with a felly D having a hole *b* and faces *c*, of a tire E spaced apart from said felly, and a spring F connected at its ends to said tire, crossing the space between the latter and said felly, bearing on the faces *c* of the latter, and having a hole *a* opposite said hole *b*, and a bolt G traversing said holes and adjustable therein to connect said spring to said felly, and to adjust the tension of the spring by flexing it between said faces *c*.

2. For wheel-tires, the combination with a felly D, of a spring F connected at its middle thereto, and a tire E spaced apart from and movable circumferentially of said felly and connected thereto by said spring, said spring having antifriction-rollers J at its ends transmitting its tension to said tire and carrying the tire movably longitudinally relatively to the springs.

3. In wheels, the combination with a felly, of a tire spaced apart therefrom, springs F connected at their middles to said felly and at their ends to said tire, stops limiting the movement of the tire on the springs, said springs having outturned ears I embracing the sides of said tire and movably connecting the latter to the felly and rollers J held by said ears between the springs and tire.

4. In wheels, a felly D, in combination with a tire E spaced apart from and movable circumferentially relatively to the felly, a spring between said felly and tire supporting the tire elastically and movably from the felly and movably connected to the tire, and a connection between the spring and the tire limiting movement of the tire circumferentially relatively to the felly and antifriction-rollers between the spring and tire facilitating movement of the latter.

663,176. LAND-CLEARING IMPLEMENT. THOMAS E. KIRK, Deep Creek, Va. Filed Mar. 26, 1900. Serial No. 10,283. (No model.)



Claim.—1. An implement of the character described comprising a heavy stock and a reversible cutter secured to the under side of the stock and having its front and rear ends formed with cutting edges.

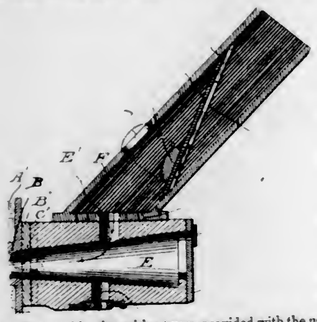
2. An implement of the character described comprising a heavy stock having a longitudinal kerf in its under side, and a cutter seated in the kerf and having its front and rear ends formed with cutting edges below the stock.

3. An implement of the character described comprising a heavy stock having a longitudinal kerf in its under side, a reversible cutter seated in the kerf, and means for effecting the adjustment of the cutter.

4. An implement of the character described comprising a heavy stock, and a cutter having the opposite ends of its cutting edge identically curved and its intermediate portion curved in less degree than its end portions.

5. An implement of the character described, comprising a heavy stock cut away at the forward end of its under side to form runner and buffer faces angularly disposed, and a cutter depending from the stock in the rear of the buffer-face and having its entire exposed cutting-face curved.

663,177. TWYER FOR BLAST-FURNACES. GEORGE B. KLINK, Tacoma, Wash. Filed Mar. 28, 1900. Serial No. 10,562. (No model.)



Claim.—The combination with a twyer provided with the usual horizontal opening leading to the furnace and a communicating opening leading up therefrom through the shell, the upper side of the twyer surrounding said opening being flat and horizontal, of an inclined rectangular blast-pipe leading upwardly and outwardly, having an escape-opening in its upper face, and a horizontal lower head or end resting on the flat upper surface of the twyer and provided with an opening registering with the vertical opening of the twyer, straight ribs on the inner sides of the blast-pipe inclining from its top to its bottom face, a flat valve pivoted at its upper end to the inside of the blast-pipe at the upper ends of and above said ribs, and a weighted head or button on the upper face of said valve adapted to normally hold the valve down when closed and to serve as a stopper to close the escape-opening in the upper face of the blast-pipe when the valve is open, substantially as described.

663,178. DENTAL DAM. NATHANIEL KUNS, Santa Monica, Cal. Filed Oct. 1, 1900. Serial No. 31,712. (No model.)



Claim.—1. A dental dam comprising a ring-wall; a rubber sheet stretched over one end of said wall; and means for fastening the sheet on said wall.

2. A dental dam comprising a ring-wall; a rubber sheet over the end of said wall; and a fastening-hoop surrounding the sheet and wall and clamping the sheet on the wall.

3. A dental dam comprising a ring-wall furnished at one end with a bead; a sheet over the other end of said wall and perforated to receive the tooth; and a ring encircling said sheet and wall and clamping the sheet upon the wall.

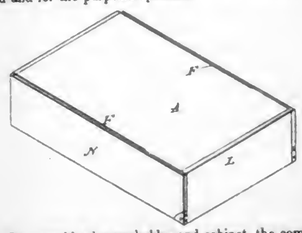
4. A dental dam comprising a ring-wall furnished at one end with a notch; a rubber sheet stretched over the notched end of said wall; and means for fastening the sheet on said wall.

5. A dental dam comprising a ring-wall furnished at one end with a notch; a rubber sheet stretched over the notched end of said wall; and a fastening-hoop surrounding the sheet and wall and clamping the sheet on the wall.

6. A dental dam comprising a ring-wall furnished at one end with a notch; and a fastening-hoop for fastening a rubber sheet over the end of said wall and furnished with a projection to register with said notch.

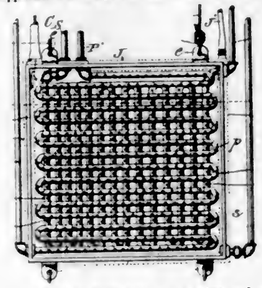
663,179. COMBINATION TYPE-WRITER COPY-HOLDER. JOHN P. MARTIN, Louisville, Ky. Filed Nov. 21, 1898. Serial No. 697,076. (No model.)

Claim.—1. A combined copy-holder and cabinet, consisting of a box having its front end hinged at its bottom and adapted to be lowered outwardly, perforated shelves upon the sides of said box near the front end thereof, a top or lid adapted to be raised from the front end, a brace on each side of said lid pivoted at its front end to said lid and hinged at its rear end to the side of the box at the rear end thereof, a clamp at the front end of said lid on the under surface thereof, and a rest or support at the rear end of said lid hinged thereto by a wire, the ends of said wire being adapted to engage the perforations in said shelves, substantially as described and for the purposes specified.



2. In a combined copy-holder and cabinet, the combination with a box having its front end hinged to the box at its bottom and adapted to be lowered outwardly, of a transverse slidable, vertical partition near the rear end of said box, and a longitudinal horizontal slidable partition extending back to said vertical partition, inwardly-projecting perforated shelves on the sides of said box at its front end, the lid or top of said box having braces extending along the sides, the front ends of said braces being pivoted to the edges of said lid, and their rear ends being hinged to the sides of the box at its rear, said lid being provided at its front end with a clamp, and at its rear end with a bench or rest hinged thereto by a wire having downwardly-extending ends adapted to engage the holes in said shelves, substantially as described and for the purposes specified.

663,180. MEANS FOR CLEANING AND PAINTING OR TREATING SURFACES SUBMERGED IN WATER. DAVID MASON, New York, N. Y. Original application filed Jan. 20, 1900, Serial No. 2,225. Divided and this application filed Apr. 27, 1900. Serial No. 14,579. (No model.)



Claim.—1. Means or apparatus for cleaning and painting or treating submerged surfaces, consisting of a box or pan provided with means for sealing and securing it to the surface to be treated; in combination with means within said box or pan operatively connected by one or more hose-pipes with means above water for cleaning and treating the surface to which the box or pan is secured, substantially as described.

2. Means or apparatus for cleaning and painting or treating submerged surfaces, consisting of a box or pan provided with means for sealing and securing it to the surface to be treated; in combination with cleansing means located within said box or pan and operatively connected with a hose-pipe extending above water; together with additional means in the box or pan for painting the surface by a spraying action, said means being operatively connected by a hose-pipe with a source of paint-supply located above the surface of the water, substantially as described.

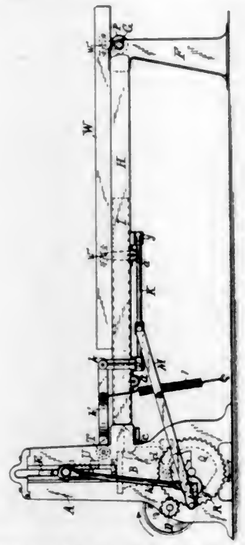
3. Means or apparatus for cleaning and painting or treating submerged surfaces, consisting of a box or pan provided with means for sealing and securing it to the surface to be treated; in combination with means operatively connected with said box or pan for withdrawing the water therefrom; together with additional means located within the box or pan and operatively connected above the surface of the water with means for cleaning the surface by a spraying action, substantially as described.

663,181. VENEER-CLIPPER. LOUIS G. MERRITT, Lockport, N. Y. Filed Aug. 13, 1900. Serial No. 26,696. (No model.)

Claim.—1. In a veneer-clipper, the combination with the frame, the bed, the knife-bar, and means connected to said knife-bar to give the same a vertical reciprocating movement, of a feed-carriage having a horizontal reciprocating movement toward and from the knife-bar, and bars pivoted at one end to the frame to lift and hold the work from contact with the carriage while the latter is moved from the knife-bar, as set forth.

2. In a veneer-clipper, the combination with the frame, the bed, the knife-bar, knife, a revoluble shaft, and connections between the shaft and

knife-bar to give the latter a vertical reciprocating movement, of a feed-carriage having a horizontal reciprocating movement in proper time relation to the movement of the knife-bar, and means to raise the pile of veneer from the carriage during the cutting operation and to hold it from contact with the carriage during its movement from the knife and to lower it upon the carriage for movement beneath the knife, substantially as described.



3. In a veneer-clipper, the combination with the frame, the bed, the knife-bar, knife, and means connected to said bar to give the same a vertical reciprocating movement, of a feed-carriage having parallel bars for the veneer and having a horizontal reciprocating movement toward and from the knife-bar, and a lifting-frame having parallel bars disposed between the bars of the carriage and pivoted at one end to the frame, and means to raise said frame to hold the veneer above the carriage while the latter is moving from the knife, as set forth.

4. In a veneer-clipper, the combination with the main frame, the bed, the knife-bar, knife, and means connected to said bar to give the same a vertical reciprocating movement, of a feed-carriage for the veneer having a horizontal reciprocating movement toward and from the knife-bar, a lifting-frame pivoted at its rear end to the main frame to raise the veneer from the carriage, a revoluble shaft provided with a cam, and a bracket on the forward end of the lifting-frame to engage the cam, as set forth.

5. In a veneer-clipper, the combination with the frame, the bed, the vertically-reciprocating knife-bar and knife, of a feed-carriage having a horizontal reciprocating movement, a pivoted lifting-frame for lifting the veneer from and holding it above the carriage during its movement from the knife, a revolving shaft turning in bearings in the frame, connections between the shaft and the knife-bar to reciprocate the same, connections between the shaft and the carriage to reciprocate the latter in proper time relation to the movement of the knife-bar, cams on the shaft, and brackets on the lifting-frame to engage the cams, as and for the purpose described.

6. In a veneer-clipper, the combination with the frame, the bed below the knife, the vertically-reciprocating knife-bar, guides for the knife-bar, the knife, of a feed-carriage having a horizontal reciprocating movement, a pivoted lifting-frame for lifting the veneer from and holding it above the carriage during its movement from the knife, a revolving shaft, connections between the shaft and the various movable parts to operate them, a pressure-bar mounted on the rear side of the knife-bar and provided with compression-springs, said bar being adapted to clamp the veneer to the bed during the cutting operation and to hold the veneer from displacement when it is raised from the carriage and the latter recedes from the knife, as set forth.

7. In a veneer-clipper, the combination with the frame, the bed below the knife, the vertically-reciprocating knife-bar, guides for the knife-bar, the knife, of a feed-carriage having a horizontal reciprocating movement, a pivoted frame mounted on the carriage, a roller carried by the frame to bear and roll upon the veneer, springs connected to the roller-frame to cause the roll to clamp the veneer tightly, a pivoted lifting-frame for lifting the veneer from and holding it above the carriage during its movement from the knife, a revolving shaft, connections between the shaft and the various movable parts to operate them, a pressure-bar mounted on the rear side of the knife-bar and provided with compression-springs, said bar being adapted to clamp the veneer to the bed during the cutting operation and to hold the veneer from displacement when it is raised from the carriage and the latter recedes from the knife, as set forth.

8. In a veneer-clipper, the frame, the knife-bar movable vertically in slots in the frame, the carriage, the crank-shaft connected to both the knife-bar and the carriage, the lifting-frame having bars lying parallel with and in the same horizontal plane as the carriage-bars, said lifting-frame being pivoted on a shaft at the rear end of the machine, cams on the crank-shaft, and brackets on the front end of the said frame engaging the peripheries of the cams as set forth.

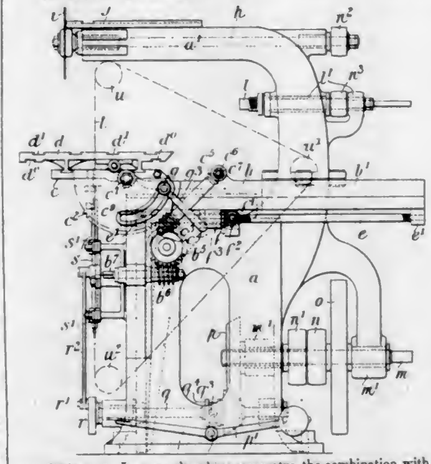
9. In an automatic veneer-clipper, the combination with the frame, the knife-bar, knife, crank-shaft, and connections between the crank-shaft and the ends of the knife-bar, of the horizontally-reciprocating carriage formed of parallel bars extending in the line of movement of the carriage, said bars secured edgewise upon cross-bars, side rods connecting the ends of said cross-bars, adjustable pivot-clamps on the rods, adjustable crank-arms on the crank-shaft, connecting-bars between the crank-arms and the adjustable pivot-clamps, and rollers for the carriage to travel on, substantially as described and shown.

10. In an automatic veneer-clipper, the combination with the frame, the knife-bar, and the carriage, of a crank mechanism for giving the knife-bar and carriage reciprocating movements in proper time relations and in planes at right angles to each other, consisting of a shaft turning in bearings in the frame below the knife-bar, gear-wheels on the ends of the shaft, crank-pins cast integral with the gear-wheels, disks with grooves secured on the outer ends of the crank-pins, said grooves radiating from the centers of the gears, slotted slides with pivots secured adjustably on the disks by means of bolts, connecting-bars between the said crank-pins and the ends of the knife-bar, and connecting-bars between the pivots of the slotted slides and the carriage as set forth.

11. In an automatic veneer-clipper, the combination with the frame, the vertically-reciprocating knife-bar, the horizontally-reciprocating carriage, of the crank-shaft turning in bearings in the frame, and connected to the knife-bar and to the carriage, a driving-shaft also turning in bearings in the frame, and two pairs of gears on the said shafts adapted to mesh with each other alternately to obtain two different rates of speed, as set forth.

12. In a veneer-clipper having an automatic reciprocating carriage, the combination with the frame, the bed, the knife-bar, and means connected to said knife-bar to give the same a vertical reciprocating movement, said knife-bar having its front and rear sides provided with bearings, irregular knife-forms bolted to opposite sides of the knife-bar, knives secured to the forms, spring-pressure rods mounted on the forms, and adjustable bed-plates containing a filling of soft material to receive the edges of the knives, substantially as shown and described.

663,182. WOODWORKING MACHINERY. LEON M. MESSINESI, London, England, assignor to the Diagonal and Universal Wood Working Machine Company, Limited, same place. Filed July 1, 1899. Serial No. 722,591. (No model.)



Claim.—1. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate,

a sliding frame mounted on said bed-plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw and means for operating said saw, substantially as described.

2. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate, a sliding frame mounted on said bed plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw, means for reciprocating said saw and means for throwing said reciprocating device into and out of engagement with the driving mechanism, substantially as described.

3. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate, a sliding frame mounted on said bed-plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw, means for reciprocating said saw and means for throwing said reciprocating device into and out of frictional engagement with the driving mechanism, substantially as described.

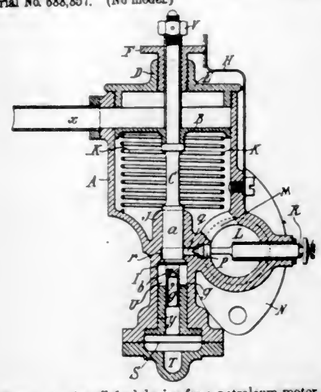
4. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate, a sliding frame mounted on said bed-plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw, means for reciprocating said saw, a shaft operating said reciprocating device, a bevel friction-wheel loosely keyed to said shaft, an annular collar integral with said bevel friction-wheel and provided with an annular groove and a counterweighted pedal provided with a bifurcated arm adapted to engage said annular groove in said collar, substantially as described.

5. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate, a sliding frame mounted on said bed-plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, longitudinal grooves formed on two sides of the extreme forward end of said arm adapted to receive tools, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw and means for operating said saw, substantially as described.

6. In a woodworking apparatus, the combination with the main support, of a bed-plate, means for vertically adjusting said bed-plate, a sliding frame mounted on said bed-plate, means for horizontally adjusting said sliding frame, an auxiliary frame swiveled to the forward part of said sliding frame, means for adjusting said auxiliary frame, a table upon said auxiliary frame, means for adjusting said table, a forwardly-extending arm integral with said support, a table provided on top of said arm, a spindle mounted in the vertical portion of said arm, means for operating said spindle, a spindle mounted in the forwardly-extending horizontal portion of said arm and means for operating said spindle, a fret-saw and means for operating said saw, substantially as described.

7. In a woodworking apparatus, the combination with the main support, of a bed-plate provided with a downwardly-extending portion, a rack on said downwardly-extending portion, a gear-wheel meshing with said rack, a worm-wheel and worm rigidly mounted on the shaft with said gear-wheel, means for operating said worm, a sliding frame adapted to be shifted on said bed-plate, a long screw rigidly secured to said sliding frame, a pinion provided with a screw-threaded opening for engaging said long screw, means for preventing the longitudinal movement of said pinion, an operating-pinion gearing with said first-mentioned pinion, means for turning said operating-pinion, an auxiliary frame swiveled to said sliding frame, segments integral with said auxiliary frame, slots concentric with the swiveling point, a long bolt secured to the sliding frame and passing through said slots and means of tightening said bolt, a table adapted to slide on said auxiliary frame, a long screw and nut for adjusting said table, a fret-saw, a slide attached to said saw, guides for said slide, a crank-pin, a rod pivotally connected to said slide and said crank-pin, a shaft operating said crank-pin, a bevel friction-wheel loosely keyed to said shaft, a collar integral with said friction-wheel and provided with an annular groove, a counterweighted pedal provided with a bifurcated arm adapted to engage said annular groove in said collar, a bevel-wheel on the driving-shaft to gear with said friction-wheel, and a forwardly-extending arm integral with said support and provided with suitable tool-carrying spindles, substantially as described.

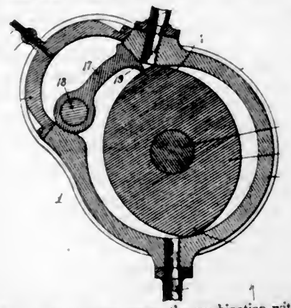
663,183. SPEED-GOVERNOR FOR EXPLOSIVE-ENGINES. JOSEPH MILLOT and BENOIT MILLOT, Gray, France. Filed Aug. 18, 1898. Serial No. 688,857. (No model.)



Claim.—1. An oil-feed device for a petroleum-motor, comprising a piston, an oil-admission valve opened by the displacement thereof, one side of said piston communicating with the suction-passage of the motor, and the opposite side communicating with the atmosphere, and a centrifugal governor controlling the latter communication, constructed to close it when the speed becomes excessive, and thereby prevent the displacement of the piston by the suction in said suction-passage.

2. An oil-feed device for a petroleum-motor, comprising a piston, an oil-admission valve opened by the displacement thereof, one side of said piston communicating with the suction-passage of the motor, and the opposite side communicating with the atmosphere through a passage *t*, a shell A′ to which said passage leads, a weighted valve B′ revolving in said shell, adapted when thrown outward by excessive speed to close said passage *t* during the suction-stroke of the engine, and a spring R′ adapted to restrain said weight while the speed remains normal.

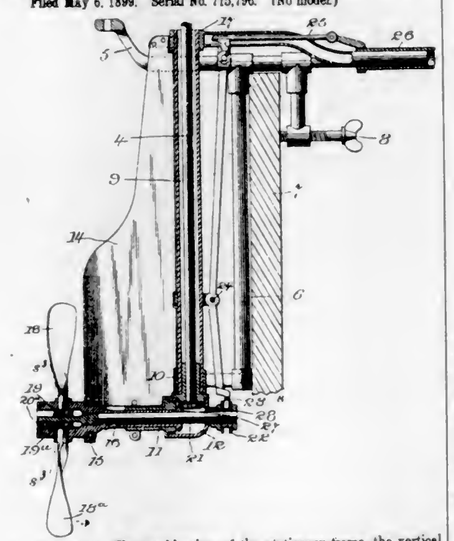
663,184. ROTARY PUMP. WILLIAM MORRIS, Youngstown, Ohio. Filed May 1, 1897. Serial No. 634,736. (No model.)



Claim.—1. In a rotary pump, the combination with the cylinder having an extension forming a valve-opening provided with an air-inlet and cock, and said cylinder provided with inlet and outlet passages, of the oval-shaped piston, the pivoted valve having a laterally-extending toe at the free end constructed to always have its toe in contact with said piston, the valve-shaft thereof, the crank-arm connected therewith, the eccentric-strap, the eccentric-rod connected therewith and with said crank-arm, the shaft upon which said eccentric is mounted and the gearing whereby said eccentric makes two revolutions to each revolution of the piston, substantially as described.

2. In rotary pumps or elevators, the combination of a cylinder provided with an induction-pipe and a valve-chamber extension located on one side and near the upper side thereof, an eduction-pipe entering the said cylinder at the point of intersection of the cylinder proper and the valve-chamber extension thereof, a substantially oval-shaped piston mounted on a shaft having a bearing in the head of the cylinder and having its point extremities bearing against the cylinder-wall, a crank-wheel on one end of said shaft and a gear-wheel on the other end thereof, an auxiliary shaft provided with a gear of relatively smaller size than the gear on the main shaft but meshing therewith, a valve or abutment mounted on a shaft in the valve-chamber extension and provided with a substantially oval-shaped outer end, the foot or toe extremity of which is adapted to bear against the piston an air-inlet pipe entering the said valve-chamber and provided with a controlling-cock for regulating the entrance of air thereto, and an eccentric mounted on the said auxiliary shaft and connected with the valve, whereby the valve is held against the piston by the power of the air until the point extremities thereof are reached, substantially as shown and described.

663,185. MARINE MOTOR. ALBERT T. OTTO, New York, N. Y. Filed May 6, 1899. Serial No. 715,796. (No model.)



Claim.—1. The combination of the stationary frame, the vertical sleeve journaled therein, the propeller-shaft, the journal-bearings therefor carried by the vertical sleeve, the driving-shaft journaled in said sleeve, gearing between the driving-shaft and the propeller-shaft, and means for oscillating said vertical sleeve about its axis, together with the rudder mounted on said vertical sleeve and the outboard-bearing for the propeller-shaft carried by said rudder.

2. The combination of the hollow propeller-shaft, adjustable propeller-blades, a longitudinally-sliding shaft within the hollow shaft, and gearing concealed within said hollow shaft connecting the propeller-blades with the longitudinally-sliding shaft, together with the grooved collar on the forward end of the longitudinally-sliding shaft, which projects beyond the hollow propeller-shaft, means for supporting the propeller-shaft on a hinge having a vertical axis, and the forked lever engaging with said grooved collar.

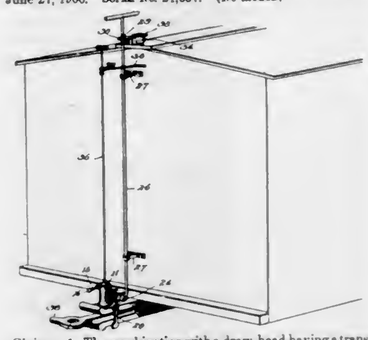
3. The combination of the hollow propeller-shaft, adjustable propeller-blades, a longitudinally-sliding shaft within the hollow shaft, and gearing concealed within said hollow shaft connecting the propeller-blades with the longitudinally-sliding shaft, together with the grooved collar on the forward end of the longitudinally-sliding shaft which projects beyond the hollow propeller-shaft, the oscillating vertical sleeve which carries the journal-bearings for the propeller-shaft, and the forked lever fulcrumed on said vertical sleeve and engaging with above-mentioned grooved collar.

4. The combination of the oscillating frame journaled at the stern of the boat, the propeller-shaft journaled in said frame, adjustable propeller-blades, the tiller which swings the oscillating frame, the longitudinally-sliding handle for said tiller, and mechanism carried by the tiller and oscillating frame connecting said sliding handle with the adjustable propeller-blades.

5. The combination of the oscillating frame journaled at the stern of the boat, the propeller-shaft journaled in said frame, adjustable propeller-blades, the tiller which swings the oscillating frame, the longitudinally-sliding handle for said tiller, and mechanism carried by the tiller and oscillating frame connecting said sliding handle with the adjustable propeller-blades, comprising a shaft sliding longitudinally in the propeller-shaft, rack-and-pinion gearing between the sliding shaft and the inner ends of the propeller-blades, a collar on the forward end of the sliding shaft, a forked lever engaging the collar and fulcrumed on the oscillating frame, and a link connecting the upper end of the forked lever with the sliding handle.

6. The combination of the rotating propeller-shaft, the adjustable propeller-blades mounted on said shaft, an adjusting mechanism for said propeller-blades whereby the resistance of the water through which the boat is passing, normally tends to hold the propeller-blades in that position of adjustment which will move the boat in a manner to create said direction of water-pressure.

663,186. CAR-COUPLING. CHRIS E. PAULSON, Boyd, Minn. Filed June 27, 1900. Serial No. 21,837. (No model.)



Claim.—1. The combination with a draw-head having a transversely-extending recess therein; of a cylindrical casing secured to the draw-head and communicating with said recess, a pin slidably mounted within the casing and having an annular groove therein, a dog pivoted to the casing and projecting through a slot therein and adapted to engage with the groove of the pin, and a weighted arm for holding said dog normally projected into the casing.

2. The combination with a draw-head having a transversely-extending recess, of a casing secured thereto, a shaft journaled upon the casing, a dog thereon adapted to project into the casing, a weighted arm to the shaft, a second arm thereto, and a weighted lever pivoted to the draw-head and projecting into the path of said arm.

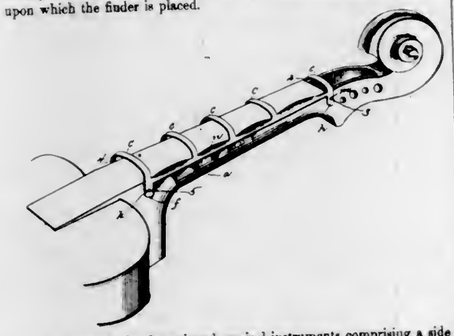
3. The combination with a draw-head having a transversely-extending recess therein, of a casing secured thereto, a shaft mounted upon the casing, a dog secured to the shaft and adapted to extend into the casing, an arm extending from the shaft, a weight thereon, a second arm to the shaft, an extension pivoted to the arm, and a weighted lever pivoted to the side of the draw-head and in the path of said extension.

4. The combination with a draw-head having a transversely-extending recess therein, of a slotted casing detachably secured to the top of the draw-head, ears to the casing, a shaft mounted within the ears, a dog secured to the shaft and normally projecting from the slots, an arm to the shaft, a weight thereon, an arm at the opposite end of the shaft, an extension pivoted thereto, a weighted lever pivoted to the side of the draw-head and normally extending into the path of the extension, a pin having an annular groove adapted to be engaged by the dog, and a rod secured to said pin.

5. The combination with a car, of a draw-head having a transversely-extending recess, a link, a laterally-extending arm thereto, trunnions at the opposite end of said link bearing within the walls of the recess, a rod secured to one of the trunnions, brackets upon the car supporting a rod, a handle to said rod, a lever pivoted to the car, a forked end thereto, and a squared portion to the rod adapted to be engaged by the fork.

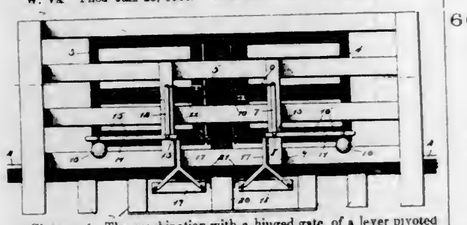
663,187. TONE-FINDER FOR STRINGED MUSICAL INSTRUMENTS. CHARLES E. ROPP, Milan, Kans. Filed July 10, 1900. Serial No. 23,143. (No model.)

Claim.—1. A tone-finder for stringed musical instruments comprising side pieces, cross-pieces connecting the side pieces, lugs depending from the extremities of the side pieces, a turned-over portion between the cross-pieces to hold the latter out of engagement with the finger-board upon which the finder is placed.



2. A tone-finder for stringed musical instruments comprising a side piece, cross-pieces connecting the side pieces, inwardly-turned portion on the side piece between the cross-pieces, lugs upon the extremities of the side pieces and recesses in the lugs adapted to receive pins upon the neck of the instrument upon which the device is placed to hold same in position.

663,188. CATTLE-GUARD. GEORGE L. SUMMERS, Barboursville, W. Va. Filed Jan. 25, 1900. Serial No. 2,779. (No model.)



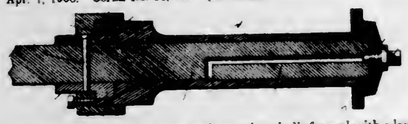
Claim.—1. The combination with a hinged gate, of a lever pivoted between its ends, a platform suspended from one end thereof, a weight at the opposite end, an arm to the gate, and a rod pivotally connected, at opposite ends, to said arm and lever respectively.

2. The combination with a fence-panel, of a gate hinged thereto, a lever pivoted to the panel, a weighted arm thereto, a platform suspended from the lever, an arm to the gate and a rod pivotally connected, at opposite ends, to said arm and lever respectively.

3. The combination with a fence-panel, of a gate hinged thereto, a lever pivoted to the panel, an arm to said lever, an adjustable weight thereon, a platform suspended from the lever, an arm to said gate and a rod pivotally connected to the arm and lever.

4. The combination with a fence-panel, of a gate hinged thereto, an arm to said gate, a bell-crank lever pivoted to the panel, a rod connecting said arm and the end of the lever, a notched arm or beam to the lever, an adjustable weight thereon, a bracket suspended from the lever, a platform secured to said bracket, and a guide for the platform.

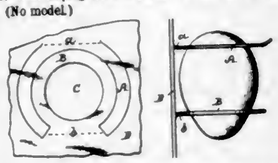
663,189. AXLE-BOX. BLACK S. E. TAKKEN, Holland, Mich. Filed Apr. 7, 1900. Serial No. 11,943. (No model.)



Claim.—1. The combination with an axle-spindle formed with a longitudinal oil-passage connecting with a transverse passage, of a box surrounding the spindle and externally threaded at its outer end; an internally-threaded cap formed with a central opening; a screw-plug for closing the opening in the cap; a sleeve secured to the spindle and fitting an annular recess formed in the inner end of the axle-box, and a cap for closing the inner end of the box.

2. The combination with an axle-spindle formed with a longitudinal oil-passage; of a box surrounding the spindle, said box being externally threaded at its outer end, and circumferentially enlarged and externally threaded at its inner end; an internally-threaded cap fitting over the outer end of the box, and having a central opening; a screw-plug for closing said opening; a sleeve secured to the spindle and having a collar fitting an annular recess at the inner end of the box; a cap fitting against the inner end of the box and overlapping said collar, and having an internally-threaded flange which engages the threads on the box; and a set-screw extending through the inner cap and adapted to impinge against the inner end of the box.

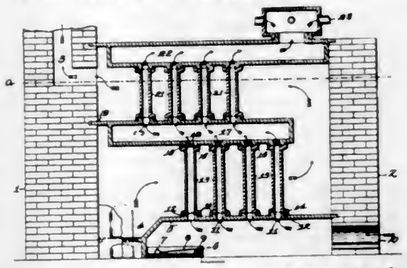
663,190. EGG-HOLDER. THOMAS N. THOMSON, Scranton, Pa., assignor to D. B. Replogle, same place. Filed Mar. 3, 1899. Serial No. 707,630. (No model.)



Claim.—1. An egg-holder constructed from a single piece of metal, the said metal being cut by wholly circular and part circular lines parallel each to each forming opposing retaining members having free ends adapted to clasp an egg substantially as specified.

2. An egg-holder constructed from plate metal by cutting curved members A A and bending them into a plane perpendicular with the plate from which they are cut and bending, from the opening made by them, the member B having a substantially circular opening C cut therethrough, and the said member B bent so as to occupy a plane substantially parallel to that occupied by the members A A for the purpose set forth.

663,191. HOT-AIR FURNACE. JOHN H. MONTGOMERY, St. Louis, Mo., assignor of one-half to Charles F. Haanel, same place. Filed Aug. 13, 1900. Serial No. 26,775. (No model.)



Claim.—1. A furnace comprising suitable inclosing walls, a fire-box arranged within said walls, an air-receptacle within the said walls close to the fire-box, an air-heating chamber supported within the said walls above the fire-box, and connected to the sides and front of the furnace and disconnected from the rear, means for conducting the air from the air-receptacle through the fire-box to the heating-chamber, and means for conducting the heated air from the said air-heating chamber, substantially as specified.

2. A furnace, consisting of outer inclosing walls, a fire-box within the said walls, an air-receptacle within the walls close to the fire-box, a heating-chamber above the fire-box and connected to the front and the sides of the furnace, pipes leading from the air-receptacle through the fire-box to the said heating-chamber, a second receptacle above the said air-heating chamber, and pipes leading from the said air-heating chamber to the said second receptacle, the said pipes passing through the passage for the products of combustion, substantially as specified.

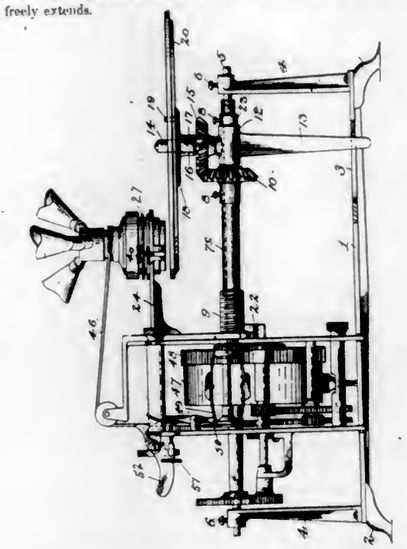
663,192. SOUND RECORDING AND REPRODUCING INSTRUMENT. FREDERICK MYERS, New York, N. Y., assignor to the Stylophone Company, same place. Filed Aug. 1, 1900. Serial No. 25,549. (No model.)

Claim.—1. A disk record having a protector applied to the periphery thereof.

2. A disk record for sound-reproducing instruments having a protector which envelops the periphery of said disk, said protector consisting of a two-part casing, one fitting within the other.

3. A protector for record-disks, consisting of a two-part casing, one of said parts inclosing the disk record, and the other part fitting over both the disk and the casing.

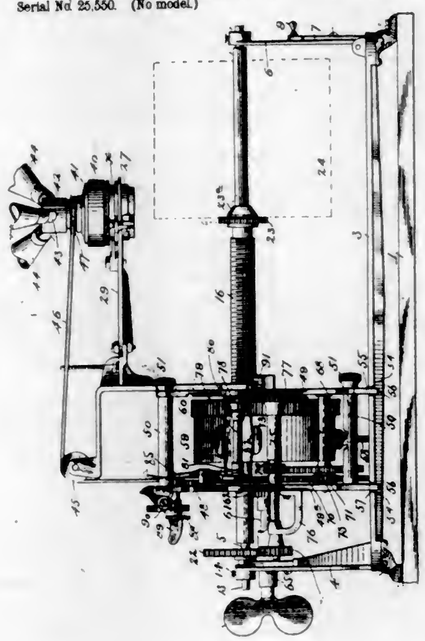
4. A sound-box consisting of a casing, a diaphragm therein, a button secured to the diaphragm and having a spring-shank, and a weighted stylus-lever having a keeper through which the spring-shank of the button freely extends.



5. A sound-box comprising a diaphragm, a button secured to said diaphragm and provided with a curved spring, a lever having a stylus rigidly connected thereto, and a keeper on said stylus-lever through which the spring extends.

6. In a sound-reproducing instrument, a record-disk, and means to simultaneously revolve and move it laterally, in combination with a rigid bracket having an aperture in its outer end and a sound-box seated in said aperture.

663,193. PHONOGRAPH. FREDERICK MYERS, New York, N. Y., assignor to the Stylophone Company, same place. Filed Aug. 1, 1900. Serial No. 25,550. (No model.)



Claim.—1. In a sound-producing instrument, a tubular feed-screw mounted on a shaft, and means for giving both a rotary and an endwise movement to said feed-screw simultaneously.

2. In a sound recording and reproducing instrument, a hollow feed-screw fitted to move longitudinally on a shaft, and provided with ball-bearings, and means for revolving and moving said feed-screw longitudinally at the same time.

3. In a sound-reproducing instrument, a tubular feed-screw, a record-drum secured thereto, and means for giving both a rotary and a longitudinal movement to said feed-screw and record-drum simultaneously.

4. In a sound-reproducing instrument, a tubular feed-screw, mounted to slide lengthwise on a shaft provided with ball-bearings, a record-drum, detachably connected to said feed-screw, and means for imparting both a rotary and a longitudinal movement to said feed-screw and drum simultaneously.

5. In a sound-producing instrument, an arm, means for vertically adjusting said arm, a reproducer attached to said arm, a tubular feed-screw, a record-drum secured thereto, and means for simultaneously imparting both a rotary and a longitudinal motion to said feed-screw and record-drum.

6. In a sound-reproducing instrument, an arm having an aperture in its outer end, a reproducer seated in the aperture, a vertical member on said arm, a guideway on the frame of the instrument for said vertical member, a thumb-screw for holding said vertical member in adjusted position in the guideway, in combination with a record and means for simultaneously imparting both a rotary and a longitudinal movement to said record.

7. In a sound-reproducing instrument, a record-shaft having conically-recessed ends, adjustable centers having pointed ends fitting said recessed ends in the record-shaft, bearings for said centers, a longitudinal groove in said record-shaft, a record-drum on said shaft and a feed-screw connected to said drum, said feed-screw having a longitudinal groove therein and balls in the groove, and means for imparting a simultaneous rotary and a longitudinal movement to said feed-screw and record-drum.

8. In a sound-reproducing instrument, a record-shaft, a tubular feed-screw on said shaft, a record-drum fitting said shaft, means for connecting and disconnecting the record-drum and feed-screw, said drum being removable from the shaft, substantially as described.

9. In a sound-reproducing instrument, a record-shaft, a tubular feed-screw on said shaft, a record-drum attached to said feed-screw, means for revolving said shaft and imparting a simultaneous rotary and a longitudinal movement to said feed-screw and record-drum, and a speed-regulator for said shaft.

10. In a sound-reproducing instrument, a tubular feed-screw, a shaft passing through said feed-screw, a record-drum detachably connected to said feed-screw, a nut for feeding the screw, said nut being mounted upon a pivoted bar, a spring for holding the nut in contact with the screw, and a lever for holding the nut out of contact with said feed-screw.

11. In a sound-reproducing instrument, a record-shaft, a tubular feed-screw thereon, a record-drum detachably connected to said feed-screw, and fitted to slide on said shaft, a disk on the feed-screw, a latch on the drum, a conical bearing for connecting said screw and drum, a nut adapted to be thrown into and out of contact with said feed-screw, and means for imparting a rotary motion to said shaft, feed-screw and drum.

663,194. PHONOGRAPH. FREDERICK MYERS, New York, N. Y. Filed Oct. 12, 1900. Serial No. 32,869. (No model.)

Claim.—1. A record-tablet having a central flexible portion and a record upon the outer portion.

2. A record-tablet having a thin yielding portion and a thicker non-yielding portion for the record.

3. A record-disk made of celluloid or similar material and having a thin, elastic portion and an outlying non-yielding portion for the record.

4. A record-disk having a central hub, a record upon the face of said disk, and a flexible portion intermediate the hub and record.

5. A record-disk having a yielding portion, a rigid center and a rigid support for a record, in combination with a style.

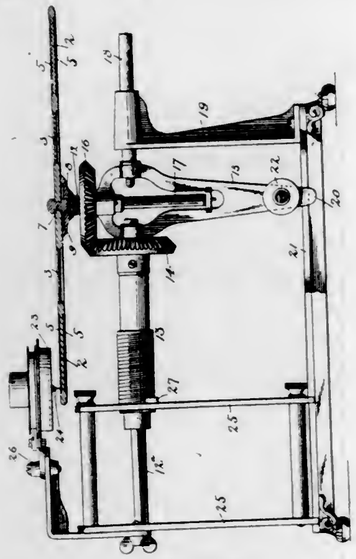
6. A record-tablet having a non-yielding central hub, a rigid outer record-rim, and an intermediate flexible portion, in combination with a rigid central supporting-pin and a stationary style.

7. A record-disk having a non-yielding central hub secured to a central pin, record on the face of the disk, a flexible portion therein, in combination with a style.

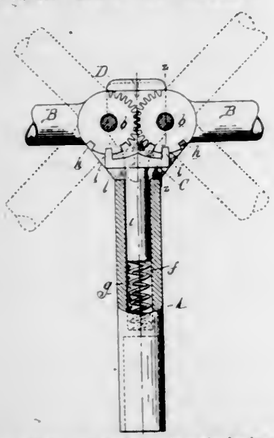
8. A record-tablet having a yielding portion, a rigid support for a record, a stationary style, and means for revolving the tablet and moving it laterally in contact with the style.

9. In a sound-reproducing machine, a style, a record-tablet having a central hub rigidly secured to a central pin, a record on the face of the tablet, a flexible portion in the tablet between the hub and record to hold

the record in contact with the style, in combination with means for revolving the tablet



663,195. HANDLE-BAR. JAMES T. MCGUIRK, Albion, Mich. Filed Jan. 19, 1900. Serial No. 1,983. (No model.)

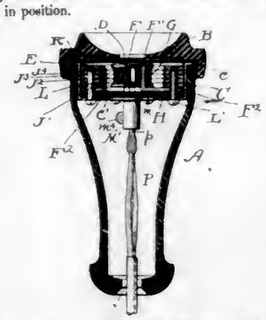


Claim.—In a two-part handle-bar for cycles having flattened circular portions at its adjacent ends pivotally secured in the steering-head, segmental gear-teeth formed on the periphery of said circular portions meshing with each other, of a spring-pressed locking-dog *c* having teeth *i* registering with notches *h* formed on the circular portions adjacent to said gear-teeth and the plate D rigidly connected to said dog and having a guide-lug *j* traveling in the slot *k* formed in one of the plates *a*, and the guide-pin *m*.

663,196. TELEPHONE-RECEIVER. CHARLES H. NORTH, Cleveland, Ohio, assignor to the North Electric Company, same place. Filed Nov. 15, 1899. Serial No. 737,048. (No model.)

Claim.—1. In a telephone-receiver, a casing consisting of a shell and a cap secured directly thereto, combined with a magnet within the casing and supported by having a projection clamped between the cap and shell, and a diaphragm supported in proximity to the magnet-pole.

2. In a telephone-receiver, the combination with the shell, of a magnet having a head thereon, and an annular flange or rim on the head adapted to engage the edge of the shell, a diaphragm overlying the magnet and supported on said flange or rim, and a cap overlying the diaphragm, and secured directly to the shell, whereby the diaphragm and magnet are secured together in position.



3. In a telephone-receiver, in combination, a cup-like head, an insulating-disk within the head, a pair of electromagnets having cores extending outward at substantially right angles and lying on the upper surface of the disk, an annular permanent magnet lying within the head engaging with said outwardly-turned cores, an annular non-magnetic cover-ring lying above the magnet, and screws passing through the head and screwing into such non-magnetic ring whereby said screws lock the magnet, the head, the insulating-disk, and the cover-ring all together, substantially as described.

4. In a telephone-receiver, in combination, the head C having the opening *c'* through its bottom, an insulating-disk within the head extending across said opening, electromagnets within said head, an annular permanent magnet within the head engaging with the cores of the electromagnets, means for locking the parts together, a pair of binding-posts secured to the under side of the insulating-disk within the bottom opening in the head, said binding-posts being connected with the terminal wires of the electromagnets, substantially as described.

5. In a telephone-receiver, in combination, a head C, an insulating-disk H within the same, an electromagnet, and a permanent magnet within said head above said disk, and a binding-post M secured to the under side of the disk, said binding-post consisting of the plate *m*, the strip m^2 lying in engagement with the plate and extending through an opening in the disk and having secured to it the magnet-wire and the barrel *m'* having the rivet-stud m^2 extending through the strip and riveted to the plate *m*, substantially as described.

6. In a telephone-receiver, in combination, a casing consisting of a shell and a cap screwing thereonto, a magnet within the casing having a flanged head the flange of which lies between the shell and cap, a diaphragm lying between the flange and cap, said head and diaphragm being locked in place by the cap, a pair of binding-posts insulatingly carried by the head within the casing, and a pair of electric conductors secured to said binding-posts and passing loosely through an opening in the shell, substantially as described.

663,197. NECKTIE-FASTENER. CHARLES REYNOLDS, New York, N. Y., assignor to Jacob Klotz, Jr., same place. Filed May 25, 1900. Serial No. 17,918. (No model.)



Claim.—1. A necktie-fastener of the class described, comprising a rear loop or socket adapted for connection with a collar-button and carrying at its opposite sides open side loops consisting respectively of upper and lower cross bars or arms and adapted for engagement with the side edges of a necktie.

2. As an improved article of manufacture, a necktie-fastener of the class described, bent from a single piece of wire and comprising a rear loop or socket adapted for connection with a collar-button and having its ends each extended outwardly at opposite sides and inwardly in free position across and in front of said rear loop to form loops adapted for engagement with the side edges of a necktie.

3. As an improved article of manufacture, a necktie-fastener of the class described formed of a single piece of bent wire and comprising a central loop or socket adapted for connection with a collar-button and having its ends each turned forwardly and thence outwardly and inwardly in free position to form side loops adapted for engagement with the edges of a necktie.

4. As an improved article of manufacture, a necktie-fastener of the class described, formed of a single piece of bent wire and constituting an approximately U-shaped central rear loop the end portions of which are turned forwardly and thence outwardly and inwardly, to form open side loops, the inwardly-directed portions of said side loops being relatively reversely arranged so that one of said portions is at the upper and the other of said portions is at the lower part of the device.

5. A necktie-fastener of the class described, comprising a rear loop or socket adapted for connection with a collar-button and carrying at its opposite sides loops consisting each of an upper and lower cross bar or arm and adapted for engagement with the side edges of a necktie, said cross-bars projecting oppositely in a plane forwardly of said rear loop.

663,198. CLIP OR SUPPORT FOR TROLLEY-WIRES. WILLIAM H. RUSSELL, Watertown, Mass. Filed Mar. 20, 1900. Serial No. 9,386. (No model.)



Claim.—1. A clip for sustaining trolley-wires consisting of two members hinged together and provided with an irregular groove in which the wire may be placed and upon which the members are adapted to be clamped, as set forth.

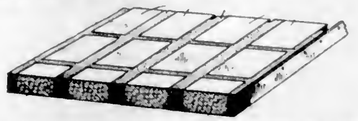
2. A clip for sustaining trolley-wires consisting of two members hinged together and provided with an irregular groove in which the wire may be placed and upon which the members are adapted to be clamped, the lower ends and edges of the clip being feathered off coincident with the trolley-wire entering the clip, as set forth.

3. A clip for sustaining trolley-wires consisting of two members adapted to be secured together on the wire, and provided with an undulatory groove having bridge-pieces for engaging the ends of wires to splice them and hold them against being pulled through their grooves

4. A clip for sustaining trolley-wires consisting of two members provided with means as set forth for holding them securely together and provided with dowel-pins and holes, as set forth, for also keeping them in place, substantially as described.

5. A clip for sustaining trolley-wires consisting of two members provided with means substantially as set forth for holding them securely together and an undulatory groove running down at the ends, and the latter feathered to an edge coincident with the position of the wire, so that the trolley may enter from the wire or the wire to the clip on a smooth line without sparking substantially as set forth.

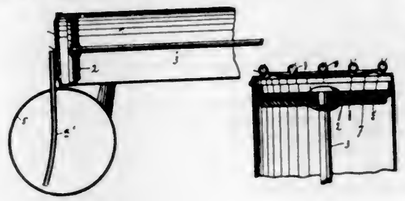
663,199. VAULT-LIGHT CONSTRUCTION. WILLIAM H. SHEPARD, Cleveland, Ohio, assignor to T. H. Brooks & Co., same place. Filed Nov. 22, 1899. Serial No. 737,945. (No model.)



Claim.—1. A frame for a vault-cover consisting of a plurality of comparatively long and narrow channel members facing upward, each channel member having a perforated bottom plate and vertical sides, the sides of consecutive members abutting, and bolts or rivets passing through such abutting sides and securing the members directly together whereby the necessity of a frame or intermediate supports is avoided, substantially as described.

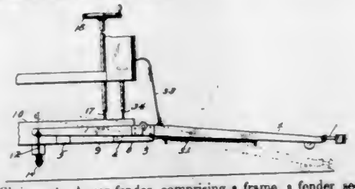
2. A vault-cover unit consisting of a smooth channel-iron having a flat uninterrupted base and side flanges at right angles thereto on their outer sides, there being light-openings through the base and bolt or rivet openings through the flanges, and a row of lights within the channel member over the light-openings, substantially as described.

663,200. SPRAYER. DE WANE R. SMITH, Deerfield, N. Y. Filed Aug. 24, 1898. Serial No. 689,401. (No model.)



Claim.—In a sprayer, a barrel having a curved or corrugated head having a series of blow-holes arranged directly in the curve or corrugations of the head to deliver blasts of air in divergent directions, a plunger in said barrel, a fluid-receptacle and a suction-tube for each blow-hole extending from a point approximate to the blow-hole into the receptacle, combined, substantially as set forth.

663,201. CAR-FENDER. DE WITT C. WALLACE, Cairo, Ill., assignor of one-half to John T. Rennie, same place. Filed Apr. 30, 1900. Serial No. 14,945. (No model.)



Claim.—1. A car-fender, comprising a frame, a fender secured to said frame, a spool, means for rotating said spool, means whereby the fender may be elevated and lowered when the said spool is rotated and means whereby the fender is allowed to assume an inclined position when the forward end thereof contacts with any object, substantially as specified.

2. A car-fender, comprising a frame, a fender secured to the said frame, a spool, means for drawing the fender in a horizontal position whenever the said spool is rotated, means whereby the fender is allowed to assume an inclined position when any object is struck thereby, means above the car-body for rotating the said spool and thereby drawing the fender again into a horizontal position and means whereby the fender may be drawn into a vertical position, substantially as specified.

3. In a car-fender, a frame, a spool carried adjacent to said frame, flexible connections between said frame and said spool, means for winding the said connections around said spool thereby elevating the forward end of the fender, and means for unwinding said connections, substantially as specified.

4. In a car-fender, a frame, a spool carried adjacent to said frame, connections between said frame and said spool, means for winding said connections around said spool, means for holding the said spool, and means for automatically releasing said spool when the forward end of the fender contacts with any object, substantially as specified.

663,202. PARTITIONED DUPLEX ENVELOP. FREDERICK A. WALTER, Philadelphia, Pa. Filed July 19, 1900. Serial No. 24,181. (No model.)



Claim.—1. A partitioned duplex envelop made from a blank of suitable flexible material being cut, scored, folded and constructed substantially as described, having two compartments separated by a partition, having two openings for the reception of articles, said partitioned duplex envelop being provided with integral extensions or flaps whereby said openings may be sealed, said envelop containing a solid partition coextensive with the length and breadth of said envelop, at right angles with said openings having gluing or fastening strips integral with the obverse and the reverse surfaces of said envelop and in contact with the said partition, the latter being integral with and situated between the obverse and reverse surfaces of said envelop when folded, whereby the contents may be kept separate.

2. A partitioned duplex envelop made from a blank of one piece of suitable flexible material being cut, scored, folded and constructed substantially as described, having two openings for the reception of articles, one opening at one end of the obverse surface and an opening at one end of the reverse surface, each of said surfaces being provided with an integral extension or flap, one flap being integral with the obverse surface and one flap being integral with the reverse surface, whereby each of said openings may be sealed, said envelop containing a solid partition coterminous with the length and breadth of said envelop, at right angles with said openings having gluing or fastening strips integral with the obverse and the reverse surfaces of said envelop and in contact with the said partition, the latter being integral with one end of the obverse surface and integral with one end of the reverse surface of said envelop when folded, whereby the contents may be kept separate.

3. A partitioned duplex envelop made from a blank of suitable flexi-

ble material being cut, scored, folded and constructed substantially as described, having two openings for the reception of articles, one opening at one side of the obverse surface and one opening at one side of the reverse surface, each of said surfaces being provided with an integral extension or flap, one flap being integral with the obverse surface and one flap being integral with the reverse surface, whereby each of said openings may be sealed, said envelop containing a solid partition coextensive with the length and breadth of said envelop, at right angles with said openings having gluing or fastening strips integral with the obverse and the reverse surfaces of said envelop and in contact with the said partition, the latter being integral with one side of the obverse surface and integral with one side of the reverse surface of said envelop when folded whereby the contents may be kept separate.

4. A partitioned duplex envelop made from a blank of suitable flexible material being cut, scored, folded and constructed substantially as described, having two openings for the reception of articles separated by a partition, one opening being between the external obverse surface of said envelop and said partition and one opening being between the external reverse surface of said envelop and said partition, each of said surfaces being provided with an integral extension or flap, one flap being integral with the obverse surface and one flap being integral with the reverse surface, whereby each of said openings may be sealed, said envelop containing a solid partition coterminous with the length and breadth of said envelop, at right angles with said openings having gluing or fastening strips integral with the obverse and the reverse surfaces of said envelop and in contact with the said partition, the latter being integral with the obverse surface and integral with the reverse surface of said envelop when folded, whereby the contents may be kept separate, said envelop having the edge at the top of each opening depressed by means of diamond-shaped scorings in the blank and incisions partly in said partition and partly in that portion of the obverse and reverse surfaces adjoining said integral partition thus permitting the gussets to be depressed each into the bottom of the adjoining compartment, whereby the cut-away edge similar to an ordinary envelop is produced.

5. A partitioned duplex envelop made from a blank of suitable flexible material cut, scored, folded and constructed substantially as described, having two openings for the reception of articles separated by a partition, one opening being between the external reverse surface of said envelop and said partition and one opening being in the obverse surface of said envelop, the said reverse surface being provided with an extension or flap integral with the partition, whereby said opening may be protected, the said opening in the obverse surface being protected by an extension or flap integral with the partition, said flap containing a suitable hole bisecting said opening in the obverse surface, said flap being shortened at each side so that any suitable adhesive material may freely pass thereover and beyond and come in contact with the adjacent parts, said flap containing an incision parallel to the opening in the obverse surface, said flap being attached by glue or other suitable adhesive material in such a manner that the flap shall firmly adhere at the top, at the bottom and at each of its two sides to the internal part of the obverse surface in such a manner that ingress may be had through said opening and through the incision in the flap, whereby said opening is sealed, said envelop containing a solid partition coextensive with the length and breadth of said envelop, at right angles with said openings having gluing or fastening strips integral with the obverse and the reverse surfaces of said envelop and in contact with the said partition, the latter being integral with the reverse surface and integral with the obverse surface of said envelop when folded, whereby the contents may be kept separate.

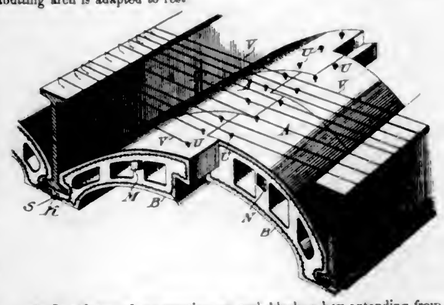
663,203. COLLAR-BUTTON AND NECKTIE-HOLDER. EVERARD N. WHETSEL and MORTON C. BRADLEY, Bloomington, Ind. Filed Feb. 7, 1900. Serial No. 4,350. (No model.)



Claim.—The combination, with a collar-button, the top of which is pivotally secured to the stem and is provided with a substantially heart-shaped opening, said top being grooved at the point of the opening and provided with a projection at its base, of a pin secured to the stem and having its free end pointed and perforated and projecting through said opening and in engagement with the projection thereof when the top is folded, and housed within the groove when the top is extended, substantially as described.

663,204. FIREPROOF CONSTRUCTION. WILLIAM WHITE, Philadelphia, Pa. Filed May 28, 1900. Serial No. 18,195. (No model.)

Claim.—1. In a fireproof construction, arch-blocks, a key extending from the abutting edge thereof at substantially the upper edge and adapted to rest upon a key on the next abutting block and a key extending over substantially the lower edge upon which another key of another abutting arch is adapted to rest.



2. In a fireproof construction, an arch-block, a key extending from the abutting face thereof near the upper edge and adapted to rest upon a key on an abutting arch-block, a key extending near the lower edge thereof, upon which a key of another abutting arch-block is adapted to rest, and said arch-blocks being so arranged as to break joint with the abutting arch-block.

3. In a fireproof construction, an arch-block having a lug or key extending from substantially the upper edge of the abutting face thereof and a lug or key extending from substantially the lower edge of the abutting face, a groove adapted to receive the foot of an I-beam, a projection on said arch-block which is provided with a groove adapted to receive a tongue on the next arch-block.

4. In a fireproof construction, an arch-block having a key extending from the abutting face thereof at substantially the upper portion and a key extending from said abutting face at substantially the lower portion thereof, a lug projecting from one side thereof and an opening in the other side.

5. In a fireproof construction, arch-blocks provided with oppositely-extending lugs, means for locking said arch-blocks with respect to the next abutting arch-block, and means embedded in each of the said arch-blocks for connecting one with the other.

6. In a fireproof construction, an I-beam, an arch-block, a key extending from the abutting face thereof, and a key from the abutting face below the first-mentioned key at one side thereof, and means connected at or near the abutting edge of said arch-block with said I-beam for supporting said arch-block.

7. In a fireproof construction, arch-blocks so arranged as to break joint, and a wire mesh embedded in said arch-blocks, so arranged as to have projecting ends which can be secured to the next abutting arch-blocks.

8. In a fireproof construction, arch-blocks suitably constructed, each having one end adapted to rest upon the foot of an I-beam, keys on the abutting edges of said arch-blocks, and tie rods or wires connected with the forward ends of said arch-blocks and to said I-beam.

9. In a fireproof construction, an arch-block having keys extending at varying heights from the abutting edge thereof and out of vertical alinement and engaging with oppositely-extending keys on two abutting arch-blocks.

10. In a fireproof construction, a beam, an arch-block supported thereby, and means projecting from said arch-block which is adapted to enter a groove in the next abutting arch-block below said beam.

11. In a fireproof construction, beams, arch-blocks and means connected at or near the abutting edges of said arch-blocks and with said beams for supporting said arch-blocks.

12. In a fireproof construction, arch-blocks, means on the abutting face thereof whereby a portion of an arch-block rests upon a portion of the adjacent arch-block and means out of vertical alinement with the first-mentioned means and on the same abutting face whereby a portion of said first-mentioned arch-block serves as a support for an adjacent arch-block.

13. In a fireproof construction, an arch-block having a key extending therefrom with its abutting face pointed downwardly, and a second key extending from said block out of vertical alinement with said first-mentioned key and at a different height and having its abutting face pointed upwardly.

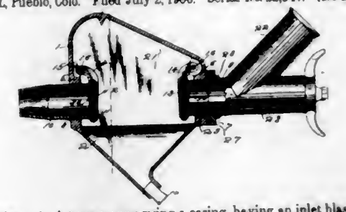
14. In a fireproof construction, an arch-block having means on its abutting face for engagement with the next abutting arch-block, a groove adapted to receive the foot of an I-beam, a projection on said arch-block which is provided with a groove adapted to receive a tongue of the next arch-block.

15. In a fireproof construction, an arch-block having means on its abutting face for engagement with the next abutting arch, a groove adapted to receive the foot of an I-beam, a projection on said arch-block provided with a tongue and adapted to enter a groove in the next arch-block.

16. In a fireproof construction, an arch-block having a key extending from the abutting face thereof at substantially the upper portion and a key extending therefrom at substantially the lower portion, a lug projecting from one side thereof, an opening in the other side and said arch-block being so arranged as to break joint with the abutting arch-blocks when in position.

17. In a fireproof construction, an I-beam, arch-blocks, means on the abutting faces thereof for engagement with the next arch-blocks, and means connected at or near the abutting edges of said arch-blocks and with said I-beams for supporting said arch-blocks.

663,205. TWYER. JOHN E. WILLIS, LINCOLN BOYD, and JACOB HILL, Pueblo, Colo. Filed July 2, 1900. Serial No. 22,347. (No model.)



Claim.—1. A twyer, comprising a casing, having an inlet blast-pipe, a discharge-nozzle, and means for closing the blast-pipe and the nozzle constructed and arranged to operate by the cutting off or weakening of the blast.

2. A twyer, having an inlet blast-pipe, a discharge-nozzle, a valve for the nozzle, and a movable valve-controlling device mounted in the path of the blast from the blast-pipe and operated thereby to open and close the valve.

3. A twyer, comprising a casing, an inlet blast-pipe, a discharge-nozzle, an inwardly-swinging valve for the discharge-nozzle, an inwardly-swinging valve-controlling device located within the path of the blast, and an operative connection between the valve and the controlling device.

4. A twyer, comprising a casing, an inlet blast-pipe, a discharge-nozzle, a valve located within the casing and arranged to close the nozzle, a yieldable valve-controlling device located within the casing and also in the path of the blast, and intermeshing gears operatively connecting the valve and the controlling device.

5. A twyer, comprising a casing, an inlet blast-pipe, a discharge-nozzle, a valve for controlling the nozzle, and means for normally holding the valve open by the force of the blast.

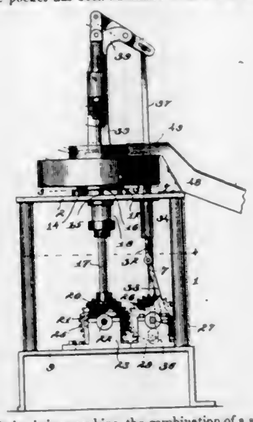
6. A twyer, comprising a casing, an inlet blast-pipe, a discharge-nozzle located opposite the blast-pipe, a normally open valve for the nozzle, a swinging valve-controlling device mounted within the casing and in the path of the blast, intermeshing gears connecting the valve and the controlling device, and a weight connected to the latter for throwing the valve-controlling device after the blast is cut off or weakened.

7. A twyer, comprising a casing, an inlet blast-pipe, a discharge-nozzle, opposite rock-shafts mounted within the casing, a nozzle-controlling valve carried by one of the rock-shafts, a valve-controlling device carried by the other shaft and located in the path of the blast, intermeshing gears carried by the shafts, and a weighted pendulum or arm carried by one of the rock-shafts.

8. In a twyer, a casing having oppositely-alined inlet and outlet openings, a substantially Y-shaped blast-pipe fitted to the inlet-opening, one branch of the pipe being extended straight out from the opening and forming a cleaning-pipe, a removable cover for the outer open end thereof, a discharge-nozzle for the outlet-opening, the bottom of the casing being extended downwardly into an overflow-chamber communicating with the interior of the casing, a normally open valve for the nozzle, a valve-controlling device located in the path of the blast, and an operative connection between the valve and the controlling device.

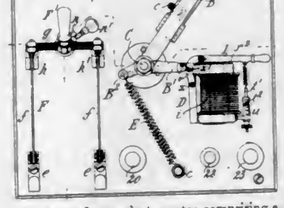
663,206. FRUIT-PITTING MACHINE. OSCAR M. WOLFF, Chicago, Ill. Filed June 11, 1900. Serial No. 19,820. (No model.)

Claim.—1. The combination of a supporting-frame; a traveling platform having pockets for receiving the fruit; said pockets having each a contracted aperture in its bottom; a reciprocating plunger adapted to drive the pit through the fruit and the bottom of its pocket; means for coacting with the plunger for removing the fruit from the plunger, and mechanism whereby the plunger is reciprocated and the platform given a motion which is arrested during the interval between the expulsion of the pit and the removal of the fruit from the plunger, whereby the fruit is returned to its pocket; and means for discharging the fruit from the pocket after the pocket has been advanced from under the plunger.



2. In a fruit-pitting machine, the combination of a supporting-frame; a rotary horizontally-disposed platform journaled in said frame and having pockets concentrically arranged around its axis, for receiving the fruit; said pockets each having a widened mouth at the top and a contracted aperture through the bottom of the platform; a vertically-reciprocating plunger acting downwardly into one of said pockets at a fixed part of the frame and adapted to cut through the fruit and drive the pit through the aperture; means for intermittently rotating the platform so as to advance the next pocket to the plunger after the withdrawal of said plunger from the preceding pocket; and a vertically-reciprocating plunger acting upwardly into the aperture of one of said pockets advanced from the downwardly-acting plunger; and means for operating said plunger; substantially as described.

663,207. MEANS FOR STARTING OR STOPPING ELECTRIC MOTORS. JAMES J. WOOD, Fort Wayne, Ind. Filed July 11, 1899. Serial No. 723,498. (No model.)



Claim.—1. A starter for an electromotor comprising a rheostat and its arm, an electromagnetic detent for holding said arm in the normal running position, a switch, and an actuator distinct from said switch adapted upon being struck by said arm to open the switch.

2. A starter for an electromotor comprising a rheostat and its arm, a switch, and an actuator for said switch comprising a spring for throwing the switch open, and a catch normally restraining said spring, said catch arranged to be released by the movement of said rheostat-arm.

3. The combination with a switch of its actuator G, comprising plunger *k*, spring *m* and catch *l*, and the rheostat-arm B arranged to release said catch.

4. The combination with a rheostat and its arm, of a switch and its actuator, the latter operated by the impact of the arm as the latter reaches the position of maximum resistance and a spring for throwing said arm to the position for cutting in the resistance, adapted to exert its maximum tension against the arm when in the position of no resistance, and to progressively diminish its tension as the lever moves until at the position of maximum resistance the tension is practically *nil* whereby the mere tension upon the arm in such position is insufficient to move the actuator.

5. The combination with a rheostat and its arm, having a contact frictionally embracing the arm in the position of no resistance, of a switch

and its actuator, the latter operated by the impact of the arm as the latter reaches the position of maximum resistance, and a spring for throwing said arm to that position, adapted to exert its maximum tension against the arm when in the position of no resistance, and to progressively diminish its tension as the lever moves until at the position of maximum resistance the tension is practically *nil*.

6. The combination with a rheostat and its arm, of a switch and its actuator, the latter comprising a spring for throwing the switch open, and a catch *l* normally restraining said spring, and means for communicating motion from the rheostat-arm to the catch consisting of a pin *n*, and a standard *n'* for said pin adapted to serve as a stop for said arm.

7. The combination with a rheostat and its arm, the latter having a yielding cushion *o*, of a switch and its actuator, the latter comprising a spring for throwing the switch open, and a catch *l* normally restraining said spring, a standard *n'* arranged to be struck by said cushion and a pin *n* for communicating the blow of said arm to said catch.

8. A starter for an electromotor comprising a rheostat and its arm, a double-pole knife-switch, an actuator distinct from said switch for throwing it open, and means for operating said actuator upon the movement of said arm to the position for cutting in the resistance.

9. An electromagnetic detent comprising an electromagnet and armature, the latter arranged to bridge opposite poles of the magnet, and movable away from one pole upon a given diminution of magnetism, and movable toward the other pole upon a given increase of magnetism, and a spring arranged to oppose the latter movement and adjustable to vary the maximum magnetism to which said armature will respond.

10. An electromagnetic detent comprising an electromagnet and armature, the latter arranged to bridge opposite poles of the magnet, and movable away from one pole upon a given diminution of magnetism, and movable toward the other pole upon a given increase of magnetism, a spring arranged to oppose the latter movement, and an adjusting device for said spring comprising a pointer moving over a scale for indicating the maximum current to which said armature will respond.

11. An electromagnet comprising opposite pole-pieces, an armature bridging said pole-pieces, a lever to which said armature is pivoted between its ends, and a spring drawing said lever against a stop, whereby said armature is free to yield in one direction without tilting said lever, but in the other direction it can move only by tilting said lever against the resistance of said spring.

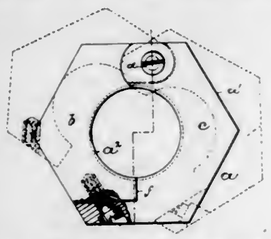
12. An electromagnet comprising pole-pieces *r r'*, a lever I, an armature H pivoted to said lever, and having its ends approaching said pole-pieces, and a spring *t* pressing said lever to a stop.

13. An electromagnet comprising an armature capable of a double movement, a lever to which said armature is pivoted, a spring acting against said lever, and means for adjusting said spring.

14. An electromagnet having a spring *t*, a rod *t'* for adjusting said spring, a tubular bracket *u* through which said rod moves, a pin projecting from said rod and moving in a slot in said bracket to prevent the rod from turning, and a nut *u'* screwing on said rod.

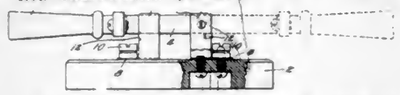
15. An electromagnet having a spring *t*, a rod *t'* for adjusting said spring, a tubular bracket *u* through which said rod moves, a nut *u'* screwing on said rod, and means for preventing displacement of said nut, consisting of interfitting projections and depressions formed at the abutting ends of said nut and bracket.

663,208. SECTIONAL NUT. WILLIAM C. WRENSCH, Montclair, N. J. Filed Sept. 14, 1899. Serial No. 730,466. (No model.)



Claim.—The improved nut having a central threaded perforation and a series of sides disposed uniformly at equal angles to one another and at equal distances from the center of the nut, said nut being in sections hinged together at one side of the axial center of the nut and joined to the opposite side by a screw, one of the said sections being provided with a socket to receive the extremity of the other section, substantially as set forth.

663,209. KNIFE SWITCH. JOHN A. WRIGHT, Irwin, Pa., assignor of one-half to William F. O'Neill, Wilkinsburg, Pa. Filed May 16, 1900. Serial No. 16,892. (No model.)

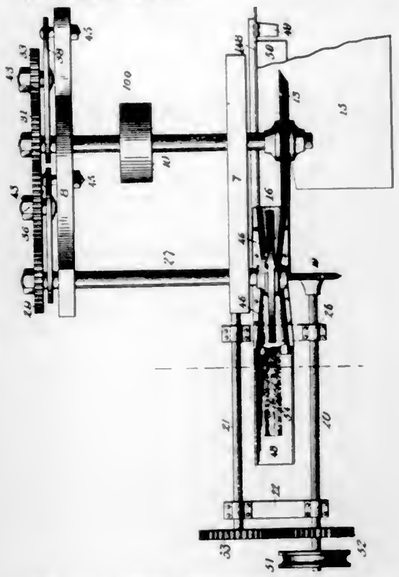


Claim.—1. A contact having one of its sides formed with a lateral projection adapted to be bent across the path of the switch-blade to form a stop, substantially as shown and described.

2. The contact-blank of sheet metal, consisting of the opposite elongated extensions 7, the central lateral extension 8, and the lateral projection 12 on one of extensions 7, substantially as shown and described.

3. A contact-blank consisting of the opposite elongated extensions 7 of corresponding length and width, and the lateral projection 8 corresponding in length to the width of extensions 7, substantially as shown and described.

663,210. CUTTING AND RAVELING MACHINE FOR RUG MATERIALS. MARK YOUNG, Kalamazoo, Mich. Filed Sept. 16, 1897. Serial No. 651,846. (No model.)



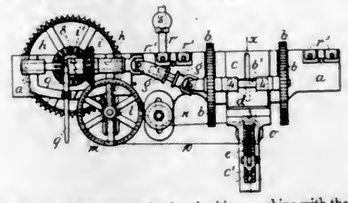
Claim.—1. A combined carpet cutting and raveling machine for preparing rug material, comprising, revoluble cutters for severing a strip of carpet, said cutters having gear-connected shafts, and one of them provided with means for applying power to the cutters; feed-rollers beyond the cutters, between which rollers the severed strip of carpet passes, gear-connected shafts to said feed-rollers and gear connections between said roller-shafts and the shafts of the cutters; raveling-saws one on each side of the feed-rollers, and having gear-connected shafts and one of them provided with means for applying power to the raveling-saws; and a guide at the contiguous edges of the feed-rollers, and having an opening each side of said rollers for receiving the raveling edges of the saws, substantially as set forth.

2. In a machine for preparing rug material from carpet, revoluble cutters for severing the strip, said cutters having gear-connected shafts; revoluble feed-rollers between which the severed strip passes, said feed-rollers having gear-connected shafts and gear connection between said feed-roller shafts and the cutter-shafts, and means for applying power to them; a raveling-saw each side of the feed-rollers and adapted to ravel the edges of the strip, and having gear-connected shafts and means for applying power thereto, all combined, whereby the machine is adapted to cut the strip and ravel the edges thereof in unison in the same machine, substantially as set forth.

3. A combined carpet cutting and raveling machine, comprising, revoluble cutters for severing a strip of carpet, and having gear-connected shafts; feed-rollers between which the severed strip passes, and having gear-connected shafts; gear connections between the cutter-shafts and the feed-roller shafts and means for applying power to them; raveling-saws adapted to ravel the edges of the severed strip and having gear-connected shafts, and means for applying power to them; a guide for directing the severed strip of carpet, and a guard back of the cutters to hold the carpet in place and adapted as well to protect the fingers of the operator, substantially as set forth.

4. The combination with the frame, provided with adjustable bearings, of the rotary cutter and feed-rolls, shafts therefor journaled in said bearings, a feed-table provided with a suitable guide attached thereto adapted to gage the width of the strips into which the material is designed to be cut; the rotary raveling-saws, shafts therefor journaled in bearings in said frame, means for regulating the adjustment of said shafts carrying the said raveling-saws, according to the depth of raveling desired to be performed, a delivery-table, and suitable means for connecting and operating the feed, cutting and raveling mechanism in conjunction with each other, substantially as set forth.

663,211. WOOD-BARKING MACHINE. JAMES H. BAKER, GEORGE F. SHEVLIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y. Filed Jan. 31, 1900. Serial No. 3,433. (No model.)



Claim.—1. The combination in a barking-machine with the toothed wheels for supporting and turning the block of pulp-wood, of a sliding carriage for supporting the said wheels, a slotted inclined way supporting the said carriage, a guide and a vertically-slidable hand-operated bar having means for adjustably engaging and locking it to said guide, connections therefrom to the sliding carriage whereby the carriage is supported and may be raised or lowered, substantially as set forth.

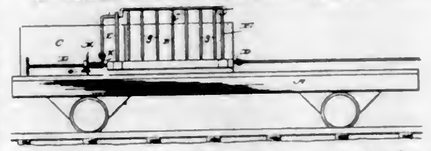
2. In a barking-machine, the combination with the toothed wheels supporting the block of pulp-wood, a shaft therefor and a sliding carriage supporting the said wheels and shaft, of an inclined slotted way supporting the said carriage and over which the carriage is movable, an ear upon the under side of the carriage passing through the slot of the inclined way, a link connected to the said ear, a guide, a vertically-slidable hand-operated bar and means for connecting the bar to the said link and for holding the parts in position and supporting the carriage and wheels, substantially as set forth.

3. In a barking-machine, the combination with the toothed wheels supporting the block of pulp-wood, a shaft therefor and a sliding carriage supporting the said wheels and shaft, of an inclined slotted way supporting the said carriage and over which the carriage is movable, an ear upon the under side of the carriage passing through the slot of the inclined way, a link connected to the said ear, a guide and a vertically-slidable hand-operated bar pivotally connected to the lower end of said link, rollers upon the said pivotal connection and bearings for the said rollers, a locking-pawl connected to the said hand-operated bar and racks engaged by the said locking-pawl, substantially as set forth.

4. In a barking-machine, the combination with the frame *a*, of a slotted inclined way *c*, a slotted vertical end *c'* formed as a continuation thereof, bracket-arms 2 connected to the said parts and assisting in supporting the same from the frame *a*, racks upon the surface of the vertical end *c'* at opposite sides of the slot, toothed wheels, a shaft therefor and a sliding carriage supporting the wheels and shaft and moving upon the inclined way for supporting the block of pulp-wood while being barked, an ear connected to the sliding carriage and passing through the slot of the inclined way, and vertically-slidable hand-operated devices connected to the said ear and adapted to engage opposite faces of the slotted vertical end *c'* in supporting the toothed wheels and sliding carriage, substantially as set forth.

5. In a barking-machine, the combination with the frame *a*, of a slotted inclined way *c*, a slotted vertical end *c'* formed as a continuation thereof, bracket-arms 2 connected to the said parts and assisting in supporting the same from the frame *a*, racks upon the surface of the vertical end *c'* at opposite sides of the slot, toothed wheels, a shaft therefor and a sliding carriage supporting the wheels and shaft and moving upon the inclined way for supporting the block of pulp-wood while being barked, an ear connected to the sliding carriage and passing through the slot of the inclined way, a link *e* pivoted to the said ear, a vertically-slidable hand-operated bar *f* passing through the slot of the end *c'* and pivoted to the lowar end of the link, a locking-pawl 6 pivoted to the hand-operated bar and engaging the rack-teeth upon the surface of the said vertical end and rollers upon the pivotal connection of the said bar and link and bearing upon the opposite side of the said vertical end, substantially as and for the purpose set forth.

663,212. GRAVEL-SEPARATOR. ARTHUR BEARGEON, Compton, Cal. Filed Mar. 27, 1900. Serial No. 10,315. (No model.)



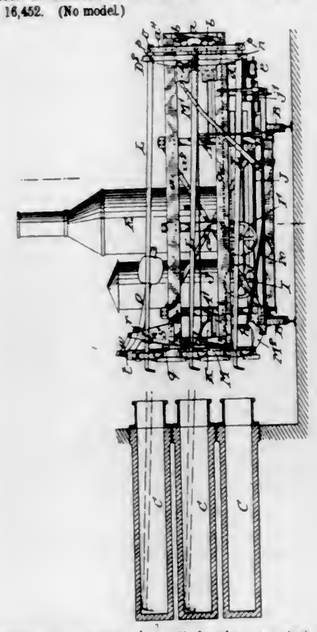
Claim.—1. In a gravel-separator, the combination of a frame, a plow arranged therein, and screens arranged on each side of said plow and connected with said frame.

2. A car-unloader, consisting of a plow, an outer frame connected therewith, screens connected with said frame on opposite sides of said plow, and mechanism for adjusting said screens, substantially as described.

3. In a gravel-separator, the combination with a car, of a frame resting on the top thereof, a plow carried by said frame, standards rising from the frame on each side of the plow, and screens connected with said standards.

4. In a gravel-separator, the combination with a car, of a plow resting flat upon the same and adapted to be drawn over the car, screens arranged on each side of the plow and connected therewith, and mechanism for adjusting the screens.

663,213. MACHINERY FOR DISCHARGING GAS-RETORTS. GASTON A. BRONDER, New York, N. Y. Filed May 12, 1900. Serial No. 16,452. (No model.)



Claim.—1. In a machine for discharging gas-retorts, the combination with a carriage and a rake-carrier arranged to run therein, of a motor-cylinder and a fixed rack and a flying rack all on said carriage, a gear carried by the piston-rod of said motor-cylinder and engaging with both of said racks, sheaves pivotally attached to said carriage, sheaves pivotally attached to said flying rack, and a rope connected at two points with said carriage and also connected with the rake-carrier and running on said several sheaves, substantially as herein described.

2. In a machine for discharging gas-retorts, the combination with a carriage and a rake-carrier arranged to run therein, of a motor-cylinder and a fixed rack and a flying rack all on said carriage, a cross-head carried by the piston-rod of said motor-cylinder, guides on said carriage for

said cross-head, a gear pivoted to said cross-head and engaging with both of said racks, sheaves pivotally attached to said carriage, sheaves pivotally attached to said flying rack, and a rope connected at two points with said carriage and also connected with the rake-carrier and running on said several sheaves, substantially as herein described.

3. In a machine for discharging gas-retorts, the combination with a carriage and a rake-carrier arranged to run therein, of mechanism including a fixed rack and a flying rack and a cross-head carrying a gear engaging with both of said racks and connections between said flying rack and the rake-carrier, a rake-lifter and a counterbalance-lever therefor on the carriage, a fulcrum-shifting lever on the carriage for shifting the fulcrum of the counterbalance-lever, a direct-actitg motor on said carriage in connection with said cross-head for operating the rake-carrier and a connection between said cross-head and the said fulcrum-shifting lever for working the latter, substantially as herein described.

4. In a machine for discharging gas-retorts, the combination of a carriage and a rake-carrier running therein, a direct-acting reciprocating motor on said carriage, sheaves on the carriage and sheaves carried by the motor, a rope connected with the rake-carrier and running on the several sheaves and connected at two points with the carriage, and a screw take-up at either connection of the rope with the carriage for taking up the slack of the rope, substantially as herein described.

5. In a machine for discharging gas-retorts, the combination of a carriage and a rake-carrier running therein, a direct-acting motor on said carriage, sheaves on the carriage and sheaves carried by the motor, a rope connected with the rake-carrier and running on the several sheaves and connected at two points with the carriage and a spring applied at either connection of the rope with the carriage for preserving the tension of the rope, substantially as herein described.

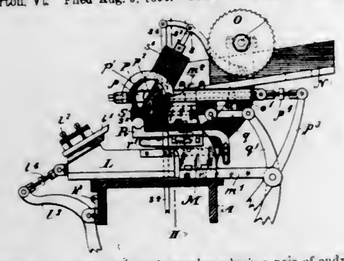
6. In a machine for discharging gas-retorts, the combination of a carriage and a rake-carrier running therein, a direct-acting motor on said carriage, sheaves on the carriage and sheaves carried by the motor, a rope in two lengths respectively connected at two points with the carriage, and a clamp in which either of the contiguous ends of the two lengths of rope is adjustable and by which the rope is connected with the rake-carrier, substantially as and for the purpose herein described.

7. In a machine for discharging gas-retorts, the combination of a carriage and a rake-carrier running therein, pins for attaching the rakes to the rake-carrier or to the carriage, a pin-plate having pin-holes on the carriage and a pin-plate having corresponding pin-holes on the rake-carrier, rake-bars having in each two holes which are at such distance apart lengthwise of the bar that on the carrier being brought back to a certain position in the carriage a pin may be inserted either into one hole in the rake-bar and a hole in the pin-plate of the rake-carrier or through the other hole in the rake-bar and a hole in the pin-plate of the carriage, substantially as and for the purpose herein described.

8. In a machine for discharging gas-retorts, the combination of the carriage, the rake-lifter, the counterbalance-lever for the rake-lifter, the fulcrum-shifting lever carrying the fulcrum of the counterbalance-lever, means for operating the fulcrum-shifting lever, a link connection between the counterbalance-lever and the rake-lifter, and a radius-bar pivoted to the said link connection and to a fixed point on the carriage, substantially as herein described.

9. In a machine for discharging gas-retorts, the combination of the carriage, the rake-lifter, the counterbalance-lever for the rake-lifter, the fulcrum-shifting lever carrying the fulcrum of the counterbalance-lever, means for operating the fulcrum-shifting lever, a link pivotally connected with the counterbalance-lever and with the rake-lifter and having an upward extension beyond its pivotal connection with the counterbalance-lever, and a radius-bar pivoted to the upward extension of said link and to a fixed point on the carriage, substantially as herein described.

663,214. AUTOMATIC SPOOL-MACHINE. EMERSON P. BROWNELL, Barton, Vt. Filed Aug. 9, 1899. Serial No. 726,655. (No model.)



Claim.—1. In an automatic spool-machine, a pair of endwise-moving shafts, or arbors, arranged in an alinement and provided on their adjacent ends with cutter-heads adapted to face off the ends of a spool, and cams for moving the shafts or arbors endwise, combined with stop-plates provided with ball-bearings and which are applied to the shafts or arbors for preventing heating of the parts when facing off the ends of spools.

2. In an automatic spool-machine, a reciprocating arm for supporting a spool-blank, an endwise-moving clamp for holding the spool-blank, endwise-moving shafts carrying boring and facing heads, cams for moving said shafts and heads endwise, and means for revolving the cams, combined with two automatically-acting end guides for conducting said blank from the boring to the turning device, a spring-supported tongue connected with the clamp, and upon which the spool-blank rests until grasped by the turning-heads, two endwise-moving shafts provided on their inner ends with turning-heads, a reciprocating carriage carrying suitable knives for shaping the spool, and means for removing the said spring-tongue to let the finished spool drop.

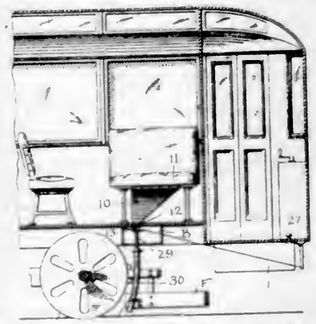
3. In an automatic spool-machine, a pair of arbors having on their adjacent ends a combined cutter-head and drill-chuck, a driving-pulley mounted on each arbor, cams for moving said arbors longitudinally, adjustable ball-bearing connections for the cams and arbors, and an adjustable stop-plate for limiting the longitudinal motion of said arbors and provided with ball-bearings.

4. In an automatic spool-machine, an endwise-moving frame P, provided with a clamping-block having a concaved face for contact with the spool, and a separator-tongue p^2, and means for reciprocating the frame P, combined with the support M upon which the frame P is mounted, means for moving said support, the rest M^2 carried by the support M, and against which the blank is held by the clamp p, and the movable tongue Q for supporting the spool-blanks, and upon which they will successively drop, the spring-supported tongue R, and the knife-carriage to which the tongue is loosely connected.

5. In an automatic spool-machine, endwise-moving shafts provided with boring and facing heads upon their inner ends, turning heads or spindles, and means for reciprocating them, the support M, means for reciprocating it at right angles to the shafts which carry the boring and facing heads, the frame P provided with a clamping-block, the movable tongue Q, and the spring-supported tongue R which passes loosely through the support M, combined with a knife-carrier to which the tongue is loosely connected.

6. In an automatic spool-machine, the main frame provided with the brackets a^2 at its ends, the vertical shafts mounted in said brackets, and which are provided with means at their lower ends for receiving power, and at their upper ends with the two driving-cams, the two sets of endwise-moving shafts or arbors carrying suitable boring and facing and clamping tools at their inner ends, and the head-stops C, combined with suitable connections I, J, by means of which the two shafts are moved endwise at the same time they are made to revolve by suitable means, and suitable adjustable means connected with the connections I, J, for connecting them with the cams, and taking up the slack in the end motion.

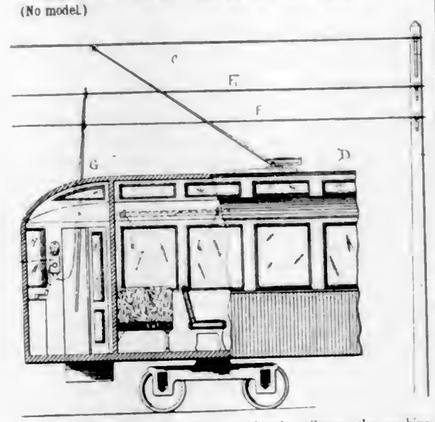
663,215. TRACK-SANDING MACHINE. ELMER E. CARPENTER, Worcester, Mass. Filed May 25, 1900. Serial No. 17,912. (No model.)



Claim.—1. In a track-sanding device, the combination of a sand-box, a pipe extending from said sand-box through the floor of a car, a two-part valve-casing supported on the under side of the floor of the car, a pivoted lever carrying a valve-plate, and connections for operating the pivoted lever from the car-platform, the parts of the two-part valve-casing being secured together by flanges, the flange of one part being recessed to receive the pivoted lever, the flange of the other part being recessed to receive the valve-plate, and said flanges having corresponding arms for supporting the valve-plate when open, substantially as described.

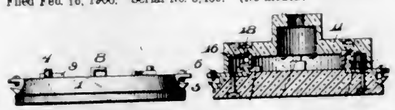
2. In a track-sanding device, the combination of a tapering or truncated sand-box 10 located under a car-seat so that the cushion thereof forms the cover of the sand-box, a pipe 12 extending from the sand-box through the floor of the car, a two-part valve-casing secured on the under side of the car-floor, a pivoted lever 23 carrying a valve-plate 22, connections for operating the pivoted lever, and a flexible pipe or hose having its lower end movable with the car-truck, the upper section of said two-part valve-casing being recessed or chambered out, as at 18, to receive the pivoted lever, and the lower part of the two-part valve-casing being recessed or chambered, as at 21, to receive the valve-plate, substantially as described.

663,216. RAILWAY TELEPHONE SYSTEM. ELMER E. CARPENTER, Worcester, Mass. Filed May 25, 1900. Serial No. 17,913. (No model.)



Claim.—In a telephone system for electric railways, the combination of a telephone instrument mounted in a car, telephone line-wires extending along the track upon which the car runs, and a circuit-making device comprising a jointed pole having two contact-strips 12 mounted therein with springs or hooks 13 carried in position to cooperate with the contact-strips 12, and flexible wires connected to the contact-strips, whereby connection from the telephone instrument on the car may be established without leaving the car, substantially as described.

663,217. CEILING CUT-OUT. WALTER A. CHURCH, Pittsburg, Pa. Filed Feb. 16, 1900. Serial No. 5,489. (No model.)

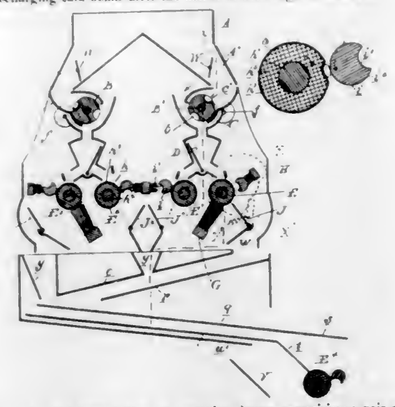


Claim.—1. A ceiling cut-out comprising an insulated base-block, a pair of contacts secured to the outer face of said block, said contacts provided on their one end with a clamping-lug and on their other end with an outwardly-extending contact-flange, a pair of fastening-catches secured on the outer face of said block and located on a diameter at right angles to the contacts, a cap engaging the outer face of the said block, fastening-hooks carried by said cap and adapted to engage with the fastening-catches carried by the base-block, contact-plates carried by said cap, and yokes formed integral with said plates for engagement with the contact-flanges of the contacts, as and for the purpose described.

2. A ceiling cut-out comprising an insulated base-block, a pair of contacts secured to the outer face of said block, said contacts provided on their one end with a clamping-lug and on their other end with an outwardly-extending contact-flange, fastening-catches secured on the outer face of said block and located on a diameter at right angles to the contacts, a pair of fastening-catches secured on the outer face of said block, a pair of guide-lugs secured on the block, a cap engaging said block, fastening-hooks carried by said cap and adapted to engage with the fastening-catches carried by the base-block, and yokes carried by said cap and adapted to engage with the outwardly-extending contact-flanges of the contacts, as and for the purpose described.

663,218. BEAN-PICKER. GEORGE F. CRIPPEN, Ypsilanti, Mich. Filed Sept. 25, 1899. Serial No. 731,659. (No model.)

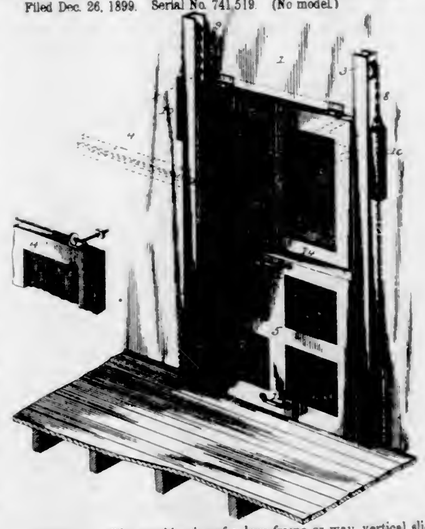
Claim.—1. In a bean-picker, an assorting device comprising a pair of adjacent discriminating rolls one having a hard and the other a yielding surface said hard surface consisting of a smooth portion and a roughened portion, adapted to successively act upon the beans, and means for discharging said beans after the action of the roughened surface.



2. In a bean-picker, an assorting device comprising a pair of adjacent discriminating rolls one having a hard and the other a yielding surface, said hard-surface roll being provided with a smooth portion, a following roughened portion, and a discharge-channel following said roughened portion and between the same and the smooth portion.

3. In a bean-picker, the combination with a pair of adjacent discriminating rolls having a receiving-throat formed between and means for feeding the beans to said rolls of a longitudinal reciprocating gate for arresting and alining said fed beans, and means for periodically lifting said gate to feed said alined beans into said throat.

663,219. WAREHOUSE-DOOR. WILLIAM A. CROSS, Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,519. (No model.)



Claim.—1. The combination of a door frame or way, vertical slideways at the side of the same, a door hinged at top to the door-frame and formed by upper and lower sections of substantially equal size hinged together, guides for engaging the lower ends of the lower door-section with the slideways, and means for counterbalancing the weight of the door, substantially as set forth.

2. The combination of a door frame or way, sections of channel-iron secured to the sides of the same and constituting slideways, a door hinged at top to the door-frame and formed by upper and lower sections of substantially equal size hinged together, and guide-pintles on the lower end of the lower door-section engaging in the vertical grooves of the slideways, substantially as set forth.

3. The combination of a door frame or way, sections of channel-iron

secured to the side of the same and constituting slideways, a door hinged at top to the door-frame and formed by upper and lower sections of substantially equal size hinged together, guide-pintles on the lower end of the lower door-section engaging in the vertical grooves of the slideways, and flexible connections passing over elevated pulleys and connected at one end to a counterbalance-weight and at the other to the lower end of the lower door-section, substantially as set forth.

663,220. **GALLOCYANIN-SULFONIC ACID AND PROCESS OF MAKING SAME.** CHARLES DE LA HARPE, Basle, Switzerland, assignor to Dye Works, formerly L. Durand Huguenin & Co., same place. Filed July 19, 1900. Serial No. 24,123. (Specimens.)

Claim.—1. The herein-described process for the manufacture of gallocyaninsulfonic acids by oxidizing leucogallocyaninsulfonic acids with a suitable oxidant, in alkaline solution.

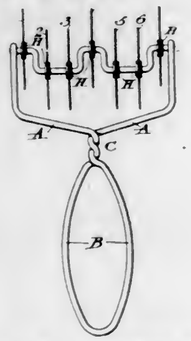
2. As a new article of manufacture, a gallocyaninsulfonic acid, dyeing wool and chromium mordanted cotton in intense and brilliant blue tints fast to soap and being in dry state a brownish-black powder soluble in water with a violetish-blue color, soluble in concentrated sulfuric acid with blue color, and soluble in alkalies with a red-brown to violet-blue color becoming grayish-blue to black-blue on addition of acetic acid and violet on addition of hydrochloric acid, the said addition of hydrochloric acid to an alkaline solution of the gallocyaninsulfonic acid giving also a precipitate.

663,221. **LEUCOGALLOCYANIN-SULFONIC ACID AND PROCESS OF MAKING SAME.** CHARLES DE LA HARPE, Basle, Switzerland, assignor to Dye Works, formerly L. Durand, Huguenin & Co., same place. Filed July 19, 1900. Serial No. 24,122. (Specimens.)

Claim.—1. The herein-described process for the manufacture of leucogallocyaninsulfonic acids by treating with suitable sulfonating agents at low temperatures the leucogallocyanins, hereinbefore specified.

2. As a new article of manufacture, a leucogallocyaninsulfonic acid, dyeing chromium mordanted cotton, which has been printed with a discharge, in blue shades, without soiling the whites and being in dry state a violetish-gray to dark-olive-green powder, scarcely soluble in water chiefly in presence of mineral acids, soluble in concentrated sulfuric acid with a pale-violet dichroic color becoming intense blue on addition of an oxidant and soluble in alkalies in presence of air with a violet-red to violet-blue color, becoming gray-blue to bright blue on addition of acetic acid, the said solution in alkalies giving a precipitate on addition of hydrochloric acid.

663,222. **DEVICE FOR CUTTING NOODLES OR DUMPLINGS.** CHARLES A. DENNEY and ULYSSES G. SILVERS, Portland, Ind. Filed Feb. 16, 1900. Serial No. 5,431. (No model.)

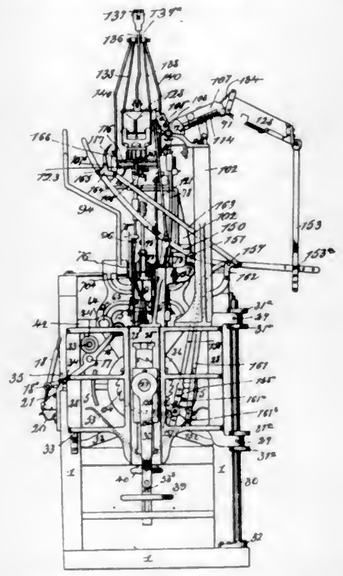


Claim.—1. In a noodle and dumpling cutter, the combination of the arms A, A, united at C and extending down to form a handle B, of an axle D set at an angle to the arms and rigidly secured thereto and bent in the form shown and having cutting-disks journaled thereon, all as described and set forth.

2. In a noodle and dumpling cutter, the combination with the handle, of an eccentrical axle, cutting-disks mounted thereon, adapted to cut strips of plastic material of certain widths by revolving over the material to be cut and by changing the position of the handle to cut strips of other widths, all as described and set forth.

663,223. **BOX-MAKING MACHINE.** WILLIAM S. DOIG, New York, N. Y.; Emma Doig executrix of said William S. Doig, deceased. Filed May 7, 1898. Serial No. 680,050. (No model.)

Claim.—1. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate connected with said frame, means carried by said gate for clamping a box-head to said former, and for rotating said head and former, and means for driving nails into the box side and for nailing the box to said head, substantially as described



2. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate connected with said frame, means carried by said gate for clamping a box-head to said former, means carried by the gate for rotating said head and former, means for driving nails into the box side and for nailing the box to said head, and means for cutting off the surplus material of the box side as the same is being nailed, substantially as described.

3. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally connected with said frame, a shaft rotatively carried by said gate, a clamping device carried by said shaft to clamp a box head to said former, means for rotating said clamping device to rotate the box head and former, and means for nailing the box side together and the box side to said head, substantially as described.

4. A box-making machine comprising a frame, a box-side former rotatively carried thereby and having a clamping-disk, a gate pivotally connected with said frame, a shaft rotatively carried by said gate, a clamping-disk carried by said shaft for rotatively connecting a box-head with the disk of the box-side former, means for rotating said shaft to rotate said head and said former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

5. A box-making machine comprising a frame, a box-side former rotatively carried thereby and having a disk provided with projections or pins, a gate pivotally connected with said frame, a shaft rotatively carried by said gate, a disk carried by said shaft and having projections or pins and adapted to clamp a box-head to the disk of the box-side former, means for rotating said shaft to rotate said disks and head, and means for nailing the overlapped portions of the box side and the box side to said head, substantially as described.

6. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally connected with said frame, means for clamping a box-head to said box-side former, a guide located beneath said former between the frame and the gate and adapted to hold the box-head in position against the former, and means for nailing the overlapped portions of the box side and box side to said head, substantially as described.

7. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally connected with said frame, means for clamping a box-head to said former, means for rotating said head and former, a forked guide located beneath said former between the frame and the gate and movably supported to have vertical movement to hold a head in position to be clamped to said former, means for movably

supporting said guide, and means for nailing the overlapped portions of the box side and the box side to said head, substantially as described.

8. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally carried by said frame, means carried by the gate for clamping a box-head to said former, a forked guide located beneath the former between the frame and the gate and adapted to hold the head in position to be clamped to said former, a lever pivotally carried by said frame to which said guide is connected to allow the guide to move toward and from the former, and means for nailing the overlapped portions of the box side and the box side to said head, substantially as described.

9. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally carried by said frame, means carried by the gate for clamping a box-head to said former, a forked guide located beneath the former between the frame and the gate and adapted to hold a head in position to be clamped to said former, a lever pivotally carried by said frame and having a counterweight to allow the guide to move toward and from the former, said guide being adjustably carried by said lever, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

10. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally carried by said frame, means carried by the gate for clamping a box-head to said former, a forked guide located beneath the former between the frame and the gate and adapted to hold a head in position to be clamped to said former, a lever pivotally carried by said frame to allow the guide to move toward and from the former, a counterweight carried by the lever, said guide being adjustably connected with said lever, means for regulating the position of the free end of said lever, and means for nailing the overlapped portions of the box side together, and the box side to said head, substantially as described.

11. A box-making machine comprising a frame, a box-side former rotatively carried thereby, a gate pivotally carried by said frame, means carried by the gate for clamping a box-head to said former, a forked guide located beneath said former between the frame and the gate and adapted to hold a head in position to be clamped to said former, a lever pivotally carried by said frame to allow the guide to move toward and from the former, a counterweight carried by said lever, said guide having two upwardly-projecting arms and a depending arm adjustably connected with said lever, means for regulating the movement of the outer end of said lever, and means for nailing the overlapped portions of the box together and the box side to said head, substantially as described.

12. A box-making machine comprising a frame, a horizontal shaft carried thereby, a box-side former carried by said shaft and comprising means for increasing and decreasing its diameter, said shaft being adjustably held to enable its location to be altered, means adjustably carried by said frame for clamping a box-head to said former, whereby said means may be alined with said shaft in the different positions of the latter, means for rotating said box-head when clamped to said box-side former, and means for nailing the overlapped portions of the side together and the box side to said head, substantially as described.

13. A box-making machine comprising a frame, a shaft adjustably carried thereby so that its position may be altered, a box-side former carried by said shaft and comprising means for increasing and decreasing its diameter, a shaft adjustably carried by said frame to enable it to be alined with the first-mentioned shaft in any position of the latter, means carried by the second mentioned shaft for clamping a box-head to the box-side former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

14. A box-making machine comprising a frame, a shaft extending longitudinally thereof, bearings for said shaft, means for supporting and adjusting said bearings vertically in said frame, a box-side former carried by said shaft, said former comprising means for increasing and decreasing its diameter, a gate pivotally carried by said frame, a shaft 27, a bearing for said shaft adjustably carried by said gate, means carried by said shaft for clamping a box-head to the box-side former, means for operating said shafts, and means for nailing the overlapped portions of the box together and the box side to said head, substantially as described.

15. A box-making machine comprising a frame, a shaft extending longitudinally thereof, bearings for said shaft, screws rotatively connected with said bearings and arranged to support the same, means carried by said frame for supporting said screws to cause them to be raised or lowered as they are rotated, means for rotating said screws in conjunction, a box-side former carried by said shaft and comprising means for increasing and decreasing its diameter, a gate pivotally connected with said frame, a shaft 27, a bearing for said shaft adjustably carried by said gate, a screw for operating said bearing, means carried by the shaft 27 for clamping a box-head to the box-side former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

16. The combination of a frame, a shaft located longitudinally thereof, bearings for said shaft, screws rotatively connected with said bearings and arranged to support the latter, supports for said screws having threaded bores with which said screws mesh, sprocket-wheels carried by said screws, a chain connecting said sprocket-wheels, means for rotating one of said screws to communicate motion to the other, a box-side former carried by said shaft and comprising means for increasing and decreasing its diameter, means for clamping a box-head to said former, means for rotating said head and former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

17. A box-making machine comprising a frame, a shaft located longitudinally thereof, bearings for said shaft, means for adjustably supporting said bearings so as to raise and lower said shaft, a gate pivotally connected with said frame, a shaft 27, a bearing for said shaft carried in guides in said gate, said gate having a threaded aperture 38ª, a screw meshing in said aperture whereby said bearing can be adjusted, means carried by shaft 27 for clamping a box-head to the box-side former, means for rotating said head and box-side former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

18. A box-making machine comprising a frame, a shaft rotatively carried thereby, means for adjusting the shaft laterally, a box-side former carried by said shaft and comprising a plurality of plates 5, arms projecting therefrom, devices carried by the shaft for supporting said arms, and means for conjointly moving said arms longitudinally, means for clamping a box-head to the box-side former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

19. The combination of a frame, a shaft rotatively carried thereby, means for adjusting the shaft laterally, a box-side former carried by said shaft and comprising a pair of disks secured to said shaft, arms movably connected with said disks, plates 5 connected with pairs of said arms, means for conjointly moving said arms longitudinally, means for clamping a box-head against said box-side former, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

20. The combination of a frame, a shaft rotatively carried thereby, means for adjusting the shaft laterally, a box-side former connected with said shaft and comprising a pair of disks secured to said shaft and having radial slots, arms located in said slots and adapted to move longitudinally, teeth carried by said arms, plates 5 connecting pairs of said arms, a sleeve carried by said shaft and adapted to rotate thereon and having worm-threads engaging the teeth of said arms, whereby said arms may be moved longitudinally, means for clamping a box-head to one of said disks, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

21. The combination of a frame, a shaft rotatively carried thereby, a box-side former connected with said shaft and comprising a pair of disks secured to said shaft and having radial slots, arms located in said slots and adapted to move longitudinally, teeth carried by said arms, plates 5 connecting pairs of said arms, a sleeve carried by said shaft and adapted to rotate thereon and having worm-threads engaging the teeth of said arms, whereby said arms may be moved longitudinally, means for locking said sleeve to said shaft, means for clamping a box-head to one of said disks, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

22. The combination of a frame, a shaft rotatively carried thereby, a box-side former carried by said shaft and comprising a pair of disks secured to the latter and provided with radial slots, a sleeve located between said disks and having end flanges provided with worm-threads, arms located in said slots and adapted to move longitudinally and provided with teeth to engage the worm-threads, plates 5 carried by pairs of said arms, means for clamping a box-head against one of said disks, and means for nailing the overlapped portions of the box side together and the box side to said head, substantially as described.

23. The combination of a frame, brackets or guides 42 secured therein and each having a vertical slot, bearings or blocks 3 guided to travel in said slots, a shaft 2 journaled in said bearings or blocks, means for preventing endwise movement of said shaft, said brackets or guides each having a threaded aperture, a screw journaled in each of said apertures and pivotally connected with said bearings or blocks so as to suspend the latter, means for rotating said screws, an expansible box-side former carried by said shaft, means for clamping a box-head to said former, and means for nailing the box while upon said former, substantially as described.

24. The combination of a frame, brackets or guides carried thereby and each having a vertical slot, bearings or blocks guided in said slots, each bearing having a recess, each of said brackets having a threaded aperture, a screw journaled in each of said apertures and having a head in the recess of the corresponding bearing or block and a reduced portion or neck, an apertured plate receiving said reduced portion or neck of each screw and secured to the corresponding bearing or block to retain the screw in connection therewith, means for rotating said screws, an expan-

sible box-side former carried by said shaft, means for clamping a box-head to said former, and means for nailing the box while upon said former, substantially as described.

25. The combination of a frame, a shaft rotatively carried thereby, a box-side former carried by said shaft and adapted to wind a strip or band upon it, a lever 16 pivotally carried by said frame and having an arm to act upon said strip or band, a lever carried by the first-mentioned lever for operating it, and a rest for the second-mentioned lever, whereby the latter can hold the first-mentioned lever in the operative position, and said arm may be caused to act and be held upon said strip or band, substantially as described.

26. The combination of a frame, a shaft rotatively carried thereby, a box-side former carried by said shaft and adapted to wind a strip or band upon it, a lever 16 pivotally carried by said frame and having an arm to act upon said strip or band, a lever 18 pivoted to the lever 16, and a step carried by said frame to receive one end of lever 18, whereby said arm may be caused to act upon said strip or band, substantially as described.

27. The combination of a frame, a shaft carried thereby, a box-side former carried by said shaft, a gate pivotally carried by said frame, means carried by said gate for clamping a box-head to said former and for rotating said head and former, a guide carried by said gate for guiding a hoop as it is wound on the box, and means for nailing the box and the hoop thereto, substantially as described.

28. The combination of a frame, a shaft carried thereby, a box-side former carried by said shaft, a gate pivotally carried by said frame, means carried by said gate for clamping a box-head to said former and for rotating said head and former, a guide carried by said gate and having its operative end in the form of a hook with a vertical web adjacent to the box-head for guiding a hoop as it is wound upon said box, and means for nailing the box and the hoop thereto, substantially as described.

29. The combination of a frame, a box-side former carried thereby, means for clamping a box-head to said former, a nail-box and plunger, means for moving the same along a box side on the former, and means for moving said nail-box away from the box-side former to permit the latter to rotate relatively to the nail-box, substantially as described.

30. The combination of a frame, a box-side former, a support having an upright, a pair of plates movably connected with said upright and adapted to move longitudinally and a block connecting said plates, with a nail-box carried by said block and having a pair of movable jaws and a pair of bores, one of said bores being adapted to receive nails, a plunger adapted to reciprocate in the other bore, and a block movably guided between said plates and having means to engage said plates, and press the nail-box upon the box side, substantially as described.

31. The combination of a frame, a box-side former, a support having an upright, a pair of plates movably connected therewith so as to slide longitudinally, a block connecting said plates at their lower ends, said plates each having a vertical slot, with a nail-box having a pair of jaws and a pair of bores, one of said bores being adapted to receive nails, a plunger adapted to reciprocate in the other bore, a block located between said plates and having webs located in the slots of said plates, means for reciprocating said block to operate the plunger, and whereby said block may push the nail-box upon the box side, substantially as described.

32. The combination of a frame, a box-side former carried thereby, a nail-box, and means for supporting the same to enable it to move over the box-former, said nail-box comprising a support having an upright, and a head having a pair of jaws and a pair of bores, said head being movably connected with said upright, a tube leading to one bore to deliver nails thereto, a plunger adapted to reciprocate in the other bore, means carried by said support for operating said plunger and adapted to move the nail-box down upon the box side, devices for feeding nails to the nail-box, and means for operating said feeding devices in conjunction with the operation of the plunger, substantially as described.

33. The combination of a frame, a box-side former carried thereby, nailing devices, and means for supporting the same to enable it to move over the box-former, said nailing devices comprising a support having an upright, a pair of plates guided by said upright to have longitudinal movement, a nail-box connected with said plates, said nail-box having a pair of jaws, a pair of bores leading thereto, a tube leading to one bore, a plunger adapted to reciprocate in the other bore, a block carrying said plunger, means for guiding said block on said plates and for enabling said block to move said plates, to press the nail-box upon a box side, means connected with said support for reciprocating said plunger, a funnel connected with said tube, and nail-selecting devices connected with the means that operate said plunger whereby to operate said nail-selecting devices, substantially as described.

34. The combination of a frame, a box-side former carried thereby, nailing devices, means for supporting said devices and for moving them over the box-side former, said nailing devices having a plunger, a rock-shaft connected with said plunger, nail-selecting devices having a tilting pan, means for conducting nails from the selecting devices to the nailing devices, a crank-arm connected with said rock-shaft, a tilting lever connected with said pan and also connected with said crank-arm, and means for operating said rock-shaft, substantially as described.

35. The combination of a frame, a box-side former carried thereby, a pair of shafts carried by said frame to move longitudinally, nailing devices carried by said shafts, nail-selecting devices also carried by said shafts, said selecting devices having a tilting pan, uprights carried by said shafts, a tilting lever carried by said uprights and connected with said pan, and a crank-arm connected with the nailing devices and with said tilting lever, substantially as described.

36. The combination of a frame, a box-side former carried thereby, a pair of shafts carried by said frame to slide therein, a bracket carried by said shafts, nailing devices carried by said bracket, a rock-shaft connected with said bracket and with said nailing devices, nail-selecting devices connected with said bracket and having a tilting pan, uprights connected with said shafts, a tilting lever carried by said uprights, a link connecting the tilting lever with said pan, a crank-arm connected with said rock-shaft, and links pivotally connected with said crank-arm with said tilting lever, substantially as described.

37. The combination of a frame, a box-side former connected therewith, a gate pivotally connected with said frame, means carried by said gate for clamping a box-head to said former, nailing devices carried by said gate and having a plunger, a lever pivotally carried by said gate and connected with said plunger, and means connected with said lever for rotating the devices that clamp the box-head to the box-side former, substantially as described.

38. The combination of a frame, a box-side former carried thereby, a gate pivotally connected with said frame, box-nailing devices carried by said gate, a lever pivotally carried by said gate and connected with the plunger of the nailing devices, a shaft pivotally carried by said gate and having means to clamp a box-head to the box-side former, and means connecting said lever with said shaft for rotating the latter intermittently as the lever is rocked, substantially as described.

39. The combination of a frame, a box-side former carried thereby, a gate pivotally connected with said frame, nailing devices carried by said gate, a lever pivotally carried by said gate and connected with said nailing devices, a shaft rotatively carried by said gate, a disk carried by said shaft to clamp a box side to the box-side former, a ratchet-wheel carried by said shaft, a pawl for operating said ratchet-wheel, and a connection between said pawl and said lever for operating said ratchet-wheel, substantially as described.

40. The combination of a frame, a box-side former carried thereby, a gate pivotally connected with said frame, nailing devices carried by said gate, a lever pivotally carried by said gate and connected with said nailing devices, a shaft rotatively carried by said gate, a disk carried by said shaft to clamp a box side to the box-side former, a ratchet-wheel carried by said shaft, an arm loosely hung on said shaft, a pawl pivotally connected with said arm and a rod pivotally connecting said lever with said arm, substantially as described.

41. The combination of a frame, a box-side former carried thereby, a gate pivotally connected with said frame, nailing devices carried by said gate, a lever pivotally carried by said gate and connected with said nailing devices, a shaft rotatively carried by said gate, a disk carried by said shaft to clamp a box side to the box-side former, a ratchet-wheel carried by said shaft, a pawl pivotally connected with said shaft, a rod connecting said pawl with said lever, a bell-crank lever carried by said first-mentioned lever, a rod connecting said bell-crank lever with said pawl, a hand-lever carried by the first-mentioned lever, and a link connecting said hand-lever with the bell-crank lever, substantially as described.

42. The combination of a frame, a box-side former carried thereby, a gate pivotally connected with said frame, nailing devices and nail-selecting devices carried by said gate and connected together for delivering nails from the latter to the former, said nail-selecting devices having a tilting pan, a lever pivotally carried by said gate and connected with the nailing devices, means for clamping a box-head to said former, devices connected with said lever for operating said clamping devices, and a connection between said lever and said tilting pan, substantially as described.

663,224. BUNION OR CORN SHIELD. JOHN J. GEORGES, Washington, D. C., assignor of one-half to William W. Georges, same place. Filed Sept. 8, 1900. Serial No. 29,441. (No model.)

Claim.—As an improved article of manufacture; a bunion or corn shield comprising an inner covering having an aperture therein; an oiled-silk diaphragm located in said aperture; an outer covering; and a soft filling between said covers; the aforesaid aperture being located near one end of the shield and the padded portion on the opposite side of said aperture forming a long and extended pad arranged to relieve pressure from that portion of the foot covered by the front end of the pad and its silk-covered aperture; substantially as shown and described.

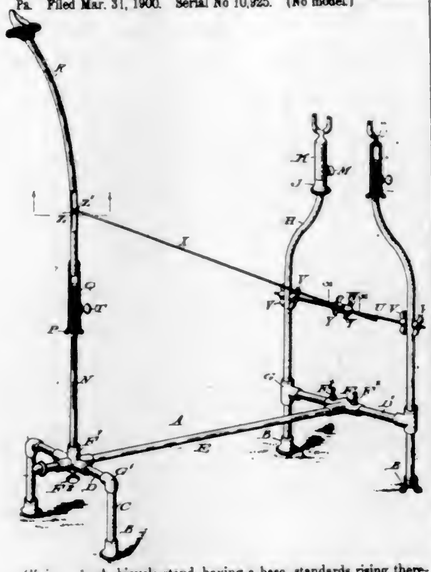
663,224.



663,225. PROCESS OF DYEING COAL-TAR COLORS. HERMANN GUTSKOW, and BENNO HOMOLKA, Frankfort-on-the-Main, Germany, assignors to the Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Original application filed Feb. 15, 1900, Serial No. 5,300. Divided and this application filed Sept. 25, 1900. Serial No. 31,086. (No specimens.)

Claim.—The herein-described process for producing on the fiber dyes fast to washing and acids, which consists, in treating textile fabrics dyed with coal-tar colors in the usual manner, with the salts soluble in water of such aromatic bases as contain at least once the bivalent group —NH—CH_2—linked on both sides to aromatic carbon atoms, substantially as set forth.

663,226. BICYCLE-STAND. WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 31, 1900. Serial No. 10,925. (No model.)



Claim.—1. A bicycle-stand having a base, standards rising therefrom, and a laterally-adjustable arm rising from one of said standards, in combination with a stringer which is adapted to be connected with the standard opposite to said arm and having a limb which is adapted to be freely inserted in said arm in either of the adjusted positions thereof.

2. In a bicycle-stand, a brace for the standards thereof consisting of a stringer, a cross-bar connected with one of said standards, a boss on said cross-bar, said stringer passing through said boss and being connected therewith, and a limb on the opposite end of said stringer, the adjacent standard having an opening therein which freely receives said limb.

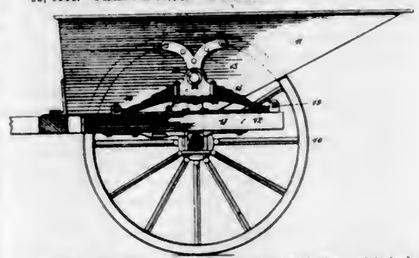
3. In a bicycle-stand, a base formed of legs, a stretcher connected at one end with the coupling F on the cross-bar D′ of the adjacent legs and passing freely through the coupling F′ on the cross-bar D of the opposite legs and tightening-screws F^x, F^2, the screw F^x being on the coupling F and engaging the cross-bar D′, and the screw F^2 being on the coupling D and engaging the adjacent portion of the stretcher.

4. In a bicycle-stand, a base, standards rising therefrom, the upper portion of one of the latter having a rotatable flaring arm thereon and vertically-adjustable saddles on said arm and the other standards, in combination with a stretcher at the base coupled with the standards, and a stringer, one end of which is adjustably connected with one of the standards and provided at the other end with a limb which freely enters the opposite standard.

5. In a bicycle-stand, having standards and a base supporting the same, a brace for said standards consisting of a cross-bar whose ends are fitted in one of said standards, adjusting and tightening nuts engaging said standard, a boss on said cross-bar, and a stringer, one end of which is freely passed through said boss and provided with adjusting and tightening nuts which engage the opposite ends of said boss, the other end of said stringer being freely connected with the opposite standard.

6. In a bicycle-stand, a brace consisting of a stringer, a boss receiving said stringer and a cross-bar supporting said boss, said stringer being provided with set-nuts on opposite ends of said boss, the end of said stringer opposite said boss being formed with a limb which freely enters an opening in the adjacent standard, the latter being flaring and rotatable and adapted to have said opening receive said limb in the different positions of said standard.

663,227. CART. THOMAS HILL, Jersey City, N. J. Filed June 13, 1900. Serial No. 20,142. (No model.)



Claim.—1. The running-gear, combined with the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, the caps 16, each in one integral piece, on the center of said springs and extending downward on opposite sides thereof and having the transverse bearing-apertures 17 for said trunnions and also having the vertical outwardly-extending tubular ears 28, the bolts 26 of U shape encompassing the sides and lower surfaces of said springs and having their side members within said ears 28, and the securing-nuts on the upper ends of said bolts above said caps; substantially as set forth.

2. The running-gear, combined with the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, the caps 16, each in one integral piece, on the center of said springs and extending downward on opposite sides thereof and having the transverse bearing-apertures 17 for said trunnions and also having the vertical outwardly-extending tubular ears 28, the plates 25 below said springs and substantially coextensive with said caps and having the downwardly-extending end portions, the bolts 26 of U shape engaging at their lower transverse portion the ends of said plates 25 and having their side members within said ears 28, and the nuts on the upper ends of said bolts above said caps; substantially as set forth.

3. The running-gear, combined with the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, the caps 16, each in one integral piece, on the center of said springs and extending downward on opposite sides thereof and having the transverse bearing-apertures 17 for said trunnions and also having the vertical outwardly-extending tubular ears 28, the plates 25 below said springs and substantially coextensive with said caps, the strip of soft material 29 extending continuously over the entire lower surface of the top of said caps, the bolts 26 of U shape engaging at their lower transverse portion the ends of said plates 25 and having their side members within said ears 28, the nuts on the upper ends of said bolts above said caps, and the bolts 24 connecting the leaves of said springs at their center; said caps 16 and said plates 25 being respectively provided with the recesses 30 and 27 to receive the head and nut of said bolts 24; substantially as set forth.

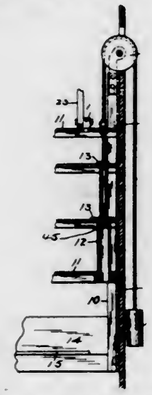
4. The running-gear, the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, and the caps 16 on the center of said springs to aid in securing the leaves of the latter and having the transverse bearing-apertures for said trunnions, said springs having at one end the eye 21 and at the other end the hook 22, combined with the elon-

gated plates 18 secured upon the upper surface of said shafts 12 and having at their opposite ends the upturned ears 19 and the bolts 20, one of said bolts passing through the said eye and the other of said bolts passing within the said hook 22; substantially as set forth.

5. The running-gear, the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, and the caps 16 on the center of said springs to aid in securing the leaves of the latter and having the transverse bearing-apertures for said trunnions, combined with the elongated plates 18 secured upon the upper surface of said shafts 12 and having at their ends the upturned ears receiving between them the ends of said springs, the elongated plates 34 applied upon the lower surface of said shafts 12 below said plates 18, and the bolts 31 and 32 passing through said plates 34, shafts 12 and plates 18, said bolts 31 being extended below said plates 34 and connected by the plate 35 to form the frame for the axles; substantially as set forth.

6. The running-gear, combined with the vehicle-body provided on its opposite sides above its bottom with the side trunnions or pivots, the semi-elliptic springs 15 mounted on the shafts 12 and extending upward at their middle portions on opposite sides of said body, the caps 16, each in one integral piece, on the center of said springs and extending downward on opposite sides thereof and having the transverse bearing-apertures 17 for said trunnions and also having the vertical tubular ears 28, the plates 25 below said springs and substantially coextensive with said caps, the strip of soft material 29 extending over the lower surface of the top of said caps, the bolts 26 of U shape engaging at their lower transverse portion the ends of said plates 25 and having their side members within said ears 28, the nuts on the upper ends of said bolts and said caps, and the bolts 24 connecting the leaves of said springs at their center, said caps 16 and said plates 25 being respectively provided with the recesses 30 and 27 to receive the head and nut of said bolts 24; substantially as set forth.

663,228. ELEVATOR SAFETY-GATE. STEPHEN T. HITZ and GILBERT H. BLAKER, Indianapolis, Ind.; said Blaker assignor to said Hitz. Filed June 22, 1900. Serial No. 21,161. (No model.)



Claim.—1. An elevator safety-gate consisting of bars downwardly collapsible, and means acting on the top bar for collapsing the gate.

2. An elevator safety-gate consisting of bars downwardly collapsible, and means actuated by the elevator-car for opening said gate.

3. An elevator safety-gate consisting of bars downwardly collapsible, a yielding means for closing the gate, and means actuated by the elevator-car for depressing the bars of the gate to open the same.

4. An elevator safety-gate consisting of bars downwardly collapsible, means for receiving the bars of the gate when depressed and holding the top bar thereof flush with the floor, and means for opening and closing said gate.

5. An elevator safety-gate consisting of bars downwardly collapsible, vertical guide-bars at each end of the gate for guiding the ends of the gate-bars, a yielding means acting on the top bar for elevating the gate, and a stop secured to the guide-bars for limiting the movement of the top bar of the gate.

6. An elevator safety-gate consisting of downwardly-collapsible bars, a yielding means for elevating the bars of the gate, and means for controlling the rapidity of the closing movement of the gate by the movement of the elevator-car.

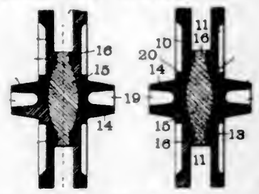
7. An elevator safety-gate consisting of downwardly-collapsible bars, a yielding means for holding them in the upper position, a lever pivotally connected with the top bar of the gate, and means on the elevator-car for actuating said lever for depressing and opening the gate.

8. An elevator safety-gate consisting of downwardly-depressible bars, a yielding means for holding them in the upper position, a lever linked with the top bar of the gate and fulcrumed between its ends, means on the elevator-car for engaging and actuating one arm of said lever as the elevator-car moves in one direction, and means on the elevator-car for engaging and actuating the other end of the lever as the elevator-car moves in the other direction, whereby the gate may be opened as the elevator-car ascends or descends.

9. An elevator safety-gate consisting of downwardly-depressible bars, a yielding means for holding them in their upper position, a lever linked at one end with the top bar of the gate and fulcrumed between its ends, a pin on the lever between its fulcrum and pivoted end, a bar secured to the elevator-car, trip-segments pivoted to the ends of said bar one of which will engage the end of said lever as the elevator-car moves in one direction and the other one will engage said pin as the elevator-car moves in the other direction.

10. An elevator safety-gate consisting of downwardly-depressible bars, a yielding means for holding them in their upper position, a lever linked at one end with the top bar of the gate and fulcrumed between its ends, a pin on the lever between its fulcrum and pivoted end, a bar secured to the elevator-car, trip-segments pivoted to the ends of said bar one of which will engage the end of said lever as the elevator-car moves in one direction and the other one will engage said pin as the elevator-car moves in the other direction, and means for adjusting the position of said bar, whereby said segments will properly engage and actuate said lever or not engage said lever as desired, and after one segment has actuated the lever, the other segment will resist the return movement of said lever.

663,229. SHEAVE. LOUIS A. HOERR, St. Louis, Mo. Filed May 5, 1900. Serial No. 15,594. (No model.)



Claim.—1. A metal sheave having trunnions formed integral therewith and having a groove in its periphery, a hollow center unconnected with the trunnions, and openings leading from said hollow center to said groove.

2. A metal sheave having trunnions formed integral therewith and having a groove in its periphery, a hollow center, openings leading from said hollow center to said groove, and openings in said trunnions unconnected with said hollow center.

3. A metal sheave having trunnions formed integral therewith, a hollow center, and metal chill-strips in said hollow center.

663,230. BURGLAR-ALARM. WILLIAM H. C. JEWELL, Allegheny, Pa. Filed Feb. 27, 1900. Serial No. 6,775. (No model.)



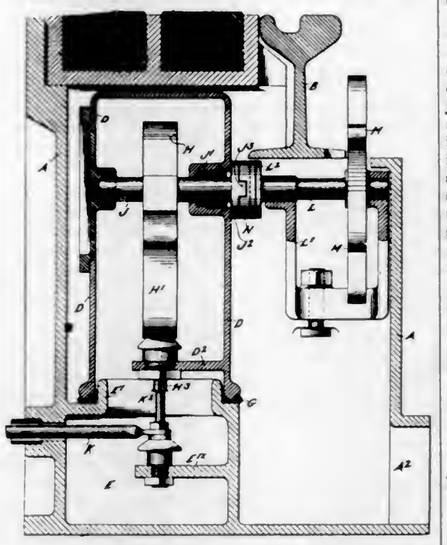
Claim.—The angular supporting-plate provided on its one end with oppositely-disposed recesses to receive fastening means and on its other end with barbs, and the bell supported on said plate and provided with the button for sounding the bell when the button is depressed, substantially as herein shown and described.

663,231. BALL-COCK. FRANK JEWETT, Hartford, Conn., assignor to Owen H. Jones, same place. Filed Sept. 18, 1899. Serial No. 730,864 (No model.)



Claim.—In a ball-cock in combination, a valve-body having a chamber, a water-inlet at one end of the chamber, an opening at the opposite end and an outlet at the side of the chamber, a cap adapted to close the opening in the chamber and having a tubular projection extending inward toward the inlet side of the chamber with its inner end resting against the valve-seat, a flange on this projection extending to the inner surface of the wall of the chamber and forming a guide and shield, said flange being located between the edge of the outlet and the cap, openings through the wall of the tubular projection, a plunger-valve having its spindle supported in said cap and tubular projection and adapted to close the inlet, means for securing the cap in position, and means for operating the valve-spindle.

663,232. SWITCH-BOX FOR ELECTRIC RAILWAYS. WILLIAM KINGSLAND, London, England. Filed July 5, 1900. Serial No. 22,534. (No model.)



Claim.—1. In a switch-box for electric traction, to inclose an electric switch worked by mechanical means; the combination of an outer box, a removable cover to same, mechanism in the box to mechanically operate a switch, a removable case to be placed inside the box through the cover-aperture thereof, a switch contained within the case, and an operating-spindle therefor projecting through a water-tight bearing in the side of the removable case, means for rendering the case water-tight, means for permitting of the placing and removal of the case to or from the box together with the contained switch without dismounting the mechanism located in the outer box, and means for detachably connecting the projecting end of the switch-shaft to the mechanism contained in the outer box for mechanically operating same, as set forth.

2. In a switch-box for electric traction, to inclose an electric switch worked by mechanical means; the combination with an outer box, a spindle mounted in the box, a mechanically-operated lever on the spindle, a removable cover to the top of the box, and a seating in the interior of the box; of an inner removable case adapted to be placed within the box, and held to the seating therein so as to be rendered water-tight, a switch contained within the case, the operating-spindle thereof passing through the side of the said case, means for detachably connecting the said end of the switch-spindle to the mechanically-operated spindle within the box, and means for connecting the electric terminals of the switch located within the switch-case to the electric connections within the box, as set forth.

3. In a switch-box for electric traction to inclose an electric switch worked by mechanical means; the combination with an outer box, mechanism therein to mechanically operate a switch-shaft, a removable cover to the box and a seating within the box, of a case formed with an open base and containing an electric switch, a switch-spindle for operating same projecting through a water-tight bearing in the side of the case, the said case being placed within the box, and means for holding the lower edges of the open base of the case upon the seating in the box to render the case water-tight, means for detachably connecting the switch-spindle to the operating mechanism within the outer box, and means for detachably connecting the electric terminals of the switch within the switch-case to electric connections covered by the switch-case, substantially as set forth.

4. In a switch-box for electric traction, to inclose an electric switch worked by mechanical means; the combination with an outer box, a removable cover to the box, a spindle carried on bearings within the box and mechanical means for operating the spindle, a removable case to be placed inside the box, a switch contained within the case, an operating-spindle from the switch extending through the said case, means for effecting the electrical connection of the switch and conductor-terminals upon the insertion of the switch-case within the box, and means for rendering the said switch-case water-tight when fixed in position within the box; of means for adjusting and securing the switch-case within the box to bring the axes of the switch-spindle and the operating-spindle as nearly coincident as possible, and a detachable coupling of universal-joint character between the ends of the switch-spindle and the operating-spindle, substantially as set forth.

5. In a switch-box for electric traction to inclose an electric switch worked by mechanical means; the combination with an outer box, a removable cover to the box, and mechanism in the box to mechanically operate a switch-spindle, a case to be placed inside the box through the cover-aperture thereof, a switch contained within the case, a spindle projecting through the case for operating the switch, and a detachable connection between the projecting switch-spindle and the operating mechanism in the outer box; of an opening in the base of the switch-case, means for making a water-tight joint between the edges of the said opening and a seating in the box, switch-terminals with downwardly-extending spring-sockets carried within the open base of the switch-case, and electric connections in the box terminating in upstanding parts adapted to enter the spring-sockets forming switch-terminals, carried by the switch-case when the latter is placed in position, and thereby effect electrical connection, substantially as set forth.

6. In a switch-box for electric traction, to inclose an electric switch worked by mechanical means; the combination with an outer box, a removable cover to the box, and a mechanically-operated shaft in the box to work a switch-spindle, a case to be placed inside the box through the aperture, a switch contained within the case, a spindle from the switch projecting through the case, an opening in the base of the switch-case, means for making a water-tight joint between the edges of the said opening of the case and a seating in the outer box, and electrical connections to the switch; of a universal-joint connection between the ends of the mechanically-operated shaft in the outer box and the projecting end of the switch-spindle, consisting of a disk on the end of the switch-spindle, a projecting rib on the face of the disk, a similar disk and rib on the end of the operating-shaft, and an intermediate loose disk, located between the two ribbed disks aforesaid, and having a groove upon each face, the said grooves extending at right angles to each other, and receiving the ribs of the disks, whereby rotary motion can be communicated from the shaft to the switch-spindle, even when not perfectly alined, and the coupling can be connected and detached by the act of inserting or withdrawing the inner case, as set forth.

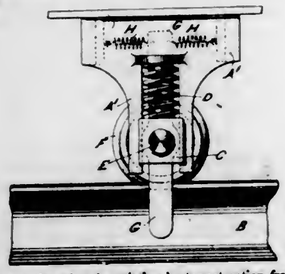
7. In a switch-box for electric traction to inclose an electric switch worked by mechanical means; the combination with an outer box, a removable cover to the box, a case to be placed in the interior of the box, a switch contained within the case, a spindle projecting through the case for operating the switch, and means for rendering the case water-tight when inserted in the outer box; of mechanism within the box, arranged at the side of the case, to mechanically operate the switch-spindle, a detachable connection between the projecting switch-spindle and the operating mechanism in the outer box, the said operating mechanism being capable of ready removal from the outer box after the removal of the switch-case as set forth.

663,233. CONNECTION OF STRIKERS TO MOTOR-VEHICLES FOR MECHANICALLY OPERATING ELECTRIC SWITCHES. WILLIAM KINGSLAND, London, England. Filed July 10, 1900. Serial No. 23,099. (No model.)

Claim.—1. In operating electric switches by tappet action from a motor-vehicle running on rails: the combination of a striker carried by an axle, a wheel upon the axle to run upon the track-rail, a frame connected to the motor-vehicle to carry the axle, and means for permitting the frame to have vertical motion relatively to the axle, whereby the position of the striker is maintained constant relatively to the track-rail and to the switch-operating mechanism, and means for maintaining the acting end of the striker in a working position in the direction of its action substantially as set forth.

2. In operating electric switches by tappet action from a motor-vehicle running on rails: the combination of a striker mounted upon an axle, a wheel upon the axle to run on the track-rail, a frame connected to the motor-vehicle, vertical guides on the frame, and sliding bearing-blocks in

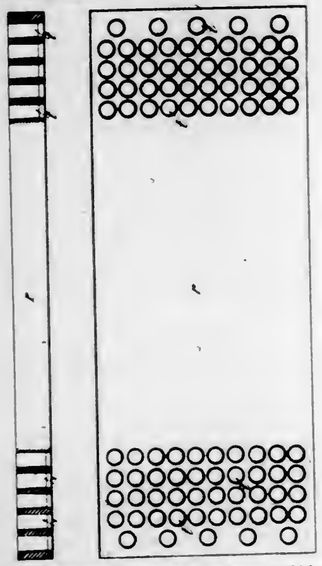
the guides to carry the wheel-axle so that the frame may move vertically upon the bearing-blocks which it carries, and whereby the position of the striker is maintained constant relatively to the rail and to the switch-actuating mechanism, and means for maintaining the acting end of the striker in a working position in the direction of its action, substantially as set forth.



3. In operating electric switches by tappet action from a motor-vehicle running on rails: the combination of an axle, a striker mounted upon the axle, a wheel fixed upon the axle to run on the rail-track, a frame connected to the motor-vehicle, bearings in which the striker-carrying axle is free to revolve and to have lateral motion in the direction of its axis, guides in the aforesaid frame to carry the bearings and allow of the frame having vertical motion upon the said bearings, and means for maintaining the acting end of the striker in a working position in the direction of its action, substantially as set forth.

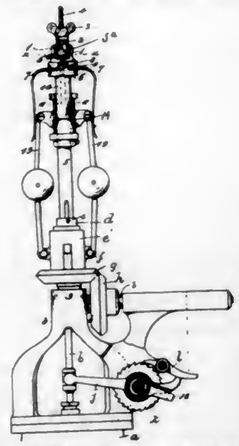
4. In operating electric switches by tappet action from a motor-vehicle running on rails: the combination of an axle, a striker-bar loosely mounted upon the axle but prevented from lateral motion thereon, a wheel fixed upon the axle to run on the track-rail, a frame connected to the motor-vehicle, bearings in which the striker-carrying axle is free to revolve and also to move laterally therein in the direction of its axis, guides in the aforesaid frame to carry the bearings and allow of the frame having vertical motion upon the said bearings, and means to connect the freely-carried striker to the framework of the vehicle to maintain the acting end of the striker in a working position in the direction of its action, substantially as set forth.

663,234. MANUFACTURE OF WOODEN STOPPERS. Louis L. LE FRANC, Bono-le-Hard, France. Filed Dec. 28, 1898. Serial No. 700,496. (No specimens.)



Claim.—The process of treating wooden stoppers, which consists in subjecting the wood of which the stoppers are made to the action of a solution of potassium chlorate, and afterward decomposing the salt by a solution of hydrochloric acid, the operation taking place while the solution is heated, substantially as set forth.

663,235. ATTACHMENT FOR HIGH-SPEED GOVERNORS. GEORGE J. LOEPER and PAUL B. HAUSDOERFER, Indianapolis, Ind. Filed June 7, 1900. Serial No. 19,422. (No model.)



Claim.—1. The combination with a valve-rod and its valve, of controlling devices for said valve, embracing a rotatable head, a device connected with said rod so as to move therewith and have rotatable movement, relatively thereto, with said head, means for rotating said device, ball-carrying arms connecting said device and head together, a tension means connected with said valve-rod, and a second tension means connected with said ball-carrying arms.

2. In a governor, the combination with the standard, head, ball-arms connected with said head, and a controlling device, of a supplemental tension device embracing springs to engage said ball-arms, a spindle projecting from said standard, a collar loosely mounted on said spindle and having arms engaging openings in said head, said collar also engaging said springs, and means acting on said collar to adjust the tension of said springs.

3. In a governor, the combination with ball-arms and balls, a rotatable and slidable cap with which the lower ends of said ball-arms are connected, and a valve-rod connected with said cap, of a lower spring tension device connected with said rod, and an upper spring tension device, comprehending a revoluble member to which the upper ends of the ball-arms are attached, and tension-springs engaging the ball-arms, substantially as described.

4. In a governor, the combination with the valve-rod, ball-arms and balls, a cap with which the lower ends of the ball-arms are connected, said cap being also connected with said valve-rod, and a head with which the upper ends of the ball-arms are connected, of a lower spring tension device having adjusting means therefor, and an upper spring tension device embracing springs engaging said ball-arms, a vertically-adjustable rotatable collar carrying said springs, and means for fixing said collar in adjusted position.

5. In a governor the combination with the ball-arms and a controlling device therefor, of a vertically-movable rotatable collar, springs carried thereby and engaging said ball-arms, a vertically-adjustable non-rotative collar, and threaded means for adjusting said collars and locking them in adjusted position to thereby regulate the tension of said springs.

6. In a governor, the combination with a standard having a head and a threaded spindle, ball-arms connected with said head, and a controlling device, of a supplemental controlling device, comprising a vertically-adjustable collar, a second collar connected therewith, arms projecting from the first-mentioned collar into grooves in said head, springs carried by said collars and bearing against said ball-arms, a vertically-adjustable collar bearing upon said second collar and keyed to said spindle, and an adjusting-nut threaded upon said spindle and engaging the latter collar.

7. The combination, in a governor, with a valve-rod and its valve, of a rotatable head, a slidable device which partakes of the movements of the valve and has rotatable movement, independently thereof, with said head, ball-carrying arms connecting said head and device together, tension-springs acting on said arms, a device rotatable with said head and arms and adjustable relatively thereto and carrying said springs and means for maintaining the latter device and springs in adjusted position.

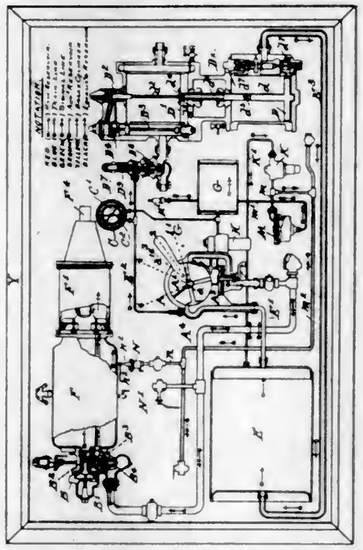
8. The combination, in a governor, with a standard having a fixed head and a threaded spindle, of a vertically-adjustable device having arms projecting into grooves in said head, springs carried by said device and engaging said ball-arms, a collar feathered to said spindle and bearing upon said device, and an adjusting-nut threaded upon said spindle and engaging said collar.

9. The combination with a valve-rod and its valve, of means for controlling the actions of the same, comprising a rotatable and slidable cap, means for rotating said cap, a collar attached to said rod and engaged with said cap, a tension means operatively connected with said valve-rod, a rotatable head, ball-carrying arms connecting said device and head together, and tension-springs connected with said arms.

10. The combination with a valve-rod and its valve, of means for controlling the actions of the same, comprising a rotatable and slidable cap, means for rotating said cap, a collar attached to said rod and engaged with said cap, an adjustable tension means operatively connected with said rod, a rotatable head, ball-carrying arms connecting said head and cap together, tension-springs acting on said arms, rotatable means carrying said tension-springs and adjustable relatively to said head, and means for maintaining the same in adjusted position.

11. The combination with a valve-rod and its valve, a tension device operatively connected with said rod, a standard, a rotatable head, means for rotating the same, a rotatable and slidable cap, a collar attached to said rod and engaged with said cap, and ball-carrying arms connecting said head and cap together, of a threaded spindle, a vertically-adjustable device having arms projecting into grooves in said head, springs carried by said device and engaging said ball-arms, a collar feathered to said spindle and bearing upon said device, and an adjusting-nut threaded upon said spindle and engaging said collar.

663,236. AIR-BRAKE-INSTRUCTION CHART AND APPARATUS. PETER LOFT and HARRY C. ETTINGER, Springfield, Ill. Filed Jan. 18, 1900. Serial No. 1,863. (No model.)



Claim.—1. In a chart and apparatus of the class described, the combination of a chart embodying representations of a number of different mechanisms of an air-brake system shown in operative relation to each other, movable parts on said chart representing like movable parts of the mechanisms represented and connecting devices operatively connecting said movable parts; all coöperating to show in timely succession the interdependent movements of the coöperating parts of the several mechanisms represented, as set forth.

2. In a chart and apparatus of the class described, the combination of a chart embodying a representation of a quick-action triple valve, superimposed movable parts representing corresponding parts of a triple valve, means operatively connecting said movable parts and means for moving said superimposed movable parts in simulation of the movements of the corresponding parts of a triple valve, as set forth.

3. In a chart and apparatus of the class described, the combination of a chart embodying a representation of an engineer's brake-valve and representations of other mechanisms of an air-brake system shown in coöperative relation to the engineer's brake-valve, a disk having representations of ways and ports and oscillative on the representation of the engineer's brake-valve, movable parts superimposed on the representations of the other mechanisms shown in coöperative relation to the engineer's brake-valve, and means operatively connecting said movable parts with said oscillative disk, substantially as set forth.

4. In a chart and apparatus of the class described, the combination of a representation of an engineer's brake-valve, an oscillative disk and a slidable plate in juxtaposition to said representation of an engineer's brake-valve, and means operatively connecting said plate with said disk, as set forth.

5. In a chart and apparatus of the class described, the combination of a steam-pump and air-compressor, a superimposed movable part representing the valve of the steam-pump, and a superimposed coöperating movable part representing the pistons of the steam-pump and air-compressor, as set forth.

6. In a chart and apparatus of the class described, the combination of a chart embodying representations of an engineer's brake-valve and a pressure-gage, a disk oscillative on the representation of an engineer's brake-valve, a needle oscillative on the representation of a pressure-gage and means operatively connecting said needle with said disk, substantially as set forth.

7. In a chart and apparatus of the class described, a supporting-plate and a chart mounted on said plate and embodying representations of a duplex air-pressure gage, an engineer's brake-valve and a quick-action triple valve; in combination with an oscillative needle C', an oscillative disk A', slidable plates A^3, B', B^3, B^3, B^4, means for converting oscillative movement of said disk into intermittent oscillative movement of said needle, means operated by said disk and adapted to push the plate A^3 downward, means adapted to quickly retract said plate, means operated by said disk and adapted to push the slides B' and B^3 inward, means adapted to push the plate B^3 downward and pull the plate B^4 upward, and means adapted to simultaneously return the slides B' and B^3 and the plates B^3 and B^4 to their initial positions, substantially as set forth.

8. In an apparatus of the class described, the combination of a supporting-plate, slides B' and B^3 and plates B^3 and B^4 slidable on said plate, a slide B^6 connected to and slidable with the plate B' and having a downwardly-extending lug, a bell-crank lever H^{13} adapted to be engaged by the lug on the slide B^6, means for reciprocating the slide B^6, a lever H^{14} in operative relation to the bell-crank lever H^{13} and engaging with a pin on the plate B^3, a lever H^{15} engaging with a pin on the plate H^4, a rod connecting the levers H^{13} and H^{14}, and a spring acting oppositely against the pins on the plates B^3 and B^3, all coöperating, substantially as shown and described.

9. In an apparatus of the class described, the combination of a supporting-plate, a slide B' and a plate B^3 slidable on the supporting-plate, a slide B^6 connected to and slidable with the slide B', means for reciprocating the slide B^6, a notched latch H^{12} engaging with a pin on the plate B^3, and a spring acting against said latch, as set forth.

10. In an apparatus of the class described, the combination of a supporting-plate, a disk mounted to oscillate on said plate, a slotted plate connected to and oscillating with said disk, a needle mounted to oscillate on the supporting-plate, a cog-pinion connected with said needle, a bell-crank lever operated by said slotted plate and a rod connected with said bell-crank and having a rack meshing with said cog-pinion, as set forth.

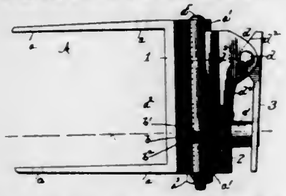
11. In an apparatus of the class described, the combination of a supporting-plate, a disk and a slotted plate connected together and oscillative on the supporting-plate, a forked bell-crank lever oscillative on the supporting-plate, means operatively connecting said bell-crank lever with said disk, a plate A^3 slidable on the supporting-plate, a lever H^{19} engaging with a pin on the plate A^3, a spring acting against the lever H^{19}, and a rod H^{18} connected with the forked bell-crank lever and engaging with the lever H^{19}, as set forth.

12. In an apparatus of the class described, the combination of a supporting-plate, a disk and a needle mounted to oscillate on said plate, a slide B' and plates A^3, B^3, B^3 and B^4 slidable on said supporting-plate, a slotted plate oscillative with said disk, a bell-crank H^{26} operatedby said slotted plate, a rod H^{27} connected with the bell-crank H^{26} and having a rack, a cog-pinion connected with said needle and meshing with the rack on the rod H^{28}, a forked bell-crank operated by said disk, a secondary bell-crank, a rod connecting said secondary bell-crank with said forked bell-crank, a slide B^5 adapted to engage with a bell-crank and connected with the slide B^6, a lever connected with the slide B^6, a rod connecting said last-named lever with the secondary bell-crank, a spring acting against the slide B^5, a bell-crank H^{12} engaged by the slide B^6, a secondary lever H^{11} engaged by the bell-crank H^{12} and engaging with a pin on the plate B^3, a lever H^{10} engaging with a pin on the plate B^4, a rod connecting the levers H^{11} and H^{13}, a spring acting against pins on the plates B^3 on B^4 to move said plates oppositely, a latch H^{12} engaging with a pin on the plate B^3 and a spring acting against said latch, all coöperating substantially as shown and described and for the purpose stated.

13. In an apparatus of the class described, the combination in op-

erative relation of the parts hereinafter specified, viz., a supporting-plate, an oscillative disk A', an oscillative needle C', a slotted plate H^{26}, a bell-crank H^{25}, a rod H^{27} having a rack, a pinion C^4 driven by the rack on the rod H^{27}, a forked bell-crank H^{22}, a roulette a^{21} connected with the disk A' and working in the fork of the bell-crank H^{22}, a slidable plate A^3, a lever H^{19} adapted to move the plate A^3, a spring acting against the lever H^{19}, a rod H^{18} connected with the bell-crank H^{20} and adapted to throw the lever H^{19}, a bell-crank H^{24}, a lever H^9, a rod H^7 connecting the bell-cranks H^{25} and H^{24}, a rod connecting the lever H^9 with the bell-crank H^{22}, a slide B^5 operated by the lever H^9, a spring acting against the slide B^5, plates B', B^2, B^3 and B^4 slidable on the supporting-plate and having pins, a latch H^{13} engaging with the pin on the plate B^2, a spring acting against said latch, a bell-crank H^{12} engaged by the slide B^5, a secondary lever H^{14} acted against by the bell-crank H^{12} and engaging with a pin on the plate B^3, a lever H^{15} acting against the pin on the plate B^4, a rod connecting the levers H^{14} and H^{15}, a spring acting oppositely against the pins on the plates B^2 and B^4, substantially as set forth.

663,237. **MAIL-CRANE HOOK.** 'NEILL MCQUEEN, Johnston Station, Ga. Filed May 3, 1900. Serial No. 15,434. (No model.)

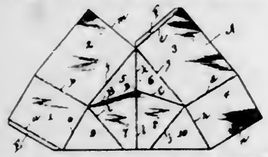


Claim.—1. A mail-crane hook comprising a body portion having provisions for securing it to a beam or crane and lugs a' a' projecting from the end thereof, a hook-carrier hinged to said lugs, a spring to normally hold the hook-carrier in position, a spring-hook hinged at one end to said hook-carrier, and provided with a hole in its free end, the said hook-carrier having a pin or lug adapted to engage said hole when the hook is in its supporting position.

2. A mail-crane hook comprising a body portion having provisions for securing it to a beam or crane and lugs a' a' projecting from the end thereof, a hook-carrier hinged to said lugs, a spring to normally hold the hook-carrier in position, a spring-hook hinged at one end to said hook-carrier, and provided with a hole in its free end, the said hook-carrier having a pin or lug adapted to engage said hole when the hook is in its supporting position, the body portion and hook-carrier being provided with oppositely inclined or beveled portions to permit the hook-carrier to have a large range of turning movement.

3. A mail-crane hook comprising a body portion provided with means for securing it to a crane or beam, lugs projecting from said body portion, a hook-carrier provided with a lug having a projecting portion, a bolt connecting the lugs of the body and hook-carrier, a spring on said bolt having its ends engaging the body portion and adapted to be engaged by the projecting portion of the hook-carrier, a spring-hook mounted on the carrier, and provided with a hole, a pin or stud on the carrier adapted to be engaged by the hole in the free end of the hook.

663,238. **PAPER BOX.** THEODORE L. NEUMANN, Dayton, Ohio, assignor of one-half to the Dayton Paper Novelty Company, same place. Filed July 21, 1900. Serial No. 24,361. (No model.)



Claim.—1. A blank for a paper box having a substantially equilateral triangular shaped bottom-section, two body-sections upon each of the opposite sides of said equilateral triangular bottom-section, a transverse slit across said bottom-section, scored lines in said bottom-section subdividing it into duplex folding sections, scored lines between said body-sections, and scored lines between the body and bottom sections, substantially as specified.

2. A blank for a paper box consisting of a substantially equilateral triangular shaped interior bottom-section, upon the opposite equilateral sides of which are extended duplex body-sections, scored lines subdividing the bottom-section and a transverse slit across said bottom-section forming a folding and a collapsing line, and adapting the bottom edge of said bottom-section to be turned in and tucked onto the other section, substantially as specified.

3. A blank for a paper box, consisting of an equilateral triangular shaped bottom-section, two body-sections upon each of its opposite equilateral sides, a scored line bisecting said triangular-shaped bottom, pasting-flaps on the edges of said body-sections adapted to overlap adjacent sections when the blank is folded on said scored lines, a slit across said bottom-section transverse to said bisecting lines, and scored folding-lines, subdividing said bottom-sections, substantially as specified.

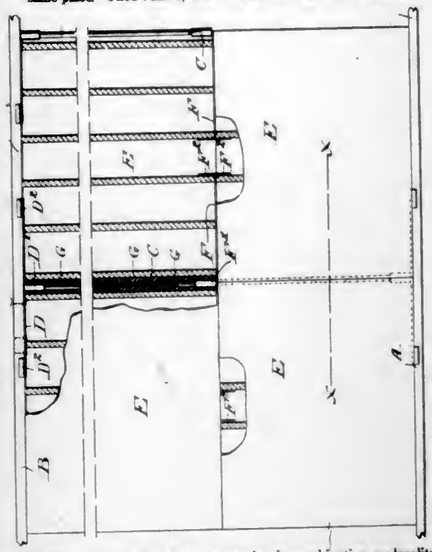
4. A blank for a paper box, having an equilateral triangular shaped bottom-section, two body-sections upon its opposite equilateral sides, a scored line bisecting said triangular-shaped bottom-section, scored lines subdividing said bottom into folding divisions, a transverse slit in said bottom-section for tucking and overlapping one of said bottom-sections upon the other, substantially as specified.

5. A blank for a paper box, consisting of ten folding sections, defined by scored lines, six of said sections forming an equilateral triangular shaped bottom subdivided by a transverse folding-line, a transverse slit dividing said bottom-sections on the line of the box, body division and folding lines to allow said bottom to be folded upon each other and overlapping the opposite body-sections, substantially as specified.

6. A blank for a paper box consisting of a body-section formed on the two outer sides of the blank, a triangular-shaped bottom-section formed integral therewith, a central folding-line subdividing said bottom-section, a transverse slit intersecting said line and the intersecting box-corner lines with scored folding-lines whereby the box may be folded across the central bottom line and the bottom-sections folded, tucked through said slit and overlap so as to be employed in either the collapsed or folded position, substantially as specified.

7. A substantially triangular shaped blank, having an equilateral-shaped bottom-section, intermediate of the body-sections upon its equilateral sides, a bisecting scored line on the bottom-section, a slit across said section transverse to said bisecting scored line, and scored lines between the body and bottom sections respectively, substantially as described.

663,239. **BUILDING CONSTRUCTION.** JOHN C. PELTON, New York, N. Y., assignor to the Pelton Fireproof Construction Company, same place. Filed June 1, 1900. Serial No. 18,716. (No model.)

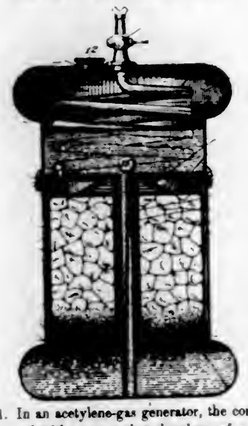


Claim.—1. In a building construction in combination, a plurality of partition-blocks having abutting faces, a groove in each abutting face, said grooves coöperating to form a longitudinal opening, a metal strip located in said opening and having tongues punched out of said strip and standing at an angle thereto to receive a filling material and direct the same through the holes in said strip from which said tongues were punched.

2. In a building construction in combination, a plurality of building-blocks having substantially abutting faces, a groove in each block coöperating to form a longitudinal opening, and a strengthening-piece running through said opening, and a device to retain a block in place including a sheet-metal strip bent to engage said strengthening-strip and having an extension to pass along one of the other edges of one of said blocks and engage the same to hold said block in place.

3. In a building construction in combination, a strengthening device running from floor to ceiling, a plurality of building-blocks, each of said blocks having a groove in its vertical face and so placed that said strengthening device is located in said grooves, and a retaining device formed of sheet metal and bent around said strengthening-strip so as to slidably engage the same, said retaining device having an extended foot to pass under the lower edge of one of said blocks and carrying engaging means to engage a plurality of said blocks and hold the same in position.

663,240. **ACETYLENE-GAS GENERATOR.** WOLCOTT REMINGTON, Windsor, Conn., assignor of one-half to Charles H. Cooley, Hartford, Conn. Filed Aug. 9, 1900. Serial No. 26,367. (No model.)



Claim.—1. In an acetylene-gas generator, the combination, with a water-reservoir; and with a generating-chamber; of a restriction-chamber, disposed between said generating-chamber and the reservoir, and comprising a plurality of superimposed plates, having apertures for permitting the passage of water from the reservoir to the generating-chamber.

2. In an acetylene-gas generator, the combination, with a water-reservoir; and with a generating-chamber; of a restriction-chamber, disposed between said generating-chamber and the reservoir, and comprising a plurality of superimposed plates, having unalined apertures for permitting the passage of water from the reservoir to the generating-chamber.

3. In an acetylene-gas generator, the combination, with a water-reservoir; a carbid-chamber; and an equalizing-chamber in communication with the reservoir; of a generating-chamber, surrounding said carbid-chamber; and a restriction-chamber interposed between the equalizing and carbid chambers.

4. In an acetylene-gas generator, the combination, with a water-reservoir; a carbid-chamber; an equalizing-chamber; and a conduit from the reservoir to, the equalizing-chamber; of a generating-chamber surrounding the carbid-chamber; and a restriction-chamber between the carbid and equalizing chambers.

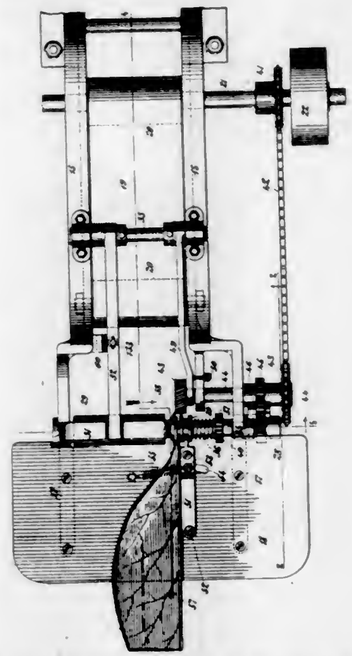
5. In an acetylene-gas generator, the combination, with a water-reservoir; a carbid-chamber having apertures disposed at different levels; and a generating-chamber surrounding the carbid-chamber and forming therewith a narrow annular space; of a restriction-chamber; and an equalizing-chamber disposed between said carbid-chamber and the reservoir.

663,241. **TOBACCO-STRIPPING MACHINE.** JULIUS H. SCHMIDT, Bayonne, N. J., assignor to the Schmidt-Perrin Manufacturing Company, Jersey City, N. J. Filed Apr. 6, 1900. Serial No. 11,799. (No model.)

Claim.—1. In a tobacco-stripping machine, the feed-table to receive the folded tobacco-leaf, and the feed-rollers for the folded halves of said leaf, combined with the rotary cutters adjacent to said feed-rollers for removing the stem from the leaf, and the yielding collar on the shaft of one of said cutters to press against the stem edge of the folded leaf; substantially as set forth.

2. In a tobacco-stripping machine, the feed-table to receive the folded tobacco-leaf, and the feed-rollers to receive and feed inward the folded halves of said leaf, combined with the rotary cutters adjacent to the end of said feed-rollers for removing the stem from the leaf, and the yielding gage-arm on said feed-table for guiding the stem edge of the folded leaf to said cutters and assisting in keeping the stem of said leaf close against said cutters; substantially as set forth.

3. In a tobacco-stripping machine, the feed-table to receive the folded tobacco-leaf, and the feed-rollers for feeding inward the folded halves of said leaf, combined with the rotary cutters adjacent to the ends of said rollers for removing the stem from the folded leaf, the yielding collar on the shaft of one of said cutters for pressing against the stem edge of the leaf to keep the stem against said cutters, and the yielding gage-arm on said feed-table and connected with said collar, said gage-arm serving to guide the stem edge of the folded leaf to the cutters; substantially as set forth.



4. In a tobacco-stripping machine, the feed-rollers 24 and 29 for feeding inward the halves of a folded tobacco-leaf, the grooved cutter 26 adjacent to the end of the feed-roller 24, the rotary cutter 38 adjacent to the end of the feed-roller 29 and adapted to coöperate with said cutter 26, the stem-feeding rollers 47 and 48 in the rear of said cutters, and the belt for carrying away the stems after the latter are cut from the leaves; substantially as set forth.

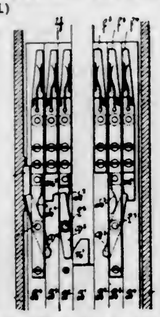
5. In a tobacco-stripping machine, the feed-rollers 24, 29, for feeding inward the halves of the folded tobacco-leaf, the upper and lower coöperating rotary cutters adjacent to the ends of said feed-rollers, and the yielding collar on the shaft of one of said cutters for keeping the stem on the leaf close to said cutters; substantially as set forth.

6. In a tobacco-stripping machine, the lower feed-roller 24, the shaft 23 upon which said feed-roller is secured, and the rotary cutter 26 on said shaft and adjacent to the end of said feed-roller, combined with the feed-roller 29 yieldingly supported upon said feed-roller 24, the shaft 34 above said shaft 23, the rotary cutter 38 on the inner end of said shaft and adjacent to the end of the feed-roller 29 for coöperation with said cutter 26, the upper and lower stem-feeding rollers 47 and 48 in rear of said cutters, the belt 19 for carrying away the stems cut from the tobacco-leaves, and mechanism for imparting motion to said shafts 23, 34, lower stem-feeding roller 47 and belt 19, the said feed-rollers 24 and 29 being adapted to feed inward the halves of a folded tobacco-leaf, while the stem edge of said leaf passes through said cutters; substantially as set forth.

7. In a tobacco-stripping machine, the feed-roller 24, the shaft 23 upon which said feed-roller is secured, the rotary cutter 26 on said shaft, the upper feed-roller 29, and the spring yieldingly holding said roller 29 against the roller 24, said rollers 24 and 29 being adapted to feed inward the longitudinal halves of the folded tobacco-leaf, combined with the shaft 34 above said shaft 23, the cutter 38 on the end of said shaft adjacent to the end of the roller 29 for coöperation with said cutter 26 in removing the stems from the leaves, gearing connecting said shafts 23, 34, the sliding collar 39 on the shaft of said cutter 38, the spring pressing said collar 39 toward said cutter 38, and means for imparting motion to said shafts; substantially as set forth.

8. In a tobacco-stripping machine, the feed-roller 24, the shaft 23 upon which said feed-roller is secured, and the rotary cutter 26 on said shaft and adjacent to the end of said roller, combined with the upper feed-roller 29, the shaft 34 in line with said feed-roller 29, the rotary cutter 38 on the inner end of said shaft 34 for coöperation with the said rotary cutter 26, the lower stem-feeding roller 47 in rear of the lower rotary cutter 26, the upper stem-feed roller 48 in rear of the upper rotary cutter 38, the spring yieldingly pressing said upper feed-roller 48 against the said roller 47, the yielding collar on the shaft 34 for pressing the stem of the leaf against the upper cutter 38, and means for imparting motion to the shafts 23 and 34, and the shaft of the lower stem-feeding roller 47; substantially as set forth.

663,242. **AMMUNITION CONVEYER OR RAMMER FOR GUNS.** GUSTAV A. SCHOELLER, Mülheim-on-the-Ruhr, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Sept. 22, 1900. Serial No. 30,744. (No model.)



Claim.—1. In an ammunition conveyer or rammer for guns having a series of rack-bars telescopically connected and means for moving the same successively forward, the combination of pawls carried by the rack-bars, rigid abutments adapted to be engaged by the pawls when the rack-bars are telescoped for positively holding the same against advance movement, and means on the rack-bars for successively causing the release of the pawls from the abutments at the end of the forward movements of the rack-bars, substantially as described.

2. In an ammunition conveyer or rammer for guns having a series of rack-bars telescopically connected and means for moving the same successively forward, the combination of spring-pressed pawls carried by the rack-bars, rigid abutments adapted to be engaged by said pawls when the rack-bars are telescoped for positively holding the same against advance movement, and trippets situated at the ends of the rack-bars and adapted to successively engage with the pawls at the end of the forward movements of the rack-bars to lift the pawls from the abutments, substantially as described.

3. In an ammunition conveyer or rammer for guns having a series of rack-bars telescopically connected and means for moving the same successively forward, the combination of pawls and abutments alternately mounted on the rack-bars, an abutment on the casing adapted to be engaged by the pawl on the last rack-bar, and means for tripping said pawls, substantially as described.

4. The combination with an ammunition conveyer or rammer for guns having a system of rack-bars telescopically connected and means for distending the system, of interlocking means for said rack-bars and the housing for positively locking the rack-bars, with the exception of the leading rack-bar, against advance movement, and means for automatically and successively unlocking the following rack-bar when the preceding rack-bar has reached the end of its movement, substantially as described.

663,243. **RAILROAD-RAIL JOINT.** SAMUEL E. STEDEFORD, Allegheny, Pa. Filed Apr. 2, 1900. Serial No. 11,272. (No model.)

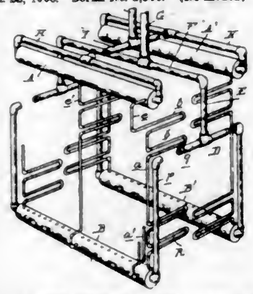


Claim.—1. The combination with a pair of rail-sections of a railroad-track, of a railroad-rail chair suitably secured to the supporting-ties of a railroad-track and adapted to support a pair of rail-sections, an expansion-rail interposed between said rail-sections and provided with a pair of elongated grooves and mounted upon said chair, and a fish-plate mounted at each side of the web of said sections and engaging said grooves and said chair and adapted to secure said sections in position.

2. In a combined railroad-rail chair and rail-joint, the combination with a pair of rail-sections of a railroad-track, of a railroad-rail chair mounted upon the ties of a railroad-track for supporting said rail-sections and provided with a series of clamps, an expansion-rail mounted in said chair between said rail-sections and having the lower face of its head provided with a pair of grooves, and a fish-plate mounted at each side of said sections and engaging said grooves and said clamps for securing said sections in position.

3. In a railroad-rail chair and rail-joint for supporting and securing in position the rail-sections of a railroad-track, the combination of an expansion-rail formed with a pair of grooves in the lower face of its tread or top portion, a railroad-rail chair suitably secured to the ties of the track and provided with a series of clamps, and a pair of fish-plates provided with a series of projections engaging said clamps and having the upper end engaging said grooves, substantially as set forth.

663,244. **HOT-WATER HEATER.** GEORGE STRONG, Detroit, Mich. Filed Jan. 22, 1900. Serial No. 2,360. (No model.)



Claim.—1. A water-heater comprising two separately-assembled oppositely-arranged sections, each consisting of top and bottom headers, and a series of connecting-risers the upper portions of each riser having a series of laterally-extending loops or return-bends adapted to intermesh with the loops of the corresponding riser in the opposite section, and forming an arch over the fuel-chamber, and connections between said top and bottom headers respectively forming a common outlet and common inlet connection with both sections.

2. A water-heater comprising top and bottom headers and a series of connecting-risers, said risers being alternately connected to the top of said bottom header and side of said top header, and side of said bottom header and bottom of said top header.

3. A water-heater comprising parallel sections each consisting of top and bottom headers and a series of connecting-risers having laterally-extending loops or return-bends in their upper portions, said sections being arranged to form a fuel-chamber of relatively narrow width in comparison with its length and height, and a rotary grate arranged between and extending longitudinally of said lower headers.

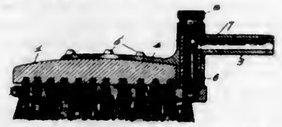
663,245. **BRUSH.** HERBERT M. STURGIS, Kansas City, Mo. Filed Apr. 11, 1900. Serial No. 12,461. (No model.)



Claim.—1. A device of the class described, comprising an apertured brush-block, a perforated cup carried in said aperture, an annular flange integral with said cup, a grooved casting for inclosing said flange and means for connecting the device to a source of water-supply, substantially as specified.

2. A brush comprising a brush-block, a perforated cup carried in an aperture in said brush-block, a casting having an annular groove in its under side for receiving an annular flange on the upper edge of said cup, means for securing said casting to the brush-block, an angular tubular casting removably carried by the said grooved casting, and means for connecting the device to a source of water-supply substantially as specified.

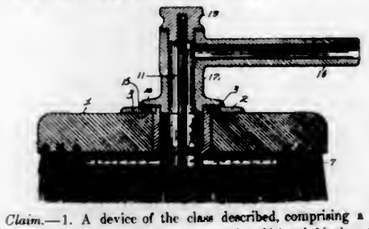
663,246. **BRUSH.** HERBERT M. STURGIS, Kansas City, Mo. Filed Apr. 23, 1900. Serial No. 14,002. (No model.)



Claim.—1. A device of the class described, comprising a brush-block, a handle integral with said brush-block, a tubular casting carried by said brush-block, a second casting removably carried by said tubular casting, and a spraying device carried by the second-mentioned casting, substantially as specified.

2. The herein-described brush, comprising a brush-block, a handle integral with said brush-block, a tubular casting rigidly carried by said brush-block, a second casting removably carried by the first-mentioned casting, and a spraying-tube carried by the said second-mentioned casting, the said spraying-tube encircling the entire number of brush-splints, substantially as specified.

663,247. **BRUSH.** HERBERT M. STURGIS, Kansas City, Mo. Filed Apr. 23, 1900. Serial No. 14,004. (No model.)

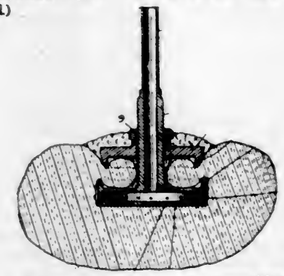


Claim.—1. A device of the class described, comprising a brush-block, a spraying-cup carried in an aperture in said brush-block, a tubular casting carried by said brush-block, means for holding the cup and casting in position on said brush-block, and means for adjusting said casting at different angles on said brush-block, substantially as specified.

2. A device of the class described, comprising an apertured brush-block, a casting carried upon said brush-block, a tubular casting mounted over said casting, means for adjusting said tubular casting at different angles, and a spraying-cup carried within the aperture in said brush-block, substantially as specified.

3. In a brush, an apertured brush-block, a tubular casting carried by said brush-block, means for adjusting said casting at different angles, a spraying-cup carried within the aperture in the brush-block, spraying-tubes carried by said cup, a bolt carried by the bottom of said cup and projecting through said tubular casting, and a finger-nut secured upon said bolt whereby the spraying-cup and tubular casting are held in position, substantially as specified.

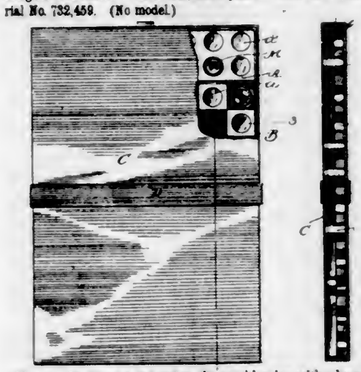
663,248. **SPRAYING ATTACHMENT FOR SPONGES.** HERBERT M. STURGIS, Kansas City, Mo. Filed Apr. 23, 1900. Serial No. 14,005. (No model.)



Claim.—1. A device of the class described, comprising a tubular casting, a spraying-cylinder carried by said casting, a clamp carried by said tubular casting, flanges integral with said spraying-cylinder and with said clamp, and means whereby said flanges may be made to grip over a portion of the sponge, to which the attachment may be secured, substantially as specified.

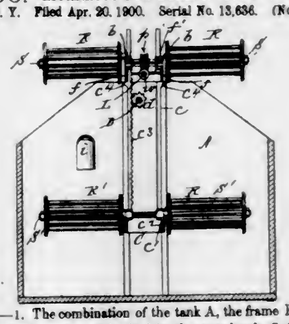
2. The herein-described device, comprising a tubular casting, a spraying-cylinder carried by said tubular casting, a clamp mounted over said tubular casting, flanges integral with said cylinder and with said clamp for engaging over the sponge, and a nut for holding said clamp in any desired adjustment, the spraying-cylinder being inclosed by the sponge when the device is in use, substantially as specified.

663,249. **GAME-BOARD.** JAMES N. WHITMAN, New York, N. Y., assignor to Edward L. Horsman, same place. Filed Oct. 4, 1899. Serial No. 732,459. (No model.)



Claim.—In a game apparatus, the combination with a board having a marginal flange and a series of recesses located at the different positions, of a series of pieces each having both end portions adapted to fit said recesses, both end faces of each piece being differentiated the one from the other, and each piece when in position extending up to a horizontal plane approximating that of the marginal flange, and a cover for retaining the men against withdrawal from the recesses they occupy, substantially as set forth.

663,250. **APPARATUS FOR DYEING.** FRANK L. ZEMAN, New York, N. Y. Filed Apr. 20, 1900. Serial No. 13,636. (No model.)

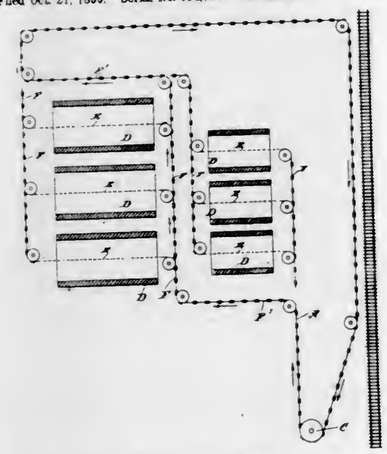


Claim.—1. The combination of the tank A, the frame F, consisting of the longitudinal members *f f* united by the cross-heads *f' f'*, said cross-heads being formed with the recesses *f³*, *f³*, the spindles S, S, mounted in bearings upon the longitudinal members *f*, *f*, of the frame F and each provided with a central pinion *p*, the reels R R mounted upon the opposite ends of said spindles S, S, the central longitudinal shaft L, supported in bearings *l*, on the cross-heads *f*, *f*, a series of worm-gears *w*, *w* affixed to said shaft L and each engaging with a pinion *p*, upon one of the spindles S, means for rotating said longitudinal shafts L, the lower frame C formed of the longitudinal members *c'*, *c'*, united by the cross-heads *c²*, *c²*, and having the rigid standards *c*, *c*, projecting through the recesses *f³*, *f³*, in the upper frame F, the spindles S', S', mounted upon bearings on the longitudinal members *c'*, *c'*, of the lower frame C, the reels R' mounted upon opposite ends of the spindles S', rack-teeth *c³*, *c³*, formed upon one of the standards *c*, *c*, at each end of the frame C, pinions engaging said rack-teeth, and means for rotating said pinions in opposite directions, substantially as and for the purpose described.

2. The combination of the tank A, the frame F, consisting of the longitudinal members *f*, *f*, united by the cross-heads *f'*, *f'*, which are formed with recesses *f³*, *f³*, said cross-heads *f'*, *f'*, being adapted to rest upon the end walls of the tank A, the spindles S, S, mounted on bearings upon the longitudinal members *f*, *f*, of the frame F and each provided with a central pinion *p*, the reels R, R, mounted upon opposite ends of said spindles S, S, the central longitudinal shaft L, supported in bearings *l*, on the cross-heads *f*, *f*, a series of worm-gears *w*, *w*, affixed to said shaft L, and each engaging with a pinion *p*, upon one of the spindles S, means for

rotating said longitudinal shaft L, the lower frame C, formed of the longitudinal members c', c', united by the cross-heads c^2, c^2, the standards c, c, upon said lower frame C, projecting through the recesses f^3, f^3 in the cross-head of the upper frame F, and formed with shoulders c^4, c^4, for engagement with the under side of the frame F, the spindles S', S', mounted upon bearings on the longitudinal members c', c', of the lower frame C, the reels R, R, mounted upon the opposite sides of the spindles S', S', rack-teeth c^3, c^3, formed upon one of the standards c, c, at each end of the frame C, the longitudinal shaft D, having pinions which engage said rack-teeth c^3, c^3, on the standards c, c, and means for rotating said longitudinal shaft D in either direction for the purpose and substantially in the manner described.

663,251. CONVEYER. JAMES W. BARNEY, Kansas City, Mo. Filed Oct. 21, 1899. Serial No. 734,330. (No model.)



Claim.—1. The combination with a support, of a frame adjustable thereon, a drive pulley or sheave carried by the frame, and a track-section also carried by the frame and adjustable therewith.

2. A conveyer system, in which means are provided for forming a main run and a plurality of auxiliary runs with connecting-runs for bringing either one of the auxiliary runs into and uniting it with the main run, for forming a continuous conveyer, said means consisting of a haul device, and carriers in connection with the haul device to form a conveyer, the said conveyer being composed of a series of sections having means for detachably connecting them one to another, said sections forming the main run of the conveyer, the plurality of auxiliary runs thereof and the connecting-runs for connecting the auxiliary runs with each other and with the main run, each auxiliary run thus formed being of a length to form in connection with the main run and sundry of the connecting-runs, a continuous conveyer, whereby to cut out and bring into the main run any of the auxiliary runs.

3. A conveyer system, in which means are provided for forming a main run and a plurality of auxiliary runs with connecting-runs for bringing either one of the auxiliary runs into and uniting it with the main run for forming a continuous conveyer, said means consisting of a haul device, and carriers in connection with the haul device to form a conveyer, the said conveyer being composed of a series of sections having means for detachably connecting them one to another, said sections forming the main run of the conveyer, the plurality of auxiliary runs thereof and the connecting-runs for connecting the auxiliary runs with each other and with the main run, each auxiliary run thus formed being of a length to form in connection with the main run and sundry of the connecting-runs, a continuous conveyer, whereby to cut out and bring into the main run any of the auxiliary runs, each run having means for supporting the conveyer-sections therein independently of the sections of the other runs.

4. A conveyer, in which means are provided for forming a main run and a plurality of auxiliary runs with connecting-runs for bringing either one of the auxiliary runs into and uniting it with the main run, for forming a continuous conveyer, said means consisting of a haul device, and carriers in connection with the haul device to form a conveyer, the said conveyer being composed of a series of sections having means for detachably connecting them one to another, said sections forming the main run of the conveyer, the plurality of auxiliary runs thereof and the connecting-runs for connecting the auxiliary runs with each other and with the main run, each auxiliary run thus formed being of a length to form in connection with the main run and sundry of the connecting-runs, a continuous conveyer, whereby to cut out and bring into the main run any of the auxiliary runs, each run having means for supporting the conveyer-sections therein independently of the sections of the other runs, said means including track-sections on which the several runs of the conveyer are carried, such tracks being laid in conformity with the runs and having removable rail-sections serving to connect the track-sections to form a continuous track for the connected conveyer-runs.

5. A conveyer system, in which means are provided for forming a main run and a plurality of auxiliary runs with connecting-runs for bringing either one of the auxiliary runs into and uniting it with the main run, for forming a continuous conveyer, said means consisting of a haul device, and carriers in connection with the haul device to form a conveyer, the said conveyer being composed of a series of sections having means for detachably connecting them one to another, said sections forming the main run of the conveyer, the plurality of auxiliary runs thereof and the connecting-runs for connecting the auxiliary runs with each other and with the main run, each auxiliary run thus formed being of a length to form in connection with the main run and sundry of the connecting-runs, a continuous conveyer, whereby to cut out and bring into the main run any of the auxiliary runs, the haul device having a driving device acting on the main run of the continuous conveyer irrespective of the particular auxiliary run in action.

6. The combination of a haul device composed of separate sections, and carriers interposed between and uniting the adjacent sections, the connections between the carriers and the sections of the haul device being adjustable and affording a means for taking up slack in the haul-device sections.

7. In a conveyer system, a haul device and carriers, the haul device being composed of separate sections united by carriers which are interposed between adjacent sections of the haul device, in combination with the drive-sprocket having radially-adjustable sections spaced from each other at the side edges interrupting the continuity of the peripheral surface, the haul-device sections corresponding to and engaging with the sections of the drive-sprocket from one recess to the next, and the carriers projecting into the recesses of the drive-sprocket and effecting interlocking engagement therewith.

8. The combination of a track, a haul device, carriers in connection with the haul device, a sprocket having recesses extending inward from its periphery, said carriers comprising a wheel running on the track, a housing for the wheel, and a depending support or seat for the material to be carried, the housings of the carriers fitting the recesses of the sprocket, and the sprocket having the recesses formed by radially-adjustable members.

9. The combination of the haul device, carriers in connection with the haul device, and a sprocket having independently-adjustable segmental members projecting from the rim thereof beyond the periphery, the said segmental members being spaced apart and having recesses in their contiguous ends to receive portions of the carriers.

10. In a conveyer, the combination with a support, of a wheel around which the conveyer passes, the wheel being adjustably mounted on the support, and a track-section juxtaposed to the wheel to carry the conveyer, the track-section being mounted to be adjusted in unison with the wheel.

11. The combination of a wheel adapted to be engaged by a conveyer, a track-section adapted to carry the conveyer, and means for mounting the wheel and track-section to be adjusted simultaneously, whereby to regulate the tension of the conveyer.

12. The combination with a support, of rods mounted rigidly thereon, a frame mounted to slide on the rods, means for imparting movement to the frame, a wheel mounted on the frame and having a conveyer engaged therewith, and a track-section also mounted on the frame and juxtaposed to the wheel to carry the conveyer.

13. In a conveyer, a suspended carrier, comprising a back portion inclined to the vertical, and two end portions attached to the back portion at the same side, the lower of said end portions projecting laterally and upwardly to form a seat or rest, and the upper of said end portions projecting laterally into engagement with the support at the point of suspension, the said inclined back portion of the carrier passing diagonally across the vertical line in which occur the point of suspension and the center of gravity of the carrier, whereby the carrier maintains approximately the same position whether loaded with a load of predetermined size and form, or empty.

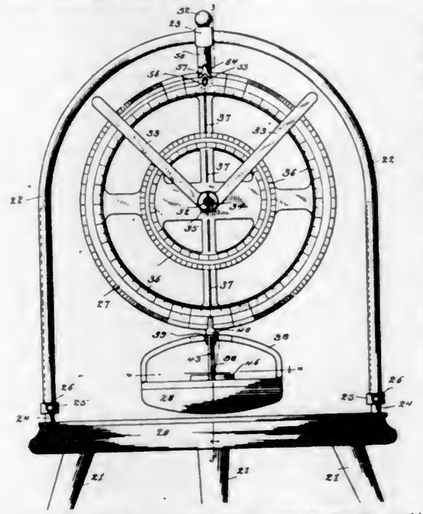
14. In a conveyer, the combination with a track, of a haul device mounted to move vertically, and a series of suspended carriers hung from the haul device, the carriers being maintained in a position to face opposite the direction of travel and each comprising a back portion inclined to the vertical, and two end portions attached to the back portion at the same side, the lower of said portions projecting laterally and upwardly to form a seat or rest, and the upper of said end portions projecting laterally into engagement with the haul device at the point of suspension, the inclined back of the carrier passing diagonally across the vertical line in which occur the point of suspension and the center of gravity of the carrier, whereby the carrier maintains approximately the same position whether loaded with a load of predetermined size and form, or empty.

15. In a conveyer, a carrier comprising a wheel, a housing wherein the wheel is mounted, connections attached to the housing to haul the carrier, and a seat or support for the material to be conveyed, the seat or support being engaged to and hung from a part of the housing.

16. In a conveyer, the combination of a track, carriers comprising wheels, housings in which they are mounted, and seats or supports hung from the housings, a haul device composed of a series of separate sections attached to the housings and united thereby, means for driving the haul device and a smooth-faced guard-wheel arranged at a turn in the track, in position to be engaged by the housings as they run around said turn, whereby to prevent the displacement of the wheels of the carriers.

17. In a conveyer, the combination with a track, of carriers comprising wheeled housings mounted to run thereon, a haul device composed of a series of separate sections connected with the housings and united thereby, a sprocket having recesses extending inward from its periphery, the said recesses serving to receive the housings, whereby the wheel imparts movement to the carriers, and a smooth-faced guard-wheel arranged at a turn in the track to be engaged by the housings and prevent the displacement of the wheels of the carriers.

663,252. LEVELING, PLUMBING, AND ANGLE-MEASURING INSTRUMENT. JOHN S. BOGARDUS, Stamford, Conn. Filed June 11, 1900. Serial No. 19,809. (No model.)



Claim.—1. In an instrument of the character described the combination with a freely-suspended plate 27 provided with graduations 36 and a plummet attached to said plate, of an oscillating arm 33 pivoted at the center of said plate and having an edge radial to the pivotal point, said edge being adapted to register with the graduations.

2. In an instrument of the character described the combination with a freely-suspended plate 27 provided with graduations 36 and a plummet attached to said plate, of two oscillating arms secured together at a right angle and pivoted at the center of the plate, one edge of each arm being radial to the pivotal point, and means for locking said arms at any desired position with relation to the graduations.

3. In an instrument of the character described the combination with a plummet and a compass carried thereby, of arms provided with sight-slits by which the plummet is suspended.

4. In an instrument of the character described the combination with a head 40 having a threaded stud 41 with a thumb-nut, of a plummet carrying a compass, and arms provided with sight-slits by which the plummet is suspended, said arms uniting at the top and the threaded stud passing through at the point of intersection and said arms and the plummet being free to turn on the stud when the thumb-nut is loosened.

5. In an instrument of the character described the combination with a freely-suspended plate 27, of a head 40 rigidly secured thereto and having a threaded stud with a thumb-nut and a plummet carrying a compass and having arms provided with sight-slits which are swiveled on the stud and may be locked by the thumb-nut.

6. In an instrument of the character described the combination with a plate 27 and a plummet attached thereto, of a block 50 to which the plate is attached, the upper face of said block being a concave curve, a head 23 whose lower face is a convex curve corresponding with the curvature of the block and which is provided with a downwardly and outwardly tapering recess 53 and a bolt passing through said recess and engaging the block and having a spherical head resting upon head 23, so that said plate may oscillate freely.

7. In an instrument of the character described the combination with a vertically-adjustable frame, of a freely-suspended dial-plate, a plummet attached to the lower edge thereof and an oscillating arm pivoted to the dial-plate and having an edge radial to the pivotal point.

8. In an instrument of the character described the combination with a vertically-adjustable frame, of a dial-plate 27 freely suspended therefrom, a sight-tube carried by said plate, a plummet attached to the lower edge of said plate and a compass carried by the plummet.

9. In an instrument of the character described the combination with a base and a frame, of a plate 27 vertically adjustable relatively to the frame, a plummet attached to the lower edge of said plate and means for locking the plummet to the base when the plate and plummet are lowered.

10. In an instrument of the character described the combination with a base, a frame extending upward therefrom, plate 27 having at its upper end a block and a bolt passing through the frame and engaging the block whereby said block and plate may be moved vertically, of a plummet rigidly secured to the lower edge of the plate and a thumb-screw in the base whereby the plummet may be locked thereto when the plummet and plate are lowered by the bolt.

11. In an instrument of the character described the combination with a frame having a head 23 convex upon its lower side and provided with a downwardly and outwardly tapering recess 53, of a plate 27 having at its upper end a block curved to correspond with the head and a bolt 51 having a rounded head 52 which rests upon head 23 and a shank which passes through the recess and engages the block whereby said parts are secured together leaving the block and plate free to oscillate.

12. In an instrument of the character described the combination with a frame having a head 23 and a block 50 freely suspended therefrom and having a recess 54 with a stud 55 extending from the face thereof, of plate 27 having a recess 56 to receive the stud, a clamp engaging the face of the plate and provided with a threaded shank which passes through the block and a thumb-nut by which the parts are locked together.

663,253. FRUIT-GATHERING BAG. GEORGE W. BOWMAN, Palisade, Colo. Filed Apr. 12, 1900. Serial No. 12,540. (No model.)



Claim.—1. A fruit-gathering bag, comprising a tubular receptacle open at both ends, a plurality of hooks secured at spaced intervals on the front side of the bag and all in the same vertical plane, a tab secured on the rear side of the bag near the lower edge, and a second tab secured on the rear side of the bag above the first tab, the attached end of said second tab being nearly opposite the lowermost hook on the front of the bag, the said tabs being adapted to engage the said hooks to change the length of the bag and close its lower end, substantially as specified.

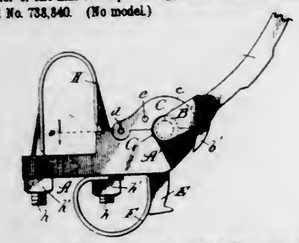
2. A fruit-gathering bag comprising a tubular pliable receptacle open at both ends, a distending-hoop at the upper end, a plurality of hooks secured at spaced intervals on the front side of the bag, one above the other, a securing-tab attached at one end to the rear face of the bag at a point nearly opposite the lowermost hook on the front face of the bag and adapted to engage with the uppermost hook on the front of the bag to hold the bag-body double-folded, a second tab secured to the rear face of the bag near the lower edge thereof, and adapted to engage either of the other hooks on the face of the bag, to hold the bag-body single-folded, and means for hanging the bag from the neck of the user, substantially as specified.

3. A fruit-gathering bag, comprising a tubular, pliable receptacle open at each end, a distending-hoop at the open upper end, means for

holding the bag-body double-folded or single-folded to give it different lengths and close the lower end thereof, eyes or loops on the rear side of the distending-hoop near the ends, and supporting-bands normally crossed and having hooks at each end, the hooks on one end of each band engaging with one of the said eyes or loops on the distending-hoop, and the hooks on the opposite ends of the bands engaging with the other eye or loop on the hoop, substantially as specified.

4. A fruit-gathering bag, open at each end, spaced eyes or loops at the rear side of the bag at the upper open end, and adjustable supporting-bands, having hooks at each end the bands being normally crossed, the hooks at one end of each band engaging one of said eyes or loops and the hooks at the other ends of the bands engaging the other eye or loop, substantially as specified.

663,254. THILL-COUPLING. THOMAS E. BROOKS, Chicago, Ill., assignor of one-half to Stephen Nagy, same place. Filed Dec. 1, 1899. Serial No. 738,840. (No model.)



Claim.—1. In a thill-coupling, the combination of a plate or base provided with a draw-head at its front end having a semicylindrical transverse recess across its inner or upper face and an upwardly and rearwardly projecting lip or horn with an outer curved face, and a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face and having at its outer end a downwardly and forwardly projecting lip or horn with an inner curved face overlapping the outer curved face of the lip or horn of the draw-head when the cap is down, substantially as described.

2. In a thill-coupling, the combination of a plate or base provided with a draw-head having a semicylindrical transverse recess and an upwardly-projecting lip or horn, and a shoulder at the base of the horn on the outside and a cap pivotally mounted on the draw-head and provided with a semicylindrical transverse recess and a downwardly-projecting lip or horn overlapping the lip or horn of the draw-head and engaging the shoulder thereof when the cap is down, substantially as described.

3. In a thill-coupling, the combination of a plate or base provided with a draw-head at its front end having a semicylindrical transverse recess across its inner or upper face and an upwardly and rearwardly projecting lip or horn with an outer curved face partly overlying the recess and having a vertical slot in the body of the draw-head rearwardly of the transverse recess, a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face and having at its outer or forward end a downwardly and forwardly projecting lip or horn with an inner curved face overlapping and engaging with the outer curved face of the lip or horn of the draw-head when the cap is down, and a swinging latch carried by the cap and projected through the slot of the draw-head for engagement with the draw-head when the cap is down, substantially as described.

4. In a thill-coupling, the combination of a plate or base provided with a draw-head at its front end having a semicylindrical transverse recess across its inner or upper face and an upwardly and rearwardly projecting lip or horn with an outer curved face and partly overlying the transverse recess and having a vertical slot in its body rearward of the transverse recess, a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face and having at its outer end a downwardly and forwardly projecting lip or horn with a curved inner face overlapping and engaging with the curved outer face of the lip or horn of the draw-head when the cap is down, a swinging latch carried by the cap and projected through the slot of the draw-head for engagement with the draw-head when the cap is down, and a spring having its free end pressing against and holding the latch in engagement with the draw-head, substantially as described.

5. In a thill-coupling, the combination of a plate or base provided with a draw-head at its front end having a semicylindrical transverse recess across its inner or under face and provided with an upwardly and rearwardly projecting lip or horn with an outer curved face and partly overlying the transverse recess and having a slot in the body of the draw-head rearward of the transverse recess, a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face and having at its outer end a downwardly and forwardly projecting lip or horn with a curved inner face overlapping and engaging with the curved outer face of the lip or horn of the draw-head when the cap is down, substantially as described.

6. In a thill-coupling, the combination of a plate or base provided with a draw-head at its front end having a semicylindrical transverse recess across its inner or upper face and provided with an upwardly and rearwardly projecting lip or horn with an outer curved face partly overlying the transverse recess, a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face and having at its outer end a downwardly and forwardly projecting lip or horn with a curved inner face overlapping and engaging with the curved outer face of the horn of the draw-head when the cap is down, the two recesses having an inward taper forming a double-cone shape, a retaining-latch carried by the cap and engaging the draw-head direct, and a thill-iron having a stirrup provided with a draw-pin of a double-cone shape to fit the double cone of the recess of the cap and draw-head, substantially as described.

7. In a thill-coupling, the combination of a plate or base having a draw-head at its front end provided with a semicylindrical transverse recess across its inner or upper face, a cap pivotally mounted on the draw-head at the rear end and provided with a semicylindrical transverse recess across its inner or under face, and a pivoted retaining-latch carried by the cap and engaging direct with the draw-head for maintaining the cap in its closed position on the draw-head, substantially as described.

8. In a thill-coupling, the combination of a plate or base having a draw-head at its front end provided with a semicylindrical transverse recess across its inner or upper face and having an upwardly and rearwardly projecting lip or horn with an outer curved face, a cap pivotally mounted on the draw-head at the rear and provided with a semicylindrical transverse recess across its inner or under face and having a downwardly and forwardly projecting lip or horn with a curved inner face overlapping the curved outer face of the lip or horn of the draw-head when the cap is down, a pivoted retaining-latch carried by the cap and engaging direct with the body of the draw-head, a spring carried by the plate or base and contacting with and forcing the latch into engagement with the draw-head, and a thill-iron provided with a stirrup having a cross-piece or pin and a bearing on the cross-piece or pin entering the transverse recess of the draw-head and engaged by the transverse recess of the cap when closed down, substantially as described.

9. In a thill-coupling, the combination of a plate or base having a draw-head at its front end provided with a semicylindrical transverse recess across its inner or upper face, a cap pivotally mounted on the draw-head at the rear and provided with a semicylindrical transverse recess in its inner or under surface, and a thill-iron provided with a stirrup having a cross-piece or pin entering into the recess of the head and cap and having on its under side a downwardly and rearwardly projected guard extending beneath and engaging the front end face of the draw-head when the coupling is together, substantially as described.

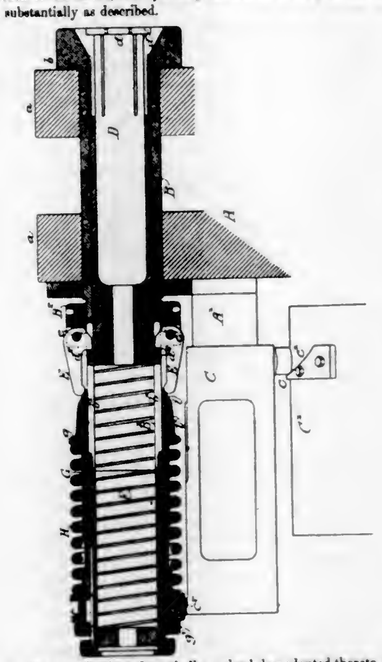
663,255. CHUCK MECHANISM FOR AUTOMATIC CUTTING-MACHINES. JOHN W. BROWN, Jr., Philadelphia, Pa. Filed Nov. 23, 1899. Serial No. 738,104. (No model.)

Claim.—1. The combination of a tubular spindle, a chuck-bar adapted thereto, means for drawing the chuck-bar into the spindle to close the same, operating mechanism, and a spring wound around said spindle mounted between the operating mechanism and the levers for drawing in the chuck-bar, substantially as described.

2. The combination of a spindle, a chuck-bar mounted therein, one or more levers acting to draw the chuck-bar into the spindle to close the same, a sliding collar having a tapered portion, operating mechanism, a second collar sliding on the first adapted to engage said operating mechanism and a spring wound on the first collar and operating between the two collars, substantially as described.

3. The combination of a spindle, a chuck-bar adapted thereto, one or more levers engaging the chuck-bar, a sleeve having a double tapered portion over which one arm of the lever travels, one tapered portion being abrupt and the other less than the angle of repose, and means for moving the sleeve so that the levers will be engaged first by the abrupt incline of the sleeve and then by the slight incline, on which latter they will remain during the time that the chuck is in the closed position, substantially as described.

4. The combination of a spindle, a chuck-bar adapted thereto, one or more pivoted levers, one arm of each lever engaging the chuck-bar, a sleeve adapted to come in contact with the other arm of each lever, said sleeve having an abrupt tapered portion and a slight tapered portion, a spring back of the sleeve, and operating mechanism bearing against the spring, substantially as described.



5. The combination of a spindle, a chuck-bar adapted thereto, having a flange at its rear end, one or more pivoted levers engaging the flange, a sleeve having two tapered portions at one end, one more abrupt than the other, and having at the opposite end a flange, a collar adapted to slide upon the sleeve, a spring mounted between the collar and the flange on the forward end of the sleeve so that the pressure exerted to close the chuck will be through the spring, the collar striking the rear flange of the sleeve to release the chuck, substantially as described.

6. The combination of a tubular spindle, a chuck-bar therein, a collar sliding on said spindle and a second one sliding on the first, levers acting on the chuck-bar and actuated by a tapered portion on the first collar, a spring between the two collars, a second spring within the tubular spindle acting between one end of the spindle and the chuck-bar, whereby said bar is forced forward when it is released by the levers.

663,256. FILTER. WILLIAM R. BROWN, Baltimore, Md. Filed Mar. 28, 1900. Serial No. 10,499. (No model.)

Claim.—1. A filter-body, a filter-bed support therein, a tube extending upward from the upper head, an inlet for the fluid extending up into said tube, and an outlet from the bottom of the body beneath the filtering-bed, as set forth.

2. A filter-body, a tube extending upward from the upper head thereof, an inlet-pipe extending up within said tube, a filter-bed support within said body, an outlet beneath the said support, a valve-casing and a valve and ports whereby the fluid may be caused to enter at either the top or bottom, as set forth.

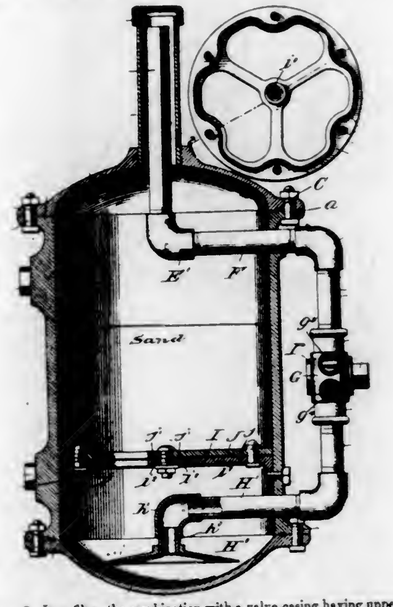
3. The combination with a filter-body, of a filter-bed support within the same and consisting of two rings with a screen therebetween, the said rings having the one a substantially V-shaped sinuous channel and the other a similarly-shaped sinuous rib to engage therein whereby the employment of gaskets is obviated, as set forth.

4. In a filter, the combination with the body, of a ring having an annular flange by which it is secured within the body, and provided with a sinuous substantially V-shaped channel, and an independent plate or ring having a sinuous substantially V-shaped rib to engage in said channel, as set forth.

5. In a filter, a ring having a sinuous substantially V-shaped channel in combination with a ring having a substantially similar rib, as set forth.

6. In a filter, a filter-bed support composed of two rings having interengaging sinuous substantially V-shaped channel and rib, and means for clamping between them a screen, as set forth.

7. Two filters having common connection with a source of supply of both hot and cold water, and with a delivery-pipe for filtered water, and valves each having a curved port upon each side of the center and casings therefor with ports and passages whereby the water may be caused to flow in the manner specified.



8. In a filter, the combination with a valve-casing having upper and lower ports and two independent ports upon opposite sides, of a valve rotatably mounted in said casing and having two curved ports, one upon each side of the center, as shown and described.

9. In a filter, the combination with a rotatable valve having two curved ports one upon each side of its center, of a valve-casing having nipples at top and bottom and two upon each side, the top and bottom nipples and one of those upon each side being divided, substantially as and for the purpose specified.

10. The combination with a rotatable valve having a curved port upon each side of its center, of a valve-casing having ten independent ports as and for the purpose specified.

663,257. COMBINED NAPKIN RING AND HOLDER. CHARLES F. BROWN and JOHN J. CALHOUN, Rumford Falls, Me. Filed Sept. 13, 1900. Serial No. 29,945. (No model.)



Claim.—1. A combined napkin ring and holder, comprising a flexible band composed of connected plates, a hook at one end of said band provided with a cross-bar, and a catch at the other end of said band, substantially as shown and for the purpose set forth.

2. A combined napkin ring and holder, comprising a flexible band composed of connected plates, a hook at one end of said band provided with openings forming a cross-bar, and a spring-catch at the other end of said band, substantially as shown and for the purpose set forth.

3. A combined napkin ring and holder, comprising a flexible band composed of plates connected by links, the central plate being wider than the others to form a name-plate, a hook at one end of said band provided with openings forming a cross-bar, and a spring-catch at the other end of said band, substantially as shown and described.

4. A combined napkin ring and holder, comprising a flexible band composed of plates connected by links, the central plate being wider than the other to form a name-plate and the intermediate plates being slotted, a hook at one end of said band provided with openings forming a cross-bar, and a spring-catch at the other end of said band, one member of said catch being an integral part of the end plate of the flexible band, substantially as shown and for the purpose set forth.

663,258. VENDING-MACHINE. GEORGE R. CARTER and JAMES R. CARTER, Petersburg, Va. Filed May 10, 1900. Serial No. 16,130. (No model.)



Claim.—1. In a vending-machine, the combination of an article-compartment, an article-ejector, a coin-raceway, a spring-actuated slotted push-rod, a slotted sleeve adapted to be locked to the push-rod by a proper coin, carrying a cam-edge bar, and a fulcrumed lever, one end of which is operated by the cam edge of the bar to cause the other end to actuate the article-ejector.

2. In a vending-machine, the combination of an article-compartment, a spring-restrained article-ejector, a coin-raceway, a spring-actuated push-rod provided with a coin-slot, a sleeve mounted on the push-rod, provided with a cam-edge bar and with slots registering with the coin-slot in the push-bar, said push-rod and sleeve adapted to be locked together by a proper coin, and a fulcrumed lever carrying at one end a friction-roller, one end of said lever being operated by a cam edge of the bar to cause the other end to actuate the article-ejector.

3. In a vending-machine, the combination of an article-compartment, an article-ejector, a coin-raceway, a spring-actuated push-rod, mounted in suitable brackets, provided with a coin-slot, a sleeve, mounted on the push-rod, provided with a cam-edge bar operating in guides in the brackets, said sleeve provided with slots registering with the coin-slot in said push-bar, the push-bar and sleeve adapted to be locked together by a proper coin, and a fulcrumed lever, as and for the purpose specified.

4. In a vending-machine, the combination with an article-compartment, an article-ejector, a coin-raceway, a spring-actuated push-rod provided with a coin-slot, a sleeve mounted on the push-rod, provided with a cam-edge bar and with registering coin-slots, the push-rod and sleeve adapted to be locked together by a proper coin, and a fulcrumed lever, of a ticket-delivery mechanism.

5. In a vending-machine, the combination with an article-compartment, an article-ejector, a coin-raceway, a spring-actuated push-rod provided with a coin-slot, a sleeve, mounted on the push-rod, provided with a cam-edge bar and with registering coin-slots, the push-rod and sleeve adapted to be locked together by a proper coin, and a fulcrumed lever, of a ticket-delivery mechanism, an alarm-bell, and suitable electrical connections.

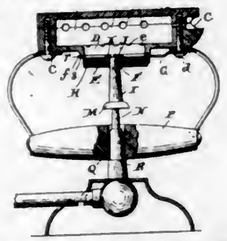
6. In a vending-machine, the combination with a spring-actuated push-rod having a coin-delivery opening, of a ticket-delivery mechanism comprising a suitable cylinder provided with a coin-entrance and a coin-exit, a piston-rod in the cylinder having one end connected to the push-rod, a spring-restrained ejector-rod having one end connected to an ejector-plate, and an independent slidable contact-maker arranged to be moved in one direction by the piston-rod and in the opposite direction by the tension force of the ejector-rod.

7. In a vending-machine, the combination with a spring-actuated push-rod having a coin-slotway, of a ticket-delivery mechanism comprising a suitable cylinder provided with a coin-entrance and a coin-exit, a piston-rod in the cylinder having one end connected to the push-rod, a spring-restrained ejector-rod having one end connected to an ejector-plate and the other end carrying a friction-roller, an independent slidable contact-maker arranged between the piston-rod and ejector-rod, so as to be operated in one direction by said piston-rod and in the opposite direction by said ejector-rod, means for temporarily retarding the exit of the coin, a ticket-compartment having an exit, an alarm-bell and electric connections, whereby an alarm is sounded when a coin is between the piston-rod and contact-maker.

8. In a vending-machine, the combination of a spring-actuated push-rod having a coin-slot, a sleeve mounted on the push-rod, said sleeve being provided with slots adapted to register with the coin-slot in the push-bar, a reciprocating bar attached to the sleeve, and means for temporarily locking the push-rod and reciprocating bar together, so as to allow for the release of the coin.

9. In a vending-machine, the combination of a spring-actuated push-rod having a coin-slot, a sleeve mounted on the push-rod, said sleeve having registering coin-slots, a reciprocating bar carried by the sleeve, said bar being provided with a cam edge, a spring-actuated ejector-rod, and a fulcrumed lever having one end adapted for engagement with the cam edge of the reciprocating bar and the other end with the ejector-rod.

663,259. SAD-IRON. HERBERT CLAYTON, New York, N. Y. Filed May 17, 1899. Serial No. 717,164. (No model.)



Claim.—1. A sad-iron comprising a hollow body having openings therein, a burner-opening in the top, a burner-cup adapted to close said opening, and a spring-arm connected with the cup and pivotally connected with the iron, the cup and the iron having respectively a notch and a pin for locking the cup in position, substantially as described.

2. A sad-iron comprising a hollow body having openings, the top of the body having a burner-opening, a burner situated at the outer side of the top and laterally movable in respect thereto, the iron having a handle provided with a gas-burner opening, and a pipe carried by the laterally-movable burner and establishing communication between a gas-burner and the laterally-movable burner, substantially as described.

3. A sad-iron comprising a hollow body having openings, a burner-opening in the upper face thereof, a burner having an opening, a pipe within the opening and longitudinally movable therein, the iron-handle having an opening registering with the outer end of the pipe whereby a gas-burner registers with the outer end of the pipe, substantially as described.

4. A said-iron comprising a hollow body having escape-openings, a burner-opening, a burner therefor having a central opening, a longitudinally-movable pipe within the central opening having its upper end smaller than said opening and provided with outwardly-flared arms adapted to engage the upper ends of the walls of said opening, and its outer end adapted to surround a gas-burner, and the handle provided with an opening in a line with the outer end of said pipe, substantially as described.

5. A sad-iron comprising a hollow body having openings, a burner-opening in the upper face thereof, a burner for said opening having itself a central opening, a longitudinally-movable pipe within said opening and having at its inner end arms for connecting it with the burner, the lower end of the pipe being enlarged to receive a gas-burner, and the iron-handle provided with an opening through which the gas-burner may pass, substantially as described.

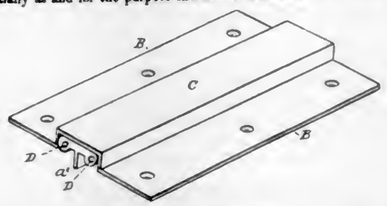
6. The combination with a sad-iron having in its upper face a burner-opening, a burner therefor, and an opening in the handle, and a rack having end walls adapted to receive the handle and a central upwardly-projecting stad to pass within the opening of the handle, substantially as described.

7. The combination with a sad-iron having a burner-opening in the upper wall thereof, a burner for said opening, and a handle provided with a transverse opening, of a supporting-rack provided with side walls, end walls having U-shaped recesses to receive the iron-handle, and a central bar provided with an upwardly-projecting stad adapted to enter the opening in the iron-handle, substantially as described.

8. A sad-iron comprising a hollow body having openings, a burner-opening extending entirely through the top of the iron, a burner situated outside of the iron and independent thereof, and a spring supporting-arm pivotally connecting the burner and the iron, said arm adapted to permit the burner to be moved away from the opening for filling and lighting the same and constructed to hold the burner in contact with the outer wall of the burner-opening when the burner is situated thereover, substantially as described.

663,260. HINGE. CHARLES G. DEMING, Kingston, N. Y. Filed Jan. 3, 1900. Serial No. 276. (No model.)

Claim.—The combination with a hinge comprising in its construction the leaves B B provided with spaced lugs *b b* projecting outwardly from the inner faces thereof and at right angles thereto, a continuous T-shaped link A having the spaced lugs *a* projecting outwardly on either side of the stem *a'*, the spaces between the lugs extending across the upper face of said link and adapted to register with said lugs *b b* and pintle connections between said link and leaves, of a cover C adapted to be secured to the upper face of the link and project over the connected lugs of the link and leaves and constructed to limit the unfolding of the leaves substantially as and for the purpose shown and described.

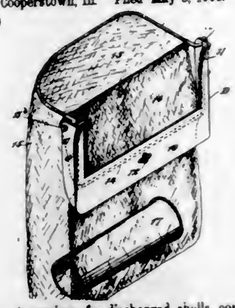


663,261. WIRE-SPLICING TOOL. LEWIS A. DENNY, Omaha, Nebr. Filed May 18, 1900. Serial No. 17,095. (No model.)



Claim.—A wrench of the class described, comprising a handle provided at one end with a segmental jaw, a revoluble head mounted in said jaw and provided with cam-teeth, and a spring secured to said handle and adapted to bear on said head opposite the central portion of said jaw and to operate in connection with said teeth, said head being provided in one side with a radial slot or opening, and said head being also provided around the perimeter thereof with a groove in which said jaw fits, substantially as shown and described.

663,262. RECEIVER FOR DISCHARGED SHELLS. CHARLES H. DIETERICH, Cooperstown, Ill. Filed May 8, 1900. Serial No. 15,952. (No model.)



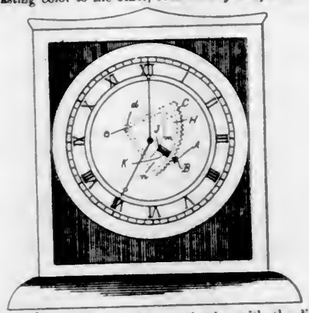
Claim.—1. A receiver for discharged shells, consisting of a frame arranged for attachment to a gun, members pivoted to the said frame, capable of assuming a parallel positon or a position at an angle to each other, and a bag or net attached to the said pivoted members, as described.

2. A receiver for discharged shells, consisting of a frame having means for attachment to a firearm, the said frame comprising a bottom member and side members, bows pivotally attached to the side members of the frame, capable of assuming a position at an angle to each other or of assuming parallel positions, and a bag or net attached to the said bows, the mouth of the bag or net being opposite the space between the members of the frame.

3. In a receiver for discharged shells, a frame comprising a lower member having means for attachment to a firearm, and side members at an angle to the lower member, a bow pivotally connected with the upper portion of the side members of the frame, a second bow pivotally attached to the side members of the frame at a point below and at one side of the upper bow, and a net or pocket the mouth portion of which extends over the upper bow to a point near its pivotal connection with the frame, another portion of the mouth of the said pocket being connected with a member of the lower bow, for the purpose specified.

663,263. WINDING-INDICATOR FOR TIMEPIECES. AUGUST ELENIUS, Calumet, Mich. Filed Dec. 23, 1899. Serial No. 741,431. (No model.)

Claim.—1. In clock mechanism, the combination with the dial-plate having a sight-opening, and a pinion on the axis of a shaft in driving engagement with the clock-train, of a pivoted sector-gear driven by said pinion, and having an arcuate band registering with said sight-opening of the dial-plate, and divided into two arcuate portions, one preceding and of a contrasting color to the other, substantially as specified.



2. In clock mechanism, the combination with the dial-plate having a sight-opening, and a pinion on the axis of a shaft in driving engagement with the clock-train, of a pivoted sector-gear directly engaged and continuously driven by said pinion, and having an arcuate band registering with said sight-opening of the dial-plate, and divided into a long arcuate white-colored portion, and a short arcuate black-colored portion, the word "Wind" being marked between such white and black portions, substantially as specified.

663,264. GARMENT-HANGER. LEROY A. FARNHAM, Laingsburg, Mich. Filed May 28, 1900. Serial No. 18,262. (No model.)



Claim.—A garment-hanger formed of a single piece of wire or rod consisting of a locking member having a downwardly curved or bent end, a vertically-arranged coil formed at one end of said locking member, a body member extending from said coil and having a retaining-loop at right angles thereto, and a guard-loop at right angles to said retaining-loop, said guard-loop being arranged in the same horizontal plane as the body member and said wire or rod continuing back from said guard-loop along the body member and being bent around the center of the same and extending at right angles thereto and terminating in a hook, said body and locking members lying close together in the same horizontal plane when the end of the latter is caught in the retaining-loop, whereby the garment may be clamped therebetween.

663,265. WATER STOP OR GATE. WALTER S. FISHER, Artman, Colo. Filed Apr. 25, 1900. Serial No. 14,279. (No model.)



Claim.—1. A water-stop for ditches comprising a main plate, extension-wings thereon, and lever devices for projecting and retracting said wings, said devices being pivoted independently of and connected with the wings substantially as set forth.

2. A water-stop composed of the main plate, the extension-wings pivoted thereto and movable on their pivots whereby they may be projected beyond the edges of the main plate, and the levers for operating the extension-wings, said levers being pivoted to the main plate and connected with the extension-wings substantially as set forth.

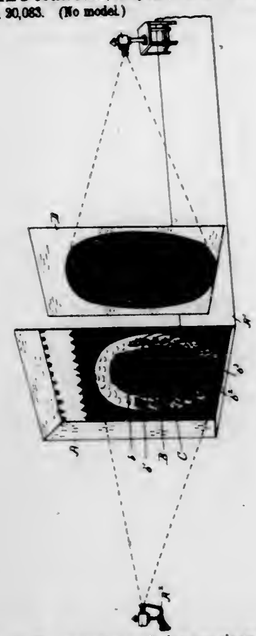
3. A water-stop comprising the main plate having a cleat, the extension-wings pivoted to said main plate, the levers for operating said extension-wings, and the keeper secured at its middle to the main plate and overlapping the extension-wings at its ends substantially as set forth.

4. The water-stop for ditches having a plate to extend transversely of and close the ditch and a brace in rear of said plate composed of a bar, stakes and chains connecting the stakes with the bar all substantially as set forth.

5. A water-stop for ditches comprising a main plate, extension-wings, levers pivoted to the main plate, and links connecting the levers with their respective extension-wings substantially as set forth.

6. A water-stop for ditches arranged to extend transversely of and cut or seat in the walls of the ditch, and an anchor-brace extending transversely of the stop and anchored at its ends, substantially as set forth.

663,266. METHOD OF PRODUCING SCENIC REPRESENTATIONS. ARDEN S. FITCH, New York, N. Y., assignor to Dolores de Santa Maria D'Yberri Fitch, Guaymas, Mexico. Filed June 12, 1900. Serial No. 20,083. (No model.)



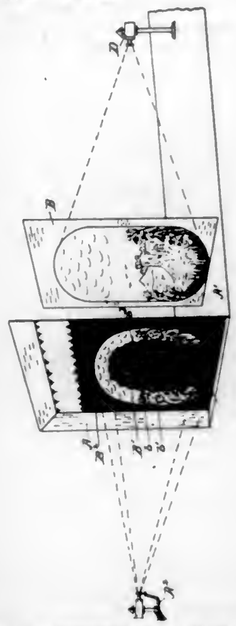
Claim.—1. The method of producing a scenic representation which consists in projecting, by concentrated light thrown through a picture and refracting medium, as by a stereopticon, an image of said picture upon the marginal portion of a centrally-apertured, forwardly-located screen, and simultaneously similarly projecting the image of a picture upon a continuous screen located rearwardly of said marginal screen; whereby, when said images are viewed from in front of said marginal screen, as upon the stage of a theater from the audience-chamber thereof, the image upon the marginal screen may constitute the scenic foreground and the image upon the rearward screen the scenic background of a homogeneous scenic representation.

2. In the production of a scenic representation by the projection, by concentrated light thrown through pictures and refracting mediums, as by stereopticons, of images of said pictures upon screens, the method of evolving and exhibiting such scenic representation which consists in projecting the image of a picture upon a forwardly-located screen composed of a reflective opaque marginal portion and a reflective transparent central portion, and then obliterating the image on said central portion thereof and simultaneously projecting the image of a picture upon a screen located rearwardly of said transparent screen; whereby, when said projected images are viewed in their succession from in front of said forward screen, as upon the stage of a theater from the audience-chamber thereof, the image first projected upon the forward screen will appear as a flat picture, obscuring the view of the stage and the rearward screen behind it, and thereafter, when said image is obliterated from said central portion of the forward screen, the image projected upon the rearward screen will be visible through said central portion of said forward screen.

3. In the production of scenic representations by the projection, by concentrated light thrown through pictures and refracting mediums, as by stereopticons, of images of said pictures upon screens, the method of evolving and exhibiting a series of such scenic representations, in succession, which consists in projecting the image of a picture upon a forwardly-located reflective transparent screen, then obliterating said image therefrom and simultaneously projecting the image of a picture upon a screen located rearwardly of said reflective transparent screen, and then obliterating said image from said rearward screen and simultaneously again projecting the image of a picture upon said reflective transparant screen; whereby images, in succession, of a series of different pictures may be projected at intervals upon said rearward screen and will be visible through said reflective transparent screen, when viewed from in front of said latter screen, as upon the stage of a theater from the audience-chamber thereof, and an image of a picture projected upon said reflective transparent screen, in each interval between the projections of images upon the rearward screen, may obscure the said view of said rearward screen during such intervals.

4. In the production of a series of scenic representations by successively projecting and obliterating images of pictures, as by stereopticons provided with dissolvers, alternately upon a forwardly-located reflective transparent screen and a screen located rearwardly of said reflective transparent screen, the method of evolving and exhibiting the said images projected upon the reflective transparent screen which consists in projecting upon said rearward screen, simultaneously with the projection of an image upon said reflective transparent screen, an area of dark color or tint corresponding in extent to the area of said reflective transparent screen; whereby the images projected upon said reflective transparent screen, when viewed from in front thereof, as upon the stage of a theater from the audience-chamber thereof, will be heightened and enhanced in effect.

663,267. APPARATUS FOR PRODUCING SCENIC REPRESENTATIONS. ARDEN S. FITCH, New York, N. Y., assignor to Dolores de Santa Maria D'Yberri Fitch, Guaymas, Mexico. Filed June 12, 1900. Serial No. 20,084. (No model.)

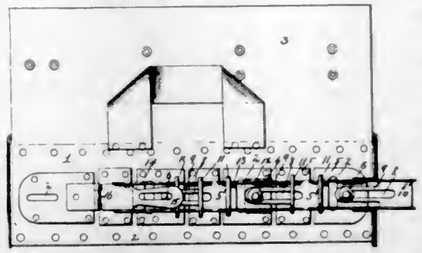


Claim.—1. An apparatus for use in producing scenic representations, as upon the stage of a theater, comprising a continuous screen and a screen which is centrally and widely apertured and is located, as upon the stage, in front of the continuous screen; whereby, when the images of pictures are respectively projected, by concentrated light thrown through such pictures and refracting mediums, upon said continuous screen and upon the marginal portion of said apertured screen, as by stereopticons, the image on the continuous screen will be visible, as from the audience-chamber of the theater, through the aperture in the forward screen, and will constitute a scenic background, while the image on the marginal portion of the apertured screen will constitute a scenic foreground in a homogeneous scenic representation.

2. An apparatus for use in producing scenic representations, as upon the stage of a theater, comprising a continuous screen and a screen which is located, as upon the stage, in front of the continuous screen and is centrally and widely apertured and has a reflective transparent section in the central lower part of the marginal portion thereof; whereby, when images of pictures are respectively projected, by concentrated light thrown through said pictures and refracting mediums, upon said continuous screen and upon the marginal portion of said apertured screen, as by stereopticons, to constitute respectively on said screens a scenic background and a scenic foreground of a homogeneous scenic representation, figures or performers introduced on the stage between the screens will be visible from the audience-chamber of the theater through the aperture in the forward screen and also the reflective transparent section of the marginal portion thereof.

3. An apparatus for use in producing scenic representations, as upon the stage of a theater, comprising a continuous screen and a screen composed of a reflective opaque marginal portion and a reflective transparent central portion, and which is located, as upon the stage, in front of the continuous screen; whereby the image of a picture may be projected, by concentrated light thrown through said picture and a refracting medium, as by a stereopticon, upon and will be visible on the reflective transparent portion of the front screen as well as the marginal portion thereof, and the image of a picture may be similarly projected upon the continuous screen and, when no light is projected on the reflective transparent portion of said front screen, will be visible, as from the audience-chamber of the theater, through said reflective transparent portion of said front screen.

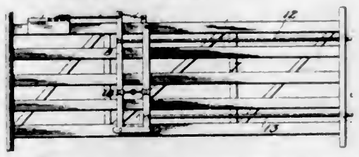
663,268. MAIL-BAG LOCK. WILLIAM R. GORDON, Osceola, S. C., assignor of one-half to Harry Hines and Dunklin Ferguson, Lancaster S. C. Filed Dec. 22, 1899. Serial No. 741,317. (No model.)



Claim.—1. In a device of the character described, a reciprocable locking-plate, guides for the same, plates having a plurality of pins connecting them with the links of the locking-plate, and having slotted tongues extending from the same, a hasp hinged at its inner end to the bag and having a hinged connection with the locking-plate, its inner hinge acting as a fulcrum when the locking-plate is operated, and staples attached to the bag-flap adapted to be engaged by the tongues of the locking-plate.

2. In a device of the character described, a reciprocable linked locking-plate, slotted locking tongue-plates having a plurality of pins connecting them with the locking-plate, guide-pins attached to the bag and working in said slots, staples on the bag-flap, and a hasp hinged to the edge of the bag and having also a hinged connection to the locking-plate, its inner hinge acting as a fulcrum when the locking-plate is operated.

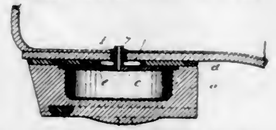
663,269. GATE. JOHN B. HAINES, Penfield, Ill. Filed July 26, 1900. Serial No. 24,893. (No model.)



Claim.—1. The combination of a hinged gate and a latch-post, a pair of parallel levers, one having its upper end pivoted to one of the upper gate-rails and the other having its lower end pivoted to one of the lower gate-rails, a connection between the levers to cause them to move in unison, a spring connecting the upper ends of the levers and exerting its energy to force the free ends of said levers toward the free end of the gate, catches secured to said latch-post, bolts connected to the levers and adapted to engage said catches, an operating-lever pivoted to the gate to swing transversely thereof, a connection between said lever and one of the pair of parallel levers, and means for swinging said operating-lever, substantially as set forth.

2. The combination of a hinged gate and a latch-post, a pair of parallel levers, one having its upper end pivoted to one of the upper gate-rails and the other having its lower end pivoted to one of the lower gate-rails, a connection between the levers to cause the same to move in unison, a spring connecting the upper ends of the levers and exerting its energy to force the free ends of said levers toward the free end of the gate, catches secured to said latch-post and consisting of a fixed jaw and vertically-sliding opposing jaws spaced apart, bolts connected to the levers and adapted to engage said catches, an operating-lever pivoted to the gate to swing transversely thereof, a connection between the said lever and one of the pair of parallel levers, and means for swinging said operating-lever, substantially as set forth.

663,270. BOOT OR SHOE. MICHAEL HALLANAN, New York, N. Y. Filed Nov. 17, 1899. Serial No. 737,320. (No model.)



Claim.—1. A tread for footwear, the tread having a cavity therein, a yielding top wall or diaphragm covering the cavity, and a nipple carried by the diaphragm and communicating with the cavity, the nipple projecting upward into the article of footwear to be engaged by the foot, whereby to move the diaphragm, for the purpose specified.

2. A tread for articles of footwear, the tread being formed of yielding or cushion-like rubber and having a protuberance or enlargement formed on its under side at approximately its center, and a strip of leather embedded in the tread and extending around the protuberance to engage the ground as the protuberance yields inwardly.

3. A tread for footwear, having a cavity therein, and a yielding top wall or diaphragm covering the cavity, a portion of the diaphragm extending upward to be engaged by the foot of the wearer, and the cavity in the tread having communication with the interior of the shoe, as specified.

4. A tread for footwear, comprising a heel with a cavity therein, a yielding top wall or diaphragm carried on top of the heel and covering the cavity, the diaphragm having an upwardly-extending nipple projecting into the shoe, and a heel-tip laid over the top wall or diaphragm and secured to the heel and formed with a central opening through which the nipple of the diaphragm is passed.

663,271. POCKET-FILTER. AUGUSTA M. HAMILTON, Medindie, South Australia. Filed June 19, 1900. Serial No. 20,810. (No model.)



Claim.—1. In a portable or pocket filter, a block of filtering medium such as carbon, having an inlet-chamber on one side and an outlet-chamber on the other side, the inlet-chamber being fitted with an inlet-pipe and the outlet-chamber with an outlet-pipe, the inlet and outlet pipes projecting edgewise of the filter.

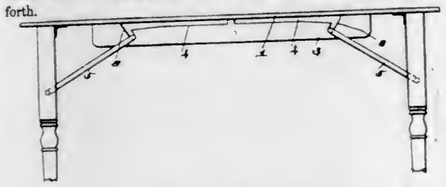
2. In a pocket or portable filter, the combination of a block of filtering material such as carbon, having a metallic or other encircling ring screw-threaded on each end, an inlet-chamber screwing onto one end of the said threaded ring, an outlet-chamber screwing onto the other end of the said threaded ring, an inlet-pipe attached to the inlet-chamber, and an outlet-pipe attached to the outlet-chamber, substantially as described.

3. In combination with a portable water-bag, a pocket-filter having a long inlet-tube adapted to pass through the cork into and nearly to the bottom of the water-bag, substantially as described and for the purpose set forth.

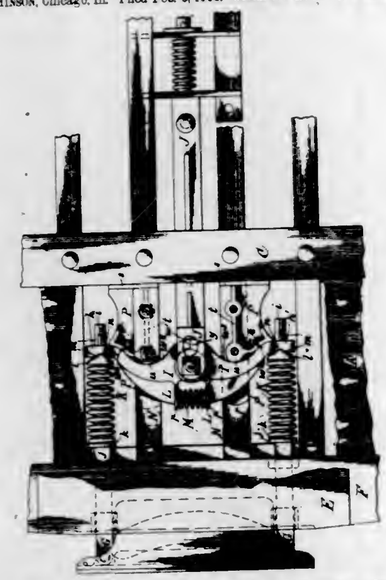
4. A filter comprising a block or disk of filtering material, a peripheral holding-ring therefor, the said ring having a raised annular flange whereby to turn the same, and a casing in two parts having threaded engagement with the ring at each side of the annular flange, the said casing forming chambers at opposite sides of the filtering-block, the chambers having respectively an inlet and an outlet opening.

663,272. FOLDING TABLE. HENRY L. HASKELL, Ludington, Mich., assignor to the Ludington Novelty Company, same place. Filed Dec. 30, 1899. Serial No. 742,102. (No model.)

Claim.—As a new and useful article of manufacture a folding table having a table-top, the legs hinged thereto, V-shaped braces pivotally secured to said legs for holding them in their operative position and a bar secured to the under side of the table-top and having its upper side adjacent to the top cut away from a point a short distance from each end toward its mid-length so as to form with the table-top a longitudinal slot, said cut-away portion leading downwardly at its extreme outer ends to a notch 8 and said braces being passed through said cut-away portion or slot and adapted to engage in said notches when the legs are in their operative position, the side of each of said notches remote from the brace engaging therein being formed at an angle to such brace whereby the brace will abut thereagainst and be locked thereby, substantially as set forth.



663,273. BUFFING DEVICE FOR RAILWAY-CARS. JAMES A. HINSON, Chicago, Ill. Filed Feb. 6, 1900. Serial No. 4,244. (No model.)



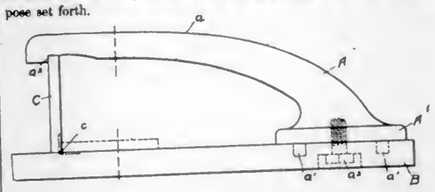
Claim.—1. In a buffing device for railroad-cars, a jointed yoke, jaws projecting from one side of the joint of said yoke, a spring arranged between said jaws, a buffing-plate connected to the free ends of said yoke, a rod connecting the center of said yoke and the draw-bar of a coupler, means for throwing the free ends of the yoke forward when the center of the yoke is drawn back, and means for causing the yoke to move bodily forward when the center of the yoke is pulled forward.

2. In a buffing device for railway-cars, a platform end sill having an elongated slot or opening thereiu, a plate having a corresponding opening terminating in enlarged openings at each end secured to said end sill, a buffer-plate having a rib adapted to enter the elongated opening in the sill, a yoke, and guide-rods connecting said yoke and buffer-plate.

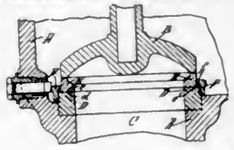
3. In a buffing device for railway-cars, a yoke comprising two arms hinged together at one end, one of said arms being formed with shoulders and the other with a stop to engage said shoulders to limit the movement of the arms, jaws projecting from said arms, a spring between said jaws, a buffer-plate, means for connecting said yoke and buffer-plate, and a bar connecting the hinged ends of said arms to the draw-bar of a coupler.

663,274. IRONING-BOARD. MARIA E. HOLDEN, Yonkers, N. Y. Filed June 22, 1899. Serial No. 721,425. (No model.)

Claim.—In an ironing-board, the combination with a base-plate B, a curved arm A, formed with a base A', and fastened to said base-plate with a countersunk bolt and dowels as specified, of an upright support, a rule-joint attaching said support to said base-plate, a shoulder formed on the under side of the said arm at or near its outer end, and adapted to engage the upper end of said support, all so arranged that facility is afforded for folding said upright support against said base-plate in a horizontal position, and for raising the same into an upright position, when the upper end thereof will rest on the shoulder a^3, and the shoulder of the rule-joint c, will rest on the surface of the base-plate B, to afford steadiness and solidity to said arm; all substantially as and for the purpose set forth.



663,275. VALVE. JOSEPH HOPKINSON and JOHN LOWIS, Huddersfield, England, assignors to the J. Hopkinson & Company, Limited, same place. Filed Aug. 21, 1900. Serial No. 27,571. (No model.)



Claim.—1. In a valve, the combination, with the valve-body, of an annular projection formed around the orifice or passage through the body, a seat-ring resting on the outer face of said projection, and a retaining-ring surrounding said seat-ring and having a connection with said projection, substantially as described.

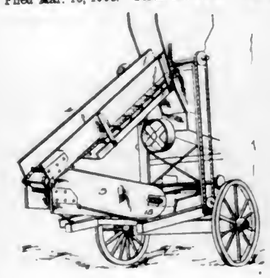
2. In a valve, the combination, with the valve-body, of a ring secured in a recess around the orifice or passage through the body, an annular projection on said ring, a seat-ring resting on said projection, and a retaining-ring surroundiog and partially overhanging said seat-ring and secured on the outside of the said projection, substantially as described.

3. In a valve, the combination, with the valve body or casing, of an annular projection formed around the orifice or passage through the body, a seat-ring resting on said projection, an external flange on said seat-ring, a retaining-ring surrounding said seat-ring and having an internal flange resting on the external flange ot the seat-ring, and screw-threads on the outside of the annular projection engaging internal screw-threads in the retaining-ring, substantially as described.

4. In a valve, the combination, with the valve proper, of a detachable face having an external flange, a retaining-ring surrounding the detachable face and having an internal flange resting on the external flange of the detachable face, said retaining-ring being secured to the valve by screwing, substantially as described.

5. In a valve, the combination with the valve-casing having an annular projection formed around the passage through said casing, of a detachable seat-ring resting on said projection, an annular flange on said seat-ring, and a flanged retaining-ring having a connection with the flange on the seat-ring and with the said annular projection, substantially as described.

663,276. CORN-CONVEYER. WALTER C. HORINK, Arrowsmith, Ill. Filed Mar. 16, 1900. Serial No. 8,943. (No model.)

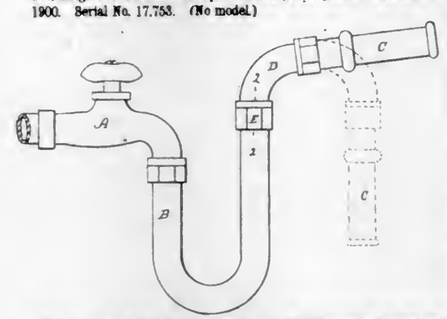


Claim.—1. In apparatus of the character described, the feeder for a corn-sheller, &c., comprising a lower hinged section or extension and an endless carrying-belt, a conveyer adapted to deliver into said lower hinged section or extension, and a guard or arrester comprising a suspended cross piece or bar, cleats or projections adapted to engage and prevent rearward displacement of said cross piece or bar, and a spring-supported plate arranged contiguously to, and in rear of, said cross piece or bar, substantially as specified.

2. In apparatus of the character described, a corn-sheller and its feeder comprising pulleys or wheels, and endless carrying-belts compassing said pulleys or wheels, one of the shafts of said pulleys or wheels having a bevel-faced pinion and an angular terminal, the corn-sheller gear, and a driving or tumbling shaft having a pinion adapted to mesh with said bevel-faced pinion and an angular socket adapted to engage said angular terminal, said shaft also adapted to engage said corn-sheller gearing, substantially as set forth.

3. In apparatus of the character described, a corn-sheller with its gearing, and a feeder, comprising an upper main section and a lower folding section, and an endless carrier arranged in said feeder-sections, means for carrying said folding section, a conveyer having an endless carrier, and gearing for driving said carrier, said conveyer delivering into said folding section, and tumbling rod or shaft mechanism adapted to actuate the corn-sheller gearing and the endless carrier-gearing, substantially as set forth.

663,277. LAWN-SPRINKLER. LOUIS HORVATH, Los Angeles, Cal., assignor of one-half to Joseph L. Walter, same place. Filed May 23, 1900. Serial No. 17,753. (No model.)



Claim.—1. A sprinkler, comprising a U-shaped member having one leg thereof longer than the other, the portions of which that unite the two legs forming a semicircle; a quadrant elbow-shaped member having a curve one-half of that of the semicircular part of the U-shaped member attached to the longer leg of the U-shaped member by a coupling-nut adapted to permit of the rotation of the quadrant-elbow; and a nozzle attached to the other end of the quadrant-elbow.

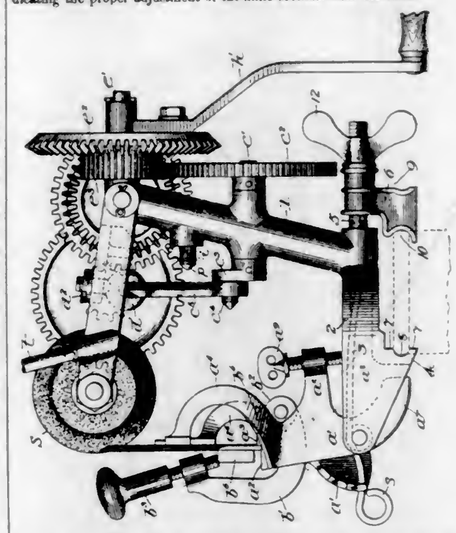
2. The herein-described sprinkler, comprising the U-shaped pipe B, the legs of which are united by a semicircular-shaped portion adapted to be attached to a hydrant by one of its legs; elbow D whose curve is one-half of that of the semicircular part which joins the legs of the U-shaped member, adapted to be coupled with the other leg of pipe B; and nozzle C, adapted to be coupled to elbow D, in combination with hydrant A.

663,278. GRINDER FOR SICKLES OF MOWERS, REAPERS, &c. EDUARD A. JOHNSTON, Chicago, Ill., assignor to the McCormick Harvesting Machine Company, same place. Filed Feb. 14, 1900. Serial No. 5,204. (No model.)

Claim.—1. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of a pivoted grinder-frame, a knife-carrying frame, gearing for rotating the grinder, a shaft journaled in the main frame and driven by the grinder-operating gearing, said shaft having a crank on one end connected by a detachable link with the grinder-frame, and a handle connected with the grinder-frame whereby it may be mannally controlled.

2. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of a pivoted grinder-frame, a knife-carrying frame, gearing for rotating the grinder, a shaft journaled in the main frame and driven by the grinder-operating gearing, said shaft having a crank on one end connected by a detachable link to the grinder-frame, and a stud on the main frame adapted to have the link connected to it when disconnected from the crank so as to hold the grinder-frame in fixed position, the grinder-gearing being adapted to operate the grinder whether its frame be fixed or oscillating.

3. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of a grinder-frame, a knife-carrying frame provided with a seat for the knife and vertical arms for steadying the sections, of a knife-holding clamp and having an adjustable tightening device overhanging the knife-bar and clamping the same down upon its seat on the frame, one of said vertical arms being constructed to form a pointer for indicating the proper adjustment of the knife-sections with the stone.



4. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of a grinder-frame, a knife-carrying frame provided with a horizontal seat for the knife and vertical arms for steadying the sections, of a knife-holding clamp consisting of an arm horizontally pivoted below the frame to swing transversely of the knife, said arm extending upwardly and overhanging the position of the knife, and having an adjustable screw or tightener adapted to engage the edge of the knife-bar and clamp the knife down and against its seat.

5. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of an oscillating grinder-frame, and a knife-carrying frame pivoted to swing toward and from the grinder, said carrying-frame having a stop to prevent it from swinging too far away from the grinder, a spring to press it yieldingly toward the grinder, means for adjusting the spring to vary the pressure of the sections on the grinder, and an adjustable stop to prevent the spring from throwing the sections too far under the grinder when the latter is raised.

6. In a grinder for the sickles of mowers, reapers, and the like, the combination of an oscillating grinder-frame, a pivoted knife-carrying frame swinging toward and from the grinder in the same vertical plane as the grinder-frame, a shaft journaled in the main frame and having a crank on one end link-connected with the grinder-frame, a train of gears carried by the grinder-frame for driving the grinder, a gear on the opposite end of the crank-shaft perpendicular to the grinder-driving gears, and a hand-operated gear rotating in a plane parallel with the position of the knife, and having a spur-pinion meshing with the gear on the crank-shaft, and a bevel-gear meshing with a bevel-pinion in the grinder-operating train.

7. In a grinder for the sickles of mowers, reapers, and the like, the combination with the main frame, of the arms 2, 2, having depending lugs 4, 4, provided with plane surfaces 7, 7, and a groove 8, the opposing reversible clamp 6 having a plane surface on one edge and a groove 10 in the opposite edge, and a screw 12 adjustable on the threaded rod 5.

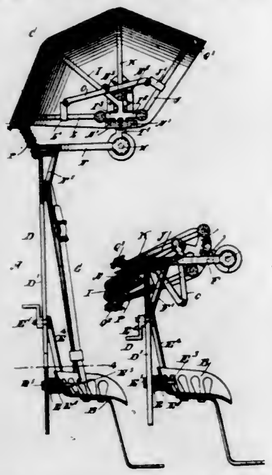
663,279. SEAT-COVER. ARTHUR R. JONES, Lincoln, Mass. Filed Jan. 4, 1900. Serial No. 346. (No model.)

Claim.—1. A seat-cover, comprising a frame, a top pivoted at its sides to the upper end of said frame, and a coil-spring attached at one end to the rear of the top at or near the middle thereof, the other end of said spring being attached to the frame to form a seat for the top to yieldingly hold it in an extended position, as set forth.

2. A seat-cover, comprising a standard carrying a bow-shaped frame at its upper end, a top hinged at its sides to the ends of the bow-shaped frame, and a coil-spring connecting the rear of the top to the standard near the upper end thereof, for the purpose set forth.

3. A seat-cover frame for supporting a top, comprising a curved base having hook-bolts whereby it may be fastened to a seat and also formed

with a vertically-disposed bearing upwardly-extending braces secured to said base and having a clamping-bolt at their junction, and a slotted standard receiving the clamping-bolt in its slot and fitted in the bearing of the base, a frame for the top secured to the upper end of the standard, and having braces connecting it therewith, and adjustable straps arranged to connect the upper end of the standard with the seat, as shown and described.

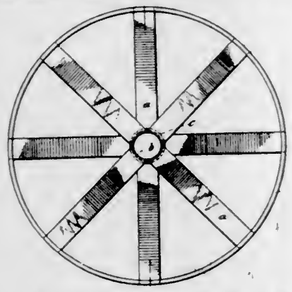


4. A seat-cover frame for supporting a top, comprising a base adapted to be fastened to the seat, and having a bearing and braces, a standard mounted to slide in said bearing and adapted to be fastened to said braces, a U-shaped arm extending at an angle to the standard and secured to the upper end thereof, to carry pivots for the cover-top, and adjustable straps for connecting the upper ends of said frame with the seat to which the base is to be fastened, substantially as shown and described.

5. A seat-cover, comprising a standard having a supporting-arm at its upper end, a main bow hinged at its side arms on said supporting-arm, auxiliary bows pivoted to the main bow near the fulcrum end thereof, a knuckle-brace for connecting the forward and rear auxiliary bows with each other, and a coil-spring connecting the rear auxiliary bow with the standard, substantially as shown and described.

6. A seat-cover, comprising a standard having a supporting-arm at its upper end, a main bow hinged at its side arms on said supporting-arm, auxiliary bows pivoted to the main bow near the fulcrum end thereof, a knuckle-brace for connecting the forward and rear auxiliary bows with each other, and a coil-spring connecting the upper end of said standard with the rear bow at the middle thereof, substantially as shown and described.

663,280. METHOD OF MAKING WHEELS. JOHN T. KELLEY, New London, Ohio, assignor of one-half to Samuel R. Rawson, same place. Filed May 12, 1900. Serial No. 16,528. (No model.)

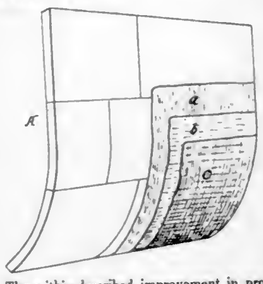


Claim.—1. The herein-described method of forming the hub and web of a wheel, which consists first in slitting the opposite ends of a sheet of metal to form strips thereon at each end portion, leaving the middle portion unbroken, second in tubulating the sheet, and third, in bending the strips out radially to form the web or spokes of the wheel, the unbroken middle portion of the sheet of metal forming the hub.

2. The herein-described method of forming the hub and web of a wheel, which consists first in slitting the end portions of a metallic sheet, second in tubulating the metallic sheet, third in twisting the tubulated sheet to place the said strips out of relatively opposite positions, and fourth, in bending the strips out radially to form the web or spokes of the wheel.

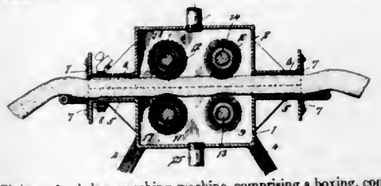
3. The herein-described method of forming the hub and web of a wheel, which consists first in slitting the end portions of a sheet of metal, the end edges of which have a diagonal trend, the slits forming strips on the sheet, second, in tubulating the metallic sheet, third in twisting the tubulated sheet to bring the ends of the strips in registry and to place the strips out of relatively opposite position, and fourth, in bending the strips out radially to form the web or spokes of the wheel.

663,281. PROCESS OF PAINTING METAL SURFACES. ROBERT KOPP, Washington, D. C., assignor to the Kopp Anti-Corrosive and Anti-Barnacle Paint Company, same place. Filed Mar. 21, 1900. Serial No. 9,567. (No specimens.)



Claim.—The within-described improvement in protecting metallic structures, the same consisting in first coating the surface with a film of coal-oil and then applying a paint upon said film, substantially as set forth.

663,282. HOSE-WASHER. JOHN J. KRESS, Perth Amboy, N. J. Filed May 10, 1900. Serial No. 16,210. (No model.)



Claim.—1. A hose-washing machine, comprising a boxing, consisting of two separable sections, cylindrical brushes arranged in the boxing one above the other, feed-rollers arranged in the boxing one above the other and forward of the brushes, gear connections between the shafts of the brushes and rollers, an inlet-pipe for water, and an outlet-pipe for water, having a valve to control the outlet, substantially as specified.

2. A hose-washer, comprising a casing, consisting of two sections hinged together and having outlet projections through which a hose may pass, flexible scraping devices on the outer ends of said projections, cylindrical brushes in the casing, feed-rollers in the casing, and means for rotating simultaneously the brushes and rollers, substantially as specified.

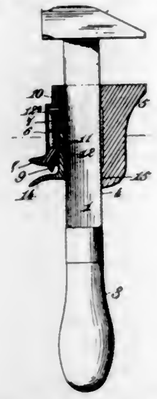
3. A hose-washer, comprising a boxing or casing, consisting of two parts hinged together, a brush journaled in each part, a feed-roller journaled in each part, the said feed-rollers being longitudinally concaved, means for supplying water to the boxing or casing, and means for rotating the brushes and rollers, substantially as specified.

4. In a hose-washer, a boxing or casing, rotary brushes arranged in said boxing or casing, and feed-rollers arranged in said boxing or casing, the said feed-rollers being longitudinally corrugated, substantially as specified.

5. A hose-washing machine, comprising a casing or boxing, rotary brushes arranged in said casing or boxing, feed-rollers in said casing or boxing, the said feed-rollers being longitudinally concaved and longitudinally corrugated, and gear connections between the shafts of the brushes and rollers, substantially as specified.

663,283. WRENCH. JOHN LEE, Sr., Sterling, Ohio, assignor of three-fourths to D. B. Graber and P. C. Steiner, same place, and C. A. Steinhoff, Medina, Ohio. Filed Mar. 31, 1900. Serial No. 10,903. (No model.)

Claim.—1. In a wrench, the combination with a shank having a fixed jaw at one end, of a movable jaw mounted to move on the shank, a finger-piece extending outward from the movable jaw, a locking-key mounted to move longitudinally between the said shank and movable jaw, and a finger-piece on one end of the key arranged in close relation to and facing the finger-piece on the movable jaw, substantially as described.



2. In a wrench, the combination with a shank having a fixed jaw, of a movable jaw mounted to move on the shank, a finger-piece extending outward from the movable jaw, a spring-actuated locking-key mounted to move longitudinally between the shank and movable jaw, and a finger-piece on the outer end of the key, arranged in close relation to and facing the finger-piece on the movable jaw, substantially as described.

3. In a wrench, the combination with a shank having teeth on one edge and a fixed jaw at one end, of a movable jaw mounted to move on said shank and provided with teeth arranged to engage the teeth on the shank, a finger-piece extending outward from the lower outer end of the movable jaw, a spring-actuated locking-key mounted to move longitudinally between the shank and movable jaw, and a finger-piece on the outer end of said key arranged in close relation to and facing the finger-piece on the movable jaw, substantially as described.

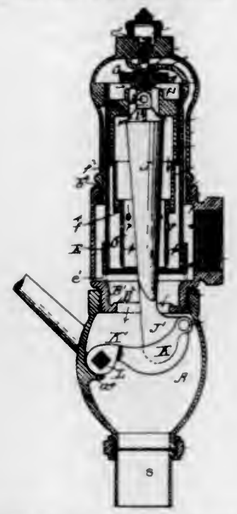
4. In a wrench, the combination with a shank having a fixed jaw at one end, of a movable jaw mounted to move on said shank and provided with a depression, a coiled spring housed in said depression and supported by the walls thereof, a locking-key mounted to move longitudinally between the shank and movable jaw and provided with a lip against which one end of the said spring acts to normally hold the key in its locking position, and a finger-piece on the outer end of the said locking-key, substantially as described.

5. In a wrench, the combination with a shank having a serrated edge and a fixed jaw, of a movable jaw mounted to move on said shank and provided with teeth arranged to engage the serrations on the shank, a finger-piece extending outward from the lower end of the movable jaw, a coiled spring seated in a depression in the lower wall of the movable jaw, a locking-key mounted to move longitudinally between the shank and latter-named jaw, a lip on said key projecting into the said depression in the jaw and against which the said spring acts to normally force the key to its locking position, and a finger-piece on the outer end of the key facing the finger-piece on the movable jaw, substantially as described.

6. In a wrench, the combination with a shank having a serrated upper edge and a fixed jaw at one end, of a movable jaw mounted to slide on said shank and provided with teeth arranged to engage the serrations on the shank, a finger-piece extending outward from the lower end of the movable jaw, a coiled spring seated in a depression formed in the lower wall of the movable jaw, a locking-key mounted to move longitudinally between the shank and last-named jaw and having an inclined face acting against the latter, a lip on said key projecting into the said depression in the jaw and against which the said spring acts to normally force the key to its locking position, a finger-piece on the outer end of the key facing the finger-piece on the movable jaw, and a lug for normally holding the finger-pieces separated, substantially as described.

663,284. FLUSHING-VALVE. SAMUEL W. LEWIS, New York, N. Y., assignor to George E. Gilchrist, Melrose, Mass. Filed Oct. 6, 1899. Serial No. 732,759. (No model.)

Claim.—1. In a water-measuring, self-closing valve, the combination of a casing forming a part of the waterway and of a chamber for containing operative parts of the valve, a water inlet to and outlet from said chamber, a stationary main-valve seat between the inlet and the outlet, a cylinder attached to the valve-casing, open throughout, and having its lower end extended to or below the lower line of the water-inlet, a regulating-ring mounted upon the lower end of said cylinder and movable thereon to vary the position of the lower edge thereof with respect to the water inlet and outlet, a chamber in the upper part of the valve-casing, a passage from the waterway to the said chamber, a hollow, main-piston valve, open at both ends to provide a passage through it, having a valve-seat to cooperate with the main-valve seat in closing the valve, a hollow, perforated extension below said valve-seat and a valve-seat surrounding the passage through the piston-valve, a secondary valve arranged above the main valve and means for opening said valves, the secondary valve slightly in advance of the main valve, as and for the purposes set forth.



2. The combination, in a water-measuring, self-closing valve, of a valve-casing having a main-valve seat and a valve-chamber above the same and a chamber below the same, a cylinder in the valve-chamber, a main-piston valve contained in said cylinder having a main-valve seat to cooperate with the main stationary seat in closing the valve, a passage extending through the piston connecting a chamber above the same with the waterway, a secondary valve for closing and opening and means for moving the main-piston valve and the secondary valve to open the valve, consisting of a crank contained in the chamber below the valve-seat, having one end held between two ears on the valve-casing and provided with a square hole at said end, a cylindrical bearing in the said ears and valve-casing, a lever-handle having a spindle, a portion of which is cylindrical and of the size of said bearing, and a portion of which is of the size of the square hole in the crank, and which extends through said hole in the crank and into one of the cylindrical bearings of the valve-casing, a sleeve of the size of said bearing having a square hole for receiving and inclosing the square end of the spindle, means for holding the sleeve upon the spindle and a link connecting the outer end of the crank directly with the secondary valve and loosely with the main valve, as and for the purposes set forth.

3. In a self-closing valve of the character specified the combination of the lower section of the valve-casing, forming a portion of a valve-chamber and having a water-inlet at one side thereof, a water-outlet and valve-seat at its bottom and a threaded opening at its top with a main movable valve and a secondary valve, a detachable cap comprising a cylindrical case closed at its upper end and open at its lower end and an independent cylinder, forming a portion of the valve-casing, open at both ends and secured to the cap to be simultaneously removed with it, to uncover and render accessible portions of said main and secondary valves.

4. In a self-closing valve of the character specified the combination of a section of the valve-casing, forming a portion of the valve-chamber and having a water inlet and outlet and opening at the end opposite the outlet and a main-valve seat about the outlet, a cap in the form of a cylinder closed at one end attached to the valve-casing at said opening and forming an extension of the valve-chamber, a stationary cylinder open at both ends attached to the cap with a portion contained within the cap and a portion extending into the lower part of the valve-chamber, a water-passage in the cap connecting the waterway with a port at the closed end of the cap opening into the chamber of the cap, the said port, devices

for adjusting its size, a main valve having a valve-seat to close upon the stationary valve-seat about the outlet, a passage extending through it connecting the waterway with the chamber in the cap, a valve-seat upon the upper end of the main valve surrounding the entrance to said passage, a secondary valve in the chamber of the cap to coöperate with said last-named valve-seat and means for raising said main and secondary valves from their respective seats, the secondary valve slightly in advance of the main valve, as and for the purposes set forth.

5. In a self-closing valve of the character specified the combination of a valve-casing having a water-inlet and a water-outlet, a stationary valve-seat surrounding the outlet, a main valve to coöperate with said seat, movable across the line of the water-inlet, and a stationary partition attached to the casing of the valve arranged to extend across the valve-chamber in front of the water-inlet thereto and having its lower edge on a line with, or extending below the lower line of said water-inlet and with the water-passage to the valve-chamber extending below said edge, as and for the purposes set forth.

6. In a self-closing valve of the character specified the combination of a valve-casing having a water-inlet, a water-outlet, a valve-chamber and a stationary valve-seat surrounding the outlet, a main-piston valve movable in the valve-chamber and coöperating with said sationary valve-seat, a stationary partition in two parts, one of which is adjustable upon the other to vary the length of the whole below the lowest level of the water-inlet and whereby the size of the water-passage between the lowest level of the water-inlet and the valve-chamber may be increased or diminished below said level, as and for the purposes set forth.

7. In a valve of the character specified, the combination of a casing forming a portion of a valve-chamber and having a water-inlet and water-outlet and a stationary valve-seat between the inlet and the outlet, a cylindrical casing forming a part of the valve-chamber the lower portion of which projects into the waterway of the valve, a main-piston valve comprising a cylindrical shell open throughout its length to form a straight, continuous passage from its upper to its lower end of relatively large area, having a main-valve seat at or near its lower end surrounding the entrance to the piston opening or passage and a narrow, outer head or shoulder on the wall of the piston above and without the main-valve seat separating the piston into two sections of different size, one of which is of a size to fit the cylindrical casing and the other of which below said head or shoulder is of a size smaller than said cylindrical casing and which reduced portion forms with the head and cylindrical casing, a cylindrical, water-pressure chamber below said head constantly open at its lower end to the direct-water-pressure of the water-supply pipe, an auxiliary-valve seat at or near the upper end of said main-piston valve surrounding the entrance to the passage therein, an auxiliary valve to coöperate with said auxiliary-valve seat, a chamber in the valve-casing above the main-piston valve and into and from which it is movable, a water-passage independent of said main-piston valve connecting the water-head with said chamber, means for moving the main and secondary valves from their seats, the latter slightly in advance of the former and further means for automatically slowly closing the said main-piston valve.

8. In a valve of the character specified, the combination of a casing forming a portion of a valve-chamber and having a water-inlet and water-outlet and a stationary valve-seat between the inlet and the outlet, a cylindrical casing forming a part of the valve-chamber the lower portion of which projects into the waterway of the valve, a main-piston valve comprising a cylindrical shell open throughout its length to form a straight, continuous passage from its upper to its lower end of relatively large area, having a main-valve seat at or near its lower end surrounding the entrance to the piston opening or passage and a narrow, outer head or shoulder on the wall of the piston above and without the main-valve seat separating the piston into two sections of different size, one of which is of a size to fit the cylindrical casing and the other of which below said head or shoulder is of a size smaller than said cylindrical casing and which reduced portion forms with the head and cylindrical casing, a cylindrical, water-pressure chamber below said head constantly open at its lower end to the direct-water-pressure of the water-supply pipe, an auxiliary-valve seat at or near the upper end of the said main-piston valve surrounding the entrance to the passage therein, an auxiliary valve to coöperate with said auxiliary-valve seat, a chamber in the valve-casing above the main-piston valve and into and from which it is movable, a water-passage independent of said main-piston valve connecting the water-head with said chamber, means for moving the main and secondary valves from their seats, the latter slightly in advance of the former, further means for automatically slowly closing the said main-piston valve and a perforated regulator extending from the main-piston valve through the port or opening of the stationary main-valve seat adapted to retard at the opening and at the closing of the main-piston valve the flow of water through the valve and whereby the water-pressure in the cylindrical chamber, beneath the outer piston head or shoulder, is maintained and created while the regulator acts to throttle the flow of water through the valve and at the beginning of the opening and end of the closing movements of the valve.

9. In a valve of the character specified, the combination of a casing forming a portion of the valve-chamber and having a water-inlet, a water-outlet and a stationary valve-seat between the inlet and the outlet, a cylindrical casing forming a part of the valve-chamber the lower portion of which projects into the waterway of the valve, a main-piston valve comprising a cylindrical shell open throughout its length having a straight, continuous passage from its upper to its lower end of relatively large area, a main-valve seat at or near its lower end surrounding the opening or passage in said main-piston valve, an auxiliary-valve seat upon said main-piston valve at or near its upper end surrounding the opening therein at said end, an auxiliary valve to coöperate therewith, a valve-chamber to control the closing of the valve in the valve-casing above the main-piston valve and into and from which it is movable, a water-passage independent of said main-piston valve connecting the water-head with the said chamber and a cylindrical, perforated, hollow regulator extending from the lower end of the main-piston valve having a straight, unrestricted passage open at its lower end in continuation of the passage of the main piston and being of a size to throttle the flow of water through the valve and of a length to cause the said flow to be so throttled during the beginning of the opening movement of the main valve and near the end of the closing movement of said valve and at such time relieving its own passage and the passage of the main-piston valve from the full pressure of the water-head whereby upon the opening of the auxiliary valve the contents of the chamber above it may freely escape directly from said chamber through the passage in the main-piston valve and regulator without exerting a retarding action or stress against or upon said main piston and auxiliary valves.

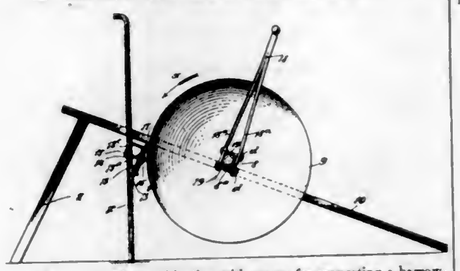
10. In a slow-closing valve of the character specified, the combination of a valve-casing having a water-inlet, a water-outlet and a stationary main-valve seat between the inlet and the outlet, a main-piston valve having a straight, continuous passage throughout it from one end thereof to the other, a main-valve seat on said piston surrounding the said passage, an outer pressure head or shoulder upon said piston, a water-pressure chamber surrounding said piston constantly connected with the water-supply pipe and in which the said piston head or shoulder is contained and movable, and a cylindrical, perforated regulator having an open passage in continuation of the passage of the cylinder and adapted to throttle or retard the flow of water through the valve at its opening and closing, whereby the pressure in the water-pressure chamber is maintained at such times and whereby also the water-pressure in its passage and the passage of the main piston at the time of the opening of the valve does not restrict the free, frictionless escape of water from the upper chamber of the valve through the passage in the piston and regulator.

11. In a valve of the character specified, the combination of a valve-casing having a valve-chamber, a water-inlet and a water-outlet, a stationary valve-seat in the valve-chamber between the inlet and the outlet, a detachable cap forming a part of the valve-casing and removable from the remainder of the casing, a cylinder depending from said cap into the waterway of the valve and removable with said cap from the remainder of the valve-casing, a hollow main valve movable in said cylinder and partially closed by a head, a valve-seat at the lower end of said valve, a secondary-valve seat on said valve-head about the opening therein, a secondary valve to coöperate therewith, a chamber in the valve-casing above the main valve formed by the cylinder and the cap, a continuously-open passage in said cap outside said cylinder connecting said chamber with the waterway of the valve and a device for varying the size of said passage extending through and carried by the cap one end of which enters said passage and the other end of which is accessible from the outer side of the cap and means for moving said main and secondary valves upward from their seats and for closing the same, as and for the purposes set forth.

12. In a valve of the character specified, the combination of a valve-casing having a valve-chamber, a water-inlet and a water-outlet, a stationary valve-seat in the valve-chamber between the inlet and the outlet, a cylinder forming a part of the valve-casing and projecting into the waterway of the valve-chamber attachable to the valve-casing by threaded sections upon each and having its lower edge upon a line with or below the line of the lowest level of the water-inlet, a hollow main valve movable in said cylinder partially closed by a head, a secondary-valve seat on said valve-head about its opening, a secondary valve to coöperate therewith, a chamber in the valve-casing above the main valve, a passage connecting said chamber with the waterway of the valve and means for moving the main and secondary valves upward from their seats and for closing the same, as and for the purposes set forth.

13. In a valve of the character specified, a valve-casing having a detachable section comprising a cap having a threaded lower section and an independent cylinder open at both ends attached within the cap and extending below its lower edge, said cylinder and cap forming a valve-way and a retarding-chamber, and a passage in said cap extending from its upper end to its lower end outside the cylinder and means carried by the cap for varying the size of said passage, as and for the purposes set forth.

663,285. DISK-SHARPENER. MARTIN J. LOHRBACH, Peotone, Ill. Filed July 6, 1900. Serial No. 22,684. (No model.)



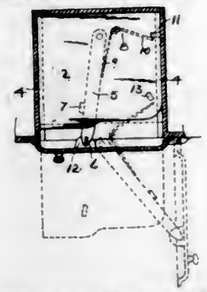
Claim.—1. The combination with means for supporting a harrow-shaft and disks thereon free for rotation, of a crank-handle having a furcated body forming two limbs, and bolts adapted to clamp said limbs upon an end of the shaft.

2. The cutter-blade holder, comprising a bracket having a top flange bent laterally from its body, a lower flange bent oppositely from the top flange, two opposing clamping-plates, and clamping-bolts having nuts, said bolts engaging perforations near the ends of the clamping-plates.

3. The cutter-blade holder, comprising a plate-metal bracket having a top, laterally-bent flange thereon, a bottom flange oppositely extended from the bracket, the top flange having its outer end scalloped, ears projecting oppositely from the side edges of the bracket, clamping-plates oppositely perforated near their ends, said perforations registering with the perforations in the ears, and clamping-bolts having nuts on one end thereof, said bolts engaging the perforations in the ears and the oppositely-disposed clamping-plates.

4. In a device of the character described, the crank-handle for rotating a supported harrow-shaft and disks thereon, consisting of a bar split from one end toward the other end, providing two limbs which are parallel near the free ends thereof, said limbs each having two spaced perforations therein, said perforations receiving two spaced bolts provided with nuts adapted to clamp the limbs toward each other.

663,286. OVEN-SHELF. EDMUND C. MACARTNEY, Philadelphia, Pa., assignor to himself and Pembroke D. Harton, same place. Filed Aug. 13, 1900. Serial No. 26,697. (No model.)

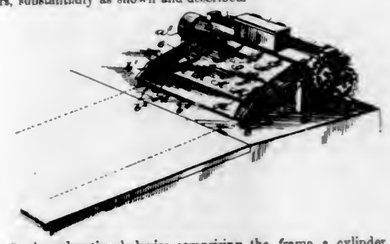


Claim.—1. In an oven having ledges upon each side, a shelf resting upon the ledges, and formed with keepers to engage with the under side of the ledges, a bar pivotally secured upon the shelf having a projection upon its free end at the under side, a rest upon the oven-door against which the projection abuts, and an upper face upon which the bar rests, a projection upon the upper side of the bar and a vertically-movable catch upon the oven-door engaging the projection, and means for urging the free end of the bar into coincidence with the catch.

2. In an oven, a shelf, a pivoted bar projecting therefrom a catch upon the oven-door comprising a vertically-movable plate a knob movable vertically within the door and connected with the plate a hook connected with the knob, a projection upon the door with which the hook engages when the knob is turned, and a projection upon the bar with which the plate engages when the knob is turned in an opposite direction.

663,287. EDUCATIONAL DEVICE. THOMAS L. MARTIN, Lewisburg, Ky. Filed Nov. 18, 1899. Serial No. 737,542. (No model.)

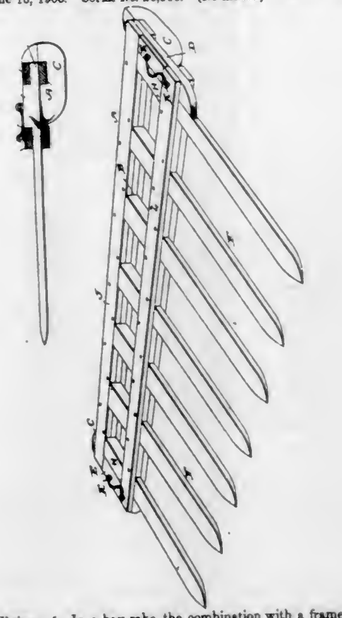
Claim.—1. An educational device comprising a main frame, ribbon-winding rollers which are geared together, a supplemental frame hinged to said main frame, so that it may be raised as required, and having guide-rods arranged at its front end, one being higher than and in rear of the other, and a ribbon passing over said rolls and back to the winding-rollers, substantially as shown and described.



2. An educational device comprising the frame, a cylinder fixed therein and having a lengthwise slot in its front side, a rotatable crank-shaft passing axially through said cylinder, a roller arranged parallel to said shaft, and meshing gears operatively connecting the cylinder and shaft, guide-rods arranged in the front portion of the frame, and a ribbon wound on the shaft and roller, and passing intermediately over said rods, as shown and described.

3. The educational device comprising the main frame adapted to rest upon a flat surface, the ribbon-winding shaft and roller arranged therein, and the supplemental or movable frame hinged to the main frame and having guide-rods, one of which is located at its free end and slightly above the base or under side thereof, thus providing space in which a copying device may be inserted and clamped, and a ribbon passing over such rod and attached to the winding devices, as shown and described.

663,288. HAY-RAKE. CHARLES O. MASON, Strother, Mo. Filed June 16, 1900. Serial No. 20,511. (No model.)

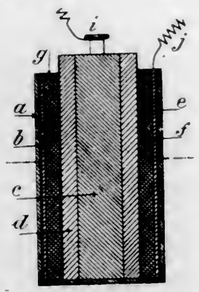


Claim.—1. In a hay-rake, the combination with a frame consisting of two parallel bars and intermediate portions, of teeth having one end held in sockets formed by said bars and intermediate portions, transverse bars at the ends of said frame, a removable bar parallel with the parallel bars of the frame and engaging said teeth forward of their rear ends, and removable fastenings for holding the said removable bar in position, as shown and described.

2. The combination of a frame with sockets, runners on which said frame is mounted, teeth having one end inserted in said sockets, and provided with forward and rearward shoulders, bars at the end of said frame, a forward bar engaging the forward shoulders of the teeth, and detach-

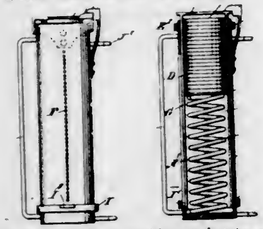
able fastenings at the ends of said forward bar for holding it in place, substantially as described.

663,289. DRY BATTERY. ERNEST MEYER, Paris, France. Filed Nov. 10, 1899. Serial No. 736,473. (No model.)



Claim.—In a dry battery, a centrally-located negative electrode, a depolarizing mass surrounding said electrode, a positive electrode surrounding the depolarizing mass at a distance, a cloth cover on said depolarizing mass, a layer of peat fiber or moss interposed between said cloth cover and the positive electrode and impregnated with an exciting liquid, and a filling of plaster containing some of the exciting liquid, and extending at the top of the battery between the two electrodes.

663,290. COIN-HOLDER. THOMAS O. MILLER, Houston, Tex. Filed Jan. 4, 1900. Serial No. 369. (No model.)



Claim.—1. A coin-holder comprising a coin-tube, a coil-spring in the tube, and spring-catches secured to the upper end of the tube, and arranged to extend upon the top of the uppermost coin at the sides thereof, to hold the coins in place in the tube, and to allow of sliding the uppermost coin forwardly out from under the catches and away from the tube, the under sides of the catches being a distance above the upper edge of the tube, substantially as shown and described.

2. A coin-holder comprising a coin-tube having a spring and coin-catches, and a filling device movable on the tube for filling the stack of coins into the tube against the tension of the spring, substantially as shown and described.

3. A coin-holder comprising a coin-tube having a spring and coin-catches, and a filling device movable on the tube for filling the stack of coins into the tube against the tension of the spring, the catches holding the coins already in the tube in place, and at the same time forming a support for the stack of coins in the holder, substantially as shown and described.

4. A coin-holder comprising a coin-tube having a spring and coin-catches, and a filling device movable on the tube for filling the stack of coins into the tube against the tension of the spring, said filling device comprising a slide having an inwardly-extending flange at the upper end, means for holding the slide in lowermost position, and for closing and locking the slot through which the coins are extracted from the tube holding them, and means for raising said slide, as set forth.

5. A coin-holder, provided with a tube and a filling device, the latter comprising a slide fitted into a recess in the tube and formed at its upper end with a flange extending over the coin in the tube, and a spring for locking the slide in position, and for closing and locking the slot through which the coins are extracted, substantially as shown.

6. A coin-holder, comprising a coin-tube having a spring and coin-catches, a filling device movable on the tube for filling a stack of coins into the tube against the tension of the spring, said filling device comprising a slide having an inwardly-extending flange at the upper end, means for holding the slide in its lowermost position and for closing and locking a slot through which the coins are extracted from the tube, and means for raising said slide, a plurality of said holders being connected with a belt.

7. The combination with a plurality of coin-holders rigidly connected one with another by an integral web, whereby the holder is adapted for use on counters, desks and the like, each coin-holder consisting of a tube, a coiled spring in said tube, spring-catches secured to the upper end of the tube, a filling device movable on the tube for filling coins into the same, and means for closing and locking a slot through which the coins are extracted.

663,291. PRINTING APPARATUS. CAROLINE MONTEITH, New York, N. Y. Filed Jan. 24, 1900. Serial No. 2,625. (No model.)



Claim.—1. A printing apparatus, provided with a guideway having longitudinal parallel members extending over or in front of the paper to be printed on, and a type holder and spacer movable on said guideway, for guiding a type-block between the members of the guideway to the paper, to make an impression thereon, said holder having a type-receiving opening with a continuous surrounding wall, substantially as shown and described.

2. A printing apparatus, comprising parallel longitudinal guideways located one above the other, one for the paper and the other for the type holder and spacer, and a type holder and spacer movable on the upper guideway and adapted to receive the type-block and guide the latter between the members of the upper guideway to the paper in the lower guideway, substantially as shown and described.

3. In a printing apparatus, a type holder and spacer having a type-holding opening the end walls of which are at different distances from the respective ends of the type-holder, thus forming cross-bars of different width between said opening and the ends of the holder.

4. A printing apparatus, provided with spaced longitudinal guideways, and a type-holder mounted to slide on said guideways and having a type-holding opening with opposing walls extending transversely of the guideways, so that a type inserted in said opening will be carried with the holder whether the latter be moved toward one end of the guideways or the other.

5. A printing apparatus, provided with spaced longitudinal guideways and a type-holder mounted to slide on said guideways and having a type-holding opening, and spaced longitudinal guideways extending lengthwise under the first-mentioned guideways, and of greater width than the same.

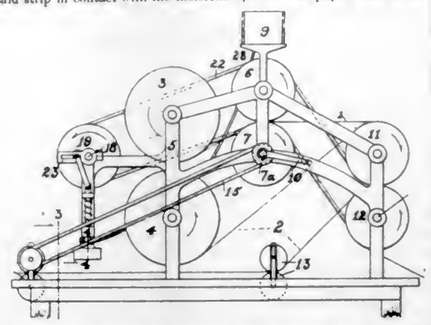
6. A printing apparatus having a type holder and spacer arranged for sliding on a guideway, and having in its top an aperture for the passage of the type-block, the side walls of the aperture being of different width, substantially as shown and described.

7. A printing apparatus, provided with longitudinal guideways arranged for the type holder and spacer to slide on, and for holding the type-block against transverse movement, said guideways comprising a base, vertical and longitudinally-extending spaced walls, flanges extending outwardly from the upper ends of said walls, and a longitudinal guideway for the paper, and arranged below the said walls on said base, said guideway being wider than the space between said walls, substantially as shown and described.

8. A printing apparatus, comprising a base, a casing at one end of the said base, a paper-roll journaled in the said casing, a paper-guideway on the said base and extending longitudinally from the bottom of the casing, a longitudinal type-block guide rising from the said base above the paper-guideway, flanges extending outwardly from the upper ends of the said type-block guide, and a type holder and spacer slidable on the said flanges and extending across the type-block guide, with an aperture in the top of the type holder and spacer, to receive the type-block and guide it between the type-block guide and to the paper in the paper-guideway, substantially as shown and described.

663,292. METHOD OF ADDRESSING NEWSPAPERS. ALFRED T. MCCREARY, Springfield, Ill., assignor of one-third to John H. Sikes, same place. Filed Sept. 12, 1900. Serial No. 29,844. (No specimens.)

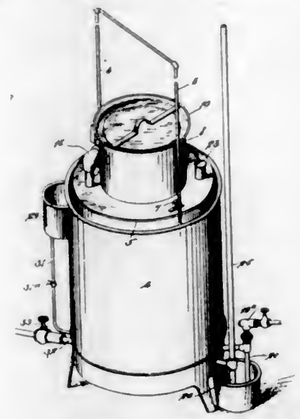
Claim.—1. The herein-described method of addressing newspapers consisting in; printing in copyable ink on an address-strip the names and addresses to be transferred; providing a negative strip of transparent material; treating said negative strip on one side with a solution of turpentine twelve parts, resin two parts, linseed-oil one-half part and Japan drier one-half part, all by weight; moistening the back of said address-strip; subjecting said address-strip and said negative strip to pressure with the untreated side of the negative strip in contact with the printed side of the address-strip; moistening the paper to be addressed and subjecting said negative strip and said paper to pressure with the inked face of said strip in contact with the moistened part of said paper, as set forth.



2. The herein-described method of addressing newspapers, consisting in, printing in copyable ink on an absorbent address-strip the names and addresses to be transferred; providing a negative strip of transparent and slightly-absorbent material, moistening the unprinted side of said address-strip; subjecting said address-strip and said negative strip to pressure with the printed face of the address-strip in contact with said negative strip; moistening the paper to be addressed and subjecting said negative strip and said paper to pressure with inked face of said strip in contact with the moistened part of said paper; as set forth.

3. The herein-described method of addressing newspapers, consisting in printing in copyable ink on an address-strip of absorbent material the names and addresses to be transferred; providing a negative strip of slightly-absorbent material; treating one side of said strip with a preparation impervious to water; moistening the unprinted side of said address-strip; subjecting said address-strip and said negative strip to pressure with the printed side of the address-strip in contact with the untreated side of the negative strip; moistening the paper to be addressed, and subjecting said negative strip and said paper to pressure with the inked side of said negative strip in contact with the moistened part of said paper, as set forth.

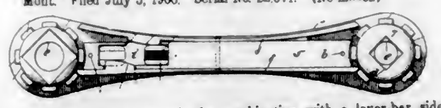
663,293. ACETYLENE-GAS APPARATUS. WILLIAM H. MCGOLDRICK, San Antonio, Tex. Filed Mar. 12, 1900. Serial No. 8,351. (No model.)



Claim.—1. A gas-machine, comprising a tank, a bell mounted to move vertically therein, a generator-dome on the bell and consisting of inner and outer walls spaced apart to provide a water-space, a cover for the dome, a pipe leading from the interior of the dome through the water-space and to the interior of the bell above the water-level thereof, a valve in said pipe, a vent connecting with said pipe and controlled by said valve, a generator-cylinder extended upward from the bottom of the tank and opening into the dome, and a jacket carried by the bell and surrounding the cylinder, substantially as specified.

2. A gas-machine, comprising a tank, a generator-cylinder arranged in the tank, a service-pipe extended upward in the tank, a bell movable in the tank, a pipe leading from the generator to the bell, a drip-pipe leading from the service-pipe into a tub adapted to contain liquid, a blow-off pipe extended upward in the tank, a pipe carried by the bell and surrounding said blow-off pipe, a drip-pipe leading from the blow-off pipe into said tub, and a blow-off pipe leading from the said pipe carried by the bell to a pipe connection between the generator and the bell, substantially as specified.

663,294. REVERSIBLE WRENCH. JOSEPH M. NESLEY, Grant Mont. Filed July 5, 1900. Serial No. 22,571. (No model.)

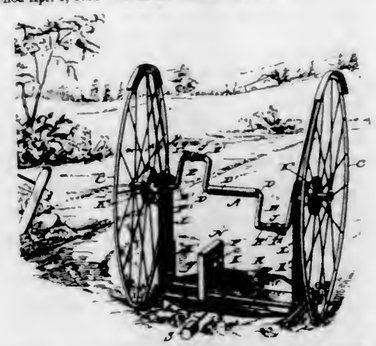


Claim.—1. In a wrench, the combination with a lever-bar, side plates thereon oppositely and circularly apertured at one end, and a socketed and peripherally-toothed head-block held to rotate in said apertures, of two elongated resilient pawls, toes on which mesh oppositely in teeth on the head-block, and a keeper-block slidable on one side plate, adapted by longitudinal movement to disengage the pawls alternately.

2. In a wrench, the combination with a lever-bar, side plates thereon, oppositely and circularly apertured at one end, and a peripherally-toothed head-block socketed in opposite ends and held to rotate in the circular apertures, of two elongated resilient pawls each having a cam projection, toes on said pawls oppositely engaging teeth of the head-block, and a keeper-block slidable in a slot in one side plate, and contacting with the cams alternately, so as to lift the pawl bearing this cam, and remove the pawl from engagement with the teeth of the head-block.

3. In a wrench, the combination with a lever-bar, and side plates secured thereon, said plates having one end of each circularly apertured, of a socketed head-block held to rotate in said apertures, a series of teeth on the head-block located between the apertured ends of the side plates, one of the plates having a slot therein, two resilient pawls secured oppositely on the lever-bar, toes thereon engaging with teeth of the head-block, a cam projection on each pawl, and a keeper-block held to slide in the slot of the side plate, said block alternately pressing outward a pawl and relieving it from engagement with the teeth on the head-block when the keeper-block is reciprocated.

663,295. VELOCIPEDE. ERNST H. NEUBERT, Washington, D. C. Filed Apr. 5, 1900. Serial No. 11,730. (No model.)



Claim.—1. A velocipede comprising a main shaft having drive-cranks, and spindles, wheels on said spindles, clutch devices by which the drive-wheels may be keyed to their spindles, grips on the drive-cranks and devices whereby the grips may operate the clutch devices for keying the wheels on the spindles substantially as set forth.

2. In a velocipede substantially as described, the combination of the drive-shaft having a drive-crank having its outer arm adjacent to the spindle hollow and having the hollow spindle whose interior communicates with that of the hollow outer arm of the drive-crank, the drive-wheel loose on the spindle and having a clutch-section, a clutch-section keyed on the spindle and movable into and out of mesh with the clutch-section of the drive-wheel, the spring in the hollow spindle and arranged to set the clutch-section of the spindle into engagement with that of the drive-wheel, the grip movable longitudinally on the wrist of the drive-crank, the sleeve on said wrist and engaged with the grip whereby the latter may operate the sleeve longitudinally upon the wrist, and a connecting device extending from said sleeve through the hollow outer arm of the drive-crank and connected with the clutch-section of the spindle whereby to operate the same in opposition to its actuating-spring, substantially as set forth.

3. The combination of the drive-shaft having the spindle and the drive-wheel free thereon, of clutch devices including a clutch-section keyed on the drive-shaft and movable into and out of position to key the drive-wheel on the spindle, a sleeve keyed to and movable on the wrist of the crank, connections between said sleeve and the aforesaid clutch-section, and the grip engaged with said sleeve whereby to operate the same substantially as set forth.

4. The combination of the drive-shaft having the hollow spindle and the drive-crank, the wheel free on the hollow spindle, a clutch-section keyed on the hollow spindle, a spring in the hollow spindle and connected with the clutch-section whereby to actuate the same into engagement with the drive-wheel, the grip on the wrist of the drive-crank, and connections between said grip and the clutch-section whereby the grip may operate the clutch-section in opposition to its spring, substantially as set forth.

5. A velocipede provided with devices whereby it may be operated by the hands, and below the same with a suspended platform and with foot-operated means whereby the same may be adjusted vertically.

6. A velocipede provided with a suspended platform and with foot-operated means by which the platform may be raised and lowered while the velocipede is in operation.

7. A velocipede provided with a suspended platform movable vertically and with belts connected with said platform and with operating devices whereby the said belts may be drawn upon to raise the platform substantially as set forth.

8. A velocipede provided with a platform, belts connected with said platform, supports carrying said belts and means on the platform whereby the said belts may be drawn upon to elevate the platform, substantially as set forth.

9. In a velocipede, the combination of the platform, supports for said platform, belts connected at one end with said supports, operating means connected with the other ends of said belts, and detent devices whereby said operating means may be held in different adjustments, substantially as set forth.

10. The combination in a velocipede of the vertically-adjustable platform, supports therefor including belts and operating devices for drawing upon said belts including a stand, a treadle operating therein and racks for engagement by said treadle, substantially as set forth.

11. The combination in a velocipede of the vertically-adjustable platform, the belts for adjusting the same, the stand having racks and guides for said belts, and the rocking treadle connected with the belts and having pins or portions for engaging the racks, and above the same, means for guiding the treadle substantially as set forth.

12. In a velocipede substantially as described, the combination with the vertically-adjustable platform, of the stand N having racks P and flanges N^4, the belts, and the treadle connected with the belts and having portions O′ to engage the racks P, portions O^2 operating within the flanges N^4 and inwardly-projecting portions O^3 substantially as set forth.

13. In a velocipede, the combination of the vertically-adjustable platform having an upright stand upon it, guides in said stand and on the platform for adjusting belts, the belts for carrying said platform, and the treadle operating in the stand and connected with and arranged to operate the belts substantially as set forth.

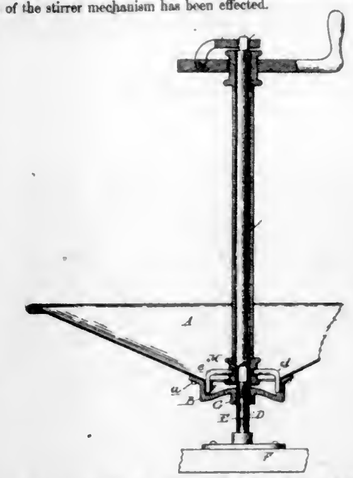
14. The combination with the two opposite wheels and the connecting crank-axle, of the platform suspended from and arranged sufficiently below the axle to form a platform on which the operator may stand while operating the crank-axle by hand, and a rear extension or brake-shoe R secured to said platform and which is adapted to bear upon the ground when superior pressure is applied to the rear side of the platform, substantially as shown and described.

15. A velocipede provided with a platform, a frame in which said platform is movable vertically a treadle carried by the platform, and means connecting the treadle with the frame whereby the platform may be adjusted vertically during the operation of the machine, substantially as described.

663,296. GOLD-PAN. DANIEL B. NEWKIRK, Detroit, Mich., assignor, by direct and mesne assignments, to the Miners Supply Company, Limited, same place. Filed Jan. 20, 1900. Serial No. 2,207. (No model.)

Claim.—1. In a gold-pan, the combination with the standard, of the pan secured thereto, a tubular member sleeved upon the standard for independent rotary movement, stirrer mechanism carried by the tubular member, an operating device for rotating said tubular member independently of the pan, and means for locking the operating device to the pan, whereby the latter may be rotated after the stirring has been effected.

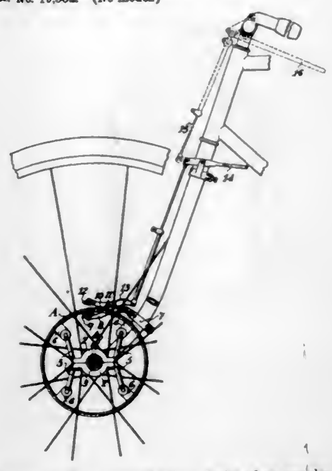
2. In a gold-pan, the combination with the standard, of the pan fixed thereto, a tubular member sleeved upon the standard for independent rotary movement, stirrer mechanism carried by said tubular member, an operating-handle fixed to the tubular member, and a link pivoted to the handle and adapted to be engaged with the standard after the actuation of the stirrer mechanism has been effected.



3. In a gold-pan, the combination with a base, of a standard rotatively mounted thereon, having its lower end threaded and its upper end squared, the pan proper carried by the standard and engaging the thread thereon, a tubular member sleeved upon the standard having its lower end resting upon the pan and its upper end extending in proximity to the free end of the standard, stirrer-blades carried by the tubular member, a handle for the latter, and a link pivoted to the handle having its upper end shaped to engage the squared end of the standard.

4. In a gold-pan, the combination with the pan proper having formed centrally therein a cylindrical depression or socket, a standard to which the pan is secured, a tubular member sleeved upon the standard for independent rotary movement, two sets of stirrer-blades carried by the tubular member at its lower end, one set extending upwardly in proximity to the pan and the remaining set projecting downward into the pan-socket, a handle for rotating the tubular member, and a link attached to said handle and adapted to be engaged with the standard, substantially as described.

663,297. BICYCLE-BRAKE. ALBERT H. NIKLD, Goutolenc, Cal., assignor of one-half to P. M. Ream, Lovelock, Cal. Filed June 7, 1900. Serial No. 19,352. (No model.)



Claim.—1. The combination in a brake of an annular rim, means for supporting it from the wheel-hub, consisting of clamps, means whereby they are caused to grip the hub, arms projecting from said clamps and offset lugs from the wheel-flange whereby the clamps may be fixed to the hub interior to the wheel-spokes and the rim supported exterior thereto.

2. The combination in a brake for bicycle and like wheels of a rim having offset lugs, grips having arms, to the outer ends of which said lugs are secured, a two-part sleeve or bushing adapted to be fitted within the grips and itself bored to fit the hub, and means for clamping it and the grips to the hub.

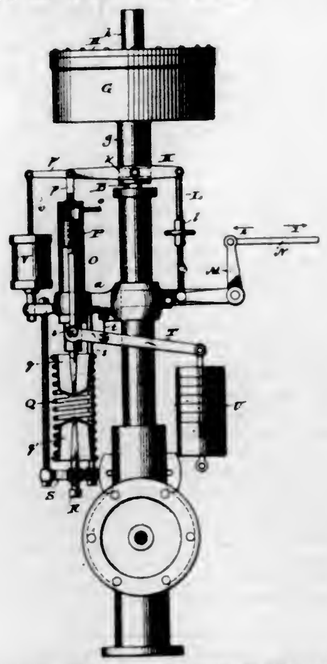
3. In a brake for bicycle and like wheels, a bushing to fit the hub interior to the wheel-spokes, grips and means whereby they are clamped to the bushing and hub, arms projecting outwardly from the grips, an annular rim having lugs and offset so as to be secured to the arms of the grips and support the rim exterior to the wheel-spokes, levers fulcrumed to a stationary part of the machine, shoes carried by said levers and adapted to press upon the rim in opposition to each other and means by which said levers are actuated to forcibly compress the shoes upon the rim.

4. In a brake for bicycle and like wheels, an annular rim having a concaved interior, and a convex exterior surface, means whereby said rim is supported from the wheel-hub exterior to the line of the wheel-spokes, a clamp fixed upon one of the fork sides of the wheel, a lever-arm fulcrumed to said clamp, carrying a shoe adapted to contact with one side of the annular rim, a second lever fulcrumed upon the first, carrying a shoe adapted to press upon the opposite side of the rim, and a mechanism whereby the said levers are actuated and the shoes compressed against the rim.

5. The combination in a brake for bicycle and like wheels of an annular rim, means for supporting it axially with relation to the wheel, a clamp fixed to a stationary support contiguous to the wheel, levers fulcrumed together, carrying shoes which are adapted to press upon opposite sides of the rim, one of said levers being fulcrumed to the clamp, a lever controlled by the operator of the machine connected with one of the brake-levers whereby the two are actuated in unison, and a spring whereby said levers are moved to release the brake when pressure upon the controlling-lever is removed.

6. In a brake for bicycle and like wheels, a two-part bushing, and a corresponding inclosing sleeve with means for clamping them upon the hub interior to the wheel-spokes, an annular rim located exterior to said wheel-spokes, arms extending from the sleeve outwardly, to which arm the rim is fixed, a pair of fulcrumed levers closable toward each other, having shoes adapted to clamp the rim between them, and mechanism for actuating said levers.

663,298. STATIC GOVERNOR. BRUNO V. NORDBERG, Milwaukee, Wis., assignor to the Nordberg Manufacturing Company, same place. Filed Mar. 8, 1899. Serial No. 708,235. (No model.)



Claim.—1. In a static governor the combination with the governor-shaft provided with oppositely-projecting arms, of rolling weights having circular bearings, links centrally pivoted to said weights and connecting them with said arms, and a vertically-movable counterpoise resting with a rolling contact upon said weights, substantially as and for the purposes set forth.

2. In a static governor the combination with a vertical rotary shaft, of a vertically-movable counterpoise loosely mounted upon said shaft, and vertically-swinging weights centrally connected with said shaft and having a rolling contact with said counterpoise which rests upon them, substantially as and for the purposes set forth.

3. In a static governor the combination of a vertical rotary shaft, a sleeve fixed thereon and provided with oppositely-projecting lateral arms, rolling weights suspended from said arms by links to which they are centrally pivoted or journaled, and a vertically-movable counterpoise resting upon said weights and provided with projections loosely engaging arms on said shaft, substantially as and for the purposes set forth.

4. In a static governor the combination of a vertical rotary shaft having laterally-projecting arms provided with rollers, a vertically-movable counterpoise having vertical pins or projections adapted to bear against said rollers, and round weights centrally suspended by links from opposite arms on said shaft and having a rolling contact with said counterpoise which rests thereon, substantially as and for the purposes set forth.

5. The combination with a static governor of an adjustable regulating connection between said governor and the valve-gear of a pumping-engine, comprising a floating lever having a movable pivot on which it swings as a fulcrum when actuated by the governor, means for automatically shifting said pivot according to variations in volume or pressure of the fluid which the pumping-engine operates upon, substantially as and for the purposes set forth.

6. The combination of a static governor comprising a rotary shaft, weights centrally suspended by links from arms on said shaft, and a movable counterpoise resting upon said weights which have a rolling contact therewith, and an adjustable regulating connection between said counterpoise and the valve-gear of a pumping-engine, comprising a floating lever having a movable pivot on which it swings as a fulcrum when actuated by the governor, and means for adjusting said pivot to vary the speed of the engine, substantially as and for the purposes set forth.

7. The combination with a static governor of an adjustable regulating connection comprising a floating lever pivotally connected with a movable part of the governor and also connected with the valve-gear of a pumping-engine, a cylinder and plunger, one of which is connected with said lever, a fluid connection for communicating to said cylinder and plunger the pressure by which the operation of the pumping-engine is controlled or regulated, and resistance opposing the movement of said lever by the fluid-pressure acting through said cylinder and plunger, substantially as and for the purposes set forth.

8. The combination with a static governor of an adjustable regulating connection comprising a floating lever pivotally connected with a movable part of the governor and also connected with the valve-gear of a pumping-engine, a cylinder and plunger, one of which is connected with said lever, a connection with said cylinder and plunger for communicating thereto the fluid-pressure by which the operation of the pumping-engine is controlled or regulated, and an adjustable resistance opposed to the movement of said lever by the fluid-pressure acting through said cylinder and plunger, substantially as and for the purposes set forth.

9. The combination with a static governor, of an adjustable regulating connection comprising a lever connected with the governor and with the valve-gear of the engine, a cylinder and plunger, one of which is connected with said lever, a fluid-pressure connection with said cylinder, and a spring and weight acting upon said lever in opposition to the fluid-pressure in said cylinder, substantially as and for the purposes set forth.

10. The combination with a static governor, of an adjustable regulating connection comprising a floating lever pivotally connected with a movable part of the governor and also connected with the valve-gear of a pumping-engine, a cylinder and plunger, one of which is connected with said lever, a fluid-pressure connection with said cylinder, and an adjustable spring and adjustably-weighted lever opposing the movement of said lever by fluid-pressure, substantially as and for the purposes set forth.

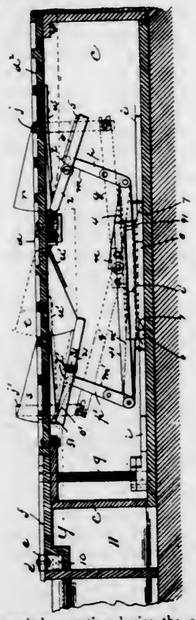
11. The combination with a static governor, of a floating lever having a pivot connection with the governor and also connected with the valve-gear of a pumping-engine, a cylinder and plunger, one of which is connected with said lever, a fluid-pressure connection with said cylinder, a resistance opposed to the movement of said lever by fluid-pressure, and a dash-pot having a plunger which is connected with said lever, substantially as and for the purposes set forth.

12. The combination with a static governor, of a floating lever having a pivot connection with the governor, and also connected with the valve-gear of a pumping-engine, a vertically-disposed stationary cylinder closed at its upper end and having a fluid connection with the discharge-conduit of the pumping-engine, a plunger fitted in said cylinder and connected by rods on opposite sides thereof with said lever, an adjustable

spring, and an adjustably-weighted lever pressing upwardly against said plunger in opposition to the fluid-pressure in said cylinder, substantially as and for the purposes set forth.

13. The combination with a static governor comprising rolling weights centrally pivoted or journaled to and suspended by links from arms on a vertical rotary shaft, and a vertically-movable counterpoise resting upon said weights, of an adjustable regulating connection comprising a floating lever having a pivot connection with said counterpoise and also connected with the valve-gear of a pumping-engine, a cylinder and plunger, one of which is connected with said lever, a fluid-pressure connection with said cylinder, and a resistance opposed to the movement of said lever by the fluid-pressure in said cylinder, substantially as and for the purposes set forth.

663,299. SWITCH-OPERATING DEVICE FOR STREET-RAILWAYS. HENRY P. QUAD, East Orange, N. J. Filed Mar. 28, 1900. Serial No. 10,431. (No model.)



Claim.—1. In a switch-operating device, the combination with the switch tongue and rail, of pressure-bolts projecting above the rail-surface and adapted to be depressed by the wheels of a car, means for transmitting the motion of said pressure-bolts to the switch-tongue, and independent pressure-pieces adapted to be operated by suitable tripping means on the car to adjust the pressure-bolts for engagement by the car-wheels, substantially as set forth.

2. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of vertically-movable bolts adapted to project from the rail-surface and be engaged by the car-wheels, connecting means whereby depression of said bolts operates the switch-tongue, and means for adjusting said bolts into position to be engaged by the car-wheels, said adjusting means being operated by pressure-pieces arranged between the rails and tripping means carried upon the car for engaging said pressure-pieces, substantially as set forth.

3. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of pressure-bolts sliding vertically through the surface of the rail, means connected to said pressure-bolts for transmitting their motion when depressed by a passing car to operate the switch-tongue, and means for elevating said pressure-bolts, said means comprising pressure-pieces projecting upward between the rails and adapted to be engaged by special tripping means on the car, and levers engaging at one end by said pressure-piece and at the other end acting to raise the pressure-bolts, substantially as set forth.

4. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of a shifting-lever grasping the free end of said switch-tongue, an oscillating shaft having one fixed arm pivoted to said lever and a second fixed arm pivoted to a reciprocating slide, said slide, and a stop thereon, opposite pushing-arms, either of which is adapted to engage said stop, horizontal oscillating shafts having downwardly-extending fixed arms pivoted to said pushing-arms and second fixed arms underlying the rail, and pressure-bolts working in the rail and engaging said second fixed arms, substantially as set forth.

5. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of pressure-bolts working in said rails, a reciprocating slide lying substantially parallel with the rail and having a stop between said pressure-bolts, pushing-arms extending toward each other from said pressure-bolts, and being adapted to alternately engage at their free ends opposite sides of the said stop on the slide, means transmitting motion from the pressure-bolts to the pushing-arms, and means for transmitting the reciprocal movements of the slide to the switch-tongue, substantially as set forth.

6. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of a shifting-lever grasping the free end of the switch-tongue and extending at substantially right angles thereto, a vertical oscillating shaft having an upper fixed arm pivotally connected to said shifting-lever and a lower fixed arm pivotally connected to a reciprocating slide, said slide, lying substantially parallel to the rail and having a stop projection, opposite pushing-arms, one of which is adapted to engage said stop at one end and the other at the other end, oscillatory horizontal shafts having fixed arms pivoted to said pushing-arms and other fixed arms lying beneath the rail, and pressure-bolts working vertically in the rail, and adapted to engage said last-mentioned fixed arms, substantially as set forth.

7. In a switch-operating device, the combination with the rail and pivoted switch-tongue, of a shifting-lever, a slide connected to said lever and adapted to be reciprocated, opposite pushing-arms one of which forces the slide in one direction and the other in the opposite direction, pressure-bolts working vertically in the rail and being connected to said arms, and means for lifting one pushing-arm out of engagement with the slide while the other operates, substantially as set forth.

8. In a switch-operating device, the combination with the reciprocating slide *i*, controlling the switch-tongue, pushing-arms *n*, *n'*, actuating said slide and pressure-bolts *j*, *j'*, connected to said arms and operating the same, of lifting-bars pivoted upon the same pivotal pins with said pushing-arms and each being adapted to raise the opposite pushing-arm into inoperative position as the arm with which it is connected is drawn back into operative position, substantially as set forth.

9. In a switch-operating device, the combination with the switch-tongue, shifting-lever, and reciprocating slide connected thereto, and having a fixed stop, of oppositely-extending pushing-arms lying above said slide and adapted to engage opposite sides of said stop, lifting-bars lying beside said pushing-arms and pivoted at their outer ends upon the same pins with said pushing-arms, each lifting-bar being longer than its connected pushing-arm and having a lateral pin extending beneath the opposite pushing-arm, pressure-pieces for operating said pushing-arms, and connecting means, substantially as set forth.

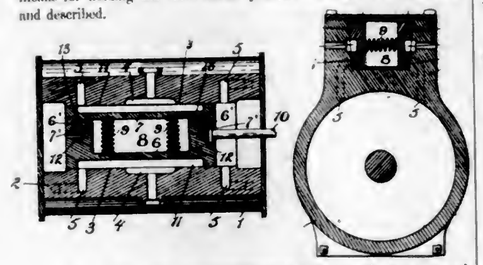
10. In a switch-operating device, the combination with the slide *i*, having a fixed stop, of opposite pushing-arms *n*, *n'*, pivoted at one end and lying above the slide *i*, and adapted at their free ends to engage the fixed stop thereon, a raised slideway 6, beside said slide and having inclined ends, lifting-bars pivoted alongside said pushing-arms and extending in the said direction, each lifting-bar having a lateral pin projecting beneath the opposite pushing-arm and its free end adapted to slide up onto the raised slideway and raise the said opposite pushing-arm when the attached pushing-arm is drawn backward into position to engage the slide, and means for operating said pushing-arms, substantially as set forth.

11. The combination with the switch tongue and rail, of the shifting-lever *e*, slide *i*, coupled to said lever, pushing-arms *n*, *n'*, for actuating said slide, lifting-bars 4, 41, pivoted upon the same pins with said pushing-arms and acting therewith, pressure-bolts *j*, *j'*, adapted to be engaged by the car-wheels to drive said pushing-arms and lifting-bars, independent pressure-pieces for drawing said arms and bars back into initial position, and tripping means on the car for engaging said independent pressure-pieces, substantially as set forth.

12. In a switch-operating device, the combination with the shifting-lever *e*, reciprocating slide *i*, pressure-bolts *j*, *j'*, in the car-rail, pushing-arms *n*, *n'*, transmitting the downward movement of said pressure-bolts to said slide, lifting-bars 4, 41, pivoted with said pushing-arms, hinged pressure-pieces swinging vertically between the car-rails, means transmitting the downward motion of said pressure-pieces to the said pushing-arms and lifting-bars to restore them to initial position, and tripping means upon the car comprising normally-inclined levers 14, 15, and foot-levers 10, 11, for throwing said inclined levers into vertical position, substantially as set forth.

663,300. SLIDE-VALVE. CLARK F. RIGBY, Mannington, W. Va. Filed Dec. 8, 1899. Serial No. 739,614. (No model.)

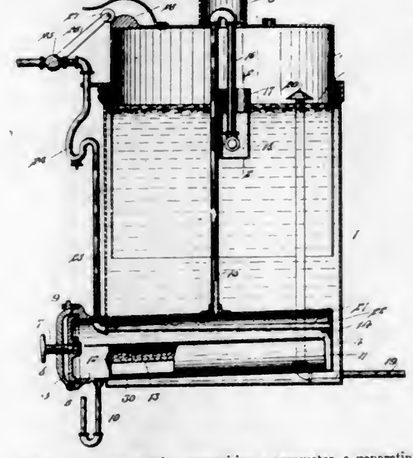
Claim.—1. In a slide-valve, the combination of opposite valve-seats, a longitudinally-divided valve operative between and on the seats, one of the valve-sections being formed on its inner face with the inturned tongues 7' extending vertically from top to bottom of the valve, and the other valve-section formed with the outwardly-turned tongues 6' extending vertically from top to bottom of the valve, said tongues 7' and 6' interlocking to limit the expansion of the valve uniformly from top to bottom, and means for holding the valve normally expanded, substantially as shown and described.



2. In a slide-valve, the combination of opposite valve-seats, a vertically and longitudinally divided valve operative between and on the seats, vertical interlocking tongues adjacent the ends of the valve members and extending from top to bottom thereof, and springs arranged transversely between the valve members and intermediate the interlocking tongues and pressing outwardly on the valve members, substantially as shown and described.

3. In a slide-valve, the combination of opposite valve-seats, a vertically and longitudinally divided valve operative between and on the seats, the valve being formed between its ends with an internal cavity, springs confined in the cavity and pressing outward on the valve members, and vertical interlocking tongues on the inner faces of the valve members adjacent their ends, substantially as shown and described.

663,301. ACETYLENE-GAS GENERATOR. AUGUSTUS F. SHRIVER, Arbuckle, Cal., assignor of two-thirds to himself, Walter Storey, San Francisco, and James H. Smith, Stonyford, Cal. Filed Dec. 15, 1899. Serial No. 740,435. (No model.)

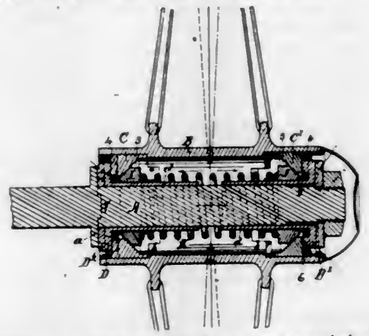


Claim.—1. A gas-machine, comprising a gasometer, a generating-cylinder arranged therein, a pipe leading upward from the cylinder and terminating in a perforated cross-pipe, a vessel in the gas-holder open at the top and into which the cross-pipe discharges, the said vessel being extended above the water-line in the holder, and means for automatically controlling a water-supply to the generator, substantially as specified.

2. In a gas-machine, a gasometer, a generating-cylinder arranged on the lower portion thereof, a spray-pipe in the generator, a supply-pipe connecting with the spray-pipe, a valve in the supply-pipe, an arm extended from the stem of said valve, a cam-shaped projection on the top of the gasometer-bell adapted for engagement with the free end of said arm, and a curved arm attached to the bell and projecting over the cam-shaped projection and adapted to engage the arm as the bell moves downward, substantially as specified.

3. In a gas-machine, a gasometer, a generator arranged therein, a pipe for supplying water to the generator, a valve in said pipe, an arm extended from the stem of the valve, a cam-shaped projection on the top of the gasometer-bell adapted for engagement with the free end of said arm, and a curved arm attached to the bell and projecting over the cam-shaped projection and adapted to engage the arm as the bell moves downward, substantially as specified.

663,302. VEHICLE-HUB. FERNANDO F. STOWE, Worcester, Mass. Filed Mar. 1, 1900. Serial No. 6,905. (No model.)



Claim.—1. A vehicle-hub comprising an outer tubular body adapted for carrying the wheel-spokes, and having internally parallel end openings, an inner bearing portion adapted for support upon the axle-shaft, the removable annular internally-coned supporting members disposed between said body and bearing portions and adjustable endwise within the tubular body, means for rotatively uniting said supporting members and body, two longitudinally-movable cones mounted on said inner bearing portion and centering in said supporting members with countermatching conoidal or inclined surfaces, an endwise-resistance spring acting against said movable cones to yieldingly force the conoidal surfaces together, an axle or shaft provided with a shoulder or bearing-plate and a movable end bearing plate or collar limiting the length of space within which said supporting members are embraced, and means for adjusting said collar to carry one annular supporting member toward or from the other, for varying the effective tension of said resistance-spring.

2. In a vehicle-hub, the combination, with an outer body comprising a tubular shell or barrel, the inner or bearing portions, and an axle-shaft having non-yielding end bearing plates or surfaces between which the hub devices are endwise confined; of two oppositely-disposed socket members removably inserted within and respectively supporting the ends of said body, one of said socket members slidable endwise in the body-shell, but rotatively united therewith, a pair of longitudinally-sliding cones countermatching with said socket members by conoidal or inclined surfaces, and a spring acting against said sliding cones to yieldingly force them against the socket members and the latter against the end bearing surfaces, thereby normally maintaining the parts in close relation and permitting yield of said slidable socket member when the body assumes oblique displacement, substantially as set forth.

3. The combination with the body or spoke carrying shell, and the axle-shaft; of oppositely-disposed socket members non-rotatably confined within said body, concentrically-supported sliding cones intermatching with said socket members, an expanding-spring pressing against said cones, and clutch devices connecting said socket members for rotation with the axle or shaft, for the purposes set forth.

4. The combination, of the outer body or shell, the socket members having interior conoidal seats and exterior clutch-detents, one of said members firmly secured within the body, the other non-rotatable but capable of endwise movement therein, the clutch-rings having bearing-sleeves supported on the center shaft, core or axle, and provided with teeth that loosely engage with said socket members, and means for interlocking said clutch-rings with the axle, a pair of sliding cones concentrically mounted on the center or bearing sleeve, and a coiled-wire spring disposed about the axial center and exerting expansive pressure oppositely against said cones.

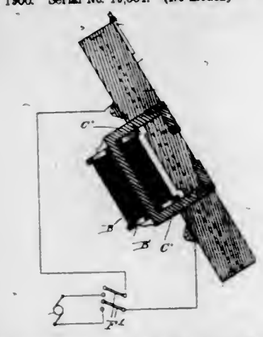
663,303. SCRAPER. CHARLES A. SUTTON, Pitkin, Colo. Filed Aug. 14, 1900. Serial No. 26,879. (No model.)



Claim.—1. As an improved article of manufacture, a scraper consisting of a metal strip comprising a plain body and a curved end section, which curved end section consists of series of tines continuous with the body, and a cross-bar connecting the outer ends of the tines, all longitudinal edges of the tines and body being scraping edges, and the end of the cross-bar having likewise scraping edges or surfaces, whereby a multiple of scraping-surfaces is obtained and a clearance of material scraped from a surface is insured at the curved section of the device.

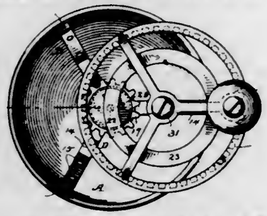
2. As an improved article of manufacture, a scraper comprising a straight body and end sections curved from the body in opposite directions, each end section consisting of a series of tines continuous with the body, and cross-bars connecting the ends of the tines, one cross-bar having a convexed outline at its extremity, the corresponding outline of the other cross-bar being straight, and all longitudinal edges on the entire device being scraping edges as well as the edges of the cross-bars, and whereby also the scraper may be effectively used upon surfaces of varying character and upon all manner of utensils, for the purpose specified.

663,304. MAGNETIC SEPARATOR. FREDERICK THEILENGERDES, Memphis, Tenn., assignor of one-half to Walter Goodman, same place. Filed June 8, 1900. Serial No. 19,531. (No model.)



Claim.—The combination with the inclined hinged feed-board, of the flat electromagnet-core beneath and extending nearly from end to end of the same and having its broad ends turned upward into slits in the board, approximately parallel bars of magnetizable material sunk in the upper surface of the board and resting upon said ends, non-conducting plates resting against the upturned ends and oppositely-extending lugs, and a coil wound about the core between said plates, substantially as set forth.

663,305. EGG-BEATER OR CREAM-WHIPPER. PHILO B. TILGLEY, New York, N. Y. Filed Jan. 5, 1900. Serial No. 448. (No model.)

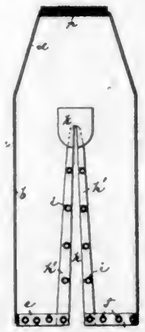


Claim.—1. In a device of the character described the combination with a reservoir and a frame having inwardly-extending blades, of a vertical shaft having a passage through it and carrying alternating blades and at its upper end a pinion, an air-pump whose piston is provided with a rod extending through the top of the pinion and a gear-wheel meshing with the pinion and carrying a cam which engages the rod and actuates the air-pump.

2. In a device of the character described the combination with a shaft having a passage through it, at its upper end a pinion having an air-chamber communicating with the passage, a piston in said air-chamber having a rod passing through the top of the pinion, a spring acting to raise the piston and a valve, of a gear-wheel meshing with the pinion and having a cam engaging the rod, substantially as shown, for the purpose specified.

663,306. LAMP-COVER. HARRY S. TOMPKINS, Newark, N. J. Filed Aug. 23, 1899. Serial No. 728,162. (No model.)

Claim.—1. A lamp-cover formed of flexible waterproof material and comprising a body portion adapted to be drawn down over a lamp, said body portion having a tapering top formed by a plurality of independent tapering projections on the body portion and integral therewith, said projections being bent inward toward one another and having their adjacent edges connected for a portion of their lengths, the free extremities being folded horizontally upon one another and forming a flat top for the lamp-cover, and means for closing together the lower end of the cover below the lamp, substantially as set forth.



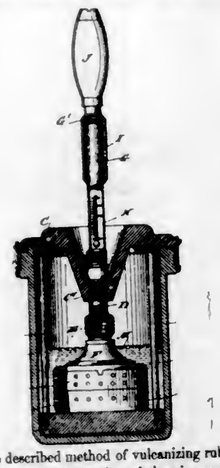
2. The herein-described blank for a lamp-cover, comprising a body part having at one end thereof integral tapering projections independently projecting from the same straight line as the base, lapels at the sides of said body part and tapering projections for joining adjacent edges in forming the cover, and terminal extensions on the said tapering projections adapted to fold into superposed position in the completed cover, substantially as set forth.

663,307. COVERED NAIL. GEORGE W. TUCKER, Waterbury, Conn. Filed Feb. 16, 1900. Serial No. 5,469. (No model.)



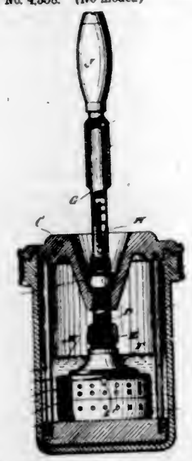
Claim.—A nail of the character described having a two-ply cover formed from an angular blank of sheet metal, said blank being folded over to form a rounded bead around the edge of the finished cover, the corners of the blank engaging and centering the nail and the head of the nail being clamped between the plies.

663,308. METHOD OF VULCANIZING RUBBER. GUTIE H. TUTTLE, Montgomery, Ala., assignor to himself and George M. Bowie, Whitecastle, La. Filed Feb. 17, 1900. Serial No. 5,571. (No specimens.)



Claim.—The described method of vulcanizing rubber which consists in exposing it to heat for softening it, and then immersing it in a bath of mercury and maintaining the latter at a temperture of about 320° Fahrenheit for about thirty minutes, as specified.

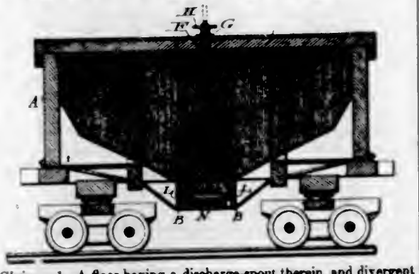
663,309. VULCANIZER. GUTIE H. TUTTLE, Montgomery, Ala., assignor to himself, and George M. Bowie, Whitecastle, La. Filed Feb. 7, 1900. Serial No. 4,358. (No model.)



Claim.—1. The combination of the receptacle, the press-top, means for detachably connecting the receptacle with the under side of the press-top, the handle extending upwardly from the press-top and beyond the top of the receptacle so that said handle forms a means of carrying the press alone, or the press with the receptacle, a bottom permanently connected with the press-top and fitting into the receptacle, the presser-plate adjustably connected with said top, and the perforated box adapted to be held between the presser-plate and the bottom.

2. The combination of the press comprising a top with a depressed central portion, a handle secured to the top centrally, a thermometer on the handle in the depressed portion of the top, a bottom, uprights connecting the top and bottom, and a presser-plate adjustably connected with the top, with a perforated box adapted to be held between the presser-plate and the bottom of the press, and a receptacle adapted to contain the press and provided with means for detachably connecting it with the press-top.

663,310. DUMPING-CAR, &c. ISAAC L. VANKANT, Philadelphia, Pa. Filed Mar. 31, 1900. Serial No. 10,899. (No model.)



Claim.—1. A floor having a discharge-spout therein, and divergent shutters for closing the same in combination with means for raising the shutters and folding the same, the top edges of said spout forming a seat for said shutters when in closed condition.

2. In a dumping-vehicle, a pair of shutters jointed together at top, toggle-levers connected with the same, and mounted on the body of the vehicle, and means for raising and lowering the shutters to and from a discharge-spout, whereby said shutters when raised fold and thus open said spout, and when lowered unfold and close said spout and are seated thereon.

3. A discharge-opening, a pair of diverging shutters adapted to be supported over said opening to close the same, means for raising said shutters, and toggle-levers mounted on the support of said shutters and having its members connected with said shutters.

4. A discharge-opening having cross-cleats therein and a chute adapted to be supported in reverse directions on said cleats.

5. A discharge-opening, a removable chute therein, adapted to close the same, and cross-cleats with an intervening throat adapted to support said chute in reversed inclined directions.

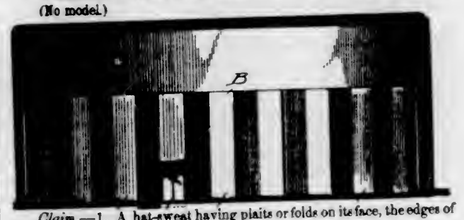
6. In a dumping-vehicle, a discharge-spout in the bottom thereof, the same being open in vertical direction and on opposite sides, gates for said sides, shutters adapted to close said spout and be seated thereon, and a chute adapted to be supported in said spout in inclined direction toward either of said sides.

7. In a dumping-vehicle, a discharge-spout in the bottom or floor thereof, shutters formed of a pair of plates pivotally connected at top and diverging downwardly therefrom, a toggle-lever having its members connected with said plates and mounted on the body of the vehicle, and means for raising said shutters whereby the plates positively fold and uncover said spout, the descent of the shutters positively unfolding the same and the top of the walls of said spout forming a seat for the convergible ends of said shutters when in closed position.

8. In a dumping-vehicle, a discharge-opening and shutters therefor, the top of the walls of said opening forming the seat for said shutters, said shutters being formed of a pair of diverging members jointed together at top and diverging from the latter downwardly forming a wedge-shaped structure whose base is convergible, means for raising and lowering the shutters, and a toggle-lever mounted on the body of the vehicle and connected with said shutters for positively folding and unfolding the latter.

9. A vehicle having a bottom formed of inclined sections terminating toward the middle in a discharge-chute, in combination with divergent upwardly-moving shutters having their lower ends adapted to be seated on the top edges of said chute.

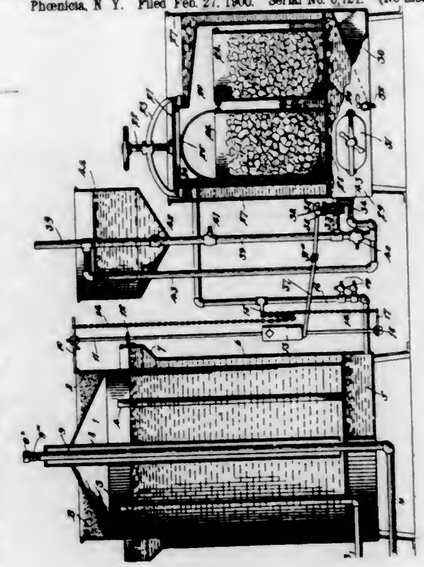
663,311. HAT-SWEAT. JOHN P. VERHOEVEN and FRANK A. WESTERMAN, Monroe, Mich. Filed July 12, 1900. Serial No. 23,387. (No model.)



Claim.—1. A hat-sweat having plaits or folds on its face, the edges of the crease formed by the fold meeting below the fold, whereby a continuous smooth under surface is provided.

2. As a new article of manufacture, a sweat-band for hats consisting of a light soft band provided throughout its length with transverse folds terminating at the edges of the band, the body of the fold being flat to present a flat surface to the head and the edges of the fold meeting below the body thereof whereby a continuous smooth under surface is presented to the body of the hat.

663,312. ACETYLENE-GAS GENERATOR. JAMES WALTON, Phœnicia, N. Y. Filed Feb. 27, 1900. Serial No. 6,721. (No model.)



Claim.—1. A gas-generator provided with a water-supply pipe, a gasometer connected with the generator, a rod carried by the gasometer-bell and having guided movement on the gasometer-body, a projection on said rod, a spring-pressed valve in the supply-pipe, and a lever fulcrumed on the casing of said valve and to the pivoted end of which the valve is pivotally connected, said lever being provided with an outer pivoted and adjustable section extending into the path of the projection of the said rod, substantially as described.

2. In a gas-generator, the combination with a generator, a gasometer, a pipe connecting the generator and gasometer, and a valve in said pipe, of a bracket carried by the gasometer-bell, a rod projecting downwardly from the bracket and provided with an arm at its lower end, and a chain or cord secured between its ends to an arm of the valve and having its ends secured to the bracket and arm, substantially as described.

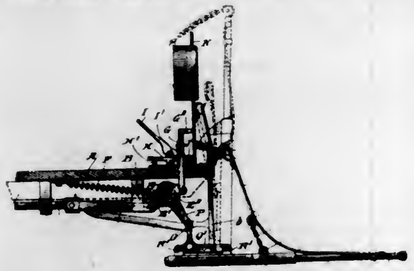
3. In a gas-generator, the combination with a generator, a valved water-supply pipe therefor, a gasometer, a rod carried by the gasometer, and means for operating the said valve from the rod, of a pipe connecting the generator and gasometer, a valve in said pipe, and a chain or cord secured between its ends to the said valve and having its ends secured to the rod and to the support thereof, substantially as described.

4. In a gas-generator, the combination with a generator, a valved water-supply pipe for the generator, a gasometer, and a valved pipe connecting the generator and gasometer, of a lever operatively connected with the valve in the water-supply pipe, a rod carried by the gasometer-bell and provided with a projection, into the path of which the free end of the said lever projects, and a flexible connection between the valve in the pipe connecting the generator and gasometer and the rod and its supporting-bracket, substantially as described.

5. The combination of the generator, having a water-chamber at its bottom, the water-receptacle, the supply-pipe leading from the receptacle to the generator, and extending upwardly therethrough, the upper end of said supply-pipe being open to the atmosphere, said pipe also having an opening within the water-receptacle, and the relief-pipe leading from the water-chamber of the generator to the upper part of the supply-pipe.

6. The combination of the generator, having a water-chamber at its bottom, the water-receptacle, the supply-pipe leading from the receptacle to the generator, and extending upwardly through the receptacle, the upper end of said supply-pipe being open to the atmosphere, said pipe also having an opening within the water-receptacle, and the relief-pipe leading from the water-chamber of the generator to the upper part of the supply-pipe.

663,313. LIFE-GUARD FOR TRAM-CARS. WILLIAM T. WATSON, Victoria, Canada. Filed Aug. 21, 1900. Serial No. 27,622. (No model.)



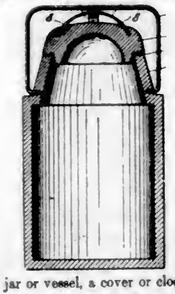
Claim.—1. A car-fender comprising a fender-frame made of a relatively stationary rear section and a front section mounted to slide forward and backward in relation to the rear section, a normally-inclined rear bed the upper end of which is adapted for attachment to the car, while its lower end is at a distance above the rear frame-section, a front bed the rear end of which is hinged to the lower end of the rear bed, while its front end is attached to the sliding front section, thus leaving a clear space below the upper bed immediately in the rear of the rear portion of the front bed, and flexible connections extending from the rear frame-section to the hinge connecting the two beds, at the ends of said hinge so as not to encroach upon the said clear space.

2. The combination of the fender having a frame pivoted to the car, and provided with extensions or arms, rods mounted to slide longitudinally on the car and arranged to engage said arms, a spring-pressed rock-shaft operatively connected with said rods, a rack-bar connected with the shaft and extending through the platform of the car, a holding-pawl engaging said rack-bar, and a foot-lever having lifting engagement with said rack-bar.

3. A car-fender having a U-shaped front member with angular or L-shaped members at the corners thereof, and outwardly-projecting brackets adjacent to said L-shaped members, a tubular rubber cushion seated in said L-shaped members, a threaded rod or wire passing through the cushion and through the brackets, and nuts screwing on the ends of said rod.

4. A car-fender, having a fender-frame comprising a relatively stationary rear section and a spring-pressed, longitudinally-slidable front section, a front bed the front end of which is connected with the front section of the fender-frame, a rear bed the front end of which has a hinge connection with the rear end of the front bed, arms pivoted to the rear frame-section, springs extending rearwardly from the upper ends of said arms to connect them with the car-frame, and flexible connections extending forwardly from said arms to the upper end of the rear bed.

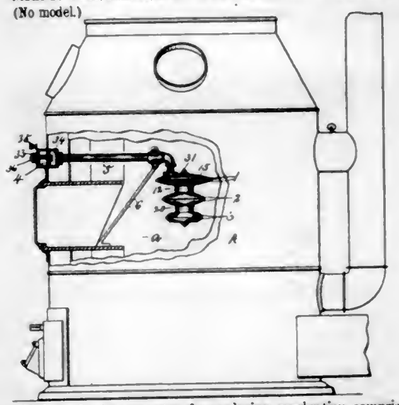
663,314. JAR-CLOSURE. FRANK M. WEIR, Monmouth, Ill. Filed Oct. 11, 1900. Serial No. 32,730. (No model.)



Claim.—1. A jar or vessel, a cover or closure therefor having longitudinally-curved recesses in its upper surface, a curved spring-plate having its ends movably engaging in said recesses, and a bail mounted to swing on the vessel and adapted to engage the said spring-plate, substantially as specified.

2. A jar or vessel, a closure therefor having downwardly and outwardly curved recesses in its upper surface, longitudinally-curved spring-plates having their ends movably engaging in said recesses, said spring-plates being crossed, and a bail having swinging connection with the vessel and adapted to exert downward pressure on said spring-plates when engaging therewith, substantially as specified.

663,315. APPARATUS FOR PRODUCING COMBUSTION. LEONIDAS D. WEST, Dundee, N. Y. Filed Aug. 10, 1900. Serial No. 26,485. (No model.)



Claim.—1. An apparatus for producing combustion comprising a combustion-chamber, and a plurality of air-heating chambers arranged in planes one above the other and communicating with each other, the upper chambers being of greater cross-sectional area than the next adjacent lower chamber, said chambers having openings for receiving and discharging the air as described.

2. In combination with a combustion-chamber, a plurality of hollow lenticular sections detachably secured together and having openings connecting their interior chambers, the upper section being formed with an air-inlet opening communicating with the atmosphere and the lower section being smaller than the upper section and having apertures discharging into the combustion-chamber and means for simultaneously forcing said sections toward each other.

3. In combination with a combustion-chamber, a plurality of hollow

sections arranged in planes one above the other and each comprising oppositely-arranged concavo-convex plates for forming a series of air-chambers communicating with each other, the upper and lower sections being provided with air inlet and discharge openings for the purpose described, said lower section being of less size than the upper section, means for supporting the upper plate of the upper section, and additional means for clamping the remaining plates to each other and to the upper section.

4. In combination with a combustion-chamber, an air-chamber having an opening communicating with the atmosphere, and a plurality of hollow lenticular sections having their interior chambers connected to each other, the upper sections being of greater area than the next adjacent lower section, a conduit connecting the chamber of the upper section with the air-inlet chamber and the lower section being formed with apertures discharging into the combustion-chamber, and means for detachably securing the sections to each other.

5. In combination with a combustion-chamber, a plurality of independent sections of unequal size each comprising oppositely-arranged concavo-convex plates having substantially central apertures alined with each other, a clamping-bolt passed through the apertures and provided with adjustable means for forcing said sections into engagement with each other, the upper section having an inlet-opening communicating with the atmosphere and the lower section being of less size than the upper section and provided with a restricted opening discharging into the combustion-chamber.

6. In combination with a combustion-chamber having an air-inlet, a series of chambers of unequal size, the larger chamber being connected to the inlet and the remaining chambers being gradually diminished in size and connected to the larger chamber by restricted passages, the smaller chamber being nearest the source of heat and discharging into the combustion-chamber.

7. An apparatus for producing combustion comprising a combustion-chamber having a fuel-inlet opening in one of its walls, an air-inlet conduit extending into the combustion-chamber, a hollow air-receiving section connected to the inner end of the conduit and discharging into the combustion-chamber, and a brace adjustably connected to the conduit and provided with downwardly-diverging arms engaged with the walls of the combustion-chamber at opposite sides of the fuel-inlet opening.

8. An apparatus for producing combustion comprising a combustion-chamber, and a plurality of air-heating chambers arranged in planes one above the other and communicating with each other, the upper chambers being of greater cross-sectional area than the next adjacent lower chamber, said chambers having openings for receiving and discharging the air as described, and a diaphragm dividing one of said air-chambers into compartments which communicate with each other.

9. In combination with a combustion-chamber having one of its walls provided with a fuel-inlet, a hollow section composed of separable plates, each provided with inlet and discharge openings for the purpose described, a diaphragm interposed between the plates, an air-inlet conduit connected to the inlet-openings of one of the plates, and a brace adjustably connected to the conduit and provided with diverging arms engaged with the walls of the combustion-chamber at opposite sides of the fuel-inlet.

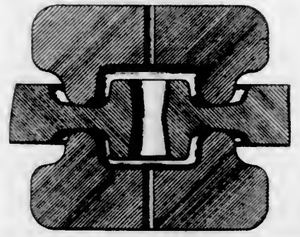
663,316. AWNING FOR MINE SHAFTS OR TUNNELS. BENJAMIN R. WHEELER, Apex, Colo. Filed July 2, 1900. Serial No. 22,235. (No model.)



Claim.—1. The improved awning for averting drip in mines and tunnels, the same comprising two sets of telescopic tubes, each tube having a pointed outer end, screws for clamping the tubes of each set on each other, and the awning proper, having hems at opposite edges, to receive said tubes, as shown and described.

2. The improved awning for use as specified, the same comprising two sets of extensible supports, each consisting of two parallel parts adapted to slide lengthwise on each other, means for clamping the said parts in any adjustment, and the awning proper, applied to the two sets of supports on opposite sides, whereby the apparatus is adapted to be secured transversely in mines or tunnels having walls at different distances apart, as shown and described.

663,317. METHOD OF MANUFACTURING CAR-WHEELS. FRANK A. WHEELER, Pittsburg, Pa. Filed Nov. 22, 1899. Serial No. 737,906. (No model.)



Claim.—1. The herein-described method for manufacturing car-wheels, consisting of first forging an ingot into a car-wheel bloom or blank having a web portion increasing in thickness from the periphery of a hub portion to its union with a rim portion, second muffling the hub and heating the rim and thicker portion of the web to a working heat, third entirely rolling said car-wheel blank into a car-wheel, and fourth suitably tempering or annealing said wheel.

2. The herein-described method for manufacturing car-wheels which consists in forging from a suitable ingot a car-wheel bloom or blank formed with an integral hub, web and rim portions, the said rim and web portions being of an unequal thickness throughout, suitably muffling the hub and reheating said web and rim portions, and then simultaneously rolling said web to an equal thickness throughout and the said rim to a desired thickness with the periphery thereof formed with a tread and a circumferential flange.

3. The herein-described method for manufacturing car-wheels which consists in first forging from a suitable ingot a car-wheel bloom or blank formed with an integral hub, web and rim portions, said web and rim portions increasing in thickness from said hub portion, second muffling the hub and thinner portion of the web and suitably reheating the thicker portion of said web and the entire rim portion, and third simultaneously rolling said web to an equal thickness throughout, said rim to a desired thickness and the periphery of said rim into a tread and flange.

4. The herein-described method of manufacturing car-wheels which consists in first, forging from a suitable ingot a car-wheel bloom or blank formed with an integral web, rim and hub portions in such a manner that the web and rim portions increase in thickness from the hub portion outwardly; second, muffling the hub and thinner portion of the web of said bloom or blank; third, reheating the thicker portion of said web and entire rim; fourth, placing said reheated bloom or blank on its edge in a mill, and fifth, simultaneously rolling said web to an equal thickness throughout and the said rim to the desired thickness with its periphery into a tread and flange.

663,318. FINGER-GUARD BAR FOR HEADERS OR HARVESTERS. GLENN T. WILLIS, Fresno, Cal., assignor to James Porteous, same place. Filed Apr. 30, 1900. Serial No. 14,883. (No model.)

Claim.—1. In a header or harvester, having a center-drive, cutter-operating pitman, a finger-guard bar, having its whole cross-section dropped at its middle portion, whereby the pitman can pass above said portion, without interference.

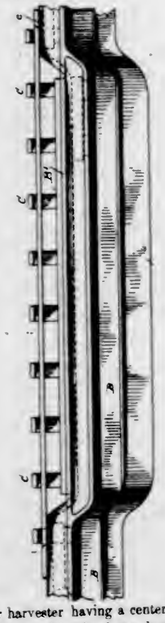
2. In a header or harvester, having a center-drive, cutter-operating pitman, an angle steel finger-guard bar, having its whole cross-section dropped at its middle portion, and adapted to permit the pitman to pass over said portion, without interference.

3. In a header or harvester, having a center-drive, cutter-operating pitman, an angle finger-guard bar, having its cross-section, at its middle portion, modified by dropping its top plate, and by pressing forward the upper portion of its leg, said modified cross-section being adapted to permit the pitman to pass over it, without interference.

4. In a header or harvester, having a center-drive, cutter-operating pitman, an angle steel finger-guard bar, and an angle steel strengthening-bar secured to its back, both bars having a dropped cross-section, at their middle portion, adapted to permit the pitman to pass over said bars, without interference.

5. In a header or harvester, having a center-drive, cutter-operating pitman, an angle steel finger-guard bar, and an angle steel strengthening-bar secured to its back, both bars having a dropped cross-section at their

middle portion, adapted to permit the pitman to pass over said bars, without interference, in combination with a supplementary bar bridging the dropped section of the angle steel stiffening-bar, and a draper traveling on said stiffening-bar and supplementary bar.



6. In a header or harvester having a center-drive, cutter-operating pitman, an angled finger-guard bar having a dropped cross-section at its middle portion, adapted to permit the pitman to pass above it without interference, and finger-guard sections having stems secured to the top plate of said finger-guard bar, the stems of the middle finger-guard sections being dropped, to conform to the dropped cross-section of the finger-guard bar.

7. In a header or harvester, the combination of the angled finger-guard bar, having its middle cross-section modified by dropping its top plate and pressing forward the upper portion of its leg, finger-guard sections having stems secured to the top plate of the finger-guard bar, the stems of the middle sections being dropped to conform to the dropped top plate of the finger-guard bar, a cutter in the finger-guards, and a center-drive pitman having its forward end bent up behind said modified section of the finger-guard bar and over its top plate and connected with the cutter.

8. In a header or harvester, the combination of the angled finger-guard bar, having its middle cross-section modified by dropping its top plate and pressing forward the upper portion of its leg, finger-guard sections having stems secured to the top plate of the finger-guard bar, the stems of the middle sections being dropped to conform to the dropped top plate of the finger-guard bar, a cutter in the finger-guards, a center-drive pitman having its forward end bent up behind said modified section of the finger-guard bar and over its top plate and connected with the cutter, an angle steel strengthening-bar secured to the back of the finger-guard bar, and having a dropped middle section, lying under the pitman, a supplementary bar bridging the dropped middle section of the strengthening-bar, and lying over the pitman, and a draper traveling on said strengthening and supplementary bars.

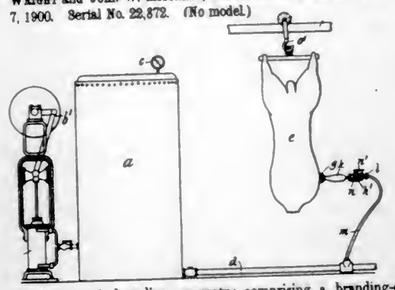
663,319. **NECKTIE-RETAINER.** THEODORE S. WOLF, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,236. (No model.)



Claim.—1. A necktie-retainer, consisting of a blank bent upon itself to form a rear receiving member having its lower end bifurcated, a forward locking member, the lower portion of which is opposite the opening in the bottom portion of the receiving member, cheek-sections which extend from the side portions of the receiving member to the side portions of the locking member, the said cheek-sections having forward spur extensions, and a third forwardly-projecting spur extension formed at the upper portion of the locking member, as described.

2. A necktie-retainer constructed from a single blank, the material of which blank is bent upon itself to form a vertical rear receiving member, the lower end of which member is bifurcated and is given a forward curvature, the said meterial being further bent upon itself to form an upper section and thence downward, forming a front locking member which extends substantially to the bottom portion of the rear receiving member, the locking member being curved at its lower portion in direction of the bifurcated portion of the receiving member, closely approaching said portion, the lower extremity of the locking member having an upward and forward inclination, and the material at the upper portion of the locking member being struck outward, forming a horizontal, forwardly-extending spur, the material at the side portions of the receiving member being carried forward, forming cheek-sections which extend to the side portions of the locking member, said cheek-sections being provided with forwardly-extending spur extensions and with shoulders above and below the said spur extensions, for the purpose specified.

663,320. **APPARATUS FOR BRANDING OR TATTOOING.** JOHN WRIGHT and JOHN W. MITCHELL, Dunedin, New Zealand. Filed July 7, 1900. Serial No. 22,872. (No model.)



Claim.—1. A branding apparatus comprising a branding-stamp forming a vacuum-chamber, and means communicating therewith to form a vacuum therein and means for destroying said vacuum.

2. In a branding apparatus, in combination, a branding-stamp forming a vacuum-chamber, a handle carrying the same having a conduit leading through the same, communicating with said chamber, a pipe forming a continuation of the same leading to an apparatus for causing a vacuum and a two-way valve arranged in said pipe adapted to open communication between said apparatus and stamp to form a vacuum in the latter or to close communication between the same and open communication between said stamp and the atmosphere to break said vacuum, substantially as described.

663,321. **BUTTON AND BUTTON-FASTENER.** ANDREW ALLGIER, Grand Rapids, Mich. Filed Nov. 12, 1896. Serial No. 611,860. (No model.)



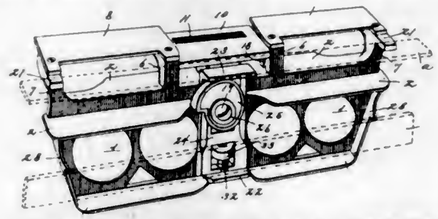
Claim.—1. A button-fastener consisting of a disk of flexible material, having a bead on its edge to protect the fabric from injury by the base of the button, and a central orifice adapted to be engaged by the shank of the button having a flanged base thereon, substantially as described.

2. An article of manufacture, comprising a button having a head A, provided with a hollow depending shank *a*, a flanged base B, provided with a hollow shank *b*, and a flexible detachable fastener E, having a central orifice *e*, and provided with a depending bead *e'* on its outer edge to secure the button to the garment and protect the fabric from injury by the base, substantially as described.

3. The combination, with a garment-button, of a flexible and detachable fastener to pass over the base of the button and rest between the base and the fabric, and hooks or similar appliance attached to said fastener for securing it to the fabric of the garment, substantially as and for the purpose set forth.

663,322. **COMBINED SAW JOINTER AND GAGE.** GUSTAF Y. ANDERSON, Dyea, Alaska. Filed July 20, 1899. Serial No. 724,519. (No model.)

Claim.—1. In a saw-gage, in combination, a frame having a series of posts presenting a horizontal line of bearings with spaces between the outer posts, a gage-plate embracing flanges on the inner posts and having its top face dressed in a true line with said bearings and provided with a long, round shaft extending through a drilled opening in the enlarged portion of the frame in which it fits snugly so as to produce a true up-and-down movement, an adjusting-screw inserted through a threaded opening in the lower part of the frame, and bearing against the end of the shank and capable of adjustment independently of any other part of the device, and a binding-screw extending through the frame at a right angle to the shank for holding the latter fast, substantially as described.

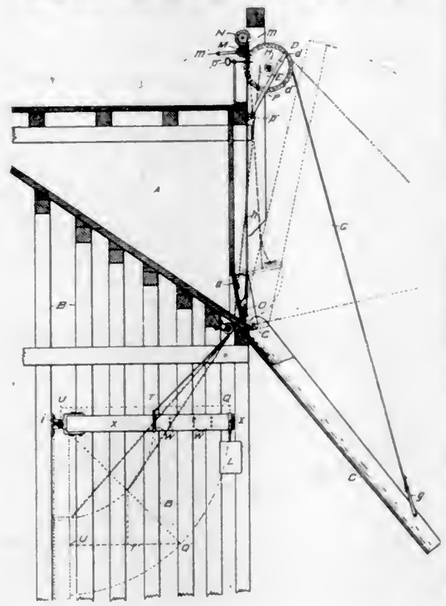


2. In a saw-gage, in combination, a frame, a series of posts forming a horizontal line of bearings, a gage-plate and means for adjusting the same, and independent sets of plates presenting a hard and smooth surface throughout their entire length and forming a sectional straight-edge beneath which are left spaces through which the points of the cutting-teeth can be simultaneously viewed, substantially as described.

3. In a combined gage, straight-edge and jointer, in combination, a frame, a series of posts presenting a true line of bearings for the plates secured thereon, and forming a straight-edge in which spaces are left through which the cutting-teeth may be simultaneously viewed, a gage-plate having a round shank extending through a correspondingly-shaped opening in the frame, an adjusting-screw having a collar working in a groove near the lower edge of the frame, a laterally-projecting lug on the frame above the plane of said groove, a clamp or slide embracing said lug and having file rests or projections extending at right angles thereto at its upper and lower ends, and a cam for operating and holding said clamp or slide, substantially as described.

4. In a saw-jointer, in combination, a frame provided with laterally-projecting lugs 20 and 33, a file-clamp having two slots divided by a cross-bar, a set-screw 19 passing through one of the slots of the file-clamp into the lug 20 for holding the file-clamp in its place, and means for operating the file-clamp up and down, substantially as described.

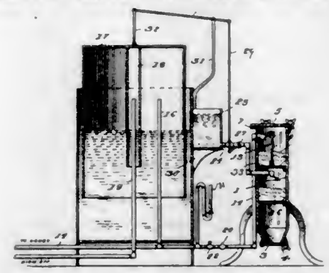
663,323. **COUNTERBALANCED CHUTE.** LOUIS J. ANDERSON, Escanaba, Mich. Filed July 16, 1900. Serial No. 23,848. (No model.)



Claim.—1. In mechanisms of the class described the combination of the counterweight-lever X pivotally secured at *i* and having provisions for the attachment of a flat cable *h* at different points W, the said cable, the drum H, the cable G, drum D and chute C, substantially as shown and described for the purpose specified.

2. In mechanisms of the class described, the combination of the drum N, line V, with two strands of different lengths, door *a*, the T-shaped lock-lever pivoted at its T end, lock-bolts F F, the two strands of the line being attached respectively to the door and to the lever O, substantially as shown and described for the purpose specified.

668,324. **ACETYLENE-GAS GENERATOR.** WILL F. ANSON, Camden, N. Y. Filed Feb. 5, 1900. Serial No. 4,139. (No model.)



Claim.—1. In an acetylene-gas generator, the combination, with a generator, of two grates therein, the upper one of which is perforated and pivotally secured, a water-pipe having its delivery end located between said grates and a gas-outlet pipe leading from the generator above the upper grate, substantially as described.

2. In an acetylene-gas generator, the combination, with a vertical cylinder, each end of which is open and the interior is provided with two sets of supports, means for closing each end of the cylinder, a perforated grate upon each of said supports, the upper grate being pivotally mounted and provided with a handle, the water-tank having its discharge end located between said grates and the gas-outlet leading from the generator above the upper grate, substantially as described.

663,325. **CHUCK.** JAMES BLAMIRE, Parsons, Pa. Filed Feb. 10, 1900. Serial No. 4,784. (No model.)



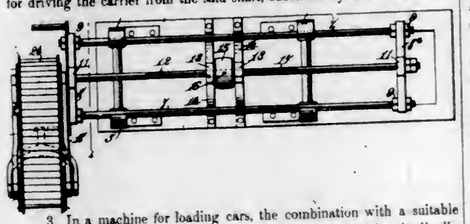
Claim.—1. In a machine for turning cranked axles, the combination with a cylindrical sleeve, each end of which is conical and slotted longitudinally, a slotted chuck upon each end provided with radially-located jaws, the inner portion of each jaw being angular in cross-section and the outer portion being cylindrical and screw-threaded and means for rotating said sleeve, substantially as described.

2. In a machine for turning cranked axles, the combination, with a cylindrical sleeve, each end of which is conical and slotted longitudinally, of a slotted chuck on each end, provided with radially-located jaws, the inner portion of each jaw being angular in cross-section and having its inner end provided with a head and its outer end provided with a slotted recess, and the outer end of the jaw being cylindrical and screw-threaded, a screw in the recess in the inner portion of the jaw, the stem of which engages with the inner end of the outer portion of the jaw, and means for rotating the sleeve, substantially as described.

663,326. **MACHINE FOR LOADING RAILWAY-CARS.** JAMES L. BRANNON, FOGG, WILLIAM G. DAVIS, Nashville, and STANLEY C. BROOK, Centreville, Tenn., administrator of William B. Comer, deceased. Filed Aug. 18, 1900. Serial No. 27,271. (No model.)

Claim.—1. In a machine for loading cars, the combination with a longitudinally-movable frame adapted to be projected transversely over the floor of a car, of an endless carrier arranged at right angles to the frame and pivotally supported at one end on the end of said frame, said carrier being arranged to be swung in a vertical plane about its pivotal support as a center to either side of the frame to discharge alternately on opposite sides of the frame, and means for driving the endless carrier, substantially as described.

2. In a machine for loading cars, the combination with a suitable bed or base, of a frame mounted on said bed or base and longitudinally movable thereon, a shaft journaled longitudinally in bearings carried by said frame, means for driving said shaft, a frame arranged at a right angle to said sliding frame and pivotally supported at one end on the end of said shaft, an endless carrier mounted on the pivoted frame, and means for driving the carrier from the said shaft, substantially as described.



3. In a machine for loading cars, the combination with a suitable bed or base, of a frame mounted on said bed or base and longitudinally movable thereon, a shaft journaled longitudinally in bearings carried by said frame, a drive-pulley splined on said shaft, means for preventing the drive-pulley from moving on the shaft longitudinally, an endless carrier mounted at one end on the end of said shaft, and means for driving the carrier from the shaft, substantially as described.

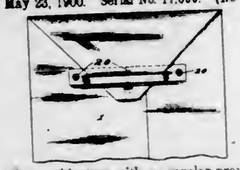
4. In a machine for loading cars, the combination with a suitable bed or base, of a frame longitudinally movable on said bed or base, a shaft journaled longitudinally in bearings carried by said frame and movable with the latter, a drive-pulley splined on the shaft, stationary bearings disposed on opposite sides of the drive-pulley in which the shaft is journaled, an endless carrier mounted at one end on the end of said shaft, and means for driving the carrier from the shaft, substantially as described.

5. In a machine for loading cars, the combination with a suitable bed or base, of a frame longitudinally movable on the bed or base, a shaft journaled longitudinally in bearings carried by said frame, means for driving the shaft, a frame pivotally mounted at one end on the end of said shaft, a drum or pulley fixed on the end of said shaft, a corresponding drum or pulley mounted in the free end of the pivoted frame, and an endless carrier arranged on said drums or pulleys, substantially as described.

6. In a machine for loading cars, the combination with a suitable bed or base, of a frame longitudinally movable on the bed or base, a shaft journaled longitudinally in bearings carried by said frame and movable with the latter, means for driving the shaft, a frame pivotally mounted at one end on the end of said shaft, a drum or pulley fixed on the end of the shaft, a corresponding drum or pulley journaled at the free end of the pivoted frame, an endless carrier arranged on the drums or pulleys, a yoke pivotally mounted on the free end of the pivoted frame and provided with a forked lug, and a bracket fixed on the end of the sliding frame and provided at its opposite ends with projecting pins or rods adapted to be engaged by said forked lug to support the free end of the pivoted carrier-frame, substantially as described.

7. In a machine for loading cars, the combination with a bed or base provided with uprights or standards arranged in pairs and provided with overhanging hook-shaped upper ends, of rollers journaled in said standards beneath the hook-shaped ends, a longitudinally-movable frame comprising two parallel rods supported on the rollers beneath the hook-shaped ends of the standards and united at their ends by cross-bars, a shaft journaled in said cross-bars, means for driving the shaft, and an endless carrier mounted on the end of and driven by said shaft, substantially as described.

663,327. **ENVELOP AND ENVELOP-FASTENER.** WILLIAM O. BROWN, Jr., Toledo, Ohio, assignor of one-half to J. H. Harvey, same place. Filed May 23, 1900. Serial No. 17,699. (No model.)



Claim.—1. The combination with an envelop provided with a flap, of a fastener consisting of a separate member secured to the body of the envelop provided with a slit and detent, and means upon the flap for engaging the detent after the end of the flap is passed through the slit.

2. The combination with a square-cut envelop folded to form a flap, of a fastener secured to the body of the envelop, provided with a slit and a detent, and means for engaging the flap after the end of the body part thereof is passed through the slit, substantially as set forth.

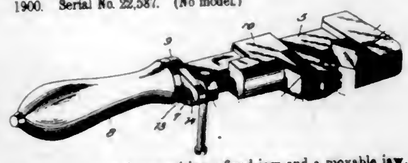
3. The combination with a square-cut envelop provided with a perforation near its upper end and folded to form a flap, of a fastener secured to the body of the envelop and provided with a slit and detent, the detent being adapted to enter the perforation in the flap and secure the same after the end of the body part of the flap is passed through the slit, substantially as set forth.

4. As a new article of manufacture an envelop-fastener consisting of a strip adapted to be secured to an envelop, and provided with a detent upon one side thereof, extending substantially in the plane of the strip.

5. An envelop-fastener consisting of a strip adapted to be secured to an envelop, and provided with a single longitudinal slit, and a detent upon one side thereof, substantially as set forth.

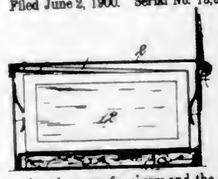
6. An envelop-fastener consisting of a slitted strip adapted to be secured to an envelop, and a raised strip defined by the slit therein, and a detent upon the outer edge of the raised strip, substantially as set forth.

663,328. **WRENCH.** ROY CARTER, Bull Run, Va. Filed July 5, 1900. Serial No. 22,587. (No model.)



Claim.—A wrench comprising a fixed jaw and a movable jaw, one of said jaws having a longitudinal rib extending in the direction of the other jaw and forming shoulders at the sides of the rib, said rib having a transverse recess intermediate of its ends, and a supplemental jaw adapted to fit upon the ribbed jaw, the supplemental jaw having a longitudinal slot to receive the rib and having a block within its slot to enter the recess of the rib and prevent outward displacement of the supplemental jaw.

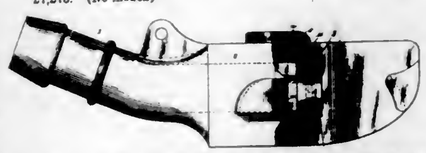
663,329. **MOISTENING-CASE FOR CIGARS.** JOHN T. DAVEY, Ashland, Wis. Filed June 2, 1900. Serial No. 18,850. (No model.)



Claim.—1. A moistening-case for cigars and the like, having an imperforate hinged cover, moistening means in the bottom of said case outside the cigar-box contained therein, and a pivoted turn-button on said cover for retaining the lid of the cigar-box contained within said casing in a partially-open position when said cover is closed and for moving said lid with said cover when the latter is opened, as and for the purpose set forth.

2. In a moistening-case for cigars and the like, the combination with a perforated false bottom having supporting side flanges thereon, and having a mass of absorbent material beneath the same, and a spring-actuated imperforate cover for said case, of springs secured to the inner surfaces of the sides of said case adapted to engage and retain in place a cigar-box of smaller dimensions than said case and to provide a space around said box, and a pivotally-mounted catch on the inner surface of said cover adapted to engage the lid of said cigar-box for holding said lid in a partially-open position when said cover is closed and for moving said lid with it when said cover is opened.

663,330. **GASKET AND GASKET-SECURING MECHANISM.** ROBERT M. DIXON, East Orange, N. J. Filed Aug. 18, 1900. Serial No. 27,273. (No model.)



Claim.—1. The combination with a gasket-seat-containing member, and a gasket, of an inclined wall, in the containing member, surrounding the gasket, and a resilient ring in direct contact with and confined by said wall, and adapted to hold the gasket in place.

2. The combination with a gasket-seat-containing member said gasket-seat comprising an annular recess and a second recess concentric with the first and defined by an inclined wall, of a gasket provided with an annular flange seated within the first-named recess and a resilient ring seated within the second recess against its inclined wall and the flange of the gasket respectively.

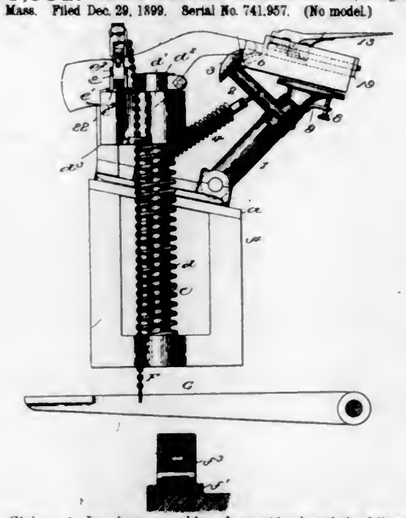
3. The combination with a gasket-seat-containing member said seat comprising an annular recess and a corresponding recess defined by an inclined wall, of a gasket provided with a flange seated within the first-named recess, and a resilient ring confined between the inclined wall and the flange of the gasket and urged by the resiliency of the latter against the former.

4. The combination with a gasket-seat-containing member adapted to receive a gasket and its retaining-ring, of niches in the wall which defines the gasket-seat adapted to expose the ring therein substantially for the purpose specified.

5. The combination with a gasket made of yielding material, of a metallic armor-plate secured to the gasket and adapted to protect the face thereof, substantially as set forth.

6. The combination with a gasket-seat-containing member comprising an annular recess and a corresponding recess defined by an inclined wall, of a gasket having a flange seated in the first-named recess, an armor-cap upon the gasket provided with the flange seated upon the gasket-flange, and a resilient ring confined between the inclined wall and the flanges of the cap and gasket.

663,331. **LASTING-MACHINE.** HORACE H. DONOVAN, Abington, Mass. Filed Dec. 29, 1899. Serial No. 741,957. (No model.)



Claim.—1. In a lasting-machine, the combination of the following instrumentalities: a toe-rest, a pivoted support therefor, a gripping device, for engaging the toe of the vamp, mounted on said support, a guideway for such device, also mounted on said support, and means for adjusting the position of the gripping device on its support independent of its movements in the guideway, as set forth.

2. In a lasting-machine, the combination of the following instrumentalities: a toe-rest, a pivoted support therefor, a gripping device, for engaging the toe of the vamp, mounted on said support, a guideway for such device, also mounted on said support, a spring exerting a pull on said device in line with the toe of a last, and means for adjusting the position of the gripping device independent of its movements in the guideway, as set forth.

3. In a lasting-machine, the combination of the following instrumentalities: a toe-rest, a pivoted support therefor, a gripping device, for engaging the toe of the vamp, mounted on said support, a guideway for said device, also mounted on said support, a stop to limit the movement of the device in one direction, a spring adapted to exert a pull on said device longitudinally of its movement, and means for adjusting the position of the gripping device independent of its movements in the guideway, substantially as set forth.

4. A lasting-machine having a pivoted arm, a toe-rest carried by said arm, a box pivotally mounted on said arm, and a gripping device mounted on said box for engaging the toe of the vamp and movable on a straight line therewith, as set forth.

5. A lasting-machine having a pivoted arm provided with a toe-rest, a box adjustably mounted on said arm, a gripping device on said box movable on a straight line with the toe, said device being composed of a spring-held sliding jaw, a pivoted jaw, and a spring acting on the latter, substantially as set forth.

6. In a lasting-machine, means disposed on opposite sides of a last for engaging the vamp at the shank of a shoe, and adapted to be swung toward such shank and in the direction of the toe, yielding supports for such means, and means for simultaneously depressing said supports and moving the engaging means downward and forward, as set forth.

7. In a lasting-machine, means disposed on opposite sides of a last for engaging the vamp at the shank of a shoe, laterally-movable yielding-held supports for moving said engaging means toward the toe of the last, and means for holding said supports after engagement is had with the vamp.

8. In a lasting-machine, means for engaging the vamp at the shank of a shoe, yieldingly-supported axially-mounted boxes carrying such means, said boxes being adapted to move laterally toward and away from the last, and means for simultaneously depressing said boxes and throwing said engaging means inwardly and forwardly, substantially as set forth.

9. In a lasting-machine, yieldingly-supported axially-mounted boxes adapted to be swung laterally toward and away from the last, means mounted on such boxes for engaging the vamp at the shank of a shoe, and means for simultaneously holding the boxes depressed and throwing the engaging means inwardly and toward the toe of the last, substantially as set forth.

10. A lasting-machine having axially-mounted boxes adapted to be swung laterally toward and away from the last, springs supporting said boxes, means carried by the latter for engaging and binding the vamp of a shoe at the shank, a treadle, connections between it and the boxes for depressing the latter and moving the engaging means inwardly and forwardly, and means whereby the engaging means has a limited movement toward the last independent of the boxes, substantially as set forth.

11. A lasting-machine having upright rods, springs on said rods, boxes supported by said springs adapted to be moved laterally, mechanism on said boxes movable toward, and designed to engage with the shank of a shoe, a treadle, or the like, and chains connected thereto for holding said boxes depressed as against the tension of their springs, substantially as set forth.

12. In a lasting-machine, oppositely-disposed pincers for engaging the vamp at the shank of a shoe, adapted to be moved horizontally toward such shank, yielding supports for said pincers, and means for simultaneously depressing said supports and holding the pincers after they engage the vamp.

13. In a lasting-machine, yieldingly-supported boxes adapted to be moved laterally, pincers mounted on such boxes for engaging the vamp at the shank of a shoe, and means for holding the pincers after they engage the vamp.

14. A lasting-machine having upright rods, springs thereon, boxes on said rods adapted to be moved laterally, and supported by said springs, pincers pivotally mounted on the boxes for engaging the vamp at the shank of a shoe, and means for depressing and holding the boxes, substantially as set forth.

15. A lasting-machine having yieldingly-supported laterally-movable boxes, pincers for engaging the vamp at the shank of a shoe, supports for the pincers pivoted on the boxes, and means for depressing and holding the boxes, substantially as set forth.

16. A lasting-machine having yieldingly-supported laterally-movable boxes, pincers for engaging the vamp at the shank of a shoe, and supports for the pincers pivoted to the boxes at one end and to which the pincers are pivoted, and means for holding the boxes and pincers depressed, as set forth.

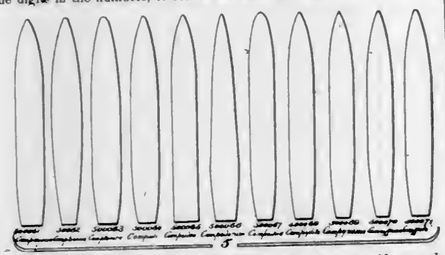
17. The combination with the upright rods and the springs thereon, of the boxes mounted on said rods, pincers for engaging the vamp at the shank of a shoe, rollers having arms to which said pincers are pivotally connected, plates pivoted to the boxes supporting the rollers, chains connected to the pincers, and a treadle to which said chains are secured, substantially as set forth.

663,332. **ORDERING BOOK OR CARD FOR CIGAR-MOLDS.** ERNEST F. DU BRUL, Cincinnati, Ohio, assignor to the Miller, Du Brul & Peters Manufacturing Company, same place. Filed July 31, 1900. Serial No. 25,435. (No model.)

Claim.—1. A book or card having means designating cigar-molds of varying dimensions and shapes, the same consisting in a series of numbers respectively applied to the definite shapes of cigars, produced by the several molds, and each number expressed by a plurality of digits, the digit or digits forming one end of the number being expressive of the style or shape of the cigar produced by the mold.

2. A book or card having means designating cigar-molds producing cigars of varying shapes and sizes, consisting of a series of numbers, re-

spectively applied to the specific shapes produced by the several molds, and the numbers being expressed by a uniform number of digits of which the digits forming the ends of the numbers respectively express dimension and style, and naughts or ciphers being employed intermediate of the digits in the numbers, to render the numbers uniform.



3. A book or card having means for designating cigar-molds according to the dimensions and shapes of the cigars which they produce the same consisting of a series of numbers composed of a uniform number of digits, of which the digits forming the left-hand end of the number designate in inches and fractions of an inch the lengths of the cigars produced by the molds, and the digits forming the right-hand end being arbitrarily selected to designate styles or shapes produced by the molds, and intermediate ciphers or naughts being employed to render the numbers uniform and give space for substitution of digits to designate the variations in size and style.

4. A book or card having means for designating cigar-molds according to dimensions and shapes of the cigars which said molds produce, the same consisting in a series of numbers composed of a uniform number of digits, of which the first digit is the integer or whole number of the cigar's longitudinal dimension and the second and third digits are respectively the numerator and denominator of the fractional part of said dimension while the digit or digits at the opposite end of the number designate the style of mold; substantially as herein set forth.

5. A book or card having means for designating cigar-molds according to dimensions and shapes of the cigars which said molds produce, the same consisting in a series of numbers composed of a uniform number of digits, of which the first digit is the integer or whole number of the cigar's longitudinal dimension and the second and third digits are respectively the numerator and denominator of the fractional part of said dimension while the digit or digits at the opposite end of the number designate the style of mold; the varying shapes being grouped according to size and the groups being indexed by numbers expressive of the size.

663,333. **FINDER FOR FIREARMS.** ELVA J. DURYEA, Dawson, Nebr. Filed Jan. 19, 1900. Serial No. 2,043. (No model.)



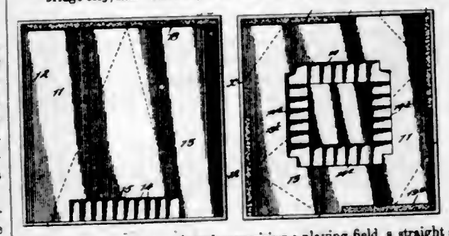
Claim.—1. A finder comprising a casing having an opening provided with a lens, a partition in the casing, an electric lamp engaged with the partition, a plate mounted upon the casing and insulated therefrom, said plate having a spring-finger in contact with a terminal of the lamp, a contact portion upon the plate, a reciprocatory rod adapted for contact with said contact portion, and a source of electricity electrically connected with the lamp and with the reciprocatory rod.

2. A finder comprising a cylindrical casing having an open end, a perforated cap upon the open end of the casing, a lens clamped between the end of the casing and the cap, a partition within the casing and insulated therefrom, an electric lamp engaged with the partition and adapted to throw its rays through the lens, a source of electricity having one end connected with the partition, a rod slidably mounted upon the casing and electrically connected with the second terminal of the source of electricity, a plate mounted upon the casing and insulated therefrom, said plate having a contact portion adapted for contact by the push-rod, and a finger upon the plate in contact with a terminal of the lamp.

3. A finder comprising a casing having an opening provided with a lens, a partition in the casing, an electric lamp engaged with the partition, a plate mounted upon the casing and insulated therefrom, said plate having a spring-finger in contact with a terminal of the lamp, a contact portion upon the plate, a reciprocatory rod adapted for contact with said contact portion, and a source of electricity within the casing and electrically connected with the lamp and the reciprocatory rod.

4. A finder comprising a cylindrical casing having an open end, a perforated cap upon the open end of the casing, a lens clamped between the end of the casing and the cap, a partition within the casing and insulated therefrom, an electric lamp engaged with the partition and adapted to throw its rays through the lens, a source of electricity within the casing and having one terminal connected with the partition, a rod slidably mounted upon the casing and electrically connected with the second terminal of the source of electricity, a plate mounted upon the casing and insulated therefrom, said plate having a contact portion adapted for contact by the push-rod, and a finger upon the plate in contact with a terminal of the lamp.

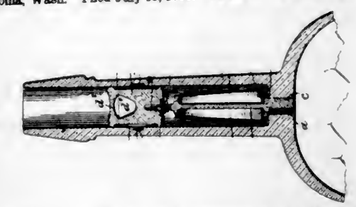
663,334. **GAME APPARATUS.** ALBERT M. DUTTWEILER, Cambridge City, Ind. Filed Sept. 23, 1899. Serial No. 731,442. (No model.)



Claim.—1. A game-board comprising a playing-field, a straight series of stalls arranged within the field near the center thereof and spaced from the edges of the same, carom-surfaces arranged at an angle to each other, one of the carom-surfaces being disposed opposite the stalls and in parallelism therewith and arbitrary starting-points offset from the entrances of the stalls, whereby two players may simultaneously project movable objects into the said stalls, substantially as described.

2. A game-board comprising a playing-field, the series of straight stalls located near the center of the field in the form of a rectangle and spaced from the edges of the field, the carom-surfaces arranged at an angle to each other and facing the entrances to the stalls and being in parallelism therewith, and a series of arbitrary starting-points offset from the entrances to the stalls and located at different points on the field, whereby a number of players may simultaneously project movable objects into the stalls, substantially as described.

663,335. **NON-REFILLABLE BOTTLE.** JAMES A. FOSTER, Tacoma, Wash. Filed July 13, 1899. Serial No. 723,744. (No model.)



Claim.—1. In a bottle, the combination of a valve, a guard, and fastening means securing the guard to the bottle, the guard being readily frangible to give access to the fastening means, substantially as and for the purpose described.

2. In a bottle, the combination of a valve, a guard, fastening means securing the guard to the bottle, and a frangible barrier adjacent to the fastening means, by whose breakage access to the latter is afforded, substantially as and for the purpose described.

3. In a bottle, the combination of a valve, a guard, and fastening means securing the guard to the bottle, the guard having a cavity forming a thin frangible wall adjacent to the fastening means substantially as and for the purpose described.

4. In a bottle, the combination of a valve, a guard, and fastening means securing the guard to the bottle, the guard having a part closing a passage by which the fastening means can be removed, such part being connected to the guard by thin, readily-frangible walls, and being capable of engagement through the neck of the bottle, substantially as and for the purpose described.

5. In a bottle, the combination of a valve, a guard, and fastening

means securing the guard to the bottle, the guard having a bar whose ends close passages by which the fastening means can be removed, such bar being connected to the guard by thin, readily-frangible walls, and having a space formed thereunder, whereby it can be engaged by a hook inserted in the neck of the bottle, substantially as and for the purpose described.

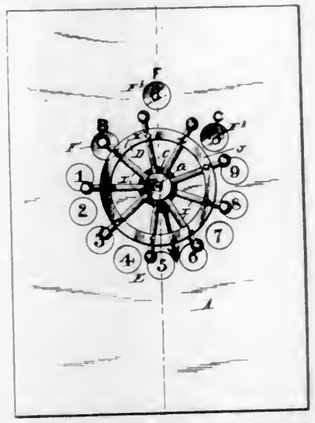
6. In a bottle, the combination of a valve, a cup attached to the valve with its open end directed toward said valve, a spring tending to seat the valve, and a guard, substantially as and for the purpose described.

7. In a bottle, the combination of a valve, a cup attached to the valve with its open end adjacent to and partly closed by said valve, a spring tending to seat the valve, and a guard, substantially as and for the purpose described.

8. In a bottle, the combination of a valve, a cup attached to the valve, such cup having its end adjacent to and partly closed by said valve and having its lip close to the valve-seat when the valve is closed, a spring tending to close the valve, and a guard, substantially as and for the purpose described.

9. In a bottle, the combination of a valve, a cup attached to the valve with its open end adjacent to the valve, a guard, a valve-stem entering an opening in the guard, and a spring between the guard and the closed end of the cup, substantially as and for the purpose described.

663,336. **GAME-BOARD.** ANNIE C. FULD, Baltimore, Md. Filed Apr. 13, 1900. Serial No. 12,707. (No model.)



Claim.—The combination of a disk keyed to a shaft journaled in a board and bearing several concentric series of numbers, said board having a sight-opening therein for each of said series of numbers, and an operating-wheel keyed to said shaft and fitted with spokes which serve as pointers and having a series of numbers thereon corresponding to said spokes.

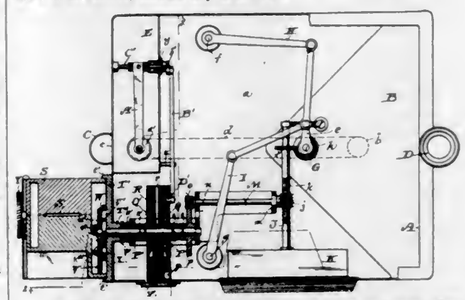
663,337. **HYDRAULIC MOTOR.** GEORGE F. GEMMILL, York, Pa. Filed May 12, 1900. Serial No. 16,455. (No model.)



Claim.—In hydraulic motors, a combination which consists of hollow shaft and two blade parts lying in portions of two planes oblique to shaft's axis and to each other, their extremities in the same transverse planes, their inner edges in or near a longitudinal plane passing through axis of shaft and outer edges fixed to shaft.

663,338. **PREPAYMENT VENDING APPLIANCE.** SHELDON J. GLASS, Milwaukee, Wis. Filed Aug. 7, 1897. Serial No. 647,483. (No model.)

Claim.—1. In a prepayment vending appliance, the combination with a cam-wheel having a cam-groove on one side thereof, a pair of spindles arranged end to end, one of which spindles passes loosely through the hub of said cam-wheel, a pair of bevel gear-wheels, one arranged on each side of said hub, and each wheel fast on one of said spindles, a pin or journal extending through the periphery of said cam-wheel into the hub thereof, a bevel-pinion loose on said pin and in mesh with the opposing faces of the said bevel gear-wheels, a coin-controlled actuating-wheel fast on the outer end of one of said spindles, a gear-wheel fast on the outer end of the other of said spindles, a shaft having a pinion at one end in mesh with the last-named gear-wheel, and a worm-wheel at the other end thereof, a revolving spindle carrying a worm in engagement with said worm-wheel, and a connecting-rod carrying a roller at one end adapted to travel within the cam-groove of the cam-wheel, and connected at its other end to the mechanism for opening and closing the supply-valve of the device, substantially as set forth.



2. In a prepayment gas-meter, the combination with a closed chamber arranged above the meter-floor, a gas-inlet pipe in communication with said chamber, a vertical pipe within the said chamber in communication with the valve-chamber of the meter, a rock-shaft within said closed chamber, and projecting therethrough, an arm secured at one end to said rock-shaft within said chamber and carrying a valve at its other end adapted to close or open the mouth of said vertical pipe, a cam-wheel having a cam-groove in one side thereof, a connecting-rod having a roller at one end adapted to travel within said cam-groove and a crank on the other end connected to the projecting end of the said rock-shaft, coin-controlled mechanism adapted to rotate the cam-wheel in one direction and thereby open the valve within the closed chamber, and mechanism controlled by the passage of gas through the meter to rotate the cam-wheel in the opposite direction and close said last-named valve, substantially as set forth.

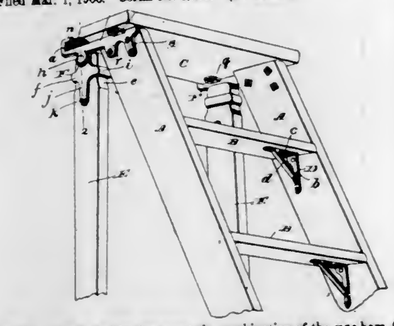
3. In a prepayment gas-meter, the combination with a valve controlling the supply of the gas into the regular valve-chamber, and mechanism for controlling the movement of said supply-valve, of a cam-wheel having a cam-groove in one side thereof, a connecting-rod having a roller at one end adapted to travel in said cam-groove and connected at its other end to the mechanism for opening and closing the supply-valve, coin-controlled mechanism adapted to rotate the cam-wheel in one direction and thereby open the supply-valve and mechanism controlled by the passage of gas through the meter to rotate the cam-wheel in the opposite direction and close said supply-valve, substantially as set forth.

4. In a prepayment gas-meter, the combination with a valve controlling the supply of the gas into the regular valve-chamber and mechanism for controlling the movement of said supply-valve, of a cam-wheel having an annular cam-groove in one side thereof, said groove having one end thereof brought inward toward the center of the cam-wheel and an intermediate inward depression or break in its regular lines between the ends of said groove, a connecting-rod having a roller at one end adapted to travel in said cam-groove and connected at its other end to the mechanism for opening and closing the supply-valve, coin-controlled mechanism adapted to rotate the cam-wheel in one direction and thereby open the supply-valve, and mechanism controlled by the passage of gas through the meter to rotate the cam-wheel in the opposite direction and close said supply-valve, the described inward depression or break in said cam-groove serving to check the supply of gas when the roller on the connecting-rod reaches said point without wholly shutting off the supply, substantially as set forth.

5. In a prepayment gas-meter, the combination with a valve controlling the supply of the gas into the regular valve-chamber, and mechanism for controlling the movement of said supply-valve, of a cam-wheel within the meter-casing having an index-scale on its periphery numbered to correspond with the cubic feet of gas adapted to pass through the meter during one revolution of said wheel, an opening in the casing to expose said numbering, a cam-groove in one side of said cam-wheel, a connecting-rod having a roller at one end adapted to travel in said cam-groove and connected at its other end to the mechanism for opening and closing the supply-valve, coin-controlled mechanism adapted to rotate the cam-wheel in one direction and thereby open the supply-valve and mechanism controlled by the passage of gas through the meter to rotate the cam-wheel in the opposite direction and close said supply-valve, substantially as set forth.

6. In a prepayment vending appliance, the combination with a device regulating the supply of the product to be measured and mechanism for controlling the movement of said regulating device, of a cam-wheel having an index-scale thereon corresponding in numbering to the predetermined quantity of the product to be measured during one revolution of the wheel, a cam-groove in said cam-wheel, a connecting-rod connected to the mechanism for controlling the movement of the supply-regulating device and having a roller adapted to travel in said cam-groove, coin-controlled mechanism adapted to rotate the cam-wheel in one direction, and thereby release the supply and mechanism controlled by the delivery of the product to rotate the cam-wheel in the opposite direction and cut off the supply.

663,339. STEP-LADDER. WRIGHT L. GLIDDEN, New York, N. Y. Filed Mar. 1, 1900. Serial No. 6,973. (No model.)



Claim.—In the ladder described, the combination of the side bars, the treads interposed between and connected to the side bars, the top bar mounted upon the side bars and having notches *a* in its rear edge adjacent to its ends, the prop-bars having the reduced upper ends *e*, and the hinges interposed between and connecting the prop-bars, the side bars and the top bar; the said hinges respectively comprising the member *g* having ears disposed at right angles to each other and connected to the side and top bars, and a hook *n* at its rear end seated in one of the notches *a* of the top bar, and also having the depending apertured lug *l*, the member *f* having the rectangular loop *i* snugly receiving the reduced end *e* of one of the prop-bars, a lug *j* extending down from the outer bar of the loop and connected adjacent to its lower end to the outer side of the prop-bar, and the apertured lug *l* extending up from the outer bar of the loop and arranged at the inner side of the lug *l* of the member *g*, and the pintle pivotally connecting the lugs *l l* of the two members, substantially as specified.

663,340. MIXTURE FOR SILVERING METALS. CHRISTIAN GÖTTIG and WALTHER KÖTTGEN, Wilmersdorf, Germany, assignors to Ludwig Darmstaedter, Berlin, Germany. Filed May 15, 1900. Serial No. 16,801. (No specimens.)

Claim.—1. A mixture for silvering metals comprising silver chlorid, a compound whose solution is capable of dissolving silver chlorid and a metal chlorid capable of preventing the permanent reduction of the silver chlorid by the action of light.

2. A mixture for silvering metals comprising silver chlorid, the salt of an alkali metal whose solution is capable of dissolving silver chlorid, and a metal chlorid capable of yielding chlorin and transferring the same to any silver subchlorid formed from the silver chlorid under the influence of light.

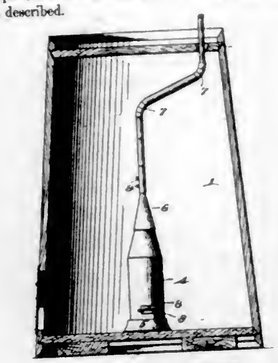
3. A mixture for silvering metals comprising silver chlorid, the salt of an alkali metal whose aqueous solution is capable of dissolving silver chlorid and ferric chlorid.

4. A mixture for silvering metals comprising silver chlorid, a compound whose aqueous solution is capable of dissolving silver chlorid, a metallic chlorid capable of yielding up chlorin and transferring the same to any decomposition product formed from the silver chlorid under the action of light and a material which favors the silvering action.

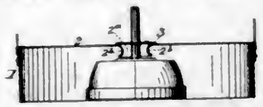
663,341. MEANS FOR DRYING INTERIORS OF VATS OR CASKS AND LEADING OUT ALL INJURIOUS GASES. GEORGE GROSSE, Green Bay, Wis. Filed Apr. 27, 1900. Serial No. 14,613. (No model.)

Claim.—1. The combination with a vat, or cask, having a manhole located as near the bottom as posible, and provided with a temporary door having a damper, of a heater arranged within said cask and having a draft-pipe passing through a bung-hole above said heater, substantially as described.

2. The combination with a vat, or cask, of a centrally-arranged heater within the same having a draft-pipe passing up to and through an upper bung-hole, and said cask being provided with a manhole as close to its bottom as possible, and provided with a temporary door having a damper in its lowest part, said heater having a close-fitting door and damper, substantially as described.



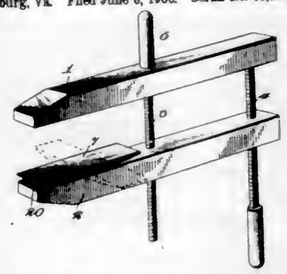
663,342. SAD-IRON HEATER. LOUISA HARDY, Chicago, Ill. Filed Sept. 19, 1900. Serial No. 30,477. (No model.)



Claim.—1. A sad-iron heater consisting of a closure or cover provided with downward-curved flanges or guides made out of the cover and forming a central opening therein, substantially as set forth.

2. A sad-iron heater, having a closure or cover provided with a central oblong opening and downward-curved flanges or guides, a supplemental closure or lid pivoted or hinged to the upper surface of the first-referred-to closure and having an elongation adapted to close said opening and fit under the hand-grasped portion of the iron-handle, substantially as specified.

663,343. CLAMP. THOMAS F. HARRIS, Radford, Va., assignor of two-thirds to Robert C. McWane, same place, and Henry E. McWane, Lynchburg, Va. Filed June 6, 1900. Serial No. 19,309. (No model.)



Claim.—1. The combination with a clamp-jaw, of a face-plate adjustable to various positions upon the face of the jaw and capable of adjustment without dislocation from such positions.

2. The combination with a clamp-jaw, of a member adjustable to different positions upon the face thereof, and a face-plate adjustable upon the member.

3. The combination with a clamp-jaw, of a pivoted member upon the jaw, and a face-plate connected to the member at a point eccentric to the axis thereof.

4. The combination with a clamp-jaw, of a pivoted member upon the jaw, and a face-plate mounted eccentrically upon the member and capable of rotary and tilting movement.

5. The combination with a clamp-jaw, of a pivoted member upon the jaw, a face-plate mounted eccentrically upon the member and capable of rotary and tilting movement, and independent means for retaining the member and face-plate in their adjusted positions.

6. The combination with a jaw and a face-plate, of a member carried by one of said elements and having an axial opening, an enlarged

axial post extending from the other element through the axial opening and of less diameter than the diameter of the opening to permit lateral movement of the member, and means for retaining said post.

7. The combination with a jaw, and a face-plate, of a hollow convex socket member carried by one of said elements and having an enlarged axial opening, and a concave socket formed in the other element and provided with an axial post extending into the concave socket member, and means for drawing the socket and socket member into frictional contact.

8. The combination with a clamp-jaw and a face-plate, of an axially-apertured, convex socket member carried by one of said elements and a concave socket formed in the other element, a post extending axially from the socket and into the socket member, and a reactive element, as for instance, a spring carried by the post and located within the socket member to yieldingly retain the face-plate against movement.

9. The combination with a clamp-jaw, and a face-plate, of a hollow convex socket member carried by one of said elements, a concave socket formed in the other element, a post extending axially from the socket and into the socket member, a friction-disk opposed to the interior face of the socket member, and means carried by the post for yieldingly urging said disk into frictional engagement with the socket member to retain the face-plate in its adjusted positions.

10. The combination with a clamp-jaw and a face-plate, of a hollow convex socket member carried by the jaw and having an enlarged axial aperture, a concave socket formed in the face-plate and having an axially-extending post passed into the socket member, a cup-shaped friction-disk revoluble with the post and disposed against the interior face of the socket member, and a spring carried by the post and bearing against the periphery of the disk to yieldingly retain the face-plate in its adjusted positions.

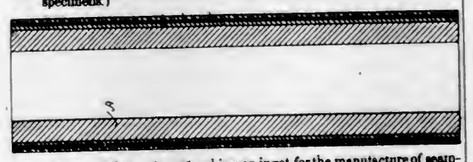
11. The combination with a clamp-jaw, of a socket member, means permitting the adjustment of said socket member upon the face of the jaw, the face-plate carried by the socket member and capable of rotary and angular movement, and means for retaining the face-plate in its various adjustments.

12. The combination with a clamp-jaw, of a convex socket member pivotally connected at an eccentric point to the face of the jaw, means for retaining said socket member in its adjusted positions on said jaw, and an adjustable face-plate carried by the socket member.

13. The combination with a clamp-jaw, of a hollow convex, axially-apertured socket member, a lug and a tongue disposed at opposite sides of the member, means for pivotally mounting the tongue upon the jaw, a face-plate provided with a central enlargement formed with a concave socket having an axially-extended post passed into the hollow socket member, a cup-shaped friction-disk carried by the post and engaging the interior face of the socket member, a spring likewise carried by the post, and means for retaining the spring in active engagement with the periphery of the friction-disk, the face of the jaw being provided with a series of recesses for the reception of the lug extending from the socket member, whereby said member adjustably supports the face-plate and is in turn adjustably supported by the jaw.

14. The combination with a clamp-jaw, of a face-plate adjustable to various positions upon the face of the jaw and capable of rotary movement while occupying such positions, said face-plate having a width substantially corresponding to the width of the jaw and being of greater length than its width, whereby said face-plate may be positioned to conform to the face of the jaw at one end or may be projected beyond the end of said jaw or beyond the opposite sides thereof.

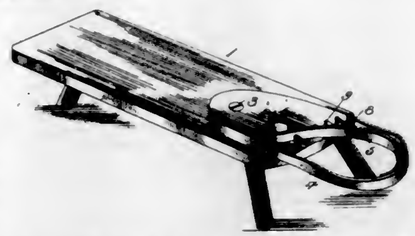
663,344. METHOD OF MAKING PLATED WIRE. JOHN T. HEALD, Attleborough, Mass. Filed Nov. 28, 1899. Serial No. 738,570. (No specimens.)



Claim.—The method of making an ingot for the manufacture of seamless plated wire, which consists in applying a sheet of precious metal having its longitudinal edges thinned or beveled and lapped upon each other, to the surface of the base-metal ingot, with a suitable flux between the contact-surfaces, applying a thin covering of sheet asbestos or paper, and then winding with wire, and subjecting to the proper degree of heat to cause the sweating together of the contact-surfaces of the base and precious metals, as set forth.

663,345. MILK-STOOL. ORVILLE A. HULETT, Luverne, Minn. Filed Feb. 26, 1900. Serial No. 6,604. (No model.)

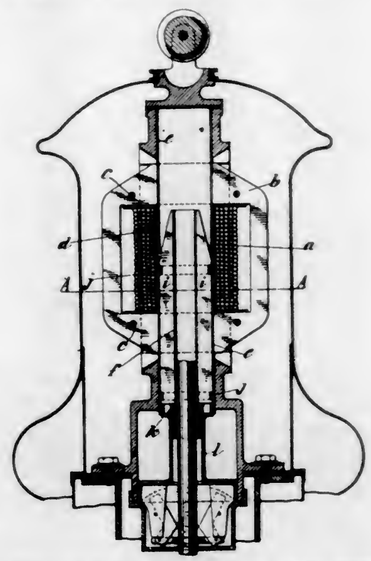
Claim.—1. In a milk-stool and in combination with the support, a strap or band rigidly attached at its ends to the support and adapted to hold the pail, and a strap secured at one end to said band at a point in its length and adapted to have its opposite end adjustably secured to the said support so as to reduce the space inclosed by the aforesaid band, substantially as set forth.



2. In a milk-stool and in combination with the support, a spring-band rigidly secured at its ends to the support, and a spring-strap longitudinally curved and secured at one end to the spring-band at a point in its length and adapted to have its opposite end adjustably connected with the said support to reduce the space inclosed by the spring-band, substantially as set forth.

3. In combination, a support having its outer end concave, a toothed plate secured to the concave end of the support, a spring-band constituting a pail-holder and rigidly secured at its ends to opposite edges of the said support, and a spring-strap attached at its outer end to the spring-band about midway of its ends and having its inner end adapted to make adjustable connection with the said toothed plate by engagement with any tooth thereof to reduce the space inclosed by the spring-band, substantially as and for the purpose set forth.

663,346. ELECTRIC-ARC LAMP. WALTER C. JOHNSON and ADOLPH WUNDERLICH, London, England. Filed Sept. 10, 1900. Serial No. 29,564. (No model.)

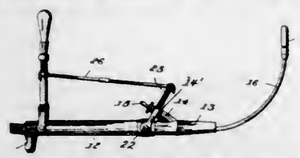


Claim.—For an electric-arc lamp a solenoid and core consisting of a laminated iron yoke inclosing the coil, and a tubular core having ribs of laminated iron, whereby the lamp is rendered capable of operating with alternating currents, substantially as described.

663,347. BEER-FAUCET. JOHN R. JONES, Fredricktown, Mo. Filed Aug. 10, 1899. Serial No. 726,780. (No model.)

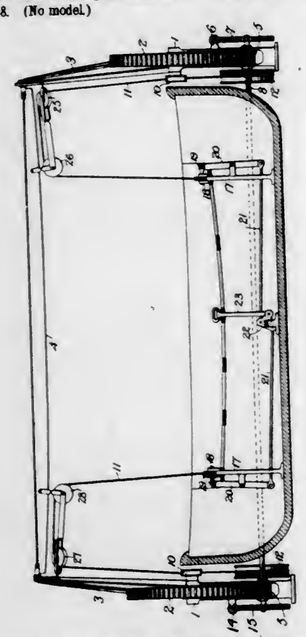
Claim.—1. In a beer-faucet, the combination with a tubular body portion having a spout at the forward end, and a transverse recess or open-

ing near the rear end, a turning plug in the said recess, an upwardly-projecting arm extending from said plug, a bifurcated hand-lever secured on the forward end of the body portion and a pitman connecting the upwardly-projecting arm and the hand-lever, substantially as described.



2. In a beer-faucet, the combination with a tubular body portion having a transverse opening near the rear end, a turning plug in said opening, an upwardly-projecting actuating-lever secured to said plug, the bifurcated hand-lever on the forward end of the body portion, an adjustable collar on the hand-lever and a pitman having hooked ends engaging the collar and actuating-lever, substantially as described.

663,348. DEVICE FOR LAUNCHING LIFE-BOATS. WILLIAM J. KENNEDY, Jersey City, N. J., assignor of five-sixths to Henry Brinkman, James B. Morse, James Thomson, and William Heavey, same place, and James Carnegie, Passaic, N. J. Filed Feb. 8, 1900. Serial No. 4,558. (No model.)



Claim.—1. In a life-boat-launching device, the combination of two derricks mounted on segmental gears, a beam connecting the outer ends of said derricks, a shaft mounted in the brackets carrying the derricks, pinions secured to said shaft, and in mesh with said segmental gears, means for rotating said shaft, and a lowering device comprising a second shaft carrying fixed drums, ropes leading from said drums through guide-wheels on the brackets and sheaves on the derricks and beam, and means for operating said second shaft independently of said first shaft, substantially as and for the purpose set forth.

2. In a life-boat-launching device, the combination of two derricks mounted on segmental gears, a beam trunnioned in the outer end of said derricks and connecting the same, a shaft mounted in the brackets carrying the derricks, pinions secured to said shaft, and in mesh with said segmental gears, means for rotating said shaft, and a lowering device comprising a second shaft carrying fixed drums, ropes leading from said drums through guide-wheels on the brackets and sheaves on the derricks and beam, and means for operating said second shaft independently of said first shaft, substantially as and for the purpose set forth.

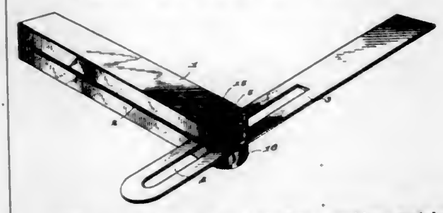
3. In a life-boat-launching device, two derricks mounted on segmental gears, a beam trunnioned in the outer end of said derricks and connecting the same, a shaft mounted in the brackets supporting said gears and having one end extending through the corresponding bracket, a gear mounted on said extended end, a worm-gear in mesh therewith, a crank to operate said worm-gear, pinions fixed on said shaft, and in mesh with said segmental gears, a second shaft mounted in the rear of said first shaft, drums fixed on said second shaft, a gear mounted on one end of said second shaft, a worm-gear in mesh therewith, and a crank to operate said worm-gear, substantially as and for the purpose set forth.

4. In a life-boat-launching device, a swinging crane proportioned in size to permit a life-boat to pass therethrough, a shaft mounted on the ship, and carrying drums, ropes passing from said drums through sheaves on said crane, rings mounted in the ends of said ropes, and a tripping device mounted within the life-boat, comprising a lever 22, with means for operating the same, connecting-rods 21, a standard mounted at each end of the life-boat and having jaws at the end thereof, a sliding pin mounted in each of said jaws, levers connected with said pins, said rods 21 being connected respectively with said last-named levers, and means to prevent the withdrawal of the said pins from one arm of each of said jaws, the rings in the ends of said ropes being held within the said jaws by the said pins when the boat is being raised or lowered, substantially as and for the purpose set forth.

5. In combination with a life-boat-launching device, a clamping device comprising hook 29, lever 30, cam 31 on one end of said lever and having one edge grooved, and the other cut away to form an inclined plane, and a rope 32, and ring at the free end thereof, substantially as and for the purpose set forth.

6. In a life-boat-launching device, the combination of two derricks mounted on segmental gears, a beam trunnioned in the outer end of said derricks and connecting the same, a shaft mounted in the brackets carrying the derricks and having one end extending through the corresponding bracket, pinions on said shaft and in mesh with said segmental gears, a gear on the said extended end of said shaft, a worm-gear in mesh therewith, a crank for operating said worm-gear; and a lowering device comprising a second shaft carrying fixed drums, ropes leading from said drums through guide-wheels on the brackets, and through sheaves on the derricks and beam, a gear on one end of said second shaft, a worm-gear in mesh therewith, and a crank for operating said last-named worm-gear, substantially as and for the purpose set forth.

663,349. CARPENTER'S BEVEL. RUDOLPH LEONHART, Jr., Fresno, Cal. Filed Oct. 1, 1900. Serial No. 31,697. (No model.)



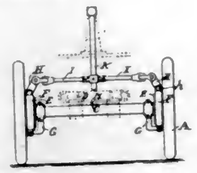
Claim.—1. A device of the class described comprising a stock having a slot and provided with a circular opening, a blade passing through the slot and provided with a longitudinal opening, and the circular heads arranged in the opening of the stock and engaging the same, and the blade, one of the circular heads having a recess, and the other circular head being provided with a flange or rib extending through the opening of the blade and fitting in the said recess, substantially as described.

2. A device of the class described comprising a stock having a slot and provided with a circular bearing-opening enlarged at its ends, the flanged heads arranged in the bearing-opening of the stock and engaging the same, one of the heads being provided with a recess and the other having a transverse rib or flange extending into the recess, a fastening device connecting the heads, and the blade extending through the slot of the stock and interposed between the heads and provided with a longitudinal opening receiving the said rib or flange, substantially as described.

663,350. STEERING APPARATUS FOR VEHICLES. EMIL LUNDQVIST, Berlin, Germany, assignor of one-half to Sigmund Bergmann, same place. Filed Dec. 27, 1899. Serial No. 741,736. (No model.)

Claim.—1. The combination with a vehicle-body, of two independently-rotatable dependent steering-wheels upon which said body is mounted, an operating-lever movable with respect to said body, and means controlled by said lever for checking the rotation of either of said wheels without interfering with the rotation of the other wheel, substantially as described.

2. The combination with a vehicle-body, of two independently-rotatable dependent steering-wheels upon which said body is mounted, an operating-lever movable with respect to said body, and means controlled by said lever for clutching one of said wheels whereby the free rotation thereof will be prevented without interfering with the rotation of the other wheel, substantially as described.



3. The combination with a vehicle-body, of two independently-rotatable dependent steering-wheels upon which said body is mounted, an operating-lever movable with respect to said body, means controlled by said lever for checking the rotation of either of said wheels without interfering with the rotation of the other wheel, and means for maintaining the wheels in the plane to which they have been turned, substantially as described.

4. In a steering apparatus, the combination of two independently-rotatable steering-wheels mounted upon a pivoted axis, means for checking the rotation of either of said wheels without interfering with the rotation of the other wheel, and means for securing said axis in a determined position upon its pivot, substantially as described.

5. In a steering apparatus, the combination of two independently-rotatable steering-wheels mounted upon a pivoted axis, means for clutching either of said wheels whereby the free rotation thereof will be prevented without interfering with the rotation of the other wheel, and means for securing said axis in a determined position upon its pivot, substantially as described.

6. In a steering apparatus, the combination of two independently-rotatable steering-wheels mounted upon a pivoted axis, a clutch connected with each of said wheels, an operating-lever, connections between said lever and said clutches whereby said clutches may be operated by said lever, means for preventing said axis from turning upon its pivot, and connections between said means and said lever, substantially as described.

7. In a steering apparatus, the combination of two independently-rotatable steering-wheels, mounted upon a pivoted axis, a pivoted operating-lever adapted to swing in two or more planes, a clutch connected with each of said wheels, means for preventing said axis from turning upon its pivot, and connections respectively between said clutches and said means and the operating-lever, whereby when the lever is moved in one plane either of said clutches will be operated and when moved in the other plane the other of said means will be operated, substantially as described.

8. In a steering apparatus, the combination of two independently-rotatable steering-wheels mounted upon a pivoted axis, a clutch connected with each of said wheels, an operating-lever adapted to move in two or more planes, connecting-levers between said clutches and said operating-lever whereby either of said clutches may be operated by moving the lever in one of said planes, a clutch adapted to lock the axis upon its pivot, and connections between said clutch and said lever whereby said clutch may be operated by moving the lever in a different plane substantially as described.

9. In a steering apparatus, the combination of two independently-rotatable steering-wheels, means for checking the rotation of either of said wheels whereby the plane of rotation thereof will be changed, means for maintaining the wheels in the plane to which they have been turned, a pivoted operating-lever adapted to move in opposite directions in either of two planes, and connections respectively between said operating-lever and said checking means and maintaining means, whereby as the lever is moved in a given direction in one of said planes the checking means may be operated upon either or both of said wheels and said means for maintaining the wheels in the plane to which they have been turned may also be operated, substantially as described.

10. In a steering apparatus, the combination of two independently-rotatable steering-wheels, mounted upon a pivoted axis, a clutch connected with each of said wheels, an operating-lever adapted to swing in horizontal and vertical planes, levers connecting said clutches with said operating-levers whereby either of said clutches may be operated as the lever is moved in the horizontal plane, a clutch connected with the pivoted axis, a lever connecting said clutch with said operating-lever, whereby the clutch may be operated when the lever is moved in that direction in the vertical plane, levers connected with the first-named clutches, and means whereby said last-named levers may be locked and operated by moving the operating-lever in the other vertical direction, substantially as described.

11. In a steering apparatus, the combination of two independently-rotatable dependent steering-wheels, a brake for each of said wheels, and means for applying either of said brakes independently of the other, or both simultaneously, substantially as described.

12. In a steering apparatus, the combination of two independently-rotatable, dependent steering-wheels, a brake for each of said wheels, an operating-lever, and connections between said lever and said brakes whereby when moved in one direction in one plane said lever will apply one of said brakes, and when moved in the opposite direction in the same plane will apply the other brake, and when moved in a different plane will apply both of said brakes, substantially as described.

13. In a steering apparatus, the combination of two independently-rotatable dependent steering-wheels, a brake for each of said wheels, an operating-lever and connections between said lever and said brakes whereby movement of the lever may be applied to either of said brakes independently of the other or both simultaneously, substantially as described.

14. In a steering apparatus, the combination of two independently-rotatable dependent steering-wheels, a brake for each of said wheels, means for applying either of said brakes independently of the other, or both simultaneously, and means for securing said wheels in a determined plane of rotation, substantially as described.

15. In a steering apparatus, the combination of two independently-rotatable dependent steering-wheels, a brake for each of said wheels, means for securing said wheels in a determined plane of rotation, an operating-lever and connections between said lever and said brakes and securing means, whereby either may be operated independently of the other, or all simultaneously, substantially as described.

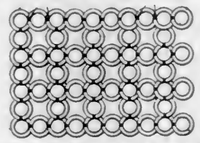
16. The combination with a vehicle-body, of three or more wheels supporting the same, two of which wheels are dependent steering-wheels pivoted upon said body and means for applying friction to either of said steering-wheels independently of the other, whereby the momentum of the vehicle will change the plane of rotation of said wheels with respect to the body, substantially as described.

17. The combination with a vehicle-body, of a pair of swiveled steering-wheels, means for applying friction to either of said wheels independently of the other, whereby the momentum of the vehicle will change the plane of rotation of said wheels, and means for securing said wheels in a determined plane of rotation, substantially as described.

18. The combination with a vehicle-body, of three or more wheels supporting the same, two of which wheels are dependent steering-wheels pivoted upon said body and means for applying friction to either of said steering-wheels independently of the other whereby the momentum of the vehicle will change the planes of rotation of said wheels with respect to the body, or to both of said wheels simultaneously to brake the same, substantially as described.

19. The combination with a vehicle-body, of a pair of dependent steering-wheels the planes of rotation of which are movable relatively to said body, an operating-lever also movable relatively to said body and moving simultaneously with a change in said planes of rotation, means for applying friction to either of said wheels independently of the other, and connections between said last-named means and said operating-lever, substantially as described.

663,351. METAL FABRIC. ALFONS MAUSER, Stuttgart, Germany. Filed Sept. 24, 1898. Serial No. 691,772. (No specimens.)



Claim.—1. A metallic fabric composed of a united series of parallel rows of rings, all the rings of each row overlapping each other and loosely fastened together at the points of connection, the parallel rows of rings also overlapping each other all of the contiguous rings of the parallel rows being loosely fastened together.

2. A metallic fabric composed of a united series of parallel rows of rings, all the rings of each row overlapping each other in the same direction and loosely fastened together at the points of juncture, the parallel rows of rings also all overlapping each other in the same direction, all the contiguous rings of the parallel rows being loosely fastened together.

3. A metallic fabric for the purpose stated, composed of a series of rows of rings of varying sizes arranged substantially in the same plane and movably joined together by rivets or transverse pins.

4. A metallic fabric for the purpose stated composed of a series of rows of sheet-metal stampings of different sizes arranged substantially in the same plane and connected together by rivets or transverse pins.

5. A metallic fabric for the purpose stated consisting of a united series of united rows of overlapping sheet-metal stampings, the stampings

of each row being movable with respect to each other in substantially the same plane and the rows being also movable with respect to each other in substantially the same plane.

6. A metallic fabric for the purpose stated consisting of an overlapping series of rows of overlapping sheet-metal stampings all arranged in substantially the same plane and all united so as to be collapsible in the said plane.

7. A metallic fabric for the purposes stated consisting of a series of rows of sheet-metal stampings of different sizes all arranged in substantially the same plane and all movably united with respect to each other by transverse pins.

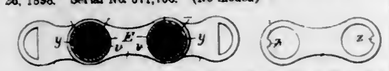
663,352. **DRIVE-CHAIN.** EVERETT F. MORSE, Trumansburg, N. Y., assignor to the Morse Chain Company, same place. Filed Feb. 26, 1898. Serial No. 671,765. (Model.)



Claim.—1. In a drive-chain the combination with the outside links, seat-pins connecting them, the inside links through which the seat-pins pass, the rocking pins confined at their ends in the inside links and extending alongside of and bearing against the seat-pins, and the rollers E, extending between the inside links and surrounding the seat-pins and rocking pins and pressing upon the rocking pins when engaging the sprockets.

2. In a drive-chain having a two-part pintle wherein the said parts are placed side by side and rock upon one another, the combination with each of said pintles, of a hardened sleeve surrounding the parts thereof and bearing upon the movable part of the pintle when engaging the sprockets.

663,353. **DRIVE-CHAIN.** EVERETT F. MORSE, Trumansburg, N. Y., assignor to the Morse Chain Company, same place. Filed Feb. 26, 1898. Serial No. 671,766. (No model.)



Claim.—1. The combination with the outside links, of the seat-pins connecting them, the inside links through which said seat-pins pass, and the rocking pins coacting with the seat-pins and positively fixed at their ends in a medial position in the ends of the side links.

2. The combination with that portion of the chain which rests between adjacent sprocket-teeth and consists of the outside links held together by the seat-pins and the sleeves surrounding said pins, of the inside links through the ends of which the seat-pins pass, and the rocking pins passing through the sleeves and positively confined in a medial position in the ends of the inside links.

3. The combination with the outside links, of a seat-pin fixed in either end thereof and provided with a rounded bearing surface or ridge *v*, the inside links through the ends of which the seat-pins pass, and a rocking pin positively fixed at its ends in the ends of the side links and having a bearing-surface coacting with or rocking upon the ridge of the seat-pin, as and for the purpose set forth.

4. The combination with the outside links, of the seat-pins joining them each of which is provided with a rounded medial ridge, the inside links through which the seat-pins pass, and the rocking pins each positively confined at its ends in the inside links and provided with a plain surface located at right angles to the length of the inside links and coacting with said ridge, for the purpose set forth.

5. The combination with the outside links and seat-pins joining them, of the inside links through holes in the ends of which the seat-pins freely pass, said holes having lugs projecting therein, and the rocking pins located at their ends in said holes and held in place by means of said lugs, for the purpose set forth.

6. In a chain having a two-part pintle, substantially as described, the combination with a seat-pin and inside links, of a rocking pin having a groove along its back, and means entering said groove to hold the rocking pin in a fixed relation relative to the inside links, as and for the purpose set forth.

663,354. **RAIL-JOINT.** ROBERT MCCOY, Urich, Mo. Filed Oct. 19, 1900. Serial No. 33,578. (No model.)

Claim.—1. In a rail-joint, the combination of a rail-chair, a fixed fish-plate, an opposite movable fish-plate having a bottom flange provided with one or more transverse slots, a pin carried by the rail-chair and projecting upwardly through the slot of the flange, an adjusting-cam mounted upon the projecting end of the pin, and a shoulder located in the path of the peripheral edge of the cam.

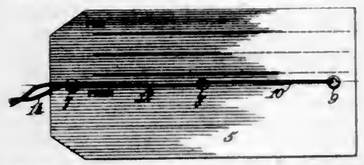
2. In a rail-joint, the combination of a rail-chair, a fixed fish-plate, a movable fish-plate, having a bottom flange overlapping the chair, and provided with a transverse slot, and a longitudinal shoulder extending across the inner end of the slot, a bolt carried by the chair and projecting upwardly through the slot, an adjusting cam-nut fitted to the projecting end of the bolt, and provided upon its upper face with an angular wrench-head.



3. In a rail-joint, the combination with opposite fish-plates, having corresponding perforations, of a rail-locking key pivotally or hingedly connected to one of the fish-plates, and having its free end arranged to take into the corresponding perforations.

4. In a rail-joint, the combination of a rail-chair, having opposite fish-plates, provided with corresponding perforations, of opposite rail-sections received between the fish-plates and also provided with longitudinal slots corresponding to the perforations of the fish-plates, and a plurality of rail-locking keys hinged to one of the fish-plates, swinging in a direction transversely of the rail-sections, and having their free ends arranged to take into the respective corresponding perforations and slots of the fish-plates and the rails.

663,355. **SHIPPING-TAG.** GEORGE W. MCGILL, New York, N. Y. Filed Aug. 31, 1899. Serial No. 729,071. (No model.)



Claim.—1. As an improved article of manufacture, a shipping-tag having string-holes in its opposite end portions and intermediate the same, and a tying-string interlaced through said string-holes and secured to permanently fix it to the tag, substantially as described.

2. A shipping-tag having string-holes and a tying-string laced back and forth through said string-holes and lying against the opposite surfaces of the tag from one end portion to the opposite end portion to reinforce and strengthen the tag practically its full length, and secured to permanently fix it relatively to the tag, substantially as described.

3. A shipping-tag having a tying-string interlaced therewith at each end portion and between the end interlacings, extending along opposite sides of the tag substantially its entire length and knotted at one end portion to permanently attach and fix it relatively to the tag, substantially as described.

4. A shipping-tag having string-holes in its opposite end portions and intermediate thereof, and a doubled tying-string laced back and forth through said holes longitudinally of the tag and its two tying end portions knotted together at one end portion of the tag, substantially as described.

5. A shipping-tag having string-holes in its opposite end portions and intermediate thereof, and a doubled tying-string laced through said string-holes and its two end portions brought together and secured at one end portion of the tag to permanently fix the string doubled relatively thereto and provide two tying-string ends at one end of the tag, substantially as described.

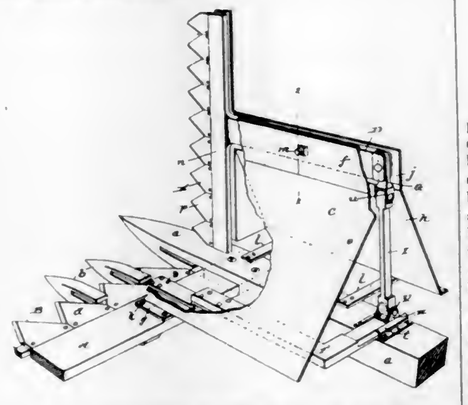
663,356. **MOWING-MACHINE.** JOHN I. NEWBURN, Vicksburg, Miss. Filed Feb. 15, 1900. Serial No. 5,353. (No model.)

Claim.—1. In a mowing-machine, the combination of a horizontal cutting apparatus comprising a reciprocatory sickle, a suitable support, a vertically-movable lever fulcrumed at an intermediate point of its length on the support and having a sickle on its forward arm, an angular bar having one of its arms connected to the sickle of the horizontal cutting apparatus and its other and outer arm movable in a horizontal guide, and a pitman pivotally connected at one end to the outer arm of the angular bar and having its other end loosely connected with the rear arm of the lever, substantially as specified.

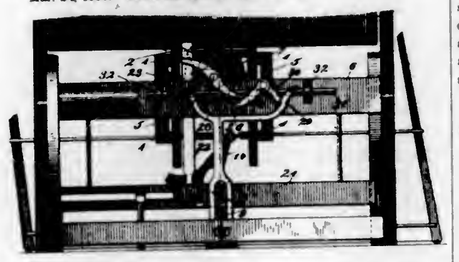
2. In a mowing-machine, the combination of a horizontal cutting apparatus comprising a reciprocatory sickle, a combined housing and support rising from said apparatus and having a vertical series of knives, a vertically-movable lever fulcrumed at an intermediate point of its length in the housing and having a sickle at its forward end arranged to work alongside the knives on the housing and support, an angular bar connected to the sickle of the horizontal cutting apparatus and extending into the housing, and a connection between said bar and the rear arm of the lever, substantially as specified.

3. In a mowing-machine, the combination of a horizontal cutting apparatus comprising a reciprocatory sickle, a combined housing and support rising from said apparatus and having a vertical series of knives, a vertically-movable lever fulcrumed at an intermediate point of its length in the housing and having a sickle at its forward end arranged to work alongside the knives on the housing and support, an angular bar connected to the sickle of the horizontal cutting apparatus and extending into the housing, and a pitman arranged in the housing and pivotally connected at its lower end to the bar, and having its upper end loosely connected with the rear arm of the lever, substantially as specified.

4. An attachment for mowing-machines, comprising a combined housing and support adapted to be detachably connected to the cutting apparatus of a mowing-machine, and having a vertical series of knives, a lever fulcrumed at an intermediate point of its length in the housing and support and having an upright sickle at its forward end, an angular bar adapted to be detachably connected to the sickle of a mowing-machine, and a driving connection between said bar and the rear arm of the lever, substantially as specified.



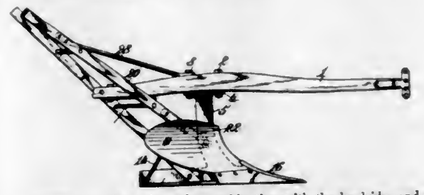
663,357. **LOOM.** CHARLES N. NEWCOMB, Davenport, Iowa. Filed Mar. 24, 1900. Serial No. 10,019. (No model.)



Claim.—1. In a loom, the combination, with two parallel gear-rails, of a shaft journaled thereon, each end of which projects beyond the rails, interchangeable cams on one end of the shaft, a wiper-arm on the other end and a star-wheel on the intermediate portion between the rails, frames in position to be engaged by the cams, a laterally-movable fork in position to be engaged by the arm and a reciprocatory bar in position to engage the star-wheel and intermittently rotate the shaft to operate the frames and fork, substantially as described.

2. In a loom, the combination, with a shaft, one end of which is provided with interchangeable cams and the intermediate portion is provided with a star-wheel, of a perforated vertically-movable bar in position to engage with the star-wheel, the portion of the inner face of the bar above the perforation being inclined or wedge-shaped, and means for moving the rack-bar, substantially as described.

663,358. **PLOW.** WILLIAM R. OYLER, Akron, Ohio. Filed Mar. 16, 1900. Serial No. 8,986. (No model.)



Claim.—1. In a plow, the combination with the landside, and the plow-standard, of the brace-frame secured to and projecting from the share side of the landside in an inclined position, the plowshare secured to the lower half of said brace-frame, the moldboard having a lug on its rear side, a bar secured to the plow-standard and located behind said moldboard, said bar having an opening to receive the lug on the moldboard, a pin inserted in an opening in said lug to secure the moldboard to said bar, and stays bracing said bar from the landside, the lower portion of the moldboard being arranged to join the plowshare and supported on the upper half of the said brace-frame and its upper portion being supported by said bar and lug, substantially as described.

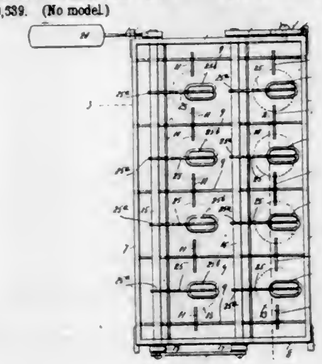
2. In a plow, the combination of the landside, the plow-standard, the brace-frame secured to the share side of the landside and projecting therefrom in an inclined position, a bar provided with a slot or opening and having at its forward end a flange through which it is secured to the plow-standard to project rearwardly therefrom in an inclined position, stays connecting said bar with the landside, a plowshare secured to the lower half of said brace-frame, a moldboard joining the upper edge of the plowshare and on top of the upper half of said brace-frame, said moldboard being provided on its back with a lug to be inserted through the opening in said bar that is attached to the plow-beam, and a pin inserted in said lug to secure the moldboard, substantially as described.

3. In a plow, the combination with the plow-beam, plow-standard, and landside, of the brace-frame secured to the landside, the slotted bar secured to the plow-standard, stays connecting said bar and landside, the plowshare secured to the lower half of said brace-frame, the moldboard joining the upper edge of the plowshare with its lower portion on top of the upper half of said brace-frame and its upper portion supported by said bar, and the steel lip welded to the forward end of the landside to receive the front portion of the moldboard and plowshare, substantially as described.

4. In a plow, the combination with the plow-beam, plow-standard, and landside, of the plow-handles, one of which is secured intermediate its ends to the rear end of the plow-beam and at its lower end to the landside, and the other connected, by a bar or rod, with the plow-standard, and cross-bars connecting said handles, both handles being independent of the moldboard, substantially as described.

5. In a plow, the combination with the plow-beam, plow-standard, and landside, of the triangular brace-frame secured to the landside, the slotted bar having a flange at one end secured to the plow-standard, stays connecting said bar and landside, the plowshare and moldboard supported at their adjacent edges by a part of the said triangular brace-frame, and a lug on the moldboard arranged to enter the slot in the said slotted bar, substantially as described.

663,359. **DIPPING-FRAME FOR COATING CANDLES.** PANAYIOTIS PANOULIAS, New York, N. Y. Filed Mar. 22, 1900. Serial No. 9,539. (No model.)



Claim.—1. A dipping-frame of the class described, embodying a pocket in which the core or candy is carried during the dipping operation, said pocket being provided with a movable member formed to mark the coated candy-core by rearranging a portion of the coating thereof and means for operating said movable member, substantially as shown and described.

2. A dipping-frame of the class described, provided with means for supporting the candy-cores and with relatively-movable means for rearranging a portion of the coating thereof, whereby the complete candies are marked to simulate a drip formation of the coating thereof, substantially as shown and described.

3. A dipping-frame of the class described, provided with means for supporting the candy-cores, and with a loop-shaped movable device for rearranging a portion of the coating thereof, whereby the complete candies are marked to simulate a drip formation of the coating thereof, substantially as shown and described.

4. A dipping-frame of the class described, provided with pockets embodying spaced plates the edges of which are formed to fit the contour of the candy-cores, and a movable member formed to rearrange a portion of the coating thereof, whereby the complete candies are marked to simulate a drip formation of the coating thereof, substantially as shown and described.

5. A dipping-frame of the class described, comprising side and end members, and cross wires or members, and pockets embodying fixed devices mounted upon said cross-wires, and movable devices which operate in connection with said fixed devices, substantially as shown and described.

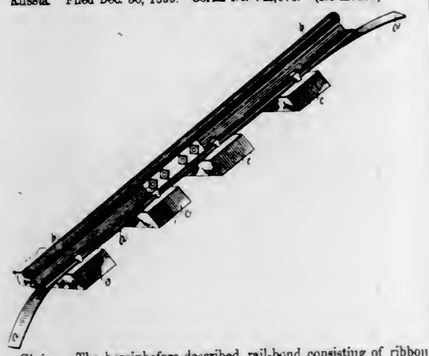
6. A dipping-frame of the class described, embodying a pocket in which the candy-core is seated, said pocket comprising fixed means for supporting the core at a plurality of points, and movable means for supporting the same at another point, said movable means being formed to mark the drop to simulate a drip formation of the coating thereof, substantially as shown and described.

7. A dipping-frame of the class described, embodying fixed means for supporting the candy-cores, a rotatable shaft provided with a plurality of movable devices for supporting the candy-cores, means for actuating said shaft, and means for locking said shaft against rotation, substantially as shown and described.

8. A dipping-frame of the class described, embodying fixed means for supporting the candy-cores, a plurality of operatively-connected rotatable shafts provided each with a plurality of movable devices for supporting the candy-cores and for marking the same, means for actuating said shafts, and means for locking said shafts against rotation, substantially as shown and described.

9. A dipping-frame of the class described, provided with means for supporting the candy-cores and with a device for marking the dipped cores, consisting of a curved length of wire, one end of which is formed into a loop, and means connected with the other end of said wire for operating the same, substantially as shown and described.

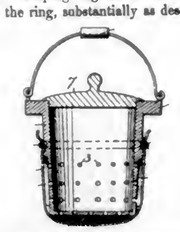
663,360. ELECTRICAL RAIL-BOND. WILLIAM PERVENKO, Kiew, Russia. Filed Dec. 30, 1899. Serial No. 742,171. (No model.)



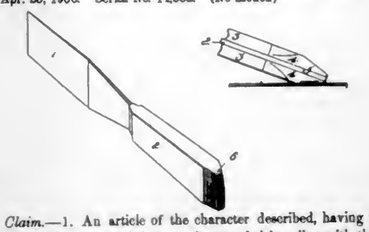
Claim.—The hereinbefore-described rail-bond consisting of ribbon or ribbons of flat sheet metal extending continuously between the track-rails and their supports from end to end of the track, the ribbons being in contact with the base of the track-rails.

663,361. CULINARY UTENSIL. STEPHEN D. PHELAN and MATTIE G. PHELAN, Poplar Bluff, Mo. Filed June 15, 1900. Serial No. 20,460. (No model.)

Claim.—A cooking vessel provided with a series of perforations in its bottom, rows of perforations in the side of the vessel, a series of ribs extending vertically between the rows of perforations, a groove extending around the vessel, a clamping-ring seated in said groove, and a straining-cloth clamped by the ring, substantially as described.



663,362. PUTTY-KNIFE. HARVEY G. RALYA, Lapel, Ind. Filed Apr. 25, 1900. Serial No. 14,332. (No model.)

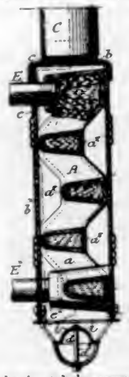


Claim.—1. An article of the character described, having its sides beveled, one edge flat and the opposite rounded in a line with the longitudinal axis of the instrument, substantially as and for the purpose specified.

2. An article of the character described, having its sides beveled, one edge flat and the opposite edge oval in cross-section and rounded at the corner, substantially as and for the purpose specified.

3. An article of the character described, comprising in its construction, a blade, a stock, plates secured to opposite sides of the stock, the latter having its distant end beveled on its sides, flat on one edge and a rounded corner on its opposite edge, substantially as and for the purpose described.

663,363. WATER-HEATER. THOMAS I. RANKIN, Philadelphia, Pa., assignor to the Abram Cox Stove Company, same place. Original application filed Apr. 3, 1899, Serial No. 712,252. Divided and this application filed Sept. 12, 1900. Serial No. 29,793. (No model.)



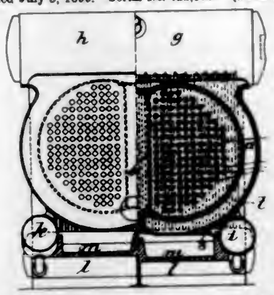
Claim.—1. A casting having tubular corrugated side bars and tubular cross-bars communicating with the tubular side bars, said cross-bars being staggered, in combination with a casing inclosing said casting and a burner under the said casing, substantially as described.

2. The combination of a casting made in a single piece and having tubular corrugated side bars and tubular cross-bars communicating with the tubular side bars, the said cross-bars being staggered and tapered, with a casing inclosing the said water-chamber, and a burner under the said casing, substantially as described.

3. The combination of a water-chamber, a casing inclosing said water-chamber, said casing consisting of an open base-frame, a top plate having a flue-opening therein and flanged, with a side plate or plates secured to the base-frame and the flanges of the top plate, a longitudinally-arranged burner directly under the casing, the cap of the burner forming part of the base-frame of the casing, the trough-shaped lower portion of the burner being secured to the cap, and a gas-pipe coupled to the said burner, substantially as described.

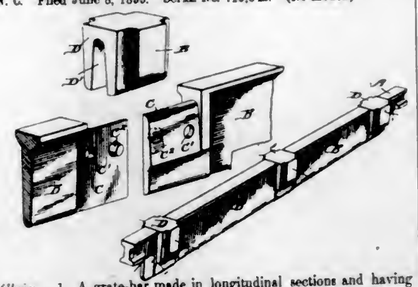
4. The combination of a water-chamber, a casing in which the water-chamber is mounted, said casing having a base-frame, a burner situated under the casing, the cap of said burner forming part of the base-frame and connected thereto by arms, the cap having a series of perforations for the escape of gas, the trough-shaped section of the burner being secured to the cap by bolts or other fastenings, and a gas-pipe coupled to said burner, the space between the cap of the burner and the casing allowing for the passage of air to mix with the gas, substantially as described.

663,364. STEAM-BOILER. JOHANN SCHÜTTE, Bremerhaven, Germany. Filed July 5, 1899. Serial No. 722,890. (No model.)



Claim.—A boiler comprising two superposed steam-collectors, a water-space with which they communicate and an intermediate boiler, a hearth, a heater to either side of the hearth, a transverse boiler-tube connected with the heaters a combustion-chamber *n* extending upwardly in rear of the hearth, a series of water-heating tubes *t* connecting the transverse boiler-tube and one of the collectors and forming a wall of the combustion-chamber a series of water-heating tubes *s* separating the intermediate boiler-space from the hearth and a plurality of fire-tubes *b* traversing said water-space and a portion of the intermediate boiler, substantially as described.

663,365. GRATE-BAR. GEORGE S. SERGEANT, Greensborough, N. C. Filed June 8, 1899. Serial No. 719,842. (No model.)



Claim.—1. A grate-bar made in longitudinal sections and having the meeting ends of said sections overlapped and interlocked, and a cuff or clasp fitting over the overlapped and interlocked portions whereby the sectional grate-bar is held with its sections interlocked and is self-supporting at the joint of the sections, and whereby grate-bar surfaces of different lengths may be supplied in the manner substantially as set forth.

2. A grate-bar made in sections and having a detachable clasp or cuff fitted over the sections at the joint thereof and provided with laterally-extended portions whereby to space the adjacent grate-bars apart, the cuff or clasp being removable whereby cuffs may be interchanged to secure any desired spacing, substantially as set forth.

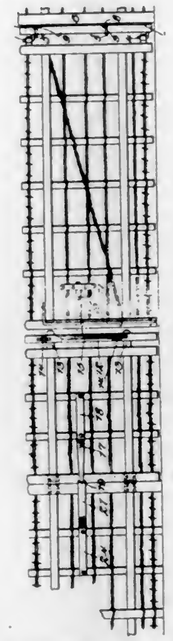
3. A grate-bar made in sections and having the meeting ends of said sections lapped side by side and interlocked, and the cuff or clasp fitted over said lapped ends whereby to secure the same interlocked and to cover and to reinforce the fire-surface of the grate-bar at the joint, substantially as set forth.

4. A grate-bar made in sections with the sections lapped alongside each other and interlocked laterally at their meeting ends, and the cuff or clasp fitted over the lapped portion from above whereby it will be held in place by gravity, substantially as set forth.

5. A grate-bar composed of sections having at their meeting ends portions lapped alongside each other and provided each with a transverse opening and with a lateral stud entering the opening in the other section, and the cuff or clasp fitting over the lapped portions of the sections, substantially as set forth.

6. A grate-bar made in longitudinal sections having at their meeting ends portions of reduced thickness lapped alongside each other, and a cuff fitting over the lapped meeting ends and forming a fire-surface above the same, substantially as set forth.

663,366. GATE. GEORGE SHINE, Bangor, Mich. Filed July 31, 1900. Serial No. 25,465. (No model.)



Claim.—1. The combination with a vertically-adjustable main gate, and a supplemental gate, of a resilient latch located adjacent to one end of the supplemental gate and extending from one side thereof, a rigid keeper mounted on a suitable support and arranged to be engaged by the resilient latch, a vertically-adjustable main keeper mounted on the supplemental gate and composed of two bars spaced apart, and a latch mounted on the main gate and engaging the vertically-adjustable keeper, substantially as described.

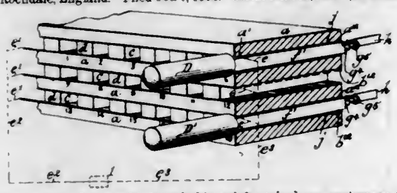
2. The combination with a vertically-adjustable main gate provided with a latch, a support, a supplemental gate hinged to the support, a keeper mounted on the supplemental gate at the free edge thereof and engaged by the latch of the main gate, an approximately V-shaped keeper extending outward from the support and provided at its apex with an opening, and a latch carried by the supplemental gate and engaging the opening of the V-shaped keeper, substantially as described.

3. The combination with a vertically-adjustable main gate, and a supplemental gate, of a vertically-adjustable keeper mounted on the free edge of the supplemental gate and composed of two bars provided with beveled portions and spaced apart, and adjusting devices arranged transversely of the bars and connecting the same and clamping them on the supplemental gate, a stationary keeper, and a latch mounted on the supplemental gate and engaging the stationary keeper, substantially as described.

4. The combination with a vertically-adjustable main gate, and a supplemental gate, a keeper mounted on the supplemental gate at the free edge thereof, and a latch carried by the main gate for engaging the said keeper, of a resilient laterally-extending latch mounted on the supplemental gate, and a stationary keeper arranged to be engaged by the resilient latch, substantially as described.

5. The combination with a support, a main gate, and a supplemental gate hinged to the said support, a keeper fixed to the support, a latch mounted on the supplemental gate and engaging the said keeper, a latch carried by the main gate, and a keeper mounted on the supplemental gate at the free edge thereof and arranged to receive the latch of the main gate, substantially as described.

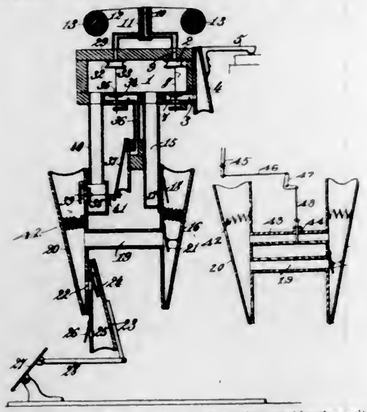
663,367. SWITCHBOARD FOR TELEPHONIC OR TELEGRAPHIC PURPOSES. CHARLES SHORE, Bolton, and CHARLES HEAP, Caldershaw Rochdale, England. Filed Oct. 7, 1896. Serial No. 608,172. (No model.)



Claim.—1. In a multiple switchboard for telephone-exchanges the combination with a plurality of jacks, each bearing an upper and lower series of insulated metal strips, of plugs without cords having non-conducting portions insertible in the jacks, contact-terminals projecting from said portions to engage the metal strips, spring-contacts to engage projecting ends of said plugs, and electrical connections between the corresponding metal strips of the separate jacks, substantially as described.

2. In a telephone-switchboard, the combination with a plurality of jacks each having two separate series of insulated metal strips, of wires connecting the strips of one jack with the corresponding strips of the other jacks, plugs having contact-terminals projecting from opposite sides of their non-conducting insertible portions, to engage said metal strips, said contact-terminals being also connected to contacts at the end of the plug, and spring-contacts arranged to engage said contacts on the ends of the plugs, when the latter are inserted in the jacks, substantially as described.

663,368. AUTOMATIC PIANO-PLAYER. ERNEST M. SKINNER, Boston, Mass. Filed Mar. 21, 1900. Serial No. 9,560. (No model.)



Claim.—1. In an automatic piano-player, the combination with a low-tension bellows normally in communication with the air or vacuum chamber containing the primary or key pneumatics, of a high-tension bellows, and means for throwing said high-tension bellows into communication with said chamber and simultaneously cutting off the low-tension bellows therefrom.

2. In an automatic piano-player, the combination with a low-tension bellows normally in communication with the air or vacuum chamber containing the primary or key pneumatics, of a high-tension bellows, and automatic means for throwing said high-tension bellows into communication with said chamber and simultaneously cutting off the low-tension bellows therefrom.

3. In an automatic piano-player, the combination with a low-tension bellows, a wind-trunk connecting said bellows with the air or vacuum chamber containing the primary or key pneumatics, and a normally-open check-valve controlling the passage through said wind-trunk, of a high-tension bellows, a wind trunk or passage connecting said high-tension bellows with said chamber, a normally-closed accent-valve controlling the passage through the latter wind-trunk, and means for opening said accent-valve and simultaneously closing said check-valve, as and for the purpose set forth.

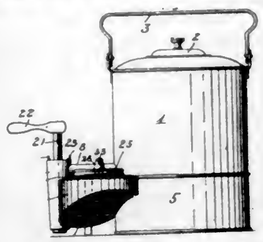
4. In an automatic piano-player, the combination with a low-tension bellows, a wind-trunk connecting said bellows with the air or vacuum chamber containing the primary or key pneumatics, and a normally-open check-valve controlling the passage through said wind-trunk, of a high-tension bellows, a wind trunk or passage connecting said high-tension bellows with said chamber, a normally-closed accent-valve controlling the passage through the latter wind-trunk, and automatic means for opening said accent-valve and simultaneously closing said check-valve, as and for the purpose set forth.

5. In an automatic piano-player, the combination with the air or vacuum chamber containing the primary or key pneumatics, a tracker or channel board having a series of passages therein communicating, respectively, with the several key or primary pneumatics, and having a supplemental passage therein, a low-tension bellows normally in communication with said air or vacuum chamber, and a normally-open check-valve controlling the passage between said low-tension bellows and said chamber, of a high-tension bellows, a wind trunk or passage connecting said high-tension bellows with said air or vacuum chamber, a normally-closed accent-valve for controlling the passage through said wind-trunk, a pneumatic for operating said accent-valve, a passage connecting the accent-valve-operating pneumatic with said air or vacuum chamber, a valve normally closing said passage, and a pneumatic for actuating said valve communicating with the supplemental passage in said tracker or channel board, whereby when said supplemental passage is uncovered by the registration therewith of a slot in the music-sheet passing over said tracker-board, said accent-valve will be opened and communication between the low-tension bellows and said air or vacuum chamber will be simultaneously closed.

6. In an automatic piano-player, the combination with a low-tension bellows normally in communication with the air or vacuum chamber containing the primary or key pneumatics, of a high-tension bellows, means for throwing said high-tension bellows into communication with said chamber and simultaneously cutting off the low-tension bellows therefrom, and means for varying the tension of either of said bellows.

7. In an automatic piano-player, the combination with a low-tension bellows normally in communication with the air or vacuum chamber containing the primary or key pneumatics, of a high-tension bellows, means for throwing said high-tension bellows into communication with said chamber and means for automatically throwing said low-tension bellows out of communication with said chamber when said high-tension bellows is thrown in, and vice versa, whereby one, only, of said high and low tension bellows will be in communication with said vacuum-chamber at the same time.

663,369. MEASURING-FAUCET. GEORGE SPARROW, Freeport, Ill. Filed July 25, 1900. Serial No. 24,809. (No model.)



Claim.—In a measuring device, the combination, substantially as described, with a cup provided with a conical air-vent, of a float provided with a stem consisting of an enlarged conical portion and a smaller graduated portion, said stem being mounted to move in said air-vent, and means for limiting the movement of said float.

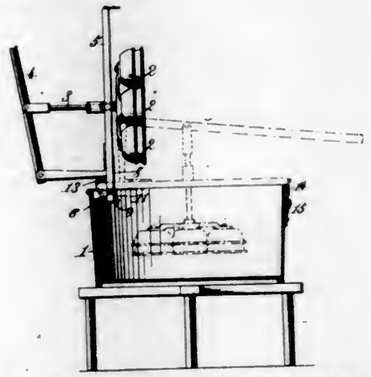
663,370. LIQUID HYDROCARBON. GEORGE TAYLOR and ISAAC RAY, London, England. Filed Feb. 8, 1899. Serial No. 704,685. (No specimens.)

Claim.—A liquid hydrocarbon for the manufacture of gas for illuminating and other purposes, consisting of a mixture of gasolene having a flash-point of about 66° Fahrenheit, with cocoanut-oil and crude petroleum in substantially the proportions described.

663,371. WASHING-MACHINE. ISAAC N. THOMAS, Lima, Ohio. Filed July 31, 1900. Serial No. 25,452. (No model.)

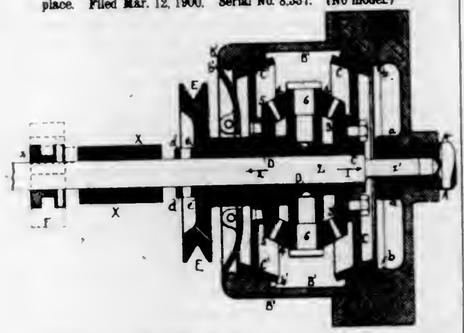
Claim.—1. The combination with a washtub and the base-board of a washing apparatus to be used in connection therewith, the said base-board being provided with a tenon at one end, of a fulcrum piece or support for said base-board secured to the inner side of said tub and comprising a horizontally-disposed, yoke-shaped member provided with securing means at its ends, and an upwardly-extending, vertically-disposed yoke-shaped member secured to said horizontally-disposed member, the tenon on said base-board fitting within the angular space between the members of said support, as and for the purpose set forth.

2. The combination with a washtub and the base-board of a washing apparatus to be used in connection therewith, the said base-board being provided with a tenon at one end, of a fulcrum piece or support for said base-board secured to the inner side of said tub and comprising a horizontally-disposed yoke-shaped member having outwardly-extending lips or projections at the ends of the branches thereof constituting securing means, and an upwardly-extending, vertically-disposed, yoke-shaped member secured to said horizontally-disposed member, the tenon on said base-board fitting within the angular space between the members of said support, and locking means for said board at the end opposite said tenon, as and for the purpose set forth.



3. The combination with a washtub and the base-board of a washing apparatus to be used in connection therewith, the said base-board being provided with a tenon at one end, of a fulcrum piece or support for said base-board secured to the inner side of said tub and comprising a horizontally-disposed, yoke-shaped member provided with securing means at its end, and an upwardly-extending, vertically-disposed, yoke-shaped member secured to said horizontally-disposed member, a plate secured to the under side of said base-board having a flange thereon adjacent to the end of said tenon, the tenon on said base-board fitting within the angular space between the members of said support and the flange on said plate adapted to engage the lower edge of the horizontally-disposed member of said support when said base-board is in its raised position, as and for the purpose set forth.

663,372. REVERSING-GEAR. WILLIAM W. TUCK and AUGUST WASSMANN, New York, N. Y., assignors to Abbot Augustus Low, same place. Filed Mar. 12, 1900. Serial No. 8,337. (No model.)



Claim.—1. A reversing-gear comprising a driving-shaft and a pair of clutching members carried thereby, in combination with a driven shaft, two friction-disks carried by said driven shaft and corresponding with said clutching members, one of said disks being fast on the driven shaft, gearing connecting said disks and means for braking or holding the gearing between the disks.

2. A reversing-gear comprising a driving-shaft and a pair of friction members carried thereby, in combination with a driven shaft, a pair of friction-disks carried by the driven shaft to engage with said members, a loose sleeve upon said driven shaft, one of said disks being fast on the shaft, means for braking the said sleeve and intermediate gearing between the said disks and carried by the said sleeve.

3. A reversing-gear comprising a driving-shaft, an inclosing casing thereon and internal conical clutching members carried by the casing in combination with a driven shaft extending within said casing and a pair of friction-disks carried by the driven shaft within the casing to engage with the said conical members, one of said disks being fast to the driven shaft and the other being loose thereon, intermediate gearing between the disks and means for braking or holding the said gearing.

4. A reversing-gear comprising a driving-shaft, an inclosing casing thereon and opposite internal clutching members carried by the casing, in combination with a driven shaft, a pair of clutching-disks carried by the driven shaft within said casing, one of said disks being fast to the driven shaft, a loose sleeve on the said shaft, gearing carried by the sleeve between the disks and a brake-wheel also carried by the sleeve outside the casing with braking means for said wheel, substantially as described.

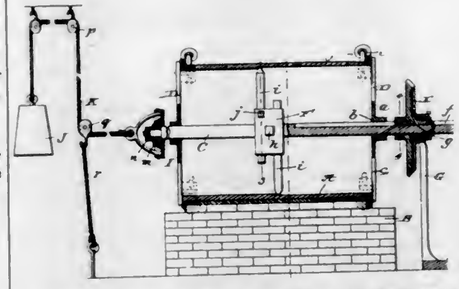
5. The combination of a driving-shaft and driven shaft and reversing-gear therefor with a brake-wheel for the reversing-gear, a supporting-frame, a pair of clamping-levers for the brake-wheel with an adjustable crank or eccentric pin for the support of one of the clamping-levers.

6. The combination of a driving and a driven shaft with intermediate reversing-gear and a brake-wheel therefor with a lever to actuate the reversing-gear, clamping-levers to act on the brake-wheel, lever connections between the operating-lever and the clamping-levers and an adjustable bearing-piece for said lever connections, substantially as described.

7. A reversing-gear comprising a driving-shaft and a pair of friction members thereon, in combination with a driven shaft, a pair of friction-disks on the driven shaft to engage with said members, a sleeve loose upon the driven shaft and gearing carried by the sleeve between the two disks, one of which is fast upon the driven shaft and the other is loose upon the sleeve, and means for braking said sleeve.

8. The combination of a driving and a driven shaft and reversing-gear with a brake-wheel therefor, a lever to operate the reversing-gear, clamping-levers to act on the brake-wheel and toggle-lever connections between the clamping-levers and the operating-lever, with an adjustable pivot for the lever of the toggle, as and for the purpose described.

663,373. APPARATUS FOR REBORING CYLINDERS. JOHN A. WAHLGREN, Vicksburg, Miss. Filed Jan. 25, 1900. Serial No. 2,798. (No model.)

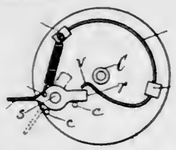


Claim.—1. A portable apparatus comprising gages provided with central bores, and also provided with means whereby they may be adjustably fixed at the ends of a cylinder, a shaft journaled in the central bores of the gages and movable endwise through the same, means for rotating said shaft, a cutter fixed on and adapted to turn and move with the shaft, suitably-supported sheaves, a cable passed around said sheaves, a swivel connection between one end of the cable and the shaft, and a weight connected to the opposite end of the cable for drawing the shaft and cutter forwardly as the cutting progresses, substantially as specified.

2. In a portable apparatus for reboring cylinders, the gages adapted to be arranged at either end of a cylinder and having central bores, and also having radially-disposed adjusting-screws for engaging the periphery of the cylinder, a shaft journaled in the central bores of the gages and having a longitudinal groove, the supports G G^2 rising from a common portable base, a gear-wheel mounted in the support G and having an aperture receiving the shaft, and a spline arranged in the groove of said shaft, a shaft journaled in bearings on the support G^2 and having a pinion at its inner end intermeshed with the gear-wheel, and a crank at its outer end, suitably-supported sheaves, a cable passed around said sheaves, a swivel connection between one end of the cable and the shaft, a weight connected to the opposite end of the cable, and a cutter fixed on and adapted to turn and move with the shaft, substantially as specified.

663,374. BELL. NILS C. WALLENTHIN, Attleborough, Mass. Filed Sept. 25, 1900. Serial No. 31,053. (No model.)

Claim.—1. In an alarm-bell the combination of a bell, a plate with a central stud to hold said bell, a hammer consisting of a spring having a block attached thereto, and having one end secured to said plate and its other end bent off at an angle to form a hook, a lever held to swing on a stud fast in said plate, and having its outer end extend out beyond the bell to form a handle, and its inner end arranged to catch the hooked end of said spring, a spring to return said lever after having rung the bell, substantially as described.



2. In an alarm-bell the combination of a bell, a plate attached thereto, a hammer consisting of a spring with a block attached to it, secured by one end to said plate, and having its other end bent off at an angle to form a hook, a lever held to swing on a stud fast in said plate, and having one end extend out beyond the bell to form a handle, and its inner end made with a groove to catch the hooked end of said spring and its upper side beveled to enable it to pass under the hook on its return, with a spring attached to a stud in the plate and to the lever to draw it back, and pins in said plate to limit the motion of the lever, substantially as described.

663,375. **MACHINE FOR EXTRACTING GOLD.** GEORGE WEBSTER, Parramatta, New South Wales. Filed Mar. 8, 1900. Serial No. 7,922. (No model.)



Claim.—1. In a machine of the character described, the combination of a comparatively long, shallow covered-in passage or chamber, a lining on the bottom of the same, a hopper at one end of said passage or chamber, and a conical catch-receptacle or basin arranged at the discharge end of said hopper and having riffles arranged one in advance of the other, toward the delivery end of said passage or chamber, said catch-receptacle or basin also having an outlet at its bottom controlled by a cock, substantially as set forth.

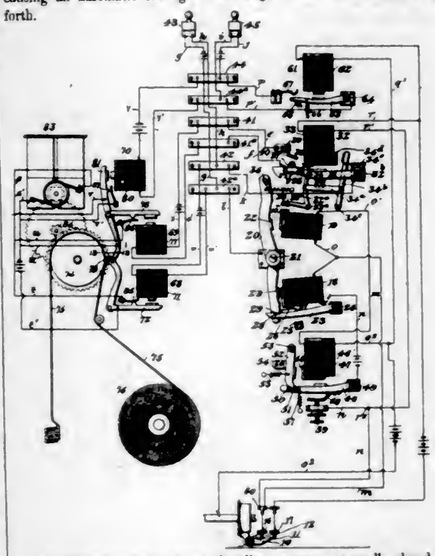
2. In a machine of the character described, the combination of a comparatively long shallow and closely-covered-in passage or chamber, the bottom of which is lined with a matting and the top thereof amalgamated, a hopper arranged at one end thereof, and a conical catch-receptacle or basin arranged at the discharge end of said hopper and having riffles arranged one in advance of the other, toward the delivering end of said passage or chamber, substantially as set forth.

3. In a machine of the character described the combination of a comparatively long, shallow covered-in passage or chamber having a lining on its bottom, a hopper at one end thereof, a conical catch-receptacle or basin arranged at the discharge end of said hopper and having riffles arranged one in advance of the other, toward the delivery end of said passage or chamber, and a series of water-pipes arranged to discharge jets of water, oppositely to the flow of material through said passage or chamber, substantially as as set forth.

663,376. **ELECTRICAL RAILWAY SIGNALING SYSTEM.** LOUIS C. WERNER, Louisville, Ky. Filed Nov. 3, 1899. Serial No. 736,274. (No model.)

Claim.—1. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a local signal-circuit, a bell included in said signal-circuit, a danger-circuit, means, included in the danger-circuit, for closing the local signal-circuit and for opening said safety-circuit, and means for causing an automatic closing of the said danger-circuit, substantially as set forth.

2. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a local signal-circuit, a bell and an electrically-operated recording instrument included in the local signal-circuit, a danger-circuit, means, included in the danger-circuit, for closing said local signal-circuit and for opening the safety-circuit, and means for causing an automatic closing of the danger-circuit, substantially as set forth.



3. In an electrical railway signaling system, a normally closed and locked safety-circuit, a normally-open local signal-circuit, a bell for the signal-circuit, a normally-open danger-circuit, means, included in said danger-circuit, for closing the local signal-circuit and for releasing the lock for and opening the safety-circuit, and means for causing the automatic closing of said danger-circuit, substantially as set forth.

4. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a normally-open local signal-circuit, a bell, included in said signal-circuit, a danger-circuit, means, included in said danger-circuit, for closing the local signal-circuit and opening the safety-circuit, a locking device for holding the danger-signal circuit closed, means for causing an automatic closing of the danger-circuit, and separate means for releasing the locking device for the danger-circuit to restore the parts to the normal safety position, substantially as set forth.

5. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a locking device for holding the safety-circuit closed, a local signal-circuit, a bell, included in said signal-circuit, a danger-circuit, means, included in said danger-circuit, for closing the local signal-circuit and for releasing the locking device for the safety-circuit, a locking device for the danger-circuit, means for automatically closing the danger-circuit, and separate means for releasing the locking device for the danger-circuit, substantially as set forth.

6. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a circuit-locking device, included in said safety-circuit, a local signal-circuit, a bell and a circuit-locking device, included in said local signal-circuit, a danger-circuit, means, included in said danger-circuit, for closing the local signal-circuit, and for releasing the safety-circuit-locking device, separate means for releasing the locking device for the local signal-circuit, and means for causing an automatic closing of the danger-circuit, substantially as set forth.

7. In an electrical railway signaling system, a train apparatus comprising a normally-closed safety-circuit, a normally-open local signal-circuit, a bell and a danger-recording instrument included in said local signal-circuit, a locking device for the local signal-circuit, a danger-circuit, means, included in the danger-circuit, for closing the local signal-circuit and for opening the safety-circuit, means for automatically closing the danger-circuit, release mechanism for releasing the locking device for the local signal-circuit, a local circuit controlled by the release mechanism, and a circuit-test-recording instrument included in the latter circuit, substantially as set forth.

8. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a make-and-break lever, a normally-closed safety-circuit, means included in said safety-circuit, for moving the said lever in one direction, a normally-open danger-circuit, means, included in said danger-circuit, for moving said lever in the opposite direction, a local signal-circuit including said make-and-break lever, and a bell also included in said local signal-circuit, substantially as set forth.

9. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a single make-and-break lever, a normally-closed safety-circuit, means, included in said safety-circuit, for actuating said lever in one direction, a normally-open danger-circuit, means, included in said danger-circuit, for actuating said lever in the opposite direction, a local signal-circuit including said make-and-break lever, a bell also included in said local signal-circuit, a locking device for holding the lever in the danger position, said locking device also being included in the local signal-circuit, and a separate locking device for holding the lever in the safety position, substantially as set forth.

10. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a single make-and-break lever, a normally-closed safety-circuit, means, included in said safety-circuit, for actuating said lever in one direction, a danger-circuit, means, included in said danger-circuit, for actuating said lever in the opposite direction, a local signal-circuit including said lever, a bell also included in said local signal-circuit, a locking device for holding the lever in the danger position, and also included in the local signal-circuit, a separate locking device for holding the lever in the safety position, and an actuating-spring connected with the lever and arranged to draw the same to the danger position, and close the local signal-circuit upon a failure of the battery, substantially as set forth.

11. In an electric railway signaling system, a train-apparatus signal mechanism comprising a single make-and-break lever, a normally-closed safety-circuit, means, included in said safety-circuit, for actuating said lever in one direction, a normally-open danger-circuit, means, included in said danger-circuit, for actuating the lever in the opposite direction, a local signal-circuit including said make-and-break lever, a bell also included in said local signal-circuit, a locking device for holding the lever in the danger position and included in the local circuit therewith, a separate locking device for holding the make-and-break lever in the safety position, said latter locking device being actuated by the same means for moving the lever to the safety position, and separate means for releasing the locking device for holding the make-and-break lever in a danger position, substantially as set forth.

12. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a single oscillatory make-and-break lever, a normally-closed safety-circuit, a controlling-magnet included in said safety-circuit, for actuating said lever in one direction, a normally-open danger-circuit, a controlling-magnet included in said danger-circuit, for actuating said lever in the opposite direction, a local signal-circuit including said make-and-break lever, a bell also included in said local signal-circuit, a release-relay having a contact-armature adapted to interlock with the make-and-break lever and hold it in a danger position, said contact-armature being also included in the local signal-circuit, a separate locking-lever actuated by the safety-circuit-controlling magnet and engaging with the lever to hold it in a safety position, and means for separately energizing the release-relay, substantially as set forth.

13. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a single oscillatory make-and-break lever, a normally-closed safety-circuit, a controlling-magnet, included in said safety-circuit, for actuating the said lever in one direction, a danger-circuit, a controlling-magnet, included in said danger-circuit, for actuating the said lever in the opposite direction, a local signal-circuit including said make-and-break lever, a bell also included in said local signal-circuit, a release-relay whose armature is adapted to interlock with the make-and-break lever to hold it in the danger position, said armature being included in the local signal-circuit, a separate locking device for the armature of the release-relay, said separate locking device including armatures coöperating respectively with the danger-circuit-controlling magnet, and the magnet of the release-relay, and a separate magnetically-controlled locking device for holding the make-and-break lever in the safety position, substantially as set forth.

14. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a single make-and-break lever, a normally-closed safety-circuit, a controlling-magnet included in said safety-circuit, for actuating the said lever in one direction, a danger-circuit, a controlling-magnet, included in said danger-circuit, for actuating the said lever in the opposite direction, a local signal-circuit including said make-and-break lever, a bell also included in said local signal-circuit, a release-relay having a contact-armature adapted to interlock with the make-and-break lever to hold it in a danger position, said contact-armature being also included in the local signal-circuit, a separate locking device for the said contact-armature, which locking device includes a single locking-arm having engagement with the contact-armature, and a pair of armature-levers coöperating respectively with the danger-circuit-controlling magnet and the magnet of the release-relay, and a locking-lever actuated by the safety-circuit-controlling magnet and having an interlocking engagement with the make-and-break lever to hold the latter in a safety position, substantially as set forth.

15. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a normally-closed safety-circuit, a local signal-circuit, a bell included in said local signal-circuit, circuit-closing devices for said local signal-circuit, a safety-circuit relay having a contact-armature and a contact-point included in the safety-circuit, said relay also having a spring-retracted locking-lever actuated in one direction by the magnet of the relay, and provided at one end with a cam portion coöperating with the armature to hold it locked in contact with said contact-point, a danger-circuit including the magnet of said relay, and means, also included in the danger-circuit, for closing the local signal-circuit, substantially as set forth.

16. In an electrical railway signaling system, a train-apparatus signal mechanism comprising a normally-closed safety-circuit, a local signal-circuit, a bell included in said local signal-circuit, circuit-closing devices for the local signal-circuit, a danger-circuit, means, included in said danger-circuit, for actuating said circuit-closing devices and also for opening the safety-circuit, means for automatically closing the danger-circuit, an auxiliary local signal-circuit, a bell, included in said auxiliary local signal-circuit, and an auxiliary-danger-circuit relay having its circuit-closing members included in said auxiliary signal-circuit, substantially as set forth.

17. In an electrical railway signaling system, a normally-closed safety-circuit, a local signal-circuit, a bell and a danger-recording instrument included in said local signal-circuit, a danger-circuit, means, included in said danger-circuit, for closing the local signal-circuit and for opening the safety-circuit, a release-relay having an armature included in said local signal-circuit, a circuit-test local circuit, a circuit-closer included in said circuit-test circuit, said circuit-closer being controlled by the armature of the release-relay, a circuit-test-recording instrument also included in said circuit-test local circuit, an auxiliary-danger-circuit relay, an auxiliary local signal-circuit, a bell and an auxiliary-danger-recording instrument included in the auxiliary local signal-circuit, and a circuit-closer controlled by the armature of said auxiliary-danger-circuit relay, substantially as set forth.

18. In an electrical railway signaling system, the combination with the signal mechanism, of the recording mechanism comprising a tape-feeding roll, an electric motor operatively connected with said roll, a record-tape actuated by the roll, a plurality of recording-relays, each relay having an armature-arm carrying a marking element arranged to work against the record-tape, and a circuit-closer actuated by each relay-armature, and included in the circuit of the motor, substantially as set forth.

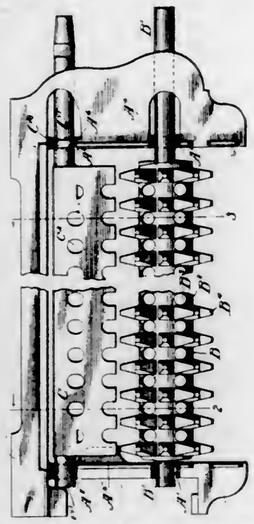
19. In an electrical railway signaling system, the combination of the signal-operated circuit-closer, a pair of track-contacts arranged at one side of the track and having separate wire connections with the signal-operated circuit-closer, a single track-contact included in the line of one of said wire connections and arranged in advance of the pair of contacts, and a train-apparatus signal mechanism comprising a plurality of local circuits, signals and recording instruments included in said local circuits, a series of actuating-circuits for said several local circuits, and a pair of contact-brushes included in said actuating-circuits and coöperating with said track-contacts, substantially as set forth.

20. In an electrical railway signaling system, the combination of the signal-operated circuit-closer, a pair of track-contacts arranged at one side of the track and having separate wire connections with the signal-operated circuit-closer, a single track-contact included in the line of one of said wire connections, and arranged in advance of the pair of contacts, a pair of isolated track-contacts having a bridge connection and arranged within each block in advance of the circuit-closer, and a train-apparatus signal mechanism comprising a plurality of local circuits, signals and recording instruments included in said local circuits, a series of actuating-circuits for said several local circuits, and a pair of contact-brushes included in said actuating-circuits, and coöperating with said track-contacts, substantially as specified.

21. In an electrical railway signaling system, the combination with separate sets of track-contacts arranged respectively at opposite sides of the track, separate contact-brushes coöperating respectively with said separate sets of track-contacts, a train apparatus, a switch, wire connections between the switch and the operative parts of the train apparatus, similar connections between the switch and the oppositely-arranged contact-brushes, and shifting mechanism having means for automatically causing the position of the switch to be shifted by the movement of the train itself when reversed from one direction of travel to the other, substantially as set forth.

22. In an electrical railway signaling system, the combination with separate sets of track-contacts arranged respectively at opposite sides of the track, of separate contact-brushes carried by the train and coöperating respectively with the separate contacts, the train signal apparatus, a switch consisting of fixed and movable members, wire connections between the movable members of the switch and the train apparatus, similar connections between the fixed members of the switch and the separate sets of contact-brushes, and a shifting device actuated from an axle and having means for automatically causing the movable members of the switch to be shifted by the movement of the train itself when reversed from one direction of travel to the other, substantially as set forth.

663,377. **GRATE.** HENRY WILSON, Quincy, Ill., assignor to the Thomas White Stove Company, same place. Filed June 7, 1900. Serial No. 19,415. (No model.)



Claim.—1. In a grate, the combination with a frame provided with a rotating grate-bar, of an oscillatory dump-bar mounted in said frame to be reciprocated longitudinally of said rotating bar, a support on the frame for engaging and supporting one end of said oscillatory bar when reciprocated in one direction, and a stop at the opposite end of said bar to engage said frame when the bar rests upon said support; substantially as specified.

2. In a grate, the combination with a framework having bearings therein, a rotating grate mounted in said bearings, an oscillatory grate mounted for reciprocation in said frame, a flange at one end of said frame upon which said oscillatory grate may rest, and a stop at the opposite end of said oscillatory grate adapted to engage said framework to prevent sagging of the grate when one end rests upon said flange; substantially as specified.

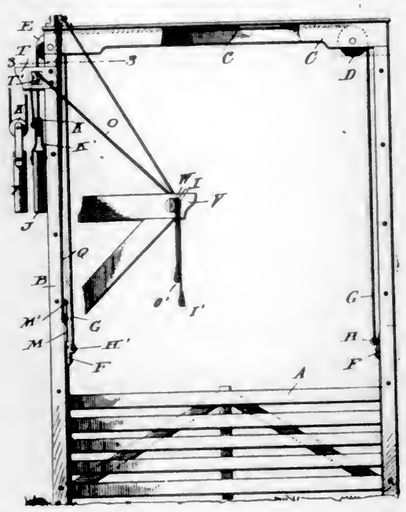
3. In a grate, the combination with a framework having bearings therein, a rotating grate mounted in said bearings, an oscillatory grate mounted in said frame, a flange at one end of said frame upon which said oscillatory grate may rest, a stop at the opposite end of said oscillatory grate to prevent dumping of the same, a plate extending from the end of said grate next said stop and provided with an aperture to permit a reciprocatory and oscillatory movement of the stop; substantially as specified.

4. In a grate, the combination with a framework having bearings therein, a rotating grate mounted in said bearings, an oscillatory grate mounted in said frame, a flange at one end of said frame upon which said oscillatory grate may rest, a stop at the opposite end of said oscillatory grate to prevent dumping of the same, a plate extending from the end of said grate next said stop and provided with an aperture to permit a reciprocatory and oscillatory movement of the stop, and a lug at the opposite end of said frame to limit the reciprocatory movement of the oscillatory grate toward the same; substantially as specified.

5. In a grate, the combination with a framework provided with front and rear bearings, a rotating grate supported in the front bearings, an oscillating grate supported in the rear bearing and having upon one of its pintles a stop-lug adapted to engage the wall of one bearing and hold the grate against oscillation, and a flange carried by the frame and extending beneath the opposite end of said oscillating grate, whereby the reciprocation of said grate disengages the same from said flange and the stop-lug from the wall of the bearing to permit a dumping of said grate; substantially as specified.

663,378. **GATE.** WILLIAM S. WITTEN, Chicago, Ill. Filed Jan. 10, 1900. Renewed Oct. 30, 1900. Serial No. 34,946. (No model.)

Claim.—A dropping gate in combination with the vertical posts having grooves in which said gate is guided, the rope secured at both ends of the gate and passing over suitable pulleys, a weighted yoke having a pulley at its upper end supported by said rope, a weighted plate M pivoted to one of said posts and normally resting with its inner lower corner against the top of the gate, a rope secured to the other edge of said plate, a lifting-rope attached to the weighted yoke, together with the necessary guide-pulleys for said ropes, all arranged substantially as described.



663,379. **NECK-YOKE AND POLE THIMBLE.** FRED E. YATES, Lyons, Iowa, assignor of one-half to Parker C. Walraven, same place. Filed Mar. 28, 1900. Serial No. 10,522. (No model.)



Claim.—1. In a device of the character set forth, the combination of a thimble or tip for application to the end of a pole having a longitudinally-disposed lug at the outer upper portion thereof, an inner circumferential shoulder, and a regularly-tapered surface between the shoulder and the lug, a tapered sleeve removably and rotatably mounted on the said thimble or tip, having a boss at an intermediate point and a longitudinally-disposed groove which tapers in depth toward the rear of the sleeve, a neck-yoke thimble also provided with a boss to bear on the boss of the sleeve, and a coupling-pin movably connected to the opposite bosses.

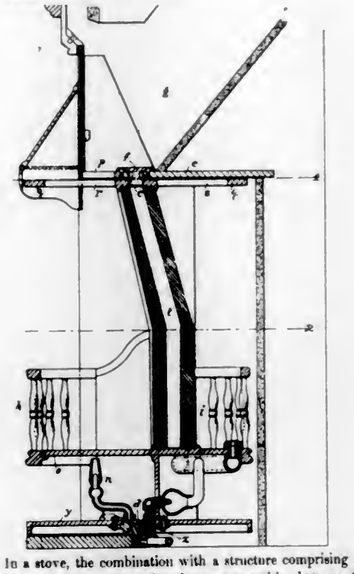
2. A device of the character set forth comprising a pole thimble or tip, a sleeve removably and rotatably mounted on the said thimble or tip and having a boss at an intermediate point, a neck-yoke sleeve or thimble also provided with a boss to bear on the boss of the sleeve fitted to the pole thimble or tip, and a coupling-pin loosely engaging and connecting the bosses and the parts supporting the latter.

3. A device of the character set forth, comprising a thimble or tip for a pole, a sleeve removably and rotatably mounted on the said thimble or tip and having a boss thereon extending in a transverse direction and provided with a socket and an opening, a neck-yoke sleeve also having a boss in contact with the boss on the sleeve fitted over the thimble or tip and provided with an opening and a socket, and a bent coupling-pin headed at opposite extremities and movably connected to the bosses.

663,380. **STOVE FOR HEATING PURPOSES.** WILLIAM YOULTEN, London, England. Filed Feb. 5, 1900. Serial No. 4,072. (No model.)

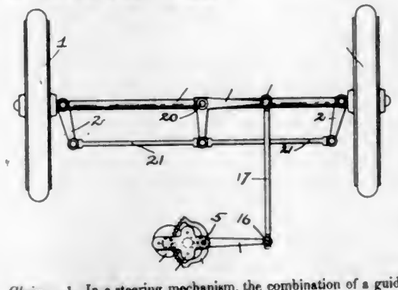
Claim.—1. In a stove, the combination with a structure comprising a grate for burning hard fuel, a grate for burning gas, a partition between the two grates, a flue communicating with one of the said grates, and a bottom plate having gas-pipes leading to each of the said grates, of a pivot-pin supporting said bottom plate, the structure being arranged to rotate upon the said pivot-pin to bring one or the other of the said grates into communication with the said flue, and means whereby the rotation of the grates will cause the gas to be admitted to the grate which is in communication with the flue, substantially as described.

2. In a stove, the combination with a structure comprising a grate for burning hard fuel, a grate for burning gas, and a partition between the two grates; of pivot-pins supporting the said structure, a gas-vent in one of the said pivot-pins and means for conducting gas to the said vent, a gas-pipe communicating with each of the said grates, and arranged to register with the said vent when that particular grate is in operation, substantially as described.



3. In a stove, the combination with a structure comprising a grate for burning hard fuel, a grate for burning gas, a partition between the two grates, a top plate having openings therethrough for the escape of the products of combustion, and a bottom plate having gas-pipes leading to each of the said grates; of a pivot-pin supporting the top plate, a pivot-pin having a gas-vent therethrough supporting the lower plate, the said structure, being arranged to rotate upon the said pivot-pins to bring one or the other of the grates to the front, and at the same time to cause the gas-pipe to that grate to register with the vent in the lower pivot-pin, and means for conducting gas to the said vent; substantially as described.

663,381. **STEERING MECHANISM.** FREDERICK E. ALLEN, Boston, and RAYMOND H. DANFORTH, Salem, Mass., assignors to the Improvements Manufacturing Company, Boston, Mass. Filed July 20, 1900. Serial No. 24,256. (No model.)

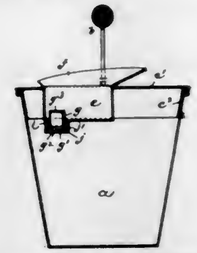


Claim.—1. In a steering mechanism, the combination of a guiding or steering member, a movable toothed member connected therewith, a substantially flat cam engaged with said toothed member and having an acting portion in the form of one or more complete turns of a spiral or scroll, said cam being capable of making one or more complete rotations in engagement with the toothed member, its acting portion remaining substantially normal to the path of the scroll-engaging part of the toothed member, whereby the toothed member is locked against movement when the cam is stationary, and means to rotate the scroll and thereby move the toothed member.

2. A steering mechanism comprising a spindle adapted to be connected with the steering-handle, an oscillatory lever adapted to be connected with the guiding member or members, a substantially flat rotary cam engaged with said lever and adapted when rotated to oscillate the lever, and when stationary to lock the lever against movement, and multiplying-gearing interposed between said cam and said spindle.

3. A steering mechanism comprising a spindle adapted to be connected with the steering-handle, an oscillatory lever adapted to be connected with the guiding member or members, a substantially flat rotary cam engaged with said lever and adapted when rotated to oscillate the lever and when stationary to lock the lever against movement, and multiplying spur-gearing interposed between said cam and said spindle, said spur-gearing, cam, and lever being mounted to rotate in parallel planes.

663,382. **MILK-PAIL.** ADOLPH G. BRUGGER, Newark, N. J., assignor of one-half to Frank A. Brugger, same place. Filed Apr. 9, 1900. Serial No. 12,061. (No model.)



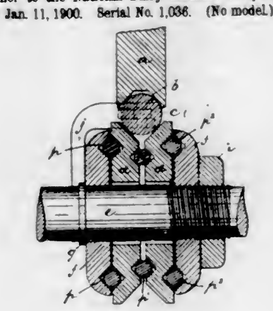
Claim.—1. In a milking-pail, the combination with the closed body portion, of a depressed receiver in the top of the body portion, a tube passing through the bottom of said receiver and projecting at its upper end above the floor of the receiver and at its lower end below the receiver into the body of the pail, a strainer arranged across the upper extremity of said tube and the lower end having its lateral walls perforated below the receiver, and a removable perforated cap secured to the bottom of the receiver over the said lower end of the tube, substantially as set forth.

2. A milking-pail, having a cover adapted to be fastened in place, and said cover being apertured near one edge, a receiver seated in said aperture and depending into the body of the pail and having its bottom apertured, and a tube fixed in said last-mentioned aperture and having a strainer in its upper end above the bottom of the receiver, its lower end closed and its walls perforated below the receiver but above the closed end, substantially as set forth.

3. A milking-pail comprising a body portion *a*, and a cover therefor, said cover having a depressed receiver depending therefrom and having its bottom apertured, a tube arranged in said aperture and projecting at one end above the floor of the receiver and being closed by a strainer, and a cap removably secured to the under side of the bottom of the receiver over the lower end of the tube, said cap having its end closed and its walls perforated, substantially as set forth.

4. In a milk-pail, the combination with the body portion, of a cover *c*, the receiver *e*, seated in said cover and having its bottom apertured, the tube *g*, fitted in the aperture and projecting at opposite ends into the receiver and the body of the pail and having its walls perforated between its closed lower end and the bottom of the receiver, a strainer in the tube above the perforation, and a cap for the lower end of the tube, said cap having a closed end and perforated walls and being removably secured to the bottom of the receiver with its walls distant from the tube, substantially as set forth.

663,383. **THRUST-BEARING.** JAMES H. FLEMING, Newark, N. J., assignor to the National Dairy Machine Company, of New Jersey. Filed Jan. 11, 1900. Serial No. 1,036. (No model.)



Claim.—1. The combination with the rotary shaft and ball *c*, of a pair of oppositely-movable disks supporting said ball, and supports for said oppositely-movable disks, substantially as set forth.

2. The combination with the rotary shaft, disks *d*, *d*, adapted to rotate in opposite directions, and having balls interposed therebetween and plates *f*, *f*, arranged outside of said disks and balls interposed between said disks and plates, substantially as set forth.

3. The combination with a rotary shaft, of a pair of beveled disks for supporting said shaft, balls holding said disks in parallel planes, balls arranged between said disks to hold the same apart, and supports providing raceways for the first said balls, the said disks being beveled and together forming a groove, substantially as set forth.

4. The combination with the shaft having a recessed lower end, a ball supporting said shaft, beveled disks supporting said ball, bearing-wheels *i*, *i*, for holding the ball in the groove formed by said beveled disks and means for holding said disks in operative position substantially as set forth.

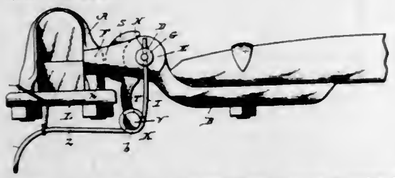
5. The combination with a rotary shaft, and a ball, *c*, of disks *d*, *d*, balls *p*, *p'*, and *p²* and plates *f*, all arranged and adapted to operate, substantially as set forth.

6. The combination with the rotary shaft *a*, and a ball *c*, supporting the same, of disks beveled at their peripheries to receive the ball *c*, and having raceways on opposite sides, plates *f*, also having raceways, and balls disposed between the disks and between the disks and plates, substantially as set forth.

7. The combination with the rotary shaft *a*, of disks, each beveled at its periphery and provided with raceways on opposite sides, balls interposed between the disks, plates disposed near the outer sides of said disks and having raceways, balls interposed between the plates and disks, a shaft *e*, supporting said plates and means for adjusting said plates on said shaft, substantially as set forth.

8. The combination with the rotary shaft *a*, of disks movable in opposite directions and provided with raceways on opposite sides, balls interposed between the disks, plates disposed near the opposite outer sides of the disks and having raceways, and one of said plates being threaded, balls interposed between the plates and disks, a shaft extending through said plates and disks, said shaft having a shoulder *g*, and threads to receive the threaded plate, substantially as set forth.

663,384. **ANTIRATTLER FOR THILL-COUPLINGS.** PORTER C. HAYES, Burghill, Ohio, assignor of one-half to Clinton H. Drury and Glenn C. Bushnell, Hartford, Ohio. Filed Feb. 15, 1900. Serial No. 5,341. (No model.)



Claim.—1. An antirattler for thill-couplings, having a wedge-form upper portion provided with rear lateral convex flanges having a bearing against the shackle, and at its forward face with a bearing against the journal portion of the thill-iron, and having a lower portion provided with lateral extensions, and a wire spring coiled intermediately thereof around said extensions, and arranged to force said wedge portion upwardly, substantially as specified.

2. An antirattler for thill-couplings, having a wedge-form upper portion provided at its rear face with a bearing against the wall of the shackle, and at its forward face with a bearing against the journal portion of the thill-iron, and having a lower portion provided with lateral extensions, and a wire spring coiled around said extensions, extended rearwardly and latched to the shackle and extended upwardly through slots or perforations of the coupling-pin, substantially as specified.

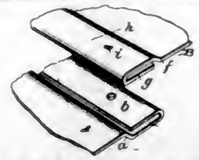
663,385. **LOCK-SEAM FOR METAL ARTICLES.** GEORGE P. HOBBS, New Orleans, La., assignor of one-half to the H. Haller Manufacturing Company, Limited, same place. Filed Mar. 8, 1900. Serial No. 7,888. (No model.)



Claim.—1. In a lock-seam, the combination of a member having an outturned edge provided with corrugations extending in the direction of and throughout its width, and a member having an inturned edge also provided with corrugations extending in the direction of and throughout its width; the said edges of the members being interlocked and pressed against each other whereby the projections of the one are secured in the depressions of the other, substantially as and for the purpose specified.

2. In a lock-seam, the combination of a member having an outturned edge provided with crosswise corrugations extending throughout the width thereof and also having a smooth main portion opposite said edge, and a member having an inturned edge provided with crosswise corrugations extending throughout the width thereof and also having a smooth main portion opposite said inturned edge; the said edges of the members being interlocked and pressed against each other between the smooth main portions of the members, substantially as and for the purpose set forth.

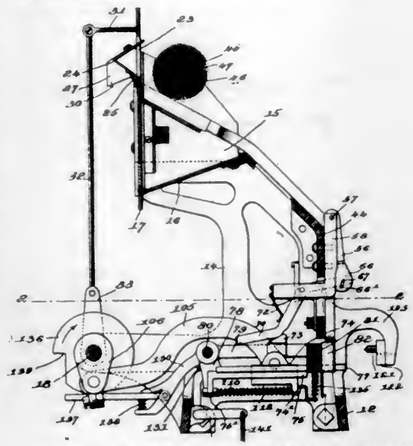
663,386. **LOCK-SEAM.** GEORGE P. HOBBS, New Orleans, La., assignor of one-half to the H. Haller Manufacturing Company, Limited, same place. Filed Mar. 15, 1900. Serial No. 8,831. (No model.)



Claim.—1. In the lock-seam described, the combination of a sheet-metal member having an outturned edge provided with perforations, and also having protuberances on its main portion opposite the outturned edge, at points out of alinement with its apertures, and extending toward said edge, and a second sheet-metal member having an inturned edge provided with perforations, and also having protuberances on its main portion opposite the inturned edge, at points out of alinement with its perforations, and extending toward said inturned edge; the said edges of the members being each interposed between the edge portion and main portion of the other member and brought transversely together, whereby the protuberances on the main portion of each member are secured in the apertures in the turned edge of the other, substantially as and for the purpose set forth.

2. In a lock-seam, the combination of a sheet-metal member having an outturned edge, and a second sheet-metal member having an inturned edge interlocked with the outturned edge of the first-named member; the said members also having protuberances and complementary apertures therefor in their main portions and turned edges which protuberances are arranged to enter and occupy the apertures when the interlocked edges are subjected to pressure, substantially as and for the purpose set forth.

663,387. **GANG-MACHINE FOR SETTING LACING-HOOKS.** LAWRENCE A. MCGRATH, Randolph, Mass., assignor of one-fourth to Michael F. Cunningham, same place. Filed Mar. 9, 1900. Serial No. 7,976. (No model.)



Claim.—1. In a machine for setting lacing-hooks, a driver having a series of three or more hook-receiving seats, the distance between said seats being approximately twice the diameter of the head of the hooks, means to deliver one hook to each hook-receiving seat simultaneously,

means coöperating with each hook-receiving seat to maintain the hooks in their proper angular relation during the setting operation, and means to set all of the lacing-hooks at one operation.

2. In a machine for setting lacing-hooks, a single driver having a plurality of hook-receiving seats, the distance between said seats being approximately twice the diameter of the heads of the hooks, means to deliver one hook to each hook-receiving seat simultaneously with the heads of the hooks at approximately the desired angular position, means coöperating with each hook-receiving seat to maintain each hook in its proper angular position during the setting operation, and means to set all the hooks at one operation.

3. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats, the distance between said seats being approximately twice the diameter of the heads of the hooks, a plurality of raceways for feeding a series of hooks to said driver simultaneously, means cooperating with each hook-receiving seat to maintain the hooks in their proper angular position during the setting operation, and means to set all the hooks of the series simultaneously.

4. In a machine for setting lacing-hooks, a driver, a plurality of raceways for feeding a plurality of hooks to said driver simultaneously, said raceways each having means to angularly position the hook traversing it, and means coöperating with the driver to set all the hooks at one operation.

5. In a machine for setting lacing-hooks, a driver, a plurality of raceways for feeding a series of hooks to said driver simultaneously, each raceway having means to initially position the hook angularly with respect to the material into which it is set, as it passes to the driver, and means cooperating with the driver to set all the hooks of the series simultaneously, said driver having means to maintain each hook of the series in its proper angular position during the setting operation.

6. In a machine for setting lacing-hooks, a driver, a plurality of raceways for feeding a series of hooks to said driver, simultaneously, each raceway having at its delivery end a curved portion, whereby each hook of the series, as it is fed to the driver, is angularly positioned, and means cooperating with the driver to set all the hooks of the series at one operation.

7. In a machine for setting lacing-hooks, a driver, a plurality of raceways for feeding a series of hooks to said driver simultaneously, each raceway having at its delivery end a curved portion whereby each hook of the series, as it is fed to the driver, is initally positioned angularly with respect to the material into which it is to be set, and means coöperating with the driver to set all the hooks of the series simultaneously, the said driver having means to maintain each hook of the series in its proper angular position during the setting operation.

8. In a machine for setting lacing-hooks, a driver, vertical raceways for simultaneously feeding a series of hooks directly to said driver, said raceways each having means to turn the hook passing thereover on its axis during its descent, and said driver having receiving portions for the hooks whereby, as each hook gravitates to the driver, it is given its proper angular position with respect to the material into which it is to be set, and means coöperating with the driver to simultaneously set the series of hooks.

9. In a machine for setting lacing-hooks, a setting mechanism, vertical raceways to convey a series of hooks simultaneously to the setting mechanism, said raceways having means to angularly position each hook of the series, said setting mechanism including a driver adapted to receive the series of hooks from the raceways and support them with their shanks in a horizontal position, means to reciprocate said driver horizontally and an anvil coöperating with said driver.

10. In a machine for setting lacing-hooks, a driver having a plurality of notches to receive and position a series of hooks, means to feed a series of hooks to said driver simultaneously, a plurality of setting devices or anvils and means to change the relative positions of said driver and anvils to set the series of hooks in the material at one operation.

11. In a machine for setting lacing-hooks, a driver composed of a plate having a plurality of notches to receive and position a series of hooks, a plurality of raceways to guide a plurality of series of hooks, means to insure the delivery of a plurality of hooks from said raceways into the notches of the driver with each hook at approximately its proper angular position, and means to maintain each hook properly positioned during the setting operation, setting means or anvils, and means to change the relative position of said driver and setting means or anvils to set a plurality of hooks at one operation.

12. In a machine for setting lacing-hooks, a series of vertically-located raceways presenting at their lower ends feet having concaved edges combined with a driver composed of a notched plate, the side walls of the notches of the plate being located between adjacent raceways whereby a plurality of lacing-hooks, delivered from the ends of the raceways, are turned with their necks uppermost and the necks delivered into the notches of the driver.

13. In a machine for setting lacing-hooks, a driver having its upper edge notched for the reception of the necks of a series of lacing-hooks, and a slide having a connected body provided with a series of pockets located in its face immediately behind the notches of the driver, said pockets receiving and operating to give the correct angular position to the heads of the hooks, the necks of which are located in said notches and means whereby the hooks gravitate into place in the driver with their shanks arranged horizontally.

14. In a machine for setting lacing-hooks, a driver composed of a plate having a plurality of notches to receive and maintain in proper angular position a plurality of lacing-hooks, a plurality of raceways to supply the notches of said driver with a plurality of hooks, setting means coacting with the shanks of the hooks to expand the same, and means for withdrawing the notches of the driver from the necks of the hooks after they have been set.

15. In a machine for setting lacing-hooks, a driver-plate having a plurality of notches to receive and support a plurality of hooks, a plurality of raceways to supply a plurality of hooks directly to the notches of said driver, a series of anvils, means sustaining said anvils, and means to reciprocate said driver, moving it from the position at the ends of the raceways where it receives lacing-hooks to the position to coöperate with the anvils.

16. In a machine for setting lacing-hooks, a device carrying a plurality of anvils, a slide, means to move the slide back and forth, a swinging member carried by the slide and provided with a driver having notches to receive the necks of a series of hooks, and means for supplying said notches with hooks simultaneously.

17. In a machine for setting a gang of three or more lacing-hooks simultaneously, a device having a plurality of anvils, a driver having a series of three or more notches arranged on a curve, said notches receiving and sustaining a series of hooks, and means for supplying all of said notches simultaneously with hooks, and means for setting said hooks in the material.

18. In a machine for setting lacing-hooks, a driver presenting a plurality of notches arranged in the arc of a circle, a plurality of raceways having curved feet adjacent the notches of the driver whereby hooks descending the raceways, on arriving at the delivery ends thereof, are turned so that the necks of the hooks enter the notches of the driver, and the heads of the hooks are given a radial position with reference to the arc.

19. In a machine of the class described, a driver and a bearing having a plurality of anvils, one of said parts being movable toward and from the other and the driver consisting of a body and a plate detachably connected thereto, the plate having a plurality of notches to receive hooks and the body being recessed, and the walls of the recesses serving to position said hooks in the notches, and means to supply a plurality of hooks to the notches simultaneously.

20. In a machine of the class described, a driver having means to receive a series of hooks, means coöperating with the driver to set all the hooks of the series at one operation, raceways along which the hooks can gravitate to the driver, said raceways each having means to guide the hooks during their descent, so that they will be delivered to the driver with their heads approximately in the right direction, two movable feed-controllers each having a bar to sustain the hooks, and means to operate said feed-controllers in opposite directions to release simultaneously a series of hooks.

21. In a machine of the class described, means to simultaneously set a plurality of hooks, raceways along which the hooks may travel to the delivery ends thereof, said delivery ends of the raceway having means to approximately position the hooks angularly, two feed-controllers made as bars and adapted each to support and control a series of hooks on said raceways, one bar being located above the other and both of them extending entirely across the raceways, and means to effect the release of the endmost hooks of the raceways simultaneously.

22. In a machine for setting lacing-hooks, a driver composed of a plate having a plurality of notches to receive and position a series of hooks, the distance between said notches being approximately twice the diameter of the heads of the hooks, means to feed a series of hooks to said driver simultaneously, a plurality of setting devices or anvils, and means to change the relative positions of said driver and anvils to set the series of hooks in the material at one operation.

23. In a machine for setting lacing-hooks, a driver composed of a plate having a plurality of notches to receive and maintain in proper angular position a series of lacing-hooks, the distance between said notches being approximately twice the diameter of the heads of the hooks, a plurality of raceways to supply the notches of said driver with a plurality of hooks, setting means coacting with the shanks of the hooks to expand the same, and means for withdrawing the notches of the driver from the necks of the hooks after they have been set.

24. In a machine of the class described, hook-setting means, a gravitative raceway, a plurality of oscillatory feed-controllers having oblique slots, a lever provided with projections fitting in the respective slots, and means to operate the lever.

25. In a machine of the class described, a plurality of slides, a driver carried by one of the slides, and provided with notches which may be entered by the necks of a series of hooks, means to supply simultaneously a series of hooks to the driver, a plurality of feed-controllers adapted to control the supply of hooks, means controlled by one of the slides to actuate said feed-controllers, and a bearing having a plurality of anvils to coöperate with the driver.

26. In a machine of the class described, a slide provided with a driver and an arm, an anvil to coöperate with said driver, means for reciprocating the slide, a shaft provided with a cam having a let-off notch and bearing normally against said arm and means to operate said arm when it is opposite said let-off notch.

27. In a machine of the class described, a slide provided with a driver having a plurality of notches to be entered by the necks of a plurality of hooks, means whereby the hooks may gravitate to said driver, a series of anvils coöperating with the drivers, means for sustaining said anvils firmly in operative position, a power-shaft, connections between said shaft and said slide for positively reciprocating said driver and means independent of the shaft and said connections to actuate the slide.

28. In a machine of the class described, a plurality of slides one supported by the other, a yieldable connection between said slides, a driver connected with one of the slides, having means to be straddled by a series of hooks, power-operated means connected with the other slide for positively actuating the same and through it the slide connected with the driver, a plurality of anvils coöperating with the driver, and means to supply to said driver simultaneously a plurality of hooks.

29. In a machine of the class described, a plurality of slides having bearings, a bar connecting the bearings, a spring surrounding the bar and bearing against said bearings, a driver connected with the main slide, means to coöperate with said driver to set a hook, a power-shaft having a crank, and a rod connected respectively with the auxiliary slide and the crank-arm.

30. In a machine of the class described, a plurality of slides having bearings, a rod connecting the bearings, a spring surrounding the rod, and bearing against said bearings, a driver, means to coöperate with said driver to set a hook, a power-shaft having a crank, a rod connected respectively with the auxiliary slide and crank, a gang-raceway, and means for controlling the feed of the hooks, said means being governed by the auxiliary slide.

31. In a machine of the class described, a magazine, a raceway, hook-setting means, a movable device provided with a cup-shaped receptacle shiftably supported thereby, means for operating said movable device to carry it into position to have the receptacle thereon receive a supply of hooks, and to discharge the same upon the raceway, and means to operate the receptacle independently of said movable supporting device.

32. In a machine of the class described, a raceway, hook-setting means, a magazine to contain a supply of hooks, a slide, a cup-shaped receptacle carried by said slide to receive hooks from the magazine, means to shift the receptacle relative to the slide, and means for operating the slide to bring the receptacle into position to receive a supply of hooks and to afterward discharge the same upon the raceway.

33. In a machine of the class described, a raceway, hook-setting means, a magazine to contain a supply of hooks, a slide closing the magazine and having an opening, offsets upon the slide, means for reciprocating said slide, an open-sided receptacle, said open sides being closed by the offsets and said receptacle being pivoted adjacent to said opening, a lever secured to said receptacle, and a fixed stop disposed in the path of said lever.

34. In a machine of the class described, a driver constructed to be straddled by a plurality of hooks with their open shanks out, means to move said driver horizontally, a plurality of anvils corresponding in number with the hooks, the ends of the anvils being pointed to enter the open shanks, means for supplying to the driver simultaneously a plurality of hooks, said means including vertical raceways whereby the hooks can gravitate directly to the driver.

35. In a machine of the class described, a driver having a plurality of hook-receiving seats arranged in an arc, and means coöperating with each hook-receiving seat to sustain the hook thereon with its head radially arranged with reference to the arc.

36. In a machine of the class described, a driver having a plurality of hook-receiving seats arranged in an arc, a series of recesses, one recess adjacent each hook-receiving seat, said recesses adapted to receive the heads of the hooks when said hooks are supported on their seats, the walls of the recesses operating to maintain the heads of the hooks in a radial direction with reference to the arc.

37. In a machine for setting lacing-hooks, a driver consisting of a body and a detachable plate, the plate having a series of notches arranged in an arc and the body having a series of recesses arranged on a corresponding arc, the walls of said recesses receiving the heads of the hooks and maintaining them in a radial direction with reference to the arc.

38. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats arranged in an arc, means to deliver a hook to each hook receiving seat simultaneously, said delivery means being constructed to deliver each hook with its head approximately radially arranged with reference to the arc, a series of recesses in the driver, one recess coöperating with each seat to sustain each hook when delivered in such radial position, and means to set the series of hooks simultaneously.

39. In a machine for setting lacing-hooks, a driver consisting of a body and a detachable plate, the plate having a series of notches arranged in an arc and the body having a corresponding series of recesses arranged in a corresponding arc, means to deliver a hook to each notch simultaneously, said delivery means being constructed to deliver each hook with its head approximately radially arranged with reference to the arc, the walls of said recesses receiving the heads of the hooks, and maintaining them in such radial position, and means to set the hooks simultaneously.

40. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats arranged in an arc, means to deliver a hook to each hook-receiving seat simultaneously, said delivery means being constructed to deliver each hook with its head approximately radially arranged with reference to the arc, a series of recesses, one recess adjacent each hook-receiving seat, said recesses being adapted to receive the heads of the hooks as they are delivered to the hook-receiving seats, the walls of the recesses operating to maintain the heads in such radial position and means to set the hooks simultaneously.

41. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats arranged on an arc, means to deliver a hook to each hook-receiving seat simultaneously, with the heads of the hooks radiating outwardly from the arc, means to maintain the hooks in such radial position during the setting operation, and means coöperating with the driver to set all the hooks at one operation.

42. In a machine for setting lacing-hooks, a driver having a series of hook-receiving seats arranged on an arc, means to feed a hook to each seat simultaneously, said feeding means being arranged to deliver the hooks with their heads radiating outwardly from the arc, said driver having a series of abutments, one adjacent each hook-receiving seat, and against which the heads of the hooks abut when they are supported on their seats, to thereby maintain each hook with its head in the proper radial position during the setting operation, and means coöperating with the driver to set all the hooks at one operation.

43. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats, arranged on an arc, means to deliver a hook to each hook-receiving seat simultaneously with the heads of the hooks extending in divergent directions, said driver having a series of recesses, one recess adjacent each hook-receiving seat, said recesses adapted to receive the heads of the hooks supported on said seats, and having each a wall against which one side of the heads of the hooks abut, thereby maintaining said heads in their proper radial position during the setting operation, and means to set the hooks all at one operation.

44. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats arranged on an arc, means to deliver a hook to each hook-receiving seat simultaneously, with the heads of the hooks on divergent radial lines with reference to the arc, means to maintain said hooks in such radial position during the setting operation, anvils coöperating with the driver to set all the hooks at one operation, and means for releasing the hooks from the driver after the setting operation.

45. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats arranged on an arc, means to deliver a hook to each hook-receiving seat simultaneously, with the heads of the hooks on divergent radial lines with reference to the arc, said driver having a series of recesses, adapted to receive the heads of the hooks, one wall of each recess furnishing a support for the head of the hook therein, to thereby maintain the head of each hook in its proper radial position, and the said recesses being larger than the heads of the hooks whereby the said heads can be withdrawn from the recesses after the hooks have been set, and means coöperating with the driver to set all the hooks at one operation.

46. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats, the distance between said seats being approximately twice the diameter of the heads of the hooks, means to deliver one hook to each hook-receiving seat simultaneously and with the heads of the hooks disposed in approximately the same direction, means coöperating with each hook-receiving seat to maintain the hooks in their proper position during the setting operation, and means to set all the hooks at one operation.

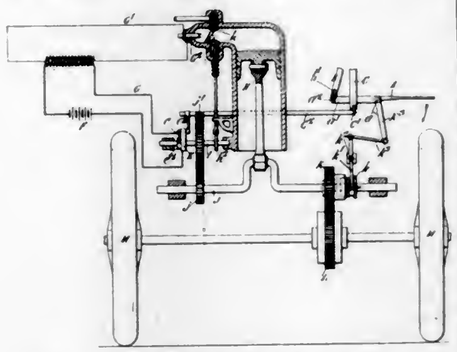
47. In a machine for setting lacing-hooks, a driver having a plurality of hook-receiving seats, the distance between adjacent seats being approximately twice the diameter of the heads of the hooks, a plurality of raceways to feed a plurality of hooks to said driver simultaneously and with the heads of the hooks disposed in approximately the same direction, means coöperating with each hook-receiving seat to maintain the hooks in their proper position during the setting operation, and means to set all the hooks simultaneously.

48. In a machine for setting lacing-hooks, a driver having a series of hook-receiving seats, the distance between adjacent seats being approximately twice the diameter of the heads of the hooks, a plurality of raceways for feeding a series of hooks to said driver simultaneously with the heads of the hooks disposed in approximately the same direction, each raceway having at its delivery end a curved portion whereby each hook of the series, as it is fed to the driver, is angularly positioned, and means coöperating with the driver to set all the hooks of a series at one operation.

49. In a machine for setting lacing-hooks, a driver having a series of hook-receiving seats, the distance between adjacent seats being approximately twice the diameter of the heads of the hooks, a plurality of raceways for feeding a plurality of hooks to said driver simultaneously with the heads of the hooks disposed in the same general direction, each raceway having at its delivery end a curved portion whereby each hook of a series, as it is fed to the driver, is initially positioned angularly with respect to the material into which it is to be set, and means coöperating with the driver to set all of the hooks simultaneously, the driver having means to maintain each hook of the series in its proper angular position during the setting operation.

50. In a machine for setting lacing-hooks, a driver having a series of hook-receiving seats, the distance between adjacent seats being approximately twice the diameter of the heads of the hooks, a plurality of vertical raceways for simultaneously feeding a series of hooks directly to the driver, with the heads of the hooks disposed in approximately the same direction, said raceways each having means to turn the hook passing thereover on its axis during its descent, and said driver having means to maintain said hook in its proper angular position with respect to the material into which it is to be set, and means coöperating with the driver to simultaneously set the series of hooks.

663,388. **ELECTRIC IGNITER FOR EXPLOSIVE-ENGINES.** MONTAGUE S. NAPIER, London, England, assignor of one-half to Selwyn Francis Edge, same place. Filed Jan. 8, 1900. Serial No. 766. (No model.)

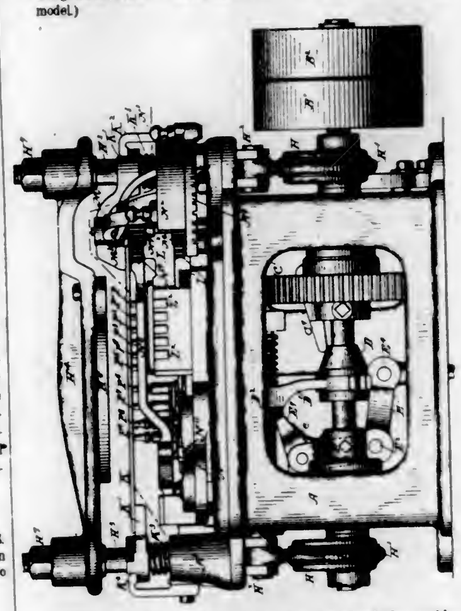


Claim.—1. In an electrically-fired gas-engine for use with motor-vehicles, the combination with the clutch-pedal and with the handle for adjusting the position of the contact device, of means whereby the said contact device is shifted by the said pedal, without disturbing the position of the aforesaid adjusting-handle for the purpose specified.

2. In an electrically-fired gas-engine for use with motor-vehicles, the combination with the clutch-pedal and with the handle for adjusting the position of the contact device, of a slotted tube forming part of lever mechanism for connecting said handle to the contact device, of a spiral spring located within the said tube and bearing against the said handle, of slotted rods connecting the said tube to the said pedal, and of a pin which extends transversely across the upper end of the tube for the aforesaid handle to engage with, substantially as and for the purpose specified.

3. In an electrically-fired gas-engine for use with motor-vehicles, the combination with the clutch-pedal and with the handle for adjusting the position of the contact device, of means for locking the said handle in any desired position that it may be set by the operator, of a tail on the said handle, of a sliding tube slotted for the reception of the aforesaid tail, of lever mechanism for connecting the said tube to the said contact device, of rods connected to the upper end of the said tube by a transverse pin with which the aforesaid tail of the handle can engage, of a pin carried by the said clutch-pedal and extending through longitudinal slots in the said rod, and of a spiral spring located within the said tube and supporting the tail of the aforesaid handle, all substantially as and for the purpose specified.

663,389. **EYELET-HOLE MACHINE.** CHARLES L. NUTTER, East Bridgewater, Mass. Filed Aug. 3, 1896. Serial No. 601,548. (No model.)



Claim.—1. In a machine of the character described, the combination, with a set of punches, of means for adjusting the punches to vary their line of curvature and simultaneously therewith adjusting them toward or from each other, and further means for adjusting said punches toward or from each other independently of the means first named.

2. In a machine of the character described, the combination with punches, of means for adjusting said punches in a line having a contour differing from an arc of a circle and simultaneously therewith adjusting them toward or from each other.

3. In a machine of the character described, the combination with punches, of means for simultaneously adjusting them in a sinuous line.

4. In a machine of the character described, the combination with a set of punches, of means for adjusting said punches to vary their line of curvature and simultaneously therewith adjust them toward or from each other.

5. In a punching-machine of this class a series of punching-dies, lazy-tongs having mounted upon them the said series of punching-dies, a sliding block I_4, having punch-carrying slides adapted to move laterally in said block, a sliding bar N^3, adapted to operate the said punch-carrying slides, and mechanism adapted to adjustably operate said sliding block and bar, substantially as and for the purpose set forth.

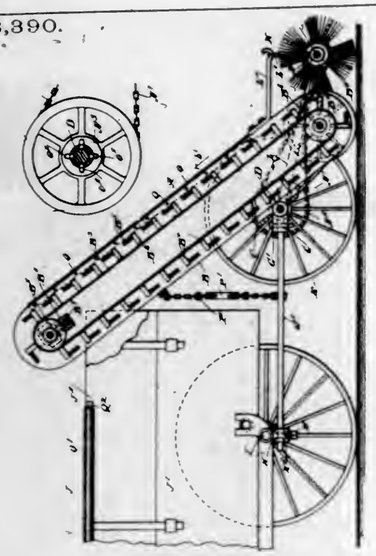
663,390. **STREET-SWEEPER.** CHARLES Z. O'NEILL, New York, N. Y. Filed Dec. 6, 1899. Serial No. 739,388. (No model.)

Claim.—1. A street-sweeper comprising a wheeled frame, an elevator having a frame supported to swing on said wheeled frame, a driving ground-wheel for said elevator mounted in the elevator-frame and thereby adapted to be raised from or lowered to the ground by the swinging of the elevator-frame, links pivotally carried by the axle of the wheeled frame, a brush journaled at the rear ends of said links, an adjustable connection from the elevator-frame to the links, and means for driving the brush.

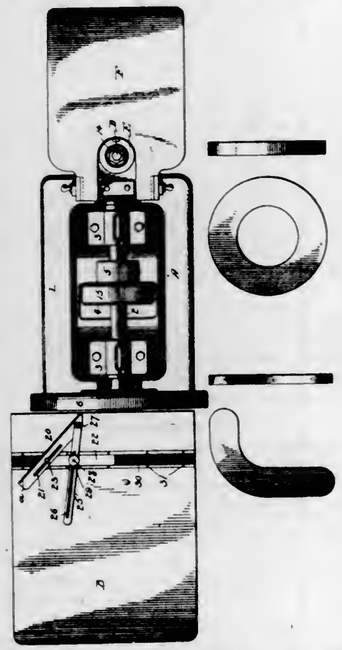
2. A street-sweeper having an elevator, comprising a frame, upper and lower pulleys journaled in the frame, an endless apron passing over said pulleys, buckets on said apron, and formed of transverse bars, and bristles extending from one face of the bar approximately at right angles to the face, substantially as shown and described.

3. A street-sweeper having an elevator, comprising a frame, upper and lower pulleys journaled in the frame, an endless apron passing over said pulleys, buckets on said apron and formed of transverse bars, bristles extending from one face of the bar approximately at right angles to the face, vehicle-wheels on which said frame is mounted, and driving-wheels for the lower pulley, and arranged to travel on the ground, substantially as shown and described.

663,390.



663,391. WOODWORKING-MACHINE. BENTON ORBISON, Chicago, Ill. Filed Mar. 31, 1899. Serial No. 711,235. (No model.)



Claim.—1. The combination with a table, of a guide adjustably pivoted thereto and an adjusting-plate pivotally connected with the guide, and means for setting the said plate whereby the angle of the guide may be changed.

2. The combination with a table and a slide, of a guide pivoted to the slide, and an adjusting-plate pivoted to the guide and adjustably connected with the table.

3. The combination with a table and a guideway, of a slide, and a slotted guide pivoted to the slide, and a slotted adjusting-plate pivoted to the guide and adjustably connected with the slide.

4. The combination with a shaft having a disk on one end, said disk faced with sand, emery or garnet paper, of a table hinged at one edge in position opposite the center of the disk whereby the work thereon is capable of engaging the largest possible surface of the disk, said table being of a width approximately equal to the diameter of the disk, a screw-jack for varying the angle of the table, a split nut for the passage of the screw-jack, and a set-screw in the split nut for locking the screw-jack in position.

663,392. SEAMLESS METAL JAR. ALEXANDER R. PIPER, Sing Sing, N. Y., assignor to the Seamless Metal Ware Company of New York. Filed Sept. 17, 1900. Serial No. 30,307. (No model.)



Claim.—A vessel having on its rim a cover-receiving flange consisting of an outward-extending part having an upward extension, this upward extension having an inward-turned bead on its upper edge, a compressible sealing-disk pressing against the internal shoulder formed by the outward-extending part and against the upward extension underneath the bead, a disk on top of the sealing-disk, and a locking device engaging said disk and the external shoulder formed by the outward-extending part and the upward extension, for the purpose set forth.

663,393. HEARING-TUBE. BERTHA A. PRICE, Chicago, Ill., assignor of one-half to William L. Hall, same place. Filed Jan. 2, 1900. Serial No. 66. (No model.)



Claim.—1. A hearing-tube for sound-reproducing devices provided with means by which it is supported upon the operator below the operator's head, said means affording the sole support for the upper end of the tube.

2. A hearing-tube for sound-reproducing devices provided with means by which it is supported upon the operator below the operator's head, said means being constructed to permit the earpieces to be held out of contact with the operator's ears, and to afford the sole support for the upper end of the tube.

3. A hearing-tube for sound-reproducing devices comprising a main body and two branches, and supporting devices on said branches adapted for engagement with a part associated with the apparel of the operator below the operator's head.

4. A hearing-tube for sound-reproducing devices comprising a main body and two stiffened branches, said tube being provided with a supporting device adapted for engagement with a part associated with the apparel of the operator, and the branches being adjustable as to distance apart.

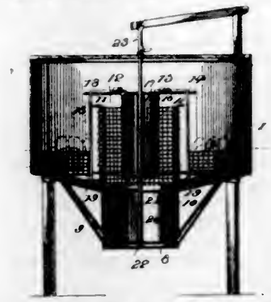
5. A hearing-tube for sound-reproducing devices comprising a main body and two stiffened branches, and supporting devices on said branches, each comprising a band encircling the branch and an attaching device, said supporting devices being movable longitudinally of the branches.

6. A hearing-tube comprising a main body and two branches, a device affording lateral adjustment of said branches with respect to each other, and supporting devices affixed to said adjusting device.

7. A device for supporting hearing-tubes and for holding the branches thereof at a desired distance apart, comprising bands designed to encircle the branches and attaching devices on said bands, and a collapsible distance-bar between said bands.

8. The combination with a hearing-tube, of a tape which is supported from the neck of the operator and a hook on the tube adapted for engagement with the tape for holding the branches of the tube in position for transmitting sound-waves therefrom to the ears of the operator.

663,394. DISH-WASHING MACHINE. CHARLES G. READ, Eden, N. Y., assignor of one-half to James D. Read, same place. Filed Apr. 25, 1900. Serial No. 14,333. (No model.)



Claim.—1. In a dish-washing machine, the combination with a dish-receptacle, of a reservoir opening through and depending from the bottom thereof, spouts connecting said reservoir and receptacle and a plunger having an outwardly-flared upper end, and a splasher adapted to enter said plunger and means to reciprocate the first-named plunger.

2. In a dish-washer, the combination with the dish-receptacle, a reservoir opening into and depending from the same of a cup-shaped plunger having an outwardly-flared splashing-rim secured to its upper end, and a stationary splasher secured within the receptacle above and in line with the cup-shaped plunger, said splasher adapted to enter the cup-shaped plunger as the latter is reciprocated and expelling therefrom water.

3. In a dish-washing machine, the combination with the dish-receptacle, a reservoir opening into and depending from the same, of a disk secured within the receptacle above the reservoir, a splasher depending therefrom and a cup-shaped plunger adapted to cooperate with said splasher.

4. In a dish-washing machine, the combination with the receptacle, of a reservoir opening into and depending therefrom, a disk secured within the receptacle above and of greater diameter than the reservoir, a splasher depending from said disk and provided with a centrally-bored portion and a cup-shaped plunger having an upwardly-flared end mounted upon a rod passing through the bored portion of the said splasher, said rod being connected to an operating-lever.

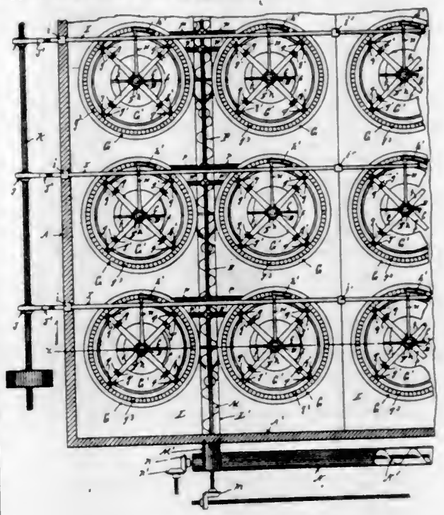
5. In a dish-washer the combination with the dish-receptacle, a reservoir opening into and depending therefrom spouts connecting the bottom of the reservoir with said receptacle, guide-rods extending from the reservoir into the receptacle and bent outwardly at their upper ends, of a disk mounted upon suitable standards within said receptacle a splasher depending from said disk and having a centrally solid bored portion, a rod mounted therein, of a cup-shaped plunger having an outwardly-flared upper end and secured to said rod, and an operating-lever also secured to said rod

663,395. APPARATUS FOR MAKING LAMPBLACK. PATRICK F. REARDON, Kane, Pa., assignor of one-half to James McDade, same place. Filed Mar. 24, 1900. Serial No. 10,010. (No model.)

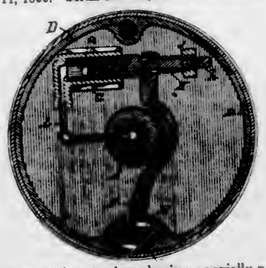
Claim.—1. In a carbon-black machine, the combination of a building inclosing a series of revolving deposit-plates, gas-supply pipes, burners, and scraper mechanism under said plates, with longitudinal hoppers having open grooves in the bottoms thereof, and parallel with and joining each other so as to cover the floor-space of the building under said mechanism, and conveyers operating in the open grooves in the hopper-bottoms, substantially as and for the purpose set forth.

2. In a carbon-black machine, the combination of horizontal revolving deposit-plates arranged in two rows and having burner and scraper mechanism thereunder, within an inclosed building, with a hopper extending longitudinally the entire length of the rows of deposit-plates, and laterally the entire width of said two rows of deposit-plates, and having an open groove, longitudinally, in the bottom thereof, and a conveyer operating in the open groove in the bottom of said hopper, substantially as and for the purpose set forth.

3. In a carbon-black machine, comprising substantially a building inclosing a series of revolving horizontal deposit-plates, the combination of a series of annular deposit-plates arranged in pairs on the same horizontal plane, one within the other, revoluble spiders having arms engaging lugs on the tops of said plates for supporting and rotating the same, gas-supply pipes, burners and scraper mechanism under said plates, longitudinal hoppers under said series of deposit-plates, parallel with and joining each other so as to cover the floor of the building, and a conveyer operating in an open longitudinal groove in the bottom of each of said hoppers, substantially as and for the purpose set forth.



663,396. FRICTION-CLUTCH. EDWARD F. STONE, Boston, Mass. Filed Nov. 11, 1899. Serial No. 736,590. (No model.)



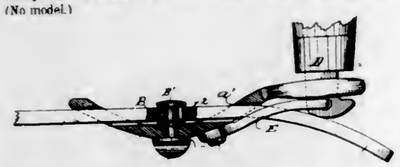
Claim.—1. In a friction-clutch mechanism, an axially-perforated shaft, a clutch-body having an annular peripheral flange with a smooth inner surface concentric with said shaft, a radial carrying-plate fixed on the shaft and a transversely-severed elastic ring anchored on said plate, within said flange, in combination with lever mechanism and a cylinder and piston connected thereto inclosed between said body and plate and serving to expand said ring into clutching contact with the flange, and with a tubular connection to said shaft and from it to said mechanism, within the clutch, whereby the clutch is actuated by fluid-pressure through said shaft and tubular connections, substantially as set forth.

2. In a friction-clutch mechanism, an axially-perforated shaft, a flanged clutch-body freely rotatable on the shaft, a carrying-plate fixed on said shaft and cooperating with the clutch-body, and a transversely-severed elastic ring anchored on such carrying-plate, in combination with a lever pivoted on said plate between the shoulders of the severed ring, a cylinder fixed on said plate and a piston moving thereln, and with tubular connections from the interior of the shaft to the piston connected to the free end of said lever, between the clutch-body and the carrying-plate, and serving to actuate said lever and expand the ring into clutching contact with said flange, substantially as set forth.

3. In a friction-clutch mechanism, an axially-perforated shaft, a flanged clutch-body loosely mounted thereon, a carrying-plate fixed on said shaft, a piston-chamber fixed on such plate, tubular connections from said chamber to the interior of the shaft, and a piston movable in such chamber and projecting at one end therefrom, in combination with a transversely-severed ring anchored on said plate, and a vibrating lever pivoted on such plate, between the terminal shoulders of said ring, and, at its free end, connected to said piston, and adapted to be actuated by fluid-pressure exerted within the clutch through such tubular connections, substantially as set forth.

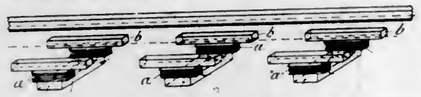
4. In a friction-clutch mechanism, a flanged clutch-body and a carrying-plate, respectively loose and fixed on the shaft, a transversely-severed elastic ring, and a vibrating lever adapted to expand said ring into clutching contact with the flange of the clutch-body, in combination with a movable piston connected to the free end of said lever and actuated by fluid-pressure applied between such body and plate, and with a spring serving to restore said lever to its dormant position and release the clutch when the pressure is withdrawn, substantially as set forth.

663,397. BUCKLE AND COCKEYE. DAVID E. STONEBURNER, Bailey's Cross-Roads, Va. Filed June 30, 1898. Serial No. 684,874. (No model.)



Claim.—The herein-described buckle and trace-connector, consisting of the curve buckle-frame provided with end bars and openings for the trace, the cockeye at one end of said frame, the stud or button pivoted centrally in the buckle-frame and provided with a head adapted to be passed through an eye in the trace and turned to engage said trace, and a latch pivoted on the buckle-frame for engaging the end of the whiffletree, substantially as described.

663,398. ELECTRIC RAILWAY. ERNST SUSSMANN-HELLBORN and WILHELM HORNAUER, Munich, Germany. Filed Oct. 11, 1900. Serial No. 32,770. (No model.)



Claim.—1. Means for feeding electricity to motor-cars by induction, comprising a divided transformer having the primary elements embedded in the ground and the secondary elements or windings on the car, the iron cores of the primary and also of the secondary elements being each continuously magnetically connected up among themselves, parallel to the direction of the rails by means of a plurality of parallelly-located compound iron binders between the rails and on the car in the manner and for the purpose substantially as described.

2. In a device for feeding electricity to motor-cars by induction comprising the primary elements located in the ground and secondary elements located on the car, the combination of at least two secondary elements mounted on each iron binder of the car said elements being connected up in series for the purpose substantially as described.

3. The combination in an electric railway, of transformers having the primary elements distributed along the line and the secondary elements located on the car, said primary elements having magnetic bars extending along the line and connecting the extremities of like polarity, said secondary elements on the car also having magnetic bars connecting the extremities of like polarity, said bars on the car being arranged to travel in proximity to the said bars extending along the line, and an electric motor on the car connected with said secondary elements, said latter elements being connected up in series with said motor.

4. The combination in an electric railway, of transformers having the primary elements distributed along the line and the secondary coils located on the car, the said primary elements of the transformers having their unlike extremities connected by a magnetic bar, and magnetic bars extending along the line and connecting the other ends of said primary elements, each of said latter bars connecting extremities of like polarity of the said primary elements, the said secondary elements of the transformers having their unlike extremities connected by a magnetic bar, and longitudinally-arranged magnetic bars connecting the other ends of said secondary elements, each of said latter bars connecting extremities of like polarity of the secondary elements, said longitudinal bars on the car being arranged to travel in proximity to said bars extending along the line, and an electric motor on the car connected with said secondary elements of the car.

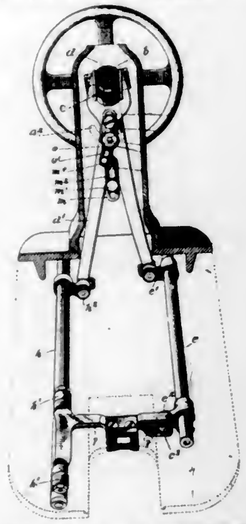
5. The combination in an electric railway, of transformers having the primary coils distributed along the line and the secondary elements located on the car, the said primary elements of the transformers having their unlike extremities connected by a magnetic bar, and magnetic bars extending along the line and connecting the other ends of said primary elements, each of said latter bars connecting extremities of like polarity of the said primary elements, the said secondary elements of the transformers having their unlike extremities connected by a magnetic bar, and longitudinally-arranged magnetic bars connecting the other ends of said secondary elements, each of said latter bars connecting extremities of like polarity of the secondary elements, said longitudinal bars on the car being arranged to travel in proximity to said bars extending along the line, and an electric motor on the car connected with said secondary elements of the car, said latter elements being connected up in series with said motor.

6. The combination in an electric railway, of polyphase transformers having the primary elements distributed along the line and the secondary elements located on the car, the said primary elements of the transformers having their unlike extremities connected by a magnetic bar, and magnetic bars extending along the line and connecting the other ends of said primary elements, each of said latter bars connecting extremities of like polarity of the said primary elements, the said secondary elements of the transformers having their unlike extremities connected by a magnetic bar, and longitudinally-arranged magnetic bars connecting the other ends of said secondary elements, each of said latter bars connecting extremities of like polarity of the secondary elements, said longitudinal bars on the car being arranged to travel in proximity to said bars extending along the line, and an electric motor on the car connected with said secondary elements of the car.

7. The combination in an electric railway, of polyphase transformers having the primary elements distributed along the line and the secondary elements located on the car, the said primary elements of the transformers having their unlike extremities connected by a magnetic bar, and magnetic bars extending along the line and connecting the other ends of said primary elements, each of said latter bars connecting extremities of like polarity of the said primary elements, the said secondary elements of the transformers having their unlike extremities connected by a magnetic bar, and longitudinally-arranged magnetic bars connecting the other ends of said secondary elements, each of said latter bars connecting extremities of like polarity of the secondary elements, said longitudinal bars on the car being arranged to travel in proximity to said bars extending along the line, and an electric motor on the car connected with said secondary elements of the car, said latter elements being connected up in series.

8. The combination in an electric railway, of polyphase transformers having the primary elements distributed along the line and secondary elements on the car, said primary elements having magnetic bars extending along the line and connecting the extremities of like polarity, and means for electrically connecting said magnetic bars with the neutral point of said primary elements.

663,399. FEEDING MECHANISM FOR SEWING-MACHINES. JAMES TRIPP, New York, N. Y., assignor to Allen Schenck, same place. Filed Dec. 2, 1897. Serial No. 660,528. (No model.)



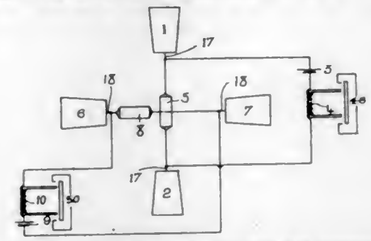
Claim.—1. In a sewing-machine, the combination, with a feeding device and means for operating the same embodying a lever, of an adjustable fulcrum-pin having connection with said lever, a stop device, and a link having a pivotal connection with said fulcrum-pin and a vertical sliding connection with said stop device, substantially as and for the purpose set forth.

2. In a sewing-machine, the combination, with a feeding device and means for operating the same embodying a lever, of an adjustable fulcrum-pin having a link connection with said lever, a link pivotally supported at one end upon a stationary support and at its opposite end having connection with said fulcrum-pin, an adjustable stop device, and a link connecting at one end with the latter and at its opposite end connecting with said fulcrum-pin and its connected link in a manner to be movable with the same, substantially as and for the purpose set forth.

3. In a sewing-machine, the conibination, with a feeding device and means for operating the same embodying a vertically-arranged lever, of an adjustable fulcrum-pin supported to move in a curved slot in the arm of the machine and having a link connection with said lever, a plate supported in a vertically-adjustable position on the machine-arm and provided with a pin, a link connecting the fulcrum-pin and the pin on said adjustable plate, and means for securing the latter plate and the fulcrum-pin in an adjustable stationary position, substantially as and for the purpose set forth.

4. In a sewing-machine, the combination, with a feeding device and means for operating the same embodying a vertically-arranged lever, of an adjustable fulcrum-pin having a link connection with said lever, a link pivotally supported at one end upon a stationary support and at its opposite end having an opening to receive one end of said fulcrum-pin, an adjustable stop device, and a link connecting the latter with the said fulcrum-pin-connecting link, substantially as and for the purpose set forth.

663,400. METHOD OF CONTROLLING MECHANISM BY MEANS OF ELECTRIC OR ELECTROMAGNETIC WAVES OF HIGH FREQUENCY. ERNEST WILSON and CHARLES J. EVANS, London, England. Filed July 28, 1898. Serial No. 687,083. (No model.)



Claim.—1. In a mechanism for controlling other mechanism at a distance by means of electric waves, the combination of a receiving mechanism having a pair of receivers arranged at right angles to each other, electromagnetic mechanism connected with each receiver, a transmitting mechanism having transmitters arranged at right angles to one another, said transmitters being opposite to the receivers for sending electric impulses to the same, substantially as described.

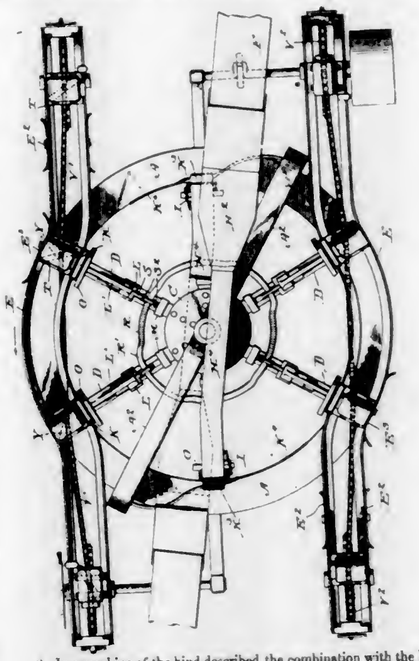
2. In a mechanism for operating electromagnetic devices from a distance, the combination of receivers, coherers connected with the receivers, said receivers being arranged at right angles to each other, electromagnetic mechanism connected with each coherer, a transmitting mechanism having transmitters arranged at right angles and so arranged as to be opposite to the receivers, whereby electric energy can be transmitted to the electromagnetic mechanisms, substantially as described.

3. In a device for controlling mechanisms by electric waves, the combination of receivers arranged at right angles to each other, transmitters arranged at right angles to each other and in a plane parallel to the plane of the receivers and so that the line joining their centers will be approximately perpendicular to the said parallel planes, relays connected with the receivers arranged at right angles to each other and contact-making devices in circuit with the said receivers, electromagnetic mechanisms connected with the relays, the construction being such that the transmitters thus arranged opposite to the receivers may impart an electric impulse to either of the receivers, substantially as described.

4. In a mechanism for transmitting electrical energy, the combination of a receiving mechanism having two receivers arranged at right angles to each other, electromagnetic mechanism connected with the said receivers, and transmitters arranged at right angles to each other for sending electric impulses to the opposite receivers, substantially as described

663,401. MACHINE FOR CAPPING JARS. EUSTACE S. YOUNG, Muncie, Ind. Filed Dec. 8, 1899. Serial No. 739,627. (No model.)

Claim.—1. In a machine of the kind described, the combination with the cap-feeding mechanism, of the jar-feeding mechanism and the capping device adapted to receive the caps and fasten them upon the jars by rotation, substantially as shown and described.



2. In a machine of the kind described the combination with the hopper and feed-chute of the bottle-carriers adapted to operate as described, the capping device carrying the delivery-chutes and provided with means for rotating the caps to secure them upon the bottles, substantially as shown and described.

3. In a machine of the kind described, the combination with the main frame of the tracks arranged upon opposite sides thereof, a main shaft journaled in the side frame, the arms radiating from said shaft, the capping devices arranged upon said arms, the hopper arranged upon the main frame and having the feed-chute extending therefrom adapted to deliver the caps one at a time into the delivery-chute of the capping devices, means for carrying the bottles or jars along the track and means for operating the capping devices to receive the cap from the delivery-chute and arrange the same upon the bottle or jar, substantially as shown and described.

4. In a machine of the kind described the combination with the main frame of the tracks arranged upon opposite sides thereof and having bottle or jar carriers moving in said tracks, the rotating shaft journaled in the main frame and having a series of horizontal arms radiating therefrom, the capping devices arranged upon said arms, the hoppers and feed-chute arranged upon the main frame and adapted to deliver the caps to the capping devices through the medium of said chute carried by the said capping devices, means whereby the said caps are rotated as the mouth of the bottle or jar is brought into juxtaposition therewith, substantially as shown and described.

5. In a machine of the kind described, the combination with a hopper of a perforated separating-board arranged at the end thereof, and the feed-chute arranged beneath said separating-board all of said parts being inclined and the chute extending below the lower end of the separating-board, substantially as and for the purpose described.

6. In a machine of the kind described the combination with the hopper of the separating-board arranged at the end thereof, a feed-chute arranged directly beneath the said separating-board, said feed-chute having one or more obstruction-pins, substantially as shown and described and for the purpose set forth.

7. In a machine of the kind described, the combination with the hopper divided longitudinally in a series of compartments adapted to receive rows of caps and perforated separating-board arranged at the end of said hopper, and feed-chute arranged directly beneath the said separating-board and having a series of obstructing-pins for the purpose of separating the caps in their passage from the enlarged to the contracted portion of the feeding-chute, substantially as shown and described.

8. In a machine of the kind described, the combination with the main frame, rotary shaft and horizontal arm radiating from said shaft, of a horizontal shaft journaled above the said horizontal arm and having a disk at its outer end and the pinion adjacent to its inner end, means arranged upon the said disk for receiving the cap, the rack-bar supported by the main frame and adapted to engage the pinion whereby the horizontal shaft is rotated, substantially as shown and described.

9. In a machine of the kind described the combination with the main frame rotary shaft and horizontal arm radiating from the said rotary shaft, of the horizontal shaft journaled above the horizontal arm and having a disk at its outer end and a gear adjacent to its inner end, a delivery-chute connected with the horizontal arm and arranged adjacent to the disk, means arranged upon the forward face of the disk for receiving and clamping the caps as they are delivered from the delivery-chute and a continuous rack-bar supported by the main frame and adapted to engage the gear or pinion whereby the said horizontal shaft is rotated, for the purpose of fastening the cap upon the bottle or jar, substantially as shown and described.

10. In a machine of the kind described, the combination with the horizontal arm of the horizontal shaft journaled upon said arm in suitable journal-brackets, one of said brackets having an arm projecting forwardly therefrom, a delivery-chute arranged upon the forward end of said arm and adapted to receive the caps one at a time from the feeding-chute, a disk arranged upon the outer end of the horizontal shaft and having a lip upon its outer face to receive and clamp the cap as it is delivered from the delivery-chute, means for operating the clamping-lip together with means for rotating the shaft, substantially as shown and described.

11. The combination with the horizontal arm of the horizontal shaft journaled above said arm in suitable journal-brackets, one of said brackets having an outwardly-extending arm, a delivery-chute arranged upon the end of said arm, and adapted to receive the caps one at a time, a disk arranged upon the outer end of the rotating shaft and having a rest and clamping lip arranged upon its outer face, the operating spring and lever connected with the clamping-lip, a pinion arranged upon the inner end of the rotating shaft and adapted for engagement with a continuous rack-bar supported by the main frame, a sleeve splined upon the rotating shaft and adapted to rotate therewith, and means for sliding the said sleeve upon the rotating shaft whereby the clamping-lip is opened and closed, substantially as shown and described.

12. In a machine of the kind described, the combination with the rotating shaft carrying a disk at its outer end, and the rest and clamping lip arranged upon said disk the operating spring and lever connected to the clamping-lip, the pressure-rod carried by the shaft in a groove produced in said shaft, the sleeve splined upon the shaft and having a collar connected thereto, said collar having an arm projecting inward therefrom, a cam-shaft track adapted to operatively engage the inner end of said arm and a rack-bar arranged in connection with said track and a pinion mounted upon the rotary shaft whereby said shaft is rotated as it is moved around, substantially as shown and described.

13. In a machine of the kind described, the combination with the delivery-chute having a spring-actuated guide-arm at its lower end, of a curved projecting blade arranged adjacent to the end of the delivery-chute, and the disk having a rest and clamping lip arranged upon the outer face of said disk and means for operating the clamping-lip and rotating the disk, substantially as shown and described.

14. The combination with the horizontal shaft suitably journaled in the disk arranged at the forward end thereof, and having the rest and clamping lips arranged thereon, an operating-spring, a lever and pressing-rod for operating the clamping-lips, the sleeve splined upon the rotary shaft and having a projector extension through the disk and means for rotating the shaft and operating the sleeve, substantially as described.

15. In a machine of the kind described, the combination with the track of an endless chain moved therethrough, and the bottle or jar carriers pivotally mounted upon the chain, and means for turning the carriers, substantially as shown and described.

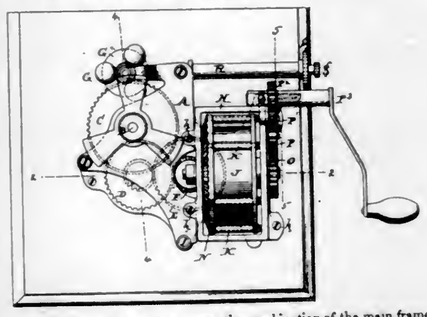
16. In a machine of the kind described the combination with the track of an endless chain moving therethrough, the blocks connected to the chain and moving in the track, the jar or bottle carriers mounted upon the said blocks, the guides arranged upon opposite sides of the track, and a tripping-block for shifting the position of the bottle-carrier, substantially as shown and described.

17. In a machine of the kind described the combination with the track, an endless chain of the blocks connected to the chain and traveling upon the track, of the jar or bottle carriers pivotally mounted upon the box and having the cross-arm connected to its pivot, and a tripping-block arranged at one side of the track and adapted to engage the cross-arm for the purpose of turning the bottle-carrier, substantially as shown and described.

18. In a machine of the kind described the combination with the main frame, a rotary shaft, of the horizontal arms radiating from said horizontal shaft, the capping devices arranged upon the said horizontal arms and comprising means for receiving, clamping and rotating the caps, the delivery-chutes connected with the horizontal arms, the feed-hoppers and feed-chutes for feeding the caps one at a time to the delivery-chutes, the tracks arranged upon opposite sides of the main frame and curved intermediate their ends in an arc of a circle, the jar or bottle carriers adapted to hold the jar or bottle and travel along the said track whereby the said jar or bottle is brought into juxtaposition with the cap during its movements through the curved portion of the track, means arranged within the main frame for operating the capping devices and means connected with the feed-hoppers for agitating the same, substantially as shown and described.

19. A machine for capping jars comprising a movable carrier for feeding jars in proper position, means for feeding the cap in proper position and a rotating capping device adapted to receive the said cap and rotate the same when brought into juxtaposition with the neck of the bottle whereby the said cap is screwed upon the jar, substantially as described.

663,402. SPRING-MOTOR. HENRY K. SMITH, Philadelphia, Pa., WILLIAM W. MORTON, Camden, N. J., and ROBERT L. GIBSON, Philadelphia, Pa.; said Smith and Morton assignors to said Gibson. Filed Mar. 7, 1900. Serial No. 7,667. (No model.)



Claim.—1. In a spring-motor, the combination of the main frame, a driven shaft therein, a bevel-pinion working upon a vertical stud carried on the main frame, a connecting-train of gearing between the bevel-pinion and driven shaft, a vertically-arranged cage having a large bevel-gear meshing with a bevel-pinion on the main frame, a spring arranged within the cage having its outer end attached to the periphery of the cage and its inner end attached to a shaft upon which the cage freely revolves, means for winding the shaft to which the spring is attached and locking it against backward motion, and an independent frame carrying the said cage and detachably secured to the main frame whereby the large bevel-gear of the cage may be held in proper relation for holding the bevel-pinion and the connecting-train of gearing in operative position upon its vertical stud.

2. In a spring-motor, the combination of the main frame, a driven shaft therein, a bevel-pinion, a connecting-train of gearing between the bevel-pinion and the driven shaft, a vertically-arranged cage having a large bevel-gear meshing with the bevel-pinion on the main frame, a spring arranged within the cage having its outer end attached to the periphery of the cage and its inner end attached to a shaft upon which the cage freely revolves, means for winding the shaft to which the spring is attached and locking it against backward motion, and a removable box-frame carrying the cage, the spring and the winding-shaft and detachably connected with the main frame, whereby the spring and its immediate connections may be supported by the box-frame in permanent operative relation to each other and by said frame be readily disconnected from and without dismantling the remaining part of the motor.

3. In a power-motor, a driven shaft and a train of gearing for operating said shaft leading to and connecting with a bevel-pinion, in combination with a large driven bevel-gear, a winding-gear connected to the inner end of the spring, means to hold the winding-shaft against backward rotation, and a removable frame carrying the spring, the winding-shaft and the large bevel-gear made detachable from the remaining part of the motor, whereby the spring and its immediate connections may be supported by the box-frame in permanent operative relation to each other and by said frame be removed without dismantling the remaining part of the machine.

4. In a motor, the combination of the driven shaft, power devices for driving the shaft, a friction-disk geared with the driven shaft, a brake-lever adapted to control the rotation of the disk, a screw-threaded rod carried by the frame of the motor for adjusting the brake-lever for speed regulation, and a tubular shaft encircling the rod and screwed upon the main frame and also operating upon the brake-lever whereby a positive pressure may be applied to arrest the rotation of the friction-disk but when removed the normal speed will be at once secured.

5. In a power-motor, the combination of the main frame carrying the driven shaft and speed-multiplying gearing for driving it, with a removable rigid frame structure detachably secured to the main frame, a driving-gear journaled in and carried wholly by the removable frame for driving the speed-multiplying gearing of the main frame, a coil-spring having its outer end connected to the driven gear, a central shaft connected to the inner end of the spring and journaled in the removable frame, and means also carried by and detachable with the removable frame for rotating the central shaft and locking it against backward rotation whereby the coil-spring, the driven gear, the central shaft and the means for rotating and locking the shaft are supported by the removable rigid frame structure in permanent operative relation to each other and by said frame be readily disconnected as a unit from the main frame and the speed-multiplying gearing.

6. In a power-motor, the combination of the main frame carrying the driven shaft and speed-multiplying gearing for driving it, with removable frame detachably secured to the main frame, a coil-spring having its outer end connected to the drive gear, a central shaft connected to the inner end of the spring and journaled in the removable frame, means also carried by the removable frame for rotating the central shaft and locking it against backward rotation, a governor on the main frame for controlling the speed of rotation of the driven shaft, and means for regulating the speed of the governor carried by the main frame independently of the removable frame.

7. In a power-motor, the combination of the driven shaft, gearing for rotating it, a spring for rotating the gearing, a friction-disk for regulating the speed of rotation of the disk, a bushing U screw-threaded both internally and externally, a screw-threaded shaft *g* extended through the bushing for adjusting the lever G′ to regulate the speed of the disk, and a tubular shaft R screwed upon the outside of the bushing and acting upon the lever G′ for stopping the disk and performing the function of a brake.

8. In a motor, the combination of a spring cage or case having a large bearing at one side and a small bearing at the opposite side, a coil-spring arranged within the case and having its outer end attached thereto, and a winding arbor or shaft furnished with a headed pin and having its body and one end of large diameter and the other end of small diameter and connected with the part of large diameter by a tapering or conical portion, whereby the said shaft or arbor may be forced through the small central coil of the spring within the case and be simultaneously journaled in the bearings thereof.

9. In a motor, the driven shaft, spring and connecting-gearing, in combination with a winding shaft or arbor for winding the spring, a crank or hand shaft for winding the arbor, a train of spur-gearing between the crank or hand shaft and the winding shaft or arbor, and a locking-gear adapted to mesh simultaneously with two of said gears of the train of gears and supported loosely whereby it may roll out of mesh with either or both of two of said gears or into mesh with both of them to lock the arbor or winding-shaft against backward motion.

10. In a spring-motor, the combination of the spring and its arbor, a winding-shaft, a connecting train of gears between the winding shaft and arbor, and a locking device to arrest the rotation of the train of gears and arbor in one direction only consisting of a gear adapted to mesh simultaneously with one of the gears of the said train of gears and supported loosely whereby it may roll out of mesh with either or both of two of said gears or into mesh with both of them.

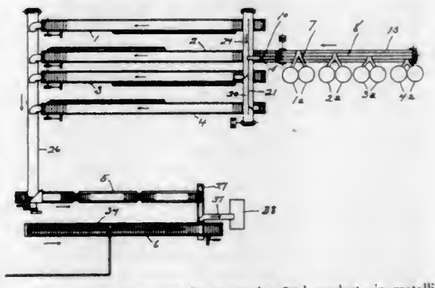
11. In a spring-motor, the combination of an upright driven shaft, a train of gears to rotate it at high speed, a spring power device to drive the train of gears, and a bearing for the end of the rapidly-moving driven shaft consisting of a hardened-steel ball fitted into the end of the shaft and held thereto by overextending parts which contract the opening through which the ball is exposed, whereby the lower end of the shaft presents a smooth true hardened-steel bearing.

12. In a motor, a driven shaft, a speed-controlling shaft parallel to the driven shaft, spur-gearing between the driven shaft and speed-controlling shaft, a fixed bearing for one end of the controlling-shaft, a friction device for controlling the speed of rotation of the controlling-shaft, and an adjustable bearing for the other end of the controlling-shaft consisting of a pivoted block having the spindle of the controlling-shaft journaled therein eccentric to its pivot and means to lock the block in its adjusted positions to enable the spur-gearing to be adjusted to compensate for wear and prevent noise.

13. In a motor, the combination of a driven shaft, power devices for driving it, a friction-disk geared with the driven shaft, a pivoted brake-lever G′ adapted to control the rotation of the disk, a slotted tubular post W to hold the brake-lever against lateral motion, a spring *w* to press the brake-lever away from the disk, and hand devices for adjusting the brake-lever against the action of the spring.

REISSUES.

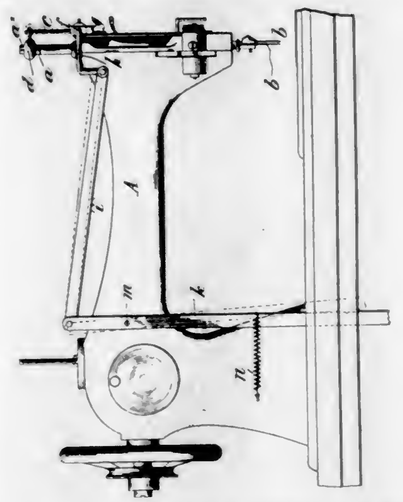
11,875. PROCESS OF PRESERVING MEATS. FREDRICK W. BRIGHT, Kansas City, Kans., assignor to the Armour Packing Company same place. Filed Sept. 24, 1900. Serial No. 30,965. Original No 654,563, dated July 24, 1900.



Claim.—1. In a process for preserving food products in metallic cans, which consists in first hermetically sealing said cans containing the products in a vacuum, then processing the same in a liquid, which does not vaporize appreciably at a temperature of 240° Fahrenheit, said liquid being maintained at approximately said temperature; then automatically washing said packages in a solution of sodium carbonate and hot water, then passing them through a body of hot water, then cooling them in cold water, and further cooling them in a stream or spray of cold water, substantially as set forth.

2. In a process for preserving food products in tin cans or cases, which consists in first hermetically sealing said cans in a vacuum, then processing the same by passing them through a bath No. 1 tallow having a temperature of 240°, more or less, Fahrenheit, said temperature being maintained by a volume of steam confined in pipes in said bath of tallow; next, in automatically removing the grease from said cans by passing them through three cleaning-baths in succession; the first being a strong solution of sodium carbonate in hot water, the next being a weaker solution of the same, and the last consisting of hot water only; finally in automatically passing the cans so cleaned, through a body of cold water and then through a stream or spray of cold water, substantially as set forth.

11,876. TWO-NEEDLE SEWING-MACHINE. JOHN KERR, Dayton, Ky., assignor to The Singer Manufacturing Company, of New Jersey. Filed Jan. 18, 1900. Serial No. 1,923. Original No. 598,348, dated Feb. 1, 1898.



Claim.—1. In a sewing-machine, the combination with the needle-bars *a* and *a′*, of the coupling-pin *c*, the rock-shaft *f* having the arm *e*,

engaging said coupling-pin, and the arm *h*, the lever *k*, its controlling-spring *n* and the rod *i* connecting said lever with said arm *h*.

2. In a sewing-machine, the combination with the two contiguously-placed needle-bars *a* and *a'*, the former having the incline a^3, of the coupling-pin *c*, means for yieldingly pressing said pin toward said incline and means for withdrawing said pin when the auxiliary needle-bar *a'* is to be uncoupled from the main needle-bar *a*.

3. In a sewing-machine, the combination with the two contiguously-placed needle-bars *a* and *a'*, the former having the incline a^3, of the coupling-pin *c*, the rock-shaft *f* having the arm *e*, engaging said coupling-pin, and the arm *h*, the spring-actuated lever *k*, the rod *i* connecting said lever with said arm *h*, and a spring for holding said needle-bar *a'* in an elevated position when said coupling-pin is withdrawn from said bar *a*.

4. In a sewing-machine, the combination with a main needle-bar, of an auxiliary needle-bar, a coupling device, carried by said auxiliary needle-bar, for connecting one of said needle-bars to the other, an actuating-lever, and connections between said lever and said coupling device whereby the latter may be actuated to connect or disconnect said needle-bars without stopping the machine.

5. In a sewing-machine, the combination with main and auxiliary needle-bars, and means, connected to one of said bars, for operating it, of a coupling device carried by one of said bars and independent of said operating means and serving to connect said bars together when desired, an actuating-lever, and connections between said lever and coupling device whereby the latter may be operated to connect and disconnect said needle-bars without stopping the machine.

6. In a sewing-machine, the combination with two needle-bars and means connected to one of said bars for operating it, of a coupling device carried by one of said bars and independent of said operating means and serving to connect said bars together when desired, and means for operating said coupling device to connect said bars together or to disconnect one of said bars from the other without stopping the machine.

DESIGNS.

33,623. BADGE. GEORGE C. VAN RODEN, Philadelphia, Pa., assignor to J. E. Caldwell & Co., same place. Filed June 4, 1900. Serial No. 19,082. Term of patent 14 years.





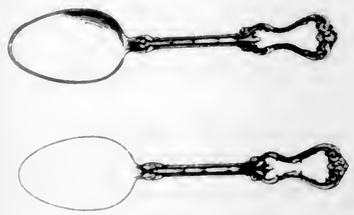
Claim.—The design for a badge as herein described and shown.

33,624. BADGE. JOSEPHINE RUSSELL, Tabor, Iowa. Filed Nov. 3, 1900. Serial No. 35,425. Term of patent 7 years.



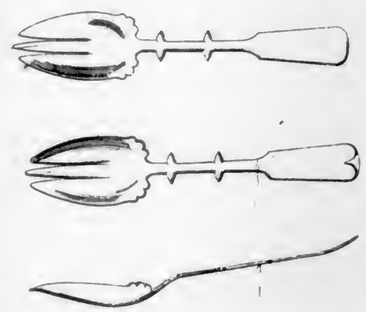
Claim.—The design for a badge as herein shown and described.

33,625. HANDLE FOR SPOONS OR SIMILAR ARTICLES. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Oct. 12, 1900. Serial No. 32,898. Term of patent 14 years.



Claim.—The design for a handle for spoons or similar articles, herein shown and described.

33,626. CORN-FORK. WILLIAM NORTHGRAVES, Perth, Canada. Filed Nov. 1, 1900. Serial No. 35,183. Term of patent 14 years.



Claim.—The design for a corn-fork, as hereinabove described.

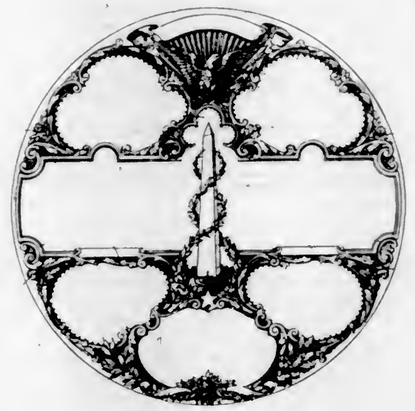
33,627. PLATE. CHARLES J. SEITER, New York, N. Y. Filed Oct. 30, 1900. Serial No. 34,952. Term of patent 7 years.





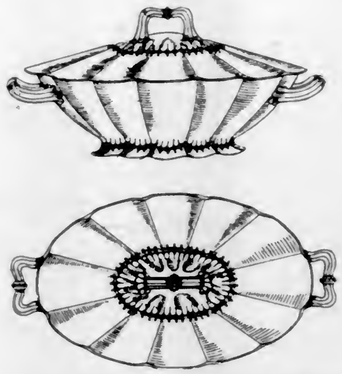
Claim.—The design for a plate herein shown and described.

33,628. PLATE OR PLAQUE. GEORGE R. POHL, Washington, D. C., assignor to Robert Leding, same place. Filed Oct. 29, 1900. Serial No. 34,854. Term of patent 7 years.



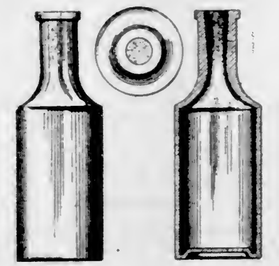
Claim.—The design for a plate or plaque substantially as herein shown and described.

33,629. COVERED DISH OR SIMILAR ARTICLE. CHARLES J. AHRENFELDT, New York, N. Y. Filed Nov. 10, 1900. Serial No. 36,133. Term of patent 7 years.



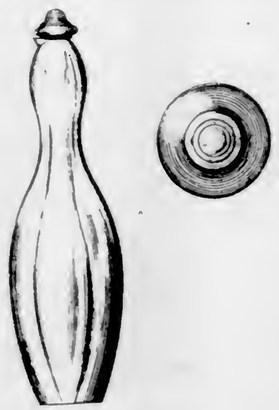
Claim.—The design for a covered dish or similar article substantially as herein shown and described.

33,630. BOTTLE. CHAUNCEY J. KILMER, New York, N. Y. Filed Sept. 7, 1900. Serial No. 29,348. Term of patent 7 years.



Claim.—The design for the bottle herein shown and described.

33,631. BOTTLE. GEORGE W. KLUMPP and HERMAN F. KLUMPP, New York, N. Y. Filed Nov. 10, 1900. Serial No. 36,135. Term of patent 7 years.



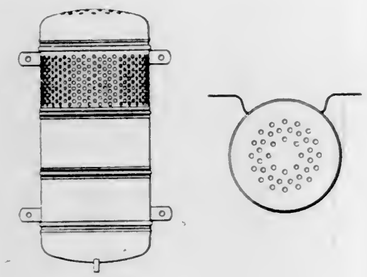
Claim.—The design for a bottle as herein shown and described.

33,632. CRUCIBLE. GEORGE MASON TUCKER, Kingston, R. I. Filed Oct. 19, 1900. Serial No. 33,656. Term of patent 7 years.



Claim.—The design for a crucible as herein shown and described.

33,633. CASING FOR DISINFECTING APPARATUS. EMIL TAUSSIG, New York, N. Y. Filed Nov. 10, 1900. Serial No. 36,134. Term of patent 7 years.



Claim.—The design for a casing for disinfecting apparatus, substantially as herein described.

33,634. KEY-RING AND BOTTLE-SEAL BREAKER. WILLIAM S. LORD, Jr., Portland, Me. Filed Oct. 22, 1900. Serial No. 33,971. Term of patent 14 years.



Claim.—The design for a key-ring and bottle-seal breaker, as herein shown and described.

33,635. METALLIC MEMBER FOR GARMENT-SUPPORTERS. GEORGE E. ADAMS, New Britain, Conn. Filed Nov. 3, 1900. Serial No. 35,423. Term of patent 7 years.



Claim.—The design for a metallic connecting member of a garment-supporter herein shown and described.

33,636. METALLIC LOOP FOR GARMENT-SUPPORTERS. GEORGE E. ADAMS, New Britain, Conn. Filed Nov. 3, 1900. Serial No. 35,424. Term of patent 7 years



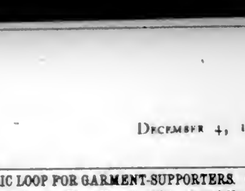
Claim.—The design for a metallic loop of a garment-supporter as herein shown and described.

33,637. BUCKLE. HENRY W. POTTIGER, Reading, Pa. Filed Oct. 24, 1900. Serial No. 34,219. Term of patent 7 years.



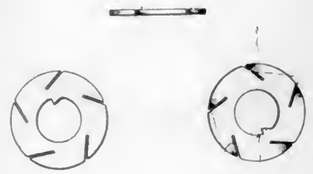
Claim.—The design for a buckle substantially as shown and described.

33,638. DOUBLE HARNESS-LOOP. NATHANIEL COLE, Ottawa, Ill. Filed Apr. 5, 1900. Serial No. 11,772. Term of patent 7 years.



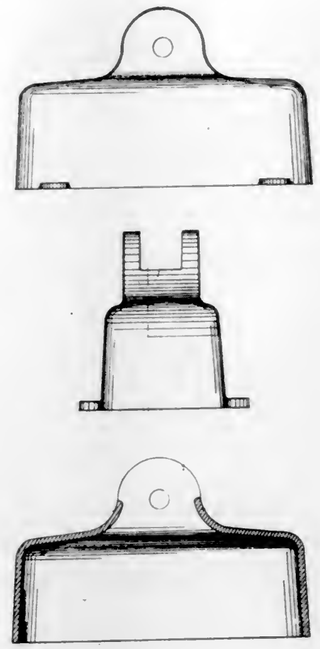
Claim.—The design for a double harness-loop, substantially as herein shown and described.

33,639. NUT-LOCK WASHER. JOHN F. TINER, Sutherland Springs, Tex., assignor of one-half to H. Washington Tally and Eugene A. Warren, same place. Filed Aug. 28, 1900. Serial No. 28,363. Term of patent 14 years.



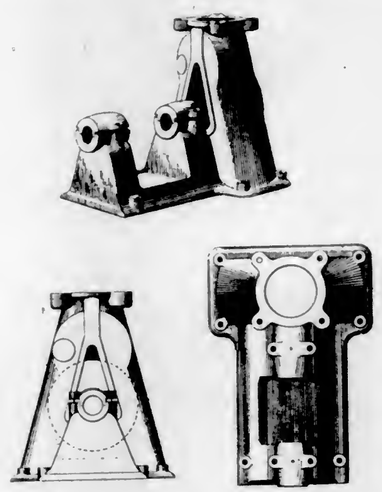
Claim.—The design for a nut-lock washer, as herein shown and described.

33,640. TELEPHONE-TRANSMITTER-ARM BASE. WILLIAM J. BALR, Cleveland, Ohio. Filed Oct. 20, 1900. Serial No. 33,785. Term of patent 7 years.



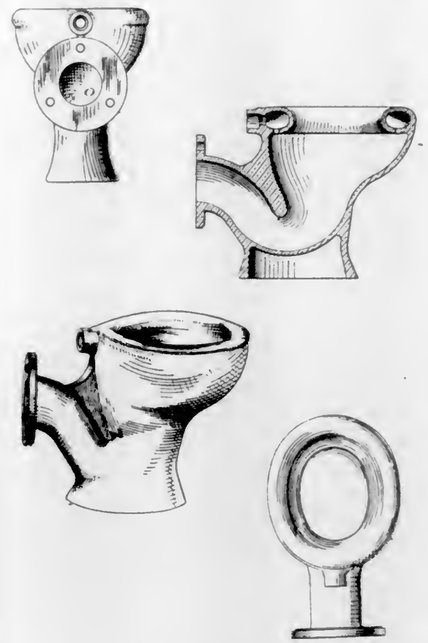
Claim.—The design for a telephone-transmitter-arm base as herein described and shown.

33,641. MOTOR BASE-FRAME. JOHN A. SECOR, New York, N. Y., assignor to The General Power Company, of New Jersey. Filed Sept. 8, 1900. Serial No. 29,435. Term of patent 14 years.



Claim.—The design for a motor base-frame as herein shown and described.

33,642. BOWL FOR WATER-CLOSETS. HARRY M. HALDEMAN, Indianapolis, Ind., assignor of one-half to the McElwaine-Richards Company, same place. Filed Oct. 17, 1899. Serial No. 733,927. Term of patent 14 years.



Claim.—The design for a bowl for water-closets as described and illustrated.

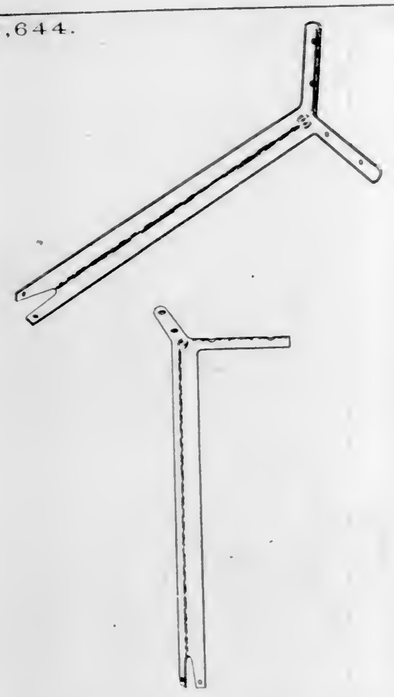
33,643. PROTECTING-PLATE FOR TRUNKS. MORRIS N. DRUCKER, Cincinnati, Ohio. Filed Oct. 31, 1900. Serial No. 35,054. Term of patent 7 years.



Claim.—The design for a protecting-plate for trunks as herein shown and described.

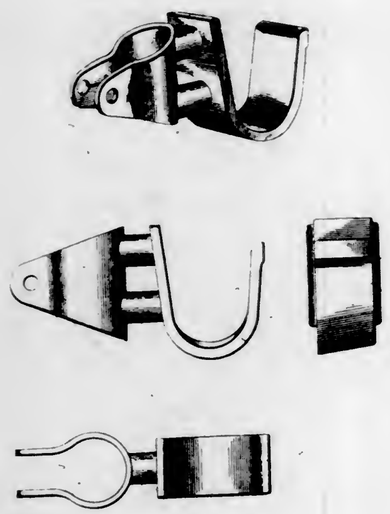
33,644. BRACE-BAR FOR CARRIAGE-BODIES. JEREMIAH P. JOHNSON, Detroit, Mich. Filed Oct. 22, 1900. Serial No. 33,976. Term of patent 7 years.

33,644.



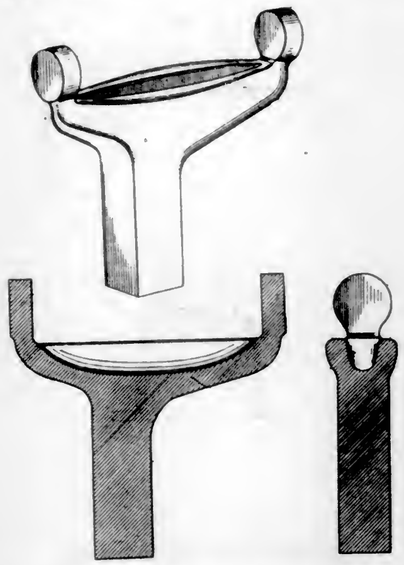
Claim.—The design for a brace-bar for carriage-bodies, substantially as herein shown and described.

33,645. GUN-CARRIER. OLIVER THORN, London, England. Filed Aug. 11, 1900. Serial No. 26,655. Term of patent 7 years.



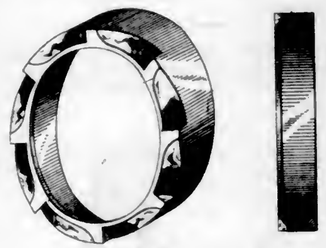
Claim.—The design for a gun-carrier, substantially as herein shown and described.

33,646. YOKE FOR AUTOMOBILE STEERING-GEAR. WALTER C. BAKER, Cleveland, Ohio, assignor to the American Ball-Bearing Company, same place. Filed Oct. 27, 1900. Serial No. 34,674. Term of patent 14 years.



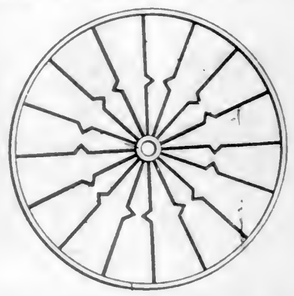
Claim.—The design for a yoke for automobile steering-gear, substantially as shown and described.

33,647. VEHICLE-TIRE. THOMAS BEACH, Freeport, Pa. Filed Nov. 7, 1900. Serial No. 35,771. Term of patent 14 years.



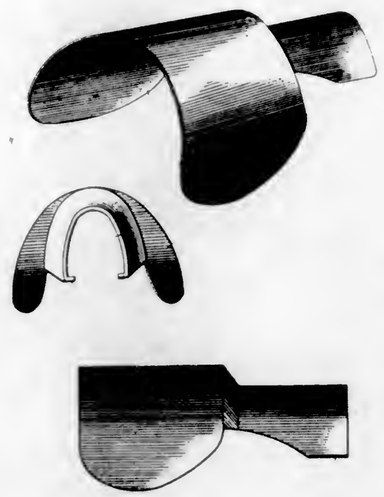
Claim.—The design for a tire, substantially as herein shown and described.

33,648. WHEEL. ORVILLE L. LEACH, Providence, R. I. Filed Nov. 9, 1900. Serial No. 35,988. Term of patent 14 years.



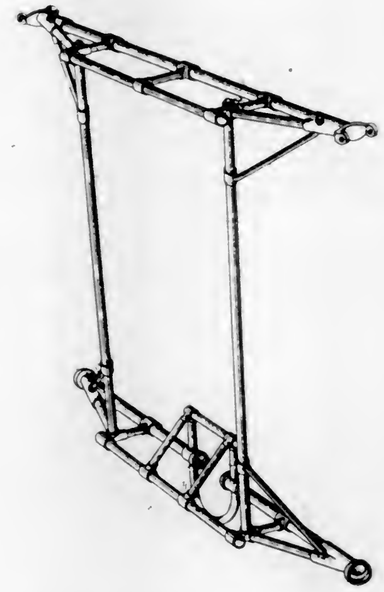
Claim.—The design for a wheel as herein shown and described.

33,649. AXLE-SHIELD. GILBERT Y. LOWE, Washington, Ga. Filed Nov. 10, 1900. Serial No. 36,138. Term of patent 14 years.



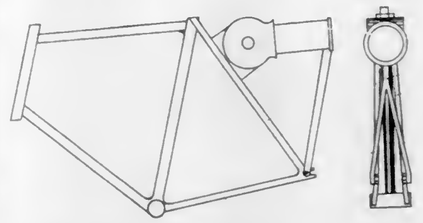
Claim.—The design for an axle-shield, as herein shown and described.

33,650. AXLE-FRAME FOR MOTOR-VEHICLES. WILLIAM H. SMITH, Buffalo, N. Y., assignor to John R. Keim, New York, N. Y. Filed Nov. 9, 1900. Serial No. 35,954. Term of patent 14 years.



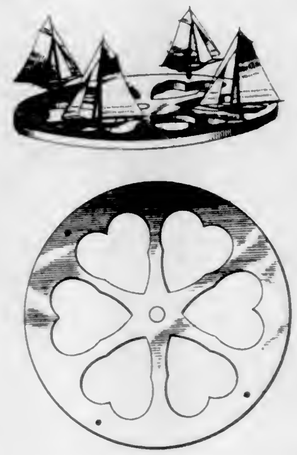
Claim.—The design for an axle-frame for motor-vehicles, substantially as herein shown and described.

33,651. MOTOR-BICYCLE FRAME. MYRON FLEMING, Elizabeth, N. J. Filed May 25, 1900. Serial No. 18,009. Term of patent 7 years.



Claim.—The design of a motor-bicycle frame, as herein shown and described.

33,652. WIND-WHEEL. FRANCIS DUVALL, National Military Home, Kans. Filed Aug. 25, 1900. Serial No. 28,083. Term of patent 7 years.



Claim.—The design for a wind-wheel, substantially as herein shown and described.

33,653. GAS-STOVE. EMANUEL B. ADLER, Allegheny, Pa., assignor to Henry Adler, Pittsburg, Pa. Filed Oct. 26, 1900. Serial No. 34,510. Term of patent 14 years.



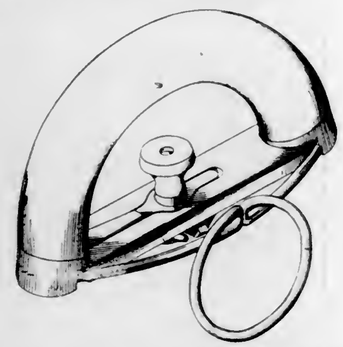
Claim.—The design for a gas-stove, substantially as herein shown and described.

33,654. GAS-STOVE. HENRY ADLER, Pittsburg, Pa. Filed Oct. 26, 1900. Serial No. 34,511. Term of patent 14 years.



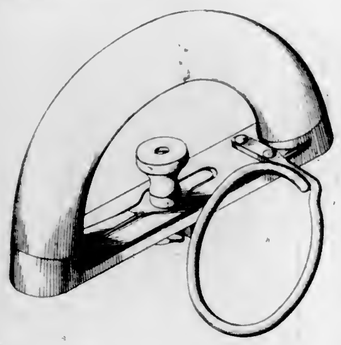
Claim.—The design for a gas-stove, substantially as herein shown and described.

33,655. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,123. Term of patent 14 years.



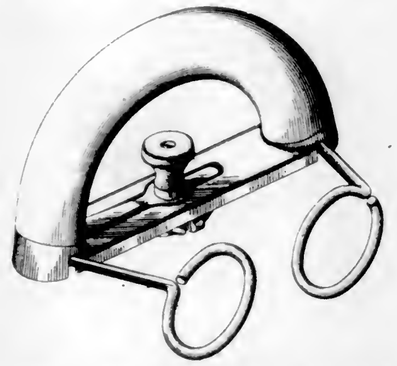
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,656. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,124. Term of patent 14 years.



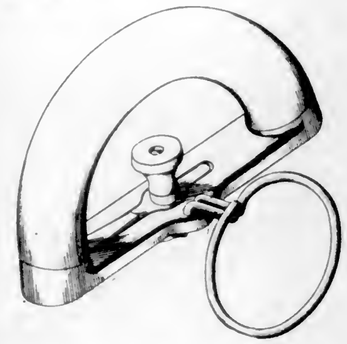
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,657. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,125. Term of patent 14 years.



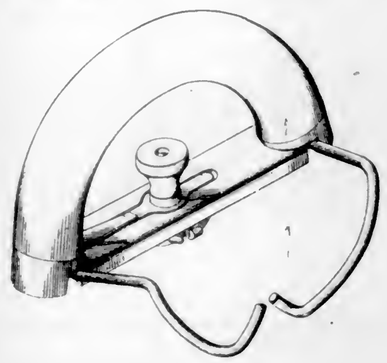
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,658. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,126. Term of patent 14 years.



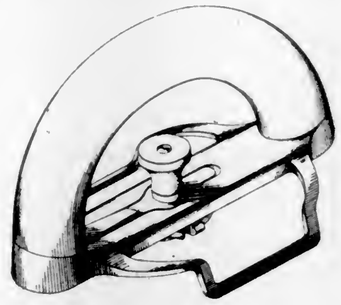
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

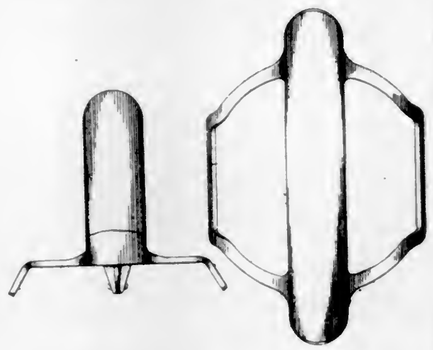
33,659. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,127. Term of patent 14 years.



Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

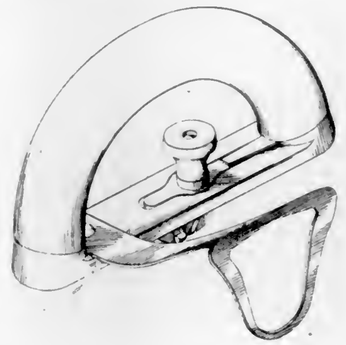
33,660. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,128. Term of patent 14 years.





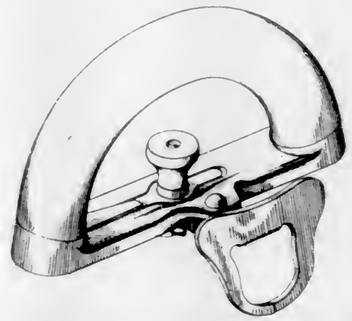
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,661. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,129. Term of patent 14 years.



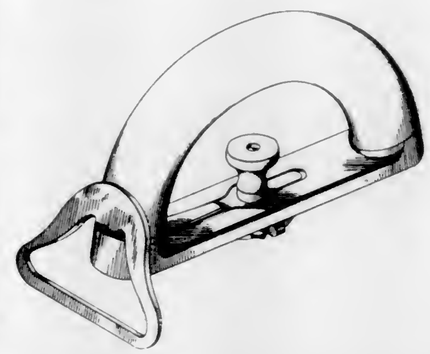
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,662. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,130. Term of patent 14 years.



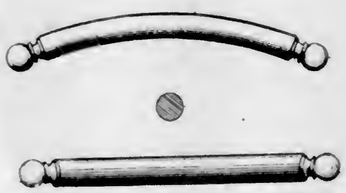
Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawings.

33,663. SAD-IRON HANDLE. CHARLES P. MOSHER, Philadelphia, Pa., assignor to the Enterprise Manufacturing Company of Pennsylvania, same place. Filed Nov. 10, 1900. Serial No. 36,131. Term of patent 14 years.



Claim.—The design for a sad-iron handle as herein described and as illustrated in the accompanying drawing.

33,664. CHAIR-TOP. HARRY A. ATWOOD, Sheboygan, Wis., assignor to the Crocker Chair Company, same place. Filed July 27, 1900. Serial No. 25,054. Term of patent 7 years.



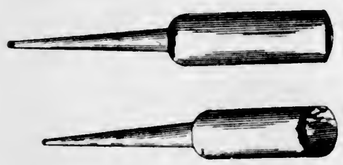
Claim.—The design for a chair-top, substantially as herein shown and described.

33,665. TROUSERS-HANGER. CLARENCE R. KRAMER, Lithopolis, Ohio. Filed Apr. 7, 1900. Serial No. 12,024. Term of patent 7 years.



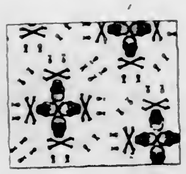
Claim.—The design for a trousers-hanger substantially of the form herein shown and described.

33,666. TOY. FREDERICH W. G. BOETTCHER, Detroit, Mich. Filed Oct. 25, 1900. Serial No. 34,399. Term of patent 3½ years.



Claim.—The design for a toy, substantially as herein shown and described.

33,667. WRAPPING-PAPER. GEORGE A. C. GOETTING, New York, N. Y. Filed Nov. 8, 1900. Serial No. 35,870. Term of patent 14 years.



Claim.—The design for wrapping-paper as herein shown and described.

33,668. SIGN. CHARLES W. SHONK, Chicago, Ill. Filed Oct. 20, 1900. Serial No. 33,736. Term of patent 14 years.

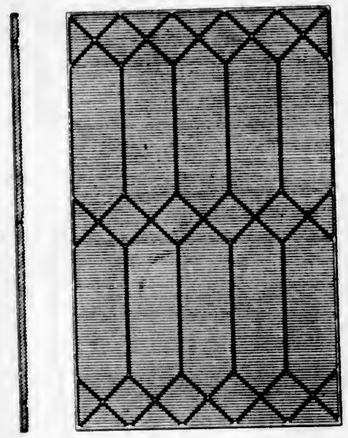


33,668.



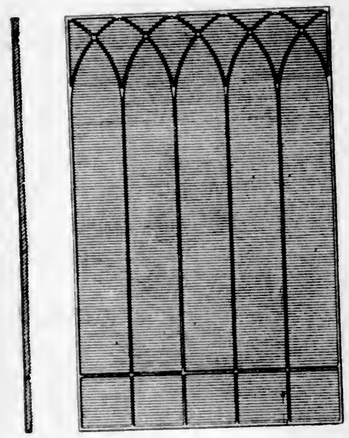
Claim.—The design for a sign as herein shown and described.

33,669. PRISM-WINDOW. GEORGE K. CUMMINGS, New York, N. Y. Filed Aug. 15, 1898. Serial No. 688,623. Term of patent 7 years.



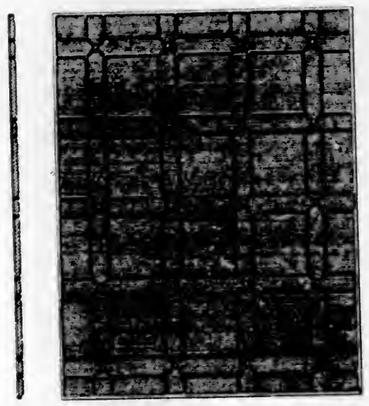
Claim.—The design for a prism-window as herein shown and described.

33,670. PRISM-WINDOW. GEORGE K. CUMMINGS, New York, N. Y. Filed Aug. 15, 1898. Serial No. 688,625. Term of patent 7 years.



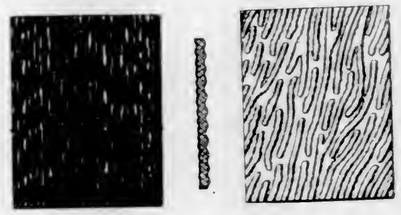
Claim.—The design for a prism-window as herein shown and described.

33,671. PRISM-WINDOW. GEORGE K. CUMMINGS, New York, N. Y. Filed Aug. 15, 1898. Serial No. 688,628. Term of patent 7 years.



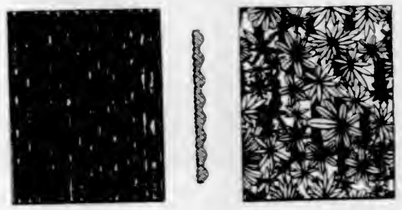
Claim.—The design for a prism-window as herein shown and described.

33,672. SHEET-GLASS. EDWARD WALSH, Jr., St. Louis, Mo. Filed Oct. 18, 1900. Serial No. 33,518. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

33,673. SHEET-GLASS. CHARLES C. HARTUNG, St. Louis, Mo., assignor to Edward Walsh, Jr., same place. Filed Oct. 18, 1900. Serial No. 33,524. Term of patent 14 years.



Claim.—The design for sheet-glass, substantially as herein shown and described.

TRADE-MARKS

REGISTERED DECEMBER 4, 1900.

35,511. CERTAIN NAMED PUBLICATIONS. WILLIAM N. HARTSHORN, Boston, Mass. Filed Nov. 10, 1900.

PRISCILLA

Essential feature.—The word "PRISCILLA." Used since March, 1887.

35,512. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. NEW YORK STANDARD WATCH COMPANY, Jersey City, N. J. Filed Nov. 10, 1900.



Essential feature.—A panel having an irregular outline. Used since October 22, 1900.

35,513. MATHEMATICAL AND DRAWING INSTRUMENTS. KRUPPEL & ESSER COMPANY, New York, N. Y. Filed Nov. 6, 1900.

PARAGON

Essential feature.—The word "PARAGON." Used since January, 1893.

35,514. LADIES' SHOES. A. HAMBURGER & SONS, Los Angeles, Cal. Filed Nov. 12, 1900.

Ebell

Essential feature.—The word "EBELL." Used since July 1, 1898.

35,515. CORSETS. PURITAN CORSET COMPANY, Kalamazoo, Mich. Filed May 21, 1900.



Essential feature.—The word "PURITAN" and the representation of a Puritan maiden. Used since April 1, 1900.

35,516. STAY-TAPE. REVERSIBLE COLLAR COMPANY, Boston and Cambridge, Mass. Filed Nov. 10, 1900.



Essential feature.—The representation of a roll of stay-tape with one end of the tape partially unwound, said tape being provided with a central longitudinal groove, and the representation of an anchor lying upon the flat surface of the roll. Used since October 30, 1900.

35,517. VELVETS. THE SALTS TEXTILE MANUFACTURING COMPANY, Bridgeport, Conn., and New York, N. Y. Filed Oct. 24, 1900.

IRONCLAD

Essential feature.—The word "IRONCLAD." Used since January, 1899.

35,518. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed Nov. 10, 1900.



Essential feature.—The representation of a grotesque nondescript composite bird perched upon the limb of a tree in a singing attitude. Used since September 1, 1886.

35,519. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed Nov. 10, 1900.



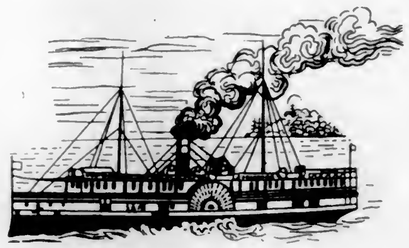
Essential feature.—The number "40" placed within the sun's corona. Used since September 1, 1886.

35,520. COTTON FABRICS. WARD, HANBURY & Co., London, England. Filed Nov. 10, 1900.



Essential feature.—Three large capital "D's" arranged in a row. Used since September 1, 1886.

35,521. CERTAIN NAMED COTTON PIECE GOODS. ASHTON, HOARE & COMPANY, Limited, Manchester, England. Filed June 23, 1900.



Essential feature.—The representation of a steamer under way upon the water. Used since July 16, 1896.

35,522. UNBLEACHED COTTON PIECE GOODS NOT FIGURED OR PRINTED. ASHTON, HOARE & COMPANY, Limited, Manchester, England. Filed June 23, 1900.



Essential feature.—The representation of a Chinese or Japanese scene in the style or manner of those countries, showing a fisherman and woodcutter of the country. Used since February 6, 1900.

35,523. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Nov. 9, 1900.

NEW CENTURY

Essential feature.—The words "NEW CENTURY." Used since May 15, 1900.

35,524. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Nov. 9, 1900.



Essential feature.—The letters "X," "T," and "P." Used since August 1, 1900.

35,525. WOODEN TOOTHPICKS. CHARLES FORSTER, Dixfield and Strong, Me. Filed Nov. 9, 1900.



Essential feature.—The letters "X," "T," and "B." Used since September 1, 1895.

35,526. CHEWING-GUM. SEYDEL-REDER CANDY CO., St. Louis, Mo. Filed Nov. 12, 1900.



Essential feature.—The pictorial representation of a peach, on the surface of which is the picture of an Indian and the words "INDIAN PEACH." Used since June 1, 1900.

35,527. WHEAT-FLOUR. HENRY R. SMITH, Chicago, Ill. Filed Nov. 5, 1900.

EXPANSION

Essential feature.—The word "EXPANSION." Used since May 1 1900.

35,528. EGGS. R. FABIEN & Co., New York, N. Y. Filed Nov. 9, 1900.



Essential feature.—The representation of a rooster. Used since January 1, 1897.

35,529. DRIED OR EVAPORATED FRUITS. U. H. DUDLEY & Co., New York, N. Y. Filed Oct. 30, 1900.

PEDRO

Essential feature.—The word "PEDRO." Used since February 1, 1892.

35,530. DRIED OR EVAPORATED FRUIT. U. H. DUDLEY & Co., New York, N. Y. Filed Oct. 30, 1900.

EXCELSIOR

Essential feature.—The word "EXCELSIOR." Used since January 1, 1893.

35,531. CERTAIN NAMED RELISHES. ORTEGA & KNAPP, Los Angeles, Cal. Filed Oct. 20, 1900.



Essential feature.—The representation of a primitive house with wreath of chillies and tomatoes. Used since October 1, 1899.

35,532. BEER. THE AMERICAN BREWING COMPANY, St. Louis, Mo. Filed June 27, 1900.

A.B.C.

Essential feature.—The letters "A. B. C." Used since January 6, 1890.

35,533. SODA-SYRUP AND ROOT-BEER. SIMMONS & HAMMOND, Portland, Me. Filed Nov. 5, 1900.



Essential feature.—A pictorial representation of a hand holding a mug or stein and the letters "S" and "H." Used since May, 1899.

35,534. PERFUMES, TOILET WATERS, AND COLOGNES. LADD & COFFIN, New York, N. Y. Filed Feb. 15, 1900.

Violet Dew

Essential feature.—The words "VIOLET DEW." Used since February 1, 1900.

35,535. CEMENT. JAMES D. SWINDELL, Pittsburg, Pa. Filed Nov. 6, 1900.

CASTLEROCK

Essential feature.—The word "CASTLEROCK." Used since June 9, 1900.

35,536. COAL AND COKE. THE HULL COAL AND COKE COMPANY, Roanoke, Va. Filed June 20, 1900.

RED JACKET.



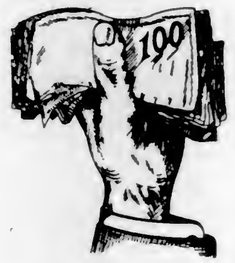
Essential feature.—The words "RED JACKET" and the representation of an Indian in peaceful attire and standing by a waterfall, toward which he is pointing with his left hand. Used since June 27, 1899.

35,537. SHOE AND LEATHER DRESSINGS. ANTHONY L. ASTE, New York, N. Y. Filed Aug. 8, 1900.



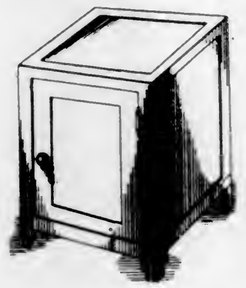
Essential feature.—The picture of a crowing rooster. Used since 1895.

35,538. WASHING COMPOUNDS. THOMAS H. TABOR, Ellijay, Ga. Filed Nov. 9, 1900.



Essential feature.—The representation of a hand grasping a number of rectangular strips of flexible material, on the face of the upper one of which appears a number. Used November 2, 1900.

35,539. WASHING FLUID. THOMAS H. TABOR, Ellijay, Ga. Filed Nov. 9, 1900.



Essential feature.—The representation of a bank or office safe. Used since November 2, 1900.

35,540. AMMONIA PREPARATIONS. CHEMISCHE FABRIK AUF ACTIEN, VORMALS E. SCHERING, Berlin, Germany. Filed Nov. 5, 1900.

Chinotropin

Essential feature.—The word "CHINOTROPIN." Used since November 9, 1899.

35,541. ALKAMINE DERIVATIVES. CHEMISCHE FABRIK AUF ACTIEN, VORMALS E. SCHERING, Berlin, Germany. Filed Aug. 22, 1900.

Euphthalmin

Essential feature.—The word "EUPHTHALMIN." Used since April 9, 1897.

35,542. HEADACHE TABLETS OR REMEDIES. THE NEURALGYLINE CO., Sistersville, W. Va. Filed Nov. 9, 1900.



Essential feature.—The letters "NCO" entwined together in monogram form. Used since January 1, 1900.

35,543. REMEDY FOR HEADACHE AND NEURALGIA. MANUEL FRAGA, Key West, Fla. Filed Oct. 18, 1900.





Essential feature.—A photograph of the registrant and his facsimile signature. Used since 1896.

35,544. CERTAIN NAMED MEDICINES. GEORGE P. DYKMAN, Patterson, N. Y. Filed Oct. 6, 1900.

KLAWQUA

Essential feature.—The letters "KLAWQUA" arranged in the order given. Used since May 28, 1900.

35,545. CERTAIN NAMED MEDICATED VISCOUS COMPOUND. CARPENTER-MORTON COMPANY, Boston, Mass. Filed Sept. 20, 1900.

COW-EASE

Essential feature.—The compound word "COW-EASE." Used since May 1, 1900.

35,546. CERTAIN NAMED SALVE. SIGMUND MUELHAUSER, Cleveland, Ohio. Filed July 26, 1900.



Essential feature.—The letters "S S S," arranged upon different portions, respectively, of a contrasting stripe or background. Used since June 24, 1900.

35,547. CERTAIN NAMED MEDICINES AND SURGICAL APPLIANCES. FRANK Y. WILMOT, New York, N. Y. Filed Oct. 25, 1900.

O.Y.

Essential feature.—The letters "O. Y." Used since October 20, 1900.

35,548. CERTAIN NAMED CHEMICAL, PHARMACEUTICAL, SURGICAL, DIETETIC, AND COSMETIC PRODUCTS AND PREPARATIONS. ICHTHYOL-GESELLSCHAFT CORDES, HERMANNI & Co., Hamburg, Germany. Filed May 28, 1900.

Ichtholan

Essential feature.—The word "ICHTHOLAN." Used since April, 1900.

35,549. CERTAIN NAMED BOXES OR CARTONS. GILL BROTHERS & Co., Steubenville, Ohio. Filed Nov. 9, 1900.

CLIPPER

Essential feature.—The word "CLIPPER." Used since October 31, 1900.

35,550. TIN-PLATE. MANOGUE-PIDGEON IRON COMPANY, Memphis, Tenn. Filed Nov. 5, 1900.



Essential feature.—The representation of a magnolia flower. Used since October 1, 1895.

35,551. HORSESHOE-NAILS. NORTH WESTERN HORSE NAIL MANUFACTURING COMPANY, Chicago, Ill. Filed May 23, 1900.



Essential feature.—A checkered band. Used since May 1, 1899.

35,552. WIRE ROPE. A. LESCHEN & SONS ROPE COMPANY, St. Louis, Mo. Filed Aug. 10, 1900.



Essential feature.—A streak of distinctive color produced in or applied to a wire rope. Used since July 1, 1886.

35,553. HARVESTING MACHINERY. DEERING HARVESTER CO., Chicago, Ill. Filed Aug. 13, 1900.



Essential feature.—A lozenge-shaped device or symbol. Used since 1898.

35,554. CERTAIN NAMED FIRE-EXTINGUISHER. U. S. CHEMICAL AND POWER COMPANY, Kittery, Me., and Boston, Mass. Filed Sept. 22, 1900.



Essential feature.—A pictorial representation of Mephistopheles Used since June 15, 1900.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BENGER *v.* BURSON.

Decided November 8, 1900.

1. INTERFERENCE—MOTION TO RESTORE JURISDICTION TO THE EXAMINER OF INTERFERENCES AFTER AWARD OF PRIORITY.

After the Examiner of Interferences has made a decision on priority and the limit of appeal has expired he has lost jurisdiction to further consider the case, and before he can consider a motion to transmit a motion to dissolve the interference application must be made to the Commissioner in person to restore jurisdiction to the Examiner of Interferences.

2. SAME—SAME—PRIOR DECISION CONSTRUED.

It is not understood that by the decision of *Trevette* v. *Dexter* (84 O. G., 1283) it was intended to change the practice outlined in *Garrison* v. *Hübner*, (54 O. G., 1889.)

ON motion.

TUBULAR KNIT GOODS.

Application of Gottlieb Benger filed December 5, 1899, Serial No. 739,266.. Application of William Worth Burson filed June 6, 1896, Serial No. 594,485.

Mr. Max Georgii for Benger.

Messrs. Macleod, Calver & Randall for Burson.

DUELL, *Commissioner:*

This is a motion by Benger to restore jurisdiction in the above-entitled interference to the Examiner of Interferences for the purpose of considering a motion to transmit a motion to dissolve the interference to the Primary Examiner.

It appears that judgment on the record in favor of Burson was entered in this interference under Rule 114, and the limit of appeal was fixed as September 14, 1900. Prior to the expiration of the limit of appeal on motion of Benger the limit of appeal was extended to October 4, 1900. It was not, however, until October 25, 1900, that this motion was filed, the limit of appeal meanwhile having expired.

This motion is brought in accordance with the practice laid down in *Garrison* v. *Hübner*, (54 O. G., 1889,) and the question to be first determined is whether the practice therein outlined is still controlling or has been changed by the decision rendered in *Trevette* v. *Dexter*, (84 O. G., 1283.) In *Garrison* v. *Hübner* it is said:

> When, however, the limit of appeal has expired and the Examiner of Interferences has lost jurisdiction, a motion should be made before the Commissioner for permission to file a motion to dissolve the interference.

It seems to me that the proper practice is there stated in view of Rule 143, the first paragraph of which reads as follows:

> Contested cases will be regarded as pending before a tribunal until the limit of appeal, which must be fixed, has expired, or until some action has been had which waives the appeal or carries into effect the decision from which appeal might have been taken.

Clearly the limit of appeal herein expired on October 4, 1900, after which date this case was no longer pending before the Examiner of Interferences.

I do not understand that the Assistant Commissioner in *Trevette* v. *Dexter*, *supra*, intended to change the practice outlined in *Garrison* v. *Hübner*, *supra*. In *Trevette* v. *Dexter*, *supra*, the facts were somewhat different, and it was with the state of facts as therein disclosed that the Assistant Commissioner was dealing.

I am clearly of the opinion that when the limit of appeal expired the Examiner of Interferences lost jurisdiction to further consider this case and that Benger's only relief was to apply to the Commissioner for permission to file a motion to dissolve the interference.

I have looked into the merits of the case sufficiently to become convinced that Benger should be permitted to file a motion to dissolve the interference. Jurisdiction is therefore restored to the Examiner of Interferences, who will exercise his discretion in determining the question whether the motion to dissolve the interference should be transmitted to the Primary Examiner.

MCCALLUM *v.* BREMER.

Decided October 29, 1900.

1. MOTION TO REOPEN INTERFERENCE AFTER DECISION ON PRIORITY—JURISDICTION.

Where a motion to reopen an interference to take more testimony is made after decision on appeal on the question of priority, *Held* that it should be accompanied by a motion before the Commissioner to restore to the Examiner of Interferences jurisdiction to consider it.

2. SAME—EVIDENCE NOT NEWLY DISCOVERED.

The allegation that a party failed to present all of his evidence through overconfidence and through a desire not to disclose the full strength of his proofs constitutes no valid ground for reopening the case to take more testimony and does not warrant transmitting the case to the Examiner of Interferences to consider the motion to reopen.

3. SAME—SHOULD BE MADE WITH DILIGENCE.

Where it is shown that the alleged new evidence was discovered before a decision on priority, but the party allowed the case to go to decision and took successive appeals from adverse decisions on that question before making a motion to reopen to take more testimony, *Held* that the motion is made too late. Motions to reopen should be made with diligence.

MOTION to reopen.

MANUFACTURE OF PENCILS, CRAYONS, ETC.

Application of Irving McCallum filed March 8, 1917

1898, No. 673,074. Application of Hugo Bremer filed December 29, 1897, No. 664,159.

Mr. J. Walter Douglass for McCallum.

Mr. H. H. De Vos and *Mr. William G. Henderson* for Bremer.

CHAMBERLIN, *Assistant Commissioner:*

This case is before me on a motion by McCallum that it be reopened for the purpose of permitting him to take more testimony.

The merits of motions of this kind must be determined in the first instance by the Examiner of Interferences, (*Bowen* v. *Bradley*, 58 O. G., 386;) but in the present case the Examiner of Interferences has lost jurisdiction of the interference by reason of the fact that an appeal has been taken from his decision on priority and a decision has been rendered on that question by the Examiners-in-Chief and by the Commissioner. For this reason a motion should have been made before me to restore jurisdiction to the Examiner of Interferences for the purpose of considering the motion to reopen and take more testimony. This case will, however, be considered as if such motion had been made; but in such consideration, as said in *Estes* v. *Gause*, (88 O. G., 1336,)—

> the question as to the sufficiency of the showing is not, strictly speaking, before me. * * * but the question whether such a *prima facie* case has been made out as would justify remanding the case to the Examiner of Interferences for determination is before me.

It appears from McCallum's statement that he is involved in another interference with one Rakestraw in regard to a similar invention, and he claims that the evidence produced in that case shows that he is the prior inventor of the matter involved in the present interference. He now desires the present interference reopened for the purpose of introducing that evidence, and as the reasons why it was not introduced before says—

> that partly through overconfidence on the part of petitioner's counsel, partly through inability of petitioner to find and offer this original exhibit, and partly through a desire not to disclose in an uncontested case, the full strength of petitioner's proofs in the Rakestraw contested interference, your petitioner failed in the judgment of your Honor, to satisfactorily prove that he had actually reduced the invention to practice prior to the filing of Bremer's application and failed to allege and prove that the delay in filing his application was unavoidable.

The excuses of overconfidence and the desire not to disclose the full strength of his proofs to the attorney for Bremer, who also represented Rakestraw, clearly constitute no valid ground for reopening the case. These excuses are, in effect, admissions that the evidence could have been introduced at the proper time. (*Estes* v. *Gause*, *supra*; *Jobes* v. *Roberts* v. *Hauss*, 86 O. G , 1805.)

The mere allegation that he was unable to find the exhibit which he now desires to introduce in time to offer it in evidence is not sufficient to warrant transmitting the motion to the Examiner of Interferences for his consideration. That exhibit was found when it was desired as proof in the Rakestraw interference, and it appears that it could have been found in the present interference if an earnest effort had been made, since the witnesses remembered the fact of its having been made and where it could probably be found and where it was, in fact, afterward found. It appears, furthermore, that this exhibit was actually introduced in evidence in the Rakestraw interference on May 17, 1900, forty-three days before the decision of the Examiner of Interferences on the question of priority in this case and about five months before the present motion to reopen was made. If McCallum desired to introduce this exhibit, he should have made a motion to reopen as soon as it was discovered. Instead of doing so, however, he not only took successive appeals from the adverse decisions on priority based upon his alleged incomplete showing, but allowed my decision on that question to become final by not taking an appeal to the court of appeals within the limit set before making a motion to reopen. No excuse is offered for this long delay, and it is apparent that no valid excuse could be advanced. It is too late now to have the matter considered.

It is held that McCallum has not made out a *prima facie* case either as to the grounds for reopening or diligence in presenting the motion such as would warrant transmitting the case to the Examiner of Interferences for decision.

Transmission of the motion is therefore refused.

Revision of Classification.

(ORDER No. 1,384.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 24, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division XI, class 69, Leather-Working Machinery, abolish all subclasses and change the title to class 69, Leather Manufactures, and establish thereunder the following list of subclasses and definitions:

CLASS 69.—LEATHER MANUFACTURES.

21. Articles and processes.
1. Machines—
2. Cutting and impressing,
5. Folding and rolling,
8. Forming and pressing,
3. Horse-collar-shaping,
4. Horse-collar-stuffing,
6. Rounding,
7. Seam-pressing,
9. Skiving and splitting—
10. Belt-knife,
11. Fixed-knife—
12. Reciprocating-feed,
Machines—
Skiving and splitting—
Fixed-knife—
13. Roller-feed—
14. Trimming attachments,
15. Reciprocating-knife,
16. Rotary disk knife,
17. Strap-finishing,
18. Tack-leathering,
20. Tools.
19. Work-holders.

CLASS 69.—LEATHER MANUFACTURES.

DEFINITIONS.

Class.

This class includes leather-working apparatus and leather articles not elsewhere classified under more specific titles.

The class does not include boots, shoes, gloves, trunks, baggage, pocket-books, or other leather receptacles or their manufacture, except such apparatus as is clearly general in its capability of operation.

It does not include leather cutting, (except skiving and splitting,) punching, or sewing or the manufacture of leather from hides, skins, etc. The apparatus for the manufacture of harness is here included; but the articles of harness are elsewhere classified.

Subclasses.

1. MACHINES. Miscellaneous subclass of leather-working machines.

2. MACHINES, CUTTING AND IMPRESSING. Machines for cutting or trimming leather and at the same time creasing or otherwise impressing it for ornamental purposes or which simply crease or impress without cutting.

3. MACHINES, HORSE-COLLAR-SHAPING. Apparatus upon which horse-collars are shaped or given proper contour.
(Note.—Search also the subclass of Machines, forming and pressing, in this class.)

4. MACHINES, HORSE-COLLAR-STUFFING. Apparatus for stuffing the padding material into horse-collars.

5. MACHINES, FOLDING AND ROLLING. Machines for folding or rolling or both folding and rolling leather, usually for reins for harness.

6. MACHINES, ROUNDING. Machines which by drawing or passing a string or strip therethrough will cut or roll the same to circular or semicircular shape, usually for harness-reins, fillings, or whip-lashes.

7. MACHINES, SEAM-PRESSING. Machines for pressing, rubbing, or rolling down leather seams.

8. MACHINES, FORMING AND PRESSING. Various molding, clamping, and pressing apparatus for forming or shaping leather articles, mostly harness parts.
(Note.—Search also in this class the subclass of Machines, horse-collar-shaping.)

9. MACHINES, SKIVING AND SPLITTING. Miscellaneous subclass of machines for skiving, splitting, or beveling leather.
(Note.—Search should also include under class 12, BOOT AND SHOE MAKING, the subclass of Toe and heel stiffener machines, skiving, and that of Heel-machines, bevel and seat cutting.)

10. MACHINES, SKIVING AND SPLITTING, BELT-KNIFE. Those machines which employ a traveling belt or band knife.
(Note.—Search should also include under this class the subclass of Machines, skiving and splitting, fixed-knife, roller-feed; under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, band-knife; also, under class 143, WOOD-SAWING, the subclass of Band-saw machines.)

11. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE. Those machines which employ a stationary cutter against which the work is drawn or fed.
(Note.—Search should also include under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter.)

12. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, RECIPROCATING-FEED. Those machines in which a reciprocating feed mechanism is employed to carry the work to the fixed cutter.
(Note.—Search also under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter, work-feeding; also, under class 144, WOODWORKING, the subclass of Slicers, fixed-knife.)

13. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, ROLLER-FEED. Those in which the work is fed to the fixed cutter by positively-driven rolls.
(Note.—Search also under this class the subclass of Machines, skiving and splitting, belt-knife; under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter, work-feeding, roller-feed; also, under class 144, WOODWORKING, the subclass of Slicers, fixed-knife.)

14. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, ROLLER-FEED, TRIMMING ATTACHMENTS. Those which employ a trimming-knife in addition to the skiving or splitting knife to trim the edge of the passing work.

15. MACHINES, SKIVING AND SPLITTING, RECIPROCATING-KNIFE. Those in which the cutter is reciprocated. Either the work is fed against the knife or lies stationary while the knife operates.

16. MACHINES, SKIVING AND SPLITTING, ROTARY DISK KNIFE. Those machines, usually for skiving, in which is employed a disk knife which shaves off the portions as it passes over the surface of the work.

17. MACHINES, STRAP-FINISHING. Machines for rubbing, blacking, polishing, creasing, burnishing, and otherwise finishing leather straps.

18. MACHINES, TACK-LEATHERING. Machines for attaching the leather heads to carpet-tacks. Usually the leather disks are cut out from a continuous strip and the tacks inserted by a plunger through the disks.
(Note.—Search also under class 1, NAILING AND STAPLING, the subclass of Machines, nail-driving, nail-feeding.)

19. WORK-HOLDERS. Various clamping apparatus for holding leather while it is being worked upon, mostly "stitching-horses" for saddlers or harness-makers.

20. TOOLS. Various hand-tools peculiar to the leather-workers' art.

21. ARTICLES AND PROCESSES. Various leather structures—such as bindings or pipings, seams, and ornamental pieces—of more or less general use in making up complete articles; also, some leather-working processes are here included.

In Division XXXV, class 190, Baggage, abolish subclass 16, Traveling-bags, fasteners, pivoted.

In Division XX, under class 70, Locks and Latches, establish subclass 116, Bag-fasteners.

In Division VIII, class 194, Coin-Controlled Apparatus, abolish all subclasses and change the class title to 194, Check-Controlled Apparatus, and establish thereunder the following subclasses and definitions:

CLASS 194.—CHECK-CONTROLLED APPARATUS.

4. Anomalous check—
5. Fluid-delivery.
96. Check-engaged alarm.
6. Check in circuit—
7. Article-delivery,
8. Telephones.
9. Check-operated switch—
10. Article-delivery,
11. Electric meters,
12. Exhibitors,
13. Fluid-delivery,
14. Induction-coils,
Check-operated switch—
15. Phonographs,
16. Telephones.
94. Check-rotated wheel.
72. Connectors—
91. Article-delivery,
Check—
74. Reciprocating and turning parts—
75. Article-delivery,
76. Chance and game apparatus,
77. Fluid-delivery,
78. Reciprocating parts—
79. Article-delivery—
80. Sliding pusher,
81. Chance and game apparatus,
82. Fluid-delivery.
83. Turning parts—
88. Article-delivery,
89. Chance and game apparatus,
84. Concentric—
85. Article-delivery,
86. Chance and game apparatus,
87. Fluid-delivery,
90. Fluid-delivery,
73. Gravity.
97. Fraud-preventives—
98. Check-exhibitors,
99. Combined size and material testers,
100. Material-testers—
101. Magnets,
102. Size-testers,
103. Weight-testers.
92. Lock-preventing—
93. Article-delivery.
17. Lock-releasing—
18. Gravity—
19. Forwardly-turning released part—
22. Article-delivery—
23. Chance,
24. Endless carrier—
25. Magazine,
26. Rotary feed,
27. Sliding pusher,
28. Exhibitors,
29. Fluid-delivery,
30. Game apparatus,
20. Measuring instruments—
21. Scales,
31. Phonographs,
32. Reciprocating released part—
37. Article-delivery—
38. Endless carrier,
Lock-releasing—
Gravity—
Reciprocating released part—
39. Article-delivery—
40. Sliding pusher,
41. Article-securing stands,
42. Chance and game apparatus,
43. Exhibitors,
33. Fluid-delivery,
Measuring instruments—
34. Pull-testers,
35. Scales,
36. Strike-testers,
44. Telephones.
45. Reset turning released part—
48. Article-delivery,
49. Article-securing stands,
50. Chance and game apparatus,
51. Door and lid locks,
52. Exhibitors,
53. Fluid-delivery,
46. Measuring instruments—
47. Scales,
Thrust—
54. Pivoted detent—
71. Article-delivery,
55. Reciprocating coin-mover—
57. Article-delivery—
58. Sliding pusher,
59. Door and lid locks,
60. Fluid-delivery,
56. Measuring instruments,
61. Turning coin-mover—
63. Article-delivery,
64. Article-securing stands,
65. Door and lid locks,
66. Fluid-delivery,
62. Measuring instruments,
67. Reciprocating detent—
68. Article-delivery,
69. Reciprocating coin-mover,
70. Turning coin-mover.
1. Miscellaneous—
2. Article-delivery,
3. Fluid-delivery.
95. Shutter.

CLASS 194.—CHECK-CONTROLLED APPARATUS.

DEFINITIONS.

Class.

This class includes all patents which contain any claim for the check-controlled device or for the combination of such device with the apparatus or machine to which it is applied or for any structure of that apparatus which would be useful only in a check-controlled device.

The term "check" includes coins and substitutes therefor which have analogous function.

(Note.—Searches broadly for any particular art should be made not only in all subclasses having titles corresponding to such art, but also in the various miscellaneous subclasses of each group based on structure.)

Subclasses.

1. MISCELLANEOUS. Matter not classifiable in any other subclass.

2. MISCELLANEOUS, ARTICLE-DELIVERY. Apparatus for delivering articles of merchandise and not classifiable in any other subclass.

3. MISCELLANEOUS, FLUID-DELIVERY. Apparatus for delivering air, gas, water, or other fluid and not classifiable in any other subclass.

4. ANOMALOUS CHECK. The check is not a coin or other flat circular plate.

5. ANOMALOUS CHECK, FLUID-DELIVERY. The device uses an anomalous check and delivers air, gas, water, or other fluid

6. CHECK IN CIRCUIT. The check becomes a bridge or plug through which the current passes.

7. CHECK IN CIRCUIT, ARTICLE-DELIVERY. The current traverses the check, the apparatus delivering an article of merchandise.

8. CHECK IN CIRCUIT, TELEPHONES. The current traverses the check inserted as toll for the use of a telephone.

9. CHECK-OPERATED SWITCH. The check operates by its weight or thrust an electric switch. The check does not place mechanism in such a condition that the switch may be subsequently closed, but is an active agent in the operation thereof.

10. CHECK-OPERATED SWITCH, ARTICLE-DELIVERY. An article-delivery device is actuated by the closing of an electric switch operated by the check.

11. CHECK-OPERATED SWITCH, ELECTRIC METERS. A switch is closed by the operation of the check inserted as payment for electricity passing through an electric meter.

12. CHECK-OPERATED SWITCH, EXHIBITORS. An electric switch operated by the check controls a device for exhibiting pictures, advertisements, automatons, etc.

13. CHECK-OPERATED SWITCH, FLUID-DELIVERY. An electric switch operated by the check causes the delivery of air, gas, water, or other fluid.

14. CHECK-OPERATED SWITCH, INDUCTION-COILS. An electric switch operated by the check causes an induction-coil to administer electricity to persons.

15. CHECK-OPERATED SWITCH, PHONOGRAPHS. An electric switch is operated by the check to place in operative condition a phonograph, gramophone, or other device having the same general function.

16. CHECK-OPERATED SWITCH, TELEPHONES. An electric switch is operated by the check inserted as toll for the use of a telephone.

17. LOCK-RELEASING. The check releases a locking device which normally prevents the movement of some mechanism. This subclass includes all lock-releasing mechanism not released by the gravity or the thrust of the check.

18. LOCK-RELEASING, GRAVITY. The gravity of the check operates the locking mechanism.

19. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART. The gravity of the check releases a part which always turns forward. Such part does not turn backward to be relocked, as in subclass Lock-releasing, gravity, reset turning released part, and its subordinate subclasses.

20. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, MEASURING INSTRUMENTS. A measuring instrument is controlled by the gravity of the check which releases a turning part having no retrograde movement in order to be relocked. Here are placed electric shocking-machines, electric meters, strength-testers, and the like.

21. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, MEASURING INSTRUMENTS, SCALES. Weighing devices controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

22. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY. Miscellaneous subclass of article-delivery devices controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

23. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, CHANCE. The delivery of an article is governed by a chance device controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

24. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER. The article is delivered by an endless carrier, as a belt or drum, controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

25. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER, MAGAZINE. The article is delivered by an endless carrier, as a belt or drum, which is fed from a magazine, the mechanism being controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

26. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ROTARY FEED. The article is fed by a rotary device which does not carry the article around a portion of travel, as is the case in the last two subclasses above defined, the mechanism being controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

27. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, SLIDING PUSHER. The article is delivered by a sliding device by which it is pushed. The mechanism is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

(Note.—Pivoted pushers are placed under subclass Lock-releasing, gravity, forwardly-turning released part, article-delivery, and rotating flat carriers under subclasses Lock-releasing, gravity, forwardly-turning released part, article-delivery, endless carrier, and Lock-releasing, gravity, forwardly-turning released part, article-delivery, endless carrier, magazine, in this class.)

28. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, etc., is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

29. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, FLUID-DELIVERY. A device which delivers air, gas, water, or other fluid is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

30. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, GAME APPARATUS. A game apparatus is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

31. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, PHONOGRAPHS. A phonograph, gramophone, or device having the same general function is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

32. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART. The gravity of the check releases a reciprocating part. Devices that are pivoted or swinging are not regarded as reciprocating.

33. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS. The weight of the check releases a reciprocating part of a measuring instrument, as electric meters, electric shocking devices, lung-testers, and the like.

34. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, PULL-TESTERS. Devices which measure the force exerted by a pull and controlled by the weight of the check which releases a reciprocating part.

35. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, SCALES. Devices which weigh and are controlled by the weight of the check which releases a reciprocating part.

36. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, STRIKE-TESTERS. Devices which measure the force of a blow of the fist, foot, hammer, etc., and are controlled by the weight of the check which releases a reciprocating part.

37. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY. An article is delivered by a mechanism controlled by the weight of the check which releases a reciprocating part.

38. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER. The article is delivered by an endless carrier, as a drum or belt, controlled by the weight of the check which releases a reciprocating part.

39. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY, SLIDING PUSHER. A sliding device pushes out the article and is controlled by the weight of the check which releases a reciprocating part.

(Note.—A pivoted or turning device is not regarded as sliding. Such devices are in subclass Lock-releasing, gravity, reciprocating released part, article-delivery, in this class.)

40. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-SECURING STANDS. Devices for securing temporarily articles such as bicycles, umbrellas, hats, and coats, such devices being controlled by the weight of the check which releases a reciprocating part.

41. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by the weight of the check which releases a reciprocating part.

42. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, and the like is controlled by the weight of the check which releases a reciprocating part.

43. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, FLUID-DELIVERY. A device for the delivery of air, gas, water, or other fluid is controlled by the weight of the check which releases a reciprocating part.

44. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, TELEPHONES. A reciprocating device is released by the weight of the check inserted as toll for the use of a telephone.

45. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART. A turning part is released by the weight of a check and afterward reset—that is, relocked—by being returned to its normal position.

46. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, MEASURING INSTRUMENTS. A measuring instrument is controlled by the weight of the check which releases a turning part reset by a retrograde movement. This subclass includes such devices as electric meters, electric shocking-machines, and strength-testers.

47. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, MEASURING INSTRUMENTS, SCALES. A weighing mechanism is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

48. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, ARTICLE-DELIVERY. An article-delivery device is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

49. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, ARTICLE-SECURING STANDS. A device for securing bicycles, umbrellas, hats, coats, and the like is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

50. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

51. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, DOOR AND LID LOCKS. A door or lid is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

52. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, and the like is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

53. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, FLUID-DELIVERY. A device for delivering air, gas, water, or other fluid is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

LOCK-RELEASING, THRUST. All the devices classified under this title have a detent or locking device releasable by the thrust or push of the check. The check acts as a connection or link, so that when the check is forced along it will move the detent out of locking position. In some instances the checks are pushed by the fingers. The check may move to thrust the detent out of locking position, or the detent may be thrust out of such position by moving against the check.

54. LOCK-RELEASING, THRUST, PIVOTED DETENT. The thrust or push of the check operates a pivoted detent or unlocking device. In this subclass the checks are pushed by the fingers or are stationary.

(Note.—In cases where the check-driven element is equivalent or analogous to a detent, or where the detent claimed is analogous or equivalent to a part not a detent, search should be made in the proper subclasses under Connectors, check, this class.)

55. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER. A reciprocating device directly engages and moves the coin to unlock a pivoted detent. Swinging or pivoted devices are not regarded as reciprocating. They are under subclass Lock-releasing, thrust, pivoted detent, turning coin-mover, and its subordinate subclasses.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

56. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, MEASURING INSTRUMENTS. A measuring instrument—such as a dynamometer, spirometer, electric shocking-machine, or an electric meter—is controlled by a reciprocating part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

57. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, ARTICLE-DELIVERY. An article-delivery device is controlled by a reciprocating part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

58. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, ARTICLE-DELIVERY, SLIDING PUSHER. A device that has a sliding pusher to deliver an article has a reciprocating pusher which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

59. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, DOOR AND LID LOCKS. A door or lid is controlled by a pivoted releasing device operated by a coin directly engaged by a reciprocating pusher.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

60. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, FLUID-DELIVERY. A device for exhibiting pictures, advertisements, automatons, etc., is controlled by a pivoted releasing means operated by a coin directly engaged by a reciprocating pusher.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

61. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER. A turning device directly engages and moves a coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

62. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, MEASURING INSTRUMENTS. A measuring instrument such as a dynamometer, spirometer, electric meter, or an electric shocking-machine is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, in this class.)

63. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, ARTICLE-DELIVERY. An article-delivery device is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

64. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, ARTICLE-SECURING STANDS. A device for temporarily securing bicycles, umbrellas, hats, coats, and the like is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

65. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, DOOR AND LID LOCKS. A door or lid is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

66. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, FLUID-DELIVERY. A device for delivering air, gas, water, or other fluid is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

67. LOCK-RELEASING, THRUST, RECIPROCATING DETENT. The thrust or push of the check operates a reciprocating detent or unlocking device. In this subclass the checks are pushed by the finger or are stationary.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

68. LOCK-RELEASING, THRUST, RECIPROCATING DETENT, ARTICLE-DELIVERY. An article-delivery device is controlled by a reciprocating detent which is unlocked by the thrust or push of the check. The checks are pushed by the fingers or are stationary.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

69. LOCK-RELEASING, THRUST, RECIPROCATING DETENT, RECIPROCATING COIN-MOVER. A reciprocating device directly engages and moves a coin which unlocks a reciprocating detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

70. LOCK-RELEASING, THRUST, RECIPROCATING DETENT, TURNING COIN-MOVER. A turning device directly engages and moves a coin which unlocks a reciprocating detent.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

71. LOCK-RELEASING, THRUST, PIVOTED DETENT, ARTICLE-DELIVERY. An article-delivery device is controlled by the thrust or push of a check which operates a pivoted detent. The checks are pushed by the fingers or are stationary.

(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

72. CONNECTORS. The check operates or becomes a connector between normally disconnected parts. This subclass embraces those devices that operate a connector and do not depend upon the gravity of the coin or deliver an article.

73. CONNECTORS, GRAVITY. The gravity of the check operates a connector between disconnected parts.

CONNECTORS, CHECK. In this group the check is the connector between disconnected parts and transmits the pressure of its actuating means to another part not a detent or releasing device. Mechanisms employing checks to transmit motion therefrom to a detent are classified in subclasses under Lock-releasing, thrust, this class. In some instances the fingers are the means for driving the check.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in the proper subclasses under Lock-releasing, thrust, this class.)

74. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS. The check connects reciprocating and turning parts, neither operating a detent.

(Note.—For detents actuated by the thrust of a check search should be made in the subclasses under Lock-releasing, thrust, this class.)

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

75. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in the proper subclasses under Lock-releasing, thrust, this class.)

76. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, CHANCE AND GAME APPARATUS. A chance and game apparatus is controlled by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

77. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, FLUID-DELIVERY. A mechanism which delivers air, gas, water, or other fluid is controlled by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

78. CONNECTORS, CHECK, RECIPROCATING PARTS. The check connects a plurality of reciprocating parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

79. CONNECTORS, CHECK, RECIPROCATING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

80. CONNECTORS, CHECK, RECIPROCATING PARTS, ARTICLE-DELIVERY, SLIDING PUSHER. An article delivered by a sliding (not swinging) pusher is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

81. CONNECTORS, CHECK, RECIPROCATING PARTS, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

82. CONNECTORS, CHECK, RECIPROCATING PARTS, FLUID-DELIVERY. A mechanism for the delivery of air, gas, water, or other fluid is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

83. CONNECTORS, CHECK, TURNING PARTS. The check connects a plurality of turning parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

84. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC. The check connects a plurality of parts having the same axis of motion. The parts may be telescopic or in the same longitudinal line. None of the parts operates a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

85. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, ARTICLE-DELIVERY. An article is delivered by a device wherein the check connects a plurality of concentric parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

86. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein the check connects a plurality of concentric parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

87. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, FLUID-DELIVERY. A mechanism delivering air, gas, water, or other fluid is controlled by a device wherein the check connects a plurality of concentric parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

88. CONNECTORS, CHECK, TURNING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein a check connects a plurality of turning non-concentric parts, none operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

89. CONNECTORS, CHECK, TURNING PARTS, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein a check connects a plurality of turning non-concentric parts, none of the parts operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

90. CONNECTORS, CHECK, TURNING PARTS, FLUID-DELIVERY. A mechanism delivering air, gas, water, or other fluid is controlled by a device wherein a check connects a plurality of turning non-concentric parts, none of the parts operating a detent.

(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

91. CONNECTORS, ARTICLE-DELIVERY. The check operates a connector between disconnected parts in order to make an article-delivery device operative.

92. LOCK-PREVENTING. The locking device is not normally in locking position, and any attempt to operate the mechanism in the absence of the check causes the locking means to seek a locking position.

93. LOCK-PREVENTING, ARTICLE-DELIVERY. An article is delivered by a mechanism whose locking device is not normally in locking position, and any attempt to operate the mechanism in the absence of the check causes the locking means to seek a locking position.

94. CHECK-ROTATED WHEEL. A wheel is rotated by the positive action of the check, but not as the result of some mechanism released or set by the check.

95. SHUTTER. The check controls the operation of a shutter controlling the admission of light.

96. CHECK-ENGAGED ALARM. The check engages or strikes an alarm, usually the signal of a telephone toll apparatus or a fraud-signal.

97. FRAUD-PREVENTIVES. Devices for preventing fraud against the apparatus. This subclass includes miscellaneous devices not classifiable in the subtitles hereunder.

(Note.—For alarms whose body or tongue is struck by the check search should be made in subclass Check-engaged alarms in this class.)

(Note.—In those cases where a pusher enters the opening in a washer search should be made in the subclasses under Lock-releasing, thrust, and those under Connectors, check, in this class.)

98. FRAUD-PREVENTIVES, CHECK-EXHIBITORS. Devices for preventing fraud by having the check exposed for visual examination.

99. FRAUD-PREVENTIVES, COMBINED SIZE AND MATERIAL TESTERS. Devices for preventing fraud by rejecting checks of improper size and material.

100. FRAUD-PREVENTIVES, MATERIAL-TESTERS. Devices for preventing fraud by rejecting checks of improper material.

(Note.—Search should also be made in subclass Fraud-preventives, combined size and material testers, this class.)

(Note.—In those cases where a pusher pierces or enters a card or other soft or thin material search should be made in the subclasses under Lock releasing, thrust, and under Connectors, check, in this class.)

101. FRAUD-PREVENTIVES, MATERIAL-TESTERS, MAGNETS. Devices for preventing fraud by rejecting checks susceptible to magnetic attraction.

102. FRAUD-PREVENTIVES, SIZE-TESTERS. Devices for preventing fraud by rejecting checks of improper size.

(Note.—Search should also be made in Fraud-preventives, combined size and material testers, this class.)

(Note.—In those cases where the edge of the check is held between and gaged by the opposing ends of the check-pushed and the check-driven elements search should be made in the subclasses under Lock-releasing, thrust, and under Connectors, check, this class.)

103. FRAUD-PREVENTIVES, WEIGHT-TESTERS. Devices for preventing fraud by rejecting checks of improper weight.

C. H. DUELL,
Commissioner.

Patents No. 663,403 to 663,841.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 5, 1900.

SIR: The Secretary of the Interior has ordered that John S. Armstrong, of Xenia, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 5, 1900.

SIR: The Secretary of the Interior has ordered that Jerome B. Nulton, of Carroleton, Ill., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Notices of Disclaimers.

(ORDER No. 1,374.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 16, 1900.

It is directed that hereafter all notices of disclaimers to patents as published in the OFFICIAL GAZETTE be printed on slips similar to those on which corrections of Letters Patent are now printed and that one of these slips be pasted on each copy of the patent to which the disclaimer applies and one copy be sent to the party filing the disclaimer to be attached to the patent in his possession.

C. H. DUELL,
Commissioner.

CERTIFICATES OF REGISTRATION ISSUED DECEMBER 11, 1900.

Labels.

7,949.—Title: "PYROPEN." (For Pyropens.) *Wiseman Manufacturing Co.*, New York, N. Y. Application filed November 8, 1900.

7,950.—Title: "NEWPORT." (For Cheviots.) *James Connelly & Sons*, Philadelphia, Pa. Application filed November 14, 1900.

7,951.—Title: "MINERS ASTHMA CURE." (For a Medicine.) *The E. Dean Morlan Company*, Indianapolis, Ind. Application filed November 19, 1900.

7,952.—Title: "DR. CAMEL'S THICK NECK CURE." (For a Medicine.) *John Lamparter & Co.*, Akron, Ohio. Application filed November 15, 1900.

7,953.—Title: "DR. CAMEL'S CONGO BLOOD PILLS." (For a Medicine.) *John Lamparter & Co.*, Akron, Ohio. Application filed November 15, 1900.

7,954.—Title: "DR. CAMEL'S CONGO COMPOUND." (For a Medicine.) *John Lamparter & Co.*, Akron, Ohio. Application filed November 15, 1900.

7,955.—Title: "RED CROSS ANTISEPTIC DENTIFRICE." (For a Dentifrice.) *Red Cross Chemical Company*, Portland, Me., and Boston, Mass. Application filed November 5, 1900.

7,956.—Title: "ERB'S 'NEVER CHAP.'" (For a Lotion.) *Ludwig G. B. Erb*, New York, N. Y. Application filed November 15, 1900.

7,957.—Title: "ROMAN LINIMENT." (For a Liniment.) *T. A. Farrell*, Boston, Mass. Application filed November 13, 1900.

7,958.—Title: "BROOK BRAND." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 10, 1900.

7,959.—Title: "EQUESTRIAN BRAND." (For Canned Goods.) *The United States Printing Company*. Cincinnati, Ohio, and New York, N. Y. Application filed October 10, 1900.

7,960.—Title: "MARENGO BRAND." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed October 12, 1900.

7,961.—Title: "SUMMER GLORY BRAND." (For Canned Goods.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 16, 1900.

7,962.—Title: "JAGUAR." (For Canned Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 17, 1900.

7,963.—Title: "LASSO." (For Canned Corn.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 17, 1900.

7,964.—Title: "REFUGEE STRINGLESS BEANS." (For Canned Beans.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 20, 1900.

7,965.—Title: "LITTLE BRUNSWICK." (For Cigars.) *Jacob Stahl, Jr., & Co.*, New York, N. Y. Application filed November 14, 1900.

Print.

283.—Title: "ZIZ." (For Cement.) *Josephine D. Hill*, Chicago, Ill. Application filed November 1, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 4, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Nov. 24	Nov. 23	100
106	II. Farm Stock, Products, etc.	Nov. 23	Nov. 23	110
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Nov. 15	Nov. 20	143
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Nov. 15	Nov. 20	131
240	VII. Velocipedes, Games, and Toys.	Nov. 14	Nov. 21	119
217	XXXIII. *DESIGNS, †TRADE-MARKS, ‡LABELS AND PRINTS, Optics.	Nov. 12	Nov. 15	66
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 6	Nov. 22	167
246	I. Tillage and Fences	Nov. 6	Nov. 21	110
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Nov. 6	Nov. 21	90
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Nov. 6	Nov. 21	109
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Nov. 6	Nov. 21	87
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Nov. 5	Nov. 23	133
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Nov. 5	Nov. 21	95
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 5	Nov. 21	110
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Nov. 5	Nov. 21	104
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Nov. 5	Nov. 21	109
102	XIX. Stoves and Furnaces	Nov. 5	Nov. 20	212
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 5	Nov. 20	108
93	XXI. Textiles, etc	Nov. 5	Nov. 20	144
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Nov. 5	Nov. 20	252
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Nov. 5	Nov. 20	96
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Nov. 5	Nov. 20	152
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Nov. 5	Nov. 20	151
120	IX. Hydraulics, Fire-Extinguishers, etc.	Nov. 5	Nov. 20	83
255	XII. Mechanical Engineering, Store-Service, etc.	Nov. 5	Nov. 20	184
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 5	Nov. 20	171
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Nov. 5	Nov. 20	205
253	X. Carriages and Wagons	Nov. 5	Nov. 19	119
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Nov. 5	Nov. 12	197
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243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 1	Nov. 1	207
30	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Oct. 31	Nov. 16	197
248	XVIII. Steam-Engineering, etc	Oct. 29	Nov. 13	190
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Oct. 22	Oct. 27	261
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 20	Nov. 20	174
250	VIII. Furniture, Beds, Store Furniture, etc.	Oct. 15	Nov. 15	297
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Sept. 29	Oct. 18	309

Total number of applications awaiting action.....5,492

Applications Under Examination—Continued.

Under one month.			
*Designs	Nov. 26	Dec. 4	18
†Trade-Marks	Nov. 26	Dec. 3	14
‡Labels and Prints	Dec. 4	Nov. 30	1

ISSUE OF DECEMBER 11, 1900.

Patents	439	No. 663,403 to No. 663,841, inclusive.
Designs	51	No. 33,674 to No. 33,724, inclusive.
Trade-Marks	35	No. 35,555 to No. 35,589, inclusive.
Labels	17	No. 7,949 to No. 7,965, inclusive.
Prints	1	No. 283.
Reissues	1	No. 11,877.
Total issue	544	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nevada	----	----
Arizona Territory	----	----	New Hampshire	4	----
Arkansas	1	----	New Jersey	18	2
California	12	----	New Mexico Territ'y	----	----
Colorado	6	----	New York	75	10
Connecticut	11	----	North Carolina	1	----
Delaware	----	----	North Dakota	3	----
District of Columbia	2	----	Ohio	47	10
Florida	----	----	Oklahoma Territ'y	----	----
Georgia	2	----	Oregon	1	----
Hawaii	----	----	Pennsylvania	47	8
Idaho	1	----	Rhode Island	6	----
Illinois	39	4	South Carolina	1	----
Indian Territory	----	----	South Dakota	2	----
Indiana	6	1	Tennessee	4	----
Iowa	9	----	Texas	10	1
Kansas	3	1	Utah	2	----
Kentucky	3	----	Vermont	----	1
Louisiana	1	----	Virginia	1	1
Maine	2	2	Washington	1	----
Maryland	6	1	West Virginia	3	----
Massachusetts	39	6	Wisconsin	9	----
Michigan	10	2	Wyoming	----	----
Minnesota	11	2	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	9	1	Total to citizens of the United States	418	48
Montana	2	----			
Nebraska	5	----			

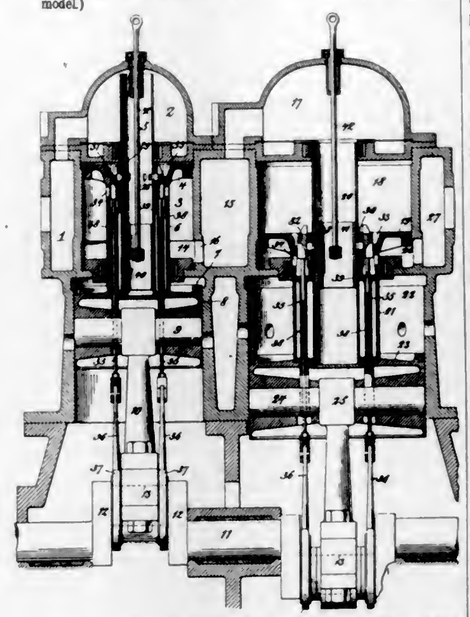
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	2	----
Australia	----	----	Japan	----	----
Austria-Hungary	----	----	Java	----	----
Barbadoes	----	----	Mexico	----	----
Belgium	1	----	Netherlands	1	----
Brazil	----	----	New South Wales	----	----
British Guiana	----	----	New Zealand	1	----
Canada	4	----	Norway	----	----
Chile	----	----	Queensland	----	----
China	----	----	Russia	3	----
Costa Rica	----	----	Scotland	2	----
Cuba	----	----	South African Republic	----	----
Denmark	1	----	South Australia	----	----
Egypt	----	----	Spain	----	----
England	20	1	Sweden	----	----
Finland	----	----	Switzerland	----	----
France	6	2	Venezuela	----	----
Germany	23	2	Victoria	----	----
Guatemala	----	----	Total to citizens of foreign countries	72	5
Haiti	----	----			
India	----	----			
Ireland	----	----			

PATENTS

GRANTED DECEMBER 11, 1900.

663,403. STEAM-ENGINE. EDWARD T. ADAMS, Milwaukee, Wis. Filed Apr. 7, 1899. Renewed May 1, 1900. Serial No. 15,132. (No model.)



Claim.—1. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest and provided with ports communicating with the cylinder, of a valve-sleeve separate from and movable longitudinally with respect to the piston, and mounted upon the admission-tube, and adapted to open and close said ports, and means for vibrating said sleeve as the piston reciprocates.

2. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve separate from and movable longitudinally with respect to the piston, and adapted to open and close said ports, means for vibrating said sleeve as the piston reciprocates, and a cut-off valve adapted to close said ports prior to the closure thereof by the main valve, substantially as described.

3. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve separate from the piston, mounted upon the admission-tube and longitudinally movable with respect to said ports and adapted to open and close the same, and means for vibrating said sleeve as the piston reciprocates.

4. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve, separate from the piston, mounted upon the admission-tube, and movable longitudinally with respect to said ports and the cylinder, and adapted to regulate admission to and exhaust from said cylinder, and means for vibrating said sleeve as the piston reciprocates.

5. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve separate from the piston, surrounding the admission-tube and located in a recess between said tube and the piston, movable longitudinally with respect to the piston, and adapted to regulate admission to and exhaust from said cylinder, and means for operating said valve.

6. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a main valve consisting of a sleeve, separate from the piston, movable longitudinally with respect to said ports and the cylinder, and adapted to regulate admission to and exhaust from said cylinder, means for operating said valve, and a cut-off valve sleeve adapted to close said ports prior to the closure thereof by the main valve.

7. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve separate from and movable longitudinally with respect to the piston, and mounted upon the piston-rod, and adapted to open and close said ports, and means for vibrating said sleeve as the piston reciprocates.

8. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve separate from and movable longitudinally with respect to the piston, and mounted upon the piston-rod, which is longitudinally movable with respect to said ports and is adapted to open and close the same, and means for vibrating said sleeve as the piston reciprocates.

9. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve separate from and movable longitudinally with respect to the piston, and mounted upon the piston-rod, and adapted to open and close said ports, and means for vibrating said sleeve with respect to said ports with each stroke of the piston.

10. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, and mounted upon the piston-rod, which is longitudinally movable with respect to said ports and is adapted to open and close the same and means for imparting to said sleeve longitudinal movement with respect to said ports and the cylinder, with each stroke of the piston.

11. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, surrounding said piston-rod, and movable longitudinally with respect to the piston, and means for imparting to said sleeve longitudinal movement with respect to said ports and the cylinder with each stroke of the piston.

12. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a distribution-valve, separate from the piston, consisting of a sleeve mounted upon the piston-rod, movable longitudinally with respect to said ports and the cylinder, and adapted to regulate admission to and exhaust from said cylinder, and means for vibrating said sleeve as the piston reciprocates.

13. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve, separate from the piston, located in a recess between said piston-rod and the piston, longitudinally movable with respect to the piston, and controlling admission to and exhaust from said cylinder, and means for operating said valve.

14. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, located in a recess between said piston-rod and the piston, longitudinally movable with respect to the piston, and arranged to admit working fluid through said piston-rod ports into the cylinder and to permit such fluid to exhaust between said sleeve and the piston, and means for operating said valve.

15. The combination, with a cylinder, a hollow piston-rod having

admission-ports communicating with said cylinder, and a piston, having exhaust-ports, of a valve-sleeve, separate from the piston, located in a recess between said piston and piston-rod, longitudinally movable with respect to the piston, and arranged to open and close said admission and exhaust ports alternately, and means for operating said valve.

16. The combination, with a cylinder, a piston, and a hollow piston-rod, composed of inner and outer tubes, the inner tube having admission-ports communicating with the space on one side of the piston and the outer tube having exhaust-ports communicating with the space on the other side of said piston, of a valve-sleeve surrounding the inner tube and arranged to permit working fluid to enter the cylinder through the ports in said inner tube, and then to permit such fluid to exhaust into the outer tube and through the ports thereof, and means for operating said valve.

17. The combination, with a cylinder, a piston, and a hollow piston-rod composed of inner and outer tubes, the inner tubes having admission-ports communicating with the space on one side of the piston and the outer tube having exhaust-ports communicating with the space on the other side of said piston, of a valve-sleeve surrounding the inner tube and arranged to permit working fluid to enter the cylinder through the ports in said inner tube, said sleeve being cut away on its outer side to permit such fluid to exhaust between said sleeve and the piston into the outer tube, and means for operating said valve.

18. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, and mounted upon the piston-rod, which is longitudinally movable with respect to said piston and ports and is adapted to open and close the same, valve-rods for vibrating said sleeve, and means for communicating motion thereto.

19. The combination, with a cylinder, a steam-chest, a piston, a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, a crank, and means for connecting the piston-rod thereto, of a valve-sleeve, separate from the piston, and mounted upon the piston-rod, which is longitudinally movable with respect to said piston and ports and is adapted to open and close the same, eccentrics on the crank-pin, and means for transmitting motion of said eccentrics to the valve.

20. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, and mounted upon the piston-rod, which is longitudinally movable with respect to said piston and ports and is adapted to open and close the same, valve-rods, within said hollow piston-rod, connected to said valve, and means for imparting motion to said valve-rods and the valve.

21. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve which is longitudinally movable with respect to said ports and is adapted to open and close the same, valve-rods within said piston-rod and projecting from one end thereof, and tubes surrounding said valve-rods and adapted to prevent the escape of working fluid around said rods.

22. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinders, of a main valve, separate from the piston, arranged to open and close said ports, means for operating the same, and a cut-off valve adapted to close said ports prior to the closure thereof by the main valve.

23. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a main valve, separate from the piston, adapted to open and close said ports, and a cut-off valve, normally stationary with respect to said ports, and so located that said ports are closed by said cut-off valve prior to the closure thereof by the main valve.

24. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a main valve, separate from the piston, adapted to open and close said ports, and a cut-off valve, within the piston-rod, over which said ports pass, so as to be closed thereby, prior to the closure of said ports by the main valve.

25. The combination, with a cylinder, a piston, and a hollow piston having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, forming the main valve and adapted to open and close said ports, and a cut-off-valve sleeve within the piston-rod, arranged to close said ports prior to the closure thereof by the main valve.

26. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, forming the main valve, and adapted to open and close said ports, means for vibrating said sleeve, a separate cut-off valve within the piston-rod and adapted to close said ports prior to the closure thereof by the main valve, and means for adjusting said cut-off valve.

27. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, forming the main valve, surrounding the piston-rod, and adapted to open and close said ports, means for vibrating said sleeve, and a separate cut-off-valve sleeve within the piston-rod and adapted to close said ports prior to the closure thereof by the main valve.

28. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a main valve, separate from the piston, adapted to close and open said ports, a cut-off valve normally stationary with respect to said cylinder, and so located that said ports are closed by said cut-off valve prior to the closure thereof by the main valve, and an automatic governor connected with and adapted to adjust said cut-off valve.

29. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve, separate from the piston, forming the main valve, a second sleeve, forming a cut-off valve, one sleeve being on the inside of the piston-rod and the other sleeve upon the outside thereof, the main valve being adapted to open and close said ports, and the cut-off valve being arranged to close said ports prior to the closure thereof by the main valve.

30. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, having admission-ports communicating with each of said cylinders on one side of the pistons thereof, and exhaust-ports communicating with each of said cylinders on the other side of the pistons thereof, of a high-pressure distribution-valve sleeve surrounding the piston-rod, a low-pressure distribution-valve sleeve, within the piston-rod, and means for vibrating said valves.

31. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, having admission-ports communicating with each of said cylinders on one side of the pistons thereof, and exhaust-ports communicating with each of said cylinders on the other side of the pistons thereof, of a high-pressure distribution-valve surrounding the piston-rod, a low-pressure distribution-valve sleeve, within the piston-rod, having ports adapted to register with the low-pressure ports of said piston-rod communicating with the working side of the low-pressure cylinder, and cut-off valves for said cylinders, the low-pressure cut-off valve working within the low-pressure distribution-valve sleeve.

32. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, consisting of inner and outer tubes, the inner of said tubes having admission-ports for the high-pressure cylinder and the outer of said tubes having exhaust-ports for the high-pressure and low-pressure cylinders and admission-ports for the low-pressure cylinder, of valve-sleeves forming distribution-valves for the high-pressure and low-pressure cylinders, the high-pressure valve surrounding the inner tube of the piston-rod and the low-pressure valve lying within the outer tube of said piston-rod, and means for vibrating said valves.

33. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, having admission and exhaust ports for said cylinders, of main distribution-valves, separate from and movable longitudinally with respect to the pistons, and adapted to open and close said ports, and cut-off valves within the piston-rod adapted to close the admission-ports thereof prior to the closure of said ports by the main valves.

34. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, having supply and exhaust ports for said cylinders, of main distribution-valves adapted to open and close said ports, and cut-off valves for each of said cylinders, within the piston-rod, having concentric valve-stems projecting from one end of the piston-rod, by which said cut-off valves are held in position.

35. The combination, with tandem high-pressure and low-pressure cylinders, pistons therefor, and a hollow piston-rod for said pistons, consisting of inner and outer tubes, the inner of said tubes having admission-ports for the high-pressure cylinder and the outer of said tubes having exhaust-ports for the high-pressure and low-pressure cylinders and admission-ports for the low-pressure cylinder, of distribution-valves for said cylinders, the low-pressure valve being a sleeve within the piston-rod, and cut-off valves for said cylinders, located within the piston-rod, the low-pressure cut-off valve working within the low-pressure distribution-valve.

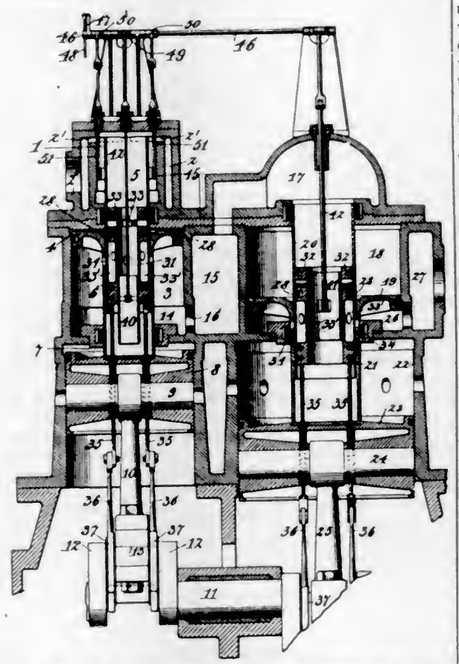
36. The combination, with an admission-tube, of a valve consisting of a sleeve mounted thereon and movable longitudinally with respect thereto, and a packing-ring carried by said tube and pressing against said sleeve, said sleeve being provided with fingers for retaining said packing-ring in place.

37. The combination, with a piston, having a valve-opening the axis of which is parallel to the axis of the piston, of a valve in said opening, and a packing-ring carried by said valve and bearing against said piston, said piston being provided with ridges to hold the packing-ring in place.

38. The combination, with a cylinder, a piston, a steam-chest, a crank, means for connecting the same to a piston-rod, and a piston-rod having an admission-tube communicating with the steam-chest, provided with ports communicating with the cylinder, and open at its outer end and closed at a point beyond its ports, whereby a constant pressure is exerted upon the admission-tube tending to prevent reversal of pressure at the bearings, of a valve movable longitudinally with respect to the piston-rod and adapted to open and close said ports, and means for operating said valve.

39. The combination with a cylinder, a piston, a steam-chest, a crank, means for connecting the same to a piston-rod, and a hollow piston-rod communicating with the steam-chest, provided with ports communicating with the cylinder, and open at its outer end and closed at a point beyond its ports, whereby a constant pressure is exerted upon the piston-rod, tending to prevent reversal of pressure at the bearings, of a valve movable longitudinally with respect to the piston-rod, and adapted to open and close said ports, and means for operating said valve.

663,404. STEAM-ENGINE. EDWARD T. ADAMS, Milwaukee, Wis. Filed July 28, 1899. Renewed May 1, 1900. Serial No. 15,133. (No model.)



Claim.—1. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve located within said admission-tube, movable longitudinally with respect to the ports thereof, and adapted to regulate admission to said cylinder, and having a steam-passage through it, and means for operating said valve.

2. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube, moving with the piston, communicating with the steam-chest, and provided with ports communicating with the cylinder, of a valve-sleeve located within said admission-tube, movable longitudinally with respect to the ports thereof, and adapted to regulate admission to and exhaust from said cylinder, and having a steam-passage through it, and means for operating said valve.

3. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve within the piston-rod and movable longitudinally with respect to the ports thereof, and having a steam-passage through it, and means for imparting to said sleeve longitudinal movement with respect to said ports with each stroke of the piston.

4. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve within the piston-rod and movable longitudinally with respect to the ports thereof, and controlling admission to and exhaust from said cylinder, and having a steam-passage through it, and means for operating said valve.

5. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having ports communicating with said cylinder, of a valve-sleeve within the piston-rod and movable longitudinally with respect to the ports thereof, provided with an exhaust-port through which working fluid may pass from the working side of the piston, and arranged to control admission to and exhaust from said cylinder, and having a steam-passage through it, and means for operating said valve.

6. The combination, with a cylinder, a steam-chest, a piston, and a hollow piston-rod communicating with said steam-chest and having supply-ports communicating with said cylinder on one side of the piston and exhaust-ports communicating with an exhaust-space, of a valve-sleeve within the piston-rod and movable with respect to the ports thereof, having in its sides an exhaust-recess adapted to connect the admission and exhaust ports of the piston-rod, and having a steam-passage through it, and means for operating said valve.

7. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve within the piston-rod, forming the main valve, and adapted to open and close said ports, means for vibrating said sleeve, and a separate cut-off valve within the main-valve sleeve, and adapted to close said ports prior to the closure thereof by the main valve.

8. The combination, with a cylinder, a piston, and a hollow piston-rod having ports communicating with said cylinder, of a valve-sleeve within the piston-rod, forming the main valve, and adapted to open and close said ports, means for operating said valve, and a separate cut-off valve within the main-valve sleeve and adapted to close said ports prior to the closure thereof by the main valve.

9. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube communicating with the steam-chest and provided with ports communicating with the cylinder, of a main-valve sleeve located within said admission-tube and adapted to open and close said ports, means for operating said valve, and a cut-off valve within said main-valve sleeve and adapted to close said ports prior to the closure thereof by the main valve.

10. In an engine, the combination, with a cylinder, a steam-chest, a piston, and an admission-tube communicating with the steam-chest and having ports communicating with the cylinder, of a variable-cut-off-valve gear controlling the passage of steam through such ports into the cylinder, a throttle-valve, likewise controlling admission to the engine, and means for operating the throttle-valve and variable-cut-off gear in conjunction.

11. In an engine, the combination, with a cylinder, a steam-chest, a piston, and an admission-tube communicating with the steam-chest and having ports communicating with the engine-cylinder, of a main distribution-valve controlling the passage of steam through such ports, means for operating the same, a cut-off-valve sleeve adapted to vary the point of cut-off, a throttle-valve regulating the admission to the cylinder, and mechanism for operating the throttle-valve and cut-off valve, arranged to bring the throttle-valve into action when the cut-off valve is adjusted for early cut-off.

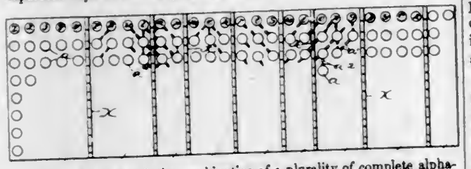
12. In an engine, the combination, with a cylinder, a steam-chest, a piston, and an admission-tube communicating with the steam-chest and having ports communicating with the engine-cylinder, of a sleeve within said admission-tube forming the main distribution-valve, means for operating the same, a sleeve within the main-distribution-valve sleeve forming a riding cut-off valve, a throttle-valve regulating the admission to the cylinder, and mechanism for operating the cut-off valve and throttle-valve, arranged to bring the throttle-valve into action when the cut-off valve is adjusted for early cut-off.

13. The combination, with a cylinder, a piston, a steam-chest, and an admission-tube communicating with the steam-chest and provided with ports communicating with the cylinder, of a main valve regulating the admission to the cylinder, a cut-off valve, a throttle-valve regulating the admission to the cylinder, valve-rods for adjusting said cut-off and throttle valves, a rock-shaft, and arms thereon connected to said valve-rods and occupying different angular positions, whereby as the throttle-valve comes into action the motion of the cut-off valve becomes less rapid.

663,405. KEYBOARD. GEORGE G. ALLEN, Malden, Mass., assignor to the Stenotype Company, Portland, Me. Filed Nov. 25, 1896. Serial No. 613,399. (No model.)

Claim.—1. A keyboard consisting of a series of characters divided into groups, in combination with partitions separating said groups and rising slightly above the surfaces of the keys, and cut away at suitable intervals, whereby said partitions can perform their function of indicating to the touch the locations of the various groups and keys without inter-

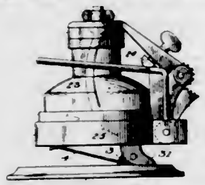
fering with the simultaneous depression of two adjoining but partition-separated keys substantially as set forth.



2. In a keyboard, the combination of a plurality of complete alphabets arranged in parallel rows, the keys being provided with spurs or projections, and partitions extending at right angles to said rows and separating the keys into groups, said partitions being cut away to permit the simultaneous depression of keys located at opposite sides thereof, substantially as and for the purpose set forth.

3. In a keyboard the combination of keys formed with heads and arranged in rows extending both longitudinally and transversely, and pins projecting radially from said heads in predetermined directions, whereby certain of said keys can be depressed by a single impulse, substantially as set forth.

663,406. AUTOMATIC INKER. JAMES S. ANDERSON, Salt Lake City, Utah. Filed Jan. 27, 1900. Serial No. 3,028. (No model.)



Claim.—1. In an automatic inker, the combination, with a stand provided with posts, of a segmental rack pivotally secured between said posts, an arm pivotally secured to said posts above the rack having its pivotal ends provided with teeth in position to engage with the teeth of the rack, an inker secured to the free end of the arm in position to enter a bottle upon the stand, means for operating the parts to withdraw the inker from the bottle, and means for returning the parts to their normal position, substantially as described.

2. In an automatic inker, the combination, with a stand provided with posts, of a segmental rack pivotally secured between said posts, the rear edge of which extends beyond the rear edge of the posts, an arm pivotally secured to the posts above the rack and having its pivotal end provided with teeth in position to engage with the teeth of the rack, a spring secured to the pivot of said arm at one end and to the post at the other, the inker secured to the free end of the arm in position to enter an ink-bottle upon the stand, and means for operating the inker to withdraw the same from said bottle, substantially as described.

3. In an automatic inker, the combination, with a stand provided with posts, of a segmental rack, an arm pivotally secured between the posts, an inker secured to the free end of the arm and adapted to enter an ink-receptacle upon said stand, means for operating the inker, and means for locking said arm to said posts, substantially as described.

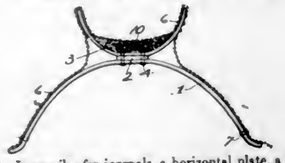
4. In an automatic inker, the combination, with a stand provided with posts, said posts being provided with a perforated projection, of a segmental rack and an arm pivotally secured between the posts, the arm being provided with a perforation in position to register with the perforation in the projection, a screw through the perforation in the arm, the end of which is adapted to be screwed into the perforation of the projection, a bottle in the stand, the stopper of which is formed from elastic material and perforated, an inker secured to the free end of said arm in position to pass through the perforation in said stopper and means for operating the inker, substantially as described.

5. In an automatic inker, the combination, with the base, of a spring-pressed holder pivotally mounted thereon, the rear portion of which is provided with perforated projections, a vibrating arm pivotally secured in said projections, a stand within the holder, a segmental rack pivotally secured to said stand in position to be detachably connected with said vibrating arm, an arm pivotally secured above the rack in position to engage therewith, and an inker secured to the free end of said arm and adapted to be operated by said vibrating arm, substantially as described.

6. In an automatic inker, the combination, with the base, of a holder pivotally secured thereto, in position to be normally held substantially parallel therewith, a spring for engaging with said holder to retain it in said parallel position, a vibrating arm pivotally secured to said holder, each end of which is provided with a slotted head, a stand in the holder provided with posts, said posts being arranged between the ends of said arm, a segmental rack pivotally secured between said posts, each end of the pivot of which is provided with a cross-head in position to be removably connected with the slotted heads, an arm pivotally secured above the rack in position to engage therewith, and an inker carried by said arm and adapted to be operated by the vibrating arm, substantially as described.

7. In an automatic inker, the combination, with the base, of a spring-pressed holder pivotally secured thereto, the rear portion of which is provided with perforated projections, a vibrating arm, the central portion of which is formed into a loop and the ends of which are bent at an angle thereto, each of said ends being provided with a pivot and a slotted head, a stand within the holder, the rear portion of which is provided with perforated posts arranged between the projections of the holder, a segmental rack pivotally secured between the lower portions of said posts, each end of the pivot of which is provided with a cross-head to fit within said slotted heads, an arm pivotally secured between the said posts above the rack and in position to engage therewith, and an inker carried by the free end of said arm and adapted to be operated by the vibrating arm, substantially as described.

663,407. OILER FOR CAR-JOURNALS. ERNEST ARMSTRONG, Camden, N. J. Filed Mar. 5, 1900. Serial No. 7,434. (No model.)

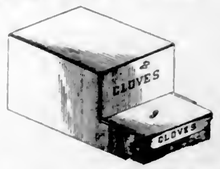


Claim.—1. In an oiler for journals, a horizontal plate, a plurality of downwardly-curved spring-supports secured in spaced relation upon the plate, a plurality of inversely-curved arms secured upon the plate at the center of their length, and a capillary fabric resting upon the upper surfaces of the curved arms and extending to the base of the supports, and secured thereto.

2. In an oiler for journals, a plurality of curved springs, a horizontal plate connected therewith at the point of greatest curvature of the springs, a plurality of arms secured upon the plate and curved upwardly to closely embrace the journal, a capillary fabric resting within the arms and partially embracing the journal, the ends of the fabric extending to the lower ends of the curved springs, and secured thereto.

3. As an article of manufacture, a base for an oiler for journals comprising a plurality of spring-supports, a plurality of upwardly-curved arms, and a plate, and means for securing the supports and the arms in spaced relation and in vertical alinement upon the plate.

663,408. LABEL-HOLDER. GEORGE E. BATEMAN, Larimore, N. D. Filed Aug. 3, 1900. Serial No. 25,829. (No model.)



Claim.—1. A label-holder having its lower portion projected outward and adapted to receive a pile of labels or the like, and a follower resting upon the pile of labels and held against outward displacement and provided with a pendent portion to extend in front of the said pile of labels and retain them in place, substantially as specified.

2. In a holder for labels and the like, a box adapted to receive a pile of labels, and a follower having a vertical extension at its inner end to engage with a portion of the box so as to prevent outward displacement of the said follower, substantially as specified.

3. In a holder for labels and the like, a box having its lower portion extended forward and adapted to receive a pile of labels or the like, and a follower placed upon the projected portion of the pile of labels and having a pendent flange to overlap the outer ends of the labels and prevent outward displacement thereof, substantially as specified.

4. In a holder for labels and the like, a box having its lower portion extended forward and adapted to receive a pile of labels or the like, and a follower and retainer having a vertical flange at its inner end to engage with the front wall of the upper portion of the box and a pendent flange at its outer end to overlap the front ends of the pile of labels, substantially as set forth.

5. The herein-described holder for labels and the like comprising a box having its lower portion extended outward with its bottom notched and its sides cut away and adapted to receive a pile of labels or the like, and a follower and retainer closing the top side of the forward extension of the lower portion and having a vertical flange at its inner end to engage with the front wall of the upper part of the box and a pendent flange at its outer end to overlap the front ends of the pile of labels, substantially as specified.

663,409. VELOCIPEDE-SADDLE. THEODORE E. BECK, Newark, N. J., assignor, by mesne assignments, to the Sager Gear Company, Rochester, N. Y. Filed Dec. 2, 1897. Serial No. 660,500. (No model.)



Claim.—1. In a velocipede-saddle, a spring or frame comprising a seat-supporting portion having two independent limbs each extending under one side of the seat and conforming to the outer line thereof, and a second portion connected with said seat-supporting portion and adapted for engagement by a clamp or support, a seat non-rigid between the rear portions of said two independent limbs, a clamp for fastening said second portion rigidly to the pommel of the seat, and non-clamping means for supporting the ends of said two independent limbs, whereby the front ends of said limbs are loosely supported.

2. In a velocipede-saddle, a spring or frame comprising a seat-supporting portion having two independent limbs each extending under one side of the seat and conforming to the outer line thereof, and a second portion connected with said seat-supporting portion and adapted for engagement by a clamp or support, a seat non-rigid between the rear portions of said two independent limbs, a clamp for fastening said second portion rigidly to the pommel of the seat, and having sockets therein to support at the pommel the front ends of said two independent limbs, wherein said limbs are free to move in said sockets independently of each other.

3. In a velocipede-saddle non-rigid at the middle of the cantle, the combination with a suitable seat having a cantle flexible at its middle, of a spring having an upper portion comprising two independently-movable limbs whereon the respective sides of the seat rest, and a lower portion connected with said upper portion at the cantle end and adapted to be engaged by a clamp or support, and a support at the pommel constituting a permanently loose connection for the upper portion of the spring, to allow the ends of the limbs of said upper portion to turn or rock independently of each other and a rigid connection between said lower portion and said seat at the pommel.

4. In a velocipede-saddle, the combination, with a suitable seat, of a spring or frame bent at its middle to form an eye, having an upper portion comprising two limbs for supporting the seat, and a lower portion bent down from the cantle for engagement by a clamp or support, and then extended forward to the pommel, and a block secured to the lower portion of the spring at the pommel by means of a bolt or screw passing through said eye, and provided with openings into which the free ends of the upper limbs are loosely received, substantially as and for the purpose set forth.

663,410. WITHDRAWN.

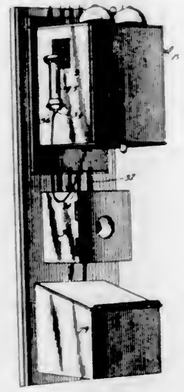
663,411. WITHDRAWN.

663,412. TELEPHONE SYSTEM. WILLIAM W. BENNETT, Mesquite, Tex. Filed Feb. 2, 1900. Serial No. 3,702. (No model.)

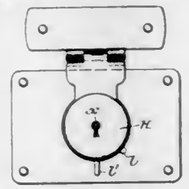
Claim.—1. In a telephone system, the combination with a single receiver, one terminal of which is connected with the return, and the opposite terminal of which is adapted for connection with the receiver-switch, of separate line-wires each having a contact for engagement by the receiver-switch and a separate switch adapted to connect the line-wires alternately with their respective contacts.

2. In a telephone system, the combination with separate line-wires, and a signal in circuit with the return, of a receiver having one terminal connected with the return, a receiver-switch adapted for connection with the second terminal of the receiver, line-contacts for engagement by the receiver-switch to hold the line-wires in circuit with the return when the receiver-switch is in its inoperative position with respect to the receiver-circuit, and a second switch adapted to connect the lines alternately with their respective line-contacts.

3. A telephone system comprising a receiver-switch, contacts adapted for engagement by said switch, a line-wire connected with one of said contacts, a ground connection with the second contact through a signal, said switch being adapted to engage the contacts when the receiver is in place, a second series of contacts adapted for engagement by the receiver-switch when the receiver is disengaged therefrom, a primary induction-circuit including two of said contacts, a secondary induction-circuit having one terminal grounded beyond the signal, and its opposite terminal connected with one terminal of the receiver, a connection between the second terminal of the receiver and a third contact of the second series of the receiver-switch, a finger-lever in circuit with the receiver-switch, separate contacts adapted for alternate engagement by the finger-lever, and separate line-wires connected with said contacts.



663,413. LOCK. BENNY BERNSTEIN, New York, N. Y. Filed July 1, 1899. Serial No. 722,540. (No model.)



Claim.—1. A hasp-lock comprising a hasp, a spring-controlled rotatable plate carried thereby, a key-operated T-bolt mounted in said rotatable plate; a catch-plate or keeper with which the T-bolt engages automatically in closing the hasp, and means independent of the key for releasing the hasp when simply snapped into engagement, substantially as described.

2. A hasp-lock comprising a hasp, a spring-controlled rotatable plate carried thereby, a T-bolt carried by said rotatable plate and rotatable therein by means of a key, a catch-plate or keeper with which the T-bolt engages automatically in closing the hasp and means for turning back the rotatable plate and thereby retracting the T-bolt independently of the key when the hasp is simply snapped into engagement with the keeper, substantially as described.

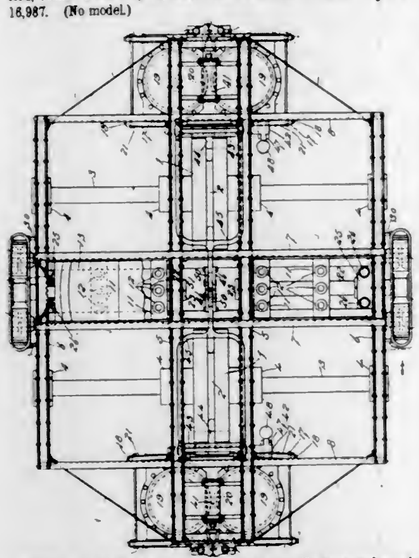
3. A hasp-lock comprising in one member a hasp, a spring-controlled rotatable plate carried thereby, and a locking device with which the rotatable plate may be engaged at will to secure it against rotation, and a key-operated bolt carried by said rotatable plate and rotatable independently therein; and in the other member a catch or keeper with which the hasp engages automatically in closing, as explained.

4. The combination of the hasp H, rotatable plate L carried thereby, spring 5 turning said plate in one direction, rotary bolt *t* carried by plate L, keeper-plate 2 with which the rotary bolt engages in closing the hasp, a projecting stud or handle *l* for rotating the lock-plate L, a locking-catch 12 engaging the lock-plate when rotated beyond normal position, and a key-operated device to release the rotary lock-plate from said catch 12.

5. The combination of the hasp H, rotatable lock-plate L carried thereby, spring 5 turning said lock-plate, rotary bolt *t* carried by the lock-plate L, keeper-plate with which the rotary lock engages and from which it may be released by retraction of the rotary lock-plate, catch 12 for securing the lock-plate against retraction when rotated beyond normal position, arm or handle *l* projecting from the lock-plate for rotating it, a key-operated device for releasing the lock-plate from locking-catch 12,

and separate arm l' operating the plate L by an indirect connection affording lost motion and employed for retracting said lock-plate from the keeper when not locked by catch 12, as explained.

663,414. RAILWAY-CAR TRUCK. GEORGE J. CAPEWELL, Hartford, Conn. Filed July 29, 1899. Renewed May 17, 1900. Serial No. 16,987. (No model.)



Claim.—1. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, an outwardly-yielding frame supported on each side of the center at each end of the truck-frame, a horizontally-arranged guiding-wheel supported by each yielding frame, an oscillating frame supported on each side of the middle of the truck-frame, and a pair of vertically-arranged retaining-wheels supported by each oscillating frame, substantially as specified.

2. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, horizontally-arranged guiding-wheels supported by the frame, a wheel-frame supported on each side of the truck-frame so as to oscillate in a vertical longitudinal plane on an axis extending transversely of the truck-frame, and vertically-arranged retaining-wheels held by the wheel-frames, substantially as specified.

3. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, horizontally-arranged guiding-wheels supported by the frame, a wheel-frame supported on each side of the truck-frame so as to oscillate in a vertical transverse plane on an axis extending longitudinally of the truck-frame, and vertically-arranged retaining-wheels held by the wheel-frames, substantially as specified.

4. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, horizontally-arranged guiding-wheels supported by the frame, a wheel-frame supported on each side of the truck-frame so as to oscillate in a vertical longitudinal plane on a transverse axis, and also in a vertical transverse plane on a longitudinal axis, and vertically-arranged retaining-wheels held by the wheel-frames, substantially as specified.

5. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, horizontally-arranged guiding-wheels supported by the frame, an axle extending transversely on each side of the truck-frame near the middle, pivoted bearing-blocks holding the inner ends of the axles, spring-supported bearing-boxes holding the outer ends of the axles, a frame secured to the outer end of each axle, and a pair of retaining-wheels held by each frame, substantially as specified.

6. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, horizontally-arranged guiding-wheels supported by the frame, an axle extending transversely on each side of the truck-frame near the middle, pivoted bearing-boxes holding the inner ends of the axles, spring-supported bearing-boxes holding the outer ends of the axles, a frame secured to the end of each axle, a pair of retaining-wheels held by each frame, and stops arranged on each wheel-frame for engagement with the walls of the truck-frame, so as to limit the oscillation of the wheel-frame, substantially as specified.

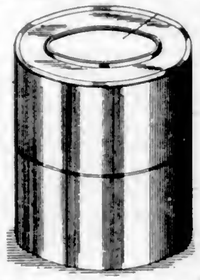
7. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, a housing supported on each side of the middle at each end of the frame, a guiding-wheel supported by a vertical axle held by each housing, and vertically-arranged retaining-wheels supported by the frame, substantially as specified.

8. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, a housing supported on each side of the middle on each end of the frame, springs for forcing the housing toward the middle line of the truck-frame, a guiding-wheel supported by a vertical axle held by each housing, and vertically-arranged retaining-wheels supported by the frame, substantially as specified.

9. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, a housing supported on each side of the middle of the frame, springs for forcing the housings toward the middle line of the truck-frame, and a guiding-wheel supported in each housing by a vertical axle, substantially as specified.

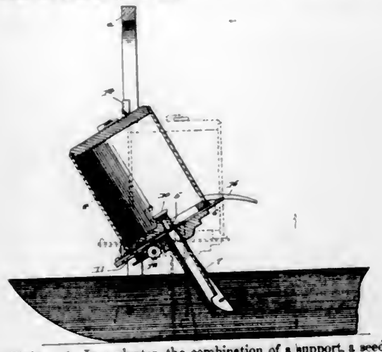
10. A railway-car truck having centrally-arranged traction-wheels, a frame supported by the traction-wheels, an axle extending transversely on each side of the truck-frame near the middle, pivoted bearing-boxes holding the inner ends of the axles, spring-supported bearing-boxes holding the outer ends of the axles, a frame secured to the outer end of each axle, and retaining-wheels held by these frames, substantially as specified.

663,415. METALLIC CAN. GEORGE W. CHARLES, Kokomo, Ind. Filed Apr. 10, 1899. Serial No. 712,439. (No model.)



Claim.—A metallic can consisting of upper and lower sections, each formed from a single blank of sheet material, the lower circumferential edge of the upper section being inturned at an angle to form a seam-flange, and the lower section provided at its upper edge with an inwardly-bent offset having an upstanding lock-flange adapted to be bent over the said seam-flange of the upper section to form an interiorly-located circumferential lock-seam leaving an exterior peripheral solder-receiving crease, thereby forming a can-body with an intermediate joint having an exterior portion flush with the outer wall of said body and without indenting or irregularly constructing the exterior of the body.

663,416. SEEDER ATTACHMENT FOR CULTIVATORS. WILLIAM F. CLARK and HARVEY D. BOGLE, Leon, Kans. Filed Sept. 22, 1900. Serial No. 30,824. (No model.)



Claim.—1. In a planter, the combination of a support, a seed-hopper pivoted thereon, means to rock said hopper on said support, a seed-slide in said hopper, and a gear actuated by the rocking movement of said hopper, to actuate said slide, substantially as described.

2. In a planter, the combination of a support, a seed-hopper pivoted thereon, and having a pedal, whereby said hopper may be turned on said support in one direction, a spring to move said hopper in the reverse direction, and a seed-dropping mechanism, actuated by the rocking movement of said hopper, substantially as described.

3. In a planter attachment for cultivators, the combination of a supporting-rod, actuating devices on said rod, a seed-hopper pivotally mounted on said supporting-rod and adapted to oscillate or rock thereon, a pedal and spring to rock said hopper, a seed-dropping mechanism, actuated by the rocking motion of the hopper, and a furrow-opener and covering devices attached to said hopper and participating in the rocking motion thereof, substantially as described.

4. In a planter, the combination of a support, a seed-hopper pivotally mounted thereon, a pinion on said support, a seed-slide in said hopper having a rack engaged by said pinion and means to rock said hopper, substantially as described.

663,417. SHEEP-DIPPING APPARATUS. GEORGE W. CLAYTON, Lebanon, Iowa. Filed Aug. 27, 1900. Serial No. 28,171. (No model.)



Claim.—1. The combination in a sheep-dipping apparatus, of a tank; a cage; lowering and raising mechanism; and an inclined dripping-platform; said tank, cage, lowering and raising mechanism, and dripping-platform being constructed each independent of the others; the lowering and raising mechanism adapted to be erected over the tank and cage and to lower and raise the cage; and the said dripping-platform having one end adapted to be removably supported upon the edge of the tank; whereby the said several parts constituting the entire apparatus can repeatedly be taken apart for transportation and again set up and assembled for use in different places.

2. The combination in a sheep-dipping apparatus, of a tank, a cage, lowering and raising mechanism, and a dripping-platform; said parts being constructed each independent of the other, and said dripping-platform being open at one end and having a gate at the other end, and likewise provided with a latch and latch-unlocking device and a rod or bar for operating the gate.

3. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism for the cage; said parts being constructed each independent of the other; and said lowering and raising mechanism comprising posts, a supporting-beam carrying sheaves, a pivoted lever, a rope secured to the cage and lever and passed over the sheaves, and a counterbalancing-weight on the lever.

4. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism; said parts being constructed each independent of the other; and said lowering and raising mechanism embodying posts, a cross-beam, and a supporting-beam having sheaves, said parts being detachably united by brace-rods, a rope, and a pivoted lever supporting a balancing-weight.

5. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism; said parts being constructed each independent of the other; and said tank having at one end two posts and a sliding door, and at the other end two posts and a hinged door which can be turned or swung down to serve as a gangway.

6. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism; said parts being constructed each independent of the other; and said tank having guide rods or bars at each end on the inside and said cage having projections at the ends fitting between the rods.

7. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism; said parts constructed each independent of the other; and said cage being made of bent metallic bars, bars spaced apart and secured to the bent bars, and also having a bottom of perforated material, and being open at each end.

8. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism; said parts being constructed each independent of the other; and said cage being provided with an opening for the animal's head and with rods for supporting the same and two of said rods having a spacing-bar to prevent the contraction of the cage at the end.

9. The combination in a sheep-dipping apparatus, of a tank, a cage, and lowering and raising mechanism for the cage; said parts being constructed each independent of the other; and said tank being partly set in the ground and having a sliding door at one end with means for raising the same, and the lowering and raising mechanism, embracing a pivoted lever, said pivoted lever and the means for raising the sliding door being located adjacent each other whereby a single operator can manipulate both devices.

10. The combination in a sheep-dipping apparatus, of a tank having bars on the inside near the ends; a cage having projections at the ends; and lowering and raising mechanism; the projecting ends of the cage being adapted to engage the bars on the ends of the tank and limit its upward movement to a plane subtantially parallel to the top edge of the tank.

11. The combination in a sheep-dipping apparatus, of a tank having a sliding door at one end and a hinged door at the other; a cage open at the ends and closed at the top and sides; and lowering and raising mechanism comprising a frame erected over the tank and cage and having sheaves, a pivoted lever supporting a balancing-weight, and a rope or chain passed over the sheaves and its ends secured to the cage and lever.

12. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism; said tank having a hinged door at one end and a sliding door at the other end, said hinged door serving, when lowered, as a gangway; said cage being closed at the sides and top and open at the ends; and said lowering and raising mechanism constructed independent of the tank and embracing sheaves, a pivoted lever having a weight thereon, and a rope passing over the sheaves and secured to the lever and cage.

13. The combination in a sheep-dipping apparatus, of a tank; a cage; lowering and raising mechanism; and a dripping-platform constructed independent of the other parts; said tank having two posts secured to each end, a door hinged to the edge of the tank at one end and a sliding door movable between the posts at the opposite end operated by a rope passing over pulleys; the end of the dripping-platform fitting between the posts and resting upon the edge of the tank.

14. The combination in a sheep-dipping apparatus, of a tank, a cage supported above the tank; lowering and raising mechanism embracing sheaves, a weighted lever which counterbalances the cage, and a rope; and an independently-constructed dripping-platform having sides and folding legs whereby the said legs may be folded parallel with the platform when the apparatus is to be transported.

15. The combination with a sheep-dipping apparatus, of a dripping-platform having a closed bottom, upright sides secured to the said bottom, an open end and an end closed by a hinged gate; said platform being further provided with a latch, a latch-unlocking device, and a bar or rod for operating the gate; whereby the gate can be opened and closed by the operator when at the end of the platform opposite the gate.

16. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism; said cage having a bottom provided with perforated material, bent metallic bars with their ends secured to the bottom, metallic bars parallel with the bottom, spaced apart and secured to the bent metallic bars, and rods for supporting the cage, the said metallic parts by their weight serving to force the sheep into the solution within the tank.

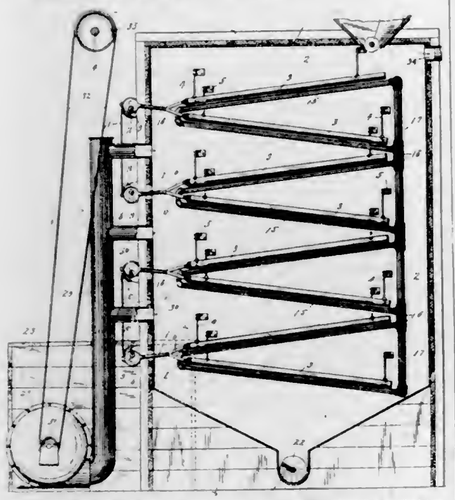
17. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism comprising posts, an upright, and a supporting-beam united by hooked rods and staples, a rope, and a weighted lever, said upright having a ratchet-plate and said lever having a plate adapted to engage the ratchet-plate.

18. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism; said cage having a pivoted rod or bar located on the inside of the cage which can be turned down against the side of an animal, and means for operating the bar and holding it in its lowered position.

19. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism; said cage having an opening at one end and at the top for the neck of a sheep and a pivoted bar for confining the neck of the animal in the open space.

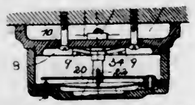
20. The combination in a sheep-dipping apparatus, of a tank; a cage; and lowering and raising mechanism; said cage being open at the ends and closed at the top with the exception of an open space near one end for the animal's neck, and provided with pivoted rods and rings to receive the rope of the lowering and raising mechanism.

663,418. GRAIN-DRIER. JOHN COOK, Grafton, N. D. Filed Dec 12, 1898. Serial No. 698,985. (No model.)



Claim.—In a grain-drier, the combination with the series of shaking-screens 3 mounted one over the other in zigzag arrangement, in a common vertical plane, the radiators in the form of the manifolds 15 underlying said screens with the members of successive manifolds connected at their convergent ends and all the manifolds connected at their divergent ends with headers united by suitable circulating-pipes, the series of eccentric bearing-shafts, the eccentric straps or rods and the pairs of links connecting each eccentric-rod with a pair of said shaking-screens at the convergent ends thereof and working between the connected convergent ends of successive manifolds, all substantially as and for the purposes set forth.

663,419. THERMOSTAT. HARVEY CORTLAND, Pittsburg, Pa. Filed Jan. 13, 1900. Serial No. 1,288. (No model.)



Claim.—1. An expansible and contractible disk for thermostats of fiber vulcanized at substantially 350° Fahrenheit.

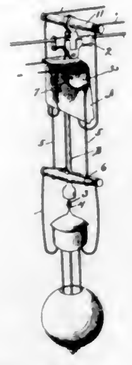
2. In a thermostat, a base having binding-posts secured thereto, the outer ends of said binding-posts being tubular, and internally screw-threaded, a case having an annular flange of a diameter and length to abut against the base, and house the binding-posts, a thermostat housed in the case, and screws passing through orifices in the case and thermostats and screwing into the threaded bores of the binding-posts.

3. In a thermostat, a base having upper and lower annular flanges, binding-posts, each comprising a body and a shank of less diameter than the body, forming a shoulder, orifices in the base through which the shank passes, a washer secured upon the shank between which and the shoulder is secured the wiring, a case, a thermostat housed therein, and screws passing through orifices in the case, and screw-threaded orifices in the binding-posts.

4. A thermostat, comprising the following elements, a metal ring having an expansible and contractible disk secured therein, a metal conductor in the form of a segment, a strip of insulating material between the conductor and the ring, and a finger bearing at one end upon the conductor, and means for securing these elements together, which consists of an orifice in each of the elements, an eyelet passed through the several orifices the ends being expanded, the orifice in the metal ring being larger than the orifice in the other elements, and insulating material interposed between the wall of the orifice and the eyelet, and also between the face of the ring surrounding the orifice, and the flange of the eyelet.

5. In a thermostat, a finger having an orifice in one end, an enlargement at one side of the finger opposite the orifice, a metal ring, a segmental plate upon which the finger rests, an eyelet for securing the parts together, and a projection formed by an indentation in the enlargement, which projects into the segmental plate, by which means the finger is held from rsdial movement upon the eyelet.

663,420. ARC-LIGHT HANGER. GEORGE CUTTER, Chicago, Ill., assignor to the George Cutter Company, same place. Filed Mar. 10, 1900. Serial No. 8,188. (No model.)



Claim.—1. The combination in a lamp-hanger, of a pair of pivoted swinging levers provided with arms or extensions adapted to serve as switches the said levers and arms thereof being arranged on opposite sides of the pivotal points, contacts with which said levers can make connection, springs normally holding said levers in position to connect with said contacts, a bracket or holder for the lamp having laterally-projecting conducting members adapted to engage and rest upon said arms or extensions, and to operate the same so as to swing the levers away from said contacts.

2. In a lamp-hanger, the combination of a pair of pivotally-supported swinging levers provided with extensions or arms arranged on sides of the pivotal support opposite the levers, contacts with which the levers can make connection, springs tending to hold the levers normally against said contacts, and a lamp bracket or holder provided with lateral projections adapted to engage and rest upon said arms or extensions, and to swing the same when so engaged, so as to cause the levers to separate from said contacts.

3. In a lamp-hanger, the combination of a pair of switching devices, each consisting of a pivotally-supported swinging lever provided with a substantially horizontally extending arm or extension arranged on the sides of the pivotal support opposite the lever, contacts with which said levers can make connection, springs normally holding said levers against said contacts, a lamp hanger or bracket adapted to support the lamp and provided at its upper end with lateral projections and conductors extended on the lamp bracket or hanger from the lamp upwardly to the lateral projections and beneath the same, and having the insulation removed from their lower surface below said projections, whereby said conductors can engage and rest upon the arms or extensions of said switching devices and can operate the devices when suspended therefrom, substantially as described.

4. In a lamp-hanger, the combination with a bracket or holder for the lamp, of a circuit-controlling device adapted for operation by the weight of the lamp, and guideways leading to the circuit-controlling device for guiding the bracket or holder to such device.

5. In a lamp-hanger, a member having switching devices and also having pulleys, the switching devices being arranged inside of a casing and the pulleys being arranged on the outside of the opposite sides of the same, whereby moisture is prevented from gaining access to the interior of the device.

6. In a lamp-hanger, a lamp-bracket consisting of a stem having its upper end provided with lateral projections and its lower end constructed in the form of a cross-arm in combination with a member adapted to cooperate with the lateral projections on the upper end of said hanger, substantially as described.

7. In a lamp-hanger, a lamp-bracket consisting of a stem having its upper end provided with lateral projections and its lower end constructed in the form of a cross-arm, in combination with ropes attached to the opposite sides of said cross-arm and a member adapted to coöperate with the lateral projections on the upper end of said bracket, substantially as described.

8. The combination with a member carrying lamp-supporting devices, of an upper supporting piece having a swivel connection with said member and provided with a rigidly-secured, transversely-extending insulating-arm.

9. In a lamp-hanger, the combination with a member carrying lamp-supporting devices, of pulleys on the side of said member, a lamp-bracket adapted to engage said supporting devices and constructed with a transverse arm, and ropes extending over said pulleys and downwardly from the same and attached to said cross-arm.

10. In a lamp-hanger, the combination of a member carrying lamp-supporting devices, pulleys on the opposite sides of said member, a lamp-bracket adapted to engage said supporting devices and constructed with a transverse arm, ropes extended about said pulleys and downwardly from the same, and attached to the cross-arm, a supporting-piece for supporting said member and having a swivel connection therewith, a cross-arm rigidly secured to said supporting-piece, and conductors extending from the cross-arm on said supporting-piece downwardly to said member.

11. The combination with a member provided with lamp-supporting devices, and also provided with guideways, a supporting-piece with which said member has a swivel connection, and a lamp-bracket adapted to engage said lamp-supporting devices and to travel in said guideways.

12. The combination with a member adapted to support the lamp, of a lamp-bracket adapted to engage said member at its upper end, and ropes attached to said lamp-bracket below its upper end, whereby the bracket can move or swing laterally relatively to the ropes.

13. In a lamp-hanger, a supporting member consisting of a casing containing lamp-supporting devices, and pulleys arranged on the outside of the opposite sides of the casing, whereby the connections to the lamp can be made within the casing from which the moisture will be excluded, and the ropes for elevating the lamp can be supported outside of the casing.

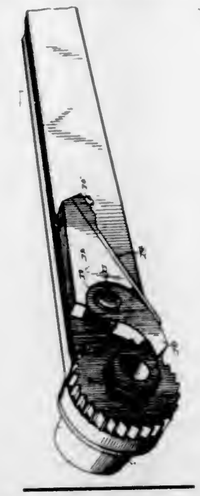
14. A lamp-hanger comprising a supporting member, consisting of a casing containing lamp-supporting devices and provided on its outside with pulleys, a lamp-bracket adapted to support the lamp and constructed so as to engage the lamp-supporting devices in said casing, ropes arranged over said pulleys and attached to said lamp-bracket, whereby the bracket can be elevated or lowered by the ropes which are outside of the casing and at the same time the connection of the lamp can occur within the casing.

15. A lamp-hanger comprising a supporting-piece adapted to engage a supporting-wire and provided with a rigidly-secured cross-arm, a supporting member consisting of a casing containing lamp-supporting devices, the said casing being provided on its interior with guideways leading to and from said supporting devices, and being provided on its exterior with pulleys, a lamp-bracket consisting of a stem having its upper end provided with projections adapted to move in said guideways and to engage the lamp-supporting devices, said bracket having its lower end constructed in the form of a cross-arm, conductors arranged upon said lamp-bracket and extending up the stem of the same and outward on the under side of said projections, line conductors extended from the cross-arm of the supporting-piece downwardly to the bottom of the casing and upwardly into the same, and connected with the lamp-supporting devices therein, a couple of guide-ropes passing over said pulleys and having their lower ends attached to the cross-arm, forming the lower end of the lamp-bracket, a connecting-piece connecting the opposite ends of said ropes, and a third rope attached to said connecting-piece.

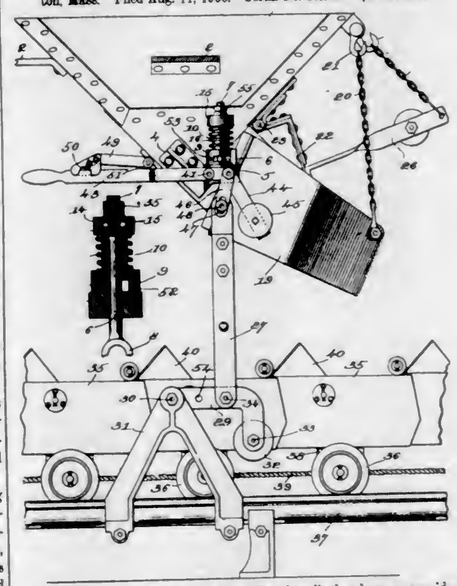
16. In a lamp-hanger, a lamp-bracket consisting of a stem having its upper end provided with projections, and having its lower end constructed in the form of a cross-arm in combination with conductors arranged upon said cross-arm and upwardly along the sides of said stem, and thence outwardly on the under sides of said projections, the portions of said conductors below said projections being insulated therefrom and free from insulation on their lower sides.

663,421. RATCHET-WRENCH. JOHN B. DANIELS, Brownstown, W. Va., assignor of one-half to John W. Ashbaugh, same place. Filed Aug. 20, 1900. Serial No. 27,484. (No model.)

Claim.—A ratchet-wrench, comprising a handle, a rotatable ratchet-disk carried thereby, a nut-socket carried by the disk, a pawl coöperating with the toothed periphery of the ratchet-disk, the rear end of the pawl being convexed laterally and pivotally connected to the handle, a shoulder carried by the handle and located at the rear end of the pawl, the forward end of the shoulder having a concaved recess forming a seat receiving the convexed end of the pawl, whereby the shoulder forms a brace for the pawl and relieves strain from the pivotal connection thereof, and a leaf-spring connected to one longitudinal edge of the shoulder, the free end of the spring projecting beyond the forward end of the shoulder and in engagement with the free portion of the pawl to yieldingly hold the latter in engagement with the toothed periphery of the ratchet-disk.



663,422. HOPPER-DELIVERY MECHANISM. EDWIN S. DECKER, Malden, Mass., assignor to the Steel Cable Engineering Company, Boston, Mass. Filed Aug. 11, 1900. Serial No. 26,538. (No model.)



Claim.—1. In apparatus of the class described, a hopper provided with a delivery-spout, yielding supports on which the latter is fulcromed, means to vary the inclination of the spout, and means to agitate its fulcra.

2. In apparatus of the class described, a hopper, a pivoted discharge-spout therefor provided with spring-supported, vertically-movable fulcra, and means to agitate the spout.

3. In apparatus of the class described, a hopper, a discharge-spout therefor, supporting-fulcra for inner end of the spout, and means to vertically reciprocate the fulcra.

4. In apparatus of the class described, a hopper, a pivotally-mounted discharge-spout therefor, means to vary the inclination of the spout, and means to vertically reciprocate the pivotal supports of the spout.

5. In apparatus of the class described, a hopper, a pivotally-mounted discharge-spout therefor, coöperating yielding buffers, and means to agitate the spout.

6. In apparatus of the class described, a hopper, a discharge-spout therefor, yieldingly-mounted hangers on which the spout is fulcrumed, and means to reciprocate the hangers to thereby agitate the spout.

7. A hopper, a discharge-spout therefor, vertically-movable hangers on which the spout is fulcrumed, and means to reciprocate the hangers.

8. A hopper, a discharge-spout therefor, vertically-movable hangers on which the inner end of the spout is fulcrumed, means to adjustably support the outer end of the spout, and means to agitate the spout.

9. A hopper, a discharge-spout therefor, vertically-movable supports with which the spout is pivotally connected, fixedly-positioned guiding means for the supports, and means to intermittingly move the supports to agitate the spout.

10. A hopper, a discharge-spout therefor, movable supports on which the spout is fulcrumed, fixedly-positioned guiding means for said supports, means to intermittingly move the supports to thereby agitate the spout, and means to vary the extent of such movement.

11. A hopper, a discharge-spout therefor, movable supports on which the spout is fulcrumed, buffers to cushion the supports on their descending movement, and means to intermittingly effect rising-and-falling movement of the supports, to thereby agitate the spout.

12. A hopper, a discharge-spout therefor, movable supports on which the spout is fulcrumed, buffers to cushion the supports, means to vary the resistance of the buffers, and means to intermittingly move the supports and thereby agitate the spout.

13. A hopper, a discharge-spout therefor, movable supports, on which the spout is fulcrumed, buffers to cushion the supports, means to vary the resistance of the buffers, means to intermittingly move the supports, and an adjusting device to vary the extent of such movement.

14. A hopper provided with a discharge-spout, a gate to coöperate with the spout, movable fulcra on which the spout is mounted, independent devices to regulate the gate and change the inclination of the spout, respectively, and means to intermittingly move the fulcra of the spout to agitate the latter.

15. A hopper, a discharge-spout therefor, movable supports on which the spout is fulcrumed, means to intermittingly move the supports and thereby agitate the spout, and a device to render said means inoperative to move the spout-supports.

16. A hopper having an open throat, a discharge-spout therefor, laterally-extended ears on the hopper, longitudinally-movable, upright hangers extended through the ears and pivotally connected with the spout, a head on the upper end of each hanger, a buffer-spring interposed between each head and the adjacent ear, and means to intermittingly lift the hangers to thereby agitate the spout.

17. A hopper having supporting-ears thereon, upright longitudinally-movable hangers extended through the ears and having adjustable heads on their upper ends, a discharge-spout fulcrumed on the hangers below the ears, a thimble on each ear, a spring between the head of each hanger and the corresponding thimble, and a sleeve loosely surrounding the hanger within the spring and adjustably secured to the hanger-head, the lower headed end of the sleeve entering the thimble, rotation of the sleeve in the head varying the tension of the spring, while rotation of head and sleeve on the hanger regulates the stroke of the latter, and means to effect reciprocation of the hangers, to agitate the spout.

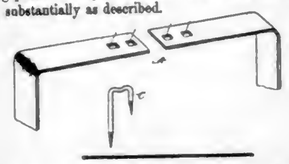
18. In apparatus of the class described, an endless conveyer having carrier-wheels, a feed-hopper, a discharge-spout therefor, vertically-movable hangers on which the spout is fulcrumed, buffer-springs to cushion the descent of the hangers, and means connected with the depending ends of the hangers to be engaged by the carrier-wheels of the conveyer, to intermittingly lift the hangers.

19. A hopper, a discharge-spout therefor, vertically-movable supports on which the inner end of the spout is fulcrumed, means to move said supports to agitate the spout, and means to sustain the outer end of the spout.

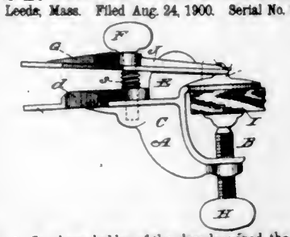
20. An endless conveyer, a hopper provided with a discharge-spout, a support for the outer end of the latter, vertically-movable fulcra for the inner end of the spout, mounted independently of the conveyer, and means actuated by the latter to agitate the spout.

663,423. BALE-BAND FASTENING. PETER K. DEDERICK, Loudonville, N. Y. Filed May 10, 1894. Serial No. 510,752. (No model.)

Claim.—The combination with the bale-band having the overlapping ends provided with a plurality of coincident apertures arranged in line longitudinally of the band, of the staple having a plurality of straight parallel pointed arms, one of the arms being long and the other short said arms being passed through the coincident apertures and into the confined material; substantially as described.



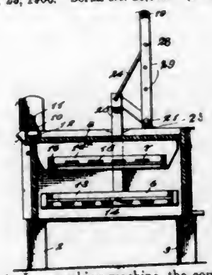
663,424. PORTABLE EMBROIDERY-HOOP HOLDER. LUCIUS DIMOCK, Leeds, Mass. Filed Aug. 24, 1900. Serial No. 27,934. (No model.)



Claim.—1. In a hoop-holder of the class described, the combination with a lower section comprising a bench-clamp, an outward-extending shank therefrom, a segmental clamp-jaw upon said shank provided with a surface adapted to seat the hoops upon their edges, a guiding-flange above said shank, a pivot-bearing surface above the bench-clamp, and a screw-socket intermediate to the guide-flange and segmental jaw, of an upper section comprising an opposing segmental jaw adapted to coöperate with the lower jaw in clamping the hoops upon their edges, provided with a rearward bifurcated extension inclosing the guiding-flange, and with extremities adapted to pivot above the bench-clamp, and a spring-inclosed clamp-screw for drawing the jaws together and throwing them apart when released.

2. In an embroidery-hoop holder, the combination with a lower section comprising a bench-clamp, an outward-extending shank therefrom, a segmental clamp-jaw upon said shank provided with a guide-rim, as described, and adapted to bind upon the edges of the hoops, a bearing-surface located above the bench-clamp, a screw-socket in rear of the segmental clamp, and a guide-flange between the screw-socket and pivot-bearing, of an upper section comprising a segmental jaw for opposing the lower one, having a pivoted end confined as described to its bearing-surface, a bifurcated shank embracing the guide-flange, and a clamp-screw and spring operating to close and throw open the segmental jaws, all operating as shown and described.

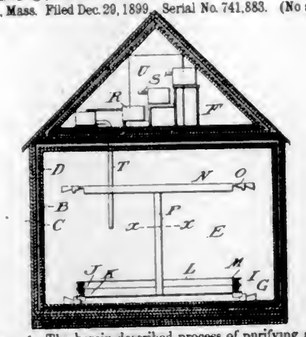
663,425. WASHING-MACHINE. LUCIUS A. DOBLE, Huron, S. D. Filed Mar. 29, 1900. Serial No. 10,693. (No model.)



Claim.—1. In a washing-machine, the combination of a washing-machine body, the upper and lower pressers, the lower presser being vertically movable and the upper presser being stationary, an operating-lever fulcrumed on the body at its lower end, a support connected with the presser, a link pivotally connected with the support and with the operating-lever at the fulcrum thereof, and a brace adjustably connected with the link and with the operating-lever, whereby the position of the latter may be changed from approximately horizontal to approximately vertical, substantially as described.

2. In a washing-machine, the combination of a washing-machine body, an upper presser, a lower vertically-movable presser provided with supporting-bars, an operating-frame fulcrumed on the washing-machine body and provided with perforations, links arranged at an angle to the operating-frame and pivotally connected with the same and with the supporting-bars, and braces connecting the links and the operating-frame and adjustably engaging the perforations, substantially as described.

663,426. PROCESS OF FORMING ICE. MATTHIAS B. EATON, Boston, Mass. Filed Dec. 29, 1899. Serial No. 741,883. (No specimens.)

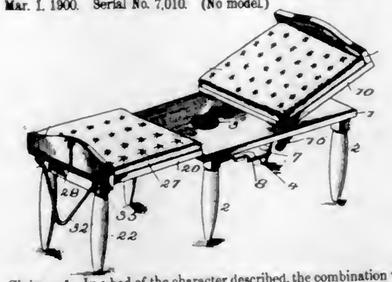


Claim.—1. The herein-described process of purifying and freezing water by natural cold which consists in causing it first to be alternately at comparative rest in cooling and purifying tanks situated one above the other and in motion through the air between successive tanks delivering from the surface of the tank, and thence conveying it to a freezing-tank, subjecting it constantly to air at a low temperature.

2. The herein-described process of purifying and freezing water by natural cold which consists in first reducing the water to a low temperature by causing it to be alternately at comparative rest in a series of cooling and purifying tanks located one above the other and delivering from the surface of a higher to the next lower in the series through the air, subjecting the water in said tanks and while passing from one to the other to air at a low temperature and then allowing the water to fall thus cooled from the last of said series of cooling-tanks into a freezing-tank and subjecting it, while in the freezing-tank, to air at a lower temperature than while in the cooling-tanks.

3. The herein-described process of forming ice in large bodies which consists in introducing water into a suitable tank and allowing it to freeze, placing thereon a sheet of paper or other suitable material and allowing it to freeze thereto, then placing on said first strip of paper another similar strip and introducing more water and allowing it to freeze thereon.

663,427. INVALID-BEDSTEAD. IDA D. EDDY, Quincy, Ill. Filed Mar. 1, 1900. Serial No. 7,010. (No model.)



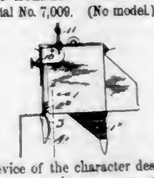
Claim.—1. In a bed of the character described, the combination with the hinged foot-section, of supporting-legs hinged to its outer end, the supplemental supporting member having bent ends hinged to the upper ends of the respective legs whereby said ends bind against the supporting-legs when the legs are folded under as described.

2. In a bed of the character described, the combination with the hinged foot-section, of supporting-legs hinged to its outer end and a cross-piece connecting the same, a hook secured to the cross-piece, and a locking member as shown, one end of which is secured to the under face of the foot-section by means of a staple while the other end is secured between said section and the said cross-piece whereby it will bear against the cross-piece when down, said locking member adapted to engage the said hook thereby locking the said legs in an upright position.

3. In a bed of the character described, a shield comprising a face sloped toward a center, an opening in the middle of the same, an annular flange depending from said opening, and a flange depending from the edges of said face, and locking-notches formed in one of said flanges adapted to engage projections, such as hinges, whereby sidewise movement of the shield is prevented.

4. In a bed of the character described, the combination with the hinged foot-section, of supporting-legs hinged to its upper end, and a supplemental supporting member having hooked ends hinged to and adapted to bind against the upper ends of the respective legs.

663,428. COIN-HOLDER. SAMUEL T. FISK, Toledo, Ohio. Filed Mar. 1, 1900. Serial No. 7,009. (No model.)



Claim.—1. A device of the character described, comprising a casing containing a coin cell or holder and a coin-dropping slide or plunger, and having a forward extension, adapted to serve as a hand-rest as said slide or plunger is actuated, and a chute arranged upon the open, under side of said casing, with its upper rear edge in a plane passing through said cell, near the corresponding wall of said cell, and its forward or delivery end arranged about in a line with the normally forward end of said slide or plunger, substantially as set forth.

2. A device of the character described, comprising a coin cell or holder, a cover or plate for said casing and a frame-like flange at the top of said casing, beneath which said plate or cover is adapted to slide, said cover having a stop adapted to engage said flange at one end, substantially as set forth.

3. A device of the character described, comprising a coin cell or holder, a spring-pressed plunger or slide adapted to receive a coin from said cell, means to support said slide or plunger, and an offset bar or stop secured to said casing, opposite to the inner or rear end of said slide or plunger, substantially as set forth.

4. A device of the character described, comprising a coin cell or holder, a plunger or slide with its actuating finger-piece and arm, a casing containing said cell or holder, and a plate or shield attached to said casing, and adapted to isolate or guard said finger-piece, substantially as specified.

5. A device of the character comprising a coin cell or holder, a plunger with its actuating arm and finger-piece, a case containing said cell or holder, and a stepped or offset plate or shield attached to said casing and having its offset portion arranged opposite and adapted to guard said finger-piece, substantially as specified.

6. A device of the character described, comprising a coin cell or holder, a slide or plunger, with its actuating finger-piece and arm, a casing containing said cell or holder, and a plate or shield adapted to isolate or guard said finger-pieces and provide for the attachment of the suspending chain or strap, substantially as set forth.

7. A device of the character described, comprising a coin cell or holder, a plunger or slide with its actuating arm and finger-piece, a case containing said cell or holder, and an offset plate attached to said casing, with its offset arranged opposite and adapted to guard said finger-piece and having lateral lugs adapted to laterally engage said casing, and provide for the attachment thereto of the suspending chain or strap, substantially as specified.

8. A device of the character described, comprising a coin cell or holder, a plunger or slide, with its actuating arm and finger-piece, a casing containing said cell or holder, and an offset plate or flange at the top of said casing, adapted to form with said casing, a socket or pocket to receive means for guarding said finger-piece and for suspending the device upon the body of the operator, substantially as described.

9. A device of the character described, comprising a coin cell or holder, a plunger or slide, with its actuating finger-piece and arm, a case containing said cell or holder and an offset plate at the top of said casing, adapted to form, with said casing, a pocket or socket, and having a centrally-pivoted spring clasp or snap provided with detents or studs adapted to engage or pass through holes or openings in said offset plate and means inserted into said pocket or socket for suspending the device upon the body of the operator, substantially as described.

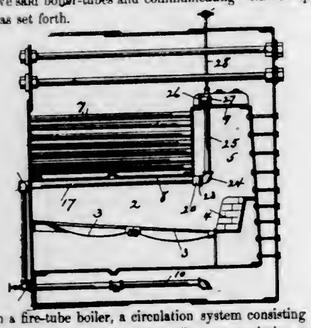
10. A device of the character described, comprising a case adapted to contain a coin-cell and means for releasing or removing the coin, an offset plate or flange at the top of said casing, having a centrally-pivoted spring clasp or snap provided with detents, or studs, engaging coincident holes in said flange or plate, and an offset or stepped plate or guard having holes also engaged by said detents or studs, and provided with lateral lugs engaging said casing laterally, substantially as specified.

11. A device of the character described, comprising a casing containing a coin holder or cell and a coin-dropping slide or plunger, a forward extension adapted to serve as a hand-rest as said slide or plunger is actuated, an offset guard or shield arranged at the rear edge or side of said casing, and a coin-delivery chute arranged intermediately of said forward extension and rear guard or shield, substantially as set forth.

663,429. AUTOMATIC WATER-CIRCULATOR. FERDINAND H. FITZLER, Tiverton, R. I. Filed Sept. 7, 1900. Serial No. 29,279. (No model.)

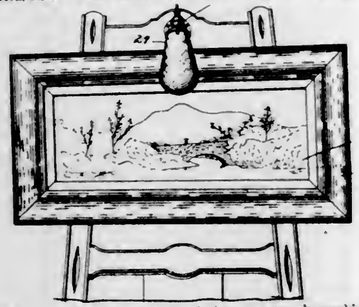
Claim.—1. In a fire-tube boiler, a circulation system consisting of

a water-pipe located in the lower part of the boiler, a vertical pipe connected therewith and disposed exteriorly of the shell, a header also arranged exteriorly of the shell and with which said vertical pipe communicates, a series of tubes supported at one end in said header beneath the boiler-tubes, a second header in which the other ends of said tubes are supported, and a vertical pipe connected with this second header and extended above said boiler-tubes and communicating with the upper part of the boiler, as set forth.



2. In a fire-tube boiler, a circulation system consisting of a water-pipe located in the lower part of the boiler, an exteriorly-arranged vertical pipe connected therewith, a header arranged exteriorly of the shell of the boiler and with which said vertical pipe connects, a series of tubes supported at one end in said header, a second header in which the other ends of said tubes are supported, the connecting crown-sheet, a vertical pipe connected with the second header and extended through the connecting crown-sheet, to deliver the water into the upper portion of the boiler, a valve at the junction of the first-mentioned vertical pipe and its header, a valve at the upper end of the second vertical pipe above the connecting crown-sheet, and a stem for the latter valve extended through the boiler-shell, as and for the purpose specified.

663,430. ADVERTISING APPARATUS. WILLARD H. GILMAN, Boston, Mass. Filed Feb. 19, 1900. Serial No. 5,673. (No model.)



Claim.—1. In an advertising or display apparatus, the combination of a translucent pane or sheet having a picture or design, said picture presenting an opaque appearance when illuminated wholly from the front, and being obscurable or effaceable by an excess of light from the back, and means for automatically alternately illuminating said pane from the front and from the back, the area illuminated from the back temporarily obscuring or effacing the corresponding portions of the picture.

2. In an advertising or display apparatus, the combination of a translucent pane or sheet having a picture or design, said picture presenting an opaque appearance when illuminated wholly from the front, and being obscurable or effaceable by an excess of light from the back, automatic means for intermittently illuminating said pane from the front, and automatic means for intermittently, during the intervals between periods of illumination from the front, illuminating a definite area or areas of said pane from the back, said area or areas having the form of advertising or display symbols, and temporarily obscuring or effacing the corresponding portions of the picture.

3. In an advertising or display apparatus, the combination of a translucent pane or sheet having a picture or design, said picture presenting an opaque appearance when illuminated wholly from the front, and being obscurable or effaceable by an excess of light from the back, two sets of incandescent lamps located respectively in front of and behind said pane and adapted to throw their light on the front and back sides of the pane respectively, and automatic means for illuminating the two sets of lamps alternately.

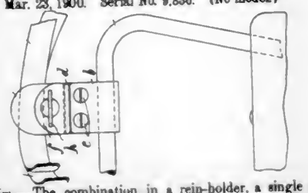
4. In an advertising or display apparatus, the combination of a translucent pane or sheet having a picture or design, said picture presenting an opaque appearance when illuminated wholly from the front, and being obscurable or effaceable by an excess of light from the back, two sets of incandescent lamps located respectively in front of and behind said pane and adapted to throw their light on the front and back sides of the pane respectively, automatic means for illuminating the two sets of lamps alternately, and a member interposed between the pane and the set of lamps at the back thereof, and provided with light-outlets having the form of advertising or display symbols.

5. In advertising or display apparatus, the combination of a translucent pane or sheet composed of strands or meshes of a non-vitreous material, said pane having a picture or design which presents an opaque appearance when illuminated wholly from the front, and is obscurable or effaceable by an excess of light from the back, automatic means for intermittently illuminating said pane from the front, one or more incandescent lamps located behind said pane, and automatic means for intermittently illuminating a definite area or areas of said pane with the lamps, said areas having the form of advertising symbols and temporarily effacing or obscuring the corresponding portions of the picture.

6. In advertising or display apparatus, the combination of a translucent pane or sheet composed of strands or meshes of a non-vitreous material, said pane having a picture or design which presents an opaque appearance when illuminated wholly from the front, and is obscurable or effaceable by an excess of light from the back, automatic means for intermittently illuminating said pane from the front, a second translucent pane or sheet composed of strands or meshes and located behind the first said pane, and automatic means for intermittently illuminating a definite area or areas of said panes from the back, said area or areas having the form of advertising or display symbols, and temporarily effacing or obscuring the corresponding portions of the picture.

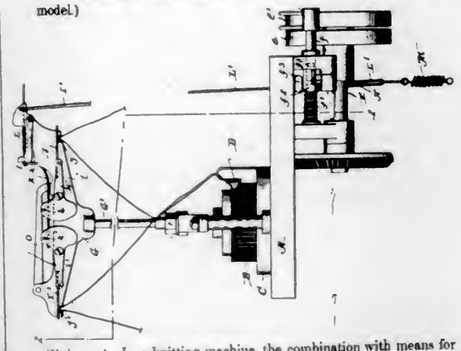
7. An apparatus of the character specified, comprising, in combination, a foraminous transparent screen adapted to present an opaque appearance when illuminated wholly from the front and obscurable or effaceable by an excess of light from the rear, and automatic means for alternately illuminating the screen from the front and rear.

663,431. REIN-HOLDER. WALTER GOETZE, Thierbach, Germany. Filed Mar. 23, 1900. Serial No. 9,836. (No model.)



Claim.—The combination, in a rein-holder, a single rigid middle clamping-plate, fastened upright upon a suitable support, two movable clamping-cheeks and a screw or worm having right and left handed threads for simultaneously moving the said clamping-cheeks toward or from the said central plate.

663,432. STOP-MOTION FOR KNITTING-MACHINES. ROBERT B. GOODYEAR, Philadelphia, Pa., assignor of one-half to Jonathan Wolfenden, Cardington, Pa. Filed Apr. 11, 1900. Serial No. 12,390. (No model.)



Claim.—1. In a knitting-machine, the combination with means for disengaging the power and the driving-shaft, of controlling devices for holding said disengaging means out of action, a lever, pivoted between its ends and having one end heavier than the other, and in line of movement of said controlling devices, and a thread-engaging lever pivotally connected to the first-named lever to normally uphold the heavy end thereof, whereby a slight tension of the thread upon the thread-engaging lever will uphold the heavy end of the first-named lever and whereby when the thread is released or disengaged, the first-named lever will move to actuate said controlling devices and permit said disengaging means to operate.

2. In a knitting-machine, the combination with means for controlling the engagement between the driving-shaft and the source of power, of a tension device connected therewith and normally tending to actuate said means to cause the disengagement of the power and the driving-shaft, a frame, a lever pivoted between its ends to said frame, a second lever pivoted at one end to the frame and connected between its ends to the lighter end of the first-named lever, means for confining the thread passing to the thread-carrier between the frame and the free end of the second lever, whereby said levers are held in a definite position, and mechanism connected to and normally holding said tension device out of action but adapted, when the heavier end of the first-named lever drops, to be engaged by said lever and moved to release said tension device.

3. In a knitting-machine, the combination with means for controlling the engagement between the driving-shaft and the source of power, of a tension device connected therewith and normally tending to actuate said means to cause the disengagement of the power and the driving-shaft, a frame, a lever pivoted between its ends to said frame, a second lever pivoted at one end to the frame and connected between its ends to the lighter end of the first-named lever, means for confining the thread passing to the thread-carrier between the frame and the free end of the second lever whereby said levers are held in a definite position, a device for limiting the movement of the levers in one direction under normal tension of the thread, mechanism connected to and normally holding said tension device out of action but adapted, when the heavier end of the first-named lever drops, to be engaged by said lever and moved to release said tension device.

4. In a knitting-machine, the combination with means for controlling the engagement between the driving-shaft and the source of power, of a tension device connected therewith and normally tending to actuate said means to cause the disengagement of the power and the driving-shaft, a frame, a thread-engaging lever, means for confining the thread between the frame and the thread-engaging lever under normal tension of the thread, whereby tension is imposed on said lever tending to move it in one direction, a device restraining the movement of said lever in that direction under normal tension of the thread, and mechanism connected to said tension device and adapted to be actuated by said lever and normally held in position to hold said tension device out of action, but adapted to move into position to release said tension device, whereby, when the thread is disengaged from the thread-engaging lever, the latter is moved to actuate said mechanism and move it into position to release said tension device.

5. In a knitting-machine, the combination with means for controlling the engagement between the driving-shaft and the source of power, of a tension device connected therewith and normally tending to actuate said means to cause the disengagement of the power and the driving-shaft, a frame, a thread-engaging lever tending to move in one direction, means for confining the thread between the frame and the thread-engaging lever under normal tension of the thread, whereby tension is imposed on said lever to hold it from moving in that direction, mechanism connected to said tension device and normally held in position to hold said tension device out of action but tending to move to release said tension device, a locking-lever engaging and holding said mechanism in its normal position and in line of movement of the thread-engaging lever, whereby when the thread is disengaged from the thread-engaging lever the latter will move and engage said locking-lever, whereby the latter will unlock said mechanism and release the tension device.

6. In a knitting-machine, the combination with means for controlling the engagement between the driving-shaft and the source of power, of a tension device connected therewith and normally tending to actuate said means to cause the disengagement of the power and the driving-shaft, a frame, a thread-engaging lever tending to move in one direction, means for confining the thread between the frame and the thread-engaging lever under normal tension of the thread, whereby tension is imposed on said lever to hold it from moving in that direction, a device engaging the thread-engaging lever and holding it from movement in the other direction under normal tension of the thread, mechanism connected to said tension device and normally held in position to hold said tension device out of action but tending to move to release said tension device, a locking-lever engaging and holding said mechanism in its normal position and in line of movement of the thread-engaging lever, whereby when the thread is disengaged from the thread-engaging lever the latter will move and engage said locking-lever, whereby the latter will unlock said mechanism and release the tension device.

7. In a knitting-machine, in combination, a compound thread-engaging lever tending to move in one direction but restrained therefrom by its engagement with the thread, a second lever pivoted near one end, a locking-lever engaging the long end of the second lever and in line of movement of the compound lever, means connected with the short end of the second lever and adapted to disconnect the power from the driving-shaft of the machine but held inactive during the locking of the second lever, whereby the disengagement of the thread from the compound lever will permit the latter to move and actuate the locking-lever to unlock the second lever.

8. In a knitting-machine, the combination with a frame, of a lever pivoted thereto adapted to be engaged by the thread passing to the thread-carrier, said frame having a notch through which said thread passes, a second lever pivoted between its ends to the frame and connected at one end to the first lever, a third lever pivoted between its ends to the frame and having one end in line of movement of the second lever, a fourth lever pivoted between its ends and engaging the other end of the third lever, a tension device, means controlling the engagement between the driving-shaft and the source of power, and connections from the tension device to the power-engagement-controlling means and the other end of the fourth lever, substantially as described.

9. In a knitting-machine, the combination, with a frame, of a lever pivoted thereto adapted to be engaged by the thread passing to the thread-carrier, said frame having a notch through which said thread passes, a second lever pivoted between its ends to the frame and connected at one end to the first lever, a third lever pivoted between its ends to the frame and having one end in alinement with the second lever, a fourth lever pivoted between its ends and engaging the other end of the third lever, a fifth lever pivoted to the frame and in alinement with the second lever, a tension device, means controlling the engagement between the driving-shaft and the source of power, and connections from the tension device to the power-engagement-controlling means and the other end of the fourth lever, substantially as described.

10. In a knitting-machine, the combination with means for disengaging the power and the driving-shaft, of a lever for holding said means out of operation when in a locked position, a locking-lever engaging said lever and holding it in a locked position, and a thread-engaging lever adapted when engaged by the thread to be held out of engagement with the locking-lever, but adapted when released from the tension of the thread to engage said locking-lever and move it to unlock the first-named lever, the frame of the machine having a notch, and the thread being adapted to extend through the notch and over the thread-engaging lever, whereby abnormal tension upon or breaking of the thread will withdraw it from said notch and release said thread-engaging lever.

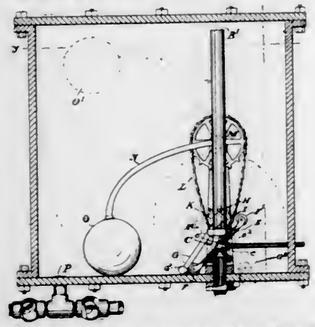
11. In a knitting-machine, the combination with means for disengaging the power and the driving-shaft, of controlling devices for holding said disengaging means out of action, a lever, pivoted between its ends and having one end heavier than the other, and in line of movement of said controlling devices, and a thread-engaging lever pivoted at one end to the frame of the machine and between its ends to the light end of the first-named lever and adapted to be engaged by the thread at its outer end, whereby a slight tension of the thread upon the thread-engaging lever will uphold the heavy end of the first-named lever and whereby when the thread is released or disengaged, the first-named lever will move to actuate said controlling devices and permit said disengaging means to operate.

12. In a knitting-machine, the combination with means for disengaging the power and the driving-shaft, of controlling devices for holding said disengaging means out of action, a lever, pivoted between its ends and having one end heavier than the other, and in line of movement of said controlling devices, and a thread-engaging lever pivotally connected to the first-named lever to normally uphold the heavy end thereof, whereby the normal tension of the thread upon the thread-engaging lever will uphold the heavy end of the first-named lever, a device engaging the first-named lever and limiting the movement thereof in the direction in which the thread, under normal tension, tends to move it, but adapted to yield under abnormal tension, and means for disengaging the thread and the thread-engaging lever under abnormal tension of the thread, whereby when the thread is broken or its tension abnormally increased, the first-named lever will move to actuate said controlling devices and permit said power-disengaging means to operate

663,433. STEAM-TRAP. LEWIS E. HACKETT, Jackson, Mich. Filed June 3, 1898. Serial No. 682,478. (No model.)

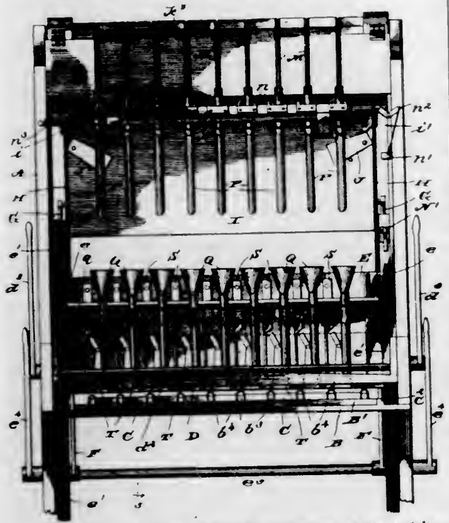
Claim.—1. A steam-trap comprising the boxing, a valved exhaust-pipe communicating therewith, a pipe connecting the boiler with said boxing, a three-way cock in said pipe, a vent-pipe communicating with said cock, a two-armed lever for actuating the cock, sprocket-wheels, a chain, a float, and pins on one of the sprocket-wheels for moving the lever in either direction, depending upon the height of water in the boxing, substantially as described.

2. In a steam-trap, a boxing, an exhaust-pipe, a water-outlet pipe, a vent, a three-way cock in the water-outlet pipe, a lever for actuating said cock, rollers journaled in the ends of said lever, a pair of sprocket-wheels connected by a chain, a float for actuating the sprocket-wheels, and pins on one of the sprocket-wheels for moving the lever for actuating the cock in either direction depending upon the rising and falling of the float, substantially as described.



3. In a steam-trap, a boxing, an exhaust-pipe, a water-outlet pipe, a vent-pipe, a three-way cock in the outlet-pipe, a lever for actuating said cock, rollers in the ends of said lever, a pair of sprocket-wheels, connected by a chain, a float for actuating the sprocket-wheels, pins on one of the sprocket-wheels, and a gravity-lever actuated by the pins to move the cock-controlling lever in either direction as the float rises and falls, substantially as described.

663,434. LATHING-MACHINE. WILSON HARGREAVES, Chicago, Ill. Filed Feb. 21, 1900. Serial No. 6,064. (No model.)



Claim.—1. In a lathing-machine the combination of a frame A having a horizontal bed B and vertical standards joined at the top by a cross-piece having a series of guideways affixed thereto, with a nail-holding tray I hinged to said cross-piece, a scoop pivotally attached to said guideways and having a series of inclines and slots corresponding with said guideways, its free end lying within and upon said tray and constructed to rise and fall with it and to receive the nails from said tray and distribute them into said guideways; a cross-bar *k* affixed to said scoop at its pivotal end having a series of apertures *l* corresponding to and in line with the slots in the scoop K and with the series of incline guideways M; a shutter L hinged to said cross-bar constructed to partly cover the holes *l* in the cross-bar *k* when the scoop is elevated by the tray and arranged to swing away from said holes when the scoop is lowered; a pair of telescopic lifting-rods G pivotally attached to the tray I and to a bell-crank F arranged to raise said tray to a horizontal position; a pair of automatic lifting-rods H pivoted to the bell-crank F and constructed to fall against and engage with the pins *i* on the tray I and to lift said tray from the horizontal to the highest position; a pair of gravity-levers J pivotally attached to the under side of the tray I, each lever having a flat spring, said levers being arranged to fall into position to engage and to release the rods H from their engagement with the pins *i* on the tray I and the bell-crank F, shaft *e'* and the levers *e*^{4} as the means for operating said parts as described and for the purposes specified.

2. In a lathing-machine the combination of the frame A, guideways M, scoop K, its cross-bar *k*^{2} and shutter L and the tray I, together with the means for operating the same, as herein described and shown, with a finger-bar N arranged to move back and forth on the frame A at the lower end of the series of guideways M and transversely thereto; a series of fingers *n* attached to said finger-bar, constructed and arranged to check the flow of nails from the guideways and to allow one nail from each of the guideways to fall through conveyers to the nailing mechanism at each complete movement of the finger-bar, and the means, substantially as described and shown herein, for operating the said finger-bar as and for the purposes herein set forth and described.

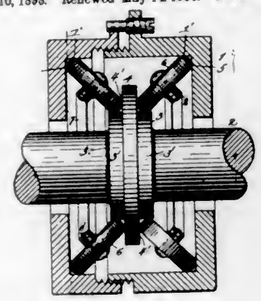
3. In a lathing-machine, the combination with a frame A of two pressure-slides arranged to move vertically between the standards of said frame, said slides being connected with links and arranged with racks and pinions, and to be operated by a shaft and lever; a pair of friction-springs affixed to the back of the lower pressure-slide arranged to press against the standards of the frame A and to enter recesses therein and to hold the said pressure-slide at any point till moved upward by the links or downward by the upper pressure-slide; a series of nail-holders pivotally attached to the lower pressure-slide arranged to be operated by a corresponding series of spring-cams affixed to the upper pressure-slide, said nail-holders being constructed and arranged together with said cams and a series of pins in the lower pressure-slide, to receive the nails from the conveyers and hold them in position to be driven, and a series of driving-bars affixed to the upper pressure-slide for driving said nails, all substantially as shown and described and for the purposes specified.

4. In a lathing-machine the combination of a frame A, a presser-bar D arranged to move vertically in said frame, and mechanism for operating said presser-bar, with a sliding frame B' arranged to rest on the bed of the frame A, and to space and to hold a series of laths in the form of a gate while the cross-bars placed thereon are each firmly affixed to said gate of laths by the downward pressure of the bar D substantially as and for the purposes specified.

5. In combination with a lathing-machine a frame B' arranged to slide on the bed of the frame A having two or more rocking bars adjusted transversely therein, each of said rocking bars being provided with a series of small slides constructed to move longitudinally therein, said slides being linked together on the under sides, and each slide having a stop and spring on the upper side, all the several parts being constructed and arranged for spacing and holding a series of laths in the form of a gate while cross-bars are affixed and the nails are driven in the said laths as shown and described and for the purposes specified.

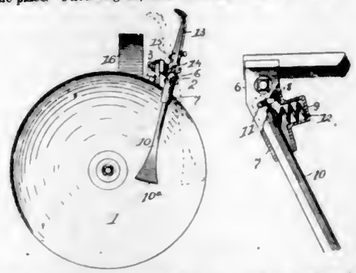
6. In a lathing-machine the combination with a frame having a horizontal bed, two vertical standards joined at the top with a cross-piece having a series of inclined guideways, of a nail-holding tray hinged to said frame, a scoop pivotally attached to said guideways and lying within said tray and the means, for operating said tray and scoop and filling said guideways with nails; a finger-bar and series of fingers arranged to move transversely to and in front of the lower ends of the series of guideways on the frame A and the means for operating said finger-bar and regulating the flow of nails to the nailing mechanism; a pair of pressure-slides arranged to operate vertically in the frame A, and a series of nail holding and driving devices, and the means for operating all the several parts hereinbefore shown and specified, substantially as described and for the purposes set forth.

663,435. ROLLER-BEARING. GEORGE S. HEATH, Revere, Mass. Filed Jan. 10, 1898. Renewed May 14, 1900. Serial No. 16,691. (No model.)



Claim.—In a bearing, the combination of a central member 2 having straight cylindrical bearing-surfaces 3' and a flange 4 formed with the plane vertical bearing-surfaces 4', the hub or case 1 having the straight cylindrical bearing-surfaces 1' and the plane vertical bearing-surfaces 5', disk rollers 6 arranged angularly between the members or parts 1 and 2 and having rounded peripheries or bearing-surfaces to engage surfaces 1', 5', and 3' and 4', and rings 7 for holding the rollers apart, all arranged and operating substantially as shown and described.

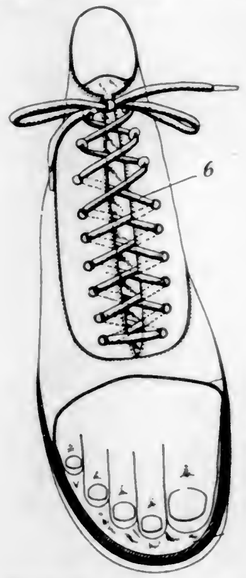
663,436. SCRAPER FOR SOIL-CUTTING DISKS. EDWARD M. HEYLMAN, Canton, Ill., assignor to the Parlin & Orendorff Company, same place. Filed Aug. 30, 1900. Serial No. 28,579. (No model.)



Claim.—1. The combination with a concaved soil-cutting disk, of a rockable scraper-holder, a round scraper-rod swingable and rockable in the holder and a spring bearing against the rounded surface of the scraper-rod to restrain its swing without interfering with its rocking motion on its longitudinal axis.

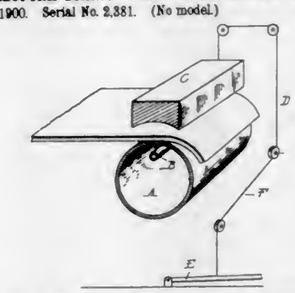
2. The combination with a concaved soil-cutting disk, of a rockable scraper-holder having a socket widening inwardly, a round scraper-rod conforming to the mouth of the socket and adapted to have both swinging and rocking motion in the socket, and a spring bearing against the rounded surface of the rod, substantially as described.

663,437. DEMONSTRATOR. JAMES F. HILL, Stoughton, Mass., assignor to the R. E. Grover & Company, Brockton, Mass. Filed Apr. 13, 1900. Serial No. 12,701. (No model.)



Claim.—A demonstrator, or display-form, consisting of a shoe having the vamp or upper cut away at the toe end, and a facsimile or model of more or less of a human foot, in the position in said shoe assumed by a human foot, the toes of the facsimile or model being exposed by the cut-away portion of the vamp or upper.

663,438. METHOD OF FORMING CURVED ARTICLES FROM CELLUFORM BOARD. JAMES J. HINDE, Sandusky, Ohio. Filed Jan. 22, 1900. Serial No. 2,381. (No model.)

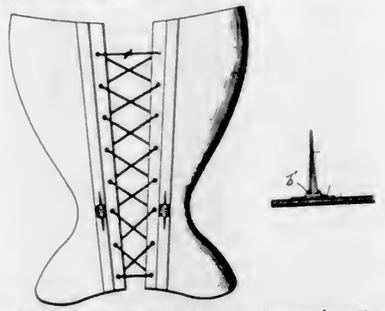


Claim.—1. The herein-described method of forming curved articles from celluform board which consists in first moistening the board, in then curving said board by applying heat to one surface thereof, and finally gradually drying the opposite surface of the board after the curving of the latter has been effected.

2. The herein-described method of forming curved articles from celluform board, which consists in first moistening the board, in then curving the board in the direction of the corrugations by applying heat to one surface transversely to the line of said corrugations, and finally gradually drying the opposite surface of the board after the curving of the latter has been effected.

3. The herein-described method of forming tubular bodies from celluform board, which consists in first moistening the board, in then curving said board into tubular form, with the corrugations extending unbroken and circumferentially, by heating by conduction one surface of the board transversely of the corrugations, and finally gradually drying the opposite surface of the board after the curving of the latter has been effected.

663,439. COMBINED SHIRT-WAIST AND DRESS HOLDER. EMMA A. HOLDEN, Philadelphia, Pa. Filed Aug. 9, 1900. Serial No. 26,426. (No model.)



Claim.—The combination of plates adapted for attachment to corset steels or stays and having pintles, straight-pointed prongs hinged to said pintles and adapted to come into a position with their points together and make an incisorial point, and springs for holding them in said position and in widely-separated position in a single plane, substantially as described.

663,440. MUSICAL INSTRUMENT. FRANK ISBELL, New York, N. Y. Filed June 7, 1899. Serial No. 719,663. (No model.)



Claim.—1. As an improved article of manufacture, a mandolin bowl or body consisting of a plurality of edge-to-edge-arranged strips, each of which is provided with a plurality of longitudinally-arranged beads, whereby intermediate curved grooves are formed, the adjacent edges of said strips being raised to form beads at the meeting-lines of said strips, the crown of each of said beads being provided with a longitudinally-arranged

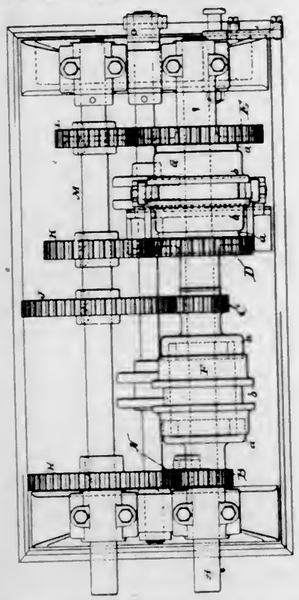
notch, and a strand of wire secured to each of said beads and within the notch and in the crown thereof, whereby the portions of said strips intermediate of said beads are caused to simulate the effect of unitary constructions, said strands of wire causing in their intimate association with said strips an enhanced resonance of said bowl or body, substantially as shown and described.

2. As an improved article of manufacture, a mandolin bowl or body consisting of a plurality of edge-to-edge-arranged strips, each of which is provided with a plurality of longitudinally-arranged beads, whereby intermediate curved grooves are formed, the adjacent edges of said strips being raised to form beads at the meeting-lines of said strips, the crown of each of said beads being provided with a longitudinally-arranged notch, and a strand of suitable substance secured to each of said beads and within the notch of the crown thereof, whereby the portions of said strips intermediate of said beads are caused to simulate the effect of unitary constructions, substantially as and for the purpose set forth.

663,441. PROCESS OF MAKING FUEL FROM FLOOR-DUST, HOUSE REFUSE, &c. JOHN M. JAMESON, Wigston Fields, England. Filed May 28, 1900. Serial No. 18,349. (No specimens.)

Claim.—The within-described process of treating or converting the consumable matter from floor-dust, and house refuse into fuel by grinding it along with charcoal and mixing therewith oil so that the whole mass assumes the consistency of paste in a condition for molding and drying, substantially as described.

663,442. VARIABLE-SPEED GEARING. MOSES C. JOHNSON, Hartford, Conn., assignor to the Helix Gear Company, same place. Filed June 4, 1900. Serial No. 19,038. (No model.)



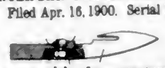
Claim.—1. In a variable-speed gearing, the combination with a driving-shaft, a series of gears of varying sizes loose thereon, a driven shaft, and a series of gears of varying sizes secured thereto and meshing with the gears on the driving-shaft, of clutches disposed between the pairs of gears on the driving-shaft, a lever connected with each clutch, a single clutch-operating shaft, a series of cams secured to said shaft and connected respectively with the levers, said cams so constructed and arranged as to lock one after another of the gears on the driving-shaft to said shaft when the clutch-operating shaft is turned in one direction and to unlock said gears in reverse order when said shaft is rotated in the reverse direction.

2. In a variable-speed gearing, the combination with a driving and a driven shaft, a series of gears secured to the driven shaft, a series of gears loose on the driving-shaft and meshing with the first-mentioned gears, and a clutch between each pair of loose gears, of a lever connected with each clutch, a cam for operating each lever, a shaft to which all of said cams are secured for operating the cams simultaneously to lock the gears on the driving-shaft to and unlock them from said shaft successively to gradually increase or diminish the speed of the driven shaft.

3. The combination with a driving and a driven shaft, gears of varying sizes loose on the driving-shaft, gears of varying sizes fixed to the driven shaft and meshing with the first-mentioned gears, and clutches between each pair of loose gears, of an intermediate gear meshing with a low-speed gear on the driven shaft and a gear on the driving-shaft, a lever connected with each clutch, an operating-shaft, a series of cams secured to said shaft for operating the clutch-levers, said cams constructed and arranged to throw the clutch-levers to successively lock the gears on the driving-shaft to said shaft and one of said cams constructed to cause the said low-speed gear to be locked to the driving-shaft and effect a reversal of rotation of the driven shaft through the medium of the intermediate gear.

4. In a variable-speed gearing, the combination with a driving-shaft and a driven shaft, gearing connecting said shafts, one set of gears loose and the other set fixed, of clutches between the pairs of gears of the loose set of gears, a lever connected with each clutch, a cam for operating each lever, a shaft to which all of said cams are secured for operating the levers simultaneously to lock the loose gears successively to increase or diminish the speed of the driven shaft.

663,443. FINGER-BAR FOR MOWING-MACHINES. MAURICE KANE, Austin, Ill. Filed Apr. 16, 1900. Serial No. 12,978. (No model.)



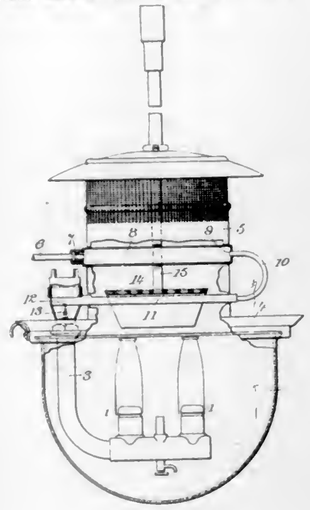
Claim.—1. As a new article of manufacture, a finger-bar for mowing-machines, having a thickened portion on the under surface thereof at its rear edge, and a longitudinal rib on the upper surface thereof at its front edge, and a thin web connecting said rib and thickened portion, said thin web provided with bolt-holes, as and for the purpose set forth.

2. As a new article of manufacture, a finger-bar for mowing-machines, having a thickened portion on the under surface thereof at its rear edge, said thickened portion decreasing in width from the inner toward the outer end of the bar, and having a rib formed on the upper surface at the front edge of said bar, as and for the purpose set forth.

3. The combination with a finger-bar having a rib at the front edge thereof, of a guard, and a securing-bolt for clamping said guard to said bar, the head of said bolt engaging behind said rib, as and for the purpose set forth.

4. The combination with a finger-bar having a longitudinal rib on the upper surface of its front edge and a guard having a perforated heel, of a bolt passing through said bar and the perforation in said heel for clamping these parts together, the front edge of said bolt being planed off and engaging the rear surface of said rib, as and for the purpose set forth.

663,444. VAPORIZING APPARATUS. ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, same place, and Charleston, W. Va. Filed Feb. 16, 1900. Serial No. 5,547. (No model.)



Claim.—1. The combination with vapor-burning apparatus, of vaporizing-chambers arranged above and at different distances from the burner and provided with requisite inlets and outlets and a communicating passage-way between the chambers leading from a point above the bottom of the chamber farthest removed from the burner.

2. The combination with vapor-burning apparatus, of vaporizing-chambers extending across the chimney above and at different distances from the burner and provided with requisite inlets and outlets and a communicating passage-way between the chambers leading from a point above the bottom of the chamber farthest removed from the burner.

3. The combination with vapor-burning apparatus, of vaporizing-chambers arranged above and at different distances from the burner and provided with requisite inlets and outlets and a communicating passage-way of restricted cross-section between the chambers leading from a point above the bottom of the chamber farthest removed from the burner.

4. The combination with vapor-burning apparatus, of vaporizing-chambers extending across the chimney above and at different distances from the burner and provided with requisite inlets and outlets, and a communicating passage-way of restricted cross-section between the chambers leading from a point above the bottom of the chamber farthest removed from the burner.

5. The combination with a vapor-burning apparatus, of communicating vaporizing-chambers provided with requisite inlets and outlets and a heat-shield coöperating with one of said chambers.

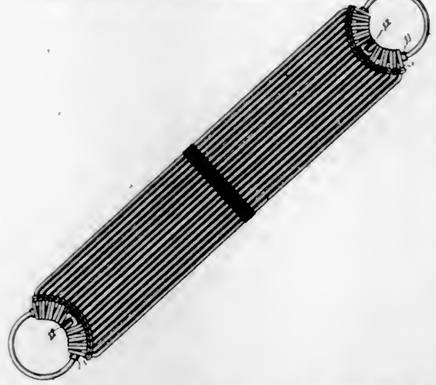
6. The combination with a vapor-burning apparatus, of communicating vaporizing-chambers provided with requisite inlets and outlets and a heat-shield coöperating with the chamber nearest the vapor-burner.

7. The combination with a vapor-burning apparatus, of communicating vaporizing-chambers provided with requisite inlets and outlets, and a heat-shield interposed between the chambers.

8. The combination with a vapor-burning apparatus, of communicating vaporizing-chambers provided with requisite inlets and outlets, and a heat-shield interposed between the chambers and partially surrounding the chamber nearest the vapor-burner.

9. The combination with a vapor-burning apparatus and a casing therefor, of communicating vaporizing-tubes arranged one above the other and extending transversely through the casing of the apparatus above the vapor-burner, and a heat-shield straddling the lower tube.

663,445. GIRTH. WILLIAM KOOTZ, Milwaukee, Wis. Filed Dec. 9, 1899. Serial No. 739,751. (No model.)



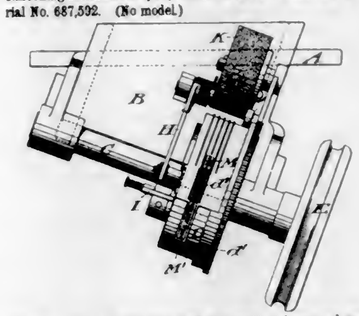
Claim.—1. In a girth, the combination of end rings, coverings of suitable material around said rings, and a girth-band having loops at opposite ends passing around the coverings, and attached to said coverings.

2. In a girth, the combination of end rings, coverings of suitable material around said rings, a girth-band having loops at its opposite ends passing around the coverings, and means for preventing the loops from working off the coverings.

3. In a girth, the combination of end rings, coverings of suitable material around said rings, each covering provided with a projecting ear having an eye therethrough, and a girth-band having loops at its opposite ends passing around the coverings, one of said loops passing through the eye of each ear.

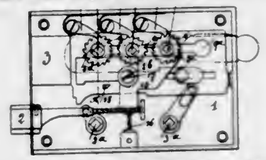
4. In a girth, the combination of end rings, protecting-coverings of suitable material around the rings, each covering provided with projecting ears, and each ear having an eye therethrough, and a girth-band having loops at opposite ends and passing around the coverings, and the openings of the ears each having one of the loops passing therethrough.

663,446. MAIL CANCELING AND POSTMARKING MACHINE. WILLIAM R. LANDFEAR, New York, N. Y., assignor to the Hampden Cancelling Machine Company, Holyoke, Mass. Filed Aug. 3, 1898. Serial No. 687,592. (No model.)



Claim.—The combination with a canceling-drum and means for rotating it, of a plurality of type-bearing wheels mounted on an axle transverse to the axis of the drum, the said wheels being capable of independent rotary adjustments, and manually-controlled means for holding the wheels in their several adjustments relatively to each other comprising a plate of spring metal secured to the canceling-drum, the said plate being slit to form a plurality of spring-arms each spring-arm being arranged to engage one of the type-bearing wheels, substantially as set forth.

663,447. KEYLESS OR PERMUTATION LOCK. LUCIEN LARCHER, Paris, France. Filed May 29, 1899. Serial No. 718,710. (No model.)

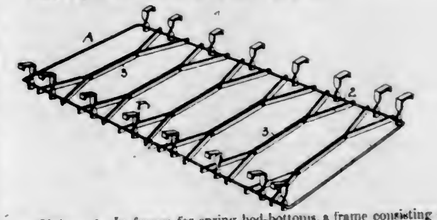


Claim.—1. In a keyless or permutation lock or safety-bolt, the combination of the secret buttons with sockets flattened on two opposite sides, a slot or groove in the bolt, a movable plate abutting against the sockets, a spring always pressing said plate thereby transmitting to all the buttons simultaneously the movements given to any one of them, as described and set forth.

2. In a keyless or permutation lock or safety-bolt, the combination of the secret buttons with flattened sockets preventing displacement of the sliding bolt until they are turned into a certain position corresponding to a peculiar form of slot or groove into the bolt, a bolt provided with a slot or groove, a movable spring-pressed plate, the spring, toothed wheels fitted on the flattened sockets, and spring catches or pawls gearing with the toothed wheels, as described and set forth.

3. In a keyless or permutation lock or safety-bolt, the combination of the secret buttons with flattened sockets preventing displacement of the sliding bolt until their position corresponds to a peculiar form of groove or slot in the bolt, a bolt provided with the groove or slot, a movable spring-pressed plate, the spring, spring catches or pawls fitted in the lock-case, toothed wheels fitted loosely on the flattened sockets, a screw passing through the sockets and having a special square part for maintaining in position the toothed wheels, and a special stop-tooth on each of the toothed wheels, as described and set forth.

663,448. SPRING-BED. HOWARD E. LAUGHLIN, Cleveland, Ohio. Filed Aug. 8, 1900. Serial No. 26,253. (No model.)

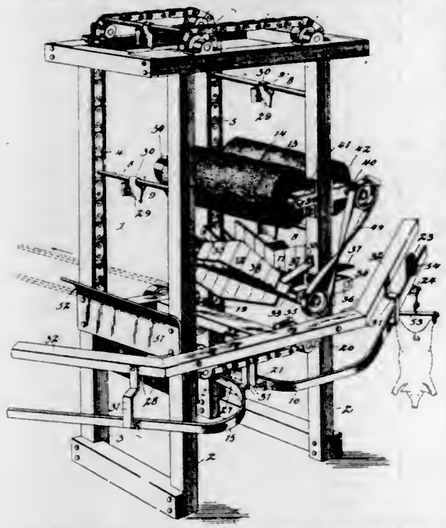


Claim.—1. In frames for spring bed-bottoms, a frame consisting of the outer part forming the sides and ends of the same, and a series of trans-

verse bars formed each of two pieces having forked ends permanently threaded upon the sides of the outer part of the frame, substantially as described.

2. In frames for spring bed-bottoms, a frame consisting of the outer part forming the sides and ends of the same, and a series of transverse bars formed each of two pieces having forked ends permanently fastened upon the sides of the outer part of the frame, and hooks pivoted on said frame between and at the side of said ends, substantially as described.

663,449. HOG-SCRAPING MACHINE. THOMAS LEBIEDZINSKI, Chicago, Ill. Filed Apr. 23, 1900. Serial No. 13,953. (No model.)



Claim.—1. In a machine of the class described, the combination of an upright frame, rails extending into and out of the frame, an upright endless carrier arranged to take a carcass from one of the rails and deposit it on the other rail and provided with hooks arranged to pass over the rails, the said rails being arranged in the path of the hooks, whereby the latter will be adapted to automatically engage a hanger for carrying an animal, and a tripping device arranged in the path of the hooks and adapted to tilt or oscillate the same to cause the hanger to be deposited on the rail extending from the frame, substantially as described.

2. In a machine of the class described, the combination of a frame, an upright endless carrier mounted on the frame and provided with hooks, rails extending into and out of the frame and having their adjacent ends arranged in the path of the hooks and spaced apart, one of the rails being adapted to support a hanger in position to be engaged by the hooks, and a tripping device located adjacent to the other rail and adapted to disengage the hooks from the hangers to cause the latter to be deposited upon the latter rail, substantially as described.

3. In a machine of the class described, the combination of a frame, an endless carrier mounted on the frame and provided with hooks, rails extending to and from the frame and having their adjacent ends spaced apart and arranged in the path of the hooks, one of the rails being adapted to support a hanger in position to be engaged by the hooks, and a pair of guides located at opposite sides of the other rail and forming a tripping device adapted to engage the hooks to deposit the hanger upon the adjacent rail, substantially as described.

4. In a machine of the class described, the combination of a frame, an endless carrier provided with hooks having depending portions or arms and adapted to be oscillated, rails extending to and from the frame and located in the path of the hooks, one of the rails being arranged to support a hanger in position to be engaged by the hooks, and a tripping device arranged to be engaged by the depending portions or arms of the hooks to deposit the hangers on the other rail, substantially as described.

5. In a machine of the class described, the combination of a frame, an endless carrier provided with hooks, rails extending to and from the frame, cleaning devices located at one of the flights of the endless carrier, a guard, located at the opposite flight of the endless carrier to steady the carcasses, and the opposite guides forming a tripping device and located at opposite sides of the rail extending from the frame, substantially as described.

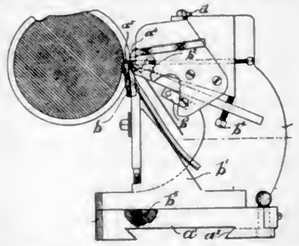
6. In a machine of the class described, the combination of a frame, rails extending into and out of the frame, a pair of scrapers mounted on the frame, a pair of rotary brushes arranged above the scrapers, and an endless carrier having one of its flights arranged between the scrapers and the brushes and arranged to carry a carcass from one rail between the scrapers and brushes to the other rail, substantially as described.

7. In a machine of the class described, the combination of a frame, an upright endless carrier, and a pair of rotary scrapers arranged at opposite sides of one of the flights of the endless carrier and composed of series of radially-disposed blades gradually varying in length, the blades of one of the scrapers gradually decreasing in length from the center to the ends and the blades of the other scraper being reversely arranged, substantially as described.

8. In a machine of the class described, the combination of a main frame, rotary scrapers, a carrier arranged to pass between the scrapers, and guards mounted on the main frame and arranged in pairs between the scrapers and spaced apart to form passages for the legs to protect the same, substantially as described.

9. In a machine of the class described, the combination of a frame, rails extending into and out of the frame, an endless carrier arranged adjacent to the rails and adapted to carry a carcass from one to the other, and devices located adjacent to the endless carrier for operating on the carcass, substantially as described.

663,450. MACHINE FOR CUTTING VENEER. JOHN LEWIS, Brownville, Me., assignor of one-half to George E. M. Lewis, Truro, Canada. Filed Apr. 20, 1900. Serial No. 13,576. (No model.)



Claim.—1. In a machine for cutting veneer, a knife-holder carrying a knife, the edge of which runs in the direction of the axis of the log, said knife-holder pivoted adjustably on an axis at right angles to the axis of the log and to the direction of feed toward the log, and means for securing the knife-holder in its adjusted position, substantially as described.

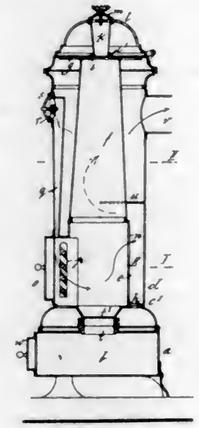
2. In a machine for cutting veneer, a knife-head, a bar carried thereby, and a chamfering-knife provided with a screw adapted to engage the knife-head and clamp the knife between the knife-head and said bar, substantially as described.

3. In a machine for cutting veneer, a knife-head, a bar carried thereby, and a chamfering-knife provided with means for causing the upper and lower surfaces of the knife to impinge at different points against the knife-head and bar respectively, thereby clamping the knife in position, substantially as described.

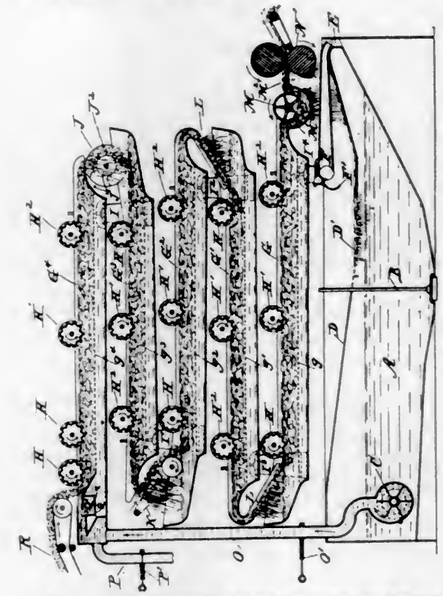
663,451. STOVE FOR LIGNITE CAKES, PEAT, OR LIKE FUEL. CLEMENS LINZEN, Jr., Unna, and EWALD DEMMER, Barmen, Germany, assignors of two-thirds to Clemens Linzen, Sr., Unna, Germany, and Eduard Disselkamp, Ernst Disselkamp, and Rudolf Disselkamp, Barmen, Germany. Filed July 1, 1899. Serial No. 722,596. (No model.)

Claim.—1. In a stove or heater, a base provided with an ash-pit and grate, a casing closed at its upper end seated upon said base and provided near its top with an outlet for the products of combustion, a fire-box seated upon the base within the casing and spaced therefrom and provided with an opening *n* at the rear, a tube extending from near the top of the outer casing to the front of the fire-box, and communicating therewith, and also with the atmosphere at its upper extremity, means for regulating the passage of air therethrough and a magazine seated upon the fire-pot, extending upwardly to and opening through the top of the outer casing and a suitable closure therefor.

2. In a stove or heater, a base provided with an ash-pit and grate, a casing closed at its upper end seated upon said base, and provided near its top with an outlet for the products of combustion, a fire-box seated upon the base within the casing and spaced therefrom and provided with an opening *n* at the rear, a tube extending from near the top of the outer casing to the front of the fire-box, and communicating therewith, and also with the atmosphere at its upper extremity, means for regulating the passage of air therethrough and a magazine seated upon the fire-pot, extending upwardly to and opening through the top of the outer casing and a suitable closure therefor, a draft-pipe fastened to the cover projecting into the magazine, and communicating with the air, and a base-plate *c* provided with apertures *b* leading into the ash-pit for the purpose described and set forth.



663,452. MACHINE FOR WASHING, RINSING, OR CHEMICALLY TREATING WOOL. EMILE MAERTENS, Providence, R. I. Filed Apr. 14, 1900. Serial No. 12,853. (No model.)



Claim.—1. In wool-washing machines, the rotating, traveling or inclined and stationary foraminous conveyers, J, K or L, adapted to transfer the wool from one chute to the succeeding chute, and to separate said wool from the bulk of the liquor with which it is delivered to said conveyers, in its transfer from chute to chute, substantially as described.

2. In a wool-washing machine, the combination of a series of chutes, means for feeding raw wool thereto, and devices intermediate of the chutes which transfer the wool from one chute to another and simultaneously drain the wash liquid therefrom.

3. In a wool-washing machine the combination of a series of chutes provided with false bottoms and a device intermediate of the chutes for transferring the wool from one chute to the succeeding chute said transferring device being provided with a foraminous portion whereby the wool is separated from the bulk of the liquid which it carries, substantially as described.

4. In a wool-washing machine the combination of a suitable vat and the rotating submergers H and regulators H', H², adapted to submerge the wool, to regulate its travel through the chutes, to prevent it from being controlled by the current of liquor flowing through said chutes, to form across the surface of the liquor, in said chutes, efficient dams to check the forward motion of the wool, to cause it to accumulate and soak between submergers and regulators in said chutes and to allow it to be carried forward by the flow of the liquor in the chutes at a predetermined rate of speed only, substantially as described.

5. In a wool-washing machine, the combination of a suitable vat for holding the material to be treated, positively-driven submergers and positively-driven regulators therein which compel the wool to be submerged and act as dams to check the advance of the wool, thus causing it to accumulate and soak, substantially as described.

6. In a wool-washing machine, the combination of a suitable vat, a plurality of positively-driven submergers and positively-driven regulators therein, adapted to be driven at different rates of speed for the purpose set forth.

7. In a wool-washing machine, the combination of a suitable vat, a series of submergers and regulators therein and mechanism for driving the submergers and regulators at successively-decreasing speeds, whereby the progress of the wool through the water is checked, substantially as set forth.

8. In wool-washing machines, the combination of a suitable vat, a plurality of regulators therein provided with transversely corrugated, ribbed or winged surfaces, substantially as described.

9. In wool-washing machines the combination of a suitable vat, a foraminous partition therein, means for supplying the vat with wash-water which has been previously used, independent means for supplying the same with flush or pure water and means whereby either current of liquid may be directed above or below the foraminous partition, substantially as described.

10. In wool-washing machines, the combination of a series of chutes, draw-off devices connecting the chutes in succession whereby the dirt or sediment accumulating in the different chutes may be flushed or forced from the chutes in succession, substantially as described.

11. In a wool-washing machine, the combination of a series of chutes, mechanism intermediate of the chutes for removing the bulk of the liquid from the wool in its passage from one chute to the succeeding chute, suitable submergers and regulators in the chutes, a vat into which the wash liquor is adapted to flow, means for returning the wash-water to the first chute whereby it can be again passed through the machine, substantially as described.

12. In a wool-washing machine, the combination of a series of chutes, a tank into which the wash-water from the chutes is adapted to flow, an overflow to said tank adapted for connection with the sewer, a draw-off whereby the wash-water may be passed directly from the chutes into the sewer and a valve for directing the liquid into the tank or into the draw-off, substantially as described.

13. In a wool-washing machine, the combination of a suitable vat, a rotating, hollow, open-ended, foraminous elevating-cylinder M, having a direction of motion opposite to that of the bottom squeezing-roller N' and adapted to rotate in a trough M', to lift the wool from said trough or equivalent thereof, to the nip of the squeezing-rollers N and N' by the pressure of the liquor in said trough upon the wool and cylinder, to equalize the thickness of wool adhering to said cylinder by the carrying action of the liquor passing through the perforations of said cylinder, and to press out of the wool the bulk of the liquor which it contains by squeezing said wool between its own foraminous surface and the first of the carrying-rollers M² before its delivery to the squeezing or nip rollers N and N', substantially as described.

14. In a wool-washing machine, the combination of a suitable vat, the cylinder M revolving in the direction of the flow of the liquid in the vat, the trough M' and means for carrying away the liquor from the inside of cylinder M, substantially as described.

15. In a wool-washing machine the combination of a suitable vat, the cylinder M revolving in the direction of the flow of the liquid in the vat, the trough M', means for carrying away the liquor from the inside of cylinder M and the carrying-rollers M², substantially as described.

16. In a wool-washing machine, the combination of a suitable vat, a foraminous cylinder with open ends revolving in the direction of the flow of the liquid in the vat adapted to receive the wool therefrom and elevate it out of the vat, substantially as described.

17. In a wool-washing machine, the combination of a suitable vat, a foraminous cylinder with open ends revolving in the direction of the flow of the liquid in the vat adapted to receive the wool therefrom and drain the same, and offtakes connected with the open ends of the cylinder to receive the liquid therefrom, substantially as described.

18. In a wool-washing machine, the combination of a suitable vat, a foraminous elevating-cylinder revolving in the direction of the flow of the

liquid in the vat adapted to receive the wool therefrom, said cylinder being provided with open ends, means for drawing off the liquid from the ends of said cylinder and means for returning it to the vat, substantially as described.

19. In a wool-washing machine, the combination of a suitable vat, foraminous elevating means traveling in the direction of the flow of the liquid in the vat adapted to elevate the wool out of the vat, carrying mechanism to receive the wool from the elevating means and adapted to cooperate therewith whereby the wool is freed from the bulk of the liquid which it carries, substantially as described.

20. In a wool-washing machine, the combination of a suitable vat, a foraminous elevating means traveling in the direction of the flow of the liquid in the vat adapted to receive the wool from the vat, carrying-rollers to receive the wool from the elevating means and squeezing-rolls adapted to receive the wool from the carrying-rollers and express the liquid therefrom, substantially as described.

21. In a wool-washing machine, the combination of a suitable vat, submergers therein, suitable elevating mechanism traveling in the direction of the flow of the liquid in the vat, carrying-rollers cooperating therewith, squeezing-rollers, and means whereby the liquid expressed from the wool may be reused.

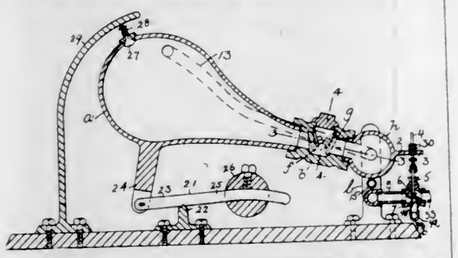
22. In a wool-washing machine, the combination of a suitable vat, a tank adjacent thereto and adapted to receive the wool therefrom, and foraminous elevating mechanism in said tank traveling in the direction of the flow of the liquid therein, substantially as described.

23. In a wool-washing machine, the combination of a suitable vat, a tank adjacent thereto, a foraminous open-ended elevating-cylinder in said tank traveling in the direction of the flow of the liquid therein and offtake-pipes adapted to receive the liquid from the ends of said cylinders, substantially as described.

24. In a wool-washing machine, the combination of a suitable vat, an adjacent tank, a foraminous elevating-cylinder therein traveling in the direction of the flow of the liquid in said tank, carrying mechanism cooperating therewith, squeezing-rolls to receive the wool from the carrying mechanism and means for reusing the wash-water, substantially as described.

25. In a wool-washing machine, the combination of a suitable vat, a foraminous partition therein, suitable submergers and regulators above the partition, elevating mechanism traveling in the direction of the flow of the liquid in the vat adapted to receive the wool from the vat, devices whereby the wash liquor can be reused and means for directing the liquor above or below the foraminous partition, substantially as described.

663,453. STEAM-TRAP. SAMUEL MAHONY, Revere, Mass. Filed Feb. 23, 1900. Serial No. 6,230. (No model.)



Claim.—1. In a steam-trap, the combination of the following instrumentalities, viz: a receiver, a pivotally-mounted casing, and an intermediate valve-fitting connecting said receiver with said casing and provided with separate ports or passages, oppositely-operating check-valves in said fitting controlling said ports or passages, a water-inlet communicating with one of said passages, and a water-outlet communicating with the other of said passages, substantially as described.

2. In a steam-trap, the combination of the following instrumentalities, viz: a receiver, a valve-fitting to which said receiver is connected, provided with separate ports or passages, oppositely-operating check-valves controlling said passages, a hollow casing connected to said fitting, hollow standards pivotally supporting said casing, valve-fitting and receiver, one of said standards having two passages, means to connect one of said passages with the hollow casing, and means to connect the other passage with said receiver, a steam-inlet pipe connected with one of said hollow standards, a valve in said steam-inlet, means attached to said hollow casing to operate said steam-inlet valve, and a water-inlet pipe connected to one hollow standard and a water-outlet pipe connected to the other hollow standard, substantially as described.

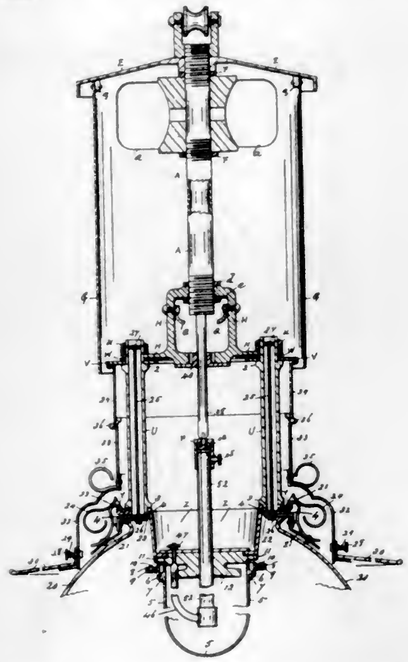
3. In a steam-trap, the combination with a receiver, a steam-inlet therefor, a valve to control the admission of steam into the receiver, an air-outlet communicating with said receiver, and means cooperating with the steam-supply and said air-outlet to produce a vacuum in said receiver when the steam-valve is closed, substantially as described.

4. In a steam-trap, the combination with a movable receiver, a steam-supply connected therewith, a valve controlling said steam-supply, an air-outlet communicating with said receiver, a valve controlling said air-outlet, and means intermediate of said steam and air valves to produce a vacuum in the receiver, substantially as described.

5. The combination with the movable receiver of a steam-trap, of a steam-inlet for the receiver, an air-outlet to the atmosphere communicating with the steam-inlet to the receiver, a valve to control the admission of the steam into said receiver, and means to permit the passage of steam through the air-outlet when the receiver is substantially empty, for the purpose specified.

6. In a steam-trap, the combination with a receiver, of a valve-fitting provided with a steam-supply and with a steam-outlet communicating with the receiver, a valve in said fitting controlling the passage of steam into the receiver, an air-outlet pipe connected to the said fitting and communicating with both the steam-supply and with the receiver when the valve is seated, substantially as described.

663,454. ELECTRIC-ARC LAMP. FREDERICK W. MARTIN and FRANK STEWART, Hamilton, Canada, assignors of one-half to Brown, Boggs & Co., same place. Filed May 12, 1900. Serial No. 16,538. (No model.)



Claim.—1. In an arc-lamp a main central tube, a lamp-hanger with central pulley, said tube screwed into said hanger for suspension therefrom, a canopy on said tube and against said hanger, a nut on the tube against the lower central part of the canopy to secure the same, a choke-coil on said tube, and against said nut, a nut on the tube to engage with the lower part of the choke-coil to secure the same, a bearing adjustably secured to the lower end of the tube, a lower horizontal flange on said bearing, side tubes suspended from said bearing, and a central bushing in said bearing for a carbon-rod to pass through and into said central tube, as described.

2. In an arc-lamp, a main suspended central tube, a magnet coil-spring ring-plates, diametrical grooves in said plates, raised parts on the magnet-spool for said grooves to hold and to allow removal of the magnet, adjustable clamps on said main tube to receive the ends of said ring-plates to adjustably attach the magnet to said tube, as described.

3. In an arc-lamp, a coil-magnet, indented spring-plates connected to raised parts on the ends of said magnet, to hold and to allow its removal,

a suspended central tube, vertical adjusting-clamps on said tube to receive and fasten the ends of said spring-plates, an arm adjustably attached to the central tube to suspend a dash-pot, an air-valve on the upper end of the plunger of the dash-pot, to facilitate the operation of the magnet connected to said plunger, as described.

4. In an arc-lamp, a magnet-coil adjustably attached to a central main tube as described, laminated iron partly surrounding said magnet, without contact therewith, straps to hold the laminated iron, said straps attached to said main tube, a clamp on said main tube connected to said straps to hold the laminated iron around the magnet, for the purpose herein set forth.

5. In an arc-lamp, a suspended central main supporting-tube, a vertical bearing with horizontal flange at the lower end of said tube, upper and lower nuts screwed onto said tube and against said bearing to fasten the same, side tubes, a lower ring and an intermediate ring secured to said bearing, flange-collars on the tubes and upper nuts to fasten said rings and flange together, and to suspend said side tubes, a lower globe-support with horizontal flange, lower collars on said side tubes fitting against the upper side of the flange and the ends of the tubes screwed into said flange and flush with the lower side thereof, as described.

6. In an arc-lamp, side tubes, a central suspended bearing with horizontal flange to rigidly suspend said tubes, an outer globe-support with horizontal flange secured to the ends of the tubes, an inner glass globe, an upper collar on the inner globe, a ring with annular recess to grip said collar, diametrically-opposed pins projecting out from said ring, an outer ring-plate secured to the under side of said pins, lugs on said ring-plate at right angles to said pins, spring-fastenings pivoted to said lugs, a projecting flange with rounded raised part for said fastenings to engage to bring the top of the globe to a gas-check in the central and lower part of the support, as described.

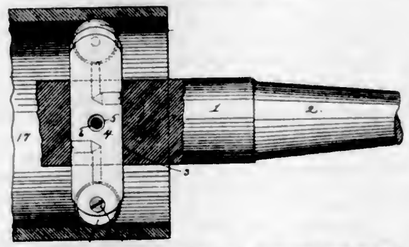
7. In an arc-lamp, a central bearing with horizontal flange suspended by a main central tube, side tubes suspended from said flange, a glass-globe support with horizontal flange secured to the ends of said tubes, a ring-plate secured to the under side of said flange, an outer glass globe, an outer attached ring around the upper part of the globe, diametrically-opposed brackets secured to said ring, spring-steel fastenings secured to the ring, the upper part of said springs capable of fastening over the rounded raised parts of said horizontal flange, as described.

8. In an arc-lamp, an outer glass globe, diametrically-opposed brackets secured to a ring around said globe, vertical side tubes, a globe-support with horizontal flange secured to the ends of said tubes, rods with upper heads in said tubes, lower end nuts on the tubes to engage with said brackets, a ring-plate secured to the under side of said flange the heads of the rods to rest on said ring-plate to suspend the globe in a lowered position, as described.

9. In an arc-lamp, a shade resting on and secured to an annular flanged ring, an inwardly-curved casing secured to said ring by hand-screws, spiral tension-springs on said screws to retain the same, a parallel extension to said casing capable of telescoping into a parallel casing with projecting rim suspended from the ring-plate on the side tubes, a curved spring-plate secured to the inwardly-curved casing to lift the shade, and to fasten to the rim of the suspended parallel casing, as described.

10. An arc-lamp comprising a suspended central tube, a central bearing adjustably secured to the end of the tube, a horizontal flange on said bearing, side tubes suspended from said flange, an inner globe-support with a horizontal flange secured to the ends of said side tubes, a lower and central gas-check bearing, forming a part of said flange, an outer globe supported by said flange, a protecting-screen in said globe, a carbon-rod to operate in the central tube and extending through a bushing in said bearing, and a carbon-holder adjustably connected to the end of said rod, as described.

663,455. CUTTER-TOOL. KARL O. MUEHLBERG, Braddock, Pa. Filed Dec. 18, 1899. Serial No. 740,819. (No model.)



Claim.—1. A boring or reaming tool comprising a cutter-head, a circular cutter rotatably mounted therein on an axis at right angles to and not intersecting the axis of the head, means for adjusting the cutter to different distances from the center of the head and means for locking the cutter immovably in any position to which it may be adjusted.

2. A boring or reaming tool comprising an oblong head having end slots and screw-holes communicating laterally with said slots, circular cutters having central conical apertures and seated in said slots and screws having conical ends and seated in said holes and projecting into said apertures.

3. A boring or reaming tool comprising an oblong head having end slots, a screw-threaded opening extending from each slot to one face, a recess extending longitudinally from the base of each slot toward the center of the head and the screw-threaded opening extending from the base of said recess at right angles thereto, a pin in said longitudinal recess, circular cutters having central openings and seated in said slots and screws having tapered ends and adjustable in said screw-threaded openings to adjust said cutters and lock them in position.

4. The combination with a holder, of an oblong cutter-head mounted therein and provided at each end with a rotatably-mounted circular cutter and with means for adjusting the cutters toward and away from the holder and for locking them in any position to which they may be adjusted.

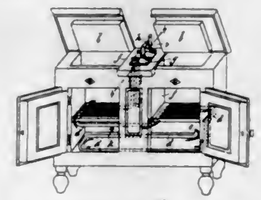
5. A boring or reaming tool comprising a holder, an oblong cutter-head mounted to center itself in said holder, and a circular cutter rotatably mounted in each end of said head.

6. A boring or reaming tool comprising a holder, an oblong cutter-head mounted to center itself in said holder, a cutter mounted in each end of said head, and means for adjusting the cutters toward and away from the holder.

7. The combination with a holder having a transverse slot, of a cutter-head mounted to center itself in said slot, said head having a circular cutter rotatably mounted in each end and means for adjusting said cutters toward and away from the holder and for locking them immovably in any position to which they may be adjusted.

8. A boring or reaming tool comprising a head and a circular cutter mounted therein on an axis at right angles to but not intersecting the axis of the head, said cutter being adjustable on its axis and also toward and away from the center of the head.

663,456. REFRIGERATING APPARATUS. FRANZ E. MÜLLER, Dresden, Germany. Filed Jan. 20, 1900. Serial No. 2,161. (No model.)



Claim.—1. In a refrigerator, the combination with the system of pipes or conduits arranged therein connected at one end with a source of carbonic-acid gas under pressure, of a water-tank within the refrigerator into which the pipe system opens at or near the bottom thereof, substantially as described.

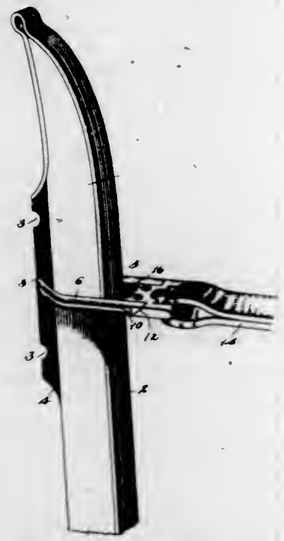
2. In a refrigerator, the combination with the system of pipes or conduits arranged therein, connected at one end to a source of carbonic-acid gas under pressure, of a closed water-tank within the refrigerator into which the pipe system opens at or near the bottom thereof, and an escape-pipe for the carbonic-acid gas leading from the water-tank; substantially as described.

663,457. HAME-CLIP. BERT T. MCCHESNEY, Brewster, Minn. Filed May 29, 1900. Serial No. 18,419. (No model.)

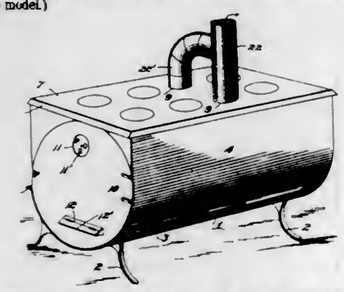
Claim.—1. The combination with a hame having a plurality of notches at the front portion, of a hame-clip comprising a link with a front reduced closed end to engage said notches and rearwardly-extending legs parallel with each other, and a slotted head with a locking-tongue pivotally mounted and movable in a vertical direction between the rear portions of said legs, one side of the tongue having a locking frictional engagement with the inner portion of one of the legs.

2. A hame-clip for adjustable engagement with a hame comprising a hame-embracing link, and a slotted head having a locking-tongue said head being pivoted in the rear portion of said link and provided with a lateral projection to frictionally bear against a part of the link, the coinciding portions of the link and tongue being reversely inclined.

663,457.



663,458. STRAW-BURNING COOK-STOVE. HUGH E. MCCONNELL, Codington County, S. D. Filed June 21, 1900. Serial No. 21,129. (No model.)

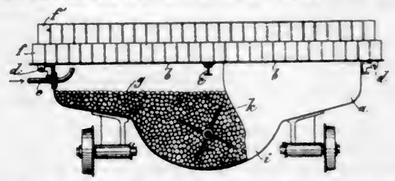


Claim.—1. In a stove of the character described, the combination with the stove-casing provided with a door and having its upper edges bent inwardly and inclined downwardly, of a fuel-magazine adapted to be inserted into said casing through said door, said door being provided with dampers and said magazine being provided with openings controlled by said dampers, a curved plate seated upon the upper side of the fuel-magazine and provided with upwardly and outwardly projecting side edges overlapped by the upper inclined edges of the stove-casing, thus forming a trough for the condensed vapors of the burning straw, fire-holes arranged in the upper side of the magazine, a removable top for said stove-casing, a longitudinal partition dividing the space above the magazine and below the top into two compartments which communicate with the fire-holes, and outlet-holes formed in the said top and communicating with said compartments, substantially as set forth.

2. In a stove of the character described, the combination with the stove-casing provided with a door, of a fuel-magazine adapted to be inserted into said casing through said door, said door being provided with dampers and said magazine being provided with openings controlled by said dampers, fire-holes arranged in the upper side of the magazine, a removable top for said stove, a longitudinal partition dividing the space above the magazine and below the top into two compartments which communicate with the fire-holes, and outlet-holes formed in said top and communicating with said compartments, substantially as set forth.

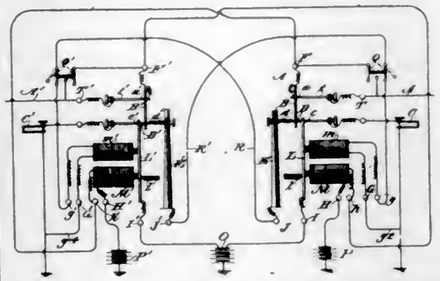
663,459. DEVICE FOR SLAKING LIME AND DRYING ARTIFICIAL STONES, &c. WILHELM OLSCHEWSKY, Berlin, Germany. Filed Dec. 2, 1899. Serial No. 739,035. (No model.)

Claim.—1. A device of the character described, consisting of a truck, the body of which is formed of a chamber *a* for receiving lime and having a movable cover *b* adapted to be closed air-tight, and means for inlet of steam into said chamber *a*, its cover *b* forming a platform on which artificial stones are placed, to withdraw heat from the chamber and its contents and thus reduce the tension due to dry-slaking therein.



2. A device of the character described consisting of a truck comprising a chamber *a*, having the cover *b*, a stirring device *k* and means for inlet of steam to said chamber, the chamber *a* holding lime and its cover *b* supporting artificial stones adapted to withdraw heat from said chamber and its contents and thus reduce the tension due to dry-slaking therein.

663,460. TELEGRAPH-REPEATER. CHARLES D. OLSEN and THOMAS W. CARROLL, Denver, Colo. Filed Aug. 17, 1899. Serial No. 727,584. (No model.)



Claim.—1. In a telegraphic repeater, the combination of two main magnets, two auxiliary magnets, and make-and-break devices for the main-magnet circuits and the auxiliary-magnet circuits, each device comprising a pivoted lever controlled by one main and one auxiliary magnet and a small pivoted movable lever controlled by the first lever and adapted to control the circuits of the other main and auxiliary magnets, substantially as and for the purpose described.

2. In a telegraphic repeater, the combination of two main magnets, and an electrical supply therefor, two auxiliary magnets, and an electrical supply therefor, one main and one auxiliary magnet forming a set, and make-and-break devices for the magnet-circuits in each set, each device comprising a pivoted lever carrying the armatures of both magnets in the set and a small pivoted movable lever controlled by the first lever, the device operated by one set of magnets controlling the circuits of the other set of magnets, substantially as and for the purpose described.

3. In a telegraphic repeater, the combination of the opposite sets of magnets, each set comprising a main and auxiliary magnet, and a make-and-break device for each set consisting of a lever adapted to be controlled by both the main and auxiliary magnet, and a small pivoted movable lever directly actuated by said main lever and carrying contacts whereby the main-magnet line is opened at the instant of closing the auxiliary-magnet circuit, or vice versa, the pivoted lever operated by one set of magnets controlling the circuits of the other set.

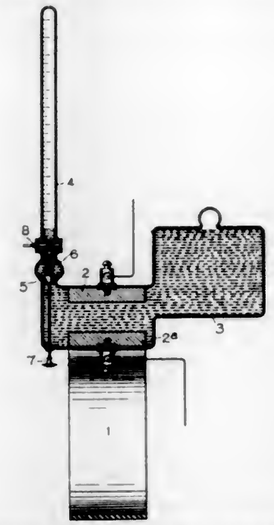
663,461. MAXIMUM-DEMAND METER. EUSTACE OXLEY, Lynn, Mass., assignor to the General Electric Company, of New York. Filed July 31, 1899. Serial No. 725,602. (No model.)

Claim.—1. A maximum-demand meter comprising a liquid, means for distributing the hydrostatic balance proportionally to the strength of current in a consumption-circuit controlling said fluid, and an indicating device to make a continuing indication of the maximum difference of level.

2. A maximum-demand meter comprising a liquid, means for moving the same proportionately to the energy controlling it, an indicator for showing the extent of its movement, and means for preventing an indication of energy fluctuation of short duration.

3. A maximum-demand meter, comprising a liquid, means for transferring the same from one level to another proportionally to the strength of current in a consumption-circuit controlling said transfer, and a trap for the transferred liquid.

4. A maximum-demand meter comprising a liquid, electrically-controlled devices to disturb the hydrostatic balance of said liquid proportionally to the strength of current in a consumption-circuit governed by the meter, and a valve to prevent backflow of the liquid when raised above a predetermined level.



5. A maximum-demand meter comprising a conducting liquid communicating with a reservoir on one side and a tube on the other and traversing a magnetic field at a suitable point, electrodes within the field for inclusion in the consumption-circuit, whereby the liquid is displaced when conducting current, and a valve to prevent backflow of the liquid when raised above a predetermined height.

6. A maximum-demand meter comprising a conducting liquid communicating with a reservoir on one side and a tube on the other and traversing a magnetic field at a suitable point, electrodes within the field for communicating with a consumption-circuit, and a valve to prevent backflow of the liquid when raised above a predetermined height, said valve being provided with a hand-controlled restoring device to permit backflow of the liquid to reset the meter.

7. A maximum-demand meter comprising a conducting liquid communicating with a reservoir on one side and a tube on the other and traversing a magnetic field at a suitable point, electrodes within the field for connection with a consumption-circuit, a valve to prevent backflow of the liquid when raised above a predetermined height, and a small admission-orifice to the tube to provide a time factor for the meter indication.

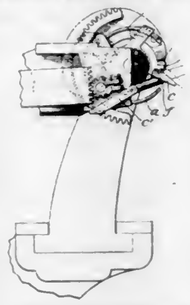
8. A maximum-demand meter comprising a conducting liquid communicating with a reservoir on one side and a tube on the other and traversing a magnetic field at a suitable point, electrodes within the field for connection with a consumption-circuit, a valve to prevent backflow of the liquid when raised above a predetermined height, and an adjustable opening controlling the admission of fluid to the tube to vary the time element of the meter indication.

663,462. MACHINE FOR SEWING LEATHER. GEORGE L. PIERCE, New York, N. Y., assignor of one-half to Charles E. Goodspeed, same place. Filed Mar. 28, 1900. Serial No. 10,433. (No model.)

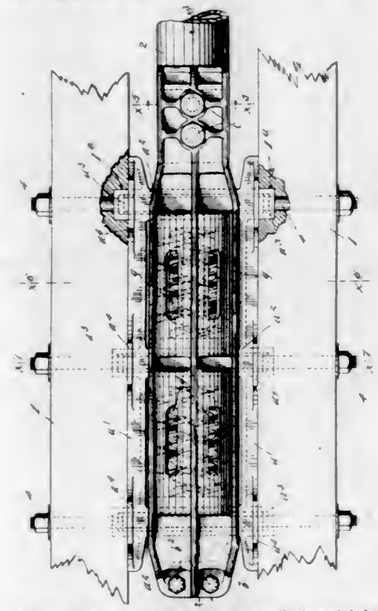
Claim.—1. In a machine for angle-sewing, the combination with the work-table to support one side of the work about the angle, of a presser-foot having a toe at one side of the working face of the work-table and pointed in a general direction substantially parallel with the working face of the work-table to form an abutment for the other side of the work about the angle and to bite into the same, substantially as shown and described.

2. In a machine for angle-sewing having an awl and needle, the combination with the work-table to support one side of the work about the angle and having a perforation to permit the passage of the awl and needle, of a presser-foot having a toe at one side of the working face of the work-table and pointed in a general direction substantially parallel with the working face of the work-table to form an abutment for the other side of the work about the angle and to bite into the same, substantially as shown and described.

3. In a machine for angle-sewing, the combination with the work-table having a slotted face and the presser-foot having a toe at one side of the working face of the work-table, of a knife having its blade disposed at an angle with the working face of the work-table and its shank bent to lie in said slot, and a plate secured to the work-table and overlying said shank, substantially as shown and described.



663,463. DRAFT-RIGGING FOR CARS. EDWARD POSSON, St. Paul, Minn., assignor of one-half to Alfred Lovell, same place. Filed June 21, 1900. Serial No. 21,080. (No model.)



Claim.—1. The combination with an integrally-formed skeleton draft bridge or frame anchored between timbers of the car, of a draft-bar having a yoke or stirrup embracing said draft-bridge in a vertical plane, and draft-springs and followers coöperating with said bridge and stirrup and held in working positions thereby, substantially as described.

2. The combination with the integrally-formed skeleton draft-bridge having integrally-formed transverse beams a^2, of a draft-bar having a yoke or stirrup embracing the said bridge-beams a^2, bolts passed through said bridge-beams a^2 and the car-beams to which said bridge is secured, and draft-springs and followers compressed between said bridge-beams a^2 and shoulders on the said yoke or stirrup, substantially as described.

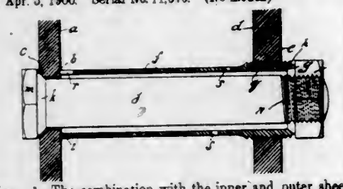
3. The combination with a horizontally-extended draft bridge or frame having transverse beams a^2, of a draft-bar provided with a separable draft yoke or stirrup embracing said bridge-beams a^2 and formed with segmental follower-seats, circular followers within said seats coöperating with said bridge-beams and shoulders of said stirrup, and a spring or springs compressed between said followers, substantially as described.

4. The combination with the integrally-formed draft-bridge a having the transverse beams a^2, of the draft-bar provided with the separable yoke

or stirrup b having the bearing-surfaces b^4, shoulders b^5 and spring-seats b^6, the followers f within said seats b^6, and the springs g pressing said followers against said shoulders b^5, substantially as described.

5. The combination with the horizontally-extended and integrally-formed skeleton draft bridge or frame a having the transverse beams a^3 and vertically-extended lugs a^2, of bolts passed through said beams a^3 and lugs a^2, for the purpose set forth, the draft-bar 2 having a separable yoke embracing said bridge-beams a^3 and supported thereby, and springs and followers seated in said draft-yoke and coöperating with said bridge-beams a^2, substantially as described.

663,464. BOILER-STAY. SAMUEL P. PRINCE, Jr., Reading, Pa. Filed Apr. 5, 1900. Serial No. 11,876. (No model.)

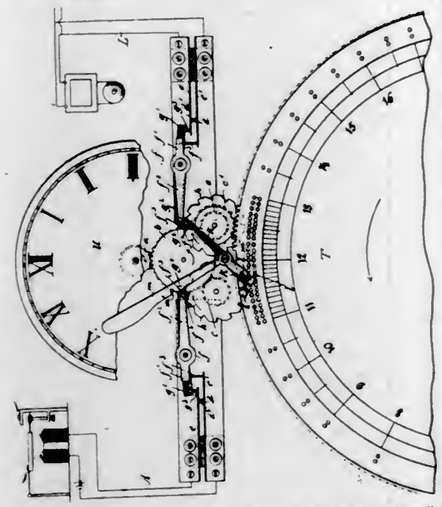


Claim.—1. The combination with the inner and outer sheets of a steam-boiler, of a sleeve between said sheets, a stay-bolt having a body passing loosely through said sleeve and the sheets and a head with a ball-joint seat directly in one of the latter, and a nut on said bolt having a ball-joint seat substantially as and for the purpose set forth.

2. The combination with the inner and outer sheets of a steam-boiler, of a sleeve between said sheets having one end in engagement with one of said sheets and its opposite end in contact with the opposite sheet, a stay-bolt passing through said sleeve and the sheets, and a nut, substantially as and for the purpose set forth.

3. The combination with the inner and outer sheets of a steam-boiler, of a sleeve between said sheets having one end in engagement with one of said sheets and its opposite end in contact with the opposite sheet, a stay-bolt passing through said sleeve and the sheets, and a nut; said nut and the head of the bolt having ball-joint seats on the screw end of said sleeve and in the opening through the opposite sheet respectively, substantially as and for the purpose set forth.

663,465. PROGRAM-CLOCK. KARL PUTTKAMMER and FRIEDRICH ORTHMANN, Charlottenburg, Germany. Filed Jan. 9, 1900. Serial No. 817. (No model.)



Claim.—1. In an electric clock the combination of a rotating division-disk or time-disk, pins adapted to be inserted into the holes in the disk corresponding to the times at which one or more electric circuits are to be closed, there being as many rows of holes for pins on the division-disk as there are electric circuits, a plurality of toothed wheels continually rotated with the division-disk, levers mounted to fall into the teeth of the wheels, and a plurality of levers interfering with the first said levers and actuated by the said pins to release the latter and close the respective electric circuits at the predetermined times, substantially as set forth.

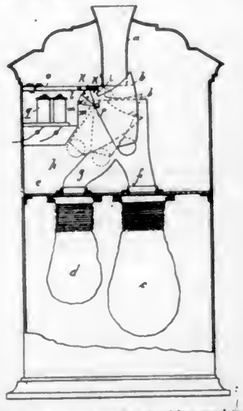
2. The combination in an automatic signal or time-keeping apparatus and with a time mechanism or clock, one or more toothed wheels coactuated therewith, an electrical circuit including a pair of circuit making and breaking contacts, a pair of controlling-levers for moving the said respective contacts, actuated by the teeth and spaces of said wheel or wheels and one tending to open the circuit when not engaging a tooth, the other tending to close the circuit when not engaging a tooth, substantially as set forth.

3. The combination in an automatic signal or time-keeping apparatus and with a time mechanism or clock, one or more toothed wheels coactuated therewith, an electrical circuit including a pair of circuit making and breaking contacts, a pair of controlling-levers for moving the said respective contacts governed by the teeth and spaces of said wheel or wheels and one tending to open the circuit when not engaging a tooth, the other tending to close the circuit when not engaging a tooth, the said levers being respectively engaged by the teeth at differently-timed intervals, substantially as set forth.

4. The combination in an automatic signal or time-keeping apparatus and with a time mechanism or clock, one or more toothed wheels coactuated therewith, an electrical circuit including a pair of circuit breaking and making contacts, a pair of controlling-levers for moving the said respective contacts governed by the teeth and spaces of said wheel or wheels and one tending to open the circuit when not engaging a tooth, the other tending to close the circuit when not engaging a tooth, and means controlled by the said time mechanism or clock for interfering with one of the said levers until actuated by the said time mechanism or clock, substantially as set forth.

5. The combination in an automatic signal or time-keeping apparatus and with a time mechanism or clock, one or more toothed wheels coactuated therewith, an electrical circuit including a pair of circuit making and breaking contacts, a pair of controlling-levers for moving the respective contacts governed by the teeth and spaces of said wheel or wheels and one tending to open the circuit when not engaging a tooth, the other tending to close the circuit when not engaging a tooth, a disk carrying one or more movable pins and coactuated with the time mechanism or clock, and a lever normally interfering with one of the said controlling-levers and in position to be engaged and moved by said pin or pins to release said controlling-lever, substantially as set forth.

663,466. WORKMAN'S TIME-CHECK. KARL PUTTKAMMER and FRIEDRICH ORTHMANN, Charlottenburg, Germany. Filed Jan. 9, 1900. Serial No. 818. (No model.)



Claim.—1. In an apparatus for checking workmen's time the combination of a guide-chute b pivotally supported and provided with controlling stops or pins, an electromagnet and armature controlling the guide-chute by means of the said stops or pins, a plurality of bags or receptacles for receiving counters from the said chute, and chutes or channels conducting to the respective bags or receptacles, substantially as set forth.

2. In an apparatus for checking workmen's time, the combination of a movable guide-chute b, bags or receptacles c, d, e for counters, of a segment i, pins k, l, m and supplemental pins k', l', m' for holding the chute b stationary for a short time to deliver to the respective bags, and means for engaging the respective pins and thereby directing the said chute to the respective bags, substantially as set forth.

663,467. PROCESS OF PRODUCING ELECTRIC-ARC LIGHTS. EWALD RASCH, Nuremberg, Germany. Filed May 7, 1900. Serial No. 15,790. (No specimens.)

Claim.—1. The process of producing light, which consists in bringing electrodes into arcing juxtaposition with each other, one (at least) of said electrodes being of a material which is a non-conductor when cold and a conductor when heated, heating the said electrode to render it conductive, producing an arc between the said electrodes and maintaining the said arc by the passage of a current of such intensity as to sustain the point of the second-class-conductor electrode at such a temperature as to be luminous.

2. The process of producing light, which consists in bringing electrodes into arcing juxtaposition, one (at least) of the said electrodes being composed of a length of a good conductor and a mass of electrolyte or second-class conductor non-conducting when cold and conductive when heated, passing current through the good conductor of such intensity as to maintain an arc and melt off the good conductor in the neighborhood of the arc, thereby heating the second-class conductor in the neighborhood of the arc to a conducting temperature, and thereupon maintaining the arc between the said second-class conductor and the other electrode, and maintaining the current at such intensity as to sustain arcing portion of the said second-class conductor at a luminous temperature.

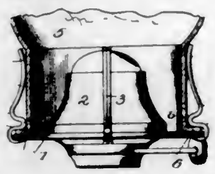
3. The method of producing light, which consists in bringing electrodes into arcing juxtaposition, one (at least) of said electrodes being of a material which is non-conducting when cold and conductive when heated, passing a current through the arcing point of such intensity as to heat the second-class conductor to conducting temperature, and thereafter maintaining through the arc a current of less intensity sufficient to sustain the arc.

4. The method of producing light by the passage of an electric current between electrodes of material non-conducting at ordinary temperatures, but becoming conductive at high temperatures, which consists in heating the electrodes to conductivity before the passage of the arc maintaining current, and, while the electrodes are heated, forming and maintaining an arc between the electrodes by the passage of such a current as will maintain the arc.

5. The method of producing light, which consists in bringing into arcing proximity electrodes which are conductive when heated and non-conductive when cold, heating the electrodes to conducting temperature by external heating means, and establishing and maintaining the arc by the flow of an electric current between the electrodes

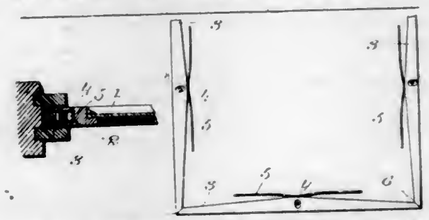
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663,468. LAMP BURNER AND CHIMNEY. JOSEPH H. REYNOLDS, Ridgway, Pa. Filed Jan. 31, 1900. Serial No. 3,511. (No model.)



Claim.—In combination, a lamp-burner, a chimney having outer spaced basal flange portions, and holders secured at their lower ends to the burner and comprising spring portions of hook form to engage over the basal flange portions, crimped parts to bear laterally against the sides of the chimney adjacent to the basal flanged parts, and upwardly and inwardly curved spring-arms adapted to bear against the sides of the chimney at a higher level than the said crimped parts, substantially as described.

663,469. WEATHER-STRIP. ROBERT R. REYNOLDS, New York, N. Y. Filed Mar. 14, 1900. Serial No. 8,628. (No model.)

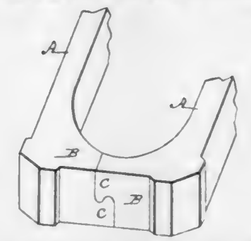


Claim.—1. The combination with a channeled sash, of a weather-strip in the channel, a pin extending through and having play in an opening of the strip and about which the strip has a rocking movement and a spring engaging the strip and limited in its action by the pin, as specified.

2. The combination with a sash having side and bottom channels, of weather-strips seated in the channels, said strips having their adjoining ends beveled and engaging, pins about which the strips have a rocking movement and springs acting upon said strips, as specified.

3. The combination with a channeled sash, of a weather-strip secured in the channel by a pin-and-slot connection and a spring engaging the strip and arranged between the latter and the bottom of the channel, as specified.

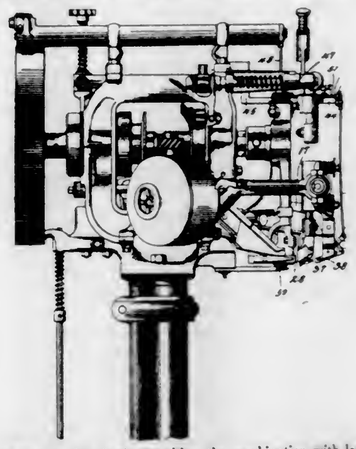
663,470. COPING FOR GRAVES. SAMUEL B. RICKORDS, Seymour, Iowa. Filed Aug. 6, 1900. Serial No. 25,990. (No model.)



Claim.—1. A block formed in a mold and consisting of a straight body portion and right-angled hook-shaped extensions at its ends, for the purposes stated.

2. A bollow block consisting of two mating parts each composed of a straight body portion and right-angled hook-shaped extensions at its ends and said ends placed in overlying and interlocking position in the manner set forth for the purposes stated.

663,471. TACK-SAVING ATTACHMENT FOR LASTING-MACHINES. DAVID RYAN, GEORGE A. ZELLER, and CHARLES P. LAWRENCE, Harrisburg, Pa. Filed May 31, 1900. Serial No. 18,647. (No model.)



Claim.—1. In a lasting-machine, the combination with lasting instrumentalities, of a tack carrier or feeding device, an automatically-movable element coacting with the said carrier or feeding device to open and close the tack-outlet of the latter, and means actuated by the application of a boot or shoe thereto for shifting said element to open position and permit unretarded feed of the tacks without other manual operation, the tack-feed being stopped by the same means upon a withdrawal of the boot or shoe therefrom.

2. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeding device and a driving-bar, of an automatically-movable element coacting with the said carrier or feeding device for stopping and permitting feed of the tacks, and a stop mechanism for the driving-bar connected to and simultaneously operating with the said element to stop or release the said bar.

3. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeding device and a driving-bar, of an

automatically-movable element coacting with said carrier or feeding device for stopping and permitting feed of the tacks, a stop mechanism for the driving-bar, intermediate mechanism between the said element and stop mechanism, and a support for engagement with a shoe having a movable member connected to said intermediate mechanism for controlling the operation of the element and stop mechanism and cause the latter mechanism to lock the bar against descent when the said element shuts off the tack-feed and release said bar when the tacks are free to feed by the respective application and withdrawal of a shoe relatively to said support.

4. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeder and a driving-bar, of an automatically-movable element coacting with said carrier or feeding device to open and close the outlet of the latter controlled in its operation by the application of a boot or shoe to the machine, a stop mechanism for the driving-bar, and means for connecting and simultaneously operating said element and stop mechanism

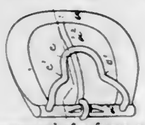
5. A lasting-machine having a tack carrier or feeder, and a movable element to open or close the outlet of the said carrier or feeder and actuated by the application of a shoe or boot to the machine to permit the tacks to be continuously fed as long as the boot or shoe is in applied position without other manipulation, and the said feeding operation caused to instantly cease by a withdrawal of the boot or shoe.

6. A lasting-machine having a driving-bar, means for stopping and releasing said bar automatically, a support having a movable member connected to said means and which is operated by the application of a boot or shoe thereto to release said bar and self-actuated by the withdrawal of the boot or shoe to stop the movement of the bar, and tacking mechanism also connected to said member on the support and simultaneously operated with the driving-bar by the application and withdrawal of the boot or shoe to respectively produce a continuous tack-feed and cause a cessation of the latter.

7. A lasting-machine having a tack-carrier and an automatically-operating slidable finger or projection to open and close the outlet thereof, combined with a support having a movable member connected to said finger or projection and operated by the application of a boot or shoe thereto to release said slide finger or projection to permit feed of the tacks and having a self-actuation to set the finger or projection in closing position relatively to the carrier-outlet, and driving mechanism.

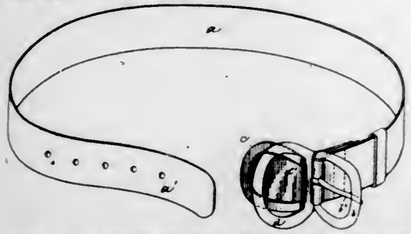
8. A lasting-machine having a driving-bar with a projection thereon, and a tack carrier or feeder, of a swinging stop mechanism to engage the said projection of the driving-bar, a slidable element automatically operating to open and close the outlet of said carrier or feeder, and adjustable and yielding connecting mechanism between the said element and stop mechanism, the stop and release operations of the said element and stop mechanism being respectively controlled by the withdrawal from and application to the machine of a boot or shoe to be lasted through the said connecting mechanism.

663,472. BELT-BUCKLE. RALPH SCHEUER, New York, N. Y. Filed Aug. 25, 1900. Serial No. 28,026. (No model.)



Claim.—A buckle composed of a frame, a tongue, and of a slotted keeper which is secured to the tongue-bar of the frame, and extends first rearwardly therefrom and then parallel to the frame, substantially as specified.

663,473. APPAREL-BELT. RALPH SCHEUER, New York, N. Y. Filed Aug. 28, 1900. Serial No. 28,284. (No model.)



Claim.—1. A belt provided with a buckle and with a flap projecting from one end thereof, and divided into an outer shield that surrounds the buckle-frame, and an inner shield that is inclosed by the buckle-frame, substantially as specified.

2. A belt provided with a buckle and with a flap projecting from one end thereof and divided into an outer shield, an inner shield, and a central tab that is adapted to engage the trousers-fastening, substantially as specified.

663,474. FRUIT-EVAPORATOR. JULIUS SCHMIDT, Ludlow, Ky. Filed Sept. 29, 1900. Serial No. 31,480. (No model.)



Claim.—1. In an apparatus for the purpose described, the combination of a substantially box-shaped horizontally-disposed compartment 11 of extended length and adapted to receive upon its flat top the matter to be treated and within its interior water which covers the bottom thereof, a horizontally-disposed heating-flue between the two with a space between it and the under side of the top but contiguous to the bottom and lengthwise coextensive therewith, means to supply heat to the front end of this heating-flue and an outlet for the products of combustion at the rear end.

2. In an apparatus for the purpose described, the combination of a compartment 11, having a flat top adapted to receive the matter to be treated, a heating-flue passing horizontally through this compartment, means to furnish heat for it, cold-air inlets to compartment 11 at one end of it and outlets 19 for the heat at the end opposite to the end first mentioned.

3. In an apparatus for the purpose described, the combination of a compartment consisting of a top 10 and two sections connected thereto and forming each a side and part of the bottom of said compartment, each section bent upwardly from said bottom and again inwardly so as to form also each one of the sides 27 and part of top 28, of an interior heating-flue 16, a bottom to close the under side of this heating-flue and means to supply heat thereto.

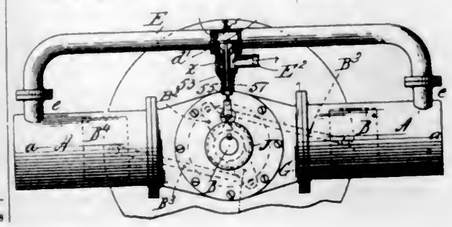
4. In an apparatus for the purpose described, the combination of a compartment 11 having a top 10, an interior heating-flue 16 below this latter and disposed lengthwise through compartment 11, a removable bottom 33 for this flue and flanges 32 projecting laterally from the bottom of compartment 11 upon which said bottom 33 rests.

5. In an apparatus for the purpose described and consisting of a compartment adapted to receive upon its flat top the matter to be treated, an interior heating-flue formed by inwardly-projecting parts of the bottom of said compartment, a bottom 33 to close the larger part of this heating-flue from below, a plate having a nipple 35 to close the balance of the heating-flue from below flanges 32 upon which both rest, and a furnace connected to nipple 35.

6. In an apparatus for the purpose described and consisting of a substantially box-shaped horizontally-disposed compartment of extended length adapted to receive upon its flat top the matter to be treated and water within its interior, a horizontal heating-flue disposed lengthwise through the center of this compartment above the bottom thereof and contiguous thereto but with a space between it and the top, means to supply heat to this flue and an equalizing-pipe connecting the parts of this compartment at each side of the central heating-flue.

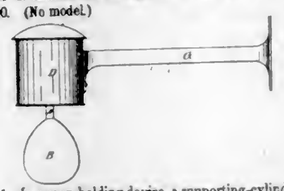
7. In an apparatus for the purpose described and consisting of a compartment adapted to receive upon its flat top the matter to be treated and water within its interior, a horizontal heating-flue disposed lengthwise through the center of this compartment above the bottom thereof, and with a space between its top and the under side of the top of the compartment and means between these two to support and hold said top and maintain the distance between it and the top of the heating-flue.

663,475. GAS-ENGINE. HINSDALE SMITH, Springfield, Mass. Filed May 17, 1899. Serial No. 717,125. (No model.)



Claim.—In a gas-engine, in combination, the two cylinders, oppositely arranged, and having their outer ends closed, and having pistons therein, the common crank-shaft located between the cylinders with which both pistons are connected, the common cylinder-extension conduit C, connected with the outer ends of both cylinders, and provided with a single valved admission-inlet, and a separate and independent conduit E, also connected to the outer ends of both cylinders, provided in an intermediate part thereof with a single exhaust-port, an exhaust-valve, and an exhaust-valve-operating mechanism, substantially as and for the purpose set forth.

663,476. SOAP-HOLDING APPARATUS. FREDERICK W. SPINK and HENRY G. ESTABROOK, Chicago, Ill. Filed Nov. 27, 1899. Serial No. 738,390. (No model.)



Claim.—1. In a soap-holding device, a supporting-cylinder provided with a slit and upwardly-tapering bottom in combination with a spindle adapted to be passed through a cake of soap and provided with a pointed bulb at its upper end in order that the said bulb may be forced up through the said slit and tapering bottom and held thereby, the said cylinder being provided with an opening through which the said spindle may be withdrawn point foremost after the soap has been used, substantially as set forth.

2. In a soap-holding device, a cylinder provided with a slit and upwardly-tapering bottom, an opening at its upper end and a removable cap closing the said opening in combination with a spindle provided at its upper end with a pointed bulb and having at a lower point a soap-supporting shoulder provided with an upwardly-inclined surface in order that the said bulb and shoulder may be successively drawn through the said slit and upwardly-tapering bottom, the said bulb being held within the cylinder by the said bottom against downward withdrawal during use, substantially as set forth.

3. A cylinder provided with a supporting-bracket, a slit and upwardly-tapering bottom, a removable cap and a downwardly-flaring conical cup attached to the latter in combination with a soap-supporting spindle having a shoulder at its lower end and a bulb at its upper end each of these two latter features having a tapering upper face in order that the said bulb may fit into the said cup after passing up through the said slit bottom and that after the removal of the cap the said shoulder may be drawn up through the said bottom, substantially as set forth.

663,477. MUSICAL-NOTE BUILDING-BLOCKS. JEAN C. STOCKS, Toronto, Canada. Filed Aug. 29, 1900. Serial No. 28,436. (No model.)

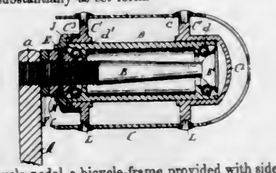


Claim.—1. In combination, a series of blocks adapted to be placed together to form a unit, a number of said blocks having a part of a character indicated on one of their faces which will present, when the blocks are assembled to form a whole or a unit, a unit character, said blocks also having indited on their faces characters and parts of characters which will denote divisions of said unit character when the blocks are separated or assembled in groups corresponding to the divisions the blocks or groups of blocks bear to the whole unit, substantially as described.

2. In combination, a series of blocks comprising eight members adapted to form a cube when placed together, four of said blocks having on one of their faces one-quarter of a full note indited, whereby when placed together a full note will be presented to view, each of said blocks having one-fourth of a half-note on one of its faces whereby when said blocks are grouped in two parts and placed together two half-notes will be presented to view, each of said blocks having on one of its faces one-half of a quarter-note whereby when placed in pairs four quarter-notes may be presented and each of said blocks having a whole eighth-note indited on one of its faces whereby when separated eight quarter-notes may be presented, substantially as described.

663,478. BICYCLE-PEDAL. GEORGE R. VAN SCHOICK and CHARLES E. SAMSON, Ypsilanti, Mich. Filed Dec. 3, 1898. Serial No. 698,149. (No model.)

Claim.—1. In a bicycle-pedal, the combination of a crank-arm, a pedal-frame provided with connecting-braces, a barrel removably engaged in said braces, a pedal-pin within said barrel, an adjustable cone upon the inner end of the pedal-pin, a wrench-nut upon said pin adjacent to the crank-arm, a jam-nut normally engaged upon said pin between the wrench-nut and the adjustable cone, and a cap-nut at the inner end of the barrel having a threaded engagement with one of said braces over the adjacent cone, the jam-nut made removable from its normal position and engageable upon the pedal-pin outside the crank-arm at the will of the operator, the wrench-nut being accessible outside the cap-nut, and said pin and barrel being simultaneously removable from said frame upon the removal of the cap-nut, substantially as set forth.



2. In a bicycle-pedal, a bicycle-frame provided with side plates each formed with integral multiple edges upon opposite sides thereof, one of said edges at each side of the plate struck up from the body of the plate intermediate the edges of the body, substantially as set forth.

663,479. CLEANING AND POLISHING COMPOSITION. ARTHUR M. WAITT, Cleveland, Ohio. Filed Mar. 23, 1899. Serial No. 710,268. (No specimens.)

Claim.—1. A permanent emulsion consisting of refined petroleum having a specific gravity of 32° or about 32° Baumé, and diluted acid that is not injurious to varnish, and having the said ingredients mixed in the proportions of about one part of the petroleum to two parts of the diluted acid.

2. A permanent emulsion containing refined petroleum having a specific gravity of 32° or about 32° Baumé, and diluted hydrochloric acid, in the proportion of about one part of the petroleum to two parts of the acid.

663,480. CLOSURE FOR JARS, BOTTLES, &c. ALFRED L. WEISSENTHANNER, New York, N. Y. Filed Feb. 28, 1900. Serial No. 6,874. (No model.)



Claim.—1. In a closure for receptacles, a cover or cap for closing the receptacle, a tongue on said cover, and a securing-band the opposite ends of which engage said tongue when the parts are in position for closing a receptacle.

2. In a closure for receptacles, a cover or cap for closing the receptacle, a tongue on said cover, and a securing-band having projections on its opposite ends engaging the tongue when the parts are in position for closing a receptacle.

3. In a closure for receptacles, a cover or cap for closing the receptacle, a tongue on said cover, and a securing-band having projections or hooks at its opposite ends, each engaging an opening or recess in the tongue when the parts are in position for closing a receptacle.

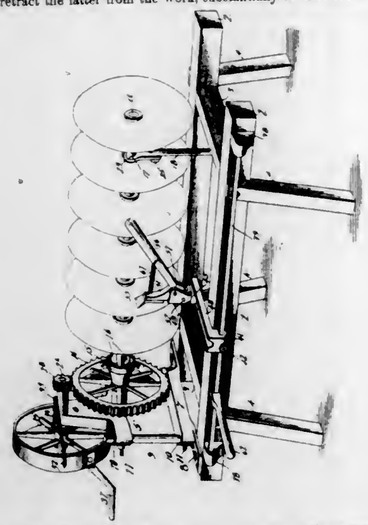
4. In a closure for receptacles, a cover or cap for closing the receptacle, a tongue on said cover, and a securing-band having projections at its opposite ends hooked in opposite directions through a single opening in the tongue when the parts are in position for closing a receptacle

5. In a closure for receptacles, a cover or cap having a depending flange around its outer edge, a tongue depending from said flange, a securing-band engaging about the flange on the cover, and projections on the opposite ends of the securing-band engaging each end of the securing-band hooked outwardly through an opening in the overlying part of the tongue.

663,481. HARROW-DISK SHARPENER. JAMES H. ALLEN and CHARLES H. ALLEN, Seneca, Ill. Filed May 12, 1900. Serial No. 16,508. (No model.)

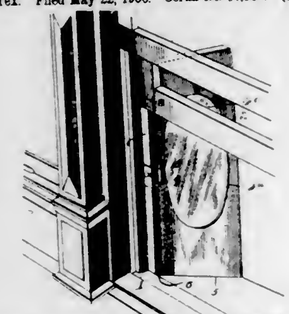
Claim.—1. In a harrow-disk sharpener, the combination with a bed-frame and means to support and rotate the work, of a longitudinally-disposed rod in bearings on one side of the bed-frame, said rod having a hand-lever whereby it may be partly rotated in its bearings, a supporting-arm attached to and adjustable longitudinally on said rod, whereby said supporting-arm may be turned inward, toward the work, to bear on one

side of the bed-frame, or turned outward therefrom, said arm having a longitudinal groove and a longitudinal slot communicating therewith, a block fitted in said groove and adjustable longitudinally on said arm, a knife-holder, a bolt pivoting the same on said block, said bolt working in said slot of said supporting-arm, a knife-rest pivoted to said knife-holder, a hand-lever, also pivoted to said knife-holder and having a cam engaging the rear side of said knife-rest, means to attach a sharpening-knife to said knife-rest, and a spring connecting said hand-lever and said knife-rest, and tending to disengage the cam of said lever from said knife-rest and to retract the latter from the work, substantially as described.



2. In a barrow-disk sharpener, the combination with means for supporting and rotating a harrow shaft and disks, of an adjustable supporting-arm, an adjustable block on said arm, movable thereon toward and from the work, a knife-holder pivoted on said adjustable block, a knife-rest pivotally mounted on said holder, a lever, also pivotally mounted on said holder and having a cam engaging said knife-rest, and a spring connecting said knife-rest and said lever, said spring tending to disengage the cam of said lever from said knife-rest and to retract the latter from the work, substantially as described.

663,482. **DUST AND CINDER FENDER.** CHESTER L. BELL, El Paso, Tex. Filed May 22, 1900. Serial No. 17,587. (No model.)



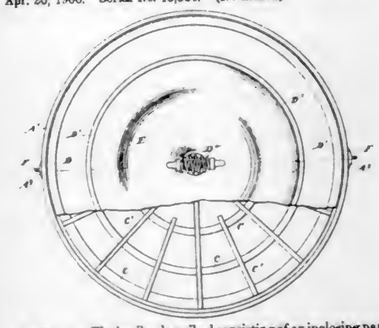
Claim.—1. A car-window fender having a body made up of a series of plies of thin material having the grain in alternation at a different angle, the outer plies having regularly-defined openings with the surrounding wall of each alined with that of the other and the inner ply formed with a larger opening which continues through the outer edge, a transparent panel removably fitted in the inner ply, and a closing strip removably fitted in the outer open edge portion of the inner ply and normally arranged flush with the adjacent edges of the outer plies, whereby the panel may be removed when broken and replaced by another.

2. A car-window fender having a body with an inner vertical rail which is thicker than the said body and has its opposite side edges extended beyond the planes of the opposite faces of the body to provide means for entering the grooves between the stops at opposite sides of a car-window frame, and a double catch at an intermediate point in the rail and comprising two distinct members spaced apart from each other and each provided with upper and lower reversely-directed engaging ends to contact with the inner opposing sides of the window-frame stops and normally projected beyond the plane of the inner and outer sides of the rail to operate with opposite sides of a car-window frame, both sets of stops being actuated by the same means.

3. A car-window fender having a body with an inner vertical rail rigidly secured thereto, the opposite side edges of the rail projecting beyond the plane of the opposite sides of the body to apply the same to either side of a car-window frame, a casing located at an intermediate point in the rail and having a horizontally-disposed transversely-extending rock-shaft mounted therein, dogs fixed to opposite extremities of the said shaft and each having upper and lower reversely-directed ends movably projecting through the front and rear portions of the casing on opposite sides of the rail, a spring for holding the engaging ends of the dogs normally projected through the casing, and a stem connected to the shaft and provided with an exterior head and also giving bearing to a portion of the said spring.

4. A car-window fender having a body provided with an inner rigid rail, and a pair of fastening devices at an intermediate point in said rail having upper and lower reversely-directed engaging ends and actuated by a common supporting device and operating to individually engage the stops at the opposite sides of a car-window frame.

663,483. **BROILER.** LEWIS F. BETTS, New York, N. Y. Filed Apr. 20, 1900. Serial No. 13,581. (No model.)



Claim.—1. The broiler described consisting of an inclosing pan having an open bottom, and a grate above such opening serving to support the material to be broiled, in combination with a follower adapted to absorb and deliver heat and lie upon the material, all substantially as herein specified.

2. In a broiler, an inclosing pan having an open bottom, a grate therein, and a follower matching the interior of said pan and adapted to perform the double function of absorbing heat and delivering it to the material to be broiled and also preventing the escape of odors and smoke from the cooking operation, all combined and arranged to serve substantially as herein specified.

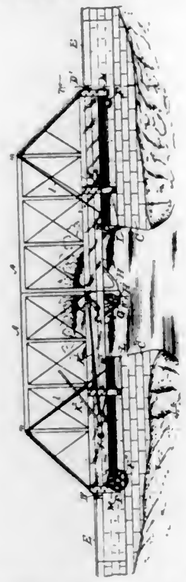
3. In a broiler, an inclosing pan having an open bottom, a grate therein, and a follower adapted to absorb heat and deliver it to the material to be cooked, in combination with each other and with means for insulating the upper face of said follower to prevent the escape of heat by radiation from such face, all substantially as herein specified.

4. The broiler described consisting of the pan or body A, the bottom B therein having the opening *b*, the removable grate C supported on said bottom, and the follower D adapted to lie upon said grate or on the material supported thereby, all combined and arranged to serve substantially as and for the purposes herein set forth.

5. The pan or body A, the bottom B therein having the opening *b*, the removable grate C supported on said bottom, and the follower D adapted to lie upon said grate or upon the material supported thereby, in combination with each other and with the plate E forming an insulating air-space on the upper face of said follower and also providing a finish for the latter, all substantially as herein specified.

663,484. **DRAWBRIDGE.** THOMAS R. BEVANS, Kalamazoo, Mich. Filed Feb. 23, 1900. Serial No. 6,319. (No model.)

Claim.—1. In a drawbridge the combination of the abutments C', C' to each side; beams C supported on said abutments; oppositely-facing sections A, A of the drawbridge, having beams B under the same adapted to fit over the beams C on the abutments; rollers *r* on which the beams B ride and move; arms L extending down from the bridge-sections carrying friction-rollers L' which engage underneath the beams C; a hinged section D to the outer end of each bridge-section; connections for folding same to vertical position when the draw is opened suitable dowels between the meeting ends of the bridge; a locking means consisting of brackets G and H, supported beneath the sections of the bridge, the bracket H being provided with tongue H' fitting into mortise S in bracket G; pins *n* for coupling the parts together; the lever K'' suitably connected for actuating the locking-pins *n;* an endless cable *b;* windlass under each section of the bridge around which said cable wraps; a tubular casing extending beneath the stream; suitable guide-pulleys therein for cable which is crossed at this point; connections to the cable at each side to actuate the sections of the bridge by a pulling action; suitable buffers under the sections of the bridge, all coacting for the purpose specified.



2. In a drawbridge the combination, of the abutments C', C' to each side; beams C supported on said abutments; oppositely-facing sections A, A of the drawbridge, having beams B under the same adapted to fit over the beams C on the abutments; rollers *r* on which the beams B ride and move; arms L extending down from the bridge-sections carrying friction-rollers C' which engage underneath the beams C; a hinged section D to the outer end of each bridge-section; connections for folding same to vertical position when the draw is opened; suitable dowels between the meeting ends of the bridge; a locking means consisting of brackets G and H, supported beneath the sections of the bridge, the bracket H being provided with tongue H' fitting into mortise S in bracket G; pins *n* for coupling the parts together; the lever K'' suitably connected for actuating the locking-pins *n;* and endless cable *b;* windlass under each section of the bridge around which said cable wraps; a tubular casing extending beneath the stream; suitable guide-pulleys therein for cable which is crossed at this point; connections to the cable at each side to actuate the sections of the bridge by a pulling action, all coacting for the purpose specified.

3. In a drawbridge the combination, of the abutments C', C' to each side; beams C supported on said abutments; oppositely-facing sections A, A of the drawbridge, having beams B under the same adapted to fit over the beams C on the abutments; a hinged section D to the outer end of each bridge-section; connections for folding same to vertical position when the draw is opened; suitable dowels between the meeting ends of the bridge; a locking means consisting of brackets G and H supported beneath the sections of the bridge, the bracket H being provided with tongue H', fitting into mortise S in bracket G; pins *n* for coupling the parts together; the lever K'' suitably connected for actuating the locking-pins *n;* an endless cable *b;* windlass under each section of the bridge around which said cable wraps; a tubular casing extending beneath the stream; suitable guide-pulleys therein for cable which is crossed at this point; connections to the cable at each side to actuate the sections of the bridge by a pulling action, all coacting for the purpose specified.

4. In a drawbridge the combination, of the abutments C', C' to each side; beams C supported on said abutments; oppositely-facing sections A, A of the drawbridge, having beams B under the same adapted to fit over the beams C on the abutments; a hinged section D to the outer end of each bridge-section; connections for folding same to vertical position when the draw is opened; a locking means consisting of brackets G and H supported beneath the sections of the bridge, the bracket H being provided with tongue H', fitting into mortise S in bracket G; pins *n* for coupling the parts together; the lever K'' suitably connected for actuating the locking-pins *n;* an endless cable *b;* windlass under each section of the bridge around which said cable wraps, a tubular casing extending beneath the stream; suitable guide-pulleys therein for cable which is crossed at this point; connections to the cable at each side to actuate the sections of the bridge by a pulling action, all coacting for the purpose specified.

5. In a drawbridge the combination, of the abutments C', C' to each side; beams C supported on said abutments; oppositely-facing sections A, A of the drawbridge, having beams B under the same adapted to fit over the beams C on the abutments; a hinged section D to the outer end of each bridge-section; connections for folding same to vertical position when the draw is opened; an endless cable *b;* windlass under each section of the bridge around which said cable wraps; a tubular casing extending beneath the stream; suitable guide-pulleys therein for cable which is crossed at this point; connections to the cable at each side to actuate the sections of the bridge by a pulling action, all coacting for the purpose specified.

6. In a drawbridge the combination of suitable abutments or supports; oppositely-facing draw-sections placed on the abutments to be thrown across the space; dowels on said oppositely-facing sections to retain the same in line; brackets projecting beneath, having a mortise and tenon to engage each other; and a pin to extend through the mortise-and-tenon joint to lock the parts in position.

7. In a drawbridge the combination of oppositely-facing sections; a mortise and tenon between the sections; a pin to lock the mortise and tenon together; a rock-shaft; an arm thereon connected by suitable links to said pin; and a lever on the side of the bridge and connected by suitable rod to the rock-shaft for withdrawing the pin to relase the sections of the bridge as specified.

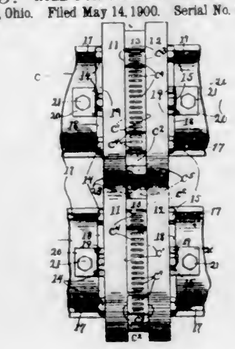
8. In a drawbridge the combination of oppositely-facing sections; means for moving the same into position; gate-sections hinged to the outer ends of said draw, said sections being adapted to fold up and form a gate for the end of the bridge and permit the sections to be withdrawn in a straight line for the purpose specified.

9. In a drawbridge an abutment, the section adapted to reciprocate upon ths same; a gate-section pivoted to swing upwardly to form a gate when the draw is open and permit the section to be withdrawn in a straight line as specified.

10. In a drawbridge the combination of a section A supported on a suitable abutment and adapted to move back and forth; a hinged gate-section, pivoted to the end of the same and adapted to fold upwardly to form a gate and open a space for the accommodation of the bridge; a cable connected to said bridge-section, passing around a guide on the abutment and over a guide on the drawbridge and connected to the folding section to fold it upwardly when the drawbridge is opened, for the purpose specified.

11. In a drawbridge the combination of an abutment; a guide-beam resting on said abutment; bridge-section having a beam resting on the guide-beam on the abutment; loop M to the outer end of said bridge-beam adapted to engage the end of the guide-beam when the draw is closed, to serve as an additional support for the bridge-section as specified.

663,485. **ROLL FOR ROLLING BILLETS.** WILLIAM S. BIDLE, Cleveland, Ohio. Filed May 14, 1900. Serial No. 16,648. (No model.)



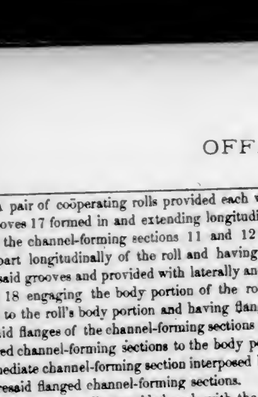
Claim.—1. A pair of coöperating rolls provided each with a body portion having grooves 17 formed in and extending longitudinally of the said body portion, the channel-forming sections 11 and 12 arranged a suitable distance apart longitudinally of the roll and having tongues 16 engaging the aforesaid grooves and provided with laterally and outwardly projecting flanges 18 engaging the body portion of the roll, plates 20 removably secured to the roll's body portion and having flanges 19 overlapping the aforesaid flanges of the channel-forming sections and holding the aforesaid flanged channel-forming sections to the body portion of the roll, and the intermediate channel-forming section interposed between and secured to the aforesaid flanged channel-forming sections.

2. A pair of coöperating rolls provided each with the grooves 17, the channel-forming sections 11 and 12 provided each with a flange 18, the channel-forming section 13, the bolts and nuts 14 and 15, the plates 20 provided each with a flange 19, and the bolts or screws 21, all arranged and operating substantially as shown, for the purpose specified.

3. The combination with a pair of coöperating rolls provided with registering peripheral channels extending circumferentially of the rolls with the end portions of each channel deeper than the central portion of the channel, of an abutment-forming member 24 at the receiving or forward end of each channel, and a plate or block 22 within each channel next to the aforesaid abutment and removably secured in place, substantially as and for the purpose set forth.

4. A roll instrumental in rolling a billet into a blank having the following: a circumferentially-extending peripheral channel c whose central portion is shallower than its end portions and having its centrally and outwardly facing wall formed upon a section removably secured to and between the sections forming the side walls of the channel, the abutment-forming plate 25 secured to the forward end of the aforesaid side-wall-forming sections, the plate or block 22 within the channel next to the said abutment-forming plate and removably secured in place, substantially as and for the purpose set forth.

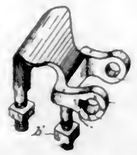
663,486. **COMBINED FOLDING CHAIR AND COUCH.** ALFRED BOREN, St. Paul, Minn. Filed Aug. 7, 1899. Serial No. 726,484. (No model.)



Claim.—1. In a combined "chair, and couch," the central section consisting of side members A^5 A^6, a back-section consisting of side members A' A^3 pivotally united by their lower ends to the rear ends of said central side members, and having a roller A^4 rigidly secured in the upper ends of the said back-section side members, a head-supporting section consisting of side members G' G^2 journaled loosely upon said roller, and toothed disks attached to said roller, pawls m^2 upon the said head-section side members and engaging said toothed disk, a stretcher-bar A^3 uniting the back-section side members below the line of said roller, rear seat-supporting section consisting of slotted side members A^{10} A^{11} pivotally united by their upper ends to said back-section and said seat-section at their points of juncture, and adapted to be supported from said seat-section by removable braces, a cross-bar B' slidable by its ends in the slots in said rear seat-supporting members, front seat-supporting section consisting of side members A^7 A^8 pivoted by their upper ends in the forward ends of said seat-section side members and united by a cross-roller A^9 at their lower ends, and a canvas cover H' united by its ends to the said rollers A^4 A^9, and connected intermediate of its ends to said cross-bar B', whereby when said apparatus is extended into a couch the canvas covering will be stretched over said stretcher-bar, by the revolving motion imparted to said roller A^4 when said head-supporting section is extended, substantially as set forth.

2. In a combined "chair, and couch," the central portion consisting of side members A^5 A^6, and forming the seat-section, rear seat-supporting sections consisting of side members A^{10} A^{11} and pivotally united by their upper ends to the rear ends of said seat-section members, clamp-plates b^2 attached to and extending beyond the forward ends of said seat-section members, forward seat-supporting section consisting of side members A^7 A^8 pivoted by their upper inner ends between the said extended ends of said clamp-plates, and connected at their lower outer ends by cross roller or bar A^9, and foot-supporting section consisting of side members F' F^2 pivotally connected by their upper ends to said roller-bar A^9 and united at their other ends by cross-bar F^4, said clamp-plates having inwardly-extending clips b^3 adapted to support the lower or free ends of said foot-section when folded back as a chair-support, substantially as set forth.

663,487. **THILL-COUPLING.** JAMES W. BROOKS, Indianapolis, Ind., assignor of one-half to Justin Benton, same place. Filed Jan. 30, 1900. Serial No. 3,303. (No model.)



Claim.—1. In a thill-coupling, the combination with an axle-clip having clip-ears, a thill-iron boss, and a coupling-pin, of the base-plate, the spring extending from the base-plate upwardly toward the bases of the clip-ears and then extending downwardly and forwardly below said boss, and the spring extending laterally and then upwardly from said first-described spring, said two springs being integral.

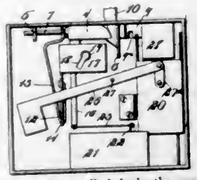
2. In a thill-coupling, the combination with the axle-clip having the bolt ends and the clip-ears, the thill-iron boss, and the coupling-pin adapted to have interlocking engagement with said ears and said boss, of the base-plate, the spring extending upwardly from the base-plate toward the bases of said ears and then extending forwardly, and the spring extending laterally and then upwardly from said first-described spring and having the return-bearing end pressing against the end of said pin, said base-plate being supported by said bolt ends, substantially as set forth.

3. In a thill-coupling, the combination with the axle, clip-ears, the thill-iron boss, and the coupling-pin, of the base-plate secured at the bottom of the axle and having the spring extending from the end thereof at the forward side of the axle and upwardly and then forwardly and then laterally and upwardly and terminating in a return-bearing pressing against the coupling-pin end, substantially as set forth.

4. In a thill-coupling, the combination of the axle, the clip, the clip-ears having the keyway, the boss having the keyway, the pin having the head at one end, the pin-retainer on said pin, the base-plate, the spring extending from the base-plate upwardly toward the bases of the clip-ears and then extending forwardly and having the branching spring extending therefrom laterally and upwardly and having the return end bearing against the end of said pin opposite the head thereof, said springs and base-plate being integral, substantially as shown and described.

5. The herein-described device for thill-couplings, consisting of the base-plate, the spring extending from an end of the base-plate upwardly and backwardly toward the base-plate and then forwardly or oppositely, and having the lateral branching spring extending therefrom horizontally and then upwardly and having the return-bearing end at the top thereof, as shown.

663,488. **COIN-CONTROLLED LOCK.** THERON R. CHERRY, Baltimore, Md., assignor to Mary A. Cherry, same place. Filed Feb. 21, 1900. Serial No. 6,089. (No model.)



Claim.—1. In a coin-controlled lock, the combination with a case of a spring-pressed sliding bolt, having a slotted extension on one end thereof, a pivoted lever weighted at one end, a coin-pan at the other end of said lever and carrying a lug for engagement with the slot, whereby the bolt is held against sliding only upon inserting a coin in the pan.

2. In a lock, a sliding bolt normally held against movement, a pivoted lever weighted on one end and carrying means at its other end to engage the bolt, said means comprising a rectangular coin-pan provided with a slot in the side and adapted to be thrown out of engagement with the bolt by the weight of a coin, so that said bolt may slide.

3. In a lock, a spring-pressed sliding bolt, a slotted extension thereon, a pivoted lever, a slotted and rectangular coin-pan normally engaging said slotted extension to retain the bolt against sliding, and means for sliding the bolt when a coin is inserted in the pan.

4. In a lock, a bolt normally held against engaging its strike, a key secured in said lock when the bolt is in its normal position, a lever depending from the bolt and having a bridge-plate to engage the key, and coin-controlled means for releasing the lever and key.

5. In a lock, a slidable bolt normally held in a locked position, and against movement, a key in said lock to be withdrawn only when the bolt slides, a keeper adapted to enter the lock-case only upon the insertion of a coin, and coin-controlled means for releasing the key.

663,489. **ELECTRICAL CONNECTION.** WILLIAM B. CLEVELAND, Cleveland, Ohio. Filed Feb. 7, 1900. Serial No. 4,356. (No model.)



Claim.—1. In an electrical connection, two conductors, the one incorporated in the other in varying degrees of intimacy, and forming at one portion a homogeneous structure with the other, substantially as set forth.

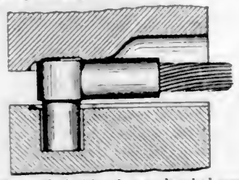
2. In an electrical connection, two conductors, the one homogeneously united with the other at one portion and normally surrounding it at another, substantially as set forth.

3. In an electrical connection, two conductors, the one homogeneously incorporated in the other, such incorporating conductor provided with two portions, the one surrounding the incorporated conductor normally and the other intimately united therewith, substantially as set forth.

4. In an electrical connection, two conductors, the one homogeneously incorporated in the other, such incorporating conductor compressed upon the end of the incorporated conductor and normally surrounding same at its point of entrance, substantially as set forth.

5. In an electrical connection, the combination with a plurality of conductors, of a bond incorporating same, said bond normally surrounding said conductors at their point of entrance and homogeneously united therewith at its inner portion, substantially as set forth.

663,490. **METHOD OF FORMING ELECTRICAL CONNECTIONS.** WILLIAM B. CLEVELAND, Cleveland, Ohio. Filed July 12, 1900. Serial No. 23,400. (No specimens.)



Claim.—1. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and uniting the two in varying degrees of intimacy by pressure, such pressure being in substantially regular variation and sufficient to cause a portion only of the inclosing conductor to form a homogeneous structure with the inclosed conductor.

2. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and uniting the same by the application of varying pressure so as to cause a part only of the union to form a coherent homogeneous structure.

3. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and applying a pressure to a given area, said pressure varying from a maximum at one extremity of such area to a minimum at the other extremity thereof, such maximum pressure being sufficient to cause only a part of that portion of the conductor which is inclosed to form a coherent homogeneous structure with the inclosing conductor.

4. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and compressing a given volume through regularly-varying distances and so as to cause only a part of the inclosed portion of the inclosed conductor to form a coherent homogeneous structure.

5. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and compressing a given volume of said inclosed portion through distances varying from a maximum at one extremity to a minimum at the other and so as to cause only a part of the inclosed portion of the inner conductor to form a coherent homogeneous structure with the outer conductor.

6. The method of forming an electrical connection between two conductors which consists in surrounding one with the other and uniting said inclosed portion of said two conductors by the application of a pressure varying from zero or a low pressure to a comparatively high pressure, whereby only a part of said inclosed portion of the inclosed conductor is caused to form a coherent homogeneous structure with the outer conductor.

7. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other and compressing said conductors through distances varying from substantially zero to a finite quantity sufficiently large to cause that part of the inclosed portion of the inner conductor to which it is applied to form a coherent homogeneous structure with the outer conductor.

8. The method of forming an electrical connection between two conductors which consists in surrounding the one with the other to form a normal cross-section and applying pressure so as to form the inner or inclosed portion of the connection of progressively decreasing cross-section, the two conductors forming a coherent homogeneous structure at the plane of cross-section of least area of the inner conductor and free from homogeneity at the plane of the cross-section of greatest area of said inclosed portion.

9. The method of forming electrical connection between two conducting members which consists in inserting the end of one within the other and then swaging a portion of said outer member into such intimate contact with the inner member as to cause said outer and inner members to form a coherent homogeneous structure, the free end of the outer member being subjected to a diminishing pressure whereby the inner member as it emerges from the outer member is substantially normal in cross-section.

10. The method of forming electrical connection between two conducting members which consists in inserting the end of one within the other and subjecting part of the inclosed portion of the inner member to pressure, said pressure increasing from a point at or near the end of said outer member, at which end the inner conductor is substantially normal in cross-section, to a point where the pressure is so great as to cause said conductors to form a coherent homogeneous structure.

11. The method of splicing electrical cables which consists in inclosing their ends in a ductile-metal sleeve, and then swaging a portion of said sleeve into such intimate contact with said ends as to cause said portion of said sleeve and ends to form a coherent homogeneous structure, the outer portion of said sleeve being subjected to a diminishing pressure whereby said cables as they emerge from said sleeve are substantially normal in cross-section.

12. The method of splicing electrical cables which consists in inclosing their ends in a ductile-metal sleeve and subjecting a portion of said sleeve and cable ends to pressure, said pressure increasing from a point at or near the respective ends of said sleeve, at which respective ends the inclosed cables are substantially normal in cross-section, to a point where the pressure is so great as to form the ends of said cables into a coherent homogeneous structure with said sleeve.

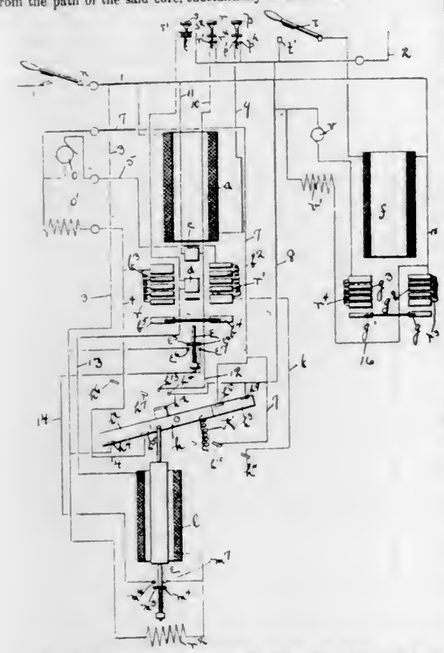
663,491. **CONTROLLER FOR ELECTRIC MOTORS.** CHARLES A. DRESSER, Chicago, Ill., assignor to G. A. Edward Kohler and Franklin W. Kohler, same place. Filed May 10, 1900. Serial No. 16,150. (No model.)

Claim.—1. The combination with a solenoid, of a hollow core therefor, the movable element of a rheostat controlled by the movement of said core, and a piston within said core to form a dash-pot, substantially as described.

2. The combination with a solenoid, of a hollow core therefor, the movable element of a rheostat controlled by said core, a piston within said core, said core being provided with a rack or series of teeth at one side and a locking device adapted to engage said teeth to maintain the core in any adjusted position, substantially as described.

3. The combination with a solenoid, and a switch for controlling the circuit therethrough, of a hollow core, the movable element of a rheostat controlled by said core, a piston within said core, a rack or series of teeth carried upon said core, a locking device normally engaging said teeth and adapted to permit the core to move to cut out resistance while checking the movement in the opposite direction, a releasing-magnet for retracting said locking device, and a switch for controlling the circuit through said releasing-magnet, substantially as described.

4. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core and adapted to open the circuit when the core is in the retracted position, an electromagnet and a part controlled thereby adapted to be interposed in the path of said core to prevent the same from moving to the retracted position to open the circuit until the part controlled by said electromagnet is withdrawn from the path of the said core, substantially as described.



5. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core and adapted in the retracted position of the core to open the circuit, a main switch for opening the circuit, an electromagnet and a part controlled thereby adapted to be interposed in the path of said core to prevent the same from moving to the circuit-opening position until said main switch has been actuated, substantially as described.

6. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core and adapted in the retracted position of the core to open the circuit, an electromagnet and a part controlled thereby adapted to be interposed in the path of said core to prevent the same from moving to the circuit-opening position, a main or controlling switch, an electromagnet or solenoid for controlling the same and a switch for controlling the circuit through said electromagnets, substantially as described.

7. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core and adapted in the retracted position of the core to open the circuit, an electromagnet and a part controlled thereby adapted to be interposed in the path of said core to prevent the same from moving to the circuit-opening position, a main switch, an electromagnet or solenoid associated therewith and adapted when energized to close the circuit and a switch for opening the circuit through said electromagnets to deënergize the same and thereby first open the circuit at the switch and subsequently at the rheostat, substantially as described.

8. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core and contacts adapted to be closed together by weight of said core when in the retracted position and to be separated when the core is attracted by the solenoid, substantially as described.

9. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core a main or controlling switch, an electromagnet or solenoid for controlling the same, and contacts controlling the continuity of the circuit through said main-switch electromagnet adapted to be closed together when said core is in the retracted position and to be separated when the core is attracted by the solenoid, substantially as described.

10. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core, a switch for controlling the circuit through said solenoid, a locking device for holding said core in any adjusted position, a releasing-magnet for releasing said locking device, a switch for controlling said releasing-magnet, a main or controlling switch, an electromagnet for controlling the same and a switch for controlling said electromagnet, substantially as described.

11. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core, a switch for controlling said solenoid, a locking device for said core, a releasing-magnet for controlling the same, a switch for controlling said releasing-magnet, a main or controlling switch, an electromagnet for operating the same, a switch for controlling said electromagnet, and means actuated by the operation of said main or controlling switch for controlling said releasing-magnet, substantially as described.

12. The combination with a solenoid and the core thereof, of the movable element of a rheostat controlled by said core, a switch for controlling said solenoid, a locking device for said core, a releasing-magnet for controlling said locking device, a switch for controlling said releasing-magnet, a main or controlling switch, an electromagnet for controlling the same, an electromagnet for preventing the movement of said core to the circuit-opening position, and a switch for controlling the circuit through said latter-mentioned electromagnet and through the electromagnet which controls the main switch, substantially as described.

13. The combination with an electric motor and the starting resistance therefor, mechanism for cutting in and out said starting resistance, a switch for controlling said mechanism to remove said starting resistance from circuit, a second switch for controlling said mechanism to insert the starting resistance in circuit, a third switch and mechanism controlled thereby for opening the circuit through the motor, substantially as described.

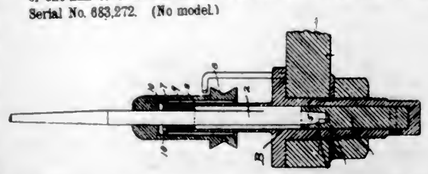
14. The combination with a motor and the starting resistance therefor, of mechanism for cutting the starting resistance into and out of circuit, a push-button or switch adapted when depressed to actuate said mechanism to remove resistance from circuit so long as said push-button is depressed, a second push-button adapted when depressed to insert resistance in the motor-circuit, a third push-button and mechanism associated therewith adapted when said push-button is depressed to open the circuit through the motor, substantially as described.

15. The combination with an electric motor, and the starting resistance therefor, of mechanism for cutting said resistance into and out of circuit, a switch for controlling said mechanism to remove resistance from the circuit, a second switch for controlling said mechanism to insert resistance in the circuit, a third switch and mechanism associated therewith for opening the motor-circuit, said second and third switches being arranged so that if the second switch be operated and then after an interval the third switch be operated the motor will come to rest gradually, whereas if the third switch be alone operated the motor will be brought to rest suddenly for an emergency stop, substantially as described.

16. The combination with a main motor and a starting resistance therefor, of an auxiliary motor and the starting resistance therefor, mechanism for cutting the starting resistance of the auxiliary motor into and out of circuit, a switch for controlling said mechanism, mechanism for cutting the starting resistance of the main motor into and out of circuit, a second switch for controlling said mechanism to remove resistance from circuit, a third switch for controlling said mechanism to insert resistance in circuit, and a fourth switch and mechanism associated therewith for opening the circuit through the main motor, substantially as described.

17. The combination with a solenoid and the core thereof, of a switch adapted to be actuated when the core is in the retracted position, an electromagnet and a part controlled thereby adapted to be interposed in the path of said core to prevent the same from moving to the retracted position to actuate said switch until the part controlled by said electromagnet is withdrawn from the path of the said core, substantially as described.

663,492. SPINDLE. THOMAS GORMAN, Warren, R. I., assignor of one-half to Frank H. Brown, Warwick, R. I. Filed June 13, 1898. Serial No. 683,272. (No model.)



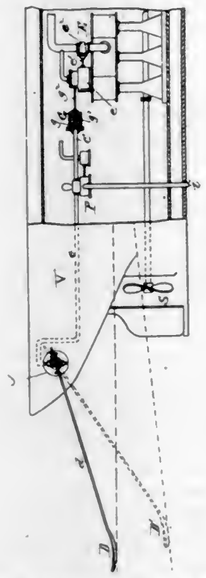
Claim.—1. The combination of a spindle, a sleeved whirl secured thereto, a bolster-case extending up within said sleeved whirl, a fixed step in said bolster-case, and a loose bolster suspended in the bolster-case and located above the whirl, substantially as described.

2. The combination of a spindle, a sleeved whirl secured thereto, a bolster-case extending up within said sleeved whirl, a fixed step in said bolster-case, one or more recesses in the upper end of said bolster-case, and a loose bolster located above the whirl and provided with one or more lugs for engaging said recess or recesses and supporting said bolster, substantially as described.

3. The combination of a spindle, a sleeved whirl secured thereto, a bolster-case extending up within said sleeved whirl, a fixed step in said bolster constructed to center the lower end of the spindle, and a loose bolster mounted in said bolster-case and located above said whirl, substantially as described.

4. The combination of a spindle, a sleeved whirl secured thereto, a bolster-case extending up within said sleeved whirl, a fixed step in said bolster constructed to center the lower end of the spindle, one or more recesses in the upper end of the bolster-case, and a loose bolster located above said whirl and provided with one or more lugs for engaging said recess or recesses and supporting said bolster, substantially as described.

663,493. MARINE-ENGINE GOVERNOR. CHARLES W. GOULD, New York, N. Y., and ODIN B. ROBERTS, Dedham, Mass.; said Roberts assignor to said Gould. Filed Jan. 24, 1900. Serial No. 2,628. (No model.)



Claim.—1. In a marine-engine governor for propeller vessels, the combination of a power cut-off, means for operating the power cut-off, a wave-level detector, connections between the wave-level detector and the power cut-off operator whereby power is rednced when the detector passes a predetermined level, the said detector located astern of the propeller at such a distance that it passes the power-reducing point in the trough of a following sea before the said trough emerses the propeller.

2. In a marine-engine governor for propeller vessels, the combination of a power cut-off, means for operating the power cut-off, a wave-level detector, connections between the wave-level detector and the power cut-off operator whereby power is reduced when the detector passes a predetermined level, the said detector located astern of the propeller at such a distance that it passes the power-reducing point in the trough of a following sea before the said trough emerses the propeller, and means whereby the distance of the detector from the propeller may be adjusted to meet different conditions of wave-length.

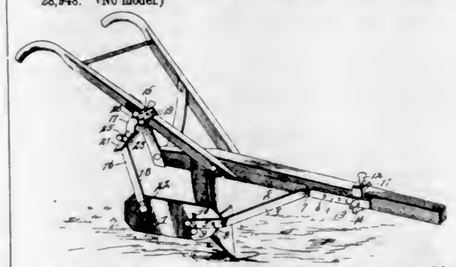
3. In a marine-engine governor for propeller vessels, the combination of a power cut-off, means for operating the power cut-off, a wave-level detector, connections between the wave-level detector and the power cut-off operator whereby power is reduced when the detector passes a predetermined level in one direction, and resumed when the detector passes this level in the other direction, the said detector located astern of the propeller at such a distance that it passes the power-reducing point in the trough of a following sea before the said trough emerses the propeller, and means whereby the distance of the detector from the propeller may be adjusted to meet different conditions of wave-length.

4. In a marine-engine governor for propeller vessels, the combination of a power cut-off, means for operating the power cut-off, a wave-level detector, consisting of a float towed astern of the vessel by means of a rod, the said rod secured to the vessel by a flexible joint, and connections between the detector-towing rod and the power cut-off operator whereby power is reduced when the detector-float passes a predetermined level.

5. In a marine-engine governor for propeller vessels, the combination of a power cut-off, means for operating the power cut-off, a wave-level detector, consisting of a float towed astern of the vessel by means of a rod, the said rod secured to the vessel by a flexible joint, and connections between the detector-towing rod and the power cut-off operator whereby power is reduced when the detector-float passes a predetermined level, and means whereby the length of towing-rod may be adjusted to meet different conditions of wave-length.

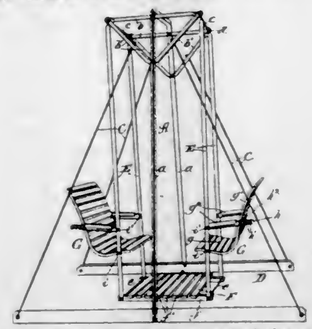
6. In a marine engine for propeller vessels, a power cut-off, means for operating the power cut-off consisting of a float and its carrier, a conduit and means for maintaining a continuously-flowing stream of water in the conduit, connections between the float and the conduit whereby the fall of the float closes the conduit and arrests the flow of the water therein, and means whereby the increased pressure in the conduit due to said arrest of flow is communicated to and actuates a power cut-off of the vessel's engine.

663,494. FENDER ATTACHMENT FOR CULTIVATOR-PLOWS. GEORGE W. HARRIS, Maharris, Miss. Filed Sept. 4, 1900. Serial No. 28,948. (No model.)



Claim.—The fender attachment for cultivating-plows, comprising the fender having the curved adjusting-slot near its front end, the front brace-bar pivotally attached to the front end of the fender, the adjusting-bolt connecting said brace-bar to said fender and operating in said curved adjusting-slot, the clip adapted to be secured to a plow-beam and to which said front brace-bar is pivoted and adjustably secured, the adjusting-bolt in said front brace-bar to bear against the plow-beam, for the purpose set forth, the rear brace-bar pivoted to the rear end of the fender and comprising the two sections which are secured together and laterally adjustable, whereby the rear end of the fender may be moved toward or from the plow, and the clip adapted to be secured to one of the plow-handles and to which the upper section of said rear brace-bar is adjustably secured, substantially as described.

663,495. SWING. EUGENIO K. HAYES, Galva, Ill. Filed Sept. 23, 1899. Serial No. 731,414. (No model.)



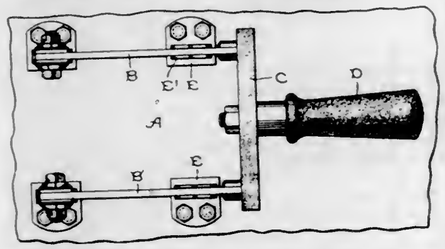
Claim.—1. In a swing, the combination of a single central yoke or U-shaped frame or support made of light material bent to have a top or cross bar and side uprights or standards with the side uprights or standards laterally spread at the bottom forming lateral braces, a rod or brace extending downward with an outward inclination from the upper end of each up-

right or standard, a base or bottom having the lower ends of the uprights or standards and the braces secured thereto, horizontal side bars or arms centrally attached one to each upright or standard at the upper end and each bar or arm having its end projecting equidistant on both sides of the frame or support, diagonal side bars or arms centrally attached one to each upright or standard below the horizontal side bar or arm and each diagonal side bar or arm extending upward on both sides of its central attachment to the extreme end of the horizontal side bar or arm and furnishing a brace for the horizontal side bar or arm, and a cross-rod for the pivotal attachment of the suspension or swing bars and connecting the extreme ends of the horizontal and diagonal side bars or arms, substantially as described.

2. In a swing, the combination of a single central frame or support having on each side an upright or standard united at the top by a cross piece or bar formed with the uprights or standards, a side sill or rail for the lower end of each upright or standard, a horizontally-extended bar at the upper end of each upright or standard with its ends equidistant from the upright or standard, a diagonal bar or arm at the upper end of each upright or standard extending from its point of attachment to the upright or standard upwardly to the extreme end of the horizontal bar or arm, a brace extending downwardly and outwardly from each side of the diagonal bar or arm and secured to the side sill or rail of the upright, and a cross-bar for the pivotal attachment of the suspension or swing bars and also connecting and uniting the extreme ends of the horizontal and diagonal bars or arms, substantially as described.

3. In a swing, the combination of a single upright or standard for each side of the frame or support, a horizontally-extending bar or arm at the upper end of each upright or standard, a diagonally-extending bar or arm, running upward from the standard or upright to the extreme end of the horizontal bar or arm, and a cross bar or rod between the ends of the arms or bars and connecting the arms or bars at the extreme ends and forming with the arms or bars a head for the swing, whereby the thrust and strain in use will be uniformly and evenly distributed, substantially as described.

663,496. ELECTRIC SWITCH. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 11, 1899. Serial No. 705,238. (No model.)



Claim.—1. In a switch, a blade pivoted to a support, a pair of clips extending through the support and bent to bear against the rear side, a clamp-plate engaging the clips at the front of the support, and a bolt holding the clamp-plate and clip against the support.

2. In a switch, the combination of a blade pivoted to a support, a pair of clips and a spacer riveted together, said clips passing through the support and bent against its rear wall and secured thereto and to a terminal.

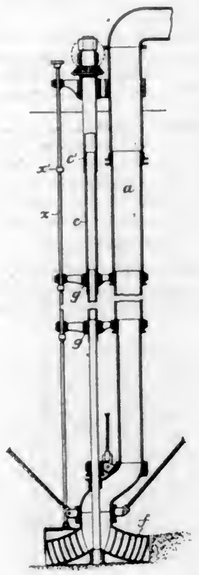
3. In a switch, a base, a blade, a clip composed of a single strip of conducting metal bent upon itself, extending through the base, and means for securing the circuit-terminals thereto at the rear of the base.

4. The combination, with the base of an electric switch, of a clip composed of a single strip of conducting metal doubled upon itself, passing through the base, having its closed end bent against the back of the base and connected with a terminal, and its free ends projecting beyond the base to receive a switch-blade.

5. The combination with a base of insulating material, of a switch blade or blades, a punched clip formed of an integral strip of conducting metal doubled upon itself and having its closed end bent at an angle against the back of the switchboard, the free ends projecting through the switchboard and held in place by a slotted plate through which they pass and a block placed between them and secured in position.

6. As a new article of manufacture, a clip for an electric switch, composed of an integral strip of conducting metal doubled upon itself, having its closed end bent at an angle, thereby providing a double wall of supporting metal at the bent end to afford stiffness when mounted, and a space between its free ends to accommodate a switch-blade.

663,497. HYDRAULIC-PRESSURE DREDGING-MACHINE. FRIEDRICH HOFFMANN, Siegersdorf, Germany. Filed Apr. 30, 1900. Serial No. 14,920. (No model.)

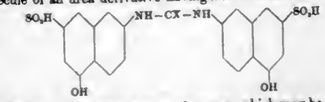


Claim.—1. In a pressure dredging-machine, the combination with an elevating-tube, of a turbine at the lower end of the tube to loosen and force upward through the tube solid matter, a curved shield partly surrounding the turbine and vertically adjustable independently of the turbine to regulate the inflow of water to the turbine, and means to rotate the turbine, substantially as set forth.

2. In a pressure dredging-machine, the combination of an elevating-tube formed of straight telescopic sections to a height above the level of the water, a curved section connected to the upper straight section, a rotary shaft extending within the straight sections and through the side of the curved section, and an elevating device carried by the lower end of said shaft, substantially as set forth.

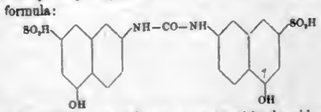
668,498. ORANGE AZO DYE AND PROCESS OF MAKING SAME. ADOLF ISRAEL and RICHARD KOTHE, Elberfeld, Germany, assignors to the Farbenfabriken of Elberfeld Company, of New York. Filed May 23, 1900. Serial No. 17,724. (Specimens.)

Claim.—1. The process for producing new azo dyestuffs which process consists in first combining two molecules of a diazo compound with one molecule of an urea derivative having the formula:



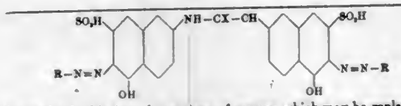
in which formula X means an atom of oxygen which may be replaced by an atom of sulfur, secondly precipitating the resulting dyestuff by means of a suitable salt and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

2. The process for producing a new disazo dyestuff which process consists in first combining two molecules of diazotized anilin with one molecule of carbonyldioxydinaphthylamin disulfonic acid having in a free state the formula:



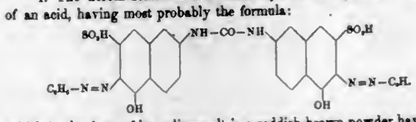
secondly precipitating the resulting dyestuff with the aid of a suitable salt, and finally isolating the same from the reaction mixture, substantially as hereinbefore described.

3. The herein-described new azo dyestuffs which are alkaline salts of acids having most probably the general formula:



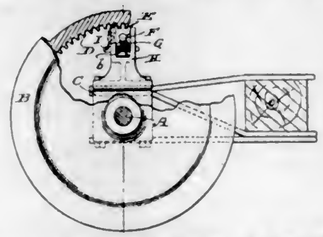
X meaning in this formula an atom of oxygen which may be replaced by an atom of sulfur, R meaning one of the above-defined alphyl radicals, and which are from reddish-brown to dark-brown powders having a metallic luster, soluble in water with from an orange to bluish-red color, dyeing unmordanted cotton from orange to bluish-red shades which are fast to light, substantially as hereinbefore described.

4. The herein-described new disazo dyestuff being an alkaline salt of an acid, having most probably the formula:



which in the form of its sodium salt is a reddish-brown powder having a metallic luster, soluble in water with an orange color; insoluble in concentrated hydrochloric acid; being dissolved by concentrated sulfuric said of 66° Baumé with a red color which is changed into bluish-red on the addition of a small quantity of ice while on the addition of a larger quantity of ice a reddish-blue precipitate is obtained, dyeing unmordanted cotton orange-yellow shades which are fast to acids and to light, substantially as hereinbefore described.

663,499. CAR-MOVING MECHANISM. MARTIN JOHNSON, Milwaukee, Wis. Filed Apr. 23, 1900. Serial No. 13,919. (No model.)



Claim.—1. A railway-car truck having a wheel thereof provided with a circular series of inwardly-projecting outer cogs, a support on the axle-box adjacent to said wheel, a bearing-block having detachable connection with the support, a crank-spindle rotative in the block, and a pinion fast on the spindle to mesh with the internal gear of the aforesaid wheel.

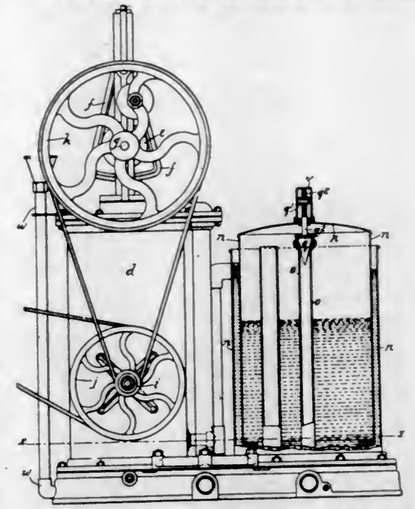
2. A railway-car truck having a wheel thereof provided with a circular series of inwardly-projecting outer cogs, a support on the axle-box adjacent to said wheel, a bearing-block having detachable connection with the support, a spindle rotative in the block, a pinion fast on the spindle to mesh with the internal gear of the aforesaid wheel, and a crank in detachable connection with said spindle.

3. A railway-car truck having a wheel thereof provided with a circular series of inwardly-projecting outer cogs, a support on the axle-box adjacent to said wheel, a bearing-block having detachable connection with the support, a spindle rotative in the block, a pinion fast on the spindle to mesh with the internal gear of the aforesaid wheel, a ratchet-wheel on the outer end of said spindle, a crank in pivotal connection with the ratchet-wheel hub, and a pawl in connection with the crank to engage said ratchet-wheel.

4. A railway-car truck having a wheel thereof provided with a circular series of inwardly-projecting outer cogs, a support on the axle-box adjacent to said wheel, a bearing-block having detachable connection with the support, a spindle rotative in the block, a pinion fast on the spindle to mesh with the internal gear of the aforesaid wheel, a ratchet-wheel in angular slip fit on the outer end of said spindle, a crank in pivotal connection with the ratchet-wheel hub, and a pawl in connection with the crank to engage said ratchet-wheel.

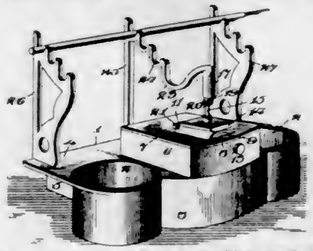
5. A railway-car truck having a wheel thereof provided with a circular series of inwardly-projecting cogs, a support on the axle-box adjacent to said wheel, a bearing-block having detachable connection with the support, a spindle rotative in the block, a pinion fast on the spindle to mesh with the internal gear of the aforesaid wheel, a ratchet-wheel having an angular bore for slip-fit connection with the outer end of said spindle, a crank in pivotal connection with the ratchet-wheel hub and of itself provided with an angular aperture for slip fit on the aforesaid spindle, and a pawl in connection with the crank to engage said ratchet-wheel.

663,500. GAS OR AIR COMPRESSOR OR PUMP. JAMES KEITH, London, England. Filed Dec. 30, 1899. Serial No. 742,104. (No model.)



Claim.—In combination, with a gas-holder having a movable bell and a delivery-outlet, a continuously-operating forcing-pump connected with said gas-holder, a pipe placing said holder in communication with the suction side of the pump, a valve for said pipe, and means operated by the abnormal rise of the bell for opening said valve, substantially as described.

663,501. ENVELOP-MOISTENER. ROSS B. KIRKWOOD, Chattanooga, Tenn. Filed July 17, 1900. Serial No. 23,940. (No model.)



Claim.—1. An envelop-moistener comprising a water-receptacle, a wick located within the receptacle and extended thereabove, means for supporting said wick, an open-ended socket located above the wick, and a presser-foot provided with a staff extended into the socket.

2. In a moistener, the combination with a water-receptacle, a wick located therein and extended thereabove and means for supporting said wick, of a presser-foot provided with a headed staff, a socket receiving the staff, and an adjustable head closing the end of the socket and pierced by the staff of the presser-foot to adjustably limit the movement of the latter in the direction of the wick.

3. An envelop-moistener comprising a water-receptacle, a wick located within the receptacle and extended thereabove and means for supporting said wick, a spring-socket disposed above the wick, a presser-foot having a headed staff extended into the socket, a spring within the socket and bearing against the head of the staff to urge the presser-foot against the wick, and means for regulating the tension of the spring.

4. In a stamp-moistener, the combination with a water-receptacle, a wick located therein and extended thereabove and wick-supporting means, of a presser-foot provided with a staff, a spring-socket receiving the staff and provided with a spring arranged to urge the presser-foot toward the wick, and an adjustable head closing the end of the spring-socket and pierced by the staff of the presser-foot to permit the regulation of the tension of the spring and to adjustably limit the movement of the presser-foot.

5. In a device of the character described, the combination with a water-receptacle, and a pen-rack comprising a series of rack-arms, of a wick located within the receptacle and extended thereabove, means for

supporting said wick and a presser-foot suspended from one of the rack-arms of the pen-rack, and located above the wick.

6. In a device of the character described, the combination with a water-receptacle and a pen-rack comprising a series of rack-arms, one of said arms terminating in a depending socket, of a wick located within the receptacle and extended thereabove and means for supporting said wick, a presser-foot opposed to the wick and provided with a staff extended into the socket, and adjustable means for limiting the movement of the presser-foot.

7. In a stamp-moistener, the combination with a water-receptacle provided with a movable cover and a yielding presser-foot located above the cover, of a wick-roller supporting a wick in effective proximity to the presser-foot, and a retaining device serving to secure the cover upon the receptacle and to retain the wick-roller upon the cover.

8. In an envelop-moistener, the combination with a water-receptacle having a cover provided with an opening and with inturned bearing-flanges, and a yielding presser-foot located above the cover, a wick-roller located between the bearing-flanges of the cover, and a shaft for the wick-roller, said shaft being extended through a wall of the receptacle and through the bearing-flanges of the cover to perform the dual function of a cover-retaining means, and means for retaining the wick-roller in the cover.

9. In a device of the character described, the combination with a base surmounted by a water-receptacle, of a wick extended above the water-receptacle means for supporting said wick, a pen-rack carried by the base, and a presser-foot opposed to the wick and yieldingly supported by the pen-rack.

10. In a device of the character described, the combination with a base provided with a water-receptacle and wick, of an upstanding bracket-arm supported by the base, an approximately horizontal arm extending from the bracket-arm and overhanging the water-receptacle, and a presser-foot supported at the end of the overhanging arm and disposed in operative relation to the wick.

663,502. METHOD AND PROCESS OF REFRIGERATING MILK OR OTHER PERISHABLE FOODS FOR PRESERVATION AND TRANSPORTATION. DAVID E. LAIN, Middletown, N. Y. Filed June 28, 1899. Serial No. 701,068. (No specimens.)



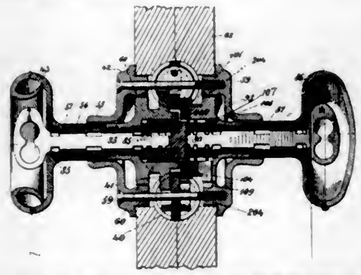
Claim.—1. In the refrigeration of milk or other liquid food, the described process which consists in freezing the liquid into a brick by regelation; boxing or incasing the same; forming a layer of solid ice on the bottom of a mold larger than the incased brick by pressure on chipped or comminuted ice; placing the incased brick on said layer of solid ice, forming solid ice in the space between the sides of the mold and the incased brick by pressure or comminuted ice placed therein; forming a layer of solid ice over the top of the incased brick and the surrounding ice by pressure on comminuted ice; and removing the composite cake thus formed from the mold.

2. In the refrigeration of milk and other liquid food the described process which consists in freezing the liquid into bricks by regelation; suitably boxing or incasing the same; forming a layer of solid ice on the bottom of a mold larger than the added dimensions of the bricks to be included in one cake, by pressure on comminuted ice; placing said incased bricks on said layer of ice suitably separated and arranged; forming solid ice in the spaces between the incased bricks and between them and the side of the mold by pressure on comminuted ice; forming solid ice over said incased bricks and the surrounding walls of ice by pressure on comminuted ice; and removing the composite cake thus formed from the mold.

3. In the refrigeration of liquid food the method which consists in assembling said food after it has been frozen and comminuted, into bricks by pressure according to the law of regelation; suitably boxing or incasing the same; placing said incased bricks into a mold with fine ice; applying sufficient pressure to said fine ice to solidify the same, according to the law of regelation into a coating of ice around said incased bricks.

663,503. LOCK. GUSTAV G. LAURENS, New York, N. Y., assignor, by direct and mesne assignments, to Charles F. Simes and Henry C. Tum Suden, same place. Filed June 13, 1899. Serial No. 720,383. (No model.)

Claim.—1. In a lock mechanism, the bolt having the projecting studs 47 and 48, combined with the rotary actuating-plate having the cogs 50 and arms 52 to engage said studs, and means for turning said plate to move said bolt, said arms 52 being disposed at the outer side of the end studs 48 for engagement therewith only, and said plate being adapted to coact with said bolt as a latch and also to move said bolt outward into a safety-bolt position; substantially as set forth.



2. In a lock mechanism, the main bolt, the actuating-plate for throwing the same, and the additional bolt adapted also to be thrown by said plate, combined with the pivoted slotted plate connected with the door-casing and to be engaged by said additional bolt; substantially as set forth.

3. In a lock mechanism, the inside rotatory knob, the actuating-plate connected therewith and set within a recess in the door, and the hold-rod bolt adapted to be thrown by said plate and knob, combined with the pivoted slotted plate connected with the door-casing and to be engaged by said bolt; substantially as set forth.

4. In a lock mechanism, the bolt, combined with the knob, and the plate carried by said knob for engaging and throwing said bolt, said bolt having the series of studs and said plate the series of arms to engage said studs and effect the movement of said bolt to a latch position or to a safety-bolt position; substantially as set forth.

5. In a lock mechanism, the bolt having projecting studs at its opposite sides, combined with the actuating-plate for engaging the studs at one side of the bolt for throwing the latter, and means for engaging the studs at the opposite side of said bolt for locking the bolt in fixed position; substantially as set forth.

6. In a lock mechanism, the bolt having projecting studs, combined with the rotary actuating-plate to engage said studs, said plate having corresponding upper and lower edges and being reversible so that when one edge of said plate becomes worn the other edge of said plate may be placed into engagement with the bolt; substantially as set forth.

7. In a lock mechanism, the bolt having the studs 47 and 48, combined with the actuating-plate for engagement with said studs and having at its lower edge the cogs 50 and arms 52 and at its upper edge the cogs 49 and arms 51, the said plate being reversible; substantially as set forth.

8. In a lock mechanism, the main bolt, and the actuating-plate for throwing the same, combined with an additional bolt adapted also to be thrown by said plate, said bolts moving in reverse directions, and means connected with the door-casing to be engaged by said additional bolt and with the latter to hold the door against being opened more than a short distance; substantially as set forth.

9. In a lock mechanism, the hold-rod bolt comprising the upper and lower members adapted to be placed into engagement with one another so that they may move outward together when desired, and the main bolt, combined with the actuating-plate intermediate of and for operating said bolts, and means for turning said plate; substantially as set forth.

10. In a lock mechanism, the tumbler-cylinder, and a radial tumbler member carried thereby, combined with the bolt, and means operable from the inner side of the door for setting said member to lock the bolt-actuating mechanism against movement from the outer side of the door; substantially as set forth.

11. In a lock mechanism, the tumbler-cylinder, and a radial tumbler member carried thereby, combined with the bolt, and means operable from the inner side of the door for setting said member to lock said cylinder and also said bolt; substantially as set forth.

12. In a lock mechanism, the tumbler-cylinder having tumblers for the outer key and also a radial tumbler member carrying a slotted plate normally in line with said tumblers, combined with the bolt, and means operable from the inner side of the door for setting said tumbler member to lock said cylinder and move said slotted plate across the key-slot to exclude the key; substantially as set forth.

13. In a lock mechanism, the tumbler-cylinder to receive the key, the bolt, the actuating-plate therefor, and radial tumblers carried by said cylinder, combined with means operable from the inner side of the door for setting any one of the said tumblers for effecting the result desired, such as locking said cylinder against rotation or permitting the operation of said bolt as a latch; substantially as set forth.

14. In a lock mechanism, the tumbler-cylinder to receive the key, the bolt, means for actuating the bolt, and a radial tumbler set within a slot in said cylinder and normally only partly filling said slot, combined with the spring-latch 237 for entering said slot and locking said cylinder, means for actuating the bolt from said cylinder, and means operable from the inner side of the door for moving said radial tumbler outward to exclude said latch, thereby permitting the opening of the door from the outer knob; substantially as set forth.

15. In a lock mechanism, the tumbler-cylinder to receive the key and operable from the outer knob, the bolt, the actuating-plate for said bolt, means connected with said cylinder for moving said bolt from the outer side of the door, the spring for restoring said cylinder to its normal at-rest position, a spring-latch for retaining said cylinder in its normal at-rest position, a radial tumbler for relieving said latch-spring from engagement with said cylinder, and a radial tumbler for locking said cylinder against rotation, combined with means operable from the inner side of the door for setting said last-named tumbler to lock said cylinder or to move the first-named tumbler to free said latch-spring and permit the free rotation of said cylinder for moving inward the bolt; substantially as set forth.

16. In a lock mechanism, the tumbler-cylinder to receive the key and having a radial tumbler member, the bolt, the actuating-plate therefor, and means for placing said cylinder and said plate into engagement with one another for operating the bolt from the outer side of the door, combined with the governor operable from the inner side of the door for setting said radial tumbler to lock said cylinder against rotation; substantially as set forth.

17. In a lock mechanism, the tumbler-cylinder to receive the key, the bolt, the actuating-plate for said bolt, the inner knob connected with said plate, means for engaging said tumbler-cylinder with said plate for operating said bolt from the outer side of the door, the outer knob connected with said tumbler-cylinder and having the key-opening for the outer key, and the radial tumbler member carried by said cylinder, combined with the governor, and the shaft extending therefrom through the inner knob-spindle and having a handle by which it may be turned, said governor being adapted to be turned against said radial tumbler member for setting the same; substantially as set forth.

18. In a lock mechanism, the tumbler-cylinder to receive the key and connected with the outer knob through which the outer key is to pass, the bolt, the actuating-plate therefor connected with the inner knob, means for placing said cylinder into engagement with said actuating-plate for operating the bolt from the outer side of the door, and radial tumblers carried by said cylinder, combined with the governor for setting any one of said radial tumblers and having its shaft extending through the inner knob, the handle for said shaft for operating said governor, and indicating-marks on the inner knob to denote the position of the said radial tumblers: substantially as set forth.

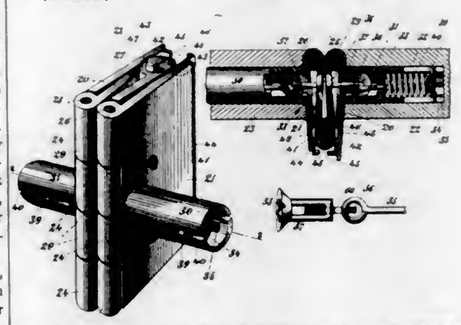
19. In a lock mechanism, the tumbler-cylinder to receive the key and connected with the outer knob through which the outer key passes, the bolt, the actuating-plate therefor connected with the inside knob, means for engaging said cylinder with said plate for operating the bolt from the outer side of the door, the spring for restoring said tumbler-cylinder to its normal at-rest position, the latch for engaging said cylinder when at its normal at-rest position, and radial tumblers carried by said cylinder, combined with the governor for setting any one of said radial tumblers and having its shaft extended through the spindle of the inside knob and provided with an exposed handle; substantially as set forth.

20. In a lock mechanism, the bolt, the actuating-plate therefor connected with the inner knob and provided with the shoulders 106, combined with the tumbler-cylinder connected with the outside knob and operable by the outside key, the radial tumblers 102, 103, for engaging said shoulders of said plate for imparting the motion of said cylinder to said plate, the spring for restoring said cylinder to its normal at-rest position, the spring-latch for engaging said cylinder when at its normal at-rest position, and means operable from the inner side of the door for setting said tumblers either to lock said cylinder against rotation or to permit the rotation of said cylinder and the operation of the bolt thereby, as a latch; substantially as set forth.

21. In a lock mechanism, the bolt, and the actuating-plate therefor connected with the inside knob, combined with the tumbler-cylinder connected with the outside knob and adapted to receive the key, the recess at the inner-facing end of the said cylinder, the radial tumblers carried by said cylinder and projecting into said recess, the yielding spring operating against said radial tumblers, and the governor rotatable within said recess and operable from the inner side of the door to set any one of said tumblers; substantially as set forth.

22. In a lock mechanism, the bolt, the actuating-plate therefor, and the inside knob connected with said plate, combined with the tumbler-cylinder connected with the outside knob and adapted to receive the outer key, the tumblers within said cylinder for engagement with said key, a radial tumbler member carried by the said cylinder for locking the latter against rotation, the governor operable from the inner side of the door to set said radial tumbler member, and the escutcheons for said lock mechanism, said escutcheons being set into recesses in the door, and said knobs being set into the recesses of said escutcheons, so as to leave the outer surfaces of the lock mechanism as nearly as may be flush with the sides of the door; substantially as set forth.

663,504. DOOR-CHECK AND CLOSER. GUSTAV G. LAURENS, New York, N. Y., assignor of two-thirds to Charles F. Simes and Henry C. Tum Suden, same place. Filed Sept. 23, 1899. Serial No. 731,375. (No model.)



Claim.—1. In a hinge, the leaf members one having a resistance-plate, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to firmly press against said resistance-plate during the opening and closing of the door, combined with means for acting on one of said intermediate plates to press said cam or arm projection against said resistance-plate and to close the door; substantially as and for the purposes set forth.

2. In a hinge, the leaf members one having a resistance-plate, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to firmly press against said resistance-plate during the opening and closing of the door, combined with the concealed spring connected with one of said intermediate plates to press said cam or arm projection against said resistance-plate and close the door; substantially as and for the purposes set forth.

3. In a hinge, the leaf members one having a resistance-plate, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to firmly press against said resistance-plate during the opening and closing of the door, combined with the concealed spring for one of said intermediate plates, the stem extending lengthwise of said spring and having a nut to engage the end thereof, and the swiveled stud extending through said intermediate plate and connected with said stem for adjusting said spring, the said spring being adapted to act on said intermediate plate to press said cam or arm projection against said resistance-plate and to close the door; substantially as and for the purposes set forth.

4. In a hinge, the leaf members one having a resistance-plate, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to firmly press against said resistance-plate during the opening and closing of the door, combined with the spring acting on one of said intermediate plates to press said cam or arm projection against said resistance-plate and to close the door, and means for adjusting the force of said spring; substantially as and for the purposes set forth.

5. In a hinge, the leaf members one having a resistance-plate, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to firmly press against said resistance-plate during the opening and closing of the door, combined with the concealed spring for one of said intermediate plates, the stem extending lengthwise of said spring and connecting the latter with said intermediate plate, and the cam interposed in said stem and adapted to have a partial axial rotation during its movement into and out of the socket containing said spring and during such movement to engage the surrounding surfaces of said socket; substantially as and for the purposes set forth.

6. A hinge comprising the leaf members having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivot-

ally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with means for independently acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door; substantially as and for the purposes set forth.

7. A hinge comprising the leaf members having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with the independent springs concealed within the door and casing and connected with said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door; substantially as and for the purposes set forth.

8. A hinge comprising the leaf members having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with the independent concealed springs for said intermediate plates, the stems extending lengthwise of said springs and having the nuts to engage the end thereof, and the swiveled studs passing through said intermediate plates and connected with said stems for adjusting said springs, the said springs being adapted to act on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door; substantially as and for the purposes set forth.

9. A hinge comprising the leaf members having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door; combined with springs acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door, and means for independently adjusting the pressure of said springs; substantially as and for the purposes set forth.

10. A hinge comprising the leaf members having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with the concealed springs for said intermediate plates, the stems connecting said springs with said intermediate plates, and the cams interposed in said stems and adapted to have a partial axial rotation during their movement into and out of their sockets and to engage the surrounding surfaces of said sockets; substantially as and for the purposes set forth.

11. In a hinge, the leaf members one having the resistance-plate provided with the recess, the pintle, and the intermediate plates connected with said leaf members and receiving said pintle and one thereof having the cam or arm projection adjacent to said pintle, said cam or arm projection being adapted to turn against said resistance-plate and into said recess during the opening and closing of the door, combined with means for acting on one of said intermediate plates to press said cam or arm projection against said resistance-plate and to close the door; substantially as and for the purposes set forth.

12. In a hinge, the leaves having the resistance-plates provded in their facing sides with the recesses, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates and into said recesses during the opening and closing of the door, combined with means for acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door; substantially as and for the purposes set forth.

13. In a hinge the leaves having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with means for independently acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door, the said resistance-plates being arranged to converge toward one another at their outer ends; substantially as and for the purposes set forth.

14. In a hinge the leaves having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections being adapted to turn against said resistance-plates during the opening and closing of the door, combined with means for independently acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door, the said resistance-plates being adapted to contact with one another at their outer edges when the door is open, and one of said plates being provided with a rib to normally lie at one side of the edge of the other resistance-plate when the door is open and adapted to engage the other side of said edge when it is desired to have the door stand open; substantially as and for the purposes set forth.

15. In a hinge the leaves having the resistance-plates, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at said end having the cam or arm projections, said intermediate plates at their other end being pivotally connected with the ends of said leaves, and said cam or arm projections be adapted to turn against said resistance-plates during the opening and closing of the door, combined with means for independently acting on said intermediate plates to press said cam or arm projections against said resistance-plates and to close the door, the said resistance-plates being extended outward sufficiently for them to lap upon and engage one another when the door is opened as nearly as may be toward a position parallel to the wall to which the door is hung; substantially as and for the purposes set forth.

16. A hinge comprising hinged leaves capable of opening and closing toward one another during the opening and closing of the door, and one of said leaves containing a socket-opening, combined with the concealed spring, the stem extending from the other of said leaves through said socket-opening and spring and engaging the end of said spring, and the cam 36 interposed in said stem and normally located in said socket adjacent to the opening thereof and adapted during the closing of the door to engage the walls of said socket to control the action of said spring; substantially as and for the purposes set forth.

17. A hinge comprising the leaves, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at their other end being pivotally connected with the ends of said leaves, combined with the independent door-closing springs concealed in the door and door-casing, the stems extending from said intermediate plates through socket-openings in said leaves and also through said springs and engaging the outer ends of the latter, and the cams 36 interposed in said stems and normally located in said sockets adjacent to the openings thereof and adapted during the closing of the door to engage the walls of said sockets to control the action of said springs; substantially as and for the purposes set forth.

18. A hinge comprising the leaves, the intermediate plate hung upon the pintle and in pivotal connection with said leaves, the cam or arm projection adjacent to said pintle, and the resistance-plate against which said cam or arm projection firmly presses during the movement of the door, combined with the door-closing spring connected with said intermediate plate and serving to maintain the firm contact of said cam or arm projection with said resistance-plate during the movement of the door; substantially as and for the purposes set forth.

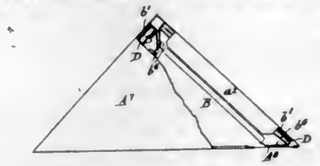
19. In a door closing and checking device, the concealed spring embedded in the framing, the stem extended lengthwise of the same and connected therewith, and means for holding the outer end of said stem so that as the door opens, said stem being thus held, the spring will be compressed, combined with the checking-cam interposed in said stem and adapted to have a partial axial rotation against contacting surfaces during the movement of the door; substantially as and for the purposes set forth.

20. In a door closing and checking device, the concealed springs embedded in the door and door-casing, the stems extended lengthwise of the same and connected therewith, and means engaging the outer or facing ends of said stems so that as the door opens the said springs will be compressed, combined with the checking-cams interposed in said stems and adapted to have a partial axial rotation against contacting surfaces during the movement of the door; substantially as and for the purposes set forth.

21. A hinge comprising the leaves, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at their other end being pivotally connected with adjacent ends of said leaves, combined with springs for acting on said intermediate plates to close the door, the outer edges of said leaves being provided with the projections to be interlocked with one another for holding the door open; substantially as and for the purposes set forth.

22. A hinge comprising the leaves, and the intermediate plates pivotally connected together at their outer end by the pintle of the hinge and at their other end being pivotally connected with adjacent ends of said leaves, combined with springs for acting on said intermediate plates to close the door, the said leaves being extended outward sufficiently for them to lap upon and engage one another when the door is opened as nearly as may be toward a position parallel with the wall to which the door is hung; substantially as and for the purposes set forth.

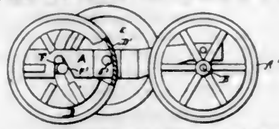
663,505. SHOW-CASE, &c. EDWARD LEE and JOHN S. PICKFORD London, England, assignors to the National Bakery Company, Limited same place. Filed Aug. 24, 1897. Serial No. 649,380. (No model.)



Claim.—1. A show-case comprising a triangular frame, with two internal removable show-faces and with a sliding end A^8 and blocked end A^{10}, substantially as and for the purpose described.

2. A show-case comprising a triangular frame, with two internal removable show-faces hinged together at their adjacent vertical edges, and with a sliding end A^8 and blocked end A^{10}, substantially as and for the purpose set forth.

663,506. TOY VEHICLE. MANFRED U. LOREE, Montgomery County, Ohio. Filed Sept. 22, 1900. Serial No. 30,741. (No model.)



Claim.—In a toy vehicle, the combination with a frame having upwardly-projected slots therein, the inner sides of said slots being on a backward taper, running wheels the axle of which projects into said slots, the said running wheels having flanges, a momentum-wheel mounted in said frame, the axle of said momentum-wheel projecting into the running wheels in contact with the inner sides of the flanges of said running wheels substantially as specified.

663,507. DENTAL RUBBER-DAM HOLDER. CHARLES W. MEGUIAR, Franklin, Ky. Filed Aug. 24, 1899. Serial No. 728,337. (No model.)



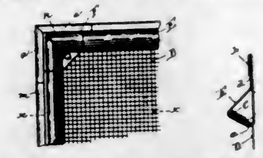
Claim.—1. A rubber-dam holder comprised of an open dished or deflected continuous frame adapted to embrace the face upon both sides adjacent to the mouth and having blunt projections adapted to hold the dam over the said holder and projections, said frame adapted to be held on the face solely by the tension of a stretched rubber dam, substantially as described.

2. A rubber-dam holder comprised of an open dished continuous frame adapted to embrace the face on both sides adjacent to the mouth, and having blunt projections formed integral with the frame and adapted to hold the dam when stretched over said projections, said holder adapted to be retained in place solely by the tension of a stretched rubber dam, substantially as described.

663,508. WINDOW-SCREEN. WILLIAM E. MONROE, Newport, Ky., assignor to Jule Plummer, same place. Filed Apr. 12, 1900. Serial No. 12,552. (No model.)

Claim.—1. A window-screen frame composed of base corner-sections having guideways formed in each angle, side sections formed of bent metal and fitting the guideways of the corner-pieces, a projecting flange on the inner edge of the side and end pieces adapted to receive the wire-gauze and finishing corner-pieces secured to the base corner-pieces for binding the sections together, substantially as specified.

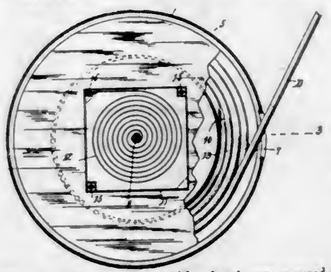
2. A window-screen frame composed of base corner-sections provided with outer and inner overhanging flanges on each angle, side strips having overhanging flanges telescopically engaging each other and the overhanging flanges of the corner-pieces, and finishing corner-pieces connected with and secured to the base corner-pieces, substantially as specified.



3. In combination with a screen-frame formed of base corner-sections, having guideways at each angle, side strips engaging therewith and having inner projecting flanges b' adapted to receive the wire-gauze and clamping-sections C adapted to engage over the gauze and said flange, substantially as specified.

4. A window-screen frame composed of base corner-pieces having guideways in each angle side sections telescopically engaging with each other and with the angle-pieces and provided with an outer and an inner overhanging flange, a metal clamping-strip C adapted to engage the inner flange, a V-shaped molding-strip engaging with the outer flanges of the side sections and resting upon the inner flanges of the same and finishing corner-pieces clamped to the base corner-pieces, substantially as specified.

663,509. BOAT-ROPE REEL. THOMAS F. MCKEY, Whitewater, Wis. Filed Mar. 9, 1900. Serial No. 7,989. (No model.)



Claim.—1. The combination with a boat's rope secured at one end to a shifting member of the boat's appendages, a considerable portion of the other end of which rope in use becomes at times unemployed slack rope, of an automatic slack-rope-taking device, comprising a case or frame, a post secured to the case or frame, a reel rotatable in the case on which the rope winds, and a spring in the reel secured to the reel and to the post adapted to rotate the wheel to wind up the rope.

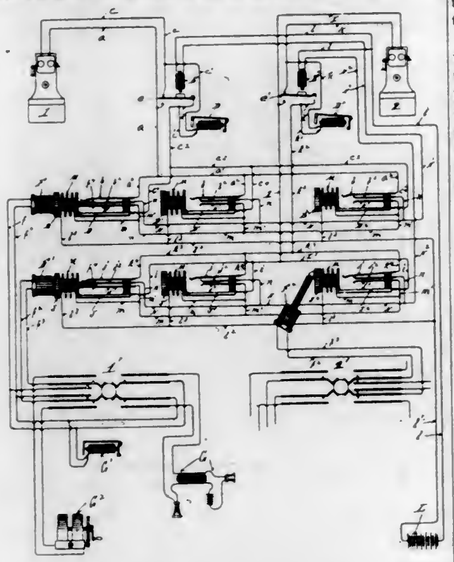
2. In combination, a boat's rope secured at one end to a shifting member of the boat's appendages, a cylindrical case provided with a removable end and with a rope-aperture in its periphery, a central transverse post through and secured removably to the case, a rope-reel in the case rotatable about the post, a square or faced core fitted removably in and rotatable with the reel, a spring in the core about the post and secured to the post and detachably to the core.

663,510. TELEPHONE-SWITCHBOARD. WILLIAM S. PACA, Erie, Pa., assignor of one-half to Peter H. Adams, same place. Filed Feb. 16, 1900. Serial No. 5,462. (No model.)

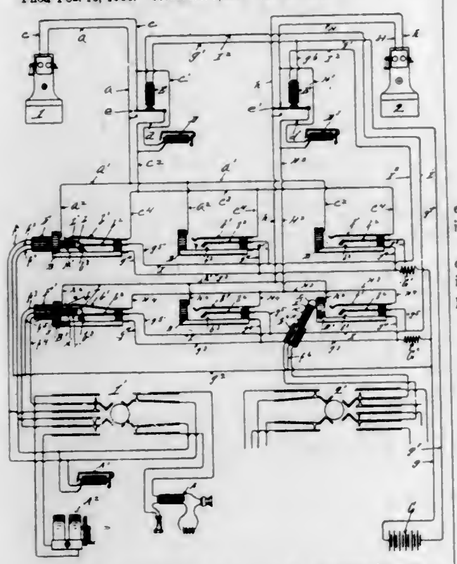
Claim.—1. In a jack for telephone-switchboards, the combination of a spool of magnetic metal, an arm extending backward therefrom, three insulated contact-tongues on said arm, one of which forms part of one side of the line-circuit, while the jack-frame forms the other, and the other two forming connections for a normally open local-battery circuit, a coil surrounding said spool and connected with said tongues in said normally open local-battery circuit, which contacts are adapted to be closed by means of a switch-plug, both as to the line-circuit, and the local-battery circuit, substantially as and for the purpose set forth.

2. In a jack and switch-plug for telephone-switchboards, the combination of a spool of magnetic metal, having an arm on the rear end thereof, contact-tongues secured to said arm and insulated therefrom and from each other, a coil around said spool and connected up in open circuit with a local test-battery, with a switch-plug having an insulated tip of magnetic metal adapted to connect two of the tongues on said jack, so as to close the circuit between the coil surrounding the jack and the local test-battery, a contact on said plug adapted to connect with a third

tongue on said jack, and another contact insulated from the first-named contact, adapted to contact with the opening in said spool and close the main-line circuit, substantially as and for the purpose set forth.



663,511. TELEPHONE-SWITCHBOARD APPARATUS. WILLIAM S. PACA, Erie, Pa., assignor of one-half to Peter H. Adams, same place. Filed Feb. 16, 1900. Serial No. 5,463. (No model.)

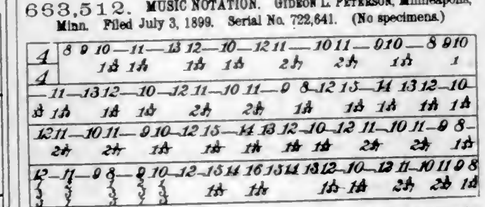


Claim.—1. In a multiple switchboard, the combination of two or more duplicate sections, jacks forming terminals for each subscriber's line on each of said sections connected up in open circuit with a local battery, switch-plugs adapted, when inserted in any jack of a series, to connect a subscriber's circuit, and also connect with one side of the local circuit all the jacks of the series so plugged upon, and a coil in the switch-plug connected with one side of the local-battery circuit and adapted to complete such local circuit through any jack of the series plugged in upon, by bringing the tip of such plug into contact therewith, whereby the point of such plug becomes magnetized, substantially as and for the purpose set forth.

2. A switch-plug for telephone-switchboards, comprised, substantially, of a coil connected at one end with a local-battery circuit and at the other with an insulated tip of magnetic metal and adapted, when said tip is brought into contact with the other side of said local-battery circuit, to become magnetized, substantially as and for the purpose set forth.

3. The combination of a jack for telephone-switchboards connected with one side of a local-battery circuit, a switch-plug having a coil connected with the other side of said local-battery circuit and a tip of magnetic metal on said plug connected with said coil and adapted, when any one jack of a series is plugged in upon, to be brought into contact with any other jack of the series so plugged in upon and complete the circuit through said jack-frame with the local battery, whereby the tip of the plug becomes magnetized and adheres to the jack so touched, substantially as and for the purpose set forth.

663,512. MUSIC NOTATION. GIDEON L. PETERSON, Minneapolis, Minn. Filed July 3, 1899. Serial No. 722,641. (No specimens.)



Claim.—The herein-described and shown music notation, written in a single horizontal space, an upper horizontal line of numerals arranged in said space denoting the notes of the soprano, another line of horizontal numbers below the soprano-numbers denoting the bass, and the accompaniment in the same line as the bass-numbers and consisting of a short horizontal line having numbers below the line denoting the chord to be played and having a single number above the line to denote the number of times the chord is to be repeated.

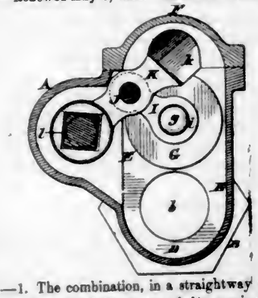
663,513. WRITING-PAPER. FRIEDRICH G. J. POST, Hamburg, Germany. Filed Mar. 8, 1900. Serial No. 7,869. (No specimens.)



Claim.—1. A sheet of writing-paper having one or more of its edges colored with a copying-color, whereby the limits of the sheet are indicated on a continuous press-copy sheet, substantially as described.

2. A writing-paper, having one or more of its edges colored with a copying-color at one or more points, whereby the limits of the sheet are indicated on a continuous press-copy sheet, substantially as and for the purpose described.

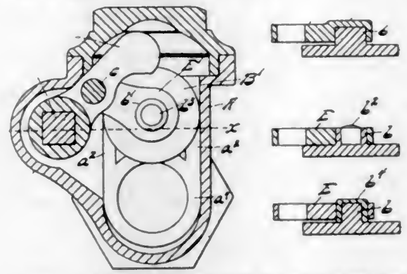
663,514. STRAIGHTWAY VALVE. JAMES POWELL, Cincinnati, Ohio, assignor to the William Powell Company, same place. Filed May 8, 1899. Renewed May 5, 1900. Serial No. 15,646. (No model.)



Claim.—1. The combination, in a straightway valve, of an inclosing shell having a pair of fluid-passages *b*, *b'*; a pair of valve-seats C, C', and guides E, E, E', E'; a vibrating wedge-lever K; connecting-links I, I', coupled to said lever; and disk valves G, H, swiveling therein; said wedge-lever adapted to close or release said disks while they are at rest, substantially as herein described.

2. The combination, in a straightway valve, of an inclosing shell having a pair of fluid-passages *b*, *b'*, a pair of valve-seats C, C', and a pair of duplicate guides E, E, E', E'; a vibrating lever K fitted within said shell, and having a wedge *k*; a pair of links I, I', coupled to said lever, and having eyes *i*, *i'*, near their free ends; and a pair of disk valves G, H, having, respectively, pivots *g*, *h*, traversing said eyes and adapted to be operated by said wedge, in the manner described, and for the purpose stated.

663,515. GATE-VALVE. JAMES POWELL, Cincinnati, Ohio. Filed July 16, 1900. Serial No. 23,761. (No model.)



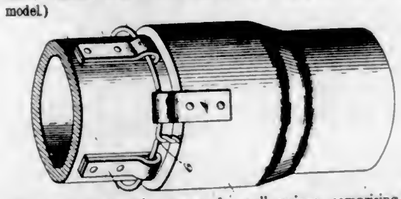
Claim.—1. In a gate-valve the combination of a case having a channel therethrough for the passage of a fluid, a valve-seat encircling the channel, a valve-disk in the case, and a vibrating lever to carry the valve-disk into the channel to stand at rest opposite its seat and terminating in a wedge at its end to impinge against the valve-disk after it has so come to rest to carry it firmly against its seat, substantially as shown and described.

2. In a gate-valve the combination of the case having a channel therethrough for the passage of a fluid, a valve-seat encircling the channel, a valve-disk having an inwardly-projecting recessed stud, a wearing-pin seated within the recess and projecting beyond the end of the stud, a vibrating lever terminating in a wedge, and a link at one end pivoted to the lever and at the other end perforated to pass over the stud whereby the lever carries the valve-disk into the channel to stand at rest opposite its seat and then with its wedge impinges against the wearing-pin to carry the disk firmly to its seat, substantially as shown and described.

3. In a gate-valve the combination of a case having a channel therethrough, a pair of valve-seats in the walls of the case encircling the channel, valve-disks within the case, a vibrating lever between them terminating in a wedge and a link upon each side of the lever coupling the disks thereto so that the lever carries the disks to rest opposite their seats in advance of its end and then impinges against them to force them firmly against their seats, substantially as shown and described.

4. In a gate-valve the combination of a case having a channel therethrough, a pair of valve-seats in the case encircling the channel, a pair of valve-disks in the case each having an inwardly-projecting recessed stud, a wearing-pin seated within each recess and projecting beyond the end of the stud, a vibrating lever between the disks, and a link pivoted upon each side of the lever, and having a perforated end to pass over the studs, whereby the disks are carried to rest opposite their seats and then are forced to their seats by the wedge-shaped end of the lever impinging against the pins, substantially as shown and described.

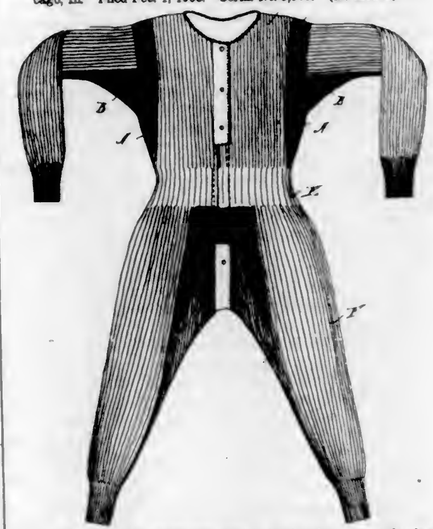
663,516. FASTENER FOR WELL-CASINGS. DANIEL I. ROWLAND, Palisade, Nebr. Filed May 26, 1900. Serial No. 18,127. (No model.)



Claim.—1. A fastening means for well-casings, comprising reversely-arranged eyes on the joined extremities of the casing lengths or sections and arranged in alternation in circumferential alinement, and a wire threaded through the said eyes and the ends thereof interlocked to draw it snugly against one of the lengths or sections.

2. A fastening means for well-casings, comprising reversely-arranged eyes on the joined extremities of the casing lengths or sections, the eyes of one length or section extending over the terminal of the adjacent length or section and the eyes of both lengths or sections arranged in alternation and in transverse alinement, and a wire threaded through the said eyes and the ends thereof interlocked to draw it snugly against one of the lengths or sections.

663,517. KNITTED UNDERWEAR. GEORGE E. RUTLEDGE, Chicago, Ill. Filed Feb. 1, 1900. Serial No. 3,579. (No model.)

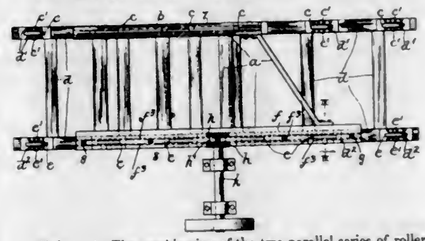


Claim.—1. The herein-described knitted undergarment, having the inner sides of its sleeves, the side portions of its body and the inner sides of its legs formed with a greater number of stitches than are employed in the remaining portions of the garment by the introduction of intermediate wales.

2. The herein-described knitted undergarment, having at the inner side of the arms at the juncture thereof with the body portion, a greater number of stitches than in the same area in the outer portions of the garment, such stitches being formed by the introduction of intermediate wales.

3. The herein-described knitted undergarment, having its sleeves provided with gores integral with the remainder of the sleeve but having relatively a greater number of wales.

663,518. MECHANISM FOR PROPELLING AND GUIDING TRACK-ENGAGING CARRIAGES. REINHARD SCHEIDLER, Newark, Ohio. Filed Mar. 29, 1900. Serial No. 10,616. (No model.)



Claim.—1. The combination of the two parallel series of rollers or wheels, the body portion or framework of the carriage propellably mounted upon the said rollers or wheels and comprising a timber arranged above and longitudinally of one of the said series of rollers or wheels, a metallic bar *f* arranged at and longitudinally of the under side of the said timber and provided, upon its upper side, centrally between its side or longitudinal edges, with a reinforcing rib or flange *f'* extending into and longitudinally of the aforesaid timber, which bar is provided, upon its under side, with two depending parallel flanges extending longitudinally of the bar, and the last-mentioned rollers or wheels extending between the said flanges, substantially as shown, for the purpose specified.

2. The combination, with two parallel series of rollers or wheels, and

the body portion or framework of a carriage that is propellably mounted upon the said rollers or wheels and comprises a timber arranged above and longitudinally of one of the said series of rollers or wheels, of a bar arranged at the under side and longitudinally of the said timber and having its upper side provided with a reinforcing rib or flange that has its sides beveled and conforms, in cross-section, to and engages a groove or channel formed in and arranged longitudinally of the lower side of the timber, which bar has its lower side provided with two depending flanges arranged opposite the aforesaid reinforcing flange or rib and arranged at opposite sides, respectively, and longitudinally of, and in close proximity to, the series of rollers or wheels arranged below the bar, substantially as and for the purpose set forth.

3. The combination, with two parallel series of rollers or wheels, and the body portion or framework of a carriage that is propellably mounted upon the said rollers or wheels and comprises a timber arranged above and longitudinally of one of the said series of rollers or wheels, of a bar arranged at the side and longitudinally of the said timber and having its upper side provided with a reinforcing rib or flange that extends into and longitudinally of the lower side of the timber and is provided with screw-threaded holes extending therethrough at suitable intervals longitudinally of the bar, which bar has its lower side provided with two depending flanges arranged opposite the aforesaid reinforcing flange or rib and arranged at opposite sides, respectively, and longitudinally of, and in close proximity to, the series of rollers or wheels arranged below the bar, and bolts or screws extending vertically through the aforesaid timber and having their shanks engaging the aforesaid holes, substantially as and for the purpose set forth.

4. The combination, with two parallel series of rollers or wheels, and the body portion or framework of the carriage propellably mounted upon the said rollers or wheels, of a metallic bar secured to the under side and arranged longitudinally of the said framework, which bar is provided, upon its lower side, with two parallel racks arranged a suitable distance apart, and two suitably-supported and suitably-driven pinions meshing with the different racks, respectively, and one of the aforesaid series of rollers or wheels being arranged between the racks at suitable intervals longitudinally of the carriage.

5. The combination, of two parallel series of rollers or wheels, the body portion or framework of a carriage propellably mounted upon the said rollers or wheels, a metallic bar secured to the under side and arranged longitudinally of the said framework, which bar is provided, upon its lower side, with two depending parallel flanges arranged a suitable distance apart and extending longitudinally of the bar, two racks formed upon the bar at the outer side of the different flanges, respectively, and the two pinions meshing with the different racks, respectively, and rotatable in unison, and one of the aforesaid series of rollers or wheels being arranged between the aforesaid flanges at suitable intervals longitudinally of the bar, substantially as shown, for the purpose specified.

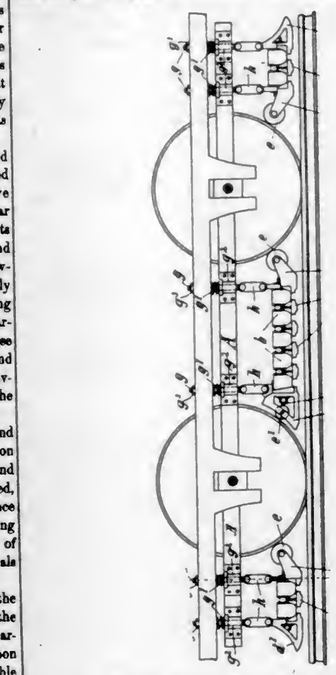
6. The combination, with two parallel series of rollers or wheels, and the body portion or framework of a carriage that is propellably mounted upon the said rollers or wheels and comprises a timber arranged above and longitudinally of one of the said series of rollers or wheels, of a metallic bar arranged at and longitudinally of the under side of and secured to the said timber, which bar is provided, upon its under side, with two depending flanges arranged at opposite sides, respectively, and longitudinally of, and in close proximity to, the series of rollers or wheels arranged below the bar, two racks formed upon the bar at the outer side of the different depending flanges, respectively, between the lower and free longitudinal edge of the adjacent flange and the body portion of the bar, and two suitably-supported and suitably-operated pinions meshing with the different racks, respectively, and rigid with each other, substantially as shown, for the purpose specified.

663,519. ELECTRIC RAIL-BRAKE. RUDOLF W. M. SCHIEMANN, Dresden, Germany. Filed May 22, 1899. Serial No. 717,786. (No model.)

Claim.—1. A multipolar electromagnet comprising a conductive core, conductive spools carrying the wire coils threaded on said core, said coils wound and interconnected to form a multipolar electromagnet with alternating positive and negative poles, and brake-shoes secured to the core between the flanges of said spools, substantially as and for the purpose set forth.

2. A multipolar electromagnet comprising a conductive core, conductive spools carrying the wire coils threaded on said core, said coils wound and interconnected to form a multipolar electromagnet with alternating positive and negative poles, brake-shoes secured to the core between the flanges of said spools and partly surrounding the latter, in combination with outer brake-shoes secured to and partly surrounding the end spools of the electromagnet, said outer brake-shoes having segmental faces and being provided with antifriction-rollers, substantially as and for the purpose set forth.

3. A multipolar electromagnet comprising a conductive core, energizing-spools on said core interconnected to form a multipolar magnet, brake-shoes between the spools and shoes provided with antifriction-rollers arranged to engage the wheels of a car, substantially as described.



4. A multipolar electromagnet comprising a conductive core, energizing-spools on said core, interconnected to form a multipolar magnet, brake-shoes between the spools, one end shoe provided with a friction-roller arranged to engage a car-wheel, and the other end shoe arranged to act as a fender, substantially as described.

5. A rail-brake, comprising a conductive core, energizing-spools on said core interconnected to form a multipolar magnet, brake-shoes between said spools and a link suspension for the brake.

6. In combination with a car-truck, of an electric wheel and rail brake comprising a conductive core, energizing-spools on said core interconnected to form a multipolar magnet, brake-shoes between the spools, links connected to said brake, rods connected to the links and sliding in bearings mounted on the truck, abutments on said rods and springs interposed between the abutments and bearings, substantially as described.

7. In combination with a car-truck, of an electric wheel and rail brake comprising a conductive core, energizing-spools on said core interconnected to form a multipolar magnet, brake-shoes secured to the core between the spools, flanges on said shoes partly surrounding said spools, links connected to said brake, rods connected to the links and sliding in bearings mounted on the truck, abutments on said rods and springs interposed between the abutments and bearings, substantially as described.

663,520. GLOVE-FASTENER. MADISON D. SHIPMAN, De Kalb, Ill. Filed Apr. 27, 1897. Serial No. 634,146. (No model.)



Claim.—1. In a glove fastening or button a back-piece consisting of a hollow annular flaring body centrally projected from a disk, and having a contracted opening at the flanged end of said body to admit the attaching end of a catch or eyelet; a clench turning surface within said body to turn the attaching end of the eyelet or stud catch, in combination with a catch or eyelet, substantially as set forth.

2. A button or fastening-head provided with a back-piece consisting of a metal disk having an annular flaring body projected therefrom and an eyelet turning surface within said body, and a plastic or celluloid covering anchored to and protected by said back-piece, substantially as set forth.

3. A button or fastener-head consisting of a metallic back adapted to rest on the material to which the head is to be attached, and a hollow, flaring body integral with and projected from said back-piece, to secure and hold the end of the fastening means, and a covering of plastic composition anchored to said back-piece, substantially as set forth.

4. A button or fastening-back consisting of a metallic disk integral with a hollow, flaring, annular projection, substantially as and for the purpose set forth.

5. The head of a fastening or button consisting of a back-piece comprising a metallic disk and a hollow flaring body projected therefrom forming an annular recess between said body and flange whereby a plastic covering may be secured to said back-piece, in combination with a plastic covering, substantially as set forth.

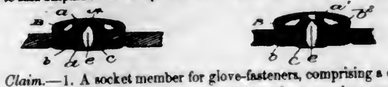
6. The combination of a stud or button secured to the fabric by a rivet having a flange, a hollow, wedge-shaped stem projected therefrom, and a rounded penetrating end turned or burred within said stud or button, substantially as and for the purpose set forth.

7. The socket member of a glove-fastening consisting of a back-piece having a hollow, flaring body projected therefrom, and a cap or cover secured therewith, and a stud-catch comprising a guard-piece having a hollow, bulging body and a base-flange integral therewith, and a slitted-shell catch-piece held loosely within the body of the guard-piece, the unflanged end of the guard-piece interlocked with the hollow body of the back-piece, substantially as set forth.

8. In the socket member of a glove-fastening a stud-catch consisting of a hollow, barrel-shaped body and an outlying flange integral therewith, and a slitted-shell catch-piece secured within said catch-guard, substantially as and for the purpose set forth.

9. A socket member having a stud-catch consisting of a guard-piece having contracted upper and lower openings, and a catch-piece held within the body of said catch-guard by said contractions, and a head to which the catch is clenched to hold it on the fabric, substantially as set forth.

663,521. GLOVE-FASTENING. MADISON D. SHIPMAN, De Kalb, Ill., and EMMET P. BUNYEA, Washington, D. C.; said Bunyea assignor to said Shipman. Filed Apr. 28, 1897. Serial No. 634,254. (No model.)



Claim.—1. A socket member for glove-fasteners, comprising a catch having a hollow body portion, an outlying base-flange, and an annular recess or contraction at the junction of the body portion and flange, an eyelet having a cap or cover secured thereto, the end of said eyelet being passed through the material and having its tubular edge curled within the annular recess or contraction, substantially as described.

2. The socket member of a glove-fastener consisting of a closed top or cover as b^3 and a flanged fastening-eyelet as B secured thereto, and a stud-catch having a bulging body portion, a recess below the bulge of said body portion to receive the curled end of the fastening-eyelet, and a deflecting-surface integral with the flange of the stud-catch whereby the end of the fastening-eyelet is burred and the socket member is secured to the material subtantially as set forth.

3. A stud-catch for glove-fasteners comprising a bulged body portion and outlying base-flange, the body portion being contracted at its junction with the flange to form an annular recess to receive the turned end of a fastening-eyelet, and which also serves as an anvil or clenching-surface for turning the end of the attaching-tube, substantially as described.

4. A stud-catch for glove-fasteners consisting of a catch having a hollow flaring body portion and an outlying base-flange, a groove or recess as c surrounding the said contracted portion and a clenching-surface on said flange.

5. A socket member for glove-fasteners comprising a resilient catch having an outwardly-swelled body portion and an outlying base-flange, a recess at the junction of the body and the flange and an eyelet or fastening-set from the opposite side of the material and having its edge curled or clenched within said recess surrounding the catch, said curled portion serving as a guard, shield or stop to limit the expansion of the catch, substantially as described.

6. A stud member of a glove-fastener composed of a hollow head provided with a flange, and a fastener therefor having a hollow piercing-point, a crippling notch or depression in its stem and the exposed surface of its flange covered with celluloid or other plastic material, the stem of the fastener burred within the head of the stud and the flanges of the head and the rivet clamping the material between them.

7. A rivet for securing studs or buttons to imperforate sheet material comprising a base-flange, a hollow tapering shank rising from said flange, said shank being provided with an acute conical point for piercing the material, substantially as described.

8. A rivet for securing studs or buttons to imperforate sheet material consisting of a base-flange, a hollow tapering shank rising therefrom, a conical point at the end of the shank and an annular ridge or offset at the junction of the shank and point, substantially as described

9. A rivet consisting of a base-flange, a hollow integral tapering shank rising from the center of said flange, a conical point on said shank and a depression or notch at the point of juncture of the shank and point, substantially as described.

10. A hollow rivet comprising a base-flange, an integral tapering shank projected therefrom and a disk of plastic material secured to the outer edge of the flange for covering said flange upon its exposed surface, substantially as described.

11. A hollow rivet comprising a base-flange, a tapering pointed shank rising from said flange, ears or anchors at the periphery of said flange and a film of plastic material covering the outer surface of the flange and held thereon by said ears or anchors, substantially as described.

12. A stud member of a glove-fastener comprising a head having a base-flange, and an annular groove or depression within the flange at the junction of said flange and head portion, substantially as described.

13. A stud member of a glove-fastener consisting of a hollow head having a base flange, said stud member being secured to the material by a rivet comprising a base-flange, a hollow tapering shank rising from said flange, said shank being provided with an acute conical point for piercing the material, substantially as described.

663,522. GAME APPARATUS. ANSON P. STOKES, Jr., Cambridge, Mass. Filed Feb. 3, 1900. Serial No. 3,822. (No model.)



Claim.—1. A game apparatus comprising a board having a hole, a plain-surfaced putting-green surrounding said hole, and a teeing-ground, said board having an irregular surface between the teeing-ground and the putting-green, and a counter, whereby the counter must be propelled through the air from the teeing-ground onto the putting-green and can be slid from the putting-green into the hole by the manipulation of the board, substantially as described.

2. A game apparatus, comprising a board having holes, plain-surfaced putting-greens surrounding said holes, and teeing-grounds, said board having hazards between certain of the teeing-grounds and putting-greens in the form of raised bunkers, and a counter, whereby the counter must be propelled through the air from the teeing-grounds onto the putting-greens and can be slid from the putting-greens into the holes by the manipulation of the board, substantially as described.

3. A game apparatus, comprising a board having a raised plain-surfaced putting-green within which is a hole, and a teeing-ground, and a counter, whereby the counter must be propelled through the air from the teeing-ground onto the putting-green and can be slid from the putting-green into the hole by the manipulation of the board, substantially as described.

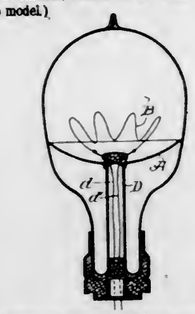
4. A game apparatus comprising a board having plain-surfaced putting-greens within which are holes, and teeing-grounds, said board having between certain of the putting-greens and teeing-grounds raised bunkers and a tortuous depression, and a counter whereby the counter must be propelled through the air from the teeing-grounds onto the putting-greens and can be slid from the putting-greens into the holes by the manipulation of the board, substantially as described.

663,523. STIRRUP. EPHRAIM M. TURNER, Fort Worth, Tex. Filed Oct. 29, 1898. Serial No. 694,882. (No model.)



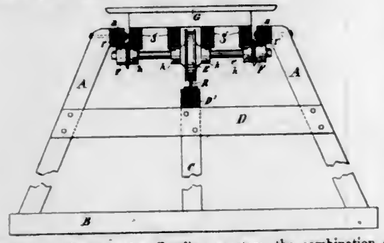
Claim.—In a stirrup provided with a supporting-bar, a bottom, and side bars; the combination of an instep-bar below said supporting-bar and integral with said side bars and a heel-guard consisting of a rear extension of said bottom having a recess cut therein approximately the width of a boot or shoe heel for the purpose set forth.

663,524. INCANDESCENT LAMP. SAMUEL D. WASHBURN, Boston, and CLARENCE H. TINKHAM, Cambridge, Mass.; said Tinkham assignor to Fred F. Rhodes, Boston, Mass. Filed Mar. 12, 1900. Serial No. 8,314. (No model.)



Claim.—The improved incandescent lamp comprising the exhausted bulb; the glass tube extending into the exhausted bulb and sealed at its outer end to the neck of the exhausted bulb, and at its inner end about the wires which support the filament; and a disk of metal within the exhausted bulb and mounted on the glass tube, near its inner end, substantially as above described.

663,525. ELEVATED SINGLE-RAIL RAILWAY. ALEXANDER A. WELSH, Allegheny, Pa., assignor, by direct and mesne assignments, to the Crawley Scenic and Pleasure Railway Company, Cincinnati, Ohio. Filed Aug. 20, 1900. Serial No. 27,499. (No model.)



Claim.—1. In a single-rail railway system, the combination of a fixed axle; a double-flanged bearing-wheel centrally pivoted thereon; guard-wheels of lesser diameter journaled at the extremities thereof; a main central rail carrying the bearing-wheels; and guard-rails carried at the sides of and above the main rail and guard-wheels and approximately in the contact-path of the latter.

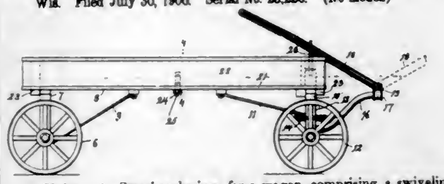
2. In an elevated railway system, the combination of a supporting structure, including oppositely-inclined struts and cross-braces uniting the struts below their tops; and means for carrying the bearing-rail centrally between the struts above the cross-braces and guard-rails carried at the inner sides of the struts above the main bearing-rail, adapted for the operation of a car or truck having one or more axles provided with double-flanged bearing-wheels bearing upon the central rail and guard-wheels of lesser diameter journaled at the extremities of the axle beneath and in approximate contact with the guard-rails.

3. The elevated "single-rail railway" structure embodying oppositely-inclined struts, cross-braces uniting the same below their tops, central vertical props rising to the cross-braces, a stringer for the support of the main bearing-rail carried on the tops of the central props and the cross-braces, and two side stringers for the support of the guard-rails and carried at the inner sides of the inclined side struts above the cross-braces, substantially as set forth.

4. In a single-rail railway, the combination of a supporting structure including oppositely-inclined struts, means connecting them below their tops, and vertical props, a main rail, a double-flanged wheel adapted to run thereon, an axle or axle-bar extending axially at both sides of said wheel, single-flanged guard-wheels at the extremities of said axle or axle-bar, and guard-rails at both sides of said central track, fixed to the supporting structure above the plane of the main rail and arranged just above the normal plane of rolling contact of said guard-wheels, substantially as set forth.

5. In an elevated railway, the combination of a supporting structure including oppositely-inclined struts, horizontal braces connecting said struts below their tops and vertical posts between opposite struts, main and guard rails, means for securing the guard-rails in position near the plane of the tops of the struts and means for securing the main rails in position just above the plane of the cross-braces, the main bearing-wheels, and guard-wheels mounted on extensions of the axle thereof at opposite sides, said guard-wheels arranged below and in the contact-path of the guard-rails.

663,526. BOY'S WAGON. ARTHUR WHITE, Sheboygan Falls, Wis. Filed July 30, 1900. Serial No. 25,226. (No model.)



Claim.—1. Steering devices for a wagon, comprising a swiveling front axle provided with wagon-wheels, hounds secured to and projecting from the front axle forwardly and upwardly, a tongue pivoted in the hounds so as to be capable of extension forwardly or rearwardly from its pivot, and means on which the tongue can fulcrum medially when extending rearwardly.

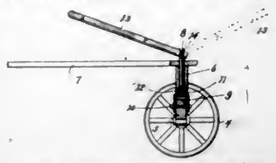
2. In combination, a front axle provided with wheels, a wagon-frame to which the front axle is swiveled, a pair of hounds projecting forwardly and upwardly from the front axle, a tong pivoted in the hounds, and a thole-pin mounted on the wagon-frame at the rear of the hounds and substantially in the prolongation of the axis of the king-bolt.

3. In combination in a boy's wagon, a wagon-frame, a front axle swiveled to the frame, a pair of hounds fixed in and projecting forwardly and upwardly from the front axle, a cross-piece fixed on the front ends of the hounds, a tongue pivoted in the cross-piece, and a thole-pin mounted rotatably in the front end of the frame at the rear of the hounds, said thole-pin being adapted to receive the tongue medially and removably therein and to serve as a fulcrum in and with which the tongue can be swung laterally.

4. In combination, a wagon-frame comprising a front and a rear bolster, an elastic bottom secured to the bolsters, rigid sides and ends of a box fitted removably on the bottom, means to clamp the bottom medially to the under edges of the box, and a front axle swiveled under the front end of the frame, hounds projecting forwardly and upwardly from the front axle, a tongue pivoted in the front ends of the hounds, and means on the front end of the frame adapted to take the tongue medially therein, and serve as a fulcrum therefor.

5. In combination in a wagon, front and rear bolsters, a spring-bottom secured to and extending from one bolster to the other bolster, a box 22 comprising side and end boards, clips 24 fixed to the sides medially and adapted to project through and below the bottom, and a transverse bar 23 adapted to enter the clips and hold the bottom to the box.

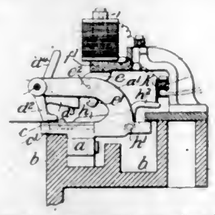
663,527. WHEELED COASTER. ARTHUR WHITE, Sheboygan Falls, Wis. Filed Aug. 15, 1900. Serial No. 26,939. (No model.)



Claim.—1. The combination of a vehicle-bottom, a bolster secured therebeneath, an axle and the wheels mounted thereon, a king-bolt extending upwardly from the axle and loosely through the bolster and through the vehicle-bottom, and a tongue pivotally secured to the upper end of the king-bolt so as to be capable of being thrown forwardly and rearwardly.

2. The combination of a vehicle-bottom, an axle and the wheels mounted thereon, a king-bolt pivotally secured at its lower end on a pivot-bolt extending transversely of the axle, said king-bolt extending upwardly from the axle and loosely through the vehicle-bottom, and a tongue pivotally secured to the upper end of the king-bolt so as to be capable of being thrown forwardly and rearwardly.

663,528. ELECTRICALLY-OPERATED CLIP FOR TENTERING-MACHINES. WILLIAM WHITELEY and WILLIAM WHITELEY, Jr., Huddersfield, England. Filed July 27, 1900. Serial No. 25,016. (No model.)

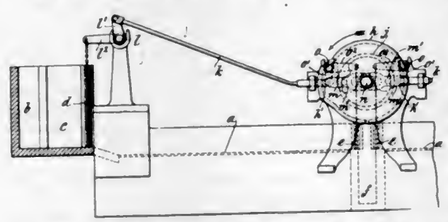


Claim.—1. The combination, with a traveling chain, and a clip moving with the chain and provided with a pivoted jaw; of a catch which normally holds the said jaws open, and an electromagnet operating when energized to retract the said catch and release the said pivoted jaw, substantially as set forth.

2. The combination, with a traveling chain, and a clip moving with the chain and provided with a pivoted jaw; of a catch also traveling with the chain and normally holding the said jaws open, and a stationary electromagnet arranged adjacent to the path of the said catch and operating, when opposite to it and energized, to retract it and thereby release the pivoted jaw, substantially as set forth.

3. The combination, with a traveling chain, and a clip moving with the chain and provided with a pivoted jaw; of a pivoted feeler and a pivoted catch for the said jaw also traveling with the chain, an electromagnet for retracting the said catch and releasing the pivoted jaw, and electric contact mechanism arranged in the path of the said feeler and operating to permit the electromagnet to be energized when the clip reaches a prearranged position, substantially as set forth.

663,529. PAPER-PULP STRAINER. JAMES WILSON, London, England. Filed May 23, 1900. Serial No. 17,750. (No model.)



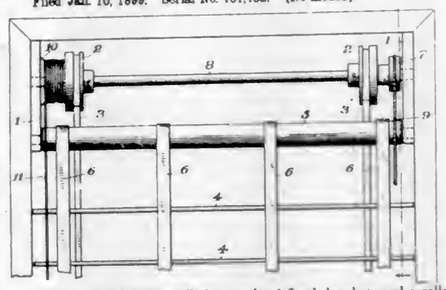
Claim.—1. The combination of a strainer-plate, means for supplying pulp to the plate and a sluice at each end of the plate.

2. The combination of a strainer-plate, means for supplying pulp to the plate, a sluice at each end of the plate, the sluice at the inlet end being usually open and the sluice at the other end being usually closed, and means for operating the sluices whereby periodically the sluice at the inlet end is first closed, then the sluice at the other end is opened, the sluice at the inlet end is next opened and lastly the sluice at the other end is closed.

3. The combination of a strainer-plate, a tank, means for continuously supplying pulp to the tank, a sluice between the tank and the plate and a second sluice at the other end of the plate.

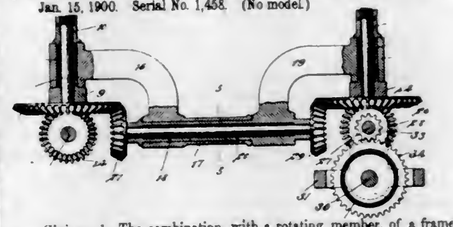
4. The combination of a strainer-plate, a tank, means for continuously supplying pulp to the tank, a sluice between the tank and the plate, a second sluice at the other end of the plate the first sluice being usually open and the second sluice being usually closed and means for operating the sluices whereby periodically the first sluice is closed, then the second sluice is opened, the first sluice is next opened and lastly the second sluice is closed.

663,530. VENETIAN BLIND. JAMES O. WILSON, New York, N. Y. Filed Jan. 10, 1899. Serial No. 701,752. (No model.)



Claim.—In Venetian blinds, a pair of fixed brackets and a roller journaled between them with a tumbling-bar 5 having its pivot attached to the said brackets below the said roller and in a vertical plane outside the plane of the roller-shaft, a pulley loose on the said shaft at one end thereof, a lifting-cord 9 which passes over the top of the said pulley from the inner side thereof and down on the outer side of the said pulley to the free outer end of the tumbling-bar to which it is attached, the cords 6 suspended from the ends of the said tumbling-bar and the slats 4 extended across from one of the said cords to the other and arranged in series for simultaneous opening and closing, substantially as set forth.

663,531. GEARING. EDWARD R. BALES, Centralia, Ill. Filed Jan. 15, 1900. Serial No. 1,458. (No model.)



Claim.—1. The combination, with a rotating member, of a frame mounted to turn around the axis thereof, a rotary shaft mounted to move with the frame and placed parallel to the axis of said rotating member, a yoke mounted to rock on the frame on an axis coincident with that of the said rotary shaft, a bevel gear-wheel mounted in the yoke to move therewith, a bevel gear-wheel fixed to the shaft and meshing with the first-named gear-wheel, and spur-gears fast respectively to the shaft and said rotating member, to transmit movement between the two.

2. The combination of a driving member, a driven member, a gear fixed to the driving member, a second gear driven by the first-named gear, a yoke in which the second gear is mounted to turn, the yoke being mounted to swing around the axis of the first-named gear, an arm by which the yoke is supported to turn on an axis coincident with that of the second-named gear, a second arm having turning connection with the first-named arm, a shaft carried by the arms, the arms turning around the axis of such shaft, a third gear attached to the shaft and meshing with the second gear to be driven thereby, a second yoke mounted to turn in the second arm, a fourth gear-wheel mounted in the second yoke and having its axis coincident with the axis of the movement of such yoke on the second arm, a fifth gear attached to the shaft and meshing with the fourth gear, a second shaft mounted to turn in the second yoke, a sixth gear fixed to the second shaft and meshing with the fourth gear, a frame for mounting the second yoke to swing on an axis coincident with that of the second shaft, such frame being mounted to turn around the axis of the driven member, and means for transmitting the movement of the second shaft to the said driven member.

3. In a gearing, the combination of a rotating member, a frame arranged to turn around the axis thereof, a second rotating member carried in the frame with its axis parallel to that of the first rotating member, a yoke mounted to rock on the frame around the axis of the second rotating member, a third rotating member carried in the yoke and having its axis disposed at an angle to those of the first and second rotating members, and means for transmitting driving movement between the three rotating members.

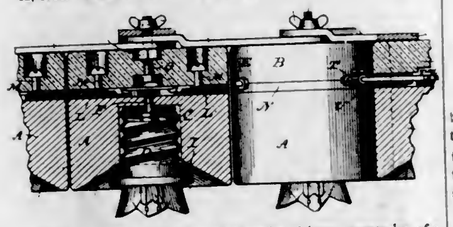
4. In a gearing, the combination of a frame, a yoke, one of said elements having tubular extensions loosely mounted in the other of said elements whereby the frame and yoke may have relative movement around the axes of said extensions, a rotating member mounted in the frame, a

second rotating member mounted in the said tubular extensions, and means for driving one of said rotating members from the other without interference with the relative movement of the frame and yoke.

5. In a gearing, the combination of two frame members one of which has longitudinally-alined tubular extensions mounted to turn in the other, two gear members mounted respectively in the frame members, and means for driving the gear members the one from the other without interference with the relative movement of the frame members.

6. In a gearing, the combination of two frame members, the one of which is formed with a bearing and the other of which is formed with a tubular stanchion mounted to turn in the bearing whereby the frame members are allowed relative turning movement, two rotating members respectively mounted in the tubular stanchion and in the frame member carrying the bearing such rotating members having axes at angles to each other, and means for driving the rotating members the one from the other without interference with the relative movement of the said frame members.

663,532. **FLEXIBLE SUPPORTING STRUCTURE FOR ELECTRIC LAMPS.** WILLIAM F. BREWSTER, New York, N. Y. Filed June 12, 1900. Serial No. 20,005. (No model.)



Claim.—1. The combination with a series of lamp-receptacles, of a series of link connections between them, and means for defining the positions of the receptacles relative to each other.

2. The combination with a series of lamp-receptacles, of a series of link connections between them, each link formed as a flat plate with one end turned upward and in a different horizontal plane, and means for defining the position of the receptacles relative to each other.

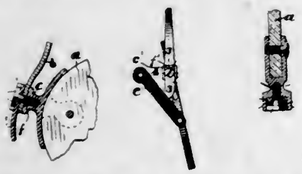
3. The combination with a series of lamp-receptacles, each receptacle consisting of two parts, one part connected to the electrical conductors and carrying a socket for the lamps, and the other part connected to an adjustable connecting device, a series of adjustable connecting devices, and means for defining the position of the receptacles relative to each other.

4. The combination with a series of lamp-receptacles, each receptacle consisting of two parts, one part having a concave reflecting-face and carrying the usual socket, and the other part carrying a projecting bolt and thumb-nut, and a series of adjustable connections interposed between the receptacles.

5. A supporting structure for electric lamps, comprising a series of independent receptacles, a series of independent connecting devices which will permit relative movement of the receptacles, while maintaining their distance, and means for fixing the position of the receptacles.

6. The combination with a series of lamp-receptacles, of a connecting device between pairs of such receptacles which will permit of the position of the receptacles relative to each other being altered, while maintaining the distance between such receptacles.

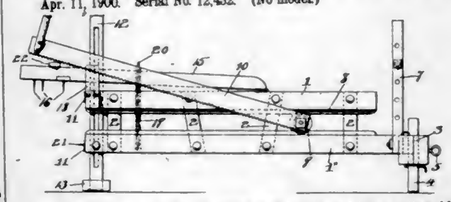
663,533. **EYEGLASSES.** WILLIAM F. CUSHMAN, Boston, Mass. Filed June 14, 1900. Serial No. 20,304. (No model.)



Claim. -1. In eyeglasses, the combination of the post having the two independent ears or side pieces which are higher than the combined thickness of the bow and the nosepiece-shank, so that the outer portions of the said side pieces project outwardly beyond the outer surface of the shank, said side pieces being adapted to be bent inwardly toward each other, and the connecting-screw having a polygonal head extending entirely across the space between the side pieces and bearings simultaneously against the inner surfaces of the projecting portions of the same when said side pieces are bent inwardly, the faces of the polygonal head being of sufficient length to prevent rotation of the screw by their bearing against the side pieces.

2. In eyeglasses, the combination of the post having a two-sided box, the sides of which are higher than the combined thickness of the bow and the nosepiece-shank, so that the outer portions of the said sides project outwardly beyond the outer surface of the shank, and the connecting-screw having a polygonal head provided with an odd number of faces and extending entirely across the space between the box sides, one of said faces bearing squarely against one of the box sides, while the angle formed by two other faces bears at the same time against the other box side.

663,534. **CROSSCUT-SAW.** JOHN P. DEWITT, Troy, Pa. Filed Apr. 11, 1900. Serial No. 12,432. (No model.)



Claim.—1. A crosscut-saw comprising upper and lower adjustable tracks, a saw provided with a wheel adapted to operate between said tracks, a slotted standard, a beam one end hinged to the upper track, and the opposite end provided with spikes, and means by which it is adapted to be adjusted and secured at different heights on said slotted standard, substantially as shown and described.

2. A crosscut-saw comprising in combination, tracks, a saw provided with a wheel adapted to operate between said tracks, a beam hinged to the upper track and provided with a pivoted saw-supporting arm, substantially as shown and described.

3. A crosscut-saw comprising in combination upper and lower beams with adjustable tracks, a saw provided with a wheel adapted to operate between said tracks, the lower beam provided with a spike in its end, and the upper beam provided with an adjustable hinged beam having spikes, and a pivoted saw-supporting arm, subtantially as shown and described.

4. A crosscut-saw comprising in combination upper and lower adjustable beams having tracks, a saw provided with a wheel adapted to operate between said tracks, a guide on said upper beam, a slotted standard, a beam one end hinged to the upper adjustable beam and the opposite end provided with spikes, and means for adjusting and securing said beam on said slotted standard, substantially as shown and described.

5. A crosscut-saw comprising in combination upper and lower beams with tracks supported at one end between standards, and at the opposite end by a slotted standard on which they are adapted to be adjusted, a beam one end hinged to the upper beam, and the opposite end provided with spikes, and means for adjusting and securing said beam at different heights on said slotted standard, substantially as shown and described.

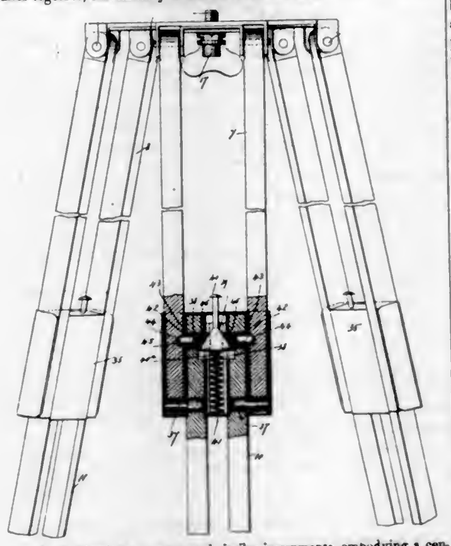
6. A crosscut-saw comprising in combination adjustable beams with tracks, a slotted standard, slides at one end of said beams which embrace and are adapted to be adjusted on said standard, a saw provided with a wheel adapted to operate between said tracks, substantially as shown and described.

7. In combination with a crosscut-saw, parallel tracks adjustably supported at one end between standards secured to a cross-block mounted on extensible legs and at the other end slidably fixed upon a slotted standard and a wheel running between said tracks and attached to one end of said saw, substantially as shown and described.

8. In combination with a crosscut-saw, parallel tracks carried by beams rigidly braced on one side, a wheel running between said tracks and attached to one end of said saw, a cross-block having legs passing through it and secured by set-screws at different heights, said cross-block provided with a recess in its top front adapted to receive the rear end of the lower beam, vertical standards attached to said cross-block on each side of said recess and adapted to sustain said rear end of said beam at different heights, a vertically-slotted standard slidably attached to the forward ends of said beams, a beam hinged to the top of the upper beam and projecting beyond the forward ends of said beams and provided with spikes beneath its front end, said hinged beam adapted to be secured at different heights on said slotted standard and connected by a chain hooked over a pin with said lower beam, substantially as shown and described.

663,535. **TRIPOD.** JOHN F. ESSNER and JOHN K. LOVE, Newark, N. J. Filed Apr. 26, 1900. Serial No. 14,381. (No model.)

Claim.—1. A tripod for cameras and similar instruments, embodying a central portion comprising a plurality of plates, with each of which one of the supports is pivotally connected, one of said plates being provided with a supplemental plate which is secured thereto and spaced therefrom, whereby the others of said plates may be passed between said first-named plate and said supplemental plate, and means for locking said plates together, substantially as shown and described.



2. A tripod for cameras and similar instruments, embodying a central portion comprising a plurality of plates, with each of which one of the supports is pivotally connected, one of said plates being provided with a supplemental plate which is secured thereto and spaced therefrom, whereby the others of said plates may be passed between said first-named plate and said supplemental plate, means for locking said plates together, and devices connected with one of said plates, and whereby the instrument-body is secured in position upon said plates, substantially as shown and described.

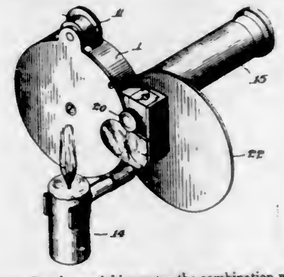
3. A tripod for cameras and other instruments, embodying a central portion with which the several supports are connected, said central portion comprising three members, one of which consists of a plate with which one of said supports is connected, and a supplemental plate secured thereto, and the outer end portion of which is spaced therefrom, the others of said members each consisting of a plate the outer end portions of which are of diminished thickness and formed to be passed between the plates of said first-named member, being provided with shoulders which are engaged with the periphery of one of the plates of said first-named member, the plates of said first-named member being connected by a stud, and the outer ends of said other members being recessed at their edges to embrace said stud, and means for locking said members together, substantially as shown and described.

4. A tripod for cameras and other instruments, embodying a central portion with which the several supports are connected, said central portion comprising a plurality of members, one of said members consisting of two spaced plates which are connected together, and between which the others of said members, each of which consists of a plate, are passed, said first-named member being provided with a plurality of spring-actuated locking devices, and said second-named members being provided each with a recessed portion in connection with which one of said locking devices operates, and whereby said members are securely locked together, substantially as shown and described.

5. A tripod for cameras and other instruments, embodying a main support and a supplemental support, said main support being bifurcated, said supplemental support being pivotally connected with the lower end of said main support and being provided with flanges which when the parts are in relative and extended position, engage and embrace the lower portions of said bifurcated main support, a casing mounted upon the upper end of said supplemental support and between the parts thereof, a spring-actuated locking-head slidably mounted in said casing, a locking-pin slidably mounted in said supplemental support laterally of said casing and arranged to operate in connection with the lower end of said main support, the relative construction and arrangement of parts being such that said locking-head causes the engagement of said locking-pin with said main support, said locking-head being provided with a thumb-piece whereby the same may be depressed to allow said main support and said supplemental support to be folded together, substantially as shown and described.

6. A tripod for cameras and similar instruments, embodying a central portion, comprising a plurality of plates, with each of which one of the supports is pivotally connected, one of said plates being provided with a supplemental plate which is secured thereto and spaced therefrom, whereby the others of said plates may be passed between said first-named plate and said supplemental plate, and spring-catches which are secured to said plate which is provided with said supplemental plate, and which operate through slots formed in said supplemental plate, to engage said plates which are passed between said supplemental plate and the plate with which the same is connected, to lock said plates together, substantially as shown and described.

663,536. **HEMOGLOBINOMETER.** SAMUEL L. FOX, Haverford, and EDMUND S. CLARK, Philadelphia, Pa., assignors to the Queen & Company, of Pennsylvania. Filed Sept. 22, 1900. Serial No. 30,768. (No model.)



Claim.—1. In a hemoglobinometer the combination with a suitable casing of a recessed translucent disk, rotatably supported within the casing and provided with a prism or plate of ruby glass having its line of approximately uniform increase and decrease between its maximum and minimum thickness approximately concentric with the lines of rotation of the disk, substantially as described.

2. In a hemoglobinometer the combination of a casing, a translucent disk rotatably supported therein with a plurality of pieces of ruby glass attached thereto having an approximately uniform increase and decrease in thickness along lines concentric with the disk rotation, substantially as described.

3. In a hemoglobinometer the combination of a casing, a translucent disk pivotally supported therein, pieces of ruby glass supported on said disk having an approximately uniform increase and decrease in thickness upon lines concentric with the disk rotation, a receptacle for holding a film of fresh blood in juxtaposition with said ruby glass and two apertures in the casing close together, one adapted to superimpose the ruby glass, the other the film of blood, with means for illuminating said glass and blood upon the opposite side, substantially as described.

4. In a hemoglobinometer the combination of an apertured casing with a pivoted disk therein carrying sections of ruby glass having an approximately uniform increase in thickness along their lines of travel past the aperture in the disk, with means for displaying a film of blood in juxtaposition with said aperture, said means consisting of two translucent plates, part of one being ground away to leave a thin space between the two for sucking the blood therein by capillary attraction, substantially as described.

5. In a hemoglobinometer the combination with a suitable casing of a recessed translucent disk, rotatably supported within the casing and provided with a prism of ruby glass having its line of uniform increase and decrease between its maximum and minimum thickness approximately concentric with the lines of rotation of the disk and a knurled thumb-wheel frictionally connected with the disk as manually-operative means for rotating the disk, substantially as described.

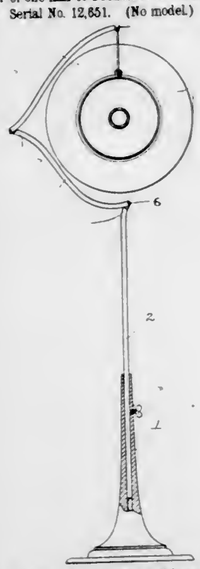
6. In a hemoglobinometer the combination of a casing, a translucent disk pivotally supported therein, pieces of ruby glass supported on said disk having a uniform increase and decrease in thickness upon lines approximately concentric with the disk rotation, a receptacle for holding a film of fresh blood in juxtaposition with said ruby glass and two apertures in the casing close together, one adapted to superimpose the ruby glass, the other the film of blood, with means for illuminating said glass and blood upon the opposite side, and telescopic means detachably connected with the casing for concentrating the vision upon the said two apertures, substantially as described.

7. In a hemoglobinometer the combination of a casing, a translucent disk pivotally supported therein, pieces of ruby glass supported on said

disk having a uniform increase and decrease in thickness upon lines approximately concentric with the disk rotation, a receptacle for holding a film of fresh blood in juxtaposition with said ruby glass and two apertures in the casing close together, one adapted to superimpose the ruby glass, the other the film of blood, with means for illuminating said glass and blood upon the opposite side, telescoping means connected with the casing for concentrating the vision upon the said two apertures and a folding shield pivotally secured to the casing adapted to carry the telescope and eyepiece into range with the apertures showing the blood and ruby glass, and at the same time to shade the observer from the light, substantially as described.

8. In a hemoglobinometer the combination of a casing, a translucent disk pivotally supported therein, pieces of ruby glass supported on said disk having a uniform increase and decrease in thickness upon lines approximately concentric with the disk rotation, a receptacle for holding a film of fresh blood in juxtaposition with said ruby glass and two apertures in the casing close together, one adapted to superimpose the ruby glass, the other the film of blood, with means for illuminating said glass and blood upon the opposite side, said disk provided with graduations upon a portion of its periphery with an aperture in the periphery of the casing to disclose the same, substantially as described.

663,537. **HORN-SUPPORT.** WILLIAM E. FURNISS, Cambridge, Mass., assignor of one-half to Frederick H. Pratt, Boston, Mass. Filed Apr. 12, 1900. Serial No. 12,651. (No model.)



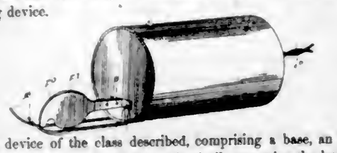
Claim.—1. A crane or support for talking-machine horns and similar articles, comprising an upright stem, and a laterally looped or bowed neck pivotally jointed to the upper end of said stem and adapted to support the horn by suspension from its upper end, said neck consisting of sections pivotally jointed together, and the whole being adapted to fold together into a reduced compass.

2. A crane or support for talking-machine horns and similar articles, comprising an upright stem, and a laterally looped or bowed neck pivotally jointed to the upper end of said stem and adapted to support the horn by suspension from its upper end, said neck consisting of a lower section and an upper section pivotally jointed together, the stem and sections of the neck having at their joints coacting abutments whereby each superposed part is supported at the joint in operative position upon the part beneath it, the parts being so related as to fold into a reduced compass, with the two sections of the neck in substantial alinement parallel to the stem.

663,538. **MECHANICAL ERASER.** ERNEST H. GATES, Troy, N. H. Filed Mar. 3, 1900. Serial No. 7,891. (No model.)

Claim.—1. A device of the class described, comprising a base, an electromagnet mounted thereon, a vibrating armature for the magnet, electric conductors for connection with a source of electrical energy, and an erasing device carried by and movable with the armature.

2. A device of the class described, comprising a base, an erasing device mounted thereon, means for mechanically operating the latter, and a work-holder also carried by the base and arranged to coöperate with the erasing device.



3. A device of the class described, comprising a base, an erasing device mounted thereon, means for mechanically operating the latter, and a forked work-holder carried by the base, having the outer ends of its tines bowed upwardly and also arranged to coöperate with the erasing device.

4. A device of the class described, comprising an erasing-blade, means for mechanically operating the same, and a forked work-holder, the tines of which are located at opposite sides of the erasing-blade.

5. A device of the class described, comprising a vibrating erasing-blade, means for vibrating the blade, and a forked spring work-holder, the tines of which are located at opposite sides of the blade to permit of the movement thereof, and the free ends of the tines being bowed upwardly.

6. A device of the class described, comprising a base, a vibrating eraser mounted thereon, means for operating the eraser, and a work-holder projecting in advance of the base.

7. A device of the class described, comprising a base, an eraser mounted thereon and projecting in advance thereof, means for operating the eraser, and a work-holder projecting in advance of the base and located beneath the eraser.

8. A device of the class described, comprising a base, a vibrating eraser mounted thereon, means for operating the eraser, and a forked work-holder located beneath the eraser, both the latter and the work-holder projecting in the same direction beyond the base, and the outer extremities of the tines of the fork being bowed upwardly.

9. A device of the class described, comprising a hollow handle, having a slot at one end thereof, an eraser projecting outwardly through the slot, and means housed within the handle for causing the eraser to vibrate in the slot.

10. A device of the class described, comprising a hollow handle, having a transverse slot at one end, and an opening at the opposite end thereof, an electromagnet housed within the handle, a vibrating armature also housed within the handle and projecting outwardly through the slot, an erasing-blade carried at the outer end of the armature, and a pair of electrical conductors passing outwardly through the opening in the opposite end of the handle.

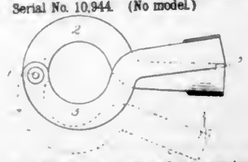
11. An eraser-blade, having a sharp convexed longitudinal edge, and a laterally-disposed pointed erasing-tongue adjacent to the outer end of the blade.

12. A device of the class described, comprising a mechanically-operated eraser-blade, having a pointed erasing and laterally-disposed tongue, and a forked work-holder, having its tines located at opposite sides of the eraser-blade, and the outer extremities of the tines being bowed upwardly.

663,539. **PROCESS OF PRODUCING TRANSFERS.** CARL GIESECKE, Hanover, Germany. Filed June 1, 1900. Serial No. 18,688. (No specimens.)

Claim.—The process of producing transfers which consists in preparing a body with a compound containing lithographic ink and transfer-ink, transferring the compound to unprepared paper by pressure, and then transferring it from the paper to the stone or zinc plate, substantially as specified.

663,540. **BAG-TIE.** HANS G. HANSEN, Howard Lake, Minn. Filed Mar. 31, 1900. Serial No. 10,944. (No model.)



Claim.—1. A bag-fastener consisting of two members pivotally secured together, the pivoted ends of the members being outwardly curved to form an intermediate opening to receive the end of the bag, the free end of each member beyond the curved portion being substantially straight, and the offset upon the straight portion of one member adapted to be engaged by the straight portion of the other member.

2. A bag-fastener consisting of two flat members pivotally secured together, the pivoted ends of the members being outwardly curved to form an intermediate opening to receive the end of the bag, the free end of each member beyond the curved portion being substantially straight,

and the straight portion of one member being formed with a notch to receive the edge of the opposite member.

663,541. **CUTTING APPARATUS.** ALBERT J. HARRISON, Luxor, Mo. Filed Mar. 26, 1900. Serial No. 10,217. (No model.)



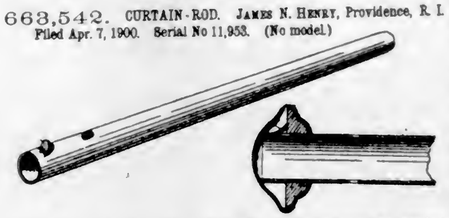
Claim.—1. In an apparatus of the class described, the combination of a tubular finger-bar provided at its front with a longitudinal slot, guard-fingers detachably secured to the finger-bar and having shanks extending rearward through the same, a cutter or sickle bar located within the tubular finger-bar and provided with knives or blades extending outward through the said slot, and the vertical and horizontal antifriction-rollers located within the tubular finger-bar and arranged respectively at the back and above and below the cutter or sickle bar and supporting the same out of contact with the shanks of the guard-fingers, substantially as described.

2. In an apparatus of the class described, the combination of a tubular finger-bar having guard-fingers, a reciprocating sickle or cutter bar located within the finger-bar and provided with knives or blades, and the antifriction-rollers located within the finger-bar and arranged contiguous to the cutter or sickle bar and each consisting of a sleeve, a bolt supporting the sleeve, and an end sleeve located adjacent to the nut of the bolt and filling the adjacent perforation or opening of the finger-bar, substantially as described.

3. In an apparatus of the class described, the combination of a finger-bar, a cutter or sickle bar having knives or blades, a guard-finger having a shank extending through the finger-bar, a ledger-plate interlocked with the front portion of the guard-finger and with the front of the finger-bar, and a fastening device arranged at the rear end of the shank of the guard-finger and securing the latter and the ledger-plate in place, substantially as described.

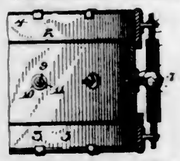
4. In an apparatus of the class described, the combination of a finger-bar, a guard-finger provided at its front portion with a recess and having a shank extended through the finger-bar and threaded, a ledger-plate interlocked at its front end with the guard-finger at the recess thereof and provided at its rear end with a lug interlocked with the finger-bar, and a nut arranged on the threaded end of the shank and engaging the finger-bar, whereby the guard-finger and the ledger-plate are held in place, substantially as described.

663,542. **CURTAIN-ROD.** JAMES N. HENRY, Providence, R. I. Filed Apr. 7, 1900. Serial No. 11,953. (No model.)



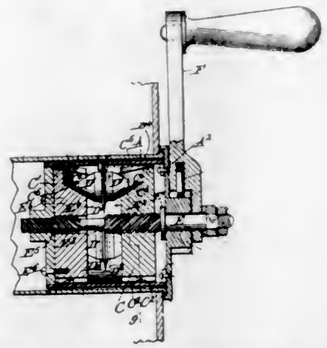
Claim.—A curtain-rod, consisting of a tubular rod member, a spring-tongue formed from the body portion of said rod near its end, and a head member having a hollow portion and a solid portion adapted to slide upon the end of the rod member and have the spring-tongue engage the inner surface of the solid portion to hold the head member upon the rod.

663,543. **DRUM-ROD.** WILLIAM H. HEYBECK, Pittsburg, Pa. Filed July 11, 1900. Serial No. 23,235. (No model.)



Claim.—In combination with a drum, supporting-pins having threaded shanks passed through the drum-body; said shanks having disks fitting against the outer surface of the body and acting as stops, nuts threaded on the shanks for binding the pins in position, said shanks having formed thereon the shoulders 7, drum-rods having apertures in their longitudinal centers for the reception of the supporting-pins, and threaded holes in each end; clamps engaging the bands of the drum and having brackets with holes in alinement with those of the rods, and adjusting-screws rotatable in the brackets and threaded in the drum-rods as and for the purpose described.

663,544. **PIPE-CUTTER.** JOSEPH S. HILL, Los Angeles, Cal. Filed Mar. 7, 1900. Serial No. 7,716. (No model.)



Claim.—1. In a pipe-cutter, a rotatable casing having an opening in its wall, blocks movable relatively to each other in said casing lengthwise of the latter, a cutter carried by said blocks and having oppositely-inclined bearings therein and registering with said opening in the wall of the casing, and means for moving said blocks together to project said cutter through said opening in the wall of the casing.

2. In a pipe-cutter, blocks movable relatively to each other and having relatively-inclined bearings, a cutter consisting of a body provided with spindles journaled in said oppositely-inclined bearings of the blocks and an annular blade projecting from said body intermediate of the spindles, and means for moving said blocks to bring them together or to separate them.

3. In a pipe-cutter, a rotatable casing having an opening in its wall, blocks movable relatively to each other in said casing and provided with oppositely-inclined bearings, a cutter consisting of a body provided with spindles journaled in said oppositely-inclined bearings of the blocks and an annular blade projecting from said body intermediate of the spindles and registering with said opening in the wall of the casing, and means for moving said blocks together to project said cutter through said opening in the wall of the casing.

4. In a pipe-cutter, blocks having oppositely-inclined bearings, a cutter journaled in said oppositely-inclined bearings, and a rotatable shaft having opposite screw-threads engaging with said blocks respectively to move them in opposite directions.

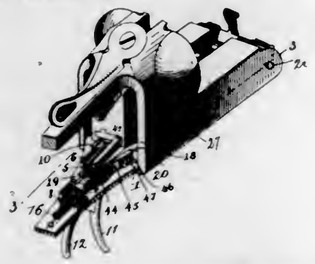
5. In a pipe-cutter, a rotatable casing, blocks movable in said casing lengthwise of the same and provided with oppositely-inclined bearings, a cutter journaled in said bearings, a rotatable shaft having opposite screw-threads respectively engaging with said blocks to move them in opposite directions, and means for turning said casing.

6. In a pipe-cutter, a cylindrical casing provided with an opening in its wall and having a head, blocks movable in said casing lengthwise of the latter and provided with oppositely-inclined bearings, a cutter journaled in said bearings and registering with said opening in the wall of the casing, a rotatable shaft journaled in said head of the casing and having opposite screw-threads respectively engaging with said blocks to move the latter together to project said cutter through said opening in the wall of the casing, and means for turning said casing.

7. In a pipe-cutter, blocks movable relatively to each other and having oppositely-inclined bearings, a cutter consisting of a body provided with spindles journaled in said oppositely-inclined bearings of the blocks and an annular blade projecting from said body intermediate of the spindles, and a rotatable shaft having opposite screw-threads respectively engaging with said blocks to move the latter in opposite directions.

8. In a pipe-cutter, a cylindrical casing provided with an opening in its wall and having a head, blocks movable in said casing lengthwise of the latter and provided with oppositely-inclined bearings, a cutter consisting of a body provided with spindles journaled in said oppositely-inclined bearings of the blocks and an annular blade projecting from said body intermediate of the spindles and registering with said opening in the wall of the casing, a rotatable shaft journaled in said head of the casing and having opposite screw-threads respectively engaging with said blocks to move them together to project said cutter through said opening in the wall of the casing, and means for turning said casing.

663,545. LOCK FOR MULTIBARREL-FIREARMS. FRANZ E. JAEGER, New York, N. Y., assignor of twelve twenty-fifths to Edmund Bittiner and Carl Bittiner, same place. Filed June 22, 1900. Serial No. 21,193. (No model.)



Claim.—1. In a gun, the combination with the pivoted sears, the pivoted triggers, and a tripper-block carried by either of the sears adapted to alternately engage the upper and under sides of the other sear, and means for operating the tripper-block, substantially as described.

2. The combination with the plurality of sears, the tripper-spring secured to one of said sears, the tripper-block on the end of the spring, and means for moving the tripper-block to alternately engage the upper and the under side of the opposing sear, substantially as described.

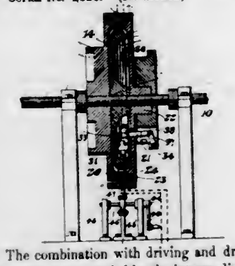
3. The combination with the sears of the tripper-block secured to one of the sears and having the nose or projection, the spring carrying the tripper-block, and means for transversely vibrating the tripper-block to cause the same to alternately engage and disengage one of the sears, substantially as described.

4. The combination with the pivoted sears, the tripper-spring, the tripper-block having shoulders upon its upper and lower sides, the bridge-block and means for reciprocating it, a projection from the bridge-block, and a lug on the tripper-spring adapted to engage said projection to cause the latter to engage or disengage one of the sears, substantially as described.

5. The combination with the sears, of the tripper-block having the recess into which the end of the one sear extends, a spring secured to said sear at one end, its free end being secured to the tripper-block, and means for causing the tripper-block to engage and disengage the other sear, substantially as described.

6. The combination with the sear 19 having inwardly-extending point, the sear 18, the laterally-extending tripper-block having the upper and lower shoulders 49 50, an intermediate nose or projection 51 forming a recess for engagement with the sear 18, and the spring 45 secured to the sear 18 at one end and at its free end to the tripper-block, substantially as described.

663,546. REVERSING-GEARING. WILHELM F. JAENECKE, Bradford, Pa., assignor of one-half to George L. Allen, same place. Filed Feb. 3, 1900. Serial No. 4,528. (No model.)



Claim.—1. The combination with driving and driven members, of an intermediate member, gears carried by the intermediate member in operative relation to the driving and driven members, an internal clutch carried by the driven member and located entirely within the intermediate member, and a rotary actuating device exterior to the driven member, and means for operatively connecting the rotary actuating device with the internal clutch.

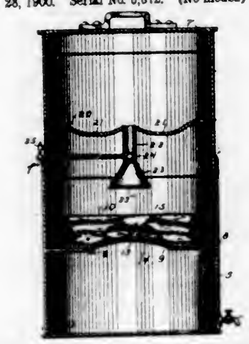
2. The combination with driving and driven members, of an intermediate member, gears carried by the intermediate member in operative relation to the driving and driven members, an internal clutch located within the plane of one side face of the intermediate member, and an internal clutch-actuating device extended through the driven member to the exterior thereof.

3. The combination with a shaft, a driving member loosely mounted thereon, a driven member fixed to the shaft, and an intermediate member carried by the shaft and comprising a recessed web, a rim encircling the peripheries of the driving and driven members, and gears intermediate of the web and rim and meshing with the driving and driven members, of an external clutch in operative relation to the rim, an internal clutch carried upon the inner side face of the driven member and located within the recess in the web of the intermediate member, and means upon the exterior of the driven member for actuating the internal clutch.

4. The combination with a shaft, a driving member, a driven member, an intermediate member provided with an annular recess opposed to, and closed by, the inner side wall of the driven member, a clutch operatively related to the intermediate member and designed to retain it against movement, an internal clutch located within the annular recess of the intermediate member and supported by the driven member, a slidable collar exterior to the driven member, and an operating-lever passed through the driven member and operatively connected to the internal clutch and to the sliding collar, respectively.

5. The combination of a shaft, driving and driven members on said shaft, an intermediate member provided with a rim and carrying gear-pinions which mesh with the driving and driven members, an internal clutch mechanism arranged to make the intermediate member fast with the driven member, a pair of clutch-levers provided with shoes disposed to frictionally engage externally with the rim of the intermediate member, a shaft having a crank-disk, and links connecting said crank-disk with the pair of levers, substantially as described.

663,547. WATER-FILTER. MORGAN R. LEMLEY, Delta, Iowa. Filed Feb. 28, 1900. Serial No. 6,872. (No model.)



Claim.—1. A filter comprising a hollow base provided with supports, a drawer disposed slidably upon the supports, and filtering material in the drawer, said drawer having a foraminous bottom.

2. A filter comprising a body portion having a side opening, supports within the body portion adjacent the opening, a drawer upon the supports and adapted for movement through the opening, openings in the drawer, a filtering material in the drawer, and means for supplying water to the filtering material.

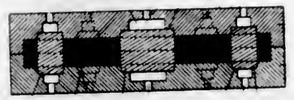
3. A filter comprising a hollow base having a side opening, supports in the base adjacent the opening, a drawer upon the support and movable through the opening, openings in the drawer, filtering material in bags disposed in the drawer, and means for supplying water to the filtering material.

4. A filter comprising a base portion adapted for the reception of a filtering material, and a partition above the filtering material, said partition having an opening for the passage of water to the filtering material and a depression in the upper face of the partition, said depression lying below the upper edge of the opening and surrounding the opening.

5. A filter comprising a hollow base, a drawer slidably disposed in the base and adapted for the reception of filtering material, a vessel mounted upon the base, a partition in the vessel above the drawer, said partition having a central perforation for the passage of water through the filtering material and having portions thereof depressed below its center, and a spraying-nozzle communicating with the perforation in the partition for directing water to the filtering material.

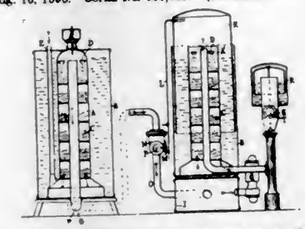
663,548. MOLD HAVING COMPRESSIBLE CORE. RODNEY F. LUDLOW, Philadelphia, Pa. Filed Jan. 20, 1900. Serial No. 2,171. (No model.)

Claim.—1. A mold for casting metal having a suitable mold-cavity, core-openings, and openings or pockets communicating with the core-openings, and an air-vent in communication with said openings or pockets, a compressible solid core composed of material that will initially withstand the heat of the molten metal until the casting sets, and will then soften on the continued application of heat from the latter and be forced into said pockets by the pressure of the casting and thereby equalize and take up the natural strain produced by such cooling.



2. A mold for casting metals having a suitable mold-cavity, core-openings, and openings or pockets communicating with the said core-openings, and a compressible solid core composed of material that will initially withstand the heat of the molten metal until the casting sets and will then soften on the continued application of heat from the latter, and be forced into said pockets by the pressure of the cooling casting and thereby equalize and take up the natural strain produced by such cooling.

663,549. CARBURETER. CLÉMENT MATHIEU, Brussels, Belgium. Filed Aug. 16, 1898. Serial No. 688,703. (No model.)

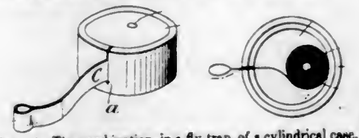


Claim.—1. The combination of an air-carbureter for feeding gas-engines, with a second carbureter, having an expansion-chamber adapted to be connected with the discharge-pipe of a gas-engine, for the purpose of producing a heating and illuminating gas by recarbureting the burned products.

2. The combination of an air-carbureter for feeding gas-engines with a second carbureter having an expansion-chamber provided with a gasometer-bell and a regulating-valve, which latter is adapted to be operated by said bell and communicates with the discharge-pipe of the gas-engine, the expansion-chamber and the atmosphere as and for the purpose described.

3. The special construction of the recarbureter, consisting of an envelop A', of grates C, supporting filtering material, of an oil-sprayer D, of an expansion vessel I, adapted to be connected with the discharge-pipe G of the gas-engine and with the recarbureter, in combination with a gasometer-bell K, a double regulating-valve N and a bar L attached to the bell K and actuating the key M of said regulating-valve N, substantially as described.

663,550. FLY-CATCHING DEVICE. HENRY MOSS, New York, N. Y. Filed Dec. 28, 1899. Serial No. 741,780. (No model.)

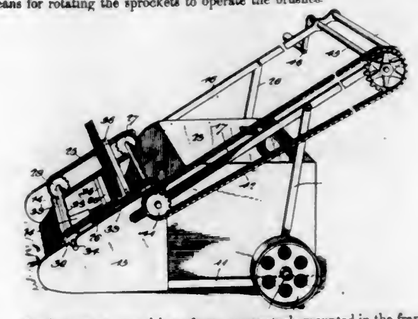


Claim.—1. The combination, in a fly-trap, of a cylindrical case, and a coil of tape wound upon a pin, located eccentrically within said case, with a filling of sticky composition placed within said case, and arranged to coat one side of said tape while being withdrawn from said case, all substantially as and for the purpose set forth.

2. As a new article of manufacture, a fly-trap comprising a cylindrical case, perforated with a slit in the side thereof, a coil of tape wound on a pin eccentrically located in said case, and arranged so that one end thereof will protrude from said case through said slit, and a composition of sticky material placed in said box and arranged so that it will come into contact with and coat one side of said tape, while the same is being withdrawn from said case, all substantially as and for the purpose set forth.

663,551. HAND STREET-SWEEPER. JAMES C. MCCOLLUM, Los Angeles, Cal., assignor of one-half to Silvanus White, same place. Filed Mar. 23, 1900. Serial No. 9,961. (No model.)

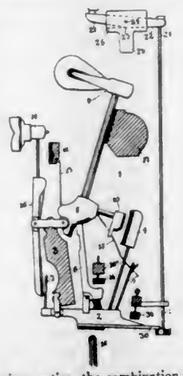
Claim.—1. A sweeper comprising a frame, a receptacle removably mounted in the frame and having its forward portion tapered to form a scoop for engagement with the ground, parallel shafts journaled in the frame above the scoop, sprockets on the shafts, chains on the sprockets, brushes carried by the chains for bodily movement over the scoop, and means for rotating the sprockets to operate the brushes.



2. A sweeper comprising a frame, a receptacle mounted in the frame, sprockets mounted in the frame, chains engaged with the sprockets, slats disposed transversely of the chains and attached thereto, staples passed around the chains and engaged with the slats, and brushes having their heads attached to the slats and adapted for movement therewith bodily in operative relation to the receptacle.

3. A sweeper comprising a frame including spaced plates and sills connected therewith, a handle connected with the plates and sills, a receptacle having a tapered end disposed between the plates, a scoop carried by the tapered end and disposed transversely between the plates, and a brushing apparatus mounted in the frame and adapted for bodily movement over the scoop-plate to move the dirt thereover and into the receptacle.

663,552. AUXILIARY OPERATING ATTACHMENT FOR PIANO-ACTIONS. ROBERT W. PAIN, New York, N. Y., assignor to the Aeolian Company, of Connecticut. Filed July 17, 1900. Serial No. 23,887. (No model.)

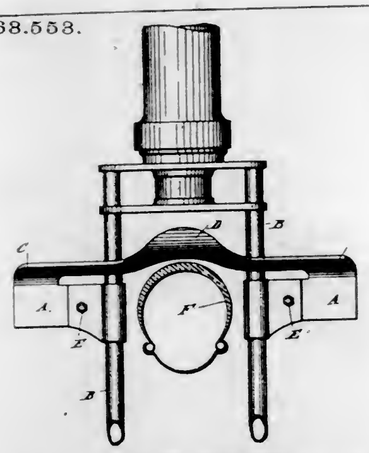


Claim.—In a piano-action, the combination with the jack-rocker of same carrying a horizontal projection, of an independently movable, auxiliary operating attachment in juxtaposition to same, comprising a horizontal arm pivoted at its central portion and provided with an operating-handle at one end, a vertical actuating-rod attached with its upper end to the said operating-handle, a guide for guiding the vertical actuating-rod, a horizontal bearing portion formed on the lower end of the vertical actuating-rod, the said bearing portion being adapted to impart an upward movement to the said jack-rocker when actuated by the manipulation of the operating-handle, substantially as described.

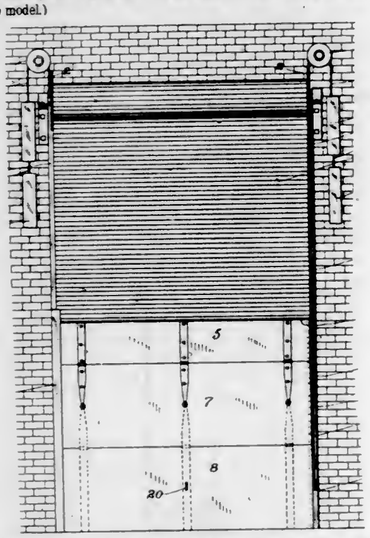
663,553. FOOT-REST AND BRAKE. WILLIAM RIGBY, Prescot, England. Filed Apr. 27, 1899. Serial No. 714,754. (No model.)

Claim.—A combined wheel-brake and foot-rest for velocipedes, formed from an integral piece of sheet metal, the brake being of horse-shoe shape whose side arms C extend outwardly beyond the forks of the velocipede so that the feet of the rider can rest upon them, and possessing integral inwardly-extending strips of sufficient length to be bent back on themselves to form clamps, as described.

668,553.



663,554. COMBINED ROLLING AND FOLDING SHUTTER. JAMES G. WILSON, New York, N. Y. Filed June 13, 1900. Serial No. 20,174. (No model.)



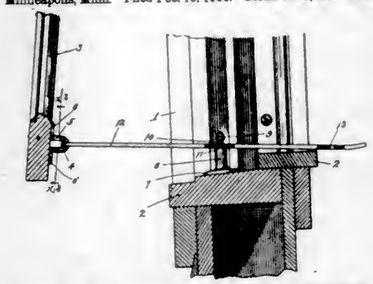
Claim.—1. The herein-described shutter comprising the reversely-hinged leaves suspended from an element capable of being raised and lowered said leaves being provided with trunnions suitably guided within ways, the guideways which inclose the side edges of said leaves, and the cords secured to said trunnions and passed over pulleys and having their free ends connected with weights, substantially as set forth.

2. In a shutter, the combination of the reversely-hinged leaves guided and maintained in a vertical plane throughout a predetermined distance, means for elevating and lowering said leaves in a vertical plane, and weights connected by cords to the ends of said leaves whereby the latter are caused to fold against each other, substantially as set forth.

3. The combination of the corrugated iron shutter capable of being elevated and lowered and having the angle-iron secured at its lower edge, the narrow leaf having one of its edges hinged to said angle-iron, the upper and lower wide leaves hinged together while the free edges of the upper leaf is hinged to the narrow leaf, the guideway extending at the sides of the doorway throughout its height, the trunnions extending from the wide leaves into said guideway, the guideway at the sides of the doorway and extending throughout a portion of the height of the latter and inclosing the ends of said leaves, the pulleys suitably supported at the top of the doorway at each side thereof, and the weighted cords passed over said pulleys and having their free ends connected to said trunnions, substantially as set forth.

4. In a shutter, the combination of a series of leaves hinged to each other so as to fold in horizontal disposition alternately in opposite directions, means for elevating and lowering said leaves while in extended condition, means for axially guiding said leaves, a guideway for holding said leaves as against folding on their hinges throughout a predetermined extent of their elevation while in extended condition, and means for effecting the folding operation of said leaves after they have cleared said guideway, substantially as set forth.

663,555. SASH STAY AND FASTENER. RUDOLPH G. WINTER, Minneapolis, Minn. Filed Feb. 16, 1900. Serial No. 5,411. (No model.)



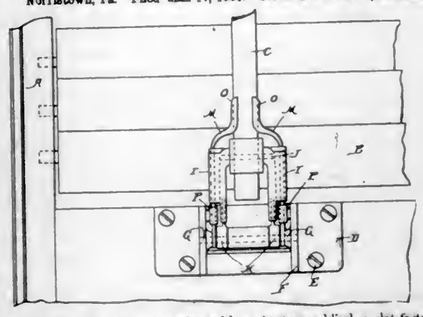
Claim.—1. The combination with a swinging sash or similar device, and its relatively-fixed support, of a hinge member secured to said sash, a cam post or projection on said fixed support, and a sash stay and fastener pivoted to said hinge member by an open seat, having a narrow entrance-passage, said hinge member having a flattened or narrow portion coöperating with said narrow entrance-passage, to permit said stay and fastener to be connected and disconnected when turned into an inoperative position, said stay and fastener having also a cam-surface which is engageable with said cam stud or projection when said stay and fastener is turned into a plane in which it cannot be disconnected from said hinge member, substantially as described.

2. The combination with a window sash and frame, of the staple 4 flattened at 5 and secured to said sash, a cam-stud on the window-frame, and the bar 12 provided with the perforation 14, with entrance-channel 15, and having the cam-surface 16ª, the latter of which coöperates with said cam-stud, and which entrance-channel 15 will pass the flattened portion 5 of said staple 4 when said bar 12 is turned into an inoperative position, substantially as described.

3. The combination with the window frame and sash, of the stay-bar and fastener 12 hinged to said sash and provided with the cam-surface 16ª terminating in the retaining seat or recess 16ᵇ, and the cam-stud 8 secured on said window-frame and provided with the head 9 and tapered and reduced neck or cam section 10 for coöperation with the cam-surface 16ª of said bar 12, substantially as described.

4. The combination with the window frame and sash, of the stay-bar and fastener 12 hinged to said sash and provided with the cam-surface 16ª and perforations 13, and the cam-stud 8 formed with the tapered head 9, cylindrical section 11 and reduced and tapered neck or cam-section 10, said section 11 coöperating with said perforations 13 and said cam-section 10 coöperating with said cam-surface 16ª, substantially as described.

663,556. SHUTTER-SLAT FASTENER. WILLIAM L. AMBLER, Norristown, Pa. Filed Jan. 17, 1900. Serial No. 1,718. (No model.)



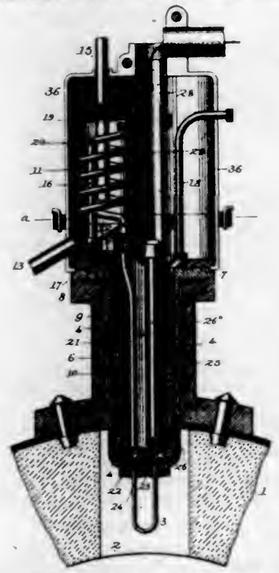
Claim.—1. In combination with a shutter or blind, a slat-fastener consisting of a suitable bracket adapted to be secured to the bottom rail,

arms pivoted to said bracket, sliding blocks fitted upon said arms, a clip secured to the connecting-rod of the slats and having said blocks pivoted thereto, two operating-levers also pivoted to the bracket, and points carried by said levers adapted to engage with the ears of the bracket, as and for the purpose set forth.

2. The herein-described combination of a bracket adapted to be secured to the bottom rail of the shutter or blind, ears having roughened inner surfaces formed with said bracket, arms pivoted between the ears, blocks fitted to slide upon said arms, a clip to which these blocks are pivoted, said clips being secured to the connecting-rod of the slats, two operating-levers also pivoted between the ears, and points carried by levers adapted to engage with the roughened surfaces of the ears, as specified.

3. A slat-fastener consisting of a bracket having ears formed therewith, a pivot-wire secured within said ears, two arms pivoted upon said wire, two blocks fitted to slide upon the arms, said blocks being pivotally connected with the slat-rod having grooves formed in the sides thereof, two flexible levers also pivoted upon the pivot-wire, said levers passing through the grooves formed in the blocks, a finger-piece formed upon the outer end of each of the levers whereby they may be manipulated, and points carried by each of the levers for engagement with the inner walls of the ears in holding the fastener in adjustment, as shown and specified.

663,557. PYROMETER. DAVID BAKER, Chicago, Ill. Filed Apr. 20, 1899. Renewed Nov. 8, 1900. Serial No. 35,881. (No model.)

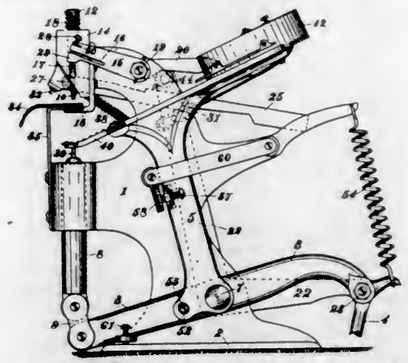


Claim.—1. The method of measuring high degrees of heat which consists in extracting the moisture from steam, passing the dry steam through a chamber exposed to the heat to be measured permitting the steam to attain the temperature of this heat, mixing the steam after its passage through the chamber with a quantity of the dry steam not subjected to the heat to be measured, and finally determining the temperature of the mixture.

2. The method of measuring high temperatures which consists in extracting a portion of the moisture from saturated steam, maintaining the partially-dried steam at a constant and known pressure, subjecting a portion of the partially-dried steam to a further drying action to extract all the moisture and produce dry steam, exposing the dry steam to the temperature to be measured, permitting the same to attain this temperature, circulating the partially-dried steam in proximity to the dry steam after the latter has been exposed to the heat to be measured, maintaining the separation of the two; whereby the circulating partially-dried steam serves the double purpose of reducing the temperature of the dry steam and maintaining a constant surrounding temperature, and finally determining the resulting modified temperature of the dry steam.

663,558. PUNCHING AND EYELET-SETTING MACHINE. SAMUEL W. BURTCHAELL, San Francisco, Cal. Filed Aug. 21, 1899. Serial No. 727,970. (No model.)

Claim.—1. In an eyelet punching and setting machine, in combination, a main frame, a main lever 3, pivoted on said frame, a member 14 pivoted on the main frame, to oscillate into two positions, a depressible punch 10 mounted in said member 14, a setting-die 32 fixed upon said member 14, a bed 13 attached to said member 14, a bell-crank lever 22 pivoted with and attached to the main lever, means between the bell-crank lever and the oscillating member 14 for depressing the punch 10, means for bringing the setting-die 32 into a vertical position, and means for holding the member 14 in either position, substantially as specified.



2. The combination of main lever 3, vertically-moving stem 8, provided with retractile pin 39, oscillating member 14, provided with punch 10, fixed setting-die 32, and bed 13, bell-crank lever 22, pivoted with, attached to, and moving with main lever 3, means for depressing the punch by the action of the bell-crank lever, means for oscillating the member 14 by the action of the bell-crank lever, thereby bringing the setting-die into working position, and means for holding the setting-die in working position, during the operation of the main lever and stem 8, substantially as specified.

3. The combination of the oscillating member 14, carrying the depressible punch 10, the fixed setting-die 32, and the bed 13, means for oscillating the member 14 into two positions and successively bringing the punch 10 and the setting-die 32 into working position, means for holding said member 14 in said positions, lever-arm 15 having an adjustment slot and screw, lever-arm 20, and bell-crank lever 22, substantially as specified.

4. The combination of main lever 3, bell-crank lever 22 connected thereto at the end of one arm of said lever 3 and at the pivot or fulcrum thereof and moving therewith, oscillating member 14, carrying movable punch, setting-die and bed, lever-arm 15, lever-arm 20, acted on by said bell-crank lever, bar 25 pivoted to member 14, for holding the same in two positions, stop 31, stud 37, pin 44, and pin 46, substantially as specified.

5. The combination of oscillating member 14, carrying movable punch 10, setting-die 32, and bed 13, bar 25, pivoted to member 14, spring 38 attached to bar 25 near the pivot, bell-crank lever 22, operating-bar 25 to hold member 14 in two positions, and means between crank-lever 22 and member 14 for operating punch 10, substantially as specified.

6. In an eyelet punching and setting machine, the oscillating member 14, carrying reciprocating punch 10, and bed 13 attached to said oscillating member, forming an abutment for said punch but oscillating with the same to make room for the setting operation, a setting-die on said oscillating member, means for operating the punch, means coöperating with the setting-die to set an eyelet, and means for holding the oscillating member alternately in the position for punching and in the position for setting, substantially as specified.

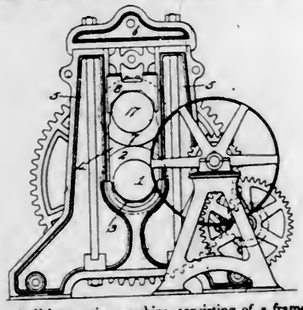
7. The combination of the main lever 3, pivoted at 7, vertically-moving member 8, linked thereto, vertical lever 5, carrying raceway, pivoted at 7, bell-crank lever 22, pivoted at 7, lost-motion device 52, 53, for vertical lever 5, stop-screw 61 for lever 3, stop-screw 57 for lever 5, spring 54 for returning to their normal position levers 3, 5 and 22, oscillating member 14, carrying punch 10, setting-die 32, and bed 13, and pivoted bar 25, substantially as specified.

8. The combination of levers 3, b and 22, all fulcrumed at 7, lost-motion device 52, 53 for lever 5, stop-screws 57, 61, lever-arms 15, 20, oscillating member 14, punch 10, setting-die 32, bed 13, pivoted bar 25, spring 38, spring 54, guard 35, vertically-moving member 8, linked to lever 3, and raceway 40 on lever 5, substantially as specified.

9. In an eyelet punching and setting machine, the combination of main lever 3, and bell-crank lever 22, both pivoted at 7 and connected

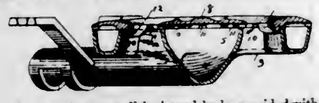
at 23, punch 10, bed 13, lever-arms 15, 20, for operating said punch, stop-lever 45, and block 47, whereby the descent of levers 22 and 3 may be arrested immediately upon completion of the punching operation, substantially as specified.

663,559. FIBER-DISINTEGRATOR. ALFRED W. CASE, Highland Park, Conn. Filed Nov. 15, 1899. Serial No. 737,088. (No model.)



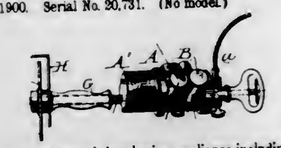
Claim.—A disintegrating-machine consisting of a frame composed of a pair of vertical uprights on each side and a cap joining the ends of each pair of uprights, a shaft supported by pillow-blocks rigidly held between the uprights, a cylinder with a narrow smooth peripheral surface around each end and longitudinally-extending crushing and disintegrating teeth between the smooth end surfaces mounted on the shaft, a shaft borne down by cap-blocks loosely held between the uprights, a cylinder with a narrow smooth peripheral surface around each end and longitudinally-extending crushing and disintegrating teeth between the smooth end surfaces mounted on the shaft and having its smooth end surfaces resting upon the smooth end surfaces of the other cylinder so that when the cylinders are rotated the disintegrating-teeth will pass in close proximity, but not come in contact, a gear mounted upon one shaft and meshing with a pinion mounted on the other shaft whereby one cylinder will be rotated faster than the other, and means for driving the gear, substantially as specified.

663,560. GAS-BURNER. BYRON H. COLVER, Cleveland, Ohio, assignor to the All Right Manufacturing Co., same place. Filed July 30, 1900. Serial No. 25,221. (No model.)



Claim.—In a gas-burner, a disk-shaped body provided with a central gas inlet and chamber, and with an outer circular chamber and with radial gas-passages, having vertical passages between their walls, in combination with a cover provided with corresponding air-passages and adapted to close the open top of the body portion and also provided with burner-slits about its periphery and about the inner margins of the air-passages, the said air-passages being closed on three sides by means of depending flanges from the cap, substantially as described.

663,561. HOG-DRESSING TOOL. GEORGE W. CONSTANTINE, Chicago, Ill., assignor of one-half to Alonzo N. Benn, same place. Filed June 18, 1900. Serial No. 20,731. (No model.)



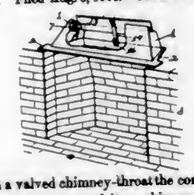
Claim.—1. A pneumatic butchering appliance including a fluid-pressure motor, a rigid driving-shaft extending from one end thereof, a tool or implement mounted directly on the shaft, and a grip or handle loose on said shaft between the tool and the motor-casing, and serving as a bearing for the shaft and as a means for positioning the tool with relation to the carcass.

2. A pneumatic butchering device including a fluid-pressure motor having a driving-shaft extending from one end, a tool or implement removably fitted to said shaft and rotated thereby, a grip or handpiece on the extended portion of the shaft back of the tool, and a shield or guard between the tool and handpiece.

3. A pneumatic butchering device including a fluid-pressure motor having a driving-shaft extending from one end, a tool including a brush fixed to said shaft and rotated thereby, a handle or grip on the shaft between the tool and the end of the motor-casing for positioning the tool with relation to the carcass, and means carried by the motor and including a rigid handle at the opposite end of the casing and a throttle-valve having a stem extending through the rigid handle for controlling the fluid-pressure.

4. A pneumatic butchering device including a fluid-pressure motor having an extended driving-shaft, a handle or grip loose on the shaft and adapted to be grasped to position the tool with respect to the carcass, a second handle or grip on the opposite portion of the motor and having an open center, and a throttle-valve having a stem mounted in the second handle for controlling the fluid-pressure to the motor.

663,562. VALVED CHIMNEY-THROAT. HENRY W. COVERT, Waterford, N. Y. Filed Aug. 6, 1900. Serial No. 25,980. (No model.)



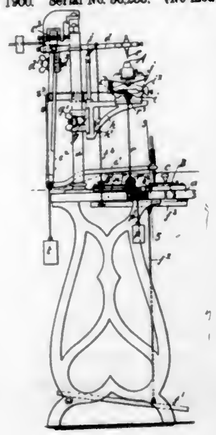
Claim.—1. In a valved chimney-throat the combination with an apertured casing adapted to be secured in a chimney; of a valve for said aperture; bearing connections between said casing and valve permitting a relative vertical movement of said valve, and interengaging parts having their surfaces so beveled that a rotary movement of the valve will cause said parts to ride one upon another, whereby they automatically assume adjusted positions as the valve is forcibly rotated, substantially as described.

2. In a valved chimney-throat the combination with an apertured casing adapted to be secured in a chimney, and having a vertically-elongated trunnion-bearing; of a valve for said aperture having on one end a trunnion adapted to fit said bearing; and interengaging beveled projections on said casing and valve respectively whereby the valve can be adjustably supported in different positions successively.

3. In a valved chimney-throat, the combination with an apertured casing adapted to be secured in a chimney, and having a vertically-elongated trunnion-bearing and adjacent thereto an interiorly-projecting lug; of a valve for said aperture having a trunnion adapted to fit said bearing; and adjacent thereto a lug having a toothed edge adapted to engage said lug on the casing and support said valve in different positions successively.

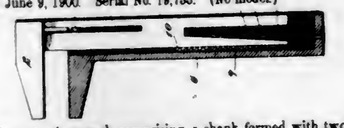
4. In a valved chimney-throat the combination with an apertured casing adapted to be secured in a chimney and having at opposite ends interiorly-located bearing-brackets fixed thereto and provided with trunnion-bearings open at the top; of a removable valve for said aperture, having at its opposite ends trunnions adapted to fit said bearings and to enter and leave the same through their top openings, substantially as described.

663,563. ENGRAVING-MACHINE. WILLIAM S. EATON, Sag Harbor, N. Y., assignor to the Eaton & Glover Company, New York, N. Y. Filed Sept. 17, 1900. Serial No. 30,253. (No model.)



Claim.—In an engraving-machine, the combination of a pattern-slide with a double pulley connected thereto, a lever also connected to said pulley, a slide engaging the lever, and a slide-rest connected to the slide, substantially as specified.

663,564. WRENCH. EVEN H. EVENSON, New Richland, Minn. Filed June 9, 1900. Serial No. 19,733. (No model.)



Claim.—1. A wrench comprising a shank formed with two longitudinal slots one below the other and with inclined teeth; a jaw fixed to the upper end of the shank; a hollow casing formed with a jaw and with internal teeth coacting with the teeth on the shoulder; a cross-pin connecting the shank and casing; and a spring secured to the casing and extending into the lower slot of the shank.

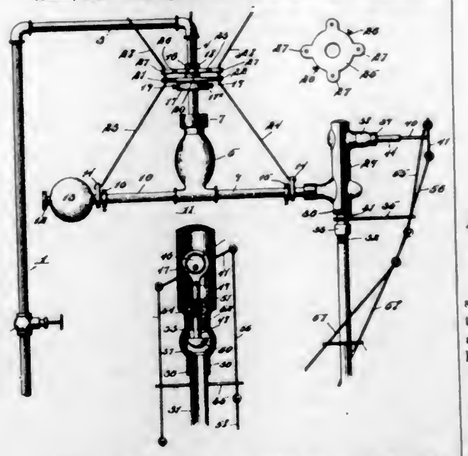
2. A wrench comprising a shank formed with two longitudinal slots arranged one above the other, and with inclined teeth; a jaw formed integral with the shank; a hollow casing having a jaw formed integral therewith and formed with teeth inclined in a direction opposite to that of the inclination of the teeth on the shank; and a spring secured at one end to the casing and having its free end bearing against the shank.

663,565. SHEARS. ORA M. FISHER, Erie, Pa., assignor to Blass & Garnow, same place. Filed May 18, 1900. Serial No. 17,168. (No model.)



Claim.—A pair of shears for harvesting grapes comprising a pair of pivotally-connected members, said members being identical in form and each comprising a central portion, a handle portion, and a cutting-blade, perforations in the central portions, a concentric groove surrounding the perforation of each member, resulting in annular flanges between the grooves and the perforations, slots in the outer walls of the grooves, a helical spring lying within the grooves and having an end resting in each of the said slots, segmental flanges rising from peripheries of the central portions, and a pivot passing through the perforations, holding the faces of the annular flanges and the outer walls of the grooves in engagement, to form bearings.

663,566. SWINGING HOSE-BRACKET. LEWIS T. FOREMAN, Omaha, Nebr. Filed Apr. 2, 1900. Serial No. 11,235. (No model.)

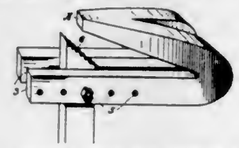


Claim.—1. In a swinging hose-bracket, the combination with a pivot-pipe in fluid communication with the source of supply, of the swinging pipe provided with an air-chamber into which the pivot-pipe projects, a valve controlling the passage of fluid through the swinging pipe, a counterbalancing pipe or arm connected to the swinging pipe, a weight on said counterbalancing-arm, eyes slidable on the swinging pipe and the counterbalancing pipe or arm, clamping-collars located on said pipe and arm, a pivot-plate rotatable on the pivot-pipe, and braces connecting said pivot-plate with the slidable eyes.

2. In a swinging hose-bracket, the combination with a depending pivot-pipe connected to the ceiling, of a sleeve located on said pipe and clamped thereto, being provided with a head, a collar fastened to the sleeve, braces connecting said collar to the ceiling, a pivot-plate rotatable on the sleeve and abutting against the head thereof, a swinging pipe pivotally connected to the pivot-pipe and in fluid communication therewith, a valve governing the passage of the fluid through said swinging pipe, a weighted counterbalancing arm or pipe connected to the swinging pipe and extending in opposite directions therefrom, and braces connecting the swinging pipe and the counterbalancing arm or pipe with the pivot-plate.

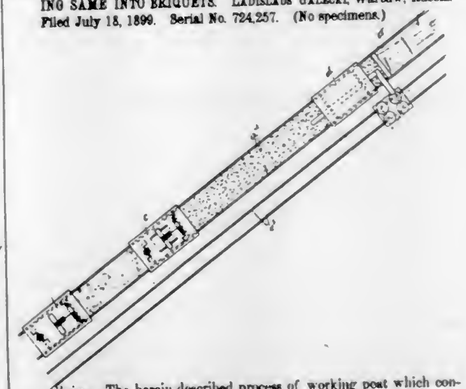
3. In a swinging hose-bracket, the combination with a pivot-pipe in fluid communication with the source of supply, of a swinging pipe pivoted to the aforesaid pipe and in communication therewith, a valve-casing connected to the swinging pipe, a hose connected to the casing, a valve-shaft, an eccentric connected to the valve-shaft, an eccentric-strap, a double arm connected to the valve-shaft, and pull-rods connected to the ends of said double arm.

663,567. PIPE-WRENCH. PETAR FRICHETTE, Sheridan, Cal. Filed Aug. 23, 1900. Serial No. 27,812. (No model.)



Claim.—An improved pipe-wrench consisting of a single integral bar folded about midway upon itself to form converging jaws said bar split from a point commencing near the outer end of the folded portion so as to form two straight and parallel sides separated from each other, and provided with adjusting-holes, and a lever fulcrumed between said separated sides and having an end adapted to compress the pipe into the folded portion of the bar whereby the pipe has an independent contact upon the separated sides and a third point of contact on the overhanging folded portion.

663,568. PROCESS OF WORKING PEAT AND MANUFACTURING SAME INTO BRIQUETS. LADISLAUS GALECKI, Warsaw, Russia. Filed July 18, 1899. Serial No. 724,257. (No specimens.)

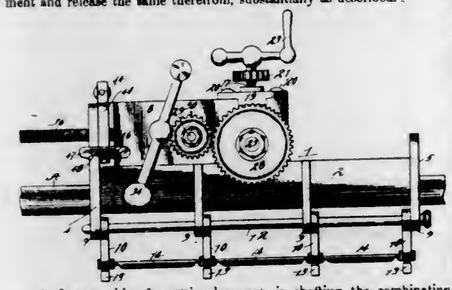


Claim.—The herein-described process of working peat which consists in cutting or dividing up the peat while in the bog, thoroughly agitating or mixing the divided mass while still in the bog, removing the agitated mass and filtering the same, molding the filtered material into briquets, and finally drying the same, substantially as described.

663,569. KEY-SEAT CUTTER. JOHN L. GRAFFLIN, Wilmington, N. C. Filed July 19, 1900. Serial No. 24,234. (No model.)

Claim.—1. In a machine for cutting key-seats in shafting, the combination of a supporting guide-frame having means to clamp the same to a shaft, a carriage movable longitudinally on said supporting guide-frame, a feed-screw connected to said carriage, a nut secured to the supporting guide-frame, means to engage said nut with said feed-screw and disen-

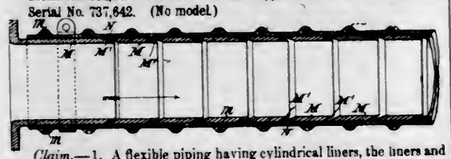
gage the same therefrom, a cutting-wheel having its arbor mounted in the carriage, a power-shaft and connections between the same and the feed-screw, to rotate the latter by a step-by-step movement, connections between said power-shaft and cutting-wheel arbor to rotate the latter, and means to lock the carriage to the guide-frame against longitudinal movement and release the same therefrom, substantially as described.



2. In a machine for cutting key-seats in shafting, the combination with a guide-frame and means to clamp the same to a shaft, of a carriage movable longitudinally on the guide-frame, movable bearing-blocks in guideways with which the carriage is provided, a cutting-wheel having its arbor journaled in said bearing-blocks, oppositely-threaded screws to move said bearing-blocks toward the shaft, and gears connecting said screws, whereby the latter are adapted to rotate in unison, substantially as described.

3. In a machine for cutting key-seats in shafting, the combination of a supporting guide-frame having means to clamp the same to a shaft, a carriage movable longitudinally on said supporting guide-frame, a feed-screw connected to said carriage and having a star-wheel, a split nut secured to the supporting guide-frame and adapted to engage and disengage said feed-screw, a link to lock the carriage against longitudinal movement, a cutting-wheel having its arbor mounted in said carriage, a power-shaft having a pin coacting with said star-wheel to rotate said feed-screw by a step-by-step movement, and connections between said power-shaft and said cutting-wheel arbor to rotate the latter, substantially as described.

663,570. FLEXIBLE PIPING. JOHN HAVILAND, Northampton, and FREDERICK H. HAVILAND, Bournemouth, England, and JOHN FARMER, Glasgow, Scotland. Original application filed Apr. 25, 1899. Serial No. 714,412. Divided and this application filed Nov. 20, 1899. Serial No. 737,642. (No model.)



Claim.—1. A flexible piping having cylindrical liners, the liners and piping having coöperating recesses and projections by which the piping holds each liner in position, independent of any other liner.

2. A flexible piping having liners, said piping being divided or slit longitudinally throughout its length thereby permitting the adjustment, removal or replacing of the liners, with means for securing the edges of the slit piping.

3. A flexible piping having liners, said piping being slit longitudinally, means for securing the edges of the slit piping, and coöperating projections and recesses on the interior of the piping and exterior of the liners, whereby the latter are independently removable and adjustable rotarily, as and for the purpose set forth.

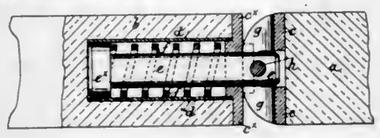
4. Flexible piping for conveying granular, liquid and other material, comprising short metallic ferrules or liners with an outside covering of rubberized canvas, the latter and the liners having coöperating projections and recesses, by which the liners are held in position independently of each other, one end of each liner entering the next, but free from contact therewith, as and for the purpose set forth.

5. Flexible piping for elevating and discharging grain and the like, and consisting of laced rubberized canvas cover and joint-protecting flaps in combination with liners, substantially as set forth.

6. A flexible piping having internal liners and a flexible cover, open longitudinally, having scarfed edges at said longitudinal opening and means for securing the edges together.

663,571. HINGE. HENRY HAWOOD, Eccles, England. Filed Jan. 16, 1900. Serial No. 1,643. (No model.)

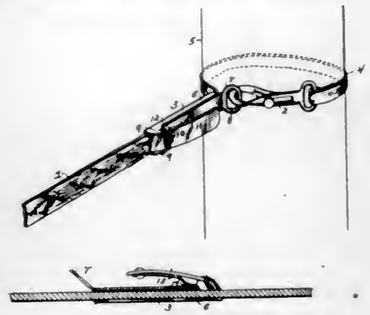
Claim.—In a spring-hinge for doors, the combination of the plate secured to the door and having curved or quadrant-shaped lugs, with a straight-faced plate on the door-frame against which the said lugs bear, a bolt passing through the plate on the door-frame and having a head located within a recess within the door-frame, a spring acting upon said head and normally pressing the same away from the plate on the door-frame and a pin passing through the curved or quadrant-shaped lugs and the bolt, thereby pivotally attaching said bolt to the lugs, whereby the curved lugs are maintained in contact with the straight-faced plate on the door-frame, substantially as described.



663,572. SUBSTITUTE FOR GUTTA-PERCHA. SALOMON HEIMANN, New York, N. Y., assignor, by direct and mesne assignments, to Lucas Toch, Herman Mayer, and P. C. Ralli, same place. Filed Feb. 8, 1900. Serial No. 4,443. (No specimens.)

Claim.—A substitute for gutta-percha consisting of finely-pulverized peat, resin-oil and amyl acetate about in the proportions given.

663,573. HITCHING-STRAP. FREDERIK A. JACOBSEN, Austin, Tex. Filed Feb. 16, 1900. Serial No. 5,503. (No model.)



Claim.—1. The combination with a hitching-strap, having a hook at one end thereof, of a slidable catch for engagement with the hook, and comprising a hollow body slidable upon the strap, and having a link or eye at its inner end for engagement with the hook, and a spring-actuated jaw fulcrumed intermediate of its opposite ends upon the body, the outer end of the jaw being arranged in frictional engagement with the strap, and the opposite inner end portion extending longitudinally of the adjacent side of the body.

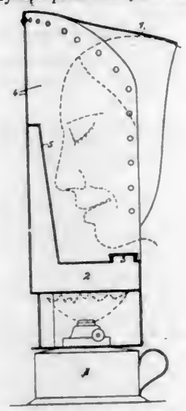
2. As an article of manufacture, a slidable catch for a hitching-strap, comprising a hollow body folded from a single blank of material, and having opposite open ends, one end of one longitudinal side thereof being extended beyond the body and provided with a perforation to form a link or eye, the opposite end of the same side being cut away to form an opening, and the opposite sides of the cut-away portion being bent outwardly to form bearing-ears, and a bowed spring-actuated jaw fulcrumed intermediate of its ends upon the bearing-ears, the outer end of the jaw working in the opening formed by the outwardly-bent ears, and the opposite end portion of the jaw extending longitudinally of the adjacent side of the body.

663,574. FACE-STEAMER. WILLIE C. KEITHLY, San Francisco, Cal. Filed Oct. 4, 1900. Serial No. 32,005. (No model.)

Claim.—1. A steaming device consisting of a unitary structure including a generator having an upwardly-extending wall at one side curved transversely, and a perforated chamber lying against the extended wall of the generator and terminating short of the upper limits thereof, the lower portion of the chamber being in direct communication with the generating-chamber whereby vapor may pass from the latter to the former.

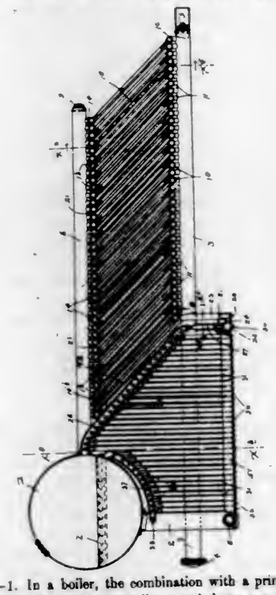
2. A face-steaming device consisting of a single unitary structure including a generator having an upwardly-extending wall at one side curved transversely, and a vertical, radially-perforated, cone-shaped chamber along the inner wall of said extension and terminating short of the upper

limits of the latter, and connected at its lower end directly with the generator-chamber whereby vapor passes directly from the latter to the former.



3. A face-steamer consisting of a single unitary structure including a generator having an upwardly-extending wall at one side curved transversely, and a vertical chamber lying parallel with the inner wall of the extension and radially perforated, and decreasing in diameter from the bottom upwardly, and connecting directly with the generating-chamber, and a flexible attachment or hood forming a closure for the upper portion of the structure.

663,575. WATER-TUBE BOILER. ROLAND W. KNAPP, Minneapolis, Minn. Filed Mar. 22, 1900. Serial No. 9,705. (No model.)



Claim.—1. In a boiler, the combination with a primary drum, of approximately parallel and horizontally-extended steam and water circulating drums communicating with said primary drum, two approximately parallel series of manifold-tubes communicating with said circulating-drums, and generating-tubes communicating with said manifold-tubes, substantially as described.

2. In a boiler the combination with a primary drum, of approximately parallel and horizontally-extended pairs of steam and water circulating drums communicating with said primary drum, a horizontal series of transversely-extended manifold-tubes connecting the pair of extended steam-drums, another horizontal series of transversely-extended manifold-tubes connecting said water-circulating drums, and series of generating-tubes connecting the corresponding upper and lower manifold-tubes, substantially as described.

3. In a boiler the combination with a primary drum, of a pair of approximately horizontal and parallel steam-return drums communicating with said primary drum, a pair of downflow-pipes depending from said primary drum, a pair of approximately horizontal and parallel water-distribution drums, a horizontal series of transversely-extended manifold-tubes connecting said pair of steam-return drums, another horizontal series of transversely-extended manifold-tubes connecting said pair of water-distribution drums, and the series of generating-tubes connecting said manifold-tubes, substantially as described.

4. In a boiler, the combination with a primary drum and a fire-box, of approximately parallel and horizontally-extended steam and water circulating drums communicating with said primary drum and projecting beyond said fire-box, two approximately parallel series of manifold-tubes communicating with said circulating-drums, and generating-tubes communicating with said manifold-tubes, substantially as described.

5. In a boiler, the combination with a fire-box having sides formed by closely-positioned wall-tubes, of a primary drum above said fire-box, approximately parallel and horizontally-extended steam and water circulating drums communicating with said primary drum and projecting beyond said fire-box, two approximately parallel series of manifold-tubes communicating with said circulating-drums, and generating-tubes communicating with said manifold-tubes, substantially as described.

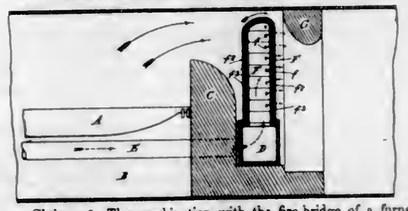
6. In a boiler the combination with a primary drum, of approximately parallel and horizontally-extended steam-return and water-distribution drums communicating with said primary drum, an upper and lower horizontal series of transversely-extended manifold-tubes communicating respectively with said steam-return and water-distribution drums, the series of generating-tubes connecting said manifold-tubes and inclined downward in the direction of the draft, and a fire-box at the receiving end of the combustion-chamber formed between said manifold-tubes, comprising closely-positioned wall-tubes, an inclined return-manifold opening into said primary drum, communication between said wall-tubes and said water-distribution drums, and connections between said wall-tubes and said return-manifold, substantially as described.

7. The combination with the drum 1 with depending downflow-columns 2, horizontally-extended return steam-drums 8 and inclined return-manifolds 28 and 37, said parts opening into said drum 1, of the water-distribution drums 3 opening from said downflow-columns 2, the series of manifold-tubes 10 and 13 connecting respectively said distribution-drums 3 and return-drums 8, the series of inclined generating-tubes 16 connecting said manifold-tubes 10 and 13, the wall-forming tubes 31 communicating with said distribution-drums 3, and the inclined branch tubes 35 and 36 connecting the wall-tubes 31 with the return-manifolds 28 and 37 respectively, substantially as described.

8. The combination with a primary drum, of a fire-box, the sides of which are formed by closely-positioned wall-tubes, an inclined manifold-tube leading to said primary drum and connected with certain of said wall-tubes by branch tubes, said wall-tubes having communication at their lower portions with the lower portion of said primary drum, substantially as described.

9. The combination with a primary drum, of a fire-box the sides of which are formed by closely-positioned wall-tubes, and an inclined return manifold-tube leading to said primary drum and connected with said wall-tubes by transversely-extended and laterally-spaced branch tubes, said wall-tubes having also connections from their lower portions with the lower portion of said primary drum, substantially as described.

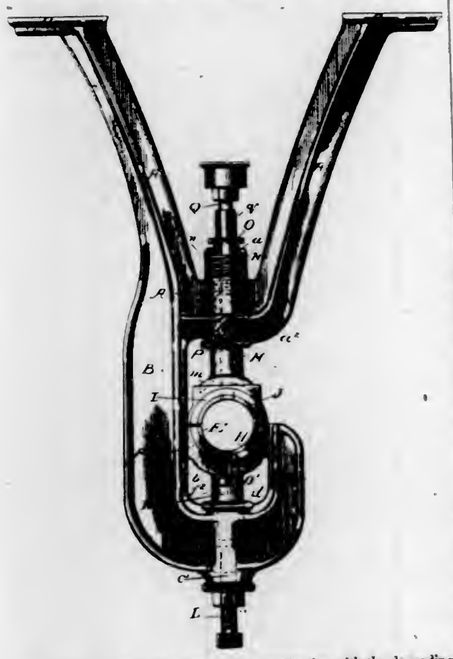
663,576. BOILER-FURNACE. WILLIAM KNEEN, London, England. Filed Aug. 7, 1900. Serial No. 26,182. (No model.)



Claim.—1. The combination with the fire-bridge of a furnace of upwardly-projecting perforated air-pipes (with spaces between them) behind the fire-bridge the said air-pipes being constructed of a series of short superposed sections as described; means for forcing air into the said pipes and through the perforations therein and a depending arch in proximity to the upper ends of the said air-pipes against which arch the air coming through the upper perforations in the said air-pipes is caused to impinge together with the gases and smoke from the furnace, substantially as hereinbefore described.

2. The combination of the fire-bridge of a furnace of upwardly-projecting perforated air-pipes (with spaces between them) behind the fire-bridge, the said air-pipes being constructed of a series of short superposed sections, the end of the section nearest the fireplace being cone-shaped and the other end in which are the perforations being rounded.

663,577. SHAFT-HANGER. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Apr. 4, 1899. Serial No. 711,751. (No model.)



Claim.—1. In a shaft-hanger, the combination with the depending frame, of the shaft-bearing provided with the parti-spherical enlargement upon its lower surface, of the support provided with a correspondingly-shaped seat at its upper end, a vertical tubular socket surrounding the lower end of the support, and an adjusting-screw mounted in the lower end of the said socket, substantially as set forth.

2. In a shaft-hanger, the combination with the depending frame of the shaft-bearing formed of separate sections, the shaft-bearing being provided with parti-spherical bearing-surfaces upon its upper and lower surfaces, respectively, a support for the shaft-bearing provided with a cup-shaped seat adapted to fit the lower parti-spherical bearing-surface of the shaft-bearing, means for adjusting the said support, an upper bearing provided at its lower end with a cup-shaped seat adapted to engage with and fit the upper parti-spherical bearing-surface of the shaft-bearing, and means for holding this upper bearing in engagement with the shaft-bearing, substantially as set forth.

3. In a shaft-hanger, the combination with the depending frame provided with means for supporting from below a shaft-bearing, of an upper bearing mounted above said supporting devices and free to rise and fall, and a spring for pressing the said bearing downward, substantially as set forth.

4. In a shaft-hanger, the combination with a depending frame having a partially-inclosed space for a shaft-bearing and two vertical tubular sockets one above said space and one below it, of a support mounted in the socket below the said space, a yielding bearing above the space, and means for locking the upper bearing positively in position, substantially as set forth.

5. In a shaft-hanger, the combination of a depending frame provided with a partially-open space for a shaft-bearing and a tubular socket above said space, an upper bearing having a tubular shank mounted in the socket, a spring within the socket, and an oil-tube disposed within the spring and the tubular shank, substantially as set forth.

6. The combination with the shaft-bearing formed of separate sections, of a support for the lower section of the shaft-bearing, a movable bearing for the upper section resting upon the same and holding it in place, and means for lubricating the shaft-bearing extending through the bearing for the upper section of the shaft-bearing, substantially as set forth.

663,578. PHOTOGRAPHIC-PLATE HOLDER. FREDERICK MACKENZIE and GEORGE WISHART, Glasgow, Scotland. Filed Nov. 13, 1899. Serial No. 736,780. (Model.)



Claim.—1. In a plate-cover for cameras, the combination, with an envelop, the front of which is open, of a flexible shield secured at one end to the top thereof in position to cover the opening, and a bar of material permanently secured to the free end of the shield in position to be engaged by the door of the plate-holder.

2. In a plate-cover for cameras, the combination, with an envelop comprising two parts, one within the other, each of which is flanged upon its sides and at one end to form grooves, the ungrooved ends being arranged opposite to each other, and a flexible shield secured to the flanged end of the inner part and having its free end provided with means for engaging with the door of the plate-holder.

3. In a plate-cover for cameras, the combination, with an envelop, comprising two parts, one within the other, each of which is flanged upon its sides and at one end, the lower end of the inner part and the upper end of the outer part being ungrooved and the outer part being cut away at its ungrooved end, a stop on the inner part for fitting within the cut-away portion of the outer part, and a flexible shield secured to the grooved end of the inner part, the free end of which is provided with a strip for engaging with the door of the plate-holder.

4. In a plate-holder for cameras, the combination, with a grooved frame adapted to hold a plate-envelop, of a back hinged thereto, a spring-catch secured to the back for engaging with the envelop, and a sliding door.

5. In a plate-holder for cameras, the combination with a grooved frame adapted to hold a plate-envelop, of a back hinged thereto, a spring-catch secured to the back, the upper end of which is bent at an angle to engage with the envelop, and a sliding door.

6. In a plate-holder for cameras, the combination, with a grooved frame, of a hinged door provided with a spring-catch, of a flanged plate-cover in the groove of the frame, a flexible shield secured thereto at one end in position to be moved in front of the plate, and a sliding door in the frame, the inner surface of which is adapted to engage with the free end of the shield and move it over the plate.

7. In a plate-holder for cameras, the combination, with a grooved frame, of a plate-cover therein consisting of two flanged parts secured, one within the other, the inner one being provided with a flexible shield, a strip on the free end of the shield, a back hinged to the frame, a hooked catch thereon in position to engage with the top of the cover and prevent its movement, and a sliding door, the inner face of which is provided with a groove for the reception of the strip on the shield.

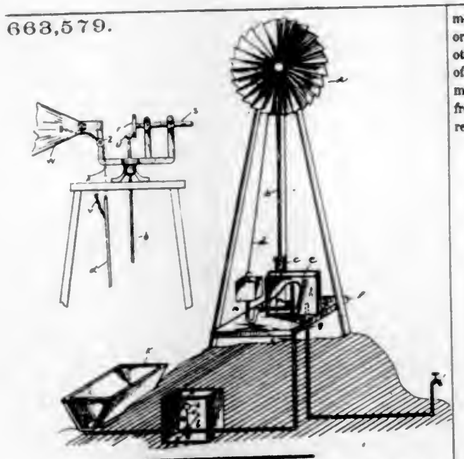
8. In a plate-holder for cameras, the combination, with a frame adapted to hold a plate-envelop, of a back for the same provided with a transparent peep-hole, a hooked catch on the back for engaging with the envelop, and a sliding door in front of the frame.

663,579. WINDMILL-REGULATOR. DAVID H. METCALF, Battle Creek, Mich. Filed Apr. 19, 1899. Serial No. 713,668. (No model.)

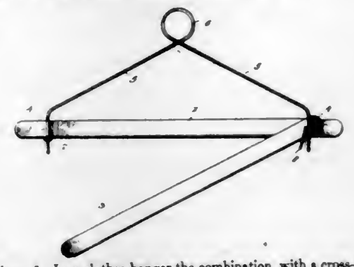
Claim.—1. The combination with a pump and means for operating it, of a storage-tank, a trough having connection with the storage-tank and adapted to receive water therefrom, an auxiliary tank intermediate the trough and storage-tank, a float-valve within the auxiliary tank adapted to regulate the supply of water to the trough, means for throwing the pump-operating means into or out of operative connection with the pump, and a tank connected with said throwing means, said tank having connection with the storage-tank to be supplied thereby and throw the pump-operating means when filled.

2. The combination with a pump and means for operating it, of a storage-tank adapted to receive water from the pump, an auxiliary tank connected with the storage-tank and adapted to receive water therefrom, a float-valve within the auxiliary tank adapted to regulate the supply of water thereto, a trough connected with the auxiliary tank and on a level therewith whereby its supply will be governed from the auxiliary tank, a rod connected with the pump-operating means to throw it into or out of operative relation to the pump, and a tank suspended from said rod, said tank having flexible connection with the storage-tank on a level to receive water therefrom to cause it to sink and draw upon the rod when the storage-tank is full to throw the pump out of operative relation to the operating means.

663,579.



663,580. CLOTHES-HANGER. WILLIAM A. PLOCK, Burlington, Iowa. Filed Apr. 5, 1900. Serial No. 11,635. (No model.)



Claim.—1. In a clothes-hanger the combination, with a cross-strip, of a ring therein, a locking-bar pivoted, and slidable, upon said ring, a spring supporting-strip, loops at the ends thereof inclosing the cross-strip and locking-bar, and means for limiting the inward movement of the loops.

2. In a clothes-hanger the combination, with a cross-strip, of a ring therein, a locking-bar having beveled ends pivoted, and slidable, upon said ring, a spring supporting-strip, loops at the ends thereof inclosing the cross-strip and locking-bar, and means for limiting the inward movement of the loops.

663,581. TONGS. JOHN F. RICE, Centralia, Tex. Filed June 19, 1900. Serial No. 20,899. (No model.)

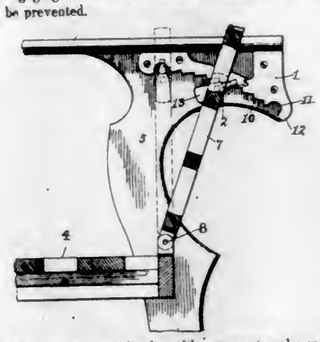


Claim.—1. The combination with the jaws of a pair of tongs; of removable jaws having gripping-faces formed on the sides thereof, and tong-receiving slots paralleling the said gripping-faces and intersecting each other; screw-threaded openings in each face of the removable jaws formed to receive a set-screw adapted to bear against the jaws of the tongs and hold the removable jaws securely in position.

2. The combination with the jaws of a pair of tongs; of removable jaws having gripping-faces of different form, formed in the sides thereof and adapted to register with each other; tong-receiving slots paralleling the said gripping-faces and intersecting each other; screw-threaded openings in each face of the removable jaws formed to receive a set-screw adapted to bear against the jaws of the tongs and hold the removable jaws securely in position.

663,582. LOCKING DEVICE FOR ADJUSTABLE CHAIRS. FREDERICK ROBBIN, Jr., Medina, N. Y. Filed July 3, 1900. Serial No. 22,438. (No model.)

Claim.—1. The combination with two relatively movable parts or members, of a locking-plate on one of the members having the serrations or teeth, and a reversible automatically-engaging pawl pivoted on the other member and having the end adapted to engage the toothed portion of the plate and movable beyond the said toothed portion, whereby the members may be moved freely, relatively, with the pivot of the pawl in front of the engaging end thereof, and their movement in the opposite direction will be prevented.



2. In furniture, the combination with a support, and a movable section pivoted thereon, of an adjustable locking device between the support and section consisting of a plate mounted upon one of them having the teeth or serrations, and a reversible pawl pivoted upon the other, having an end automatically engaging with the teeth or serrations on the plate and movable across and beyond the teeth when the adjustable section is moved in opposite directions.

3. In furniture, the combination with a support and a movable section pivoted thereon, of an adjustable locking device between the support and section, embodying a plate mounted upon one of them having the teeth or serrations, and a weighted reversible pawl pivoted upon the other, having one end held in engagement with the teeth and movable over and beyond the teeth on the plate, when the adjustable section is moved in opposite directions on the pivot.

4. In furniture, the combination with a support, and a movable section pivoted thereto, of an adjustable locking device between the support and section consisting of the plate on one of the parts, having the serrations or teeth, the recesses at the end thereof, and the stops beyond them, and the weighted reversible locking-pawl pivoted on the other part and adapted to cooperate with the teeth and to engage the stops on the plate.

5. In a chair, the combination with the frame or support, and an adjustable back-section pivoted thereon, of an adjustable locking device for the section consisting of the plate on the support having the serrations or teeth arranged in the arc of a circle, the recesses at the ends, and the stops beyond the recesses, and the reversible weighted pawl pivoted on the back-section engaging the teeth on the plate and having its end movable into the recesses and engaging the stops on the plate.

6. The combination with a support, the curved plates on the support, having the teeth, the recesses at the end, and the stops, of the member pivoted to the support, the weighted reversible pawls pivoted thereon and adapted to engage the teeth and stops on the plate.

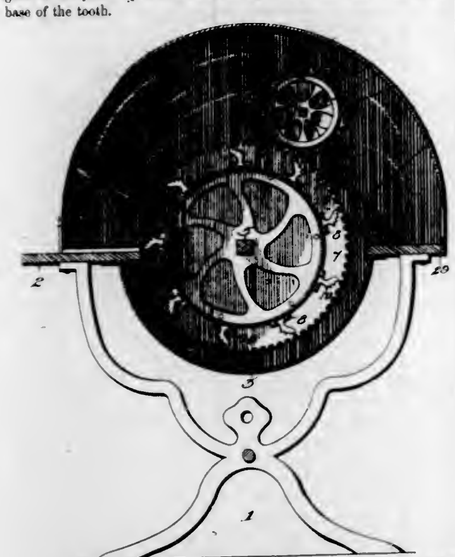
663,583. COTTON RENOVATOR AND BATTING-MACHINE. MARGARET J. SCAIFE, Camilla, Ga. Filed Apr. 7, 1900. Serial No. 11,944. (No model.)

Claim.—1. In a device of the character described, the combination with a casing, of a hopper therein, an adjustable plate secured thereto, tongues projecting from said plate and having teeth upon the opposite edges thereof, a cylinder mounted within the casing, and teeth thereon adapted to travel between the tongues.

2. In a device of the character described, the combination with a casing, of a hopper therein, an adjustable plate secured thereto, tongues projecting from said plate and having teeth upon the opposite edges thereof, a cylinder mounted within the casing, teeth thereon adapted to travel between the tongues, and a cylinder mounted within the casing and having wires adapted to travel between the paths of the teeth.

3. In a device of the character described, the combination with a casing, of a hopper therein, a plate adjustably secured thereto, tongues projecting therefrom and having teeth on the opposite edges thereof, a cylinder mounted within the casing and having parallel longitudinally-extending series of teeth thereon, a toothed ring secured to the cylinder, a second cylinder mounted within the casing at a point above the toothed cylinder, parallel series of wires arranged longitudinally upon said upper cylinder and adapted to travel between the paths of the cylinder-teeth, and a shield secured within the casing.

4. In a device of the character described, a cylinder, parallel bars detachably secured to the outer surface thereof and having dovetailed grooves within their outer surfaces, teeth, each having a base corresponding in cross-section to the groove of the bar and mounted within said groove, and points upon said teeth arranged in a plane diagonally to the base of the tooth.



5. In a device of the character described, a tooth comprising a base having oppositely-tapered sides, a stem thereto, and points upon said stem arranged in a plane diagonally to said base.

6. In a device of the character described, the combination with a standard, of a base secured thereto, a casing depending from said base, end plates secured to the base, a cylinder journaled within the end plates and having a toothed ring secured thereto, longitudinally-arranged parallel bars detachably secured to the outer surface of the cylinder and provided with dovetailed grooves, teeth detachably secured within said groove, a hopper within the casing, a check-plate adjustably secured thereto tongues projecting from said plate between the paths of the teeth, teeth upon the opposite edges of said tongues, a brush mounted within the casing at a point above the cylinder, and to the rear of the center thereof, said brush comprising longitudinally-arranged bars detachably secured to the cylinder, parallel series of wires projecting from the bars and adapted to travel between the paths of the teeth, and a toothed ring secured to the brush and adapted to engage with the teeth of the cylinder, and a guide secured to the base.

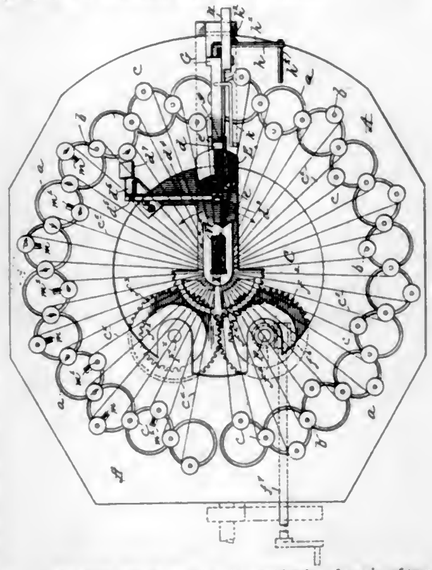
663,584. BRAID-MACHINE. MEYER W. SCHLOSS, New York, N. Y. Filed Sept. 28, 1900. Serial No. 31,373. (No model.)

Claim.—1. In a braid-making machine the combination of a series of traveling spindles supporting thread-carrying bobbins, of one or more shuttles adapted to carry a strip of material to be applied to the braid, and means controlled by the traveling spindles whereby said shuttle or shuttles may be caused to pass alternately from one side to the other of the shed formed by said bobbin-threads.

2. In a braid-making machine the combination of a series of traveling spindles supporting thread-carrying bobbins, a shuttle adapted to carry a strip of material to be applied to the braid, means controlled by the traveling spindles whereby said shuttle may be caused to pass alternately from one side to the other of the shed formed by the bobbin-threads and means whereby the operating position of said shuttle may be shifted.

3. In a braid-making machine the combination of a series of traveling spindles carrying bobbins whose threads lead to a common point, one or more flying shuttles adapted to carry material to be applied to the braid, shuttle-supporting devices located on one side of the shed formed by the bobbin-threads, separate shuttle-supporting devices located on the other side of said shed, and means controlled by the traveling spindles whereby the shuttle or shuttles may be thrown from one support to another.

4. In a braid-making machine the combination of a series of traveling spindles, carrying bobbins whose threads lead to a common point, one or more flying shuttles adapted to carry material to be applied to the braid, suitable mechanisms whereby the shuttle or shuttles may be thrown or projected from one side to the other of the shed formed by the bobbin-threads, and suitable removable and interchangeable actuating devices carried by the traveling spindles and adapted to actuate the shuttle throwing or projecting mechanisms substantially as described.

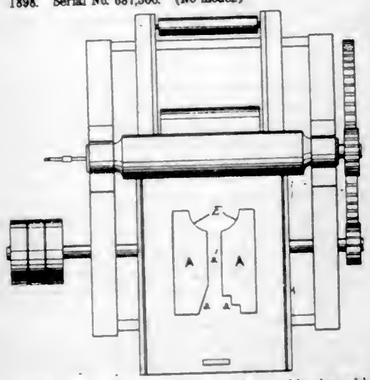


5. In a braid-making machine the combination of a series of traveling bobbins whose threads lead to a common point, a movable carriage, a flying shuttle, and means mounted upon said carriage whereby said shuttle may be caused to pass alternately from one side of the shed formed by the bobbin-threads, to the other.

6. In a braid-making machine the combination of a series of traveling bobbins whose threads lead to a common point, a movable carriage, a flying shuttle, means mounted upon said carriage whereby said shuttle may be caused to pass alternately from one side to the other of the shed formed by the bobbin-threads, and means whereby said carriage may be moved continuously during the regular operation of the machine.

7. In a braid-making machine the combination of a series of traveling bobbins whose threads lead to a common point, a movable carriage, shuttle supporting and actuating devices mounted upon said carriage and located on one side of the shed formed by the bobbin-threads, other shuttle supporting and actuating devices also mounted on said carriage and located on the other side of said shed, and a flying shuttle.

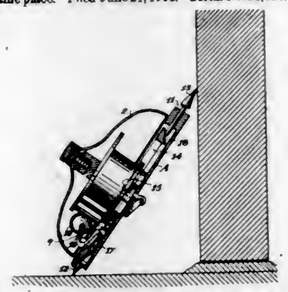
663,585. MACHINE FOR IRONING SHIRT-FRONTS OR OTHER ARTICLES. SARKIS H. SEKIAN, Manchester, England. Filed July 30, 1898. Serial No. 687,360. (No model.)



Claim.—1. In an ironing-machine the combination with a heated roller mounted in fixed bearings and a reciprocating bed, beneath the roller, of an ironing-table mounted upon the said bed, provided with two recesses, that at one end to receive the neckband, and that at the other end stepped to permit the seam of the shirt-opening to fall below the surface of the table substantially as described.

2. In an ironing-machine the combination with a heated roller mounted in fixed bearings and a reciprocating bed, of an ironing-table mounted upon the said bed made in two parts, with a recess at one end for the neckband and a recess at the other end for the seam of the shirt-opening, substantially as described.

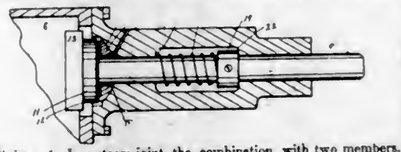
663,586. BURGLAR-ALARM DOOR-LOCK. JENNIE SIMONI, San Francisco, Cal., assignor of one-half to William K. Hays and Ira C. Hays, same place. Filed June 21, 1900. Serial No. 21,037. (No model.)



Claim.—1. The combination with a spring-actuated alarm of a locking device, consisting of fixed points connected with the base-plate of the alarm adapted to rest upon the floor, a point adapted to rest against the surface of the door and having a shank slidable in the upper part of the base-plate, an annular ring having its opposite sides pivoted to the base-plate, said ring carrying a detent upon one edge, which engages and normally retains the alarm out of action, and an incline upon the opposite side in line with the slidable shank of the movable point whereby the movement of the point disengages the detent and allows the alarm to sound.

2. A door-locking and alarm apparatus consisting of a spring-actuated alarm, points fixed to the lower side of the base-plate adapted to rest upon the floor, a point slidable in the upper part of the base-plate and adapted to rest against the door when the plate stands at an angle between the floor and the lower part of the door, a ring fitting the base-plate having the pivot-points on opposite sides about which it is tiltable, a detent upon the lower side of the ring, a spring by which the ring is tilted to cause said detent to engage the alarm and normally hold it out of action, an inclined or beveled lug upon the upper side of the ring in line with the slidable shank of the upper point whereby the inward movement of said shank acts to tilt the ring and disengage the detent to allow the alarm to be sounded.

663,587. PACKING-BOX FOR STEAM-JOINTS. LEONARD SINGLE, Hamilton, Ohio. Filed Jan. 22, 1900. Serial No. 2,397. (No model.)

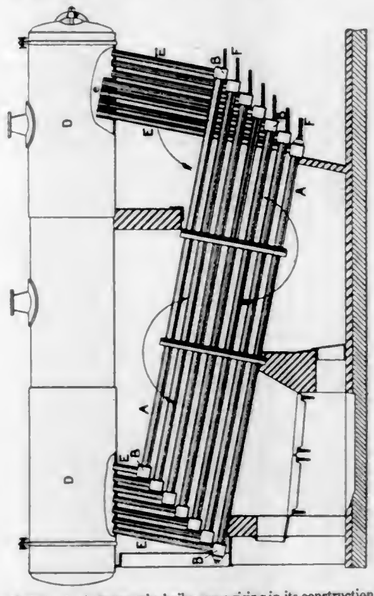


Claim.—1. In a steam-joint, the combination, with two members, one of which is provided with a concave seat that communicates with a steam-chamber and with an oil-channel communicating with the seat, and the other one projects through said seat, one of the members being rotatively mounted relatively to the other one, and the member that projects through the seat being provided with a collar upon each side of the seat, a plano-convex annular packing between one of the collars and the seat, one side of which is provided with radially-arranged grooves in communication with the oil-channel, and a spring between the other collar and the other side of the seat.

2. In a steam-joint, the combination, with an open bracket the inner end of which is provided with a concave seat that communicates with a steam-chamber, of an oscillatory stem through the bracket, the inner end of which is provided with a collar adjacent to the seat, a plano-convex packing between the collar and the seat, a collar upon the stem in the open portion of the bracket, and a spring upon the stem between said collar and the shoulder formed by the inner end of the open portion.

3. In a steam-joint, the combination, with a bearing provided with a concaved seat and an oil-conduit leading thereto, of a member through the bearing provided with a shoulder upon each side thereof, a perforated plano-convex packing upon the member between the seat and one of the shoulders, the plane side of which is grooved around its edge and provided with two series of radially-arranged grooves, one series extending from the grooved edge inward and the other series extending from the perforation outward, and a spring between the other shoulder and the other side of the bearing.

663,588. WATER-TUBE BOILER. JOHN E. SLACK, Manchester, England, assignor of two-thirds to Hammersley Heenan, same place. Filed Mar. 12, 1900. Serial No. 8,396. (No model.)

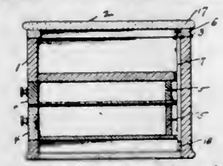


Claim.—1. A water-tube boiler comprising in its construction a number of sections or sets of tubes approximately horizontal each horizontal set connected to a horizontal header at both ends and each horizontal header separately connected with the steam and water drum substantially as described.

2. In a water-tube boiler constructed with a number of sections or sets of tubes the combination with each set of tubes A of a horizontal header B at both ends and upright tubes E attached thereto connecting each header B and set of tubes A separately and direct with the steam and water drum D.

3. In a water-tube boiler the combination with the steam and water drum D and a number of sets of tubes A of the horizontal header B placed at both ends and a number of upright tubes E connecting the headers separately with the drum.

663,589. AUTOMATIC LOCKING DEVICE. WILBUR T. SMITH, New Haven, Conn., assignor to The W. T. Smith Company, same place. Filed Jan. 16, 1900. Serial No. 1,614. (No model.)



Claim.—1. A locking device of the character described having locking-apertures therein, which apertures have an enlarged portion 11 and a slotted portion 12 extending therefrom, the said slot having a tapered throat, formed by turning the lower edges of said slot outward, as at 10, all constructed and operating substantially as described.

2. In an article, substantially as described, having one or more drawer members and a cover member; the said drawer members being

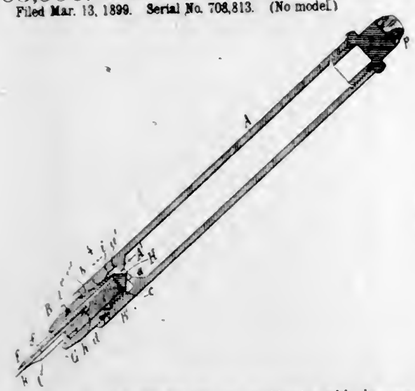
provided with locking-studs the combination therewith of a locking device having apertures therethrough, with outwardly-turned edges for locking said drawer members, the said locking device being adapted to pull said drawer members from a substantially-closed position to their completely-closed positions by the engagement of said locking-studs with the outwardly-turned edges of said apertures, substantially as described.

3. In a locking mechanism, a locking-bar for the purpose substantially as described, having a U-shaped body portion, and one or more locking-apertures therethrough, the said apertures having an enlarged portion and a slotted portion, the body of said locking-bar adjacent to the open end of said slot being turned outward, substantially as described.

4. In an article having body and lid members, the said lid member having a recess in one side thereof; the combination therewith of a locking-bar movably secured to said body member in line with said recess, and means for closing said recess, the said means consisting of a movable plate, substantially as described.

5. In an article having body and lid members, the said lid member being provided with a recess, as 17, the combination therewith of a locking mechanism, comprising a locking-bar 7 having locking-apertures therein, and means for actuating said locking-bar, said means consisting of a plate, as 14, movably secured to said lid, substantially as described.

663,590. **FOUNTAIN-PEN.** BENJAMIN J. SOPER, Hoboken, N. J. Filed Mar. 13, 1899. Serial No. 708,813. (No model.)



Claim.—1. In a fountain-pen, the combination with the reservoir-holder and pen, of a feed-bar extending along the pen and having an ink-passage formed as a longitudinal groove on its outer surface, said bar communicating with the reservoir-holder, and so formed as to permit the passage of ink from said groove to the pen-nibs.

2. In a fountain-pen, the combination with the reservoir-holder and pen, of a feed-bar extending along the pen, and having a longitudinal groove on its outer surface, said groove extending beyond the nozzle and communicating with the reservoir-holder and having an opening through it communicating with the tip of the pen whereby the ink is fed only to said pen at its tip.

3. In a fountain-pen, the combination with the reservoir-holder and pen, of a feed-bar extending along the pen, and having longitudinal grooves on its outer surface, said grooves communicating with the reservoir and extending to the pen-nibs, and passages from said grooves to the pen-nibs whereby the ink feeds along said grooves and passages to the nibs of the pen.

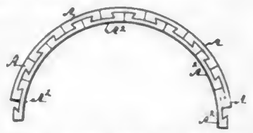
4. In a fountain-pen, a reservoir-holder, a nozzle, a plug in said nozzle, a pen held in said nozzle by said plug, said plug having a feed-bar extending along the pen, and said bar having two longitudinal grooves on its exterior surface communicating with the reservoir-holder, and two holes over the point of the pen and opening from said grooves to the pen-nibs.

5. In a fountain-pen, a reservoir-holder having an outlet and a valve-seat formed around said outlet, and being screw-threaded at one end, a nozzle adapted to screw therein, said nozzle having its inner end closed to form a stopper H and having openings *i* for the passage of ink, and a plug in said nozzle having longitudinal exterior grooves adapted to conduct the ink flowing through said openings to the pen near its point.

6. In a fountain-pen, a holder A, having the outlet *a* and valve-seat *a'*, a nozzle B having the stopper H and openings *i* and a feed-bar F having the grooves *f* and passages *k*.

7. In a fountain-pen, a holder A, having the outlet *a* and valve-seat *a'*, a nozzle B having the stopper H and openings *i*, a feed-bar having the grooves *f* and passages *k*, and a plug G.

663,591. **CYLINDRICAL WOODEN VESSEL.** JOHN C. TATE, Des Moines, Iowa, assignor of one-half to Grant Ross, same place. Filed Aug. 6, 1900. Serial No. 26,000. (No model.)

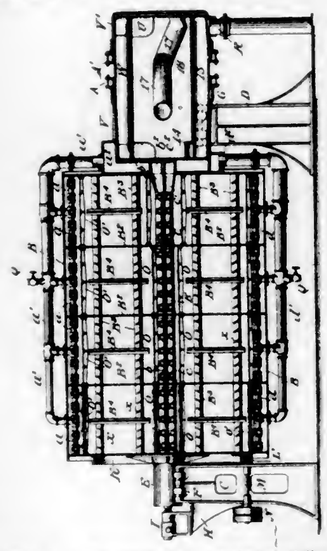


Claim.—1. In a wooden vessel, the combination of a stave having a convex smooth surface on its outside from top to bottom and a dovetail groove in its inside concave face extending from top to bottom on a central line and two mating staves having smooth concave inside faces and dovetail grooves in the centers of their outside convex faces extending from end to end to produce mating tongues on their parallel edges and concentric inside and outside faces in a cylindrical vessel, as shown and described, for the purposes stated.

2. In a cylindrical wooden vessel, a plurality of staves having grooves extending longitudinally in their outside convex faces and a plurality of staves having longitudinal grooves in their inside concave faces joined together and provided with transverse grooves in their inside faces a bottom fitted in said grooves and the ends of a locking-bar composed of two parts adjustably connected extended into openings in staves under said grooves and fixed to the bottom, for the purposes stated.

3. An improved cylindrical wooden vessel comprising a plurality of staves having grooves in the centers of their inside concave faces extending from top to bottom and a plurality of staves having grooves in the centers of their outer and convex faces extending from top to bottom and coinciding transverse grooves in the inside concave faces of all the staves, a bottom fitted in said transverse coinciding grooves, and a bar having its ends extended into openings in staves below the bottom and its body portion fixed to the under side of the bottom, all arranged and combined in the manner set forth for the purposes stated.

663,592. **FILTER.** ROBERT T. WEAVER, New York, N. Y. Filed May 31, 1900. Serial No. 18,550. (No model.)



Claim.—1. The combination of two horizontal filter-beds arranged one above the other and mounted to be rotated or partially rotated at will, water-pipes located at the top and bottom, respectively, of the two beds, an independently-rotatable induction and eduction valve with which said pipes communicate having ports and passages whereby when in one position water is circulated through the beds in one direction and in another position the circulation is reversed.

2. The combination of two horizontal filter-beds arranged one above the other and mounted to be rotated or partially rotated at will, water-pipes located at the top and bottom, respectively, of the two beds, an induction and eduction rotatable valve with which said pipes communicate

having ports and passages whereby when in one position water is circulated through the beds in one direction, in another position the circulation is reversed, and in a third position the induction and eduction ports or openings are closed.

3. The combination of two horizontal filter-beds arranged one above the other and mounted to be rotated or partially rotated at will, water-pipes located at the top and bottom, respectively, of the two beds, valve mechanism with which said pipes communicate, an unfiltered-water-supply pipe, a filtered-water-discharge pipe and a waste-pipe connected with the valve mechanism, such mechanism having ports and passages whereby when in one position the waste-pipe is closed, unfiltered water admitted to the beds and filtered water withdrawn therefrom, in a second position ingress and egress of water cut off, and in a third position the direction of circulation of the water through the beds reversed, water from the beds directed to the waste-pipe, and the filtered-water-discharge pipe closed.

4. The combination of two horizontal filter-beds arranged one above the other and mounted to be rotated or partially rotated at will, water-pipes located at the top and bottom respectively of the two beds, a valve-casing attached to and rotatable with the filter-beds, chambers or ports with which said pipes respectively communicate, a cylindrical valve rotatable within such casing, a second casing applied at the outer end of the cylindrical valve, an unfiltered-water-supply pipe, a filtered-water-discharge pipe, and a waste-water pipe connected with the latter casing, and ports or passages in the cylindrical valve and in the respective casings whereby in one position of the valve the waste-pipe is closed, unfiltered water admitted to one side of the beds respectively, and filtered water from the opposite sides of the beds delivered to the filtered-water-discharge pipe; in a second position, ingress and egress of water cut off; and in a third position, the direction of circulation of the water through the beds reversed, water that has passed through the beds directed to the waste-pipe and the filtered-water-discharge pipe closed.

5. The combination of a box or casing mounted to be rotated or partially rotated at will, a filter-bed arranged therein, water-pipes located at the top and bottom of the filter-bed, an internally-tapered valve-casing attached to one end of and rotatable with the box, a correspondingly-tapered cylindrical valve seated within the casing and having appropriate ports and passages for directing the circulation of water through the filter-bed in either direction at will, and means applied at the opposite end of the filter box or casing for pressing the valve-casing into close contact with the valve.

6. The combination of a box or casing mounted to be rotated or partially rotated at will, a filter-bed arranged therein, water-pipes located at the top and bottom of the filter-bed, an internally-tapered valve-casing attached to one end of and rotatable with the box, a correspondingly-tapered cylindrical valve seated within the casing and having appropriate ports and passages for directing the circulation of water through the filter-bed in either direction at will, and a hydraulic cylinder applied at the opposite end of the filter box or casing to press the valve-casing and valve into close contact.

7. The combination of a box or casing having a horizontal partition dividing it into two substantially equal chambers, a transverse partition or partitions dividing each such chamber into compartments, each adapted to receive filtering material, screens located across the tops and bottoms of the compartments, water-pipes arranged outside of the screens at the tops and bottoms of the two series of compartments, a valve-casing having ports or chambers with which such pipes communicate, and a rotatable valve seated therein, the casing and valve having ports and passages whereby on the rotation of the valve, the direction of circulation of water through the filter-bed may be reversed.

8. The combination of a box or casing mounted to be rotated or partially rotated at will, and having a horizontal partition dividing it into two substantially equal chambers, a transverse partition or partitions dividing each such chamber into compartments, and each adapted to receive filtering material, screens located across the tops and bottoms of the compartments, water-pipes arranged outside of the screens at the tops and bottoms of the two series of compartments, a valve-casing having ports or chambers with which such pipes communicate, and a rotatable valve seated therein, the casing and valve having ports and passages whereby on the rotation of the valve the direction of circulation of water through the filter-bed may be reversed.

9. A reversible casing comprising two or more compartments formed by one or more vertical partitions, and each adapted to contain integral parts of a single horizontal filter-bed of granular material, and a series of transverse breakers or knives in each compartment adapted to break up or disintegrate the filter-bed when it is reversed.

10. A reversible box or casing containing two or more compartments formed by a vertical partition or partitions and adapted to receive integral parts of a single horizontal filter-bed of granular material, screens arranged at the tops and bottoms of the compartments, water-pipes arranged outside of the screens at the tops and bottoms of the compartments, valve-mechanism with which such water-pipes are connected, an unfiltered-water-supply pipe, and a filtered-water-discharge pipe connected with the valve mechanism.

11. A reversible compartment to receive granular material forming a filter-bed and a series of breaking or cutting knives arranged horizontally across the compartment and adapted to break up or disintegrate the granular material forming the filter-bed when the compartment is reversed.

12. A reversible compartment adapted to receive granular material forming the filter-bed, having transverse bars B^3 extending across it and a series of parallel breakers or cutting-knives extending horizontally across the compartment and supported by such bars.

13. A box or casing mounted to be rotated or partially rotated at will and having its interior divided into compartments by means of vertical partitions, bars B^3 attached to the walls of each compartment and to posts B^4 supported by the bars, whereby each compartment is divided into several subcompartments, series of breakers or cutting-knives supported by said bars and extending horizontally across the compartments, screens at the top and bottom of the series of compartments, water-pipes located outside of the screens, valve mechanism with which the water-pipes are connected and water supply and discharge pipes connected with the valve mechanism.

14. The combination of a horizontal filter-bed mounted to be rotated or partially rotated at will, water-pipes located at the top and bottom of the bed, a combined induction and eduction rotatable valve with which said pipes communicate, an unfiltered-water-supply pipe, a filtered-waste-discharge pipe, and a waste-water pipe connected with the valve, and ports and passages in the valve, whereby in one position of the valve, water is circulated through the filter-bed in one direction and the waste-pipe closed; in a second position ingress and egress of water cut off; and in a third position, the direction of circulation of water through the filter-bed reversed, water from the bed directed to the waste-pipe, and the filtered-water-discharge pipe closed.

15. The combination of a filter-bed, water-pipes arranged at each side thereof, a combined induction and eduction rotatable valve mechanism with which such pipes are connected, an unfiltered-water-supply pipe, a filtered-water-discharge pipe and a waste-water pipe connected with the valve mechanism, whereby in one position of the valve, unfiltered water is admitted to one side of the filter-bed and filtered water from the opposite side delivered to the filtered-water-discharge pipe; and in another position, the filtered-water-discharge pipe is closed, circulation of water through the filter-bed reversed, and water from the filter-bed directed to the waste-pipe.

16. The combination of a horizontal filter-bed mounted to be rotated or partially rotated at will, water-pipes arranged at the top and bottom of the filter-bed, a valve-casing attached to and rotatable with the filter-bed, and having ports or passages with which said water-pipes connect, a valve seated in the casing, an unfiltered-water-supply pipe, a filtered-water-discharge pipe, and a waste-water pipe connected with the valve, and ports or passages, whereby in one position of the valve, unfiltered water is directed to one side of the filter-bed and filtered water from the opposite side of the bed delivered to the filtered-water-discharge pipe; and in another position, the direction of circulation of water through the filter-bed reversed, the filtered-water-discharge pipe closed and water from the filter-bed delivered to the waste-pipe.

17. The combination of a horizontal filter-bed mounted to be rotated or partially rotated at will, water-pipes arranged at the top and bottom of the filter-bed, a valve-casing attached to and rotatable with the filter-bed, and having ports or passages with which said water-pipes connect, a valve seated in the casing, an unfiltered-water-supply pipe, a filtered-water-discharge pipe, and a waste-water pipe connected with the valve and ports or passages, whereby in one position of the valve, unfiltered water is directed to one side of the filter-bed and filtered water from the opposite side of the bed delivered to the filtered-water-discharge pipe; in another position, the direction of circulation of water through the filter-bed reversed, the filtered-water-discharge pipe closed and water from the filter-bed delivered to the waste-pipe; and in a third position, ingress and egress of water cut off.

18. The combination with a filter-bed, of water-pipes at one side, water-pipes at the opposite side thereof, a valve-casing V having a chamber with which the first-named pipes connect and a chamber with which the second-named pipes connect, a port 7 in the former chamber, the valve having the segmental passage 4 with ports 5, 6, therein and the passage 3 connecting therewith, the segmental passage 2 at the outer end of the passage 3 having in it the ports 1 and 3'; a port 12 in the latter chamber, a segmental passage 14, in the valve, having a port 13 coöperating with the port 12, a passage 15 communicating with the segmental passage 14 and having at its outer end a port 16; the outer valve-casing V' having connected with it the pipe U in proper relation to the segmental passage 2, the pipe R in proper relation to the port 16, and the pipe S

in a radial line intermediate the ports 5 and 13; and a pipe or passage 17 in the valve open to the port 18 at the outer end of the valve and the port 19 at the inner end of the valve, substantially as and for the purpose set forth.

19. The combination with a horizontal filter-bed mounted to be rotated or partially rotated at will, of water-pipes at one side of the bed, water-pipes at the opposite side thereof, a valve, a casing rotatable with the filter and having a chamber with which the first-named pipes communicate and a chamber with which the second-named pipes communicate, a port 7 in the former chamber, the valve having the segmental passage 4 with ports 5, 6, therein and the passage 3 connecting therewith, the segmental passage 2 at the outer end of the passage 3 having in it the ports 1 and 3′, a port 12 in the latter chamber, a segmental passage 14 in the valve having a port 13 coöperating with the port 12, a passage 15 communicating with the segmental passage 14 and having at its outer end a port 16; the outer valve-casing V′ having connected with it the pipe U in proper relation to the segmental passage 2, the pipe R in proper relation to the port 16, and the pipe S in a radial line intermediate the ports 5 and 13; and a pipe or passage 17 in the valve open to the port 18 at the outer end of the valve and the port 19 at the inner end of the valve, substantially as and for the purpose set forth.

20. The combination with two filter-beds of water-pipes *a a′* and *c c′* arranged respectively on corresponding sides of the beds, water-pipes *b b′* and *d d′* arranged respectively on opposite sides of the beds, a valve-casing V having a chamber with which the pipes *a a′* and *c c′* communicate and a chamber with which the pipes *b b′* and *d d′* communicate, a port 7 in the former chamber, the valve having the segmental passage 4 with ports 5, 6, therein and the passage 3 connecting therewith, the segmental passage 2 at the outer end of the passage 3 having in it the ports 1 and 3′ a port 12 in the latter chamber, a segmental passage 14 in the valve having a port 13 coöperating with the port 12, a passage 15 communicating with the segmental passage 14 and having at its outer end a port 16; the outer valve-casing V′ having connected with it the pipe U in proper relation to the segmental passage 2, the pipe R in proper relation to the port 16 and the pipe S in a radial line intermediate the ports 5 and 13; and a pipe or passage 17 in the valve open to the port 18 at the outer end of the valve and the port 19 at the inner end of the valve, substantially as and for the purpose set forth.

21. The combination with two horizontal filter-beds mounted to be rotated or partially rotated at will, of water-pipes *a a′* and *c c′* arranged respectively on corresponding sides of the beds, water-pipes *b b′* and *d d′* arranged respectively on opposite sides of the beds, a valve-casing V having a chamber with which the pipes *a a′* and *c c′* communicate and a chamber with which the pipes *b b′* and *d d′* communicate, a port 7 in the former chamber, the valve having the segmental passage 4 with ports 5 6, therein and the passage 3 connecting therewith, the segmental passage 2 at the outer end of the passage 3 having in it the ports 1 and 3′ a port 12 in the latter chamber, a segmental passage 14 in the valve having a port 13 coöperating with the port 12, a passage 15 communicating with the segmental passage 14 and having at its outer end a port 16; the outer valve-casing V′ having connected with it the pipe U in proper relation to the segmental passage 2, the pipe R in proper relation to the port 16 and the pipe S in a radial line intermediate the ports 5 and 13; and a pipe or passage 17 in the valve open to the port 18 at the outer end of the valve and the port 19 at the inner end of the valve, substantially as and for the purpose set forth.

22. A reversible filter-bed of finely-divided material combined with an independently rotatable or adjustable combined induction and eduction valve and appropriate water pipes or connections whereby water may be circulated through the bed in either direction, or ingress and egress of water cut off at will, and the filter-bed reversed at will, substantially as set forth.

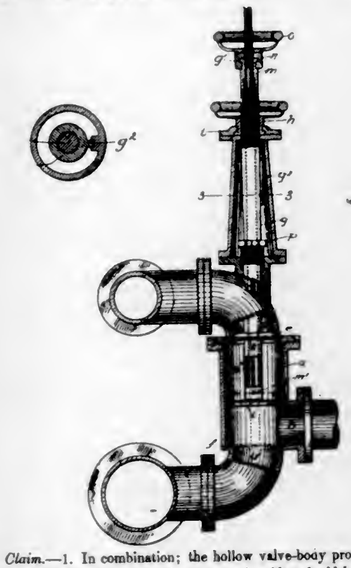
23. A reversible filter-bed of finely-divided material combined with an independently-rotatable induction and eduction valve, appropriate pipe connections between the respective sides of the filter-bed and the valve, an unfiltered-water-supply pipe, a filtered-water-discharge pipe and a waste-water pipe connected with the valve, whereby the bed may be reversed at will, and in one position of the valve unfiltered water directed to one side of the filter-bed and from the other side delivered to the filtered-water-discharge pipe; in a second position, the direction of circulation of water through the filter-bed reversed, the water therefrom directed to the waste-pipe and the filtered-water-discharge pipe closed; and in a third position ingress and egress of water cut off, substantially as set forth.

24. The combination with the filter-bed compartment of the screen-frame having one or more openings therein, flanges for attachment to the walls of the compartment and a strengthening-rib, screens applied at the openings and means for detachably clamping them in place.

25. The combination of a filter, water pipes or connections, and an induction and eduction valve having three sets or groups of ports and passages so arranged and connected that in the normal position water is admitted to the bed through one set of ports and passages and from the bed discharged through another set, and in another position the circulation of water reversed, the water being admitted through a third set of ports and passages and part of the second-named set, and discharged through the first-named set.

26. The combination with a filter-bed, of pipe connections, and valve mechanism with ports or passages adapted on the manipulation of the valve to reverse the circulation of water to clean the bed, and also ports or passages so constructed and arranged that on such reversal no part of the water from the bed traverses any part of the pure-filtered-water-discharge passages.

663,593. VALVE. WILLIAM W. WILSON, Holyoke, and WILLIAM A. STEVENSON and CHARLES E. TORRANCE, Northampton, Mass. Filed Mar. 17, 1900. Serial No. 9,071. (No model.)



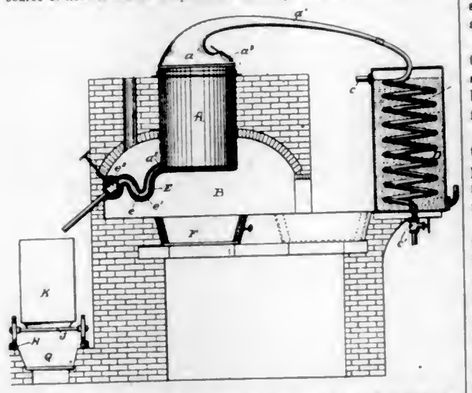
Claim.—1. In combination; the hollow valve-body provided with an inlet-orifice and an outlet-orifice on opposite sides of said inlet-orifice; a valve-seat appurtenant to each of said outlet-orifices; a longitudinally-movable main valve-rod; the valve-closers positively carried through the medium of said main valve-rod and adapted to simultaneously and alternately open and close the valve-orifices through the movement of said valve-rod; and means for positively moving one of said valve-closers to and from its valve-seat independently of the movement of said main valve-rod; all substantially as described and for the purposes set forth.

2. In combination; the hollow valve-body provided with an inlet-orifice and an outlet-orifice on opposite sides of said inlet-orifice; a valve-seat appurtenant to each of said outlet-orifices; the hollow longitudinally-movable main valve-rod; a valve-closer carried by said main valve-rod and adapted to open and close one of the valve-orifices; the subsidiary valve-rod carried by and longitudinally movable in the main valve-rod; the valve-closer carried by said subsidiary valve-rod; and independent mechanisms for moving the main and subsidiary valve-rods independently, all substantially as described and for the purposes set forth.

3. In combination; the valve-body having two outlet-orifices and an inlet-orifice between them, with a valve-seat appurtenant to each outlet; the hollow longitudinally-movable main valve-rod carrying a valve-closer for one seat; the subsidiary valve-rod extending through the main rod and carrying a valve-closer for the other seat, each rod being exteriorly threaded; two hand-wheels having nuts engaging the respective threads; a swivel connection between one nut and the main valve-rod, and between the other nut and the valve-body; and means for preventing rotation of the two rods, as and for the purpose set forth.

663,594. PROCESS OF MAKING VARNISH. ROBERT A. WORSTALL and CHARLES F. HACKATHORN, Cleveland, Ohio. Filed June 12, 1900. Serial No. 20,014. (No specimens.)

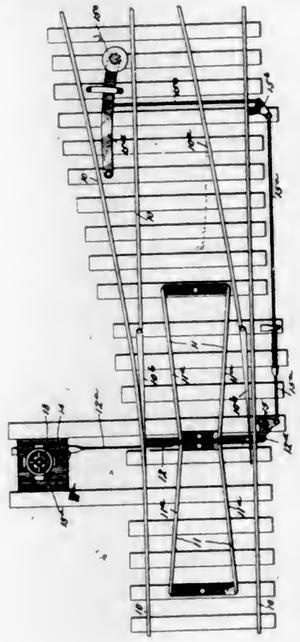
Claim.—1. The steps in a process of manufacturing varnish, which consist in subjecting gum or resin to the action of heat while in a receptacle, such heat being applied in a degree sufficient to reduce such gum or resin to a state of fluidity; and automatically removing same from the source of heat as fast as it becomes sufficiently fluid to flow freely.



2. The combination of the steps in a process of manufacturing varnish, which consist in subjecting gum or resin to the action of heat, such heat being applied in a degree such as to reduce such gum or resin to a state of fluidity; automatically removing same from the source of heat as fast as it becomes sufficiently fluid to flow freely; condensing the vapors of the gum or resin formed during such heating, and incorporating the distillate so formed in the removed gum or resin.

3. The combination of the steps in a process of manufacturing varnish, which consist in subjecting gum or resin to the action of heat, such heat being applied in a degree such as to reduce such gum or resin to a state of fluidity; automatically removing same from the source of heat as fast as it becomes sufficiently fluid to flow freely; condensing the vapors of the gum or resin formed during such heating; discharging such fluid gum or resin into heated oil, and incorporating the distillate formed by condensation of such vapors into the mixture of oil and gum or resin.

663,595. OPERATING RAILWAY-SWITCHES. AMOS YOUNGBLOOD, North Augusta, S. C. Filed Mar. 5, 1900. Serial No. 7,317. (No model.)



Claim.—1. In a railway-switch, the combination with the switch-tongues and their bar, of pivoted frames having converging sides arranged and adapted for engagement by the operating device on the rolling-stock, said frames being placed in the track with narrow ends adjacent each other and pivotally connected to opposite sides of the switch-bar, as set forth.

2. In a railway-switch, the combination with the switch-tongues and their bar, of frames pivotally mounted in the track and having inclined sides connected to opposite sides of the switch-bar, and a roller carried by the rolling-stock, and adapted to ride against said inclined sides, as set forth.

3. In a railway-switch, the combination with the switch-tongues and their bar, of the pivoted frames formed with converging sides, extended practically throughout their lengths and arranged and adapted for engagement by the operating device on the rolling-stock, said frames being connected to said switch-bar, as set forth.

4. In a railway-switch, the combination with the switch-tongues and their bar which latter is provided with a projection, a bell-crank lever having one arm disconnected from and arranged for engagement with the projection to move the bar in one direction, and an operating-lever arranged for movement by the rolling-stock, said lever being fulcrumed at a distance from said bell-crank lever and connected therewith to move the latter, as set forth.

5. In a railway-switch, the combination with a main track and a siding connected therewith by switch-tongues, of a switch-throwing device in the main track arranged for engagement by the rolling-stock, a lever fulcrumed in the siding at a distance from the switch-tongues, a bell-crank lever free of positive connection with the tongues whereby it is adapted to move the tongues in but one direction, and a connection between said latter lever and the lever in the siding as set forth.

6. In a railway-switch, the combination with the switch-tongues and their bar, which latter is formed with a projection near one end, of a bell-crank lever having one arm arranged for engagement with the projection to move the bar in one direction, a forwardly spring-pressed slidable rod connected to the other arm of said lever, and a lever fulcrumed in the siding and arranged for engagement by the rolling-stock, said lever being connected with the rear end of said slidable rod, as set forth.

7. In a railway-switch-operating mechanism the combination of a carrier a slide movable vertically in said carrier, an arm carried by said slide provided at its lower end with means for operating the switch and movable laterally at such end and devices for resisting such lateral movement of the said arm substantially as set forth.

8. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a roller adapted to ride against said inclines, a support for said roller, transverse guides on which said support is mounted, a rocker connected with said support to move the same and having a seat for an eccentric, an eccentric fitted in said seat and secured on a shaft, and means for turning said shaft as set forth.

9. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a roller adapted to ride against said inclines, a support for said roller movable laterally across the front portion of a locomotive, a rocker connected to said support to move the same and having a seat for an eccentric, an eccentric fitted in said seat and secured to a shaft extending rearwardly to the locomotive-cab, and means for turning said shaft, as set forth.

10. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a transversely-movable roller carried by the rolling-stock and adapted to ride against said inclines, and means for holding said roller above contact with said inclines, as set forth.

11. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of transverse guides on the rolling-stock, a plate movable on said guides, means for moving said plate and for holding it in different positions, a vertically-movable slide on said plate, means for moving said slide and a roller carried by said slide and adapted to ride against said inclines, as set forth.

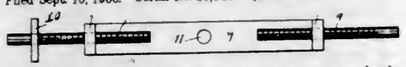
12. In a railway-switch, the combination with the switch-tongues, and the inclines arranged to move the same, of a laterally and vertically movable roller arranged to ride against said inclines, means for moving said roller laterally and a shifting-lever for raising and lowering said roller, as set forth.

13. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of transverse guides on the rolling-stock, a plate movable on said guides, a slide vertically movable on said plate and carrying a roller adapted to ride against said inclines, said slide being provided with a pin at its upper end, and a vertically-movable shifting-lever having an elongated slot, in which said pin is fitted as set forth.

14. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of the laterally-movable roller arranged to ride against said inclines, the slide carrying said roller, the

vertically-movable shifting-lever connected with said slide to raise and lower the same, said lever having a seat for an eccentric at its free ends, an eccentric fitted in said seat, and a shaft to which said eccentric is secured, as set forth.

663,596. FLUE-COVER. GEORGE H. BEATTY, Dayton, Ohio. Filed Sept. 10, 1900. Serial No. 29,541. (No model.)

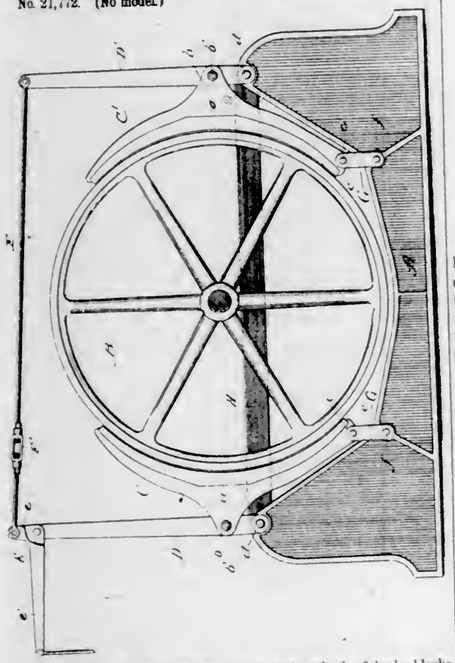


Claim.—1. In a flue-cover, the combination of a cover having a central opening therein, a bar located within the flue-opening, screws projected through said bar and securing said bar against the wall of the flue-opening, a bolt passing through an opening in the flue-cover and entering the bar, substantially as specified.

2. In a flue-cover, the combination of a cover having a central opening therein surrounded by a depression, an asbestos lining secured to the inner side of the cover, a bar located within the flue-opening, screws projected through said bar and adapted to secure said bar against the sides of the wall of the flue-opening, a bolt passing through the opening in the flue-cover and entering an opening in the bar, the head of said bolt lying within the depression surrounding the opening in said cover.

3. In a flue-cover, the combination of a cover having a central opening therein surrounded by a depression, an asbestos lining secured to the inner side of said cover, a bar located within the flue-opening, screws projected through the ends of said bar and lying parallel with said bar by means of which the said bar is secured within the flue-opening, a head 10 on one of said screws by means of which the said screw is tightened against the wall of the flue-opening, a bolt passing through the central opening in the flue-cover and entering the bar, the head of said bolt lying within the depression surrounding the opening in the cover, subtantially as specified.

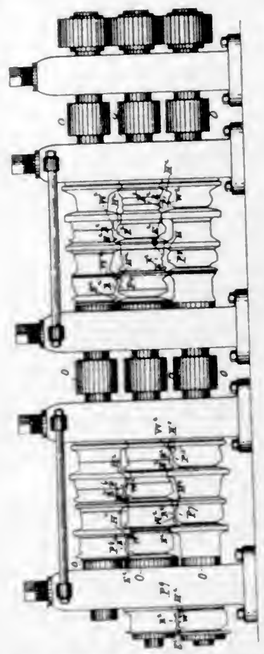
663,597. BRAKE. HANS C. BEHR, San Francisco, Cal., assignor to the Fraser & Chalmers, Chicago, Ill. Filed June 27, 1900. Serial No. 21,772. (No model.)



Claim.—1. The combination with a brake-wheel, of brake-blocks at opposite sides thereof, an operating-lever for each brake-block to which the respective block is pivotally connected at one point in its length, a connection between the levers, and a swinging link for each brake-block to which the respective block is pivotally connected at another point in its length, the lever and link at the same side of the wheel being movable in substantially similar arcs at their points of connection with the brake-block.

2. The combination with a brake-wheel and bed-frame, of levers fulcrumed at opposite sides of the wheel upon the bed-frame, a connection between the free end portions of the levers, brake-blocks pivotally connected at or near their centers to the levers, and links pivotally connected at opposite ends respectively to the bed-frame and to end portions of the brake-blocks, the levers and links being movable in substantially similar arcs at their points of connection with the brake-blocks.

663,598. ROLL-TRAIN AND ITS PASSES FOR SHAPING BARS FROM WHICH TO SECTIONALLY CUT FISH-PLATES. WILLIAM J. BRADLEY, Troy, N. Y., assignor to the Continuous Rail Joint Company of America, Newark, N. J. Filed Oct. 23, 1899. Serial No. 734,462. (No model.)



Claim.—1. The combination with a roll-train of a series of passes having interiorly arranged therein with intaglio production and in consecutive measures of development from the first pass to the last pass of the train, the entrant-groove formation E^2, the rib formation R^2, the head formation H^2, and that of the waist W^2, whereby a bar rolled thereby when cut into sections will produce the fish-plates F, having the recess E, the rib R, the head H, and the waist W, substantially as described.

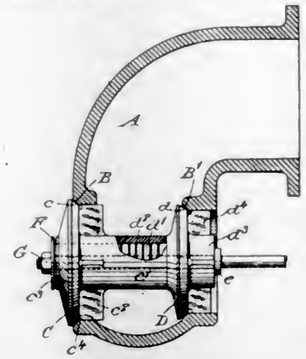
2. The combination with a train of rolls of a series of passes having interiorly arranged the intaglio elements of form produced in consecutive measures of development from the initial to the finishing passes of the train, of the entrant groove E^2, the head H^2, the rib R^2, and the waist W^2, whereby there may be cut from a bar rolled thereby sections having the form of the fish-plates F, as herein described.

663,599. THROTTLE-VALVE. JOHN S. CHAMBERS, Elizabeth, N. J. Filed Aug. 29, 1900. Serial No. 28,373. (No model.)

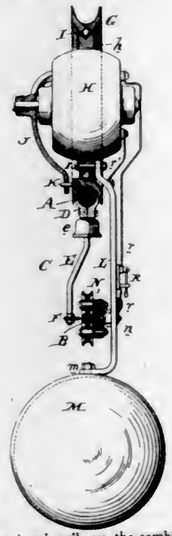
Claim.—1. A throttle-valve comprising a male member and a female member, each provided with a valve-disk and resting normally in engagement with each other, the female member being under the control of the male member to be positively operated simultaneously with the male member to open the valve and the male member being loosely mounted on and under the control of the valve-stem to be positively closed, substantially as set forth.

2. The combination with valve-seats spaced apart, of a two-part valve, the one part being loosely secured to the valve-stem to be positively operated toward and away from its seat by the valve-stem and the other part being loosely mounted on the aforesaid part and having a bearing against the aforesaid part to be positively moved in one direction while being free to move independently of the first-named part in the opposite direction, substantially as set forth.

3. The combination with valve-seats spaced apart, of a two-part valve, one of the valve parts being provided with a barrel extending through the opposite part and projecting beyond the said part, a valve-stem extending through the said inner part and locked to the said part to operate it positively in each of two opposite directions, the said inner part being provided, on its exterior, with water-grooves to form a steam-tight joint while permitting the parts to move longitudinally relatively to one another, substantially as set forth.



663,600. ELECTRIC RAILWAY. THEOPHILUS P. CHANDLER, Philadelphia, Pa. Filed Oct. 22, 1900. Serial No. 33,814. (No model.)



Claim.—1. In an electric railway, the combination of the conductors A and B, with a series of depending insulating-supports C attached to the cable A, and horizontal plate-supports secured at the bottom of the supports C and looped about the conductor B.

2. In an electric railway, the combination of the conductors A and B, with a series of depending insulating-supports C attached to the cable A, horizontal plate-supports secured at the bottom of the supports C and looped about the conductor B, an electrically-propelled truck running upon the conductor A and having a depending frame, and a trolley-arm pivoted to the said depending frame and having its free end provided with two grooved wheels arranged upon opposite sides of the conductor B and in which the diameters of the flanges of said wheels on one side are greater than the diameters of the flanges on the opposite side.

3. In an electric railway, the combination of the conductors A and B, with a series of depending insulating-supports C attached to the cable A, horizontal plate-supports secured at the bottom of the supports C and looped about the conductor B, an electrically-propelled truck running upon the conductor A and having a depending frame, a trolley-arm pivoted to the said depending frame and having its free end provided with two grooved wheels arranged upon opposite sides of the conductor B and in which the diameters of the flanges of said wheels on one side are greater than the diameter of the flanges on the opposite side, and a cross-bar pivoted to the end of the trolley-arm in line with the conductor B and carrying studs upon which the trolley-wheels are journaled.

4. In an electric railway, the combination of a suspended conductor, a supporting horizontally-extending bracket structure consisting of a flat plate looped about the conductor, a pivoted trolley-arm adapted to move vertically at its free end, and two grooved collector-wheels arranged one above and the other below the conductor and having their corresponding flanges on one side of the conductor closer together than on the other side.

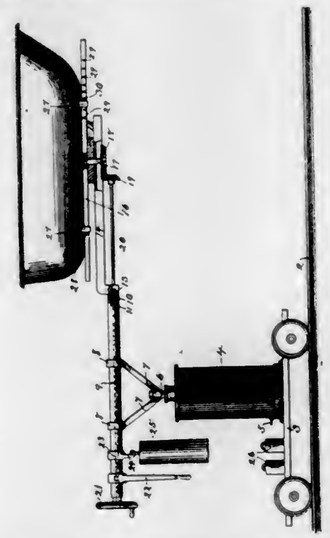
5. In an electric railway, the combination of a suspended conductor, a supporting horizontally-extending bracket structure consisting of a flat plate looped about the conductor, a pivoted trolley-arm adapted to move vertically at its free end, two grooved collector-wheels arranged one above and the other below the conductor and having their corresponding flanges on one side of the conductor closer together than on the other side, and an intermediate support between the said trolley-wheels and the free end of the pivoted arm whereby said trolley-wheels may assume different positions so that either wheel may be in advance of the other or assume a position in which one is vertically over the other.

6. In an electric railway, a suspended conductor B, a flat plate support or bracket arranged horizontally and looped about the conductor B, retaining-washers W for holding the plate in position, a vertical support extending through the washers and plate, and clamping-nuts e for clamping the plate and washers firmly upon the rod.

7. In an electric railway, the combination of a suspended conductor sustained at intervals by laterally-projecting thin brackets or plates of less thickness than the diameter of the conductor, with a trolley device consisting of a vertically-movable frame and two grooved collector-wheels pivoted to said frame, one being arranged above and the other below the conductor and in which the flanges of said two wheels on the side of the conductor most distant from the bracket or supporting-plate are normally closer together than are the corresponding flanges of said wheels on the side of the conductor adjacent to said supporting bracket or plate.

8. In an electrically-propelled vehicle, the combination of a suspended conductor, a large grooved annular truck-wheel, a motor arranged within the grooved truck-wheel, antifriction-bearings interposed between the grooved truck-wheel and the motor, a radial spider-frame secured to the motor-shaft, loose power-transmitting connections between the said spider and the annular grooved truck-wheel, and a vehicle-body or compartment for conveyance of merchandise, &c., secured to the motor and depending below the suspended conductor.

663,601. APPARATUS FOR ENAMELING BATH-TUBS. WILLIAM C. DEGELMAN, Mansfield, Ohio. Filed Sept. 22, 1900. Serial No. 30,849. (No model.)



Claim.—1. In a device for supporting bath-tubs when applying enamel, the combination with a carriage, of a tilting-fork mounted thereon,

means for raising and lowering the fork on the carriage, and means on said fork for engaging a lug on the bottom of the bath-tub.

2. In a device for supporting bath-tubs when applying enamel, the combination with a carriage, of a tilting and revolving plate mounted thereon, said plate being adapted to engage hook-lugs on the bottom of the tub.

3. In a device for supporting bath-tubs when applying enamel, the combination with a carriage, of a tilting-fork mounted thereon, a revolving plate on said fork for engaging hook-lugs on the bottom of the bath-tub, and means for securing the tub to said plate.

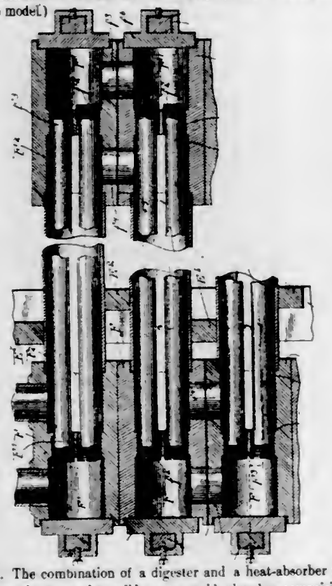
4. In a device for supporting bath-tubs when applying enamel, the combination with a carriage, of a tilting-fork mounted thereon, a revolving plate on said fork for engaging lugs on the bottom of the bath-tub, a lug or projection on said plate for engaging a lug on the tub, and holes in said plate for receiving a pin for engaging another lug on the bottom of the tub.

5. In a device for supporting bath-tubs when applying enamel, the combination with the support, of a tilting-fork mounted thereon, and means on said fork at one side of the support for engaging hook-lugs on the bottom of the bath-tub.

6. In a device for supporting bath-tubs when applying enamel, the combination with a support, of a tilting-fork mounted thereon, means on said fork at one side of the support for engaging a lug on the bottom of the bath-tub, and a counterbalance on the opposite side of the support.

7. In a device for supporting bath-tubs when applying enamel, the combination with a support, of a tilting and revolving plate mounted thereon, said plate being adapted to engage hook-lugs on the tub, a lug or projection on said plate for engaging a lug on the tub, and holes in said plate for receiving a pin for engaging another lug on the tub.

663,602. **HEAT-ABSORBER FOR DEFECATING APPARATUS.** EUGENE W. DEMING, New Orleans, La. Filed May 5, 1899. Serial No. 715,699. (No model.)

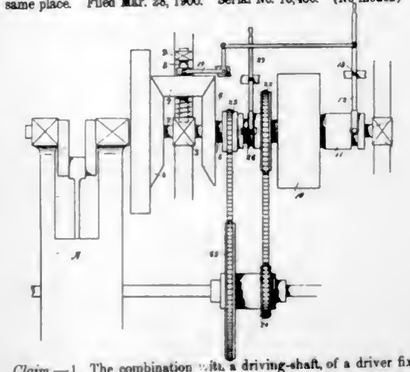


Claim.—1. The combination of a digester and a heat-absorber for liquids which carry in suspension solid matter, said absorber comprising an outer conduit and an inner conduit or conduits, one of which is connected with a pipe leading to the induction side of the digester and the other with a pipe leading from the eduction side of the digester, whereby liquid delivered to the absorber passes through both inner and outer conduits and the digester, the inner conduit or conduits being made of approximately the same cross-sectional area as the space in the outer conduit surrounding the same.

2. The combination with a digester and a heat-absorber for liquids which carry in suspension solid matter, said absorber comprising a plurality of conduits which have communication alternately at the front and rear of the device, and one or more conduits in each of said first conduits which have similar communication with each other at their ends but have no communication with the first conduits, the inner conduits being made approximately of the same cross-sectional area as the spaces in the outer conduits which surround the same, and said inner and outer conduits being connected respectively, at one side of the absorber, with the induction and eduction sides of the digester, whereby liquid delivered to said absorber passes successively through one set of the conduits, the digester and the other set of the conduits.

3. The combination with a digester and a heat-absorber for liquids which carry in suspension solid matter, the absorber comprising two pipes arranged side by side, a tubular head connected with the adjacent ends of each of said pipes and provided with a diaphragm dividing said head into two chambers, one of which is in communication with the interior of the pipe connected therewith, tubes contained in said pipes which pass at their outer ends through said diaphragms and are in communication with the other chambers of said heads, the corresponding chambers of said heads being connected through lateral openings in the side walls thereof, the cross-sectional area of said inner tube or tubes of each pipe being approximately equal to the cross-sectional area of the space in the pipe surrounding the tube or tubes, and the chambers at one side of the absorber being connected respectively with the induction and eduction sides of the digester, whereby liquid delivered to the absorber passes through said pipes and tubes of the absorber and through the digester.

663,603. **TRANSMISSION AND REVERSING GEAR.** JOHN E. DOAK, San Francisco, Cal., assignor of one-half to William Leviston, same place. Filed Mar. 28, 1900. Serial No. 10,480. (No model.)



Claim.—1. The combination with a driving-shaft, of a driver fixed thereto, a sleeve having its major axis in the direction of the length of the shaft and loosely mounted thereon, a second driver on the sleeve, a transmitter adapted to occupy the space between the two drivers and mounted in the plane of the axis of the latter, a means for engaging or disengaging the transmitter with the two drivers, a clutch member fixed to the driving-shaft, a second clutch member rigid with the opposite end portion of the sleeve, and a unitary mechanism whereby the clutch is engaged or disengaged simultaneously with the disengagement or engagement of the transmitter with the drivers.

2. The combination with a driving-shaft, and a driver fixed thereto, of a sleeve loosely mounted upon the shaft and having its major axis in the direction of the length thereof, a second driver rigid with the sleeve and disposed in opposition to the first-named driver, a transmitter adapted to occupy the space between the two drivers and mounted and movable simultaneously into or out of contact with both drivers, a clutch member carried by the sleeve and turnable therewith, a second clutch member fixed to the driving-shaft, a cone and lever by which the last-named clutch member is moved into or out of contact with the first-named member, and connection between the lever and the transmitter whereby the latter is disengaged from the drivers when the clutch members are in engagement and is engaged with the drivers when the clutch members are disengaged.

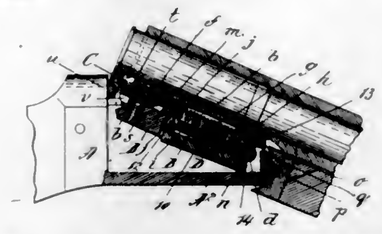
3. The combination with a driving-shaft, of a driver fixed thereto, a sleeve loosely mounted upon the shaft, having its major axis in the direction of the length thereof, a second driver rigid with the sleeve and disposed in opposition to the first-named driver, a transmitter adapted to occupy the space between the opposing drivers and movable into and out of contact with said drivers, a clutch member carried by the opposite portion of the sleeve, a second clutch member fixed to the shaft, a lever for the transmitter, a lever for the clutch, and a connection uniting the two levers whereby the transmitter and clutch are moved simultaneously to engage one and disengage the other, sprocket-wheels loose upon the sleeve, clutch members fixed to said wheels, an intermediate clutch member slidable upon the sleeve, means for moving the intermediate member into engagement with either of the sprocket clutch members, a driven shaft, sprocket-wheels thereon, and chains extending therefrom to the sprockets on the sleeve.

4. The combination with a revoluble shaft, a loose sleeve thereon, and drivers fixed to the shaft and sleeve, of loose sprockets upon the sleeve

and a clutch member also on said sleeve and adapted to engage either of said sprockets, a transmitter adapted to occupy the space between the two drivers, means for moving the transmitter into or out of contact with the drivers, to reverse or stop the sleeve, a driven shaft, and transmitting devices between it and the said sprockets.

5. The combination of a revoluble shaft, a loose sleeve thereon, drivers fixed to the shaft and sleeve, sprockets loose on the sleeve, clutch members fixed to said sprockets, a clutch member between the first-named clutch members and adapted to engage either of the latter, a transmitter adapted to occupy the space between the two drivers, a lever connected with the transmitter, clutch members between the shaft and sleeve, a lever for actuating the last-named clutch members, a connection from one lever to the other whereby both operate in unison, a driven shaft, and transmitting devices between it and the sprockets on the sleeve.

663,604. **EXTRACTOR MECHANISM FOR FIREARMS.** EDWARD H. ELDER, Chicopee, Mass., assignor to the J. Stevens Arms and Tool Company, same place. Filed Aug. 24, 1900. Serial No. 27,888. (No model.)



Claim.—1. In a breakdown gun, in combination, the gun-frame having at a forward part thereof an abutment as resistant, the barrel having in its bottom lug the longitudinal bore open at the front and rear ends of said lug and having the transverse aperture *j* leading to said bore, the ejector having its stem provided with a catch-notch, the device, D, comprising the bar or lever member 10 having its forward end pivotally supported by the bottom lug, having at its rear end the rigid upward catch extension 12, projecting within said aperture *j*, having at a forward portion thereof the upwardly-extending portion *h* constructed with the forward member 13, the end of which is adjacent said resistant or abutment of the frame, and the spring *g* located in the forward part of said bottom-lug bore and operating upon both the ejector-stem and the said portion *h* of the single device D, substantially as described.

2. In a breakdown gun, in combination, the gun-frame having at a forward part thereof the screw-threaded socket *p* and the screw-plug *q* adjustably engaged therein, the barrel hinged to the frame and having in its bottom lug the longitudinal bore open at the front and rear ends of said lug, and having the transverse aperture *j* leading to said bore, the ejector having its stem provided with a catch-notch, the device, D, comprising the bar or lever member 10 having its forward end supported pivotally on the bottom lug below the point of hinge connection of the barrel to the frame, having at its rear end the rigid upward catch extension 12, projecting within said aperture *j*, having at a forward portion thereof the upwardly-extending portion *h* constructed with the forward member 13, over the hinge-point the end of which member is adjacent the end of said screw-plug *q*, and the spring *g* located in the forward part of said bottom-lug bore and operating endwise against both the ejector-stem, and the said portion *h* of the said single device D, substantially as described and shown.

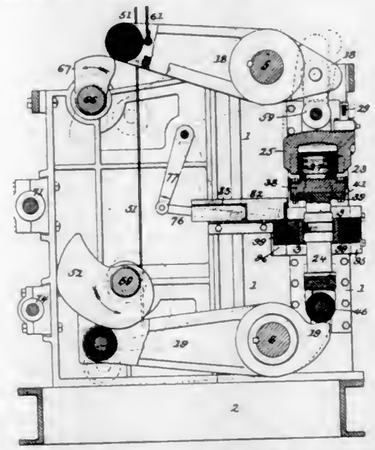
668,605. **WIRE-COUPLING.** WILLIAM FRANKHAM, Canton, Ohio. Filed May 24, 1900. Serial No. 17,819. (No model.)



Claim.—1. In a wire-coupling the combination of a coupling provided with tapered extensions having wire-apertures, a slot formed in the central portions of the coupling and provided with enlarged openings at the ends of the slot, and the inclined grooves, and the wires 7 provided with bent ends or portions and the bent ends or portions seated into recesses, substantially as and for the purpose specified.

2. In a wire-coupling the combination of a tapered coupler provided with a chamber, a slot formed in the coupling, inclined grooves located in the sides of the enlarged openings and the enlarged openings communicating with the slot, and wires provided with bent ends, substantially as and for the purpose specified.

663,606. **BRICK-PRESS.** JULIUS J. KOCH, St. Louis, Mo. Filed Mar. 21, 1891. Serial No. 385,925. (No model.)



Claim.—1. In a brick-press, the combination of a brick-mold, a two-part mold-plunger, a hydraulic chamber connecting the plunger parts, a connection or passage connecting the hydraulic chamber to the overflow-chamber, a valve arranged in said passage, a weighting device in connection with which said valve becomes a safety-valve, and a detaining device by means of which said valve may be deprived of the influence of said weighting device and become an inflow and outflow valve.

2. In a brick-press, the combination of a brick-mold, a two-part mold-plunger, a hydraulic chamber connecting the plunger parts a valve connected to said chamber, said valve acting normally as a safety-valve, and means for converting said valve into an inlet-valve, substantially as set forth.

3. In a brick-press, the combination of a brick-mold, a two-part mold-plunger, a hydraulic chamber connecting the plunger parts a valve connected to said chamber, said valve acting normally as a safety-valve, and means for converting said valve into an inlet and means for converting said valve into an outlet valve, substantially as set forth.

4. A two-part mold-plunger for brick-presses, connected together by a hydraulic cushion, and means for restricting independent movement between the parts, the same consisting of tie-bolts, and adjustable nuts, substantially as set forth.

5. In a brick-press the combination of the two-part mold-plunger, an interposed hydraulic cushion, a safety-valve, and pressure-lever, means for securing the valve and lever in an open condition, and an adjustable stop for releasing the mechanism, substantially as set forth.

6. In a brick-press, the combination of the two-part mold-plunger, an interposed hydraulic cushion, a spring safety-valve and lever, a sliding wedge under the lever, a bell-crank lever connected to the sliding wedge, and a stop on the main frame to actuate the wedge through said bell-crank lever, substantially as set forth.

7. In a brick-press, the combination of the upper hydraulic plunger, the main body of which constitutes the plunger of a hydraulic cylinder, and is provided with marginal flange on its lower end having upwardly-extending bosses, and an upwardly-extending marginal rim, with the mold-plungers 40, and attaching-bolts 39 passing up through the bosses 39′, substantially as set forth.

8. In a brick-press, the combination of an upper hydraulic plunger, the main body of which constitutes the plunger of a hydraulic cylinder, and is provided with marginal flange on its lower end having upwardly-extending bosses, and an upwardly-extending marginal rim, mainly formed by the detachable pieces 38′, 38″, with the mold-plunger 40, and attaching-bolts 39 passing up through the bosses 39′, substantially as set forth.

9. In a brick-press the combination of the upper mold-plunger and its operating-lever, having an auxiliary arm 63, with a cam or tappet 64, 65, arranged on a rotating part of the press mechanism and adapted to retain said plunger in a raised condition, and at the proper time allow it to drop with force upon the charge of clay, substantially as set forth.

10. In a brick-press the combination of the lower mold-plunger, and its operating-lever, having an auxiliary arm 40, with a tappet 47, arranged on a moving part of the press mechanism, and adapted to impart initial reverse movement to the operating-lever 19, substantially as set forth.

11. In a brick-press, the combination of the upper mold-plunger, an operating cam and lever, the short arm of which has connection with the

mold-plunger and the long arm with the cam, a weight 60, and an overhead chain or rope connection 61, to aid in imparting downward movement to the upper mold-plunger, substantially as set forth.

12. In a brick-press, the combination of the lower mold-plunger, an operating cam and lever, the short arm of which has connection with the mold-plunger, and the long arm with the cam, a weight 50, and an overhead chain or rope connection 51, to aid in lifting the long arm of the plunger-operating-lever, substantially as set forth.

13. In a brick-press, the combination of the lower mold-plunger, an operating cam and lever, the short arm of which has connection with the mold-plunger and the long arm with the cam, a weight 50, an overhead chain or rope connection 51, and means for regulating the downward movement of said weight, substantially as set forth.

14. In a brick-press, the combination of the lower mold-plunger, and its operating-lever, with a weight 50, chain or rope connection 51, adjustable lever 53, adjusting-screw 57, adjusting-wheel 58, and housing 54, substantially as set forth.

15. In a brick-press, the combination of the reciprocating clay-charger, its link 76, and bell-crank lever 77, having a forked or triangular end, with the operating-cam 80 and 81, on a rotating part of the press, substantially as set forth.

16. The combination in a brick-press of the main driving-shaft 74, connected to its driving-pulley by a friction-clutch, with the clutch-operating rock-shaft 92, the rock-arm 94, and a stud or tappet 75, on a moving part of the press, substantially as set forth.

17. In a brick-press, the combination of the main driving-shaft 74, connected to its driving-pulley by friction-clutch, a clutch-operating rock-shaft 92, rock-arm 94, stud or tappet 75 on a moving part of the press, adapted to automatically stop the press mechanism, and the hand-lever 93 on the rock-shaft 92, to afford means for restarting the press mechanism, essentially as herein described.

18. In a brick-press, the combination of the inner detachable sectional mold-frame, and the outer inclosing sectional frame therefor, consisting of pieces 97 and 98, the press-housing formed with recesses to receive the same, and tie-bolts 99 passing through the press-housing and through the pieces 97 to securely tie the parts together, substantially as set forth.

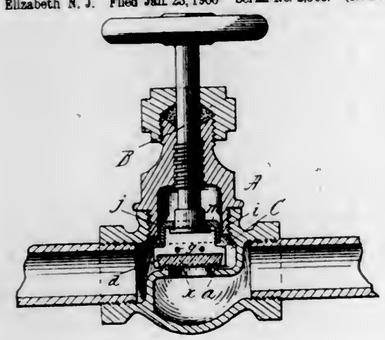
19. In a sectional mold for brick-presses, the inner and outer mold-frames, held against lateral displacement, with relation to each other by the cylindrical base of the nut 107, fitting into cylindrical recesses in the adjacent faces of the mold parts 97, 100, substantially as set forth.

20. In a sectional mold for brick-presses, the combination, of the outer sectional frame 97, 98, and the inner frame 100, 101, connected together by projections 103, recesses 104, and nuts 107, having cylindrical bases, adapted to fit cylindrical recesses in the adjacent faces of the parts 97, 100, and arranged to screw onto the shanks 105, extending from the projections 103, substantially as set forth.

21. In a sectional mold for brick-presses, the combination of the outer sectional frame 97, 98, and the inner frame 100, 101, connected together by projections 103, recesses 104, and nuts 107, having cylindrical bases adapted to fit cylindrical recesses in the adjacent faces of the parts 97, 100, and arranged to screw onto the shanks 105, extending from the projections 103, and outer nuts 110, confining bars 97, in place, substantially as set forth.

22. In a brick-press, the combination of the inner sectional mold-frame, the outer inclosing sectional frame therefor, consisting of the pieces 97 and 98, the press-housing formed with recesses to receive the same, and the front and rear tie-plates 95 and 96, secured to the press-housing to tie the press and mold parts together laterally, substantially as set forth.

663,607. DISK-HOLDER FOR VALVES. MICHAEL E. LYNCH, Elizabeth N. J. Filed Jan. 23, 1900 Serial No. 2,503. (No model.)

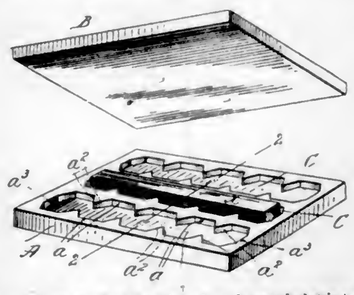


Claim.—1. In a valve of the character substantially as described, a disk-holder comprising members or segments separable or cleft on the axial plane of the holder, adapted to be matched together, having a socket or recess therein for the packing-disk, and detachable means for holding said separable members against spreading laterally, for the retention of the disk between them, substantially as described.

2. In a valve having the valve-seat and the valve-stem, of a disk-holder composed of members or segments separable on the plane of the axes of the holder, and adapted to embrace and hold a packing-disk, detachable means for holding said separable members against spreading from each other laterally, and means for connecting said separable members with the valve-stem.

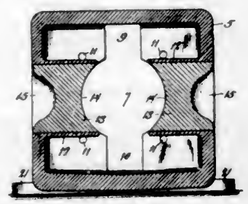
3. In a valve, a disk-holder comprising the separable members *b b* having its lower portion enlarged and provided with the disk-socket *d*, one of said members being constructed for a dowel-and-socket engagement with the other, and said disk-holder as a whole having the externally-threaded upper part with the internal socket *i*, the valve-stem having the lower end flange *j* and the coupling-nut *m*, arranged and combined substantially as and for the purposes set forth.

663,608. APPARATUS FOR MAKING PLASTIC POLYGONAL-SHAPED VALVE-PACKINGS. MICHAEL E. LYNCH, Elizabeth, N. J. Filed Apr. 6, 1900. Serial No. 11,841. (No model.)



Claim.—A die for the production of an edge-notched strip to be divided without waste into polygonal packings consisting of a female die member A having a die-cavity therein formed with opposite walls *a*, *a* perpendicular to its bottom and having at intervals the convergent or V-arranged walls a^3, a^3, the apexes of a series at one side being opposite the apexes of a similar series at the other side, and a flat-faced, coacting die member B, all whereby a straight bar or strip of the material to be molded having a width no greater than the distance between the aforesaid apexes of the opposite convergent die-walls, but having a thickness greater than the depth of the die-cavity, may be placed in, compressed and molded in the die to completely fill said cavity and produce the described edge-notched form of strip, substantially as and for the purpose set forth.

663,609. DYNAMO OR MOTOR. GEORGE L. MARTIN, New York, N. Y. Filed Aug. 24, 1900. Serial No. 27,938. (No model.)



Claim.—1. In a dynamo or motor, a casing provided with poles, comprising a shell integral with said casing and an inserted core extending through said shell and forming part of the face of the pole, as and for the purpose set forth.

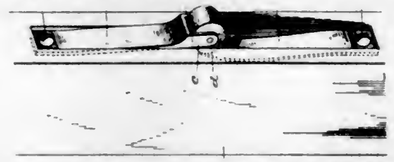
2. In a dynamo or motor, a rectangular casing having rounded corners and edges, and provided with poles, said poles comprising a shell integral with said casing and an inserted steel core extending through said shell, and forming part of the face of the pole, as and for the purpose set forth.

3. In a dynamo or motor, a rectangular casing having rounded corners and edges, and provided with poles, said poles comprising a shell integral with said casing and a steel core extending through said shell and forming part of the face of the pole, said core being provided with a cavity or recess in the rear end thereof, as and for the purpose set forth.

4. In a dynamo or motor, a casing having a circular opening in the end thereof, and having a plurality of bolt-holes concentric with said opening, and equidistant apart, and a head having a flange adapted to engage the walls of said opening, and provided with bolt-holes which register with the said bolt-holes in the casing, as and for the purpose set forth.

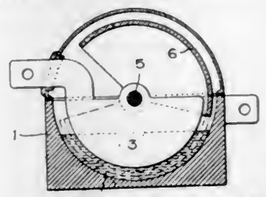
663,610. WITHDRAWN.

663,611. SASH-HOLDER. THOMAS J. MOSELEY, Salem, Mo. Filed Oct. 8, 1896. Serial No. 608,261. (No model.)



Claim.—A window-sash holder consisting of two oppositely-disposed flat spring-plates and a smooth roller mounted in the free end of one of said plates, the spring-plate having the roller adapted to be secured at one end in one end of an elongated recess in a sash or its frame and the other spring-plate adapted to be secured at one end in the other end of said elongated recess and bearing against the periphery of said roller so as to act as a brake therefor and force it outwardly.

663,612. CIRCUIT-CHANGER. EUSTACE OXLEY, Lynn, Mass., assignor to the General Electric Company, of New York. Filed May 29, 1899. Serial No. 718,651. (No model.)



Claim.—1. A circuit-changer comprising circuit-terminals, a liquid conductor connecting them, and an insulating-shell movable to surround one terminal and thus break the circuit.

2. A circuit-changer comprising two circuit-terminals, one surrounding the other, a conducting liquid between them, and a movable non-conducting wall to separate the terminals or permit their contact.

3. A circuit-changer comprising two terminals, one inclosing the other a conducting liquid between them, and a movable hood having insulating-walls to inclose the inner terminal and open the circuit.

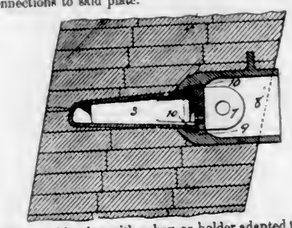
4. A circuit-changer comprising a conducting liquid such as mercury, a contact or terminal contacting therewith, and a non-conducting shell or hood arranged to enter said liquid and pass around and inclose the contact, its edge rising suitably above the surface to rupture the circuit.

5. A circuit-changer comprising a body of conducting liquid such as mercury, a switch contact or terminal lying permanently therein, a non-conducting shell or hood mounted on a shaft and adapted to turn therewith and enter said liquid, surround the contact lying therein and rise suitably above the surface, whereby said circuit is opened, and means for operating said shaft.

663,613. BOSH-PLATE. ARNOLD K. REESE, Baltimore, Md., assignor of one-half to Elizabeth Smeeth, Chicago, Ill. Filed Feb. 20, 1900. Serial No. 5,874. (No model.)

Claim.—1. The combination with a box or holder adapted to be permanently set in the outside of the furnace-wall and having a tapered opening in its inner end, of a bosh-plate having tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed, and water connections to said plate.

2. The combination with a box or holder having an exterior flange for anchoring the same in the outside of the furnace-wall, and having a tapered opening in its inner end, of a bosh-plate having tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed, and water connections to said plate.



3. The combination with a box or holder adapted to be permanently set in the outside of the furnace-wall and having a tapered opening in its inner end, of a bosh-plate having tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed and having handles on its outer side, and water connections to said plate.

4. The combination with a bosh-plate of tapered form, of a metal holder or support having one end open, and having a tapered socket in its other end in which the plate fits, said tapered socket having a peripheral groove or recess, and heat-resisting packing therein, substantially as set forth.

5. In a blast-furnace the combination with the furnace-wall of a bosh-plate holder or box having an external anchoring-flange and a tapered socket, provided with a peripheral groove filled with packing material, and a hollow, tapered bosh-plate adapted to fit said socket and having internal baffle-plates and external handles, substantially as set forth.

663,614. ADVERTISING DEVICE. CARL RIEDMÜLLER, New Ulm, Germany. Filed Sept. 23, 1899. Serial No. 731,412. (No model.)



Claim.—1. An advertising device, consisting of a frame containing suitable objects a^2, a movable plate arranged adjacent thereto, and having its edges concealed thereby, an object carried by said movable plate and adapted to be moved thereby with reference to the objects a^2, and a motor device to oscillate said plate.

2. An advertising device, consisting of a frame containing suitable objects a^2, a movable plate arranged adjacent thereto, and having its edges concealed thereby, an object carried by said movable plate and adapted to be moved thereby with reference to the objects a^2, a motor device to oscillate said plate, and means to vibrate said object as it is carried by said movable plate.

3. In an advertising device, the combination of a frame containing objects a^2, a movable mirror having its edges concealed by said frame, a motor to impart movements to said mirror, and an object carried by said mirror and moving therewith.

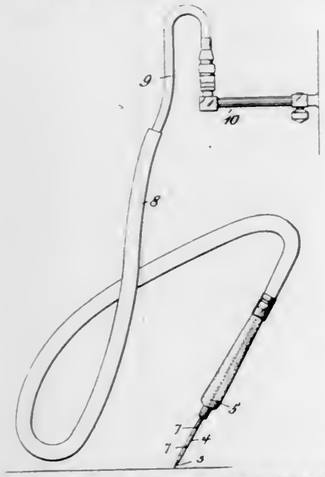
4. In an advertising device, the combination of a frame containing objects a^2, a movable mirror having its edges concealed by said frame, a motor to impart movements to said mirror, an object carried by said mirror and moving therewith, and means to vibrate said object as it is carried by said mirror.

5. In an advertising device, the combination of a frame containing objects a^2, a movable mirror having its edges concealed by said frame, a motor to impart movements to said mirror, and an object consisting of one-half of the entire object sought to be represented carried by said mirror and moving therewith.

6. In an advertising device, the combination of a frame containing objects a^2, a movable mirror having its edges concealed by said frame, a motor to impart movements to said mirror, an object consisting of one-half of the entire object sought to be represented carried by said mirror and moving therewith, and means to vibrate said object as it is carried by said mirror.

7. In an advertising device, the combination with an oscillating mirror, of a vibrating object carried thereby and consisting of one-half of the entire object sought to be represented.

663,615. PYROGRAPHICAL TOOL. WILLIAM H. SCOTT, New York, N. Y., assignor to Eugene J. Gregory and Julius Gregory, same place, and Thomas T. Wiseman, Weehawken, N. J. Filed Aug. 10, 1900. Serial No. 26,475. (No model.)



Claim.—The combination in a pyrographical tool, of a point to be heated, a tube or holder 4 having burner-orifices, 7, a tube 5 upon which the tube or holder 4 is mounted, the opposite end of the tube 5 being secured to a coupling-piece 6, a shield 11 secured to one end of the coupling-piece and spaced at its opposite end from the tube 4 by suitable spacing connection, and a pad of non-conducting material, as 13, mounted upon the shield 11.

663,616. FRUIT-JAR CLOSURE. ANGELINE SMELKER, North Star, Ohio, assignor of one-third to Mary M. Mehring, Indianapolis, Ind. Filed May 12, 1900. Serial No. 16,406. (No model.)



Claim.—1. A jar-closure including a neck having a sealing-ring seat formed at the upper edge thereof having a convex surface in cross-section whereon a sealing-ring may roll or tilt, a lid, and a retaining-cap bearing upon the lid and engaging the neck and having a sealing-ring sprung therein and bearing upon such sealing-ring seat.

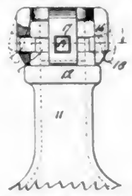
2. In a jar-closure, the combination of the neck, the ledge, the lid supported on the ledge, the sealing-ring seated upon the neck in a plane above and independently of the lid, and the cap having the annular corrugations and bearing simultaneously upon the lid and upon the sealing-ring.

3. In a jar-closure, the combination of the neck, the sealing-ring seat at the upper edge of the neck convex in cross-section, the lid having the finger-hold provided with the recess at the top thereof, the cap-plate bearing in said recess and having the flange provided with the recess at the junction with said plate and said flange, and the sealing-ring secured in said cap and extending into said last-mentioned recess and bearing upon said convex seat, substantially as set forth.

4. In a jar-closure, the combination of the neck, the sealing-ring seat at the upper edge of the neck, the ledge in said neck, the lid resting upon said ledge and having the integral serrated elevated finger-hold, the cap-plate bearing upon said finger-hold and having the sealing-ring attached thereto and bearing upon the top of said seat in a plane above said lid.

5. In a jar-closure, the combination of the neck, the screw-threads upon the exterior of the neck, the ledge in said neck, the lid resting upon said ledge and having the serrated elevated finger-hold having the depression at the top thereof, the sealing-ring seat, the retaining-cap having the ball-bearing in said finger-hold depression and having the recess therein for retaining a sealing-ring, the threads in said cap engaging the threads upon said neck, and the sealing-ring in said cap elastically forced into the recess thereof and bearing upon the sealing-ring seat, substantially as set forth.

663,617. BOTTLE. CHARLES W. STAPLETON, New York, N. Y. Filed Feb. 19, 1900. Serial No. 5,760. (No model.)



Claim.—1. A bottle having an external annular groove in the neck thereof with integral lugs protruding therefrom, and a seal mounted on the top of said bottle and extending to engage said lugs, said seal being of sufficient strength to require the breaking of the lugs to remove the same, for the purpose set forth.

2. A bottle having an external annular groove in the neck thereof with integral lugs protruding therefrom, and a seal mounted on the top of said bottle and extending to engage said lugs, said seal being proportioned in thickness, and the lugs being proportioned in length so that the ends of the lugs will lie within the outer plane of the seal, substantially as, and for the purpose set forth.

3. A bottle having an external annular groove in the neck thereof with integral lugs protruding therefrom, and a seal mounted on the top of said bottle, said seal being composed of metal and having arms with apertures in the ends thereof adapted to engage said lugs, and the said arms being proportioned in length so that they will project down beyond the said groove when in engagement with said lugs, as and for the purpose set forth.

4. A bottle having external, integral lugs, and a seal mounted on the top of said bottle, said seal being composed of metal and having arms with apertures in the ends thereof adapted to engage said lugs, said lugs being proportioned in length, and the arms in thickness so that the ends of the lugs will lie within the plane of the outer surface of the arms, substantially as and for the purpose set forth.

5. A bottle having four external, integral lugs, and a metal seal mounted on the top of said bottle, said seal comprising four arms forming a spider, and each being provided with an aperture adjacent to the free end thereof adapted to engage respectively the said lugs, the said arms being of sufficient thickness so that the plane of the outer surface will lie beyond the outer end of the lugs, and being of sufficient strength to require the breaking of the lugs to remove the same, substantially as and for the purpose set forth.

663,618. COMPOSITION OF MATTER FOR ENAMELING METAL WARE. WILBUR TOPPING, Harvey, Ill. Filed Oct. 23, 1899. Serial No. 734,541. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of borax, feldspar, quartz, fluor-spar, soda, saltpeter, pipe-clay, or similar substance, and water, or other suitable liquid, substantially as, and for the purpose, described.

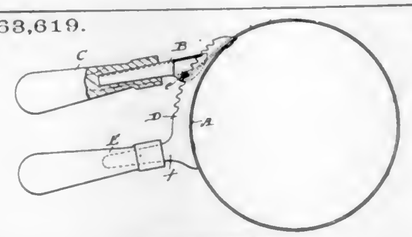
2. The herein-described composition of matter for enameling metal ware, consisting of sixty-one parts by weight borax, seventy-one parts by weight feldspar, forty-four parts by weight quartz, fifteen parts by weight fluor-spar, fourteen parts by weight soda, eleven parts by weight saltpeter, pipe-clay, or similar substance, and water, substantially as, and for the purpose, described.

663,619. FRUIT-JAR GRIPPER. ADOLPH WERNER, Milwaukee, Wis. Filed Sept. 21, 1900. Serial No. 30,710. (No model.)

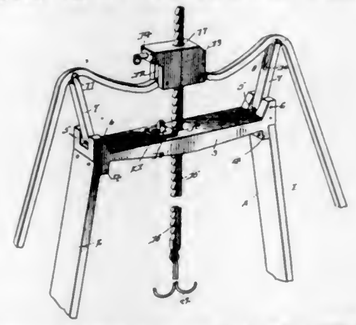
Claim.—1. A tool comprising a flexible band, the ends of which lap one another, one of said ends being provided with a longitudinal slot, a slot-engaging rack-fin in connection with the band, a pivot engaging recurved extremities of the band branches adjacent to said slot, and a lever on the pivot engageable with the rack-fin.

2. A tool comprising a flexible band, the ends of which lap one another, one of said ends being provided with a longitudinal slot, a slot-engaging rack-fin in connection with the band, a lever in pivotal connection with the slotted end of said band engageable with the rack-fin, and handles in union with the lever and fin.

663,619.



663,620. HOISTING DEVICE FOR HAY-PRESSES. ALBERT O. ZUCK, Faulkner, Kans., assignor of one-half to William F. Ferch, Chetopa, Kans. Filed Aug. 27, 1900. Serial No. 28,220. (No model.)



Claim.—1. A hoisting device comprising a frame provided with standards adapted to be arranged at opposite sides of a hay-press, a vertically-movable ratchet-bar extending through the top of the frame and provided with means for engaging a hay-press, a pair of links extending upward from the top of the frame at opposite sides thereof, operating-levers located at opposite sides of the frame and fulcrumed on the links, a slide or block having an opening and arranged on the ratchet-bar and connected with the levers, and the automatically-operating pawls or dogs mounted on the frame and on the block or slide for engaging the ratchet-bar, said pawls or dogs being adapted to be withdrawn by hand to permit the ratchet-bar to be gradually lowered, substantially as described.

2. A hoisting device comprising a frame composed of standards, and a connecting top piece provided with depending flanges and having upwardly-extending ears, links fulcrumed between the ears and located at opposite sides of the frame, the operating-levers also located at opposite sides of the frame and fulcrumed between their ends on the links, the vertically-movable ratchet-bar extending through the top of the frame, the slide or block having an opening receiving the ratchet-bar and connected with the operating-levers, and pawls or dogs mounted on the frame and on the slide or block, substantially as described.

3. A hoisting device comprising a frame provided with standards adapted to be arranged at opposite sides of a hay-press, a pair of links extending upward from the top of the frame at opposite sides thereof, the opposite operating-levers fulcrumed on the links, the vertically-movable block connected with the inner ends of the operating-levers, the ratchet-bar extending through the top of the frame and through the slide or block, and the horizontally-disposed spring-actuated pawls or dogs mounted on the slide or block and on the frame and adapted to be controlled by hand, substantially as described.

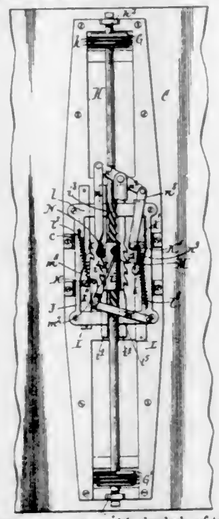
663,621. AUTOMATIC FUNNEL. CARLO BONAFEDE, Rome, Italy. Filed May 2, 1899. Serial No. 715,205. (No model.)



Claim.—1. A funnel comprising a bowl and a spout provided at the top of the spout with a perforated diaphragm, and a valve on one side of said diaphragm, said valve being movable against the diaphragm to close the funnel, and movable away from the diaphragm to open the funnel.

2. In a funnel with a bowl and a spout the combination of a perforated diaphragm between the bowl and spout, a stop-valve with a rod bent in two branches, one in the interior and the other at the exterior of the bowl, ending with a ring surrounding the spout of the funnel, so that when the funnel is placed upon the neck of a bottle the pressure exercised beneath said ring keeps the valve raised, and when the funnel is removed the valve closes.

663,622. LEAF-TURNER. FRANK BOYER, Syracuse, N. Y., assignor of one-half to Thomas Ryan, same place. Filed Apr. 12, 1899. Serial No. 712,721. (No model.)



Claim.—1. The combination with the desk, of two upright spindles supported in line with each other, respectively, in front of the upper and lower portions of the desk, rotary clamping-arms which are mounted, respectively, on the lower end of the upper spindle and the upper end of the lower spindle, and an upright clamping-rod secured to the free ends of said arms, substantially as set forth.

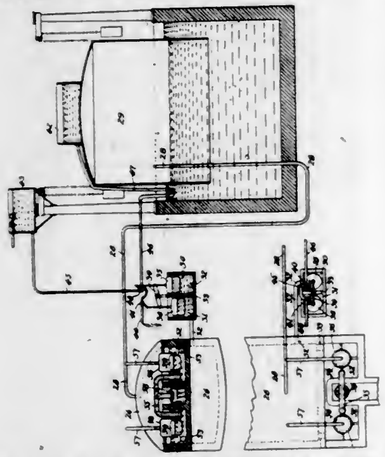
2. In a leaf-turner, the combination with the desk, of two rotary arms secured to upright spindles journaled on the front side of the desk and carrying an eccentrically-arranged clamping-rod, segmental pinions mounted loosely on said spindles and carrying the leaf-turning arms, segmental gear-wheels, whereby said pinions are actuated, and a shaft to which said wheels are secured and which is arranged on the rear side of the desk, substantially as set forth.

3. The combination with the leaf-turning arms and their actuating-wheels, of a shaft to which said wheels are secured and which is provided with a screw-thread, a traveling nut or sleeve engaging with said thread and provided with ratchet-bars facing in opposite directions, and actuating-pawls, adapted to engage with said ratchet-bars and to move the sleeve or nut in one direction or the other, substantially as set forth.

4. The combination with the leaf-turning arms and their actuating-wheels, of a shaft to which said wheels are secured and which is provided with a screw-thread, a traveling nut or sleeve engaging with said thread and provided with ratchet-bars facing in opposite directions, actuating-pawls facing in opposite directions and mounted on sliding carriers, retracting-springs applied to said pawls and arranged to hold said pawls out of engagement with the ratchet-bars and to retract the pawl-carriers, and actuating devices connected with said pawls, substantially as set forth.

5. The combination with the desk, the upper hollow standard-section on which the desk is mounted and which is provided near its lower end with a cord-guide, leaf-turning arms and mechanism mounted on said desk, and the actuating-arms of the leaf-turning mechanism carried by the upper standard-section and each provided with a cord-guide, of a hollow lower standard-section in which the upper section can be raised and lowered, pedals arranged at the lower end of the lower standard-section, and flexible connections extending from the pedals upwardly through both standard-sections to said actuating-arms and over their cord-guides, thence downwardly through the upper standard-section and around its cord-guide, and thence upwardly to a point of attachment near the upper end of the lower standard-section, substantially as set forth.

663,623. APPARATUS FOR GENERATING GAS. DONALD CAMERON, FREDERICK J. COMMIN, and ARTHUR J. MARTIN, Exeter, England. Filed Aug. 13, 1898. Serial No. 688,501. (No model.)



Claim.—1. In a gas apparatus the combination of a covered gas-generator, a gas-receiver connected therewith, and means for drawing off the gas from the generator, said means being operated by the rise and fall of the contents of the generator.

2. The combination of a covered gas-generator, a gas-receiver connected therewith for receiving and storing the gas generated in said generator, and means disposed in said generator for regulating the flow of gas therefrom.

3. The combination of a covered gas-generator, a gas-receiver connected therewith, means for conveying the gas from said generator to said receiver, and floats disposed in said generator for regulating the flow of gas therefrom.

4. The combination of a covered gas-generator, a gas-receiver connected therewith, means operated by the rise and fall of the contents of the generator for regulating the flow of gas therefrom, and means actuated by said regulating means for varying the pressure in said receiver.

5. The combination of a covered gas-generator, a receiver connected therewith for receiving the gas generated therein, means for drawing off the gas from said generator, and means for creating a difference in pressure between the generator and the receiver.

6. The combination of a covered gas-generator, a receiver connected therewith for receiving the gas generated therein, means for drawing off the gas from said generator, and means for maintaining a constant difference in pressure between the generator and the receiver.

7. The combination of a covered gas-generator, a gas-receiver connected therewith, means for drawing off the gas from said generator, and means for maintaining a difference in level between the surface of the liquid in the generator and the surface of the liquid outside thereof, whereby a pressure in the generator is maintained.

8. The combination of a gas-generator adapted to contain sewage, and provided with a movable outlet, and a gas-receiver connected with said generator.

9. The combination of a gas-generator adapted to contain sewage and provided with a movable outlet, a float for controlling said outlet, and a gas-receiver connected with said generator.

10. The combination of a gas-generator adapted to contain sewage and provided with a movable outlet, a float for controlling said outlet, said float being immersed in a liquid under the same pressure as that in the generator, and a gas-receiver connected with said generator.

11. The combination of a gas-generator adapted to contain sewage and provided with an outlet comprising a vertically-movable siphon, and a gas-receiver connected with said generator.

12. The combination of a gas-generator adapted to contain sewage, and provided with an outlet comprising a vertically-movable siphon, a float for supporting said siphon, and a receiver for the gas connected with said generator.

13. The combination of a gas-generator provided with an outlet comprising a vertically-movable siphon, a float for supporting said siphon, said float being immersed in a liquid under the same pressure as that in the generator, and a gas-receiver connected with said generator.

14. The combination of a covered receptacle adapted to contain sewage, a gas-receiver connected therewith, a vessel mounted on said receiver, a pipe connecting said receptacle with said receiver, supply and discharge pipes connected with said vessel, and valves disposed on said pipes and adapted to be operated by the rise and fall of the contents of said covered receptacle, thereby regulating the inflow and outflow of liquid in said vessel.

15. The combination of a covered receptacle, a gas-receiver connected therewith, a vessel mounted on said receiver, a pipe connecting said covered receptacle with said gas-receiver, supply and discharge pipes connected with said vessel, valves disposed on said pipes, and floats connected with said valves for opening and closing them, said floats being actuated by the rise and fall of the contents of the covered receptacle.

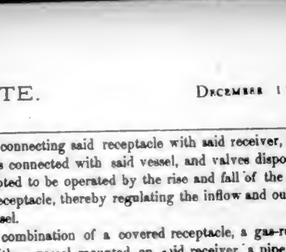
16. The combination of a covered receptacle, a gas-receiver connected therewith, a vessel mounted on said receiver, a water-supply tank disposed on a plane above said vessel, a supply-pipe leading from said tank to said vessel, a valve disposed in said pipe, a discharge-pipe connected with said vessel, a valve in said pipe, and means for opening and closing said supply and discharge valves, said means being operated by the rise and fall of the contents of the covered receptacle.

663,624. PROCESS OF METAL ORNAMENTATION. WILLIAM A. DAY, Providence, R. I., assignor to the Gorham Manufacturing Company, same place. Filed Apr. 23, 1900. Serial No. 13,887. (No specimens.)

Claim.—1. The process for ornamenting metal goods, the same consisting in securing the ornamental blanks to the surface of sheets or plates of metal, depositing a layer of metal over the surface of the sheet and the ornamental blanks, and removing the metal deposited on the ornamental blanks, as described.

2. The process for ornamenting metal goods, the same consisting in securing the ornamental blank to the surface of the part of the article to be ornamented, depositing a layer of metal over the surface adjacent to the ornamental blank and over the blank, and then removing the metal deposited over the surface of the ornamental blank, as described.

663,625. SYSTEM OF ELECTRIC TRACTION. MARCO T. DE FELICK, Rome, Italy. Filed June 9, 1900. Serial No. 19,689. (No model.)



Claim.—1. The combination of contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a coil normally communicating with the corresponding contact and with a return-conductor, a second coil located in the branch working conductor and holding said branch closed while the branch is in use, and a differential coil for retracting the switch.

2. The combination of contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a magnetic body 6, coils 12, 13 therein, the latter normally communicating with its contact 36 and with a return-conductor, coil 12 being in the branch working conductor normally open, a second magnetic body, 7, magnetically separate from body 6, a coil in body 7 for retracting the switch, a core common to the coils, and circuit-shifting parts moved thereby.

3. The combination of contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a coil normally communicating with the corresponding contact and with a return-conductor, a second coil located in the branch working conductor and holding said branch closed while the branch is in use, and a differential coil in a shunt to ground or a return-conductor from the branch working conductor for retracting the switch.

4. The combination of a car, an electric motor thereon, a current-collecting skate or shoe carried by the car, contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a coil normally communicating with the corresponding contact and with a return-conductor, a second coil located in the branch working conductor and holding said branch closed while the branch is in use, and a differential coil for retracting the switch.

5. The combination of a car, an electric motor thereon, a current-collecting skate or shoe carried by the car, contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a magnetic body 6, coils 12, 13 therein, the latter normally communicating with its contact 36 and with a return-conductor, coil 12 being in the branch working conductor normally open, a second magnetic body, 7, magnetically separate from body 6, a coil in body 7 for retracting the switch, a core common to the coils, and circuit-shifting parts moved thereby.

6. The combination of a car, an electric motor thereon, a current-collecting skate or shoe carried by the car, contacts at intervals along a track and adapted to be rubbed by a shoe on a passing car, a current-supplying conductor, a branch working conductor and an electromagnetic switch between said supply-conductor and each of said contacts, each switch having a coil normally communicating with the corresponding contact and with a return-conductor, a second coil located in the branch working conductor and holding said branch closed while the branch is in use, and a differential coil for retracting the switch, and a generator on the car for giving an initial movement to the switch when starting the car.

7. The combination of the magnetic body 6, coils 12, 13 therein, non-magnetic ring 8, magnetic body 7, a retracting-coil therein, the outer ends of bodies 6, 7 having conical cavities, a core or armature common to the coils and having conical ends adapted to fit said conical cavities, and switch devices controlled by said coils and armature.

8. The combination of casing 27 having an opening for a conductor, a cover for the casing, a differential electromagnetic switch supported within the casing by said cover, and a rubbing contact 36 carried by the cover on its outer side.

9. The combination of casing 27 having an opening for a conductor, a conductor therethrough, an insulated plate in the bottom of the casing, a cover for the casing, a differential electromagnetic switch supported within the casing by said cover, and a rubbing contact 36 carried by the cover on its outer side, and a coöperating circuit-closing plate.

10. The combination of coils 12, 13, 15, a common core or armature therefor, the levers 22, 23 connected to form a parallelogram, suitable pivots therefor, means for connecting the armature to said levers, terminals 18, 18, and 19, 19, and bridges 20, 21 controlled by said levers.

11. The combination of the magnetic body 6 having a metal head 35, a stud 36 screwed thereon and adapted to be rubbed by a current-collecting skate or shoe on a car, coils in said body, a body 7, a differential coil therein, and circuit-switching contacts and devices, as set forth.

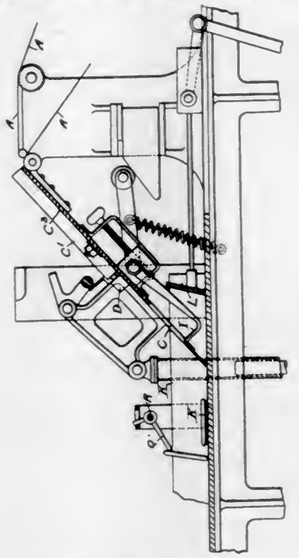
663,626. SAND-REEL. WILLIAM HEALD, Pleasantville, Pa. Filed Mar. 15, 1900. Serial No. 8,839. (No model.)



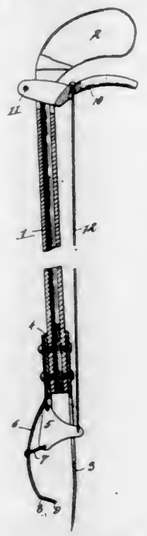
Claim.—A wheel comprising a polygonal core, a board disposed against each face of the core, each of said boards lying with its inner end against the face of the adjacent board and with its outer end projected beyond the core, and wedge-shaped blocks disposed in the interspaces between the boards and completely filling them, said boards and blocks lying with their adjacent faces in mutual contact and with their side edges flush to form the ends of the wheel, the wedges and boards being of wood having the grain thereof disposed radially of the wheel, and the outer ends of the boards and wedges being formed to constitute the periphery of the wheel.

663,627. APPARATUS FOR FEEDING OR DELIVERING BISCUITS FOR PACKING. GEORGE HERBERT, Jr., Glasgow, Scotland. Filed Sept. 15, 1900. Serial No. 30,140. (No model.)

Claim.—In apparatus for feeding or delivering biscuits for packing the combination with a trough and movable piston for delivering the biscuits on edge along said trough, of pivoted or sliding catches adapted to yield in one direction under the action of the biscuit and to spring in behind the biscuit after the latter has passed and prevent said biscuit falling flat upon the bottom of the trough, substantially as described.



663,628. WEEDER. JEREMIAH W. HIETT, Normal, Ill. Filed Aug. 7, 1900. Serial No. 26,154. (No model.)

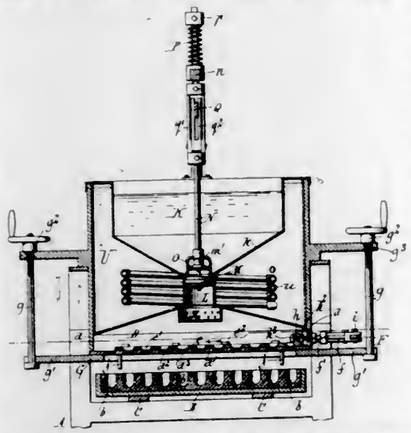


Claim.—1. A weeder comprising a handle, an uprooting-blade attached to the lower end thereof and forming a rigid jaw, a spring-jaw attached to the handle on the side opposite said rigid jaw, a link-lever, fulcrumed to the lower end of the handle, disposed between the said rigid and spring jaws and connected to the latter, a trigger-lever at the upper end of the handle, and a rod connecting said trigger-lever with said link-lever, substantially as described.

2. A weeder comprising a handle having a pistol-grip at its upper end, an uprooting-blade attached to the lower end of said handle and forming a rigid jaw, a spring-jaw attached to the handle on the side opposite

said rigid jaw, a link-lever fulcrumed to the lower end of said handle disposed on the inner side of and connected to said spring-jaw, a trigger-lever at the upper end of the handle and adapted to close against the pistol-grip thereof, and a rod connecting said trigger-lever with the link-lever, substantially as described.

663,629. CANDY-CASTING MACHINE. JOSEPH G. HOFFMAN, Buffalo, N. Y. Filed Aug. 3, 1900. Serial No. 25,736. (No model.)



Claim.—1. The combination with the delivery-chamber of a candy-casting machine provided with side walls and a removable perforated bottom, of a slide-valve whereby the perforations in said bottom are opened and closed, and a clamping-frame whereby said bottom is held against said side walls, substantially as set forth.

2. The combination with the delivery-chamber of a candy-casting machine provided with vertical side walls and a removable perforated bottom bearing against the lower edges of the side walls, of a slide-valve adapted to open and close the perforations in the bottom, a clamping-frame bearing against the lower side of the bottom, and vertical clamping-bolts engaging with their lower headed ends against lugs on the clamping-frame and provided at their upper screw-threaded ends with screw-nuts which bear against lugs on the stationary part of the machine, substantially as set forth.

3. The combination with the delivery-chamber of a candy-casting machine having vertical side walls and a removable perforated bottom bearing against the lower edges of the side walls, of a slide-valve arranged on top of said bottom and adapted to open and close the perforations therein, a lever arranged outside of said chamber, a rod passing through a side wall of the chamber and connected at its outer end with said lever and arranged with its inner end in a slotted lug on the slide-valve, a collar arranged on said rod and bearing against one side of said lug and an elongated head arranged on said rod and bearing against the opposite side of said lug, substantially as set forth.

4. The combination with a delivery-chamber provided with a bottom-plate having discharge-openings each of said openings provided around its discharge end with a shoulder or offset, and a valve whereby said openings are opened and closed, substantially as set forth.

5. The combination with a delivery-chamber provided with a perforated bottom, and a valve whereby the perforations in the bottom are opened and closed, of a supply-tank arranged above the delivery-chamber, a cylinder connecting the supply-tank with the delivery-chamber, and a plunger arranged in said cylinder, substantially as set forth.

6. The combination with a delivery-chamber provided with a perforated bottom, and a valve whereby the perforations in the bottom are opened and closed, of a supply-tank arranged above the delivery-chamber, a cylinder connecting the supply-tank with the delivery-chamber, a plunger arranged in said cylinder and provided with a passage through the same, and a valve whereby said passage is opened and closed, substantially as set forth.

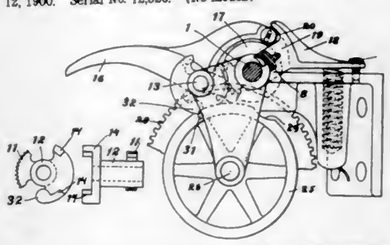
7. The combination with a delivery-chamber provided with a perforated bottom, and a valve whereby the perforations in the bottom are opened and closed, of a supply-tank arranged above the delivery-chamber, a cylinder connecting the supply-tank with the delivery-chamber, a plunger arranged in said cylinder and provided with an axial passage and with a valve-seat at its upper end, a reciprocating actuating-rod which receives a cross-piece on the upper end of the plunger, and a valve secured to said actuating-rod between the valve-seat and the cross-piece of the plunger, substantially as set forth.

8. The combination with a delivery-chamber provided with a perforated bottom, and a valve whereby the perforations in the bottom are opened and closed, of a supply-tank arranged above the delivery-chamber, a cylinder connecting the supply-tank with the delivery-chamber, a plunger arranged in said cylinder and provided with an axial passage and with a valve-seat at its upper end, a reciprocating actuating-rod which receives a cross-piece on the upper end of the plunger, a valve secured to the actuating-rod between the valve-seat and the cross-piece of the plunger, and a lever connected with the actuating-rod, substantially as set forth.

9. The combination with a delivery-chamber provided with a perforated bottom, and a valve whereby the perforations in the bottom are opened and closed, of a supply-tank arranged above the delivery-chamber, a cylinder connecting the supply-tank with the delivery-chamber, a plunger arranged in said cylinder and provided with a longitudinal passage and at its upper end with a valve-seat and with a cross-piece, an actuating-rod provided with upper and lower sections which are guided, respectively, in a bridge on the stationary part of the machine and in the cross-piece of the plunger, a valve secured to the lower section of the actuating-rod between the valve-seat and the cross-piece of the plunger, a loop connecting the upper and lower sections of the actuating-rod, a lever pivoted on said bridge, and a link connecting said lever with said loop, substantially as set forth.

10. The combination with the delivery-chamber provided with a perforated bottom, and the valve whereby the perforations in said bottom are opened and closed, of a supply-tank arranged above said chamber and connected therewith by a cylinder, a plunger arranged in said cylinder, and a perforated head arranged at the outlet of said cylinder, substantially as set forth.

663,630. AUTOMATIC CLUTCH AND BRAKE. GIDEON JULIAN, Boston, Mass., assignor to George H. P. Flagg, same place. Filed Apr. 12, 1900. Serial No. 12,526. (No model.)



Claim.—1. The combination of a brake-drum and means to rotate the same, an opposed braking member forming a contracted throat with the periphery of said drum, a wedging member operating in said throat and adapted to arrest the rotation of the drum when forced between said drum and the opposed braking member, said wedging member being normally retracted from the throat, and a device controlled by the drum-rotating means and arranged to project said wedging member into the throat upon a predetermined rotary movement of the drum.

2. The combination of a brake-drum and means to rotate the same an opposed braking member forming a contracted throat with the periphery of said drum, a roll operating as a wedge in said throat and adapted to arrest the rotation of the drum when forced between said drum and the opposed braking member, and an operating-lever pivoted eccentrically of the drum and journaling said roll, together with provisions for a bodily movement of the roll transversely of the lever.

3. The combination of a brake-drum and means to rotate the same, an opposed braking member forming a contracted throat with the periphery of said drum, a wedging member operating in said throat and adapted to arrest the rotation of the drum when forced between said drum and the opposed braking member, a dog connected with the wedging member and movable to project the same into the throat or to retract it therefrom, and a cam rotated by the drum-rotating means and controlling said dog.

4. The combination of a brake-drum and means to rotate the same, an opposed braking member forming a contracted throat with the periphery of said drum and mounted for a limited rotary movement with the drum, a wedging member operating in said throat and adapted to arrest the rotation of the drum when forced between said drum and the opposed braking member and to impart a rotary movement to said braking member when so forced, and a spring yieldingly opposing the said rotary movement of the braking member.

5. The combination of a rotary shaft, means to drive the same, a clutch adapted to connect said shaft with and disconnect it from the driving means, a brake adapted to arrest the rotation of the shaft, a member movable to set the brake, a device independently movable to throw off the clutch, and means rotated by the shaft and arranged to separately actuate said device and said member.

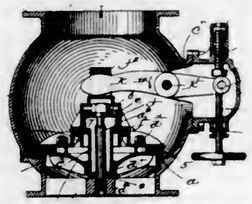
6. The combination of a rotary shaft, means to drive the same, a clutch adapted to connect said shaft with and disconnect it from the driving means, a brake adapted to arrest the rotation of the shaft, an operating-lever movable to throw the brake into and out of action, a device actuated by said lever to throw the clutch on and off, said device having a clutch-releasing movement independent of the lever, and means rotated by the shaft and arranged to separately actuate said lever and said device to throw off the clutch and set the brake.

7. The combination of a rotary shaft, means to drive the same, a clutch adapted to connect said shaft with and disconnect it from the driving means, a brake adapted to arrest the rotation of the shaft, an operating-lever movable to throw the brake into and out of action, a device actuated by said lever to throw the clutch on and off, said device having a clutch-releasing movement independent of the lever, and a counter-shaft rotated from the first said shaft and having a trip adapted to actuate said device to throw off the clutch and a cam adapted to independently actuate said lever to set the brake.

8. The combination of a rotary shaft, means to drive the same, a clutch adapted to connect said shaft with and disconnect it from the driving means, a brake-drum connected with the shaft, an opposed braking member forming a contracted throat with the periphery of the drum, and an operating-lever controlling the clutch and having a wedging member movable into and out of said throat and adapted to arrest the rotation of the drum and shaft when forced between said drum and the opposed braking member.

9. The combination of a rotary shaft, means to drive the same, a clutch adapted to connect said shaft with and disconnect it from the driving means, a brake-drum connected with the shaft, an opposed braking member forming a contracted throat with the periphery of the drum, an operating-lever controlling the clutch and having a wedging member movable into and out of said throat and adapted to arrest the rotation of the drum and shaft when forced between said drum and the opposed braking member, said lever having a dog, and a cam rotated by the shaft and coacting with said dog to oscillate the lever and move the wedging member into and out of the throat.

663,631. AUTOMATIC EXHAUST RELIEF-VALVE. GEORGE DE LAVAL, Cambridge, Mass. Filed June 9, 1900. Serial No. 19,680. (No model.)



Claim.—1. The valve-case and a contained valve-seat, the valve adapted to seat on the latter, a dash-pot wholly within the case, a coöperating piston, means controlled by the valve to effect relative movement of the dash-pot and piston, and positively-acting means to act upon said valve and retain it unseated and fixed at any desired point.

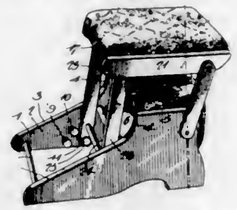
2. The combination with a valve-case and a valve-seat, of a valve, a dash-pot movable with the valve, a coöperating piston fixedly mounted on the case and extended axially through the valve into the dash-pot, and a bearing on the side of the valve opposite the dash-pot, to slide on and be guided by the piston, said bearing being extended beyond the plane of the valve-face.

3. The combination with a valve-case and a valve-seat, of a valve, an inverted dash-pot secured to the upper side of the valve, to control by fluid compression the return of the valve to a seat, a piston coöperating with the dash-pot and having a reduced stem extended through the valve and rigidly secured to the case below the valve-seat, and a bearing on the lower side of the valve, sliding on the shank of the piston to guide the valve.

4. The valve-case having a lower opening and a contained valve-seat, a valve adapted to seat on the latter, a dash-pot mounted on the upper side of the valve and having a closed upper end, and a hollow piston rigidly mounted on the case and extended through the valve into the dash-pot, and having inlet and outlet openings, movement of the valve from its seat being resisted by the formation of a partial vacuum in the dash-pot due to relative movement of the latter and the piston.

5. The valve-case having a lower opening and a contained valve-seat, the valve adapted to seat on the latter, a dash-pot mounted on the valve and closed at its end remote therefrom, a coöperating hollow piston rigidly secured to the valve-case and extended through the valve into the dash-pot, and a bearing on the valve extended beyond the plane of its face and encircling the stem of the piston and sliding thereon when the valve opens or shuts.

663,632. FOOT-REST. JOSIAH D. MACK, Salem, N. Y. Filed Apr. 11, 1900. Serial No. 12,473. (No model.)



Claim.—1. In a device of the character set forth, the combination of a main rest having longitudinal extensions projecting from one side thereof and also provided with a cushion, an auxiliary rest movably connected to the main rest and adjustable above and over the latter and foldable downwardly on the upper edges of the said longitudinal extensions, and means for pivotally connecting the auxiliary rest to the main rest to permit the adjustment of the said auxiliary rest as set forth, a portion of said means being free for engagement with different parts of the extensions.

2. In a device of the character set forth, the combination of a main rest having longitudinal extensions provided with cross-rounds and inwardly-projecting devices, and an auxiliary rest pivotally connected to the said main rest and having legs movably attached thereto to removably engage the rounds and projecting devices on the extensions.

3. In a device of the character set forth, the combination of a main rest having extensions with a plurality of headed studs or pins on the inner opposing sides thereof, and an auxiliary rest pivotally connected to the main rest and provided with a pair of movable legs having lower recessed ends to removably engage the said studs or pins.

4. In a device of the character set forth, the combination of a main rest having a cushion or seat and longitudinal extensions with cross-rounds and a plurality of headed studs or pins on the inner opposing sides thereof, an auxiliary rest also having a cushion or seat, side rails connected to the said latter cushion or seat, links pivotally connected to extremities of said rails and to the main rest, and a pair of legs movably attached to the opposite extremities of the said side rails and having recesses in the lower ends thereof to removably engage the headed studs or pins and the cross-rounds.

663,633. PNEUMATIC TIRE. FRANK H. MASON, Akron, Ohio. Filed Mar. 9, 1900. Serial No. 7,975. (No model.)

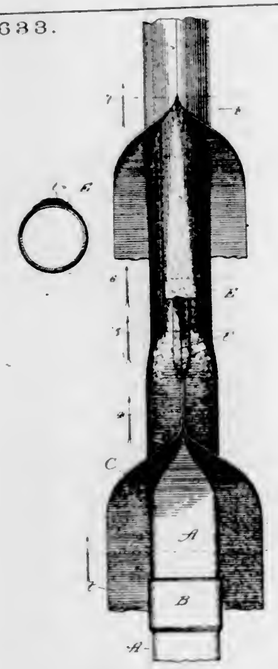
Claim.—1. The method of producing a single-tube pneumatic tire, which consists in forming an endless inner tube of vulcanized rubber, applying and cementing thereto an endless band of fabric, stitching the edges of the fabric to form a tube, cementing upon the joined edges a protection-strip of fabric, and applying to the tube of fabric and cementing thereto a tube of vulcanized rubber, substantially as described.

2. In the manufacture of a pneumatic tire, substantially as described, the method of producing an inner vulcanized tube with an unvulcanized endless tubular covering of fabric cemented thereto, which consists in first forming an endless vulcanized rubber tube, then forming an endless band of fabric having cement upon one surface, firmly uniting the rubber tube to the band along the center of the latter, uniting, as by sewing, the edges of the band to form an endless tube, and thereupon inflating the inner tube, to cause it to be united to the remaining surface of the band, all as set forth.

3. A pneumatic tire, comprising the inner endless vulcanized rubber tube A, provided with a valve D, the outer endless vulcanized rubber tube F, the intermediate unvulcanized reinforcing fabric C, having its edges united to form a tube, and the joint-protecting strip E, the elements being united together by cement without vulcanization, substantially as described.

4. A single-tube pneumatic tire, comprising an inner vulcanized endless tube of rubber, an outer vulcanized endless band having its edges joined on the seating side of the tire, and an intervening reinforcing fabric of unvulcanized material consisting of one or more layers of fabric made endless and joined as by stitching on the seating side of the tire, the various elements being united by cement without vulcanization, substantially as described.

663,633.



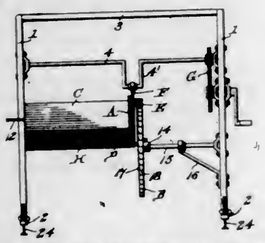
663,634. INFLATABLE RUBBER BAG FOR STRIKING-BAGS OR FOOT-BALLS. HARVEY P. MITZEL, Akron, Ohio. Filed July 20, 1900. Serial No. 24,274. (No model.)



Claim.—1. The process of making elastic inflatable rubber bags, for striking, foot-balls, &c., which consists in forming said bags from a siccative solution of rubber by repetitions of the dipping process to secure the desired thickness, forming an inflating-tube integral and simultaneously therewith, then dipping the same in a curing-bath to harden the gum making an incision in the bag distant from the tube and cementing a patch on said incision, substantially as described.

2. An improvement in inflatable bags for striking-bags, foot-balls, &c., consisting of a bag of repeated layers of a siccative solution of rubber, and an inflating-tube integral therewith all simultaneously vulcanized, substantially as described.

663,635. FRUIT OR VEGETABLE SLICING MACHINE. JOSEPH B MURRAY, Du Quoin, Ill. Filed Jan. 23, 1899. Serial No. 703,206. (No model.)



Claim.—1. In a device of the class described, the combination with a feed-box having a depending trough-like bottom, and a false bottom above said depending bottom, of a feeder movable in said box composed of a main member fitting the upper part of the box, and a supplemental member, detachably connected to the main member and adapted to fit the depending portion of the box when the false bottom is removed.

2. In a device of the class described, the combination with a feed-box, of a movable abutment for the end of the material from which the slice is to be taken, which remains stationary while the slice is being cut, and a cutter-knife and means for operating the abutment when the slice has been cut.

3. In a device of the class described, the combination with a feed-box, of a rotatable disk located adjacent the delivery end of the box and constituting an abutment for the material being cut, and which remains stationary while the slice is being cut, means for rotating said disk on completion of the cut, and a knife or cutter.

4. In a device of the class described, the combination with a feed-box, of a rotatable abutment-disk located adjacent the delivery end of the box and adjustable toward and away from said end, whereby the thickness of the slice can be regulated, and a knife or cutter which is movable independently of the disk.

5. In a device of the class described, the combination with a feed-box, of a knife or cutter operating across said box, a rotatable abutment-disk located adjacent the end of the box adapted to remove the slice after it has been cut, and a ratchet on the knife adapted to engage the disk to rotate it.

6. In a device of the class described, the combination with a feed-box, of a knife or cutter operating across the box, a rotatable abutment-disk located adjacent the end of the box adapted to remove the slice after it has been cut, said disk having ratchet-teeth, a stub-shaft on the knife, two separated collars secured to the shaft, one of which has a recess provided with two shoulders, a ratchet loose on the shaft and located between the collars, said ratchet having a lug adapted to play in the recess and engage the shoulders, and a spring connected to one collar and holding the ratchet in engagement with the teeth on the disk.

7. In a device of the class described, the combination with a feed-box, of a rotatable abutment-disk for the material and a cutter or knife which is independently movable.

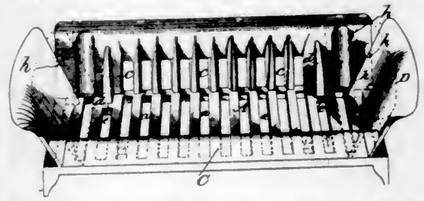
663,636. CARRIAGE-COUPLING. CHARLES T. MCCUE, Hartford, Conn., assignor to the Premier Manufacturing Company, same place. Filed July 20, 1898. Serial No. 686,453. (No model.)



Claim.—1. In a carriage-coupling in combination, an upper section adapted to be secured to a perch or like part and having a boss with a wide bearing-surface in front of the boss and a groove at the rear of said boss, a lower section having a recess for the reception of the boss the front wall of the recess forming a wide step cooperating with said bearing-surface and the rear wall of the recess forming a flange located in said groove, and means for holding said sections together.

2. In a carriage-coupling in combination, an upper section adapted to be secured to a perch or like part, and having a boss with a wide bearing-surface in front of the boss and a groove at the rear of said boss, a lower section having a recess for the reception of the boss, the front wall of the recess forming a wide step cooperating with said bearing-surface and having a groove forming a seat for an axle directly underneath the bearing-surface, and the rear wall of the recess forming a flange located in said groove, and means for holding the sections together.

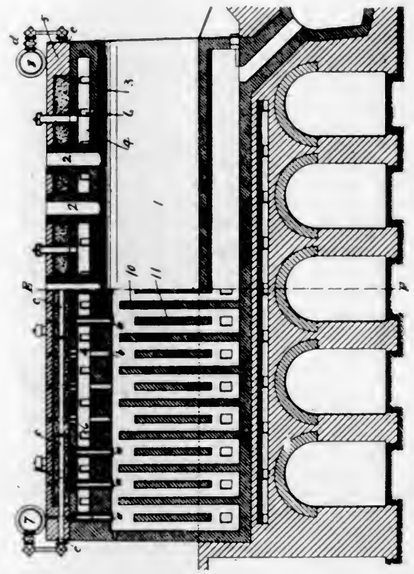
663,637. FIRE POT OR BOX. JOHN L. MCGUINESS, Janesville, Minn. Filed July 10, 1900. Serial No. 23,070. (No model.)



Claim.—A fire pot or box comprising a horizontal grate having holes or sockets, removable and adjustable end sections and removable and

adjustable side sections, one of said side sections having braces, and a plurality of projecting lugs upon the inner side and near the ends thereof to form supports for the end sections, and said side section being supported by the braces which enter and fit loosely in the holes or sockets in the horizontal grate whereby the side section is pivotally supported thereon, substantially as and for the purpose set forth.

663,638. COKE-OVEN. HEINRICH POETTER, Dortmund, Germany. Filed Feb. 28, 1899. Serial No. 707,158. (No model.)



Claim.—1. The combination of coke-oven 1, heating-chamber 9, partitions 10, 11, in the heating-chamber, nozzles in the top of chamber 9 above partitions 11, gas-pipe c communicating with the nozzles, means for supplying gas to both ends of pipe c, an air-chamber 4 above the oven, air-passages beside the nozzles and inclined toward each other so that the air and gas currents meet and commingle above partitions 11, as set forth.

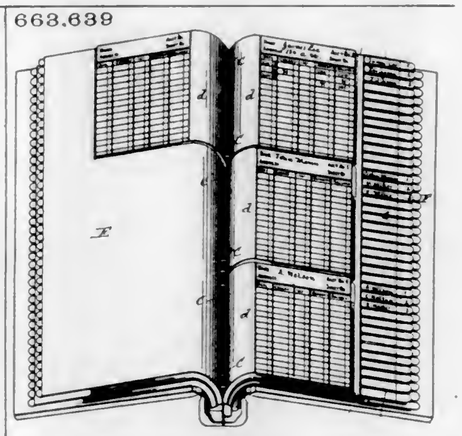
2. The combination of coke-oven 1, heating-chamber 9, partitions 10, 11, in the heating-chamber, nozzles in the top of chamber 9 above partitions 11, gas-pipe c communicating with the nozzles, pipe c being of larger capacity than that required by the combined flow through its several nozzles a, thereby serving as a gas-reservoir, means for supplying gas to both ends of pipe c, an air-chamber 4 above the oven, air-passages beside the nozzles and inclined toward each other so that the air and gas currents meet and commingle above partitions 11, as set forth.

3. The combination of coke-oven 1, heating-chamber 9, partitions 10, 11, in the heating-chamber, nozzles in the top of chamber 9 above partitions 11, gas-pipe c communicating with the nozzles, means for supplying gas to both ends of pipe c, an air-chamber 4 above the oven, air-passages beside the nozzles and inclined toward each other so that the air and gas currents meet and commingle above partitions 11, as set forth, said nozzles extending below the tops of the coke-ovens.

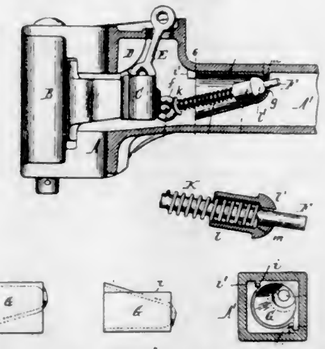
663,639. ACCOUNT-BOOK. JAMES H. RAND, North Tonawanda, N. Y. Filed Apr. 24, 1900. Serial No. 14,102. (No model.)

Claim.—An account-book having its leaves divided transversely into a number of separate sections which are arranged one above the other and which are independently and temporarily bound in the book, and division-plates which separate said sections of leaves into groups and extend beyond the outer vertical edges of the leaves and which are provided on their projecting faces opposite the different groups of superposed leaves with vertically-arranged index characters or designations corresponding to said leaf-sections, substantially as set forth.

663,639



663,640. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, N. Y., assignor to the Gould Coupler Company, New York, N. Y. Filed June 14, 1900. Serial No. 20,317. (No model.)



Claim.—1. The combination with the draw-head, the hollow draw-bar, the knuckle and the lock, of a hollow abutment or socket removably seated in the draw-bar and flared toward the lock, a thrust-rod guided in said socket and connected with the lock, and a spring applied to said rod and tending to hold the same in engagement with the knuckle, substantially as set forth.

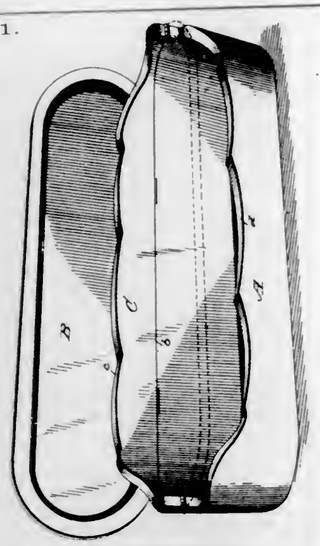
2. The combination with the draw-head, the knuckle and the lock, of the hollow draw-bar provided in its top and bottom with internal longitudinal retaining ribs or flanges, and in rear of said flanges with a stop, an abutment arranged in the draw-bar and removably seated between said flanges and the adjacent top and side walls of the draw-bar and abutting against said stop, a thrust-rod connected with the lock and guided in said abutment, and a spring applied to said rod between the lock and said abutment, substantially as set forth.

3. The combination with the draw-head, the hollow draw-bar, the knuckle and the lock, of a hollow forwardly-flaring abutment or socket removably seated in the draw-bar and provided with a concave rear end, a bearing-block having a convex rear end which bears against the corresponding rear end of the abutment-socket, a thrust-rod connected with the lock and passing through said bearing-block and the rear end of the abutment-socket, and a spring applied to said rod and abutting at its rear end against said bearing-block, substantially as set forth.

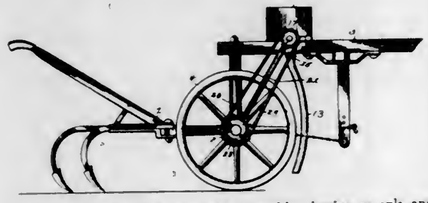
663,641. BURIAL-CASKET. CHARLES A. RUKEBKAM, Owosso, Mich. Filed Oct. 11, 1900. Serial No. 32,715. (No model.)

Claim.—A burial-casket, a hinged cover therefor, and a swingable section hinged to the ends of the casket-body at or near the center thereof, said section being independent of the cover and swingable to a raised position after the cover has been opened, substantially as and for the purpose set forth.

663,641.



663,642. FERTILIZER-DISTRIBUTER ATTACHMENT. WILLIAM A. SEARS, Jr., Bedford, Ind., assignor of one-half to Charles H. Emery, same place. Filed Mar. 23, 1900. Serial No. 9,959. (No model.)



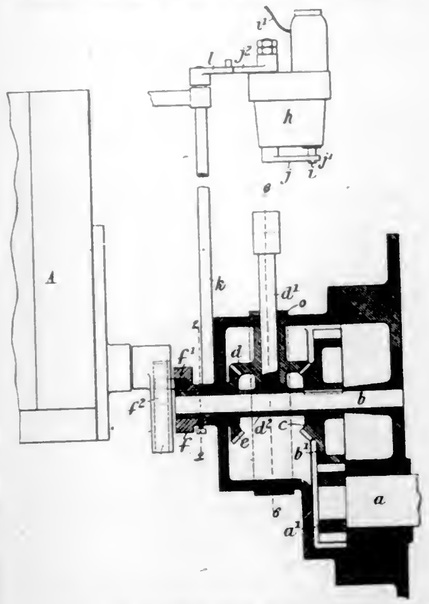
Claim.—1. The combination with a machine having an axle and wheels supporting a frame, of a fertilizer-containing receptacle or hopper attached to said frame in advance of said axle or wheels and having feeding devices, a part of the latter being rotatable, a shaft projecting outwardly from the receptacle or hopper and connected to the rotatable feeding device, a strut-brace adjustably and removably connected to the said shaft and axle, and means for driving the said shaft.

2. The combination with a machine having an axle and wheels supporting a frame, of a fertilizer-containing receptacle or hopper attached to said frame in advance of said axle and wheels and having feeding devices, a shaft for operating a part of the said feeding devices, a strut-brace adjustably and removably connected to the said shaft and axle, a gear-disk and collar removably applied to opposite portions of one of the wheel-hubs, a sprocket-wheel on the outer extremity of the said shaft and a chain belt surrounding the said sprocket-wheel and gear-disk.

3. The combination with a machine having an axle and wheels supporting a frame, of a fertilizer-containing receptacle or hopper having feeding devices at the bottom thereof including a feed-wheel, a shaft extending outwardly from the bottom of the receptacle or hopper and operating the said feed-wheel, a sprocket-wheel on the outer extremity of the said shaft, a strut-brace adjustably and removably connected to the said shaft and axle, a gear-disk applied over the outer portion of the adjacent machine-wheel and having peripheral sprocket-teeth, a collar removably fitted over the inner portion of the said wheel-hub, bolts passing between pairs of spokes and removably engaging the said gear-disk and collar, and a chain belt surrounding the said gear-disk and sprocket-wheel.

4. The combination with a machine having an axle and wheels supporting a frame, of a fertilizer-containing receptacle or hopper attached to said frame in advance of said axle and wheels and having feeding devices, a shaft for operating a part of said feeding devices, a collar on the shaft having a socket in a plane at right angles thereto provided with a set-screw, a strut-brace having its forward extremity adjustably mounted in said socket and its rear end provided with a yoke to fit over the axle, and means for rotating the said shaft.

663,643. SPARKING IGNITER FOR EXPLOSION-ENGINES. FREDERICK R. SIMMS, Londoh, England, and ROBERT BOSCH, Stuttgart, Germany. Filed Sept. 12, 1898. Serial No. 690,764. (No model.)



Claim.—1. In an explosive-engine, the combination with a current-generating machine, driving mechanism for operating the same intermittently from the engine proper, means for adjusting the relation of said driving mechanism to the engine and a sparking device electrically connected to said generator, substantially as described.

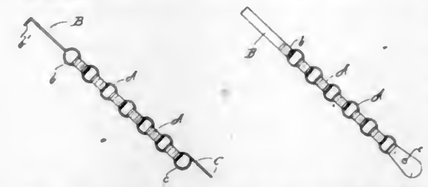
2. In an explosive-engine, the combination with a current-generating machine, mechanism for operating the same intermittently, a sparking device provided with a movable part, mechanism for operating said movable part, connection between the driving-shaft of the engine and said operating mechanisms for the sparking device and the current-generator, electric connection between the electric generator and the sparking device and mechanism for adjusting the relative positions of the operating mechanisms for the sparking device and said generator with respect to the engine-shaft, substantially as described.

3. In an explosive-engine, the combination with the engine-shaft, of a second-motion shaft operatively connected therewith and provided with a bevel-gear, of mechanism for producing an electric spark, a bevel-gear loosely mounted on said second-motion shaft and operatively connected with said spark-producing mechanism and intermediate bevel-gear connecting the two before-mentioned bevel-gears and means for adjusting said intermediate gear around the shaft to vary the relation between the engine-shaft and the spark-producing mechanism, substantially as described.

4. In an explosive-engine, the combination with a shaft operatively connected with and driven by the engine, a bevel-gear fixed on said shaft, a bevel loosely mounted on said shaft, spark-producing mechanism operatively connected with said loosely-mounted gear, a sleeve loosely mounted on the shaft between said bevel-gears and provided with a radial arm, and an intermediate gear mounted upon said arm and meshing with said bevel-gears whereby by moving said arm in a direction around the shaft the relation of the spark-producing apparatus to said shaft may be adjusted, substantially as described.

5. In an explosive-engine, the combination with a current-generating machine and a sparking device electrically connected therewith and provided with a movable part, of a shaft operated by the engine, a bevel-gear fixed on said shaft, a bevel-gear loose on said shaft, operative connections between said loose gear and the current-generating device and the movable part of said sparking device, a sleeve loosely mounted on said shaft between said bevel-wheel and provided with a radial arm and a bevel-wheel loosely mounted on said arm and meshing with the before-mentioned fixed and loose bevel-wheels whereby by moving said arm, the relation between the engine and said current-generating and sparking devices can be adjusted, substantially as described.

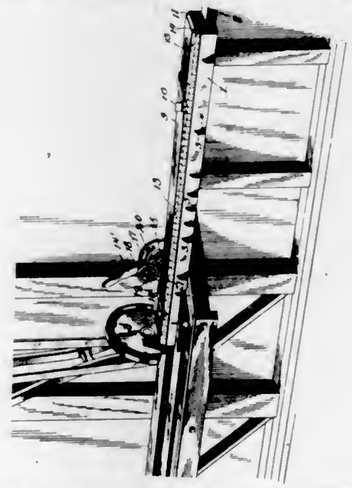
663,644. BRIDLE FOR PIANOFORTE-ACTIONS. ALEXANDER H. STEVENS, Thomasville, Ga. Filed Apr. 24, 1900. Serial No. 14,112. (No model.)



Claim.—1. A bridle-chain for pianoforte-actions, consisting of flexible metallic links, the ends of each link being brought together but not united, a terminal link extended into an arm crooked for connection with the butt by insertion into a slot therein provided, and a terminal link at the other end of the chain extended into a broadened punctured tongue adapted to be secured to the bridle-arm by ordinary method, all substantially as shown and described.

2. In combination with the butt and bridle-arm of a pianoforte-action; a bridle-chain consisting of flexible metallic links, the ends of each link being brought together but not united, a terminal link extended into an arm crooked for connection with the butt by insertion into a slot therein provided, and a terminal link at the other end of the chain extended into a broadened punctured tongue, substantially as shown and for the purpose specified.

663,645. GAGE FOR SAWING-MACHINES. JOHN G. STRAIT, Wolcott, N. Y. Filed Sept. 1, 1900. Serial No. 28,811. (No model.)



Claim.—1. In a device of the class described, the combination of a bottom bar, the top bar spaced from the bottom bar to form a way, brackets connecting the top and bottom bars, a stop-bar arranged between the top and bottom bars in the way formed by the same, a series of stops mounted on the stop-bar, and means for adjusting the latter longitudinally, substantially as described.

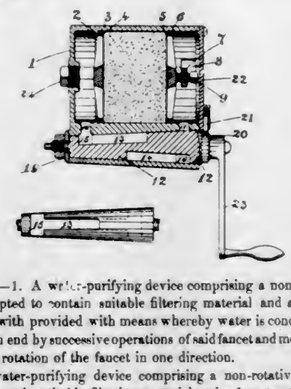
2. In a device of the class described, the combination of a bottom bar, a top bar spaced from the bottom bar to form a way, brackets connecting the top and bottom bars, the sliding stop-bar arranged between the top and bottom bars and provided with a series of stops, a support having a segmental scale, an operating-lever fulcrumed on the support and connected with the stop-bar, and the inclined plate or flange extending from the top bar and engaging the stop-bar and provided with a scale, said plate or flange being stationary and adapted to extend across the space between the inner end of the stop-bar and a saw when the said stop-bar is moved from the latter, substantially as described.

3. In a device of the class described, the combination of a frame having a stationary longitudinal scale, a sliding stop-bar mounted on the frame and provided at intervals with stops, and an adjusting device connected with the frame and with the stop-bar and having a graduated scale corresponding with the graduations of the longitudinal scale, the latter being arranged to extend across the space between the inner end of the stop-bar and a saw to indicate the distance the stops are from the saw when the said stop-bar is adjusted substantially as described.

4. A device of the class described, comprising a frame having a guide or way and provided at the front thereof with a stationary longitudinal scale, a sliding stop-bar mounted in the guide or way, said scale being arranged to form a continuation of the stop-bar when the latter is extended, a support having a segmental scale agreeing with the said scale, and an operating-lever fulcrumed on the support and connected with and adapted to actuate the stop-bar, substantially as described.

5. In a device of the class described, the combination of a bottom bar, a top bar, brackets connecting the top and bottom bars, an inclined plate or flange extending from the top bar, a stop-bar mounted on the frame between the top and bottom bars and provided with stops, and adjusting mechanism for moving the stop-bar, substantially as described.

663,646. FILTER. ALLEN J. TAIT, Oakland, Cal., assignor to Dan H. Priest, San Francisco, Cal. Filed May 22, 1900. Serial No. 17,607. (No model.)



Claim.—1. A water-purifying device comprising a non-rotative receptacle adapted to contain suitable filtering material and a faucet connected therewith provided with means whereby water is conducted alternately to each end by successive operations of said faucet and means adapted to insure the rotation of the faucet in one direction.

2. A water-purifying device comprising a non-rotative receptacle adapted to contain suitable filtering material and a faucet exterior to said receptacle, connected therewith provided with means whereby water is conducted alternately to each end by successive operations of said faucet and means adapted to insure the rotation of the faucet in one direction.

3. A water-purifying device comprising a receptacle adapted to contain suitable filtering means comprising the spiders or perforated partitions 3 and 6 with the screens 4 and 5 and the granular or porous material interposed between them and means for removably holding them in place and the faucet exterior to a receptacle adapted to conduct water alternately to either end of the filtering material by successive operations of the faucet and means adapted to insure the rotation of the faucet in one direction.

663,647. SPECTACLE OR EYEGLASS CASE. GEORGE W. WELLS, Southbridge, Mass. Filed Mar. 29, 1900. Serial No. 10,599. (No model.)

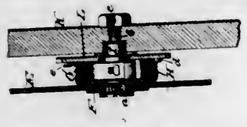


Claim.—An eyeglass or spectacle case comprising a body portion and a lid hinged thereto, the said body portion being provided with a slot in its wall adjacent the hinged lid, an actuating-spring for the lid secured within the body portion and provided with an open-ended knob or projection movable in the said slot of the body portion, said open-ended knob or projection being in the plane of the lid when closed the said lid being provided with a projection integral therewith and projecting substantially in the plane thereof to enter the open-ended knob of the spring and to have endwise movement therein whereby movement of the spring and knob imparts positive movement to the lid to open and close the same.

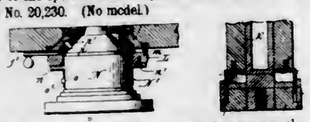
663,648. DEVICE FOR LIFTING SASHES, DOORS, OR SHUTTERS. OTIS WILLIAMS, St. Johnsville, N. Y. Filed Sept. 7, 1900. Serial No. 29,333. (No model.)

Claim.—A slidable window-sash, door or shutter, and means for operating the same, consisting of a rack-bar, a suitable motor provided with a rotatable casing having outwardly-extending ratchet-teeth, a suitable pawl adapted to engage therewith, a pinion rotated by the motor and en-

gaging with the rack-bar, a ratchet-disk connecting with the casing of the motor, and a suitable pawl engaging therewith and means for disengaging said pawl, substantially as and for the purpose set forth.



663,649. MICROSCOPE. HERMANN ZIRNGIBL, Buffalo, N. Y., assignor to the Spencer Lens Company, same place. Filed June 14, 1900. Serial No. 20,230. (No model.)



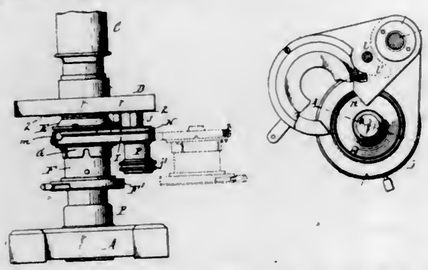
Claim.—1. In a microscope or similar instrument, the combination with the pillar, its base, and the adjustable sleeve sliding on the pillar and carrying the lens-tube, of a collar surrounding said base and secured at its lower end to the same and having its remaining portion separated therefrom by an intervening space forming a socket, and a dust-cap secured to the lower end of the sleeve and fitting into the space or socket between the pillar-base and said collar, substantially as set forth.

2. The combination with an iris-diaphragm, its support, its rotary operating-ring, a condenser-holder arranged below said diaphragm, and a condenser adapted to be inserted into said holder from below, of guide devices on the condenser and its holder which control the position of the condenser in its holder circumferentially, and stop devices on the condenser and the rotary ring of the iris-diaphragm which permit the full insertion of the condenser into its holder only when the diaphragm is open, substantially as set forth.

3. The combination with an iris-diaphragm, its support, its rotary operating-ring provided with an opening or recess, a condenser-holder arranged below said diaphragm, and a condenser adapted to be inserted into said holder from below, of guide devices on the condenser and its holder which control the position of the condenser in its holder circumferentially and a stop on the condenser which strikes the operating-ring of the diaphragm and prevents the insertion of the condenser into the holder when the diaphragm is closed and which enters the opening or recess in said ring and permits the insertion of the condenser when the diaphragm is open, substantially as set forth.

4. The combination with an iris-diaphragm and its support, of a rotary operating-ring for the diaphragm-leaves provided with an opening or recess, a condenser-holder supported below said diaphragm and provided in its lower edge with a guide-notch, and a condenser provided with a guide-pin adapted to enter said notch and a stop-pin adapted to enter the opening of said operating-ring, said opening and stop-pin being so arranged relatively to each other that when the diaphragm is open, the stop-pin registers with said opening, substantially as set forth.

663,650. MICROSCOPE. HERMANN ZIRNGIBL, Buffalo, N. Y., assignor to the Spencer Lens Company, same place. Filed June 14, 1900. Serial No. 20,231. (No model.)



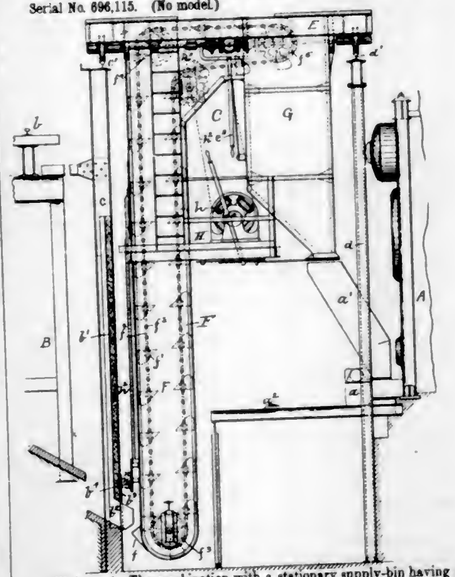
Claim.—1. The combination with the main stage, an iris-diaphragm arranged below the same, a condenser arranged below said diaphragm, an adjusting-screw for said diaphragm and condenser arranged below said main stage on one side of said diaphragm and condenser, and a support for said adjusting-screw depending from the main stage, of separate supporting-arms for said diaphragm and condenser, both mounted one below the other on said adjusting-screw, and a guide device depending from said main stage on one side of said adjusting-screw and engaging one of said arms, holding the same against lateral movement, while the other arm is free to swing laterally out of the optical axis of the instrument, substantially as set forth.

2. The combination with the main stage, of a substage having an upper iris-diaphragm and a condenser, an adjusting-screw for the parts of the substage arranged below said main stage on one side of said diaphragm and condenser, an upper supporting-arm carrying said iris-diaphragm mounted on said adjusting-screw, a guide or steadying pin secured to the main stage and engaging with said arm, a lower arm also carried by said adjusting-screw and capable of swinging laterally ont of the optical axis of the instrument, and a condenser-holder mounted on said lower arm, substantially as set forth.

3. The combination with the main stage, of a substage having an upper iris-diaphragm and a condenser, an adjusting-screw for the parts of the substage arranged below said main stage on one side of said diaphragm and condenser, an upper supporting-arm carrying said iris-diaphragm and mounted on said adjusting-screw and provided at one side with a recess which communicates with the aperture of the arm, a laterally-swinging lower arm also carried by said adjusting-screw and carrying a condenser-holder, and a condenser arranged in said holder and adapted to pass laterally through the recess of said upper arm in swinging the lower arm aside, substantially as set forth.

4. The combination with the main stage and a vertical support depending therefrom, of an adjusting screw-nut rotatably supported at the lower end of said support, a screw-sleeve arranged between said nut and support and capable of vertical movement on said support, a substage attached to the upper end of said screw-sleeve, and a sleeve depending from said substage and inclosing the upper portion of said screw-nut, forming therewith a dust-guard, substantially as set forth.

663,651. APPARATUS FOR ELEVATING AND HANDLING COAL. ALFRED M. ACKLIN and WILLIAM J. PATTERSON, Pittsburg, Pa., assignors to the Heyl & Patterson, same place. Filed Nov. 11, 1898. Serial No. 696,115. (No model.)



Claim.—1. The combination with a stationary supply-bin having a discharge-opening, and a stationary chute or reservoir, of an overhead traveling carriage running on tracks between the bin and chute, elevator mechanism supported by the carriage, and a reservoir supported by the carriage at the delivery end of the elevator and adapted to discharge into the chute, substantially as set forth.

2. The combination with a stationary supply bin or bunker having a series of discharge-openings arranged at intervals, and a series of stationary receiving chutes or reservoirs, of a carriage running on tracks between the bin and chutes, elevator mechanism supported by the carriage, and a reservoir supported by the carriage at the delivery end of the elevator, said reservoir overhanging the stationary chutes and having a discharge-opening in its bottom.

3. The combination with a stationary supply-bin having a series of discharge-gates arranged at intervals, and a series of stationary chutes or reservoirs, of an overhead traveling carriage running on tracks between the bin and chutes, elevator mechanism supported by the carriage, and a reservoir supported by the carriage at the delivery end of the elevator and overhanging the stationary chutes, said reservoir having a discharge-gate in its bottom, adapted to discharge into the chutes, substantially as set forth.

4. The combination with a traveling carriage supported on an elevated track and having a reservoir adjacent to one side, a stationary supply bin or bunker located at the side of the track remote from the reservoir, and provided with a discharge-opening, and a stationary receiving chute or reservoir located at the other side of the track, of chain-and-bucket conveyer mechanism operating both vertically and horizontally between the bunker-outlet and the top of the carriage-reservoir and a trough for the horizontal path of the buckets, substantially as set forth.

5. The combination of a bunker having an opening therein, a gate controlling said opening, a carriage running on a track in front of said bunker, elevator mechanism supported by said carriage, and mechanism on said carriage adapted to engage with the bunker-gate and open same, substantially as set forth.

6. The combination with a bunker having an opening therein, a gate controlling said opening, of a carriage running on a track in front of said bunker, elevator mechanism supported by said carriage, a sliding plate on said carriage adapted to engage with the bunker-gate, and mechanism for raising and lowering said sliding plate, substantially as set forth.

7. The combination with a bunker having an opening therein, a gate controlling said opening, of a carriage running on a track in front of said bunker, elevator mechanism supported by said carriage, a sliding plate on said carriage adapted to engage with the bunker-gate, said bunker-gate being provided with a projection and said plate having a catch adapted to pass above and below the same, and mechanism for raising and lowering said sliding plate, substantially as set forth.

8. The combination with a bunker having an opening therein, a gate controlling said opening, of a carriage running on a track in front of said bunker, elevator mechanism supported by said carriage, a sliding plate on said carriage, said bunker-gate being provided with a pin and said sliding plate having lips adapted to pass above and below said pin, the lips flaring at their outer ends, substantially as set forth.

9. The combination with a suitable elevated track, of an elevator-carriage traveling thereon, having a depending bucket-chamber at one side and a reservoir at the opposite side, a chain having buckets and traveling through said bucket-chamber and in an approximately horizontal path between the top of the bucket-chamber and the top of the reservoir and a substantially horizontal trough through which the buckets move between the bucket-chamber and the reservoir, substantially as set forth.

10. The combination with a suitable elevated track, of an elevator-carriage traveling thereon, having a depending bucket-chamber at one side and a reservoir at the opposite side, a chain having buckets and traveling through said bucket-chamber, a substantially horizontal trough extending from the top of the bucket-chamber to the reservoir, means for guiding and moving the buckets through the bucket-chamber and the trough and a stationary chute over which the elevator-reservoir travels, substantially as set forth.

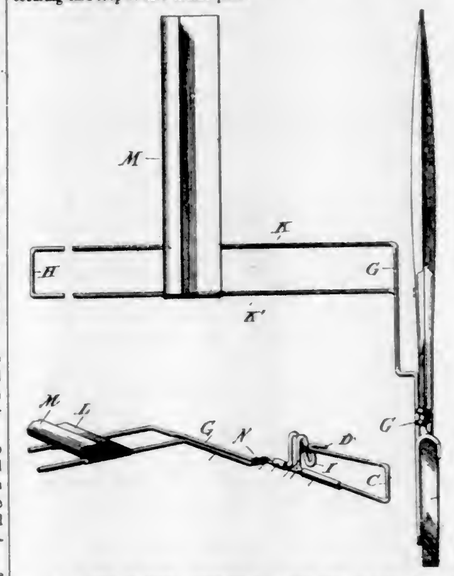
11. A traveling elevator, a reservoir carried by said elevator, one or more sliding gates in the bottom of said reservoir, operating-straps connected to said gates, chains connected with said straps, guide-pulleys around which said chains pass and levers connected with said chains, substantially as set forth.

12. A traveling elevator, a reservoir carried thereby, one or more sliding gates in the bottom of said reservoir, operating-straps connected with said gates, chains connected with said straps, guide-pulleys around which said chains pass, and levers connected with said chains, the chain system for operating one gate being arranged within the chain system for operating another gate, substantially as set forth.

13. The combination of an elevated track, with a traveling elevator provided with a truck running on said track, a bucket-chamber depending from said truck on one side of the carriage, a reservoir depending from the truck on the other side of the carriage, three sprocket-wheels located at the upper end of the bucket-chamber, two of which are journaled in a substantially horizontal plane, a horizontal trough extending between said two sprocket-wheels, and a chain provided with buckets and supported and running on said sprocket-wheels.

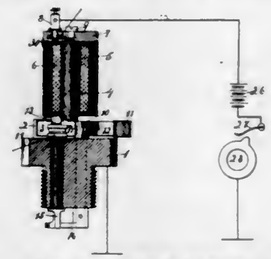
663,652. GAGE FOR SHEARS. CHARLES D. W. COLBY, Albion, Mich. Filed May 4, 1900. Serial No. 15,504. (No model.)

Claim.—1. A gage for shears consisting of a gage-plate, an edge guide on said plate, a frame adapted to serve as a guide for said plate, a clamp adapted to engage the stem of the thumb-piece of the shears, a loop formed on said frame and a spring-hook provided on said loop for securing said loop to said thumb-piece.



2. A gage for shears consisting of a gage-plate, an edge guide on said plate, a frame adapted to serve as a guide for said plate, a downwardly-extending spring-clamp adapted to engage the stem of the thumb-piece of said shears, and a loop adapted to coincide with said thumb-piece and provided with a hook to engage said thumb-piece, substantially as described.

663,653. ELECTRIC IGNITER FOR GAS-ENGINES. WALTER H. CORTON, Chicago, Ill. Filed Nov. 23, 1898. Serial No. 697,285. (No model.)



Claim.—1. In an electric igniter for gas-engines, a cap adapted to be inserted in the cylinder of the engine, a compound-wound electromagnet erected on the cap and having a primary and secondary coil, a head-plate on said electromagnet, a post erected on said head-plate, the upper terminal of the primary coil connected with said post, the upper terminal of the secondary coil grounded, the lower terminals of the two coils connected with a post inserted in said cap, fixed and movable electrodes, and means for making and breaking electric connection with said electrodes, as set forth.

2. In an igniter for gas-engines, a cap adapted to be secured in the engine-cylinder, an electromagnet mounted on the cap and having primary and secondary coils, means for connecting the upper terminal of the primary coil of the magnet with an electric battery, an armature mounted on a post pivoted in the cap and positioned within the field of the electromagnet, a movable electrode secured to said post and adapted to turn with the armature, a fixed electrode secured to said cap and insulated therefrom, and means for electrically connecting the said post and the lower terminals of both coils, substantially as set forth.

3. In an igniter for gas-engines, a cap adapted to be secured in the engine-cylinder, an electromagnet mounted on the cap and having primary and secondary coils, means for connecting the upper terminal of the primary coil of the magnet with an electric battery, means for breaking

such connection, an armature mounted on a post pivoted in the cap and positioned within the field of the electromagnet and having a weighted extension, a movable electrode secured to said post and adapted to turn with the armature, a fixed electrode secured in said cap and insulated therefrom, and means for electrically connecting said post and the lower terminals of both coils, substantially as set forth.

663,654. TOY MUSICAL INSTRUMENT. LOUIS N. CRAKOW, New York, N. Y. Filed Oct. 23, 1900. Serial No. 34,014. (No model.)



Claim.—1. A musical instrument of the character described, having a mouthpiece, a tympanum situated in front of the outer end of the said mouthpiece, with its surface upon which the breath impinges oblique to the axis of the mouthpiece, and having an outlet for the breath back of said tympanum.

2. A musical instrument of the character described, having a mouthpiece, a tympanum in front of the outer end of the said mouthpiece for the breath to impinge upon, and a foraminous diaphragm in the instrument between said tympanum and the outer end of the mouthpiece.

3. A musical instrument of the character described, having a mouthpiece, a tympanum for the breath to impinge upon, an outlet for the breath deflected from the tympanum, and a removable, foraminous diaphragm situated between the outer end of the mouthpiece and the said tympanum.

4. A musical instrument comprising a resonator, a mouthpiece, and an obliquely-arranged tympanum *e* between the resonator and the outer end of the mouthpiece, said instrument having a lateral outlet *f*, for the breath deflected from said obliqoe tympanum.

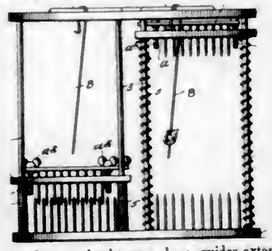
5. A musical instrument comprising a resonator, a mouthpiece removable from the resonator, and an obliquely-arranged tympanum *e*, back of the outer end of the mouthpiece, of a foraminous, removable diaphragm *g*, situated between the outer end of the mouthpiece and the said tympanum, said instrument having a lateral outlet for the breath deflected from said tympanum.

6. A musical instrument comprising a resonator, a removable tympanum-holder *d*, in a chamber back of the resonator, the oblique tympanum *e* on said holder, and the removable mouthpiece, said chamber having a lateral outlet for the breath.

7. A musical instrument comprising a resonator, a removable, tubular, tympanum-holder *d* in a chamber back of said resonator, an oblique tympanum *e* on said holder, a guard back of said holder, and a removable mouthpiece, said chamber having a lateral outlet for the breath.

8. In a musical instrument, the combination with a tubular resonator, and a thimble *b*, attached to the rear end thereof and forming a tympanum-chamber, of the tubular holder *d* in said chamber, the obliquely-arranged tympanum *e* on said holder, the guard *d'*, back of said diaphragm, the mouthpiece removably attached to said thimble, and the foraminous diaphragm in said mouthpiece, said thimble having in it a lateral outlet for the breath deflected from the tympanum.

663,655. ANIMAL-TRAP. MARTHA E. FOREMAN, Portsmouth, Va. Filed Sept. 10, 1900. Serial No. 29,495. (No model.)



Claim.—1. In an animal-trap, a base, guides extending upwardly therefrom, impaling-pins projecting from the upper surface of the base, traveling sections acting in conjunction with the base, said traveling sections comprising an upper and lower plate suitably connected, impaling-pins embedded in the upper plate and projecting through holes in the lower plate, means for adjusting the upper plate, and means for drawing the traveling section toward the base.

2. In an animal-trap, a suitable base having impaling-pins, guides projecting from the base, springs anchored in the base and encircling the guides, segments having apertures to receive the guides, and to which the upper ends of the springs are connected, bait-hooks suitably suspended, with their ends depending through apertures of the segments, and hooks secured to the upper surfaces of the segments and supported by triggers on the bait-hooks.

3. In an animal-trap, a base having impaling-pins, guides projecting from the base, a ring connecting the guides at the top, segments traveling on the guides and having impaling-pins, springs anchored in the base and secured to the segments, and handles on the segments, substantially as described.

4. In an animal-trap, a base having impaling-pins, and a traveling member, acting in conjunction with the said base having adjustable impaling-pins, substantially as described.

5. In an animal-trap of the impalement type, a traveling member comprising an upper and lower plate adjustably connected, said upper plate carrying the impaling-pins, said pins projecting below the surface of the lower plate, and means for varying the distance of projection of said pins, substantially as described.

6. In an animal-trap, a base having impaling-pins, a plurality of traveling members acting in conjunction with the base, guides projecting upwardly from the base, on which the members travel, springs anchored in the base, coiled around the guides and secured to the lower portions of the traveling members, said traveling members each comprising an upper and lower plate, impaling-pins embedded in the upper plate and projecting through the lower plate; said lower plate having threaded apertures, screws rotatable in the upper plate and operating in the threads of the lower plate, bait-hooks depending through apertures in the traveling members and suspended by rods supported between the guides, and triggers formed with the bait-hooks and hooks on the upper surfaces of the traveling sections engaged by the triggers, substantially as described.

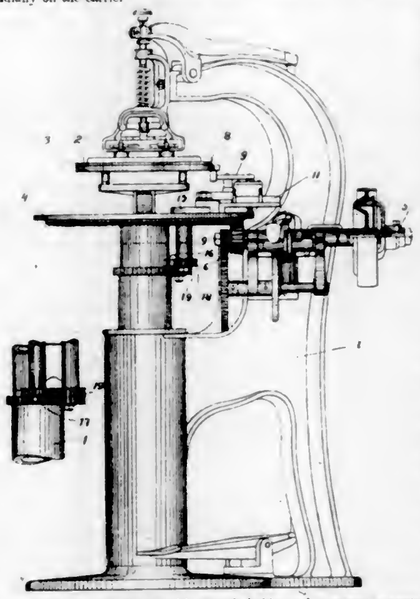
663,656. SOLE-ROUNDING MACHINE. GIDEON JULIAN, Boston, Mass., assignor to George H. P. Flagg, same place. Filed Apr. 12, 1900. Serial No. 12,527. (No model.)

Claim.—1. In a sole-rounding machine, a sole-holder and a support mounted for relative rotary movement, a carrier having a pivotal or fulcrum connection with said support and slidingly mounted with respect to its fulcrum, a rounding-knife movably mounted on the carrier and yieldingly actuated thereon in the direction of the sole-support, a crank journaled on said support, and a direct wrist connection between said crank and the carrier.

2. In a sole-rounding machine, a sole-holder and a support mounted for relative rotary movement, a carrier having a pivotal or fulcrum connection with said support and slidingly mounted with respect to its fulcrum, a rounding-knife movably mounted on the carrier and yieldingly actuated thereon in the direction of the sole-support, a crank journaled on said support, a wrist-pin directly connecting the crank to the carrier, and means to adjust said wrist-pin radially on the crank.

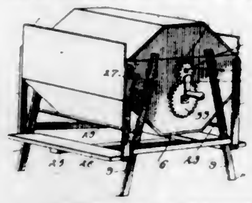
3. In a sole-rounding machine, a sole-holder and a support mounted for relative rotary movement, a carrier having a pivotal or fulcrum connection with said support and slidingly mounted with respect to its fulcrum, a rounding-knife movably mounted on the carrier and yieldingly actuated thereon in the direction of the sole-support, a crank journaled on said support, a wrist-pin directly connecting the crank to the carrier, and means to adjust said wrist-pin radially on the carrier.

4. In a sole-rounding machine, a sole-holder and a support mounted for relative rotary movement, a carrier having a pivotal or fulcrum connection with said support and slidingly mounted with respect to its fulcrum, a rounding-knife movably mounted on the carrier and yieldingly actuated thereon in the direction of the sole-support, a crank journaled on said support, a wrist-pin directly connecting the crank to the carrier, means to adjust said wrist-pin radially on the crank, and means to adjust it radially on the carrier



5. In a sole-rounding machine, a sole-holder and a support mounted for relative rotary movement, a carrier having a pivotal or fulcrum connection with said support and slidingly mounted with respect to its fulcrum, a rounding-knife movably mounted on the carrier and yieldingly actuated thereon in the direction of the sole-support, a crank journaled on said support and having a gear, a gear centralized on the axis of relative rotation of the sole-holder and the said support and fixed with respect to the sole-holder, an idler-gear interposed between the last said gear and the gear on the crank, and a direct wrist connection between the crank and carrier.

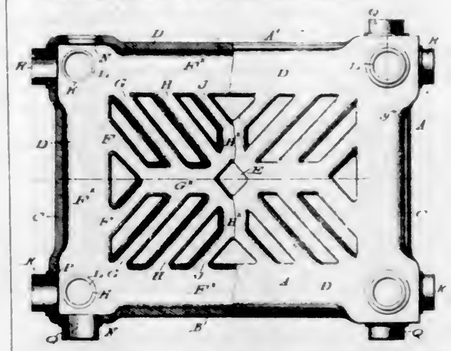
663,657. WASHING-MACHINE. SERAPHIM KANEY, Tarentum, Pa. Filed June 29, 1899. Serial No. 722,254. (No model.)



Claim.—1. In a washing-machine, the combination, with a suds-box, one end of which is slotted vertically, of a cylinder journaled therein, the journal of which at one end projects through said slot and is provided with a gear-wheel, a short shaft in the slot above the cylinder-shaft, the intermediate portion of which is provided with a rigid collar to bear against the outer surface of the side of the suds-box and the inner end is screw-threaded and provided with a nut for engaging with the inner surface of the side of the box and holding the shaft rigidly in the slot, and a gear-pinion provided with a crank and mounted on the outer end of the short shaft in position for engaging with the gear-wheel on the cylinder-shaft.

2. In a washing-machine, the combination, with a suds-box, of legs secured to the ends thereof, cross-rods between the legs at opposite sides of the box, bars pivotally secured to the ends of the box, a board pivotally secured to the ends of the bars at each side of the machine, and an inwardly-projecting bar secured to each board, the inner end of which is provided with a hook for engaging with the cross-rods and holding the boards beyond the sides of the suds-box.

663,658. RADIATOR. HOSFORD D. KELLOGG, Philadelphia, Pa. Filed Aug. 24, 1899. Serial No. 728,282. (No model.)



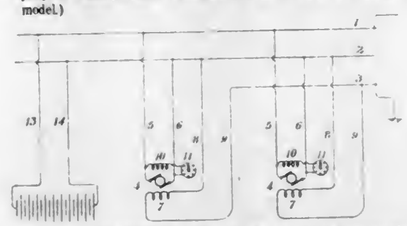
Claim.—1. A radiator comprising a continuous marginal tube, provided with an inlet and an outlet, and a plurality of openings on the inside, an intermediate tube, and a series of diagonally-arranged connecting-tubes between the marginal and intermediate tubes, said connecting-tubes being arranged to provide direct communication between said openings through the intermediate tube.

2. A radiator consisting of a marginal tube, inlets and outlets, and tubes diagonally arranged relative to the marginal tube and providing a direct communication between said inlets and outlets.

3. A radiator comprising a continuous marginal tube, provided with an inlet and an outlet, an intermediate tube, and a plurality of connecting-tubes arranged diagonally in reverse order between the opposite members of the marginal tube.

4. A radiator comprising a continuous marginal tube, provided with a plurality of openings, arranged at intervals on the inside, an inner tube, and a series of diagonally-arranged connecting-tubes between the marginal and inner tubes, said diagonally-arranged connecting-tube being so placed relative to the marginal openings and the inner tube that direct communication is provided between said marginal openings and inner tube.

663,659. SYSTEM OF ELECTRICAL DISTRIBUTION. HENRY R. KENT, New York, N. Y., assignor to the Westinghouse Machine Company, of Pennsylvania. Filed May 1, 1900. Serial No. 15,078. (No model.)



Claim.—1. In a system of electrical distribution, the combination of a secondary battery and a compound-wound dynamo-electric generator connected to operate in parallel and the series field-magnet winding of the generator being so connected as to be traversed by the entire current of the system.

2. In a system of electrical distribution, the combination with a secondary battery and one or more compound-wound dynamo-electric generators operating in parallel, of a bus-bar to which the positive terminals of the battery and the armature or armatures are connected, a second bus-bar to which one terminal of each series field-magnet winding is connected and an equalizing-bar to which the other terminal of each series field-magnet winding and the negative terminals of the battery and the armature or armatures are connected.

3. In a system of electrical distribution, the combination with a secondary battery and one or more compound-wound dynamo-electric generators, of a bus-bar to which one set of corresponding battery and armature terminals are connected, a second bus-bar to which the other set of corresponding battery and armature terminals and one terminal of each

series field-magnet winding are connected and a third bus-bar to which the other series-winding terminals are connected.

4. In a system of direct-current distribution, the combination of a secondary battery and a dynamo-electric generator connected to operate in parallel, said generator having a field-magnet winding that is in series with its armature and also with the secondary battery.

5. In a system of direct-current distribution, the combination of a secondary battery and a plurality of dynamo-electric generators connected to supply translating devices in parallel, said generators having field-magnet windings so connected in circuit as to be traversed by the entire current of the system.

6. In a system of electrical distribution, the combination of a secondary battery and one or more dynamo-electric generators connected to operate in parallel, said generator or generators being severally provided with a field-magnet winding one terminal of which is connected to one pole of the battery, so that the entire battery-current traverses said winding or windings.

7. In a system of electrical distribution, the combination of a secondary battery and one or more dynamo-electric generators connected to operate in parallel, said generator or generators being severally provided with a shunt field-magnet winding and with a winding so connected in circuit as to be traversed by the battery-current.

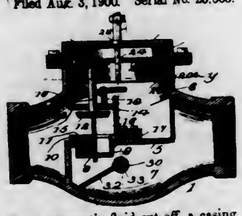
663,660. SHUTTLE-THREADER FOR LOOMS. MARY L. MCGAHAN, Northbridge, Mass. Filed Oct. 14, 1899. Serial No. 733,662. (No model.)



Claim.—1. A pneumatic shuttle-threader comprising a compressible hollow body, one end of which is provided with a hollow projection, the outer end of said projection being thin and flaring and the wall being thickened at its center and substantially crescent-shaped at all points of its radius, substantially as described.

2. A pneumatic shuttle-threader comprising a compressible hollow body provided with a neck, the wall of which is thicker than the wall of the body and terminates in a flanged flaring mouth.

663,661. AUTOMATIC GAS CUT-OFF. JOHN C. MCKALLIP, Athens, Ohio. Filed Aug. 3, 1900. Serial No. 25,805. (No model.)

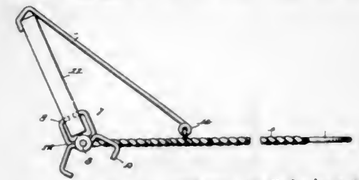


Claim.—1. In an automatic fluid cut-off, a casing, a valve-seat located wholly within the casing and removable through a cap-covered opening in the side thereof, a valve-support attached to and movable with the valve-seat, a stemmed valve guided in its movements by having its stem acting jointly with the valve-seat and valve-support, and a gripper fulcrumed to the valve-support and adapted to hold the valve open at any point, substantially as described.

2. In an automatic fluid cut-off, a partitioned casing having a cap-covered side opening, a valve-seat removable through the said cap-covered opening, a bracket attached to the valve-seat, a stemmed valve directed in its movements by having its stem working in openings formed in portions of the valve-seat and bracket, a gripper fulcrumed upon said bracket and adapted to hold the valve open at any distance, a manually-operated device for unseating the valve, and a fluid-pressure-controlled device adapted to release the valve, substantially as described.

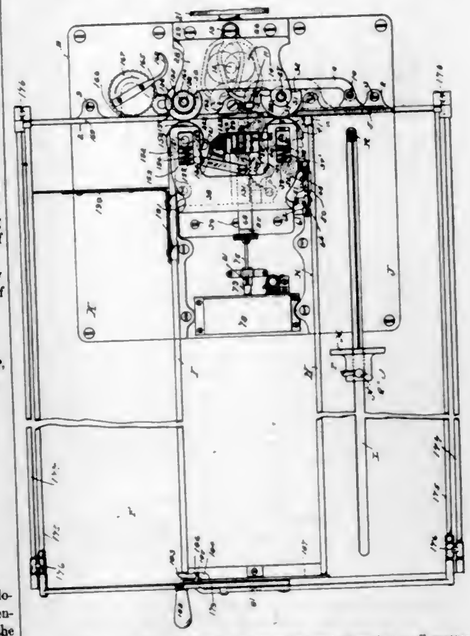
3. In a valve of the character described, the combination of a casing having a partition provided with an opening, a cup fitted in said opening and forming a valve-seat and provided in its bottom with an aperture, a bracket attached to the cup and having an overhanging portion provided with a corresponding aperture, a valve movable between the cup and overhanging portion of the bracket and having upper and lower stem portions slidable in said apertures, a gripping device fulcrumed to the bracket and adapted to engage the upper stem portion to hold the valve open, and a fluid-pressure-controlled device adapted to engage the gripping device and effect the release of the catch, substantially as described.

663,662. TOASTING-FORK. NIELS A. NIELSEN, Tikokino, New Zealand. Filed Mar. 31, 1899. Serial No. 711,522. (No model.)



Claim.—A toasting-fork comprising a handle having a cross-bar at one end, claws made in halves and pivoted on the cross-bar and a hook hinged to a nut on the handle to hold the toast in position substantially as and for the purposes set forth herein.

663,663. LETTER-CANCELING MACHINE. WILFRED I. OHMER, JOSEPH N. KELLY, and WALLACE M. KELCH, Dayton, Ohio; said Kelly and Kelch assignors to said Ohmer. Filed Apr. 4, 1899. Serial No. 711,752. (No model.)



Claim.—1. In a machine for canceling and stamping mail-matter, the combination with a suitable base, of feeding mechanisms, consisting of a reciprocating feed-plate and feed-rolls for feeding mail-matter, mounted thereon, dating, time-printing and canceling mechanisms, and a time-piece directly connected with said printing mechanism for continuously operating such mechanism, and means for automatically reciprocating said dating and time-printing mechanism into and out of printing contact with mail-matter advanced into printing position by said feeding mechanisms.

2. In a machine for canceling and stamping mail-matter, the combination with a base, of feeding mechanism consisting of a sliding feed and feed-rolls adapted to feed mail-matter, a canceling-roll for acting upon said mail-matter as it is being fed, a dating and time-indicating mechanism, slidably mounted, for impressing said mail-matter after passing said feed-rolls and canceling-roll, clock mechanism for controlling the movement of said time-indicating mechanism, and means to impress the printing characters on said mail-matter, substantially as shown and described.

3. In a machine for canceling and stamping mail-matter, the combination with a base having suitable mail-matter-feeding mechanism mounted thereon, as also canceling mechanism, of a plunger carrying a printing-head at its outer end, dating mechanism, and time-indicating mechanism mounted therein, said plunger and its head being adapted to move longitudinally to impress said mail-matter with said dating and time-indicating mechanisms.

4. In a machine for canceling and stamping mail-matter, the combination with a base having suitable feeding mechanism mounted thereon, of a canceling-roll, connected with said feed mechanism, a plunger carrying a printing-head mounted in close proximity to said feeding mechanism, a hollow shaft or sleeve extending through said plunger and carrying an hour-indicating device on its outer end, a shaft extending through said sleeve and carrying on its outer end a minute-hand and connected at its inner end with suitable clock mechanism, and gears between said shaft and sleeve to regulate the movement of the sleeve, dating mechanism carried by said head and rotatably mounted therein, and means to hold said dating mechanism in its proper position to indicate the month, the day of the month and the year, and means to operate said plunger and printing-head into and out of engagement with said mail-matter, and delivering means for delivering the mail-matter from the path of said plunger, substantially as shown and described.

5. In a machine for canceling and stamping mail-matter, the combination with a base or platform having a feeding-space and a delivery-space thereon, of feeding mechanism composed of a toothed sliding plate and feeding-rolls, such toothed sliding plate adapted to engage with one piece of mail-matter at a time and present it to said feeding-rolls, a canceling-roll mounted on one of said feed-roll shafts and adapted to cancel said mail-matter as it passes between said rolls, dating and time-printing mechanism mounted in close proximity to said feeding-rolls, inking devices for inking said canceling-roll and said printing mechanism, and means to reciprocate said printing mechanism into contact with said mail-matter, and delivering mechanism for delivering the mail-matter from the path of said printing mechanism into said delivering-space.

6. In a machine for canceling and stamping mail-matter, the combination with a base, of feed-roll shafts projecting through said base and upward therefrom, fixed bearings for one of said shafts, a yieldable bearing for each end of the other of said shafts whereby said yieldable shaft may be separated from said fixed shaft in such a manner that each of said shafts may be parallel to each other, a pair of feed-rolls mounted on one of said shafts, one above the other with a space between them, and a feed-roll and a canceling-roll mounted on the other of said shafts with a space between them, said upper feed-rolls adapted to contact with each other and said lower feed-roll and canceling-roll also adapted to contact with each other, gear mechanism connected with the lower ends of said feed-roll shafts and adapted to drive them, and a yieldable inking-roll for inking said canceling-roll, substantially as shown and described.

7. In a machine for canceling and stamping mail-matter, the combination with a base having a pair of feed-roll shafts thereon, of driving mechanism connected with the lower ends of said shafts and adapted to rotate them, yieldable bearings for one of said shafts and fixed bearings for the other of said shafts, a pair of feed-rolls mounted on one of said shafts and a feed-roll and canceling-roll mounted on the other of said shafts, each of said feed-rolls and canceling-roll having a portion of its periphery cut away whereby throughout a portion of their rotation they will be out of contact with mail-matter, and an inking device for inking said canceling-roll, and a reciprocating device for impressing mail-matter passing between said rolls when said rolls are out of contact with said mail-matter, substantially as shown and described.

8. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a plunger carrying a printing-head at one end, a minute-shaft and an hour-shaft extending through said plunger, time-printing characters carried at one end of each of said respective shafts and adapted to work in conjunction with and form a part of said printing-head, a double gear carried by the end of said plunger opposite the printing-head, a gear on said minute-shaft meshing with one set of gear-teeth on said double gear, a gear on said hour-shaft meshing with the other of said double gears, a clock for driving said minute-shaft, and means to automatically reciprocate said plunger, together with said hour and minute shafts, said minute-shaft being reciprocatingly connected with said clock mechanism, substantially as shown and described.

9. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of an automatically-reciprocating plunger mounted thereon and means to effect such reciprocation, said plunger carrying a printing-head at its forward end, time-indicating mechanism carried by said printing-head and adapted to be continuously operated by a clock, dating mechanism also carried by said head and adapted to be adjusted to change the date, means to indicate whether a. m. or p. m., and inking means for inking said printing-face, substantially as shown and described.

10. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a plunger having a longitudinal hole therein and carrying at its outer end a printing-head, a sleeve or hour shaft mounted in said longitudinal hole, a minute-shaft mounted in said hour-shaft and reciprocatingly connected with a clock, gears between said hour and minute shafts for giving the proper relative movement, a head carried by the hour-shaft and having an hour-indicating character thereon, and a head carried by said minute-shaft having a minute-indicating character thereon, such characters forming a printing-surface in the face of the printing-head, dating rings or disks mounted in said head upon a shaft, each of said rings having a ratchet secured thereto or projecting therefrom, pivoted detents engaging with said ratchets, and springs for holding said detents normally in engagement with said ratchets, a sleeve projecting from each of said disks and having a flange with notches therein for inserting a spanner, whereby the dating rings or disks are partially rotated for changing the dates, and an inking-roller adapted to pass over the face of said printing-head and withdraw therefrom, and means to reciprocate said plunger, and other means to operate said inking-roll, substantially as shown and described.

11. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a reciprocating plunger carrying a printing-head at its forward end, dating characters, time characters and the name of the town or city, together with the name of the State, characters, appearing in the face of said printing-head, clock-controlled means for indicating the time by said characters, and hand means for manipulating the dating characters, and hand means consisting of a crank together with a spring-pressed detent in its handle for changing the "A" and "P" disk to represent forenoon or afternoon, and the letter "M" also appearing in the printing-head on the opposite side of the dial from the "A" and "P" disk, an inking-roll for engaging the face of said printing-head and withdrawing therefrom, and means for automatically reciprocating said plunger, all substantially as shown and described.

12. In a machine for canceling and stamping mail-matter, the combination with a base or support carrying a printing-head, of an inking-roll support mounted thereon, a bifurcated bracket pivotally connected with said support, inking-roll arms pivotally connected with said bracket, an inking-roll mounted in said arms, and a spring engaging with one of said arms and having its other end connected with said bifurcated bracket, a shaft also engaging with said bifurcated bracket and extending beneath the base or platform, a plate secured to its lower end and carrying a crank-stud, a lever fulcrumed to the base and having one end engaging with said crank-stud and its other end carrying a roller, a cam adapted to engage with said roller to rock said lever and thereby operate the inking-roll back and forth across the face of the printing-head, substantially as shown and described.

13. In a machine for canceling and stamping mail-matter, the combination with a base or platform carrying printing mechanism, of a support mounted thereon, a bifurcated bracket pivoted upon said support, an inking-roller hinged to said bracket, a spring between said inking-roll and bracket, a curved plate upon which said inking-roll is adapted to travel and against which it is held by said spring, a shaft connected with said bifurcated bracket, a clip adapted to embrace the lower end of said shaft and secured thereto by means of a screw, a stud projecting from said clip, a pivoted lever having a slot at one end into which said stud extends, a roller carried by the other end of said lever and adapted to engage with a driving-cam whereby said lever is rocked and said inking-roll is carried across and withdrawn from the printing mechanism.

14. In a machine for canceling and stamping mail-matter, the combination with a base or support having a pair of shafts extending upward therefrom, one of which shafts has a stationary bearing and the other of which has a yieldable bearing, a pair of delivering-rolls mounted on each shaft, one above the other, with a space between them, the periphery of one pair of said rolls on one shaft being cut out, and means for rotating said shafts, substantially as shown and described.

15. In a machine for canceling and stamping mail-matter, the combination with a base, of a main driving-shaft extending downward therefrom, a driving bevel-gear mounted on said shaft, a bifurcated bracket secured to the base and carrying a shaft in one arm thereof, a pair of bevel-gears mounted on the respective ends of said shaft, one of which meshes with said driving bevel-gear, and the other of which meshes with a bevel-gear on the lower end of a delivering-roll shaft, a shaft having one end mounted in the other arm of said bifurcated bracket and at the other end supported by the slidable bracket, a bevel-gear engaging with said delivering-shaft gear and also carrying another bevel or miter gear slidable thereon and adapted to engage with a driven miter-gear carried on the lower end of a second delivering-roll shaft, said delivering-roll shaft mounted on yieldable bearings whereby it will yield to accommodate various thicknesses of mail-matter, and delivering-rolls mounted on said shaft, substantially as shown and described.

16. In a machine for canceling and stamping mail-matter, the combination with a base or platform having a pair of guiding-partitions mounted thereon, of a pair of side plates supported above said base or platform to form a space between them and said partitions, said plates hung upward on said side rails, a lever fulcrumed near the inner end of said base or platform and a pair of connecting-rods connecting their respective side rails with said lever at either side of its pivot, a segment having notches therein rigidly connected with said machine and a detent carried by said

lever adapted to engage in said notches, said lever being adapted to move so that its detents may engage in one of said notches whereby the side plates and side rails may be adjusted in or out over the platform, as desired, and held in such adjusted position.

17. In a machine for canceling and stamping mail-matter, the combination with a base or platform having a delivering-space thereon, said base being slotted in said space, a follower-plate mounted upon said base over said slot, a guide-plate beneath said base and adapted to extend into said slot, and a clamping-screw adapted to extend through said follower-plate and into said guide-plate, a cord adapted to engage with said follower-plate and with a spring-operated drum to draw said follower-plate and guide-plate along said slot when not locked by the clamping-screw.

18. In a machine for canceling and stamping mail-matter, the combination with a base or pedestal cupped out or depressed at its upper end and having flanges extending from its upper edges, a canceling and stamping machine proper having a base or platform, and a casing projecting downward therefrom, said casing adapted to fit within the depression in said pedestal and said base or platform upon the flanges extending from said pedestal, substantially as shown and described.

19. In a machine for canceling and stamping mail-matter, the combination with a base or platform having a feeding-space and a delivering-space thereon, a pair of partitions having a space between said feeding and delivering spaces, adjustable outer sides for each of said outer spaces and a follower-plate in said feeding-space adapted to press mail-matter into contact with a feeding-plate, said feeding-plate acting to deliver said mail-pieces one at a time to the feeding-rolls, a canceling-roll adapted to act upon said mail-matter as it passes between said feed-rolls, dating and time indicating mechanism near said feed-rolls adapted to impress said mail-matter when free from said rolls, delivering-rolls adapted to deliver the mail-matter into said delivering-space after being acted upon by said printing mechanism, displacing or kicking mechanism for quickly throwing said mail-matter out of the path of the succeeding piece of mail-matter, and a holding-plate within said delivering-space for holding the mail-matter from falling over when acted upon by said kicking mechanism, all substantially as shown and described.

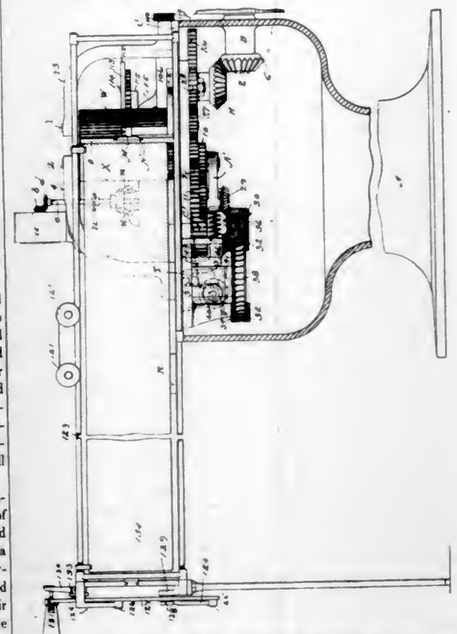
20. In a machine for canceling and stamping mail-matter, the combination with a base, having a casing extending downward therefrom, of a main driving-shaft having a bearing near its upper end in said base and a step-bearing for its lower end carried by said casing, a pair of ears and a cam and eccentric plates rigidly mounted thereon, one of said gears having a spur-tooth and a bevel-tooth, feed-roll shafts carrying gearing adapted to mesh with said spur and bevel gears, feeding-rolls having gears on their lower ends adapted to mesh with said spur and bevel gears, a pivoted yoke adapted to engage with the upper of said cams, a pitman pivotally connected with said yoke and with a reciprocating feed-bar to reciprocate it, a canceling-roll, also carried by one of said feed-roll shafts, and a plunger between the feed-roll shafts and the delivering-shafts carrying a printing-head, a rack carried by said plunger and a sector engaging therewith, said sector being operated by said cam in one direction and in the other direction by means of a spring, inking-rolls for inking the canceling-roll and printing-head, the latter of which is operated into inking contact with said head by means of its connection with said driving-cam, and means to automatically spread apart said feed-rolls, said means also being driven by said cam, and clock-controlled means for indicating the exact time, on mail-matter that the printing mechanism is reciprocated to stamp said mail-matter, and means to drive said main driving-shaft, all substantially as shown and described.

21. In a machine for canceling and stamping mail-matter, the combination with a partition having a slide mounted thereon, a bracket pivotally connected with said slide, an inking-roll rotatably mounted in said bracket, a spring connected to said pivoted bracket at one end and with said slide-bracket at its other end adapted to normally hold said inking-roll in contact with said canceling-roll, and a rack carried by said slide, and a segment adapted to engage with said rack to raise and lower said slide, said segment engaging with said partition to hold the segment in the desired position.

22. In a machine for canceling and stamping mail-matter, the combination with a suitable base, of feeding mechanism for the mail-matter, printing mechanism for said matter, substantially as this feature is described, delivery mechanism, time mechanism for continuously operating the time-printing feature, and intermediary constructions and devices by which the feeding mechanism becomes inactive on the mail-matter while the printing mechanism is impressing said matter, and by which the delivery mechanism becomes inactive upon the mail-matter when said printing operation ceases.

23. In a machine for canceling and stamping mail-matter, the combination with a suitable base, of feeding mechanism for the mail-matter, reciprocating printing mechanism for impressing said mail-matter, delivery mechanism, and intermediary constructions and devices by which said feeding mechanism releases said mail-matter, while the printing mechanism is impressing said matter, and by which the delivery mechanism becomes active upon the mail-matter when said printing operation ceases.

663,664. LETTER-CANCELING MACHINE. WILFRED I. OHMER, JOSEPH N. KELLY, and WALLACE M. KELCH, Dayton, Ohio; said Kelly and Kelch assignors to said Ohmer. Filed Apr. 4, 1899. Serial No. 711,753. (No model.)



Claim.—1. In a canceling and stamping machine, the combination with a base or platform having a pair of feed-roll shafts and a pair of delivering-roll shafts mounted thereon at right angles thereto, mechanism for driving said shafts, feed-rolls mounted on said feed-roll shafts, and delivering-rolls mounted on said delivering-roll shafts, a rotatable printing-head mounted on said base or platform, a canceling-strip carried on the periphery of said printing-head, dating mechanism and time-printing mechanism carried by said head, clock mechanism to drive the latter at one time, and driven by the movement of the machine at another time.

2. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a pair of vertical feed-rolls, and a pair of vertical delivering-rolls mounted thereon, a pivoted yoke carrying one end of one of said feed-roll bearings and one end of one of said delivering-roll bearings, a bracket carrying bearings for the other end of said respective rolls, springs adapted to operate on said upper bearings and on said yoke for the lower bearings, substantially as shown and described.

3. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a shaft extending through said base, a driving-gear and pivoted yoke mounted thereon, a feeding-roll shaft and a delivering-roll shaft, each of which carries a driving-pinion at its lower end, and mounted in said yoke, one of which engages with said feed-roll-shaft-driving gear, and both of which engage with and are driven by said first-named driving-gear, a pair of brackets carried by said base and a pair of springs interposed between said brackets and said pivoted yoke substantially as shown and described.

4. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a pair of driving-shafts mounted therein, one of which has a driving-gear, and main driving-gear mounted thereon; a feed-roll shaft and a delivering-roll shaft driven by said main driving-gear and the other of which has a driving-gear and a miter-gear mounted thereon, a feed-roll shaft and a delivering-roll shaft driven by said last-named gear, a worm-shaft adapted to be driven by said miter-gear, and a worm-gear meshing with said worm-shaft; a rotatable printing-head mounted on the upper end of said last-named driving-shaft and adapted to be driven thereby, time-printing mechanism carried by said head and a lever between said time-printing mechanism and said worm-gear adapted to operate said mechanism, all substantially as shown and described.

5. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a pair of driving-shafts mounted thereon, one of which has a driving-gear, a main driving-gear mounted thereon, a feed-roll shaft driven by said main driving-gear and the other of which has a driving-gear and a miter-gear mounted thereon, a feed-roll shaft and a delivering-roll shaft driven by said last-named driving-gear, a worm-shaft adapted to be driven by said miter-gear and a worm-gear meshing with the worm-shaft; a rotatable printing-head mounted on the upper end of said last-named driving-shaft and adapted to be driven thereby, time-printing mechanism carried by said head and a lever between said time-printing mechanism and said worm-gear adapted to operate said mechanism, all substantially as shown and described.

6. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a driving-shaft extending through said base, a printing-head mounted on said shaft and adapted to be driven thereby, a miter-gear also mounted on said shaft, a worm-shaft driven by said miter-gear, a worm-gear meshing with said miter-shaft and having a notch on its upper face, a pivoted lever mounted in the path of said notch, printing mechanism carried by said head and adapted to be operated by said lever when the machine is operating, a clock-operated mechanism adapted to operate said time-printing mechanism when the machine is at rest, and to be disengaged from said mechanism when the machine is in operation, substantially as shown and described.

7. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a driving-shaft, carried thereby, a printing-head rigidly mounted thereon and adapted to be driven thereby, time-printing mechanism carried by said head, a clock carried by said machine, means for connecting said clock with said time-printing mechanism to operate it at one time and for disengaging therewith at another, and means interposed between said time-printing mechanism and said machine for operating said mechanism when disconnected from said clock, all substantially as shown and described.

8. In a machine for canceling and stamping mail-matter, the combination with a base or platform, of a driving-shaft carried thereby, a printing-head mounted on and driven by said shaft, time-printing mechanism carried in said head, consisting of hour-rings, units and tens rings and "A" and "P" rings; means for transferring time from the units minute-ring to the tens minute-ring and from the latter ring to the hour-ring, and means for connecting said latter ring with said "A" and "P" wheel to operate it; a driving-shaft connected with said time-printing mechanism, carrying a star-wheel rigidly mounted thereon, a worm-gear driven by said first-named driving-shaft, a lever adapted to be rocked by said worm-gear to operate said star-wheel, a bracket carried by said printing-head, a shaft projecting through said bracket and having a miter-gear mounted on its upper end to engage with a clock-driven gear, a sliding sleeve on its lower end, governor-balls connected with said sliding sleeve and with said bracket and adapted to slide said sleeve thereon, a shaft at its lower end mounted in the base and its upper end projecting within said sleeve, and a clutch-collar rigidly mounted on said last-named shaft and adapted to engage with said last-named sleeve, when the machine is at rest, and its shaft engaging with said time-operating shaft to drive the time mechanism, when the governor mechanism permits the sliding sleeve to engage with said collar, all substantially as shown and described.

9. In a machine for canceling and stamping mail-matter, the combination with a suitable base, of feeding devices and delivering devices for keeping the mail in constant motion through the machine, and printing mechanism for indicating the time of cancellation, the place and date of canceling the stamp, time or clock mechanism, and an intermediate device by which said time-printing devices are operated by said clock mechanism when the machine is inactive, and by which said printing devices are operated independent of said clock when said machine is active.

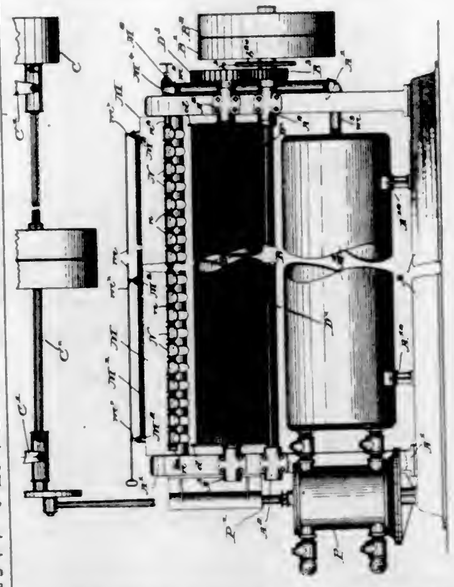
663,665. APPARATUS FOR APPLYING LIQUID DRESSING TO LEATHER. FRANKLIN J. PERKINS, Woburn, and FREDERIC A. PARKHURST, Peabody, Mass. Filed Dec. 11, 1899. Serial No. 739,933. (No model.)

Claim.—1. In an apparatus of the class described, a foraminous work-support, and means to direct upon the work liquid dressing or the like under fluid-pressure while the work is sustained by said support.

2. In an apparatus of the class described, a foraminous work-support, means to direct upon the work liquid dressing under fluid-pressure and means to effect relative movement of the work-support and said dressing-directing means.

3. In an apparatus of the class described, a receptacle for liquid dressing or the like, a main supply-pipe connected therewith, a series of atomizers in communication with said pipe, and means to discharge the liquid from the atomizers under pneumatic pressure.

4. In an apparatus of the class described, a receptacle for liquid dressing, or the like, a plurality of atomizers having liquid-outlets connected therewith, said atomizers having their discharge-nozzles inclosing the said outlets, and means to direct air under pressure into the atomizers, to suck the liquid dressing thereinto and discharge the same in spray.



5. In an apparatus of the class described, a foraminous traveling and horizontally-extended work-support, and means located above the same to direct liquid dressing under fluid-pressure upon the work sustained by the support.

6. In an apparatus of the class described, an endless foraminous, traveling work-support, means to move it longitudinally to feed the work, and a series of atomizing devices to spray liquid dressing or the like under fluid-pressure upon the work while the latter is sustained throughout its extent by said support.

7. In an apparatus of the class described, an endless foraminous, horizontally-arranged traveling work-support, means to move it longitudinally to feed the work, a waste-receptacle beneath the upper run of the work-support, and means located over said receptacle and above the upper run of the work-support to spray liquid dressing under pressure upon the work, the dressing passing through the uncovered portion of the work-support into said receptacle.

8. In an apparatus of the class described, a traveling work-support to feed the work, means to spray liquid dressing upon the work, and independent means to direct an air-blast upon the work after the dressing has been applied thereto.

9. In an apparatus of the class described, a foraminous traveling work-support, a rotatable brush to engage the face of and clean said work-support, and means to atomize liquid dressing or the like and direct it upon the work by fluid-pressure.

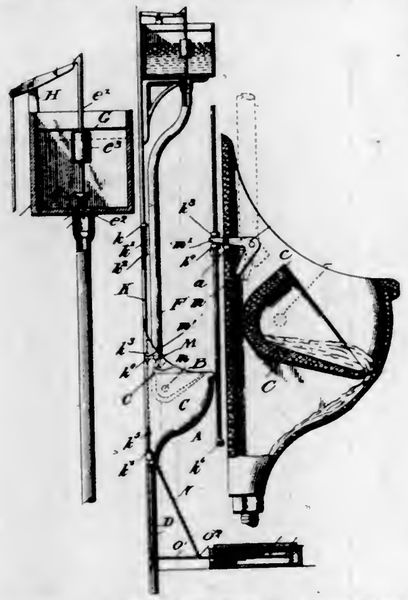
10. In an apparatus of the class described, two rotatable drums, means to positively rotate one of them, a flexible, foraminous work-support carried by the drums, and means to adjust one of the latter, to regulate the tension of the work-support.

11. In an apparatus of the class described, two rotatable drums, means to positively rotate one of them, a flexible, foraminous work-support carried by the drums, and a rotatable brush to engage and clean the face of the work-support as it is moved by rotation of the drums.

12. In an apparatus of the class described, a foraminous traveling work-support, an adjacent receptacle for liquid dressing or the like, a series of atomizers, a supply-pipe connected therewith and provided with feeders extended into said receptacle, controlling-valves for the feeders, and means to introduce air under pressure into the atomizers, to thereby discharge the dressing therefrom as spray upon the work.

13. In an apparatus of the class described, a work-support, a receptacle for liquid dressing or the like, a plurality of discharge-outlets adjacent the work-support, and means to discharge the dressing from said outlets under fluid-pressure.

663,666. URINAL. CHARLES E. RICHARDS, Boonville, N. Y. Filed Mar. 12, 1900. Serial No. 8,344. (No model.)



Claim.—1. In a urinal the combination with a dumping-pan constructed to remain in a horizontal position when empty and to dump when full, a detent normally out of engagement with the pan, for preventing it from dumping, a flushing apparatus arranged to discharge into said pan and provided with a valve normally closed, a movable platform adapted to be depressed by the user of the urinal, connections between said platform and said valve for opening the valve when the platform is depressed and connections between said platform and said detent for moving the latter into operative engagement with the pan when the platform is depressed whereby the said pan will be filled with water during its periods of use and will be permitted to dump immediately after use, substantially as described.

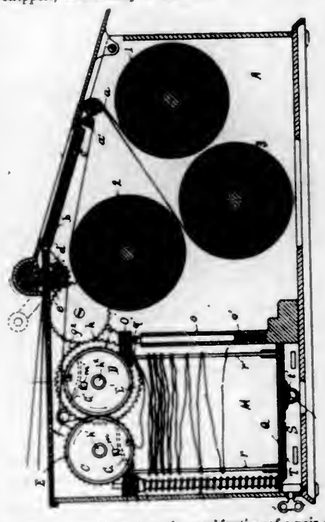
2. A urinal consisting of a hood or hopper, a dumping-pan, a flush-tank, a float-valve in said tank, a valve-lever adapted to actuate said valve, a rod connected with said lever, a bifurcated lever adapted to engage with fixed nuts on said rod and adapted to engage with said dumping-pan, a spring to normally hold said bifurcated lever out of engagement, and a device for automatically actuating said rod, substantially as described.

3. A urinal consisting of a hood or hopper, a dumping-pan, a flush-tank, a float-valve in said tank, a valve-lever adapted to actuate said valve, a rod connected with said lever, a bifurcated lever adapted to engage with fixed nuts on said rod and adapted to engage with said dumping-pan, a spring to normally hold said bifurcated lever out of engagement, an actuating-lever flexibly connected to said rod, and a platform adapted to operate said actuating-lever, substantially as described.

663,667. AUTOGRAPHIC REGISTER. FRANK L. ROSS, Cincinnati, Ohio, and JAMES T. EARLE, Latonia, JOSHUA J. GOON, Harrodsburg, and HOPE REDMON, Cynthiana, Ky., assignors to Blanche M. Wilson, Cincinnati, Ohio. Filed Dec. 18, 1899. Serial No. 740,704. (No model.)

Claim.—1. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove in each cylinder, means for revolving said cylinders whereby the tongue of each cylinder engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove having an actuating-bar projected beyond the end of its cylinder, means mounted on the frame adapted to engage said bar and depress said member during the cylinder revolution, a cam-groove in the face of each cylinder, and a spring-controlled stripping device supported upon each side of the pair of cylinders engaging the faces thereof in the path of travel of the cam-grooves, substantially as described.

2. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove in each cylinder, means for revolving said cylinders whereby each tongue engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove having an actuating-bar projected beyond the end of its cylinder, means mounted on the frame adapted to engage said bars and depress said clamping members during the cylinder revolution, a cam-groove in the face of each cylinder, a spring-controlled stripping device supported upon each side of the pair of cylinders engaging the lower portion of their faces in the path of travel of the cam-grooves and a holding-rack having filing-pins located under the strippers, substantially as described.



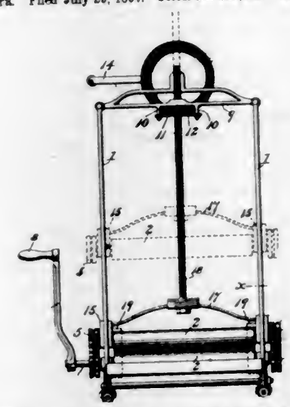
3. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove diametrically opposed in each cylinder, means for revolving said cylinders whereby each tongue engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove, an actuating-bar therefor projected beyond the end of its cylinder, means mounted on the frame adapted to engage said bars and depress said members during the cylinder revolution, a cam-groove in the face of one cylinder, and a spring-controlled stripping device supported upon one side of said cylinder engaging the face thereof in the path of travel of said cam-groove, substantially as described.

4. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove in each cylinder, means for revolving said cylinders whereby each tongue engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove, an actuating-bar therefor projecting beyond the end of its cylinder, means mounted on the frame adapted to engage said bars, a cam-groove in the face of one cylinder, a spring-controlled stripping device supported upon one side of the pair of cylinders engaging the face thereof in the path of travel of the cam-groove and a holding-rack provided with a filing-pin located under the stripper, substantially as described.

5. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove in each cylinder, means for revolving said cylinders whereby each tongue engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove, an actuating-bar for each clamping member projected beyond the end of its cylinder, means mounted on the frame adapted to engage said bar, a transverse cam-groove in the face of each cylinder, a spring-controlled stripping device supported upon each side of said cylinders engaging the faces thereof in the line of travel of the cam-grooves, orifices in said strippers and a holding-rack supported under the cylinders having filing-pins normally engaging the orifices in the strippers, substantially as described.

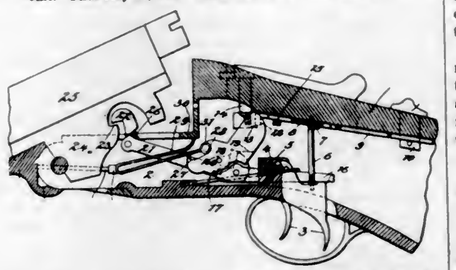
6. In an autographic register the combination of a pair of revoluble folding-cylinders journaled in a frame and geared together, a tongue and groove in each cylinder, means for revolving said cylinders whereby each tongue engages the groove of its coacting cylinder during each revolution, a spring clamping member in each groove, an actuating-bar for each arm projected beyond the end of each cylinder, means mounted on the frame adapted to engage said bars, a transverse cam-groove in the face of each cylinder, a spring-controlled stripping device supported on each side of said cylinders engaging the faces thereof in the path of travel of the cam-grooves, an orifice in each stripper, a detachable holding-rack supported under said cylinders having filing-pins normally engaging the orifices in the stripper, and means for bodily raising and lowering said plate into and out of position, substantially as described.

663,668. WRINGER. ALEXANDER H. STRICKLER, Mount Pleasant, Pa. Filed July 29, 1897. Serial No. 646,299. (No model.)



Claim.—A machine for expressing water from fire-hose comprising a vertically-elongated frame having a bearing at its top and guideways at its sides, a roll journaled in stationary bearings, a crank for rotating the roll, a pair of slidable bearings movable in said guideways, an adjustable roll journaled in said bearings, a spring slidably connected at its end portions to the bearings and free to be deflected at its middle portion without distortion, a threaded stem secured firmly to the middle portion of the spring, a gear-nut idly mounted in the top bearing of the frame and having threaded engagement with the spindle, and a shaft journaled at the top of the frame and geared to the gear-nut, whereby the upper roll may be raised within the elongated frame a distance exceeding the diameter of the metallic coupling on fire-hose, as set forth.

663,669. BREAKDOWN GUN. WILLIAM THOMPSON, Fremont, Ohio. Filed May 31, 1900. Serial No. 18,522. (No model.)



Claim.—1. In a gun, a front extension, an action-pin slidable in the front extension, a mainspring having its loop bearing against the action-pin, a hammer having two shoulders connected by a curved surface, a roller on the end of the mainspring engaging the shoulder near the pivot of the hammer when said hammer is cocked and so arranged as to travel over the curved surface with increasing leverage, a lug on the side of the hammer, said hammer having notches, sears having notches adapted to engage the notches of the hammer, a cocking-lever, a lug on the rear end thereof for engaging the lug of the hammer, a barrel, a lug thereon having a shoulder and a dog pivoted on the cocking-lever adapted to engage the lug on the barrel, substantially as described.

2. In a gun, a frame, a front extension, suitable triggers having their upper edges engaged by a spring, a spindle having its ends reduced to form tenons, said tenons being mounted in the frame between the triggers, a sliding plate, a toothed rack on the plate, and a segmental pinion near the upper edge of the spindle.

3. In a gun, a frame, a front extension, suitable triggers having their upper edges engaged by a spring, a spindle having its ends reduced to form spindles, said spindles being mounted in the frame between the triggers, a sliding plate, having a slot at one end, a thumb-piece on the frame, a shank depending from the thumb-piece and passing through a slot in the frame and adapted to enter the slot of the plate, a slot in the opposite end of the plate, a guarding and retaining screw adapted to pass through said slot and engage the frame, a toothed rack on the sliding plate, a segmental pinion near the top of the spindle, barrels, and means for releasing the barrels.

4. In a gun, a frame, a front extension, suitable triggers having their upper edges engaged by a spring, a spindle having its end reduced to form spindles, said spindles being mounted in the frame between the triggers, a sliding plate, having a slot at one end, a thumb-piece on the frame, a shank depending from the thumb-piece and passing through a slot in the frame and adapted to engage the slot of the plate, a slot in the opposite end of the plate, a guarding and retaining screw adapted to pass through said slot and engage the frame, a toothed rack on the sliding plate, a segmental pinion near the top of the spindle, barrels, a lug on the slide, a bolt and a shoulder on the bolt adapted to be engaged by the lug of the slide.

663,670. APPAREL DUSTING-CAP. MARION W. WISWALL, Boston, Mass. Filed July 30, 1900. Serial No. 25,333. (No model.)



Claim.—1. As a new article of manufacture, a lady's dusting-cap made of a rectangular piece of material having the corners folded back and fastened down and the entire marginal portion gathered; an elastic being extended around such marginal portion a uniform distance from the edge along the front and sides and a considerably greater distance from the edge at the back to form a neck-covering, substantially as described.

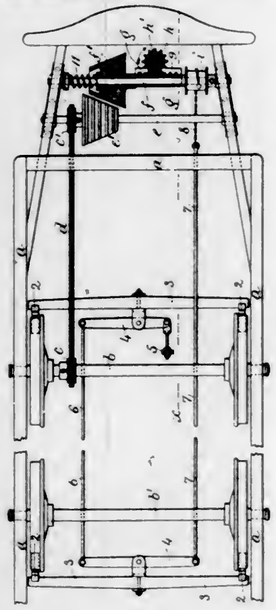
2. As a new article of manufacture, a lady's dusting-cap made of a rectangular piece of material having the corners folded back; a tape extended around the marginal portion on the under side and secured thereto and to the folded-back corner portions to fasten down the same, said tape forming a loop or keeper; and an elastic run through the same to gather the marginal portion of the cap, substantially as described

663,671. CAR-BRAKE-OPERATING MECHANISM. HENRY BLUMENBERG, Jr., New York, N. Y. Filed July 20, 1900. Serial No. 24,266. (No model.)

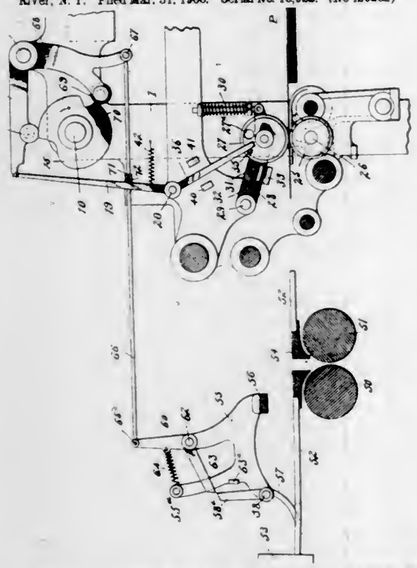
Claim.—1. The combination with the brake-beams and brake-shoes and the rods and levers for operating the same, of a shaft in bearings in the frame of the car-body, a cone-pulley upon said shaft, sprockets respectively upon the shaft of the cone-pulley and one of the car-wheel axles and a chain connecting the same, an oppositely-placed independent cone-pulley adapted to engage the aforesaid cone-pulley and a separate shaft thereof, a drum upon the latter shaft and to which the braking devices are connected, and means brought into operation by and at the will of the motorman for imparting a longitudinal movement to the latter cone-pulley to bring the cone-pulleys into contact to apply the brake, and means for moving the latter cone-pulley away from the former when released, substantially in the manner and for the purposes set forth.

2. The combination with the brake-beams, and brake-shoes and the rods and levers for operating the same, of a shaft in bearings in the frame of the car-body, a cone-pulley upon said shaft, sprockets respectively upon the shaft of the cone-pulley and one of the car-wheel axles and a chain connecting the same, a cone-pulley adapted to engage the aforesaid cone-pulley and a shaft therefor, a drum upon the said shaft to which the braking devices are connected, a tubular rack on the shaft of the latter cone-pulley, collars for maintaining the position of the said rack upon the

shaft and guiding the same, a spring for moving the rack and cone-pulley in one direction, a pinion meshing with the rack and a shaft and hand-wheel for operating the pinion, for moving the cone-pulley in the opposite direction, substantially as set forth.



663,672. PAPER-FEEDING MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Mar. 31, 1900. Serial No. 10,922. (No model.)



Claim.—1. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary rotatable sheet-calipering device adapted to be operated by an abnormal thickness of sheets, and a lever adapted to be actuated by said calipering device and, by its movement, to operate the throw-out mechanism, substantially as and for the purpose set forth.

2. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, with a sheet-calipering device comprising rotatable upper and lower members between which the sheets are adapted to pass, a pin carried by one of said rotatable members; and a lever arranged to be engaged and actuated by said pin and adapted to operate said throw-out mechanism, substantially as and for the purpose set forth.

3. In combination with a machine through which sheets of paper are passed, a suitable throw-out mechanism arranged to normally allow the operation of the machine and adapted when operated to arrest the operation of the said machine, of a normally stationary rotatable sheet-calipering device adapted to be operated by an abnormal thickness of sheets, and a lever arranged to be actuated by said rotatable calipering device and adapted to cause the operation of the throw-out mechanism, substantially as and for the purposes set forth.

4. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary rotatable sheet-calipering device adapted to be actuated by the passage of an abnormal thickness of sheets, a lever adapted to be engaged and operated by said rotatable calipering device, and an arm connected with and operating said throw-out mechanism, said caliper-operated lever being normally in position to prevent the operation of said throw-out arm.

5. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, with a sheet-calipering device comprising rotatable upper and lower members between which the sheets are adapted to pass, an arm arranged to operate the throw-out mechanism, and a lever normally in position to sustain said throw-out operating-arm and adapted to be engaged by one of said rotatable calipering members and be moved thereby away from said arm, substantially as set forth.

6. The combination, in a paper-feeding machine, of means for feeding sheets from the pile, suitable throw-out mechanism adapted to arrest the operation of said sheet-feeding means, a rock-arm connected with said throw-out mechanism for operating it, two rotatable sheet-calipering members arranged to allow the sheets of paper of normal thickness to pass between them, and a lever normally in position to sustain the throw-out operating-arm and arranged to be engaged and moved by one of the rotatable calipering members, substantially as set forth.

7. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, an arm operatively connected with the throw-out mechanism, a lever normally in position to sustain said throw-out operating-arm, a pair of rotatable calipering members arranged adjacent to the plane of feed for the sheets to pass between them, means for regulating the space between the two calipering members, and means of engagement between one of said calipering members and said lever, substantially as set forth.

8. The combination in a paper-feeding machine, of suitable sheet-feeding devices, throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, a sheet-calipering device comprising two rotatable members, one of which is mounted in rigid bearings while the other one of which is mounted in an adjustable frame, a spring device engaging said adjustable frame, suitable adjusting means for regulating the space between the two calipering members, and suitable means operated by one of said calipering members adapted to effect the operation of the throw-out mechanism, substantially as set forth.

9. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, upper and lower rotatable sheet-calipering members between which the sheets pass, a spring-actuated frame, in which the upper calipering member is journaled, means for adjusting the position of said spring-actuated frame for regulating the space between the upper and lower calipering members, a pin carried by the upper rotatable calipering member, and a lever engaged by said pin and adapted to bring into operation the throw-out mechanism, substantially as set forth.

10. The combination in a paper-feeding machine, of suitable sheet-feeding devices, a throw-out mechanism adapted to arrest the operation of the sheet-feeding devices, rotatable upper and lower calipering members between which the sheets pass, a spring-actuating frame in which the upper calipering member is journaled, means for adjusting the position of said frame, a lever adapted to be engaged by said upper calipering member, a rock-arm operatively connected with the throw-out mechanism, a rotary cam normally engaging and sustaining said rock-arm, and a finger projecting from said rock-arm and adapted to be intermittently engaged and sustained by said lever when the calipering device is not operating, substantially as set forth.

11. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said sheet-receiving machine, an intermittently-operated device for actuating said throw-out mechanism, a rock-arm connected with said tripper and adapted to engage said intermittently-operated device to prevent the operation of the throw-out mechanism when the tripper is actuated, substantially as set forth.

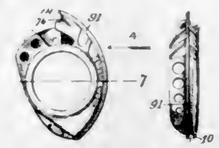
12. The combination with a paper-feeding machine and suitable throw-out mechanism therefor, suitable intermittently-operated delivery mechanism, and a sheet-actuated tripping device arranged to normally prevent the operation of said delivery mechanism, and adapted when tripped by a sheet to allow the operation of said delivery mechanism, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripper in the said sheet-receiving machine, and means controlled by the receiving-machine tripper for operating the throw-out mechanism of the feeding-machine, substantially as set forth.

13. The combination with a paper-feeding machine and suitable throw-out mechanism therefor, suitable intermittently-operated delivery mechanism, and a sheet-actuated tripping device arranged to normally prevent the operation of said delivery mechanism, and adapted when tripped by a sheet to allow the operation of said delivery mechanism, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripper in the sheet-receiving machine, an intermittently-operated device for actuating the throw-out mechanism, and a part connected with the receiving-machine tripper adapted to engage the intermittently-operated device and prevent its operation of the throw-out mechanism, substantially as set forth.

14. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said receiving-machine, a spring-actuated rock-arm, means connecting said rock-arm with the throw-out mechanism for actuating the latter, means normally restraining said spring-actuated rock-arm and intermittently releasing it, and a part connected with the tripper adapted to engage said rock-arm and prevent its operation when released by its restraining means, substantially as and for the purpose set forth.

15. The combination with a paper-feeding machine having suitable throw-out mechanism for arresting its operation, a rock-arm adapted to actuate the throw-out mechanism, and an arm or lever normally sustaining said rock-arm, of a machine adapted to receive sheets from the feeding-machine, a sheet-actuated tripping device in the said sheet-receiving machine, a spring-actuated rock-arm, a rod extending from said spring-actuated rock-arm and adapted to engage said arm or lever which normally sustains the throw-out operating rock-arm, means normally restraining said spring-actuated rock-arm and intermittently releasing it, and a part connected with the tripper adapted to engage a part connected with said spring-actuated rock-arm, substantially as and for the purpose set forth.

663,674. THREAD-CASE FOR SEWING-MACHINES. PHILIP DIEHL and MARTIN HEMLER, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed Aug. 7, 1900. Serial No. 26,139. (No model.)

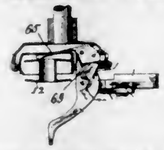


Claim.—1. A sewing-machine thread-case or bobbin-case provided with a segmental peripheral rib or flange having a loop-dividing hook at one end, said peripheral rib or flange extending from said loop-dividing hook to the heel of said thread-case and said thread-case having adjacent to the other end of said rib or flange and near the heel of said thread-case a second or guard rib or flange starting from the surface of said thread-case near the middle of the said peripheral rib or flange and rising gradually, toward the heel of the said thread-case, to the height of the said peripheral rib or flange, to form, between said ribs or flanges, a groove to receive and house the point of the beak of a circularly-moving hook.

2. The combination with a hook-ring provided with a loop-taking beak and with an interior groove, of a thread-case having at one edge, only, a peripheral segmental rib or flange fitting in said groove and provided at one end with a loop-dividing hook the point of which is housed in said groove, said thread-case having near its heel and adjacent to the other end of said rib or flange a second rib or flange which rises gradually from the body of the thread-case to form between said ribs or flanges a groove to receive and house the point of the said beak of the hook-ring.

3. The combination with the thread-case 10 provided at its upper or loop-dividing portion with the separated flanges or walls 80 and 81, the latter having the threading-slot 83, of the tension lever-spring a part of which is received between said flanges or walls and another part of which bears against the inner face of the said wall 81, said spring having the notched lip 86 overlying the top of said wall 81, and a screw for regulating the tension of said spring.

663,675. BOBBIN-CASE HOLDER AND BOBBIN-EJECTOR FOR SEWING-MACHINES. PHILIP DIEHL and MARTIN HEMLER, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed Aug. 7, 1900. Serial No. 26,140. (No model.)



Claim.—1. A bobbin holding and ejecting device comprising the combination with a bobbin-ejecting lever, of a bobbin-holding lever movable independently of said ejecting-lever but having a tailpiece or portion to engage and move said ejecting-lever after a limited movement of said holding-lever.

2. A bobbin holding and ejecting device comprising a bobbin-ejecting lever and a bobbin-holding lever movable independently of said ejecting-lever but having a portion to engage said ejecting-lever after a certain limited movement, combined with a locking device for retaining said holding-lever in working position.

3. In a sewing-machine, the combination with a circularly-moving hook and a stationary bobbin-case supported thereby, of a bobbin holding and ejecting device comprising a yielding bobbin-ejecting lever and a bobbin-holding lever movable independently of said ejecting-lever but having a portion to engage and operate said ejecting-lever after a certain limited movement of said holding-lever, and means for retaining said levers in their normal or stationary positions.

4. In a sewing-machine, the combination with a circularly-moving hook and a stationary bobbin-case supported thereby, of a bobbin holding and ejecting device comprising a spring-pressed bobbin-ejecting lever, a bobbin-holding lever movable independently of said ejecting-lever but having a tailpiece or cam to engage and operate said ejecting-lever after a certain limited movement of said holding-lever, and a spring-pressed locking lever or latch to retain said holding-lever in working position.

5. In a sewing-machine, the combination with a circularly-moving hook, of a bobbin-case supported by said hook, a bobbin-case holder extending within the field of said hook, a spring-pressed bobbin-ejecting lever pivoted to said bobbin-case holder, a bobbin-holding lever also pivoted to said holder and having a limited movement independent of said

663,678. FEEDING MECHANISM FOR SEWING-MACHINES. PHILIP DIEHL and ALFRED GRIEB, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Original application filed Apr. 9, 1900, Serial No. 12,215. Divided and this application filed Aug. 2, 1900. Serial No. 25,608. (No model.)



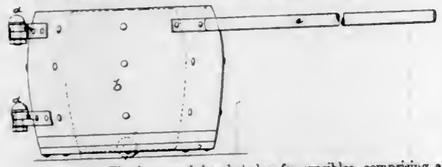
Claim.—1. In a sewing-machine, the combination with a driving-shaft in the upper portion of the arm thereof, of a needle-bar operatively connected with the forward end of said shaft, a vertical rock-shaft in the vertical portion of said arm and operatively connected with said driving-shaft, a feed-bar and connections with said driving-shaft for imparting horizontal or feeding movements to said bar, a vertical rocker provided with a cam for imparting vertical movements to said feed-bar, a vertical rock-shaft operatively connected with said rocker, and a loop-taking device operated by said rock-shaft and coöperating with the needle carried by said needle-bar in forming stitches.

2. The combination with the driving-shaft *c*, of the needle-bar operatively connected with the forward end of said shaft, the rock-shaft *j* connected with the said driving-shaft, the feed-bar and connections with said driving-shaft for imparting horizontal feeding movements thereto, the rocking hub *n* provided with a grooved cam for imparting vertical movements to said feed-bar and having also the arms *m* and *p*, the pitman *l* connecting said rock-shaft *j* with the said arm *m* of said rocking hub, the rock-shaft *z* operatively connected with the said arm *p* of said rocking hub, and a loop-taker actuated by said rock-shaft and coöperating with the needle carried by said needle-bar in the formation of stitches.

ejecting-lever, said holding-lever having a tailpiece or portion arranged to engage and operate said ejecting-lever when said holding-lever is near the limit of its outward throw or movement, and a spring-pressed locking lever or latch to retain said holding-lever in working position.

6. In a sewing-machine, the combination with a vertically-disposed circularly-moving hook, of a vertically-placed bobbin-case supported by said hook, and a stationary two-horned bobbin-case holder extending within the field of said hook and the lower horn of which is provided with a cushioning-spring for said bobbin-case.

663,676. CRUCIBLE-SHAKER. JOHN ILLINGWORTH, Newark, N. J. Filed Sept. 14, 1900. Serial No. 29,993. (No model.)



Claim.—1. The improved hand-shaker for crucibles, comprising a pair of hinged jaws having handles to facilitate opening and closing and having balls projecting down from the under side, substantially as set forth.

2. The improved crucible-shaker, comprising a pair of hinged jaws having handles, arranged at the free ends of said jaws, opposite the hinged ends, said handles being adapted to be brought to lie near together when the jaws are closed to facilitate the shaking of said jaws and the crucible therein, said jaws being hollow semicircular parts filled with a non-conductor of heat and having an interior lining of metal, substantially as set forth.

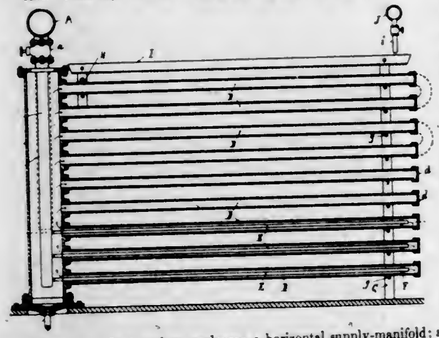
3. The improved hand-shaker for crucibles, comprising semicircular jaws hinged together at the back and provided with handles at the front, and at opposite sides at the bottom having downward projections on which the jaws may be tilted, substantially as set forth.

4. The improved crucible-shaker comprising semicircular jaws joined together at one side and provided with handles at the opposite side, and at the bottom between said hinged and handled parts having downwardly-projecting casters on which said jaws may be tilted, and rolled from place to place, substantially as set forth.

5. The improved crucible-shaker comprising jaws, adapted to grasp the crucible therebetween, said jaws each having a caster directly beneath, upon which said sections may ride when being separated, or tilted in the act of shaking, and means for tilting said jaws as they stand on said casters, substantially as set forth.

6. The improved crucible-shaker, comprising jaws conforming to the periphery of the crucible and adapted to inclose the same from top to bottom and provided with a non-conductor of heat lined interiorly with metal, said jaws being hinged together and provided with handles, substantially as set forth.

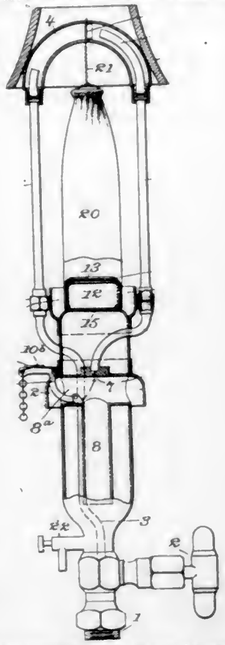
663,677. SURFACE CONDENSER. BEN M. KIRKER, Cincinnati, Ohio. Filed Sept. 22, 1897. Serial No. 652,533. (No model.)



Claim.—1. In a surface condenser, a horizontal supply-manifold; a series of vertical manifolds, each provided with condenser-pipes, said pipes being connected to the vertical manifolds, and closed at their opposite end; independent valve-controlled supply-pipes supplying hot gas from the horizontal manifold to the outer end of the lower condenser-pipes, whereby the several vertical manifolds may be independently cut out of the condenser for repairs, and the cool condensing-water acts first on the partially-cooled gas and finally on the hot gas, preventing the deposit of scale from the condensing-water upon the condenser-pipes, substantially as specified.

2. A surface condenser composed of an upright manifold having an exit-pipe near the bottom for drawing off the products of condensation; a supply-pipe tapping one end of the upright manifold and extending vertically within the manifold; a series of condenser-pipes secured at one end to the upright manifold, being closed at the other end, and projecting substantially horizontally from the upright manifold; and a series of smaller pipes leading from the supply-pipe within the manifold to the outer ends of the lower condenser-pipes; and means substantially as shown for supplying cooling-water to the exterior of the condenser-pipes, substantially as specified.

663,678. VAPOR-BURNING APPARATUS. ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, same place and Charleston, W. Va. Filed Apr. 29, 1899. Serial No. 714,982. (No model.)



Claim.—In a vapor-burning apparatus the combination of the upright tube adapted to be screwed into the top of an oil-reservoir but closed at its lower end, the burner on the upper end of the upright tube, the mixing-tube of less length and diameter than the upright tube and located within the same, the vaporizing-tube located within the heating zone of the burner and discharging into the upper end of the mixing-tube, and the air-conduits through the walls of the upright tube leading to the upper end of the mixing-tube, together with the needle hole-cleaner pivoted to the upright tube and extending in through the air-conduit, and the spring normally acting to withdraw the needle out of the line of discharge from the vapor-discharge opening.

663,679. VENTILATOR FOR CARS. WILLIAM C. MARTIN, New York, N. Y. Filed Mar. 3, 1900. Serial No. 7,166. (No model.)



Claim.—1. In combination with the walls of the upper roof of a car, a fan or fans operated by the air-pressure produced by the car movement and connected to a ventilating fan or fans inside of the car, mechanical connections between the outside and inside fans, and means within the car, connected to the outside fan and adapted to swing said fan toward either end of the car as desired, substantially as and for the purpose described.

2. In combination with the walls of the upper roof of a car, a fan or fans operated by the air-pressure produced by the car movement and connected to a ventilating fan or fans inside of the car, mechanical connections between the outside and inside fans, means within the car, connected to the outside fan and adapted to swing said fan toward either end of the car as desired, and means for locking the same in position, substantially as and for the purpose described.

3. In combination with the walls of the upper roof of a car, a fan or fans adapted to swing toward either end of the car, and operated by the air-pressure produced by the car movement, a ventilating fan or fans inside of the car, mechanical connections between the outside and inside fans, and means for locking the outside fan in the desired position, substantially as and for the purpose described.

4. In combination with the walls of the upper roof of a car, a hub or other suitable fan-frame pivoted to swing, in the said walls of the car, toward either end of the car, a rotatable shaft passing through the fan-frame, a fan mounted on the shaft outside of the car, and a ventilating-fan mounted on the shaft inside of the car, substantially as and for the purpose described.

5. In combination with the walls of the upper roof of a car, a hub or other suitable fan-frame, a rotatable shaft passing through the fan-frame, a fan mounted on the shaft outside of the car, a ventilating-fan mounted on the shaft inside of the car, and means, within the car, adapted to swing the shaft so as to throw the fans toward either end of the car, substantially as and for the purpose described.

6. In combination with the walls of the upper roof of a car, a rotatable shaft passing through the said walls of the car, a fan mounted on the shaft outside of the car, a ventilating-fan mounted on the shaft inside of the car, and means, within the car, adapted to swing the shaft so as to throw the fans toward either end of the car, substantially as and for the purpose described.

663,680. AUTOMATIC FIRE-ESCAPE. DAVID MAY and MICHAEL SELIG, New York, N. Y. Filed July 2, 1900. Serial No. 22,359. (No model.)



Claim.—1. In combination, a frame or casing secured to a building, and a counterbalanced movable platform constructed and arranged to be sustained thereby, the said casing ending a distance above the sidewalk, and a spring-controlled slide and support therefor, to coöperate with the same, constructed and arranged to descend with the said platform to the street.

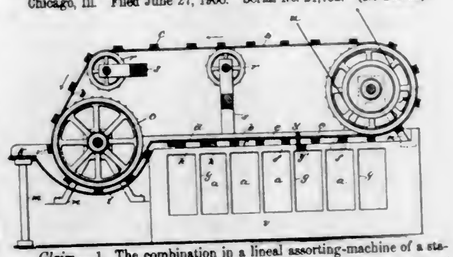
2. In combination, a frame or casing secured to a building, and a counterbalanced movable platform constructed and arranged to be sustained thereby, and a spring-controlled slide and support therefor, separate from the said platform to coöperate with the same.

3. In combination, a frame or casing secured to a building, and a counterbalanced movable platform constructed and arranged to be sustained thereby, and a spring-controlled slide and support therefor, separate from the said platform to coöperate with the same, and means for regulating the downward movement of the said platform.

4. In combination, a frame or casing secured to a building, and a counterbalanced movable platform constructed and arranged to be sustained thereby, the said casing ending a distance above the sidewalk, and a slide and support therefor, to coöperate with the same, constructed and arranged to descend with the said platform to the street, and means for regulating the descent of said platform.

5. A frame or casing secured to a building and provided with a guideway, in combination with a slide constructed and arranged to work in said guideway, and a platform supported by said slide, a counterbalance for said slide, and means in said slide for regulating the downward movement of said platform, and operating means for said regulating means, situated a distance from it, and connected therewith so as to move in unison, and a spring-controlled slide and support for the platform, to coöperate with the same.

663,681. LINEAL ASSORTING-MACHINE. JOHN J. NICHOLS, Chicago, Ill. Filed June 27, 1900. Serial No. 21,752. (No model.)

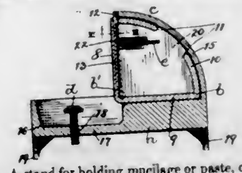


Claim.—1. The combination in a lineal assorting-machine of a stationary platform or table provided with horizontal pockets or openings of any desired lengths, meeting on one common side with a fixed stop or abutment and a continual support, with two or more wheels carrying one or more endless chains or belts of any desired lengths and so arranged in relative position with said platform, as that the chain or belt, when in motion will pass over said platform and sufficiently near it so that the spurs or blocks will come into slight contact therewith, the degree of proximity depending upon the thickness of the material being assorted, which will be moved along and over said platform by and in front of said spurs or blocks under said chain and at the same time be supported at one end by the continual support, and the other end on the platform until deposited in the pockets of its respective lengths, the end opposite the end of its continual support dropping first and the force of gravity thus established drawing the other end from its continual support and the entire piece into the pocket.

2. In a lineal assorting-machine the combination of a gravity-chute having a flexible bottom with two or more wheels carrying one or more endless chains or belts, having spurs or blocks of any desired lengths so arranged in relative position to said flexible bottom that the spurs or blocks when the chain or belt is in motion shall come in slight contact with it at about its lowest point.

3. In a lineal assorting-machine the combination of an adjustable feeder-platform with the flexible bottom of the chute so arranged as to make the mouth or opening of said chute narrower or broader by the adjustment of said table, or feeder-platform.

663,682. STAND FOR HOLDING MUCILAGE OR PASTE. EDWARD S. RAFF, Canton, Ohio. Filed Aug. 27, 1900. Serial No. 28,128. (No model.)



Claim.—1. A stand for holding mucilage or paste, comprising a pivotally-supported receptacle provided with a brush-receiving aperture, a brush-wiper within the receptacle and in suitable proximity to the said

aperture, and an adjustable stop arranged to control the position of the receptacle and thereby regulate the level of any mucilage or paste within the receptacle relative to the brush-wiping edge or surface of the brush-wiper.

2. A stand for holding mucilage or paste, comprising a base, a receptacle pivotally supported from the base and arranged as required to render it capable of being tilted or swung in a vertical plane and provided with a brush-receiving aperture, a brush-wiper arranged within the receptacle and extending into suitable proximity to the aperture, and an adjustable stop arranged to control the position of the receptacle in the receptacle's forwardly-swung position and thereby regulate the depth of the mucilage or paste next adjacent to the wiper.

3. A stand for holding mucilage or paste, comprising a horizontally-arranged base, a receptacle pivotally mounted upon the said base and arranged as required to render it capable of being tilted or swung in a vertical plane, and provided with a brush-receiving aperture, a brush-wiper within the receptacle in suitable proximity to the aperture, and a vertically-adjustable stop arranged forwardly of the axial line of the receptacle below the sweep of the receptacle.

4. A stand for holding mucilage or paste, comprising a base, a receptacle pivotally mounted upon the base and arranged to render it capable of being swung rearwardly and forwardly upon the base, which receptacle has an aperture affording access to the chamber of the receptacle, and a brush-wiper in suitable proximity to the said aperture, an adjustable stop supported from the base forward of the receptacle's axial line and arranged to limit the tilting or swinging of the receptacle in a forward direction, and a hood that is rigid with the base and arranged to receive and cover the receptacle in the receptacle's rearwardly-swung position.

5. A stand for holding mucilage or paste, comprising a base, a receptacle pivotally mounted upon the base as required to render it capable of being swung rearwardly and forwardly upon the base, which receptacle has a generally triangular outline in side elevation and has an aperture affording access to the mucilage-receiving or paste-receiving compartment or chamber of the receptacle and arranged diagonally opposite to the axial line of the receptacle, a brush-wiper arranged within the said compartment or chamber and extending into suitable proximity to the aforesaid aperture, an adjustable stop supported from the base forward of the receptacle's axial line and arranged as required to limit the tilting or swinging of the receptacle in a forward direction, and a hood or cover that is rigid with the base and arranged to closely overhang and cover the apertured wall of the receptacle in the receptacle's rearwardly-swung position.

6. A stand for holding mucilage or paste, comprising a base *a* having the screw-threaded hole 18 and the hood *c;* a set-screw *d* engaging the said hole, and the receptacle *b* pivotally supported from the base, as at *b'*, and provided with the aperture 11, and an internal brush-wiper e, all arranged and operating substantially as shown, for the purpose specified.

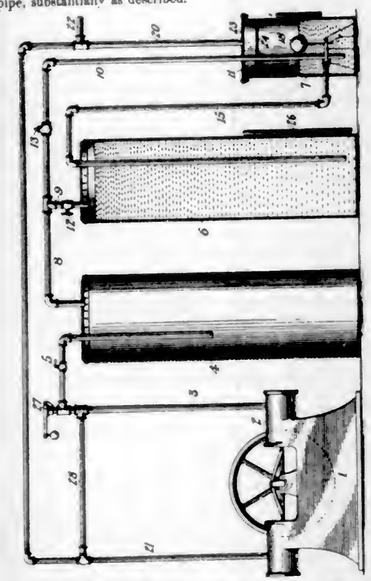
663,683. **CARBURETER.** HENRY W. ROYAL, Baltimore, Md., assignor of one-half to William B. Brown, same place. Filed Apr. 10, 1900. Serial No. 12,352. (No model.)

Claim.—1. In a carbureter, the combination with an air-compressor, of a hydrocarbon-supply tank, a carbureter in communication therewith, a reducing-valve interposed between said tank and carbureter, to enable a lower pressure to be obtained in the carbureter than in the oil-supply tank, and means within the carbureter for maintaining the hydrocarbon at a predetermined level, substantially as described.

2. In a carbureter, the combination with an air-compressor, of a hydrocarbon-tank, a carbureter, an oil-supply pipe leading from the tank to the carbureter, an automatic regulating-valve within the carbureter associated with the oil-supply pipe, and an air-supply pipe communicating with the hydrocarbon-tank and carbureter and having a reducing-valve interposed between the same, to enable a lower pressure to be obtained in the carbureter than in the oil-supply tank, substantially as described.

3. In a carbureter, the combination with an air-compressor, of a hydrocarbon-tank, a carbureter, an oil-supply pipe leading from the hydrocarbon-tank to the carbureter, an automatic regulating-valve within the carbureter associated with the discharge end of said pipe below the oil-level, an air-supply pipe leading from the compressor and having branches leading into the hydrocarbon-tank and carbureter, and a pressure-reducing valve associated with the air-supply pipe between the hydrocarbon-tank and carbureter, to enable a lower pressure to be obtained in the carbureter than in the oil-supply tank, substantially as described.

4. In a carbureter, the combination with an air-compressor, of an air-tank communicating therewith, a hydrocarbon-tank, a carbureter, an air-supply pipe leading from the air-tank to the carbureter and having a branch leading into the hydrocarbon-tank, means for obtaining a lesser pressure in the carbureter than in the hydrocarbon-tank, an oil-supply pipe leading from the hydrocarbon-tank to the carbureter, and an automatic regulating-valve within the carbureter associated with said oil-supply pipe, substantially as described.



5. The combination of a carbureter, an oil-tank, a suitable air-supply leading to the oil-tank and carbureter, and a pressure-regulator in the air-supply intermediate of the carbureter and oil-tank, whereby a lower pressure may be obtained in the carbureter than in the oil-tank, substantially as described.

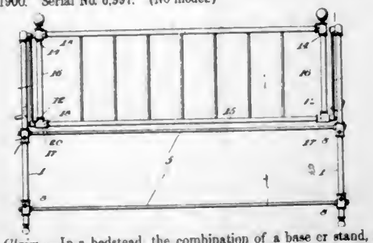
6. The combination of a carbureter, an oil-tank, a suitable air-supply leading to the oil-tank and carbureter, automatic means for regulating the level of oil in the carbureter, and a pressure-regulator in the air-supply intermediate of the carbureter and oil-tank, whereby a lower pressure may be obtained in the carbureter than in the oil-tank, substantially as described.

663,684. **ANTIMOTH-PAPER.** PHINEAS RUDISCH, New York, N. Y. Filed June 18, 1900. Serial No. 20,645. (No model.)



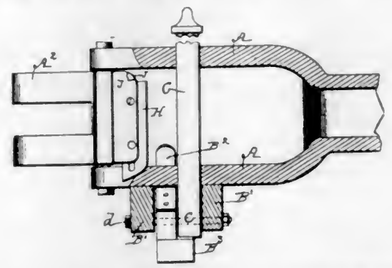
Claim.—Antimoth-paper provided upon one side with a coating of pine-tar, and upon its other side with a coating of pitch, substantially as specified.

663,685. **BEDSTEAD.** GUSTAVUS A. SCHACHT, Cincinnati, Ohio, assignor of one-half to Charles R. Talbott, Newport, Ky. Filed Mar. 1, 1900. Serial No. 6,997. (No model.)



Claim.—In a bedstead, the combination of a base or stand, a bed-frame, links having integral projecting bosses and arranged at the corners of the bed-frame, and headed pivot-screws having shanks passed through the links and screwed into the bed-frame for connecting the links to the bed-frame and to the base or stand, substantially as set forth.

663,686. **AUTOMATIC CAR-COUPLING.** ANTON SCHOLL, Murray, Iowa. Filed Aug. 27, 1900. Serial No. 28,126. (No model.)

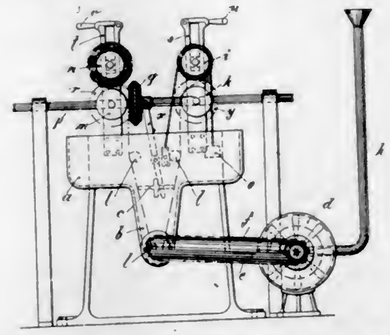


Claim.—1. In a car-coupling, a draw-head having an inclined face on its lower front edge and mouth, a jaw pivoted in said mouth and a straight gravitating latch having an inclined bottom face slidably connected with the inside face of the inner end of the jaw to move in a perpendicular plane, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a car-coupling, a pin-support provided with a shoulder at its lower end adapted to engage the bottom of a coupling-pin and also provided with a laterally-inclined and curved extension at its top adapted to be engaged by the inner end of a jaw, in combination with a draw-head, a jaw pivoted in the draw-head and a coupling-pin fitted in coinciding pin-holes in the top and bottom of the draw-head, to operate in the manner set forth for the purposes stated.

3. An automatic car-coupling comprising a draw-head, a gravitating pin-support pivotally connected with the draw-head and its lower end provided with a shoulder to engage the bottom of a pin and an inclined extension at its top to engage the inner portion of a horizontally-swinging jaw, a coupling-pin extending through coinciding pin-holes in the top and bottom of the draw-head and slidably connected with the pin-support and the lower portion of the coupling-pin bifurcated and the lower portion of its front face beveled, a jaw pivoted in the mouth of the draw-head and a latch having an inclined bottom edge slidably connected with the inside face of the inner end of the jaw to engage the inclined edge of the lower part of the draw-head to retain the jaw open, all arranged and combined to operate in the manner set forth for the purposes stated.

663,687. **APPARATUS FOR DYEING.** LUDWIG SCHREINER, Barmen-Rittershausen, Germany. Filed Aug. 18, 1900. Serial No. 27,334. (No model.)

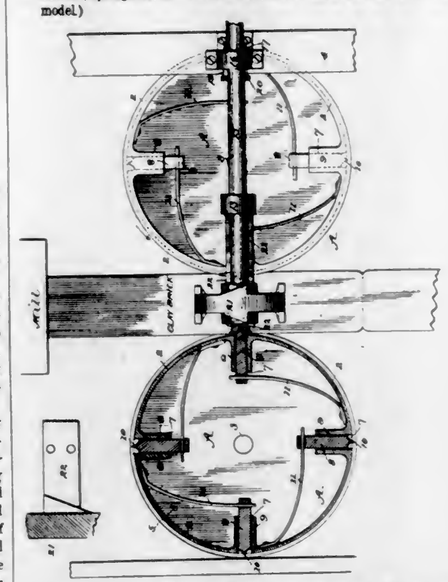


Claim.—1. In a machine for dyeing textile fabrics in the width; the combination of the vat, *a*, *b*, liquid-motor *d*, connecting-tubes *e*, *f*, auxiliary supply-tube *h*, and carrying and guide rollers *i*, *k*, *l*, *m*, *n*; as and for the purposes herein shown and described.

2. In a machine for dyeing textile fabrics, the combination of a dye-vat, means for passing textile fabric in the width through the vat, a liquid-motor outside the vat, connecting-pipes between the motor and vat whereby the dye solution is continuously circulated through the vat and a heating-pipe within the circulation-pipe, substantially as and for the purpose described.

3. In a machine for dyeing textile fabrics in the width, the combination of a dye-vat *a* having a trough-like bottom *b*, with slots in the top of said trough, means for passing goods in the width through said slots and through the dye liquid in the trough, a liquid-motor outside the vat and circulation-pipes between the motor and the trough whereby the dye liquid may be continuously circulated through the trough while the goods are passed through the liquid therein as explained.

663,688. **AUTOMATIC FORMER FOR BRICKS.** RALEIGH H. STALEY, Springfield, Ill. Filed Jan. 25, 1898. Serial No. 667,875. (No model.)



Claim.—1. In a machine for forming or shaping bricks from a continuous bar of clay, the combination with the mill from which said bar is forced out, of a die-wheel arranged to guide the clay bar, and having one or more slots in its periphery, and a die-block adapted to work in such slot, to act on the clay bar, and means for forcing out the die-block at regular intervals, substantially as shown and described.

2. In a machine for forming or shaping bricks from a continuous bar of clay, the combination with the mill from which the said bar is forced out, of die-wheels, arranged diametrically opposite, and at a distance apart corresponding substantially to the thickness of the clay bar, and provided with radial slots, die-blocks adapted to slide in such slots, and shaped to set on the clay bar as specified, and means for automatically forcing out such die-blocks intermittently, as shown and described.

3. In a machine for forming or shaping bricks from a continuous bar of clay, the combination with a rotatable die-wheel, having a radially-slotted periphery, and a series of die-blocks adapted to slide in the radial slots in the periphery of such wheel, and shaped to notch the clay bar on which they act, means for normally retracting the dies, and automatic means for forcing them suddenly and intermittently outward, as the wheel rotates, as shown and described.

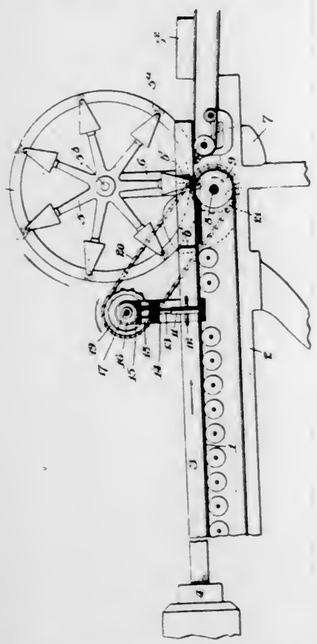
4. In a machine for forming or shaping bricks, the combination with a die-wheel having peripheral guide-slots, of dies arranged to slide therein and having a ribbed face, springs for retracting the dies, wipers or hammers arranged to act on said dies, and spring and cam mechanism for actuating the hammers, suddenly and intermittently, to cause them to give a sudden blow on the dies successively, substantially as shown and described.

5. In a machine for forming or shaping bricks, the combination with a die-wheel having peripheral slots, dies working slidably therein, springs for retracting the dies, cams or hammers adapted to slide horizontally on fixed guides, springs which act on said hammers, to alternately force them apart and allow them to strike sudden blows on the dies, substantially as shown and described.

6. In a machine for forming or shaping bricks, the combination with the rotary die-wheels arranged horizontally opposite each other, dies work-

ing slidably in the peripheries of the same, hammers pendent within the die-wheels and adapted to slide in a straight line toward and from each other, the parallel rod and rotary shaft arranged horizontally, on which said hammers are arranged to slide, spiral springs coiled about said rod and compressed between the hammer and a fixed portion of the frame, and a cam fixed on the rotary shaft, and acting simultaneously on both hammers, as shown and described.

663,689. **DEVICE FOR INDENTING AND SEVERING BARS OF CLAY, &c.** RALEIGH H. STALEY and ALBERT L. CONVERSE, Springfield, Ill.; said Converse assignor to said Staley. Filed Feb. 23, 1900. Serial No. 6,315. (No model.)



Claim.—1. In combination, means for supporting and conveying a bar of clay, suitable indenting mechanism, a suitable cut-off mechanism, said means and mechanisms being relatively arranged and correlated substantially as shown and described, and connections between the same to cause them to work in unison, whereby the said indenting mechanism is caused to make indentations in the bar of clay at predetermined intervals apart, and the cut-off mechanism is caused to sever said bar transversely to the direction of movement thereof on a line coincident with said indentations, substantially as set forth.

2. In combination, an endless belt or carrier adapted to receive thereon a moving bar of clay, cut-off mechanism connected with said carrier adapted to sever the bar of clay transversely into brick lengths, mechanism adapted to form transverse indentations in said bar, and located with relation to said carrier and cut-off mechanism as described, and connections between said carrier and mechanisms adapted to cause the same to work in unison to sever the said bar transversely to the direction of movement thereof on the line of the indentations previously made by the indenting mechanism, substantially as and for the purpose set forth.

3. In combination, an endless belt or carrier adapted to receive a moving bar of clay thereon, cut-off mechanism connected with said carrier adapted to sever the bar of clay transversely into brick lengths, an indenting device consisting of one or more moving bars of suitable form located in advance of said cut-off mechanism and arranged relatively to said carrier and a bar of clay thereon, as shown and described, and connections between said carrier and cut-off mechanism and said indenting device adapted to cause the latter device to rotate in unison with the cut-off mechanism, whereby indentations are made in the moving bar of clay at predetermined intervals, and the said bar is severed transversely on the line of said indentations previously made, substantially as set forth.

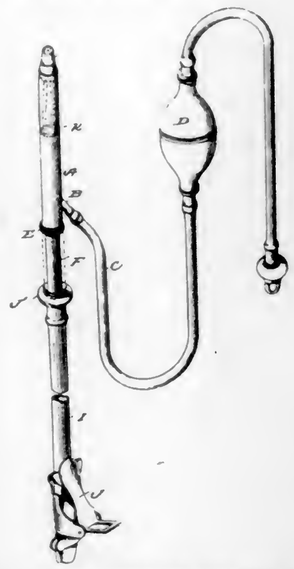
663,690. **PUNCHING-BAG EXERCISER.** ALEXANDER A. WHITELY and WILLIAM A. DUNCAN, New York, N. Y., assignors to Maude L. Whitely, same place. Filed Feb. 19, 1900. Serial No. 5,681. (No model.)



Claim.—1. The combination of a standard having a head, with an inflatable bag and an enveloping covering substantially surrounding the bag and the said head, the enveloping covering having an opening through which the head and bag can be passed with means for detachably securing the covering over said head, the head being provided with an opening and the inflatable bag having a valve-stem passing through said opening, substantially as described.

2. The combination of a standard having a head portion, with an inflatable bag, and an enveloping covering having an opening, through which the head and the bag can be passed, said enveloping covering substantially surrounding the inflatable bag and the said head, with means for detachably securing the edges of the opening of the enveloping covering together across the outer part of the head transversely of the latter.

663,691. **SYRINGE.** ROBERT N. BARGER, Hopedale, Ill. Filed Mar. 24, 1900. Serial No. 10,069. (No model.)



Claim.—1. In combination with an outer tube provided with a lateral nipple B, and a closing-ring E, an internal drainage-tube of smaller diameter than the outer tube and provided at the lower end with means for connection with a drainage-tube, and at the upper end with a ring bushing and upwardly-extended conduit-tubes communicating with the space between the inner and outer tubes and terminating at the upper end in a perforated head and nipple, the inner tube adapted to reciprocate within the outer tube, an injection-tube connected with the nipple, B, and a drainage-tube I, connected with the lower end of the inner tube, substantially as and for the purposes set forth.

2. In combination with the outer tube A, and inner tube F, of different diameters to constitute an annular chamber G, the ring bushing K, tubes L, communicating with the space G, and terminating at the upper

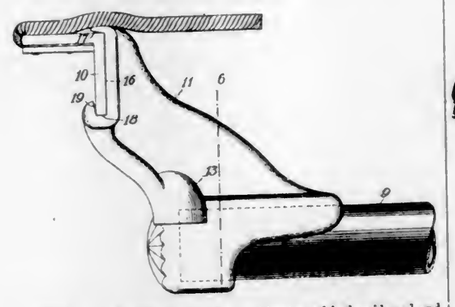
ends in a hollow perforated head N, provided with a removable nipple O, adapted to close and protect the upper end of the outer tube H, substantially as shown and described.

3. In combination with the outer tube A provided with the injection-nipple B, and closing-ring E, the inner tube F, provided with drainage-tube I, at the lower end and conduit-tubes L, terminating in a head N, and nipple O, and provided with a ring bushing K, having channels S, substantially as and for the purpose set forth.

4. In combination with the outer tube A, and inner tube F, provided at its upper end with radial orifices T, arranged with an annular space G between them, means for injecting fluid into the space G, whereby fluid injected into the space G, may escape within the upper end of the inner tube F to cleanse the same substantially as hereinbefore set forth.

5. In combination with an outer tube A provided with a laterally-projecting injection-nipple, an inner telescopic drainage-tube of smaller diameter than the outer tube and provided at its upper end with a nipple adapted to open and close the upper end of the outer tube substantially as and for the purposes set forth.

663,692. **BED-BOTTOM.** GEORGE BRAND, New York, N. Y. Filed Jan. 16, 1900. Serial No. 1,603. (No model.)



Claim.—1. In a bed-bottom the combination with the side rod and the spring fabric, of corner-pieces secured to the side rods and provided with wedging-jaws, and the end pieces between which the fabric is stretched located in said jaws, the fabric serving alone to hold said end pieces in place in the jaws and said end pieces having a free longitudinal movement in said jaws, for the purpose set forth.

2. A corner-piece for a bed-bottom having a wedging-jaw on its rearward side for the reception of an end piece of the bed-bottom, said jaw being formed by a vertical wall, a wall along the upper edge oblique thereto, a foot-wall along the lower edge of the vertical wall and a wall along the outer edge of the foot-wall oblique to the vertical wall, whereby a plate or bar may be wedged snugly in place between said walls.

663,693. **SEAL.** FRANKLIN W. BROOKS, Washington, D. C., assignor to the Grant Manufacturing Company, of Virginia. Filed Oct. 2, 1900. Serial No. 31,737. (No model.)



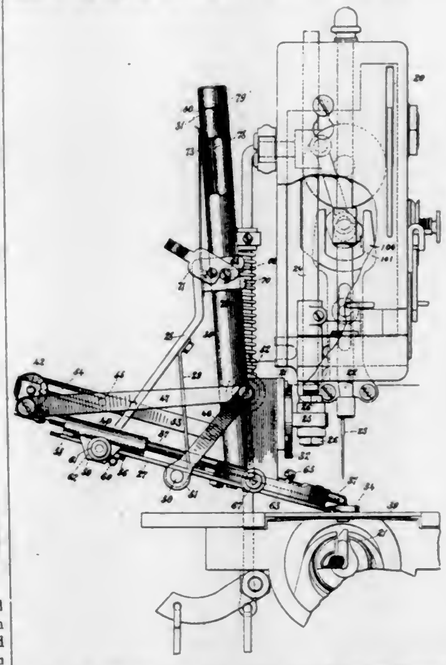
Claim.—1. An improved seal comprising a flexible sheet-metal shackle provided at each end with a hole or passage-way, an exterior wall or collar surrounding the hole or passage-way a predetermined distance therefrom and with its free edge extended above the plane of the hole or passage-way and adapted to be bent inwardly, and a soft-metal rivet adapted to have its periphery when compressed confined within the collar and its central area exposed substantially as set forth.

2. In a seal, the shackle composed of flexible sheet metal provided at each end with a rivet-hole or passage-way surrounded by a collar having its free edge extended beyond the plane of the hole or passage-way, and adapted to confine and partially conceal a soft-metal rivet, substantially as and for the purpose set forth.

3. In a seal of the character described, the sheet-metal strip or shackle formed with passage-ways at each end and a surrounding collar having its wall inclined inwardly, as and for the purpose set forth.

663,694. **MACHINE FOR SEWING ON FLAT BUTTONS.** FRANKLIN H. CHILTON, New York, N. Y. Filed Nov. 18, 1899. Serial No. 737,386. (No model.)

Claim.—1. A button-holding attachment for machines for sewing on flat vertically-apertured buttons, said attachment comprising the magazine or holder for holding a number or column of the buttons, and means within said magazine for engaging and preserving the holes of the buttons in proper alinement, combined with movable clamping-jaws for grasping the buttons, one after another, at their side edges at the said magazine and moving the same to the point of sewing and there holding them, and means for operating said clamping-jaws; substantially as set forth.



2. The base-plate, the substantially horizontally disposed clamping-jaws for holding the flat buttons at their side edges, and means for moving said jaws between the source of button-supply and the point at which the buttons are to be sewed upon the fabric, combined with means for supplying the flat vertically-apertured buttons to said clamping-jaws when the latter are in their receded position, springs for yieldingly pressing said jaws against the side edges of the buttons at the point of button-supply, and springs for exerting a yielding pressure against said jaws when the latter are in their forward position so that they may firmly hold the buttons with their apertures in vertical plane while they are being sewed; substantially as set forth.

3. The button holder or magazine for holding a number or column of flat buttons, and means within said magazine for guiding the buttons and entering the eyes or holes thereof so that the eyes or holes of said column of buttons are kept in proper alinement, combined with the clamping-jaws for removing the buttons, one after another, from said holder and delivering them at the point at which said buttons are to be sewed upon the fabric, means for actuating said clamps to travel between said button-holder and said fabric, and springs for exerting a yielding pressure against said jaws to cause them to yieldingly but firmly grasp and hold the buttons; substantially as set forth.

4. The button-holder adapted to contain a number of the buttons, said holder being open at the opposite sides of its discharge end and being provided at said end with a retaining-finger for the buttons, combined with the clamping-jaws for grasping the buttons, one after another, at said holder and removing them to the point of sewing, means for imparting to said clamping-jaws their movement from said holder to said point of sewing, and means for pressing said clamping-jaws against the opposite edges of the button so that it may remove the same from said holder and then hold the same during the sewing operation; substantially as set forth.

5. The button-holder adapted to contain a number of the buttons, and the guide-rods within said holder and passing through the holes of the buttons, said rods being free at their lower ends to permit of the escape of the buttons, one after another, combined with the clamping-jaws for removing the buttons from the lower end of said holder and delivering the same at the point of sewing, means for imparting to said clamping-jaws their movement from said holder to said point of sewing, and

means for yieldingly pressing said clamping-jaws toward one another so as to effect the proper binding action of said jaws upon the opposite edges of the buttons; substantially as set forth.

6. The base-plate, the button-holder pivotally supported above the same and adapted to yield forward slightly at its lower end, the spring normally serving to maintain said holder in its normal position, and the spring-support for the buttons at the lower open end of the said holder, combined with the clamping-jaws for moving the buttons, one after another, from the lower end of the said holder to the point of sewing, means for actuating said jaws to perform their movement, and means yieldingly pressing said jaws toward one another so as to effect their proper binding action upon the buttons; substantially as set forth.

7. The base-plate, the button-holder detachably secured above said plate and adapted to contain a number of the buttons and permit the escape of the same, one after another, at its lower end, and means for keeping said buttons in proper alinement, combined with the clamping-jaws for removing said buttons, one after another, from said holder and delivering the same to the point of sewing, means for actuating said jaws to perform their movement from said holder to said point of sewing, and means for pressing said jaws against the buttons so that the latter may be firmly held both during transit and while being subjected to the sewing operation; substantially as set forth.

8. The button-holder adapted to contain a number or column of the flat vertically-apertured buttons and permit their escape, one after another, from its lower end, combined with the clamping-jaws, means for moving said jaws from the lower end of said holder to the point of sewing, and springs for yieldingly pressing said jaws toward one another so that when said jaws pass upon the button exposed at the lower end of said holder they will grip the opposite side edges of same and on their forward movement will carry the same to the point of sewing and there hold it during the sewing operation; substantially as set forth.

9. The button-holder adapted to contain a number or column of flat vertically-apertured buttons and permit of their removal, one after another, combined with the substantially horizontal clamping-jaws recessed on their facing edges to grasp the opposite side edges of the buttons, means for moving said jaws against the side edges of the individual buttons in said holder and then forward to the point of sewing, and springs for yieldingly pressing said jaws against the buttons; substantially as set forth.

10. A button-holding attachment for machines for sewing on flat vertically-apertured buttons, said attachment comprising the magazine or holder for holding a number or column of the buttons, and means for engaging the apertures in said buttons to present said buttons with their apertures in proper alinement, combined with means for taking the buttons, one after another, at the said magazine and moving the same to the point of sewing and there holding them during the sewing operation; substantially as set forth.

11. A button-holding attachment for machines for sewing on buttons, said attachment comprising the base-plate, the two rods upon which the buttons may be strung and permitted to descend toward said base-plate, and means for supporting said rods, combined with means for removing the buttons, one after another, from the lower end of said rods and delivering them to the point of sewing; substantially as set forth.

12. The base-plate, the magazine for the buttons, and the guide-rod supported therein and upon which rod the buttons may be strung and permitted to descend toward said base-plate, combined with means for removing the buttons, one after another, from the lower end of said magazine and rod and delivering them to the point of sewing; substantially as set forth.

13. The base-plate, and the tubular frame or holder for the buttons, and the guide-rods within said holder and upon which the buttons may be strung and descend by gravity toward said plate, combined with the clamping-jaws to take the buttons, one after another, from said rods and deliver them to the point of sewing, means for yieldingly pressing said jaws toward one another so that they may firmly hold the buttons, and means for moving said jaws intermediate said rods and said point of sewing; substantially as set forth.

14. The clamping-jaws for grasping the opposite side edges of the flat vertically-apertured buttons and moving them from the point of button-supply to the point of sewing, and means for moving said jaws intermediate said points, combined with means for feeding the flat buttons with their apertures in vertical plane to a point at which said jaws may pass upon their side edges and grasp them, and means engaging the vertical eyes of said buttons for keeping said eyes in proper alinement until they are taken by said jaws; substantially as set forth.

15. In an attachment for machines for sewing on flat vertically-apertured buttons, the clamping-jaws for holding at their side edges the individual buttons while they are subjected to the sewing operation, combined with means entering the vertical eyes of said buttons for delivering the buttons with their eyes or holes in proper alinement to a position where they may be grasped by said jaws; substantially as set forth.

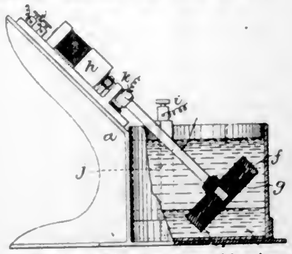
16. The base-plate, the button holder or magazine having the trunnions, the frame having the slots to receive said trunnions and afford a bearing for the same, the hooks to removably hold said trunnions, and means for guiding the buttons on their passage through said holder, combined with the clamping-jaws for grasping the buttons and removing them from the lower end of said holder to the point of sewing, and means for operating said jaws; substantially as set forth.

17. In an attachment for machines for sewing on flat vertically-apertured buttons, the clamping-jaws for holding at their side edges the individual buttons while they are subjected to the sewing operation, combined with means entering the vertical eyes of said buttons for delivering the buttons with their eyes or holes in proper alinement to a position where they may be grasped by said jaws, springs for yieldingly pressing said jaws toward one another, and means for positively limiting the movement toward one another of said jaws; substantially as set forth.

18. The base-plate, the plates 58 thereon and having the sleeves 40, the spring connecting said plates 58, the rods 37 passing through said sleeves, the clamping-jaws 34 connected with the front ends of the said rods 37, the screw 42 at the rear of said base-plate and having the followers 41 to which said rods 37 are pivotally secured, the rod 44 connected with said followers, and lever mechanism connected with said rod 44 for imparting a sliding movement to said rods 37, combined with the button-holder supported above the said base-plate and adapted to contain a number of buttons and permit the withdrawal, one after another, of the same, and the presser-arms 63 pivotally secured to said base-plate and connected by a spring, the forward ends of the said presser-arms being adapted to engage the forward portion of the rods 37 and maintain the grip of said jaws upon the button during the sewing operation; substantially as set forth.

19. The base-plate, the pivotally-mounted rods 37 adapted to have a sliding movement thereon, the clamping-jaws carried at the front ends of the said arms, and means for moving said rods and jaws between the point of the button-supply and the point of sewing, combined with the presser-arms 63 adapted to engage the forward portions of said rods 37, the spring connecting said presser-arms and causing them to yieldingly press against said rods 37, and the button-holder adapted to contain a number of the buttons and permit the withdrawal of the same, one after another, by said jaws; substantially as set forth.

663,695. ELECTRICAL INTERRUPTER. JAMES M. DAVIDSON, London, England. Filed June 7, 1900. Serial No. 19,461. (No model.)



Claim.—1. An electrical interrupter comprising, in combination, a tank, a fluid conductor and a fluid dielectric in said tank, one or more contacts completely immersed in said fluids, an inclined shaft carrying said contacts, and means to rotate said shaft.

2. An electrical interrupter comprising, in combination, a tank, a fluid conductor and a fluid dielectric in said tank, a disk of insulating material and contacts carried thereby completely immersed in said fluids, an inclined shaft carrying said disk and its contacts, and means to rotate said shaft.

663,696. CIRCULARLY-MOVING-HOOK SEWING-MACHINE. PHILIP DIEHL and ALFRED GRIEB, Elizabeth, N. J., assignors to The Singer Manufacturing Company, of New Jersey. Filed Apr. 9, 1900. Serial No. 12,215. (No model.)



Claim.—1. In a sewing-machine, the combination with a curved, circularly-moving and horizontally-disposed loop-taker provided with an interior loop-seizing beak or hook, of a thread-case peripherally supported by said loop-taker, a holder for restraining said case from moving with said loop-taker, a vertically-disposed needle arranged to descend inside of the circular path of movement of said loop-taker, and means for operating said needle and loop-taker.

2. In a sewing-machine, the combination with a curved, circularly-moving and horizontally-disposed loop-taker provided with an interior loop-seizing beak or hook, of a thread-case peripherally supported by said loop-taker, a holder for restraining said case from moving with said loop-taker, said holder having one or more yielding contact parts to be engaged by said thread-case, a vertically-disposed needle arranged to descend inside of the circular path of movement of said loop-taker, and means for operating said needle and loop-taker.

3. In a sewing-machine, the combination with a curved, circularly-moving and horizontally-disposed loop-taker provided with an interior rib or flange having a loop-seizing beak or hook, of a thread-case peripherally supported by said loop-taker by a rib-and-groove connection, a holder for restraining said case from moving with said loop-taker, a vertically-disposed needle arranged to descend inside of the circular path of movement of said loop-taker, and means for operating said needle and loop-taker.

4. In a sewing-machine, the combination with a curved, circularly-moving and horizontally-disposed loop-taker provided with an interior rib or flange having an inwardly-pointing loop-seizing beak or hook, of a thread-case located eccentric to the axis of and peripherally supported by said loop-taker, a holder for restraining said case from moving with said loop-taker, a vertically-disposed needle arranged to descend inside of the circular path of movement of said loop-taker and means for operating said needle and loop-taker.

5. In a sewing-machine, the combination with a curved, circularly-moving and horizontally-disposed loop-taker provided with an interior rib or flange having an inwardly-pointing loop-seizing beak or hook, of a thread-case located eccentric to the axis of and peripherally supported by said loop-taker by a rib-and-groove connection, a holder for restraining said case from moving with said loop-taker, a vertically-disposed needle arranged to descend inside of the circular path of movement of said loop-taker, and means for operating said needle and loop-taker.

6. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a circularly-moving loop-taker provided with an interior loop-seizing beak or hook, a thread-case located eccentric to the axis of the said loop-taker and peripherally supported by said loop-taker on that side of the axis of the latter toward which the loops of needle-thread are first carried by said beak, means for imparting circular movements to said loop-taker, and a holder for restraining the said case from moving with said hook as the latter travels about said case.

7. In a sewing-machine the combination with a vertically-reciprocating needle and its operating mechanism, of a circularly-moving loop-taker provided with an interior loop-seizing beak or hook, a thread-case located eccentric to the axis of the said loop-taker and peripherally supported thereby by a rib-and-groove connection, means for operating said loop-taker, and a holder for restraining the said case from moving with said hook as the latter travels about said case.

8. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a horizontally-disposed hook-ring provided with an interior loop-seizing beak or hook, and having a loop-carrying throat outside of said beak or hook, a thread-case peripherally supported by said hook-ring, means for imparting a circular movement to said hook-ring, and a holder for restraining the said case from moving with said hook-ring as the latter travels about said case.

9. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a horizontally-disposed hook-ring provided with an interior loop-seizing beak or hook and having a loop-carrying throat outside of said beak or hook, a thread-case peripherally supported by said hook-ring, by a rib-and-groove connection, means for imparting circular movements to said hook-ring, and a holder for restraining the said case from moving with said hook-ring as the latter travels about said case.

10. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a circularly-moving hook-ring provided with an interior loop-seizing beak or hook, a thread-case located eccentric to the axis of movement of said hook-ring and peripherally supported thereby, means for operating said hook-ring, and a holder for restraining the said case from moving with said hook as the latter travels about said case.

11. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a circularly-moving hook-ring provided with an interior loop-seizing beak or hook, a thread-case located eccentric to the axis of movement of said hook-ring and peripherally supported thereby by a rib-and-groove connection which is less than half a circle in extent, means for operating said hook-ring and a holder for restraining the said case from moving with said hook as the latter travels about said case.

12. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a horizontally-placed, circularly-moving hook provided with an interior loop-seizing beak, said needle descending within the circular path of movement of said hook, a thread-case within and supported by said hook, means for operating said hook, and a holder, also located within said hook and serving to restrain the said case from moving with said hook as the latter travels about said case.

13. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a horizontally-placed, circularly-moving hook provided with an interior loop-seizing beak, said needle descending within the circular path of movement of said hook, a thread-case within and supported by said hook by a rib-and-groove connection, and a holder, also located within said hook and serving to restrain the said case from moving within said hook as the latter travels about said case.

14. In a sewing-machine, the combination with a vertically-reciprocating needle and its operating mechanism, of a horizontally-disposed, circularly-moving loop-taker provided with a beak or hook, means for operating said loop-taker, a thread-case within said loop-taker and provided with a bobbin, and a stationary thread-case holder provided with a bobbin-lifting lever or ejector extending horizontally beneath the bobbin of said thread-case.

663,697. BRUSH. WILLIAM GANO, Springfield, Ohio. Filed Sept. 24, 1900. Serial No. 30,920. (No model.)



Claim.—1. In a device of the character described, the combination with the casing having upwardly and inwardly inclined shelves at its front and rear ends and provided with carry-teeth on the lower edges of said ends, of a rotary brush extending between the sides of the casing, brackets projecting from the rear end of the casing, a driving-wheel mounted in said brackets, and gearing connecting said driving-wheel with the rotary brush.

2. In a device of the character set forth, the combination with the casing having a series of openings in one side and provided at the opposite side with a bracket having a series of notches, of a brush having its axle adapted to engage the said openings and notches, a driving-wheel carried by the rear end of the casing, and gearing connecting said driving-wheel with the brush.

663,698. ELECTRIC-ARC LAMP. JOSEF H. HALLBERG, Peabody, Mass., assignor to the Standard Thermometer and Electric Company, same place. Filed July 16, 1898. Serial No. 686,108. (No model.)

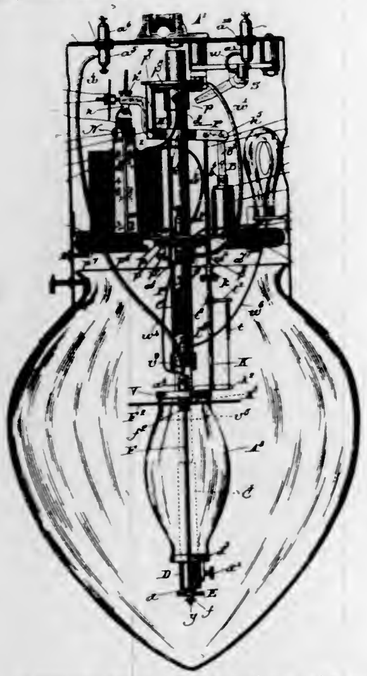
Claim.—1. The combination with a lamp of the class described, its cover-top and terminals, of a six-pole double-knife switch mounted on said top and having its middle pair of poles connected respectively with said lamp-terminals, its pair of poles at one end adapted to receive the leads of a circuit bearing the alternating current, and its other pair of end poles adapted to receive, one pole a lead of a circuit bearing the direct current, and the other pole a flexible conductor provided near its free end with a clamp, and adapted to serve as the movable member of a rheostat which includes a coil of bare resistance-wire, mounted on knob-insulators extended above said cover-top, and presenting its convolutions in position to be grasped by said conductor-clamp, at different points.

2. A vibration-absorbing support for the magnets of electric-arc lamps, comprising a shelf upon which said magnet is seated; and a clamp having a broad base traversing said shelf on the side opposite said magnet, said clamp being provided with risers extended from said base along said magnet lengthwise and with retaining-arms to hold the other end of said magnet.

3. A vibration-absorbing support for the magnets of electric-arc lamps, comprising a shelf upon which said magnet is seated; and a clamp having a broad base traversing said shelf on the side opposite said magnet, said clamp being provided with risers extended from said base along said magnet lengthwise and with retaining-arms to hold the other end of said magnet, and fastening means intermediate said arms and clamp.

4. A vibration-absorbing support for the magnets of electric-arc lamps, comprising a shelf upon which said magnet is seated; and a clamp having a broad base traversing said shelf on the side opposite said magnet, said clamp being provided with risers extended from said base along said mag-

net, said shelf and base being apertured opposite the central bore of said magnet to promote ventilation.



5. An electric-arc lamp having a cylindrical cover and means to suspend the same; a frame comprising a central post having a shelf provided with an annular member; means intermediate said cover and member to enable said cover to sustain said frame; and a springy or cushioned medium intermediate said member and sustaining means.

6. A rider or contact member for the carbons of arc-lamps comprising a cylindrical tube adapted to be seated upon the upper end of said carbon, and provided with current-collecting devices, and means tending normally to press said devices outwardly from the walls of said rider.

7. A rider or contact member of the class described having current-collecting devices comprising springs secured to the inner walls of said cylinder and tending normally to present current-collecting surfaces beyond the outer walls of said tube.

8. A rider or contact member of the class described having current-collecting devices comprising springs secured to the inner walls of said cylinder and tending normally to present current-collecting surfaces beyond the outer walls of said tube, said springs being bent back upon themselves from said collecting-surfaces, opposite and in contact with each other and serving mutually each to augment the resiliency of the other and coöperating to conduct the current to the rider.

9. The combination with the clutch-rod of an arc-lamp and a clutch of the pivoted ring type, of a tension-spring interposed between an arm extended from the clutch-ring beyond its pivot, and a point of support on the clutch-rod, said spring being adapted to take up vibrations of the lamp-frame and prevent their transmission to said clutch and carbon.

10. The combination with the clutch-rod of an arc-lamp and a clutch of the pivoted ring type, of a tension-spring interposed between an arm extended from the clutch-ring beyond its pivot and a point of support on the clutch-rod, said spring being adapted to take up vibrations of the lamp-frame and prevent their transmission to said clutch and carbon; said support being adjustable on said rod to permit said adjustment of said spring.

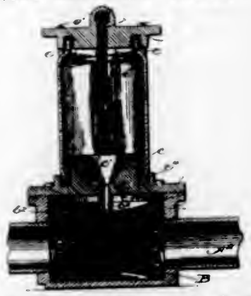
11. The combination with the carbon-controlling mechanism, of an arc-lamp, of a dash-pot comprising a stationary plunger provided with air-packing grooves; a cylindrical shell fitting snugly on said plunger, and having vents in its closed end; and a washer and coöperating weight adapted to permit ready assembly of said shell and plunger telescopically and consequent approach of the carbons, but to close said vents and impede separation of shell and plunger, and consequently of the carbons.

12. In an arc-lamp, a head or member of the class described; having a central aperture to permit passage of the upper carbon, a crown portion with an upper attaching-aperture and transverse trimming-passage, said head being adapted to receive hangers or supporting means for the lower carbon.

13. A head or member of the class described provided with a downwardly-extended boss arranged coaxially with respect to the central carbon-aperture; combined with a ring, larger in diameter than said boss, and presenting toward the arc an annular disk of lava or other suitable insulating and refractory material, and adapted to form, with said ring and boss, a gas-chamber, surrounding the upper carbon.

14. The combination with an arc-lamp having a head V and a cover provided with a view-opening, of an incandescent lamp situated adjacent and visible through said view-opening, an adjustable contact member adjacent the path of the upper carbon in said head, and connections between said adjustable contact member, said incandescent lamp and the leads of said arc-lamp to enable said incandescent lamp to be energized upon the attainment by said carbon of a predetermined position, substantially as described.

663,699. CARBURETER. CHARLES E. LATHAM, Stonington, Conn. Filed May 29, 1900. Serial No. 18,370. (No model.)



Claim.—1. In a device of the nature indicated, a casing provided with an open-top chamber and having inlet and outlet openings for air, a vaporizing member of absorbent material adapted to be bodily inserted into and removed from said chamber through the said top, a plate detachably secured to said casing and extending across said opening, said plate having an enlarged portion upon its upper side and a teat upon its lower side, a drip-cup being formed in said enlarged portion and communicating with a channel through said teat, a flange surrounding said enlarged portion, a glass shell having its lower end fitting in the groove between said enlarged portion and the said flange, a top plate fitting upon the upper end of said shell and having a channel therethrough, an enlargement upon the upper side of said top plate and having therein a channel communicating with the channel through said plate, one end of the channel in the said enlargement being open while its other end is closed, a drip-tube attached to said top plate and communicating with the channel therethrough, said tube emptying into the said drip-cup and having its end removed therefrom, whereby a sight-feed is permitted, and means detachably securing the said top plate to the plate covering the chamber in the casing; substantially as described.

2. A vaporizing member for devices of the nature indicated comprising a series of disks of absorbent material and a series of reticulated plates, said disks and plates being adjacent each other and being alternately arranged; substantially as described

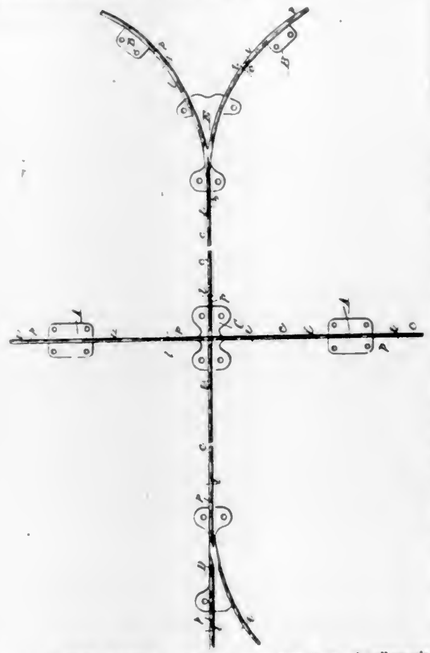
3. In a vaporizing member for devices of the nature indicated, two disks of absorbent material, and two reticulated plates interposed between said disks, said plates being bent away from each other whereby said disks are held spaced apart; substantially as described.

4. In a vaporizing member for devices of the nature indicated, two disks of absorbent material, and an interposed spacing-disk, said latter disk comprising a reticulated plate bent upon itself to present two plates between the absorbent disks, the connecting portion of said plates serving to hold them spaced from each other; substantially as described.

5. A vaporizing member for devices of the nature indicated comprising alternate disks of absorbent material and reticulated spacing-disks, said spacing-disks being formed of reticulated plates bent upon themselves to produce two plates between neighboring absorbent disks, the plates of a spacing-disk being bent away from each other and the folded points of the spacing-disks being out of line with one another; substantially as described.

663,700. OVERHEAD-TROLLEY SYSTEM. CHARLES L. LEIBY, Knoxville, Tenn., assignor, by direct and mesne assignments, to the Leiby Company, same place. Filed Dec. 5, 1898. Renewed Oct. 18, 1900. Serial No. 33,513. (No model.)

Claim.—1. An overhead system of trolley-conductors consisting of the usual trolley-wires and metal supports, said metal supports being formed with points to which said wires may be welded, and said wires having their ends welded thereto, whereby a smooth joint and a continuous conductor are secured, substantially as set forth.



2. A trolley system of conductors, comprising the usual trolley-wires and various supports, said supports being cast with ribs and solid projections, *p*, in the form of the trolley-wires, and said trolley-wires welded thereto, substantially as set forth.

663,701. MANUFACTURE OF OPEN-HEARTH STEEL. AMBROSE MONELL, Pittsburg, and REES JAMES, Munhall, Pa., assignors to the Carnegie Steel Company, Pittsburg, Pa. Filed June 18, 1900. Serial No. 20,648. (No specimens.)

Claim.—1. The method herein described of making steel, which consists in introducing into a basic open-hearth furnace mill cinder or scale and lime and molten pig-iron, substantially dephosphorizing the iron while the iron is at a comparatively low temperature, and at an early period of the operation of decarbonizing, without withdrawing the metal, withdrawing from the furnace the bulk of the slag containing the phosphorus eliminated from the metal, and heating the bath of metal and oxidizing the carbon until the carbon has been reduced to the point at which the metal is to be tapped; substantially as described.

2. The method herein described of making steel, which consists in introducing into a basic open-hearth furnace mill cinder or scale and lime, melting the cinder or scale, introducing molten pig-iron, substantially dephosphorizing the same while the iron is at a comparatively low temperature, and at an early period of the operation of decarbonizing, without withdrawing the metal, withdrawing from the furnace the bulk of the slag containing the phosphorus eliminated from the metal, and heating the bath of metal and oxidizing the carbon until the carbon has been reduced to the point at which the metal is to be tapped; substantially as described.

663,702. SPRING-FRAME FOR VEHICLES. FRANK R. PARKER, Penacook, N. H. Filed Feb. 6, 1900. Serial No. 4,199. (No model.)

Claim.—1. A yielding frame for automobiles consisting of, wheel-axles, a pair of sleeves loosely mounted upon each axle, a pair of longitudinally-disposed springs having their ends rigidly secured to said sleeves, and a transverse frame connecting the central portions of said springs for supporting the body of the automobile.

2. A yielding frame for automobiles consisting of, wheel-axles, a pair of sleeves loosely mounted upon said axles, a pair of longitudinally-disposed springs having their ends rigidly secured to said sleeves, and a transverse trussed frame pivotally connected to the central portions of said springs for supporting the body of the automobile.



3. A spring-frame for automobiles in which longitudinal side springs form the direct and only connection between the axles, means whereby said axles may revolve within the couplings for said springs, said means consisting of sleeves loosely mounted upon said axles and provided with flanged plates to which an end of either spring may be fitted and firmly secured.

4. In a motor-vehicle, means for automatically taking up the slack in the driving-chain, said means comprising a spring-frame upon which the driving mechanism and the axles are mounted, whereby said axles spread apart when the carriage is loaded thus lowering the crank-shaft of the motor in accordance with the outward movement of the driving-axle and load of said vehicle.

5. A spring-frame for automobiles in which longitudinal side springs form the direct and only connection between the axles, means for loosely coupling the springs to the axles, said means comprising a pair of perforated ears at the ends of each spring, sleeves loosely fitting said axles, each sleeve being provided with a horizontally-disposed flanged plate, a slot formed in the opposite flanges of said plate for the reception of the ears of the springs, and a bolt passing through the ears and coupling, substantially for the purpose set forth.

6. In a yielding frame for automobiles, means whereby the distance between the axles increases with the increased load thus avoiding any slack in the driving-chain, said means consisting of a pair of axles, a pair of longitudinal springs having their ends rigidly connected each to one of a pair of sleeves loosely mounted upon either axle, and a transverse trussed frame supporting the motor and body of the vehicle and pivotally attached to the central portions of said springs in a manner to maintain said springs in a parallel position.

663,703. SPRING-FRAME FOR AUTOMOBILES. FRANK R. PARKER, Penacook, N. H. Filed Mar. 28, 1900. Serial No. 10,435. (No model.)



Claim.—1. A yielding frame for automobiles comprising, a pair of transverse trussed frames adapted to carry the axles, and provided each with a pair of horizontally-disposed reaches or sockets, suitable springs for connecting said trussed frames with the vehicle-body, and a pair of wooden bars extending from one to the other and rigidly connected to the reaches or sockets of said trussed frames.

2. A yielding frame for automobiles comprising, a pair of transverse trussed frames adapted to carry the axles, suitable springs for connecting said trussed frames to the vehicle-body, a pair of wooden side bars extending from one to the other and rigidly connected to said trussed frames, and stay rods or braces adapted to maintain said wooden side bars at a right angle with said trussed frames.

3. A frame for automobiles comprising, a pair of transverse trussed axle-supports provided each with a pair of horizontally-disposed tubular reaches or sockets securely brazed thereto, stay rods or braces adapted to maintain said horizontally-disposed sockets at a right angle with said trussed axle-supports, side bars formed of some suitable wood and having their ends secured by rivets within said horizontal sockets, and suitable springs connecting said trussed axle-supports and said axle-supports with the vehicle-body.

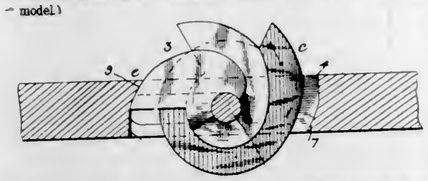
4. In a trussed axle-support for automobiles comprising straight and arched tubes, a centrally-disposed vertically-elongated yoke made in form

of an oblong ring and to which all the tubes comprising the truss are securely brazed.

5. In a frame for automobiles, a pair of transverse trussed axle-supports composed wholly of metal and provided each with a pair of reaches or sockets each pair projecting toward the other pair, and longitudinal connections for said axle-supports composed wholly of some tough wood, and secured within said sockets, substantially for the purpose set forth.

6. In a frame for automobiles, a pair of transverse axle-supports composed wholly of metal and provided each with a pair of horizontally-disposed reaches or sockets, a pair of longitudinally-disposed bars composed wholly of wood and adapted to enter the reaches or sockets of either trussed axle-support, and suitable rivets for securing said bars to said sockets.

663,704. CAM FOR OPERATING MACHINERY. HENRY J. SCHMICK, Hamburg, Pa. Filed Nov. 22, 1899. Serial No. 737,928. (No model.)



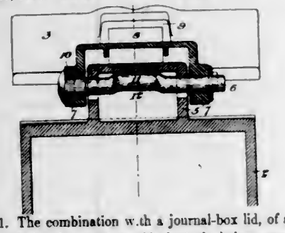
Claim.—1. A cam; in combination with a movable member having a face with which the cam engages throughout its throw, and a projection adjacent to said face with which the cam engages after passing the face, whereby the stroke of the movable member is in excess of the throw of the cam.

2. A cam having a plurality of working sections in different vertical planes and the working surfaces of each section beginning and ending at points which are in different radial planes from the points in which the working surfaces of the other sections begin and end; in combination with a movable member having a plurality of projections in different vertical planes and with which the working surfaces of the sections of the cam engage.

3. A cam having a plurality of working sections in different vertical planes and the working surface of each section beginning and ending at points which are in different radial planes from the points in which the working surfaces of the other sections begin and end; in combination with a movable member having initial faces and projections adjacent thereto with which the working surfaces of the sections of the cam engage, and by which the stroke of the movable member is in excess of the throw of the cam.

4. The combination with a member having cam-shaped bearings, of a cam for moving said member, said cam being composed of a series of elements in parallel planes and the working surfaces of said elements being arranged to act consecutively to gradually advance the member, as set forth.

663,705. AXLE-BOX LID. JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed Feb. 19, 1900. Serial No. 5,696. (Model.)



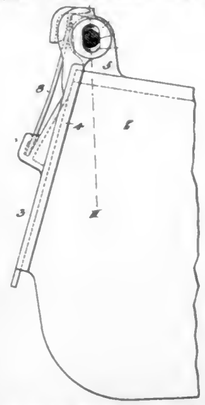
Claim.—1. The combination with a journal-box lid, of a pivot-pin having an eccentric bearing portion said pivot-pin being connected with the lid and adapted to turn therewith; substantially as described.

2. The combination with a journal-box lid, of a pivot-pin having an eccentric bearing portion said pivot-pin being connected with the lid and adapted to turn therewith, and a box-lug having an extended bearing-surface with which such eccentric bearing portion may engage; substantially as described.

3. A journal-box having a swinging lid, said lid, in addition to its swinging motion, being movable at its axis toward the plane of the face of the box, and means adapted to permit such movement when the lid is being closed; substantially as described.

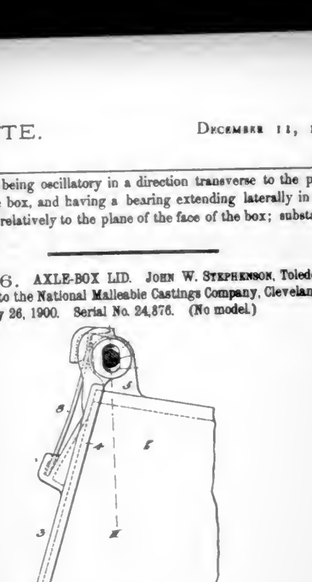
4. A journal-box having a swinging lid, a spring, and a pivot-pin, said pivot-pin being oscillatory in a direction transverse to the plane of the face of the box, and having a bearing extending laterally in an oblique direction relatively to the plane of the face of the box; substantially as described.

663,706. AXLE-BOX LID. JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed July 26, 1900. Serial No. 24,876. (No model.)



Claim.—A journal-box having a swinging lid, a spring arranged to close the lid, a pivot, and a slotted guideway having its guiding portion extending at an acute angle to the plane of the face of the box and arranged to guide the lid in a longitudinal direction and also laterally toward the face of the box; substantially as described.

663,707. RAILWAY-SWITCH. AXEL A. STROM, Austin, Ill., assignor to the Strom Manufacturing Company, Chicago, Ill. Filed Aug. 1, 1900. Serial No. 25,551. (No model.)



Claim.—1. As a new article of manufacture, a slide-plate for the point-rail of a railway-switch having longitudinally thereof an elevated section continuously inclined lengthwise of the rail.

2. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and provided on its upper side with a continuous raised section inclining along its top in accordance with the inclination of the point-rail supported by it, substantially as and for the purpose set forth.

3. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and provided on its upper side with a longitudinal depressed section affording a seat for the main rail and with a continuous raised section affording an abutment for the main rail and inclining along its top in accordance with the inclination of the point-rail supported by it, substantially as and for the purpose set forth.

4. As a new article of manufacture, a continuous slide-plate for the point-rail of a railway-switch, adapted to extend lengthwise across a plurality of ties and comprising a metal plate having a struck-up section inclining along its top in accordance with the inclination of the point-rail supported by it, and affording a depressed seat-section and a lateral abutment for the main rail, substantially as and for the purpose set forth.

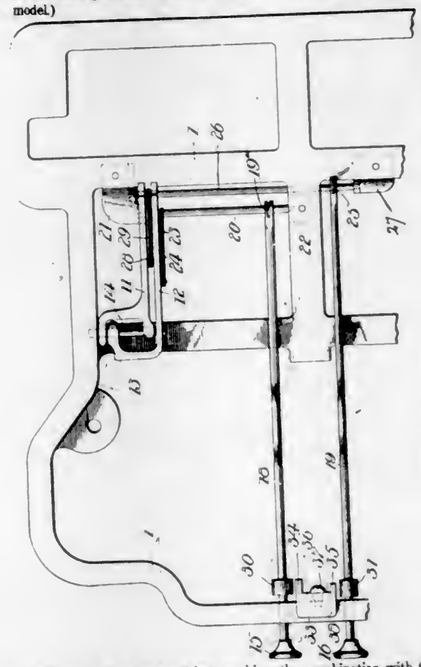
5. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise across a plurality of ties and bridging the spaces between them, the main rails being fastened at their inner flanges to said slide-plates between said ties and within the length of the adjacent switch-rail, substantially as and for the purpose set forth.

6. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise across a plurality of ties and bridging the spaces between them, and bolts fastening the main rails through their inner flanges to said slide-plates between said ties and having their heads countersunk in said flanges, substantially as and for the purpose set forth.

7. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise underneath it and the adjacent main rail across a plurality of ties and having a transverse slot, and a tie-bar extending transversely across the bases of said slide-plates and connected with a switch-rail through each of said slots, substantially as and for the purpose set forth.

8. In a railway-switch, the combination with the main and switch rails, of a continuous slide-plate for each switch-rail extending lengthwise underneath it and the adjacent main rail across a plurality of ties and having a transverse slot, a tie-bar extending transversely across the bases of said slide-plates, clips fastened to the switch-rails, and bolts connecting said clips with the tie-bar through said slots, substantially as and for the purpose set forth.

663,708. TYPE-WRITING MACHINE. BARON P. TCHERKASSOV, St. Petersburg, Russia. Filed May 28, 1900. Serial No. 18,277. (No model.)



Claim.—1. In a type-writing machine, the combination with the usual printing-keys, of a horizontally-movable shift-key having a depression or cavity in the face thereof.

2. In a type-writing machine, the combination with the usual printing-keys, of a horizontally-movable shift-key located adjacent to the center of the frame, in front of and slightly below the front or lowermost bank of printing-keys and having a depression or cavity in the face thereof.

3. In a type-writing machine, the combination with the usual printing-keys, of a plurality of separately-actuated horizontally-movable shift-keys located adjacent to the center of the frame of the machine and slightly below and in front of the front or lowermost bank of printing-keys.

4. In a type-writing machine, the combination with a plurality of shift-levers, of a plurality of horizontally-movable shift-keys, plungers connected, respectively, with said shift-keys, a plurality of rock-shafts having crank-arms thereon connected, respectively, with said plungers, second crank-arms on said shafts, and links connecting said crank-arms, respectively, with said shift-levers.

5. In a type-writing machine, the combination with a horizontally-movable shift-key, of a lock within reach of the operator, and adapted to be moved positively into engagement with said key for holding the same and the parts connected therewith in operative position.

6. In a type-writing machine, the combination with a horizontally-movable shift-key, and a plunger connected therewith, of a collar secured to said plunger, and a lock within reach of the operator adapted to be moved positively into the path of movement of said collar.

7. In a type-writing machine, the combination with a horizontally-movable shift-key, and a plunger connected therewith, of a collar secured to said plunger, and a pivotally-mounted lock within reach of the operator adapted to be moved positively into the path of movement of said collar.

8. In a type-writing machine the combination of two horizontally-movable shift-keys and a common lock therefor.

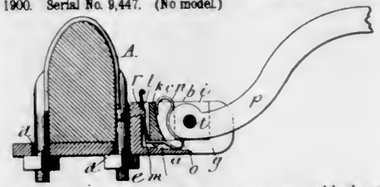
9. In a type-writing machine the combination of two horizontally-movable shift-keys, a common lock therefor, and means for throwing said lock into operative relation with said keys alternately.

10. In a type-writing machine, the combination with two horizontally-movable shift-keys, and plungers connected therewith, of collars on said plungers, and a common lock for said shift-keys adapted to be moved alternately within the path of movement of said collars.

11. In a type-writing machine, the combination with two horizontally-movable shift-keys, and plungers connected therewith, of collars secured to said plungers, and a pivotally-mounted lock adapted to be shifted to a point within the path of movement of each of said collars.

12. In a type-writing machine, the combination with the frame thereof, two horizontally-movable shift-keys, and plungers connected with said keys and extending through said frame, of collars secured to said plungers, and a common lock for said keys, consisting of a plate having a downwardly-extending lug thereon, pivoted to the main frame of the machine, between said plungers, having an overhanging ledge or flange located above said frame and provided with projections on opposite sides of its pivot adapted to be moved within the path of movement of each of said collars.

663,709. THILL-COUPLING. GUNDER TORKELSON, St. Paul, Minn., assignor of one-half to Franklin N. Ryan, same place. Filed Mar. 20, 1900. Serial No. 9,447. (No model.)



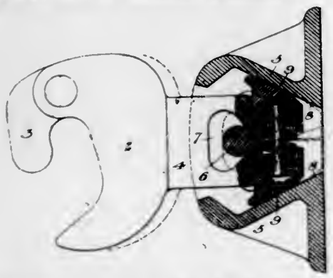
Claim.—1. In a thill-coupling the combination with the recessed holder provided with the dovetailed openings, of the detachable frame provided with dovetailed side lugs and openings for the thill-bolts, all substantially as described.

2. In a thill-coupling, the combination of the recessed holder having the dovetailed recesses and lug on its rear inner wall, the detachable frame comprising the side arms and cross-bar formed integral and the dovetailed lugs, the antirattler or spring having the upper free or spring end provided with the opening to receive the lug on the holder, whereby the frame is held securely in place on said holder all substantially as described.

3. In a thill-coupling, the combination with the recessed holder, of the dovetailed frame provided with the lugs on its cross-bar, and the bent spring provided with the notch or opening *f*, and perforations in the horizontal portion *w*, for engaging said lugs, all substantially as described.

663,710. COUPLING. JOHN WILLISON, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Mar. 8, 1900. Serial No. 7,906. (No model.)

Claim.—1. A coupler having blocks, oppositely-inclined bearing-surfaces at the outer ends of the blocks, and an interposed spring arranged to press the blocks outwardly; substantially as described.



2. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler and shank being movable bodily in a lateral direction against the springs; substantially as described.

3. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler being pivoted to the case and mounted to rock laterally without compressing the spring; substantially as described.

4. A coupler having applied to its shank spring buffing mechanism, a pin, and a vertical hole, larger in its lateral and longitudinal dimensions than the pin, whereby the shank is adapted to move lengthwise and laterally, substantially as described.

5. The combination of a longitudinally-movable coupler having a lateral movement, transverse coiled-spring mechanism, inclined surfaces adapted to coact with the coiled-spring mechanism and to resist longitudinal motion of the coupler, and blocks interposed between the spring mechanism and the inclined surfaces; substantially as described.

6. A coupler having applied to its shank blocks with an interposed spring, oppositely-inclined surfaces against which the blocks bear, and a pin on which the shank is mounted; substantially as described.

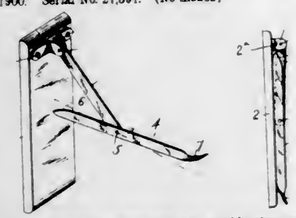
7. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler and shank being movable bodily in a lateral direction against the springs, said shank having an enlarged hole or slot through which the pin passes; substantially as described.

8. The combination of a longitudinally-movable coupler having a lateral swinging movement, transversely-acting coiled-spring mechanism, and inclined surfaces adapted to coact with said spring mechanism and to resist longitudinal motion and rocking motion of the coupler; substantially as described.

9. The combination of a coupler, blocks at the end of the coupler-shank, inclined surfaces, and an interposed spring carried by the blocks and moving therewith, said coupler being movable laterally and longitudinally; substantially as described.

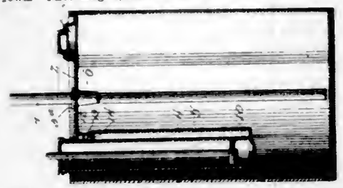
10. A coupler-case adapted to support the coupler, having means for pivoting the same, and having vertical converging walls and blocks engaging said walls and having an interposed spring; substantially as described.

663,711. CLOTHES-HOOK. CHARLES ACKER, Rushville, Ill. Filed Aug. 21, 1900. Serial No. 27,591. (No model.)



Claim.—A clothes-hook, comprising the combination, substantially as described, of a rigid bracket-arm pivotally attached at its upper end to a support adapted to be secured to a plane surface, and a supporting-arm pivoted at a point to the other end of said bracket, said point being distant from the inner end of said supporting-arm, a length less than the length of a line joining the said point to the foot of a perpendicular dropped from the pivot in the upper end of said bracket-arm onto the said surface; the said inner end of said supporting-arm being pointed to adapt it to contact with the said surface to hold it from slipping, said arms consisting of straight bars constructed to be folded up parallel to each other.

663,712. OIL-CAN. THEOPHILUS W. ALEXANDER, Burlington, Iowa. Filed Aug. 2, 1900. Serial No. 25,673. (No model.)

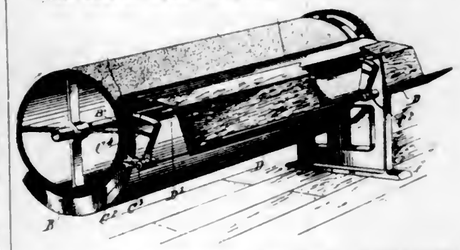


Claim.—1. In a vessel of the character described, the combination of a pump depending within said vessel and having a communicating lateral air-delivery chamber, discharging at its upper end, and a valve, with its casing communicating with said discharging end of said chamber and provided with a lateral air-outlet, above its lower end, the upper end of said casing having indentations adapted to form stops to limit the upward movement of said valve and to form additional air-outlets above said valve, substantially as set forth.

2. In a vessel of the character described, the combination of a pump depending within said vessel and having a communicating lateral air-delivery chamber, discharging at its upper end, and a valve, with its casing communicating with said discharging end of said chamber and provided with a lateral air-outlet, above its lower end, the upper end of said casing having indentations adapted to form stops to limit the upward movement of said valve and to form additional air-outlets above said valve, and a tube fitted to said vessel to deliver the liquid or oil therefrom, acted upon by the pump-piston, substantially as set forth

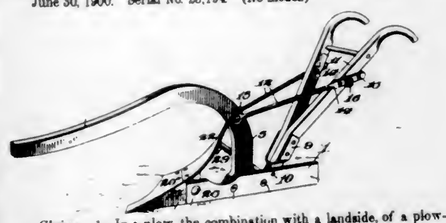
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663,713. GUARD FOR IRONING OR OTHER MACHINES. DAVID S. ARKLAY and EDWIN W. COLLIER, London, England. Filed Sept. 11, 1899. Serial No. 730,158. (No model.)



Claim.—In an ironing-machine, the combination with the revolving cylinder, of the guard-plate shaped to fit approximately the curve of the cylinder, and having its edge turned back or away from the cylinder, the pivoted arms upon which the guard-plate is mounted, and the springs for holding the guard yieldingly in close proximity to said cylinder; substantially as described.

663,714. PLOW. JOHN J. ARMSTRONG, Sr., Weimar, Tex. Filed June 30, 1900. Serial No. 23,194. (No model.)



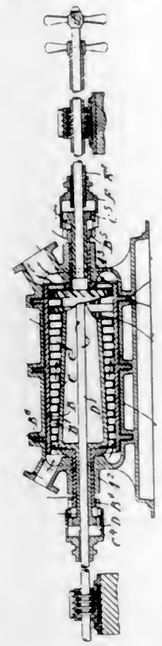
Claim.—1. In a plow, the combination with a landside, of a plow-point, share and moldboard carried at the front end thereof, a beam-stock having a foot-plate bolted to the landside, handles likewise connected to the landside, and a moldboard-brace extending from the moldboard and attached to the foot-plate of the beam-stock by a bolt which serves to secure said landside, whereby said bolt constitutes a single device for connecting the landside, foot-plate and brace.

2. In a convertible plow, the combination with a landside, a beam-stock and handles extending from the landside at points intermediate of its ends, of plow-point-retaining means located at the front end of the landside and designed to detachably connect a plow-point thereto, and a standard having means of attachment to the beam-stock and arranged to be engaged by the plow-point-retaining means at the front end of the landside.

3. In a convertible plow, the combination with a landside, a beam-stock and handles secured to one side face of the landside at points intermediate of its ends, of plow-point-retaining means located at the front end of the landside, a standard comprising an elongated loop designed to receive the end of the landside and to be engaged by the plow-point-retaining means, and a curved shank extending from one end of the loop at one side thereof, and a standard-clamp connecting said shank to the beam-stock.

4. In a convertible plow, the combination with a landside, a beam-stock and handles suitably connected, of a plow-retaining device located at the front end of the landside, a standard comprising an elongated loop designed to receive the end of the landside and to be engaged by the plow-point-retaining means, said standard being likewise connected to the beam-stock, a plow supported by the standard, a bolt connected to said plow and passed through the loop of the standard, and a nut retained upon the rear end of the bolt behind the loop for the purpose of adjustably securing the plow upon the standard.

663,715. TURBINE. HAROLD T. ASHTON, London, England. Filed Apr. 21, 1900. Serial No. 13,767. (No model.)

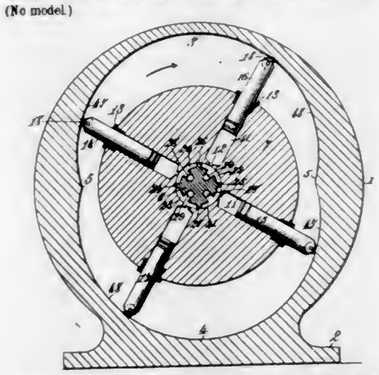


Claim.—1. In a turbine the combination with a rotatable member of guides for an operating fluid disposed at an angle upon that member, a similar member coaxial with the former having fluid-guides reversely disposed upon it at an angle, coaxial members adjacent to the rotatable members, a fluid-supply conduit and clutches attached to the adjacent members and operating upon both rotatable members to engage them with or disengage them from the adjacent members substantially as set forth.

2. In a turbine the combination with a rotatable member of guides for an operating fluid disposed at an angle upon that member, a similar member coaxial with the former and having fluid-guides reversely disposed upon it at an angle, a fluid-supply conduit, coaxial driven shafts, two clutches by which at will either member is operatively connected to either driven shaft and upon those shafts helical blades substantially as set forth.

3. In a turbine the combination with a rotatable member of guides for an operating fluid disposed at an angle upon that member, a similar member coaxial with the former and having fluid-guides reversely disposed upon it at an angle, a fluid-supply conduit, coaxial driven shafts, and two clutches by which at will either member is operatively connected to either driven shaft substantially as set forth.

663,716. ROTARY ENGINE. CHARLES H. ASLING and ALBERT HELMS, Siloam Springs, Ark. Filed Apr. 7, 1900. Serial No. 12,007. (No model.)



Claim.—1. In a rotary engine, the combination with a hollow casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of four radial cylinders arranged to rotate in unison about the axial center of the casing, pistons fitted to reciprocate in said cylinders and carrying shoes at their outer ends adapted to contact with the curved faces of the casing, and means for admitting steam behind two opposite pistons and simultaneously exhausting it from the other two pistons, substantially as described.

2. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically on opposite sides of the axial center of the casing, of four radial cylinders disposed at right angles to one another and arranged to rotate in unison about the axial center of the casing, pistons fitted to reciprocate in said cylinders and provided at their outer ends with pivoted shoes adapted to contact with the curved faces of the casing, and means for admitting steam behind two of the pistons as they recede from the highest portions of the curved faces and for exhausting the steam from behind the other two pistons as they recede from the lowest portions of said faces, substantially as described.

3. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a fixed shaft arranged centrally in the casing and provided with four circumferential ports formed at equal distances apart, four radial cylinders arranged to rotate in unison on said shaft and constructed to simultaneously register at their inner ends with said ports, pistons fitted to reciprocate in said cylinders and provided with shoes at their outer ends adapted to contact with the curved faces of the casing, and means for admitting steam to two of the opposite ports and simultaneously exhausting it from the other two ports, substantially as described.

4. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a fixed shaft arranged centrally in the casing and provided with four circumferential ports formed at equal distances apart, four radial cylinders arranged to rotate in unison on said shaft and constructed to simultaneously register at their inner ends with said ports, pistons fitted to reciprocate in said cylinders and provided at their outer ends with shoes adapted to contact with the curved faces of the casing, means for admitting steam to two of the opposite ports and simultaneously exhausting it from the other two ports, and means for reversing the admission and exhaust of said ports, substantially as described.

5. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a shaft fixed centrally in the casing and provided with four ports each extending around nearly one-quarter the circumference of the shaft, four radial cylinders arranged to rotate in unison on said shaft and constructed to register at their inner ends with said ports, pistons fitted to reciprocate in said cylinders and provided at their outer ends with shoes adapted to contact with the curved faces of

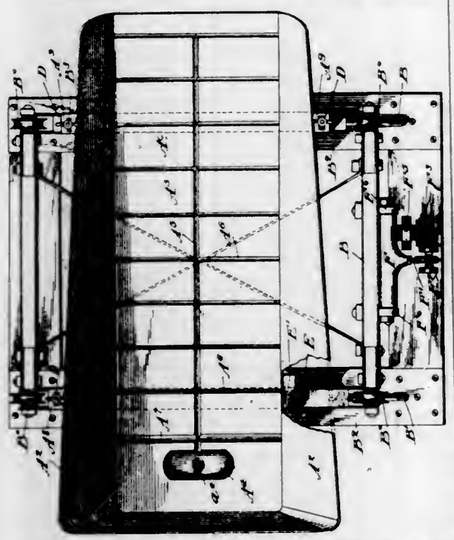
the casing, means for admitting steam to two of the opposite ports and simultaneously exhausting it from the other two ports, and means for reversing the passage of the steam through said ports, substantially as described.

6. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a shaft fixed centrally in the casing and provided with four ports each extending around nearly one-fourth the circumference of the shaft and separated by narrow cut-offs, four radial cylinders arranged to rotate in unison on said shaft and provided at their inner ends with contracted ports arranged to simultaneously register with the ports in the shaft, pistons fitted to reciprocate in the cylinders and provided at their outer ends with shoes adapted to contact with the curved faces of the casing, a valve for simultaneously admitting steam to two of the opposite ports in the shaft and exhausting it from the other two of said valves, and means for reversing the valve, substantially as described.

7. In a rotary engine, the combination with a closed casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a shaft fixed centrally in the casing and provided with four circumferential ports, four radial cylinders arranged to rotate in unison on said shaft and provided centrally with a hub, said cylinders being adapted to register with the said ports, a line-shaft fixed to the hub, pistons fitted to reciprocate in the cylinders and provided at their outer ends with shoes adapted to contact with the curved faces of the casing, a valve for simultaneously admitting steam to two of the opposite ports in the shaft and exhausting it from the other two of said valves, substantially as described.

8. In a rotary engine, the combination with a casing provided with two similar internally-curved faces arranged opposite to each other, said curved faces being each greater than a semicircle and disposed eccentrically to the axial center of the casing, of a shaft fixed centrally in the casing and provided with four circumferential ports, a wheel rotatably mounted on the shaft and having formed therein four radial cylinders disposed at right angles to one another, said cylinders being adapted to register at their inner ends with said ports, pistons fitted to reciprocate in the cylinders and provided at their outer ends with shoes adapted to contact with the curved faces of the casing, a valve for simultaneously admitting steam to two of the opposite ports in the shaft and exhausting it from the other two of said valves, and a line-shaft fixed centrally to and rotating with the said wheel, substantially as described.

663,717. GOLD-MINING OR PLACER MACHINE. CHARLES BARWICK, Denver, Colo. Filed May 3, 1900. Serial No. 15,386. (No model.)

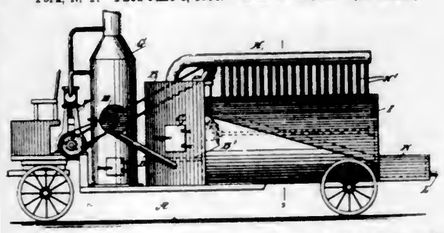


Claim.—1. In an apparatus for washing and concentrating ores, the combination with a reciprocating frame, of a concentrating-pan provided with a closed end and an open end mounted transversely of the said frame, and set at an inclination downward from the said open end; a well or pocket in the bottom of said pan near its closed end, a longitudinal channel in the said bottom leading to the said well or pocket; transverse channels leading to the said longitudinal channel; perforated lugs on the side edges of the said pan, screw-threaded bolts mounted in the said frame and engaging the said perforated lugs; coiled springs interposed between the said lugs and the said frame and surrounding said bolts; and thumb-nuts engaging the ends of the said bolts for adjusting the inclination of the said pan upon the said frame, substantially as described.

2. In an apparatus for washing and concentrating ores, the combination with a reciprocating frame, of a concentrating-pan provided with a closed end and an open end mounted transversely of the said frame, and set at an inclination downward from the said open end; a well or pocket in the bottom of said pan near its closed end, a longitudinal channel in the said bottom leading to the said well or pocket; transverse channels leading to the said longitudinal channel; perforated lugs on the side edges of the said pan, screw-threaded bolts mounted in the said frame and engaging the said perforated lugs; coiled springs interposed between the said lugs and the said frame, and surrounding said bolts; and thumb-nuts engaging the ends of the said bolts for adjusting the inclination of the said pan upon the said frame; stops permitting of vertical adjustment of the said pan, but preventing lateral movement thereof with respect to the said frame, substantially as described.

3. In an ore washing and concentrating machine, the combination with a reciprocating support, of a concentrating-pan having a substantially rectangular oblong bottom, and outwardly-inclined closed sides and one end, and one open end, and having in its bottom near the closed end, a well or pocket provided with a removable bottom-closure; a longitudinal channel leading from the vicinity of the open end communicating with the said well or pocket; transverse channels communicating with said longitudinal channel; slotted lugs or ears upon the side edges of the said pan; means for engaging the said slotted lugs and permitting adjustment of the inclination of the said pan upon its supporting-frame; and means for reciprocating the said frame transversely of the direction of passage of water therethrough, substantially as described.

663,718. SNOW-MELTING MACHINE. EDWARD BEATTY, New York, N. Y. Filed June 6, 1900. Serial No. 19,255. (No model.)



Claim.—1. A snow-melting machine, comprising a snow-melting box having overflow-channels at the sides, a water-box adjacent to one end of the snow-melting box, and arranged to receive the overflow from the the snow-melting box by way of said channels, a furnace having the outlet arranged to diffuse the products of combustion under pressure in the water and snow contained in said snow-melting box, and a blower for forcing air into said furnace, to insure combustion of the fuel therein, and to cause the products of combustion to pass under pressure from the furnace to the outlet thereof into the water and snow contained in said melting-box, as set forth.

2. A snow-melting machine, having a snow-melting box or tank provided with a top overflow whereby the tank is kept full of water, a furnace, and means for forcing the products of combustion from the furnace into the water in said tank at a point below the overflow, thereby keeping the water heated and quickly melting the snow placed in said tank, as set forth.

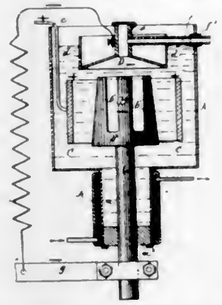
3. A snow-melting machine having a snow-melting tank with a top overflow for the water and having side channels, pipes connected with a furnace and arranged to discharge the hot gases into the melting-tank below said overflow and directly into the water contained in said tank, whereby the water in said tank is kept heated and the snow is quickly melted, and means for forcing the hot gases from the furnace through said pipes, as set forth.

4. A snow-melting machine, having a snow-melting tank with a top overflow and having longitudinal channels at its sides, a furnace, pipes connected with said furnace and discharging directly into said tank at a point below the overflow, and a tank located at the rear of the first tank and into which the side channels of the first tank discharge, as set forth.

5. A snow-melting machine, comprising a wheeled vehicle, a furnace mounted thereon, a blower on the vehicle for forcing an air-blast into said furnace, to insure combustion of the fuel contained therein and for driving the products of combustion under pressure out of the furnace, a snow-melting box mounted on said vehicle, and having overflow-channels at the sides, an agitator in said box, a water-box adjacent to one end of the snow-melting box, and arranged to receive the overflow from the snow-melting box by way of said channels, the said water-box having an outlet for discharging the water, and discharge-pipes leading from said furnace and having perforated branch pipes extending into said snow-melting box, to cause the products of combustion from the furnace to pass directly into the snow and water contained in the box, substantially as shown and described.

6. A snow-melting machine, having a snow-melting tank provided with a top overflow, a furnace, pipes connected with the furnace and extending longitudinally over the sides of the tank, and perforated branch pipes leading from said longitudinal pipes and extending downward into said tank in close proximity to the inner surface of the side thereof, the said pipes discharging the products of combustion from the furnace into the tank below the overflow, as set forth.

663,719. ELECTROLYTIC APPARATUS. HERMANN BECKER, Paris, France. Filed June 26, 1899. Serial No. 721,883. (No model.)



Claim.—1. In an electrolytic apparatus for the separation of metals lighter than the electrolyte from which they are extracted, a collecting device D of metal of a recessed conical form having its internal face in position to be immersed in the electrolyte in fusion above the cathode with its upper face uncovered by the electrolyte, in combination with a vessel A having a contracted part *a* at its lower end, means for cooling said contracted part, an insulating-stopper *a'* traversed by a support for the cathode B said cathode having a tapering external surface for facilitating the rise of the globoles of metal, an anode C surrounding the cathode B suitable electric conductors for connecting the anode and the cathode with the means for producing the electricity, and a conductor for connecting in shunt the collector D, substantially as hereinbefore described and for the purpose set forth.

2. In an electrolytic apparatus for the separation of metals lighter than the electrolyte from which they are extracted, a collecting device D of metal of a recessed conical form having its internal face in position to be immersed in the electrolyte in fusion above the cathode, with its upper face uncovered by the electrolyte and having a chamber for receiving a current of cooling-water, in combination with a vessel A having a contracted part *a* at its lower end, means for cooling said contracted part, an insulating-stopper *a'* traversed by a support for the cathode B, a cathode B having a tapering external surface for facilitating the rise of the globules of metal, an anode C surrounding the cathode B, suitable electric conductors for connecting the anode and the cathode with the means for producing the electricity, and a conductor for connecting in shunt the collector D to the current-conductor feeding the cathode B substantially as hereinbefore described and for the purpose set forth.

663,720. HOLDBACK AND SHORT HITCH. GEORGE T. BOUSLOG, Winamac, Ind. Filed Apr. 9, 1900. Serial No. 12,108. (No model.)

Claim.—1. The combination of a bar or body portion with an undercut groove therein, the inner walls of the overhanging portions of said groove having ratchet-teeth thereon, a ratcheted keeper mounted to slide in the groove and having teeth engaging the teeth of the bar, a holdback mounted on the bar or body, and means connecting the keeper with the holdback, such means serving to engage the keeper with the ratcheted walls of the groove in the bar or body, to adjustably secure the holdback-plate.

2. The combination of a bar or body with an undercut groove therein, a keeper slidably mounted in the groove, a holdback mounted on the bar or body adjacent to the groove, and means extending between the holdback and the keeper to engage the holdback with the inner walls of the undercut groove, whereby adjustably to fasten the holdback on the bar or body.



663,721. ARTIFICIAL TOOTH. ROBERT BREWSTER, Chicago, Ill. Filed Jan. 18, 1900. Serial No. 1,907. (No model.)



Claim.—An improved artificial tooth and backing attachment for application to bridgework comprising an improved artificial tooth having an elongated slot in its base or lingual surface, extending into but not through the crown of the tooth whereby the tooth may be ground at said surface to adapt it to the varying anatomical conditions met with in the mouth, a separate flat backing having a slot and adapted to be conformed to the shape of the ground surface of the tooth, and a separate flat anchor-plate adapted to be attached by cement within the said longitudinal slot of the tooth and projecting through and adapted to be attached to said backing, substantially as described.

663,722. MUSICAL CHART. GEORGE H. BROCK, Huntington, N. Y. Filed Apr. 29, 1899. Serial No. 715,017. (No model.)



Claim.—1. The combination of a musical chart having similar plain staffs upon opposite sides thereof, a single movable note-representer adapted to be moved over the chart, on one side thereof, to indicate the position of a note, the path of said note being substantially coextensive with the vertical height of the staff, and means for indicating upon the other side of said chart the position of the note-representer.

2. The combination of a musical chart having plain staffs upon opposite sides thereof, and two note-representers, one upon each side of the chart, the two arranged to move in unison, one of said note-representers adapted to be moved over one side of the chart to represent a note on,

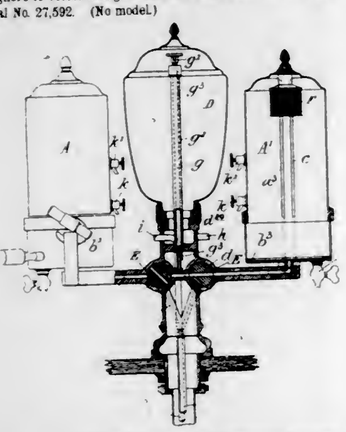
above, or below the staff and the other to indicate the position of said note on the opposite side of said chart, the path of movement of said note-representers being substantially coextensive with the vertical height of said staffs.

3. The combination of a musical chart having plain staffs upon opposite sides thereof, united note-representers adapted to be moved in unison over the chart to indicate the position of a note on, above, or below the staffs, the path of movement of each note-representer being substantially coextensive with the height of its respective staff, and a removable signature-card, substantially as specified.

4. The combination of a slotted musical chart having staffs upon its opposite sides, and note-representers, for said staffs, united by a stem extending through the slot of the chart, substantially as specified.

5. The combination of a musical chart with similar plain staffs upon each side thereof, a movable note-representer upon one side of the chart, and means upon the other side for moving the note-representer to a position on, above, or below the staff, to represent the position of a note indicated upon the opposite side.

663,723. APPARATUS FOR MAKING AND DISPENSING INFUSIONS. WILLIAM J. BROWN and JOHN R. BEER, London, England, assignors to Victor George Osterroth, same place. Filed Aug. 21, 1900. Serial No. 27,592. (No model.)

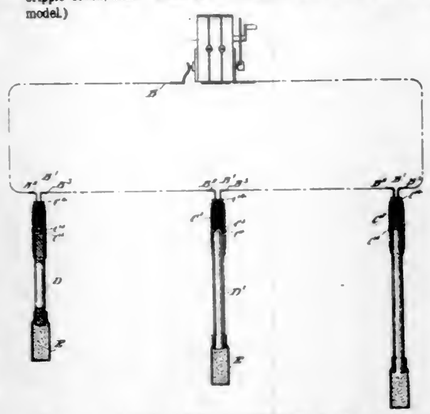


Claim.—1. Apparatus for making and dispensing infusions, consisting of a boiler, an infusion-chamber, a container, and a controlling-cock, having three sets of openings, one of which communicates through passages from the water in the boiler to the top of the infuser, and a second through passages from the top of the infuser through said cock to the atmosphere both sets of said cock-openings being adapted to establish communication with both sets of passages at the same time, the third set of openings in the cock communicating through passages between the container and the infuser and so placed in the cock that they and the second set of passages shall be in established communication at the same time, said second passages at this their second position communicating between the steam-space of the boiler and the top of the infuser, as and for the purpose set forth.

2. In apparatus for making and dispensing infusions the combination of an infusing vessel or vessels and a container and boiler with separate passages leading from the boiler to the infusing vessel or vessels and from the infusing vessel or vessels to the container and means for controlling the said passages, a strainer into which the passage from the boiler opens and situated above the passage from the infusing vessel or vessels to the container and a casing outside the boiler and in communication therewith at top and bottom and containing a float and a valve for regulating the inlet of water all substantially as hereinbefore described.

3. In apparatus for making and dispensing infusions the combination of an infusing vessel or vessels and a container and boiler and separate passages leading from the boiler to the infusing vessel or vessels and from the infusing vessel or vessels to the container and an overflow-passage and means for controlling the said passages, a strainer into which the passage from the boiler opens and situated above the passage from the infusing vessel or vessels to the container and a casing outside the boiler and in communication therewith at top and bottom and containing a float and valve for controlling the inlet of water and a gas-supply pipe to a heater with a regulator in it controlled by the pressure in the boiler and a valve for simultaneously regulating the passages for water and gas substantially as hereinbefore described.

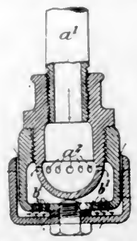
668,724. BLASTING. CALEB F. BRYANT and CHARLES H. BROWN, Cripple Creek, Colo. Filed Mar. 24, 1899. Serial No. 710,363. (No model.)



Claim.—1. A blasting device, provided with a fuse, a primary igniting device for the fuse comprising a shell engaged by the fuse, terminals forming part of an electric circuit and extending into the said shell, a disk of metallic foil connecting the terminals, and a combustible material arranged between the disk and the fuse, substantially as described.

2. A blasting device, consisting of an electric circuit comprising a source of electricity, a single leading-in wire, a single return-wire, a plurality of primary igniting devices, connected in series in the said circuit and set off simultaneously by the electric current, the said primary igniting devices each comprising a shell engaging a fuse at one end, a plug of insulating material in the other end of the shell, terminals forming part of the electric circuit and extending through the said plug, a disk of metallic foil located between the inner end of the plug and the fuse and connecting the said terminals, and combustible material arranged between the disk and the fuse, the said fuses being of different lengths, substantially as described.

663,725. EXHAUST-SILENCER FOR EXPLOSIVE-ENGINES. GEORGE BUCK, London, England, assignor of one-half to Edward S. Torrey, same place. Filed Apr. 21, 1900. Serial No. 13,760. (No model.)

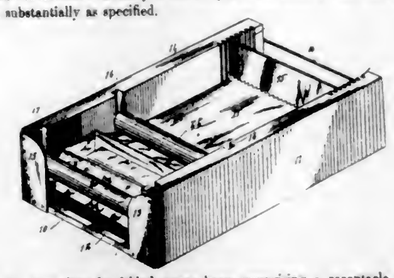


Claim.—An exhaust-silencer consisting of a receiving-chamber having a hemispherical head, lateral apertures midway between the inlet end and the top of said head, an enveloping cylindrical cap surrounding said chamber and forming therewith an anxiliary chamber which communicates with the aforesaid receiving-chamber by means of said lateral apertures, ports in the head of said enveloping-cap near the edge thereof and an auxiliary cylindrical cap mounted on the head of said enveloping-cap and forming around it an escape-vent adapted to deflect the spray, substantially as described.

663,726. RECEIVER FOR FOLDED PAPER BAGS. JOHN CARLEN, Havana, N. D. Filed Apr. 9, 1900. Serial No. 12,082. (No model.)

Claim.—1. A receiver for paper bags, comprising a receptacle adapted to receive folded bags, the bottom of the receptacle being inclined at the upper front face, and rollers mounted to slide vertically in the side walls of said receptacle and adapted to rest upon the uppermost bag of a pile one near its center and the other over said inclined portion, substantially as specified.

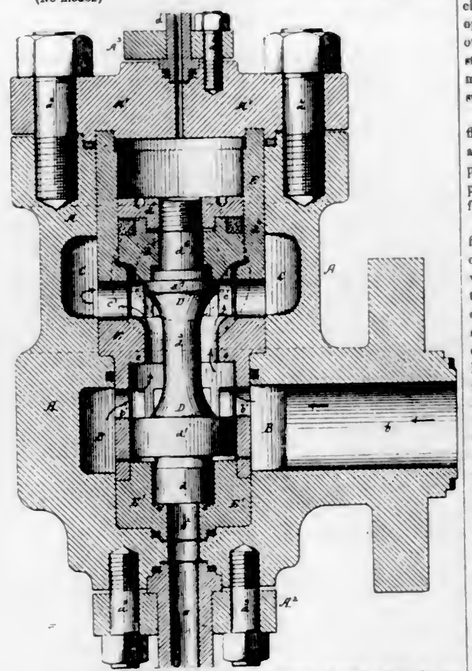
2. A receiver for paper bags, comprising a receptacle for bags, the bottom of the receptacle having a drop at its upper front face, a pressing device movable vertically in the receptacle over said drop, and a pressing device movable vertically in the receptacle rearward of said drop portion, substantially as specified.



3. A receiver for folded paper bags, comprising a receptacle, the bottom of which is inclined at its upper face at the front, an adjustable back board located at the rear of the receptacle, a gravity-roller having guided movement in the sides of the receptacle and located above the inclined portion of its bottom, and a second and inner roller of like character, also having sliding movement in the sides of the receptacle, both of which rollers are adapted for engagement with the uppermost bag of a series placed in the receptacle.

4. In a receiver for folded paper bags, the combination, with a receptacle comprising a bottom, sides, an adjustable rear board, the said sides having grooves in their inner sides and guards at the forward ends of the sides, the upper surface of the bottom of the receptacle at its forward end being downwardly inclined or beveled, of rollers provided with spindles loosely mounted in the grooves produced in the inner faces of the side pieces, which rollers are located one over the inclined or beveled portion of the bottom and the other at a point near the central portion of the receptacle, for the purpose set forth.

663,727. HYDRAULIC VALVE. JAMES CHRISTIE and WILLIAM B. HUGHES, Philadelphia, Pa. Filed Dec. 27, 1897. Serial No. 663,645. (No model.)



Claim.—1. A valve having a ported casing through which the motive fluid flows to and from the point of use, an inlet-passage with surrounding seat on one side of said ported portion of the casing, and an exhaust-passage with surrounding seat on the other side of the same, and a piston structure having a disk portion which fits snugly to the ported casing and has ends which bear upon said seats alternately, said disk bearing such relation to the ports of the casing that it will close communication between said ports and the exhaust-passage before opening communication between said ports and the inlet-passage, substantially as specified.

2. A valve having a ported casing through which the motive fluid flows to and from the point of use, an inlet-passage with surrounding seat on one side of said ported portion of the casing, and an exhaust-passage with surrounding seat on the other side of the same, a piston structure having a disk portion which fits snugly to the ported casing and has ends which bear upon said seat alternately, said disk being so disposed in respect to the ports of the casing that it will close communication between said ports and the exhaust-passage before opening communication between said ports and the inlet-passage, and said piston having another disk of greater diameter than that which controls said ports, said disk being contained within a cylinder combined with means whereby the disk may be alternately subjected to and released from pressure in order to effect movement of the piston, substantially as specified.

3. A valve having a ported casing through which the motive fluid flows to and from the point of use, an inlet-passage with surrounding seat on one side of said ported portion of the casing, and an exhaust-passage of larger area than the inlet-passage and also having a surrounding seat on the other side of said ported portion of the casing, and a piston structure having a disk fitting snugly to said ported portion of the casing, and adapted to bear at one end against the seat of the exhaust-passage and having at the other end a projection adapted to bear against the seat of the inlet-passage, said disk being so disposed in respect to the ports of the casing that it will close communication between said ports and the exhaust-passage before opening communication between said ports and the inlet-passage, substantially as specified.

4. A valve having a ported casing through which the motive fluid flows to and from the point of use, an inlet-passage with surrounding seat on one side of said ported portion of the casing and an exhaust-passage of larger area than the inlet-passage and also having a surrounding seat on the other side of the ported portion of the casing, a piston structure having a disk adapted to bear at one end against the seat of the exhaust-passage and having at the other end a projection adapted to close against the seat of the inlet-passage, said disk fitting snugly to the ported portion of the casing and being so disposed in respect to said ports that it will close communication between the same and the exhaust-passage before opening communication between said ports and the inlet-passage, a disk of larger diameter than the port-controlling disk secured to said piston structure, and a cylinder containing said larger disk and combined with means for alternately subjecting said disk to and releasing it from pressure in order to effect movement of the piston, substantially as specified.

5. A valve having a ported casing through which the motive fluid flows to and from the point of use, a piston having a disk which moves across said ported portion of the casing and opens the same alternately to pressure and exhaust, and provision for limiting the movement of said piston, whereby the ports are only partially uncovered to pressure, but are fully uncovered to exhaust, substantially as specified.

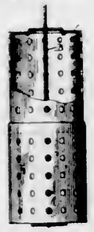
6. A valve having a ported casing through which the motive fluid flows to and from the point of use, an inlet-passage with surrounding seat on one side of said ported portion of the casing and an exhaust-passage with surrounding seat on the other side of the same, and a piston structure having a disk portion which moves across said ported portion of the casing, one end of said disk portion being adapted to close against the seat surrounding the inlet-passage and the other end being adapted to close against the seat surrounding the exhaust-passage and said seats being so disposed that when the inlet-passage is open the disk will only partially uncover the ports of the casing but when the exhaust-passage is open will fully uncover said ports, substantially as specified.

7. The combination of the valve-casing having a main inlet-pipe for fluid under pressure, and a supplementary inlet-pipe with three-way valve therein, a ported chamber communicating with the point of use of the fluid, an exhaust-chamber and a piston having three disks of different diameters, the smallest being adapted to close the opening of the main inlet-passage, the intermediate disk being adapted to close the opening leading to the exhaust-passage, and the largest disk being contained in the chamber to and from which the flow of motive fluid is governed by the three-way valve, all of said disks fitting snugly to their respective portions of the casing, and the intermediate disk being so disposed in respect to the ports of its chamber that it will close communication between said ports and the exhaust-passage before it opens communication between said ports and the inlet-passage, substantially as specified.

663,728. FLY-CATCHING DEVICE. MELVIN R. CHURCH, Grand Rapids, Mich. Filed Feb. 17, 1900. Serial No. 5,636. (No model.)

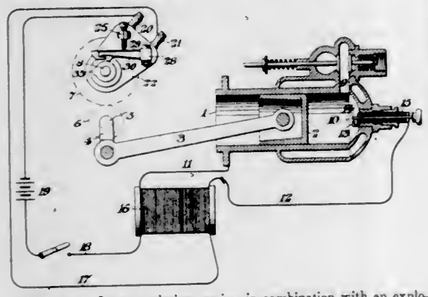
Claim.—1. A fly-catching device comprising a shield having fly-passages in the walls thereof, and a catching-surface consisting of ribbon or string coated with sticky material and stretched between the ends of

said shield whereby the said shield protects the sticky material and admits the flies thereto, substantially as described.



2. A fly-catching device comprising a collapsible shield having fly-passages in the walls thereof, and a catching-surface consisting of ribbon or string coated with sticky material and stretched between the ends of said shield whereby the said shield protects the sticky material and admits the flies thereto, substantially as described.

663,729. SPARKING IGNITER FOR EXPLOSIVE-ENGINES. LOUIS S. CLARKE and JAMES G. HEASLET, Ardmore, Pa., assignors to the Autocar Company, same place and Pittsburg, Pa. Filed Aug. 30, 1900. Serial No. 28,503. (No model.)



Claim.—1. In an explosive engine, in combination with an explosion chamber and an induction coil the secondary of which is suitably connected with said chamber, a moving body provided with a cam, a holder spring which presses toward said moving body, a weight provided contact spring engaged by said holder spring and carried toward said moving body by it, a contact device with which said contact spring makes contact when released by said holder spring, said contact device and said contact spring being in circuit with the primary of the induction coil, substantially as set forth.

2. In combination with the primary of the induction coil of an igniting device of an explosion engine, a moving body provided with a cam, a holder spring strip which bears against said body, a contact spring strip, said holder strip being stronger than the contact spring strip, a hook on one of said strips engaged over the other of said strips, and a temporarily fixed contact device in position to be encountered by said contact spring strip when released, substantially as set forth.

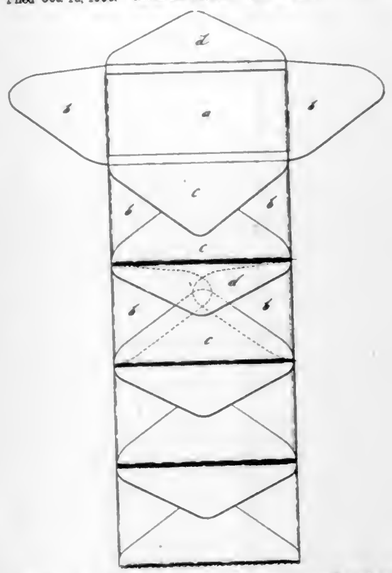
3. In combination with the induction coil of an igniting device for an explosion engine, a moving body provided with a cam, a holder spring strip, one end of which is fixedly mounted, a wearing face or shoe on the body of which is held by the set of said spring strip in contact with said moving body, a contact spring strip, of less stiffness than the holder spring strip, fixedly mounted as to one end, a hook on one of said strips engaging the other strip, by which hook said contact spring strip is normally held by the holder spring strip in a bent position, and a contact device in position to be encountered by the contact spring strip when released by the holder spring strip, substantially as set forth.

4. In combination with the primary of the induction coil of an igniting device for an explosion engine, a rotating body having a cam, a contact spring strip and a holder spring strip each fixedly secured as to its basal end, said holder spring strip being stiffer than the other and provided with a shoe near its outer end which it presses against said rotating body, said contact spring strip being provided with a hook in which the other spring strip engages, and a contact screw in position to be encountered by said contact spring strip, when the latter assumes its normal position, substantially as set forth.

5. In combination with the primary of the induction coil of an igniting device for an explosion engine, the rotating body having a cam, the contact device, the two spring strips of different flexibility, one of superior stiffness tending to bear against the rotating body and the other tending toward the contact device, a device on one of said strips engaging the other of said strips, through which device the spring strip of greater stiffness holds the spring strip of lesser stiffness out of contact with the contact device until said spring strip of greater stiffness is deflected by the cam, substantially as set forth.

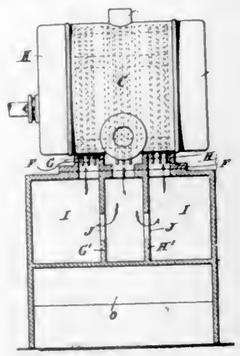
6. In an igniting device for an explosive engine, a holder spring strip, a contact screw or device, a contact spring strip, a weight on said contact spring strip, means by which said holder spring strip holds said contact spring strip normally away from said contact device, and mechanical means for occasioning the periodic release of the contact spring strip, as specified.

663,730. ENVELOP. SPENCER CLAWSON, Salt Lake City, Utah. Filed Oct. 10, 1900. Serial No. 32,598. (No model.)



Claim.—As a new article of manufacture, a plurality of envelops arranged in a continuous length, such envelops comprising a continuous and integral sheet of paper formed with score-lines dividing the envelops, said sheet of paper at points between the score-lines forming the front face of the envelop, end flaps formed integral with the said sheet at points between the score-lines thereof, and top and bottom flaps fastened to the rear face of said continuous sheet of paper at points directly adjacent to the score-lines, the various flaps being sealed together in the manner specified.

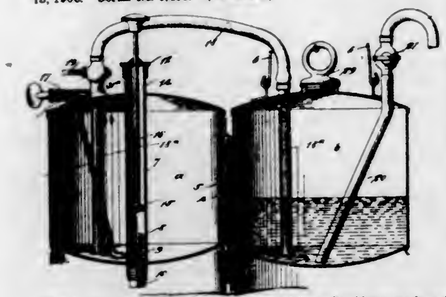
663,731. APPARATUS FOR PRODUCING COLD AIR FOR REFRIGERATING OR LIKE PURPOSES. THOMAS COLE and WILLIAM L. COLE, London, England. Filed July 9, 1900. Serial No. 23,019. (No model.)



Claim.—1. In an apparatus for producing cold air for refrigerating purposes and the like, an air-compressor, an air-cooling device in communication therewith, a ribbed expansion-cylinder, a casing in communication therewith, a jacket surrounding the same, partitions in said casing for causing the air to travel circuitously around said expansion-cylinder, within said jacket and deposit its moisture upon said ribs, means in said casing for collecting said moisture, a valve mechanism for admitting air to the expansion-cylinder, and connections between the latter and a suitable reservoir.

2. In an apparatus for producing cold air for refrigerating purposes and the like, an air-compressor, an air-cooling device in communication therewith, a casing, a valve mechanism for admitting air to said casing, an expansion-cylinder, a jacket surrounding the same, a moisture-collecting means interposed between said expansion-cylinder and said jacket, partitions in said casing for causing the air to travel around said expansion-cylinder and to deposit its moisture upon said collecting means, a sloping bottom in said casing for receiving said moisture from said means, a valve mechanism for admitting air to said expansion-cylinder, and a reservoir in communication with said expansion-cylinder.

663,732. SPRAYING APPARATUS. JOHN J. COUGHLIN, Bradford, Ohio, assignor of one-half to Manassa L. Boyer, same place. Filed Mar. 13, 1900. Serial No. 8,483. (No model.)



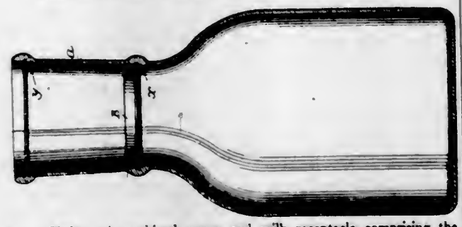
Claim.—1. A spraying apparatus, comprising a liquid-reservoir and an air-reservoir, a flexible connection between the two, whereby to conduct the air from the air-reservoir to the liquid-reservoir, a handle on the liquid-reservoir, a tongue attached at its upper end to the air-reservoir, and a keeper carried by the liquid-reservoir and having the tongue slidably engaged therewith.

2. A spraying apparatus, comprising a liquid-reservoir, an air-reservoir separate therefrom, means for removably connecting the two reservoirs with each other, by which to carry the one on and alongside of the other, and a flexible tube passing from one reservoir to the other to establish communication between the two.

3. A spraying apparatus, comprising a liquid-reservoir and an air-reservoir, means for removably connecting the two with each other, a flexible pipe extending between them to lead the air from the air-reservoir to the water-reservoir, a liquid-discharge pipe leading from the liquid-reservoir, and an air-pump mounted in the air-reservoir.

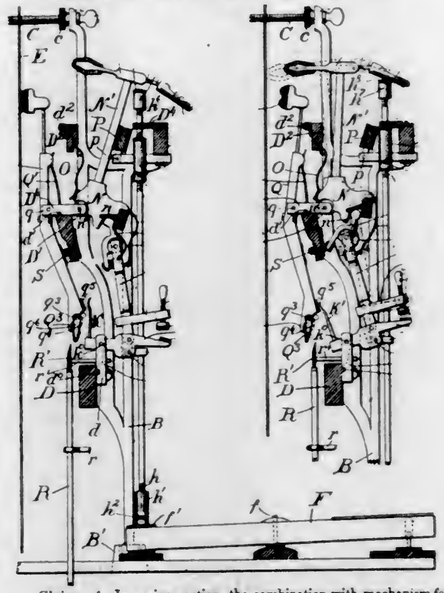
4. A spraying apparatus having an air-reservoir, a liquid-reservoir, a pump carried in the air-reservoir, a pipe situated within the air-reservoir and leading the air from the pump, a valve-casing carried on an outer wall of the air-reservoir and communicating with the interior thereof, the said pipe communicating with the valve-casing, and a valve commanding such communication.

663,733. MILK-BOTTLE. CHARLES E. CRANE, Seattle, Wash. Filed June 2, 1899. Serial No. 719,099. (No model.)



Claim.—A combined cream and milk receptacle, comprising the body portion A, for containing milk, an extended neck portion a, for containing cream, the latter tapering from its upper end downwardly to its junction with the body portion and provided with an interior annular shoulder x near said junction, a flexible flanged disk B to seat on said shoulder and form a liquid-tight partition between the body and neck, and a removable disk-closure for the upper end of the neck, substantially as and for the purpose specified.

663,734. REPETITION PIANO-ACTION. JOHN W. DARLEY Jr., Baltimore, Md., assignor of one-half to Michael Holzman, Philip Hamburger, and Leon Hamburger, same place. Filed Oct. 5, 1894. Renewed Oct. 29, 1900. Serial No. 34,845. (No model.)



Claim.—1. In a piano-action, the combination with mechanism for operating the hammer, of an adjustable stop located normal to the line of travel of the back-check and adapted to check the said back-check at the desired limit of its motion toward the coöperating part of the hammer, substantially as described.

2. In a piano-action the combination with a piano-key, of an operating-rod moved thereby and provided with a friction-cap; a jointed jack operated by said rod, a hammer operated by said jointed jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and means for adjustably connecting the hammer-check to the hammer, substantially as and for the purpose described.

3. In a piano-action, the combination with a piano-key, of an operating-rod moved thereby and provided with a friction-cap; a jointed jack operated by said rod, a hammer operated by said jointed jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and a wire screw-threaded at one end and adjustably connecting the hammer-check to the hammer.

4. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod, a hammer operated by said jointed jack and a hammer-check connected to said hammer and adapted to strike against said friction-cap, and to be checked thereby, substantially as described.

5. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod, a hammer operated by said jointed jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and means for adjustably connecting the hammer-check to the hammer, substantially as and for the purposes described.

6. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and

adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod, a hammer operated by said jointed jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and a wire screw-threaded at one end and adjustably connecting the hammer-check to the hammer.

7. In a piano-action, the combination with a piano-key and an operating-rod moved thereby, of a pivoted jack-lever operated by said rod and provided with a projecting arm; a jointed jack pivoted to said jack-lever, an arm projecting from one member of the said jointed jack in the line of travel of the projecting arm of the jointed jack, an adjustable button secured to one of said arms and adapted to strike the other, whereby said jointed jack may be bent at the desired instant and a hammer-butt and hammer operated by said jointed jack, substantially as described.

8. In a piano-action, the combination with a piano-key and an operating-rod moved thereby, of an arm rigidly attached to said rod, a pivoted jack-lever pivotally connected to said arm, and itself provided with a projecting arm, a jointed jack mounted above said jack-lever and operated thereby, an arm projecting from the lower member of said jointed jack, an adjustable button mounted therein and adapted to strike said projecting arm on the jack-lever at the desired instant and thus to bend said jack, and a hammer-butt and hammer operated by said jointed jack, substantially as described.

9. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod and provided with a cam-shaped head; a hammer-butt operated by said jointed jack, and provided with a recess *n* with sides sloping and faced as shown, to receive said head; a hammer connected to said hammer-butt and a hammer-check connected to said hammer and adapted to strike against said friction-cap, and to be checked thereby, substantially as described.

10. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod, and provided with a cam-shaped head; a hammer-butt operated by said jointed jack, and provided with a recess *n* with sides sloping and faced, as shown, to receive said head, a hammer connected to said hammer-butt, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and means for adjustably connecting the hammer-check to the hammer, substantially as and for the purposes described.

11. In a piano-action, the combination with an action-frame and a stop carried thereby, of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jointed jack operated by said rod, and provided with a cam-shaped head, as shown, a hammer-butt operated by said jointed jack, and provided with a recess *n* with sides sloping and faced, as shown, to receive said head; a hammer connected to said hammer-butt, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and a wire screw-threaded at one end and adjustably connecting the hammer-check to the hammer.

12. In a piano-action, the combination with a jointed jack provided with a cam-shaped head and means for bending the said jack, of a hammer-butt provided with a recess adapted to engage the cam-faces of said jack-head, substantially as and for the purposes described.

13. In a piano-action, the combination with a jointed jack provided with a cam-shaped head pointed at m^5, flat at m^3, and rounded at m^{11}, of a hammer-butt provided with a recess *n*, having sides n^2 and n^4 sloping as shown, and adapted to engage the faces of said jack-head, substantially as and for the purposes described.

14. In a piano-action, the combination with a jointed jack and a rod for operating the same, of an adjustable sleeve mounted on said rod and adapted to strike a fixed stop and thus to check the action at the desired limit of its upward travel, substantially as and for the purposes described.

15. In a piano-action, the combination with a jointed jack of a pivoted jack-lever and mechanism for operating the same, means for causing said jack-lever to push said jack forward during the early part of the stroke and to cause the member of the jack pivoted to the jack-lever to rotate in unison with the jack-lever toward the end of the stroke, substantially as and for the purposes described.

16. In a piano-action, the combination with a jointed jack of a pivoted jack-lever and mechanism for operating the same, an arm projecting from the said lever, and a similar arm projecting from the adjacent member of the jack and adapted to be struck by the first arm toward the end of the stroke, substantially as and for the purposes described.

17. In a piano-action the combination with a key, of an operating-rod moved thereby and provided with a friction-cap; a jack-lever operated by said rod and a jack operated by said lever, a hammer operated by said jack and a hammer-check connected to said hammer and adapted to strike against said friction-cap, and be checked thereby, substantially as and for the purpose described.

18. In a piano-action the combination with a piano-key of an operating-rod moved thereby and provided with a friction-cap; a jack operated by said rod, a hammer operated by said jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and means for adjustably connecting the hammer-check to the hammer, substantially as and for the purpose described.

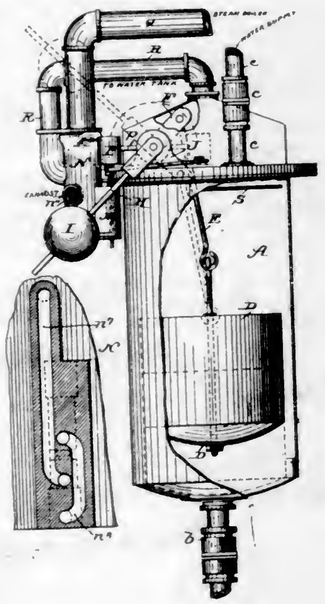
19. In a piano-action, the combination with a piano-key of an operating-rod moved thereby and provided with a friction-cap; a jack operated by said rod, a hammer operated by said jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and a wire screw-threaded at one end and adjustably connecting the hammer-check to the hammer, substantially as described.

20. In a piano-action, the combination with a fixed stop of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jack operated by said rod, a hammer operated by said jack, and a hammer-check connected to said hammer and adapted to strike against said friction-cap, and to be checked thereby, substantially as described.

21. In a piano-action the combination with a fixed stop of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jack operated by said rod, a hammer operated by said jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and means for adjustably connecting the hammer-check to the hammer, substantially as and for the purpose described.

22. In a piano-action, the combination with a fixed stop of a piano-key, an operating-rod moved thereby and provided with a friction-cap, a sleeve adjustably mounted on said rod and adapted to strike against said stop and so limit the motion of said rod, a jack operated by said rod, a hammer operated by said jack, a hammer-check provided with a covering on one face of soft yielding material and adapted to strike said friction-cap, and a wire screw-threaded at one end and adjustably connecting the hammer-check to the hammer, substantially as described.

663,735. BOILER-FEEDER. HENRY J. DAVIS, PLAYFAIR G. AULT, WILBER W. BAILEY, and JAMES H. WIDEMAN, Birmingham, Ala. Filed Oct. 1, 1900. Serial No. 31,649. (No model.)



Claim.—1. In an apparatus of the character described, the combination, with a steam-boiler, water-tank, and pipes duly connecting the same, of a water-displacing weight or float in said tank, a main valve controlling the admission of steam from boiler to tank, and provided with a piston-head, and another valve, and ports connecting it with the main valve, and tappet mechanism operated by the weight as it rises and falls, and adapted to actuate the last-named or controlling valve, substantially as shown and described.

2. In an apparatus of the character described, the combination, with the steam-boiler, the water-tank and pipes duly connecting the same, of a displacing weight or float arranged in said tank, a rock-shaft arranged at the upper portion of the tank and provided with a weighted arm for balancing the displacing-weight, and a shiftable hammer or weight operated by said rock-shaft, a main valve controlling the admission of steam to the tank, and a controlling-valve duly connected by ports or passages with said main valve, such controlling-valves being suitably arranged to admit of its actuation, substantially as shown and described.

3. In an apparatus of the character described, the combination with the water-boiler and the tank having pipe connections substantially as specified, of a displacing weight or float arranged in the tank, a rock-shaft arranged on the upper portion of the latter and having a counter-balancing-weight as described, a main valve controlling the admission of steam to the tank, a smaller valve having ports connecting it with the main-valve cylinder and serving to control the position of the main valve, a hammer or weight mounted on the shaft and adapted to be shifted when the latter is rocked, and a tappet-lever connected with the stem of the controlling-valve and upon the opposite end of the tappet-lever, whereby as said hammer is shifted from one side to the other, it alternately depresses and raises the valve corresponding with the rise and fall of the water in the tank, substantially as shown and described.

4. In an apparatus of the character described, the combination, with the steam-boiler, the water-tank, a main-valve cylinder, a controlling-valve cylinder and valves arranged therein, pipes connecting the boiler and tank with the main-valve cylinder, of the displacing weight or float arranged in the water-tank and having a counterbalance as specified, a rock-shaft arranged transversely at the top of said tank, a disk which is fast on said rock-shaft and provided with lateral projections, a hammer or weighted arm journaled loosely on said shaft and adapted to engage the projections of said disk alternately, and a tappet-lever mounted loosely on said shaft and connected with the stem of the controlling-valve substantially as shown and described, whereby as the displacing-weight rises and falls, the said shaft and disk are rocked, and the hammer thereby shifted from right to left and left to right, alternately, thus striking the stem of the controlling-valve to depress it and the opposite end of the tappet-lever for raising said valve, alternately, substantially as shown and described.

5. In an apparatus of the character described, the combination, with the boiler, the tank, a displacing-weight in the latter, and mechanism connected therewith for operating the controlling-valve, of a main valve arranged in a cylinder duly connected with the boiler and tank, the controlling-valve arranged in an adjacent chamber or cylinder, and long and short ports or passages connecting the end chambers of the main-valve cylinder with the chambers in the smaller-valve chamber, which chambers are separated by a partition traversed by the valve-stem having a port or passage for steam, substantially as shown and described.

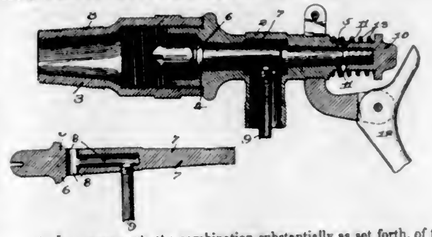
6. In an apparatus of the character described, the combination, with the steam-boiler, the water-tank, and a displacing-weight arranged in the latter, a valve-operating mechanism connected with said weight, of a main-valve chamber, and a controlling-valve chamber adjacent to the tank, pipes connecting the head and side of the main-valve chamber with the boiler and tank respectively, the main valve adapted to seat upward and downward and provided with a piston, steam-passages connecting the ends or end chambers of the main cylinder with the other cylinder, the controlling-valve arranged to pass above and below the exit of one of said passages, a port leading from the chamber of such controlling-valve to the chamber above, which port is closed when the valve is seated upward, substantially as shown and described.

663,736. GAGE-COCK. THOMAS A. DELANEY, Chicago, Ill., assignor to the Hills-McCanna Company, same place. Filed June 7, 1900. Serial No. 19,411. (No model.)

Claim.—1. In a gage-cock, in combination with the casing thereof, a valve and a valve-stem fitting closely in the bore of the casing and provided with a vent-channel, substantially as set forth.

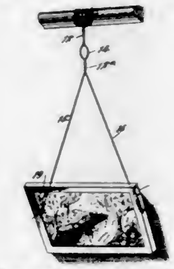
2. In a gage-cock, in combination with the casing thereof, a valve-stem extending through the casing and carrying a valve at each end, said valves being so adjusted that when one is closed the other is open, substantially as set forth.

3. In a gage-cock, a casing provided with a side outlet, in combination with a valve-stem extending through the casing and having a vent-channel with a side outlet registering with the side opening of the casing, and a valve attached to each end of the stem and so adjusted that when one is closed the other is open, substantially as set forth.



4. In a gage-cock, the combination substantially as set forth, of the casing 2 having the valve-seats 4 and 5 at opposite ends thereof the valve-stem 7 fitting closely in the bore of the casing, and provided with the vent-channel 8, the valves 6 and 11, attached to opposite ends of the stem 7 and so adjusted with reference to each other that when one is on its seat the other is off its seat, the lever 12 for opening valve 6 and closing valve 11, and the spring 13 for closing valve 6 and opening valve 11.

663,737. HANGER FOR PICTURE-FRAMES. PETER DOBLE, Centreville, Mont. Filed Mar. 21, 1900. Serial No. 9,563. (No model.)



Claim.—1. A picture-hanger constructed of wire, comprising an upper hook constructed of a multiple of members, a stem below the hook, legs diverging from the stem, having keepers at their lower ends and snaps arranged to enter said keepers, and loops connected with the legs and adapted to engage with the back of a picture-frame for the purpose of steadying the same, as described.

2. A picture-hanger constructed of wire bent upon itself to form a hook-shaped head, a stiff stem below the head and in which an eye is formed, legs diverging from the said stem, each leg being provided with a snap at its lower end, a keeper for the snap, and a guide-loop, the guide-loops extending outwardly from the legs.

3. A picture-hanger, comprising a hook, a stem secured to the hook and formed with an eye and diverging legs secured to the stem, said legs each being provided at its lower end with means for engaging a picture-frame to support it and adjacent to said ends with a projection for engaging the back of a picture, substantially as described.

4. A picture-hanger formed of wire bent to form a hook and then twisted together to form a stem having an eye, and from which stem diverging legs extend, the legs at their lower ends being formed with means for engaging a picture-frame to support it and adjacent to said ends with a projecting loop for engaging the back of the picture-frame, substantially as described.

5. A picture-hanger formed of wire bent to form a hook and then twisted together to form a stem having an eye and from which stem diverging legs extend, the legs adjacent to their lower ends being bent to form loops for engaging the back of a picture, below the loops with keepers, and having their extremities bent upward to form snaps adapted to engage the keepers, substantially as described.

6. A picture-hanger, comprising a twisted stem having a hook at its upper end and diverging legs extending from its lower end, the legs being each formed of two members adjustable one upon the other, the lower member of each leg being bent to form a loop to engage the back of a picture-frame, a keeper below the loop, and having its extremity bent upward to form a snap adapted to engage the keeper, substantially as described.

663,738. SPINNING APPARATUS. GEORGE O. DRAPER, Hopedale, Mass., assignor to the Draper Company, same place, and Portland, Me. Filed Oct. 23, 1899. Serial No. 734,427. (No model.)

Claim.—A dead-spindle, a concentric ball-support having an annular raceway and an upturned hub, a whirl having its bore shaped to form upper and lower ball-raceways, and two series of antifriction-balls interposed between the whirl and the hub and raceway of the ball-support, the upper series of balls traveling upon the upper end of the hub and the adjacent portion of the spindle.



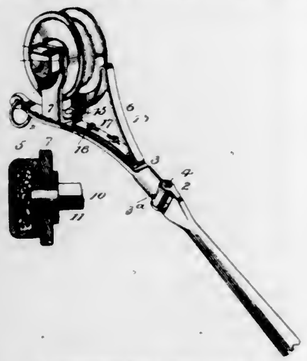
663,739. PROCESS OF MAKING ARTIFICIAL-SILK THREAD. JULES DUQUESNOY, Paris, France. Filed May 31, 1900. Serial No. 18,585. (No specimens.)

Claim.—1. The herein-described process of producing artificial silk, which consists in dissolving nitrocellulose or guncotton in a solvent composed of acetone, acetic acid, and an alcohol in about equal parts, and expressing the resulting solution from a capillary orifice.

2. In the herein-described process of making artificial silk, the method of dissolving nitrocellulose which consists in subjecting the said nitrocellulose to the action of a solvent composed of acetone, acetic acid, and an alcohol.

3. In the herein-described process of making artificial silk, the method of treating guncotton, which consists in subjecting the said guncotton to the action of a solvent composed of equal parts of acetone, acetic acid, and amyl alcohol.

663,740. TROLLEY FOR ELECTRIC CARS. WILLIAM H. EARL, Painesville, Ohio. Filed Aug. 14, 1900. Serial No. 26,861. (No model.)



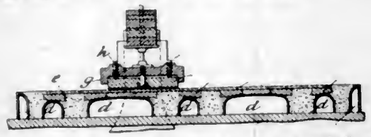
Claim.—1. In combination with a trolley-pole, a harp or arm hinged to the upper end thereof to swing laterally, and a support for the trolley-wheel having pivotal connection with the said harp and adapted to turn about a vertical axis, substantially as set forth.

2. In combination with a trolley-arm and a trolley-wheel, a mounting for the trolley-wheel having pivotal connection with the said trolley-arm to turn laterally, and a guard applied to the trolley-arm and constituting a stop to limit the turning movements of the trolley-wheel mounting, substantially as described.

3. In combination with a trolley-arm, the trolley-wheel, and a mounting therefor having pivotal connection with the trolley-arm, a guard located in front of the trolley-wheel and adjustable toward and from the trolley-wheel mounting to form a variable stop therefor, and means for securing the said guard in an adjusted position, substantially as specified.

4. A trolley-arm, and a trolley-wheel, in combination with a mounting for the trolley-wheel having pivotal connection with the trolley-arm, and means for limiting the turning movement of the trolley-wheel mounting and having adjustable connection with the trolley-arm, substantially as specified.

663,741. APPARATUS FOR MANUFACTURING PRISMATICALLY-RIDGED GLASS. MALCOLM F. EWEN, London, England, assignor to the Grace-Church Syndicate, Limited, same place. Original application filed May 18, 1900, Serial No. 17,120. Divided and this application filed July 24, 1900. Serial No. 24,729. (No model.)



Claim.—1. In apparatus for manufacturing prismatically-ridged glass a frame made with parallel faces and transverse ribs adapted to be placed upon a sheet of glass, wedges adapted to be inserted between the ribs and the glass, and cement for bedding and holding the glass substantially as described.

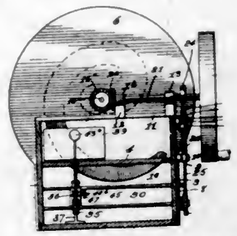
2. In apparatus for manufacturing prismatically-ridged glass, tools ridged on their faces in combination with a stationary frame for holding them, bolts adapted to retain the tools and screws and springs adapted to regulate their pressure, and means of moving the glass to and fro under the tools, substantially as described.

3. In an apparatus for manufacturing prismatically-ridged glass, a frame adapted to be reciprocated and carry a sheet of glass, a tool-carrying frame arranged above the same, a series of tools adjustably connected to the said tool-frame, a series of removable weights mounted upon said frame, and separate means carried by said tool-frame for regulating the pressure of the said tools upon said sheet of glass.

4. In an apparatus for manufacturing prismatically-ridged glass, a frame carrying a suitable cement for securing a sheet of glass thereto, a tool-frame mounted above said frame, a series of tools, means for adjustably connecting said tools to said tool-frame, means carried by the tool-frame for regulating the pressure of said tools, a series of removable weights mounted upon said frame, and a polishing-roller.

5. In an apparatus for manufacturing prismatically-ridged glass, a tool-frame, a series of tools adjustably mounted therein, means carried by said frame and engaging said tools for regulating the pressure thereof, and means for supporting a series of weights upon said frame.

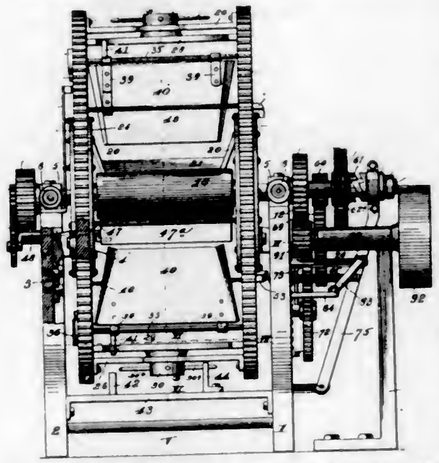
663,742. BREAD-CUTTING MACHINE. JOHN R. FARMER, St. Louis, Mo., assignor of five-sixths to Adolph Boettler, Henry F. W. Ruhe, and Edward Cornet, same place. Filed Mar. 17, 1900. Serial No. 9,018 (No model.)



Claim.—1. In a bread-cutting machine, the combination of a revoluble knife, means for operating said knife, a movable rack, an upright rigidly fixed to said rack, an upright adjustably fixed to said rack, means for moving said rack, and a rocking rod arranged to be engaged by said movable upright and to trip said rack-moving means, substantially as described.

2. In a bread-cutting machine, the combination of a revoluble knife, a shaft whereby said knife is turned, a cam carried by said shaft, a spring-controlled rod arranged to receive the contact of said cam, a rocking link connected to said rod, a pawl carried by said link, a ratchet-wheel arranged to receive the engagement of said pawl, a shaft by which said ratchet-wheel is carried, a pinion on said shaft, a rack engaged by said pinion, an upright fixed to said rack, an adjustable upright mounted on said rack, a stud projecting from said adjustable upright, a rocking rod having an arm adapted to strike said pawl, and a prong adapted to receive the engagement of said upright-carried stud, substantially as described.

663,743. DOUGH-ROLLING MACHINE. JOHN R. FARMER, St. Louis, Mo., assignor of five-sixths to Adolph Boettler, Henry F. W. Ruhe, and Edward Cornet, same place. Filed Sept. 4, 1900. Serial No. 28,867. (No model.)



Claim.—1. In a machine of the class described, a pair of rollers, means whereby motion is imparted to said rollers, and a plurality of dough-receiving disks arranged to revolve around said rollers, substantially as specified.

2. In a machine of the class described, a pair of rollers, means for imparting rotary motion to said rollers, and a plurality of rotating dough-receiving disks arranged to revolve around said rollers, substantially as specified.

3. In a machine of the class described, a pair of rollers, means whereby rotary motion is imparted to said rollers, a plurality of rotatably-arranged dough-carrying disks arranged to revolve around said rollers, and means whereby said disks are intermittently revolved, substantially as specified.

4. In a machine of the class described, a pair of rollers, a plurality of dough-carrying disks arranged to revolve around said rollers, means whereby said disks are intermittently revolved, means whereby said disks are rotated during their revolution, and means whereby the dough passing from between the rollers is folded upon one of the dough-carrying disks, substantially as specified.

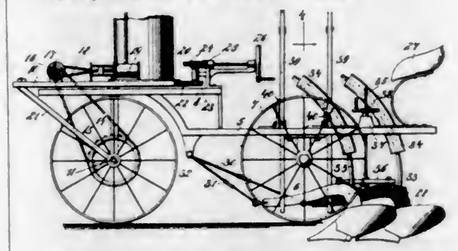
5. In a machine of the class described, a framework, a pair of rollers journaled in said framework, a pair of large gear-wheels, a plurality of rotating dough-carrying disks arranged between said gear-wheels, means whereby rotary motion is imparted to said gear-wheels, means whereby the disks are rotated a quarter of a turn at a time, and means for causing the dough to fold upon the lowermost one of the dough-carrying disks as it passes from between the rollers, substantially as specified.

6. In a machine of the class described, a frame, a pair of rollers journaled in said frame, means whereby one of said rollers is moved to and from the opposite roller, and a plurality of rotating dough-carrying disks arranged to be intermittently revolved around said rollers, substantially as specified.

7. In a machine of the class described, a frame, a pair of rollers journaled in said frame, a plurality of rotating dough-carrying disks arranged to be intermittently revolved around said rollers, means whereby the intermittently-revolving means is automatically thrown into and out of operation, means whereby the dough in passing from between the rollers is folded upon one of the dough-carrying disks, means whereby the dough is retained upon the disk, onto which it is folded while said dough is being carried forwardly above the rollers, which last-mentioned means performs the function of a chute for the dough to be guided between the rollers, substantially as specified.

8. In a machine of the class described, a pair of rollers, one of which is adjustable to and from the opposite roller, and a plurality of rotating disks arranged to carry the dough from below the rollers to a point above the same, and means whereby said dough-carrying disks are intermittently revolved around said rollers, substantially as specified.

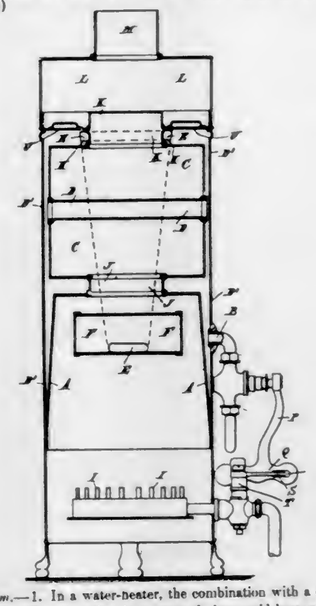
663,744. MOTOR-PLOW. FRANK P. FELTER, Haverstraw, N. Y. Filed Sept. 7, 1900. Serial No. 29,297. (No model.)



Claim.—1. An agricultural implement, comprising a carriage, a motor mounted on the carriage, plows arranged underneath the rear portion of the carriage-platform, link connections between the plow-beams and said platform, a bar connecting the beams of opposite plows, curved rods extended upward from said beams at their rear ends, curved guide-tubes attached to the platform and through which said rods pass, and means connecting with said cross-bar for raising or lowering the plows, substantially as specified.

2. An agricultural implement, comprising a carriage, a motor carried by the carriage, means for turning the front wheels of the carriage for steering the plow, two plows arranged beneath the carriage-platform, link connections between the beams of said plows, and the carriage-platform, curved guide-rods extended from said beams, curved guide-tubes supported by the platform and through which said rods move, a bar connection between the beams of the two plows, a screw-rod extended upward from said bar through a block on the platform, and a screw-wheel engaging with said rod, substantially as specified.

663,745. GEYSER OR LIKE WATER-HEATER. HENRY T. FENTON, London, England. Filed July 31, 1900. Serial No. 25,446. (No model.)



Claim.—1. In a water-heater, the combination with a casing, of a base mounted therein, a chamber arranged above said base and provided with a cross-tube D, connections between said base and chamber, a circulating-boiler arranged in said base, an outlet therefor, and a suitable pipe connection between the top of said chamber and said boiler, substantially as set forth.

2. In a water-heater, the combination with a casing, of a base mounted therein and forming a water-space in communication with a water-supply, a gas-burner arranged in said casing below said base and in communication with a source of gas-supply, a chamber mounted in said casing above said base and forming a continuation of the water-space, a cross-

tube extending through said chamber and in communication at each end with said water-space, a suitable connection between said chamber and base, a circulating-boiler mounted in the base, a suitable connection between the top of said water-space and said boiler, and an outlet for the said boiler.

3. In a water-heater, the combination with a casing, of a base mounted therein and forming a water-space in communication with a water-supply, a gas-burner arranged in said casing below said base, and in communication with a source of gas-supply, a chamber mounted in said casing above said base and forming a continuation of the water-space, a cross-tube extending through said chamber and in communication at each end with said water-space, a suitable connection between said chamber and base, a circulating-boiler mounted in the base, a suitable connection between the top of said water-space and said boiler, an outlet for said boiler, and means for simultaneously supplying and cutting off the water to said water-space and gas to said burner, substantially as set forth.

4. In a water-heater, a casing, a cone-shaped base arranged therein, a chamber in communication at its lower end with said base and at its upper end provided with an outlet, a tube extending through the said chamber, a circulating-boiler arranged in said base and provided with a suitable outlet, and a connection provided at its upper end with a lip and in suitable communication between the top of said chamber and said boiler.

5. In a water-heater, a casing, a base mounted therein above a gas-burner and surrounded by a water-space connected to a source of supply, a chamber arranged in said casing, in communication at one end with said base to receive the products of combustion therefrom and forming a continuation of said water-space, an outlet connected to said chamber for the products of combustion, a tube extending across said chamber and in communication at each end with said water-space and adapted to have the water circulating therethrough to be heated by the products of combustion as they arise within the chamber, a water-circulating boiler arranged in the said base and adapted to be heated by the products of combustion before entering said chamber, a suitable connection between the top of said water-space in said boiler for supplying water to the latter, and a suitable outlet for said boiler.

6. In a water-heater, a casing, a base mounted therein above a gas-burner and surrounded by a water-space connected to a source of supply, a chamber arranged in said casing, in communication at one end with said base to receive the products of combustion therefrom and forming a continuation of said water-space, an outlet connected to said chamber for the products of combustion, a tube extending across said chamber and in communication at each end with said water-space and adapted to have the water circulating therethrough to be heated by the products of combustion as they rise within the chamber, a water-circulating boiler arranged in the said base and adapted to be heated by the products of combustion before entering said chamber, a suitable connection between the top of said water-space in said boiler for supplying water to the latter, a suitable outlet for said boiler, and means for supplying and cutting off gas to said burner and water to said water-space.

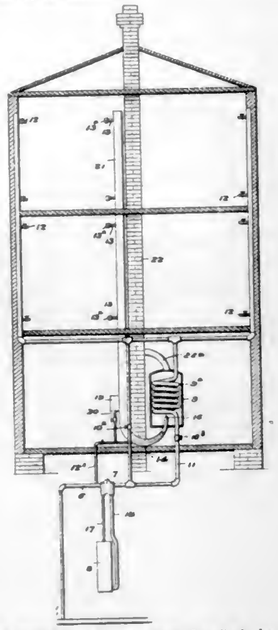
7. In a water-heater, the combination with a casing, of a base mounted therein, a chamber arranged above said base and provided with a cross-tube D, connections between said base and chamber, a circulating-boiler arranged in said base, an outlet therein, a suitable pipe connection between the top of said casing and said boiler, a water-supply tap suitably connected to said casing, a gas-supply valve suitably connected to said casing, and a suitable connection between the said valve and tap for simultaneously operating one with the other.

8. In a water-heater, the combination with a casing, of a base mounted therein, a chamber arranged above said base and provided with a cross-tube D, connections between said base and said chamber, a circulating-boiler arranged in said base, an outlet therefor, a suitable pipe connection between the top of said casing and said boiler, a gas-supply valve connected to said casing, a curved arm secured thereto for operating the same, a water-supply tap connected to said casing and provided with a suitable extension, and means carried by the said extension and engaging said arm for operating said gas-supply valve simultaneously with the operation of the water-tap.

663,746. **SYSTEM OF VENTILATION, HEATING, AND COOLING.** ALLEN FOWLER and ANDREW J. HARPOLE, Union City, Tenn. Filed Aug. 8, 1899. Serial No. 726,585. (No model.)

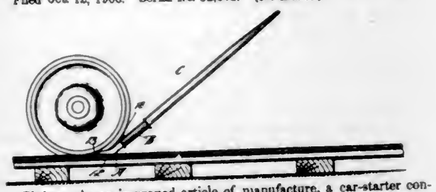
Claim.—1. In an apparatus of the character described, the combination of an outlet-flue communicating with one or more apartments of a structure, a furnace having an outlet therefrom, a reduced end of said flue projecting into the furnace, and a pipe within said reduced end for supplying fresh air to the furnace, substantially as described.

2. In an apparatus of the character described, the combination of an outlet-flue communicating with one or more apartments of a structure, a furnace, a portion of said flue having its end projecting into the furnace, a fuel-supplying pipe, terminating in said end of flue, a series of air-distributing pipes, a pipe connecting said series with the air-supply, a coiled pipe within the furnace, and also connecting said series with the air-supply, an outlet for said furnace and means for supplying air to the furnace, substantially as described.



3. In an apparatus of the character described, the combination of an outlet-flue having inlets and communicating with one or more compartments of a structure, means for closing said inlets, a reduced lower end of said flue having a burner therein, a furnace receiving said end, a pipe within the reduced end of the flue adapted to supply fuel to the furnace, an outlet from said furnace, air-distributing pipes, pipes connecting the distributing-pipes with the air-supply, one of said connecting-pipes passing through, and coiled within, said furnace and means for directing air through either of the connecting-pipes, substantially as described.

663,747. **CAR-STARTER.** THOMAS GERAGHTY, Bayonne, N. J. Filed Oct. 12, 1900. Serial No. 32,875. (No model.)



Claim.—As an improved article of manufacture, a car-starter consisting of a bar-section the foot whereof is flat at the bottom and tapering at the top, the foot at its bottom portion having transverse corrugations at the heel portion thereof, said foot being likewise provided with transverse corrugations in its upper face at the toe portion, a socket provided with a bore or channel of the same cross-sectional shape as the cross-section of the shank of the bar, and a chamber connecting with said channel, the said shank being entered in the said channel and made to extend into the chamber of the socket, a fastening device carried by the socket and engaging with the shank of said bar, and a handle fitted to and removable from the chamber in the socket, the handle being provided with a recess which receives the upper end of the shank of the bar, conforming in cross-sectional contour thereto, as specified.

663,748. **SHAFTING.** JOSEPH GIROUX, New York, N. Y. Filed Mar. 7, 1900. Serial No. 7,712. (No model.)

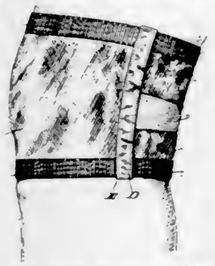
Claim.—1. A shaft for machinery consisting of a tube of metal having that portion next the central opening with the grain or fiber extending in longitudinal direction, and an inclosing layer of metal having its grain or fiber extending in generally circumferential direction, substantially as described.



2. A hollow shaft having its central section composed of segments of a tube with welded edges, and an inclosing tube having its edges joined by a weld, all being welded into a single structure, substantially as described.

3. A hollow shaft having its interior portion composed of segments lap-welded together, and its exterior composed of a welded tube having its fibers running circumferentially, substantially as described.

663,749. **KNEE OR ELBOW CAP.** FRANK W. GORSE, Highlandville, Mass. Filed Dec. 28, 1899. Serial No. 741,824. (No model.)

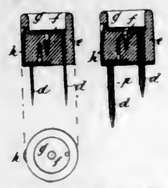


Claim.—1. An elastic tubular bandage, comprising a front piece and a rear piece, the side edges of the latter being shorter than the side edges of the front piece, the said pieces being fastened together at said side edges, the said rear piece having its upper and lower portions formed with elastic warp-threads and the middle portion in the form of a fine loose weave of inelastic threads, substantially as shown and described.

2. A bandage in tubular form and having its rear formed at its upper and lower parts with elastic warp-threads, and a middle finely-woven portion of inelastic threads and connecting the said upper and lower parts, the said middle portion extending to the sides of the bandage, substantially as shown and described.

3. A bandage comprising a front piece and a rear piece joined at their edges to form a tubular fabric, the rear piece having its side edges shorter than the side edges of the front piece, the shorter side edges being stretched when joining the edges together, the said bandage having the seams at the sides, and tapes for reinforcing said seams and extending over the seams at both the inside and outside of the fabric, the front piece being formed with elastic warp-threads, and the rear piece having an upper and a lower portion formed with elastic warp-threads, and a fine loosely-woven middle portion of inelastic threads and extending to the sides of the bandage, substantially as described.

663,750. **ELECTRIC CONTACT OR CURRENT-TAKING DEVICE.** ERNEST GREIL and EMILE AUDIGER, Paris, France, assignors to the Electric Lighting Boards, Limited, London, England. Filed Jan. 10, 1900. Serial No. 979. (No model.)



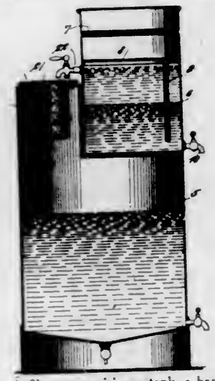
Claim.—1. The combination of a plurality of electric parallel conducting-bands laid in the grooves of a table or other support and connected alternately to the positive and negative poles of an electric generator, an insulating-block, a pair of conducting projections secured thereto and each of which is adapted to penetrate one of the contacts, and a separate contact-plate suitably connected to each of said projections.

2. The combination with a plurality of electric contacts connected respectively with the positive and negative poles of an electric generator, and mounted in a table or other suitable support, of an insulating-block having conducting projections thereon adapted to penetrate the bands, contact-plates connected respectively to said projections and mounted on separated portions of said block, a socket-piece in the base of a translating device adapted to receive said block and contacts on said socket-piece adapted to engage said plates and connected to the conductors leading to said translating device.

3. The combination with a plurality of electric contacts connected respectively with the positive and negative poles of an electric generator, and mounted in a table or other suitable support, of an insulating-block having conducting projections thereon adapted to penetrate said contacts, contact-plates, one embracing said block and the other seated in a recess in the upper end thereof, a socket-piece in the base of a translating device adapted to receive said block, an annular contact on said socket-piece connected with one of the conductors leading to said translating device and adapted to engage the contact-plate embracing said block, and a yieldingly-mounted contact on said socket-piece connected with the other conductor leading to said translating device and adapted to engage the contact-plate seated in the recess in said block.

4. The combination with a plurality of electric contacts connected respectively with the positive and negative poles of an electric generator, mounted one above the other in a table or other support and separated by a layer of insulating material, and a layer of easily-penetrable insulating material on the top of said table or support above said contacts, of a circuit-closing device having projections thereon terminating at different levels, and adapted to be inserted through said layer of penetrable insulating material to respectively engage said contacts, and insulating material on one of said projections, as and for the purpose set forth.

663,751. **FILTER.** ARTHUR G. GRENAMYER and GEORGE A. ROBINSON, Leetonia, Ohio. Filed Sept. 6, 1900. Serial No. 29,178. (No model.)



Claim.—1. A filter, comprising a tank, a basket extended into the upper portion of the tank and having a flange portion projected upon the top of the tank, a packing or gasket arranged between said flange and the top, and a vacuum-regulator connected to the tank, substantially as specified.

2. A filter, comprising a tank, a basket removably supported in the upper portion thereof, a filter material of felt or the like removably placed in said basket, and a vacuum-regulator attached to the tank, substantially as specified.

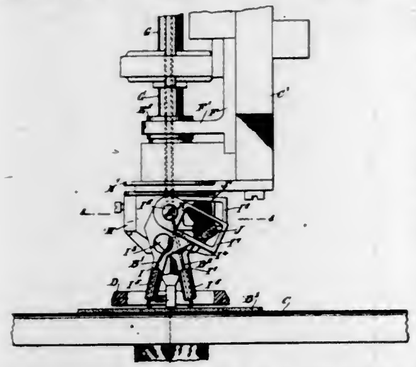
3. A filter, comprising a tank, a receiving vessel removably placed on the tank, a screen in the upper portion of said receiving vessel, a partition below the screen, and a pipe leading through said partition and nearly to the bottom of the vessel, substantially as specified.

4. A filter, comprising a tank, a cup-shaped filter of felt or the like supported in the upper portion of said tank, a receiving vessel supported on the tank, a cock for discharging oil from said vessel into said filter, a screen in the upper portion of the receiving vessel, a partition in the vessel below the screen, and a tube leading through said partition into the receiving vessel, substantially as specified.

663,752. **EMBROIDERING ATTACHMENT FOR SEWING-MACHINES.** JOSEPH GRUBMAN, New York, N. Y. Original application filed Mar. 10, 1900, Serial No. 8,169. Divided and this application filed May 29, 1900. Serial No. 18,409. (No model.)

Claim.—1. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn, a carrier for embroidering material and pivoted on the sleeve to swing across the path of the stitches made by the sewing-needle, a shaft having an intermittent turning motion and provided with a cam for engagement with said carrier to impart a swinging motion to the latter, means for turning said cam-shaft intermittently and

means for holding said cam-shaft against accidental turning, substantially as shown and described.



2. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn, a carrier for embroidering material and pivoted on the sleeve to swing across the path of the stitches made by the sewing-needle, a shaft having an intermittent turning motion and provided with a cam for engagement with said carrier to impart a swinging motion to the latter, a reciprocating nipple, a slide movable on the sleeve and moving with the nipple, and a connection between the said slide and the said cam-shaft to operate the latter intermittently from the slide, as set forth.

3. An embroidering attachment, comprising a reciprocating nipple having a tubular shank provided with an opening for the passage of the embroidering material, a sleeve mounted to turn and having a slot or opening by which the embroidering material passes from the nipple-shank to the outside of the sleeve, a carrier pivoted on the outside of the sleeve and having an opening below the pivot leading to the front of the carrier, and a guideway at the lower end of the carrier for the embroidering material and means for swinging the carrier, substantially as shown and described.

4. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve, a cam-shaft, a reciprocating slide, and means for imparting an intermittent turning motion to the shaft from the said slide, the said shaft being provided with cams engaging the said carriers to impart an intermittent swinging motion to the same, for the purpose set forth.

5. An embroidering attachment for sewing-machines comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve and adapted to swing in opposite directions to cross the embroidering materials, a reciprocating nipple, a cam-shaft, means for imparting motion to the cam-shaft from the nipple, and cams carried by said shaft and adapted to swing the said carriers at every alternate upward stroke of the nipple, as set forth.

6. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve, a cam-shaft, triangular cams thereon and engaging cam-arms on the said carriers, and means for imparting motion to the said cam-shaft, as set forth.

7. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve, a cam-shaft mounted to turn in the said sleeve, triangular cams on the said cam-shaft and standing in opposite directions and in engagement with cam-arms on the said carriers, a star-wheel on the said cam-shaft, and a pawl for engaging the said star-wheel to intermittently turn the same, substantially as shown and described.

8. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve, a cam-shaft mounted to turn in the said sleeve, triangular cams on the said cam-shaft and standing in opposite directions and in engagement with cam-arms on the said carriers, a star-wheel on the said cam-shaft, a pawl for engaging the said star-wheel to intermittently turn the same, and a slide mounted in said sleeve and carrying the said pawl, the said slide receiving an intermittent reciprocating movement from the nipple, substantially as shown and described.

9. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a plurality of carriers for the embroidering materials and pivoted on said sleeve, a cam-shaft mounted to turn in the said sleeve, triangular cams on the said cam-shaft and standing in opposite directions and in engagement with cam-arms on said carriers, a star-wheel on the said cam-shaft, a pawl for engaging the said star-wheel to intermittently turn the same, a slide mounted in said sleeve and carrying the said pawl, the said slide receiving an intermittent reciprocating movement from the nipple, and a spring engaging the said star-wheel, to hold it and the cam-shaft against accidental turning, substantially as shown and described.

10. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and provided with a slot or opening for the passage of the embroidering materials, a plurality of carriers pivoted on said sleeve and mounted to swing in opposite directions, the said carriers having registering apertures below the pivot for the passage of the embroidering materials from the slot or opening in the sleeve to the front of the carriers and means for imparting a swinging motion to the carriers, substantially as shown and described.

11. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, the said sleeve being provided with a slot or opening for the passage of the embroidering materials, a plurality of carriers pivoted on said sleeve and mounted to swing, and means for swinging the carriers in opposite directions, the carriers having registering apertures, at a point below the pivot for the passage of the embroidering materials from the slot in the sleeve to the front of the carriers, and eyes at the free ends of the carriers for the passage of the embroidering materials, substantially as shown and described.

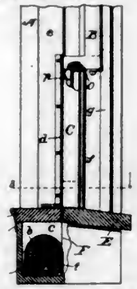
12. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn, a carrier for an embroidering material and pivoted on the sleeve to swing across the path of the stitches made by the sewing-needle, a cam-shaft, a reciprocating nipple, means for imparting motion to the cam-shaft from the nipple, and a cam on said shaft for engagement with said carrier, the said cam being arranged to impart a swinging motion to the carrier, at every alternate upward stroke of the nipple, substantially as set forth.

13. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn, a carrier for an embroidering material and pivoted on the sleeve to swing across the path of the stitches made by the sewing-needle, the said carrier being provided at its upper end with a slotted cam-arm, a cam-shaft having a cam operating in the slotted cam-arm, to impart a swinging motion to the carrier, and means for imparting an intermittent turning motion to the cam-shaft, as set forth.

14. An embroidering attachment for sewing-machines, comprising a sleeve mounted to turn and concentric with the needle-bar, a carrier for an embroidering material and pivoted on the sleeve, a cam-shaft mounted to turn in said sleeve, a cam on said shaft and engaging a cam-arm on the carrier, a star-wheel on the said cam-shaft, a reciprocating nipple, a slide receiving an intermittent reciprocating movement from the nipple, a pawl pivoted on the slide and engaging the said star-wheel, a spring carried on the slide and pressing on the pawl, a stop for limiting the swinging movement of the pawl, and a spring engaging the star-wheel to hold it and the cam-shaft against accidental torning, substantially as described.

15. In an embroidering attachment for sewing-machines, a plurality of carriers mounted to swing in opposite directions and having apertures for the passage of the embroidering materials, each carrier being provided with a slotted cam-arm, cams engaging the slots of said arms, and means for operating the cams to impart an intermittent swinging motion to the carriers, substantially as set forth.

663,753. WINDOW-SCREEN. PETER GYSEL, Rochester, N. Y., assignor of one-half to Peter W. Seller, same place. Filed Aug. 30, 1900. Serial No. 28,546. (No model.)



Claim.—1. In a window-screen, a roller, a perforated sheet wound thereon, a head secured to the upper end of said sheet and provided with a loop extending upon one side and downwardly-inclined catches extending from the opposite side, rests to engage said loop and a catch-plate having inclined upper ends for detachably engaging said catches on the head, as set forth.

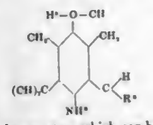
2. In a window-screen, a roller, a perforated sheet secured at one end thereto to be wound thereon, a head secured to the upper end of said sheet and formed with a loop and projecting catches, a catch-plate to be engaged by said catches and guides for the said head having their lower ends shortened and bent outwardly to form inclined rests substantially as and for the purpose specified.

663,754. UNSTABLE ACETONALKAMINS AND PROCESS OF MAKING SAME. CARL HARRIES, Berlin, Germany, assignor to the Chemische Fabrik auf Actien, vormals E. Schering, same place. Filed Dec. 11, 1897. Serial No. 661,514. (No specimens.)

Claim.—1. The herein-described process of obtaining acidyl compounds of the unstable modifications of the unsymmetrical cyclical acetonalkamins consisting in subjecting these alkamins to the action of an acidyl reagent and thus substituting the corresponding acidyl group for the hydrogen atom of the hydroxyl group of the said alkamin.

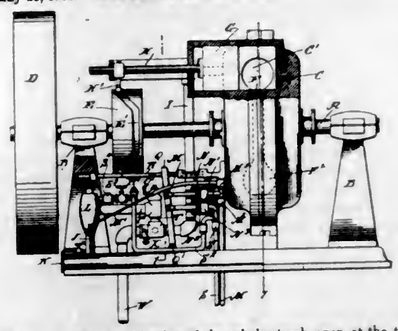
2. The herein-described process of obtaining acidyl compounds of the unstable unsymmetrical acetonalkamins consisting in first subjecting the corresponding amin bases to the action of the electric current to produce the unstable alkamins and then subjecting these alkamins to the action of an acidyl reagent, as and for the purpose set forth.

3. As new chemical products the herein-described unstable aceton alkamins, the composition of which products answers the general formula:



in which H^a signifies a hydrogen atom which can be replaced by an acidyl group, R^a an aliphatic or aromatic radical and H'^a a hydrogen atom which can be replaced by an alkyl group, of which products the products containing the hydrogen atom H'^a as such are more or less soluble in water, while the products—in which the hydrogen atom H'^a has been replaced by an acidyl group in the form of the free bases are insoluble in water and decompose upon boiling with watery or alcoholic alkalies into the respective alkamin base and a salt of that acid, the radical of which was substituted for the hydrogen atom of the hydroxyl—combined with inorganic and organic acids form the corresponding salts which have especially mydriatic properties.

663,755. ENGINE. JACOB E. HARTWELL, Troy, Mont., assignor of one-half to Fred R. Callow and William D. Savage, same place. Filed May 25, 1900. Serial No. 17,969. (No model.)



Claim.—1. The combination of the tubular torch open at the top and having an interior burner, a casing surrounding the upper end of the torch and forming an explosion-chamber therewith, said casing being provided with a fuel-inlet leading to the explosion-chamber, a cylinder containing a working chamber connected with said explosion-chamber, a water-inlet located in the connection of said two chambers, and means for injecting water and fuel respectively through said inlets.

2. In an engine, a casing or cylinder containing a working chamber, an igniting tube or torch closed at the bottom and open at the top and having an igniting-opening at its lower end, an explosion-chamber surrounding the upper end of the tobe or torch, and having a water-jacket, a connection between the explosion-chamber and the working chamber of the cylinder, and means for admitting water into the said connection, substantially as described.

3. In an engine, a casing or cylinder containing a working chamber, an igniting tube or torch open at the top and closed at the bottom and having igniting and vent openings at its lower end, an explosion-chamber surrounding the upper end of the tube or torch, and having a water-jacket, a connection between the explosion-chamber and the working chamber of the cylinder, a pump, and a connection between the pump and the connection connecting the explosion and working chambers and the water-jacket, substantially as described.

4. The combination of the tubular torch having its upper end open and its lower end closed and provided with an interior burner, the casing surrounding the torch and forming an explosion-chamber therewith, a cylinder containing a working chamber connected with the explosion-chamber, and means for injecting a fluid into the explosion chamber.

5. In an engine, a casing or cylinder containing a working chamber, an explosion-chamber connected with the working chamber and having a fuel-inlet, a water-inlet located in the connection of said two chambers, pipes or channels leading to said inlets, adjustable throttle-valves in said channels, means for injecting water and fuel respectively into said channels, and additional pipes or channels for receiving that portion of the water and fuel which does not pass through the throttle-valves.

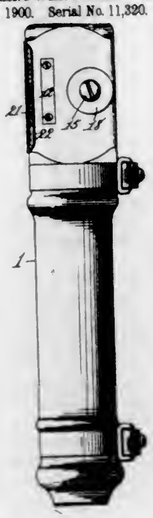
6. In an engine, a cylinder having ports adapted to serve interchangeably as inlet and outlet for the motive agent, an explosion-chamber, pipes leading from the ports of the cylinder, a valved pipe connecting the said pipes, a connection between the valved pipe and the explosion-chamber, a valve-chamber connected with each pipe, a valve in each chamber, and means for simultaneously operating all the valves, substantially as described.

7. In an engine, a cylinder having ports adapted to serve interchangeably as inlet and outlet for the motive agent, an explosion-chamber, pipes leading from the ports of the cylinder, a pipe connecting the said pipes, a valve in said pipe, a connection between the explosion-chamber and the said pipe, a valve-chamber connected with each pipe, a valve in each chamber and connected together, and a connection between the said valves and the first-named valve, substantially as described.

8. In an engine, the combination with a cylinder having a working chamber, of a torch constituting an igniting-tube, an annular explosion-chamber around the upper end of the igniting-tube, and having a water-jacket, a fuel-supply for the explosion-chamber, a connection between the explosion-chamber and the working chamber of the cylinder, a water-supply connected with the water-jacket of the explosion-chamber, and with the connection between the explosion and working chambers, and a valve for controlling the amount of water passing to said connection, substantially as described.

9. In an engine, the combination with a cylinder having a working chamber, an explosion-chamber, a fuel-supply for the explosion-chamber, and an igniting-tube for the explosion-chamber, of a connection between the explosion-chamber and the working chamber, a water-supply pipe, a connection between the water-supply pipe and the connection connecting the explosion and working chambers, a check-valve in the last-named connection, and a deflecting-valve also in said connection, substantially as described.

663,756. LOCKING WHIP-SOCKET. ARCHIE W. HERRING, Lima, Ohio. Filed Apr. 3, 1900. Serial No. 11,320. (No model.)

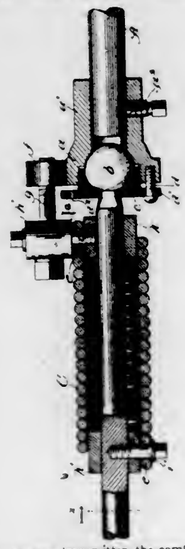


Claim.—1. A locking whip-socket having a movable clamping-arm carrying a locking-bar arranged at a right angle thereto, said arm and bar lying wholly within a recess transverse to said socket, a spring normally acting to hold said arm and locking-bar retracted, a lock located in a recess in the socket directly opposite the arm and having an opening in its casing to receive said bar whereby its bolt may be brought into and out of contact therewith, and a push-button having its shank lying in a slot in the whip-socket and its end engaging the clamping-arm whereby the latter may be moved toward the bolt against the action of the spring, substantially as described.

2. In a locking whip-socket, the combination with a clamping-arm lying in a recess in the whip-socket and opening into the latter transversely, of a locking-bar forming a rigid part of said clamping-arm and lying at a right angle with the same, a spring coiled on said locking-bar, a key-lock having a casing provided with an opening for the end of the locking-bar, and an exterior push-button having its shank in a slot in the whip-socket and its end tapped into the end of the clamping-arm, the spring having bearing at one end on the lock-casing to hold the clamping-arm out of engagement, substantially as described.

3. In a locking whip-socket the combination with a clamping-arm movable in a recess which opens into said socket transversely, a locking-bar carried by and arranged at right angles to said arm and provided at its free end with teeth or detents, a lock located in a recess in the socket directly opposite the arm and having an opening in its casing to receive the toothed end of said bar whereby the lock-bolt may be brought into and out of engagement with the said teeth or detents on the end of the bar, and a laterally-movable button having its shank lying in a horizontal slot in the whip-socket and its end engaging the clamping-arm whereby the latter may be moved laterally toward the bolt, substantially as described.

663,757. POWER-TRANSMITTER. MAX E. HERTEL, Greenfield, Mass., assignor to the Oakman Motor Vehicle Company, Chicago, Ill. Filed Feb. 11, 1899. Serial No. 705,243. (No model.)



Claim.—1. In a power-transmitter, the combination of a drive-shaft and a driven shaft having a universal-joint connection, and a spring firmly fastened to the driven shaft and yieldingly connected with the drive-shaft, substantially as described.

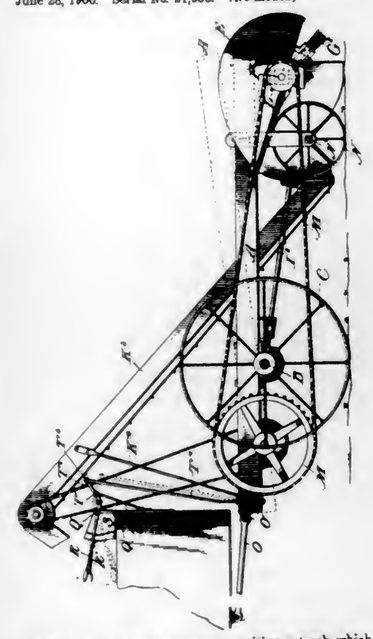
2. In a power-transmitter, the combination of a drive-shaft and a driven shaft having a universal-joint connection, a spring fastened rigidly at one end to the driven shaft, a collar loosely carried by the driven shaft and to which the opposite end of said spring is fastened, and a flexible link connection between said collar and drive-shaft, substantially as described.

3. In a power-transmitter, the combination of a drive-shaft and a driven shaft having an end-to-end ball-and-socket-joint connection, a spring coiled about the driven shaft, a collar on the driven shaft through which one end of the spring is fastened firmly thereto, a collar having the opposite end of the spring fastened to it and loosely surrounding the driven shaft, and a flexible link connection between said loose collar and the socket portion of said joint, substantially as described.

4. In a power-transmitter, the combination of a drive-shaft and a driven shaft having an end-to-end ball-and-socket-joint connection, a spring coiled about the driven shaft, a collar on the driven shaft through which one end of the spring is firmly fastened thereto, a collar loosely surrounding said driven shaft, a pin connecting the opposite end of the spring with said loose collar, a flexible link connected with said pin, and a pin connecting said link with the socket portion of said joint, substantially as described.

5. A power-transmitter comprising, in combination, the shaft A having fastened to one end a socket *a* provided with a bearing *f*, a shaft B terminating at one end in a ball *b* confined within said socket by a cone *c*, collars *k* and *k'*, a spring C surrounding the shaft B, said spring terminating in eyes *e*, through one of which it is fastened to the shaft through the collar *k'*, a pin *i* connecting the spring through an eye *e* to said collar *k*, a link *h* connected with the pin *i*, and a pin *g* connecting said link with the bearing *f*, the whole being constructed and arranged to operate substantially as described.

663,758. STREET-SWEEPER. WILLIAM HIGBY, Macon, Ill. Filed June 28, 1900. Serial No. 21,958. (No model.)



Claim.—1. A street-sweeper comprising a truck which is adapted to be pivotally connected to the rear end of a wagon-box, a rotary sweeper and means for operating the same, conveyers, and a pivoted lever mounted upon the rear end of the wagon-box, and having pivotal lever connections with a fixed portion of said truck, whereby the frame of the truck may be tilted so as to raise the brush at the rear end thereof from the ground, as set forth.

2. A street-sweeper comprising a truck having a rotary sweeper at one end thereof, and means for driving the same, said truck adapted to be connected to the box of a wagon, the bar secured to the rear end of the box, an operating-lever pivotally mounted on said bar, a second bar T secured to the rear end of the box of the wagon, a lever T^2 pivoted to the upper end of said bar T, and a rod T^4 fixedly held at its lower end to the truck, and its upper end pivoted to the lever T^2, the inner ends of the operating-lever and lever T^2 being pivoted together, substantially as shown and described.

663,759. PROCESS OF PRODUCING SOLUTIONS OF ZINC CHLORID, &c. CARL HOEPFNER, Frankfort-on-the-Main, Germany. Filed Nov. 18, 1897. Serial No. 658,997. (No specimens.)

Claim.—1. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, precipitating from the bisulfite so obtained the insoluble monosulfite of zinc, and treating the latter with a chlorid of an alkali metal to form zinc chlorid, substantially as set forth.

2. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, eliminating the free acid thereby precipitating insoluble monosulfite of zinc, and treating the latter with a chlorid of an alkali metal to form zinc chlorid, substantially as set forth.

3. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form a zinc sulfite, separating the zinc-sulfite solution, mixing therewith its equivalent of sodium or potassium chlorid, exposing the mixture to hot air or oxygen, and extracting from the mixture the zinc chlorid by means of a suitable solvent so as to leave the greater part of the alkaline sulfate undissolved, substantially as set forth.

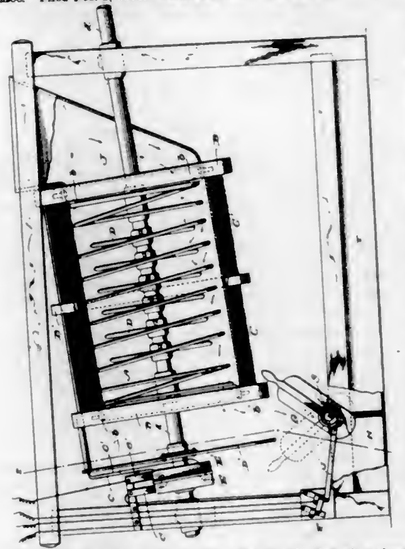
4. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, converting the bisulfite into a monosulfite by suitable reagents, mixing therewith its equivalent of sodium or potassium chlorid and exposing the mixture to heat and air in the presence of a contact substance such as oxid of iron, to convert the sulfite into a sulfate.

5. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, eliminating the free acid by suitable means, thereby precipitating the insoluble monosulfite of zinc, and treating the latter with a chlorid of an alkali metal to form zinc chlorid, substantially as set forth.

6. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, converting the bisulfite into a monosulfite by suitable reagents, mixing therewith its equivalent of sodium or potassium chlorid and exposing the mixture to heat and air in the presence of a contact substance such as oxid of iron in order to convert the monosulfite into a sulfate, separating the zinc chlorid from the solution and mixing therewith a sufficient quantity of water to dissolve the zinc chlorid and leave the alkali-metal sulfate practically undissolved, substantially as set forth.

7. The process, which consists in reacting upon an oxid or insoluble salt of zinc in presence of water with sulfurous acid to form soluble zinc bisulfite, converting the bisulfite into a monosulfite by suitable reagents, mixing therewith its equivalent of sodium or potassium chlorid and exposing the mixture to heat and air in the presence of a contact substance such as oxid of iron in order to convert the monosulfite into a sulfate, separating the zinc chlorid from the solution and mixing therewith a sufficient quantity of an aqueous solution of sodium chlorid to dissolve the zinc chlorid and leave the alkali-metal sulfate practically undissolved, substantially as set forth.

663,760. MAGNETIC ORE-SEPARATOR. AUGUST JOHNSON, Moline, Ill., assignor to the Barnard & Leas Manufacturing Company, same place. Filed Feb. 2, 1900. Serial No. 3,757. (No model.)



Claim.—1. In a magnetic separator, the combination of a solenoid through which the material to be separated is passed, and a series of magnets arranged within the solenoid and out of contact with the inner circumference thereof.

2. In an ore-separating apparatus, the combination of a cylinder through which the material to be separated is passed, a solenoid inclosing the cylinder, and a series of magnets arranged within the cylinder adapted to attract the magnetic particles and hold them away from the inner circumference of the cylinder.

3. In an ore-separating apparatus, the combination of a rotatable cylinder through which material to be separated is passed and a solenoid inclosing the cylinder; with a series of axially-disposed magnets within the cylinder adapted to attract the magnetic particles and bold them away from the inner circumference of the cylinder.

4. In a magnetic separator, the combination of a solenoid through which the material to be separated is passed; with a series of magnetizable bodies arranged within the solenoid adapted to be magnetized by induction and attract and suspend magnetizable particles passing therethrough.

5. In a magnetic separator, the combination of a cylinder through which the material to be separated is passed; with a series of magnets arranged therein and adapted to serve as conveyer-blades to push the material through the cylinder, and also to attract magnetic particles and hold them away from the inner circumference of the cylinder, substantially as described.

6. In a magnetic separator, the combination of a solenoid through which the material is to be passed, with a series of soft-metal blades in the solenoid adapted to be magnetized by induction and to serve as conveyers for the material, substantially as described.

7. In a magnetic separator, the combination of a solenoid through which material to be separated is passed; with a series of magnetizable conveyer-blades arranged within the cylinder and adapted to attract and suspend magnetizable particles passing therethrough.

8. In a magnetic separator, the combination of a solenoid through which the material is to be passed; with a series of soft-metal conveyer-blades axially disposed in the cylinder and adapted to be magnetized by induction, substantially as described.

9. In a magnetic separator, the combination of a cylinder, the coils surrounding the same and a series of magnets within the cylinder separated from the walls thereof.

10. In a magnetic separator, the combination of a cylinder, a solenoid surrounding the same and a series of soft-metal conveyer-blades arranged axially within the cylinder and adapted to be magnetized by induction.

11. In a magnetic separator, the combination of a solenoid, and an interior series of magnets arranged within but out of contact with the inner circumference of the solenoid, and means for making and breaking the circuit through the coils of the solenoid.

12. In a magnetic separator, the combination of a solenoid composed of a plurality of oppositely-wound coils arranged end to end, and an interior series of magnets arranged within but out of contact with the inner circumference of the solenoid, and means for making and breaking the circuit through the coils of the solenoid.

13. In a magnetic separator, the combination of a solenoid and a series of bodies arranged within the solenoid but out of contact with the inner circumference thereof and adapted to be magnetized by induction, and means for making and breaking the circuit through the coils of the solenoid.

14. In a magnetic separator, the combination of a solenoid composed of a plurality of oppositely-wound coils arranged end to end, and an axially-disposed series of soft-metal bodies arranged within the solenoid but out of contact with the inner circumference thereof and adapted to be magnetized by induction, and means for making and breaking the circuit through the coils of the solenoid.

15. In a magnetic separator, the combination of the cylinder, the solenoid inclosing the same, and means for making and breaking the circuit through the coils; with a series of soft-metal bodies arranged within the cylinder and adapted to be magnetized by induction.

16. In a magnetic separator, the combination of the cylinder, the solenoid inclosing the same composed of oppositely-wound coils arranged end to end; with a series of soft-metal bodies arranged within the cylinder and adapted to be magnetized by induction, and means for making and breaking the circuit.

17. In a magnetic separator, the combination of the soft-metal cylinder, the solenoid inclosing the same and composed of oppositely-wound coils arranged end to end; with a series of soft-metal conveyer blades or bodies arranged axially within the cylinder and adapted to be magnetized by induction, and means for making and breaking the circuit.

18. In an ore-separator, the combination of a solenoid through which material to be separated is passed, a switch and connections for making and breaking the circuit through the solenoid, a movable chute below the discharge end of the solenoid, and connections whereby said switch is operated by and from said chute.

19. In a magnetic separator, the combination of a solenoid, and an interior series of magnets arranged within but out of contact with the inner circumference of the solenoid, and means for making and breaking the

circuit through the coils of the solenoid; with a movable chute below the discharge end of the solenoid, and connections between said chute and said make-and-break device whereby the latter is operated by the movement of the chute.

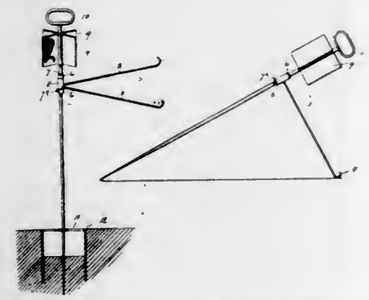
20. In a magnetic separator, the combination of a solenoid composed of a plurality of oppositely-wound coils arranged end to end, and an interior series of magnets arranged within but out of contact with the inner circumference of the solenoid, and means for making and breaking the circuit through the coils of the solenoid; with a movable chute below the discharge end of the solenoid, and connections between said chute and said make-and-break device whereby the latter is operated by the movement of the chute, substantially as described.

21. In a magnetic separator, the combination of a solenoid composed of a plurality of oppositely-wound coils arranged end to end, and a series of soft-metal bodies arranged within the solenoid, and adapted to be magnetized by induction, and means for making and breaking the circuit through the coils of the solenoid; with a movable chute below the discharge end of the solenoid and connections between said chute and said make-and-break device whereby the latter is operated by the movement of the chute.

22. In a magnetic separator, the combination of a solenoid composed of a plurality of oppositely-wound coils arranged end to end, a series of soft-metal bodies arranged within the solenoid, but out of contact with the inner circumference thereof adapted to be magnetized by induction, and a switch for making and breaking the circuit through the coils of the solenoid; with a movable chute below the discharge end of the solenoid and connections between said chute and said switch whereby the latter is operated by the movement of the chute.

23. In a magnetic separator, the combination of the soft-metal cylinder, the solenoid inclosing the same and composed of oppositely-wound coils arranged end to end, a switch for making and breaking the circuit through the coils, a series of soft-metal conveyer blades or bodies arranged axially within the cylinder and adapted to be magnetized by induction, and means for making and breaking the circuit; with a chute below the discharge end of the solenoid and connections between said chute and said switch whereby said switch is operated by the movement of the chute.

663,761. **SUPPORTING ATTACHMENT FOR GOLF-FLAGS.** CHARLES W. L. JOHNSON, Baltimore, Md. Filed July 19, 1900. Serial No. 24,208. (No model.)



Claim.—1. The combination with a golf-flag comprising a staff, a handle located at the upper end thereof, and wings or leaves located near the handle, of one or more supporting-arms, and fastening means located at the inner end or ends of the said arm or arms for their attachment to the staff of the flag near the lower ends of the leaves or wings thereof.

2. A supporting attachment for golf-flags, comprising one or more supporting-arms, and a sleeve with which the inner ends of the said arms are connected, and which is adapted to be passed over and secured to the staff of a golf-flag near the handle end thereof.

3. A supporting attachment for a golf-flag, comprising one or more supporting-arms, a sleeve-like swivel with which the inner ends of the said arms are connected, and a sleeve upon which the said swivel turns, and which is itself adapted to be passed over the staff of a golf-flag and connected therewith at a point near the handle end thereof.

4. The combination with a golf-flag comprising a staff, a handle located at the upper end thereof, and wings or leaves located near the handle, of one or more supporting-arms, and fastening means located upon the inner end or ends of the said arm or arms, and adapted to be removably connected with the staff at a point near the inner ends of the said leaves or wings.

663,762. **DERRICK-PULLEY PUMPING-STAND.** DAVID C. JOHNSTON, Marietta, Ohio. Filed July 23, 1900. Serial No. 24,522. (No model.)



Claim.—1. A pulley pumping-stand having a frame and a clamping device connected with said frame and adapted to be connected to a tubing forming the barrel of the pump to which said stand is affixed.

2. A pulley pumping-stand comprising inclined posts, a pulley mounted in the upper ends of said posts, and a clamp connected with said posts and adapted to be connected with a tubing forming the barrel of the pump to which said stand is affixed.

3. A device of the character described, comprising inclined posts, a shaft supported in the united ends of said posts, a pulley on said shaft, a cable operating on said pulley, clamps connected with said posts and adapted to be connected with the tubing forming the barrel of the pump to which said stand is affixed, said cable being adapted to operate a lift-rod in said tubing, as set forth.

4. In a pulley pumping-stand, a clamp consisting of two sections, each having an arm at each end adapted to be mounted on the said stand and an intermediate portion adapted to embrace the tubing forming the pump-barrel to which said stand is affixed, as set forth.

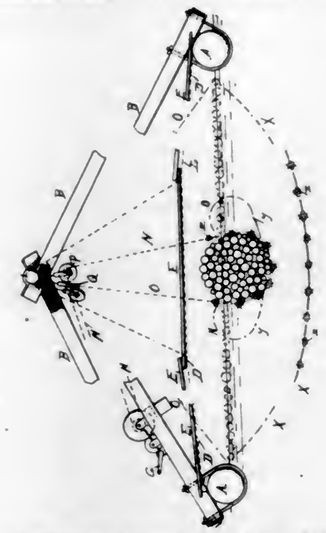
663,763. **APPARATUS FOR MAKING UP TIMBER INTO RAFTS.** ALBERT KRANK, Warkaus, Russia. Filed Mar. 5, 1900. Serial No. 7,283. (No model.)

Claim.—1. The combination of pontoons A, A, cross-beams B whose lower ends are fastened to the pontoons, a ridge-spar C to which the upper ends of beams B are fastened, pulleys supported from the cross-beam, bundle-making chains N, O, passing over said pulleys down below the water-level thence passing up and over other pulleys, winding-drums to which said chains are connected, and means for turning said drums for winding or unwinding said chains.

2. The combination of pontoons A, A, cross-beams B whose lower ends are fastened to the pontoons, a ridge-spar C to which the upper ends of beams B are fastened, pulleys supported from the cross-beam, bundle-making chains N, O, drums H, K for chain N, drums I, L for chain O and means for turning the drums.

3. The combination of pontoons A, A, cross-beams B whose lower ends are fastened to the pontoons, a ridge-spar C to which the upper ends of beams B are fastened, pulleys supported from the cross-beam, bundle-making chains N, O, drums H, K for chain N, drums I, L for chain O, winch F connected with drums H, I, for turning them, winch G connected with drums K, L, for turning them, and a clutch for connecting and disconnecting the winches when desired.

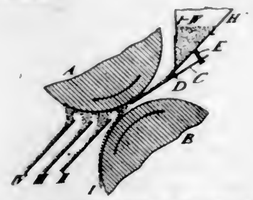
4. The combination of pontoons, spar C, beams supported by the pontoons and supporting spar C, pulleys supported thereby, drums H, I, K, L, chain N wound in one direction on drum H thence over one of said pulleys and down below the water-line, thence up and over other pulleys to drum K on which it is wound oppositely to the winding on drum H, chain O similarly wound on drums I, L, and means for turning all the drums simultaneously in one direction or for turning drums H, I in one direction and drums K, L, in the opposite direction.



5. The combination of pontoons A, A, cross-beams B whose lower ends are fastened to the pontoons, a ridge-spar C to which the upper ends of beams B are fastened, bracing-chains D securing the pontoons together, foot-bridges E between the ends of the pontoons, and means for supporting the bridges.

6. The combination of pontoons A, A, cross-beams B whose lower ends are fastened to the pontoons, a ridge-spar C to which the upper ends of beams B are fastened, bracing-chains D securing the pontoons together, foot-bridges E between the ends of the pontoons, chains D also supporting said foot-bridges.

663,764. **MAGNETIC SEPARATOR.** EMIL KREUSER and HUGO E. LANGGUTH, Mechernich, Germany, assignors to Mechernicher Bergwerks-Actien-Verein, same place. Filed June 11, 1900. Serial No. 19,910. (No model.)

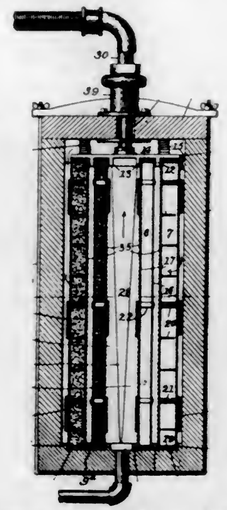


Claim.—1. An apparatus for separating substances of different magnetic susceptibility, consisting of two magnets arranged one above the other, the upper one comprising a rotatable cylindrical magnet, and an inclined slide or chute having no magnetic susceptibility, the lowermost end of said slide or chute being projected between the magnets into the center of the magnetic field at the point of least distance between the magnetic surfaces, substantially as described.

2. An apparatus for separating substances of different magnetic susceptibility, consisting of two magnets arranged one above the other, the upper one comprising a rotatable cylindrical magnet, a pivoted inclined slide or chute having no magnetic susceptibility, the lowermost end of said slide or chute being projected between the magnets into the center of the magnetic field at the point of least distance between the magnetic surfaces, and a spring arranged to hold the lower end of the slide in yielding contact with the upper rotatable magnet, substantially as described.

663,765. **BEER-FILTER.** GEORGE KÜCHMANN, Wilkes-Barré, Pa. Filed June 13, 1900. Serial No. 20,181. (No model.)

Claim.—1. A filter comprising a casing, filter-boxes disposed on opposite sides of said casing, leaving a central space, said boxes fitting liquid-tight against the casing along their ends and lower edges and being separated from the side walls of the casing to provide passage-ways for the inflowing liquid, a cover-plate fitting liquid-tight against the upper edges of said filter-boxes, an outlet-opening in said cover-plate communicating with the central space, and an outlet-pipe registering with said opening, said casing having an opening for the admission of the liquid, substantially as described.



2. A filter comprising a casing, filter-boxes disposed on opposite sides of said casing, leaving a central space, said boxes fitting liquid-tight against the casing along their ends and lower edges and being separated from the side walls of the casing to provide passage-ways for the inflowing liquid, a cover-plate fitting liquid-tight against the upper edges of said filter-boxes and having an outlet-opening communicating with the central space, an outlet-pipe having a section adjustable toward and from said opening, said casing also having an opening for the admission of the liquid, substantially as described.

3. A filter comprising a casing, filter-boxes disposed on opposite sides of said casing, leaving a central space, said boxes fitting liquid-tight against the casing along their ends and lower edges and being separated from the side walls of the casing to provide passage-ways for the inflowing liquid, a cover-plate fitting liquid-tight against the upper edges of said filter-boxes, and having an outlet-opening communicating with the central space, an outlet-pipe having a section adjustable toward and from said opening, said casing having an inlet-opening above the cover-plate.

4. A filter comprising a casing, filter-boxes within said casing and disposed on opposite sides thereof, leaving a central space, stops arranged around the ends and lower edges of said boxes, wedges at the opposite ends of said casing within the central space, said wedges being arranged to force the filter-boxes against the stops, a spring-pressed cover-plate having stops fitting over the upper edges of the boxes, an outlet-opening in said cover-plate communicating with the central space, and an outlet-pipe registering with said opening, said casing also having an opening for the admission of the liquid, substantially as described.

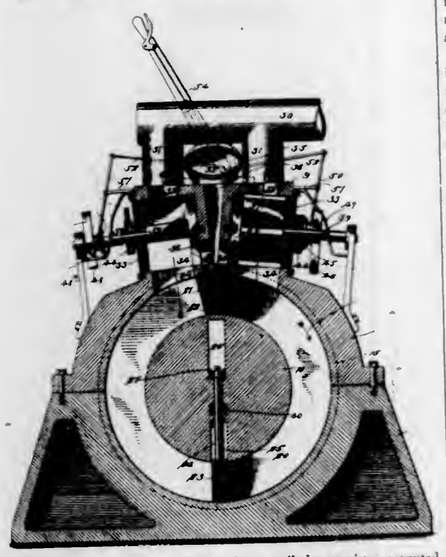
5. A filter comprising a casing, a pair of filter-boxes arranged within the casing on each side thereof, said filter-boxes being separated from the side walls of the casing to provide a passage-way for the inflowing liquid, stops arranged along the ends and lower edges of said boxes, wedges arranged at the opposite ends of the casing within the central space and adapted to force the inner boxes against the stops, a spring-pressed cover-plate having stops fitting over the upper edges of said boxes, said cover-plate having an opening communicating with the central space, and an outlet-pipe having a section adjustable toward and from the opening, said casing having an opening for the admission of the liquid, substantially as described.

6. A filter-box comprising two flat perforated plates having overturned edges fitting telescopically together, and a series of bolts passing through said plates.

7. A filter-box comprising two flat perforated plates having overturned edges fitting telescopically together, pins secured to said plates and projecting into the interior of the box to support the filtering material, and a series of bolts passing through said plates and securing them together.

8. A filter-box comprising two flat perforated plates having overturned edges fitting telescopically together, a series of bolts passing through said plates, and levers projecting parallel with the plates and having threaded openings fitting onto the threaded ends of said bolts.

663,766. ROTARY ENGINE. BENJAMIN F. LAZENBY, Wentworth, Mo. Filed Feb. 19, 1900. Serial No. 5,707. (No model.)



Claim.—1. A rotary engine having a cylinder, a piston mounted to turn therein and having two peripheral steam-passages, two abutments attached to the cylinder and projecting respectively into the steam-passages, two piston-heads working respectively with the steam-passages, means for automatically withdrawing the piston-heads to permit them to avoid the respective abutments, a valve-chest having two ports communicating with each steam-passage of the piston, two valves arranged to command the respective pairs of ports, and means for actuating the valves.

2. A rotary engine, having a cylinder, a piston mounted to turn therein, the cylinder and piston being arranged to provide two annular steam-passages, piston-heads carried by the piston and working respectively in the steam-passages, abutments carried by the cylinder and working respectively in the steam-passages, means for withdrawing the piston-heads to avoid the abutments, the cylinder having two ports communicating with each steam-passage, two valves respectively commanding said pairs of ports, and means for operating the valves.

3. A rotary engine, having a cylinder, a piston mounted to turn therein, the piston and cylinder being arranged to form two annular steam-passages, abutments carried by the cylinder and respectively projecting into the steam-passages, piston-heads carried by the piston and respectively working in the steam-passages, means for actuating the piston-heads to avoid the abutments, a valve-chest having two ports in communication with each steam-passage and also having an exhaust-port in communication with the first-named ports, an oscillating valve for each pair of the first-named ports, one of the valves serving as an exhaust-valve and the other valve serving to oscillate to alternately open the said steam-passages, and means for actuating the valves.

4. In a rotary engine, the combination with a cylinder and piston and two valves, of two hand-levers respectively connected therewith, a pawl mounted on one of the hand-levers and engaging it to hold the two together, and a second pawl mounted on the second hand-lever and working with a stationary part of the engine, to hold both levers stationary.

5. In a rotary engine the combination with a cylinder and piston and two valves, of two hand-levers independently movable and connected with the valves, means for removably connecting the hand-levers with each other, and a second means removably holding one of the hand-levers stationary with the support.

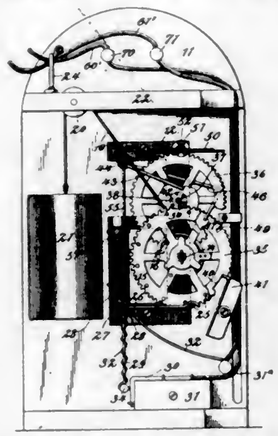
6. The combination with a cylinder and piston of a valve, a valve-stem, a gear mounted loose thereon, means for driving the gear to drive the valve-stem, a clutch member splined on the valve-stem, and a spiral-formed guide engaged with the clutch member to turn the clutch member as it is moved longitudinally on the shaft.

7. In a rotary engine, the combination with a cylinder and piston and the valve thereof, of a valve-stem attached to the valve, a gear loose on the valve-stem, means for rocking the gear to rock the valve-stem, a clutch member splined on the stem and capable of engaging the gear, means for sliding the clutch member on the shaft, and a spiral-formed guide engaged by the clutch member, to turn the clutch member simultaneously with the sliding thereof.

8. The combination with a cylinder and piston and a valve, of a rocking stem or shaft, a member splined thereon and having a recess, and a spiral-formed guide engaged in said recess, whereby to turn the stem and said member simultaneously with the sliding of said member.

9. In a rotary engine, the combination of a cylinder, a piston working therein, a valve, a valve-stem attached thereto, a pinion loose on the valve-stem, a clutch member splined on the valve-stem and capable of engaging the pinion, a toothed sector engaged with the pinion, and a sliding bar in connection with the toothed sector and having a part running in a cam-groove on the piston.

663,767. FIRE-ALARM. REASON C. LIVINGSTON, Spring Valley, Minn. Filed Mar. 24, 1900. Serial No. 10,071. (No model.)



Claim.—1. A device of the class described comprising a train of gearing including a wheel provided with pins, a circuit-closer including a movable member lying in the path of the pins for engagement and operation thereby, a detent-disk operatively connected with the train, a detent for engaging the detent-disk to stop the operation of the train, a striking-wheel operable by the train, and a governing-arm connected with the detent and disposed for coöperation with the striking-wheel to govern the coöperation of the detent and detent-disk, said striking-wheel being movable independently of the train for return movement after each operation without operating the circuit-closer.

2. A device of the class described comprising a train of gearing and a movable circuit-closing member in operative relation thereto, a detent-disk operatively connected with the train, a detent for engaging the detent-disk to stop the operation of the train, a striking-wheel operable by the train, and a governing-arm connected with the detent and disposed for coöperation with the striking-wheel to govern the coöperation of the detent and detent-disk, said striking-wheel being mounted for movement independently of the train, whereby it may be returned after each operative movement and without operating the circuit-closer.

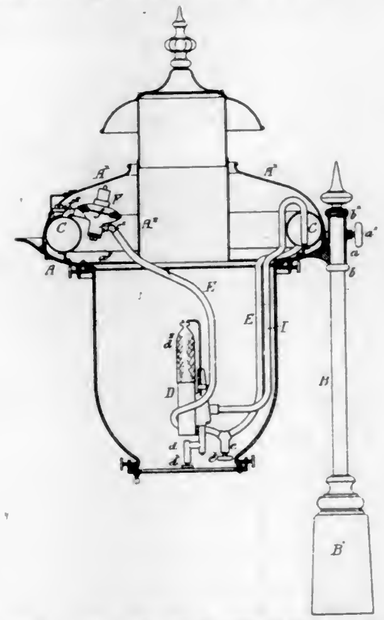
3. A device of the class described comprising a train of gearing including a circuit-closer-operating wheel, a detent-disk operatively connected with the train, a detent for engaging the detent-disk to stop the operation of the train, a striking-wheel operable by the train and having radial slots separated by an interspace corresponding to the angular operative movement of the circuit-closer-operating wheel, a governing-arm connected with the detent and disposed in operative relation to the striking-wheel to enter the slots of the striking-wheel and permit engagement of the detent with the detent-disk, means for limiting the angular movement of the striking-wheel to aline the slots alternately with the engaging portion of the governing-arm, said striking-wheel being movable independently of the train, and a movable circuit-closing member in operative relation to the circuit-closer-operating wheel.

4. A device of the class described comprising a train of gearing including a master-gear having pins, a contact-arm connected with the lever, a contact-plate with which the arm is in normal contact, a detent-disk connected with the train, a detent for engagement with the disk, a striking-wheel for operation by the train, a governing-arm connected with the detent and disposed for coöperation with the striking-wheel to govern the coöperation of the detent and detent-disk, a release-lever connected with the arm and detent to move them simultaneously from the striking-wheel and disk, and a push-rod having a cam for engagement with the release-lever to operate it.

5. A device of the class described comprising a casing having a reversible door supporting a train of gearing including a master-gear having pins, a rock-lever in the path of movement of the pins for operation thereby, a contact-arm connected with the lever, a contact-plate with which the arm is in normal contact, a detent-disk connected with the train, a detent for engaging the disk, a striking-wheel in operative relation to the train, a governing-arm connected with the detent and disposed for coöperation with the striking-wheel to govern the coöperation of the detent and the detent-disk, a release-lever connected with the arm and detent to move them from their engaging positions, and a push-rod for operating the release-arm, the striking-wheel being movable independently of the train, whereby it may be returned after each operative movement when the detent and governing-arm are raised from their engaging positions.

6. A device of the class described comprising a train of gearing having operative connection with a movable circuit-closing member and including a striking-wheel having a limited movement and means for driving the train, means operated by the train for intermittent engagement and disengagement with respect to the striking-wheel to permit movement thereof step by step, said means being adapted to rest in engagement with the striking-wheel to lock the train against operation when the striking-wheel is at one limit of its movement, and means for stopping the striking-wheel at the opposite limit of its movement.

663,768. VAPOR-BURNING LAMP. GUSTAVE A. LOEBEN, Philadelphia, Pa., assignor of one-half to Albert L. A. Toboldt, same place. Filed Nov. 27, 1899. Serial No. 738,414. (No model.)



Claim.—1. The combination in a vapor-burning lamp, of a reservoir, a burner below the reservoir, a tube leading from the bottom of the reservoir to the top of the same and extending within the heat zone of the burner, a regulator in said tube, and a tube leading from the reservoir to the burner and extending above the liquid-level in the reservoir, so as to prevent the escape of liquid through the said pipe when the lamp is not in operation, substantially as described.

2. The combination of a burner, a reservoir above the burner, a tube leading from the reservoir to the burner, a pipe having a loop in it, one end of the pipe connected to the bottom and the other to the top of the reservoir, said loop extending in close proximity to the burner so that both the loop and burner can be heated, simultaneously, substantially as described.

3. The combination in a vapor-burning lamp, of a reservoir, a burner, a tube connecting said reservoir and burner, a tube extending from the top to the bottom of said reservoir and extending into the heat zone of the burner, a pressure-regulator in said tube for controlling the pressure on the surface of liquid in the reservoir, said regulator being situated in said tube between the section of the tube in the heat zone of the burner and the section entering the top of the reservoir, substantially as described.

4. The combination of a reservoir for liquid under pressure, a burner, a pipe leading from the bottom of the reservoir to a point within the heat zone of the burner and to the reservoir again, a regulator in said pipe, a pipe leading from the bottom of the reservoir and connected to the burner, said pipe extending above the level of liquid in the reservoir so as to prevent the liquid from escaping when the pressure is reduced, substantially as described.

5. The combination of a standard, a circular frame pivoted to the standard so as to swing thereon, a circular reservoir carried by said frame, a cap inclosing said reservoir, a chimney supported by the frame, a globe suspended from the frame, a burner within the globe, a pipe leading from the reservoir and coupled to the burner, and a pipe in the form of a loop having both ends connected to the reservoir and extending within the heat zone of the burner, substantially as described.

663,769. PAINT. MARK W. MARSDEN, Philadelphia, Pa. Filed Aug. 10, 1897. Serial No. 647,745. (No specimens.)

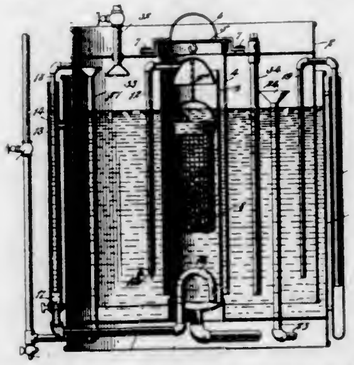
Claim.—The within-described rough-cast paint consisting of a suitable vehicle combined with dried vegetable pith in a granular condition, substantially as described.

663,770. FUMIGATING DEVICE. JOSEPHINE M. L. MESSERLI, Paris, France. Filed Feb. 20, 1899. Serial No. 706,257. (No model.)



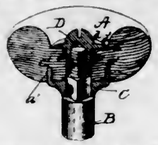
Claim.—The herein-described fumigating device of the character set forth, which consists of a receiver of incombustible material adapted to contain the vaporizable liquid, and having an outlet-aperture, a fusible seal for said aperture, and a coating or covering of combustible material for the receiver.

663,771. ACETYLENE-GAS APPARATUS. FREDERICK METZGER, Hondo, Tex. Filed Mar. 28, 1900. Serial No. 10,538. (No model.)



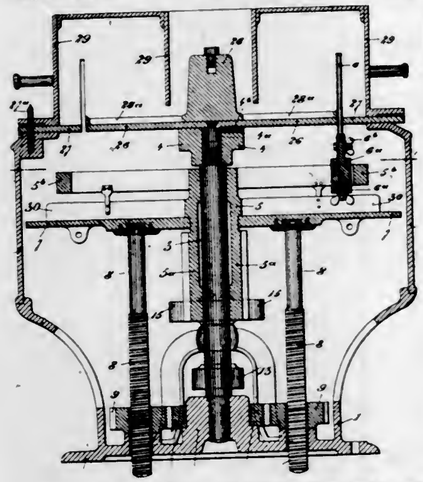
Claim.—A gas-machine, comprising a body portion, a bell arranged therein, a pipe extended down at one side of the body portion and having communication with said body portion near the top, a cylinder arranged within the body portion, a pipe leading from said body portion into the cylinder, a guide-rod attached to the bell and extended into said pipe, a blow-off pipe attached to the bell, a pipe fixed to the body portion and in which the outer member of said blow-off pipe is movable, thus forming a guide for the bell, a carbid-holder in the cylinder, a gas-discharge pipe leading from the body portion, a gas-discharge pipe leading from the generator-cylinder, nearly to the bottom of the body portion, and a check-valve in the lower end of said gas-pipe, substantially as specified.

663,772. MEANS FOR ATTACHING WOODEN HANDLES TO METAL SPINDLES. JOSHUA H. MILLETT, Malden, Mass., assignor to the Crosby Steam Gage and Valve Company, Boston, Mass. Filed Dec. 2, 1897. Renewed Nov. 13, 1900. Serial No. 36,408. (No model.)



Claim.—The combination of the metal spindle B; the holder C secured to the end of the spindle B and having the circular rim c'; the nut D having the flange d with edge d' and the sleeve d^2 the latter surrounding the end b' of the spindle B, and the wooden handle A, having the circular groove a' into which the rim c' fits, the depression a' into which the edge d' bears and the central bore into which fit the spindle B and sleeve d^2.

663,773. MOLD-MAKING MACHINE. WILHELM MÖBUS, Reutlingen, Germany. Filed June 14, 1900. Serial No. 20,365. (No model.)



Claim.—1. In a mold-forming machine, a molding knife or cutter consisting of a pair of parallel blades suitably spaced apart, connected together at their upper end and having their outer face and upper cutting-surface rounded.

2. In a mold-forming machine, a bed-plate, an annular plate surrounding the same and positioned in such a manner as to form a slot or passage between the two plates, an adjustable molding knife or cutter operating in the said slot or passage, and consisting of a pair of parallel blades suitably spaced apart, connected together at their upper ends and having on their outer face an upper cutting-surface surrounded by a rotating arm for supporting said knife or cutter, means for automatically elevating and rotating simultaneously said arm and knife or cutter, and means for automatically discontinuing the vertical movement of the said arm and knife, substantially as described.

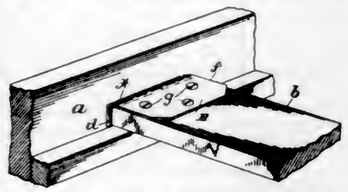
3. In a mold-forming machine, a bed-plate, an annular plate surrounding the same and positioned in such a manner as to form a slot or passage between the two plates, an adjustable molding knife or cutter operating in the said passage and consisting of a pair of parallel blades connected together at their upper end and having their outer face and upper cutting-surface rounded, a rotating vertically-moving arm arranged below the said plates and adapted to support said knife or cutter, a plate 7 arranged below said arm, a projection connected to the said plate, a scale device provided with a suitable slot in which operates said projection, means for simultaneously rotating and elevating said arm, and means adapted to be operated by said projection for discontinuing the operation of said elevating means.

4. In a mold-forming machine, a scale device provided with a suitable slot, a molding knife or cutter, means for simultaneously rotating and elevating said knife or cutter, a connection between said means and said scale, and means operating in said slot and adapted to operate said connection for discontinuing the movement of said operating means.

5. In a mold-forming machine, a scale device provided with a suitable slot, a molding knife or cutter, a suitable gearing for simultaneously elevating and rotating the same, a coupling-disk adapted to engage said gearing for discontinuing the operation thereof, an uncoupling-lever connected to said disk and said scale, and means operating in said slot and adapted to elevate said scale for operating said lever and cause said disk to contact with said gearing.

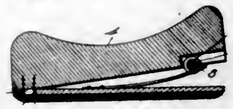
6. In a mold-forming machine, a scale device provided with a suitable slot, a knife or cutter, a suitable gearing for simultaneously rotating and elevating the same, a coupling-disk adapted to engage said gearing for discontinuing the operation thereof at a set point, an uncoupling-lever connected at one end to said disk and at its opposite end to said scale, means operating in said slot and adapted to elevate said scale for operating said lever and cause said disk to engage with said gearing, and means rotating simultaneously with said knife or cutter for removing the surplus sand during the molding operation.

663,774. BEDSTEAD ATTACHMENT. NEWTON W. MCCOURT, Bradford, Pa., assignor of two-thirds to Robert Revels and M. F. Flaherty, same place. Filed May 9, 1900. Serial No. 16,069. (No model.)



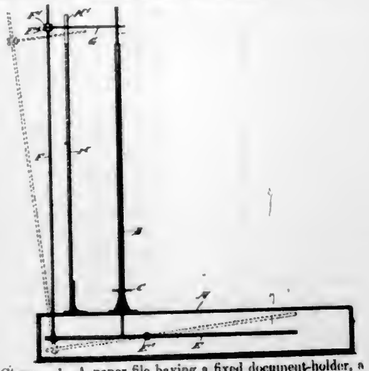
Claim.—A bed attachment comprising a U-shaped slat member adapted to embrace the ends of the slat, the vertical wall of the U-shaped member having portions projecting laterally beyond the lower wing of the U-shaped member, a rail member having vertically-arranged hook portions adapted to interlock with the projecting portions of the slat member, substantially as described.

663,775. SADDLE. JOHN W. MCCOY, Sink's Grove, W. Va. Filed Apr. 7, 1900. Serial No. 11,937. (No model.)



Claim.—In a saddle, the combination with a base-plate; of a seat hinged thereto and recessed at its free end; rollers journaled within said recesses; annular flanges upon the rollers; and bow-springs secured to the base-plate and bearing upon the rollers between their flanges, said flanges adapted to prevent lateral movement of the saddle.

663,776. PAPER-FILE. FRANCIS J. MCDONNELL, New Bedford, Mass., assignor of one-half to Frederick T. Almy, same place. Filed Oct. 17, 1900. Serial No. 33,394. (No model.)



Claim.—1. A paper-file having a fixed document-holder, a spindle for guiding a document upon said holder and having movement relative thereto, and a guard for the documents placed on file, said guard being controlled by said spindle, so that when the latter is pressed, said guard moves out of an active position and when the pressure on the spindle is released the guard moves back into an active position, as set forth.

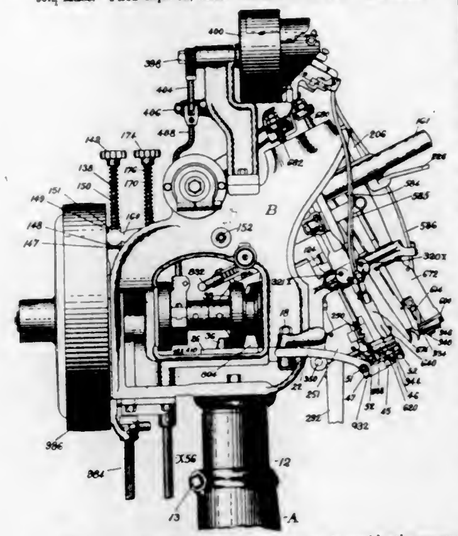
2. A paper-file having a fixed document-holder, a spindle for guiding the document upon the holder and having movement relative thereto, a guard for the documents placed on file, and an intermediate mechanism between said spindle and said guard, for moving the latter from an active position into an inactive position when the spindle is pressed, and for causing the guard to return to an active position when the pressure on the spindle is released, as set forth.

3. A paper-file, comprising a tube for receiving documents, a spindle movable in said tube and having its ends projecting from the tube, a lever engaged by said spindle, and a guard supported from said lever and adapted to engage said spindle at or near the upper end thereof, as set forth.

4. A paper-file, comprising a tube for receiving documents, a spindle movable in said tube and having its ends projecting from the tube, a lever engaged by said spindle, a guard supported from said lever and adapted to engage said spindle at or near the upper end thereof, and a back interposed between said tube and the support for said guard, as set forth.

5. A paper-file, comprising a tube for receiving documents, a spindle movable in said tube and having its ends projecting from the tube, a lever engaged by said spindle, and a guard supported from said lever and adapted to engage said spindle at or near the upper end thereof, said guard being adjustably held on a rod fixed on said lever, as set forth.

663,777. PULLING-OVER MACHINE. RONALD F. MCFEELY, Beverly, Mass., assignor to the United Shoe Machinery Company, Boston, Mass. Filed Sept. 19, 1899. Serial No. 730,979. (No model.)



Claim.—1. A pulling-over machine comprising in combination means for pulling the upper at different points, means for placing said pulled upper over the inner sole, means for securing said overturned upper to the inner sole, the combination being adapted for working on uppers placed loosely over a last, whereby said uppers are pulled over the last and secured at different points in position for lasting.

2. A pulling-over machine comprising automatic means for pulling the upper at different points, means for placing said pulled upper over the inner sole and means for securing the said overplaced upper to the inner sole, the combination being adapted for working on uppers placed loosely over the last whereby said uppers are automatically pulled, carried over the last and secured to the inner sole at different points.

3. A pulling-over machine comprising in combination means for pulling the upper over the last at different points simultaneously, means for placing the pulled upper over the inner sole, and means to secure the overplaced upper to the inner sole, the combination being adapted for working on the upper at different points simultaneously, whereby an upper placed loosely over the last is automatically pulled and secured in position for lasting.

4. A pulling-over machine comprising grippers for gripping the side and toe of the upper, means for pulling said upper between said grippers and the last, means for placing said pulled upper over the inner sole and means for securing said overplaced upper to the inner sole, the combination being adapted for working on uppers placed loosely over a last whereby said uppers are automatically pulled over and secured in position for lasting.

5. A last-supporter against which the bottom of the last bears, a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last, means for wiping said gripped upper over the inner sole, means for driving fastenings through said overwiped upper and inner sole, and auxiliary means becoming operative after the upper is pulled to support the last during the driving operations.

6. A pulling-over machine comprising means for pulling the upper over the last, in combination with means to support said last, with its bottom face upwardly in a plane at an oblique angle to the perpendicular, whereby the fore part of said last is made observable to the workman standing at the machine.

7. A pulling-over machine comprising devices to engage the upper, means for pulling the upper between said device and the last, means for shifting the pulled upper on the last and means to support said last with its bottom face upwardly in a plane at an oblique angle to the perpendicular, whereby the fore part of said last is made observable to the workman standing at the machine.

8. A pulling-over machine comprising means for pulling the upper over the last and securing mechanism adapted for securing the pulled-over upper to the inner sole in combination with means to support said last with its bottom face upwardly in a plane at an oblique angle to the perpendicular, whereby the fore part of said last is made observable to the workman standing at the machine.

9. A pulling-over machine comprising means for stretching the upper over the last in combination with means for moving the strained upper around the last.

10. In a pulling-over machine, in combination, grippers adapted for gripping the upper on opposite sides of the last combined with means for changing the relative positions of said grippers and said last, whereby the material between said grippers is adjusted about the last.

11. In a pulling-over machine, grippers for gripping the upper on opposite sides of the last, combined with means for simultaneously changing the relative positions of said grippers and said last, whereby the material between said grippers is adjusted about the last.

12. In a pulling-over machine, the combination of grippers adapted for gripping the upper on opposite sides of the last and manually-operated connections for changing the relative positions of said grippers and said last whereby the upper between said grippers is adjusted about the last.

13. In a pulling-over machine, the combination of grippers for gripping the upper, and means for shifting the relative positions of said grippers and said last whereby the upper is strained between said grippers and said last and means for thereafter changing the relative positions of said grippers and said last whereby the material between said grippers is adjusted about the last.

14. In a pulling-over machine, the combination of devices for engaging the upper on opposite sides of the last and means for simultaneously moving a plurality of said devices in the direction of a line surrounding the last.

15. In a pulling-over machine, the combination of devices adapted for engaging the upper on opposite sides of the last and means for simultaneously moving said devices in the direction of a line surrounding the last longitudinally and thereby properly positioning the toe portion of the upper.

16. A pulling-over machine comprising grippers for gripping the sides and toe of the upper, and means for stretching the upper between said grippers and the last, in combination with means for adjusting the upper around the last.

17. In a pulling-over machine, in combination, grippers adapted for gripping the upper and holding the same in its pulled position over the last, with means for changing the relative positions of the grippers and the last whereby the upper is adjusted longitudinally of the last.

18. In a pulling-over machine, in combination, grippers adapted for gripping the upper and holding the same in its pulled position over the last, with means for changing the relative positions of the grippers and the last whereby the upper is adjusted transversely of the last.

19. In a pulling-over machine, in combination, grippers adapted for gripping the upper and holding the same in its pulled position over the last, with means for changing the relative positions of the grippers and the last whereby the upper is adjusted longitudinally of the last, and means for changing the relative positions of the grippers and the last whereby the upper is adjusted transversely of the last.

20. In a pulling-over machine, in combination, a last-supporter, grippers, means for causing said grippers to grip the sides and toe of the upper,

means for thereafter shifting the relative positions of said grippers and said last-supporter whereby the upper is strained between said grippers and the last and means for thereafter shifting the relative positions of a plurality of grippers and said last whereby the upper is adjusted around the last.

21. In a pulling-over machine, in combination, a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for thereafter shifting the relative positions of said grippers and said last-supporter, whereby the upper is strained between said grippers and the last, means for causing said toe-grippers to release the upper, and means for shifting the relative positions of said side-grippers and said last, whereby the upper is adjusted around the last.

22. In a pulling-over machine, side and toe grippers for gripping the sides and toe of the upper, means for moving said grippers to strain the upper between said grippers and the last, means for causing said toe-grippers to release the upper and means for thereafter moving the side-grippers in the direction of a line surrounding the last.

23. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for shifting the relative positions of said grippers and said last-supporter whereby the upper is strained between said grippers and the last and means for thereafter releasing the toe of the upper independently of the side grippers.

24. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for shifting the relative positions of said grippers and said last-supporter, whereby the upper is strained between said grippers and the last, and means controllable by the workman for causing said grippers to release the toe of the upper whenever desired.

25. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for shifting the relative positions of said grippers and said last-supporter, whereby the upper is strained between said grippers and the last, said toe-grippers being adapted for operation to thereafter release and take hold of the toe of the upper.

26. Mechanism to engage the upper, means for moving said mechanism to shift the upper around the last, in combination with grippers for pulling the toe of the upper and means for causing said toe-grippers to release said upper for the said operations of shifting the upper around the last.

27. The combination of a plurality of grippers adapted for gripping the sides and toe of the upper, means for pulling the upper between said grippers and the last, means for shifting the pulled upper around the last, and means for causing the toe-pulling grippers to release the upper for said operations of shifting the upper around the last.

28. A pulling-over machine comprising means for automatically pulling the upper first longitudinally of the last and then transversely of the last.

29. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for shifting the relative positions of the said last-supporter and a gripper whereby the toe of the upper is strained between said gripper and the last, and means to thereafter shift the relative positions of the last-supporter and the side-pulling grippers whereby the sides of the upper are strained between the said grippers and the last.

30. In a pulling-over machine, the combination of a last-supporter, a plurality of gripper mechanisms adapted for gripping the sides and toe of the upper, means for moving a gripper to strain the toe of the upper between said gripper and the last, and means to thereafter move the grippers for straining the sides of the upper.

31. A pulling-over machine comprising mechanism for pulling the toe of the upper whereby said upper is straightened longitudinally of the last, combined with means for thereafter pulling the sides of the upper whereby said upper is shaped to the last transversely, said toe-pulling mechanism being adapted to yield for the said shaping of the upper transversely.

32. A pulling-over machine comprising a gripper adapted for gripping the toe of the upper, actuating mechanism for moving said gripper to pull said toe of the upper, means for thereafter pulling the sides of the upper, said toe-gripper-actuating mechanism having provision to yieldingly actuate said toe-pulling gripper during the said side-pulling operations.

33. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers adapted for gripping the sides and toe of the upper, actuating mechanism for causing a gripper to move for straining the toe of the upper between said gripper and the last, means to thereafter shift the relative positions of the last-supporter and the side-holding grippers for straining the sides of the upper between the grippers and the last, said toe-gripper-actuating mechanism being adapted for yielding to the action of the side-pulling grippers whereby the upper is accommodated to the longitudinal curvature of the last.

34. The combination of grippers for gripping the upper on opposite sides of the last, actuating mechanism for moving said grippers to pull the upper, means for moving a gripper toward the last-bottom and means for simultaneously moving another gripper away from the last-bottom, whereby the belt of upper between said grippers is shifted around the last.

35. The combination of grippers for gripping the upper on opposite sides of the last, means for moving said grippers to pull the upper, said means adapted for yielding to permit movement of a gripper toward the last-bottom and means for automatically moving another gripper away from the last-bottom whereby the belt of upper between said grippers is shifted around the last.

36. The combination of grippers for gripping the upper on opposite sides of the last, means for moving said grippers to pull the upper, said means adapted for yielding to permit movement of a gripper toward the last-bottom and a spring-controlled means for automatically moving another gripper away from the last-bottom whereby the belt of upper between said grippers is shifted around the last.

37. The combination of a plurality of grippers for gripping the upper, a slide, actuating means for moving said slide in opposite directions, and levers, connecting with said slide and said grippers, to be actuated by said slide for moving said grippers to pull the upper.

38. The combination of a gripper adapted for gripping the upper, means for moving said gripper to pull the upper and means controllable by the workman during said pulling operation for reversely moving said gripper toward the last.

39. The combination of a gripper for gripping the upper, a lever and connections for moving said lever, said lever connecting with said gripper whereby to move it for pulling said upper and a manually-operated connection for reversely moving the gripper.

40. A plurality of grippers for gripping the upper, means for moving said grippers to pull the upper, said means adapted to permit a retractive movement of a gripper during the pulling operations, and means controlled by the retractive movement of a gripper for causing an increased movement of another gripper.

41. A pulling-over machine comprising a plurality of grippers, means for moving said grippers into position to grip the upper and yielding actuating mechanism for reversely moving said grippers to pull the upper.

42. In a pulling-over machine the combination of a plurality of devices for engaging the upper at different points, a movable part and connections between said part and said devices wherethrough a movement of said part causes a movement of said devices for adjusting the upper about the last.

43. The combination of a plurality of devices for engaging the upper at different points, a movable part and connections between said part and said devices wherethrough a movement of said part causes a movement of said devices for adjusting the upper about the last, and means for rendering said part inoperative as to one or more of said devices.

44. A plurality of devices for engaging the upper at different points, mechanism for moving said devices around the last and means controlling the operation of said mechanism whereby it is caused to move said devices separately or collectively.

45. The combination of a plurality of devices for engaging the upper at different points, mechanism to move said devices for shifting the upper around the last, said mechanism adapted for operation for moving said devices separately or simultaneously at the will of the workman.

46. The combination of a plurality of devices for engaging the upper at different points, mechanism to move said devices for shifting the upper around the last and means for locking said mechanism in inoperative position.

47. The combination, with a plurality of devices for engaging the upper at different points, of means for shifting the relative positions of said devices whereby a section of said upper is moved around the last.

48. The combination of a plurality of devices for engaging the upper at different points and means for moving a device whereby the section of upper gripped by said device is shifted longitudinally around the last.

49. Grippers for automatically gripping the upper on opposite sides of the last, said grippers being supported to swing longitudinally of said last and means for swinging the grippers.

50. The combination of grippers for gripping the upper at different points, a shaft, connections between said shaft and a gripper, a sleeve on said shaft, connections between said sleeve and a gripper, means for interlocking said sleeve and said shaft at times and means for moving said shaft to actuate the grippers.

51. The combination of a plurality of grippers, a shaft, connections between said shaft and a gripper, a sleeve on said shaft, and connections between said sleeve and a gripper, connections for interlocking said sleeve and said shaft and a lever to be operated for moving said shaft to actuate said grippers.

52. The combination of a plurality of grippers, a shaft, connections between said shaft and a gripper, a sleeve on said shaft and connections between said sleeve and a gripper, a lever and connections to be operated by said lever for interlocking said sleeve and said shaft, said lever adapted for moving said shaft to actuate the grippers.

53. The combination of a plurality of grippers, means for causing said grippers to grip the upper on opposite sides of the last, means for automatically pulling the upper between said grippers and the last, said grippers being mounted to permit movement over the last-bottom and also turn, whereby the gripping-plane is shifted with relation to the edge of the last.

54. A pulling-over machine comprising a plurality of grippers standing normally open, a last-supporter normally in position for resting the last with the edges of the shoe-upper interposed between the grippers, means for causing said grippers to grip the upper and means for thereafter shifting the relative positions of the grippers and the last-supporter for pulling the upper over the last.

55. A pulling-over machine comprising grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers, said grippers and said supporter maintaining normally positions relatively fixed preparatory to the gripping of the upper, means for causing said grippers to grip the upper, means for thereafter shifting the relative positions of said grippers and said supporter for pulling said upper, and means for thereafter reëstablishing the said normal relative positions.

56. A pulling-over machine comprising grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers, said grippers and said supporter maintaining normally positions relatively fixed preparatory to the gripping of the upper, means for causing said grippers to grip the upper, means for thereafter shifting the relative positions of said grippers and said supporter for pulling said upper, means for thereafter reëstablishing the said normal relative positions and means for thereafter causing a rest in the machine's operations.

57. A pulling-over machine comprising grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers, said grippers standing normally open and said grippers and said supporter being normally at rest in positions relatively fixed preparatory to the gripping of the upper, means for causing said grippers to grip the upper, means for thereafter shifting the relative positions of said grippers and said supporter for pulling said upper, and means for thereafter reëstablishing the said normal relative positions.

58. A pulling-over machine comprising grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers, said grippers standing normally open and said grippers and said supporter being normally at rest in positions relatively fixed preparatory to the gripping of the upper, means for causing said grippers to grip the upper, means for thereafter shifting the relative positions of said grippers and said supporter for pulling said upper, and means for thereafter reëstablishing the said normal relative positions, and means for thereafter causing a rest in the machine's operation.

59. A pulling-over machine, comprising grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers, said grippers and said supporter maintaining normally positions relatively fixed preparatory to the gripping of the upper, and means to vary said relative positions to accommodate undersized or abnormally-prepared uppers.

60. A pulling-over machine, comprising a last-supporter, a plurality of grippers standing normally open, said grippers and said last-supporter being normally at rest in positions relatively for resting the last with the edges of the upper standing in between said grippers, combined with means under control of the workman for shifting the said relative positions of said grippers and said last-supporter whereby the introduction at times of undersized or abnormally-prepared uppers is provided for.

61. A pulling-over machine comprising a last-supporter, a plurality of grippers standing normally apart, said grippers and said last-supporter being normally at rest in positions relatively for supporting the last with the edges of the upper standing in between said grippers, and said last-supporter adapted for yielding, whereby the introduction at times of undersized or abnormally-prepared uppers is provided for.

62. In a pulling-over machine, grippers to grip the upper and a supporter for resting the shoe in position to be gripped by said grippers and said supporter maintaining normally positions relatively fixed preparatory to the gripping of the upper, and said last-supporter adapted for yielding whereby the introduction at times of undersized or abnormally-prepared uppers is provided for.

63. A pulling-over machine comprising mechanism for pulling the upper longitudinally of the last, in combination with means for settling the last downwardly and backwardly into the pulled upper.

64. In a pulling-over machine, the combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for shifting the relative positions of the last-supporter and the grippers for pulling the upper over the last, and means to actuate the last-supporter for settling the last into the pulled upper.

65. The combination of a last-supporter, a plurality of grippers, means for causing said grippers to grip the upper automatically, means for moving said grippers to pull the upper over the last, and means for moving said last-supporter to settle the last into the pulled upper

66. The combination, with means for gripping the upper, of a last-supporter adapted for bearing on the bottom of the last approximately near the toe thereof and actuating means for moving said last-supporter in the direction of a curved line running downwardly and backwardly toward the heel of the last.

67. The combination, with means for pulling the upper, of a pivoted last-supporter having a rest located forwardly of said pivot for bearing on the last approximately near the toe thereof and means for swinging said last-supporter on said pivot whereby the last is settled into the pulled upper.

68. The combination of a last-supporter, means for pulling the upper and wipers for wiping the upper over the inner sole, said last-supporter and said wipers maintaining positions relatively fixed preparatory for the wiping operations and means for shifting the relative positions of said last-supporter and said wipers whereby they are adapted for working on uppers of different thicknesses.

69. The combination of the pivotally-supported part 352, carrying last-rests, substantially as described, the part 366 adjustably mounted on said part 352 and the actuating-cam 378.

70. A last-supporter, a plurality of wipers, means for moving said wipers over the last and means for thereafter shifting the relative positions of said wipers and said last-supporter whereby the shoe is separated from the wipers preparatory for a movement of said wipers reversely.

71. The combination of grippers for gripping the upper, a last-supporter, reciprocating wipers, means for shifting the relative positions of said last-supporter and said grippers for pulling the upper between said grippers and the last, means for thereafter advancing the wipers to wipe the upper over the inner sole and means to thereafter move the last-supporter whereby the shoe is removed from the plane of the wipers.

72. The combination of grippers for gripping the upper, the last-supporter and reciprocating wipers, means for shifting the relative positions of said grippers and said last-supporter for pulling the upper between said grippers and the last, means for shifting the relative positions of said wipers and said last-supporter for wiping the upper over the inner sole and means for thereafter shifting the relative positions of said wipers and said last-supporter whereby the upper is carried away from the plane of the wipers.

73. The combination of grippers for gripping the upper, a last-supporter, reciprocating wipers, means to move the last-supporter for pulling the upper between said grippers and the last, means to thereafter advance the wipers for wiping the upper over the inner sole and means to thereafter again move the last-supporter for taking the shoe out of the plane of the wipers.

74. A pulling-over machine comprising a plurality of grippers for pulling the upper over the last, and auxiliary means for holding said upper over the last after the pulling operations.

75. A pulling-over machine comprising means for pulling the upper over the last and auxiliary means for holding said upper over the last after the pulling operations, said means operating also to support the last during the securing operations.

76. A last-supporter adapted for resting on the bottom of a last, in combination with means for pulling the upper over the last, and independent means, becoming operative after the upper is pulled, to support the last against the operations of securing the upper to the inner sole.

77. Means for pulling the upper over the last, a plurality of securing mechanisms for securing the upper to the inner sole at different points and auxiliary last-supporting mechanism, becoming operative after the upper is pulled, for supporting the last during the operations of said securing mechanisms.

78. A pulling-over machine comprising upper-pulling devices and actuating means for causing said devices to pull the upper over the last combined with rests and mechanism for moving said rests into juxtarelation with said pulled upper on opposite sides of the last, said rests operating to support the last during the securing of the upper to the inner sole.

79. A pulling-over machine comprising a plurality of grippers for pulling the upper over the last, and auxiliary means for holding said upper over the last after the pulling operations; said means having provision to ride yieldingly over the upper preliminary to taking positions of rest thereon.

80. A pulling-over machine comprising means for straining the upper over the last, combined with rests for holding the pulled upper on opposite sides of the last.

81. A pulling-over machine comprising upper-pulling devices and actuating means for causing said devices to pull the upper over the last, combined with rests and mechanism for moving said rests into juxtarelation with said pulled upper on opposite sides of the last.

82. A pulling-over machine comprising upper-pulling devices and

actuating means for causing said devices to pull the upper over the last, combined with rests and mechanism for moving said rests into juxtarelation with said pulled upper on opposite sides of the last, said rests adapted to ride yieldingly over the upper preliminary to taking positions of rest thereon.

83. A pulling-over machine comprising a plurality of fingers adapted for riding over the last, means to actuate said fingers over the upper and separate means for pulling the upper over the inner sole.

84. A pulling-over machine comprising a plurality of fingers, yieldingly-movable supporting connections and means to move said connections whereby said fingers are pressed yieldingly on the last.

85. A pulling-over machine comprising mechanism supporting a plurality of fingers on opposite sides of the last and means to actuate said mechanism for placing said fingers in juxtarelation with the last.

86. A pulling-over machine comprising a plurality of fingers, movable connections supporting said fingers on opposite sides of the last, and means for moving said connections whereby said fingers are shifted from juxtarelation with the last, to positions remote therefrom.

87. A pulling-over machine comprising a plurality of fingers, rocking connections supporting said fingers and means to move said connections whereby said fingers are brought into bearing with the last.

88. A pulling-over machine comprising a plurality of fingers, connections to support said fingers on opposite sides of the last and a yielding actuating mechanism for moving said connections whereby said fingers are pressed yieldingly against the last.

89. A pulling-over machine comprising a plurality of fingers, arms to support said fingers on opposite sides of the last, an actuator, separate yielding connections between said arms and said actuator wherethrough said actuator causes a movement of said arms for pressing said fingers on the last.

90. A pulling-over machine comprising a plurality of fingers, arms to support said fingers on opposite sides of the last, a slide, and connections between said slide and said arms, a cam to move said slide for actuating the arms in one direction and a spring to move said slide for actuating said arms in the opposite direction.

91. A pulling-over machine comprising a plurality of fingers, means to move said fingers into bearing with the shoe, said means adapted to vary the forward positions of the fingers according to variations in the a positions, sizes or shapes of different shoes.

92. A pulling-over machine comprising a plurality of fingers, means to move said fingers into bearing with the upper, said means adapted for yielding to a resistance of said fingers separately.

93. A pulling-over machine comprising the combination of fingers, means to move said fingers into bearing with the upper on opposite sides of the last and separate means for pulling the upper over the last.

94. A pulling-over machine comprising the combination of fingers, and means to move said fingers into bearing with the upper on opposite sides of the last, said means adapted to vary the forward positions of the fingers, according to the varying positions of different shoes.

95. A pulling-over machine comprising a plurality of arms, fingers supported on said arms, and means to move said arms whereby the fingers are brought into bearing with the shoe, said means adapted for yielding to resistance of said arms separately.

96. A pulling-over machine comprising a plurality of finger-sections, supporting means from which said sections are projected at different angles and means for moving said finger-sections into bearing with the upper, said means adapted for presenting the finger-sections to the upper at different angles.

97. A pulling-over machine comprising a carrier, a plurality of finger-sections projected at different angles from said carrier and means to support and move the carrier whereby the finger-sections are brought into bearing with the upper.

98. A pulling-over machine comprising the combination of a support, finger-sections connected pivotally with said support and projected therefrom at different angles, and means to move the support whereby the finger-sections are brought into bearing with the shoe-upper at different angles.

99. The combination of a plurality of grippers for gripping the upper, means for pulling the upper over the last, means, becoming operative after the upper is pulled, for supporting the last, and wipers on opposite sides of the last for wiping said pulled upper over the inner sole.

100. The combination of a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last, auxiliary means for holding said upper over the last after the pulling operation, and means for wiping said upper over the inner sole.

101. The combination of a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last, rests for holding the pulled upper on opposite sides of the last and wipers for wiping said pulled upper over the inner sole.

102. The combination of means for pulling the upper over the last, a plurality of movable fastener-carrying wipers on opposite sides of the last for wiping the upper over the inner sole, and means controlled by the shoe for limiting the movement of said wipers.

103. The combination of a last-supporter to which the last is held by the workman, a plurality of movable wipers and means to move said wipers into operative positions, said means being adapted to vary the operative positions of said wipers according to the variance in the positions of different shoes.

104. A pulling-over machine comprising a wiper to slide over the upper and actuating means for moving the wiper, said actuating means comprising a yielding member arranged to be under uniform tension during the movement of said wiper to a point of resistance and thereafter yielding to the resistance of said wiper.

105. Means to pull the upper over the last, means, becoming operative after the upper is pulled, for supporting the last, fastener-inserting mechanism, means to move said fastener-inserting mechanism into operative position and means to limit the movement of said mechanism according to the size of the shoe.

106. Means to pull an upper over a last, fastener-inserting mechanism, automatic means to move said mechanism forward into operative position and backward into inoperative position before and after each operation of said mechanism, respectively, and means to limit the forward movement of said mechanism according to the size or position of the last.

107. Means for pulling an upper over a last, means for adjusting the pulled upper about the last, fastener-inserting mechanism, means to move said fastener-inserting mechanism into operative position, and means controlled by the shoe for limiting the movement of said fastener-inserting mechanism.

108. A pulling-over machine comprising means for pulling the upper over the last, a plurality of movable fastener-inserting mechanisms for securing the upper on opposite sides of the last and stops to engage with the edge of the shoe for limiting the movement of said fastener-inserting mechanisms.

109. Means to pull the upper over a hand-supported last, fastener-inserting mechanism, means to move said fastener-inserting mechanism into operative position and a stop to engage the edge of the shoe and thereby limit the movement of the fastener-inserting mechanism.

110. Means for pulling an upper over a last, means for adjusting the pulled upper about the last, means, becoming operative after the upper is pulled, for supporting the last, means for placing the pulled upper over the inner sole, movable fastener-inserting mechanism, and means controlled by the shoe for limiting the movement of said fastener-inserting mechanism.

111. A pulling-over machine comprising the combination of a plurality of movable fastener-inserting mechanisms and means to move said mechanisms into operative positions, said means being adapted to vary the operative positions of said mechanisms according to the variance in the positions of different shoes.

112. A plurality of movable fastener-inserting mechanisms, means to be operated for moving said mechanisms into operative positions and automatically causing the fastener-inserting operations to take place.

113. The combination of a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last and fastener-carrying wiping mechanisms on opposite sides of the last for wiping the pulled upper over the inner sole.

114. The combination of a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last and fastener-carrying wiping mechanisms on opposite sides of the last for wiping the pulled upper over the inner sole and means for simultaneously discharging said fasteners into the upper and inner sole.

115. Movable fastener-inserting mechanisms, means to gage the positions of said fastener-inserting mechanisms relatively to the edge of the shoe and means to actuate said fastener-inserting mechanisms into positions determined by said gaging means, said actuating means being thereafter movable to cause the operations for inserting the fastenings.

116. Movable fastener-inserting mechanisms, means to gage the positions of said fastener-inserting mechanisms relatively to the edge of the shoe and spring-controlled means to actuate said fastener-inserting mechanisms into positions determined by said gaging means, said actuating means being thereafter movable to cause the operations for inserting the fastenings.

117. The combination of a plurality of grippers for gripping the upper, means for pulling the upper between said grippers and the last, means, becoming operative after the upper is pulled, for supporting the last, and fastener-carrying wiper mechanisms on opposite sides of the last for wiping the pulled upper over the inner sole.

118. A plurality of movable fastener-inserting mechanisms, a rocking part, connections between said part and the fastener-inserting mechanisms whereby movement of said part is made to lift the fastener-inserting mechanisms and means for rocking said part, a separate mechanism carried by said part and connecting with said fastener-inserting mechanisms and means to actuate said mechanism for moving the fastener-inserting mechanisms into operative positions.

119. A plurality of fastener-inserting mechanisms supported to swing over the last-bottom, actuating mechanism over the last-bottom connecting with said fastener-inserting mechanisms, and adapted to be operated for swinging the fastener-inserting mechanisms into operative position.

120. A plurality of fastener-inserting mechanisms, means to move said mechanisms, said means including a movable part, combined with means to adjustably vary the relative position of said part, whereby to vary the paths of movement of the fastener-inserting mechanisms.

121. A plurality of fastener-inserting mechanisms, an actuator and adjustable connections operated by the actuator for moving said mechanisms into operative positions.

122. The combination of a plurality of grippers occupying positions relatively distanced for gripping the sides and toe of an upper and mechanism to be actuated for simultaneously shifting said grippers whereby they are differently positioned for working on uppers of a different size.

123. The combination of a plurality of grippers occupying positions relatively distanced for gripping the sides and toe of an upper and means for shifting said grippers whereby they are differently positioned for working on uppers of a different size, said positions remaining approximately the same relatively.

124. A plurality of grippers for gripping the upper on opposite sides of the last, said grippers being relatively distanced apart for gripping an upper and movable transversely of the last to different positions for gripping uppers of a different size, combined with means wherethrough said movement of said grippers is made uniform.

125. The combination of a plurality of grippers occupying positions relatively distanced for gripping sides and toe of an upper and manually operated connections for simultaneously shifting said grippers whereby said grippers are differently positioned for working on uppers of a different size.

126. The combination of a plurality of grippers adapted for gripping the upper at different points, a movable part and connections between said part and said grippers wherethrough a movement of said part operates a simultaneous movement of said grippers outwardly to the gripping positions, and means for automatically moving said part.

127. The combination of a plurality of grippers for gripping the upper at different points, mechanism engaging said grippers on their sides nearest the center of the last for moving said grippers outwardly to the gripping positions and separate means for reversely moving said grippers.

128. A plurality of grippers for gripping the upper at different points, actuating mechanism located over the last-bottom for moving said grippers outwardly to the gripping positions and separate means for reversely moving said grippers.

129. The combination of a plurality of grippers, yielding actuating mechanism for moving said grippers inwardly over the last-bottom and mechanism over the last-bottom for positively actuating the grippers outwardly to the gripping positions.

130. The combination of a plurality of grippers for gripping the upper adapted for movement forwardly and backwardly over the last-bottom, combined with yielding actuating mechanisms for moving said grippers inwardly over the last-bottom and separate mechanisms for positively actuating the grippers reversely.

131. A plurality of grippers for gripping the upper at different points, means for pulling the upper between said grippers and the last and mechanism whereby the grippers are yieldingly actuated inwardly over the last.

132. In a pulling-over machine, grippers arranged for automatically gripping the toe of the upper and manually-operated connections for causing said grippers to pull said toe of the upper over the last.

133. In a pulling-over machine, grippers for gripping the upper, mechanism for pulling the upper between said grippers and the last, and means for rendering said mechanism inoperative, said grippers then permitting movement independently for manipulating the upper.

134. In a pulling-over machine, grippers for gripping the upper, mechanism for pulling the upper between said grippers and the last, means for rendering said mechanism inoperative, said grippers then permitting movement independently, and means for thereafter automatically reëstablishing the operative character of said mechanism.

135. In a pulling-over machine, grippers for gripping the upper, actuating mechanism for moving said grippers to pull the upper over the last and means for disconnecting said grippers and said actuating mechanism, said grippers then permitting independent movement.

136. In a pulling-over machine, in combination, grippers, actuating mechanism for causing said grippers to grip the upper and thereafter move said grippers for straining the upper between the grippers and the last, and connections to be operated for disconnecting the said grippers from said actuating mechanism, said grippers then permitting operation according to the will of the workman.

137. In a pulling-over machine, in combination, a plurality of grippers, means for causing said grippers to grip the upper, means for thereafter pulling the upper between said grippers and the last, and means for thereafter causing a rest in the machine's operations, said grippers still holding the upper under tension.

138. In a pulling-over machine, in combination, a plurality of grippers, means for causing said grippers to grip the upper, means for thereafter pulling the upper between said grippers and the last, and means for thereafter causing a rest in the machine's operations, said grippers still holding the upper under tension and being movable for shifting the upper around the last.

139. In a pulling-over machine, in combination, a plurality of grippers, means for causing said grippers to grip the upper, means for thereafter pulling the upper between said grippers and the last and means for thereafter causing a rest in the machine's operations, said grippers still holding the upper under tension, and means to move the upper around the last.

140. In a pulling-over machine, a last-supporter, a plurality of grippers, means for causing said grippers to grip the upper, means for shifting the relative positions of said last-supporter and said grippers, whereby the upper is pulled between said grippers and the last, and means for thereafter causing a rest in the machine's operations, said grippers still holding the upper under tension.

141. In a pulling-over machine, in combination, a plurality of grippers, means for causing said grippers to grip the sides and toe of the upper, means for thereafter pulling the upper between said grippers and the last, and means for thereafter causing a rest in the machine's operations, said grippers still holding the upper under tension.

142. A machine comprising upper pulling and securing mechanisms, means to be actuated for starting the machine into operation, and mechanism to stop the machine automatically between the operations of said pulling and securing mechanisms.

143. A machine comprising upper pulling and securing mechanisms, means to be actuated for starting the machine into operation, mechanism adapted for operation independently of said means for stopping the machine, said mechanism arranged for operation to stop the machine between the operations of said pulling and securing mechanisms.

144. The combination of a bar, grippers supported by said bar, a second bar, connecting mechanism between said second bar and the grippers, means to move said second bar for closing the grippers together, and thereafter actuating said second bar to lift the grippers.

145. The combination of a bar, a gripper in fixed connection with said bar, a coöperating gripper supported loosely by said bar, a second bar, means to move said second bar for closing the grippers together and thereafter actuating said second bar to lift the grippers.

146. The combination of a bar, a gripper, a coöperating gripper, means to be actuated by movement of said bar for opening the grippers, means to be actuated by movement of said bar for closing the grippers and means to actuate said bar to lift the grippers.

147. The combination of a bar, a gripper, a coöperating gripper supported for movement longitudinally of said bar, a second bar, means to move said second bar for closing the grippers together and thereafter actuating said second bar to lift the grippers.

148. The combination of a bar, a gripper, a coöperating gripper mounted loosely on said bar, mechanism for lifting and lowering said bar, means for closing said grippers together and thereafter causing said grippers to be lifted by said bar.

149. The combination of a gripper, a bar, a movably-supported coöperating gripper, mechanism between said bar and said movably-supported gripper to be actuated for closing the grippers together and mechanism for thereafter causing said grippers to be lifted by said bar.

150. The combination of a bar, a gripper, a coöperating gripper, mechanism for lifting and lowering said bar, means to be actuated by a movement of said bar for closing said grippers together, and thereafter causing said grippers to be lifted by said bar.

151. The combination of a bar, a gripper, a coöperating gripper, means to be actuated by a movement of said bar for closing said grippers together, and means to actuate said bar to lift the grippers.

152. The combination of a bar, a gripper actuated by said bar, a second gripper, a second bar, mechanism put into operation by movement of said second bar for closing together the grippers and thereafter causing said grippers to be lifted as one with said bar, said first bar remaining freely movable to open and close the grippers.

153. The combination of a bar, a gripper actuated by said bar, a second gripper, a second bar and mechanism actuated by said second bar for closing the grippers together, and thereafter causing said grippers to be lifted as one with said bar, said first bar remaining freely movable to open and close the grippers, and manually-operated connections for moving said bar.

154. A pulling-over machine comprising the combination of a grip-

per, a coöperating gripper, means for closing said grippers together and a part adapted for movement separately whereby the hold of said grippers is relaxed.

155. The combination of a gripper, a coöperating movably-supported gripper, actuating means for closing the grippers together, a movable part in fulcrum relation with said movable gripper, a locking connection for holding said movable part, said connection permitting movement to relax the hold of the grippers.

156. The combination of a gripper, a coöperating gripper, means for closing the grippers together, and a part in juxtarelation with one of said grippers, said part being stationary during the closing of the grippers but permitting movement for relaxing the hold of the grippers.

157. A gripper mechanism comprising a bar, a gripper connected with said bar, a second bar, a second movably-supported gripper, mechanism connected with said second gripper and in juxtarelation with said second bar, and put into operation by a movement of said second bar for closing the grippers together and means actuated by said second bar for thereafter locking said movable gripper.

158. A gripper mechanism comprising a bar and a gripper connected therewith, a coöperating gripper, a second bar, and connections actuated by a movement of said second bar for closing the grippers together with yielding pressure and thereafter crowding the grippers together with a positive force.

159. A gripper mechanism comprising a movably-supported gripper, a part normally held stationary to act as a fulcrum for said gripper, and means to be operated for releasing said part to relax the hold of said grippers.

160. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having sliding parts each suitably recessed to form a portion of a tack-receiving pocket, means for moving said parts whereby they are brought into position for collectively forming such pocket, said means adapted to yield for reverse movement of said parts whereby said pocket is opened for passage of tacks therethrough.

161. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having movable parts each suitably recessed to form a portion of a tack-receiving pocket, means for relatively placing said parts whereby a plurality of pockets are formed, said parts being movable to permit the passage of tacks through said pockets.

162. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having movable parts each suitably recessed to form a portion of a tack-receiving pocket, means for relatively placing said parts whereby a plurality of pockets are formed, said means adapted for yielding to movement of said parts for passage of tacks through said pockets.

163. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having an outer casing, a plurality of movable parts associated in juxtarelation, each suitably recessed to form a portion of a tack-receiving pocket, means for relatively placing said parts whereby a plurality of pockets are formed, said parts being movable to permit the passage of tacks through said pockets.

164. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having sliding parts, each suitably recessed to form a portion of a tack-receiving pocket, stops for limiting the movement of said parts, and means for moving the parts into engagement with said stops, the combination operating to position said parts for forming said pocket, and the parts adapted for movement to allow the passage of tacks through said pocket.

165. Means for pulling an upper over a last and fastener-inserting mechanism comprising a tack supporting and delivering device having movable parts, each suitably recessed to form a portion of a tack-receiving pocket, said device comprising an opening wherethrough tacks are delivered to said pocket, means for moving said parts whereby they are relatively placed for forming said pocket and means controlling the movement of said parts whereby they are positioned with said pocket in alinement with said tack-delivering opening.

166. In a tack-separating mechanism the combination of tack-separating devices and actuating mechanism for moving said devices forwardly and backwardly, said actuating mechanism including a single means adapted for yielding in both of said directions to resistance abnormally interposed to the movement of said devices.

167. The combination of a shaft and means to actuate said shaft, a slide, connections between said slide and said shaft for endwise moving the slide, a spring actuated by said slide, a second slide, arms connecting with said second slide and bearing on said spring whereby movement is transferred from said first slide through said spring and arms to yieldingly endwise move said second slide in opposite directions, and tack-separating devices actuated by said second slide.

168. A sleeve, a shaft journaled in said sleeve, right and left coiled spring devices located in said sleeve at the ends of said shaft, said springs having diametrically-disposed right and left terminal sections socketed in said shaft and a driver-arm mounted on said shaft to be actuated by said springs.

169. A sleeve, a shaft journaled in said sleeve, coiled spring devices located in said sleeve at the ends of said shaft, said shaft having diametrically-disposed right and left end grooves in which are projected one end of said springs respectively, collars supported by said sleeve for movement rotatively, said collars supporting the other ends of said springs respectively, means for interlocking said collars and said sleeve and a driver-arm mounted on said shaft to be actuated by said springs.

170. Means for pulling an upper over a last, combined with means for moving said pulled upper around said last longitudinally.

171. Means for pulling an upper over a last, combined with means for moving said pulled upper around said last transversely.

172. Means for pulling an upper over a last, combined with means for moving said pulled upper around said last longitudinally and transversely.

173. A pulling-over machine comprising means for stretching the upper over and holding it upon the last, with means for adjusting the pulled-over upper on the last.

174. A pulling-over machine comprising a support against which the last is held, means for pulling over the upper, means for fiting and adjusting the upper and means for fastening the upper.

175. A support to which the last is held by the workman, means to poll the upper over the last, means to then hold said last on said support, means for placing said upper over the inner sole, and means for securing said upper to the inner sole.

176. Means for pulling an upper over a last, means for causing a rest in the machine's operations after the upper is pulled; means for adjusting the upper on the last while the machine is at rest, and means for thereafter securing the upper to the inner sole.

177. A pulling-over machine comprising the combination of means for pulling the upper over the last, a plurality of movable wipers on opposite sides of the last for sliding over the upper and wiping the upper over the inner sole, and means controlled by the shoe for limiting the movement of said wipers.

178. Means for pulling an upper over a last, a plurality of movable fastener-inserting mechanisms for securing the upper at the sides and toe, and means controlled by the last for limiting the movement of said fastener-inserting mechanisms.

179. A pulling-over machine comprising means for pulling an upper over a last, means for adjusting the pulled upper about the last and means to secure the upper to the inner sole.

180. Means for pulling an upper over a last, means for adjusting the pulled upper about the last and means to wipe the upper over the inner sole.

181. Means for automatically pulling an upper over a last, means for adjusting the pulled upper about the last and automatic means to secure the upper to the inner sole.

182. Means for automatically pulling an upper over a last, means for adjusting the pulled upper about the last and automatic means to wipe the upper over the inner sole.

183. A pulling-over machine comprising means for pulling an upper over a last, means for adjusting the pulled upper about the last longitudinally and means to secure the upper to the inner sole.

184. Means for pulling an upper over a last, means for adjusting the pulled upper about the last longitudinally and means to wipe the upper over the inner sole.

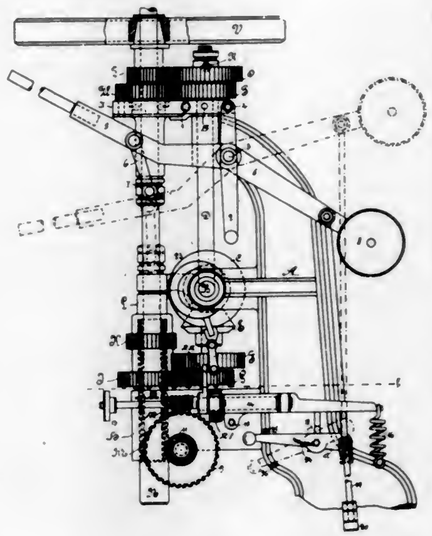
185. Means for automatically pulling an upper over a last, means for adjusting the pulled upper about the last longitudinally and automatic means to secure the upper to the inner sole.

186. Means for automatically pulling an upper over a last, means for adjusting the pulled upper about the last longitudinally and automatic means to wipe the upper over the inner sole.

663,778. DRILLING-MACHINE. HANS O. NIELSTAEDT, Copenhagen, Denmark. Filed Dec. 30, 1897. Serial No. 664,549. (No model.)

Claim.—1. In a drilling-machine, the combination with a frame, of a primary-movement shaft, a drill-spindle, a balance-wheel mounted to turn around the drill-spindle, two gears connected with the balance-wheel and having different diameters, a counter-shaft driven from the primary-movement shaft, two gears mounted on the counter-shaft and respectively meshing with the two gears before mentioned, the gears of the counter-shaft being provided with means by which they may be rendered loose or fast upon the counter-shaft, the counter-shaft being geared with the drill-spindle to drive the drill-spindle, and feed devices for the drill-spindle.

2. The combination with an upright frame, of a horizontal primary-movement shaft mounted thereon, a vertical drill-spindle carried in the frame, a balance-wheel mounted to turn around the drill-spindle at a point above the frame, a vertical counter-shaft geared with the primary-movement shaft, two gear-wheels connected to the balance-wheel and having different diameters, two additional gear-wheels carried on the counter-shaft and being supplied with means by which they may be rendered fast or loose on said shaft, gearing for driving the drill-spindle from the counter-shaft, and feed devices for the drill-spindle.



3. The combination with an upright or vertical frame, of a horizontal or primary-movement shaft mounted therein, a vertical drill-spindle mounted in the frame, a balance-wheel carried at the upper portion of the drill-spindle above the frame, a sleeve encircling the drill-spindle and carrying the balance-wheel, a vertical counter-shaft carried in the frame parallel with the drill-spindle, gearing for driving the sleeve of the balance-wheel from the counter-shaft, a second sleeve encircling the drill-spindle and communicating movement thereto, a second vertical counter-shaft located below the primary-movement shaft and geared with the same, gearing connecting the second counter-shaft with the sleeve of the spindle, and feed devices acting with the said sleeve of the spindle.

4. In a drilling-machine, the combination with a frame, of a drill-spindle mounted therein, a balance-wheel mounted to turn concentrically to the drill-spindle and independently thereof, a primary-movement shaft, means for driving the balance-wheel from said primary-movement shaft, and means for driving and feeding the drill-spindle, such driving means being in connection with the primary-movement shaft.

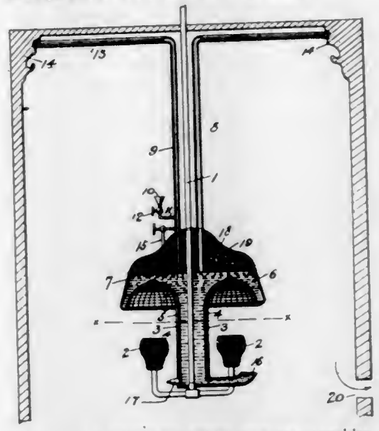
5. In a drilling-machine, the combination of a drill-spindle, means for driving the same, a worm-shaft having connections with the drill-spindle to feed the same, a swinging sleeve in which the worm-shaft is mounted, means for swinging the sleeve to normally raise the worm-wheel, and a lever mounted beneath the sleeve and serving normally to support the same against the action of said means.

6. The combination of a driven drill-spindle, a worm-shaft serving to transmit feeding movement thereto, a swinging sleeve in which the worm-shaft is mounted, means actuating the sleeve to throw the worm out of action, a fork-lever with a spring normally holding the sleeve against the action of said means, and devices engaging in the fork of the lever for tripping the lever so as to release the sleeve.

7. The combination of a worm-wheel, a worm-shaft coacting therewith, a swinging sleeve in which the worm-shaft is carried, means tending to throw the sleeve with the worm out of action, and a lever with a spring serving normally to hold the sleeve against the action of said means.

8. In a drilling-machine, the combination with a frame, of a hand-lever mounted to swing thereon, a link connected with the hand-lever and having a stop, a forked lever mounted on the frame and engaged by the stop, a spring-pressed swinging sleeve normally supported by the forked lever, a worm-shaft mounted in the sleeve and swinging with the same, a driven drill-spindle, and means connecting the drill-spindle with the worm-shaft to feed the drill-spindle.

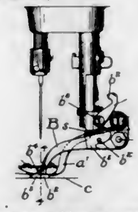
663,779. GAS OR OIL HEATER. JOSHUA J. NIX, Royersford, Pa. Filed Apr. 4, 1900. Serial No. 11,500. (No model.)



Claim.—1. A lighting and heating apparatus, comprising a water-back provided with a horizontal upper portion and an outwardly-extending lower portion, a burner situated therebetween, said upper portion being recessed on the under side above said burner, the recess having a reflecting-surface, and said lower portion having a depression in its surface for the reception of water.

2. In a chandelier, the combination of a water-back, comprising the lower vertical portion and a horizontal upper portion, the horizontal upper portion being provided on its lower sides with recesses, said recesses and the sides of the vertical portions having reflecting-surfaces, outflow and return pipes communicating with the water-back, illuminating-burners situated beneath the said recesses and a fuel-supply pipe passing through the water-jacket and communicating with the burners.

663,780. TRIMMING ATTACHMENT FOR SEWING-MACHINES. DONALD NOBLE, London, England, assignor to The Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed Sept. 9, 1898. Serial No. 690,550. (No model.)



Claim.—1. In a sewing-machine, a presser-foot to hold the material upon the work-support, said foot presenting at its lower side a cutting edge, a coöperating cutting member presenting at its upper side a cutting edge and shaped to rest at its lower end upon an under ply of material, said member entering the space between two plies to sustain the upper ply to be cut, a feeding device for imparting vertical movement to said foot to separate said cutting edges, that the material may be fed into the space between said cutting edges, and means to cause said foot to descend and cut the material as the feeding device retires therefrom.

2. In a sewing-machine, a work-support, a feeding device to engage and move the material, combined with trimming mechanism to trim an upper ply of material being stitched to an under ply in the production of applique-work, said mechanism presenting vertically-acting trimming members located entirely above the plane of the work-support, and acting to cut the material in advance of the stitch-making point, that one of said members which is directly opposed to the action of the feeding device having at its under side a downturned cutting edge, the other of said members presenting at its upper side an upturned cutting edge which in the cutting operation lies under the material to be cut, and yielding means acting normally to press one of said cutting members toward the other of said cutting members supported only by an under ply of the material, whereby only the upper ply is cut between said two members.

3. In a sewing-machine, a presser-foot bearing upon the work and provided with a cutting edge at the plane of its bottom surface, a spring acting normally to depress the foot, and a second cutting member or blade

yieldingly connected to said presser-foot and located above the work-support, and having at its upper side a cutting edge located at the side of the stitch-making point and coöperating with the cutting edge at the bottom of said foot, combined with means to lift said foot independently of said blade for the entrance of the material between said cutting edges, said material being cut by the descent of the presser-foot.

4. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, and feeding mechanism vertically reciprocating the presser-foot and thereby effecting the trimming, substantially as described.

5. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, and a shoe extending laterally just back of said toe, and feeding mechanism vertically reciprocating the presser-foot and thereby effecting the trimming, substantially as described.

6. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, feeding mechanism vertically reciprocating the presser-foot and thereby effecting the trimming, and means for raising said trimmer in line with said presser-foot out of cutting position, substantially as described.

7. In a trimming mechanism for a sewing-machine, a presser-bar, a presser-foot carried thereby and provided with a bottom cutting edge, a trimmer secured to said presser-bar, means normally holding said trimmer with the upper edge of its lower end extending obliquely forward across said bottom cutting edge, said upper edge being sharpened to constitute a cutting edge, and a pin and latch, the latter having a beveled edge to coöperate with said pin and lift the said trimmer out of its said normal position, substantially as described.

8. In a sewing-machine, the combination with the needle of a stitch-forming mechanism, a work-support to sustain said material, a presser-foot bearing on said material and presenting a blade at its under side, a feeding device coöperating with said presser-foot to feed a plurality of plies of material sustained by the work-support and acted upon by the presser-foot, of a cutting-blade interposed between said plies and coöperating with the presser-foot in its descent to trim the upper ply of material close to the line of stitching leaving the upper ply presenting an edge in pattern and coinciding with the line of stitching uniting the plurality of plies of material.

9. In a sewing-machine, a work-support, a trimming-cutter presenting two members located above the work-support, one of said members bearing upon a plurality of plies of material to be stitched and having at its under side a cutter, the other of said members entering between said plies and constituting a second cutting member, means to separate said members for the entrance between their cutting edges of an upper ply of said material to be cut and left in pattern stitched to the under ply, said members being operated to cut the material interposed between them as said members descend.

10. In a sewing-machine, a work-support, a needle forming part of a stitch-forming mechanism, feeding mechanism to feed the material, a cutting device consisting of a presser-foot to bear on the material and having at its under side a cutting edge, and a lever also located above said material and presenting at its upper side a cutting edge coöperating with said first-mentioned cutting edge, the acting end of said lever entering between two plies of said material, said cutting device when operated cutting an upper ply of said material to a point substantially in line with but at one side of the last stitch made.

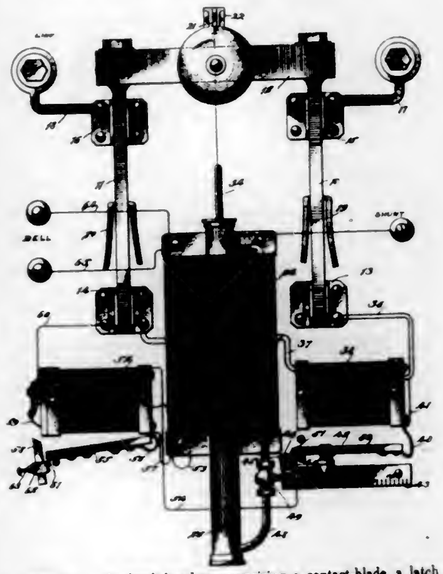
11. A trimming device consisting of a presser-foot having at its under side a cutting edge, combined with a coöperating blade mounted on a horizontal pivot behind the stitch-forming point, and having at its upper side a cutting edge, the under side of said blade presenting a laterally-extended surface to bear upon and slide over an under ply of material and between it and an upper ply of material, the cutting edges cutting the material close to the stitch-forming point and a little behind the last stitch made to provide for stitching and cutting sharp curves and corners.

12. A trimming device consisting of a presser-foot having at its under side a cutting edge, and a coöperating vertically-movable connected blade having at its upper side a cutting edge, the under side of said blade presenting a surface to bear upon and slide over an under ply and between it and an upper ply of material, and means to lock said blade in its inoperative position that its under side may occupy a position in substantially the same plane with the under side of the presser-foot to provide for stitching without trimming.

13. A work-support, a needle forming part of a stitch-forming mechanism, a trimming device composed of two members, one mounted to turn on or with relation to the other and both located above the material sustained on the work-support, a feeding device to feed said material and in its action raise one of said members, means acting normally to separate said members when one of them is raised by the action of the feeding device for the introduction between said members of one ply of material to be cut in pattern when the feed is lowered, said upper ply being left stitched on a lower ply.

14. In a sewing-machine for trimming material in applique-work, a presser-foot to bear upon a plurality of thicknesses of material resting on the usual work-support and carrying at its under side near one edge a cutting edge, and an arm connected with said presser-foot and provided at its upper side with a cutting edge, a spring acting normally to keep said arm in contact only with an under ply of said material, and a feeding device acting upon the material below said presser-foot and lifting the same to open the space between said cutting edges, and means to thereafter depress the presser-foot on the retirement of the feeding device below the work-support, the descent of the presser-foot effecting the cutting of the material between it and the said arm.

663,781. CIRCUIT-BREAKER. GEORGE W. PARSONS, La Grange, Ill. Filed Apr. 6, 1900. Serial No. 11,830. (No model.)



Claim.—1. A circuit-breaker, comprising a contact-blade, a latch for holding said contact-blade in circuit-closing position, a solenoid adapted to be operated by an overload of current in the main line, a core in said solenoid operating to release the holding-latch, and electrically-controlled means for regulating a lubricating and retarding liquid to said core, substantially as specified.

2. A circuit-breaker, comprising contact-blades, a main series coil having connection with the blades, a solenoid, a tube extended through said solenoid, a core for operating in the tube, a locking device for the contact-blades and adapted to be released by said core, an oil-tube connecting with the opposite ends of the first-named tube, a valve in said oil-tube, and means actuated by the series coil for further opening said valve, substantially as specified.

3. A circuit-breaker, comprising contact-blades, a solenoid, a tube extended through said solenoid, a core operating in the tube, a locking device for the contact-blades and adapted to be released by said core, and means controlled by the electric current of the main line for regulating an oil-supply to the interior of the tube, substantially as specified.

4. A circuit-breaker, comprising contact-blades, a main-line series-coil having connection with the blades, an armature for coacting with said coil, a solenoid, a tube extended through said solenoid, a core operating in said tube, a locking device for the contact-blades and adapted to be released by the solenoid-core, an oil-circulating pipe communicating with the opposite ends of the tube, a valve in said pipe operated in one direction by a movement of the armature, a circuit-closer on the armature and the circuit through the solenoid closed by a movement of said armature, substantially as specified.

5. A circuit-breaker, comprising contact-blades, a locking device for the contact-blades, a solenoid, a tube extended through said solenoid, a core for operating in said tube and adapted to release the locking device, a lubricant-circulating pipe communicating with opposite ends of the tube, a valve in said pipe, a main series coil having connection with the contact-blades, an armature operated by said coil for actuating the valve in the pipe and also for closing a circuit through the solenoid, and means for regulating the degree of resistance of the armature, substantially as specified.

6. A circuit-breaker, comprising contact-blades, a solenoid, a core operating in said solenoid, a locking device for the contact-blades and adapted to be released by the engagement of said core, a main-line series coil in circuit with the contact-blades, a circuit-closer operated by said coil, said closer controlling a circuit through the solenoid, and a shunt-coil, the current through which is also controlled by the said series coil, substantially as specified.

7. A circuit-breaker, comprising contact-blades, a series coil having connection with the blades, a solenoid, a core operating in said solenoid, a locking device for the contact-blades and adapted to be released by the core striking against the locking device, an armature coacting with the series coil, a circuit-closer operated by said armature, a shunt-coil, the current through which is controlled by said circuit-closer, and means operated by said shunt-coil for controlling the current through its own coils and the solenoid, substantially as specified.

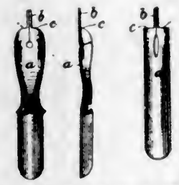
8. A circuit-breaker, comprising contact-blades, a locking device for the contact-blades, a solenoid, a core operating in said solenoid for releasing the locking device upon an overload of current passing into the solenoid, and a shunt-coil for receiving an overload of current not sufficient to operatively energize the solenoid, substantially as specified.

9. A circuit-breaker, comprising contact-blades, a locking device for the contact-blades, a solenoid, a tube extended through said solenoid, a core operating in said tube and having a flexible valve at one end, a striker-rod extended from the opposite end of said core and adapted to release the locking device, and means for controlling a circulation of lubricating liquid in said tube, substantially as specified.

10. A circuit-breaker, comprising contact-blades, a locking device therefor, a solenoid operated by an overload of current to release said locking device, an alarm-shunt in parallel with the solenoid, a series coil having connection with the contact-blades, an armature coacting with said coil, a weight adjustable longitudinally on said armature, a circuit-closer operated by said armature for directing an overload of current through the solenoid and means operated by said armature for regulating a supply of oil within the solenoid, substantially as specified.

11. In a circuit-breaker, contact-blades, a locking device for the contact-blades, a solenoid adapted to operate to release the locking device upon an excessive or overload of current, and a shunt-coil having connection with the solenoid and also with the main line and adapted to receive an increase of current not sufficient to operatively energize the solenoid, substantially as specified.

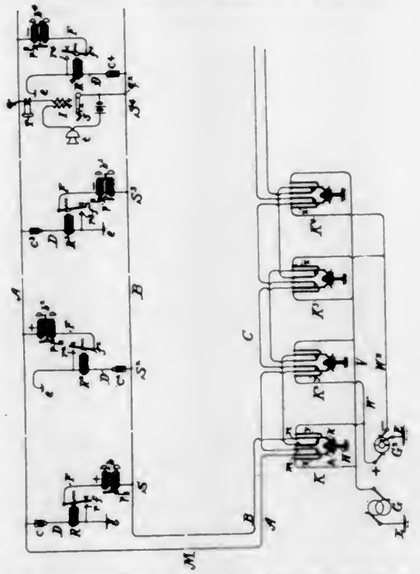
663,782. METALLIC PEN. JOSEPH L. PETIT, Birmingham, England. Filed Sept. 10, 1900. Serial No. 29,575. (No model.)



Claim.—As a new article of manufacture, a pen having a slitted point of uniform width throughout projecting from the body portion thereof.

663,783. SELECTIVE-SIGNAL SYSTEM. FRANK A. PICKERNELL, Newark, N. J., assignor to the American Telephone and Telegraph Company, of New York. Filed Aug. 14, 1900. Serial No. 26,880. (No model.)

Claim.—1. A selective-signal circuit connecting a central station with four substations, and comprising two main or line conductors A and B; two earth branches at each substation, extending from the said main conductors respectively; an electromagnetic bell in the branch from conductor A at two of said stations, and in the branch from conductor B at the other two stations, the said two bells associated with each main conductor being organized to respond to pulsatory or intermittent current of opposite direction respectively; an alternating-current relay in the remaining branch at each station, the said relay being arranged to control the continuity of the bell branch at the same station; and four signal-transmitting keys at the central station, corresponding to the relay and bell branches at the said substations respectively, and each adapted to simultaneously transmit an alternating current over one of the main conductors for the operation of the relays connected therewith, and pulsatory or intermittent current of appropriate direction over the other main conductor to ring the desired one of the two bells brought into connection therewith by the operation of said relays, substantially as set forth.

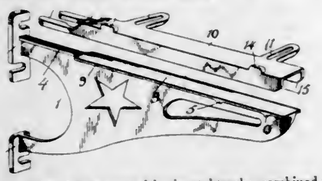


2. The combination in a system of selective signaling with two main conductors of a telephone-circuit connecting four substations with a central station; a source of alternating current; and a source of pulsatory or intermittent current; of an electromagnetic bell at each of the said substations, two connected in normally open earth branches of one main conductor, and two in similar branches of the other main conductor, the two bells of each set being respectively organized or adjusted to respond to pulsatory or intermittent currents of diverse direction; an alternating-current relay at each station connected in an earth branch independent of that containing the said bell, the said relay branch at each substation being associated with the main conductor which at such substation is not associated with the bell branch, and the said relays being each arranged to close, through the attraction of its armature, the normally open branch at its own station; and four keys or switches, all at the central station, each controlling a different relation of the terminals of the said main conductors and sources of current, in such manner as to transmit an alternating current over a determinate one of said main conductors, and a pulsatory or intermittent current of determinate direction simultaneously over the other main conductor; substantially as and for the purposes specified.

3. In combination with a metallic telephone-circuit leading from a central station to four substations, each conductor whereof has four earth branches, one at each substation; a condenser, and a relay responsive by the steady attraction of its armature to alternating currents in each of two of the said branches from each main conductor, all at different substations; and an electromagnetic call-bell in each of the said other branches all at different stations; the relay and the bell branches at each station being associated with different main conductors; the bell branch at each station being led through the relay-points at said station; and the two station-bells directly associated with each main being adapted to respond to pulsatory currents of plus and minus sign respectively, transmitted over said main, when the branches including them have been closed by their respective

relays actuated by the passage of alternating currents in the other main; substantially as described.

663,784. SHELF. ARTHO D. PORTER, Norwood, Mass. Filed Apr. 20, 1900. Serial No. 13,569. (No model.)



Claim.—1. A bracket-supported horizontal track; combined with a guide resting thereon, means for preventing lateral displacement and for permitting longitudinal adjustment of the parts, longitudinally-slotted ears projecting laterally from the guide, and lugs rising from its top, a shelf resting upon the ears and with its edge against said lugs, and screws passing through the slots into the shelf.

2. A bracket-supported horizontal track; combined with a guide having a flat body resting thereon and a flange sliding against its edge, means for limiting the relative longitudinal adjustment of these members, lugs rising from the top of the guide, ears projecting from its body away from said lugs, and a shelf fastened upon the ears with its edge against said lugs.

3. A bracket having a foot adapted for attachment to an upright support, and a flat track projecting horizontally from the lower portion of said foot; combined with a guide having a flat body resting on the track and of substantially the same length, depending side flanges engaging the edges of the track, means for limiting the outward movement of the guide on the track and permitting its disconnection therefrom, and a shelf or drawer supported by the guide.

4. A bracket-supported flat horizontal track having lugs beneath its body near its outer end; combined with a shelf-supporting guide having a body resting on the track and depending side flanges engaging its edges, fingers projecting longitudinally from the flanges astride the track, and lips projecting from the fingers inward beneath the edges of the track and adapted to strike said lugs.

5. A narrow bracket supported on edge, a flat horizontal track whose edges project laterally beyond the web of the bracket, and two pairs of lugs near the outer end of and beneath the track; combined with a shelf-supporting guide having a body resting on the track and depending side flanges engaging its edges, fingers projecting longitudinally from the lower portion of the inner ends of the flanges astride the track, and lips projecting from the fingers inward beneath the edges of the track and adapted to strike said lugs when the guide is drawn outward.

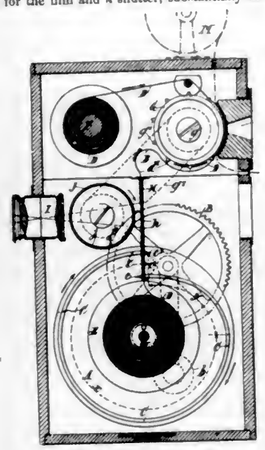
6. A bracket-supported flat horizontal track having a narrow neck at its inner end; combined with a shelf-supporting guide having a flat body resting on the track and depending side flanges engaging its edges, fingers projecting from the inner ends of said flanges astride the track, and lips projecting from the fingers toward each other and of less length than the length of said neck, the inner edges of the fingers being farther apart than the width of the neck but closer together than the width of the track.

7. A bracket-supported flat horizontal track having a narrow neck at its inner end and lugs beneath its body near its outer end; combined with a shelf-supporting guide having a flat body resting on the track and depending side flanges engaging its edges, fingers projecting from the inner ends of said flanges beyond the inner end of the body and astride the track, and lips projecting from the fingers toward each other and of less length than the length of said neck, the inner edges of the fingers being farther apart than the width of the neck but closer together than the width of the track or of the lugs.

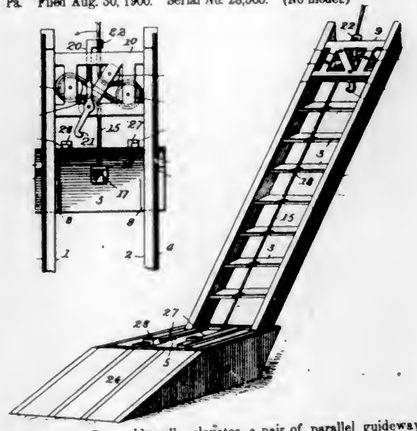
663,785. KINEMATOGRAPHIC APPARATUS. EUGÈNE L. REULOS, Paris, France. Filed May 29, 1899. Serial No. 718,742. (No model.)

Claim.—1. Means for effecting the intermittent advance of kinematographic films, and consisting essentially of a film having regularly-spaced notches in its edges, in combination with surfaces carrying two ribs placed at a certain distance apart, and between which the notched film passes, and means for imparting continuous rotary movement to the said surfaces, the said ribs entering the notches in the film, and so bent as to a portion of their length that the film shall remain stationary for the greater part of the rotation of the plates, and shall receive a forward motion during the remaining portion of the rotation, substantially as described.

2. In a kinematographic apparatus, two parallel plates A A, provided on their adjacent faces with ribs C C, which are concentric with the axes of the plates as to a portion of their length, but are curved or bent as to another portion of their length to intermittently feed the film by engaging its notched edges, in combination with a receiving-bobbin, a toothed feeding-cylinder for the film and a shutter, substantially as described.



663,786. SIDEWALK-ELEVATOR. JACOB RIEG, Wilkes-Barré, Pa. Filed Aug. 30, 1900. Serial No. 28,505. (No model.)



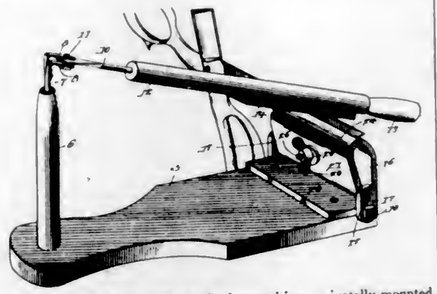
Claim.—1. In a sidewalk-elevator, a pair of parallel guideways united by cross-pieces, a platform movable along said guideways and having a lug projecting from its rear side, a lever pivoted near the upper end of the guideways, said lever having a catch at its lower end, and a rope secured to said platform and passing through an opening in the upper end of said lever.

2. In a sidewalk-elevator, a pair of parallel guideways having a transversely-arranged pulley-frame at its upper end and pulleys arranged therein, a lever pivoted to said pulley-frame and having a catch at its lower end, a platform movable along said guideways, a lug secured to the platform and adapted to be engaged by the catch, and a rope secured to the platform and passing around said pulleys and through an opening in the upper end of the lever.

3. In a sidewalk-elevator a pair of parallel guideways united by cross-pieces forming a ladder, a platform movable along said guideways, a base for said ladder having a well adapted to receive the platform, said base having an inclined face, a lug projecting rearwardly from the platform, a lever pivoted near the upper end of the guideways, said lever having a catch at its lower end adapted to engage said lug, and a rope secured to said platform and passing through an opening in the upper end of the lever.

663,787. SHEARS-SHARPENER. FRANK RIES, Tiffin, Ohio. Filed June 20, 1900. Serial No. 21,017. (No model.)

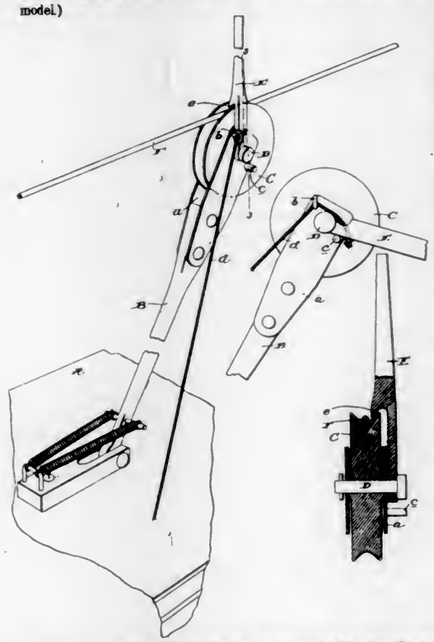
Claim.—1. A device of the class described comprising a base having an upright thereon, a rod pivoted to the upright, a tubular handle slidably engaged over the rod, an abrading-body fixed to the handle, and a clamp adapted to hold a body to be sharpened, in operative relation to the abrading-body.



2. A device of the class described comprising a pivotally-mounted rod, a handle slidably engaged with the rod, an abrading-body carried by the rod, and a clamp for holding a body in operative relation to the abrading-body, said clamp being adjustable to lie at various angles to the plane of operative movement of the abrading-body.

3. A device of the class described comprising a base, a post mounted upon the base and having a bifurcated stem, the resultant arms of which are turned laterally and perforated, a rod having a perforated end disposed between the arms of the stem, a pivot-pin passed through the perforations, a handle slidably engaged with the rod and carrying an abrading-body, and a clamp to hold a body in operative relation to the abrading-body, said clamp consisting of a plate having ears disposed at opposite sides of the base, a pivot and clamping bolt engaged with the base and ears, a second plate pivoted to the ears, said plates having clamping portions, and a clamping-bolt engaged with the plates.

663,788. TROLLEY-POLE. WILLIAM SCHROETER and AUGUST KAUTZMANN, Dallas, Tex. Filed June 11, 1900. Serial No. 19,882. (No model.)



Claim.—1. The combination of the trolley-pole of an electric car, a peripherally-grooved trolley carried thereby, a vertically-swinging wire-finding arm mounted at one side of the trolley and concentrically with respect thereto and having a lateral finger arranged in the peripheral groove of the trolley, and means connected with said wire-finding arm whereby it may be adjusted by a person on the car, substantially as and for the purpose set forth.

2. The combination of the trolley-pole having the bifurcated upper portion and the guide *b* and stop *c* arranged on one side thereof, a transverse bolt arranged in the bifurcated portion of the pole, a trolley mounted on the bolt within the bifurcation of the pole and having a grooved periphery, the wire-finding arm mounted on the bolt at the side of the bifurcated portion of the pole and having a lateral finger arranged in the peripheral groove of the trolley, and a line connected to said arm and extending through the guide *b*, substantially as specified.

663,789. CAN. JOSEPH SELLE, Mansfield, Ohio. Filed June 30, 1900. Serial No. 22,223. (No model.)



Claim.—1. The combination with a can, of a head provided with a central upturned flange, said flange consisting of a vertical portion connected to the head and a horizontal inwardly-projecting portion having V-shaped slots therein, said vertical portion having angle-slots therein connecting with the V-shaped apertures, and a cover provided with V-shaped projections adapted for engagement with said slots.

2. The combination with a can or other receptacle, having a head provided with upturned concentric flanges, the inner one of which is L-shaped in cross-section, the vertical portion of said flange having decreasing angular slots cut therein and the horizontal portion having V-shaped apertures, and a cover provided with V-shaped projections for engagement with said slots.

3. The combination with a can, of a head having a circular upturned flange formed centrally of said head, said flange provided with V-shaped perforations communicating with right-angled slots, said slots having the upper portion of the base of the angle tapered and a cover having means for engaging said slots to retain the cover securely in place.

4. In a can or other receptacle, the combination with a head having upturned concentric flanges, of an annular depression between said flanges, said inner flange being of an inverted-L shape in cross-section and having V-shaped apertures in its horizontal portion communicating with decreasing angular slots in its vertical portion, and a cover provided with V-shaped projections for engagement with said apertures and slots.

5. In a can, the combination with a head having concentric upturned flanges, an annular depression between said flanges, said inner flange having an annular inwardly-projecting ring flush with its upper surface, with V-shaped apertures therein, said flange having bayonet-slots and a cover provided with perforations in its top and having V-shaped projections extending inwardly for engagement with said apertures and slots.

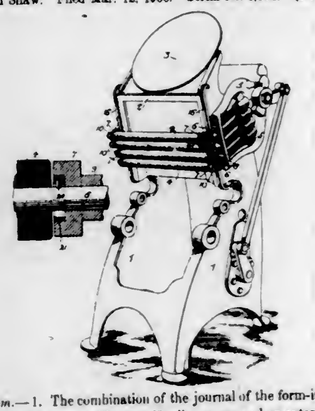
6. In a can, the combination with a head having concentric upturned flanges, an annular depression between said flanges, said inner flange having an annular inwardly-projecting ring flush with its upper surface, provided with V-shaped apertures therein, said inner flange having bayonet-slots and a cover provided with perforations in its top and having V-shaped projections extending inwardly for engagement with said apertures and slots, said cover when in position being in close contact with the surface of the annular depression.

7. In a can, the combination of a cover having projection made integral with said cover, a head having a groove or depression pressed therein, and a nozzle with right-angled slots cut therein, with the base of said slots tapered, the top of said nozzle having V or similiarly shaped perforations cut therein and connecting with the angle-slots, paper or other suitable material placed between the point of contact of the nozzle and cover.

8. In a can or other receptacle, the combination with a head having an upturned flange of general L shape in cross-section, said flange having V-shaped apertures in the horizontal portion thereof and angular ta-

pered slots in the vertical portion thereof, of a cover provided with V-shaped projections for engagement with the apertures and slots, the latter being so constructed with a decreasing angle at their inner ends as to clamp the cover more tightly to the flange as the cover is screwed or turned thereon.

663,790. PRINTING-PRESS. SAMUEL H. SHAW and WILLIAM G. TOPLIS, Philadelphia, Pa.; said Toplis assignor of one-third of his right to said Shaw. Filed Mar. 12, 1900. Serial No. 8,341. (No model.)



Claim.—1. The combination of the journal of the form-inking roller of a job-printing press, with a truck-roller, a cam and an automatic clutch whereby said cam is rendered operative to hold the inking-roller out of contact with the form during one movement of the roller across the same, but permits said roller to come into contact with the form during the other movement of the roller across the same, substantially as specified.

2. The combination of the journal of the form-inking roller of a job-printing press, with a truck having a wheel, a cam-ring alongside of said wheel, and a clutch whereby said cam-ring and truck-wheel are locked together by movement of the wheel in one direction and released by movement of the wheel in the opposite direction, substantially as specified.

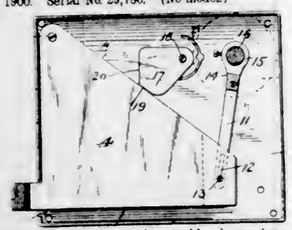
3. The combination of the journal of the form-inking roller of a job-printing press, with a truck having a wheel, a cam-ring having a cam overlapping said wheel, and a clutch for connecting said cam-ring and wheel when the wheel moves in one direction, but releasing them when the wheel moves in the opposite direction, substantially as specified.

4. The combination of the journal of the form-inking roller of a job-printing press, with a truck having a wheel, a cam-ring, a clutch for connecting the wheel and ring when said wheel moves in one direction, and releasing them when it moves in the opposite direction, and a stop for limiting the movement of the cam-ring, substantially as specified.

5. The combination of the journal of the form-inking roller of a job-printing press, with a truck having a wheel, a cam-ring having a cam with antifriction-roller, and a clutch for connecting the wheel and cam-ring when said wheel moves in one direction and releasing them when it moves in the opposite direction, substantially as specified.

6. The combination of the journal of the form-inking roller of a job-printing press, with a truck having a wheel, a cam-ring having a cam with antifriction-roller, and a clutch for connecting the wheel and cam-ring when said wheel moves in one direction, and releasing them when it moves in the opposite direction, and means for preventing the rotation of said antifriction-roller in one direction, substantially as specified.

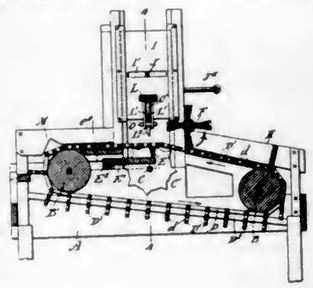
663,791. LOCK. SAMUEL T. SIMMONS, Columbus, Ohio. Filed Sept. 12, 1900. Serial No. 29,780. (No model.)



Claim.—1. In a door-lock, the combination, substantially as described, of a latch member pivotally mounted in a casing and provided with a catch and having a diagonal side, a link member pivotally secured to the rear end of said latch member, and a lock member having a straight side and pivotally mounted adjacent to the said diagonal side of said latch member and constructed so that when left free it will take a position with its straight side in contact with said diagonal and hold the latch against displacement.

2. In a door-lock, the combination, substantially as described, of a pivoted latch mounted in a casing and provided with a catch, a spindle mounted to turn, a bar rigidly secured at one end to said spindle, and a link member pivotally attached to said latch at one end and to said bar at the other.

663,792. CHERRY-PITTER. EDWARD H. SKINNER, Springbrook, Oreg. Filed Oct. 16, 1899. Serial No. 733,783. (No model.)



Claim.—1. In a pitter, the combination of an endless belt, having a series of plates pivoted thereto, and adapted to turn on their pivots as the belt makes a turn at one end, the said plates being provided with apertures adapted to receive the fruit, means for moving said belt, means for removing the pits from the fruit, and means for jarring the said plates to remove the fruit therefrom, substantially as described.

2. In a pitter for cherries and similar fruits, an endless carrying-belt having a series of plates pivoted thereto at one edge and adapted to turn outward on their pivots, the said plates having apertures adapted to receive the fruit means for moving said belt, means for removing the pits from the fruit, while in the apertures in the plates and a stop arranged on the frame to arrest the plates in their outward movement and jar the fruit therefrom, substantially as described.

3. In a cherry-pitter, the combination of an endless belt having a series of plates hinged thereto by one edge, and provided with flaring apertures adapted to receive the cherries, and means for moving said belt, means for turning each plate upon its pivot as the belt makes a turn at one end, whereby the cherries are jarred free from the plates, a series of pitting rods or pins, and means for moving said rods or pins to pass them through the apertures in said plates whereby the pits are removed from the cherries, substantially as described.

4. In a cherry-pitter, the combination of an endless belt having a series of plates hinged thereto by one edge, and having flaring apertures adapted to receive the cherries, means for moving said belt, a spring engaging each plate to swing it upon its pivot as the belt makes a turn at one end and a stop against which the plates are thrown to produce a slight shock, whereby the cherries are freed from the plate, with a series of pitting rods or pins, and means for moving said rods or pins to pass them through the apertures in said plates, whereby the pits are removed from the cherries, substantially as described.

5. The combination of a belt having fruit-receiving apertures therein, a reciprocating frame carrying pitting devices for removing the pits from the fruit, a reciprocating brush movable lengthwise of the belts beneath the upper run thereof, and means carried by the vertically-reciprocating pitting-frame to operate said brush, substantially as described.

6. In a pitter for cherries and similar fruits, the combination of a belt having fruit-receiving apertures, a pitting-frame provided with means for forcing the pits through the apertures, a reciprocating brush movable in a longitudinal direction beneath the upper run of the belt, and a vertically-movable cam or cams carried by the pitting-frame, to operate said brush, substantially as described.

7. In a cherry-pitter, the combination of an endless belt having a series of plates hinged thereto by one edge, and provided with flaring fruit-receiving apertures, means for moving said belt, means for turning each plate upon its pivot as the belt makes a turn at one end and a stop against which the plates are thrown, whereby the cherries are jarred free from the plates, with a series of pitting rods or pins, means for moving said rods or pins to pass them through the apertures in said plates, and a brush provided with means for moving it in engagement with the under side of said plates to secure the removal of the pits, substantially as described.

8. In a pitter, the combination of an endless belt having a series of plates pivoted thereto and adapted to turn on their pivots as the belt makes a turn at one end, the said plates being provided with apertures adapted to receive the fruit, means for moving said belt, a pitting-frame moving in correspondence with the belt and carrying pitting rods or pins for removing the pits from the fruit, a clearing-plate for clearing the fruit from the pitting-rods, means for jarring the plates, to remove the fruit therefrom, a reciprocating brush movable beneath the upper run of the belt, and means carried by the pitting-frame, to operate said brush, substantially as described.

9. In a cherry-pitter, the combination of a belt having flaring fruit-receiving apertures therein, pitting rods or pins, means for reciprocating said rods or pins through said apertures, with a brush extending across and contacting with the under side of the belt near the pitting-rods, a bar supporting said brush, guides in which the said bar is mounted to slide lengthwise of the belt, and means for moving said bar in the guides to reciprocate said brush, substantially as described.

10. In a cherry-pitter, the combination of an endless belt comprising chains connected by plates hinged at one edge to the chains, the said plates having flaring fruit-receiving apertures therein, rollers over which said belt passes, a shaft located between the rollers and below the upper run of the belt, sprocket-wheels on said shaft and engaging the chains, the said wheels serving to give an upward inclination to the upper run of the belt from one end toward the center, a bottomless hopper above the inclined portion of the belt, a brush extending across the belt where it leaves the hopper, and means for actuating the brush to brush into the hopper, with pitting rods or pins just beyond the brush means for reciprocating the pitting rods or pins to cause them to project through the apertures in the belt, and a reciprocating brush movable beneath the upper run of the belt substantially as described.

11. A cherry-pitter, comprising a movable belt having flaring fruit-receiving holes therein, a vertically-reciprocating pitter-frame, a pitter-bar carried by said frame and having rods or pins therein adapted to pass through said holes, means for reciprocating the pitter-bar, a brush extending transversely beneath the belt and the pitter-bar, and mounted to slide lengthwise of the belt, arms upon which said brush is mounted, a bar supporting said arms and extending across the machine, guides formed in the frame and in which the said bar is mounted to slide, and cam-bars carried by the vertically-reciprocating pitter-frame and having inclines engaging the ends of the brush-carrying bar, substantially as described.

12. A cherry-pitter comprising a movable belt having fruit-receiving apertures, a pitting-frame having a bar carrying devices adapted to enter the cherries and force the pits through the apertures, a brush for brushing the upper surface of the belt before reaching the pitting devices and in a direction away from said devices, a reciprocating brush adapted to move in engagement with the under side of said belt, means for reciprocating the pitting-frame and a cam or cams carried by the pitting-frame and moving vertically therewith for reciprocating said brush, substantially as described.

663,793. CAR-COUPLING ATTACHMENT. THOMAS P. SMYTH Pocatello, Idaho. Filed May 29, 1900. Serial No. 18,394. (No model.)

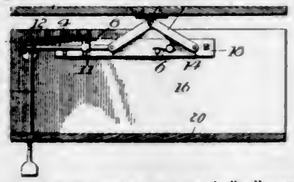


Claim.—1. A coupler, having a rigid hanger extending under the same, the hanger being arranged to prevent the falling of a mating coupler, and a support adapted to receive the lower end of the pivot-pin of the coupler-jaw to prevent the fall of said pin when it becomes fractured, the said support being connected with the hanger.

2. A coupler, having a hanger rigidly connected therewith, the said hanger being carried at the under side of the coupler and extending across it; and a collar integrally connected with the hanger at one end thereof, and adapted to receive the lower end of the coupling-pin.

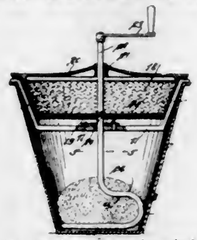
663,794. WATER-CLOSET ATTACHMENT. JAMES C SNEDEN, Philadelphia, Pa. Filed Sept. 5, 1899. Serial No. 729,572. (No model.)

Claim.—1. In a water-closet attachment, the combination of a pivoted seat, a riser or support at the outer edge thereof to limit its downward movement, a pivoted toggle-lever adapted to have its joint projected above said riser or support, a rotatable valve-rod, a rock-arm secured thereto, a connecting-rod pivoted to the end of the toggle and the rock-arm, and a restoring-spring extending from said rock-arm to a fixed support for the purpose of rotating the valve-rod in one direction and elevating the toggle-joint; substantially as specified.



2. In a water-closet attachment, a vertically-disposed, rotatable valve-operating rod extending to a point below the bowl of a closet and having a rock-arm at its upper portion, a toggle arranged in a horizontal plane with reference to said rod and operated in one direction by pressure on the seat of the closet, a connecting-rod between the valve-rod and toggle, and a spring connecting the rock-arm to a fixed point; substantially as specified.

663,795. DOUGH-MIXER. JAMES F. STEVENS, Port Chester, N. Y. Filed Mar. 30, 1900. Serial No. 10,811. (No model.)



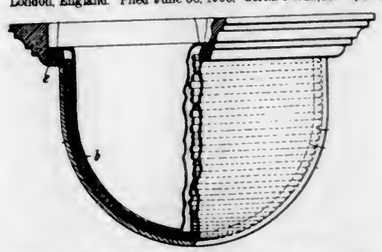
Claim.—1. In a dough-mixer, a mixer-shaft mounted to turn about a vertical axis and provided at its lower end with a curved mixing portion disposed in a horizontal plane.

2. In a dough-mixer, a vessel, a shaft mounted to revolve in the said vessel and provided with a mixing-section, comprising upper and lower portions, a connecting portion and a lower terminal portion removed from the vertical plane of the upper and lower portions, as specified.

3. In a dough-mixer, a vessel, a shaft mounted to revolve therein, a guide-bar removably supported in the vessel, in which the said shaft is removably mounted, said shaft terminating in a mixer at its lower end, which mixer consists of an upper member, a lower vertically-aliuing member, a connecting member and a terminal member as described, the dimensions of the mixer being such that in operation it does not engage with the inner wall of the receptacle.

4. In a dough-mixer, the combination with a vessel, a guide-bar located within the said vessel and removably supported from the upper portion of the vessel, the guide-bar being provided with an opening and with means for closing the same, a sieve located in the upper portion of the vessel, having a central portion of its bottom surface plain, a shaft passed through the central portion of the bottom of the sieve and the opening in the guide-bar, a mixing device located at the lower end of the shaft, and means for revolving said shaft, connected with the upper portion thereof, as specified.

663,796. LAMP SHADE OR GLOBE. WILLIAM L. STRACHAN, London, England. Filed June 30, 1900. Serial No. 22,165. (No model.)



Claim.—1. A lamp-shade formed by the combination with a bowl-shaped light-refracting medium formed of a spirally-wound glass rod, of

inner and outer concentric and spaced glass bowls secured together and fitting closely within and about the spiral rod, the intervening space between the bowls being sealed so that the spiral rod is inclosed and protected, substantially as described.

2. A lamp shade or globe, comprising inner and outer concentric and spaced walls secured together to form a hermetically-sealed space between them, and a light refracting and diffusing medium formed of a series of contacting coils of glass arranged in the space between the said walls and in contact therewith, substantially as described.

3. A lamp shade or globe, consisting of two bowl-shaped glass bodies of different sizes and fitting one within the other to form a space between them, the upper edges of the bowls being flanged and resting one upon the other, and a series of connected coils of glass arranged in the space between the bowls and in contact therewith, the several coils being in contact with one another, substantially as described.

663,797. TRUNK-LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Aug. 24, 1898. Serial No. 689,429. (No model.)



Claim.—1. In combination with a hasp and its retaining-keeper; retaining-dogs carried by one of said parts and engaging the other, interlocking mechanism carried by said other part and embodying cam-levers for displacing said retaining-dogs, and a key-controlled mechanism for spreading said cam-levers, substantially as and for the purposes set forth.

2. In combination with a hasp and its retaining-keeper; retaining-dogs carried by one of said parts and engaging the other, interlocking mechanism carried by said other part and embodying cam-levers for displacing said retaining-dogs, and a key-controlled rotating cylinder for spreading said cam-levers, substantially as and for the purposes set forth.

3. The combination of a keeper formed with a socket and spring-pressed dogs protruding from the wall of said socket, a hasp having a projecting portion entering said socket and having slots receiving said spring-pressed dogs to lock the parts together, and key-controlled mechanism carried by the hasp for displacing said dogs and unlocking the hasp from the keeper; substantially as set forth.

4. In combination with a hasp and its retaining-keeper; retaining-dogs carried by one of said parts and engaging the other, and interlocking mechanism carried by said other part and embodying a rotating cylinder and means for displacing said retaining-dogs operated on by the cylinder; substantially as explained.

5. The combination of a keeper having spring-pressed retaining-dogs, a hasp having a projecting portion having slots and which enters the keeper and receives the dogs to lock the parts together, cam-levers adapted to enter the slots of the hasp to displace the dogs therefrom, and a pin-tumbler cylinder having notches to receive the cam-levers, to permit the entrance of the dogs, but adapted to spread said cam-levers and displace the dogs by turning the cylinder; substantially as set forth.

6. A trunk-lock comprising a keeper having a cup or socket, spring-chambers, and spring-dogs, and a hasp having a case formed with slots and containing a block having recesses, a cylinder having recesses, and cam-levers pivoted in the recesses of the block; substantially as described.

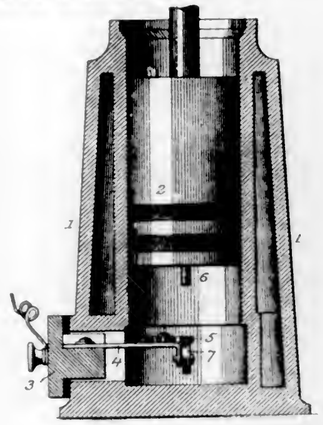
663,798. IGNITER FOR EXPLOSIVE-ENGINES. GUSTAVUS A. TUERK, Chicago, Ill. Original application filed Mar. 23, 1899, Serial No. 710,481. Divided and this application filed Dec. 29, 1899. Serial No. 741,987. (No model.)

Claim.—1. The combination with the cylinder and piston of an explosive-engine, of a contact-pin carried by the piston, a spring insulated finger carried by the cylinder, and a rotatable contact-disk on said finger the contact-disk and contact-pin being relatively arranged so that the pin will contact with the disk near the margin thereof, substantially as set forth.

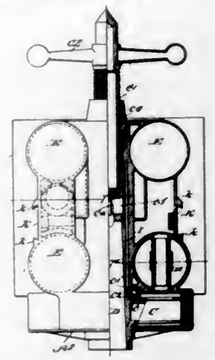
2. The combination with the cylinder and piston of an explosive-engine, of a contact-pin carried by the piston, a spring insulated finger carried by the cylinder, and a rotatable contact-disk on said finger, the contact-disk and contact-pin being relatively arranged so that the pin will contact with the disk near the margin thereof and at a point to one side of a line drawn through the axis of such disk and lengthwise of the spring-finger, substantially as set forth.

3. The combination with the cylinder and piston of an explosive-engine, of a contact-pin carried by the piston, a spring insulated finger carried by the cylinder, and a rotatable perforated contact-disk arranged at the free end of said finger, the contact-disk and contact-point being relatively arranged so that the pin will contact with the disk near the margin thereof, substantially as set forth.

4. The combination with the cylinder and piston of an explosive-engine, of a contact-pin carried by the piston, a spring insulated finger carried by the cylinder, a rotatable contact-disk on said finger, and a bearing-roller secured to the finger and adapted to support the projecting edge of the contact-disk, substantially as set forth.



663,799. MOTIVE-FLUID DRILL. HENRY H. VAUGHAN, Chicago, Ill., assignor to Charles F. Quincy, same place. Filed Dec. 6, 1899. Serial No. 739,399. (No model.)



Claim.—1. In a motive-fluid drill, the combination with a plurality of cylinders arranged in parallel relation, of a plurality of crank-shafts each of said crank-shafts having a gear-wheel, a drill-spindle provided with a master-wheel, and an intermediate shaft provided with gears which mesh with the crank-shaft and master-wheel; substantially as and for the purposes specified.

2. In a motive-fluid drill, the combination of four cylinders arranged in parallel relation, a crank-shaft for each pair of said cylinders said crank-shafts provided with suitable gear-wheels, a drill-spindle intermediate of the cylinders, a master-wheel, and an intermediate shaft provided with a gear-wheel which meshes with the gear-wheels of the two crank-shafts and with a pinion which meshes with the master-wheel; substantially as and for the purposes specified.

3. In a motive-fluid drill, the combination with a plurality of cylinders arranged in parallel relation, of a plurality of crank-shafts each of said crank-shafts provided with a gear-wheel, a drill-spindle supported in bearings intermediate of the cylinders and provided with a master-wheel, and an intermediate shaft which transmits the power from the crank-shafts to the master-wheel; substantially as and for the purposes specified.

4. In a motive-fluid drill the combination with a plurality of cylinders arranged in parallel relation, of a detachable cap common to all of said cylinders and provided on its inner face with a crank-shaft bearing, and a crank-shaft journaled in the bearing on the inner face of the cap, and removable with said cap, substantially as and for the purposes specified.

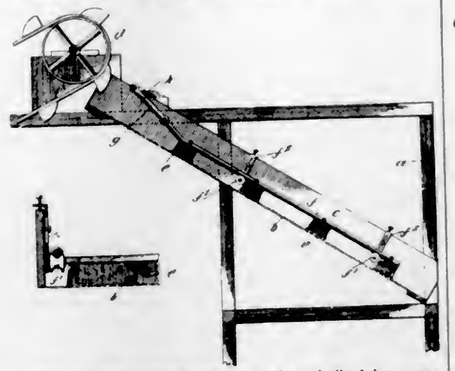
5. In a motive-fluid drill, the combination with a plurality of cylinders assembled in parallel relation, of a detachable cap common to all of said cylinders and having on its inner face a series of bearings for a crank-shaft and a transmitting-shaft, and a crank-shaft and a transmitting-shaft journaled in the bearings on the inner face of the cap and removable with the cap, substantially as and for the purposes specified.

6. In a motive-fluid drill, the combination with a plurality of cylinders assembled in parallel relation, of a drill-spindle intermediate of said cylinders, a detachable cap common to all of said cylinders and provided on its inner face with bearings for a crank-shaft and a transmitting-shaft, a crank-shaft and a transmitting-shaft journaled in the bearings on the inner face of said cap and removable therewith, a master-wheel on the drill-spindle, gearing with the transmitting-shaft, and a detachable cap or closure for the master-wheel and spindle-chamber, substantially as and for the purposes specified.

7. In a motive-fluid drill, the combination with a plurality of cylinders arranged in parallel relation, of a detachable cap common to all of said cylinders and provided with a crank-shaft bearing, a crank-shaft journaled in said bearing of the cap and removable therewith, a drill-spindle, and means for actuating the drill-spindle from the crank-shaft, substantially as and for the purposes specified.

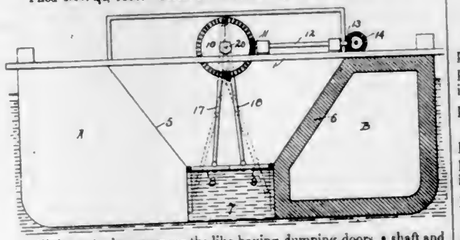
8. In a motive-fluid drill having a case, cylinders mounted in said case, a crank-shaft, a detachable cap connected to said case and provided on its inner surface with crank-shaft bearings, the crank-shaft journaled in said bearings and removable with the detachable cap, substantially as and for the purposes specified.

663,800. CLAY-SCREENING APPARATUS. HORACE G. VIRGIN, Penrith, W. Va. Filed Aug. 30, 1900. Serial No. 28,589. (No model.)



Claim.—A clay-screening apparatus, having an inclined sieve, a gang of brushes mounted on the sieve, a framing connecting the brushes together, a link pivotally connected to the framing, and a revolubly-driven crank-shaft to which the link is also pivotally connected, for the purpose specified.

663,801. DUMPING-SCOW. GEORGE D. BARNEY, New York, N. Y. Filed Nov. 24, 1899. Serial No. 738,129. (No model.)



Claim.—1. In a scow or the like having dumping-doors, a shaft and a connecting-rod supported upon said shaft at each side of its bearing and having connection with a door, said shaft being adapted in its rotation to operate said doors through the agency of the said rods; substantially as described.

2. In a scow or the like having dumping-doors, a shaft, a member mounted upon said shaft at each side of its bearing and adapted to turn therewith, and a rod eccentrically pivoted to each of said members, each of said rods being connected to a door; substantially as described.

3. In a scow or the like having dumping-doors, a shaft, a wheel mounted upon said shaft at each side of its bearing and adapted to turn therewith, and a rod eccentrically pivoted to each of said wheels, each of said rods being connected to a door and having its point of connection with its wheel in the same radial line, whereby when the said doors are closed, the said points of connection lie in substantially the same vertical line including the said shaft; substantially as described.

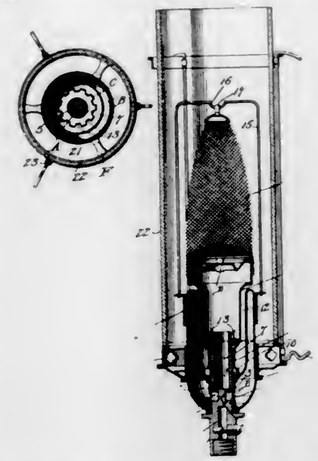
4. In a scow or the like having a bottom opening provided with dumping-doors, a bulkhead extending across said opening, a wheel mounted upon said bulkhead, connection between said wheel and the doors for operating the latter by the former, and a shaft also mounted upon said bulkhead and extending in the direction of the same, said shaft having operative connection with the said wheel and being provided with means whereby said shaft can be rotated; substantially as described.

663,802. PROCESS OF MAKING CATTLE-FOOD. ALFRED BEDDIES, Berlin, Germany. Filed July 10, 1900. Serial No. 23,107. (No specimens.)

Claim.—1. In the manufacture of cattle-food taking bitter herbs rich in glucosides, mixing therewith a thin solution of melasse, allowing the mass to stand for about two days at ordinary temperature and then adding it to a mixture of concentrated melasse, woody fiber and lime.

2. In the manufacture of cattle-food taking bitter herbs rich in glucosides, breaking up the herbs in a dry state, then soaking the herbs in about one-per-cent. thin solution of melasse, allowing the mass to stand for about two days at ordinary temperature, and then adding it to a mixture of concentrated melasse, woody fiber and lime in about the proportion of one part of the mass to from twenty to fifty parts of the mixture.

663,803. INCANDESCENT GAS-BURNER. CHARLES A. BLUHM, Michigan City, Ind. Filed Mar. 24, 1900. Serial No. 10,081. (No model.)



Claim.—1. The combination with a pillar, and a gas-burner, of a preheating-chamber heated by a flame from the burner, through which preheating-chamber the gas passes on its way to the burner, said preheating-chamber closed at its upper end and opening at its lower end into the pillar.

2. The combination with a pillar, and a gas-burner, of an annular preheating-chamber heated by a flame from the burner, through which preheating-chamber the gas passes on its way to the burner, said preheating-chamber closed at its upper end and opening at its lower end into the pillar.

3. The combination with a pillar provided with a pair of external recesses separated by an intermediate partition, and a burner, of a preheating-chamber to which gas is supplied through one of said recesses and from which it issues into the other recess.

4. The combination with a pillar having two distinct bores and provided with a pair of external recesses separated by an intermediate partition, and a burner supported on said pillar, of a preheating-chamber heated by the burner-flame and which receives gas from the lower bore and discharges it into the upper bore of the pillar.

5. The combination with a pillar having a flange or shoulder thereon and provided with screw-threads, of an annular preheating-chamber mounted on the pillar and resting on the said flange or shoulder and a nut adapt-

ed to turn on said threads and lock the preheating-chamber in position between it and the flange or shoulder.

6. The combination with a pillar having a shoulder thereon, of a preheating-chamber and a slotted mixing-chamber adjustable upon said pillar whereby to regulate the size of the space between said mixing-chamber and the preheating-chamber for the passage of air therethrough.

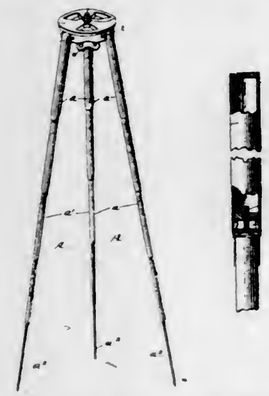
7. The combination with a pillar having external screw-threads thereon, of a preheating-chamber and a mixing-chamber held on said pillar the latter adapted to screw up and down thereon whereby to regulate the space between the two for the inlet of air into the mixing-chamber.

8. The combination with a pillar having two distinct bores, a pair of external recesses, a partition between said recesses, and ducts for communication between said recesses and bores, of an annular preheating-chamber, and a slotted mixing-chamber mounted on said pillar, the former having holes which communicate with the recesses in the sides of the pillar, and the mixing-chamber adjustable upon the pillar whereby to regulate the size of the space between it and the combustion-chamber.

9. The combination with a pillar and a preheating-chamber, of a ring removably secured to said preheating-chamber, a double wire attached to and supported by said ring and a mantle suspended therefrom.

10. The combination with a pillar and a preheating-chamber, of a ring removably secured to said preheating-chamber, a double wire attached to and supported by said ring, a mantle suspended therefrom and a spring device connected with said ring for attaching it to the preheating-chamber.

663,804. TRIPOD. RUDOLPH F. BUDER, St. Louis, Mo. Filed Nov. 10, 1899. Serial No. 736,485. (No model.)



Claim.—1. A clamp for tubular sections comprising a split cap-piece positioned in the larger section and formed with a central threaded perforation, an expanding member comprising a tapered plug having a central perforation, and a screw-threaded stem carried by the smaller section passing through the plug and engaging the threaded opening of the cap-piece, and having at its base a beveled portion upon which the plug loosely rides, substantially as described.

2. In a tripod-top the combination of a central boss, ribs extending therefrom, and springs, coacting with said ribs to form sockets for attachment of the tripod-legs to said top, substantially as described.

3. In a tripod-top the combination of a boss, ribs extending therefrom formed integral therewith, coacting springs, and pins to hold removable legs in sockets formed by the ribs and springs, substantially as described.

4. In a tripod-top, the combination of ribs and springs forming sockets for the reception of the tripod-legs, said legs being pivoted within said sockets by pins or screws entering the tripod-legs from the rib and by pins or screws entering the tripod-legs from the coacting spring, substantially as described.

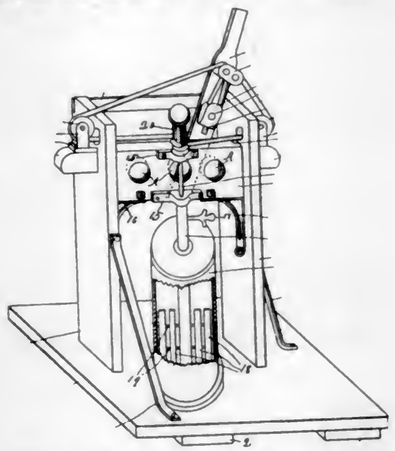
5. In a tripod consisting of a top, composed of a plate having ribs extending in different directions, springs suitably attached to said plate and extending in such directions as will form sockets between said ribs and said springs, and pins for retaining the tripod-legs in said sockets; detachable legs composed of tubular sections adapted to telescope each other throughout their entire length; and a lock within said sections adapted adjustably to lock said sections at any desired point in their longitudinal or telescoping movement, substantially as described.

6. In a tripod, the combination of a top plate provided with sockets having a resilient wall, legs fitting in said sockets and perforated, and pins penetrating said perforations to hold the legs in the sockets, substantially as described.

7. In a tripod, the combination of a top plate, means for pivotally securing legs thereto, adjustable legs consisting of tubular telescoping sections, and inside locks for clamping said sections at any desired point of their length.

8. In a tripod, the combination with the top plate, of adjustable tubular telescopic legs, inside locks for uniting the leg-sections and clamping the same at any desired point of their length, and means for maintaining a true center between said sections while telescoping, substantially as described.

663,805. CHURN-MOTOR. WILLIAM H. CRAWFORD, Weatherford, Tex. Filed Mar. 29, 1900. Serial No. 10,637. (No model.)



Claim.—1. A churn-motor consisting of a suitable frame, said frame having a girder on which the motor is mounted, a driving-shaft provided with suitable bearings mounted on said girder, a driving-pulley mounted on said shaft, auxiliary pulleys provided with suitable bearings mounted on said girder, a crank-lever pivotally mounted on said girder, a driving-belt passing through said driving-pulley and rigidly secured therein and passing under said auxiliary pulleys and then to said lever, and means for tightening said belt consisting of a tension-bracket through which said belt passes secured to said lever, and a tension-frog adjustably mounted on said lever for regulating the tension of said belt, said frog having a tongue for securing said belt in said frog projecting in a slot in said lever.

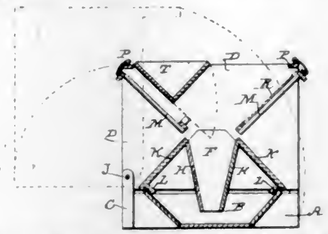
2. A churn-motor provided with a suitable frame having a girder for supporting the driving mechanism, a shaft provided with bearings mounted on said girder for operating a churn-dasher, a driving-pulley mounted on said shaft, a crank-lever mounted in said frame, pulleys mounted on said girder adapted to aid in regulating the tension of the belt, the driving-belt attached to said driving-pulley, and means for attaching said belt to said lever and regulating the tension thereof consisting of a tension-bracket secured to said lever and a tension-frog provided with means for attaching the same to said lever at various points of adjustment.

3. In a churn-motor provided with a suitable frame and a shaft for operating a churn-dasher mounted in said frame; means for driving said shaft consisting of a pulley mounted on said shaft, a belt attached to said pulley, a crank-lever and pulleys coacting with said lever for driving said belt, and means for regulating the tension of said belt consisting of a tension-bracket mounted on said lever and a tension-frog to which said belt is attached provided with means for securing the same to said lever at various points of adjustment.

4. In a churn-motor provided with a shaft for operating a churn-dasher and a belt and suitable pulleys for driving said shaft; a lever for operating said belt and means for regulating the tension of said belt consisting of a tension-bracket mounted on said lever and a tension-frog provided with means for attaching the same at various points of adjustment on said lever.

663,806. PORTABLE AND ADJUSTABLE STOCK-FEEDER. FRANK B. DAVIS, Audubon, Iowa. Filed Sept. 11, 1900. Serial No. 29,661. (No model.)

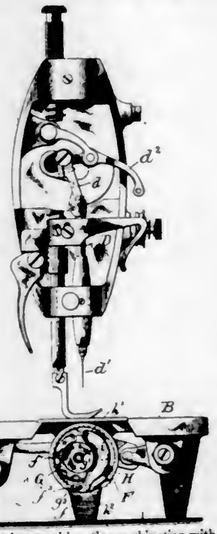
Claim.—1. In a stock-feeder, a base consisting of two mating end pieces and a feed-trough fixed to the inside faces and central portions of said mating pieces and uprights fixed to the ends and outsides of said mating pieces for hinging a frame thereto, a frame adapted for supporting fenders fitted on top of the base and pivotally connected with said uprights, arranged and combined to operate in the manner set forth for the purposes stated.



2. In a stock-feeder, a base consisting of two mating end pieces and a feed-trough fixed to the inside faces and central portions of said mating pieces and uprights fixed to the ends and outsides of said mating pieces for hinging a frame thereto, a frame fitted on top of the base and pivotally connected with said uprights, a chute fixed to the ends of said pivoted frame for conveying feed to the trough in the lower part and center of the frame, and adjustable fenders extending from the top of the chute to the top edges of the trough, arranged and combined to operate in the manner set forth for the purposes stated.

3. An adjustable stock-feeder comprising a base composed of two mating end pieces and a trough, uprights fixed to the corner of the base, a frame composed of two mating end pieces and a chute fixed to said end pieces fitted on top of the base and hinged to said fixed uprights, fenders pivoted to the ends of the hinged frame to extend from the top of the chute to the top of the trough, means for detachably fastening the pivoted fenders to the top portions of the hinged frames for supporting auxiliary fenders, movable auxiliary fenders adapted to serve as hay-racks and a trough pivoted in the top and rear end portion of the hinged frame, arranged and combined to operate in the manner set forth for the purposes stated.

663,807. CIRCULARLY-MOVING-HOOK SEWING-MACHINE. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Nov. 8, 1899. Serial No. 736,263. (No model.)



Claim.—1. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving loop-taking hook, and a stationary thread-case peripherally supported by said hook and having an arc of contact with said hook of less than half a circle in extent, so as to secure an early cast-off or discharge of a loop of needle-thread about said thread-case within less than a half-revolution of said hook after it has taken a loop of thread from the needle.

2. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a stationary thread-case located eccentric to and supported by said hook, a holder for restraining the said thread-case from movement as the hook travels about it, a take-up whereby each loop is drawn up before the next loop is taken by the hook, and means for operating said take-up.

3. In a sewing-machine, the combination with a needle, of a circularly-moving hook, a stationary thread-case located eccentric to and peripherally supported by said hook, a holder for restraining the said thread-case from movement as the hook travels about it, and operating mechanism for said needle and hook whereby said hook is brought to its cast-off position when the needle is above the work-plate.

4. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, and a stationary thread-case peripherally supported by said hook and located mainly in the sector of the semicircle commencing at the loop-taking position and extending in the direction in which the loop is carried by the hook; whereby a discharge of the needle-loops over the said thread-case in the quadrant of the circle opposite the quadrant at or near the middle of which the said loops are taken from the needle is secured.

5. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case peripherally supported by said hook and located mainly in the sector of the semicircle commencing at the loop-taking position and extending in the direction in which the loop is carried by the hook, and a holder for restraining the said thread-case from movement as the hook travels about it; whereby a discharge of the needle-loops over the said thread-case in the quadrant of the circle opposite the quadrant at or near the middle of which the said loops are taken from the needle is secured.

6. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook the beak of which, from throat to point, is inwardly inclined toward the path of its point, a thread-case supported by said hook and located mainly at one side of the axis of movement of said hook, a take-up which tightens each loop before the next loop is taken by the hook, and a holder restraining the said thread-case from movement as the hook travels about it, the beak of said hook being inclined or pointed approximately in the direction in which the pull is exerted upon the loop by the take-up when said hook is in its cast-off position.

7. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case peripherally supported by said hook and located mainly at one side of the axis of movement of said hook, and a fixed holder extending within the field of the hook for restraining the said case from movement as the hook travels about it.

8. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case having a peripheral bearing on said hook, and an opposing radial or diametric bearing additional to said peripheral bearing whereby the thread-case is held bodily to said peripheral bearing.

9. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case having a bearing on said hook, and an additional opposing radial or diametric bearing independent of said hook whereby the thread-case is held bodily to said bearing on the hook.

10. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case holder, and a thread-case held between said hook and said holder by diametric opposing peripheral or edge contact with each.

11. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook; the said hook and thread-case being constructed and arranged and the said hook being operated to cast off the needle-loops in the quadrant of the hook-circle opposite the point at which the loops are taken, and a thread-case having a peripheral bearing on the hook not exceeding the arc traversed by the hook while carrying the loops.

12. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case having a bearing on said hook; the said hook and thread-case being constructed and arranged and the said hook being operated to cast off the needle-loops in the quadrant of the hook-circle opposite the point at which the loops are taken, and a member, inside of the hook, between which and the thread-case the loops are guided after being cast off the hook.

13. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a segmental thread-case peripherally supported by said hook, and a fixed holder for restraining the said thread-case from movement as the said hook travels about it.

14. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a segmental thread-case peripherally supported by said hook and located mainly at one side of the

axis of movement thereof, and a fixed holder for restraining said thread-case from movement as the said hook travels about it.

15. In a sewing-machine, the combination with a needle, of a circularly-moving hook, a segmental thread-case located mainly at one side of the axis of movement of said hook and peripherally supported thereby, a holder for restraining the said thread-case from movement as the said hook travels about it, and operating mechanism for said needle and said hook so timed as to bring the said hook into cast-off position when the needle is above the work-plate.

16. In a sewing-machine, the combination with the needle and its operating mechanism, of a circularly-moving hook, a stationary thread-case supported by said hook and located mainly within the sector of that half of the circle commencing at loop-taking position and extending in the direction in which the loop is carried by the hook, and means for operating said hook whereby it will be caused to perform the two halves of its movement in an equal time.

17. In a sewing-machine, in combination, a needle and its operating mechanism, a circularly-moving hook having a beak which from throat to point is inwardly inclined toward the path of the point, a segmental thread-case having a peripheral bearing on and being thus supported by said hook, and located mainly at one side of the axis of movement of said hook, means whereby the hook is caused to make one excursion for each reciprocation or excursion of the needle and whereby the hook is caused to perform the two halves of its motion in an equal time or at corresponding speeds, a take-up acting upon a loop each time that the hook is in the quadrant of the hook-circle opposite the needle, and a bearing whereby the thread-case is held against its bearing on said hook.

18. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, and a thread-case comprising a circular bobbin-chamber and a flange rigid with the wall of said bobbin-chamber; said flange having peripheral bearing on said hook in the arc of a circle of greater radius than and eccentric to said bobbin-chamber.

19. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a segmental thread-case eccentric to and peripherally supported by said hook, and the periphery of which segmental thread-case is of less than half a circle in extent, and a holder within said hook for maintaining the said thread-case stationary as the said hook moves about it.

20. In a sewing-machine, the combination with a needle and its operating mechanism, of an oscillating hook, a segmental thread-case eccentric to and peripherally supported by said hook and the periphery of which segmental thread-case is less than half a circle in extent, and a holder for maintaining the said bobbin-case stationary as the said hook moves about it.

21. In a sewing-machine, the combination with a needle and its operating mechanism, of an oscillating circular hook, a segmental thread-case eccentric to and peripherally supported by said hook, and a stationary two-horned holder, extending within said hook, for maintaining the said thread-case stationary as the said hook moves about it; whereby during the opposite movements of the said oscillating hook the pressure at the points of contact between said holder and thread-case will be relaxed or the points of contact be opened for the easy passage of the loops of needle-thread.

22. In a sewing-machine, the combination with a needle and its operating mechanism, of an oscillating hook, a segmental thread-case eccentric to and peripherally supported by said hook by a rib-and-groove connection, and a fixed holder extending within said hook, for maintaining the said thread-case stationary as the said hook moves about it.

23. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a segmental thread-case peripherally supported by and within said hook and occupying but a portion of the space within the latter, the arc of contact of said thread-case with said hook being less than half a circle in extent, and a holder extending within said hook and serving to restrain said thread-case from rotation as the said hook moves about it.

24. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving loop-taker or hook cooperating with said needle, a segmental thread-case, peripherally supported at one side by said hook but out of contact with said hook at its other side, and means, extending within said hook, for holding said thread-case stationary while the hook moves about it, there being a thread-passage across the field of said hook between said thread-case and said holding means.

25. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook or loop-taker, a thread-case peripherally supported by said hook or loop-taker, and a two-horned holder for restraining said thread-case from rotation as the said hook or loop-taker moves about it; one horn or portion of said holder being constructed and arranged to serve as a needle guide and guard.

26. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook or loop-taker, a thread-case peripherally supported by said hook or loop-taker, and a two-horned holder for restraining said thread-case from rotation as the said hook or loop-taker moves about it; one horn or portion of said holder being constructed and arranged to serve as a loop-guard.

27. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving loop-taking hook, a stationary thread-case supported by its periphery in said hook and the peripheral connection of which with said hook is of less than one hundred and eighty degrees in extent, so as to afford an early cast-off or discharge of the loops of needle-thread about said thread-case within less than a half-revolution of said hook after it is has taken a loop from said needle.

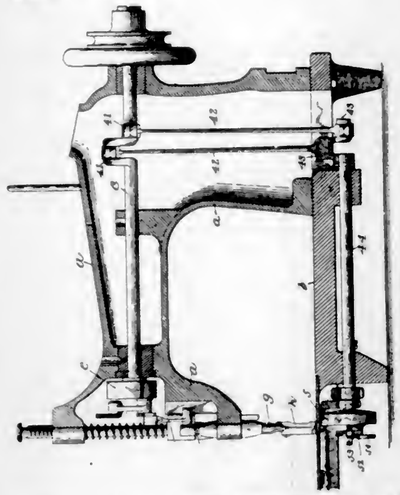
28. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a stationary thread-case peripherally supported by said hook and located eccentric to the axis of movement of said hook and on the side of said axis toward which the needle-loops are first carried by said hook; whereby a discharge of the needle-loops over the said thread-case in the quadrant of the circle opposite the quadrant at or near the middle of which the said loops are taken from the needle is secured.

29. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook the loop-seizing point or beak of which is inclined inwardly away from the periphery of the hook and toward the path of said point, and a stationary thread-case supported by said hook and over which the needle-loops are discharged by said hook in the quadrant of the circle opposite the point at which said needle-loops are taken by said hook.

30. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case supported by said hook, means, extending within said hook, for restraining the said thread-case from moving with said hook and for guiding or steadying the loops of needle-thread after they have been discharged from said hook, there being a thread-passage for said loops across the field of the hook between said thread-case and the loop guiding and steadying means.

31. In a sewing-machine, the combination of the following elements, namely; first, a circularly-moving hook; second, a stationary thread-case supported by said hook and located mainly to one side of the axis of movement of said hook; third, a reciprocating needle; fourth, mechanism whereby the said hook is caused to make one excursion to each reciprocation of said needle; and, fifth, means for tightening and thus completing each stitch before the loop for the next stitch is taken by said hook.

663,808. REVOLVING-HOOK SEWING-MACHINE. PHILIP DIEHL, Elizabeth, N. J., assignor to The Singer Manufacturing Company, of New Jersey. Filed Aug. 7, 1900. Serial No. 26,145. (No model.)



Claim.—1. In a sewing-machine, the combination with a needle and its operating mechanism, of a continuously-rotating hook, a thread-case supported by said hook and having one peripheral edge, which is in supporting contact with the hook, curved to conform to the arc of a circle of which the axis of said hook is the center, and having its other edge not thus curved, so as to leave a free thread-passage between said hook and the last-named edge of said thread-case to afford an early discharge and tightening of the loops of needle-thread, means for restraining said thread-case from moving with said hook, a take-up and means for operating the same whereby each loop is drawn up to complete the stitch before the next loop is taken by the hook, and means for imparting a single regular and complete rotation to said hook to each reciprocation of the said needle.

2. In a sewing-machine, the combination with a needle and its operating mechanism, of a continuously-rotating hook, a thread-case supported by said hook and arranged eccentric to the axis of the latter and on that side of said axis toward which the needle-loops are first carried by said hook, said thread-case having one peripheral edge, which is in supporting contact with said hook, curved to conform to the arc of a circle of which the axis of said hook is the center, and its other edge not thus curved, means for restraining said thread-case from moving with said hook, a take-up and means for operating the same whereby each loop is drawn up to complete the stitch before the next loop is taken by the hook, and means for imparting a single regular and complete rotation to said hook to each reciprocation of said needle.

3. In a sewing-machine, the combination with a rotating needle-bar shaft and a needle-bar operatively connected therewith, of a rotating hook-shaft connected to the needle-bar shaft so as to rotate in unison or at the same speed therewith, a rotating hook carried by said hook-shaft, a stationary thread-case supported by the said hook and having one peripheral edge, which is in supporting contact with said hook, curved to conform to the arc of a circle of which the axis of said hook is the center, said thread-case having its other edge not thus curved, thus leaving a free thread-passage between said hook and the last-named edge of said thread-case, and means for restraining the movement of said thread-case with said hook.

4. In a sewing-machine, the combination with a rotating needle-bar shaft and a needle-bar operatively connected therewith, of a rotating hook-shaft connected to the needle-bar shaft so as to rotate in unison or at the same speed therewith, a rotating hook carried by said hook-shaft, and a stationary thread-case supported by said hook and arranged eccentric to or at one side of the axis of the latter on that side of said axis toward which the needle-loops are first carried by said hook, said thread-case having one peripheral edge, which is in supporting contact with said hook, curved to conform to the arc of a circle of which the axis of said hook is the center, said thread-case having its other edge not thus curved, and means for holding said thread-case stationary as the said hook rotates.

5. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a stationary thread-case supported by and having at or near its periphery an interlocking connection with said hook of less than half a circle in extent to afford an early cast-off of the needle-loops, and held, by said connection, against radial displacement from its bearing in the hook, and means for restraining said thread-case from moving with said hook.

6. In a sewing-machine, the combination with a needle and its operating mechanism, of a circularly-moving hook, a thread-case supported by and having an interlocking connection with said hook so as to be held from radial displacement, said thread-case but partly filling the space or field inclosed by said hook and being arranged eccentric to the axis of the latter, so as to secure an early cast-off or discharge of the loops of needle-thread around or over said thread-case, and means for restraining the movement of said thread-case with said hook.

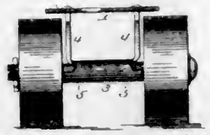
7. In a sewing-machine, the combination with a rotating shaft arranged above the work-plate and provided near its rear end with two cranks, a needle-bar operatively connected with the forward end of said shaft, a hook-shaft located below the work-plate and provided at or near its rear end with two cranks and at its forward end with a rotating hook, two pitmen connecting the cranks of said shafts, a stationary thread-case supported by said hook and arranged eccentric to the axis of the latter on the side of said axis toward which the loops of needle-thread are first carried by said hook, said thread-case having a comparatively short arc of contact with said hook, so as to secure an early discharge of the loops of needle-thread around said case, as described, and means for restraining said thread-case from moving with said hook.

663,809. TRUCK FOR ROLLER-SKATES. CHRISTIAN G. HOERLE, Torrington, Conn., assignor to the Union Hardware Company, same place. Filed Oct. 17, 1900. Serial No. 33,366. (No model.)

Claim.—1. A truck for roller-skates comprising a sheet-metal blank bent to form a bearing-sleeve and an upwardly-projecting arm or support at each end thereof, the flat faces of said arms or supports being opposite to each other.

2. A truck for a roller-skate, comprising a sheet-metal blank bent to form a bearing-sleeve having a closed upper face and integral arms or supports at respective ends of said sleeve.

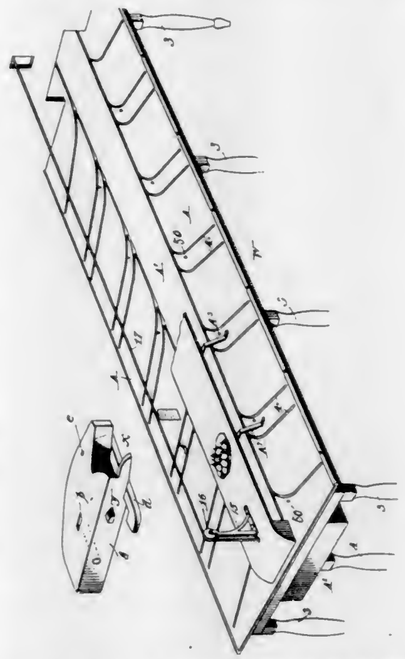
3. A truck for a roller-skate, comprising a single piece of sheet metal having a portion bent to form a bearing-sleeve with the meeting edges of the metal forming the sleeve, below the top face of said sleeve and integral flat arms or supports projecting upwardly from the ends of the top portion of the sleeve.



4. A truck for roller-skates comprising a sheet-metal blank bent to form a bearing-sleeve and a support at each end thereof having its outer face at right angles to the axis of the sleeve and in a vertical plane inside that of the ends of the sleeve.

5. The herein-described sheet-metal blank for the purpose set forth, comprising an approximately rectangular central portion, an approximately triangular section at each end of the central portion and said central portion provided with notches or recesses at opposite sides of the juncture of the triangular sections.

663,810. DINING-ROOM SERVICE APPARATUS. JUDSON B. HURD, Brookland, D. C. Filed Oct. 13, 1898. Renewed Oct. 23, 1899. Serial No. 734,454. (No model.)



Claim.—1. In a carrier apparatus, a single track along the main way and a plural side track leading into a station adjacent to said way, in combination with a carrier adapted to be guided by said single track and by said plural side track.

2. In a carrier apparatus, the combination with a main track and a plural side track, of a carrier adapted to said tracks and having two guides, both of said guides running in said main track and one of them running in one member of said plural side track and the other in the other member of said plural side track, substantially as described.

3. In a carrier apparatus the combination with a single main track and a plural side track, of a carrier adapted to said tracks, and means whereby the lines of the carrier that are parallel with the main track when the carrier is on the main track are kept parallel with it as the carrier moves along the plural side track.

4. In a carrier apparatus, the combination with a single track along the main way and plural side tracks at stations, and a series of carriers corresponding with the stations at which they are to enter and each adapted to be guided by said single main track and said plural side tracks, of a plural switch adapted to cause each carrier to enter its station as described and for the purposes specified.

5. In a carrier apparatus, the combination with a main track and a side track and a pusher-block adapted to run on said main track, of a carrier adapted to run on said main and side tracks, and a pusher-bar pivoted to said carrier and adapted to be engaged by said pusher-block to propel said carrier on said main track and to positively propel it when switched off on said side track to its terminus on said side track whereby said carrier is caused to approach said terminus at a gradually-reduced speed for the purposes specified.

6. In a carrier apparatus the combination with a main track and side tracks and a pusher-block adapted to move along said main track, of a carrier adapted to run on said main and side tracks and a pusher-bar pivoted to said carrier and adapted to be engaged by said pusher-block to move the carrier from its place of rest on the side track at a gradually-accelerated speed for the purposes specified.

7. In a carrier apparatus the combination with a main track and a side track and a pusher-block adapted to move along said main track, of a carrier adapted to run on said main and side tracks and a pusher-bar pivoted to said carrier and adapted to be engaged by said pusher-block to propel said carrier on said main track and to positively propel it when switched off on said side track to its terminus on said side track; said pusher-bar being also adapted to be engaged by said pusher-block to move the carrier from its place of rest on the side track and return it to the main track; the whole being adapted to cause the speed of the carrier as it approaches the place of rest on the side track, and as it leaves the same to be so controlled and graduated as to avoid a sudden jar.

8. In a carrier apparatus, the combination of a main track with a side track and a carrier adapted to run on said main and side tracks, with a propelling medium along the main track, and a pusher-bar forming a positive coupling between said propeller and said carrier, adapted to impart motion to the carrier to positively propel it to its terminus on the side track, and to keep the carrier from moving faster than it is so propelled, whereby the carrier is caused to approach its terminus on the side track at a gradually-reduced speed.

9. In a carrier apparatus, the combination of a main track with a side track and a carrier adapted to run on said main and side tracks with a propelling medium along the main track, and a pusher-bar forming a positive coupling between said propeller and said carrier, adapted to impart motion to the carrier to propel it when on the side track and when on the main track, whereby the carrier is moved from its resting-place on the side track and taken to the main track, at a gradually-accelerated speed.

10. In a carrier apparatus, the combination of a main track and a side track; a carrier adapted to run on said main track and on said side track, and a propelling medium along the main track, with a pusher-bar forming a coupling between said propeller and said carrier; said pusher-bar being adapted also to propel the carrier when the carrier is on the main track and when on the side track, and to keep the carrier from moving faster than it is so propelled; the pusher-bar being of such relative length, and the engaging surfaces of the coupling having the relative configuration substantially as described, whereby the carrier is caused to approach its terminus on said side track at a gradually-reduced speed.

11. In a carrier apparatus, the combination of a single track along the main way and a plural side track at each station, and a propelling medium along the main way, with carriers adapted to move upon the single main track and upon the plural side track, and a pusher-bar having one end pivotally attached to the carrier, and the other end adapted to engage with the propelling medium, and means for deflecting the carrier from the main track to the side track, the engaging connection between the pusher-bar and the propeller, being adapted to keep the carrier from going faster than it is positively propelled; and also to cause it to approach its terminus on the side track at a gradually-reduced speed.

12. In a carrier apparatus, the combination of a main track and a side track, with a carrier adapted to move along said main track and side track, and means whereby the carrier is positively propelled to the terminus of the side track at a gradually-reduced speed, substantially as shown and described, and for the purposes specified.

13. In a carrier apparatus a single main track with a double side track, in combination with a carrier adapted to be guided by said single main track and by said double side track, and a pusher-bar adapted to propel the carrier to the termination of the side track, while one end of the bar continues to move along the main track

14. In a carrier apparatus, the combination of a main track and a side track, with a carrier adapted to be guided by said main and side tracks and a pivoted pusher-bar adapted to propel the carrier to the terminus of the side track, while one end of the bar moves along the main track, said bar swinging on its pivot until it stands at right angles with the main track when the carrier reaches said terminus, whereby the carrier is caused to approach said terminus at a gradually-reduced speed.

15. In a carrier apparatus, the combination of a main track and a side track that terminates at a station, and a carrier adapted to move along the main track and to be deflected from the same and to move along the side track to its terminus, with a propeller that moves along the main track and a pusher-bar forming a positive coupling between the propeller and the carrier, adapted to positively propel the carrier until the carrier reaches its terminus on the side track, said pusher-bar being adapted to run parallel with the main track while the carrier is on the main track, and to change its position in reference to the main track when the carrier is running on the side track, and to disengage itself from the propeller when the carrier reaches its terminus on the side track and the pusher-bar reaches the position to form a right angle with the main track; whereby the carrier is positively propelled to its terminus on the side track at a gradually-reduced speed.

16. In a carrrier apparatus the combination of a main track and a side track that terminates at a station, and a carrier adapted to move along the main track and to be deflected from the same and to move along the side track to its terminus, with a propeller that moves along the main track, and a pusher-bar forming a positive coupling between the propeller and the carrier adapted to positively propel the carrier until the carrier reaches its terminus on the side track, said pusher-bar being adapted to run parallel with the main track while the carrier is on the main track, and to change its position in reference to the main track when the carrier is running on the side track until it forms a right angle with the main track and the carrier reaches jts terminus on the side track, whereby the carrier is positively propelled to its said terminus at a gradually-reduced speed.

17. In a carrier apparatus the combination of a single main track and a plural side track and a carrier adapted to move along the main track and to be deflected from the same and to move along the side track to its terminus, with a propeller that moves along the main track and a pusher-bar forming a positive coupling between the propeller and the carrier adapted to positively propel the carrier until the carrier reaches its terminus on the side track, said pusher-bar being adapted to run parallel with the main track while the carrier is on the main track and to change its position in reference to the main track when the carrier is running on the side track and to disengage itself from the propeller when the carrier reaches its terminus on the side track and the pusher-bar reaches the position to form a right angle with the main track, whereby the carrier is positively propelled to its terminus on the side track at a gradually-reduced speed.

18. In a carrier apparatus the combination of a single main track and a double side track and a carrier adapted to move along the main track and to be deflected from the same, and to move along the side track to its terminus with a propeller that moves along the main track and a pusher-bar forming a positive coupling between the propeller and the carrier adapted to positively propel the carrier until the carrier reaches its terminus on the side track, said pusher-bar being adapted to run parallel with the main track while the carrier is on the main track and to change its position in reference to the main track when the carrier is running on the side track, until it forms a right angle with the main track and the carrier reaches its terminus on the side track, whereby the carrier is positively propelled to said terminus at a gradually-reduced speed.

19. In a carrier apparatus the combination of a single main track and a double side track and a carrier adapted to move along the main track and to be deflected from the same and to move along the side track to its terminus, with a propeller that moves along the main track, and a pusher-bar forming a positive coupling between the propeller and the carrier adapted to positively propel the carrier until the carrier reaches its terminus on the side track, said pusher-bar being adapted to run parallel with the main track while the carrier is on the main track and to change its position in reference to the main track when the carrier is running on the side track and to disengage itself from the propeller when the carrier reaches its terminus on the side track and the pusher-bar reaches the position to form a right angle with the main track, whereby the carrier is positively propelled to its terminus on the side track at a gradually-reduced speed.

20. In a carrier apparatus a pusher-block adapted to move along a main track and a carrier adapted to move along the main track and a side track, the carrier having a pushor-bar attached thereto, said pusher-bar and pusher-block being adapted to engage with each other to propel the carrier to a definite terminus on the side track and to disengage from each other when it has reached said terminus.

21. In a carrier apparatus the combination of a main track and a side track, of a carrier adapted to move on said tracks and having a pusher-bar pivotally attached thereto, a pusher-block on the main track having a trailer-hook attached thereto; the pusher-bar having a projection adapted to engage with said trailer-hook to move the carrier from the side track to the main track as and for the purposes specified.

22. In a carrier apparatus the combination of a main track and a side track, of a carrier adapted to move on said tracks and having a bar pivoted thereto, a propeller on the main track with means whereby the propeller engages with the carrier when it is at rest on the side track and moves it from said side track to the main track.

23. In a carrier apparatus the combination of a main track and a side track with a carrier adapted to move along said tracks and means whereby the lines of the carrier that are parallel with the main track when the carrier is on the main track are maintained in parallelism with said main track when the carrier is on the side track.

24. In a carrier apparatus, the combination of a main track and a side track and a carrier adapted to move along the main and the side tracks, with a propeller that moves along the main track and means for connecting the propeller with the carrier whereby the carrier is positively regulated in its movement and caused to approach its terminus on the side track at a gradually-reduced speed.

25. In a carrrier apparatus the combination of a main track and a side track and a carrier adapted to move along said main track and to be deflected from it and move along the side track to its terminus, with means for positively regulating the movement of the carrier after its deflection from the main track; whereby it is caused to approach its terminus at a gradually-reduced speed.

26. In a carrier apparatus, the combination of a main track and a series of side tracks leading therefrom to adjacent stations, a carrier running on said main track, means for propelling it, a device for deflecting the carrier into said side tracks, and a device mounted on the carrier and adapted to positively and gradually retard its speed to its terminus on the side track.

27. In a carrier apparatus, the combination of a main track and side tracks leading therefrom to adjacent stations, a carrier adapted to move along the main track, positive means for deflecting it into the side tracks and gradually retarding its speed to a positive point of rest, and devices for returning the carrier to the main track from said point with a gradually-accelerated speed.

28. In a carrier apparatus, the combination of a main way or track, side ways or tracks connected thereto, a carrier and means for moving it along said tracks, and positively-operated mechanical devices for moving the carrier from its point of rest on the side track onto the main track at a gradually-accelerated speed.

29. In a carrier apparatus, the combination of a main track, a side track leading therefrom, a propelling medium running along adjacent to the main track, a carrier running on the main track and side track, a switching device for directing it into the side track, a movable device mounted on the carrier and adapted in conjunction with said propelling medium to positively move the carrier along the side track and gradually reduce its speed to a positive point of rest thereon.

30. In a carrier apparatus, the combination of a main track, a side track leading therefrom, a propelling medium, a carrier running on said tracks, and devices on the carrier engaging the propelling medium and adapted to move said carrier from a point of rest on the side track onto the main track at a gradually-accelerated speed.

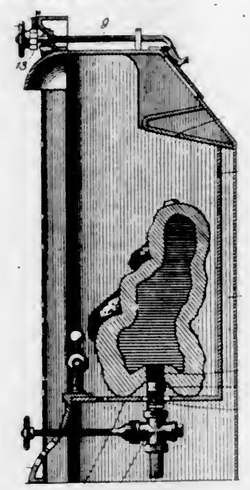
31. In an apparatus of the class described, the combination of a main track, a side track, a carrier adapted to said tracks, means for deflecting the carrier into the side track and gradually and positively retarding its speed to its point of rest on its side track, and means whereby the lines of the carrier that are parallel with the main track when the carrier is on the same remain parallel therewith when the carrier moves into the side track, for the purposes set forth.

32. In a carrier apparatus, the combination, of a main track having a lateral branch track, a carrier adapted to said tracks, means for positively movjng the carrier from the lateral branch track into the main track at a gradually-accelerated rate of speed, and means for keeping the lines of the carrier that are parallel with the main track when the carrier is on it parallel with it while the carrier is in motion on the lateral branch track, for the purposes set forth.

33. In a carrier apparatus, the combination of a main track, a propelling medium running along adjacent to said track, a lateral branch track extending away from the main track, a carrier adapted to said tracks, means for directing it from the main track into the branch track, and means engaged by the propelling medium for positively and gradually retarding the speed of the carrier as it moves from the main track into the branch track.

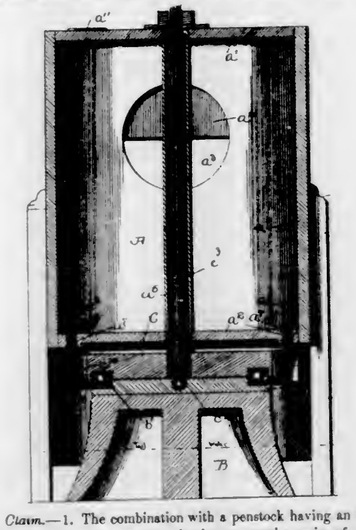
34. In a carrier apparatus, the combination of a main track, a branch track extending away from the main track, a carrier adapted to said tracks, a propelling medium running along adjacent to the main track, and means for positively returning the carrier to the main track from the side track with a gradually-accelerated speed, said means consisting essentially of a coupling-bar pivoted at one end to the carrier and having its free end extending toward and lying at approximately a right angle to the main track when the carrier is on the side track, and means on the propelling medium for engaging the free end of said coupling-bar and swinging it around to a position approximately parallel with the main track during the act of moving the carrier into the main track.

668,811. GAS-STOVE. THOMAS M. DUDGEON, Crafton, Pa., assignor to the Pittsburg Stove and Range Company, Pittsburg, Pa. Filed Apr. 21, 1900. Serial No. 13,687. (No model.)



Claim.—In a gas-stove, the combination of an inclosing shell or box having an open front, a supporting ledge or shelf arranged at a suitable height to form an air-chamber below it, a burner resting on the shelf, a flue extending from the air-chamber under the shelf or ledge up back of the burner having outlets above the burner, a reverberating ledge arranged above the flue, outlets and a valved opening above the ledge for the escape of products of combustion, substantially as set forth.

663,812. WATER-WHEEL. HENRY JONES, Colwood, Canada, assignor of one-fourth to William George H. Ellison and William J. Wale, same place. Filed May 31, 1898. Serial No. 682,112. (No model.)



Claim.—1. The combination with a penstock having an inlet-gate, a top and a bottom, said bottom having an annular series of vertically-extending ports arranged therein, each port being controllable independently; of a supporting-base located below said bottom; a shaft pivotally supported thereon, said shaft extending vertically through said penstock; a casing for said shaft; a wheel secured to said shaft near the lower end thereof; a series of inclined vanes located on the outer periphery of said wheel, said vanes extending below the lower plane of said wheel, and being adapted to receive the water passing from said vertically-extending ports and rotate said shaft; and an annular antifrictional support for said

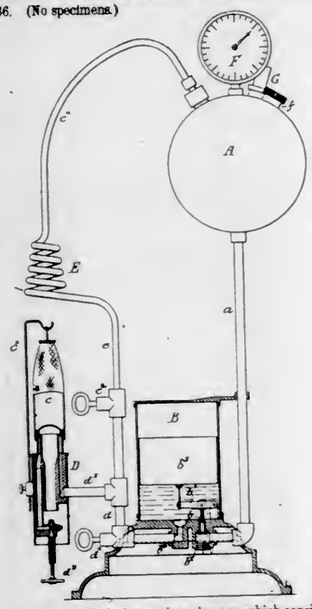
wheel, located contiguous to said vanes and intermediate the upper and lower planes thereof, substantially as described.

2. The combination with a penstock having an inlet-gate, and an annular series of outlet-ports each controllable independently; of a supporting-base located below said penstock; a shaft extending vertically through said penstock and pivotally supported on said base; a wheel secured to said shaft near the lower end thereof; a peripheral band secured to said wheel, said band being of a width greater than the width of the wheel and extending below the lower plane thereof; a series of inclined vanes located on the outer periphery of said band; a supplemental rim or band secured to the outer edges of said vanes, whereby pockets will be formed; and an annular antifrictional support for said wheel, located contiguous to said peripheral band and intermediate the upper and lower planes thereof, substantially as described.

3. A water-wheel comprising a support; a vertically-extending shaft pivotally mounted at the center of the top of said support; a wheel secured to said shaft contiguous to the upper face of said support, said wheel having a series of peripheral vanes extending below the lower plane thereof; an annular raceway formed between said wheel and said support, said raceway having balls to form an antifrictional device, said raceway being formed contiguous to the periphery of said wheel, said raceway being located on a plane intermediate the top and bottom planes of said vanes, whereby said wheel will have both a central and an annular support, substantially as described.

4. In a turbine water-wheel, the combination of the rotating wheel having peripheral vanes; of a central support therefor; and an additional support located annularly near said vanes and intermediate the top and bottom planes thereof, whereby any tendency of sagging under water-pressure is prevented.

663,813. METHOD OF OPERATING HYDROCARBON-BURNERS. GUSTAVE A. LORBEN, Philadelphia, Pa., assignor of one-half to Albert L. A. Toboldt, same place. Original application filed Feb. 4, 1899, Serial No. 704,550. Divided and this application filed Nov. 6, 1900. Serial No. 35,636. (No specimens.)



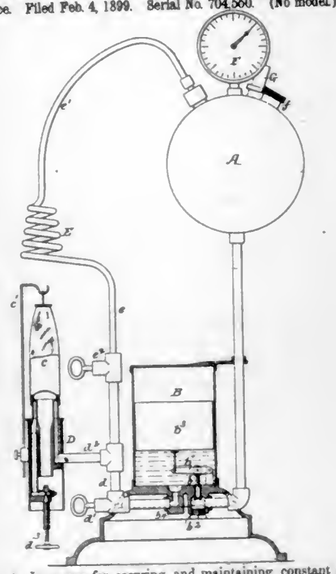
Claim.—1. The method of operating a burner, which consists in vaporizing a hydrocarbon or other suitable volatile liquid for consumption, next generating by heat a pressure for feeding said burner, and lastly automatically controlling said pressure.

2. The method of operating a burner, which consists in vaporizing a hydrocarbon or other suitable volatile liquid for consumption, next generating a pressure for feeding said burner by utilizing the caloric energy derived from said burner, and lastly automatically controlling said pressure.

3. The process herein described of securing and maintaining constant pressure in a reservoir, which consists in vaporizing by heat an expansible fluid from said reservoir to obtain a pressure therein, conducting said vapor to the reservoir, and automatically controlling said pressure.

4. The process herein described of securing and maintaining constant pressure in a reservoir, which consists in vaporizing by heat an expansible fluid from said reservoir to obtain a pressure therein, conducting said vapor to the reservoir, and automatically controlling the flow of fluid prior to its vaporization.

663,814. PRESSURE DEVICE FOR BURNERS. GUSTAVE A. LORBEN, Philadelphia, Pa., assignor of one-half to Albert L. A. Toboldt, same place. Filed Feb. 4, 1899. Serial No. 704,560. (No model.)



Claim.—1. In means for securing and maintaining constant pressure, a reservoir for expansible fluid, a generating means for expanding said fluid by heat and a regulator disposed between the reservoir and the generating means and serving to automatically govern the flow of fluid to the latter.

2. The combination of a burner, a reservoir for hydrocarbons or other gasifiable liquids, a pipe leading from a source of supply in the system to the point of consumption, a pipe leading from the bottom of the reservoir to the top thereof, and extending within the heat zone of the burner, and a regulator for regulating the flow of said liquids from the reservoir through this pipe, whereby pressure will be exerted, substantially as described.

3. In a burner, means operated by said burner for vaporizing a hydrocarbon or other suitable volatile liquid for consumption and means for generating, and automatically controlling, a pressure for feeding said burner.

4. In a burner, a reservoir containing hydrocarbon or other suitable volatile liquid, a generator operated by said burner and communicating with said reservoir, means operated by said burner for creating a pressure in said reservoir, and means for automatically controlling said pressure.

5. In a burner, a reservoir adapted to contain hydrocarbon or other suitable volatile liquid, a generator, connections common to said reservoir and said generator, a second generator adapted to receive hydrocarbon from said reservoir, and a connection from said second generator adapted to discharge into said reservoir above the surface of hydrocarbon or other suitable volatile liquid, and means for automatically controlling the flow of hydrocarbon to said second generator.

6. In a burner, a reservoir adapted to contain hydrocarbon or other suitable liquid, a generator, means for conducting hydrocarbon or other suitable volatile liquid from said reservoir to said generator, a second generator, a tube or passage for conducting hydrocarbon or other suitable volatile liquid to said second generator, a tube or passage leading from said second generator into said reservoir and a valve adapted to be operated by the hydrocarbon or other suitable volatile liquid from said reservoir and controlling the flow of the hydrocarbon to said second generator.

7. A burner having a generator for vaporizing hydrocarbon or other volatile liquid for consumption, means operated by said burner for generating a pressure for feeding the same, and means whereby said pressure is automatically controlled.

8. In a burner, a reservoir adapted to contain hydrocarbon or other suitable volatile liquid, a generator, means for conducting hydrocarbon or other suitable volatile liquid to said generator, a second generator, a pipe or passage adapted to conduct hydrocarbon or other suitable volatile liquid to said second generator, a pipe or passage leading from said second generator into said reservoir, a chamber adapted to receive hydrocarbon or other suitable volatile liquid from said reservoir, a diaphragm closing said chamber and a valve connected with said diaphragm, and controlling the passage to the second generator, said diaphragm being operated by the hydrocarbon or other suitable volatile liquid in said chamber.

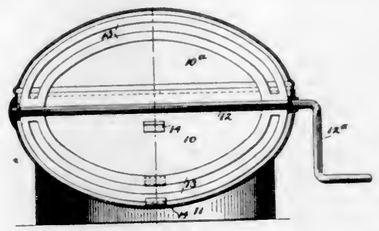
9. In a burner, a reservoir adapted to contain hydrocarbon or other suitable volatile liquid, a generator, means for conducting hydrocarbon or other suitable volatile liquid to said generator, a second generator, a pipe or tube adapted to conduct hydrocarbon or other suitable volatile liquid to said second generator, a pipe or tube leading from said second generator into said reservoir, a chamber adapted to receive hydrocarbon or other suitable volatile liquid from said reservoir, a diaphragm closing said chamber, a valve connected with said diaphragm, which latter is adapted to be operated by the hydrocarbon or other suitable volatile liquid in said chamber, and means for returning said valve to its original condition, when the pressure in said tank is reduced.

10. The combination of a burner, a reservoir for hydrocarbon or other gasifiable fluids, means establishing communication between the source of supply and the point of consumption, means exterior to said reservoir for establishing communication between the upper and lower portions thereof, and extending within the heat zone of a burner, and a regulator for regulating the flow of the fluid through the said means, whereby pressure will be exerted.

11. The combination of a burner, a reservoir for hydrocarbon or other gasifiable fluids, a connection between the source of supply and the point of consumption, a connection between the upper and lower portions of the reservoir situated to be heated by said burner, and a device for regulating the flow of the fluid through said connection between the upper and lower portions of the burner, whereby pressure is exerted

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663,815. CREAM-WHIPPING DEVICE. CALEB B. MANSELL, Vancouver, Canada. Filed Mar. 22, 1900. Serial No. 9,761. (No model.)



Claim.—1. The combination with a vessel circular in cross-section, said vessel having retarding projections on its inner face extended in the path of the movement of the whipping-blades; of a shaft journaled lengthwise of the vessel, said shaft having blades projected radially therefrom, said blades being of an elastic material, substantially as shown and for the purposes described.

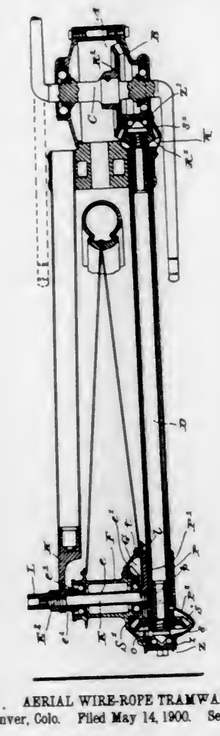
2. The combination with a vessel of spheroidal form, said vessel having a series of retarding projections extended radially inward, of the shaft passing through the major axis of the vessel; elastic blades slotted in the direction of their length, the outer extremities of the said blades moving in close proximity to the walls of the vessel, whereby to engage with the retarding projections as the said shaft is rotated, substantially as shown and for the purposes described.

663,816. GEAR FOR BICYCLES. JACOB H. MANTEL, Amsterdam, Netherlands. Filed July 26, 1898. Serial No. 686,954. (No model.)

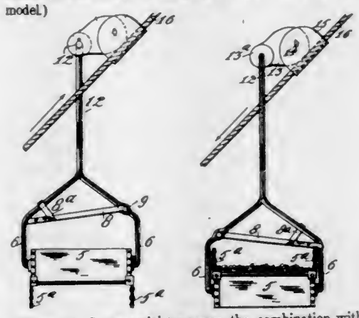
Claim.—1. In combination, the axle-pin E having a swelling E^2, the box or sleeve *e* surrounding the axle-pin, and having a fixed cone at its end, the part P' to which the axle-pin is secured and adjacent to which the fixed cone is located, the cone *e'* adjustable on the other end of the sleeve *e* and within the wheel-hub and the nut e^2 for locking the adjustable cone *e'*, said cone and nut being within the frame, and the step L screwed on the swelling E^2 outside the frame, said swelling E^2 serving to force the sleeve tight against the plate P', substantially as described.

2. In combination in a cycle, the crank-shaft, the rear wheel, the drive-shaft D, the gearing between the crank-shaft and rear wheel respectively and the drive-shaft, the loose cover B at the crank-shaft and the ball-bearings for the said crank-shaft and drive-shaft carried by the said cover, substantially as described.

663,816.



663,817. AERIAL WIRE-ROPE TRAMWAY. JAMES H. MONTGOMERY, Denver, Colo. Filed May 14, 1900. Serial No. 16,697. (No model.)



Claim.—1. In an aerial tramway, the combination with a rope or cable and a carrier, of a shoe adapted to embrace the cable and a cam-lever fulcrumed on the shoe and connected with the carrier, the arrangement being such that the gravity of the carrier causes the lever to automatically grip the cable.

2. In an aerial tramway, the combination with a rope or cable and a carrier, of a shoe adapted to embrace the cable, a reversible cam-lever fulcrumed on the shoe and connected with the carrier at a point remote from the fulcrum, the arrangement being such that the gravity of the carrier causes the lever to automatically grip the cable when the carrier extremity of the lever is pointed in either direction from the shoe.

3. In an aerial tramway, the combination with a rope or cable and a carrier, of a shoe mounted on the cable, a lever fulcrumed on the shoe, its opposite extremity terminating in a sleeve journaled on the carrier, the arrangement being such that the gravity of the carrier causes the lever to automatically grip the cable.

4. In an aerial tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever connecting the shoe with the pendent arm of the carrier, and arranged to grip the cable automatically, and suitable means mounted on a stationary support and lying in the path of a portion of the lever, whereby the extremity of the lever connected with the pendant is raised sufficiently to release the cable, allowing the latter to travel through the shoe which remains stationary.

5. In an aerial tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever fulcrumed on the shoe and having a sleeve journaled on the pendent arm of the carrier and projecting at right angles to the body of the lever, and a stationary bracket lying in the path of said sleeve and having an inclined part adapted to engage the sleeve and raise the pendent extremity of the lever sufficiently to release the cable whereby the carrier is allowed to stop at predetermined intervals.

6. In an aerial tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever fulcrumed on the shoe and movably connected with the pendent arm of the carrier, the lever being adapted to grip the cable automatically when its carrier extremity is pointed in either direction, and means lying in the path of the lever and arranged to throw it from one position to the other.

7. In an aerial tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever fulcrumed on the shoe and movably connected with the pendent arm of the carrier, the lever being adapted to grip the table automatically when its carrier extremity is pointed in either direction from the shoe, and means arranged to throw it from one position to the other, said means comprising a hub having arms adapted to project into the path of the lever and arranged to offer sufficient resistance to perform the function stated, after which the lever acts on the arm to turn the hub sufficiently to permit the carrier to pass on.

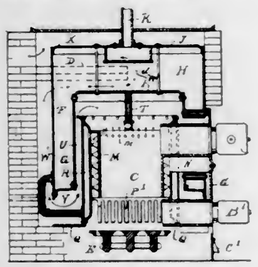
8. In an aeriel tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever fulcrumed on the shoe and movably connected with the pendent arm of the carrier, the lever being adapted to grip the cable automatically when its carrier extremity is pointed in either direction from the shoe, and means arranged to throw the lever from one position to the other, said means comprising a shaft suitably journaled, brake mechanism connected with the shaft, a hub fast on the shaft and provided with arms projecting into the path of the lever, the brake mechanism being so regulated that the hub does not move until the position of the lever has been reversed.

9. In an aerial tramway, the combination with a rope or cable and a suitable carrier, of a shoe, a lever fulcrumed on the shoe and movably connected with the pendent arm of the carrier, the lever being adapted to grip the cable automatically when its carrier extremity is pointed in the other direction, and means arranged to throw the lever from one position to the other, said means comprising a shaft suitably journaled, a pulley fast on the shaft, an adjustable brake-band adjusting the pulley, and a hub fast on the shaft and provided with arms projecting into the path of the lever.

10. In an aerial tramway, the combination with a rope or cable, and a carrier, of a shoe adapted to embrace the cable, and a cam-lever fulcrumed on the shoe and connected with the carrier, the arrangement being such that the gravity of the carrier causes the lever to automatically grip the cable by direct contact therewith.

11. In an aerial tramway, the combination with a rope or cable and a carrier, of a shoe adapted to embrace the cable, and a reversible cam-lever fulcrumed on the shoe and connected with the carrier, the arrangement being such that the gravity of the carrier causes the lever to automatically grip the carrier.

663,818. BOILER. DOCTOR F. MORGAN, Chicago, Ill. Filed Jan. 23, 1899. Serial No. 703,167. (No model.)

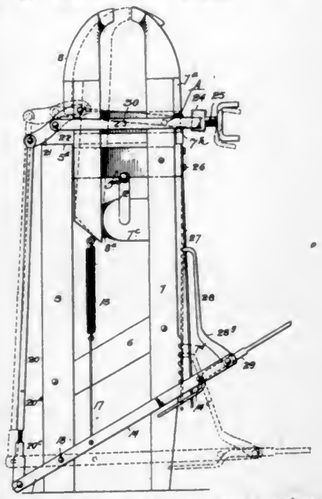


Claim.—1. The combination of a boiler provided with a depending water-leg, an auxiliary water-leg of less diameter than the depending water-leg and surrounded thereby, means for connecting the lower ends of the water-legs, whereby a combustion-chamber is obtained between the water-legs, a horizontal grate, upright bars forming a basket-grate the diameter whereof is less than the diameter of the auxiliary water-leg, such auxiliary water-leg and basket-grate forming the fire-pot of the boiler, and such auxiliary water-leg extending to substantially near the plane in which the horizontal grate is mounted, whereby an air chamber or space is obtained between the auxiliary water-leg and the basket-grate and fresh air supplied to the fire-pot between the upright bars of the basket-grate passes through such chamber or space, substantially as described.

2. The combination of a boiler provided with a depending water-leg an auxiliary water-leg of less diameter than the depending water-leg and surrounded thereby, means for connecting the lower ends of the water-legs, whereby a combustion-chamber is obtained between the water-legs, a horizontal grate, upright bars forming a basket-grate the diameter whereof is less than the diameter of the water-leg, a lining of less diameter than the auxiliary water-leg supported on the basket-grate, whereby an air-chamber is obtained between the lining and the water-leg, and such lining provided with openings substantially near the upper end thereof, such auxiliary water-leg, the lining thereto and basket-grate forming the fire-pot of the boiler, and such water-leg extending to substantially near the plane in which the horizontal grate is mounted, whereby an air space or chamber is obtained between the auxiliary water-leg, the lining thereto and the basket-grate, and fresh air supplied to the fire-pot between the upright bars of the basket-grate and from the openings in the lining, respectively, passes through such chamber or space, substantially as described.

3. The combination in a boiler, of a water-leg, means for supplying water to the lower end of the water-leg, a horizontal grate, upright bars forming a basket-grate the diameter whereof is less than the diameter of the water-leg, such water-leg and basket-grate forming the fire-pot of the boiler, and such water-leg extending to substantially near the plane in which the horizontal grate is mounted, whereby an air chamber or space is obtained between the water-leg and the basket-grate and fresh air supplied to the fire-pot between the upright bars of the basket-grate passes through such chamber or space, substantially as described.

663,819. FOOT-VISE. EDWARD B. NEWMAN, Denver, Colo. Filed Aug. 22, 1898. Serial No. 689,202. (No model.)



Claim.—1. In a foot-vise, the combination of a stationary jaw, a movable jaw, a yoke embracing the two jaws, a power-lever fulcrumed on the yoke having one arm pivotally connected with the movable jaw, a foot-lever, a rod connecting the foot-lever with the other arm of the power-lever, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring..

2. In a vise, the combination of a stationary jaw, a movable jaw, a yoke embracing the two jaws, a nut mounted on the yoke, a screw passing through the nut and engaging one of the jaws, a power-lever fulcrumed on the yoke and connected with the movable jaw, a foot-lever, and a suitable connection between the foot-lever and the power-lever, whereby the two levers are simultaneously actuated.

3. In a vise, the combination of a stationary jaw, a movable jaw pivotally connected with the stationary jaw, a yoke surrounding the two jaws, means attached to the yoke for regulating the space between the jaws when open, a power-lever fulcrumed on the yoke, and connected with the movable jaw, and suitable means for operating the power-lever.

4. The combination with a stationary frame and two jaws, of a power-lever fulcrumed in suitable proximity to one of the jaws, one arm

of the lever being suitably connected with the jaw, a foot-lever, a rod connecting the two levers, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

5. The combination with the jaws of a vise, of a power-lever fulcrumed on a movable support and connected with the movable jaw, a foot-lever, a suitable connection between the two levers, whereby the levers and the movable jaw may be simultaneously actuated, a locking-arm pivotally mounted on the foot-lever, a spring normally holding the locking-arm in the released position, the frame being provided with teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

6. In a vise, the combination of a stationary frame, a foot-lever fulcrumed thereon, a locking-arm pivotally mounted on the foot-lever, notches or teeth formed on the frame, and a spring normally holding the locking-arm in the released position, the locking-arm being adapted, when moved in opposition to the spring, to engage the teeth and lock the foot-lever in any desired position of adjustment.

7. In a vise, the combination with a suitable frame and a foot-lever fulcrumed thereon, of a locking-arm pivotally mounted on the foot-lever, and a leaf-spring engaging the locking-arm and normally holding it in the released position, the frame being provided with notches or teeth which the locking-arm is adapted to engage when moved in opposition to the spring.

8. The combination with a frame, of a spring-held foot-lever fulcrumed thereon, a locking-arm pivotally mounted on the foot-lever and having an open head, a leaf-spring passing through the head and provided with a slot, teeth formed on the frame and adapted to protrude through the slot in the spring and engage the head of the arm which is fashioned to engage the teeth and lock the lever in any desired position of adjustment.

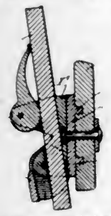
9. In a foot-vise, the combination with a stationary jaw, a movable jaw, and a loose yoke embracing the two jaws, of a power-lever fulcrumed on the yoke and connected with the movable jaw, a foot-lever, a rod connecting the two levers a locking-arm mounted on the foot-lever and adapted to engage teeth formed on the frame, and a spring normally holding the locking-arm in the released position

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663,820. PROCESS OF PRODUCING SOLID IGNITING BODIES FOR AUTOMATIC GAS-IGNITERS. EUGEN NOWAK, Berlin, Germany. Filed May 19, 1900. Serial No. 17,294. (No specimens.)

Claim.—The herein-described process for producing solid igniting bodies consisting in the following steps in the sequence named, to wit, digesting a suitable fire-resisting substance with pure hydrochloric acid until a test shows no red residue; washing with hot water until no acid is indicated; digesting with absolute alcohol; digesting with sulfuric acid; heating slowly to a red heat in a platinum vessel; impregnating with a solution of a salt of a metal of the platinum group and thorium salts to which cerium is added until almost evaporated to dryness; and finally completely drying in vacuum, substantially as described.

663,821. LADDER. LUITJEN J. R. DE VRIES, Panola, Ill. Filed June 25, 1900. Serial No. 21,431. (No model.)



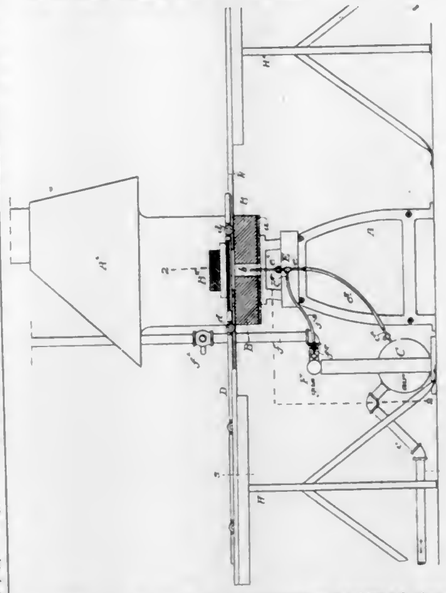
Claim.—1. A step-ladder, provided with a shelf, a shelf-stick on which the shelf is pivoted, and a supporting and adjusting device carried on the leg of the ladder and receiving said shelf-stick, to adjust the shelf up or down, or to swing the shelf into an angular sidewise position, the said device comprising a disk having grooves, secured to the leg of the ladder, a socket mounted to turn on said disk and carrying two cam-levers, one of which is adapted to engage said stick and the other is adapted to lock the socket to said disk, as set forth.

2. A step-ladder attachment, comprising a staff or stick carrying a shelf at its upper end, a disk fastened to the step-ladder, a socket-piece mounted to turn on the disk, and a lock device carried by the socket-piece and working with the disk to adjustably hold the socket-piece serving to carry the staff.

3. In a step-ladder attachment, a staff carrying a shelf or other device at its upper end, a disk attached to the step-ladder, and a socket-piece adjustably mounted on the disk and carrying the staff.

4. The combination of a disk provided with a number of notches therein, a socket-piece mounted to turn on the disk, a device supported by the socket-piece, and a lock-lever carried by the socket-piece and having a part adapted to engage with the notches of the disk to adjustably hold the socket-piece.

663,822. BRAZING-FURNACE. DAVID H. WATTS, Philadelphia, Pa., assignor of one-half to David H. Watts, Jr., same place. Filed Oct. 17, 1898. Serial No. 693,781. (No model.)



Claim.—1. The combination in a tube-brazing machine, of a frame, a burner thereon, air and gas pipes connected to said burner, and a carriage movable through the machine for holding the tube to be brazed and for feeding it longitudinally through the machine above the burner, with the seam uppermost, substantially as described.

2. The combination in a tube-brazing machine, of a series of burners, air and gas pipes connected to said burners, and a valve for each air and gas pipe, a carriage arranged to travel over the burners, and means for supporting a series of tubes longitudinally arranged on the carriage with their seams uppermost, substantially as described.

3. The combination in a tube-brazing furnace, of a frame, a series of independent burners mounted side by side on said frame and having air and gas inlets, a cylinder for air under pressure, a series of pipes projecting from said cylinder and connected to the air-inlets of each burner, valves for controlling the passage of air through the several pipes, a gas-chamber having a series of pipes connected to the series of gas-inlets of the burners, and valves controlling the passage of gas through the pipes whereby the flame from each burner can be regulated, and a carriage so arranged as to support a series of tubes side by side, so that they can be traversed over the burners, substantially as described.

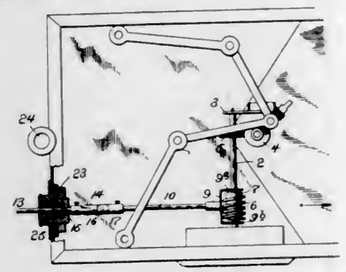
4. The combination in a tube-brazing furnace, of a frame, a series of independent burners mounted side by side on said frame, a gas-cylinder and an air-cylinder connected to the burners, controlling-valves for each connection, so as to regulate the supply of air and gas to the independent burners, an air-supply pipe and a valved air-exhaust pipe communicating with the air-cylinder, and means for feeding the tubes longitudinally through the flames from the burners, substantially as described.

5. The combination of a frame having a table, fire-brick blocks mounted on the table and forming a space, a cover-block of fire-brick bridging over the space between the other blocks of fire-brick, a series of burners projecting into the space between the fire-bricks, an air-cylinder and a gas-cylinder each connected to the several independent burners, stands at each end of the frame, tracks on the said stands, and a carriage mounted on the tracks and arranged to carry a series of tubes to be brazed, substantially as described.

6. The combination in a tobo-brazing furnace, of the frame, a series of burners arranged side by side across the frame, gas and air chambers connected to the independent burners, tracks on the frame and a carriage constructed to travel on the tracks, and notched cross-bars on the carriage constructed to receive and separate the series of tubes to be brazed, said notches being so arranged that the tubes resting therein will be made to travel longitudinally above the burners as the carriage is moved.

7. The combination in a tobe-brazing furnace, of the burners, a carriage arranged to travel through the flame of the burners and having notched cross-bars and an end cross-bar perforated to receive the tubes to be brazed, substantially as and for the purpose set forth.

663,823. MEANS FOR CONNECTING VENDING-MACHINES TO METERS. WESLEY WEBBER, New York, N. Y. Filed July 2, 1900. Serial No. 22,318. (No model.)



Claim.—1. As a means of connecting coin-controlled gas-vending mechanism to meters and the registering mechanism thereof, in combination with the actuating-shaft of the index of the meter and the driving-shaft of the vending-machine, a swinging frame adjustable upon the meter-index shaft, and adjustable transmitting-gear applied to said shaft, a counter-shaft geared to said transmitting-gear and journaled in said swinging frame, and a flexible joint connecting said counter-shaft with the driving-shaft of the vending-machine; substantially as described.

2. As a means of connecting coin-controlled gas-vending mechanism to meters and the registering mechanism thereof, in combination with the actuating-shaft of the index of the meter and the driving-shaft of the vending-machine, a swinging frame adjustable upon the meter-index shaft, and adjustable transmitting-gear applied to said shaft, a counter-shaft geared to said transmitting-gear and journaled in said swinging frame, and a longitudinally-adjustable flexible joint connecting said counter-shaft with the driving-shaft of the vending-machine; substantially as described.

663,824. APPARATUS FOR APPLYING COATINGS OF METAL TO BOILER-TUBES OR OTHER ARTICLES. LEE WEST, Wellston, Ohio, assignor of seven-twentieths to Benjamin F. Kitchen, same place, and John E. Harper, Glen Roy, Ohio. Filed June 7, 1900. Serial No. 19,465. (No model.)

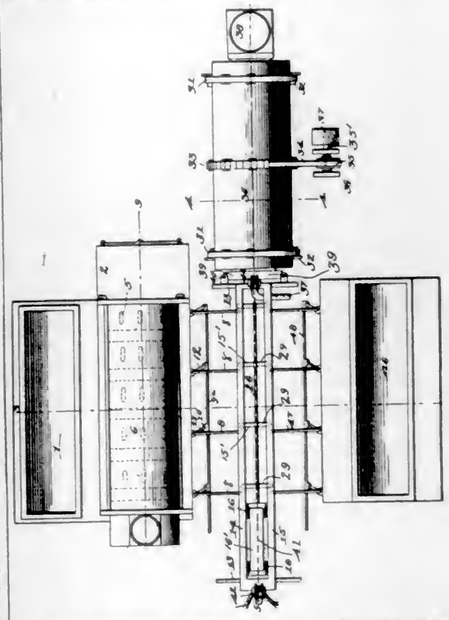
Claim.—1. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon the said wall, and a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace.

2. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, and a series of brackets suitably connected to said furnace.

3. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to said furnace, a cleaning-tank, a series of brackets suitably connected to said tank, a revolving furnace, and a crane arranged in suitable relation to said revolving furnace.

4. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to said furnace, a cleaning-tank, a series of brackets connected to said cleaning-tank, a crane operating between the said series of brackets, and a furnace arranged in suitable relation to said crane.

5. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a cleaning-tank, a series of horizontal bars connected to said cleaning-tank, a crane operating between the said series of horizontal bars, means for horizontally moving said crane, means for vertically adjusting said crane, and a revolving furnace arranged in suitable relation to said crane.



6. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to said furnace, a cleaning tank, a series of brackets connected to said cleaning-tank, a crane operating between the said series of brackets, means for horizontally moving said crane, means for vertically adjusting said crane, a series of hooks suitably connected to said crane, and a revolving furnace arranged in suitable relation to said crane.

7. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for the said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to the said furnace, a cleaning-tank, a series of brackets connected to said cleaning-tank, a crane operating between the series of brackets, means for vertically adjusting said crane, a series of hooks carried by said crane, a traveling carriage connected to said crane, and a furnace arranged in suitable relation to said crane.

8. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a perforated top wall for said furnace, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to the said furnace, a cleaning-tank, a series of brackets connected to said cleaning-tank, a crane operating between the series of brackets, means for vertically adjusting said crane, a series of hooks carried by said crane, a traveling carriage connected to said crane, a revolving furnace adapted to contain molten metal and arranged in suitable relation to said crane, and a vertically-adjustable gate therefor.

9. In an apparatus for coating boiler-tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a hood mounted upon said wall, a hinged plate secured to each side of said hood and adapted to permit of the entrance and removal of a tube or other article to the furnace, a series of brackets suitably connected to the said furnace, a cleaning-tank, a series of brackets

connected to said cleaning-tank, a crane operating between the series of brackets, means for vertically adjusting said crane, a series of hooks carried by said crane, a traveling carriage connected to said crane, a furnace adapted to contain molten metal arranged in suitable relation to said crane, a fuel-feed pipe therefor, a vertically-adjustable gate therefor, and means for revolving said furnace.

10. In an apparatus for coating tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a cleaning-tank, a vertically-adjustable horizontally-movable crane interposed between said furnace and cleaning-tank, means for operating said crane, and a revolving furnace arranged in suitable relation to said crane.

11. In an apparatus for coating tubes or other articles, a fluxing-tank, a furnace provided with a perforated top wall above its combustion-chamber, and arranged in suitable relation to said fluxing-tank, a cleaning-tank, a vertically-adjustable, horizontally-movable hollow crane interposed between said furnace and cleaning-tank, means connected to said crane to permit of the circulation of a cooling medium therethrough, operating means for said crane, and a revolving furnace arranged in suitable relation to said crane.

12. In an apparatus for coating tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a cleaning-tank, a traveling carriage interposed between said furnace and said cleaning-tank, a vertically-adjustable hollow crane connected to said carriage, means connected to said crane to permit of the circulation therethrough of a cooling medium, a series of hooks connected to said crane, and a revolving furnace arranged in suitable relation to said crane.

13. In an apparatus for coating tubes or other articles, a fluxing-tank, a furnace arranged in suitable relation thereto, a cleaning-tank, a carriage interposed between said furnace and cleaning-tank, a vertically-adjustable hollow crane connected to said carriage, means connected to said crane to permit of the circulation therethrough of a cooling medium, a series of books connected to said crane, a cylindrical furnace, means for feeding fuel thereto and means for revolving the same.

14. In an apparatus for coating tubes or other articles, a vertically-adjustable crane, means connected to said crane and adapted to permit of a horizontal movement thereof, a series of hooks carried by said crane, and a revolving furnace arranged in suitable relation to said crane.

15. In an apparatus for coating tubes or other articles, a vertically-adjustable hollow crane, a traveling carriage connected to said crane, means connected to the crane to permit of the circulation therethrough of a cooling medium, a cylindrical furnace arranged in suitable relation to said crane, and means for revolving said furnace.

16. In an apparatus for coating tubes or other articles, a vertically-adjustable crane, means connected thereto and adapted to permit of a horizontal movement thereof, a series of hooks connected to said crane, a cylindrical furnace arranged in suitable relation to said crane and provided on its inner face with a series of grooves, adapted to receive said hooks, and means for revolving said furnace.

17. In an apparatus for coating tubes or other articles, a vertically-adjustable crane, means connected thereto and adapted to permit of a horizontal movement thereof, a series of hooks connected to said crane, a cylindrical furnace provided on its inner face with a series of grooves and arranged in suitable relation to said crane, a vertically-adjustable gate connected to said furnace, and means for revolving said furnace.

18. In an apparatus for coating tubes or other articles, a traveling carriage, a vertically-adjustable hollow crane suspended therefrom, a series of hooks carried by the said crane, a water supply and discharge pipe connected to said crane, a cylindrical furnace arranged in suitable relation to said crane, operating means for revolving said furnace, and a fuel-feed pipe extending into the said furnace.

19. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets connected to said cleaning-tank and furnace, a railway interposed between said brackets, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, and a revolving furnace arranged in suitable relation to said frame, substantially as described.

20. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets connected to said cleaning-tank and furnace, a railway interposed between said brackets, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, a series of hooks carried by said crane, and a revolving furnace arranged in suitable relation to said crane, substantially as described.

21. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets suitably connected to said cleaning-tank and furnace, a railway interposed between said brackets, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, a series of hooks carried by said crane, means connected to said crane to permit of a circulation therethrough of a cooling medium, and a revolving furnace arranged in suitable relation to said crane, substantially as described.

22. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets suitably connected to said cleaning-tank and furnace, a railway interposed between said bars, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, a series of hooks carried by said crane, means connected to said crane to permit of a circulation therethrough of a cooling medium, a cylindrical furnace arranged in suitable relation to said crane, and means for revolving the same, substantially as described.

23. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets suitably connected to said cleaning-tank and furnace, a railway interposed between said bars, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, a series of hooks carried by said crane, means connected to said crane to permit of a circulation therethrough of a cooling medium, a cylindrical furnace arranged in suitable relation to said crane, a vertically-adjustable gate therefor, and means for revolving said cylindrical furnace, substantially as described.

24. In an apparatus for coating boiler-tubes or other articles, the combination with a fluxing and cleaning tank, and a furnace arranged in suitable relation to said fluxing-tank, of two series of pivoted brackets suitably connected to said cleaning-tank and furnace, a railway interposed between said bars, a traveling carriage operating upon said railway, a frame suspended therefrom, a vertically-adjustable frame arranged therein, means for adjusting said frame, a crane swiveled at one end to said adjustable frame, a series of hooks carried by said crane, means connected to said crane to permit of a circulation therethrough of a cooling medium a cylindrical furnace arranged in suitable relation to said crane, a vertically-adjustable gate therefor, operating means for said gate, a fuel-feed pipe extending therethrough into said cylindrical furnace, and means for revolving the said cylindrical furnace, substantially as described.

25. In an apparatus for coating boiler-tubes or other articles, a traveling carriage, a vertically-adjustable horizontally-movable crane connected thereto, means for adjusting said crane, a series of hooks having anchor-shaped ends carried by said crane, and a revolving furnace arranged in suitable relation to said crane.

26. In an apparatus for coating boiler-tubes or other articles, a traveling carriage, a vertically-adjustable horizontally-movable crane connected thereto, means for adjusting said crane, a series of hooks having anchor-shaped ends carried by said crane, means connected to the said crane to permit of a circulation therethrough of a cooling medium, and a revolving furnace arranged in suitable relation to said crane.

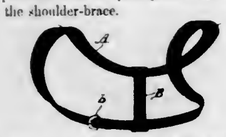
27. In an apparatus for coating boiler-tubes or other articles, a horizontally-movable vertically-adjustable frame provided with suitable hooks, a cylindrical crucible provided on its inner face with a series of annular grooves, adapted to receive said hooks, a pair of bands surrounding the same and resting upon a pair of antifriction-rollers, a ratchet-band surrounding said cylinder and arranged between the pair of bands, means engaging said ratchet-band for revolving said crucible, a sliding gate, and means connected to said gate for adjusting the position thereof, substantially as described.

28. In an apparatus for coating boiler-tubes or other articles, a furnace, a perforated top wall for the combustion-chamber thereof, a series of ridges formed upon the upper face of said wall, a hood mounted upon said furnace and extending over said top, and a hinged plate secured to each side of said hood, substantially as described.

663,825. SHOULDER-BRACE AND ANTISNORING ATTACHMENT. LEONIDAS E. WILSON, Broken Bow, Nebr. Filed Mar. 13, 1900. Serial No. 8,531. (No model.)

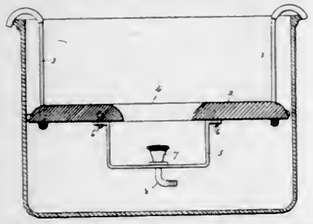
Claim.—1. A shoulder-brace consisting of a single continuous strap, buckled or adjustably secured together at the ends, and a cross-strap connected with the upper and lower portion of the main brace which holds them a suitable distance apart, of a prodding device secured at the back in position to prod the wearer, said prodding device having a series of pro-

jections and provided with an opening whereby to receive a means of attaching it to the shoulder-brace.



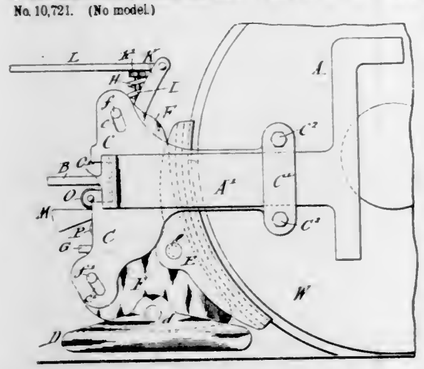
2. A shoulder-brace consisting in a single continuous strap, buckled or adjustably secured together at the ends, and being widened at the bearing where it draws back upon the shoulders, and a cross-strap connected with the upper and lower portion of the main brace, which holds them a suitable distance apart, of a prodding device secured at the back in position to prod the wearer, said prodding device having a series of projections and a loop or opening whereby to receive a means of attaching it to the shoulder-brace.

663,826. COMBINED BATH-TUB SEAT AND BIDET. STEPHEN D. BAKER, New Haven, Conn., assignor to the Peck Bros. & Company, same place. Filed Sept. 17, 1900. Serial No. 30,369. (No model.)



Claim.—In a combined bath-tub and bidet, the combination with a seat, of means applied to the ends thereof for removably suspending the same in a bath-tub below the edge thereof, a skeleton frame secured directly to the lower face of the seat, a nozzle mounted in the said skeleton frame beneath the opening in the seat, and means for connecting the said nozzle with a source of water-supply.

663,827. CAR-BRAKE. PHILIPP BOCH, New York, N. Y., assignor of one-third to Henry Mock, same place. Filed Mar. 30, 1900. Serial No. 10,721. (No model.)



Claim.—1. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side or cheek plates guided upon said guide-plates, a brake-beam supported by said side plates, rail and wheel brake-shoes attached to said side plates, automatically-operated means, interlocking with the brake-beam, for holding the brake-shoes released, and means for unlocking the brake-beam and applying the brake-shoes, substantially as set forth.

2. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates, slot-and-pin connections between the side plates and guide-plates, said slots being inclined outwardly, a brake-beam supported by said side plates, brake-shoes attached to said side plates, means for automatically locking the brake-beam in raised position and for holding the brake-shoes released, and means for unlocking the brake-beam and applying the brake-shoes, substantially as set forth.

3. In a car-brake, the combination of suitable guide-plates supported from the car-truck, side plates guided upon said guide-plates, a brake-beam supported by said side plates, rail and wheel brake-shoes attached to said side plates, a latch, means for automatically engaging said latch with the brake-beam, when the brake is released, whereby the said brake-beam and other movable parts are locked in position, and means for unlocking the brake-beam and applying the brake, substantially as set forth.

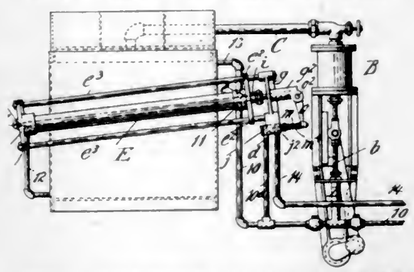
4. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes, attached to the side plates, spring-actuated lifting-rods, pivoted links connecting the brake-beam and lifting-rods, and means for lowering said brake-beams for applying the brake, substantially as set forth.

5. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a bake-beam connected with said side plates, rail and wheel brake-shoes attached to the side plates, lifting-springs acting on the brake-beam, automatic latches adapted to engage and hold the brake-beam in lifted position, and means for lowering said brake-beam for applying the brake, substantially as set forth.

6. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes, on said side plates, a wedge-shaped depressor guided between the brake-beam and a fixed bearing-point above, means for pulling upon the said depressor for depressing the brake-beam, means for raising the brake-beam, and means for locking the same in raised position, substantially as set forth.

7. In a car-brake, the combination of suitable guide-plates, supported from the car-truck, side plates guided upon said guide-plates, a brake-beam connected with said side plates, rail and wheel brake-shoes on said side plates, a wedge-shaped depressor guided between the brake-beam and a fixed bearing-point above, a latch carried by the said depressor, means for pulling on the said depressor for lowering the brake-beam, and devices for automatically raising the brake-beam and causing the latter, through the depressor, to engage the latch with the brake-beam, substantially as set forth.

663,828. STEAM-BOILER FEEDER. JAMES F. DURYEA, Springfield, Mass., assignor to the United Power Vehicle Company, New York, N. Y. Filed Mar. 7, 1900. Serial No. 7,661. (No model.)



Claim.—1. The combination with a steam-boiler and its feed-pipe, of a water conduit or drum, with which the feed-pipe is connected and from which drum leads a pipe for conveying the water fed into the drum to the boiler for supplying the latter, a pipe or conductor for diverting portions of the water being fed through the feed-pipe from entrance to said drum, said feed-pipe and secondary pipe being connected by a passage at which is provided a valve for opening and closing the same, a thermally-actuated device located in said drum, and controlling, by its changing conditions, the operation of the valve for said passage, for the purposes set forth.

2. The combination with a steam-boiler and its feed-pipe, of a water conduit or drum with which the water-feed pipe is connected and from which leads a pipe for conveying the water fed into the drum to the boiler for supplying the latter, a conduit leading from an upper portion of the boiler back to said drum, a pipe or conductor for diverting portions of the water being fed through the feed-pipe from entrance to said drum, said feed-pipe and secondary pipe being connected by a passage at which is provided a valve for opening and closing the same, a thermally-actuated device located in said drum, and controlling by the expansion or contraction thereof, the operation of the valve for said passage, for the purposes set forth.

3. The combination with a steam-boiler and its feed-pipe, of a water conduit or drum located externally of the boiler and in an oblique or inclined position, with which drum the feed-pipe is connected and from which drum a pipe leads to a lower portion of the boiler, a secondary pipe or conductor connected to the feed-pipe by a passage at which is provided a valve for opening and closing the same, a thermally-actuated device located in said drum and subject to the action of both the fed water, and the steam in the boiler, and controlling, by its changing conditions, the operation of the valve for said passage.

4. The combination with a steam-boiler and its feed-pipe, of an obliquely-arranged water conduit or drum, with one end of which, and at a low portion of which the feed-pipe is connected and from the other end of which drum a pipe downwardly leads to the boiler, a conduit between the upper portion of the boiler and an upper portion of the drum, a pipe or conductor for diverting portions of the water being fed through the feed-pipe from entrance to said drum, said feed-pipe and secondary pipe being connected by a passage at which is provided a valve for opening and closing the same, a thermally-actuated device located in said drum, and controlling, the operation of said valve.

5. The combination with a steam-boiler and its feed-pipe, of a water conduit or drum, with which the feed-pipe is connected and from which drum leads a pipe for conveying the water fed into the drum to the boiler for supplying the latter, a pipe or conductor for diverging portions of the water being fed through the feed-pipe from entrance to said drum, and a by-pass connecting said pipes, provided with a valve, a thermally-actuated bar located in said drum, a lever subject to the action of said bar, and actuating said valve, for the purpose set forth.

6. The combination with the steam-boiler, and the drum E having the thermal bar centrally therewithin, one end thereof being fixed and the other extended beyond the end of the drum, a water-feed pipe leading into the drum, a pipe leading from the drum to the boiler, another pipe for steam leading from an upper part of the boiler back to the drum, a pipe connected by a by-pass with the feed-pipe, a valve for closing said by-pass having an opening-spring, a lever operated by said bar in one direction and in turn exerting a closing action on the valve against the valve-opening spring, substantially as described.

7. The combination with the steam-boiler, and the drum E, a pipe leading from the drum to the boiler, a pipe connected by a by-pass with the feed-pipe, a valve for closing said by-pass having an opening-spring, a thermal bar in said drum, a lever operated by said bar in one direction and in turn exerting a closing action on the valve against the valve-opening spring, there being a medium of yielding contact between the lever and valve, for the purpose set forth.

8. The combination with the boiler and the drum having the end heads one thereof being provided with a gland; and the bracket or casting g having the boss g^2 with the passage therethrough, and constructed with the ports j and j^3, connected by the by-pass d, to which the spring-equipped valve m is provided, the thermal bar having one end secured in said drum and its other end projecting through the said gland and into the passage in the bracket, the lever o pivoted to the bracket and with which the thermal bar coacts, and also coöperating with the valve, the pipes or conductors 10, 10^a, 12, 14, and 13, all arranged as shown and for the purposes set forth.

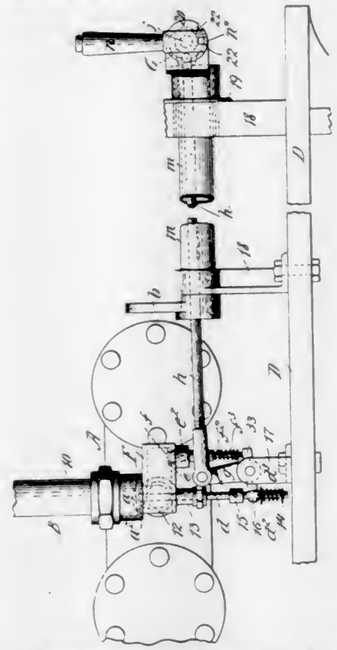
9. The combination with the boiler, of the drum E, having the end heads e e provided with the extension-lugs e^3 e^3, and one head provided with a gland i, the tie-rods e^4 e^4 connected with the lugs and supporting at their extremity casting g having the portion g^3 provided with a passage therethrough axially coincident with the drum, and constructed with the ports j and j^3 and the uniting by-pass, the valve m, the lever o coacting with the valve and pivoted to the said part g^3, the thermostat-bar F, one end of which is secured to the one end head of the drum, and projecting by its extremity into the said passage in part g^3, and hardened section 8 at the end of the bar and in contact on the short arm of the lever, the feed-pipe 10 leading into the drum, and having the branch 10^a leading to said port j, the return-pipe 14 connecting with the port j^3, the pipe 12 connecting the drum with the boiler and the pipe 13 leading from an upper part of the boiler back to the drum, all substantially as and for the purposes set forth.

663,829. THROTTLE-VALVE FOR STEAM-ENGINES. JAMES F. DURYEA Springfield, Mass., assignor to the United Power Vehicle Company, New York, N. Y. Filed Mar. 7, 1900. Serial No. 7,662. (No model.)

Claim.—1. In an engine, the combination with the steam-conduit having the throttle-valve, and in the portion of the steam-conduit between the throttle-valve and the engine, a relief-opening having a relief-valve normally closing the same, and means for operating it, whereby with the relief-valve open and the throttle-valve closed, any leakage of steam past the throttle-valve will be diverted from the engine.

2. In an engine, the combination with the steam-conduit therefor having a throttle-valve, and having in the portion of the steam-conduit between the throttle-valve and engine, a relief-opening having a relief-valve normally automatically closing said opening, operating means for the throttle-valve arranged in conjunction with the relief-valve to open the latter only after the throttle-valve has been closed, for the purpose set forth.

3. The combination with the engine and the steam-pipe thereof having the throttle-valve a and the extended stem and said conduit having between the throttle-valve and its connection with the engine, the relief-opening e^2 having the relief-valve f and a valve-stem therefor, a lever g, opposite arms of which are arranged to engage both the stem of the throttle-valve and the stem of the relief-valve, for the conjoint operations of both said valves, for the purpose set forth.



4. The combination with the steam-conduit for the engine, having the valve-seat a^2 and throttle-valve a provided with a stem d which has the shoulder 15 and the yielding abutment d^2, and which conduit has between the throttle-valve in its connection with the engine the relief-opening e^2 to which is provided the relief-valve f having a valve-stem and a closing-spring, of the lever g having the extensions or arms the one 16 engaging the throttle-valve stem between said parts 15 and d^2 and the other 33 coöperating with the relief valve-stem, and means for imparting a swinging motion to said lever.

5. The combination with the throttle-valve stem d, of an angular lever adjacent the same and adapted to have an opening and closing engagement therewith, a vertical rod j mounted for a rotational movement and provided with a handle and with the crank portion i, and the connecting-rod h secured to said part i and the lever g, substantially as described.

6. The combination with the throttle-valve stem d, of an angular lever adjacent the same and adapted to have an opening and closing engagement therewith, a vertical rod j mounted for a rotational movement and provided with a handle, and with the crank portion i, and a part adjacent which said handle has its swinging movement provided with one or more catch-notches, a catch movably mounted on the handle to engage and disengage said notches, and the connecting-rod h secured to said part i and the lever g.

7. The combination with a throttle-valve, and with the link-motion for controlling the cut-off, of an engine, of a swing-lever connected with the link-motion, a rod bodily movable in conjunction with the swing-lever, and having an independent motion whereby to operate the throttle-valve.

8. In combination, the throttle-valve, and link-motion of the engine, a lever mounted for a swinging motion and connected with the link-motion, a confining-dog for the lever, and a part with which the dog may have engagement and disengagement, a rod bodily movable in unison with the lever and having an independent movement for operating the throttle-valve; and having a movement also independent of the movement of the lever for releasing the confining-dog for said lever to permit the latter to be swung.

9. In combination, the throttle-valve, and the link-motion for the cut-off, of the engine, of a swinging lever connected with the link-motion, a

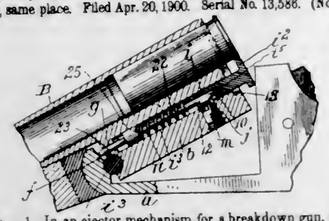
rod mounted to have its bodily movements in unison with said lever, and having a rotational movement, and an axial movement independently of said lever, crank-lever and link connections between the rod and the throttle-valve actuated by the rotational movements of the rod to open and close the valve, the confining-dog for the swinging lever, with which the rod, in its axial movement engages, for its release, to permit the lever to be swung.

10. The combination with the link-motion of an engine and the tubular rock-shaft having lever-and-rod connection with the link-motion, and said shaft having the affixed lever G, of the thrust-rod *h*, for operating a valve of the engine, extending through the tubular rock-shaft, a rod mounted to be swung bodily in unison with said lever G and to turn relatively thereto, provided with an operating-handle, and having a crank-arm connected with said thrust-rod.

11. The combination with the throttle-valve-actuating means, of the lever which is adapted for a swinging motion for effecting through suitable connection, the shifting of the link-motion which controls the cut-off and reversal of the engine, and the dog or catch which restrains the cut-off-controlling lever in any of its given set positions, so that a proper movement of the rod or part forming one of the connections in the throttle-valve-operating device may without affecting the throttle-valve, insure the release of the dog for its disengagement to permit said controlling-lever for the cut-off to have its appropriate swinging movement as desired.

12. In combination the link-motion, and lever G, the notched sector-plate, the dog o engaged with the lever, and movable endwise relatively thereto, and adapted to engage and disengage the sector-plate, the tubular rock-shaft *m*, on which said lever is affixed and from which it is angularly extended, having an arm connected with the link-motion, the thrust-rod *h* comprised in a valve-actuating mechanism, extended through the tubular shaft, the rod *j* located within or alongside the lever G, and rotatably and axially movable relatively thereto, and having a crank-arm connection at one end with rod *h*, and having an operating-handle *n* at its other end, said rod having a shoulder or abutment, by which, in its axial movement, the dog is engaged and released, all substantially as and for the purposes set forth.

663,830. **EJECTOR MECHANISM FOR GUNS.** EDWARD H. ELDER, Chicopee, Mass., assignor to the J. Stevens Arms and Tool Company, same place. Filed Apr. 20, 1900. Serial No. 13,586. (No model.)



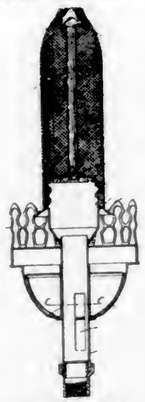
Claim.—1. In an ejector mechanism for a breakdown gun, in combination, the barrel or barrels having, in an under portion or bottom lug thereof, the longitudinally-movable ejector, the stem of which is tubular and constructed with the rear end wall i^3, and also provided with a catch or portion to be engaged, a catch movable transversely of the length of, and adapted to engage the ejector, a catch-releasing rod longitudinally movable in the bottom lug having at its rear portion a cam playing in the tubular portion of the ejector-stem, adapted to impinge against the ejector-catch, and having a forwardly-projecting portion, and a fixed forward part of the gun-frame which serves as the catch-releasing rod is swung in unison with the barrel as a resistant for such rod insuring the longitudinal catch-releasing movement thereof, the distance between the normal location of the cam-formed end of the said rod and the said end wall i^3 being less than the range of thrust imparted to the rod.

2. In an ejector mechanism for a breakdown gun, in combination, the barrel having, in an under portion or bottom lug thereof, the longitudinally-movable ejector, the stem of which is formed with a longitudinal passage or way having rear end wall i^3 and with a downwardly-open slot or recess, and provided with a catch, or portion to be engaged, a catch movable transversely of the length of, and adapted to engage said catch portion of the ejector, and having a part 17 which enters the passage in the ejector-stem, a reciprocating catch-releasing rod longitudinally movable in the bottom lug having its rear portion entered in said ejector-stem passage, and provided with a cam to impinge against said part 17 of the ejector-catch, having its rear end less distance from the end wall i^3 than the range of thrust of the rod, and having a forwardly-projecting portion, the part *f* of the gun-frame which serves, as the catch-releasing rod is swung in unison with the barrel, as an abutment or resistant for such rod insuring the longitudinal catch-releasing movement thereof, and a spring for endwise projecting the released ejector, substantially as described.

3. In an ejector mechanism for a breakdown gun, in combination, the barrel or barrels having, in an under portion or bottom lug thereof, the longitudinally-movable ejector, the stem of which is formed with a longitudinal passage or way and with a downwardly-open slot or recess, and provided with a catch-notch 10, and forward thereof with another catch-notch 12, the engaging side of which is deeper than that of the notch 10, a catch movable transversely of the length of, and normally adapted to engage in said catch 10 of the ejector, and having a part 17 which enters the passage in the ejector-stem, a catch-releasing rod longitudinally movable in the bottom lug, having its rear portion entered in said ejector-stem passage, and provided with a cam to impinge against said part 17 of the ejector-catch, and having a portion projecting forward of the bottom lug, and a fixed forward part *f* of the gun-frame adjacent which the forward end of the catch-releasing rod has its position, substantially as and for the purposes set forth.

4. In a breakdown gun, in combination, the gun-frame having at its forward portion the abutment or resistant part *f*, and the barrel having the bottom lug thereof hinged to the frame adjacent said part *f*, and having in said lug the longitudinal bore or passage *h* and transverse passage 14 leading from the bottom of the lug upwardly to said passage *h*, the ejector provided with the stem *i* formed tubular and having the bottom longitudinal slot or recess i^2 and having the notches 10 and 12 in the under side thereof, the engagement portions 13 of the notch 12 extending lower than the corresponding portion of the notch 10, the cylindrical catch-block *j* movable in said transverse passage 14, and having its inner upper end formed with the opposite side catch portions 15, 15, having the rearwardly-beveled backs 16, 16, and having, between said parts 15, 15, the further endwise-extended flat-sided forwardly and downwardly beveled part 17 which enters through the slot of the ejector-stem, the catch-spring, and screw plug *m*, the catch-releasing rod *g* having its rear end portion entered within the tubular ejector-stem provided with the downwardly-widened wedge or cam 18 at its rear end located adjacent said part 17 of the catch, said stem also having the intermediate shoulder 25, and its forward end projecting outwardly beyond the end of the said bottom lug of the barrel, and the spiral spring surrounding the rod *g* and having its ends against said shoulder 25 and the end of the ejector-stem, all substantially as described and shown, and for the purposes set forth.

663,831. **GAS-BURNER.** CHARLES H. FRYE, Buffalo, N. Y., assignor to himself and Arthur E. Jewell, same place. Filed Nov. 11, 1899. Serial No. 736,605. (No model.)



Claim.—1. An improved gas-burner comprising a slotted tube rigidly attached to a gas-supply pipe, a burner-body mounted on said slotted tube and having vertical adjustment thereon, a mantle-support rigidly mounted on said slotted tube and a mantle supported by said support; the burner-body being adapted to be vertically adjusted without disturbing or moving the mantle-support or mantle.

2. An improved gas-burner comprising a slotted tube rigidly attached to a gas-supply pipe, a burner-body mounted on said slotted tube and having vertical adjustment thereon, a central mantle-support rigidly mounted on said slotted tube, and a mantle mounted on said support; the support and mantle being independent of and not affected by the vertical adjustment of the burner-body.

3. An improved gas-burner comprising a slotted tube rigidly attached to a gas-supply pipe, a tubular enlargement at the top of said tube having an open top, a cap detachably placed upon the tubular enlargement and having a perforated top closing the top of the tubular enlargement and forming a mixing-chamber, a vertical rod having its lower end centrally mounted in the perforated top of said cap, a mantle mounted upon and encircling said rod, and a burner-body mounted on the slotted tube and adapted to be rotated to close or partially close the slots, and to be adjusted vertically on said tube to regulate the admission of air from within or without the burner-body, as set forth.

4. An improved gas-burner, comprising a slotted tube rigidly attached to the gas-supply pipe, a tubular enlargement at the top of said tube having an open top, a cap detachably placed upon the tubular enlargement and having a perforated top closing the top of the tubular enlargement and forming a mixing-chamber, a vertical rod having its lower end centrally mounted in the perforated top of said cap, a mantle mounted upon and encircling said rod, a burner-body mounted on the slotted tube and adapted to be rotated to close or partially close the slots, and to be adjusted vertically on said tube to regulate the admittance of air from within or without the burner-body, and means for locking said burner-body in its rotatable and vertical adjustment, as set forth.

5. An improved gas-burner, comprising a slotted tube rigidly attached to a gas-supply pipe, a tubular enlargement at the top of said tube having an open top, a cap detachably placed upon the tubular enlargement and having a perforated top closing the top of the tubular enlargement and forming a mixing-chamber, a vertical rod having its lower end centrally mounted in the perforated top of said cap, a mantle mounted upon and encircling said rod, a burner-body mounted on the slotted tube and adapted to be rotated to close or partially close the slots and to be adjusted vertically on said tube to regulate the admittance of air within or without the burner-body, an extension projecting from the burner-body and a thumb-screw in said extension adapted to screw against the slotted tube to lock the burner-body in its adjusted position, as set forth.

6. In a gas-burner, the combination with a gas-conducting tube having a top tubular enlargement provided with an open mouth forming a mixing-chamber, and a mantle, of a support for said mantle centrally located in the mantle and extending throughout its length with its upper end against the reduced top of the mantle, a perforated bottom cap detachably fitted over the open mouth of the mixing-chamber, having a central opening through which the lower end of the support extends, as set forth.

7. In a gas-burner, the combination with the gas-conducting tube having a top tubular enlargement provided with an open mouth forming a mixing-chamber, and a mantle, of a support for said mantle centrally located in the mantle and extending throughout its length having an enlarged top cap fitting against the interior of the reduced top of the mantle and a perforated bottom part attached to the lower end of said mantle-support and having an annular flange detachably fitting over the open mouth of the mixing-chamber, as set forth.

8. In a gas-burner, the combination with the gas-conducting tube and an enlarged air and gas mixing compartment connected to the top of said tube and having a top open mouth, of a central mantle-support, a bottom cap attached to the lower end of said mantle-support and provided with a plurality of perforations or openings in its top and an annular flange detachably fitted over the open mouth of the mixing-compartment, and a mantle mounted upon and encircling said mantle-support, as set forth.

9. In a gas-burner, the combination with the gas-conducting tube having an upper mixing-chamber provided with a screw-threaded top, of a central mantle-support having a perforated screw-threaded bottom cap screwing on the screw-threaded top of the mixing-chamber and provided with a flanged lower edge and a bell-shaped top cap, and a mantle mounted upon and encircling said support with its bottom supported upon the flange and its top supported upon the bell-shaped top cap.

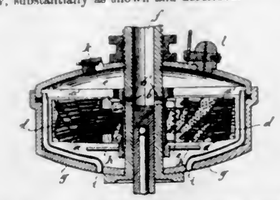
10. In a gas-burner, the combination with a gas-conducting tube having a top tubular enlargement provided with an open mouth forming a mixing-chamber, and a mantle, of a support for said mantle centrally located in the mantle, and extending throughout its length with its upper end against the reduced top of the mantle, a perforated bottom cap detachably fitted over the open mouth of the mixing-chamber having a central opening through which the lower end of the support extends, and washers on said support on each side of the central opening for fastening the support to the cap, as set forth.

11. In a gas-burner, the combination of the gas-conducting tube, an enlarged gas and air mixing device at the top of said tube having an open mouth and exteriorly screw-threaded, a mantle, a mantle-support centrally within the mantle and having a perforated screw-cap at its lower end adjustably screwed upon said mixing device.

663,832. **CENTRIFUGAL LIQUID-SEPARATOR.** MAX HENZE, Hanover, Germany, assignor of one-half to Georg Daseking, same place. Filed Apr. 20, 1900. Serial No. 13,600. (No model.)

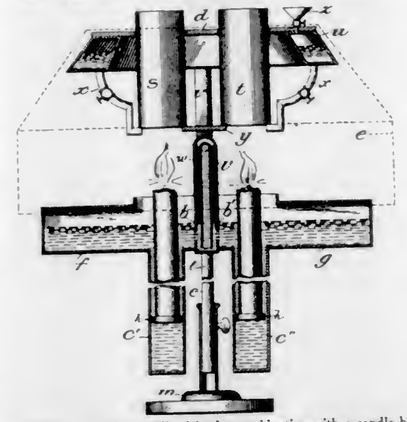
Claim.—1. A centrifugal creamer constructed with a line having spiral-shaped partitions *a*, an inlet-pipe *b*, encircled by the spiral partitions *a*, and a vertical perforated mantle *d* surrounding the spiral partitions *a*, substantially as shown and described.

2. The combination of the inlet-pipe *b*, outlets *h* therefrom, spiral partitions surrounding the inlet-pipe *b*, a vertical perforated mantle *d* surrounding partitions *a* and of about equal height therewith, a suitable containing-bowl *g* and outlet-pipes *i* and *k* for the skimmed milk and cream respectively, substantially as shown and described.



3. The combination of a hollow shaft *f* having perforations *b'*, bowl *g* mounted thereon, inlet-pipes *b* surrounding the hollow shaft *f* and communicating with the interior thereof through the perforations *b'*, radial pipes *h* delivering milk from the inlet-pipe *b* to the interior of the bowl, corrugated spiral partitions *a*, arranged around the inlet-pipe *b*, vertical perforated mantle *d* surrounding the spiral partitions *a*, outlet-conduits *i* for the skimmed milk and a suitable outlet-conduit for the cream, substantially as set forth.

663,833. **CANDLE-HOLDER.** WILLIAM G. MACIVY, London, England. Filed Sept. 11, 1900. Serial No. 29,636. (No model.)



Claim.—1. In a candlestick, the combination with a candle-holding tube or sconce, of a hermetically-sealed reservoir communicating with said tube or sconce and means for admitting air to the reservoir to permit a flow of its contents to the tube or sconce at intervals, substantially as described.

2. In a candlestick, the combination with a candle-holding tube or sconce, of a hermetically-sealed reservoir communicating with and adapted to supply said tube or sconce with a liquid and means dependent upon the height of liquid contained within tube or sconce for admitting air to the reservoir, substantially as described.

3. In a candlestick, the combination with a candle-holding tube or sconce, containing a liquid, a hermetically-sealed reservoir for supplying the tubes or sconces with liquid, a connecting-tube extending from the reservoir above the level of its liquid contents to the tube or sconce and provided with an opening at the normal level of the liquid in the tube or sconce, substantially as described.

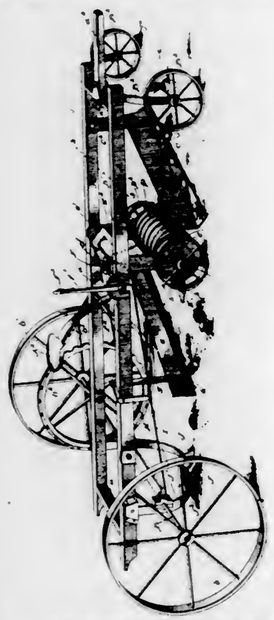
4. In a candlestick, the combination of a candle-holding sconce containing liquid, a hermetically-sealed reservoir for supplying liquid to said sconce, an upright tube having its ends submerged in the contents of the sconce with an opening at the normal level of said contents of the sconce, a tubular arm leading from the upright tube to the reservoir above its liquid contents, and a second tubular arm leading from the reservoir to the upright tube with its lower end extending within said upright tube to beneath the level of the liquid contents of the sconce, substantially as described.

5. In a candlestick the combination with a pair of candle-holding sconces, an open reservoir in free communication therewith, an upright tube mounted in the reservoir and having an opening on a level with the liquid contents of the reservoir and sconce, a pair of diverging tubular arms projecting from the upright tube, one of which being in communication with said upright tube and the other projecting through said upright tube to beneath the level of the liquid contents of the reservoir, and

an annular hermetically-sealed reservoir mounted on the diverging arms and communicating therewith, substantially as described.

6. In a candlestick the combination with a pair of candle-holding sconces, an open reservoir in free communication therewith containing with said sconces a liquid, an upright tube mounted in the reservoir and having an opening on the level with the liquid contents of the reservoir and sconces, a pair of diverging arms projecting from the upright tube, one of which being in communication with said upright tube and the other provided with a valve and projecting through said upright tube to beneath the level of the liquid contents of the reservoir, an annular hermetically-sealed reservoir mounted on the diverging arms and communicating with the first-described arm above the liquid-level of said reservoir and with the second-described arm below said liquid-level, a valved tubulure leading from the bottom of the hermetically-sealed reservoir and adapted to discharge the contents of said reservoir into the other reservoir, a platform extending between the pair of diverging arms, and a pair of chimneys mounted on said platform and located over the sconces, substantially as described.

663,834. BEET-HARVESTER. ALBERT PHILIPP, Stanton, Nebr. Filed Jan. 26, 1898. Renewed May 5, 1900. Serial No. 15,645. (No model.)



Claim.—1. In a beet-harvester, the combination with the topping-knife, and sweep; of a roller in rear of said knife and a trimming-knife controlled by said roller, for the purpose and substantially as described.

2. In a beet-harvester, the combination of the vertically-movable frame, the adjustable roller mounted therein and the knife attached to said frame and movable therewith, substantially as and for the purpose described.

3. In a beet-harvester, the combination of the vertically-movable frame, the adjustable roller mounted therein, the knife attached to said frame and movable therewith, and means for regulating the play of the roller on the frame, substantially as described.

4. In a beet-harvester, the combination of the vertically-movable frame, the roller journaled in said frame, the trimming-knife attached to said frame, and the sweep in rear of said roller, and means for raising said sweep and roller and frame, for the purpose and substantially as described.

5. In a beet-harvester, the combination of the main frame the vertically-movable frame thereon, the roller journaled in said movable frame having a spiral rib on its periphery, the trimming-knife below the roller attached to said movable frame, the sweep in rear of said roller, and means for raising said sweep and roller and frame, for the purpose and substantially as described.

6. In a beet-harvester, the combination of the main frame, the roller, the roller carrying wheels loosely mounted on the roller-shaft, and means for rotating said roller independently of its wheels, substantially as and for the purpose set forth.

7. The combination of a vertically-movable frame, a roller journaled therein, the roller carrying wheels loosely mounted on the roller-shaft, and means for rotating said roller; with the trimming-knife attached to said frame, all substantially as and for the purpose described.

8. In a beet-harvester, the combination of the vertically-movable roller, the trimming-knife beside and movable with the roller, and controlled thereby, the sweep in rear of said roller and the diggers in rear of the sweep, substantially as and for the purpose described.

9. In a beet-harvester, the combination of the vertically-movable roller, the trimming-knife beside and movable therewith and controlled by the roller, the sweep in rear of said roller and the diggers in rear of the sweep, with means for simultaneously elevating the roller and knife, the sweep and the diggers, for the purpose and substantially as described.

10. In a beet-harvester, the combination of the topping-knife and its sweep, the adjustable roller in rear thereof, the trimming-knife beside and adjustable with and by the roller and the sweep in rear of said roller provided with a yielding or rubber strip on its lower edge, for the purpose and substantially as described.

11. In a beet-harvester, the combination of the topping-knife and its sweep, the adjustable roller in rear thereof, the trimming-knife beside and adjustable with and by the roller and the sweep in rear of said roller; with the diggers in rear of the latter sweep, mounted upon pivoted bars; and means for elevating said roller sweep and the diggers, substantially as and for the purpose described.

12. In a beet-harvester, the combination of the topping-knife and its sweep, the adjustable roller in rear thereof, the trimming-knife beside and adjustable with and by the roller and the sweep in rear of said roller; with the diggers in rear of the latter sweep, mounted upon pivoted bars, the vertically-movable frame carrying said roller and trimming-knife, a rock-shaft and connections substantially as described for elevating said frame, and means operated from said rock-shaft for elevating said sweep and the diggers, substantially as and for the purpose described.

13. In a beet-harvester, the combination of the front topping-knife and its sweep, the vertically-movable frame in rear of said topping-knife, the roller journaled in said frame, a knife attached to said frame and movable therewith; the sweep in rear of said roller, the pivoted bars in rear of said sweep, the diggers attached to said bars and means for driving said roller from the main wheels; with the rock-shaft, connections between said rock-shaft and vertically-movable frame for elevating the latter, levers and rods for lifting said sweep, and the rods and connections for elevating the diggers all operated from said rock-shaft, substantially as described.

14. In a beet-harvester, the combination of the main frame, the front topping-knife and its sweep, the vertically-movable frame in rear of said topping-knife, the shaft journaled therein, the roller and wheels on said shaft, a knife attached to said frame and movable therewith, and a brush on said frame for cleaning said roller; a sweep in rear of said roller, the pivoted bars in rear of said sweep and the diggers attached to said bars; with the main wheel, a sprocket driven by one of the main wheels and a sprocket-chain and sprocket for driving said roller from said main wheel; a rock-shaft on the main frame, connections between said rock-shaft and vertically-movable frame for elevating the latter, the levers and rods, for lifting said sweep, and the rods and connections for elevating the diggers, all operated from said rock-shaft, substantially as described.

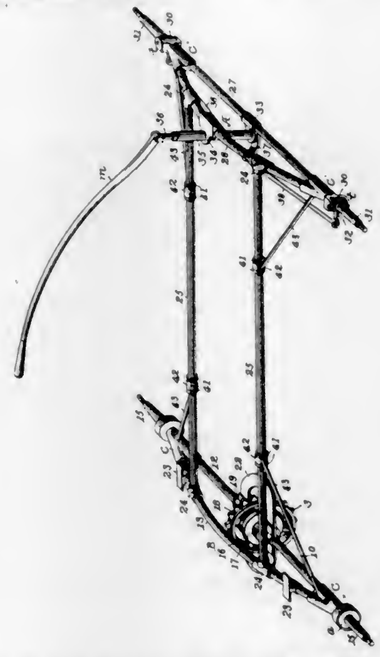
663,835. CAR-SEAL. BURTON A. SMITH and GEORGE M. HOYLAND, Jackson, Mich. Filed June 26, 1899. Serial No. 721,900. (No model.)



Claim.—In a sheet-metal seal the combination with a strip of metal formed near one end with an opening, F, and provided at the other end, with two integral tongues, C, and, D, one of said tongues, D, formed on the end of the metal strip, and bent backward under the tongue, C, said shackle-band, A, provided with a crosswise hole, G, intermediate with the tongues, C, and, D, through which the opposite end of the shackle-band A is adapted to pass and engage the locking-tongue D, the guard B, secured to the shackle-band, A, for covering the locked ends thereof, substantially as and for the purpose set forth.

663,836. RUNNING-GEAR FOR VEHICLES. FRANCIS E. STANLEY and FREELAN O. STANLEY, Newton, Mass., assignors, by mesne assignments, to the Stanley Automobile Company, New York, N. Y. Filed Aug. 8, 1899. Serial No. 726,613. (No model.)

Claim.—1. In a running-gear frame for vehicles, axles each having a continuous rigid lower member, a continuous arched upper member, and end socket-pieces each having two converging sockets in which the ends of said members are fixedly secured and perches connected to the upper members, substantially as set forth.



2. The combination of axles each consisting of a continuous lower tubular member, a continuous arched tubular upper member, socket-pieces having converging sockets in which the ends of said member are fixedly secured, a cross-piece secured to the upper member for the attachment of each spring resting thereon, and perches connected to the upper member, substantially as set forth.

3. The combination with the axles, of a vehicle, of perches connected at the ends immovably to the axles, each in two sections with connections between the forward section of each perch and the rear axle arranged to preserve the sections in line and to prevent any movement of said rear section independent of the axle, substantially as described.

4. The combination of axles having straight and arched members, perches connected at the ends rigidly to the arched members and each in sections connected to permit independent rotation, substantially as described.

5. The combination with the front and rear axles, of a vehicle, of perches connected at their ends rigidly thereto and each in connected sections capable of independent rotation, in respect to each other and maintained axially in line, substantially as described.

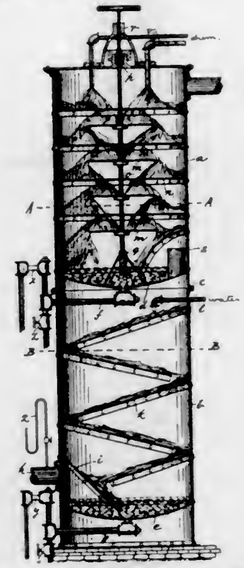
6. The combination with front and rear axles having arched members and perches connected fixedly at their ends to said members, and each in connected sections capable of independent rotation, substantially as described.

7. The combination in a running-gear frame of connected axles having straight and arched members and supports for the springs on the arched members, substantially as described.

8. The combination in a running-gear frame of connected axles having straight and arched members, perches rigidly connected at the ends to the arched members, and supports for the springs on the arched members, substantially as described.

663,837. GAS-PURIFIER. APPIUS C. SWAIN, San Francisco, Cal., assignor of one-half to Jay Milton Bowers, same place. Filed Apr. 20, 1900. Serial No. 13,653. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a casing, a water-pipe entering the top of the casing, zigzag shelving down which water flows in a tortuous path from the pipe to the bottom of the casing, a concave-bottom for said casing, a gas-pipe discharging into said casing near said bottom, a deflecting-plate over the mouth of the gas-pipe, to deflect the gas into the water in said concave bottom, said deflecting-plate being perforated near its lower edge, an outlet for the gas at the top of the casing, and an outlet for the water at the bottom of the casing, substantially as described.



2. In an apparatus of the character described, the combination of a casing having a concave bottom, annular baffle-plates secured to the casing, disks alternating with said baffle-plates, a central rod supporting said disks, a gas-inlet near the bottom of the casing, a deflecting-plate over said gas-inlet having its lower edge perforated, a gas-outlet at the top of the casing, a liquid-inlet at the top of the casing and a liquid-outlet at the bottom of the casing having a siphon-seal, substantially as described.

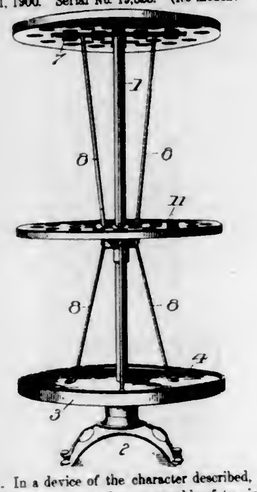
3. In an apparatus of the character described, the combination of a casing having a concave bottom, annular baffle-plates secured to the casing, disks alternating with said baffle-plates, a central rod supporting said disks, means for adjusting said rod vertically to adjust the openings between the disks and baffle-plates, a gas-inlet near the bottom of the casing, a deflecting-plate over said gas-inlet having its lower edge perforated, a gas-outlet at the top of the casing, a liquid-inlet at the top of the casing and a liquid-outlet at the bottom of the casing having a siphon-seal, substantially as described.

4. In an apparatus of the character described, the combination of a scrubber and purifier, having a common casing, the latter arranged above the former, each having a concave or basin-like bottom, a liquid-outflow pipe leading therefrom and a liquid-inlet pipe at the top, and each having shelving arranged to form a tortuous path for the descending liquid the scrubber having a gas-inlet pipe at its lower end and a gas-outlet from its upper end leading to the lower end of the purifier, and the purifier having a gas-outlet pipe at its upper end, substantially as described.

5. In an apparatus of the character described, the combination of a scrubber and purifier, having a common casing, the latter arranged above the former, each having a concave or basin-like bottom, and a liquid-outflow pipe leading therefrom and a liquid-inlet pipe at the top, and each having shelving arranged to form a tortuous path for the descending liquid, the scrubber having a gas-inlet pipe at its lower end and a gas-outlet from its upper end leading to the lower end of the purifier and the purifier having a gas-outlet pipe at its upper end, and said scrubber and purifier having each a deflecting-plate over the gas-inlet pipe thereinto, substantially as described.

6. In an apparatus of the character described the combination of a scrubber and purifier having a common casing, the latter arranged above the former, each having a concave or basin-like bottom, and a liquid-outflow pipe leading therefrom and a liquid-inlet pipe at the top, and each having shelving arranged to form a tortuous path for the descending liquid, the scrubber having a gas-inlet pipe at its lower end and a gas-outlet from its upper end leading to the lower end of the purifier, and the purifier having a gas-outlet pipe at its upper end and said scrubber and purifier having each a deflecting-plate over the gas-inlet pipe thereinto, said plate being perforated at its lower edge, substantially as described.

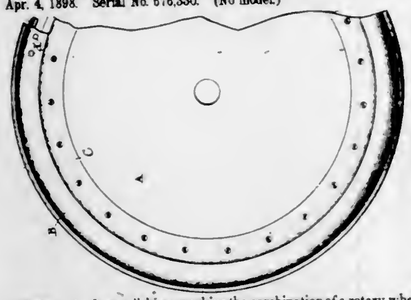
663,838. DISPLAY-STAND. JAMES B. WHITE, Hastings, Nebr. Filed June 11, 1900. Serial No. 19,823. (No model.)



Claim.—1. In a device of the character described, a suitably-supported standard, a tray mounted thereon capable of turning, a perforated disk also mounted on the standard, stay-rods connecting the disk with the tray and having their intermediate portions converging, a sleeve threaded on the standard, and a block seated on the sleeve and attached to the converging portions of the stay-rods, substantially as described.

2. In a device of the character described, a pedestal, a standard supported thereby, a hub mounted on the standard and bearing on the pedestal, a tray attached to the hub and provided with an upwardly-extending flange around its outer edge, a perforated disk mounted on the upper end of the standard, a cross-brace secured to the center of said disk, stay-rods connecting the cross-brace with the tray and having their intermediate portions converging, a sleeve threaded on the standard, a block seated on the sleeve and connected to the converging portions of the stay-rods, and a second perforated disk mounted on the standard and seated on the block, substantially as described.

663,839. POLISHING-WHEEL. EDWARD D. WOODS, Granville, N. Y., assignor to the Woods Specialty Company, of New York. Filed Apr. 4, 1898. Serial No. 676,330. (No model.)



Claim.—1. In a polishing-machine the combination of a rotary wheel having vertical sides near its periphery and a cushion-tire composed of a belt of suitable material having both of its edges turned down over the vertical sides of the wheel a considerable distance and secured to the wheel to form an arch, a reinforce upon the inner side of the tire, whereby the walls of the tire or arch will be prevented from collapsing laterally when the wheel is rapidly rotated, and a leather belt cemented or otherwise secured along the arch substantially as set forth.

2. In a polishing-machine the combination of a rotary wheel having vertical sides near its periphery and a cushion-tire composed of a leather belt having both of its edges turned down over the vertical sides of the wheel, so as to form an arch, clamping devices for securing the edges of the belt to the wheel, an opening through the belt provided with a flap whereby the walls of the tire or arch will be prevented from collapsing laterally when the wheel is rapidly rotated and whereby the polishing-surface will vary in rigidity with the varying speed of the rotation of the wheel, substantially as set forth.

663,840. PROCESS OF MAKING LIGHT MAGNESIA. WILLIAM M. ZITT, Chicago, Ill., assignor to the McConnell Asbestos Co., Limited, Pittsburg, Pa. Filed Sept. 14, 1897. Serial No. 651,586. (No specimens.)

Claim.—1. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, and adding ammonia thereto, substantially as set forth.

2. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, and adding ammonia thereto, the magnesia being largely in excess of the ammonia, substantially as set forth.

3. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, adding ammonia, and agitating the mixture, substantially as set forth.

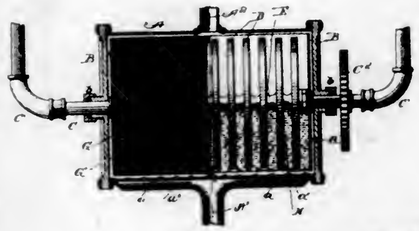
4. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, and adding a salt of ammonia, substantially as set forth.

5. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, adding a salt of ammonia thereto, the magnesia being largely in excess of the salt, substantially as set forth.

6. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, and adding ammoninm carbonate, substantially as set forth.

7. The process of producing a light, voluminous body containing magnesia, consisting in mixing pulverized magnesia with water in the proportion of one part of magnesia to not less than three parts of water, and adding ammoninm carbonate in the proportion of not more than one part of ammonium carbonate to four parts of magnesia, substantially as set forth.

663,841. FILTER. THEODORE J. ZOELLER, Nashville, Tenn. Filed Apr. 17, 1900. Serial No. 13,229. (No model.)



Claim.—1. In a filter, the combination of a shaft, a plurality of filter-drums and an inclosing reticulated rotatable drum adapted to contain cleaning material for the filter-drums, substantially as and for the purposes specified.

2. In a filter, the combination of a perforate tubular shaft, filter-drums mounted thereon, and a reticulated drum also mounted on and movable with the shaft and which incloses the filter-drums, substantially as and for the purposes specified.

3. In a filter, the combination with a tubular shaft having elongated slots therein, of a filter-drum having an opening for the reception of the tubular shaft said opening provided with vents, substantially as and for the purposes specified.

4. In a filter, the combination with a tubular shaft having elongated slots therein, of a plurality of filter-drums having shaft-openings provided with vents, and spacing-spools having shaft-openings provided with vents, substantially as and for the purposes specified.

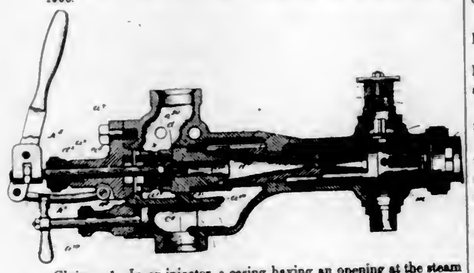
5. In a filter, the combination with a perforated tubular shaft having a spline or feather, of a plurality of filter-drums each having a shaft-opening provided with vents, interposed spacing-spools having shaft-openings provided with vents, and means for confining said filter-drums and spools on the shaft, substantially as and for the purposes specified.

6. A filter-drum, comprised of two filter-disks having abutting projections on their opposite faces, and a gasket and band which confine and seal said disks at their peripheries, substantially as and for the purposes specified.

7. A filter-drum comprised of a plurality of filter-disks each having a peripheral flange and a series of contacting projections upon the opposite faces of the disks, substantially as and for the purposes specified.

REISSUES.

11,877. INJECTOR. NATHANIEL R. DODGE, Fitchburg, Mass. Filed Oct. 30, 1900. Serial No. 34,869. Original No. 660,182, dated Oct. 23, 1900.



Claim.—1. In an injector, a casing having an opening at the steam end and provided with a threaded seat for and to fixedly position the steam-cone and a non-threaded seat for the combining-cone, the cones being adapted to be inserted through the said opening of the casing, means to detachably connect the cones, and a detachable closure for the steam end of the casing.

2. In an injector, a one-piece casing having integral seats for the steam and combining cones, one of said seats being threaded to fixedly position the engaged cone, said casing having an opening at the steam end, detachably connected steam and combining cones adapted to be inserted or removed together through said opening in the casing, and a detachable closure for the steam end of the casing.

3. In an injector, a one-piece casing having a threaded and a non-threaded seat, integral therewith, said casing having an opening at the steam end, the steam and combining cones, the former having a threaded portion to engage and be rigidly held by its seat and the latter having a shoulder to butt against the end of the non-threaded seat, means to maintain the combining-cone in position by the steam-cone, said cones being adapted to be inserted and removed through said opening in the casing, and a closure for said opening.

4. In an injector, the casing having an internal heating-chamber, the combining-cone the base of which extends into said chamber, the water-valve, and a deflector to direct the water admitted by the valve to the forward part of the chamber before it enters the cone.

5. In an injector, the casing having an internal, threaded seat and an annular beveled opening at one end, a steam-cone screwed into said seat and having a rigidly-attached combining-cone, and a removable gland provided with a beveled flange to enter and tightly close said beveled opening of the casing.

6. In an injector, the casing having a water-inlet, the rotatable water-valve having an end outlet, and an elongated cylindrical seat therefor.

7. In an injector, the casing having a water-inlet, an elongated, cylindrical valve-seat, and a tubular water-valve closed at its rear end and open at its opposite end, and having a side opening adapted to register with the inlet.

8. In an injector, the casing having an internal heating-chamber, and a water-inlet, an elongated, cylindrical valve-seat at the rear end of the chamber, and a tubular water-valve movable in said seat and closed at its rear end and open at its opposite end, and having a side opening adapted to register with the inlet.

9. In an injector, the casing having a water-inlet, a rotatable, tubular water-valve closed at its rear end and having a side opening adapted to register with the inlet, the valve-stem, and a gland or sleeve through which it passes.

10. In an injector, the casing having a cylindrical chamber provided with a water-inlet, an elongated, tubular water-valve closed at its rear end and rotatably mounted in the chamber, said valve having a lateral opening to register with the inlet, and means to operate the valve.

11. In an injector, a tubular water-valve closed at one end and having a lateral inlet-opening, and an elongated, cylindrical seat forming a continuous support for the valve.

12. In an injector, the casing having a cylindrical chamber open at one end to receive the valve and provided with a water-inlet, a tubular water-valve closed at its outer end and having a lateral inlet, rotatably mounted in said chamber and supported thereby throughout its length, and a gland to close the open end of the chamber.

13. In an injector, the casing having an internal heating-chamber and a communicating cylindrical chamber or valve-seat open at its outer end and provided with a water-inlet, a tubular water-valve closed at its outer end and having a lateral opening adapted to register with said inlet, a gland to close the open end of the said valve-seat, and means to move the valve to regulate the entrance of water to the heating-chamber.

14. In an injector, a casing made as a single casting having integral seats for the steam and combining cones, a cylindrical chamber or valve-seat forming an integral part of the casing and opening thereinto, and a tubular water-valve located within said chamber or seat, the valve being centered and supported thereby throughout its entire length.

15. In a boiler-feeding injector, the check-valve, and a guard interposed between the said valve and the boiler connection.

16. In a boiler-feeding injector, the casing, a check-valve at its delivery end, and a tailpiece connected with the casing beyond said valve and provided with a guard.

17. A tubular tailpiece for boiler-feeding injectors, having an internal guard, for the purpose set forth.

18. The combination, with the casing having the water-inlet, of a water-supply valve having a lateral inlet and longitudinal delivery-passage therein, opening at its forward end, and means to actuate the valve to regulate the passage of water therethrough from the water-inlet.

19. In an injector, an overflow-valve, a spring-actuated seating device to maintain said valve seated when using the injector as a heater, and a detent to normally retain said device inoperative.

20. In an injector, an overflow-valve, an inclosing chamber, a spring-actuated plunger therein to engage said valve and maintain it seated, and means to normally maintain the plunger out of engagement with the valve.

21. In an injector, an overflow-valve, an inclosing chamber, a sliding plunger therein, and its attached stem extended through the chamber, a spring to force the plunger against the valve and maintain it seated, and external means coöperating with the stem to normally maintain the plunger retracted against the stress of the spring and out of engagement with the valve.

22. In an injector, an overflow-valve, an inclosing chamber, a spring-actuated device mounted therein, to engage and maintain the valve seated, said device including a stem projecting through the chamber and having a lateral lug, and a notched ear on the exterior of the chamber, to normally engage the lug and maintain the said spring-actuated device inoperative.

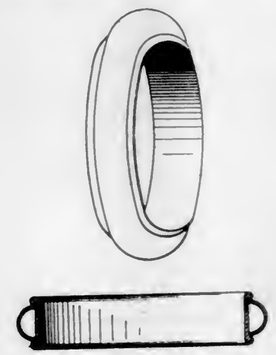
23. In an injector, an overflow-valve, an inclosing chamber, a sliding, spring-actuated plunger therein adapted to engage and maintain the valve seated when using the injector for heating, a projecting stem secured to the plunger and provided with external lateral lugs, and oppositely-located ears on the end of the chamber, notched to normally receive the lugs and hold the stem retracted, disengagement of said lugs and ears by partial rotation of the stem releasing the plunger.

24. In an injector, the combining-cone, the delivery check-valve, an elongated, flaring supporting-shell therefor having its mouth of greater area than the outlet of said cone and adjacent thereto, and the overflow check-valve located substantially opposite the rear end of said shell.

25. In a boiler-feeding injector, the check-valve, and means located beyond the latter to prevent the passage of any broken or detached part of the injector to the boiler connection.

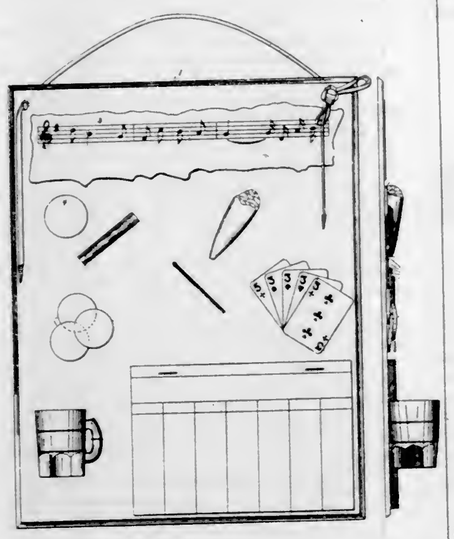
DESIGNS.

33,674. BRACELET. FRANCIS E. BLISS, JR., Cranston, R. I. Filed Nov. 3, 1900. Serial No. 35,429. Term of patent 3½ years.



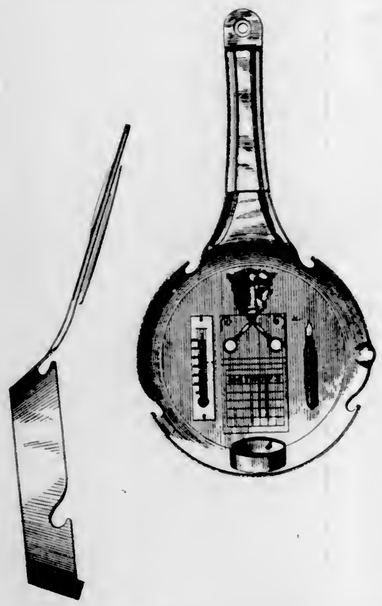
Claim.—The design for a bracelet as herein shown and described.

33,675. CALENDAR. HENRY L. DOYLE, New York, N. Y. Filed Oct. 17, 1900. Serial No. 33,384. Term of patent 3½ years.



Claim.—The design for a calendar, as herein shown and described.

33,676. PEN, PENCIL, AND INK HOLDER. EMILE BICK, Buffalo, N. Y. Filed Nov. 16, 1900. Serial No. 36,782. Term of patent 3½ years.



Claim.—The design for a pen, pencil, and ink holder substantially as shown and described.

33,677. EXTENSION-PENCIL. JAMES CHANDLER, New York, N. Y. assignor of one-half to Charles Nelson, same place. Filed Oct. 20, 1900. Serial No. 33,782. Term of patent 3½ years.



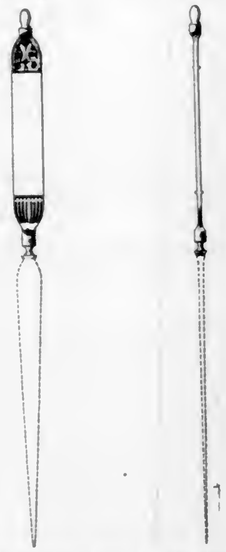
Claim.—The design for an extension-pencil as shown and described.

33,678. NAIL-FILE AND HOLDER. BENJAMIN ROSENBERG, New York, N. Y., assignor to Willy Mayer, same place. Filed Aug. 2, 1900. Serial No. 25,722. Term of patent 7 years.



Claim.—The design for a nail-file and holder, as herein shown and described.

33,679. HANDLE FOR PAPER-KNIVES OR SIMILAR ARTICLES. JOHN L. SOMMER, Newark, N. J. Filed July 25, 1900. Serial No. 24,821. Term of patent 7 years.



Claim.—The design for a handle for paper-knives or similar articles substantially as herein shown and described.

33,680. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. WALTER L. WILKS, Wallingford, Conn., assignor to George M. Hallenbeck, same place. Filed Nov. 14, 1900. Serial No 36,530. Term of patent 3½ years.



Claim.—The design for a handle for spoons, forks, and similar articles, as herein shown and described.

33,681. KNIFE-HANDLE. WILLIS JONES, Buffalo, N. Y. Filed Oct. 20, 1900. Serial No. 33,783. Term of patent 3½ years.



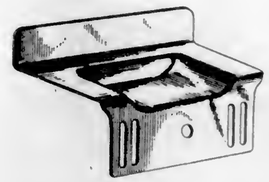
Claim.—The design for a knife-handle substantially as shown and described.

33,682. KNIFE BLADE AND BOLSTER. CHARLES F. SMITH, New Britain, Conn., assignor to the Landers, Frary & Clark, same place. Filed Apr. 26, 1900. Serial No. 14,508. Term of patent 7 years.



Claim.—The design for a knife blade and bolster, as herein shown and described.

33,683. SOAP-HOLDER AND OVERFLOW-STRAINER. WILLIAM C. DEGELMAN, Mansfield, Ohio, assignor to The Humphryes Manufacturing Company, same place. Filed Oct. 22, 1900. Serial No. 33,979. Term of patent 7 years.



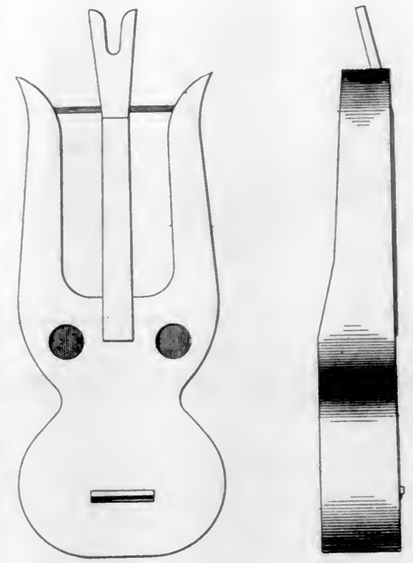
Claim.—The design for a soap-holder and overflow-strainer as herein shown and described.

33,684. SYRINGE. ALBERT L. GRAY, St. Louis, Mo., assignor to the A. L. Gray Syringe Company, of Missouri. Filed Oct. 22, 1900. Serial No. 33,977. Term of patent 14 years.



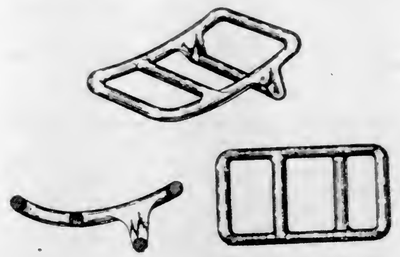
Claim.—The design for a syringe, as herein shown and described.

33,685. GUITAR-BODY. JOSEPH HENDERSON BEHER, Leavenworth, Kans. Filed Apr. 23, 1900. Serial No. 14,064. Term of patent 14 years.



Claim.—The design for a guitar-body as herein shown and described.

33,686. BUCKLE-FRAME. PHILLIP OSWALD, Syracuse, N. Y. Filed Nov. 2, 1899. Serial No. 735,645. Term of patent 14 years.



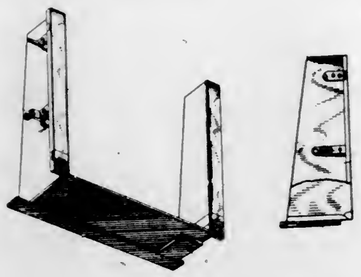
Claim.—The design for a buckle-frame, substantially as herein shown and described.

33,687. MEMBER FOR GARMENT-SUPPORTERS. AARON M. WEBER, New York, N. Y. Filed Nov. 10, 1900. Serial No. 36,136. Term of patent 7 years.



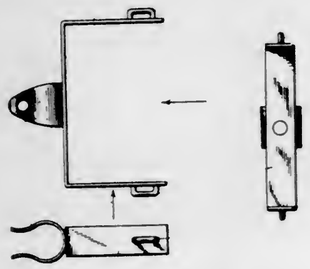
Claim.—The design for the member of a garment-supporter, substantially as shown and described.

33,688. END-GATE EXTENSION. HENRY L. LITCHFIELD and EDGAR C. LITCHFIELD, Webster City, Iowa. Filed Nov. 10, 1900. Serial No. 36,139. Term of patent 14 years.



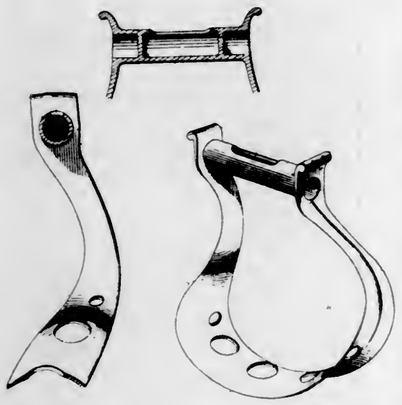
Claim.—The design for an end-gate extension, herein shown and described.

33,689. GOLF-CLUB-CARRYING ATTACHMENT FOR CYCLES. OLIVER THORN, London, England. Filed Nov. 2, 1900. Serial No. 35,292. Term of patent 7 years.



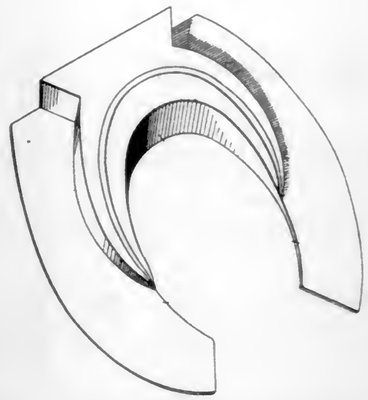
Claim.—The design for a golf-club-carrying attachment for cycles substantially as herein shown and described.

33,690. STIRRUP. FOREST EDWARDS GOODMAN, Waco, Tex. Filed June 23, 1900. Serial No. 21,382. Term of patent 7 years.



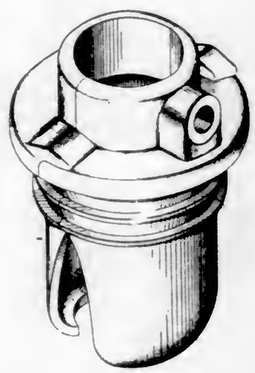
Claim.—The design for a stirrup as herein shown and described.

33,691. HORSESHOE-PAD. JOHN EWING, San Francisco, Cal. Filed Nov. 6, 1900. Serial No. 35,680. Term of patent 7 years.



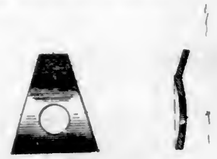
Claim.—The design for a horseshoe-pad as herein shown and described.

33,692. CLAMP. JOSEPH FELLOWS, Philadelphia, Pa. Filed Nov. 17, 1900. Serial No. 36,908. Term of patent 14 years.



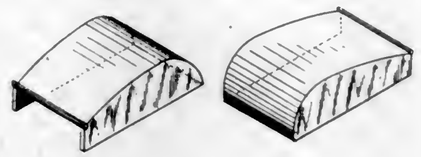
Claim.—The design for a clamp as herein described and as illustrated in the accompanying drawing.

33,693. NUT-LOCK WASHER. ALBERT H. MCALLISTER, New Albany, Miss. Filed Nov. 10, 1900. Serial No. 36,137. Term of patent 3½ years.



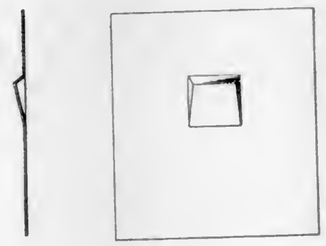
Claim.—The design for a nut-lock washer as herein shown and described.

33,694. FLOOR-REGISTER DEFLECTOR. JACOB S. LOWRY, Cincinnati, Ohio. Filed May 7, 1900. Serial No. 15,842. Term of patent 14 years.



Claim.—The design for a floor-register deflector, as herein shown and described.

33,695. LINING-PLATE FOR STOVES OR RANGES. BRADLEY WOODRUFF, Scranton, Pa. Filed Oct. 24, 1900. Serial No. 34,216. Term of patent 14 years.



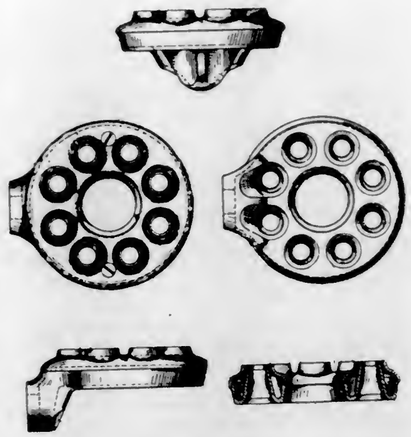
Claim.—The design for a lining-plate as herein shown and described.

33,696. SMOKE-PIPE REGISTER. GEORGE KESSLER, New York, N. Y., assignor to the Tuttle & Bailey Manufacturing Company, same place. Filed Nov. 15, 1900. Serial No. 36,645. Term of patent 14 years.



Claim.—The design for the smoke-pipe register herein shown and described.

33,697. HEATING-BURNER. BERNARD A. GEURINK, Cleveland, Ohio, assignor to The Schneider & Trenkamp Company, same place. Filed Nov. 9, 1900. Serial No. 35,985. Term of patent 14 years.



Claim.—The design for a heating-burner, substantially as herein shown and described.

33,698. BURNER DRAFT-DOME. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed Oct. 24, 1900. Serial No. 34,214. Term of patent 14 years.



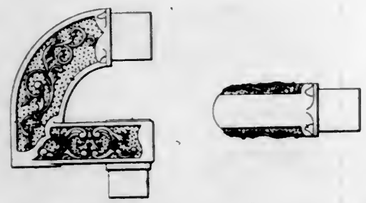
Claim.—The design for a burner draft-dome as herein shown and described.

33,699. RECEIVING-TERMINAL FOR PNEUMATIC-DESPATCH SYSTEMS. ROBERT THOMAS JENNEY, London, England, assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Aug. 13, 1900. Serial No. 26,794. Term of patent 14 years.



Claim.—The design for a receiving-terminal of pneumatic-despatch systems, substantially as shown and described.

33,700. RECEIVING-TERMINAL FOR PNEUMATIC-DESPATCH SYSTEMS. ROBERT THOMAS JENNEY, London, England, assignor to the Lamson Consolidated Store Service Company, Newark, N. J. Filed Sept. 18, 1900. Serial No. 30,439. Term of patent 14 years.



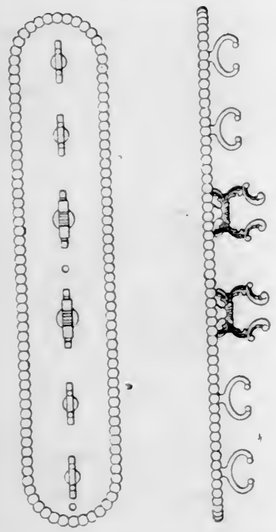
Claim.—The design for a receiving-terminal of pneumatic-despatch systems, substantially as described and shown.

33,701. HAND-WASHER. JOHN SUPPER, Philadelphia, Pa., assignor to Martin Stroh, same place. Filed Nov. 8, 1900. Serial No. 35,869. Term of patent 3½ years.



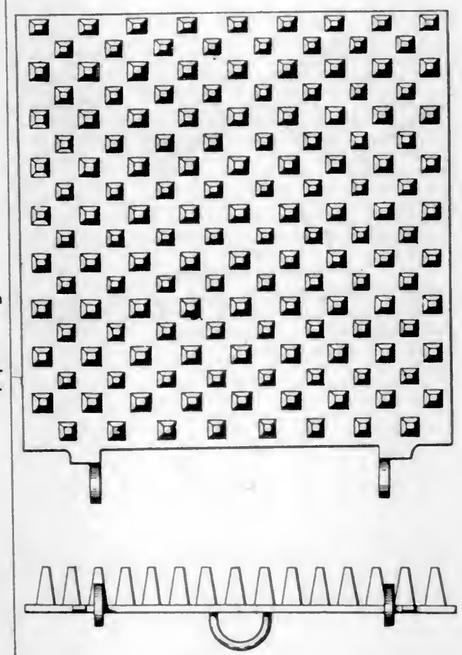
Claim.—The design for a hand-washer substantially as shown and described.

33,702. BRUSH-HOLDER. JOHN P. STEPPE, New York, N. Y., assignor to Sigmund Sternau and Lionel Strassburger, same place. Filed Nov. 13, 1900. Serial No. 36,414. Term of patent 7 years.



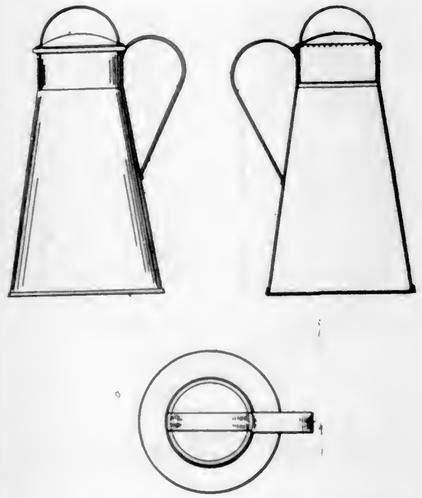
Claim.—The design for a brush-holder herein shown and described.

33,703. MEAT-TENDERER PLATE. JAMES R. WHELEN, Denver, Colo. Filed Nov. 7, 1900. Serial No. 35,773. Term of patent 14 years.



Claim.—The design for a meat-tenderer plate, as shown and described.

33,704. CAN. JAMES S. KNIGHT, Portland, Me. Filed Nov. 15, 1900. Serial No. 36,646. Term of patent 7 years.



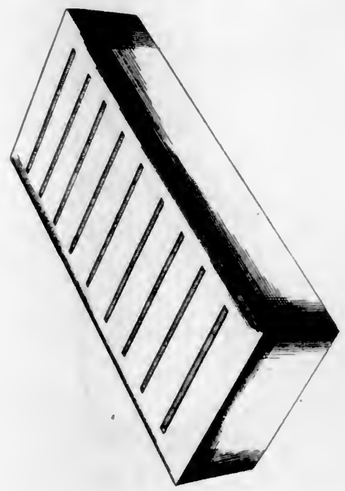
Claim.—The design for a can as herein shown and described.

33,705. CAKE PAN. WILLIAM ALBERT WHALEN, Baltimore, Md., assignor to the August Maag Company, same place. Filed Nov. 6, 1900. Serial No. 35,681. Term of patent 3½ years.



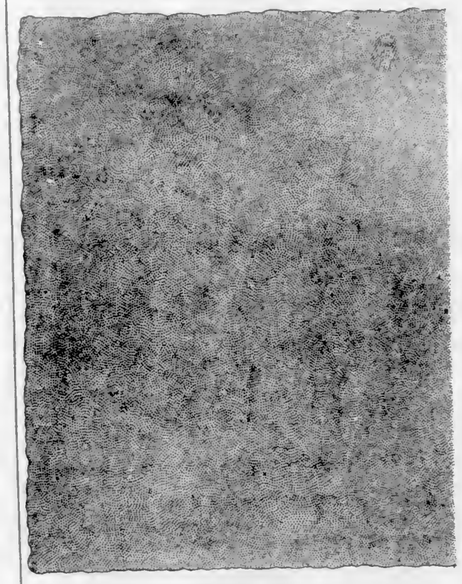
Claim.—The design for a cake-pan herein shown and described.

33,706. CHEESE. DELL S. CROSBY and JULIUS R. MEYERS, Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,300. Term of patent 7 years.



Claim.—The design for a cheese substantially as herein shown and described.

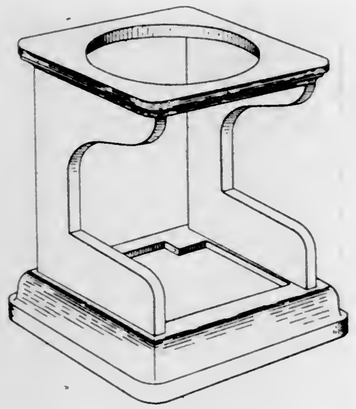
33,707. PRINTING-FILM. BENJAMIN DAY, West Hoboken, N. J. Filed Nov. 2, 1900. Serial No. 35,299. Term of patent 14 years.





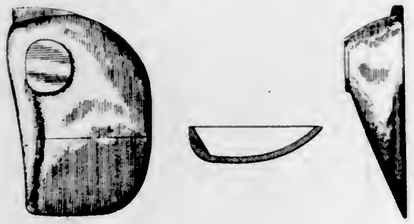
Claim.—The design for a printing-film, as herein shown and described.

33,708. FRAME FOR TIME-STAMPS. GEORGE E. KING, Newton, Mass., assignor to The Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,411. Term of patent 14 years.



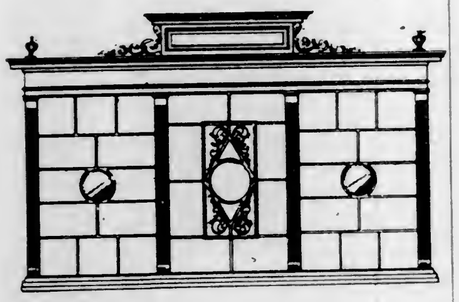
Claim.—The design for a frame for time-stamps herein shown and described.

33,709. COAT-FORM. WILLIS L. JOHNSON, Seymour, Ind. Filed Nov. 14, 1900. Serial No. 36,529. Term of patent 7 years.



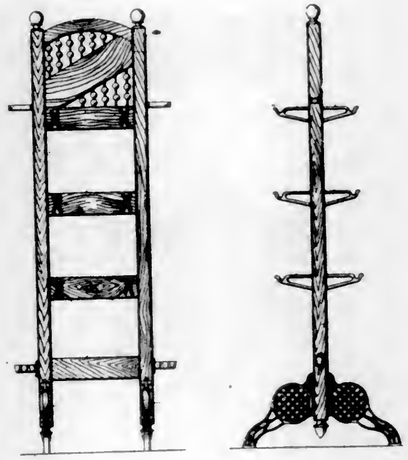
Claim.—The design for a coat-form as herein shown and described.

33,710. ADVERTISING-CABINET. WILLIAM C. CARR, Toledo, Ohio. Filed Nov. 6, 1900. Serial No. 35,683. Term of patent 14 years.



Claim.—The design for an advertising-cabinet, substantially as shown and described.

33,711. DISPLAY-STAND. FRANCIS C. MASON, Grand Rapids, Mich. Filed Nov. 6, 1900. Serial No. 35,679. Term of patent 14 years.



Claim.—The design for a display-stand as shown and described.

33,712. LABEL. WILLIAM F. CLARK, San Francisco, Cal. Filed Nov. 1, 1900. Serial No. 35,184. Term of patent 14 years.



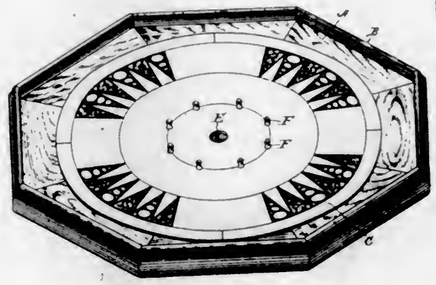
Claim.—The design for a label as herein described and shown.

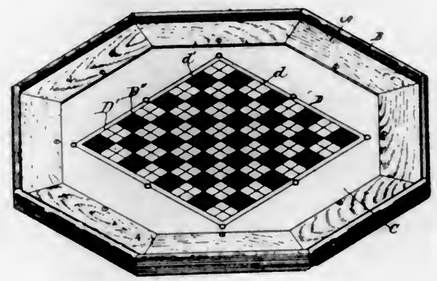
33,713. POOL-TABLE. OSCAR PRYIBIL, St. Louis, Mo. Filed Nov. 16, 1900. Serial No. 36,781. Term of patent 7 years.



Claim.—The design for a pool-table herein shown and described.

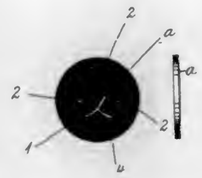
33,714. GAME-BOARD. HENRY L. HASKELL, Ludington, Mich. Filed July 14, 1900. Serial No. 23,683. Term of patent 7 years.





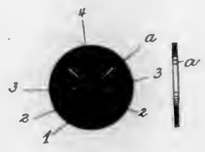
Claim.—The design for a game-board, substantially as described and shown.

33,715. GAME-CHIP. PETER A. SCHAEFER, Cincinnati, Ohio, assignor to the United States Playing Card Company, same place. Filed May 24, 1900. Serial No. 17,892. Term of patent 14 years.



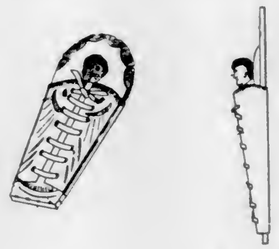
Claim.—The design for a game-chip, of substantially the configuration and representation herein shown and described.

33,716. GAME-CHIP. PETER A. SCHAEFER, Cincinnati, Ohio, assignor to the United States Playing Card Company, same place. Filed May 24, 1900. Serial No. 17,897. Term of patent 14 years.



Claim.—The design for a game-chip, of substantially the configuration and representation herein shown and described.

33,717. DOLL. CHARLES E. GIBSON, Conway, N. H. Filed Sept. 20, 1900. Serial No. 30,634. Term of patent 14 years.



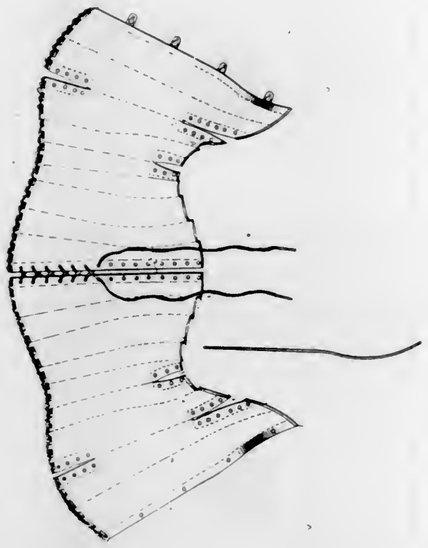
Claim.—The design for a doll substantially as herein shown and described.

33,718. COLLAR-PROTECTOR. LOUISE R. SEWARD, New York, N. Y. Filed June 2, 1900. Serial No. 18,908. Term of patent 7 years.



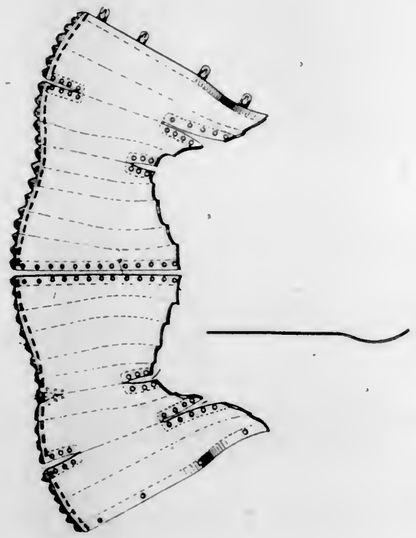
Claim.—The design for a collar-protector as herein shown and described.

33,719. CORSET. LILLIAN GRANVILLE WALKER, Boston, Mass. Filed Apr. 4, 1900. Serial No. 11,544. Term of patent 14 years.



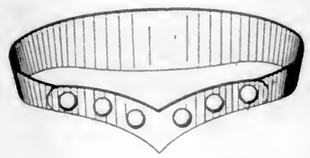
Claim.—The design for a corset, as herein shown and described.

33,720. CORSET. LILLIAN GRANVILLE WALKER, Boston, Mass. Filed Apr. 7, 1900. Serial No. 12,028. Term of patent 14 years.



Claim.—The design for a corset, as herein shown and described.

33,721. BELT. JOHN STEMBER, New York, N. Y. Filed Nov. 19, 1900. Serial No. 37,070. Term of patent 3½ years.



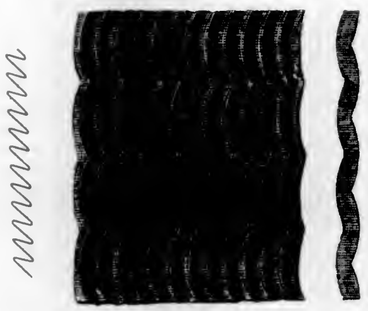
Claim.—The design for a belt herein shown and described.

33,722. EMBROIDERY-PATTERN. CAROLINE B. KELLEY, Philadelphia, Pa., assignor to R. Blankenburg & Co., same place. Filed Nov. 8, 1900. Serial No. 35,867. Term of patent 3½ years.



Claim.—The design for an embroidery-pattern, substantially as described and as shown in the accompanying drawing.

33,723. FABRIC. GEORGE H. TAYLOR, New York, N. Y., assignor to the Kursheedt Manufacturing Company, same place. Filed Oct. 30, 1900. Serial No. 34,955. Term of patent 14 years.



Claim.—The design for fabric substantially as herein shown and described.

33,724. WALL-PAPER. LOUIS STAHL, London, England, assignor to the W. H. S. Lloyd Company, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,409. Term of patent 3½ years.



Claim.—The design for wall-paper, as herein shown and described.

TRADE-MARKS

REGISTERED DECEMBER 11, 1900.

35,555. RELIGIOUS PERIODICAL. W. L. Greene & Co., Boston, Mass. Filed Oct. 27, 1900.

THE CHRISTIAN WORLD

Essential feature.—The words "The Christian World." Used since October 4, 1900.

35,556. PAPER BAGS. The Union Bag and Paper Company, Chicago, Ill. Filed Nov. 14, 1900.

STAR

Essential feature.—The symbol "Star," represented either verbally or pictorially. Used since 1880.

35,557. FOUNTAIN-PENS, PENHOLDERS, AND GOLD PENS. Johannes Kirdorf, Berlin, Germany. Filed Oct. 15, 1900.

EOS.

Essential feature.—The word "Eos." Used since August 16, 1899.

35,558. BONE COLLAR-BUTTONS. Straus, Sachs & Co., New York, N. Y. Filed Nov. 9, 1900.



Essential feature.—The representation of an elephant's head. Used since October 1, 1900.

35,559. CERTAIN NAMED GARMENT-FASTENERS. The Raymond Button Company of Baltimore City, Baltimore, Md. Filed Nov. 15, 1900.



Essential feature.—The representation of a goat and a button. Used since January, 1899.

35,560. HATS. Mary A. McGuire, New York, N. Y. Filed Sept. 29, 1900.



Essential feature.—A representation of two panels and a helmeted head above the uppermost. Used since 1865.

35,561. CHECKED COTTON CLOTH. Creighton & Burch, New York, N. Y. Filed Nov. 17, 1900.

NAINSOOKEENE

Essential feature.—The word "Nainsookeene." Used since November 13, 1900.

35,562. CERTAIN NAMED TEXTILE FABRICS. China and Japan Trading Company, Limited, New York, N. Y. Filed Oct. 31, 1900.

C	J
T	C

Essential feature.—An upright cross and the letters "C J T C" in the angles thereof. Used since October 25, 1876.

35,563. CERTAIN NAMED SHEETINGS. Charles Franck & Co., New York, N. Y. Filed July 9, 1900.



Essential feature.—A shield surmounted by a crown and containing the letters "W G T" and an Arabic word. Used since May 11, 1900.

35,564. BOOTS AND SHOES AND LEATHER FOR BOOTS AND SHOES. L. C. Bliss & Co., Boston and Whitman, Mass. Filed Nov. 15, 1900.

EARL

Essential feature.—The word "Earl." Used since October 2, 1900.

35,565. SHOES. Richardson Shoe Company, Menominee, Mich. Filed Nov. 3, 1900.



Essential feature.—The representation of a double eagle. Used since November 15, 1897.

35,566. CERTAIN NAMED HARNESS. Adams & Johnson Company, Galesburg, Ill. Filed Nov. 5, 1900.

UWANTUM

Essential feature.—The word "Uwantum." Used since May 1, 1899.

35,567. COCOA-PASTE. Esser, Bleul & Lokemer, New York, N. Y. Filed Nov. 16, 1900.



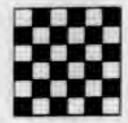
Essential feature.—The representation of a winged female bust holding a shield in each hand. Used since November 1, 1900.

35,568. MUSTARD. Société en Commandite par Actions Produits Alimentaires Louit Frères et Cie., Bordeaux, France. Filed Nov. 10, 1900

DIAPHANE

Essential feature.—The word "Diaphane." Used since 1852.

35,569. MANUFACTURED CEREAL PRODUCTS. Robinson-Danforth Milling Company, St. Louis, Mo. Filed Oct. 25, 1900.



CHECKERBOARD

Essential feature.—The word "Checkerboard" and the representation of a checkerboard. Used since September 6, 1900.

35,570. CERTAIN NAMED TOILET PREPARATIONS. Roger & Gallet, Paris, France. Filed Nov. 19, 1900.

LEANIQUE

Essential feature.—The word "Leanique." Used since 1886.

35,571. CERTAIN NAMED DENTAL COMPOSITION. Charles Day, London, England. Filed Oct. 30, 1900.

ZENITH

Essential feature.—The word "Zenith." Used since September 17, 1900.

35,572. CERTAIN NAMED TONIC. HENRY M. HUNT, St. Paul, Minn. Filed Nov. 10, 1900.



Essential feature.—A representation of the bust of an Indian and the compound word "VIG-O." Used since October 1, 1900.

35,573. CERTAIN NAMED SPECIFIC. HUNT & HUNT, St. Paul, Minn. Filed Nov. 10, 1900.



Essential feature.—The word "IRENE" and the representation of a bottle. Used since October 1, 1900.

35,574. REMEDY FOR CERTAIN NAMED DISEASES. JOHN S. BROAS, Jersey City, N. J. Filed July 17, 1900.

NUX-FOS

Essential feature.—The hyphenated word "NUX-FOS." Used since January 1, 1900.

35,575. REMEDY FOR ZYMOTIC FEVERS. WILLIAM C. HAMILTON, Topeka, Kans. Filed Oct. 30, 1900.



Essential feature.—The representation of a fever octopus. Used since October 1, 1900.

35,576. REMEDY FOR CERTAIN NAMED DISEASES. JOHN J. PHEELAN, New York, N. Y. Filed Oct. 17, 1900.



Essential feature.—The representation of an invalid having one arm in a sling and the other arm grasping a crutch, one leg being bent and the other straight and bandages appearing upon various portions of the body. Used since September 1, 1900.

35,577. MEDICAL COMPOUND FOR THE CURE OF LUNG AND THROAT DISEASES. THE VAPO-CRESOLENE COMPANY, Stanley, N. J., and New York, N. Y. Filed Nov. 15, 1900.



Essential feature.—The representation of the reclining figure of a child in connection with a censer or vaporizer giving off a cloud of vapor. Used since July 1, 1898.

35,578. MEDICINE IN CAPSULE FORM FOR CERTAIN NAMED DISEASES. GRAPE CAPSULE COMPANY, Allentown, Pa. Filed Nov. 14, 1900.

COLSATHYL

Essential feature.—The word "COLSATHYL." Used since October 30, 1900.

35,579. CERTAIN NAMED SPECIFIC IN GRANULAR FORM. CHAS. TRUAX, GREENE & COMPANY, Chicago, Ill. Filed Mar. 3, 1899.

LAXO-LITHINE

Essential feature.—The compound word "LAXO-LITHINE." Used since January, 1898.

35,580. EXTERNAL REMEDIES. WILLIAM L. TUCKER, Waco, Tex. Filed Aug. 23, 1900.



Essential feature.—A facsimile signature of the registrant, a mortar having his picture thereon and a pestle therein, and a farm scene. Used since January 1, 1900.

35,581. SALVE. GEORGE W. SPRAGUE, South Presque Isle, Me. Filed Nov. 15, 1900.

G.W.S

Essential feature.—The letters "G. W. S." Used since October, 1900.

35,582. SALVES, TABLETS, AND OINTMENTS. MANILLA MANUFACTURING CO., Roaring Spring, Pa. Filed Nov. 14, 1900.



Essential feature.—The representation of a battle-ship. Used since February 1, 1898.

35,583. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed Apr. 28, 1900.



Essential feature.—The representation of an Indian. Used since March, 1900.

35,584. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed Oct. 29, 1900.



Essential feature.—The representation of an Indian on a running horse. Used since June, 1900.

35,585. HANDSAWS. SIMONDS MANUFACTURING COMPANY, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Filed Oct. 29, 1900.



Essential feature.—The representation of an Indian in a canoe. Used since June, 1900.

35,586. ANTIFRICTION AND BEARING METAL. SMITH-COURTNEY COMPANY, Richmond, Va. Filed Nov. 17, 1900.

DIXIE

Essential feature.—The word "DIXIE." Used since July 11, 1898.

35,587. CUTLERY, EDGE-TOOLS, AND HARDWARE. JACOB ALBERT SCHMIDT, Solingen, Germany. Filed June 2, 1900.

ELECTRON

Essential feature.—The word "ELECTRON." Used since January, 1900.

35,588. CERTAIN NAMED WEIGHING-SCALES. THE HOWE SCALE COMPANY OF 1886, Rutland, Vt. Filed Oct. 18, 1900.

Champion

Essential feature.—The word "CHAMPION." Used since June 30, 1883.

35,589. WINDMILLS AND PUMPS. "MAUD S" WINDMILL AND PUMP COMPANY, Lansing, Mich. Filed Nov. 9, 1900.

MAUD S

Essential feature.—The word and letter "MAUD S." Used since January 1, 1890.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

MCKENZIE *v.* GILLESPIE *v.* ELLIS *v.* MCELROY *v.* OCUMPAUGH *v.* NORTON.

Decided November 20, 1900.

1. INTERFERENCE—MOTION TO DISSOLVE—STRIKING FROM FILE AFFIDAVITS AND EXHIBITS FILED WITH MOTION.

Where on a motion to dissolve an interference affidavits and exhibits were introduced, on a motion to strike them from the record on the ground that they attempt to show that the subject-matter of the interference was not patentable and that *ex parte* affidavits are not sufficient to show non-patentability, *Held* that the affidavits and exhibits should not remain a part of the record, as the Patent Office would not be warranted in dissolving an interference upon such affidavits and exhibits.

2. SAME—SAME—PATENTABILITY.

Held, further, that as the statutory bar of public use cannot be proved by *ex parte* affidavits, neither can a patent be supplemented by such affidavits to show that the invention is not patentable.

3. SAME—SAME.

Held, further, that the affidavits and accompanying exhibits should be removed from the files, but should remain in the Office for such further consideration as may be warranted by the subsequent proceedings in the case.

4. SAME—SAME—JURISDICTION OF THE EXAMINER.

Held, further, that no authority is vested in the Examiner to remove affidavits and accompanying exhibits from the files of the case, that power, so far as the Office is concerned, being vested in the Commissioner.

APPEAL on motion.

VOTING-MACHINE.

Application of Angus McKenzie filed July 3, 1899, No. 722,701. Application of Alfred J. Gillespie filed November 18, 1897, No. 658,938. Application of Wilson R. Ellis filed October 20, 1897, No. 655,742. Application of John Howard McElroy filed October 13, 1897, No. 655,060. Application of Charles H. Ocumpaugh filed May 11, 1897, No. 636,095. Application of William B. Norton filed February 27, 1897, No. 625,335.

Messrs. Wilkinson & Fisher for McKenzie.

Messrs. Church & Church for Gillespie and Norton.

Mr. Francis M. Wright and *Mr. Walter F. Rogers* for Ellis.

Mr. John Howard McElroy pro se.

Mr. Benjamin R. Catlin for Ocumpaugh.

DUELL, *Commissioner:*

This is an appeal by Gillespie and Norton from the decision of the Primary Examiner denying their motion to strike from the interference files certain affidavits and exhibits filed with the motion for the dissolution of the interference.

It is insisted upon the part of Gillespie and Norton that the affidavits and exhibits have been presented for the purpose of attempting to show that the subject-matter of the interference was not patentable, and that as *ex parte* affidavits are not sufficient for this purpose they should not remain in the interference files.

It seems to be admitted by all parties that the Patent Office cannot hold a claimed invention to be devoid of patentability by reason of the statutory bar of public use where such use is merely shown by *ex parte* affidavits. (*Ex parte von Heffner-Alteneck*, 23 O. G., 2233.)

An effort, however, has been made on the part of those appearing in opposition to the motion to show that these affidavits and exhibits have a certain bearing other than that of proving a statutory bar. In the language of one of the briefs filed—

these affidavits and exhibits have really a threefold aspect: (1) They are offered as in themselves constituting a statutory bar; (2) they are offered as supplementing the Osborn patent; (3) they are offered as a part of the argument supporting the proposition that no invention would be involved in making the Osborn patent conform in every particular to the issue by adding features familiar in the art.

The distinction attempted to be here drawn seems to be without a difference, for as the statutory bar of public use cannot be proved by *ex parte* affidavits no more can a patent be supplemented by showing by *ex parte* affidavits that there is no invention involved in making the invention conform to the claimed invention by adding features known to the art where such knowledge is only shown by such affidavits. I am clearly of the opinion that the Examiner's conclusion that he will ignore the affidavits as irrelevant is correct and that there was no authority vested in him to remove the affidavits and accompanying exhibits from the files of the case. That power, so far as the Patent Office is concerned, is vested in the Commissioner of Patents.

Treating this appeal as an original application to the Commissioner for the relief prayed, I am of the opinion that the affidavits and exhibits should not remain a part of the interference files. In the first place the tribunals of this Office would not be warranted in dissolving the interference upon such affidavits and exhibits as are here presented. In the second place, while such affidavits and the accompanying exhibits might in an exceptional case warrant the Commissioner in instituting public-use proceedings, the practice of not suspending interferences for the purpose of instituting public-use

proceedings has become so well established that even when this is sought to be done it should be by an independent proceeding and not indirectly, as in the present case.

The showing made by the affidavits and accompanying exhibits falls far short of presenting such an exceptional case as would at the present time warrant a suspension of the interference for the purpose of the institution of public-use proceedings.

Upon motions to dissolve an interference on the ground that the issue is not patentable affidavits which under the law cannot be considered in determining the patentability of the issue should not when their true nature is perceived remain in the files; for the proofs adduced to prove lack of patentability should be confined to such proofs as are competent and admissible. The affidavits and accompanying exhibits should be removed from the files; but they should remain in the Office for such further consideration, if any, as warranted by the subsequent proceedings that may arise in determining whether a patent should issue to the successful party to the interference.

EX PARTE WELCH.

Decided October 11, 1900.

1. DIVISION—INCONSISTENT CLAIMS—DIFFERENT SPECIES.
   Where a claim includes features which could not be used with the device set forth specifically in other claims, *Held* that the claims are inconsistent and cover different modifications of the invention.
2. SAME—SAME—SAME.
   Where the claims will not all read upon a single figure of the drawings, but are not inconsistent and will read upon a single device which might be shown in a single figure, *Held* that they do not cover different species or modifications.
3. ILLUSTRATION—CLAIMS READING UPON ONE FIGURE OF THE DRAWINGS.
   Where a party wishes to claim the general combination of parts and the specific form of some of the elements, he should include the preferred form of the elements in the figure of the drawings illustrating the combination which he wishes to claim, so that all claims will read upon the device shown in a single figure.

ON petition.

DRIER.

Application of Abraham T. Welch filed May 28, 1897, No. 638,659.

Messrs. Steuart & Steuart for the applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner requiring the cancellation of claims 29, 33, and 34 on the ground that they cover different species of the invention from some of the other claims and that the applicant has by prosecuting claims to the other species elected to confine this case to that species.

In this case as filed the drawings contained five figures, Figure 5 being said in the specification to show a modification of the invention disclosed in the other figures. In Fig. 1 is shown a feed-roller for disintegrating the material as it is fed to the drying-cylinder, whereas in Fig. 5 there is no such feed-roller, but a disintegrating-roller is used at the discharge end of the cylinder. In Fig. 1 there is a perforated dust-collector surrounded by a hood at the discharge end of the cylinder, and a brush is attached to the cylinder, so that it will scour the perforated collector when the cylinder is revolved, whereas in Fig. 5 no such means is shown for collecting the dust. The cylinder itself shown in Fig. 5 differs from that in Fig. 1 in that it is made up of sections, some of which are perforated, so as to permit the small particles to escape, instead of being made imperforate, as in Fig. 1.

Claim 29 covers specifically the cylinder provided with the perforated sections, and although none of the other claims are limited to an imperforate cylinder the Examiner holds that some of them cover a different species, since they will read only on Fig. 1, whereas claim 29 will read only on Fig. 5. This holding, however, is not, in my opinion, correct. While it is true that the claims will not read on one figure of the drawings, they will read on a single device, since they are not inconsistent. For instance, the cylinder in Fig. 1 might have been shown as provided with perforated sections without changing in any way the construction and arrangement of the other parts of the device there shown, and if it had been claim 29, as well as the other claims referred to by the Examiner, would read upon Fig. 1.

It may be, as stated by the Examiner, that the dust-collector shown in Fig. 1 and covered by some of the claims could not be applied to the device as a whole shown in Fig. 5; but, as above stated, a cylinder provided with perforated sections could be used in the arrangement of parts shown in Fig. 1. It is apparent, therefore, that these claims are not limited to two different modifications of the invention.

The real objection or difficulty seems to lie in the manner in which the applicant has illustrated his invention. Since he wishes to claim the general combination and the specific form of some of the elements, he should have included the preferred form of the elements in the figure of the drawings illustrating the combination which he wishes to claim.

The Examiner holds that claims 33 and 34 involve new matter and cover a different species of the invention from some of the other claims. In view of this holding these claims should, under the regular practice, have been refused admission to the case, since their entry would immediately necessitate the requirement for division; but since they have been entered the Examiner has required that they be canceled.

The question whether these claims in fact cover new matter is not now up for consideration, since it is appealable to the Examiners-in-Chief. The only question now presented is whether they cover a different species from other claims in the case and claims previously presented. These claims are based upon Figs. 6, 7, and 8, presented by amendment, and will not read upon the other figures in the case. They include a second receiver and means for agitating the material therein, and these

features are not only not shown in Fig. 1, but it appears that they could not be used with the device there shown and specifically set forth in some of the claims. They are therefore inconsistent with claims drawn to the specific form shown in Fig. 1 and cover a different species, and the Examiner was right in requiring the cancellation of these claims.

In his answer to this petition the Examiner raises the point that claims 21, 22, 25, 26, 31, and 32 cover a different species from the claims limited to the construction shown in Fig. 1. This question does not seem to have been before raised by him, and therefore it is not, strictly speaking, properly before me for decision. The feature included in these claims which is said to involve new matter and to make them cover a different species is the limitation that the drying-cylinder is level instead of inclined, as shown in Fig. 1. The Examiner does not state that any of the claims are limited to an inclined cylinder, and therefore it does not appear that they are inconsistent with the claims limited to a level cylinder. The question remains whether the cylinder in the combination of parts shown in Fig. 1 could be shown as level without involving new matter; but if it is decided that it could and the applicant so shows it it does not appear that the claims limited to a level cylinder would cover a different species from the other claims.

The petition is granted in so far as claim 29 is concerned and is denied as to claims 33 and 34.

EX PARTE WELCH.

Decided October 11, 1900.

1. NEW MATTER AFFECTING CLAIMS—APPEAL TO THE EXAMINERS-IN-CHIEF.
   Where matter held to constitute a departure from the original disclosure is involved in the merits of the claims, *Held* that the question will not be reviewed on petition, but is appealable to the Examiners-in-Chief.
2. AMENDMENT—NEW MATTER.
   Where the original application showed and described a cylinder as inclined, and stated that the inclination may be changed to increase or diminish the feed, *Held* that this furnishes no basis for an amendment stating that it is important that the base of the cylinder should be level.

ON petition.

METHOD OF AND APPARATUS FOR TREATING ANIMAL AND VEGETABLE MATTER.

Application of Abraham T. Welch filed October 22, 1897, No. 656,062.

Messrs. Steuart & Steuart for the applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner in the above-entitled case.

The Examiner has objected to claim 17 as incorrectly setting forth the operation of the device shown and has held that certain matter introduced into the case by amendment involves a departure from the invention originally disclosed. The statement in claim 17 which is objected to is this:

> The volume of the flame being substantially proportional to the heat-absorbing capacity of the material.

The Examiner holds that the volume of the flame is inversely proportional to the heat-absorbing capacity of the material and his holding is correct. The flame obviously and according to the applicant's own statement spreads after leaving the burner, and therefore occupies more space at a distance from the burner than it does near the burner. It may be said that the degree of heat imparted by the flame, or, in other words, the temperature to which the material is subjected, is proportional to the heat-absorbing capacity of the material; but to refer to it as proportional to the volume of the flame is confusing, since the term *volume* conveys an idea of the space occupied by the flame rather than its intensity. The objection was properly made, since as now worded the meaning of the claim is not clear. Some other form of expression should be used to convey the idea which this claim was apparently intended to express.

The matter held by the Examiner to involve a departure from the original disclosure is, according to his statement, involved in the merits of the claims, with the possible exception of the statement that—

> it is also important that the base of the cylinder should be level, or that the discharge end should be at least as high as the receiving end.

Where the question is held to affect the merits of the claims and to furnish a ground for rejection, it is properly appealable to the Examiners-in-Chief and is not reviewable on petition. For this reason much of the matter set forth in the petition will not now be considered.

The Examiner does not state that the present statement that the cylinder is level involves the merits of any of the claims, and therefore the question whether it shall be retained in the case may now be considered. In the drawing the cylinder is shown as inclined, and in the original specification it was said that—

> the cylinder is here shown as mounted in an inclined position upon wheels or rollers. * * * The object of the flanges on the roller a^3 is to prevent retrograde movement of the cylinder due to its inclined position. * * * It will be seen that by raising the screw-jacks the inclination of the discharge end of the cylinder may be changed to increase or diminish the feed according to the character of the material being dried.

There is nothing in this original disclosure to suggest that the applicant contemplated making the cylinder level, and it does not even positively appear that it is possible with the construction shown to adjust it to that position. It is true that screw-jacks are shown for raising and lowering one end of the cylinder; but according to the original disclosure they were merely for the purpose of changing the inclination and not for the purpose of doing away with it entirely. The cylinder was to be inclined more or less at all times, and there was certainly no hint that making the cylinder level was an important feature of the invention, as alleged in the amended specification. It is held that the statement referred to involves new matter and should not be retained in the case.

The petition in so far as it relates to claim 17 and to the statement that the cylinder is level is denied, and in so far as it relates to other matters involving the merits of the claims it is dismissed.

EX PARTE BLANCHARD.

Decided October 19 1900.

1. PRACTICE OF RAISING FORMAL OBJECTIONS PIECEMEAL CONDEMNED.

The practice of raising objections to an amendment for the first time only after sending the applicant to the Commissioner on a petition directed to other objections to the same amendment has been repeatedly condemned. (*Ex parte Kitson*, 20 O. G., 1750; *ex parte Bertrand*, 69 MS. Dec., 54.)

2. SAME—REFUSAL OF EXAMINER TO COMPLY WITH COMMISSIONER'S ORDER.

Where the Examiner refused to enter an amendment on the ground that the case stood finally rejected, and upon petition to the Commissioner he was directed to enter it, but thereafter for the first time raised the requirement for a supplemental oath against the amendment and again refused to enter it on the new ground that it was not accompanied by such an oath, *Held* that the Examiner's refusal to comply with the order to enter the amendment admits of no excuse. Having violated Rule 64, which requires that all objections be raised at one time, he is in no position to hide behind a strained construction of Rule 48 to excuse his refusal to comply with the Commissioner's order.

ON petition.

HAT.

Application of Helen A. Blanchard filed July 31, 1896, No. 601,287.

Mr. H. A. Herr and *Mr. T. Walter Fowler* for the applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter and consider an amendment.

On August 7, 1900, the Examiner in charge of this application closed a letter in the case as follows: "Therefore, the refusal to incorporate the amendment proposed May 26, 1900, is repeated." Applicant thereupon took a petition to the Commissioner, the prayer of which was as follows:

Wherefore your petitioner requests that the Examiner in charge of such application be advised, (first) that claim 5 of the amendment filed August 9, 1899, was entitled to two actions and that (second) the official action of November 28, 1899, admitting said claim and also finally rejecting it, in the same action, was an error, and (third) that said Examiner be further advised that the verified showing filed July 20, 1900, presents sufficient reasons for the vacation of the alleged final rejection and the reopening of the case and the admission and consideration of the claims filed May 26, 1900.

The case was disposed of by me by indorsement as follows:

Present claim 5 appears to be different in scope from original claim 3. I also consider that the affidavit of applicant is sufficient to comply with Rule 68.
The petition is granted.

The Examiner, under date of August 24, 1900, then wrote applicant as follows:

In view of the decision of the Acting Commissioner, the case above entitled is open to further amendment.
The amendment proposed May 26, 1900, is, however, refused incorporation for the reason that the same presents a claim, viz., claim 5, covering matter not properly before the Examiner for consideration. The application as originally presented covers merely an improvement in hats. Therefore, a claim to the method incidentally disclosed, but not originally claimed, must be accompanied by a supplemental oath in accordance with the provisions of Rule 48.

Rule 48 reads in part as follows:

When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he will file a supplemental oath * * * Such supplemental oath must be attached to and properly identify the proposed amendment.

In my opinion this rule contemplates that the supplemental oath shall be filed with the amendment, particularly where the only claims in the amendment are those requiring a supplemental oath. If this was the only ground of controversy between the Examiner and applicant and was the first time the case was before me, I am inclined to think that I would sustain the Examiner in his requirement (provided, of course, that I considered a supplemental oath necessary) that the oath be attached to the amendment before it could be entered. But Rule 64 is in part as follows:

But in each letter the Examiner shall state or refer to all his objections.

In his letter of August 9, 1900, the Examiner said nothing about the requirement of a supplemental oath, nor had he done so previously. He raised the question for the first time only after sending applicant to the Commissioner on a petition directed to the very amendment to which he now raises this new objection. This practice has been repeatedly condemned (See *ex parte Kitson*, 20 O. G., 1750, and *ex parte Bertrand*, 69 MS. Dec., 54.) In all fairness, having failed to raise the question of a supplemental oath at the proper time and in accordance with Rule 64, the Examiner's equitable course would have been to enter the amendment, act on the merits of the claims, and make the requirement for the supplemental oath in the same letter. Ample authority for this is found in *ex parte Weidemann*, (81 O. G., 2245,) were such authority needed outside of a common-sense application of the Rules of Practice. Or if the Examiner wished to hold to a strict technical construction of Rule 48 he might have admitted the amendment of May 26, 1900, acted on the merits of the claims, except claim 5, and required applicant to file another amendment containing claim 5 with the supplemental oath attached.

But over and above any difference between the Examiner and the applicant as to the construction of the rules stands the order of the Commissioner that the amendment of May 26, 1900, be admitted and considered, for such was the clear effect of the granting of the former petition. The refusal of the Examiner to comply with this order admits of no excuse. Having violated Rule 64, he is in no position to hide behind a strained construction of Rule 48 to excuse his refusal to comply with the Commissioner's order.

The Examiner is now specifically directed to enter the amendment of May 26, 1900, and act thereon, including in such action *all* objections both formal and as to the merits.

The petition is granted.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 12. TUESDAY, DECEMBER 18, 1900. Price—$5 per year.

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CERTIFICATES OF REGISTRATION ISSUED DECEMBER 18, 1900.

Labels.

7,966.—Title: "ROLO POLO SOLITAIRE OR TWO BALL HOCKEY." (For a Game.) *Linwood F. Jordan*, Portland, Me. Application filed November 23, 1900.

7,967.—Title: "HALE'S TON-A-QUIN FOR THE HAIR." (For a Hair-Tonic.) *The H. R. Hale Company*, Hartford, Conn. Application filed November 21, 1900.

7,968.—Title: "OPPEAU'S TREATMENT FOR THE HAIR." (For a Remedy for Baldness.) *J. Oppeau*, St. Louis, Mo. Application filed September 19, 1900.

7,969.—Title: "SELTONE." (For a Catarrh Cure.) *Specialty Manufacturing Co.*, Davenport, Iowa. Application filed November 23, 1900.

7,970.—Title: "RED RAVEN DENTINE." (For a Tooth and Mouth Wash.) *Meyer & Gleim*, Cleveland, Ohio. Application filed November 19, 1900.

7,971.—Title: "DR. MILL'S PECTORAL SYRUP." (For a Cough Medicine.) *Ludwig G. B. Erb*, New York, N. Y. Application filed November 24, 1900.

7,972.—Title: "DREYFUS' PILLS." (For a Medicine.) *Naum Khasan*, New York, N. Y. Application filed November 21, 1900.

7,973.—Title: "KIL-KOLD." (For a Medicine.) *Abraham Meyers*, New York, N. Y. Application filed July 20, 1900.

7,974.—Title: "EDDIE'S GERMAN SAL-LEA." (For a Medicine.) *Smith Brothers*, Lake Nebagamon, Wis. Application filed November, 5, 1900.

7,975.—Title: "SIERRA MINERAL BATH CRYSTALS." (For a Compound for the Bath.) *Eugene Griswold*, San Francisco, Cal. Application filed November 22, 1900.

7,976.—Title: "LUSTRE." (For a Polish.) *William L. Paul*, Chicago, Ill. Application filed August 24, 1900.

7,977.—Title: "WILL B." (For Cigars.) *William Baum*, Washington, D. C. Application filed November 10, 1900.

7,978.—Title: "LA ROSA CALIE." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed November 21, 1900.

7,979.—Title: "DAISY BLUE." (For Cigars.) *Schmidt & Co.*, New York, N. Y. Application filed November 21, 1900.

7,980.—Title: "UPMANN'S EXTRA 5." (For Cigars.) *Carl Upmann*, New York, N. Y. Application filed November 17, 1900.

7,981.—Title: "UPMANN'S EXTRA 5." (For Cigars.) *Carl Upmann*, New York, N. Y. Application filed November 17, 1900.

7,982.—Title: "DAILEY'S PURE MALT." (For Extract of Malt.) *H. & J Dailey Malt Co.*, Fall River, Mass. Application filed November 24, 1900.

7,983.—Title: "WM. ULMER BREWERY." (For Lager-Beer.) *Wm. Ulmer Brewery*, New York, N. Y. Application filed November 26, 1900.

7,984.—Title: "OLDEN TIME RYE WHISKEY." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 24, 1900.

7,985.—Title: "MAYFLOWER RYE." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 24, 1900.

7,986.—Title: "WINNER WHISKEY." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 26, 1900.

7,987.—Title: "DOMINO RYE WHISKEY." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 26, 1900.

7,988.—Title: "RACEABOUT RYE." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 26, 1900.

7,989.—Title: "COFFEE ETTE." (For a Coffee Substitute.) *Malcolm A. Rawson*, Des Moines, Iowa. Application filed November 5, 1900.

7,990.—Title: "FOX'S NUTTED DATES." (For Nutted Dates.) *Fox Pharmacy Company*, Birmingham, Ala. Application filed November 26, 1900.

7,991.—Title: "GREENABAUM BROS. PLUM PUDDING." (For Plum-Pudding.) *Greenabaum Bros.*, Seaford, Del. Application filed November 21, 1900.

7,992.—Title: "BERG'S FAMOUS BREAD." (For Bread.) *C. T. Berg*, Baltimore, Md. Application filed November 16, 1900.

7,993.—Title: "REFUGEE STRINGLESS BEANS." (For Canned Beans.) *The United States Printing Company*, Cincinnati, Ohio, and New York, N. Y. Application filed November 21, 1900.

7,994.—Title: "MUELLER'S MACARONI FLAG BRAND." (For Macaroni.) *C. F. Mueller & Co.*, Jersey City, N. J. Application filed November 21, 1900.

7,995.—Title: "CORNED BEEF HASH." (For Corned-Beef Hash.) *Valentine's Meat Juice Company*, Richmond, Va. Application filed November 24, 1900.

7,996.—Title: "OX TONGUE." (For Potted Meats.) *Valentine's Meat Juice Company*, Richmond, Va. Application filed November 24, 1900.

7,997.—Title: "POTTED BEEF." (For Potted Beef.) *Valentine's Meat Juice Company*, Richmond, Va. Application filed November 24, 1900.

7,998.—Title: "OX TONGUE." (For Potted Ox-Tongue.) *Valentine's Meat Juice Company*, Richmond, Va. Application filed November 24, 1900.

Print.

284.—Title: "THE STUBBORN DONKEYS." (For a Puzzle.) *Frederick A. Schossow*, Detroit, Mich. Application filed November 2, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 11, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	In arrears—Under one month.			
126	XXXII. Bottles and Jars, Carbonating Beverages, Refrigeration, Shipping and Storing Vessels, etc.	Dec. 1	Dec. 1	123
106	II. Farm Stock, Products, etc.	Nov. 30	Dec. 1	98
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Nov. 23	Nov. 27	123
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Nov. 22	Nov. 27	125
261	XXXVI. Weighing and Measuring Devices, Driers, and Drafting.	Nov. 19	Nov. 28	82
240	VII. Velocipedes, Games, and Toys.	Nov. 17	Nov. 28	139
243	XXV. Artesian and Oil Wells, Mills, Threshing, Vegetable Cutters and Crushers.	Nov. 15	Nov. 19	177
246	I. Tillage and Fences	Nov. 13	Nov. 28	118
93	XXI. Textiles, etc	Nov. 13	Nov. 28	169
207	XV. Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 13	Nov. 27	169
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 13	Nov. 27	112
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Nov. 12	Nov. 30	84
147	XXXI. Gas, Painting, Hides, Skins, and Leather, Alcohol, Oils, Fats, and Glue, etc.	Nov. 12	Nov. 28	152
253	X. Carriages and Wagons	Nov. 12	Nov. 28	118
153	XX. Builders' Hardware, Safes, Dentistry, Artificial Limbs, etc.	Nov. 12	Nov. 27	80
123	XXIX. Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Nov. 12	Nov. 27	99
219	XXIII. Registers, Fluid-Meters, and Acoustics, etc.	Nov. 12	Nov. 27	94
258	VI. Chemistry, Explosives, Medicines, Fertilizers, Sugar and Salt, Surgery.	Nov. 12	Nov. 27	282
252	XIII. Metal-Working, Arms and Projectiles, Nails and Spikes, Needles and Pins, Cutlery, etc.	Nov. 12	Nov. 27	100
213	XVII. Printing, Type-Writing Machines, and Linotyping.	Nov. 12	Nov. 27	177
120	IX. Hydraulics, Fire-Extinguishers, etc.	Nov. 12	Nov. 27	70
255	XII. Mechanical Engineering, Store-Service, etc.	Nov. 12	Nov. 27	192
122	XXIV. Sewing-Machines, Apparel, and Toilet.	Nov. 12	Nov. 27	157
256	V. Fine Arts, Harvesters, Book-Binding, Music, etc.	Nov. 12	Nov. 27	203
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Nov. 12	Nov. 15	93
248	XVIII. Steam-Engineering, etc	Nov. 12	Nov. 15	192
105	XI. Boots and Shoes, Harness, Hose and Belting, and Leather-Working Machinery.	Nov. 12	Nov. 12	141
	Between one and two months.			
109	XXII. Fire-Arms, Fishing and Trapping, Navigation, Signals, etc.	Nov. 10	Nov. 27	106
102	XIX. Stoves and Furnaces	Nov. 10	Nov. 22	238
98	XXXIV. Railway-Brakes, Draft Appliances, and Rolling-Stock.	Nov. 10	Nov. 22	164
80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Nov. 8	Nov. 27	194
127	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Nov. 6	Nov. 27	148
250	VIII. Furniture, Beds, Store Furniture, etc.	Nov. 1	Nov. 22	293
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Nov. 1	Nov. 2	296
209	XIV. Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, Nut and Bolt Locks, etc.	Oct. 22	Nov. 21	155
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 12	Nov. 1	306

Total number of applications awaiting action.....5,569

Applications Under Examination—Continued.

Under one month.			
*Designs	Dec. 3	Dec. 10	23
†Trade-Marks	Dec. 8	Dec. 10	12
‡Labels and Prints	Dec. 11	Dec. 11	....

ISSUE OF DECEMBER 18, 1900.

Patents	527—	No. 663,842 to No. 664,368, inclusive.
Designs	43—	No. 33,725 to No. 33,767, inclusive.
Trade-Marks	39—	No. 35,590 to No. 35,628, inclusive.
Labels	33—	No. 7,966 to No. 7,998, inclusive.
Prints	1—	No. 284.
Reissues	1—	No. 11,878.
Total issue	644	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	1	Nevada	....	....
Alaska Territory	1	....	New Hampshire	....	....
Arkansas	....	....	New Jersey	21	1
California	17	1	New Mexico Territ'y	....	....
Colorado	9	....	New York	74	16
Connecticut	28	1	North Carolina	....	....
Delaware	....	2	North Dakota	2	....
District of Columbia	7	2	Ohio	30	4
Florida	....	....	Oklahoma Territ'y	1	....
Georgia	2	2	Oregon	3	....
Hawaii	1	....	Pennsylvania	57	2
Idaho	2	....	Rhode Island	6	1
Illinois	76	17	South Carolina	....	....
Indian Territory	....	....	South Dakota	2	....
Indiana	14	....	Tennessee	4	....
Iowa	10	2	Texas	4	....
Kansas	6	....	Utah	1	....
Kentucky	5	....	Vermont	1	1
Louisiana	1	....	Virginia	6	4
Maine	4	1	Washington	6	....
Maryland	5	1	West Virginia	3	....
Massachusetts	29	8	Wisconsin	13	1
Michigan	18	1	Wyoming	....	....
Minnesota	12	....	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	14	3			
Montana	2	....	Total to citizens of the United States	512	72
Nebraska	1	....			

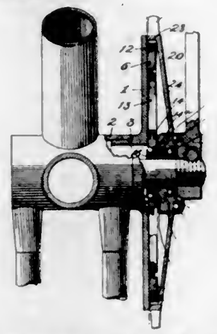
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	....	....	Italy	....	....
Australia	....	....	Japan	....	....
Austria-Hungary	1	....	Java	....	....
Barbadoes	....	....	Mexico	1	....
Belgium	2	....	Netherlands	1	....
Brazil	....	....	New South Wales	....	....
British Guiana	....	....	New Zealand	1	....
Canada	4	....	Norway	....	....
Chile	....	....	Peru	2	....
China	....	....	Russia	....	....
Costa Rica	....	....	Scotland	....	....
Cuba	....	....	South African Republic	....	....
Denmark	....	....	South Australia	....	....
Egypt	....	....	Spain	....	....
England	14	....	Sweden	2	....
Finland	....	....	Switzerland	....	....
France	6	....	Venezuela	....	....
Germany	22	1	Victoria	1	....
Guatemala	....	....			
Haiti	....	....	Total to citizens of foreign countries	58	1
India	....	....			
Ireland	1	....			

PATENTS

GRANTED DECEMBER 18, 1900.

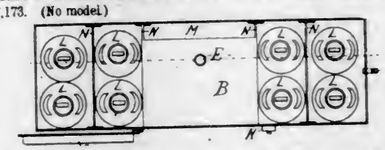
663,842. BACK-PEDALING BRAKE. ALFRED R. ANTHONY and CALVIN T. CUNNIUS, Wilkes-Barré, Pa. Filed June 11, 1898. Serial No. 683,242. (No model.)



Claim.—1. In an automatic bicycle-brake, the combination with a bicycle crank-hanger, of a crank-shaft, a sprocket-wheel surrounding said shaft and having a laterally-projecting flange on one face, a plate or support secured to the crank-hanger adjacent to the flanged face of the sprocket, brake-shoes pivoted to said plate or support and lying in the planes of the flange on the sprocket, a clutch adapted to connect the crank-shaft and sprocket when the shaft is rotated in the forward direction, and another clutch adapted to connect the crank-shaft with means for rocking the brake-shoes about their pivots and forcing them against the flange on the sprocket when the shaft is moved in the rearward direction.

2. In combination a supporting-disk fixed to the frame of a bicycle, and having an annular flange near its periphery, brake-shoes pivoted to said disk between the flange and periphery and having spring-arms resting upon said flange, a crank-shaft, a clutch, one member of which is secured to the shaft, the other member being connected to the brake-shoes, a sprocket-wheel journaled upon the shaft and having a flange on its periphery overhanging said brake-shoes and contiguous to said disk and a clutch for connecting the sprocket-wheel and shaft, substantially as described.

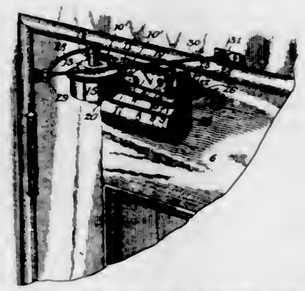
663,843. COMBINED REFRIGERATOR AND MILK-COOLER. SIDNEY S. ARNOLD, Calamus, Iowa. Filed Aug. 17, 1900. Serial No. 27,173. (No model.)



Claim.—1. In a refrigerator, the combination with a water-tight case having a cold-water inlet near its top and an outlet near its bottom, a cover therefor, and a series of cans for milk or the like disposed in compartments near the ends of the case; of a box within the case at its center and comprising a top and bottom, two sides, and a back built into the case and spaced from the corresponding parts thereof, and a door in the front of the case comprising the only inlet to said box around five of whose sides the cooling-water flows.

2. In a refrigerator, the combination with a water-tight case having a cold-water inlet near its top and an outlet near its bottom, a cover therefor, and a series of cans for milk or the like disposed in compartments near the ends of the case; of a box within the case at its center and comprising a top and bottom, two sides, and a back built into the case and spaced from the corresponding parts thereof, a vent rising from the top of the box and standing beneath the cover of the case, and a door in the front of the case comprising the only inlet to said box around five of whose sides the cooling-water flows.

663,844. DOOR CHECK AND CLOSER. GEORGE ASHLEY, New Britain, Conn., assignor of two-thirds to Alfred W. Hadley and George Ashley, Jr., same place. Filed Apr. 30, 1900. Serial No. 14,812. (No model.)



Claim.—1. A combined door check and closer comprising a base-plate, a pneumatic cylinder, and a spring case or barrel secured to said base-plate; a piston in said cylinder; a shaft journaled in bearings of the spring-case and carrying a gear; a spring connected at one end to said shaft and at the other end to said case; a rack mounted for sliding movement on the bed-plate and having a cross-bar; a cam-shaped projection carried by said cross-bar; means for connecting the cross-bar with the piston-rod; and a valve normally closing a port in the cylinder and adapted to be withdrawn by said cam-shaped projection.

2. A combined door check and closer comprising a base-plate carrying a pneumatic cylinder, said cylinder having air-relief ports; a piston in said cylinder; a rack mounted for sliding movement on the base-plate; means for actuating the rack; a cam-shaped projection movable with the rack; means connecting the rack with the rod of the piston; and air-relief valves one of which is actuated by said cam-shaped projection.

3. A combined door check and closer comprising a base-plate; a rack movable back and forth on guides of said base-plate; gearing for actuating said rack; a cross-bar projecting from one end of said rack; a pneumatic cylinder having an air-relief port; a piston within said cylinder; an arm connected to the rod of said piston; a rod connecting said arm with the cross-bar of the rack; a cam-shaped projection carried by the cross-bar of the rack; and a spring-actuated valve normally closing the relief-port in the cylinder and adapted to be withdrawn by said cam-shaped projection.

4. A combined door check and closer comprising a base-plate; a rack reciprocatory on said base-plate; a gear in engagement with said rack and spring-actuated in one direction; a pneumatic cylinder carried by the base-plate and having an air-relief port; a piston within said cylinder; devices connecting the rod of said piston with the rack; a cam-shaped projection movable with the rack; a spring-actuated valve normally closing said air-relief port; and a pin carried by said valve with which the cam-shaped projection engages to withdraw said valve.

5. A combined door check and closer comprising a pneumatic cylinder having air-relief ports; a piston in said cylinder; a channeled screw located in one of said ports; a spring-actuated valve for closing the other of said ports; a sliding rack having a cross-bar; a cam-shaped projection carried by said cross-bar and adapted to withdraw said spring-actuated valve; means for connecting the cross-bar with the rod of the piston; and means for actuating the rack.

6. A combined door check and closer comprising a base-plate; a pneu-

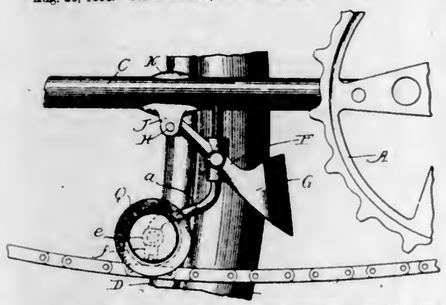
matic cylinder secured to said base-plate and having air-relief ports; an adjustable valve for regulating the emission of air from one of said ports; a spring-actuated valve for normally closing the other of said ports; a piston within the cylinder; a rack mounted for sliding movement on the base-plate and carrying a cross-bar; a rod attached to said cross-bar; an arm connecting said rod with the piston-rod; and a cam-shaped projection carried by the cross-bar of the rack and adapted to withdraw the spring-actuated valve.

7. A combined door check and closer comprising a base-plate; a pneumatic cylinder located on said base-plate and having air-relief ports; a channeled screw threaded in one of said ports and carrying a washer; a spring-actuated valve mounted in bearings of the base-plate and adapted to close the other of said air-relief ports; a piston located within the cylinder; a movable rack carrying a cross-bar at one end; a cam-shaped projection on said cross-bar and adapted to withdraw the spring-actuated valve; a rod secured to said cross-bar; means connecting said rod with the end of the piston-rod; and a spring-controlled device for actuating the rack in one direction.

8. The combination, with a door and its casing, of a bed-plate secured to one of said parts; a pneumatic cylinder carried by the bed-plate and having an air-relief port; a sliding valve mounted in bearings of said bed-plate and spring-actuated normally to close said air-relief port; a piston located within the pneumatic cylinder; a rack mounted for sliding movement on the bed-plate and having a projecting arm; a cam-shaped projection carried by said arm and adapted to withdraw the spring-actuated valve; a rod connecting the arm projecting from the rack with a device attached to the end of the piston-rod; a spring case or barrel mounted on the bed-plate; a shaft carrying a pinion in engagement with the rack; a spring secured to said shaft and to the interior of said case; and means for connecting said shaft with the door-frame.

9. The combination, with a door and its casing, of a bed-plate secured to the door; a pneumatic cylinder having an air-relief port carried by said bed-plate; a piston within said cylinder; a rack having an angularly-projecting bar; a cam-shaped device secured to said bar; a bracket attached to the bed-plate; a spring-actuated valve mounted in bearings of the bracket and normally closing the air-relief port in the cylinder; a shaft, spring-actuated in one direction; a gear carried by said shaft and in engagement with the rack; a crank secured to the shaft; and a rod or link connecting said crank with the door-casing.

663,845. AUTOMATIC VEHICLE-BRAKE. HERBERT L. BAILEY, Chicago, Ill., assignor to the Handy Things Company, same place. Filed Aug. 20, 1898. Serial No. 689,109. (No model.)



Claim.—1. In a brake for chain-driven vehicles, the combination of a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device attached to said bail and a vertically-adjustable connection between said device and the bail, substantially as described.

2. In a brake for chain-driven vehicles, the combination with a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device secured to said bail and a laterally-adjustable connection between said device and the bail, substantially as described.

3. In a brake for chain-driven vehicles, the combination with a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device attached to said bail and a laterally and vertically adjustable connection between said device and the bail, substantially as described.

4. In a brake for chain-driven vehicles, the combination with a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device attached to said bail, and an adjustable connection between said device and the bail, whereby said device may be adjusted vertically, horizontally and laterally, substantially as described.

5. In a brake for chain-driven vehicles, the combination with a brake-bail formed of a single piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device connected with said bail at a point between one end thereof and the spoon at the center thereof, substantially as described.

6. In a brake for chain-driven vehicles, the combination with a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a chain-engaging device attached to said bail at a point between one end of the spoon at the center thereof, said device being vertically and laterally adjustable, substantially as described.

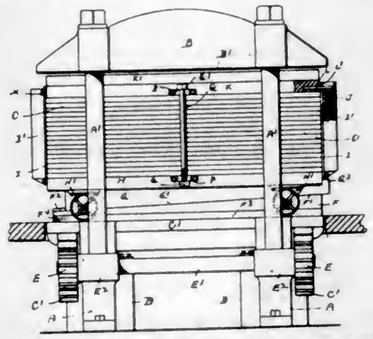
7. In a brake for chain-driven vehicles, the combination with a brake-bail formed in one piece pivotally secured at its ends respectively to the frame of the machine and constituting a brake-spoon at its center, of a rotary chain-engaging device attached to said bail between one end thereof and the spoon at the center thereof, said device being laterally and vertically adjustable and rotatable on an axis at right angles to its axis of rotation, substantially as described.

663,846. CAN-OPENER. HERBERT L. BAILEY, Chicago, Ill., assignor to the Handy Things Company, same place. Filed Apr. 9, 1900. Serial No. 12,119. (No model.)



Claim.—A blank for forming a can-opener consisting of a metal bar having a straight body portion A, the angular portion B having straight ends connected by the curved intermediate portion and the end D substantially at right angles to the axis of the part A, said part D having a straight and a curved side terminating in a bend, substantially as described.

663,847. PRESS. FRANK H. BANCROFT, Gardner, Mass., assignor of one-half to Henry M. Rich, same place. Filed Sept. 16, 1899. Serial No. 730,721. (No model.)



Claim.—1. In a press, the combination with the pressing members, of a block attached to one of said members, and having an inclined upper surface, a truck on which the work is held and a wedge interposed between the under surface of said truck and the inclined surface of said block, substantially as described.

2. In a press, the combination with the pressing members, of a truck on which the work is held, a wedge interposed between the under surface of said truck and one of said pressing members, and means by which said wedge is drawn into position by the forward movement of said truck, substantially as described.

3. In a press, the combination with the pressing members, of a truck on which the work is held, a block attached to one of said pressing members having a tapered end by which the truck is positioned on said pressing member, and a wedge sliding on said block and arranged to receive the pressure on the body of said truck, substantially as described.

4. In a press, the combination with the pressing members, of a body on which the work is supported, a cover for the work, springs by which the cover and body are separated, means for limiting the motion of said cover as actuated by said springs, and means for clamping the body and cover together, substantially as described.

5. In a press, the combination of a fixed cross-head and a reciprocating follower, said cross-head and follower forming the pressing members, and an inclined block on said follower, a truck on which the work is held, arranged so that its body slides over said block, a wedge arranged to slide on said block and having a lug projecting into the path of said truck, whereby said wedge is drawn along said inclined block by the forward movement of said truck, substantially as described.

6. The combination with the pressing members of a press, of a truck supported on one of said pressing members and comprising a body portion, vertical plates attached to said body and having chambers open at their top and forming housings for spiral springs, springs held in said housings, a cover for the work held on said body, studs held in said cover and resting on said springs by which the weight of said cover is supported, substantially as described

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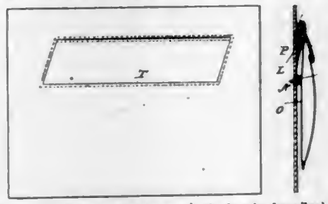
663,848. CURTAIN-ROD. HARRY T. BARNWELL, Providence, R. I. Filed Oct. 12, 1900. Serial No. 32,819. (No model.)



Claim.—1. A curtain-rod consisting of a tubular rod member, spring-tongues on both sides of the tubular rod member, and a hollow head member whose rear face is provided with a concentric shoulder for engaging the end of the rod member in conjunction with the rear portion of the head.

2. A curtain-rod consisting of a tubular rod member, having spring-tongues cut from both sides of the same, and a hollow head member adapted to be locked thereon by means of said tongues and a concentric shoulder on the inner face of the head.

663,849. GARMENT-POCKET. REINHOLD BARTELL, Philadelphia, Pa. Filed June 20, 1899. Serial No. 721,218. (No model.)



Claim.—1. In a pocket for garments, the herein-described reinforcing-strip which consists of a folded section of fabric abutted against another folded section of fabric, the fold-line of each section facing the fold-line of the opposing section, and secured together on such fold-lines by through-and-through stitches, as set forth.

2. The herein-described pocket for garments, the same comprising a pocket having an opening with its edges turned back on the inside, reinforce-strips sewed to the said edges above and below the pocket-opening and means whereby the edges of the pocket-opening are normally maintained in contact, substantially as described.

663,850. SOUNDING-TUBE FOR NAVIGATORS' USE. JAMES R. BENEDICT, Woodside, Md., assignor to Zera L. Tanner, U. S. Navy. Filed June 19, 1900. Serial No. 20,885. (No model.)



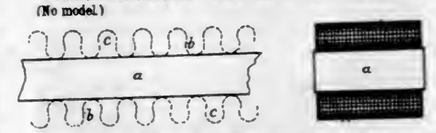
Claim.—1. A glass tube for use of navigators in sounding having its interior covered with alternating sections of smooth and roughened glass extending entirely around the inner surface of the tube.

2. A transparent tube, having its interior surface provided with a spiral translucent line extending entirely around the tube, substantially as described.

3. A glass tube having a normally plane interior with a spiral translucent line etched therein and extending mainly throughout the length of the tube.

4. A glass tube for use of navigators in sounding, having its interior divided into sections presenting alternating smooth and rough surfaces to the movement of a liquid lengthwise of the tube.

663,851. COOLING DEVICE FOR HEAT-RADIATORS. FRANCIS C. BLAKE, London, England. Filed May 23, 1900. Serial No. 17,703. (No model.)



Claim.—A heat-diffusing device for the external surface of pipes containing heated fluids, and of heat-radiators and the like, consisting of metallic wire-gauze which is intimately secured to such surfaces, in undulated sheets by means of a fillet of solder, whereby the bases of such undulations are rendered integral with the surface.

663,852. TIME LIGHTING DEVICE. WALTER W. BOLLEN, Red Oak, Iowa. Filed Apr. 25, 1900. Serial No. 14,342. (No model.)



Claim.—1. In an automatic fire-lighter, the combination with the base provided with an ignition-surface, of a spring-actuated rotatable post having at its upper end a terminal head, a swinging extensible arm connected at one end to said head, a match-holder fitted to the opposite end of said arm and having fastening means for the match-stick, a notched controlling-wheel operatively related to the post, a pivoted trip-pawl engaging said controlling-wheel, a trip-lever supported in an upright position, a link pivotally connecting the lower end of said trip-lever with one end of the trip-pawl, and a set-off or alarm mechanism having a rotating arbor provided with an offset cam arranged to work against the free end of the trip-lever.

2. In an automatic ignition device, the combination with a base provided with an ignition-surface, of a spring-actuated rotary post, a swinging arm connected at one end to said post, a stop located in the path of movement of the opposite end of the arm, a spring-resisted match-holder carried at the free end of the arm and designed to retain a match for presentation to the ignition-surface as the arm is swung, a controlling-shaft geared to the post, a controlling-wheel and a rotary governor carried by said shaft, a trip-pawl engaging the controlling-wheel, a trip-lever operatively connected with the pawl, and time mechanism for operating the trip-lever.

3. In an automatic ignition device, the combination with a motor, and a spring-actuated match-carrying arm, of trip mechanism comprehending a trip-lever, said lever being composed of a plurality of connected sections capable of relative lateral adjustment to facilitate the adjustment of said lever for actuation by various forms of mechanism.

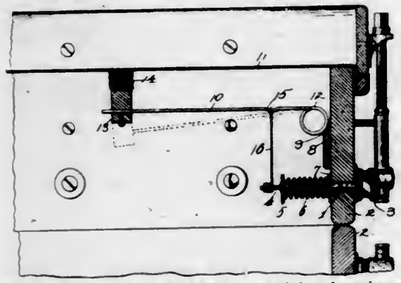
4. In an automatic ignition device, the combination with a spring-actuated post having a terminal head, of a match-carrying arm adjustably secured in the head, a controlling-shaft, a controlling-wheel and a governor carried by said shaft, a train of gearing intermediate of the controlling-shaft and post, a trip-pawl engaging the controlling-wheel, a trip-lever provided with a laterally-adjustable extremity, a link intermediate of the trip-lever and trip-pawl, and alarm mechanism having an eccentric trip located in operative relation to the end of the trip-lever.

5. The combination with a movable match-carrying arm, of a coaxial match-holder carried thereby, means for opposing a yielding resistance to the relative movement of said elements and match-retaining means upon the match-holder.

6. The combination with a movable match-carrying arm, of a match-holder movably mounted thereon, a spring interposed between the match-holder and the arm to resist their relative movement, and a match-retaining device carried by the match-holder and designed to be adjusted for the purpose of holding the match firmly within the holder.

7. The combination with a laterally-movable match-carrying arm, of a terminal, coaxial match-holder capable of independent rotary movement, a spring resisting the rotary movement of the match-holder, means for limiting the movement of said holder, a match-socket piercing the holder at right angles to the match-carrying arm, and means for retaining the match in the socket.

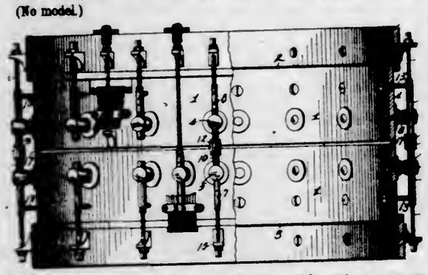
663,853. TONE-SHARPENER FOR DRUMS. EMILE BOULANGER, St. Louis, Mo. Filed June 11, 1900. Serial No. 19,936. (No model.)



Claim.—1. A tone-sharpener for drums, consisting of a spring supported in a bracket secured to the inner side drum-shell, a block carried by said spring, a pad carried upon said block, a rod mounted to turn in the shell of the drum, a flexible connection between said rod and spring, and means for holding the rod in any adjustment in which it is placed, substantially as specified.

2. The herein-described device, comprising a spring supported to the inner side of the drum-shell, a block supported by said spring, sections of sheepskin carried by said block, a rod mounted to turn in the drum-shell, connections between said rod and said spring, and a spring for holding the said rod in any adjustment in which it is placed, substantially as specified.

663,854. COMBINED ORCHESTRA AND BAND DRUM. EMILE BOULANGER, St. Louis, Mo. Filed June 11, 1900. Serial No. 19,937. (No model.)



Claim.—1. In a drum, a drum-shell of separable sections, posts supported by the different sections, tubes carried by said posts, and means for joining the ends of said tubes together, substantially as specified.

2. In a drum, a drum-shell of separable sections, posts carried by the separate sections, tubes supported by said posts, means for connecting said tubes together, and means whereby the ends of said tubes are held in alinement, substantially as specified.

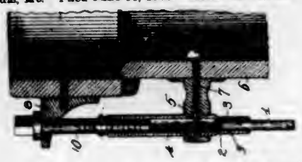
3. In a drum, a drum-shell of separable sections, posts supported by the said sections, tubes carried by said posts, there being threads of different pitch on the adjacent ends of said tubes, and a nut for engaging with said threads, substantially as specified.

4. In a drum, a drum-shell of separable sections, posts carried by the different sections, tubes supported by said posts, guides carried by certain of said tubes, means for drawing the adjacent ends of the tubes closely together, and adjustable screws carried by the drum-shell for holding the ends of the tubes in the proper adjustment, substantially as specified.

5. In a drum, a separable drum-shell of different parts, posts carried by the said parts, coupling-tubes carried by said posts, a nut for joining said tubes together, and means whereby the ends of the said tubes are drawn closely together when the said nuts are operated, substantially as specified.

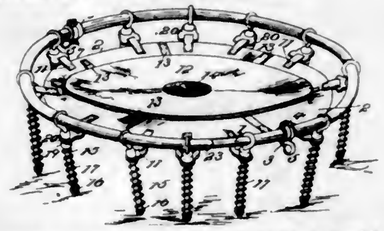
6. In a drum, a separable drum-shell composed of a number of section, posts carried by the said sections, coupling-tubes carried by said posts, means for connecting said tubes together, and rubber posts carried by the drum-shell, as and for the purpose specified.

663,855. DUPLEX TIGHTENING DRUM-ROD. EMILE BOULANGER, St. Louis, Mo. Filed June 11, 1900. Serial No. 19,938. (No model.)



Claim.—In a drum, a tightening device consisting of the central rod 1 having an integral head 2 at each end, notches 3 formed in said rod adjacent to the said heads, a tube 4 compressed closely around the ends of the rods and being swaged into the said notches 3, posts 5 for supporting the said tubes, and screw-bolts 10 supported in brackets 8 secured to the rims of the drum for securing the posts of the drum together, substantially as specified.

663,856. FIRE-ESCAPE. THOMAS F. BROWDER, Greenfield, Ohio. Filed Apr. 14, 1900. Serial No. 12,867. (No model.)



Claim.—1. In a fire-escape of the character described, and in combination with the blanket and yielding connections, a sectional frame adapted to fold, and reinforcements applied to the terminals of the sections and adapted to form hinge members, one set of reinforcements having sockets and the other set projections to enter said sockets and overlap the joint formed between the sections, substantially as specified.

2. In a fire-escape of the character set forth, and in combination with the blanket and yielding connections, a folding frame having its sections provided at diametrically opposite points with corresponding transversely-apertured ears adapted to overlap, one set of ears constituting a hinge-joint, and a fastening removably fitted to the other set of ears, substantially as set forth.

3. In a fire-escape of the character set forth, and in combination with the blanket and yielding connections, a folding frame having a hinge connection upon one side of its plane and provided upon the other side with ears adapted to overlap and transversely apertured, the openings in the last-mentioned ears being elongated in a direction parallel with the plane of the frame when extended, and a key having an offstanding lug to pass through the elongated opening of the matching ears and adapted to be turned to sit crosswise thereof, substantially as set forth.

4. In a fire-escape of the character described, a folding frame for supporting the blanket and yielding connections, the joint between the sections of the frame comprising a socket and a projection and having relatively upper and lower sets of ears, the upper ears being permanently hinged and the lower ears having transverse openings elongated in a direction parallel with the plane of the frame when extended, and a key having a reduced end portion provided with a terminal offstanding lug to pass through the ears having elongated openings, said key being adapted to be turned to confine the ears between a lug thereof and the shoulder formed at the base of the reduced end portion, substantially as specified.

5. In a fire-escape, and in combination with the frame, blanket and hangers, supporting-springs, links, each comprising an eye and a loop portion and bent intermediate of its ends to throw the eye and the loop approximately at a right angle to each other, the eye portions of the links encircling the respective hangers, and means connecting the loops with the blanket, substantially as specified.

6. In combination with the frame, blanket and hangers, supporting-springs, links connecting the blanket with the hangers and comprising a looped portion and an eye portion disposed relatively at a right angle to each other, the eye portion being slidably mounted upon the hangers, substantially as specified.

7. In a fire-escape of the character described, a blanket and yielding connections, in combination with a sectional frame having interlocking projections at the joints and upper and lower sets of ears adapted to overlap and transversely apertured, and means connecting the ears by being passed through the registering openings thereof, substantially as described.

663,857. FIRE-ESCAPE. THOMAS F. BROWDER, Greenfield, Ohio. Filed Sept. 4, 1900. Serial No. 28,984. (No model.)



Claim.—1. In a hinge-joint, interlocking projections and coöperating seats therefor on opposite sides of the pivotal connection between the hinged members, and coupling-sleeves automatic in operation for locking and bracing the joint at diametrically opposite points, substantially as set forth.

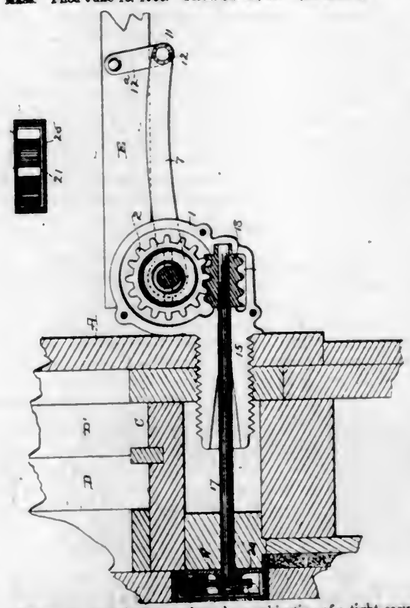
2. In a hinge-joint, interlocking projections and coöperating seats therefor, the said projections being rounded upon one edge to provide a cam portion and spring-actuated coupling-sleeves adapted to ride upon the curved portions of the interlocking projections when extending the joint, substantially as set forth.

3. In a hinge-joint, rounded ears and interlocking projections forming a part of the hinge members, the latter having corresponding seats for the interlocking projections, and spring-actuated coupling-sleeves adapted to ride upon the rounded edges of the said projections when extending the joint to admit of the automatic action of the parts to lock and brace the joint, substantially as specified.

4. In a hinge-joint, hinge members having their meeting portions reduced in thickness and provided with interlocking projections and corresponding seats therefor, coupling-sleeves slidably mounted upon the hinge members and springs exerting a pressure against said coupling-sleeves to render them automatic in action in effecting a self-locking and bracing of the joints when extended, substantially as specified.

5. In a hinge-joint, hinge members having their outer end portions reduced, and annular grooves formed in the shouldered parts of the members at the base of the reduced portion, frame-sections fitted upon the reduced end portions of the hinge members and having their terminals entering the annular grooves of the respective hinge members, sleeves fitted upon the parts of the frame and coming flush with the main portion of the hinged members, coupling-sleeves slidably mounted upon said hinged members, coiled springs exerting a pressure against the said coupling-sleeves, and interlocking projections and seats therefor upon opposite sides of the pivotal connections between the hinge members, substantially as set forth.

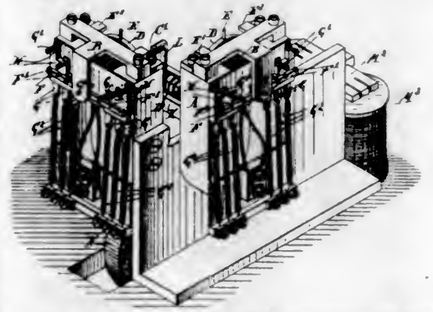
663,858. SHUTTER-WORKER. ARTHUR M. BURNHAM, Gardiner, Me., assignor, by mesne assignments, to George C. Morrell, Boston, Mass. Filed June 18, 1900. Serial No. 20,720. (No model.)



Claim.—1. In a shutter-worker, the combination of a tight casing, a worm-wheel completely inclosed within said casing and having a journal projecting beyond the same, means for connecting said journal with a shutter, a tubular, externally-threaded shank projecting from said casing, a worm inclosed within the casing and having an angular bore in line with the bore of the tubular shank, a spindle mounted in said tubular shank and having one end angular to enter the angular bore of the worm, a sprocket-chain secured to the other end of said spindle and a sprocket-chain passing over the sprocket-wheel.

2. A shutter-worker, consisting of a spindle, mechanism connected with one end of said spindle for operating the shutter, a sprocket-wheel on the inner end of said spindle, a casing in which said sprocket-wheel is mounted, a chain passing over said sprocket-wheel, rollers in said casing against which the chain bears in such manner as to hold it in mesh with the sprocket-wheel and prevent rattling of said chain, and a cover for said casing.

663,859. RECEIVER FOR PRINTING-TELEGRAPHS. JOHN BURRY, New York, N. Y. Filed Aug. 18, 1896. Serial No. 603,136. (No model.)



Claim.—1. In a printing-telegraph, the combination with a type-wheel mounted to turn and to be shifted in the direction of its length, of a single magnet and its circuit for turning said type-wheel and another single magnet and its circuit for shifting said wheel, a local line, a press-magnet in said local line and means for closing the circuit of the local line from either one or both of the circuits above mentioned, substantially as herein shown and described.

2. In a printing-telegraph, the combination with a type-wheel mounted to turn and to move longitudinally of a single magnet and its circuit for turning said type-wheel and another single magnet and its circuit for shifting said type-wheel, a local circuit, a press-magnet in said local circuit, means for closing the local circuit every time current is admitted to either or both of said two magnet-circuits and a presser and paper-feed mechanism operated by a magnet in the local circuit, substantially as herein shown and described.

3. In a printing-telegraph the combination with a type-wheel mounted to turn and to be shifted longitudinally of two independent magnets and circuits for turning and shifting said type-wheel and two or more resistances acting on the parts moved by each of said magnets independent of the resistances acting on the parts moved by the other magnet, substantially as herein shown and described.

4. In a printing-telegraph, the combination with a type-wheel mounted to turn and to be shifted longitudinally, two independent magnets and circuits for moving said type-wheel of a group of resistances of various strengths acting on parts moved by each of said magnets independent of the resistance acting on the parts moved by the other magnet, substantially as herein shown and described.

5. A printing-telegraph, the combination with a type-wheel mounted to turn and to be shifted longitudinally, of groups of independent mechanical resistances for each magnet, which resistances oppose the power in the magnet for turning and shifting the wheel, and such magnets for so turning and shifting the type-wheel substantially as set forth.

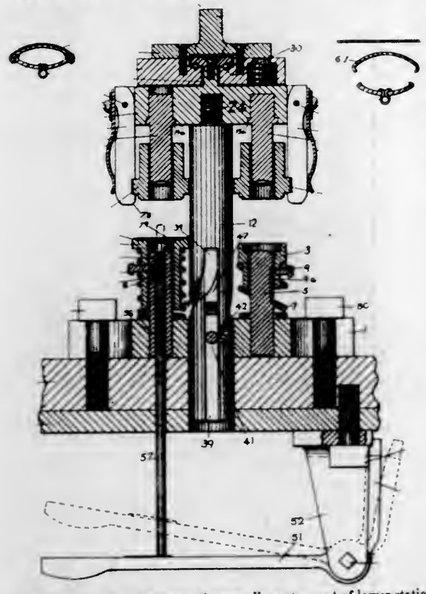
6. In a printing-telegraph the combination with a magnet and circuit, of a shaft turned by said magnet, an arm on said shaft and projecting in opposite directions from the same and series of resistances located at said arm, at each side of the shaft and at varying distances from said arm, substantially as herein shown and described.

7. In a printing-telegraph, the combination with two independent electric motors and a separate circuit for each, of two adjacent and parallel rotatable and longitudinally-shiftable type-wheels, means operated by said magnets for shifting said type-wheels together and rotating said type-wheels together, a shiftable presser adjacent to said type-wheels and magnets in the circuits of the above-mentioned magnets for shifting said presser, substantially as herein shown and described.

8. In a printing-telegraph the combination with a type-wheel mounted to turn and to be shifted in the direction of its length, of two inde-

pendent magnets and circuits for turning and shifting said wheel, a third circuit, a press-magnet in said third circuit and means for closing this third circuit from either one or both of the two independent circuits.

663,860. BUTTON-DIE. JOHN R. BYRNE, Boston, Mass., assignor of one-half to Harvey Wright, Medford, Mass. Filed Dec. 17, 1898. Serial No. 699,551. (No model.)



Claim.—1. In a die, a set of upper die parts, a set of lower stationary die parts coöperating therewith mounted immovably on a base, a turning device associated with said base operating to reverse one of said sets of die parts, vertical and spiral grooves in said turning device, a switching-guide, and rollers coöperating therewith.

2. In combination, a punch-holder, a head-plate, a turning device therefor, plunger sleeves and shanks mounted on said head-plate, a tube, tube-center, post-sleeve, and post coöperating with said plunger sleeves and shanks, a hole in said head-plate, and a spring therein, whereby a pin may be substituted for one of said plunger sleeves and shanks, and cooperate with said tube and center, and upon turning, passing upward into said hole against said spring, thereby escaping interference with said post.

3. In combination, a punch-holder, a head-plate, a turning device therefor, plunger sleeves and shanks mounted on said head-plate, a tube, tube-center, post-sleeve, and post coöperating with said plunger sleeves and shanks, and a hole in said head-plate, whereby a pin may be substituted for one of said plunger sleeves and shanks, and coöperate with said tube and center, and upon turning, passing upward into said hole thereby escaping interference with said post.

4. In combination, a base, a punch-holder, a head-plate, a turning device therefor consisting in a rod with straight and spiral grooves mounted on said head-plate and rollers or studs on said base working in said grooves, plunger sleeves and shanks mounted on said head-plate, a tube, tube-center, post-sleeve and post coöperating with said plunger sleeves and shanks.

5. In a die, a base, a set of die parts mounted thereon, an ascending and descending head-plate carrying a complementary set of die parts, and a pivotal rod mounted on said head-plate and passing through a hole in said base, straight and spiral grooves in said rod, spring-pressed rollers or studs journaled in said base and projecting into said grooves, and switching-guides in said grooves, said studs riding over said guides when the rod is traveling in one direction, and being deflected or switched into the spiral grooves by said guides, thus turning said roller when it is traveling in the other direction.

6. In a die, a punch-holder adapted to be attached to the press, a head-plate carrying a bearing washer or plate 32 hung on rolling bearings which in turn are supported on the upper side of a bearing-plate 28 fixed to the punch-holder, and die parts mounted on said head-plate each coöperating with a plurality of stationary die parts, and adapted to be shifted from one to another.

7. In a die, a punch-holder carrying a bearing-plate, a head-plate carrying a bearing-washer between two end-thrust bearings, a rolling bearing on its under side, and a direct plate bearing on its upper side to exert the thrust for die-work, and die parts mounted on said head-plate each cooperating with a plurality of stationary die parts.

8. In a die, a punch-holder carrying a bearing-plate, a head-plate carrying a bearing-washer between two end-thrust bearings, a rolling bearing on its under side and a direct plate, bearing on its upper side to exert the thrust for die-work, and die parts mounted on said head-plate each coöperating with a plurality of stationary die parts, and a turning device for said head-plate and die parts thereon.

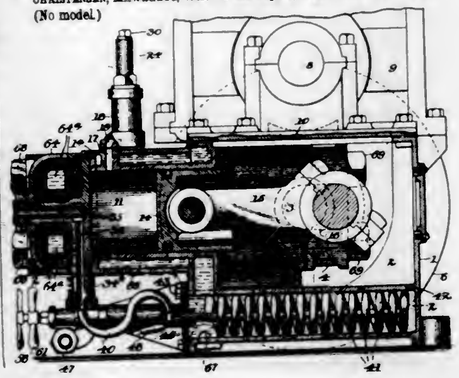
9. In a die, a punch-holder carrying a bearing-plate, a head-plate carrying a bearing-washer between two end-thrust bearings, a rolling bearing on one side of said washer, and a direct plate on the other side of said washer to exert the thrust for die operations, and die parts mounted on said head-plate, each coöperating with a plurality of stationary die parts.

663,861. COLLAPSIBLE DRESS-SKIRT FORM. ELLA M. CASE, Pittsburg, Pa. Filed May 29, 1900. Serial No. 18,397. (No model.)



Claim.—In a device of the character described, the combination with the base, the vertical standard mounted in said base, and the waist-form mounted on said standard, said form carrying a series of hooks, of a series of rings concentrically arranged one above the other and increasing in size from the upper to the lower ring, a series of links connected at one end to each ring, guide-rings surrounding the standard with the other end of said links connected thereto, a series of chains connected to each of the concentrically-arranged rings and extending above the upper ring of the series with their ends connected to the hooks carried by the waist-form, and a stop-collar adjustably mounted on the standard for securing the form in the extended position, substantially as described and shown.

663,862. HIGH-PRESSURE FLUID-COMPRESSOR. NIELS A. CHRISTENSEN, Milwaukee, Wis. Filed Sept. 9, 1899. Serial No. 729,957. (No model.)



Claim.—1. In a compressor, the combination, with a cylinder having a suction-port and a discharge-port, means for closing such suction-port after partial compression but before complete compression and a safety-valve device communicating with said suction-port.

2. A compressor comprising a cylinder having a piston and a valve-governed discharge-port and a valve-governed suction-port, said piston closing the suction-port from the compression or discharge end of the cylinder after its partial but before its complete compression-stroke and keeping that port closed at such complete stroke, and the suction-valve closing its port when the piston completes its suction-stroke.

3. A compressor comprising a cylinder having a piston and suction and discharge-ports, the suction-port being so removed from the discharge end of the cylinder as to be closed by the piston after partial compression but before complete compression and kept closed thereby at complete compression.

4. A compressor comprising a cylinder having a discharge-port at one end and a suction-port in the side wall comparatively near the same end and a piston traveling in the cylinder and adapted to pass and close the suction-port near the end of its compression-stroke to eliminate clearance, keeping such suction-port closed at the full compression-stroke and to open such suction-port near the beginning of the return stroke to admit fluid and practically prevent formation of a vacuum.

5. In a compressor, the combination of a piston, a cylinder therefor having a port to atmosphere which is closed by the piston after a partial but before a complete compression-stroke and a safety-valve device governing such port.

6. A compressor comprising a cylinder having a piston and a valve-governed suction port or passage and a valve-governed discharge-port, said suction-port being so located as to be closed by the piston before the completion of its compression-stroke, and a safety-valve communicating with the suction port or passage on the cylinder side of the suction-valve and set to blow off at a pressure less than that delivered from the compressor.

7. A compressor comprising a cylinder having a piston and a valve-governed suction and discharge port, the suction-port being located in the side wall of the cylinder at such a distance from the end thereof that the piston closes said suction-port before the completion of its compression-stroke and a safety-valve device communicating with the suction-port on the cylinder side of its governing-valve.

8. In a compressor, a safety-valve device governing a port communicating with the compression-cylinder, such valve device being exposed to pressure of partial compression but not to that pressure finally delivered from the compressor.

9. A compressor comprising a cylinder having a valve-governed discharge-port and a suction-port, a suction-valve for the suction-port consisting of a casing having a passage communicating with the suction-port and also having an inlet-port, a suction-valve governing communication between said inlet and said passage, said casing having a third port normally closed to atmosphere and communicating with said passage and a spring-pressed valve closing said third port against ordinary pressure.

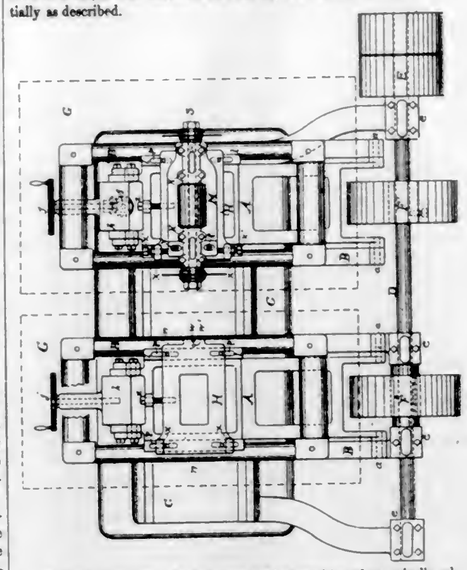
10. A compressor comprising a cylinder having a valve-governed discharge-port and a suction-port, a suction-valve governing the suction-port and consisting of a casing provided with a chamber having a passage communicating with the suction-port and also having an air-inlet and an exhaust-port, a suction-valve governing the communication between the inlet and said passage to the suction-port and movable in said chamber but not fitting air-tight, a valve normally closing the exhaust-port against ordinary pressure, a casing for said last-named valve, a spring holding the same to its seat and means for adjusting the tension of the spring.

11. A suction-valve and safety-valve therefor comprising a casing provided with a chamber communicating with the suction-port and with an air-inlet, a cylindrical suction-valve movable in said chamber to govern communication between said port and inlet but not fitted air-tight, a second casing secured in the first casing and having a passage communicating with said chamber above the valve and also having an exhaust-port, a spring-pressed valve closing communication between the passage and exhaust-port in said second casing.

12. A suction-valve and safety-valve in connection therewith comprising a casing 18 provided with a chamber and having a passage 19 and inlet-passage 20, a cylindrical suction-valve 22 governing communication between passages 19 and 20 and having a pin 32, a casing 24 secured to casing 18 having a passage 25 into which pin 32 extends and communicating with the suction-valve chamber and also having exhaust-ports 26, a valve 27 normally closing communication between passage 25 and ports 26, a spring 28 normally holding valve 27 to its seat and an adjusting-nut 29 for adjusting the spring tension.

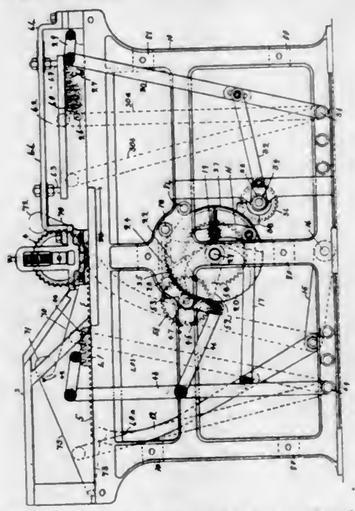
663,863. CIRCULAR SAWING MACHINE. FRANK H. CLEMENT, Rochester, N. Y. Filed July 27, 1900. Serial No. 25,023. (No model.)

Claim.—1. The combination in a circular sawing machine of a swing-ing gallows-frame, a sliding plate adjustable thereon at right angles, or nearly so to a driving-shaft by means of a tension-screw, a saw-arbor yoke made independently adjustable on said sliding plate both vertically and horizontally, whereby said arbor can be alined with its table or with another arbor, and the tension of the driving-belt varied at will, substantially as described.



2. The combination in a circular sawing machine of a vertically-adjustable gallows-frame A, plate H, arranged to slide thereon, saw-arbor yoke M, having rockers *s*, *s*, clamping-bolts *t*, *t*, *w*, set-screw *w'*, and the tension-screw Z, all constructed and operating substantially in the manner set forth.

663,864. COLLOTYPE OR SIMILAR PRINTING MACHINE. ALFRED COX, Bradford, England. Filed Aug. 18, 1899. Serial No. 727,692. (No model.)



Claim.—1. In a printing-machine of the type specified the combination with a reciprocating plate-carriage having an inking-slab at each end and reciprocated in such a way that there is a period of rest at each end of its stroke, of inking-rollers constructed and arranged to move over the plate each time it is brought to rest, substantially as herein shown and described.

2. The combination with the reciprocating inking-rollers of jockey-rollers and distributing-rollers and an inverted inking-slab against which they come in contact while being reciprocated over the plate.

663,865. RUBBER HEEL FOR SHOES. WILLIAM W. COMINGOR, Danville, Ind. Filed Jan. 29, 1900. Serial No. 3,124. (No model.)

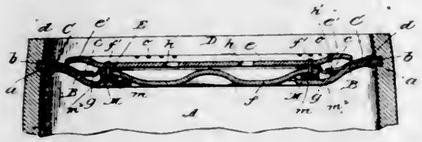


Claim.—1. In combination, the rubber heel, the plate inclosed therein having the perforation therein, and the slitted plate having the projection in said perforation and bearing on said plate.

2. The solid-rubber or cushion heel having the nail-receiving holes formed therein and also having embedded in the material thereof adjacent to the outer edge the thin narrow metal strip corresponding in outline substantially to the contour of the heel and having holes registering with holes in the heel and also having the perforation therein, the slitted plate having the projection in said perforation and bearing on said strip, the projections on said plate turned toward the bottom of the heel, and the nails in said holes and bearing against said plate, substantially as and for the purposes set forth.

3. The solid-rubber or cushion heel having the nail-receiving holes formed therein and also having embedded in the material thereof adjacent to the outer edge the thin narrow metal strip corresponding in outline substantially to the contour of the heel and having holes registering with holes in the heel, and also having a perforation therein; the slitted plate having the projection in said perforation and bearing on said strip, the plate situated between the ends of said metal strip and having the nail-hole registering with a nail-receiving hole in said heel, and the nails in said holes, substantially as set forth.

663,866. BARREL-HEAD. JAMES D. COPPERFIELD and BURTON M. JUSTICE, Philadelphia, Pa., assignors to the Removable Barrel-Head Company, Camden, N. J. Filed Jan. 20, 1900. Serial No. 2,180. (No model.)



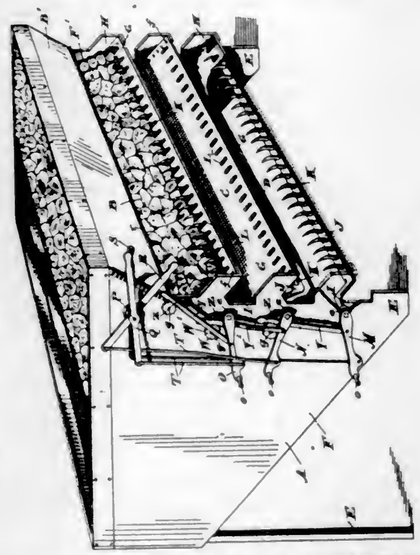
Claim.—1. In a barrel-head the combination of a ring-section having a convex portion adjacent its edges, a convex metallic ring secured to the upper surface of said convex portion, spaced flanges formed on the inner periphery of said upper ring substantially horizontally disposed and inclined toward one end, and a removable disk cover having spaced flanges secured thereto, adapted to engage the under surface of the flanges on the stationary ring, for the purpose substantially as described.

2. The combination with the barrel proper, of a ring-section secured thereto having an outer convex portion an inner flat portion, a sealing-gasket supported on said flat portion, a metallic convex ring secured to the upper portion of the main ring-section, horizontally-disposed spacing-flanges extending from the inner edge of said metallic ring said flanges being inclined toward one end, a removable cover having its bottom resting on the sealing-gasket and its top overlapping the upper ring-section, and a series of inclined flanges secured under the top of said cover adapted when in position to engage the under side of the flanges on the upper ring, substantially as described.

3. The combination with the barrel proper, of a ring-section, B, having a substantially convex portion adjacent its periphery curved downwardly and inwardly toward its inner edge, an elastic gasket carried near the inner edge, a metallic ring, C, secured on the upper surface of the section, B, for a portion of its width, inwardly-projecting spaced flanges inclined toward one end formed on the inner edge of said ring, a cover comprising a lower section, *f*, adapted to rest on the sealing-gasket, *a*, ring, E, secured to the top of said section, having flanges, *g*, inclined toward one end, adapted to engage the flanges, *c*, and an upper disk, *e*, secured to the section, *f*, substantially as described.

4. In a barrel-head, the combination with the barrel-body of a ring-section, B, having a substantially convex portion near its periphery curved downwardly and inwardly, the outer edge of which is secured in the stave-croze, a metallic ring, C, secured to the upper surface of the section, B, outwardly-projecting flanges, *c*, formed on said ring at intervals along its inner periphery, said flanges being inclined to form wedges, a sealing-gasket carried by section, B, near its inner edge, a cover, D, comprising a lower disk, *f*, adapted to rest on the sealing-ring, an upper disk, *e*, having a convex edge, *e'*, adapted to bear at its periphery against the ring, C, a ring, E, secured between the section, *e*, *f*, having a series of flanges, *g*, adapted to engage the under side of the flanges, *c*, substantially as described.

663,867. FEEDING DEVICE FOR STEAM-STOKERS. FREDERICK W. COX, Toronto, Canada. Filed May 5, 1900. Serial No. 15,640. (No model.)



Claim.—1. A feeding device for stokers comprising a hopper constructed at the best angle to utilize gravity for convenient discharge of coal therefrom, supports for same, a suitable counterbalanced bar journaled in the walls of said hopper and extending for the whole width of said hopper and operated underneath the discharging end thereof, suitable curved teeth secured in alinement to one another in said counterbalanced bar, the said teeth extending up through slots in said discharging end into the path of movement of the coal in the hopper and operated for determining the quantity of coal discharged from said hopper, and suitable means for operating said counterbalanced bar and curved teeth secured thereto, as set forth and for the purpose specified.

2. A feeding device for stokers comprising a hopper constructed at the best angle to utilize gravity for the convenient discharge of coal therefrom, supports for same, a suitable feeder having bearing in said hopper and situated a suitable distance above the floor of said hopper, means for revolving same, a suitable counterbalanced bar journaled in the walls of the hopper and extending for the whole width of said hopper and operated underneath the discharging end thereof, suitable curved teeth secured in alinement to one another in said counterbalanced bar, the said teeth extending up through slots in said discharging end into the path of movement of the coal in the hopper and operated for determining the quantity of coal discharged from said hopper, and suitable means for operating said counterbalanced bar and curved teeth secured thereto, as set forth and for the purpose specified.

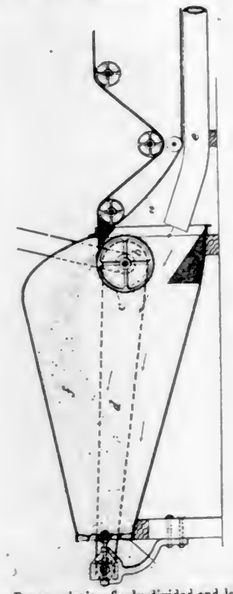
3. In a device of the class described the combination with the hopper, floor thereof and slots therein, of the bar J, having bearing in said hopper, teeth secured to said bar, and means for operating said bar, as set forth and for the purpose specified.

4. In a device of the class described the combination with the hopper, floor thereof and slots therein, of the counterbalanced bars J, having bearing in said hopper, teeth so secured to said bar that they will describe an arc concentric with the arc described by said bars, feeders V, having bearing in said hopper and constructed as described, means for operating said feeders V, and an arm attached to said bar J, for operating same, as set forth and for the purpose specified.

5. In a device of the class described the combination with the hopper, floor thereof and slots therein, of the counterbalanced bar J, having bearing in said hopper and situated underneath said floor, curved tapered teeth K, so secured to said bar that they will describe an arc concentric with the arc described by said bar, feeder V, having bearing in said hopper, and constructed as described, ratchet-wheel rigidly secured on one end of said feeder, toothed spring-held arm engaging with said ratchet-wheel, a lever pivoted near the top of said hopper and connected to an arm and operating same, said arm operating said toothed spring-held arm and also being secured to the bar J, for operating the same, as set forth and for the purpose specified.

6. The combination, in a device of the class described, with the hopper, floor G, slots L, counterbalanced bar J, provided with teeth K, as described, said bar being supported as described, and described operating means for same, and feeders V, constructed, supported, and operated as described, of the protecting-plates *m*, secured to the floors G, and extending so as to prevent the jamming of said feeders by the coal, all arranged as set forth and for the purpose specified.

663,868. TREATMENT OF WOOD-PULP. FRANCIS C. CRRAN, Montreal, Canada. Filed Jan. 3, 1899. Serial No. 700,986. (Specimens.)



Claim.—1. Paper-pulp in a finely-divided and loose dry fibrous and flocculent form, substantially as described.

2. The process of producing pulp in marketable form, which consists in forming the pulp into a more or less wet sheet or web, disintegrating said sheet or web into finely-divided and separated particles, drying said particles and rendering them loose and flocculent by subjecting them to a draft of heated air, substantially as described.

663,869. DEVICE FOR DESTROYING FLIES. CARLOS V. CUDLIPP, Lima, Peru. Filed Aug. 9, 1900. Serial No. 26,326. (No model.)

Claim.—1. The herein-described device for attracting and destroying flies and other insects, which consists of a highly-combustible string, cord, tape or similar article coated or saturated with a sweetened substance and means for dotachably suspending the said string from a ceiling or other support, whereby when the insects have congregated upon the string the same may be burned, and another string suspended in its place, substantially as shown and described.

2. The herein-described device for attracting and destroying flies and other insects, which consists of a highly-combustible string, cord, tape or similar article coated or saturated with a sweetened substance and a bell from which the string, cord, tape or other article is suspended, substantially as shown and described.

3. The herein-described device for attracting and destroying flies and other insects, which comprises the combination of a highly-combustible string, cord, tape or similar article coated or saturated with a sweetened substance, and a suspending device adapted to connect the same with a ceiling or other support, the same comprising means whereby the device may be detachably suspended in order to connect another string after the one is burned, and embodying also means for protecting the ceiling or support and the suspending means from the flame of the string, substantially as shown and described.



663,870. DEVICE FOR DESTROYING FLIES. CARLOS V. CUDLIPP, Lima, Peru. Filed Aug. 9, 1900. Serial No. 26,327. (No model.)



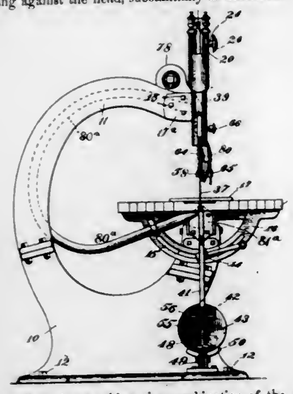
Claim.—1. A fly-trap consisting of a hollow inverted device open at the bottom which is adapted to be suspended from a ceiling or other support, a central depending rod, and a vertically-movable inverted-bell-shaped device mounted thereon, and adapted to be thrown into contact with said first-named device, substantially as shown and described.

2. A fly-trap consisting of a hollow device open at the bottom and adapted to be suspended from a ceiling or other support, a central depending rod, a vertically-movable inverted-bell-shaped device mounted on said rod, a spring mounted between said last-named device and the lower end of said rod and adapted to throw said device upwardly, and means for holding said device in a depressed position against the operation of said spring, substantially as shown and described.

663,871. SCROLL-SAWING MACHINE. THOMAS CURLEY, Troy, N. Y. Filed Sept. 25, 1899. Serial No. 731,628. (No model.)

Claim.—1. In a scroll-sawing machine, the combination of the goose-neck, the head rigidly secured thereto, a slidable strainer-block adjustably secured to the head, links embracing the head and secured to the strainer-

block, a shaft journaled in the links, and a cam on said shaft between the links and bearing against the head, substantially as described.



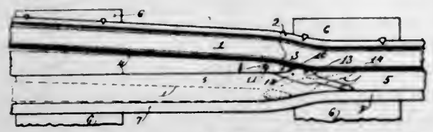
2. In a scroll-sawing machine, the combination of the gooseneck, the head rigidly secured thereto, a slidable strainer-block adjustably secured to the head, a half-pulley pivoted to the block, a band or strap passing over said half-pulley and secured thereto, a spring engaging one end of the strap to draw it downward, a saw-blade secured to the opposite end of the strap or band, and means for drawing the saw-blade downward, substantially as described.

3. In a scroll-sawing machine, the combination of the gooseneck, the head rigidly secured thereto, a slidable strainer-block adjustably secured to the head, a half-pulley pivoted to the block, a band or strap passing over said half-pulley and carried to and secured at a point nearer the center than the rim of the half-pulley and passed downward from said point, a spring connecting the strap to the block, and means for adjusting the spring, substantially as described.

4. In a scroll-sawing machine, the combination of the gooseneck, the head rigidly secured thereto, a slidable strainer-block adjustably secured to the head, a half-pulley pivoted to the block, a band or strap passing over said half-pulley and secured thereto, a spring engaging one end of the strap to draw it downward, a screw on the lower end of the spring, said spring passing through an opening in the head, a plug for the lower end of the opening, having a bole through which the screw passes, and a nut on the screw below the plug, substantially as described.

5. In a scroll-sawing machine, the combination with a reciprocatory strap for carrying the saw, a slidable block to which the strap is secured, a right-angled bracket, the vertical arm of which is provided with a guide for the strap, and a bolt passing through a slot in the horizontal arm into the bottom of the block, substantially as described.

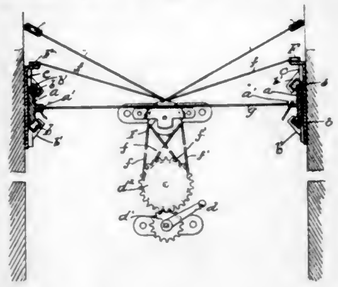
663,872. RAILWAY-SWITCH. CLAUDE A. DUNN, Denver, Colo., assignor, by direct and mesne assignments, to the Automatic Railway Switch Company, same place. Filed Dec. 11, 1899. Serial No. 739,998. (No model.)



Claim.—1. The combination with the rails in a car-switch, of a laterally-springing elastic rod reciprocally journaled to and extending from above through the platform of said car to said tracks, a spring arranged to control one movement of said rod, a manually-operating foot-plate on the upper end of said rod, and having a projecting arm adapted to engage the sides of an operator's foot, a flange below said foot-plate secured to said car's platform in which the top of said rod is journaled, a bracket secured to said plate and arranged loosely on each side of said rod and adapted to allow a slight turning movement to said foot-plate and rod by a side movement of an operator's foot, a suitable device at the lower end of said rod for engaging said switch-lever to throw it and said switch-tongue to open or close said switch, and an elastic lever or brush attached to the lower end of said rod arranged to scrape or sweep the dirt out of said switch as said switch-throwing rod passes through it, substantially as described.

2. The combination with the rails, of the T-rail, the guard-rail, the bed-plate, the switch-tongue and the switch-lever with a switch-throwing foot operating rod secured to and arranged to be manually operated from the platform of said car, and having a portion of its length elastic enough to allow it to spring sidewise to compensate for the swaying of said car when the lower end of said rod is between the switch-rails and having said rod journaled to have a slight turning movement, a spring arranged to normally hold said rod out of engagement with said rails, a foot-plate on the top of said rod for pressing said rod against said spring down between said rails to throw said switch-lever and switch-tongue, a suitable terminal end on said switching-rod for engaging said switch-lever, a brush secured to the switching end of said rod adapted to sweep out dirt as said rod passes through said switch, means connected with said foot-plate for manually turning said rod with an operator's foot to cause said brush to sweep the side of said rails, and means substantially as described for defining the turning movement of said rod and brush substantially as described.

663,873. CLOTHES-DRYING APPARATUS. EDGAR F. EDE, Hartford, Conn. Filed Dec. 18, 1899. Serial No. 740,627. (No model.)



Claim.—1. In combination; two base-rods, each beveled on its opposite edges; means for moving these rods longitudinally in parallelism; line-attaching devices on the rods connected by clothes-lines under tension; four series of brackets; and pulleys journaled therein with their faces so disposed as to engage the beveled edges of the rods; all substantially as described and for the purpose set forth.

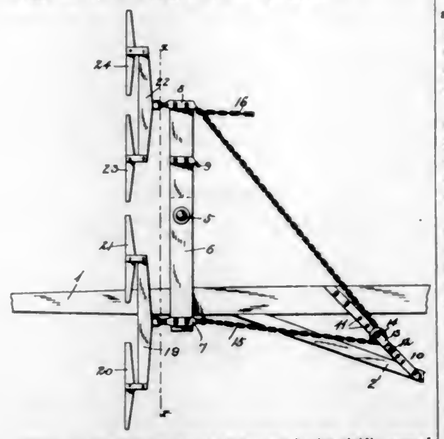
2. In combination; two parallel base-rods, each oppositely beveled on its opposite edges; means for moving these rods longitudinally and simultaneously; line-attaching devices on the rods connected by clothes-lines under tension; two pulley base-boards; two series of brackets on each board; and two series of pulleys journaled therein with their axes converging and their faces so disposed as to engage the beveled edges of the rods; all substantially as described and for the purpose set forth.

663,874. NAPKIN-HOLDER. JOSEPH W. EMSLEY, Trinway, Ohio. Filed Jan. 20, 1900. Serial No. 2,152. (No model.)



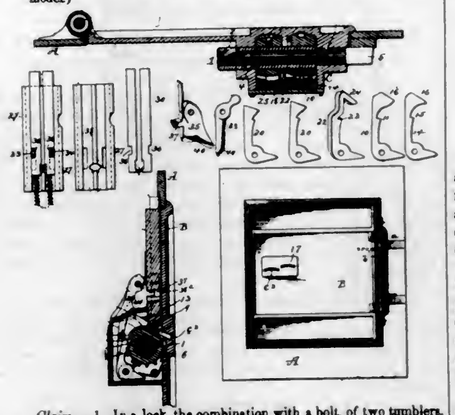
Claim.—In a napkin-holder, the combination, with a base-plate, the sides of which are provided near their lower ends with staples and the lower end is provided with a transverse loop, of a clamping-plate, the sides of which are provided with staples to register with the staples of the base and the lower end is extended to form a thumb-piece and the upper ends of the sides are curved to the rear and joined with a cross-bar, a rod through the staples, a coiled spring upon the rod, the ends of which engage with the base and the central portion is doubled upon itself and extended from the rod and engages with the clamping-plate at the thumb-piece, and a substantially U-shaped hook through the loop on the base, the ends of which extend up under the sides of the base and are bent and sharpened, substantially as described.

663,875. DRAFT-EVENER. MIKE FEIERER, Sleepy Eye, Minn. Filed June 13, 1900. Serial No. 20,164. (No model.)



Claim.—An evener, consisting of a tongue, having rigidly secured to one side, a brace, extending rearwardly; a perforated bar, one end secured to the brace and the other to the tongue; an arm, pivoted to the upper face of the tongue, some distance from its rear end; a beam, pivoted at its middle, to the free end of the arm; a hook, secured to the left-hand end of the beam; a double hook, secured to the right-hand end of the beam, said hooks adapted to carry on their front parts, whiffletrees or singletrees; a hook, secured midway between the middle of the beam and the right-hand end thereof; a pulley, adjustably secured to the perforated beam; a chain, having one end secured to the rear part of the double hook, passing thence rearwardly and around the pulley, adjustably secured to the perforated beam, thence forwardly, and adapted to be hooked to either of the hooks on the right-hand end of the beam, substantially as shown and described and for the purposes set forth.

663,876. LOCK FOR SAFETY-DEPOSIT BOXES. ALAN R. FERGUSON, New York, N. Y. Filed Feb. 13, 1900. Serial No. 5,078. (No model.)



Claim.—1. In a lock, the combination with a bolt, of two tumblers, one free and the other operatively connected with the bolt, a separate key for each tumbler and means between the tumblers for causing one of them to be moved in position to receive its key when the other one is operated.

2. In a lock, the combination with a casing, of a sleeve in the casing, a bolt passing through the sleeve and operatively connected therewith, a tumbler secured to the sleeve and normally out of position to receive its key, a tumbler mounted loose on the sleeve and adapted to be operated by a separate key, and means between the two tumblers arranged to cause the fixed tumbler to be moved in position to receive its key when the loose tumbler is rotated.

3. In a lock, the combination with a bolt, of two tumblers, one free and the other operatively connected with the bolt, a device for normally locking the last-mentioned tumbler against rotation, and a key for rotating the free tumbler and simultaneously releasing said locking device.

4. In a lock, the combination with a casing, a sleeve mounted therein and a bolt operatively connected with the sleeve, of a tumbler free on the sleeve, a tumbler secured to the sleeve, a separate key for each tumbler, a series of independent spring-pressed locking-fingers normally engaging each tumbler and means between the two tumblers for moving one to position to receive its key when the other tumbler is operated.

5. In a lock, the combination of a tumbler, a bolt operatively connected with said tumbler, an auxiliary bolt, a lever for operating it, a second tumbler, a key for rotating said second tumbler and simultaneously operating the auxiliary bolt to withdraw it, and a separate key for rotating the first-mentioned tumbler to withdraw the bolt operatively connected therewith.

6. In a lock, the combination with a main bolt and an auxiliary bolt, of two tumblers, one operatively connected with the main bolt and the other free to rotate, a separate key for each tumbler, means between the tumblers for moving the one connected with the main bolt to position to receive its key when the free tumbler is rotated, and a lever connected with the auxiliary bolt and disposed in the path of the key by means of which the free tumbler is rotated.

7. In a lock, the combination with a bolt and a key, of a tumbler in the path of and controlling the entrance of the key, two pivoted levers located beyond said tumbler, one of said levers normally locking the bolt and the other connected directly with the bolt for withdrawing it, both of said levers being disposed in the path of the end of the key, so that when the key is inserted the bolt will be unlocked by the movement of one lever and then positively withdrawn by the movement of the other lever.

8. In a lock, the combination with a tumbler, a series of bolts and a key for operating the tumbler, of an independent lever for each bolt, all of said levers disposed in the path of the key and a lever for normally locking all the bolts, said locking-lever also disposed in the path of the key.

9. In a lock, the combination with a tumbler, and a key for operating the same, of a sliding bolt, a lever connected with said bolt and having a knife-edge disposed in the path of the key.

10. In a lock, the combination with a tumbler and a key for operating the same, of a sliding bolt, a lever connected with said bolt and having a knife-edge disposed in the path of the key, and a lever normally locking said bolt against movement and having a knife-edge also disposed in the path of said key.

663,877. BUCKLE. LOUIS I. FRIEDENBERG, New York, N. Y., assignor, by mesne assignments, to the Columbia Buckle Company, same place. Filed Feb. 2, 1899. Renewed May 11, 1900. Serial No. 16,357. (No model.)



Claim.—1. As an improved article of manufacture, a buckle having an open frame with a back bar for the attachment of a strap, a recessed front gripper-bar to bear upon the adjustable strap, and a spring frame and bar, said spring-bar being situated above the gripper-bar, and the end bars of the buckle-frame extending out beyond the spring-bar and connected thereto by bends, substantially as set forth.

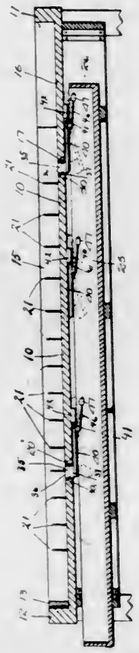
2. As an improved article of manufacture, a buckle having an open frame with a back bar for attachment of a strap, and a short, front, gripper-bar *a*, adapted to bear only on the middle portion of the adjustable strap, and a spring-frame, rigid with the back bar of the buckle-frame, and having a bar on the spring-frame situated above the gripping-bar and adapted to receive the bight of the adjustable strap, substantially as set forth.

3. As an improved article of manufacture, a buckle made from a single piece of wire and comprising a buckle-frame open at the middle of its back bar, and a spring-frame integrally connected by its back bar with the back bar of the buckle-frame open at the middle of its front bar, and a ferrule on said front bar, substantially as set forth.

4. As an improved article of manufacture, a tongueless buckle made from a single piece of wire and consisting of the relatively short gripping-bar *a*, the loop-like bends a^x, between the respective ends of the bar *a* and the end bars of the buckle-frame, the said end bars, at right angles

to the gripping-bar, the back bar a^2, formed of two sections parallel with the gripping-bar, the two springs a^3, connected integrally at their meeting ends with the ends of the respective sections of the back bar a^2, the end bars a^1, of the spring-frame, and the transverse bar a^3, parallel with and above the gripping-bar and formed of the two extremities of the wire which meet end to end, substantially as set forth.

663,878. GAME-TABLE. WILLIAM H. FULLINGTON, Dayton, Ohio, assignor, by mesne assignments, to the Manhattan Table Company, same place. Filed Feb. 13, 1899. Serial No. 705,953. (No model.)



Claim.—1. In a game-table the combination of an inclined table-top provided with alleys on its opposite edges, a concaved vertically-projecting wall upon the end of said table at the top of its incline, a flange at the end of said table at the bottom of said incline, said flange being provided with a series of concave recesses, a recess in the top surface of said table near said concaved wall at the top of the incline of said table, the openings 17 and 20 near opposite ends of and passing through said table, the openings 18 and 19 near opposite sides of and passing through said table, the projections 35 loosely mounted in each of said openings, said projections 35 being each provided with ends 36 and 37 adapted to normally form planes continuous with the top and bottom surfaces respectively of the table-top, the bar secured at one end to the end 37 of each of said projections 35, the hinge near the opposite end of each of said bars, the cleats for supporting each of said hinges, the rod secured to each of said bars, the adjustable counterweight upon each of said rods, each of said bars extending below and contacting with the bottom edge of the table-top; a series of pins projecting from the upper surface of the table-top adjacent said openings 17, 18, 19 and 20 therethrough; and a ball-return rack below and parallel with said table-top, the front or lower end of said ball-return rack projecting beyond the lower or front end of the table-top, and said alleys opening toward said concaved end wall at the top of the incline of the table; substantially as described.

2. In a game-table the combination of an inclined table-top provided with alleys on its opposite edges, a concaved vertically-projecting wall upon the end of said table at the top of its incline, a flange at the end of said table at the bottom of said incline, said flang ebeing provided with a series of concave recesses, the circular openings 17 and 20 near opposite ends of said table, the circular openings 18 and 19 near the center of the length of said table and near opposite sides thereof, the circular projection 35 removably mounted in each of said circular openings, and a flaring circular mouth at the lower end of each of said circular openings; substantially as specified.

3. In a game-table the combination of an inclined table-top provided with alleys on its opposite edges, a concaved vertically-projecting wall upon the end of said table at the bottom of said incline, said flange being provided with a series of concave recesses, the circular openings 17 and 20 near opposite ends of said table, the circular openings 18 and 19 near the center of the length of said table and near opposite sides thereof, the circular projection 35 removably mounted in each of said circular openings, the top of said projections normally forming a plane substantially continuous with the top surface of the table, a bar secured at one end to the bottoms of each of said projections, the length of said projections being substantially equal to the thickness of the table-top, each of said bars extending beneath and substantially parallel with the table-top, a pivotal connection between each of said bars and said table-top, means for yieldingly maintaining the tops of said projections normally in a plane substantially continuous with the top surface of the table, and each of said bars being adapted to normally contact with the table-top to normally maintain said position of the tops of said projections; substantially as specified.

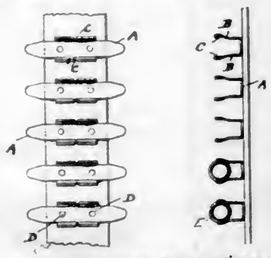
663,879. PACKING-RING. ELMER E. GALLUP, Sewickley, Pa. Filed Dec. 23, 1899. Serial No. 741,401. (No model.)



Claim.—1. As a new article of manufacture, a wedge-shaped packing-ring formed of india-rubber and having an annular V-shaped recess in its rear face, substantially as set forth.

2. As a means for packing joints, an india-rubber packing-ring having a transverse contour corresponding to the contour of the pocket or recess in which the ring is to be fitted, and provided with an annular V-shaped recess in its rear wall and a follower-ring having an annular conically-shaped rib or projection, substantially as set forth.

663,880. AMMUNITION-CLIP. FRANK M. GARLAND, New Haven, Conn. Filed Feb. 20, 1900. Serial No. 5,870. (No model.)



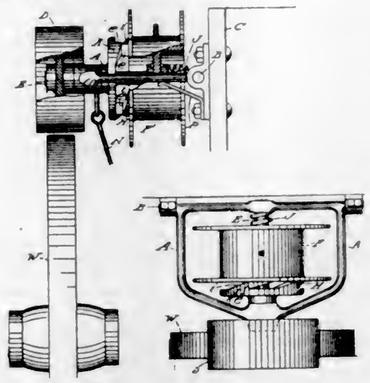
Claim.—1. An ammunition-clip, having spring-arms, which arms are adapted to hold a cartridge; and means connected therewith for preventing the endwise movement of the said cartridge within the said arms, the said means consisting of an inwardly-projecting portion engaging with a recess on the said cartridge, substantially as described.

2. An ammunition-clip having a base portion A; spring-arms B B connected therewith and projecting upward therefrom parallel with each other, and means for preventing the endwise movement of a cartridge within the said clip, the said means consisting of the oppositely-disposed inwardly-projecting detents C C upon the inner faces of the said spring-arms, substantially as described

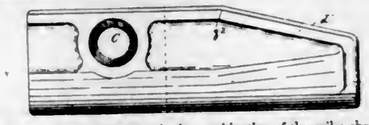
3. An ammunition-belt having means for removably securing cartridges thereto, the said means consisting of a clip having spring-arms between which the cartridges can be inserted and means, as detents, upon said spring-arms which enter a recess in the said cartridges and hold the same against endwise movement within the said clip, substantially as described.

663,881. HORSE-HITCHING DEVICE. NORMAN L. GOODWIN, Thorp, Wash. Filed Jan. 16, 1900. Serial No. 1,703. (No model.)

Claim.—In a horse-hitching device for vehicles, drawn by animal-power, the combination with a vehicle-wheel, of a frame pivoted to the vehicle-body, a friction-wheel carried by said frame and adapted to engage the tire of the vehicle-wheel, a hand-lever connected to the frame to move same so as to bring the friction-wheel into engagement with the vehicle-wheel tire, and a spring for moving said frame to release such engagement, a drum and a rein connected thereto for checking the animal, said drum and friction-wheel being provided with clutching means adapted to couple the drum and friction in only one direction of movemen and said clutching means comprising inclined teeth adapted to disengage the said parts, and a spring adapted to cause engagement of the clutching means, substantially as set forth.

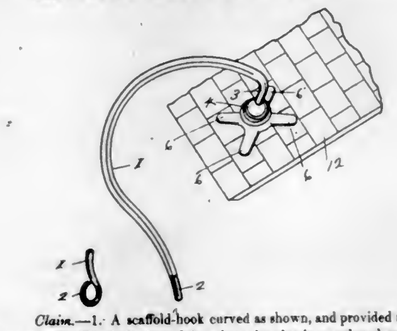


663,882. RAIL CONNECTION FOR RAILWAYS. WILLIAM C. GREGG, Honolulu, Hawaii. Filed Mar. 22, 1900. Serial No. 9,775. (No model.)



Claim.—In a railway-track, the combination of the rail, a shoe-joint of one piece passing entirely around the base and flange of the rail, a certain portion of said shoe fitting closely the web, flange and base of the rail and provided with bolt-holes which register with a bolt-hole in the end of the rail, and flanges which bear on the under side of the head of the rail, the other part of the shoe being flaring except on its base and inclining toward the end, said inclined portion and the flared end provided with a flange, and adjustable means for holding the rails rigidly in said shoe but permitting disconnection of any rail from the track after the fastening device for said shoe has been adjusted, substantially as described.

663,883. SCAFFOLD-HOOK. ROBERT B. GREGORY, Decatur, Ind. Filed Oct. 10, 1900. Serial No. 32,564. (No model.)



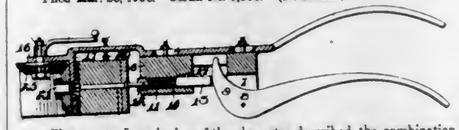
Claim.—1. A scaffold-hook curved as shown, and provided upon its upper end with a ball adapted for a loose bearing in a socketed gripping-plate, in combination with a gripping-plate provided with radial arms or claws having a series of teeth upon their lower face, the said plate having a removable annular cap adapted to firmly secure the said ball in its socket.

2. The combination in a scaffold-hook of a curved hook from which the scaffold is supported having upon its upper end a fixed pendent ball; and a gripping-plate provided upon its lower face with a plurality of holding-teeth, having upon its upper face a socket adapted to loosely receive the said ball, and provided with an annular detachable cap adapted to secure the said ball in its said socket.

3. A scaffold-book consisting of a curved arm provided upon its upper end with a fixed ball, and a two-part gripping-plate having upon its upper face a socket for the said ball, and having upon its lower face a series of holding-teeth, and provided with a detachable annular cap adapted to secure the said ball in position.

4. In a scaffold-hook, a gripping-plate consisting of a base-plate having a series of radial arms or claws provided upon their lower face with a series of holding-teeth, and provided upon its upper face with a socket for the purpose specified, and an annular cap adapted to tightly but detachably fit the upper face of said plate, the opening in said cap being contracted as shown for the purpose described.

663,884. TIRE-BOLT WRENCH. AMOS E. GROOM, Mars, Pa. Filed Mar. 20, 1900. Serial No. 9,390. (No model.)



Claim.—1. In a device of the character described, the combination of the handle having the downwardly-extending hangers, the horizontally-adjustable body portion connected to the handle and provided with a longitudinal opening, the extension carried by the handle, the bevel-gear 25 carried by said extension, and the adjustable set-rods mounted in the extension, the nut-receiving sleeve carried by the extension of the handle, the spring-actuated clamping-rod carried by the body portion, and the cam-lever adapted to engage said clamping-rod to hold the same in engagement with a tire-bolt, substantially as shown and described.

2. In a device of the character described, the combination of the slotted bar having the handle at one end and the bowed extension at the other end, the horizontally-adjustable body portion carried by said bar and provided with a longitudinal opening, the nut mounted in said opening, the spring-actuated clamping-rod mounted in said opening and operating through said nut, the cam-lever carried by the bar and adapted to engage said clamping-rod, the nut-receiving sleeve carried by the extension of the bar, and the means carried by said sleeve and extension for rotating the sleeve, substantially as described.

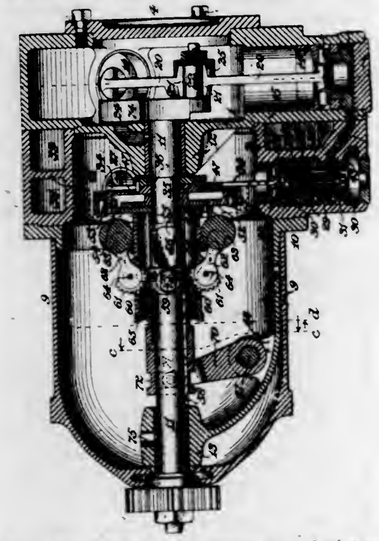
3. In a device of the character described, the combination of the slotted bar having the handle at one end and the bowed extension at the other end, the horizontally-adjustable body portion carried by said bar, the spring-actuated clamping-rod carried by said body portion, the adjustable set-rods mounted in said bowed extension and provided with rubber tips to engage the felly, the cam-lever to engage said clamping-rod, the nut-receiving sleeve carried by the bowed extension with the removable bar mounted therein, and the means carried by the bowed extension and sleeve for rotating the latter, substantially as described.

663,885. VALVE-GEAR. WILLIAM S. HALSEY, Pittsburg, Pa. Filed June 20, 1900. Serial No. 21,023. (No model.)

Claim.—1. In a fluid-pressure motor, the combination of a frame or casing, a motor-cylinder fixed thereto, a driving-shaft journaled thereon, a crank on said driving-shaft, a piston fitting said cylinder, a connection from the piston to the crank, a distribution-valve controlling the supply and exhaust of motive fluid to and from the piston, an eccentric fitted freely on, and movable transversely to, the driving-shaft, and provided with two oppositely-projecting arms, a connection from the eccentric to the distribution-valve, an arm fixed to the driving-shaft and pivoted to one of the arms of the eccentric, an eccentric-turning sleeve fitted to move circumferentially upon the driving-shaft and having a radial arm pivoted to the adjoining arm of the eccentric, peripheral cam-grooves in the eccentric-turning sleeve, an adjusting-sleeve fitted to traverse longitudinally, but not circumferentially, upon the driving-shaft, pins on said sleeve engaging the cam-grooves of the eccentric-turning sleeve, and means for imparting longitudinal movement, in either direction, to the adjusting-sleeve.

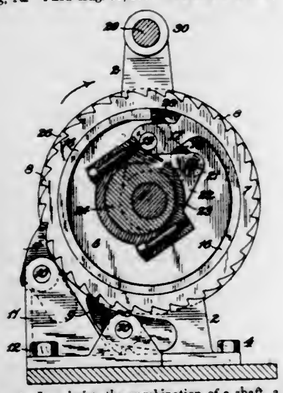
2. In a fluid-pressure motor, the combination of a frame or casing, a motor-cylinder fixed thereto, a driving-shaft journaled thereon, a crank on said driving-shaft, a piston fitting said cylinder, a connection from the piston to the crank, a distribution-valve controlling the supply and exhaust of motive fluid to and from the piston, an eccentric fitted freely on, and movable transversely to, the driving-shaft, a connection from the eccentric to the distribution-valve, an eccentric-turning sleeve fitted to move circumferentially upon the driving-shaft, connections coupling said sleeve with the eccentric, peripheral cam-grooves in said sleeve, an adjusting-

sleeve fitted to traverse longitudinally, but not circumferentially, upon the driving-shaft, pins on said sleeve engaging the cam-grooves of the eccentric-turning sleeve, a governor supported on and rotating with the driving-shaft, and connections through which longitudinal movement, in either direction, may be imparted to the adjusting-sleeve by the governor.



3. In a fluid-pressure motor, the combination of a frame or casing, a motor-cylinder fixed thereto, a driving-shaft journaled thereon, a crank on said driving-shaft, a piston fitting said cylinder, a connection from the piston to the crank, a distribution-valve controlling the supply and exhaust of motive fluid to and from the piston, an eccentric fitted freely on, and movable transversely to, the driving-shaft, a connection from the eccentric to the distribution-valve, an eccentric-turning sleeve fitted to move circumferentially upon the driving-shaft, connections coupling said sleeve with the eccentric, peripheral cam-grooves in said sleeve, an adjusting-sleeve fitted to traverse longitudinally, but not circumferentially, upon the driving-shaft, pins on said sleeve engaging the cam-grooves of the eccentric-turning sleeve, a reversing-shaft journaled on the frame transversely to the driving-shaft, a reversing-arm fixed to the reversing-shaft, and pins on said arm engaging a circumferential groove on the adjusting-sleeve.

663,886. LOWERING-BRAKE FOR HOISTS. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Aug. 30, 1900. Serial No. 28,509. (No model.)



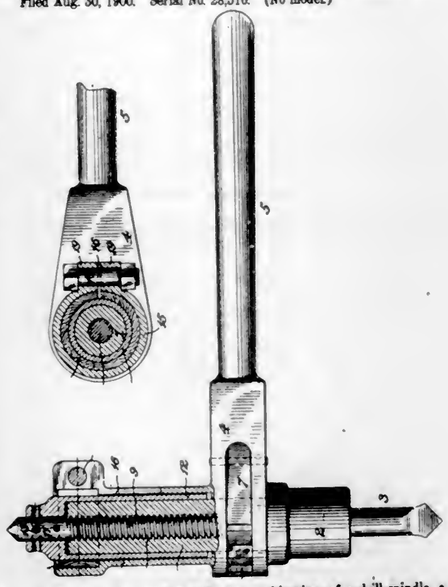
Claim.—1. In a hoist, the combination of a shaft, a hoisting-drum fixed thereto, a friction-wheel fitted to turn freely on said shaft, means for preventing rotation of the friction-wheel in one direction upon the shaft and permitting its rotation thereon in the opposite direction, an expansible friction-ring fitting a bearing-surface on the friction-wheel and connected to the shaft, an operating-wheel fitted freely on the shaft, and means, substantially as set forth, interposed between the operating-wheel and the friction-ring, through which movement of the operating-wheel in one direction expands the friction-ring into frictional contact with the friction-wheel, and movement in the opposite direction contracts the friction-ring and correspondingly reduces the degree of frictional contact.

2. In a hoist, the combination of a shaft, a hoisting-drum fixed thereto, a friction-wheel fitted to turn freely on said shaft, means for preventing rotation of the friction-wheel in one direction upon the shaft and permitting its rotation thereon in the opposite direction, a transversely-divided expansible friction-ring fitting a bearing-surface on the friction-wheel and connected to the shaft, an operating-wheel, fitted freely on the shaft, an expanding-lever fulcrumed in a bearing fixed to the shaft, and having an arm adapted to abut against one end of the friction-ring, an eccentric fixed to the operating-wheel, and a strap encircling the eccentric and coupled to the expanding-lever.

3. In a hoist, the combination of a shaft, a hoisting-drum fixed thereto, a friction-wheel fitted to turn freely on said shaft, means for preventing rotation of the friction-wheel in one direction upon the shaft and permitting its rotation thereon in the opposite direction, a transversely-divided expansible friction-ring fitting a bearing-surface on the friction-wheel and connected to the shaft, a double-armed expanding-lever fulcrumed in a bearing fixed to the shaft, and having its outer arm adapted to abut against one end of the friction-ring, an eccentric fixed to the operating-wheel, and a strap encircling the eccentric and coupled to the inner arm of the expanding-lever.

4. In a hoist, the combination of a shaft, a hoisting-drum fixed thereto, a friction-wheel fitted to turn freely on said shaft, means for preventing rotation of the friction-wheel in one direction upon the shaft and permitting its rotation thereon in the opposite direction, an internally-bored circumferential rim or flange forming a frictional bearing-surface, on the friction-wheel, a transversely-divided expansible friction-ring fitting said bearing-surface, a connecting-arm fixed to one end of the friction-ring and to the shaft, a double-armed expanding-lever fulcrumed in said connecting-arm and having its outer arm adapted to abut against the end of the friction-ring opposite that to which the connecting-arm is fixed, an eccentric fixed to the operating-wheel, and a strap encircling the eccentric and coupled to the inner arm of the expanding-lever.

663,887. RATCHET-DRILL. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Aug. 30, 1900. Serial No. 28,510. (No model.)

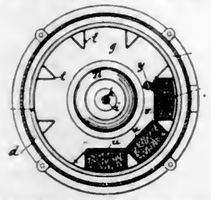


Claim.—1. In a ratchet-drill, the combination of a drill-spindle, a drill connected thereto, a drill-stock, means for imparting rotative movement from the drill-stock to the drill-spindle, in one direction only of traverse of the drill-stock, a feed-nut in the drill-spindle, a feed-screw engaging said nut, a member connected to and movable with the feed-screw and having a frictional surface, a member connected to and movable with the drill-stock and having an adjoining frictional surface, and means for bringing said frictional surfaces into operative frictional contact.

2. In a ratchet-drill, the combination of a drill-spindle, a drill connected thereto, a drill-stock, means for imparting rotative movement from the drill-stock to the drill-spindle, in one direction only of traverse of the drill-stock, a feed-nut in the drill-spindle, a feed-screw engaging said nut, a sleeve secured to the feed-screw, a friction-ring surrounding said sleeve, and connected with the drill-stock, and a clamping device adapted to induce and maintain operative frictional contact between the friction-ring and the feed-screw sleeve.

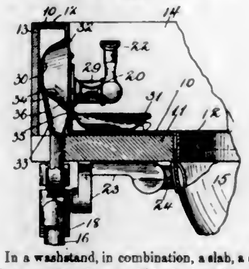
3. In a ratchet-drill, the combination of a drill-spindle, a drill connected thereto, means for imparting rotative movement from the drill-stock to the drill-spindle, in one direction only of traverse of the drill-stock, a feed-nut formed centrally in the drill-spindle, a feed-screw engaging said nut and having a center on its outer end, a sleeve fixed to the feed-screw and fitting freely on the drill-spindle, a split or divided sleeve fixed to the drill-stock and fitting around the feed-screw sleeve, a friction-ring held in a recess in the drill-stock sleeve and fitting the periphery of the feed-screw sleeve, and a clamping-screw engaging the divided portion of the drill-stock sleeve and acting to compress the friction-ring against the feed-screw sleeve.

663,888. DYEING CENTRIFUGAL. JOHN C. HAMER, Radcliffe, England. Filed Nov. 7, 1899. Serial No. 736,123. (No model.)



Claim.—In an apparatus for treating yarn in cop or similar compact form, a cage with means for rotating the same, a series of V-shaped partitions secured to the wall of said cage forming a series of compartments with parallel side walls, a spray-pipe depending within said cage and a series of rectangular perforated cages having open front sides closely fitting said compartments, the front faces of the cages forming a continuous wall, substantially as described.

663,889. WASHSTAND. WILLIAM S. HANN, Chicago, Ill., assignor to the Adams & Westlake Company, of Illinois. Filed Oct. 30, 1899. Serial No. 735,170. (No model.)



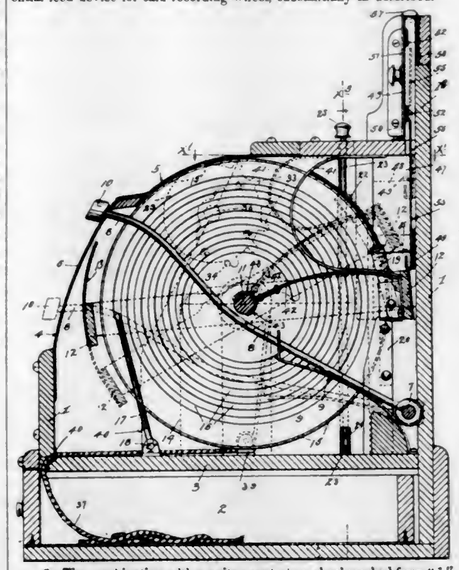
Claim.—1. In a washstand, in combination, a slab, a splasher-rail, a soap-box comprising a member 30, set within the front face of the splasher-rail, a member 31, hinged at the lower edge of the member 30, and a drain-pipe leading from the member 30, downwardly through the splasher-rail.

2. In a washstand, in combination, a splasher-rail, and a soap-box comprising a member 30, set within the front face of the splasher-rail and having an opening near its lower edge, a member 31, hinged at the lower edge of the member 30, and having a backwardly-projecting finger for passing through the aperture thereof, substantially as and for the purpose specified.

3. In a washstand, in combination, a splasher-rail, and a soap-box comprising a member 30, set within the front face of the splasher-rail, a drain-pipe leading from such member, a member 31, hinged at the lower edge of the member 30, and having a backwardly-projecting apron for leading to the drain-pipe when the box is closed.

663,890. CALCULATING-MACHINE. HANS J. HANSON, Hansonville, Minn. Filed June 4, 1900. Serial No. 18,979. (No model.)

Claim.—1. The combination with a unite-registering wheel marked from "1" to "100" and capable of several rotations, of a spiral guide carried by said wheel, a stop coöperating with said spiral guide and a differential feed device for said recording-wheel, substantially as described.

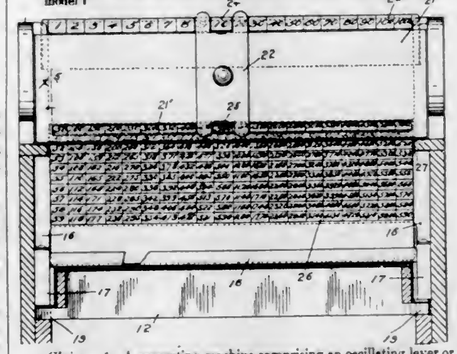


2. The combination with a unite-registering wheel marked from "1" to "100" and provided with a spiral profile groove, of a pivoted stop working in said spiral groove to limit the movements of said wheel, and a differential feed device for the said wheel, substantially as described.

3. The combination with a registering-wheel, of a friction device for preventing overmovements of said registering-wheel, of a differential feed device for said registering-wheel, and a device whereby the movement of said feed device increases the friction of said friction device, substantially as described.

4. The combination with the unite-registering wheel 14 having the ratchet-teeth 15, of the oscillating frame 12 with spring-pawl 19, the retaining-pawl 20, a differential feed device operating said lever 12, and a releasing device comprising the arm 21 with segmental flange 22, the slot 26, 27, in the machine-case, and the rod 23 working through said slot 26, 27, and connected to said arm 21, substantially as described.

663,891. COMPUTING-MACHINE. HANS J. HANSON, Hansonville, Minn. Original application filed June 4, 1900, Serial No. 18,979. Divided and this application filed Oct. 13, 1900. Serial No. 32,908. (No model.)



Claim.—1. A computing-machine comprising an oscillating lever or frame, a bank of keys having a differential action on said lever or frame, a chart or graduated card movable vertically into different positions by said frame or lever, and a transversely-movable indicator or head coöperating with said chart, substantially as described.

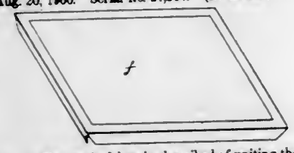
2. A computing-machine, comprising an oscillating frame, a bank of keys having a differential action on said frame, a chart or graduated

card movable into different positions by said frame, a relatively stationary scale or strip marked to indicate quantities, a transversely-movable indicator or head cooperating with said chart, substantially as described.

3. The combination with the oscillating lever-frame 12, having the stepped feed-plate 13, of the bank of digit-keys 8 operating one on each step of said plate 13, the vertically-movable blocks 17, subject to said lever 12, the channel-like support 18 carried by said blocks 17, the graduated chart or card supported by and movable with said rest 18, the relatively stationary quantity-strip, the guide-plate 21, and the indicator-head 22 sliding on said guide-plate 21 and provided with upper and lower end notches, substantially as described.

4. The combination with a strip marked to indicate quantities, of a chart marked in one direction to indicate the value of the various quantities at a certain price and having several lines of such markings, for several different prices, means for variably moving one of said members toward and from the other, and an indicator movable lengthwise of the said two members, for determining on the said chart the value of a certain quantity of material or matter at a certain price, substantially as described.

663,892. ADVERTISING-SIGN. JULIUS G. HANSEN, Reading, Pa. Filed Aug. 20, 1900. Serial No. 27,367. (No model.)



Claim.—1. The method herein described of uniting the celluloid, or like facing-sheet of an advertising-sign with the stiff backing-sheet thereof, without applying heat, pressure or a cementing medium to the main body, consisting, first, in placing said facing-sheet loosely on the backing-sheet with its edges projecting beyond the edges of the latter; second, bending the projecting edges of the facing-sheet over the edges of the backing-sheet and into contact with each face of the latter; and, finally, stretching the main body of the facing-sheet taut on the backing by flanging over the interiorly and exteriorly covered edge portions of said backing-sheet, holding the turned-over border of the facing-sheet firmly and leaving its unsecured body part free to be stretched taut on the face of the backing-sheet during said flanging operation, and securing the turned-over portions of the facing-sheet, substantially as described.

2. As a new article of manufacture, a sign comprising a flangible metallic backing, and a flexible covering of celluloid or the like of larger size than the backing, loosely superposed on the latter and having its projecting border portion bent around the edges of the backing and into contact with the reverse face of the latter, said covering being simultaneously clenched to said backing and drawn taut thereon by bending or flanging the edges of the backing, together with the covering on said flanged portion, into a plane approximately parallel with the body portion.

663,893. RUNNING-GEAR FOR VEHICLES. CHARLES HEART, Frankton, Ind. Filed Oct. 15, 1900. Serial No. 33,077. (No model.)



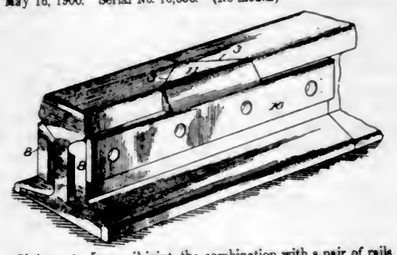
Claim.—1. A running-gear for vehicles provided with a pole, hounds, sand-board, spreader and axles, each member formed of two parts of hollowed-out metal formed into shape and secured together, a longitudinal strengthening-rib interposed between the two parts, and a bead on the opposite edges of the rib covering the joints between the parts.

2. A running-gear for vehicles provided with a pole, hounds, sand-board, spreader and axles, each member formed of two parts of hollowed-out metal formed into shape and secured together, a longitudinal strengthening-rib interposed between the two parts, a longitudinal bead on the opposite edges of the rib, a parallel longitudinal bead adjacent each outer bead, the two beads forming a groove in which fit the adjacent edges of the two parts.

3. A running-gear for vehicles provided with a sand-board, hounds and spreader, each member formed of two parts of hollowed-out metal formed into shape and secured together, a longitudinal strengthening-rib interposed between the two parts, a longitudinal bead on the opposite edges of the rib, a parallel longitudinal bead adjacent each outer bead, the two beads forming a groove in which fit the adjacent edges of the two parts, the rib and beads not extending to the ends of the members of the gear and the ends of the parts of the said members being pressed together.

4. In a running-gear for vehicles, the combination with the axle and hound, the axle being formed of two parts secured together, and a strengthening-rib interposed between the parts, of a spool interposed between the upper part of the axle and strengthening-rib, and a spool interposed between the strengthening-rib and lower part of the axle, the spools being disposed in vertical alinement and located in the axle at a point below the hounds.

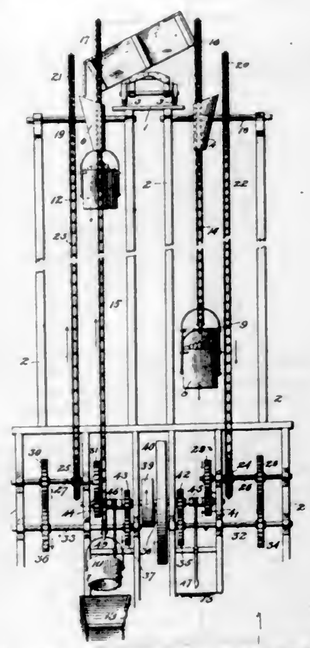
663,894. RAIL-JOINT. ALBERT G. HEINLE, Esplen, Pa. Filed May 16, 1900. Serial No. 16,850. (No model.)



Claim.—1. In a rail-joint, the combination with a pair of rails provided with a suitable recess, of a pair of fish-plates suitably secured thereto, a washer arranged at the side of one of said fish-plates, and a fastening-block carried by said washer and adapted to be seated within said recess, substantially as set forth.

2. The combination with the rails, which are cut away on corresponding sides of the tread at their meeting ends, of the fish-plates having shoulders to abut against the web of the rail, said fish-plates having their upper edges abutting with the underneath faces of the rail-tread, the bolts for securing said fish-plates to the rails, and an elongated washer mounted on said bolts, said washer carrying a block adapted to be seated within the recess of the rails, substantially as shown and described.

663,895. POWER-TRANSMITTING MACHINERY. JOSEPH HERRS, Fall Brook, Cal. Filed Apr. 26, 1900. Serial No. 14,496. (No model.)



Claim.—1. In a weight-motor, the combination with the belt-pulley; of means for driving the same, said means consisting of the alternately-weighted buckets attached to the ends of sprocket-chains running over large sprocket-wheels mounted upon shafts journaled at a higher level than said belt-pulley, smaller sprocket-wheels mounted upon and driven by the said shaft, endless chains or belts connecting said sprocket-wheels with the sprocket-pinions located at approximately the level of the belt-pulley and driving the same through the medium of the interposed trains of gearing, substantially as and for the purpose set forth.

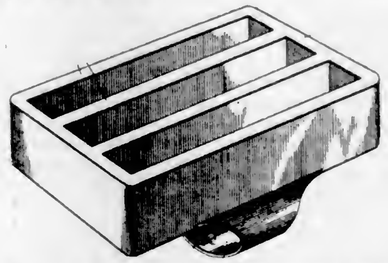
2. In a weight-motor, the combination with the belt-pulley mounted upon a shaft journaled in bearings in a framework situated at a lower level than the power employed in operating said pulley, means for transmitting said power to said pulley, the said means consisting of the endless sprocket-chains driven by said power and driving sprocket-pinions mounted on shafts journaled in bearings in the aforesaid framework, said shafts having spur-gears mounted thereon, loose gear-wheels mounted upon the aforesaid belt-pulley shaft, one of which being in mesh with one of the aforesaid spur gear-wheels and the other in mesh with a spur-gear mounted upon a counter-shaft also journaled in said framework and having mounted thereon another gear-wheel which is in mesh with the other of the aforesaid spur-gears mounted upon the sprocket-pinion shaft, the clutch slidably but not rotatably mounted upon said belt-pulley shaft to alternately throw the aforesaid loose gear-wheels into and out of operation, thereby imparting a continual motion to said belt-pulley in the same direction from the alternate application of the prime motive power by means of the interposed gearing, and a balance-wheel mounted upon said belt-pulley shaft to impart a steady uninterrupted motion thereto during the shifting of the said clutch, substantially as and for the purpose set forth.

663,896. COIN-HOLDER. CHRISTIAN A. HERR, Osborn, Ohio. Filed Aug. 25, 1900. Serial No. 27,991. (No model.)



Claim.—A coin-holder, the same being formed of two blanks with a plurality of rigid metallic bars inclosed between said blanks uniform distances apart, the ends of said bars projecting beyond the edges of the blanks, and the blanks being formed into cylindrical shape with the portions of the metallic bars between the projecting ends thereof wholly inclosed by said blanks, the projecting ends of said metallic bars adapted to be bent inwardly to form inclosures for the ends of said cylinder, substantially as shown and for the purposes specified.

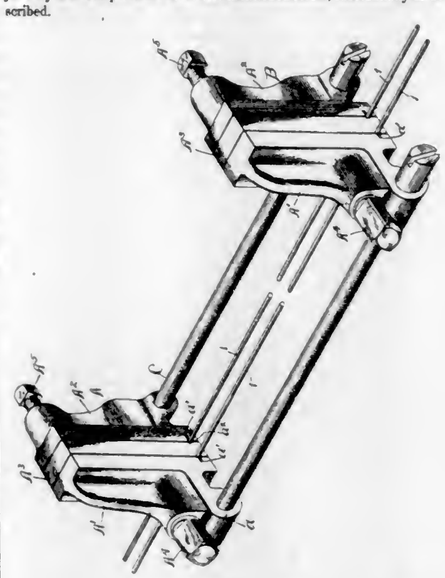
663,897. HAIR-SHEDDER. WILLIAM HERRICK, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed June 27, 1900. Serial No. 21,788. (No model.)



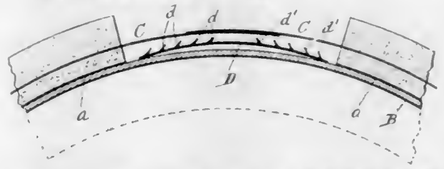
Claim.—A flexible and elastic hair-shedder, comprising a series of longitudinal parallel webs; transverse webs at the ends of the longitudinal webs, with the edges of said longitudinal and transverse webs all substantially in the same horizontal plane; and a back common to all of said webs, the whole being molded of rubber or rubber composition; and a sheet of fabric covering and united to the outer side of the back and provided with a suitable hand-guard, substantially as described.

663,898. DEVICE FOR USE IN SECURING RUBBER TIRES ON VEHICLE-WHEELS. WILLIAM HOLMES, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Feb. 21, 1900. Serial No. 6,036. (No model.)

Claim.—A device for use in securing elastic tires upon vehicle-wheels, comprising a couple of clamps adapted to grip the end portions of the retaining bands or wires and connected for relative adjustment by a pair of parallel adjusting-screws, each clamp consisting of a pair of jaws and an intermediate plate, the lower end portions of said jaws and plate being provided with opposing notches or grooves which cooperate in gripping and holding said bands or wires, an adjusting-screw extending through unthreaded openings in the lower portions of one jaw and the intermediate plate and engaging a threaded opening in the lower portion of the other jaw, said last-mentioned jaw having its upper portion provided with a second threaded opening, the upper portion of the intermediate plate being provided with an unthreaded opening coincident with said threaded opening in the upper portion of said jaw, and an adjusting-screw extending through said coincident openings and impinging upon the other jaw, the said intermediate plate being maintained in place and in line with the jaws by the end portion of said last-mentioned screw, substantially as described.



663,899. VEHICLE-TIRE FASTENING. WILLIAM HOLMES, Chicago, Ill., assignor to the Morgan & Wright, same place. Filed Aug. 13, 1900. Serial No. 26,735. (No model.)



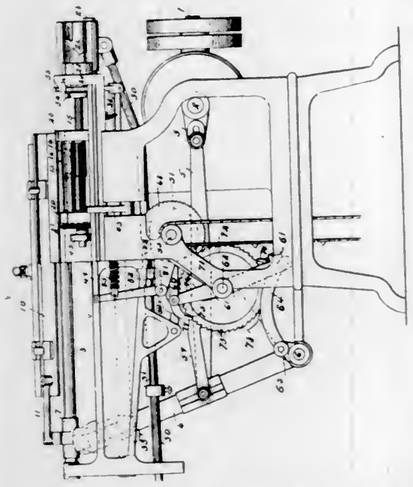
Claim.—1. The combination with a substantially solid elastic tire seated within a channeled rim and involving a joint at its meeting end portions; and a device adapted for tying together such end portions of the tire to prevent material opening or separation of the tire at the joint, and comprising a spring tie strip or plate normally bowed on substantially the line of a circle having a radius different from the radius of the circle of the tire, and having two sets of spurs or teeth respectively at opposite sides of the joint of the tire and inclining toward such joint, said spurs or teeth being in engagement with the tire and the spring strip or plate being flexed from its normal curvature to place it under tension and thereby assist in maintaining its spurs or teeth in engagement with the tire.

2. The combination of a substantially solid elastic tire seated within a channeled rim and involving a joint between its meeting end portions; and a device adapted for tying together such end portions of the tire to prevent material opening or separation of the tire at the joint, and comprising a spring tie strip or plate normally on a different longitudinal curve from the longitudinal curve of the tire and base of the rim-channel and confined between the base of the tire and the base of the channel, said tire-strip being arranged to cross the tie-joint and having two sets of spurs or teeth inclined toward the joint and engaging in the base of the tire; the spring tie-strip being flexed to substantially conform to the curve of the tire-base and channel-base, and being thereby under tension.

3. The combination of a substantially solid elastic tire seated within a channeled rim and involving a joint between its meeting end portions; and a device adapted for tying together such end portions of the tire to

prevent material opening or separation of the tire at the joint, and comprising a spring tie strip or plate normally on a curve having a radius which is less than the radius of the circle on which the base of the rim-channel is formed, said spring tie strip or plate being confined between the base of the tire and the base of the channel and arranged to cross the joint and having two sets of spurs or teeth inclined toward the joint and engaging in the base of the tire; the spring tie strip or plate being also flexed or straightened in opposition to its inherent spring resistance to an extent to substantially conform to the curvature of the base of the tire and bottom of the rim-channel and being thereby under tension.

668,900. STRAIGHT-KNITTING MACHINE. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to the Standard Machine Company, of Pennsylvania. Filed Mar. 13, 1900. Serial No. 8,427. (No model.)



Claim.—1. In a straight-knitting machine, the combination with the knitting-cams and the fashioning-needles, of devices for moving said needles independently into or out of operative position, a roll provided with a series of longitudinally-extending projections of varying extent, means for rotating said roll, one or more of said devices being in line of movement of one or more of said projections during the rotation of said roll and adapted to be moved thereby to throw said needles into or out of alinement with the knitting-cams, a frame for supporting said roll, and means for moving said roll longitudinally to dictate the needle-controlling devices to be actuated by said projections.

2. In a straight-knitting machine, the combination with the knitting-cams and the fashioning-needles, of devices for moving said needles independently into and out of operative position, a pair of rolls, each provided with longitudinally-extending projections and depressions of varying longitudinal extent, means for simultaneously rotating said rolls, the projections on one roll registering with the depressions on the other roll during rotation, said devices being in line of movement of the projections on one or the other of said rolls and adapted to be held or moved thereby to throw said needles independently into or out of alinement with the knitting-cams, and means for shifting said rolls longitudinally to dictate the needle-controlling devices to be actuated by the projections on each roll.

3. In a straight-knitting machine, the combination with the knitting-cams and the regular banks of needles adapted to be operated at each reciprocation of said cams, of the fashioning-needles, devices for moving said fashioning-needles independently into and out of operative position, and rotatable and longitudinally-movable rolls adapted to independently actuate said devices to move the needles into and out of operative position, means for rotating and longitudinally moving said rolls, the shifting of said rolls longitudinally dictating the needle-controlling devices to be actuated, and the rotation of said rolls actuating the same.

4. In a straight-knitting machine, the combination with needles, of devices corresponding to the needles and each adapted in its movements to move a corresponding needle into or out of operative position, a pair of rotatable rolls each provided with projections and depressions, means to move said rolls longitudinally to bring projections on said roll into alinement with predetermined needles, to respectively throw them into or out of operative position and means to impart to said rolls a complete revolution after each shifting of the rolls whereby the needles are moved into and out of operation in a predetermined order.

5. In a straight-knitting machine, the combination with the needles, of a pair of rolls extending along the needle-bed, each provided with projections and depressions extending longitudinally of said rolls, means enabling projections on said rolls to actuate needles in alinement therewith, to throw them respectively into and out of operative position, means to move said rolls longitudinally to bring said projections into position to so actuate predetermined needles, and means to rotate said rolls after each shifting thereof whereby the needles are moved into and out of operative position in a predetermined order.

6. In a straight-knitting machine, the combination with the needles, of a pair of rolls extending along the needle-bed each having a plurality of longitudinally-extending needle-actuating projections out of alinement with each other and extending longitudinally of the rolls, the rolls having relatively depressed portions, means enabling projections on said rolls to actuate needles in alinement therewith, to throw them respectively into and out of operative position, means whereby said rolls and the projections thereon are shifted longitudinally to bring them into position to actuate predetermined needles to throw them into and out of operative position, and means to rotate said rolls whereby the needles are thrown into and out of operative position in a predetermined order.

7. In a straight-knitting machine, the combination, with the front and rear banks of needles, of needle-actuating devices for each bank, two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions, means to move said rolls longitudinally to bring projections on one or the other roll of each pair into alinement with predetermined needles, to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operation in a predetermined order.

8. In a straight-knitting machine, the combination with the front and rear banks of needles, of two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions extending longitudinally thereof, means enabling projections on the two rolls of each pair to actuate needles in alinement therewith, to throw them respectively into and out of operative position, means to move the rolls longitudinally to bring projections on one or the other roll of each pair into position to actuate predetermined needles to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operative position in a predetermined order.

9. In a straight-knitting machine, the combination with the front and rear banks of needles, of two pairs of rolls extending respectively longitudinally along and adjacent to the front and rear needles, each roll having a plurality of longitudinally-extending needle-actuating projections out of alinement with each other, and extending longitudinally of said rolls, the rolls having relatively depressed portions, means enabling projections on the two rolls of each pair to actuate needles in alinement therewith to throw them respectively into and out of operative position, means whereby said rolls and the projections thereon are shifted longitudinally to bring them into position to actuate predetermined needles to throw them into and out of operative position, means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operation in a predetermined order.

10. In a straight-knitting machine, the combination with the front and rear banks of needles, of needle-actuating devices for each bank, two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions, means to move said rolls longitudinally to bring projections on one or the other roll of each pair into alinement with predetermined needles to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operation in a predetermined order, and means on one of the rolls whereby one of the needles of either bank is moved into position to, and caused to, knit with the needles of the other bank while the needles of the corresponding bank are out of operation, substantially as described.

11. In a straight-knitting machine, the combination with the front and rear banks of needles, of needle-actuating devices for each bank, two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions, means to move said rolls longitudinally to bring projections on one or the other roll of each pair into alinement with predetermined needles, to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operation in a predetermined order, one of the projections of one of the rolls of each pair being of different vertical height from the other projections and adapted to shift the device it engages to throw the needle controlled by said device in operative position to knit with the other bank.

12. In a straight-knitting machine, the combination with the front and rear banks of needles, of two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions extending longitudinally thereof, means enabling projections on the two rolls of each pair to actuate needles in alinement therewith to throw them respectively into and out of operative position, means to move said rolls longitudinally to bring projections on one or the other roll of each pair into position to actuate predetermined needles to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operative position in a predetermined order, and means whereby one of the needles of either bank is moved into position to, and caused to, knit with the needles of the other bank while the needles of the corresponding bank are out of operation, substantially as described.

13. In a straight-knitting machine, the combination with the front and rear banks of needles, of two pairs of rolls adjacent respectively to the front and rear needles, each roll having projections and depressions extending longitudinally thereof, means enabling projections on the two rolls of each pair to actuate needles in alinement therewith to throw them respectively into and out of operative position, means to move said rolls longitudinally to bring projections on one or the other roll of each pair into alinement with predetermined needles to throw them respectively into and out of operative position, and means to impart to the rolls of each pair a simultaneous movement of rotation after each shifting thereof, whereby the needles of both banks are moved into and out of operative position in a predetermined order, one of the projections of one of the rolls of each pair being of different vertical height from the other projections and adapted to shift the needle in alinement therewith into operative position to knit with the other bank.

14. In a straight-knitting machine, the combination with the knitting-cams and the regular banks of needles adapted to be operated at each reciprocation of said cams, of additional fashioning-needles on each bank, devices for moving said fashioning-needles independently into and out of operative position, a pair of rotatable and longitudinally-shiftable rolls for each bank of fashioning-needles, means for rotating and shifting the rolls of each pair simultaneously, each roll having a series of longitudinally-extending projections and depressions of varying longitudinal extent, the projections on one roll of a pair registering with the depressions on the other roll of said pair during their rotation, the needle-controlling devices of each bank being in alinement with the projections on one or the other of the corresponding pair of rolls and adapted to be actuated thereby the shifting of said rolls longitudinally dictating the needle-controlling devices to be actuated by the projections on each roll of each pair, the projections on one roll of each pair being adapted during rotation to hold or throw the needles controlled by the needle-controlling devices in alinement therewith into operative position, while the projections on the other roll of each pair are adapted to hold or throw the needles controlled by the needle-controlling devices in alinement therewith out of operative position.

15. In a straight-knitting machine, the combination with two banks of fashioning-needles, and the knitting-cams, of devices for moving said fashioning-needles independently into or out of operative position, a rotatable roll for each bank of fashioning-needles, and projections on said roll, means for rotating said roll, one or more of said devices being in line of movement of one or more of said projections and adapted to be actuated thereby to move or hold said needles in operative position in their respective banks, one of said projections being of greater vertical height than the other projection and adapted to shift the device it engages to throw the needle controlled by said device into operative position to knit with the other bank.

16. In a straight-knitting machine, the combination, with the knitting-cams, and the regular banks of needles adapted to be operated at each reciprocation of said cams, of the fashioning-needles, devices for moving said fashioning-needles independently into and out of operative position, and rotatable and longitudinally-movable rolls provided with projections of varying longitudinal extent adapted to independently actuate said needle-controlling devices to move the needles into and out of operative position, a projection on one or more of the rolls of a different height from the first-mentioned projections and adapted to actuate one of the needle-controlling devices to move its corresponding needle into operative position to knit with the needles of the other bank, means for rotating and longitudinally moving said rolls the shifting of said rolls longitudinally dictating the needle-controlling devices to be actuated, and the rotation of the rolls actuating the same.

17. The combination with the two banks of fashioning-needles, and the knitting-cams, of the pivoted levers 14 adapted to raise and lower the needles into and out of alinement with the knitting-cams, the two pairs of rolls 15, 16 and 17, 18 and longitudinally-extending projections on each roll of each pair in alinement with certain of said levers, the said projections being partially cut away, means for rotating the rolls of each pair simultaneously, the projections on each roll of each pair alining respectively with the projections, and registering respectively with the cut-away portions, on the other roll of said pair, and adapted to independently actuate said levers, and means to shift said rolls longitudinally, whereby different series of needle-levers are acted upon by the said rolls.

18. The combination with the two banks of fashioning-needles, and the knitting-cams, of the pivoted levers 14 adapted to raise and lower the needles out of alinement with the knitting-cams, the two pairs of rolls 15, 16 and 17, 18 and longitudinally-extending projections on each roll of each pair, the said projections being partially cut away, means for rotating the rolls of each pair simultaneously, the projections on each roll of each pair alining respectively with the projection, and registering respectively with the cut-away portions, on the other roll of said pair, the levers 14 on each bank extending between the corresponding pair of rolls the projections on one roll of each pair being adapted to actuate said levers to raise said needles into alinement with the knitting-cams, while the projections on the other roll of said pair are adapted to actuate said levers to depress said needles out of alinement with the knitting-cams, one projection on one roll of each pair being of greater height above the periphery of the roll than the other projections of said roll and adapted to actuate the lever engaged by it to raise the corresponding needle above the point to which the needles engaged by the other projections of said roll are raised, and a cam adapted to coöperate with the needle raised to the greater height.

19. The combination with the two banks of fashioning-needles, of pattern mechanism for the needles, means enabling the pattern mechanism to actuate needles in alinement therewith, a device carried by the pattern mechanism for moving at a predetermined time one of the needles of either bank to a different vertical height from the other needles of said bank, the knitting-cams for each bank, and a cam moving with the knitting-cams of each bank, in line of movement of, and adapted to actuate, the said needle raised to a different height, during the return movement of the corresponding knitting-cams, and during the actuating of the needles of the other bank, whereby said needle is caused to knit with the needles of the other bank.

20. The combination with the needles, of rolls adjacent thereto having projections, means enabling said projections to actuate needles in alinement therewith to throw the same into and out of operative position, a shaft for rotating said rolls, a cam on said shaft having a plurality of peripheral projections, cam-plates adapted to reciprocate longitudinally of the shaft and to alternately engage said cam between said projections to rotate said cam and shaft on their entering movement, and means for reciprocating said cam-plates.

21. The combination with the needles, of rotatable rolls adjacent thereto having projections, means enabling said projections to actuate needles in alinement therewith to throw the same into and out of operative position, a shaft for rotating said rolls, a cam on said shaft having a plurality of peripheral projections, beveled cam-plates on opposite sides of said cam and adapted to reciprocate longitudinally of the shaft, and means for reciprocating said cam-plates in unison, whereby said projections are consecutively engaged by each of said cam-plates alternately to rotate the cam and shaft in their forward movement.

22. The combination with the needles, of rotatable rolls adjacent thereto having projections, means enabling said projections to actuate needles in alinement therewith to throw the same into and out of operative position, a shaft for rotating said rolls, a cam on said shaft having a plurality of peripheral beveled projections, beveled cam-plates on opposite sides of said cam at different radial points and adapted to reciprocate longitudinally of the shaft, means for reciprocating said cam-plates in unison to cause said cam-plates to alternately engage said cam between said projections, whereby said projections are consecutively engaged by each of said cam-plates alternately to rotate the cam and cam-shaft in their forward movement.

23. The combination with the fashioning-needles, of a rod adapted to be reciprocated, mechanism actuated by the reciprocation of said rod to throw said needles into and out of operative position, lugs on said rod, a constantly-reciprocating lug, the pattern mechanism, and means actuated by the pattern mechanism to move said rod and thereby move said lugs into alinement with the constantly-reciprocating lug, whereby said rod is reciprocated.

24. The combination with the needles, of rotatable rolls, adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, a shaft for rotating said rolls, a cam on said shaft having a plurality of projections, beveled cam-plates on opposite sides of said cam, a rod connected with said cam-plates, lugs on said rod, a constantly-reciprocating lug, the pattern mechanism, and means actuated by the pattern mechanism to move said

rod and thereby move said lugs into alinement with the constantly-reciprocating lug whereby said rod is reciprocated, and said cam-plates reciprocated in unison to cause said projections to be consecutively engaged by both of said cam-plates alternately.

25. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, a shaft for rotating said rolls, a cam on said shaft, cam-plates adapted to engage and turn said cam, a rod connected to said cam-plates, a constantly-reciprocated device, the pattern mechanism, and means actuated by the pattern mechanism to move said rod into position to be engaged by the constantly-reciprocating device, whereby said rod and the cam-plates are reciprocated and the cam-plates caused to alternately engage said cam to turn the same and actuate the needle-actuating rolls.

26. The combination with the needles of the needle-controlling rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a shaft for rotating said rolls, a cam on said shaft, and mechanism for sliding said frame longitudinally adapted to be engaged by said cam at a predetermined point in the rotation of said shaft.

27. The combination with the needles, of the needle-controlling rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, a shaft, a cam on said shaft, means for rotating said shaft, and pawl-actuating mechanism adapted to be engaged by said cam at a predetermined point in the rotation of said shaft, whereby the frame is shifted to longitudinally shift said rolls.

28. The combination with the needles, of the needle-controlling rolls, adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, a shaft, a cam on said shaft, means for rotating said shaft, a bar adapted to be engaged by said cam, a bell-crank, one end connected to said bar and the other end to the pawl, whereby at a predetermined point in the rotation of said shaft the said cam engages and shifts said bar, causing the bell-crank to move said pawl to engage said rack and shift said frame and rolls longitudinally.

29. The combination with the needles, of the needle-controlling rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, a shaft, a cam on said shaft, means for rotating said shaft, and pawl-actuating mechanism adapted to be engaged by said cam at a predetermined point in the rotation of said shaft, whereby the frame is shifted to longitudinally shift said rolls, and a holding-pawl for retaining said rack and frame in its shifted position during the disengagement of the shifting-pawl.

30. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, a cam for rotating said rolls, cam-plates adapted to engage and turn said cam, means for actuating said cam-plates, a sliding frame in which said rolls are journaled, a second cam actuated by the first-named cam, and mechanism for sliding said frame longitudinally adapted to be engaged by the second cam at a predetermined point in its rotation.

31. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, a cam for rotating said rolls, cam-plates adapted to engage and turn said cam, a rod connected to said cam-plates, a constantly-reciprocated device, the pattern mechanism, means actuated by the pattern mechanism to move said rod into position to be engaged by the constantly-reciprocating device, whereby said rod and the cam-plates are reciprocated and the cam-plates caused to alternately engage said cam to turn the same and the needle-actuating rolls, a sliding frame in which said rolls are journaled, a second cam actuated by the turning of the first-named cam, and mechanism for sliding said frame longitudinally adapted to be engaged by the second cam at a predetermined point in its rotation.

32. The combination with the needles, the needle-controlling rolls, adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, and a sliding frame in which said rolls are journaled, of a constantly-reciprocated device, a rod, the pattern mechanism, means actuated by the pattern mechanism to move said rod into position to be engaged by the constantly-reciprocated device, and roll-turning and roll-frame-shifting mechanism adapted to be actuated by the reciprocation of said rod.

33. The combination with the needles, the needle-controlling rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, and a frame in which said rolls are journaled, of a constantly-reciprocated device, a rod, the pattern mechanism, means actuated by the pattern mechanism to move said rod into position to be engaged by the constantly-reciprocated device, roll-turning mechanism adapted to be actuated by the reciprocation of said rod, and roll-frame-shifting mechanism adapted to be actuated by the roll-turning mechanism.

34. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to move the same into and out of operative position, means for shifting said rolls longitudinally in one direction to dictate the needles to be moved into and out of operative position, means for turning the rolls to actuate the needles, and mechanism to shift said rolls to their initial positions.

35. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to move the same into and out of operative position, a frame in which said rolls are journaled, means for shifting said roll-frame step by step longitudinally in one direction, a spring tending to return said roll-frame to its initial position, holding devices to normally hold said frame in its advanced positions, means for releasing said holding devices to permit said spring to act to return said roll-frame to its initial position.

36. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to move the same into and out of operative position, a frame in which said rolls are journaled, means for shifting said roll-frame step by step longitudinally in one direction, a spring tending to return said roll-frame to its initial position, a cam having a cut-away portion and rotated and shifted in unison with said rolls, a lever on the frame of the machine and adapted to engage said cam and hold said rolls from returning until the cut-away portion of said cam is brought into alinement with said lever by the rotation of said cam.

37. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to move the same into and out of operative position, a frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack to shift said roll-frame step by step longitudinally, a holding-pawl engaging said rack, means for actuating said shifting-pawl, a spring tending to return said roll-frame to its initial position, means for throwing said pawls out of engagement, a cam having a cut-away portion and rotated and shifted in unison with said rolls and a lever on the frame of the machine adapted to engage said cam and hold said rolls from returning during the disengagement of said pawls and until the cut-away portion of said cam is brought into alinement with said lever by the rotation of said cam.

38. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to move the same into and out of operative position, a frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack to shift said roll-frame step by step longitudinally, a holding-pawl, engaging said rack, means for actuating said shifting-pawl, a spring tending to return said roll-frame to its initial position, means for throwing said pawls out of engagement, and means for holding said roll-frame from returning after said pawls are disengaged and until said rolls have completed a predetermined movement of rotation.

39. The combination with the needles and the needle-actuating rolls adjacent thereto enabling said rolls to actuate needles in alinement therewith, of a constantly-reciprocating device, roll-turning and roll-shifting mechanism the pattern mechanism, means actuated by the pattern mechanism to throw said roll-turning and roll-shifting mechanism into engagement with the constantly-reciprocated device, and means actuated by the pattern mechanism to throw said roll-shifting mechanism out of operation.

40. The combination with the needles and the needle-actuating rolls adjacent thereto means enabling said rolls to actuate needles in alinement therewith, of a constantly-reciprocating device, roll-turning and roll-shifting mechanism, the pattern mechanism, means actuated by the pattern mechanism, to throw said roll-turning and roll-shifting mechanism into engagement with the constantly-reciprocated device, and means actuated by the pattern mechanism to throw said roll-shifting mechanism out of operation, means tending to shift said rolls back to their initial position, and holding devices adapted to hold said rolls from returning after the throwing out of operation of the roll-shifting mechanism and until the roll-turning mechanism has imparted to said rolls a predetermined movement of rotation.

41. The combination, with the needles, of mechanism for moving the same into and out of operative position, a rod adapted to be reciprocated to actuate said mechanism, a constantly-reciprocated device, a cam engaging said rod, a ratchet for rotating said cam, a pawl adapted to be reciprocated and to engage said ratchet, a guard-lever adapted to guard said pawl from engaging said ratchet, and pattern mechanism adapted to move said guard-lever to permit said pawl to actuate said ratchet and rotate said cam, and move said rod into position to be engaged by the constantly-reciprocated device.

42. The combination, with the needles, of mechanism for moving the same into and out of operative position, a rod adapted to be reciprocated to actuate said mechanism, a constantly-reciprocated device, a cam engaging said rod, a ratchet for rotating said cam, one of the teeth of said ratchet being out of alinement with the other teeth thereof, a reciprocating pawl, a guard-lever located in such relation to the cam as to guard said pawl from engaging the first-named tooth only, and pattern mechanism adapted to control and move said guard-lever to permit said pawl to engage said tooth, whereupon said pawl will engage all the teeth of said ratchet successively, rotating said cam, moving said rod, and holding said rod in position to be engaged by the constantly-reciprocated device until after said pattern mechanism has returned said guard-lever and until said ratchet and cam have been returned to their initial position.

43. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, the roll-turning mechanism, mechanism for shifting the rolls forwardly step by step, devices for rendering the roll-shifting mechanism inoperative, and a pattern-drum, adapted to engage and throw said roll-shifting and roll-turning mechanism into operation and to engage and actuate said devices.

44. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith to throw the same into and out of operative position, the roll-turning mechanism, mechanism for shifting the rolls forwardly step by step, devices for disengaging the roll-shifting mechanism from the rolls, a pattern-drum adapted to engage and throw said roll-shifting and roll-turning mechanism into operation and to engage and actuate said roll-shifting disengaging devices, means for shifting back the rolls after the disengagement therefrom of the roll-shifting devices and holding devices acting to restrain the rolls from shifting back until the roll-turning mechanism has imparted to said rolls a predetermined movement of rotation.

45. In a pattern mechanism for knitting-machines, the combination with the pattern-chain, of a ratchet for advancing the pattern-chain, a pawl-carrying device, a pawl carried thereby engaging said ratchet, means for constantly reciprocating said pawl-carrying device, a pattern-drum, a ratchet for turning said drum, said ratchet having alternate long and short teeth, a second pawl on the pawl-carrying device normally playing on a long tooth of said drum-ratchet, a third pawl normally resting on a short tooth of said drum-ratchet, a second pawl-carrying device carrying said third pawl and in line of travel of the pattern-chain, whereby the advancement of said chain actuates said second pawl-carrying device and the pawl carried thereby to turn the pattern-drum, to enable the second pawl on the first-named pawl-carrying device to engage said long tooth and further advance the drum.

46. In a pattern mechanism for knitting-machines, the combination, with the pattern-chain, of a ratchet for advancing the pattern-chain, a pawl 67 engaging said ratchet, a rocking lever 65 carrying said pawl, a rocking lever 61 connected to and actuating the rocking lever 65, means for constantly reciprocating the rocking lever 61, the pattern-drum, a ratchet for turning said drum having alternate long and short teeth, a pawl 74 carried by the rocking lever 61 and normally playing on a long tooth of said drum-ratchet, a bell-crank, one arm of which is in line of travel of the pattern-chain, a pawl 75 carried by the other arm of said bell-crank and normally resting on a short tooth of said drum-ratchet, whereby the advancement of said pattern-chain turns said bell-crank, engages pawl 75 with the drum-ratchet to turn the drum-ratchet and drum and moves the long tooth adjacent to pawl 74 into position to be engaged by the pawl 74 in its next reciprocation to further turn said drum-ratchet and drum.

47. The combination, with the pattern-chain of a pattern-drum, pins on said drum, the needles, mechanism for throwing said needles into and out of operative position, a device normally engaging one of said pins and holding said mechanism out of action, devices for rotating said drum, a pattern-chain for engaging and actuating said devices, whereby the travel of said chain rotates said drum, draws said pin out of engagement with said device, permitting said device to drop and permit the needle-controlling mechanism to operate.

48. The combination, with the needles, mechanism for throwing said needles into and out of operative position a pattern-drum, a series of pins on said drum, a device normally resting upon one of said pins and holding said mechanism out of action, means for imparting to said drum intermittently a definite movement of rotation, thereby first drawing said pin out of engagement with said device, allowing said device to drop and permit the needle-controlling mechanism to operate, and then lifting said device over the next pin in the series to again hold said mechanism out of operation.

49. The combination with the needles, mechanism for throwing said needles into and out of operative position, a pattern-drum, a series of pins on said drum, a device normally resting upon one of said pins and holding said mechanism out of action, means for imparting to said drum intermittently a definite movement of rotation, thereby first drawing said pin out of engagement with said device, allowing said device to drop and permit the needle-controlling mechanism to operate and then shifting said device over the next pin in the series to again hold said mechanism out of operation, there being a space unprovided with pins beyond the last pin of said series, to retain said device in its dropped position to permit said mechanism to operate continuously until the drum is given a further definite movement of rotation, and a pin beyond said space for again raising said device to again hold said mechanism out of action.

50. The combination, with the needles, mechanism for throwing said needles into and out of operative position, a pattern-drum, a series of pins on said drum, a device normally resting upon one of said pins and holding said mechanism out of action, means for imparting to said drum intermittently a definite movement of rotation, thereby first drawing said pin out of engagement with said device, allowing said device to drop and permit the needle-controlling mechanism to operate, and then lifting said device over the next pin in the series to again hold said mechanism out of operation, there being a space unprovided with pins beyond the last pin of said series, to retain said device in its dropped position to permit said mechanism to operate continuously until the drum is given a further definite movement of rotation, and a pin beyond said space for again raising said device to again hold said mechanism out of action, and a series of pins relatively close together adapted to continuously hold said device in its raised position during a further definite movement of rotation of the drum.

51. The combination with the needles, mechanism for throwing said needles into and out of operative position, a pattern-drum, a series of pins on said drum, a device normally resting upon one of said pins, and holding said mechanism out of action, means for imparting to said drum intermittently a definite movement of rotation, thereby first drawing said pin out of engagement with said device, allowing said device to drop and permit the needle-controlling mechanism to operate, and then lifting said device over the next pin in the series to again hold said mechanism out of operation, and a series of pins relatively close together adapted to raise and continuously hold said device in its raised position during a definite movement of rotation of the drum.

52. The combination, with the needles, of mechanism for moving the same into and out of operative position, a rod adapted to be reciprocated to actuate said mechanism, a constantly-reciprocated device, a cam engaging said rod, a ratchet for rotating said cam, a pawl adapted to be reciprocated to engage said ratchet, a guard-lever adapted to guard said pawl from engaging said ratchet, a pattern-drum provided with pins adapted to engage and disengage said guard-lever and move said guard-lever to permit said pawl to actuate said ratchet, rotate said cam, and move said rod into position to be engaged by the constantly-reciprocated device, and means to rotate said drum.

53. The combination, with the pattern-drum, the needles, the rolls for moving the needles into and out of operative position, a frame in which the rolls are journaled a ratchet on said frame, pawls for shifting said frame longitudinally step by step in one direction and for holding said frame in its shifted position. mechanism controlled by the pattern-drum for actuating said pawls, devices controlled by the pattern device for disengaging said pawls from the rack, and a device carried by the pattern-drum to actuate said pawl-disengaging devices at a predetermined point in the rotation of said drum, means for returning the roll-frame to its initial position after the disengagement of said pawls, and means for rotating said pattern-drum.

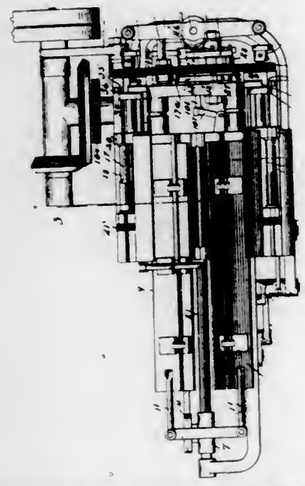
54. The combination, with the pattern-drum, the needles, the rolls for moving the needles into and out of operative position, a frame in which the rolls are journaled, a ratchet on said frame, pawls for shifting said frame longitudinally step by step in one direction and for holding said frame in its shifted position, a bar carrying said pawls, a lever connected to said bar, a shaft on which said lever is pivoted, a crank on said shaft, a roller on said crank, a cam on said drum in alinement with said roller and adapted at a predetermined point in the rotation of said drum to engage said roller, and thereby operate said crank, shaft, and lever to move said bar and disengage said pawls from said rack, means for returning the roll-frame to its initial position after the disengagement of said pawls, and means for rotating said drum.

55. The combination, with the ratchet 54 having a plurality of teeth, one of which is at a lower radial height than the others, the cam 51 actuated by the ratchet, the pawl 56, means for constantly reciprocating the pawl, the guard-lever 60 engaged by said pawl and preventing the pawl from engaging the tooth of lower radial height, and means for moving said guard-lever out of engagement to permit the pawl to engage said ratchet and turn said cam, a rod engaged by said cam, needle controlling and actuating mechanism connected with said rod, and constantly-operated means engaging and actuating said rod when the same is lifted by the turning of said cam.

663,901. STRAIGHT-KNITTING MACHINE. HARRY A. HOUSEMAN, Philadelphia, Pa., assignor to the Standard Machine Company, of Pennsylvania. Filed July 5, 1900. Serial No. 22,523. (No model.)

Claim.—1. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel operatively connected with the roll-shaft, a pawl engaging said ratchet, a lock for the ratchet-wheel, means enabling the lock to lock the ratchet from turning in either direction, and means for reciprocating the pawl and for holding the lock out of its locking position until the completion of each forward movement of the ratchet.

2. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel, a locking-wheel connected thereto and rotating therewith, a lock adapted to engage the locking-wheel and lock it from turning in either direction, operative connections between the ratchet-wheel and the roll-shaft, a pawl engaging said ratchet, means to reciprocate the pawl, and means to cause said lock to move into locking engagement with the locking-wheel after each forward movement of the pawl.



3. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel, a locking-wheel connected thereto and rotating therewith, a lock adapted to engage the locking-wheel, operative connections between the ratchet-wheel and the roll-shaft, a pawl engaging said ratchet, a cam for lifting said lock out of engagement with said locking-wheel, and means to reciprocate said pawl and cam, whereby the cam is moved to disengage the lock from the locking-wheel during the withdrawal of the pawl, and whereby during the rocking forward of the ratchet-wheel by the pawl, the cam is moved to permit the lock to engage the locking-wheel.

4. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel, locking-wheel and gear-wheel connected and rotating together, gearing between the gear-wheel and the roll-shaft, a locking-dog for engaging the locking-wheel, a pawl for shifting the ratchet-wheel, a pawl-carrier, a cam for throwing the dog into and out of operative position, and means to reciprocate the pawl-carrier and cam in unison.

5. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a wheel provided with indents and operatively connected with the roll-shaft, a lock adapted to engage said wheel, a cam for throwing the lock into and out of operative position, means for simultaneously turning the wheel step by step and for reciprocating the cam, whereby during the turning of said wheel and during the movement of the cam in one direction the lock is brought into position to engage one of said detents, and whereby during the return movement of the cam and while the wheel is stationary the lock is withdrawn from said detent.

6. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel operatively connected with the roll-shaft, a pawl-carrier, a plurality of pawls carried thereby and engaging the ratchet, a driving-shaft, a cam on said shaft, a lever in line of travel of the cam, and a link connecting said lever and the pawl-carrier, a locking-wheel connected to and rotating with the ratchet-wheel, a locking-dog for engaging the locking-wheel, a cam for throwing the dog into and out of operative position, said cam being connected to said link.

7. The combination with the fashioning-needles, of a lever pivoted to the frame of the machine adapted to be reciprocated, mechanism actuated by the reciprocation of said lever to throw said needles into and out of operative position, means for imparting a reciprocating movement to said lever, a tension device tending to maintain said lever in engagement with its actuating means the pattern mechanism, and means actuated by the patterm mechanism to draw said lever out of engagement with its actuating means and hold it stationary against the action of said tension device.

8. The combination with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a lever pivoted to the frame of the machine adapted to be reciprocated, mechanism actuated by the reciprocation of said lever to impart to said rolls a step-by-step movement of rotation, means for imparting a reciprocating movement to said lever, a tension device tending to maintain said lever in engagement with its actuating means the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of engagement with its actuating means and hold it stationary against the action of said tension device.

9. The combination, with the fashioning-needles, of a driving-shaft, a cam thereon, mechanism in line of travel of said cam and adapted to be actuated thereby to throw said needles into and out of operative position, a tension device tending to maintain the needle-operating mechanism in engagement with said cam the pattern mechanism, and means actuated by the pattern mechanism to sever connection between said cam and the needle-operating mechanism.

10. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, mechanism in line of travel of said cam and adapted to be reciprocated thereby to impart to said rolls a step-by-step movement of rotation, a tension device tending to maintain the needle-operating mechanism in engagement with said cam the pattern mechanism, and means actuated by the pattern mechanism to sever connection between said cam and the roll-actuating mechanism.

11. The combination with the fashioning-needles, of a driving-shaft, a cam thereon, a lever engaging said cam and adapted to be reciprocated thereby, mechanism actuated by the reciprocation of said lever to throw said needles into and out of operative position, a tension device tending to maintain said lever in engagement with said cam, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

12. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, a lever engaging said cam and adapted to be reciprocated thereby, mechanism actuated by the reciprocation of said lever to impart to said rolls a step-by-step movement of rotation, a tension device tending to maintain said lever in engagement with said cam, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

13. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, a lever engaging said cam and adapted to be reciprocated thereby, pawl-and-ratchet mechanism connected to and adapted to be operated by said lever and connected to and adapted to impart a step-by-step movement of rotation to said rolls, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

14. The combination, with the needles, of the rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a shaft for rotating said rolls, a ratchet-wheel operatively connected with the roll-shaft, a pawl engaging said ratchet, a lock for the ratchet-wheel, a cam for disengaging the connection between the lock and the ratchet-wheel, and means to reciprocate said pawl and cam, whereby the cam is moved to disengage the connection between the lock and ratchet-wheel during the withdrawal of the pawl and whereby during the rocking forward of the ratchet-wheel by the pawl, the cam is moved to cause the lock to lock the ratchet-wheel.

15. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, a lever engaging said cam and adapted to be reciprocated thereby, pawl-and-ratchet mechanism connected to and adapted to be operated by said lever and connected to and adapted to impart a step-by-step movement of rotation to said rolls, and a lock in connection with said lever and adapted to limit the throw of the ratchet mechanism, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

16. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, a lever engaging said cam, and adapted to be reciprocated thereby, pawl-and-ratchet mechanism connected to and adapted to be operated by said lever and connected to and adapted to impart a step-by-step movement of rotation to said rolls, a lock adapted to limit the throw of the ratchet mechanism, and a cam connected with said lever and adapted to throw said lock into and out of operative position.

17. The combination, with the fashioning-needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a driving-shaft, a cam thereon, a lever engaging said cam, and adapted to be reciprocated thereby, pawl-and-ratchet mechanism connected to and adapted to be operated by said lever and connected to and adapted to impart a step-by-step movement of rotation to said rolls, a lock adapted to limit the throw of the ratchet mechanism, and a cam connected with said lever and adapted to throw said lock into and out of operative position, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

18. The combination, with the fashioning-needles, of a driving-shaft, a cam thereon, a lever in line of travel of said cam and adapted to be reciprocated thereby, a ratchet, a lock adapted to limit the throw of the ratchet, a pawl, a pawl-carrier connected with said lever, a cam for moving said lock into and out of operative position also connected with said lever, and mechanism actuated by the turning of said ratchet to operate said needles.

19. The combination, with the fashioning-needles, of a driving-shaft, a cam thereon, a lever in line of travel of said cam and adapted to be reciprocated thereby, a ratchet, a lock therefor, a pawl, a pawl-carrier connected with said lever, a cam for moving said lock into and out of operative position also connected with said lever, and mechanism actuated by the turning of said ratchet to operate said needles, the pattern mechanism, and means actuated by the pattern mechanism to draw said lever out of line of travel of said cam.

20. The combination, with the needles, the needle-controlling rolls adjacent thereto and means enabling said rolls to actuate needles in alinement therewith, of a frame in which said rolls are journaled, a driving-shaft, a cam thereon, a reciprocating device actuated by said cam, the pattern mechanism, means actuated by the pattern mechanism to disengage the cam and the device actuated thereby, and roll-turning and roll-shifting mechanism adapted to be actuated by said reciprocating device.

21. The combination with the needles, the needle-controlling rolls adjacent thereto and means enabling said rolls to actuate needles in alinement therewith, of a frame in which said rolls are journaled, a driving-shaft, a cam thereon, a reciprocating device actuated by said cam, the pattern mechanism, means actuated by the pattern mechanism to disengage the cam and the device actuated thereby, roll-turning mechanism adapted to be actuated by said reciprocating device, and roll-shifting mechanism, adapted to be actuated by the roll-turning mechanism.

22. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting said rolls step by step longitudinally in one direction, means for positively shifting said rolls longitudinally in the opposite direction, the pattern mechanism, and means actuated by the pattern mechanism to move the last-named roll-shifting means into operative position.

23. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting said rolls step by step longitudinally in one direction, a constantly-reciprocating device normally out of alinement with said rolls but adapted to be moved into alinement therewith and shift the same to their original position, the pattern mechanism, and means actuated by the pattern mechanism to move the constantly-reciprocating device into alinement with the rolls.

24. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting said rolls step by step longitudinally in one direction, a constantly-reciprocating device normally inoperative but adapted to be moved into position to shift the rolls to their original position, the pattern mechanism, and means actuated by the pattern mechanism to move the constantly-reciprocating device into operative position.

25. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, devices for shifting the rolls step by step longitudinally in one direction, means for operating said devices, a constantly-reciprocating device normally inoperative but adapted to be moved into position to shift the rolls to their original position, the pattern mechanism, means actuated by the pattern mechanism to sever connection between the devices for shifting the rolls forwardly and their operating means, and means actuated by the pattern mechanism to move the constantly-reciprocating device into operative position.

26. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting the rolls step by step longitudinally in one direction, a constantly-reciprocating rocking lever normally out of line of travel of the rolls but adapted when moved into alinement therewith to shift the same to their original position, and means for moving the rocking lever into alinement with the rolls.

27. The combination, with the front and rear banks of needles, of rolls adjacent thereto, means enabling said rolls to independently actuate the needles of both banks, means for shifting the rolls step by step longitudinally in one direction, a constantly-reciprocating intermediately-pivoted lever adapted to be moved into such position that the opposite ends thereof will be in alinement with the rolls for the front and rear banks of needles respectively and successively shift said front and rear rolls to their original position, and means for moving said rocking lever into said position.

28. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting the rolls step by step longitudinally in one direction, a constantly-reciprocating rocking lever normally out of line of travel of the rolls but adapted when moved into alinement therewith to shift the same to their original position, a post on which said rocking lever is sleeved, a sliding rod having a cam, pins in connection with the sleeve of the rocking lever in line of travel of said cam, and means for operating said rod.

29. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting the rolls forwardly step by step longitudinally in one direction, a rocking lever, a post on which said rocking lever is sleeved, a connecting-rod connected to the sleeve of the rocking lever by means of a universal joint, a crank to which the connecting-rod is pivoted, means for operating the crank, and means for moving said rocking lever on its post into alinement with the rolls whereby the same will be shifted to their initial position.

30. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, means for shifting the rolls forwardly step by step longitudinally in one direction, a rocking lever, a post on which said rocking lever is sleeved, a connecting-rod connected to the sleeve of the rocking lever by means of a universal joint, a crank to which the connecting-rod is pivoted, means for operating the crank, a sliding rod having a cam, pins in connection with the sleeve of the rocking lever in line of travel of said cam, and means for operating said rod, thereby moving said rocking lever on its post into alinement with the rolls whereby the same will be shifted to their initial position.

31. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, means for actuating said pawl whereby the rolls are shifted forwardly step by step, a device for shifting the rolls to their initial position, a device for disengaging said pawl to permit the return of the rolls, the pattern mechanism, and means connected to the pawl-disengaging device and the roll-returning device and actuated by the pattern mechanism to throw said devices successively into operation.

32. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, means for actuating said pawl whereby the rolls are shifted forwardly step by step, a device for shifting the rolls to their initial position, a device for disengaging said pawl to permit the return of the rolls, the pattern mechanism, means actuated by the pattern mechanism to-move said pawl-actuating means into and out of action, and means connected to the pawl-disengaging device and the roll-returning device and actuated by the pattern mechanism to throw said devices successively into operation.

33. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, means for actuating said pawl whereby the rolls are shifted forwardly step by step, a device for shifting the rolls to their initial position, a device for disengaging said pawl to permit the return of the rolls, connected to and adapted to actuate the roll-returning device, the pattern mechanism and means actuated thereby connected to and adapted to operate the pawl-disengaging device.

34. The combination with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, devices for shifting the rolls step by step longitudinally in one direction, means for operating said devices, a constantly-reciprocating device normally inoperative but adapted to be moved into position to shift the rolls to their original position, a device for disengaging the step-by-step roll-shifting devices from the rolls, the pattern mechanism, means actuated by the pattern mechanism to sever connection between the step-by-step roll-shifting devices and their operating means, means actuated by the pattern mechanism to operate the roll-shifting disengaging device, and means actuated by the pattern mechanism to move the constantly-reciprocating device into operative position.

35. The combination, with the needles, of rolls adjacent thereto, means enabling said rolls to actuate needles in alinement therewith, a sliding frame in which said rolls are journaled, a rack on said frame, a pawl engaging said rack, devices for actuating said pawl whereby the rolls are shifted step by step longitudinally in one direction, means for operating said devices, a constantly-reciprocating device normally inoperative but adapted to be moved into position to shift the rolls to their initial position, a device for disengaging said pawl to permit the return of the rolls, the pattern mechanism, means actuated by the pattern mechanism to

sever connection between the devices for shifting the rolls forwardly and their actuating means, and means actuated by the pattern mechanism to operate the pawl-disengaging device and move the constantly-reciprocated device into operative position.

36. The combination, with the needles, of rolls adjacent thereto, means enabling the rolls to actuate needles in alinement therewith, a frame on which said rolls are journaled, means for shifting the roll-frame step by step longitudinally in one direction, a device for disengaging the roll-frame and its operating means to permit the return of the rolls, a roll-returning device connected to and operated by the disengaging device to shift the rolls to their initial position, and means for operating said disengaging device.

37. The combination, with the needles, of rolls adjacent thereto, means enabling the rolls to actuate needles in alinement therewith, a frame on which said rolls are journaled, means for shifting the roll-frame step by step longitudinally in one direction, a device for disengaging the roll-frame and its operating means to permit the return of the rolls, a constantly-reciprocating device normally inoperative but adapted to be moved into position to shift the rolls to their initial position, and means for operating the disengaging device and for moving the constantly-reciprocating device into operative position.

38. The combination, with the needles, of rolls adjacent thereto, means enabling the rolls to actuate needles in alinement therewith, roll-turning and roll-shifting mechanism, operating means for the latter, a constantly-reciprocating device for shifting the rolls back but normally inoperative, the pattern mechanism, means actuated by the pattern mechanism to disengage the roll-shifting and roll-turning mechanism from their operating means, and means actuated by the pattern mechanism to move said constantly-reciprocating device into operative position.

39. The combination, with the needles, of rolls adjacent thereto, means enabling the rolls to actuate needles in alinement therewith, roll-operating mechanism, a lever for disengaging the roll-operating mechanism from its operative means, a cam having a concentric portion and a high point, said lever being in line of movement of said cam, a ratchet for rotating said cam, a pawl adapted to be reciprocated and to engage said ratchet, a guard-lever adapted to guard said pawl from engaging said ratchet, and pattern mechanism adapted to move said guard-lever to permit said pawl to actuate said ratchet and rotate said cam to move said high point into engagement with said lever, thereby actuating said lever and disengaging the roll-operating mechanism from its operative means.

40. The combination, with the pattern-drum, the needles, the rolls for moving the needles into and out of operative position, a frame in which the rolls are journaled, a ratchet on said frame, a pawl for shifting said frame, longitudinally step by step in one direction and for holding said frame in its shifted position, mechanism controlled by the pattern-drum for actuating said pawl, devices controlled by the pattern-drum for disengaging said pawl from the rack, and a device carried by the pattern-drum to actuate said pawl-disengaging devices at a predetermined point in the rotation of said drum, means for returning the roll-frame to its initial position after the disengagement of said pawl, a cam on the pattern-drum in alinement with said pawl-disengaging devices for returning the same to their normal positions, and means for rotating said pattern-drum.

41. A pattern-roll consisting of two cylindrical ends of different diameters, and a collar provided with projections and depressions surrounding the part of lesser diameter and adjacent to the part of greater diameter.

42. A pattern-roll consisting of two cylindrical ends of different diameters, and a collar provided with projections surrounding the part of lesser diameter, the part of lesser diameter being provided with a projection in alinement with the periphery of the part of greater diameter.

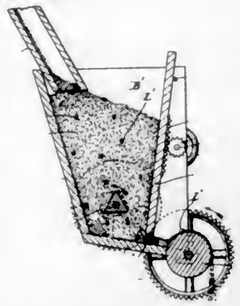
43. A pattern-roll consisting of two cylindrical ends of different diameters, and a collar provided with projections surrounding the part of less diameter, the part of greater diameter being provided with a groove in alinement with the periphery of the part of lesser diameter.

663,902. FEED-REGULATOR. JOHN HUTCHISON, Jackson, Mich. Filed Feb. 17, 1898. Serial No. 670,614. (No model.)

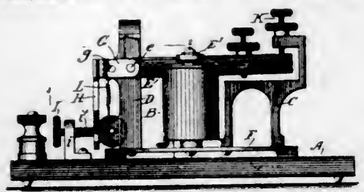
Claim.—1. The combination of a hopper having a bottom forming a plane surface extending outside the hopper, a gate adjustable toward and from the bottom and at a distance from the outer edge thereof, a substantially smooth feed-roll adjacent to the outer edge of the bottom, and an angular roll in the hopper, rotating toward the feed-roll at its lower side, to cause the stock to flow forward over said bottom, substantially as described.

2. The combination of a hopper having a vertically-adjustable side forming a gate, a bottom to said hopper forming an inclined plane surface extending beneath and beyond said adjustable side, a substantially smooth feed-roll adjacent to the outer edge of said bottom, and rotating upward at the side toward the same, an angular roll in the hopper, and rotating toward the feed-roll at the under side substantially as described.

3. In a feed-regulator a smooth feed-roll, and an angular roll at a distance from each other the feed-roll rotative upward at the side toward the angular roll and the angular roll rotating toward the feed-roll at its lower side, a plane surface abutting against the side of this feed-roll in the plane of its axis and extending beneath, the angular roll, and a gate midway between said rolls and adjustable toward and from the said plane surface, substantially as described.



663,903. TELEGRAPHIC INSTRUMENT. HARRY T. JOHNSON, Jersey City, N. J. Filed Feb. 26, 1900. Serial No. 6,529. (No model.)

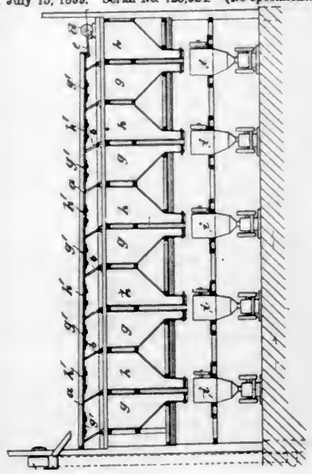


Claim.—1. A telegraphic instrument comprising a pivotally-supported frame, an armature-lever pivoted in said frame eccentrically to the frame-support and means for adjusting the position of the frame to raise and lower the armature-lever, substantially as shown and described.

2. A telegraphic instrument of the character described comprising an armature-lever, a swinging support therefor and an adjusting-screw for varying the position of said support to raise and lower the armature, substantially as shown and described.

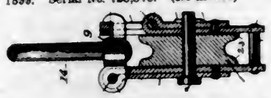
3. In a telegraphic instrument, the combination with the magnet, armature and armature-lever, of a swinging support for the armature-lever and means for actuating said support to vary the distance between the armature and magnet, substantially as shown and described.

663,904. PROCESS OF PRODUCING ARTIFICIAL BUILDING STONES, BRICKS, &c. PETER KLEBER, Malatatt-Burbach, Germany. Filed July 15, 1899. Serial No. 723,924. (No specimens.)



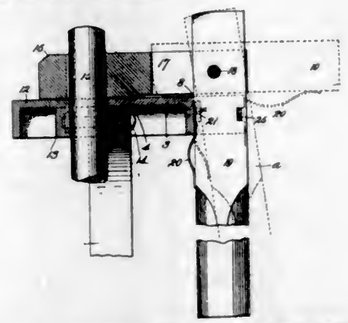
Claim.—The herein-described process for the production of artificial stone or brick consisting in first mixing moist sand and unslaked lime so as to hydrate a portion of the lime only, second, adding sufficient water to hydrate the lime remaining unhydrated or unslaked, and allowing said mixture to stand sufficient to complete hydration, thirdly, bringing the mixture into a plastic cohesive condition by the addition of a minimum amount of water, molding said plastic mixture into blocks, and finally subjecting such blocks to the action of high-pressure steam, substantially as described.

663,905. PULLEY-BLOCK. ELI S. KNIGHT, McCloud, Cal. Filed July 12, 1899. Serial No. 723,573. (No model.)



Claim.—A snatch-block comprising two separated cheek-pieces, each consisting of a sheet of metal having a relatively wide portion forming the cheek proper and a relatively narrow tongue, the latter being doubled upon itself and secured to the cheek portion and so shaped as to form a socket at its bend, a latch pivotally secured to one of the cheek-pieces by a pin passing therethrough and through the socket of the cheek-piece, said latch-block having a hook swiveled thereto, a latch-link secured to the second cheek-piece by a pivot-pin passing therethrough and through the socket of the cheek-piece the said latch-link being adapted for engagement with the latch-block, and a sheave rotatably supported intermediate the cheek-pieces, substantially as described.

663,906. LEVER-LOCKING MECHANISM FOR SWITCH-STANDS. WILLIAM F. KNOX, Leavenworth, Kans. Filed Apr. 9, 1900. Serial No. 12,064. (No model.)

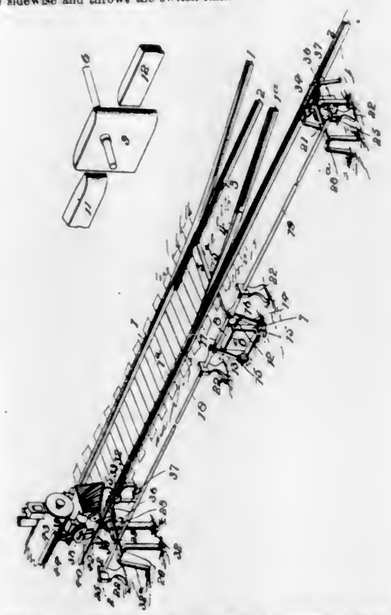


Claim.—A switch-stand, having a top or table provided with notches and with bolt-sockets opening into said notches, a target-rod journaled in said top or table, an arm mounted on said rod and provided with a notch to register with the notches of the top or table, a lever pivoted in the notch of said arm and adapted to extend through one or another of the notches of the top or table, a bolt carried by the lever to engage the corresponding bolt-socket, and a leaf-spring 20 arranged at the rear side of the lever near its pivotal point, and a screw 21 for securing said spring at one end to the lever, all arranged substantially as and for the purpose described.

663,907. RAILWAY-SWITCH AND MEANS FOR OPERATING SAME. JAMES W. KOCH, Reynolds, Pa. Filed May 31, 1900. Serial No. 18,597. (No model.)

Claim.—1. The combination with track-rails and switch-rails, of a pivoted switch-setting lever adapted to be moved by suitable means on a car, adjacent to the track and at some distance in advance of the switch-rails, a bracket between one end of said lever and the pivot, the bracket having two separated notches, in the first of which said lever normally rests and in the other of which the lever rests after being moved, a plunger with a beveled end, means for guiding the plunger, suitable levers between the plunger and the pivoted switch-setting lever for advancing the plunger, a rod extending from the switch-rails, a plate fixed to said rod and having a beveled end in line with the beveled end of the plunger, whereby advancing the plunger pushes said plate sidewise and throws the switch-rails.

2. The combination with track-rails and switch-rails, of a pivoted switch-setting lever adapted to be moved by suitable means on a car, adjacent to the track and at some distance in advance of the switch-rails, a bracket between one end of said lever and the pivot, the bracket having two separated notches, in the first of which said lever normally rests and in the other of which the lever rests after being moved, a heavy weight supported from the switch-setting lever between its pivot and its end nearest the track, a plunger with a beveled end, means for guiding the plunger, suitable levers between the plunger and the pivoted switch-setting lever for advancing the plunger, a rod extending from the switch-rails, a plate fixed to said rod and having a beveled end in line with the beveled end of the plunger, whereby advancing the plunger pushes said plate sidewise and throws the switch-rails.



3. The combination with track-rails and switch-rails, of a pivoted switch-setting lever adapted to be moved by suitable means on a car, adjacent to the track and at some distance in advance of the switch-rails, a bracket between one end of said lever and the pivot, the bracket having two separated notches, in the first of which said lever normally rests and in the other of which the lever rests after being moved, a plunger with a beveled end, means for guiding the plunger, suitable levers between the plunger and the pivoted switch-setting lever for advancing the plunger, a rod extending from the switch-rails, a plate fixed to said rod and having a beveled end in line with the beveled end of the plunger, whereby advancing the plunger pushes said plate sidewise and throws the switch-rails, and means adapted to be moved by devices on a car for resetting the switch-rails.

4. The combination with track-rails and switch-rails, of a pivoted switch-setting lever adapted to be moved by suitable means on a car, adjacent to the track and at some distance in advance of the switch-rails, a bracket between one end of said lever and the pivot, the bracket having two separated notches, in the first of which said lever normally rests and in the other of which the lever rests after being moved, a plunger with a beveled end, means for guiding the plunger, suitable levers between the plunger and the pivoted switch-setting lever for advancing the plunger, a rod extending from the switch-rails, a plate fixed to said rod and having a beveled end in line with the beveled end of the plunger, whereby advancing the plunger pushes said plate sidewise and throws the switch-rails, a pivoted switch-resetting lever beyond the switch, a second guided plunger with a beveled end, suitable levers between the resetting-lever and the second plunger for moving the latter, the plate fixed to the rod extending from the switch-rails having a second beveled end which cooperates with the second plunger to return the switch-rails back to their normal position.

5. The combination with switch-rails, a rod extending therefrom, a plate having beveled ends fixed to the rod, a casing through which the rod passes, a plate with beveled ends fixed to the rod within said casing, plungers each with a beveled end passing through separate openings in said casing, one plunger being in line with the plate with beveled ends, while the other plunger is at one side thereof for alternately moving the plate and the switch-rails in opposite directions.

6. The combination with switch-rails, of a rod extending therefrom, a casing through which the rod passes, a plate thinner than the casing, and having beveled ends fixed to the rod within the casing, the casing having at one end an opening close to one side of the casing and at the opposite end an opening close to the opposite side of the casing, plungers each with a beveled end passing through said holes and coöperating respectively with opposite ends of the plate having beveled ends, the sides of the casing forming rigid slideways at the backs of the plungers, and means for operating the plungers.

7. The combination with switch-rails, of a switch-setting lever, a pivot therefor, a bracket with two notches separated by a distance depending on the distance from the pivot to said bracket, rod 18, lever 13, plunger 11 with beveled end, plate 9 with beveled ends, rod 6, switch-rails, means for connecting the switch-rails and rod 6, a switch-resetting lever 21, a pivot therefor located so as to move oppositely to lever 20, a bracket with two notches adapted to the length of the resetting-lever, plunger 12, lever 14, and rod 19.

8. The combination of switch-rails, a switch-rod, a plate 9 with beveled ends, plungers 11, 12, levers 13, 14 to which the plungers are connected, rods 18, 19 connected with levers 13, 14, and the intermediate connecting-rod 17.

9. The combination of switch-rod 6, plate 9 having beveled ends thereon, oppositely-moving beveled plungers coöperating with plate 9 to reciprocate rod 6, a casing 7 the sides of which form rigid supports and slideways for the plungers, and means for moving the plungers.

10. The combination of brackets 32, notches 31, 33 adapted to receive a swinging switch-lever, a flat intermediate part in the top of said bracket, and a plate secured to the top and extending over the notches and intermediate part leaving a space over the latter sufficient to allow passage of the switch-lever.

11. The combination of brackets 32, notches 31, 33 adapted to receive a swinging switch-lever, a flat intermediate part in the top of said bracket, and the rigid stop 37 beside the intermediate part of the bracket.

12. The combination of a switch-lever, a rod moved thereby, standards 22 having a bearing for the rod, a roller 23 in the bearing, a pin 24 for the roller, and a cap 25 on the upper end of the standard and extending below pin 24.

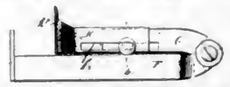
13. A device carried by a car or engine for operating a switch setting or resetting lever and parts connecting such lever to the switch-rails, consisting of a pivoted lever supported by the car, said lever normally being inclined so as to raise the bottom of the lever high enough to clear the switch setting and resetting levers, the pivoted lever being movable to lower its bottom end into position to strike the switch setting or resetting lever, means for supporting the pivoted lever when thus lowered with its bottom end pointing forward, said means leaving the lever free to swing to the reverse position when the switch-lever is operated.

14. A device carried by a car or engine for operating a switch setting or resetting lever and parts connecting such lever to the switch-rails, consisting of a pivoted lever supported by the car, said lever normally being inclined so as to raise the bottom of the lever high enough to clear the switch setting and resetting levers, the pivoted lever being movable to lower its bottom end into position to strike the switch setting or resetting lever, means for supporting the pivoted lever when thus lowered with its bottom end pointing forward, said means leaving the lever free to swing to the reverse position when the switch-lever is operated, and a weight firmly holding the lever in set position until it strikes a switch setting or resetting lever, said weight giving sufficient resistance to movement of the pivoted lever to cause it to move a switch setting or resetting lever.

15. A device carried by a car or engine for operating a switch setting or resetting lever and parts connecting such lever to the switch-rails, consisting of a pivoted lever supported by the car, said lever normally being inclined so as to raise the bottom of the lever high enough to clear the switch setting and resetting levers, the pivoted lever being movable to lower its bottom end into position to strike the switch setting or resetting lever, means for supporting the pivoted lever when thus lowered with its bottom end pointing forward, said means leaving the lever free to swing to the reverse position when the switch-lever is operated, and a weight firmly holding the lever in set position until it strikes a switch setting or resetting lever, said weight giving sufficient resistance to movement of the pivoted lever to cause it to move a switch setting or resetting lever a short distance, and a fixed block on the car behind the bottom of the pivoted lever in position to operate on a switch setting or resetting lever after operation of the pivoted lever thereon.

16. The combination with a car or engine of adjustable switch-lever-operating devices near the four corners thereof, each device consisting of a pivoted lever supported by the car, said lever when set for operation being inclined with its lower end pointing forward and into the plane of the switch-lever to be operated, and its upper end backward, a weight carried by the upper end of the lever, and means holding the lever in operative position but leaving it free to swing in a vertical plane parallel with the longitudinal axis of the car so that its upper end shall point forward and its lower end backward.

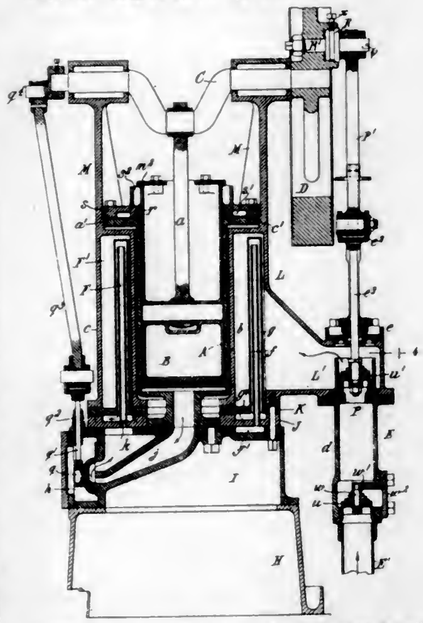
663,908. GUIDE FOR SEWING-MACHINES. GEORGE W. LASCH, Louisville, Ky. Filed May 18, 1900. Serial No. 17,089. (No model.)



Claim.—1. A gage for sewing-machines, comprising two flat bars pivotally connected at one end, and adapted to be folded together and to lie in the same horizontal plane, one of which is longer than the other, and provided at its free end with a transverse gage-flange, the shorter bar being provided with a longitudinally-adjustable slide which is mounted thereon, said bar and said slide being each provided with a longitudinal slot, and the slide being provided at its end with a transverse gage-flange, and a set-screw which is adapted to be passed through said slots, substantially as shown and described.

2. A gage for sewing-machines, comprising two flat bars pivotally connected at one end, and adapted to be folded together and to lie in the same horizontal plane, and one of which is longer than the other, and provided at its free end with a transverse gage-flange, the shorter bar being provided with a longitudinally-adjustable slide which is mounted thereon, and provided at its outer end with a transverse gage-flange, substantially as shown and described.

663,909. STEAM PUMPING-ENGINE. FRANK M. LEAVITT, New York, N. Y., assignor to the E. W. Bliss Company, same place. Filed Oct. 19, 1898. Serial No. 693,978. (No model.)



Claim.—1. In a vacuum-engine, the combination with the cylinder and piston of a cupped packing for preventing leakage of air into the cylinder, and means for maintaining a water seal submerging said packing to a predetermined level, whereby if leakage occurs the suction due to the vacuum acts to cause water to enter the cylinder instead of air.

2. In a vacuum-engine, the combination with a plunger-piston, of a cylinder having an upturned cupped packing against said piston, an annular chamber inclosing the cupped packing, and means for feeding water to said chamber to form a seal submerging said packing, whereby if any leakage occurs the suction due to the vacuum acts to cause water to enter the cylinder instead of air.

3. The combination with plunger-piston B and cylinder A, the latter having an upturned cupped packing against the piston, of a packing-ring *s* for confining said packing formed with an annular channel *s'* against said packing, and an annular chamber *s²* surrounding the upturned portion thereof, with a duct communicating between said channel and chamber, a pipe admitting liquid to the channel, and an overflow-pipe from said chamber.

4. The combination of cylinder A, base-shell I to which the lower end of the cylinder is fastened, and upper shell L, the latter having a wall *b* inclosing the body of the cylinder, with an intervening space, and having an upper guiding-wall *c'*, and the cylinder having an outwardly-projecting flange *a'* engaged by said guiding-wall, whereby differences in expansion and contraction of said cylinder and shell L are provided for.

5. The combination of shell L having outer and inner walls *c b* forming between them a condenser-chamber F″ closed at the top, condenser-tubes arranged in said chamber, a base-shell I beneath, a cylinder A within said inner wall *b* and connected at its bottom to said shell I, said cylinder formed with a flange *a'* projecting over the top of said condenser-chamber and having a packing-ring *s* between which and said flange the cupped packing *r* is clamped.

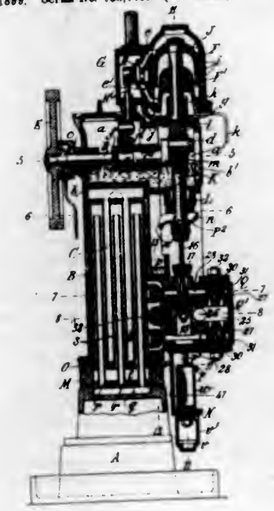
6. The combination of shell L having outer and inner walls *c b* forming between them an annular condenser-chamber F″ closed at the top and forming a circular well for the engine-cylinder, a base-shell I beneath, condenser-tube plates J and K clamped between said shells, inner and outer condenser-tubes *f* and *g* projecting upward from the respective plates into said chamber F″, the engine-cylinder, an exhaust-passage leading therefrom into communication with the tubes *f*, a suction-pump, and a passage leading from the tubes *g* to such pump.

7. The combination of shell L having outer and inner walls *c b* forming between them an annular condenser-chamber F″ closed at the top and forming a circular well for the engine-cylinder, a base-shell I beneath, condenser-tube plates J and K clamped between said shells, inner and outer condenser-tubes *f* and *g* projecting upward from the respective plates into said chamber F′, said parts being formed with annular passages *f'* and *g'*, the former communicating with the lower ends of the tubes *f*, and the latter communicating with the lower ends of the tubes *g*.

8. The combination of shell L having outer and inner walls *c b* forming between them a condenser-chamber F′ closed at the top, a base-shell I beneath, condenser-tube plates J and K clamped between said shells, inner and outer condenser-tubes *f* and *g* projecting upward from the respective plates into said chamber F′, said parts formed with an annular passage *f''* communicating with the lower ends of the tubes *f*, and with an annular passage *g'* communicating with the lower ends of the tubes *g*, a vacuum-pump, and said base-shell I formed with an exhaust-passage *k* leading to said passage *f''*, and with a passage *l* leading from said passage *g'* to said pump.

9. The combination of cylinder A, annular shell L surrounding it, condenser-tube plates J and K with their condenser-tubes, base-shell I on which said parts are mounted formed with a steam-admission port *i*, valve-chest *h*, cylinder-port *j*, exhaust-port *k* leading to the condenser, and a projecting base I′ for the attachment of a suction-pump, and with a suction-passage *l* leading from the condenser to such base for communication with such pump.

663,910. STEAM PUMPING-ENGINE. FRANK M. LEAVITT, New York, N. Y., assignor to the E. W. Bliss Company, same place. Filed Jan. 30, 1899. Serial No. 703,773. (No model.)



Claim.—1. A vacuum pumping-engine comprising an upright hollow standard having within it a condenser, the engine-cylinder mounted on said standard, above said condenser, the pump-cylinder mounted on the side of said standard below and in line with the engine-cylinder, a direct connection between the engine-piston and pump-plunger, a rotary shaft mounted between said cylinder and pump, connected to the engine-piston, and driven thereby, having bearings on said standard above said condenser, and the engine-valve driven from said shaft.

2. A vacuum pumping-engine, comprising a steam-cylinder, a piston-rod working in said cylinder, a water-pump located under said cylinder in line therewith, the operating-rod of said pump being connected to said piston-rod, an air-pump located below and in line with said water-pump, a cross-head connected to said piston-rod, a cross-head carried by the air-pump plunger and two rods connecting said cross-heads, arranged on opposite sides of the water-pump.

3. In a pumping-engine, the combination with a steam-cylinder and a water-pump located in line with said cylinder, of a piston-rod having a central bore, a pump-rod carrying a plunger and having its upper end connected to said piston-rod, and adapted when disconnected from said piston-rod to slide up into said bore a distance sufficient to expose said plunger.

4. In a pumping-engine the combination with a steam-cylinder and a water-pump located below said cylinder and in line therewith, of a piston-rod having a central bore, a pump-rod carrying a plunger, and a coupling adapted to detachably connect the pump-rod to the piston-rod, said pump-rod being adapted when disconnected from said piston-rod to slide up into said bore a distance sufficient to expose said plunger.

5. In a pumping-engine, the combination with a steam-cylinder and a water-pump located below said cylinder, and in line therewith, of a piston-rod having its lower end screw-threaded and formed with a central bore, a pump-rod adapted to slide into said bore, and having its upper end screw-threaded, a nut adapted to screw on said pump-rod, and a union adapted to unite said nut to the end of the piston-rod, whereby when said nut and union are unscrewed the pump-rod may be elevated into the bore of the piston-rod, to get access to the pump-plunger.

6. In a pumping-engine, the combination with a steam-cylinder and a water-pump located below said cylinder, and in line therewith, of a piston-rod having its lower end screw-threaded and formed with a central bore, a pump-rod adapted to slide into said bore, and having its upper end screw-threaded, a divided nut adapted to screw on said pump-rod, and a coupling-nut adapted to fit over said divided nut and screw on the end of the piston-rod, said nuts being so formed that the divided nut is cramped about the end of the pump-rod and held firmly against the piston-rod, after said coupling-nut is screwed in place.

7. In a pumping-engine the combination with a piston-rod, an oil-chamber inclosing bearings for the crank-shaft and crank through which chamber said piston-rod extends, and a stuffing-box for said piston-rod located at the bottom of said chamber, of a basin surrounding and secured to said rod below said stuffing-box, and a receptacle into which said leakage is conducted from said basin.

8. In a pumping-engine the combination with a hollow standard, an oil-chamber mounted thereon, a piston-rod extending through said chamber, and a stuffing-box for said piston-rod, located at the bottom of said chamber, of a basin surrounding and secured to said piston-rod below said stuffing-box, and having a lip or spout, said basin being adapted to receive any leakage through said stuffing-box, and a receptacle formed in said hollow standard, to which said leakage is conducted.

9. In a pumping-engine the combination with a hollow standard, an oil-chamber mounted thereon, a piston-rod extending through said chamber, and a stuffing-box for said piston-rod, located at the bottom of said chamber, of a basin surrounding and secured to said piston-rod below said stuffing-box, and having a lip or spout, said basin being adapted to receive any leakage through said stuffing-box, and a receptacle formed in said hollow standard and located under said basin, into which said leakage drips from said basin.

10. In a vacuum-engine, the combination of a steam-chest and a steam-cylinder having a lower dome-shaped head having within it a live-steam chamber through which the piston-rod extends, and a steam-port leading to said chamber.

11. In a pumping-engine, the combination of a steam-chest and a steam-cylinder having a lower dome-shaped head having within it a live-steam chamber through which the piston-rod extends, and formed with a neck extending upwardly and surrounding said piston-rod, and a steam-port leading to said chamber.

12. In a pumping-engine, the combination of a steam-chest and a steam-cylinder having a lower dome-shaped head having within it a live-steam chamber through which the piston-rod extends, and formed with a neck extending upwardly and surrounding said piston-rod, a steam-port leading to said chamber, and a drainage-pipe adapted to draw off any water of condensation formed in said chamber.

13. In a pumping-engine the combination with the piston-rod and the main shaft having a crank engaged by said rod, of an oil-chamber inclosing said crank and having bearings for said shaft, said shaft and bearings being so formed that the shaft may be removed endwise from said bearings without displacing the latter, and said chamber having a hand-hole opposite said crank to permit the removal of the shaft from its bearings, and a cover for said hand-hole.

14. In a pumping-engine, the combination of a main shaft, having a crank at one end, an oil-chamber inclosing said crank, and having bearings for said shaft, said chamber having a hand-hole opposite said crank to permit the endwise removal of the shaft from its bearing, a cover for said hand-hole, and a piston-rod extending within said chamber and engaging said crank, whereby upon removal of the cover and disengagement of said crank and rod, the shaft may be removed endwise from its bearings through said hand-hole.

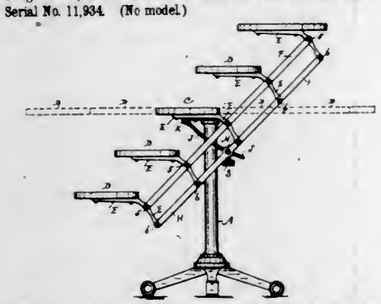
15. In a pumping-engine, the combination of a shaft having a crank, a piston-rod for rotating said shaft having a slotted cross-head, its slot large enough to admit said crank-shaft and crank to pass through it, and a block sliding in said cross-head and engaging said crank and adapted to be moved out of engagement therewith without disturbing said piston-rod, whereby upon removal of said block the shaft may be withdrawn from its bearings through the slot in said cross-head.

16. In a pumping-engine, the combination with a chamber having bearings for a shaft, and a shaft mounted in said bearings and having a crank at its outer end, of a piston-rod having a slotted cross-head, its slot large enough to admit said crank-shaft to pass through it, a block sliding in said cross-head and engaging said crank, said chamber having a hand-hole opposite the end of said shaft, and a cover for said hand-hole, whereby upon removal of said cover and sliding block the shaft may be removed from said chamber through the slot in said cross-head without disturbing the piston-rod.

17. In a pumping-engine, the combination with a steam chest and cylinder, of a chamber located beneath said chest and cylinder, a valve-rod and piston-rod passing from said chest and cylinder into said chamber, and said piston-rod passing through the bottom of said chamber, a stuffing-box for said piston-rod located at the bottom of said chamber, and a basin located on said piston-rod below said stuffing-box, whereby any water of condensation escaping around said rods will be caught in said chamber and pass through said stuffing-box into said basin.

18. In a pumping-engine, the combination with a steam chest and cylinder, of a chamber located beneath said chest and cylinder, a valve-rod passing from said chest into said chamber, a piston-rod passing from said cylinder into and through said chamber, a stuffing-box for said piston-rod located at the bottom of said chamber, a basin located on said piston-rod below said stuffing-box, and a receptacle below said basin, whereby any water of condensation escaping around said rods will be first caught by said chamber, then pass through said stuffing-box into said basin, and flow from said basin into said receptacle.

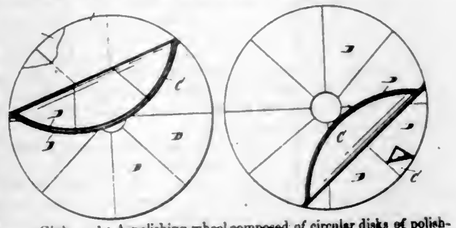
663,911. REVOLVING AND ADJUSTABLE DISPLAY-TABLE. JOHN A. LEGGATT, Hamilton, Canada, assignor, by direct and mesne assignments, to Ernest E. Peacock, same place. Filed Apr. 7, 1900. Serial No. 11,934. (No model.)



Claim.—1. An adjustable table comprising a series of leaves the middle leaf thereof secured to a stand, metallic brackets secured to the under side of the leaves a distance in from the ends and extending beyond the rear edges and below thereof, straps pivoted to said brackets beyond the rear edges of the leaves, rear straps pivoted to the rear and lower extended parts of said brackets, lugs on the brackets of the middle leaf, a transverse rod with enlarged parts loosely connected to the rear straps, braces pivotally connected to said lugs and extending through the enlarged parts of the transverse rod, said transverse rod capable of swivel movement by the action of said braces, and hand-screws to fasten the braces to the transverse rod, as described.

2. An adjustable table comprising a series of leaves, a centrally-located plate secured to the under side of the middle leaf, a lower vertical shank on said plate, a stand, a vertical socket in the stand to allow said shank to revolve, brackets secured to the under side of the leaves a distance in from the ends and extending beyond the rear edges and below thereof, straps pivotally connected to said brackets beyond the rear edges of the leaves, rear straps pivoted to the rear and lower extended parts of said brackets, lugs on the brackets of the middle leaf, a transverse rod with enlarged parts loosely connected to the rear straps, braces pivotally connected to said lugs and extending through the enlarged parts of the transverse rod, said transverse rod capable of swivel movement by the action of said braces, and hand-screws to fasten the braces to the transverse rod, as described.

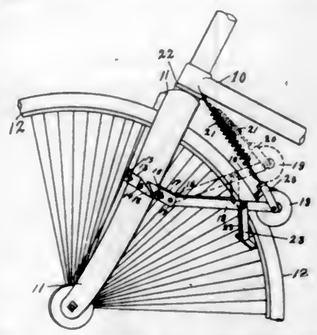
663,912. POLISHING-WHEEL. LOUIS LEVETT, New York, N. Y. Filed June 2, 1900. Serial No. 18,808. (No model.)



Claim.—1. A polishing-wheel composed of circular disks of polishing material, and radial sectors of the same material secured to the side of said circular disks, the radial sectors being secured to the side of the circular disks so that when the latter are connected to form a wheel, the said wheel will be composed entirely of circular disks, the alternate disks being composed of radial sectors, substantially as shown and described.

2. A polishing-wheel composed of separate elements, each of which consists of a circular disk of polishing material, and radial sectors secured to the sides thereof, the radial sectors being secured to the sides of the disk in such manner that when a number of said elements are connected to form a wheel, the wheel will be composed of separate disks, the alternate disks being composed of separate radial sectors, substantially as shown and described.

663,913. BICYCLE-BRAKE. JOHN E. LINDBERG and JOHN A. OLSON, Jamestown, N. Y. Filed Aug. 4, 1900. Serial No. 25,958. (No model.)



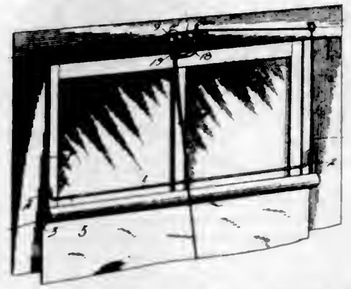
Claim.—In a bicycle coaster-brake, metal clamps encircling the front forks of a bicycle being formed into coaster-steps on the outer sides and having rear extensions, bolts through said coaster-steps and bolts through said extensions to doubly secure the clamps on the forks, side bars pivotally attached to said extensions, steps pivotally attached to said side bars and a concave roller-brake mounted therein, a bridle pivoted to said bars having a coiled spring and clip to hold the roller-brake off the wheel, as shown and described.

663,914. ART OR PROCESS OF TREATING ORES. HARRY LUCKENBACH, Seattle, Wash., assignor of one-half to William McPhee, Arlington, Wash. Filed Dec. 1, 1899. Serial No. 738,904. (No specimens.)

Claim.—1. The hereinbefore-described process of treating and disintegrating ores, which consists in heating the ore to a high temperature, applying niter cake thereto and, while still hot, treating the same with water, substantially as set forth.

2. The hereinbefore-described process of treating and disintegrating ores, which consists in treating the ore at a high temperature with a salt, which is capable of attacking the ore at a high temperature and, while still hot, treating the same with water, substantially as set forth.

663,915. CURTAIN-HANGER ADJUSTER. EPHRAIM MANES, Chattanooga, Tenn. Filed Mar. 3, 1900. Serial No. 7,241. (No model.)



Claim.—1. A clutch for curtain-raising devices comprising a staple designed to be driven into a window-casing, and a clutch member mounted upon one shank of the staple and in operative relation to the other shank thereof.

2. A clutch for curtain-raising devices comprising a staple designed to be driven into a window-casing, a clutch member mounted upon one shank of the staple and in operative relation with the other shank thereof, and means for effecting the operation of the clutch member through the manipulation of a curtain-cord.

3. A clutch for curtain-raising devices comprising a staple designed to be driven into a window-casing, a clutch member pivotally mounted upon one shank of the staple and in operative relation to the other shank thereof, and guide devices carried by the clutch member for the guidance of a curtain-cord.

4. The combination with a hanger and operating-cord, of a clutch comprising a fixed member, a pivoted member, and cord-guides carried by the pivoted member and located both above and below the same.

5. The combination with a hanger and operating-cord, of a clutch comprising a fixed member, a pivoted member having a weighted end and disposed in a substantially horizontal direction, cord-guides located upon the upper side of the pivoted member, and a lever-arm extending below the pivoted member and having a cord-guide.

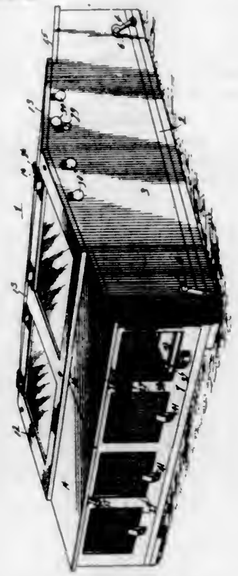
6. The combination with a hanger and an operating-cord, of a clutch comprising a stationary member, a pivotal member connected thereto, a lever-arm extending downwardly from the pivoted member and provided with a cord-guide, a second cord-guide extending upwardly from the pivoted member, and a guard-finger carried by said pivoted member and disposed to cooperate with the last-named cord-guide for the guidance of a curtain-cord passing over the pivoted member of the clutch.

7. The combination with a hanger and an operating-cord therefor, of a clutch comprising a stationary member, a movable member pivotally related thereto, a weighted arm on the movable member for throwing it into engagement with the operating-cord, a lever-arm connected to the weighted arm and having a terminal cord-guide, and a second cord-guide and guard-finger both extending from the upper side of the weighted arm and designed for the guidance of a cord.

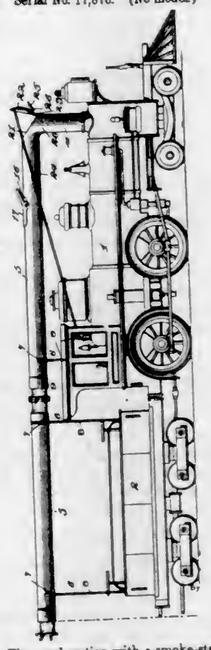
663,916. BROODING AND HEN HOUSE. ABEL MARKWELL, SYLVANUS A. MARKWELL, and PLEASANT W. MARKWELL, Wichita, Kans. Filed Mar. 15, 1900. Serial No. 8,786. (No model.)

Claim.—1. In a device of the class described, the combination of a hen-house provided with front and rear doors and having a roof composed of sections and adapted to be opened to afford access to the interior of the hen-house, the longitudinal partitions extending from the front to the rear doors and forming passages, the intermediate doors located between the ends of the passages and arranged to divide the same into two compartments and hinged at their lower edges to the bottom of the hen-house and adapted to be swung downward upon the said bottom to form continuous passages, and the removable screens supported upon the partitions, substantially as and for the purpose described.

2. A device of the class described comprising a hen-house provided with front and rear doors and having a roof composed of the central sections 12 and 13, the section 12 being stationary, and the section 13 being hinged at its inner edge to the adjacent edge of the stationary section and adapted to open to afford access to the interior of the hen-house, and the end sections having their inner edges arranged beneath and detachably interlocked with the outer edges of the central sections and provided at their outer edges with fastening devices, the longitudinal partitions extending from the front doors to the rear doors, the intermediate doors hinged at their lower edges and arranged to fold down upon the bottom of the hen-house, and the removable screens supported by the partitions, substantially as described.



663,917. SMOKE-CONVEYER. GALT M. MELVER, JOHN H. GROVE, JOSEPH J. LEITSCH, and THEOPHILUS L. MELVER, Louisville, Ky. Filed May 24, 1900. Serial No. 17,876. (No model.)

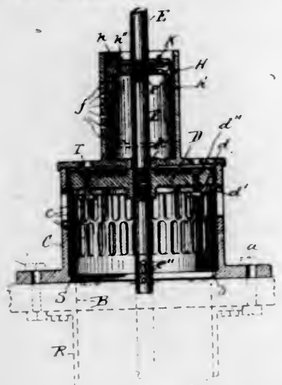


Claim.—1. The combination with a smoke-stack, of a conveyer extending at right angles thereto and provided with an opening coaxial with

both the stack and conveyer, a hinged cap arranged to close over the opening, a draft-funnel opening through the cap at a point coaxial with the conveyer when the cap is closed and disposed at an angle to the cap to permit such coaxial relation, and means for actuating the cap.

2. The combination with the smoke-stack of a locomotive, of a conveyer extending at right angles thereto and provided with an opening coaxial with both the stack and conveyer, a convex cap arranged to close over the opening and hinged at its lower edge, a draft-funnel opening through the cap at a point coaxial with the conveyer when the cap is closed and disposed at an angle to the cap to permit said funnel to have coaxial relation with the conveyer when the cap is in its closed position, and a cap-actuating device designed to effect the opening or closing of the cap from a point removed therefrom.

663,918. WATER-CUSHIONING TANK-VALVE. FREDERICK S. MILNE and THEODORE W. SNOW, Batavia, Ill. Filed Apr. 6, 1900. Serial No. 11,873. (No model.)



Claim.—1. A water-cushioning tank-valve consisting of a cylinder C, provided with ports *c*, *c*, *c*, and a cylinder F, provided with ports *f f f*, and a valve-stem E, carrying plungers D, and H, to operate within the chambers C, and F, respectively, substantially as described and for the purposes set forth.

2. In a water-cushioning tank-valve, the cylinder C, provided with the ports *c*, *c*, *c*, in combination with the cylinder F, provided with the ports *f f f* and the hollow valve-stem E, carrying the plungers D, and H, substantially as described.

3. In a water-cushioning tank-valve, the cylinder C, provided with the ports *c*, *c*, *c*, in combination with the cylinder F, provided with the ports *f f f* and the valve-stem E, carrying the plungers D, and H, the latter being supplied with the valves K, K, K, substantially as described.

4. In a water-cushioning tank-valve, the cylinder C, provided with the ports *c*, *c*, *c*, in combination with the cylinder F, provided with the ports *f f f* and valve G, and the valve-stem E, carrying the plungers D, and H, substantially as described.

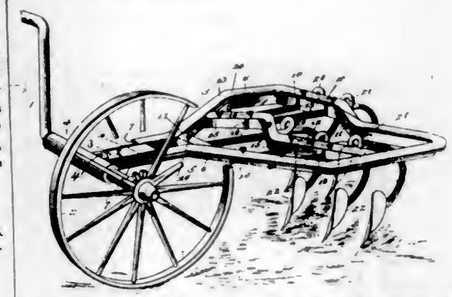
5. In a water-cushioning tank-valve, the cylinder C, provided with the ports *c*, *c*, *c*, and openings T, T, T, in combination with the cylinder F, provided with the ports *f f f* and valve G, and the hollow valve-stem E, provided with the ports *e''* *e''* *e''* and carrying the plungers D, and H, the latter being supplied with the valves K, K, K, substantially as described.

6. In a water-cushioning tank-valve, the cushion-cylinder F, provided with ports and the plunger H, provided with a valve K, both operating within said cylinder by means of a valve-stem E, substantially as described.

7. In a water-cushioning tank-valve, in combination with a valve, the cushion-cylinder F, provided with ports, and the plunger H, provided with or more valves and operating within said cylinder by means of a valve-stem E, substantially as described.

663,919. CULTIVATOR. JOHN T. MORGAN, Half Rock, Mo. Filed Jan. 20, 1900. Serial No. 2,135. (No model.)

Claim.—1. In a cultivator, the combination, with a wheeled support, of a frame pivotally secured thereto, and provided with front and rear pieces and a bent or angled center bar and two series of shovel-bars secured to said frame, one series in advance and to one side of the other series, the forward series being secured to the front piece and to the center bar of the frame and the other series being secured to the center bar and to the rear piece of the frame.

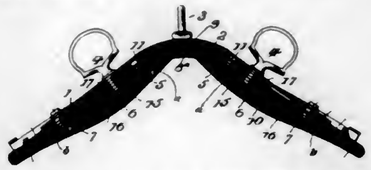


2. In a cultivator, the combination, with a wheeled support, of a coupling-beam pivotally secured thereto, a frame secured to the beam, formed from angle-iron, the top portion being cut away at the beam and the sides being provided with a perforation and a slot adjacent thereto, and two series of shovels secured to the frame, one in advance and to one side of the other series.

3. In a cultivator, the combination, with a wheeled support, of a frame pivotally secured thereto, the beams of which are flanged and the flanges are slotted vertically, shovel-bars secured to the frame, the forward end of each of which is notched upon its lower edge and fits within one of the slots and a set-screw through the beam adjacent to each slot the end of which is adapted to engage with the upper edge of the bar and keep it in engagement with the beam of the frame.

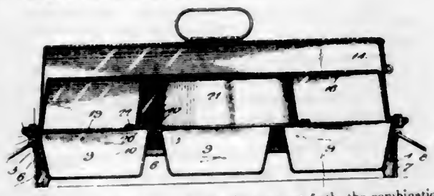
4. In a cultivator, the combination with the axle, of a rearwardly-extending coupling-beam secured thereto, a frame secured to said coupling-beam, a flange provided with openings depending from said frame, and a bar flat throughout its length except one portion which is round in cross-section and coiled, a notch in the forward end of the bar adapted to engage the flange below said openings and a set-screw to engage the forward end of the bar, substantially as shown and described.

663,920. HARNESS-SADDLE. RICHARD D. MURPHY, La Crosse, Wis. Filed Feb. 26, 1900. Serial No. 6,505. (No model.)



Claim.—A bur-piece for harness-saddles constructed substantially as herein shown and described, the same being formed of rigid material longitudinally curved and having its middle portion thickened and tapering toward the ends and widened intermediate of its ends on symmetrically-curved lines, and having a notch at its inner end and its outer end cut away upon its under side for a short distance, said bur-piece having a middle and end openings, substantially as specified.

663,921. BAKE-PAN. GEORGE R. MCMULLEN, Newark, Ohio, assignor of one-half to William McMullen, same place. Filed Mar. 6, 1900. Serial No. 7,540. (No model.)

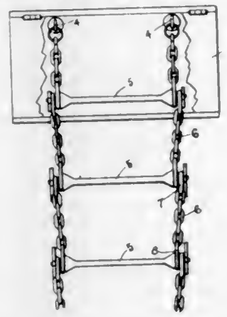


Claim.—1. In a device of the character set forth, the combination of a completely-open rectangular frame with corner legs and an upper horizontal rim with an outer upstanding portion, the sides and ends being also open between the legs to permit an unretarded circulation of heated air therethrough, and the said rim adapted to removably receive a plurality of different cooking utensils including a receptacle, a horizontal extension from said receptacle being supported by the horizontal rim of the frame, the said receptacle depending through the interior of the frame and having its bottom above the plane of the base-rest of the frame, and a chambered lid or cover removably mounted on and entirely independent of the said frame and having a lower horizontal flange to engage the horizontal rim of said frame.

2. A nest of cooking utensils comprising a completely-open frame with legs and an upper horizontal rim, a plate to removably bear on the latter and having a central opening to receive a flanged receptacle, a single flanged receptacle of substantially the same dimensions as the frame and also provided with a flange to removably bear on the said rim, a plurality of smaller receptacles having upper horizontal flanges to removably fit on the frame-rim, all the receptacles being suspended by the frame so that the bottoms will be clear of the base-rest of the latter, and a single chambered lid common to all the devices and having a lower horizontal flange to loosely and removably rest on the frame-rim and the portions of the devices engaging said rim.

3. A device of the character set forth, comprising a completely-open rectangular frame with corner legs and an upper horizontal rim with an outer upstanding portion, a plurality of pans having upper flanges loosely and removably resting on the said rim and suspended in a transverse direction in the frame, the bottoms of the pans being above the plane of the base-rest for the frame, and a chambered lid or cover removably mounted on and entirely independent of the said frame and having a lower horizontal flange to loosely engage the rim of the frame.

663,922. FIRE-ESCAPE. BENJAMIN S. NEELEY, Anding, Miss. Filed Apr. 2, 1900. Serial No. 11,130. (No model.)



Claim.—A fire-escape ladder comprising a series of rungs, each having a square portion near each end, cylindrical studs projecting beyond said square portions, terminals projecting beyond said studs, link chains having each a link at one end provided with a circular opening for the reception of the stud of one rung, and at the opposite end having a link provided with a square opening for the reception of the corresponding portion of the next succeeding rung, and suitable V-shaped brackets having openings at one end for the reception of the terminal bosses of the successive rungs, substantially as set forth.

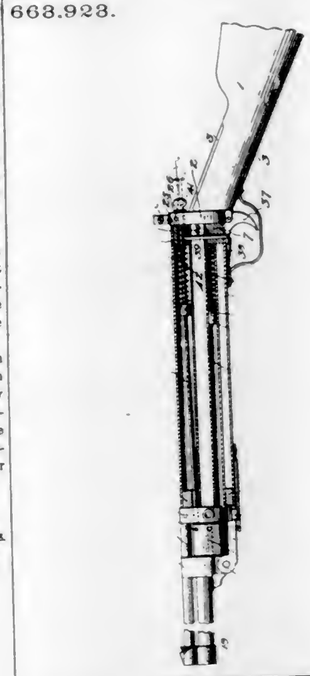
663,923. RIFLE. WAYLAND B. NICHOLSON, Holly, Mich. Filed July 26, 1900. Serial No. 24,909. (No model.)

Claim.—1. In combination, a rifle-stock, a block carried thereby, tubes connected to said block, a head connecting said tubes and provided with an arm, a barrel provided with a head connected to said arm, a rotatable cylinder carried by said barrel provided with cartridge-chambers, firing mechanism located in one of said tubes, and a charge-containing magazine located within the other tube and adapted to register with the chambers of said cylinder when the latter is rotated, substantially as set forth.

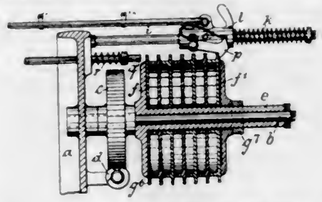
2. The combination of a rifle-stock and its tilting barrel, of a tube arranged intermediately thereof and connected therewith, a firing-pin extending through the forward end of said tube, a hammer extending through the rear end of said tube and connected to the firing-pin, and a coil-spring arranged within said tube to actuate the pin and hammer, substantially as set forth.

3. In a rifle, the combination with a stock and a tilting barrel of tubes connecting them together, one of said tubes inclosing the firing mechanism, and the other tube inclosing the charge-magazine, substantially as set forth.

663,923.



663,924. COUNTING MECHANISM. MAX J. NORDMANN, Dresden, Germany. Filed Mar. 30, 1900. Serial No. 10,829. (No model.)



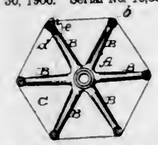
Claim.—1. In a counting mechanism, the reel-frame, a supporting-rod extending therefrom, a wheel placed upon the said rod and means for driving said wheel, combined with a revolving sleeve placed upon the rod, a series of counting-disks clamped upon the said sleeve and caused to revolve therewith, each of the disks having a notch formed through its outer edge, and which notches are adjusted in relation to each other, a rod also secured to the frame, a spring-actuated sliding block placed thereon and provided with a pawl which engages with the counting-disks, and a rod connected to the said block carrying guide-eyes, substantially as shown.

2. The reel-frame, a supporting-rod extending from the end thereof, a spring-actuated sliding block placed upon the rod, a spring-actuated pawl connected to the block, and a rod also secured to the block and provided with guide-eyes, combined with a revolving sleeve mounted upon the frame, a mechanism for causing said counters to revolve, and a number of counting-disks clamped upon the sleeve, and each one provided with a notch or opening through its edge, and through which the pawl upon the block is adapted to pass as the block is forced inwardly by its spring toward the frame, substantially as described.

3. In a counting mechanism, a series of revolving counting-disks and means for causing them to revolve, each of the disks being provided with a notch in its periphery, combined with a sliding spring-actuated block, a spring-actuated pawl connected to said block, and a rod connected to the block and provided with guide-eyes, substantially as set forth.

4. In a counting mechanism, the reel-frame, a series of revolving counting-disks mounted on the end of said reel-frame, and a mechanism for causing them to revolve, combined with a spring-actuated pawl, and a sliding rod actuated when the pawl has passed through all of the counting-disks, substantially as specified.

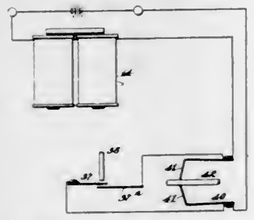
663,925. REEL FOR YARN. MAX J. NORDMANN, Dresden, Germany. Filed Mar. 30, 1900. Serial No. 10,830. (No model.)



Claim.—1. In a reel, the bars *b* adapted to be turned partially around, and combs secured thereto, combined with knives applied to the bar, and which knives are brought into an operative position by partially turning the bars at the same time that the combs are moved out of the way, substantially as described.

2. In a reel, the bars *b* pivoted in or upon their supports so as to be turned partially around, combs *c* applied to their surfaces, and the knives secured to opposite sides of the bars from the combs, combined with the hooks or forks *e*, substantially as specified.

663,926. AUXILIARY ATTACHMENT FOR SIGNAL-BOXES. BARTHOLOMEW OEHMEN, New York, N. Y., assignor to The Gamewell Fire-Alarm Telegraph Company, same place. Filed May 22, 1900. Serial No. 17,538. (No model.)



Claim.—1. The combination with a street-box containing a normally-wound clockwork mechanism and a trip for releasing the same, of an auxiliary magnet located adjacant to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature and adapted to operate the trip for the box, a circuit-controlling device in the auxiliary circuit, and means controlled by the operation of said slide for actuating the circuit-controlling device, substantially as set forth.

2. The combination with a street-box containing a normally-wound clockwork mechanism and a trip for releasing the same, of an auxiliary magnet located adjacent to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature and adapted to operate the trip for the box, contact-springs in series with the auxiliary magnet, and a pin carried by the slide for closing the circuit through said springs by the actuation of the slide, substantially as set forth.

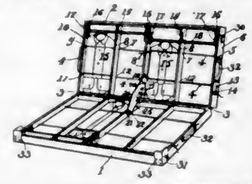
3. The combination with a street-box containing a normally-wound clockwork mechanism and a trip for releasing the same, of an auxiliary magnet located adjacent to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature and adapted to operate the trip for the box, contact-springs in series with the auxiliary magnet, a pin carried by the slide for closing the circuit at said springs by the movement of said slide, and a shunt around said contact-springs adapted to be broken simultaneously with the closure of the circuit at said springs, substantially as set forth.

4. The combination with a street-box containing a normally-wound clockwork mechanism and a trip for releasing the same, of an auxiliary magnet located adjacent to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature and adapted to operate the trip for the box, contact-springs in series with the auxiliary magnet, a pin carried by the slide for engaging said contact-springs to close the circuit thereat upon the positive movement of the slide, supplemental contact-springs arranged in shunt to the main contact-springs, and a plunger for closing said shunt at the supplemental contact-springs, said plunger being released simultaneously with the release of the slide, substantially as set forth.

5. The combination with a street-box containing a normally-wound clockwork mechanism and a trip for releasing the same, of an auxiliary magnet located adjacent to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature and adapted to operate the trip for the box, contact-springs in series with the auxiliary magnet, a pin carried by the slide for engaging said contact-springs to close the circuit thereat upon the positive movement of the slide, supplemental contact-springs arranged in shunt to the main contact-springs, a plunger for closing said shunt at the supplemental contact-springs, and a finger holding said plunger in position to close said shunt and connections between the auxiliary armature and said finger substantially as set forth.

6. The combination with a street-box containing a normally-wound clockwork mechanism and a trip-lever for releasing the same, of an auxiliary magnet located adjacent to the street-box, the armature for said magnet, a slide normally locked in a retracted position by said armature, an auxiliary trip-lever engaged by said slide, said auxiliary trip-lever engaging the trip-lever at or near its extreme end, an arm carried by said auxiliary trip-lever, and a pin operated by the clockwork mechanism for engaging said arm to restore the same, substantially as set forth.

663,927. SHIRT-CASE. LOUIS W. PEDDICORD, St. Joseph, Mo. Filed Aug. 27, 1900. Serial No. 28,165. (No model.)



Claim.—1. In a shirt-case, an open tray provided with partitions, a fastener on one end thereof, and a cord doubled upon itself, the doubled portions being passed across the partitions at a distance from each other and disconnected therefrom and movable therethrough, one end of the cord being secured to the end of the tray at a distance from the fastener and the other end detachably connected with the fastener, the central portion being passed loosely through the opposite end of the tray so as to be longitudinally movable thereof, whereby the tension of both doubled portions of the cord may be adjusted and maintained by means of but a single fastener and the one end of the cord connected therewith.

2. In a shirt-case, an open tray provided with transversely-arranged perforated partitions and having one of its ends perforated in alinement with the perforations of the partitions, of a fastener secured to the other end of the tray in alinement with a portion of the perforations in the partitions, and a cord secured at one end to the last-mentioned end of the tray in alinement with the other perforations of the partitions, the intermediate portion of said cord being doubled upon itself and passed through the perforations of the partitions and also through the perforations in the end and extending from one to the other of said last-mentioned perforations, the said cord being disconnected from the partitions throughout its entire length and the free end of the cord being detachably connected with the fastener, whereby the doubled portions of the cord can be adjusted and secured by means of a single fastener and one end of the cord.

3. In a shirt-case the combination with two trays hinged together, of the piece 20 pivotal on stud 21 and provided with suitable slots for engagement of studs, the whole arranged to hold two hinged trays in alinement substantially as shown and described.

4. In a shirt-case the combination with two trays hinged together, of the slotted piece 20 pivotally attached to tray 1 and having its free end provided with a hook-slot 29 adapted to engage stud 28, as and for the purpose specified.

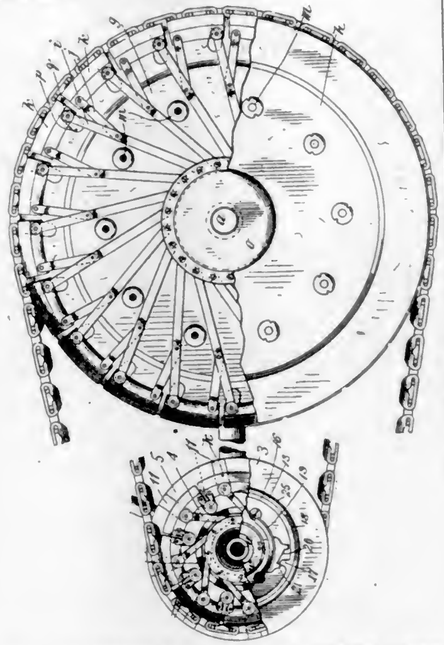
663,928. PULLEY. JOHN C. PRATT, Hartford, Conn. Filed Apr. 12, 1900. Serial No. 12,592. (No model.)

Claim.—1. A wheel or pulley having an expansible and contractible periphery composed of radially-movable segments, combined with a frictional device whereby, upon the expansion or contraction of said periphery, the movement thereof in the opposite direction will be retarded, substantially as described.

2. The combination with a driving and a driven pulley having a flexible member for transmitting movement from one to the other of said wheels or pulleys, and each of the latter having an expansible and contractible periphery, of friction devices on said driven pulley whereby, when the periphery of the latter is expanded, the movement of said periphery in the opposite direction will be retarded, substantially as described.

3. A pulley, having an expansible and contractible periphery, comprising a shaft, a coiled spring thereon having a rotative engagement therewith, a disk loose on said shaft and interlocking with one end of said spring, spokes pivoted to said shaft in a position inclined to the radii thereof, segments pivotally supported on said spokes, ball-cups for supporting said shaft, and means for moving said interlocking disk on said shaft into engagement with one of said ball-cups for adjusting the latter, substantially as described.

4. In an expansible and contractible wheel or pulley, a shaft, a disk loose thereon, a series of spokes pivoted by one end on said disk and inclined to the radii thereof, segments constituting the periphery of said wheel or pulley, a pivotal support for one end of each of said segments on the outer end of said spokes, spoke-levers pivoted to said spokes for pivotally engaging the opposite ends of said segments, a coiled spring on said shaft, rotating therewith, and a positive engagement between said spring and said hub, substantially as described.



5. In an expansible and contractible wheel, a barrel-hub, a non-rotatable shaft, a sleeve rotatable thereon, spokes pivotally hung by one end on said hub, two interlocking disks rotatably supported on the end of said sleeve between which said spokes are located, and with which they engage, and means of engagement between one of said disks and said spring; segments constituting the periphery of said wheel, jointed elbow-levers uniting the contiguous ends of said segments, and pivotal connections between said segments and said spokes, there being radial slots in said two interlocking disks, and friction-rolls on said spokes and elbow-levers engaging said slots, substantially as described.

6. In an expansible and contractible wheel comprising radially-moving segments which constitute its periphery, and operated by the movement of one rotating part of said wheel relative to another, the combination therewith of friction devices whereby the movements of said parts are retarded, which devices consist of an annular flange 13, and a ring 16 therein engaging one of said parts and having cam projections thereon, a spring-ring 19 within the ring 16, a friction-ring 23 on another of said parts, against which said spring 19 is compressed by the engagement of said cam projections with said spring-ring, when one of said parts is operated relative to the other, substantially as described.

7. In an expansible and contractible wheel, a series of segments constituting the periphery of said wheel, there being a groove in said segments for receiving a drive-chain, and means for cushioning the sides of said groove on which said chain bears, substantially as described.

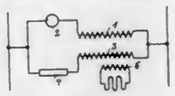
8. In an expansible and contractible wheel, a series of segments constituting the periphery of said wheel, there being a groove in said segments for receiving a drive-chain, a cushion of resilient material disposed along the sides of said grooves, and a metal covering for said material, and means for attaching said covering to said segments, substantially as described.

9. In an expansible and contractible wheel, a barrel-hub, a non-rotatable axle therein, a sleeve thereon rotatable relative to said axle, a coiled spring one end of which is attached to the sleeve, means for expanding the sleeve relative to the hub for locking it therein whereby the tension on said spring may be varied, disks between which spokes are located, means for interlocking said disks and spring, and segments on said spokes which constitute the periphery of said wheel, substantially as described.

10. In an expansible and contractible wheel, a series of spokes therefor, a hub to which said spokes are pivotally attached, and means for connecting said spokes in offset relation one to another on said hub, substantially as described.

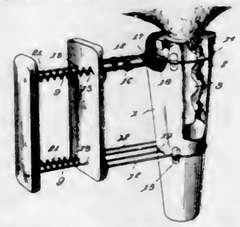
11. In an expansible and contractible wheel or pulley, a shaft, a disk loose thereon, a series of spokes, the inner ends of which are offset in opposite directions, two annular grooves in said disk adapted to receive the offset ends of the spokes, means for pivotally securing said spokes in said grooves alternately, segments constituting the periphery of said wheel or pulley, a pivotal support for one end of each of said segments on the outer end of said spokes, spoke-levers pivoted to said spokes for pivotally engaging the opposite ends of said segments, a coiled spring on said shaft, rotating therewith, and a positive engagement between said spring and said hub, substantially as described.

663,929. SYSTEM FOR HEATING CONDUCTORS OF THE SECOND CLASS. CARL D. RAAR, Kaiserslautern, Germany. Filed Apr. 30, 1900. Serial No. 14,971. (No model.)



Claim.—In a system for heating conductors of the second class, the combination of first and second class conductors, a heater in the secondary of a transformer, differential primary coils for said transformer, alternate coils having in circuit with them a first and a second class conductor respectively.

663,930. COW-MILKER. REUBEN D. ROTH, Mummasburg, Pa. Filed Dec. 30, 1899. Serial No. 742,081. (No model.)



Claim.—1. In a cow-milker, the combination with a case, of two curved clamps therein, the edges of which are provided with interlocking projections, and means permitting one of said clamps to be forced toward the other one with a yielding pressure, substantially as described.

2. In a cow-milker, the combination with a case, of a removable plate therein, the top of the case and of the plate being each provided with a recess, two clamps, the top of each of which is provided with a projection to fit within one of the recesses, and means exteriorly of the case for moving the plate and its clamp toward the other clamp, substantially as described.

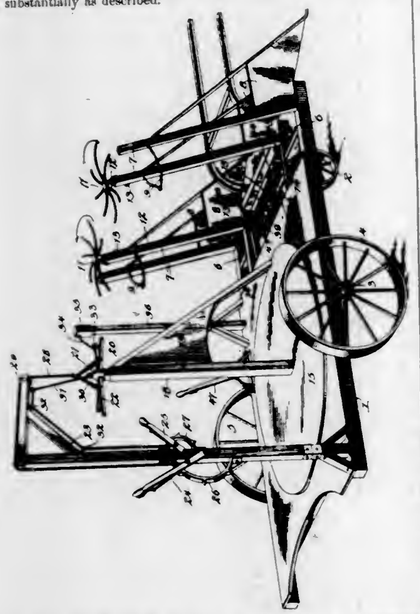
3. In a cow-milker, the combination with a case, of a plate therein, two clamps one of which is secured to the plate, two wire loops around the case, the ends of one of which is provided with closed coils, a handle on the ends of said looped wires, wires secured to the plate, the intermediate portions of which project through the case and the handle and the inner ends of a portion of which wires are each provided with a coil, a handle secured to the outer ends of the wires projecting outward from the plate, and springs on said wires between the handles, substantially as described.

663,931. CORN-HARVESTING AND SHOCK-FORMING MACHINE. HARVEY H. ROUSE, Middleport, Ohio, assignor of one-half to Frank J. Owen, Philippi, W. Va. Filed Sept. 4, 1900. Serial No. 28,958. (No model.)

Claim.—1. In a corn-harvesting machine, the combination of a revoluble shock-forming table, a removable spider, means to support the same above and rotate the same with the shock-forming table, means to lift said spider, together with a shock of corn, from the shock-forming table, means to support a ball or reel of binding-cord, and means to attach the binding-cord to the spider, for the purpose set forth, substantially as described.

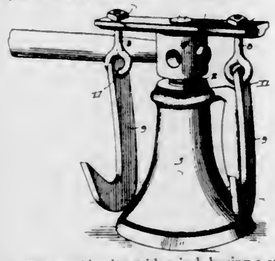
2. In a harvesting-machine, the combination of a revoluble shock-forming table having a central post, a removable spider fitted on said post, a crane to lift said spider, together with a shock of corn from the shock-forming table, a stationary support for a ball or reel of binding-cord, and means to attach the binding-cord to one of the arms of the spider, for the purpose set forth, substantially as described.

3. In a corn-harvesting machine, a revoluble shock-forming table having a central post, a spider comprising a cap fitted on said post and removable therefrom, and radial arms hinged to said cap, a crane having a hoisting-rope connected to the arms of said spider and a trip-rope connected to the said cap, whereby the latter may be drawn upward through the center of a shock when the latter has been discharged from the machine, substantially as described.



4. In a corn-harvesting machine, the combination of a revoluble shock-forming table, a revoluble spider, comprising a central or hub member and radial arms having means whereby a binding-cord may be attached thereto, a support on said table for said spider, a stationary support for a ball or reel of binding-cord, a hoisting device having a hoisting-rope connected to the arms of said spider, and a trip-rope connected to the said central or hub member of said spider, whereby the latter may be drawn upward through the center of a shock when the shock has been discharged from the machine, substantially as described.

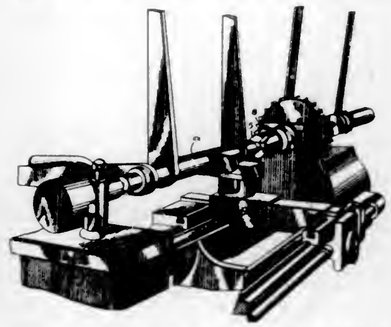
663,932. LIFTING-JACK. JOHN T. SANDERS, Andrews, Tex. Filed Oct. 4, 1900. Serial No. 32,030. (No model.)



Claim.—1. The combination with a jack having a screw provided at the top with a pivot, of a horizontal bar supported on the screw and provided with a central opening receiving the pivot, whereby the bar is journaled on the screw and is adapted to swing freely around the same, said bar being provided at its ends with apertures, the eyes provided with shanks extending through the apertures at the ends of the bar and swiveled to the latter, and the opposite hooks provided with openings and linked into the eyes, substantially as described.

2. The combination with a jack having a screw provided at the top with a pivot, a horizontal bar supported by the screw and provided with an opening to receive the pivot and having apertures at its ends, the eyes located beneath the horizontal bar and provided with vertical shanks passing through the said apertures and adapted to turn freely therein and provided with threads, the nuts engaging the threaded shanks and arranged at the upper face of the horizontal bar, and the hooks having openings and linked into the said eyes, whereby they are flexibly connected with the horizontal bar, substantially as described.

663,933. AXLE-TURNING LATHE. FRANS O. SANDSTRÖM, Augusta, Ga. Filed July 11, 1900. Serial No. 23,250. (No model.)



Claim.—1. The combination with the spindle of a lathe, of a mandrel secured to and rotated by said spindle, a sleeve splined on said mandrel and movable longitudinally thereon, and means to secure a tool to said sleeve, substantially as described.

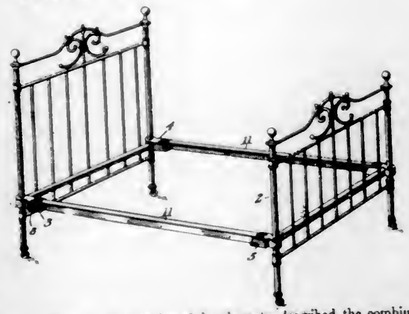
2. The combination of a mandrel adapted to be secured to and rotated with a lathe-spindle, a sleeve splined on said mandrel, movable longitudinally thereon and having a radially-disposed groove in its outer end, and a tool secured on one side of said mandrel and engaged by said groove, substantially as described.

3. The combination of a mandrel adapted to be secured to and rotated with a lathe-spindle, a sleeve splined on said mandrel and movable longitudinally thereon, said sleeve having a groove in its outer end and a tool secured on said sleeve and engaged by said groove, substantially as described.

4. The combination of a mandrel adapted to be secured to and rotated with a lathe-spindle, a sleeve splined on said mandrel and movable longitudinally thereon, said sleeve having a groove in its outer end, a right-angled tool having one arm engaged by said groove, and a securing and adjusting screw connecting the other arm of said tool to one side of said sleeve, substantially as described

5. In combination with a lathe having a revoluble spindle and a carriage, a mandrel secured to and rotated by said spindle, a sleeve splined on said mandrel and movable longitudinally thereon, means to secure a tool to said sleeve, and means to connect said sleeve to said carriage, substantially as described.

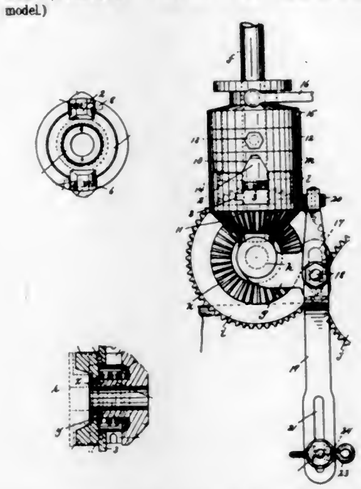
663,934. BED. CHARLES W. SANTMYER, Baltimore, Md., assignor of one-third to Thomas L. Kemp, same place. Filed Jan. 30, 1900. Serial No. 3,326. (No model.)



Claim.—1. In a device of the character described, the combination with a head and foot board of a bed, and corner-blocks provided with slots secured thereto, of side rails for engagement with said blocks, said rails each being stamped from a single piece of sheet metal and bent into form to constitute a side flange, on each end of which is a supporting-finger, a top or spring-supporting flange, on each end of which is a supporting-finger parallel with the first-referred-to finger, said fingers being adapted to engage slots in the respective corner-blocks.

2. In a corner-fastening for bedsteads, the combination with the head and foot board thereof, each carrying blocks cut at their free ends on an angle slightly less than a right angle and provided with two parallel ⌐-shaped slots, of side rails engaging said blocks and having ⌐-shaped parallel fingers adapted to engage said slots, the ends of said rails being beveled to correspond to the ends of the blocks so as to form a wedge-joint when said blocks and rails are clamped together, said side rails being struck up from a single piece of metal.

663,935. CLUTCH MECHANISM FOR LOOMS. MARTIN A. SCHMITT, Paterson, N. J. Filed July 18, 1900. Serial No. 24,030. (No model.)



Claim.—1. In a clutch mechanism, the combination of a hollow driving member, a driven member having a recess in the face thereof adjacent said driving member, said members normally abutting the one against the other and a spring-actuated latch fulerumed in said driving member and having a beveled lug adapted to enter said recess, said recess being shaped to conform substantially to the lug, substantially as described.

2. In a clutch mechanism, the combination, with a shaft to be driven, of a driven clutch member arranged on said shaft and rigidly connected thereto, a cup-shaped driving clutch member normally abutting against said driven clutch member, said driven clutch member having a recess in the face thereof adjacent said driving member, a latch fulerumed in said driving clutch member and having a beveled lug adapted to enter said recess, said recess being shaped to substantially conform to said lug, and a spring inclosed in said driving clutch member and bearing against said latch, substantially as described.

3. The combination of a driving clutch member, a driven clutch member, a latch carried by one of said members, normally engaging the other member to connect said members, and movable to either of two positions, said latch being adapted to be moved from one position to the other when the disconnection of said members occurs, a movable part adapted to be operatively connected to the power-controlling means of the machine including said clutch members, and a lug projecting from said latch and adapted to engage said part to actuate the same whenever the latch is in one of said positions, substantially as described.

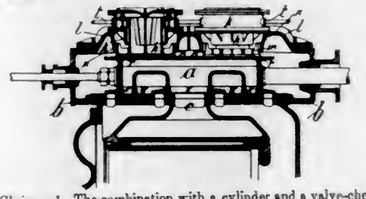
4. In a clutch mechanism, the combination of a driving clutch member, a driven clutch member, a spring-actuated latch arranged in said driving member and having a beveled lug adapted to engage the driven member, said latch being adapted to be depressed when said clutch members move independently of each other, and automatic locking means for said latch adapted to secure the same when depressed, substantially as described.

5. In a clutch mechanism, the combination of a driving clutch member, a driven clutch member, a spring-actuated latch arranged in said driving member and having a beveled lug adapted to engage the driven member, said latch being adapted to be depressed when said clutch members move independently of each other, and a spring-actuated pawl carried by said latch, said driving clutch member having a recess adapted to receive said pawl when the latch is depressed, substantially as described.

6. The combination of a driving clutch member, a driven clutch member, one of said members having a beveled projection engaging the other member and adapted to move the one of said members from the other when they rotate independently, and a suitably-fulcrumed lever adapted to be operatively connected to the power-controlling means of the machine including said clutch members and to be engaged by said movable member to be actuated thereby upon the movement thereof, substantially as described.

7. The combination of a driving clutch member, a driven clutch member, a latch carried by one of said members and having a beveled lug engaging the other member, said lug being adapted to move the latch when the clutch members are moved independently, and a suitably-fulcrumed lever adapted to be operatively connected to the power-controlling means of the machine and to be engaged by said latch to be actuated thereby upon the movement thereof, substantially as described.

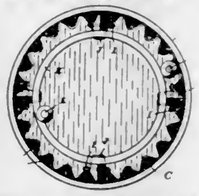
663,936. BALANCED SLIDE-VALVE. WILHELM SCHNOLKA, Pola, Austria-Hungary. Filed Apr. 12, 1900. Serial No. 12,513. (No model.)



Claim.—1. The combination with a cylinder and a valve-chest, of a slide-valve provided with a cavity to receive the motive fluid, ports to permit of the passage of the fluid from the cavity into the cylinder, and ports to permit of the passage of the exhaust fluid from the cylinder through channels in the valve to the exhaust or condenser, a rectangular cover for the valve-chest having apertures, four closed-top cylinders fixed in apertures of the valve-chest cover arranged in the form of a square, four pressure-pistons in said cylinders, and means for actuating said pistons, substantially as described.

2. The combination with the valve-chest cover having apertures, of the closed-top pressure-cylinders fixed in said apertures, stuffing-boxes in the upper portions of said cylinders, hollow pistons in said cylinders, guides on the pistons extending into the stuffing-boxes, rectangular base-plates on the bottoms of said pistons below and extending laterally beyond the cylinders, and suitable guides and reinforcing-ribs for said shoes, the under surfaces of said shoes being smooth and provided with lubricating-grooves, substantially as described.

663,937. PRIMARY BATTERY. CHARLES B. SCHOENHEHL, Waterbury, Conn., assignor to the Waterbury Battery Company, same place. Filed Feb. 27, 1900. Serial No. 6,695. (No model.)



Claim.—1. The combination in a battery of the class described of a transparent jar, a perforated corrugated cylinder fitted into said jar producing an outer series of pockets, a perforated cylinder interior of said corrugated cylinder forming an inner series of pockets, a depolarizing agent in said pockets, a zinc, means for supporting the same and a binding-wire attached to said zinc.

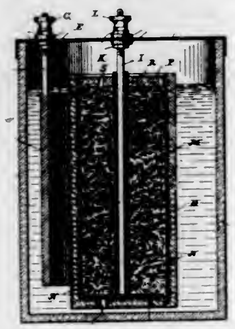
2. In a battery of the class described, the combination with a transparent jar, of a perforated cylinder therein provided with a series of corrugations to retain it at a uniform distance from the jar, an oxid-of-copper element contained in the space formed between said jar and cylinder, a contact-wire leading from said cylinder, a zinc element located central of the cylinder and provided with a contact-wire, and means for supporting said zinc.

3. In a battery of the class described, the combination with a transparent jar, of the perforated corrugated cylinder adapted to snugly fit into said jar and be retained at a uniform distance from the same, a connecting-wire from said cylinder and series of cleats secured to the interior of said cylinder, porcelain rests supported on said cleats, an oxid-of-copper element, a zinc element resting upon said porcelain rests and a binding-wire attached to said zinc.

4. The combination in a battery of the class described, of a transparent jar, a perforated cylinder fitted into the interior of said jar, extensions of said cylinder forming a series of pockets between said cylinder and jar, an oxid-of-copper element in said pockets, porcelain blocks attached to the interior of said cylinder, a zinc resting upon said blocks and a connecting-wire from said zinc.

5. In a battery the combination with a transparent jar of a perforated cylinder, extensions of said cylinder to engage the vertical walls of the jar and retain it at a uniform distance from the same to form one or more pockets of an equal diameter upon all sides, an oxid-of-copper element within said pocket, a zinc element, suitable insulating-blocks supporting said zinc at a uniform distance from the cylinder, connecting-wires from the zinc and cylinder with suitable binding-screws attached, substantially as shown and described.

663,938. GALVANIC BATTERY. CHARLES B. SCHONNEHL, Waterbury, Conn., assignor to the Waterbury Battery Company, same place. Filed Mar. 22, 1900. Serial No. 9,679. (No model.)



Claim.—1. In a negative pole for batteries of the class described the combination with a cup of an internal non-porous protective lining therefor, a depolarizing agent in said cup, an opening in the bottom of said cup, and a terminal extending into the depolarizer, substantially as described.

2. In a negative element for a battery the combination of an internal non-porous protective lining, a depolarizing agent, a cup in which said agent is located, an opening through the bottom of said cup, a central terminal post mounted in the cup and having a bare conducting-plate attached to its lower end and a protective covering for said post, substantially as shown and described.

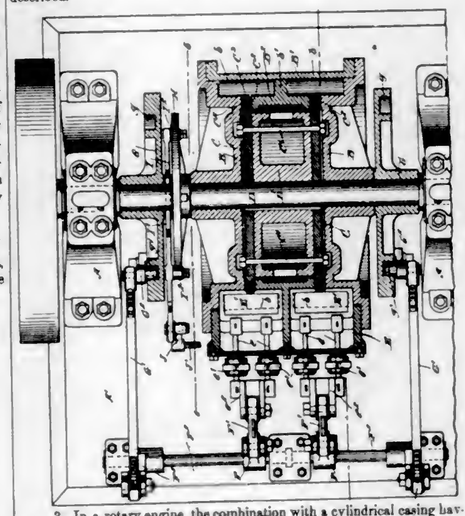
3. In a negative element for a battery the combination of a cup having an opening through its bottom, a non-porous protective lining for the side walls of said cup, copper oxid within said cup, a central terminal post mounted in said cup and oxid, a protective casing for the sides of said terminal post and a perforated conducting-disk attached to the bottom of said post constituting the contact for the same, substantially as described.

4. The combination in a negative element for a battery of a cup provided with a perforated bottom, a non-porous lining for the interior walls of said cup, a depolarizing agent within said cup, a terminal post located in said agent and provided with a protective casing, and a perforated disk attached to the lower end of said post, substantially as described.

663,939. ROTARY ENGINE. ABRAM L. SCUDDER, Deposit, N. Y., assignor, by direct and mesne assignments, of one-half to Alvin Devereaux, Jr., and Mabel Dolly Scudder, same place. Filed Dec. 26, 1899. Serial No. 741,586. (No model.)

Claim.—1. A rotary engine, comprising a casing having therein an annular steam chamber or cylinder, and provided with inlet and exhaust ports, and a slot for the piston-disk, a piston-disk mounted to turn in said slot and having a head filling the steam-chamber, an abutment mounted to slide in guides in the casing, a cam-disk mounted to turn with the piston-disk, a pivoted lever having its free end engaging the said cam-disk, and a rock-shaft having arms connected one with the upper end of said lever and the other with the abutment, substantially as described.

2. A rotary engine, having a rocking valve in combination with a disk mounted to turn with the engine-shaft and having peripheral cam-surfaces said cam-surfaces each being approximately the form of a circle but of different radius, an arm upon the valve, and a rod secured by one end to said arm and having a yoke surrounding the shaft and permitting the rod to reciprocate thereon, and cam-rollers on said rod one on each side of the yoke and engaging the edges of the cam-disk, substantially as described.



3. In a rotary engine, the combination with a cylindrical casing having two annular peripheral steam-chambers, each provided with an annular slot in its inner wall, of a rotary piston, comprising a body, and a disk secured to each side of the body and of greater diameter than the same, the said disks projecting through the slots into the steam-chambers and provided with piston-heads in the said steam-chambers, substantially as described.

4. In a rotary engine, the combination with a cylindrical casing having two annular peripheral steam-chambers, each provided with an annular slot in its inner wall, of a rotary piston comprising a body, two disks secured to opposite sides of the body and of greater diameter than said body, said disks having rounded edges and projecting through the slots into the chambers and provided with piston-heads in said chambers, abutments mounted to slide in the casing and to engage the periphery of the said piston-disks, and means for operating the said abutments, substantially as described.

5. In a rotary engine, the combination with a cylindrical casing having a peripheral annular steam-chamber, provided with an annular slot in its inner wall, of a piston-disk having a curved or rounded periphery projecting through the said slot into the steam-chambers and provided with a piston-head, within the steam-chamber, and an abutment mounted to slide in the casing and provided with a spring-pressed packing curved to correspond to the curved periphery of the piston-disk, substantially as described.

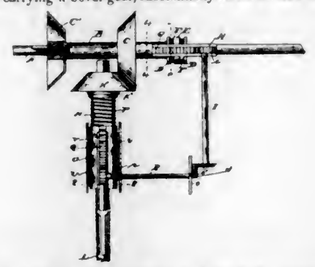
6. In a rotary engine, the combination with a cylindrical casing having a peripheral annular steam-chamber provided with an annular slot in its inner wall, of a piston-disk having its periphery projecting through the said slot into the steam-chamber and provided with a piston-head in the said chamber, said disk having recesses in its opposing faces near the periphery and apertures connecting the recesses packing-rings in said recesses and springs in the apertures and engaging the packing-rings, substantially as described.

7. In a rotary engine, a casing having two annular steam-chambers and formed of side plates, a central casting having an annular peripheral flange, and a cylindrical shell outside of the side plates, and a rotary piston formed of a body and two disks, one secured to each side of the body and projecting between the side plates and central casting into the steam-chambers, and each provided with a piston working in and filling said chambers, substantially as described.

663,940. CHANGEABLE-SPEED AND REVERSIBLE FRICTION-GEARING. JOHN W. SHAVER and OLIVER P. SHAVER, Friedens, Pa. Filed May 3, 1899. Serial No. 715,427. (No model.)

Claim.—1. Improved changeable-speed and reversible gearing, including two shafts, separated rigidly-connected and oppositely-beveled friction-gears on one shaft, with means for longitudinally adjusting said gears, a single beveled gear on the other shaft and having position between the first-mentioned gears and adapted to frictionally engage either of them, and means for adjusting longitudinally said single beveled gear, substantially as shown and described.

2. An improved gearing comprising a drive-shaft, a sleeve thereon carrying a bevel-gear, the sleeve being provided with separated collars, a longitudinally-movable adjusting-fork extending between the sleeve-collars, antifriction-rollers on the fork engaging the sleeve-collars, and a driven shaft carrying a bevel-gear, substantially as shown and described.

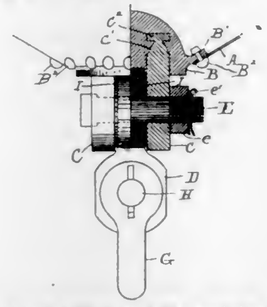


3. An improved gearing comprising a drive-shaft, a bevel friction-gear rotatable therewith and movable longitudinally thereon, a driven shaft at right angles to the drive-shaft and having fixed position with relation thereto, a bevel friction-gear rotatable with and adjustable on the driven shaft, a non-rotatable sleeve embracing the driven shaft, an antifriction-bearing interposed between the sleeve and driven gear, and a spring coiled about the sleeve and acting thereon to force the sleeve and gear toward the drive-gear and to hold the gears in frictional engagement, substantially as shown and described.

4. An improved gearing comprising a drive-shaft, a bevel friction-gear rotatable therewith and movable longitudinally thereon, a driven shaft at right angles to the drive-shaft, a bevel friction-gear rotatable with and adjustable longitudinally on the driven shaft, a sleeve embracing the driven shaft, said sleeve being formed with an end enlargement in the form of a cup to receive a ball-bearing for engaging the back of the driven gear, a spring coiled about the sleeve and at one end engaging the said cup, a sleeve against which the rear end of the spring bears, and means for longitudinally moving said sleeve, substantially as shown and described.

5. Improved changeable-speed and reversible gearing, including two shafts, separated rigidly-connected and oppositely-beveled gears longitudinally adjustable on one of the shafts, a single beveled gear between the first-mentioned gears and longitudinally adjustable on the other shaft, all of the gears having uniform peripheral width, substantially as and for the purpose herein described and shown.

663,941. BELL-BUOY. ELBRIDGE G. P. SMITH, Portland, Me. Filed July 5, 1900. Serial No. 22,519. (No model.)

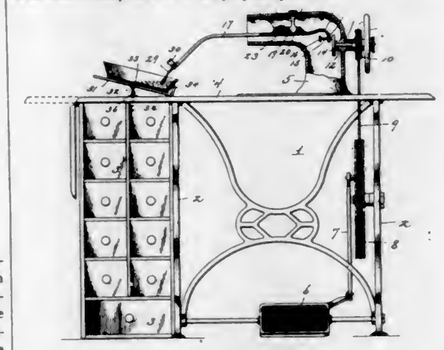


Claim.—A bell-buoy, consisting of the metal plates, a bottom casting having a flange around its periphery, bolts to secure the flange to the plates, recesses formed in said casting, lugs provided with notched or dovetailed ends fitting in said recesses of the casting and depending downwardly, a link pivoted by its upper end and between said lugs by means of a bolt, and having a free motion about said bolt, and a shackle pivoted to the lower end of said link at right angles to said bolt.

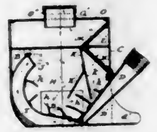
663,942. CAKE-BEATING MACHINE. NORMA THOMAS, St. Stephens, Ala. Filed Mar 22, 1900. Serial No. 9,729. (No model.)

Claim.—1. In a cake-beating machine, the combination with a stand or table, of a pair of vertically-adjustable standards mounted on the table, means for adjusting said standards up and down, and a dish-supporting shelf mounted on said standards and adjustable as to its angle, substantially as described.

2. In a cake-beating machine, the combination with a stand or table, of a pair of vertically-adjustable standards, sockets therefor on the table having means for adjusting and fixing the adjustment of the standards, a dish-supporting shelf mounted upon the standards, and means for adjusting the angle of the shelf relatively to the standards and fixing the adjustment, substantially as and for the purpose specified.



663,943. CARPET-RENOVATOR. JOHN S. THURMAN, St. Louis, Mo. Filed Dec. 18, 1899. Serial No. 740,735. (No model.)



Claim.—1. In a renovator, the combination with a suitable casing open at its bottom, the walls of said casing extending down to engage the article to be cleaned or renovated, so that said article practically forms the bottom of the casing, of a nozzle carried by said casing and arranged to one side of said opening for discharging air under pressure at an angle and in a definite direction through the bottom of the casing, a passage for the dust-laden air leading up from the opening in the bottom of the casing from a point opposite the nozzle and tangentially into a chamber in said casing, a pressure-supply pipe connected to said nozzle, and skimmers arranged in said chamber, substantially as described.

2. In a renovator, the combination with a suitable casing, of a nozzle carried thereby and discharging air under pressure at an angle through the bottom of said casing, a supply-pipe connected to said nozzle, walls forming a space through which the dust-laden air is conducted to a chamber within said casing, a flap-valve acting as a deflector for the air as it enters the chamber, skimmers in said chamber, and deflectors in juxtaposition to some of said skimmers, forming a tortuous passage for the escape of the air from said chamber, substantially as described.

3. In a renovator, the combination with a casing and nozzle, of a passage for the dust-laden air arranged in said casing and leading into a chamber, skimmers arranged in said chamber, vertically-arranged deflector-plates arranged in advance of the outlet-opening from said chamber, and screens over said outlet-opening, substantially as described.

4. The combination with a casting formed with runners having rearward extensions *d'*, said casting being also shaped as to form one wall of a nozzle, of a sheet-metal casing arranged on said casting and having an inclined portion forming the other wall of said nozzle, said sheet-metal casing also forming a chamber for receiving the dust-laden air, and a supply-pipe connected to said nozzle; substantially as described.

5. The combination with a casing provided with a chamber for receiving the dust-laden air and a passage leading from the bottom of said casing into said chamber, of a nozzle arranged opposite said passage, and a plate forming one wall of the mouth of said nozzle, said plate being slotted transversely for the passage of screw-bolts, whereby said plate is capable of adjustment to enlarge or contract the mouth of the nozzle, substantially as described.

6. The combination with a casting formed with runners and bearing-surfaces, said casting, also, having a threaded opening affording a pipe connection, of a casing mounted on said casting and having one wall arranged to form a nozzle in conjunction with said casting, a passage for the dust-laden air leading from the mouth of said nozzle and into a chamber in the casing, and skimmers in said chamber, substantially as described.

7. The combination with a casing, of a nozzle, a passage for the dust-

laden air leading from the mouth of said nozzle into a chamber in the casing, skimmers arranged transversely the walls of said chamber, and an inverted-Y-shaped deflector coöperating with some of said skimmers to form a tortuous passage for the escape of air from said chamber, substantially as described.

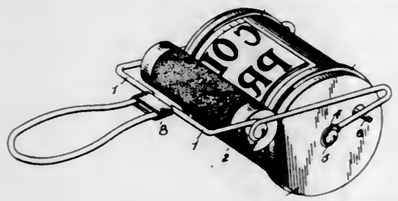
8. The combination with a casing provided with a partition-wall dividing the same into two compartments, into the lower of which dust-laden air is tangentially admitted under pressure, of a communicating opening between said two compartments, skimmers arranged in the lower compartment for collecting the heavier particles of dust, and slidable screens arranged on each side of said communicating openings for collecting the lighter particles of dust, substantially as described.

9. The combination with a casing, of a nozzle, a passage for the dust-laden air leading from the mouth of said nozzle and discharging said dust-laden air tangentially into a chamber within the casing, skimmers in said chamber, and removable slide-screens M and M′ arranged above and below the outlet-opening from said chamber, substantially as described.

10. The combination with a casing having a partition-wall dividing the same into two compartments, of a nozzle arranged in the lower portion of the casing, a passage for the dust-laden air leading from the mouth of said nozzle and discharging the dust-laden air tangentially into a chamber formed by said lower compartment, screens arranged on each side of an opening which establishes communication between said two compartments, and an escape-opening leading from the upper compartment and covered by a screen, substantially as described.

11. In a renovator, the combination with a casing and nozzle, of a pipe for supplying compressed air to said nozzle, a passage for the dust-laden air arranged in said casing and leading into a chamber, skimmers arranged in said chamber for collecting the heavier particles of dust, screens over the outlet-opening from said chamber for collecting the lighter particles of dust, and a liquid-containing receptacle for admitting liquid into said supply-pipe to moisten or impregnate the air passing through the nozzle; substantially as described.

663,944. ROTARY SELF-INKING STAMP. MARSHALL TILDEN, Willimantic, Conn. Filed Mar. 29, 1900. Serial No. 10,627. (No model.)



Claim.—1. In a rotary self-inking stamp, the combination with a die-roll and an inking-roll of a spring or elastic frame, made of one piece of wire, or other suitable material, having its intermediate portion bent to form a handle; each side arm having one or more convolutions to form eyes or supports for the shafts of both die and ink rolls, and a spring formed by bending the extremity of each arm backward a sufficient distance, as shown.

2. In a rotary self-inking stamp the combination with die and ink rolls of a spring-frame made of spring-wire or other suitable material, comprising a handle and side arms having eyes or sockets to support said rolls; said side arms being depressed near the ends and extending backward at an angle sufficient to form a spring, for the purpose set forth.

3. In a rotary self-inking stamp, the combination with the die-roll of a self-adjusting stop-pin, loosely secured in a longitudinal socket in said roll, and projecting beyond the end of said roll, as shown.

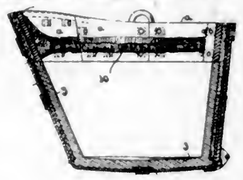
4. In a rotary self-inking stamp, the combination with the die-roll and frame of a spiral spring encircling a portion of the shaft of roll, having one end fastened to the roll at the inner extremity of a longitudinal socket in said roll, and the outer end secured to the frame near the eye or support, by a hook-like extension—said spring being independent of the shaft.

663,945. LADLE FOR MOLTEN METAL. JOHN A. WALDBURGER and WILLIAM J. SMITH, McKeesport, Pa. Filed Apr. 5, 1900. Serial No. 11,649. (No model.)

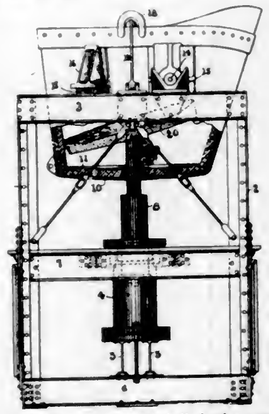
Claim.—1. In a ladle for molten metal a combination of a metallic shell; a non-metallic lining for the bottom and the lower portion of the sides and a metallic lining for the upper part of the ladle.

2. In a ladle for molten metal a combination of a metallic shell; a non-metallic lining for the bottom and the lower portion of the sides and a sectional metallic lining for the upper part of the ladle.

3. In a ladle for molten metal a combination of a metallic shell; a non-metallic lining for the bottom and the lower portion of the sides and a metallic lining for the upper part of the ladle, the linings for the sides of the ladle being set out therefrom and non-conducting material being interposed between the side linings and the sides of the shell.



663,946. POWER APPARATUS FOR REMOVING SKULL FROM LADLES. JOHN A. WALDBURGER and WILLIAM J. SMITH, McKeesport, Pa. Filed Apr. 5, 1900. Serial No. 11,650. (No model.)



Claim.—1. The combination of a ladle having a metallic shell with an opening in its bottom; a plug in said opening and a lining of brick above said plug; a frame upon which said ladle is supported; hooks attached to said frame and adapted to engage the ladle and an ejecting power-cylinder and ram in alinement with the hole in the bottom of the ladle.

2. The combination of a ladle having a metallic shell; a frame upon which said ladle is supported; means for holding said ladle against movement during the ejection of the skull; a hole in the bottom of the shell of said ladle; a plug for said hole and a lining of brick above said plug and an ejecting power-cylinder and ram in alinement with the hole in the bottom of the ladle.

3. The combination of a ladle having a metallic shell with an opening in its bottom; a plug for said hole; a lining for the ladle covering said plug; trunnions for said ladle and bearing-lugs on said ladle.

4. The combination of a ladle having a metallic shell with an opening in its bottom; a plug in said opening and a lining of brick above said plug; a frame upon which said ladle is supported; means for attaching said ladle to said frame and an ejecting power-cylinder and ram located beneath said ladle.

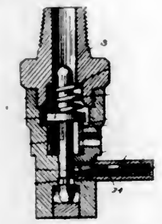
5. The combination of a railroad-track; a ladle-car; a ladle mounted thereon having a metallic shell with an opening in its bottom; a plug in said opening and a lining of brick above said plug and an ejecting-cylinder and ram located between the rails.

6. The combination of a railroad-track; a ladle-car; a ladle mounted thereon having a metallic shell with an opening in its bottom; a plug in said opening and a lining of brick above said plug; a pit located on the track and an ejecting-cylinder and ram in said pit.

7. A ladle composed of a metallic shell, an opening in its bottom, a plug in said opening and a lining covering said plug.

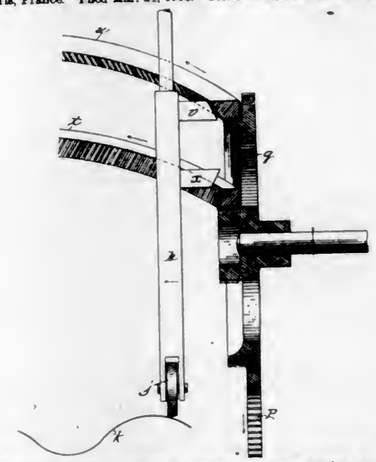
663,947. SAFETY-VALVE FOR TRUCKS. CHARLES A. WARNING, Altoona, Pa. Filed Mar. 17, 1900. Serial No. 9,100. (No model.)

Claim.—1. In a safety-valve for train-pipes, the combination, with a casing provided with an air-outlet and a valve-seat, of a spring-actuated valve, the stem of which is provided with an annular groove, a slotted casing projecting from the first-mentioned casing, a spring-actuated pin in the slotted casing in position for its inner end to enter said groove when the valve has been raised from its seat, and a stud secured to the pin and projecting through the slot in the casing for moving the valve-stem, substantially as described.



2. In a safety-valve for train-pipes, the combination, with a casing provided with an air-outlet and a valve-seat, of a spring-actuated valve, the stem of which is provided with an annular groove, a casing entering said first-mentioned casing near the lower end of the stem, a pin in said second-mentioned casing, the inner end of which is adapted to enter the groove in the valve-stem and hold it in an elevated position, a spring for forcing said pin inward and means for moving the valve-stem upward, substantially as described.

663,948. SYSTEM OF ROUNDABOUTS. ALPHONSE D. WEIL, Paris, France. Filed Mar. 21, 1900. Serial No. 9,566. (No model.)

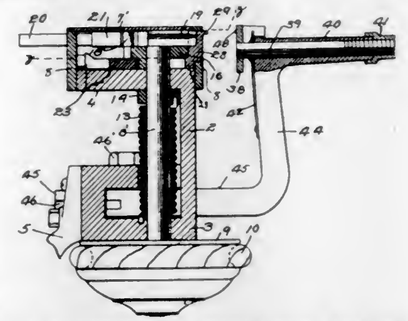


Claim.—1. In combination in a roundabout, an undulating movable track *k*, means for driving the same, a plurality of drivers moving at different speeds, the figure to which motion is to be imparted, and means controlled by the undulating track to throw the said figure into connection with first one driver and then the other, substantially as described.

2. In combination in a roundabout, a movable undulating track *k*, a rack thereon, a pinion *m*, meshing with said rack, the figure to be driven, a socket *h* connected therewith and having an arm *v*, a plurality of drivers *t*, *u*, a gear-wheel *q* having means for giving the said drivers a differential speed, a pinion *p* for moving the gear-wheel *q*, a drive-shaft *n*, carrying the pinions *m* and *p*, the carriage or slide *d′* for guiding the horse, the rails upon which the slide moves, and a connection between the figure and the socket, substantially as described.

663,949. LEATHER-PUNCHING MACHINE. JOHN WEBSTER, Triumph, Minn. Filed July 3, 1899. Serial No. 722,649. (No model.)

Claim.—1. In a machine of the class described, the combination, with an oscillating shaft and means for operating the same, of a cam mounted thereon, a feed-plate 23 provided beneath said cam and having an opening through which said shaft extends, a shoulder 28 provided on said plate and operated by said cam during the first part of its stroke, a shoulder 31 provided on the under side of said cam and extending into the opening in said plate and engaging the edge thereof during the intermediate part of the stroke of said cam whereby said plate is moved laterally to feed the material through the machine, and a sliding awl having a block 21 that is operated by said cam during the last part of its stroke to actuate said awl, substantially as described.



2. The combination, with a standard 2 having a base 3, and a flat top 4, of an upright shaft mounted in bearings in said base and top, a treadle, suitable connections between said shaft and treadle whereby the former may be rotated through a portion of a revolution, means for returning said shaft to its normal position, a plate provided on said top and having a cam-shaped opening through which said shaft extends, a claw provided on said plate, a cam fixed on said shaft above said plate and engaging the same during the first part of the movement of said shaft to advance said claw, and a sliding awl supported on said top and actuated by said cam after the movement of said plate, substantially as described.

3. In a machine of the class described, the combination, with a frame and base, of a stationary jaw supported thereon, an upright standard having an angular arm which is slidably supported in said base and having a horizontal extension opposite said stationary jaw, a movable jaw having a threaded shank fitting within a socket in said extension, a cap provided on the threaded end of said shank and a spring provided between said movable jaw and said standard, substantially as described.

4. In a machine of the class described, the combination, with an oscillating shaft and means for operating the same, of a feed-plate having an opening to receive said shaft, a shoulder having a claw-face provided on said feed-plate, a cam secured on said shaft above said feed-plate and adapted to engage said shoulder and advance said feed-plate, a shoulder 31 provided on said shaft beneath said cam and adapted to engage said feed-plate on one side of the opening therein to move said plate laterally and advance the material and lock said plate during the forward movement of the awl, means for returning said plate to its normal position when disengaged from said shoulder 31 and a sliding awl provided in the path of said cam and adapted to be advanced thereby after the lateral or feeding movement of said plate, substantially as described.

5. In a machine of the class described, the combination, with a box or casing, of an upright shaft projecting into the same, means for oscillating said shaft, a feed-plate having an opening to receive the upper end of said shaft, a guiding and pivoting stud for said feed-plate, a cam provided on said shaft above said feed-plate and adapted to advance said plate longitudinally when said shaft is oscillated, a shoulder 31 provided on said shaft beneath said cam to engage said feed-plate within the opening therein to move said plate laterally during the intermediate part of the stroke of said cam and to lock the same during the last part of the stroke of said cam, a sliding awl adapted to be actuated by said cam during the last part of its stroke and returned to its normal position during the first part of the return stroke of said cam, and means for returning said feed-plate to its normal position when released by said shoulder 31, substantially as described.

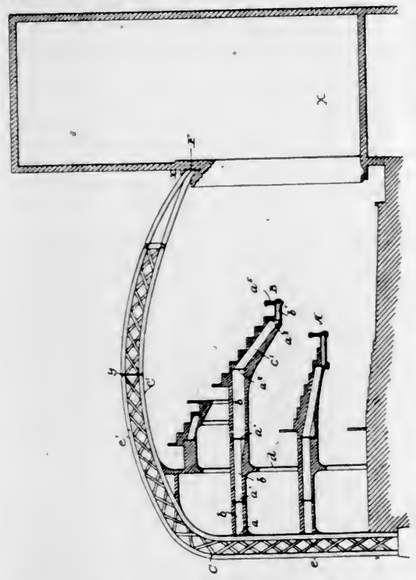
6. The combination, with a box or casing, of the feed-plate provided therein, means for moving said feed-plate longitudinally to advance it into engagement with the material to be operated upon, means for moving said plate laterally to feed the material, a set-screw 32 provided in the wall of said casing and adapted to limit the lateral stroke or movement of said plate, a spring 34 secured to the wall of said casing and having a slot to receive said screw, an indicator-hand 35 pivoted on the free end of said spring 34 and also on the wall of said box and adapted to be moved over a scale as said spring is operated by the movement of said set-screw, substantially as described.

7. In a machine of the class described, the combination, with a box or casing, of an oscillating shaft projecting through the bottom of the same, a feed-plate having an opening to receive the upper end of said shaft, a guiding and pivoting stud provided on said feed-plate and fitting loosely within a socket in the wall of said box, a spring for normally holding said feed-plate in a retracted position, a cam provided on said shaft and adapted to actuate said feed-plate longitudinally against the tension of said

spring, and means provided on said shaft to engage the edge of said feed-plate within the opening therein during the intermediate part of the stroke of said cam to oscillate or move said plate laterally on its pivoting-stud and advance or feed the material to be punched, substantially as described.

8. In a machine of the class described, the combination, with a horizontal box or casing, of a vertical shaft projecting into the same, means for oscillating said shaft, a feed-plate adapted to slide on the bottom of said box and having an opening to receive the upper end of said shaft and provided with a shoulder 28, a guiding and pivoting stud 25 also provided on said feed-plate and slidable in an opening in a wall of said box, a cam mounted on said shaft and adapted to engage said shoulder to advance said feed-plate longitudinally, a shoulder 31 provided on said shaft beneath said cam and adapted to engage said feed-plate within the opening therein during the intermediate part of the stroke of said cam to move said plate laterally on its pivoting-stud, a sliding awl adapted to be actuated by said cam during the last part of its stroke and returned to its normal position during the first part of the return stroke of said cam, and means for returning said feed-plate to its normal position, substantially as described.

663,950. ASSEMBLY-BUILDING. HENRY M. WILLIAMS, Fort Wayne, Ind., assignor of one-fourth to Franz Burger, same place. Filed Apr. 3, 1900. Serial No. 11,319. (No model.)



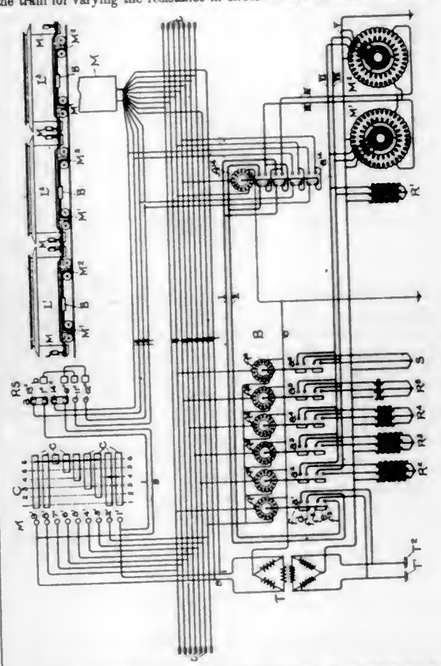
Claim.—1. An assembly-building provided with an audience-room having galleries, the upper gallery inclined at the forward portion and projecting throughout its length beyond the forward edge of the gallery below, substantially as set forth.

2. The combination in an assembly-building of a system of transverse girders and cross-beams, the girders extending continuously between the side walls, lower curved girder a^3 and inclined radiating beams c' supporting the first gallery, and a second like system of girders and beams supporting the second gallery in a position with the forward portion of the second gallery overhanging and projecting beyond the forward portion of the first gallery, substantially as set forth.

3. The combination in an assembly-building of side walls and a system of supporting-girders consisting of straight transverse beams supported by the said walls, lower curved beams a^3 a^3, and cross-beams b, and radiating inclined beams c' supporting the first gallery and a second like system supporting the second gallery, with the forward edge overhanging that of the first gallery, substantially as set forth.

663,951. SYSTEM OF MOTOR CONTROL. ALBERT H. ARMSTRONG, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 6, 1900. Serial No. 32,258. (No model.)

Claim.—1. In a train-control system, an induction-motor equipment on one or more cars of the train, regulating resistances on each motor-car arranged to be included in circuit with the induced members of the motors on the said car, and means controlled from any desired point on the train for varying the resistance in circuit with said induced members.



2. In a train-control system, an induction-motor equipment on one or more cars of the train, regulating resistances on each motor-car arranged to be included in circuit with the induced members of the motors on said car, a motor-controller on each motor-car, actuating means for said controllers, and a master-controller located at any desired point on the train, for controlling said actuating means.

3. In a train-control system, an induction-motor equipment on one or more cars of the train, regulating resistances for the motors located on each motor-car, a separate controller for the resistances on each car, and a master-controller, located at a desired point on the train, for controlling the operation of all the resistance-controllers on the train.

4. In a train-control system, an induction-motor equipment on one or more cars of the train, a resistance-controller for each of said equipments, means for actuating each of said resistance-controllers, and a master-controller, located at any desired point on the train, for controlling the operation of said actuating means.

5. In a train-control system, a plurality of cars equipped with induction-motors, resistances on each of said cars arranged to be included in circuit with the induced members of said motors, controllers for said resistances, actuating means for said controllers constructed and arranged to be operated from an alternating-current source, and a master-controller, located at any desired point on the train, for controlling the connections between a source of alternating-current supply and the said actuating means.

6. In a system of motor control, a controller comprising a plurality of separately-actuated contact devices and an actuating device for each of said contact devices comprising an induced member operatively connected to the contact device and an inducing member arranged to be supplied with current from an alternating-current source.

7. In a system of motor control, a controller comprising a plurality of separately-actuated contact devices, and an induction-motor operatively connected to each of said contact devices.

8. In a system of motor control, a controller comprising a plurality of separately-actuated contact devices, an induction-motor for operating each of said contact devices, a source of alternating current, and a master-controller constructed and arranged to connect the inducing member of each of said motors to said source.

9. In combination, a controller comprising a plurality of separately-actuated contact devices, an induction-motor operatively connected to each of said contact devices, a source of alternating current, and a master-controller for controlling the connection between said motors and said source.

10. In a motor-control system, a controller comprising separately-actuated contact devices, multiphase motors for actuating said contact devices, a source of multiphase current, common connections between certain of the terminals of each motor and the source, separate connections between the remaining motor-terminals and said source, and a master-controller for controlling the latter connections.

11. In a motor-control system, a plurality of conductors, controller-actuating devices connected to said conductors, a separate device for actuating the reversing-switch connected to the same conductors, and means whereby the main controlling-contacts may be operated without effecting the operation of the reversing-switch contacts and vice versa.

12. In a motor-control system, a plurality of conductors, controller-actuating means connected to said conductors, a separate means for actuating the reversing-switch connected to certain of said conductors, means for closing a circuit from the source of supply to the conductors to which the reversing-switch-actuating means is connected, and means operated by the reversing-switch for opening said circuit.

13. In a motor-control system, a plurality of conductors, controller-actuating means connected to said conductors, a separate means for actuating the reversing-switch connected to the same conductors, a master-controller comprising a controlling and a reversing switch interposed between the source of supply and the said conductors, and means operated by the motor-reversing switch for opening the circuit between the master-reversing switch and the system of conductors.

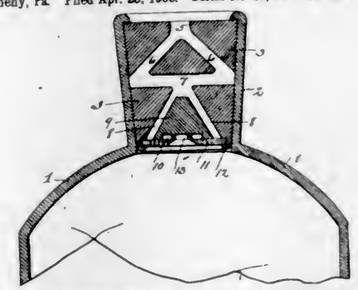
14. In a motor-control system, a system of conductors, actuating devices for the main controller-contacts connected to said conductors, and an actuating device for the reversing-switch contacts connected to certain of the conductors to which the other actuating devices are connected.

15. In a train-control system, a motor-controller comprising separately-actuated contact devices, multiphase motors for actuating said contact devices, a source of multiphase current, common connections between certain of the terminals of each motor and the source, a system of train-conductors less in number than the number of motors to which the remaining terminals are connected and a master-controller arranged to successively connect the multiphase motors to the source.

16. In a train-control system, a motor-controller comprising separately-actuated contact devices, a multiphase motor for actuating each of said devices, said motors being connected in a plurality of sets to a system of train-conductors less in number than the number of motors, a source of multiphase current, and a master-controller interposed between said system of conductors and said source, and arranged to supply current to actuate the motors of one set without causing the operation of any of the motors in the other sets.

17. In a train-control system, reversing-switch contacts on each of the motor-cars of the train, actuating devices for said contacts, train-conductors to which said actuating devices are connected, a master-reversing switch connected to supply current from a suitable source to said conductors, and auxiliary contacts actuated by one of the reversing-switches for opening the circuit between the master-reversing switch and the train-conductors.

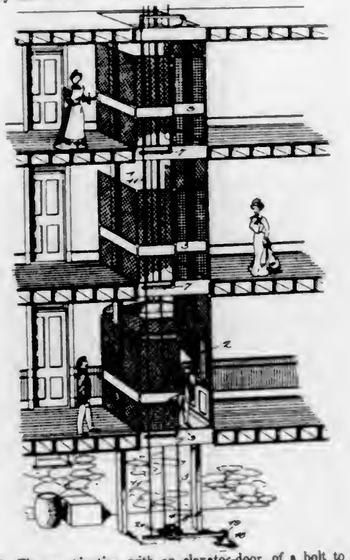
663,952. NON-REFILLABLE BOTTLE. JOSEPH A. BECK, Allegheny, Pa. Filed Apr. 25, 1900. Serial No. 14,322. (No model.)



Claim.—The herein-described non-refillable bottle, consisting of the bottle 1, the stopper 3, and means for securing the same in the neck of the said bottle, the conical valve 9 formed with a recess 10, and external grooves 14, the disk 11 provided with a flanged aperture 13, as a means for holding the valve in position, and the ducts 6 7, leading to the exit-opening 5, all arranged and combined for service, substantially as and for the purpose described.

663,953. ELEVATOR-GATE. ALBERT C. BOOTH, Cedar Rapids, Iowa, assignor of twenty-three fiftieths to William H. Dutton, same place. Filed Sept. 10, 1900. Serial No. 29,578. (No model.)

Claim.—1. The combination with an elevator-door, of a pivoted bolt having a shoulder to engage and lock the door when the latter is closed, said bolt being locked by the door when the latter is open, a lever connected to the said pivoted bolt, and a controller, the latter also operating the said lever, whereby when the door is open said controller is locked by said bolt and lever, substantially as described.



2. The combination with an elevator-door, of a bolt to lock said door when closed, a controller, a lever operated by the controller and connected to the bolt, the latter when the door is open serving to lock said controller and when the door is closed serving to lock said door, substantially as described.

3. The combination with an elevator-door, of a bolt to lock said door when closed, a controller-wheel having tappets, a lever depressed by said tappets when said controller-wheel is operated, connections between said lever and bolt and a spring to normally disengage said bolt from said door, substantially as described.

663,954. AUTOMATIC FIREARM. ANDREW BURGESS, Buffalo, N. Y. Filed Dec. 10, 1897. Serial No. 661,335. (No model.)



Claim.—1. In a gun of the character described, the gun-frame and the barrel, a bolt reciprocating in the gun-frame and locking thereto to close the breech by rigid shoulders on the bolt engaging abutments on the frame, and means extending to the bore of the gun by which the bolt is pressed sidewise and unlocked by action of the gas-pressure on the firing of the gun, so as to be opened by pressure from the bore of the gun, substantially as described.

2. In an automatic gun, the barrel, gun-frame, and reciprocating bolt locking against abutments in said frame by a sidewise movement of the bolt, a spring-actuated presser operating against the bolt to close the same, a detaching-lever in position to press the bolt sidewise and unlock the same, and a draw-rod and connections as described serving to actuate said lever by means of gas-pressure, to unlock the bolt, all combined substantially as described.

3. In an automatic gun, the barrel, gun-frame, and bolt locking against abutments in said frame by a sidewise movement, means for holding the bolt in locked position, and means extending to the bore of the gun by which the bolt is released, pressed sidewise, and blown open by gas-pressure from the bore, substantially as described.

4. In an automatic gun, the gun-frame having locking-abutment, the bolt having rigid shoulders to engage said abutment by sidewise movement, and automatic means for moving said bolt sidewise to unlock the same, whereby the gas-pressure in the bore of the gun may blow the bolt to the rear without intermediate mechanism, substantially as described.

5. In an automatic gun, the bolt with its rear end swinging upward to locked position, the locking-abutment, the spring acting on the bolt, and a lever in position to press the rear of the bolt sidewise in unlocking, and a slide extending forward and actuated by gas-pressure from the bore of the gun by which said lever may be actuated, all combined.

6. In an automatic gun, the gun-frame having locking-shoulders, the bolt engaging said shoulders by sidewise movement, the bolt-unlocking device and a slide connected thereto, and a longitudinally-movable piece in position to be driven forward by gas-pressure from the bore of the gun, to move said slide and unlock the breech, all combined substantially as described.

7. The magazine having a support for the cartridge-belt, the cylinder over which said belt passes and having frictional engagement with the belt, the ratchet on said cylinder, and the rack-piece connected to the carrier and operating on said rack to rotate the cylinder, all combined with the necessary coöperating adjunctive mechanism, substantially as described.

8. The magazine, the belt-feeding roller, the belt having frictional engagement with said roller, the pivoted carrier, and means connected to the carrier by which the belt-feed roll is actuated, all combined.

9. In a gun, a cartridge-feed belt having means for holding cartridges, a feed-roll and a presser-roll between which said belt passes and which bear on the belt, and means connected to the working part of the gun by which said feed-roll is operated and the belt moved forward intermittingly, all combined substantially as described.

10. The cartridge-belt, the feed-roll engaging said belt to move it, the short rolls bearing the edges of the belt toward the feed-roll but permitting the clasps to pass between them, and means for actuating the feed-roll, all combined substantially as described.

11. In an automatic gun, the rolled belt, the belt-feed roll and the short rolls for pressing the belt theregn, the carrier and means connected to the carrier by which the belt-feed roll is actuated, and means extending to the bore of the gun by which the breech is opened and the carrier actuated, all combined substantially as described.

12. In a magazine-gun, the wound magazine-belt, the frame having a recess under the rear of the barrel into which the wound belt may be introduced, the wound belt having a detachable box-casing, and detents in the frame of the gun engaging the front and rear of said belt-casing, substantially as described.

13. In a magazine-gun, the frame having a transverse recess under the rear of the barrel and in front of the bolt when the bolt is closed, spring-actuated detents, and a cartridge-box containing cartridges in a coiled belt and means for moving the same, said box having an opening at its rear, and engaging said detents so that a cartridge may be drawn back from the belt and box by the rearward movement of the bolt, substantially as described.

14. In a magazine-gun the frame and bolt, the cylindrical box-magazine, the coiled belt in said magazine carrying cartridges, detents by which said box may be secured to the gun in a recess under the rear of the barrel, and means by which the belt is fed intermittingly by the opening and closing of the bolt, substantially as described.

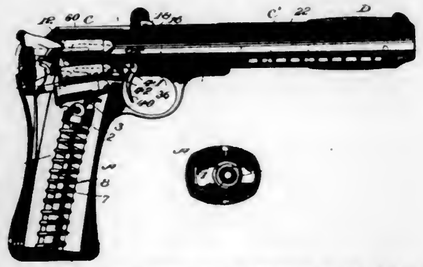
15. In a magazine-gun, the recessed frame, the approximately cylindrical box, the detents by which the box is held in the frame with its axis parallel to the axis of the gun-barrel the feed-roll supported by the frame and means by which the roll is actuated by the operation of the gun, and the cartridge-feed belt coiled in said box and passing over said feed-roller, substantially as described.

16. In an automatic gun, the hammer, trigger, and safety-catch, and a releasing-slide in position to be operated by the trigger to release the safety-catch when held to position by the breech-closing mechanism when the breech is closed, but otherwise inoperative, substantially as described.

17. In an automatic gun, the reciprocating bolt, means for closing and locking the same, means extending to the bore of the barrel by which the breech may be unlocked and opened by direct pressure in the bore, and mechanism by which the unlocking may be delayed after the initial impulse is given, all combined substantially as described.

18. In an automatic gun the reciprocating bolt and means for closing and locking the same, a lever operating by impulse from the discharge to unlock the bolt and a retarding-spring connected to said lever to first be compressed by the unlocking impulse and then react to compensate for lost motion, substantially as shown and described.

663,955. **AUTOMATIC FIREARM.** ANDREW BURGESS, Buffalo, N. Y. Filed Dec. 11, 1897. Serial No. 661,583. (No model.)



Claim.—1. In a magazine-gun, the magazine having a follower in position to feed a column of cartridges upwardly, the barrel and recoil-shield above said magazine, means for moving the barrel forward, and a pair of vertically-vibrating arms pivoted to the frame in front of the breech of the barrel and closing toward each other onto the head of the top cartridge to prevent the escape of the column of cartridges when the barrel moves forward, all combined substantially as described.

2. In a magazine-pistol, the hollow stock opening at the bottom and having a magazine at the ends approximating the shape of a cartridge and an enlarged center, the cover having a follower provided with a coil-spring of greater diameter than the cartridge and adapted to enter said enlarged opening of the magazine and be guided thereby, the magazine-cover and the detaining-catches, substantially as described.

3. In a magazine-gun, a magazine-tube, a spiral spring, and a follower pressed forward by such spring, and a telescopic guide-tube connected to said follower, all combined substantially as described.

4. In a magazine-gun, the combination of the magazine-tube, the spring-pressed follower, and the floor-piece pivoted to the follower and having a flattened knuckle-piece borne on by the spring, whereby the floor-piece is held at the proper elastic inclination to press on the cartridges, all combined substantially as described.

5. In a magazine-gun, the magazine and its follower feeding cartridges upward toward the firing position, the barrel having a longitudinal movement to close on the top cartridge, the pivoted detents closing inward from the sides over the upper live cartridge, and a moving part connected to the barrel and acting on said detents to close them as described and thus prevent the rise of the column of cartridges, all combined substantially as described.

6. In a magazine-gun, a magazine and follower adapted to feed the cartridges upward, a pair of extractor-arms pivoted to the frame forward of the rear end of the barrel and closing onto the cartridge-head behind the end, the forwardly-moving barrel, and an abutment on the barrel engaging inclines on the extractors to lift and clamp said extractors by the longitudinal movement of the barrel, all combined substantially as described.

7. In a magazine-gun, the fixed recoil-abutment, the concave casing, the extractor-arms pivoted to said casing, and the forwardly-moving barrel having contact-pieces engaging the extractor-arms to lift them as the barrel moves forward, said arms closing toward each other as they lift by engagement with the concave casing, substantially as described.

8. In a magazine-gun, the upwardly-feeding magazine, the forward-moving barrel, the pivoted cartridge-detents, and the hammer engaging said detents to turn them into the line of movement of the cartridges as the hammer moves backward, and a spring to give elasticity to the detents, substantially as described.

9. In a magazine-gun, the casing, longitudinally-moving barrel, cartridge-detent levers pivoted in the casing and having inwardly-project-

ing arms, and the hammer having a nosepiece in position to engage said arms and turn the detents inward by the extreme backward movement of the hammer, substantially as described.

10. In a magazine-gun, the magazine and follower, the cartridge-detents, the hammer engaging the detents to turn them in the way of the column of cartridges, the forwardly-moving barrel, and mechanism connecting the barrel and hammer so that the barrel movement cocks the hammer, substantially as described.

11. In an automatic gun, the casing and recoil-abutment, the longitudinally-movable barrel, the locking-shoulders of said parts engaging by a partial rotation of the barrel, and a gas-pressure device in the barrel operating to apply a rotative force to the barrel to unlock the same, substantially as described.

12. In a gun, the recoil-shield and the slotted casing, the barrel having a boss moving in the slot in said casing, and the sleeve connected to the barrel and closing over the casing, in position to serve as a handle, substantially as described.

13. In an automatic gun, the recoil-shield and casing, the barrel having a boss in the slot and a spiral spring surrounding the barrel and resting against shoulders on the barrel and casing, and the sleeve connected to the barrel near the muzzle and closing over the end of the casing, substantially as described.

14. In an automatic gun, the casing in sections connected by a screw-thread, the barrel and coiled spring inclosed in the casing substantially as described, and the sleeve or handle connected to the barrel by a screw-thread and closing over the casing, substantially as described.

15. In a magazine-gun, the longitudinally-moving barrel, the cocking-slide engaged by said barrel, the hammer cocked by said slide, and the cartridge-detents actuated by the backward movement of said hammer, substantially as described.

16. In a magazine-gun, the longitudinally-movable barrel having a notch therein, the trigger and firing connections, said trigger having a projection which may enter the notch in the barrel when the barrel is closed and locked but is otherwise held against movement, substantially as described.

17. In an automatic gun, the barrel, the trigger, and firing connections substantially as described, said trigger having an elastic finger-piece, and a connection of the trigger arranged to engage with inclined bearing in a depression in the barrel.

18. In a magazine-gun, the upwardly-feeding magazine having narrow ends and an enlarged central recess, spring-clasps at the sides of said recess, and the magazine-cover in position to be engaged by said clasps, said cover having a telescopic tube connected thereto, a cylindrical follower connected to the tube, and a spiral spring between the cover and follower, all substantially as described.

19. In an automatic gun, the frame, the forwardly-movable barrel and means to return it to closed position, and the trigger hung in the frame and having an arm in position to bear on the barrel and retard the closing movement, substantially as described.

20. The combination of the barrel, the trigger, a movable piece on the trigger held down by the barrel when the barrel is in locked position but otherwise free to move, and the push-pin and sear, said push-pin rendered operative to release the sear when the barrel is closed, but otherwise inoperative, substantially as described.

663,956. **AUTOMATIC FIREARM.** ANDREW BURGESS, Owego, N. Y. Filed Sept. 5, 1899. Serial No. 729,487. (No model.)



Claim.—1. In a firearm, a barrel, a frame holding a breech-abutment to resist the cartridge, means for locking the barrel by a turning movement, a swinging lever hung in the frame, having a short arm engaged in the act of firing, to throw the long arm of said lever against the locking parts to release the breech, all arranged as described, whereby the remaining pressure of the charge will open the breech, all in combination and with a return-spring to close the breech.

2. In a firearm, a frame, a barrel housed to reciprocate therein, locking-shoulders on the barrel and in the frame to make engagement by the turning of the barrel, but so slanting in pitch as not to lock barrel firmly; in combination with a catch to hold such shoulders locked, and a lever operated by movement from the shock of the discharge to release said catch.

3. In a firearm, the frame, a fixed breech-locking shoulder therein, a lever hung in the frame in proximity to said shoulder, a movable part of the arm with shoulder to lock against the said shoulder in the frame, a short arm of the lever obtaining against the shoulder on the movable part to throw the lever by shock from said part in firing to start the unlocking of the breech, all in combination substantially as described.

4. In the lock of a firearm, a hammer hung rearward of the barrel in the frame with a striking end above its pivot, an extension below its pivot, an actuating-rod connected to said extension, a reciprocating barrel having a shoulder to force forward said rod and a spring to return said rod, all in combination, and with a sear to hold and release the rod substantially as set forth.

5. In a firearm provided with reciprocating parts to open and close the breech, and having a cartridge-seat to resist the rearward movement of the shell, and an arc or section of said seat cut away, in combination with an extractor having a hook to engage the cartridge-flange, and means to force said hook forward, and means to retire said hook backward to thereby trip the shell, substantially as specified.

6. In a magazine-firearm, a reciprocating barrel, a magazine with a spring to feed the cartridges upward, as described, in combination with levers to grasp the top cartridge and engaging means on the barrel and levers whereby said levers are raised by the movement of the barrel.

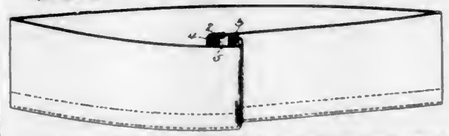
7. In a magazine-firearm, a frame, a barrel reciprocating in the frame, a magazine debouching into the hollow of the frame rearward of the barrel, when said barrel is in forward position, in combination with levers actuated by the forward movement of the barrel to raise a cartridge from the magazine to aline it with the bore of the barrel.

8. In a firearm, a magazine of the class described, having an opening at the bottom and shoulders therein, in combination with a hollow projecting cover and a bow-spring whose ends engage said shoulders to retain the cover in place and finger-holds to release it.

9. The magazine with followers and spiral spring guided as described, and the hollow downward-projecting cover, and a catch to hold the follower and spring within the hollow of the cover, all combined as set forth.

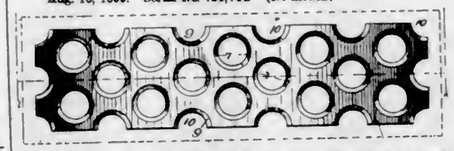
10. In an automatic firearm, a barrel arranged to be moved forward by the discharge, in combination with a catch to hold said barrel forward and a projection from said catch in position to be grasped by the second finger while the first pulls the trigger, substantially as specified.

663,957. **MOURNING-BAND FOR HATS.** ELI A. BURT and HERMEN HARRIS, New York, N. Y. Filed Oct. 20, 1900. Serial No. 33,760. (No model.)



Claim.—A fastening device for the free ends of a hat-band comprising a metal strip bent upon itself and clamped to and overlapping both faces of one end of the band, and a second metal strip bent upon itself and clamped at its outer side only to the other end of the band and adapted to receive the other metal strip between the outwardly-projecting portion of the same and the band.

663,958. **BRAKE-SHOE.** JAMES R. CARDWELL, Chicago, Ill. Filed Aug. 10, 1899. Serial No. 726,744. (No model.)

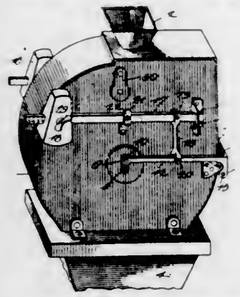


Claim.—1. A brake-shoe having an insert-plate, recesses arranged in the edges of said plate, and buttresses formed by the metal of the side wall of the shoe filling said recesses, said buttresses having dovetail connection with said insert-plate, substantially as described.

2. A brake-shoe having an insert-plate embedded therein, said plate being provided with cellular openings filled by the metal of the body of

the shoe, said openings having axes extending along parallel lines substantially as specified, whereby to facilitate the formation of the mold therefor.

663,959. WEIGHING-MACHINE. ALBERT CRAWFORD, Battle Creek, Mich. Filed Sept. 12, 1900. Serial No. 29,826. (No model.)



Claim.—1. In a machine of the class described, the combination of a casing, a rotary weighing-receptacle mounted within the casing and provided with compartments, an annular series of curved flanges corresponding with the compartments and located between the periphery of the receptacle and the center thereof and extending inward from the periphery at an angle to the same, stops mounted on the weighing-receptacle and corresponding with the compartments thereof and located adjacent to the inner ends of the flanges, a device mounted on the casing and arranged to be engaged by the flanges and the stops, and a weighing-poise connected with the weighing-receptacle, substantially as described.

2. In a weighing-machine, the combination of a casing provided with a roller or wheel, a rotary weighing-receptacle arranged within the casing and provided with compartments, stops corresponding with the compartments and mounted on the exterior of the weighing-receptacle and adapted to engage the roller or wheel successively, and the curved flanges mounted on the rotary weighing-receptacle at points between the periphery and the center of the latter and extending inward from the said periphery at an angle thereto and forming cam-surfaces and arranged to run on the roller or wheel, substantially as and for the purpose described.

3. In a weighing-machine, the combination of a casing provided at opposite sides with slots, a rotary weighing-receptacle mounted within the casing and having pivots extending through the slots, the approximately rectangular lever-frame composed of parallel sides and a transverse portion connecting the outer ends of the sides, said sides being pivoted at their outer ends to the casing and connected at their inner ends to the pivots of the weighing-receptacle, the horizontal beams located above the lever-frame and fulcrumed between their ends, weights arranged on the outer arms of the beams, and the links connected with the inner arms of the beams and with the sides of the lever-frame near the center of the said sides, substantially as described.

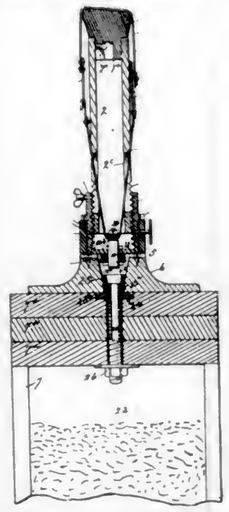
663,960. WORK-SUPPORT. EDWARD DAWSON, New York, N. Y. Filed Apr. 6, 1899. Serial No. 712,008. (No model.)

Claim.—1. The combination with a last or work-support, a stem therefor having screw-threads; a threaded sleeve fitting said stem; and a support for said sleeve permitting rotation thereof; with a band passed over said last or work-support; means for holding said band against outward movement; means for locking said stem against rotation in said sleeve; and means for locking said sleeve against rotation in its support, substantially as described.

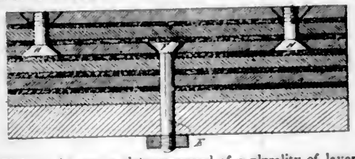
2. The combination with a last or work-support, a stem therefor having screw-threads, a threaded sleeve therefor, and a support for said sleeve, with a band passed over said last, means for holding said band from outward movement, and means for locking said stem to said sleeve, ratchet-teeth carried by said sleeve, and a dog to act with said teeth to prevent reverse movement of said sleeve, substantially as described.

3. The combination of a last or work-support, a stem therefor having openings in its walls leading thereto, a support for said stem, and means for moving said last outwardly relatively to the support, with a band passed over said last or work-support, said band passing into the openings in said stem, and means for holding the lower end of said band from outward movement, whereby as the last rotates it will be moved away from the fixed end of the band, substantially as described.

4. A hollow standard adapted to contain sand, a plurality of boards or plates thereon, a hollow rod passing therethrough, nuts for holding said rod on said boards or plates and a funnel on said rod, combined with a swivel-head on said standard, a stem connected therewith, a last carried by said stem, a band adapted to pass over said last and means for moving said last outwardly, substantially as described.

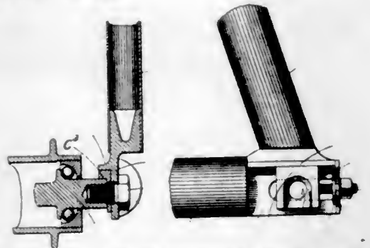


663,961. ARMOR-PLATE. ARTHUR B. DONALDSON, Dunseith, N. D. Filed May 16, 1900. Serial No. 16,853. (No model.)



Claim.—An armor-plate composed of a plurality of layers of steel and elastic material alternately arranged, the inner and outer layers being of steel, all of said layers except the outer layer of steel and the adjacent layer of elastic material being held in place by bolts which pass therethrough inwardly, and the two outer layers of steel and elastic material being held in place by bolts which pass outwardly through the next adjacent inner layer of steel and through said outer layers of steel and elastic material, said bolts being provided with countersunk heads, and the outer bolts being provided with countersunk nuts, substantially as shown and described.

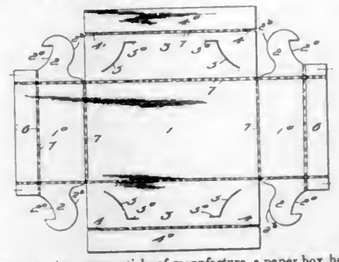
663,962. CHAIN ADJUSTMENT FOR CYCLES. JOHN B. DUNLOP and JOHN B. DUNLOP, Jr., Dublin, Ireland. Filed Mar. 19, 1900. Serial No. 9,257. (No model.)



Claim.—1. In a cycle the combination of a slotted fork end, a drag-link free to slide within the fork end, a saddle-shaped portion upon the drag-link, slots in the drag-link to receive the fork ends, a screw attached to the drag-link, a nut engaging with the screw and held free to rotate in a recess in the fork end, a non-rotatable wheel-axle the end of which does not protrude through the fork end but is accommodated in the saddle-shaped portion of the drag-link and a bolt passing through the link and the fork end and engaging with a tapped hole in the end of the wheel-axle substantially as set forth.

2. In a cycle, the combination of a fork end, a wheel-axle, a drag-link slidably mounted on the fork end and having a saddle-shaped portion on the inside of the fork end to receive the axle, means for adjusting the position of the drag-link relatively to the fork end, and a bolt passing through the fork end and the link and engaging with a tapped hole in the end of the axle, substantially as set forth.

663,963. PAPER BOX. CHARLES GALLE, St. Louis, Mo. Filed Apr. 24, 1900. Serial No. 14,158. (No model.)



Claim.—1. As a new article of manufacture, a paper box having at its sides and ends upper edge infolding portions, and each side provided with slits or slots, and a straight slot in its edge, and each end provided with lateral hooks or lugs adapted to engage said end slits or slots, said infolding portions each adapted to engage or be received into said straight slot, and reinforce the upper edges of the box, substantially as set forth.

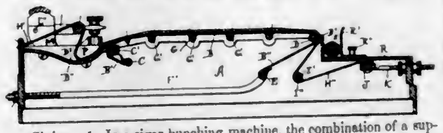
2. As a new article of manufacture, a paper box having its sides and ends provided with upper edge infolding portions, and its sides provided at each end with a slit or slot and the ends of the box produced with lateral hooks or lugs, to engage said slits or slots, said infolding portions adapted to guard said hooks or lugs and to reinforce the upper edges of the box, substantially as set forth.

3. As a new article of manufacture, a paper box having its sides and ends provided with upper edge infolding portions, and its sides provided at each end with a slit or slot and a straight slot in its edge, and the ends of the box produced with lateral hooks or lugs, to engage said slits or slots, said infolding portions adapted to guard said hooks or lugs and to reinforce the upper edges of the box and secure a straight upper edge, substantially as set forth.

4. As a new article of manufacture, a paper box with lateral hooks or lugs at each end, to engage with slits or slots at each side, its sides and ends provided with upper edge infolding portions, the infolding portions of the ends projecting over the sides and adapted to lock the infolded portion of the sides against the inner wall of the box, to guard said hooks or lugs and to reinforce the upper edge of the box, substantially as set forth.

5. As a new article of manufacture, a paper box having slitted or slotted sides and infolding sides and ends, the ends having hooks or lugs, to engage said slits or slots, and shank portions or extensions 4^b to fold over the sides of the box.

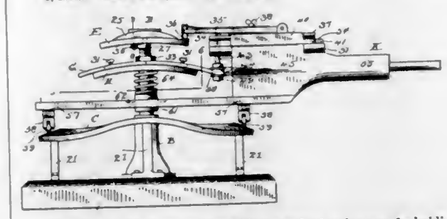
663,964. CIGAR-BUNCHING MACHINE. HERMANN C. GREVE, Dayton, Ohio. Filed Apr. 30, 1900. Serial No. 14,818. (No model.)



Claim.—1. In a cigar-bunching machine, the combination of a supporting-frame, having a depression in one end thereof, of a series of transverse rollers in said frame, one of said rollers being mounted adjacent to the depression in said frame, and below the plane of the other rollers, and forming a gradual passage from said depression, a cloth placed on the upper side of said rollers, an apron resting on said cloth, a traveling roller engaging the under side of said apron and forming a traveling pocket therein in which a bunch may be carried over the table, the said bunch being subjected to a yielding pressure as it is brought in contact with each of said rollers which is due to the partial rotation of said rollers, substantially as shown and described.

2. In a cigar-bunching machine, the combination with a supporting-frame, of a table comprising a series of transverse rollers loosely mounted in said frame, a table-cloth laid over the upper side of said rollers with its longitudinal edges free, a depression in said frame adjacent to said cloth and forming a gradual ascent to said cloth, an apron resting on said cloth, a roller engaging with the under side of said apron and providing a traveling pocket therein in which a bunch may be carried over the table, means for adjusting said roller to vary the area of said pocket, and adjusting devices for varying the tension of the table-cloth, substantially as described.

663,965. HAT-BRIM TRIMMER. JAMES R. GRIFFETH, Norwalk, Conn., assignor of one-half to Moses H. Glover, same place. Filed Mar. 8, 1900. Serial No. 7,828. (No model.)



Claim.—1. The combination with a standard and means for holding a hat-body to be operated upon, of a cam-plate and a cam-track, said cam-plate and cam-track being lowest at the ends and highest at the sides for the purpose set forth, and a rotating head having pivoted yokes and rollers which travel on the cam-track and a carrying-slide having a pivoted yoke and rollers engaging the edge of the cam-plate.

2. The combination with a standard, a brim-plate lowest at the ends and highest at the sides for supporting a hat-body to be operated upon and means for retaining a hat-body thereon, of side plates for supporting the curves at the sides of the brim, the cam-plate and cam-track, substantially as described, and a rotating head having pivoted yokes and rollers which travel on the cam-track and a carrying-slide having a pivoted yoke and rollers engaging the cam-plate.

3. The combination with a standard, a brim-plate having slots 28 and means for retaining a hat-body on said brim-plate, of side plates for supporting the curves at the sides of a brim and having eyes 26 whose shanks engage the slots, a right and left threaded screw carried by the brim-plate and engaging the eyes whereby the side plates may be adjusted toward or from each other, the cam-plate and cam-track and a rotating head having pivoted yokes and rollers engaging the cam-track and a carrying-slide having a pivoted yoke and rollers engaging the cam-plate.

4. In a machine of the character described the combination with a cam-track and a cam-plate lowest at the ends and highest at the sides, substantially as described, of a rotating head having pivoted yokes and rollers engaging the cam-track and a carrying-slide having a pivoted yoke and rollers engaging the cam-plate.

5. In a machine of the character described the combination with a cam-plate and a cam-track lowest at the ends and highest at the sides, of a rotating head comprising a cross-plate having pivoted yokes carrying rollers which engage the cam-track, a body carried by said cross-plate and a spring-actuated carrying-slide in said body having a pivoted yoke and rollers engaging the cam-plate.

6. In a machine of the character described the combination with a cam-plate lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head having an angular recess, a correspondingly-shaped spring-actuated carrying-slide in said recess and a yoke pivoted to said slide and carrying rollers which engage the cam-plate whereby when the head is rotated the inclines of the cam-plate will tilt the carrying-slide and with it the rotating head.

7. In a machine of the character described the combination with a cam-track lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head including a cross-plate carrying pivoted yokes having rollers which engage the cam-track on opposite sides so that when the head is rotated the inclines of the cam-track will cause the head to rise and fall.

8. In a machine of the character described the combination with a cam-plate and a cam-track lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head comprising a cross-plate having pivoted yokes and rollers which engage the cam-track, a body carried by said cross-plate and having an angular recess, a correspondingly-shaped carrying-slide in said recess, a yoke pivoted to said slide and carrying rollers which engage the cam-plate and a spring acting to move the slide forward, so that when the head is rotated the inclines of the cam-track will cause the head to rise and fall and the inclines of the cam-plate will tilt the carrying-slide and with it the rotating head and parts carried thereby.

9. In a machine of the character described the combination with a standard, a cam-track and a cam-plate lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head comprising a cross-plate having a transversely-elongated opening and longitudinal sockets 63,

a spring-actuated sleeve on the standard which lies in said opening and is provided with pins engaging the socket, a body carried by said cross-plate and a carrying-slide in said body having a pivoted yoke and rollers engaging the cam-plate.

10. In a machine of the character described the combination with a standard and a cam-track lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head having a cross-plate with an opening and sockets 63, yokes pivoted to said cross-plate and carrying rollers which engage the cam-track, a sleeve on the standard lying in said opening and having pins engaging the sockets and a spring acting to press the sleeve and with it the cross-plate downward.

11. In a machine of the character described the combination with a standard, a cam-track and a cam-plate both lowest at the ends, highest at the sides and inclined at the quarters, of a rotating head comprising a cross-plate with a laterally-elongated opening 60 and sockets 63, yokes pivoted to said cross-plate and carrying rollers engaging the cam-track, a spring-actuated sleeve on the standard lying in said opening and having pins engaging the sockets, a body carried by the cross-plate, a spring-actuated angular slide in said body and a yoke pivoted to said slide and carrying rollers engaging the cam-plate.

12. In a machine of the character described the combination with a cam-plate lowest at the ends, highest at the sides and inclined at the quarters, of a rotating and vertically-movable head, an angular spring-actuated slide in said head and a yoke pivoted to said slide and carrying rollers engaging the cam-plate, the inclines of said cam-plate causing the head to tilt in one direction or the other in addition to its rotary and vertical movements.

13. The combination with a cam-plate holder and a removable cam-plate lowest at the ends, highest at the sides and inclined at the quarters, of a rotating vertically-movable and tiltable head K and a slide carried by said head and itself carrying a pivoted yoke and rollers which engage the cam-plate.

14. In a machine of the character described the combination with cam-plate G, rotating head K, and means for imparting vertical reciprocatory movement to said head as it is rotated, of a spring-actuated carrying-slide, a yoke pivoted to said slide and carrying rollers engaging the cam-plate, an oscillating rod carried by the yoke and a plate 41 rigidly secured to the oscillating rod.

15. In a machine of the character described the combination with cam-plate G, rotating head K, and means for imparting vertical reciprocatory movement to said head as it is rotated, of a spring-actuated carrying-slide, a yoke pivoted to said slide and carrying rollers engaging the cam-plate, a rod 43 carried by the yoke and oscillating therewith, and an oscillating cutter-plate carried by said rod.

16. In a machine of the character described the combination with the cam-plate G, of rotating head K, carrying-slide 44, yoke 49 pivoted to said slide and carrying rollers engaging the cam-plate, a spring acting to move said slide forward, rod 43 fixed to said yoke and oscillating therewith and an oscillating plate 41 carried by said rod.

17. In a machine of the character described the combination with cam-plate G, of rotating head K having ways 52, a spring-actuated carrying-slide, a yoke pivoted to said slide and carrying rollers engaging the cam-plate, a plate 51 adapted to slide in the ways, an oscillating rod carried by the yoke and passing through plate 51, a plate 41 carried by the oscillating rod and having a curved slot and a pin passing through said slot and engaging plate 51.

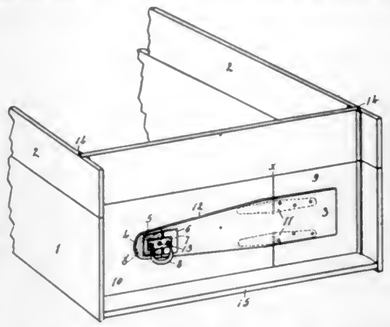
18. In a machine of the character described the combination with means for holding a hat-body in place, a cam-plate G, a rotating vertically-movable and tiltable head K, a slide 44 carried by said head and a yoke pivoted to said slide and engaging the cam-plate, of an oscillating cutter-plate carried by the yoke, a cutter-slide adjustably secured to the oscillating cutter-plate, a vertically-swinging arm pivoted to the cutter-slide and a cutter and guard carried by said arm.

19. In a machine of the character described the combination with means for holding the hat-body in place, a cam-plate G, a rotating vertically-movable and tiltable head K and a spring-actuated slide in said head carrying a swinging yoke and rollers which engage the cam-plate, of an oscillating cutter-plate carried by the yoke and a cutter and guard adjustably secured to the oscillating cutter-plate.

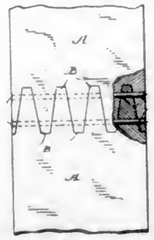
20. In a machine of the character described the combination with a cutter, a guard therefor and means for holding a hat-body in place, of a cam-plate G, a rotating vertically-movable and tiltable head K, slide 44, pivoted yoke 49 carrying rollers which engage the cam-plate and an oscillating cutter-plate carried by the yoke and itself carrying the cutter and guard.

663,966. END-GATE. EUGENE A. HENDERSON, Rising City, Nebr. Filed June 13, 1900. Serial No. 20,156. (No model.)

Claim.—In an end-gate of the character described, the face-plate 5, provided with the pivot 13, in combination with the latch comprising the flat bar 7, provided with the looped handle 8, extending from the ends of said bar, said pivot 13 being between the ends of said looped handle.



663,967. BELT-FASTENING. HARVEY HUBBELL, Bridgeport, Conn. Filed Feb. 24, 1900. Serial No. 6,327. (No model.)



Claim.—The combination with the ends of a belt provided with close-fitting interlocking projections the inner and outer surfaces of which are in the same plane with the inner and outer surfaces of the belt to present flat wearing portions, the sides of said projections being in close contact with each other throughout, and transverse rods passing through said projections on opposite sides of the mid-length thereof, the said rods coacting with each other and with the close-fitting sides of the projections to prevent rubbing movement between said sides.

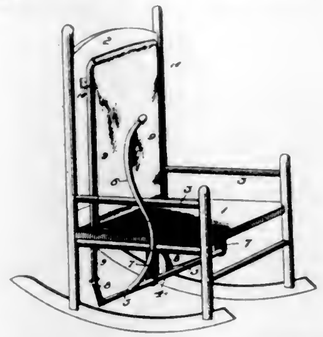
663,968. BICYCLE-BRAKE. JOHN W. JOHNSON, Trenton, Mo. Filed July 29, 1898. Serial No. 687,230. (No model.)



Claim.—In a device of the class described, the combination with a bicycle, of a brake-wheel 1 secured to the crank-axle 2 on an extension thereof and at the side opposite that bearing the driving-chain wheel, the rear bracket 5 provided with the double clamp 6 and secured to and extending across the rear braces of the bicycle-frame at a point between the rear wheel and the brake-wheel and extending outward at the side at which the brake-wheel is located, the front guide 9 mounted on the front brace of the bicycle-frame and extending therefrom and having an opening arranged in line with the outer portion of the bracket 5, the brake-strap 4 secured at its rear end to the bracket 5 and passing beneath the brake-wheel and extending forward from the bottom of the same through the opening of the guide 9, the brake-shoe 7 arranged on the upper face of the strap 4 and located at the bottom of the brake-wheel and adapted to drop by gravity out of engagement with the same when the strap is slackened, the upwardly-extending inwardly-inclined lips located at the side edges of the strap and arranged at intervals throughout the length of the brake-shoe and formed integral with the former and embedded in the side faces of the latter, said lips being adapted to secure the shoe to the

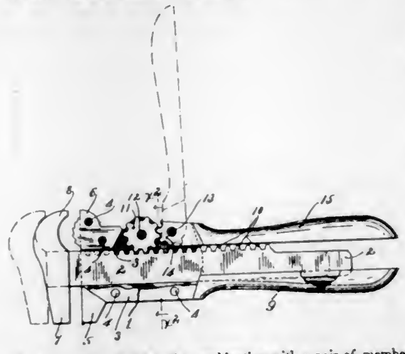
strap without interfering with the flexing of either of the said parts, and a strap-tightening device comprising a ratchet and a lever having a pawl and provided with an arm arranged at an acute angle to the lever and connected with the front end of the strap, substantially as described.

663,969. MASSAGE-CHAIR. JOHN M. JOHNSTON and OLIVER VANORMAN, Los Angeles, Cal. Filed Apr. 19, 1900. Serial No. 13,498. (No model.)



Claim.—In a chair of the character described, the combination of a seat, a back, a sliding or movable frame carrying means for effecting engagement with the back of the occupant with its side bars extending below said seat, a rock-shaft linked to the lower ends of said side bars and a lever or arm fixed to said rock-shaft and arranged within convenient reach of said occupant for actuation, substantially as set forth.

663,970. WRENCH. LEWIS H. KROEK, Dwight, N. D. Filed June 29, 1900. Serial No. 22,036. (No model.)

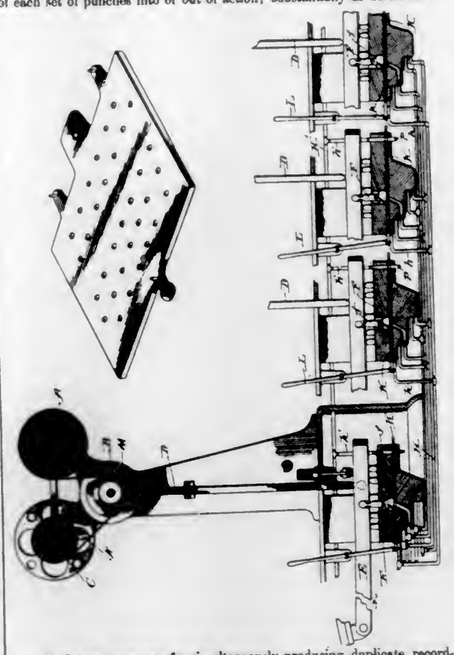


Claim.—1. In a wrench, the combination with a pair of members slidable one upon the other, and one thereof having a rack, of a pinion and a lever mounted on the other member, which pinion meshes with said rack and which lever has teeth engageable with said pinion when said lever is closed and disengageable with said pinion when said lever is open to an extreme position.

2. In a wrench, the combination with the member 1, of the member 2 telescoping into said member 1 and provided with rack-teeth 10, said members having coöperating clamping-jaws, the pinion 11 mounted in the sides of said member 1 and meshing with said rack 10, and the lever 15 pivoted between the sides of said member 1 and provided with the segmentally-arranged gear-teeth 14, engageable and disengageable with said pinion 11 under the movements of said lever 15, substantially as described.

663,971. RECORD-STRIP PERFORATOR FOR TYPE-FORMING MACHINES. TOLBERT LANSTON, Washington, D. C., assignor to the Lanston Monotype Machine Company, same place. Filed Oct. 7, 1899. Serial No. 732,926. (No model.)

Claim.—1. In an apparatus for simultaneously producing duplicate record-strips or controllers for type-forming machines, the combination with a series of sets of punches and record-strip-feeding mechanism for presenting the strip to said punches, of a keyboard, independent punch-motors for the punches of each series, mains connecting said keyboard and punch-motors, and controlling mechanism interposed in the connections between the mains and motors for simultaneously throwing the motors of each set of punches into or out of action; substantially as described.



2. In an apparatus for simultaneously producing duplicate record-strips or controllers, the combination with independent strip-feeding mechanisms, independent sets of punches, independent motors for the punches of each set and common mains for like punch-motors of all the sets, of a keyboard and finger-pieces controlling the mains and arranged in columns and rows, whereby upon the operation of any finger-piece, motors corresponding to the the column; and other motors corresponding to the row in which said finger-piece is located, will be operated to advance corresponding punches in all the sets; substantially as described.

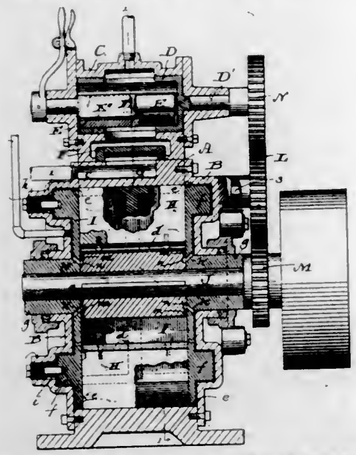
3. In a pneumatically-operated mechanism for simultaneously producing duplicate record-strips or controllers for type-forming machines, the combination of the following instrumentalities, to wit, a keyboard embodying finger-pieces, arranged in vertical columns and horizontal rows, a system of mains, the pressure in which is controlled by the finger-pieces, independent sets of punches and record-strip-feeding mechanisms, motors for each of said punches and strip-feeding mechanisms and independent connections between said motors and mains, corresponding motors in each of the sets being connected with the same main; substantially as described.

4. In a pneumatically-operated mechanism for simultaneously producing duplicate record-strips or controllers for type-forming machinery, the combination of the following instrumentalities, to wit, a system of main conduits, a keyboard embodying finger-pieces controlling the pressure in said mains, a series of independent sets of punches and record-strip-feeding mechanisms, independent motors for each of the punches and record-strip-feeding mechanisms, independent connections between corresponding motors of each set and the same main, and independent controlling-valves located intermediate each set of punch-motors and mains, whereby all of the motors of each set may be simultaneously thrown into or out of operative connection with the main; substantially as described.

5. In a pneumatically-operated mechanism for simultaneously producing duplicate record-strips or controllers for type-forming machinery, the combination of the following instrumentalities, to wit, a series of sets of record-strip-producing mechanisms embodying punches and record-strip-feeding mechanisms, independent motors for each of the punches of each of the series embodying pneumatic cylinders and pistons, a system of mains with which said cylinders are in communication, corresponding cylinders of the several sets being connected with the same main and a keyboard embodying finger-pieces arranged in vertical columns and horizontal rows, each of said finger-pieces being adapted to open communi-

cation with one of the mains corresponding to the column and one of the mains corresponding to the row in which said finger-piece is located, whereby upon the operation of any finger-piece, pressure will be admitted for the operation of punches in each of the sets corresponding to the column and row in which the finger-piece is located; substantially as described.

663,972. STEAM-ENGINE. WILLIAM LOEFFLER, Sheboygan, Wis. Filed May 31, 1900. Serial No. 18,512. (No model.)



Claim.—1. A steam-engine comprising a cylinder the bore contour of which approximates meeting segments of circles of like radius struck from different centers on the same plane, an annular piston in the cylinder having the same center and approximating the same radius as one of the aforesaid circles, movable gates in radial pockets at regular intervals of the piston, packing-plates in opposition to the piston pockets and gates, springs under tension arranged to hold the plates in working position, a shaft fast in the piston central of same and having its bearings in hubs of said plates, a hollow rotary valve arranged in a chamber that being open to steam supply communicates with one of two opposite passages in the cylinder the other of these passages being open to exhaust and the valve provided with apertures at regular intervals corresponding numerically with the piston-gates, and gearing connecting said shaft and valve, whereby the latter operates in synchrony with the aforesaid piston, provision being had for utilization of steam to balance the aforesaid plates and move said piston-gates in an outward direction.

2. A steam-engine comprising a cylinder the bore contour of which approximates meeting segments of circles of like radius struck from different centers on the same plane, an annular piston in the cylinder having the same center and approximating the same radius as one of the aforesaid circles, movable gates in radial pockets at regular intervals of the piston, packing-plates in opposition to the piston pockets and gates, springs under tension arranged to hold the plates in working position, a shaft fast in the piston central thereof and having its bearings in hubs of said plates, a hollow rotary valve arranged in a chamber that being open to steam-supply communicates with one of two opposite passages in the cylinder, the other of these passages being open to exhaust and the aforesaid valve provided at regular intervals with apertures corresponding numerically with the piston-gates, a cut-off valve adjustable in the rotary one to regulate area of its apertures, and gearing connecting said shaft and rotary valve whereby the latter operates in synchrony with the aforesaid piston, provision being had for utilization of steam to balance the aforesaid plates and move said piston-gates in an outward direction.

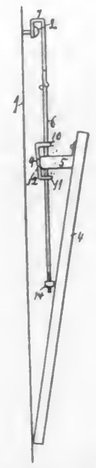
3. A steam-engine comprising a cylinder the bore contour of which approximates meeting segments of circles of like radius struck from different centers on the same plane, an annular piston in the cylinder having the same center and approximating the same radius as one of the aforesaid circles, movable gates in radial pockets at regular intervals of the piston, packing-plates in opposition to the piston pockets and gates, springs under tension arranged to hold the plates in working position, a shaft fast in the piston central thereof and having its bearings in hubs of said plates, a hollow rotary valve arranged in a chamber that being open to steam-supply communicates with one of two opposing passages in the cylinder, the other of these passages being open to exhaust and the aforesaid valve provided with apertures at regular intervals corresponding numerically with the piston-gates, a slide-valve controlling the cylinder-passages, a cut-off valve adjustable in the rotary one to regulate area of its apertures, gearing connecting said shaft and rotary valve, whereby the latter operates in synchrony with the aforesaid piston, provision being had for utilization of steam to balance the aforesaid plates and move said piston-gates in an outward direction, and valves controlling ports in those portions of the packing-plates beyond annular flanges of same engaging corresponding cylinder-head grooves.

663,973. BRUSH. JOSEPH F. MUMFORD, Chicago, Ill. Filed Dec. 9, 1899. Serial No. 739,851. (No model.)



Claim.—As a new and useful article of manufacture a brush-knot composed of a plurality of fractional knots each consisting of a bunch of bristles clamped between two strips of sheet material, a portion of one of said strips having a tongue or portion passing through and clenched with the other of said strips and said fractional knots being secured together in the form of a single knot, substantially as set forth.

663,974. SUPPORT FOR PICTURE-FRAMES. JAMES T. MUMFORD, Cromwell, Iowa. Filed Apr. 30, 1900. Serial No. 14,996. (No model.)



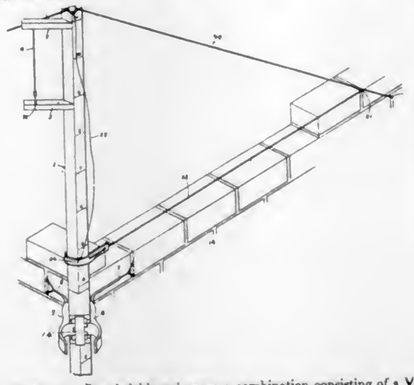
Claim.—1. A supporting device for picture-frames and the like, the same comprising in combination a rod having its upper end adapted to engage a peg or molding on the wall, a bracket securable to the picture-frame and slidable on the rod, a vertically-movable friction-bail having a long and a short arm embracing the rod, one above and the other below the bracket, said bail being adapted to press against the bracket near its short arm but not near its long arm.

2. In a supporting device for suspending picture-frames, mirrors and other objects, the combination with a bracket securable to the picture-frame and having a vertically-disposed hole through it, a rod passed through the hole and having its upper end adapted to engage a peg or molding on a wall, a friction-bail having its ends embracing the rod above and below the bracket, and adapted to press the bracket and the rod into frictional contact when the bail is pushed in one direction on the wire, and to release the rod when pushed in the opposite direction, and a nut or suitable stop near the lower end of the rod, to prevent accidental removal of the rod.

3. In a suspending device for picture-frames, mirrors, &c., the combination with a rod or wire securable with its upper end to a peg or molding, of a bracket securable to the object to be suspended, and having a hole for the rod to pass through, and a friction-bail embracing the rod above and below the bracket, and adapted to force the rod into frictional contact with the bracket when the bail is moved in one direction and to release the rod when moved in the opposite direction, said bracket being formed of a single piece of wire, substantially in the manner set forth.

4. In a device for suspending picture-frames, mirrors, &c., the combination with a rod having its upper end adapted to engage a molding or peg on a wall, a slidable bracket securable to the picture-frame and having a hole for said rod, a friction-bail embracing the rod above and below the bracket, and adapted to loosen the bracket when moved in one direction, and to press against the outer side of it and tighten it on the rod when moved in the opposite direction, and a suspended rod or wire secured to said friction-bail for moving it with from below.

663,975. BRICKLAYER'S GAGE. WILLIAM R. MCCLELLAN and COLEMAN HEATON, Xenia, Ohio. Filed Aug. 3, 1900. Serial No. 25,808. (No model.)



Claim.—1. In a bricklayer's gage a combination consisting of a V-shaped upright piece with two flat sides which are at right angles to each other and adapted to fit the corner of a wall, the upright piece having near its top two arms attached to one of its sides and extending at right angles from said side, a plumb-bob extending from said upper arm directly over a point in the top of the lower arm indicating a perpendicular position of the upright piece, a clamp to fasten said upright piece to its position at the corner of a wall, substantially as described and shown.

2. In a bricklayer's gage the combination consisting of a V-shaped upright piece with two flat sides arranged at right angles to each other and adapted to fit the corner of a wall, and having near its top two arms extending at right angles with the side, a plumb-bob suspended from said upper arm over a point in said lower arm indicating the perpendicular position of said upright, two cords one each fastened to the top of each side of said upright and the other ends fastened to the outer side of the wall each cord being at right angles to the other, substantially as described and shown.

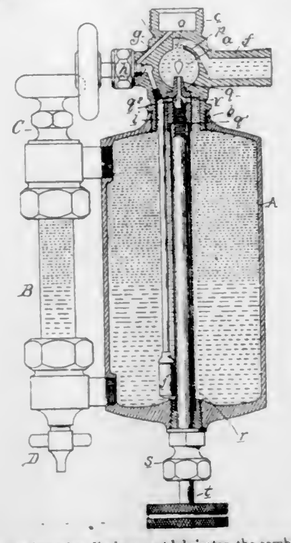
3. In a bricklayer's gage a clamp for fastening a V-shaped upright piece to the corner of a wall and consisting of two arms connected in their centers by means of a rivet, two side pieces fastened to the sides of said arms and adapted to fit between two pieces extending from said upright, a coil-spring on said arms and fastened by means of a rivet extending between said sides and said spring having arms under each arm of said clamp and adapted to clasp the side of the corner of a wall, substantially as described and shown.

663,976. LUBRICATOR. ELIJAH MCCOY, Detroit, Mich., assignor to John Trix, same place. Filed May 5, 1900. Serial No. 15,579. (No model.)

Claim.—1. In a condensation-displacement lubricator, the combination with the oil-reservoir, of an inlet-tube for the water of condensation leading through the top of said reservoir to near the bottom thereof and having its lower end closed, a cylindrical cup closed at the bottom and open on top secured to the lower end of said tube and adapted to form a water seal around the discharge end of said inlet-tube, perforations in the side of said tube near the bottom of the cup, and a deflector secured upon the inlet-tube above the cup and forming an annular discharge-outlet between it and the top of the cup.

2. In a condensation-displacement lubricator, the combination of the oil-reservoir A, a fitting E having an upwardly-extending arm c, to which the condenser is attached, and a downwardly-extending arm *b* secured in the top of the reservoir and connected by a passage through the fitting with the arm c, a valve *h* controlling the flow of the water of condensation through said passage, the tube *i* secured in the lower end of said passage and extending down to near the bottom of the oil-reservoir, the cup *j* secured to the lower end of said tube and forming a water seal for said tube, and the deflector *k* vertically adjustably secured upon said tube above the cup and independently thereof.

3. In a condensation-displacement lubricator, the combination of the oil-reservoir, a fitting having a downwardly-extending arm connecting it to the top of the reservoir and an upwardly-extending arm connecting it to the condenser, a valve-controlled passage connecting the two arms through the body of the fitting and forming an inlet for the water of condensation into the reservoir, a sight-chamber formed in the body of the fitting, a lateral discharge-arm from said fitting communicating with the top of the sight-chamber, and a valve-controlled nozzle in the lower arm of the fitting leading into the bottom of the sight-chamber, said lower arm of the fitting being chambered and forming an upper extension of the reservoir in direct communication with the nozzle and in hasting proximity of the discharge-arm.



4. In a condensation-displacement lubricator, the combination of the oil-reservoir A, formed with an orifice in its top, the fitting E having an inlet-arm *b* secured in said orifice and forming the neck of the oil-reservoir, a valve-controlled passage *g* through said fitting, a condenser-pipe *d* communicating with the upper end of said passage, an inlet-tube *i* extending from the lower end of said passage into the oil-reservoir, a sight-feed chamber *a* in the body of the fitting, the lateral discharge-arm *f* and the nozzle *q* in the inlet-arm through which the neck of the oil-reservoir is in direct communication with the sight-chamber, the tubular extension *q'* of the nozzle, the tube *r* securing said nozzle in position and the valve-stem extending through said tube.

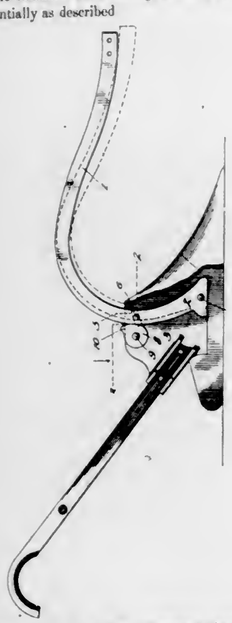
5. The combination of an oil-reservoir, a sight-feed fitting having a downwardly-extending arm, connecting the fitting into the top of the oil-reservoir, a sight-chamber centrally in the body of the fitting, and in direct communication with the oil-reservoir through a passage in the aforesaid arm, an upwardly-extending arm on said fitting communicating through a passage in the fitting with the downwardly-extending arm, a condenser-pipe connecting said upwardly-extending arm with the steam-pipe, and a laterally-extending arm on said fitting connecting it with the steam-pipe and forming a steam-chamber contiguous to the sight-chamber and connected by a passage in the fitting with said sight-chamber for the discharge of the oil into said chamber.

663,977. PLOW. PETER MCNAUGHTON, Charlotte, Mich. Filed Oct. 1, 1900. Serial No. 31,700. (No model.)

Claim.—1. The combination of a plow having an adjusting-slot, a beam having its standard portion pivoted to the plow so that the front end of the beam may be raised and lowered, an adjusting-bolt transversely disposed in said beam and working in said slot, and a revoluble disk mounted in rear of the beam-standard and having an eccentrically-disposed cam on its front side bearing against the rear side of the standard portion of the beam, said cam-disk and adjusting-bolt coacting to secure the beam at any required adjustment, and said cam-disk relieving said adjusting-bolt of stress, substantially as described.

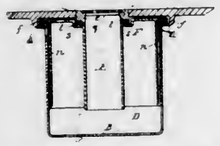
2. The combination of a plow, a beam pivoted thereto, and thereby rendered capable of adjustment so that the front end of the beam may be raised and lowered, an adjusting-bolt, extending transversely through the standard portion of the beam and through the plow, and a cam bearing against the rear side of the standard portion of the beam, said cam and bolt coacting to secure and adjust the beam, and said cam relieving said adjusting-bolt of stress, substantially as described.

3. The combination of a plow, a standard pivoted thereto, for the purpose set forth, an adjusting-bolt transversely disposed in the plow and standard and connecting the same together, and a cam bearing against the rear side of the standard and relieving the said adjusting-bolt of lateral stress, substantially as described



4. The combination of a plow, a standard pivoted thereto, for the purpose set forth, an adjusting-bolt to secure said plow and standard together, and means to brace said standard and thereby relieve said adjusting-bolt of stress, substantially as described.

663,978. SANITARY APPLIANCE. ARTHUR O'BRIEN, Helena, Mont., assignor of three-fourths to Martin A. Mitchell and August Fack, same place. Filed Sept. 3, 1898. Serial No. 690,240. (No model.)



Claim.—1. In a sanitary appliance the combination with a fixture of a catch-basin having a discharge-pipe and removably supported upon the fixture a lid for sealing the basin a removable trap-pipe attached tight to the fixture fitted tight through the lid and extending into the basin and means for connecting the catch-basin to the fixture and to the waste-pipe, substantially as described.

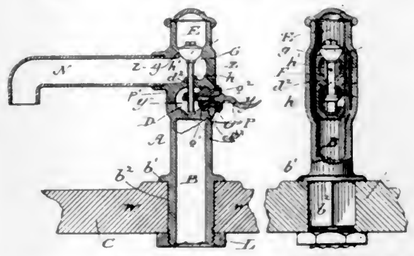
2. In a sanitary appliance the combination with a fixture of a removable catch-basin having a discharge-pipe thereon, a removable trap-pipe attached to the fixture and extending into the catch-basin, a lid having a deep-rim flange extending below the level of the discharge-pipe aperture and adapted to receive the trap-pipe and means for attaching the catch-basin and trap-pipe to the fixture, substantially as described.

3. In a sanitary appliance the combination with a fixture of a catch-basin removably secured thereto having a discharge-pipe at one end thereof and a low partition on the bottom thereof, a lid having a deep-rim flange extending below the discharge-pipe aperture, and a trap-pipe attached to the fixture and extending through the lid and into the catch-basin below the level of the discharge-pipe aperture substantially as described.

4. In a sanitary appliance, the combination with a fixture, of a removable catch-basin a lid having a rim-flange fitting into the basin, means for holding the basin closely under the fixture, and a removable trap-pipe screwing into the fixture and bearing upon the lid, substantially as described.

5. In a sanitary appliance, the combination with a fixture having flange-ribs upon the under side thereof, a catch-basin having a discharge-pipe at one end and adapted to slide upon the flange-ribs of the fixture a waste-pipe and means for connecting the discharge-pipe and waste-pipe substantially as described.

663,979. FAUCET. ARTHUR O'BRIEN, Helena, Mont. Filed Dec 11, 1899. Serial No. 739,884. (No model.)



Claim.—1. A faucet comprising a body and discharge-chamber having a valve-seat at the top thereof contained within and connected to the body, a supply-pipe below the valve-seat and discharge-chamber, a fluid-passage leading from the supply-pipe around the valve-seat and discharge-chamber to the air-chamber above the valve and a free-seating lift-valve adapted to the valve-seat having a stem and an operating-lever, the valve being adapted to lift freely from the seat and move independently of the operating-lever, substantially as described.

2. A faucet comprising a body a valve-seat and discharge-chamber contained within and connected to said body and having a fluid-passage between therein, a discharge-conduit passing through the body and into the discharge-chamber, a valve-operating chamber located below the valve-seat and discharge-chamber and separated therefrom, a free-seating lift-valve adapted to the valve-seat having a valve-stem passing through the floor of the valve-seat chamber into the valve-operating chamber and a valve-operating device supported upon the body below the discharge-chamber and contained within the valve-operating chamber substantially as described.

3. A faucet comprising a body, a valve-seat chamber and valve-operating chamber contained therein and connected therewith by a neck having an opening through the body, a valve supported upon the valve-seat chamber having a stem extending into the valve-operating chamber, a rubber stopper fitted in the neck-opening of the valve-operating chamber and a lever passing through the nipple and adapted to operate the valve-stem substantially as described.

4. A faucet comprising a body, a valve-seat chamber contained therein and connected therewith and with the spout thereof, a valve supported upon the valve-seat chamber having a hollow stem and a vent therein opening to the spout and a valve-operating chamber having a well therein into which the lower open end of the tubular valve-stem passes, substantially as described.

663,980. FEED ATTACHMENT FOR DIE-PRESSES. ARTHUR J. PARKER, Howell, Mich., assignor of one-half to Hugh A. McPherson, same place. Filed May 25, 1900. Serial No. 17,954. (No model.)

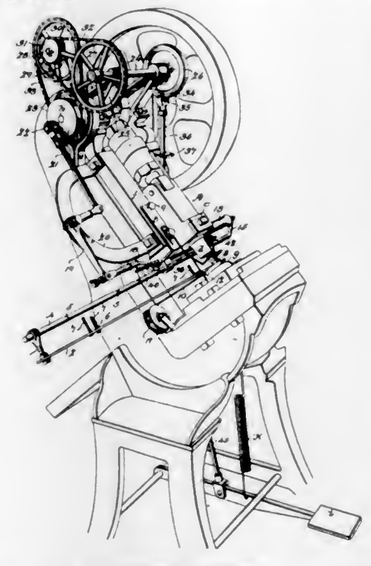
Claim.—1. The combination with a die-press, of a feed-carriage, means to operate the same in one direction simultaneously with the press by a step-by-step movement, means to automatically disengage the feed devices from the carriage when the latter reaches the limit of its outstroke and simultaneously and automatically throw the press out of gear, and means to return the feed-carriage to its initial position while the press is out of gear, substantially as described.

2. The combination with a die-press, of a feed-carriage, means to operate the same in one direction simultaneously with the press by a step-by-step movement, means to automatically disengage the feed devices from the carriage when the latter reaches the limit of its outstroke and simultaneously and automatically throw the press out of gear, substantially as described.

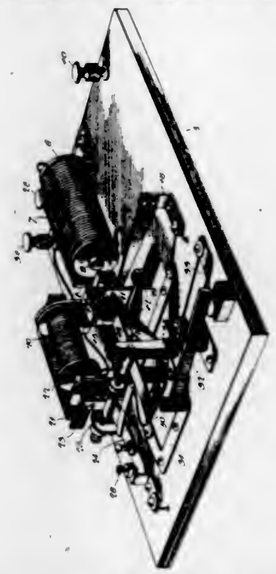
3. The combination with a die-press, of a feed-carriage having a feed-bar, a bell-crank lever, operated by the press and having a feed-dog to engage said feed-bar and actuate said carriage by a step-by-step movement, in one direction, a spring to move said carriage in the reverse direction, a retaining-dog, engaging said feed-bar to lock said carriage against reverse movement, and means operated by the press and connected to said feed and retaining dogs to simultaneously disengage the same from the feed-bar when the feed-carriage reaches the limit of its outstroke, substantially as described.

4. The combination with a die-press, of a feed-carriage comprising a feed-plate, having spring-clips on its upper side to engage one side of

a sheet of tin, and gage-studs to adjust the tin sheet, means to operate the same in one direction simultaneously with the press by step-by-step movement, means to automatically disengage the feed devices from the carriage when the latter reaches the limit of its outstroke and simultaneously and automatically throw the press out of gear, and means to return the feed-carriage to its initial position while the press is out of gear, substantially as described.



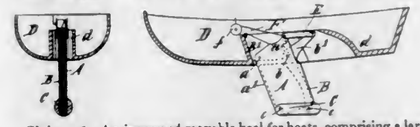
663,981. ELECTRIC-LIGHTING APPLIANCE. ARTHUR PETERS, Manitou, Colo. Filed Nov. 11, 1899. Serial No. 736,616. (No model.)



Claim.—1. An automatic cut-out comprising a main electromagnet, an armature therefor having an overhanging contact-plate, a spring-pressed lever, adapted for connection in series with the translating devices of the circuit to be governed, having a contact-plate at one end connected electrically therewith and insulation between said contact-plate and said lever, said contact-plate adapted to normally contact with that of the armature, one terminal of the winding of the said main electromagnet being adapted for connection with a conductor of the circuit to be governed, a relay-electromagnet having one terminal of its winding connected with one of the said contact-plates, the other terminal thereof being adapted for connection with the opposite conductor of the circuit to be governed, the opposite terminal of said winding being connected with one of the contact-plates, and an armature for the relay-electromagnet adapted for engagement with the contact connected with the main electromagnet, substantially as described.

2. In a system of electrical distribution, in combination with a relay-electromagnet in circuit with the conductors, including translating devices, a main electromagnet in shunt-circuit with the relay-magnet and conductors, said shunt-circuit excluding the translating devices and including a resistance of like value to that of the translating devices, a make-and-break operable by the relay-magnet and included in circuit with the main magnet, and a make-and-break operable by the main magnet and included in one of the conductors to the translating devices, whereby upon an addition to the translating devices the relay-magnet will be actively energized by the consequent increased flow of the current and caused to cut in the main electromagnet, cut out the translating devices, and establish a continuous current through the shunt-circuit and conductors, and excluding said translating devices, substantially as described.

663,982. MOVABLE KEEL FOR BOATS. ALFRED E. PRESTON, Looe, England. Filed June 11, 1900. Serial No. 19,899. (No model.)



Claim.—1. An improved movable keel for boats, comprising a large double front plate pivoted at the bottom of the boat, a second arm or plate also pivoted lying between the sides of the front plate, a weight connecting both plates at the lower end forming with their pivots a jointed parallelogram, and means for collapsing the keel within the centerboard-case, substantially as described and for the purposes specified.

2. In a movable keel for boats, the combination of a double plate A pivoted at *a*, a pivoted plate B lying within the double plate, the bracket B′ to which the plate B is fitted, the weight C attached to the plates A and B at the points *c*, the link E connecting the plates at their upper ends and connections to the upper ends of the plates by which the keel can be collapsed within the boat, substantially as herein described and shown.

663,983. SOLDERING-TOOL. FRANK G. RALEIGH, Chicago, Ill. Filed Feb. 2, 1900. Serial No. 3,705. (No model.)



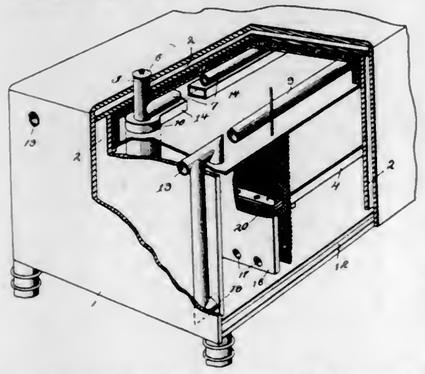
Claim.—1. In a soldering-tool, the combination of a reservoir, a coupling C attached at one extremity to said reservoir, and at the other having a screw-thread, said coupling being longitudinally chambered; a cy-

lindrical taper-pointed valve-spindle E the base whereof consists of a perforated disk secured transversely within said coupling; a cylindrical burner D having at one extremity a screw-thread for engaging the above-mentioned thread of said coupling and said burner having at the other extremity a conical valve-seat terminating at the outer end in a discharging-aperture, said valve-spindle being adapted to extend longitudinally within said burner, and the point of said spindle being adapted to enter said conical valve-seat, the rotation of said burner relatively to said coupling causing the regulation of the valve-opening in said burner; and a bit connected to said burner.

2. In a soldering-tool, a bit, a reservoir, and a burner, said burner being connected to said bit and to said reservoir and having an annular groove adapted to support a hanger; in combination with a hanger as aforesaid, said hanger being adapted to loosely encircle said burner at the said groove therein, and said hanger having a hook extending approximately parallel to the said bit; and a preheating-pan having an eye adapted to loosely engage said hook.

3. In a soldering-tool, the combination of a reservoir, a longitudinally-chambered coupling C attached at one extremity to said reservoir, and at the other attached to a cylindrical burner D by means of screw-threads; a cylindrical taper-pointed valve-spindle E secured within said coupling; a cylindrical burner D as aforesaid, screw-threaded at one extremity for engaging the above-mentioned threaded portion of said coupling, and at the other extremity having a conical valve-seat which terminates in a discharging-aperture, said valve-spindle being adapted to extend longitudinally within said burner and regulate the valve-opening in said burner when said burner is rotated relatively to said coupling; a bit connected to said burner; an annular groove on said burner; a hanger adapted to loosely encircle said burner at the said groove therein, said hanger having a hook extending approximately parallel to said bit; and a preheating-pan having an eye adapted to loosely engage said hook, by which construction when the tool is held in a substantially horizontal position, said pan may always assume a position below said tool, and when said tool is sufficiently inclined in a proper direction, said pan may be dropped by gravity from said hook.

663,984. INCUBATOR. JOSEPH B. RANNEY, Bellefontaine, Ohio. Filed Mar. 17, 1900. Serial No. 9,107. (No model.)



Claim.—1. In an incubator, the combination, with the body provided with a fresh-air conduit extending under the egg-chamber, the outer end of which communicates with the fresh air, a conduit leading from the inner end of the fresh-air conduit to the egg-chamber, a heater at the end of the body opposite the fresh-air inlet for heating the air as it passes through the second-mentioned conduit and an exit-conduit leading from the egg-chamber, whereby the heated fresh air is circulated through said chamber, substantially as described.

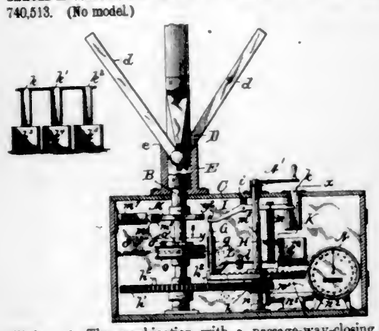
2. In an incubator, the combination, with the body provided with a fresh-air conduit extending nearly the entire length thereof under the egg-chamber and communicating with the exterior at opposite ends, one of which forms an inlet and the other one the outlet, and the intermediate portion extends vertically near the outlet end and longitudinally at the top to the opposite end to the egg-chamber, of a hot-air flue within the vertical and upper portions of the conduit, and a heater at the entrance to said flue, substantially as described.

3. In an incubator, the combination, with a body provided with an inlet and an outlet, the bottom of the body being provided with a fresh-air passage under the egg-chamber, the outer end of which communicates with the inlet, of a jacket at one end of the body and in communication with the inner end of the passage, a heater in the jacket, means for admitting the heated fresh air into the top of the egg-chamber at one end, and a conduit communicating with the bottom of the egg-chamber at the opposite end, and leading to the exit, substantially as described.

4. In an incubator, the combination, with a body having an outlet at one end and a jacket, of a fresh-air passage communicating with the jacket at one end and with the fresh air at the other, a hot-air flue provided with branch pipes and return-flues, of a fresh-air pipe adjacent to the hot-air flue and communicating with the top of the egg-chamber at one end, and with the fresh-air passage at the other, and a conduit leading from the bottom of the egg-chamber at the opposite end to the outlet, substantially as described.

5. In an incubator, the combination, with a hollow-walled casing, the space at the bottom forming a fresh-air inlet, and the inner wall at one end being perforated at the top and bottom, a perforated partition adjacent to said perforated end wall, a conduit between the partition and the perforated wall, the upper end of which communicates with the egg-chamber, and conduits between the perforated and outer end walls communicating with the outlet and with the egg-chamber through the perforations in the bottom of the end wall and partition, whereby the heated fresh air is circulated through the egg-chamber, substantially as described.

663,985. COIN-CONTROLLED PASSAGE-CLOSING DEVICE. SAMUEL E. STIMSON, New York, N. Y. Filed Dec. 16, 1899. Serial No. 740,513. (No model.)



Claim.—1. The combination with a passage-way-closing device adapted to be extended across such passage-way and withdrawn therefrom, of devices for positively locking it in its extended position, devices operable by the deposition of a coin or token to actuate said locking devices and release the said closing device, and means to hold said locking devices in inoperative position during the movement of the closing device from and across the passage-way.

2. The combination with a passage-way-closing device adapted to be extended across such passage-way and withdrawn therefrom, of devices for locking said closing device in extended position, a lever adapted to be moved by the deposition of a coin or token to actuate said locking devices and release said closing device, and means actuated by said coin-operated lever to hold said locking means in inoperative position during the movement of the closing device from and across the passage-way.

3. The combination with a passage-way-closing device adapted to be extended across such passage-way and withdrawn therefrom, of devices for positively locking said closing device in its extended position, a coin or token operated lever to actuate said locking devices and release said closing device, and a second lever operated by said coin-operated lever to hold said locking devices in inoperative position during the movement of the closing device from and across the passage-way.

4. The combination with a passage-way-closing device, adapted to be extended across such passage-way and withdrawn therefrom, of devices for positively locking said closing device in its extended position, a coin or token operated lever to actuate said locking devices and release said closing device, a second lever operated by said coin-operated lever to hold said locking devices in inoperative position during the movement of such closing device from and across such passage-way, and means for automatically throwing said second lever to allow the locking devices to resume their operative position.

5. The combination, with a passage-way-closing device, and a wheel connected therewith and provided with notches, of a locking-bar adapted to engage with such notches to positively lock the closing device in a predetermined position, a lever adapted to be operated by a coin or token for disengaging the locking-bar from such notches, a guard or baffle lever, and a third lever for forcing the free end of this guard or baffle lever beneath the locking-bar when raised operated by the tilting of the first-mentioned lever, substantially as described.

6. The combination, with a passage-way-closing device, and devices for positively locking it in a predetermined position, of a plurality of channel-ways for the reception of coins or tokens, and mechanism through which the unlocking of the closing device may be effected by the introduction of a coin or token in any one of the channel-ways, substantially as described.

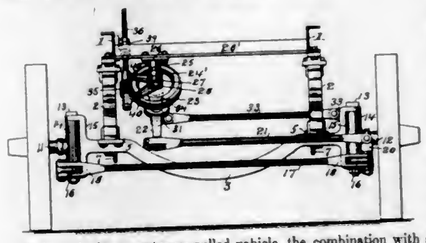
7. The combination, with a passage-way-closing device, a wheel connected therewith and provided with a series of notches, and a locking-bar adapted to engage with such notches, of a plurality of slots or channel-ways that are each adapted to receive a coin or token, and a lever for coöperating with each of these slots or channel-ways and connected with the locking-bar, whereby the disengagement of the locking-bar from the notches in said wheel and the consequent unlocking of the closing device is effected by the introduction of a coin or token in any one of the slots or channel-ways, substantially as described.

8. The combination, with a passage-way-closing device, a wheel connected therewith and provided with a series of notches, and a locking-bar adapted to engage with such notches, of a plurality of slots or channel-ways that are each adapted to receive a coin or token of a different character, a lever for coöperating with each of these slots or channel-ways and connected with the locking-bar, whereby the disengagement of the locking-bar from the notches in said wheel and the consequent unlocking of the closing device is effected by the introduction of an appropriate coin or token in any one of the slots or channel-ways, and a receptacle for each of such slots or channel-ways arranged in proper relation to receive the coin or token passed downward through the same, substantially as described.

9. The combination, with a wheel provided with notches in its upper side, a locking-bar adapted to engage with such notches, and a guard or baffle lever, of a plurality of slots or channel-ways that are each adapted to receive a coin or token of a different character, a lever coöperating with each of these slots or channel-ways and connected with the locking-bar, whereby the disengagement of such locking-bar from the notches of said wheel may be effected by the introduction of an appropriate coin or token in any one of the slots or channel-ways, and intermediate levers operated by the last-mentioned levers when tilted and connected with the guard or baffle lever to operate the same and force its free end beneath the locking-bar when raised, substantially as described.

10. The combination with a passage-way-closing device, of mechanism for positively locking said closing device in position to obstruct such passage-way; devices operable by the deposition of a coin or token to actuate said locking mechanism and release the closing device, automatically-operated devices for holding said locking mechanism in inoperative position during the movement of the closing device from and across the passage-way, and means for withdrawing said closing device from across the passage-way during the inoperative condition of said locking mechanism.

663,986. STEERING APPARATUS FOR MOTOR-VEHICLES. JOHN E. THORNYCROFT, London, England. Original application filed Oct. 16, 1899, Serial No. 733,735. Divided and this application filed Jan. 10, 1900. Serial No. 977. (No model.)



Claim.—1. In a motor-propelled vehicle, the combination with a rigid axle, of a spring-supported body carried thereby, a pair of pivoted extensions on the axle, a pair of wheels carried by the extensions, a shaft mounted on the spring-supported body and having a pivotal and spring connection therewith, connections between the shaft and the wheels, whereby rotation of the shaft produces a steering movement of the wheels, and a radius-bar connecting the shaft and the axle and acting in opposition to the forces developed by the steering movement, substantially as described.

2. In a motor-propelled vehicle, the combination with a rigid axle, of a pair of extensions carried thereby, a pair of wheels carried by the extensions, inclined arms secured to the extensions, connections between the arms, a spring-supported body carried by the axle, an inclined shaft pivoted to the body at one end having its other end connected to the body by a spring, an arm on the shaft, a link connecting said arm and one of the extensions, whereby a movement of the shaft produces a steering movement of the wheels, a radius-bar between the shaft and the axle and acting in opposition to the forces developed by the steering movement, and means for rotating the shaft, substantially as described.

3. In a motor-propelled vehicle, the combination with a rigid axle, of a pair of extensions carried thereby, a pair of wheels carried by the extensions, inclined arms secured to the extensions, connections between the arms, a spring-supported body carried by the axle, a shaft mounted on said body and having a pivotal and spring connection therewith, an arm on the shaft, a link connecting said arm and one of the extensions, whereby a movement of the shaft produces the steering movement of the wheels, a radius-bar between the shaft and the axle and acting in opposition to the forces developed by the steering movement, and a worm and worm-wheel for rotating the shaft, substantially as described.

4. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels connected thereto, a spring-supported body mounted on the axle, a support pivoted on the body at one end and having its other end flexibly connected thereto, a shaft on said support, an arm extending from the shaft, connections between said arm and the wheels whereby a movement of the arms produces a steering movement of the wheels, a radius-bar connecting the support and the axle and acting in opposition to the forces developed by the steering movement, and means for rotating the shaft, substantially as described.

5. In a motor-propelled vehicle, the combination with a spring-supported frame, of a steering mechanism having a pivotal and spring connection with the frame, a rigid frame, a pair of wheels, pivotal connections for the wheels, connections between said pivotal connections and the steering mechanism, and means for operating the steering mechanism, substantially as described.

6. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels connected thereto, a spring-supported body mounted on the axle, a support pivoted on the body at one end and having its other end flexibly connected thereto, a shaft on said support, an arm extending from the shaft, connections between said arm and the wheels whereby a movement of the arms produces a steering movement of the wheels, a radius-bar connecting the support and the axle and acting in opposition to the forces developed by the steering movement, and a worm and worm-wheel for rotating the shaft, substantially as described.

7. In a motor-propelled vehicle, the combination with an axle, of a pair of wheels connected thereto so as to have a steering movement, a spring-supported body mounted on the axle, a support pivoted on the body at one end and having its other end flexibly connected thereto, a shaft mounted on the support and carrying a worm-wheel, a pair of arms mounted on the support and carrying a worm, connections between the shaft and the wheels whereby a rotation of the shaft produces a steering movement of the wheels, and a radius-bar rigidly connecting the support and the axle and acting in opposition to the forces developed by the steering movement, substantially as described.

8. In a motor-propelled vehicle, the combination with an axle, of a spring-supported body mounted thereon, a pair of wheels connected to the axle so as to have a steering movement, a steering device carried by the spring-supported body and having a pivotal and spring connection therewith, connections between said device and the wheels, and a connection between said device and a rigid portion of the vehicle, said connection operating in opposition to the forces developed by the steering movement, substantially as described.

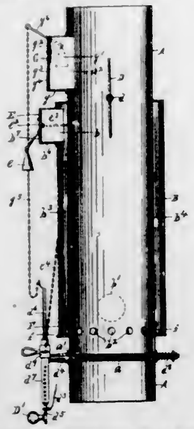
9. In a motor-propelled vehicle, the combination with a rigid axle having extensions pivoted thereto, of a pair of wheels mounted on the extensions, inclined arms connected with the extensions, connections between the arms, a spring-supported body mounted on the axle, a steering-shaft flexibly connected to the body, an arm on said shaft, connections between said arm and one of the extensions on which the wheels are mounted, a radius-bar connecting the axle and the shaft, a worm-wheel carried by the shaft, and a suitably-mounted worm for turning the wheel, substantially as described.

10. In a motor-vehicle, the combination with a rigid axle having extensions pivoted thereto, of a pair of wheels pivoted on the extensions, arms connected with the extensions, connections between the arms, a spring-supported body, a steering-shaft pivotally connected to the body at one end and having its other end connected thereto by a spring, an arm on the shaft, means whereby the arm operates the arms connected with the extensions to turn the wheels, a radius-bar connecting the shaft and a rigid part of the vehicle, a worm-wheel mounted on the shaft, and a worm-shaft and worm for turning the wheel, substantially as described.

663,987. ATTACHMENT FOR HEATERS. LEONIDAS D. WEST, Dundee, N. Y. Filed Feb. 6, 1900. Serial No. 4,161. (No model.)

Claim.—1. As a new article of manufacture, an attachment for heaters for the purpose described, the same comprising a section of a smoke-conduit provided with an opening, a closure for the opening, a drum encircling the intermediate portion of the smoke-conduit beneath said open-

ing for forming an air-chamber surrounding the smoke-conduit, said chamber being provided with an inlet-opening communicating with the atmosphere and an outlet-opening communicating with the interior of the conduit, a closure for the inlet-opening and a damper arranged within the smoke-conduit between said openings.



2. As a new article of manufacture, an attachment for heaters for the purpose described, the same consisting of a section of a smoke-conduit provided with an opening, a closure for the opening, means for automatically closing said closure, a drum encircling the intermediate portion of the conduit for forming an air-chamber surrounding the conduit, said air-chamber being provided with an inlet-opening communicating with the atmosphere and an outlet-opening communicating with the interior of the conduit, a closure for the inlet-opening, means for automatically closing said closure, and a damper arranged within the smoke-conduit between said openings.

3. As a new article of manufacture, an attachment for heaters for the purpose described, the same consisting of a section of a smoke-conduit provided with an opening, a closure for the opening, means for automatically closing said closure, a drum encircling the intermediate portion of the smoke-conduit for forming an air-chamber surrounding the conduit, said air-chamber being provided with an inlet-opening communicating with the atmosphere and an outlet-opening communicating with the interior of the conduit, a closure for the inlet-opening, a damper arranged within the conduit between said openings, means for automatically closing the damper, and an operating member having opposite arms connected respectively to the closure of the first opening and to the damper and provided with an adjustable slide connected to the closure for the inlet-opening.

663,988. BOTTLE-CAP. ABRAM V. WHITEMAN, Port Chester, N. Y. Filed June 6, 1899. Serial No. 719,524. (No model.)

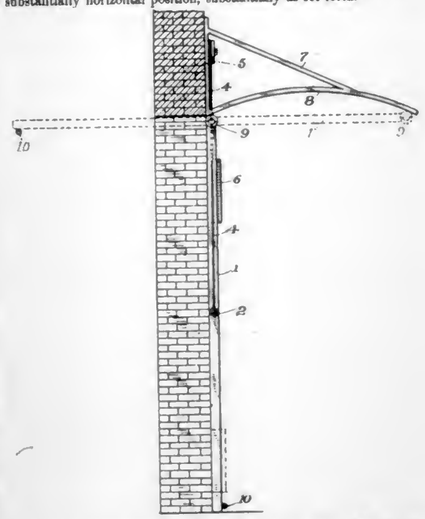


Claim.—The bottle-cap comprising the upper and lower disks *b*, *a*, seamed together at their outer edges, said disk *a* having the annular flange *d* adapted to pass within the bottle-neck, and said disk *b* having the yielding or spring dome *e* surrounded by the plain flat surfaces which extend entirely to the outer edge of the cap and are free of the disk *a* except from the said flange *d* outward, combined with the swinging bail for said dome; substantially as set forth.

663,989. SHUTTER FOR DOORS OR WINDOWS. JAMES G. WILSON, New York, N. Y. Filed June 13, 1900. Serial No. 20,175. (No model.)

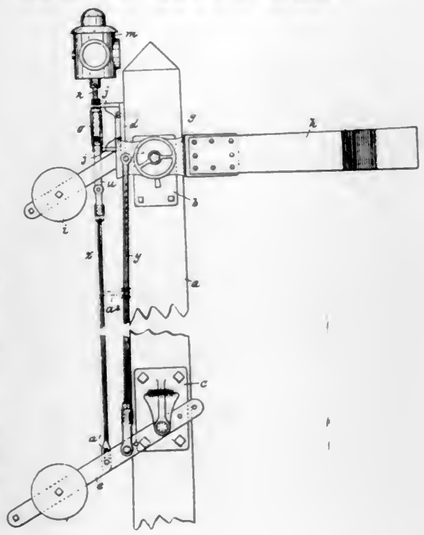
Claim.—1. The herein-described shutter for doors and windows comprising a door having trunnions extending from each side thereof intermediate of the top and the bottom, suitable guideways in the door-casing within which said trunnions project, weights connected to said trunnions by cords that are passed over pulleys whereby the door is elevated, brackets secured in position at the sides of the doorway above said guideways and disposed throughout their entire lengths in the arcs of circles, and the friction-rolls carried by the door at its upper end and maintained in contact against said arcuate portions, substantially as set forth.

2. The combination of the guideways in the sides of the door-casing, the door having trunnions which project into said guideways from the sides of the door at points intermediate of the top and bottom thereof, the friction-rolls carried by the upper end of the door, the stationary brackets having an arcuate shape throughout their entire lengths and secured immediately above said rolls and in contact therewith, and means for elevating the door whereby the latter is raised and caused to assume a substantially horizontal position, substantially as set forth.



3. The combination of the guideways in the sides of the door-casing, the door having trunnions which project into said guideways from the sides of the door intermediate of the top and bottom thereof, the friction-rolls carried by the upper end of the door, the stationary brackets having an arcuate shape throughout the entire length of their bottom surfaces but having no guideways and secured in position immediately above said rolls and in contact therewith, and weights connected to said trunnions by cords that are passed over pulleys whereby the door is elevated and lowered with a swinging movement and said rolls maintained in contact against said arcuate surfaces throughout said movements, substantially as set forth.

663,990. RAILWAY-SIGNAL. JOHN WRIGLEY, Elmira, N. Y. Filed June 30, 1900. Serial No. 22,132. (No model.)



Claim.—1. The combination, with a suitable support, of a rotary lamp-carrying device and a suitably-guided slide-rod operatively arranged on said support and the one having a cam-slot, and the other a projection engaging said slot, actuating mechanism, and a paddle-carrying lever fulcrumed on said support, said slide-rod and the other being operatively connected to said actuating mechanism, substantially as described.

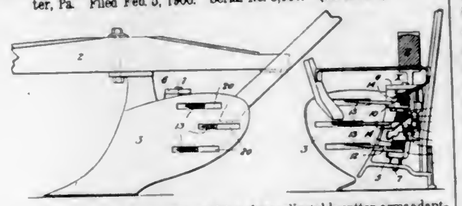
2. The combination, with a suitable support, of a rotary lamp-carrying device operatively arranged on said support and having a cam-slot, a suitably-guided slide-rod having a projection engaging said slot, a paddle-carrying lever fulcrumed on said support, and actuating mechanism, said lever and the slide-rod being operatively connected to said actuating mechanism, substantially as described.

3. The combination, with a suitable support, of a bracket sustained on said support and having laterally-projecting arms disposed the one above the other, a rotary lamp-carrying device and a slide-rod arranged in said arms and the one having a cam-slot and the other a projection engaging said cam-slot, and actuating mechanism also arranged on said support, said slide-rod being operatively connected to said actuating mechanism, substantially as described.

4. The combination, with a suitable support, of a bracket sustained on said support, a segment and a slide-rod arranged in said bracket and the one having a cam-slot and the other a projection engaging said cam-slot, said segment being sustained by the bracket, a shaft for the segment journaled in said bracket, said shaft constituting the lamp-support, and means for actuating said slide-rod, substantially as described.

5. The combination, with a suitable support, of a bracket sustained on said support, a segment sustained by said bracket and having a cam-slot, a shaft for the segment journaled in said bracket, said shaft constituting the lamp-support, a slide-rod guided in said bracket and having a projection engaging said slot, and means for actuating said slide-rod, substantially as described.

663,991. PULVERIZING-PLOW. ROBERT T. GILLESPIE, Rochester, Pa. Filed Feb. 5, 1900. Serial No. 3,986. (No model.)



Claim.—1. In combination with a plow, adjustable cutter-arms adapted to be extended laterally beyond the face of the moldboard and provided with pressure-springs adapted to hold the cutter-arms in extended positions and to permit them to be depressed backwardly.

2. In combination with a plow, adjustable cutter-arms adapted to project laterally beyond the face of the moldboard and to be withdrawn backwardly therefrom and provided with pressure-springs adapted to hold the cutter-arms in extended positions and to permit them to be depressed backwardly.

3. In combination with a plow, a laterally-swinging frame pivotally mounted behind the moldboard provided with pivoted cutter-arms adapted to project laterally beyond the face of the moldboard.

4. In combination with a plow, a laterally-swinging frame pivotally mounted behind the moldboard provided with pivoted cutter-arms adapted to project laterally beyond the face of the moldboard, and to be set in varying relations to the face of the moldboard.

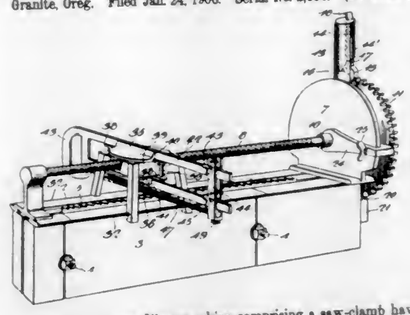
5. In combination with a plow, a laterally-swinging frame pivotally mounted behind the moldboard, cutter-arms pivotally mounted in the frame adapted to be thrown laterally beyond the face of the moldboard and adapted to be depressed by action against the soil and to react by spring action.

6. In combination with a plow, a laterally-swinging frame pivotally mounted behind the moldboard, cutter-arms pivotally mounted in the frame, springs adapted to exert an outward pressure on the arms, and a latching-lever mounted in the frame adapted to lock the frame in operative and retracted positions respectively.

7. A plow provided with a series of cutters or teeth pivotally mounted in the rear of the moldbord, adapted to swing outwardly into operative position in the path of the furrow, and to be thrown backwardly out of operative position, substantially as set forth.

8. A plow provided with a series of cutters or teeth pivotally mounted in the rear of the moldboard, adapted to swing outwardly into operative position in the path of the furrow, and to be thrown backwardly out of operative position, with means for adjusting the cutters or teeth in varying positions, substantially as set forth.

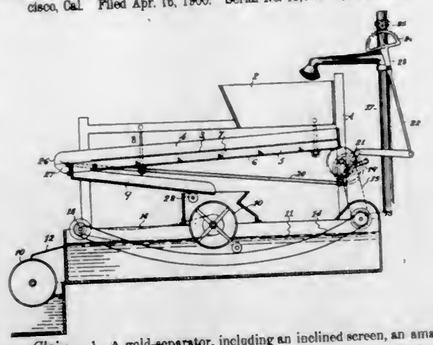
663,992. SAW-FILING MACHINE. SAMUEL W. GUTRIDGE, Granite, Oreg. Filed Jan. 24, 1900. Serial No. 2,656. (No model.)



Claim.—1. A saw-filing machine comprising a saw-clamp having standards connected therewith, a feed-screw journaled in the standards and having a ratchet-wheel fixed thereto, a lever pivoted between the ratchet-wheel and the adjacent standard and having a reversible pawl for engagement with the ratchet to operate it, an arm mounted upon the standard concentric with the shaft and at the opposite side of the standard from the lever, said arm being bent around the edge of the standard to lie in the path of movement of the lever, and a set-screw carried by the arm and adapted for engagement with the standard to hold the arm in different positions.

2. A saw-filing machine comprising a saw-clamp having standards connected therewith, a feed-screw journaled in the standard and having a ratchet-wheel fixed thereto, a hub upon one of the standards and having a laterally-extending at opposite sides thereof, a lever pivotally mounted upon the hub between the standard and the ratchet, said lever having a laterally-extending portion lying above the ratchet, a plate connected with said extending portion, a pawl pivoted between the plate and the lever, a slot in the extending portion of the lever, a spring-plate passed through the slot and into operative engagement with the pawl, said plate being adapted for adjustment to lie upon opposite sides of the pawl to hold its ends alternately in operative engagement with the ratchet, an arm mounted upon the hub at the opposite side of the standard, said arm being bent around the edge of the standard to lie in the path of movement of the lever, and a set-screw carried by the arm and adapted for engagement with the standard to hold the arm in different positions.

663,993. GOLD-SEPARATOR. WHITE W. M. HICKEY, San Francisco, Cal. Filed Apr. 16, 1900. Serial No. 13,053. (No model.)



Claim.—1. A gold-separator, including an inclined screen, an amalgamated plate below the screen and having riffles, a water-tank, a chute connected with the said amalgamated plate and inclined reversely thereto, and an amalgamated drum or cylinder below the discharge end of the chute and receiving material therefrom, a belt submerged within the tank and receiving and conveying away the material discharged from the cylinder, drums at opposite portions of the tank around which the belt passes, and connections between one of the drums and the amalgamated drum for rotating the latter in unison with the movements of the belt.

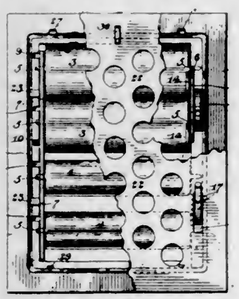
2. In a gold-separator, the combination of a water-tank, a submerged endless belt movable therethrough, an amalgamated cylinder within the tank and above the belt and adapted to discharge thereon, connections between the belt and amalgamated drum whereby the two move in unison, means for delivering separated material to the surface of the cylinder, a final discharge and a second amalgamated drum proximate thereto.

3. The combination in a gold-saving apparatus of the inclined screen, the amalgamated plate with transverse riffles located below the screen, a chute inclined reversely with relation to the screen and plate and extending inward toward the center of the apparatus and means slidably supporting the inner end of the chute and adapted to receive a discharge from the lower end of said plate, a revoluble, amalgamated cylinder upon which material is delivered from the lower end of the chute, a water-tank in which the lower portion of said cylinder is submerged, and an endless traveling belt movable through said tank below the cylinder to convey away material discharged thereon.

4. The combination in a gold-saving apparatus of the inclined screen and amalgamated plate having transverse riffles located below said screen, a chute adapted to receive material from the lower end of the plate, said screen-plate and chute being united together, and said chute inclined reversely with relation to the screen and plate and extending inwardly beneath the plate, and having its inner end slidably supported, a mechanism by which a longitudinally-reciprocating motion of these parts is effected, a revoluble amalgamated cylinder located beneath the discharge end of the chute, a tank within which the lower part of said cylinder is submerged, an endless traveling belt movable through the tank below the cylinder, and a pumping mechanism by which water is raised and discharged into the upper part of the apparatus.

5. The combination in a gold-saving apparatus of an inclined screen, a similarly-inclined amalgamated plate having transverse riffles located below the screen, an inclined chute connected with and receiving discharge from the plate, and extending inwardly beneath the plate and inclined toward the center of the apparatus, a revoluble silvered drum upon which the chute discharges, an endless traveling belt upon which the waste material is received below the drum and continuously conveyed away, a water-tank inclosing the belt, a power-shaft and means for transmitting a reciprocating motion from it to the screen, plate, and chute, and a revoluble and traveling motion to the cylinder and belt, a crank formed in said shaft and connection between said crank, and a pump whereby the latter is operated in unison to raise and discharge water into the upper part of the apparatus.

663,994. REGISTER. IRENE E. KUHLMAN, Wilkes-Barré, Pa., assignor of one-half to Richard A. Pittack, same place. Filed Apr. 25, 1900. Serial No. 14,351. (No model.)



Claim.—1. A register, comprising an inclosing frame, dampers or slats mounted therein having supporting-journals at their ends, a removable reciprocable locking-bar adapted to engage the said supporting-journals upon one side of the register and lock the same against a flange upon the frame, whereby they are removably locked in place, and means independent of the locking-bar for operating the said damper.

2. A register, comprising an inclosing frame, dampers pivotally journaled therein, a longitudinally-movable locking-bar for pivotally supporting the journals of dampers upon one side of the register, whereby the dampers may be readily removed and replaced in case of any damage occurring to any of them, and means independent of said locking-bar for operating the dampers.

3. A register, comprising an inclosing frame, dampers mounted therein having journals, the journals engaging apertures formed in one side of the frame at one end of each damper, a movable locking-bar, angular in cross-section, and having open notches for receiving the said journals at the other end of each damper, the said locking-bar loosely engaging a flange upon the frame, the construction being such that the locking-bar will removably hold the dampers in place.

4. A register, comprising an inclosing frame having rear flanges extending inwardly, dampers having journals at their ends adapted to engage bearings upon one side of the frame, and a locking-bar engaging said journals upon the other side of said frame, the said locking-bar being provided with bayonet-slots, the construction being such that by inserting the journals of the dampers in the bayonet-slots they may be caused to lock the locking-bar as well as the dampers in position upon the rear flange of the frame, and abutment-blocks for bracing the front edge of the locking-bar.

663,995. GERM-DESTROYER FOR TELEPHONE-MOUTHPIECES. LEWIS L. LACEY, Austin, Tex. Filed Apr. 20, 1900. Serial No. 13,605. (No model.)



Claim.—1. A germ-destroyer for the mouthpieces of telephones, consisting of an incandescent electric light mounted in the mouthpiece, substantially as described.

2. In a germ-destroyer for the mouthpieces of telephones, the combination of an incandescent electric light mounted in the mouthpiece, electric connections to said light, and means for making and breaking said connections, substantially as described.

3. In a germ-destroyer for the mouthpieces of telephones, the combination of a cup-shaped bulb, the outer contour of which conforms to the inner contour of the mouthpiece of a telephone, a vacuum-chamber intermediate the walls of said cup-shaped bulb, filaments mounted in said vacuum-chamber, and electric connections to said filaments, substantially as described.

663,996. MACHINE FOR PERFORATING RECORD-STRIPS. TOLBERT LANSTON, Washington, D. C., assignor to the Lanston Monotype Machine Company, same place. Filed Dec. 31, 1897. Serial No. 664,975. (No model.)



Claim.—1. In a paper-feeding mechanism such as described and in combination with the shaft for actuating the feed-wheels and an escapement mechanism connected therewith, of a movable clutch-section, a sleeved clutch-section a spring for holding said clutch-sections in engagement, and a motor-spring connected at one end to the clutch-sleeve.

2. In combination with the paper-feed shaft, and the escapement mechanism, the motor-spring operating on the shaft through a sleeve and clutch, and a spring-restoring mechanism operating through the sleeve to rewind the motor-spring; substantially as described.

3. In combination with the paper-feeding mechanism provided with a motor and an escapement device, a winding-spool shaft provided with a motor-spring; substantially as described.

4. In combination with a paper-feeding mechanism its escapement and motor-spring, the latter operating through a clutch, of a winding-spool provided with a separate winding-spring and clutch, and a resetting mechanism acting through the clutch-sections to rewind the springs of the feeding mechanism and the winding-spool; substantially as described.

5. The combination with a paper-feeding mechanism provided with an escapement, a motor-spring and a clutch, and a winding-spool provided with a clutch and operating-spring, of two gears connected respectively to one section of each of said clutches, and an arm adapted to engage said gears to turn the clutch-sections and rewind the springs connected therewith, substantially as described.

6. In a perforating-machine provided with a series of key-controlled punches and a paper-feeding mechanism, the latter including a motor-spring and an escapement, of a punch independent of said series, and a shaft controlling said independent punch and connected with the motor-spring for rewinding the latter.

7. In a perforating-machine such as described, the combination with the clutch-section loosely mounted on the shaft of the paper-feeding devices, and the galley-punch and its support, of a shaft provided with a cam engaging the galley-punch support, a wheel loose on said shaft and in gear with the clutch-section, and an arm carried by said shaft for engaging said wheel, whereby, upon turning the shaft, the galley-punch will be operated and the clutch-section turned to rewind the motor-spring; substantially as described.

8. In a perforating mechanism such as described and in combination with the escapement for the paper-feeding devices, the motor-spring, the galley-punch and its lever and devices for operating the said escapement to effect a feeding movement of the paper; of the slotted connection between the escapement-lever and the galley-punch lever, and the cam engaging said last-named lever, whereby the escapement-lever may operate independently of the galley-punch but will be operated whenever the galley-punch is brought into action.

9. The combination, in a paper-perforating mechanism such as described, with the motor-spring of the feed mechanism having a clutch-sleeve connected therewith, and a punch, a shaft provided with a cam for actuating said punch, a wheel engaging the clutch-sleeve, an arm carried by the shaft and operating on said wheel, to rewind the motor-spring, a rack engaging a pinion fast to said shaft and operating mechanism for reciprocating the rack; substantially as described.

10. In a line-measuring mechanism for a perforating-machine such as described, the combination with the units-wheel, its shaft and spring, and the rack-bar engaging a pinion on the units-wheel shaft and carrying the line-indicator, of the units-wheel rack reciprocating in ways on a pivoted supporting-bar, and a locking-pawl for the units-wheel arranged to be withdrawn by the raising of the units-wheel rack so as to unlock the units-wheel and abandon it to the control of the units-wheel rack; substantially as described.

11. In combination with the units-wheel the units-wheel rack, the pivoted support for said rack, and the locking-pawl, of the series of stop-levers operating through intermediate connections to elevate the units-wheel rack, withdraw the locking-pawl and arrest the movement of the units-wheel rack and units-wheel; substantially as described.

12. The combination substantially as described with the units-wheel controlling the indicator; of units-wheel rack provided with a retracting-spring and a pin; the support for said rack pivotally attached at one end to the frame and provided with a guide or way for the rack; a stop-lever for engaging the pin on units-wheel rack, to limit its movement in one direction; and a shaft provided with an arm connected to the units-wheel-rack support for elevating the latter; and a second arm in the path of the stop-lever, whereby, in moving the stop-lever into position to intercept the units-wheel rack, the latter is elevated into engagement with the units-wheel.

13. In combination with the units-wheel, its locking-pawl and the units-wheel rack, the latter movable in ways on a pivoted supporting-bar, of the series of pivoted stop-levers, the shaft provided with a bail through which the stop-levers work and with which they contact to turn the shaft and an arm on said shaft connected by an adjustable link with the units-wheel-rack support; substantially as described.

14. As a means for resetting the indicating mechanism the combination with the units-wheel and the rack-bar geared thereto, of the holding-pawl for engaging the units-wheel when its locking-pawl is withdrawn, the lever for engaging the locking-pawl, and the resetting-bar provided with shoulders or pins for engaging the locking-pawl lever, holding-pawl and the rack-bar; substantially as described.

15. In combination with the units-wheel, its locking-pawl and the rack-bar carrying the line-indicator, the holding-pawl, the spring-actuated lever for engaging the locking-pawl and the resetting-bar provided with three engaging pins or shoulders, the one engaging the holding-pawl another the locking-pawl lever and the third the line-indicator rack-bar; substantially as described.

16. The combination with the actuating and holding pawls of the space-register, of the pivoted cam-plate for throwing said pawls out of engagement, the spring-actuated lever connected to said cam-plate, the resetting-bar and the stop-pin carried by the resetting-bar; substantially as described.

17. In combination with the actuating and holding pawls of the space-counter, the units-wheel of the line-indicator and the locking-pawl for said units-wheel, of the cam-plate engaging the pawls of the space-counter, the spring-actuated lever connected to said cam-plate and adapted to engage the units-wheel-locking pawl, and the resetting-bar provided with a pin or shoulder normally in engagement with said spring-actuated lever; substantially as described.

18. In a registering mechanism for a perforating-machine such as described, the combination of the following elements, to wit: the holding and actuating pawls of the space-counter; the cam-plate for disengaging said pawls; the units-wheel of the line-registering mechanism and the locking-pawl; the spring-actuated holding-pawl for the units-wheel; the spring-actuated lever connected to the cam-plate and operating upon the locking-pawl; and the resetting-bar normally engaging the holding-pawl and spring-actuated lever but releasing those members and permitting their springs to actuate them when the resetting-bar is operated to restore the units-wheel to normal or zero position; substantially as described.

19. In a registering mechanism for a perforating-machine such as described the combination of the following elements, to wit: a line-registering mechanism provided with a units-wheel, motor-spring and locking-pawl; mechanism controlling the movements of the units-wheel including a spring-retracted units-wheel rack mounted upon a support movable toward and from the units-wheel and a series of stop-levers operating mediately upon the units-wheel-rack support and directly upon the units-wheel rack to bring the latter into engagement with the units-wheel, to raise the locking-pawl and to place the units-wheel rack in engagement with the units-wheel; a space-counter provided with a retracting-spring and an impelling and a holding pawl; a holding-pawl for the units-wheel; a cam-plate operating on the pawls of the space-counter; a spring-actuated lever connected to the cam-plate and engaging the units-wheel-locking pawl; and a resetting-bar engaging the units-wheel-holding pawl and the lever connected to the cam-plate; substantially as described.

20. In combination with the units-wheel of the indicating mechanism the tangentially-arranged units-wheel rack mounted in ways upon the pivoted supporting-bar, a retracting-spring connected to said rack, a stop on the supporting-bar against which the rack is held normally by its spring, a spring-actuated locking-pawl for the units-wheel engaged by the units-wheel-rack support, a stop-lever arranged to be projected into the path of a shoulder on the units-wheel rack for arresting the motion of the latter, actuating devices connected to the units-wheel-rack support and operated by the movement of the stop-lever to move the rack into engagement with the units-wheel and simultaneously therewith withdraw the locking-pawl; substantially as described.

21. The combination substantially as described of the following elements, to wit: a paper-feed mechanism provided with a motor-spring, spring-restoring devices for rewinding said spring and an escapement; a shaft for actuating the spring-rewinding devices; a line-measuring mechanism provided with a units-wheel, a motor-spring, a locking-pawl, a rack and stop-levers for controlling the movement of the units-wheel; a holding-pawl for the units-wheel, a resetting-bar operating to release the locking-pawl and permit the engagement of the holding-pawl and return the units-wheel to zero; and a rack-bar for communicating motion to the resetting-bar and rewinding-shaft; substantially as described.

22. In a perforating-machine such as described, the combination of the following elements, to wit: a series of key-operated punches; a paper-feeding mechanism provided with a motor-spring and spring-rewinding devices; a line-measuring indicator provided with a motor and escapement mechanism controlled by the key-levers; a resetting mechanism for the indicating devices and the line-measuring mechanism; a rewinding mechanism for the paper-feed motor; a bar connecting and giving motion to the indicator-resetting mechanism and the rewinding devices of the paper-feed mechanism; and a punch connected with and operated by said rewinding mechanism for the paper-feed motor; substantially as described.

23. In combination with the rack-bar of the line-measuring mechanism, the adjustable stop for fixing the normal or zero position of the indicator, the resetting mechanism for restoring the indicator rack-bar to normal or zero position, devices operating upon the resetting mechanism to retract the indicator, and a lever connected to said resetting devices through a yielding connection; substantially as described.

24. In a keyboard mechanism such as described the combination of a plurality of key-levers of different lengths arranged in vertical series side by side but in different horizontal planes, a series of pivots for said levers arranged in a plane inclined to the vertical and a series of lifting-bars, one for each key-lever arranged side by side in a vertical plane parallel with the axes of the key-levers; substantially as described.

25. In a perforating-machine such as described the combination with a series of punch-bars, each provided with a lifting projection, of a parallel series of lifting or actuating bars each provided with a lifting-shoulder, and a series of rods or bails for communicating motion from the lifting-bars to the punch-bars; substantially as described.

26. In a perforating-machine such as described, the combination of the following elements, to wit: a series of punch-bars located side by side and each provided with two engaging shoulders or projections; a series

of rods or bails arranged transversely of the series of punch-bars; a series of lifting-bars parallel with the series of punch-bars and each provided with a plurality of lifting-shoulders located at different points in the length of each bar and a paper-feeding device connected with one of said transverse bars or bails; substantially as described.

27. In a perforating-machine such as described the combination of a vertical series of movable rods or bails, each member of the series occupying a different horizontal plane; a series of vertical punch-bars each provided with a lug or projection engaging one of the horizontal rods or bails; and a series of vertical lifting-bars, each of the latter provided with two engaging shoulders or lugs located at different points in the length of the bar and adapted to engage a plurality of the horizontal rods or bails and thereby actuate a plurality of the punch-bars; substantially as described.

28. In a perforating-machine such as described the combination of the following elements, to wit: the series of parallel punch-bars each of said bars being provided with two engaging shoulders located at different points in the length of the bar; a transverse series of rods or bails; a vertical series of lifting-bars each provided with a plurality of engaging shoulders in position to engage two or more of the transverse bars or bails; a paper-feeding mechanism whose controlling member is connected with one of said transverse bars or bails and a line-measuring device connected and controlled by another one of the series of transverse bars or bails; substantially as described.

29. In a perforating-machine such as described, the combination of the following elements, to wit: a keyboard equipped with a series of keys arranged in lines and columns; a key-lever for each key; a series of vertical lifting-bars, one for each key-lever arranged in groups corresponding to the columns of keys, each lifting-bar being provided with two engaging shoulders located at different points in the length of the bar; a vertical series of horizontal bails or rods; and a series of vertical punch-bars each provided with two engaging shoulders for coöperation with the horizontal bails or rods; a paper-feeding mechanism whose controlling member is connected to one of the horizontal bails or rods; and a line indicating or measuring mechanism provided with a plurality of controlling devices, one of said controlling devices being connected with one of the horizontal bails or rods and the others to certain of the series of punch-bars; substantially as described.

30. In a perforating mechanism such as described, the combination with a paper-feeding mechanism and an indicating mechanism of the following elements, to wit: a plurality of laterally-movable rods or bails arranged in series; a plurality of parallel punch-bars disposed in proximity to but transversely of the series of rods or bails, each punch-bar being provided with two engaging shoulders, one series of engaging shoulders operating in conjunction with one of the rods or bails, while the other series of engaging shoulders are arranged in different planes so that one only will coöperate with each of the series of rods or bails; a connection between the rod or bail which is engaged by shoulders on all of the punch-bars and the actuating or controlling devices of the paper-feeding mechanism; a series of lifting-bars parallel with the punch-bars, and comprising several groups each group furnished with two engaging shoulders for each bar of which shoulders all of one series coöperate with one of the bars or bails, while the other series of shoulders each engage one of the other bars or bails; controlling devices for the indicating mechanism; and connections intermediate the bars or bails and said indicator-controlling mechanism for actuating the latter; substantially as described.

31. In a perforating-machine such as described the combination of the following elements, to wit: a paper-feeding mechanism provided with an escapement device; a series of punches controlled by key-levers through intermediate actuating devices and connected to said escapement for effecting a feed of the paper after the operation of each punch; a line-measuring mechanism also controlled by the key-levers; a resetting mechanism provided with a punch-controlling cam and a punch actuated by said cam and connected with the escapement device of the paper-feed mechanism through a loose connection which permits independent movement of the escapement but brings the latter into action when the cam is rotated to operate the punch; substantially as described.

32. In a feeding mechanism such as described, the combination of the following elements, to wit: a rotary feeding or impelling device, such as feed-wheels, a motor and escapement for said feeding device; a winding-spool; and a separate motor for said winding-spool; substantially as described.

33. In a feeding mechanism such as described, the combination of the following elements, to wit: a rotary feeding member; a motor for said feeding member; an escapement; a winding-spool; a motor for said winding-spool, and rewinding or restoring mechanism connected to both of said motor devices for maintaining them in active condition; substantially as described.

34. In a perforating-machine, such as described, the combination of the following elements, to wit: a series of punches; a series of punch-operating keys; connections for transmitting motion from the keys to the punches; a paper-feed mechanism provided with a motor; and an escapement controlled by the keys and operating to govern the movements of the motor-driven paper-feed mechanism; substantially as described.

663,997. ATOMIZER. ROLAND MORRILL, Benton Harbor, Mich. Filed Nov. 20, 1899. Serial No. 737,609. (No model.)



Claim.—1. An atomizer having a nozzle provided with an opening for the discharge of air, a liquid-receptacle, and a liquid-tube extending upward from the receptacle and having above the receptacle, in the vicinity of the air-discharge opening, an opening for the discharge of liquid, the liquid-tube being of large diameter from its lower extremity to a point near the discharge-opening, at which point it is abruptly contracted, and the air and liquid discharge openings being so disposed with relation to each other that the air lifts the liquid from the receptacle, substantially as set forth.

2. An atomizer having a nozzle provided with an opening for the discharge of air, a liquid-receptacle and a tube extending upward therefrom and having in the vicinity of the air-discharge opening an opening for the discharge of liquid, the upper portion of the tube being deflected laterally and so disposed that it does not slope downward from its discharge-opening, whereby the excess of liquid discharged from its opening is prevented from trickling down its sides, substantially as set forth.

3. An atomizer having a liquid-receptacle, a tube having above the receptacle a plurality of openings for the discharge of liquid, and means for discharging air past the liquid-discharge openings, the air and liquid discharge openings being so disposed that the air lifts the liquid from the receptacle, the lower end of the liquid-tube being in open communication with the interior of the receptacle, near the bottom thereof, whence it extends upward to the point of discharge, and the tube being of as great capacity as the aggregate capacity of the discharge-openings, substantially as set forth.

4. An atomizer having a liquid-receptacle, a tube rising therefrom and provided with a plurality of openings for the discharge of liquid, said openings being of less capacity than the tube and located opposite each other so as to permit a wire or the like to be passed through them, and means for discharging air past the liquid-discharge openings, substantially as set forth.

5. An atomizer having a nozzle provided with hollow protuberances having in their outer slopes openings for the discharge of air, a liquid-receptacle, and means whereby the air discharged from said openings lifts the liquid and discharges it in the vicinity of said openings, substantially as set forth.

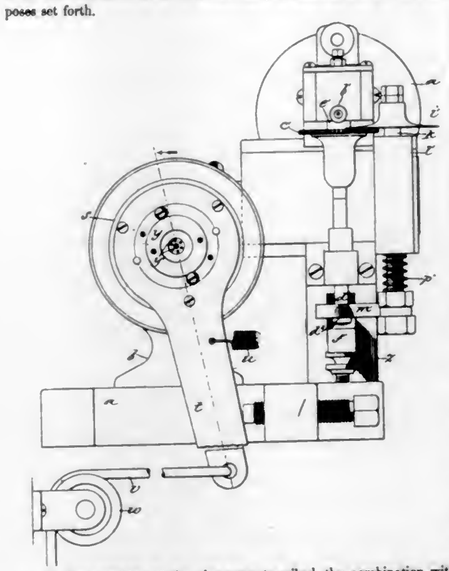
6. An atomizer having a nozzle provided with hollow protuberances having in their outer slopes openings for the discharge of air, a liquid-receptacle and a liquid-tube rising therefrom and having at its upper portion lateral branches provided in the vicinity of the air-discharge openings with openings for the discharge of liquid, said branches being of smaller capacity than the main portion of the tube, substantially as set forth.

7. An atomizer having a liquid-receptacle, a liquid-tube rising therefrom and having a plurality of openings for the discharge of liquid, and a nozzle having means for discharging a plurality of diverging currents of air, each of the liquid-discharge openings having its axis disposed in a direction which forms an acute angle with the direction of the current of air passing it, substantially as set forth.

8. An atomizer having a nozzle provided with a plurality of protuberances having air-discharge openings in their outer slopes, a liquid-receptacle, a tube rising therefrom and disposed at its upper portion between said protuberances, said tube having at its upper portion branches of smaller capacity having in the vicinity of the air-discharge openings openings for the discharge of liquid, said branches being bent outward from the nozzle, substantially as set forth.

663,998. MACHINE FOR MAKING CLOCK-PINIONS. THOMAS W. R. MCCABE, Winsted, Conn., assignor to the William L. Gilbert Clock Company, same place. Filed May 17, 1900. Serial No. 17,074. (No model.)

Claim.—1. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a sleeve fitting within the ring, a collar attached to the sleeve and having a radially-projecting arm provided with a slot, a screw passing through the slot and taking into the base-ring, a socket-piece removably attached to the sleeve, and a fixed cutter-block carried by the socket-piece in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.



2. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a sleeve fitting within the ring and having a flange at the front side of the latter, a collar attached to the rear end oft he sleeve, an arm projecting therefrom and adjustably connected with the base-ring, and a fixed cutter-block carried by the flanged end of the sleeve in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.

3. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a flanged sleeve located and rotarily adjustable within the ring, a socket-piece held by screws against the flange of said sleeve, and a fixed cutter-block carried immediately by said socket-piece in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.

4. In a machine of the character described, the combination with the base-ring, and a fixed cutter-block removably and adjustably supported therein; of a cutter-base carried by and movable on the ring, means for operating said base, a socket-piece screwed to the base, and a movable cutter-block carried by the socket-piece in coöperative relation to the fixed cutter-block, substantially as described and for the purposes set forth.

5. In a machine of the character described, the combination with the base-ring, and a fixed cutter-block removably and adjustably supported therein; of a cutter-base carried by and movable on the ring, means for operating said base, a gage-plate screwed into and movable with said base, and a movable cutter-block carried by this base between the gage-plate and fixed cutter-block and in coöperative relation to the latter, substantially as described and for the purposes set forth.

6. In a machine of the character described, the two cutter-blocks, both pierced by stock-holes and one rotarily movable upon the other; in combination with the gage-plate adjustable in its relation to the cutter-blocks and itself pierced with stock-holes adapted to be brought into register with the others, all substantially as described and for the purposes set forth.

7. In a machine of the character described, the two cutter-blocks, both pierced by stock-holes and one rotarily movable upon the other; in combination with the gage-plate adjustable in its relation to the cutter-blocks and itself pierced with stock-holes adapted to be brought into register with the others, the stock-carrier, and the screw-clamp thereon opposite the holes in the cutter-blocks, all substantially as and for the purposes set forth.

663,999. CONCRETE-MIXER. SAMUEL P. MCKELVEY, Chicago, Ill., assignor of one-half to O. G. Hurson, same place. Filed Aug. 7, 1899. Serial No. 726,487. (No model.)

Claim.—1. In a concrete-mixer, an outer and an inner drum, the outer having open ends, the inner drum open at one end, short wings set at an angle projecting from the inner surface of each drum, the wings in the inner drum having their lower points of deflection toward the feed end of the drum, the wings in the outer drum having their lower points of deflection toward the outlet, means for rotating said drums as specified.

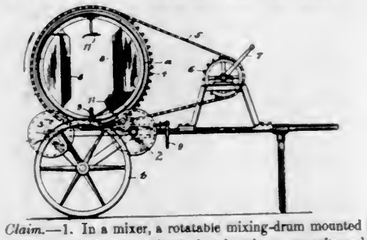


2. In a concrete-mixer a rotatable drum having open ends mounted horizontally on a truck, a shorter inner drum mounted rigidly on legs attached to the inner sides of said open-ended drum and having the same axial plane, an open mouth in said inner drum in line with the feed end of the drum, series of projecting wings set at an angle against the inner surface of said drums the angle of deflection in the inner drum being toward the feed-aperture, and the angle of deflection of the wings in the outer drum toward its outlet, means for rotating said drums as specified.

3. In a concrete-mixer, a rotatable drum mounted on wheels, a dry and a wet mixing-compartment in said drum, said dry mixing-compartment consisting of a shorter inner drum mounted on legs in the wet mixing-compartment and having the same axial plane therewith and adapted to discharge its contents into said wet mixing-compartment, short projecting wings set at an angle against the inner surface of both dry and wet mixing-compartments, the former adapted to deflect its contents toward the feed end of the wet mixing-compartment, the latter toward the outlet means for introducing water into said wet mixing-compartment and means for rotating said drum.

4. In a concrete-mixer the combination of a truck provided with shafts carrying flanged wheels, with a horizontal drum having open ends, provided with steel tracks encircling its perimeter mounted on said flanged wheels, a spider on one end of said drum, a crank-handle to said spider, an inner drum mounted firmly on legs in said open-ended drum and partaking its motion, said inner drum being on the same axial plane as the open-ended drum and open toward the feed end of said outer drum, short projecting wings in said drums set at an angle, the wings of the inner drum adapted to deflect the contents toward its mouth and discharge into the feed end of the open-ended drum, the wings in said open-ended drum adapted to deflect the contents toward the outlet as the drum revolves, means for introducing water into said open-ended drum and means for rotating said drum.

664,000. CONCRETE-MIXER. SAMUEL P. MCKELVEY, Chicago, Ill. Filed Apr. 9, 1900. Serial No. 12,244. (No model.)



Claim.—1. In a mixer, a rotatable mixing-drum mounted horizontally on bearings and having the feed and outlet at opposite ends, deflectors set in series transversely against the inner surface of said mixing-drum having the points of deflection toward the outlet, a gravity-bracket mounted upon a pivotal support between the series of deflectors and longitudinally through said drum to permit the edge of said bracket to lie against the inner surface of said mixing-drum and swing back over its pivotal support when the drum is in motion, and means for rotating said drum substantially as specified.

2. In a mixer, a rotatable mixing-drum mounted horizontally on bearings and having a feed and outlet at opposite ends, deflectors in series in parallel lines longitudinally through said mixing-drum secured transversely to the inner surface of said mixing-drum, said deflectors set at an angle with reference to a straight line longitudinally through said drum to deflect the contents toward the outlet, gravity-brackets mounted upon pivotal bearings upon the inner surface of said drum between the lines of the several series of deflectors to permit the edge of the bracket-shelf to lie against the rising inner surface of the revolving mixing-drum and swing back over its pivotal bearings when the center of gravity is passed, and means for rotating said drum substantially as described.

3. In a mixer, a rotatable drum mounted on bearings, gravity-brackets having pivotal bearings on the inner surface of said drum to permit the edge of the bracket-shelf to lie against the side of the drum and fall back as the pivotal bearings pass the center of gravity by the rotation of said drum.

4. In a mixer, a rotatable drum mounted horizontally on bearings,

gravity-brackets having pivotal bearings on the inner surface of said drum, set at an angle from a straight line longitudinally through said drum and swinging upon their bearings by the rotary motion of said drum, means for rotating said drum, substantially as specified.

5. In a gravity-bracket, a bracket-shelf, supporting-legs for said bracket-shelf, a base for said supporting-legs, a pivotal connection for said supporting-legs with said base to permit said bracket to swing upon its base substantially as described.

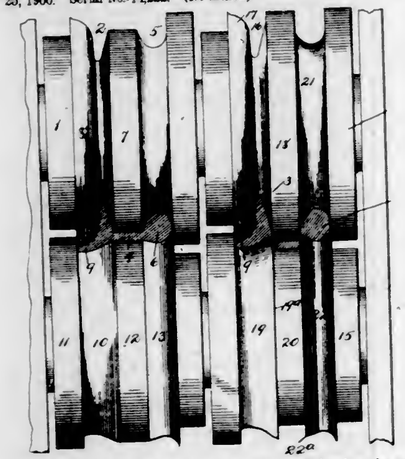
6. In a concrete-mixer, a rotatable mixing-drum mounted horizontally upon bearings having the feed at one end and the outlet at the other, short gravity-brackets mounted in series spirally through said mixing-drum upon pivotal bearings on the inner surface of said mixing-drum, each of said gravity-brackets having two supporting-legs in bearings placed at an angle relatively to a straight line longitudinally through said drum one of said supporting-legs under each bracket nearer the outlet being shorter than the other, said gravity-brackets adapted to swing upon their pivotal bearings to permit the edge of the bracket-shelf to lie against the rising side of the revolving drum and fall back when the center of gravity is passed with a limited movement toward the outlet substantially as described.

7. In a mixer an open-ended mixing-drum rotatably mounted on external bearings, deflectors erected in series on the inner surface of said drum to deflect the contents of said mixing-drum toward one end thereof, gravity-brackets mounted on pivotal bearings in said mixing-drum between said series of deflectors to swing on their bearings when the drum is in motion and means for rotating said mixing-drum substantially as specified.

8. In a mixer the combination of a mixing-drum open at both ends and rotatably mounted on external bearings with deflectors erected on the inner surface of said mixing-drum in series and having the point of deflection toward one end thereof, gravity-brackets extending longitudinally through said mixing-drum comprising a bracket-shelf, supporting-legs for said bracket-shelf said supporting-legs being pivotally attached to the inner surface of said mixing-drum, and means for rotating said drum substantially as described.

9. In a mixer, a mixing-drum rotatably mounted on bearings, brackets pivotally mounted longitudinally on the inner surface of said mixing-drum to swing the edge of said bracket against the inner surface of said drum and fall back over its pivotal support during the revolution of the drum.

664,001. ROLLS FOR REDUCING OLD RAILWAY-RAILS TO BARS. ADAM NISBETT and WILLIAM G. IVES, Chicago, Ill. Filed Apr. 25, 1900. Serial No. 14,222. (No model.)



Claim.—1. In a device for converting railway-rails into bars the combination of means for spreading one side of the base and the same side of the head away from each other and approximately into line with the same side of the web, rolls having grooves for receiving the base and head thus distorted and a cylindrical surface between said grooves on one roll and a depression in the other roll opposed to said cylindrical surface for receiving the same, said cylindrical surface projecting into said depression beyond the edges of said grooves in the opposite roll for shearing the web from the head and base of the rail, substantially as set forth.

2. In a device for converting railway-rails into bars the combination of means for spreading one side of the base and the same side of the head in opposite directions and approximately into line with the same side of the web, rolls having grooves complementary in form to said head and base thus distorted for receiving and holding the same, one of said rolls having the depressed surface 20 arranged between its said grooves to form shearing edges 19^a 22^a and the other of said rolls having the projecting cylindrical surface 18 formed between its said grooves and protruding into said depression 20 past said edges 19^a 22^a for shearing the web of the rail from the base and head, substantially as set forth.

3. In a device for converting railway-rails into bars the combination of means for spreading one side of the base and the same side of the head in opposite directions and approximately into line with the same side of the web, two rolls one of which is provided with a V-shaped groove 16 and a convex surface 17 for receiving one side of the base and a groove 21 for receiving one side of the head and a cylindrical surface 18 between said grooves 16 21, and the other of said rolls having the concave surface or groove 19 complementary in form to the distorted side of the base and the concave surface or groove 22 complementary in form to the distorted side of the head and the cylindrical portion 20 of less diameter than the contiguous edges 19^a 22^a of the grooves 19 22 and past the periphery of said edges the cylindrical portion 18 projects, the width of the portion 18 and distance between the edges 19^a 22^a being approximately the same to form a shear for cutting the web from the head and base, substantially as set forth.

664,002. PEDESTRIAN'S SKIRT. ELIZABETH M. REYNOLDS, Cincinnati, Ohio. Filed Jan. 10, 1900. Serial No. 927. (No model.)



Claim.—1. The herein-described skirt the same comprising a body portion having a plurality of plackets at its upper edge and means for closing said plackets, whereby said skirt is adapted to vertical adjustment at the waist-line, as set forth.

2. The herein-described skirt the same comprising a body portion having a plurality of plackets at its upper edge and means for closing and stiffening the walls of said plackets, whereby said skirt is adapted to vertical adjustment at the waist-line, as set forth.

3. The herein-described skirt the same comprising a body portion having a plurality of plackets at its upper edge and springs for opening and closing said plackets, whereby said skirt is adapted to vertical adjustment at the waist-line, as set forth.

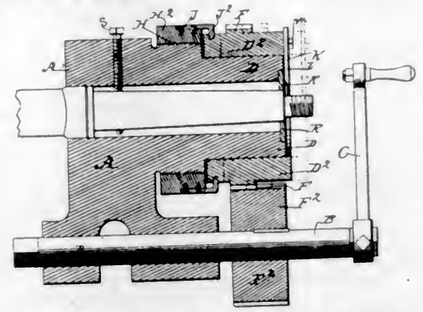
4. The herein-described skirt the same comprising a body having a plurality of plackets at its upper edge, means for closing said plackets, a belt secured to the inner face of the skirt in the rear thereof, on the line of the lower extremities of said plackets, at points beneath plaits in the skirt, said plaits being provided with attaching means, whereby the garment may be shortened to fit the waist of the wearer, as set forth.

664,003. MACHINE FOR REPAIRING VEHICLE-AXLES. JAMES A. REYNOLDS, AMOS P. BROSIUS, and JOHN W. UNGER, Carroll, Iowa. Filed Sept. 4, 1900. Serial No. 28,953. (No model.)

Claim.—1. In a machine for repairing worn spindles, a metal frame having a longitudinal bore of uniform diameter from end to end to admit a spindle, a journal integral with one end of the frame, an external screw at the rear end of the journal, bearings at its lower end to support a rotatable shaft and means for detachably fastening the frame to a spindle, for the purposes stated.

2. In a machine for repairing spindles, a metal frame having a longitudinal bore in its top portion, bearings for a rotatable shaft at its bottom, a journal for a rotatable hub at one end portion, a feed-screw on its periphery in rear of the journal, a collar fitted in an annular recess in the

end of the journal and set-screws seated in the frame to engage and fasten a spindle in the bore, in the manner set forth for the purposes stated.

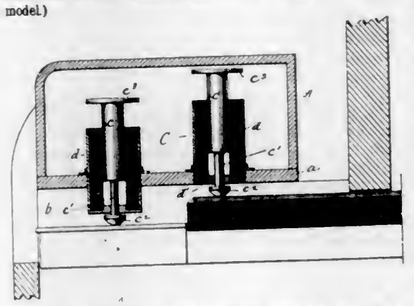


3. In a machine for repairing spindles, a frame having a journal at one end, set-screws seated in the frame to engage and fasten a spindle, a bore extended longitudinally through the frame and hub, a rotatable hub fitted on the journal, a toothed wheel on the exterior of the hub, an external screw at the rear end of the journal, a feed-nut fitted on said screw and rotatably connected with the rotatable hub, a cutter detachably fixed in a radial groove in the face of the hub and means for rotating the hub and toothed wheel thereon, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a machine for repairing spindles, a frame having a journal at one end and a bore extended through the journal and frame, screws seated in the frame to engage a spindle, a hub carrying a cutter on its front face fitted on the journal and provided with a continuous groove in its rear end, a toothed wheel on the exterior of the hub, an external screw on the frame in rear of the journal and concentric therewith, a feed-nut on said screw, elbow-shaped fingers fixed to the feed-nut and terminating in said groove in the hub, and means for rotating the toothed wheel on the exterior of the hub, arranged and combined to operate in the manner set forth for the purposes stated.

5. A machine for repairing spindles on the ends of axles, comprising a frame having a journal at one end and a bore extended through the frame and journal to admit the end of an axle, a screw at the rear end of the journal and a bearing at the lower end of the frame for a rotatable shaft, a hub having a toothed wheel on its periphery and carrying a cutter on its end fitted on said journal, a feed-nut on said screw rotatably connected with the hub, a rotatable shaft in the bearings in the lower end of the frame, a toothed wheel fixed on the shaft to engage the toothed wheel on the hub and means for fixing the machine on a spindle, arranged and combined to operate in the manner set forth for the purposes stated.

664,004. ELECTRICAL PIANO. STEPHEN K. REYNOLDS, New York, N. Y., assignor of one-half to Frank W. Chamberlin, same place. Filed June 10, 1899. Renewed May 17, 1900. Serial No. 16,989. (No model.)



Claim.—The combination with a piano of a series of solenoids supported above the keyboard thereof and with their axes at right angles thereto, the cores of said solenoids being provided with striking-heads resting freely upon the keys, the cores of the solenoids being held in their withdrawn position by the same force which holds the keys in their normal position.

664,005. LACING-GUIDE. LEWIS A. ROBERTS, Carbondale, Pa. Filed May 15, 1900. Serial No. 16,827. (No model.)

Claim.—1. In a device such as described, the combination with the base secured to the shoe, the roller journaled in said base, and over which the lacing travels, and the rings on said rollers near its opposite ends, as and for the purpose set forth.



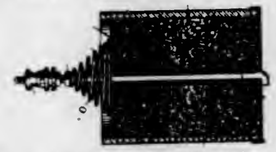
2. In a device such as described, the combination with the base provided with the penetrating points for securing it to the shoe, and formed with a central opening having the cap or housing at each end, of the rollers journaled in said caps or housings; substantially as described.

3. In a device such as described, the combination with the base having the central opening, the downwardly-extending holding-points carried thereby, the cap or housing formed at each end of said opening, the roller journaled in said caps or housings, the loose rings or washers carried by said journals, and means for preventing the washers from moving longitudinally of the rollers; substantially as described.

4. In a device such as described, the combination with the base having the central cut-out portion, and the oppositely-arranged incisions or cuts near the ends of said cut-out portion, the penetrating points carried by said plate, the caps or housings on the upper side of the plate, the roller journaled in said caps or housings, and the loose rings or collars carried by the roller, and fitting in the cuts or incisions in the plate; substantially as described.

5. The combination with a shoe-upper of a base-plate secured to the face thereof and having a central opening with housings open on the bottom and inner sides at each end of the opening and constituting bearings, and a roller journaled in said bearings and held in place by the upper on which the base is secured; substantially as described.

664,006. GALVANIC BATTERY. CHARLES B. SCHOENMEHL, Waterbury, Conn., assignor to the Waterbury Battery Company, same place. Filed Mar. 22, 1900. Serial No. 9,680. (No model.)



Claim.—1. A negative pole for a battery the same comprising a tubular body, perforated conducting-disks to inclose the ends thereof, a binding-rod forming a metallic connection with the two disks, a suitable insulation around the periphery of said rod between said disks, an oxid-of-copper element within said tube and means for attaching said negative element to a battery-jar.

2. In a negative element for a battery, the combination with a transparent receptacle having perforated metal plates situated at the top and bottom thereof, a binding-rod connecting said plates, and provided with an insulating-cover, and an oxid-of-copper element within said jar, located between said plates, substantially as shown and described.

3. A negative element for a battery the same comprising a transparent tube, perforated metallic plates inclosing the ends of said tube, a metal binding-rod in metallic connection with said plates and provided with means for attachment to the cover of a jar, an oxid-of-copper element within said tube, and an insulating-covering between the copper oxid and rod, substantially as and for the purpose set forth.

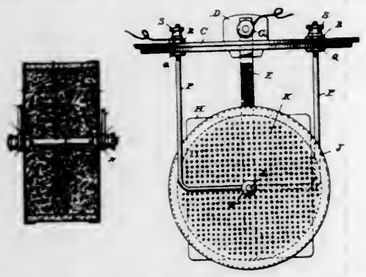
4. A negative element for a battery, the same comprising a transparent jar open at two ends, perforated metal plates for inclosing said ends, an oxid-of-copper element within said jar, a rod connecting said ends and an adjustable spring for retaining the end covers down firmly upon the oxid of copper.

5. A negative element for a battery comprising a transparent jar having two open ends, an oxid-of-copper element in said jar, perforated metal end covers for said jar, one adapted to cover the lower end while the other is adapted to adjustably fit into the opposite end of the jar, a rod connecting the two, and an adjustable nut for clamping the cover down upon the oxid-of-copper element, substantially as described.

664,007. GALVANIC BATTERY. CHARLES B. SCHOENMEHL, Waterbury, Conn., assignor to the Waterbury Battery Company, same place. Filed June 12, 1900. Serial No. 20,011. (No model.)

Claim.—1. In a battery of the class described, the combination with a negative element comprising a glass tubular body, oxid of copper in said body, perforated metallic ends to the tube, a bolt connecting said ends, rods attached to opposite ends of the bolt by means of which the element is supported, of a zinc located opposite to said metallic ends, and means for detachably suspending the same from the cover, substantially as described.

2. In a galvanic battery the combination with a positive element, comprising zinc located on opposite side of the negative element, metal strips detachably secured to the cover of the battery and means for detachably connecting said zinc to said strips, of a negative element comprising a glass tubular body, an oxid element therein, perforated metallic covers inclosing the ends of the tube; a bolt central of said cover and body, stop-nuts arranged on said bolt and upon the inside of the covers, washers, and jam-nuts upon the outside of said covers by means of which the latter are secured in place, supporting-rods engaged by said jam-nuts, and means for suspending said rods, substantially as shown and described.

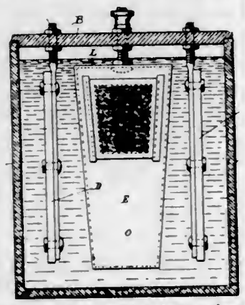


3. In a battery of the class described, the combination of a negative element comprising a glass tubular body, an oxid-of-copper element in said body, perforated metallic ends to the tube, a bolt connecting said ends and rods attached to the opposite ends of the bolt by means of which the element is supported.

4. In a galvanic battery, the combination of a negative element comprising a glass tubular body, an oxid-of-copper element therein, perforated metallic covers inclosing the ends of the tube, a bolt central of said cover and body, stop-nuts arranged on said bolt and upon the inside of the covers, washers, and jam-nuts upon the outside of said covers by means of which the latter are secured in place, supporting-rods engaged by said jam-nuts, and means for retaining the same, substantially as shown and described.

5. The combination in a galvanic battery, with a jar and cover, of a negative element in said jar comprising a glass tubular body, an oxid-of-copper element therein, perforated plates covering the ends thereof, a central bolt in said tube and covers, nuts arranged upon said bolt to retain the covers in place, separate rods interposed between the opposite ends of the bolt and the cover, depending hangers secured to the cover and provided with detachable zinc plates, substantially as shown and described.

664,008. GALVANIC BATTERY. CHARLES B. SCHOENMEHL, Waterbury, Conn., assignor to the Waterbury Battery Company, same place. Filed Aug. 21, 1900. Serial No. 27,577. (No model.)

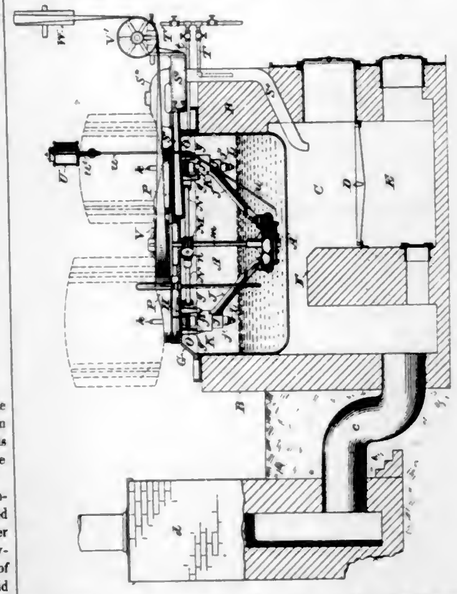


Claim.—1. In a negative element for a battery, the combination of a copper-oxid chamber having one or more transparent edges and being of a greater diameter through its top than its bottom edge.

2. In a galvanic battery of the class described, a negative element comprising a metallic receptacle having perforated sides and one or more transparent edges, said receptacle being broader across its top surface than the bottom to insure the consumption of the oxid of copper at the bottom before the top.

3. A negative element for a galvanic battery, comprising a sheet-metal perforated receptacle, having a transparent face and being wider through its top and back edge adjacent to the said transparent face than the remaining edges, substantially as shown and described.

664,009. CASK-PITCHING APPARATUS. JACOB F. THEURER and MATTHIAS A. BECK, Milwaukee, Wis., assignors, by mesne assignments, to Pawling & Harnischfeger, same place. Filed Oct. 21, 1897. Serial No. 655,898. (No model.)



Claim.—1. The combination with a tank and a furnace for heating the same, of a cover for said tank provided with a cask-support and with a recess or chamber beneath said support having a drain-opening into the tank, a flue connecting said chamber with the furnace and means for creating a draft through said flue whereby fumes and vapors are drawn from the cask and chamber into the furnace, substantially as and for the purposes set forth.

2. In apparatus for pitching or enameling the interior of casks, the combination with a tank and a furnace for heating the same, of a cover for said tank provided with cask-supports, and recesses or chambers beneath said supports, having drain-openings into said tank, a flue connecting said recesses or chambers with said furnace and provided with a removable section, and means for producing a draft from said chambers through said flue into the furnace, substantially as and for the purposes set forth.

3. In apparatus for washing, pitching or enameling casks, the combination with a tank and its cover, provided with cask supports or holders, of a pump suspended in said tank from said cover by hollow arms or brackets which are formed or provided at their upper ends with vertically-disposed sleeves, and nozzles projecting through said cover into said sleeves and having openings adapted to communicate with the passages in said arms or brackets, substantially as and for the purposes set forth.

4. In apparatus for washing, pitching or enameling casks, the combination with a tank, its cover provided with cask supports or holders, of a pump suspended from said cover by hollow arms or brackets which are formed at their upper ends with vertically-disposed sleeves, bushings fitted in said sleeves and having internal annular recesses which communicate with the passages in said arms, and nozzle-pipes movable longitudinally in said bushings and having lateral openings adapted to register with said recesses when the nozzles are raised, and to open into the tank when the nozzles are lowered, substantially as and for the purposes set forth.

5. In apparatus for washing, pitching or enameling casks, the combination with a tank, of a longitudinally-movable nozzle projecting upwardly through the top of the tank, a pump for forcing liquid from the tank through said nozzle, means for raising and lowering said nozzle and opening and closing communication between it and the pump and a latch constructed and arranged to release said nozzle by the removal of a cask therefrom, substantially as and for the purposes set forth.

6. The combination with a tank, of a longitudinally-movable nozzle projecting upwardly through the top of the tank, means for raising and lowering said nozzle, a latch for holding said nozzle in its upper and lower positions, and a weighted lever connected with said latch and constructed and arranged to be shifted into and held in one position by a cask placed

over said nozzle for holding the nozzle in an elevated position, and to be shifted into and held in another position by its weight for holding the nozzle in its lower position, substantially as and for the purposes set forth.

7. The combination with a tank, of a nozzle movable longitudinally in the top or cover thereof, a bar for raising and lowering said nozzle also projecting through the top or cover of the tank and having notches in its opposite sides or edges, a sliding latch-plate through which said bar passes, movable transversely thereto, and a lever having an arm in proximity with the nozzle in position to be depressed by a cask placed thereon, a weight tending to elevate said arm and an arm connected with said latch-plate, substantially as and for the purposes set forth.

8. In pitching apparatus the combination with a pitch-tank, of an oil-reservoir having a feed-pipe extending into said tank below the pitch-level, substantially as and for the purposes set forth.

9. In pitching apparatus the combination with a pitch-tank and means of heating the same, of a sight-feed oil cup or reservoir having a delivery or feed pipe extending therefrom into said tank below the pitch-level, and a valve for regulating the flow of oil from said oil-cup, substantially as and for the purposes set forth.

10. In pitching apparatus the combination with a pitch-tank provided with a cask-support and nozzle, of a pump arranged in said tank below the pitch-level for forcing pitch through said nozzle, and an oil cup or reservoir having a feed-pipe extending therefrom into said tank and opening at its delivery end in proximity with said pump which serves to mix the oil with the pitch and prevent its rapid evaporation, substantially as and for the purposes set forth.

11. In pitching apparatus the combination with a pitch-tank and furnace for heating the same, of a top or cover for said tank provided with a cask support or holder, and beneath said holder a recess or chamber which has a drain-opening into the tank, a flue connecting said chamber with the furnace, means for producing a draft through said flue from said chamber into the furnace, and an oil cup or reservoir having a delivery-pipe leading into said tank below the level of the pitch, for supplying the oil which escapes by evaporation through said draft-flue, substantially as and for the purposes set forth.

12. In cask-washing, pitching or enameling apparatus, the combination with a tank, of a rotary-nozzle pipe movable longitudinally and provided at its lower end with a stem, a lifting-bar through the lower end of which said stem loosely passes, and a washer interposed between the upper side of said bar and the lower end of said pipe, the adjoining faces of said bar and washer having a transverse rib and groove one fitting within the other and permitting said bar to rock freely lengthwise in raising and lowering said pipe, substantially as and for the purposes set forth.

664,010. SUBMARINE EXCAVATOR. JOHN E. WALSH, New York, N. Y. Filed July 15, 1899. Serial No. 723,985. (No model.)

Claim.—1. A pumping apparatus for dredging purposes having a pump suspended upon a hinged guide and vertically movable thereon.

2. In a dredging apparatus the combination, with a vertical guide extending into the water, of a pump mounted thereon, and means whereby the relation of the suction end of the pump to the water-bed remains unchanged during the rocking of the vessel to which the apparatus is attached.

3. In a dredging apparatus, a vertical guide mounted on the vessel by horizontal trunnions, and a pump mounted on the guide by horizontal trunnions at right angles to those sustaining the guide, whereby a universal movement is provided for the suction end of the pump.

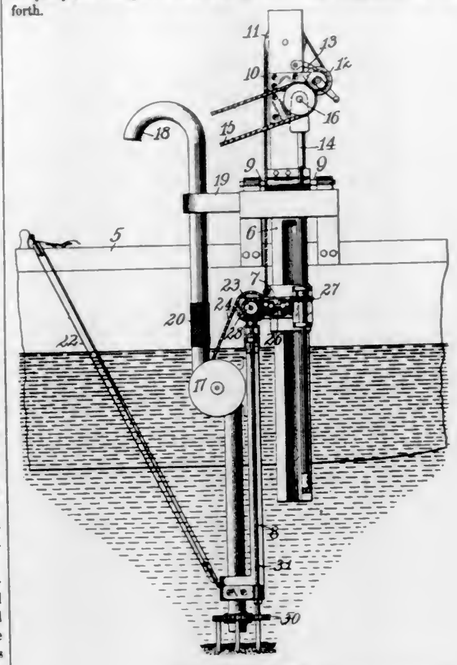
4. The combination with a vessel, of a suction-pipe and a laterally and longitudinally pivoting and sliding connection arranged between said vessel and said suction-pipe, substantially as specified.

5. In a dredging apparatus, the combination with a vertical guide or support hinged to the vessel, of a pump-frame mounted to move vertically thereon and having a hinge connection therewith, a stirring mechanism or agitator mounted on the pump-frame, and gearing for operating the pump and agitator simultaneously.

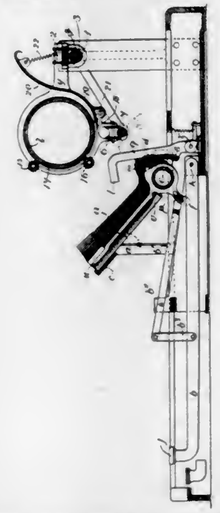
6. The combination with the guide or support, of the motor-shaft mounted thereon, the pump-frame hinged to a slide upon the guide, the agitator-shaft mounted on said frame, gearing connecting said two shafts at said slide and operable whatever the position of said frame, gearing for driving the pump connected to the agitator-gearing on said slide, whereby the agitator and pump are driven simultaneously, substantially as set forth.

7. The combination with the vessel, of the vertical guide mounted thereon, a motor-shaft on said guide, a slide also mounted on the guide, means for raising and lowering the slide, a frame hinged to the slide and carrying the pump, and gearing on the slide for connecting the pump with the motor-shaft.

8. The combination with the vessel, of the vertical guide mounted thereon, a motor-shaft on said guide, a slide also mounted on the guide, means for raising and lowering the slide, a frame hinged to the slide and carrying the pump, an agitator mounted on said frame, a shaft for operating it extending to the slide, and gearing on the slide for connecting the pump and the agitator-shaft with the motor-shaft, substantially as set forth.



664,011. TYPE-WRITER. WALTER BERESFORD, Liverpool, England, assignor of two-thirds to Joseph Rickard Crellin, Ilford, and Frederick Thomas Rushton, London, England. Filed Mar. 10, 1900. Serial No. 8,178. (No model.)



Claim.—1. In type-writers the combination with the rigid type-carrying parts of a check adapted to check the movement of said type-carrying parts and a hammer for overcoming or releasing said check and forcing the type upon the printing-surface.

2. In type-writers the combination with a series of type-bars of a check-action for checking the type-bars at any desired part of their move-

ment and a hammer operated with the type-bars and adapted to release said check-action and act upon the type-bar to effect the printing of the type.

3. In type-writers the combination with a type-bar of a check-action for checking the said type-bar at any desired point of its movement and a hammer operated with said type-bar and adapted to release the said check-action and act upon the type-bar to effect the printing of the type.

4. In type-writers the combination with a series of key-levers and type-bars of a check for checking the key-levers and type-bars and a hammer for overcoming said check and forcing the type upon the printing-surface.

5. The improvement in type-writers comprising the combination with a series of type-bars and hammers of a check-action comprising a hinged lever with a bifurcated extremity projecting in the line of travel of the type-bars and hammer so as to be free of the former but engaged by the latter, a check-bar on said lever common to all the type-bars and adapted to engage and check same at or before they reach the printing-surface and release the same when engaged by the hammer, substantially as set forth.

6. In a type-writing machine such as described the combination with a series of bars and hammers of a stop upon the bush of the type-bars, a check-bar common to all the type-bars and adapted to temporarily engage said stop, a spring-pressed lever carrying said universal check-bar and hinged to the frame at its lower end and having a bifurcated upper end bent forward into the line of travel of the type-bars and hammers so as to be free of the type-bars but engaged by the hammer, substantially as and for the purposes set forth.

664,012. TOOL. HICKSON O. BRECKENRIDGE, Big Stone City, S. D. Filed Mar. 27, 1900. Serial No. 10,320. (No model.)

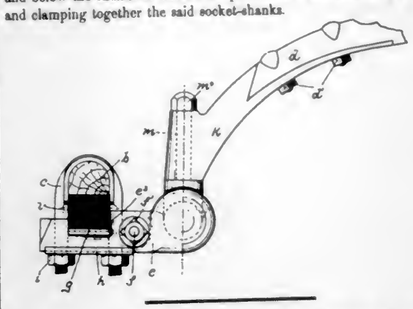


Claim.—The tool herein shown and described, consisting of the handles fulcrumed together and formed with the curved lower ends or heads, said curved ends being cut away on opposite sides to allow the ends of the heads to fit in the recess formed by the cut-away portions, the claws formed on said reduced ends; whereby the two strands of wire may be caught in the claws, drawn together and then twisted together by the turning of the handles.

664,013. THILL-COUPLING. JOHN CLARKE, Liberty Hill, Conn. Filed June 11, 1900. Serial No. 19,838. (No model.)

Claim.—1. In a thill-coupling, in combination, a thill-iron having a ball-shaped termination, a two-part socket adapted to inclose the said ball, binders *g h* mounted respectively above and below the shanks of the two-part socket, and a bolt extending through and clamping together the said socket-shanks.

2. In a thill-coupling, in combination, a thill-iron, a bolt removably secured in said thill-iron and formed with a ball-shaped lower end, a two-part socket inclosing the said ball, binders *g h* mounted respectively above and below the shanks of the socket parts, and a bolt extending through and clamping together the said socket-shanks.



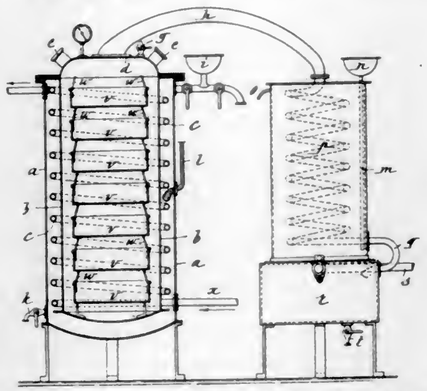
664,014. DENTAL FLOSS-HOLDER. WILLIAM C. CORYELL, Youngstown, Ohio, assignor of one-half to J. Sherman Coryell, Chicago, Ill. Filed Feb. 21, 1900. Serial No. 6,103. (No model.)



Claim.—1. A dental floss-holder comprising a main body or handle, and a head at one end thereof at substantially a right angle thereto, said head comprising two opposite arms having inwardly-projecting lugs turned outward to positions parallel with the arms, forming grooves or spaces between the lugs and arms, and terminating at the outer end of the arms, substantially as described.

2. A dental floss-holder comprising a main body or handle having downwardly and inwardly curved flanges along its edges to form a guide for the thread of floss, a head at one end of the body at substantially right angles thereto comprising two opposite arms in the same plane, and inwardly-projecting lugs on the arms bent back to positions parallel therewith and forming grooves or spaces for guiding the floss, substantially as described.

664,015. EVAPORATING APPARATUS. ALPHONSE DENAEYER, Brussels, Belgium. Original application filed Aug. 8, 1899, Serial No. 726,571. Divided and this application filed May 26, 1900. Serial No. 18,151. (No model.)

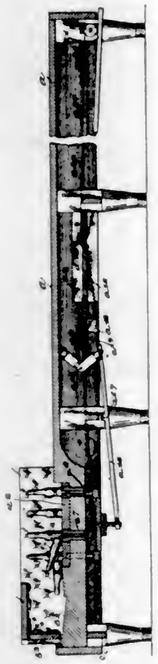


Claim.—1. In combination, an evaporating vessel having a jacket, a heating-coil surrounding the same and a plurality of pans located within the vessel and clear of the walls thereof, each of said pans having opposite upwardly-extending handles designed to support the pan above, substantially as described.

2. In combination, the evaporating-chamber, the jacket surrounding the same, a heating-coil within said jacket, means for introducing a liquid within the jacket, a plurality of removable pans within the evaporating-chamber, and a pipe leading from the upper end of the evaporating-chamber through a condenser and connecting with a vacuum-chamber, substantially as described.

3. In combination, an inner evaporating-chamber, a plurality of pans therein, a delivery-pipe from the top thereof adapted for connection with a device for maintaining a vacuum therein, a vacuum-gage on said chamber, a jacket surrounding said chamber, a heating-coil therein, means for introducing a liquid within said jacket and a thermometer having its bulb located within the jacket, substantially as described.

664,016. TENPIN-ALLEY. RICHARD F. DOWNEY, Menominee, Mich., assignor, by direct and mesne assignments, to the Automatic Bowling Alley Company, of Michigan. Filed Feb. 9, 1900. Serial No. 4,604. (No model.)



Claim.—1. In a tenpin-alley, a series of pins, a table, a perforated base in a plane lower than the table upon which the said pins are adapted to stand, and cords passing through the said perforations, and attached to said pins, substantially as set forth.

2. In a tenpin-alley, a pin, a perforated base upon which the said pin is adapted to stand, a cord passing through said perforation attached to the bottom of said pin, and a guide surrounding said base and adapted to be moved vertically over said base, substantially as set forth.

3. In a tenpin-alley, a series of pins, a perforated base for each pin upon which each of the said pins is adapted to stand, a cord passing through said perforation, attached to the bottom of each pin, a guide surrounding separately the base for each pin, and a means for moving the said guide vertically over the lower ends of the said pins, substantially as set forth.

4. In a tenpin-alley, a pin, a perforated base upon which the said pin is adapted to stand, a cord passing through said perforation, attached to the bottom of said pin, a guide surrounding said base, a lever for raising said guide, and a frame or slide to which the said cord and the said lever are attached, substantially as set forth.

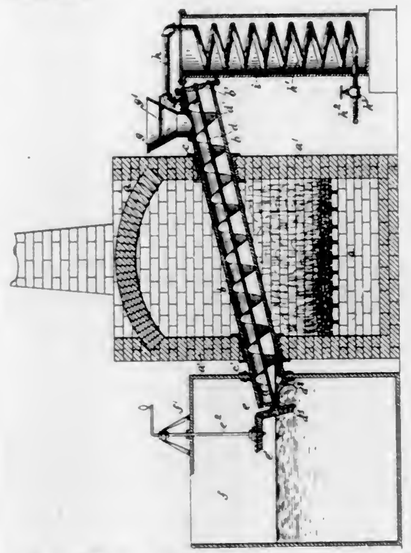
5. In a tenpin-alley, a series of pins, a base for supporting said pins, and a table located in a plane above said base, substantially as set forth.

6. In a tenpin-alley, a series of pins, a base for supporting said pins, a table located in a plane above said base, and a canopy partly surrounding said base, substantially as set forth.

7. In a tenpin-alley, a series of pins, a base for supporting said pins, a table located in a plane above said base, a ball-return chute on each side of said table, inclined toward the bowler's position on said table, and a canopy or guard, partly surrounding said pins, substantially as set forth.

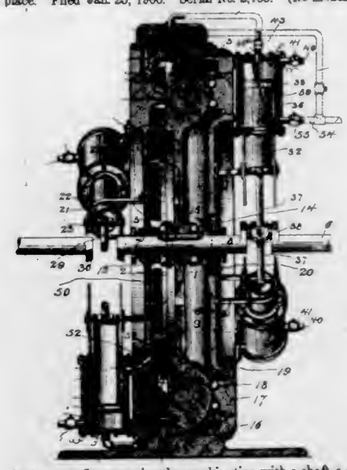
8. In a tenpin-alley, a series of pins, a perforated base-piece a^7 for each pin, a guide a^2 adapted to surround each pin, a lever a^{16} for raising said guide, a slide-frame a^8, springs a^{12} and a^{13} attached to said slide, and cords or chains a^9 for connecting said pins to said slide, and a means for reciprocating said slide, substantially as set forth.

664,017. PROCESS OF MANUFACTURING COKE. ARTHUR M. EDWARDS, Newark, N. J. Filed Aug. 26, 1899. Serial No. 728,636. (No model.)



Claim.—The process herein described for manufacturing artificial fuel, consisting in mixing diatomaceous earth and crude petroleum, and then heating said mixture for removing the vapors and the illuminating-oil from the petroleum, and finally cooling the said artificial fuel, substantially as and for the purpose specified.

664,018. MOTOR FOR VEHICLES. JOHN W. EISENHUTH, New York, N. Y., assignor, by mesne assignments, to Mamie G. Read, same place. Filed Jan. 25, 1900. Serial No. 2,785. (No model.)



Claim.—1. In an engine the combination with a shaft, a crank thereon, a piston connected to said crank and a cylinder in which said piston reciprocates, of a circular storage-chamber, a pipe communicating between the outer end of the cylinder and said storage-chamber, a check-valve therein, a pipe for delivering the explosive mixture into said end of the cylinder, and a rotary or wheel piston having recesses which are periodically brought into communication with the storage-chamber, substantially as described.

2. In an engine the combination with the main frame or body thereof provided with a storage-chamber surrounding the same, recesses in the face of the frame, a passage communicating between the storage-chamber and said recesses and means for filling the storage-chamber, of a shaft

journaled in the main frame, and a piston fly-wheel splined on said shaft and having a face in contact with the face of the body, in which face of the wheel are formed recesses similar to those in the main body and adapted to be brought periodically into register therewith during the rotation of the wheel, said recesses being each formed with one end wall inclined and the other in a radial plane, an exhaust-passage being formed through the main body of the engine in position to register periodically with the recesses in the wheel, substantially as described.

3. In an engine provided with a central vacuum-chamber, a surrounding storage-chamber, and means for filling the storage-chamber, the combination with the main frame having recesses in one face thereof, inlet-passages from the storage-chamber to said recesses, and an exhaust-passage extending from the face of the frame into the vacuum-chamber, of a wheel provided with recesses similar to those in the face of the frame, and arranged to be brought alternately into register with a body-recess and an exhaust-passage by the rotation of the wheel, and means for pumping out the vacuum-chamber, substantially as described.

4. In an engine provided with a central vacuum-chamber, a surrounding storage-chamber and means for filling the storage-chamber, the combination with the main frame having recesses in one face thereof, inlet-passages from the storage-chamber to said recesses, and an exhaust-passage extending from the face of the frame into the vacuum-chamber, of a wheel provided with recesses similar to those in the face of the frame, and arranged to be brought alternately into register with a body-recess and an exhaust-passage by the rotation of the wheel, radially-arranged cylinders secured to the frame having communication between their inner ends and the vacuum-chamber, and pistons in the cylinders arranged to pump out the vacuum-chamber during their return stroke, substantially as described.

5. In an engine the combination with the main frame thereof circular in outline and provided with a central bearing, a flat face on the inside near the periphery and a laterally-extending rim, of a shaft journaled in the central bearing, a piston fly-wheel splined on the shaft and provided with a flat face adapted to rotate in contact with the flat face of the frame, a ring threaded into the rim of the body, an inner ring threaded into the ring aforesaid and a disk threaded into the inner ring and provided with a central bearing for the shaft, substantially as described.

6. In an engine the combination with the main frame thereof circular in outline and provided with a central bearing, a flat face on the inside near the periphery and a laterally-extending rim, of a shaft journaled in the central bearing, a piston fly-wheel splined on the shaft and provided with a flat face and adapted to rotate in contact with the flat face of the frame, a ring threaded into the rim of the body, an inner ring threaded into the ring aforesaid, a disk threaded in the said inner ring and provided with an inner bearing for the shaft and curved slots, a collar threaded on the inner side of the disk and exposed through said slots for adjustment, ball-bearings between the inner ring and the piston fly-wheel, between the hub of the fly-wheel and the central bearing of the frame, and between the hub of the fly-wheel and the inner ring, the hub-bearings being adjusted by turning the collar by means of a tool inserted through the curved slots, substantially as described.

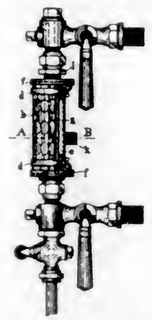
7. The combination in an engine with the frame thereof of a series of radially-arranged cylinders, a shaft, pistons in the cylinders connected up with said shaft, a rotary piston head or wheel on said shaft, expansive means for actuating the radial pistons on their inward or forward stroke and means for utilizing any surplus expansive force and the outward or return stroke of the pistons to actuate the piston head or wheel, substantially as described.

8. The combination in an engine with the main body thereof provided with a vacuum-chamber, a shaft journaled in said main body, a rotary piston head or wheel splined on the shaft and provided with recesses to receive compressed fluids for actuating the piston-wheel, said recesses being arranged to communicate periodically with the vacuum-chamber, cylinders mounted upon the frame of the engine and communicating with the vacuum-chamber, pistons in said cylinders connected to a crank on the shaft whereby the rotation of the shaft causes the return stroke of said pistons, thereby pumping out the vacuum-chamber, substantially as described.

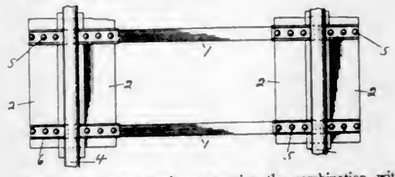
9. In an engine provided with a vacuum-chamber the combination with the frame of the engine of a cylinder mounted thereon having communication between its inner end and the vacuum-chamber, a hollow piston-head in the cylinder, a hollow piston-rod connected with said head projecting through the end of the cylinder and open to the atmosphere, and valves opening from the inner end of the cylinder into the hollow piston rod and head whereby, by the reciprocation of the piston the contents of the vacuum-chamber are pumped out and discharged into the atmosphere, substantially as described.

664,019. WATER-GAGE. EMIL ENGELS, Engelskirchen, Germany. Filed June 18, 1900. Serial No. 20,694. (No model.)

Claim.—In a safety device for water-gages the combination of a gage-glass, a glass screen of horseshoe section in front and a metal back with an outlet behind said gage-glass, straps holding said screen and said back together, caps surrounding the gage-glass heads and the ends of said glass screen and said metal back, and a threaded socket in the upper cap to secure said device between the gage-glass heads.

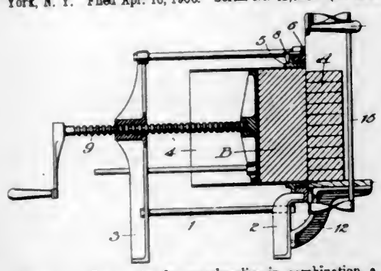


664,020. METALLIC RAILWAY-TRACK CONSTRUCTION. GEORGE B. HARPER, Menoken, Kans. Filed Apr. 13, 1900. Serial No. 12,783. (No model.)



Claim.—In railway-track construction, the combination, with the rails, of stringer-plates 2 running longitudinally beneath the rails, extending laterally at both sides of the rails and provided with flanges 3, the channeled metallic ties 1, having their ends secured to the under sides of said stringer-plates and abutting against the flanges thereof, and the channeled keepers 6 secured to said stringer-plates and having their inner portions resting upon the bases of the rails and their ends abutting against the webs of the rails; substantially as described.

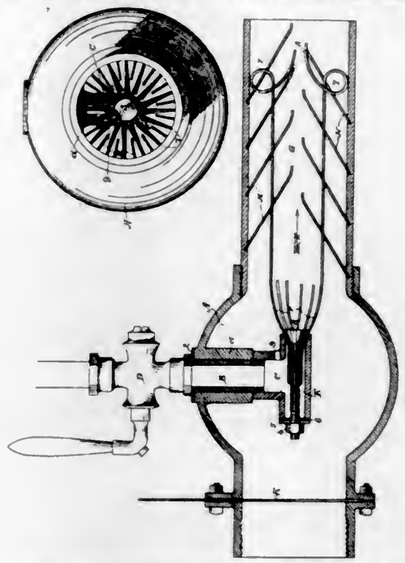
664,021. BUTTER-CUTTING APPARATUS. ROBERT KOPP, New York, N. Y. Filed Apr. 10, 1900. Serial No. 12,321. (No model.)



Claim.—1. In a cutter for merchandise in combination, a hollow frame to support the material to be cut having an opening in the forward part thereof, means to push the material forward through said opening, a hollow head relatively proportioned whereby said head may be inserted in said opening from the rear thereof and having an outwardly-extending stop to hold said head in place and prevent its moving forward, and cutters running across the interior of said hollow head to cut said material as the same is pushed forward, and a movable cutter located forward of said head to cut said material in a transverse direction.

2. In a cutter for merchandise in combination, a hollow frame to support the material to be cut having an opening in the forward part thereof and a hollow head, said frame having an opening of such a size as to allow said head to be passed down into said frame and inserted in said opening from the rear thereof, said head having a stop adapted to abut against the forward part of said frame whereby the same is held in place, and crossed wires stretched across said head, means to push said material forward through said head and opening whereby the same is cut longitudinally by said wires, and a cutter located forward of said frame and head to cut said material transversely.

664,022. HYDROCARBON-BURNER. GEORGE H. LARKIN, San Francisco, Cal. Filed Sept. 7, 1900. Serial No. 29,273. (No model.)



Claim.—1. A hydrocarbon-burner, comprising a casing having an air-blast inlet and a discharge-tube, an oil-feeder discharging into the blast, and a series of rods leading from the discharge-tube and having their outer ends turned inwardly toward each other and away from the inner walls of the casing.

2. A hydrocarbon-burner comprising a casing having a blast inlet and discharge tube horizontally in line, an oil-supply pipe entering the casing at right angles to the line of the blast, said oil-pipe having an opening within the casing for the admission of oil to the burner, and a tubular series of rods, which latter extend into the discharge-tube, and are so flared that their ends lie in the direction of the blast and toward the center of the tube.

3. A hydrocarbon-burner comprising a casing having a blast-inlet, and oppositely thereto a discharge-tube, a nipple in this casing placed vertically to the line of the blast, a T on the lower end of this nipple, said T placed centrally of the interior of the casing, and having its longitudinal opening in the axial line of the discharge-tube, a shaft through this opening of the T having a flared end adapted to hold the ends of a tubular series of flared wires or rods within the T, and said shaft having means of adjustment at its other end, an oil-outlet in the T above the wire connection, and on the side toward the discharge-tube, said flared wires extending into the discharge-tube, and their ends terminating near the axial line of the tube.

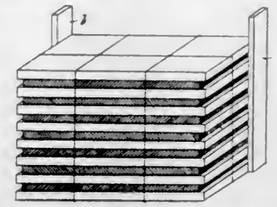
4. A hydrocarbon-burner comprising a casing, having a longitudinal inlet blast-pipe and discharge-pipe, a vertical oil-feeder entering the casing and discharging centrally thereof, a tubular series of wires extending into the discharge-pipe, one end of these wires attached at the lower end of said feeder, the other end of the wires turning toward the axial line of the discharge-tube, and in the direction of the blast, and a series of peripheral projections within the discharge-tube.

5. The combination in a hydrocarbon-burner with a casing having a discharge-tube, of an air-blast inlet, and means for regulating the blast, said air-blast inlet in line with the discharge-tube, an oil-feeder with means for regulating the supply of oil, said oil-feeder entering the casing at right angles to the line of the blast, and discharging centrally of the casing and upon wires secured within the part of the feeder inclosed by the casing, said wires extending into the discharge-tube and having a loop intermediate of their ends and the ends of these wires terminating near the axial line of the tube, and of peripheral projections within the tube, extending in the direction of the discharge end of the tube and terminating near the axial line of the tube.

6. The combination with the discharge-passage of a hydrocarbon burner of divergent wires disposed about the axis of the passage, said wires having their outer ends carved toward the axis.

7. In a hydrocarbon-burner, a casing having an inwardly-projecting radial sleeve, an oil-inlet tube inclosed thereby, a receiving and delivery T upon the inner end of the inlet-tube and abutting against the inner end of the sleeve, a series of annularly-disposed wires fixed in said T, diverging outwardly therefrom into the discharge-passage, and having their outer ends returning toward the axis of said passage.

664,023. ELECTRIC ACCUMULATOR. PASCAL MARINO, Brussels, Belgium. Filed June 23, 1899. Serial No. 721,647. (No specimens.)



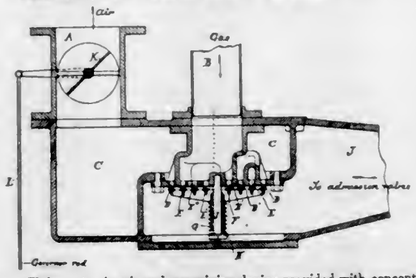
Claim.—The process described consisting in adding to an active material comprising lead oxid a liquor composed of distilled water, guncotton, caustic alkali and benzene for the purpose of obtaining adhesion to the electrodes, forming the electrodes so composed first in a solution of bisulfate of lead and ammonia then in a solution of sucroglycerate of an alkaline earth metal.

664,024. STREET-PAVING. PATRICK J. MORAN, Memphis, Tenn. Filed Apr. 3, 1900. Serial No. 11,376. (No model.)



Claim.—As a surface-layer for street-paving, a concrete comprising the combination with a coarse hard stone and a coarse softer stone, both broken approximately to pass through a two-and-one-half-inch ring, of a binding material of sand and cement, mixed in the proportions of about three parts each of the stone, two of sand, and one of cement.

664,025. GAS-ENGINE. LEWIS H. NASH, South Norwalk, Conn. Filed Mar. 1, 1897. Serial No. 625,431. (No model.)



Claim.—1. An air and gas mixing device provided with concentric ports alternately communicating respectively with the air and gas supply, and a valve composed of similar concentric rings and ports adapted to cover the admission-ports.

2. An air and gas mixing device, provided with ports alternating with bars, and constituting a grid, said ports being connected part with the air-supply and part with the gas-supply, combined with a valve having alternating ports and bars, the bars of one member registering with the ports of the other.

3. In a gas-engine an air-supply, a throttle controlling the air-supply, a valve-seat having independent air and fuel supply ports, a fuel-supply, and a suction-lifted valve common to said air and fuel supply ports.

4. In a gas-engine an air-supply, a throttle controlling the air-supply, means controlled by the speed of the engine for throttling the air-supply, a valve-seat having independent air and fuel supply ports, a fuel-

supply, and a suction-lifted mixing-valve common to both said air and fuel supply ports, substantially as described.

5. In combination, in a gas-engine, an air-inlet chamber and a gas-inlet chamber surrounded by the former, a fixed disk having a concentric port outside of the gas-inlet chamber, and a series of concentric rings and ports within the gas-inlet chamber, a spring-sustained disk valve provided with multiple concentric rings and intervening ports, the latter being opposite the rings of the fixed inlet-disk and closed by them.

6. In a gas-engine and in combination with a fixed disk having a series of concentric ports, an air-inlet and a gas-inlet surrounded by the latter both inlets in communication with the upper face of the disk, a valve provided with multiple concentric rings and intervening ports, the rings of the valve being opposite the fixed ports and a spring for forcing the valve upon the ported disk.

7. In a gas-engine, a mixing device composed of a fixed and a movable disk, the fixed member having multiple concentric ports and the valve having concentric rings and ports, the rings controlling the ports of the fixed member the outer port of which is in communication with the air-inlet chamber and the inner port in communication with the gas-inlet chamber and the jets of air and gas from their respective chambers caused to impinge upon each other to insure a complete commingling of the two elements of the combustible charge.

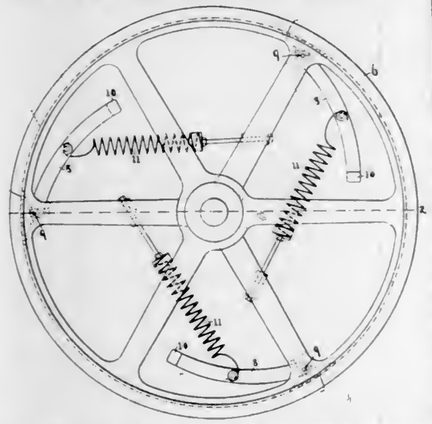
8. A fixed mixing-disk for a gas-engine having an outer annular port in communication with the air-inlet, and a series of concentric ports in communication with the gas-inlet, in combination with a valve having concentric rings and ports arranged to control all the disk-ports, the gas-inlet chamber, and the air-inlet chamber surrounding the former, both chambers in communication with the fixed disk.

9. In a mixing device for gas-engines, and in combination with a valve-controlled inlet-chamber and an uncontrolled gas-inlet chamber surrounded by and separated from the former, a disk provided with concentric ports, the outer one in communication with the air-inlet chamber and multiple inner concentric ports in communication with the gas-chamber, and a spring-sustained valve of concentric rings and ports for controlling the inlet-ports, the inlet from both chambers being at the same side of the fixed disk.

10. In a gas-engine an air-supply having an automatically-controlled regulator or throttle therein, a fuel-supply joining the air-supply between said regulator and the engine, a valve-seat having independent air and fuel supply ports, and a suction-opened valve controlling the ports of both the air and fuel supply.

11. In a gas-engine an air-supply, an automatically-controlled throttle therein, a gas-supply joining the air-supply between the throttle and the engine, a ported plate or valve-seat having certain ports connected with the air-supply and other ports connected with the gas-supply, and a suction-opened valve controlling all of said ports.

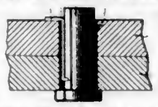
664,026. SPEED-REGULATOR. LEWIS H. NASH, South Norwalk, Conn. Filed Mar. 6, 1899. Serial No. 708,006. (No model.)



Claim.—1. In a speed-regulator, the combination of rotative driving and driven members adapted to be connected to rotate in unison respectively with the motor and the mechanism being driven, levers pivoted upon said driven member, shoes carried by said levers and adapted to frictionally engage the driving member, and springs connected with said levers and proportioned to neutralize the centrifugal force developed in said levers at the desired speed, and to swing the levers in opposition to the centrifugal force and so as to apply the shoes at lower speeds and in the opposite direction to free the shoes at higher speeds.

2. In a speed-regulator the combination with a driving and a driven wheel, mounted upon coincident axes, the driving-wheel having a friction-surface thereon, of levers pivoted near one end to the driven wheel shoes carried on the short arms of the levers and adapted to engage the friction-surface upon the driving-wheel, the short arms of the levers extending with the direction of slip of the driving-wheel upon the shoe, and springs acting in opposition to centrifugal force upon said levers.

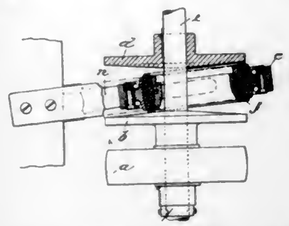
664,027. BOLT. JEREMIAH O'MEARA, New York, N. Y. Filed May 16, 1900. Serial No. 16,887. (No model.)



Claim.—1. A threadless bolt, having transverse kerfs or grooves and adjacent slabbed-off portions on opposite sides of opposite ends, and whose fastening device comprises metal pieces applied in said kerfs or grooves and adapted to project beyond the object to which the bolt is applied and be bent down thereupon, substantially as described.

2. A bolt, having a fastening device secured thereto at some unexposed portion and projecting beyond the exposed end of the bolt, combined with a surrounding sleeve, substantially as described.

664,028. DEVICE FOR IMPARTING ROTARY MOTION. GUSTAF A. RYD, Stockholm, Sweden. Filed Oct. 14, 1899. Serial No. 733,659. (No model.)



Claim.—1. In combination, the driving and driven disks facing each other and axially in line, the rotary transmitting means between them extending in inclined position from the face of one disk to the face of the other disk and means for adjusting the transmitting means, said means touching the surface of one disk at a point diametrically opposite the point of contact between the said means and the surface of the other disk, substantially as described.

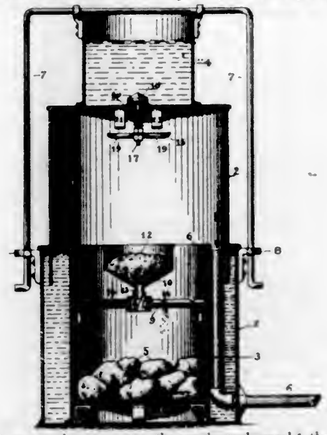
2. In combination, the driving and driven disks facing each other and axially in line, the transmitting-ring between them extending in incline position from the face of one disk to the face of the other disk, and means for adjusting the transmitting-ring transversely, said ring touching the surface of one disk at a point diametrically opposite the point of contact between the said ring and the surface of the other disk, as described.

664,029. ACETYLENE-GAS GENERATOR. VICTOR T. WRATHERS, Ione, Cal., assignor of two-thirds to David McCall, same place. Filed July 18, 1900. Serial No. 24,049. (No model.)

Claim.—1. In an acetylene-generator, a carbid-containing vessel, movable superimposed gas-holding and water-containing vessels, water-passages from the latter to the carbid-containing vessel and a sponge or other absorbent body interposed in these water-passages which by pressure automatically applied thereon when the bell descends supplies water to the carbid and by release of pressure absorbs and arrests the water-supply, substantially as specified.

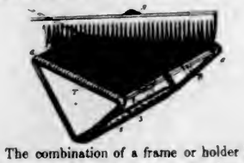
2. In an acetylene-generator, the tank vessel 1, movable gas-holding vessel 2, a water vessel mounted on the latter and a valve therein adapted to be raised and opened by the weight and downward movement of the gas-holding and water-containing vessels and in combination therewith the open vessel 10 and sponge 12 in the water-circuit whereby the supply of water is regulated and arrested, in the manner substantially as specified.

3. In an acetylene-generator, the annular tank vessel 1, movable gas-holding and water-containing vessels 2 and 4, valve in the water-containing vessel and means for automatically controlling the same by the rising and falling of the said vessels, carbid-containing vessel 3 and the radial water-diffusing devices 9 and 10, the latter resting loosely on the top of the carbid vessel 3, all combined and operating substantially as specified.



4. In an acetylene-generator, the annular tank vessel 1, the inverted gas-holding vessel 2 therein, the superimposed water-containing vessel 4 having in the bottom a valve with a downward-projecting stem, a coiled spring around the stem to hold the valve shut, a sponge 12, a water-diffusing device for holding the sponge and the disk 15 adapted to press upon and expel water from the sponge 12 and also open the valve, combined and operating substantially as specified.

664,030. COMB-CLEANER. JAMES H. WHEELER, San Francisco, Cal., assignor of one-half to William Wilson, same place. Filed July 24, 1900. Serial No. 24,706. (No model.)



Claim.—1. The combination of a frame or holder having parallel sides, wire coils upon said sides, and a wire or strand wound around the sides and in the interstices of the coils whereby said wire is equidistantly and fixedly separated to form two rows of wires with the wires of one row spacing intermediate with the wires of the other row.

2. In a comb-cleaner, the combination of a frame, of heavy wire bent to form two triangular ends and joined to form the handle, a tightly-wound spring-coil upon each of the sides 6 of the frame, and a fine wire or wires wound continuously around these two sides and in the interstices of the coils to form two rows of cleaning-wires lying in parallel planes substantially as described.

664,031. BOOK-SUPPORT. ARRANNES S. ALBRIGHT, Terra Alta W. Va. Filed May 25, 1900. Serial No. 17,978. (No model.)



Claim.—1. A book-support, comprising a base, a vertically and bodily movable book-rest arranged above and out of contact with the base, a swiveled connection between the book-rest and the base, and means for yieldingly supporting the book-rest arranged to permit of the latter being depressed into contact with the base, when an additional weight is placed upon the book-rest.

2. A book-support, comprising a base, a book-rest rotatably mounted upon the base, and a yieldable support for the book-rest, the latter being normally held above and out of contact with the base, and also capable of being depressed into contact with the base, by the application of an additional weight upon the book-rest.

3. A device of the class described, comprising a base, a book-rest rotatably mounted upon the base, having a notch in its under side, and a bowed spring, having one end fixedly secured to the under side of the book-rest, its opposite free end loosely received within the notch in the book-rest, and its intermediate convexed portion frictionally engaging the base, to normally and yieldingly elevate the book-rest.

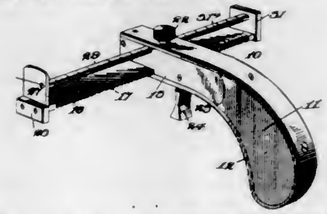
4. A book-support, comprising a base having a central upright stem or spindle, a book-rest having a vertical socket or recess rotatably fitting the spindle, the book-rest also being slidable vertically in opposite directions upon the spindle, and a bowed spring carried by the under side of the book-rest and in frictional engagement with the base, said spring forming a yieldable support for the book-rest, and the latter being normally held by the spring above and out of contact with the base, and also capable of being depressed into contact with the base, by the application of an additional weight to the book-rest.

5. A book-support, comprising a base, a book-rest rotatably mounted thereon, means for yieldingly supporting the book-rest in a normally-elevated position out of contact with the base, said rest being capable of being depressed into contact with the base by the application of an additional weight to the rest, and means for automatically returning the book-rest to its normally-elevated position, when the additional weight is removed therefrom.

6. In a book-support, a base to rest upon a desk, table or the like, and having a central upright stem or spindle, a book-rest formed by opposite sides, a back connecting the same, and a top secured to the sides and back and forming a frame, which is larger than and also houses the base, a bearing-block applied to the central portion of the lower side of the top, and having a vertically-disposed socket or recess slidably and rotatably fitting the spindle, and a bowed spring carried by the book-rest and interposed between the bearing-block and the base, and forming a yieldable support traveling upon the base, the book-rest being normally held by the support above and out of contact with the base, and the lower peripheral edge of the rest being out of contact with the support upon which the base rests.

7. A device of the class described, comprising a base, a book-rest rotatably mounted thereon, a bowed spring carried by the under side of the book-rest and bearing against the base to normally elevate the book-rest, and a set-screw carried by the rest and engaging the spring, to adjust the tension thereof.

664,032. DRAW-GAGE. LOUIS ALDEN, Jr., Bryn-Mawr, Pa. Filed June 9, 1900. Serial No. 19,696. (No model.)



Claim.—1. A device of the class described, comprising a handle having a casing at one end, a transversely-arranged knife-bar slidably mounted in the casing and provided with a rack, a shaft arranged within the casing and having a pinion that engages the rack, one end of said shaft projecting from the casing and provided with an operating-head, and a trigger mounted upon the handle and having an arm also arranged within the casing and adapted to engage the rack.

2. A device of the class described, comprising a handle having a casing at one end, a transversely-arranged knife-bar slidably mounted in the casing and provided with a rack, a shaft arranged within the casing and having a pinion that engages the rack, one end of said shaft projecting from the casing and provided with an operating-head, and a spring-pressed trigger pivoted within the casing and comprising a bell-crank lever, one arm of said lever being bifurcated and extending on both sides of the pinion, forming dogs arranged to engage the rack.

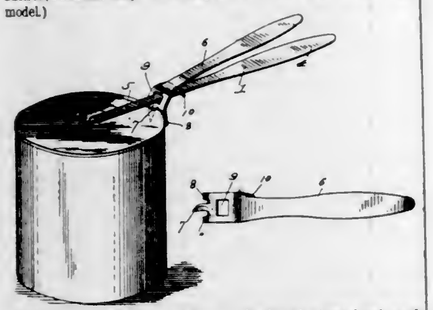
3. A device of the class described, comprising a handle, a knife-bar carried by the handle, a knife-blade mounted upon the bar, and a brace-rod carried by the handle and engaging the knife.

4. A device of the class described, comprising a handle, a knife-bar slidably mounted upon the handle, a knife-blade carried by the bar, and an independent brace-rod also slidably mounted upon the handle and engaging the knife.

5. A device of the class described, comprising a handle, a knife-bar

slidably mounted upon and projecting from both sides of the handle, a knife-blade carried upon one end of the bar, and an independent brace-rod also slidably mounted upon the handle and engaging the knife, said brace-rod being provided with a graduated scale and connected to the knife-bar at the end opposite the knife-blade.

664,033. CAN-OPENER. CHARLES A. ANDERSON and OSCAR ANDERSON, Portland, Oreg. Filed Aug. 25, 1900. Serial No. 28,052. (No model.)

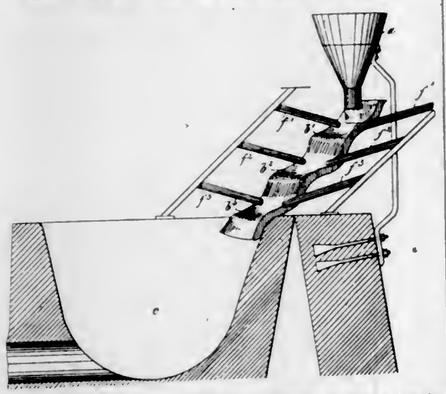


Claim.—1. In a can-opener, the combination of a lever-bar formed with a handle part and an entering-point adapted to form a fulcrum, a cutter-carrying bar provided with an opening through which the lever-bar works and with an outward-extending handle part lying above and adjacent the handle part of the lever-bar, so that both said handle parts may be grasped with one hand, a downward-extending cutter on the inner end of the cutter-carrying bar, a guide-lug or stop formed on the cutter-carrying bar adjacent the cutter and adapted to engage the side of the can and prevent the cutter-bar moving toward the fulcrum-point of the lever-bar while in operation.

2. In a can-opener, the combination of a lever-bar provided with an entering-point adapted to form a fulcrum for the lever, a cutter-carrying bar adapted to slide on said lever-bar and provided with a downward-extending cutter and a depending stop adapted to engage the side of the can, and a downward-extending lug formed on the side of said cutter-bar and adapted to engage the right-hand side of the lever-bar, substantially as described and for the purpose set forth.

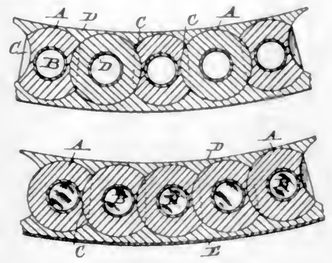
3. In a can-opener, the combination of a lever-bar provided at one end with an entering fulcrumed-point and at its other end with a handle, a cutter-carrying bar bent downward at one end and provided with a pair of stop-lugs and a cutter therebetween and at its other end with a handle lying above and adjacent to the handle of the lever-bar, this cutter-carrying bar being provided with an opening in the downward-bent portion, just above the cutter, through which said lever-bar works, and also with a depending stop-lug above the opening adapted to engage the lever-bar, for the purposes set forth.

664,034. FURNACE. FRANZ H. BECKER, Wevelinghoven, Germany. Filed May 3, 1898. Serial No. 679,604. (No model.)



Claim.—In combination in a furnace, a hopper, a series of hearths receiving the discharge therefrom arranged in step fashion, heating means arranged contiguous to but slightly above each step, a receiver located at the discharge ends of the hearths, a refining-chamber communicating therewith at the bottom of the same, a working chamber and a short partition separating the refining-chamber from the working chamber, substantially as described.

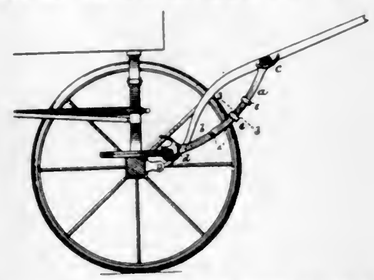
664,035. TIRE FOR CYCLES OR OTHER ROAD-VEHICLES. THOMAS BURRELL, North Melbourne, Victoria. Filed July 20, 1900. Serial No. 24,325. (No model.)



Claim.—1. A tire for cycles and other road-vehicles consisting of blocks of cork or other equivalent resilient compressible material having holes therethrough and having their adjacent sides formed so that they will interlock or fit together to form a ring which is enveloped in rubber substantially as and for the purposes herein described.

2. In a tire a number of spherical or spheroidal blocks of cork or other equivalent resilient compressible material each having a comparatively large hole bored transversely therethrough and each formed with a cup-shaped or concave recess on one side (as C) corresponding to the contour of the adjoining block substantially as and for the purposes herein described.

664,036. SUPPORT FOR BUGGY-THILLS. JOHN A. CRISP, Jefferson, Ohio. Filed Oct. 24, 1900. Serial No. 34,198. (No model.)

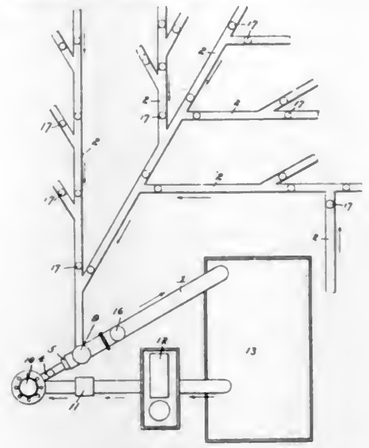


Claim.—1. A support for buggy-thills consisting of a pair of overlapping bars, the upper bar being provided with a device for engaging the cross-bar of the thills and the lower bar being provided with a device for engagement with the buggy proper, and both bars being curved where they overlap, a loop or loops carried by one of the bars for holding them slidingly in their overlapped position, for the purpose set forth.

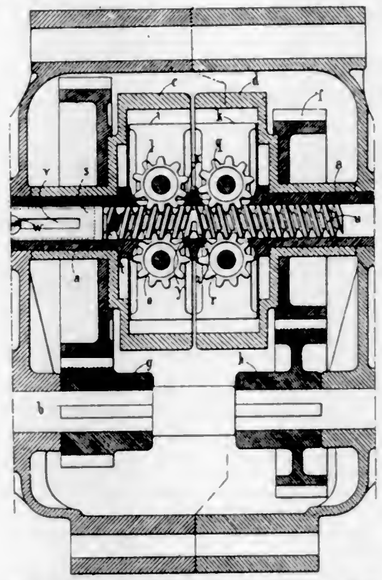
2. A thill-support comprising a pair of overlapping curved bars, each having at its outer end a device for engaging a part of a vehicle and one being notched along one edge and the other being provided with a confining-loop, for the purpose set forth.

664,037. HYDRAULIC EJECTOR. MATTHIAS CROWTHER, West Pittston, Pa. Filed Apr. 30, 1898. Serial No. 679,377. (No model.)

Claim.—In an apparatus of the sort described, the combination of a stand-pipe, a reservoir, a force-pump emptying said reservoir into said stand-pipe, an ejector having its discharge-pipe leading to the reservoir and provided with a shut-off valve, the nozzle of said ejector receiving its actuating-jet from the stand-pipe, and a supply-pipe connected to said ejector and leading to the various pools or reservoirs throughout the mine, this supply-pipe and its branches being provided with shut-off valves whereby a portion of the water pumped into the stand-pipe will be employed to automatically collect the water from the various pools of the mine and empty it into the reservoir and the supply-pipe and its branches may, in case of fire, be supplied with water from the stand-pipe.



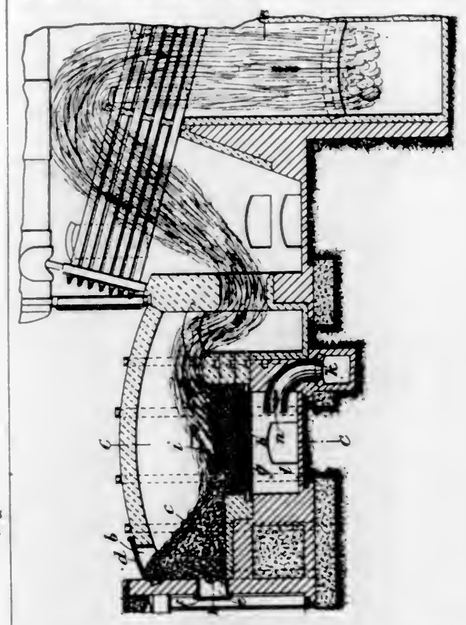
664,038. FRICTION-CLUTCH. ALBERT DE DION and GEORGES BOUTON, Puteaux, France. Filed Aug. 14, 1900. Serial No. 26,898. (No model.)



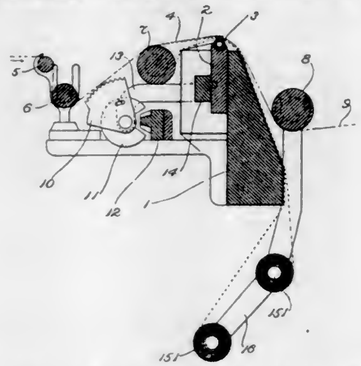
Claim.—The combination with a hollow shaft, sleeves suitably connected thereon, pinions fast on said sleeves and operated by a drive-shaft, segments suitably arranged in said sleeves and two pairs of vertically-alining pinions for operating said segments, of a longitudinally-moving rod having a pair of diametrically opposite grooves and further provided with two series of screw-threads for operating the two pair of alining pinions in opposite directions imparting movement thereby to said segments, and screws engaging in said grooves to prevent the angular displacement of said rod, substantially as herein shown and described.

664,039. REFUSE-CONSUMING FURNACE. WILLIAM J. GLEN, London, England. Filed Aug. 20, 1900. Serial No. 27,491. (No model.)

Claim.—A refuse-consuming furnace provided with supply, stoke and discharge openings arranged respectively in the top, front and sides thereof, a hearth entirely upon the level of said stoke and discharge opening, and a grate below the level of said hearth.



664,040. CLOTH-SHEARING MACHINE. THOMAS H. GREENE, Woonsocket, R. I. Filed Apr. 22, 1898. Serial No. 678,603. (No model.)



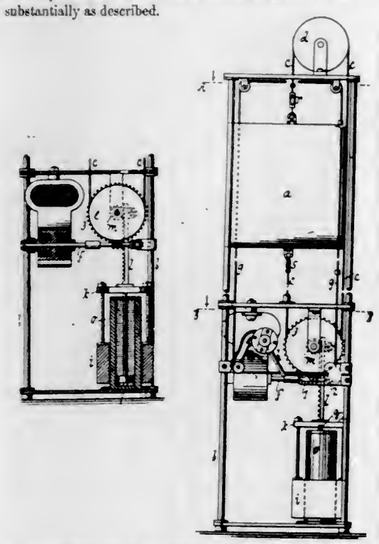
Claim.—1. The combination with the cloth-bed or cloth-rest having adjustable end sections and also having selvage-protector devices or list-savers combined therewith, substantially as described, of an elastic cushion applied to said cloth-bed or cloth-rest, a cover-support located on the side of the said cushion from which the cloth advances to the latter and a cover extending from the opposite side of the cushion, around said support, and returning upon itself over the cushion.

2. The combination with the cloth-bed or cloth-rest having adjustable end sections and also having selvage-protector devices or list-savers combined therewith, substantially as described, of an elastic cushion applied to the said cloth-bed or cloth-rest, the support 7 at one side of the said cushion, entirely above the said selvage-protector devices or list-savers, and a cover 4 overlying the cushion passing around the said support and returning upon itself over the cushion.

664,041. ELEVATOR. JOSEPH HADFIELD, New York, N. Y., assignor of one-third to George S. Mullally, same place. Filed Mar. 15, 1900. Serial No. 8,816. (No model.)

Claim.—1. An elevator-shaft and a car, an actuator for causing the

car to travel back and forth, and a counterweight made separate from the actuator and placed in the shaft below the car so as not to rise above the latter substantially as described.



2. An elevator-car, a driving-shaft for the car, a motor for actuating the shaft and a counterbalance made separate from the motor and having a rack-and-pinion connection with the shaft, substantially as described.

3. An elevator-car, an actuator for the car, a speed-regulating cylinder and a counterweight made to surround and be guided by the cylinder, substantially as described.

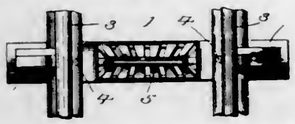
4. An elevator-car, a driving-drum for the car, a cross-head *k* geared to the drum, a piston and counterweight suspended from the cross-head, and a cylinder for the piston, said counterweight being seated about the cylinder substantially as described.

5. An elevator-shaft and a car, combined with a worm-shaft and gear actuating the car, a counterweight connected to the gear, a cylinder about which the counterweight is guided, and a piston in the cylinder connected with the counterweight, said cylinder having a passage with a regulating-valve, substantially as described.

6. An elevator-car, a driving-drum for the car provided with a gear and pinion, a rack *l* engaged by the pinion, a piston and counterweight connected to the rack, a cylinder for the piston about which the counterweight is seated, a worm-shaft made to engage the gear and a motor for the shaft, substantially as described.

7. An elevator-car, a driving-drum for the car provided with a gear, a central worm-shaft made to engage the gear, a motor, and lateral worm-shaft driven by the central worm-shaft and geared to the drum, substantially as described.

664,042. METALLIC RAILWAY-TIE. WILLIAM H. HILLYER, Freeport, Ohio. Filed Mar. 23, 1900. Serial No. 9,939. (No model.)



Claim.—1. A hollow, antitread device combined with a railroad-tie and located intermediate the rails of the track and comprising upwardly-sloping sides having approximately vertical spaced slots to lighten the structure and admit of the passage of ballast.

2. A hollow antitread device combined with a railroad-tie and located intermediate the rails of the track and comprising upwardly-sloping ends and sides having approximately vertical spaced slots, as and for the purpose specified.

3. An antitread device composed of slotted plates having outer flanges at their lower edges and having their upper edges beveled and adapted to meet on a miter-joint, means for securing the miter-joint, and other means for attaching the flanged edges of the plates to the tie, substantially as set forth.

4. A metallic tie having end lugs to overlap the foot of the rails and formed to bear against the web thereof, beneath the tread, and against the side of the tread, in combination with rails having openings in their base portions to register with similar openings formed in the tie, and fastening devices passed through said openings.

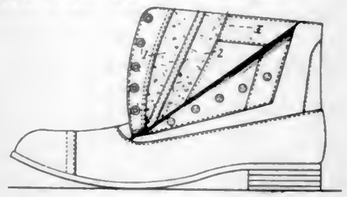
664,043. LOCK FOR TELESCOPING BAGS. CALVIN J. HOLMAN and EBERHARD GANGOLF, Chicago, Ill. Filed Apr. 16, 1900. Serial No. 13,127. (No model.)



Claim.—1. A lock for telescopes, comprising a ratchet-plate secured on the body of the telescope, a locking device carried by the cover of the telescope and comprising a longitudinally-slotted casing having a lever pivotally mounted therein and working in said slot, a lug carried by said lever and designed to be turned into and out of engagement with the teeth of said ratchet-plate, a locking-bar pivoted to said casing, and means for turning said locking-bar to cause it to lie transversely across said slot and in front of said lever to prevent the turning of the latter, substantially as described.

2. A lock for telescopes comprising a ratchet-plate secured on the body of the telescope, a locking device carried by the cover of the telescope comprising a longitudinally-slotted casing, having a lever pivotally mounted therein and working through said slot, a lug carried by said lever and designed to be turned into and out of engagement with the teeth of said ratchet-plate, a spring-bar secured at one end within said casing and having a shoulder, a disk having a non-circular aperture, said disk being revolubly mounted in the casing above the shoulder of said spring-bar and having secured thereon a locking-bar normally lying beneath said spring-bar and parallel therewith, and a key designed to fit in said aperture whereby said locking-bar may be turned across the slot in the casing and in front of said lever and permit the shoulder of the spring-bar to engage beneath its under edge and to press said spring-bar inward to release its shoulder from engagement with the locking-bar and permit the same to be turned to its normal position, substantially as described.

664,044. BOOT OR SHOE. RUDOLF HÖRMANN, Hoboken, N. J. Filed Apr. 23, 1900. Serial No. 14,024. (No model.)



Claim.—1. A shoe comprising an instep portion, and gore-sections having concave edges secured to one another along a straight line, and convex edges secured to the said instep portion of the shoe, substantially as and for the purpose described.

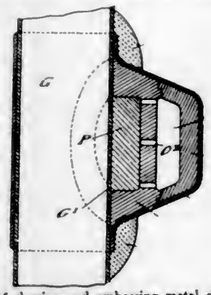
2. In a shoe or the like, the combination with the instep portion and instep-flap, of gore-sections having concave and convex edges, the concave edges of said gore-sections being secured to one another along a straight line and the convex edges being secured to the instep-flap so as to throw the elastics all into the line of pull across the instep, substantially as described.

3. In a shoe or the like, the combination with the instep portion and instep-flap, of a compound gore having concave edges secured together along a straight line and convex edges secured to the instep-flap, the said gore being adapted to secure a uniform elasticity along the instep, the leather or other material of the shoe being loosely extended over the gore to cover the same, substantially as described.

4. In a shoe-upper or the like, the combination with the instep portion and the instep-flap, of a compound gore the parts of which are secured together so as to dispose the elastics all into the line of pull and across the instep, said compound gore being secured to the instep-flap to cover and conceal said gore and having a fullness or looseness as compared with the gore, substantially as described.

664,045. METHOD OF SHAPING AND EMBOSSING METAL OBJECTS BY FLUID-PRESSURE. CARL HUBER, Carlsruhe, Germany. Filed Jan. 29, 1900. Serial No. 3,206. (No model.)

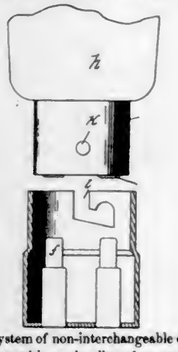
Claim.—1. In a method of shaping and embossing metal objects by molds and liquid-pressure, hermetically inclosing the contiguous or opposite surfaces of the metal object and the mold by means of plastic impervious packing material applied around the edges of such surfaces and subjecting the whole on all sides to liquid-pressure in a chamber, substantially as described.



2. In a method of shaping and embossing metal objects by molds and liquid-pressure in which a mold is fitted over that part of the object that requires to be shaped, hermetically inclosing the joint between the mold and the object by means of plastic adhesive and impervious packing material applied over the edge of the mold and subjecting the whole on all sides to liquid-pressure in a chamber, substantially as described.

3. The method of shaping and embossing metal objects by means of molds and liquid-pressure which consists in fitting a hollow mold closely over that part of the object that requires to be shaped, said mold having an outer chamber communicating by channels with its hollow, which hollow is filled with plastic material hermetically inclosing the joint between the mold and the object by means of plastic adhesive and impervious packing material applied over the edges thereof, then introducing such combined object and mold into a pressure-chamber charged with liquid-pressure medium so that such medium has access to all the outer surfaces of the body and mold, and then subjecting said medium to pressure whereby the body in being forced into the hollow of the mold gradually forces the plastic material out of the same through the said channels into the outer chamber substantially as and for the purposes described.

664,046. SYSTEM OF NON-INTERCHANGEABLE CONTACT PARTS. RUDOLF HUNDHAUSEN, Wilmersdorf, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill. Filed Nov. 4, 1899. Serial No. 735,762. (No model.)



Claim.—1. In a system of non-interchangeable electrical contact appliances, the combination with a plurality of engaging elements in the form of sockets, of a second plurality of engaging elements in the form of plugs, laterally-projecting pins of different sizes provided upon one set of the engaging elements, and slots or recesses of different sizes provided upon the other engaging elements, whereby circuit connections may be established and the improper insertion of connecting-plugs prevented, substantially as described.

2. In a system of non-interchangeable electrical contact appliances, the combination with a plurality of engaging elements in the form of sockets, of a second plurality of engaging elements in the form of plugs, laterally-projecting pins of different sizes provided upon one set of the engaging elements, and longitudinally-disposed slots or recesses of different sizes provided upon the other engaging elements, whereby circuit connections may be established and the improper insertion of connecting-plugs prevented, substantially as described.

3. In a system of non-interchangeable contact appliances, the combination with a plurality of contact-plugs provided with laterally-extending pins or lugs of different sizes, of a plurality of sockets provided with slots or recesses of different sizes, whereby circuit connections may be established and improper insertions of the plugs within the sockets prevented, substantially as described.

4. In a system of non-interchangeable contact appliances, the combination with a plurality of contact-plugs provided with laterally-extending pins or lugs of different sizes, of a plurality of sockets provided with slots or recesses of different sizes, the slots extending longitudinally of the sockets, whereby circuit connections may be established and improper insertions of the plugs within the sockets prevented, substantially as described.

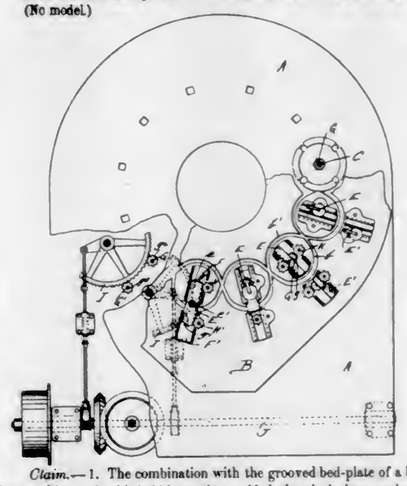
5. In a system of non-interchangeable contact appliances, the combination with a plurality of contact-plugs provided with laterally-extending pins or lugs of different sizes, of a plurality of sockets provided with bayonet slots or recesses of different sizes, the said bayonet-slots serving to prevent improper insertions of the plugs and coacting with the pins to secure the engagement between the plugs and sockets, substantially as described.

6. In a system of non-interchangeable contact appliances, the combination with a plurality of contact-plugs provided with laterally-extending pins or lugs of different sizes, of a plurality of sockets provided with bayonet slots or recesses of different sizes, the slots extending longitudinally of the sockets, the said bayonet-slots serving to prevent improper insertions of the plugs and coacting with the pins to secure the engagement between the plugs and sockets, substantially as described.

7. In a system of non-interchangeable contact appliances, the combination with a plurality of contact-plugs provided with pins or lugs of different sizes, of a plurality of sockets provided with bayonet slots or recesses of different sizes, the said bayonet-slots serving to prevent improper insertions of the plugs and coacting with the pins to secure the engagement between the plugs and sockets, substantially as described.

8. In a system of non-interchangeable electrical contact appliances, the combination with a plurality of engaging elements in the form of sockets, of a second plurality of engaging elements in the form of plugs, laterally-projecting pins of different sizes provided upon one set of the engaging elements, longitudinally-disposed slots or recesses of different sizes provided upon the other engaging elements, whereby circuit connections may be established and the improper insertion of connecting-plugs prevented, the terminals upon the plugs being adapted for engagement with terminals *f*, *f*, in the sockets, and springs *n* in engagement with the terminals *f*, *f*, substantially as described.

664,047. BRAIDING-MACHINE. HENRY JANSSEN and FERDINAND THUN, Reading, Pa. Filed Aug. 24, 1897. Serial No. 648,402. (No model.)



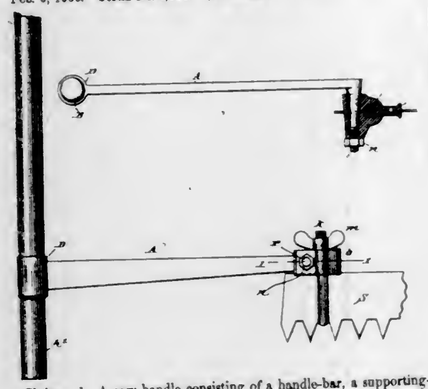
Claim.—1. The combination with the grooved bed-plate of a braiding-machine and with bobbin-carriers guided therein in intersecting serpentine courses of other bobbin-carriers arranged to cross one of said serpentine courses between the intersections of said courses substantially as set forth.

2. The combination with the grooved bed-plate of a braiding-machine and with bobbin-carriers guided therein in intersecting serpentine courses of carrier-driving gears therefor having hollow shafts around which the

intersecting courses curve, and other bobbin-carriers guided transversely to said courses between the intersections thereof, with mechanism for operating the latter through said hollow shafts substantially as set forth.

3. The combination with the grooved bed-plate of a braiding-machine and with bobbin-carriers guided therein in intersecting serpentine courses of other bobbin-carriers having toothed base-plates, guides for each of said toothed base-plates and separate pinions for successively engaging the same located respectively inside and outside of one of said serpentine courses between the intersections and jointly operated to traverse the carriers across the latter substantially as set forth.

664,048. SAW-HANDLE. JOHN JETT, San Francisco, Cal. Filed Feb. 9, 1900. Serial No. 4,681. (No model.)



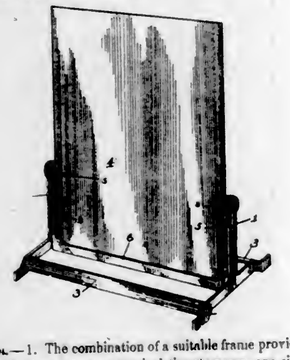
Claim.—1. A saw-handle consisting of a handle-bar, a supporting-arm rigidly connected thereto, and having the supporting-arm connected to the saw by a movable joint adapted to move when the saw is in operation.

2. A saw-handle consisting of a handle-bar, a supporting-arm rigidly connected thereto, a detachable block adapted to be attached to the saw, and having the supporting-arm connected to the detachable block by a movable joint, adapted to move when the saw is in operation.

3. A saw-handle consisting of a handle-bar, a supporting-arm rigidly connected thereto, a detachable block adapted to be attached to the saw, and having the supporting-arm connected to the detachable block by a movable joint, adapted to move when the saw is in operation, and to allow the handle-bar to swing to a partially-inverted position above the back of the saw, when the saw is in a horizontal position.

4. A saw-handle consisting of a handle-bar, a supporting-arm rigidly connected thereto, a detachable block adapted to be attached to the saw, and having the supporting-arm connected to the detachable block by a movable joint, the said joint being made adjustable for wear, and adapted to move when the saw is in operation.

664,049. SIGN. LAFAYETTE JOHNSON, Anderson, Ind., assignor of one-half to Horace C. Stilwell, same place. Filed Sept. 10, 1900. Serial No. 29,590. (No model.)

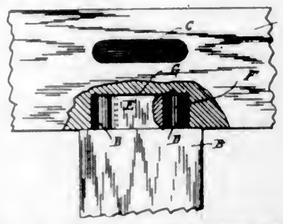


Claim.—1. The combination of a suitable frame provided with bearings, a sign having gudgeons attached thereto nearer one side or end than the other and mounted in said bearings, and a weight attached to that edge of the sign which is nearest a line drawn through the gudgeons whereby the sign is maintained in upright position with the larger surface above the gudgeons, substantially as set forth.

2. The combination of a suitable framework, a U-shaped structure comprising gudgeons and a weight and adapted to receive a sign-board, and said sign-board fitted to be held by said structure and proportioned so that the larger portion of its surface extends above the gudgeons, substantially as set forth.

3. The combination of a suitable frame, a sign having pivotal bearings nearer one side or end than the other and mounted in said frame, and a weight attached to that edge of the sign which is nearer the axial line of said pivotal bearings than the opposite edge, whereby the sign is maintained in upright position with the larger surface above the pivotal bearings, and thus subject to vibration under the effect of a current of air.

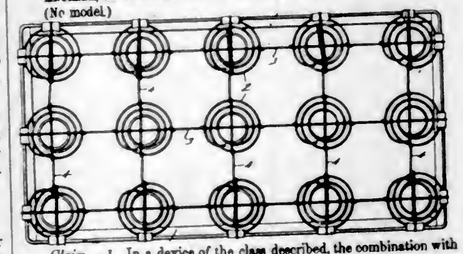
664,050. TENON-AND-MORTISE JOINT. HENRY S. JORDAN, Grand Rapids, Mich. Filed Oct. 9, 1900. Serial No. 32,529. (No model.)



Claim.—1. A mortise-and-tenon joint composed of a mortise having curved ends, the tenon having a center piece E, the cylindrical portions D D separated from the central portions E by means of the curved slots, substantially as described.

2. The combination of the tenon composed of the central portion E, the cylindrical portions D D, slots extending substantially the length of the tenon in combination with the mortise G, all constructed as and for the purpose set forth and described.

664,051. SPRING FOR COUCHES, SEATS, &c. AUGUSTUS T. KJORZER, Middletown, Conn. Filed May 2, 1900. Serial No. 15,241. (No model.)

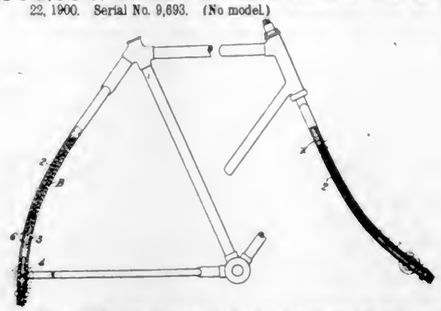


Claim.—1. In a device of the class described, the combination with a frame or support, and springs, of a wire brace provided between its ends with eyes arranged in pairs and adapted to receive the upper coils of the springs, said brace having a horizontal central portion connecting the springs and provided with inclined ends extending downward within the terminal springs and connected to intermediate coils of the same and having flexible connections with the frame or support, substantially as described.

2. In a device of the class described, the combination with a frame or support, and a row of springs, of a wire brace provided between its ends with eyes arranged in pairs to receive the top coils of the springs, said brace having an intermediate horizontal portion connecting the springs and provided with inclined end portions provided with eyes receiving intermediate coils of the marginal springs, and chains connecting the ends of the brace with the frame or support, substantially as described.

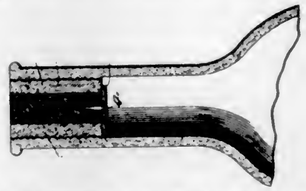
3. In a device of the class described, the combination of a supporting-frame, springs arranged in rows, wire braces connecting the springs and provided between their ends with eyes arranged in pairs to receive the top coils, said braces being provided with intermediate horizontal portions connecting the springs and having inclined end portions located within the marginal springs, and terminating in eyes receiving the adjacent intermediate coils, chains connecting the ends of the braces with the supporting-frame, a top frame, clips connecting the top frame with the marginal springs, and the supplemental braces, substantially as described.

664,052. BICYCLE. OLIN J. LAWRY, Redding, Cal. Filed Mar. 22, 1900. Serial No. 9,693. (No model.)



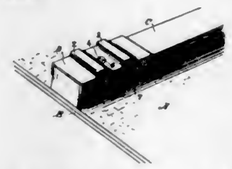
Claim.—The combination with the forks of a bicycle, having slotted inner sides, and wheels adapted to revolve between said forks, of a guide interior to each member of said forks and extending some distance above and below their point of connection with the wheel-axle, each of said guides having its upper and lower ends slotted one at right angles to the other and having their intermediate portions recessed and rollers mounted in said slotted ends and also in slots in the guides at points intermediate of said ends, said rollers contacting with the inner walls of the forks, said axle having its ends passed through the guides and into the recessed portion thereof, and nuts located in said recessed portions whereby the ends of the axle are rigidly secured to the guides, and springs located within the forks above and below the guides, and yielding to pressure thereon.

664,053. BOTTLE-CLOSURE. WILLIAM H. LOCKHART and GEO. H. KLEIN, Fowler, Colo. Filed May 5, 1900. Serial No. 15,624. (No model.)



Claim.—In combination with a bottle having its neck interiorly threaded, an exteriorly-threaded sleeve of frangible material secured within the neck of the bottle by a cement and threaded joint, said sleeve having oppositely-disposed lugs at its outer end to facilitate the positioning of the sleeve and which lugs are removed after the sleeve has been placed in position, a cork fitted into the sleeve, an index placed against the inner end of the sleeve and cork, and a pin having its head embedded in the material of the index and serving to secure the latter to the cork, substantially as set forth.

664,054. DRAPER-SLAT PROTECTOR. CHARLES J. LUCKEHE and THEODOR T. LUCKEHE, Gridley, Cal. Filed Sept. 7, 1900. Serial No. 29,261. (No model.)

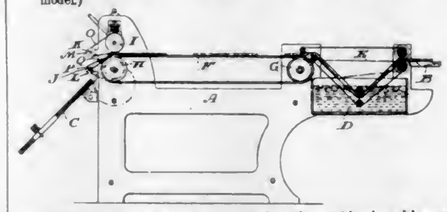


Claim.—1. A draper-slat protector, consisting of a metal piece fitting upon and partially inclosing the sides of the slat, and having transverse, convex corrugations upon its upper surface, and a means for attaching it to the slat.

2. A draper-slat protector consisting of a metal cap upon and fitting the vertical sides and top of the slat and having transverse convex corrugations on the top, and a rivet-hole intermediate of the raised portions to receive a rivet by which it is secured to the slat.

3. A draper-slat protector consisting of a metal plate fitting upon and partially inclosing the sides of the slat, and having corrugations upon its upper surface between which are headed the rivet by which the plate, slat, canvas and straps are commonly held together.

664,055. PAPER-DAMPING MACHINE. HENRY MANEGOLD, Milwaukee, Wis., assignor to the Milwaukee Paper Dampening Machine Company, same place. Filed Mar. 17, 1899. Serial No. 709,495. (No model.)



Claim.—1. In a paper-damping machine the combination with pressing-rollers and means for passing the dampened paper between them, of cords or bands passing over the lower roller, guides arranged to carry said cords away from said roller on the delivery side thereof, and arms extending from said guides approximately parallel with said cords or belts to points near the surface of said roller where the paper leaves the same, substantially as and for the purposes set forth.

2. In a paper-damping machine the combination with pressing-rollers and means for passing the dampened paper between them, of cords or bands passing over the lower roller, guides arranged to carry said cords or bands away from said roller on the delivery side thereof, and vertically-adjustable arms extending from said guides to points close to the surface of said roller where the paper leaves the same, substantially as and for the purposes set forth.

3. In a paper-damping machine the combination with pressing-rollers and an endless belt passing over the lower roller for carrying the dampened paper between said rollers, of cords or bands passing over said belt between said rollers, guides arranged to carry said cords or bands away from said belt at the delivery end thereof, and arms extending from said guides to points close to the surface of said belt where the paper leaves the same, substantially as and for the purposes set forth.

4. In a paper-damping machine the combination with pressing-rollers for expelling surplus water from the paper, and means for passing the wet paper between said rollers, of cords passing over the lower roller, a rod or shaft arranged parallel with and on the delivery side of said rollers and below the top of the lower roller, sheaves mounted upon said rod or shaft and guiding said cords away from the lower roller on its delivery side, arms mounted upon said rod or shaft and extending therefrom toward the lower roller, and sheaves carried by said arms and supporting said cords near the points where they leave the lower roller, substantially as and for the purposes set forth.

5. In a paper-damping machine the combination with a pair of pressing-rollers arranged one above the other for expelling surplus water from wet paper, and means for passing the paper between said rollers, of two sets of endless cords passing between said rollers, guides arranged parallel with said rollers on the delivery side thereof and carrying said cords away from them, and arms extending from the lower guides parallel with the cords passing over them to points close to the surface of the lower pressing-roller where said cords leave it, substantially as and for the purposes set forth.

664,056. COCKROACH-TRAP. THOMAS J. MAY, Kansas City, Mo. Filed July 8, 1899. Serial No. 723,227. (No model.)

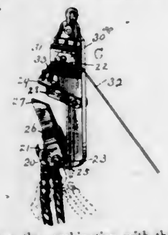


Claim.—An insect-trap comprising a marginally-grooved base-plate, a body or cage of foraminous material, open at its top, and having its lower edge fitting within said marginal groove, the edge of said upper opening being curled inwardly and downwardly; and a hopper-shaped collar formed of hard smooth material, the upper edge of said collar underlying and secured to the inwardly-curled edge of said upper opening in the body of the trap, substantially as described.

664,057. HAY-SLING. GUSTAV A. OLSON, Lerdal, Minn. Filed Sept. 23, 1899. Serial No. 731,401. (No model.)

Claim.—1. In a hay-sling, the combination with the sling-pulleys,

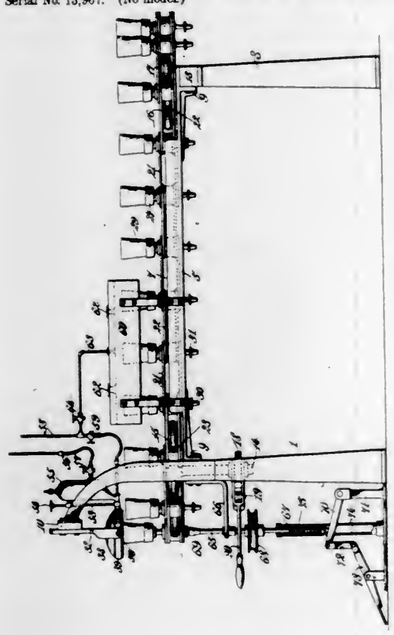
of a trip-supporting frame detachably secured to one of said pulleys, a bifurcated trip-latch pivotally mounted upon said frame, and straddling the same, and provided with outwardly-projecting trip-hooks, a catch pivotally mounted upon said frame in position to engage and hold the upper end of said trip-latch, means for holding said catch normally in position to engage said trip-latch, a trip-rope secured to said catch for raising it out of such engagement, and a sling-rope provided with eyes at the ends for attachment to said trip-hooks, and adapted to be detachably connected with a second pulley.



2. In a hay-sling, the combination with the sling-pulleys, of a trip-supporting frame detachably secured to one of said pulleys, and formed with a laterally-extending arm, a bifurcated trip-latch pivotally mounted upon said arm and straddling the same, and provided with trip-hooks, a catch pivotally mounted upon said frame, means for holding said catch in position to engage and hold the upper end of said trip-latch, a trip-rope secured to said catch for raising it out of such engagement, and a sling-rope provided with eyes upon its ends for attachment to said trip-hooks, and having means for detachable connection with a second sling-pulley.

3. In a hay-sling, in combination with the sling-pulleys, a trip-supporting frame detachably secured to one of said sling-pulleys and formed with a laterally-extending arm, a bifurcated trip-latch pivotally mounted upon said arm and straddling the same, and provided with outwardly-projecting trip-hooks, a catch pivotally mounted on said frame in position to engage and hold said trip-latch, spring means for holding said catch normally in position to engage said trip-latch, a trip-rope secured to the outer end of said catch for tripping the same, a guide-pulley for said trip-rope mounted upon said frame, and a sling-rope detachably secured to a second sling-pulley and to said trip-hooks.

664,058. APPARATUS FOR GLAZING AND FINISHING ARTICLES OF GLASSWARE. ANTON ROEMISCH, Morgantown, W. Va., assignor to the Seneca Glass Company, same place. Filed Apr. 23, 1900. Serial No. 13,967. (No model.)



Claim.—1. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a horizontally-arranged, endless chain constituting a glass-carrier, and vertically-movable glass-holders extending through the pivots connecting the links of said chain.

2. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a horizontally-arranged, endless chain constituting a glass-carrier, guides or supports therefor, and vertically-movable glass-holders extending through the pivots connecting the links of said chain.

3. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, glass-holders on said carrier, and means operating independent of the movement of said carrier for moving said holders longitudinally.

4. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, glass-holders on said carrier, a shaft for moving said holders longitudinally, means for coupling said shaft separately to said holders, and means operating independently of the movement of said carrier for actuating said shaft.

5. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a flexible, horizontally-arranged glass-carrier, glass-holders on said carrier, and a foot-lever for moving said holders vertically independent of said carrier.

6. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, a plurality of glass-holders on said carrier, a rotating shaft, and means for coupling said shaft with each of said holders for rotating them.

7. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, glass-holders on said carrier, and means operating independently of the movement of said carrier for imparting a longitudinal movement to said holders and for rotating the same.

8. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier movable beneath said heater, glass-holders on said carrier, means for imparting an intermittent progressive movement to said carrier, and means operating independently of the movement of said carrier for elevating and rotating said holders.

9. In an apparatus for glazing and finishing articles of glassware, the combination with a heater in which the glazing and finishing are effected, of means independent of said heater for imparting a preliminary heating to the articles under treatment prior to their entrance to said heater.

10. In an apparatus for glazing and finishing articles of glassware, the combination with a main heater, of a glass-carrier for conveying the articles to be treated to said heater, and a preliminary heater adjacent to said carrier but independent of and in advance of said main heater.

11. In an apparatus for glazing and finishing articles of glassware, the combination with a main heater, of a glass-carrier for conveying the articles to be treated to said heater, and an auxiliary heater independent of and in advance of said main heater, consisting of an elongated hood through which the glasses on said carrier are caused to pass on their way to the main heater.

12. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier in the form of an endless sprocket-chain, horizontally-arranged sprocket-wheels on which said carrier is mounted, a ratchet-wheel secured to one of said sprocket-wheels, an operating-lever for said carrier having a pawl thereon adapted to engage said ratchet-wheel, glass-holders on said carrier, a longitudinally-movable rotary shaft, and means for coupling said shaft with said holders for moving the same longitudinally and rotating them independent of said carrier.

13. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, and means for adjusting the same, of a flexible horizontally-disposed glass-carrier movable beneath said heater, glass-holders on said carrier, and means independent of the movement of said carrier for moving said glass-holders vertically.

14. In an apparatus for glazing and finishing articles of glassware, the combination with a main heater, of an endless glass-carrier movable beneath the same, glass-holders on said carrier, means independent of the movement of said carrier for moving said glass-holders vertically, and a preliminary heater in the form of a hood independent of and located in advance of said main heater and adapted to embrace the glasses to be treated and heat the same before they reach said main heater.

15. In an apparatus for glazing and finishing articles of glassware, the combination with a glass-carrier, glass-holders thereon and means for moving said glass-holders longitudinally independent of said carrier, of a heater having an opening therein for the admission of the article to be treated and a groove or channel surrounding said opening, and means for supplying gaseous fuel to one point of said channel.

16. In an apparatus for glazing and finishing articles of glassware, the combination with a glass-carrier, glass-holders thereon, and means for moving said holders longitudinally independent of said carrier, of a heater consisting of a base having an opening therein for the admission of the article to be treated, having an annular channel around said opening and having an orifice therein leading into said channel, an imperforate top, and a clamp upon which said heater is supported, consisting of two pivotally-connected semicircular sections one of which is provided with a nipple which fits within said orifice, and means for securing the free ends of said sections together.

17. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a clamping-band embracing the same, comprising two pivoted sections, the ends of which are provided with screw-threaded openings, supports for said heater fitting against the projecting ends of said sections, and screws extending through said supports into said screw-threaded openings.

18. In an apparatus for glazing and finishing articles of glassware, the combination with a heater having an opening therein for the introduction of the article to be treated, of a pipe communicating with the interior of said heater, an air-dome for compressed air connected with said pipe, and a gas-supply pipe also connected with said pipe, and valves for controlling the separate supply of air and gas to said pipe and for controlling the supply of the mixture of air and gas to said heater.

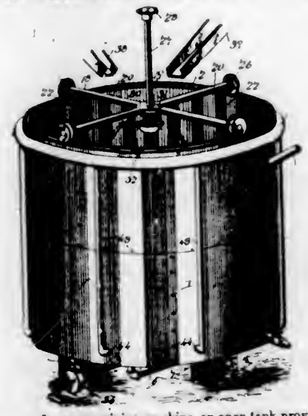
19. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier consisting of a chain made up of a plurality of links, antifriction-rollers between the side links of said chain, and a hollow bushing for the reception of the stem of a glass-holder extending through each of said rollers and the links between which it is located.

20. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, a plurality of longitudinally-movable glass-holders on said carrier, a rotary shaft adapted to separately engage each of said holders, and means for moving said shaft longitudinally and for coupling said shaft with said holders for imparting a similar movement to said holders and for rotating the same.

21. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a glass-carrier, longitudinally-movable glass-holders on said carrier, each having a tapering outer end, a rotary shaft having a socket therein adapted to receive the tapering end of each of said holders, and means for moving said shaft longitudinally to impart a similar movement to said holders and to rotate the same.

22. In an apparatus for glazing and finishing articles of glassware, the combination with a heater, of a horizontally-disposed glass-carrier movable beneath the same, glass-holders on said carrier, vertically movable independently thereon, having their stems extending through said carrier and provided with tapering lower ends, a vertically-movable rotary shaft having a tapering socket in its upper end, a spring for maintaining said shaft in its lowered position, and a foot-lever for elevating the same to bring the tapering lower end of each of said holders into engagement with the socket in the upper end thereof for elevating said holders and imparting a rotary movement thereto.

664,059. ORE-MIXING MACHINE. JOHN P. SCHUCH, Jr., Cripple Creek, Colo. Filed Nov. 29, 1898. Serial No. 697,780. (No model.)



Claim.—1. In an ore-mixing machine, an open tank provided at the bottom with a solution-drain, a perforated false bottom arranged within the tank above the main bottom and supporting filtering material, an ore-discharge pipe communicating with the interior of the tank immediately above the plane of the false bottom, a revoluble agitator depending within the tank into close proximity with reference to the false bottom, and a plurality of air-jets arranged to communicate with the tank in a plane intermediate the said false bottom and the lower end of the agitator thereabove, substantially as set forth.

2. In an ore-mixing machine, an open tank provided in the main bottom thereof with an annular drain-gutter pierced by drain openings or ports, a bottom strainer for the tank, said strainer being arranged above the main bottom and consisting of a perforate false-bottom plate having a plurality of perforated drip-grooves, and superposed spaced fibrous sheets arranged over the said false-bottom plate, and a revoluble agitator arranged to work above said bottom strainer, substantially as set forth.

3. In an ore-mixing machine, an open tank provided in the main bottom thereof with an annular drain-gutter pierced at intervals by drain openings or ports, a drainage-pipe having a plurality of valved branches respectively leading to separate drain openings or ports, a strainer arranged within the bottom portion of the tank, a discharge-spout communicating with the tank above the strainer, and an agitator, substantially as set forth.

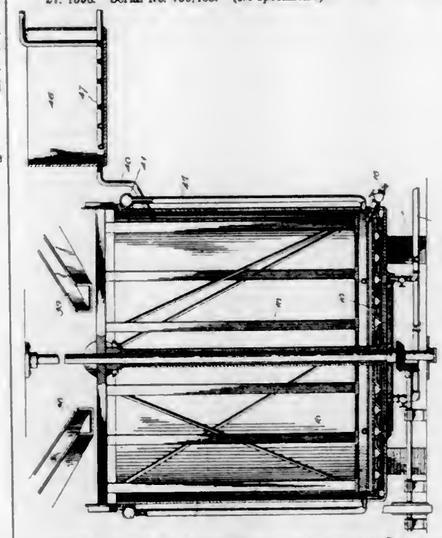
4. In an ore-mixing machine, a tank provided at the bottom with a solution-drain, a bottom strainer for the tank consisting of a perforate false-bottom plate having an upstanding peripheral flange, an intermediate fibrous sheet confined within such flange, and a second upper fibrous sheet having its edges stretched over and secured to the upstanding peripheral flange of the plate and an agitator, substantially as set forth.

5. An agitator for mixing-machines, consisting of a top spider formed of intersecting cross-arms, a plurality of spaced concentric, rectangular bottom frames of different sizes and arranged in the same horizontal plane, and a series of vertical agitator-bars depending from the under sides of the cross-arms and joined at their lower ends to the corners of the bottom frames, substantially as set forth.

6. In an ore-mixing machine, the combination with the tank having a strainer and a mixing device arranged above the latter, of an exterior annular air-blast pipe encircling the tank and provided with a plurality of jets communicating with the interior thereof, substantially as set forth.

7. In an ore-mixing machine, the combination with a tank having a strainer and a mixing device arranged above the latter, of an exterior annular air-blast pipe encircling the tank near the top thereof and provided with a plurality of depending jet-pipes having their lower ends communicating with the interior of the tank near the bottom thereof, substantially as set forth.

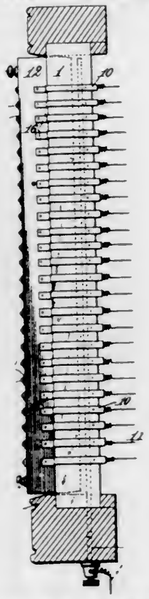
664,060. PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. JOHN P. SCHUCH, Jr., Cripple Creek, Colo. Filed Dec. 27, 1898. Serial No. 700,405. (No specimens.)



Claim.—A method of extracting precious metals from their ores, which consists in combining the crushed ore with a cyanid solution while both are in a warm condition, mechanically mixing the ore and solution by agitation simultaneously with the commingling thereof, charging the mixture during the agitation with hot air, and finally separating the ore and slush or pulp from the metal in solution, substantially as set forth.

664,061. ELECTRIC SWITCH. CHARLES W. SCOTT, Lynchburg, Va. Filed Aug. 16, 1900. Serial No. 27,095. (No model.)

Claim.—1. In an electric switch, the combination with a back piece having a channel therein and a plurality of contacts in said channel, of a movable bar having a tapering edge adapted to fit within said channel, and contacts secured to said tapering edge and adapted to engage respectively the contacts in said channel, as and for the purpose set forth.

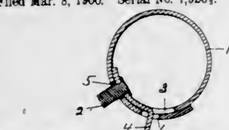


2. In an electric switch, the combination with a back piece having a tapering channel therein, and a plurality of contacts in said channel connected with the switchboard of a telephone-exchange system, of a movable bar having a tapering edge adapted to fit within said channel and a plurality of contacts secured to said tapering edge, connected with the line-wires of a telephone system and adapted to engage respectively the contacts in said channel, as and for the purpose set forth.

3. In an electric switch, the combination with a back piece having two channels therein, of a plurality of contact-strips in one of said channels connected with the switchboard of a telephone-exchange system, a plurality of contacts in the other of said channels connected to a grounded conductor, a movable bar having a tapering edge adapted to fit within said channels, and a plurality of conductors secured to said bar, connected with the line-wires of a telephone system and adapted to engage respectively the contacts in said channels, as and for the purpose set forth.

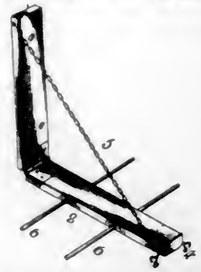
4. In an electric switch, the combination with a back piece of insulating material having a plurality of V-shaped channels therein and having a groove communicating with one of said channels, of a plurality of contact-strips separated one from the other secured within one of said channels and connected with the switchboard of a telephone-exchange system, a grounded conductor extending through said groove, a plurality of contact-strips separated one from the other secured within the other of said channels and wound around and secured to said grounded conductor, a movable bar having a tapering edge adapted to fit within said channels, a plurality of contact-strips separated one from the other, secured to said bar and adapted to engage respectively the contact-strips in said channels, and a plurality of coiled conductors connected with the line-wires of the telephone system and to the contact-strips on said bar, as and for the purpose set forth.

664,062. SEALED LEG-BAND. WILLIAM H. SMITH, Blythedale, Mo. Filed Mar. 8, 1900. Serial No. 7,920½. (No model.)



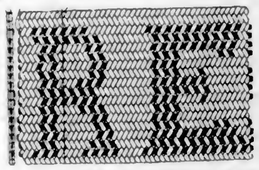
Claim.—A leg-band for birds or poultry, consisting of a strip of sheet metal 1, having two openings 5 and 6 through one end thereof, an integral tongue 4 at the other end thereof adapted to pass through one of said openings, and a soft-metal pin 2 riveted to said strip near tongue 4 and adapted to be inserted in one of said openings and spread or flattened over the edges of said opening so as to form a seal bearing an impressed figure or letter, substantially as described.

664,063. GARMENT-HANGER. FREDRICK A. STARK, Bangor, Me. Filed Jan. 16, 1900. Serial No. 1,680. (No model.)



Claim.—As an article of manufacture, a garment-hanger comprising two bars of equal dimensions, one adapted to be secured vertically to a support, the other having hinged connection with the first bar and being adapted to fold against the first bar or turned down at a right angle thereto, a flexible connection between the bars for limiting the downward movement of said second bar, a spring-catch on the upper end of the first bar to automatically engage and secure the second bar in folded position, and laterally-extending pegs supported by the second bar.

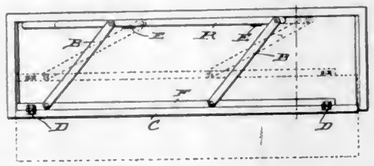
664,064. BRAID. FERDINAND THUN and HENRY JANSSEN, Wyomissing, Pa. Original application filed Aug. 24, 1897, Serial No. 649,402. Divided and this application filed Jan. 11, 1900. Serial No. 1,030. (No specimens.)



Claim.—1. As a new article of manufacture, a braid having interwoven therewith additional or pattern threads which run parallel with the sides of the braid and lie alternately on the surface of and between the overlying diagonal threads as filling-threads.

2. As a new article of manufacture, a braid having additional or pattern threads which run parallel with the sides of the braid and are woven into one face thereof only and lie alternately on the surface of and between the overlying diagonal threads as filling-threads.

664,065. DOOR OR DRAWER EQUALIZER. FRED W. TOBEY, Grand Rapids, Mich., assignor to the Globe-Wernicke Company, Cincinnati, Ohio. Filed Sept. 1, 1899. Renewed Sept. 21, 1900. Serial No. 30,721. (No model.)

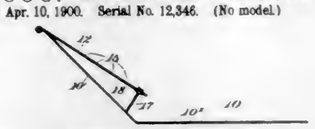


Claim.—1. The combination with a casing, and a door adapted to swing open and slide horizontally into the top portion of the casing, of a lengthwise-movable rod resting against and slidable upon the inner surface of the back wall of the casing, guide devices on said wall in which said rod moves, two parallel, oblique arms pivoted at their rear extremities to the end portions of said rod, and means for pivotally connecting the front extremities of said parallel, oblique arms with the top edge portion of said door, substantially as and for the purposes described.

2. The combination with a casing, and a door adapted to swing from a vertical to a horizontal position and slide into the casing, of a longitudinal hinge-strip movable back and forth in the case with said door and having hinges connecting the door therewith, a longitudinally-movable rod in the top portion of the case, and parallel, oblique arms pivoted at their front ends to said hinge-strip and at their rear ends to said longitudinally-movable rod, substantially as and for the purposes described.

3. The combination with a casing, and a door adapted to swing open and slide horizontally into the top portion of the casing, of a longitudinal hinge-strip movable back and forth in the top of the casing and to which the upper edge of the door is hinged, a longitudinally-movable rod resting against and slidable upon the back wall of the casing, guide devices for retaining said rod upon said back wall, and arms pivoted to said hinge-strip and to said rod, substantially as and for the purposes described.

664,066. PROSPECTING-PAN. JOHN TOBIN, New York, N. Y. Filed Apr. 10, 1900. Serial No. 12,346. (No model.)



Claim.—1. A prospecting-pan having a plate secured to and extending over its side to form a pocket between said plate and side, and a series of separated projections depending from the free edge of said plate and constituting a grid.

2. A prospecting-pan having a plate extending from the rim over the side to form a pocket, and a series of separated projections depending from the free edge of the plate and resting against the side of the pan.

3. A prospecting-pan having a perforated plate extending from the rim over the side of the pan to form a pocket, said plate having a series of adjustable projections depending from its free edge and resting against the side of the pan.

4. A prospecting-pan for hand use having a pocket closed at one side and open at the other side and provided with a grid, the end of said grid resting against the side of the pan.

5. The combination, with a prospecting-pan, of a curved plate secured to the rim of said pan and having its free edge extending over the side of the pan to form a pocket; and a series of removable projections carried by said plate.

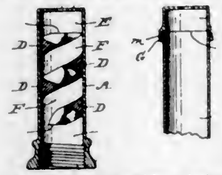
6. The combination, with a prospecting-pan, of a curved plate perforated at intervals, said plate being secured at its upper edge to the rim of the pan and being provided with a grid at its lower edge.

7. The combination, with a prospecting-pan, of a curved perforated plate secured at its ends to said pan, and a series of projections carried by the free edge of the plate, said projections resting against the side of the pan and constituting a grid.

8. The combination, with a prospecting-pan, of a plate curved throughout its length to conform to the shape of the side of the pan, said plate having at each end flanges by which it is secured to the pan, and a series of screws carried by said plate at its free edge.

9. The combination, with a prospecting-pan, of a curved plate perforated longitudinally throughout a portion of its width; means for securing said plate to the side of the pan; and a series of screws carried in the free edge of the plate, said screws resting against said pan and serving the purpose of a grid.

664,067. LAWN-SPRINKLER. JAMES L. TURNER, Indianapolis, Ind. Filed July 25, 1900. Serial No. 24,748. (No model.)



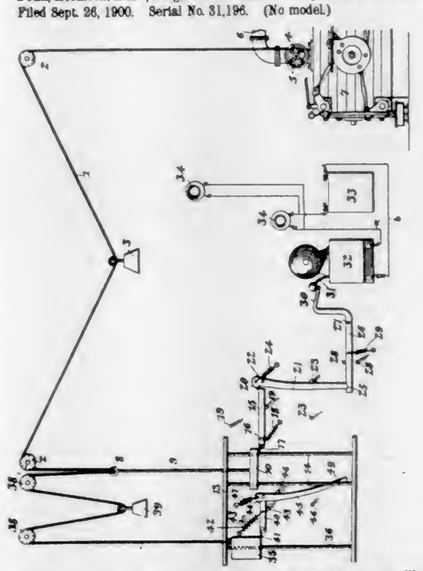
Claim.—1. A lawn-sprinkler comprising a body portion having a cylindrical interior, a spiral core rigidly attached to the interior of the wall of the body portion and extending inwardly from said wall toward, and substantially to, the axis of said body portion, and a cover having an orifice therein removed from one end of said core, substantially as set forth.

2. A lawn-sprinkler consisting of a cylindrical body portion having screw-threads at one end thereof and a cover having an orifice at the opposite end thereof, and a spiral core rigidly attached to the wall of said body portion and extending inwardly from said wall toward, and substantially to, the axis of said body portion and longitudinally from a point near one end thereof to a point near the opposite end thereof, substantially as set forth.

3. A sprinkler-nozzle consisting of a cylindrical body having a smooth bore, a cover having an orifice, and a core rigidly attached to the wall of said body and extending as a spiral rib longitudinally of said body and inwardly toward and substantially to the axis thereof, whereby said core and the wall of said body together form a duct through said nozzle, substantially as set forth.

4. In a lawn-sprinkler, the spiral core D, the case or body inclosing said core and having the joint therein adjacent an end of said core, and a cap having the orifice near said joint, substantially as shown and described.

664,068. AUTOMATIC STOP MECHANISM. CHARLES F. VAN DYKE, Atchison, Kans., assignor of one-half to George Moss, same place. Filed Sept. 26, 1900. Serial No. 31,196. (No model.)



Claim.—1. An automatic stop mechanism comprising a controlling-cable having an operative connection with the cut-off of an engine or similar machine, an actuator for drawing the cable in one direction, holding means for normally retaining the actuator in an inactive position, an electrical releasing device for said holding means, and separate means for slackening the controlling-cable by automatically relieving the same from the drag of the actuator therefor, substantially as set forth.

2. An automatic stop mechanism comprising a controlling-cable having an operative connection with the cut-off of an engine or similar machine, an actuator for drawing the cable in one direction, holding means for normally retaining the actuator in an inactive position, an electrical releasing device for said holding means, and separate means, set in action solely by the movement of said actuator, for automatically slackening the controlling-cable by relieving the same from the drag or pull of the actuator, substantially as set forth.

3. A stop mechanism comprising a controlling-cable having an operative connection with the cut-off of an engine or similar device, an actuating-weight connected with said cable and arranged to move the same in one direction, holding means to hold said weight normally in an inactive position, a releasing device for said holding means, an auxiliary cable member having a connection with said actuating-weight, a separate release-weight carried by the auxiliary cable member, and a release device for said release-weight, substantially as set forth.

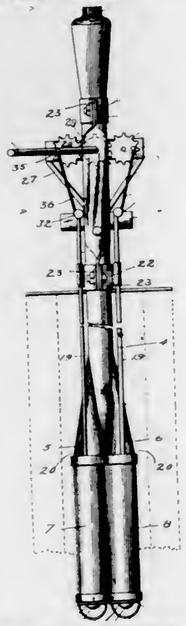
4. An automatic stop mechanism for engines comprising a controlling-cable having an operative connection with the throttle of the engine, an actuating-weight suspended from said cable, a spring-retracted holding-arm arranged to engage the actuating-weight and hold it in an inactive position, a spring-retracted latch arranged to engage with said holding-arm, a spring-retracted trip-lever arranged to engage with said latch, and a combined electrical alarm and releasing device operatively related to said trip-lever, substantially as set forth.

5. An automatic stop mechanism for engines comprising a controlling-cable operatively connected at one end with the throttle-valve, a vertically-movable actuating-weight suspended from said cable, a take-up

weight arranged on an intermediate portion of the controlling-cable, holding means for said actuating-weight, an electrical releasing device operatively related to said holding means, a release-weight, an auxiliary cable member connected with said release-weight, and also with the actuating-weight, a take-up weight arranged upon an intermediate portion of the auxiliary cable member, and a releasing device for the release-weight arranged to be operated by said actuating-weight, substantially as set forth.

6. An automatic stop mechanism for engines comprising a main controlling-cable having an operative connection with the throttle-valve, an actuating-weight suspended from the main controlling-cable, a system of interlocking spring-retracted levers coöperating with the actuating-weight to normally hold it in an inactive position, an electrical release device associated with said system of interlocking levers, an auxiliary cable member carrying a release-weight and connected with said actuating-weight, a spring-retracted holding-arm arranged to engage with the release-weight, and a spring-retracted trip-latch coöperating with said holding-arm and arranged to project into the path of said actuating-weight, substantially as set forth.

664,069. PUMP. JOHN T. WALKER, Norman, Okla. Filed July 1, 1899. Serial No. 722,544. (No model.)



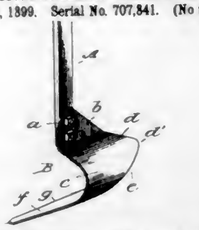
Claim.—A water-pump, consisting of the main pipe, two diverging pipes, provided with valves and valve-seats; cylinders, secured to the lower ends of said diverging pipes, also provided with valves and valve-seats and cup-pistons, substantially as described; adjustable bands, encircling the main pipe, and having arms extending therefrom; uprights, secured to said arms; a cross-beam secured to said uprights; a walking-beam hinged between said uprights; cog-wheels, journaled to said cross-beam and meshing with each other; two pitmen, the upper end of one pivoted to one outer cog-wheel, its lower end to the corresponding end of the walking-beam, the upper end of the other arm, pivoted to the other onter cog-wheel, its lower end to the corresponding end of said walking-beam; two rods, their upper ends pivoted, one to each end of said walking-beam, their lower ends extending into the cylinders and secured, one to each of said cup-pistons, said cog-wheels adapted to be operated by a crank-handle or other suitable means, and thereby operate said walking-beam, said rods and said cup-pistons, substantially as shown and described and for the purposes set forth.

664,070. SHEET-METAL WARE. FRANK WILEY, New York, N. Y., assignor to the Norton Can Company, Chicago, Ill. Filed Apr. 29, 1897. Serial No. 634,366. (No model.)

Claim.—A sheet-metal can or box comprising a body portion, a jointless rim inserted in the end of the body portion and resting in contact with the interior of the body portion and an end closure having its wall constructed to fit the interior of the said jointless rim, the said jointless rim and closure being provided with outwardly-extended flanges adapted to rest in proximity to one another when the parts are assembled and one of the said parts being provided on its rim with one or more projections to prevent the said rim and closures from resting in close contact, substantially as set forth.



664,071. CULTIVATOR-BLADE. SAMUEL L. ALLEN, Moorestown, N. J. Filed Mar. 6, 1899. Serial No. 707,841. (No model.)



Claim.—1. In a cultivator-tooth, a blade adapted to enter the ground on one side of the plant to be worked having its cutting edge curved and receding downwardly and rearwardly from the surface of the ground to produce a draw cut in the soil, and a blunt edge inclined upwardly and rearwardly above the surface of the ground, said blunt edge being curved outwardly away from the plant being worked and operating as a leaf-guard to raise the leaves coming in contact therewith, substantially as described.

2. In a cultivator-tooth, a blade adapted to enter the ground on one side of the plant to be worked having its cutting edge curved and receding downwardly and rearwardly from the surface of the ground, a blunt edge inclined upwardly and rearwardly from the front cutting edge above the surface of the soil and curved outwardly away from the plant being worked to form a leaf-guard, and a standard secured to the outer upper portion of the blade so as to be out of the way of the leaves of the plant, substantially as described.

3. In a cultivator-tooth, a blade adapted to enter the ground on one side of the plant to be worked having its cutting edge receding downwardly and rearwardly from the surface of the earth, a main body portion substantially semicircular in cross-section curved inwardly toward the plant being worked, a narrow tapering arm extending outwardly and rearwardly from the said body portion and a cutting edge formed on the lower front edge of said arm, substantially as described.

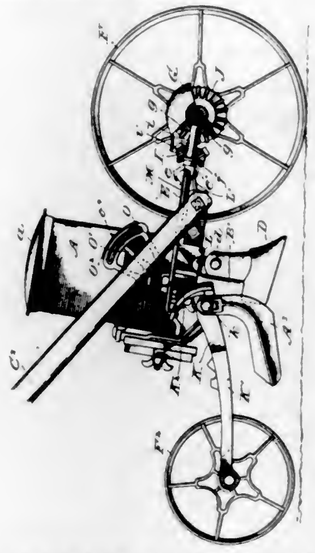
4. In a cultivator-tooth, the combination of a vertical standard, a blade secured to the lower end of said standard adapted to enter the ground on one side of the plant to be cultivated having a shield portion substantially semicircular in cross-section extending from the standard inwardly toward the plant being worked, a narrow tapering blade extending outwardly and rearwardly from the lower part of the shield portion and a rearwardly-inclined blunt edge formed on the front edge of the shield portion above the cutting edge, substantially as described.

5. A cultivator-tooth comprising a curved shield portion *c*, extending inwardly toward the plant to be cultivated, an upwardly-extending ear, *b*, adapted to be secured to the lower end of the tooth-standard, an outwardly-extending narrow tapering blade, *f*, formed integral with the shield portion, *c*, an inclined blunt front edge, *d*, operating as a guard formed on the front of the shield, *c*, and a sharpened continuous edge formed from the lower portion of the shield, *c*, to the rear end of the blade, *f*, substantially as described.

6. A cultivator-tooth, the combination of a vertical standard, A, a blade having an upwardly-extending ear, *b*, adapted to be secured to the standard, A, an inwardly-curved shield portion, *c*, having its lower rear portion terminating in an outwardly-extending tapering blade, *f*, forming on the front edge of the lower portion of the shield, *c*, a cutting-surface, *e*, for making a downward cut and on the front edge of the outwardly-extending blade, *f*, a cutting-surface, *g*, for making an undercut and a downwardly-tapering blunt edge, *d*, provided on the front edge of the shield, *c*, substantially as described and for the purpose stated.

664,072. SEED-PLANTER. SAMUEL L. ALLEN, Moorestown, N. J. Filed July 3, 1899. Serial No. 722,663. (No model.)

Claim.—1. In a seed-distributing machine, the combination of a main supporting-frame, feeding and dropping mechanism carried thereby, means for actuating said feeding and dropping mechanism, an auxiliary frame pivoted to the rear of the main frame, adapted to drop by gravity when the main frame is raised, and mechanism connected to and actuated by the dropping of the auxiliary frame for stopping the feeding and dropping mechanism, substantially as described.



2. In a seed-distributing machine, the combination of a main supporting-frame adapted to support the seed-hopper and dropping mechanism, a horizontally-disposed shaft for actuating the feeding and dropping mechanism, gearing connecting said shaft with the driving-wheel of the machine, an auxiliary frame pivoted to the rear of the main frame adapted to drop by gravity when the main frame is raised, and mechanism connected to and actuated by the dropping of the auxiliary frame for automatically disconnecting said gearing, substantially as described.

3. In a seed-distributing machine, the combination with the hopper-frame, of a longitudinal shaft for actuating the feeding and dropping mechanism, a gear feathered to the forward end of said shaft adapted to slide thereon, a driving-gear carried by the supporting-wheel of the machine adapted to mesh with the smaller gear for actuating the longitudinal shaft, a loosely-pivoted roller-frame hinged to the rear of the machine adapted to drop by gravity when the hopper-frame is raised, and a rod connecting the said pivoted frame with the sliding gear for automatically disconnecting the gearing as the roller-frame is dropped, substantially as described, and for the purpose stated.

4. In a seed-distributing machine, the combination of the hopper-frame, a longitudinal shaft for operating the feeding and dropping mechanism, a gear loosely mounted on one end of said shaft feathered thereto so as to revolve therewith, a driving-gear carried by the supporting-wheel of the machine adapted to mesh with the loosely-mounted gear, a sleeve loosely mounted on the longitudinal shaft, projections formed on the sliding gear adapted to embrace the said sleeve, a loosely-pivoted roller-frame carried by the main frame of the machine adapted to drop by gravity when the main frame is raised, and a rod connecting said pivoted frame with the loose sleeve carried by the longitudinal shaft for disconnecting the gearing as the roller-frame is dropped, substantially as described.

5. The combination of the hopper-frame, a longitudinal shaft, E, for operating the feeding and dropping mechanism, a support, *g*, for the forward end of said shaft, a gear, J, carried by the supporting-wheel of the machine, a gear, I, loosely mounted on the shaft, E, a key, *i*, for said gear, a sleeve, *e*, loosely mounted on said shaft having a flange, *e'*, hooked projections, *f*, embracing the said flange, *e'*, a pivoted frame, K, having an arm, *k*, and a rod, M, secured to the arm, *k*, at one end and to the sleeve, *e*, at its forward end, substantially as described.

6. In a seed-distributer, the combination of a seed-hopper, a feed-cylinder located in the lower end of said hopper open at its sides, an opening provided in the lower portion of the feed-cylinder, a circular spring-band adapted to embrace and partly surround the said feed-cylinder and be held thereto by its own elasticity, means for limiting the movement of the said band, an indicating-plate located on the outside of the hopper-frame, a pivoted index-finger for said indicating-plate, means for securing the said finger in a fixed position and a connection between the index-finger and the spring-band, substantially as described.

7. In a seed-distributer the combination of the seed-hopper, a feed-cylinder located in the lower end of said hopper open at its sides, an opening provided in the lower portion of the feed-cylinder, a spring-band adapted to embrace and partly surround the said feed-cylinder, a rib or projection formed on the feed-cylinder for limiting the movement of the spring-band, an indicating-plate located on the outside of the hopper-frame, a pivoted index-finger for said indicating-plate, and a link connection between the index-finger and the spring-band whereby upon the adjustment of the said index-finger the band is moved around the feed-cylinder to regulate the area of the discharge-opening, substantially as described.

8. The combination with the hopper of the cylindrical ring, C, located in the apex of the hopper, an opening, *c'*, provided in the lower portion of said ring, a band, N, partly embracing the ring, C, means for limiting the sliding movement of said band, an index-segment, O, located on one side of the hopper-frame, a slot, *o'*, formed therein, a pivoted crank-arm, O', having a pointer on its upper end adapted to bear against the index-plate, a set-screw, o^2, passing through the pointer-arm and through the slot, *o'*, a thumb-screw, o^3, for clamping the index-finger in its position, and a link, p^2, connecting the end of the crank-arm, O', with the sliding band, N, substantially as and for the purpose stated.

9. In a seed-distributing machine, the combination with the hopper supported by the main frame of the machine, feeding and dropping mechanism for said hopper, a rear frame pivoted to the main frame adapted to drop by gravity as the hopper-frame is raised, and a shutter for closing the discharge-opening of the hopper actuated by the dropping of the rear pivoted frame, substantially as described.

10. In a seed-distributing machine, the combination with the hopper, of mechanism connected with the supporting-wheel of the machine for actuating the feeding and dropping mechanism, a rear frame pivotally connected to the hopper-frame adapted to drop by gravity when said hopper-frame is raised, and mechanism actuated by the dropping of the rear frame for disconnecting the feeding mechanism and for simultaneously operating a cut-off for closing the discharge-opening of the hopper, substantially as described.

11. In a seed-distributing machine, the combination with the main supporting-frame adapted to support the seed-hopper and its dropping mechanism, a horizontally-disposed shaft geared to the driving-wheel for actuating the feeding and dropping mechanism, an auxiliary frame pivoted to the rear of the main frame adapted to drop by gravity as the main frame is raised, means actuated by the dropping of the rear frame for disconnecting the driving mechanism and simultaneously operating a cut-off for closing the discharge-opening in the hopper, substantially as described.

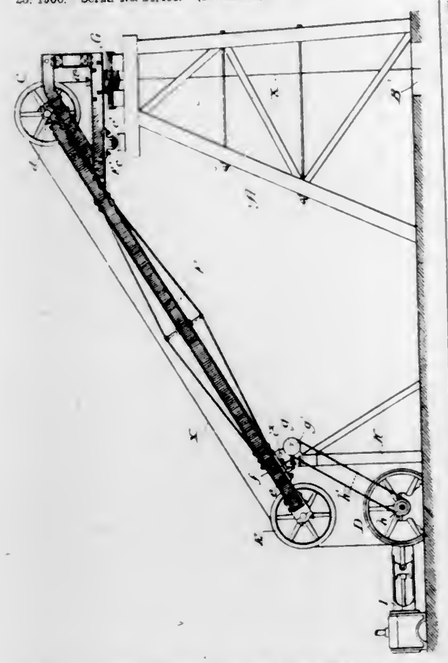
12. The combination with the hopper having a discharge-opening in its bottom, a feeding mechanism located above the same, a longitudinal shaft for actuating the said feeding mechanism, a sliding gear carried by said shaft adapted to mesh with a gear on the supporting-wheel, a roller-frame pivoted to the main frame adapted to drop by gravity as the main frame is raised, connections between the sliding gear and the pivoted rear frame, a sliding gate adapted to close the discharge-opening in the seed-hopper, and a connection between the sliding gear and the said gate for operating the same as the hopper-frame is elevated and the rear frame dropped, substantially as described.

13. The combination with the hopper having a discharge-opening in its bottom, a feeding mechanism located above the same, a longitudinal shaft, E, for actuating the feeding mechanism, a gear, I, feathered to said shaft and adapted to mesh with a gear, J, carried by the main supporting-wheel, a sleeve, *e*, carried by said shaft, projecting lips, *f*, formed on the gear, I, adapted to engage the said sleeve, *e*, a pivoted frame, K, a connecting-rod between said frame and the sleeve, *e*, a slide, L, adapted to enter the hopper-frame below the seed-opening, and a rod, l, connecting the said slide and the sleeve, *e*, substantially as and for the purpose stated.

14. The combination with the hopper having a discharge-chute, a shutter adapted to close said chute, a lever, T, connected to the shutter, a coil-spring, *t*, connected to the lever, T, and to the frame of the machine, means for automatically actuating the lever, T, to operate the shutter intermittently, a bracket-arm, U, for guiding and supporting the lever, T, having outwardly-projecting arms, a notch or recess formed in one of said arms, and a recess, t^2, formed in the edge of the lever, T, adapted to engage the recess in the bracket-arm when the lever, T, is elevated, substantially as described.

15. The combination with the hopper having a discharge-chute, a shutter adapted to close the said chute, a lever, T, connected to the shutter, a projecting lug, *t'*, provided on the lever, a rib, t^2, a notch t^2, in the edge of the lever, T, a bracket, U, having an arm, *u*, and an arm, *u'*, adapted to embrace the edge of the rib, t^2, during the normal position of the lever, T, and to abut against the side of said rib when the notch, t^2, is in engagement with the arm, *u*, substantially as described.

664,073. **HOISTING MACHINERY.** HANS C. BEHR, San Francisco, Cal., assignor to the Fraser & Chalmers, Chicago, Ill. Filed June 25, 1900. Serial No. 21,488. (No model.)



Claim.—1. The combination of the pit-head sheave, over which the rope passes immediately from the mine-shaft, the rope-winding drum, a rope-guide sheave adjacent to the winding-drum, a swinging frame, carrying both said sheaves, pivoted above the mine-shaft in line with the rope depending into the shaft and operating to hold the sheaves approximately in alinement with each other throughout the movement of the frame.

2. The combination with the mine-shaft, gallows-frame above the shaft and winding-drum at one side of, and extending at an angle to, the shaft, of a swinging frame pivoted upon the gallows-frame to swing at its free end in an arc the center of which is in or approximately in line with the rope depending into the shaft, a pit-head sheave journaled on the swinging frame with its rope-leading face on the axis of said frame, and a rope-guide sheave on the swinging frame adjacent to the drum and approximately in alinement with the pit-head sheave.

3. The combination with the mine-shaft, gallows-frame above the shaft and rope-winding drum at one side of, and extending at an angle to, the shaft, of a swinging frame pivoted upon the gallows-frame around the rope depending into the shaft, a pit-head sheave journaled on the swinging frame with its rope-leading face on the axis of the swinging frame, and a rope-guide sheave on the free end portion of the frame, adjacent to the drum and approximately in line with the pit-head sheave.

4. The combination with the mine-shaft, gallows-frame above the shaft and winding-drum at one side of and extending at an angle to the shaft, of a swinging frame pivoted at one end portion upon the gallows-frame and extending in a downward-inclined direction with its free end adjacent to the drum and swinging at its free end in an arc the center of which is approximately in line with the rope depending into the shaft, a pit-head sheave journaled on the swinging frame with its rope-leading face on the axis of said swinging frame, and a rope-guide sheave on the free end portion of the swinging frame approximately in line with the pit-head sheave.

664,074. **LIGHTING ATTACHMENT FOR FIREARMS.** REUBEN B. BENJAMIN, Chicago, Ill., assignor of one-half to Rodney B. Swift, same place. Filed Feb. 5, 1900. Serial No. 4,086. (No model.)

Claim.—1. The combination with a firearm, of means associated therewith for projecting an illuminating area of light in the general direction of the line of sight, and means for projecting a concentrated beam or column of light along the line of sight to produce a bright spot in the midst of the illuminating area, substantially as described.

2. The combination with a firearm, of a tube adapted to be mounted thereon, a reflector at the rear end of said tube, a lamp in front of said reflector, a lens or equivalent means at the forward end of said tube for projecting a concentrated ray or column of light in the direction of the line of sight, the end of said tube surrounding said lens being adapted to project an illuminating area in the general direction of the line of sight, substantially as described.

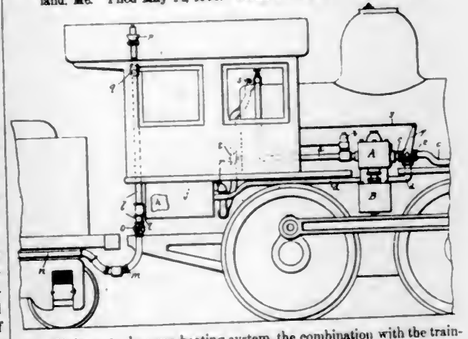


664,075. **MEASURING CAN-FILLER.** SUSAN A. BERRY, Hampton, Va. Filed Oct. 16, 1900. Serial No. 33,269. (No model.)



Claim.—1. A measuring can-filler comprising a graduated receptacle having a discharge-tube extending downwardly from its bottom, a horizontal platform surrounding the discharge-tube between its upper and lower ends and adapted to rest on the mouth of a can to be filled, braces extending from the lower portion of the receptacle to the outer margin of the shelf or platform, and a stopper adapted to close the outlet and having a handle extending upwardly in the receptacle to the upper portion thereof.

664,076. **DEVICE FOR HEATING CARS.** FRANK F. COGGIN, Portland, Me. Filed May 14, 1900. Serial No. 16,809. (No model.)



Claim.—1. In a car-heating system, the combination with the train-pipe and devices intermittingly supplying steam thereto, of means for reevaporating the water of condensation that may be carried along with said steam, said means being situated between said train-pipe and said steam-supplying devices and in communication therewith and so located with respect to the steam-supplying devices as to receive all the steam and water of condensation therefrom, substantially as described.

2. In a car-heating system, the combination of the train-pipe, the steam-cylinder of the air-brake system, and a reëvaporating device located between said pipe and cylinder and in communication therewith, substantially as described.

3. In a car-heating system, the combination of the steam-cylinder of the air-brake system, a jacketed reëvaporating drum in communication therewith and a train-pipe in communication with said drum, substantially as described.

4. In a car-heating system, the combination of the steam-cylinder of the air-brake system, a jacketed drum in communication therewith, a train-pipe and a connection between said pipe and said drum, said connection entering said drum at a point some distance above the bottom thereof, substantially as described.

5. In a car-heating system, the combination with the locomotive-boiler, the steam-cylinder of the air-brake system and a pipe connecting them, of a jacketed drum, a pipe connecting said drum with the exhaust-port of said cylinder, a train-pipe and a pipe connecting said train-pipe with said drum and entering said drum some distance above its bottom, substantially as described.

6. In a car-heating system, the combination of a train-pipe, a jacketed reëvaporating-drum in communication therewith, the steam-cylinder of the air-brake system, pipes connecting said cylinder with said drum and with the stack of the locomotive, and a three-way valve in said pipe, substantially as described.

7. In a car-heating system, the combination of a train-pipe, a jacketed reëvaporating-drum in communication therewith, the steam-cylinder of the air-brake system communicating with said drum, and an automatic governor for said cylinder, substantially as described.

8. In a car-heating system, the combination of the locomotive-boiler, the steam-cylinder of the air-brake system, a pipe connecting them, an automatic governor controlling the flow of steam in said pipe, a jacketed reëvaporating-drum, a connection between said cylinder and said drum, and a train-pipe in communication with said drum, substantially as described.

9. In a car-heating system, the combination of the locomotive-boiler, the steam-cylinder of the air-brake system, a pipe connecting them, an automatic governor controlling the flow of steam in said pipe, a pipe leading from said cylinder to the stack, a jacketed reëvaporating-drum, a pipe connecting said cylinder with said drum, a three-way cock governing the flow of steam through said last-named pipe, and through said stack-pipe, and a train-pipe in communication with said drum, substantially as described.

10. In a car-heating system, the combination with the train-pipe and devices intermittingly supplying steam thereto, of means for reëvaporating the water of condensation that may be carried along with said steam, said means being in communication with the train-pipe and steam-supplying devices and being so located with respect to the steam-supplying devices as to receive all the steam and water of condensation therefrom, and an automatic relief-valve, substantially as described.

11. In a car-heating system, the combination of the train-pipe, the steam-cylinder of the air-brake system, a reëvaporating device located between said pipe and cylinder and in communication therewith, and an automatic relief-valve, substantially as described.

12. In a car-heating system, the combination of the steam-cylinder of the air-brake system, a jacketed drum in communication therewith, a train-pipe, a connection between said pipe and said drum, said connection entering said drum at a point some distance above the bottom thereof, and an automatic relief-valve, substantially as described.

13. In a car-heating system, the combination with the locomotive-boiler, the steam-cylinder of the air-brake system, and a pipe connecting them, of a jacketed drum, a pipe connecting said drum with the exhaust-port of said cylinder, a pipe connecting said train-pipe with said drum and entering said drum some distance above its bottom, and an automatic relief-valve, substantially as described.

14. In a car-heating system, the combination of a train-pipe, a jacketed reëvaporating drum in communication therewith, the steam-cylinder of the air-brake system, pipes connecting said cylinder with said drum and with the stack of the locomotive, a three-way valve in said pipe, and an automatic relief-valve, substantially as described.

15. In a car-heating system, the combination of a train-pipe, a jacketed reëvaporating-drum in communication therewith, the steam-cylinder of the air-brake system communicating with said drum, an automatic governor for said cylinder, and an automatic relief-valve, substantially as described.

16. In a car-heating system, the combination of the locomotive-boiler, the steam-cylinder of the air-brake system, a pipe connecting them, an automatic governor controlling the flow of steam in said pipe, a jacketed reëvaporating-drum, a connection between said cylinder and said drum, a train-pipe in communication with said drum, and an automatic relief-valve, substantially as described.

17. In a car-heating system, the combination of the locomotive-boiler, the steam-cylinder of the air-brake system, a pipe connecting them, an automatic governor controlling the flow of steam in said pipe, a pipe leading from said cylinder to the stack, a jacketed reëvaporating-drum, a pipe connecting said cylinder with said drum, a three-way cock governing the flow of steam through said last-named pipe, and through said stack-pipe, a train-pipe in communication with said drum, and an automatic relief-valve, substantially as described.

18. In a car-heating system, the combination with a locomotive-boiler, the steam-cylinder of the air-brake system, a reëvaporating device and a train-pipe, said boiler being in direct communication with said reevaporating device, and in indirect communication therewith through said steam-cylinder, substantially as described.

19. In a car-heating system, the combination with the locomotive-boiler, the steam-cylinder of the air-brake system and a connecting-pipe, of a jacketed reëvaporating-drum, a pipe connecting said drum with the exhaust-port of said cylinder, a pipe connecting said drum directly with the locomotive-boiler, and a train-pipe in communication with said drum, substantially as described.

20. In a car-heating system, the combination of a reëvaporating, jacketed drum or reservoir located on the locomotive, a pipe leading from the exhaust of the air-pump cylinder to the said reservoir for conveying steam and water of condensation to said reservoir, a steam-outlet connection in said reservoir above the water-line, and a pipe joined to said outlet connection, a relief-valve in said pipe, a flexible pipe for connection with the train-pipes, a pipe connecting the steam-space of the boiler with the said reservoir, and a reducing-valve in the last-named pipe, substantially as described.

21. In a car-heating system, the combination of a reëvaporating, jacketed drum or reservoir located on the locomotive, a pipe leading from the exhaust of the air-pump cylinder to the said reservoir for conveying steam and water of condensation to said reservoir, a three-way cock in the said exhaust-pipe, means for operating the said cock from the cab of the locomotive, a steam-outlet connection in said reservoir above the water-line, and a pipe joined to said outlet connection, a relief-valve in said pipe, a flexible pipe for connection with the train-pipes, a pipe connecting the steam-space of the boiler with the said reservoir, and a reducing-valve in the last-named pipe, substantially as described.

22. In a car-heating system, the combination of a reëvaporating, jacketed drum or reservoir located on the locomotive, a pipe leading from the exhaust of the air-pump cylinder to the said reservoir for conveying steam and water of condensation to said reservoir, a steam-outlet connection in said reservoir above the water-line, and a pipe joined to said outlet connection, a relief-valve in said pipe, a valve in said pipe for shutting off the discharge to the heating system, a flexible pipe for connecting with the train-pipes, a pipe connecting the steam-space of the boiler with the said reservoir, and a reducing-valve in the last-named pipe, substantially as described.

23. In a car-heating system, the combination with the reëvaporating, jacketed drum or reservoir *h* located upon the locomotive, the pipe *d* connected with the exhaust-pipe of the air-brake steam-cylinder, the three-way cock *e* located in the said exhaust-pipe and means for operating said cock from the cab of the locomotive, the vertical pipe *l* connected with the reservoir *h* at a point above the water-line of said reservoir and relief-valve in the said pipe *l* and flexible pipe connected to the said pipe *l*, said flexible pipe being provided with means for connecting the same with the train-service pipe, the hand-operated valve *o*, located in the pipe *l* for shutting off steam from the service-pipe, the pipe *r* connecting the said reservoir with the steam-space of the boiler, and the reducing-valve in the said pipe *r*, substantially as described.

664,077. **OPERATING DYNAMO-ELECTRIC MACHINES.** WILLIAM L. R. EMMET, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed June 29, 1900. Serial No. 22,016. (No model.)

Claim.—1. The combination of self-regulating alternators, and equalizing-conductors connected to windings inductively related to the leads of said alternators.

2. The combination of alternators, synchronously-driven exciters, series transformers in the leads of the alternators, leads extending from the secondaries of the transformers to the armatures of the exciters, and equalizing-conductors connecting corresponding secondaries.

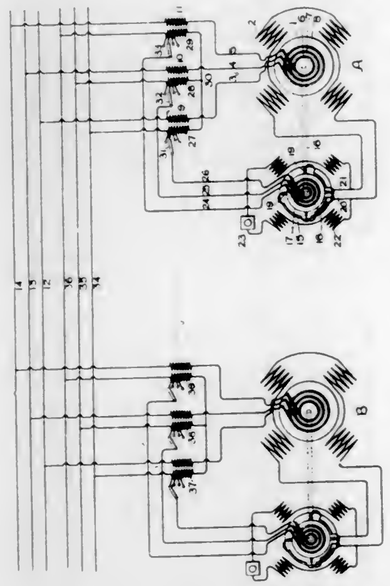
3. The combination with alternators each provided with means for regulation in response to variation of power factor of current supplied thereby, of means for rendering the regulating action of the several machines dependent.

4. The combination with alternators each provided with means for regulation in response to variation of power factor of current supplied thereby, of means for rendering the regulating action of the several machines dependent, and means for adjusting the regulating action of one or more of the alternators.

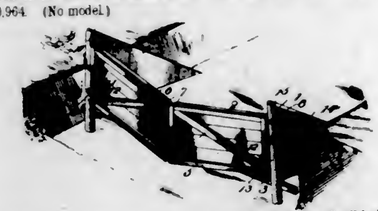
5. The combination of self-regulating alternators connected in multiple, and equalizing-conductors for securing dependent regulation of the alternators, said conductors being arranged to carry current derived inductively from said alternators.

6. The combination of alternators, synchronously-driven exciters, series transformers in the leads of the alternators, leads extending from the secondaries of the transformers to the armatures of the exciters, means

for adjusting the points of connection of the secondaries and the leads connected thereto, and equalizing-conductors connecting the secondaries.



664,078. FLOOD-GATE. EDWARD S. FRANK, Clayton, and WILLIAM H. KUHLMAN, Beardstown, Ill. Filed Mar. 31, 1900. Serial No. 10,964. (No model.)



Claim.—1. In combination with a post and a gate, a flexible hinge connecting said parts and passing spirally around the post and hinge member of the gate in reverse directions, substantially as set forth.

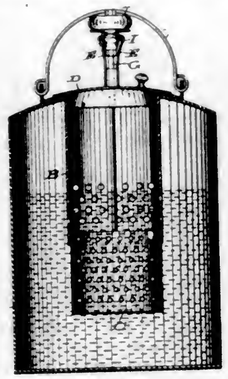
2. In combination with a post and a gate, a flexible hinge connection having its terminals secured to one of the parts at remote points and having the intermediate portion secured to the other part, said hinge connection passing spirally around the said parts in reverse directions, substantially as set forth.

3. In combination with a post and a gate, a straight, flexible connection between the top of the gate and the post, and a second flexible hinge connection between the bottom end of the gate and the said post and having its terminals secured to the latter at different elevations and its intermediate portions made fast to the gate and having the part intermediate of its extremities passing spirally around the post and hinge member of the gate in reverse directions, substantially as set forth.

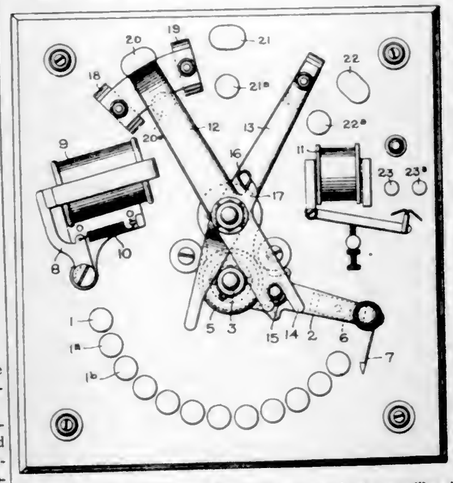
4. In combination, posts having their upper ends inclined toward each other and upstream, automatically-closing gates hinged to the posts by means of flexible connections, wings extending from said posts upstream in the manner stated, a sill located above the bed of the stream and attached at its ends to the lower portions of the posts, and upwardly and rearwardly inclined stakes spaced apart and secured at their upper ends to the sill and projecting beyond the same to engage with and limit the closing of the gates, and having their lower ends let into the bed of the stream, substantially as described.

664,079. EGG-BOILER. PATRICK J. FRIEL, Cincinnati, Ohio. Filed May 21, 1900. Serial No. 17,493. (No model.)

Claim.—The combination in an egg-boiler of a boiler A with a perforated tube B suspended in the same, the tube B in turn having a basket C suspended in it, the basket C being provided with a rod G provided with a groove I for lifting the basket out of the tube B, the rod G having a knob H attached to the upper end, the rod G also having a lid D arranged to slide up and down on it, the lid D having two springs E, E, arranged to engage in the groove I of the knob H, all substantially as described.



664,080. MOTOR-SWITCH. HENRY GEISENHÖNER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed May 4, 1899. Serial No. 715,531. (No model.)



Claim.—1. A motor-switch comprising two circuit-controlling devices, one connecting a rheostat in circuit and the other adapted to short-circuit the same, an operating-handle common to both devices, and means for operating the devices in sequence in starting the motor and simultaneously in cutting out the motor.

2. A motor-switch comprising two switch-levers capable of independent movement, one adapted to close the motor-circuit through a rheostat, and the other to short-circuit the rheostat, an operating-handle common to both, and means for automatically changing their order of engagement with the operating-handle when cutting the motor into and out of circuit, respectively.

3. A motor-switch comprising a circuit-closer for cutting in the motor, a rheostat controlled thereby, a short-circuiting contact closed by the circuit-closing lever after the rheostat has been cut out, and means for disconnecting the lever and short-circuiting device in cutting out the motor until the moment of circuit rupture.

4. A motor-switch compriaing two pivoted circuit-controlling levers, one closing the circuit through a rheostat, the other closing a short circuit around the rheostat, and an operating-handle common to both and engaging them in the order stated when cutting in the motor, the levers being provided with engaging surfaces adapted to abut only on opening the circuit.

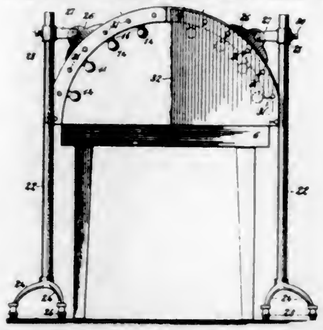
5. A motor-switch comprising two circuit-controlling levers, as 12 and 13, journaled on the same axis, one closing the circuit through a rheostat, the other closing a short circuit around a rheostat, an operating-handle common to both, a stud, 15, on said handle, the lever 12 having a forked extremity, as described, coöperating with said stud, and lugs, as 16 and 17, adapted to engage on the rearward movement of the handle.

6. A motor-switch comprising a spring-actuated lever carrying contact devices for making the motor-circuit, a rheostat, contacts actuated by the lever for graduating the current in different order and by a different number of graduating steps on closing and opening the circuit respectively, a detaining device holding the switch when set, and means for automatically releasing the switch upon a determinate variation of current strength.

7. A motor-switch comprising a spring-actuated switch-lever controlling the motor-circuit through a rheostat, two circuit-closing levers controlled thereby, one governing the rheostat-circuit, and the other a short circuit around the rheostat, a detent for holding the switch when set, and electromagnetic releasing mechanism for disengaging the detent upon a definite variation in current flow.

8. A motor-switch comprising an operating-handle, a switch-lever controlled thereby and operating a double-pole break in the motor-circuit, a rheostat included in the motor-circuit by said switch, a short circuit around the rheostat controlled by a continued movement of the operating-handle, and connections for opening both the short circuit and the double-pole closure simultaneously.

664,081. ELECTRICAL HEATING APPARATUS. CARL GOHLIN, New York, N. Y. Filed July 26, 1900. Serial No. 24,861. (No model.)



Claim.—1. The herein-described heating apparatus adapted for use in connection with a table, cot, bed, or other support, and comprising two vertically-adjustable oblong frames or casings segmental in cross-section and open at the bottom and one side, and provided with suitable end-closing devices, said frames being hollow, the body portion thereof being composed of inner and outer shells, the inner shell being a reflector, and being also provided on its inner side with a plurality of electric lights or attachments for the same, and conducting-wires extending into the space between said shells in connection with which said lights are wired, substantially as shown and described.

2. The herein-described heating apparatus adapted for use in connection with a table, cot, bed, or other support, and comprising two vertically-adjustable oblong frames or casings segmental in cross-section and open at the bottom and one side, and provided with suitable end-closing devices, said frames being hollow, the body portion thereof being composed of inner and outer shells, the inner shell being a reflector, and being also provided on its inner side with a plurality of electric lights or attachments for the same, and conducting-wires extending into the space between said shells in connection with which said lights are wired, each light being also provided with a separate switch which operates through the outer shell, substantially as shown as described.

3. An apparatus of the class described adapted to be used in connection with a table, cot, bed, or other support, comprising two frames or casings oblong and rectangular in form and segmental in cross-section, said frames or casings being provided with an outer shell and an inner reflecting-shell, electric lights connected with the inner reflecting-shell by means of devices which pass therethrough into the space between the said shells, electric wires passing into said space and wired in connection with each of said lights, each of said lights being also provided with a separate switch which operates through the outer shell, substantially as shown and described.

4. An apparatus of the class described adapted to be used in connection with a table, cot, bed, or other support, comprising two frames or casings oblong and rectangular in form and segmental in cross-section, said frames or casings being provided with an outer shell and an inner reflecting-shell, electric lights connected with the inner reflecting-shell by means of devices which pass therethrough into the space between the said shells, electric wires passing into said space and wired in connection with each of said lights, each of said lights being also provided with a separate switch which operates through the outer shell, said frames or casings being also provided at each end with detachable hoods, substantially as shown and described.

5. An apparatus of the class described adapted to be used in connection with a table, cot, bed, or other support, comprising two frames or casings oblong and rectangular in form and segmental in cross-section, said frames or casings being provided with an outer shell and an inner reflecting-shell, electric lights connected with the inner reflecting-shell by means of devices which pass therethrough into the space between the said shells, electric wires passing into said space and wired in connection with each of said lights, each of said lights being also provided with a separate switch which operates through the outer shell, said frames or casings being also provided at each end with detachable hoods, and being mounted on standards on which they are vertically adjustable, and with which they are connected by means of arms on which they are adapted to turn in a vertical plane, substantially as shown and described.

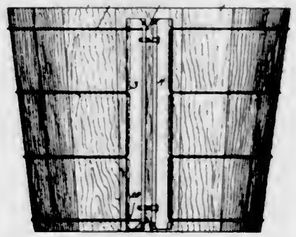
6. An apparatus of the class described, comprising two separate parts, each of which consists of an oblong rectangular frame, segmental in cross-section, and provided with an inner space of similar form, the inner wall of said space being a reflector, a plurality of electric lights connected with said inner wall by means of devices which pass therethrough, and electric wires passing into said space and wired in connection with each of said lights, substantially as shown and described.

7. An apparatus of the class described, comprising two separate parts, each of which consists of an oblong rectangular frame, segmental in cross-section, and provided with an inner space of similar form, the inner wall of said space being a reflector, a plurality of electric lights connected with said inner wall by means of devices which pass therethrough, and electric wires passing into said space and wired in connection with each of said lights, each of said lights being also provided with a switch which operates through the outer wall of said space, substantially as shown and described.

8. An apparatus of the class described, comprising two separate parts provided with suitable supports on which they are vertically adjustable, said parts each consisting of an oblong frame segmental in cross-section, a cross-section thereof being substantially equal to ninety degrees of a circle, the inner wall of each of said parts consisting of a reflector, and said inner walls being provided with electric lights, and the ends of each of said parts being provided with hoods, substantially as shown and described.

9. An apparatus of the class described, comprising two separate parts provided with suitable supports on which they are vertically adjustable and adapted to turn vertically, said parts each consisting of an oblong frame segmental in cross-section, a cross-section thereof being substantially equal to ninety degrees of a circle, the inner wall of each of said parts consisting of a reflector, and said inner walls being provided with electric lights, and the ends of each of said parts being provided with hoods, said parts being adapted to be used in connection with a cot, bed or other support, and to form in connection therewith a closed space, substantially as shown and described.

664,082. ADJUSTABLE HOOP. JOHN H. GREEK, Aurora, Ill., assignor of forty-nine one-hundredths to Daniel J. Smith, same place. Filed Mar. 15, 1900. Serial No. 8,755. (No model.)



Claim.—1. As a new article of manufacture, a pair of clamping-bars each comprising a flat base portion, and a flange portion arranged to extend at an abrupt angle from the base portion, a plurality of tensioning devices connecting said flange portions, and means for securing thereto a continuous length of hoop-iron laced back and forth to form a plurality of hoops, substantially as described.

2. In combination with a receptacle, a set of hoops and tensioning

devices therefor comprising a pair of clamping-bars, each consisting of a base portion adapted to rest in bearing with the exterior of the receptacle, a flange portion arranged to extend outwardly from the base portion, and a hoop-engaging portion, a plurality of tensioning devices operatively connecting said clamping-bars whereby they may be drawn toward each other, and a plurality of hoop-sections formed from a single continuous length of wire or cable having its ends engaged with one of said bars at points remote from each other, and having its intermediate portions extended around the receptacle alternately in opposite directions and engaged with clamping-bars lace fashion, substantially as described.

3. In combination with a receptacle, a set of hoops and tensioning devices therefor comprising a pair of clamping-bars, each consisting of a base portion adapted to rest in bearing with the exterior of the receptacle, a flange portion arranged to extend outwardly from the base portion, and a hoop-engaging portion consisting of a hook-shaped flange formed upon that edge of the base portion remote from the flange thereof and provided with a plurality of notches or interruptions, a plurality of tensioning devices operatively connecting said clamping-bars whereby they may be drawn toward each other, and a plurality of hoop-sections formed from a single continuous length of wire or cable, having its ends engaged with one of said bars at points remote from each other, and having its intermediate portions extended around the receptacle alternately in opposite directions, and engaged with the clamping-bars lace fashion, substantially as described.

664,083. CLUTCH FOR ELECTRIC-ARC LAMPS. CHARLES E. HARTHAN, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Mar. 10, 1899. Serial No. 708,475. (No model.)



Claim.—1. In a clutch, the combination of a frame-piece composed of a single piece of metal bent in the middle so that two substantially parallel sides are formed with one open and with one closed end, a shoe pivotally mounted in the frame and having a single friction-face, a second shoe also mounted in the frame and formed of a single piece of metal having two faces for engaging with the carbon rod or pencil.

2. In a clutch, the combination of a piece of sheet metal bent in such a manner that it forms a substantially U-shaped frame, a shoe pivotally supported in the frame and provided with a single friction-face, a second pivoted shoe also mounted in the frame and consisting of a single piece of metal formed with two friction-faces, the said faces being reinforced by bending the metal of which the shoe is composed back against the stock forming the base, and means for operating the clutch.

3. As an article of manufacture, a shoe for an arc-lamp clutch consisting of a single piece of metal, bent so that it has two contact or friction surfaces which make an angle with each other, reinforced portions made by bending the stock of which the shoe is composed back against the friction-faces for a short distance, and extensions from the reinforcing portions which support the shoe.

4. As an article of manufacture, a clutch consisting of a U-shaped frame formed in a single piece, clutch-shoes mounted in the frame, one of said shoes having a single friction-face the other having two faces, pins for holding the sides of the frame together and also forming supports upon which the shoes are free to adjust themselves, and a holder having projections which enter the holes in the frame.

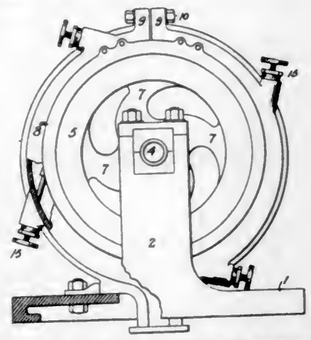
5. As an article of manufacture, an arc-lamp clutch comprising a frame, a shoe with a single friction-face pivotally mounted in one portion of the frame, and a sheet-metal shoe also pivotally mounted in the frame and provided with two friction-faces, which faces are reinforced by bending the stock of which the shoe is composed back against them, the two shoes being capable of slightly adjusting themselves with respect to each other and to their supports.

664,084. PACKING-CASE. ISAIAH L. HAUBER, Chicago, Ill. Filed Feb. 19, 1900. Serial No. 5,791. (No model.)



Claim.—In combination in a knockdown box, flat sides and bottom, inner and outer angle-strips for securing the meeting edges of the sides and bottoms together, and a top having depending inner and outer flanges, the outer flanges fitting between the outer vertical corner-strips and the sides and ends, and the inner flange fitting within the box and abutting the inner faces of the inner strips at the corners of the box, said flanges and strips having alining openings in the same, the inner ends of said openings having threaded extensions, substantially as described.

664,085. COMPOUND REACTION STEAM-TURBINE. JOHN C. HENDERSON, New York, N. Y. Filed Sept. 21, 1899. Serial No. 731,207. (No model.)



Claim.—1. A rotary motor or turbine having pistons provided with hollow arms, cylinders constructed to receive the actuating medium and introduce the said medium into and through said pistons, and encircling steam-chambers decreasing in area from the inlet and exhaust thereof respectively.

2. A rotary motor or turbine having pistons provided with curved hollow arms and cylinders constructed to receive the actuating medium and introduce the said medium into and through said pistons, and encircling steam-chambers eccentrically arranged upon said pistons.

3. A rotary motor or turbine having pistons provided with hollow radial arms centrifugally curved and cylinders constructed to receive the actuating medium and introduce the said medium into and through said pistons, and having encircling steam-chambers diminishing in area toward the free ends thereof.

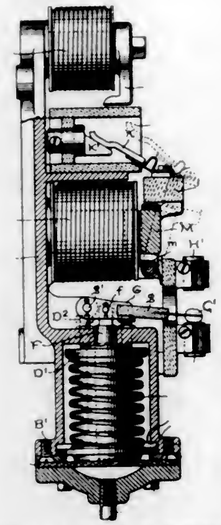
4. A rotary motor or turbine having pistons provided with hollow radial arms centrifugally curved and cylinders constructed to receive the actuating medium and introduce the said medium into and through said pistons, having solid ends carrying attached lugs and means engaging said lugs for adjusting the diameter thereof.

5. A rotary motor having a piston provided with hollow arms carried by a hollow shaft and a cylinder constructed to receive an actuating medium and introduce the same into and through said piston and finally discharge said medium.

6. A rotary motor having a piston provided with hollow arms carried by a hollow shaft, and a cylinder upon said piston constructed to receive an actuating medium and discharge the same by deflecting-vanes into and through said piston, and shaft to receive the worked medium and be finally discharged.

664,086. REGULATOR FOR ELECTRICALLY-ACTUATED AIR-COMPRESSORS. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 7, 1898. Serial No. 695,669. (No model.)

Claim.—1. In a fluid-pressure-operated controller for an electric motor, the combination of a switch having two circuit-closing positions, means for causing the switch to assume one or the other position when the pressure reaches its superior and inferior limits, respectively, means for shunting the switch by a circuit of low resistance when in one position, and means for opening the shunt when the switch reaches the second position.



2. The combination in a regulator for an electrically-actuated air-pump, of a diaphragm actuated by the air-pressure against an opposing force, a switch the position of which is determined by the resultant of the two opposing forces, contacts for the switch corresponding respectively to the opening and closing of the motor-circuit, a relay in circuit with the motor-closing contact of the switch, and a shunt around the switch operated by the relay.

3. The combination in a regulator for an electrically-actuated air-pump, of a diaphragm actuated by the air-pressure against a spring, a switch the position of which is determined by the resultant of the two opposing forces, contacts for the switch corresponding respectively to the opening and closing of the motor-circuit, a relay in circuit with the motor-closing contact of the switch, and connections operated by the other contact of the switch for deënergizing the relay-magnet and opening the circuit.

4. The combination of a switch of moderate or small capacity with a shunt of large current capacity around its terminals, a contact corresponding to the inferior-pressure limit of a fluid-pressure system, which closes the motor-circuit through the switch, a relay device operated by the closing of the circuit for closing the shunt, a pressure-responsive device for opening the circuit at the switch as the pressure rises, thus leaving the shunt the only path to the motor, and means in circuit with the other point of the switch corresponding to the superior-pressure limit, for opening the shunt when the switch makes the latter contact.

5. The combination of a two-point switch, an electromagnet in circuit with one point of the switch, a shunt around the switch opened and closed by the action of the electromagnet, a lead from one of the contacts of the shunt to an intermediate point of the electromagnet-winding, and leads from the other point of the switch and its moving contact to the ends of the electromagnet-winding; whereby when the switch touches one point, a shunt is closed around its own contacts by the action of the magnet, and when it touches the other point, the magnet-coil acts differentially to deënergize the magnet and open the circuit.

6. In a controlling device for an electric motor driving an air-pump, the combination of a switch, a pressure-responsive device actuating the switch, a coil in series with the contact touched by the switch at the inferior limit of pressure, an armature operated by the coil, and contacts on the armature for shunting the switch as soon as current passes.

7. An antisparking device for a switch, comprising a shunt-circuit around the switch-contacts controlled by a coil in series with the contacts, said shunt-circuit including an armature controlled by said coil, spark-absorbing contacts controlled by the armature, and means for holding said contacts closed until the switch-contacts have been ruptured, whereby the spark is absorbed by the auxiliary contacts.

8. The combination with a two-point switch, of a shunt in parallel to its movable and one of its fixed contacts, said shunt including auxiliary contacts of large current-carrying capacity, a coil controlling the closure of the shunt when the circuit is completed through the switch-contacts, and means for demagnetizing said coil when the movable switch-contact engages the other fixed contact.

9. As a means for starting an electric motor, the combination of a switch in the motor-circuit, a path of greater current capacity shunting the switch, and a quickly-responsive device operated by the completion of the motor-circuit for closing the shunt as soon as the switch closes.

10. The combination of a switch of moderate or small size, with a shunt of large capacity around its terminals, and an electromagnet in the switch-circuit provided with a quickly-responsive armature for closing the shunt when the switch-contacts touch.

11. The combination of a two-point switch, a normally open shunt around the switch bridging its contacts, an electromagnet for closing the shunt actuated on closing the switch at one of its contacts, and means for opening the circuit when the switch engages its other contact.

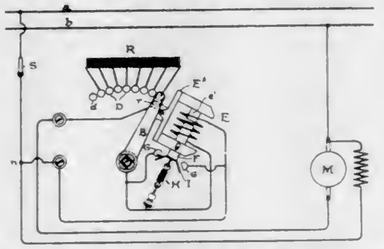
12. The combination of a two-point switch, a shunt around the switch bridging its contacts, an electromagnet in circuit with one point of the switch for closing the shunt, and means for passing current through the magnet-coil differentially when the switch touches the other point, thus opening the circuit.

13. In an electric switch mechanism, a contact operated by variations in fluid-pressure to close a circuit, a coil energized by said circuit, and a main switch controlling said coil.

14. In an electric switch mechanism, a contact operated by variations in fluid-pressure to close a circuit, a coil energized by said circuit, a main switch controlling said coil and in shunt to the contact, and means for deënergizing said coil responsive to variations in the fluid-pressure.

15. In an electric switch mechanism, a contact operated by variations in fluid-pressure to close a circuit, a coil energized by said circuit, a main switch controlled by said coil (and in shunt to the contact), and means for deënergizing said coil responsive to variations in the fluid-pressure, and a blow-out magnet for the switch.

664,087. AUTOMATIC RHEOSTAT. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Nov. 7, 1898. Serial No. 695,670. (No model.)



Claim.—1. An automatic rheostat for electric machinery, comprising a resistance with a switch for cutting sections out or in as may be desired, an electromagnet for holding the switch closed when the resistance is out of circuit, and a switch controlled by the magnet for shunting its winding when the current exceeds a determined maximum; whereby the same coil is employed to respond to both maximum and minimum current flow.

2. A rheostat, a spring-actuated switch for the rheostat, an electromagnet, a yoke for the magnet carried on the switch-arm, contacts shunting the magnet-coil, and an armature in inductive relation to the coil carrying the contacts; whereby, upon failure of current the resistance is cut in and the circuit opened by the release of the magnet-yoke, and upon excess of current the armature shunts the magnet-coil, also opening the circuit.

3. In a motor-starting box, a switch-arm movable over resistance-contacts, a magnet for holding the switch-arm in the "on" position, means tending to return it to the "off" position, and means for deënergizing the magnet set in action by a rise or fall of its own magnetism beyond predetermined limits.

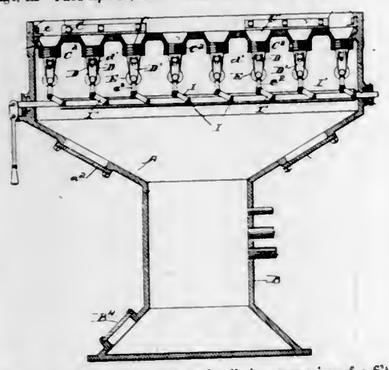
4. In a motor-starting box, a switch-arm movable over resistance-contacts, a magnet for holding the switch-arm in one position, means tending to return it to the other position, and short-circuiting contacts for the controlling-coil of the magnet actuated by the magnet-core.

5. An electromagnet provided with pole-pieces and a yoke or armature forming a magnetic circuit open in the axis of the coil, and a core of magnetic material mounted to reciprocate in an opening in one of the pole-pieces.

6. An electromagnet provided with pole-pieces and a yoke or arma-

ture, and a core mounted to reciprocate in an opening in one of the pole-pieces against the action of an adjustable spring, and to operate shunting-contacts for the magnet.

664,088. ACCESSIBLE FILTER-SCREEN. IRA H. JEWELL, Chicago, Ill. Filed Apr. 16, 1900. Serial No. 13,035. (No model.)



Claim.—1. A screen located at the discharge-opening of a filter, and means for shifting the said screen out of its operative position and exposing it to be removed or cleaned, said means being constructed to close the discharge-opening when the screen is so exposed.

2. A filter-screen located at the discharge-opening of a filter, and a movable support for the screen having an imperforate part, said support being constructed to move the screen out of line with the opening in position to expose the screen for removal or cleaning and to move the imperforate part of the support in position to close the opening when the screen is so exposed.

3. A screen located at the discharge-opening of a filter, a movable support therefor having an imperforate part, said support being constructed to move the screen out of line with the opening to expose the same for cleaning and to move the imperforate part into position to close the opening at the time the screen is so exposed, and adjusting means for said support.

4. A plurality of accessible screens located below a filter-bed, and means for simultaneously shifting the screens into and out of their operative positions.

5. A plurality of accessible filter-screens located below a filter-bed, and means whereby the screens may be simultaneously shifted into and out of their operative positions and the discharge-openings of the filter closed.

6. A plurality of accessible screens located below a filter-bed, and means accessible from outside the filter structure for simultaneously exposing the screens in position for removal or cleaning.

7. A filter provided between the bed thereof and the discharge-orifice of the filter with a plate having a plurality of discharge-openings and accessible screens located at said discharge-openings.

8. A filter having below the bed a discharge-orifice which terminates in a passage of less cross-sectional area than the orifice, a plate between said passage and discharge-orifice having a plurality of discharge-openings and accessible screens located at said openings.

9. A filter provided between the bed thereof and the discharge-orifice of the filter with a plate having a plurality of discharge-openings, screens located at said discharge-openings, and means for shifting said screens into and out of their operative positions, constructed to open and close said discharge-openings.

10. A filter provided below the bed thereof with a discharge-orifice, a nipple communicating with said orifice, a movable support coacting with a seat formed on said nipple, said support being provided with an opening, and a screen located in said opening adapted to be moved by the support into line with said nipple.

11. A filter provided below the bed thereof with a discharge-orifice, a nipple communicating with said orifice, a rotative barrel coacting with a seat formed on said nipple, said barrel being provided with an opening, and a screen located in said opening and designed to be moved by the barrel into line with the nipple.

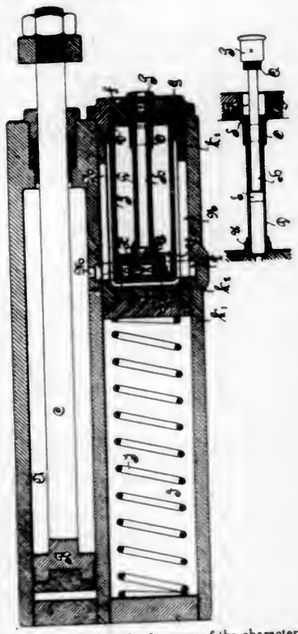
12. A filter provided below the bed thereof with a discharge-orifice, a nipple communicating with said orifice, a rotative barrel coacting with a seat formed on said nipple, said barrel being provided with an opening, a screen located in said opening, and means for adjusting the barrel with respect to its seat.

13. A filter provided beneath the bed thereof with a discharge-orifice, an accessible filter-screen within said orifice, and a plate between said screen and bed designed to fractionate or subdivide an upwardly-directed washing-current.

14. A filter provided beneath the bed thereof with a discharge-orifice which is made of decreasing diameter from its upper to its lower end, an accessible screen in said orifice, and a plate at or above the largest part of the orifice, designed to fractionate or subdivide an upwardly-directed washing-current.

15. Means for subdividing or fractionating the distribution of the filtered and wash water below the filter-bed, wherein the total cross-sectional area of the water-passage through the screens is maintained effectively equal to the cross-sectional area of the main effluent and wash-water pipes leading respectively from and to the filter, embracing an accessible screen or screens.

664,089. FLUID-BRAKE FOR GUNS. JOHANNES KRONE, Essen, Germany, assignor to Fried. Krupp, same place. Filed Apr. 16, 1900. Serial No. 12,979. (No model.)



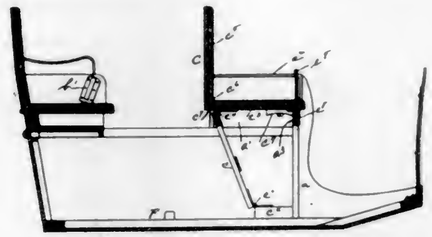
Claim.—1. In a fluid-brake for guns of the character specified, the combination with the recoil and running-out cylinders, of a storage vessel attached to the head of one of the cylinders and projecting into said cylinder, and a pump placed within the storage vessel and adapted to be operated from the exterior, so as to draw liquid from the storage vessel and discharge it into the liquid-space of the brake, substantially as described.

2. In a fluid-brake for guns of the character specified, the combination with the communicating recoil and running-out cylinders, of a storage vessel attached to the head of one of the cylinders and projecting into the piston of said cylinder, and a pump placed within the storage vessel and adapted to be operated from the exterior, so as to draw liquid from the storage vessel and discharge it into the liquid-space of the brake, substantially as described.

3. In a fluid-brake for guns of the character specified, the combination with the head G of the running-out cylinder, of a liquid-storage vessel T screwed into or otherwise secured to the head, said vessel being of smaller diameter than the inside of the tubular part of the piston K of the running-out cylinder and projecting into the same; a valve-chamber and ports Y and Z within the closed end of the vessel T, with valves W and X seated therein, and a pump centrally inserted into the cylinder-head G, extending into a socket at the bottom of the storage vessel connected to the valve-chamber, substantially as shown and described.

664,090. CARRIAGE-BODY. FREDERICK MENSER, Flint, Mich. Filed July 13, 1900. Serial No. 23,451. (No model.)

Claim.—1. In a vehicle, a body portion, a sliding seat arranged to operate in connection therewith, an auxiliary seat consisting of seat portion and a back portion hinged thereto, double standards supporting the rear portion hinged thereto and to the bottom of the body, a cross-bar attached to the body supporting the front of the seat, means upon the seat portion for attaching and detaching the seat portion from the cross-bar, substantially as described.



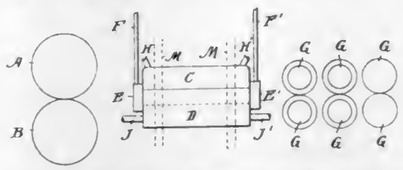
2. In a vehicle, a body portion provided with standards *a*, *a*, extending upward from the side thereof at the forward part of that part of the body at which the forward seat is to be located, rails a^3, secured to said standard and to the vehicle-body, an auxiliary seat adapted to be folded upon the bottom of the carriage, a sliding seat arranged to operate in connection with the vehicle-body, each of said seats being adapted to be placed between said standard and arms, and said standard and arms being adapted to form the arm-rests of the seat placed between them, substantially as described.

3. In a vehicle, a body portion, a cross-bar a^3, upon said body portion, a folding seat C, said seat being provided with hinged braces *c*, so located that they shall have a backward slant when the seat is in position, said seat being provided with a hook c^3, extending vertically in front of said cross-piece, and bending backward under said cross-piece, substantially as and for the purpose described.

4. In a vehicle-seat, the combination of the horizontal part c^3, means for supporting the front of said horizontal part, the braces *c*, hinged to the back and under part of the part c^3, and to the vehicle, and a back c^3, hinged near the upper surface of the part *c*, so as to be adapted to fold forward upon the part c^3, and to be held in its proper working position by coming into contact with said horizontal part, substantially as described.

5. In a vehicle, the combination of a body provided with a cross-piece a^3, a seat consisting of a horizontal part c^3, the front resting upon said arm-piece, a hook a^4, secured to the part c^3, extending in front of, and under said cross-piece, a brace *c*, hinged to the back of the part c^3, and to the body so as to slant backward, and a back c^3, hinged at the near edge of the part c^3, so as to be adapted to fold over upon said part, and coming into contact with the part c^3, substantially as described.

664,091. ART OF WORKING METAL. GEORGE S. MERRILL, Beloit, Wis., assignor to the Merrill Process Steel Company, St. Louis, Mo. Filed Jan. 30, 1899. Serial No. 703,927. (No model.)

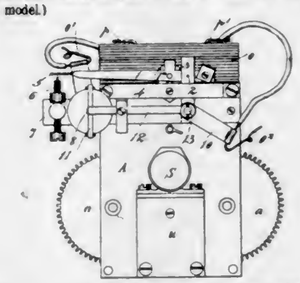


Claim.—1. The process of making rolled articles of metal, consisting in, first, rolling the metal while hot, next subjecting the article to practically simultaneous compression from all directions, and partially cooling the article; substantially as and for the purpose described.

2. The process of making rolled articles of metal, consisting in, first, rolling the metal while hot, next subjecting the article to practically simultaneous compression from all directions, partially cooling the article, and finishing the article by rolling; substantially as and for the purpose described.

3. The process of making rolled articles of metal, consisting in, first, rolling the metal while hot, next simultaneously subjecting the article to practically simultaneous compression from all directions, and finishing the article by rolling; substantially as and for the purpose described.

664,092. ELECTRICITY-METER. WILLIAM M. MORDEY and GUY C. FRICKER, London, England. Filed Oct. 10, 1900. Serial No. 32,614. (No model.)



Claim.—1. In an electricity-meter of the kind referred to, the combination with a pivoted armature, means for mechanically imparting a forward impulse thereto as it approaches the mid-position of its stroke or throw in each direction, and a frame within which said armature and operating means are mounted, of a coil that is adapted to be traversed by the electric current, or a proportion thereof, to be measured, and is carried directly by and arranged opposite said frame and so as to surround a portion only of said armature, substantially as described.

2. In an electricity-meter of the kind herein referred to, the combination with the escapement mechanism of a clockwork movement carried by a suitable frame and a spindle arranged to be operated from said escapement, of an armature fixed upon said spindle above said escapement mechanism, and a coil adapted to be traversed by the current to be measured or a proportion thereof and arranged above said clockwork movement and so as to surround the upper portion only of said armature, substantially as described.

3. In an electricity-meter of the kind herein referred to, the combination with a clockwork movement, an escapement connected therewith, a spindle operated from said escapement, and a supporting-frame for said parts, of a disk-like armature fixed to said spindle above said escapement, a removable coil adapted to be traversed by the current to be measured, or a proportion thereof, and seated upon the top of said frame so as to surround the upper portion only of said armature and means for holding said coil horizontally, substantially as described.

4. In an electricity-meter of the kind herein referred to, the combination with the clockwork movement, an escapement connected therewith, a spindle operated from said escapement, and a supporting-frame for said parts, of a disk-like armature fixed to said spindle above said escapement, a coil adapted to be traversed by the current to be measured, or a proportion thereof, and seated upon the top of said frame so as to surround the upper portion only of said armature, and means extending through the opening in said coil so as to hold the latter in position horizontally and limit the extent of oscillation of said armature, substantially as described.

5. In an electricity-meter, the combination with a spring-operated clockwork movement *a* having an escapement *e*, anchor *d*, an escapement-lever *g*, a spindle *l* adapted to be actuated by said escapement-lever, and a frame for supporting said parts, of an armature *n* comprising a number of lengths of iron wire mounted in a non-magnetic disk-like carrier fixed upon said spindle above said escapement and provided with one or more peripheral projections *n'*, a coil *o* seated upon the top of said frame and arranged to surround the upper part of said armature, and oppositely-arranged strips *p*, *p'* fixed to the upper part of said frame, extending through the opening in said coil and provided with buffers or stops adapted to limit the oscillations of said armature, substantially as described.

6. In an electricity-meter of the kind herein referred to, the combination with an armature, a spindle carrying said armature and formed near one end with a flattened surface, means for mechanically imparting a forward impulse to said spindle and armature as the latter approaches the mid-position of its stroke or throw in each direction, and a frame for carrying said parts, of a meter-coil carried by and arranged opposite said frame so as to surround a portion only of said armature, a pivoted arm mounted in bearings carried by said frame and arranged to extend across the flattened portion of said spindle, a movable contact operated by said arm and connected to one end of said coil, and a fixed contact carried by but insulated from said frame and connected to the other end of said coil and against which said movable contact can bear only when the armature is in or near its mid-position, substantially as described.

7. In an electricity-meter of the kind herein referred to, the combination with an armature, a spindle carrying said armature and formed near one end with a flattened surface, means for mechanically imparting a forward impulse to said spindle and armature as the latter approaches the mid-position of its stroke or throw in each direction, and a frame for

carrying said parts, of a meter-coil carried by and arranged opposite said frame so as to surround a portion only of said armature, a pivoted arm mounted in bearings carried by said frame, and arranged to extend across the flattened portion of said spindle, a movable contact operated by said arm and connected to one end of said coil, and a fixed contact carried by but insulated from said frame and against which said movable contact can bear only when the armature is in or near its mid-position, an electromagnetic device carried by said frame and having one end of its winding connected to said fixed contact and its other end to the second end of the meter-coil, and a second movable contact arranged to be actuated by said electromagnetic device and to then connect the two ends of the meter-coil directly together, substantially as described for the purpose specified.

8. In an electricity-meter of the kind herein referred to, the combination with the escapement mechanism of a clockwork movement carried by a suitable frame and a spindle mounted in said frame, arranged to be operated by said escapement and having a flattened surface near one end, of an armature fixed upon said spindle above said escapement mechanism, a meter-coil arranged above said clockwork movement and so as to surround the upper portion only of said armature, an arm pivoted to a support on said frame and arranged to extend across the flattened end portion of said spindle, a movable contact adapted to be operated by said arm and connected to one end of said coil, and a fixed contact carried by but insulated from said frame and connected to the other end of said coil, substantially as described for the purpose specified.

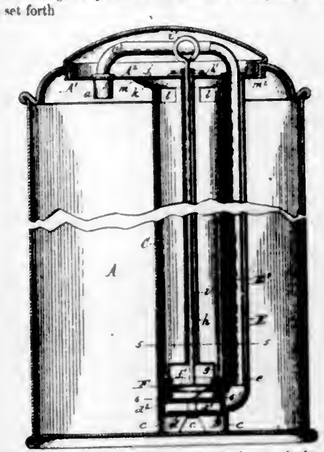
9. In an electricity-meter of the kind herein referred to, the combination with a clockwork movement, an escapement connected therewith, a spindle operated from said escapement and having a flattened surface thereon near one end, and a supporting-frame for said parts, of a disk-like armature fixed to said spindle above said escapement, a meter-coil seated upon the top of said frame so as to surround the upper portion only of said armature, an arm that is pivoted to a support on one side of said frame and is arranged to extend across the flattened portion of said spindle, a movable contact carried by the free end of said arm and connected to one end of said meter coil or winding, a fixed contact carried by but insulated from said frame, an electromagnet carried by said frame, provided with an armature and having one end of its winding connected to said fixed contact and its other end to the second end of the meter-coil, and a second pair of movable and fixed contacts that are normally held apart and one of which is connected to one end of the meter-coil and the other of which is carried by or constitutes the armature of said electromagnet and is connected to the opposite end of the meter-coil and is adapted to bear against its adjacent fixed contact when said electromagnet is energized, substantially as described.

10. In an electricity-meter, the combination with a spring-operated clockwork movement *a* having an escapement *e*, anchor *d*, an escapement-lever *g*, a spindle *l* adapted to be actuated by said escapement-lever and formed at one end with a flattened surface *l'*, and a frame for supporting said parts, of a disk-like armature *n* fixed upon said spindle above said escapement, a coil or winding *o* seated upon the top of said frame and arranged to surround the upper portion of said armature, a pivoted metal arm 1 extending across the flattened end portion of said spindle and carried by a support 3 fixed to one side of said frame, a movable contact 5 carried by said arm and connected therethrough to one end of said meter-coil, a fixed contact 6 carried by but insulated from said frame, an electromagnet 8 9 also carried by said frame and having one end of its winding connected to said contact 6 and its other end to the second end of the meter-coil, a movable contact 11 arranged to form the armature of said electromagnet and to bear against and form a contact with the core 8 of said electromagnet, a spring-arm 12 that normally holds said contact 12 away from said core, and electrical connections between said contact 11 and one end of the meter-coil and between the core 8 and the other end of said meter-coil, substantially as described.

664,093. OIL-CAN. DON E. MCDONALD, Batavia, N. Y., assignor to Ralph E. Chapin, same place. Filed July 25, 1900. Serial No. 24,735. (No model.)

Claim.—1. In an oil-can, the combination with the body of the can, of a force-pump arranged therein and having its barrel provided in its lower portion with an inlet which communicates with the liquid-space of the can, a check-valve applied to said inlet for preventing the return of the oil from the barrel into the can, a valveless discharge-pipe which is connected with the pump-barrel above said check-valve and which permits any oil in said pipe to return into the pump-barrel, a plunger arranged in the pump-barrel and provided with a relief-passage through which the oil may ascend above the plunger, and a relief-valve applied to said plunger-passage and provided with a closing-handle which extends to the upper end of the pump-barrel, substantially as set forth.

2. In an oil-can, the combination with the body of the can, of a force-pump arranged therein and having its barrel provided in its lower portion with an inlet which communicates with the liquid-space of the can, a check-valve applied to said inlet for preventing the return of the oil from the barrel into the can, a telescopic discharge-pipe which is connected with the pump-barrel above said check-valve and which is unobstructed throughout its length, a plunger arranged in the pump-barrel and provided with a relief-passage and a hollow operating-rod extending above the barrel and terminating in a handle, and an upwardly-opening relief-valve applied to said plunger-passage and provided with an operating-rod which extends upwardly through said plunger-rod and which terminates in a handle arranged adjacent to the handle of the plunger-rod, substantially as set forth

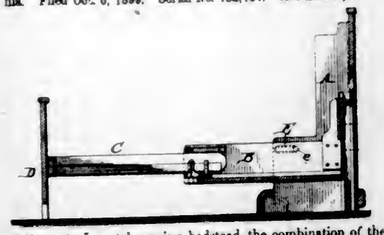


3. In an oil-can, the combination with the can-body and its head having an opening, of a pump-barrel having its open upper end secured in said opening, a delivery-pipe connected with the pump-barrel and extending upwardly through the head of the can and provided at its upper end with a projecting flange, and a removable cover seated in the upper end of the pump-barrel and provided in its edge with a notch which receives the flanged upper end of said delivery-pipe, substantially as set forth.

4. In an oil-can, the combination with the body of the can, of a pump-barrel arranged in the can and having an open upper end, the plunger arranged in the barrel, a removable cover applied to the upper end of the pump-barrel and coöperating locking devices arranged on said cover and the plunger, substantially as set forth.

5. In an oil-can, the combination with the body of the can, of a pump-barrel arranged in the can and having an open upper end, a removable cover applied to the upper end of the pump-barrel and having a collar provided in opposite sides with L-shaped slots, and a plunger arranged in said barrel and provided with a cross-bar adapted to engage in said slots, substantially as set forth.

664,094. BEDSTEAD. AUSBORN F. OLD, New York, N. Y., assignor to the Hale & Kilburn Manufacturing Company, of Pennsylvania. Filed Oct. 6, 1899. Serial No. 732,767. (No model.)



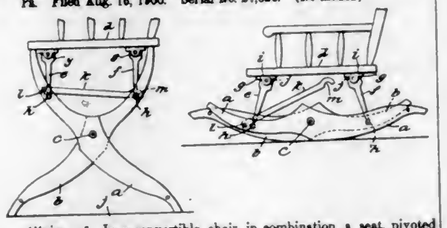
Claim.—1. In a telescoping bedstead, the combination of the base or pedestal part, the pivoted folding part pivoted to the base or pedestal part, the telescoping part formed with side rails guided upon the folding part, a rack secured to each of the side rails of the telescoping part, pinions meshing at all times with the racks, a loose transverse shaft of shorter length than the width of the pedestal part connecting the pinions and carried by the folding part of the bedstead in bearings located upon the said folding part, guides carried by the pivoted portion and against which the inner faces of the side rails are guided, and stops to limit the extension of the side rails on the pivoted portion whereby the racks shall not leave the pinions or the side rails the guides.

2. In a telescoping bedstead, the combination of the folding part, the telescoping part formed with side rails guided upon the folding part, a rack secured to each of the side rails, pinions meshing with the racks, a transverse shaft connecting the pinions and carried by the folding part of the bedstead, and upright guide-rollers journaled upon the folding part of the bedstead and adapted to act upon the inner faces of the side rails adjacent to the gears.

3. In a telescoping bedstead, the combination of the folding part, the telescoping part formed with side rails guided upon the folding part, a flat perforated metal rack secured to the under side of each of the side rails, pinions meshing with the racks, a transverse shaft connecting the pinions and carried by the folding part of the bedstead, upright guide-rollers journaled upon the folding part of the bedstead and adapted to act upon the inner faces of the side rails to hold the racks in alinement with the gears, and bearings for holding both the shaft for the pinions and the upright guide-rollers.

4. In a telescoping bedstead, the combination of the folding part, the telescoping part formed with side rails guided upon the folding part, a rack formed of flat perforated metal secured to the bottom of each of the side rails, pinions of less width than the racks meshing with the said racks, a transverse shaft connecting the pinions and carried by the folding part of the bedstead, and downwardly-extending stops on the ends of the side rails projecting below the racks for locking the gears and their shaft against rotation while still in mesh with the racks and after the side rails have been fully extended.

664,095. CONVERTIBLE CHAIR. HENRY H. PAINE, Philadelphia, Pa. Filed Aug. 16, 1900. Serial No. 27,026. (No model.)



Claim.—1. In a convertible chair, in combination, a seat, pivoted cross-legs the inner under sides of which are so curved as to form rockers when the chair is lowered, rounds joining the opposite pairs of cross-legs the upper rounds being pivotally carried by said legs, arms the lower ends of which are secured to said upper rounds and the upper ends of which are pivotally secured to the under side of the chair-seat and furnished with two faces one of which engages the seat when elevated, the other when lowered, and a latch carried by one set of legs adapted, when the chair is elevated, to engage a stop carried by the other set of legs.

2. The described means for attaching the seat to the legs of a convertible chair consisting, in combination with said seat, of arms the upper ends of which are pivotally attached to the under side of the seat and which are furnished with faces *i j*, one adapted to engage the seat when the chair is elevated the other when it is lowered, and the lower ends of which are carried by rounds pivotally carried by the legs, and said rounds.

664,096. ELECTRIC-RAILWAY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Oct. 31, 1900. Serial No. 34,996. (No model.)

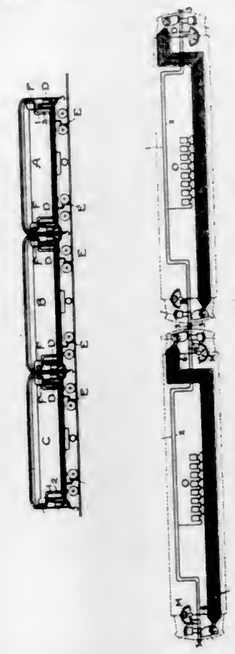
Claim.—1. In an electric-railway system, the combination with two or more cars in a train, of separate controllers upon said cars, an indicating system comprising an indicating device adjacent to one or more of said controllers, and means for causing the indicating device or indicating devices to move in synchronism with one of said controllers.

2. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm operating in synchronism with one of said controllers, a source of varying potential controlled by said switch-arm, and an indicating device in circuit with said switch-arm.

3. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm on one of said controllers, a storage battery in circuit with said switch-arm, and a voltmeter on each car in circuit with the battery and switch-arm.

4. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm on each controller, an independent source of varying potential on each car, and an indicating device in circuit with said source and said switch-arm and responsive to changes in potential.

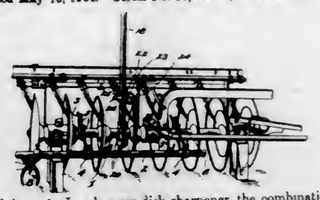
5. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm on each controller, a battery on each car, separate connections between each cell thereof and the switch-arm, and a voltmeter in circuit with the battery and switch-arm.



6. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm on each controller, two insulated contacts on said arm, connected through a resistance, a series of stationary contacts adjacent to said arm, a battery having its cells successively connected with said contacts, and a voltmeter in circuit with said switch-arm and one terminal of said battery.

7. In an electric-railway system, the combination with two or more motor-cars in a train, of motor-controllers upon said cars, a switch-arm on each controller, two insulated contacts on said arm connected through a resistance, a series of stationary contacts adjacent to said arm, a battery having its cells successively connected with said contacts, and a voltmeter and rheostat in circuit with said switch-arm and one terminal of said battery.

664,097. HARROW-DISK SHARPENER. THOMAS L. REGISTER, Rock Island, Ill., assignor to the Rock Island Iron Works, same place. Filed May 16, 1900. Serial No. 16,898. (No model.)



Claim.—1. In a harrow-disk sharpener, the combination of a portable tool-holder-supporting frame comprising a tube or bar provided with means for securing it to the frame of a harrow, and a tool-holder longitudinally adjustably connected to said tube or bar.

2. In a harrow-disk sharpener, a portable tool-holder-supporting frame comprising a tube or bar, adapted to extend parallel with the shaft or axle of a harrow, arms projecting at right angles from the bar to detachably connect it with the harrow, and a tool-holder longitudinally adjustably connected to said tube or bar, substantially as set forth.

3. In a harrow-disk sharpener, a portable tool-holder-supporting frame comprising a tube or bar adapted to extend parallel with the shaft or axle of a harrow, arms extending at right angles from the bar and adjustable longitudinally thereof and provided with clamps to engage the

harrow to hold said tube or rod supported thereon, and a tool-holder longitudinally adjustably connected to said bar, substantially as set forth.

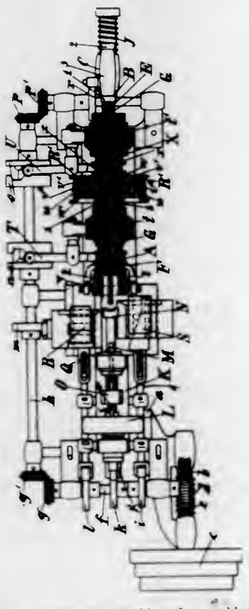
4. In a harrow-disk sharpener, the combination with a tool-holder-supporting frame consisting of a tube or bar, arms longitudinally adjustably connected to said tube or bar, clamps adjustably connected to said arms, of a tool-holder adjustably connected to said tube or bar, substantially as set forth.

5. In a harrow-disk sharpener, the combination with a tool-holder-supporting frame and a tool-holder carried thereby, of a lever provided with a clamp by means of which it is adapted to be fulcrumed to the harrow, and a grip carried by said lever to engage and rotate the harrow-disk, substantially as set forth.

6. In a harrow-disk sharpener, the combination with a tool-holder-supporting frame, and a tool-holder carried thereby, of a lever provided with a clamp by means of which it is adapted to be fulcrumed to the harrow, and a slotted grip carried by said lever to engage the edge of a harrow-disk and rotate said disk, substantially as set forth.

664,098. MACHINERY FOR AUTOMATICALLY MANUFACTURING SCREWS, NUTS, &c., FROM ROUGH METAL.

WILHELM REH, Dresden, Germany. Filed July 29, 1899. Serial No. 725,549. (No model.)



Claim.—1. In a screw-cutting machine, the combination with a clutch-pulley *u*, of a hollow shaft upon which such pulley is mounted for carrying the stock, means for actuating the clutch so as to intermittently rotate the hollow shaft, means for automatically feeding the stock forward through the hollow shaft, means for clamping the same in the shaft, a screw-cutting die, means for bringing the die and stock into working contact in such manner that during one portion of the operation one will be in rotation and the other at rest and during the other portion this operation will be reversed, and means for automatically actuating the clamping and clutching mechanism, substantially as shown and described.

2. In a screw-cutting machine, the combination with a supporting-frame, of a cross-shaft *f*, means for rotating the shaft *f*, a cutting-tool, a sliding carriage or support carrying the cutting-tool, a turning-tool, a sliding carriage or support carrying the turning-tool, a cam carried by the shaft *f* for actuating the cutting-tool, a cam also carried by such shaft *f* for actuating the turning-tool, means for automatically retracting the cutting-tool when released from the pressure of the cam, a shaft *h* geared to the shaft *f*, a cam *m* for actuating the turning-tool in a direction at an angle to the movement caused by the cam on the shaft *f*, a screw-cutting die *N*, means for intermittently rotating the same, means for reciprocating such die *N*, a rod-carrying device having an automatic clutch, means for rotating the rod-carrying devices at intervals, means for actuating the clutch, and means for feeding the rod of material, substantially as shown and described.

3. In a screw-cutting machine, the combination with a supporting-frame, of a cross-shaft *f*, means for rotating the shaft *f*, a cutting-tool, a sliding carriage or support carrying the cutting-tool, a turning-tool, a sliding carriage or support carrying the turning-tool, a cam carried by the shaft *f* for actuating the cutting-tool, a cam also carried by such shaft *f* for actuating the turning-tool, means for automatically retracting the cutting-tool when released from the pressure of the cam, a shaft *h* geared to the shaft *f*, a cam *m* for actuating the turning-tool in a direction at an angle to the movement caused by the cam on the shaft *f*, a screw-cutting die N, means for intermittently rotating the same, means for reciprocating such die N, a rod-carrying device having an automatic clutch, means for rotating the rod-carrying device at intervals, means for actuating the clutch, means for feeding the rod of material, and means for automatically returning each reciprocating part to its non-working position when released from the pressure of the working portion of its particular cam, substantially as shown and described.

4. In a screw-cutting machine, the combination with an intermittently-rotating rod-carrying mechanism, of a screw-die N mounted upon a shaft M revolubly and reciprocally mounted in suitable bearings, means for reciprocating the shaft M, a loose pulley L mounted upon the shaft M, a driver O secured to the shaft M so as to rotate therewith and also reciprocate thereon, coacting devices carried by the loose pulley L and driver O forming a clutch-coupling when the two are in contact, and means for limiting the forward reciprocating movement of the driver O without preventing further movement of the shaft M, substantially as shown and described.

5. In a screw-cutting machine, the combination with an intermittently-rotating rod-carrying mechanism, of a screw-die N mounted upon a shaft M revolubly and reciprocally mounted in suitable bearings, means for reciprocating the shaft M, a loose pulley L mounted upon the shaft M, a driver O secured to the shaft M so as to rotate therewith and also reciprocate thereon, pins s' carried by the pulley L, pins s^2 carried by the driver O, and a stop Q for limiting the forward reciprocating movement of the driver O, substantially as shown and described.

6. In a screw-cutting machine, the combination with an intermittently-rotating rod-carrying mechanism, of a screw-die N mounted upon a shaft M revolubly and reciprocally mounted in suitable bearings, means for reciprocating the shaft M, a loose pulley L mounted upon the shaft M, a driver O secured to the shaft M so as to rotate therewith and also reciprocate thereon, coacting devices carried by the loose pulley L and driver O forming a clutch-coupling when the two are in contact, and an adjustable stop for limiting the forward reciprocating movement of the driver O without preventing further movement of the shaft M, substantially as shown and described.

664,099. WITHDRAWN.

664,100. BED-MOTION FOR CYLINDER PRINTING-MACHINES.

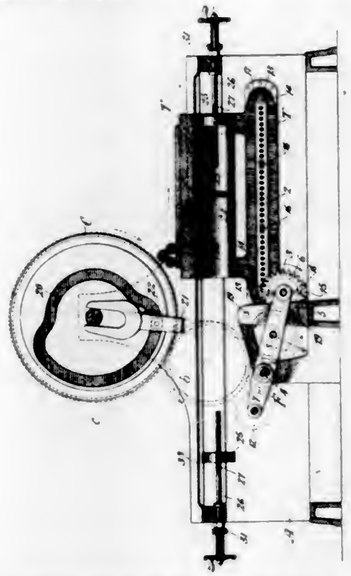
WALTER SCOTT, Plainfield, N. J. Filed Jan. 17, 1894. Serial No. 497,153. (No model.)

Claim.—1. The combination of a reciprocatory bed or member, a straight rack fast thereto, a swinging frame or member, a driving-pinion having the same axis of motion as said swinging frame or member, a rack-driving gear journaled on said swinging frame or member and operatively connected with said driving-pinion, and mechanism for regulating the movement of the swinging frame or member as the rack-driving gear passes the ends of the rack, substantially as described.

2. The combination of a reciprocatory bed or member, a straight rack rigid and moving with said bed, a swinging frame or member, a driving-pinion having the same axis of motion as said frame, a rack-driving gear fast on a shaft journaled in said frame, connections between said shaft and said driving-pinion, and mechanism for regulating the movement of the frame as the rack-driving gear passes the ends of the rack, substantially as described.

3. The combination of a reciprocatory bed or member, a swinging frame or member, a driving-pinion having the same axis of motion as said frame, a rack-driving gear journaled on said swinging frame or member and operatively connected with said driving-pinion, a straight rack rigid and moving with said bed and with opposite sides of the teeth of which said rack-driving gear is adapted to engage to move the bed in opposite directions, and mechanism for regulating the movement of the swinging frame as the rack-driving gear passes around the ends of the rack, substantially as described.

4. The combination of a reciprocatory bed or member, a swinging frame or member, a driving-pinion having the same axis of motion as said frame, a rack-driving gear fast on a shaft journaled in said swinging frame, connections between said shaft and said driving-pinion, a straight rack rigid and moving with said bed and with opposite sides of the teeth of which said rack-driving gear is adapted to engage to move the bed in opposite directions, and mechanism for regulating the movement of said swinging frame as the rack-driving gear passes around the ends of the rack, substantially as described.



5. In a printing-press, the combination of a reciprocatory bed, a progressively rotating or revolving impression-cylinder, a rack connected with said bed, a drive-gear meshing with said rack, a swinging frame on which said gear is journaled, a drive-pinion having the same axis of motion as said frame, gearing intermediate said pinion and said gear for driving the latter, a cam connected with said cylinder, and connection between said cam and said frame for moving or controlling the frame as the driver-gear thereon passes the ends of said rack, substantially as described.

6. The combination of a reciprocatory bed or member, a rack thereon, a rack-driving gear, a movable frame for supporting said gear, a driver-pinion on the fixed framework of the machine, connections between said driver-pinion and said rack-driving gear, a cam, and connections between the cam and movable frame for controlling the movement of the movable frame as the driving-gear passes the ends of the rack, substantially as described.

7. The combination of bed T, rack 2 thereon, pinion or gear 3 for coaction with rack 2, pinion 5 fast on the shaft of gear 3, a drive-pinion 7 on a shaft in the fixed framework of the machine, a frame F pivoted on the same axis of motion as pinion 7, toothed gearing between pinion 7 and gear 5, a cam as 20, and connections as rod 21 between the cam and the frame F, substantially as described.

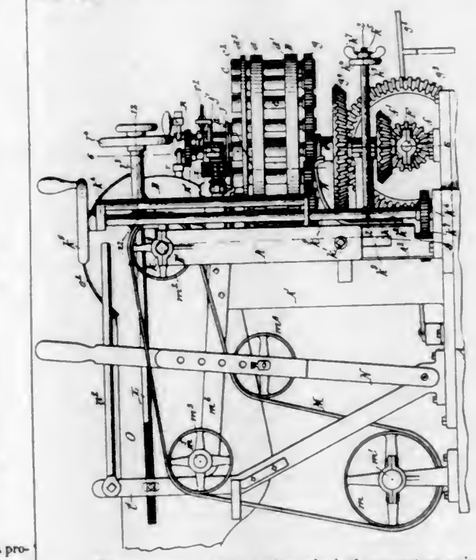
8. The combination of a reciprocatory bed or member, a rack thereon, a rack-driving gear, a movable frame supporting said drive-gear, a driver-pinion, connections between said driver-pinion and said driving-gear, a cam, and connections therefrom for controlling the movement of the frame as the rack-driving gear passes the ends of the rack, substantially as described.

664,101. BUTTON-POLISHING MACHINE.

JOHN A. SHOEMAKER, La Salle, N. Y. Filed July 11, 1900. Serial No. 23,252. (No model.)

Claim.—1. The combination with the buffing-wheel, of a rotary carrier, rotary spindles journaled in said carrier parallel with the axis thereof and provided with button-supporting dies and with gear-pinions, and a driving gear-wheel journaled concentrically with the carrier and meshing with the inner sides of the gear-pinions of the spindles, substantially as set forth.

2. The combination with the buffing-wheel, of rotary spindles provided with button-supporting dies, a rotary carrier in which said spindles are journaled, an upright shaft on which the carrier is mounted, a horizontal driving-shaft having a bevel gear-wheel splined thereon which meshes with a similar gear-wheel at the lower end of the upright shaft, a master gear-wheel mounted on the upright shaft and meshing with pinions on the spindles, a driving-sleeve mounted on the driving-shaft and provided with a bevel gear-wheel which meshes with a similar gear-wheel connected with said master gear-wheel, a coupling connecting the bevel gear-wheels on the driving-shaft and driving-sleeve, and a shifting device whereby the bevel gear-wheels on the driving shaft and sleeve are shifted simultaneously into and out of engagement with the bevel gear-wheels of the upright shaft and the master gear-wheel, substantially as set forth.



3. The combination with the buffing-wheel, of a support, an upright spindle mounted on said support and provided at its upper end with a die face or seat for the under side of a button, a die-ring surrounding the upper end of the die-spindle and resting upon the support and engaging with the edge of the button, and means whereby a rotating and an axial movement is imparted to the die-spindle, substantially as set forth.

4. The combination with the button-buffing wheel, of a rotary carrier, upright spindles mounted on said carrier and each provided at its upper end with a die face or seat for the under side of the button, die-rings surrounding the upper ends of the die-spindles and resting upon the carrier and each ring provided with a die face or shoulder which engages with the edge of the button, a master or driving gear-wheel meshing with gear-pinions on the spindles, and a cam which is engaged by the spindles while the latter move with the carrier and whereby the spindles are raised, substantially as set forth.

5. The combination with the button-buffing wheel, of a rotary carrier, upright spindles mounted on said carrier and each provided at its upper end with a die face or seat for the under side of the button, die-rings surrounding the upper ends of the die-spindles and resting upon the carrier and each ring provided with a die face or shoulder which engages with the edge of a button, a master or driving gear-wheel meshing with pinions on the spindles, a cam which is engaged by said spindles and whereby the latter are moved axially, an adjusting rock-arm whereby said cam is adjusted, and a clamping device whereby the cam and rock-arm are held in position, substantially as set forth.

6. The combination with a button-buffing wheel, of a rotary carrier provided with a removable supporting-plate, of die-spindles mounted on the carrier and extending through the supporting-plate, die-rings surrounding the upper ends of the spindles and resting on the supporting-plate, and means whereby a rotary and an axial movement is imparted to the spindles, substantially as set forth.

7. The combination with the button-buffing wheel, the rotary carrier and the button-supporting dies journaled in said carrier, of a rotary discharge-brush arranged above the path of the buttons on the dies, a friction-wheel which engages with the carrier and is rotated thereby, and an intermediate transmitting-gearing whereby the rotation of the friction-wheel is transmitted to the discharge-brush, substantially as set forth.

8. The combination with the button-buffing wheel, the dies which support the buttons, and the carrier upon which the dies are mounted and whereby the buttons are carried past said wheel, of a retaining-plate which extends over the buttons on the dies adjacent to the sides of the buffing-wheel and which prevents the buttons on the dies from being displaced by the blast of the buffing-wheel, substantially as set forth.

9. The combination with the button-buffing wheel, the dies which

support the buttons, and the carrier upon which the dies are mounted and whereby the buttons are carried past said wheel, of a retaining-plate which extends over the buttons and the dies adjacent to the sides of the buffing-wheel, and an adjusting device whereby the retaining-plate may be adjusted toward and from the dies, substantially as set forth.

10. The combination with the button-buffing wheel, the dies which support the buttons, and the carrier upon which the dies are mounted and whereby the buttons are carried past said wheel, of a retaining-plate which extends over the buttons on the dies adjacent to the sides of the buffing-wheel, upright guide-rods secured to said plate and passing through stationary guide-lugs, springs which are interposed between the guide-lugs and the retaining-plate and which hold the latter in a depressed position, and adjusting screw-nuts arranged on the upper ends of said rods and bearing against the upper sides of said lugs, substantially as set forth.

11. The combination with the buffing-wheel and the rotary carrier provided with button-supporting dies, of an upright rocking support which carries the buffing-wheel at its upper end, a vertically-adjustable cross-head to which the lower end of the rocking support is pivoted, and an adjusting device whereby the rocking support is moved backward or forward, substantially as set forth.

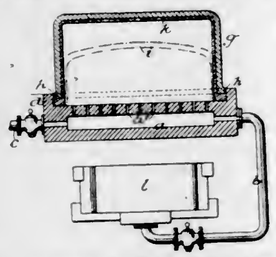
12. The combination with the buffing-wheel and the rotary carrier provided with button-supporting dies, of an upright rocking support which carries the buffing-wheel at its upper end, a vertically-adjustable cross-head to which the lower end of the rocking support is pivoted, a vertical screw-shaft working in a threaded opening in said cross-head, an upright shaft provided with a hand-wheel and connected with the screw-shaft by gearing, and an adjusting device whereby the rocking support may be moved backward or forward, substantially as set forth.

13. The combination with the buffing-wheel and the rotary carrier provided with button-supporting dies, of an upright rocking support which carries the buffing-wheel at its upper end, a horizontal screw-shaft engaging with its screw-threaded rear end in a nut which swivels on a stationary support and is journaled at its front end in a bearing which swivels on the upper part of the rocking support, a collar or shoulder arranged on the screw-shaft and bearing against the rear side of the swiveling bearing, a clamping-sleeve keyed on the screw-shaft and bearing against the front side of the swiveling bearing, and a clamping-screw arranged on the front end of the screw-shaft and bearing against the front end of the clamping-sleeve, substantially as set forth.

14. The combination with a buffing-wheel, of a rotary wax-holder adapted to move past said buffing-wheel, and a driving mechanism whereby said wax-holder is rotated, substantially as set forth.

15. The combination with the buffing-wheel and the button-supporting dies, of a driven gear-wheel arranged adjacent to the buffing-wheel and provided with a wax-holder, a driving gear-wheel meshing with said driven gear-wheel and mounted on a shaft, an arm pivoted on said shaft and carrying the driven gear-wheel, and an adjusting device connecting said arm with a stationary support, substantially as set forth.

664,102. APPARATUS FOR MANUFACTURING HOLLOW GLASS ARTICLES. PAUL T. SIEVERT, Dresden, Germany. Original application filed Jan. 31, 1899, Serial No. 704,064. Divided and this application filed Dec. 29, 1899. Serial No. 741,898. (No model.)

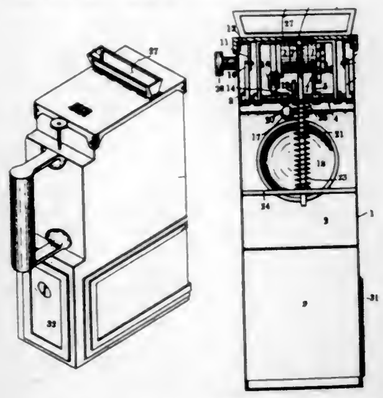


Claim.—1. An apparatus for the manufacture of hollow glass articles consisting of a hollow slab adapted to receive a layer of molten glass and having an inlet for an elastic pressure medium and perforated for the issue of said medium, and a hollow mold for holding said layer on certain circumscribing outlines to said slab while the portion or portions of said layer circumscribed by said outlines are blown out by the elastic pressure medium issuing through the perforations of the slab, substantially as herein described.

2. An apparatus for the manuf cture of hollow glass articles consisting of a hollow slab adapted to receive a layer of molten glass and having an inlet for an elastic pressure medium and perforated for the issue of said medium, and a hollow mold having sharp marginal edges for indenting themselves into the glass upon the slab on certain circumscribing outlines and thereby confining the glass to the slab on those outlines while the portion or portions of the glass within said outlines are blown out by the elastic pressure medium issuing through the perforations of the slab, substantially as herein described.

3. In an apparatus for the manufacture of hollow glass articles, the combination with a hollow slab adapted to receive a layer of molten glass and having an inlet for an elastic pressure medium and perforated for the issue of said medium, of a multiple mold composed of a series of hollow molds having sharp or thin edges of polygonal outline and so associated that the edges of the adjacent molds are contiguous throughout, substantially as herein described.

664,108. FARE-REGISTER. JOHN O. SLOAN, Indianapolis, Ind. Filed Apr. 2, 1900. Serial No. 11,051. (No model.)



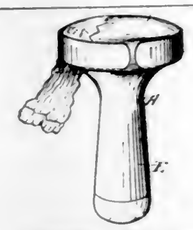
Claim.—1. In a conductor's fare-register, the combination with a portable receptacle provided with a suitable handle, of a removable cover therefor, a guide carried by said cover having a slot therethrough and adapted to receive and retain a fare, a slide mounted upon said cover beneath said guide, a registering mechanism also mounted upon said cover, an operating-lever mounted upon said cover, intermediate connections between said lever, registering mechanism and slide, a push mounted upon said receptacle adjacent said handle, and a detachable connection between said operating-lever and push, all of said parts projecting from the side of said cover so as to be easily accessible from the sides when the said cover is removed.

2. In a conductor's fare-register, the combination with a portable receptacle provided with a suitable handle, of a guide leading into said receptacle and adapted to receive and retain a fare, a slide adapted to normally close said guide, a registering mechanism, a bell-hammer, a bell, a rock-shaft, arms carried by said rock-shaft for engaging and operating the registering mechanism, the slide and the hammer in succession in the order named, and an operating-lever for rocking said shaft, all of said parts projecting from the side of said cover so as to be easily accessible from the sides when the said cover is removed.

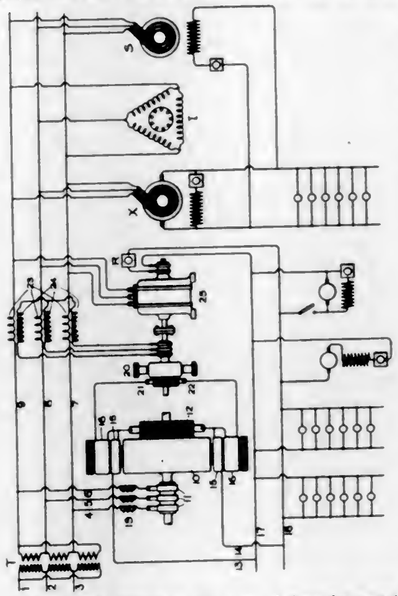
3. In a conductor's fare-register, the combination with a portable receptacle provided with a suitable handle, of a removable cover therefor, a guide carried by said cover and leading therethrough, said guide being adapted to receive and retain a fare, a slide mounted on said cover and arranged to normally cover said guide, a registering mechanism also mounted on said cover, a bell-hammer pivotally mounted on said cover, a rock-shaft carried by said cover, arms carried by said rock-shaft and engaging the registering mechanism, a slide, and a bell-hammer, a push carried by said receptacle adjacent said handle, intermediate connections between said push and rock-shaft, and a bell mounted in position to coöperate with said hammer, all of said parts projecting from the side of said cover so as to be easily accessible from the sides when the said cover is removed.

664,104. DARNING-LAST. WILLIAM H. SNYDER, Canton, Ohio., assignor of one-half to Charles R. Miller, same place. Filed Apr. 9, 1900. Serial No. 12,057. (No model.)

Claim.—The herein-described darning-last, the same comprising a cylindrical body terminating at one extremity in a reduced handle portion, and at the other extremity in a smooth convex surface, and having a curved flat open-ended retaining-spring for engaging closely said cylindrical body, substantially as and for the purpose set forth.



664,105. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Feb. 20, 1900. Serial No. 5,880. (No model.)



Claim.—1. The combination of a source of alternating current, a plurality of consumption-circuits leading therefrom, a rotary converter fed from one of said circuits, and means for automatically varying the field excitation of said rotary converter in response to variations of load on more than one of said circuits.

2. The combination of a source of alternating current, transmission-lines leading therefrom, a rotary converter fed thereby, a load of varying power factor also fed thereby, and means for automatically varying the field excitation of said rotary converter in response to variation of power factor of said load.

3. The combination of a source of alternating current, a plurality of consumption-circuits leading therefrom, a rotary converter fed from one of said circuits, a translating device or devices fed from another of said circuits, and responsive means for overcoming the varying drop in voltage occasioned by current flowing both to said rotary converter and to said translating device or devices.

4. The combination of a source of alternating current, a plurality of consumption-circuits leading therefrom, a rotary converter supplied from one of said circuits, a synchronously-driven dynamo-electric machine having alternating-current terminals and direct-current terminals, connections between the direct-current terminals and a winding on said rotary converter, and operative connections between said alternating-current terminals and another of said circuits.

5. The combination of a source of alternating current, a plurality of consumption-circuits leading therefrom, a rotary converter supplied from one of said circuits, a synchronously-driven dynamo-electric machine having alternating-current terminals and direct-current terminals, connections between the direct-current terminals and a winding on said rotary converter, and connections between said alternating-current terminals and the secondary of a transformer the primary of which is in series with another of said circuits.

6. The combination of two branch circuits fed from the same source and arranged to supply energy to translating devices, a phase-controlling device in one of said branch circuits, and means responsive to current in the other branch circuit for varying the action of said phase-controlling device.

7. The combination of a plurality of branch circuits supplied with alternating currents, and means in one of said circuits for supplying wattless currents in response to a varying flow of wattless currents in all of said circuits.

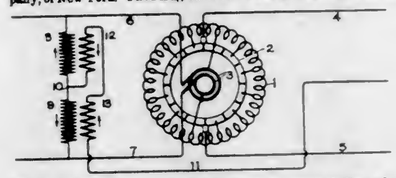
8. The combination of a plurality of branch circuits supplied with alternating current, and a phase-controlling means in one of said circuits responsive to the flow of wattless currents in another circuit.

9. The combination of a plurality of circuits supplied with alternating current, and a rotary phase-controlling device in one of said circuits responsive to the flow of wattless currents in another of said circuits.

10. The combination of a source of alternating current, transmission-lines leading therefrom and connected to a plurality of consumption-circuits, and a rotary converter in one branch circuit arranged to supply wattless current in response to a varying consumption of wattless currents in another branch circuit.

11. The combination of a source of alternating current, transmission-lines leading therefrom and connected to a plurality of consumption-circuits, and a phase-controlling device in one of said circuits responsive to the flow of wattless current in another of said circuits.

664,106. SYSTEM OF ELECTRICAL DISTRIBUTION. CHARLES P. STEINMETZ, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Aug. 30, 1900. Serial No. 28,597. (No model.)



Claim.—1. The combination with the armature-winding of a dynamo-electric machine, of a commutator connected to said winding, a plurality of interconnected coils, connections between said coils and points in said winding, a main leading to a connection between the coils, and counter magnetizing-coils traversed by current in said main.

2. The combination with the armature-winding of a dynamo-electric machine, of a commutator connected to said winding, a plurality of reactive coils connected in multiphase relation to points in said winding, a main leading to a connection between the coils, and counter magnetizing-coils in circuit with said main.

3. The combination with the armature-winding of a dynamo-electric machine, of a commutator connected to said winding, direct-current mains extending from said commutator, a plurality of reactive coils having separate cores, connections between said coils and points in said winding, a direct-current main leading to a connection between the coils, and counter magnetizing-coils in series with said main.

4. The combination of a dynamo-electric machine, a plurality of reactive coils having a terminal of each joined to a common point and their remaining terminals connected in multiphase relation to a winding on said dynamo-electric machine, and a counter magnetizing-coil inductively related to each reactive coil.

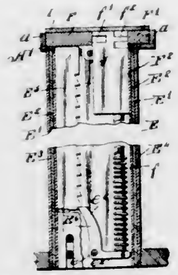
5. The combination of a dynamo-electric machine provided with a commutator, a plurality of coils having a terminal of each joined to a common point and their remaining terminals connected to points in the armature-winding of said machine, and a counter magnetizing-coil for each of said coils.

664,107. LOCK FOR BINDERS. CHRISTIAN H. STOELTING, Chicago, Ill., assignor to William A. Vawter, same place. Filed Mar. 31, 1900. Serial No. 10,906. (No model.)

Claim.—1. A locking device for a binder or the like, comprising two telescopic post-sections, one of which is provided interiorly with ratchet-teeth and the other with a pivoted pawl normally in locking engagement with said teeth, of means for actuating said pawl comprising a tumbler transversely movable with respect to said post-sections, and a plunger longitudinally movable within one of the post-sections, one end of the plunger engaging the pawl and the other end adapted for engagement with said tumbler.

2. A binder comprising two clamping-bars and two telescopic post-sections, the latter being attached at their opposite outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided interiorly with a ratchet-bar extending longitudinally there-

of, the other of said sections being provided with a pivoted pawl adapted to engage said ratchet-bar, a plunger or bolt longitudinally movable within one of said post-sections and engaging said pawl at one end, and means for actuating said plunger to disengage said pawl from locking engagement with said ratchet-bar.



3. A binder comprising two clamping-bars and two telescopic post-sections the latter being attached at their opposite outer ends to said bars and having sliding engagement at their inner ends, a ratchet-bar extending longitudinally within one section, a pivoted pawl in the other section adapted for normal engagement with said ratchet-bar and provided with a lever-arm, a plunger or bolt longitudinally movable within one of said sections and engaging said lever-arm, and means for actuating said plunger or bolt to throw said pawl out of engagement with said ratchet-bar.

4. In a binder having two clamping-bars, a locking device comprising two telescopic post-sections attached at their opposite outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided with a ratchet-bar, a levered pawl in the other of said sections, a plunger or bolt engaging the lever of said pawl and movable longitudinally within one of said post-sections, a tumbler in locking engagement with the outer end of said plunger and transversely movable with respect to said post-section, and means for actuating said tumbler to permit the inward movement of said plunger, whereby said pawl may be thrown out of engagement with the ratchet-bar.

5. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their opposite outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a levered pawl in normal engagement with said bar, a plunger in operative engagement with the lever of said pawl, the outer end of which extends beyond the post-section, a tumbler arranged to slide longitudinally on one of said clamping-bars and having locking engagement with said outer end of said plunger, and means for actuating said tumbler and thereby forcing said plunger inwardly or outwardly as desired.

6. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their opposite outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a levered pawl normally in engagement with the ratchet-bar, a tumbler having sliding movement longitudinally of said clamping-bar, a spring engaging said tumbler and acting to normally hold the latter from movement, and a longitudinally-movable plunger having engagement at its inner end with said levered pawl and at its outer end with said tumbler.

7. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided with a ratchet-bar and the other with a levered pawl adapted to engage said ratchet-bar, a plunger engaging at its inner end the lever of said pawl and having its outer end extending through one of said clamping-bars, a longitudinally-movable tumbler on said clamping-bar engaging the outer end of said plunger, and a pushing-spring secured at one end to said clamping-bar and at its other end engaging said tumbler whereby the latter is held yieldingly against movement.

8. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a levered pawl adapted to normally engage said ratchet-bar, a plunger engaging at one of its ends the lever of said pawl and extending at its other end outwardly through one of said clamping-bars, a pair of tumbler-plates adapted to have sliding movement on the outer side of said clamping-bar located on either side of and in engagement with said plunger to hold the latter normally in its retracted position, said engaging means being such as to force said plunger inwardly and thereby disengage the pawl from ratchet-bar when said tumblers are actuated in opposite directions.

9. A binder having clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, a ratchet-bar secured in one of said sections extending longitudinally thereof, a levered pawl secured in the other section, a bolt in operative engagement with the lever of said pawl and extending outwardly through one of said clamping-bars, and a key-actuated tumbler on each side of the extremity of said bolt engaging the same and adapted to slide longitudinally of said clamping-bar, and a spring engaging one end of each tumbler and acting to hold the same normally in their locking position.

10. A binder having two clamping-bars and a locking device, the latter comprising two telescopic sections attached at their outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a pivoted pawl adapted to normally engage said ratchet-bar, a plunger or bolt in operative engagement with said pawl and extending outwardly through said clamping-bar, a key-actuated two-part tumbler, one part being positioned on the clamping-bar on each side of the head of said plunger, said tumblers being provided on their adjacent edges or sides with downwardly and oppositely inclined grooves, a lug on each side of the head of said plunger complemental to the grooves in said tumblers and adapted to engage the same whereby, when said tumblers are moved in opposite directions, said plunger is forced inwardly thereby disengaging the pawl from the ratchet-bar.

11. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a pawl having an integral lever, a plunger or bolt having operative engagement with said lever at one end and provided on its other end with downwardly and oppositely inclined lugs, a tumbler adapted to have sliding engagement with said clamping-bar and provided with grooves complemental to and adapted to be engaged by the lugs on the plunger, a spring or springs engaging said tumbler adapted to hold the same yieldingly in position on the clamping-bar, and a key to actuate said tumbler.

12. A binder having two clamping-bars and a locking device, the latter comprising two telescopic post-sections attached at their outer ends to said bars, one of said sections being provided with a ratchet-bar and the other with a pawl having an integral lever, a plunger or bolt engaging said lever, a pulling-spring one end of which is secured to said lever and the other end to the bolt, downwardly and oppositely inclined lugs on said bolt, a two-part tumbler adapted to have sliding engagement with said clamping-bar and engaging the head of said bolt on opposite sides thereof, said tumbler parts being provided in their adjacent edges or sides with grooves complemental to said lugs and adapted to receive the same whereby said plunger is supported from and actuated by said tumblers, and means for actuating said tumblers.

13. A binder having two clamping-bars and two telescopic post-sections oblong in cross-section and attached at their opposite outer ends to said clamping-bars, said oblong sections being provided exteriorly on their opposite sides with half-sleeve sections which together form a complete sleeve inclosing said first-mentioned sections when the latter are closed, and a locking device comprising a ratchet-bar secured at one end and extending lengthwise in one post-section with a space between the back of said ratchet-bar and the inside of the post-section to which it is attached, and a pivoted locking-pawl secured within the other section normally in engagement with said ratchet-bar, and means for actuating the pawl to disengage it from the ratchet-bar when shifting said posts telescopically.

664,108. GUIDE FOR BAND-SAW MILLS. EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed Nov. 9, 1899. Serial No. 736,318. (No model.)

Claim.—1. The combination, with a freely-swinging link or arm extending upwardly from its pivot, of a horizontal saw-guide connected thereto above said pivot and held forward by gravity in engagement with the saw, substantially as described.

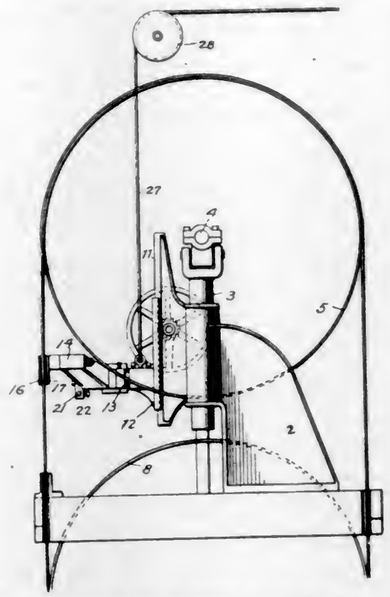
2. The combination, with a saw-guide, of a freely-swinging pivoted link or arm connected to said guide, the pivotal point of said link or arm being arranged below the point of connection between the link or arm and the guide, for the purpose set forth.

3. The combination, with a saw-guide, of a pair of freely-swinging arms or links pivotally connected to said guides and pivoted upon supports located below the point of connection between said arms or links and said saw-guide.

4. The combination, with a vertically-adjustable arm or bracket, of links pivoted upon suitable supports carried by said arm or bracket, a saw-guide pivotally connected to said links the pivotal points of said links upon their support being below the points of connection between said links and said saw-guide, and a suitable stop provided between said links to limit the forward movement of said guide, substantially as described.

5. The combination, with the saw-guide 15, of the links 14 pivotally connected to said guide and to suitable supports at points below the points of connection with said saw-guide, and a suitable stop 21 for said links, for the purpose set forth.

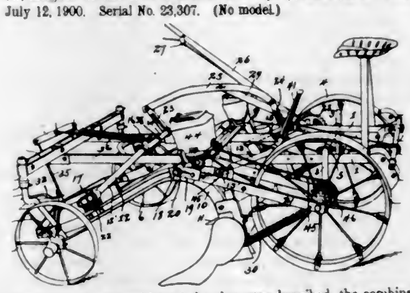
6. The combination, with the saw-guide 15, the upwardly-extending pivoted links 14, the counterweight 24 carried by one of said links and a suitable stop 21 for said links, for the purpose set forth.



7. The combination, with the vertically-movable slide or bracket 12, the shafts 13 projecting therefrom, the upwardly-extending links 14 pivotally supported upon said shafts the saw-guide 15 pivotally connected to the upper portions of said links and a suitable stop to limit the forward movement of said links and guide, for the purpose set forth.

8. The combination, with a band-saw mill, of a freely-swinging saw-guide supported horizontally and normally held forward by gravity in engagement with the saw and adapted to be moved longitudinally away from the same by contact with the saw-carriage or the log thereon, and a member interposed between said saw-guide and a suitable support on the mill-frame and pivotally connected therewith, the connection of said member with said guide being above its connection with said support, substantially as described.

664,109. WHEELED PLOW. SAMUEL H. TINSMAN, Rock Island, Ill., assignor to the Rock Island Plow Company, same place. Filed July 12, 1900. Serial No. 23,307. (No model.)



Claim.—1. In a machine of the character described, the combination of a main frame, front and rear supporting-wheels directly connected therewith, a pair of plows, means for supporting said plows from said frame and for raising or lowering them bodily relatively thereto, comprising a pair of crank-shafts mounted upon the main frame at longitudinally-separated points and each provided with a pair of crank-arms, the crank-arms of the front and rear crank-shafts being respectively arranged to act upon the front and rear portions of said plows, interconnections between said crank-shafts whereby they are caused to move together, and a hand-lever operatively connected therewith and pivotally-connected draft-bars connecting said plows with the main axle, the connections between the plows and supporting-frame being constructed to impart a movement of relatively greater extent to the rear ends of the plows than to their front ends and the connections forming the front supports being constructed to afford lost motion, whereby such differential movement is permitted, substantially as described.

2. In a machine of the character described, the combination of a main frame, supporting-wheels connected therewith, a pair of plows supported from said frame and means for simultaneously lifting said plows bodily, comprising a pair of crank-shafts mounted upon the main frame at longitudinally-separated points and each provided with a pair of crank-arms, the crank-arms of the front and rear crank-shafts being respectively arranged to act upon the front and rear portions of said plows, interconnections between said crank-shafts whereby they are caused to move together, a hand-lever operatively connected therewith and draft-bars connecting the plows with the main axle, the arms of the rearward crank-shaft being engaged with the proximate draft-bars and arranged to act on the plows through the medium of the latter, as and for the purpose set forth.

3. In a machine of the character described, the combination of a pair of main supporting-wheels, an arched axle connecting said supporting-wheels, a horizontal main frame pivotally connected adjacent to its rear end with said arched axle and provided at its forward end with a pair of caster supporting-wheels, a pair of plows arranged parallel with each other, two cranked shafts mounted upon said main frame at longitudinally-separated points and having their crank-arms connected with the respective plows at correspondingly longitudinally separated points, a connecting-link operatively connecting said cranked shafts to cause the same to move together, a hand-lever operatively connected with the connecting-link, a tie-bar extending transversely between and connecting said plows and draft-bars connecting said tie-bar with the axle portions of the main arched axle at each side of the frame, substantially as described.

4. In a machine of the character described, the combination of a pair of main supporting-wheels, an arched axle connecting said supporting-wheels, a horizontal main frame pivotally connected adjacent to its rear end with said arched axle and provided at its forward end with a pair of caster supporting-wheels, a pair of plows arranged parallel with each other, two cranked shafts mounted upon said main frame at longitudinally-separated points and having their crank-arms connected with the respective plows at correspondingly longitudinally separated points, a connecting-link operatively connecting said cranked shafts to cause the same to move together, a hand-lever operatively connected with the connecting-link, a tie-bar extending between and connecting said plows, draft-bars connecting said tie-bar with the axle portions of the main arched axle at each side of the frame, and a coiled contractile spring extending from the lower rear part of each plow obliquely, upwardly and rearwardly to supports connected with the main axle and tending to lift the plow bodily, substantially as described.

5. In a machine of the character described, the combination of a pair of main supporting-wheels, an arched axle uniting the same, a pair of main side frame-bars arranged parallel with each other and each pivotally connected with the arched portion of said axle, a cross frame-bar rigidly connected with the forward ends of said side frame-bars, caster supporting-wheels connected with the outer ends of said cross frame-bar, a pair of plows arranged parallel with each other and having their front beam ends united, said plows being located immediately in front of the respective main supporting-wheels, a tie-bar extending between and connecting said plows, a draft-bar connecting said tie-bar with the main axle at each side of the machine, a cranked shaft provided at each end with a crank-arm pivotally connected with the proximate draft-bar at a point intermediate the length of the latter and having its intermediate rock-shaft portion connected with the main frame at a point in rear of its point of connection with the draft-bar, a second crank-shaft having similar crank-arms respectively connected with the plow-beams near the front ends of the latter, a rigid arm upon each of said crank-shafts, a connecting-link uniting said crank-shafts so as to hold their several pairs of crank-arms approximately in the same angular relation to the main frame; the rearward crank-shaft having arms longer than those of the forward crank-shaft, and a hand-lever operatively connected with said connecting-link and adapted to oscillate said crank-shafts together, substantially as described.

6. In a machine of the character described, the combination with the main frame, the two cranked shafts pivotally supported thereon, the pair of plows supported by said cranked shafts, the mechanism imparting a longitudinal shifting of the main frame relatively to the main supporting-wheels during the raising and lowering of the plows, and the slotted supports 22 uniting the crank-arms of the forward crank-shafts with the plow-beams, substantially as described.

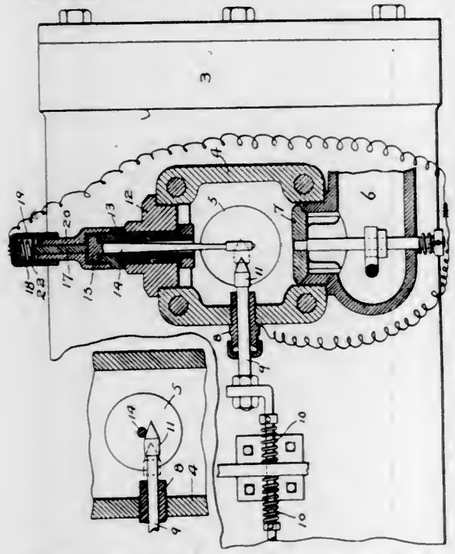
7. In a machine of the character described, the combination of a main supporting-frame and a plow flexibly suspended from said main frame, of an auxiliary supporting mechanism for carrying the front end of the plow independently of the main supporting mechanism, comprising

a toggle-bar pivotally connected at one end with the main frame above the front end of the plow-beam, to oscillate in a vertical plane, a connecting-link connecting the swinging end of the toggle-bar with the plow-beam, and a contractile spring connected at one end with the intermediate portion of the toggle-bar and extending thence rearwardly to, and connected with, a relatively fixed part of, or upon, the main frame, the relative arrangement of said parts being such that when the plow is elevated, the toggle-bar will be held in a position approaching the vertical and the front end of the beam thereby carried by the tension of the spring, and when the plow is lowered, the toggle-bar will be carried into a position to bring the tension of the spring approximately in alinement with its pivotal axis, so that the spring will exert practically no flexing action thereon, substantially as and for the purpose set forth.

8. In a machine of the character described, the combination of a main supporting-frame, an arched main axle provided with main supporting-wheels and having its arched portion connected with said main frame, a pair of plows flexibly supported thereon in parallel relation to each other, a draft-rigging connected directly with the front ends of the beams of said plows, and draft-bars pivotally connected with said plows and extending thence to and connected with said main axle of the machine, whereby the line of draft is imparted from the plow-beams directly to the axle of the main frame, substantially as described.

9. In a machine of the character described, the combination of a main supporting-frame, a wheeled main axle supporting the rear portion of said frame, a pair of plows arranged parallel with each other at the respective sides of said frame and means for elevating said plows, comprising a cranked shaft mounted upon the forward end of said main frame and having a pair of crank-arms respectively engaged with the front portions of the beams of the plows, draft-bars pivotally connected with the rear portions of the beams of the plows and extending thence to and pivotally connected with the main axle, and means for positively oscillating said crank-shaft and draft-bars, as and for the purpose described.

664,110. IGNITER FOR EXPLOSION-ENGINES. CLARENCE O. WHITE, Minneapolis, Minn., assignor of one-half to Edward J. Kimball, same place. Original application filed Mar. 17, 1898, Serial No. 674,163. Divided and this application filed July 15, 1899. Serial No. 723,897. (No model.)



Claim.—1. The combination, with the igniter-chamber, of the igniter-plug 12 fitting therein, the sleeve 13 provided in said plug and insulated therefrom, the stationary contact comprising a tapered rod 14 provided within said sleeve and having at its lower end a slight lateral movement therein, a head 15 provided on said rod and resting on said sleeve, means bearing upon said head for centering said rod and a reciprocating contact projecting through the walls of said igniter-chamber and adapted to engage the yielding lower end of said rod, substantially as described.

2. The combination, with an igniter-chamber, of the stationary contact comprising an insulating-sleeve and a tapered rod provided therein, a head provided on said rod and resting upon said sleeve, a plunger 17 bearing upon said head, a spring 18, a cap 19 inclosing said spring and a reciprocating contact projecting through the walls of said igniter-chamber and adapted to engage the yielding end of said rod, substantially as described.

3. The combination, in an electric igniter, with the igniter-chamber, of the reciprocating contact-rod, the tapered depending contact-rod, the insulated sleeve wherein said tapered rod has a limited lateral movement when struck by said reciprocating contact-rod, and a pressure device adapted to re-center or return said depending contact-rod, substantially as described.

4. The combination, with the igniter-chamber, of the reciprocating rod therein, the insulated sleeve provided in the wall of said chamber, a contact-rod extending through said sleeve and into said igniter-chamber in position to be engaged by said reciprocating rod, said contact-rod being rigid but having a slight lateral movement in said sleeve to permit it to yield when engaged by said reciprocating rod, a head provided at the outer end of said contact-rod and a centering device adapted to engage said head, substantially as described.

5. The combination, with the igniter-chamber, of the stationary contact, comprising a rigid or inflexible rod having a limited lateral movement in its support, means for automatically centering said rod and a reciprocating contact operating through the wall of said igniter-chamber substantially at right angles to said rod and adapted to engage and move the same laterally, substantially as described.

6. The combination, in an igniter, of the igniter-chamber, with the reciprocating contact, the stationary contact arranged substantially at right angles to said movable contact and comprising an insulating-sleeve, and a yielding rod extending therethrough into said chamber and provided with a rocking head, a plunger at the outer end of said sleeve bearing upon said rod to center the same in said sleeve, a spring bearing upon said plunger and a perforated cap for said spring, substantially as described.

7. The combination, of the igniter-chamber, with the stationary contact comprising an insulating-sleeve and a yielding rod automatically centered therein but permitted to vibrate, and a movable contact operating through the wall of said igniter-chamber at right angles to said stationary contact and to which said stationary contact is adapted to yield, both of said contacts adapted to be rotated to alter the engaging or contact surfaces thereof, substantially as described.

664,111. LOW-WATER ALARM. FRANK ALDRICH, Detroit, Mich. Filed Apr. 3, 1900. Serial No. 11,334. (No model.)



Claim.—1. An alarm for steam-boilers having openings forming valves communicating with the interior of the boiler and with a whistle, a whistle provided with a glass hood, the steam from the boiler passing through the openings breaking the hood and causing the whistle to sound, as and for the purpose set forth.

2. An automatic alarm for steam-boilers having a conical shaft within a sleeve in the head of the boiler, the ends of the shaft being closed and a longitudinal opening through part of its center adapted to communicate with openings in the sleeve within and without the boiler and with a glass hood, the steam from the boiler breaking the hood and causing the whistle to sound, as and for the purpose set forth.

3. In combination with an alarm for steam-boilers having a shaft operated by a float and openings through the shaft to a whistle, of a whistle covered by a glass hood, the steam from the boiler coming in contact with and breaking the hood and causing the whistle to sound, as and for the purpose set forth.

4. In combination with a steam-boiler alarm having a sleeve with a conical shaft operated by a float in the boiler, the shaft and sleeve having openings communicating with a whistle, of a dial secured to the end of the sleeve and a pointer to the end of the shaft, the whistle having a glass hood seated in its cup below, as and for the purpose set forth.

5. In combination with a steam-boiler alarm operated by a float within the boiler opening a valve communicating with the whistle, of a glass hood secured to a standard over the whistle and its sides extending below the bell and seated in the cup of the whistle, as and for the purpose set forth.

664,112. CAR-VENTILATOR. WILLIAM E. ANDREW, Atlantic Highlands, N. J. Filed Mar. 24, 1900. Serial No. 10,033. (No model.)

Claim.—1. A ventilating apparatus comprising a draft-flue in communication with the space to be ventilated, a forced-draft flue arranged within the draft-flue, and automatically-actuated draft-directors alternately operating to open and to close the respective ends of the draft-flue and to direct a current of air through the forced-draft flue, substantially as described.



2. A ventilating apparatus comprising a draft-flue in communication with the space to be ventilated, a forced-draft flue arranged within the draft-flue, a draft-director comprising a funnel-shaped door at each end of the draft-flue, and means for operating the said doors, thereby alternately to open and to close the ends of the draft-flue and to direct a current of air through the forced-draft flue, substantially as described.

3. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, and a draft-director comprising a funnel arranged at each end of the suction or induced-draft flue and operating alternately to direct a current of air through the forced-draft flue and to prevent passage of external air through the induced-draft flue, substantially as described.

4. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, and funnels, constituting draft-directors, adapted alternately to be moved into engagement with the forced-draft flue, to direct a current of air therethrough, substantially as described.

5. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, and funnels, constituting draft-directors, secured to the ends of the suction or induced-draft flue, substantially as described.

6 A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, movable funnels, constituting draft-directors, secured to the ends of the suction or induced-draft flue, and means arranged exteriorly of the vacuum-chamber and connected, through intermediate mechanism, with the draft-directors, thereby both to operate and to indicate the positions of the draft-directors, substantially as described.

7. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, movable funnels, constituting draft-directors, secured to the ends of the suction or induced-draft flue, means arranged exteriorly of the vacuum-chamber and connected, through intermediate mechanism, with the draft-directors, thereby both to operate and to indicate the positions of the draft-directors, and means for regulating the draft through the vacuum-chamber, substantially as described.

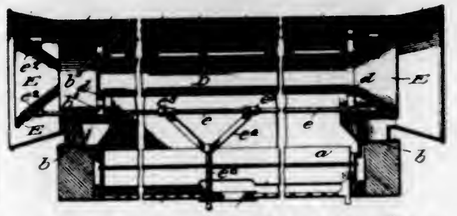
8. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, movable funnels, constituting draft-directors, secured to the ends of the suction or induced-draft flue, means arranged exteriorly of the vacuum-chamber and connected, through intermediate mechanism, with the draft-directors, thereby both to operate and to indicate the positions of the draft-directors, and laterally-movable slides, constituting draft-regulators, adapted to close passage through the vacuum-chamber, substantially as described.

9. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, movable funnels, constituting draft-directors, secured to the ends of the suction or induced-draft flue, means arranged exteriorly of the vacuum-chamber and connected, through intermediate mechanism, with the draft-directors, thereby both to operate and to indicate the positions of the draft-directors, laterally-movable slides, constituting draft-regulators, adapted to close passage through the vacuum-chamber, rods carrying links at one end to engage with the draft-regulators and, at the other end, arms or pointers, said pointers serving as visual indicators to indicate the position of the regulators or slides, substantially as described.

10. A ventilating apparatus comprising a draft-flue, an induced-draft flue, a forced-draft flue, a vacuum-chamber, the induced-draft flue being provided with funnel-shaped doors, and devices for connecting and operating the doors, and, at the same time, indicating their position within a car, substantially as described.

11. The combination with a railway-car, of a ventilating device comprising a draft-flue arranged externally of the car, an induced-draft flue arranged within the first-named flue, a forced-draft flue arranged within the induced-draft flue, a vacuum-chamber communicating with the induced-draft flue and with the car, connected funnel-shaped doors mounted for movement to and from the induced-draft flue, a rod operatively connected at one end with the operating mechanism of the doors, and at its other end extending into the car, and a combined indicating and operating device, in the nature of an arrow, secured to the said rod, substantially as described.

664,113. CAR VENTILATION. WILLIAM E. ANDREW, Atlantic Highlands, N. J. Filed Apr. 16, 1900. Serial No. 13,098. (No model.)



Claim.—1. The combination with a railway-car, of a ventilator comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue, and bridging the discharge-mouth of the vacuum-chamber, movable funnels, constituting draft-directors, arranged contiguous to the ends of the induced-draft flue, and means for operating the funnels in unison, substantially as described.

2. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, the discharge-mouth of the vacuum-chamber extending beyond the inner wall of the induced-draft flue to form a ledge to prevent entrance of water to and within the vacuum-chamber, a forced-draft flue housed within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, and movable funnels for directing a current of air through the forced-draft flue and to prevent passage of external air through the induced-draft flue, substantially as described.

3. A ventilating apparatus comprising a vacuum-chamber, a suction or induced-draft flue, the discharge-mouth of the vacuum-chamber extending beyond the inner wall of the induced-draft flue, to form a ledge to prevent entrance of water to and within the vacuum-chamber and the inner wall of the induced-draft flue diverging from the discharge-mouth of the vacuum-chamber, thereby to shed any water that might enter the induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, the ends of the forced-draft flue being flared, and movable funnels for directing a current of air through the forced-draft flue and to prevent passage of external air through the induced-draft flue, substantially as described.

4. A ventilating apparatus comprising a vacuum-chamber in communication with the interior of the car, a cylindrical induced-draft flue, funnels mounted for movement to and from the said flue, rods or bars connecting the funnels, means for supporting the rods or bars within the induced-draft flue, and a forced-draft flue within the induced-draft flue with which the funnels coact, substantially as described.

5. A ventilating apparatus comprising a cylindrical induced-draft flue, a vacuum-chamber, a forced-draft flue, extending at each end beyond the vacuum-chamber, a funnel mounted for movement to and from each end of the induced-draft flue, rods or bars connecting the funnels, eyes or runners secured within the induced-draft flue, through which the rods or bars pass, and mechanism operating simultaneously a series of these funnels to move the same and thereby to open or close the respective ends of the induced-draft flue, substantially as described.

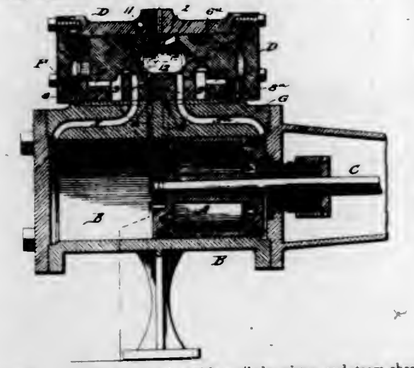
6. In combination with a railway-car, a ventilating device comprising a vacuum-chamber, an induced-draft flue and a forced-draft flue, a funnel carried by rods at each end of the flues, the rods being movable in suitable bearings, the small end of each funnel being designed to direct a current of air through the forced-draft flue, and the large end of the funnel to close the corresponding end of the induced-draft flue, substantially as described.

7. The combination with a railway-car, of a ventilator comprising a vacuum-chamber, a suction or induced-draft flue, a forced-draft flue contained within the induced-draft flue and bridging the discharge-mouth of the vacuum-chamber, horizontally-movable funnels, constituting draft-directors, arranged contiguous to the induced-draft flue, means for operating the funnels in unison, and pipe connections through the deck and into the car, substantially as described.

8. The combination with a railway-car, of a ventilating device comprising a vacuum-chamber, an induced-draft flue and a forced-draft flue, a funnel carried by rods at each end of the flues, the rods being movable in bearings provided with friction-rollers, the small end of each funnel being designed to direct a current of air through the forced-draft flue,

and the large end of the funnel to close the corresponding end of the induced-draft flue, substantially as described.

664,114. VALVE FOR PUMPING-ENGINES. JAMES S. ATKINSON, Louisville, Ky., assignor of one-fourth to William C. Atkinson, Nashville, Tenn. Filed May 26, 1900. Serial No. 18,075. (No model.)



Claim.—1. The combination with a cylinder-piston, and steam-chest and intermediate exhaust-passages of a valve adapted to reciprocate in the steam-chest, and having a central chamber provided with an induction-port on one side and two eduction-ports on the other, and also with grooves or exhaust-ports located laterally from said chamber, passages each communicating alternately with said eduction-ports and exhaust-ports and leading to the ends of the piston-cylinder, whereby they serve alternately for induction into and exhaust from the cylinder, and two small steam-passages connecting the ends of the steam-chest with the cylinder on each side of the center, whereby the valve is automatically reciprocated to admit and exhaust steam, substantially as shown and described.

2. The combination, with cylinder, piston, steam-chest and valve having a central ported chamber and lateral exhaust-spaces, of combined induction and exhaust passages, exhaust-ports that communicate with the latter as the valve reciprocates, two small passages conducting live steam to ends of steam-chest, and supplemental exhaust-ports 10, which extend from the spaces formed alternately at ends of valve-chamber to the main exhaust-passages, as shown and described.

3. The valve and steam-chest having a flat base provided with central and end ports and a curved exhaust-passage 9, formed as a groove or depression in said base, and the piston and cylinder having a flat top provided with the steam-passages 5, 5^a, 9^a, and 8, 8^a, a portion of the latter being formed as grooves extended in the flat top, the said passages being arranged to coincide and communicate with those of the steam-chest base, substantially as shown and described.

4. The combination, with the steam-chest having a cylindrical chamber, of a cylindrical valve, and a lateral guide fixed on the steam-chest the same working in a guide-cavity in the valve to prevent rotation, substantially as shown and described.

664,115. PNEUMATIC TRACK-SANDER FOR LOCOMOTIVES. JOSHUA B. BARNES, Springfield, Ill. Filed Aug. 9, 1900. Serial No. 26,410. (No model.)

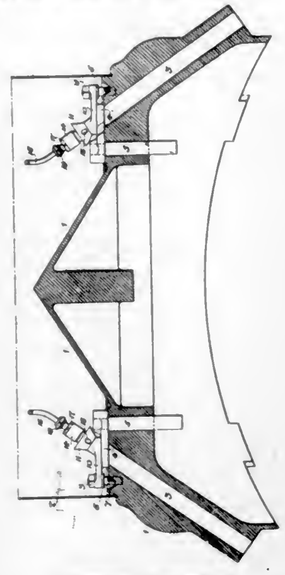
Claim.—1. The combination of the base of a locomotive sand-box and a plate supported above said base and having a sand-feed hopper with blast-nozzle, and a swinging valve movable between the said projecting plate and base of the sand-box, substantially as specified.

2. The combination of the base of the sand-box having an inclined sand-discharge passage therein, a plate supported above said base and having a sand-feed hopper with opening in line with the inclined sand-passage of the base, an air-nozzle in said opening, and a swinging valve movable between the plate and the base of the sand-box, substantially as specified.

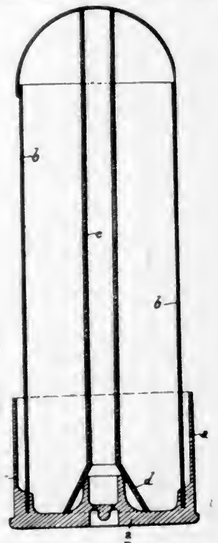
3. The combination of the base of the sand-box, the plate supported above the same and having a sand-feed hopper, with an air-jet nozzle therein, and a swinging valve movable between said plate and the base of the sand-box and having a segmental slot therein, substantially as specified.

4. The combination in a pneumatic attachment for locomotive sand-boxes, of a plate having a sand-feed hopper and projecting internally-threaded casing with an air-nozzle having a stem with threaded portion adapted to said internally-threaded projection of the hopper, substantially as specified.

5. The combination in a pneumatic attachment for locomotive sand-boxes, of a plate having a sand-feed hopper and projecting internally-threaded casing and an air-nozzle having a threaded stem adapted to said internally-threaded casing, and a flange or collar for bearing against the outer end of said casing, substantially as specified.



664,116. CARTRIDGE. ANTONY BARRALLON, St. Etienne, France. Filed July 19, 1899. Serial No. 724,424. (No model.)



Claim.—1. A cartridge for firearms, consisting of a metallic breech *a* having a percussion-cap or detonator in its center, an impermeable and combustible casing *b* of smaller diameter than the breech and secured within and to the base of the same, and a highly inflammable and combustible center tube *c* having a flaring end covering the detonator of the breech and extending therefrom to the outer end of the casing, substantially as described.

2. A cartridge, comprising a combustible casing, a breech in which the casing is secured, the breech being of greater diameter than the casing and having its outer end surrounding the inner end of the casing and forming therewith an air-space open at its forward end, and an inflammable and combustible center tube, substantially as described.

3. A cartridge, comprising a combustible casing, a flexible breech-piece of greater diameter than the casing and in which the casing is secured, the outer flexible end of the breech surrounding the inner end of the casing and forming therewith an annular air-space open at its forward end, and a central inflammable and combustible tube having an outwardly-flaring lower end, substantially as described.

4. A cartridge having an elastic metallic base, a celluloid casing attached to the base, and a celluloid tube extending from the base through the longitudinal center of the cartridge.

5. A cartridge, comprising a breech, a combustible casing secured to the breech and adapted to contain the charge, and a combustible tube arranged in the center of the casing and extending from the breech throughout the length of the casing with its inner end in engagement with the end of the casing, said tube being adapted to contain a quick-burning powder, as and for the purpose set forth.

6. A cartridge, comprising a breech-piece, and a combustible casing of less diameter than the breech and secured therein, whereby an annular air-space open at its forward end will be formed between the casing and breech-piece and the casing and bore of the gun to insure a complete combustion of said casing, as set forth.

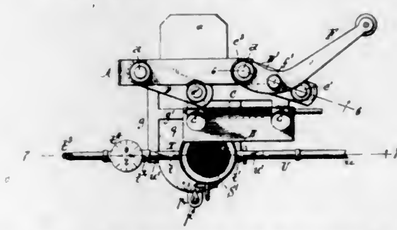
664,117. BOTTLE-HOLDER. THEODORE C. BATES, Worcester, Mass. Filed Dec. 23, 1899. Serial No. 741,349. (No model.)



Claim.—1. A bottle-holder composed of reticulated material, a non-metallic bottom to receive suitable fastenings by which to secure the body to the bottom, said bottom having an extension extended outwardly beyond the walls of the body on which ice may rest.

2. A bottle-holder composed of wire-cloth, and a binding-wire encircling portions of the wire where the ends of the cloth are abutted in bringing the cloth into cylindrical shape, said wire-cloth and binding-wire being soldered, and a suitable bottom secured to said body.

664,118. MICROTOME. AUGUST BECKER, Göttingen, Germany, assignor to the Spencer Lens Company, Buffalo, N. Y. Filed Aug. 25, 1899. Serial No. 728,520. (No model.)



Claim.—1. The combination with the main frame and the object-support, of rock-arms pivoted to said frame, a knife-supporting bar carried by said rock-arms, a hand-lever for actuating the knife, and a yielding coupling which is interposed between said hand-lever and the knife-supporting bar and which is capable of yielding in a direction parallel to the pivotal axis of the hand-lever, whereby the latter can be deflected toward or from the knife-supporting bar without disturbing the position of the knife-supporting bar, substantially as set forth.

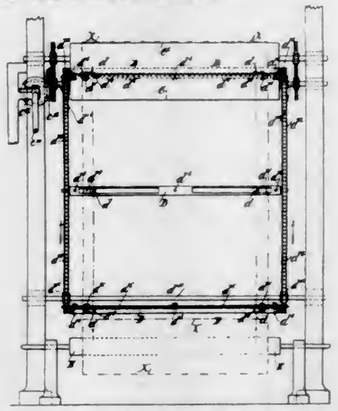
2. The combination with the main frame and the object-support, of rock-arms pivoted to said frame, a knife-supporting bar carried by said rock-arms, a hand-lever for actuating the knife, and a yielding coupling which is interposed between said hand-lever and the knife-supporting bar and which consists of a coupling-pin arranged parallel with the pivot of said lever and a socket which receives said pin and permits of the end-wise play of the pin therein, substantially as set forth.

3. The combination with the main frame and the object-support, of vertically-swinging arms connecting said support with the main frame, a vertical feed-screw which engages said support and means for supporting the feed-screw in the main frame, permitting movement of the screw toward and from the pivots of said arms as the support is raised and lowered, substantially as set forth.

4. The combination with the main frame, the object-support arranged in front of the same, and a reciprocating knife-carrier, of vertically-swinging rock-arms extending from said frame forwardly to said support, a vertical feed-screw engaging said support and capable of movement in the main frame toward and from the pivots of said arms, a ratchet-wheel secured to said screw, a pawl-arm carrying a pawl which engages said wheel, a vertical rock-shaft which is journaled in the main frame and provided with an arm which engages said pawl-arm, a return-spring applied to said rock-shaft, and means whereby said rock-shaft is actuated from the knife-carrier, substantially as set forth.

5. The combination with the main frame, the knife and the object-support movable toward and from the knife, of a feed-screw engaging with said support and provided with a ratchet-wheel, a pawl-arm provided with a pawl engaging with said wheel, an adjustable cam-disk mounted loosely on the ratchet-wheel and adapted to disengage the pawl from the ratchet-wheel, and an adjusting-arm pivoted on the frame and having a loose connection with said cam-disk, substantially as set forth.

664,119. MACHINE FOR PRINTING IN ONE OR MORE COLORS. GASTON E. BOUVET and EDOUARD A. FIX, Paris, France. Filed Jan. 12, 1898. Serial No. 666,416. (No model.)



Claim.—1. In a printing-machine, the combination of continuous rotary impression and printing cylinders with a registering mechanism to guide the web through the machine a plurality of times in the same position relative to the printing-cylinder, the said mechanism being apart from the said cylinders and comprising cross-pieces provided with points adapted to be fixed at variable distances apart on the said cross-pieces, and means for moving the said cross-pieces at a speed exactly equal to that of the web of paper or fabric passing through the printing-machine.

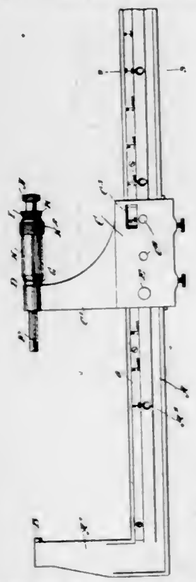
2. In a printing-machine for printing on a continuous band of paper or fabric, the combination of a printing-cylinder, with registering mechanism to guide the band through the machine, a plurality of times in the same position relative to the printing-cylinder, the said registering mechanism consisting of endless chains, cross-pieces carried thereby, and points secured to the cross-pieces and adapted to be adjusted longitudinally on the said cross-pieces, substantially as and for the purposes set forth.

3. In a printing-machine for printing on a continuous band of paper or fabric, the combination of a printing-cylinder, with registering mechanism to guide the band through the machine a plurality of times in the same position relative to the printing-cylinder, the said registering mechanism consisting of endless chains, cross-pieces carried thereby, the said cross-pieces consisting of two slotted rods, screws connecting the rods and springs to separate them, and guides provided with points and adapted to be adjustably secured in any part of the slots of the said rods, substantially as set forth.

664,120. MICROMETER-GAGE. ALBERT A. BRANDT, Birmingham, England. Filed Jan. 16, 1900. Serial No. 1,635. (No model.)

Claim.—1. In a micrometer-gage, the combination with a beam, of a main micrometer device movable on the beam and adapted to be fastened thereto at measured points, the said micrometer device comprising

a barrel, a cylinder adjustable in the barrel, a sleeve connected with the cylinder and extending over the barrel and a spindle carried by the cylinder, the said sleeve having a graduated end to indicate micrometer adjustment relatively to the barrel and a correcting micrometer device indicating on the other end of said sleeve, to adjust the spindle of the main micrometer device to any discrepancy in the setting of the main micrometer device on the said beam, substantially as shown and described.



2. In a micrometer-gage, the combination with a rigid beam carrying an anvil, of a main micrometer device having a slide movable longitudinally on said beam and adapted to be fastened thereto at measured unit distances from the anvil, the said main micrometer device comprising a barrel, a cylinder screwing in the barrel, a sleeve connected with the cylinder and extending over the barrel, and a spindle carried by the cylinder, the said sleeve being provided with a graduated end to indicate micrometer adjustment relatively to the barrel, and a correcting micrometer device carried by the main micrometer device and indicating on the other end of said sleeve to correct the spindle of the latter to any discrepancy in the setting of the said slide on the beam, substantially as shown and described.

3. In a micrometer-gage, the combination with a rigid beam carrying an anvil, and having a series of graduated or unit holes, of a main micrometer device provided with a slide movable longitudinally on said beam, the said micrometer device having a barrel, a cylinder adjustable in the barrel, a sleeve connected with the cylinder and extending over the barrel, and a spindle carried by the cylinder and adjustable therein, a pin for fastening the slide in place on the beam at any one of the said graduated or unit holes, and a correcting micrometer device carried by the said main micrometer device for micrometrically adjusting the spindle of the latter to correct any discrepancy in the setting of the slide on the beam, substantially as shown and described.

4. A micrometer-gage having a main micrometer device comprising a barrel, a cylinder screwing in the barrel and provided with a sleeve extending over the barrel, a spindle carried by said cylinder and movable in and out therewith as the sleeve is turned, the said spindle being adjustable in the cylinder, and a correcting micrometer device carried by the main micrometer device and indicating on the sleeve for micrometrically adjusting the spindle of said main micrometer device relatively to the sleeve, substantially as described.

5. A micrometer-gage comprising a spindle, a cylinder in which the spindle is adjustable, a barrel in which the cylinder is adjustable, a sleeve movable with the cylinder for micrometrically adjusting the spindle and having a graduated end, a head at the other end of the sleeve and provided with a recess and a graduated head on said spindle adapted to fit in said recess, the said head indicating on the end of the sleeve to micrometrically adjust the spindle relatively to the sleeve, substantially as shown and described.

6. A micrometer-gage having a spindle, a cylinder in which the spindle is adjustable, a barrel in which the cylinder screws, a sleeve for micrometrically moving the spindle and having a graduated end, a recess at the other end of the sleeve a graduated head on said spindle adapted to fit in said recess and indicating on the end of said sleeve to micrometrically adjust the spindle relative to the sleeve, and means for locking the head of the spindle to the said end of the sleeve, substantially as described.

7. A micrometer-gage having a spindle formed with a threaded portion, a cylinder in which the spindle screws, a barrel in which the cylinder is adjustable, a sleeve extending over the barrel and having a graduated end for indicating micrometer adjustment relatively to the barrel, the other end of said sleeve being connected with the cylinder by a head, and a nut screwing in the outer end of the barrel and on the cylinder adjacent to the head for the purpose set forth.

8. A micrometer-gage having a spindle, a sleeve for micrometrically moving the spindle, the latter being adjustable in the sleeve, a graduated head on said spindle and indicating on the sleeve, to micrometrically adjust the spindle relatively to the sleeve, and means for locking the spindle to the said sleeve, the said means comprising a split sleeve on the head, pins in the head for pressing the split portions against the said spindle-sleeve, and means for forcing the pins outward against the split portions, substantially as shown and described.

9. A micrometer-gage having a spindle, a sleeve for micrometrically moving the spindle, the said sleeve having a head at its outer end, a head on said spindle adapted to fit into a recess in the head of the sleeve, a graduated sleeve adjustably held on the spindle-head, and indicating on the spindle-sleeve, a nut on the outer end of the spindle-head for locking the graduated sleeve in place on the spindle-head, the said graduated sleeve being formed at its inner end with split portions, obliquely-disposed pins fitted to slide in the spindle-head and adapted to engage with their outer ends the split portions of the sleeve to press the same against the inner wall of the recess in the head of the spindle-sleeve, to lock the spindle-head to the head of the spindle-sleeve, and a screw-rod having an inner threaded portion screwing into the spindle and a bevel portion engaging the inner ends of the pins to force the pins outward, substantially as described.

10. A micrometer-gage having a spindle, a sleeve for micrometrically moving the spindle, the latter being adjustable in the sleeve, the said sleeve having a head at its outer end in which the said spindle screws, a head on the outer end of said spindle and arranged to fit in a correspondingly-shaped recess in the head of the spindle-sleeve, a graduated sleeve adjustably held on the said spindle-head and indicating on the spindle-sleeve and means for locking the spindle-head to the head of the sleeve, substantially as described.

11. A micrometer-gage comprising a beam provided with an anvil, a slide mounted on said beam, a barrel carried by the slide and having an internal thread, a cylinder screwing in the said barrel, a sleeve having a head at one end connected with the cylinder, the said sleeve extending over the barrel and having its end graduated, a spindle screwing in the cylinder-head and in axial alinement with the anvil, and a correcting micrometer device for adjusting the spindle of the main micrometer device, substantially as described.

12. In a micrometer-gage, the combination with a beam, provided with an anvil, of a main micrometer device comprising a slide mounted to move longitudinally on said beam and having a shank, a barrel carried by said shank and formed with an internal thread, an externally-threaded cylinder screwing in the said barrel, a sleeve concentric with the said cylinder and extending over the said barrel, the said sleeve and cylinder being connected with each other by a cylinder-head having an internal thread, a spindle having an outer threaded portion screwing in the cylinder-head, the said spindle being in axial alinement with the anvil, the said sleeve having a graduated end for indicating micrometer adjustment relative to the barrel, and a correcting micrometer device for adjusting the spindle of the main micrometer device, substantially as described.

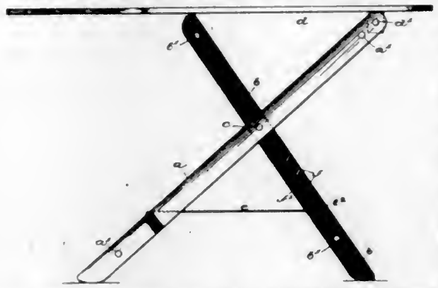
664,121. TIRE-ARMOR. NELSON BROWN, Lowell, Mass. Filed Aug. 22, 1900. Serial No. 27,692. (No model.)



Claim.—1. In a tire-armor, the combination, with a concavo-convex hoop formed of leather and provided with a series of metallic projections, of a metallic back plate provided with projecting flanges *d'* which inclose the side edges of the said hoop, and means for securing the said hoop and back plate over the tire, substantially as set forth.

2. A tire-armor comprising a concavo-convex hoop formed of leather and having pegs set at an angle to its periphery, and provided with a metallic back plate having flanges which engage with the edges of the said band, and means for securing the said hoop over the tire, substantially as set forth.

664,122. IRONING-TABLE. GEORGE W. BUSS, Canton, Mass. Filed June 8, 1900. Serial No. 19,511. (No model.)



Claim.—1. In a table, a top, and two pairs of crossed legs pivoted together between their ends and furnishing a support for the top, a double flexible holding means connecting the lower ends of the crossed legs below their pivotal point, said means comprising two members and a central loop, each member connecting those legs of each pair on the same side of the table, and an adjusting device adapted to be engaged by the loop for adjusting the height of the table.

2. In a table, a top, and two pairs of crossed legs pivoted together between their ends and furnishing a support for the top, flexible holding means connecting the lower ends of the crossed legs below their pivotal point, said holding means comprising a doubled cord, each member of said holding means being slidingly connected with one leg of one pair and connected to one leg of the other pair, and an adjusting device carried by one pair of legs and adapted to be engaged by the central part or loop of the cord.

3. In a table, a top, and two pairs of crossed legs pivoted together between their ends and furnishing a support for the top, flexible holding means connecting the lower ends of the crossed legs below their pivotal point, said holding means comprising a double cord, each member of which slidingly engages an eye on one leg of one pair and is fixedly connected to one leg of the other pair, and an adjusting device carried by the first-mentioned pair of legs, the central part or loop of the cord being passed around a rung on said first-mentioned pair of legs and connected with the adjusting device.

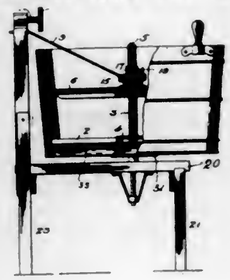
664,123. CLIP FOR ATTACHING UMBRELLA-COVERS. FRANK W. CARMELICH, Mobile, Ala. Filed Oct. 4, 1900. Serial No. 31,993. (No model.)



Claim.—1. An umbrella-clip for the purpose described comprising two clamping-jaws adapted to fasten to the edge of the umbrella-covering, and a link adapted to be fastened to the umbrella-rib and loosely connected to the ends of the jaws, substantially as set forth.

2. The combination with a cover and a rib provided with an eye, of a fastening consisting of two strips bent upon themselves to form clamping-jaws to engage the edge of the umbrella-covering, and a link passing through the eye of the rib and connected to the inner or adjacent ends of the strips, substantially as set forth.

664,124. WASHING-MACHINE. ALONZO A. CASLER, Mansfield, Ohio. Filed June 21, 1899. Serial No. 721,405. (No model.)



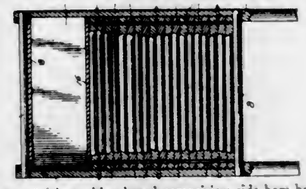
Claim.—1. In a washing-machine, the combination with a revoluble tub having a separate upper rubbing-disk and a vertical central post secured in the bottom of the tub, a cam-plate secured upon the top of the upper rubbing-disk, the plate having two inclined faces, a sleeve secured upon the center post, the sleeve provided with rollers and a cam-plate adapted to give to the upper rubbing-disk a vertical reciprocating movement substantially as described.

2. In a washing-machine, the combination with a revoluble tub having a vertical post secured therein, a rubbing-disk surrounding said post, a plate or runway carried by said disk, and a sleeve secured upon said post carrying rollers to contact said plate.

3. In a washing-machine, the combination with a revoluble tub having a vertical post secured therein, a rubbing-disk surrounding said post, of a plate or runway carried by said disk, a sleeve secured upon said post carrying rollers to contact said plate and means hinged to the top of the disk to prevent the latter from rotating, substantially as described.

4. In combination with a revoluble washing-machine, or tub having an upper separate rubbing-disk and a vertical post secured in the bottom and center thereof, a Y-shaped bracket or brace hinged to the top of the disk and having a straight arm, a post provided with an elongated opening to receive said arm to prevent the disk from rotating, a plate or runway carried by said disk, and a sleeve secured upon said post carrying rollers to contact said plate.

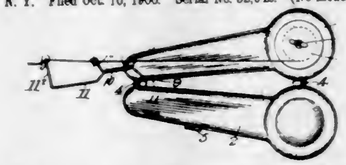
664,125. WASHBOARD. GEORGE W. CHATTERS, Sr., Friar's Point, Miss. Filed Apr. 14, 1900. Serial No. 12,954. (No model.)



Claim.—1. A washing-board comprising side bars having longitudinal grooves in their mutually-adjacent faces, a plurality of cross-bars having their ends slidably engaged with the grooves, alining perforations in the corresponding ends of the several cross-bars, wires engaged with the alining perforations, and rings encircling each side bar and the adjacent wire, to hold the side bars against outward displacement.

2. A washing-board comprising side bars having longitudinal grooves in their mutually-adjacent faces, a series of cross-bars having their ends engaged with the grooves, the cross-bars at each side of the board having alining perforations, retaining-wires passed through the alining perforations, rings encircling the side bars and the adjacent retaining-wires, a board lying against the uppermost cross-bar and having its ends bifurcated and inclosing the side bars, a board having its ends engaged with the grooves and lying with one side edge against the first-named board, and means for preventing the displacement of the boards and bars longitudinally from the grooves.

664,126. DENTAL FLOSS-HOLDER. JAMES W. COWAN, Geneseo, N. Y. Filed Oct. 10, 1900. Serial No. 32,642. (No model.)



Claim.—1. A dental appliance comprising a hollow casing, a cover therefor, a thread-retainer mounted therein, a spring-frame in which the thread is stretched projecting from the casing, and means connecting the casing and the frame whereby the latter may be inclosed in the casing.

2. A dental appliance comprising a hollow casing, a cover therefor, a thread-retainer mounted therein, a spring-frame in which the thread is stretched, a pivotal connection between the casing and the frame, whereby the frame may be inclosed within the casing, and means to secure the frame in operative position in the casing.

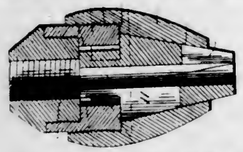
3. A dental appliance comprising a hollow casing, a cover therefor, a thread-retaining spool rotatably mounted in said casing, a spring-frame mounted in said casing, means on said frame for securing the thread whereby it is held taut in said frame.

4. A dental appliance comprising a hollow casing, a cover therefor, a thread-retaining spool rotatably mounted in said casing, a spring-frame

pivotally mounted in said casing, and spring-hooks on said frame whereby the thread is held taut in said frame, said frame being locked between the casing and the cover when in operative position and inclosed in said casing when not in use.

5. A dental appliance comprising a casing, a cover hinged thereto, a thread-retainer in said casing, a spring-frame, in which the cord is stretched, carried by said casing, and a catch on said cover, said catch having a cutting edge.

664,127. DRILL OR BIT CHUCK. JOSEPH J. CRIPPEN, Denver, Colo. Filed Aug. 21, 1900. Serial No. 27,596. (No model.)



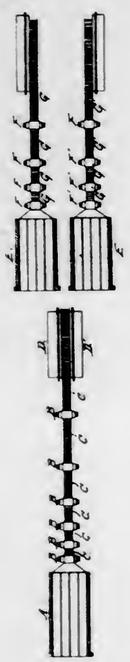
Claim.—1. In a chuck, clamping-jaws having a spiral twist and registering contiguous edges.

2. In a chuck, clamping-jaws provided with bit-bearing faces having a spiral twist.

3. In a chuck, tapered clamping-jaws having longitudinal bearing-faces, the jaws and their bit-bearing faces having a spiral twist.

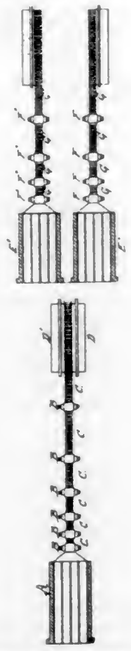
4. In a chuck, the combination of a socket, a bushing having a screw-threaded connection therewith and formed with a shoulder abutting against the lower end of said socket and with vertical grooves and communicating recesses, jaws provided with guide-flanges and locking-lugs to enter said grooves and recesses, and formed with tapering outer sides, and with a shoulder to engage the lower end of said bushing, and an adjusting-sleeve having a tapered base and a screw-threaded connection with the bushing, substantially as set forth.

664,128. METHOD OF MANUFACTURING BLACK PLATES OR OTHER SHEETS. WILLIAM C. CRONEMEYER, Allegheny County, Pa., assignor of one-half to Samuel Diescher, Pittsburg, Pa. Filed Jan. 17, 1900. Serial No. 1,731. (No specimens.)



Claim.—The process of manufacturing black plates or sheets, which consists in subjecting a slab of metal to a continuous roughing operation; subdividing the product of said roughing operation into sections; piling said sections into a pack; reheating the pack; and subjecting said reheated pack to a continuous finishing rolling operation.

664,129. APPARATUS FOR ROLLING SHEETS. WILLIAM C. CRONEMEYER, Pittsburg, Pa., assignor of one-half to Samuel Diescher, same place. Original application filed Jan. 17, 1900, Serial No. 1,731. Divided and this application filed Mar. 22, 1900. Serial No. 9,685. (No model.)



Claim.—1. Apparatus for manufacturing commercial black plates and other metal sheets without doubling consisting of a series of roughing-rolls in which the metal is subjected to a continuous roughing rolling operation; shearing mechanism; reheating-furnace; and a series of finishing-rolls in which the metal is subjected to a continuous finishing rolling operation; the said elements being arranged for operation in the order named.

2. Apparatus for manufacturing commercial black plates and other metal sheets without doubling, consisting of a single series of roughing-rolls arranged in tandem; shearing mechanism; a reheating-furnace; and a series of finishing-rolls arranged in tandem in which the metal is subjected to a continuous finishing rolling operation; the said elements being arranged for operation in the order named.

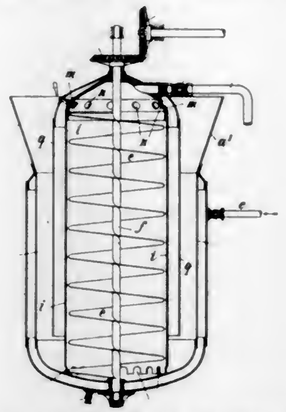
3. Apparatus for manufacturing commercial black plates and other metal sheets without doubling, consisting of a single series of roughing-rolls in tandem; shearing mechanism; reheating-furnaces; and two or more separate sets of finishing-rolls, each arranged in tandem and in each of which the metal is subjected to a continuous finishing rolling operation; the said elements being arranged for operation in the order named.

4. Apparatus for manufacturing commercial black plates and other metal sheets without doubling, consisting of a heating-furnace; a single series of roughing-rolls in tandem; shearing mechanism; reheating-furnaces; and two or more separate sets of finishing-rolls each arranged in tandem and in each of which the metal is subjected to a continuous finishing rolling operation; the said elements being arranged for operation in the order named.

664,130. APPARATUS FOR MAKING SOAP. CHARLES L. CULMANN and CARL A. L. W. WITTER, Hamburg, Germany; said Witter assignor to said Culmann. Filed July 13, 1900. Serial No. 23,515. (No model.)

Claim.—1. A soap-making machine, comprising a vessel, a pair of concentric bells therein, communication between the interior of said bells near the top, and means to move the contents of the vessel to the top of the inner bell, substantially as and for the purpose set forth.

2. A soap-making machine comprising a vessel, a pair of bells therein one within the other, communication between the bells near their closed ends, a screw for lifting the contents of the vessel to the top of the inner bell and forcing it through the communication between the bells down between the walls thereof into the vessel again, substantially as set forth.



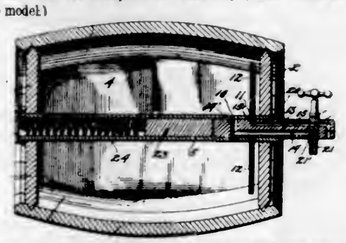
3. A soap-making machine, comprising a vessel, a pair of bells therein, one within the other, and of different length, valves in and a valve-controlled pipe from the upper end of the inner bell, and means for forcing the contents of the vessel to the top of the inner bell, through the valves and down between the two bells into the vessel again, substantially as set forth.

4. A soap-making machine comprising a vessel, a pair of concentric bells therein, the outer one the shorter, openings at the top of the inner bell, a slide for closing said openings, a valve-controlled outlet-pipe and a screw arranged to force material from the bottom of the pan to the top of the inner bell and either through the outlet-pipe or through the openings in said bell down into the pan again, substantially as set forth.

5. A soap-making machine comprising a double-bottom steam-heated vessel, a pair of concentric bells therein, the inner bell notched at its lower end and resting on the bottom of the vessel, and the outer bell shorter than the inner bell, means for causing the contents of the vessel to circulate up through the inner bell and down the outer bell, substantially as set forth.

6. A soap-making machine comprising a double-bottom steam-heated vessel, a truncated conical top thereon, two concentric bells in said vessel, the outer one the shorter, slide-controlled openings near the top of the inner bell, a valve-controlled outlet from the top of said inner bell, and a power-driven conveyer-screw stepped in the bottom of the vessel for discharging the contents and causing a circulation thereof, substantially as and for the purpose set forth.

664,131. COMPARTMENT VESSEL. CHARLES E. DE LANCEY and JEROME L. RITTER, Newport, Pa. Filed July 7, 1900. Serial No. 22,887. (No model.)



Claim.—1. A compartment vessel having a draft-tube provided near its front end with ports communicating with the several compartments, a faucet adapted to be inserted and removed through the front end of the tube, a cap closing the rear end of the tube, a valve for closing the ports upon the removal of the faucet, and a spring connected with the cap and valve, substantially as set forth.

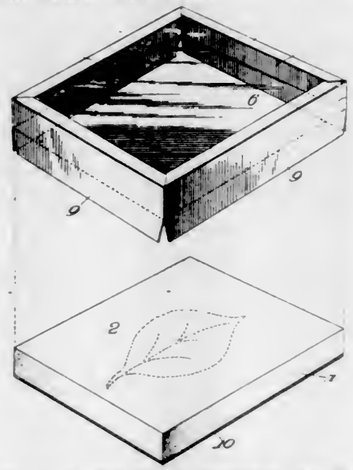
2. A compartment vessel having a central draft-tube provided with independent sets of ports for liquid and air or gas, said ports communicating with the several compartments, radial tubes in the compartments and communicating with the air-ports, and a faucet provided with independent passages for said ports and a valve controlling both passages, whereby air or gas and liquid may be drawn independently or together through said tube, substantially as set forth.

3. A compartment vessel having a central draft-tube provided with ports communicating with the several compartments and having an open end formed on its interior with an annular groove, a series of communicating notches and a guide-groove leading to said annular groove, and a faucet insertible and withdrawable through said open end of the tube and controlling said ports and carrying a pin coöperating with said grooves and notches, substantially as set forth.

4. A compartment vessel having a central draft-tube extending axially therethrough and having ports communicating with the several compartments, caps to close the ends of the tube, and a faucet insertible and withdrawable through one end of the tube and controlling said ports, substantially as set forth.

5. A compartment vessel having a central draft-tube extending axially therethrough and having ports communicating with the several compartments, caps to close the ends of the tube, a faucet insertible and withdrawable through one end of the tube and controlling said ports, and a valve for automatically closing said ports upon the reversal of the faucet, said valve being insertible and withdrawable through the other end of the tube, substantially as set forth.

664,132. MOUNT FOR ENTOMOLOGICAL SPECIMENS. WILLIAM D. DENTON and ROBERT W. DENTON, Wellesley, Mass. Filed Sept. 15, 1900. Serial No. 30,093. (No model.)



Claim.—1. In a sealed mount for entomological, natural history or botanical specimens, the combination with a backing or tablet having an upper surface adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section having a transparent top; a lower section upon which said backing rests; and a covering and binding strip secured to said upper section and having depending securing-flaps adapted to hold said lower section and its superposed backing in place.

2. In a sealed mount for entomological, natural history or botanical specimens; the combination with a backing or tablet having an upper surface adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section; a transparent top fitted within said upper section; a lower section upon which said backing rests; and a covering and binding strip pasted to said upper section and having flaps by means of which said transparent top is secured in place; and depending securing-flaps on said strip adapted to hold said lower section and its superposed backing in place.

3. In a sealed mount for entomological, natural history, or botanical specimens; the combination with a backing or tablet having an upper surface adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section; a glass top fitted within said upper section; a lower box-like section upon which said backing rests; and a covering and binding strip pasted to said upper section and having securing-flaps by means of which said glass top is held in place within said section; said strip having depending flaps adapted to be secured to the sides of the said lower box-like section and hold it and its superposed backing in place.

4. In a sealed mount for entomological, natural history, or botanical

specimens; the combination with a backing or tablet having an upper surface formed with a depressed portion adapted to receive and support a specimen; of an inclosing and protecting frame or boxing for said backing comprising an upper section; a glass top fitted within said upper section; a lower box-like section upon which said backing rests; and a covering and binding strip pasted to said upper section and having securing-flaps by means of which said glass top is held in place within said section; said strip having depending flaps adapted to be secured to the sides of the said lower box-like section and hold it and its superposed backing in place.

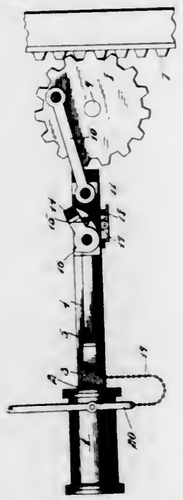
5. In a sealed mount for entomological, natural history, or botanical specimens; the combination with a backing or tablet having an upper surface formed with a depressed portion adapted to receive and support a specimen, and provided with sloping side walls surrounding said depressed portion; of an inclosing and protecting frame or boxing for said backing comprising an upper section; a glass top fitted within said upper section; a lower section upon which said backing rests; and a covering and binding strip pasted to said upper section and having securing-flaps by means of which said glass top is held in place within said section; said strip having depending flaps adapted to be secured to said lower section and hold it and its superposed backing in place.

6. A sealed mount for entomological, natural history, or botanical specimens, comprising a backing or tablet of yielding material adapted to receive and support a specimen on its surface; a boxing or frame inclosing and protecting said backing; and a transparent plate secured to said boxing, and between which and said yielding backing the specimen is held.

7. A sealed mount for entomological, natural history, or botanical specimens comprising a backing or tablet of yielding, fibrous material adapted to receive and support a specimen on its surface; a boxing or frame inclosing and protecting said backing; a transparent plate secured in said boxing, and between which and said yielding backing the specimen is held; and a covering and binding strip secured to and surrounding said boxing.

8. In a mount for entomological, natural history, or botanical specimens; the combination with a backing or tablet formed of fibrous material, of an inclosing and protecting boxing or frame for said backing, comprising an upper section having a transparent top, and a lower section on which said backing rests, fitted to said upper section.

664,133. SAFETY APPLIANCE FOR ELEVATORS. LOUIS M. DOTY and MAURICE F. DOTY, Austin, Ill. Filed Apr. 28, 1900. Serial No. 14,720. (No model.)



Claim.—1. In a device of the character described, the combination with a cylinder having a piston therein, of jaws secured to said piston, a cross-head, means for reciprocating the cross-head, and a dog upon said cross-head and adapted to be thrown into engagement with the jaws.

2. The combination with a rack, of a gear meshing therewith and movable thereon, a dog reciprocated by the revolution of the gear, a cylinder, a piston therein, and jaws secured to the piston adapted to be engaged by the dog.

3. The combination with a rack, of a gear movable thereon, guides, a cross-head mounted thereon, and reciprocated by the gear, a dog pivoted in the cross-head and means for holding said dog in a horizontal position.

4. The combination with a rack, of a gear, a cross-head, guides therefor, said cross-head adapted to be reciprocated by the movement of the gear, a dog pivoted within the cross-head, means for holding the dog at a desired inclination and a catch.

5. The combination with a rack, of a gear, a cross-head, guides therefor, said cross-head adapted to be reciprocated by the movement of the gear, a dog pivoted within the cross-head and having a spear-shaped head, means for supporting the dog at a desired inclination, a shoulder upon the dog, and a catch, adapted to be engaged by said shoulder and to lock the dog in a horizontal position.

6. In an elevator safety appliance, the combination with a cylinder having a piston therein, of a dog reciprocated by the movement of the elevator-car to which it is attached, and adapted to be thrown into engagement with the piston when such reciprocation reaches a predetermined speed.

7. In an elevator attachment of the character described, the combination with a cylinder and a piston therein, of a cross-head secured to the piston, jaws thereto, and a dog reciprocated by the movement of the elevator-car to which it is attached, and adapted to be thrown into engagement with said jaws when such reciprocation reaches a predetermined speed.

8. The combination with a cylinder having a piston therein, a cross-head secured thereto, and spring-controlled jaws projecting therefrom; of guides for said cross-heads, a second cross-head mounted upon the guides, a dog pivotally mounted within said cross-head, means for reciprocating the cross-head upon the guides and automatically engaging the dog with the jaws.

9. The combination with a rack, of a gear engaging therewith, guides, a cross-head mounted thereon, a pitman connecting the gear and cross-head, a dog pivoted within the cross-head, a cylinder, a piston thereto, and jaws slidably mounted upon the guides and adapted to be engaged by the dog.

10. In an elevator safety appliance, the combination with guides secured to an elevator-car; of cross-heads slidably mounted thereon; a cylinder, a piston secured to one of the cross-heads, and movable within the cylinder; and means operated by the movement of the elevator for automatically coupling the cross-heads.

11. In an elevator safety appliance, the combination with guides secured to an elevator-car; of cross-heads slidably mounted thereon; a cylinder, a piston secured to one of the cross-heads and movable within the cylinder; jaws pivoted to one cross-head; a dog pivoted to the second cross-head; and means operated by the movement of the elevator-car, for automatically coupling the dog and jaws when such movement reaches a predetermined speed.

12. The combination with a cylinder having a piston therein; of a dog reciprocated by the movement of an elevator-car and adapted to be thrown into engagement with the piston when such reciprocation reaches a predetermined speed.

13. In a device of the character described, the combination with a cylinder having a piston therein; of a cross-head; guides therefor; a dog pivotally mounted within the cross-head; and means for reciprocating the cross-head upon its guides and automatically engaging the dog with the piston, when such reciprocation reaches a predetermined speed.

14. The combination with a reciprocating cross-head; of a dog pivotally mounted upon said cross-head; means for supporting the dog at any desired inclination; a shoulder upon the dog; and a catch adapted to be engaged by said shoulder and to lock the dog.

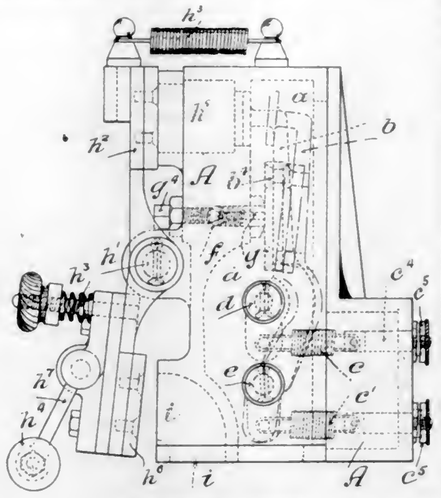
664,134. INTERNAL-COMBUSTION ENGINE. JOHN DOUGILL, Manchester, England. Filed Apr. 26, 1900. Serial No. 14,481. (No model.)

Claim.—1. In combination in a combustion-engine, a fuel-inlet comprising a plurality of ports, a plurality of tilt-valves controlling said ports, and means for applying varying pressures to the tilt-valves said valves being operated by the velocity of the induced air resulting from the motion of the piston, substantially as described.

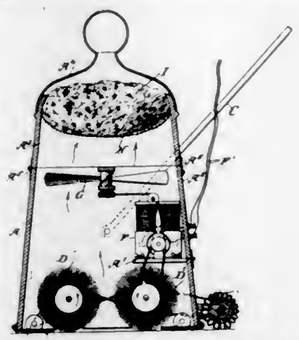
2. In combination with the combustion-chamber of a combustion-engine, a series of tilt-valves controlling the fuel-inlet, means for applying different loads or pressures to the different valves and each of said tilting valves having a portion exposed to the velocity of the air induced by the movement of the piston, substantially as described.

3. In combination with a combustion-engine, a series of valves controlling the inlet of fuel to the mixing-space, means for differentially loading said valves and means for operating the same automatically, substantially as described.

4. In combination with the mixing-chamber, of a combustion-engine having an air-passage *i* and an air-chamber A^5, means for controlling the inlet of gas to the mixing-chamber and an air-controller arranged to be operated to cut off or allow the passage of air through the passage *i* and the chamber A^5, substantially as described.



664,135. ELECTRIC SWEEPER AND DUST-GATHERER. CORINNE DUPOUR, Savannah, Ga. Filed July 31, 1900. Serial No. 25,425. (No model.)



Claim.—A sweeper comprising a casing open at the top, sweeping mechanism therein, a fan in the upper portion of the casing, a movable hood on top of the casing, the hood being open at the top, a dust-absorbing body in said hood, and a cap movably connected with the hood at the top thereof.

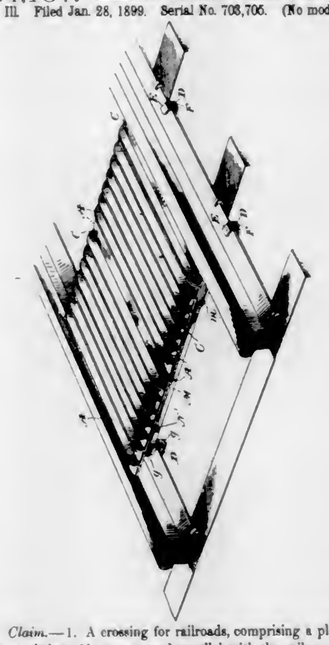
664,136. BRICK-KILN. HENRY C. DUNN, Erie, Pa. Filed Aug. 11, 1900. Serial No. 26,585. (No model.)

Claim.—1. The combination in a brick-kiln of permanent side and central longitudinal walls, a series of permanent transverse walls extending from the side walls to the central wall forming the ends of the kiln and also dividing it into a series of chambers, arched chamber-roofs extending between said side and central walls, draft-flues through said transverse walls from one chamber to another, a chimney located centrally in said kiln, a longitudinal horizontal flue in the upper part of the central longitudinal wall, communicating with the chimney and with the inner end of each chamber by means of vertical flues in the central wall, a longitudinal horizontal flue in the upper part of each of the side walls of the kiln, communicating with the outer ends of said chambers by means of vertical flues in the side walls, transverse horizontal flues connecting the side flues with the central flue, dampers for cutting off the vertical flues from the horizontal flues, and dampers for cutting off portions of the central and side flues, substantially as and for the purpose set forth.

2. In a brick-kiln the combination of permanent side and end walls, a central longitudinal wall, and permanent transverse walls therefrom to the side walls so as to form two rows of adjacent chambers having their rear ends separated by said central longitudinal wall, a series of draft-passages through the lower portions of each of said transverse walls, and a draft-passage through said longitudinal wall near each end thereof, a chimney located centrally in the said kiln, a longitudinal flue in the upper portion of each of the side walls of the kiln, a longitudinal flue in the upper portion of the central longitudinal wall and extending into the chimney, a transverse flue at each side of the chimney connecting the side flues with the central flue, vertical flues connecting the ends of said chambers with said central and side flues, dampers for shutting off the vertical flues, and dampers for cutting off portions of said horizontal flues, substantially as and for the purpose set forth.



664,137. RAILROAD-CROSSING. ISAAC L. EDWARDS, Aurora, Ill. Filed Jan. 28, 1899. Serial No. 703,705. (No model.)



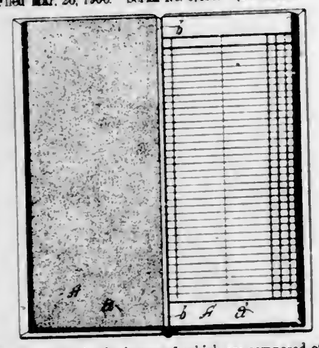
Claim.—1. A crossing for railroads, comprising a platform or floor part, consisting of bars to extend parallel with the rails, and cross-bars to which the former bars are pivotally connected, and means for securing said platform part to the track-rails, substantially as and for the purpose described.

2. A railroad-crossing, comprising a platform or floor part, a frame therefor composed of cross-bars that are pivotally connected to each other on horizontal pivots, certain of which cross-bars have track-engaging por-

tions to engage one track-rail and others have portions to engage other track-rails, substantially as and for the purpose described.

3. In a railroad-crossing, the combination of bars to extend parallel with the track-rails, cross-bars to which the first-mentioned bars are pivotally connected, second cross-bars pivotally connected to the first-mentioned cross-bars, track-engaging parts on each cross-bar, and connections between the track-engaging parts of the different cross-bars, substantially as and for the purpose described.

664,138. **HOTEL-REGISTER.** CHARLES E. ELSTNER, Los Angeles, Cal. Filed Mar. 20, 1900. Serial No. 9,453. (No model.)



Claim.—1. A book, the leaves of which are composed of bibulous paper provided with glazing on one side to afford a writing-surface and said leaves being arranged with the bibulous face of one leaf juxtaposed with the glazed face of the adjacent leaf.

2. A book composed of leaves of bibulous paper, each of which leaves is glazed on one side and is provided along one edge with a binding-strip, the said binding-strips being fastened together and the leaves being arranged with the glazed face of one sheet next the bibulous face of another sheet.

3. A book composed of leaves of bibulous paper, each of which leaves is glazed on one side and is provided along one edge with a binding-strip, applied upon the bibulous face thereof; the said binding-strips being fastened together and the leaves being arranged with the glazed face of one sheet next the bibulous face of another sheet.

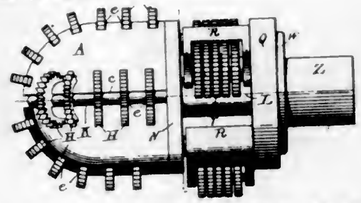
664,139. **COMBINATION PIPE, CIGAR-HOLDER, AND CIGARETTE-HOLDER.** PHILIP FISCHER, Plainderville, N. J., assignor to Fischer & Bendheim, New York, N. Y. Filed Oct. 31, 1900. Serial No. 35,019. (No model.)



Claim.—A smoker's article, comprising a body having angular members with connected bores of different sizes, one of the bores being adapted to receive the stem of the mouthpiece or a cigar and the other bore being arranged to receive the mouthpiece-stem, a cigarette or the stem of a pipe-bowl, a pipe-bowl having a stem for engaging one of said bores, and a mouthpiece having the end of its stem reduced to fit the smaller bore of the body, the portion of the stem above the reduced end being constructed to fit the larger bore, as set forth.

664,140. **BOILER-TUBE CLEANER.** WILBER D. FORSYTH, Pittsburg, Pa., assignor to the Union Boiler Tube Cleaner Company, same place. Filed Sept. 23, 1899. Serial No. 731,444. (No model.)

Claim.—1. In a tube-cleaner, a cleaner-head, and longitudinally-separated toothed rolling cutters arranged upon said head in an arched or convex manner to project outwardly and forwardly therefrom and present their working faces at an increasing angle to the scale and substantially parallel to the convex or hemispherical end wall of the tube to be cleaned, substantially as specified.



2. In a tube-cleaner, a convex cleaner-head, having longitudinally-separated toothed rolling cutters arranged upon stationary axes and at right angles to the convex superficies of said head, to project outwardly and forwardly therefrom and present their working faces at an increasing angle to the scale, and substantially parallel to the convex or hemispherical end wall of the tube to be cleaned, substantially as specified.

3. In a tube-cleaner, a cleaner-head, and longitudinally-separated toothed rolling cutters arranged upon said head in an arched or convex manner to project outwardly and forwardly therefrom, and present their working faces at an increasing angle to the scale and substantially parallel to the convex or hemispherical end wall of the tube to be cleaned, together with finishing-cutters following said first-named cutters, substantially as specified.

4. In a tube-cleaner, a cleaner-head, and longitudinally-separated toothed rolling cutters arranged upon said head in an arched or convex manner to project forwardly and outwardly therefrom, and present their working faces at an increasing angle to the scale, and substantially parallel to the convex or hemispherical end wall of the tube to be cleaned, said cutters having a break-joint or staggered arrangement, substantially as specified.

5. In a tube-cleaner, the combination of a head having longitudinal surface recesses therein, and transverse surface recesses intersecting said longitudinal recesses, journal-bars seated in said longitudinal recesses, having transverse notches at their rear end portions, and a detachable connection with said head at their forward ends, rolling cutters upon said bars working in said transverse recesses, a stem secured to said head and extending rearwardly therefrom, a collar upon said stem, having elongated slots therein engaging the rear extremities of said bars, and pins carried by said collar, and engaging the transverse notches of said bars, substantially as specified.

6. In a tube-cleaner, the combination of a head having longitudinal surface recesses therein, and transverse surface recesses intersecting said longitudinal recesses, journal-bars seated in said longitudinal recesses, and having transverse notches at their rear end portions, and a detachable connection with said head at their forward ends, rolling cutters upon said bars working in said transverse recesses, a stem secured to said head and extending rearwardly therefrom, a collar upon said stem, having elongated slots therein engaging the rear extremities of said bars, pins carried by said collar, and engaging the transverse notches of said bars, a heel-plate fitted upon said stem to rotate therewith, a series of centrifugally-acting arms pivoted to said heel-plate, and working between said collar and heel-plate, rolling cutters carried by said arms, and a nut upon said stem to secure said heel-plate and arms in position, substantially as specified.

7. In a tube-cleaner the combination with the recessed body and its screw-stem, of the ledge and heel-plates, the curved journal-bars, and their cutting-rollers, the swinging arms and their cleaning-rollers, substantially as specified

8. In a tube-cleaner, the combination with a rotating shaft, and a head carried thereby having arcuate slots, of cutter-carrying arms pivoted to said head, and rolling cutters upon said arms, the journal-pins of said cutters at their free end portions being offset inwardly in the direction of and engaging said slots to limit the outward movement of said cutters, substantially as specified.

9. In a tube-cleaner, the combination with a recessed head, of journal-bars having hook ends engaging seats of said head, and a detachable connection with said head at their opposite extremities and rolling cutters carried by said bars, substantially as specified.

10. In a tube-cleaner, the head having convex forward wall provided with longitudinal surface recesses therein, and with transverse surface recesses intersecting said longitudinal recesses, and having a radial relation to the convex superficies of said wall, journal-bars in said longitudinal recesses, and rolling cutters upon said bars, and working in said transverse recesses, substantially as specified.

11. In a tube-cleaner, the convex head having longitudinal surface recesses therein extending the entire length thereof and inwardly offset at their forward extremities, and with transverse surface recesses intersecting said longitudinal recesses and having a radial relation to the convex superficies of said head, detachable journal-bars in said longitudinal recesses and having hook ends engaging the inwardly-offset portions thereof, and rolling cutters upon said bars, and working in said transverse recesses, substantially as specified.

12. In a tube-cleaner, the head having a convex forward wall and cylindrical side walls merging into one another, and provided with longitudinal surface recesses therein, and with transverse surface recesses intersecting said longitudinal recesses and having a radial relation to the convex superficies of said forward and side walls, journal-bars in said longitudinal recesses, and rolling cutters upon said bars and working in said transverse recesses, substantially as specified.

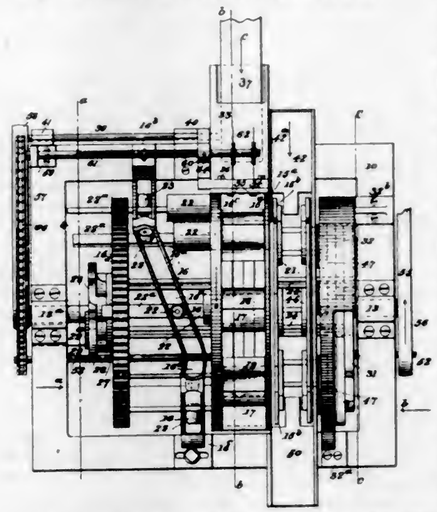
664,141. **BOX FOR MATCHES, CIGARETTES, CIGARS, CONFECTIONS, &c.** ANDREW J. FREDRIKSON, Smålands Taberg, Sweden. Filed May 14, 1900. Serial No. 16,666. (No model.)



Claim.—1. The combination with a cardboard box, of a drawer, a closure for the open end of said drawer, a comparatively wide strip of paper or similar flexible and substantially non-stretchable material secured to the inside of the box and to the outside of the closure close to its hinge-joint, so as to automatically open and close said closure when the drawer is pushed out of or into the box, substantially as set forth.

2. The combination with a cardboard box, of a drawer, a closure for the open end of said drawer, a strip of paper or the like secured to the inside of the box and to the outside of the closure close to its hinge-joint so as to automatically open and close said closure when the drawer is pushed out of and into the box, said strip of paper having an extension for sealing the open end of the box, substantially as set forth.

664,142. **CAN-FILLING MACHINE.** FRED B. FULTON, Anacortes, Wash. Filed May 31, 1900. Serial No. 18,614. (No model.)



Claim.—1. In a machine for filling cans, a drum or wheel secured on an axle or shaft 14 mounted in suitable bearings, molding-jaws 18 and 17 mounted on the periphery of the drum and approximately at its center, such jaws being fixed and movable respectively, a toothed segment 19 secured to the inner side of the jaw 17 designed to move for a distance concentric to the axle 14, a rock-shaft 24 mounted in the hubs of the drum in radial alinement with the axle and said jaws, a segmental toothed lever 30 secured on such rock-shaft engaging the toothed segment 19, a lever 28 secured on one end of the rock-shaft 24 placed at right angles to the lever 30 and designed to engage a cam 29 fixed to the frame 10, a lever 31 fixed to the opposite end of the said rock-shaft in about the same radial alinement as the lever 28, a fixed track 32ᵉ to engage the outer end of the lever 31, and a lifting-cam 43 for lifting the levers 31 to such track, substantially as and for the purposes specified.

2. A series of disks 15ᵃ, 15ᵇ, 15ᶜ and 15ᵈ forming a drum 15 mounted on a shaft or axle 14 supported at each end on a suitable frame 10, a series of jaws 18 and 17, fixed and movable respectively between the inner disk 15ᵃ and the disk or rim 15ᶜ, the face of said jaws being flush with the periphery of said drum, pistons 22 in the cylindrical openings between the jaws, having flat stems thereon taking through flat apertures in the disk or rim 15ᵈ, a fixed frame 16 forming an irregular cam-track around the drum between the vertical circle occupied by the jaws on the rim 15ᵈ and antifriction-rollers 23 mounted on the outer sides of the stems taking in the cam-track, means for opening the jaws as they pass beneath the machine and for closing them while passing over the upper side thereof, and a chisel-shaped knife 34 fixed with its edge tangent to the periphery of the drum occupied by the said jaws at the point where such jaws are closed, substantially as specified.

3. A drum 15 mounted on an axle 14, composed of rims or disks 15ᵃ, 15ᵇ, 15ᶜ and 15ᵈ, said rim 15ᵈ having a toothed periphery, fixed and movable jaws mounted at regular intervals between the rim 15ᶜ and the inner rim 15ᵃ, the movable jaw being designed to move open and shut on a concentric circle to the axis of the drum, substantially for the purposes set forth.

4. A drum 15 constructed as specified, fixed and movable jaws arranged at intervals around the periphery of the drum, toothed segments 19 fixed to the loose jaws for moving said jaws open and shut, and flanges 19ᵃ on the outer sides of the segments for holding the jaws in their proper position while being moved in a concentric circle, as set forth.

5. A drum 15 mounted on an axle 14 composed of rims or disks on its periphery which are connected with hubs 25, 26 and 27 secured to said axle, at intervals, fixed jaws 18 at regular intervals around the central periphery of the drum and integral with two of the disks which form end pieces for such jaws, jaws 17 integral with toothed segments having retaining-flanges on the inner sides thereof, said segments being placed alternately in concentric alinement with each other; rock-shafts 24 mounted in the said hubs concentrically around the axis thereof and in radial alinement with the jaws toothed segment-levers 30, fixed on such shafts designed to engage the teeth in the segments of the jaws, and means for rocking the shafts back and forth, substantially as specified.

6. A drum 15 of the construction described fixed to an axle 14 mounted in a frame 10, fixed and movable forming-jaws arranged in a concentric circle around the central periphery of the drum, and means for opening and closing same during each revolution thereof, can-seats 21 arranged in alinement with the openings of the jaws on one side thereof designed to hold a can of the diameter and approximate length of the jaws with its open end toward the jaws; pistons 22 arranged on the opposite side of the jaws and in alinement therewith, flat stems 22ᵃ on said pistons, and rollers thereon designed to take along a fixed irregular cam-track during the revolution of the drum, as and for the purposes specified.

7. In a machine for the purposes specified, a drum 15 mounted on an axle 14 journaled in a suitable frame 10, forming-jaws 17 and 18 arranged at regular intervals around the central periphery of the drum, rock-shafts mounted in a concentric circle around the hub of the drum, segmental toothed levers 30 fixed on such rock-shafts and contacting with toothed segments on the inner sides of the movable jaws; levers 28 fixed on one end of the rock-shafts at about right angles to the radial line of the levers 30, a cam 29 fixed to the frame 10 arranged in the path of the ends of the levers 28; levers 31 fixed on the opposite ends of the rock-shafts 24; a frame 32 fixed to such end of the frame 10 forming a slideway 32ᶜ for the ends of the said levers, a cam 43 mounted on a shaft 44 beneath the track of the outer ends of the levers 31 designed to lift the ends of the levers 31 to the track in the frame 32, substantially for the purposes set forth.

8. In a can-filling machine having a drum 15 composed of rims or disks 15ᵃ, 15ᵇ, 15ᶜ and 15ᵈ on its periphery rotatably mounted on an axle in bearings fixed to a suitable frame 10, a shaft 52 parallel to the axis of the drum and mounted in bearings 51 beneath such drum, a pinion 53 engaging teeth in the periphery of the rim 15ᵈ and engaging a like pinion 54 fixedly mounted on a shaft 44 parallel to the shaft 52; rock-shafts 24 mounted around the hub of the drum, segmental toothed levers 30 secured about the center of such rock-shafts and engaging slidable segments connected with jaws on the periphery of the drum, levers 28 fixed to the ends of said rock-shafts for forcing the jaws open, and levers 31 secured to the opposite end of said rock-shafts designed to engage a cam 43 fixed on the end of the said shaft 44, designed to lift the ends of the levers 31 to the slideway 32ᶜ in a frame 32, substantially as and for the purposes set forth.

9. A drum 15 having jaws arranged at intervals around the central periphery thereof, rock-shafts parallel to and concentrically around its axis in radial alinement with the jaws, segmental gear-lever communication between the jaws and the rock-shafts, means for moving such levers

so that the jaws are opened, levers having toes 31^a secured at the end of the rock-shafts, a slideway 32^a having an under sloped end 32^g integral with a frame 32 in the path of the loose ends of the said levers, and a cam 43 fixed on a shaft 44 beneath the drum designed to move in opposite direction to said drum and in the path of the loose ends of the levers, whereby the same will be lifted up to the slideway when the toes thereof engage the portion 32^g and thus close the jaws quickly and tightly.

10. In a machine for filling fish into cans, a drum 15 having a periphery formed with a series of rims 15^a, 15^b, 15^c and 15^d, jaws 18 and 17 fixed and movable respectively, located at regular intervals around such periphery between the rims 15^c and the inner rim 15^e; pistons 22 lying in the cylindrical openings between the jaws when closed, flat stems 22^a on such pistons passing through flat apertures in the rim 15^d, rollers 23 on the outer sides of the stems and an irregular cam-track 16^a in which the rollers 23 move, and a sudden outward turn in such track 16^d for the sudden slight withdrawal of the pistons at the point where such pistons are pushed beyond the opposite ends of the jaw-opening, substantially for the purposes specified.

11. In combination with an inclined chute 42 for the delivery of cans, and a chute 33^c for the delivery of fish or other like material at one side of a frame 10, a drum 15 having an axle 14 suitably journaled in bearings on said frame, jaws arranged around the periphery of the drum, and when open made to communicate with the lower part of said chute, of can-holders 21 arranged in the rims 15^b in alinement with the jaw-openings, pistons designed to move in the openings between the jaws, and crescent-shaped fingers designed to close on the cans and hold them while the pistons are moving forward, as set forth.

12. In a drum 15 composed of rims 15^a, 15^b, 15^c and 15^d on its periphery, can-seats 21 in the rims 15^b, crescent-shaped fingers 46 secured to bars or shafts 45 journaled in the rims 15^a just beneath the can-seats, tumbling-levers 47 secured to the outer ends of the bars 45, a cam-track 32^{cc} on the fixed frame 32 around beneath the upper part of said frame, and a cam-track 32^d beneath the lower part of the frame to engage two angles of the tumbling-levers, substantially for the purposes specified.

13. In a machine for filling cans having a drum provided with forming-jaws therein, and can-holders 21, designed to engage one-half the periphery of a can; holding-fingers 46 pivoted on bars 45 beneath the seats for the cans, tumbling-levers 47 secured on the outer ends of the bars, having convexed surfaces to engage a fixed cam 32^{cc} concentric with the axis of the drum and on the upper sides thereof, and concaved surfaces to engage a cam 32^g pitched in a similar manner but at a different radius near the lower side of said drum, and means for turning the lever from one surface to the other for the purposes specified.

14. In combination with can-seats 21 in a rotatable drum composed on its surface of rims 15^a, 15^b, 15^c and 15^d, crescent-shaped fingers secured to bars 45 beneath such seats tumbling-levers 47 fixed on the projecting ends of the bars, pins 49 secured in one of the trail ends of the levers, stops 48 secured on the outer sides of the outer rim 15^a, and seats 48^a and 48^b in the opposite ends of the stops to receive the pins 49, substantially for the purposes specified.

15. In a machine for filling cans, in combination with a drum 15 mounted on a frame 10 having a series of forming-jaws at regular intervals around the central periphery of the same, the face of said jaws coming flush with such periphery, a chute in alinement with the jaws fixed on the forward side of the frame with its tapered spout terminating against the path of the jaws, a knife 34 secured with its cutting edge tangent to the face of the path of said jaws, means for rotating the drum in such direction as to open the jaws on the under side of the machine, and for closing them when a point just beneath the knife is reached, for the purposes specified.

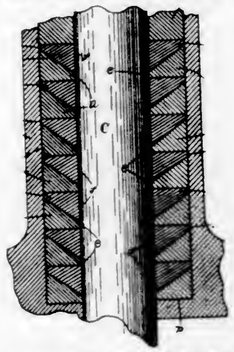
16. In combination with a machine for filling cans, a rotatable drum 15 arranged to turn on a suitable frame 10, having a series of forming-jaws at regular intervals around its periphery, a chute 33^c contacting with the path of such jaws, a belt 37 taking around a pulley 38 secured on a shaft 39 for delivering cut fish into the chute, serrated disks 62 secured on the shaft 61 arranged in the upper side of the said chute, means for imparting movement to the drums carrying the jaws, to the belt 37 and to the disks 62, substantially for the purposes set forth.

17. In a machine of the class described, having a frame 10, a rotatable drum 15 suitably mounted to turn in said frame, jaws 18 and 17 fixed and movable respectively, arranged at regular intervals around the central periphery of the drum, spaces between the sets of jaws for the movement of the jaws 17, a chute 33^a in a frame 33 for delivering the material to the jaws on one side of the machine, a knife 34 with its edge downward tangent to the periphery of the jaws, means for opening the jaws and holding them so until the mouth of the chute is reached, and for closing the same while the knife is held against the loose jaw whereby no material can pass to the space between the sets of jaws, but must pass to the forming-space between the jaws.

18. In a machine for filling fish into cans, a drum 15 suitably mounted to turn in a frame 10, sets of jaws arranged at intervals around the central periphery, and a chute 33^a for introducing fish to the jaws while in an open position, and means for closing said jaws, in combination with a fixed knife 34 with its edge placed tangent to the periphery of the drum caused by the faces of the jaws, and at a point where the jaws are closed, substantially as specified.

19. A cutting-knife 34 for the purposes set forth, having a chisel edge, and slots therein by which means it may be adjusted and secured in its proper position, in combination with a series of forming-jaws 17 and 18 mounted in a rotatable drum, the face sides of which lie against the cutting edge of the knife, substantially as and for the purposes set forth.

664,148. **DUPLEX PACKING-RING FOR PISTON-RODS.** OLIN J. GARLOCK, Palmyra, N. Y., assignor to the Garlock Packing Company, same place. Filed July 5, 1900. Serial No. 22,619. (No model.)



Claim.—1. A duplex packing-ring for piston-rods, comprising a major and a minor section of equal external and interior diameters, the two sections having similar and equal cross-sections, both sections having extended parallel bearings against the piston-rod and the two sections together forming a hollow cylindrical body, the sections being provided with inclined division-slits, the minor section having the two lines of its cut at either face of the section tangent with opposite sides of the two inner circumferential lines of the section to give a flat slant to the divided ends, as shown and described.

2. The packing-ring described consisting of a major and a minor section of equal external and internal diameters, the two sections having similar and equal cross-sections and both sections having extended parallel bearings against a piston-rod, the sections being provided with inclined slits, the minor section having the two lines of its cut at either side of the section tangent with opposite sides of the inner circumferential lines of the section and the major section having the two lines at opposite faces of the section tangent to the corresponding sides of the two inner circumferential lines, substantially as specified.

664,144. **ELECTRICAL CONNECTION.** WILLIAM GERHARDT, Hazleton, Pa. Filed Sept. 27, 1900. Serial No. 31,326. (No model.)

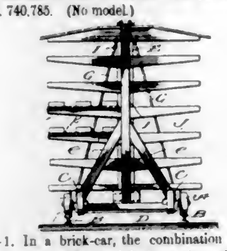


Claim.—1. An electrical connection, having two insulating-sections, each section having a tube respectively in connection with the terminals of the conductors, such tubes having portions cut away, and one of the tubes having a metallic rod lying in the cut-away portion thereof to engage with the cut-away portion of the other tube.

2. An electrical connection, having two insulating-sections, one of which is provided with two conducting-tubes, a rod in each of said tubes, one of the rods being of spring material and projected beyond its adjacent tube, and the other section having two conducting-tubes cut away to receive respectively the rods.

3. An electrical connection, comprising two insulating-sections one being provided with a projection and the other with a cavity in which the projection is received, oppositely-disposed dogs carried by the section having the cavity and working through the walls thereof to engage with the projection of the other section, whereby to hold the two sections together, and electrical conductors carried in the sections and contacting with each other when the sections are engaged.

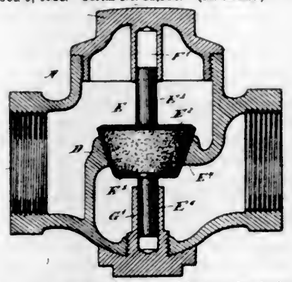
664,145. **BRICK-TRUCK.** JAMES M. GUNKLE, Denver, Colo., assignor of one-half to John De Sellem, same place. Filed Dec. 18, 1899. Serial No. 740,785. (No model.)



Claim.—1. In a brick-car, the combination of the transporting-wheels, the bottom frame, the upright frame situated in the central longitudinal planes of the car, supplemental, centrally-arranged, vertical pallet-supporting uprights intermediate of the end parts of the said upright frame, and the cross-arms on and carried entirely by the vertical intermediate uprights, arranged substantially as described to have brick trays or pallets placed close to the central longitudinal planes of the car throughout the length thereof, substantially as set forth.

2. In a brick-car, the combination of the transporting-wheels, the bottom frame, the upright frame situated at the central longitudinal planes of the car, the braces G extending from the upright frame at the center of the car to the sides of the bottom frame, and situated in transverse planes between the positions of two adjacent vertical series of pallets, and the vertical brick-supporting posts or uprights intermediate of the end parts of the upright frame, and the cross-arms on the said intermediate uprights, said uprights, cross-arms and braces G being arranged substantially as set forth to permit the brick pallets or trays to be rested upon the cross-arms in continuous series from end to end and from bottom to top and from the ends of the arms inward to the central vertical longitudinal planes of the car, substantially as set forth.

664,146. **CHECK-VALVE.** THOMAS J. HACKETT, Wardner, Idaho. Filed Oct. 9, 1900. Serial No. 32,530. (No model.)



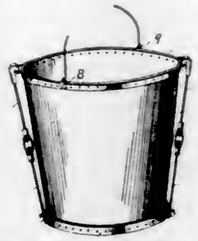
Claim.—1. A check-valve, comprising a valve-body having an inlet and an outlet, a conical valve-seat between the inlet and outlet, caps screwing in said body and having elongated, inwardly-projecting tubular bearings or guideways, a valve having a conical core with an integral flange, a stem engaging one of said tubular guideways, a second stem having a flange and a threaded end screwing in said core, said second stem engaging the other tubular bearing or guideway, and a conical ring of flexible material fitting on said valve-core between the said flanges, as set forth.

2. A check-valve, comprising a valve-body having an inlet and an outlet, a conical valve-seat between the inlet and outlet, caps screwing in said body and having elongated, inwardly-projecting tubular bearings or guideways, a valve having a conical core with an integral flange, a stem engaging one of said tubular guideways, a second stem having a flange and a threaded end screwing in said core, said second stem engaging the other tubular bearing or guideway, and a conical ring of flexible material fitting on said conical core between the said flanges, the ends of the stems of the valve being polygonal for the application of a wrench to separate the parts of the valve, as set forth.

3. A valve, comprising a core having an integral flange and a valve-stem integral with the core, a removable valve-stem having a flange and a threaded end for screwing in said core, and a ring fitted on the core between said flanges, as set forth.

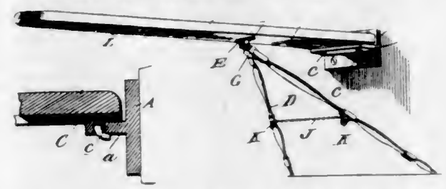
664,147. **BUCKET.** JOHN HARTH, Jr., Ambia, Ind. Filed Oct. 1, 1900. Serial No. 31,706. (No model.)

Claim.—1. A collapsible bucket comprising a fabric body portion, hoops secured to the fabric at the upper and lower edges of the body, hinges each having one leaf fixed to the upper ring and having the other leaf provided with a threaded recess, rods having threaded engagement with the recesses for adjustment therein and having their lower ends forked, and pins carried by the lower hoop for engagement by the forks of the rods.



2. A collapsible bucket comprising a fabric body portion, a hoop secured exterior to the body portion at the lower end thereof and projecting below the side of the body, a hoop secured exterior to the body portion at the upper edge thereof, a bail connected with the upper hoop, hinges each having one leaf secured to the upper hoop at the upper edge thereof the second leaf thereof being tubular and threaded, rods having threaded ends adjustably engaged with the threads of the tubular leaves and having their lower ends forked, and pins extending radially from the lower hoop for engagement by the forked ends of the rods.

664,148. **IRONING-BOARD.** JOHN HERPEL, Evansville, Ind. Filed Feb. 20, 1900. Serial No. 5,907. (No model.)

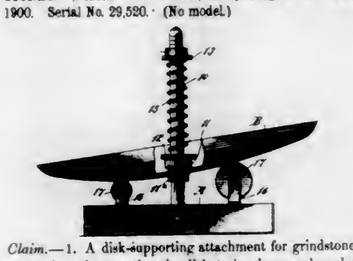


Claim.—1. The combination with the board, of the plate attached to the under side thereof, the legs pivotally connected with said plate, the spring for spreading the legs, and the means on the said board and legs for holding the latter in their closed and folded position, as set forth.

2. The combination of an ironing-board having hooks on the under side thereof, foldable legs spread by an interposed spring, and eyes on the legs to engage the hooks on the board as herein set forth.

3. The ironing-board described, consisting of the board provided with a casting having hooks, the wall-plate having a lateral portion provided with openings, the plate on the under side of the board, the block pivotally connected therewith, the legs pivotally mounted in said block, the means for spreading the legs, means for preventing undue spreading, and the means for holding the legs in their closed and folded condition against the under side of the board, all substantially as shown and described.

664,149. **DISK-SUPPORTING ATTACHMENT FOR GRINDSTONES.** WILLIAM W. HEWITT, Gettysburg, S. D. Filed Sept. 10, 1900. Serial No. 29,520. (No model.)



Claim.—1. A disk-supporting attachment for grindstones, comprising a post adapted to receive the disk to be sharpened, and rollers on a support, the post being inclined with respect to the rollers.

2. A disk-supporting attachment for grindstones, comprising a post adapted to receive the disk to be sharpened, and rollers on a support, the rollers being inclined toward the post.

3. A disk-supporting attachment for grindstones, comprising a post adapted to receive the disk to be sharpened, rollers of different diameters on a support, and means for retaining the disk against the rollers.

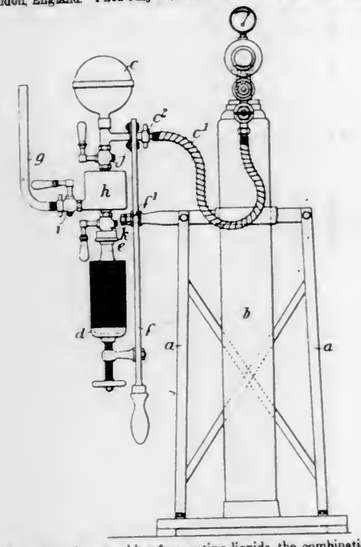
4. A disk-supporting attachment for grindstone, comprising a post adapted to receive the disk to be sharpened, inwardly-inclined rollers of different diameters on a support, and means for retaining the disk against the roller.

5. In a disk-supporting attachment for grindstones, a base, a post in connection with the base, and friction-wheels carried by the base, having bearing against the disk, as set forth.

6. In a disk-supporting device for grindstones, a base, a post carried by the base, a spring-controlled plunger located on the post and adapted for engagement with the concaved or upper surface of the disk and for binding engagement with the central portion of the disk, and friction-wheels carried by the base, arranged for bearing against the convexed or under surface of the disk, as set fegth.

7. In a disk-supporting attachment for grindstones, a base, a post carried by the base, a spring-controlled plunger loosely mounted upon the post and having a portion adapted for engagement with the concaved or upper side of the disk, and a polygonal portion adapted to enter a central opening in the disk, and friction-wheels of varying diameter mounted on the base and inclined toward the post, the post having an inclination in direction of one side of the base, as specified.

664,150. MACHINE FOR AERATING LIQUIDS. WILLIAM HILL, London, England. Filed July 23, 1900. Serial No. 24,562. (No model.)

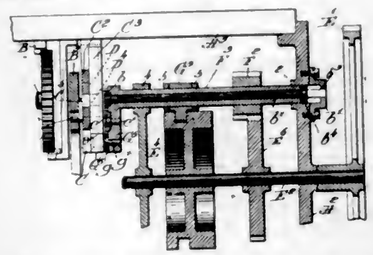


Claim.—1. In a machine for aerating liquids, the combination with an oscillatory frame, of a mixing-chamber mounted thereon, a gas-supply for said mixing-chamber, an intermediate chamber mounted on said frame and communicating with said mixing-chamber, a liquid-supply for said intermediate chamber, a bottle-holder mounted on said frame and having a part communicating with the intermediate chamber whereby the liquid to be aerated can be admitted to the intermediate chamber, the frame inverted and oscillated to effect a mixture of the gas and liquid and the aerated liquid can be discharged into a bottle, substantially as described.

2. In a machine for aerating liquids, the combination with an oscillating frame, of a mixing-chamber mounted thereon, a gas-supply for said mixing-chamber, an intermediate chamber mounted on said frame and communicating with said mixing-chamber, a valve interposed between the mixing-chamber and the intermediate chamber, a liquid-supply for said intermediate chamber, a valve controlling said liquid-supply, a bottle-holder mounted on said frame and having a part communicating with said intermediate chamber, a valve interposed between the bottle-holder and the intermediate chamber, substantially as described.

664,151. MECHANICAL MOVEMENT. WILLIS K. HODGMAN, Taunton, Mass. Filed Jan. 21, 1898. Serial No. 667,393. (No model.)

Claim.—1. In a bed-motion for printing-presses wherein the bed is reciprocated, a guideway carried by and at right angles to the bed, a reversing member movable in a circular path and having a plane bearing-face, to coöperate intermittingly with said guideway, and means to position the bearing-face of said member to enter the guideway.



2. In a reversing mechanism, a reciprocating member, a guideway mounted thereon, a reversing member movable in a circular path and having a plane bearing-face, to coöperate intermittingly with the guideway, and means to position the bearing-face of said member to enter the guideway.

3. In a reversing mechanism, a reciprocating member, relatively movable shoes carried thereby to form a guideway, a reversing member movable in a circular path and having parallel plane bearing-faces, to enter said guideway intermittingly and coöperate with the shoes, means to position the bearing-faces of said reversing member to enter the guideway, and means to effect relative movement of the shoes to permit the entrance to and departure of the reversing member from the guideway.

4. In a reversing mechanism, a rotating carrier, a rotatable reversing member mounted eccentrically thereon and having a plane bearing-face, a member to be reversed, with which the reversing member engages intermittingly, and means to effect axial rotation of said reversing member during the movement thereof in a circular path to thereby maintain the bearing-face in parallel planes throughout the circular path and in position to coöperate with the member to be reversed.

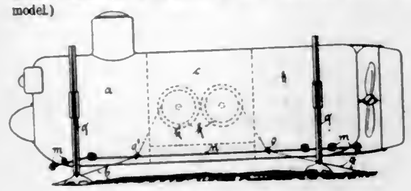
5. In a reversing mechanism, a revolving carrier, a rotatable plane-faced reversing member mounted thereon and having an attached pinion, a fixed pinion centrally mounted relative to the carrier, and an intermediate pinion rotatable on the carrier and in mesh with said fixed and reversing-member pinions, to effect rotation of the said member relatively to the carrier as the latter revolves.

6. In a printing-press, a reciprocating bed and parallel guideways carried thereby, means to reciprocate the bed, and reversing mechanism for the bed, including a plane-faced actuating member movable in a circular path, means to maintain the acting faces thereof in parallelism with the guideways, with which latter it coöperates alternately to reverse the bed, and means to move the reversing member into and out of said guideways at the beginning and ending of the reversing movement.

7. In a reversing mechanism, a rotatable hollow shaft or sleeve, a crank-arm carried thereby, a stationary pinion adjacent the face of said arm and mounted on a fixed shaft extended through the sleeve, an actuating member having an attached pinion and rotatable on said crank-arm, said member having plane acting faces, and an intermediate pinion rotatably mounted on the crank-arm and in mesh with the fixed and actuating-member pinions, to maintain the plane faces of said member parallel to a fixed plane throughout the revolution of the crank-arm.

8. In a reversing mechanism for printing-presses wherein a bed having attached parallel guideways at the ends thereof is reciprocated, a rotatable, longitudinally-movable shaft, a crank-arm thereon, an actuating member rotatably mounted thereon and having parallel acting faces, means to move the sleeve longitudinally to effect coöperation of the said member intermittingly with the guideways, and means mounted on the crank-arm to maintain the faces of the actuating member in parallelism with the guideways throughout the revolution of the crank-arm.

664,152. SUBMARINE APPARATUS. AUGUST VON HOFFMANN, Munich, Germany. Filed June 12, 1900. Serial No. 20,086. (No model.)



Claim.—1. The combination with a vessel, and anchor-ropes extending from separate parts of the same, of means on the vessel for simultaneously changing the points of connection of the anchor-ropes with the vessel.

2. The combination with a vessel and a pair of anchor-ropes extending from the same on each side, means on the vessel for simultaneously changing the points of connection of the anchor-ropes with the vessel, and a winding means on the vessel for each anchor-rope.

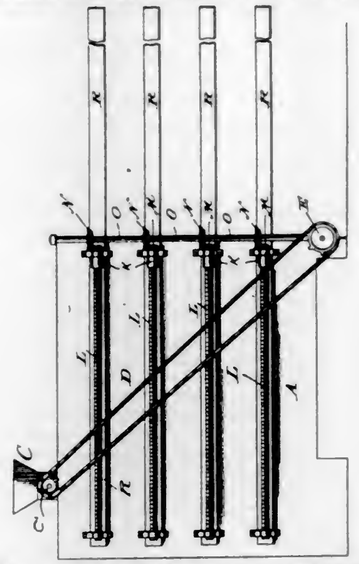
3. The combination with a vessel, of an endless chain or the like, passing around the vessel, anchor-ropes extending from the vessel and connected with said chain, and means for moving the chain around the vessel in either direction.

4. The combination with a vessel, of an endless chain or the like, passing around the outside of the vessel and supported by pulleys at each end of the vessel, pulleys arranged on the chain on each side of the vessel, anchor-ropes extending from the vessel on each side each passing through one of said pulleys on the chain, and means for moving the chain around the vessel in either direction.

5. The combination with a vessel, of an endless chain or the like, passing around the outside of the vessel and supported by pulleys at each end of the vessel, pulleys arranged on the chain on each side of the vessel, a pair of anchor-ropes extending from the vessel on each side, said anchor-ropes passing through said pulleys on the chain, and means for moving the chain around the vessel in either direction.

6. The combination with a vessel, of an endless chain or the like passing around the outside of the vessel and supported by pulleys at each end of the vessel, pulleys arranged on the chain on each side of the vessel, a shaft extending through the side of the vessel at one end on which one of said pulleys is mounted, means for rotating said shaft inside of the vessel to actuate said endless chain, and a pair of anchor-ropes extending from the vessel on each side, said anchor-ropes passing through said pulleys on the chain.

664,153. ORE-ROASTING FURNACE. FREDERICK W. HOLTMAN, Richmond, Va. Filed Aug. 20, 1900. Serial No. 27,458. (No model.)



Claim.—1. An ore-roasting furnace, having a vertical series of beds therein, the walls of said furnace being slotted horizontally adjacent to the upper surfaces of said beds, sleeves and rack-bars supported thereby, rake-teeth carried by said bars, interiorly-threaded nuts having integral shank portions which are connected to said sleeves, and designed to travel in said slots, worm-shafts working through said nuts, shutters fastened to the opposite edges of the shank portions of the nuts and designed to close said slots and slide against the outer walls of the furnace, as the racks are reciprocated over the beds and means for rotating the worm-shaft, as set forth.

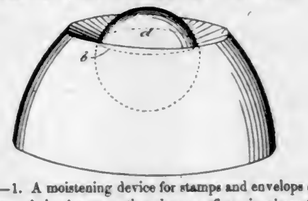
2. In combination in an ore-roasting furnace, the beds, the racks having rake-teeth secured thereto, the sleeves having recessed ends designed to receive the ends of said racks, the outer ends of said sleeves being contracted with inclined edges, the interiorly-threaded nuts having integral shank portions which are fastened to the contracted ends of the sleeves, the threaded shafts working through said nuts, and means for operating said shafts, as set forth.

664,154. HEAT-INSULATING PAINT. JACOB HOMMEL, Los Angeles, Cal. Filed June 26, 1900. Serial No. 21,677. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of vinegar, asbestos, saltpeter, alum and glue, substantially as described, and for the purposes specified.

2. The herein-described composition of matter, for rendering substances treated therewith impervious to heat or air, consisting of, fifty gallons of strong vinegar; twelve pounds of saltpeter; eight pounds of alum; four pounds of glue; sixty pounds of pulverized asbestos.

664,155. MOISTENING DEVICE. TJARK J. HOUTMAN, New York, N. Y. Filed Mar. 8, 1900. Serial No. 7,876. (No model.)



Claim.—1. A moistening device for stamps and envelops consisting of a cup or reservoir having a mouth and an overflow-rim above the mouth and a ball-float freely rotatable in all directions in the reservoir, said mouth and ball being of such relative size that the ball when closing the mouth will project above the top of the rim, and the cup being so shallow as compared with the diameter of the ball that the latter when touching the bottom of the cup will have its apex above the top of the rim, so that said ball is continually accessible for the contact of an object to be moistened, substantially as described.

2. A moistening device, comprising a cup or reservoir having a mouth and a ball-float freely rotatable in the reservoir, said ball being of such size that it will fit against the interior of the mouth but cannot rise out of or through the same, and the reservoir being so shallow, as compared with the diameter of the ball, that such ball when touching the bottom of the reservoir will have its top point project above the mouth, to enable a stamp or the like to be brought into contact with or moistened by such ball, substantially as described.

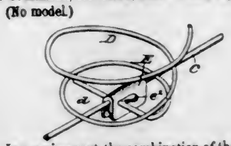
664,156. WITHDRAWN.

664,157. UMBRELLA-COVER. REUBEN W. KILLMER, Frankfort, Ind. Filed Apr. 13, 1899. Serial No. 712,920. (No model.)



Claim.—An umbrella, having on its cover a self-sustaining rim whose walls extend substantially in the same direction as the umbrella-stick when the umbrella is opened and whose perimeter is less at the free edge of the rim than at its base, whereby said rim is maintained in an upright position and is prevented from turning down over the edge of the umbrella, substantially as and for the purpose described.

664,158. SPRING-SEAT FOR CHAIRS, SOFAS, WAGON-SEATS, &c. MELVIN D. KILMER, Cleveland, Ohio. Filed Sept. 21, 1900. Serial No. 30,656. (No model.)

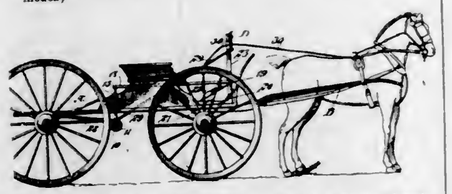


Claim.—1. In a spring-seat, the combination of the seat-frame, transverse rods, the springs, and the clamps for holding the springs to the rods,

such clamps having elongated openings and the ends of the springs resting in said openings, the latter being lengthwise the rods and transverse the ends of the springs as set forth.

2. In a spring-seat, the combination of the spring-supporting rod, the springs, and the clamps, E, having elongated openings, *e'*, the ends of the springs resting in said openings, one end of said openings, *e'*, being larger and the other end of said openings being smaller than the diameter of the wire forming the springs, as set forth.

664,159. AUTOMATIC VEHICLE HITCH-BRAKE. CHARLES KITCHIN, Elwood, Ind. Filed May 31, 1900. Serial No. 18,539. (No model.)



Claim.—1. A brake bar or beam for vehicles, a support therefor, and a lever in operative connection with the brake bar or beam, a strap or chain attached to the brake beam or bar and to the rear portion of the support therefor, a second strap attached to the brake beam or bar in an opposite direction, and a rein-holder to which the second strap is attached.

2. In vehicles, a body, a brake beam or bar having brake-shoes or rollers, a shifting device for the brake beam or bar, in which device the beam or bar is free to turn, a lever connected with the shifting device, a strap or chain attached to the brake-bar, and wound thereon in a rearward direction and secured to the rear portion of the vehicle body or gear, and a second strap attached to the brake bar or beam, and wound thereon in a forward direction, and a movable rein-holder to which the latter strap is attached.

3. In vehicles, the combination, with the body, a brake beam or bar provided with shoes or rollers, a shifting device connected with the body, and in which the said brake beam or bar is free to turn, a brake-lever connected with the shifting device, and a rein-clamp carried by said lever, of a strap or chain attached to the brake bar or beam and wound thereon in a rearward direction, the said strap or chain having attachment to the rear portion of the body or gear of the vehicle, and a second strap or chain likewise attached to the brake beam or bar, and wound thereon in a forward direction, the said strap or chain being attached to the rein-clamp, for the purpose set forth.

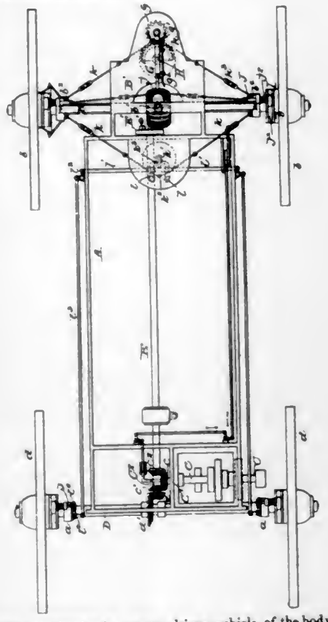
4. In brakes for vehicles a brake beam or bar mounted to revolve, supports and shifting devices for the brake beam or bar, and a lever connected with the shifting devices, having a pivoted member capable of a horizontal rearward projection, a rein-clamp secured to the pivoted member of the lever, which rein-clamp is of fork-like construction, having one leg free and the other attached, a cam-lever arranged for engagement with the free end of the clamp, a strap or chain attached to the brake-beam and wound thereon in a rearward direction and adapted for attachment also to a rear support, and a second strap or chain attached to the brake beam or bar and wound thereon in a forward direction, and means for attaching the latter strap to the fixed member of the rein-clamp, for the purpose specified.

664,160. MOTOR-DRIVEN VEHICLE. PETER C. LEIDICH, Tamaqua, Pa., assignor, by direct and mesne assignments, of three-eighths to George H. Focht, William Wharton Hollingsworth, and Margaret D. Atkinson, Philadelphia, Pa. Filed Sept. 25, 1899. Serial No. 731,624. (No model.)

Claim.—1. In a gearing, the combination of a driving-shaft mounted in fixed bearings and carrying a pin-wheel as a power-transmitting medium, a driven shaft pivotally mounted so as to be capable of swinging at an angle to the driving-shaft, and a wide-faced gear-wheel mounted on said driven shaft and having its teeth engaged by pins projecting from the wheel of the driven shaft, said gear-wheel having its periphery curved on the arc of a circle taken from the center of the wheel, substantially as described.

2. The combination of a driving and a driven shaft, the driven shaft adapted to turn on a pivot, a gear-wheel mounted on said shaft at the pivot-point of the same and having a face curved on the arc of a circle taken from said pivot-point, and a wheel on the driving-shaft having pins projecting from its face and entering the spaces between the teeth of the gear-wheel on the driven shaft, said spaces being of the same width from end to end, substantially as described.

3. The combination in a power-driven vehicle, of front and rear axles, one of said axles being pivoted, a driven shaft at right angles to the axles and bevel-gears by which the axle adapted to fixed bearings is geared to the driving-shaft, and gearing connecting said driven shaft to the pivoted axle, said gearing consisting of a wide-faced gear having a curved surface adapted to the pivoted axle, and a pin-wheel on the end of the driving-shaft, the pins of which engage with the teeth of the wide-faced gear-wheel, substantially as described.



4. The combination in a motor-driven vehicle, of the body having a front axle and a rear axle, a pivot on which the front axle is adapted to swing, a shaft having a wheel, a chain adapted to the wheel and connected to the bearing of the front axle, so that the said front axle can be turned when the said shaft is turned, a driving-shaft geared positively to the front and rear axles, with means for throwing one or both wheels on one side of the vehicle out of gear with their axles, substantially as described.

5. The combination in a motor-driven vehicle, of the body, the rear axle adapted to fixed bearings, the front axle adapted to pivoted bearings, a driving-shaft, bevel-gears by which the rear axle is driven by the driving-shaft, a universal gear by which the shaft is geared to the front axle so that it will be always in gear therewith, means for turning the front axle and means for throwing one or both wheels on one side of the vehicle out of gear when the vehicle is turning a curve, substantially as described.

6. The combination of the body of a vehicle, front and rear axles therefor, wheels loose on said axles, the hubs of said wheels having recesses, a sleeve on each axle having pins engaging the recesses in their respective hubs, means for turning the front axle, and means operatively connected therewith whereby the pins are drawn from the hubs of the front and rear wheels on one side of the vehicle simultaneously, so that said wheels will revolve free of their axles when said front axle is turned, substantially as described.

7. The combination of a vehicle-body, the front axle B, rear axle D, wheels loose thereon, the hub of each wheel having recesses, sleeves on each axle having pins adapted to enter the recesses in the hubs, means for turning the front axle on its pivot, rods or chains connected to the pins and to a fixed point on the vehicle-body so that when the front axle is turned the pins will be withdrawn from engagement with the wheel on one side of the vehicle, a wheel *k'*, chains passing around said wheel and coupled to the bearings of the pivoted axle, a pin projecting from said wheel, levers *l l* on each side of the pin and adapted to be acted upon by said pin, said levers being coupled to the sleeves *n* on the rear axles so that both the front and rear wheels on one side will be detached from their axles simultaneously, substantially as described.

664,161. CHAIN. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Sept. 29, 1898. Serial No. 692,245. (No model.)

Claim.—1. A chain, having in combination, side bars provided with interlocking annular hubs and corresponding recesses connecting their overlapping faces, each bar having at one end an inward-projecting sleeve or hub-like bearing, bolts connecting the overlapping ends of the side bars, and antifriction-rollers mounted entirely on the said hub-like bearings and entirely out of engagement with the connecting-bolts, substantially as set forth.



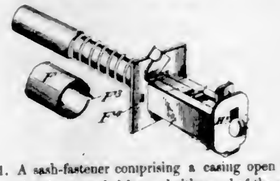
2. A chain, having in combination, side bars provided with interlocking ends and with inward-projecting sleeves or hub-like bearings, bolts connecting the ends of the side bars, and springs interposed between the ends of the sleeves, substantially as set forth.

3. A chain, having in combination side bars provided with interlocking ends, and with inward-projecting hub-like bearings, cross-bolts uniting the side bars extending through said bearings, springs interposed between the ends of the said bearings which tend to separate the side bars and maintain their interlocking parts in close engagement, and the antifriction-rollers mounted on the said hub-like bearings and inclosing the springs, substantially as set forth.

4. A chain, having in combination separable side bars, cross-bolts uniting said side bars, and nuts having screw-threaded engagement with the bolts, the side bars being formed with stops which prevent the turning of the said nuts and bolts relative to each other, and means for forcing the side bars outward under the working conditions of the chain to cause the said stops to operatively engage with the bolts and nuts, substantially as set forth.

5. A chain, having in combination separable side bars, cross-bolts uniting said side bars, nuts having screw-threaded engagement with the bolts, the side bars being formed with stops which prevent the turning of the nuts and bolts relative to each other, and means which tend to force the side bars apart to cause the said stops to operatively engage with the bolts and nuts, such means being yielding to permit intentional removal from or application to the bolts of the nuts, substantially as set forth.

664,162. SASH-FASTENER. GEORGE E. LINT, York, Pa. Filed Oct. 4, 1900. Serial No. 32,037. (No model.)



Claim.—1. A sash-fastener comprising a casing open at opposite ends, a pin adapted to be extended beyond either end of the casing, a retracting-spring adapted to move one end of said pin toward said spring, and an independent projecting spring adapted to be placed under tension to project an end of said pin away from said retracting-spring; substantially as specified.

2. A sash-fastener comprising a casing open at opposite ends, a pin adapted to be extended beyond either end of the casing, a retracting-spring adapted to move one end of said pin toward said spring, an independent projecting spring adapted to be placed under tension to project an end of said pin away from said retracting-spring, and means engaging one end of the casing for placing said projecting spring under tension and releasing said tension; substantially as specified.

3. A sash-fastener comprising a pin, a spring for projecting the same, a fixed plate, and means for engaging and disengaging one end of said spring from said plate; substantially as specified.

4. A sash-fastener comprising a pin, a spring for projecting the same, a fixed plate, and a tension-plate carried by said spring and provided with a tooth adapted to engage a fixed contact-plate; substantially as specified.

5. A sash-fastener comprising a pin, a spring for projecting the same, a tension-plate connected to one end of said spring and slidingly mounted upon one end of said pin, a tooth carried by said plate, a fixed plate having a recess in alinement with said tooth, and a contact-plate pivoted to move over and close said recess; substantially as specified.

6. A sash-fastener comprising a pin, a spring for projecting the same, a tension-plate connected to one end of said spring and slidingly mounted upon one end of said pin, a tooth carried by said plate, a fixed plate having a recess in alinement with said tooth, a contact-plate pivoted to move over and close said recess, and a locking-spring secured to said pin and provided with a tooth adapted to engage said fixed plate; substantially as specified.

7. A sash-fastener comprising a pin, a spring for projecting the same, a tension-plate connected to one end of said spring and slidingly mounted upon one end of said pin, a tooth carried by said plate, a fixed plate having a recess in alinement with said tooth, a contact-plate pivoted to move over and close said recess, a locking-spring secured to said pin and provided with a tooth adapted to engage said fixed plate, a casing provided with a shoulder at one end, and a retracting-spring located between said shoulder and a shoulder upon said pin; substantially as specified.

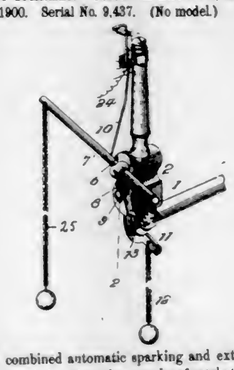
8. A sash-fastener comprising a pin, a spring for projecting the same, a tension-plate connected to one end of said spring and slidingly mounted upon one end of said pin, a tooth carried by said plate, a fixed plate having a recess in alinement with said tooth, a contact-plate pivoted to move over and close said recess, a locking-spring secured to said pin and provided with a tooth adapted to engage said fixed plate, a casing provided with a shoulder at one end, a retracting-spring located between said shoulder and a shoulder upon said pin, a slotted plate carried by said locking-spring, and a stop-pin carried by one end of said pin to limit the movement of said plate; substantially as specified.

9. A sash-fastener comprising a sliding bolt, a casing therefor, a retracting-spring bearing against said casing and bolt, a locking-spring secured to one end of said bolt, and provided with an angularly-disposed slotted plate, a tooth carried by said spring and adapted to engage a fixed part, and a stop projecting from the end of said bolt through said plate; substantially as specified.

10. In a sash-fastener, the combination of a casing, a face-plate therefor, a bolt within said casing provided with a shoulder, a retracting-spring extending between said shoulder and a shoulder of the casing, a locking-spring carried by said bolt and having a tooth adapted to engage said face-plate, a projecting spring adapted to bear at one end against a shoulder at the operating end of said bolt, a tension-plate connected to the opposite end of said spring and provided with a tooth, and means for engaging and holding said tooth to place said projecting spring under tension; substantially as specified.

11. In a sash-fastener, the combination of a casing, a face-plate therefor, a bolt within said casing provided with shoulders at opposite end portions, a retracting-spring extending between one shoulder of the bolt and a shoulder at the opposite end of the casing, a locking-spring carried by said bolt and having a tooth adapted to engage said face-plate, a projecting spring adapted to bear at one end against the shoulder at the operating end of the bolt, a tension-plate slidingly mounted in a recess in said bolt and connected to the opposite end of said spring, a tooth carried by said plate nearer the center of the bolt than the tooth upon the locking-spring, and a pivoted contact-plate carried by said face-plate and adapted to close a recess in said face-plate and engage the tooth of said tension-plate to place the projecting spring under tension, substantially as specified.

664,163. COMBINED AUTOMATIC GAS-LIGHT EXTINGUISHER AND ELECTRIC SPARKER. GUSTAV H. LIPPMANN, Milwaukee, Wis. Filed Mar. 20, 1900. Serial No. 9,437. (No model.)



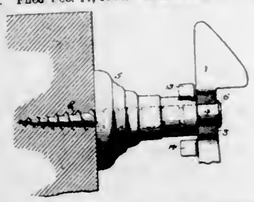
Claim.—1. A combined automatic sparking and extinguishing device for a gas-fixture, consisting of a valve, a series of ratchet-teeth thereon, a pawl engaging said teeth, a single spring connecting and actuating the valve and the pawl, a vertically-movable electric contact movable in unison with the valve, and a stationary electric contact in the path of said movable contact, substantially as set forth.

2. A device for positively closing the valve of a gas-fixture, consisting of a valve, a series of teeth on said valve, a pawl, said pawl engaging the teeth, and a single spring which normally closes the valve and normally acts to retain the pawl in engagement with the teeth on the valve, substantially as described.

3. A combined automatic sparking and extinguishing device for a gas-fixture, consisting of a valve, a flange thereon, a series of ratchet-teeth on the under side of said flange, a pawl engaging said teeth, an operating-rod attached to said flange, a vertically-movable electric contact-rod connected to the operating-rod and movable in unison therewith, and a stationary electric contact in the path of said movable contact substantially as described.

4. A combined automatic sparking and extinguishing device for a gas-fixture, consisting of a valve, a flange thereon, a series of ratchet-teeth on the under side of said flange, a pawl engaging said teeth, a single spring which normally closes the valve and normally acts to retain the pawl in engagement with the teeth on the flange of the valve, an operating-rod attached to the said flange, a vertically-movable electric contact-rod connected to the operating-rod and movable in unison therewith, and a stationary electric contact in the path of said movable contact, substantially as set forth.

664,164. SHUTTER-RETAINER. NEREMIAH MARTIN, Pleasantville, N. J. Filed Feb. 17, 1900. Serial No. 5,583. (No model.)

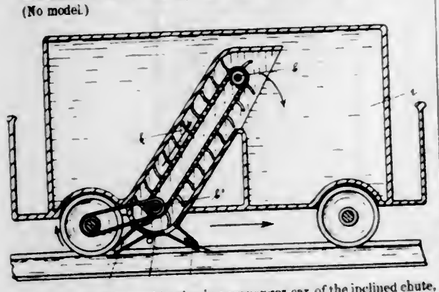


Claim.—1. The combination of a swinging shutter-retainer hanger, comprising a stem or stud having a bearing-boss longitudinally immovable with respect to said stud, an inwardly-projecting threaded end, an outwardly-projecting end upon which the retainer can be hung, and a portion whereby the hanger may be readily turned, with a retainer independent of the bearing-boss, said retainer being hung upon the outer end of the hanger, so as to swing in a plane transverse to the axis of the said hanger, substantially as specified.

2. The combination of the hanger comprising a stem or stud having an inwardly-projecting threaded end, an outwardly-projecting portion upon which the retainer can be pivoted so as to be free to swing, and a boss longitudinally immovable with respect to said stud intervening between said threaded and pivoted portions, with said pivoted retainer, the latter being independent of the boss and free to swing in a plane transverse to the axis of the hanger, and means whereby the retainer can be caused to engage with the hanger, so as to act as a wrench for turning the latter, substantially as specified.

3. The combination of the hanger having a bearing-boss with internally-projecting threaded stem and outwardly-projecting stud said boss being longitudinally immovable with respect to said stud, the hanger independent of the bearing-boss and longitudinally confined to but free to swing upon said stud in a direction transverse to the axis of the hanger, a lug upon the hanger, and a lug upon the swinging retainer adapted to engage with that upon the hanger, substantially as specified.

664,165. MEANS FOR CLEANING TRAMWAY-RAILS. OTTO MICHAELIS, Berlin, Germany. Filed June 18, 1900. Serial No. 20,726. (No model.)



Claim.—1. The combination in a scavenger-car, of the inclined chute, the endless carrier running therein and adapted to run constantly in one direction, the reversely-set scoops at the base of said chute, and means for alternately opening the port behind one scoop and opening that behind the other.

2. The combination in a scavenger-car of the inclined chute, the endless carrier running therein in a constant direction, the reversely-set scoops at the base of said chute, and the slide *z* adapted to open the port behind one of said scoops and simultaneously close the port behind the other.

664,166. BOOT OR SHOE POLISHING DEVICE. SAMUEL J. MILLS, Woodstock, Ill. Filed Aug. 11, 1899. Serial No. 726,917. (No model.)



Claim.—1. The herein-described device, for supporting a boot or shoe to be polished, consisting of a block or rest; guides connected with the sides of the block and extending longitudinally thereof out of contact therewith; and a supplemental guide connected to the block and extending transversely across the upper surface thereof.

2. The herein-described device, for supporting a boot or shoe to be polished, consisting of a block or rest; guides connected with opposite sides of the block and extending longitudinally thereof out of contact therewith; and a supplemental guide extending transversely across the upper surface of the block, said supplemental guide being pivotally mounted whereby the block can be reversed to bring either horizontal face or surface into operative position.

3. In a boot and shoe polishing device, the combination of a base-block or support; a guide pivotally connected to said block and extending along the sides thereof out of contact therewith; means for holding said guide stationary in the planes of the support; and a polishing-cloth adapted to extend transversely over the upper surface of the block and have its ends extend beneath the said guide on opposite sides of the block.

4. In a boot and shoe polishing device, the combination of a base-block or support; a guide-frame connected with the block and extending along opposite sides of and across one end thereof, out of contact therewith, a supplemental guide pivotally connected to the block and adapted to extend across the upper surface thereof; and a polishing-cloth adapted to pass transversely across the block and between opposite sides of said block and the guide-frame.

664,167. NIGHT-LAMP. CHRISTOPHER MOESLING, Washington, D. C., assignor of three-fourths to Fred G. Dieterich, same place. Filed Oct. 15, 1900. Serial No. 33,119. (No model.)



Claim.—1. A lamp of the character described, comprising a body portion, the upper end of which is transparent and open at the top, a diaphragm dividing the body into an upper and lower compartment, said diaphragm being detachably held on the said body, and having a wick-tube, the flame end of which is held in a plane below the upper end of the body portion.

2. A lamp of the character described, comprising a tumbler-like body formed of a transparent material, and a metallic diaphragm, having a wick tobe, and means for detachably holding the said diaphragm in the tumbler, whereby to divide the tumbler into an upper and a lower compartment, said wick-tube being of such length that its flame end stops at a point below the open top of the body, as set forth.

3. As a new article, a combined lamp and heater, comprising a body portion formed of an ordinary glass tumbler, a metallic diaphragm held in said tumbler, having its burner end disposed in a plane below the top of the tumbler, and a bridge member adapted to rest on the rim of the tumbler, substantially as shown and for the purposes described.

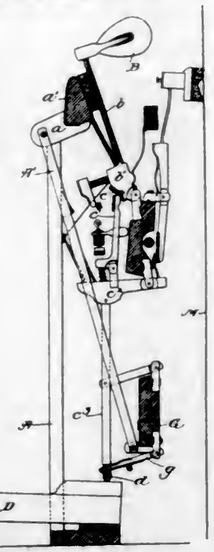
4. In a lamp as described, a metallic diaphragm having an upturned rim for frictionally engaging the inner wall of a tumbler, and having a central wick-tube, for the purposes specified.

5. In a lamp as described, the combination with the body having a tumbler shape with the side walls diverging, a diaphragm adapted to slip into the top of the tumbler, and having its peripheral edge arranged to frictionally engage the internal wall of the body when pushed down into the same, said diaphragm having a vertically-extending wick-tube, as set forth.

6. In a lamp as described, the combination with the tumbler-shaped body; of the diaphragm held within the said body, said diaphragm having a wick-tube extending through it and a filling-hole, and a disk rotatable on the diaphragm, said disk having an aperture arranged to be brought into register with the diaphragm-filling hole, for the purposes specified.

7. As a new article, a night-lamp comprising a body portion, formed of an ordinary glass tumbler, a diaphragm having its peripheral edge arranged to frictionally engage the inner wall of the tumbler, whereby it will be held in position to divide the tumbler into an upper and a lower compartment and close off the compartments from each other, a wick-tube extending through the diaphragm, said diaphragm, its tube and the tumbler being relatively so arranged that when the diaphragm is fitted in the tumbler the upper end of the wick-tube will be in a plane below the top rim of the tumbler, for the purposes specified.

664,168. PIANO-ACTION. HARTWELL R. MOORE, Boston, Mass., assignor to the Comstock, Cheney & Company, Ivoryton, Conn. Filed June 14, 1899. Serial No. 720,446. (No model.)



Claim.—1. In a piano-action the combination of a key; hammer-actuating mechanism; a movable hammer-rail; a pedal-rod; a member movable between the key and hammer-actuating mechanism but not connected with the latter, and means for operating the movable member.

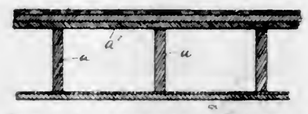
2. In a piano-action the combination of a key; hammer-actuating mechanism; a movable hammer-rail; a pedal-rod; a wedge movable between the key and hammer-actuating mechanism but not connected with the latter and means for operating the wedge.

3. In a piano-action the combination of a key; hammer-actuating mechanism; a movable hammer-rail; a pedal-rod; a member movable between the key and hammer-actuating mechanism but not connected with the latter, and means connected with the hammer-rail for operating the movable member when the rail is moved.

4. In a piano-action the combination of a key; hammer-actuating mechanism; a movable hammer-rail; a pedal-rod; a wedge movable between the key and hammer-actuating mechanism but not connected with the latter, and means connected with the hammer-rail for operating the wedge when the rail is moved.

664,169. TILE-SETTING. HERMAN C. MUELLER and KARL LANGENBECK, Zanesville, Ohio. Filed July 13, 1900. Serial No. 23,457. (No model.)

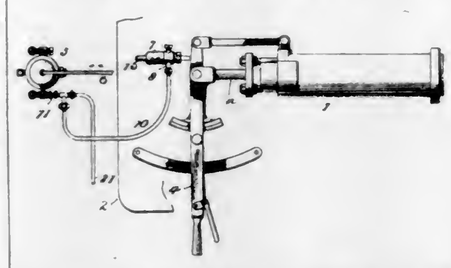
Claim.—1. The combination of a flexible cementitious backing combined with a surface made up of pieces of a material of a hard resisting nature bound together at the joints by a material similar to that of the backing, substantially as shown and described.



2. A floor or wall covering made up of a surface composed of pieces of a hard resisting material set into a backing which rises into the joints between the pieces and sets from a plastic to a flexible tough state, substantially as shown and described.

3. The process of forming a floor or wall covering consisting in forming a backing of a material which sets from a plastic to a flexible tough state, of forming the surface thereon by pressing pieces of a hard resisting material into the backing so that it rises into the joints between the pieces and of then filling in the joints with a grouting of a flexible nature.

664,170. LUBRICATOR. DONALD R. MACBAIN, Jackson, Mich. Filed July 17, 1900. Serial No. 23,946. (No model.)



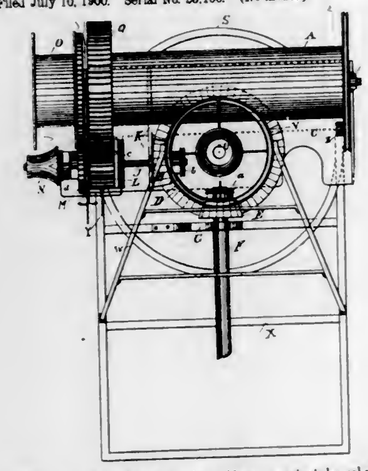
Claim.—1. In means for lubricating steam-engines and parts requiring the oil to be fed thereto positively, a regulator adapted to be actuated by the throttle-lever and comprising a casing connected with, respectively, the dry-steam space of a boiler and the delivery-pipe of a lubricator, and a valve operating in the said casing to control communication between the oil-delivery and the dry-steam pipes, and a bar adapted to be secured to a side of the throttle-lever to engage with the stem of the said valve, substantially as specified.

2. In means for lubricating steam-engines and parts requiring the oil to be fed thereto positively, a regulator consisting of a casing having a guide extension at one end, a stuffing-box at the opposite end, side openings at different points in its length, and having a valve-seat between the said openings, one of the said side openings being adapted to be connected with the dry-steam space of the boiler and the other with the delivery-pipe of the lubricator, and a valve having its stem extending in opposite directions, one end working in the guide extension of the casing and the other working through the stuffing-box and projecting beyond the casing and arranged to be engaged by the throttle-lever, substantially as specified.

3. In means for lubricating steam-engines and parts requiring the oil to be fed thereto positively, a regulator consisting of a two-part casing, each part having a side opening and the inner end of one of the parts constituting a valve-seat between the side openings of the parts when united, one of the said side openings being adapted to be connected with the dry-steam space of the boiler and the other with the delivery-pipe of the lubricator, and a stemmed valve operating in the casing, with the stem protruding and disposed to be engaged by the throttle-lever to unseat the valve simultaneously with the opening of the throttle, subetantially as specified.

4. In means for lubricating steam-engines and parts requiring the oil to be fed thereto positively, a regulator consisting of a two-part casing connected by a screw-thread, each part having a side opening, and the inner end of one of the parts constituting a valve-seat between the side openings, a stuffing-box at the outer end of one part and a hollow guide extension at the outer end of the other part, the side openings of the casing being adapted to be connected with, respectively, the dry-steam space of the boiler and the delivery-pipe of the lubricator, a valve having its stem extending in opposite directions, one end working in the tubular guide extension and the other working through the stuffing-box and adapted to be engaged by the throttle-lever, and a spring located in the part of the said casing having the tubular guide extension and confined between a shoulder thereof and the valve, subetantially as specified.

664,171. WINCH. ROBERT A. MCLEOD, Kaihu, New Zealand. Filed July 10, 1900. Serial No. 23,106. (No model.)



Claim.—1. In a winch, a circular guideway, a winch-barrel mounted to move around said guideway in a horizontal plane, a locking device for holding the winch-barrel as adjusted, a horizontal gear-wheel, a driving-shaft for said horizontal gear-wheel, a vertical gear-wheel meshing with said horizontal gear-wheel, a gear carried by the winch-barrel and engaging the said vertical gear-wheel, a shaft extending vertically from the horizontal gear-wheel, and a capstan on the upper end of said shaft, substantially as specified.

2. In a winch, a supporting-frame, a winch-barrel supported by said frame, a circular guide on which the frame is adjustable on a horizontal plane, means for securing the said frame and winch as adjusted on said horizontal plane, a horizontal gear-wheel, means for rotating said gear-wheel, a vertical gear-wheel loosely mounted on a shaft and engaging with the horizontal gear-wheel, a gearing connection between the shaft of the said vertical gear and the winch-barrel, a capstan on the outer end of said shaft, and a drum mounted on the shaft with said vertical gear and operated from the said horizontal gear-wheel, substantially as specified.

3. In a device of the character described, a circular guide, a winch-barrel rotating on a horizontal axis, a platform or base upon which said winch-barrel is supported, clutch devices carried by said platform for engaging with recesses in the guide, a horizontal gear-wheel, a driving-shaft, a pinion loosely mounted on the driving-shaft and adapted for engagement with the gear-wheel, a clutch connection between said pinion and the shaft, and a gear connection between said gear-wheel and the winch-barrel, substantially as specified.

4. In a device of the character described, a circular guide, a platform mounted to rotate on said guide, means for securing the platform as adjusted on the guide, a vertical shaft, a capstan on the upper end of said shaft, a gear-wheel at the lower end of said shaft, a driving-shaft having a pinion connection with said gear-wheel, a spindle, a pinion loosely mounted on said spindle and adapted for engagement with the gear-wheel, means for locking said pinion in connection with the spindle, a gypsy on the outer end of said spindle, a gear connection between the spindle and the winch-cylinder, and a drum having gear connection with said spindle, substantially as specified.

5. In a device of the character described, a winch-barrel mounted to rotate on a horizontal axis and also to turn for adjustment about a vertical axis, clutch-controlled gearing for causing the movement of the winch-barrel, and means for securing the winch as adjusted, substantially as specified.

664,172. BUDDING IMPLEMENT. WILLIAM NELSON, Jefferson Parish, La. Filed Aug. 9, 1900. Serial No. 26,419. (No model.)



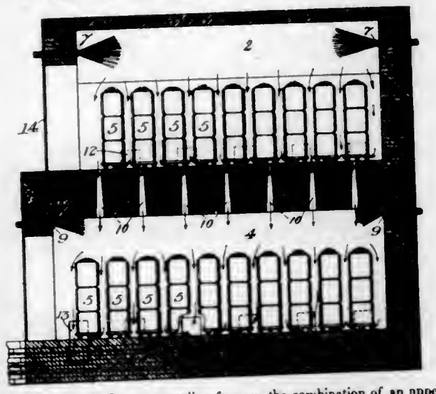
Claim.—1. An implement for use in budding comprising a handle and blades secured thereto and spaced apart and having one edge sharpened and their opposite edges rounded at the ends of the blades and sharpened, substantially as set forth.

2. An implement substantially as described, provided with the parallel blades arranged to operate transversely of the stock and with the spring device to bear on the opposite sides of said stock from the said blades, substantially as set forth.

3. An implement substantially as described comprising the handle, the blades secured thereto, arranged parallel as shown, and the opposing spring device consisting of a plate hold to the handle, arms pivoted to said plate and actuating spring devices, substantially as set forth.

4. An implement for use in budding provided with blades spaced apart with edges adapted to operate transversely upon the stock, and edged at the outer end to form a cutter for splitting the bark, substantially as set forth.

664,173. ANNEALING-FURNACE. GEORGE W. PACKER, Chicago, Ill. Filed July 26, 1900. Serial No. 24,869. (No model.)



Claim.—1. In an annealing-furnace, the combination of an upper heating-chamber, a lower heating-chamber, separate charging means for each chamber, independent means for supplying fuel and air to each of said chambers, flues leading from the upper chamber to the lower chamber, and outlet-flues leading from said lower chamber.

2. In an annealing-furnace, an upper heating-chamber, a lower heating-chamber, independent means for supplying fuel and air to the upper part of each of said chambers, flues leading from the lower part of said upper chamber to the upper part of said lower chamber, and outlet-flues in the lower part of said lower chamber.

3. In an annealing-furnace, an upper heating-chamber consisting of a series of ovens or chambers, passages between the adjacent ovens of said series, a lower heating-chamber consisting of a series of ovens or chambers and provided with passages between the adjacent ovens of said series, independent means for supplying fuel and air to each of the said ovens, flues leading from each of said chambers of the upper series to one of said chambers of said lower series, and escape-flues in each of said lower ovens.

664,174. WIRE-FENCING MACHINE. NATHAN S. PARKER, Fort Dodge, Kans., assignor of two-thirds to C. J. Andrews and Julia M. Dickey, same place. Filed Aug. 20, 1900. Serial No. 27,479. (No model.)

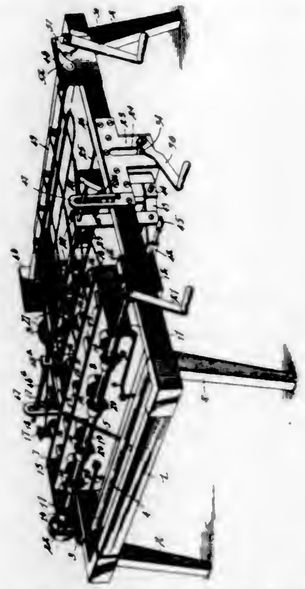
Claim.—1. In a wire-fence-making machine, the combination of a frame, a plurality of stringer or runner twisting devices, and picket-twisting meohanism in a plane at right angles to the direction of the runners or stringers and vertically movable to the plane of the latter.

2. In a wire-fence-making machine, the combination of a frame, a plurality of stringer or runner twisting devices, vertically-movable picket-twisting mechanism extending transversely of the frame in a plane at a right angle to the direction of the said stringers or runners, and a transversely-extending tension member connected to and movable downward by the said picket-twisting mechanism simultaneously with the opward movement of the latter.

3. In a wire-fence-making machine, the combination with a plurality of stringer or runner twisting devices, of vertically-movable picket-twisting mochanism in a plane at a right angle thereto and operative independent thereof.

4. In a wire-fence-making machine, the combination of a frame, a twisting-frame mounted thereon to slide longitudinally thereof and having a plurality of stringer or runner twisting devices, and a vertically-movable independently-operating picket-twisting mechanism in a plane at a right angle to the said stringer and runner twisting devices.

5. In a wire-fence-making machine, the combination with a plurality of stringer or runner twisting devices, of vertically-movable picket-twisting mechanism extending transversely of the machine and consisting of a series of throated guards arranged vertically and having radially-slotted twisting-gears with recessed hubs at the lower terminals of the several throats, a treadle-frame for operating, and a transversely-extending tension-rod connected to the said treadle-frame and movable downwardly thereby simultaneously with the upward movement of the picket-twisting mechanism.



6. In a wire-fence-making machine, the combination with a plurality of longitudinally-slidable stringer or runner twisting devices, of vertically-movable picket-twisting mechanism extending transversely of the machine and consisting of a series of throated guards arranged vertically and having radially-slotted twisting-gears with recessed hubs at the lower terminals of the several throats, and means for operating the said gears and movable with the said mechanism.

7. In a wire-fence-making machine, the combination of a frame, a plurality of stringer or runner twisting devices each comprising two wire-holding spools, vertically-movable twisting mechanism extending transversely of the machine and consisting of a series of vertically-arranged guards having throats in the upper portions thereof, radially-slotted twisting-gears mounted within the guards and having recessed hubs at the lower terminals of the said throats, a shaft extending through the guards and having pinions thereon in mesh with the gears, a treadle-frame for operating said picket-twisting mechanism, and a vertically-movable tension-rod attached to the said frame and operated by the latter in a downward direction simultaneously with the upward movement of the picket-twisting mechanism.

664,175. FARRIER'S KNIFE. JOHN W. POLCHOW, Apple River, Ill. Filed May 29, 1900. Serial No. 18,376. (No model.)



Claim.—1. A knife-blade having a tang formed with locking indentations, in combination with a handle formed of two like sections, the two sections being hollowed out on the inner face and having socket portions for the blade-tang, each handle-section having an aperture and a surrounding hub, one of the apertures being threaded; a flat spring catch-plate having a locking-lip at the front end, its rear end being apertured and adapted to seat between the hubs of the handle-section, and a screw passing through the hub-apertures of the handle-sections and the aperture in the spring-plate, all being arranged substantially as shown and described.

2. The combination with a blade, the tang of which is provided with an opening, of a two-part handle having an internal space into which the tang end is adapted to enter, a spring catch-plate having a locking-lip at one end adapted to engage the tang-aperture, the handle-sections having hub portions adapted to clamp the other end of the spring catch-plate and hold it rigid, and means for securing the two handle-sections together as specified.

3. In a knife of the character described, the combination with a two-part handle and a pair of clamp-screws passing transversely therethrough and adapted to hold the two sections together, one of said screws being at the rear and one at the front of the handle, the two handle-sections being concaved internally to produce a space or chamber, and having hub portions surrounding the rearmost screw-apertures, one of the handle members having a supplemental aperture, a spring catch-plate having an aperture at its rear end, whereby the end is adapted to seat between and be clamped by the hub portions of the handle members, the free end of said catch-plate having a lip to engage the tang of the blade and having a stud to project through the supplemental aperture in the handle, and the blade having an apertured tang slidable into the socket or chambered portion of the handle, as set forth.

664,176. ELECTRIC INSULATOR. EMIL RISLER, Freiburg, Germany. Filed July 25, 1900. Serial No. 24,787. (No model.)



Claim.—1. An electric insulator, consisting of a pin, a lower insulating-piece adapted to fit over the reduced and screw-threaded end of the pin, and an upper insulating-piece comprising a part having a central bore, a screw-threaded metal lining inserted in said bore, and a cap cemented both to the upper insulating-piece and to the said lining, the said upper insulating-piece being adapted to screw onto said screw-threaded end of the pin and to clamp an electric wire between itself and the said lower insulating-piece, substantially as specified.

2. An electric insulator, consisting of a pin, a lower insulating-piece adapted to fit over the reduced and screw-threaded end of said pin, and an upper insulating-piece adapted to screw on the said screw-threaded end of the pin and to clamp the electric leads between itself and the said lower insulating-piece, the said pin having wings extended from its body, substantially as specified.

3. An electric insulator, comprising a pin having laterally-extended wings, a block of insulating material engaging around said pin and having a recess, a cap for engaging a threaded portion of the pin, and a lug on said cap to engage in said recess, substantially as specified.

664,177. SAFETY-RAZOR. AUGUST W. SCHEUBER, New York, N. Y., assignor to Mary Zinn, same place. Filed Sept. 14, 1900. Serial No. 30,069. (No model.)



Claim.—1. In a safety-razor, the combination with a blade and comb-plate, of an adjustable blade-support extending through said plate and adapted to engage the blade, and means for adjusting the said support.

2. In a safety-razor, the combination with a blade and comb-plate, of a spring-supported means extending through said plate and adapted to engage said blade, and means for adjusting the said spring-supported means.

3. In a safety-razor the combination with a blade and a comb-plate, of clamps on the plate, spring-arms attached at their forward ends to the front portion of the comb-plate and carrying a blade-support that extends under and operates to yieldingly support the blade, means for adjusting the support with the blade, and a spring at the rear of the blade to press the latter forward between the clamps and blade-support substantially as described.

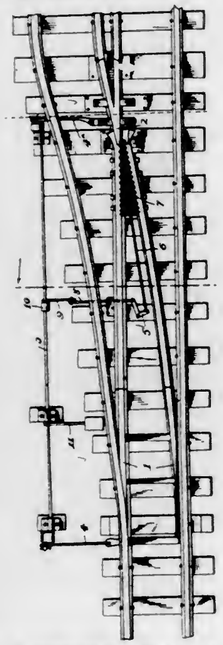
4. In a safety-razor the combination with a blade and a comb-plate, of clamps on the plate, spring-arms attached at their forward ends to the front portion of the comb-plate and carrying a blade-support that extends under and operates to yieldingly support the blade, adjusting-screws in the comb-plate and engaging the spring-arms to regulate the position of the blade-support relatively to the comb-plate and clamps, and a spring to press the blade forward between the clamps and blade-support substantially as described.

5. In a safety-razor the combination with a blade and a comb-plate, of clamps on the plate, spring-arms attached at their forward ends to the front portion of the comb-plate and having their rear ends inclined and carrying a blade-support to yieldingly support a blade, adjusting-screws in the rear of the comb-plate and engaging the inclined ends of the spring-arms, and a spring to press the blade forward substantially as described.

6. In a safety-razor, a comb-plate, a blade, a support for said blade adapted to extend through said plate, and means secured to said plate for yieldingly supporting said support.

7. In a safety-razor, a comb-plate carrying a blade, a support extending through said plate for said blade, means connected at one end to said plate for yieldingly supporting said support, and means engaging the free end of said yieldingly-supporting means for adjusting the said support.

664,178. RAILROAD-SWITCH. SANFORD S. SHIELDS, Columbus, Ohio. Filed May 31, 1900. Serial No. 18,528. (No model.)



Claim.—1. In a railroad-switch, a movable frog-point, and movable key for locking the same, combined with rock-shaft, a slotted rod 4ª connecting the rock-shaft and frog, and means intermediate of the rock-shaft and key for withdrawing the key from one side of the frog and inserting it at the other when the frog is shifted from main-track to siding position and from siding position to main-track position, substantially as described.

2. In a railroad-switch, the combination of a shaft 3, a frog 2, and a locking-key 7 for said frog, a slotted rod 4ª connecting the frog and shaft 3, and a rod 6, bell-crank 5 rod 8 and link 9 connecting the key 7 with said shaft 3, substantially as described.

664,179. PLEASURE-CANAL. GEORGE W. SCHOFIELD, New York, N. Y. Filed Aug. 13, 1900. Serial No. 26,715. (No model.)

Claim.—1. A pleasure-canal having its starting-point and terminal contiguous, the bed of said canal having a gradual incline from one end to the other, a water-wheel for causing a current of water in the canal, said wheel also serving to pass the water from the terminal to the starting-point of the canal, and means operated by the water-wheel to transfer a boat from the terminal to the starting-point, substantially as specified.

2. A pleasure-canal having its starting-point and terminal contiguous, the bed of said canal having a gradual incline from one end to the other, the banks of the canal having their upper surfaces approximately on a horizontal plane, a water-wheel for causing a current of water in the canal, said wheel also serving to pass the water from the terminal to the starting-point of the canal, and mechanical means operated to transfer a boat from the terminal to the starting-point, substantially as specified.

3. A pleasure-canal having its starting-point and terminal in a line with each other, a reservoir at one side of said starting-point and terminal and communicating therewith, a water-wheel operating in said reservoir, and an inclined carrier for transferring boats from the terminal to the starting-point, the said carrier being operated from the water-wheel, substantially as specified.

4. A pleasure-canal having its starting-point and terminal one in line with the other, a series of rollers arranged on an incline at the terminal of the canal, a dam between said terminal and the starting-point, and a spring-yielding receiving-roller arranged in the starting-point, substantially as specified.

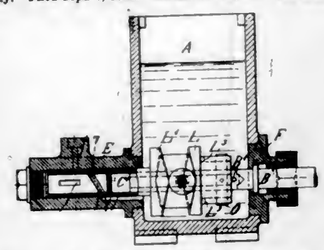


5. In a pleasure-canal having its starting-point and terminal contiguous, the bed of said canal being inclined gradually downward from the starting-point to the terminal, a series of rollers arranged on an incline at said terminal driving connections between the rollers, a water-wheel for causing a current through the canal and for lifting the water from the lower to the higher level, a driving connection between said water-wheel and one of the said rollers, and a spring-yielding receiving-rollers arranged within the starting portion of the canal, substantially as specified.

6. In a pleasure-canal having its bed inclined downward from its starting-point to its terminal, a water-wheel arranged at one side of the said starting-point and terminal and having its blades arranged as a tangent to its axis, and means operated by said water-wheel for transferring boats from the terminal to the starting-point, substantially as specified.

7. A pleasure-canal containing a body of water and having a series of different scenes arranged along its sides, the ends of the said canal being contiguous, an inclined bottom in said canal, the banks of the canal having their upper surfaces approximately on a horizontal plane, means for conveying water from the lower level to the higher level of the canal and causing a continuous circulation of water through the canal, a boat to be supported and moved by the body of water, and a carrier for transferring the boat from the lower to the higher level of the canal, substantially as specified.

664,180. LUBRICATING APPARATUS. LEON SERPOLLET, Paris, France, assignor to Schäffer & Budenberg, Magdeburg-Buckau, Germany. Filed Sept. 7, 1899. Serial No. 729,707. (No model.)



Claim.—1. The combination with an oil-reservoir, of a cylinder attached thereto and provided with a discharge-opening leading into a distribution-pipe, a piston adapted to revolve and reciprocate simultaneously in said cylinder and provided with a suction-port adapted to communicate with an inlet-channel leading from the reservoir, during the suction period, and a discharge-port, adapted to communicate with the discharge-opening of the cylinder during the discharge period, and means for revolving and reciprocating said piston, substantially as set forth.

2. The combination with an oil-reservoir, of a cylinder attached thereto and provided with a discharge-opening leading into a distributing-pipe, a hollow piston adapted to revolve and to reciprocate simultaneously in said cylinder, and provided with a transverse partition-wall, the piston having a slanting suction-port and a longitudinal discharge-port on one side of the partition, and means for revolving and reciprocating said piston, as set forth.

3. The combination with an oil-reservoir, of a cylinder attached thereto at one side thereof, and provided with a plurality of discharge-openings leading into distributing-pipes, a piston adapted to revolve and reciprocate simultaneously in said cylinder, and provided with a suction-port for drawing in oil from said reservoir during the first half-revolution, when the piston moves into the reservoir and with a discharge-port for discharging the oil during the second half-revolution when the piston moves into the cylinder, the turning of the said piston as it moves into the cylinder causing the oil to be discharged successively into said discharge-openings and the distributing-pipes, and means for revolving and reciprocating said piston, as set forth.

4. The combination with an oil-reservoir, of a cylinder attached thereto and provided with a plurality of discharge-openings leading into distributing-pipes, a hollow piston adapted to revolve and reciprocate simultaneously in said cylinder and having a transverse partition, the said piston being provided at one side of the partition with a slanting suction-port for drawing in oil from said reservoir during the first half-revolution and with a discharge-port for discharging the oil during the second half-revolution successively into said discharge-openings and distributing-pipes, means for revolving and reciprocating said piston, and means for preventing overpressure, substantially as set forth.

5. The combination with an oil-reservoir, of a cylinder attached thereto and communicating therewith by means of an inlet-channel and with a distributing-pipe by means of a discharge-opening, a hollow piston revolving and reciprocating in said cylinder and having a partition-wall and provided with a slanting suction-port opening into said inlet-channel during the first half-revolution for drawing in oil and with a discharge-port opening into said discharge-opening during the second half-revolution for discharging the oil, means for revolving and reciprocating said piston, and means for preventing overpressure, substantially as set forth.

6. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith, a plurality of distributing-pipes communicating with said cylinder, a hollow piston revolving and reciprocating in said cylinder and provided with a suction-port and a discharge-port for drawing in oil from the reservoir during the first half-revolution and for discharging it into said distributing-pipes in succession during the second half-revolution, a cam-drum attached to said piston, a stationary guide-roller engaging therewith for reciprocating said piston during each revolution, a revolving shaft mounted in the wall of said reservoir and held from endwise movement and extending into said cam-drum, a cross-piece attached to said shaft and engaging slots in said cam-drum, and means for revolving said shaft, substantially as set forth.

7. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith by an inlet-channel, a plurality of distributing-pipes communicating with said cylinder through discharge-openings arranged on half the periphery, a hollow piston revolving and reciprocating in said cylinder and having a partition-wall, the said piston being provided on one side of the partition-wall with a slanting suction-port opening into said inlet-channel during the first half-revolution and with a discharge-port opening successively into said discharge-openings during the second half-revolution, a cam-drum attached to said piston on the other side of the partition, a stationary guide engaging with said cam-drum for reciprocating the piston during each revolution, a revolving shaft engaging with said piston to revolve same, while leaving it full liberty to reciprocate, means for preventing overpressure, substantially as set forth.

8. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith, a plurality of distributing-pipes communicating with said cylinder, a hollow piston revolving and reciprocating in said cylinder and provided with a suction-port and a discharge-port for drawing in oil from the reservoir during the first half-revolution and for discharging it into said distributing-pipes in succession during the second half-revolution, means for preventing overpressure, a cam-drum attached to said piston, a stationary guide-roller engaging therewith for reciprocating said piston during each revolution, a revolving shaft journaled in the wall of said reservoir and prevented from shifting endwise and reaching into said cam-drum, a cross-piece attached to said shaft and engaging in slots provided in said cam-drum, and means for revolving said shaft, substantially as set forth.

9. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith, a plurality of distributing-pipes communicating with said cylinder, a hollow piston revolving and reciprocating therein and provided with a suction-port and a discharge-port for drawing in oil from the reservoir during the first half-revolution and for discharging it into said distributing-pipes in succession during the second half-revolution, means for preventing overpressure, a cam-drum attached to said piston, a stationary guide-roller engaging therewith for reciprocating said piston during each revolution, a revolving shaft engaging with said piston to revolve same while leaving it full liberty to reciprocate, a ratchet-wheel arranged on said shaft, and a lever mounted loosely on the shaft and carrying a pawl for engaging said ratchet-wheel, the said lever being connected with some moving part to be thereby reciprocated, substantially as set forth.

10. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith and provided with a plurality of discharge-openings on half the periphery leading into distributing-pipes, a hollow piston revolving and reciprocating in said cylinder and provided with a suction-port opening into said reservoir during the first half-revolution and with a discharge-port opening in succession into said discharge-openings during the second half-revolution, the width of said discharge-port being smaller than the distance between successive discharge-openings to prevent intercommunication, means for revolving and reciprocating said piston, a spring-controlled piston fitted in said cylinder in opposition to said revolving and reciprocating piston to prevent overpressure, substantially as set forth.

11. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith and provided with a plurality of discharge-openings on half the periphery leading into distributing-pipes, a hollow piston adapted to revolve and reciprocate in said cylinder and provided with a suction-port opening into said reservoir during the first half-revolution and with a discharge-port opening in succession into said discharge-openings during the second half-revolution, means for revolving and reciprocating said piston, a relief-piston fitted in said cylinder in opposition to said revolving and reciprocating piston, a spring bearing against said relief-piston and being adjustable from the outside by means of a screw, the relief-piston serving for preventing overpressure by receding during the interruption of the communication between said cylinder and one of said distributing-pipes, and a channel for returning the oil finding its way around said relief-piston to said reservoir, substantially as set forth.

12. In a lubricating apparatus, the combination with a reservoir, of a cylinder communicating therewith and provided with a discharge-opening leading into a distribution-pipe, a hollow piston revolving and reciprocating in said cylinder and provided with a suction-port and a discharge-port, a cam-drum attached to said piston, a stationary guide-roller engaging therewith for reciprocating said piston during each revolution, a revolving shaft engaging with said piston to revolve the same, while the said piston is free to reciprocate, a ratchet-wheel arranged on said shaft and a lever mounted loosely on the shaft and carrying a pawl for engaging said ratchet-wheel.

13. The combination with an oil-reservoir, of a cylinder attached thereto and provided with discharge-openings leading into distributing-pipes, a hollow piston adapted to revolve intermittently in one direction, and to reciprocate during its revolution, the said piston being provided with a suction-port adapted during the first half-revolution of the piston to draw in oil from the reservoir and with a discharge-port through which the oil is discharged successively into the discharge-openings of the cylinder, during the second half-revolution of the piston, means for revolving said piston intermittently, means for reciprocating said piston during its revolution, and a spring-pressed piston fitting in the outer part of said cylinder and adapted to yield to prevent overpressure, as set forth.

664,181. DRAWER-PULL. AMOS SHEPARD, Plantsville, Conn. Filed May 9, 1899. Serial No. 716,107. (No model.)



Claim.—1. In an extensible drawer-pull, the combination of a frame, a pull-plate pivoted in said frame, stops for limiting the outward movement of said plate and a stop on said frame arranged for being engaged by the rear side of said pull-plate near its upper edge to limit the inward movement of said plate with its lower edge removed from the drawer-front for the application of a person's finger-tips to the under edge of said pull-plate, substantially as described.

2. In a drawer-pull, the combination of the frame composed of the connecting-bar and the two forwardly-projecting ears at the ends of the said bar, with the pull-plate pivoted to the said ears above the upper edge of the said connecting-bar and adapted to swing in between the said for-

wardly-projecting ears to a position substantially flush therewith and to extend over and conceal the said connecting-bar, substantially as described.

3. In a drawer-pull, the combination of the frame, with the pull-plate pivoted therein and two sets of stops between the said frame and plate for taking the strain of the pull and relieving the pivots from the said strain, substantially as described.

4. In a drawer-pull, the combination of the frame consisting of the two ears and connecting-bar, the said ears being provided with pintle-sockets and stop-shoulders, with the pull-plate pivoted in said sockets, covering the said bar and adapted at its upper part to bear thereon, the lugs 13 on the rear of said pull-plate and stops on said lugs for engaging the stop-shoulders of the said ears, substantially as described.

5. In a drawer-pull, the combination of the frame consisting of the two ears and connecting-bar, with the pull-plate pivoted in said ears and fulcrum-stops at about the vertical middle of the said pull-plate for distributing the pulling pressure on said plate through the upper part of said plate to the upper portion of the said connecting-bar, substantially as described.

664,182. HOLDER FOR SHOE-LACES. BURCHARD P. SHEPHERD, Winona, Minn. Filed Feb. 19, 1900. Serial No. 5,700. (No model.)



Claim.—1. As a new article of manufacture, a shoe-lace holder, comprising shanks projecting out from the shoe and having ends adapted to be clenched therein, an inwardly-turned loop provided between said shanks and having an open outer end adapted to receive a shoe-lace, substantially as described.

2. As a new article of manufacture, a shoe-lace holder, comprising shanks having their ends secured to the shoe, an inwardly-turned loop having its closed end bearing upon the surface of the shoe and its open end in a plane substantially at right angles thereto, and yielding means provided at the open end of said loop permitting the insertion of a lacing and preventing its accidental disengagement, substantially as described.

3. As a new article of manufacture, a shoe-lace holder, composed of a single piece of spring-wire, comprising shanks having their ends secured to the shoe, an inwardly-turned loop provided between said shanks and supported thereby said loop having an open end or mouth adapted to receive a shoe-lace and said opening being of less diameter than the thickness of said lace whereby the accidental disengagement of the lace from said loop is prevented, substantially as described.

4. The combination, with a shoe of a lace-holder, composed of spring-wire, comprising shanks 3 and 4 having their ends secured to the shoe, an inwardly-turned loop 5 provided between said shanks, and wherein the shoe-lace is adapted to slide, said loop having an open outer end or mouth through which the lace is inserted into the loop, and a shoulder provided at the open end of said loop and preventing the accidental disengagement of the lace therefrom, substantially as described.

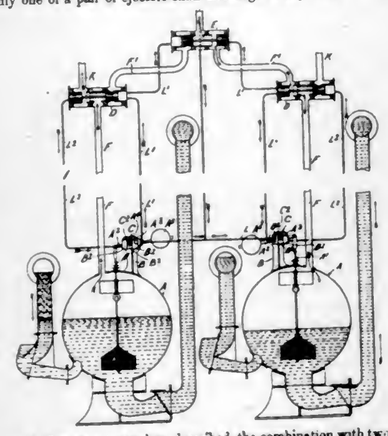
5. As a new article of manufacture, a shoe-lace holder, comprising a substantially straight post or stud adapted to be secured perpendicularly to the surface of the shoe, a guard or shield similarly secured opposite and near said post or stud, a space being provided between said guard and post to receive a shoe-lace, substantially as described.

6. As a new article of manufacture, a shoe-lace holder, comprising a substantially straight post or stud adapted to be secured perpendicularly with respect to the surface of the shoe, and a yielding guard or shield provided opposite and near said post and supported in a similar manner with respect to the shoe and between which and said post a space is provided to receive a shoe-lace.

7. As a new article of manufacture, a shoe-lace holder, comprising a hook around which the shoe-lace is passed, said hook being secured substantially at right angles to the surface of the shoe and projecting outwardly therefrom, and a guard or shield provided near said hook and having its outer end substantially flush with the outer end of said hook, substantially as described.

664,183. EJECTOR FOR RAISING SEWAGE OR OTHER LIQUIDS. ISAAC SHONE and EDWIN AULT, London, England. Filed May 26, 1899. Serial No. 718,387. (No model.)

Claim.—1. In combination with two pneumatic ejectors provided each with a sewage-inlet pipe and valve and sewage-outlet pipe and valve and with a float which is connected with a slide-valve for operating it, said slide-valve communicating with the store of compressed air, a main double valve provided with a small pipe from each end leading to the slide-valve for receiving compressed air from the slide-valve for being impelled thereby in one direction or the other and provided with an outlet-pipe for compressed air to the ejector, and outlet for the spent or exhaust air from the ejector and an inlet for compressed air: a controlling double valve communicating with the said inlet for compressed air to each main valve and having a pipe for receiving supply of compressed air from the store of compressed air and communicating at each of its ends with the said small pipes leading from the inner ends of the main valves to the slide-valves, for the purpose of being impelled thereby, the consequence of such arrangement being that the movement of the controlling-valve depends on the action and position of the two main valves, so that if one ejector has run full of sewage and its slide-valve by the action of its float in the ejector thereupon has admitted impelling compressed air to the main valve and moved the same to admit a charge of compressed air from the controlling-valve to the ejector for forcing out the sewage, the main valve for the other ejector will not receive a charge of compressed air from the controlling-valve until it has run full of sewage and the one ejector has completed its discharge and the slide-valve of the other ejector in consequence has sent impelling compressed air by way of its main valve to the controlling-valve and moved the latter into the proper position for admitting a charge of compressed air through the said main valve to the said ejector substantially as set forth and for the purpose of insuring that only one of a pair of ejectors shall discharge at any time.



2. In apparatus such as described, the combination with two ejectors and appliances for each admitting compressed air to and exhausting the same from said ejectors, said appliances controlled by level variations in said ejectors; of mechanism controlling said appliances to admit compressed air to one of the ejectors and to simultaneously place the other in communication with the atmosphere, and to place both ejectors in communication with the atmosphere until the liquid in one has risen to a certain level, for the purposes set forth.

3. In apparatus such as described, the combination with two ejectors, a compressed-air-operated main valve for each ejector controlling the admission of compressed air thereto and its exhaust therefrom, and a valve for each of said ejectors controlled by level variations therein and controlling the supply of operative fluid to said main valves; of means controlling the operation of both main valves to admit compressed air to one ejector and exhaust the air from the other and to position said main valves to place both ejectors in communication with the atmosphere until the liquid in one has risen to a certain level, for the purposes set forth.

4. The combination with two pneumatic ejectors, connections therewith and with a source of compressed-air supply, a pneumatically-operated main valve in each of said connections, pressure-fluid-supply pipes for said valves, and valves in said supply-pipes, controlled by variations of the level of liquid in the ejectors; of a pneumatically-operated valve controlling both main valves to admit pressure fluid to the ejectors alternately and to place both ejectors in communication with the atmosphere when the level of the liquid therein is below a predetermined level, for the purposes set forth.

5. The combination with two pneumatic ejectors, connections therewith and with a source of compressed-air supply, a pneumatically-operated main valve in each of said connections, pressure-fluid-supply pipes for said valves, and valves in said supply-pipes controlled by variations of the level of the liquid in the ejectors; of a controlling-valve for both main valves operated by pressure fluid from said main valves to admit pressure fluid from the source of supply to the ejectors alternately, and to place both ejectors in communication with the atmosphere when the level of the liquid in the ejectors is below a predetermined level, for the purpose set forth.

6. The combination with two pneumatic ejectors of the character described, and a main and a slide valve for each of them; of a controlling valve device consisting of a divided piston-valve adapted to be reciprocated by means of compressed air in a cylindrical casting or valve-body having a central inlet opening toward the compressed-air store, an outlet opening toward each main valve, said opening being situated between the center and the ends, and a small opening at each end with a small pipe communicating with the one end of each main valve and therethrough with a port of their respective slide-valves, substantially as and for the purposes set forth.

7. The combination with two pneumatic ejectors of the character described, a main and a slide valve for each of them, a controlling valve device consisting of a divided piston-valve adapted to be reciprocated by means of compressed air in a cylindrical casting or body having a central inlet opening toward the compressed-air store, an outlet opening toward each main valve, said openings situated between the center and the ends, a small opening at each end communicating with the one end of each main valve and therethrough with a port of their respective valves; of a rotatable key formed with a flat portion adapted to work in a slot in the rod which unites the two pistons of the aforesaid divided piston-valve, said slot having at each end a wider part wherein the key when turned crosswise holds the said piston-valve fast at one or the other end of its stroke, whereby one of the ejectors can be examined or repaired while the other continues to work, substantially as set forth.

8. The combination with two pneumatic ejectors of the character described, a main valve and a slide-valve for each of them, a controlling valve device consisting of a divided piston-valve adapted to be reciprocated by means of compressed air, a cylindrical casting or body, a liner fixed therein and to which said valve is reciprocated, said casting opening toward the compressed-air store, an outlet opening toward each main valve, said openings situated between the center and the ends, a small opening at each end of the controlling-valve communicating with the one end of each main valve and therethrough with a port of their respective slide-valves; of means for holding the controlling-valve against motion at either end of its stroke, for the purposes set forth.

9. The combination with a slide-valve and its casing, a cylindrical casing, a controlling divided piston-valve working therein, a main-valve chest bolted to each end of said casing, the latter having a central inlet, an outlet opening toward each main valve and a small passage at each end in communication with one end of each main-valve chest and therethrough with a port in the slide-valve casing, of means for driving the controlling-valve to one end or the other of its stroke, and means for holding it there, for the purposes set forth.

10. The combination with a slide-valve and its casing, a pneumatically-operated twin-piston controlling-valve, its casing, a main-valve chest bolted to each end of said casing, the latter having a central inlet in communication with a source of compressed-air supply, an outlet opening toward each main valve, and a small passage at each end communicating with one end of each main-valve chest and therethrough with a port in the aforesaid slide-valve casing; of means for driving the controlling-valve to one end or the other of its stroke by compressed air and for holding it there, substantially as and for the purposes set forth.

11. The combination with a pneumatic ejector, valved sewage inlet and outlet pipes connected therewith, a float therein, and a slide-valve operated by said float; of a double main valve, a source of supply of air under pressure connected to opposite ends of said main valve and in which the slide-valve is interposed to control the supply of air-pressure to one or the other end of said main valve and reciprocate the same, means for supplying compressed air to the main valve, and a circuit of pipes rising above the ejector and said main valve and having its terminals connected with the main-valve outlet and with the ejector respectively, for the purpose set forth.

12. A pneumatic ejector provided with a sewage-inlet pipe and valve and sewage-outlet pipe and valve and a float in combination with a slide-valve operated by the float and communicating with the store of compressed air, said slide-valve combined with a main double valve, which by a small conduit from each end communicates with the slide-valve for being impelled thereby in one direction or the other and which is provided with an outlet for compressed air to the ejector, and an inlet-pipe for compressed air, a box pedestal upon which the combined slide-valve and main valve is fixed said pedestal having one chamber communicating with the ejector and another chamber communicating with the main-valve outlet, and a pipe carried up to a considerable height above the ejector which pipe unites the two chambers substantially as and for the purpose set forth.

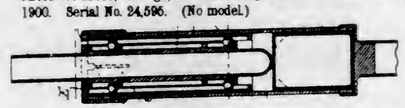
13. The combination with a pneumatic ejector of the character described, its float and float-rod, and a fluid-operated main valve controlling the admission of compressed air to said ejector; of a valve mechanism comprising a valve-box in communication with a source of motive-fluid supply and with the main-valve casing, a slide-valve in said box controlling the flow of motive fluid thereto and therefrom, a rock-shaft working in an open chamber in said box, and two levers on said shaft respectively connected with the slide-valve and float-rod, whereby when said slide-valve is moved by the rising of the float-rod motive fluid is admitted to the main-valve casing to actuate the main valve and cause compressed air to flow to the ejector, substantially as set forth.

14. The combination with a pneumatic ejector of the character described, its float and float-rod and a fluid-operated main valve controlling the admission of compressed air to said ejector; of a slide-valve working in a chamber in the main-valve casing said chamber connected with a source of motive-fluid supply and said slide-valve controlling the flow of motive fluid to said main valve, a rock-shaft, a lever thereon working in the exhaust and connected with the under side of said slide-valve, a second lever on said shaft connected with the float-rod, a support for the main valve on the ejector and having two chambers one in communication with the outlet of the main-valve casing and the other with the ejector, and a rising pipe-circuit connecting said two chambers, whereby when the slide-valve is actuated by the rise of the float-rod, motive fluid is admitted to the main valve to actuate the same and cause compressed air to flow through the rising circuit into the ejector, for the purpose set forth.

15. The combination with a pneumatic ejector of the character described, its float and float-rod, and a fluid-operated main valve controlling the admission of compressed air to said ejector; of a slide-valve working in a chamber in the main-valve casing, said chamber connected with a source of motive-fluid supply and said slide-valve controlling the flow of motive fluid to said main valve, a rock-shaft, a lever thereon working in the exhaust and connected with the under side of said slide-valve, a second lever on said shaft connected with the float-rod, a support for the main valve on the ejector and having two chambers one in communication with the outlet of the main-valve casing and the other with the ejector, a rising pipe-circuit connecting said two chambers, whereby when the slide-valve is actuated by the rise of the float-rod motive fluid is admitted to the main valve to actuate the same and cause compressed air to flow through the rising circuit into the ejector, and a strainer at the highest point of said pipe-circuit, for the purpose set forth.

16. The combination of the ejector, the float therein, a spindle partially rotated thereby, a lever on said spindle for operating the slide-valve, the slide-valve, the body or casting wherein it works provided with suitable ports and passages, and a liner on the valve-face, said liner having a hole which as the liner is turned end for end adapts the body-casting for a right-hand or left-hand disposition substantially as set forth.

664,184. PNEUMATIC-CUSHIONED SEAT-POST FOR BICYCLES. JACOB W. STOLL, Chicago, Ill. Filed Aug. 24, 1898. Renewed July 23, 1900. Serial No. 24,596. (No model.)



Claim.—1. The combination with a compressible frame-post, of a longitudinally-adjustable tube fitting in the same and provided with a longitudinal slot varying in width, a lug projecting from the frame-tube into said slot and adapted when in its narrow portion to prevent compression of the tube, and a clamp for compressing the frame-post; whereby the tube yields or not when clamped, according as its position brings the lug in the wider or narrower portion of the slot.

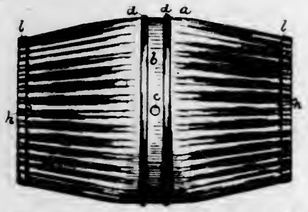
2. The combination with the slotted frame-post and means for compressing it to clamp the parts within, of a cushion seated in the frame-post at some distance below its upper end, a slotted tube fitting in the frame-post above the cushion and below the frame-post's upper end, a seat-post normally supported by said cushion and sliding in said tube, a compressible washer fitting in the frame-post above said tube and closely encircling the seat-post, and means for at will permitting or preventing the compression of the washer by the compressing of the frame-post.

3. The combination with the slotted frame-post and the clamp for compressing the same, of the slotted tube fixed in the frame-post by the action of said clamp and provided with an internal lug, a seat-post mounted to slide longitudinally in said tube, a cushion normally supporting the seat-post, and a divided washer above the tube, fitting the space between the seat-post and frame-post walls, and adjustable to include or not include said lug between its ends; whereby the action of the clamp leaves the seat-post free or rigidly locks it, the washer, and the tube together, according as the lug is between or not between said ends.

664,185. KEG, BARREL, OR CASK. CHARLES W. STRAN, Cleveland, Ohio. Filed Mar. 15, 1900. Serial No. 8,733. (No model.)

Claim.—1. A keg, barrel or cask having the following: a body portion comprising a metallic shell that is corrugated longitudinally between its central portion and ends and has the alternate ridges and furrows of the corrugated portions extending to the extremities of the shell, and me-

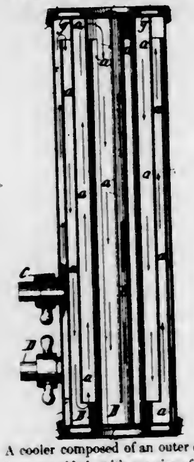
tallic heads closing opposite ends, respectively, of the shell and provided with corrugated flanges that snugly engage and conform to the inner surface of the engaging corrugated ends of the shell and are bent over and snugly overlap and conform to the outer surface of the corrugated ends of the shell



2. A keg, barrel or cask having the following: a body portion comprising a shell corrugated longitudinally between its central portion and ends and having the alternate ridges and furrows of the corrugated portions extending to the extremities of the shell, and having the said corrugated portions gradually reduced in diameter toward the said extremities, and metallic heads closing opposite ends, respectively, of the shell and arranged within the outer ends of the shell a short distance from the extremities of the said ends and provided with corrugated flanges that snugly engage and conform to the inner surface of the engaging corrugated ends of the shell and are bent over and snugly overlap and conform to the outer surface of the said corrugated ends of the shell, substantially as and for the purpose set forth.

3. A keg, barrel or cask comprising the following: a sheet-metal shell *a* having a central circumferentially-extending plain portion *b*, and having the end portions between the said plain portion and the extremities of the shell corrugated longitudinally and gradually decreased in diameter toward the said extremities, the beads *d* and *d* formed upon and extending circumferentially of the shell between the different corrugated end portions, respectively, of the shell and the aforesaid plain portion, and the sheet-metal heads *h* and *h* arranged within opposite ends, respectively, of the shell and snugly fitting the shell, and each of the said heads being provided, upon its outer side, with a corrugated flange that extends circumferentially of and snugly engages and conforms to the inner surface of the engaging corrugated end of the shell, and is bent, as at *l*, over the outer side or surface of the shell circumferentially of the latter, and has its said bent-over portion *l* snugly engaging and conforming to the said outer surface.

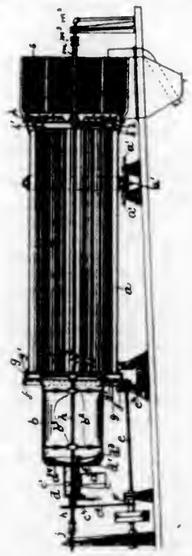
664,186. COOLER. CHRISTIAN STROBEL, Waterbury, Conn. Filed Aug. 10, 1900. Serial No. 26,469. (No model.)



Claim.—1. A cooler composed of an outer cylinder or tube; an inner cylinder fomed, or provided, with a series of radially-projecting partition-plates extending alternately from one end to within a suitable distance of the other, annular end plates, and one partition-plate running the whole length of said cylinder; suitable heads, or plates, between which the two cylinders are confined endwise and operating to also close, liquid-tight, the ends of the liquid-circulation spaces; means for detachably securing the aforesaid parts together; and means for permitting the entrance of the liquid to be cooled into the circulation-space at one side of the said continuous partition-plate and its exit from said space at the opposite side of said continuous partition; all substantially as and for the purposes hereinbefore set forth.

2. In a liquid-cooler of the type shown and described, the combination with the outer cylinder; the inner cylinder formed, or provided, with a series of radially-arranged, longitudinal plates and with annular end plates; suitable heads; and inlet and outlet devices, as specified, of a series of cross-partitions in the longitudinal circulation-passages arranged substantially as shown and described and having apertures in them; the whole constructed and operating substantially as and for the purposes set forth.

664,187. ROTARY DRIER. JOHN TAYLOR and JOSEPH E. KOHN, Cleveland, Ohio, assignors to the Kilby Manufacturing Company, same place. Filed May 22, 1899. Serial No. 717,812. (No model.)



Claim.—1. A drier of the character indicated, comprising a rotary cylinder declining in a rearward direction; a series of declining tubes arranged longitudinally within, and at suitable intervals circumferentially of, the cylinder; means for supplying steam to the forward ends of the said tubes; means for draining the tubes at their rear ends; another rotary cylinder connected with the forward end of and arranged in line with the first-mentioned cylinder and provided, at its forward end, with a stationary head having an inlet for the material requiring drying, a steam-pipe extending centrally through and arranged axially of the forward cylinder, and terminating, at the rear end of the said forward cylinder, in branch pipes connected and in open relation with the forward ends of the aforesaid tubes.

2. A drier of the character indicated, comprising a rotary cylinder declining in a rearward direction; a series of declining tubes arranged longitudinally within and at suitable intervals circumferentially of the cylinder; another rotary cylinder connected with the forward end of, and arranged in line with, and diametrically smaller than, the first-mentioned cylinder; a hollow head surrounding the rear end of the forward cylinder and closing the rear and tube-containing cylinder at the latter's forward end around the forward cylinder, which head is suitably secured to and forms the connection between the cylinders; a steam-pipe extending centrally through and axially of the forward cylinder and connected and in open relation, at the rear end of the said cylinder, with the chamber of the aforesaid head, and the braces b^3 internally of the said forward cylinder and provided with boxes b^2 affording bearing for the said steam-pipe, substantially as and for the purpose specified.

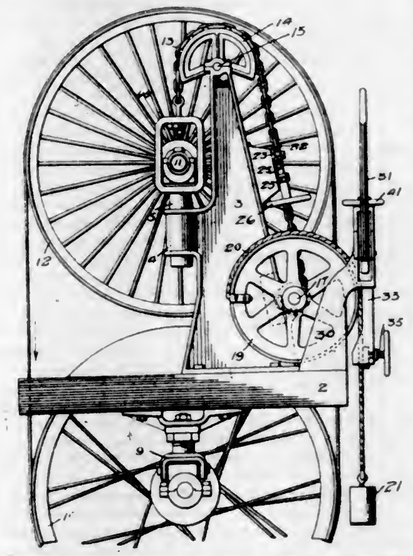
3. In a drier of the character indicated, the combination, with a rotary cylinder; a system of tubes arranged longitudinally within and at suitable intervals circumferentially of the cylinder, and means for supplying steam to the forward ends of the said tubes; of an annular head supported within the rear end of the cylinder and having a continuous chamber extending circumferentially of and around the cylinder and in open relation with the rear ends of the aforesaid tubes; a partition or diaphragm arranged transversely of and within the head and interrupting endless continuity in the said chamber circumferentially of the cylinder, and a drain-pipe system comprising a passage-way that is in open relation with the said chamber adjacent to that side of the aforesaid diaphragm or partition that faces in the direction in which the cylinder and the aforesaid head rotate during the operation of the machine.

4. In a drier of the character indicated, the combination with a rotary cylinder; a series of tubes arranged longitudinally within and at suitable intervals circumferentially of the cylinder, and means for supplying steam to the forward ends of the said tubes; of an annular chambered head supported within the rear end of the cylinder and having radial arms extending from the head's inner periphery inwardly, which head has its chamber in open relation with the aforesaid tubes; a drain-pipe system connected with the said chamber; means instrumental in conducting water accumulating within the said chamber into the drain-pipe system, and rods arranged radially of the outer side of the aforesaid head, which rods are connected, at their inner ends, to the arms, and have their other ends connected to the cylinder.

5. In a drier of the character indicated, the combination, with a rotary cylinder, a series of tubes arranged within and longitudinally of the cylinder, and means for supplying steam to the forward end of the said tubes, of an annular head *k* supported centrally of the rear end of the cylinder and having a chamber extending circumferentially of the said cylinder and in open relation with the rear ends of the aforesaid tubes, which head is provided with the internal diaphragm or partition k^2 interrupting continuity in the aforesaid chamber circumferentially of the cylinder, a boss k^{11} formed upon the inner periphery of the said head adjacent to the diaphragm or partition and having the hole therethrough in open relation with the chamber of the head next forward of the said diaphragm or partition, and a system of drain-pipes connected and in open relation with the interior of the said boss, substantially as and for the purpose set forth.

6. In a drier of the character indicated, the combination with a rotary cylinder, a series of tubes arranged within and longitudinally of the cylinder, and means for supplying steam to the forward ends of the said tubes; of an annular head *k* supported centrally of the rear end of the cylinder, and having a chamber extending circumferentially of the cylinder and in open relation with the rear ends of the aforesaid tubes, which head is provided with the diaphragm or partition k^2, the boss k^{11}, the radial arms k^3, the web k^4, and the boss k^5; the system of drain-pipes connected and in open relation with the chamber of the last-mentioned boss, and a pipe or passage-way connecting together and establishing open relation between the aforesaid bosses, all arranged and operating substantially as shown, for the purpose specified.

664,188. BAND-SAW MILL. EDWIN E. THOMAS, Minneapolis, Minn., assignor to the Union Iron Works, same place. Filed Jan. 8, 1900. Serial No. 665. (No model.)



Claim.—1. The combination, in a band-saw mill, with suitable standards or brackets, of vertically-sliding columns provided with bearings for the upper band-wheel shaft, chains connected to said columns, and passing over suitable bearings on the upper portions of said brackets, a counter-shaft to which said chains are connected, a counterbalance device connected with said shaft, and a lever mechanism connected with said counterbalance and whereby the tension may be applied to the saw, substantially as described.

2. The combination, in a band-saw mill, with suitable brackets 3, of vertically-sliding columns 5, 5 provided with bearings for the upper band-wheel shaft, segment-wheels 14 pivotally supported on said brackets, chains connected to said columns and passing over said segment-wheels, a counter-shaft to which said chains are connected, a counterbalance connected with said shaft and a weighted lever mechanism connected with said counterbalance and whereby tension may be applied to the saw, substantially as described.

3. The combination, in a band-saw mill, with the standards or brackets 3, of the vertically-sliding columns 5, 5, arranged to move in guides upon said brackets and provided with bearings for the upper band-wheel shaft, segment-wheels mounted upon said brackets, chains connected with said columns and passing over said segment-wheels, a counter-shaft to which said chains are connected, a counterbalance connected to said shaft, and coacting levers for adjusting one of said chains, substantially as described.

4. The combination, in a band-saw mill, with the standards or brackets, of vertically-movable bearings for the upper band-wheel shaft, segment-wheels mounted upon said brackets, chains connected with said bearings and passing over said segment-wheels, one of said chains being divided, a counter-shaft to which said chains are connected, a counterbalance for said shaft, and coacting levers connecting the divided ends of said chain to permit them to be drawn together or separated, for the purpose specified.

5. In a band-saw mill, the combination, with standards or brackets, of vertically-movable bearings for the upper band-wheel shaft provided on said standards, a counter-shaft, chains connected with said upper band-wheel bearings and with said counter-shaft and whereon said upper band-wheel is suspended, one of said chains being divided, levers 23 provided near the divided ends of said chains, means connecting the short arms of said levers, adjustable means connecting the long arms of said levers and whereby the tension on the saw may be regulated, and a suitable counterbalance connected with said counter-shaft, substantially as described.

6. In a band-saw mill, the combination, with a counter-shaft, of chains connected to said shaft and whereon the upper band-wheel is suspended, a wheel 19 provided on said shaft, a cable 20 connected to said wheel and provided with a suitable counterweight, a standard 30, a weighted lever 27 pivoted thereon, a lever 31 also pivoted on said standard and engaging the heel of said lever 27, a bar 33 secured on said cable and adjustable connections provided between said bar and said lever 27, substantially as described.

7. In a band-saw mill, the combination, with standards or brackets, of vertically-movable bearings for the upper band-wheel shaft, a counter-shaft carried by said brackets, chains connecting said counter-shaft and the bearings for the upper band-wheel and whereon said wheel is suspended, a counterbalance connected with said shaft, a weighted lever 27 pivoted near said shaft, a pivoted lever 31 adapted to engage the heel of said lever 27 and raise its weighted end, and suitable means connecting said lever 27 and said counterbalance whereby the tension of the saw may be regulated, substantially as described.

8. In a band-saw mill, the combination, with a counter-shaft, of the chains connected thereto and to the upper band-wheel bearings and whereon the same are suspended, a wheel provided on said shaft, a cable connected therewith and provided with a suitable weight, a weighted tension-lever 27 pivoted near said shaft, means for elevating the weighted end of said lever, a bar secured on said cable, and adjustable connections provided between said bar and said tension-lever and whereby any desired tension may be applied to the saw, substantially as described.

9. In a band-saw mill, the combination, with a counter-shaft, of chains connected thereto and to the upper band-wheel bearings and whereon the same are suspended, a counterbalance cable and weight connected to said shaft, a weighted lever pivoted near said shaft, and means adjustably connecting said lever and said cable, whereby any desired tension may be applied to the saw, substantially as described.

10. In a band-saw mill, the combination, with the upper band-wheel bearings and means whereon the same are suspended, of the counter-shaft connected with said suspending means, a weighted cable connected with said shaft and forming a counterbalance therefor, a tension device provided near said shaft and means adjustably connecting said tension device and said cable whereby any desired tension may be applied to the saw, substantially as described.

11. In a band-saw mill, the combination, with the vertically-movable upper band-wheel, of a shaft, suspending means connecting said shaft and said band-wheel, a counterbalance for said shaft, and a tension device

connected with said counterbalance whereby any desired tension may be applied to the saw, substantially as described.

12. The combination, in a band-saw mill, with the vertically-movable band-wheel, of a shaft, suspending means connecting said band-wheel and said shaft, a counterbalance for said shaft, and a lever mechanism connected with said suspending means, whereby the band-wheel may be tilted in either direction, for the purpose specified.

13. In a band-saw mill, the combination, with the vertically-movable upper band-wheel, of a shaft, suspending means connecting said shaft and said band-wheel, a counterbalance for said shaft and means adjustably connected with said counterbalance whereby any desired tension may be applied to the saw, substantially as described.

664,189. ELECTRICAL-SWITCH CAP. GEORGE B. THOMAS, Hartford, Conn., assignor to The Perkins Electric Switch Manufacturing Company, same place. Filed Aug. 27, 1900. Serial No. 28,253. (No model.)

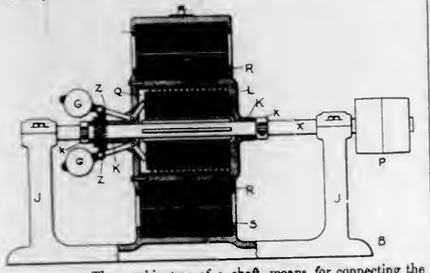


Claim.—1. The combination of the metallic cap of an electrical switch or similar article having a central opening for a spindle with an insulating-lining and an eyelet fitted to said central opening to secure the lining to the cap, substantially as described.

2. The combination of the metallic cap of an electrical switch or similar article having a central opening for a spindle with an insulating-lining and an insulating-washer both having openings of less diameter than that on the cap and an eyelet passing through said openings and securing the said insulating parts to the cap, substantially as described.

3. The combination of the metallic cap of an electrical switch or similar article with a lining-disk and means for securing it to the top of the cap and a separate lining-band for the walls of the cap, said lining-band having a flange to engage behind the edge of the lining-disk, substantially as described.

664,190. ALTERNATING-CURRENT ELECTRIC MOTOR. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Aug. 19, 1897. Serial No. 648,774. (No model.)

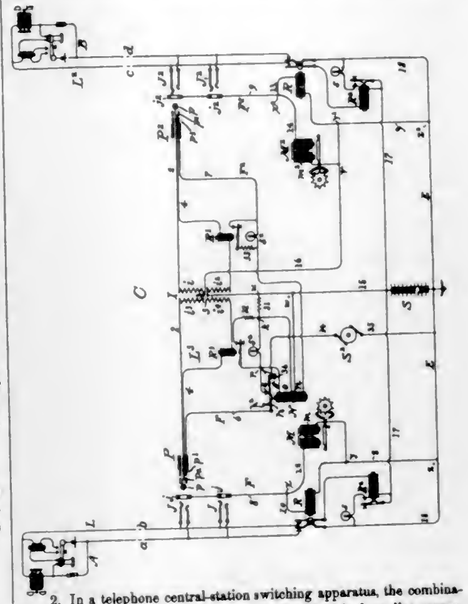


Claim.—1. The combination of a shaft, means for connecting the shaft to some work-consuming device, an electric motor having a small torque at low speeds and a larger torque at higher speeds, a clutch for coupling the rotating member of the motor to said shaft, and automatic means for bringing the clutch into action when the torque of the motor is high and for causing the clutch to be out of operation or disengaged when the torque of the motor is low.

2. The combination of a shaft or similar rotating body, means for connecting the shaft or body to some work-consuming device, an alternating-current induction-motor of such design as to have a low starting torque and higher running torque, a clutch for coupling the rotating member of the induction-motor to said shaft or body, and automatic means for bringing the clutch into action when the torque of the motor is high and for causing the clutch to be out of operation or disengaged when the torque of the motor is low.

664,191. CALL-REGISTER OR SERVICE-METER CIRCUIT FOR SWITCHBOARD APPARATUS. GEORGE K. THOMPSON, Malden, Mass., assignor to the American Bell Telephone Company, Boston, Mass. Filed Oct. 3, 1900. Serial No. 32,423. (No model.)

Claim.—1. In the switchboard apparatus of a telephone-exchange central station, the combination with two local circuits associated respectively with a calling and a called-for telephone-line, and containing each the cut-off relay of such line, and a source of current appropriate for the operation of said relay; of a service-meter for said calling-line operated by an electromagnet in the local circuit of said calling-line, but irresponsive to the normal current thereof; an auxiliary source organized to develop in the said calling-line local circuit a stronger current, adapted for the operation of said service-meter; and an electromagnetic circuit-changing device comprising a switch-lever in the said calling-line local circuit controlling the connection of said circuit with both sources of current, and adapted when operated to change said circuit transiently from the normal to the auxiliary source, and an operating-magnet therefor having its actuating-coil in the local circuit of the called-for line; substantially as set forth.

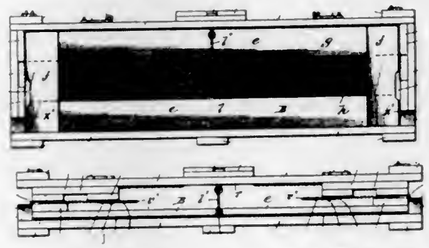


2. In a telephone central-station switching apparatus, the combination of switch-sockets of a calling and a called-for telephone-line respectively; a switch-cord with a calling switch-plug at one end and a companion switch-plug at the other adapted to coöperate with the said switch-sockets respectively, the said switch-cord comprising main-line conductors extending between the said plugs for the interconnection of said calling and called-for lines, and a local-circuit conductor for each plug; a normally incomplete local circuit associated with each line and adapted to be completed through the switch-socket of such line, the plug coöperating therewith, and the local conductor associated with said plug, and to include the cut-off relay of said line, and a source of current to operate said relay; with a service-meter or call-register having its operating-magnet in a branch of the local circuit completed by said calling-plug in parallel with the cut-off relay, but irresponsive to the normal relay-operating current of said local circuit; an auxiliary source of current of relatively high electromotive force associated with the local-circuit conductor of the calling-plug but normally disconnected therefrom; a circuit-changing switch at the junction of the said local conductor and the terminals of both sources, the same being organized when operated to transiently transfer said conductor from said first-mentioned source to the said more powerful auxiliary source; and an electromagnet to operate said circuit-changing switch, having its actuating-coil in the local circuit completed by the companion switch-plug; whereby the call-register of the local circuit associated with the calling-plug may be operated by the completion of the local circuit associated with the companion plug; substantially as described.

3. In a telephone central-station switchboard apparatus, two telephone-lines or substation main circuits; two incomplete local switchboard-circuits associated with said lines respectively and each including when completed the cut-off relay of its own telephone-line and a source supplying a normal current for the operation thereof; switch devices comprising main conductors for the interconnection of said telephone-lines, and independent local-circuit conductors adapted to complete the said local circuits respectively; combined with a call-register for the calling-telephone line operated by an electromagnet in the local circuit of said calling-line but irresponsive to the normal current thereof; a relatively high potential alternative source also associated with said local circuit but normally disconnected therefrom; a circuit-changer for said local circuit determining the connection therewith of the said normal and alternative sources, adapted to transiently substitute the latter for the former for the operation of said call-register, and having a double-wound controlling-electromagnet, one winding being an actuating-coil in the local circuit of the called-for line, responsive to the completion of said circuit, and the other a retaining-coil in the previously-closed local circuit of said calling-line to prevent the said circuit-changer from being again operated during the pendency of the same call, as described.

4. In a telephone-exchange-switchboard apparatus, the combination of switch-sockets representing respectively two telephone-lines one of which has called for the other; a switch-cord with a calling-plug at one end and a companion plug at the other adapted for insertion in the said switch-sockets respectively, the said switch-cord comprising main-line conductors extending between the said plugs for the union of said telephone-lines, and a local-circuit conductor for each plug; a normally incomplete local circuit associated with each line and adapted to be completed through the switch-socket thereof, the plug therefor, and the local conductor of said plug, and to include the cut-off relay of said lines, a service-meter with an operating electromagnet in the local circuit completed by the calling-plug, and in parallel with the cut-off relay thereof; an electrical generator normally furnishing in said local circuit a current strong enough to operate the said relay but not the said meter; an alternative generator of higher potential associated with the calling-plug local conductor but normally disconnected therefrom and furnishing current appropriate for the operation of said meter; a circuit-changing switch at a junction of the said calling-plug local conductor and terminals of both generators, the same being organized when operated to transiently transfer the said conductor from said first-mentioned generator to the said more powerful generator; and an electromagnet to operate said circuit-changing switch having an actuating-coil in the local circuit completed by the companion switch-plug, and a retaining-coil in the local circuit of the calling-plug; whereby the call-register of the local circuit associated with the calling-plug is enabled to operate by the completion of the local circuit associated with the companion plug, and is prevented from again operating during the pendency of the same call; substantially as herein set forth.

664,192. COLLAPSIBLE CRATE. GEORGE T. TREADWELL, Selma, Ala. Filed July 19, 1900. Serial No. 24,204. (No model.)



Claim.—In a collapsible crate, the combination with the bottom portion, having the side and end portions hinged thereto to fold down thereupon, of the loops or eyes secured to the top of said side and end portions, the removable cover having slots in its sides and ends arranged to receive said loops or eyes, pivoted catches secured to the top of said cover for engagement with said loops to secure the parts of the crate in their normal positions, additional pivoted catches secured to said cover, and loops or eyes upon said crate-bottom for engagement with said last-named catches to secure the parts of the crate together when collapsed, substantially as specified.

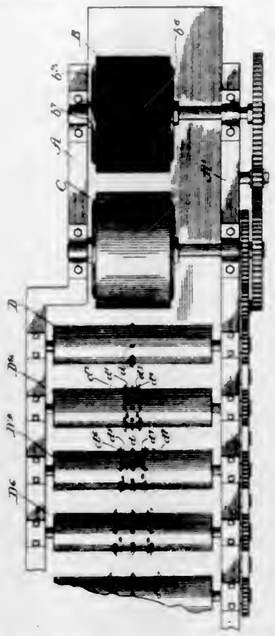
664,193. MACHINE FOR MAKING EXPANDED METAL. GEO. A. TURNBULL, Chicago, Ill. Filed July 23, 1900. Serial No. 24,492. (No model.)

Claim.—1. The combination with cutting-rolls and forming-rolls, of expanding-rolls provided with means for engaging a sheet of metal received from the forming-rolls and acting to force the same laterally.

2. The combination with cutting-rolls, of forming-rolls, of a plurality of pairs of rolls adapted to receive a sheet of metal or the like from the forming-rolls and provided with means acting to expand said sheet uniformly and laterally to a desired width.

3. The combination with cutting-rolls, of forming-rolls provided on their peripheries with coacting dies and punches, and expanding-rolls adapted to receive a sheet of metal or the like from said forming-rolls and provided with means adapted to expand said sheet laterally.

4. The combination with cutting-rolls adapted to slit a sheet of metal longitudinally, of forming-rolls provided with parts adapted to engage the slit edges of said metal and bend the same out of the plane thereof, and a plurality of expanding-rolls between which said sheet is passed, said expanding-rolls being provided with means adapted to engage said sheet of metal in said slits and acting to expand the sheet laterally.



5. The combination with cutting-rolls adjusted to slit a sheet of metal longitudinally, of forming-rolls, coacting dies on the peripheries thereof adapted to bend the slit edges of said metal out of the plane thereof, and a plurality of expanding-rolls between which said sheet is passed, said expanding-rolls being provided with means adapted to engage said sheet of metal in the slits and acting to expand the sheet laterally.

6. The combination with cutting-rolls and forming-rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being provided peripherally with projections adapted to engage the cut edges of said sheet of metal and acting to force the same laterally.

7. The combination with cutting-rolls and forming-rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being provided peripherally with projections set staggering with respect to each other and adapted to engage the cut edges of said sheet of metal and acting to force the same laterally.

8. The combination with cutting-rolls and forming-rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being arranged in pairs and one roll of each pair being provided peripherally with projections adjusted to engage the cut edges of a sheet of metal and acting to force the same laterally.

9. The combination with cutting-rolls and forming-rolls, of a plurality of pairs of expanding-rolls adapted to receive a sheet of metal from said forming-rolls, one roll of each of said pairs of expanding-rolls being provided peripherally with radial projections set staggering and adjusted to engage in slits in said sheet of metal and acting to expand said sheet laterally of said rolls.

10. The combination with cutting-rolls adjusted to cut a plurality of slits in a sheet of metal or the like, of forming-rolls, peripheral coacting dies and punches on said forming-rolls, a plurality of pairs of expanding-rolls adapted to receive the sheet of metal from the forming-rolls, one roll of each pair being provided peripherally with projections adapted to engage slits in said sheet of metal and acting to force the same laterally.

11. The combination with cutting-rolls, of forming-rolls, coacting dies and punches on the peripheries of the same, a plurality of pairs of expanding-rolls adapted to receive a sheet of metal from the forming-rolls, corresponding rolls of each pair of expanding-rolls being provided peripherally with radial projections adapted to engage in slits in said sheet of metal and acting to expand the same laterally.

12. The combination with cutting-rolls, of forming-rolls having on their peripheries coacting dies and punches, a plurality of pairs of expand-

ing-rolls adapted to receive a sheet of metal from said forming-rolls, one roll of each pair of expanding-rolls being provided peripherally with radial projections having outwardly-beveled points and adjusted to engage in slits in said sheet of metal.

13. The combination with a plurality of cutting-rolls provided with knives set staggering with each other and adapted to form a plurality of relatively short parallel overlapping slits in a sheet of metal or the like, of a plurality of forming-rolls adapted to engage the metal between said slits and form alternate V-shaped ridges and open slots or pockets, and a plurality of pairs of expanding-rolls adapted to receive the said sheet from said forming-rolls and means carried by each pair of expanding-rolls adapted to engage said sheet in alternate slots or pockets and acting to force the V's laterally.

14. The combination with a plurality of cutting-rolls adapted to form a plurality of relatively short parallel overlapping slits in a sheet of metal or the like, of a plurality of forming-rolls provided peripherally with coacting surfaces adapted to form said sheet between said slits into alternate ridges and open slots or pockets, a plurality of pairs of expanding-rolls adapted to receive the sheet therefrom and means carried by one of each pair of expanding-rolls adapted to engage said sheet in alternate slots or pockets and acting to force the said ridges laterally.

15. The combination with cutting-rolls adapted to form a plurality of short parallel overlapping slits in a sheet of metal or the like, of a plurality of forming-rolls provided with coacting surfaces adapted to force the cut edges in said slits out of the plane of the sheet, thereby forming open slots or pockets, a plurality of pairs of expanding-rolls adapted to receive said sheet from the forming-rolls and provided with projections having outwardly-inclined points adjusted to engage said sheet successively in said slots or pockets and acting to expand the sheet laterally.

16. The combination with a plurality of rolls provided with knives adapted to cut a sheet of metal in relatively short overlapping parallel slits, a plurality of forming-rolls provided with coacting dies and punches adapted to form V-shaped ridges between said slits and slots or pockets between said ridges, and a plurality of pairs of expanding-rolls provided with means for engaging said sheet in alternate slots or pockets and acting to expand said sheet laterally.

17. The combination with cutting-rolls adapted to cut a sheet of metal into a plurality of relatively short parallel overlapping slits a desired distance apart, of a plurality of forming-rolls adapted to receive the metal from the cutting-rolls and provided with coacting dies adapted to form in said sheet between said slits a plurality of V-shaped ridges alternating with slots or pockets, a pair of expanding-rolls provided on the periphery with pins arranged staggering to correspond with the pockets of slots in said sheet adapted to engage said sheet successively in said slots or pockets, and acting to expand said sheet laterally.

18. The combination with cutting-rolls adapted to slit a sheet of metal into a plurality of relatively short parallel overlapping slits a desired distance apart, of a plurality of forming-rolls adapted to receive the metal from the cutting-rolls and provided with coacting dies adapted to form said sheet between said slits into a plurality of ridges alternating with slots or pockets and a plurality of pairs of expanding-rolls provided on their periphery with pins arranged staggering to correspond with the pockets or slots in said sheet and adjusted to successively engage in the same and acting to expand said sheet laterally.

19. The combination with cutting-rolls adapted to slit a sheet of metal into a plurality of relatively short parallel overlapping slits a desired distance apart, of a plurality of forming-rolls adapted to receive the metal from the cutting-rolls and provided with coacting dies adapted to form in said sheet a plurality of V-shaped ridges alternating with slots or pockets, a plurality of pairs of expanding-rolls provided on their periphery with pins arranged staggering having inclined points and adjusted to engage said sheet successively in said slots or pockets and acting to expand the sheet laterally.

20. The combination with cutting and forming rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls having the same peripheral speed as the cutting and forming rolls and provided with means for expanding the cut and formed sheet of metal laterally.

21. The combination with cutting and forming rolls, of a plurality of expanding-rolls arranged in pairs and adapted to receive a sheet of metal therefrom, corresponding rolls thereon each provided with one or more rows of pins in corresponding rolls in each pair, said pins being arranged peripherally staggering with respect to the pins on the same roll and succeeding roll.

22. The combination with cutting and forming rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being arranged in pairs, and corresponding rolls of each pair being provided peripherally with adjustable pins arranged staggering with the pins on the same roll and the succeeding rolls, the other roll in each pair being provided with sockets adapted to receive the points of said pins.

23. The combination with cutting and forming rolls, of a plurality of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being arranged in pairs, the corresponding rolls of each pair being provided with interchangeable pins having outwardly-inclined points and arranged peripherally in rows on said rolls, each of said rolls being provided with two or more of said rows, the pins on each roll being arranged staggering with respect to each other and with the pins on the succeeding rolls and sockets on the other roll of each pair adapted to receive the points of said pins, said pins being adapted to engage slits in said sheet and expand the same.

24. The combination with cutting and forming rolls, of a plurality of pairs of expanding-rolls adapted to receive a sheet of metal therefrom, said expanding-rolls being provided with interchangeable duplicate pins having inclined points said pins on each roll being more remote from the middle of the roll than the pins on the preceding roll.

25. The combination with a pair of oppositely-rotating cutting-rolls located one above the other, of oppositely-rotating forming-rolls similarly placed, and of equal size, a plurality of pairs of upper and lower coacting expanding-rolls having less diameter than the aforesaid rolls, means for rotating said rolls with equal peripheral velocity, and means on said expanding-rolls acting to engage a cut and formed sheet of metal at the center and acting to expand the same laterally.

26. The combination with cutting-rolls adapted to slit a sheet of metal in a plurality of relatively short overlapping parallel slits a desired distance apart, forming-rolls provided on their peripheries respectively with coacting dies and punches adapted to form said sheet into alternating V-shaped ridges and open slots or pockets, a plurality of pairs of oppositely-rotating expanding-rolls located one above the other and adapted to receive said sheet from the forming-roll, and means on each pair of said expanding-rolls acting to expand said sheet laterally.

27. The combination with cutting-rolls adapted to slit a sheet of metal in a plurality of relatively short overlapping parallel slits a desired distance apart, forming-rolls provided on their peripheries respectively with coacting dies and punches adapted to form said sheet into alternating ridges and open slots or pockets, a plurality of pairs of oppositely-rotating expanding-rolls located one above the other and adapted to receive said sheet from the forming-roll, and a row of peripheral pins set staggering on said corresponding expanding-rolls said pins having their surfaces near their points adapted to engage in said slots or pockets and acting successively to expand the sheet.

28. The combination with a plurality of cutting-rolls each provided with a plurality of relatively short slitting-knives set staggering with each other and spaced a desired distance apart and adapted to slit a sheet of metal in a plurality of overlapping parallel short slits or cuts, a pair of oppositely-rotating forming-rolls provided respectively with peripheral coacting dies and punches adapted to form the slit sheet between said slits in ridges, having between the same diamond-shaped slots or pockets, a plurality of pairs of expanding-rolls adapted to receive the sheet from the forming-rolls, each pair of said expanding-rolls having secured thereon one or more interchangeable peripheral rows of pins the points of which enter complemental sockets in the complemental corresponding roll, said pins being set staggering and adapted to successively engage in said diamond-shaped pockets in said sheet and successively expand the sheet laterally.

29. The combination with cutting-rolls having removably secured thereon a plurality of relatively short slitting-knives set staggering with each other and spaced a desired distance apart and adapted to slit a sheet of metal into a plurality of short overlapping parallel slits or cuts, upper and lower forming-rolls each provided with peripheral coacting dies adjusted to form ridges between said slits, and diamond-shaped slots or pockets between said ridges, a plurality of pairs of coacting expanding-rolls adapted to receive the sheet from said forming-rolls, the rolls of each pair being provided with one or more rows of peripheral angular-pointed pins arranged staggering with each other and adapted successively to engage in said slots or pockets and acting to expand the sheet laterally.

30. The combination with cutting-rolls one of which is provided with a plurality of removable knives arranged staggering and spaced a desired distance apart and adapted to slit a sheet of metal into a plurality of overlapping parallel short slits or cuts, an upper and a lower forming-roll provided with alternate coacting dies and punches adapted to form the sheet between said slits into oppositely-directed V-shaped ridges having between the same oppositely-flared diamond-shaped slots or pockets, a plurality of pairs of upper and lower expanding-rolls said rolls having secured thereon a peripheral row of pins alternating from the upper and lower rolls out of alinement with each other and adapted to successively engage in said diamond-shaped pockets from opposite sides of the sheet.

31. The combination with cutting-rolls one of which is provided with a plurality of removable knives arranged staggering and spaced a desired distance apart and adapted to slit a sheet of metal into a plurality of overlapping parallel slits, an upper and a lower forming-roll provided with alternate coacting dies and punches adapted to form the sheet between said slits into oppositely-directed V-shaped ridges having between the same oppositely-flared diamond-shaped slots or pockets, a plurality of pairs of upper and lower expanding-rolls each roll having secured thereon a peripheral row of pins alternating from the upper and lower rolls, out of alinement with each other and adapted to successively engage in said pockets from opposite sides of the sheet, said pins first engaging said sheet in a central line and adapted to expand the same laterally.

32. The combination with a plurality of coacting cutting-rolls, of a plurality of coacting forming-rolls, each of said forming-rolls consisting of a plurality of circular plates secured axially upon a shaft or mandrel, each of said plates being provided alternately upon its periphery with dies and punches adapted to form a slit sheet into alternating V-shaped ridges and diamond-shaped pockets.

33. The combination with a plurality of coacting cutting-rolls, of a plurality of forming-rolls adapted to receive a sheet of metal or the like therefrom, said forming-rolls each comprising a plurality of circular plates adapted to be clamped together upon an axial shaft or mandrel and provided on the periphery with alternate dies and punches, said plates when in operative position being so adjusted that said dies and punches are arranged staggering with each other and adapted to form the sheet into alternate V-shaped ridges and diamond-shaped pockets.

34. The combination with a plurality of cutting-rolls, of a plurality of forming-rolls, each of said forming-rolls being provided with alternate dies and punches arranged staggering with each other, said rolls being composed of interchangeable duplicate parts axially secured upon a mandrel and expanding means adapted to engage a cut sheet as it comes from said rolls and acting to successively expand the parts thereof.

35. The combination with cutting-rolls, of means for stripping the cut sheet of metal or the like therefrom, forming-rolls adapted to receive the sheet from the cutting-rolls, said forming-rolls being provided on their periphery with coacting dies and punches adapted to form said sheet into alternate V-shaped ridges and oblong pockets and rolls acting to receive the sheet from said forming-rolls and which uniformly expand the same laterally.

36. The combination with a plurality of cutting-rolls, of a plurality of forming-rolls adapted to form alternate ridges and slots in a sheet received from the cutting-rolls, each of said forming-rolls being provided on the periphery with alternate dies and punches arranged staggering with each other, means adapted to engage said sheet in said slits and acting to expand the sheet laterally.

37. The combination with cutting-rolls adapted to slit a sheet of metal or the like into a plurality of overlapping parallel slits, of forming-rolls provided with coacting surfaces acting to force the slit edges out of the plane of the sheet and means adapted to engage said sheet in said slits and acting to expand said sheet laterally.

38. The combination with cutting-rolls adapted to slit a sheet of metal or the like into a plurality of overlapping parallel slits, of forming-rolls provided with coacting surfaces acting to force the slit edges out of the plane of the sheet and means adapted to engage said sheet in said slits and acting to expand the sheet laterally said means first engaging said sheet centrally then successively engaging adjacent lateral slits until the expansion is complete.

39. The combination with cutting-rolls adapted to slit a sheet of metal or the like into a plurality of short parallel overlapping slits, of forming-rolls provided with coacting dies and punches adapted to form said sheet into alternate ridges and slots or pockets and means adapted to engage said sheet in said slits and acting to expand the sheet laterally, said means first engaging slots located centrally, then simultaneously and successively engaging adjacent slots until the expansion is complete.

40. The combination with cutting-rolls adapted to slit a sheet of metal into a plurality of relatively short parallel overlapping slits, of forming-rolls provided peripherally with coacting surfaces adapted to form in said sheet oppositely-directed ridges alternating with oppositely-opening slots or pockets, and means adapted to engage said sheet in said slots or pockets and acting to expand the sheet laterally.

41. The combination with cutting-rolls adapted to slit a sheet of metal into a plurality of relatively short parallel overlapping slits, of forming-rolls provided peripherally with coacting surfaces adapted to form in said sheet oppositely-directed ridges alternating with oppositely-opening slots or pockets, means adapted to engage said sheet in said slots or pockets and acting to expand the sheet laterally, said means first engaging the sheet centrally then simultaneously and successively engaging slots on each side of the center and guides acting to engage the expanded portion of the sheet until the expansion is complete.

42. In a machine of the class described an expanding-roll provided with guide-pins and expanding-pins arranged staggering with said guide-pins and having obliquely-inclined points.

43. In a machine of the class described the combination with cutting means and forming means, of upper and lower expanding-rolls adapted to engage between the same a slit sheet of metal, a plurality of rows of expanding-pins arranged on an expanding-roll, said expanding-pins being arranged staggering and adapted to successively engage in the slits in the sheet and acting to expand the sheet laterally.

44. The combination with slitting-rolls and forming-rolls, of a plurality of pairs of expanding-rolls, one of each pair of expanding-rolls being provided with a plurality of rows of expanding-pins having inclined points, said expanding-pins being arranged divergently on succeeding rolls and arranged staggering with each other.

45. In a machine of the class described the combination with cutting-rolls and forming-rolls adapted to slit and to form a sheet of metal into alternating ridges and open slots or pockets, of a plurality of pairs of expanding-rolls each pair of rolls being provided with pins having inclined points arranged staggering with each other and adapted to engage said sheet successively in said slots or pockets and the complemental rolls being provided with sockets adapted to receive the points of said pins, said pins being arranged divergently on succeeding rolls.

46. In a machine of the class described the combination with cutting-rolls and forming-rolls adapted to slit and form a sheet of metal into alternating ridges and open slots or pockets, of a plurality of pairs of expanding-rolls each pair of rolls being provided with pins having inclined points arranged staggering with each other and adapted to engage said sheet successively in said slots or pockets, the complemental rolls being adapted to receive the points of said pins, said rows of pins being arranged divergently on succeeding rolls and means for driving said cutting forming and expanding rolls at the same peripheral speed.

47. The combination with cutting-rolls and forming-rolls adapted to slit and form a sheet of metal into alternate ridges and open slots or pockets, of means carried by rolls adapted to engage said sheets in said slots or pockets and acting to expand the sheet laterally.

48. In a machine of the class described a plurality of pairs of rolls adapted to receive between the same a sheet of metal formed in alternate staggering slots and ridges and means carried by said rolls adapted to engage said sheet successively in said slots and acting to expand the sheet laterally.

49. In a machine of the class described a plurality of pairs of rolls adapted to receive between the same a sheet of metal or the like formed with staggering slots or pockets, guide-pins on one of each pair of rolls adapted to engage a line of pockets in said sheet and a plurality of rows of expanding-pins on each pair of rolls arranged staggering and adapted to engage said sheet alternately in said slots, said expanding-pins on succeeding rolls being arranged divergently.

50. An expanding-roll for a machine of the class described comprising a cylindric roll provided peripherally with removable pins having inclined points and arranged staggering with each other.

51. A pair of expanding-rolls for a machine of the class described comprising oppositely-revolving rolls located out of contact and one above the other each of said rolls being provided with a plurality of peripheral rows of screw-threaded sockets, each adapted to afford engagement for a screw-threaded expanding-pin, or to receive the point of an expanding-pin secured on the other roll.

52. In a machine of the class described, the combination with cutting-rolls adapted to form in a sheet of metal a plurality of short slits, of movable expanding means adapted to engage the sheet in said slits and acting to expand the sheet laterally.

53. The combination with cutting means adapted to slit a sheet of metal into a plurality of relatively short slits, of movable expanding means adapted to engage said sheet in said slits and acting to expand the sheet laterally.

54. The combination with cutting means and forming means adapted to slit and form a sheet of metal of movable expanding means adapted to engage the sheet in said slits and acting to expand the sheet laterally.

55. In a machine of the class described, movable expanding means adapted to engage a slit sheet of metal in the slits and acting to expand the sheet laterally.

56. The combination with cutting-rolls adapted to provide relatively short slits in a sheet of metal, of oppositely-movable expanding means adapted to engage said sheet in said slits and expand the same laterally.

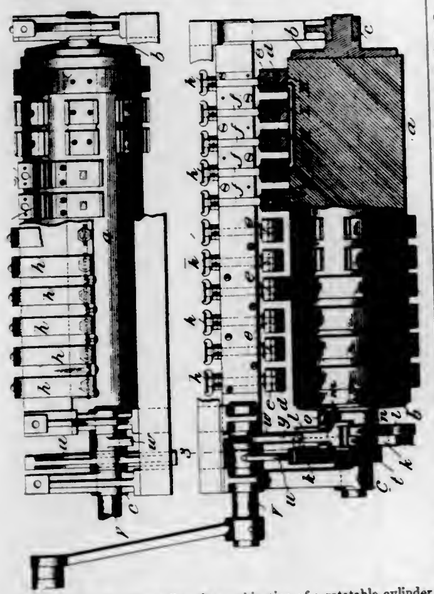
57. The combination with cutting means adapted to slit a sheet of metal in relatively short slits, of movable oppositely-acting expanding means embracing adjustable pins adapted to engage the sheet in said slits and progressively expand the same laterally.

58. In a machine of the class described, the combination with cutting means adapted to slit a sheet of metal into a plurality of short slits, of movable expanding means embracing pins adapted to engage the sheet in said slits on each ride of a median line and acting at approximately a right angle with the edges of the sheet.

664,194. METHOD OF VEINING OR MARBLING ARTIFICIAL STONE. HEINRICH E. G. UHLIG, Hamburg, Germany, assignor to the Marmorit Gesellschaft, Gesellschaft mit Beschränkter Haftung, same place. Filed May 13, 1898. Serial No. 680,627. (No specimens.)

Claim.—The process, which consists in applying a surface coat of coloring-matter to a smooth or polished surface, forcibly spattering onto the coated surface a more or less fluid artificial-stone compound, and building up the block or slab by addition of artificial-stone compound or mortar, substantially as set forth.

664,195. CONTROLLER-SWITCH. NOBLE VANCE, Chicago, Ill., assignor to the Hewitt Lindstrom Motor Company, same place. Filed July 23, 1900. Serial No. 24,571. (No model.)



Claim.—1. In a controller, the combination of a rotatable cylinder, a series of contacts thereon arranged in succession along the length of the cylinder, a series of contact-shoes one for and opposite each contact on the cylinder, the sliding bolts movable radially relatively to the cylinder carrying said contact-shoes, the springs for pressing said contacts toward the cylinders, the binding-posts beside the bolts and the electrical connections between the shoes and the posts, substantially as described and for the purpose set forth.

2. In a controller, the combination of a rotatable cylinder, a series of contacts thereon, a series of bolts opposite the contacts of the cylinder, and springs for pressing said bolts inward, insulated blocks on the inner ends of said bolts, the contact-shoes carried by said blocks, the binding-posts, and flexible electrical conductors connecting said binding-posts to said shoes, substantially as described.

3. In a controller, the combination of a rotatable cylinder, a series of circumferentially-arranged contacts thereon, a series of non-rotatable bolts opposite the contacts of the cylinder, and springs for pressing said bolts inward; with insulated blocks on the inner ends of said bolts, contact-shoes carried by said blocks, binding-posts beside the bolts, and flexible electrical conductors connecting said binding-posts to said shoes, substantially as described.

4. In a controller or switch, the combination of a rotatable cylinder, and a pair of disks loosely mounted on one end of the cylinder having oppositely-disposed cam-teeth; a device adapted to engage the teeth of and lock said disks, and means for partially rotating either disk so as to cause said device to release the other disk, substantially as described.

5. In an electric controller, the combination of the rotatable cylinder, the series of contacts thereon and the series of cooperating contacts arranged on the frame; with a pair of disks loosely mounted on one end of the cylinder having oppositely-disposed cam-teeth, a spring-pressed arm carrying a roller or dog adapted to engage the teeth of and lock said disks, and means for partially rotating either disk so as to cause said arm to release the other disk, substantially as described.

6. In an electric controller, the combination of a rotatable cylinder, a pair of disks loosely mounted on one end of the cylinder having oppositely-disposed cam-teeth, means for locking said disks, and means for partially rotating either disk so as to cause said device to release the other disk; with a spring connection between said disks whereby the locked disk is thrown forward when the movable disk causes the locking device to release it, substantially as described and for the purpose set forth.

7. In an electric controller, the combination of the rotatable cylinder, the series of contacts thereon, and the series of cooperating contacts arranged on the frame; with a pair of disks loosely mounted on one end of the cylinder having oppositely-disposed cam-teeth, a spring-pressed arm carrying a roller or dog adapted to lock said disks, means for partially rotating either disk so as to cause said arm to release the other disk; and the spring connection between said disks whereby the locked disk is thrown forward when the movable disk forces the arm to release it.

8. In a controller, the combination of a rotatable cylinder, a pair of disks mounted on one end of the cylinder and having a partial rotary movement thereon, said disks having reversely-disposed cam teeth or projections on their peripheries, a spring connection between said disk whereby one is caused to follow up the other, a spring-pressed lever carrying a roller or dog adapted to engage both disks and normally lock the cylinder, and means for positively rotating one disk and thereby tensioning the spring connection between the disks and simultaneously causing the cam projection on the positively-actuated disk to disengage the roller or dog from the other disk, whereupon the spring causes the quick partial rotation of the cylinder, for the purpose and substantially as described.

9. In a controller, the combination of the rotatable cylinder, the pair of disks mounted on the end thereof so as to be capable of partial independent rotation thereon, said disks having oppositely-projecting cam-teeth, a spring connection between said disks whereby one is caused to follow up the other, a pinion loosely mounted beside the disks having a pin projecting through slots in the disks whereby said pinion is caused to positively actuate one disk before operating the other, a device adapted to normally lock the disks, and means for rotating the pinion whereby one disk is positively turned, thereby tensioning the connecting-spring and simultaneously forcing the locking device out of engagement with the idle disk, whereupon the spring connection turns the idle disk the distance of one tooth thereby imparting a sudden corresponding partial rotation to the cylinder, substantially as and for the purpose described.

10. In a controller, the combination of the rotatable cylinder, a pair of disks mounted on the end thereof so as to be capable of partial independent rotation thereon, said disks having oppositely-projecting cam-teeth, a spring connection between said disks whereby one disk is caused to follow up the other, and a spring-pressed lever beside the disks carrying a roller or dog on its inner end adapted to engage the cam projections of the disks and normally lock the cylinder; with a pinion beside the disks having a pin projecting through slots in both disks, and means for rotating the pinion whereby one disk is positively turned, thereby tensioning the connecting-spring and simultaneously forcing the roller or dog out of engagement with the idle disk whereupon the spring connection turns the idle disk the distance of one tooth thereby imparting a sudden corresponding partial rotation to the cylinder, all substantially as and for the purpose described.

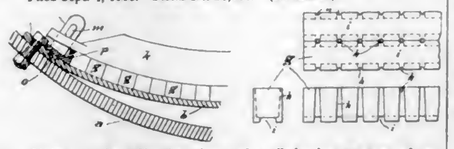
11. In a controller, the combination of a rotatable cylinder, a series of contacts thereon, and a series of contact-shoes opposite the contacts of the cylinder and movable radially relatively thereto; with a pair of disks loosely mounted on the ends of the cylinder having oppositely-disposed cam-teeth, a device adapted to lock said disks, and means for partially rotating either disk so as to cause said device to release the other disk.

12. In a controller or switch, the combination of a rotatable cylinder, a series of circumferentially-arranged contacts thereon, and a series of contacts opposite the contacts of the cylinder and movable radially relatively to the cylinder; with a pair of disks loosely mounted on the ends of the cylinder having oppositely-disposed cam-teeth, the spring-pressed arm carrying a roller or dog adapted to engage the teeth of and lock said disk, and means for partially rotating either disk so as to cause said arm to release the other disk, for the purpose and substantially as described.

13. In a controller, the combination of a rotatable cylinder, a series of contacts thereon, a series of bolts opposite the contacts of the cylinder, the springs for pressing said bolts inward, the contact-shoes carried by said bolts, the binding-posts, and the flexible electrical conductors connecting said binding-posts to said brushes or shoes; with a pair of cam-disks mounted on one end of the cylinder, said disks having reversely-disposed cam teeth or projections on their peripheries, a spring connection between said disks whereby one is caused to follow up the other, a device adapted to engage both disks and normally lock the cylinder, and means for positively rotating one disk, thereby tensioning the spring connection between the disks and simultaneously causing the cam projection on the positively-actuated disk to disengage the locking device from the other disk, substantially as described.

14. In a controller, the combination of a rotatable cylinder, a series of circumferentially-arranged contacts thereon, a series of bolts opposite the contacts of the cylinder, the springs for pressing said bolts inward, the contact-shoes carried by said bolts, the binding-posts and the flexible electrical conductors connecting said binding-posts to said shoes; with a pair of disks mounted on one end of the cylinder and having a partial rotary movement thereon, said disks having reversely-disposed cam teeth or projections on their peripheries, a spring connection between said disks whereby one is caused to follow up the other, a spring-pressed lever carrying a roller or dog adapted to engage both disks and normally lock the cylinder, and means for positively rotating one disk and thereby tensioning the spring connection between the disks and simultaneously causing a cam projection on the positively-actuated disk to disengage the roller or dog from the other disk, for the purpose and substantially as described.

664,196. FILTER-BED. JAMES C. WALLACE, Colorado City, Colo. Filed Sept. 1, 1900. Serial No. 28,761. (No model.)



Claim.—1. In a filter barrel or tank, a tile having two rows of vertical semicircular holes along its two opposite vertical surfaces and connecting with a drain area, channel, or cavity recessed in the lower surface of said tile; substantially as shown.

2. In a filter-barrel, a filter-bed consisting of a series of metal plates having drain slots or perforations therethrough, a series of perforated tiles arranged as a filtering medium upon and supported by said metal plates, a series of metal binding-strips imposed upon or against said tiles; together with suitable means for fastening or confining the same together and to the inner wall of a filter barrel or tank; substantially as described and shown.

664,197. UMBRELLA-STICK. DAVID H. WATTS, Philadelphia, Pa. Filed Nov. 18, 1899. Serial No. 737,507. (No model.)



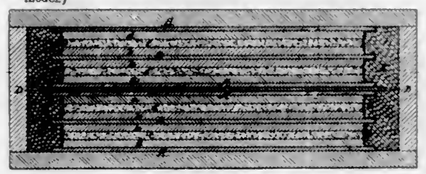
Claim.—1. The combination of an umbrella-stick having fingers at its end, said fingers being bent to form a notch to which ribs are pivoted, and having their ends extended beyond the notch, with a tubular tip constructed to fit over and to confine the said ends of the fingers, substantially as described.

2. The combination of an umbrella-stick having fingers at its end which are bent to form a notch for the reception of the ends of ribs, said fingers having their ends extending beyond the notch, a tip fitting over the ends of said fingers and a core in the tip and in the stick supporting the fingers, substantially as described.

3. The combination of a hollow stick, having fingers at the end bent to form an umbrella-notch, a core extending into the stick and beyond the ends of the fingers, an annular groove therein, ribs having offset ends constructed to enter said groove and a tip adapted to the core and extending over the ends of the fingers, substantially as described.

4. The combination in an umbrella, of a stick slit at the end to form fingers, each of said fingers being bent at a point where they join the stick to form a closed notch and having their ends projecting beyond said notch and adapted to receive and be held in place by a tip, substantially as described.

664,198. SECONDARY BATTERY. FRANK W. WETHERILL, Philadelphia, Pa., assignor of three-fourths to William S. Kirk and W. Stokes Kirk, same place. Filed Feb. 4, 1899. Serial No. 704,593. (No model.)



Claim.—1. The combination in a battery, of a series of metallic elements suitably spaced and connected together by a non-conducting substance, such as asphalt, each metallic element having a coating of coal-tar at the junction where it is bound to the asphalt, substantially as described.

2. The combination in a battery, of a battery-plate, a non-conducting material enveloping the edges of said plate, and coal-tar on the edges of said plate, said tar having been baked thereon and forming an acid-proof joint between said plate edges and the non-conducting envelop, substantially as described.

3. The combination of a series of lead plates forming alternate positive and negative plates, litharge and red lead mounted between the said plates and separated by a layer of granulated carbon, each plate having its edges coated with coal-tar and a non-conducting material binding the several elements together, substantially as described.

4. The combination of a battery made up of a series of cells, each cell containing negative and positive lead plates, with litharge and red lead mounted between the plates and separated from each other by a layer of charcoal, a division-plate of asbestos coated with coal-tar and mounted between two of the said plates and insulating one from the other, substantially as described.

5. The combination in a storage battery, of a series of negative and positive plates suitably spaced, the space between the plates being filled with a layer of litharge in contact with each of the negative-pole plates, and a layer of red lead on each side of the positive-pole plates, a layer of charcoal separating the red lead and the litharge, a partition-plate saturated with a non-conductor and extending beyond the negative-pole plates, with a non-conductor binding the several elements together and forming non-conducting ends for the battery, substantially as described.

6. The combination in a secondary battery, of a series of lead plates having between them litharge, charcoal and red lead, a strip of non-conducting material surrounding the litharge, red lead and charcoal and extending from one plate to the other and non-conducting material back of the strip, substantially as described.

7. The combination in a secondary battery, of a series of lead plates with litharge, charcoal and red lead between the plates arranged substantially as described, with a porous fabric between the charcoal, litharge and red lead, substantially as described.

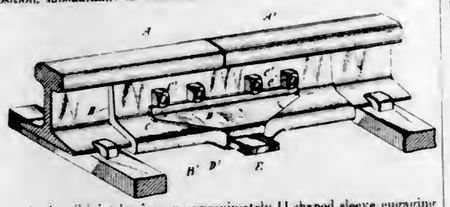
8. The combination in a storage battery, of a series of lead plates, litharge, red lead and granulated charcoal between the plates, strips of non-conducting fabric mounted between the plates at the edges of the charcoal, red lead and litharge and extending over the top of the battery, with non-conducting material in the space surrounding the plates and above the plates, and an opening at the top for the liquid, substantially as described.

664,199. RAIL-JOINT. SILAS E. WHARTON, South Bend, Ind., assignor of one-half to James E. Staley and Samuel M. Robinson, same place. Filed Mar. 27, 1900. Serial No. 10,384. (No model.)

Claim.—1. A rail-joint having a sleeve engaging the bases and webs of the ends of adjacent rails, bolts extending through the sides of the sleeve and through the rail-webs, and a nut-lock bar for engaging the sides of the bolt-nuts, the said bar having an extension adapted to extend along the under side of the base of the rails, the said extension passing through the sleeve, substantially as described.

2. A rail-joint having a sleeve engaging the bases and webs of the

ends of adjacent rails, bolts for fastening the rails to the sleeve, a nut-lock bar extending on one side of the sleeve for engaging the bolt-nuts, the lower end of the bar being formed with an extension passing through the lower part of the sleeve and extending along the under side of the base of the rails at their adjacent ends, and means for holding the lock-bar in position, substantially as described.

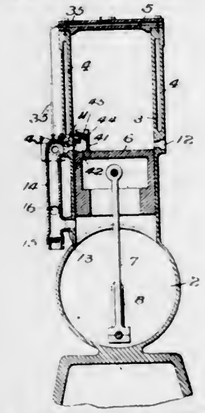


3. A rail-joint having an approximately U-shaped sleeve engaging the bases and webs of the ends of adjacent rails, bolts extending through the sides of the sleeve and through the rail-webs, to fasten the parts together, and a nut-lock bar for engaging the sides of the bolt-nuts and holding the latter from turning, the bar having a transverse extension engaging a socket in the bottom of the sleeve, as set forth.

4. A rail-joint having an approximately U-shaped sleeve engaging the bases and webs of the ends of adjacent rails, bolts extending through the sides of the sleeve and through the rail-webs, to fasten the parts together, a nut-lock bar for engaging the sides of the bolt-nuts and holding the latter from turning, the bar having a transverse extension engaging a socket in the bottom of the sleeve, and a key adapted to be driven into said socket against said extension, to hold the lock-bar in place, as set forth.

5. A rail-joint having an approximately U-shaped sleeve engaging the bases and webs of the ends of adjacent rails, bolts extending through the sides of the sleeve and through the rail-webs, to fasten the parts together, and a nut-lock bar for engaging the sides of the bolt-nuts and holding the latter from turning, the bar having a transverse extension engaging a socket in the bottom of the sleeve, the end of the bar being formed with an offset for holding said bar against transverse movement in said socket, as set forth.

664,200. GASOLENE-ENGINE. CLARENCE O. WHITE, Minneapolis, Minn., assignor of one-half to Edward J. Kimball, same place. Filed Feb. 11, 1898. Serial No. 669,913. (No model.)



Claim.—1. In a gasolene-engine, the combination, of the cylinder, with the closed base, said cylinder provided with inlet and outlet ports, and said base provided with an inlet-opening, the independent duct connecting said opening with the inlet-port of the cylinder, an automatic air-valve provided in said duct, a controlling-valve also provided therein, a suction-vaporizer discharging into said duct between the cylinder and the controlling-valve and an automatic valve preventing the entrance of gas or vapor to the cylinder until the dead gases have been exhausted therefrom, substantially as described.

2. In a gasolene-engine, the combination, with the cylinder, and base, of a gasolene-engine, said cylinder provided with an inlet-port, of a free duct connecting said base with said inlet-port, a controlling governing-valve interposed between the base and said port, and an air-inlet valve provided in said duct beyond the opening therefrom into the said base, and means for supplying oil or vapor to said duct between said controlling-valve and said inlet-port by the suction created in the engine-base, substantially as described.

3. In a gasolene-engine, the combination, of the cylinder and base, said cylinder provided with an inlet-port, of a duct connecting said base with said inlet-port, a controlling-valve interposed between the base and said port, and an air-inlet valve provided in said duct beyond the opening therefrom into the said base, and means for supplying oil or vapor to said duct between said controlling-valve and said inlet-port by the suction created in said base, and the baffles or screens provided in said duct, as and for the purpose specified.

4. In a gasolene-engine, the combination, with the cylinder provided with the inlet and exhaust ports, of the base and the piston, with the duct 14 connecting the base and said inlet-port, the suction-vaporizer connected with the upper part of said duct, the automatic valve 32′ in connection therewith, a controlling-valve in said duct between said inlet-port and the base, and the air-inlet valve 15 provided in said duct 14 beyond the opening therefrom into said base, substantially as described.

5. In a gasolene-engine, the combination, of the cylinder, with the piston, said cylinder provided with inlet and outlet ports or openings, the vaporizer or mixer connected with said inlet-port, and said piston provided with an automatic valve to control the entrance of gas through said inlet-port in the cylinder, substantially as described.

6. In a gasolene-engine, the combination, with the piston, of the cylinder provided with inlet and outlet ports or openings, and said piston provided with a cavity having an opening adapted to register with said inlet-port, and an automatic valve controlling the escape of vapor or gas from said cavity, substantially as described.

7. In a gasolene-engine, the combination, of the cylinder provided with substantially opposite inlet and outlet ports, with the piston which acts as the controlling-valve for the inlet and outlet ports and is provided with an automatic valve for preventing the entrance of the fresh charge until the dead gases have been exhausted, substantially as described.

8. In a gasolene-engine, the combination, of the cylinder provided with substantially opposite inlet and outlet ports, with the piston which acts as the controlling-valve for the inlet and outlet ports and is provided with the structure 41, having a cavity and an opening adapted to register with the inlet-port, said cavity having an outlet-opening, and the valve normally closing said outlet-opening, substantially as described.

9. In a gasolene-engine, the combination, of the cylinder provided with substantially opposite inlet and outlet ports, with the piston that acts as the controlling-valve for said inlet and outlet ports, the side valve provided upon said piston for preventing the entrance of the charge until the dead gases have been exhausted, substantially as described.

10. In a gasolene-engine, the combination, of the cylinder, with the closed base, the piston operating in said cylinder and adapted to compress air admitted to said closed base, an inlet-valve for said base, said cylinder provided with inlet and exhaust ports, an independent duct connecting said base with the inlet-port of said cylinder, and a suction-vaporizer having a back check-valve and connected with said independent duct and wherefrom oil is drawn into said duct by suction created in said base, substantially as described.

11. In a gasolene-engine, the combination, of the cylinder, with the closed base, the piston, the crank-shaft and connecting-rod, an air-inlet valve for said base, said cylinder provided with inlet and exhaust ports, a duct connecting said inlet-port with said base, a controlling-valve in said duct, a suction-vaporizer connected with said duct, and said piston having a cavity adapted to register with said inlet-port and provided with an automatic valve, substantially as described.

12. In a gasolene-engine, the combination, with the cylinder and closed base having respectively the ports 11 and 13, of the duct 14 connecting the ports of said cylinder and base, a suction-vaporizer communicating with said duct, a controlling-valve provided in said duct and comprising the head 25 having the face 28 and a disk 27 adapted to be moved toward or from said face to close or open the passage through said duct, and an air-inlet valve provided in said duct beyond the port leading to said base, substantially as described.

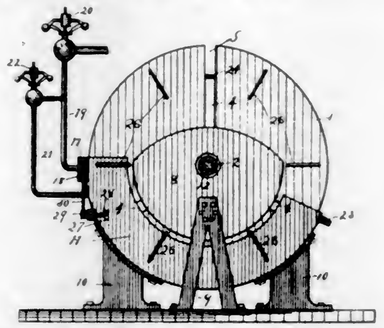
13. The combination, with the duct 14 connecting the ports of the cylinder and base and having an air-inlet valve 15, of a controlling-valve provided in said duct between the ports leading to said cylinder and said base, said valve comprising a cylinder 24, a head 25 having a face 28 provided in one end of said cylinder, and a disk 27 adapted to slide in the opposite end of said cylinder, and having a stem 29 to permit said disk to be moved toward or from said face 28, substantially as described.

14. In a gasolene-engine, the combination, with a cylinder having an inlet-port, of a closed base also having a port or opening, a duct 14 connecting the ports of said cylinder and base, a controlling-valve provided in said duct between said ports, an air-inlet valve provided in said duct beyond the port leading to said base, a suction-vaporizer communicating with said duct near the port leading to said cylinder, said vaporizer comprising a reservoir 31, the ducts 32 and 33 communicating therewith and with the duct 14, and the gravity-valve 32′ provided over the outlet of said duct 32 and adapted to be closed by pressure from within said duct 14, substantially as described.

15. In a gasolene-engine, the combination, with the cylinder having an inlet-port and its closed base also provided with a port, of a duct 14 connecting the ports of said cylinder and base, a controlling-valve provided in said duct between the ports of said cylinder and base, an air-inlet valve provided in said duct beyond the port leading to said base, and a suction-vaporizer communicating with said duct near said cylinder-port, and adapted to supply oil or vapor to said duct through the suction created in said base, substantially as described.

16. In a gasolene-engine, the combination, with the cylinder having an inlet-port 11, of a closed base having a port or opening 13, the duct 14 connecting said parts, the gravity air-valve 15 provided in said duct below or beyond said port 13 in the base, means for closing and opening said port 11, and the suction-vaporizer comprising the overflow-reservoir, a throttle-valve and a siphon-duct leading into said duct 14 and provided with a back check-valve, whereby gasolene is drawn into said duct 14 only when said cylinder-port 11 is closed, substantially as described.

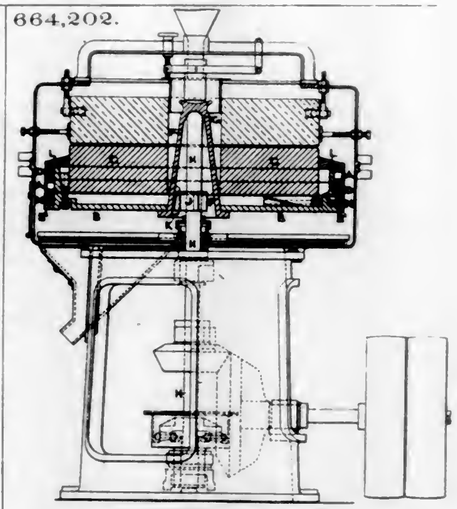
664,201. ROTARY ENGINE. GEORGE W. WHITEHEAD, Montezuma, Iowa, assignor of one-half to William A. Cochran, same place. Filed Sept. 17, 1900. Serial No. 30,297. (No model.)



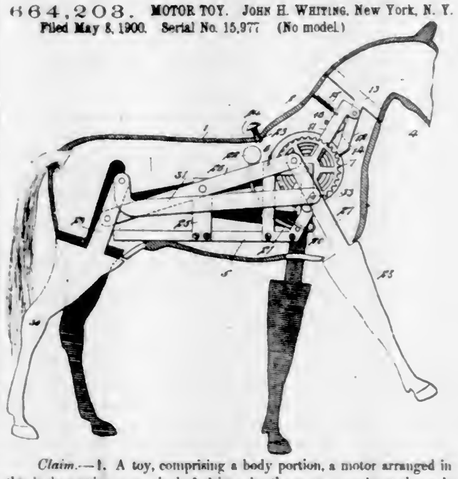
Claim.—1. In a rotary engine, the combination with a piston and steam-chamber, inlet and exhaust ports, of a cut-off valve connected with the inlet-valve and steam-supply pipe, and a supplemental supply-pipe connecting the steam-supply pipe above the said cut-off valve with the steam-chamber, whereby additional steam is furnished the engine if needed independent of the cut-off valve, substantially as set forth.

2. In a rotary engine, the combination with a flanged piston having radially-sliding gates provided with antifrictional rollers working in cam-grooves formed in plates secured to uprights on each side of the said piston, of a semicircular steam-chamber embracing the flanged portion of the piston having a steam-back portion closing one end and projecting between the said flanges, a steam-port in the said steam-back, an automatic cut-off valve connected therewith, and a supplemental supply-pipe connecting the main pipe with the steam-chamber and means connected with the said pipe whereby additional steam is automatically furnished the engine if required, substantially as set forth.

664,202.



664,203. MOTOR TOY. JOHN H. WHITING, New York, N. Y. Filed May 8, 1900. Serial No. 15,977. (No model.)



a crank-shaft operated by the motor and having the cranks of its opposite ends extended in opposite directions, front legs having connection with said cranks, rock-levers mounted in the body portion and having pivotal connection at the forward ends with upward extensions of the forward legs, hind legs with which the rear ends of said rock-levers engage, links connecting at their forward ends with the front legs, the cranks forming the pivots therefor, the said links at their rear ends connecting with upward extensions of the hind legs, and means carried by the toy for winding the spring of the motor, substantially as specified.

664,204. MUSIC-LEAF TURNER. CHARLES M. WOOD, Slate Hill, and WILLIAM J. BLAIR and JOHN A. WEBSTER, New York, N. Y.; said Blair and Webster assignors to said Wood. Filed Dec. 30, 1899. Serial No. 742,047. (No model.)



Claim.—1. In a music-leaf turner the combination of a rack, means for holding a sheet of music upon the front thereof, disks journaled upon the front of the rack, arms attached to the disks with fingers for grasping the leaves of the sheet, bars or arms pivoted upon the back of the rack for engaging the disks, keys in front of the rack for operating the bars the striking of which disengages the arms from the disks, and springs for reciprocating the disks after they are so disengaged from the arms, substantially as shown and described.

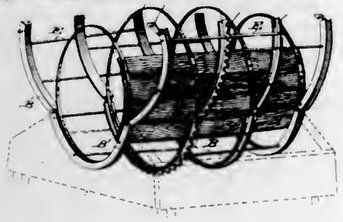
2. In a music-leaf turner the combination of a rack, means for holding a sheet of music upon the front thereof, disks journaled upon the front of the rack having arms with fingers for grasping the leaves of music and grooves in their peripheries for engaging detents upon arms upon the back of the rack, said arms pivoted upon the back of the rack having detents for engaging said grooves and stems projecting forward through perforations in the rack and terminating in keys the striking of which disengages the detents from the grooves, and springs for reciprocating the disks when so disengaged, substantially as shown and described.

3. In a music-leaf turner the combination of a rack, means for holding a sheet of music upon the front thereof, a lug-plate secured upon the front of the rack, disks journaled upon a journal-pin between the lugs of said plate each having an arm for grasping a leaf of the sheet secured thereto and a receptacle in it for receiving a coiled spring, said springs one end of each of which is secured to its disk and the other end of which enters a groove in the journal-pin for reciprocating the disk, and arms pivoted upon the back of the rack for engaging the disks having stems projecting through the rack and terminating upon the front thereof in keys the striking of which disengages the arms from the disks, substantially as shown and described.

4. In a music-leaf turner the combination of the rack, means for holding a sheet of music on the front thereof, disks journaled upon the front of the rack having arms for grasping the leaves of the sheet and grooves in their peripheries, coiled springs in the disks for reciprocating them, arms pivoted at one end to the back of the rack having detents for engaging the grooves in the disks and swiveled at the other end to rods, said rods projecting forward through the rack and terminating in keys, and coiled springs upon the rods between the keys and the rack for keeping the detents upon the arms in contact with the disks, substantially as shown and described.

5. In a music-leaf turner the combination of the rack having a ledge at the lower end for supporting sheets of music and an upward extension with a central groove, a metal strip hinged to the edge of the groove having a backwardly-extending thumb-piece, a spring pressing against the under side of the thumb-piece to hold the strip down on a sheet of music inserted beneath it, horizontally-reciprocating arms for grasping the leaves of music, springs for reciprocating the arms, means for locking the arms, and keys the striking of which releases the arms, substantially as shown and described.

664,205. BARREL-MACHINE. JOHN S. WRIGHT, Jr., Churchland, Va. Filed Jan. 16, 1900. Serial No. 1,639. (No model.)



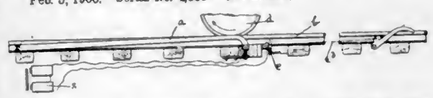
Claim.—In a barrel-making machine, a form comprising end rims, U-shaped in cross-section, intermediate rims formed with perpendicular annular flanges, and connecting-rods passed through the base or horizontal portion of the end rims and through the annular flanges of the intermediate rims, said rods being alternately arranged substantially as shown and described.

664,206. CONFECTIONER'S PAN. IGNAZIO ALLEGRETTI, Chicago, Ill. Filed Oct. 18, 1897. Serial No. 655,506. (No model.)



Claim.—The combination with a confectioner's pan having an open top and a beaded rim, of a ring of less diameter than the top of the pan to be used as a scraper for the hands, provided with a plurality of arms formed of spring metal permanently secured to said ring in position to extend radially therefrom to the adjacent rim of the pan, each arm terminating in a spring-catch adapted to engage the rim of the pan, whereby the ring is detachably but securely supported within and above the mouth of the pan, substantially as described.

664,207. RAILWAY SIGNALING DEVICE. REUBEN B. BENJAMIN, Chicago, Ill., assignor of one-half to Rodney B. Swift, same place. Filed Feb. 5, 1900. Serial No. 4,085. (No model.)



Claim.—1. The combination with a railway-track, of an electric generator having a movable part adapted to be reciprocated relatively to the stationary part, means operated by the passage of a car for moving said movable part in one direction, a catch or lock for holding said movable part in the position to which the same is thus moved, a trip device at another portion of the track adapted to be operated by the passage of the train to release said catch or lock and permit the return of said movable part, and a suitable signaling device adapted to be actuated by the current from said generator, substantially as described.

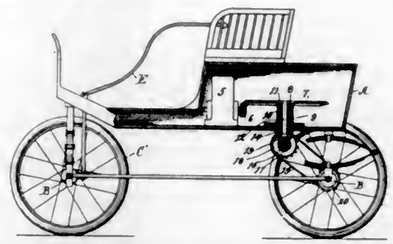
2. The combination with a railway-track, of an electric generator having a movable part adapted to be reciprocated relatively to the stationary part, means operated by the passage of a car for moving the movable element of said generator in one direction, a spring or equivalent device in which energy is adapted to be stored by said movement, a catch or lock adapted to hold said movable part in the position to which the same is thus moved, a trip device at another portion of the track adapted to be operated by the passage of the car for releasing said lock to permit said spring or equivalent device to return the movable part of the generator, and a signaling device adapted to be actuated by the current from said generator, substantially as described.

3. The combination with a railway-track, of an electric generator having a movable part adapted to be reciprocated relatively to the stationary part, a lever adapted to be engaged by the wheels of a passing car to move said movable part of the generator in one direction, a catch or lock for holding said movable part in the position to which the same is thus moved, a trip device at another portion of the track adapted to be engaged by the wheels of the passing car to release said catch or lock to permit the return of said movable part and a signaling device adapted to be actuated by the current from said generator, substantially as described.

4. The combination with a railway-track, of an armature-winding situated in a stationary position, and a signaling device connected in circuit therewith, a permanent magnet adapted to partake of a reciprocating movement relatively to said winding, means actuated by the passage of a car for moving said magnet in one direction, a catch or lock for holding the same in the new position and a trip device at another portion of the track adapted to be engaged by the passing car to release said catch or lock to permit the return of said magnet, substantially as described.

5. In a railway signaling device, the combination, with the magnet *m* and armature *k*, of the bar *a*, imparting a relative movement of translation to said magnets and armature, the spring *a'*, for returning said bar when released, the catch *e*, for controlling the motion of said bar, the trip *c*, for actuating said catch, and the signaling device *s*, substantially as described.

664,208. MOTOR-VEHICLE. HENRY B. BERENDSEN, Milwaukee, Wis. Filed Jan. 22, 1900. Serial No. 2,268. (No model.)



Claim.—1. In combination in a vehicle, an inclosing body or box, a motor in and inclosed by the box, a horizontal motor-shaft provided with a pinion, a large horizontally-disposed wheel meshing with the pinion on the motor-shaft and provided with a vertical shaft, an upright pedestal journal-box supported in and with the large wheel inclosed by the box, the large horizontally-disposed wheel and its shaft being supported rotatably on the top of the pedestal journal-box, a pinion on the lower extremity of the vertical shaft below the pedestal journal-box, a horizontal shaft parallel with the traction-wheels, axle provided with a pinion meshing with the pinion on the vertical shaft, sprocket-wheels on the last-enumerated horizontal shaft, an axle with traction-wheels thereon, and sprocket-chains running on wheels rigid to the traction-wheels and on the sprocket-wheels on the horizontal shaft.

2. In a vehicle, the combination with a frame provided with traction-wheels and a motor mounted on the frame and having a horizontally-disposed rapidly-rotating shaft, of a large wheel in horizontal position geared to a small pinion on the horizontal shaft of the motor, a vertical shaft fixed in the large wheel, a pedestal journal-box fixed on the frame, ball-bearings in the journal-box between it and the hub of the large wheel and between it and the shaft at a distance from the hub of the wheel, another shaft parallel with the driven axle provided with a pinion gearing with the pinion on the vertical shaft of the large wheel and having a sprocket wheel or wheels thereon, and a sprocket chain or chains running on this shaft and on wheels on the axle of the traction-wheels.

3. In combination in a vehicle, an inclosing body or box, a motor in and inclosed by the box, a horizontal motor-shaft provided with a pinion, a large horizontally-disposed wheel meshing with the pinion on the motor-shaft and provided with a vertical shaft, an upright pedestal and journal-box supported in and with the large wheel inclosed by the box, the large horizontally-disposed wheel and its shaft being supported rotatably on the top of the pedestal journal-box, bearing-balls in ways therefor at the top of the pedestal journal-box adapted to support the large wheel and its vertical shaft both vertically and laterally, other bearing-balls in ways therefor at the base of the pedestal journal-box at a distance from the first-enumerated bearing-balls adapted to bear against the vertical shaft laterally and hold it to vertical position rotatably, a pinion on the lower extremity of the vertical shaft below the pedestal journal-box, a horizontal shaft parallel with the traction-wheels' axle provided with a pinion meshing with the pinion on the vertical shaft, sprocket-wheels on the last-enumerated horizontal shaft, an axle with traction-wheels thereon, and sprocket-chains running on wheels rigid to the traction-wheels and on the sprocket-wheels on the horizontal shaft.

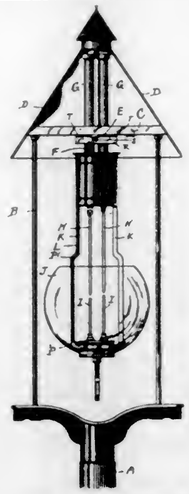
664,209. ELECTRIC-ARC LAMP. JAMES A. BRENNAN, Worcester, Mass. Filed Sept. 11, 1897. Serial No. 651,392. (No model.)

Claim.—1. In an electric-arc lamp, the combination with the lamp-tubes and hanger-board, of a plate adjustably attached to the lamp-tubes and bearing against the hanger-board, whereby the lamp is held from swaying, substantially as described.

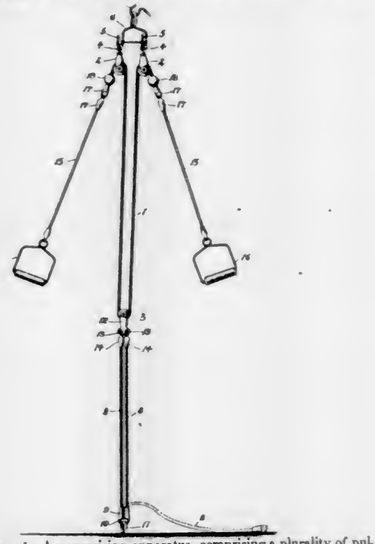
2. In an electric-arc lamp, the combination with the lamp-tubes and a hanger-board, of a plate adjustably attached to said tubes and held parallel with the hanger-board and yielding blocks interposed between said plate and said hanger-board and in contact therewith, substantially as described.

3. In an electric-arc lamp, the combination with the rod-tubes and hanger-board, of a locking-plate, means for adjustably attaching said locking-plate to the rod-tubes of the lamp, whereby it is held in a position parallel with the hanger-board, yielding cushions interposed between said locking-plate and said hanger-board and means for supporting the lamp from said hanger-board, substantially as described.

664,209.



664,210. EXERCISING APPARATUS. WILLIAM J. BRYON, Jr., New York, N. Y. Filed Mar. 28, 1900. Serial No. 10,474. (No model.)



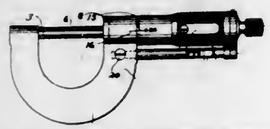
Claim.—1. An exercising apparatus, comprising a plurality of pulleys adapted for attachment to a suitable support or supports, and an operating-cord passing over said pulleys and having handles at its opposite ends, the said cord being formed with a central elastic portion of sufficient length to pass and operate over the pulleys and a non-elastic portion at each end thereof between the handle and the adjacent pulley, for the purpose set forth.

2. An exercising apparatus, comprising a pair of pulleys adapted for attachment to a suitable support, a third or intermediate pulley, an operating-cord passing over said pulleys and having handles at its opposite ends, the said cord being formed with a central elastic portion of sufficient length to pass and operate over the pulleys and a non-elastic portion at each end thereof between the handle and the adjacent pulley, and a plurality of elastics adapted for connection at one end with a suitable support and at their opposite end connected with said third or intermediate pulley, one of said elastics being detachable from its connection, for the purpose set forth.

3. An exercising apparatus, comprising a pair of pulleys adapted for attachment to a suitable support, a third or intermediate pulley, an elastic operating-cord of sufficient length to pass and operate over said

pulleys, and means having connection with said third or intermediate pulley for regulating the tension of said elastic operating-cord.

664,211. MICROMETER-GAGE. EDWARD C. CLAPP, Athol, Mass. Filed Mar. 10, 1900. Serial No. 8,110. (No model.)



Claim.—1. A micrometer-gage comprising a supporting-barrel, a spindle and a screw-threaded member both movable in said barrel, a complemental screw-threaded member separate from and fixed within the barrel, said members being tubular and surrounding the spindle, and means for detachably securing the spindle to the said screw-threaded movable member.

2. A micrometer-gage comprising a supporting-barrel, a spindle and a screw-threaded member both movable in said barrel, a complemental screw-threaded member separate from and fixed to the barrel, said members being tubular and surrounding the spindle, and means for detachably securing the spindle to the said screw-threaded movable member, said means having provisions for adjusting the spindle lengthwise to compensate for wear.

3. A micrometer-gage comprising a supporting-barrel, a tubular externally-threaded micrometer-screw affixed thereto, a spindle movable lengthwise in said tubular screw and having a short screw-thread on its rear portion, a split or compressible locking-nut engaged with said screw-thread and having an external thread, a micrometer-nut engaged at one end with the fixed micrometer-screw and at the other end with the external thread of the locking-nut, and a tubular shell connected to the exterior of the micrometer-nut and projecting over the latter and movable over the barrel.

4. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a shell held from longitudinal movement with respect to the frame but free to rotate, and a spline connection between said shell and the movable screw-threaded member.

5. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a shell held from longitudinal movement with respect to the frame but free to rotate, a spline connection between said shell and the movable screw-threaded member, and an index member held from rotation with respect to the frame and attached to and movable longitudinally with the movable screw-threaded member and spindle.

6. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a shell held from longitudinal movement with respect to the frame but free to rotate, a spline connection between said shell and the movable screw-threaded member, a tubular arm fixed to the supporting-frame, and an index-rod movable within said arm and held thereby from rotation with respect to the frame, said rod being attached to and movable longitudinally with the movable screw-threaded member and spindle.

7. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, an arm fixed to the supporting-frame and having a collar, a shell held between said collar and the frame and free to rotate, and a spline connection between said shell and the movable screw-threaded member.

8. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a tubular arm fixed to the supporting-frame and having a collar, a shell held between said collar and the frame and free to rotate, a spline connection between said shell and the movable screw-threaded member, and an index-rod movable within said arm and held thereby from rotation with respect to the frame, said rod being attached to and movable longitudinally with the said movable screw-threaded member and spindle.

9. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a shell held from longitudinal movement with respect to the frame but free to rotate, a spline connection between said shell and the movable screw-threaded member, a tubular arm fixed to the supporting-frame, and a graduated index-rod movable within said arm and held thereby from rotation, said arm having an aperture through which to read the graduations on the index-rod, said rod being attached to and movable longitudinally with the movable screw-threaded member and spindle.

10. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, an arm removably attached to the supporting-frame and having a collar, a shell held between said collar and the frame and free to rotate, means for adjusting said arm to vary the frictional bearing of said collar on the shell, and a spline connection between said shell and the movable screw-threaded member.

11. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle, a shell held from longitudinal movement with respect to the frame but free to rotate, a spline connection between said shell and the movable screw-threaded member, an index-rod held from rotation with respect to the frame and having a collar loosely surrounding and held from longitudinal movement with respect to the movable screw-threaded member.

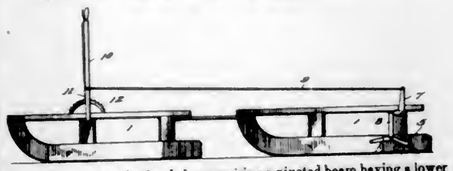
12. A micrometer-gage comprising a supporting-frame, a spindle, a screw-threaded member fixed to the frame, a complemental movable screw-threaded member fixed to the spindle and having an external longitudinal groove, a shell held from longitudinal movement with respect to the frame but free to rotate, and a spline having a stem screwed to the outside of said shell and a head projecting into said groove.

664,212. GARMENT-FASTENING DEVICE. JOHN P. COOPER, Providence, R. I. Filed July 9, 1900. Serial No. 23,003. (No model.)



Claim.—In a device of the nature described, formed of a single piece of wire, the combination with the central concavo-convex part *b* and the bent-over, pointed part *a*, of the doubled and compressed portion *c'* and the diagonally-extending concavo-convex latch *c²*, whereby articles may be secured together, as described.

664,213. BRAKE. HARRISON A. DENNEY, Reardan, Wash. Filed Apr. 13, 1900. Serial No. 12,770. (No model.)



Claim.—A brake for sleds comprising a pivoted beam having a lower cutting edge, a shoe detachably secured to the free end thereof, a sharpened lower edge to the shoe, a bell-crank lever, a link connection between said lever and beam, an operating-lever, a rod connecting said lever and the bell-crank lever, and means for locking the operating-lever at a desired inclination.

664,214. CORSET. MINNIE A. S. GOLDEN, New York, N. Y. Filed Apr. 23, 1900. Serial No. 13,843. (No model.)



Claim.—1. An improved corset of the class described, comprising a body portion consisting of a back the top part of which is stayed transversely or horizontally and the lower part of which is stayed vertically or at right angles to said top part, flexible extensions or flaps projecting laterally from the side edges of said back and forming a bust portion and provided with breast-pockets, said side extensions comprising shoulder-straps and forming armholes, means for connecting the front edges of said side extensions or flaps, and an abdominal band or belt extending from the side edges of the lower portion of the back and adapted to project across the abdomen, substantially as and for the purpose set forth.

2. An improved corset of the class described, comprising a body consisting of a back portion which is stayed transversely or horizontally at its upper part and stayed in its lower part vertically or at right angles to its upper part, said back carrying flexible flaps or extensions adapted to project across the bust.

3. An improved corset of the class described, comprising a sideless back portion adapted in its area to cover the shoulder and lower portion of the back, a flexible bust portion connected with the side edges of the back portion and embodying shoulder-straps, and a flexible supplemental abdominal band or strap projecting from the side edges of the lower portion of the back and arranged to extend across the abdomen, the top portion of the back portion being stayed transversely and the lower part of the back portion being stayed longitudinally at right angles to the staying of said top portion, whereby the back portion is maintained in predetermined rigidity and between the bust portion and the abdominal band the corset is enturely open at the sides and front, substantially as and for the purpose set forth.

664,215. SLED. ROBERT E. HICKSON, Moro, Oreg. Filed Apr. 19, 1900. Serial No. 13,529. (No model.)

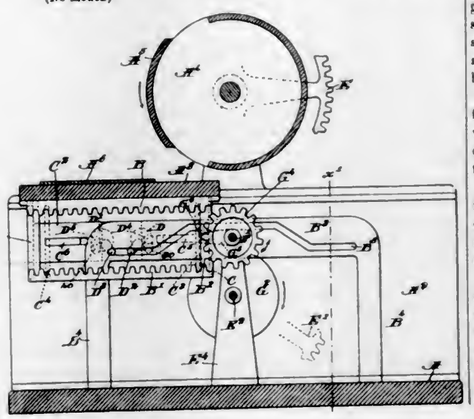


Claim.—1. As a new article of manufacture, the herein-described sled having the following rigidly-connected relatively-immovable members, to wit: a single continuous longitudinal central runner, and side steering-runners of a less length than the central runner arranged upon opposite sides and adjacent to the rear end of the central runner, and of less depth than said runner, whereby the lower edges of said steering-runners are arranged in a plane beyond which the lower edge of the central runner projects, and whereby the lateral tilting of the sled on the lower edge of said central runner is necessary to bring the lower edge of either steering-runner into a common horizontal plane with the lower edge of the central runner, to cause a lateral and rearward drag on the central runner.

2. As a new article of manufacture, the herein-described sled consisting of the following rigidly-connected relatively-immovable elements, to wit: a seat-board, a longitudinal central runner, and steering-runners, shorter than the central runner, arranged upon opposite sides and adjacent to the rear end of the same, the lower edges of the steering-runners being spaced at a less distance from the plane of the seat-board than that of the central runner.

3. As a new article of manufacture, the herein-described sled comprising the following rigidly-connected relatively-immovable members, to wit: a central longitudinal runner, transverse strips supported centrally by said runner, side steering-runners supported by and secured to the extremities of said strips, at equal distances from and upon opposite sides of the plane of the central runner near its rear end, and having their lower edges arranged at a less distance from the plane of the strips than the lower edge of the central runner, and a seat-board supported by said strips.

664,216. BED-MOTION FOR PRINTING-PRESSES. WILLIS K. HODGMAN, Taunton, Mass. Filed Nov. 16, 1897. Serial No. 658,768. (No model.)



Claim.—1. The combination with a moving bed provided with a guideway at one end thereof, of a revolving reversing-crank, means for moving the crank-pin into and out of the path of said guideway, and means to compensate for the differential movement of the crank-pin and bed when traveling in the same direction, and while the former is in the path of the guideway, substantially as described.

2. The combination with a moving bed provided with a guideway at one end thereof, of a revolving reversing-crank, means for moving the crank-pin into and out of the path of said guideway, means to compensate for the differential movement of the crank-pin and bed when traveling in the same direction, and a controlling device for said compensating means, governed by the movement of the bed, substantially as described.

3. The combination with a reciprocating bed provided with a guideway at opposite ends thereof, of a revolving reversing-crank, means for moving the crank-pin into and out of the path of said guideways alternately, and means to compensate for the differential movement of the crank-pin and bed when traveling in the same direction, and while the former is in the path of the guideway, substantially as described.

4. The combination with a moving bed provided with a fixed shoe and a sliding shoe at one end thereof, to form a guideway, of a revolving reversing-crank, means to move the crank-pin laterally into and out of the path of the guideway, and means to move the sliding shoe toward or from the fixed shoe, to vary the width of the guideway, and thereby compensate for the differential movement of the crank-pin and bed when traveling in the same direction.

5. In a bed-motion for a printing-press, a reciprocating bed provided with two racks, a driving-gear adapted to alternately mesh with said racks and to be entirely disengaged therefrom during the reversing period, a fixed and a relatively-movable shoe carried by said bed, a revolving reversing-crank, means to move said crank-pin into or out of the path of said shoes, between them, during complete disengagement of said gear and racks, and means to move the movable shoe toward or from the fixed shoe when the crank-pin and bed are traveling at different speeds, to thereby compensate for such differential movement, substantially as described.

6. The combination with the bed of a printing-press, provided with a guideway at one end thereof, of reciprocating mechanism for the bed, a revolving reversing-crank separate from said reciprocating mechanism, and having a pin arranged to move into and out of said guideway to effect reversal of movement of the bed, and means to compensate for the differential movement of the crank-pin and bed when the former is in the guideway and traveling in the same direction as the bed, substantially as described.

7. The combination with a moving bed provided at one end with a fixed and a relatively-movable shoe, to form a guideway, of a revolving reversing crank-pin, means to move the crank-pin into and out of the guideway, and means to actuate the said movable shoe at substantially the speed of the crank-pin during the period of differential movement of the crank-pin and bed, while traveling in the same direction, substantially as described.

8. The combination with a moving bed provided at one end with a guideway, of a revolving reversing crank-pin arranged to enter the guideway and retard and stop the movement of the bed in one direction and start and accelerate it in the opposite direction, and means to vary the width of the guideway at the entrance and departure of the crank-pin, while the bed and crank-pin are moving in the same direction at different speeds, substantially as described.

9. The combination with a moving bed provided at one end with a guideway, of means to reciprocate the bed, revolving reversing crank-pin separate from said means and arranged to enter the guideway and retard and stop the movement of the bed in one direction and start and accelerate it in the opposite direction, and a common driving-shaft for the said bed-reciprocating means and the crank-pin, substantially as described.

10. The combination with a bed, of reciprocating mechanism therefor, revolving crank-pin separate from said mechanism to control and reverse the movement of the bed at each end of its stroke, and a common driving-shaft for said reciprocating mechanism and crank-pin, substantially as described

11. The combination with a bed, of reciprocating mechanism therefor, separate reversing mechanism to control and reverse the movement of the bed at each end of its stroke, and a common driving-shaft for said reciprocating mechanism and reversing mechanism, substantially as described.

12. In a bed-reversing mechanism for a printing-press, a fixed shoe and a sliding shoe carried by the bed and means for moving said sliding shoe toward and away from the fixed shoe at certain times, a rotatable crank with crank-pin and means for moving said crank-pin into and out of the path of the said shoes, substantially as shown for the purpose specified.

13. In a bed-reversing mechanism for a printing-press, a fixed shoe and a sliding shoe carried by the bed and means for moving said sliding

shoe toward and away from the fixed shoe at certain times, a laterally-movable rotatable crank with crank-pin and means for moving said crank laterally so as to bring the said crank-pin into and out of the path of the said shoes, substantially as shown for the purpose specified.

14. In a bed-movement for a printing-press, a bed with two parallel racks attached, a gear to alternately mesh with said racks, a fixed shoe and a sliding shoe carried by the bed, means for moving said sliding shoe toward and from the said fixed shoe at certain times, a rotatable crank with crank-pin, means for moving said crank-pin into and out of the path of the said shoes, substantially as described.

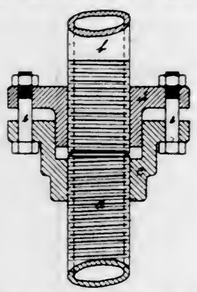
15. In a bed-movement for a printing-press, a bed with two parallel racks attached, a gear to alternately mesh with said racks, a fixed shoe and a sliding shoe carried by the bed, means for moving said sliding shoe toward and from the said fixed shoe at certain times, a laterally-movable rotatable crank with crank-pin, means for moving said crank so as to bring the said crank-pin into and out of the path of the said shoes, substantially as described.

664,217. SUSPENSION-HOOK. GUS A. JENCKE, CHARLES A. HOMRIG, and EUGENE M. BLAINE, Chicago, Ill. Filed May 11, 1900. Serial No. 16,345. (No model.)



Claim.—A suspending-hook consisting of a single-piece flat tapered metal strip having arms struck up from the sides thereof and bent to approach each other to form clamps, the upper narrow end of the strip being bent into a hook and the wide lower end being bent obliquely outward and formed with an aperture, substantially as described.

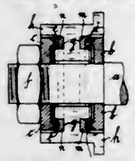
664,218. PIPE-COUPLING. FRITZ KAEFERLE, Hanover, Germany. Filed Aug. 3, 1900. Serial No. 25,774. (No model.)



Claim.—1. A new and useful pipe-coupling having the adjacent ends of the pipes to be connected provided with right and left handed threads, rings adapted to engage said threaded pipe ends and one another and adapted when in such a position to be revolved together in a predetermined direction for the purpose of drawing the said ends firmly together, substantially as described.

2. A new and useful pipe-coupling having the ends of the pipes to be connected provided the one with a right-handed the other with a left-handed thread, a ring adapted to engage the said pipe with right-handed thread, an annular flange on said ring, a second ring adapted to engage the remaining pipe end and provided with a prolonged body portion adapted to enter within said flange, one of said pipe ends being beveled and adapted when the ends are brought together by revolving the said rings together to firmly enter the end of said other pipe, substantially as described.

664,219. COMMUTATOR. FRITZ KAEFERLE, Hanover, Germany. Filed Sept. 15, 1900. Serial No. 30,149. (No model.)

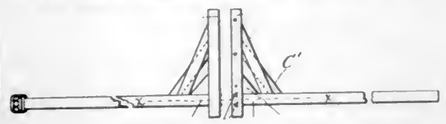


Claim.—1. In a commutator for electric machines the combination of an axle, disks mounted thereon and provided with projections on their inner faces, a body portion provided with annular grooves, rings adapted to enter said grooves, other rings adapted to lie between said first rings and said disk projections, and single means for tightening the said parts and retaining them in their proper position upon said axle, substantially as described.

2. In a commutator for electric machines the combination of a body portion provided with annular grooves, rings adapted to enter the same a second set of rings engaging respectively each of said first rings and provided with V-shaped annular slots, disks provided with projections and means for tightening said parts together and rigidly retaining them in position upon an engaging axle, substantially as described.

3. A new and improved commutator for electric machines, dynamos, &c., having a body portion provided with annular grooves, a ring angularly U-shaped in cross-section adapted to enter said grooves, a second ring snugly fitting in said first ring and provided on its opposite face with an annular V-shaped slot, a disk provided with a projection adapted to enter said slot and single means for tightening and rigidly holding the said parts together and upon a supporting-axle, said parts being combined substantially as described.

664,220. ATTACHABLE DEVICE FOR CORSETS. SOPHIA KERNWEIN, Chicago, Ill. Filed Oct. 15, 1900. Serial No. 33,112. (No model.)



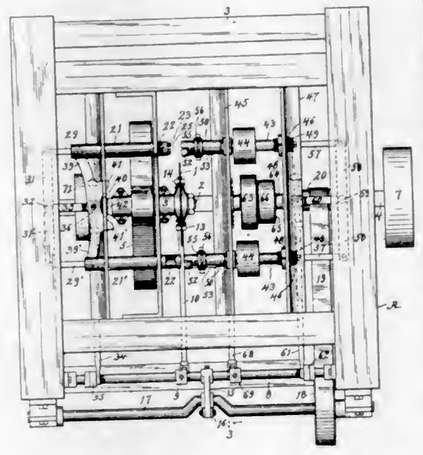
Claim.—1. An attachable device for corsets, comprising a couple of separable sections, and constructed with a pair of vertical middle straps or bands, one for each of said separable sections; an adjustable, combined tension and restraining belt or band having its front ends secured to the lower end portions of the vertical middle straps or bands; and a couple of sets of inclined, combined tension and restraining stay-straps connecting the vertical middle straps or bands at points along the latter with the front portions of the said adjustable belt or band at points along the same; the vertical middle straps or bands being adapted for ready application and attachment to the meeting front edge portions of a corset, and the adjustable belt or band which is attached to the lower end portions of such vertical middle straps or bands and indirectly connected with upper portions of said middle straps or bands by the combined tension and restraining stay straps or bands, being adjustable in length and free to pass around the person of the user below the corset, substantially as and for the purpose set forth.

2. An attachable device for corsets, comprising a couple of separable sections, and constructed with a pair of vertical middle straps or bands, one for each of said separable sections; an adjustable, combined tension and restraining belt or band having its front ends secured to the lower end portions of the vertical middle straps or bands; and a couple of sets of inclined, combined tension and restraining stay-straps connecting the vertical middle straps or bands at points along the latter with the front portions of the said adjustable belt or band at points along the same, said inclined tension and restraining straps being arranged at different degrees of inclination; the vertical middle straps or bands being adapted for ready application and attachment to the meeting front edge portions of a corset, and the adjustable belt or band which is attached to the lower end portions of such vertical middle straps or bands and indirectly connected with the upper portions of said middle straps or bands by the combined tension and restraining stay straps or bands, being adjustable in length and free to pass around the person of the user below the corset, substantially as and for the purpose set forth.

3. An attachable device for corsets, comprising a couple of separable sections, and constructed with a pair of vertical middle straps or bands, one for each of said separable sections and each formed with a couple of leaves or folds; an adjustable, combined tension and restraining belt or band having its front ends secured to the lower end portions of the vertical middle straps or bands; a couple of sets of inclined, combined tension and restraining stay-straps connecting the vertical middle straps or bands at points along the latter with the front portions of the said adjustable belt or band at points along the same; a separable fastening device applied to the lower end portions of the separable middle straps or bands adjacent to the connections between such middle straps and the forward ends of the adjustable, combined tension and restraining belt or band; the vertical middle straps or bands being provided with openings for the projecting fastening devices or the meeting front edge portions of the corset, and the adjustable belt or band which is attached to the lower end portions of such vertical middle straps or bands and indirectly connected with upper portions of said middle straps or bands by the combined tension and restraining stay straps or bands, being adjustable in length and free to pass around the person of the user below the corset, substantially as and for the purpose set forth.

4. The combination with a corset, of an attachable device comprising a pair of separable sections respectively attached to the meeting front edge portions of the corset, but otherwise free from the latter; said attachable device being constructed with a couple of vertical middle straps or bands applied and attached to the meeting front edge portions of the corset and extending substantially from or adjacent to the waist-line of the corset to the lower end thereof; a combined tension and restraining belt or band provided with suitable means for adjusting it in length and having its front ends secured to the lower end portions of the middle straps or bands; and a couple of sets of inclined, combined tension and restraining straps or bands having their upper ends secured to the vertical middle straps at points along the latter, and having their lower ends secured to the front portions of the combined adjustable tension and restraining belt or band; the said combined adjustable tension and restraining belt or band being free to pass around the person of the wearer below the corset, and said belt or band together with the inclined, tension and restraining straps being free from the corset to permit their tensional adjustment independent of the corset, substantially as and for the purpose set forth.

664,221. SHELL-BLANK-CUTTING MACHINE. EDWARD I. KIDD and GOTTLIEB C. WURSTER, Prairie du Chien, Wis. Filed Feb. 2, 1900. Serial No. 3,660. (No model.)



Claim.—1. In combination, rotatable tubular or hollowed chucks in sets opposite each other axially, the chucks together being adapted to receive therein to clamp upon and hold a blank between them and to rotate it therewith, a cutting-tool, and means for bringing that part of the rotating blank between the sets of chucks and the cutting-tool into contact with each other.

2. In combination, a tubular chuck member, a plunger-chuck having a rotatable head in the tubular member, a complementary chuck member having means adapted to grip a shell-blank, means for rotating the blank-gripping chuck member, a cutting-tool, and means adapted to bring the blank in the chucks and the cutting-tool into contact with each other.

3. In combination, a tubular chuck member provided with a side aperture for receiving a blank, a plunger-chuck reciprocable in the tubular member, the plunger-chuck being provided with a rotatable head having means for engaging a blank, means for reciprocating the plunger-chuck, a complementary chuck member provided with a swinging jaw adapted to grip a blank in the chuck member and hold it up to the revoluble head of the adjacent chuck member, means for rotating the gripping chuck member, a cutting-tool, and means to bring a blank held in the set of chucks and the cutting-tool into contact with each other.

4. In combination, a chuck provided with a revoluble head having blank-receiving conformation, a complementary chuck comprising a revoluble shaft, a tubular terminal projecting sleeve axially opposite the other chuck, a segmental jaw provided with a stem pivoted in and forming a part of the wall of the sleeve, a spring adapted to close the jaw, and a ring slidable on the sleeve adapted to open the jaw against the action of the spring and to close and lock the jaw closed.

5. In combination, a reciprocable tubular chuck member, a reciprocable plunger-chuck mounted in the tubular member and provided with a revoluble head, an opposite complementary chuck member provided with means for gripping a blank and with means for rotating the member, and means for adjusting the gripping chuck member endwise toward and from the plunger-chuck and its tube.

6. In combination with a cutting-tool presenting oppositely-disposed cutting edges and means for shifting the cutting-tool laterally in the direction of its plane, of two sets of rotatable chucks severally located at opposite sides of the cutting-tool, each set of chucks comprising two tubular or hollowed chuck members axially opposite each other adapted to receive therein and hold cylindrical blanks between them, and means for clamping the members of each set of chucks upon the blank and holding it to rotation therewith, the cutting-tool being disposed to engage respectively with and sever the blanks between the members of the sets of chucks.

7. In combination, an endwise-slidable tubular chuck member, an arm 39 pivoted to the tubular member and to a relatively non-movable support, a cam on the arm, a complementary boss or bearing, and means for causing the boss and cam to contact movably forcibly thereby sliding the tubular member.

8. In combination, two endwise-slidable tubular chuck members at a distance apart, rigidly-connected arms 39 39' pivoted respectively to and connecting the slidable tubular members, said arms being pivoted medially on a relatively non-movable support, cams on the arms one at each side of the pivot, a boss or bearing adapted by the movement relatively of the boss or cams to be brought into movable contact, and means for bringing the boss into contact with the cams alternately.

9. In combination, a reciprocable plunger-chuck, a rock-shaft, a radial arm thereon connected to the plunger-chuck, a crank-arm on the rock-shaft, a rod connected to the crank-arm, and means for shifting the connecting-rod and the rock-shaft relatively whereby the plunger-chuck is reciprocated.

10. In combination, a plurality of reciprocable plunger-chucks at a distance apart, a rock-shaft, radial arms on the rock-shaft connected respectively to the plunger-chucks, a crank-arm on the rock-shaft, a rod connected yieldingly to the crank-arm, and means for shifting the connecting-rod and the rock-shaft relatively whereby the plunger-chucks are reciprocated.

11. A yielding connection between a crank-arm and a connecting rod, comprising, the crank-arm provided with furcate members, the connecting-rod, a sleeve loose on the rod, pins in the furcate members of the crank-arm pivoting them to the sleeve, and springs coiled about the rod at both ends of the sleeve and between the sleeve and collars on the rod.

12. In combination, a rotatable chuck member provided with a friction-wheel, a shaft provided with a friction-wheel adjacent to and opposite the friction-wheel on the chuck member, means for rotating the shaft, and means for bringing the two wheels into frictional contact.

13. In combination, a terminal sleeve chuck member provided with a jaw having a stem pivoted in the sleeve member, a clutch-ring slidable on the sleeve member and adapted to open and to close the jaw, a rock-shaft 59 provided with a radial arm, means connecting the radial arm to the slidable clutch-ring, another rock-shaft 8, a rod connecting crank-arms on the two rock-shafts, and means for oscillating the last-enumerated rock-shaft.

14. In combination, two revoluble chuck members each provided with a gripping-jaw, slidable clutches adapted to control the jaws, a rock-shaft 59 provided with oppositely-extending radial arms connected to the slidable clutch-rings, another rock-shaft 8, a rod connecting crank-arms on the two rock-shafts, a driven cranked shaft 17, and a rod connecting a crank-arm on the last-enumerated rock-shaft to the crank of the cranked shaft.

15. In combination, two rotatable chuck members having gripping devices, means for opening one gripping device and closing the other gripping device concurrently, two opposite complementary tubular chuck members slidable endwise toward and from the gripping chuck members, and means adapted to slide one of said tubular chuck members toward a gripping chuck member just before the jaw of the gripping member closes and to withdraw the other tubular chuck member from the complementary gripping chuck member concurrently.

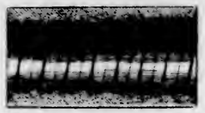
16. In combination, two rotatable chuck members having gripping devices, means for opening one of the gripping devices and closing the other gripping device concurrently, two opposite complementary tubular chuck members slidable endwise toward and from the gripping chuck members, means adapted to slide a tubular chuck member toward a gripping chuck member just before the jaw of the gripping member closes and to withdraw it from the gripping chuck member directly after the jaw closes, slidable chuck members with rotatable heads in the tubular chuck members, and means connected to and adapted to push the slidable chuck members severally forward and withdraw them concurrently with the closing and opening of the jaws in the complementary chuck members.

664,222. COVER OR SHADE FOR INCANDESCENT LAMPS. WILLIAM R. KRUMWIEDE, Providence, R. I. Filed Mar. 1, 1900. Serial No. 6,919. (No model.)



Claim.—In a lamp-shade, a series of annular metal settings B perforated to receive the rings c c, the lenses B secured in the metal settings, the rings *d* connecting the settings together to form the shade, the hooks *c' c'* each secured to one of the settings, and the spring-band D, whereby a flexible readily attachable and removable shade is secured by which the illuminating effect of the incandescent light may be changed, as described.

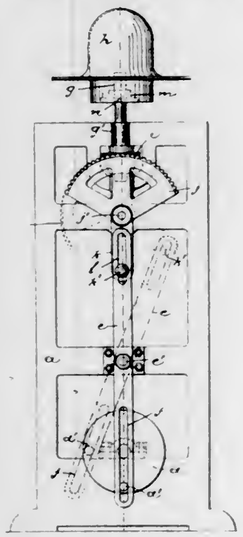
664,223. PHONOGRAPH-RECORD. THOMAS B. LAMBERT, Chicago, Ill. Filed Mar. 3, 1900. Serial No. 7,191. (No model.)



Claim.—1. As a new article of manufacture, an impression-record having its body portion formed of coarse material and its impression-surface formed of similar material of a finer and more homogeneous quality, substantially as described.

2. As a new article of manufacture, an impression-record having its body portion formed of coarse material and its impression-surface formed of similar material of a finer and more homogeneous quality integral therewith, substantially as described.

664,224. HAT-POUNCING MACHINE. WILLIAM H. LYONS, Orange, N. J. Filed May 3, 1900. Serial No. 15,295. (No model.)



Claim.—1. The combination with the rotary hat-block shaft and gear-wheel thereon, of a cooperating gear member engaging said gear-wheel, a pivoted lever having at one end a sliding connection with said cooperating gear member, and at the other end being slotted, and a power-shaft and crank having a crank-pin working in said slotted end of the lever, substantially as set forth.

2. The combination with the rotary shaft, of a pivoted segmental member geared to said shaft and having an oppositely-projecting arm, a power-shaft and crank thereon, and a power-transmitting lever pivoted between said segmental member and crank and having sliding connections at its opposite ends with the last-mentioned parts, substantially as set forth.

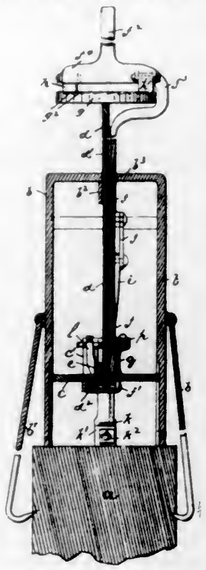
3. The combination with a power-shaft, and crank thereon having a crank-pin, of a lever pivoted intermediate of its ends upon a fixed fulcrum and having in one arm a closed slot receiving the crank-pin, whereby as the power-shaft rotates the lever is oscillated on its pivot, a shaft adapted to receive alternating motion, and means connecting said shaft to the other arm of the lever, substantially as set forth.

4. The combination with the power-shaft crank and crank-pin thereon, of a pivoted gear member and an intermediate pivoted lever, said shaft, gear member and lever all turning upon parallel axes, and one arm of said lever having a closed slot for the crank-pin and the other arm being slidably connected to the gear member, whereby continuous rotation of the power-shaft is converted into rotary oscillation of the gear member, and a shaft adapted to receive alternating motion and having a toothed portion engaged by said gear member, substantially as set forth.

5. The combination of a rotary shaft and a gear-wheel thereon, a cooperating gear member having a stud at a peripheral point, a power-shaft having a crank and crank-pin and a lever pivoted at a point intermediate of its ends and having near its ends closed slots, one of which receives the gear-stud and the other the crank-pin, substantially as set forth.

6. The combination of a pivoted gear-wheel segment, a power-shaft and a crank on said shaft, and a lever fulcrumed in a parallel plane with said wheel and crank, said lever having at one point of its length a closed slot receiving the crank-pin and at another point having a slot-and-pin connection with the gear-wheel segment, and a hat-block shaft geared to said segment, substantially as set forth.

664,225. MORTISING-MACHINE. ERNST F. MEYER, Waverly Park, N. J. Filed Oct. 8, 1900. Serial No. 32,366. (No model.)



Claim.—1. A mortise-machine having a frame, a plate sliding in said frame, oppositely-facing knives pivoted on said plate and adapted to cut longitudinally of the mortise, other knives supported on the plate and adapted to work transversely of the mortise with a drawing cut, and means for operating said knives, substantially as set forth.

2. In a mortise-machine, an oscillating operating-lever, oscillating arms in the same plane with said lever and linked thereto, and knives carried by said arms, other knives swinging in planes at right angles to the plane of said first-mentioned knives, and a rocking bar and levers transmitting motion from said operating-lever to said last-mentioned knives, substantially as set forth.

3. A mortise-machine having a frame, oppositely-inclined knives adapted to act on the bottom of the mortise from its middle toward each end, vertical knives adapted to be drawn transversely across the mortise at its ends, and an oscillating lever for operating said knives, substantially as set forth.

4. A mortise-machine having a frame, knives working longitudinally of the mortise to cut out its bottom, an oscillating lever operating said knives, other knives working in vertical transverse planes at the ends of the mortise, and means for drawing said last-mentioned knives back and forth in an edgewise direction, said means being actuated by the said oscillating lever, substantially as set forth.

5. A mortise-machine having a body-frame, a plate sliding vertically in said frame, an operating-lever fulcrumed on said plate and adapted to be oscillated at its upper end, holding-arms also fulcrumed on said plate and linked to said operating-lever, inclined knives carried by said arms, rods projecting from opposite sides of the said plate parallel to the plane of the said holding-arms, knives fulcrumed on said rods and forming handles at their upper ends and means connecting the operating-lever and said handles, substantially as set forth.

6. In a mortise-machine, the combination of a frame, a plate sliding vertically in said frame, an oscillating operating-lever fulcrumed on said plate, arms at the sides of said lever and linked thereto, knives carried by said arms and adapted to cut longitudinally of the mortise, other knives fulcrumed in planes transverse of the mortise and adapted to swing in said planes to give the blade a drawing cut, and means for imparting motion from the operating-lever to said transverse knives, substantially as set forth.

7. In a mortise-machine, the combination with a vertically-sliding plate, an operating-lever fulcrumed thereon and longitudinally-cutting knives operated by said lever, of cutting-off knives pivoted to swing in transverse planes and having handle-like upper ends, pivoted arms having forked ends to inclose said handles, a rocking bar centrally pivoted opposite the operating-lever and having at its edge adjacent to said lever a connection therewith by a projection and corresponding recess, the ends of said rocking bar being linked to the forked arms, substantially as set forth.

8. In a mortise-machine, the combination with an oscillating operating-lever and longitudinally-cutting knives, of knives having blades adapted to travel back and forth across the end of the mortise with a drawing cut, and means connecting said end knives with the operating-lever, substantially as set forth.

9. In a mortise-machine, the combination with an oscillating operating-lever and longitudinally-cutting knives connected thereto, of transversely-cutting knives pivoted to swing in a plane at right angles to the first-mentioned knives, a rocking bar centrally pivoted opposite the operating-lever and being at its edge connected thereto, whereby oscillation of the lever will rock said bar, arms pivoted in a horizontal plane and having one end connected to the transverse cutting-knives, and the other end to said rocking bar, substantially as set forth.

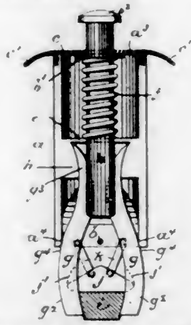
10. In a mortise-machine, the combination of a frame, a vertically-sliding plate, knives carried by said plate, and an operating-lever, a shaft having bearings in said frame and on the plate and adapted to rotate independently of the plate but impart its longitudinal motion thereto, a wheel fast on the end of said shaft and having pawl-teeth, the said operating-lever being bent horizontally above said wheel, and pawls on said operating-lever adapted to alternately engage the toothed wheel as the lever is oscillated, substantially as set forth.

11. In a mortise-machine, the combination of longitudinally-cutting knives, knives adapted to be drawn transversely across the mortise, a frame, a plate sliding vertically in said frame and carrying said knives, a feed-shaft having bearings in the frame and on the sliding plate and adapted to be rotated to slide the plate, and an oscillating lever adapted to simultaneously operate both sets of knives and the feed-shaft, substantially as set forth.

664,226. HORSESHOE-HOLDER. ERNST F. MEYER, Waverly Park, N. J. Filed July 21, 1900. Serial No. 24,392. (No model.)

Claim.—1. In a horseshoe-holder, the combination of a tubular body portion flattened at one end and exteriorly screw-threaded at the other and being in two halves, screws holding said halves together at the flattened end, a cap screwed upon the other end and centrally perforated, a plunger sliding in the body portion and normally held projecting through the cap by a spring, an exterior head on said plunger for the palm of the hand and lugs at the sides of the body portion for the fingers, jaws pivoted to the inner end of the plunger and protruding from the flattened end of the body portion, and inclines on the inside of the body portion engaging the inner ends of the jaws and adapted to move them together or apart as the plunger slides out or in, substantially as set forth.

2. In a horseshoe-holder, the combination of a tubular body portion flattened at one end and threaded at the opposite end, the said body portion being in halves on a plane parallel to the sides of the flattened portion, a plunger sliding in said body portion and held normally projecting from the threaded end of the body portion by a spring, a cap screwed onto said threaded end and providing finger-pieces at its opposite sides, jaws pivoted to the inner end of the plunger and projecting at the flattened end of the body portion, and projections on the inside of the body portion adapted to engage said jaws as the plunger slides and cause them to open or close, substantially as set forth.



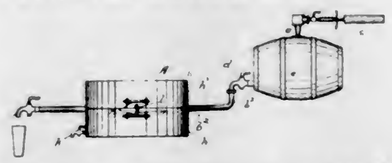
3. In a horseshoe-holder, the combination with a hollow body portion, a reciprocating plunger therein, and jaws projecting through the open end of the body and adapted to open and close as the plunger reciprocates, of a stop plate or rest arranged between the projecting portions of said jaws, links pivotally connecting said plate to the jaws at points nearer the body portion whereby as the jaws spread the plate moves relatively to said jaws toward the body portion, and means for guiding said movement of the plate in a straight line, substantially as set forth.

4. In a horseshoe-holder, the combination with the hollow body, a sliding plunger in said body, jaws pivoted to said plunger and projecting from one end of the body, and means for opening and closing said jaws as the plunger slides, of a stop-plate transversely disposed between the jaws and linked thereto, whereby when said jaws separate or come together the stop-plate moves longitudinally therebetween, said plate having projections sliding in recesses or grooves and serving to hold the plate in proper transverse position while it slides longitudinally, substantially as set forth.

5. The herein-described horseshoe-holder, comprising a hollow body portion formed of two halves, each having its one end beveled from the round side inward and its other end screw-threaded, the said halves being laid together and a screw passed through the said beveled ends, a cap screwed on the threaded end of the body portion and being centrally perforated, a spring-controlled plunger sliding in said body portion, and projecting through the cap, and jaws fulcrumed on the inner end of the plunger and projecting from the body portion and movable toward and from each other as the plunger reciprocates, substantially as set forth.

6. The combination with a horseshoe-holder having a hollow body portion, a reciprocating plunger in said body portion, and jaws projecting from said plunger through the open end of the body and adapted to automatically approach, or separate from, each other as the plunger reciprocates, of a stop plate or rest lying across the space between the jaws, and links each pivoted at one end to said plate and at the other end to a jaw, substantially as set forth.

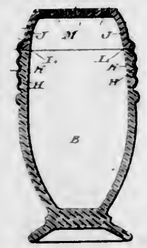
664,227. BEER-COOLER. ALEXANDER PLAWIN, Baltimore, Md. Filed Sept. 19, 1900. Serial No. 30,467. (No model.)



Claim.—A portable liquid or beer cooler, comprising a flat spiral cooling-tube of metal, one end of said tube extending from the innermost convolution of the coil outwardly underneath the latter and curving upwardly and then projecting outwardly on the outside of the coil, and the other end of said tube extending upwardly and outwardly from the outermost convolution of said coil; a dispensing-faucet secured to the last-named end of said coil; and a circular ice-box containing said coil and

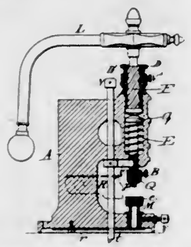
comprising an upper and a lower section hinged together at one side and each provided in their abutting edges with recesses containing packing which fits tightly around the projecting ends of the tube; and handles secured to the said two sections.

664,228. SALT-CELLAR OR FLOUR-DREDGE. JOHN PUTNAM, Philadelphia, Pa. Filed Apr. 28, 1899. Serial No. 714,823. (No model.)



Claim.—A cover for a salt-cellar or dredge formed of vitreous material with vertical perforations therein, an outwardly-projecting flange at the side thereof, and a screw-ring having an inturned rim which is fixed to said flange, the top of said cover being above said rim.

664,229. GLOVE-FASTENER-AFFIXING MACHINE. ACHILLE F. RAYMOND, Grenoble, France. Filed May 11, 1900. Serial No. 16,323. (No model.)

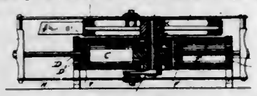


Claim.—1. A machine for the purpose specified, having a frame, a plunger mounted in a guide in said frame, a treadle, means connecting said treadle and plunger, a screw F, adapted to depress said plunger, a handle for operating said screw, a lower die, and an upper punch or die carried by the plunger.

2. In a machine for the purpose specified, the combination with a lower die, a depressible plunger or upper die-carrier, and a screw for depressing said plunger, of the adjustable limiting-collar comprising the two telescoping collars D and D', and the means for clamping them together when adjusted.

3. In a machine for the purpose specified, the combination with the reciprocating upper die or punch, of the lower die, comprising the tubular, stationary core *m*, fixed in position, the sleeve *c* mounted to slide thereon, the piston *p*, connected with said sleeve and sliding in the core *m*, and the spring *r*, under the piston *p*, substantially as set forth.

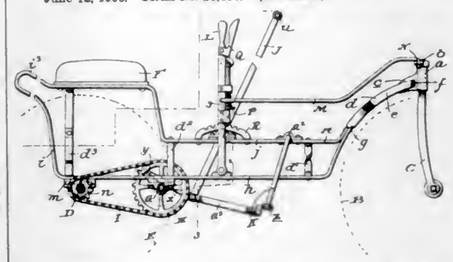
664,230. AIR-COMPRESSOR. HARRY M. SALYER, New York, N. Y. Filed Sept. 22, 1899. Serial No. 731,349. (No model.)



Claim.—1. In an air-compressor, the combination with a central block having an externally-threaded neck on each side, cylinders having their inner ends threaded and screwed on said necks, pistons in the cylinder piston-rods, a central shaft passing through the boss, means for rotating said central shaft, means for operating the piston-rods from the central shaft, a channel in the top of the central block, outlet-ports extending from said channel to the inner end of each cylinder, an outwardly-opening valve in each port, an inlet-port extending from the inner end of each cylinder to the outer air, an inwardly-opening valve in each inlet-port and means for conducting compressed air from the said channel, substantially as herein shown and described.

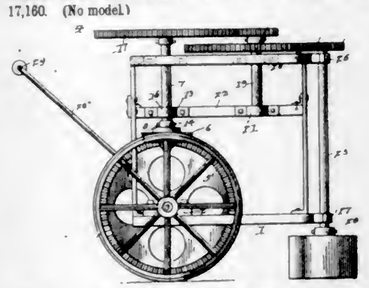
2. In an air-compressor, the combination with a central block, cylinders extending radially from said block and which block has a channel formed in its upper surface, a plate secured on the block for closing said channel, an outlet-port extending from the channel to the inner end of each cylinder, an outwardly-opening valve in each outlet-port, an inlet-port opening for each cylinder from the outer air, an inwardly-opening valve in each inlet-port, said ports being formed in the central block, a shaft passing through the central block, a piston in each cylinder, a piston-rod on each piston and means for reciprocating said piston from the central shaft, substantially as herein shown and described.

664,231. TRICYCLE. JOHN T. ANDREEN, Florence, Kans. Filed June 12, 1900. Serial No. 20,056. (No model.)



Claim.—In a tricycle, a frame comprising a head-tube, the strap *d* connected to the head-tube, and having the lower longitudinal portions *h*, the portions *i* extending upwardly from the rear ends of the portions *h* and thence forwardly and downwardly, and provided intermediate of their rear upright portions, and horizontal portions with loops i^3, and the upper longitudinal portions *j* connected at their forward ends to the main portions of the strap, and suitable braces interposed between the lower and upper horizontal portions of the strap, substantially as specified.

664,232. MACHINE FOR SMOOTHING AND POLISHING FLOORS. SAMUEL A. BISHOP, Smethport, Pa. Filed May 18, 1900. Serial No. 17,160. (No model.)



Claim.—1. A machine of the class described, comprising a frame, carrying-wheels, a rotary device arranged to engage a floor or other supporting-surface, gearing connecting the rotary device with the carrying-wheels, and a clutch connected with the gearing and adapted to permit the floor-engaging device to rotate while the carrying-wheels are stationary, substantially as and for the purpose described.

2. A machine of the class described comprising a supporting-frame, an axle journaled in suitable bearings at the back of the same, carrying-wheels fixed to the axle, the rear vertical shaft located above the axle, the vertical gear-wheel mounted on the axle, a horizontal pinion arranged at the lower end of the rear shaft and meshing with the vertical gear-wheel and having a clutch connection with the rear shaft, a vertical shaft arranged at the front of the frame and extending from the top to the bottom thereof and provided at its lower end with a grinding or polishing device, an intermediate vertical shaft located between the said shafts, and gearing arranged at the top of the frame and connecting the said shafts, substantially as described.

3. In a machine of the class described, the combination of the pinion provided with the grooves having inclined bottoms, the collar or member having sockets or recesses, balls arranged in the sockets or recesses and adapted to operate in the said grooves, means for connecting the pinion with the carrying-wheels, a shaft having the collar secured to it, and a grinding or polishing device connected by gearing with the shaft, substantially as described.

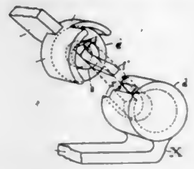
664,233. HAY-PRESS. EDWARD R. BRYANT, Ranger, Tex., assignor of one-half to James H. Harrison, same place. Filed Apr. 28, 1900. Serial No. 14,743. (No model.)



Claim.—1. In a baling-press, the combination with a press-box having its upper and lower walls extended in advance of the box and having a sweep disposed therebetween, braces disposed divergingly from the press-box and lying in a plane between the planes of the upper and lower walls of the box, a cross-piece connecting the braces, a pivot for the sweep mounted in the cross-piece and the extended upper wall of the box, a guideway carried by the sweep and having recesses, a plunger having a rod connected with the guideway and adapted to lie with its end in the recesses interchangeably, seats beyond the recesses adapted to initially receive the plunger-rod, and cam-faces at the inner sides of the braces for engagement by the plunger-rod to move it laterally from the seats to the recesses.

2. In a baling-press the combination with a press-box having its upper and lower walls extended in advance of the box and having a sweep disposed therebetween, pairs of braces at opposite sides of the press, the pairs of braces being disposed divergingly from the press-box and lying with a brace of each pair above and one below the sweep, a cross-piece connected between the braces of each pair, a pivot for the sweep mounted in the cross-piece and in the upper extended wall of the box, a guideway carried by the sweep and having recesses, a plunger having a rod connected with the guideway and adapted to lie with its end in the recesses interchangeably, seats beyond the recesses adapted to initially receive the plunger-rod, said braces having cam-faces at their inner sides, and friction-rollers mounted upon the plunger-rod and disposed for engagement with the cam-faces to move the rod laterally from the seats to the recesses.

664,234. DETACHABLE HINGE-COUPLING FOR VEHICLES. HAMLINE J. CHAMBERS, Council Bluffs, Iowa. Filed June 20, 1900. Serial No 21,027. (No model.)



Claim.—1. A hinged coupling consisting of a socket, suitably slotted in one side to receive a pivot, and a split or forked pivot engaging said socket; said socket and pivot having suitable projection and means for attachment substantially as described.

2. A binged coupling consisting of a socket enlarged at the bottom, and slotted in one side to receive a pivot and having a suitable projection for attachment; and a pivot split or forked and arranged to fit into and engage said socket substantially as described and for the purposes set forth.

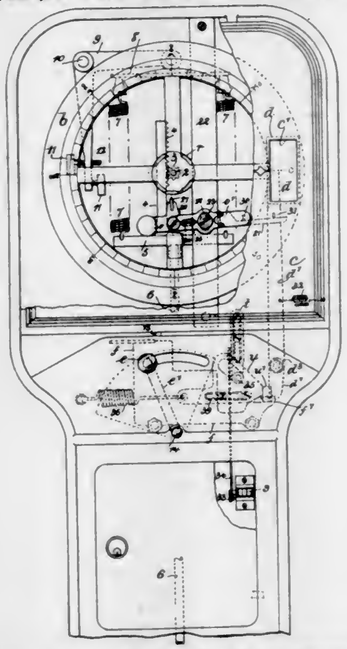
3. A hinged coupling consisting of a socket enlarged at the bottom thereof, and a pivot engaging said socket, each having a projection suitable for attachment; said socket slotted upon one side to receive said pivot; a portion of said pivot flattened and formed into two elastic forks fitting into said socket substantially as described and for the purposes set forth.

4. A hinged coupling consisting of a socket enlarged at the bottom thereof, and a pivot fitting therein, said socket and pivot having suitable projections for attachment; said socket having a slot on one side to receive said pivot; said pivot having slightly elastic forks, a flange and apron, all substantially as described and for the purposes set forth.

5. A binge-coupling consisting of a cylindrical-formed part with projection for attachment and a socket therein enlarged at the bottom thereof, a slot in the side to receive a pivot, and a pivot engaging said socket, a flange, a portion of said pivot split into an elastic fork, and apron covering and to cover said slots, substantially as described and for the purposes set forth.

6. A round or cylindrical part having a suitable projection for attachment, an inverted conical socket therein, a slot in the side thereof, said socket engaging a split pivot, having elastic forks fitting in said socket, and an apron engaging said round or cylindrical part, a flange or shoulder, and projection for attachment; forming a hinge-coupling, all substantially as described and for the purposes set forth.

664,235. COIN-CONTROLLED WEIGHING-MACHINE. EDGAR H. COOK, New York, N. Y., assignor to the Automatic Vending Company, same place. Filed Feb. 15, 1900. Serial No. 5,242. (No model.)



Claim.—1. In a coin-controlled weighing-machine, the combination with the weighing mechanism, and a case having a coin-slot, of a coin-receiving device comprising a reciprocating carriage, a handle and crank-arm for operating the same, a coin-carrier, means actuated by the reciprocating carriage for contacting with the coin and swinging the coin-carrier and means for preventing the return of the reciprocating carriage until the movement has been completed, and an adjustable pin acting as a stop in the coin-carrier for the coin, and pivoted stop-bars connected to the coin-receiving device for preventing the withdrawal of the coin, substantially as set forth.

2. In a coin-controlled weighing-machine, the combination with the weighing mechanism and a case having a coin-slot, of a coin-receiving mechanism comprising a frame having a ratchet and stop at one end, a reciprocating carriage having a curved slotted extension and moving

through the said frame, a crank-arm for moving the said carriage by hand, a coin-carrier and integral latch-lever pivoted to the reciprocating carriage, a stud and latch connected to the end of the latch-lever, a lever pivoted to the frame and at one end engaging the slotted extension of the reciprocating carriage and having means for contacting with the coin and pushing the same out of the coin-carrier, and a connection to the operated machine, whereby with the movement of the reciprocating carriage the coin-carrier is tilted and the latch brought into engagement with the ratchet and the stud into engagement with the connection to the operated machine, when the movement of the reciprocating carriage is completed, substantially as set forth.

3. In a coin-controlled weighing-machine, the combination with the weighing mechanism and a case having a coin-slot, of a coin-receiving mechanism comprising a frame having a ratchet and stop at one end, a reciprocating carriage having a curved slotted extension and moving through the said frame, a crank-arm for moving the said carriage by hand, a coin-carrier and integral latch-lever pivoted to the reciprocating carriage, a stud and latch connected to the end of the latch-lever, a lever pivoted to the frame and at one end engaging the slotted extension of the reciprocating carriage, said lever having a vertically-adjustable pin 18, and an adjacent inclined finger k' the point of the pin 18 contacting with the surface of the coin and the finger k' coming against the periphery of the coin, and a connection to the operated machine whereby with the movement of the reciprocating carriage, the coin-carrier is tilted and the latch brought into engagement with the ratchet and the stud into engagement with the connection to the operated machine when the movement of the reciprocating carriage is completed, substantially as set forth.

4. In a coin-controlled weighing-machine, the combination with a weighing mechanism and a case having a coin-slot, of a coin-receiving mechanism secured to the case and comprising a frame f having a ratchet f' and stop f^2 at one end and an arc slot at 16 and a coinway m in the upper part, a reciprocating carriage g having a slotted integral extension g' curved to operate as a cam, a hand-operated crank-arm e' having a stud 15 passing through the slot 16 of the frame and into a vertical slot in the reciprocating carriage, a coin-carrier pivoted to the reciprocating carriage and having a portion h formed as slides receiving the coin, and an integral latch-lever h' with a stud l and latch l' on the free end thereof, a spring i at one end connected to the frame f and at the other end to the latch-lever h', a lever pivoted to the frame and a connection therefrom to the extension of the carriage for swinging the lever, means connected to the said lever for contacting the coin, removing the same and simultaneously swinging the coin-carrier, substantially as set forth.

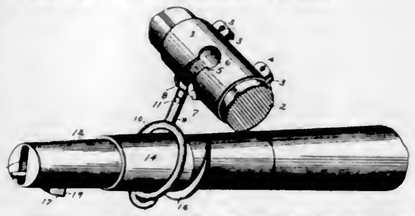
5. In a coin-controlled weighing-machine, the combination with a weighing mechanism and a case having a coin-slot, of a coin-receiving mechanism secured to the case and comprising a frame f having a ratchet f' and stop f^2 at one end and an arc slot at 16 and a coinway m in the upper part, a reciprocating carriage g having a slotted integral extension g' curved to operate as a cam, a hand-operated crank-arm e' having a stud 15 passing through the slot 16 of the frame and into a vertical slot in the reciprocating carriage, a coin-carrier pivoted to the reciprocating carriage and having a portion h formed as slides receiving the coin and an integral latch-lever h' with a stud l and latch l' on the free end thereof, a spring i at one end connected to the frame f and at the other end to the latch-lever h', a lever k pivoted to the frame and at one end having a stud in the slot of the extension of the reciprocating carriage, whereby the lever is swung by the movement of the carriage, a pin 18 in the other end of the said lever and a finger k' formed with the said lever, and an adjusting-screw 19 connected to the coin-carrier, substantially as set forth.

6. In a coin-controlled weighing-machine, the combination with a weighing mechanism and a case having a coin-slot, of a coin-receiving mechanism secured to the base and comprising a frame f having a ratchet f' and stop f^2 at one end and an arc slot at 16 and a coinway m in the upper part, a reciprocating carriage g having a slotted integral extension g' curved to operate as a cam, a hand-operated crank-arm e' having a stud 15 passing through the slot 16 of the frame and into a vertical slot in the reciprocating carriage, a coin-carrier pivoted to the reciprocating carriage and having a portion h formed as slides receiving the coin and an integral latch-lever h' with a stud l and latch l' on the free end thereof, a spring i at one end connected to the frame f and at the other end to the latch-lever h', a lever k pivoted to the frame and at one end having a stud in the slot of the extension of the reciprocating carriage whereby the lever is swung by the movement of the carriage, a pin 18 in the other end of the said lever and a finger k' formed with the said lever, and an adjusting-screw 19 connected to the coin-carrier, the coin-carrier having an open center, which, together with the adjusting-screw 19 permits nothing smaller than the proper coin to pass through the machine, and stop-bars n at the sides of the coinway to prevent the withdrawal of a coin or other device inserted in the coin-receiver, substantially as set forth.

7. In a coin-controlled weighing-machine, the combination with the weighing mechanism, of a coin-receiving device comprising a reciprocating carriage, a handle and crank-arm for operating the same, a coin-carrier, means actuated by the reciprocating carriage for contacting with the coin and swinging the coin-carrier, and means for preventing the return of the reciprocating carriage until the movement has been completed, substantially as set forth.

8. In a coin-controlled weighing-machine, the combination with the weighing mechanism, of a coin-receiving device comprising a reciprocating carriage, a handle and crank-arm for operating the same, a coin-carrier, means actuated by the reciprocating carriage for contacting with the coin and swinging the coin-carrier and means for preventing the return of the reciprocating carriage until the movement has been completed, and an adjustable pin acting as a stop in the coin-carrier for the coin, and bars connected to the coin-receiving device for preventing the withdrawal of the coin, substantially as set forth.

664,236. NECK-YOKE. THOMAS DE LA MARE, Tooele City, Utah. Filed June 15, 1900. Serial No. 20,457. (No model.)



Claim.—1. In a device of the class described, the combination of a stem having a head, a neck-yoke band provided at its bottom with a socket to receive the head of the stem and having a keyhole-slot extending to the socket, a neck-yoke arranged within the band and retaining the head in the socket, and means for connecting the stem with a pole, substantially as described.

2. A device of the class described comprising a neck-yoke band provided at the bottom with a socket, and having a keyhole-slot extending to the socket, the opening at the bottom of the socket being of greater diameter than the contracted portion of the keyhole-slot, a stem having a head to fit in the socket and provided between its ends with a reduced portion of a size to pass through the keyhole-slot, the diameter of the stem between the head and the reduced portion, being greater than the contracted portion of the slot, and means for connecting the stem with a pole, substantially as described.

3. A device of the class described comprising a neck-yoke band, a stem connected therewith and provided with a ring, and a sleeve loosely arranged within the ring and provided with means for confining the same, and adapted to fit on a pole, substantially as described.

4. A device of the class described comprising a neck-yoke, a ring connected therewith, a sleeve loosely arranged within the ring and adapted to fit on a pole, and an eye located at the bottom of the sleeve and receiving the ring, substantially as described.

5. A device of the class described comprising a neck-yoke band provided at its bottom with a socket and having a keyhole-slot extending upward therefrom, a stem provided with a head to fit the socket and having a reduced portion adapted to pass through the keyhole-slot, a ring rigid with the stem, a sleeve loosely fitting within the ring, and an eye carried by the sleeve and receiving the ring, substantially as described.

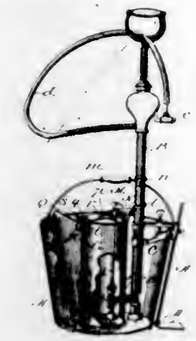
6. In a device of the class described, the combination of a pole having a tip provided with slots 21 and 21^a arranged at the outer end of the tip and at a point between the ends thereof, a resilient catch mounted within the tip at a point in rear of the said slots and extending forward through both of the slots, the forwardly-projecting portion being adapted to be raised to disengage the lower projecting portion, a sleeve arranged on the tip, and means for connecting a neck-yoke with the sleeve, substantially as described.

7. In a device of the class described, the combination of a pole-tip provided with slots arranged at its bottom and at its outer end, a catch having a resilient shank and provided with a head extending through both of the slots, a sleeve confined on the tip by the catch, a ring connected with the sleeve and means for connecting a neck-yoke with the ring, substantially as described.

664,237. KEROSENE-SPRAYER. WILLIAM L. DEMING, Salem, Ohio, assignor to the Deming Company, same place. Filed May 7, 1898. Renewed Nov. 10, 1900. Serial No. 36,086. (No model.)

Claim.—1. In a portable pump the combination with a plurality of intake-ports, of check-valves guarding said ports, and mechanism for establishing a predetermined ratio of supply through said intake-ports, substantially as described.

2. In a portable pump the combination with a plurality of intake-ports, of a suitable check-valve between said pump and ports, and a graduating-valve for establishing a predetermined ratio of supply through said intake-ports, substantially as described.



3. In a portable pump the combination with main and supplemental intake-ports located in independent receptacles, of suitable valves guarding said ports, and an adjustable valve-stem for establishing and maintaining a predetermined ratio of supply through said intake-ports, substantially as described.

4. In a portable pump the combination with a main and supplemental reservoir, of main and supplemental intake-ports located therein, check-valves guarding said ports, an adjustable valve-stem for limiting admission to said supplemental port, and a dial for indicating the position of the valve-stem, substantially as described.

5. In a portable pump the combination with main and supplemental intake-ports located in independent reservoirs, of a graduating-valve guarding one of said intake-ports, a dial and a graduated dial-plate for indicating the position of said graduating-valve, and suitable clamps for securing said parts in operative relation, substantially as described.

6. In a portable pump the combination with main and supplemental intake-ports, of independent reservoirs contained one within the other for housing said intake-ports, a graduating-valve guarding one of said intake-ports, an indicator for controlling the action of the last-named valve, and suitable latches for engaging and supporting said inner reservoir, substantially as described.

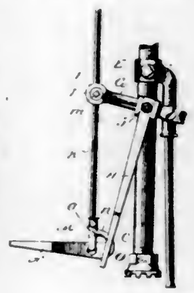
7. In a portable pump the combination with main and supplemental intake-ports, of main and supplemental reservoirs containing said intake-ports, a latch vertically adjustable upon the pump-barrel for engaging the supplemental reservoir, and a second horizontally-adjustable latch mounted upon the supplemental reservoir for engaging the main reservoir, substantially as described.

8. In a graduating-valve the combination with a valve-case, a valve-seat and valve, of an adjustable valve-stem located in the path of said valve and having a concave extremity for receiving and limiting the movement of said valve from its seat, substantially as described.

9. In a graduating-valve for pumps the combination with a valve-case, a valve-seat and valve, of an adjustable valve-stem for limiting the movement of said valve, inlet and outlet ports, and an indicating-key affixed to the valve-stem for adjusting it, substantially as described.

664,238. AGITATOR FOR SPRAYING APPARATUS. WILLIAM L. DEMING, Salem, Ohio, assignor to the Deming Company, same place. Filed May 7, 1898. Renewed Nov. 10, 1900. Serial No. 36,087. (No model.)





Claim.—1. In a spraying apparatus the combination with a pump and a supply-tank, of agitator-blades pivotally supported within said tank, and an actuating-rod for oscillating said blades in reversed directions, substantially as described.

2. In a spraying apparatus the combination with a pump and a supply-tank, of agitator-blades pivotally supported by the suction-pipe of said pump, and an actuating-rod for oscillating said blades in reverse directions, substantially as described.

3. In a spraying apparatus the combination with a pump and a supply-tank, of oscillating and vertically-reciprocating agitator-blades, an actuating-rod for automatically operating all of said blades, and a gage-rod for regulating the relative position of said blades and the intake of the pump aforesaid, substantially as described.

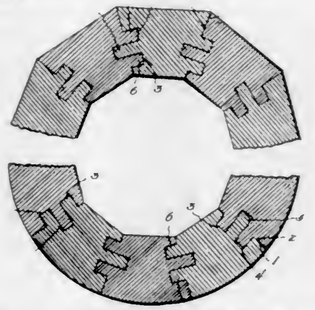
4. In a spraying apparatus the combination with a pump and a supply-tank, of a vertically-reciprocating agitator-blade, an actuating-rod pivotally connected to the blade, and a stop arranged in the path of said blade for limiting the pivotal movement thereof in one direction, substantially as described.

5. In a spraying apparatus the combination with a pump and a supply-tank, of an actuating-rod pivotally supported by the suction-pipe of said pump, a vertically-reciprocating agitator-blade pivotally connected to the actuating-rod, and a stop arranged in the path of said blade for limiting the pivotal movement thereof in one direction, substantially as described.

6. In a spraying apparatus the combination with a pump and a supply-tank, of a yoke pivotally supported by the suction-pipe of said pump, agitator-blades carried by the yoke, an actuating-rod bearing an adjustable pivot-nut journaled upon the yoke, a vertically-reciprocating agitator-blade pivotally connected to the actuating-rod, and a stop arranged in the path of said blade for limiting its pivotal movement downward, substantially as described.

7. In a spraying apparatus the combination with a pump and a supply-tank, of a yoke pivotally supported by the suction-pipe of said pump, an actuating-rod bearing an adjustable pivot-nut journaled upon the yoke, and a vertically-reciprocating agitator-blade pivotally connected to the actuating-rod, substantially as described.

664,239. SEGMENTAL OR SECTIONAL COLUMN. GEORGE DOANE, Elmira, N. Y. Filed Sept. 19, 1900. Serial No. 30,501. (No model.)



Claim.—1. A column composed of a plurality of longitudinal sections formed with contiguous face edges having tongues and grooves at right angles to the radial lines and tangential to the circle of the column, the central or intermediate tongue and groove being longer and deeper than the others, substantially as described.

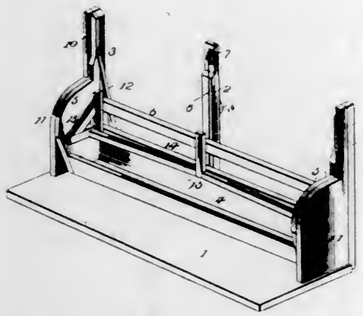
2. A column composed of a plurality of segments or sections, each section being formed on one edge with radial abutting surfaces, projecting tongues and intermediate groove between the tongues, the said groove extending into the body of the segment below the base of the tongues, and the other edge of the segment being formed with radial abutting surfaces counterpart grooves and a projecting intermediate tongue projecting beyond the grooves and radial abutting surfaces, substantially as and for the purpose specified.

664,240. HOSE-TRUCK. CHARLES F. W. DOEHRING, Philadelphia, Pa., assignor of one-half to George H. Dunsford, Lafayette, Pa. Filed Aug. 4, 1900. Serial No. 25,859. (No model.)



Claim.—A truck, and a rigid tube mounted thereon, a flexible pipe at one end of said tube, a rigid pipe at the other end thereof, and couplings on the ends of said tube adapted to engage with the ends of said pipes, each end of said tube and of the relative coupling having opposed flanges thereon.

664,241. **FEED-TROUGH.** FRANCIS B. DOBENSKY, Emmetsburg, Iowa. Filed Sept. 4, 1900. Serial No. 28,991. (No model.)



Claim.—1. In combination with a feed-trough, a fender having pivotal connection with the trough and adapted to be turned so as to extend in front thereof, substantially as specified.

2. In combination with a feed-trough, a fender comprising end pieces and a wall disposed to form an extension of a side of the trough in one position, the said fender having pivotal connection with the trough and adapted to be turned to extend in front thereof, and braces between the end pieces and the wall of the fender and adapted to extend over the trough and to act in the capacity of guards, substantially as specified.

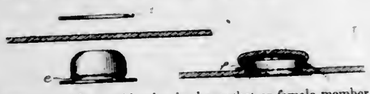
3. In combination, a pivotally-mounted trough adapted to be tilted upon one side, and a fender having pivotal connection with the trough so as to move therewith and intermediately thereof, substantially as set forth.

4. In combination with a pivotally-mounted trough, a fender having pivotal connection with the trough and comprising end pieces of approximately triangular form, substantially as and for the purpose set forth.

5. In a stock-feeding device, a platform provided with uprights, a trough, end pieces pivotally connected to the said uprights and closing the extremities of the trough, and a fender having pivotal connection with said end pieces and adapted to be turned so as to extend in front of the trough, substantially as and for the purpose specified.

6. In a stock-feeding device, a platform provided with an intermediate and end uprights, the latter being formed of right-angularly-disposed parts, a trough, end pieces closing the extremities of the trough and pivotally connected to the end uprights, a fender pivotally attached to said end pieces and normally forming an extension of the rear side of the trough and adapted to be turned so as to extend in front of said trough, and a weighted cord attached to the fender and passing over a pulley applied to the intermediate upright, substantially as specified.

664,242. **FASTENER.** WILLIAM B. H. DOWSE, Newton, Mass. Filed Jan. 18, 1900. Serial No. 1,951. (No model.)



Claim.—1. The combination in the socket or female member of a separable fastener of a socket-case, a plain ring of less diameter than the crown of the case, and the material between the case and ring, the case lying wholly on one side of the material, and the ring on the other side of the material, substantially as described.

2. The combination in a socket member of a separable fastener of a case, a plain ring, and the material between the case and ring, the case being wholly on one side of the material and being expanded on the plain ring, which lies wholly on the other side of the material, substantially as described.

3. The combination in the socket member of a separable fastener of a case, a plain ring imperforated material between the case and ring, the case lying on one side of the material, and being expanded on the ring, which lies on the other side, substantially as described.

4. A fastener member which consists of a case having a neck, a plain ring, and flexible material between the case and ring, the ring confining the case and material and binding against the neck of the case through the material, substantially as shown and described.

5. A member for a spring-fastening for gloves and other articles, comprising a shell on the under or inner side of the body fabric of the article, said shell being laterally expanded, and a ring, exterior to the body fabric and embracing the latter and the contracted or non-expanded portion of the shell, substantially as set forth.

664,243. **METHOD OF FORMING SOCKETS OF SEPARABLE FASTENERS FOR GLOVES, &c.** WILLIAM B. H. DOWSE, Newton, Mass. Filed June 4, 1900. Serial No. 18,943. (No model.)



Claim.—1. The method of covering and setting a socket-case of a fastener, which consists in placing said socket-case on the under side of the material, then fitting a retaining element over the material and socket-case, and then subjecting the socket-case to such a crushing pressure as to cause the flow of the metal in the crown of the socket-case to be restrained and directed to the sides thereof and the convexity of the metal from side to crown preserved.

2. The method of setting and covering a cup-shaped fastener-case, which consists in placing the fastener-case on the under side of the material to which it is to be set, then placing a ring over the material and fastener-case, and then subjecting the fastener-case to positive crushing pressure at the rim thereof and yielding confining pressure at the crown thereof, whereby the flow of metal is prevented at the crown of the case and diverted to the sides thereof.

664,244. **NIPPLE-WRENCH.** WILLARD EARL, Ontario Centre, N. Y. Filed May 4, 1900. Serial No. 15,472. (No model.)



Claim.—1. In a nipple-wrench for bicycles, the combination with a substantially U-shaped body, the free end of each leg of which is bent inward and recessed at one end, and the bent portion of the body is recessed, and means for forcing the recessed ends of the legs toward each other, substantially as described.

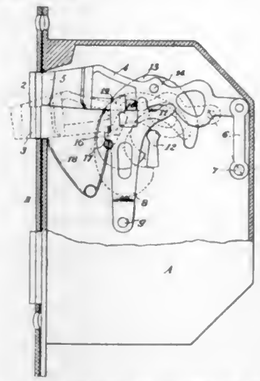
2. In a nipple-wrench for bicycles, the combination, with a substantially U-shaped body portion, the free end of each leg of which is bent inward to form jaws, the inner edge of each jaw at one end being provided with an inclined bottomed recess, and the bent portion of the body is provided with a recess to correspond therewith, and a bolt for engaging with said legs and forcing the jaws toward each other, substantially as described.

3. In a nipple-wrench for bicycles, the combination, with a substantially U-shaped body, the free end of each leg of which is perforated and bent inward to form a jaw, the inner edge of each jaw at one end being recessed, and the bent portion of the body being recessed to correspond therewith, of a bolt secured in the perforation of one of the legs and projecting through the perforation of the other leg, and a winged nut upon the projecting portion of said bolt, substantially as described.

4. In a nipple-wrench for bicycles, the combination, with a substantially U-shaped body, the free ends of the legs of which are provided with coacting recessed jaws, and the bent portion of the body is cut away and provided with two parallel wings at a distance from each other to form a recess therebetween, and a bolt through the free ends of the legs for moving the jaws toward each other, substantially as described.

664,245. **LOCK.** JOEL A. EASTMAN, Fruitvale, Cal., assignor to Charles R. Eastman, same place. Filed Mar. 28, 1900. Serial No. 10,482. (No model.)

Claim.—1. In a lock and in combination with its case, a locking-bolt and means whereby it has a combined longitudinal and vertical movement, means acting on the bolt for holding the latter in position within the case, a keeper having an opening into which the end of the bolt is projected at one movement, said opening having a reduced extension into which the shank of the bolt is moved in its other movement, said bolt having a head wider than its shank whereby it is prevented from being withdrawn endwise from said extension, and an attachment actuated by the turning of the key whereby the bolt is drawn downward into its locking position by direct pressure.



2. In a lock, a bolt, a swinging link to which the rear end is connected, a link pivoted to the bolt having a slot engaging a guide-pin in the case, said link having a concaved interior curvature with which the bits of the key engage, to raise, advance and depress the bolt.

3. In a lock, a bolt, a link having one end connected with the bolt and the other pivoted within the case whereby the bolt may be advanced and retracted with relation to said fulcrum-point, a second link having a slot movable upon a fixed guide-pin within the case, said link being pivoted to the bolt and having an interior curvature with which the bits of the key engage, whereby the bolt is advanced to engage the keeper and afterward depressed by direct action of the key upon the link.

4. In a lock, a bolt, a swinging pivoted link to which the rear end of the bolt is connected, a crescent-shaped link having one end slotted and movable upon a fixed guide-pin within the case, the other end connected with the bolt, said link having an interior crescent-shaped curvature which is engaged by the bits of the key when the latter is turned, whereby the head of the bolt is advanced into the keeper and afterward drawn down to interlock therewith, a forked lever having one end slotted, a lug upon the lock-bolt with which said slotted end engages, and a spring acting upon said lever to force it back and lock the bolt in position after it has engaged with the keeper.

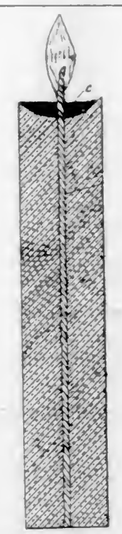
5. In a lock, a casing upon one of the parts to be locked and a keeper upon the other, each having opposing contiguous openings with narrow extensions at the bottom, a bolt, the shank of which is of less thickness than said slotted extensions, having a head adapted to move through the upper and larger portions of the slots, and to lock against the narrower portions of the keeper-slot, a pivoted link with which the rear end of the bolt is connected, a link pivoted to the bolt having a concaved surface and a slot movable upon a fixed guide-pin, the concavity of said link lying in the path traversed by the bits of the key whereby the bolt is advanced and the head projected through the larger portion of the keeper-slot, then drawn downward into line with the narrower portion, and a pivoted swinging lever having an overhanging hook at the upper end, a pin upon the bolt with which said hook engages when the latter has been depressed to its locking position, and a spring acting upon the link to force the hook into engagement with the pin on the bolt and to simultaneously draw the doors together.

6. The combination in a lock of a reciprocating bolt, having a head of greater diameter than the shank, a fulcrumed link to the free end of which the rear end of the bolt is connected, a second link pivoted to and turnable upon the bolt, a guide-slot in said link and a fixed pin entering the slot, said link having a crescent-shaped interior concavity in the line of travel of the bits of the key, whereby the head of the bolt is projected into the keeper-slot and drawn down into line with its narrower portion, a spring-pressed lever and a fixed pin about which it is turnable, the lever having an open slot in its upper end, and a hook which engages a pin upon the bolt when the latter has been depressed, said lever having a concave curvature of the rear upper portion in the line of movement of the key-bits whereby the first movement to unlock disengages it from the pin on the bolt to allow the latter to be subsequently raised and retracted.

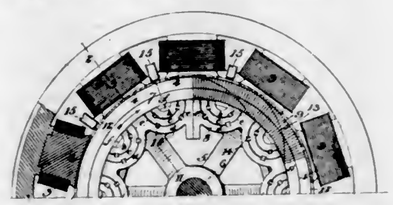
664,246. **CANDLE.** WILSON R. ELLIS, Livermore, Cal. Filed Feb. 19, 1900. Serial No. 5,683. (No model.)

Claim.—A candle provided with a granular, insoluble, and non-inflammable substance, surrounding the wick and resting upon the upper surface of the wax or grease, substantially as described.

664,246.



664,247. **DYNAMO-ELECTRIC MACHINE.** JUSTUS B. ENTZ, Philadelphia, Pa., assignor of one-half to Guy F. Greenwood, Allegheny, Pa. Filed Nov. 27, 1897. Serial No. 660,008. (No model.)



Claim.—1. An electric generator or motor having the magnetic material of the magnetic circuit which is constituted by the field and armature magnetically subdivided as to one at least of its said parts by an interposed medium, such as an air-gap of relatively high magnetic resistance, the subdivisions so constituted extending in the direction of the desired magnetic circuit, and adapted thereby to direct and equalize the intensity of the field of force; substantially as described.

2. An electric generator or motor having the electric conductors of the armature made of material of low magnetic and low electrical resistance, and adapted thereby to serve as a conductor in both the magnetic and electric circuits, said armature made separate from the armature-body as regards rotation; substantially as described.

3. An armature having iron conducting-strips set in transverse position, and in two layers, the outer layer being interlocked to the inner layer and driven therefrom; substantially as described.

4. An electric generator or motor having in combination with the field-magnets, a revolving armature and stationary armature-body having its material subdivided magnetically to equalize the distribution or intensity of the field of force; substantially as described.

5. An electric generator or motor having the electric conductors of the armature made of material of low magnetic and low electrical resistance, and adapted thereby to serve as a conductor in both the magnetic and electric circuits, the magnetic material of the magnetic circuit which is constituted by the field and armature being magnetically subdivided as to one at least of its said parts and adapted thereby to equalize the intensity or distribution of the field of force emanating from or to the same; substantially as described.

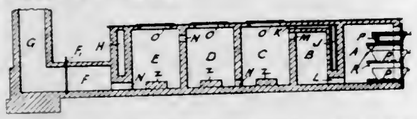
6. An electric generator or motor having the electric conductors of the armature made of material of low magnetic and low electrical resistance, and adapted thereby to serve as a conductor in both the magnetic and electric circuits, the magnetic material of the magnetic circuit which is constituted by the field and armature being magnetically subdivided as to one at least of its said parts and adapted thereby to equalize the intensity or distribution of the field of force emanating from or to the same,

and having gaps opposite to the points at which the currents induced in the armature by the field are reversed; substantially as described.

7. An electric generator or motor having the electric conductors of the armature made of material of low magnetic and low electrical resistance, and adapted thereby to serve as a conductor in both the magnetic and electric circuits, the magnetic material of the magnetic circuit which is constituted by the field and armature being magnetically subdivided and adapted thereby to equalize the intensity or distribution of the field of force emanating from or to the same, and brushes bearing directly on the armature as on a commutator; substantially as described.

8. An electric generator or motor having the magnetic material of the magnetic circuit which is constituted by the field and armature magnetically subdivided as to one at least of its said parts by an interposed medium, such as an air-gap of relatively high magnetic resistance, the subdivisions so constituted extending in bridge-like portions, such as *b*, *c*, *d*, adapted to span the space from one pole-piece to another; substantially as described.

664,248. **CRUCIBLE-FURNACE.** GEORGE W. EMMERSON and JAMES WARD, Newcastle-upon-Tyne, England. Filed Aug. 30, 1900. Serial No. 28,531. (No model.)



Claim.—1. In a crucible-furnace the combination with a series of connected chambers adapted to inclose crucibles, of an antecedent gas-heating chamber having a gas-passage to the first crucible-chamber at its upper end, and a vaporizing-chamber having a passage to the heating-chamber at its lower end, vaporizers in said vaporizing-chamber, and regenerative air-passages passing about the heated parts of said furnace and having an outlet to the first crucible-chamber in proximity to the gas-passage thereto.

2. In a crucible-furnace the combination with a series of connected chambers adapted to inclose crucibles, of an antecedent gas-heating chamber having a gas-passage to the first crucible-chamber at its upper end and a vaporizing-chamber having a passage to the heating-chamber at its lower end, vaporizers in said vaporizing-chamber and regenerative air-passages passing about the heated parts of said furnace and between the vaporizing and heating chambers and having an outlet to the first crucible-chamber in proximity to the gas-passage thereto.

3. In a crucible-furnace the combination with a series of connected chambers adapted to inclose crucibles, of an antecedent gas-heating chamber having a gas-passage to the first crucible-chamber at its upper end and a vaporizing-chamber having a passage to the heating-chamber at its lower end, vaporizers in said vaporizing-chamber and regenerative air-passages passing about the heated parts of said furnace between the vaporizing and heating chambers and above the heating-chamber and having an outlet to the first crucible-chamber in proximity to the gas-passage thereto.

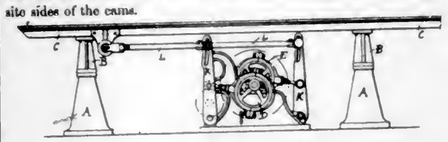
4. In a crucible-furnace the combination with a series of chambers adapted to inclose crucibles and having an opening each to the next alternately in the upper and in the lower part thereof respectively, of an antecedent gas-heating chamber alined therewith, having a gas-passage to the first crucible-chamber at its upper end, and a vaporizing-chamber alined with the heating-chamber having a passage to the heating-chamber at its lower end, with vaporizers in said vaporizing-chamber and regenerative air-passages passing about the heated parts of said furnace and having an outlet to the first crucible-chamber in proximity to the gas-passage thereto.

664,249. **MECHANISM FOR SWINGING TENTERING-MACHINES.** JAMES J. FEARON, Philadelphia, Pa. Filed May 13, 1899. Serial No. 716,783. (No model.)

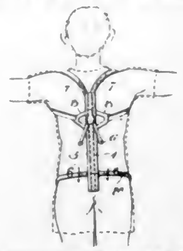
Claim.—1. In a tentering-machine, the combination of two side rails and pivoted supports therefor permitting the rails to be oscillated to and fro, a cam to which rotary motion is imparted, a lever-arm and connections between the cam and lever-arm and between the latter and one of the side rails, whereby the rails are oscillated to and fro by means of the cam.

2. In a tentering-machine the combination of the side rails and supports therefor permitting the rails to be oscillated to and fro, two cams to which rotary motion is imparted, two lever-arms, one for each cam and rail, and connections between each cam and its lever and between each lever and its respective rail, the lever-arms being placed on opposite sides of the cams, and the cams being arranged to swing the rails in opposite directions one to the other.

3. The structure of a tentering-machine composed of two side rails and cross-arms, said cross-arms turning upon fixed bases and supporting the side rails in such manner that said rails supported by said arms may oscillate to and fro, combined with two cams to which rotary motion is imparted, one cam for each side of the machine, and a connection between each cam and the rail on that side, said connections being made to opposite sides of the cams.



664,250. **BODY-BRACE.** SAMUEL N. FITZPATRICK, Carthage, Tenn. Filed June 4, 1900. Serial No. 19,061. (No model.)



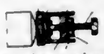
Claim.—1. In a device of the character set forth, the combination of a back-engaging member having a resilient action and consisting of two similarly-curved band-springs inclosed in a covering with a space between the inner edges thereof filled by a connecting-web extending their full length, means at the upper portion of the member for exerting a downward pull thereon, and retention devices extending over and under the shoulders of the body of the wearer.

2. In a device of the character set forth, the combination of a back-engaging member consisting of a pair of separated resilient devices completely inclosed and having an intermediate connecting-web the full length thereof to rest over the spine of the wearer, means connected to the upper portion of the member to extend over and under the shoulders of the body of the wearer, and one or more body-bands extending laterally from the member below the said means and having a resilient action.

3. In a device of the character set forth, the combination of a back-engaging member consisting of completely-inclosed resilient devices having a web extending full length between them to rest over the spine of the wearer, a pad for attachment to the lower portion of said member, means connected to the upper portion of the member to extend over and under the shoulders of the wearer, a body-band of a resilient nature below the said means, a waistband, and a suspender-end fastened to the upper portion of the member, the said means, body-band and waistband emanating directly from the said member.

4. In a device of the character set forth, the combination of a back-engaging element having a resilient action and consisting of a pair of curved band-springs inclosed in a covering and connected by an intermediate web extending full length between the band-springs to rest over the spine of the wearer, and means for holding the said element in position.

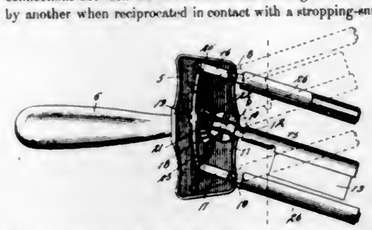
664,251. **END BEARING FOR ROLLS.** MICHAEL J. FOLEY and GUY L. ROGERS, Cloquet, Minn. Filed Apr. 5, 1900. Serial No. 11,784. (No model.)



Claim.—In combination, a frame, a journal-box supported thereon, a roll journaled in said box the end of its journal projecting through and beyond said box, a yoke secured to the outer side of said box and extending across the axial line of the roll, a wooden antifriction bearing-block bearing on the extreme end of the roll-journal, a supporting-plate secured to the rear side of the bearing-block, outward-extending arms on said plate and slidably engaging the yoke to prevent the rotation of the block, an adjusting-screw carried by the yoke axially in line with the roll and connected by a swivel to the supporting-plate, and means for locking said screw, substantially as described and for the purpose set forth.

664,252. **RAZOR-STROPPING DEVICE.** FRANCIS FRANCIS, Philadelphia, Pa. Filed Aug. 13, 1900. Serial No. 26,751. (No model.)

Claim.—1. A device of the class described comprising a pivoted blade-holder, separately-pivoted fingers adapted for swinging movement, and connections between the blade-holder and the fingers for swinging of one by another when reciprocated in contact with a stropping-surface.



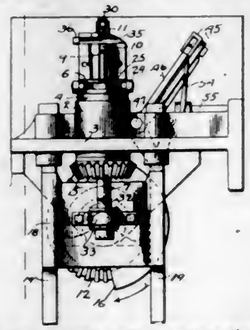
2. A device of the class described comprising a body portion having a blade-holder pivoted thereto and mounted for oscillation, fingers pivoted to the body portion and having connection with the holder to move it when the fingers are pivotally moved, and connections between the holder and body for oscillating the holder when it is pivotally moved.

3. A device of the class described comprising a body portion, an oscillatory and pivoted blade-holder carried by the body, pivoted fingers connected with the holder to move it pivotally when the fingers are correspondingly moved, and means operable by the fingers for oscillating the holder.

4. A device of the class described comprising a body portion having a fixed handle, a rotatable blade-holder pivotally mounted upon the body portion, a pinion upon the holder, a rack upon the body and with which the pinion is engaged, and fingers pivoted to the body portion and having movable connections with the holder to move it pivotally and operate the rack and pinion to oscillate the holder.

5. A device of the class described comprising a body portion having a handle, a rotatable blade-holder pivoted to the body portion and carrying a pinion, a rack upon the body and with which the pinion is engaged, a finger pivoted at each side of the holder, a link connecting the holder and the fingers, and springs connected with the fingers and body to hold the fingers and holder normally in a predetermined position.

664,253. **KNOTTER FOR BINDERS.** ANDREW E. GAGNON and HENRY JONCAS, Minneapolis, Minn.; said Joncas assignor of part of his right to said Gagnon. Filed July 3, 1897. Serial No. 643,335. (No model.)



Claim.—1. The combination, with means for passing a cord around the bundle, of means for forming a loop in the cord, means for drawing the ends of the cord through the loop to form the untightened knot, a device to close upon the cord below the untightened knot and said drawing means and said device being relatively movable, to permit the untightened knot to be rolled against the bundle and tightened with the cord thereon.

2. The combination, with means for passing a cord around the bundle, of means for forming a loop in the cord, means for drawing the ends of the cord through the loop to form the untightened knot, and means to clasp the cord on that side of the untightened knot opposite the bundle and said drawing and clasping means being relatively movable to cause the untightened knot to be rolled against the bundle and tightened with the cord thereon, substantially as described.

3. The combination, with means for placing a cord or band upon a bundle, of means for forming a loop in the cord, means for drawing the ends of the cord through the loop so formed to form the untightened knot, and means for closing upon the cord, said drawing and closing means being relatively movable to roll the untightened knot against the bundle in the plane of the cord thereon, substantially as described.

4. The combination, in a knotter, of means for forming the untightened knot, with a head and means thereon to close upon the cord on that side of the untightened knot opposite the bundle and hold the untightened knot with relation to the bundle, and means for moving said knot-forming means with respect to the bundle to draw the ends of the cord and tighten the knot and the cord thereon.

5. The combination, in a knotter, with the loop-forming device, and means for drawing the ends of the cord through the loop to form an untightened knot, a head, means thereon to close upon the cord on that side of the untightened knot opposite the bundle, and means to reciprocate said head and said drawing means in opposite directions to roll the untightened knot toward the bundle and tighten it and the cord thereon, as and for the purpose specified.

6. The combination, with a knotter, of means to close about the cord on that side of the knot opposite the bundle, and means to draw back the knotter to roll the loop and complete and tighten the knot and cord, substantially as described.

7. The combination, with the knotter, of a head, and means connected therewith to close upon the cord and roll the untightened knot toward and hold it against the bundle, and means to reciprocate the knotter to tighten the knot upon the bundle in the plane of the cord.

8. The combination, with a knotter for forming a loop in the cord and drawing its ends through the loop to form the untightened knot, of a head having means to close upon the cord on that side of the untightened knot opposite the bundle, and means operating the knotter to draw upon the ends of the cord and tighten the knot against said closing means, substantially as described.

9. The combination, in a knotter, with the loop-forming device, of a hook to draw the ends of the cord through the loop to form the untightened knot, closing means engaging the cord on that side of the untightened knot opposite the bundle, and means to reciprocate said closing means and said hook with respect to one another to roll and tighten the knot against the bundle in the plane of the cord thereon, substantially as described.

10. The combination, in a knotter, with a hook and means cooperating therewith to form the untightened knot, of means for reciprocating said hook, a head, and means in connection therewith to close upon the cord on that side of the untightened knot opposite the bundle and hold the untightened knot when the hook is reciprocated to tighten it, substantially as described.

11. The combination, in a knotter, with a hook and means cooperating therewith to form the loop and the untightened knot, of means to close the hook device upon the ends of the cord, means for reciprocating the hook device, a head, and means thereon closing upon the cord on that side of the untightened knot opposite the bundle to hold the knot against the same as the ends of the cord are drawn to tighten it.

12. The combination, in a knotter, with the loop-forming device and the hook coacting to form the untightened knot, of means for closing the loop-forming device upon the hook to secure the cord, means for moving the hook to draw upon the cord and the untightened knot formed therein and means closing upon the cord below the untightened knot during said drawing movement of the hook, whereby the knot is finally rolled against and tightened upon the bundle, substantially as described.

13. The combination, in a knotter, with a loop-forming device and a hook cooperating to form the untightened knot, a head rotated therewith, means for reciprocating said head, said loop-forming device being adapted to be tilted by the movement of said head, means upon said head closing upon the cord below the untightened knot and means for drawing said hook into said head, substantially as described.

14. The combination, with the tilting knotter, of a knotter-head, said parts rotating together, means to reciprocate the head and tilt said knotter, said head having an opening to accommodate said knotter, and means for drawing the knotter back into said opening, as and for the purpose specified.

15. The combination, with the knotter adapted to tilt and engage the cord, of a movable head to tilt the knotter and having a part to engage the loose or untightened knot formed thereby, and means for drawing the knotter back to complete and tighten the knot held by said head substantially as described.

16. The combination, with an intermittently-rotated head, of a hook adapted to be reciprocated therein and in its outer position to engage the cord and aid in forming a loose knot therein, means to reciprocate said head, and means thereon closing upon the cord on that side of the untightened knot opposite the bundle to roll or force the knot against the bundle, for the purpose set forth.

17. The combination, with a suitable head, of a knotter, means for drawing the knotter into the head, and a transversely-movable part or parts to hold the loose or untightened knot upon the end of the head, substantially as described.

18. The combination, with a suitable head, of a knotter, means for drawing the knotter into the head, and a transversely-movable part or parts to hold the loose or untightened knot on the end of the head, and

said part or parts being operated by the movement of said knotter, substantially as described.

19. In a knotter, the combination with the stem provided with a hook 40, of pivoted fingers 41 and 42 having openings to receive said hook, substantially as described.

20. The combination, with the head, of the stem provided with the hook 40 and carrying the pivoted fingers 41 and 42 adapted to close upon said hook to confine a cord between a hook and the fingers, and said fingers provided with a heel operating upon the head to swing the fingers from one position to the other, substantially as described.

21. The combination, with the stem or rod 7, provided with a hook 40 and with the pivoted fingers coacting therewith to grasp and secure the cord, of means for rotating said stem and for reciprocating the same, as and for the purpose specified.

22. A knotter for lath-binding machines, comprising a head, means for rotating the same, a hook, a loop-forming device, whereon the cord is wound, means for raising said head, means carried by said head to close on the cord on that side of the untightened knot opposite the bundle, and means for drawing down the hook and the ends of the cord into the head, substantially as described.

23. In a knotter for lath-binders, a head, means thereon closing upon the cord on that side of the untightened knot opposite the bundle, a stem eccentrically arranged within said head parallel with the axis thereof, a hook provided on said stem and a cam device for operating said stem and whereby the same is drawn down into the head to complete and tighten the knot against said engaging means and then raised to release the ends of the cord, substantially as described.

24. In a knotter for lath-binders, a rotating head, a reciprocating stem therein and means for operating the same, a hook provided on said stem, clamping means carried by said head to close upon the cord upon that side of the untightened knot opposite the bundle and means actuated by the downward movement of said stem to operate said clamping means, substantially as described.

25. A knotter for lath-binding machines, comprising a vertically-movable head and means for operating the same, a reciprocating stem within said head, a book and fingers provided on said stem, and clamping devices carried by said head and operated by the downward movement of said stem to clamp the cord on that side of the untightened knot opposite the bundle while the stem draws down the ends of the cord, substantially as described.

26. A knotter for lath-binders, comprising a head, a reciprocating stem therein and means for operating the same, a hook provided on said stem, clamping-plates provided on said head and levers pivoted in said head and having their upper ends in engagement with said plates and their lower ends in engagement with said stem, substantially as described.

27. In a knotter for lath-binders, the combination, with a rotating head and means for operating the same, of a reciprocating stem carried by said head, a book provided on said stem, clamping-plates 35 and 36 carried by said head and adapted to clamp the cord on that side of the untightened knot opposite the bundle, levers 37 pivoted in said head having their upper ends in engagement with said plates and their lower ends fitting grooves in said stem whereby when said stem is operated to draw the ends of the cord through the loop said plates will be operated to engage the cord and roll or force the untightened knot closely against the bundle.

28. A knotter for lath-binding machines, comprising a head having a revoluble support, said head being vertically movable in and also revoluble with said support, a reciprocating stem arranged within said head and rotatable with but not independently thereof, means for operating said head and said stem, a book on said stem and said stem being arranged eccentrically with respect to said head whereby the knot is formed substantially in line with the axis of said head, as and for the purpose specified.

29. In a knotter for lath-binders, a head, reciprocating jaws to close upon the cord between the loose or untightened knot and said head, a stem eccentrically arranged within said head parallel with the axis thereof, a hook provided on said stem and a cam device for operating said stem and whereby the same is drawn down to complete and tighten the knot against said jaws and then raised to release the ends of the cord, substantially as described.

30. In a knotter for lath-binding machines, the combination, with a sleeve, of a hollow shaft therein provided with a pinion 5 having a delay-surface 17, a head 6 supported within said shaft, a vertically-movable stem in said head, a shaft 13, a gear 12 thereon having teeth to engage the teeth of said pinion 5, and a flange 16 to engage said delay-surface 17, substantially as described.

31. In a knotter for lath-binders, a hollow shaft and means for rotating the same, a head within said shaft and rotatable therewith and having its upper part on one side cut away, a reciprocating stem within said head and rotatable therewith, means for operating said stem, a knotter-hook provided on said stem, said stem being eccentrically arranged with respect to said head, whereby when said head is turned the knot will be formed substantially in line with the axis of said head, substantially as described.

32. In a knotter for lath-binding machines, a head, a stem vertically movable therein and whereon the hook is arranged, said stem being provided at its lower end with an offset portion 32, a sliding cam-plate 18, a block 33 wherein said offset portion is journaled, and means for operating said cam-plate, substantially as described.

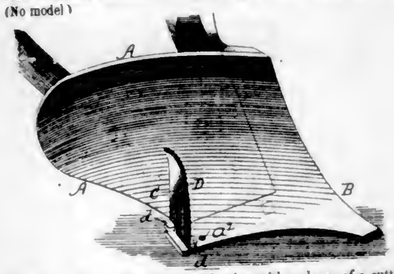
33. In a knotter for lath-binding machines, a shaft 47, a frame 46 thereon, means for swinging said frame, a knife-case 45 supported by said frame, a knife carried by said case, a frame 66, a frame 67 engaging said knife and said frame 66, and means for sliding said frame 66 to operate said knife, substantially as described.

34. In a knotter for lath-binding machines, a cutting mechanism comprising a case, a knife mounted therein, a frame or arm 67 in engagement with said knife, a second frame 66, a shaft 47 whereon said frames are mounted, and a cam 61 in engagement with said frame 66 whereby said frames will be moved in one direction upon said shaft, and a spring 69 for moving said frames and said knife in the opposite direction, substantially as described.

35. In a knotter for lath-binding machines, a cutting mechanism comprising a swinging frame and means for operating the same, a knife carried thereby, means for reciprocating said knife, a pivoted finger 54 and a suitable connection between said finger and said frame, substantially as described.

36. In a knotter for lath-binding machines, a knife-cutting mechanism comprising a swinging frame, means for operating the same, a knife-case carried thereby having a notch 58, a knife provided in said case, means for reciprocating said knife, a pivoted finger 54 adapted to engage the cord from the binder and carry it into said notch 58 and means connecting said finger with said frame, substantially as described.

664,254. SOD-CUTTING ATTACHMENT FOR PLOWS. FREDERICK GARDNER, Thornton, Ill. Filed Aug. 25, 1900. Serial No. 27,967. (No model.)



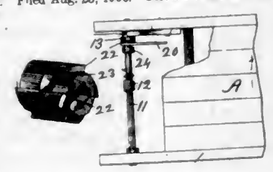
Claim.—1. In a plow, the combination with a share, of a cutting-blade, mounted on the opposite side thereof from the landside, substantially as described.

2. In a plow, the combination with a share, provided with one or more apertures, of a cutting-blade, having a backwardly-curved cutting edge and adjustably mounted on the furrow side of said share, substantially as described.

3. In a plow, the combination with a share, of a sod or earth cutting blade, mounted on the furrow side thereof, and means for securing said blade in its working position, substantially as described.

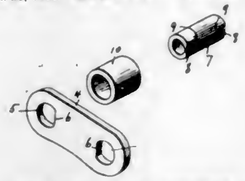
4. In a plow, the combination with a share, of a cutting-blade, provided on the lower end with attaching-bolts and companion bearing-lugs, and adapted to be mounted on the furrow side of said share, substantially as described.

664,255. HAY OR LOAD BINDER. FREDERICK GARDNER, Thornton, Ill. Filed Aug. 25, 1900. Serial No. 27,968. (No model.)



Claim.—In a load-binder for vehicles, the combination with the bed-frame, of a rotatable shaft, a ratchet-wheel, rigidly mounted thereon, a pawl, locking said ratchet-wheel against rotation in one direction, means for holding said pawl out of engagement, a lever, adapted to engage said ratchet in rotating said shaft, a binder-pole, means for connecting the front end of the pole with the bed-frame, and means for connecting the rear end of said pole with the rotatable shaft, substantially as described.

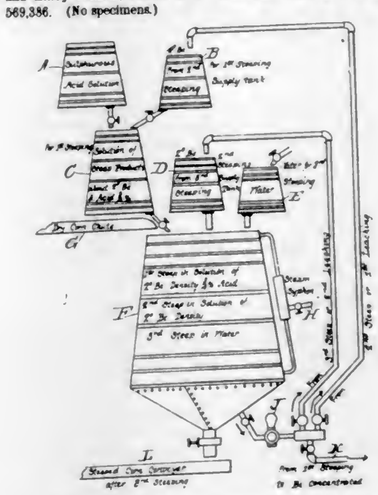
664,256. DRIVE-CHAIN. WILLIAM H. GATES, Worcester, Mass. Filed Feb. 26, 1900. Serial No. 6,650. (No model.)



Claim.—1. In a drive-chain, the combination of a pair of inside links having segmental holes, a tubular pin, a cylindrical pin inclosed in said tubular pin and having necks 14, and outside links provided with holes 11 to receive the ends of said cylindrical pins and having slots 12 communicating with said holes to receive the necks 14, substantially as described.

2. In a drive-chain, the combination of links 3 and 4 having segmental holes in their ends, tubular pins 7 having segmental ends fitting said holes, rolls 10 carried on said tubular pins, cylindrical pins 13 having necks 14 and outside links 1 and 2 provided with holes 11 and slots 12 to receive the ends of said cylindrical pins, substantially as described.

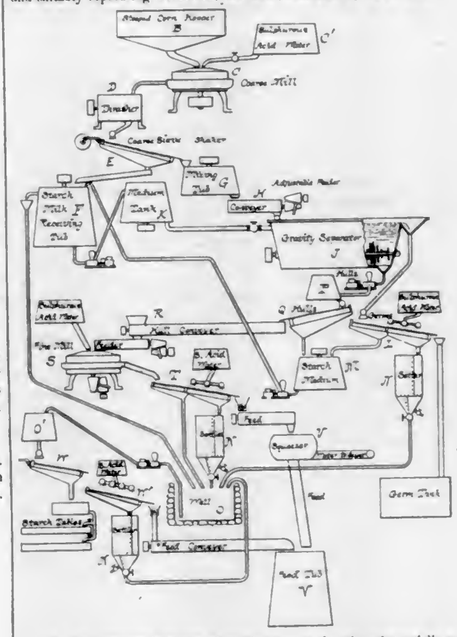
664,257. PROCESS OF MAKING STARCH AND CATTLE-FOOD. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Nov. 19, 1895. Serial No. 569,386. (No specimens.)



Claim.—In the process of simultaneously obtaining starch and cattle-food from cereals, the extraction of the soluble constituents from the cereals by subjecting the cereals to successive steepings in liquids of decreasing density, utilizing the liquor from the second and succeeding steepings respectively, for the first and succeeding steepings of other quantities of said cereals with the addition of fresh liquid at the first steeping thereof, and thereby both increasing the amount of solubles extracted and the density of the liquor from the first steeping, substantially as set forth.

664,258. PROCESS OF TREATING GRAIN IN MAKING STARCH. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Sept. 1, 1896. Serial No. 604,509. (No specimens.)

Claim.—1. The improved process of treating corn and grain, substantially as set forth: by breaking and disintegrating without grinding the germs of the steeped or soaked corn, with water, separating the starch liquor from the broken hulls and germs; immersing the hulls and germs in a separating medium consisting of starch liquor; drawing off the germs from above and the hulls from below; thereafter recovering and rinsing the said medium from the said germs and the said hulls; controlling the supply and density of the said medium at will by supplying it at the required density and drawing it off continuously independently of the amount of germs and hulls supplied; and thereafter reducing the said hulls, and suitably separating the starch, and hulls, substantially as set forth.



2. The improved process of treating corn and grain, substantially as set forth: by breaking and distintegrating without grinding the germs of the corn with water; separating the hulls and germs from the starch liquor; then immersing the hulls and germs in a separating medium consisting of starch liquor; supplying the said separating medium at the required density and drawing it off continuously independently of the amount of germs and hulls supplied; drawing off the germs from above and the hulls from below; and thereafter recovering the said medium from the said germs and the said hulls, whereby the flow and density of the said medium may be independent of the amount of germs and hulls, substantially as set forth.

3. The improved process of treating corn and grain substantially as set forth, by grinding the corn with water, between suitably-separated surfaces, without grinding the germs; pressing and separating the hulls and germs from the starch liquor; then immersing the moist hulls and germs in a separating medium of starch liquor; collecting the germs from above and the hulls from below; thereafter recovering the said medium from the said germs and hulls, returning some of the starch liquor as separating medium in an endless cycle, the separating medium being supplied at the required density and drawn off continuously independently of the amount of hulls and germs treated.

4. In the process for treating corn for the manufacture of starch, glucose, and other products, the method of increasing the yield by washing the ground corn or hulls upon screens or shakers, with an admixture of sulfurous acid, whereby the starch and gluten may be more readily separated from the hulls and perisperm, substantially as set forth.

5. In the process of treating corn for the manufacture of starch, glucose, and other products, the method of increasing the yield by facilitating and increasing the settling and separation of the starch and the gluten upon the starch-tables by the presence of sulfurous acid, substantially as set forth.

6. The improvement in the process of treating corn, substantially as set forth, for the separation of germs: which consists in separating the ground hulls and germs from the starch liquor prior to immersion; then immersing them in a starch liquor or medium of suitable density, floating and separating the said germs; supplying the separating starch liquor or

medium at the required density and drawing it off continuously independently of the amount of germs and hulls supplied thereto, and thereafter recovering the said medium from the said germs, and washing the said germs, substantially as set forth.

7. The improvement in the process of treating corn for the separation of germs, which consists in suitably disintegrating the hulls and germs with water, then subjecting the commingled hulls and germs to pressure and expressing the free starch liquor, and then immersing them in a starch liquor or medium of suitable density and floating or collecting the said germs, and thereafter washing the said germs, and drying them, substantially as set forth.

8. The improvement in the process of treating corn, substantially as set forth, for the separation of germs, which consists of breaking or grinding the corn in water, pressing and disintegrating the hulls and germs, separating the germs from the hulls by the action of starch liquor, washing the germs, and then drying them.

9. The improvement in the process of treating corn, substantially as set forth, for the separation of germs, which consists of breaking or grinding the corn in water, pressing and disintegrating the hulls and germs, separating the germs from the hulls by the action of starch liquor, washing the germs and subjecting them successively to a drying action, and an air-blast.

10. The improvement in the process of treating corn, substantially as set forth, for the separation of germs, which consists in breaking or grinding the corn in water, pressing and disintegrating the hulls and germs, separating the germs from the hulls by the action of starch liquor, washing the germs, and then drying them and subjecting them to an air-blast, and separately collecting the dry germs and the light husks from the air-blast.

11. The improvement in the process of separating the germs from hulls and starch liquor, substantially as set forth: which consists in separately introducing the commingled hulls and germs into the separator-tank in desired quantities; supplying at the required density a determinate quantity of suitable medium independently of the amount of hulls and germs; drawing off a quantity of the medium with the hulls and with the germs; and controlling the circulation, density, and flow, of the medium at will, substantially as set forth.

12. The improvement in the process of separating the germs from hulls and starch liquor, which consists in disintegrating and then introducing commingled hulls and germs into separator-tank in desired quantities; supplying at the required density a suitable medium independently of the amount of hulls and germs, measuring and drawing off by meter-pump, or otherwise, at a definite rate a portion of the said medium containing the said hulls, collecting the germs with the remainder of the said medium and recovering and restoring a portion of the said medium to the said tank in a continuous cycle, substantially as set forth.

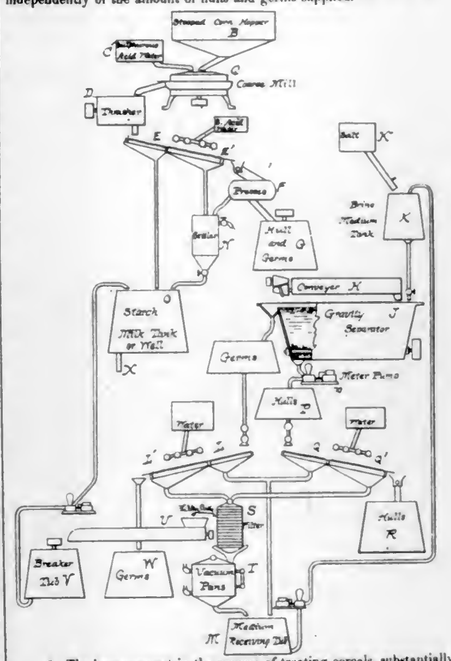
13. The improvement in the process of separating germs from hulls and starch liquor, substantially as set forth: which consists in immersing the ground or otherwise-prepared hulls and germs in a separating medium of predetermined density; and in supplying and drawing off the said medium in a continuous cycle independently of the amount of hulls and germs supplied, whereby the desired density and circulation may be preserved and the said germs be collected from the surface of the said separating medium, substantially as set forth.

14. The improvement in the process of treating corn, which consists in suitably separating the germs from the perisperm, then washing the germs, then subjecting them to heat, then to an air-blast and thereby recovering the quantity of light husks from the said germs, and thereafter regrinding the said husks, substantially as set forth.

15. The improvement in the process of treating corn, which consists in simultaneously increasing the purity and yield of germs, starch and feed, by separating the germs from the husks in a suitable medium; thereafter washing the said germs and preserving the liquor obtained; thereafter drying the germs and recovering an additional yield of husks by dry separation; separating the husks or feed from the starch liquor by screening and washing, after suitable grinding; and then screening the starch liquor; and thereafter obtaining all the remaining feed from the starch liquor, by means of suitable sieves, and in turn, recovering all starch remaining in such feed by washing; whereby the germs, the feed, and the starch, are obtained substantially free from each other, and in an increased amount of each, substantially as set forth.

664,259. PROCESS OF SEPARATING GERMS, &c., IN MAKING STARCH. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Sept. 1, 1896. Serial No. 604,510. (No specimens.)

Claim.—1. The improved process of treating cereals, substantially as set forth: by breaking or otherwise reducing the corn with water; washing the commingled hulls and germs free of the starch liquor produced; immersing and separating the washed hulls and germs in a separator medium consisting of a solution of a soluble substance foreign to the said cereals, of a suitable density; and thereafter recovering the said solution from the said germs and the said hulls, and reintroducing it with the separator, supplying the solution at the required density and drawing it off, independently of the amount of hulls and germs supplied.



2. The improvement in the process of treating cereals, substantially as set forth: which consists in coarsely breaking, or otherwise partially reducing without grinding the corn; washing the commingled hulls and germs free from the starch liquor produced; immersing and separating the hulls and germs in a separator medium consisting of brine, of proper density; drawing off the germs from above and the hulls from below; supplying the solution at the required density and drawing it off, independently of the amount of hulls and germs supplied; recovering the said medium from the said germs and hulls and washing the said germs; thereafter grinding the hulls with water and separating the hulls from the starch liquor thereby produced.

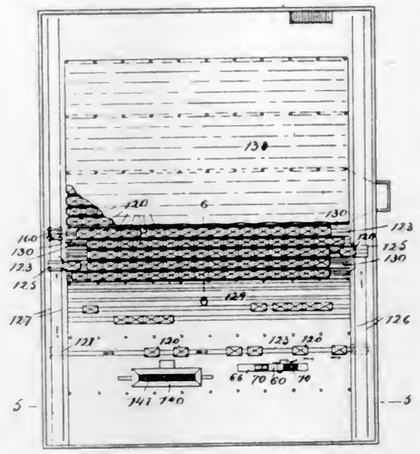
3. The improvement in the process of treating cereals, for the separation of germs, substantially as set forth: which consists in washing the ground hulls and germs free from starch liquor; then immersing the ground hulls and germs in a brine solution of suitable density; floating and collecting the said germs, and drawing off the said hulls from below; supplying the solution at the required density and drawing it off, independently of the amount of hulls and germs supplied; thereafter recovering the said solution by screening and washing; restoring the said solution to its original density, compensating, as required, for loss; and reusing the said solution for the further separation of germs and hulls.

4. In the process of treating cereals, the separation of germs, hulls, and starch liquor by first freeing the ground or otherwise prepared hulls and germs from starch liquor and immersing them in a solution of suitable density; and by supplying and drawing off the said solution independently of the amount of hulls and germs supplied thereto; whereby any desired circulation may be established and maintained regardless of the amount of cereals treated.

5. The improvement in the process of treating cereals for the separation of germs, which consists in disintegrating the cereal and then washing away the starch particles disengaged during the process of disintegration and mixing the disintegrated grain freed from said starch particles with water the density of which has been increased by the addition of salt or other soluble ingredient.

664,260. MANUFACTURE OF STARCH. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Sept. 29, 1897. Serial No. 653,453. (No model.)

Claim.—1. In combination in spreading and evening apparatus, a table or support for the trays, mechanical spreading mechanism mounted above the said support or table, and means for adjusting the height of the said mechanism relatively to the said table to increase or decrease the thickness of material to be spread, substantially as set forth.



2. In combination with a support or guideway for moving starch-trays, mechanical spreading mechanism acting upon the starch upon such moving trays, and an eccentric mounting for the said spreading mechanism, adjustable to raise and lower it, substantially as set forth.

3. The car or wagon provided with wheels 122, and means for receiving and loosely supporting without securing the longitudinally-extending bar 150, substantially as and for the purposes set forth.

4. As means for advancing the series of cars and coupling on successive cars at the rear, a bar 150, openings in the said cars through which the said bar extends, and a coupling-piece removably secured to the rear end of the said car and of size sufficient to prevent its being drawn through the said cars, substantially as set forth.

5. In combination with a hopper 140, a screw conveyer having two reversely-inclined portions 141 acting in opposite directions to convey material from the said hopper, whereby the material may be transmitted in either of two directions at will, substantially as set forth.

664,261. DEVICE FOR SEPARATING GERMS FROM HULLS OF CORN. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Oct. 29, 1896. Renewed May 2, 1900. Serial No. 15,273. (No model.)

Claim.—1. In combination with a separator-tank, conveyers arranged to feed the material in an endless path, two or more delivery devices from the said conveyers, one of which supplies the said separator-tank, means for supplying separating medium to the said tank, and means for delivering material from the bottom of the said tank and from the surface of the medium in said tank, substantially as set forth.

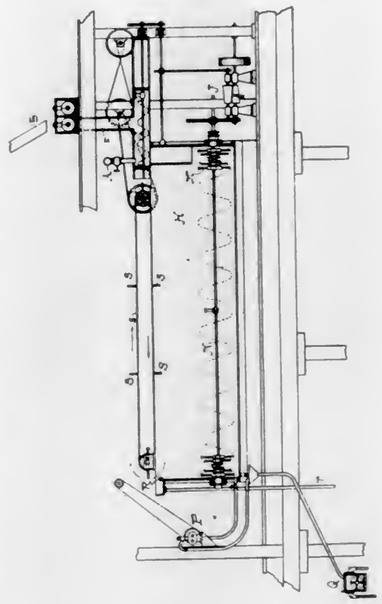
2. In combination with a plurality of discharge devices, the conveyer C delivering material to the said plurality of discharge devices, and a conveyer and connections therefor for returning some of the material from the rear end of the said conveyer C and redelivering it to the said conveyer C, substantially as set forth.

3. The distributer, including a plurality of mechanical conveyers, conveying material in an endless path, and a plurality of separate delivery devices from the said conveyers, whereby irregularities in the feeding of material to the said distributer may be automatically compensated for and the material more evenly fed to the said plurality of delivery devices, substantially as set forth.

4. The distributer including a plurality of conveyers feeding the material in an endless path, and means for supplying the material to the said plurality of conveyers, a plurality of chutes F opening from the said distributer and an overflow or delivery device for the surplus, substantially as set forth.

5. The distributer or feeder, including the pair of parallel conveyers C, D, feeding material in opposite directions and delivering from one to the other at each end, and a plurality of delivery-chutes therefrom, substantially as set forth.

6. In combination with a conveyer having one or more delivery-openings therefrom, means for carrying and delivering surplus material from the rear end of the said conveyer back to its receiving end, substantially as set forth.



7. In combination with a mechanical conveyer provided with one or more delivery-openings therefrom and actuated to convey the material toward a given point, a second mechanical conveyer actuated to deliver material from the said given point, and means for delivering material from one conveyer to the other at the said given point and at the other end of the said conveyers, whereby material delivered to the said conveyers at any point may travel in an endless path until delivered through the said delivery-openings, substantially as set forth.

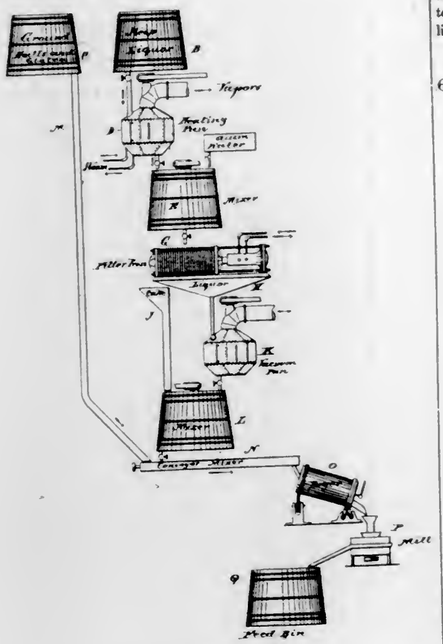
8. In combination, a conveyer C having a plurality of discharge devices, a plurality of conveyers, I, severally receiving material from the said discharge devices and delivering the same toward several points of discharge, and means for carrying the surplus material from the rear end of the first said conveyer back to its receiving end, whereby an automatic distribution of material may be effected, substantially as described.

664,262. PROCESS OF MANUFACTURING CATTLE-FEED. THOMAS GAUNT, Peoria, Ill., assignor of two-thirds to William Hamlin and Harry Hamlin, Buffalo, N. Y. Filed Sept. 29, 1897. Renewed July 14, 1900. Serial No. 23,677. (No specimens.)

Claim.—1. The improved process of producing cattle-food, which consists in adding alum to the steep liquor obtained by steeping the cereal in aqueous solution or water, filtering the resultant mixture, concentrating the filtrate, and thereafter commingling the filtrate and the precipitate from the filter with the ground hulls or husks and drying the resultant mixture, substantially as set forth.

2. The improved process of producing cattle-food, which consists in heating, and adding alum to, the steep liquor obtained by steeping the cereal in aqueous solution or water, filtering the resultant mixture, concentrating the filtrate, and thereafter commingling the filtrate and the precipitate from the filter with ground hulls or husks and drying the resultant mixture, substantially as set forth.

664,262.


Vapors
Heating Pipe
Mixer
Liquor
Mixer
Mixer
Mixer

27. In a mercurial electric meter, a vertical shaft 4 a ballast weight or stopper 7; an elastic friction-clamp for sustaining the said weight upon the said shaft, substantially as specified.

28. In an electric meter a mercury-receptacle, a vertical shaft 4; an upper cover 8 for said receptacle; a central hole passing up through said cover for said shaft, and for a mercury column or passage-way combined with a vent-hole and stopper 35 down through said cover for facilitating the filling or emptying of said receptacle substantially as shown and for the purpose specified.

29. In a mercurial electric meter, a vertical shaft 4; a ballast weight or stopper 7; a spiral-spring clamp 24 for sustaining the said weight upon said shaft, substantially as shown and specified.

30. In an electric meter a circular metal armature submerged in mercury, a vertical shaft 4 for said armature; a ballast-weight 7 carried by said shaft to counteract the buoyancy of said armature in said mercury; small annular weights 41 with an opening at one side so they can be readily passed around or removed one by one from said shaft when both its ends are engaged, thus affording a ready means of altering or adjusting the depressing-weight to balance the buoyancy of said armature in said mercury.

31. In a mercurial electric meter, a means of regulating said meter, consisting of a shunt-circuit, a portion of which is a loop in the form of a U or is doubled back on itself, so that the going and coming legs thereof run parallel in close proximity with one another; and a drop of solder 37 applied at a point to give the desired conductivity by joining the two legs together thus short-circuiting a part of the resistance of said loop substantially as shown and specified.

32. In an electric meter a backboard 10 being the support for the mechanism of said meter; a metallic cover covering said mechanism and surrounding said board, insulating-cleats across the back of said board, a sheet of metal covering the back of said board so as to exclude exterior moisture from it, and completing the metal covering for said mechanism and backboard substantially as described.

33. In an electric meter a metal armature submerged in mercury a vertical shaft 4 for said armature, a multiple of depressing-weights for counteracting the buoyancy of said armature in said mercury; a device for supporting said weights on said shaft, and a means by which a part of them can be readily removed or more of them may be added as the case may require for the purposes specified.

34. In an electric meter in combination with an integrating mechanism, the disk 2 of copper submerged in mercury and being a closed conductor; the iron plate 6 forming the bottom pole-piece; the top non-magnetic piece 3, the small pole-piece 5 piercing the said part 3 and presenting its face parallel to the other said pole-piece; the permanent magnet 1 joining said pole-pieces, and maintaining a concentrated field between them, and suitable electrodes for leading and concentrating the passing current in said disk at the point of intersection of said field; all substantially as shown and specified.

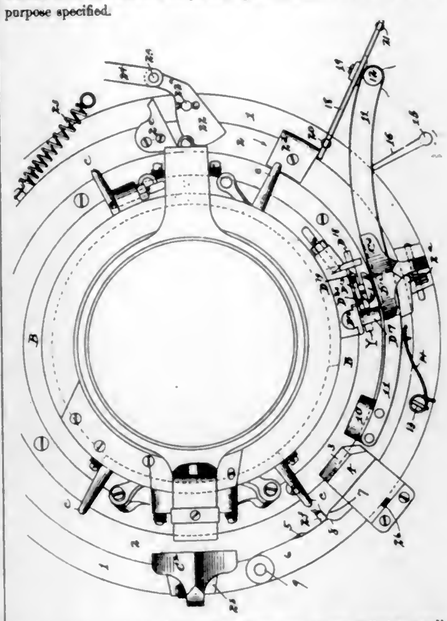
35. In an electric-current meter, having a split or shunt circuit for conducting through the meter the measured current; a closed conductor 2 for a Foucault magnetic brake; an armature-circuit being one shunt or branch of said split circuit, and having a large and substantial part of its resistance composed of a conductor whose resistance increases more with any increase in its temperature than does the resistance of the other branch or shunt of said circuit, so as to decrease the proportionate amount in said armature-circuit of the total current passing through said meter so as to compensate somewhat for the decrease in dragging currents in said closed conductor, on account of any increase in temperature.

664,266. CIRCULAR-KNITTING MACHINE. HOWARD E. HARRAUGH, Kenosha, Wis., assignor to The Chicago-Rockford Hosiery Company, same place. Filed Oct. 5, 1900. Serial No. 32,197. (No model.)

Claim.—1. In a knitting-machine, in combination, a cam-cylinder, a needle elevating and depressing switch mounted on the interior thereof, on a rock-shaft adapted to be reciprocated endwise, and means for reciprocating such rock-shaft and switch endwise, substantially as and for the purpose specified.

2. In a knitting-machine, in combination, a cam-cylinder, a rock-shaft adapted to be slid back and forth endwise in a bearing in the interior thereof, a needle elevating and depressing switch mounted on the inner end of said rock-shaft and a switch-cam for sliding said rock-shaft and switch back and forth, substantially as and for the purpose specified.

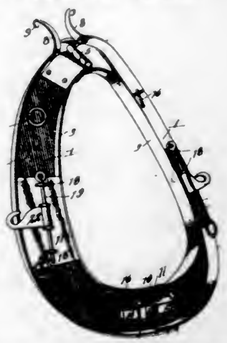
3. In a knitting-machine, in combination, a cam-cylinder, provided with a circumferential ledge and with guide-plates located above the same, needles having heels of three different lengths, and a switch consisting of a body provided in its face with a tapering groove, the under walls whereof are cut away to reduce their height, said cam having an endwise movement outward, whereby it is made to deflect the long-heeled needles upward upon the guide-plates, leaving the intermediate-heeled and short-heeled needles to knit a wide and deep stocking-heel, substantially as and for the purpose specified.



4. In a knitting-machine, in combination, a cam-cylinder, needles having heels of three different lengths—the intermediate-heeled needles being located in two groups, between the group of long-heeled and the group of short-heeled needles—and a switch consisting of a body provided in its face with a tapering groove, the inner walls whereof are cut away to reduce their height, said cam having an endwise movement outward, whereby it is caused to deflect the long-heeled needles upward out of action, leaving the intermediate-heeled and short-heeled needles in action to the heel of a stocking, substantially as and for the purpose specified.

5. In a knitting-machine, in combination, a cam-cylinder, a rock-shaft adapted to be slid back and forth endwise in a bearing in the interior thereof, a needle elevating and depressing switch mounted on the inner end of said rock-shaft, and a switch-cam for sliding said rock-shaft and switch back and forth, and means for operating said switch-cam, substantially as and for the purpose specified.

664,267. HORSE-COLLAR. ABRAHAM B. HARRIS, Etter, Va. Filed July 7, 1900. Serial No. 22,863. (No model.)

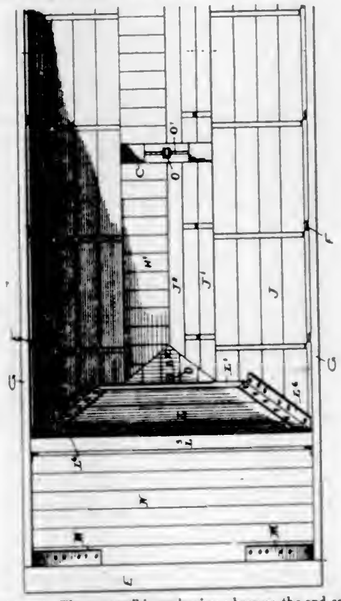


Claim.—1. A horse-collar comprising two sections provided at their side edges with longitudinal flanges, a hinge connecting the upper ends of the sections and arranged within the space between the longitudinal flanges and having its eyes located adjacent to the upper ends of the sections, said ends being curved downward to conform to the configuration of the eyes, and the guard presenting a concave face to the horse's neck and fixed to one of the sections at the upper end thereof and overlapping the other section to prevent the curved portions of the sections from coming in contact with an animal, substantially as described.

2. A horse-collar comprising the sections having inner and outer longitudinal flanges and provided at their upper ends with arms forming continuations of the outer flanges, a hinge connecting the upper ends of the sections and arranged in the space between the inner and outer flanges, and means for connecting the lower ends of the sections, substantially as described.

3. A horse-collar comprising two sections hinged at their upper ends and provided at their inner and outer side edges with longitudinal flanges and abutting together at their lower ends, said flanges being extended and forming a pair of overlapping arms 10 and 11, at each of the sides of the sections, and a locking device arranged in the space between the side flanges, substantially as described.

664,268. CONVERTIBLE DUMP-CAR. HARRY S. HART, Chicago, Ill. Filed Aug. 3, 1900. Serial No. 25,771. (No model.)



Claim.—1. The convertible car having a hopper, the end sections of which hopper are changeable in position to enable them to serve as end walls of the converted car, substantially as specified.

2. The convertible car having a hopper, the side sections of which hopper are changeable in position to enable them to serve as parts of the floor in the converted car, and the end sections of which hopper are changeable in position to enable them to serve as end walls to the converted car, substantially as specified.

3. The combination in a convertible car, of the needle and header beams supporting the changeable side hopper-sections with said sections, substantially as specified.

4. The combination in a convertible car of a hopper, the lower portion of which is stationarily located, and the upper portion of which is composed of movable sections changeable in position and all serving as part of the flooring and ends of the car when converted into a flat-bottomed car, substantially as specified.

5. The combination in a convertible car, of a hopper having changeable end sections L and stationary cross-pieces M acting together to form end walls of the car when used as a flat-bottomed car, substantially as specified.

6. The combination in a convertible car, of a hopper having changeable end sections L provided with angle-irons L^3, and stationary corner-pieces M, substantially as specified.

7. The combination in a convertible car of changeable side hopper-sections H and J, and changeable end hopper-sections L, the latter having angle-irons L^4 serving as a means of uniting said sections when arranged together in the hopper, substantially as specified.

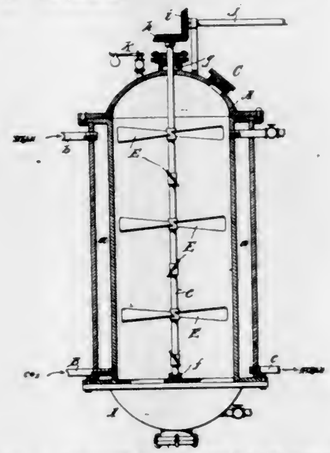
8. The combination in a convertible car, of changeable hopper side sections and stationary hopper side sections, both provided with angle-irons at their abutting edges, substantially as specified.

9. The combination in a convertible car of the movable side hopper-sections, each having angle-irons along their longitudinal edges, of the rests O' receiving said irons, and supporting-beams for said rests, substantially as specified.

10. In a convertible car, the combination with the side stakes F, of changeable side hopper-sections having transverse angle-iron ribs, and means for attaching said ribs to said stakes, substantially as specified.

11. The car having fixed vertical sides and a hopper, the latter being removable and adapted to form the vertical ends of the car when converted from a hopper to a flat-bottomed car, substantially as specified.

664,269. PROCESS OF RECOVERING ZINC. CARL HOEPFNER, Frankfort-on-the-Main, Germany. Filed Nov. 18, 1897. Serial No. 658,995. (No specimens.)



Claim.—1. The process, which consists in acting upon zinc oxid or a material containing it, with a solution of calcium chlorid at a temperature above normal and a pressure above atmospheric, and precipitating the zinc as a hydroxid, substantially as described.

2. The process, which consists in reacting upon zinc carbonate or a material containing it, with a solution of calcium chlorid under a temperature above normal and a pressure above atmospheric, and recovering the zinc from the solution, substantially as described.

3. The process, which consists in reacting upon zinc oxid or a material containing it, with carbonic acid and a solution of calcium chlorid, at a temperature above normal and a pressure above atmospheric, and recovering the zinc from the solution, substantially as described.

4. The process, which consists in reacting upon zinc carbonate or a material containing it, with a solution of calcium chlorid at a temperature above normal and a pressure above atmospheric, recovering zinc from the solution so formed and concentrating the latter, for the purpose set forth.

5. The process, which consists in reacting upon zinc carbonate or a material containing it, with a solution of calcium chlorid at a temperature above normal and a pressure above atmospheric, precipitating from the solution so obtained a portion of the zinc as a hydroxid by means of a suitable precipitant, recovering the zinc therefrom, and returning the solution into the cycle of operations, substantially as described.

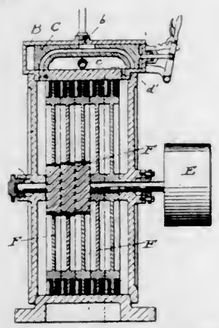
6. The process, which consists in reacting upon zinc oxid or a material containing it, with carbonic acid and a solution of calcium chlorid at a temperature above normal and a pressure above atmospheric, precipitating a portion of the zinc as hydroxid with a suitable precipitant, as lime, removing the precipitated zinc hydroxid, and using the regenerated calcium-chlorid solution in the treatment of more raw material, substantially as set forth.

7. The process which consists in reacting upon zinc carbonate or a material containing it, with a solution of calcium chlorid at a temperature above normal and a pressure above atmospheric, recovering a portion of the zinc electrolytically and the remaining zinc as a hydroxid by means of lime, concentrating the solution and returning it into the cycle of operations, substantially as described.

664,270. STEAM-ENGINE. PAUL HUEBNER, Milwaukee, Wis. Filed Apr. 30, 1900. Serial No. 14,872. (No model.)

Claim.—1. A steam-engine comprising a cylinder, a shaft for which the cylinder-heads are provided with bearings, an annular device that be-

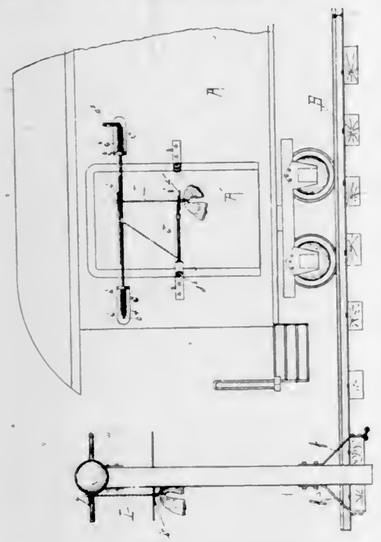
ing fast on the shaft within the cylinder in position to provide for steam-spaces adjacent to said heads is grooved at intervals of its periphery at an angle crosswise of its face, the depth of the grooves being the same throughout the series, and valve mechanism controlling ports in register with the steam-spaces aforesaid.



2. A steam-engine comprising a cylinder, a shaft for which the cylinder-heads are provided with bearings, an annular device comprising a series of disks fast on the shaft within the cylinder in position to provide for steam-spaces adjacent to said heads, each disk being grooved at intervals of its periphery at an angle crosswise of its face, the depth of the grooves being the same in all disks with the latter arranged to provide for registration of their grooves throughout the series, and valve mechanism controlling ports in register with the steam-spaces aforesaid.

3. A steam-engine comprising a cylinder, a shaft for which the cylinder-heads are provided with bearings, an annular device comprising a series of disks fast on the shaft within the cylinder in position to provide for steam-spaces adjacent to said heads, each disk being grooved at intervals of its periphery at an angle crosswise of its face the depth of the grooves being the same in all disks with the latter arranged to provide for registration of their grooves throughout the series, the terminals of the blades between grooves being beveled to provide for steam-clearance, and valve mechanism controlling ports in register with the steam-spaces aforesaid.

664,271. **MAIL-BAG CATCHER AND DELIVERER AND RAILROAD APPLIANCE THEREFOR.** LESLIE D. JOBES, Erie, Pa. Filed June 4, 1897. Serial No. 639,446. (No model.)



Claim.—1. In a mail-bag catcher, the combination of a flexible bag-carrier, arranged to support the bag; and a catcher arranged to engage and hold said carrier in position to support the said bag.

2. In a mail-bag catcher, a combination of a flexible bag-carrier arranged to support the bag; a catcher composed of rigid members arranged to receive said carrier and hold it against rebound.

3. In a mail-bag catcher, the combination of the bag-carrier; and a catcher provided with a receiving-slot, a deflector and a retaining-hole into which said slot opens, arranged to receive deflect and retain said carrier.

4. In a mail-bag catcher, the combination with a bag-carrier; of a catcher provided with a receiving-slot, a deflector projecting into said slot, and retaining-holes at each side of said deflector arranged respectively to receive, deflect and retain said carrier.

5. In a mail-bag catcher, the combination of a bag-carrier comprising a suspending means having an enlargement thereon; and a catcher composed of rigid members arranged to receive said carrier and hold it against rebound.

6. In a mail-bag catcher, the combination of a bag-carrier comprising a flexible suspending means having an enlargement thereon; and a catcher composed of rigid members arranged to receive said carrier and hold it against rebound.

7. In a mail-bag catcher, the combination of a bag-carrier comprising a suspending means having an enlargement; and a catcher provided with a receiving-slot wider than said suspending means and narrower than said enlargement.

8. In a mail-bag catcher, the combination of the carrier comprising the suspending means, I, and enlargement, i; and the catcher comprising a plate provided with a receiving-slot e, deflector e', and retaining-hole, e^2.

9. In a mail-bag catcher, the combination of a metallic bag-carrier; a catcher composed of rigid members arranged to receive said carrier and hold it against rebound; and means of changing said catcher mechanism to adapt it to hold a bag-carrier for delivery.

10. In a mail-bag catcher, the combination of a bag-carrier; a catcher provided with a receiving-slot, a deflector and a retaining-hole arranged to receive, deflect and retain said carrier; and means of bridging said slot to adapt said catcher to hold said carrier for delivery.

11. In a mail-bag deliverer, the combination of a mail-bag carrier comprising a flexible suspending means provided with an enlargement; and a holding means arranged to engage and detachably hold said carrier.

12. In a mail-bag deliverer, the combination of a bag-carrier comprising a suspending means provided with an enlargement; and a holding means arranged to engage and detachably hold said carrier at two points along its suspending means.

13. In a mail-bag deliverer, the combination of a bag-carrier comprising a flexible suspending means provided with an enlargements; and a holding means arranged to engage and detachably hold said carrier at two points along its suspending means.

14. In a mail-bag deliverer, the combination of a bag-carrier comprising a suspending means provided with two enlargements; and means arranged to detachably engage said carrier at the points of enlargement.

15. In a mail-bag deliverer, the combination of a bag-carrier comprising a suspending means provided with two enlargements; and means arranged to detachably engage said carrier at the points of enlargement.

16. In a mail-bag deliverer, the combination with a bag-carrier comprising a suspending means provided with two enlargements; means of detachably holding said carrier at one enlargement; and a guide-lever provided with a spring-clamp for engaging and guiding said carrier at the other enlargement.

17. In a car mail-deliverer, the combination with the car; of a bag-carrier comprising a suspending means; a holder pivoted on the car and arranged to engage and detachably hold said suspending means; a guide-lever pivoted to the car and arranged to engage and detachably hold said suspending means; and means connecting said holder and lever and arranged to make one swing with the other.

18. In a car mail-deliverer, the combination with the car; of a bag-carrier; a holder arranged to engage and detachably hold said carrier; and a guide-lever pivoted to the car-door casing or in close proximity thereto and with the angle of the axis of the pivot such as to bring the lever toward the center of the door and out from the car when the lever is thrown to operative position and along the door-casing when thrown to the ordinary running position.

19. In a car mail-deliverer, the combination with the car; of a bag-carrier; a holder pivoted to the car and arranged to engage and detachably hold said carrier; a link secured to said holder; two pivot-brackets one at each side of the car-door; and a guide-lever connected to said link and arranged to be pivoted to either of said pivot-brackets and to be swung to position by said link with said holder.

20. In a mail-bag deliverer, the combination with the bag-carrier; of a spring-clamp for engaging and detachably holding said carrier which clamp comprises the tubular portion having slots, j^3, sleeve, j^4, on said tubular portion, the pin, j^5, clamping-fingers, j^6, and spring, j^7.

21. A catch-plate for mail-bag catchers comprising a receiving-slot e, deflector, e' and retaining-hole e^2.

22. A catch-plate for mail-bag catchers comprising a receiving-slot, e, the deflector, e', and retaining-holes, e^2 e^3, one each side of the deflector.

23. A flexible bag-holder for mail-bag catchers comprising means of engaging the delivery-holder and catching mechanism.

24. A bag-holder for mail-bag catchers comprising means of engaging the delivery-holder and the catching mechanism; and a slip-noose secured thereto adapted to secure the bag by encircling it.

25. In a station mail-bag deliverer, the combination with the crane; of a forked lever at the top; a guiding means below; and a bag-carrier comprising a suspending means adapted to be engaged and held between the forks of the forked lever and by the guiding means below.

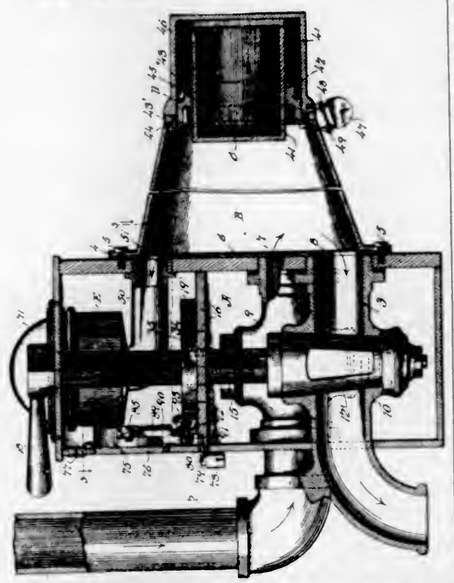
26. In a station mail-bag deliverer, the combination with the crane; of a forked lever at the top; a guiding means below; and a bag-carrier comprising a flexible suspending means adapted to be engaged and held between the forks of the forked lever and by the guiding means below.

27. In a station-deliverer, the combination with the crane; of the forked lever at the top; the catch-plate, H', below provided with the bridged receiving-slot; and a bag-carrier having a suspending means provided with an enlargement to engage the forks of the upper lever and an enlargement arranged to engage the plate, H', from below with the suspending means in the receiving or delivery slot.

28. A catcher-plate for mail-bag catchers comprising at each end a receiving-slot, a deflector and a retaining-hole.

29. A catcher and delivery plate for mail-bag catchers and deliverers comprising at each end a receiving-slot, a deflector, a retaining-hole and a bridge-plate for bridging the receiving-slot.

664,272. **MEASURING AND REGISTERING APPARATUS.** GEORGE W. JOHNSON, Mexico, Mexico. Filed Feb. 11, 1899. Serial No. 705,297. (No model.)



Claim.—1. In an apparatus of the class specified, a measuring-reservoir in combination with a longitudinally-adjustable cylinder having a closed end projecting into the reservoir, a cap removably applied to the outer end of the cylinder in locked position thereover, a supply-pipe leading to said reservoir, a discharge-pipe leading from said reservoir, valves for controlling the supply and discharge, and mechanism in connection with the stems of the said valves for providing a locking means and including disks attached to the stems, a bolt movably connected to and controlled in its movements by the operation of one of the disks and adapted to be engaged with or disengaged from the opposite disk, and means for guiding the said bolt.

2. In an apparatus of the class specified, a measuring-reservoir in combination with a longitudinally-adjustable cylinder having a closed end exposed in said reservoir and adapted by its adjustment to vary the containing capacity of said reservoir, a cylinder-cap exclusively surrounding said cylinder and having a longitudinal dimension sufficient to permit of the maximum exterior adjustment of the cylinder exclusively surrounded, and serving to prevent access thereto, and means for removably locking the cap in position.

3. In an apparatus of the class specified, a measuring-reservoir having a reduced annularly-flanged end, a ring provided with a flange secured to and projecting rearwardly from said annularly-flanged end, a cylinder longitudinally movable in the ring and extending into the reservoir and serving to vary the containing capacity of said reservoir, and a movable binding device carried by the ring and adapted to engage said cylinder for holding the same in an adjusted position, substantially as described.

4. In an apparatus of the class specified, a measuring-reservoir having a flange, a ring provided with a flange fitting against said first-mentioned flange and interiorly threaded, a cylinder exteriorly threaded and adapted to engage the threads on said ring, the inner end of the cylinder being closed, a set-screw carried by the ring for engaging the cylinder, a cap in threaded engagement with the ring, and means for locking the cap to the reservoir, substantially as described.

5. In an apparatus of the class specified, the combination with a measuring-reservoir, of an exteriorly-threaded cylinder adjustable and having a closed end movable into the reservoir for varying the containing capacity of said reservoir, a removable cap for inclosing the regulating-cylinder and having a dimension to permit of the maximum exterior adjustment of said cylinder, valve-controlled supply and exhaust pipes in communication with the reservoir and connected for operation in alternation, a tank communicating with said measuring-reservoir and having a vent, a valve adapted to close said vent, and a float in said tank connected to and adapted to operate said valves, said float being actuated by the rise and fall of the liquid entering the tank from the measuring-reservoir.

6. In an apparatus of the class specified, the combination with a measuring-reservoir, and valve-controlled supply and exhaust pipes in communication therewith and connected for operation in alternation, of a tank, a pipe connecting the tank and reservoir, a valve adapted to close a vent in the tank, a float in said tank adapted to operate said valve and actuated by the rise and fall of the liquid entering the tank from the measuring-reservoir, and a guard located over the discharge end of said pipe and adapted to receive the direct force of the air and water as the same enter said tank from the measuring-reservoir, substantially as described.

7. In an apparatus of the class set forth, the combination with a casing, of a measuring-reservoir, a tank communicating with the upper part of said reservoir and having a vent, a longitudinally-adjustable cylinder for varying the containing capacity of said reservoir for measuring different quantities, an inclosing cap for said cylinder, valve-controlled supply and exhaust pipes in communication with the reservoir below the point of communication of said tank therewith, and connected for operation in alternation, a float in said tank provided with centering and guiding means, a valve adapted to close the vent of the tank, and a stem connecting the float and valve and extending upwardly through the top of the casing.

8. In an apparatus of the class specified, the combination with a measuring-reservoir and with valved supply and discharge pipes, a tank communicating with said reservoir and having a vent, and also having its bottom depressed and formed with ports communicating with the space formed by the said depression, a valve adapted to close said vent, a float in the tank having an annular bead on its under side adapted to rest on the outer portion of the bottom of the tank and provided upon its side with projections contiguous to the inside of the tank, and a valve for said vent in position to be operated by the float, substantially as described.

9. In an apparatus of the class specified, the combination with a measuring-reservoir and with valved supply and discharge pipes communicating therewith, a tank having a vent and a depressed bottom, the latter formed in its outer portion with ports, a pipe connected with the central depressed portion of the tank and with the reservoir, a guard in the depression of the tank and connected with the floor thereof by offsets and extending over the discharge end of said pipe and serving to prevent the direct application of the rising air and liquid to the float, a valve for said vent, and a float located above the guard and connected with the valve for operating the same, substantially as described.

10. In an apparatus of the class specified, the combination with supply and discharge pipes, and rotatable valves for controlling said pipes, of a shiftable locking device comprising a slidable bolt located horizontally between and connected to an attachment for one of the valves and unconnected to and disposed for loose engagement with an attachment for the other valve, the bolt being actuated in alternation for locking said valves by the movement of one of the latter.

11. In an apparatus of the class specified, the combination of a reservoir, supply and discharge pipes leading to and from different portions of said reservoir, rotatable valves for controlling said pipes oppositely disposed in planes at right angles to the latter and independently operable, a concealed longitudinally-slidable locking-bolt intermediate of the valves

and actuated by one of the latter to lock the other, a link movably connected at opposite extremities respectively to a disk on one valve-stem and the bolt, and disks on the valve-stems disposed in horizontal planes, one having a recess in the periphery to loosely and removably receive the end of the bolt, the other disk having the link connected thereto.

12. In an apparatus of the class specified, the combination with a measuring-reservoir, independent discharge and supply pipes communicating with said reservoir, and independently-operable rotatable valves for controlling said supply and discharge pipes, of means for limiting the rotatable movement of the valves and properly positioning them, a concealed longitudinally-slidable locking device between the valves, a link pivotally connected at opposite extremities respectively to a device on one of the valve-stems and to the bolt, the one extremity of the bolt loosely and removably engaging a device on the valve-stem opposite that to which the link is indirectly connected, and exteriorly-located means for operating valves.

13. In an apparatus of the character set forth, the combination with supply and discharge controlling means including two rotatable valves provided with parallel vertical stems, of disks horizontally disposed on said stems, and movable therewith, one of the disks having a notch in its periphery and both slotted segmentally to engage limiting-stops, a guide-bracket interposed between the disks, a bolt slidably mounted in said bracket, and a link pivotally connected at its opposite extremities respectively to the bolt and one of the disks and operated by the latter disk to removably engage the notch in the opposite disk.

14. In an apparatus of the class specified, the combination with a measuring-reservoir, of supply and discharge pipes communicating with said reservoir, supply and discharge valves located in the pipes and having stems, two disks each having cut-out portions thereby producing shoulders on the disks, and one of said disks having a notch, a slide coöperating with the disk that is connected with the discharge-valve, a link joined to the slide and also connected with the supply-valve, and stops disposed in the path of said shoulders, substantially as described.

15. In an apparatus of the class specified, the combination with a measuring-reservoir, of supply and discharge pipes communicating therewith, supply and discharge valves operative in the respective pipes, a stop connected with the discharge-valve, a sliding stop coöperating with said first-mentioned stop, a slotted guide for guiding the slide in a straight path, a link connected with the supply-valve, and a pivot joining said link to the slide, the pivot extending through the slot in said plate, substantially as described.

16. In an apparatus of the class specified, the combination with a measuring-reservoir, of supply and discharge pipes communicating therewith, supply and discharge valves, a bar, a lever adapted to engage said bar, a spring-actuated block connected with one of the valves for operating said lever, and a register in position to be operated by said bar, substantially as described.

17. In an apparatus of the class specified, the combination with a measuring-reservoir, of supply and discharge pipes communicating with said reservoir, supply and discharge valves located in the pipes, a register having a spring-operated bar, a pendent lever adapted to engage said spring-operated bar and having a beveled portion, and a spring-actuated device connected with one of the valves and provided with a beveled portion to ride over the beveled portion of the lever in one direction and adapted to engage therewith on moving the lever in the opposite direction, substantially as described.

18. In an apparatus of the class set forth, the combination with a casing provided with a shelf or partition dividing the casing into two compartments, supply and discharge pipes extending through the casing, a reservoir secured to the casing and communicating with said pipes, valves in the latter having stems provided with operating devices, means controlled by the change of level of the liquid in the upper compartment for exhausting the air and preventing the escape of the liquid, and interlocking stop devices connected with the valve-stems and supported by said shelf or partition for preventing the opening of both valves simultaneously, substantially as set forth.

19. In an apparatus of the class described, the combination with a casing, of a reservoir fitted to the casing, a longitudinally-adjustable cylinder for regulating the contents of the reservoir, a cap detachably fitted to the reservoir over the said cylinder, a lock for connecting the cap with the reservoir, supply and discharge pipes communicating with the reservoir and provided with valves, the stems of which carry operating devices, and interlocking stop devices connected with the valves, substantially as described.

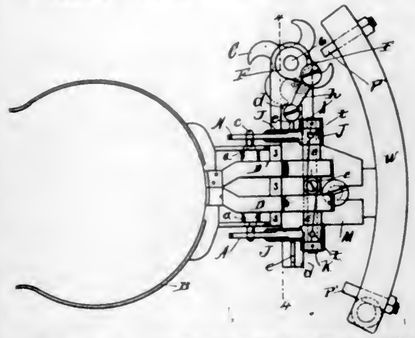
20. In an apparatus of the class specified, the combination with a casing having openings, of a circular washer fitted against the rear side of the casing and having openings registering with the openings in the casing, a reservoir fitted to the casing and surrounding said openings, a cap detachably connected with the reservoir, a lock for securing the cap in place, a device operable with the reservoir for regulating its cubical contents and inclosed within the said cap and protected thereby, supply and discharge pipes communicating with the reservoir and having valves the stems of which are provided with operating devices, and interlocking stop devices suspended in the casing and connected with the valve-stem, substantially as described.

21. In an apparatus of the class specified, a measuring-reservoir in combination with a longitudinally-adjustable cylinder for varying the containing capacity of said reservoir to measure different quantities, an inclosing cap for said cylinder removably applied in locked position thereover, a supply-pipe leading to the upper portion of the reservoir, a discharge-pipe leading from the lower part of said reservoir, valves in the said supply and discharge pipes having upwardly-projecting parallel stems which are rotatable, and mechanism in connection with the stem of one of the valves for providing a locking means on the other stem and controlled by the movement of the valve-stem to which it is attached for disposition in a locked and in an unlocked condition.

22. In an apparatus of the class specified, the combination with a supply device, independent supply and discharge pipes for said supply device and having rotatable valves for controlling the supply and discharge to and from the reservoir, the said valves being provided with vertically-disposed parallel stems which are rotatable, a guide located between the valve-stems, and a longitudinally-shiftable rigid locking-bolt mounted in the said guide and connected to a device on one valve-stem and removably engageable with a device on the other valve-stem.

23. In a measuring device of the character set forth, the combination with a measuring-reservoir of means for varying its cubical capacity, horizontally-disposed supply and discharge pipes communicating with said reservoir, and rotatable valves in the supply and discharge pipes having upwardly-extending parallel stems, of disks horizontally disposed on and rotatable with the valve-stems, the disk on the discharge-valve stem having an upward projection and a recess in the periphery, means for limiting the rotary movement of the disks and stems, a guide-bracket interposed between the said disks, a longitudinally-slidable rigid locking-bolt mounted in the said guide and connected to the disk on the stem of the supply-valve and adapted to engage the recess on the disk in the stem of the discharge-valve, and a registering mechanism having an extending member in the path of movement of the projection on the disk carried by the discharge-valve stem.

664,273. YARN-GUIDE FOR KNITTING-MACHINES. HERBERT I. JONES, Riverside, R. I., assignor of one-half to Timothy T. Morrisey, Providence, R. I. Filed July 11, 1900. Serial No. 23,240. (No model.)



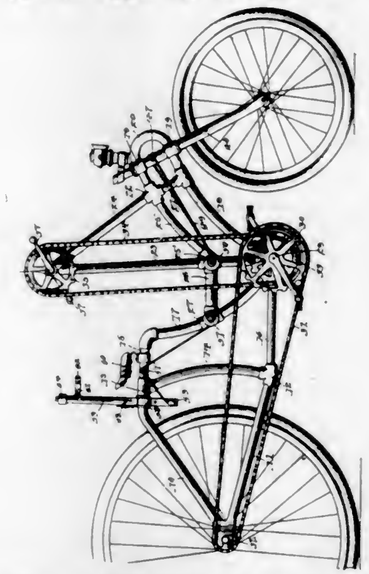
Claim.—1. In a yarn-changing feed mechanism for knitting-machines, the combination of two guides, a shaft to support the back ends of the guides, two arms held on said shaft, one outside each guide, a slotted plate placed between each guide and its arm, a pin fast in each guide and extending through its slotted plate and a slot in the inner end of its arm, substantially as described.

2. In a knitting-machine the combination of a shaft, two guides held on said shaft, an arm on the shaft outside of each guide, a slotted plate held between each arm and its guide, a pin fast in each guide and extending out through its slotted plate and a slot in its arm, a bar arranged to slide under the guides and arms, cams on said bar, with means for sliding said bar back and forth, substantially as described.

3. In a knitting-machine the combination of a shaft, two guides held on said shaft, an arm on the shaft outside of each guide, a slotted plate held between each arm and its guide, a pin fast in each guide and extending out through its slotted plate and a slot in its arm, a spring held in a stationary pin between the two guides and having one end bearing on a pin in the hub of one of the arms and its other end bearing on a pin in the hub of the other arm, substantially as described.

4. In a knitting-machine the combination of a shaft, two guides held on said shaft, an arm on the shaft outside each guide, a slotted plate held between each arm and its guide, a pin fast in each guide and extending out through its slotted plate and a slot in its arm, a cam-bar arranged to slide under the guides and arms, a vertical shaft with a crank on its upper end and a toothed wheel on its lower end, a plate with pins to catch and operate said toothed wheel, a rod fast in said plate, a setting-screw in the lower end of the rod, a lever pivoted on the frame, to receive the setting-screw on one end, a second lever pivoted on the frame, a rod connecting the free ends of the levers, a cam to operate said second lever, substantially as described.

664,274. BICYCLE. GEORGE G. KERR, Mount Jewett, Pa. Filed May 18, 1900. Serial No. 17,126. (No model.)



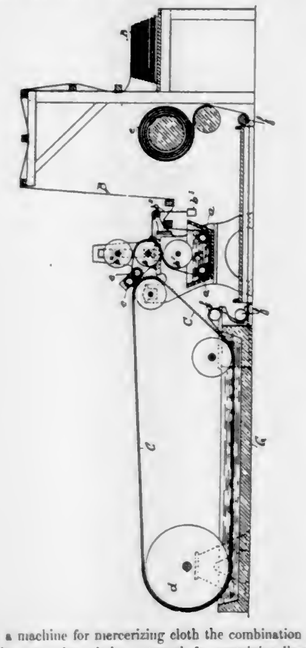
Claim.—1. A bicycle comprising a frame comprising parallel top and bottom bars, having their forward ends connected, spaced heads carried by the top and bottom bars in the rear of their points of connection, an upright connected with the rear ends of the top and bottom bars, and having a crank-hanger at the lower end thereof, bars connected with the crank-hanger and upright and having a rear wheel connected therewith, a front fork having a stem pivoted in the heads, a steering-wheel carried by the front fork, a seat disposed between the rear wheel and the upright, a steering-lever disposed in the rear of the seat and comprising a tubular portion having a screw mounted therein, a collar in the tubular portion and having a projecting portion, a nut upon the screw and adapted to move the collar in one direction as the screw is rotated, means for returning the collar when released by the nut and a back-rest carried by the projection of the collar, and a steering-cord wound upon the stem of the front fork between the heads and having its ends attached to the lever, and steering-cords wound upon the stem between the heads.

2. A steering-lever for bicycles adapted for connection with the steering-wheel thereof, said lever comprising a tubular portion having a screw mounted therein, a collar in the tubular portion and having a projecting portion, a nut upon the screw and adapted to move the collar in one direction as the screw is rotated, means for returning the collar when released by the nut, and a back-rest carried by the collar.

3. A steering-lever for bicycles adapted for connection with the steering-wheel thereof, said lever comprising a tubular portion having a screw mounted therein, a collar in the tubular portion and having a projecting portion, a nut upon the screw and adapted to move the collar in one direction as the screw is rotated, a spring adapted to move the collar in an opposite direction, and a back-rest mounted upon the projection of the collar.

664,275. MACHINE FOR MERCERIZING. ADOLF KERTESZ, Mainkur, Germany. Filed June 16, 1897. Serial No. 641,073. (No model.)

Claim.—1. In a machine for mercerizing cloth, the combination of a tenter-frame and its conveying-chains, a trough for containing liquid for the treatment of cloth placed in front of the tenter and through which trough the cloth to be treated passes before entering the tenter, and a continuous series of rollers in close proximity one to another between the point where the cloth enters the trough and where it is taken upon the tenter-frame, around which rollers the cloth passes on its way through the trough and from which it passes directly to the tenter, most at least of the rollers of said series being provided with fine spike-points whereby the cloth is treated and dried in one continuous operation.



2. In a machine for mercerizing cloth the combination of a tenter-frame and its conveying-chains, a trough for containing liquid for treating the cloth, rollers around which the cloth is intended to pass arranged to rotate in the trough below the surface of the liquid and provided with fine spike-points, pressing-rollers between which the cloth passes after leaving the liquid, and rollers provided with fine spike-points which receive the cloth from the pressing-rollers and deliver it directly to the tenter-chains, whereby the fabric is treated and dried in one continuous operation.

3. In a machine for mercerizing cloth the combination of a tenter-frame and its conveying-chains, a trough for containing liquid for treating the cloth, rollers around which the cloth is intended to pass arranged to rotate in the trough below the surface of the liquid and provided with fine spike-points, pressing-rollers between which the cloth passes after leaving the liquid, rollers provided with fine spike-points which receive the cloth from the pressing-rollers and deliver it directly to the tenter-chains, and a second trough to contain water or dilute acid through which the tenter-chains pass so that the cloth is finally washed while still stretched.

664,276. MEASURING INSTRUMENT. FRANK E. KING, Lawrence, Mass., assignor to the Lamson Store Equipment Company, Boston, Mass. Filed Nov. 8, 1898. Serial No. 695,910. (No model.)

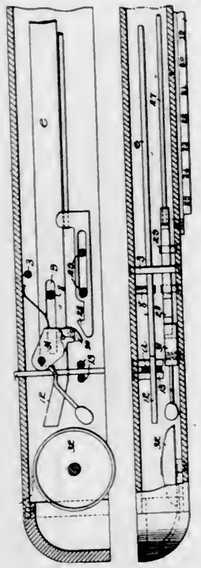
Claim.—1. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a reciprocated operating-pawl for the slide, and an automatically-movable detent mounted independent of the pawl preventing accidental movement of said slide, as set forth.

2. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a longitudinally-reciprocated operating-pawl for the slide, and a fixed pin for disengaging the pawl from the slide at the end of each step movement thereof, as set forth.

3. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a longitudinally-reciprocated operating-pawl for the slide, a movable detent engaging the slide, and means for releasing said detent at the commencement of each operating movement of the pawl, as set forth.

4. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a reciprocated operating-pawl for the slide, a mov-

able detent engaging the slide and means carried with the pawl for insuring engagement of the detent at the end of each of its operating movements as described.



5. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a reciprocated operating-pawl therefor, a movable detent engaging the slide, means carried with the pawl for disengaging the detent and other means also carried with the pawl for insuring the re-engagement of said detent at the end of the operating movement of the pawl, as set forth.

6. The combination of the inclosing case, a T-shaped step-by-step movable indicating-slide contained thereby, and oppositely-projecting pins carried by the case and forming supporting guide-pins for the slide, as set forth.

7. The combination, of a step-by-step movable indicating-slide, means for moving said slide, and a longitudinally-adjustable setting device movable with and independent of the slide, as set forth.

8. The combination of a step-by-step movable indicating-slide, means for moving said slide, a longitudinally-adjustable setting device detachably connected to the slide and movable therewith, a stop for limiting the movement of said device and slide, as set forth.

9. The combination of a step-by-step movable indicating-slide having horizontally-projecting rack-teeth and a reciprocated operating-pawl engaging said teeth, as set forth.

10. The combination of a step-by-step movable indicating-slide having horizontally-projecting rack-teeth and a toothed lower edge, a reciprocated operating-pawl engaging said rack-teeth and a detent engaging the toothed edge of said slide, as set forth.

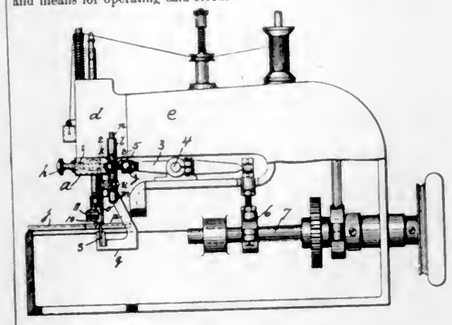
11. The combination of the step-by-step movable indicating-slide, means for operating the slide, a setting device movable with and independent of the slide, and an alarm mechanism operated by the setting device, as set forth.

12. In a measuring instrument, the combination of a step-by-step movable indicating-slide, a reciprocated operating-pawl for the slide, a movable detent engaging the slide, a rock-arm engaging the detent to release it at the commencement of movement of the pawl and a pin to insure the resetting of the rock-arm on its return movement, as described.

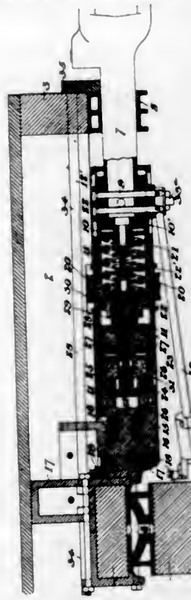
13. In a measuring instrument, the combination of a movable slide having laterally-projecting rack-teeth, an operating-pawl engaging said teeth, and an independently-movable setting device also engaging said teeth, as described.

664,277. TRIMMER FOR SEWING-MACHINES. HERMANN A KLEHM, New York, N. Y. Filed Apr. 27, 1900. Serial No. 14,541. (No model.)

Claim.—In a trimming attachment for sewing-machines in which the cutters are attached to a bracket that is detachably connected to the head of the stationary supporting-arm of the machine, the combination with the machine, of such bracket, having the head detachably attached to the machine-head, and being adjustable thereon so as to shift the cutters toward and from the needle for varying the widths of the trimmed margins of the work, and provided with means for so adjusting it; the vertical bar of said bracket having the bearing-lugs for the working-cutter stock, said stock mounted in said bearings, the working cutter attached to the lower end of said stock; pendent arm of said bracket for supporting the stationary cutter, stationary cutter mounted on said pendent arm, and means for operating said stock.



664,278. DRAFT-RIGGING. HARRY T. KRAKAU, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed Oct. 2, 1900. Serial No. 31,788. (No model.)



Claim.—1. In combination with a curved segment connected with a frame of the car, a draft-rigging mounted on the segment and arranged to move laterally, a connection extending from the draft-rigging to the truck, and spring mechanism carried by the draft-rigging in advance of the segment, and arranged to move laterally with the draft-rigging; substantially as described.

2. In combination with a draft-rigging, a curved bearing connected in advance of the body-bolster with the frame of the car, on which the draft-rigging can move laterally, and a piece interposed between the draft-rigging and bolster and adapted to constitute a backing for the draft-rigging and to transmit the strain to the bolster; substantially as described.

3. In combination with a draft-rigging having a draw-bar adapted to receive both buffing and pulling forces, a bearing on which the draft-rigging can swing laterally, said draft-rigging being backed by a part of the car-frame and adapted to transmit strains thereto; substantially as described.

4. In combination with a draft-rigging, a curved segment on which the draft-rigging can move laterally, and to which strains of draft and buffing are transmitted, and a frame to which the segment is connected, said frame being fixed to the car-sills and backed by the bolster; substantially as described.

5. A draft-rigging having longitudinally-sliding friction-plates, a slide-bar connected with the draw-bar, and a connection between the slide-bar and the said friction-plates adapted to draw them together when the draw-bar is moved lengthwise; substantially as described

6. A draft-rigging comprising a draw-bar adapted to receive and transmit the force of buffing and draft, said draft-rigging being pivotally mounted on the body of the car, arranged to swing laterally and abutting at its rear end in line with the shank of the draw-bar against a part of the car, and rods connecting said part with the end sill of the car; substantially as described.

7. A draft-rigging comprising a draw-bar adapted to receive and transmit the force of buffing and draft, said draft-rigging abutting at its rear end in line with the shank of the draw-bar against a part of the car and connected therewith to transmit thereto both the buffing and draft, rods connecting said part with the end sill of the car, and rods also connecting the same with a corresponding part at the other end of the car; substantially as described.

8. A laterally-swinging draft-rigging pivotally mounted on a curved segment on the body of the car, said draft-rigging comprising a draw-bar, and spring mechanism applied directly to the end of the draw-bar in advance of said segment, and arranged to move with the draw-bar in its lateral motions; substantially as described.

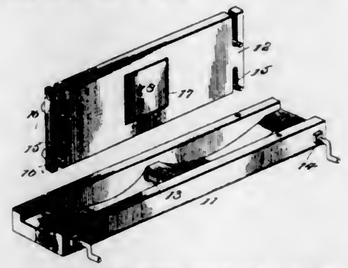
9. The combination with a laterally-movable draft-rigging, of a curved segment, and a head for the draft-rigging through which the segment passes, and which is adapted to move thereon; substantially as described.

10. The combination with a laterally-movable draft-rigging, of a curved segment 16, a head 15, a frame 17, and a wedge 18 interposed between the parts 15 and 17; substantially as described.

11. The combination with a laterally-movable draft-rigging, of a curved segment 16, a head 15, a frame 17, and the body-bolster, the said segment passing through the part 15; substantially as described.

12. A laterally-swinging draft-rigging pivotally mounted on the body of the car, said draft-rigging comprising a draw-bar, and longitudinal plates attached to the draw-bar extending rearwardly therefrom and arranged to slide therewith in its longitudinal motions, said plates having spring mechanism between them in advance of said pivotal connection, said spring mechanism being contained by and moved with said plates in the lateral movements of the draw-bar; substantially as described.

664,279. HARNESS-PAD FORMER. JOHN A. KRAMER, Winigan, Mo. Filed May 25, 1900. Serial No. 17,980. (No model.)

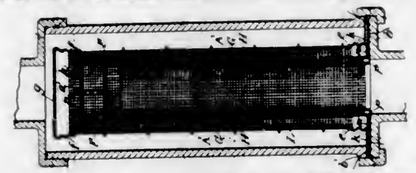


Claim.—1. In means for forming harness-pads, a mold comprising a body portion recessed to receive the pad-covering, a cap-plate for closing the top side of the recess and extending over the pad-covering to retain the latter in place during the process of stuffing, and a clamp disposed centrally of the mold to grip the neck portion of the pad-covering, substantially as set forth.

2. A mold comprising a body having a side recessed to form the mold-cavity, the latter having its central portion elevated, a cap-plate fitted over the recessed side of the mold and centrally depressed, and a clamp located in the depression of the cap-plate, substantially as described.

664,280. FILTER. EDWIN A. LELAND, Great Barrington, Mass., assignor to the Leland Filter Company, of Massachusetts. Filed Sept. 12, 1899. Serial No. 730,236. (No model.)

Claim.—1. In a filter the combination with a barrel or shell and a foraminated cylinder placed in said shell with a space between the cylinder and the shell and having a screw-threaded annulus at its inlet end, of an inner foraminated cylinder proportioned to afford a space between the two cylinders and having fast to its inlet end an annulus threaded to screw into the annulus of the larger cylinder and a circumferentially-extended flange projected beyond the annulus to engage between the end of the shell and an attached inlet-pipe; substantially as herein set forth

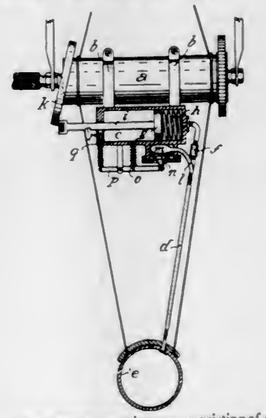


2. In a filter, the combination with a barrel or shell, of a foraminated cylinder which has a screw-threaded annulus at the inlet end of the filter, and a cross-piece at its opposite end with an opening in said cross-piece in the axial line of the cylinder, of a foraminated inner cylinder proportioned to afford a space between itself and the outer cylinder and having fast at one of its ends a threaded annulus which screws into the annulus of the outer cylinder and at the other has a guiding-stem arranged to pass through the opening of the cross-piece when the parts are united; substantially as herein set forth.

3. In a filter, the combination with a barrel or shell, of a foraminated cylinder which has a screw-threaded annulus at the inlet end of the filter and a detachable cap and a cross-piece at its uppermost end, said cross-piece having an opening in the axial line of the cylinder, of a foraminated inner cylinder proportioned to afford a space between itself and the outer cylinder and having at one end a threaded annulus which screws on the annulus of the outer cylinder and a flange which extends beyond the circumference of its said annulus and abuts against the end of the shell, a guiding-stem fast on the opposite end of the inner cylinder and arranged to pass through the opening in the cross-piece of the outer cylinder, and devices for clamping the flange between the end of the shell and the inlet-pipe through which the liquid to be filtered is supplied to the apparatus; substantially as herein set forth.

4. In a filter, the combination with a barrel or shell of a foraminated cylinder which has a screw-threaded annulus at the inlet end of the filter and a detachable cap and a cross-piece having an opening in the axial line of the cylinder, of a foraminated inner cylinder proportioned to afford a space between itself and the outer cylinder and having at one end a threaded annulus which screws on the annulus of the outer cylinder and a flange which extends beyond the circumference of its said annulus and abuts against the end of the shell, a guiding-stem fast upon the opposite end of the inner cylinder and arranged to pass through the opening in the cross-piece of the outer cylinder, a third foraminated cylinder inserted within the aforesaid inner cylinder close to the walls thereof and having a circumferential flange which lies below the flange of the said inner cylinder and a screw-coupling for holding the said two flanges together between the end of the shell and the inlet-pipe of the apparatus, substantially as herein set forth.

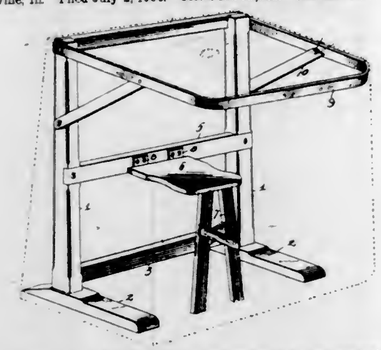
664,281. AUTOMATIC CYCLE-PUMP. WILHELM LOEBINGER, Berlin, Germany. Filed Feb. 23, 1900. Serial No. 6,259. (No model.)



Claim.—In an automatic cycle-pump consisting of a cylinder secured to the hub of the wheel and having a pipe connection with the interior of a pneumatic tire, a spring-held piston arranged within the cylinder and provided with a notched rod or stem carrying a roller at its outer end, and a fixed cam contacting with said roller when the pump is in operation, in

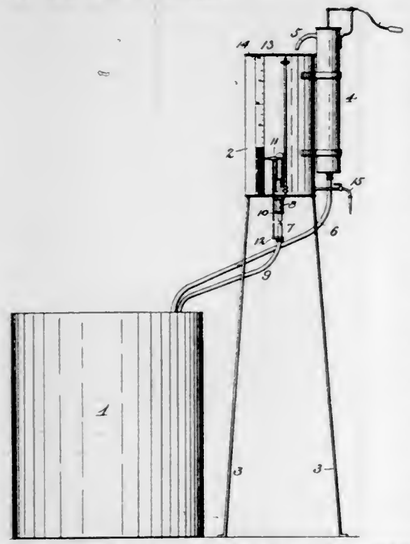
combination with a controlling device consisting of an expansible bag connected with the pipe connection aforesaid, a spring-held lever carrying at one end a piston adapted to be operated by said expansible bag, and at the other end a pin or bolt adapted to engage the notch in the piston-rod aforesaid, substantially in the manner and for the purpose set forth.

664,282. VAPOR-BATH CABINET. GEORGE W. MERKER, Belleville, Ill. Filed July 2, 1900. Serial No. 22,362. (No model.)



Claim.—A vapor-bath cabinet, consisting of a pair of vertical posts joined at the top and bottom by suitable braces, a footpiece pivoted to the lower end of each of the posts, a bow pivoted to the upper ends of the said posts, movable arms carried by said posts for upholding said bow, a central member 5 carried by said posts, a seat hinged to said central member, and legs or standards for upholding said seat, substantially as specified.

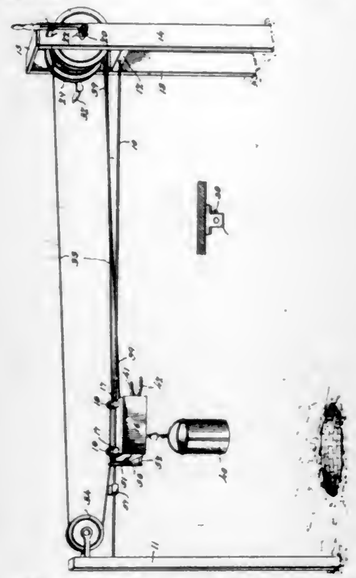
664,283. OIL TANK AND PUMP. BENJAMIN F. D. MILLER, Wooster, Ohio, assignor to Frank Herman, same place. Filed Aug. 21, 1900. Serial No. 27,612. (No model.)



Claim.—1. In a liquid-measuring device, the combination, substantially as described, with a reservoir for containing liquid, of a measuring-tank, a pump arranged to raise oil from said reservoir into said tank, an overflow-pipe constructed to slide through the bottom of said measuring-tank, a pointer or indicator connected to move in unison with said discharge-pipe and situated in the same horizontal plane with the top thereof, and an indicator-scale mounted on said measuring-tank and constructed to designate the position of said pointer.

2. In a liquid-measuring device, the combination, substantially as described, of a measuring-tank, an overflow-pipe mounted liquid-tight to slide in an aperture in the bottom of said measuring-tank, a pointer or indicator connected to move in unison with said discharge-pipe and situated in the same horizontal plane with the top thereof, and an indicator-scale mounted adjacent to said pointer and constructed to designate the position or height of said pointer and the price of the oil to be drawn out.

664,284. TELPHER SYSTEM. JAMES H. PAULEY and ALBERT PAULEY, Copenhaver, W. Va. Filed Mar. 2, 1900. Serial No. 7,141. (No model.)



Claim.—1. In a device for dipping and conveying liquids, the combination with a cable, of a car disposed to traverse the cable, a lifting and lowering line slidably engaged with the car, a latch-bolt attached to the line, said bolt having an eye and an enlargement, a bucket carried by the bolt, guides upon the car, a bolt slidably mounted in the guides and adapted for engagement with the eye of the latch-bolt initially, a lever pivoted to the car and connected with the sliding bolt to operate it, a stop upon the cable for engagement by the lever to draw the slidable bolt and permit the bucket to be lowered and filled, spring-pressed jaws pivoted upon the car and adapted for engagement with the latch-bolt below the enlargement thereof, said lifting and lowering cord being passed upwardly between the jaws to raise the bucket when filled and to engage the bolt with the jaws for return movement, and means for moving the car in one direction along the cable with the empty bucket suspended from the sliding bolt and for returning the car with the filled bucket suspended from the jaws.

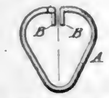
2. The combination with a cable and a car mounted for movement thereon, of a two-part shaft, a drum carried by each part of the shaft, and having clutch-faces for mutual engagement, means connected with one of the drums for moving the car, a line connected with the second drum and passed through the car and having a bucket attached thereto, a crank connected with the last-named drum, a second clutch for holding the first drum stationary, and means for operating the clutches alternately.

3. The combination with a cable and a car mounted for movement thereon, of operating means for the car comprising a shaft having a drum and a crank rigidly connected thereto, said drum having a clutch-face, a second drum slidably mounted upon the shaft and having a clutch-face for engagement with the face of the first drum and having also a second clutch-face, a fixed clutch-face for engagement by the second face of the second drum when the first face of the second drum is drawn from the clutch-face of the first drum, and means for reciprocating the second drum to operate its clutch-faces alternately.

664,285. KEY-RING. WALTER F. PEET, Philadelphia, Pa., assignor of one-half to Edward B. Peet, same place. Filed Sept. 25, 1900. Serial No. 31,035. (No model.)

Claim.—1. A key-ring having a divided body, and radial tongues turned into said body adapting said ends of said body to be interlocked in both transverse and longitudinal directions.

2. A key-ring having a divided body provided with radial tongues turned into said body and a dovetail-joint on said ends adjacent to said tongues.

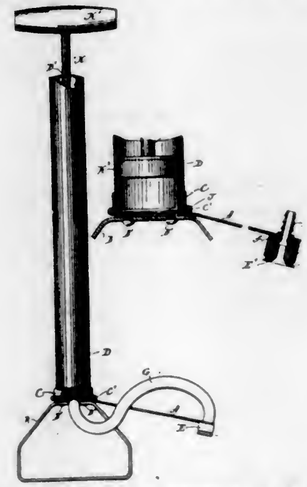


3. In a key-ring, a divided body having tongues on the ends thereof, recesses adjacent to said tongues, and necks joining said tongues with the body of the ring, the walls of said recesses and surfaces of said necks being adapted to interlock, said tongues being turned into the body of the ring and the opposite recesses and necks being matched.

4. A key-ring having a divided body provided with dovetail-joints on the ends thereof, preventing lateral disconnection of said ends, and tongues on said ends which are turned into said body and adapted to abut preventing longitudinal disconnection of said ends.

5. A key-ring consisting of a divided body, tongues on the ends thereof, recesses in the sides adjacent to said tongues, and necks joining said tongues with said body, the walls of said recesses and inner surfaces of said necks forming dovetail-joints for doubly interlocking said ends.

664,286. FOOT-PUMP FOR BICYCLES. WALTER H. PERKINS, Waterbury, Conn., assignor to the Waterbury Manufacturing Company, same place. Filed Aug. 19, 1899. Serial No. 727,780. (No model.)



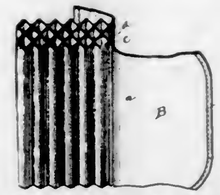
Claim.—1. In a foot-pump, the combination with the cylinder thereof, of a stirrup connected with the lower end of the cylinder, a yielding laterally-extending arm having its inner end rigidly connected with the lower end of the pump, a valve connection mounted directly in the outer end of the said arm and depending below the same, a nipple also mounted in the outer end of the said arm and extending above the same, and a tube having its inner end connected with the lower end of the cylinder and its outer end applied to the said nipple.

2. In a foot-pump, the combination with the cylinder thereof, of a stirrup connected with the lower end of the cylinder, a laterally-extending yielding arm having its inner end rigidly connected with the lower end of the pump, an upwardly-projecting nipple mounted in the outer end of the said arm, a downwardly-projecting sheet-metal cup mounted upon the outer end of the arm, a rubber washer located within the said cup and containing a passage forming a continuation of the central opening of the nipple, and a tube connected with the lower end of the cylinder and with the said nipple.

3. In a foot-pump, the combination with the cylinder and stirrup thereof, of a base into which the lower end of the cylinder is set, a yielding arm having its inner end inserted between the stirrup and the base, means for securing the base, arm, and stirrup together, a valve connection carried by the outer end of the yielding arm, and a tube leading from the cylinder to the said valve connection.

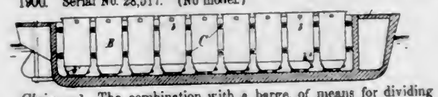
664,287. PACKING-CASE FOR TABLEWARE. JAMES PETTIBONE, Cincinnati, Ohio. Filed Mar. 26, 1900. Serial No. 10,158. (No model.)

Claim.—1. In a packing-case, a flexible cover-flap, two or more flexible strips secured to the intermediate portion of said cover, and extending out at right angles therefrom, a series of transverse stitches through said strips dividing the same into a series of packing-cells, and means for uniting the ends of said cover-flap over said packing-cells, substantially as specified.



2. In a packing-case, a flexible cover-flap, two or more flexible strips secured at their inner ends to said covering-flap and extending out at right angles therefrom, a series of transverse stitches passing through said flaps and dividing the same into a series of packing-cells, the said packing-compartment being collapsible toward said cover, and means for uniting the ends of said flap over said packing-compartment, substantially as specified.

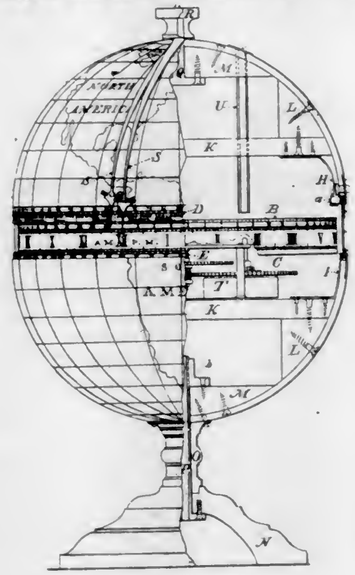
664,288. LOADING DEVICE. THOMAS J. PRATT, Paterson, N. J., assignor of one-half to James A. Morrisse, same place. Filed Aug. 30, 1900. Serial No. 28,517. (No model.)



Claim.—1. The combination with a barge, of means for dividing said barge into compartments, rollers mounted to turn in said compartments, and bucket receptacles adapted to be raised from and lowered into said compartments between said rollers, said bucket receptacles having openings therein so that they are adapted to be gripped by hooks of hoisting apparatus, substantially as set forth.

2. The combination with a barge or other vessel, divided into compartments, of bucket receptacles adapted to fit and be carried in said compartments, and also adapted to be raised out of and lowered into the same, said bucket receptacles being constructed so that they may be gripped by a hoisting apparatus, for the purpose of loading or unloading, and lifting them out of, or lowering them into, said compartments, substantially as set forth.

664,289. GEOGRAPHICAL TIME-GLOBE. GEORGE W. RANAGE, Chicago, Ill. Filed Sept. 5, 1899. Serial No. 729,573. (No model.)



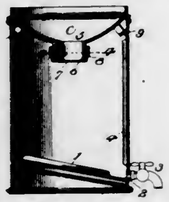
Claim.—1. A geographical globe bisected on the equator and having its sections arranged with an interval between them, in combination with a transparent annular band occupying the said interval, fastening devices which hold the said band to the said sections and rotary time-indicating devices arranged within the same, substantially as set forth.

2. A geographical globe bisected on the equator and having its sections arranged with an interval between them, in combination with a transparent annular band occupying the said interval, fastening devices for holding the said band to the said sections, rotary time-indicating devices arranged within the said band, and means of support which hold the said globe stationary with respect to said devices, substantially as set forth.

3. In combination with two juxtaposed annular dials having different systems of graduation marked thereon and mechanism for independently rotating them, an inclosing relatively stationary geographical globe which is bisected and permits the said rings to be inspected through the annular interval between its parts, a transparent band occupying the said interval and two pointers on the exterior of the said globe and applied to the said rings respectively, substantially as set forth.

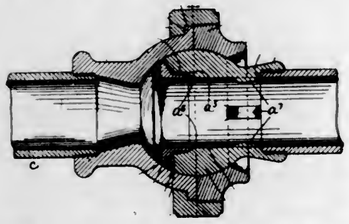
4. In combination with inclosed time-keeping mechanism, a globe divided into two sections, a transparent band occupying the interval between the said sections, spring-fasteners for holding the upper section to the said band and push-buttons protruding through the said globe to facilitate the release of the said fasteners, substantially as set forth.

664,290. CREAMING-CAN. JOHN M. REEVES, Warren, Ohio. Filed Oct. 19, 1899. Serial No. 734,094. (No model.)



Claim.—A creaming-can having a flat smooth inclined bottom, an outlet-opening at the lowered side of such bottom, a rib or flange within the can extending vertically from said outlet-opening to near the top of the can, and a second rib or flange extending diametrically over the bottom to near opposed points of the edge of the latter, substantially as set forth.

664,291. UNIVERSAL PIPE-COUPLING. JAMES R. RENIFF, Chicago, Ill., assignor to William G. Taylor, Cleveland, Ohio. Filed Jan. 18, 1900. Serial No. 1,867. (No model.)



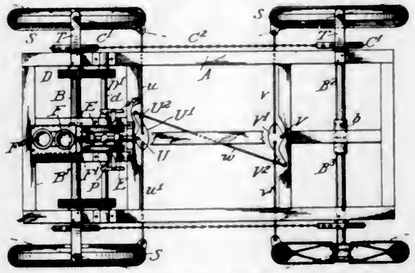
Claim.—1. In a universal-joint coupling for pipes, the combination, with the inner and externally ball-shaped coupling member and the outer and socket-forming part of the coupling, which inner coupling member has its inner end provided with an annular shoulder a^4 facing in the direction of the pipe-connecting end of the outer coupling member, of a metallic packing-ring having its inner end portion engaging and conforming to the said shoulder and having its outer end portion freely engaging the internal surface of the outer coupling member, and means for engaging the inner end portion of the said packing-ring and securing the same to the inner coupling member.

2. In a universal-joint coupling for pipes, the combination, with the outer and socket-forming member of the coupling, and the inner and externally ball-shaped coupling member having a bore extending therethrough, and having its inner end provided with an annular shoulder facing in the direction of the outer or pipe-connecting end of the outer coupling member, of a packing-retaining ring secured to the inner end of the inner coupling member and provided with an external annular flange overlapping the aforesaid shoulder, and the packing interposed between the said shoulder and the aforesaid flange and extending between the flange's edge and the outer coupling member and beyond the said edge in the direction of the outer end of the said outer coupling member.

3. In a universal-joint coupling for pipes, the combination, with the outer or socket-forming member of the coupling provided, at one end, with a pipe-receiving shank, and the inner and externally ball-shaped coupling member within the socket-forming coupling member and provided, at the opposite end of the socket-forming coupling member, with a pipe-receiving shank, which inner coupling member has a fluid-conducting passage-way extending therethrough and is screw-threaded at its inner end, of a packing-ring engaging the inner end of the inner coupling member and extending to the internal surface of the socket-forming member of the coupling and having its outer end portion extending along the said surface in the direction of the pipe-receiving end of the said coupling member, and a packing-retaining ring having its inner end portion screw-threaded externally and screwed into the aforesaid threaded portion of the inner coupling member, the said packing-retaining ring having a member overlapping the outer side of the inner end portion of the packing-ring.

4. In a universal-joint coupling for pipes, the combination, with the outer and socket-forming member of the coupling, and the inner and externally ball-shaped and centrally-bored member adapted to connect with a pipe at its outer end and having its inner end provided with an annular shoulder facing in the direction of the outer end of the outer coupling member and screw-threaded internally next adjacent to the said shoulder, of an externally-screw-threaded packing-ring screwed into the said threaded portion of the inner coupling member and provided with an external annular flange overlapping the aforesaid shoulder, and the packing-ring interposed between the said shoulder and the aforesaid flange and extending between the flange's edge and the outer coupling member and beyond the said edge in the direction of the outer end of the said coupling member.

664,292. MOTOR-VEHICLE. WILLIAM RIDDELL, San Francisco, Cal. Filed Apr. 12, 1900. Serial No. 12,608. (No model.)



Claim.—1. In a motor-vehicle, front and rear axles, each made in two parts, and each having a carrying-wheel, positive driving-gearing such as sprockets and a chain connecting the front and rear half-axles on both sides, and means for driving said gearing.

2. In a motor-vehicle, front and rear axles, each made in two parts and each having a carrying-wheel capable of limited horizontal motion swiveled upon its end, connections between all of said carrying-wheels, a steering-bar adapted through said connections to cause all of said wheels to turn simultaneously upon their swivel-mountings, positive driving-gearing, such as sprockets and a chain, connecting the front and rear half-axles on both sides, and means for driving said gearing.

3. In a motor-vehicle, carrying-wheels mounted upon suitable axles, a motor and shaft, counter-shafts arranged in line carrying friction-disks and geared to said axles, a rocking sleeve on the engine-shaft, and friction-rollers on said sleeve adapted to engage with said friction-disks, respectively at points in advance of and in rear of their centers of rotation.

4. In a motor-vehicle, carrying-wheels mounted upon suitable axles, a motor and shaft, counter-shafts arranged in line carrying friction-disks and geared to said axles, a rocking sleeve on the engine-shaft having a ball-bearing with said shaft, and friction-rollers on said sleeve adapted to engage with said friction-disks respectively at points in advance of and in rear of their centers of rotation.

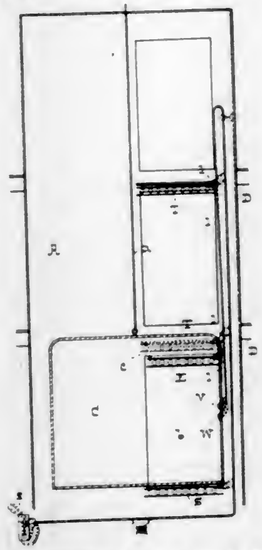
5. In a motor-vehicle, and in combination with oppositely-placed friction-disks for driving an axle of the vehicle, a motor-shaft, a rocking sleeve on said shaft, and friction-rollers adjustable on said sleeve and adapted to engage the respective friction-disks.

6. In a motor-vehicle, a driving-gear operated from a motor-shaft, and comprising friction-disks and friction-rollers, which latter are driven by the motor-shaft, means for maintaining an equal pressure between said disks and rollers on both sides in the normal line of running, and means for relieving said pressure on one side in turning, whereby the driving on that side wholly or partially ceases.

7. In a motor-vehicle, separately-swiveled carrying-wheels, a system of connections by which they are caused to turn on their swivels simultaneously, a steering-rod for operating said connections, separate frictional gearing for driving the wheels on each side, and connections operated by the steering-rod for relieving the frictional pressure on one side during a turn.

8. In a motor-vehicle, a motor-shaft, two counter-shafts, each carrying a friction-disk adapted to be driven from said motor-shaft, a sleeve on each counter-shaft having an antifrictional bearing with its friction-disk, levers bearing on said sleeves so as to maintain the driving frictional contact, a steering-rod, and a cam on said rod for pressing said levers normally up against the said sleeves, whereby the proper frictional pressure is maintained while the vehicle is in the normal line of motion; but whereby also, on the turning of the steering-rod, the said cam permits the frictional pressure to be relieved on one side, which is the inner side during the turn.

664,293. MEANS FOR PREVENTING ACCIDENTS IN ELEVATORS. AUGUST A. ROTH and ROBERT BROOKS, Baltimore, Md., assignors to the National Elevator Safety Device Company, same place. Filed June 19, 1900. Serial No. 20,809. (No model.)

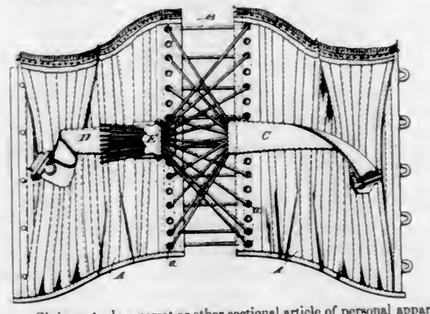


Claim.—1. In combination with an elevator-cab, an electric circuit, a laterally-collapsible bar comprising a circuit-closer, in the said electric circuit, a second electric circuit comprising a motor whereby the elevator-cab is operated, a circuit-breaker situated in the second electric circuit, and an electromagnet in the first electric circuit, which in the collapsing of the said collapsible bar becomes energized, and thereby effects the breaking of the second electric circuit through the medium of the circuit-breaker therein, and the stopping of the motor, substantially as specified.

2. In combination with an elevator-cab, an electric circuit, a laterally-collapsible bar constituting a circuit-closer situated in the said electric circuit, means for rendering inactive the mechanism whereby the elevator-cab is operated, an armature connected to the said means, an electromagnet in the electric circuit which may be energized by the collapsing of the said collapsible bar and thereby put in operation the said means through the medium of the said armature, and a device controlled from the elevator-cab for reversing the operation of the said means and thereby restore the operating mechanism to activity, substantially as specified.

3. In combination with an elevator-cab, an electric circuit, an electromagnet which when energized renders inactive the mechanism whereby the cab is given motion, means suitably situated for closing said electric circuit in event of an obstruction in the path of the cab, a second electromagnet in a branch of said electric circuit which when energized restores the operating mechanism to activity, and two push-buttons in the cab and in the electric circuit, one of which is adapted to energize the first and the other to energize the second electromagnet whereby the cab attendant may have control of the operating mechanism of the elevator to stop and start it from the cab thereof, substantially as specified.

664,294. CORSET. JAMES B. RYAN, New York, N. Y. Filed Feb. 23, 1900. Serial No. 6,242. (No model.)



Claim.—1. In a corset or other sectional article of personal apparel, the combination with the sections having eyelets adjacent to their edges; of adjusting and fastening means comprising cords passed through complementary eyelets of the sections, a belt-section connected to one end of each of the cords, and a belt-section, at the opposite ends of the cords, provided with cord-engaging means arranged to permit of the separate and independent lengthwise adjustment of the cords, substantially as and for the purpose set forth.

2. In a corset or other sectional article of personal apparel, the combination with the sections having eyelets adjacent to their edges; of adjusting and fastening means comprising cords passed through complementary eyelets of the sections, a belt-section connected to one end of each of the cords, a second belt-section, and a fastening device on the latter belt-section detachably connecting the opposite ends of the cords thereto, said fastening device being arranged to permit of the separate and independent lengthwise adjustment of the cords, substantially as and for the purpose set forth.

3. As an improved article of manufacture, the adjusting and fastening means described, comprising a plurality of cords, a belt-section connected to one end of each of the cords, and a second belt-section provided with cord-engaging means arranged to permit of the separate and independent lengthwise adjustment of the cords, and the disconnection thereof, substantially as specified.

664,295. STOCKING. CHARLES J. SADLER, St. Louis, Mo., assignor to the Blees-Moore Instrument Company, same place. Filed Aug. 20, 1900. Serial No. 27,437. (No model.)

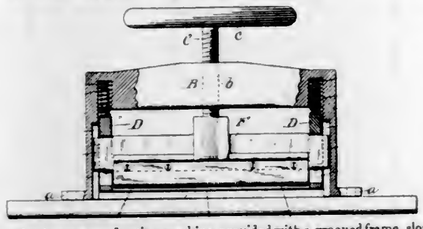


Claim.—1. An elastic stocking having a warp consisting of a series of elastic or rubber threads located upon its exterior, whereby irritating projections adjacent the skin of the wearer are avoided, substantially as specified.

2. An elastic stocking consisting of a woof-silk interwoven with a warp of rubber threads, said rubber threads being located nearer the exterior than the interior of said stocking, substantially as specified.

664,296. PAPER-PERFORATOR. CHARLES SCOFIELD, Marengo, Ill. Filed Nov. 22, 1899. Serial No. 737,949. (No model.)

Claim.—1. A paper-perforating machine provided with a frame having grooves, arms provided with a plate, a perforating-comb having its ends extending through said arms and engaging and sliding in the grooves of the frame, substantially as shown and described.



2. A paper-perforating machine, provided with a grooved frame, slotted arms provided with a slotted plate, and a perforating-comb adapted to slide in said frame and slotted arms, substantially as shown and described.

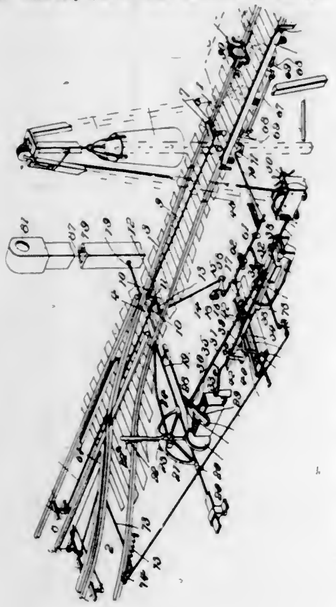
3. A paper-perforating machine provided with a grooved frame, slotted arms provided with a slotted plate, a perforating-comb adapted to slide in said frame and slotted arms, means for operating said perforating-comb, and means for operating said slotted plate, substantially as shown and described.

4. In a paper-perforating machine, provided with vertically-grooved frame, a perforating-comb, spring-operated slotted arms adapted to slide in said frame, and a slotted plate connecting the lower ends of said arms and adapted to bear on the paper, the perforating-comb passing through said slotted plate, substantially as shown and described.

5. In a paper-perforating machine, provided with vertically-grooved frame, spring-operated slotted arms adapted to slide in said frame, a slotted plate connecting the lower ends of said arms and adapted to bear on the paper, a perforating-comb passing through said slotted plate and means for operating the same, substantially as shown and described.

6. A perforating-machine consisting of a cross-head, grooved standards supporting said cross-head, spring-operated slotted arms sliding in said frame, a slotted plate connecting the lower ends of said arms, a screw-lever passing through said cross-head, a cross-piece attached to the lower end of said lever, the ends of said cross-piece entering said grooves and the slots in said arms, and a perforating-comb attached to said cross-piece and working in the slot in said plate, substantially as shown and described.

664,297. AUTOMATIC RAILROAD-SWITCH. ROBERT D. SEIBERT, Millville, Pa., assignor of one-half to Jackson Robbins, same place. Filed May 7, 1900. Serial No. 15,776. (No model.)



Claim.—1. In a railroad-switch and actuating means therefor, a lock for securing the switch in an adjusted position, an actuator operatively connected with the trips disposed along the main and side tracks, a releasing device normally out of the path of the actuator, and means to be operated by the train in advance of striking the trip to throw the releasing device within the path of the actuator, whereby when the trip is struck by the train the releasing device is actuated and the switch unlocked, substantially as set forth.

2. In a railroad-switch, actuating mechanism therefor and a lock for holding the switch in either position, an actuator operatively connected with the trips located along the main and side tracks, a releasing device normally held out of the path of the actuator, and independent means conjunctively related with reference to the releasing device and operatively connected with primary operating devices located along the length of the main and side tracks to be actuated in advance of operating the trips, whereby the releasing device is thrown in the path of the actuator, substantially as set forth.

3. In a railroad-switch, actuating mechanism therefor and means for locking the switch in either position, an actuator operatively connected with the trips located in the length of the main and side tracks, a releasing device normally held out of the path of the actuator, movable bars located adjacent to the respective trips, and connecting means between said movable bars and the releasing device to project the latter within the path of the actuator prior to the actuation of the trip, substantially as set forth.

4. In a railroad-switch, actuating mechanism therefor and means for locking the switch, an actuator operatively connected with the trips located in the length of the main and side tracks, a releasing device mounted to swing from a vertical plane and normally tending to assume its primitive position, a movable bar connected with the releasing device and normally held out of the path of the actuator, and means adapted to be operated by the train in advance of striking the trip so as to throw said movable bar in the path of the actuator, substantially as set forth.

5. In a railroad-switch, actuating mechanism therefor and means for locking the switch in either position, a releasing device mounted for sliding and pivotal movements, a spring disposed to return the releasing device to a normal position, a movable bar connected with the releasing device and normally held out of the path of the actuator, and means adapted to be actuated by the passing train for throwing said movable bar within the path of the actuator, substantially as set forth.

6. In a railroad-switch, actuating mechanism therefor and means for locking the switch, a releasing device mounted for sliding and pivotal movements and having a flattened base portion, a spring exerting a downward pressure upon the said flattened base portion to return the releasing device to a vertical position when turned to either side, a movable bar connected with the releasing device and normally held out of the path of the actuator, and means adapted to be operated by the passing train for throwing said movable bar in the path of the actuator, substantially as specified.

7. In a railroad-switch, actuating mechanism therefor and means for locking the switch, an actuator operatively connected with the trips along the main and side tracks, a slide, a releasing device mounted upon the slide and adapted to swing laterally from a vertical position and adapted to automatically assume its primitive position when released, a movable bar loosely connected with the said slide and normally held out of the path of the actuator, and means adapted to be operated by the moving train to throw the said movable bar in the path of the actuator, substantially as set forth.

8. In a railroad-switch, actuating mechanism therefor and means for locking the switch, a releasing device, a pivoted bar operatively connected with the releasing device and normally held out of the path of the actuator, a push-bar, and a depressible bar operatively connected with the push-bar to give an initial movement to the pivoted bar for throwing it in the path of the actuator, substantially as set forth.

9. In a railroad-switch, actuating mechanism therefor and means for locking the switch, an actuator operatively connected with the trips located in the length of the main and side tracks, a releasing device, a bar pivoted between its ends and operatively connected with the releasing device and normally held out of the path of the actuator, positively-disposed push-bars arranged to act upon the pivoted bar upon opposite sides of its fulcrum, depressible bars disposed adjacent to the aforementioned trips, and means connecting said depressible bars with the push-bars, whereby a movement of any one of the depressible bars will effect an initial movement of the pivoted bar to throw it within the path of the actuator, substantially as set forth.

10. In a railroad-switch, actuating mechanism for positively throwing the switch, a locking mechanism for securing the switch in either position and holding the actuating mechanism in restraint, and a releasing device adapted to be actuated by a passing train through the instrumentalities of trips and intermediate connections, substantially as set forth.

11. In a railroad-switch, actuating mechanism for positively throwing the switch, a lock device for securing the switch and holding the switch-operating mechanism in restraint, a releasing device mounted for pivotal and sliding movements, and means for actuating the releasing device by means of a passing train, substantially as set forth.

12. In a railroad-switch, actuating mechanism for positively throwing the switch, a lock-bar disposed to secure the switch and hold the switch-operating mechanism in restraint, a releasing device conjunctively related with reference to the lock-bar and mounted for pivotal and sliding movements, a spring disposed to maintain the lock-bar in a normal position with reference to the stop coöperating therewith, and means actuated by the passing train to operate the releasing device, substantially as set forth.

13. In a railroad-switch, actuating mechanism for positively throwing the switch, a lock-bar for securing the switch and holding the switch-operating mechanism in restraint, shafts disposed relatively at a right angle and connected with respectively the switch and the switch-operating mechanism, and means adapted to be actuated by the passing train for operating the releasing device, substantially as set forth.

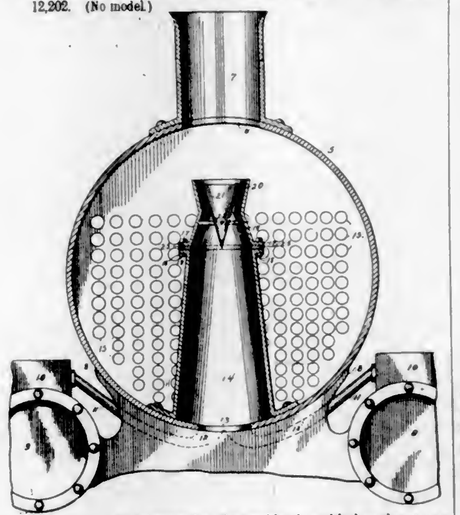
14. In a railroad-switch, actuating mechanism for positively throwing the switch, a locking mechanism for securing the switch and holding the switch-operating mechanism in restraint, means for effecting a release of the locking mechanism, and a hand-lever interposed in the connections between the switch-operating mechanism and the switch to admit of the latter being independently thrown, substantially as set forth.

15. In a railroad-switch, actuating means therefor including a locking mechanism, a rod or bar slidably mounted and connected with the switch-operating mechanism, a hand-lever fulcrumed to the slidable bar, a rod connecting the hand-lever with the switch to admit of the latter being independently thrown at any time, and means for locking the hand-lever to the aforementioned slidably-mounted bar, substantially as set forth.

16. In a railroad-switch, actuating mechanism for positively throwing the switch, a slide, right-angularly-disposed shafts, rods connecting crank-arms of the actuating mechanism and one of the last-mentioned shafts with the said slide, connections between the other one of the said shafts and switch, a lock-bar pivotally connected with the said slide and conjunctively related with reference to a post or stop, and a releasing device to coöperate with the lock-bar, substantially as set forth.

17. In a railroad-switch, actuating mechanism for positively throwing the switch, a locking mechanism for holding the switch-operating mechanism in restraint and securing the switch in either position, a releasing mechanism, a hand-lever interposed in the connections between the switch and its actuating mechanism for independent operation of the switch, and a signal having connection with the connecting means between the switch and its actuating mechanism so as to be operated either by hand or by the automatic switch-actuating mechanism, substantially as set forth.

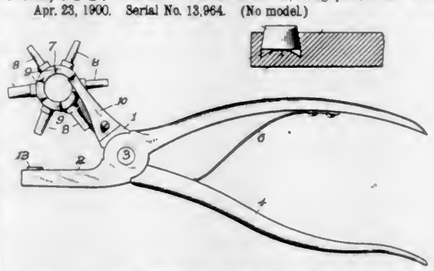
664,298. EXHAUST-NOZZLE TIP. FRANK W. SHUPERT and HENRY L. SHUPERT, Spokane, Wash. Filed Apr. 9, 1900. Serial No. 12,202. (No model.)



Claim.—1. In a locomotive, the combination with the exhaust-nozzle, of a tip attached thereto, said tip being tapered from the ends thereof toward its center and the minor diameter of the tip being less than the minor diameter of the nozzle, an inverted conical deflector disposed within the tip with its apex below the point of minor diameter of the tip, and supports for the deflector below the mouth of the tip, whereby the exhaust will be discharged from the tip in a flaring, continuous sheet against the interior of the stack.

2. In a locomotive, the combination with the exhaust-nozzle, of a tip attached thereto, said tip being tapered from its ends toward its center and having a minor diameter less than that of the nozzle, an inverted, conical deflector disposed within the tip and with its apex below the point of least diameter of the tip, and supports for the deflector connected with the tip below its point of least diameter, whereby the exhaust will rise and enter the stack in a continuous expanding sheet to engage the inner surface of the stack continuously.

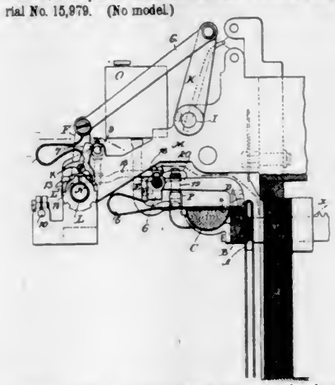
664,299. PUNCH. CHARLES E. SMITH, Bridgeport, Conn. Filed Apr. 23, 1900. Serial No. 13,964. (No model.)



Claim.—1. In a belt-punch, the combination of the pivoted jaws, one jaw carrying the punch while the other jaw is recessed and is provided with a cutter-block which has a rocking seat on the bottom of said recess, the diameter of said block at its upper portion adjacent to its face being contracted, while the stock of the lower jaw is forced against said contracted portion of said block thereby holding the block in place and permitting free rotary and universal rocking movements of the same, substantially as set forth.

2. In a belt-punch, the lower jaw having a recess with a convex seat at the bottom, and the cutter-block shaped like the frustum of a cone, the base of said block resting on said convex seat while the stock of the lower jaw is forced against the side of said block near the upper end thereof, substantially as set forth.

664,300. GUMMING MECHANISM FOR BOOK-SEWING MACHINES. DAVID M. SMYTH, Pasadena, Cal., assignor to Frank C. Bolt, trustee, same place. Filed Jan. 23, 1899. Renewed May 8, 1900. Serial No. 15,979. (No model.)



Claim.—1. The combination with the pusher-bar in a book-sewing machine, of a receptacle for adhesive material carried by said pusher-bar, said receptacle having openings in its top surface for the escape of said adhesive material, gummers in the form of spring-plates covering the openings in said receptacle, a rock-shaft to which the gummers are connected and means for moving said shaft periodically and bringing the gummers into action substantially as specified.

2. The combination with the pusher-bar in a book-sewing machine, of a receptacle C for adhesive material carried by said pusher-bar, said receptacle having openings in its top surface for the escape of said adhe-

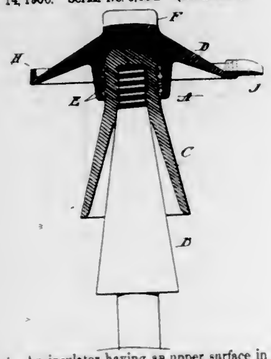
sive material, gummers in the form of spring-plates covering the openings in said receptacle, a rock-shaft to which the gummers are connected, means for moving said rock-shaft periodically, a reservoir for adhesive material and a pump between the reservoir and the holder C said pump being operated by aforesaid rock-shaft for forcing the adhesive material into the holder C, substantially as set forth.

3. The combination in a book-sewing machine with a receptacle for adhesive material and having openings for the escape thereof and a support for said receptacle, of gummers formed as spring-plates upon the surface of said receptacle and covering the openings therein, a rock-shaft to which the spring-plates are connected and means for periodically moving said rock-shaft to cause the said plates to slide over the surface of said receptacles to alternately expose and cover the openings therein, substantially as specified.

4. The combination with the book-sewing mechanism, of a receptacle for adhesive material, gummers, a rock-shaft with which the gummers are connected, a double-acting pawl and reversing devices for the same, a screw-sleeve and a lever moved by the same for actuating the rock-shaft periodically, substantially as set forth.

5. The combination with the book-sewing mechanism, of a receptacle for adhesive material, gummers, a rock-shaft with which the gummers are connected, a double-acting pawl and reversing device for the same, a screw-sleeve and a lever moved by the same for actuating the rock-shaft periodically, a screw to which the sleeve gives endwise motion and a spring for allowing the lever to move after it has acted upon the rock-shaft and to act a second time upon the return motion for bringing the gummers into action a second time after the intervention of the second signature, substantially as set forth.

664,301. INSULATOR. RICHARD H. STERLING, Pittsfield, Mass., assignor to the Stanley Electric Manufacturing Company, same place. Filed Mar. 14, 1900. Serial No. 8,604. (No model.)

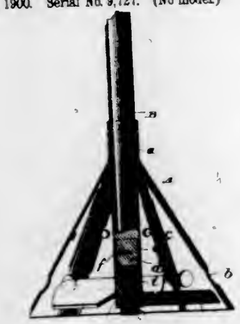


Claim.—1. An insulator having an upper surface in the form of a flattened cone and a substantially vertical flange about its edge forming a gutter for collecting and discharging the water from said surface.

2. An insulator having an upwardly-projecting flange about its edge forming a gutter and means for discharging collected water said means extending a distance from said flange.

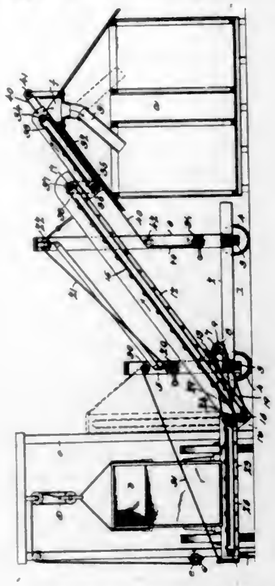
3. An insulator having on its upper surface at its edge a gutter and a detachable spout leading from said gutter, substantially as described.

664,302. CHURN-DASHER. MARTIN V. B. TRENT, Iberia, Mo. Filed Mar. 22, 1900. Serial No. 9,727. (No model.)



Claim.—The herein-described dasher for use in churns and the like, consisting essentially of the cone-shaped body having the horizontal series of unobstructed apertures *b* adjacent to its lower edge, the stick resting in the center of the body and connected to the upper end thereof, and the agitating-wheel journaled on the stick and having radial blades inclined in the direction of their width; the said wheel being arranged entirely within the body with its blades disposed in a plane slightly below the apertures *b* thereof, substantially as and for the purpose set forth.

664,303. PORTABLE GRAIN-ELEVATOR. HENRY H. WEBER, Loretto, Ill. Filed Oct. 25, 1900. Serial No. 34,332. (No model.)



Claim.—1. A grain-elevator comprising a truck, a power-shaft mounted thereon, a conveyer-trough 12 pivotally mounted on the said truck, means to raise and lower one end of said conveyer-trough, a conveyer-trough 23 pivotally connected to the front end of trough 12, means to raise and lower the outer end of said trough 23, a conveyer-trough extensible from the inner end of trough 12 and adapted to be run or disposed under the same, endless traveling conveyers in said troughs, and means to actuate said endless traveling conveyers, substantially as described.

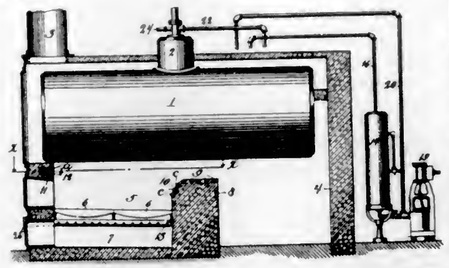
2. In a grain-elevator, the combination of a truck, a power-shaft mounted thereon, a conveyer-trough 12 pivotally mounted on the said truck, means to raise and lower one end of said conveyer-trough, an endless traveling belt or apron in said conveyer-trough having one of its rollers connected to and driven from the power-shaft, a conveyer-trough 23 having an endless traveling conveyer belt or apron, one of the supporting-rollers of which forms a pivot to connect the inner end of said trough 23 to the outer end of trough 12, said roller being connected to and driven from the power-shaft, and an extensible conveyer-trough under the inner end of trough 12 and having an endless traveling conveyer belt or apron, the latter being connected to and driven from a roller in the inner end of trough 12, substantially as described.

664,304. METHOD OF GENERATING HEAT BY COMBUSTION OF FUEL. WILBUR R. WILKINSON, New York, N. Y. Filed June 20, 1900. Serial No. 20,947. (No model.)

Claim.—1. The method of producing combustion of solid fuel consisting first, in supplying air thereto from below the fuel to assist in producing a partial combustion and decomposition of the fuel; second, in supplying air and steam from above the fuel to the gaseous fuel elements arising therefrom, and third, in supplying vapors of a hydrocarbon to the escaping gases.

2. The method of producing combustion of solid fuel consisting first, in supplying heated air thereto from below the fuel to assist in producing a partial combustion and decomposition of the fuel; second, in supplying air and steam from above the fuel to the gaseous fuel elements arising

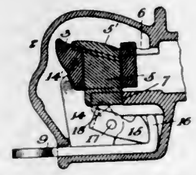
therefrom, and third, in supplying vapors of a hydrocarbon to the escaping gases.



3. The method of producing combustion of solid fuel consisting first, in supplying heated air thereto from below the fuel to assist in producing a partial combustion and decomposition of the fuel; second, in supplying heated air and steam from above the fuel to the gaseous fuel elements arising therefrom, and third, in supplying vapors of a hydrocarbon to the escaping gases.

4. The method of producing combustion of solid fuel consisting first, in supplying air thereto from below the fuel to assist in producing a partial combustion and decomposition of the fuel; second, in supplying air and steam from above the fuel to the gaseous fuel elements arising therefrom, and third in introducing the vapors of a hydrocarbon to the escaping gases in a direction across the path of said gases.

664,305. COUPLING FOR RAILWAY-CARRIAGES. JOHN WILLISON, Cleveland, Ohio, assignor to the National Malleable Castings Company, same place. Filed July 10, 1900. Serial No. 23,111. (No model.)



Claim.—1. A coupler having a knuckle-lock, a lever without fixed pivot lying normally in a position approximating the horizontal under the lock, means for guiding it into an upright lock-lifting position, and means for moving the same; substantially as described.

2. A coupler having a knuckle-lock, a lever without fixed pivot lying normally under the lock, a guide for directing it into a lock-lifting position and a sliding block or rod connected with the lever and adapted to operate the same; substantially as described.

3. A coupler having a knuckle, a lock carried by the knuckle, and a lock-raising and knuckle-opening device, comprising lever mechanism set under and back of the knuckle, and means adapted to tip the same; substantially as described.

4. The combination with a knuckle, of a knuckle-opening piece set without fixed pivot and arranged to move in a substantially vertical plane within the coupler-head back of the knuckle, and means adapted to move the lower end of said piece rearwardly and to tip its upper end forwardly against the knuckle; substantially as described.

5. A coupler having a knuckle-lock, a lever lying without fixed pivot under the lock, trunnions thereon, guides for the trunnions, and means for moving the lever; substantially as described.

6. A coupler having a knuckle-lock, a lever lying without fixed pivot under the lock, trunnions thereon, guides for the trunnions, means for moving the lever, and a ledge upon which the lever is adapted to rise; substantially as described.

7. A coupler having a knuckle-lock, a lever without fixed pivot lying normally in a position approximating the horizontal under the lock, means for guiding it into an upright lock-lifting position, and an operating block or rod engaging a forked portion of the lever; substantially as described.

8. A coupler having a knuckle-lock and an opening-lever arranged to move in a substantially vertical plane, and having a shoulder adapted to engage and raise the lock, and having a nose adapted to engage the knuckle and move the same; substantially as described.

9. A coupler having a knuckle-lock and an opening-lever having a shoulder adapted to engage and raise the lock, and having a nose adapted to engage the knuckle and move the same, said lever being set without fixed pivot and having guides adapted to guide it toward an upright position and to permit it to be tipped; substantially as described.

10. A coupler having a knuckle, a lock carried thereby, a stop or shoulder on the knuckle adapted to restrain accidental lifting of the lock, and a lock-lifting device adapted to raise the lock, and adapted also to impart to it an independent tipping motion to clear it from the stop; substantially as described.

11. The combination with a coupler-head, of a coupler-knuckle, a sliding lock carried by the tail and having at its upper end a head, and a stop-shoulder on the coupler-head adapted to be engaged by the head of the lock; substantially as described.

12. The combination with the coupler-head and coupler-knuckle, of a lock carried by the tail and having a head, a stop-shoulder in the coupler-head adapted to be engaged by the head of the lock, and a second stop-shoulder in the coupler-head adapted to be engaged by the other end of the lock said lock being upwardly movable to raise the head out of engagement with its stop-shoulder; substantially as described.

13. A coupler having an upwardly-movable lock-raising device arranged within the coupling-head and adapted to raise the lock and to set it in raised position, and an operating-rod in engagement therewith, extending toward the side of the car and adapted to be moved to set or raise the lock; substantially as described.

14. A coupler having at the under side of the knuckle a knuckle-opening piece set obliquely to the line of the draw-bar, and in the direction of outward travel of the knuckle, said knuckle-opening piece being movable in a substantially vertical plane; substantially as described.

15. A coupler having a knuckle, a lock carried thereby and having a head and stop-shoulders in the coupler-head adapted to engage the head and the lower portion of the lock, said lock being vertically movable to clear its head and lower portion from the stop-shoulders; substantially as described.

16. A coupler-head having at its lower portion a lateral opening adapted to receive a sliding rod, and having upwardly-extending guiding-grooves adapted to guide a knuckle-opening device; substantially as described.

17. A coupler having a knuckle, a lock carried by the knuckle, an inclined surface on the coupler-head by which on the return of the knuckle the lock is raised, and a stop-shoulder situate in the coupler-head at a higher level than the incline above which stop-shoulder the lock is raised by the incline; substantially as described.

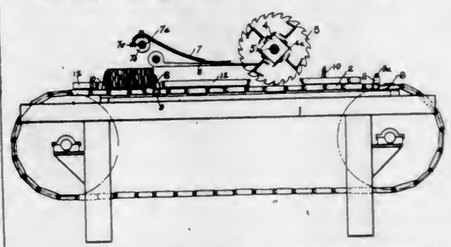
18. In a car-coupler the combination of a knuckle, a lock, a lock-lifting lever arranged without fixed pivot within the coupler-head and movable in a substantially vertical plane to raise the lock and set it in unlocked position, and a coupler-unlocking rod connected therewith and adapted to move the parts in reverse direction to unset the lock; substantially as described.

19. A coupler-knuckle having in its tail a vertical hole for carrying the lock, and having on the said tail a shoulder adapted to prevent upward jarring of the lock; substantially as described.

20. A coupler-knuckle having in its tail a vertical oblong hole for carrying the lock, and having on the said tail a shoulder adapted to prevent upward jarring of the lock; substantially as described.

21. A coupler having a knuckle, a vertically-movable lock carried thereby, a lever movable in a substantially vertical plane and adapted to raise the lock and to throw the knuckle, and means for holding the lever in an intermediate position to support the lock in lock-set position; substantially as described.

664,306. TIE-PLUG MACHINE. FITZLAND L. WILSON, West Bay City, Mich. Filed May 25, 1900. Serial No. 17,988. (No model.)

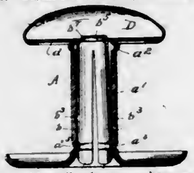


Claim.—1. The combination with the frame and traveling bed of a tie-plug machine, of transverse series of clamping-arms pivoted to said bed; crank-arms for raising said clamping-arms; guides secured to the machine-frame and adapted to depress said crank-arms and thereby clamp material to said bed; spring-pressed pressure-bars above the traveling bed;

revolving cutters beyond said pressure-bars and adapted to groove the upper surface of a tie-plug bolt across the grain; and transverse series of saws intermediate said revolving cutters, said saws having lateral knives, substantially as described and for the purposes set forth.

2. In combination with the frame and traveling bed of a tie-plug machine; series of transverse shafts rotatably mounted on said bed and traveling with it; clamping-arms fixed to said shafts; shaft-actuating arms fixed to the outer ends of said shafts; fixed horizontal guides arranged in proximity to said shaft-actuating arms and adapted to depress said arms, thereby clamping material to the traveling bed; flexible pressure-bars above the traveling bed; revolving cutters beyond the pressure-bar and adapted to groove a tie-plug bolt across the end of the grain; and transverse series of saws arranged intermediate said revolving cutters, substantially as and for the purposes set forth.

664,307. COLLAR-BUTTON. ORESTA W. YOUNG, Chicago, Ill. Filed Feb. 17, 1900. Serial No. 5,572. (No model.)



Claim.—In a detachable collar-button, a base member consisting of a base and a hollow post, such hollow post provided with an inwardly-extending annular bead adjacent to the base, and a button member, such button member consisting of a disk, a head secured on the disk, and a spring-post secured in the disk, such spring-post comprising a half-round wire bent midway thereof and turned down at such bend to obtain a shoulder and an end fitting into a hole in the disk, and provided with a groove at the other end thereof fitting the inwardly-extending annular bead; substantially as described.

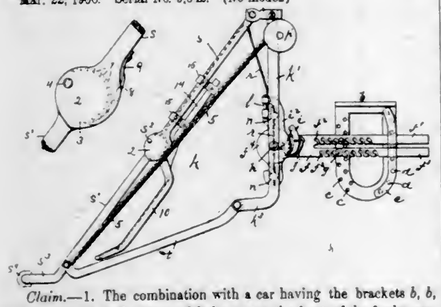
664,308. ELECTROTHERAPEUTIC SPECTACLES. THOMAS B. ZELLER, Pittsburg, Pa., assignor of one-half to Franklin P. Saylor, same place. Filed Oct. 29, 1900. Serial No. 34,826. (No model.)



Claim.—1. As an improved article of manufacture electrotherapeutic spectacles having a bridge with an electric negative element therein and temples with terminal bows formed of an electrical positive element, the said elements being fully within the confines of the parts set forth and without increasing the dimensions of the same.

2. As an improved article of manufacture electrotherapeutic spectacles having a bridge with copper inclosed therein and temples with zinc bows regularly continuing therefrom and forming the terminals thereof.

664,309. CAR-FENDER. PETER BEST, Elizabeth, N. J. Filed Mar. 22, 1900. Serial No. 9,642. (No model.)



Claim.—1. The combination with a car having the brackets *b*, *b*, providing pins *d*, at the rear and holes *c*, near the front, of the fender-carrying arms *f*, each having parallel prongs adapted to pass between the pins *d*, and being notched at their lower edges to receive a removable bolt inserted in the holes *c*, said removable bolt, and a fender carried by said arms, substantially as set forth.

2. The combination with a car, the brackets *b*, vertically depending therefrom and providing near the front edge holes *c*, and having at the rear edge a parallel strip with pins *d*, extending transversely between said strip and the brackets, and a fender-carrying arm lying flatwise against the side of the bracket and having parallel prongs adapted to lie between said strip and the bracket and in engagement at its edges with the pins, and said prongs having alternating notches or apertures to receive a bolt thrust into said holes at the front edge of the bracket, said bolt, and a fender supported on said arms, substantially as set forth.

3. In a car-fender, the combination with an adjustable arm having a forward head, of a fender-carrier pivoted to said head to swing vertically and having sockets to receive the fender, and a segmental toothed portion concentric with the pivot, and a pawl pivoted on the arm and adapted to engage said teeth to limit swinging of the fender-carrier, substantially as set forth.

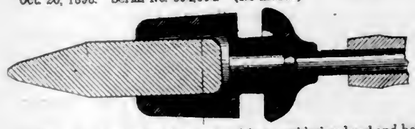
4. In a car-fender, the combination of adjustable supporting-arms *f*, each having a forward enlarged head, a fender-carrier having similar disk-like portions lying against the heads of the arms and pivoted thereto, pawl-teeth on the rear edge of the fender-carrier disk-like portions, and a pawl on the supporting-arm, whereby the fender-carrier may be held at any inclination desired, and means for locking said pawl, substantially as set forth.

5. In a car-fender, the combination of supporting-arms *f*, fender-carriers pivoted to said arms at the sides thereof and having toothed rear edges, pawls pivoted on said arms and engaging said teeth to prevent pivotal movement of the carriers, and locking-pieces linked to the rear ends of said pawls and adapted to lie between the pawl and the fender-carrier to limit movement of the pawls, substantially as set forth.

6. A car-fender, comprising upright bars *k'*, upper and lower fending-frames inclined downwardly forward from the top of said bars, and braces *t*, extending from the lower edge of the bottom fending-frame to the bottoms of said bars, all said parts being hinged or pivoted together, spring-reels at the upper parts of the vertical bars and chains extending from said reels to the lower front edge of the fender, substantially as set forth.

7. A car-fender, comprising upright bars *k'*, having forwardly-curved lower ends, upper and lower fending-frames extending forwardly downward in the same plane, the upper one being pivoted to the upright bars, braces pivotally connected at their ends to the bottom edge of the lower frame and the bottoms of the upright bars, said fender-frames being hinged together and adapted to bend inward under pressure, a supplemental fender carried by the upper fending-frame, and a spring-reel and chain normally holding the fending-frames extended but adapted to collapse the same when a slight bending of their intermediate joint is produced by an outside force, substantially as set forth.

664,310. SOLDERING-IRON. KRAFT BOOTH, Chicago, Ill. Filed Oct. 20, 1898. Serial No. 694,064. (No model.)



Claim.—1. A soldering-iron, comprising a soldering-head and holding device for the same, a shell-like portion of said holder surrounding the inner end of the head and opening in direction opposite to that of the point of the head, the head smaller in cross-section than the shell-like portion and thus projecting free from the walls of the shell-like portion into the same; a combustion-chamber connected with and forming part of said shell-opening and surrounding the projecting head, a handle and discharge-way leading to the combustion-chamber; substantially as shown and described.

2. A soldering-iron, comprising a soldering-head and holding device for the same, a shell-like portion of said holder surrounding the inner end of the head and opening in direction opposite to that of the point of the head, a combustion-chamber connected with and forming part of said shell-opening, a handle and discharge-way leading to the combustion-chamber, an apron about and overhanging the rearward openings from the shell, so that the gases for combustion are directed back against the apron and then forward so as neither to overheat the hand nor crack the glass which is being worked upon, while at the same time heating the head by surrounding the same; substantially as shown and described.

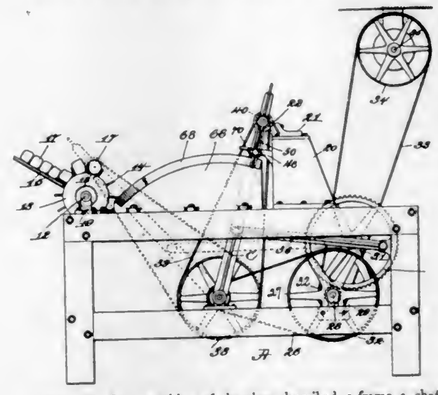
3. A soldering-iron, comprising a soldering-head, a shell containing a combustion-chamber and provided with an opening through which said soldering-head is received so as to project partly into the combustion-chamber, a series of bearing-points within the combustion-chamber and connected with the walls thereof, said soldering-head of such size as to slip readily into position, the soldering-head formed of material which expands more readily under the influence of heat than the material of which the shell is made, whereby when heat is applied thereto the soldering-head expands so as to be held firmly in position.

4. A soldering-iron, comprising a soldering-head, a hollow shell containing a combustion-chamber, an opening in said shell through which the end of the soldering-head is received, a series of projections extending from the inner wall of said combustion-chamber and adapted to engage the said soldering-head between its inner end and the opening in the shell and hold said soldering-head in position.

5. A soldering-iron, comprising a soldering-head, a shell provided with a combustion-chamber, an opening in said shell through which the soldering-head passes, so that a portion of said soldering-head extends into the combustion-chamber the outer end of said chamber being closed when the soldering-head is in position, said soldering-head engaging the shell at two points separated by a space forming part of the combustion-chamber, an igniting-opening connecting said combustion-chamber with the outer air, a handle connected with said shell, a passage-way through said handle connecting with the combustion-chamber, and means for connecting said passage-way with a source of gas-supply.

6. A soldering-iron, comprising a soldering-head, a shell hollowed so as to form a combustion-chamber, an opening in the outer end of said shell smaller in cross-sectional area than the chamber and adapted to be closed by the insertion of the soldering-head, one or more projecting parts integral with said shell and projecting into said chamber, said projecting part or parts engaging the soldering-head so as to hold it in position.

664,311. WOODWORKING-MACHINE. PERLEY P. BOSTWICK, Boston, Mass., assignor of one-half to the Percy Lumber Company, Percy, N. H. Filed Jan. 11, 1900. Serial No. 1,032. (No model.)



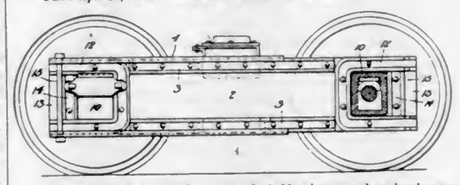
Claim.—1. In a machine of the class described, a frame, a shaft upon which the frame is loosely carried for oscillation, means for moving the frame back and forth, mechanism upon the frame for operating the stock, including a rotary member, means operated from said shaft for rotating said rotary member, a second shaft, said second shaft being supported by the framework of the machine, and means actuated by the second shaft for simultaneously operating the means which move the frame back and forth, and for rotating the shaft upon which the frame is mounted.

2. In a machine of the class described, a frame, a shaft upon which the frame is loosely carried for oscillation, means upon the frame for holding the stock, including a rotary member, a second shaft, said second shaft being mounted upon the framework of the machine, a gear upon said second shaft, a rod connected respectively with the gear and the frame, a third shaft having a gear meshing with said other gear, a band-wheel upon said third shaft, a cooperating band-wheel upon the shaft that carries the frame, and connections between said last-mentioned shaft and said rotary member of the stock-holding mechanism.

3. In a machine of the class described, a frame, a shaft upon which the frame is loosely carried for oscillation, means for moving the frame back and forth, mechanism upon the frame for operating the stock, including a rotary member, means operated from said shaft for rotating said rotary member, a second shaft, said second shaft being supported by the framework of the machine, means actuated by the second shaft for simultaneously operating the means which move the frame back and forth, and for rotating the shaft upon which the frame is mounted, a plurality of cam devices for controlling the stock-holding mechanism, feeding mechanism for the stock, and a knife to act upon the stock.

4. In a machine of the class described, a frame, a shaft upon which the frame is carried for oscillation, mechanism upon the frame for holding the stock, including a rotary member, a shaft having a wheel provided with a rod connected with said frame, connections between said shaft and the shaft which carries the frame, and means between said frame-carrying shaft and the rotary member to operate the latter.

664,312. CAR-TRUCK. CYRUS M. CARNAHAN, Allegheny, Pa. Filed Apr. 17, 1900. Serial No. 13,174. (No model.)



Claim.—1. A car-truck composed of side plate members having upper and lower side and top and bottom reinforcing channel members, a middle cross member rigidly connecting the side members, supplemental cross members, constituting bolster-guides, a bolster, and reinforced journal-box housings in the ends of the side plate members, substantially as set forth.

2. A car-truck composed of side plate members having upper and lower side and top and bottom reinforcing channel members, a middle cross member rigidly connecting the side members, supplemental cross members constituting bolster-guides, formed of extensions of the upper inside reinforcing channel members, a bolster, and reinforced journal-box housings in the ends of the side plate members, substantially as set forth.

3. A car-truck composed of side plate members having upper and lower side and top and bottom reinforcing channel members, a middle cross member rigidly connecting the side members, supplemental cross members constituting bolster-guides formed of extensions of the upper inside reinforcing channel members, a bolster, reinforced journal-box housings in the ends of the side plate members, and removable end sections with means for holding them in position, substantially as set forth.

4. In a car-truck the combination of plate side members provided at each end with reinforced journal-box housings open at the outer ends, upper and lower reinforcing channel members at each side of the plate, upper and lower reinforcing channel members projecting beyond the ends of the side members, removable reinforced end sections with means for holding them in position between the upper and lower channel members, a middle cross member rigidly connecting the side members, supplemental upper cross members formed of continuations of the inner side reinforcing members and constituting bolster-guides, and a bolster mounted between the upper cross members and supported by the middle cross member, substantially as set forth.

5. In a car-truck having plate side members, a middle cross member consisting of a channel-beam abutting against the plate, a connecting-angle, and reinforcing members connected with the lower side of the plate extended to embrace and connected with the middle cross member at each side, substantially as set forth.

6. In a car-truck having plate side members, a middle cross member consisting of a channel-beam abutting against the plate, a connecting-angle, and reinforcing members connected with the lower side of the plate extended to embrace and connect with the middle cross member at each side, and lower reinforcing longitudinal channels for the side member flattened and connected with the ends of the middle cross member, substantially as set forth.

7. In a car-truck, a composite side member consisting of a plate provided with end apertures, upper and lower longitudinal reinforcing members at each side and top and bottom, longitudinal members embracing the edges of the plate and the upper and lower longitudinal side reinforcing members, substantially as set forth.

8. In a car-truck, a composite side member consisting of a plate provided with end apertures, reinforcing-frames for the apertures incorporated with the plate, upper and lower longitudinal reinforcing members at each side incorporated with the plate, and top and bottom longitudinal members embracing the edges of the plate and the upper and lower longitudinal side members, substantially as set forth.

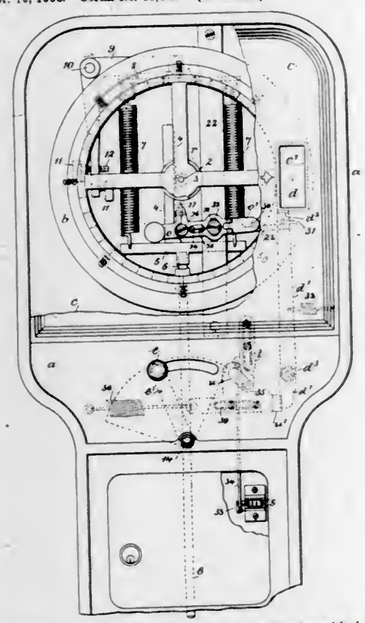
9. In a car-truck, a composite side member consisting of a plate provided with end apertures, reinforcing-frames for the apertures incorporated with the plate, upper and lower longitudinal reinforcing members at each side incorporated with the plate, top and bottom longitudinal members embracing the edges of the plate and the upper and lower longitudinal side members, and a supplementary filler on the interior of the aperture frames, substantially as set forth.

10. In a car-truck, a composite side member consisting of a plate provided with end apertures, reinforcing-frames for the apertures incorporated with the plate, upper and lower longitudinal reinforcing members

at each side incorporated with the plate, top and bottom longitudinal members embracing the edges of the plate and the upper and lower longitudinal side members, inclosing the aperture framing, and removable end sections forming outer walls for the apertures with means for securing them in position, substantially as set forth.

11. In a car-truck having plate side members: reinforcing members on the inner lower sides of the plates bent at right angles and forming rigid cross members, and a channel member incorporated with the cross portions of the reinforcing members and with the plate side members, substantially as set forth.

664,313. WEIGHING-MACHINE. EDGAR H. COOK, New York, N. Y., assignor to the Automatic Vending Company, same place. Filed Apr. 19, 1900. Serial No. 13,442. (No model.)



Claim.—1. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, and a shutter for normally covering the opening, of a hand-operative mechanism, a device connected to the said shutter and actuated by the said mechanism, and means actuated by and with the movement of the device connected to the shutter for holding the same away from the opening in the face, and which holding devices are actuated by an increase or decrease in the weight upon the platform to release the shutter and permit the same to return to a normal position, substantially as specified.

2. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein and a shutter for normally covering the opening, of a mechanism forming a hand-operated device, means connected to the said shutter and actuated by the said mechanism, devices actuated by the movement of the shutter for holding the same away from the opening in the face, and which devices are actuated by an increase or decrease in the weight upon the platform to release the shutter and permit the same to return to a normal position, substantially as set forth.

3. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein and a shutter for normally covering the opening, of a mechanism forming a hand-operated device, devices connected to the said shutter and actuated by the said mechanism, and means actuated by the movement of the shutter for holding the same away from the opening in th face, and which means are actuated by an increase or decrease in the w ght upon the platform to release the shutter and permit the same to return to a normal position and a registering mechanism operated by the movement of the hand-operated device for indicating the number of movements imparted to the mechanism, substantially as set forth.

4. In a weighing-machine, the combination with the operative mechanism, of a registering mechanism, a cam-plate adapted to be moved by the movement of the operative mechanism, a spring for returning the cam-plate to a normal position, a vertically-movable plate actuated by the movement of the cam-plate and an arm therefrom to and for actuating the registering mechanism, substantially as set forth.

5. In a weighing-machine, the combination with the operative mechanism, of a registering mechanism, a cam-plate having horizontal and inclined slots, and a projecting arm engaged by the operative mechanism, a support on which the cam-plate is longitudinally movable, a spring for returning the cam-plate to a normal position, a slotted vertically-movable plate, a support therefor, a roller connected to the lower end of the vertical plate and within the inclined slot of the cam-plate for raising and lowering the vertical plate with the movement of the cam-plate and an arm extending from the vertical plate to and for operating the registering device, substantially as set forth.

6. In a weighing-machioe, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter, of a toothed wheel upon the shaft of the indicator-dial of the weighing-machine, means actuated and engaged by the arm of the shutter and adapted to come into engagement with the toothed wheel of the indicator-dial for locking the shutter at the time when the weight of the machine is discovered and for holding the said shutter away from the opening in the indicator-dial so long as the tension applied to the weighing mechanism remains unaltered, substantially as set forth.

7. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter, of a toothed wheel upon the shaft of the indicator-dial of the weighing-machine, means actuated and engaged by the arm of the shutter and adapted to come into engagement with the toothed wheel of the indicator-dial for locking the shutter at the time when the weight of the machine is discovered, and for holding the said shutter away from the opening in the indicator-dial so long as the tension applied to the weighing mechanism remains unaltered, and which means are adapted to be operated by the movement of the toothed wheel of the indicator-dial to release the engagement with the shutter-arm and allow the same to return to a normal position, substantially as set forth.

8. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter through its pivoted arm, of a toothed wheel upon the shaft of the indicator-dial of the weighing-machine, an arm and weighted rocker-bar pivoted to one another, and one of which parts is pivoted to a support, means connected with the said means for engaging the said toothed wheel, means for maintaining said parts in their relation to one another, means connected to the said parts for engaging the pivoted arm of the shutter when the said parts are swung by the movement of the shutter, whereby the shutter is held away from the opening in the face and is released to return to a normal position by any slight change in the weight upon the platform of the weighing-machine, substantially as set forth.

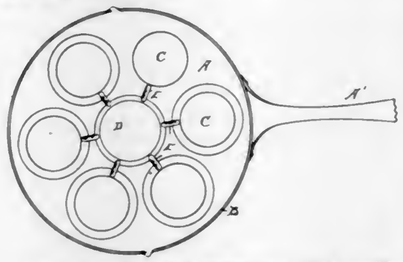
9. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter through its pivoted arm, of a toothed wheel upon the shaft of the indicator-dial of the weighing-machine, an arm and weighted rocker-bar pivoted to one another, and one of which parts is pivoted to a support, one of said parts having a cut-away or reduced end and the other part having an auxiliary arm pivoted thereto, means connected with said parts for engaging the said toothed wheel, means for maintaining the parts in their relation to one another, a latch-stud upon the pivoted arm of the shutter and a latch-stud upon the said auxiliary arm, whereby with the movement of the shutter by the operative mechanism the stud of the pivoted arm moves over the reduced end of one of said pivoted parts swinging the same and the rocker-bar and engaging the stud of the auxiliary arm to lock the shutter away from the opening in the face, substantially as set forth.

10. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter, of a toothed wheel upon the shaft of the indicator-dial of the weighing-machine, a pivoted arm and a support therefor and a weighted rocker-bar pivoted to the said arm, means connected to the said rocker-bar for engaging the said toothed wheel, means connected to the arm of the shutter engaging the pivoted arm, means connected to the arm of the shutter and to the rocker-bar for holding the parts in locking engagement whereby a movement of the toothed wheel actuates the pivoted arm and rocker-bar for releasing the shutter, substantially as set forth.

11. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter, of a pivoted arm and a support therefor, a weighted rocker-bar pivoted at one end of the said arm and a finger at the other end of the said arm, a tooth connected to the rocker-bar and adapted to come into engagement with the said toothed wheel, a spring for maintaining the relation of the pivoted arm and the rocker-bar, latch-studs upon the arm of the shutter and upon the adjacent end of the rocker-bar whereby one latch-stud bears on the finger of the pivoted arm to swing the same and bring the tooth into engagement with the toothed wheel and the other latch-stud engages the similar stud upon the end of the rocker-bar to lock the parts together, substantially as and for the purposes set forth.

12. In a weighing-machine, the combination with the weighing mechanism, a face covering the indicator-dial thereof and having an opening therein, a shutter for normally covering the opening, a pivoted arm to which the shutter is connected and mechanism forming an operative device for actuating the shutter, of a pivoted arm having a finger at one end, a support therefor, a weighted rocker-bar pivoted to the other end of the said arm, a stud upon the pivoted arm, and a spring connecting the same with the rocker-bar for maintaining the relation of the two parts the one to the other, a tooth connected to the rocker-bar and engaging the said toothed wheel, a latch-bar pivoted to the other end of the rocker-bar, a spring between the short end of the latch-bar and the face of the rocker-bar, there being a mortise formed in the rocker-bar surrounding the pivot of the pivoted arm, a latch-stud on the outer end of the latch-bar and latch-studs on opposite faces of the arm of the shutter whereby the movement of the shutter swings the pivoted arm and the rocker-bar and brings the tooth into engagement with the toothed wheel and simultaneously locks the shutter away from the opening that the weight may be discovered and also whereby any movement in either direction of the toothed wheel swings the rocker-bar to separate the respective latch-studs and release the shutter, substantially as set forth.

664,314. COOKING UTENSIL. FRANK E. CORWIN, Detroit, Mich., assignor of one-half to Harry S. Ayres, same place. Filed Aug. 17, 1900. Serial No. 27,120. (No model.)



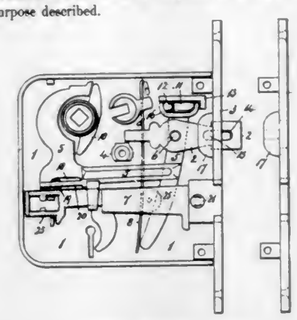
Claim.—1. As a new article of manufacture, a cooking utensil having a multiplicity of independent non-connecting circumferential depressions of like character, a central depression of less depth than the circumferential depressions, and connecting-channels communicating between the central depression and each of the circumferential depressions, substantially as described.

2. In a cooking utensil, the combination and arrangement of circumferential separate independent depressions, a central depression of less depth, a series of channels leading from the central depression one to each circumferential depression, said channels being deflected toward the circumferential depressions and of less depth than the central depressions, substantially as and for the purpose described.

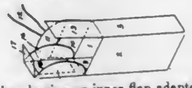
664,315. LOCK AND LATCH. GEORGE C. CRAIG, Toronto, Canada, assignor of one-half to John Charles Craig, Kinmount, Canada. Filed May 10, 1900. Serial No. 16,179. (No model.)

Claim.—1. In a lock and latch such as described, the frame 5, having an arm 16, provided with a raceway 11, and a ball 12 therein, in combination with a lock-case having a lug or bearing 13 above said groove to keep said ball in place, as set forth, and for the purpose described.

2. In a lock and latch such as described, the frame 5, having a rear portion notched out to form a raceway, a ball in said raceway bearing on the top edge of the locking-bolt, and a bar longitudinally of said raceway and secured to said frame, to keep the ball in place, as set forth. and for the purpose described.



664,316. PAPER BOX. EDWARD T. CRUMP, Richmond, Va., assignor to Robert G. Reynolds, same place. Filed Aug. 10, 1900. Serial No. 26,508. (No model.)



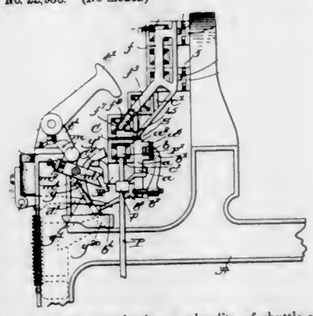
Claim.—1. A box having an inner flap adapted to close its mouth, downwardly-extending wings attached to the said inner flap and adapted to be folded into the box to hold the inner flap in position, a small flap-closed aperture in the said inner flap, an intermediate flap to fold over the inner flap, and a cover-flap adapted to fold down over the other flaps, the said cover-flap being provided with a string for the purposes specified, substantially as described.

2. A box having an inner flap adapted to close its mouth, downwardly-extending wings attached to the said inner flap and adapted to be folded into the box to hold the inner flap in position, a small flap-closed aperture in the said inner flap, and a cover-flap adapted to fold down over the other flaps, the said cover-flap being provided with a string for the purposes specified, substantially as described.

3. A box having an inner flap adapted to close its mouth, downwardly-extending wings attached to the said inner flap and adapted to be folded into the box to hold the inner flap in position, a small flap-closed aperture in the said inner flap, an intermediate flap to fold over the inner flap, and a cover-flap, to fold down over the other flaps, substantially as described.

4. A box having an inner flap adapted to close its mouth, downwardly-extending wings attached to the said inner flap and adapted to be folded into the box to hold the inner flap in position, a small flap-closed aperture in the said inner flap, and a cover-flap, substantially as described.

664,317. WEFT-REPLENISHING LOOM. JOHN V. CUNNIFF, New Bedford, and GEORGE O. DRAPER, Hopedale, Mass., assignors to the Draper Company, Portland, Me., and Hopedale, Mass. Filed July 9, 1900. Serial No. 22,958. (No model.)



Claim.—1. In a loom, the lay, a plurality of shuttle-carriers each containing a shuttle, a feeder for the carriers, and a transferrer to transfer the carriers singly into operative position on the lay, the carrier serving as a shuttle-box after transfer.

2. In a loom, the lay, a plurality of shuttle-carriers each containing a shuttle, a feeder for the carriers, means to transfer the carriers singly to the lay, the carrier serving as a shuttle-box after transfer, and means to automatically lock the carrier in position on the lay.

3. In a loom, the lay, a plurality of shuttle-carriers each containing a shuttle, a feeder therefor, means operative upon filling failure to transfer a carrier to the lay to serve as a shuttle-box for its contained shuttle, means to direct the carrier into position on the lay, and a locking device to retain it in position until displaced by the incoming carrier.

4. In a loom, the lay, a plurality of shuttle-carriers each containing a shuttle, and having a binder-opening, a feeder for the carriers, a transferrer to transfer a carrier to the lay, a binder on the latter, to act upon the shuttle through the binder-opening of the carrier, and means to automatically lock the carrier in operative position to serve as a shuttle-box.

5. In a loom, the lay, a feeder, a plurality of open-ended shuttle-carriers mounted therein and adapted each to receive a shuttle, guides on the feeder to engage the projecting shuttle-tips and direct the movement of the carriers, and a transferrer to engage the carriers singly and transfer them from the feeder to the lay.

6. In a loom, the lay, a plurality of open-ended shuttle-carriers adapted each to receive a shuttle, a feeder for the carriers, having guides to engage the projecting shuttle-tips and direct the movement of the carriers, means to retain in position the carrier next to be transferred, and a transferrer to transfer such carrier to the lay, the carrier thereupon serving as a shuttle-box.

7. In a loom, the lay having an upright guide at one end, a plurality of carriers each containing a shuttle and provided with means to cooperate with said guide, a feeder to support the carriers, and a transferrer to transfer the carriers singly to the lay, the guide thereupon directing the carrier into operative position on the lay to serve as a shuttle-box.

8. In a loom, the lay having a shuttle-box at one end thereof, a series of transferable carriers adapted each to receive a shuttle, a feeder to sustain the carriers when not in use, adjacent the opposite end of the lay, means to effect the transfer of a carrier and its shuttle from the feeder to the lay upon failure of the filling, and means to retain the carrier in position on the lay to serve as a shuttle-box for its shuttle until positively displaced by transfer of another carrier.

9. In a loom, the lay having a shuttle-box at one end thereof, a series of transferable carriers adapted each to receive a shuttle, a feeder to sustain the carriers when not in use, adjacent the opposite end of the lay, means to effect the transfer of a carrier and its shuttle from the feeder to the lay upon failure of the filling, means to rigidly hold the carrier from longitudinal movement when positioned on the lay, and a yielding locking device to hold the carrier in position to serve as a shuttle-box for its shuttle until positively displaced by transfer of another carrier.

10. In a loom, the lay having a shuttle-box at one end thereof, a series of transferable carriers adapted each to receive a shuttle, a feeder to sustain the carriers when not in use, adjacent the opposite end of the lay, means to effect the transfer of a carrier and its shuttle from the feeder to the lay upon failure of the filling, open, upright guideways on the lay, projections on the back of each carrier to enter said guideways when the carrier is transferred, and locking means to retain the carrier in position on the lay to serve as a shuttle-box.

11. In an automatic filling-changing loom, the lay, a plurality of shuttle-carriers each adapted to receive a shuttle, a feeder for the carriers, having a guide for the latter and also having guides to engage the projecting shuttle-tips, the former guide preventing rotative movement of the carriers and the latter directing bodily movement of the carriers and their contained shuttles, and means to effect the transfer from the feeder to the lay of a carrier having a shuttle provided with a supply of filling, each carrier when in operative position on lay serving as a shuttle-box for its shuttle.

12. In a loom, the lay having an upright holding device at one end, a series of carriers each adapted to contain a full shuttle, a feeder for the carriers, and means to transfer the carriers one by one to the lay and into operative engagement with the holding device, to thereafter serve as a shuttle-box for its shuttle, the carrier transferred to the lay acting to eject from the holding device the carrier and its shuttle previously transferred.

13. In a loom, the lay having a shuttle-box at one end, a feeder adjacent the opposite end, a plurality of transferable carriers mounted therein and each adapted to contain a shuttle, means to transfer the carriers singly from the feeder to the lay, and means on the lay to engage the exterior of a carrier and maintain it in position on the lay to serve as a shuttle-box for its shuttle.

14. In a loom, the lay having a shuttle-box at one end, a feeder adjacent the opposite end, a plurality of transferable carriers mounted therein and each adapted to contain a shuttle, means to transfer the carriers singly from the feeder to the lay, means on the lay to externally engage the back of a carrier and position it on the lay when transferred, and a spring-finger to automatically engage the carrier when transferred and retain it in operative position on the lay until positively removed therefrom.

15. In a loom, the lay having a shuttle-box permanently mounted on one end thereof, a shuttle-carrier adapted to contain a shuttle and transferable into operative position at the other end of the lay, to serve as a shuttle-box for its shuttle, a support for the carrier when inoperative, and means to effect transfer of the carrier from the support to the lay.

16. In a loom, the lay having a shuttle-box permanently mounted on one end thereof, a shuttle-carrier adapted to contain a shuttle and transferable into operative position at the other end of the lay, to serve as a shuttle-box for its shuttle, a support for the carrier when inoperative, means to effect transfer of the carrier from the support to the lay, a binder on the adjacent end of the lay, to coöperate with the shuttle of a transferred carrier, and means to retain the latter in position to serve as a shuttle-box for its shuttle until positively displaced.

17. In apparatus of the class described, a feeder comprising connected members having guideways on their inner faces, carrier-guides between the end members, and a plurality of open-ended shuttle-carriers adapted each to contain a shuttle, the projecting tips coöperating with the guideways to direct the movement of the carriers and their shuttles, the carrier-guides acting upon the carriers to prevent rotative movement thereof, and detents at the delivery ends of the guideways to normally engage the shuttle of the endmost carrier and retain it and the series of carriers in the feeder.

18. In apparatus of the class described, a series of carriers each adapted to contain a shuttle with its tips projecting beyond the carrier, a feeder to support the carriers, said feeder having means to engage the projecting shuttle-tips to direct the movement of the carriers, and yielding detents to retain the endmost carrier and its shuttle in position to be removed from the feeder.

19. The lay having an upright, centrally-apertured back piece at one end, said back piece having upright, underent grooves in its front face, a binder mounted on the lay, a shuttle-carrier adapted to receive a shuttle, the carrier having a binder-opening and projections on its back to enter the grooves of the back piece; and a device to lock the carrier in position on the lay to serve as a shuttle-box, the binder at such time coöperating with the shuttle through the binder-opening.

20. The lay having an upright, centrally-apertured back piece at one end, said back piece having upright, underent grooves in its front face, a shuttle-carrier adapted to receive a shuttle and having projections on its back to enter the said grooves, and a spring-finger located in the bottom of each groove to engage the corresponding projection on the carrier and maintain it in position on the lay to serve as a shuttle-box for its shuttle.

21. In a loom, the lay having a shuttle-box at one end, a feeder located opposite the other end thereof, a series of open-ended, box-like shuttle-carriers each adapted to contain a shuttle, said carriers being supported by the feeder, each carrier having a longitudinal slot in its bottom at its outer end, means to transfer the carriers and their shuttles one by one to the lay, means to retain a transferred carrier in position on the lay to serve as a shuttle-box for its shuttle, and a picker-stick movable in the slot in the bottom of the carrier to throw the shuttle therefrom across the lay.

22. The lay, a feeder having its delivery end overhanging the lay when forward, a plurality of shuttle-carriers supported in the feeder and movable by gravity toward its delivery end, means to yieldingly maintain the lowermost carrier of the series in position, and a transferrer to transfer the endmost carrier from the feeder to the lay.

23. The lay, a feeder having its delivery end overhanging the lay when forward, a plurality of shuttle-carriers supported in the feeder and movable by gravity toward its delivery end, each carrier being adapted to contain a shuttle, a detent device for the lowermost carrier of the series, and a transferrer comprising two connected, pivotally-mounted arms adapted to engage the lowermost carrier and transfer it from the feeder to the lay.

24. The lay, a feeder having its delivery end overhanging the lay when forward, a plurality of shuttle-carriers supported in the feeder and movable by gravity toward its delivery end, each carrier being adapted to contain a shuttle, a detent device for the lowermost carrier of the series, means on the adjacent end of the lay to engage a carrier when transferred thereto and prevent its longitudinal movement, a locking device to engage the carrier when positioned on the lay, and a transferrer to transfer the shuttle-carriers singly from the feeder to the lay.

25. In a loom, the lay, a stationary feeder adjacent one end thereof, a series of shuttle-carriers adapted to be supported by the feeder, each carrier containing a shuttle, guides on the feeder to operate with the shuttle-tips and direct the carriers, the latter being moved by gravity into transferring position, and means to transfer the endmost carrier, and its shuttle from the feeder to the lay.

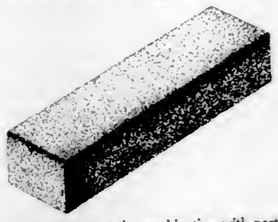
26. In a loom, the lay, a series of carriers each adapted to hold a shuttle, means operative upon failure of the filling to automatically transfer the carriers one by one into position on the lay, to serve as a shuttle-box for its shuttle, and means to lock a carrier to the lay until displaced by the transfer of the next carrier.

664,318. PROCESS OF MAKING SOLUBLE CASEIN. WILLIAM A. HALL, Bellows Falls, Vt., assignor to the Casein Company of America, of New Jersey. Filed Oct. 20, 1899. Serial No. 734,189. (No specimens.)

Claim.—1. The herein-described process of making soluble casein in dry commercial form, consisting in first precipitating the curd from milk, then washing the curd to eliminate the whey and excess of precipitant, then drying the curd by a gentle heat but at a temperature low enough not to burn it, then reducing the curd to a granular condition, then causing the granulated curd to absorb a small percentage of a solution of an alkali by mixing the said solution with the granular curd while the latter is being rapidly agitated, and finally drying the granulated and alkalized product.

2. The herein-described step in the process of making soluble alkalized casein, consisting in causing the curd, when in a fragmentary condition, to absorb a small percentage of its bulk or weight of a solution of an alkali by mixing the said solution with the fragmentary curd while the latter is being rapidly and thoroughly agitated, so that each fragment will be permeated with said solution.

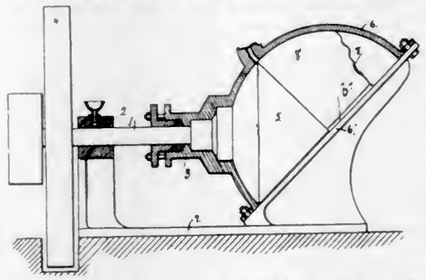
664,319. OIL-STONE. MILTON B. HILL, Worcester, Mass., assignor to the Norton Emery Wheel Company, same place. Filed Feb. 5, 1900. Serial No. 3,948. (No model.)



Claim.—1. In an oil-stone the combination with particles of abrasive material, of a vitrified, waterproof bond adapted to hold said particles together in a fixed mass, and a soft filler adapted to fill the spaces or pores between said particles consisting of a solid or semisolid mass of material at ordinary temperatures, which is liquid when heated, substantially as described.

2. In an artificial oil-stone the combination with particles of abrasive material, of a hard, vitrified, insoluble bond adapted to hold said particles together in a fixed mass, and a filler consisting of petrolatum adapted to fill the spaces or pores between said particles, whereby an undue absorption of oil used on said stone is prevented, substantially as described.

664,320. ROTARY ENGINE. CHRISTIAN W. HOFFMANN, Amsterdam, Netherlands. Filed Dec. 22, 1898. Serial No. 700,057. (No model.)



Claim.—In an engine a cone 5, coupled with a shaft 1, a hemispherical chamber 6, having a suitable base, a semicircular piston beveled on its straight edge rotatably fitted in said chamber and situated in a slot through the cone, perpendicularly to its base, two power-admission orifices through the chamber and an exhaust-orifice in the same.

664,321. ORNAMENTAL ENAMEL-WARE. JOSIAH HUGHES and JAMES P. MCGOWAN, New York, N. Y., assignors to the Iron Clad Manufacturing Company, same place. Filed June 21, 1899. Serial No. 721,374. (Specimens.)

Claim.—1. Enameled ware having a mosaic, tessellated, or variegated appearance, the surface of which comprises a body of enamel having incorporated and fused therein an enameling material of different colors.

2. Variegated enameled ware having a surface comprising a body of one color, having incorporated and fused therewith a plurality of enameling materials of a character to form spots or marks, and each such material of a color different from such body and from each other.

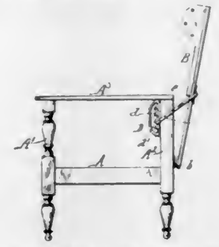
3. Variegated enameled ware having a surface comprising a body of one color, having incorporated and fused therein a plurality of enameling materials of a character to form spots or marks, and each such material of a color different from such body, and from each other, the spots or marks of one color having areas different from the spots or marks of its companion color or colors.

4. Variegated enameled ware having a surface comprising a body of one color, having incorporated and fused therewith a plurality of enameling materials of a character to form spots or marks; and each such material of a color different from such body and from each other, and the spots or marks of each one of the colors having different areas.

5. Enameled ware having a mosaic, tessellated, or variegated appearance, the surface of which comprises a body of enamel having incorporated and fused therewith an enameling material of different colors and areas.

6. Variegated enameled ware having a surface comprising a body of one color, having incorporated and fused therewith an enameling material of different colors to form spots or marks of different areas, some of such spots or marks having areas similar to that of a speck or pepper-grain; and others of such spots having varying and materially-increased areas.

664,322. RECLINING-CHAIR. HENRY J. JACOBS, Buffalo, N. Y., assignor to the Buffalo Lounge Company, same place. Filed Aug. 18, 1900. Serial No. 27,244. (No model.)



Claim.—The combination with a chair-body having rear posts which extend above the chair-seat, and an adjustable back hinged at its lower end to the chair-body, of upright toothed bars secured to said rear posts and facing forwardly, and each having all of its teeth arranged vertically, one below another, said teeth having forwardly-inclined upper sides and abrupt lower sides, and a vertically-swinging yoke pivoted to the chair-back and having arms which extend forwardly to said toothed bars and terminate in lips or angular portions which engage with said toothed bars, substantially as set forth.

664,323. GRAIN-ELEVATOR. ERNEST V. JOHNSON, Chicago, Ill. Filed Oct. 16, 1899. Serial No. 733,732. (No model.)

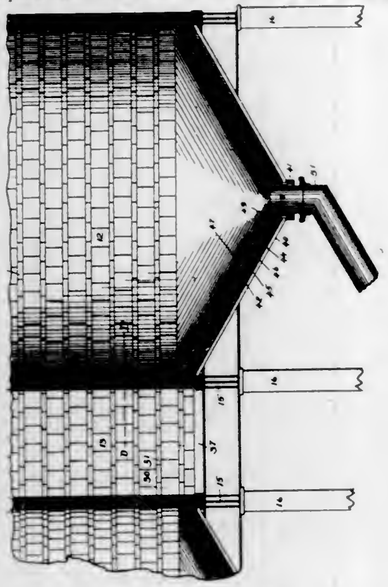
Claim.—1. A fireproof grain-elevator, comprising a series of cylindrical hopper-bottom grain-bins each having masonry walls composed of alternate double-row courses and single-row courses bonding the double-row courses, the double-row courses having a space between their outer and inner rows filled with cement, and a tensile acting metal member or band placed edgewise in said space and surrounding the inner row, substantially as specified.

2. A fireproof grain-elevator, comprising a series of cylindrical grain-bins each having masonry walls composed of alternate double-row courses and single-row courses bonding the double-row courses, the double-row courses having a space between their outer and inner rows filled with cement, and a tensile acting metal member or band placed edgewise in said space and surrounding the inner row, and a series of double bowed or convex walls uniting adjacent cylindrical bins, and forming a series of interspace bins, substantially as specified.

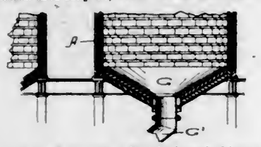
3. A grain-bin having a hopper-bottom comprising courses of material forming an impervious downwardly-tapering hopper and a supporting-frame consisting of radial tension-rods secured at their outer ends to the peripheral framework and united at their inner ends to a central ring and a metal mouthpiece extending through and supported by said ring.

4. A grain-bin having a hopper-bottom comprising courses of ma-

terial forming an impervious downwardly-tapering hopper and a supporting-frame consisting of radial tension-rods secured at their outer ends to the peripheral framework and united at their inner ends to a central ring.



664,324. CONSTRUCTION OF FIREPROOF GRAIN-BINS, ELEVATORS, OR OTHER BUILDINGS. ERNEST V. JOHNSON, Chicago, Ill. Original application filed Oct. 16, 1899, Serial No. 733,732. Divided and this application filed May 31, 1900. Serial No. 18,551. (No model.)



Claim.—1. In a fireproof cylindrical grain-bin or other building having its cylindrical wall composed of alternate courses of vertical and horizontal tile, the courses of vertical tile each consisting of two parallel rows provided with a tensile acting metal band or member placed edgewise between the rows and surrounding the inner row of said tile, said tensile acting band or metal member being embedded in cement filling the space between said parallel rows, and the courses of horizontally-arranged tile extending across and binding said parallel rows of vertically-arranged tile, the cement uniting the tensile acting metal band throughout its length and width with the outer and inner rows of tile, substantially as specified.

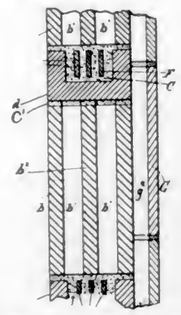
2. A fireproof grain elevator, bin or other building having cylindrical tilework walls, composed of courses of horizontally-arranged tile and courses of vertically-arranged tile laid in double parallel rows with space between, a tensile acting metal member or band arranged edgewise in said intervening space, cement filling said space and uniting said metal band throughout its length and width with the tilework, substantially as specified.

3. A fireproof cylindrical grain-bin or other building having masonry walls composed of alternate double-row courses and single-row courses bonding the double-row courses, the double-row courses having a space between their outer and inner rows, a tensile acting metal member or band placed edgewise in said space and surrounding the inner row, and cement filling said space and rigidly uniting said tensile acting metal member or band with the masonry, substantially as specified.

4. A fireproof cylindrical grain-bin or other building having cylindrical masonry walls composed of alternate double-row courses and single-row courses bonding the double-row courses, the double-row courses having a space between their outer and inner rows, cement filling said space and rigidly uniting the inner and outer rows, said double-row courses being each composed of vertically-arranged hollow tile and said single-row courses being composed of thin flat tile spanning the double-row courses, substantially as specified.

5. A fireproof cylindrical grain-bin or other building having cylindrical masonry walls composed of alternate double-row courses and single-row courses bonding the double-row courses, the double-row courses having a space between their outer and inner rows, cement filling said space and rigidly uniting the inner and outer rows, said double-row courses being each composed of vertically-arranged hollow tile and said single-row courses being composed of thin flat tile spanning the double-row courses, and having vertical openings through the same registering with the hollows or open spaces in said vertically-arranged tile, and thus forming continuous vertical air-passages in the wall, substantially as specified.

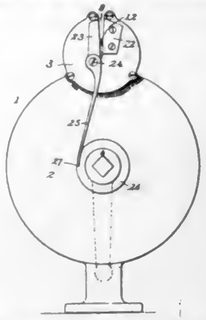
664,325. FIREPROOF GRAIN-BIN, ELEVATOR, &c. ERNEST V. JOHNSON, Chicago, Ill. Filed June 4, 1900. Serial No. 18,978. (No model.)



Claim.—1. A fireproof cylindrical grain-bin or other building having its cylindrical wall composed of courses of vertically-arranged hollow tile, and courses of trough-shaped tile forming annular channels, tensile acting metal members in the channels formed by said trough-shaped tile, and cement filling such annular channels and in which the tensile acting metal members are embedded throughout their length, substantially as specified.

2. A fireproof grain-bin or other building having cylindrical tilework walls, composed of courses of vertically-arranged hollow tile, and courses of horizontally-arranged trough-shaped tile forming continuous annular channels at intervals around the cylindrical wall, tensile acting metal members in said channels, cement filling said channels, and furring-tile lining said wall on the inside and forming continuous vertical flues or air-passages, each of said furring-tile having outer webs *g g* and double intermediate webs *g' g'* to cause the furring-tile to properly support each other and at the same time break joints, substantially as specified.

664,326. WIRE-SPLICING MACHINE. WILLIAM F. KINTZING, Glen Rock, Pa., assignor of one-half to Arthur S. Norrish, same place. Filed Apr. 3, 1900. Serial No. 11,338. (No model.)



Claim.—1. In a wire-twisting machine, the combination with the frame and the rotatable twisting-wheel mounted therein, the frame and the wheel being correspondingly slotted, of the fixed and the movable jaw secured to the twisting-wheel at opposite sides of the slot, the cam secured to the twisting-wheel in position to actuate the movable jaw and having a part adapted to bear against a part of the frame to actuate the cam to move the jaw for the purpose of gripping the wire strands to be twisted, and means for operating the twisting-wheel, substantially as described.

2. In a wire-twisting machine, the combination of the slotted twisting-wheel, the fixed and the movable jaw secured thereto, the cam carried by the wheel and having an arm arranged to contact with a part of the frame to actuate the movable jaw, and a driving-wheel for actuating the twisting-wheel, said driving-wheel having a recess or opening adapted to receive the free end of the arm to the cam for the purpose of releasing the cam from the movable jaw, substantially as described.

3. In a wire-twisting machine, the combination with the slotted twisting-wheel provided with the gripping-jaws, the cam carried by the wheel and having an arm arranged to contact with a part of the frame to actuate one of the gripping-jaws, and a driving-wheel for actuating the twisting-wheel, said driving-wheel being formed with a ring or flange adapted to contact with the arm of the cam to retain the cam in operative position against one of the jaws to grip the wire strands and having a recess or opening adapted to receive the free end of the arm to the cam for the purpose of releasing the cam from the movable jaw, substantially as described.

4. In a wire-twisting machine, the combination with the frame and the rotatable toothed twisting-wheel mounted therein, of the fixed and the movable jaw secured to the twisting-wheel, the toothed driving-wheel engaging with the twisting-wheel and provided with a ring or flange having a recess or opening, and the cam carried by the twisting-wheel and having an arm adapted to contact with a part of the frame in the rotation of the twisting-wheel to actuate the gripping-jaw and at some time in its rotation to enter the opening in the ring or flange for the purpose of releasing the gripping-jaw, substantially as described.

5. In a wire-twisting machine, the combination with the slotted twisting-wheel provided with the gripping-jaws, of the cam provided with a spring-influenced arm carried by the twisting-wheel and adapted in the rotation of the wheel to contact with a part so as to move the cam into position to actuate the gripping-jaw, substantially as described.

6. In a wire-twisting machine, the combination with the frame and the twisting-wheel mounted therein, the frame and wheel being correspondingly slotted, of the fixed and the movable gripping-jaws located on opposite sides of the slot in the frame, the movable jaws having extended arms, and rotatable cams arranged to bear against the extended arms to actuate the gripping-jaws, substantially as described.

7. In a wire-twisting machine, the combination with the frame and the twisting-wheel mounted therein, the frame and wheel being correspondingly slotted, of the driving-wheel mounted upon a shaft and engaging the twisting-wheel, the fixed and the movable gripping-jaws located on opposite sides of the slot in the frame, the movable jaws having extended arms, and collars attached to the shaft of the driving-wheel and formed with cam-faces to engage the extended arms of the gripping-jaws, substantially as described.

8. In a wire-twisting machine, the combination with the frame and the twisting-wheel mounted therein, the frame and the wheel being correspondingly slotted, of the driving-wheel mounted upon a shaft and engaging the twisting-wheel, collars mounted upon the driving-shaft and having a cam-surface formed with a shoulder, and the fixed and the movable gripping-jaws located on opposite sides of the slot in the frame, the movable jaws having spring-influenced arms bearing upon the cam-surfaces of the collars, substantially as described.

664,327. THERMOSTAT. JAMES B. KNICKERBOCKER, Indianapolis, Ind., assignor to Langsenkamp Brothers, same place. Filed Mar. 20, 1897. Serial No. 628,434. (No model.)

Claim.—1. A valve, having a by-pass passing therethrough, means for automatically operating said valve, and independent means for regulating the by-pass and for positively closing the valve.

2. A valve, having a by-pass passing therethrough, means for automatically operating said valve, and means for positively closing the valve and by-pass.

3. A valve, provided with a suitable stem and having a by-pass passing therethrough, and an adjustable stem provided with a socket adapted to receive the valve-stem and pass over the by-pass, as and for the purpose set forth.

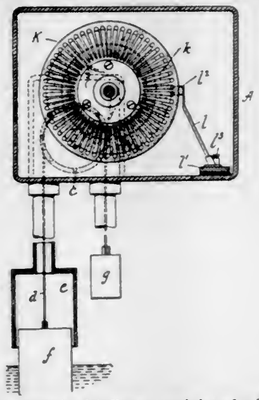
4. A valve, provided with a suitable stem and having a by-pass passing through said stem, and an adjustable stem provided with a socket adapted to receive the valve-stem and to pass over the mouth of the by-pass, the said adjustable stem being also provided with means to positively engage the valve or its stem and to positively close said valve.

5. A valve, provided with a suitable stem and having a by-pass passing through said stem, an opening into the casing permitting the introduction of the valve, a cap for closing said opening, a stem passing through said cap and longitudinally adjustable therethrough, a socket formed in the inner end of said stem and adapted to receive the valve-stem and to pass over the mouth of the by-pass, whereby the by-pass may be regulated and the valve positively closed by the said adjustable stem, substantially as and for the purpose set forth.

664,327.



664,328. LIQUID-LEVEL INDICATOR. ALEXIS LE BLANC, New York, N. Y. Filed Apr. 20, 1900. Serial No. 13,606. (No model.)



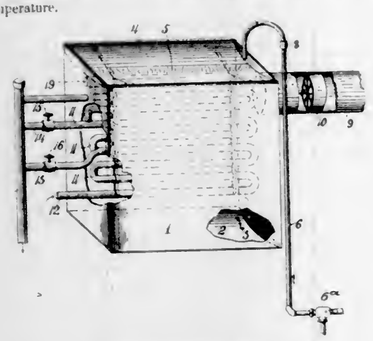
Claim.—A liquid-level indicator, consisting of a float resting upon the body of liquid, a counterweight for the float, a cord connecting the float and counterweight, a train of gearing over one of the wheels of which said cord passes, a disk rotated by said gearing, a rheostat carried by said disk, the disk being provided with a groove in its periphery, section-terminals of the rheostat in the form of pins passing through said disk and exposed in the bottom of said groove, a contact adapted to traverse the groove, a source of electricity in series with the rheostat, and an indicating instrument one terminal of which is connected with one terminal of the resistance while its other terminal is connected with said contact, substantially as described.

664,329. PROCESS OF PURIFYING CREAM OR OTHER LIQUIDS. HERBERT E. LOYSTER, Hudson, Mich., assignor to Jennie M. Loyster, same place. Filed Dec. 9, 1899. Serial No. 739,835. (No specimens.)

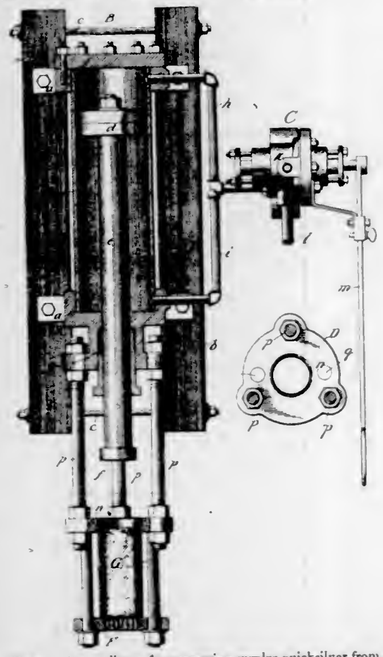
Claim.—1. The continuous process of purifying cream which consists in heating the cream and dividing it into streams, introducing a blast of fresh air at normal temperature through and around the finely-divided cream, and cooling the cream.

2. The process of purifying cream which consists in heating the cream to animal temperature, dividing it into streams, and subjecting the streams at such temperature to a blast of fresh air at normal temperature

for removing odors and impurities, and then cooling the cream to normal temperature.



664,330. AMALGAM-PRESS. ANGUS MACKAY, Douglas Island Alaska, assignor of one-half to Robert M. Mein, San Francisco, Cal. Filed Nov. 27, 1899. Serial No. 738,385. (No model.)

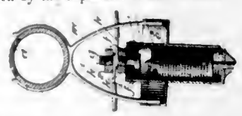


Claim.—An appliance for expressing surplus quicksilver from amalgam, comprising, in combination, a frame, a threaded apertured plate, rods fixedly connecting the plate to the frame, a foraminous cylindrical receptacle having open ends and screwed at its top in the aperture of the plate, rods depending from the plate having nuts at their lower ends, a laterally-swinging perforated base-plate normally closing the lower end of the cylinder and pivoted to one of the depending rods and provided with a recess to engage the other depending rod the nuts forming supports for the base-plate, a ram movable in said receptacle, and means for actuating the ram to express the quicksilver from the amalgam, and to expel the latter through the open lower end of the receptacle when the base-plate is swung to its opening position.

664,331. PROTECTIVE APPLIANCE FOR MILLS, FACTORIES, &c. MORRIS MARTIN, Malden, Mass., assignor to Thomas J. Drummond, Boston, Mass. Filed Oct. 17, 1898. Serial No. 693,725. (No model.)

Claim.—1. In a protective appliance for mills and the like, a hydrostat comprising a reservoir or chamber, hydro-expansible material supported in said chamber and means for conducting liquid into said chamber.

2. In a protective appliance for mills and the like, a hydrostat comprising hydro-expansible material, means for supporting said material, means for conducting liquid to said hydro-expansible material, and an indicator set in motion by the expansion of said material.



3. A hydrostat composed of a chamber or holder, a circuit-controller, and hydro-expansible means sustained by said chamber or holder, and adapted in the presence of water to operate said controller and means for conducting water to said chamber, substantially as described.

4. A hydrostat composed of a chamber containing anhydrous material in a free or loose condition and a circuit-controller actuated through the movement of the said material in the presence of water.

5. A hydrostat composed of a chamber or holder containing paper of the character known as "blotting-paper," and a circuit-controller, said controller being operated quickly by the expansion of said paper after the application of water thereto, substantially as described.

6. A hydrostat having a chamber containing hydro-expansible material supported by said chamber, an electric circuit, an indicator controlled by said circuit, and a circuit-controller adapted to be operated by the expansion of such material.

7. In combination with a water-supply system of a hydrostat having hydro-expansible material and means to sustain said material, said hydrostat being connected to and adapted to catch water issuing from said system.

8. A hydrostat having a hydro-expansible material, and means for sustaining the said material, in combination with a thermostat adjacent thereto and a circuit-controller operable by both the hydrostat and thermostat.

9. A circuit-controller, and a chamber or holder having a movable piston and rod at one end to sustain dry cellulose material adapted to swell and increase in size rapidly by the action of water to operate said circuit-controller, combined with a spring acted upon by said piston and held compressed by easily-fusible solder, the melting of said solder also operating the said circuit-controller, substantially as described.

10. An electric circuit, an indicator governed by the circuit, a circuit-controller, a hydrostat having hydro-expansible material adapted to control said circuit-controller, and a thermostat also adapted to control said circuit-controller.

11. A sprinkler, a hydrostat subjacent thereto and comprising a chamber, hydro-expansible material contained within said chamber and an indicator under control of the said hydro-expansible material.

12. A hydrostat comprising a chamber and a drip-cup leading thereto, said chamber containing material the cubical area of which is changeable by water, and an indicator under control of said material.

13. A sprinkler, a hydrostat subjacent thereto and comprising a chamber, a drip-cup leading thereto, said chamber containing material the cubical area of which is changeable by water, and an indicator under control of said material.

14. A hydrostat having hydro-expansible material, a thermostat, and an indicator under control of both said hydrostat and thermostat.

664,332. GARMENT-HANGER. JOHN C. MESSINGER, Bethlehem, Pa. Filed Feb. 10, 1900. Serial No. 4,797. (No model.)

Claim.—1. A coat-hanger, comprising a middle member composed of a pair of tubes, cross-braces connecting and means for suspending the same, in combination with a pair of U-shaped members adjustable in said tubes, substantially as set forth.

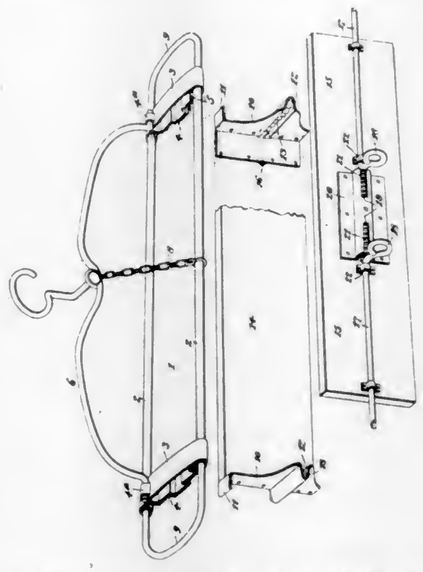
2. In a coat-hanger comprising a middle member composed of a pair of tubes, cross-braces connecting the same and a pair of U-shaped wire members adjustable in said tubes, substantially as set forth.

3. In a coat-hanger, the combination with a sheet-metal member comprising a pair of tubes, cross-braces and seat members, of end wires slidable in said tubes and a garment-clamp, hung below and from said seat members, substantially as described.

4. In a coat-hanger, a sheet-metal member comprising a pair of tubes, cross-braces, and seat members formed below said cross-braces and provided with a depression or seat, end wires slidable in said tubes and a garment-clamp adapted to rest in said seat, substantially as described.

5. In a coat-hanger, a sheet-metal member comprising a pair of tubes, cross-braces, and seat members provided with a depression or seat, below said cross-braces; in combination with extension members in said tubes a garment-clamp having end lugs thereon adapted to rest in the seats, substantially as described.

6. The combination with a coat-form, of a wire frame having an upward and forward bend for supporting the collar of the coat, substantially as described.



7. The combination with a coat-form, of a wire collar-form secured to the back of said coat-form and bent forward over the center of said coat-form, substantially as described.

8. In a coat-hanger, the combination with a coat-form of a wire collar-form hinged to said coat-hanger to support the latter, substantially as set forth.

9. In a coat-hanger, the combination with a coat-form, of a collar-form hinged thereto, a chain connecting said coat-form and the middle of the collar-form, substantially as set forth.

10. In a coat-hanger, the combination with a middle member, of a wire collar-form hinged thereto, an eye and a hook therein, a chain connecting said hook and coat-form, and wire side members adjustable in the middle member, substantially as set forth.

11. In a garment-hanger the trousers-clamp comprising a pair of boards, metallic end plates secured to one of said boards, suspending-lugs, a rack on the end plates, rods held by a spring between them and on the other board and adapted to engage said racks, substantially as described.

12. In a garment-hanger a trousers-clamp comprising a metallic base-plate, ends bent at right angles thereto, racks formed in said ends, lugs on the ends, a coöperating clamping-board, spring-held wire rods secured thereto and adapted to engage the racks, substantially as described.

13. In a garment-hanger a trousers-clamp comprising two coöperating boards, end members on one of said boards, grooves in said end members, serrated wires in said grooves to form racks and spring-held reciprocable rods secured to the other board having their outer ends guided in grooves and engaging the racks, substantially as described.

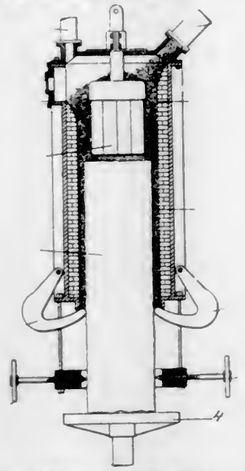
14. A garment-hanger, comprising a coat-form, a hinged collar-form thereon, depending seats below said coat-form, a clamp having coöperating jaws, one of said jaws movable in the other, and lugs on said clamp adapted to take into the seats, substantially as set forth.

15. In a garment-hanger, a coat-form comprising parallel tubes and U-shaped end wires slidable therein, depending seat members connecting said tubes, notches cut in said seat members in front of the seats thereon, in combination with a clamping member, lugs on said clamping member adapted to pass through the notches and rest in said seats, substantially as set forth.

16. In a garment-hanger, a coat-form, a hinged collar-form and depending seats on the coat-form; in combination with a clamp comprising grooved side plates fastened to the base-plate, lugs on said side plates adapted to take into the seats, and a clamping member, pins thereon, spring-held and guided in the grooves, substantially as set forth.

17. In a garment-hanger, a clamping member comprising a base-plate, ends thereon, suspending-lugs on and grooves in said ends and racks in said grooves; in combination with an adjustable member 15, rods 17 adapted to engage the racks, turned-up looped inner ends on said rods, a slotted casing and spring therein, the inner ends of said rods engaged by the spring and sliding in said slots, substantially as and for the purpose set forth.

664,333. ELECTRIC FURNACE. JOHN M. MOREHEAD, Chicago, Ill., assignor to the Union Carbide Company, same place. Filed Dec. 12, 1899. Serial No. 740,048. (No model.)

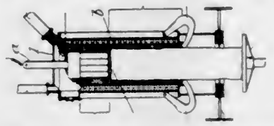


Claim.—1. An electric furnace provided with a hood having gas-tight sides and top and having an opening in the bottom for the removal of the product, conductors of opposite polarity projecting through the hood, means for embedding the skirt of the hood in packing material and thereby establishing and maintaining a seal for preventing ingress of air to the hood and for directing and confining gas in the hood, and means for removing gas from the hood, substantially as described.

2. In an electric furnace having electrodes a gas-hood depending over the electrodes and provided with pivoted retaining devices depending around the skirt and provided with means for holding a part of the charge, substantially as described.

3. An electric furnace provided with a gas-collecting hood having a gas-offtake and with conductors of opposite polarity depending through the hood, and with means for embedding the skirt of the hood in the raw material and thereby establishing and maintaining a seal for preventing ingress of air to the hood and for directing and confining gas in the hood, substantially as described.

664,334. MANUFACTURE OF CARBID OF CALCIUM. JOHN M. MOREHEAD, Chicago, Ill., assignor to the Union Carbide Company, same place. Filed Dec. 12, 1899. Serial No. 740,049. (No specimens.)

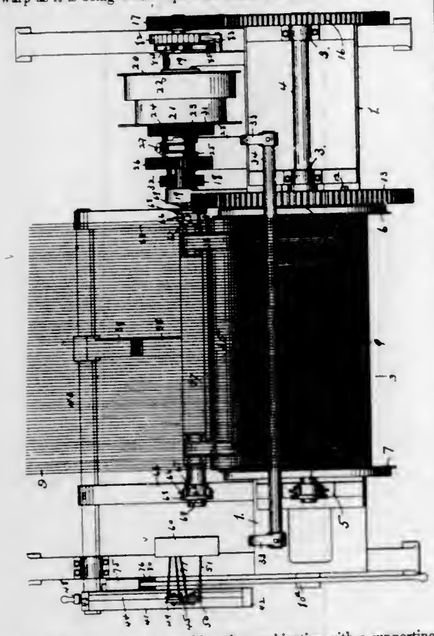


Claim.—In the art of ecectrochemistry the improvement which consists in passing a current of electricity and thereby establishing a region of reduction under a gas-tight hood, feeding raw material under the hood into the region of reduction, removing the product downward from under the hood, embedding the skirt of the hood in the raw material and thereby creating and maintaining a seal between the skirt of the hood and the product for excluding air from the hood and for permitting of the downward movement of the product and for directing and confining gas in the hood, and withdrawing the gas through the hood, substantially as described.

664,335. WARP-BEAMING MACHINE. DAVID MCTAGGART, Worcester, Mass. Filed Jan. 31, 1899. Serial No. 703,956. (No model.)

Claim.—1. The combination of a pair of rocking shafts, intermediate gearing by which said shafts are connected, radial arms attached to one of said rocking shafts, a warp-compressing roll carried by said arms, a suspended weight and means whereby said weight is applied to rock the other of said rocking shafts and carry said compressing-roll against the warp, substantially as described.

2. In a warp-beaming machine the combination with a supporting-framework, of journal-bearings for supporting a warp-beam, a rocking shaft journaled below and at the rear of the axis of the warp-beam, arms extending upwardly from said rocking shaft, a warp-compressing roll carried by said arms, a second rocking shaft at the rear of the first rocking shaft, means for operatively connecting said rocking shafts and means for rocking said second shaft, whereby the compressing-roll is carried against the warp as it is being wound upon the beam, substantially as described.



3. In a warp-beaming machine, the combination with a supporting-framework having bearings for supporting a warp-beam, of means for rotating the warp-beam, a warp-compressing mechanism comprising a pair of rocking shafts, intermediate gearing by which said shafts are connected, arms extending from one of said shafts, a warp-compressing roll carried by said arms, means for rocking the other rocking shaft and means for conducting the warp to the warp-beam between the beam and the compressing-roll, substantially as described.

4. The combination with a warp-compressing roll, of arms carrying said roll, a rocking shaft carrying said arms, a second rocking shaft, an arm projecting from said second shaft, a weight connected with said arm and intermediate gearing between said rocking shafts, whereby said weight is made to exert a pulling strain to carry said compressing-roll against the warp as it is being wound, substantially as described.

5. The combination of a warp-compressing roll, of a pair of rocking shafts, gearing connecting said shafts, arms extending from one of said shafts and supporting said compressing-roll, an arm extending from the other rocking shaft, a weight applied to said arm to rock said shafts, and carry the compressing-roll against the warp as it is being wound and means for reversing the rocking motion of said shafts to carry the compressing-roll away from the warp, substantially as described.

6. The combination of the rocking shaft 40, a warp-compressing roll, intermediate mechanism, by which the rocking motion of said shaft 40 will carry said roll against the warp, means for rocking said shaft to apply pressure to the warp, a ratchet 76 attached to said shaft, a lever arranged to engage the teeth of said ratchet and means for locking said lever in position, substantially as described.

7. The combination with a warp-compressing roll, of a rocking shaft 37, arms attached to said shaft and carrying said warp-compressing roll, a shaft 40, gears 38 and 39 connecting said shafts, an arm 41 attached to said shaft 40, a weight 62 applied to said arm 41 to rock its shaft 40 in one direction and means for varying the radial distance from the axis of shaft 40 at which the strain exerted by said weight is applied, substantially as described.

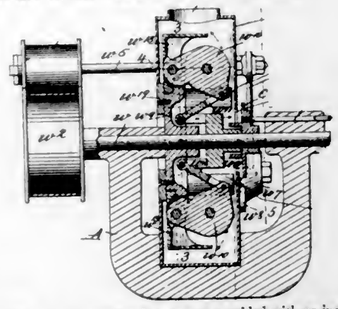
8. The combination with a framework provided with bearings for supporting a warp-beam, of a driving-shaft adapted to be operatively connected with a warp-beam, a counter-shaft, a belt-pulley running loosely on said counter-shaft and having a hub provided with clutch-teeth, a sliding gear having a spline connection with said counter-shaft and provided with clutch-teeth arranged to engage the clutch-teeth on said belt-pulley, an intermediate shaft, gearing carried by said intermediate shaft and arranged to operatively connect said sliding gear and said belt-pulley, a ratchet and pawl for holding said counter-shaft from reverse motion and connecting-gearing between said counter-shaft and the warp-beam, substantially as described.

9. The combination with a warp-beam and a warp-compressing roll and mechanism for carrying said roll against the warp-beam and comprising a rocking shaft, of a hollow segmental ratchet 75 attached to said rocking shaft and provided with ratchet-teeth 76 and carrying a pin 79, a lever 77 provided with a slot 78 inclosing said pin, whereby said lever is capable of a slight radial movement, and a pin 80 carried by said lever and arranged to engage said ratchet-teeth, whereby said shaft is rocked, substantially as described.

10. In a warp-beaming machine, the combination with a warp-compressing roll and arms carrying said roll; of friction-rolls held in said arms and bearing against said warp-compressing rolls, consisting of a central roll provided with hubs on opposite sides and rolls journaled on said hubs of the same diameter as said central roll, substantially as described.

11. In a warp-beaming machine, the combination with a warp-compressing roll and arms carrying said roll, of friction-rolls held in said arms and bearing against said warp-compressing roll, each of said friction-rolls consisting of a central roll provided with hubs on each side and a pair of side rolls of equal diameter turning on the hubs of said central roll, substantially as described.

664,336. **CENTRIFUGAL GOVERNOR.** ANDREW SCHULZE, Washington, D. C., assignor of one-half to Emma S. Douglas, St. Louis, Mo. Filed Mar. 20, 1899. Serial No. 709,846. (No model.)



Claim.—1. A centrifugal governor, provided with an inclosing casing in which the rotating parts act as a fan and means for establishing a flow of air through the casing; substantially as described.

2. A centrifugal governor, provided with an inclosing casing in which the rotating parts act as a fan, said casing being provided with air inlet and outlet openings and means for varying the flow of air through the casing; substantially as described.

3. A centrifugal governor, provided with an inclosing casing in which the rotating parts act as a fan, said casing being provided with air inlet and outlet openings, and a valve for increasing or diminishing the flow of air through the inlet-opening; substantially as described.

4. A centrifugal governor, provided with an inclosing casing in which the rotating parts act as a fan, said casing being provided with air inlet and outlet openings, and a valve for increasing or diminishing the flow of air through the inlet-openings, said valve being actuated from the governor-stem; substantially as described.

5. A centrifugal governor, provided with swinging weights, fan-blades, an inclosing casing having inlet and outlet openings, and a valve actuated from the governor-stem for increasing or diminishing the flow of air through the inlet-opening; substantially as described.

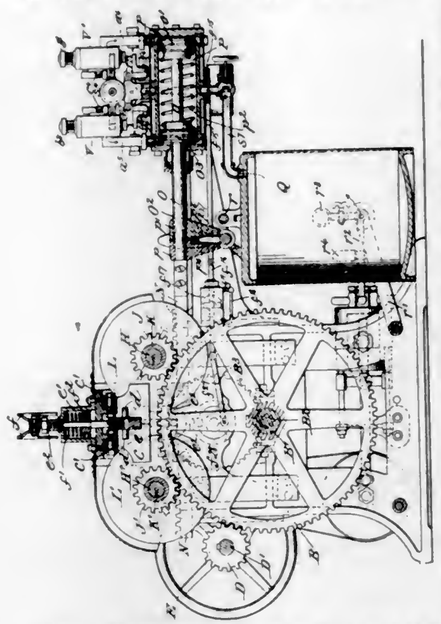
6. A centrifugal governor, provided with swinging weights, a driving-disk therefor, a disk to which the weights are pivoted, said latter disk having fan-blades, an inclosing casing having inlet and outlet openings, and a valve actuated from the governor-stem for increasing or diminishing the flow of air through the inlet-opening; substantially as described.

7. A centrifugal governor provided with swinging weights, a driving-disk therefor, said disk having inclined recesses with which the weights engage, a disk to which the weights are pivoted, said latter disk having fan-blades, an inclosing casing having inlet and outlet openings and a valve actuated from the governor-stem for increasing or diminishing the flow of air through the inlet-opening; substantially as described.

8. A centrifugal governor, provided with swinging weights, springs joining the outer ends of the weights so as to oppose their outward move-

ment, fan-blades, an inclosing casing having inlet and outlet openings, and a valve actuated from the governor-stem for increasing or diminishing the flow of air through the inlet-opening; substantially as described.

664,337. **GOVERNOR FOR WATER-WHEELS.** ANDREW SCHULZE, Washington, D. C., assignor of one-half to Emma S. Douglas, St. Louis, Mo. Filed Mar. 20, 1899. Serial No. 709,847. (No model.)



Claim.—1. In a governor, the combination with a rotatory shaft, of a pinion normally loose thereon, friction-disks on the pinion, friction-disks on the shaft at opposite sides of the pinion, and means for simultaneously bringing the pinion friction-disks and shaft friction-disks into clutching contact; substantially as described.

2. In a governor, the combination with a rotatory shaft, of a pinion normally loose thereon, a friction-disk on the pinion, a friction-disk on the shaft, a brake for normally preventing rotation of the pinion and means for clutching the disks together and simultaneously releasing the brake; substantially as described.

3. In a governor, the combination of a rotatory shaft of a pinion normally loose thereon, friction-disks on the pinion, friction-disks on the shaft at opposite sides of the pinion, a brake for normally preventing rotation of the pinion, said brake consisting of pivoted wings adapted to contact with the pinion-disks, and a wedge for separating said wings; substantially as described.

4. In a governor, the combination of a rotatory shaft, of a pinion normally loose thereon, friction-disks on the pinion, friction-disks on the shaft at opposite sides of the pinion, a brake for normally preventing rotation of the pinion, said brake consisting of pivoted wings adapted to contact with the pinion-disks, a wedge for separating said wings, and rack-bars geared to the shaft-disks, and having cams or inclines for raising the wedge; substantially as described.

5. In a governor, the combination with a gate-gear, of two parallel shafts, having loose pinions meshing with the gate-gear, friction-disks on the pinions, friction-disks on the shafts at opposite sides of the pinions, two pairs of rack-bars, said pairs being secured to oppositely-moving piston-heads, and disk-shifting mechanism geared to the rack-bars; substantially as described.

6. In a governor, the combination with a shaft-disk, of an externally-screw-threaded sleeve for shifting the disk, a screw-threaded socket within which the sleeve engages, said socket being provided with cog-teeth, and a rack-bar engaging the cog-teeth; substantially as described.

7. In a governor, the combination with a shaft-disk, of an externally-screw-threaded sleeve for shifting the disk, a screw-threaded socket within which the sleeve engages, said socket being provided with cog-teeth, a rack-bar engaging the cog-teeth, and a spring tending to retract the shaft-disk; substantially as described

8. In a governor, the combination with a shaft-disk, of an externally-screw-threaded sleeve for shifting the disk, a screw-threaded socket within which the sleeve engages, said socket being provided with cog-teeth, a rack-bar engaging the cog-teeth, and a spring tending to retract the shaft-disk and connected to the screw-sleeve; substantially as described.

9. In a governor, the combination with a shaft-disk, of an externally-screw-threaded sleeve for shifting the disk, a screw-threaded socket within which the sleeve engages, said socket being provided with cog-teeth, a rack-bar engaging the cog-teeth, a spring tending to retract the shaft-disk and connected to the screw-sleeve through the intermediacy of a split collar, and a worm meshing with a gear on the periphery of the head of the screw-sleeve; substantially as described.

10. In a governor, the combination with the friction-disks, of two pairs of rack-bars for shifting them, pistons connected respectively to the pairs of rack-bars and having piston-rods sleeved the one upon the other, a cylinder within which the pistons work, and a spring for holding them normally apart; substantially as described.

11. In a governor, a power-cylinder, pistons therein, oppositely-rotating shafts, loose pinions on the shafts, a gate-gear intermeshing with said pinions, friction-clutches actuated from the pistons, and pop-valves for exhausting the cylinder; substantially as described.

12. In a governor, a power-cylinder, supply-ports leading into the same, said ports being provided with openings normally closed by valves, trippers for said valves, and a gate-stop for actuating the trippers, substantially as described.

13. In a governor, a power-cylinder, ports leading into the same, said ports being provided with openings normally closed by valves, trippers for said valves, and a gate-stop for actuating the trippers, said gate-stop, consisting of a rack actuated from the gate-shaft, a pinion meshing with the rack, a pinion-shaft, gearing driven thereby, and pivoted arms actuated by the gearing; substantially as described.

14. In a governor, valve-tripping mechanism comprising a gear driven from the gate-shaft, and having collars provided with projections and separated by an intermeshing space, swinging arms provided with projections entering the groove, and supplemental arms pivoted to the lower ends of the swinging arms; substantially as described.

15. In a governor, the combination with the power-cylinder, and its supply-ports, of valves for putting said ports into communication with the outer air, valves governing the admission of compressed air to the ports, and trippers for simultaneously unseating the exhaust-valves and seating the admission-valves; substantially as described.

16. In a governor, the combination with the power-cylinder, and the supply-ports, of the relief-valves comprising an inlet-valve for governing the admission of compressed air to the supply-ports, a secondary valve on the valve-stem of the inlet-valve, and a sleeve constituting a seat for the secondary valve and governing an exhaust-opening; substantially as described.

17. In a governor, the combination with the power-cylinder, and its supply-ports, of the relief-valves comprising an inlet-valve for governing the admission of compressed air to the supply-ports, a secondary valve on the valve-stem of the inlet-valve, a sleeve constituting a seat for the secondary valve and governing an exhaust-opening, and a spring for returning the sleeve to its original position; substantially as described.

18. In a governor, the combination with the power-cylinder, and the supply-ports, of the relief-valves comprising an inlet-valve for governing the admission of compressed air to the supply-ports, a secondary valve on the valve-stem of the inlet-valve, a sleeve constituting a seat for the secondary valve and governing an exhaust-opening, said sleeve being surrounded by an annular chamber, and a valve-chamber communicating with said annular chamber and having a valve adapted to be closed by a predetermined movement of the governor-stem; substantially as described.

19. In a governor, the combination with the main piston-valve, of a valve-casing moving in the same direction therewith, both the valve and casing being actuated from the governor-stem; substantially as described.

20. In a governor, the combination with the main piston-valve, of a spring-seated stem forming an abutment therefor, and means for adjusting the tension of the spring, said means comprising a swinging plate or arm, connected to a piston, another piston driven from the gate-shaft, and circulation-pipes between the piston-cylinders for moving the one piston with the other; substantially as described.

21. In a governor, the combination with the main piston-valve, of a spring-seated abutment therefor, and connections between the gate-gear and abutment, for increasing or diminishing the tension of the spring according as the gate-gear rotates in the one direction or the other; substantially as described.

22. In a governor, the combination with the main piston-valve, of a spring-seated abutment therefor, a collapsible air-chamber located in the penstock, a cylinder communicating with said air-chamber, and a piston for said cylinder, adapted to actuate the abutment to increase or diminish the tension of the spring; substantially as described.

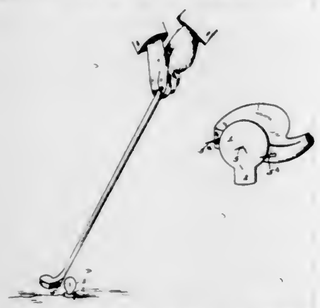
23. In a governor, the combination with the main piston-valve, of

a spring-seated abutment, an electric generator, an electric work-circuit, a magnet in said circuit, and an armature for the magnet, said armature being adapted by its movement to increase or diminish the tension of the spring; substantially as described.

24. In a governor, the combination with the main piston-valve, of a spring-seated abutment therefor, an electric generator, an electric work-circuit, a magnet in the field-coils of the generator, a magnet in the work-circuit, and an armature for said magnets connected to increase or diminish the tension of the spring; substantially as described.

25. In a governor, the combination with the main piston-valve, of a spring-seated abutment therefor, an electric generator, a magnet in the field-coils of the generator and an armature for said magnet connected to increase or diminish the tension of the spring; substantially as described.

664,338. DEVICE FOR PRACTICING GOLF. HENRY H. SPRAGUE, Bridgeport, Conn. Filed Mar. 29, 1900. Serial No. 10,628. (No model.)



Claim.—1. A device for the practice of golf, consisting of a target constructed of material capable of being pierced by the impact of a sharp instrument, a base adapted to rest on the floor and engage with the lower portion of said target only, a golf-club, a sharp-pointed pin in the face thereof, said pin adapted, under a swinging blow of said club, to pierce said target and lift it clear of said floor, for the purpose set forth.

2. A device for the practice of golf, consisting of a target constructed of material capable of being pierced by the impact of a sharp instrument, the circular form of said target being of the same diameter as an ordinary golf-ball, a tang projecting from such circular construction, a support in which said target is removably secured, a golf-club, a sharp-pointed pin in the face thereof, said pin adapted, under a swinging blow of said club, to pierce said target and lift it from its support, for the purpose set forth.

3. A device for the practice of golf, consisting of a removable target, a golf-club having one or more sharp-pointed pins in the straight vertical face thereof, said target constructed of material capable of being pierced by the impact of said pin and lifted by said club, for the purpose set forth.

4. A device for the practice of golf, consisting of a target constructed of material capable of being pierced by the impact of a sharp instrument, the circular form of said target being substantially the same diameter as an ordinary golf-ball, a tang projecting downward therefrom, a support to temporarily receive said tang so as to maintain said target in a vertical position, said tang and support representing a tee so that, the distance from the center of said target to the bottom of said support will equal, approximately, the distance from the center of a golf-ball to the base of its tee, for the purpose set forth.

5. In a device for the practice of golf, consisting of a target, a rubber support therefor, an opening in said support for the target, a golf-club carrying a sharp-pointed pin in its striking-face, said target constructed of material capable of being pierced by the impact of said pin and lifted clear of its support, for the purpose set forth.

664,339. OIL-GUARD FOR LOOM SHEDDING-CAMS. EDWARD S. STIMPSON, Hopedale, Mass., assignor to the Draper Company, same place. Filed Sept. 27, 1900. Serial No. 31,302. (No model.)

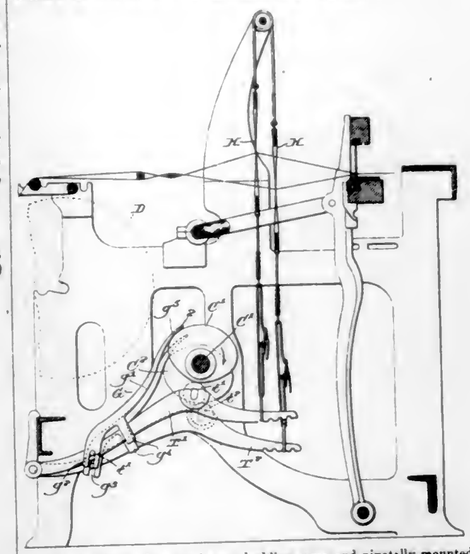
Claim.—1. In a loom, shedding-cams, and oil-guards therefor, mounted to follow the movement of the cams.

2. In a loom, a shedding-cam, and a movable oil-guard for and in contact with the cam.

3. In a loom, shedding-cams, treadles actuated thereby, and an oil-guard for each cam, mounted on its coöperating treadle.

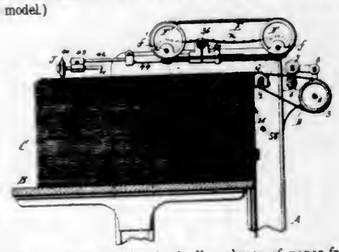
4. In a loom, shedding-cams, treadles actuated thereby, and an oil-guard for each cam pivotally mounted on its coöperating treadle and in continuous contact with the lubricated surface of the cam.

5. A rotating cam, and an oil-guard adjacent thereto, and mounted to follow the movement of the lubricated surface thereof.



6. In a loom, the warp-beam, shedding-cams, and pivotally-mounted oil-guards therefor interposed between the beam and cams and continuously in contact with the lubricated surface of the latter.

664,340. PAPER-FEEDING MACHINE. CHARLES A. STURTEVANT, Plainfield, N. J., assignor of one-half to De Witt C. Weld, Jr., Sing Sing, N. Y. Filed Apr. 28, 1897. Renewed Mar. 9, 1900. Serial No. 8,076. (No model.)



Claim.—1. In a machine for feeding sheets of paper from a pile, stack or bank of sheets, the combination with an endless traveling feeding-band, of means whereby the band is moved toward and from the pile, stack or bank, and mechanism whereby a variable linear movement is imparted to the band, substantially as set forth.

2. The combination with a support for a pile, stack or bank of sheets, of an endless feeding-band, and eccentric circular wheels on which said band is mounted, substantially as set forth.

3. The combination with a support for a pile, stack or bank of sheets, of an endless feeding-band, supporting-wheels on which said band is mounted and which are eccentrically secured to their shafts, sprocket-wheels which are concentrically secured to said shafts, and a drive-chain applied to said sprocket-wheels, substantially as set forth.

4. The combination with a support for a pile, stack or bank of sheets, of an endless feeding-band, an eccentric front supporting-wheel and its shaft, means whereby said shaft is rotated, an eccentric rear supporting-wheel and its shaft, movable supports in which the shaft of said rear wheel is arranged, and means whereby the shaft of said rear wheel is driven from that of said front wheel, substantially as set forth.

5. The combination with a support for a pile, stack or bank of sheets, of an endless feeding-band, a front supporting-wheel and its shaft, means whereby said shaft is rotated, a rear supporting-wheel and its shaft, adjustable standards in which said rear shaft is arranged, springs whereby said standards are held rearward, and means whereby the shafts of said wheels are connected, substantially as set forth.

6. The combination with a pile-support, of an endless traveling band having a longitudinal rib on its back, an eccentric front wheel having a narrow groove in which said rib binds, and an eccentric rear wheel having a wide groove in which said rib slips, substantially as set forth.

7. The combination with a pile-support, of an endless traveling feeding-band, eccentric front and rear band-wheels, means whereby the front wheel can be adjusted up or down, and a lower sheet-retarder arranged below said front wheel, substantially as set forth.

8. The combination with a pile-support, of an endless traveling feeding-band, eccentric front and rear band-wheels, a shaft to which the front wheel is secured, adjustable arms in which said shaft is journaled and which are secured to a transverse rod capable of a rocking adjustment, and a lower sheet-retarder mounted on said rod, substantially as set forth.

9. The combination with a pile-support, an endless traveling feeding-band, and front and rear band-wheels and their shafts, of standards in which the shaft of the rear wheel is guided, and pivotal supports for said standards which are longitudinally adjustable and whereby the inclination of the standards can be changed, substantially as set forth.

10. The combination with the pile-support, an endless traveling feeding-band, and front and rear band-wheels, of pivoted standards in which the shaft of the rear wheel is guided, longitudinal rack-bars which carry the pivots on which said standards are mounted, and gear-segments by which said rack-bars can be adjusted forwardly and backwardly, substantially as set forth.

11. The combination with a pile-support, an endless traveling feeding-band, and eccentric front and rear band-wheels and their shafts, of slotted standards in which the shaft of the rear wheel is guided and in which said shaft can rise and fall, substantially as set forth.

12. The combination with a pile-support, an endless traveling feeding-band, and eccentric band-wheels, of a pile-retainer which is operated by the up-and-down movement of the rear band-wheel and brought down on the pile as the band-wheel rises therefrom and raised as the wheel strikes the pile, substantially as set forth.

13. The combination with a pile-support, an endless traveling feeding-band, and eccentric band-wheels and their shafts, of a pile-retainer connected with the shaft of the rear band-wheel, substantially as set forth.

14. The combination with a pile-support, an endless traveling feeding-band, and eccentric band-wheels and their shafts, of a pile-retainer adapted to bear upon the pile in rear of the rear band-wheel and having a pivotal support in front of the shaft of the rear band-wheel and having a connection with said shaft, substantially as set forth.

15. The combination with a pile-support, an endless traveling feeding-band, and eccentric band-wheels and their shafts, of a pile-retainer attached to a longitudinal rod which is clamped in a sleeve, a swiveling support on which said sleeve is hung in front of said rear wheel, and a hanger attached to said sleeve and through which the shaft of the rear wheel passes, substantially as set forth.

16. The combination with a pile-support, an endless traveling feeding-band, and eccentric band-wheels, of a pile-retainer which is operated by the up-and-down movement of the rear wheel and which is provided with a longitudinal supporting-rod connected with the shaft of said rear wheel, a stem arranged on one side of said rod, a lateral adjusting-arm connecting said rod and stem, and a retaining-disk mounted on said stem, substantially as set forth.

17. The combination with the vertically-movable pile-table, its elevating-chains, the sprocket-wheels and shaft by which the chains are moved in either direction to raise or lower the table, and the pile-controlled table-elevating mechanism having a worm which is actuated by a ratchet and pawl and which meshes with a gear-wheel loosely mounted on said shaft, of a ratchet-wheel secured to said shaft and connected by a coupling-pawl with said loose gear-wheel, whereby upon releasing said coupling-pawl the shaft is uncoupled from said loose gear-wheel without disengaging the actuating-pawl of the table-elevating mechanism, substantially as set forth.

18. The combination with a vertically-movable pile-table, an endless traveling feeding-band, and band-wheels which move toward and from the pile, of elevating mechanism connected with said table, actuating mechanism whereby said elevating mechanism is operated, a releasable coupling device whereby the actuating mechanism can be coupled with or uncoupled from said elevating mechanism, and means whereby said coupling device is controlled from one of said band-wheels, substantially as set forth.

19. The combination with a vertically-movable pile-table, an endless traveling feeding-band, and band-wheels which move toward and from the pile, of elevating mechanism connected with said table, actuating mechanism whereby said elevating mechanism is operated, a releasable coupling device whereby the actuating mechanism can be coupled with or uncoupled from said elevating mechanism, and a rocking finger controlled by the rear band-wheel and whereby the coupling device is shifted, substantially as set forth.

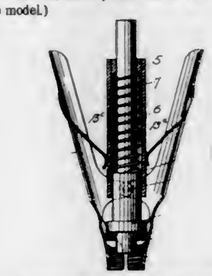
20. The combination with the pile-table, its elevating mechanism and the actuating rock-lever, of a dog which is connected with said elevating mechanism and actuates the same and which is capable of engagement with said actuating-lever for actuating the elevating mechanism or disengagement from said lever for stopping the elevating mechanism, a disengaging-finger adapted to hold said dog out of engagement with said actuating-lever, and means whereby said finger is controlled from the pile, substantially as set forth.

21. The combination with the pile-table, its elevating mechanism and the actuating rock-lever having an actuating-shoulder, of a dog which is connected with said elevating mechanism and actuates the same and which is capable of movement toward and from the path of the shoulder of said actuating-lever to engage with or clear said shoulder, a rocking finger adapted to hold said dog clear of said actuating-shoulder, and means whereby said finger is controlled from the pile, substantially as set forth.

22. The combination with a vertically-movable pile-table, an endless traveling feeding-band, and band-wheels which move toward and from the pile, of elevating mechanism connected with said table, actuating mechanism containing a slotted rock-lever, a spring-pressed dog connected with the elevating mechanism and arranged in the slot of said rock-lever, and a rocking finger controlled by the rear band-wheel and adapted to disengage said dog from said rock-lever, substantially as set forth.

23. The combination with a pile-support, of an endless feeding-band, band-wheels which are secured eccentrically on their shafts, sprocket-wheels which are secured concentrically to said shafts, a drive-chain applied to said sprocket-wheels, and chain-guards loosely mounted on said shafts adjacent to said sprocket-wheels, substantially as set forth.

664,341. GRIPPING CONNECTION FOR INFLATION-VALVES. GEORGE W. TROMMLITZ and JAMES M. GIBBS, Denver, Colo.; said Trommlitz assignor of his right and said Gibbs assignor of one-half of his right to Charles T. Brown, same place. Filed Mar. 15, 1900. Serial No. 8,805. (No model.)



Claim.—1. A connection for inflation-valves, comprising spring-actuated, lever-like gripping-jaws, a support on which the jaws are fulcrumed, and a spring-held tubular plunger carried by the support, one end being fashioned to engage the extremity of the inflation-valve, and the other end being connected with an air-supply source.

2. The combination with the exteriorly-threaded extremity of the valve-casing, of a pair of spring-held gripping-jaws interiorly threaded to engage said casing, a support on which the jaws are mounted, and a spring-held tubular plunger located in said support.

3. The combination of a pair of lever-like gripping-jaws, a support upon which said jaws are fulcrumed, and a hollow plunger carried by said support and protruding between said jaws, the said plunger extremity being adapted to enter the open end of a valve-casing, and a packing-ring surrounding the extremity of the plunger to form an air-tight joint.

4. The combination of two coöperating, lever-like members, a tubular casing on which said members are fulcrumed, the members being provided with jaws at one extremity adapted to grip the casing of a valve, and arms at the opposite extremity, springs engaging said arms whereby the jaws are held normally closed, and a spring-held hollow plunger located in the tubular casing and protruding at both extremities.

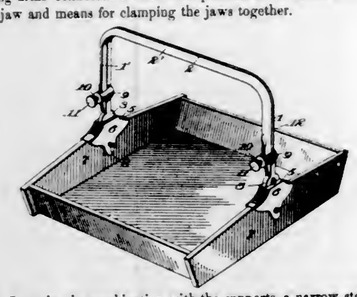
5. The combination of a tubular casing, a plunger passing therethrough, a coil-spring located within the casing and surrounding the plunger, one extremity bearing against a shoulder on the casing and the other extremity against a shoulder on the plunger, and spring-actuated lever-like jaws fulcrumed on the tubular casing.

664,342. COMBINATION SAW-VISE AND TOOL-BASKET HANDLE. HENRY C. WALRAUN, Jr., Rochester, N. Y., assignor of one-third to James M. Nolan, same place. Filed Jan. 20, 1900. Serial No. 2,142. (No model.)

Claim.—1. In a vise the combination with the narrow stationary member or jaw having the depending arms at the ends, of a narrow movable member or jaw connected to the stationary member at its ends and means for operating the members toward each other.

2. In a vise the combination with a narrow stationary member or jaw having the vertically-extending arms at the ends and the supports for

said arms, of the narrow movable member or jaw having the vertically-extending arms connected to the lower portions of the arms on the stationary jaw and means for clamping the jaws together.



3. In a vise the combination with the supports, a narrow stationary jaw mounted thereon having the depending arms at the ends and the bosses thereon, of the narrow movable jaw having the arms entering the bosses and clamping devices for causing the engagement of the jaws.

4. In a vise the combination with the two narrow jaws having the depending arms at the ends and pivotally connected to move toward and from each other and clamping devices for the jaws, of supports connected to the ends of the jaws by vertical pivots.

5. In a saw-vise, the combination with the supports adapted to engage the sides of a basket, of a stationary jaw having the side arms secured to the supports and the bosses on the arms having the elongated apertures, of the jaw having the side arms entering the apertures and movable therein relatively to the other jaw, and clamping devices on the bosses for moving the jaws into engagement.

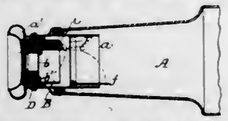
6. In a saw-vise, the combination with the supports adapted to be removably attached to the sides of a basket, of a stationary jaw having the side arms secured to the supports, and the lugs or bosses on the lower ends of the arms having the apertures, of the movable jaw having the side arms extending through the apertures in the bosses, and set-screws operating in the latter and adapted to engage the arms on the movable jaw.

7. In a vise the combination with the narrow relatively movable jaws having the depending arms at the ends and devices for clamping them together, of the two supports having the depending flanges and pivotally connected to the lower ends of the arms; substantially as described.

8. In a saw-vise, the combination with a stationary member having the side arms; the supports adapted to engage the sides of a basket and be removable therefrom and pivoted upon the ends of the said arms, and the bosses on the arms having the apertures, of a movable member having the arms at the sides engaged in the recesses, the cooperating faces formed upon each member having the channels, elastic material in said channels projecting beyond the faces, and the set-screws in the bosses engaging the side arms on the movable member to cause the engagement of the jaws.

9. The combination with a tool basket or receptacle, of a saw-vise composed of the narrow, relatively movable jaws provided with the depending ends secured to the sides of the basket or receptacle, said jaws when together forming a handle extending over the basket.

664,343. COIN-OPERATED OPERA-GLASS. WEBSTER B. WHEELER, Washington, D. C. Filed Apr. 13, 1900. Serial No. 12,737. (No model.)



Claim.—1. In combination with a coin-operated electrical apparatus, a sight-tube, an electromagnet located therein, and a hinged shutter normally closing said tube and adapted to be held open by the pole of said magnet when the latter is energized.

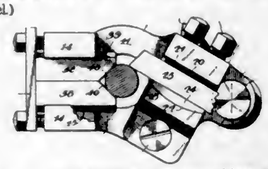
2. In combination with a coin-operated electrical apparatus, a sight-tube, an electromagnet mounted therein, a hinged shutter normally closing said tube and adapted to be held open by the pole of said magnet when the latter is energized, and another hinged shutter operating by gravity to close said tube.

3. In a loan-receptacle and apparatus, a sight-tube, an electromagnet mounted therein, a hinged shutter normally closing said tube and adapted to be held open by the pole of said magnet when the latter is energized, and another hinged shutter operating by gravity to close said tube, in combination with a coin-operated timing device for the shutter.

4. In a loan-receptacle and apparatus, a sight-tube, an electromagnet mounted therein, a hinged shutter normally closing said tube and adapted to be held open by the pole of said magnet when the latter is energized, an electrical circuit and a source of electrical energy, and another hinged shutter operating by gravity to close said tube, in combination with a timing device for the shutter, including a clockwork located in the circuit.

5. The combination of a sight-tube, an electromagnet mounted therein, a hinged shutter normally closing said tube and adapted to be held open by the pole of said magnet when the latter is energized, an electrical circuit including battery or batteries, another hinged shutter operating by gravity to close said tube, and a timing device for the electrically-controlled shutter, comprising coin-actuated clock mechanism in the circuit with the battery, a notched disk upon the minute-hand shaft, a coin-chute, a balance-lever normally engaging the balance-wheel having an arm extending within the coin-chute, another arm on said lever normally engaging the notched disk, means for causing said lever to "make" the circuit when a coin is deposited, and electrical connections from the clock mechanism to the sight-tube.

664,344. TOOL-HOLDER FOR TURRET-MACHINES. GEORGE J. WINKLE, Seneca Falls, N. Y. Filed Oct. 31, 1899. Serial No. 735,389. (No model.)



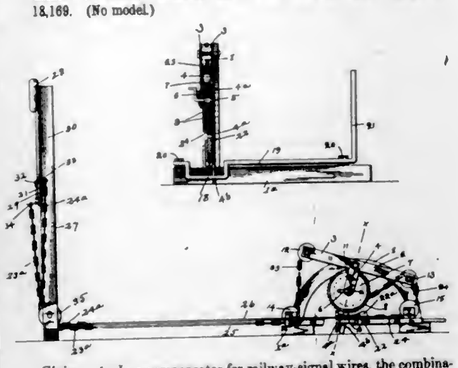
Claim.—1. In a tool-holder for turret-machines, the combination with a movable tool-carrier, of a compound cam-adjusting device composed of two independent cams or eccentrics and capable of two successive and independent periods of operation to preliminarily position the tool-carrier and to successively advance the latter to the work, substantially as described.

2. In a tool-holder for turret-machines, the combination with a movable tool-carrier, of a shiftable eccentric-support, a cam mounted in the eccentric-support to be shiftable therewith and engaging with the tool-carrier, and means for individually adjusting the shiftable eccentric-support and the cam, substantially as described.

3. In a tool-holder for turret-machines, the combination with a movable tool-carrier, of a shiftable eccentric-support, an adjusting-cam mounted in the eccentric-support to be shiftable therewith, a friction-brake engaging with the eccentric-support to restrain the latter from play with the cam, and means for adjusting the cam separately from the eccentric-support, substantially as described.

4. In a tool-holder for turret-machines, the combination with a movable tool-carrier, of an eccentric bushing having a yieldable clamping device associated therewith, a cam-shaft mounted in said bushing and provided with an operating-handle, and a cam fast with the shaft and engaging with the tool-carrier, substantially as described.

664,345. COMPENSATOR FOR RAILWAY SIGNAL WIRES. EZRA WOODWARD, Columbus, Ohio. Filed May 26, 1900. Serial No. 18,169. (No model.)

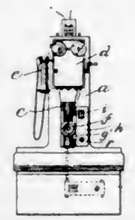


Claim.—1. In a compensator for railway-signal wires, the combination with a pivoted bar 2, a spring-actuated drum journaled therein, grooved wheels 12 and 13 in opposite ends of said bar 2 and wheels 14 and 15 journaled below the wheels 12 and 13, of chains 23 and 24 connected with opposite points on the drum 7 and running over said pulley-wheels and semaphore-blade-controlling wires 25 and 26 connected with said chains and means for rocking said bar 2 on its pivot-point, substantially as specified.

2. In a compensator for railway-signal wires, the combination with a pivoted bar 2 having downwardly-extending arms 4 and 4^a, the latter having its lower end recessed, pulley-wheels 12 and 13 journaled in opposite ends of said bar 2 and pulley-wheels 14 and 15 journaled below said wheels 12 and 13, of a spring-actuated drum journaled between said arms 4 and 4^a, means for placing the spring therein under tension, a ratchet-wheel formed on said drum, a journaled operating-shaft 19 having a crank-bend therein extending through the recessed portion of said bar 4^a, a pivoted pawl 22^a adapted to be lifted by contact with the bend portion of said operating-shaft into engagement with said ratchet-teeth, chains 23 and 24 connected with opposite points on the periphery of said drum and running over said pulley-wheels 12 and 13 and 14 and 15 and signal-operating wires connected with said chains, substantially as specified.

3. In a compensator for railway-signal wires, the combination with a journaled spring-actuated reel, chains connected with opposite points thereon and signal-wires 25 and 26 connected respectively with said chains, of a signal-post, a somaphore-blade pivoted thereon, a lever-bar 29 pivoted to said post, a rod extending lengthwise of said bar and journaled on the face thereof, said rod having oppositely-projecting end portions, wheels 35 and 36 journaled on said post, chains 23^a and 24^a connected with said wires 25 and 26 running over said post-wheels, the chain 24^a being connected with one of the end projections of the rod 31 and the chain 23^a having a detachable connection with the remaining end projection of said rod, substantially as specified.

664,346. TELEPHONE-CALL REGISTER. WILLIAM H. BARKER, Hartford, Conn., assignor to the Gray Telephone Pay Station Company, same place. Filed Aug. 10, 1898. Serial No. 688,233. (No model.)



Claim.—1. In combination with the transmitting part of a telephone toll apparatus, a register, a reciprocating plunger adapted to operate the register, a cam for moving the plunger to one limit of its play, key-operated mechanism for moving the cam, and means for insuring a proper movement of the cam after it has been partially rotated.

2. In combination with the transmitting part of a telephone toll apparatus, a register, a reciprocating plunger adapted to operate the register, a cam for moving the plunger to one limit of its play, a spring for returning said plunger and sounding an alarm after the register has been operated, and means for preventing an improper movement of the plunger-operating cam.

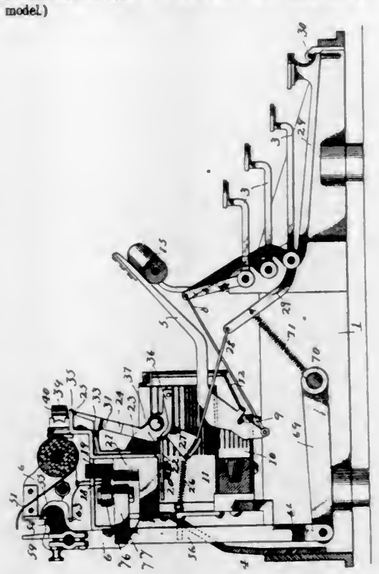
3. In combination with the transmitting part of a telephone toll apparatus, a register, an alarm, a reciprocating plunger adapted to operate the register and sound the alarm, and key-operated means including a car for moving the plunger, and means including a ratchet-wheel and star-wheel operatively connected with the cam, and adapted to prevent an improper movement of the operating parts.

4. In combination in a telephone toll-registering apparatus, a register, an alarm, register-operating mechanism including a rotary member adapted to operate the register and sound the alarm, means for producing an intermittent step-by-step rotation of the rotary member, and means for holding the rotary member with a yielding grasp against rotation after each step of its movement.

5. In combination with the transmitting part of a telephone apparatus, a register, a plunger operatively connected with the register, key-operated mechanism including a rotary member, a star-wheel secured to the rotary member, and a spring overlying and in contact with a plural number of points of the star-wheel.

6. In combination with the transmitting part of a telephone apparatus, a register, a plunger for operating the register, key-operated mechanism including a rotary barrel, a cam supported on the barrel and adapted to operate the plunger, a ratchet-wheel adapted to rotate with the barrel, and a spring-pawl one arm of which engages the ratchet-wheel and the other arm of which engages the star-wheel.

664,347. TYPE-WRITING MACHINE. LEE S. BURRIDGE, New York, N. Y. Original application filed Apr. 18, 1900, Serial No. 13,313. Divided and this application filed June 5, 1900. Serial No. 19,112. (No model.)



Claim.—1. In a type-writting machine, the combination of a stationary machine-frame, an elongated step-by-step feed-pinion thereon, a platen-carriage having an elongated feed-rack engaging said pinion and a shifting frame carrying said platen-carriage, the platen-carriage having longitudinal motion on said shifting frame, and the shifting frame, platen-carriage and rack-bar having a transverse shifting motion with reference to said pinion, substantially as set forth.

2. In a type-writing machine, the combination of a paper-carriage, its feed-rack, a feeding-pinion therefor, a star-wheel operatively connected with said feeding-pinion, a driving device for the carriage, and a universal bar directly engaging said star-wheel and arranged to be operated, substantially as set forth.

3. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor, comprising a star-wheel, and a universal bar having a rigid part and a spring part alternately engaging the said star-wheel, substantially as set forth.

4. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor comprising a star-wheel, a universal bar normally directly engaging said star-wheel, a spring connected thereto tending to disconnect the universal bar and star-wheel, mechanism which normally prevents the complete disengagement of the universal bar and star-wheel, and releasing devices for said mechanism, substantially as set forth.

5. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor, a vibrating mechanism adapted to alternately stop and release the said feeding mechanism, a spring connected to said vibrating mechanism and tending to disengage the same from the feeding mechanism, a spacing-key for holding said vibrating mechanism in normal relation with the feeding mechanism, and an unlocking device for releasing said spacing-key, substantially as set forth.

6. In a type-writing machine, the combination of a stationary machine-frame, an elongated step-by-step feed-pinion thereon, a platen-carriage having an elongated feed-rack engaging said pinion and a shifting frame carrying said platen-carriage, and connected thereto by an elongated slotted sleeve and guide-rod and having an antifriction-roller for guiding said feed-rack against its pinion, substantially as set forth.

7. In a type-writing machine, the combination of a paper-carriage, a star-wheel controlling the feeding motion thereof and a universal bar directly engaging said star-wheel and adapted to be operated on the depression of a key-lever, substantially as set forth.

8. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor, comprising a star-wheel, a spacing-key lever, a vibrating bar engaging said star-wheel and connected to said spacing-lever, and a series of type-levers arranged to strike said vibrating bar, substantially as set forth.

9. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor, comprising a star-wheel, a series of type-

levers arranged to strike at a common printing-point, a platen, a vibrating universal bar arranged in the paths of said type-levers and having operative connection with said feeding mechanism, a spring connected to said universal bar for holding it in normal position, and a spacing-key having lost-motion connection with said universal bar, substantially as set forth.

10. In a type-writing machine, the combination of a series of type-levers arranged to strike radially at a common point, a universal bar arranged adjacent to such common point and in the paths of all of said type-levers, and carriage-feeding mechanism comprising a step-by-step feed-rack and a star-wheel directly engaged by said universal bar, substantially as set forth.

11. In a type-writing machine, the combination of a series of type-levers arranged to strike radially at a common point, and a universal bar having operative connection with the carriage-feeding mechanism having a part lying adjacent to said common point in the paths of said type-levers and fulcrumed at a point remote therefrom, the said carriage-feeding mechanism comprising a step-by-step feed-rack and a star-wheel directly engaged by said universal bar.

12. In a type-writing machine, the combination of a universal bar having operative connection with the carriage-feeding mechanism, and a series of type-levers arranged to strike at substantially the same point on said universal bar.

13. In a type-writing machine, the combination of a series of type levers or bars arranged to strike at a common printing-point, and a universal bar having operative connection with the carriage-feeding mechanism and having a portion adapted to be struck by all of said type bars or levers and arranged at the true center of the circle which includes the type-lever pivots.

14. In a type-writing machine, the combination of a platen, a type-guide arranged in proximity thereto, a series of type bars or levers arranged to enter said guide, and a universal bar common to said type bars or levers supported adjacent to said guide and having operative connection with the carriage-feeding mechanism.

15. In a type-writing machine, the combination of a paper-carriage, the platen, a series of type-levers arranged to strike at a common printing-point upon the platen and a vibrating universal bar having a head lying in the paths of all of said type-levers and having operative connection with the carriage-feeding mechanism, comprising a star-wheel and pinion, substantially as set forth.

16. In a type-writing machine, the combination of a paper-carriage, feeding mechanism therefor, a platen, a series of pivoted type-levers arranged to strike upon the front side of the platen, and a universal bar having operative connection with the carriage-feeding mechanism pivoted to vibrate in a vertical plane and having a head lying in the paths of said type-levers, substantially as set forth.

17. In a type-writing machine, the combination of a platen, a universal bar connected to the carriage-feeding mechanism and having a striking portion lying adjacent to the platen, and a series of type-levers mounted and guided in planes radial to the said striking portion of the universal bar so that all of said type-levers will strike said universal bar at substantially the same point, as set forth.

18. In a type-writing machine, the combination of a step-by-step carriage-feeding mechanism including a star-wheel, a series of type-levers, and a universal bar having operative connection with said star-wheel and lying in the paths of all of said type-levers, substantially as set forth.

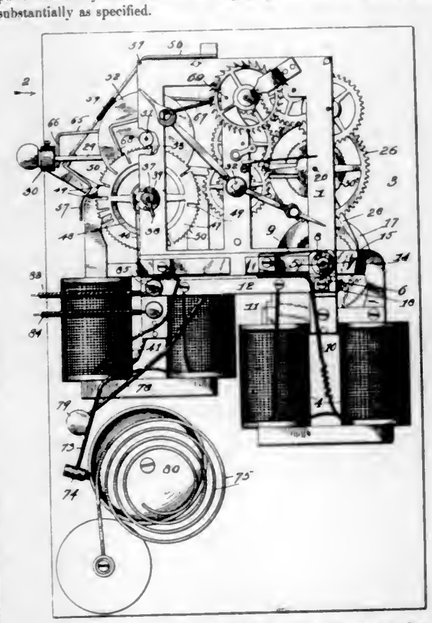
664,348. ELECTRIC CLOCK. ULYSSES L. COLLINS, St. Louis, Mo. Filed Nov. 20, 1899. Serial No. 737,581. (No model.)

Claim.—1. In an electric clock, a magnet, a shaft between the cores of said magnet, an armature carried by said shaft, an internal ratchet-wheel mounted upon said shaft, a gear-wheel rigid with said ratchet-wheel, means carried by said armature for operating the said ratchet-wheel, a spring, and means whereby said spring is wound when the said ratchet-wheel is operated, substantially as specified.

2. In an electric clock, a magnet, a shaft between the cores of said magnet, a ratchet-wheel upon said shaft, an armature carried upon said shaft, means for rotating the ratchet-wheel when the said armature is operated, a gear-wheel integral with said ratchet, a spring, means for winding the spring when the armature is operated, a circuit from a suitable source of electrical energy, and means whereby the said circuit is closed whenever the said spring is unwound, substantially as specified.

3. In an electric clock, a spring, mechanism for winding said spring, a magnet, an armature pivoted between the cores of said magnet, a ratchet connection between the said armature and the spring-winding mechanism, means for operating the winding mechanism at each operation of the armature, a circuit from the magnet to a suitable source of electrical energy, and means whereby the circuit is closed whenever the spring is unwound, substantially as specified.

4. In an electric clock, a spring, mechanism for winding said spring, a magnet, a shaft arranged between the extended cores of the magnet, an armature carried by said shaft, a gear-wheel loose upon said shaft and meshing with the spring-winding mechanism, a rim integral with said gear-wheel, in which rim is formed an internal ratchet, and a gravity-pawl carried by the armature for engaging the internal ratchet-teeth, substantially as specified.



5. In an electric clock, a spring, mechanism for winding said spring, a shaft, a gear-wheel loosely mounted upon said shaft, a rim integral with said gear-wheel in which rim is formed a series of internal ratchet-teeth, an armature fixed upon the shaft, a gravity-pawl carried by said armature, the point of which pawl engages the internal ratchet-teeth, a magnet, between the cores of which the armature operates, a circuit from said magnet to a suitable source of electrical energy, which circuit is normally open, and means whereby said circuit is established whenever the spring is unwound, substantially as specified.

6. In an electric clock, a striking mechanism, a magnet for actuating said striking mechanism, a circuit from said magnet to a suitable source of electrical energy, which circuit is normally open, means whereby said circuit is closed each time the striking mechanism is actuated, and means in said striking mechanism whereby the circuit to the magnet is closed to cause said striking mechanism to operate, substantially as specified.

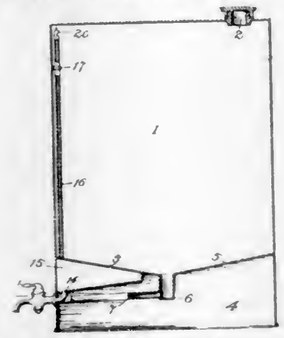
7. In an electric clock, a striking mechanism, a magnet, a circuit from said magnet to a suitable source of electrical energy, which circuit is normally open, a shaft passing between the extended cores of the magnet, an armature fixed upon said shaft, a disk carried by said shaft, means for rotating said disk each time the armature is actuated, and means whereby the current energizing the magnet is closed at each rotation of the disk, substantially as specified.

8. In an electric clock, a striking mechanism, a magnet for actuating said striking mechanism, a circuit from said magnet to a suitable source of electrical energy, which circuit is normally open, means whereby said circuit is closed each time the striking mechanism is actuated, a balance-wheel in said striking mechanism, a pivoted arm passing over the periphery of said balance-wheel, the free end of which arm is adjacent one of the magnet-cores, and a brake-shoe carried by said pivoted arm, which brake-shoe is intended to engage the periphery of said balance-wheel whenever the magnet is energized, substantially as specified.

9. In an electric clock, a striking mechanism, a magnet for actuating said striking mechanism, a circuit from said magnet to a suitable source of electrical energy, which circuit is normally open, means whereby said circuit is closed each time the striking mechanism is actuated, a balance-wheel in the striking mechanism which completes a rotation with each actuation of the striking mechanism, a brake for said balance-wheel, which brake is operated by the current from one of the cores of the magnet, and means in said striking mechanism for automatically closing the circuit to start the striking mechanism, which current also automatically renders said striking mechanism inoperative when the proper number of strokes have been made, substantially as specified.

10. In an electric clock, a spring, mechanism for winding said spring, a magnet, a circuit from said magnet to a suitable source of electrical energy, a striking mechanism, a magnet controlling said striking mechanism, a circuit from said magnet to a source of electrical energy, and means whereby the circuit to the winding-magnet is cut out when the circuit to the striking mechanism is closed, substantially as specified.

664,349. AUTOMATIC MEASURING DEVICE. ALVA S. COLLINS, Troy, Ohio, assignor to L. A. Coppock, C. N. Peters, and A. M. Collins. Filed May 9, 1900. Serial No. 16,044. (No model.)



Claim.—1. In an automatic measuring device, a receptacle having an inlet normally sealed, said receptacle having a funnel-shaped bottom, a distributing-elbow located at the lowermost portion of the bottom and constituting the sole outlet from said receptacle; a plurality of measures having different capacities, located below said receptacle and each having a vent-outlet within the receptacle; an independent connection between each of said measures and said elbow, said connections being entirely below the measures; a faucet-outlet leading from each of said connections; and a tubular turning plug, having one of its sides cut away to form a single port, located in each of said connections, the passage-way through said plug being unrestricted, said plug having a movement to open and close the passage-way from said elbow to the measure and open a passage-way from the measure to the faucet-outlet, and also prevent a passage-way from the elbow to the faucet-outlet, substantially as described.

2. In an automatic measuring device, a receptacle; a measure located below the bottom thereof; a connection between the receptacle and the measure, said connection being located below the said measure, said connection comprising a faucet carrying a tubular turning plug having an open side forming a single port; a pipe leading from said receptacle to said plug; a pipe leading from the plug to the measure and having its plug end located in juxtaposition to and in the same horizontal plane with said receptacle-pipe; and a faucet-outlet having its plug end located in the same horizontal plane with the plug ends of said receptacle and measure pipes, substantially as described.

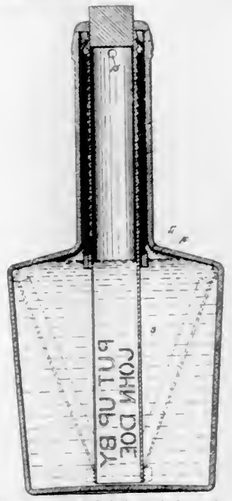
664,350. BOTTLE. NELSON W. DAVIS, Port Jefferson, N.Y. Filed Mar. 14, 1900. Serial No. 8,619. (No model.)

Claim.—1. In a bottle, a safety device adapted to move by gravity in the neck and to the body of the bottle and to fall apart in the body of the bottle, substantially as specified.

2. In a bottle, a tube extended through the neck portion thereof and having exterior corrugations on its portion within the neck, a safety device movable on the tube, the said safety device consisting of a sectional tube adapted to move downward with the lowering of the liquid in the bottle, and spring-fingers on said safety device for engaging with the corrugations.

3. In a bottle, a tube extended through the neck portion thereof and nearly to the bottom of the body portion of the bottle, the part of this tube within the neck having annular corrugations, a safety device movable on the tube and consisting of a sectional tube, spring-fingers on the upper end of said safety device for engaging with the corrugations, and a float surrounding the first-named tube and adapted to support the safety device, substantially as specified.

4. In a bottle, a tube extended through the neck portion thereof and nearly to the bottom of the body portion, the part of said tube within the neck being provided with annular corrugations of ratchet shape, a sectional tube movable on the first-named tube, spring-fingers on said sectional tube adapted to engage with the corrugations, and also to engage with the interior of the bottle-neck, and a float for supporting the sectional tube, substantially as specified.



5. In a bottle, a tube extended through the neck portion thereof and nearly to the bottom of the body portion, the said tube having advertising devices at its lower portion, a sectional tube movable on the first-named tube, means for preventing the upward movement of the sectional tube relatively to the other tube while any part of the said sectional tube is within the neck of the bottle, and a float movable on the first-named tube and supporting the sectional tube, substantially as specified.

6. In a bottle, a tube extended through the neck portion of the bottle and into the body portion thereof, means for locking said tube in the bottle, a sectional tube movable on the first-named tube, the said sectional tube having advertising matter, the letters of which provide openings through the wall of the tube, portions of the letters being on one section while the other portions are on the other section, and means for preventing an upward movement of the sectional tube relatively to the first-named tube, substantially as specified.

7. In a bottle, a tube extended through the neck portion and into the body thereof, the part of said tube within the body having advertising matter, the letters of which form ports, a sectional tube movable on the first-named tube, means for preventing an upward movement of the sectional tube relatively to the first-named tube when any portion of said sectional tube is within the neck of the bottle, and means for preventing the withdrawal of either of said tubes from the neck of the bottle, substantially as specified.

664,851. SIPHON-FILLER AND MINERAL-WATER CHARGER. JOHN H. FOX, New York, N. Y. Filed Apr. 9, 1900. Serial No. 12,059. (No model.)

Claim.—1. In a siphon-filler, the combination, with the standard supporting a supply-socket, of a sleeve movable upon the standard and having the siphon-holder secured adjustably thereon, and a treadle with suitable connections for raising the holder to press the nozzle of the siphon into the supply-socket.

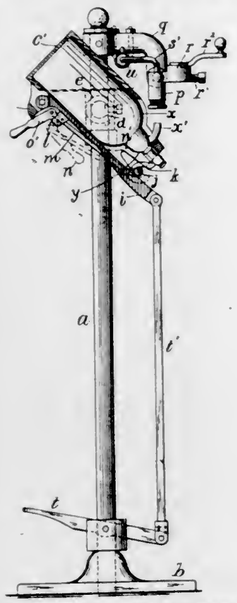
2. In a siphon-filler, the combination, with the standard supporting a supply-socket, of a sleeve movable upon the standard and having the siphon-holder secured thereon and provided with a shoulder to fit the head of the siphon, and a treadle with suitable connections for raising the holder to press the nozzle of the siphon into the supply-socket, whereby the treadle-pressure is sustained by the head of the siphon.

3. In a siphon-filler, the combination, with a suitable standard, of a supply-socket adjustable upon the standard to admit the siphon-nozzle, a sleeve movable upon the standard and provided with a swivel-bearing, and a siphon-holder having a lateral swivel-stud secured adjustably in such bearing with a treadle and connections for raising the holder to press the nozzle of the siphon into the supply-socket.

4. In a siphon-filler, the combination, with the siphon-holder, of an inclined guide adjacent to the head of the siphon with a roller fitted to such guide and arranged to bear upon the siphon-valve, and a handle with connections upon the siphon-holder for moving the roller upon the guide.

5. In a siphon-filler, the combination, with the siphon-holder, of an inclined guide adjacent to the head of the siphon with a roller fitted to

such guide and arranged to bear upon the siphon-valve, a handle with connections upon the siphon-holder for moving the roller upon the guide, and a cover binged npon the siphon-holder constructed and operated to prevent the opening of the siphon-valve until the cover is closed.



6. In a siphon-filler, the combination, with the siphon-holder, of an inclined guide adjacent to the head of the siphon with a roller fitted to such guide and arranged to bear upon the siphon-valve, a handle with connections upon the siphon-holder for moving the roller upon the guide, and a cover hinged upon the siphon-holder with a cam upon the hinge projected in the path of said handle to prevent the opening of the siphon-valve until the cover is closed.

7. In a siphon-filler, the combination, with the siphon-holder, of an inclined guide adjacent to the head of the siphon with a roller fitted to such guide and arranged to bear upon the siphon-valve, a crank pivoted upon the siphon-holder with link to actuate the roller, and lock the same by toggle action when the siphon-valve is open, a handle attached to such lever, a cover hinged upon the siphon-holder to insert the siphon therein, and projections upon the hinge, adapted to prevent the opening of the cover until the valve is closed, and the opening of the valve until the cover is closed, substantially as herein set forth.

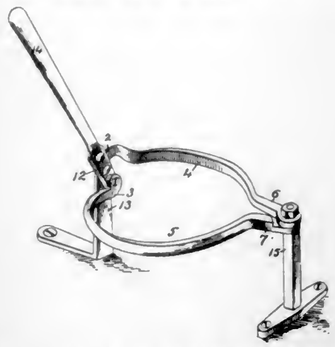
8. In a siphon-filler, the combination, with a vertical standard, of a stationary supply-socket *p* having a three-way valve to supply carbonated water, and an attached pump to supply a solution of salt to the socket, a siphon-holder movable upon the standard with treadle for pressing the siphon-nozzle into such socket, and fixed connections for delivering carbonated water to the three-way valve and salts to the pump, whereby the siphon may be charged with both liquids through stationary fixtures, substantially as herein set forth.

9. In a siphon-filler, the combination, with a supply-socket adapted to receive the nozzle of the siphon, of a connection to such socket for supplying carbonated water, a pump having outlet connected by the pipe *s'* and the check-valve *p'*, an inlet *n'* upon the pump-barrel near its connection with the pipe *s'*, for supplying salts to the pump, and a piston movable in the pump and arranged and operated, when retracted, to draw a charge of salts into the pump, and when pressed to the bottom of the barrel, to close such inlet, whereby the salts may be drawn into and discharged from the pump without manipulating any valve upon the inlet-pipe.

10. In a siphon-filler, the combination, with a supply-socket adapted to receive the nozzle of the siphon, of a connection to such socket for supplying carbonated water, a pump having outlet connected to such socket, and having inlet branches for supplying various salts to the said pump, with valves for opening and closing such branches, whereby the pump may furnish the supply-nozzle and the siphon with charges of various salts at pleasure, substantially as herein set forth.

11. In a siphon-filler, the combination, with a supply-socket adapted to receive the nozzle of the siphon, of a connection to such socket for supplying carbonated water, a pump having outlet connected to such socket, a connection with valve for supplying salts to such pump, a piston movable in the pump by hand, and means for gaging the movement of the piston to graduate the charge of salts delivered to the siphon, substantially as herein set forth.

664,352. HOLDER. JAMES GIBBS, Williamstown, Mass., assignor of one-half to Josef Veit and Arthur L. Kent, New York, N. Y. Filed Sept. 7, 1899. Serial No. 729,682. (No model.)



Claim.—1. A holder for fire-extinguishers or other articles comprising a strap having overlapping ends, a support, a connecting-piece pivotally connected to said overlapping ends and pivoted to said support between the points of connection to the ends of the strap, and means for operating said connecting-piece for securing and releasing the article, substantially as described.

2. A holder for fire-extinguishers or other articles comprising a strap having overlapping ends 2 and 3, a support, and connecting-piece 12 pivotally connected to the ends 2 and 3 and pivoted to said support between the points of connection to the ends 2 and 3, and having an extension forming an operating-handle 14, substantially as described.

3. A holder for fire-extinguishers or other articles comprising a strap having overlapping ends 2 and 3, a support, and a connecting-piece 12 pivotally connected to the ends 2 and 3 and pivoted to said support between the points of connection to the ends 2 and 3 and adapted to be turned to carry the points of connection with the ends 2 and 3 past center, and means for operating the connecting-piece, substantially as described.

4. A holder for fire-extinguishers or other articles comprising a strap formed of two parts pivotally connected to a support and having their other ends formed to overlap, a second support, a connecting-piece pivotally connected to said overlapping ends and pivoted to said second support between the points of connection to said overlapping ends, and means for operating said connecting-piece for securing and releasing the article, substantially as described.

5. A holder for fire-extinguishers or other articles comprising a strap formed of two semicircular parts having outwardly-extending ends 5 and 6 which are pivotally connected to a support and adapted to permit a slight yielding of the strap under pressure, and tightening and securing means for the other ends of said parts, substantially as described.

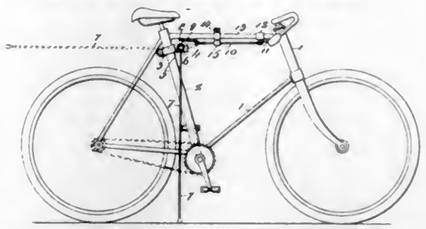
6. A holder for fire-extinguishers or other articles comprising a strap formed of two semicircular parts having outwardly-extending pivotally-connected ends and having their other ends formed to overlap, a support, a connecting-piece pivotally connected to said overlapping ends and pivoted to said support between the points of connection to the ends, and means for actuating said connecting-piece for securing and releasing the article, substantially as described.

7. A holder for fire-extinguishers and other articles comprising a strap, a support, a piece pivoted to said support and to one end of the strap whereby the strap is supported and is tightened and loosened for securing and releasing the article, and means for operating said piece for securing and releasing the article, substantially as described.

8. A holder for fire-extinguishers and other articles comprising a strap formed of two parts, one of which has an outwardly-extending end by which said part is pivoted and which is adapted to permit a slight yielding of said part of the strap under pressure, and said parts having their other ends formed to overlap, a connecting-piece pivotally connected to said overlapping ends, and means for operating said connecting-piece for securing and releasing the article, substantially as described.

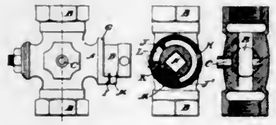
9. A holder for fire-extinguishers or other articles comprising a plurality of holders each comprising a strap having overlapping ends and a connecting-piece 12 pivotally connected to said overlapping ends and having an arm 8; and a member connecting said arms 8, substantially as described.

664,353. BICYCLE-SUPPORT. JOHN C. RIEGER. Pinckneyville, Ill. Filed Apr. 23, 1900. Serial No. 13,937. (No model.)



Claim.—A bicycle-support, comprising a clip adapted to be secured to the frame of the bicycle, a solid extension forming a part of the same, spindles forming a part of said extension and arranged at an incline, collars movable upon said spindles, supporting-legs projecting from said collars and arranged in an inclined position in respect to one another, bearings also secured to said collars, a fork, the ends of which are movably secured to said bearings, a longitudinal rod, one end of which is movably secured to the medial portion of said fork, a clip secured to the upper horizontal member of the bicycle-frame, an operating-lever movably secured to said clip about its medial portion, to the short arm of which is attached the opposite end of said longitudinal rod, a clip adjustably secured to said upper horizontal member of the frame, and a guide-bearing movably secured to the same, through which the said longitudinal rod loosely passes, as and for the purpose described.

664,354. STOP AND WASTE COCK. JOHN H. JOHNSON, Chicago, Ill., assignor to the Peck Bros. Company, of Illinois. Filed Oct. 1, 1900. Serial No. 31,601. (No model.)



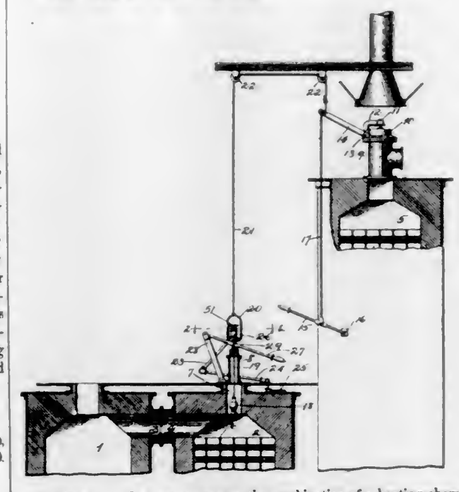
Claim.—1. In a stop and waste cock such as described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D provided with the lug M, and the cap H fitting over the end of the valve D and around the flange G and provided upon its interior with the lugs J J' and K, the lugs J J' coöperating with the stop-lug I to arrest the turning movement of the cap and valve, and the lug K forming between itself and the lugs J J' two recesses L L' for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

2. In a stop and waste cock of the character described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D provided with the projecting lug M, and the cap H fitting over the projecting end of the valve D and surrounding the flange G, and provided upon its interior with the lugs J J' connected by the rib Q, and the lug K intermediate the lugs J J', the lugs J J' coöperating with the stop-lug I to arrest the turning movement of the cap and valve and the rib Q serving to prevent the application of the cap except when the valve D is in proper position, and the lug K serving to form between itself and the lugs J J' two recesses L L' for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

3. In a stop and waste cock such as described, the combination of the valve-body having the flange G and stop-lug I, the plug-valve D having the projecting lug M and circular outer end projecting beyond said lug, the cap H adapted to fit at its inner end over the flange G and provided at its outer end with the circular hole snugly fitting the circular valve D and provided upon its interior with the lugs J J' and K, the lugs J J' coöperating with the stop-lug I to arrest the turning movement of the cap and valve, and the lug K forming between itself and the lugs J J' two recesses L L' for the reception of the lug M upon the valve D, substantially as and for the purpose specified.

4. In a stop and waste cock such as described, the combination of the valve-body provided with the flange G and stop-lug I, the valve D provided with the lug M and circular outer end projecting beyond said lug, the cap H fitting at its inner end around the flange G and provided at its outer end with a circular hole snugly fitting the circular end of the valve D, and provided upon its interior with the lugs J J' connected by the rib Q, and with the lug K, the lugs J J' coöperating with the stop-lug I to arrest the turning movement of the cap and valve and the rib Q serving to prevent application of the cap except when the valve D is in proper position, and the lug K forming between itself and the lugs J J' two recesses L L' to receive the lug M upon the valve D, substantially as and for the purpose specified.

664,355. GAS APPARATUS. JOHN P. JOHNSTON, Oak Park, Ill., assignor to himself and Edward E. Morrell, same place. Filed May 14, 1900. Serial No. 16,604. (No model.)



Claim.—1. In a gas apparatus, the combination of a heating-chamber, a stack therefor, a valve for said stack, a gas-chamber, a feeding device adjustable in said gas-chamber, and means operated by the movement of the stack-valve for adjusting the position of said feeding device, substantially as described.

2. In a gas apparatus, the combination of a heating-chamber, a stack therefor, a valve for said stack, a gas-chamber, a feeding device movable into and out of said gas-chamber, and means operated by the movement of the stack-valve for moving said feeding device into and out of said gas-chamber, substantially as described.

3. In a gas apparatus, the combination of a gas-chamber, a feeding device movable into and out of said chamber, a superheater, a stack therefor, a valve for said stack, a lever for operating said valve, and a connecting device connecting said lever and feeding device and so adjusted that when the valve is operated to open the stack the feeding device is automatically moved out of the gas-chamber, substantially as described.

4. In a gas apparatus, the combination of a gas-chamber, a feeding device movable into and out of said chamber, a superheater, a stack therefor, a valve for said stack, a lever for operating said valve, a connecting device connecting said lever and feeding device and so adjusted that when the valve is operated to open the stack the feeding device is automatically moved out of the gas-chamber, and a hand-lever for moving said feeding device out of said gas-chamber, substantially as described.

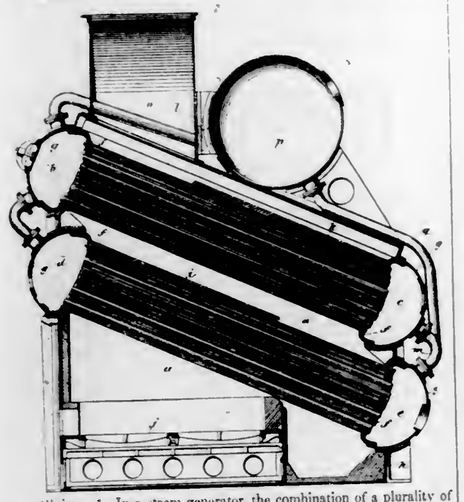
664,356. FIREPROOF WINDOW. WILLIAM J. LARKIN, Chicago, Ill. Filed Mar. 23, 1900. Serial No. 9,838. (No model.)



Claim.—1. The combination with a window-frame having a channel formed therein and a guide-strip or stop removably seated in said channel, said channel and guide-strip or stop being provided with an interlocking lug or hook, substantially as set forth.

2. The combination with a window-frame having a channel formed therein and a guide-strip or stop formed of a channel-iron having its free edges outwardly flared or expansible and fitted in said channel in the frame, substantially as set forth.

664,357. STEAM-GENERATOR. THOMAS F. MORRIN, Jersey City, N. J., assignor to Elizabeth T. Morrin, same place. Filed Nov. 29, 1899. Serial No. 738,642. (No model.)



Claim.—1. In a steam-generator, the combination of a plurality of sets of inclined water-tubes, a separate manifold-chamber at each end of each set of tubes and a separate tubular connection between the manifold-chambers at each of the adjacent ends of the two sets of tubes, the said manifold-chambers each having curved tube-sheets, the tube-sheet of one chamber being parallel with the tube-sheet of the adjacent chamber to which it is connected by the set of water-tubes.

2. In a steam-generator, the combination of a manifold-chamber having a curved wall *g* and a curved tube-sheet *f* the said wall and sheet having their concavities toward the inside of the manifold-chamber, their thicknesses being proportioned to their respective radii, another manifold-chamber having a curved wall *g* and a curved tube-sheet *f* and being of a general meniscus form in cross-section, the thicknesses of the wall and tube-sheet being respectively proportional to their radii, the tube-sheets *f* of the said manifold-chambers being substantially parallel, and water-tubes *a* of substantially the same length.

3. In a boiler, the combination of suitable tube-sheets, a group of tubes arranged in double rows with a passage between adjacent double rows of tubes to allow a wounded tube to be removed from its row laterally, and an open space at the end of the double rows of tubes, whereby the said tube may be removed from the boiler.

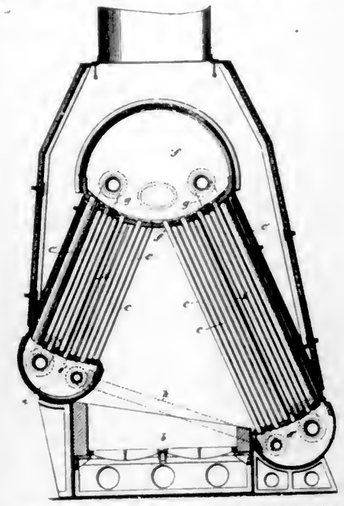
4. In a water-tube boiler, the combination of a manifold-chamber having a curved wall *g* and a curved tube-sheet *f*, the said wall and sheet having their concavities toward the inside of the manifold-chamber, another manifold-chamber having a wall *g* and tube-sheet *f* and being of a general meniscus form in cross-section, the tube-sheets *f* of the said manifold-chambers being substantially parallel and water-tubes *a* of substantially the same length entering the said tube-sheets.

5. In a water-tube boiler, the combination of manifold-chambers *b c d e*, each having a curved shell *g* and a curved tube-sheet *f*, the tube-sheets of the manifold-chambers *b* and *d* being parallel with the tube-sheets of the manifold-chambers *c e*, respectively, inclined water-tubes *a* entering the said parallel curved tube-sheets of the manifold-chambers and tubes *m n*, a tube at each pair of manifold-chambers connecting the manifold-chambers *b d* and *c e* respectively.

6. In a water-tube boiler, the combination of manifold-chambers *b c d e*, each having a curved tube-sheet, the tube-sheets of *b* and *c* and of *d* and *e* being substantially parallel, sets or groups of inclined water-tubes *a* connecting the manifold-chambers *b c*, and *d e*, respectively, pipes *m n* connecting the manifolds *c* and *e* and *b* and *d* respectively, a steam-drum *p*, a pipe *o* connecting the uppermost manifold-chamber *b* with the said steam-drum *p* and a pipe *q* connecting the lowermost manifold-chamber *e* with the steam-drum *p*.

664,358. STEAM-GENERATOR. THOMAS F. MORRIN, Jersey City, N. J., assignor to Elizabeth T. Morrin, same place. Filed Nov. 29, 1899. Serial No. 738,643. (No model.)

Claim.—1. In a steam-generator, in combination, the steam-drum *f'*, the manifold-chambers *d e*, the sets of inclined tubes *c c* connecting the drum and manifold-chambers and the baffle-plates *i* located among the sets of tubes and leaving a free open space between the outermost row of tubes and the side edges of the baffle-plates, as set forth.



2. In a water-tube boiler, the combination of two headers or manifold-chambers, a series of parallel water-tubes uniting the headers or manifold-chambers, and a series of tubes *c'* parallel with and of larger size than the other tubes set in the structure at or near one side of the group or series of tubes.

3. In a water-tube boiler, the combination of a group or set of inclined water-tubes, tube-sheets which the water-tubes enter, and a baffle-plate located among the tubes and extending from end to end thereof and leaving a free space between the outermost tubes and the free edges of the baffle-plate.

4. In a water-tube boiler, the combination of a steam-drum, a plurality of manifold-chambers, and a plurality of groups of inclined water-tubes connecting the steam-drum to the manifold-chambers, one of the said groups of tubes being shorter than the other and a fire bed or grate *b* located in the space between the two groups of tubes and a fire door or opening located below the manifold-chamber of the shorter group of tubes and constituting a means of access to the fire-bed.

5. In a water-tube boiler, the combination of a steam-drum *f* having a convexly-curved tube-sheet *f'*, a plurality of headers of a general meniscus form in cross-section located some distance apart and having concavely-curved tube-sheets *d' e'* substantially parallel with the tube-sheet *f'* and groups of water-tubes of substantially the same effective length uniting the steam-drum and headers and set in the tube-sheets thereof.

6. In a boiler, the combination of an upper steam-drum, a manifold located at front of the fire-bed and a manifold located at the rear of the fire-bed, a set of inclined groups of water-tubes connecting each manifold with the steam-drum, inclined pipes *h*, one at each end of the manifolds, connecting the said manifolds, and inclined pipes *g g* at each end of the manifolds, connecting the manifolds with the steam-drum.

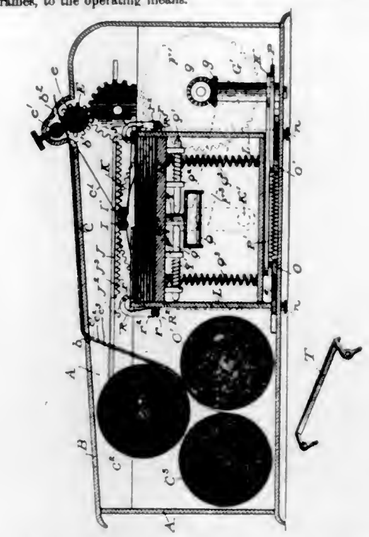
664,359. AUTOGRAPHIC REGISTER. FRED J. NUTTING, Dayton, Ohio, assignor, by mesne assignments, to the National Cash Register Company, Jersey City, N. J. Filed Sept. 22, 1897. Serial No. 652,560. (No model.)

Claim.—1. In an autographic register, the combination with a record-strip-holding device, of pivoted folding-blades, and means for causing a periodical movement of said blades in a direction at right angles to the plane of the normal pivotal movement of the same;

2. In an autographic register, the combination with a record-strip-holding device, of slides, folding-rollers mounted on said slides, a rack on one of said slides, a pivoted segmental rack engaging the said first-mentioned rack, an operating-wheel and a link connecting said wheel and segmental rack.

3. In an autographic register, the combination with a record-strip-holding device, of folding-blades, sliding frames for operating said blades, an operating-shaft, a cam on said shaft and devices mounted on the frames so as to be engaged by said cam to reciprocate said frames.

4. In an autographic register the combination with a record-strip-holding device, of folding-blades for folding a record-strip, sliding frames arranged to engage and move said blades, springs connecting said frames, an operating means and independent devices for separately connecting said frames, to the operating means.



5. In an autographic register the combination with a record-strip-holding device, of folding-blades for folding a record-strip, sliding frames arranged to engage and move said blades, an operating-cam, a hook-arm pivotally connected to one of said frames and engaging the cam and flexible means connecting said frames.

6. In an autographic register the combination with a record-strip-holding device and a compartment into which a record-strip is to be folded, of a folding device, a movable platen in said compartment, movable plungers mounted on said platen, and means for operating the plungers to drive them against the sides of the compartment and thus lock the platen in any desired position therein.

7. In an autographic register the combination with a record-strip-holding device and a compartment into which a record-strip is to be folded, of a folding device, a movable platen in said compartment and devices for adjusting and securing said platen at any desired point in the compartment.

8. In an autographic register the combination with a record-strip-holding device and a compartment into which a record-strip is to be folded, of a folding device, a movable platen in said compartment, springs for normally forcing said platen upward and devices for locking the platen at any desired position in the compartment irrespective of the action of its springs.

9. In an autographic register the combination with a writing-tablet, of slides, folding-rollers journaled in said slides, a rack on one of said slides, a segmental rack engaging said first-mentioned rack folding-blades and a driving mechanism for moving the segmental rack and the folding-blades.

10. In an autographic register, the combination with a record-strip-holding device, of folding-rollers, folding-blades and means for causing a periodical movement of said blades in a direction at right angles to the plane of the normal movement of the same.

11. In an autographic register, the combination with a receptacle, of a record-strip-holding device, folding-blades for folding a record-strip in said receptacle, and means for causing a periodical movement of said blades in a direction at right angles to the plane of the normal movement of the same.

12. In an autographic register the combination with the means for drawing the record-strip to the storage-compartment, of means for folding said record-strip within the storage-compartment comprising the folding-blades arranged to be temporarily elevated at a certain point or points in their movement.

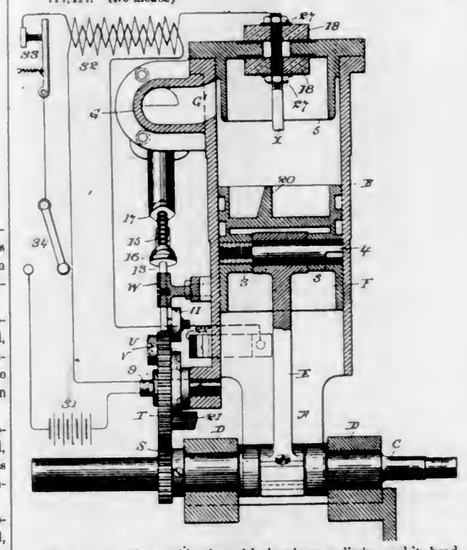
13. In an autographic register the combination with the storage-compartment, of the pairs of folding-blades disposed at opposite ends thereof, of the folding-rollers arranged to reciprocate from end to end of the storage-compartment and to reach the ends thereof substantially simultaneously with the closing of the pair of folding-blades which are located at that end.

14. In an autographic register the combination with the driving means, of the folding-rollers for drawing the record-strip to the storage-compartment, the clamping-hooks for holding the folded record-strip within the storage-compartment, and the reciprocating frames actuated by the driving means to open and close the folding-blades at predetermined points.

15. In an autographic register arranged to fold the record-strip the combination with the driving mechanism, of the folding-rollers reciprocated thereby, the swinging folding-blades, and the frames actuated by the driving mechanism and arranged to alternately open and close the folding-blades.

16. In an autographic register, the combination with a suitable frame, of a record-strip-holding device, folding-blades for folding a record-strip, projections on said blades, and stationary projections on the frame arranged to be engaged by the first-mentioned projections, whereby the blades are given a periodical movement in a direction at right angles to the plane of the normal movement of the same.

664,360. IGNITER FOR GAS OR OIL ENGINES. ALBERT T. OTTO, New York, N. Y. Original application filed Dec. 26, 1896, Serial No. 573,294. Divided and this application filed May 19, 1899. Serial No. 717,417. (No model.)



Claim.—1. The combination with the piston, cylinder, and its head, in a gas-engine, of an electrode passing through the center of the head and insulated, and a projection upon the piston arranged eccentrically thereof, and acting in connection with the insulated electrode in drawing the spark to explode the charge.

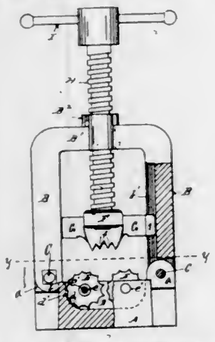
2. The combination with the piston, cylinder, and its head, in a gas-engine, of an electrode passing through the center of the head and insulated, and a projection upon the piston arranged eccentrically thereof, and acting in connection with the insulated electrode in drawing the spark to explode the charge, and means for adjusting the electrode endwise.

3. The combination of the engine-cylinder and piston, an electrode mounted on the cylinder, a second electrode mounted on the piston, and an electric circuit of which said electrodes constitute the terminals, said electrodes being so disposed as to approach each other while the piston is near the end of its inward stroke, but never to touch each other.

4. The combination of the engine-cylinder and piston, an electrode mounted on the cylinder, a second electrode mounted on the piston, and an electric circuit of which said electrodes constitute the terminals, said electrodes being so disposed as to approach each other while the piston is near the end of its inward stroke, but never to touch each other, together with the induction-coil, of which said electric circuit constitutes the secondary circuit.

5. The combination of the engine-cylinder and piston, an electrode mounted on the cylinder, a second electrode mounted on the piston, and an electric circuit of which said electrodes constitute the terminals, said electrodes being so disposed as to approach each other while the piston is near the end of its inward stroke, but never to touch each other, together with the induction-coil, of which said electric circuit constitutes the secondary circuit, and means whereby the primary circuit of said coil is closed and broken by the moving parts of the engine.

664,361. PIPE-VISE. HENRY F. RENNER, Erie, Pa., assignor to the Hollands Manufacturing Company, same place. Filed Oct. 19, 1900. Serial No. 33,537. (No model.)

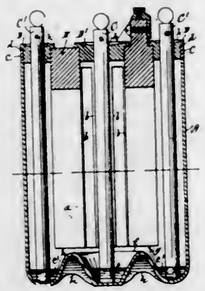


Claim.—1. A vise-jaw comprising substantially longitudinally fluted rollers mounted in a recess in a vise-frame, substantially as and for the purpose set forth.

2. In a pipe-vise the combination of a stationary jaw comprising substantially longitudinally fluted rollers mounted in a recess in the base of the vise-frame, with a movable serrated jaw, and a screw for operating the same, substantially as and for the purpose set forth.

3. The combination in a pipe-vise, of a base A having a recess D therein, and uprights B B secured thereto, fluted rollers E E mounted in said recess, a movable serrated jaw F secured to a cross-bar G mounted in the uprights B B, and a screw H for operating said jaw F, substantially as and for the purpose set forth.

664,362. GALVANIC BATTERY. EASON L. SLOCUM, Pawtucket, R. I. Filed Mar. 7, 1896. Serial No. 582,242. (No model.)



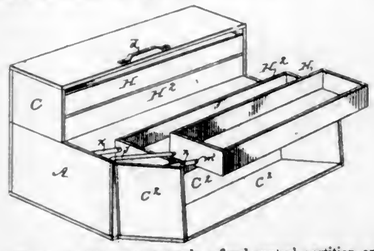
Claim.—1. In a galvanic battery, the combination of the negative electrode provided with an opening for an insulator, with an apertured insulator having a plurality of inwardly-extending bearing-points for contact with the sides of the positive electrode, and held in said opening in the negative electrode, and the positive electrode held in position by the bearing-points of the insulator, substantially as described.

2. In a galvanic battery, the combination of the negative electrode provided with a central opening adapted to receive an apertured insulator for a positive electrode, and with a perforated flange adapted to receive a plurality of apertured insulators for positive electrodes, with the insulators and the positive electrodes held in the central and outer insulators, and the jar provided integrally with separate wells for containing the quicksilver to amalgamate the positive electrodes, substantially as described.

3. A glass jar for galvanic batteries, provided at its bottom with central and outer wells for holding the quicksilver, the bottom of the jar in which the wells are formed being approximately of uniform thickness, and the sides of the wells formed by the inward curvature of the glass of the bottom, substantially as described.

4. A glass jar for galvanic batteries, provided at its top with a contracted rim, and at its bottom with the central well and the annularly-arranged outer wells for holding the quicksilver, the bottom of the jar in which the wells are formed being of approximately uniform thickness, and the sides of the wells formed, by the upward and downward curvature of the glass of the bottom of the jar, substantially as described.

664,363. SELF-ADJUSTING TRAY FOR SAMPLE-CASES, TRUNKS, &c. FRANK D. UPHAM, Newton, Iowa, assignor of two-thirds to Perry Engle and Georgia A. Upham, same place. Filed June 7, 1900. Serial No. 19,381. (No model.)



Claim.—1. In a case or trunk, a fixed central partition extending longitudinally to support trays, two trays pivotally connected with each other at their ends and with the ends of the case or trunk and the ends of a hinged cover, and a cover consisting of two parts fixed together in right-angled positions to each other and four-cornered pieces fixed to their ends, to operate in the manner set forth for the purposes stated.

2. In a case or trunk, an open-topped bottom portion, a fixed central partition in said bottom portion to support trays, a cover consisting of two parts in right-angled positions to each other and four-cornered ends fixed together hinged to the top of the bottom portion and two trays pivotally connected with each other at their ends and with the ends of said bottom portion, to operate in the manner set forth for the purposes stated.

3. A case or trunk having an open-topped base or bottom portion, a central vertical partition fixed to the ends and bottom of said bottom portion to support trays, a cover consisting of two parts in right-angled position to each other and four-cornered end pieces hinged to each of the top edges of the parallel sides of the bottom portion and trays pivotally connected at their ends and also pivotally connected with each end of each hinged cover and each end of each compartment of the said open-topped lower portion, to operate in the manner set forth, for the purposes stated.

4. A case or trunk comprising a lower portion A having a fixed partition B, a hinged cover consisting of two parts C and C^2, two trays H and H^2 connected with each part of the cover and with each other and with the part A by means of curved bars J, and J^2, straight links K and K^2, straight bars *m* and *m'* and slotted bars *n* and *n'*, all arranged and combined to operate in the manner set forth for the purposes stated.

664,364. ADJUSTABLE GAS-BURNER. PETER G. VAN WIE, Detroit, Mich., assignor to the Ideal Manufacturing Company, same place. Filed Nov. 27, 1899. Serial No. 738,279. (No model.)



Claim.—1. In a regulating-valve, the combination of a casing having inlet, outlet and stem passages through the walls thereof, a sleeve-valve D, having its axis in line with the center of one of said passages and being adapted to open and close another of said passages, an end bearing arranged to hold the sleeve-valve D, to its seat, and a rod in said valve coaxial therewith and adapted to be adjusted longitudinally therein, substantially as and for the purpose described.

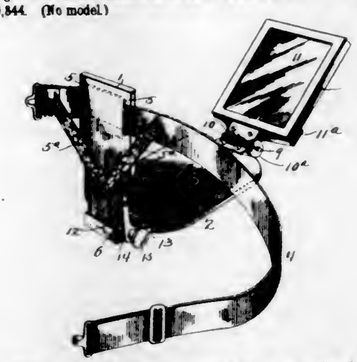
2. In a regulating-valve, the combination of a casing having inlet, outlet and stem passages through the walls thereof, a sleeve-valve provided with internal screw-threads, having its axis in line with the center of one of said passages, and being adapted to open and close another of said passages, an end bearing arranged to hold the sleeve-valve to its seat, and a screw-threaded rod in said sleeve-valve coaxial therewith, its threads engaging with the threads of said sleeve-valve, and means by which said rod may be rotated relative to said sleeve, substantially as and for the purpose described.

3. In a regulating-valve, the combination of a casing A, having a conical valve-seat therein, a passage through the wall of said casing opening at said valve-seat, a sleeve-valve D, in said casing, the outer end of said sleeve-valve protruding from the casing and being externally screw-threaded, a handle on the outer end of said valve, and means adapted to fix the handle in place upon said valve, substantially as described.

4. In a regulating-valve, the combination of a casing A, having a conical valve-seat therein, a passage through the wall of said casing opening at said valve-seat, a sleeve provided with a conical valve-section and a cylindrical section partly in said casing, and in part protruding therefrom, said conical portion being formed at its inner end to fit said valve-seat and to open and close said passage, said cylindrical section being provided with external screw-threads at its protruding end, a handle on the protruding end of said sleeve, means adapted to fix the handle in place upon said sleeve, a rod centric to the valve-section and adapted to be adjusted longitudinally in reference thereto, said casing being also provided with a passage through its wall in line with the axis of said rod and with a bearing against the end of the valve-section, substantially as and for the purpose described.

5. In a regulating-valve, the combination of a casing A, having a conical valve-seat therein, a passage through the wall of said casing, opening at said valve-seat, a valve provided with a cylindrical sleeve-section partly in said casing and protruding in part therefrom, said sleeve-section being internally screw-threaded and externally screw-threaded at its protruding end, and formed at its inner end with a conical valve-section to fit said valve-seat and to open and close said passage, a handle on the protruding end of said sleeve, means adapted to fix the handle in place upon said sleeve-section, a screw-threaded rod centric to said sleeve-section, its threads engaging with the screw-threads therein, and its upper end extending beyond said sleeve-section and being provided with a wrench-hold, said casing being also provided with a passage through its wall in line with the axis of said rod, substantially as and for the purpose described.

664,365. MIRROR. JOHN E. WILLIAMSON, Louisville, Ky., assignor to J. Elliott Riddell, same place. Filed Mar. 23, 1900. Serial No. 9,844. (No model.)



Claim.—1. A shaving-mirror comprising three sections hinged together and constructed and arranged to fold upon each other, one section adapted to be secured to the body of the user, another constructed to support a sheet of paper and the third adapted to support a mirror.

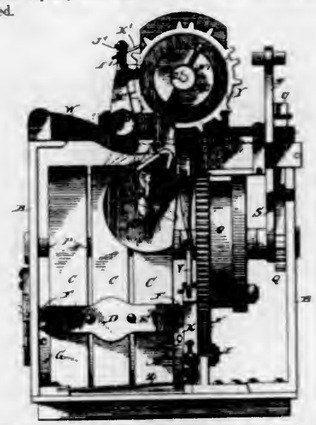
2. A shaving-mirror comprising three sections hinged together and constructed to fold upon each other, means for securing said hinged sections at different adjustments, and means for securing one of said sections to the body of the user.

3. The combination with a mirror, a shelf hinged thereto and plate hinged to said shelf, of means connected with said plate for securing the same to the body of the user, means for adjusting the relative angle of the shelf and mirror, arms pivotally connected to the plate and shelf, one of said arms having an internally-threaded enlargement and a set-screw passing through the other arm and into the threaded enlargement to secure the shelf in any position to which it may be adjusted.

664,366. FIRE-ALARM-TELEGRAPH BOX. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to the National Magneto Electric Telegraph Company, Springfield, Ohio. Filed Dec. 28, 1899. Serial No. 741,813. (No model.)

Claim.—1. In a fire-alarm-telegraph system, a magneto-electric machine, a yoke for manipulating the same, and a motor for revolving the armature, combined with a second motor having an escapement, a wheel operated by the second motor, and provided with projections upon its periphery, and a lever operated by said wheel, and which is connected with the yoke, substantially as shown.

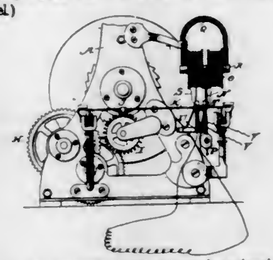
2. In a fire-alarm-telegraph system, a magneto-electric machine, a revolving armature, and a motor for revolving said armature when it is left free to revolve, combined with a spring-actuated yoke for manipulating the armature, a lever provided with a projection, the lever and the yoke being connected so as to move simultaneously, a wheel provided with teeth upon its periphery, and which teeth operate said lever and yoke, a spring for causing the wheel to revolve, and an escapement for regulating the rapidity with which the wheel shall revolve, substantially as described.



3. In a fire-alarm-telegraph system, a magneto-electric machine provided with a revolving armature, and a motor for revolving said armature when left free to move, combined with a yoke for manipulating said armature, and a lever connected to the yoke so that the two will move simultaneously, and a spring-actuated wheel provided with means upon its surface for operating said lever and yoke when the wheel is allowed to revolve, substantially as set forth.

4. In a fire-alarm-telegraph system, a magneto-electric machine, a mechanism for revolving the armature when it is left free to move, and a lug secured to the shaft of the armature, and revolving therewith, combined with a spring-actuated yoke, provided with shoulders upon its opposite sides against which the lug alternately catches, a rigid connection loosely pivoted to the yoke, a pivoted lever provided with a projection at its inner end, and to which the rigid connection is also pivoted, and a spring-actuated revolving wheel provided with projections upon its periphery to simultaneously operate the lever and the yoke so that as each projection upon the periphery of the wheel comes in contact with the projection upon the lever the lever and yoke will both be depressed and allow the armature to make a half-revolution, substantially as specified.

664,367. ELECTRIC-CIRCUIT INDICATOR. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to the National Magneto Electric Telegraph Company, Springfield, Ohio. Filed Dec. 28, 1899. Serial No. 741,814. (No model.)

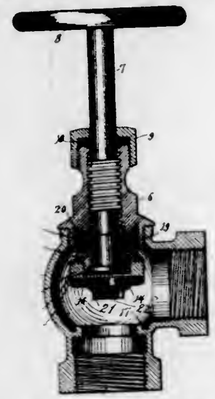


Claim.—1. In a magneto-electric telegraph or signal system, a permanent magnet, a movable armature provided with a coil, a pivoted rod upon which the armature and coil are mounted, suitable wires for connecting the coil with the closed external circuit; means for operating the movable armature, the closed external circuit, and an alarm which is operated by the increased movement of the armature when the circuit is broken or left open, substantially as shown.

2. In a magneto-electric telegraph or signal system, a vibrating or swinging armature, a coil placed upon the armature for generating impulses at intervals, a permanent magnet, and a mechanism for operating said electric generator, combined with an alarm which is operated by the increased movement of said generator, and a normally-closed circuit which is connected with the generator, substantially as described.

3. In a magneto-electric telegraph or signal system, a motor, a train of gears connected thereto, and an escapement for regulating the movement of said gears, combined with a movable rod, a rod or arm connected to said rod, an armature connected to the opposite end of the rod, a coil upon said armature, an external circuit to which the coil is connected, a fixed magnet past the poles of which the poles of the armature vibrate, and an alarm mechanism which is operated by the increased swing or play of the armature when the circuit is broken or left open, substantially as set forth.

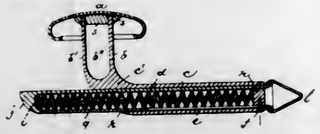
664,368. VALVE. FREDERICK F. GROSSE and WILLIAM F. LINTZ, Waukegan, Ill., assignors of one-third to Theodore H. Durst, same place. Filed Oct. 12, 1897. Serial No. 654,924. (No model.)



Claim.—In a valve, the combination of a valve-casing having inlet and outlet openings and a valve-seat at the mouth of the outlet-opening, a valve-stem guide extending from the casing, the inner end of said guide formed with a valve-seat, a valve comprising a collar and a valve-disk, said collar having a recess in its upper surface and provided on its under surface with a depending exteriorly-threaded stem, the said stem having the lower end of its bore enlarged in order to form a recess, and said valve-disk provided on its upper surface with a threaded recess adapted to receive the depending stem of the collar, and to be engaged by the threads of said depending stem, and the under surface of said valve-disk provided with a recess and also with a depending threaded stem, a packing fitting the recess in the upper surface of the collar, a packing fitting in the recess on the under side of the valve-disk, a nut engaging the threaded stem of the valve-disk and adapted to be turned against the packing of said valve-disk, and a valve-stem passing through the guide and having a threaded connection therewith and entering the valve-casing, and provided at its inner end with a head or enlargement which fits loosely in the recess of the depending stem of the collar.

REISSUES.

11,878. BUTTON OR STUD. HALSEY M. LARTER, Newark, N. J., assignor of two-thirds to Frederick H. Larter and Harry C. Larter, same place. Filed Feb. 1, 1899. Serial No. 704,196. Original No. 616,067, dated Dec. 13, 1898.



Claim.—1. The improved button herein described, comprising the head *a*, bent post *b*, having a shank *b'* and a barrel *c*, said post being formed of a piece of wire bent at right angles and at one end attached to said head *a*, and at the opposite end forming a barrel open at said end and at the angle or bend, a pin *f*, a tubular plunger arranged in said barrel, and projecting out therefrom at its opposite ends, one end of said plunger being rounded in conformity to the bend in the wire and the opposite end being peripherally outwardly turned to receive and hold a conical finger-piece, said plunger being interiorly hollow to form a spring-chamber and longitudinally slotted to receive the pin *f*, a finger-piece *l*, secured upon the end of the plunger opposite the rounded end, and a spring arranged within the plunger and tending to hold the rounded end of the plunger out from the bend in the wire, substantially as set forth.

2. The improved button or stud herein described, comprising a head, a wire bent at right angles to form a shank and barrel, the barrel having a hollow and slotted plunger extending therethrough and projecting out therefrom at both the angle and free end of the barrel, a spring lying within said plunger, and a pin on the barrel extending into said slot, said parts being arranged and combined, substantially as set forth.

3. The improved stud or button herein described comprising a head, a wire bent at right angles to form a shank and barrel, the barrel having a pin, a hollow and slotted plunger extending therethrough and projecting out therefrom at both the angle and free end, the projecting part near said free end flaring or being turned outwardly, and a hollow or cap-like finger-piece, the edges of which are inwardly turned to engage the outwardly-turned part, and a spring arranged within said plunger, substantially as set forth.

4. The improved stud or button herein described comprising a head, a wire attached to said head and bent at a right angle to form a shank and barrel, the barrel portion being hollow and open at the angle and free end and being provided with a pin at or near said free end adapted to limit the longitudinal movement of the plunger and prevent its turning axially, a slotted plunger arranged within said barrel, and having a beveled or curved extremity corresponding to the outline of the bent wire and projecting from said barrel at the angle in the wire and having a finger-piece attached to the projecting end opposite the beveled or curved end, means preventing said plunger from turning in the barrel, and a spring, all said parts being arranged and adapted to operate, substantially as set forth.

5. The improved stud or button herein described, comprising a head, a wire attached to said head bent at right angles to form a shank and barrel, said barrel being open both at the right angle where it connects with the shank and at its opposite end and at the latter being provided with a spring-bearing, a tubular plunger projecting out from said opening at the angle and at its projecting end being closed to form an interior spring-bearing, said tubular plunger having a finger-piece whereby it may be drawn into the barrel at the angle, and a spring arranged in said projecting part of the plunger and extending from the interior spring-bearing to the spring-bearing of the barrel, substantially as set forth.

6. The improved button comprising a head, a post attached to said head and bent at a point back from said head and forming a shank and barrel, the latter of which lies perpendicular to the said shank, the said barrel forming a part of a rear cross-head and providing a receptacle for the hollow or tubular plunger *d*, which receptacle is open at the angle or bend in the post and at the projecting end thereof, the said projecting end of the barrel having an end bearing for a spring, said hollow or tubular plunger being adapted to slide in said barrel and normally projecting out from the opening at the bend in the post, to complete the cross-head, said plunger having a finger-piece lying at the outside of the open projecting end of the barrel, the said plunger, both where it lies within the barrel and out from the bend-opening, being chambered to receive a spring and within its end normally projecting out from the bend-opening having a bearing *i*, for the spring, and said spring extending through the chamber within the plunger from said bearing *i*, to the end bearing at the projecting end of the barrel, whereby a long spring is employed and an ample length of movement of the plunger and a greater projection of the same normally out from the bend in the post is obtained, substantially as set forth.

DESIGNS.

33,725. FINGER-RING. SIMON GOLDNER, New York, N. Y. Filed Nov. 21, 1900. Serial No. 37,293. Term of patent 7 years.



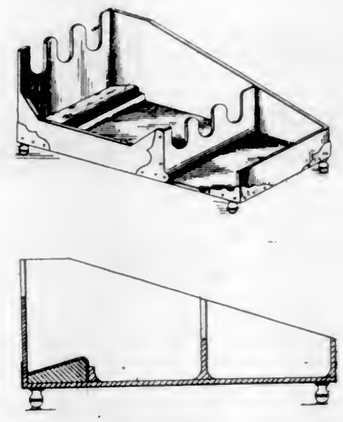
Claim.—The design for a finger-ring as herein shown and described

33,726. HAIR-RETAINER. WILLIAM S. BECHTOLD, Newark, N. J., assignor to Julius Eschwege and Max G. Cohn, New York, N. Y. Filed Nov. 3, 1900. Serial No. 35,428. Term of patent 7 years.



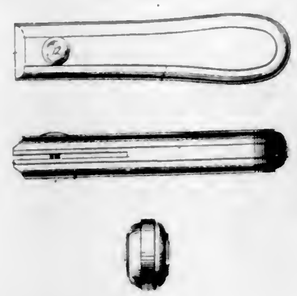
Claim.—The design for a hair-retainer as herein shown and described.

33,727. PEN-RACK. OSCAR R. LOOKER, Detroit, Mich. Filed Nov. 22, 1900. Serial No. 37,403. Term of patent 7 years.



Claim.—The design for a pen-rack, substantially as herein shown and described.

33,728. KNIFE-HANDLE. GEORGE M. LANDERS, New Britian, Conn., assignor to the Landers, Frary & Clark, same place. Filed Nov. 20, 1900. Serial No. 37,177. Term of patent 7 years.



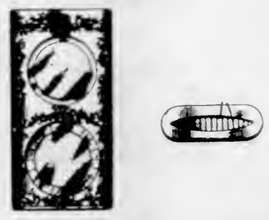
Claim.—The design for a knife-handle, as herein shown and described.

33,729. TRAY. CHARLES HARRY PEET, Binghamton, N. Y. Filed Nov. 21, 1900. Serial No. 37,299. Term of patent 3½ years.



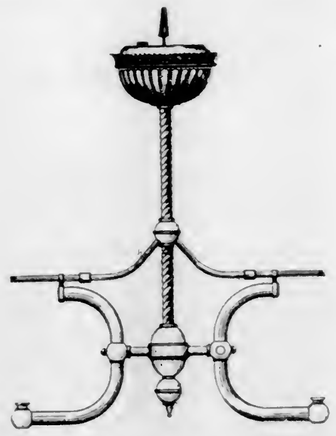
Claim.—The design for a tray, as herein shown and described.

33,730. MATCH-SAFE. HENRY D. GARDY, Chester, Pa. Filed May 9, 1900. Serial No. 16,095. Term of patent 7 years.



Claim.—The design for a match-safe as herein shown and described.

33,731. CHANDELIER. LEROY S. PROUTS, Canton, Ohio. Filed Nov. 24, 1900. Serial No. 37,692. Term of patent 7 years.



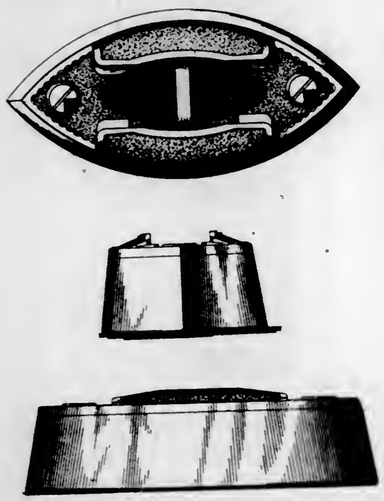
Claim.—The design for a chandelier, as herein shown and described.

33,732. FRUIT-JAR WRENCH. RICHARD HOWELL, Ridley Park, Pa. Filed Aug. 7, 1900. Serial No. 26,198. Term of patent 7 years.



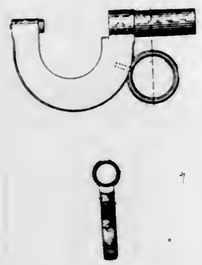
Claim.—The design for a fruit-jar wrench, substantially as herein shown and described.

33,733. SAD-IRON. HARRY E. ASBURY, Philadelphia, Pa. Filed Nov. 17, 1900. Serial No. 36,910. Term of patent 14 years.



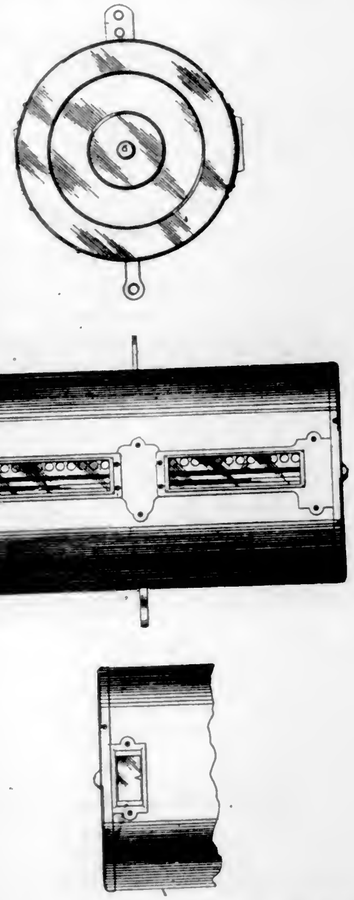
Claim.—The design for a sad-iron as herein described and shown in the accompanying drawings.

33,734. MICROMETER-GAGE FRAME. LEROY S. STARRETT, Athol, Mass. Filed May 19, 1899. Serial No. 717,505. Term of patent 14 years.



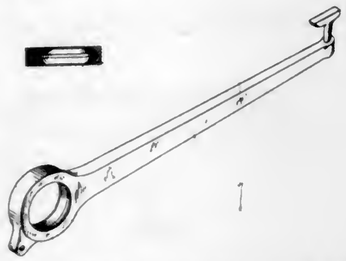
Claim.—The design for a micrometer-gage frame, as herein shown and described.

33,735. CASE FOR PRICE-SCALES. SAMUEL R. MUNSON, Hartford, Conn., assignor to the Landers, Frary & Clark, New Britain, Conn. Filed Nov. 24, 1900. Serial No. 37,697. Term of patent 14 years.



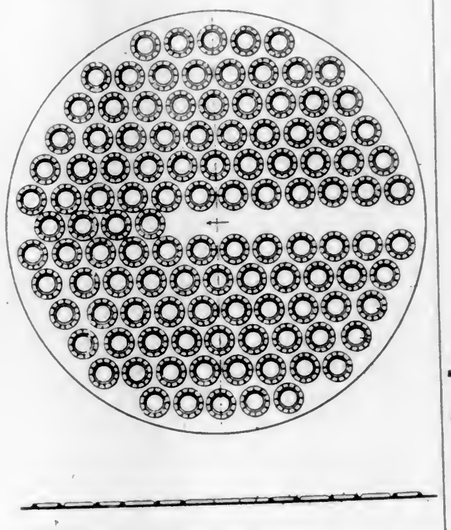
Claim.—The design for a case for price-scales, as herein shown and described.

33,736. TYPE-BAR FOR TYPE-WRITING MACHINES. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Aug. 17, 1899. Serial No. 727,593. Term of patent 14 years.



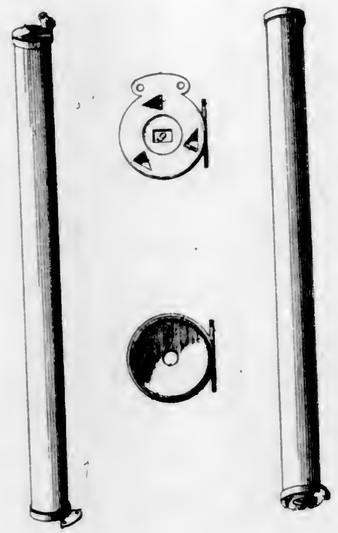
Claim.—The design for a type-bar, substantially as herein shown and described.

33,737. TOP PLATE FOR HYDROCARBON-BURNERS. JOHN C. SPEIRS, Worcester, Mass., assignor to the Locomobile Company of America, New York, N. Y. Filed Nov. 23, 1900. Serial No. 37,547. Term of patent 14 years.



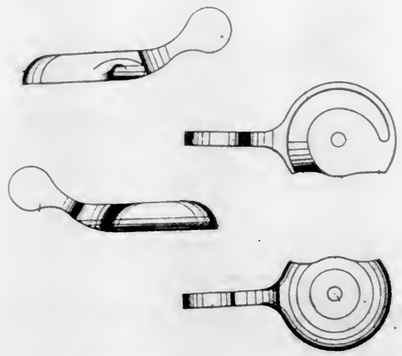
Claim.—The design for a top plate for hydrocarbon-burners, substantially as herein shown and described.

33,738. HOUSING FOR SCREEN-ROLLERS. ERNST TIMMERHOFF, Elkhart, Ind. Filed Nov. 21, 1900. Serial No. 37,295. Term of patent 7 years.



Claim.—The design for a housing for screen-rollers, substantially as herein shown and described.

33,739. LEVER FOR SASH-FASTENERS. HENRY B. SARGENT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Nov. 22, 1900. Serial No. 37,402. Term of patent 14 years.



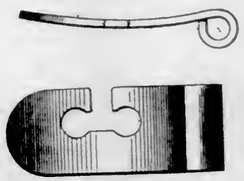
Claim.—The design for a lever for sash-fasteners, as herein shown and described.

33,740. HOOP-NAIL. CHARLES WALTER EVANS, Fort Thomas, Ky. Filed Nov. 16, 1900. Serial No. 36,783. Term of patent 7 years.



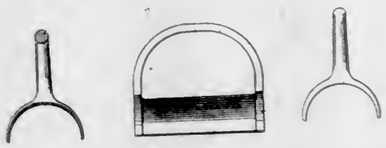
Claim.—The design for a hoop-nail as herein shown and described.

33,741. HAME-HOOK. WILLIAM H. HAYDEN, Columbus, Ohio, assignor to the P. Hayden Saddlery Hardware Company, same place. Filed Nov. 19, 1900. Serial No. 37,068. Term of patent 14 years.



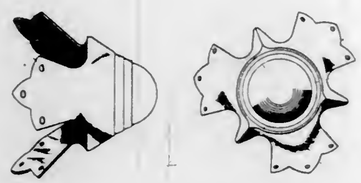
Claim.—The design for a hame-hook herein shown and described.

33,742. SLIDE-D. SCOTT H. HULL, Oskaloosa, Iowa. Filed Nov. 19, 1900. Serial No. 37,072. Term of patent 14 years.



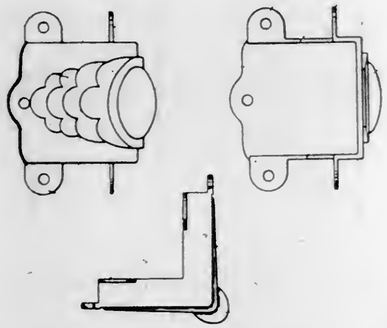
Claim.—The design for a slide-D, substantially as herein shown and described.

33,743. CORNER-SHIELD FOR TRUNKS. MORRIS N. DRUCKER, Cincinnati, Ohio. Filed Oct. 31, 1900. Serial No. 35,053. Term of patent 7 years.



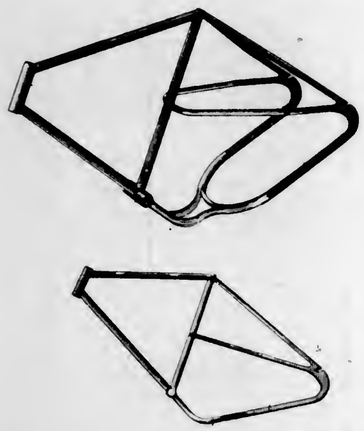
Claim.—The design for a corner-shield for trunks, as herein shown and described.

33,744. TRUNK-CLAMP. MORRIS N. DRUCKER, Cincinnati, Ohio. Filed Nov. 21, 1900. Serial No. 37,294. Term of patent 7 years.



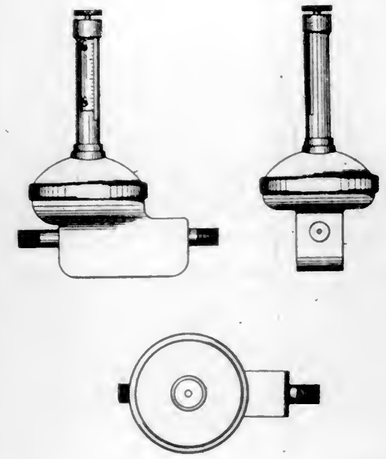
Claim.—The design for a trunk-clamp as herein shown and described.

33,745. FRAME FOR MOTOR-CYCLES. GEORGE D. GREEN, Rochester, N. Y., assignor to James H. Sager, same place. Filed Nov. 2, 1900. Serial No. 35,300. Term of patent 14 years.



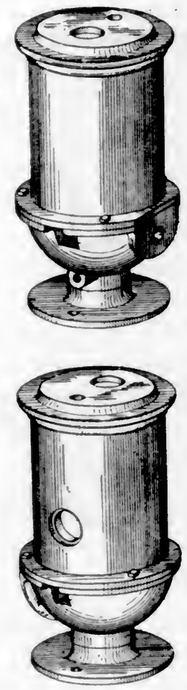
Claim.—The design for a frame for motor-cycles substantially as herein shown and described.

33,746. VALVE-CASING. JOHN W. MCMILLAN, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 37,548. Term of patent 14 years.



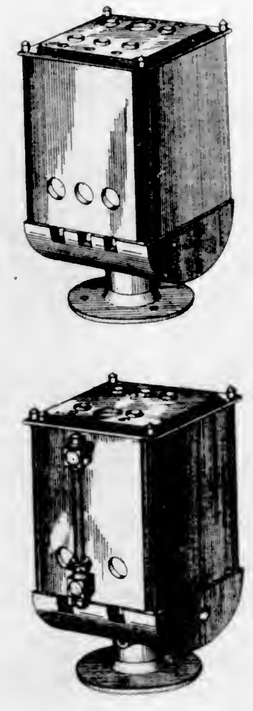
Claim.—The design for a valve-casing, substantially as herein shown and described.

33,747. LUBRICATOR-PUMP BODY. BARRY IVOR, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 37,545. Term of patent 7 years.



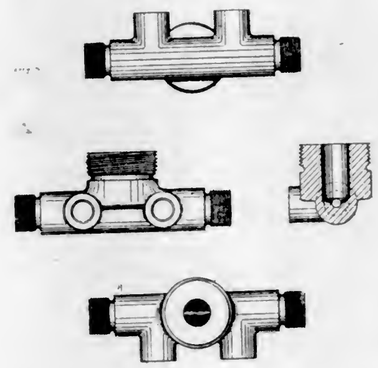
Claim.—The design for a lubricator-pump body, substantially as herein shown and described.

33,748. LUBRICATOR-PUMP BODY. BARRY IVOR, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 37,546. Term of patent 7 years.



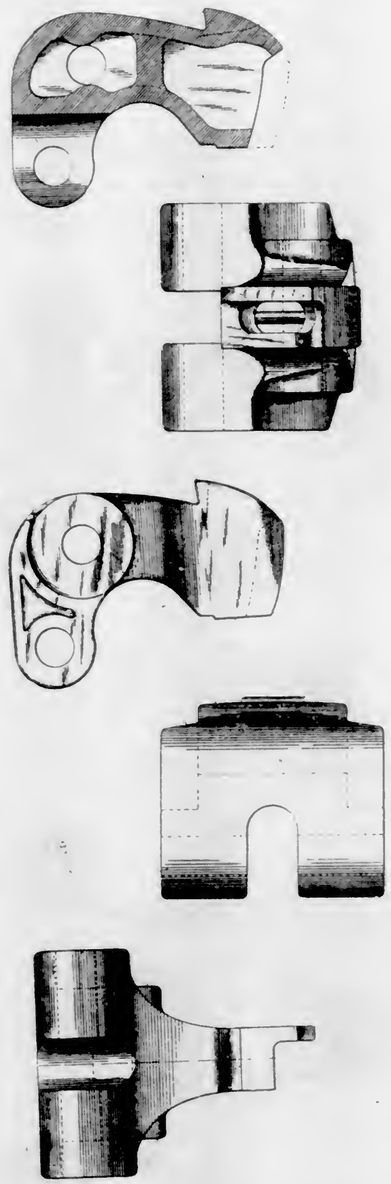
Claim.—The design for a lubricator-pump body, substantially as herein shown and described.

33,749. VALVE-CASING FOR LOCOMOTIVE SANDER APPARATUS. JOHN CAMPER HOOPER, Baltimore, Md. Filed Nov. 19, 1900. Serial No. 37,071. Term of patent 14 years.



Claim.—The design for a valve-casing for locomotive sander apparatus, herein shown and described.

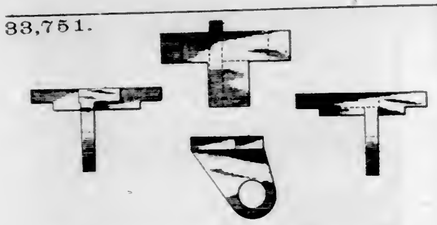
33,750. KNUCKLE FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Sept. 10, 1900. Serial No. 29,609. Term of patent 14 years.



Claim.—The design for a knuckle for car-couplers substantially as shown and described.

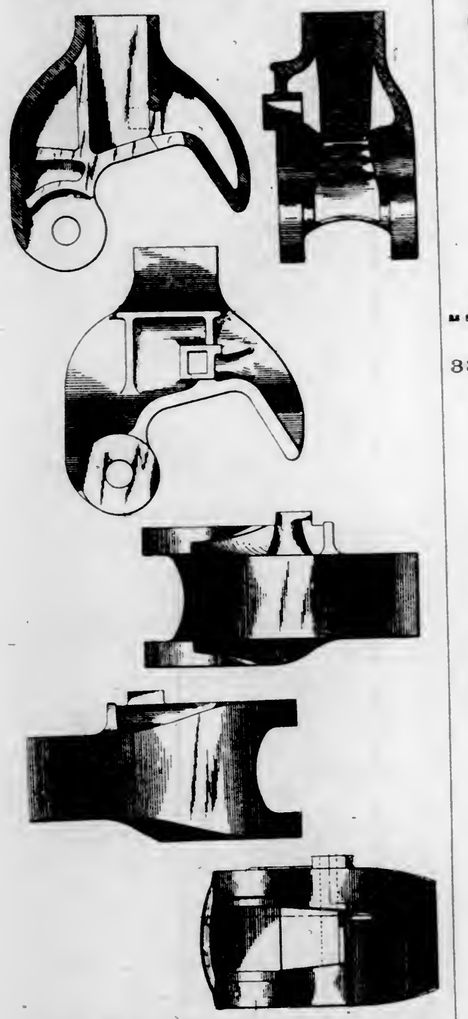
33,751. FILLING-BLOCK AND SUPPORT FOR GRAVITY-ACTING DOGS FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24, 1900. Serial No. 37,681. Term of patent 14 years.

33,751.



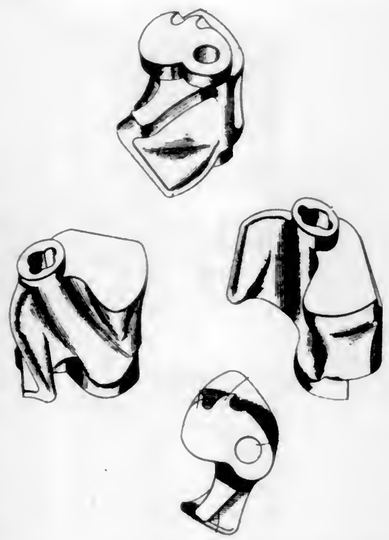
Claim.—The design for a filling-block and support for gravity-acting dogs for car-couplers, substantially as described.

33,752. DRAW-HEAD FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24, 1900. Serial No. 37,682. Term of patent 14 years.



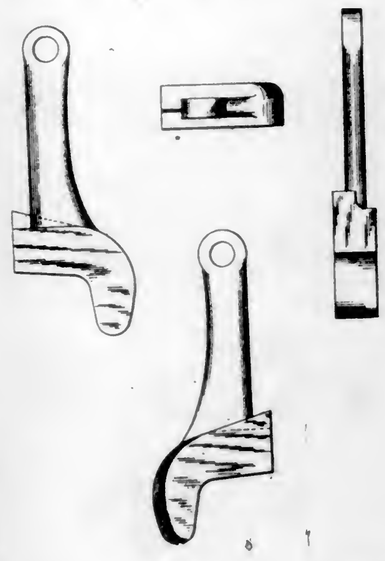
Claim.—The design for a draw-head for car-couplers, substantially as shown and described.

33,753. CAM-BLOCK FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill. Filed Nov. 24, 1900. Serial No. 37,683. Term of patent 14 years.



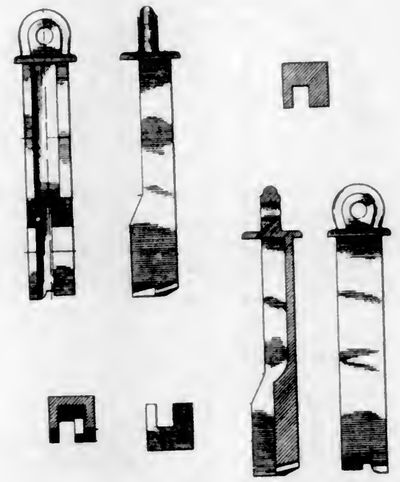
Claim.—A design for the cam-block for car-couplers, substantially as shown and described.

33,754. GRAVITY-ACTING DOG FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24, 1900. Serial No. 37,684. Term of patent 14 years.



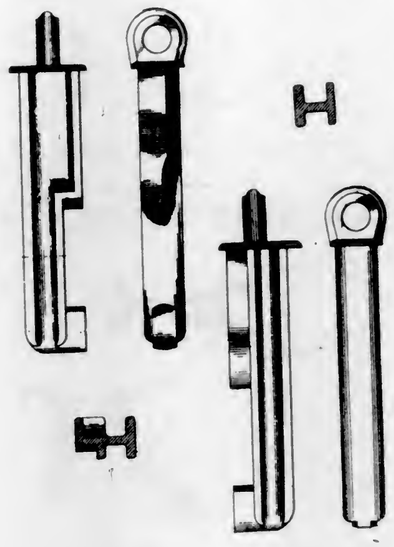
Claim.—The design for a gravity-acting dog for car-couplers, substantially as shown and described.

33,755. LIFTING-PIN FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24 1900. Serial No. 37,685. Term of patent 14 years.



Claim.—The design for a lifting-pin for car-couplers, substantially as shown and described.

33,756. LOCKING-PIN FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24, 1900. Serial No. 37,686. Term of patent 14 years.



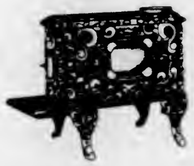
Claim.—The design for a locking-pin for car-couplers, substantially as shown and described.

33,757. LOCK FOR LIFTING-PINS FOR CAR-COUPLINGS. PHILLIP HIEN, Chicago, Ill., assignor to David S. Wegg, same place. Filed Nov. 24, 1900. Serial No. 37,687. Term of patent 14 years.



Claim.—The design for a lock for lifting-pins for car-couplers, substantially as shown and described.

33,758. STOVE. ANTON OHNEMUS, Quincy, Ill., assignor to the Excelsior Stove and Manufacturing Company, same place. Filed Nov. 24, 1900. Serial No. 37,688. Term of patent 7 years.



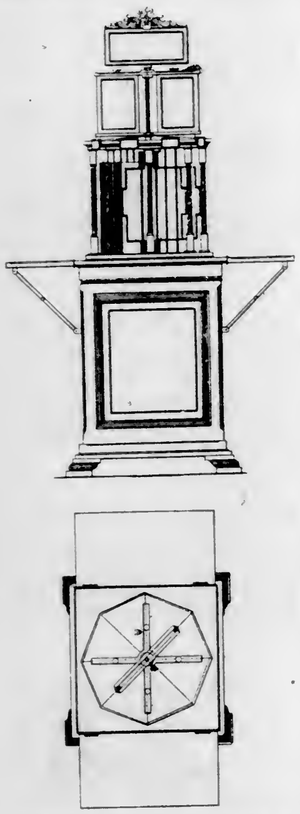
Claim.—The design for a stove herein shown and described.

33,759. STOVE. ANTON OHNEMUS, Quincy, Ill., assignor to the Excelsior Stove and Manufacturing Company, same place. Filed Nov. 24, 1900. Serial No. 37,689. Term of patent 7 years.



Claim.—The design for a stove herein shown and described.

33,760. NEWSPAPER-STAND. CHARLES E. MCDOWELL and HORACE G. STRIPE, New York, N. Y.; said McDowell assignor to Judson Lawson & Son, same place. Filed Nov. 20, 1900. Serial No. 37,179. Term of patent 14 years.



Claim.—The design for a newspaper-stand, as herein shown and described.

33,761. DISPLAY-RACK. WILLIAM S. MCRAY, Cosmopolis, Wash. Filed Nov. 13, 1900. Serial No. 36,410. Term of patent 3½ years.



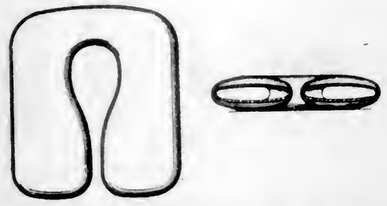
Claim.—The design for a display-rack, as herein shown and described.

33,762. TROUSERS-HANGER. TIMOTHY B. SHUMAN, Tyrone, Pa. Filed Nov. 13, 1900. Serial No. 36,413. Term of patent 14 years.



Claim.—The design for a trousers-hanger, substantially as shown and described.

33,763. AIR-CUSHION. CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., and DANIEL HOGAN, New York, N. Y., assignors to the Meinecke & Company, New York, N. Y. Filed Nov. 19, 1900. Serial No. 37,069. Term of patent 14 years.



Claim.—The design for an air-cushion as herein shown and described.

33,764. BUNION OR CORN SHIELD. JOHN J. GEORGES, Washington, D. C., assignor of one-half to William W. Georges, same place. Filed Nov. 13, 1900. Serial No. 36,416. Term of patent 14 years.



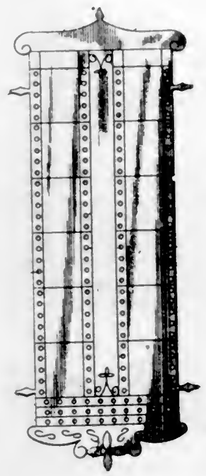
Claim.—The design for a bunion or corn shield, as herein shown and described.

33,765. SHOE. WILLIAM N. HORNE, Nashville, Tenn. Filed Nov. 13, 1900. Serial No. 36,412. Term of patent 14 years.



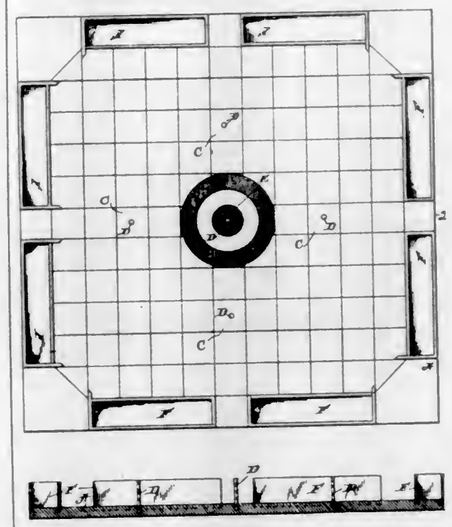
Claim.—The design for a shoe, as herein shown and described.

33,766. CRIBBAGE-BOARD. PETER J. DOYLE, Stamford, Conn. Filed Nov. 22, 1900. Serial No. 37,404. Term of patent 7 years.



Claim.—The design for a cribbage-board herein shown and described.

33,767. GAME-BOARD. FREDERICK GODFREY KAELIN, Cutchogue, N. Y. Filed Nov. 2, 1900. Serial No. 35,294. Term of patent 14 years.



Claim.—The design for a game-board, substantially as herein shown and described.

TRADE-MARKS

REGISTERED DECEMBER 18, 1900.

35,590. EYE-SHADES. WILLIAM F. MAHONY, Washington, D. C. Filed Oct. 29, 1900.

FEATHERWEIGHT



Essential feature.—The word "FEATHERWEIGHT" and a portrait of the registrant wearing an eye-shade. Used since December, 1898.

35,591. BUST-FORMS. WRIGHT & Co., Hoboken, N. J. Filed Nov. 6, 1900.

Fairy

Essential feature.—The word "FAIRY." Used since October 10, 1900.

35,592. BOOTS AND SHOES AND LEATHER FOR SAME. RICE & HUTCHINS, INCORPORATED, Boston, Mass. Filed Nov. 23, 1900.

PAN-AMERICA

Essential feature.—The compound word "PAN-AMERICA." Used since November 15, 1900.

35,593. COTTON SHEETINGS. DEMETRIUS J. VILASTO, New York, N. Y. Filed Nov. 22, 1900.



Essential feature.—A representation of two Bedouins mounted on two camels. Used since July 15, 1900.

35,594. DRIED OR EVAPORATED FRUIT. U. H. DUDLEY & Co., New York, N. Y. Filed Oct. 30, 1900.

GLOBE

Essential feature.—The word "GLOBE." Used since August 15, 1894.

35,595. SYRUP DISPENSED IN SODA-FOUNTAINS. J. HUNGERFORD SMITH COMPANY, Rochester, N. Y. Filed Nov. 23, 1900.

PAN-AMERICAN

Essential feature.—The compound word "PAN-AMERICAN." Used since October 15, 1900.

35,596. COFFEE. F. P. GARRETTSON & Co., Newport, R. I., and New York, N. Y. Filed Nov. 20, 1900.

AQUIDNECK

Essential feature.—The word "AQUIDNECK." Used since May 9, 1900.

35,597. CERTAIN NAMED BAKERY AND CONFECTIONERY PRODUCTS. THE OHIO BAKING COMPANY, Cleveland, Ohio. Filed Oct. 9, 1900.



Essential feature.—A fanciful figure represented by three parallel bars and a central cross-bar and two circles overlying the side bars and cross-bar. Used since August 1, 1900.

35,598. GLUTEN-FLOUR. BENNETT MILLING COMPANY, Geneva, Ill. Filed Nov. 21, 1900.

Wheat Nut

Essential feature.—The words "WHEAT NUT." Used since March, 1897.

35,599. CERTAIN NAMED CEREAL PRODUCTS. THE MALTED CEREALS COMPANY, Burlington, Vt. Filed Nov. 19, 1900.

Maltex

Essential feature.—The word "MALTEX." Used since October 15, 1900.

35,600. CERTAIN NAMED DAIRY PRODUCTS. BORDEN'S CONDENSED MILK COMPANY, New York, N. Y. Filed Oct. 20, 1900.

PONY



Essential feature.—The word "PONY" or the representation of the head of a pony. Used since July 10, 1900.

35,601. CONDENSED MILK. ST. LOUIS CONDENSED MILK COMPANY, St. Louis, Mo. Filed Nov. 19, 1900.

MONOGRAM

Essential feature.—The word "MONOGRAM." Used since February 1, 1900.

35,602. CERTAIN NAMED PACKING-HOUSE PRODUCTS. LIBBY, MCNEILL & LIBBY, Chicago, Ill. Filed Nov. 19, 1900.



Essential feature.—The representation of the head of a bovine animal, the head being provided with wings. Used since May 16, 1900.

35,603. PLUG-TOBACCO. M. C. WETMORE TOBACCO COMPANY, St. Louis, Mo. Filed Nov. 19, 1900.



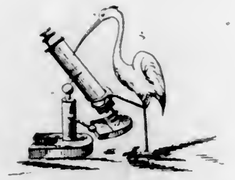
Essential feature.—The representation of a plug of tobacco and a child holding an umbrella. Used since November 1, 1900.

35,604. COLOGNE-WATER. JOHANN MARIA FARINA, Cologne, Germany. Filed Nov. 26, 1900.



Essential feature.—The letters "J M F" in connection with the numeral "4." Used since January 30, 1899.

35,605. HAIR-TONIC. ALONZO FRANK RICHARDSON, New York, N. Y. Filed Nov. 24, 1900.



Essential feature.—The representation of a crane and microscope. Used since September 1, 1900.

35,606. TONIC MEDICINE. CHARLES H. GRUBE, New York, N. Y. Filed Nov. 14, 1900.

VITONE.

Essential feature.—The word "VITONE." Used since November 1, 1895.

35,607. KIDNEY, BLOOD, AND NERVE CURE. JUSTUS LOOMER Everett, Mass. Filed Nov. 22, 1900.



Essential feature.—A portrait of the registrant. Used since January 1, 1900.

35,608. OINTMENT. CHARLES A. TORREY, Jr., Philadelphia, Pa. Filed Oct. 5, 1900.

BUTTER PINE

Essential feature.—The words "BUTTER" and "PINE." Used since October 1, 1900.

35,609. MEDICATED PLASTERS. ROBERT THOMAS, Jr., Thomasville, Ga. Filed Nov. 20, 1900.

PINENE

Essential feature.—The word "PINENE." Used since June 9, 1896.

35,610. MEDICATED PLASTERS. ROBERT THOMAS, Jr., Thomasville, Ga. Filed Nov. 20, 1900.



Essential feature.—The representation of an alligator. Used since June 9, 1896.

35,611. CERTAIN NAMED PAINT AND VARNISH REMOVER. CELLULOSE PRODUCTS COMPANY, Wilmington, Del., and Boston, Mass. Filed Nov. 24, 1900.

CLYZOL

Essential feature.—The word "CLYZOL." Used since July 23, 1900.

35,612. MUSICAL INSTRUMENTS, EXCEPTING PIANOS AND THEIR PARTS. JEROME THIBOUVILLE-LAMY & Co., New York, N. Y. Filed Nov. 19, 1900.



Essential feature.—A representation of the cross of the French Legion of Honor. Used since October 31, 1900.

35,613. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

PARLOR GEM

Essential feature.—The words "PARLOR GEM." Used since July, 1899.

35,614. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

ROYAL

Essential feature.—The word "ROYAL." Used since October, 1898.

35,615. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

NEW HOME

Essential feature.—The words "NEW HOME." Used since June, 1898.

35,616. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

CATHEDRAL CHAPEL

Essential feature.—The words "CATHEDRAL CHAPEL." Used since June, 1898.

35,617. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

HAPPY HOME

Essential feature.—The words "HAPPY HOME." Used since June, 1899.

35,618. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

Chapel Chimes

Essential feature.—The words "CHAPEL CHIMES." Used since June, 1898.

35,619. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

CHOIR GEM

Essential feature.—The words "CHOIR GEM." Used since June, 1898.

35,620. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

PARLOR CHIMES

Essential feature.—The words "PARLOR CHIMES." Used since August, 1898.

35,621. ORGANS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

HOME FAVORITE

Essential feature.—The words "HOME FAVORITE." Used since May, 1898.

35,622. PIANOS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

COTTAGE DELIGHT

Essential feature.—The words "COTTAGE DELIGHT." Used since June, 1898.

35,623. PIANOS. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

AMERICAN HOME

Essential feature.—The words "AMERICAN HOME." Used since June, 1898.

35,624. SEWING-MACHINES. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

EDGEMERE

Essential feature.—The word "EDGEMERE." Used since March, 1899.

35,625. SEWING-MACHINES. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

Ser-o-co.

Essential feature.—The hyphenated word "SER-O-CO." Used since May 1, 1896.

35,626. BICYCLES. SEARS, ROEBUCK & COMPANY, Chicago, Ill. Filed Oct. 2, 1900.

EDGEMERE

Essential feature.—The word "EDGEMERE." Used since August, 1899.

35,627. HARDWARE, CUTLERY, AND EDGE-TOOLS. JAMES C. LINDSAY HARDWARE COMPANY, Pittsburg, Pa. Filed May 31, 1899.

TRUE BLUE

Essential feature.—The words "TRUE BLUE." Used since July 12, 1886.

35,628. FIRE-BRICK. STOWE, FULLER & Co., Cleveland, Ohio. Filed Nov. 27, 1899.

ALUMNITE

Essential feature.—The word "ALUMNITE." Used since September 1, 1898.

PHOTO-LITH THE NORRIS PETERS CO. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

NEWTON *v.* WOODWARD.

Decided June 6, 1900.

1 INTERFERENCE—DILIGENCE IN REDUCING TO PRACTICE—ACQUIESCING IN DECISION OF THE PATENT OFFICE—PRIORITY.

W. filed an application in April, 1896, disclosing a collar attached to the heel of a knitting-machine needle and inserted between its limbs and so bent around it as to form the letter S. What he actually disclosed to his attorney, and that upon which the application was based was a collar in shape of the figure 8. In February, 1897, N. filed an application in which he claimed both the S form and the 8 form indifferently. Two successive interferences were then declared, both of which were dissolved on N.'s motions that there was no interference in fact. W.'s application became a patent in August, 1898. In June, 1898, he filed the application which is now in interference with the application of N. N.'s earliest date of conception is October, 1896, and of reduction to practice January, 1897. *Held* that under the circumstances W. should not be charged with laches in filing the application involved, as the greater part of the delay was due not to his inaction, but to the course of action of the Patent Office, and being first to conceive and reasonably diligent in constructive reduction to practice he is entitled to an award of priority.

2. SAME—SAME—SAME.

Held, further, that it was only when it was finally determined by the Patent Office that the S-shaped device and the 8-shaped device were distinct inventions and equally patentable that it became incumbent upon W. to take steps for the protection of his invention as he had actually made it. He is not chargeable with any want of due diligence when he acquiesced in the decisions of the Patent Office.

Mr. Walter F. Rogers for the appellant.

Mr. Frederick P. Fish for the appellee.

MORRIS, *J.:*

This is an appeal from the decision of the Commissioner of Patents in an interference case.

The matter in controversy is an alleged improvement in knitting-needles, effected by passing a wire around the heel or shank of the needle to form a collar in the shape of the figure 8, the better to hold it in place. It is defined by the Patent Office in these two issues:

1. A knitting-machine needle of the class described having a collar applied to its heel between the limbs of the heel and embracing such limbs.
2. A knitting-machine needle of the class described having a collar attached to its heel and between the limbs of the heel, and bent about such heel in the form of an 8.

The difference between the two issues is that the first is more general than the second. The second is for a collar in the shape of the figure 8: the first would include collars in any shape that would be applied between the limbs and would embrace them.

All the tribunals of the Patent Office concurred in holding that the appellee Woodward was the first to conceive and disclose the invention, as well as the first to reduce it to actual practice; but the Examiner of Interferences and the Board of Examiners-in-Chief held that he was wanting in due diligence, and therefore awarded judgment of priority of invention to Newton, who was the first to apply to the Patent Office, and therefore to reduce the invention to constructive practice before Woodward had either applied to the Office or effected his actual reduction to practice. This decision was reversed by the Commissioner of Patents on appeal. He held that there was no unreasonable delay on Woodward's part, and awarded to him the judgment of priority. From this decision the present appeal has been prosecuted.

As developed in the Patent Office, the history of the matter in brief was this. Woodward filed an application on April 13, 1896, which disclosed a collar attached to the heel of the needle and inserted between its limbs and so bent around it as to form the letter S. That is, the ends of the wire did not entirely meet so as to form the figure 8, as in the present construction. It is shown, however, that what he actually disclosed to his attorney and that upon which the application was based was a collar in the shape of the figure 8. On February 16, 1897, Newton filed his application, in which he claimed both the S form and the 8 form indifferently. Two successive interferences were declared between the parties; but both were dissolved, on Newton's motion, on the ground that there was no interference in fact. Newton's application then went to issue, and the final fee was paid; but for some reason the patent was delayed. Woodward's application, after some amendment not important here, also went to issue, and a patent was granted to him. Woodward then filed a new application, the one here involved, on June 13, 1898, his patent on the previous application not being issued until August 23, 1898. Newton's application was thereupon withdrawn from issue, and was placed in interference with Woodward's second application. This is the interference now before us.

In his preliminary statement Woodward alleged conception and disclosure of the invention about January 1, 1893, and the making by him at several times thereafter not specified of needles successfully used to test his invention, but that he had not sold or used any, except by way of demonstra-

tion. Newton's preliminary statement alleged conception and disclosure about the middle or latter part of October, 1896, and that he commenced to manufacture needles embodying the invention about the middle of January, 1897. As his application was filed on February 16, 1897, he was undoubtedly diligent in his proceedings.

It is unnecessary for Woodward to prove conception and disclosure of the invention as early as 1893, or at any earlier date than April of 1896, when he claims to have disclosed it to his attorney for the application which was filed in the Patent Office on April 13, 1896. Newton did not come into the field of invention for more than one year and a half after that; and if Woodward had the invention then, and was diligent in the prosecution of it at and after the time of Newton's arrival on the field, he should be regarded as entitled to the judgment of priority.

It does not seem to be very seriously controverted that Woodward had the invention in April of 1896. All the tribunals of the Patent Office have so held in the testimony; and we see no reason to question the correctness of that conclusion. In our opinion the only open question in the case is that of his diligence; and in this we concur in the conclusion reached by the Commissioner of Patents. The Commissioner has held and it seems to us has very properly held, that the greater part of the delay was due, not to Woodward's action or inaction, but to the course of action of the Patent Office in the matter.

Woodward has proved by ample evidence, that, what he showed to his attorney in April of 1896, and that for which he desired a patent, was precisely the device now in controversy, a collar in the shape of the figure 8. That his attorney, for reasons good or bad, sufficient or insufficient, modified his specifications or drawings, so as to show a device in the shape of the letter S, seems to us to be of no consequence. The applicant supposed that he was applying for a patent for that which he had invented; and we are of opinion that the specifications and claims of that application were broad enough to embrace this device. It was supposed by the Patent Office itself that such was the fact; for he was twice put in interference with Newton, and this, of course, could only have been based on the presumed identity of the claims of the two parties. It was only when it was finally determined by the Patent Office that the S-shaped device and the -shaped device were distinct inventions and equally patentable, did it become incumbent upon Woodward to take steps for the protection of his invention as he had actually made it. We do not think that he is chargeable with any want of due diligence when he acquiesced in the rulings of the Patent Office. It having been shown that he was the first to conceive the invention, and that he was not chargeable with the delay which occurred in its prosecution, it follows that he was entitled, as the Commissioner found, to a judgment of priority.

We are all the more disposed to come to this conclusion, since we greatly doubt whether there is any patentable novelty in the claims of either party,—that is, any patentable distinction between the claims of the present application and the claims upon which the former patent was issued to Woodward. But the Patent Office has held that there is a patentable difference; and we do not feel called upon to question that decision. In the case of *Beckman* v. *Wood* (89 O. G., 2459; 15 App. D. C., 484) we were constrained by the rules of law, as we understood them to be, to hold that under the circumstances existing in that case, neither party was entitled to a patent. But that case did not involve the question of the intrinsic patentability of the device, apart from the positions in which the parties had placed themselves; and we have held that, in general, the question of patentability will not be considered in a case of interference. (*Hisey* v. *Peters*, 71 O. G., 892; 6 App. D. C., 68; *Doyle* v. *McRoberts*, 79 O. G., 1029; 10 App. D. C., 445.)

We think that the decision of the Commissioner of Patents in this case was right, and that it should be affirmed: and it is hereby affirmed.

The clerk of the court will certify this opinion, and the proceedings in the cause in this court, to the Commissioner of Patents, according to law.

AUSTRIAN PATENT LAW.

January 11, 1897, R. G. B. No. 30.

[Translated in the Scientific Library of the U. S. Patent Office.]

With the agreement of both Houses of Parliament I deem proper to decree as follows:

I.—GENERAL PROVISIONS.

OBJECTS SUBJECT TO PATENT PROTECTION.

SECTION 1. Patents are granted for new inventions capable of being used industrially.

Patents for the same are granted on application.

INVENTIONS EXCLUDED FROM PATENT PROTECTION.

SEC. 2. Patents are not granted for—

1. Inventions the purposes of which are contrary to the laws or to morals or injurious to health or which are obviously designed to deceive the public.
2. Scientific principles or theories as such.
3. Inventions the subject-matter of which is reserved as a State monopoly.
4. Inventions of—
   (*a*) Articles serving for human nourishment,
   (*b*) Medicines and disinfectants,
   (*c*) Substances produced by chemical processes,

in so far as the inventions mentioned under 4 (*a*) to (*c*) do not relate to a particular technical process for producing such articles.

NOVELTY

SEC. 3. An invention is not considered new if, prior to the application for a patent under this law—

1. It has already been so described in printed publications that its use by persons skilled in the art is possible.
2. It has already been publicly used or exhibited in the country in such manner that its use by persons skilled in the art is rendered possible.
3. It has already formed the subject-matter of a privilege which

has been in force in the countries in which this law is to take effect and has become public property.

The Government is empowered to concede to foreign States the privilege that the patent specifications officially published by them are not to be considered as printed publications within the meaning of this law from the date of their publication, but only after a period not exceeding six months therefrom. Such privilege to be published in the *Patent Journal*, (Sec. 44.)

CLAIM TO PATENT.

SEC. 4. Only the originator of an invention or his successors have a claim to the grant of a patent. Until the contrary is proved the first applicant is considered as the originator of the invention. An application of later date cannot give a right to a patent if the invention is already the subject-matter of a patent or privilege or of a pending application for the grant of a patent or privilege. If these conditions exist in part only, the later applicant has only a claim to the grant of a patent of corresponding limitation. If an application for the grant of a patent for an improvement in or other development of an invention, already protected by patent or forming the subject-matter of an application for the grant of a patent, be lodged by the owner of the original patent or by his successor, the applicant may apply for the grant for such improvement in or other further development either of an independent patent or of a patent of addition dependent on the original patent.

If it be found that the industrial use of an invention forming the subject-matter of an application requires the full or partial employment of an invention already patented, the patent thus applied for is to be granted, with the notification that it is dependent on another patent to be particularly indicated, (declaration of dependence.) This notification is to be added to the publication concerning the grant of the patent and also to the Letters Patent.

SEC. 5. The first applicant has no claim to the grant of a patent if he is not the originator of the invention forming the subject-matter of the application or his successor, or if the essence of the invention has been taken from the descriptions, drawings, models, apparatus, or arrangements of or the process used by another person without the consent of the latter, and if opposition be entered in the first case by the originator or his successor and in the latter case by the party injured.

If the invention has been taken by one owner of the invention from another without the consent of the latter, then in case of litigation the prior owner of the invention takes precedence.

Laborers, employees, or persons in Government service are considered as the originators of the inventions made by them during their service unless contract or service rules stipulate otherwise.

Provisions of contracts or service rules by which a person in the service of an industrial establishment is debarred from the reasonable profits arising from an invention made by such person in such service have no legal effect.

PROTECTION OF INVENTIONS AT EXHIBITIONS.

SEC. 6. For inventions to be shown at exhibitions in the country a temporary patent protection may be allowed under easier conditions from the day of their admission to the exhibition up to three months after the closing of the exhibition.

The allowance of such protection and the stipulation as to the conditions of such allowance are placed under the control of the Minister of Commerce.

REPRESENTATIVES.

SEC. 7. A person not residing in the country is only entitled to the grant of a patent and to the rights derived therefrom if he has appointed a representative residing in the country.

The name and residence of the representative, as also each change as to the representation, is to be communicated to the Patent Office for entry in the patent register, and at the same time a power of attorney is to be lodged.

The form of the power of attorney to be lodged at the Patent Office is to be settled by ordinance.

In all matters relating to a patent the place where the representative has his residence, or, in the case of non-representation, the place where the Patent Office is located, is to be considered as the place of residence of the owner of the patent if he is non-resident in the country.

All communications, etc., handed to the representative have the same legal effect as if they had been handed to the owner of the patent himself.

EFFECT OF PATENTS.

SEC. 8. A patent has the effect that the patentee has the exclusive right to make, sell, offer for sale, or use the subject-matter of the invention on a practical scale.

If the patent be granted for a process, the effect of the patent also extends to the products directly produced by such process.

SEC. 9. A patent has no effect against a person who at the time of filing the application has already *bona fide* used the invention in the country or has made the necessary preparations for such use, (prior user.)

The prior user has the right to use the invention for the requirements of his business in his own establishments or in those of other persons.

This right can only be sold, assigned, or inherited in connection with the business of the prior user.

The prior user may request the patentee to acknowledge his right by executing a document. If such acknowledgment is refused, the Patent Office has to decide on the claim raised by proceedings similar to those prescribed for in contested actions.

On the request of the owner such acknowledged right is to be entered in the Patent Register.

SEC. 10. By agreement with the Minister of Commerce the war authorities have the right to use for their requirements inventions relating to arms for war purposes, explosives, ammunition, fortifications or ships of war necessary for increasing the belligerent power or to have them used by their business agents or contractors, and no rights derived from the patent granted can be maintained against the war authorities.

If an agreement as to a reasonable compensation between the war authorities, with the consent of the Minister of Finance, and the patentee is not arrived at, this is decided by the Minister of Finance in conjunction with the Minister of Commerce and the war authorities.

The right of use by the war authorities is independent of the progress of these transactions.

SEC. 11. If it be found after the grant of a patent for an invention that the subject-matter of the invention is in a particular method of application reserved as a State monopoly, then the patent has no effect against the Government or the war authorities as to this method of application.

SEC. 12. The effect of a patent does not extend to such vehicles or vessels, or arrangements in vehicles or vessels, which only come into the country transitorily on account of their use in trade.

RELATIVE RIGHTS OF JOINT PATENTEES.

SEC. 13. A patent applied for by a plurality of persons as partners in the same invention is granted to such persons conjointly without determining their shares.

The relative rights of the partners in a patent are subject to the provisions of the civil code.

The right of permitting other parties to use the invention is in doubtful cases reserved to the patentees as an entirety, but any one of the patentees is entitled to prosecute infringements of the patent before the courts.

DURATION OF PATENT.

SEC. 14. The duration of a patent is fifteen years, this term dating from the day of publication of the invention applied for in the *Patent Journal*, (Sec. 37.)

Patents of addition lapse together with the original patent. A patent of addition may, however, be expressly maintained as an independent patent if the original patent is withdrawn, annulled, or renounced. The duration of such patent of addition is determined by the date of the original patent.

The patent of addition having become an independent patent takes the place of the original patent as to the date on which the annuities are due and as to the amount of such annuities.

EXPROPRIATION.

SEC. 15. If it be required for the interest of the armed forces or for the public welfare or for any other important interest of the State that an invention for which an application for a patent has been filed or for which a patent has already been granted should be used in whole or in part by the State or War Office of the Government or should be left open to public use, the State or War Office of the Government has the right to expropriate such patent or the right of using it in whole or in part, on the ground of a decision of the administrative authorities in Vienna, and for a suitable compensation to use such invention on the ground of the decision of expropriation or to leave it to the public use.

In case of imminent danger the State or War Office of the Government may, on the ground of having lodged a petition for expropriation and on obtaining a provisional permission from the said administrative authorities, at once use the invention or leave it to the public use, but on condition that the decision of expropriation is afterward obtained.

A suitable compensation from the treasury of the State is due not only to the patentee, but also to those persons who were already entitled to use the invention, in case they lose their rights by such expropriation.

As to the amount of indemnity for such expropriation, an agreement is to be arranged with the applicant or patentee and the persons entitled to use the invention, (if there be any such persons,) and if such an agreement cannot be arranged, the petition for indemnity is decided by the courts of justice, after hearing experts, if necessary. The patentee has the right to appoint one of the experts. In determining the indemnity in any case only the effects of the expropriation in this country have to be taken into consideration.

The proceedings as to the amount of indemnity have no restraining effect on the exercise of the rights to the invention which the Government or the war authorities claim for themselves or for the public.

The parties registered in the Patent Registers as interested in the patent are to be informed at once by the Patent Office of any such claim to the patent.

OBLIGATION OF PATENTS TO THE EXISTING LAWS.

SEC. 16. A patent granted does not in any case dispense with obedience to the legal prescriptions which exist or are issued for reasons of public health, safety, good morals, or for the general interests of the State.

SEC. 17. The originator of an invention or his successor is not bound by the prescriptions existing for the beginning of a new trade in so far as he restricts himself to the working of the patented invention without contravening the provisions of Sec. 16.

ASSIGNMENT.

SEC. 18. The rights derived from the application for a patent and the patent rights descend to the heirs. There is no escheating of these rights.

Both rights may be transferred to others in whole or in part by legal procedure, decision of the courts, or by testament.

The registration of the assignment necessary for acquiring the patent rights (Sec. 23) is to be effected by the Patent Office on the request of the courts of justice or on a petition of assignment in writing by one of the parties interested. Together with the petition of assignment the deed of assignment has to be filed,

to which, if it has not the character of a public document, the signature of the assignor is to be legalized.

The form and contents of the petition and deed of assignment are subject to examination by the Patent Office.

If the rights derived from the application for a patent are assigned, the patent, if granted, is to be issued to the successor of the applicant, provided that the petition of assignment, as well as the deed of assignment, is in accordance with the above requirements.

MORTGAGE.

SEC. 19. The patent right may form the subject of a mortgage.

VOLUNTARY LICENSES.

SEC. 20. The patentee has the right to confer upon other parties the right of using the invention for the whole of its territory or for part of it, with or without the exclusion of other persons entitled to such use.

COMPULSORY LICENSE.

SEC. 21. The patentee of an invention which cannot be worked without using a previously-patented invention has the right to ask from the owner of the prior patent the grant of a permission to use the same, provided that three years have elapsed since the date of publication in the *Patent Journal* of the previously-granted patent and provided that the later invention is of considerable industrial importance.

The license granted entitles the owner of the prior patent to ask on his part for a license from the owner of the later patent, which gives him power to use the later invention, provided, however, that the later invention is in actual connection with the previous invention.

If the grant of permission to others to use an invention appears to be required for the public interest, any person has the right to ask the patentee for permission to use the invention in his establishment even if the conditions of sections 1 and 2 do not exist, provided that such person proves his personal trustworthiness and that three years have elapsed since the date of the publication of the patent in the *Patent Journal*.

If in such cases the license is refused by the patentee, the Patent Office decides upon the request made and in case of granting the license determines the compensation to be given, the security, and other conditions of use, having regard to the nature of the invention and to the circumstances of the case.

In the case of a decision upon the grant of a license on the ground of the public interest the Patent Office must obtain the opinion of the ministries concerned and base its decision on such opinion.

The above provisions do not apply to patents belonging to the State or War Office of the Government.

TRANSFER OF LICENSE.

SEC. 22. The license granted by the patentee or by the Patent Office can without the consent of the owner of the patent be transferred by the licensee only together with the business for which the license is serviceable and descends in case of death to the successors of the licensee, provided that the business entitled to the license is carried on by such successors.

EFFECTS OF ENTRIES IN THE PATENT REGISTER.

SEC. 23. The right to a patent, (Sec. 18,) the mortgage right, and other material rights under a patent are acquired by entry in the Patent Register, and then become operative against third parties.

The provisions of the civil code are decisive as to the time of acquiring license rights. Only on entry in the Patent Register do license rights become operative against third parties.

The order in rank of the aforesaid rights is determined by the order in succession of the applications for entry filed at the Patent Office, provided that such applications lead to entry. Applications filed simultaneously are considered as of the same rank.

CHARGES.

SEC. 24. Whoever acquires a patent takes over all charges against it which at the time of filing the application for entry at the Patent Office appear in the Patent Register and also those charges as to which application for entry has been properly made.

NOTICE OF LITIGATION.

SEC. 25. Litigations pending before the courts of justice and relating to the proprietorship of a patent, mortgages, and other material rights in a patent, as well as requests for licenses, (Sec. 21,) requests for withdrawal, annulment, abrogation, declaration of dependence, or decisions as to the relative inoperativeness of a patent, may on request form the subject of a notice of litigation in the Patent Register.

The notice of litigation has the effect that the decision is fully operative against any person who, after the time of filing the petition for notice of litigation, has had entries made in the Patent Register.

EXPIRATION.

SEC. 26. A patent expires—

1. At the end of the fifteenth year at the latest if the annuities have been duly paid.

2. When an annuity having become due is not paid in good time at the treasury of the Patent Office or at a post-office of the country, so as to be paid over to such treasury.

3. When the owner of a patent renounces the same.

If the renouncement extends only to parts of the patent, the patent remains in force as to the remaining parts, provided that such remaining parts can still form the subject-matter of an independent patent.

In cases of expiration by lapse of time (1 and 2) the expiration becomes operative on the day following the lapse of the last year that the patent is in force; in cases of renouncement, (3,) on the day following that on which the Patent Office is informed of the renouncement.

REVOCATION.

SEC. 27. A patent may be revoked wholly or in part if the patentee or his successors neglect to work the invention or have it worked in the country to an adequate extent or to do all that is necessary to secure such working. The revocation in such a case cannot take place before the end of three years from the date of publication in the *Patent Journal*. This restriction of time does not apply if the patentee or his successors, notwithstanding that the invention is worked abroad and that the public interest requires the working in the country, still continue to meet the demands of the country exclusively or to the largest extent by importation instead of working the invention in the country to an adequate extent.

The revocation of the patent must be preceded by a threat of such revocation, stating the reasons and appointing a suitable term for an adequate working of the invention.

The revocation becomes operative on the last day of the term appointed in the decision of revocation for non-working in the country.

The above provisions do not apply to patents of the State or War Office of the Government.

ANNULMENT.

SEC. 28. A patent is declared null and void if it is found—

1. That the subject-matter was not patentable in accordance with Secs. 1, 2, and 3.

2. That the invention forms the subject-matter of a patent or privilege of a prior applicant.

If one of these conditions (1 and 2) exists in part only, then the annulment has the effect of restricting the patent to a corresponding extent.

The annulment of the patent having come into legal force takes effect from the date of application for the patent.

In the case of paragraph 2, however, license rights lawfully conferred by the later applicant and honestly acquired by other parties and which have been duly registered in the Patent Register for one year and which have not been the subject of a legally-founded notice of litigation (Sec. 25) are not comprised in this retroaction without prejudicing the indemnity claims against the later applicant originating therein.

ABROGATION.

SEC. 29. The patentee's rights are abrogated if it be proved—

1. That the patentee is not the originator of the invention or his successor or is not to be considered as such. (Sec. 5.)

2. That the essential content of the application has been taken from the descriptions, drawings, models, implements, or arrangements of or from the processes used by another person without his consent.

If one of these conditions (1 and 2) exists in part only, the patentee's rights are abrogated to a partial extent.

The claim to the abrogation of the patentee's rights in the first case can only be made by the originator of the invention, his successor, or the person who in the sense of Sec. 5 is to be considered as the originator, and in the second case such claim can only be made by the party injured and becomes outlawed as against a *bona fide* patentee within three years from the date of registration in the Patent Register.

The rights to any indemnities and compensations resulting from the abrogation are to be judged in accordance with the provisions of the civil code and are to be prosecuted by civil proceedings.

If the originator of the invention or the party injured is the successful party, he has the right within thirty days from the handing over of the legally-valid decision of abrogation to ask for the transfer of the patent to him.

The neglect of such request for transfer in due time is held to be equivalent to the renunciation of the patent.

License rights lawfully conferred by the prior patentee and honestly acquired by third parties and which have been duly registered in the Patent Register remain in force for one year in so far as they are not the subject of a legally-founded notice of litigation (Sec. 25) as against the new patentee in case of such a transfer without prejudicing the indemnity claims against the prior patentee originating therein.

DECLARATION OF DEPENDENCE.

SEC. 30. A patentee can request the Patent Office to decide that the industrial utilization of a patented invention requires the complete or partial use of his invention. Such a request must be decided by the Patent Office in proceedings provided for actions against validity.

REPARATION.

SEC. 31. To subjects of foreign States which grant no protection or imperfect protection for inventions of Austrian subjects reprisals may be applied by ordinance of the ministry as a body.

BOSNIA AND HERZEGOVINA.

SEC. 32. As to the validity of patents granted in accordance with this law in Bosnia and Herzegovina, the ordinances published under the law of December 20, 1879, (R. G. Bl. 136,) are applicable.

II.—PATENT OFFICIALS, PUBLICATIONS, AND REGULATIONS.

SPHERE OF ACTION OF THE PATENT OFFICE.

SEC. 33. The grant, revocation, and annulment of patents, the abrogation of the patentee's rights, the declaration of dependence, the decision as to the relative inoperativeness of a patent, (Sec. 9,) the decision upon requests of prior judgment, (Sec. 111,) as also all entries in the patent register are effected by the Patent Office.

Further, the Patent Office is bound to give, on request of the courts of justice, opinions in writing on questions relating to patents if in the course of judicial proceedings contradictory opinions of experts are produced.

LOCATION AND CONSTITUTION OF THE PATENT OFFICE.

SEC. 34. The Patent Office has its seat in Vienna. It consists of a President, his substitutes, and the requisite number of members versed in law and the arts as advisors.

The members are partly permanent and partly non-permanent.

The President and the Presidents of the Departments of Appeals and Annulments (Sec. 36) must be legal experts. The President, his substitutes, and the permanent members are salaried officers of the State.

The non-permanent members receive remuneration for their functions.

The organization of the Patent Office is to be established by ordinance.

SEC. 35. The President, his substitutes, and the members of the Patent Office are nominated by the Emperor on the recommendation of the Minister of Commerce.

The appointment of the non-permanent members is for five years, after the lapse of which time a reappointment may take place.

The Patent Office forms a self-dependent office as regards the carrying on of its business for all outside parties. As regards superintendence, it is subject directly to the Minister of Commerce, who also appoints the assistant officials and employees.

DEPARTMENTS.

SEC. 36. In the Patent Office there are formed—

1. Application Departments for applications for patents, assignments, mortgages, voluntarily-granted licenses, declaration of dependence, (Sec. 4,) and for notices of litigation.

2. Appeal Departments.

3. Annulment Department for requests of revocation, annulment, abrogation of the patentee's rights, and declarations of dependence, (Sec. 30,) and for decisions as to the relative inoperativeness of a patent, for requests of prior judgment, and for requests of grants of compulsory licenses.

RENDERING OF DECISIONS IN THE DEPARTMENTS.

SEC. 37. The Application Departments decide with a quorum of three permanent members, (the President included,) of whom two must be technical members, provided the decision is not one within the meaning of Sec. 40. The final decisions of the Appeal Departments and of the Annulment Department are made with a quorum of two jurisprudent and three technical members, the President included. For intermediate decisions in both of these departments the presence of three members, two of whom must be technical members, is sufficient.

Experts not being members may be summoned to attend the deliberations, but do not take part in the voting.

In all departments the decrees and orders preparatory to a decision are given in the name of the department by the officer to whom the case in question has been referred, if necessary in agreement with a technical member. The decisions are by majority. In case of equal votes the vote of the President is decisive.

All decisions are given in the name of the Patent Office and must be accompanied by reasons, and executed in writing and delivered to all parties concerned.

ORDER OF PROCEDURE OF THE PATENT OFFICE.

SEC. 38. The order of procedure of the Patent Office is determined by the Minister of Commerce, and in so far as other ministers are concerned in agreement with the latter by ordinance, unless provisions be made therefor by the present law.

APPEALS AGAINST THE DECISIONS OF THE DEPARTMENTS.

SEC. 39. An appeal can be entered at the Appeal Department against the decisions of the Application Departments.

Such appeal must be filed at the Patent Office within thirty days from the rendering of the decision, unless for particular cases other provisions are made in the law.

None of the members must partake in the decision on the appeal who acted in giving the decision appealed against.

Against the decisions of the Appeal Department (intermediate and final decisions) no further legal remedy is obtainable. Neither can an appeal be entered at the Court of Administration.

Against the decisions of the Annulment Department an appeal can be entered at the Patent Court.

Against the decrees and orders of the referee preparatory to a decision of the Application Departments or of the Appeal or Annulment Departments a separate objection or appeal cannot be entered.

Also against the intermediate decisions of the Annulment Department a separate appeal cannot be entered; but a modification of the preliminary decrees or orders of the referee in all three departments, as also of the intermediate decisions of the Annulment Department, may be requested at the corresponding departments.

DECISIONS AND APPEALS ON ENTRIES IN THE PATENT REGISTER.

SEC. 40. The decisions of the Patent Office relating to entries in the patent register within the meaning of Secs. 9, 18, 19, 20, 21, 23, and 25 and in the patent agents' register in the sense of Sec. 43 are to be taken by an Application Department to be formed of three jurisprudent members. All parties concerned have to be informed of the decisions.

An appeal can be entered against such decision within thirty days from the delivery of the decision. The appeal goes to the Appeal Department of the Patent Office, with the exception of cases reserved to the Minister of Commerce under Sec. 43.

PATENT COURT.

SEC. 41. As a court of appeal against the final decisions of the Annulment Department of the Patent Office a Patent Court is instituted in Vienna.

It is formed of a President or President of Senate of the Supreme Court of Justice and Appeals as president and chairman, a counselor of the Ministry of Commerce, two court counselors of the Supreme Court of Justice and Appeals, and of three technical members as counselors.

The members of the Patent Court and their substitutes are nominated by the Emperor for a term of five years on the recommendation of the Minister of Commerce in agreement with the ministries concerned. Reappointment of the members is admissible. The provisions of Article 6 of the Fundamental Law of the State on Judicature and of the Law of May 21, 1868, R. G. Bl. No. 46, issued to carry this article into practice apply to the members of the Patent Court during the term of their office.

The members of the Patent Court receive fees. The three technical members are appointed in each case by the President of the Patent Court out of the list of the nominated technical members.

The acting officials and necessary employees for the Patent Court are provided by the Ministry of Commerce.

REASONS FOR EXCLUSION.

SEC. 42. Members of the Patent Office and the Patent Court are excluded from acting—

1. In patent matters in which they are themselve parties or as to which they are to one of the parties in the relation of partner in rights or of a coöbligee or of a party subject to redress.

2. In patent matters relating to their wives or to such persons as are related to them or allied with them by direct line or by marriage or as are related to them collaterally up to the fourth degree or allied to them by marriage collaterally up to the second degree.

3. In patent matters relating to their adopted or foster parents, adopted or foster children, their pupils, and persons who are committed to their care and superintendence.

4. In patent matters in which they are or have been the representatives of one of the parties or where they receive a material advantage or suffer a material damage or expect such from one of the parties.

The members of the Patent Court are, moreover, excluded from patent matters in which they acted in making decisions at the Patent Office.

PATENT AGENTS.

SEC. 43. As attorneys only private technical experts authorized by the authorities, patent agents, and the Attorney-General of Finance are competent professionally to represent parties before the authorities in patent matters.

However, the professional representation of parties in litigations relating to the revocation or annulment of a patent or privilege or to abrogation, as well as in all non-technical matters by governmentally-authorized private technical experts and patent agents, is, however, prohibited. Patent agents are appointed by the Patent Office in coöperation with the trades authorities in accordance with requirements.

The exercise of the profession of a patent agent is dependent on the registration of the agent in the patent agents' register kept by the Patent Office. These registrations must be published in the *Patent Journal*. Such registration is subject to a fee of 100 florins. Only such persons can be appointed as patent agents as—

1. Are of age.

2. Are Austrian citizens and reside in the country.

3. Have not been sentenced for a crime, offense, or transgression committed for gain.

4. Can prove suitable technical capability by producing the diploma or the certificate of the prescribed States' examinations successfully passed at a polytechnic university of the country, at the agricultural university, at a mining academy, or at the faculty of philosophy of a university of the country, or of equivalent examinations successfully passed at an analogous university of the same rank abroad.

5. Have had at least two years' practice under a patent agent in the country.

6. Have proved their familiarity with the provisions of the patent laws of this and other countries by successfully passing an examination before the Patent Office after completing their practice under a patent agent.

The fee for the examination as to the patent laws is 20 florins.

Patent agents are subject to the disciplinary power of the Patent Office.

In case a patent agent is temporarily or altogether prevented from carrying on the business with which he has been intrusted the Patent Office, if necessary, has the right to appoint a substitute to carry on or complete the business.

Against the refusal of registration in the patent agents' register the applicant can enter an appeal at the Ministry of Commerce within thirty days of his receipt of the decision.

The issue by ordinance of further provisions relating to the organization of the Institution of Patent Agents and to the disciplinary proceedings against patent agents is reserved to the Minister of Commerce in agreement with the Minister of the Interior. The decision as to whether examinations successfully passed at an academy or university abroad are equivalent to examinations passed at an academy or university of the country (paragraph 4 of this section) is taken by the Minister of Commerce in agreement with the Ministers of Religion and Education and of Agriculture.

PATENT JOURNAL [PATENTBLATT].

SEC. 44. The Patent Office publishes a periodical official patent journal in which the notices provided for by this law are to be published.

The Minister of Commerce determines by ordinance the arrangement and publication of this journal.

PATENT REGISTER.

SEC. 45. In the Patent Office a Patent Register is kept which contains the serial number, the title, and the duration of the patents granted and also the names, professions, and residences of the patentees and their representatives. The beginning, lapsing, and expiration, actions for nullity, revocations, annulments, and the abrogation of the patentee's rights, the expropriation of a patent, the declaration of independence of a patent of addition, the declaration of dependence of a patent, as also the assignments of a patent, grants of licenses, mortgages, and other material rights to a patent, the inoperativeness of a patent against a prior user, (Sec. 9,) decisions in prior judgment, (Sec. 111,) and notices of litigation are to appear in the Patent Register.

The specifications, drawings, models, and samples belonging to existing patents and also the petitions and documents forming the base of the entries in the Patent Register are kept by the Patent Office in separate archives.

The inspection of the Patent Register and of the specifications, drawings, models, and samples on the ground of which patents have been granted, as also the inspection of petitions and documents and taking copies thereof, is permitted to any one except where a patent is concerned which belongs to the State or War Offices of the Government and is not yet published, (Sec. 65.)

The Patent Office shall order the publication of all changes relating to the existence and ownership of a patent.

The Patent Office publishes as independent papers (copies of patents) the specifications and drawings of patents granted in so far as the patents are open to public inspection.

On request the Patent Office gives legalized copies of the entries in the register.

FINES.

SEC. 46. The fines decreed by the Patent Office go into the State treasury.

DELIVERY.

SEC. 47. The delivery of communications from the Patent Office is effected officially by attendants of the Patent Office or by mail.

For patentees who temporarily have no representatives in the country or whose residence in the country is unknown the Patent Office may, if necessary, appoint a trustee to represent such patentee, to whom the delivery of communications may take place with the same legal effect as if to the patentee himself.

III.—PROCEEDINGS.

(A) IN GRANTING PATENTS—APPLICATION FOR PATENT.

SEC. 48. The application for obtaining a patent for an invention shall be filed in writing in the prescribed form at the Patent Office either direct or by mail.

The date on which the application arrives at the Patent Office is considered as the date of the application.

SCOPE OF APPLICATION.

SEC. 49. Uniting two or more inventions in a single application is only permitted if such inventions belong to one and the same matter as constituent parts or operative expedients.

APPLICATION.

SEC. 50. The application must contain—

1. The Christian and surname, the profession, and the residence of the applicant, and if the petition is filed by a representative also the name and residence of his permanent representative in the country.
2. The request for the grant of the patent.
3. A short and correct designation of the invention to be patented, (title.)
4. The number of years for which the applicant is willing to pay the annuities before the grant of the patent.

SUPPLEMENTS TO THE APPLICATION.

SEC. 51. The application must be accompanied by—

1. The application fee amounting to 10 florins (Sec. 114) or the certificate of the payment of this fee at a post-office, to be made over to the fund of the Patent Office.
2. If the applicant files his application through a representative, the power of attorney executed by the applicant.
3. A description of the invention forming the subject-matter of the application, drawn in accordance with the prescriptions of this law (Sec. 52) in duplicate and signed by the applicant or his representative.

SPECIFICATION.

SEC. 52. The specification of the patent must—

1. Clearly, distinctly, and fully describe the invention in such manner that it is possible for competent persons to use the invention.
2. Precisely and distinctly point out in one or more claims at the end of the specification what is new and therefore forms the subject-matter of the patent.
3. Be accompanied by durably-made drawings necessary for the understanding of the description, and, if necessary, by models and samples.

Until the decision of the Patent Office to publish the application alterations of the statements contained in the description are admissible.

If such alterations affect the essence of the invention, the Patent Office (Applications Department) can decide, after hearing the parties concerned, that the application is to be considered as having been made on the date when the alterations were made, (Sec. 51.)

FURTHER REQUIREMENTS OF APPLICATION.

SEC. 53. The determination as to further requirements of the application for and the specification of the patent is left to the ordinance power of the Minister of Commerce, as the case may be, in agreement with the ministries concerned.

PRIORITY.

SEC. 54. The applicant obtains the right of priority for his invention from the date of the proper application for a patent, (Secs. 48 to 53.) From this date he enjoys precedence over any similar invention for which application is subsequently made.

If the application shows defects, it may be considered after the correction of these (Sec. 55) as if it had been properly made on the date of its first filing, provided that the correction of such defects leaves the essence of the invention unaltered.

If the correction of the defects in due time has for its consequence a subsequent alteration of the essence of the invention, then the invention is to be considered as properly applied for on the date of the correction of such defects and enjoys the right of priority from that date only.

EXAMINATION.

SEC. 55. The application is subject to examination by a member of the Applications Department.

If the application is not in accordance with the prescribed requirements, the applicant is asked to correct the defects within a stated term.

If in the examination, after hearing the experts concerned, if necessary, it be found that there is evidently no patentable invention in accordance with Secs. 1, 2, or 3, the applicant is informed thereof, with a statement of the reasons and with a request to reply within a determined period, after having been, if required, summoned and heard by the member of the Applications Department intrusted with the examination.

After a reply given in due time or after the lapse of the stated term without reply the Applications Department decides on the application.

The President of the Patent Office has the right to formulate rules as to the principles on which the examination is to be carried on and as to the procedure to be followed therein. These rules must particularly point out that in the examination the value of the invention forming the subject-matter of the application is not subject to any judgment whatever.

REJECTION OF APPLICATION.

SEC. 56. If the prescribed requirements are not fulfilled by the original or amended application, or if it be found that obviously there is no patentable invention in accordance with Secs. 1, 2, or 3 (Sec. 55) the application is rejected by decision.

If the rejection is for a reason which has not already been communicated to the applicant at the examination, the applicant shall first be given the opportunity of replying to such reason for rejection within a determined time.

ACCEPTANCE OF APPLICATION, PUBLICATION, AND SUMMONS (FOR OPPOSITION PROCEEDINGS.)

SEC. 57. If the Patent Office finds the application to be properly made and the grant of the patent not excluded, it orders the publication of the application, (summons.) The publication of the application is effected by publishing once in the official patent journal the name, profession, and residence of the applicant, the subject-matter of the invention, and the claims or their essential contents as contained in his application, as also the date of the application.

On the date of issue of the *Patent Journal*, (publication,) which date is to appear on the same, the legal rights of the patent for the subject-matter of the invention in favor of the applicant (Sec. 8) come provisionally into force.

Simultaneously with the publication the application, with all appendices, is to be laid open at the Patent Office for inspection by any one for a term of two months. The Patent Office can, if required, order the laying open for public inspection at other places.

The specification of the patent laid open, enjoys the protection conferred by the laws upon works of literature until the grant of the patent and, if such grant should not take place, until the lapse of a term of five years from the date of laying open for public inspection.

On request of the applicant the publication and laying open for public inspection are to be postponed for a term of at least three, but not exceeding six, months, reckoned from the date of the decision of publishing.

OPPOSITION.

SEC. 58. Within two months from the date of publication opposition can be entered at the Patent Office against the grant of the patent.

The opposition is to be filed in writing in duplicate. It can be based only upon the following reasons, supported by definite facts:

1. That the subject-matter is not patentable, (Secs. 1 to 3.)
2. That the invention coincides, essentially, with an invention which has been previously patented or privileged or for which a prior application has been made in the country.
3. That the applicant is not the originator of the invention or his successor or is not to be considered as such, (Sec. 5.)
4. That the essential contents of the application opposed are taken from the descriptions, drawings, models, implements, or arrangements of or from a process used by another person without his consent.

In the case mentioned under 3 only the originator or his successor and in the case mentioned under 4 only the party injured are entitled to enter opposition.

A copy of the opposition is to be delivered to the applicant to enable him to reply thereto in writing within thirty days, which term may be extended for sufficient reasons.

OPPOSITION PROCEEDINGS.

SEC. 59. When the reply has been given or when the time for giving it has lapsed, the referee in charge of the matter gives the necessary orders as to the further exchange of rejoinders, if such appear necessary, as to hearing the parties concerned, as to procuring the means of proof offered by the parties, as to obtaining proofs, and generally for the purpose of clearing up the real state of the matter as fully as possible.

ESTIMATION OF PROOFS AND DECISION.

SEC. 60. After completion of the preliminary proceedings the Patent Office (Applications Department) decides upon the grant of the patent in private session, fully considering the proofs produced.

COSTS.

SEC. 61. In the decision the Patent Office (Applications Department) determines according to its discretion what share and amount of the costs of the proceedings and legal assistance fall to the charge of the parties.

APPLICATION FOR PATENT BY OPPONENT.

SEC. 62. If in the cases under Nos. 3 and 4 of Sec. 58 the consequence of the opposition is the withdrawal or rejection of the application, the opposing party, provided he files an application for the invention within thirty days from the delivery of the decision of the Patent Office relating thereto, can request that as date of his application the date of the application withdrawn or rejected may be given.

APPEAL.

SEC. 63. Against the decision by which the application is rejected or returned for amendment (Secs. 56 and 60) the applicant and against the decision by which the patent is granted in a limited degree or in its entirety, the applicant or the party who entered opposition may enter an appeal within thirty days from the delivery of the decision.

Appeals filed too late are rejected without instituting appeal proceedings.

The appeal and the appendices thereto are to be filed with the number of copies necessary for the opponent.

A copy of the appeal is to be delivered to the opponent to enable him to make a rejoinder to the appeal within a term of at least fourteen days, which term may be extended for sufficient reasons. To the further proceedings before the Appeals Departments the rules prescribed for the Applications Departments (Secs. 59 to 62) apply in the same manner.

In the appeals proceedings it is permitted to produce new facts.

If the decision on the appeal is based on circumstances other than those taken into consideration in the decision of the Applications Department appealed against, the parties interested are first to be given an opportunity of making a reply thereto within a stated term.

LETTERS PATENT—PUBLICATION.

SEC. 64. If it be finally decided to grant the patent, the Patent Office orders the registration of the invention protected in the Patent Register, the publication of the grant in the *Patent Journal*, the delivery of the patent to the patentee, and the printing and publication of the specification of the patent.

PATENTS OF THE STATE OR WAR OFFICE OF THE GOVERNMENT.

SEC. 65. If the invention be one for which application for patent has been made in the interest of the equipment of the armed forces or otherwise in the interest of the State by the State or War Offices of the Government or one forming the subject-matter of an application as to which the State or War Office of the Government has made good its right of expropriation, (Sec. 15,) the patent is granted on its request without any publication. In such a case the laying open and the printing of the specification, as also the registration of the subject-matter of the invention in the public Patent Register, are omitted. The publication and full registration can, however, be requested at any time afterward by the State or War Office of the Government.

The duration of such patents the publication of which has been dispensed with begins with the day on which it was finally decided to grant the patent.

REJECTION.

SEC. 66. If the application be withdrawn after the publication (Sec. 57) or if a patent be refused, such withdrawal or refusal is also to be published.

On the publication of the withdrawal or refusal of a patent the effects of the provisional protection (Sec. 57, paragraph 2) are considered as not having come into force.

(B) IN ACTIONS FOR INVALIDATION OF PATENTS—PETITION.

SEC. 67. Proceedings for withdrawal and annulment of patents or abrogation of the patentee's rights are entered into only on petition. The Patent Office, however, has the right officially to continue the proceedings entered into in consequence of a petition for withdrawal or annulment in case such a petition is withdrawn.

If the party making the petition does not reside in the country, he must be represented by an attorney in the country and on demand of the adversary must afford security for the costs of the proceedings. This demand must be made within fourteen days from the handing of the petition for nullity or the claim to the security is lost.

The amount of the security is determined by the Patent Office. To the party making the request for nullity a term for affording the security is appointed, within which term the security must be given. If the security is not given before the lapse of the term appointed, the request is considered as withdrawn.

SUMMARY REJECTION.

SEC. 68. Petitions for withdrawal and annulment or for abrogating the patentee's rights which obviously are not based on legal grounds, as also communications which do not contain any distinct demand or which the person making the petition had no justification to make, (Secs. 20 and 30,) may be rejected by the Patent Office (Annulments Department) stating the reasons without entering into further proceedings.

Such decisions are to be considered as final.

FORM AND CONTENTS OF THE PETITION.

SEC. 69. The petition must give a concise representation of the case for litigation and must contain a statement of the means of proof to be brought forward, as well as the definite demand.

Documents designed to support the petition must be filed in the original or as legalized copies.

The petition, together with the annexed papers, must be filed in duplicate at the Patent Office if it is directed against one patentee.

If the petition is directed against a plurality of patentees, a copy of the petition, together with copies of the papers annexed thereto, must be filed for each of the patentees, as well as the copy intended for the Patent Office.

Each petition can only make one patent and its patents of addition the subject of an action for nullity.

PROCEEDINGS IN PETITIONS FOR INVALIDATION.

SEC. 70. The referee in charge of the case shall, in so far as the petition is found to be adapted for instituting proceedings thereon, cause one copy thereof, together with copies of the papers annexed thereto, to be delivered to the defendant, with instructions to file his objections in writing in duplicate within a term of at least thirty days, an extension of which term may be allowed by the referee for sufficient reasons.

The referee must cause one copy of the objections filed and of the papers annexed thereto to be delivered to the plaintiff.

PRELIMINARY PROCEEDINGS.

SEC. 71. When the objections have been filed or when the term for filing the same has lapsed, the referee shall give the necessary orders as to the further exchanges of rejoinders which may eventually be necessary for procuring the means of proof offered by the parties, for taking such proofs the demonstration of which does not appear practicable in oral proceedings, and generally for the purpose of clearing up the true state of the matter in the most conclusive manner possible and for duly preparing the oral proceedings.

In reference to the taking of proofs, which occurs in consequence of such orders in the presence of the parties, a protocol is to be made by a sworn recorder, if necessary, in the presence of a technical expert.

APPOINTMENT OF ORAL PROCEEDINGS.

SEC. 72. After completion of the preliminary proceedings the President of the Patent Office or his deputy appoints the oral proceedings.

No appointment of the oral proceedings is made if the Patent Office (Annulment Department) decides in private session that the request is to be rejected as not being adapted for oral proceedings on account of the incompetency of the Patent Office or on account of the matter having been already judged.

SUMMONS.

SEC. 73. To the oral proceedings are summoned the parties interested or their duly-authorized representatives, as also the witnesses and experts who are to be heard by order of the referee. (Sec. 71.)

The non-appearance of the parties interested or of their representatives does not interfere with the oral proceedings and the decision.

PROCEEDINGS.

SEC. 74. The proceedings are to be conducted and carried on in accordance with the provisions of Secs. 171 to 203 of the law of August 1, 1895, R. G. Bl. No. 113, (Rules of Civil Process,) applied in the true meaning thereof.

Besides the cases mentioned in Sec. 172 of the Rules of Civil Process the publicity of the proceedings can on petition be prohibited in respect of a part of such proceedings or of the whole proceedings if by such publicity an important interest of the State or a secret of the trade or business of one of the parties or one of the witnesses would be exposed to danger.

The members of the Patent Office and Patent Court, as well as the jurisprudent employees of the Ministry of Commerce, are allowed to be present, notwithstanding the prohibition of publicity.

PROOFS AND TAKING OF TESTIMONY.

SEC. 75. Proceedings for taking testimony are to be carried on by applying in their true meaning the provisions of Secs. 266 to 383 of the law of August 1, 1895, R. G. Bl. No. 113, on the judicial proceedings in civil law suits (Rules of Civil Process) in so far as no different provisions are made by this law.

The evidence given by witnesses at the Patent Office, as well as the depositions made under oath by the parties at the Patent Office, is equivalent to evidence given in a court of justice.

The above principles as to the proceedings for procuring proofs apply to the preliminary proceedings as well as to the regular proceedings.

DELIBERATION AND PUTTING TO VOTE.

SEC. 76. The deliberation and putting to vote of the Annulments Department take place in private session.

COSTS OF ACTION.

SEC. 77. In the decision the Patent Office shall determine at its own discretion what proportions and amounts of the costs of the

proceedings and representation are to be charged to the several parties.

Any claims of a private nature are to be referred to the ordinary courts of justice.

A party who withdraws a petition must reimburse the costs caused to the defendant. The amount of such costs is determined by the Patent Office.

CONTENTS OF DECISION.

SEC. 78. The written decision shall contain—

1. The designation of the department and the names of the members who coöperated in the decision.
2. The designation of the parties, their representatives and attorneys, as well as their positions as parties.
3. The decision.
4. The statement of the facts of the decision, consisting of a concise presentation of the state of the matter as resulting from the oral proceedings, pointing out the essential demands of the parties.
5. The reasons of the decision.

PUBLICATION OF DECISION.

SEC. 79. The publication of the decision, together with the essential reasons of the decision, shall take place orally, if possible, immediately after the closing of the oral proceedings.

But in all cases the decision, together with the complete reasons of the decision, is to be delivered in writing to the parties as soon as possible.

PROTOCOLS.

SEC. 80. A protocol on the proceedings is to be made by a sworn recorder, with the assistance, if necessary, of a technical expert. The same must contain the names of the members of the Annulments Department present, the names of the parties and their representatives, as also the essential occurrences of the proceedings, particularly the depositions and opinions of the witnesses and experts in all cases heard and also the proposals made by the parties and the decisions thereon.

A separate protocol is to be made of the private session, in which the result of the deliberations and voting must be shown.

Both of these protocols are to be signed by the chairman and the recorder.

CONSULTING RECORDS.

SEC. 81. The parties or their representatives are allowed to inspect the records of the proceedings, except the deliberation protocol, in so far as the provisions of Sec. 65 are not contrary to such inspection.

FINES FOR FRIVOLOUS PROCEEDINGS.

SEC. 82. Fines not exceeding 300 florins may be imposed on parties or their representatives who enter an evidently frivolous action for annulment of a patent.

LEGAL ASSISTANCE.

SEC. 83. The courts of justice are obliged to give legal assistance to the Patent Office.

REINSTATEMENT AND RESUMPTION OF PROCEEDINGS.

SEC. 84. No reinstatement can take place in the case of the lapsing of an appointed term.

If by a decision the withdrawal or annulment of or the abrogation of the patentee's rights to a patent in whole or in part was obtained, or a petition to this purpose was entirely or partly rejected, the proceedings closed can be reopened on petition of one of the parties—

1. If a document on which such decision is based is counterfeit or falsified.
2. If a witness or an expert has been guilty of a false deposition or if the opposing party has during his hearing been guilty of a false oath and if the decision is based on such deposition.
3. If the decision has been obtained by an act of fraud (to be prosecuted by penal proceedings) of the representative of the party or of his opponent or the representative of the latter.
4. If a member who has coöperated in the decision or in a previous decision on which such decision is based has in the action been guilty of an infraction of his official duty (to be punished in accordance with the penal code) to the injury of the party.
5. If a penal court sentence on which the sentence is based is invalidated by another judgment coming into force.

The reopening, however, can be requested by the parties to the action only within one year after the decision of annulment has come into force and without prejudice to the rights of other parties which may have been acquired in the meantime. In particular, those parties who, since the annulment, have made use of the invention or who have made the preparations necessary therefor acquire the rights belonging to a prior user of the invention. (Sec. 9.)

The patent authority (Annulments Department of the Patent Office or the Patent Court) which has given the decision contested is competent to decide upon the request for reopening the case.

The request for reopening the proceedings does not have the effect of staying the execution of the decision.

SEC. 85. If an entry of the invalidation of a patent in the Patent Register has taken place by mistake on the part of the Patent Office, after ascertaining the mistake the Patent Office shall order the erasure of such entry and publish such erasure. The rights of other parties acquired in good faith in the meantime are maintained, as in the case of reopening proceedings.

EXECUTION.

SEC. 86. Decisions of the Patent Office and Patent Court having come into force are judicially executable.

APPEAL.

SEC. 87. Parties considering themselves injured by a decision of the Annulments Department of the Patent Office can enter an appeal to the Patent Court.

There is no separate legal remedy against the decisions given and conclusions arrived at by the Annulments Department in the course of the preliminary proceedings or of the regular proceedings. These can only be contested by appeal to the Patent Court in so far as they have exercised an influence on the final decision. (Sec. 89.)

The appeal must be entered in writing at the Patent Office within thirty days after the delivery of the decision contested and must be supported by reasons. The appeal and the papers annexed thereto must be filed, with the number of copies required for the opponents.

PRESENTATION OF THE APPEAL PAPERS.

SEC. 88. Appeal papers duly filed and complying with the legal prescriptions, together with all acts of the proceedings, are to be presented by the Patent Office to the Patent Court and have an effect of postponement.

Appeal papers filed too late or not complying with the requirements of Sec. 87 are to be rejected by the Patent Office. (Annulments Department.)

DECISION OF THE PATENT COURT.

SEC. 89. The Patent Court gives its decision upon the appeal admissible in the meaning of Sec. 88 on the grounds of the facts and proofs presented to the Patent Office.

The Patent Court refers a case of litigation to the Patent Office for fresh proceedings and decision only if on the part of the Patent Office essential forms of the proceedings have been neglected the omission of which prevented the production of a legal decision.

ORDER OF BUSINESS.

SEC. 90. The Patent Court shall itself frame and publish its order of business.

PROCEEDINGS.

SEC. 91. As to the rest, the provisions of Secs. 68 to 84 apply in their true meaning to the proceedings before the Patent Court.

A fresh taking of testimony does not find place in these proceedings.

MANNER OF VOTING.

SEC. 92. The decisions of the Patent Court are by absolute majority. In case of tie vote the vote of the chairman is decisive.

RESTRICTION OF PETITIONS FOR ANNULMENT OR WITHDRAWAL.

SEC. 93. Decisions given by the Patent Office or the Patent Court legally to the effect:

1. In actions for annulment—
   (*a*) that a particular fact does not interfere with the patentability of the invention in the meaning of Secs. 1, 2, and 3;
   (*b*) that the invention does not coincide with the subject-matter of a prior patent or privilege;
2. In actions for withdrawal—
   that the invention has been legally worked;

may, on demand of the patentee made by him in the course of the action, be entered in the Patent Register in accordance with the order of the Patent Office or Patent Court given as to such demand, with the effect that after the date of such entry a new contestation of the patent by other parties for a reason based upon the same fact and the same means of proof is excluded.

FURTHER PROVISIONS FOR THE PATENT COURT.

SEC. 94. The further provisions as to the organization of the Patent Court, the proceedings of the same, and the execution of its decisions and orders are to be stipulated by ordinance.

IV.—INFRINGEMENTS AND USURPATION OF PATENT RIGHTS.

INFRINGEMENT.

SEC. 95. A person commits an infringement who without the consent of the patentee (*a*) makes, sells, offers for sale, or uses the subject-matter of a protected invention on a business scale. (Sec. 8;) (*b*) uses otherwise than for the requirements of his own business, in his own establishments or in those of other persons, the protected invention, which at the time of filing the application he has already in good faith used in the country or with regard to which he has made the preparations necessary for such use, (Sec. 9.)

ACTION FOR INFRINGEMENT.

SEC. 96. The party injured may file a complaint against each infringement for recognition of his patent right, for avoiding further acts of infringement, for removal of the articles produced by the infringement, for transformation of the means for committing the infringement, and for indemnity or delivery of the profits earned by the infringement.

The jurisdiction on such complaints belongs to the courts of justice intrusted with commercial jurisdiction.

CONSCIOUS INFRINGEMENT.

SEC. 97. If the infringement has been committed consciously, it constitutes a misdemeanor, and the guilty party is punished by the courts of justice of first instance instituted for the execution of penal jurisdiction with a fine of from 500 or 2,000 florins or with imprisonment for from three months to one year, with which imprisonment a fine not exceeding 2,000 florins may be combined.

Penal prosecution can take place only on demand of the party injured as a private complainant.

The simultaneous application of the more severe provisions of the general penal code, particularly of those relating to fraud, is not excluded thereby.

The fines go into the States treasury.

SIGNIFICANCE OF THE SPECIFICATION OF THE PATENT INFRINGED.

SEC. 98. In judging the infringement of a patent the description of the invention on which the patent is based (Sec. 52) is exclusively decisive, and no subsequent presentation whatever of the subject-matter of the invention not contained in such description is taken into consideration.

MILITARY JURISDICTION.

SEC. 99. Persons in the active service of the armed forces or of the k. k. Gendarmerie are subject to military jurisdiction with respect to all transgressions and infractions to be judged in accordance with this law.

FORFEITURE OF THE ARTICLES PRODUCED BY INFRINGEMENT.

SEC. 100. In passing sentence in the case of the misdemeanor named in Sec. 97 on request of the party injured the judgment must pronounce that the articles produced by infringement in the possession of the guilty party shall be forfeited unless security is given for their being put out of use during the life of the patent and that the tools, implements, and other means serving exclusively or mainly for committing such are to be rendered unserviceable for such purpose at the expense of the party sentenced, unless also in respect to these security is given to the same effect.

If a separation of the patented parts from the articles produced by infringement cannot be effected without destroying such articles, the forfeiture extends to the whole article produced by infringement and solidly connected with the patented part.

The articles declared forfeited are to be deprived of the infringing features; but, if necessary, they are to be destroyed, unless an agreement is made between the party sentenced and the party injured as to giving them over to the latter party on account of the indemnity eventually due to him or if the party injured is unwilling to take over the articles declared forfeited at the estimated price, to be determined by the Court of Justice, as on account of the indemnity eventually due to him.

The execution of such sentence takes place at the expense of the injuring party, if necessary with the assistance of experts.

SEC. 101. If the penal proceedings show—without leading to the sentencing of the defendant—that the fact of infringement is proved, on request of the party injured the forfeiture of the articles produced by infringement and the rendering unserviceable of the means of production in accordance with Sec. 100 are to be pronounced in the discharging judgment.

The execution of such sentence, if necessary, is to take place with the assistance of experts.

The costs of such execution are charged to both parties in equal proportions.

ARTICLES PRODUCED BY INFRINGEMENT EXEMPT FROM FORFEITURE.

SEC. 102. Articles produced by infringement (Secs. 100 and 101) made in pursuance of an agreement with the war authorities and the means of production must neither be declared forfeited nor rendered unserviceable nor made the subject of a security measure intended to such purpose, (Sec. 105,) provided that the war authorities can prove the filing of a request for expropriation (Sec. 15) within a term to be appointed by the judge.

The damage caused to the party expropriated by such articles produced by infringement is to be accounted for in the total compensation to be calculated.

INDEMNITY.

SEC. 103. In passing sentence in case of the misdemeanor named in Sec. 97 the Penal Court is to adjudicate besides the punishment also as to an indemnity in so far as the results of the penal proceedings allow of authentically judging the claims based on private right.

The indemnity comprises not only the compensation for damages proper and the amends for loss of profits, but moreover a suitable sum of money, according to the free judgment of the court, guided by the consideration of all the circumstances, shall be adjudicated to the party injured for grievances suffered and other personal disadvantages.

Both parties may file an appeal against the sentence in respect of the claim to indemnity.

An indemnity adjudicated does not exclude the prosecution of a further indemnity claim before the civil courts.

PUBLICATION OF PENAL SENTENCE.

SEC. 104. If punishment is adjudicated, then at the same time, on the petition of the party injured, he is given the right to publish, at the expense of the party sentenced, the sentencing of the latter in one or more public newspapers, and also the reasons of the sentence, if, according to the judgment of the court, the party injured has a justified interest therein.

The highest amount of such expenses, the other conditions of the publication, as also the term for the same, are to be determined in the sentence, regard being had to the proposals of the party injured.

PREVENTIVE MEASURES.

SEC. 105. If there are sufficient reasons to suspect a particular person of infringement, and if the supposition of an infringement of a patent appears justified on the ground of an inspection made under the authority of the Court of Justice or on the ground of an expert's opinion, then at any stage of the penal proceedings, and, in case of imminent danger, even before entering into such penal proceedings, on the demand of the party injured, suitable steps are to be taken by way of judicial seizure, depositing or sequestration, or other measures in order to prevent by such measures the articles produced by infringement and the means of production from being withdrawn from future forfeiture or transformation in the meaning of Secs. 100 and 101, and in order to prevent by such security measures the continuation and repetition of the acts prosecuted as being penal.

On such demand the Penal Court shall decide at once. It is left to such court to allow the seizure or sequestration or other measures demanded unconditionally or upon a bail to be deposited by the party injured. The court has the right at any time to order the abolition of such security measures and must do so if the defendant gives a suitable security.

If preventive measures have been allowed before entering into penal proceedings, the party demanding such preventive measures must request the penal proceedings within eight days after such preventive measures have been taken; otherwise the preventive measures are abolished on request of the defendant.

PROVISIONAL PROTECTION.

SEC. 106. The entering into penal proceedings is admissible also in the case where a patent has not yet been granted for the invention unlawfully used, but as to which, according to Sec. 57, the effects of a granted patent have come into force provisionally.

The giving of the sentence, as also the measures named in Sec. 105, cannot, however, take place before the granting of the patent.

PRELIMINARY QUESTIONS.

SEC. 107. If in the course of the penal proceedings it is found that the sentence depends on a preliminary question as to the validity or operativeness of the patent infringed, then the Penal Court has the right to decide upon the preliminary question; but if the preliminary question has been made pending before the Patent Office by a sufficiently-supported request of one of the parties before the beginning of the proceedings or during the same the Penal Court may adjourn the judgment until after the decision on the preliminary question, upon which decision the judgment must then be based.

In actions for infringement in which the Penal Court is placed in a position to decide upon a preliminary question such court may cause technical members of the Patent Office to be heard as experts in the main proceedings. Members of the Patent Office who have already coöperated in a decision on the validity or operativeness of the patent infringed are excluded from being heard as experts.

The effect of the judicial decision on the preliminary question is restricted to the penal case in question only. Judgments in which a preliminary question is decided upon are to be communicated to the Patent Office by a certified copy.

COMPLAINTS BEFORE THE CIVIL COURTS.

SEC. 108. The provisions of Secs. 98, 100, 102, 105, 106, and 107 apply in their proper meaning to complaints for infringement raised before the civil courts.

The right to indemnity in the meaning of Sec. 103 belongs to the party injured in respect of any one who is guilty of punishable infringement.

Even if the defendant is not guilty of a fault the party injured has the right to ask him to deliver up the profits realized.

SEC. 109. If indemnity claims are raised before the civil courts on the basis of this law, these courts are to decide on the existence and the amount of the damages, as also on the existence and amount of the profits, according to their free judgment, guided by the consideration of all the circumstances.

INFRINGEMENTS OF A PATENTED PROCESS.

SEC. 110. If in an action for infringement entered at the civil courts the case in question is an infringement of an invention having for its subject-matter a process for producing a new substance, any substance of the same nature is considered as produced by the patented process until proved to the contrary.

PETITION FOR ASCERTAINMENT.

SEC. 111. Anybody is allowed to ascertain by decision that the products which he intends to produce, offer for sale, or to use, or that a process which he intends to use fall neither as a whole nor in part under a patent to be particularly pointed out by him.

Such a petition for ascertainment must be filed in duplicate at the Patent Office, which decides upon it in the Annulments Department. To such petition must be annexed an exact and clear description and drawing of the article or process in question.

Such a petition for ascertainment can be directed only against one patent, together with its patents of addition, and the proceedings entered into on such petition can only be continued if the patentee cannot prove that an action for infringement against the party making the petition filed by the patentee prior to such petition for ascertainment and relating to the same matter of litigation is still pending before the courts of justice.

The provisions made for the annulment proceedings apply to the proceedings in the case of a petition for ascertainment, with the difference that the costs of action of ascertainment before the Patent Office are in all cases to be borne by the party making such petition.

To the decision in ascertainment is to be annexed a copy of the description and drawings of the article or process in question filed by the party making the petition.

The decision that a particular product or process does not fall under a particular patent excludes any judicial action for infringement by the patentee against the party who obtained the decision in ascertainment in respect of the product or process pointed out in the decision.

LIABILITY FOR UNJUSTIFIABLE SECURITY MEASURES.

SEC. 112. The obtaining of judicial security measures which are afterward recognized as not justified imposes upon the

party making the petition the duty of compensating for all damages caused by such measures to other parties without their fault.

The civil court shall decide upon the claims to indemnity, in so far as they are raised before closing the proceedings on the infringement, simultaneously with the decision on the main matter. In determining the amount of indemnity the provisions (Sec. 273) of the law of August 1, R. G. Bl. No. 113 (Rules of Civil Process) are to be taken into consideration.

MISAPPROPRIATION OF PATENT RIGHTS.

SEC. 113. A person misappropriates patent rights—

1. Who provides articles or their packing and places them on the market with a designation which is adapted to give rise to the erroneous belief that the articles or the process of production are protected by a patent in conformity with this law.

2. Who in public advertisements, on sign-boards, business-cards, or in similar publications uses a designation which is adapted to give rise to the erroneous belief that the articles or the processes mentioned therein are protected by a patent in conformity with the present law.

The misappropriation of patent rights constitutes a transgression which is to be punished by the public authorities in accordance with the prescriptions of the Trades Regulation and in all cases the forfeiture of the publications in question and of the packings provided with the designation which is contrary to the prescriptions is to be pronounced; but the forfeiture of the articles themselves is to be pronounced only if the removal of the usurped designation to be ordered under all circumstances cannot be effected without destroying the value of the articles or without an exertion of labor approximately equivalent to such value. If in such cases the transgressor was the owner of a patent for those articles which he states to be still under patent protection his liability to punishment for his proceedings begins after the lapse of one year after the protection by patent ceases.

V.—TAXES.

APPLICATION FEE AND ANNUITIES.

SEC. 114. For each patent, as also for each patent of addition, an application fee of 10 florins is to be paid simultaneously with the filing of the application.

Moreover, for each patent annuities must be paid according to the duration of the protection claimed.

The amount of these annuities is:

For the first year 20 florins; for the second year 25 florins; for the third year 30 florins; for the fourth year 40 florins; for the fifth year 50 florins; for the sixth year 60 florins; for the seventh year 80 florins; for the eighth year 100 florins; for the ninth year 120 florins; for the tenth year 140 florins; for the eleventh year 180 florins; for the twelfth year 220 florins; for the thirteenth year 260 florins; for the fourteenth year 300 florins; for the fifteenth year 340 florins.

For patents of addition, in so far as they are not declared independent patents. (Sec. 14,) an annuity amounting to 25 florins is to be paid once only for their whole duration.

The annuities become due year by year in advance, to be reckoned from the day of publication of the application in the *Patent Journal*. (Sec. 57,) and may be paid for each patent either year by year or for several years or for all fifteen years in advance into the fund of the Patent Office.

The annuity for the first year is to be paid at the latest within three months after the day of the publication of the application in the *Patent Journal*, (Sec. 57.) If the payment be not made within this time, the application is considered withdrawn.

The annuities for the second to the fifteenth year are to be paid at latest within three months after having become due.

On each payment of such annuities after the date on which they have become due besides the annuity a fine of 5 florins is to be paid.

The annuities may be paid by any person interested in the patent.

A person who proves his poverty, as laborers of whom it is proved that they are limited to their wages, in so far as they apply for a patent on their own behalf as originators of the invention, may be granted a respite for the application fee and the first year's annuity or only for the first year's annuity until the lapse of the third month after the second annuity has become due, and if the patent lapses with the beginning of the second year they may be exempt from the payment of such fee and annuities.

A reimbursement of the application fee does not take place in any case. The reimbursement of he first annuity takes place only in case the application is withdrawn before the date of its publication in the *Patent Journal* (Sec. 57) or if the patent is refused. The reimbursement of all further annuities paid before becoming due takes place if the patent is resigned, withdrawn, or annulled.

The Minister of Commerce in agreement with the Minister of Finance may, after this law has been in operation for three years, order the diminution or increase of the application fee and annuities by fifty per cent. of their present amount.

ALTERATION OF SPECIFICATION.

SEC. 115. Any alteration of the specification made on request of the applicant or his successor in the meaning of Sec. 52 is subject to a fee of 5 florins.

FEES OF PROCEEDINGS.

SEC. 116. Together with filing there must be paid on—

1. An appeal (Sec. 63) a fee of 10 florins.
2. A petition for withdrawal, annulment, or abrogation of the patentee's rights a fee of 25 florins.
3. An appeal (Sec. 87) a fee of 25 florins.
4. A petition for ascertainment (Sec. 111) a fee of 20 florins.
5. A petition for registering an assignment in the Patent Register a fee of 10 florins.
6. A petition for registering (*a*) a voluntary license (Secs. 20 and 21) in the Patent Register a fee of 10 florins; (*b*) a compulsory license (Sec. 21) granted by the Patent Office in the Patent Register a fee of 5 florins.
7. A petition for notice of litigation, a fee of 5 florins.

If the payments are not made, the requests are considered as not filed.

The appeal fee (1) is to be refunded in its entirety if the appeal is found to be justified. Of the fees mentioned under 2, 3, and 4, 15 florins are refunded if the request or the appeal is rejected or if the proceedings have been suspended without oral proceedings having taken place in these cases.

STAMP DUTIES.

SEC. 117. The Letters Patent executed on the ground of this law are exempt from stamp duty. As to the rest, in respect of all other rejoinders and papers the existing provisions of the stamp duties and fees law remain in force.

EXEMPTION FROM FEES.

SEC. 118. A person who proves his poverty, as also laborers of whom it is proved that they are limited to their wages, may be exempt from paying the fees to be paid in accordance with Secs. 115 and 116 under 1, 2, and 3.

As to this, as also to the respite for and exemption from the application fee and first annuity admitted by Sec. 114, the President of the Patent Office decides finally.

VI.—TRANSITIONAL PROVISIONS.

SEC. 119. For the patents which on the day on which this law comes into force have been already granted or applied for the provisions of the Imperial Patent of August 15, 1852, (R. G. Bl. No. 184,) and also of the law of December 27, 1893, (R. G. Bl. No. 191,) remain still in force.

SEC. 120. Applications for privileges filed under the Imperial Patent of August 15, 1852, (R. G. Bl. No. 184,) and for which patents have not been granted at the time this law comes into operation, may on petition of the applicant made in good time and after any necessary amplification be proceeded with in conformity with the provisions of this law. In such a case the date of the original filing of the application is to be allowed as date of priority of the invention for which the application was made, provided the specification of the invention be in accordance with Sec. 12 of the said Imperial Patent.

In the examination as to the novelty of the invention within the meaning of Sec. 3 of this law, the novelty is to be judged in accordance with this original date. The amount of the application tax deposited with such application is to be made up to the amount for the application fee and the corresponding annuities as named in Sec. 114 within three months from the date of the publication of the application in the *Patent Journal;* otherwise the application is considered as withdrawn. In this case privilege tax paid by the applicant is to be refunded after the deduction of the application fee of 10 florins.

SEC. 121. The owner of a privilege granted under the Imperial Patent of August 15, 1852, (R. G. Bl. No. 184,) may request the transformation of the privilege into a patent under this law.

In this case the invention is subject to the examination and opposition proceedings prescribed by this law, the date of priority belonging to the privilege being considered as the date of application.

The payment of an application fee for such transformed patents is dispensed with if the transformation is applied for within one year from the date on which this law comes into force.

The duration of the privilege already passed is to be taken into account in determining the duration of the transformed patent.

As to the amount of the annuities and the date when they become due the original date of the grant of the privilege is decisive.

The annuities paid in advance and not yet due on the privilege transformed are to be made up by the owner of the transformed patent to the amount of the annuity having become due, no regard being had to the registration fee. If such a privilege was originally granted in Hungary, the registration fees paid and not yet due are to be made up to the amount of the annuity having become due. The omission to do this is equivalent to the omission of the payment of the annuities.

SEC. 122. The rights of obtaining and commercially disposing of privileges conferred upon the owners of privilege agencies by concession of the authorities are not affected by the present law.

The registration of owners of privilege agencies in the register of patent agents for the purpose of professionally representing parties in patent matters within the meaning of this law remains dependent on the provisions of Sec. 43, the Patent Office having the right to dispense with the proof of suitable technical ability by certificates of examinations, as also of the two years' practice with a patent agent of the country and the examination as to the patent laws.

SEC. 123. This patent law comes into operation on the day to be determined by ordinance of the Ministers of Commerce and Justice, but at the latest on the first day of the third calendar year succeeding the publication.

SEC. 124. My Minister of Commerce, my Minister of Justice, my Minister of the Interior, my Minister of Finances, my Minister for Religion and Education, and my Minister of Agriculture are entrusted with the carrying of this law into practice.

Vienna, January 11, 1897.

FRANCIS JOSEPH, M. P.

BADENI, M. P.
GLEISPACH, M. P.
GAUTSCH, M. P.

GLANZ, M. P.
BILINSKI, M. P.
LEDEBUR, M. P.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

Vol. 93.—No. 13. TUESDAY, DECEMBER 25, 1900. Price—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 7, 1900.

SIR: The Secretary of the Interior has ordered that Walter R. Gibson, of Hindman, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 8, 1900.

SIR: The Secretary of the Interior has ordered that Charles Stratton, of Ludlow, Ky., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

WM. H. DE LACY,
Acting Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 10, 1900.

SIR: The Secretary of the Interior has ordered that Samuel Boyd, of Appleton, Wis., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 10, 1900.

SIR: The Secretary of the Interior has ordered that Madison C. Stephenson, of Worthington, Ind., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 11, 1900.

SIR: The Secretary of the Interior has ordered that Henry P. Kennedy, of the Brighton district, Boston, Mass., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 11, 1900.

SIR: The Secretary of the Interior has ordered that Ambrose Leach, of Columbus, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

CERTIFICATES OF REGISTRATION ISSUED DECEMBER 25, 1900.

Labels.

7,999.—Title: "NATIONAL UNIFORM CAP CO." (For Caps.) *Israel Levy*, New York, N. Y. Application filed November 26, 1900.

8,000.—Title: "GOOD LUCK." (For Flavoring Extracts.) *The C. F. Sauer Company*, Richmond, Va. Application filed November 22, 1900.

8,001.—Title: "OLD DOMINION." (For Flavoring Extracts.) *The C. F. Sauer Company*, Richmond, Va. Application filed November 22, 1900.

8,002.—Title: "F. GARCIA & BROS." (For Cigars.) *F. Garcia & Bros.*, New York, N. Y. Application filed December 3, 1900.

8,003.—Title: "THE 20TH CENTURY CIGAR." (For Cigars.) *Geiger & Klein*, New York, N. Y. Application filed November 30, 1900.

8,004.—Title: "DOMINO BOURBON WHISKEY." (For Whisky.) *Los Angeles Company*, Boston, Mass. Application filed November 30, 1900.

8,005.—Title: "PERLUXE." (For a Lotion for the Complexion.) *Ben. Levy & Co.*, Boston, Mass. Application filed November 30, 1900.

8,006.—Title: "SLUSSER'S GALL CURE." (For a Gall Cure.) *Aaron A. Slusser*, Louisville, Ohio. Application filed December 3, 1900.

8,007.—Title: "ROBBIN'S FAT CONSUMER." (For a Medicine.) *Fannie Robbin*, New York, N. Y. Application filed November 12, 1900.

8,008.—Title: "CYCLO." (For an Extract.) *Vail Bros.*, Philadelphia, Pa. Application filed November 30, 1900.

Print.

985.—Title: "ROYAL SEAL." (For Cigars.) *W. E. Pfening*, Lake City, Iowa. Application filed November 30, 1900.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 18, 1900.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
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106	II. Farm Stock, Products, etc.	Dec. 8	Dec. 8	100
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, etc.	Dec. 4	Dec. 4	142
44	XXXV. Advertising, Baggage, Buckles, Buttons, and Clasps, Packing and Storing Vessels, etc.	Nov. 30	Dec. 4	141
217	XXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics.	Nov. 26	Nov. 19	50
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93	XXI. Textiles, etc.	Nov. 22	Dec. 5	172
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240	VII. Velocipedes, Games, and Toys.	Nov. 21	Dec. 6	129
120	IX. Hydraulics, Fire-Extinguishers, etc.	Nov. 21	Dec. 5	85
250	VIII. Furniture, Beds, Store Furniture, etc.	Nov. 21	Nov. 24	303
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253	X. Carriages and Wagons.	Nov. 20	Dec. 3	130
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 19	Dec. 5	130
87	XXVI. Electricity, Generation, Distribution, Motive Power, Electric Railways, etc.	Nov. 19	Dec. 5	96
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80	IV. Civil Engineering, Fire-Proof Buildings, Bridges, Water Distribution, etc.	Nov. 13	Dec. 3	190
102	XIX. Stoves and Furnaces.	Nov. 13	Nov. 26	245
89	XXVIII. Pneumatics, Air and Gas Engines, etc.	Nov. 12	Nov. 12	201
91	XVI. Telegraphy, Telephony, Electric Lighting and Signaling.	Oct. 23	Dec. 1	259

Total number of applications awaiting action..... 5675

Applications Under Examination—Continued.

Under one month.			
*Designs	Dec. 13	Dec. 17	21
†Trade-Marks	Dec. 15	Dec. 17	15
‡Labels and Prints	Dec. 18	Dec. 17	1

ISSUE OF DECEMBER 25, 1900.

Patents	458—No. 664,369 to No. 664,826,	inclusive.
Designs	45—No. 33,768 to No. 33,812,	inclusive.
Trade-Marks	49—No. 35,629 to No. 35,677,	inclusive.
Labels	10—No. 7,999 to No. 8,008,	inclusive.
Reissues	None.	
Prints	1—No. 285.	
Total issue	563	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	3	----	Nevada	1	----
Alaska Territory	----	----	New Hampshire	2	----
Arkansas	3	----	New Jersey	13	3
California	16	2	New Mexico Territ'y	----	----
Colorado	4	----	New York	74	15
Connecticut	18	----	North Carolina	1	----
Delaware	----	----	North Dakota	4	----
District of Columbia	5	----	Ohio	28	3
Florida	3	1	Oklahoma Territ'y	1	----
Georgia	5	----	Oregon	3	1
Hawaii	----	----	Pennsylvania	36	3
Idaho	1	----	Rhode Island	5	1
Illinois	32	1	South Carolina	1	----
Indian Territory	1	----	South Dakota	----	----
Indiana	14	----	Tennessee	4	1
Iowa	8	1	Texas	7	2
Kansas	10	----	Utah	----	----
Kentucky	3	1	Vermont	6	2
Louisiana	2	1	Virginia	2	----
Maine	2	----	Washington	3	----
Maryland	10	1	West Virginia	11	1
Massachusetts	43	5	Wisconsin	1	----
Michigan	18	----	Wyoming	----	----
Minnesota	7	1	U. S. Army	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	15	3	Total to citizens of the United States	434	50
Montana	6	1			
Nebraska					

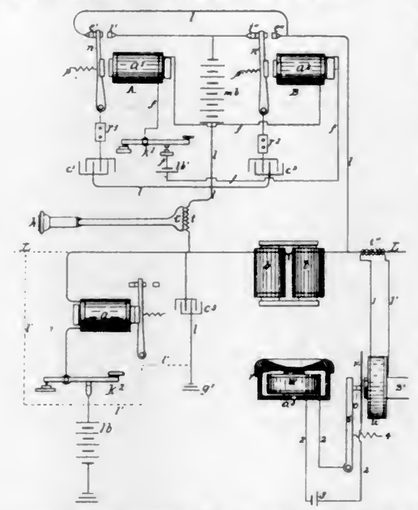
TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Argentina	----	----	Italy	1	----
Australia	----	----	Japan	----	1
Austria-Hungary	4	----	Java	----	----
Barbadoes	----	----	Mexico	1	----
Belgium	2	1	Netherlands	----	1
Brazil	----	----	New South Wales	----	----
British Guiana	----	----	New Zealand	----	----
Canada	8	----	Norway	1	----
Chile	----	----	Peru	----	----
China	----	----	Russia	----	----
Costa Rica	----	----	Scotland	4	----
Cuba	----	----	South African Republic	----	----
Denmark	1	----	South Australia	----	1
Egypt	----	----	Spain	----	----
England	17	1	Sweden	1	----
Finland	----	----	Switzerland	1	----
France	6	3	Victoria	1	----
Germany	20	2	West Australia	----	----
Guatemala	----	----	Total to citizens of foreign countries	69	10
Haiti	----	----			
India	----	----			
Ireland	1	----			

PATENTS

GRANTED DECEMBER 25, 1900.

664,369. TELEGRAPHY. WILLIAM E. ATHEARN, New York, N. Y. Filed Apr. 5, 1900. Serial No. 11,568. (No model.)



Claim.—1. The combination with a telegraph-line of a pair of condensers, a source of electrical energy for charging said condensers, and Morse signal-transmitters for alternately discharging said condensers into the line substantially as herein shown and described.

2. The combination with a telegraph-line of a pair of condensers, a source of electrical energy for charging said condensers, Morse signal-transmitters for alternately discharging said condensers into the line, and a transformer in the line connected with a diaphragm-receiver for receiving said static signals, as herein set forth.

3. In combination with a telegraph-line, a pair of condensers, a source of electrical energy for charging said condensers, Morse signal-transmitters for alternately discharging said condensers into the line, and telephonic receivers for receiving said static signals, substantially as described.

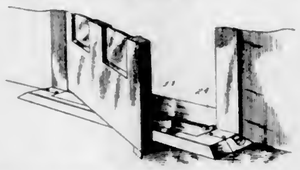
4. In combination with a telegraph-line a pair of condensers, a source of electrical energy for charging said condensers, Morse transmitters for alternately discharging said condensers into the line, a transformer in said line the primary of the transformer included in the line, the secondary of the transformer in circuit with a diaphragm-receiver, a lever held against the diaphragm of said receiver by a spring, and a magneto-diaphragm receiver in circuit with said lever, the diaphragm against which said lever rests and a battery, substantially as set forth.

5. The combination with a telegraph-line of a pair of condensers, a source of electrical energy for charging said condensers, Morse signal-transmitters for alternately discharging said condensers into the main line, the said equipment of said condensers and transmitters included in a shunt from said main line, choke-coils in the main line between the shunt connections with said line, and a diaphragm-receiver in circuit with a transformer or induction-coil the primary of said transformer or induction-coil forming a part of the line in which it may be inserted, substantially as herein set forth.

6. The combination with a telegraph-line and a pair of condensers, Morse signaling instruments as shown for alternately discharging said condensers into the line, of resistances between the condensers and their discharging-points as and for the purpose set forth.

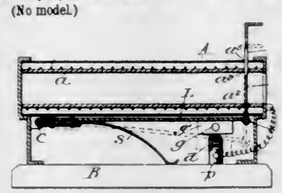
7. The combination in a telegraph-line of a pair of condensers, a source of electrical energy for charging the condensers, Morse signaling instruments for alternately discharging said condensers into the line, a diaphragm-receiver connected with a transformer in the line for receiving the static impulses, and a condenser in the circuit from the main line to the ground for the static impulses, substantially as set forth.

664,370. WEATHER-STRIP. OTIS G. ATTKISSON, Campbellsburg, Ind., assignor of one-half to John Stratton, same place. Filed Sept. 9, 1899. Serial No. 730,011. (No model.)



Claim.—The combination with a sill-board formed with a longitudinally-extending groove and a depression on one side thereof, and drain leading from the bottom thereof, of a plate fitting in said depression and having an enlargement fitting in the groove, said enlargement having a pivot projecting from one end thereof, into an opening formed in the sill, and a conical projection at its opposite end, an interiorly-threaded sleeve at that end of the sill, a threaded plug in said sleeve having a conical depression in its end to receive the conical projection, an upwardly-extending lug carried by said strip, and a right-angled plate secured to the bottom of the door at the edge opposite to its hinged edge adapted to strike said lug and rock the plate or strip, substantially as described.

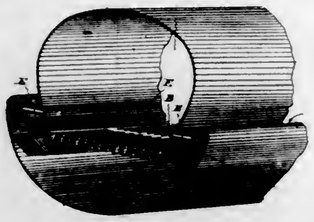
664,371. ELECTRIC HEATER AND CIRCUIT-CONTROLLER THEREFOR. JAMES I. AYER, Malden, Mass., assignor to the Simplex Electrical Company, Boston, Mass. Filed May 20, 1899. Serial No. 717,535. (No model.)



Claim.—1. In an electric heating device, a heating-chamber with an opening therein for the reception of an article to be heated, a gate located at the opening and adapted to close the same, a heating-circuit, a switch controlling the circuit, said switch connected with the gate, and means whereby the switch and its connected gate are normally held in a position of open circuit, the said gate being so disposed with respect to the opening in the heating-chamber that it must be displaced therefrom to permit the introduction of an article to be heated, such displacement moving the gate and switch-arm to position of circuit-closure.

2. In an electric heating device, a heating-chamber having an opening therein, a support therefor, heating-resistances disposed about the sides of the chamber, a switch controlling circuit-closure of the resistances, a switch-lever pivoted to the chamber-support, carrying a circuit-closing blade, a spring attached to the switch-lever and normally urging the same to a position of open circuit, slots in the chamber-walls, a gate passing through said slots and attached to the lever, an opening in the gate so located that the opening in the gate and the opening in the chamber coincide when the gate and lever attached are moved to a position of circuit-closure, substantially as described.

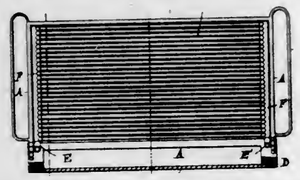
664,372. SMOKELESS FURNACE FOR STEAM-BOILERS. PERKINS H. BAGLEY, Alameda, Cal. Filed Jan. 23, 1900. Serial No. 2,438. (No model.)



Claim.—1. A boiler-furnace in which the shell is formed with return-bends along the sides producing an extension of the air-space below the grate-surface on either side upward above the level of the grate-surface, a downward extension of the water-space of the boiler between said upwardly-extending air-space and the fire-space, and the air-tubes connecting the said inclosed air-space with the fire-space above the grate-surface across the intervening water-space.

2. A boiler-furnace having the sides of the fire-box formed or provided with double return-bends inclosing on each side an air-compartment and an intervening water-compartment, the former communicating with the water-space of the boiler, a damper controlling the admission of air to the air-compartment and air-tubes opening at the outer ends into the air-compartment and at the inner ends into the fire-box above the grate-surface.

664,373. COMBINED CONDENSER AND DASHBOARD FOR AUTOMOBILES. LEON F. N. BALDWIN, Providence, R. I. Filed May 3, 1900. Serial No. 15,344. (No model.)

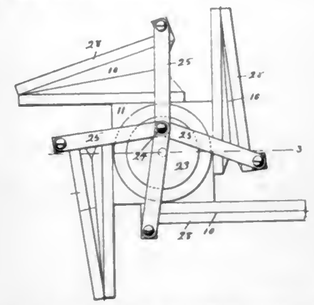


Claim.—1. In an automobile vehicle, the combination of a dashboard-frame, a vertical pipe mounted on said frame and having a closed upper end and adapted to receive exhaust-steam from a receptacle containing the same, a vertical pipe, having a closed upper end, and adapted to discharge from its lower end, and mounted on said frame parallel with the first-named pipe, and a series of parallel cross-pipes extending from one of said vertical pipes to the other and opening into both said pipes, said parallel cross-pipes constituting the body portion of the dashboard within said frame, substantially as shown.

2. In an automobile vehicle, the combination of a dashboard-frame, a vertical pipe mounted on said frame and adapted to receive exhaust-steam from a receptacle containing the same, said pipe being closed at its upper end and having a longitudinal boss, through which are tubular openings arranged in rows, a second vertical pipe having a closed upper end and a like perforated longitudinal boss and mounted upon said frame parallel with the first-named pipe, and a series of parallel cross-pipes extending from the tubular openings of the longitudinal boss of one of said vertical pipes to the correspondingly-located tubular openings of the boss of the other of said vertical pipes, said parallel cross-pipes constituting the body portion of the dashboard within said frame, substantially as described.

3. In an automobile vehicle having a floor and sills, the combination of a dashboard-frame mounted thereon, a vertical pipe mounted on said frame and adapted to receive exhaust-steam from a receptacle containing the same, said pipe having a closed upper end and a longitudinal boss through which are tubular openings arranged in rows, a second vertical pipe having a closed upper end and a like perforated longitudinal boss and mounted on said frame parallel with the first-named pipe, a series of parallel cross-pipes extending from the tubular openings of the longitudinal boss of one of said vertical pipes to the correspondingly-located tubular openings of the boss of the other of said vertical pipes, said parallel cross-pipes constituting the body portion of the dashboard within said frame, and a deflector-plate properly mounted and supported a slight distance from said pipes and adapted and arranged to direct the air-currents passing between said cross-pipes downward through an opening in the floor, substantially as specified.

664,374. WIND-MOTOR. JOHN F. BARKSTROM, Chicago, Ill., assignor to The W. W. Kimball Company, same place. Filed June 25, 1900. Serial No. 21,460. (No model.)



Claim.—1. The wind-motor, wherein are combined a series of pneumatics and a rotating valve located centrally of the pneumatics and controlling all of them, the moving side of the pneumatics swinging on hinges arranged parallel with the axis of the valve, substantially as specified.

2. The wind-motor, wherein are combined a series of pneumatics and a rotating valve located centrally of the pneumatics and controlling all of them, the pneumatics standing tangentially of the valve-chamber and having the hinges of their moving sides arranged parallel with the axis of the valve, substantially as specified.

3. The wind-motor, wherein are combined a series of pneumatics and a rotating valve connected to and controlling them, the moving side of the pneumatics swinging on hinges arranged parallel with the axis of the valve, substantially as specified.

4. The wind-motor, wherein are combined a series of pneumatics, a shaft driven by the motor and a tubular valve mounted on the shaft, and acting to control all the pneumatics, said valve being transversely divided into inlet and exhaust portions, and both said portions communicating with the pneumatics by passages 13, substantially as specified.

5. The wind-motor, wherein are combined a series of pneumatics, a rotating valve located centrally of the pneumatics and controlling all of them, and a crank-disk connected to said valve and operated by the pneumatics and acting as a fly-wheel to the motor, substantially as specified.

6. The wind-motor, wherein are combined a series of pneumatics and a rotating tubular valve arranged centrally of the pneumatics and controlling all of them, and divided by a partition into an inlet portion and an outlet portion, substantially as specified.

7. The wind-motor, wherein are combined a series of pneumatics and a rotating tubular valve arranged centrally of the pneumatics and controlling all of them, one end of said valve controlling the admission and the other end controlling the exhaust of the air, and a valve block or casing having suitable air-passages 13 connecting the valve with the pneumatics, substantially as specified.

8. The wind-motor, wherein are combined a series of pneumatics and a rotating tubular valve arranged centrally of the pneumatics and controlling all of them, said valve having a central partition and having its ends cut away at opposite sides, and a valve casing or block having air-passages 13 connecting the ends of said valve with the pneumatics, substantially as specified.

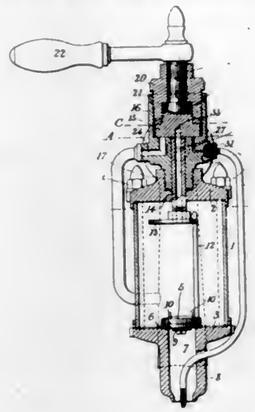
9. The wind-motor, wherein are combined a series of pneumatics, a shaft driven by the motor, and a tubular valve mounted on the shaft and acting to control all the pneumatics, said valve being open at its ends, and divided transversely, into inlet and outlet portions, and said portions having alternately-acting ports communicating with the passages leading to the pneumatics, substantially as specified.

664,375. DRAWING-TAP FOR AERATED OR CARBONATED WATER. BERNHARD BARON, London, England. Filed July 2, 1900. Serial No. 22,321. (No model.)

Claim.—1. In a drawing-tap, and in combination, a receptacle for holding liquid having a suitable inlet and outlet, and a hinged valve on the outlet automatically closing by its own weight and held closed by the pressure of liquid thereon.

2. In a drawing-tap, and in combination, a receptacle for holding liquid, a water-inlet and gas-snifting valve, a flap-valve forming an outlet-valve automatically closing by its weight and held closed by the pressure in the chamber and means controlled directly by the water-inlet valve for positively raising said outlet-valve.

3. In a drawing-tap, and in combination, a liquid-receptacle a water-inlet and gas-snifting valve, a flap-valve forming an outlet-valve automatically closing by its weight and held closed by the pressure in the chamber, a rod carried by said outlet-valve and a part carried by the water-inlet valve for tilting said rod and raising said outlet-valve.



4. In combination a liquid-receptacle, a water-inlet and gas-snifting valve, an outlet-valve automatically closing by its weight and held closed by the pressure in the chamber, an extension carried by the inlet-valve, a cam operated by the movement of same and a rod carried by the outlet-valve and adapted to be tilted to open same.

5. In combination a liquid-chamber, a water-inlet and gas-snifting valve, a tubular extension to such valve, a horizontal cam carried by such extension, a tilting outlet-valve and a rod carried by same adapted to be acted on by the edge of the cam to open same.

6. In a drawing-tap and in combination, a liquid-chamber, an inlet-valve having a passage in same adapted in one position of the valve to be placed in connection with a supply of liquid under pressure and with the chamber and a supplementary passage also adapted in another position of the valve to be placed in connection with the liquid-supply, an outlet-valve, means carried by the inlet-valve for controlling same, and a pipe with which the supplementary passage is adapted to connect, whereby a jet of liquid under pressure is produced after the outlet-valve has been opened and the contents of the receptacle discharged.

7. In a drawing-tap and in combination a receptacle for holding liquid, an inlet-valve having a passage in same adapted in one position of the valve to be placed in connection with a supply of liquid under pressure and with the receptacle, a supplementary passage also adapted in another position of the valve to be placed in connection with the liquid-supply, an outlet-valve, means for operating same, an extension below said valve forming part of the receptacle and having a passage in same and a pipe having a jet-opening passing into said extension and adapted to connect with the supplementary passage to produce a jet of liquid after the outlet-valve has been opened to discharge the contents of the receptacle.

8. In combination a liquid-chamber, a lower cap 3, a head 16 having passages 24, 27 and 28 in same, a valve in such head having passages 33, 34, and a pipe connected with passage 28 and with an outlet-passage 7 in cap 3 for the purpose described.

664,376. NON-REFILLABLE BOTTLE. JOHN H. BARNES, Norwich, Conn. Filed Mar. 27, 1899. Serial No. 710,544. (No model.)

Claim.—1. A bottle having a neck provided with a shoulder located to form a tapered plug-receiving portion communicating with the body of the bottle, and a stopper-receiving portion located intermediate said plug-receiving portion and the mouth of said neck and adapted to receive a stopper or closer for closing the mouth of the bottle; a tapered plug sprung into said neck below said shoulder, whereby it is non-removable from said neck in an outward direction owing to said shoulder, and in an inward direction owing to the tapered formation of said neck and plug, said plug having within the same a valve-chamber provided with a valve-seat and a sinuous passage formed entirely within and extending through the plug and in communication with said valve-chamber and said stopper-receiving portion of the neck; and a valve located in said valve-chamber.

2. A bottle having a neck provided with a shoulder; a two-part plug fitting into said neck below said shoulder, one part thereof having a recess and the other part thereof having a projection of less diameter than the major part of said plug and projecting into said recess and engaging the walls thereof, said plug having a valve-chamber partly formed in each part of said two-part plug and a sinuous passage formed entirely within said plug connecting said valve-chamber with the outer end of said plug; and a valve located in said valve-chamber.



3. A bottle having a tapered neck contracted to form a shoulder and adapted to receive a stopper or closer above said shoulder for closing the mouth thereof; a tapered plug sprung into said neck below said shoulder, whereby it is non-removable from said neck in an outward direction owing to said shoulder, and in an inward direction owing to the tapered formation of said neck and plug, said plug being in engagement at all points thereof with the inner wall of said neck and forming an air-tight joint, and comprising a two-part member one member having a recess and the other member a projection of less diameter than the major part thereof and adapted to fit within said recess and engaging the walls thereof, said plug having a valve-chamber located partly within each of said two-part members and provided with a valve-seat, a sinuous passage formed entirely within and extending through the plug and in communication with said valve-chamber and the outer end of said plug, and also having an elongated opening at one side of said sinuous passage in communication with said valve-chamber; and a valve in said chamber having a stem movable in said elongated opening.

4. A plug comprising a two-part compressible member one part having a recess and the other part having a projection of less diameter than the major part of said plug and fitting within said recess and engaging the walls thereof, a valve-chamber formed partly in each of said members, and a sinuous passage formed entirely within and extending through said plug and in communication with said valve-chamber and the outer end of said plug.

664,377. GUAIACOLATED SERUM AND PROCESS OF MAKING SAME. FERNAND BERLIOZ, Grenoble, France, assignor to LA Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Filed Feb. 4, 1899. Serial No. 704,465. (No specimens.)

Claim.—1. The method or process of preparing a medicinal compound which consists in dissolving a non-coagulating guaiacol compound in a solvent thereof miscible with animal serum, and in then adding the resulting solution to normal animal serum.

2. The method or process of preparing a medicinal compound which consists in dissolving guaiacol phosphite in glycerin and in then adding the resulting solution to normal animal serum.

3. As a new product, normal animal serum containing a non-coagulating guaiacol compound in a state of solution.

4. As a new product, normal animal serum containing a glycerin solution of guaiacol phosphite.

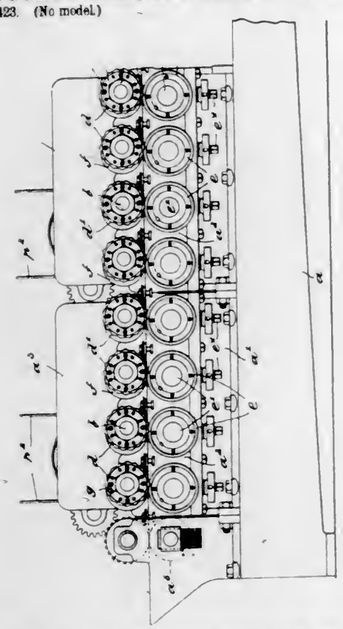
664,378. SERUM PREPARATION FOR MEDICAL USE. FERNAND BERLIOZ, Grenoble, France, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Filed Feb. 4, 1899. Serial No. 704,466. (No specimens.)

Claim.—1. As a new product for therapeutical purposes, normal animal serum and glycerin extract of animal organs combined or mixed together.

2. As a new product for therapeutical purposes, a solution consisting of normal animal serum and glycerin extract of animal organs in solution therein.

3. As a new product for therapeutical purposes, ninety-seven parts of normal animal serum and three parts of a glycerin extract of animal organs combined or mixed together.

664,379. MACHINE FOR MAKING EXPANDED METAL. EUGENE S. BRADFORD, Philadelphia, Pa. Filed Sept. 5, 1899. Serial No. 729,423. (No model.)



Claim.—1. In a machine for expanding metal, a single series of rotary expanding-cutters arranged in alinement and means for feeding the metal at an angle to the plane in which said cutters rotate, substantially as and for the purposes described.

2. In a machine for expanding metal, a single series of rotary expanding-cutters arranged in alinement, a series of rotary circular cutters arranged below and coacting with the expanding-cutters, and means for feeding the metal at an angle to the plane in which the coacting cutters rotate, substantially as and for the purpose described.

3. In a machine for expanding metal, a single series of rotary expanding-cutters arranged in alinement and a series of rotary circular cutters arranged below and coacting with the expanding-cutters, the axes of said circular cutters being arranged slightly in advance of the axes of the expanding-cutters, substantially as and for the purposes described.

4. In a machine of the character described, a single series of rotary expanding-cutters arranged in alinement, a series of rotary circular cutters arranged below and coacting with the expanding-cutters, the axes of said circular cutters being arranged in advance of the axes of the expanding-cutters, and a series of feed-rollers arranged eccentrically on the axes of the expanding-cutters directly above the circular cutters and having their axes of rotation in line with the axes of rotation of the lower circular cutters, substantially as and for the purposes described.

5. In a machine of the character described, a cutter having a series of expanding-prongs, a cap or holder for said cutter, a series of binding-screws adapted to secure the cutter to the cap or holder, and a series of set-screws adapted to bear against the cutter to lock the same and to prevent accidental loosening of said cutter, substantially as and for the purposes described.

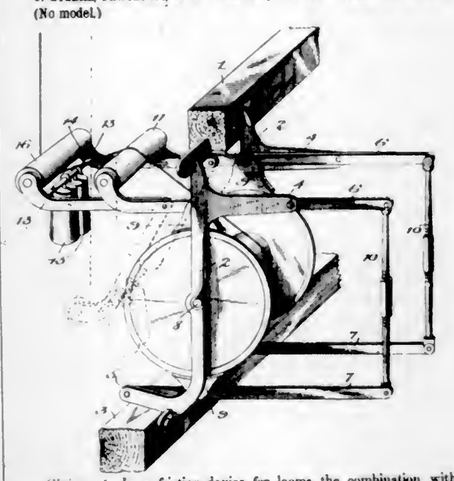
6. In a machine of the character described, an expanding-cutter, a shaft and a cap or holder for said cutter, said cap being provided with two keys, one of which is adapted to secure the cutter to the holder and the other to secure the holder to the shaft, substantially as and for the purposes described.

7. In a machine of the character described, a single series of rotary expanding-cutters arranged in alinement, a feeding-bed above which the expanding-cutters rotate and provided with a series of transverse slots, a single series of rotary circular cutters arranged below and coacting with the expanding-cutters, and a series of guide-rolls adapted to be adjusted in the slots of the bed, to constitute a means for feeding the metal at an angle to the plane in which the coacting cutters rotate, substantially as and for the purposes described.

8. In a machine of the character described, an expanding-cutter, a shaft carrying said cutter, a cylindrical bearing-block in which said shaft is eccentrically located, a sleeve adapted to rotate upon the exterior of said block, and a feed-roller carried by said sleeve, substantially as and for the purposes described.

9. In a machine of the character described, a single series of expanding-cutters and their shafts, a single series of circular cutters coacting with said expanding-cutters and having their shafts arranged below the expanding-cutters and shafts, means for feeding the metal in the direction of rotation of said coacting cutters and means for feeding said metal at an angle to the plane of rotation of said coacting cutters, substantially as and for the purposes described.

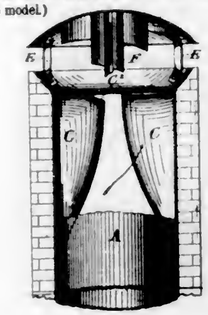
664,380. FRICTION LET-OFF. THOMAS BRINDLE and MERRILL O. STERRE, Pawtucket, R. I. Filed May 12, 1900. Serial No. 16,472. (No model.)



Claim.—1. In a friction device for looms, the combination, with standards adapted to be secured to the loom, each of which is provided with a journal-bearing for the support of the beam, of oppositely-extending levers pivotally secured to the supports upon opposite sides of the journal-bearings, means for connecting the ends of the levers upon opposite sides of the journal-bearings, a friction-shoe upon each lever in position to engage with the warp-beam, a roll in the ends of the upper levers, and a roll yieldingly supported beyond the roll in the ends of the lever, substantially as described.

2. In a friction-lever for looms, the combination, with two standards, the ends of which are provided with means for securing it in position and with oppositely-extending arms, and the central portion is provided with a journal-bearing, of a lever fulcrumed at the end of each arm, a brake on each lever in position to engage with the head of the warp-beam, an adjustable rod secured to the corresponding ends of the levers for each head, a roll journaled in the opposite ends of the upper levers, short levers secured to the long levers between said roll and the friction-brakes, a cross-beam at the outer end of said short levers, weights upon said cross-beam, and a roll journaled in said short levers beyond the cross-beam, substantially as described.

664,381. SMOKE-CONSUMING AND FUEL-SAVING DEVICE. CHARLES H. BRYANT, AMANDUS C. ROESSLER, JOHN M. MITCHELL, and GUILLERMO T. AUGSPURG, London, England. Filed July 6, 1900. Serial No. 22,738. (No model.)



Claim.—1. In combination in a smoke-consuming device, two spirally-disposed vanes arranged within the chimney, a canopy surmounting the chimney-flue with an air-space between, said canopy being concaved upon its lower side and graduated convolute partitions fixed upon the lower side of the canopy, substantially as described.

2. In combination with the chimney, of vanes within the same to cause the products of combustion to assume a hollow cylindrical form, a canopy surmounting the chimney and means carried thereby for arresting the ascending products of combustion and returning them axially of the chimney, substantially as described.

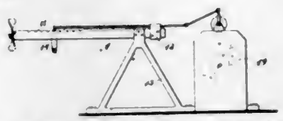
3. In combination with the chimney, means within the chimney for giving to the smoke a rotary motion and a canopy surmounting the chimney with a space between, said canopy having means to give the smoke a rotary motion in an opposite direction to that imparted by the means in the chimney, substantially as described.

4. In combination, the chimney and a canopy having convolutions, said canopy surmounting the chimney, substantially as described.

5. In combination, the chimney and a canopy having convolutions to give the smoke a rotary motion, said convolution being deeper at the center of the canopy, substantially as described.

6. In combination, the chimney and a canopy having convolutions to give the smoke a rotary motion inwardly and downwardly, substantially as described.

664,382. DEVICE FOR CONVERTING VIBRATORY INTO ROTARY MOTION. EUGENE B. CHAPMAN, Omaha, Nebr., assignor to Mary Somerville, St. Louis, Mo. Filed Feb. 10, 1898. Serial No. 669,822. (No model.)

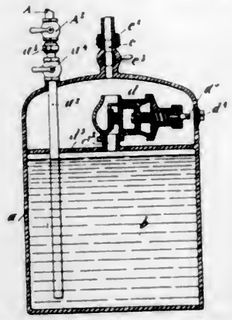


Claim.—1. The combination of a support or handle having salient points on its surface, a body adapted to revolve upon the said support or handle, means comprising a rubber adapted to be reciprocated upon the said support or handle to cause the body to revolve, a motor, and a suitably supported and guided connection between said motor and reciprocating means, substantially as described.

2. The combination of a substantially flat support or handle having salient points on its edge, a fan adapted to revolve upon the said support or handle, means comprising a rubber adapted to be reciprocated upon the said support or handle to cause the said fan to revolve, a motor and a suitably supported and guided connection between said motor and reciprocating means, substantially as described.

3. The combination of a substantially flat support or handle having salient points on its edge, a body adapted to revolve upon the said support or handle, and means comprising a rubber adapted to be reciprocated upon the said flat support or handle to cause the said body to revolve, substantially as described.

664,383. APPARATUS FOR STORING AND DISTRIBUTING ACETYLENE GAS. GEORGES M. A. CLAUDE, St. Mandé, and GEORGES A. HESS, Paris, France, assignors to Bruno Abdank-Abakanowicz, Parc St. Maur, France. Filed Mar. 1, 1897. Serial No. 625,580. (No model.)



Claim.—1. A closed vessel containing a supersaturated solution of acetylene produced by forcing acetylene into a solvent under pressure, said vessel having an outlet for the acetylene gas which escapes from the solvent when the pressure is released or reduced, and means for controlling said outlet whereby the gas may escape therethrough at substantially uniform pressure, substantially as described.

2. A prepared package consisting of a tight shell or vessel; a solvent of acetylene contained within said vessel; and acetylene dissolved in and held by said solvent under pressure and constituting therewith a supersaturated solution, the package being provided at a point above the solvent with a reducing-valve, substantially as and for the purpose set forth.

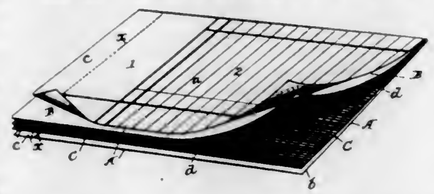
3. The herein-described apparatus for storing gas and delivering it at a substantially uniform rate, the same comprising a shell or vessel *a* containing a supersaturated solution of gas; a valved inlet-pipe a^2 extending to a point near the bottom of the chamber *a;* a horizontal diaphragm d^2 extending across the chamber in its upper portion and provided with a passage d^3; a reducing-valve *d* applied to said opening; and a valved outlet-pipe *e* through which the gas after passing the reducing-valve may escape to the main or distributing pipes.

4. In an apparatus for storing and delivering gas, a vessel containing a supersaturated solution of gas; an inlet-pipe opening into said vessel near the bottom of the chamber provided for the solvent; an outlet-opening from the solvent-chamber above the level of the solvent; and a reducing-valve applied to said outlet and serving to permit escape of the gas in regulated and uniform quantity.

5. As a new article of manufacture, a gas-package comprising a holder or tight vessel; a contained charge of acetone; a volume or body of gas dissolved by and compressed and contained within the solvent; and a reducing-valve applied to an opening extending to the interior of the holder above the level of the solvent, substantially as set forth.

6. The herein-described holder for gas, comprising a tight vessel having a chamber to receive a solvent of the gas, an outlet for the gas in the upper part of said chamber, a reducing-valve applied to said outlet, means for temporarily sealing the vessel completely; and a body of solvent contained within the vessel and adapted to receive a charge of gas under pressure and to form therewith a supersaturated solution.

664,384. MANIFOLDING ORDER-BOOK. SIDNEY S. COOKE, Toledo, Ohio. Filed June 18, 1900. Serial No. 20,745. (No model.)



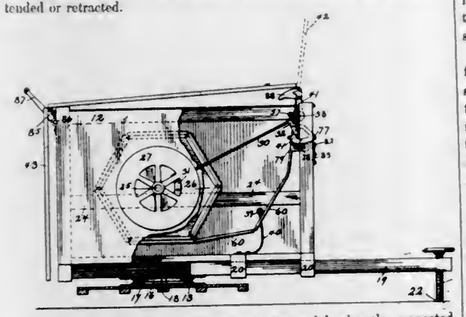
Claim.—1. A bundle of leaves for order-books adapted to be bound together at one edge, comprising a plurality of sheets one of which is folded upon itself to make two leaves of equal size, and another sheet of equal size to one section of the folded sheet inclosed between the folds of the latter and which constitutes another leaf, said folded sheet having a line of perforations in each half at a right angle to the folding-line and adjacent to and parallel with the binding edge, whereby the portion of the folded sheet on that side of the line of perforations remote from the binding edge may be removed without removing any part of the inclosed leaf, substantially as set forth.

2. A bundle of leaves for order-books adapted to be bound together at one edge, comprising a sheet A, which is folded upon itself to make two leaves of uniform size and duplicating-leaves B, C, inserted between the folds of the leaf A and each of the same size as one section of the sheet A, said sheet A and one of the inclosed duplicating-leaves each having a line of perforations at a right angle to the folding-line of sheet A and adjacent to and parallel with the binding edges and the other duplicating-leaf being unperforated, whereby the portions of the folded leaf and the perforated duplicating-leaf on that side of the line of perforations remote from the binding edge may be removed from about the unperforated duplicating-leaf, substantially as set forth.

664,385. LADDER. CYRUS COPLANTZ, Joliet, Ill., assignor to Lydia Coplantz and Emily S. Cheeseman, same place. Filed Feb. 17, 1900. Serial No. 5,555. (No model.)

Claim.—1. In a ladder, the combination with the reel, having the connected jointed sections wound thereon and each section being provided with teeth thereon forming a rack-bar; of gear-pinions meshing with said teeth, and means for rotating said pinions to positively raise and lower the sections; and positive gearing connecting said pinions and said reel, said gearing being so arranged that the rate of movement of the reel will

be automatically varied as necessary, while the sections are being extended or retracted.



2. In a ladder, the combination with the reel, having the connected jointed sections wound thereon and each section being provided with teeth thereon forming a rack-bar; of gear-pinions meshing with said teeth, and means for rotating said pinions to positively raise and lower the sections; and positive gearing connecting said pinions and said reel, said gearing being so arranged that the rate of movement of the reel will be automatically varied as necessary, while the sections are being extended or retracted, said positive gearing including a gear-pinion rotated at a uniform rate during the passage of the ladder, and the spiral rack moving with the reel with which said pinion meshes.

3. In a ladder, the combination with the reel, and the jointed sections wound thereon, of mechanism coöperating directly with said sections to extend them, and connections between said mechanism and the reel whereby the rate of movement of the reel may be varied while the sections are being operated upon, said connections comprising a gear-pinion provided with a collar forming a circumferential groove and rotated at a uniform rate during the passage of the ladder, and a spiral rack moving with the reel with which said pinion meshes and provided with a flange coöperating with the groove of the pinion, substantially as and for the purpose described.

4. In a ladder, the combination with the reel, and jointed sections wound thereon, of mechanism coöperating directly with said sections to extend them, and connections between said mechanism and the reel for rotating the reel as the ladder is extended, said connections comprising a shaft rotated at a uniform rate as the ladder is extended, a pinion splined upon said shaft to rotate therewith but longitudinally movable thereon, a spiral rack moving with the reel with which said pinion meshes, and means for holding said pinion in mesh with the rack.

5. In a ladder, the combination with the reel, and jointed sections wound thereon, of mechanism coöperating directly with said sections to extend them, and connections between said mechanism and the reel for rotating the reel as the ladder is extended, said connections comprising a shaft rotated at a uniform rate as the ladder is extended, a pinion splined upon said shaft to rotate therewith but longitudinally movable thereon, a spiral rack moving with the reel with which said pinion meshes, and means for holding said pinion in mesh with the rack, said means comprising a circumferential groove connected to the pinion and coöperating with a flange on the edge of said rack.

6. In a ladder, the combination with the reel, and the jointed sections wound thereon having a rack formed on each section, of a shaft having a pinion thereon meshing with said rack, connections between said shaft and the reel for rotating the reel whereby its movement will be varied in accordance with the length of the sections being operated upon, and means for rotating said shaft.

7. In a ladder, the combination with the reel, and the jointed sections wound thereon having a rack formed upon each section, of a pinion on a shaft meshing with said rack, and connections between said shaft and the reel for rotating said reel whereby its movement will be varied in accordance with the length of the sections being operated upon, said connections comprising a gear-pinion rotated at a uniform rate by the rotation of said shaft, and a spiral rack moving with the reel, and with which said pinion meshes.

8. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, locking mechanism for said sections comprising overlapping portions upon the adjacent sections, bolts adapted to pass transversely through said overlapping portions, and means for automatically shifting said bolts to lock the sections as they are extended and to unlock them as they are retracted, said means comprising cam-flanges coöperating with the ends of said bolts.

9. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, locking mechanism for said sections comprising overlapping portions on each section, bolts adapted to pass transversely through said overlapping portions, means for automatically shifting said bolts to lock the sections as they are extended and to unlock them as they are retracted, and means for yieldingly holding said bolts in either position.

10. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, locking mechanism for said sections comprising overlapping portions on each section, bolts adapted to pass transversely through said overlapping portions, means for automatically shifting said bolts to lock the sections as they are extended and to unlock them as they are retracted, and means for yieldingly holding said bolts in either position, comprising a pair of notches in each bolt and a spring coöperating with the notches.

11. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, locking mechanism for said sections comprising overlapping portions on each section, bolts adapted to pass transversely through said overlapping portions, cam-flanges coöperating with the ends of said bolts to automatically shift them to lock the sections as they are extended and to unlock them as they are retracted, and means for yieldingly holding said bolts in either position.

12. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, locking mechanism for said sections comprising overlapping portions on each section, bolts adapted to pass transversely through said overlapping portions, cam-flanges coöperating with the ends of said bolts to automatically shift them to lock the sections as they are extended and to unlock them as they are retracted, and means for yieldingly holding said bolts in either position, said means comprising a pair of notches in each bolt and a spring coöperating therewith.

13. In a ladder, the combination with the jointed sections, of means for feeding out said sections to extend the ladder, a chute through which said sections pass as they are extended, locking mechanism for said sections comprising overlapping portions on each section, L-shaped bolts adapted to pass transversely through said overlapping portions, and cam-flanges upon said chute coöperating with the L portions of said bolts for automatically shifting them to lock the sections as they are extended and to unlock them as they are retracted.

14. In a device of the class described, the combination of the reel, with the sections wound thereon, a guide-chute through which said sections pass as they are extended, and means for taking up the sag of the sections between the reel and the chute consisting of a spring-pressed cross-piece coöperating with said sections.

15. In a device of the class described, the combination of the reel, with the sections wound thereon, the guide-chute through which said sections pass as they are extended, and means for taking up the sag of the sections between the reel and the chute consisting of the springs 40 carrying the roller 39 journaled thereon and coöperating with said section.

16. In a device of the class described, the combination of the reel, a casing in which said reel is located, the ladder-sections wound upon said reel, and a chute at one end of said casing through which the sections are fed, the inner sections being of a length to be wound on the reel, and an outer section of a length substantially equal to that of the casing, substantially as and for the purpose described.

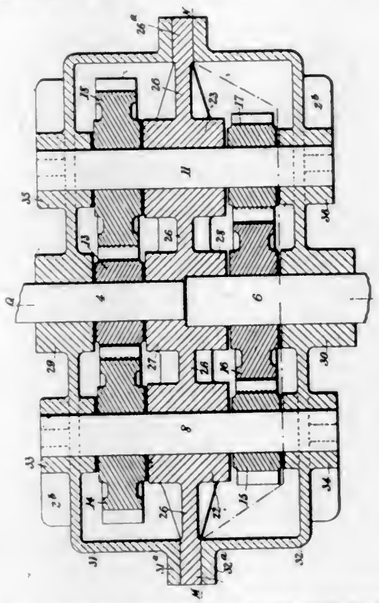
17. In a device of the class described, the combination of the reel, a casing in which said reel is located, with the ladder-sections wound on said reel, and a chute at one end through which said sections are fed, the inner sections being of a length suitable to be wound on the reel, the outermost section being of a length substantially equal to the height of said casing, and the next adjacent section being of a length substantially equal to the length of the casing, substantially as and for the purpose described.

18. In a device of the class described, the combination of the reel, a casing in which said reel is located, with the ladder-sections wound on said reel, and a chute at one end through which said sections are fed, the inner sections being of a length adapted to be wound upon the reel, the adjacent sections being somewhat longer, and two outer sections of a length substantially equal to the length and height of the casing.

664,386. SPEED-REDUCING OR SPEED-MULTIPLYING GEAR.

SAMUEL C. DAVIDSON, Belfast, Ireland. Filed July 21, 1900. Serial No. 24,426. (No model.)

Claim.—1. In speed-reducing or speed-multiplying gear, the combination of two central rotary shafts arranged in line with each other, a pinion on the end of the first central shaft, and a toothed wheel on the adjacent end of the second central shaft, a first side shaft and a second side shaft located on opposite sides of the common axis of the two central shafts, a toothed wheel on the first side shaft gearing with the pinion on the first central shaft, and a pinion on the first side shaft gearing with the toothed wheel on the second central shaft, a toothed wheel on the second side shaft gearing with the pinion on the first central shaft, and a pinion on the second side shaft gearing with the toothed wheel on the second central shaft, with a gear-box made in halves bolted together inclosing the whole of the toothed gearing and provided with bearings for the two central shafts, and with an intermediate plate provided with bearings for the two side shafts, and with central bearings for the adjacent ends of the two central shafts, substantially as set forth.



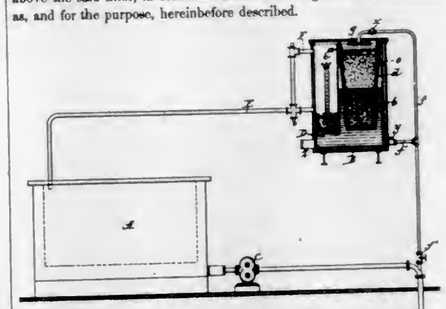
2. In speed-reducing or speed-multiplying gear, the combination of two central rotary shafts arranged in line with each other, a pinion on the end of the first central shaft, and a toothed wheel on the adjacent end of the second central shaft, a first side shaft and a second side shaft located on opposite sides of the common axis of the two central shafts, a toothed wheel on the first side shaft gearing with the pinion on the first central shaft, and a pinion on the first side shaft gearing with the toothed wheel on the second central shaft, a toothed wheel on the second side shaft gearing with the pinion on the first central shaft, and a pinion on the second side shaft gearing with the toothed wheel on the second central shaft, with a gear-box made in halves bolted together inclosing the whole of the toothed gearing and provided with bearings for the two central shafts, and with an intermediate plate provided with bearings for the two side shafts, and with central bearings for the adjacent ends of the two central shafts, substantially as set forth.

3. In speed-reducing or speed-multiplying gear, the combination of two central rotary shafts arranged in line with each other, a pinion on the end of the first central shaft and a toothed wheel on the adjacent end of the second central shaft, a first side shaft and a second side shaft located on opposite sides of the common axis of the two central shafts, a toothed wheel on the first side shaft gearing with the pinion of the first central shaft and a pinion on the first side shaft gearing with the toothed wheel on the second central shaft, a toothed weel on the second side shaft gearing with the pinion on the first central shaft, and a pinion on the second side shaft gearing with the toothed wheel on the second central shaft, with a gear-box made in halves bolted together and inclosing the whole of the toothed gearing, and provided with bearings to carry the two central shafts, and also with bearings to carry the ends of the two side shafts, with an intermediate plate provided with central bearings to carry the adjacent ends of the two central shafts, and also with bearings to carry the two side shafts, substantially as set forth.

664,387. REGENERATING AND FILTERING APPARATUS FOR SALT SOLUTIONS IN REFRIGERATING OR ICE-MAKING MACHINES.

GUSTAV DÖDERLEIN, Carlsruhe, Germany. Filed Oct. 13, 1900. Serial No. 32,931. (No model.)

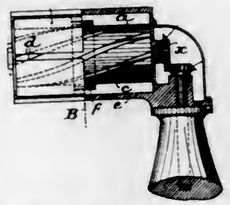
Claim.—1. A regenerating and filtering apparatus for salt solutions for use in refrigerating and ice-making machines, consisting of two closed compartments in communication with one another, one of the said compartments having a salt-container of perforated sheet metal lined with a suitable fabric and being in communication both above and below the salt-container with a branch from the liquid-pump having a regulating device, while the other compartment contains a removable filter and is, above the said filter, in communication with the generator, substantially as, and for the purpose, hereinbefore described.



2. A regenerating and filtering apparatus for salt solutions for use with refrigerating and ice-making machines, consisting of two closed compartments in communication with one another, one of the said compartments having a salt-container of perforated sheet metal lined with a suitable fabric, and being in communication with a branch from the liquid-pump having a regulating device, while the other compartment contains a removable filter which consists of a sheet-metal case containing filtering material and having a perforated bottom and a perforated cover adjustable by means of screw devices, the bottom of the said case being pressed against a rigid frame or support having a felt packing by means of a socket upon the cover and a rigid rod, substantially as, and for the purposes, hereinbefore described.

664,388. SHAVING APPARATUS.

HERMANN DRÖSSE, Charlottenburg, Germany. Filed July 30, 1900. Serial No. 25,318. (No model.)



Claim.—1. A shaving apparatus consisting of a rotatable cylinder having helical grooves on its surface, and of a blade pressed against this cylinder in such manner that a shearing action occurs between the edge of the grooves and that of the blade, when the cylinder is rotated, substantially as described.

2. A shaving apparatus consisting of a rotatable cylinder having helical grooves on its surface, and of a blade pressed against this cylinder in such manner that a shearing action occurs between the edges of the grooves and the blade, when the cylinder is rotated, the said cylinder being inclosed in a guard-case which has a narrow opening parallel to the axis of the cylinder, one side of which opening is the cutting edge of the blade, substantially as described.

3. A shaving apparatus consisting of a rotatable cylinder having helical grooves on its surface and of two blades pressed against this cylinder in such manner that their cutting edges face each other and that a shearing action occurs between the edges of the grooves and that of one of the blades when the cylinder is rotated, the said cylinder being inclosed in a guard-case which has a narrow opening parallel to the axis of the cylinder, the sides of which opening are the cutting edges of the blades substantially as described.

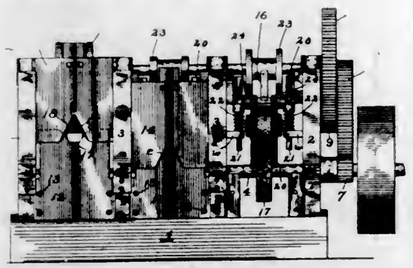
4. A shaving apparatus consisting of a rotatable cylinder having helical grooves on its surface surrounded by a sleeve in which is a narrow slit parallel to the axis of the cylinder, the edges of such slit being formed as cutting-blades in such manner that a shearing action occurs between the edges of the grooves and one of the edges of the slit when the cylinder is rotated, substantially as described.

664,389. TOBACCO-STEMMING MACHINE.

ALEXANDER T. DRYSDALE, Bessemer, Ala. Filed Oct. 5, 1900. Serial No. 32,157. (No model.)

Claim.—1. The combination, in a tobacco-stemming machine, of a framework, a stationary stripper mounted thereon, a movable stripper adapted to work in conjunction therewith, a driven shaft carrying a roll arranged behind said stationary stripper, a movable housing carrying a

roll arranged behind said movable stripper, and a second shaft provided with an arm adapted to raise the movable stripper and with cams adapted to operate the housing carrying the movable roll, said housing being also provided with means acting oppositely to said cams whereby it is moved and held up except when forcibly depressed by said cam.



2. The combination, in a tobacco-stemming machine, of a framework, a stationary stripper and a movable stripper operating in conjunction with each other and having V-shaped operating edges, the outer stripper having its edge *e* also extending outwardly from its face, the lower stripper being plain-faced, suitable rolls for drawing the stem through between the strippers, and means for operating the movable stripper and the movable roll.

3. The combination, in a tobacco-stemming machine, of a stationary stripper, a movable stripper, a fixedly-positioned feed-roll, a movable feed-roll, and means for operating said movable stripper and said movable feed-roll arranged and timed as to raise said stripper and feed-roll simultaneously and permit the stripper to drop before the feed-roll is moved down into engagement with the stem of the tobacco-leaf being stripped, substantially as set forth.

4. The combination, in a tobacco-stemming machine, of the framework, the stationary stripper, a movable stripper mounted in slides, a fixedly-positioned feed-roll mounted on a driving-shaft, a movable housing mounted in slides, a second feed-roll mounted in said housing, springs supporting said housing and adapted to raise the same and the roll carried thereby, a second shaft, a cam thereon adapted to force said housing and the roll carried thereby downwardly, and means for raising the movable stripper in its slides at the end of the stripping operation thereby adjusting the machine to receive a fresh stem and leaf, substantially as set forth.

5. The combination, in a tobacco-stemming machine, of a pair of strippers having V-shaped adjacent operative edges, the outer edge by which the leaf is severed from the stem being also turned outwardly, as at *e*, substantially as shown and described.

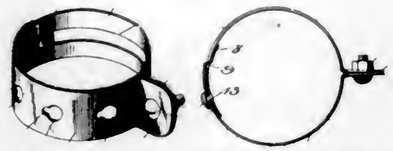
6. The combination, in a tobacco-stemming machine, of a stationary stripper, and a movable stripper mounted in slides and adapted to approach and recede from the stationary stripper, and mechanism whereby the movable stripper may be raised, said mechanism being also arranged to escape from engagement therewith at a certain point, whereby the movable stripper is permitted to drop onto the leaf to be stripped and rest on the stem thereof, being held into engagement therewith by its own gravity, the slides being provided with stops whereby it is prevented from moving too far, substantially as set forth.

7. The combination, in a tobacco-stemming machine, of a pair of strippers each being V-shaped in horizontal section and one fitting over the other, the operative edges being also V-shaped, slides wherein one of said strippers is mounted, and means for moving said stripper in said slides.

8. The combination, in a tobacco-stemming machine, of a framework, a stationary stripper mounted thereon, a movable stripper adapted to work in conjunction therewith, a driven shaft carrying a roll arranged behind said stationary stripper, a movable housing carrying a roll arranged behind said movable stripper, a second shaft provided with an arm adapted to raise the movable stripper and with cams adapted to operate the housing carrying the movable roll, said arm and said cams being arranged as shown whereby the movable stripper is permitted to descend before the movable housing and its roll are forced downwardly, and means acting oppositely to said cams whereby the housing carrying the movable roll is operated in the opposite direction.

664,390. CLAMP OR BRACKET. BENJAMIN F. DURHAM, Knoxville, Tenn., assignor to the United States Canopy Company, same place. Filed Apr. 14, 1900. Serial No. 12,890. (No model.)

Claim.—1. A clamp comprising a pair of interlocking members, one of said members being provided with a series of openings and a locking-head, the other member being provided with an elongated slot, said head fitting within said slot and overlapping the edges thereof, and a stud carried by the latter and adapted to engage one of the openings in the headed member.

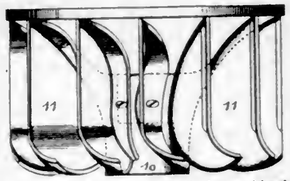


2. A clamp, comprising a pair of interlocking members, each of which is provided with an outwardly-extending ear, means for locking said ears together, one of said members being provided with a series of openings and a locking-head, the other member being provided with an elongated slot and a locking-stud, said head fitting within said slot and overlapping the edges thereof, said stud being adapted to engage one of the openings in the headed member.

3. A clamp, comprising a pair of interlocking members, provided with outwardly-extending ears, a screw for locking said ears together, one of said members being provided with a series of openings, and a locking-head, each of said openings having an offset, the other member being provided with an elongated slot and a locking-stud, said head fitting within said slot and overlapping the edges thereof, said locking-stud being adapted to fit within one of the openings of the headed member and engage with the offset thereof.

4. A clamp, comprising a pair of interlocking members, provided with outwardly-projecting ears, a screw for locking said ears together, one of said members being provided with a series of openings, and a locking-head, the latter projecting inwardly and lying in a different plane from the inner surface of said member, the other member being provided with an elongated slot and a locking-stud, said head fitting within said slot and overlapping the edges thereof, said locking-stud being adapted to engage one of the openings of said headed member.

664,391. TURBINE WATER-WHEEL. FRANCIS ELLICOTT, Baltimore, Md. Original application filed Sept. 13, 1899, Serial No. 730,383. Divided and this application filed Jan. 17, 1900. Serial No. 1,789. (No model.)



Claim.—1. In a turbine water-wheel, the combination of a casing having water-inlets, a gate and a runner, the runner being provided with a series of buckets, having their outer edges practically straight and parallel to the axis of the runner, the upper portions of their bottoms being convex, the lower portion concave, and their lower concave ends turned in a direction opposite to the motion of the runner, substantially as described.

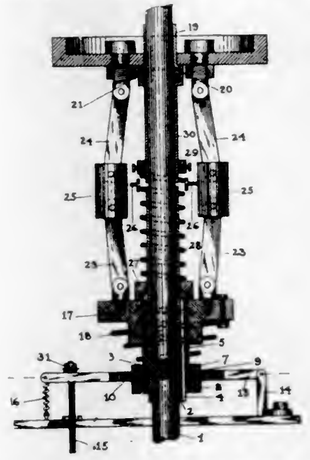
2. In a turbine water-wheel, the combination of a casing having water-inlets, a cylinder gate and runner, the runner being formed with a concave conical hub and a series of buckets attached so the exterior surface of the hub, the outer edges of the bucket being practically straight and parallel to the axis of the runner, the upper portion of their bottoms being convex, the lower portions being concave, and their lower concave ends being turned in a direction opposite the motion of the runner.

3. In a turbine water-wheel, the combination of a casing having water-inlets, a gate and a runner, the runner being provided with a series of buckets having their outer edges practically straight and parallel to the axis of the runner, the upper portions of the bottoms of the buckets being convex, the lower portions concave, and the lower concave end turned in a direction almost a right angle opposite to the direction of the motion of the runner, and having an outlet area slightly greater than the inlet area, as and for the purpose specified.

4. In a turbine water-wheel the combination of a casing having water-inlets, a gate, and a runner, the runner being provided with a series of buckets having their outer edges practically straight and parallel to the axis of the runner and their bottoms convex at the upper part and concave at the lower part, these parts being oppositely inclined to a radial plane of the wheel, substantially as described.

5. In a turbine water-wheel the combination of a casing and a water-inlet, a descending cylindrical gate, and a runner, the runner being provided with a series of buckets having their outer edges practically straight and parallel to the axis of the runner, the upper portions of their bottoms being convex, the lower portions concave, these portions being oppositely inclined to a radial plane of the wheel and having their lower concave end turned in a direction opposite to the motion of the runner, substantially as described.

664,392. CENTRIFUGAL GOVERNOR. FRANCIS ELLICOTT, Baltimore County, Md. Filed Apr. 16, 1900. Serial No. 13,020. (No model.)



Claim.—1. In a speed-governor, the combination of a screw and nut, one of them connected to and actuated by the motor, both nut and screw being capable of motion in two directions, revolution upon their axis and motion in the direction of their axis, the motion in the direction of the axis being independent of rotation, means for controlling the motor, means connecting either the nut or the screw with the controller, the nut and screw being connected by a spring, through which the motion of the one which is driven is communicated to the other, the intervening spring permitting a temporary difference in speed of revolution, a centrifugal governor device attached to the nut or screw, and actuated thereby, substantially as described.

2. In a speed-governor, the combination of a screw and nut, one of them connected to and actuated by the motor, both nut and screw being capable of motion in two directions, revolution upon their axis and motion in the direction of their axis, means for controlling the motor, and means connecting the screw with the controller, the nut being threaded upon the screw and connected thereto by a spring, through which the nut may be driven by the screw, while permitting a temporary difference of speed of revolution, a centrifugal governor device attached to the nut and actuated thereby, substantially as described.

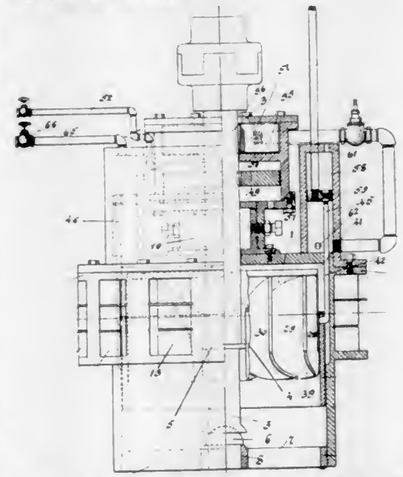
3. In a speed-governor the combination of a screw, connected to, and actuated by the motor, and capable of motion in two directions, revolution upon its axis, and motion in the direction of its axis, means for controlling the motor, and means connecting the screw with the controller, a nut threaded upon the screw, and connected thereto by a spring, through which the nut may be driven by the screw, while permitting a temporary difference in speed of revolution between the nut and the screw, a pair of centrifugal governor-weights connected at one end to the nut, and at the other end to a permanent support, and adapted when moved by centrifugal force to lift the nut and its connected parts.

4. In a speed-governor the combination of a screw, connected to, and actuated by the motor, and capable of motion in two directions, revolution upon its axis, and motion in the direction of its axis, means for controlling the motor, and means connecting the screw with the controller, a nut threaded upon the screw, and connected thereto by a spring through which the nut may be driven by the screw while permitting a temporary difference in speed of revolution between the nut and the screw, a pair of centrifugal governor-weights and a fly wheel, the governor-weights being connected at one end to the nut, and at the other end to the fly-wheel, the fly-wheel being supported so as to resist the pull of the centrifugal governor-weights, and permit them to lift the nut and its connected parts.

5. In a speed-governor the combination of a screw connected to, and actuated by the motor, and capable of motion in two directions, revolution upon its axis, and motion in the direction of its axis, means for controlling the motor, and means connecting the screw with the controller a nut threaded upon the screw, and connected thereto by a spring, through which the nut may be driven by the screw, while permitting a temporary difference in speed of revolution between the nut and the screw, a pair of centrifugal governor-weights one end of which is supported against axial motion, the other end of which is connected to the nut so as to move it and its connected parts, as the weights are moved outward by centrifugal force, and a compression-spring one end of which bears upon the nut, and the other upon a stationary part to resist the pull of the governor-weights upon the nut.

6. In a speed-governor the combination of a screw connected to, and actuated by the motor, and capable of motion in two directions, revolution upon its axis, and motion in the direction of its axis, means for controlling the motor, and means connecting the screw with the controller, a nut threaded upon the screw, and connected thereto by a spring through which the nut may be driven by the screw, while permitting a temporary difference in speed of revolution between the nut and the screw, a pair of centrifugal governor-weights and a fly-wheel, the weights connected at one end to the fly-wheel, and at the other end to the nut, the fly-wheel being supported so as to resist motion in the direction of the nut, but to move freely in the opposite direction, a compression-spring bearing at one end upon a chair which rests upon the nut and covers the end of the screw, and the other end of which bears upon the fly-wheel, substantially as described.

664,393. TURBINE WATER-WHEEL. FRANCIS ELLICOTT, Baltimore County, Md. Filed May 9, 1898. Renewed Sept. 15, 1900. Serial No. 30,185. (No model.)



Claim.—1. In a turbine water-wheel the combination, of a casing provided with water-inlets, with a runner, said inlets being divided into sections by removable partitions inserted in grooves in the side walls of said inlets to limit their area, substantially as described.

2. In a turbine water-wheel the combination of a casing provided with water-inlets with a runner, said inlets being arranged at such an angle that the exterior wall of the inlets will be approximately tangent to the periphery of the runner, and being divided into sections by removable partitions, inserted in grooves in the side walls of said inlets to limit their area, substantially as described.

3. In a turbine water-wheel the combination, of a casing provided with water-inlets, said inlets being divided into sections by removable partitions located therein on a plane at right angles to the axis of the runner, a cylindrical gate descending to open and ascending to close and a runner, substantially as described.

4. In a turbine water-wheel the combination, of a casing provided with water-inlets, said inlets being divided into sections by removable partitions, a cylindrical gate descending to open and ascending to close, and a runner, the buckets of which are located so as to receive water from the inlets at their tops when the gate is first opened, substantially as described.

5. In a turbine water-wheel the combination, of a casing having a series of water-inlets, said inlets being provided with removable partitions extending to the inner surface of the casing, a cylindrical gate within the casing which descends to open and ascends to close, an upper chamber

in the top of the casing into which the gate enters to close and with the edge of which and with the inner ends of the removable partitions, it makes a shearing contact and a runner within the gate, substantially as described.

6. In a turbine water-wheel, a casing having water-inlets, said inlets being provided with removable partitions and a runner provided with removable buckets, said partitions and buckets being changed to increase or decrease the size of the inlets and the size of the escape-openings from the runner, so as to maintain the same relation between them at varying gates.

7. In a turbine water-wheel the combination, of a runner, a casing having inlets which deliver the water to the runner, said inlets being divided into a number of parallel sections by division-plates, the number of which may be varied, a cylinder gate between the runner and the casing, said gate being arranged to admit water to the runner by lowering the gate, a cylinder supported on the casing of the wheel having a piston in it connected to the gate, said piston being normally balanced by pressure on either side and adapted to move the gate when the balance is disturbed.

8. In a turbine water-wheel the combination, of a runner, a casing having inlets which deliver the water to the runner, said inlets being divided into a number of parallel inlets by division-plates, the number of which may be varied a cylinder gate between the runner and the casing, said gate being arranged in such a way that water is admitted to the runner by lowering the gate, a cylinder supported on the casing of the wheel having a piston in it connected to the gate, said piston being normally balanced by pressure on either side and adapted to move the gate when the balance is disturbed, and a second cylinder surrounding the wheel-shaft, said cylinder inclosing a piston fastened to the shaft, the piston being subjected to water-pressure above and below, the pressure from below being sufficiently greater than the pressure from above to support the runner and shafting.

9. The combination in a turbine water-wheel of a cylinder gate, a piston connected to the gate, said piston being normally held in a state of balance between opposing forces, a cylinder surrounding the piston having both ends in direct communication with the water in the penstock, a weight supported by the gate-stem, a centrifugal pump connected to the wheel-shaft and delivering water to one end of the cylinder, and an outlet from the other end of the cylinder, all being arranged substantially as described and in such a way that any variation in the speed of the pump disturbs the balance of the piston and moves the gate in the proper direction to bring the speed back to normal.

10. The combination in a turbine water-wheel, of a casing for the water-wheel, a cylinder open at both ends to penstock-pressure, a cylindrical gate within the casing, a piston within the cylinder to which the cylindrical gate is connected, and by which it is operated, and a pump delivering water into the cylinder at one end, the discharge of the pump being controlled by the speed of the water-wheel.

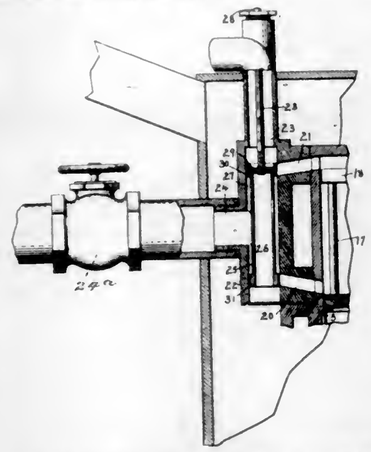
11. The combination in a turbine water-wheel of a casing for the water-wheel, a cylinder, a cylindrical gate within the casing, a piston within the cylinder to which the cylindrical gate is connected and by which it is operated and a pump delivering water into the cylinder at one end, the discharge of the pump being controlled by the speed of the water-wheel and means for relieving the pressure in the cylinder created by the pump, and an outlet-valve in the opposite end of the cylinder.

12. In a turbine water-wheel the combination of a casing for the wheel with a cylinder that is open at both ends to fluid-pressure, a piston in said cylinder which is balanced between pressures, a cylindrical gate within the casing suspended from the piston, and a variable outlet from the cylinder to the exterior of the penstock to relieve pressure on one side of the piston and means for controlling the outlet, substantially as described.

13. In a turbine water-wheel the combination of a casing for the wheel with a cylinder which is open at both ends to penstock-pressure, a piston in said cylinder, a cylindrical gate within the casing suspended from the piston, an outlet in the top of the cylinder to the exterior of the penstock to relieve penstock-pressure above the piston and thereby to balance the weight of the gate and the piston, and means delivering pressure below the piston, the discharge of which is controlled by the speed of the wheel.

664,394. GOVERNOR FOR PRIME MOTORS. FRANCIS ELLICOTT, Baltimore County, Md. Filed Sept. 13, 1899. Renewed Oct. 26, 1900. Serial No. 34,522. (No model.)

Claim.—1. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets, and a runner operated upon by the inlet-water with a governor for controlling the gate, consisting of a piston balanced between opposing pressures and connected to the gate so as to move it, a balanced valve capable of admitting pressure on one or the other side of said piston and means actuated by the motion of the runner for changing the position of said valve to admit pressure on one side or the other of the piston as the speed of the runner varies from the normal.



2. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets and a runner operated upon by the inlet-water, with a governor for controlling the gate according to changes of speed due to change of load which consists of a piston balanced between pressures, connected to the gate, so as to move it to open or close, a balanced valve capable of admitting pressure to one side and relieving pressure from the other side of said piston as it is moved, and means actuated by the motion of the runner connected to and actuating said valve to admit pressure on one side and exhaust from the other side of said piston or vice versa as the case may be as the speed of the runner varies from normal.

3. In a turbine water-wheel a combination of a casing having water-inlets and a runner operated upon by the inlet-water, with a governor for controlling the gate according to the changes of speed due to changes of load, which consists of a piston balanced between pressures, connected to the gate so as to move it to open or close a balanced valve capable of admitting pressure to one side or relieving pressure from the other side of said piston as it is moved from one position to another, means actuated by the motion of the runner connected to and actuating said valve to admit pressure above and exhaust from below said piston, or vice versa as the case may be as the speed of the runner varies from normal, and a pressure-regulating valve located in the exhaust-pipe as and for the purpose specified.

4. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets, a runner operated upon by the inlet-water, with a governor for controlling the gate according to changes of speed due to changes of load, which consists of a piston inclosed in a suitable casing, water-passages through or around said piston admitting water from one side of it to the other in limited quantities, said piston being balanced between pressures and connected to the gate so as to move it to open and close, a balanced valve capable of admitting pressure to one side and relieving pressure from the other side of said piston as it is moved, and means actuated by the motion of the runner connected to and actuating said valve to admit pressure to one side and exhaust from the other side of said piston or vice versa as the case may be, as the speed of the runner varies from normal.

5. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets and a runner operated upon by the inlet-water, with a governor for controlling the gate according to changes of speed due to change of load which consists of a piston balanced between pressures, connected to the gate, so as to move it to open or close, a series of valves capable of admitting pressure to one side and relieving pressure from the other side of said piston as they are moved, and means actuated by the motion of the runner connected to and actuating said valve to admit pressure above and exhaust from below said piston or vice versa, as the case may be as the speed of the runner varies from normal.

6. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets and a runner operated upon by the inlet-water, with a governor for controlling the gate according to changes of speed due to changes of load which consists of a piston balanced between pressures and connected to the gate so as to move it to open or close inclosed in a suitable casing, said casing being open to penstock-pressure above and below the piston, a balanced valve connected to both ends of the casing above and below the piston and to an exhaust emptying outside the penstock whereby the penstock-pressure above or below the piston may be reduced in accordance with the position of the valve, and means actuated by the motion of the runner connected to and actuating the valve to exhaust the pressure on one side or the other side of the piston or vice versa, as the case may be, as the speed of the runner varies from normal.

7. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets and a runner operated upon by the inlet-water, with a governor for controlling the gate according to changes of speed due to changes of load which consists of a piston balanced between pressures connected to the gate so as to move it to open or close, a casing surrounding the piston, a valve-chest open to penstock-pressure and having ports connected to the two ends of the casing above and below the piston, a balanced valve in said valve-chest capable of admitting pressure to one side and relieving it from the other side of the piston as the valve is moved, and means actuated by the motion of the runner connected to and actuating said valve to admit pressure on one side and exhaust from the other side of said piston or vice versa, as the case may be, as the speed of the runner varies from normal.

8. In a turbine water-wheel the combination of a casing having water-inlets, a gate controlling the admission of water to the inlets and a runner operated upon by the inlet-water with a governor for controlling the gate according to changes of speed due to changes of load which consists of a piston balanced between pressures connected to the gate so as to move it to open or close, a balanced valve capable of relieving the pressure from one or the other side of said piston as it is moved, and a centrifugal governor connected to and actuating said valve, consisting of a screw, a nut, a pair of governor-weights and a fly-wheel, the screw having a rotary and a vertical motion, the nut being threaded upon the screw and secured to it by means of a coiled spring one end of which is connected to the screw and the other to the nut, a pair of governor-weights connected to links which are secured at one end to the nut, and at the other end to a fly-wheel, the nut being separated from the fly-wheel by a compression-spring, substantially as described.

9. In a turbine-water-wheel governor, the combination of a casing for the wheel, of a gate admitting water to the wheel, a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to and operating the gate, and balanced between opposing pressures, and means for exhausting the pressure above or below the piston, as and for the purpose specified.

10. In a turbine-water-wheel governor, the combination of a casing for the wheel, of a gate admitting water to the wheel, a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to and operating the gate, and balanced between opposing pressures, and means for exhausting the pressure above or below the piston, controlled by the speed of the wheel.

11. In a turbine-water-wheel governor, the combination of a casing for the wheel, of a gate admitting water to the wheel, a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to and operating the gate, and balanced between opposing pressures, and a valve connected to an outlet from the piston, adapted to exhaust pressure from above or below the piston, controlled by the speed of the wheel.

12. In a turbine-water-wheel governor, the combination of a casing for the wheel, of a cylindrical gate within the casing, a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to and operating the gate, and balanced between opposing pressures, an outlet in the top of the cylinder, and one in the bottom of the cylinder, exhausting pressure above or below the piston, and means for controlling said outlets.

13. In a turbine-water-wheel governor, the combination of a casing for the wheel, of a gate admitting water to the wheel, a cylinder open at both ends to penstock-pressure, a piston within the cylinder connected to and operating the gate, and balanced between opposing pressures, an outlet in the top of the cylinder, and one in the bottom of the cylinder, exhausting pressures above or below the piston, and means controlled by the speed of the wheel for opening one or the other of said outlets, substantially as described.

14. In a turbine water-wheel, the combination of a casing, a gate admitting water to the wheel, a cylinder, a piston within the cylinder connected to and operating the gate and balanced between opposing pressures and means for admitting pressure above and below the piston, and means for exhausting the pressure above or below the piston.

15. In a turbine water-wheel, the combination of a casing, a gate supplying water to the wheel, a cylinder, a piston within the cylinder, connected to and operating the gate and balanced between opposing pressures, means for admitting pressure above and below the piston, and means for controlling the pressure and exhaust by the speed of the wheel.

16. In a turbine water-wheel, the combination of a casing, of a gate supplying water to the wheel, a cylinder, a piston within the cylinder, connected to and operating the gate and balanced between opposing pressures, means for admitting pressure above and below the piston, means for exhausting the pressure above and below the piston, and means for controlling the pressure and exhaust.

17. In a turbine water-wheel, the combination of a casing, of a gate supplying water to the wheel, a cylinder, a piston within the cylinder, connected to and operating the gate and balanced between opposing pressures, means for supplying pressure above and below the piston, controlled by the speed of the wheel, and means for exhausting the pressure above and below the piston.

18. In a turbine water-wheel, the combination of a casing, a gate supplying water to the wheel, a cylinder, a piston within the cylinder, connected to and operating the gate and balanced between opposing pressures, means for supplying pressure above and below the piston, means for exhausting the pressure above and below the piston, and means for controlling the exhaust of pressure above and below the piston.

19. In a turbine water-wheel, the combination of a casing, a gate supplying water to the wheel, a cylinder, a piston within the cylinder, connected to and operating the gate and balanced between opposing pressures, means for admitting pressure above and below the piston, means for exhausting the pressure above and below the piston, means for regulating the pressure admitted, and a valve in the discharge-outlet, for regulating the discharge of exhaust.

20. In a turbine water-wheel, the combination of a casing having water-inlets, a cylindrical gate controlling the admission of water to the inlets, a runner operated upon by the inlet-water, with a governor for controlling the gate, according to changes of speed, due to changes of load, which consists of a piston inclosed in a suitable casing, water-passages through or around said piston, admitting water from one side of it to the other, in limited quantities, said piston being balanced between pressures and connected to the gate so as to move it to open and close, a balanced valve loosely fitted in a valve-chest, to permit the passage of pressure around the valve in limited quantities, and having water-passages through and around it for the passage of pressure and exhaust, and adapted to admit pressure to one side, and to relieve pressure from the other side, of said piston, as it is moved, substantially as described.

21. In a turbine water-wheel, the combination of a casing having water-inlets, a cylindrical gate controlling the admission of water to the inlets, a runner operated upon by the inlet-water, with a governor for controlling the gate, according to changes of speed, due to changes of load, which consists of a piston inclosed in a suitable cylinder, passages through or around said piston, admitting pressures from one side of it to the other, in limited quantities, said piston being balanced between pressures and connected to the gate so as to move it to open and close, a balanced valve adapted to admit pressure to one side, and relieve pressure from the other side, of said piston, as it is moved, substantially as described.

22. In a turbine water-wheel, the combination of a casing having water-inlets, a cylindrical gate controlling the admission of water to the inlets, a runner operated upon by the inlet-water, with a governor for controlling the gate, according to changes of speed, due to changes of load, which consists of a piston inclosed in a suitable cylinder, passages through or around said piston admitting pressure from one side of the piston to the other, in limited quantities, said piston being balanced between pressures and connected to the gate so as to move it to open and close, a balanced valve fitted loosely in a suitable valve-chest, and permitting the passage of pressure around the valve, in limited quantities, passages from the valve-chest to the top and to the bottom of the cylinder, and an exhaust-passage from said valve-chest, the valve being adapted to admit pressure on one side, and relieve pressure from the other side, of said piston, as it is moved, and means actuated by the motion of the runner, connected to and actuating said valve to admit pressure to one side of the piston and exhaust from the other side of said piston, or vice versa, as the case may be, as the speed of the runner varies from normal.

23. In a prime-motor governor the combination of a controlling device for the prime motor, a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to the controller and balanced between opposing pressures, and means for exhausting the pressure on one or the other side of the piston, as and for the purpose specified.

24. In a prime-motor governor the combination of a controlling device for the prime motor a cylinder means for supplying pressure to both ends of said cylinder, a piston within the cylinder connected to the controller and balanced between opposing pressures, and means for exhausting the pressure on one or the other side of the piston, as and for the purpose specified.

25. In a prime-motor governor the combination of a controlling device for the prime motor a cylinder open at both ends to fluid-pressure, a piston within the cylinder connected to the controller and balanced between opposing pressures, and means for exhausting the pressure on one side of the piston controlled by the speed of the prime motor.

26. In a prime-motor governor the combination of a controlling device for the prime motor a cylinder, means for admitting fluid-pressure to both ends of the cylinder, a piston within the cylinder connected to the controller and balanced between opposing pressures, means for exhausting pressure from one or the other side of the piston, and means for controlling the pressure admitted and the exhaust by the speed of the prime motor.

27. In a prime-motor governor the combination of a controller for the prime motor a cylinder, means for admitting fluid-pressure to both ends thereof, a piston within the cylinder connected to the controller and balanced between opposing pressures, means for exhausting pressure on one or the other side of the piston, and means for controlling the pressure admitted by the speed of the wheel, and a valve controlling the exhaust.

28. In a prime-motor governor the combination of a piston balanced between opposing pressures, means for admitting pressure to both sides of the piston, means for exhausting pressure from both sides of the piston with a centrifugal governor controlling the admission and exhaust of pressure to and from the piston consisting of a screw driven by the prime motor, a nut, a pair of governor-weights and a fly-wheel, the screw having a rotary and vertical motion, the nut being threaded upon the screw and secured to it by means of a coiled spring, one end of which is connected with the nut and the other end to the screw, the governor-weights being connected to links which are secured at one end of the nut and at the other end to the fly-wheel, the nut being separated from the fly-wheel by a compression-spring, substantially as described.

664,395. **LIFE-PRESERVER.** HENRY J. ENNIS, Washington, D. C., assignor to George McGovern, Richmond, Va. Filed Apr. 19, 1900. Serial No. 13,527. (No model.)



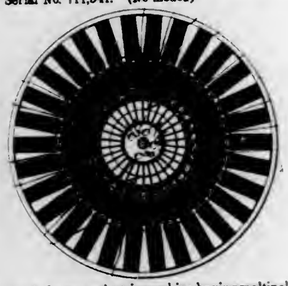
Claim.—1. As a new article of manufacture, a life-preserver comprising a collapsible impermeable belt provided with a single opening, and a cartridge charged with liquefied gas and detachably connected with said belt in said opening, said cartridge being provided with a self-closing valve having a pressure-button, for the purpose set forth.

2. The inflating-cartridge for use in connection with life-preservers and analogous buoyant bodies having a single opening, said cartridge having a valve adapted to be closed by the pressure of the liquefied inflating medium, and having a screw-threaded mouth, and a pressure-button for opening said valve, for the purpose set forth.

3. The combination with an inflatable vessel of an integral detachable cartridge adapted to have its body portion wholly inserted within said vessel, and having one end opening into the vessel and the other opening into the atmosphere, for the purpose set forth.

4. The combination with an inflatable vessel, of an integral detachable cartridge adapted to have its body portion wholly inserted within said vessel, and means for establishing communication between said vessel and cartridge, for the purpose set forth.

664,396. **DYNAMO-ELECTRIC MACHINE.** ISRAEL FISHER, Boston, Mass., assignor to Reuel W. Waters, Newton, Mass. Filed Apr. 3, 1899. Serial No. 711,541. (No model.)

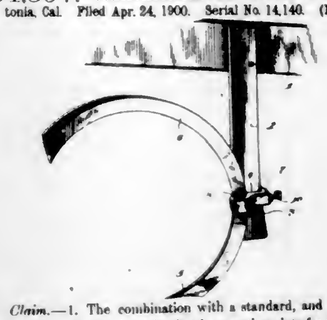


Claim.—1. A dynamo-electric machine having multipolar field-magnets, the adjacent poles of which alternate in sign; an armature having corresponding poles arranged in pairs, the poles of each pair being provided respectively with oppositely-wound coils, said coils being connected together in series; and a commutator having a segment for each armature-coil, the alternate commutator-segments being electrically connected with each other, and adjacent segments being connected respectively with the opposite ends of the series windings on the armature-poles, as set forth.

2. In a dynamo-electric machine, the combination with a multipolar field-magnet in which adjacent poles alternate in sign; of an armature having corresponding poles arranged in pairs, one member of each pair having a coil in series with an oppositely-wound coil on the other member; a commutator having a segment for each coil connected to one end thereof, the segments for each pair of coils being adjacent to each other; and conductors connecting each segment with the next but one thereto, as set forth.

3. In a dynamo-electric machine, the combination with a multipolar field-magnet in which adjacent poles alternate; an armature having two pole-pieces for each field pole-piece, said armature pole-pieces being slightly out of line with each other; coils for the adjacent pole-pieces of each set, adjacent coils being wound in opposite directions; a commutator for each set having adjacent segments connected respectively with said coils, the segments connected with each set of coils being also connected with each other; and brushes so arranged that the segments shift the current through the same at the time when the pole-pieces are substantially in line with the field pole-pieces, as set forth.

664,397. **CULTIVATOR-SHOVEL.** FREDERICK W. FRENCH, Bostonia, Cal. Filed Apr. 24, 1900. Serial No. 14,140. (No model.)



Claim.—1. The combination with a standard, and the shank of a cultivator-shovel, of a clamp having intersecting slots for the reception of the shank and the standard, respectively, and means for binding the clamp upon the shank and standard.

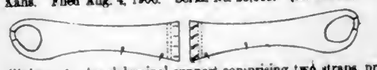
2. The combination with a standard, and an angular shovel-shank, of a clamp, having an angular slot for the reception of the shank, and another slot intersecting the vertex of the former slot and for the reception of the standard, the latter fitting snugly between the angular sides of the shank, and means for binding the clamp upon the shank and the standard.

3. The combination with a standard, and a substantially V-shaped shovel-shank, of a clamp having a substantially V-shaped slot for the reception of the shank, a longitudinal slot intersecting the vertex of the former slot, extending rearwardly between the opposite branches thereof, and for the reception of the standard, the latter fitting snugly between the opposite angular sides of the shank, and a set-screw entering the outer end of the longitudinal slot and bearing against the standard.

4. The combination with a standard, having a rearwardly-inclined lower end portion, the front edge thereof being dished, of a shovel, having an arcuate shank, and a clamp embracing the shank and the inclined portion of the standard, the shank also having a longitudinal and slidably-adjustable connection with the clamp.

5. A cultivator-shovel, comprising an arcuate angle-bar, which is substantially V-shaped in cross-section, and has its lower end cut transversely to form a broad point.

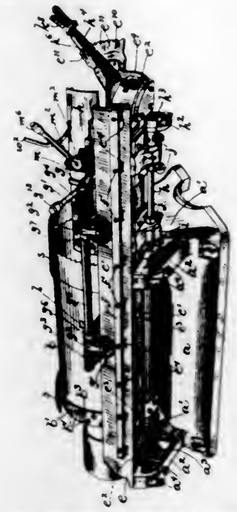
664,398. **ABDOMINAL SUPPORT.** HULDAH S. GATES, Rosedale, Kans. Filed Aug. 4, 1900. Serial No. 25,883. (No model.)



Claim.—1. An abdominal support comprising two straps, provided with armholes at their upper ends, and at their opposite ends with means for securing them together in front of the wearer, in combination with a perineal strap, secured to said straps in front of the wearer, a terminal portion secured to said straps behind the wearer, and elastic members connecting said perineal strap to said terminal portion; substantially as described.

2. An abdominal support comprising, in combination, two straps adapted to be crossed at the back of the wearer and provided with armholes in the upper ends, devices for securing the straps together in front of the wearer, a perineal strap detachably connected to said straps in front of the wearer, a terminal portion detachably connected to said straps behind the wearer, and elastic members connecting said terminal portion to said perineal strap; substantially as described.

664,399. **STAVE-SAWING MACHINE.** RUDOLPH P. GERLACH, Cleveland, and FRANK STAHL, Lakewood, Ohio. Filed Mar. 24, 1900. Serial No. 9,981. (No model.)



Claim.—1. In a machine of the character indicated, the combination, with the stationary bed of the machine, the cylinder-saw, supported from the said bed, the bolt-carriage for actuating the stave-bolt, that is to be operated upon, longitudinally of the saw, and a frame bearing the said carriage and rigid with the bed, of a gage-plate arranged forward and concentrically of the saw between the bolt-carriage and the saw's axial line, a carriage bearing the said plate and arranged below and having a travel at right angles to the travel of the bolt-carriage and being supported from the aforesaid frame, and means for actuating the gage-carriage in opposite directions, and the arrangement of parts being such that the gage-plate is actuated radially of the saw in the one direction or the other according as the gage-carriage is moved in the one or the other direction.

2. In a machine of the character indicated, the combination, with the stationary bed of the machine, the cylinder-saw supported from the said bed, the bolt-carriage having a travel outside of and longitudinally of the saw, and the frame bearing the bolt-carriage and rigid with the aforesaid bed, of a gage-plate arranged forward and concentrically of the saw between the path of the bolt-carriage and the axial line of the saw, two slides supported from the aforesaid frame below and arranged and movable at right angles to the travel of the bolt-carriage and having upright arms bearing the aforesaid plate, and means for actuating the said slides simultaneously, and the arrangement of parts being such that the aforesaid gage-plate is shifted radially of the saw in the one direction or the other according as the aforesaid slides are actuated in the one or the other direction.

3. In a machine of the character indicated, the combination, with the stationary bed of the machine, the cylinder-saw supported from the bed, the bolt-carriage arranged and movable outside of and longitudinally of the saw, and the frame bearing the said carriage and rigid with the bed, of a gage-plate arranged forward and concentrically of the saw between the travel of the bolt-carriage and the axial line of the saw, two slides arranged below and at right angles to the travel of the bolt-carriage, slideways formed upon and at the lower side of the aforesaid frame, racks formed upon the lower sides of the said slides, a shaft supported from the said frame, pinions operatively mounted upon the shaft and meshing with the racks, and means for turning the shaft, substantially as and for the purpose set forth.

4. In a machine of the character indicated, the combination, with the stationary bed of the machine, the cylinder-saw supported from the bed, the bolt-carriage arranged and movable outside of and longitudinally of the saw, and a frame bearing the said carriage and rigid with the bed, of a gage-plate arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage, two slides arranged a suitable distance apart below and at right angles to the path of the bolt-carriage, slideways formed upon the aforesaid frame for the said slides, racks formed upon the lower sides of the slides, a pinion-bearing shaft supported from the said frame and having its pinions meshing with the racks and provided with a lever, the hand-lever fulcrumed to the aforesaid frame, a link operatively connecting the hand-lever with the aforesaid shaft-lever, and means for locking the hand-lever in the desired adjustment, substantially as shown, for the purpose specified.

5. In a machine of the character indicated, the combination, with a cylinder-saw and the bolt-carriage arranged to move outside and longitudinally of the saw, of a gage-plate arranged outside and concentrically of the saw between the saw's axial line and the path of the bolt-carriage and adjustable radially of the saw, the frame or support that bears the gage-plate, and a hinge connection between the plate and its support and comprising sleeves formed upon the plate and the plate's support and arranged in line horizontally of and at or near the lower edge of the plate at the back side of the plate, and the pintle or pin forming the axial connection between the said sleeves.

6. In a machine of the character indicated, the combination, with the cylinder-saw, and the bolt carriage arranged and movable outside and longitudinally of the saw, of a gage-plate arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage and adjustable radially of the saw, the frame or support that bears the gage-plate, a hinge connection between the plate and its support and formed by a horizontally-arranged sleeve formed upon the plate's support longitudinally of and at or near the lower edge of the plate, and two ears or sleeves arranged in line with the first-mentioned sleeve and formed upon the back side of the plate, and the pintle extending within and longitudinally of the said sleeves.

7. In a machine of the character indicated, the combination, with the cylinder-saw, the bolt-carriage arranged and movable outside and longitudinally of the saw, and a gage-plate arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the said plate, and such a hinge connection between the gage-plate and its support, at the plate's lower edge, as will render the plate capable of being tilted laterally toward the path of the bolt-carriage, of a shaft supported and arranged longitudinally of the back side of the gage-plate, a lever operatively mounted upon the shaft and an arm formed upon the shaft and arranged to engage the back side of the gage-plate upon moving the lever in the required direction.

8. In a machine of the character indicated, the combination, with a cylinder-saw, the bolt-carriage arranged and movable outside and longitudinally of the saw, and a gage-plate arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the gage-plate, and such a hinge connection between the said plate and its support, at the plate's lower edge, as will render the plate capable of being tilted laterally toward the path of the bolt-carriage, of a shaft supported from and arranged longitudinally of the back side of the gage-plate, a lever operatively mounted upon the shaft and extending upwardly above the gage-plate, and arms formed upon the shaft and arranged to engage the back side of the gage-plate upon moving the lever toward the path of the bolt-carriage.

9. In a machine of the character indicated, the combination, with the cylinder-saw, the bolt-carriage arranged and movable outside and longitudinally of the saw, a gage-plate normally arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the said plate, and such a hinge connection between the gage-plate and its support, at the plate's lower edge, as will render the plate tiltable laterally toward the path of the bolt-carriage, of a shaft supported from and arranged longitudinally of the back side of the gage-plate, a lever operatively mounted upon the shaft, a projection formed upon the gage-support behind the gage below the shaft, and a latch operatively mounted upon the shaft and arranged to engage and overlap the outer end of the aforesaid projection in the normal position of the gage-plate, substantially as and for the purpose set forth.

10. In a machine of the character indicated, the combination, with the cylinder-saw, the bolt-carriage arranged and movable outside and longitudinally of the saw, a gage-plate normally arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the said plate, such a hinge connection between the gage-plate and its support at the plate's lower edge as will render the plate tiltable laterally toward the path of the bolt-carriage, of a shaft supported from and arranged longitudinally of the back side of the gage-plate, a hand-lever operatively mounted upon the said shaft, two projections formed upon the gage-support behind the gage below the shaft and a suitable distance apart, and latches operatively mount-

ed upon the shaft and arranged to engage and overlap the outer ends of the aforesaid projections in the normal position of the gage-plate, substantially as and for the purpose set forth.

11. In a machine of the character indicated, the combination, with the cylinder-saw, and the bolt-carriage arranged and movable outside and longitudinally of the saw, a gage-plate arranged forward and normally concentrically of the saw between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the said plate, and such a hinge connection between the gage-plate and its support at the plate's lower edge as will render the plate tiltable laterally toward the path of the bolt-carriage, of two suitably-applied springs arranged at the back side and a suitable distance apart longitudinally of the gage and acting to retain the gage in its normal position.

12. In a machine of the character indicated, the combination, with the cylinder-saw, and the bolt-carriage arranged and movable outside of and longitudinally of the saw, a gage-plate arranged forward and normally concentrically of the saw and between the saw's axial line and the path of the bolt-carriage, the frame or support that bears the said plate and is arranged at the back side of the plate, and such a hinge connection between the gage-plate and its support at the plate's lower edge as will render the plate capable of being tiltable laterally toward the path of the bolt-carriage, of bolts connected with the back side of the gage and extending through the gage-support, and springs confined upon the said bolts at the outer side of the gage-support and acting to retain the gage-plate in its normal position.

13. A machine of the character indicated, comprising a cylinder-saw, the bed supporting the saw, a frame *c* arranged alongside and longitudinally of the saw and comprising two side members *e'* and *e'* arranged a suitable distance apart and provided, respectively, with, an inwardly and laterally projecting flange extending longitudinally of the frame, a track having its rails formed upon the outer side of the different side members *e'* and *e'*, respectively, a bolt-carriage having wheels engaging the said rails, other wheels having their peripheries engaging the flange of the inner side member *e'*, and rollers or wheels having their peripheries engaging the lower side of the flange upon the other side member *e'*, substantially as and for the purpose set forth.

14. A machine of the character indicated, comprising a cylinder-saw; the bed supporting the saw; a frame rigid with the bed at one side of the saw, which frame is arranged longitudinally of the saw and comprises the two side members *e'* and *e'* arranged a suitable distance apart laterally and inclined in the direction of the saw, and a flange formed at the top and extending longitudinally of the outer member *e'*; a track having its rails formed upon the outer side of the different members *e'* and *e'*, respectively; the bolt-carriage having wheels engaging the said track; means for preventing displacement of the carriage laterally in the direction of the saw; wheels supported from the carriage and engaging the under side of the aforesaid flange and having external annular flanges arranged to cooperate with the edge of the said flange in preventing outwardly lateral displacement of the carriage.

15. A machine of the character indicated, comprising a cylinder-saw; the bed supporting the saw; a frame rigid with the bed at one side of the saw, which frame is arranged longitudinally of the saw and comprises the two side members *e'* and *e'* arranged a suitable distance apart laterally and inclined toward the saw, and provided, respectively, upon the outer side, with a series of lugs arranged at suitable intervals longitudinally of the frame; a rail-forming bar mounted upon the series of lugs of each member *e'*; the bolt-carriage having wheels engaging the said rails; means for preventing displacement of the carriage in the direction of the saw, and means for preventing displacement of the carriage upwardly from the rails.

16. In a machine of the character indicated, the combination, with the cylinder-saw, the bolt-carriage arranged and movable at one side and longitudinally of the saw, and the track engaged by the said carriage, of a rod arranged below and longitudinally of the path of the carriage and provided with an external shoulder, a spiral spring mounted upon the said rod and arranged to bear, at one end, against the said shoulder, a case or cover externally of the spring and arranged to bear against the opposite end of the spring and having an arm arranged to be engaged and actuated by the bolt-carriage during the travel of the said carriage during the sawing operation.

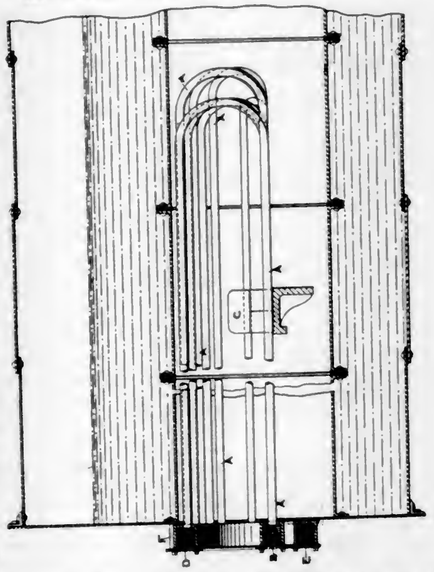
17. In a machine of the character indicated, the combination, with a cylinder-saw, the bolt-carriage arranged and movable at one side and longitudinally of the saw, and the track engaged by the said carriage, of a stationary rod *o* arranged below and longitudinally of the path of the carriage and provided with the shoulders o^2, the spiral spring *o'* upon the said rod, and the case *p* having the head *p'* and the arm p^2, all arranged and operating substantially as shown, for the purpose specified.

18. In a machine of the character indicated, the combination, with the horizontally or approximately horizontally arranged shaft, a cylinder-saw operatively mounted upon the shaft, the bolt-carriage arranged to move longitudinally and at one side of the saw, and the support for the bolt-carriage, of a trough arranged within and longitudinally of the saw between the shaft and the bolt-carriage, a track-forming rail mounted or formed upon the upper portion of the inner side wall of the trough, and the stave-ejector arranged to operate within and endwise of the trough, which ejector is operatively connected with the bolt-carriage and is provided with a member that is mounted upon and movable endwise of the aforesaid rail.

19. In a machine of the character indicated, the combination, with the horizontally or approximately horizontally arranged shaft, the cylinder-saw operatively mounted upon the shaft, the bolt-carriage arranged to move longitudinally of the saw at one side of the latter, and the support for the bolt-carriage, of a trough arranged within and longitudinally of the saw, between the shaft and the bolt-carriage, of a track-forming rail mounted or formed upon the upper portion of the inner side wall of the trough, and the stave-ejector arranged to operate within and endwise of the trough, which ejector is operatively connected with the bolt-carriage and is provided with a half-sleeve slidably mounted upon the aforesaid rail.

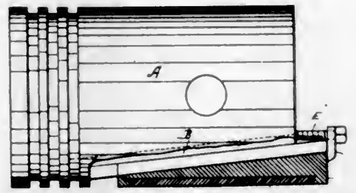
20. In a machine of the character indicated, the stationary bed *a* having the pedestals *a'* and *a'* and the two laterally-projecting and upwardly-inclined arms or brackets a^3 and a^3; a rectangular frame *e* removably mounted upon and rigid with the said arms and arranged longitudinally of and a short distance from the saw and extending forwardly of the forward end of the bed and forward of the saw, which frame is composed of a single casting forming two parallel side members *e'* and *e'* that extend longitudinally of the frame and are arranged at right angles to the frame-bearing surface of the aforesaid arms; the track-forming rails *f* and *f* supported from the outer side of the different aforesaid side members, respectively, and arranged longitudinally of the said side members; the bolt-carriage mounted upon and movable endwise of the said rails; the cylinder-saw supported from the aforesaid pedestals and arranged longitudinally of the path of the bolt-carriage and adjustable laterally toward and from the carriage; means for securing the saw in the desired adjustment, and a gage arranged forward and concentrically of the saw between the saw's axial line and the path of the bolt-carriage and supported from the aforesaid frame.

664,400. STEAM-GENERATOR. CLARENCE GLOVER, Leeds, England. Filed July 7, 1900. Serial No. 22,877. (No model.)



Claim.—The combination, with a boiler provided with two fire-tubes, of two chambers B B secured across the front ends of the said fire-tubes, a three-way inlet-pipe E connecting the said chambers together and to the boiler, two curved chambers D D secured over the chambers B B and connected separately to the boiler, and looped tubes for water connecting the chambers B B with the chambers D D and projecting within the said fire-tubes, the lower parts of the said tubes constituting the grate, substantially as described and shown.

664,401. PISTON FOR SINGLE-ACTING ENGINES. OLIVER F. GOOD, Dayton, Ohio. Filed Aug. 25, 1900. Serial No. 27,966. (No model.)

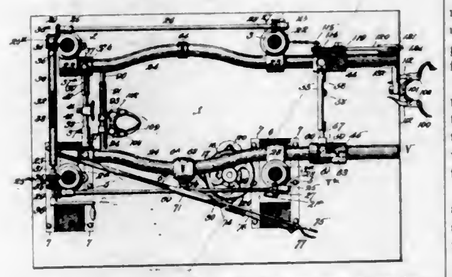


Claim.—1. A piston having a tapering wall on one side thereof with a dovetail projection extending approximately the entire length of said wall, a gib or shoe having a corresponding groove to receive said projection, ears projecting from said gib or shoe, and screws penetrating said ears and the wall of the piston and adapted to adjust said shoe to the desired position to compensate for the wear of the piston and cylinder, substantially as described.

2. In a piston having trunnions in its open end for the attachment of a connecting-rod, the combination with a piston having a portion of its wall extending on an incline approximately the length of the piston, the said wall having a groove C in its inner surface for the reception of the connecting-rod, and a dovetail projection B' on its outer surface, a gib or shoe having a corresponding dovetail groove adapted to receive said dovetail projection, ears projecting from the outer end of said gib or shoe and terminating in a plane coinciding with the highest plane of the incline wall, screws penetrating said ears and the incline wall of the piston, whereby the gib or shoe may be moved along the dovetail projection B' to increase the working diameter of the piston, and antifriction metal inclosing the working side of the said gib, substantially as shown and described.

3. A piston for gas-engines, the same having a tapering wall on one side in combination with a gib or shoe having a corresponding tapering surface adapted to fit against the tapering surface of the piston and to increase the diameter of said piston by being moved longitudinally, and means for adjusting said gib or shoe longitudinally with relation to the piston, substantially as and for the purposes specified.

664,402. SHOEING-STALL FOR HORSES. JACOB A. GRAY, Kansas City, Mo. Filed Jan. 25, 1900. Serial No. 2,763. (No model.)



Claim.—1. A shoeing-stall, provided with side bars, a breast-bar, a breech-bar, and a body-clamp arranged to swing in substantially a horizontal plane, substantially as described.

2. A shoeing-stall, provided with a leg-clamping mechanism suspended therefrom, and consisting of a series of parts pivotally connected together so as to accommodate leg movement of the knee and ankle joints, a dog forming one of said series of parts, to support the hoof in convenient position to be operated upon, means for holding the series of parts rigidly together, and means to effect the vertical adjustment upon the stall of the entire leg-clamping mechanism, substantially as described.

3. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of clamping devices, a hoof-elevating dog pivoted to the lower clamping devices, and means to secure said clamping devices and dog at any angle to each other desired, substantially as described.

4. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of extensibly-connected clamping devices, a hoof-elevating dog pivoted to the lower clamping devices, and means to secure said clamping devices and dog at any angle to each other desired, substantially as described.

5. A shoeing-stall, provided with a pivotally-suspended leg-clamping mechanism, embodying a plurality of clamping devices, comprising a pair of clamp-blocks carrying pivoted clasp-arms and spring-actuated dogs to lock said arms in operative position, a hoof-elevating dog pivoted to the lower clamp-block, and means to secure said blocks and dog at the desired angle with relation to each other, substantially as described.

6. A shoeing-stall, comprising a platform, a pair of front and a pair of rear vertical standards, sliding sleeves mounted on said standards, side bars connecting said sliding sleeves, a breast-bar and a breech-bar movable with the side bars, and a rack-and-pinion connection between said standards and said sleeves whereby the latter may be vertically adjusted upon the former, substantially as described.

7. A shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards and guided thereby, a breast-bar and a breech-bar movable with the side bars, a rack-and-pinion connection between the standards and the side bars, shafts for said pinions geared together, and means to operate the same, substantially as described.

8. A shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards and guided thereby, a breast-bar and a breech-bar movable with the side bars, a rack-and-pinion connection between the standards and the side bars, shafts for said pinions geared together, means to operate the same, and means to secure the side bars at the desired point of adjustment, substantially as described.

9. An expansible shoeing-stall, embodying vertical standards, side bars connecting the front and rear standards, extensible breast and breech bars, a rack-and-pinion connection between the side bars and the standards, an extensible shaft for the pinions of the front standards, and parallel shafts for the pinions of the rear standards, and geared at their front ends to said extensible shaft, substantially as described.

10. In an expansible shoeing-stall, a transversely-extending shaft, and a leg-clamping mechanism pivotally mounted on said shaft and adapted to swing in the direction of the length of the stall, and adjustable on said shaft transversely of the stall, substantially as described.

11. In an expansible shoeing-stall, an extensible shaft extending transversely thereof and adjustable longitudinally of the stall, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

12. In a shoeing-stall, a transverse shaft, a leg-clamping mechanism pivotally suspended from said shaft, and means to vertically adjust the latter, substantially as described.

13. In a shoeing-stall, a transverse shaft, a leg-clamping mechanism pivotally suspended from said shaft, and means to effect the vertical and longitudinal adjustment of the said shaft; the longitudinal adjustment to be in the direction of the length of the stall, substantially as described.

14. A shoeing-stall, embodying a pair of front standards, a pair of rack-bars extending longitudinally of the stall and vertically adjustable upon the front standards thereof, a transverse shaft, pinions thereon engaging said rack-bars, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

15. A shoeing-stall, embodying a pair of front standards, parallel rack-bars secured to the front standards and extending longitudinally of the stall, guide-frames secured to said rack-bars to form guide-slots, a transverse shaft, pinions mounted thereon and engaging said rack-bars within said guide-slots, and a leg-clamping mechanism pivotally suspended from said shaft, substantially as described.

16. A shoeing-stall, embodying a pair of front standards and parallel guide-bars, sleeves fitting slidingly on said standards and guide-bars, set-screws to lock said sleeves at the desired point, and a leg-clamping mechanism supported from said sleeves, substantially as described.

17. A shoeing-stall, embodying side bars, ratchet-tooth bars carried thereby, breech-bar-carrying sleeves adjustably mounted on said side bars, and spring-actuated dogs for engagement with the ratchet-tooth bars to lock the sleeves at the desired point, substantially as described.

18. A shoeing-stall, embodying side bars, sleeves adjustable thereon one of which has a lug, a breech-bar pivoted to one sleeve and having a hook on its free end for engaging said lug, and a dog to lock the bar and sleeve in such hooked relation, substantially as described.

19. An expansible shoeing-stall, embodying side bars, adjustable sleeves thereon, and an extensible breech-bar pivoted to one sleeve and detachably engaged with the other, substantially as described.

20. An expansible shoeing-stall, embodying side bars, sleeves adjustable thereon, and an extensible breech-bar, comprising a tube and a rod member fitting telescopically together, one pivoted to one sleeve and means for detachably engaging with the other sleeve, substantially as described.

21. A shoeing-stall comprising a framework provided with a pivoted arm 120, a leg-clamping mechanism pivotally carried by said arm, and operating means therefor, substantially as described.

22. A shoeing-stall, provided with a pivoted arm 120 at one side, a leg-clamping mechanism pivotally carried by said arm, and means for securing the arm in a substantially horizontal position, substantially as described.

23. A shoeing-stall, comprising a suitable framework, an adjustable sleeve thereon, an arm 120 pivoted to said sleeve, a leg-clamping mechanism pivotally carried by said arm, and means to secure the latter in a substantially horizontal position, substantially as described.

24. A shoeing-stall, embodying a suitable bifurcated support, a shaft journaled therein, and provided with an opening registering with said bifurcation, and with a diametric groove at one end, a spring-actuated dog engaging said groove, a leg-clamping mechanism and an arm secured in said shaft-opening and carrying said clamping mechanism, and adapted to swing in the bifurcation of the support, substantially as described.

25. A shoeing-stall, embodying a suitable bifurcated support, a shaft journaled therein, and provided with an opening registering with said bifurcation and with a diametric groove at one end, a spring-actuated dog engaging said groove, a leg-clamping mechanism, an arm engaging said shaft-opening and carrying said clamping mechanism and adapted to turn or rock in said opening, and means to prevent said arm turning or rocking in said shaft-opening, substantially as described.

26. A shoeing-stall, embodying a rotatable sleeve suitably supported, a leg-clamping mechanism, an arm pivotally attached to the lower end of said sleeve and carrying said clamping mechanism, and means to secure said arm in a substantially horizontal position, substantially as described.

27. A shoeing-stall, embodying a rotatable sleeve suitably supported, a leg-clamping mechanism, an arm carrying said clamping mechanism and pivotally attached to the lower end of said sleeve to swing from one side of the arm to the other and journaled in said sleeve so as to be rocked or turned on its own axis, and means to secure said arm in a substantially horizontal position, substantially as described.

28. A shoeing-stall, comprising a suitable framework, a rod 123 longitudinally adjustable with relation to said framework, an arm pivotally connected to said rod, a leg-clamping mechanism pivotally carried by said arm, means for elevating said rod, arm and leg-clamping mechanism, and means for securing the same in such elevated position, substantially as described.

29. A shoeing-stall, comprising a suitable framework, a clip provided with means for securing it to either side of the framework, suspended from the same, a rod adjustable in said clip, a leg-clamping mechanism, and an arm carrying said clamping mechanism and pivotally connected to said rod so as to swing from one side of the same to the other, substantially as described.

30. A shoeing-stall, comprising a suitable framework, a pivoted clip suspended therefrom, a rod adjustable in said clip, a leg-clamping mechanism, an arm carrying the same and pivotally connected to said rod, and means for raising or lowering said clip and securing it at the desired point, substantially as described.

31. A shoeing-stall, comprising a suitable framework, a lever mounted thereon, a clip pivoted to said lever, a rod adjustable in said clip, a leg-clamping mechanism, an arm carrying the same and pivotally connected to said rod, and means to secure the clip and lever at the desired point, substantially as described.

32. A shoeing-stall, comprising a suitable framework, a sleeve longitudinally adjustable upon the framework, a toothed lever mounted upon said sleeve, a leg-clamping mechanism, an arm supported from the lever and carrying said leg-clamping mechanism, and a second lever mounted on the sleeve provided with teeth engaging the teeth of the first-named lever, and means to secure said second lever at the desired point of adjustment and thereby hold one of the animal's legs above the ground, substantially as described.

33. A shoeing-stall, embodying a platform, stationary standards upon said platform, slide-plates mounted on said platform, standards erected on said slide-plates, a side bar connecting the stationary standards and a side bar connecting the standards upon said plates, breast and breech bars connecting the side bars, a shaft, a rack-and-pinion connection between said shaft and said slide-plates, and means to operate said shaft, substantially as described.

34. A shoeing-stall, provided with a body-clamp, consisting of an upper jaw and a lower jaw supported at one side of the stall, and a connection between the opposite side of the stall and the adjacent ends of said jaws, substantially as described.

35. A shoeing-stall, provided with a body-clamp, consisting of an upper jaw and a lower jaw, supported at one side of the stall, and a flexible connection adjustably connecting the opposite side of the stall with the adjacent ends of the jaws, substantially as described.

36. A shoeing-stall, provided with a sleeve pivoted thereon to rock vertically, and a body-clamp mounted upon said sleeve, and consisting of an upper jaw and a lower jaw, substantially as described.

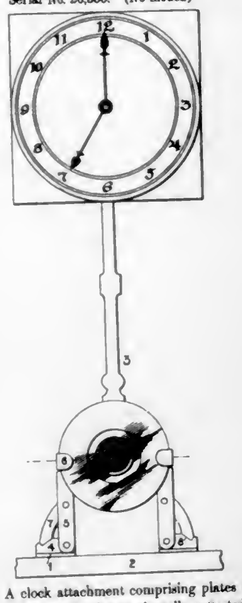
37. A shoeing-stall, provided with a body-clamp arranged to swing in a horizontal plane, and consisting of an upper jaw and a lower jaw pivotally mounted to operate vertically, substantially as described.

38. A shoeing-stall, provided with a pivoted sleeve which rocks vertically, and a body-clamp pivoted to said sleeve and adapted to swing horizontally, substantially as described.

39. A shoeing-stall, provided with a pivoted sleeve which rocks vertically, and a body-clamp pivoted to said sleeve and adapted to swing horizontally, and consisting of a bracket and a pair of jaws pivoted to said bracket to move vertically, substantially as described.

40. A shoeing-stall, provided with a body-clamp, consisting of a bracket pivoted to swing horizontally, a pair of jaws pivoted to said bracket to rock vertically, a lever pivoted to said bracket, links connecting the lever and said jaws at opposite sides of the fulcrum, and means to lock the lever at the desired point of adjustment, substantially as described.

664,403. PENDULUM-LOCKING DEVICE. HARRY GROOM, St. Louis, Mo., assignor to the Sempire Clock Company, of Missouri. Filed Aug. 11, 1900. Serial No. 26,553. (No model.)



Claim.—1. A clock attachment comprising plates mounted on the clock-case and having flanges, and arms pivotally mounted on said flanges, each of said arms having its end portion adapted to straddle the pendulum-bob, and each having a detent arranged to hold said arm in contact with said bob, substantially as described.

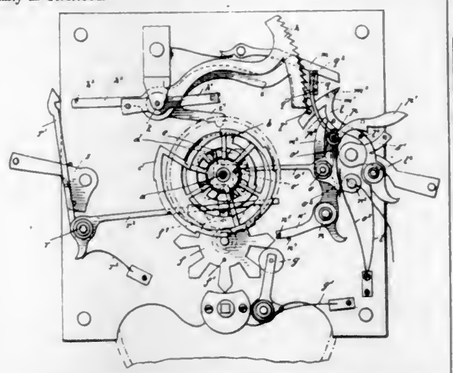
2. A clock attachment comprising flanged plates having notches in the upper edge of said flanges, and arms pivotally fastened to said flanges, each of said arms having its end portion adapted to straddle the pendulum-bob, and each having a detent arranged to coöperate with the corresponding notch, substantially as described.

664,404. CLOCK STRIKING MECHANISM. JACOB GUTEKUNST, Augsburg, Germany. Filed Apr. 19, 1898. Serial No. 678,182. (No model.)

Claim.—1. In combination, the hands-arbor, the hour and quarter-hour snails fixed thereto, the hour and quarter counter-racks, the pivoted supports for said racks, the fly-wheel, the hammer, and hammer-operating bars with means for operating the same, means for shifting said bars to prevent the operation to actuate the hammer and for arresting said fly-wheel, and a pivoted lever operated from said arbor and a lever carried thereby adapted to engage said support to remove the same from said racks and to release said fly-wheel and to shift said bars, substantially as described.

2. In combination, the arbor, the quarter-hour and hour snails fixed thereto, the counter-racks, the supports therefor the hammers, the means for operating the same controlled by said counters, means for removing said supports at the quarter-strike, a supplemental support for said hour count-rack alone and means for automatically removing the same for the hour-strike, substantially as described

3. In combination, the arbor, the quarter and hour snails, the counter-racks, the supports therefor the hammers, with means for operating the same controlled by said count-racks, means for removing said support at the quarter-hour strike, a supplemental support for the hour-rack comprising a pivoted lever having one arm projecting into proximity to said arbor and means for tilting the same to release said hour-rack, substantially as described.



4. In combination, the quarter-hour and hour snails, the arbor carrying the same, the count-racks, the supports therefor, the hammers with means for operating the same controlled by said racks, the extension from said hour-rack, the pivoted lever having one arm engaging therewith to support said rack alone and means for tilting a second arm of said lever to release the first arm from said extension, substantially as described.

5. In combination, the quarter-hour and hour snails, the arbor carrying the same, the count-racks, the supports therefor, the hammers with means for operating the same, controlled by said racks, the extension from said hour-rack, the pivoted lever having one arm engaging therewith to support said rack, and means automatically operating for tilting a second arm of said lever to release the first arm from said extension, substantially as described.

6. In combination, the quarter-hour and hour snails, the arbor carrying the same, the count-racks, the supports therefor, the hammers with means for operating the same controlled by said racks, the extension from said hour-rack, the pivoted lever having one arm engaging therewith to support said rack and means manually operated for tilting a second arm of said lever to release the first arm from said extension, substantially as described.

7. In combination, the hour and quarter-hour snails, the arbor carrying the same, the count-racks, the pivoted support therefor, the hammer and sliding arms for actuating the same, the fly-wheel, the forked arm fixed to the racks support arbor, the member of said fork being adapted to control said sliding arms and said fly-wheel, a lever having one of its arms extending into proximity to the snail-arbor, and means carried by said arbor adapted to tilt said arm and a second lever carried by a second arm of the first lever adapted to engage said support to remove the same from said racks and release said fly-wheel and position said sliding bars, substantially as described.

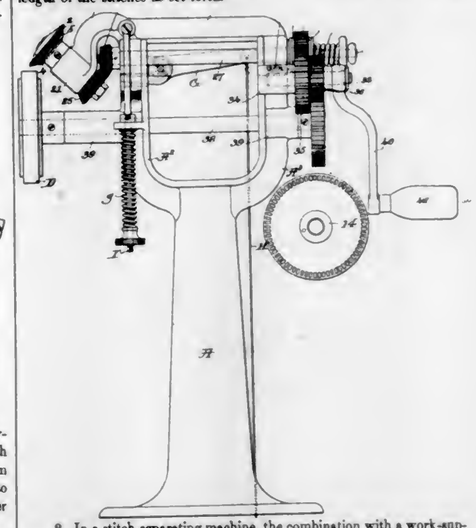
8. In combination, the hour and quarter-hour snails, the support common to the same, the hour-rack the independent support for the hour-rack, the hammer with means for operating the same controlled by said racks and the lever adapted to be tilted manually said lever having one arm adapted to press the common support to move the same from beneath said racks, and a second arm adapted to release said independent support for the hour-rack, substantially as described.

9. In combination, the hour and quarter-hour snails, the count-racks, the supports therefor, the hammer with means for operating the same controlled by said racks, the pivoted lever for removing the supports from said racks, and the means independent of said pivoted lever for throwing said supporting removing means out of operation, substantially as described.

10. In combination, the hour and quarter-hour snails, the count-racks, the supports therefor, the hammers with means for operating the same, the independent hour-rack support, means for normally holding the same in engagement, means for detaching the same automatically and the means for throwing the same out of operation, substantially as described.

664,405. STITCH-SEPARATING MACHINE. JOHN B. HADAWAY, Brockton, Mass. Filed Mar. 22, 1899. Serial No. 710,082. (No model.)

Claim.—1. In a stitch separating and pricking-up machine, the combination of a revoluble feed-wheel, and a stitch-separating wheel composed of a central hub and a series of thin spring-steel blades set firmly in said hub at uniform distances apart and radiating therefrom, each blade being constructed and adapted to spring independently between its outer end and the hub in which it is set to accommodate itself to the varying length of the stitches as set forth.

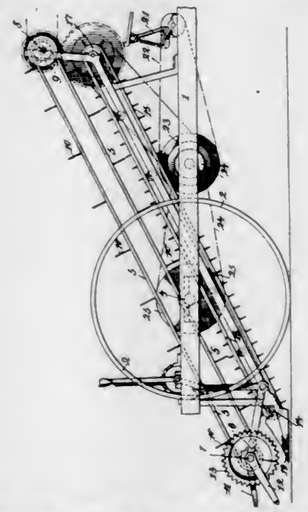


2. In a stitch-separating machine, the combination with a work-supporting feed-wheel, of a stitch-separating wheel, mechanism to rotate the work-supporting feed-wheel and stitch-separating wheel, and a frictional connection between the stitch-separating wheel and its rotating mechanism, substantially as described.

3. In a stitch-separating machine, the combination with a work-supporting feed-wheel, of a stitch-separating wheel, comprising a plurality of radially-disposed spring blades or tools firmly secured therein, and stops interposed between the blades or tools arranged to limit their movement toward and from each other, substantially as described.

4. In a stitch-separating machine, the combination with a hub, of a series of radially-disposed spring blades or tools secured therein, the working ends of said blades or tools being permitted to spring toward and from each other to accommodate themselves to variations in the length of stitches, substantially as described.

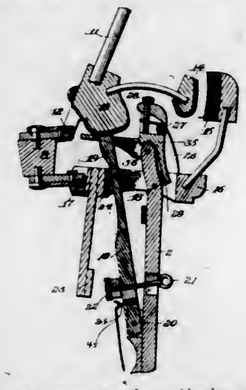
664,406. POTATO-HARVESTING MACHINE. HINRICH HARMS and HEINRICH SEEGELKE, Eystrup, Germany. Filed Apr. 13, 1900. Serial No. 12,742. (No model.)



Claim.—The combination in a potato-harvesting machine of plant-raisers 11 and 12, rotary cutters 13 for separating the plant from the root-

stock, a share for raising the root-stock and the earth adhering thereto, an elevator 15, an endless chain 5 with spikes 10 preventing the root-stocks from falling back in the elevator, a vibratory sieve 20, a rake 26, a roller 28 for separating the potatoes from the quick-grass and the like, a collecting-dish 29, a conveyer with blades 30 in a casing 33 for depositing the potatoes harvested in a suitable receptacle and transmission means for actuating the various organs from the wheels of the machine, substantially as described and shown.

664,407. PIANO-ACTION. JOHN J. HEALY, Rochester, N. Y., assignor of one-half to Charles E. Van Laer, same place. Filed Aug. 28, 1900. Serial No. 28,348. (No model.)



Claim.—1. In a piano-action the combination with the lifter, the jack carried thereby, the rocker having the jack-tripper thereon and the hammer having the knuckle with which the jack coöperates, of the adjustable stop mounted on the jack and coöperating with the tripper.

2. In a piano-action the combination with the lifter, the jack pivoted on the rear side thereof, the jack-spring, the adjustable stop mounted on the jack, and having the operating end extending forward of the lifter, of the rocker pivoted to a stationary support and to the lifter, and having the tripper-arm and the back check thereon, and the hammer provided with the knuckle and the check-arm.

3. In a piano-action the combination with the lifter, the jack pivoted to the rear side thereof, the adjustable screw extending loosely through the lifter and having the pad at its rear end, of the pivoted rocker having the aperture for the passage of the jack and to which the lifter is pivoted, the tripper-arm and back check on the rocker, the hammer having the knuckle and the check-arm thereon.

4. In a piano-action, the combination with the hammer having the knuckle, of the lifter, the jack thereon, the rocker pivoted to a stationary support, and also pivoted to the lifter, and a repeating-rocker pivoted on the lifter and yieldingly engaging the knuckle.

5. In an upright piano-action, the combination with the hammer having the knuckle, the vertically-movable lifter, the jack thereon engaging the hammer-knuckle, and the rocker pivoted to a stationary support and to the lifter, of the repeating-rocker pivoted to the lifter independently of the main rocker and having the portion engaging the hammer-knuckle at the side of the portion engaged by the jack and spring devices for holding said repeating-rocker in yielding engagement with the knuckle.

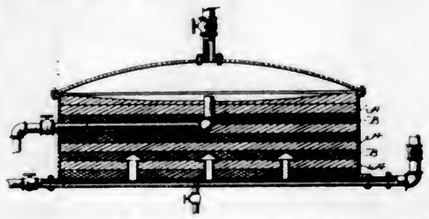
6. In a piano-action, the combination with the hammer having the knuckle and check, and the vertically-movable lifter and the jack thereon, of the pivoted rocker, having the jack-tripper and the back check, said rocker being pivoted to the lifter, the repeating-rocker pivoted to the lifter and adapted to engage the hammer-knuckle, and the spring between the main rocker and the repeating-rocker.

7. In an upright piano-action, the combination with the hammer having the knuckle, of the lifter, the jack pivoted thereon engaging the knuckle, the rocker pivoted to a stationary support and to the lifter, the repeating-rocker pivoted on the lifter independently of the main rocker having the aperture for the passage of the jack and adapted to engage the knuckle on opposite sides of the latter and a spring for operating the repeating-rocker on its pivot.

8. In a piano-action, the combination with the hammer having the knuckle and the check of the rocker pivoted to a stationary support and having the back check, the vertically-movable lifter pivoted to the rocker and extending above it, the jack pivoted to the lifter, extending above the rocker and engaging the knuckle, the repeating-rocker pivoted to the lifter above the main rocker and engaging the sides of the knuckle and the spring between the two rockers for raising the repeating-rocker.

9. In a piano-action, the combination with the hammer having the knuckle and check, the perforated rocker pivoted at one end to a stationary support having the back check and the tripper thereon, the vertically-movable lifter pivoted to and extending above the rocker, the jack pivoted to the rear side of the lifter, extending through the perforation therein and engaging the knuckle, the repeating-rocker pivoted to the lifter above the main rocker having the aperture for the passage of the jack and adapted to engage the knuckle, and the adjustable spring engaging the two rockers.

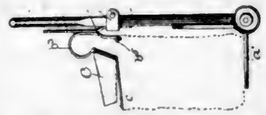
664,408. FILTER. JOHN C. HENDERSON, New York, N. Y., assignor to the Maize Products Company, same place. Filed May 4, 1900. Serial No. 15,516. (No specimens.)



Claim.—1. A filtering composition embodying fullers' earth and sand in alternate layers or strata.

2. A filtering composition consisting of alternate layers or strata of fullers' earth and sand in substantially equal proportions.

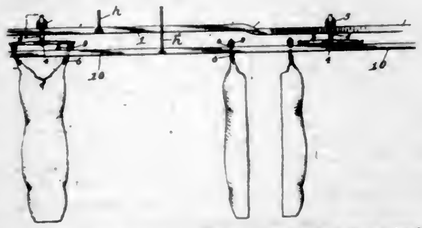
664,409. BAG-HOLDER. SCHUYLER C. HICKS and PETER L. HOFFMAN, New Carlisle, Ind. Filed May 12, 1900. Serial No. 16,532. (No model.)



Claim.—1. A bag-holder comprising a support; a vertically-extending leaf-spring secured to said support at a point intermediate of its ends, said ends being mounted to allow of a yielding movement toward and from each other relatively; and substantially rigid bag-engaging portions secured to the free ends of said spring.

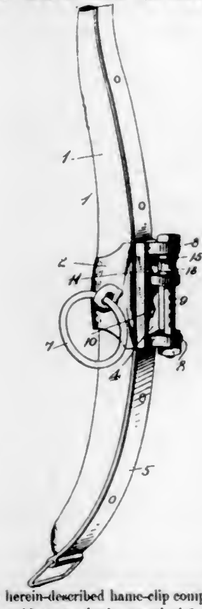
2. A bag-holder comprising a support; a vertically-extending leaf-spring secured to said support at a point intermediate of its ends, said ends being mounted to allow of a yielding movement toward and from each other relatively; a hopper secured to one end of said spring, said hopper having a flared bottom portion to receive and support a portion of the bag; and a cross-bar, having twisted ends, secured to the opposite free end of said spring, said twisted ends and said flared portion forming a substantially large supporting-surface for the bag.

664,410. APPARATUS FOR HANDLING ANIMAL-CARCASSES. WALTER C. JARVIS, Indianapolis, Ind. Filed July 2, 1900. Serial No. 22,331. (No model.)



Claim.—The combination, in an apparatus for handling animal-carcasses in packing-houses, of two tracks, one arranged somewhat higher than the other and having at a suitable point a declivity therein, a truck mounted on the upper track, a gambrel suspended from the truck, a pair of auxiliary trucks separably connected with the gambrel and adapted to take the lower track when the main truck descends the declivity in the upper track, and means for hanging the carcasses to said auxiliary trucks, all substantially as described and for the purposes specified.

664,411. HAME-CLIP. WILLIAM C. JOHNSON, Waukon, Iowa. Filed May 12, 1900. Serial No. 16,543. (No model.)



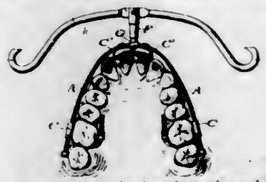
Claim.—1. The herein-described hame-clip comprising a body portion 2 having upon one side an anchoring-terminal 3 and upon the other side a right-angled extension 4; a lug permanently secured to each end of said extension 4; a plurality of removable lugs each having an eye and a stem the latter being adapted to be received by an aperture in the extension 4; a bolt passing through eyes in the fixed and removable lugs, all substantially as specified and for the purpose set forth.

2. A hame-clip comprising a body portion having an anchoring-terminal 3 and a right-angled extension 4, the latter being provided at each end with stationary lugs having vertically-disposed apertures; a plurality of lugs adapted to be anchored in apertures located intermediate said stationary lugs whereby the space between the removable and fixed lugs may be regulated as desired, substantially as specified and for the purpose set forth.

3. A hame-clip comprising a body portion; means to attach said body to the hame and a right-angled extension formed on said body having a stationary lug at each end provided with an aperture; in combination with a plurality of removable lugs each having an eye and an anchoring-stem, the latter being provided with a cross-head adapted to be received by a vertically-disposed slot in said right-angled extension whereby when said stem is entered in said slot and the lug is turned one-quarter around, the apertures in the end of the lug will register with the apertures in the stationary lugs and receive a bolt by which the end of the tug may be adjustably secured in place between any two of said lugs substantially as specified and for the purpose set forth.

4. A hame-clip and means to secure the same upon the hame, said clip having an upper and lower stationary lug each provided with an aperture, and a plurality of removable lugs and means to adjustably secure said lugs in place whereby the space between one of the stationary lugs and a removable lug may be regulated to receive the end of the tug, all substantially as specified and for the purpose set forth.

664,412. TEETH-REGULATING APPLIANCE. MILAND A. KNAPP, Minneapolis, Minn. Filed Oct. 17, 1900. Serial No. 33,326. (No model.)



Claim.—1. A curved protrusion-bow for teeth-regulating appliances having a centrally-located standard pivoted thereto in such manner that the bow is capable of being rocked in the line of its curvature relatively to said standard, substantially as and for the purpose set forth

2. A protrusion-bow for teeth-regulating appliances having a centrally-located standard pivoted thereto, said standard being provided with a chuck adapted to grip the arch-bar member of said appliance, substantially as and for the purpose set forth.

3. A protrusion-bow for teeth-regulating appliances having a standard projecting from its center, said standard being provided with a split chuck having detachable connection therewith, substantially as and for the purpose set forth.

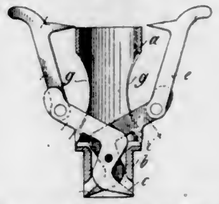
4. A curved protrusion-bow for teeth-regulating appliances having a centrally-located standard pivoted thereto, said standard being provided with a chuck having turning connection therewith, substantially as and for the purpose set forth.

5. A protrusion-bow for teeth-regulating appliances having a standard projecting from its center, said standard being provided with a split chuck, the bore of which passes transversely through it, substantially as and for the purpose set forth.

6. In teeth-regulating appliances, the combination of and arch-bar adapted to be secured to the teeth inside the mouth, a curved protrusion-bow to be located outside the mouth and provided with a central standard pivoted thereto in such manner that said bow may be rocked in the line of its curvature relatively to said standard, and a chuck having separable and swiveling connection with said standard and provided with a transverse bore for gripping said arch-bar so that said chuck may rock about said arch-bar but cannot be rocked in the line of curvature thereof, substantially as set forth.

7. In teeth-regulating appliances, the combination of a protrusion-bow, an arch-bar, and a sliding connection between said protrusion-bow and said arch-bar, whereby said protrusion-bow may be moved toward and away from said arch-bar to a certain extent without separating therefrom, substantially as and for the purpose described.

664,413. DEVICE FOR SECURING HANDLES OF BROOMS, SCRUBBING-BRUSHES, &c. WILHELM KNEPER, Dortmund, Germany. Filed Aug. 18, 1900. Serial No. 27,355. (No model.)



Claim.—1. An improved device for securing the handles of brooms, scrubbing-brushes and other implements or tools comprising in combination a tubular portion having a narrower bottom end, and a pair of joint-levers provided with a plurality of hooks acting in opposite directions, substantially as set forth.

2. An improved device for securing the handles of brooms, scrubbing-brushes and other implements or tools comprising in combination a tubular portion having a narrower bottom end and a plurality of lateral openings, and a pair of joint-levers provided with a plurality of hooks acting in opposite directions, the lower members of said joint-levers being movable around a common pivot in the bottom end of the tubular portion, substantially as described and shown.

3. The combination of a tubular portion having a narrower bottom end and a plurality of lateral openings, with a pair of joint-levers, acting in opposite directions, said angle-levers having their lower members movable around a common pivot in the bottom end of the tubular portion and provided with outwardly-directing points, while the upper members are provided with inwardly-directing points and handle portions, substantially as described and shown.

664,414. BREAK-AWAY LADDER. FRANK M. Z. KNIGHT, New Haven, Conn. Filed Apr. 10, 1899. Serial No. 712,457. (No model.)

Claim.—1. The combination of two ladder-sections pivotally jointed at their inner ends, spring connections between the sections, extending from some intermediate point of each ladder-section to an arm projecting from the other ladder-section to a point above the pivot, and means for locking the sections in extended position in line with each other, substantially as described.

2. The combination of two ladder-sections pivotally connected together, arms projecting from each section and overhanging the other, springs connecting each section with the arms of the other at a point above

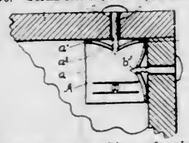
the pivot, and locking mechanism to secure the sections in extended position, substantially as described.



3. The combination of two ladder-sections, pivotally connected upon a suspended bar, of upwardly-projecting arms extending from the inner end of each section, a spring connected to each arm and the other ladder-section and locking mechanism for holding the sections in a horizontal position, substantially as described.

4. The combination of two ladder-sections each having triangular braced side frames with bolt-sockets, upwardly-projecting arms extending beyond the pivot-point of the sections, springs extending from the arms on one section to an intermediate point on the other section, a double-ended spring-bolt mechanism to be placed between the triangular frames and engage in the registering bolt-sockets, and a curved guard to prevent the bolts striking the ladders when disengaged, substantially as described.

664,415. BOX-FASTENER. HARRY C. KNOX, Kansas City, Mo. Filed Sept. 6, 1900. Serial No. 29,207. (No model.)



Claim.—1. A box having suitable perforations and corner-plates within the box, non-rotating bolts each having a head and a shank provided with ratchet-teeth, and longitudinally-extended spring lips or catches upon said plates, having their free ends inclined to an edge and adapted to engage with the ratchet-teeth upon the shanks of said bolt.

2. A box having suitable perforations and a corner-bracket having a top and a non-rotating bolt having a head, and a shank provided with ratchet-teeth upon opposite sides thereof, said top of the bracket having longitudinally-extended spring lips or catches forming an integral part thereof and the free ends of said strips inclined to an edge.

3. A box having suitable perforations and a corner-bracket having a top and sides extended at right angles to each other and adapted to secure the parts of a box together, non-rotating fastening-bolts each having a head and a shank provided with ratchet-teeth upon opposite sides, and a wedge-shaped lower end, and separate lips or catches integral with the top and sides of said bracket, the free edges of which are inclined to an edge and engage with the teeth on the shanks of said bolts.

664,416. SHAFT-LOOP. AUGUSTINE KRAUSER, Portsmouth, Ohio. Filed Sept. 7, 1900. Serial No. 29,330. (No model.)



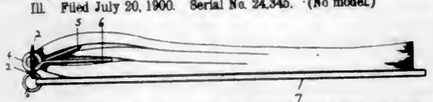
Claim.—1. The combination with a curved plate; of spring-arms hinged at opposite sides thereof; a belly-band; a casing on the end thereof pivoted between the arms; a tongue to the casing; and an outward extension to the plate adapted to be engaged by said tongue.

2. The combination with a curved plate; of adjustable spring-arms hinged at opposite sides thereof; a belly-band; a casing on the end thereof between the arms; a tongue to the casing; and an outward extension to the plate adapted to be engaged by said tongue.

3. The combination with a curved plate having transversely-extending grooves therein; of a slotted plate adapted to engage any one of said grooves; means for locking said plate in engagement with a groove; spring-arms hinged to the slotted plate at opposite sides thereof; a belly-band; a casing on the end thereof pivoted between the arms; a tongue to the casing; and an outward extension to the curved plate adapted to be engaged by said tongue.

4. The combination with a curved plate having grooves therein; of a ring pivoted to said plate at the bottom thereof; a buckle at the upper end of the plate; a slotted plate adapted to engage a groove; a bolt extending from the curved plate through the slotted plate and adapted to hold the same in engagement with a groove; spring-arms hinged to the slotted plate at opposite sides thereof; a belly-band; a casing on the end thereof pivoted between the arms; a tongue to the casing; and an outward extension to the plate adapted to be engaged by said tongue.

664,417. BOOK-MARKER. CHARLES W. KROMENAKER, Chicago, Ill. Filed July 20, 1900. Serial No. 24,345. (No model.)



Claim.—The herein-described book-marker comprising the sections 5 and 6 provided with the eyelets 3 and 4 respectively; a pair of anchoring-sections 1 connected to said eyelets; a base-section 7 and means to connect said section to the eyelets 2 formed upon the ends of the section 1, all substantially as specified and for the purpose set forth.

664,418. HEADLIGHT. FRED B. LASH, Farmersburg, Ind. Filed Oct. 17, 1899. Renewed Oct. 18, 1900. Serial No. 33,450. (No model.)



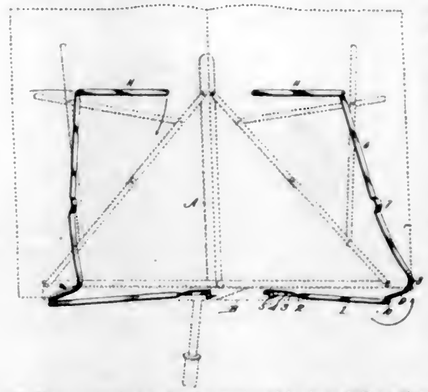
Claim.—1. As an improvement in headlights, the combination with a suitable housing, of a reflector disposed within said housing, and having a radial flange; a metallic casing fitting said reflector; a cushion of rubber or the like interposed between said casing and reflector; a suitable lamp mounted within the same and having its chimney extending through said reflector and casing; a conveyer-pipe cooperating with said lamp, in combination with a supply-tube cooperating with said conveyer-tube and having an auxiliary flue extending through a portion of its length whereby the heat of the chimney will be directed through said flue and thereby more quickly transform the oil into gas in the manner specified and for the purpose set forth.

2. The herein-described headlight comprising an exterior housing 1; a reflector proper having a jacket of rubber and an exterior casing of metal disposed within said housing and means to hold said parts in an adjusted position, in combination with a lamp mounted within said reflector and an oil-supply pipe having an auxiliary flue disposed in the interior thereof whereby the oil will be more quickly vaporized by the heat of the lamp passing through it in the manner specified and for the purpose set forth.

664,419. ATTACHMENT FOR BOOK OR MUSIC RACKS. WILLIAM A. LUBY, Kansas City, Mo. Filed Feb. 19, 1900. Serial No. 5,797. (No model.)

Claim.—1. The combination of a book or music rack having a shelf, of an attachment, comprising an arm secured to the under side of the shelf and extending longitudinally thereof at all times and of resilient construction so that it shall be capable of movement at its outer end in a plane about parallel with and transversely of the under side of the shelf, and a second arm pivoted at its lower end below the shelf to the first-named arm and capable of swinging to an operative position above and an inoperative position below the shelf, and provided with a loop near its pivoted end, substantially as and for the purpose set forth.

2. The combination of a book or music rack having a shelf, a spring-arm secured to the rack at the under side of the shelf, and provided at its anchored end with a forwardly-disposed hook, and an arm pivoted to said spring-arm and adapted to occupy an operative position above or an inoperative position below the shelf and upon the hook, and provided with a loop near its pivoted end, substantially as described.



3. The combination of a book or music rack having a shelf, a spring-arm secured to the rack at the under side of the shelf, a leaf-holding arm pivoted or hinged to the free end of the spring-arm, and provided with a loop into which the shelf is adapted to project and with a finger or thumb loop, a supplemental arm pivoted or hinged to the leaf-holding arm, and a forwardly-disposed hook depending from the anchored end of said spring-arm, to receive and support the leaf-holding and supplemental arms when folded to inoperative position, substantially as described.

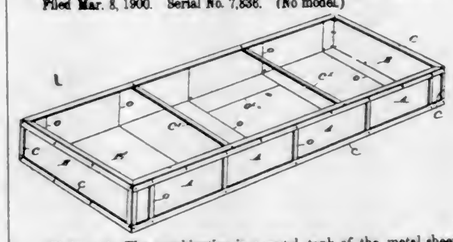
4. The combination of a book or music rack having a shelf, and an attachment, consisting of an arm pivotally supported at one end from said shelf so as to be capable of swinging only in a plane substantially parallel with said shelf and the face of the rack, and provided with a loop near said pivoted end having one side always underlying said shelf; said arm being of resilient construction so that the part at the side of the loop opposite to the pivotal point of the arm shall be capable of movement in a plane at right angles to the pivotal movement of the arm and thereby accommodate books of varying thickness on the rack, substantially as described.

664,420. MACHINE FOR TOPPING BEETS. JULIUS H. LUHRS, Fruita, Colo. Filed Jan. 4, 1900. Serial No. 357. (No model.)



Claim.—A machine for topping beets and other plants, the machine comprising a frame, a wheeled axle mounted therein at one end thereof, carrying wheels for the opposite end thereof, a sprocket-wheel attached to the said wheeled axle, approximately at the longitudinal center of the machine, a cutter-shaft mounted transversely in the frame and projecting beyond the sides thereof, a sprocket-wheel attached to the cutter-shaft, a chain running between the sprocket-wheels to drive the cutter-shaft, and cutters attached to the respective ends of the cutter-shaft outside the frame, the cutters each comprising a spider-like body having blades extended outward from the arms thereof approximately at right angles thereto so as to lie in the plane of the ground.

664,421. METAL TANK. FREDERICK P. MANNING, Batavia, Ill. Filed Mar. 8, 1900. Serial No. 7,836. (No model.)

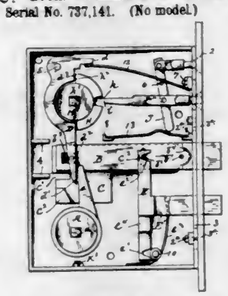


Claim.—1. The combination in a metal tank of the metal sheets A A A A, the lock-seams O O O O O joining the metal sheets A A A A, the ends B B lock-seamed onto the sheets A A A A and having the folds S S S S and the rivets U U U U, the angle-iron C C C C C C C C, the braces C' C' all substantially as described and set forth.

2. The combination in a metal tank of the angle-iron C C C C C C C, the braces C' C' the ends B B having the folds S S S S and the rivets U U U U, the lock-seam O' running lengthwise of tank E and joining two sheets of metal of sufficient length and breadth to form both sides and bottom of tank E, substantially as set forth and described.

3. In a metal tank the combination of the metal sheets A A A A, the seams O O O O O and O', the ends B B, the angle-iron C C C C C C C, the braces C' C', constructed as set forth and described.

664,422. LOCK. WILLIAM B. MOORE, Chicago, Ill. Filed Nov. 15, 1899. Serial No. 737,141. (No model.)



Claim.—1. In a lock, a sliding latch-bolt and invertible means for locking same in its projected position in connection with stops secured to the lock-case, said means being pivotally secured to said latch-bolt and operating by gravity to lock the latch-bolt in said position.

2. In a lock, a sliding latch-bolt, one or more invertible locking-plates pivoted to the latch-bolt and operating by gravity in connection with stops or lugs secured to the lock-case, to lock the latch-bolt in its projected position, and means for raising and retracting said locking plate or plates.

3. In a lock, a sliding latch-bolt, gravity-operated locking plate or plates pivoted to said latch-bolt, stops or lugs secured to the lock-case to engage with said locking-plates, means independent of the latch-bolt for supporting said locking-plates, said means being also adapted to release said plates.

4. In a lock, a sliding latch-bolt, one or more locking-plates pivoted to the latch-bolt and adapted to lock same in its projected position, means independent of the latch-bolt for supporting and releasing said plate or plates, said means being automatically operated by the opening and closing of the door to which the lock is attached.

5. In a lock, a sliding latch-bolt, one or more locking-plates pivoted to the latch-bolt and adapted in connection with stops on the lock-case to lock same in its projected position, means independent of the latch-bolt for supporting and releasing said locking plate or plates, and means for raising and retracting said locking plate or plates.

6. In a lock, a sliding latch-bolt, a gravity-operated locking-plate pivoted thereto, a knob-operated lever adapted to raise said locking-plate

and retract and project said latch-bolt, and means independent of the latch-bolt for supporting and releasing said locking-plate.

7. In a lock, a sliding latch-bolt, a gravity-operated locking-plate pivoted thereto, a knob-operated lever adapted to raise said locking-plate and retract and project said latch-bolt, and means independent of the latch-bolt for supporting and releasing said locking-plate, said means being adapted to be automatically operated by the opening and closing of the door to which the lock is secured.

8. In a lock, a sliding latch-bolt, a locking plate or plates pivoted thereto and having portions adapted to be engaged by the wards of a key, means for sliding said latch-bolt, and means independent of the latch-bolt for supporting and releasing said locking plate or plates.

9. In a lock, a sliding latch-bolt, a locking-plate pivoted thereto, and having portions adapted to be engaged by the wards of a key, and having a slot therein, a knob-operated lever having a portion adapted to engage said slot, means for sliding said latch-bolt, and means for supporting and releasing said locking-plate.

10. In a lock, a sliding latch-bolt, a locking-plate pivoted thereto, adapted to operate by gravity, having a portion adapted to be engaged by the wards of a key and having a slot therein, a knob-operated lever having a portion adapted to engage said slot, and means for supporting and releasing said locking-plate, said means being automatically operated by the opening and closing of the door, as set forth.

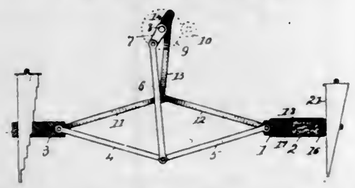
11. In a lock of the character described, a removable key-plate adapted to embrace the lock-case, the latter having ways formed therein to receive the same, as set forth.

12. In a combination key and cylinder lock, a removable key-plate adapted to embrace the case, a cylinder adapted to be rotatably mounted in the case, a hub operated by said cylinder, a sliding latch-bolt, a gravity locking-plate, a lever engaging said latch-bolt and locking-plate and adapted to be engaged by said hub, and means for supporting and releasing said locking-plate, substantially as set forth.

13. In a lock, a removable cylinder rotatably mounted in the lock-case, a hub operated by said cylinder, a lever operated by said hub, a sliding latch-bolt, a gravity-operated locking-plate pivoted to said latch-bolt, means for raising said locking-plate, and means connecting said lever, latch-bolt and locking-plate whereby the latch-bolt may be retracted as set forth.

14. A lock having its locking parts reversible and invertible, and having reversible and invertible means for supporting and releasing the locking parts, said means being automatically operated by the opening and closing of the door, as set forth.

664,423. BALING-PRESS. DANIEL M. MCLAUGHLIN, Paris, Ill. Filed Sept. 14, 1900. Serial No. 30,057. (No model.)



Claim.—1. In a press, the combination of a press-chamber, a plunger in the chamber, means for holding the plunger against backward motion, and a toggle-joint and means for actuating the plunger forward by successive operations, substantially as described.

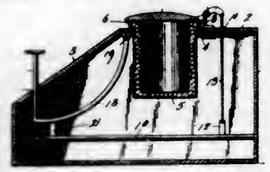
2. In a press, the combination of a press-chamber, a plunger in the chamber, means for holding the plunger against backward motion, a slidable follower, a toggle-joint interposed between the follower and the plunger and means for holding the follower against backward motion, substantially as described.

3. In a press, the combination of a press-chamber, a plunger in the chamber, a wedge to hold the plunger against backward motion, a slidable follower, a toggle-joint interposed between the follower and the plunger and a stepped wedge to hold the follower against backward motion, substantially as described.

4. In a press, the combination of a press-chamber, a plunger in the press-chamber, a bail for the plunger extending beyond the head of the chamber, means for moving the plunger toward the head of the chamber and a wedge between the cross-bar of the bail and the head of the chamber, whereby the plunger is held against backward motion, substantially as described.

5. In a horizontal press, the combination of a press-chamber, a plunger therein, means for holding the plunger against backward motion, a pair of toggle-joints acting on the plunger and buckling one upward and the other downward, a shaft outside the swing of the toggle-joints, crank-arms on the shaft and pitman-bars connecting the crank-arms with the toggle-joints, substantially as described.

664,424. INKSTAND. ALBERT L. NEWTON, Cove, Ark. Filed Nov. 13, 1900. Serial No. 36,380. (No model.)

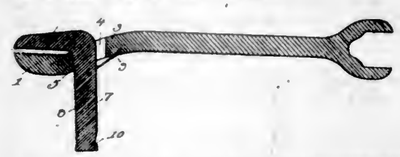


Claim.—1. In an inkstand, the combination with a frame, of an ink-well supported thereby, a spring-actuated rock-shaft, having opposite projections upon the same side thereof, an ink-well lid hinged to the frame, an operative connection between the lid and one of the projections of the rock-shaft, and a vertically-movable trip device projecting through the top of the frame and in front of the ink-well, and in operative relation to the other projection of the rock-shaft.

2. In an inkstand, the combination with a casing, having a forwardly and downwardly inclined front top portion, an ink-well suspended within an opening in the rear top portion of the casing, a lid hinged to the top of the casing, a rock-shaft mounted within the casing, opposite lateral projections carried by the shaft, an operative connection between one of the projections and the lid, and a trip device projecting loosely through the inclined top portion of the casing, and having an operative engagement with the adjacent projection of the shaft.

3. In an inkstand, the combination with a frame, and an ink-well, of a lid hinged to the frame, a rock-shaft mounted upon the frame, an operative connection between the rock-shaft and the lid, a vertically-movable trip-rod, having a finger-plate at its upper end, and a lateral arm pivotally connected to the frame, and a trip projection carried by the shaft and located in the path of the trip-arm.

664,425. PIPE-WRENCH. NILS NILSON, Absaraka, N. D. Filed Mar. 31, 1900. Serial No. 11,001. (No model.)



Claim.—In a wrench, the combination, with a transversely-slotted rigid jaw, the outer end of the front wall of said slot being formed into a tooth, of an L-shaped movable jaw, the stem of which fits within said slot and has its forward edge provided with teeth for engaging with the tooth of the rigid jaw and the rear edge is smooth throughout its extent except a shoulder at its outer end, and a spring secured in the rigid jaw to the rear of said slot, the free end of which is adapted to bear against the smooth surface of said stem and to engage with said shoulder, substantially as described.

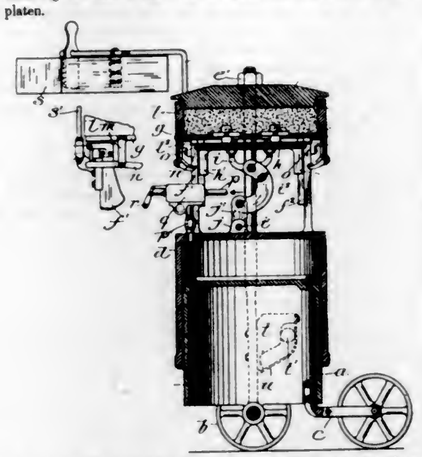
664,426. MOLDING-MACHINE. GEORGE W. PACKER, Chicago, Ill. Filed Sept. 10, 1900. Serial No. 29,480. (No model.)

Claim.—1. In a molding-machine, the combination of a stationary piston, a movable cylinder coöperating therewith, and a flask-supporting platen carried by the cylinder, an upper swinging platen, and means coöperating with said cylinder to move said platen over and from said flask.

2. In a molding-machine, the combination of a stationary piston, a movable cylinder coöperating therewith, a flask-supporting platen carried by the cylinder, a pattern-board also carried by the cylinder, and means for adjusting the pattern-board relative to the platen, an upper swinging platen, and means coöperating with said cylinder to move said platen over and from said flask.

3. In a molding-machine, the combination of an upright stationary piston forming the pedestal of the machine, and a movable cylinder inclosing the piston and forming the support for the flask-carrying platen, the pattern-board, and the mechanism for adjusting and withdrawing the patterns, an upper swinging platen, and means coöperating with said cylinder to move said platen over and from said flask.

4. In a molding-machine, the combination of an upright stationary piston forming the pedestal of the machine, and a movable cylinder inclosing the same, the flask-supporting platen, all carried by said cylinder, an upper swinging platen, and means coöperating with said cylinder to move said platen over and from the flask, the pattern-board, the mechanism for adjusting and withdrawing the patterns, the pipes and valves for admitting the motive fluid, and the means for lifting the flask from the platen.



5. In a molding-machine, the combination of an upright stationary piston forming the pedestal of the machine, an upper relatively stationary platen pivoted with respect to the piston, a movable cylinder inclosing the piston, a flask-supporting platen and a pattern-board carried by said cylinder, said cylinder being also provided with suitable pipes and valves for admitting the motive fluid for operating the same, and means connecting said cylinder and said upper platen, whereby the same is swung over and away from the flask.

6. In a molding-machine, the combination of an upright stationary piston forming the pedestal of the machine, pivoted arms carrying a relatively stationary platen, a movable cylinder inclosing the piston, a movable flask-supporting platen carried by the cylinder, and a connection between the cylinder and the swinging arms whereby the stationary platen is adjusted toward and from the flask-carrying platen.

7. In a molding-machine, the combination of an upright stationary piston, a movable cylinder inclosing the same, a flask-supporting platen carried by the cylinder on elevated uprights, a pattern-board adjustable up and down between the cylinder and platen, a shaft mounted on the cylinder, and connections between the shaft and the board, an upper platen pivoted to said piston, means connecting said cylinder and said upper platen to swing the latter over and from the flask.

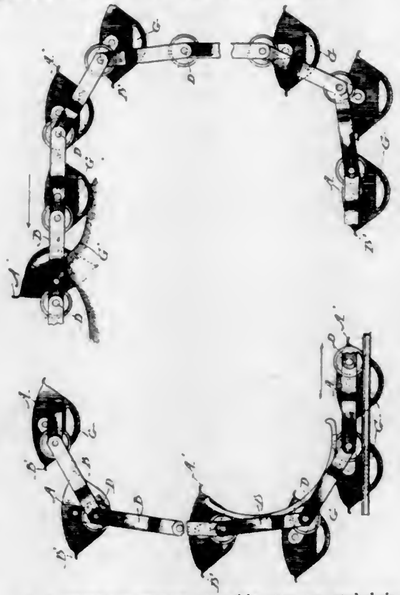
8. In a molding-machine, the combination of an upright cylindrical piston, a movable cylinder inclosing the same and carrying a flask-supporting platen and a pattern-board, a pair of swinging arms pivoted on an axis fixed with respect to the piston, an overhead platen carried by the arms, cam-blocks mounted on the arms, and studs carried by the cylinder and engaging the blocks, whereby the overhead platen is swung over and away from the flask, and whereby also the alinement of the cylinder with respect to the piston is preserved.

664,427. CONVEYING APPARATUS. STAUNTON B. PECK, Chicago, Ill., assignor to the Link Belt Machinery Company, same place. Filed July 28, 1900. Serial No. 25,097. (No model.)

Claim.—1. The combination, in a conveying apparatus, of links or connecting-pieces provided with pivots, by means of which they are connected in position, a projecting part or end on each link projecting past one of said pivots and in substantially the same plane with both pivots of said link, and a bucket between two of said projecting parts and pivotally connected thereto.

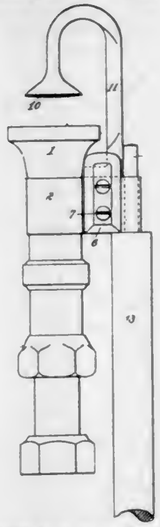
2. A conveying apparatus, comprising a series of links or connecting-pieces pivoted together, some of which are provided each with a projecting part, which projects past the pivotal or articulating point and in substantially the same plane with both pivots of said link, and a series of buckets provided each with a device for spanning the space between their edges, each bucket being placed between two of said projecting parts and pivotally connected thereto.

3. A conveying apparatus, comprising a series of connecting-pieces pivotally connected together, each provided with a projecting part which projects past the pivotal or articulating point and in substantially the same plane with both pivots of said connecting-piece, a series of carrying-wheels connected with said pieces at their pivotal points, and a series of buckets provided with overlapping edges, each bucket being placed between two of said projecting parts and pivotally connected with each of the projecting parts of the links or pieces upon which it is carried.



4. A conveying apparatus, comprising two separated chains made up each of a set of links or connecting-pieces pivotally connected together, one set of links or connecting-pieces associated with each chain being provided with projecting parts which project past the pivotal or articulating points and each projecting part in substantially the same plane with both pivots of its associated link, a series of buckets suspended between the chains, each bucket pivotally connected to one of said projecting parts associated with each chain, said buckets provided with overlapping edges, substantially as described.

664,428. LAWN-SPRINKLER. AUGUSTUS G. W. PETERSON and JOHN F. HASLAM, Brockton, Mass. Filed Aug. 1, 1900. Serial No. 25,514. (No model.)



Claim.—1. A lawn-sprinkler, having, in combination, a nozzle, a removable deflector, a support therefor, a detachable standard provided

with a pin rigidly secured thereto arranged to enter a recess in said support and lock said deflector in position, substantially as described.

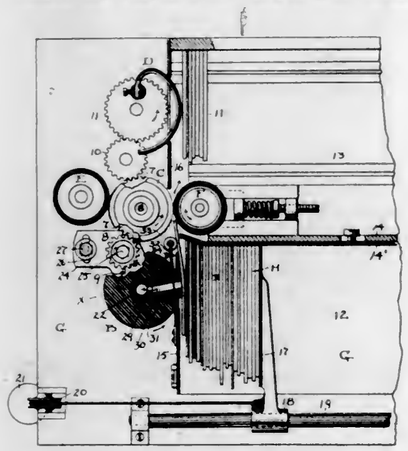
2. A lawn-sprinkler, having, in combination, a nozzle, a removable deflector provided with a foot, a support having a socket to receive said foot, an aperture in said support angularly disposed to said socket, a detachable standard for said nozzle to enter said aperture and to lock the foot of the deflector in its socket, substantially as described.

3. A lawn-sprinkler, having, in combination, a nozzle, a removable deflector provided with a foot, a sliding sleeve upon said nozzle having a socket to receive said foot, an aperture in said sleeve substantially at right angles to said socket, a supporting-standard for said nozzle provided with a pin arranged to enter said aperture and lock the foot of the deflector in its socket, substantially as described.

4. A lawn-sprinkler, having, in combination, a nozzle, a deflector having a slightly-convex face, and a support for said deflector wedge-shaped in cross-section with the apex toward the nozzle, substantially as described.

5. A lawn-sprinkler, having, in combination, a nozzle, a removable deflector provided with a foot, a support having a socket to receive said foot, an aperture in said support angularly disposed to said socket, a removable pin for said nozzle to enter said aperture and to lock the foot of the deflector in its socket, substantially as described.

664,429. **LETTER-CANCELING MACHINE.** SIMON E. PETTER, Cleveland, Ohio. Filed Mar. 30, 1900. Serial No. 10,730. (No model.)



Claim.—1. In a machine for canceling letters, the combination of printing and discharging mechanism, means to feed a batch of letters, an end-determining plate for said letters, a guide-plate against which the end edges of the letters abut, a flat spring mounted on said end plate and having a guide-roller in its free end to bear against the face of the end letter, and a feed-roller having a letter-engaging face opposite said end letter and open to air-passages, and means to rotate said feed-roller and to create a suction at said face to feed single letters around the guide-roller and guide-plate to said printing and discharging mechanism, substantially as described.

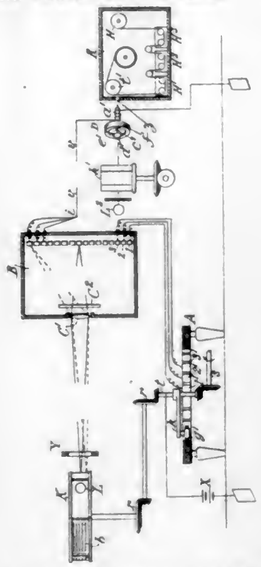
2. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a letter-engaging face to feed the letters singly to said canceling-rolls, a movable plate opposite said roller against which the said letters rest, means to back said plate away from said letters when the end letter is engaged by said feed-roller face, and means to feed the letters against said plate and up to said feed-roller, substantially as described.

3. In a letter-canceling machine, the combination of the canceling-rolls and a feed-roller therefor having a cushioned segment extending beyond its periphery to engage the face of the letters, an opening through said segment and roller connected up to a plenum-engine, a movable plate opposite the peripheral face of said roller and against which the letters bear, means to rotate said roller, and means to move back said plate when said segment engages the letters, substantially as described.

4. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a letter-engaging face open to a plenum-engine, a pivoted plate between said roller and the letters opposite said engaging face, a connecting-rod for said plate actuated by said roller to rock said plate, and means to rotate said feed-roller, substantially as described.

5. In a letter-canceling machine, the combination of the canceling-rolls, a feed-roller therefor having a valved inlet, a cushioned engaging-face on said roller open to said inlet, a plenum-engine having pipe connections with said roller-inlet, a pivoted plate opposite said roller and against which the letters normally rest, a connecting-rod for said plate having an eccentric connection with said roller, and means to rotate said roller and rock said plate back when the end letter is engaged by its cushioned face, substantially as described.

664,430. **TELAUTOGRAPH OR FACSIMILE TELEGRAPH.** ANTON POLLAK, Buda-Pesth, Austria-Hungary. Original application filed Feb. 17, 1899, Serial No. 705,771. Divided and this application filed Dec. 21, 1899. Serial No. 741,116. (No model.)



Claim.—1. In a facsimile telegraph, a receiving instrument having a swinging mirror for receiving light from a vibrating member, a cam for swinging said mirror, and means for moving said cam to impart a regular swinging movement to said mirror.

2. In a facsimile telegraph, the combination of a vibrating member, a mirror receiving a ray of light from said vibrating member, and moving it across a surface, means for moving said mirror at one rate of speed, and means for moving said mirror to a position where it can again move said ray of light across said surface, said last-named means acting to move said mirror at a greater speed than said first-named means.

3. In a facsimile telegraph, a receiving instrument having a swinging mirror receiving a ray of light from a vibrating member, means for swinging said mirror in one direction at one speed, and means for returning it to its original position at a faster speed.

4. In a facsimile telegraph, a receiving instrument having a swinging mirror, for receiving light from a vibrating member, means for swinging said mirror, means for returning it to its original position, and means for preventing the action of said mirror during its return.

5. In a facsimile telegraph, a receiving instrument having a swinging mirror, for receiving light from a vibrating member, means for swinging said mirror, means for returning it to its original position independently of such swinging, and a shield for preventing the action of said mirror during its return.

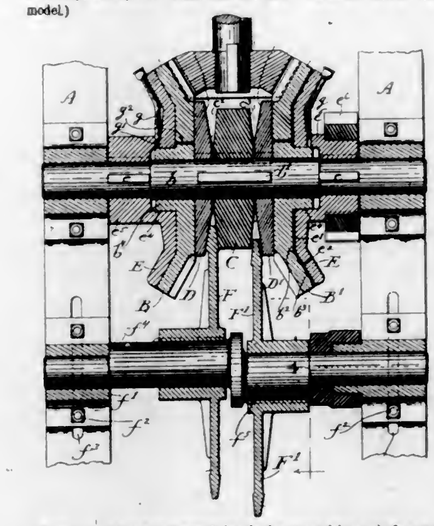
6. In receiving apparatus for telegraphing, the combination with a photosensitive surface, a source of light, a vibrating reflector, and a magnet for vibrating it, of a mirror receiving light from such reflector, and means for swinging said mirror at regular intervals to move said oscillating ray of light across said surface.

7. An apparatus for facsimile telegraphing, comprising a transmitting apparatus, consisting of a series of selenium-cells, means for projecting the message upon said cells, and means for sending current impulses through said cells successively, and a receiving apparatus consisting of an electromagnet adapted to be energized by said current impulses, a reflector vibrated by said electromagnet, and moving a ray of light, a photosensitive surface, and a swinging mirror receiving a ray of light from such reflector, and leading it across said photosensitive surface, at regular intervals, synchronous with the recurrence of the successive transmissions of light through said series of cells at the transmitter.

8. In a facsimile telegraph, the combination of an opaque screen having an edge, a sensitive surface beyond said edge, a rapidly-vibrating member adapted to move a ray of light across the edge of said screen and said sensitive surface, and a swinging mirror adapted to lead said oscillating ray of light along said edge.

9. In a facsimile telegraph, a receiving instrument having a swinging mirror h^7, a lever h^8 connected to said mirror for operating it, a disk h^3 formed with a cam-surface for moving said lever, a shaft h^2 adapted to move synchronously with the shaft of the commutator of the transmitting-station; and a spring h^4 adapted to hold said shaft h^2 in contact with the cam-surface of the disk h^3, whereby upon rotation of the shaft h^2 the lever h^8 will act to swing said mirror h^7, until said lever reaches the end of the cam-surface upon said disk, whereupon it is suddenly retracted under the operation of its spring h^4, and again commences its swinging movement.

664,431. **CLUTCH.** ENOCH PROUTY, Chicago, Ill., assignor to Olive S. Prouty, same place. Filed Mar. 27, 1900. Serial No. 10,319. (No model.)



Claim.—1. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft to turn therewith, a pulley loose upon the shaft and movable lengthwise thereof, a friction-disk mounted on each side of said pulley to rotate with the shaft, the disk intermediate the spool and pulley being adapted to slide on the shaft, the other disk being fast thereon, and means adapted to operate between the slidable disk and spool to clutch the pulley to the shaft.

2. A power-transmitting device comprising a shaft, a spool rigidly mounted thereon and having a beveled face, a pulley loose on the shaft and movable lengthwise thereof, a friction-disk mounted on each side of said pulley to rotate with the shaft, the disk intermediate the pulley and spool being adapted to slide on the shaft, the other disk being fast thereon, and means adapted to the bite of the sliding disk and spool to effect the clamping of the pulley between the disks.

3. A power-transmitting device comprising a shaft, a spool rigidly mounted thereon and having a beveled face, a pulley loose upon the shaft and movable lengthwise thereof, a friction-disk mounted on each side of said pulley to rotate with the shaft, the disk intermediate the pulley and spool having a beveled face opposite the beveled face of the spool, and adapted to slide on the shaft, the other disk being fast thereon, and means adapted to take into the bite of the beveled faces to cause the disks to frictionally clamp the pulley.

4. A power-transmitting device comprising a shaft, a spool rigidly mounted thereon and having a beveled face, a pulley loose on the shaft and movable lengthwise thereof, two friction-disks, one on each side of the pulley, the disk intermediate the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, and a wedge adapted to the bite of the beveled faces to force the movable disk into engagement with the pulley and the pulley with the fixed disk.

5. A power-transmitting device comprising a shaft, a pulley loosely mounted on the shaft and movable lengthwise thereof, a friction-disk rigidly mounted on one side of said pulley to revolve with the shaft, a second friction-disk mounted on the other side of said pulley to revolve with and slide upon the shaft, a spool mounted rigidly on the shaft, next to said sliding disk, one of said elements having a beveled face, and a wedge adapted to operate between said elements to force the sliding disk and pulley into engagement with each other and with the first disk.

6. A power-transmitting device comprising a shaft, a spool rigidly mounted to turn with the shaft and having a beveled face, a pulley loose on the shaft, a friction-disk mounted on each side of said pulley, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, and a wedge-wheel adapted to the bite of the beveled faces to clamp the pulley between the disks.

7. A power-transmitting device comprising a shaft, a pulley loosely mounted on the shaft, a friction-disk rigidly mounted on one side of said pulley to revolve with the shaft, a second disk mounted on the other side of said pulley to revolve with and slide upon the shaft, a spool rigid on the shaft next to said sliding disk, one of said elements having a beveled face, and a wedge-wheel adapted to the bite of said elements to clutch the pulley to the shaft.

8. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft and having a beveled face, a pulley or gear loose upon the shaft, a friction-disk on each side of said pulley to revolve with the shaft, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, and an eccentrically-operated wedge-wheel adapted to the beveled faces to clamp the pulley between the disks.

9. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft and having a beveled face, a pulley or gear loose upon the shaft, a friction-disk on each side of said pulley to revolve with the shaft, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being rigid thereon, and an eccentric-shaft carrying a wedge-wheel adapted to the bite of the beveled faces.

10. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft and having a beveled face, a pulley or gear loose upon the shaft, a friction-disk on each side of said pulley to revolve with the shaft, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, an eccentric-shaft carrying a wedge-wheel, and means to turn said wheel and shaft together to throw the wheel more or less into the bite of the beveled faces.

11. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft and having a beveled face, a pulley or gear loose upon the shaft, a friction-disk on each side of said pulley to revolve with the shaft, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, an eccentric-shaft carrying a wedge-wheel, means to turn the wheel and shaft together, and means to lock the shaft in any desired position.

12. A power-transmitting device comprising a shaft, a spool rigidly mounted on the shaft and having a beveled face, a pulley or gear loose upon the shaft, a friction-disk on each side of said pulley to revolve with the shaft, the disk between the pulley and spool having a beveled face opposite that of the spool, and adapted to slide on the shaft, the other disk being fast thereon, an eccentric-shaft mounted in adjustable bearings and carrying a wedge-wheel adapted to the bite of the beveled faces.

13. A power transmitting and reversing device comprising a shaft, a spool rigid thereon, a loose pulley or gear on the shaft on each side of said spool, a disk mounted to rotate with and slide upon said shaft intermediate the spool and each pulley, a second disk rigidly mounted on the shaft on the other side of each pulley, means to revolve said pulleys in opposite direction, and means to frictionally clamp each pulley between its associated disks.

14. A power transmitting and reversing device comprising a shaft, a spool mounted to revolve therewith and having beveled faces, a pair of loose pulleys on said shaft, one on each side of said spool, a friction-disk rigidly mounted on the shaft beyond each pulley, a friction-disk mounted on the shaft and adapted to slide thereon intermediate each pulley and the spool, and having a beveled face opposite that of said spool, and means adapted to the bites of said faces.

15. A power transmitting and reversing device comprising a shaft, a pair of oppositely-driven loose pulleys or gears on said shaft, a pair of disks for each pulley, one on each side, one disk of each pair mounted to rotate with and slide on said shaft, and its companion disk rigidly mounted on said shaft, a spool common to the sliding disks, and a pair of wedges

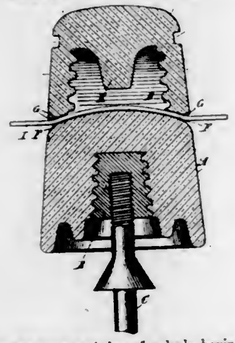
adapted to alternately engage between the spools and movable disks to clamp the pulleys between their respective disks.

16. A power transmitting and reversing device comprising a shaft, a pair of oppositely-driven loose pulleys or gears on said shaft, a pair of disks for each pulley, one on each side, one disk of each set mounted to rotate with and slide upon said shaft, the other disk of each set being rigid on the shaft, a spool intermediate the sliding disks, beveled faces on said spool and disks, an eccentric-shaft carrying a pair of wedge-wheels, and means to turn the shaft and disks to cause the wheels to alternately engage the beveled faces.

17. A power transmitting and reversing device comprising a shaft, a pair of bevel-gears loose upon said shaft, a bevel-wheel adapted to rotate said gears in opposite directions, a pair of disks for each gear mounted to rotate with the shaft, one on each side of each gear, one of said disks having a beveled face and movable lengthwise of said shaft, the other being fast thereon, a rigidly-mounted spool intermediate the sliding disks and having beveled faces to form bites with the sliding disks, a second shaft, a pair of eccentrically-mounted wedge-wheels loose thereon, one for each bite, and means to turn said shaft to throw either wheel into its bite to clamp its associated bevel-gear between its pair of disks.

18. In a power transmitting and reversing device a driven shaft, a pair of oppositely-driven pulleys loose upon the shaft, means to frictionally clutch each pulley to the shaft comprising a fast member and a loose beveled member, and a pair of eccentrically-mounted wedge-wheels, each adapted for engagement with the beveled member of its pulley-clutch.

664,482. **INSULATOR.** EDWARD RENAULT, Waldo, Fla. Filed May 8, 1900. Serial No. 15,881. (No model.)

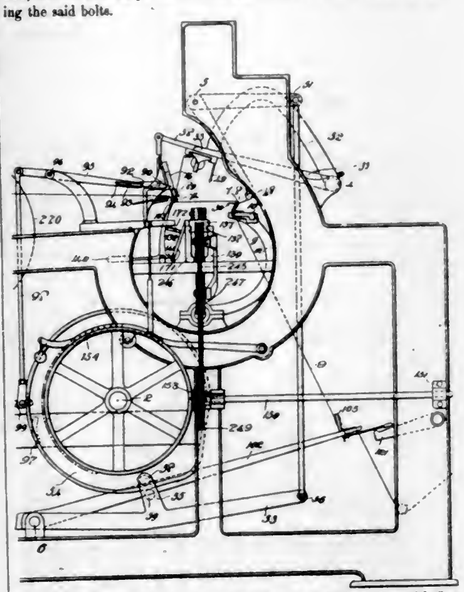


Claim.—An insulator consisting of a body having a restricted top or neck, thereby forming a shoulder on said body, said neck being externally threaded and provided with a groove or opening therein, the bottom of which opening is curved and merges into said shoulder, said shoulder being beveled and curved as described, and a cap threaded on said restricted neck and having its lower edge G beveled and curved, the extreme edges of said shoulder and edge being rounded or curved in opposite directions.

664,433. **MACHINE FOR WEAVING RECTANGULAR-MESHED NETTING.** HENRY A. RENDALL and WILLIAM G. ACKERMAN, Bridport, England; said Ackerman assignor to said Rendall. Filed Apr. 14, 1899. Serial No. 713,035. (No model.)

Claim.—1. In apparatus for weaving rectangular-meshed netting with firm knots, a main shaft, a guide-arm shaft, means for oscillating said shaft, guide-arms on said shaft, a depressor-shaft, depressors on said shaft, means for reciprocating the said depressors, a slip-hook shaft, slip-hooks on said shaft adapted to temporarily hold the warp-threads during the formation of the loop, means for oscillating said slip-hook shaft, mesh-governor, knotting-pins, tumblers, means for oscillating said knotting-pins and tumblers, a tension device for the warp-threads, a double-ended shuttle, means for carrying and reciprocating said shuttle in combination with a plurality of warp-guides 7 on a movable bar 10 supported in bearings on the guide-arms aforesaid, said bar 10 bearing lugs 19, 20 adapted to engage alternately with levers 21, 22 on a rock-shaft 23 in operative connection with the main shaft.

2. An apparatus for weaving rectangular-meshed netting with firm knots, a main shaft, a guide-arm shaft, means for oscillating said shaft, guide-arms on said shaft, warp-guides in operative connection with said guide-arms, a depressor-shaft, depressors on said shaft, means for oscillating the said depressor-shaft, a slip-hook shaft, slip-hooks on said shaft adapted to temporarily hold the warp-threads during the formation of the loop, means for oscillating said slip-hook shaft, a mesh-governor, knotting-pins, tumblers, means for oscillating said knotting-pins and tumblers, a double-ended shuttle, means for carrying and reciprocating said shuttle, in combination with a pair of levers 102, the upright bars 104 mounted therein, the rods 105 connecting the bars 104, the plate 109 on levers 102, the movable warp-bolts 107 therein, and means for periodically lifting the said bolts.



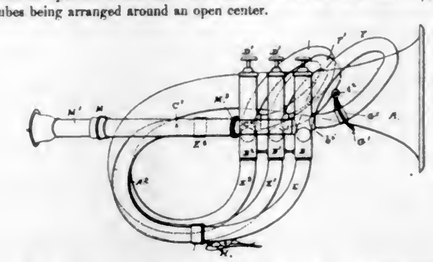
3. In apparatus for weaving rectangular-meshed netting with firm knots, a motor-shaft, a guide-arm shaft, means for oscillating said shaft, guide-arms on said shaft, warp-guides in operative connection with said arms, a depressor-shaft, depressors on said shaft, means for oscillating the said shaft, a slip-hook shaft, slip-hooks on said shaft adapted to temporarily hold the warp-threads during the formation of the loop, means for oscillating said slip-hook shaft, tumblers, means for oscillating the said tumblers, a tension device for the warp-threads, a double-ended shuttle, means for carrying and reciprocating said shuttle, in combination with the plate 77 having a plurality of movable knotting-pins 75, and a plurality of fixed pins 79, a raising-plate 78 with slots to receive pins 79 adapted to lift the plate 77, lever mechanism attached to the said plate and in operative connection with the wheel 87, brushing-pins 89, an arm 92 in operative connection with the said brushing-pins, means for oscillating the said arm 92, receiving-pins 205 attached to a plate 206, a plate 207 adjustably supporting the plate 206, and means for raising and lowering the plate 207.

4. In apparatus for weaving rectangular-meshed netting with firm knots in combination with means for engaging, holding fast, releasing and maintaining tension upon the warp-threads and periodically forming loops therein, mechanism for catching the weft-thread, comprising the tumbler 132, said tumbler having a hook 133, and a projecting weighted arm 140 and heel-piece 141, adapted to engage with the shuttle-carrier 137, adapted to travel on the rack 240 by aid of wheels 241, 242 chains for reciprocating the shuttle, gearing adapted to operate the said chains, and means for reversing the direction of motion of the said shuttle-carrier.

5. In apparatus for weaving rectangular-meshed netting with firm knots, in combination with means for engaging, holding fast, releasing, and maintaining tension upon the warp-threads, and periodically forming loops therein, and tumblers for catching the weft-threads, means for carrying the weft-thread through the shed, comprising the shuttle-carrier 137, the rack 240, wheels 241, 242 attached to the shuttle-carrier and adapted to travel on said rack, chains for reciprocating the shuttle, sprocket-gearing adapted to operate the said chains, means for reversing the direction of motion of the said shuttle-carrier, a plate 171 projecting from the shuttle-carrier, a bent rod 172 on said plate, means for partially rotating the said bent rod adapted to insure the return of the tumblers, an extension-piece 178 with inclined ends 179 and 180 on said plate 171, pins 181 in slots 182 attached to a second plate 183 adapted to operate the tumblers.

664,434. **CORNET.** FRANCIS J. RICHMAND, San Francisco, Cal. Filed Mar. 30, 1899. Serial No. 711,055. (No model.)

Claim.—1. In a cornet, or similar wind instrument, the combination of the bell, the straight shank carrying a mouthpiece on the outer end, valve-cases having wind-apertures in the bottom ends and sides, and the windings or curved tubes connecting the bottom end of one valve with the aperture in the side of the next valve-case, the said connecting-tubes being arranged around an open center.



2. In a cornet, or other similar wind instrument, a cylindrical valve-case having an outlet in the bottom, and apertures in the sides in combination with a slidable and rotatable valve having apertures and passages through which the wind is directed across the valve-case in one portion of the valve and downward through the bottom aperture in the other portion of the valve and a finger-key, and mechanism whereby the longitudinal stroke or movement of the key produces a sliding and a rotating movement of the valve.

3. The combination of the cylindrical valve-case having a wind-outlet in the one end, and the apertures b^4 b^5 b^6 in the sides, with a cylindrical valve adapted both to slide and to rotate in the valve-case, said valve having a transverse passage b^8 and ports in the side, an outlet-aperture in the bottom and aperture b^7 in the side leading into said outlet.

4. In a cornet, or similar wind instrument the combination, with a cylindrical valve-case having the principal aperture b^4 in the side, the outlet b^{10} in one end, and the auxiliary aperture b^6 in the side located at ninety degrees or thereabout on the circumference of the valve-case with relation to the principal aperture; of the slidable and rotatable valve having a transverse passage b^8, the port b^7 in one side and the longitudinal passage and outlet at the bottom, the principal connecting-tubes uniting the mouthpiece and the bell with the valve-case, and the auxiliary tube or loop connected to the side aperture in the valve-case.

5. The combination, with the cylindrical valve-case having an outlet-aperture in one end, and apertures in the side of the case; of the slidable and rotatable valve having a longitudinal passage and outlet in the bottom connecting with an aperture in the side, and a transverse passage and apertures in the side separated from the said longitudinal passage and its aperture, the tubular stem fixed to said valve having inclined slots in its circumference, the cross-bar passing through said slots and fixed to the valve-case, the tubular key-rod fitted to slide in the head of the valve-case and provided with a finger-key on the outer end, the spindle rigidly fixed in the head of the tubular stem and having a pointed end adapted to turn on a bearing in the top of the tubular key-rod, and a spring having one end attached to the valve and the other end secured to a fixed point above.

6. In a cornet, or similar instrument, the shank composed of a stationary tubular section, a telescopic section formed of an inner and an outer tube-section set concentrically and adapted to slide on the stationary tube, in combination with a yielding mouthpiece having a stem with a tapering passage, a spring acting in a direction opposed to the pressure of the lips against the mouthpiece and a tapering tongue located within the stem of the mouthpiece and attached to the inner tube of the sliding section of the shank.

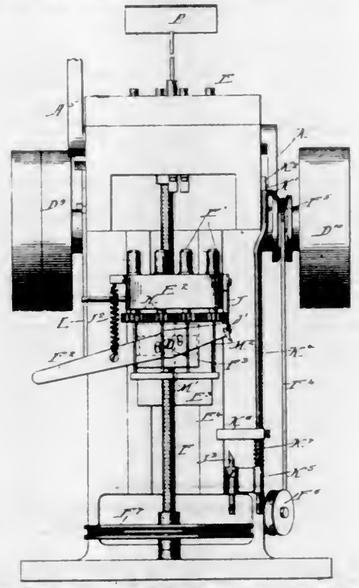
7. The combination with the telescopic section composed of the concentrically-set tubes, of the yielding mouthpiece having a stem with a longitudinal passage, tapering tongues fixed to the inner tube and extending into the stem of the mouthpiece, the spiral spring and the sleeve and screw-coupling connecting the mouthpiece with the shank and adapted to adjust the mouthpiece longitudinally on the shank.

8. In a cornet, or similar wind instrument the combination of a damper-valve, and means for imparting to it a rapid rotating motion to produce a tremolo effect, as described.

9. A tremolo attachment for cornets and other band instruments, comprising a damper-valve located in the throat of the instrument and mechanism for rotating the same, consisting of a vibrating finger-lever, and mechanism connecting the same with the damper-valve, whereof a rotating movement is imparted to the valve from the vibrations of the finger-lever.

664,435. **SPOKE-SWAGING MACHINE.** CHARLES E. ROBERTS, Oak Park, Ill. Filed Sept. 14, 1900. Serial No. 30,017. (No model.)

Claim.—1. The combination in a swaging-machine of a pair of horizontally-arranged oppositely-moving toggles, a horizontal shaft arranged at right angles to the toggles and carrrying a pair of eccentrics for operating said toggles, said eccentrics being positioned with their centers at opposite sides of the axis of the shaft, vertically-faced dies of which two are stationary and two are movable, the latter being actuated by said toggles, and a vertically-moving carriage provided with rotating chucks for the articles being swaged, substantially as specified.



2. The combination with the dies and their actuating devices, of a carriage provided with means for holding and rotating the spokes, means for moving the carriage so as to feed the spokes through the dies, means for stopping the carriage, a cam for closing and a spring for opening the dies, and means for returning the carriage to its starting position, substantially as specified.

3. The combination with the dies and the carriage for feeding the spokes through the dies, of means for actuating the carriage, means for releasing the carriage from its actuating means, means for returning the carriage to its starting position, a cam for closing and a spring for opening the dies, and means for detaining the carriage from returning until after the opening of the dies, substantially as specified.

4. The combination with the dies and spoke-carriage, of means for returning the carriage to its starting position, a cam for closing and a spring for opening the dies, and means for detaining the carriage from returning until after the opening of the dies, substantially as specified.

5. The combination with the dies and spoke-carriage, of means for returning the carriage to its starting position, and a cam for closing and a spring for opening the dies, substantially as specified.

6. The combination with the spoke-carriage and its spoke holding and rotating devices, of stationary and movable dies, and means for actuating the movable dies in one direction, consisting of the toggles and eccentrics for moving the toggles, and springs for moving said dies in the other direction, substantially as specified.

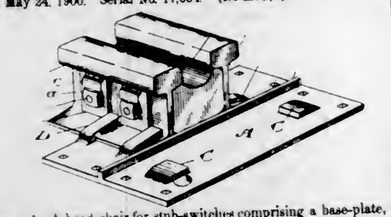
7. The combination with the dies of the spoke-carriage, means for feeding the carriage without intermission while the machine is in operation, and spoke-chucks upon the carriage having provision for vertical lost motion in their bearings, substantially as specified.

8. The spoke-swaging machine consisting of two moving dies, two stationary dies opposed one to each of said moving dies, two independent toggles each operating one of said moving dies, means for operating said toggles simultaneously but in opposite directions, and means for feeding the spokes between the dies, whereby the thrust of one eccentric neutralizes that of the other and the machine is rendered steady at a very high speed, substantially as specified.

9. The spoke-swaging machine consisting of two moving dies, two stationary dies opposed one to each of said moving dies, two independent toggles each operating one of said moving dies, separate eccentrics on the same shaft for operating said toggles simultaneously but in opposite directions, and means for feeding the spokes between the dies, whereby

the thrust of one of the eccentrics neutralizes that of the other, and the machine is rendered steady at a very high speed, substantially as specified.

664,436. HEAD-CHAIR FOR STUB-SWITCHES. WALTER ROWLANDS, Montreal, Canada, assignor to Edmund Bristol, Toronto, Canada. Filed May 24, 1900. Serial No. 17,884. (No model.)



Claim.—1. A head-chair for stub-switches comprising a base-plate, a transverse rib formed on the plate, stops stamped up out of the plate and adapted to limit the play of the switch-rail, a clip stamped up out of the plate and adapted to fit over the outer sides of the bases of the two track-rails, a block separating the rail ends, a bolt clamping together the rail ends and said block; and a washer on said bolt; the aforesaid clip coacting with said washer and thereby preventing the rails from creeping, substantially as and for the purpose specified.

2. A head-chair for stub-switches, comprising a base-plate, a transverse rib formed on the plate, stops stamped up out of the plate and adapted to limit the play of the switch-rail, clips stamped up out of the plate and adapted to fit over the outer sides of the bases of the two track-rails, a block separating the rail ends, a bolt clamping together the rail ends and block, and a washer supported by said bolt, the aforesaid clips coacting with said washer on opposite sides thereof and thereby preventing the rails from creeping, substantially as and for the purpose specified.

664,437. TREATING WHITE LEAD. THOMAS C. SANDERSON, London, England. Filed Dec. 5, 1898. Serial No. 698,361. (No specimens.)

Claim.—1. Improvement in the direct treatment of white-lead pulp precipitated from a basic acetate solution without intermediate washing, consisting, first, in partially removing the mother-liquor; secondly, in separating the remaining mother-liquor by adding considerable excess of oil; thirdly, in expelling the excess of oil and the separated mother-liquor by pressure in the cold, and, fourthly, reducing the proportion of oil in the final product to the required limit.

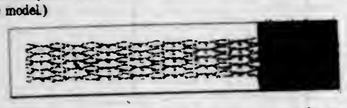
2. The herein-described process of preparing white lead, which consists in partially separating the mother-liquor from the white lead, after the precipitation of the latter, and then without intermediate washing, mixing oil with the mixture of lead pulp and mother-liquor remaining, and finally removing liquid, other than oil, from the mass, together with excess of oil, if any, by applying pressure to the mass.

3. The herein-described process of preparing white lead, which consists in partially separating the mother-liquor from the white lead, after the precipitation of the latter, then, without intermediate washing, mixing oil with the mixture of lead pulp and mother-liquor remaining, then washing such mixture to remove mother-liquor, and finally removing free liquid, other than oil, from the mass, together with excess of oil, if any, by applying pressure to the mass.

4. The herein-described process of separating mother-liquor from a mixture of mother-liquor and white-lead pulp, which consists in mixing oil with the mass, and finally removing liquid, other than oil, from the mass, together with excess of oil, if any, by applying pressure.

5. The herein-described process of separating mother-liquor from a mixture of mother-liquor and white-lead pulp, which consists in mixing oil with the mass, washing such mixture to remove mother-liquor, and finally removing free liquid, other than oil, from the mass, together with excess of oil, if any, by applying pressure to the mass.

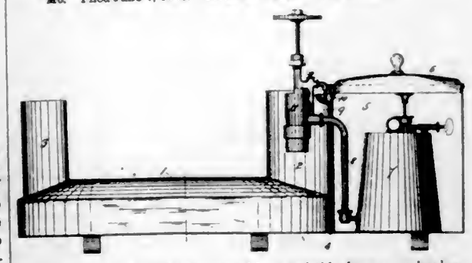
664,438. COMPOSITE METAL CASTING. WILLIAM D. SARGENT, Chicago, Ill., assignor, by mesne assignments, to the American Brake Shoe Company, same place. Filed Nov. 22, 1897. Serial No. 659,513. (No model.)



Claim.—1. As a new article of manufacture, composite metal castings consisting of a relatively hard cast metal cast upon or about a ductile metal reduced to the form of a sheet of commercial "expanded metal," said cast and ductile metal being integrally united by fusion.

2. As a new article of manufacture, composite metal castings consisting of a relatively hard cast metal cast upon or about a ductile metal reduced to the form of a laminated pile of sheets of commercial "expanded metal," said cast and ductile metal being integrally united by fusion, substantially as described.

664,439. WATER-HEATER. FRIDOLIN SCHIFFERLE, St. Louis, Mo. Filed June 7, 1900. Serial No. 19,423. (No model.)



Claim.—A water-heater comprising a suitable drum or casing having a dome-shaped top, an air-inlet flue and an escape-flue, a compartment located at one end of the drum adjacent to the air-inlet flue, a hydrocarbon-lamp located within the same, a pipe leading therefrom and passed through a recess in the adjacent wall of the casing, a burner at the end of said pipe confined within the air-inlet flue, and adapted to direct its flame into the chamber of the casing, the parts operating substantially as, and for the purpose set forth.

664,440. APPARATUS FOR SLAKING LIME. WALTER SCHULTHESS, Zurich, Switzerland. Filed July 30, 1900. Serial No. 25,304. (No model.)



Claim.—1. A mixing apparatus, comprising a suitable vessel, a hopper organized to dump its charge into said vessel, means in said hopper for sifting material and a conveyer arranged to move material from end to end in said vessel, substantially as set forth.

2. A mixing apparatus, comprising a steam-jacketed vessel, a hopper at one end thereof, a dumping-bottom for said hopper and a shaking-screen above the bottom, means for supplying water and steam to the vessel and a conveyer organized to carry material from end to end in said vessel, substantially as set forth.

3. A mixing apparatus, comprising a jacketed vessel, a hopper organized to dump into said vessel, a conveyer in the bottom thereof arranged to carry material from end to end in said vessel and means for feeding water to the material in the conveyer, substantially as set forth.

4. A mixing apparatus comprising a jacketed vessel, a hopper at one end thereof organized to dump into said vessel, a jet-pipe in the latter, a conveyer organized to carry material from end to end under said jet-pipe and means for discharging gases formed during the mixing into the jacket-space of said vessel, substantially as set forth.

5. A mixing apparatus comprising a jacketed vessel, a closed hopper organized to dump into one end thereof, a jet-pipe within the vessel extending from one end to the hopper, a conveyer in the bottom of said vessel arranged to carry material from end to end of the vessel under the jet-pipe, means for discharging gases formed during the mixing into the jacket-space and means for admitting steam into the vessel and jacket-space, substantially as set forth.

6. A mixing apparatus comprising a jacketed vessel, a closed hopper at one end thereof, means for sifting and dumping the hopper charge into the vessel, a steam-supply for the interior of the vessel, and a separate steam-supply for the jacket-space, a spray-pipe in the vessel, a conveyer constructed to move the material from end to end under said spray-pipe, a damper closing communication between the vessel and jacket-space, and a discharge-opening at the end of the conveyer, substantially as described.

664,441. GARMENT-STAY. CLARA B. A. SMITH, Cleveland, Ohio. Filed Apr. 14, 1900. Serial No. 12,877. (No model.)



Claim.—1. A garment-stay fastener constructed of a strip of metal having a series of inclined slits at an edge thereof providing a series of pliable penetrating fastening-prongs having straight outer sides and inclined inner sides, leaving acute-angular recesses in the slitted edge alternating with the separated parts of the straight edge.

2. A garment-stay fastener constructed of a strip of metal having a series of slits at an edge thereof providing a series of pliable penetrating fastening-prongs having straight outer sides and inclined inner sides, leaving acute-angular recesses in the slitted edge alternating with the separated parts of the straight edge and the pointed ends providing pliable penetrating fastening-prongs.

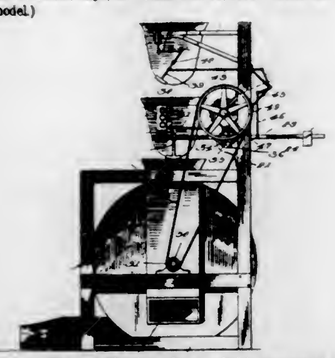
664,442. COIL FOR ELECTROMAGNETS. SEVERN D. SPRONG, Long Branch, N. J., assignor of two-thirds to Charles Getter and William P. Adams, same place. Filed Nov. 29, 1899. Serial No. 738,637. (No model.)

Claim.—An electromagnetic coil, comprising a central tubular cylinder, of insulating material, coils of wire of differing thickness, surrounding said cylinder, rings of insulating material surrounding said cylinder and separating and insulating said coils, and pierced with apertures through which pass the inner ends of said wires, and all the said parts detachably connected, all substantially as and for the purpose set forth.

664,442.



664,443. GRAIN WEIGHING AND CONVEYING MACHINE. OLIVER M. STONE, Gays, Ill. Filed Dec. 30, 1899. Serial No. 742,030. (No model.)

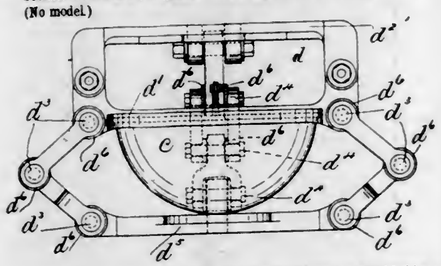


Claim.—1. The combination with a suitable support of a fan secured thereto, a chute arranged on the side of the fan and provided with an opening on the side, a transverse shaft arranged upon said chute a pivoted scale-beam secured on said shaft a scale-pan attached to said beam and provided with a pivoted valve, a secondary shaft journaled in said beam connected to the valve by an arm, and a pinion keyed to the secondary shaft, a third shaft journaled above the secondary shaft, and carrying a gear-wheel adapted to mesh with the pinion when the scale-pan is weighted, substantially as described.

2. The combination with a fan-casing having an opening in its side, a vertical chute arranged adjacent to the fan-casing and provided with a valve adapted to close the opening thereof, a transverse shaft journaled above the casing, a scale-beam pivoted thereto, a hopper arranged on the outer end of said beam, a pivoted valve provided therefor, a secondary shaft arranged on said beam and connected to said valve by a suitable rod, a cam-pinion arranged on said secondary shaft, a power-shaft arranged upon the secondary shaft and carrying a gear-wheel adapted to mesh with the pinion a hopper arranged upon the first-named hopper and provided with a pivoted valve adapted to be operated by a predetermined amount of grain or other material, a connection between the last-named valve and the scale-beam whereby the cam-pinion will be thrown in engagement with the above-mentioned gear and the valve of the first-named hopper opened, and a registering mechanism of the first-named hopper adapted to be operated by a dog secured to its valve, substantially as described.

3. The combination with a transverse shaft, a gear-wheel thereon and a power-pulley connected to one end thereof, a pivoted scale-beam secured below said shaft, a secondary shaft on the scale-beam arranged parallel with the first-named shaft, a cam-pinion keyed thereto and means for raising the pinion to connect the gear-wheel with the first-named shaft and a valve connected to the hopper and operable by the cam-pinion when the same is in engagement with the gear-wheel, substantially as described.

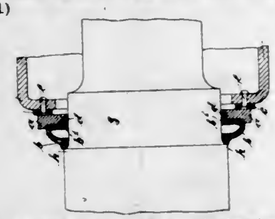
664,444. PNEUMATIC SPRING OR CUSHION. SHELDON H. STUBBS, Manchester, England. Filed Aug. 27, 1900. Serial No. 28,237. (No model.)



Claim.—1. A pneumatic spring or cushion consisting of a bladder *a* with a valve attached, placed within a restraining-bag *b* and an outer cover *c*, in combination with a "container" or framework of a suitable character for holding in position the cushion of the particular kind described, for the purpose and in the manner substantially as herein set forth.

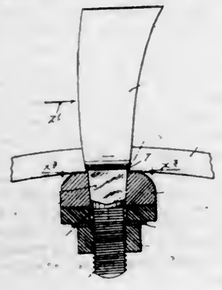
2. A pneumatic spring or cushion consisting of a bladder *a* with a valve attached, placed within a restraining-bag *b* and an outer cover *c*, in combination with a "container" or framework *d* provided with hinges d^2 and d^4 arranged at right angles, for the purpose and in the manner substantially as herein set forth.

664,445. CLOSING-UP DEVICE FOR AXLE-BEARINGS. FRANCIS SUETH, Dortmund, Germany. Filed May 25, 1900. Serial No. 17,956. (No model.)



Claim.—In a closing-up device, the combination of an integral rubber ring having an annular space between its front and rear portions, the latter of greater internal diameter than the former, and the rear portion bearing tightly and the front loosely on the axle, a cast-iron ring connected to the rubber ring and arranged to be freely moved horizontally, another ring attached to the bearing-box, and a spring inserted within the cast-iron ring, substantially as set forth.

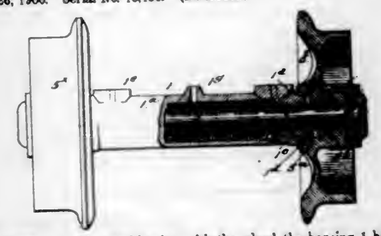
664,446. CYLINDER-TOOTH. PAUL SWENSON, Hopkins, Minn. Filed Mar. 1, 1900. Serial No. 7,036. (No model.)



Claim.—1. A cylinder-tooth having a shank portion formed with four flat sides that flare longitudinally toward the blade portion of said tooth, and which shank portion in cross-section converges toward the rear of said tooth, substantially as and for the purposes set forth.

2. The cylinder-tooth 4 having the shank portion 7 formed with the four flat sides that flare toward the blade portion of said tooth, and which shank portion in cross-section converges toward the rear of said tooth, in combination with the bar of a threshing-cylinder formed with a seat which fits the shank of said tooth, substantially as and for the purposes set forth.

664,447. AXLE. JAMES H. TAYLOR, Wallace, Idaho. Filed May 26, 1900. Serial No. 18,130. (No model.)



Claim.—1. The combination with the wheel, the housing 1 having a bearing portion for the inner hub ends of the wheels, the axle 5, held to rotate within the housing and the wheels, said axle having its end projecting beyond the wheel, said end having an annular groove, the divided collar 2, fitting the groove, said collar having a portion adapted to lie flat against the outer hub-face of the wheel, the cap 3, having a portion to bear against the outer end of the axle, a portion adapted to engage the hub-face of the wheel, and an annular seat for engaging the divided collar, and means for securing the cap to the axle or wheel, or both, for the purposes specified.

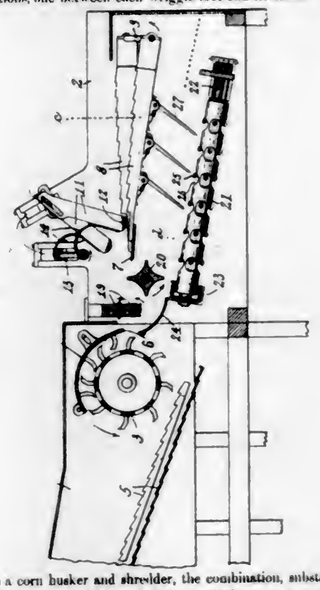
2. The combination with the wheel 5, said wheel having an annular socket in its inner hub-face, the housing 1, having a portion adapted to fit the said socket end of the wheel and having a bearing portion $1'$ whose diameter is the same as that of the wheel-hub aperture, of the axle, said axle having a portion fitting the bearing-aperture of the housing and the wheel and having a portion projecting beyond the outer hub-face of the wheel, said portion having an annular groove, the inner wall of which lies in a plane with the outer hub-surface of the wheel, a collar formed of semicircular sections adapted to seat within the groove and to lie flat against the outer hub-face of the wheel, and a cap-plate 3, said cap-plate having a center portion adapted to bear against the outer end of the axle, an annular rim portion adapted to bear against the outer hub-face of the wheel, said rim portion having an annular seat for engaging the divided collar-sections and locking them in position, and means for securing the cap-plate to the wheel or to the axle, all being arranged substantially as shown and for the purposes described.

664,448. CORN HUSKER AND SHREDDER. FREEMAN M. TEEGUARDEN and JOSEPH B. HIMES, New Castle, Ind., assignors, by mesne assignments, to said Teeguarden and Himes and T. H. Gordon, George Gordon, and Thomas L. Campbell, same place. Filed Feb. 7, 1900. Serial No. 4,332. (No model.)

Claim.—1. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls disposed in front of said cylinder, a series of husking-rolls with their heads below the snapping-rolls, and adapted to receive ears of corn falling therefrom, and a conveyer disposed across the heads of the husking-rolls and under the snapping-rolls and adapted to catch shelled corn falling from the snapping-rolls and convey the same away free of the husking-rolls.

2. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls disposed in front of the cylinder, a feed-table in front of but a distance from the snapping-rolls, a transversely-inclined gutter below the snapping-rolls, a conveyer-belt below the lower edge of said gutter, a series of husking-rolls with their heads disposed below the upper member of said conveyer-belt, and a roller of star-shaped section disposed in the space between the feed-table and the snapping-rolls and over said conveyer-belt.

3. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a feed-table disposed in front of said cylinder, a series of wriggle-feet with rigid soles presented toward said feed-table, a supporting-rod engaging slots in the upper portion of said wriggle-feet, a shaft provided with a crank for each of said wriggle-feet and having its contiguous cranks oppositely set, connections between said cranks and wriggle-feet, and springs interposed in said connections, one between each wriggle-foot and its crank.



4. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls in front of the cylinder, a series of husking-rolls with their heads disposed below said snapping-rolls, and husking-pins projecting from recesses in said husking-rolls, said pins being so positioned in the rolls, and the motions of the rolls being so timed that as a given pair of mating rolls move their contiguous surfaces downwardly a husking-pin of one of the rolls will meet and pass a husking-pin in a recess of the mating roll.

5. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls disposed in front of the cylinder, a series of husking-rolls disposed with their axes at right angles to the axes of the snapping-rolls and below said snapping-rolls, a feed-table disposed over the husking-rolls and in front of the snapping-rolls and formed of a series of reciprocating wriggle-bars, and a series of feed-fingers projecting diagonally downwardly from each of the wriggle-bars toward and near to the husking-rolls and having their heels flexibly coupled to the wriggle-bars so that the fingers are capable of elastically yielding upwardly and rearwardly.

6. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls disposed in front of the cylinder, a feed-table disposed in front of said snapping-rolls and formed of a series of reciprocating wriggle-bars, and ratchet-shaped teeth in the upper surfaces of said wriggle-bars, the upper surfaces of said teeth declining outwardly from the transverse center of the series of wriggle-bars.

7. In a corn husker and shredder, the combination, substantially as set forth, of a toothed beating-cylinder, a toothed concave, a pair of snapping-rolls disposed in front of the cylinder, a feed-table disposed in front of said snapping-rolls and formed of a series of reciprocating wriggle-bars, and ratchet-shaped teeth in the upper surface of said wriggle-bars, the upper surfaces of said teeth declining outwardly from the transverse center of the series of wriggle-bars and the vertical faces of said teeth being disposed at an angle transverse to the bars so that the faces of the teeth at the inner edges of the bars are closer to said cylinder than the faces of the teeth at the outer edges of the bars.

664,449. FLY-TRAP. GEORGE W. TURTON, Alma, Wis. Filed Oct. 26, 1900. Serial No. 34,487. (No model.)

Claim.—1. A fly-trap comprising a rotatable bait-carrier, a fly-receiver comprising a body portion having a depending flange of lesser diameter than the body of the receiver and having a gate through the flange leading to the inclosure thereof, and a supporting-arm having a loop disposed to receive the flange and support the body of the receiver with the flange in close proximity to the bait-carrier.

2. A fly-trap comprising a movable bait-carrier having a groove therein to receive bait, a fly-receiver comprising a body portion having a depending flange provided with a gate leading to the inclosure of the flange, and a movable arm having a loop adapted to receive and support the fly-receiver with the flange thereof in close proximity to the bait-carrier and with the gate in registration with the groove of the carrier.



3. A fly-trap comprising a movable bait-carrier having a bait-receiving groove therein, and a fly-receiver comprising a body portion supported above the carrier and having a depending flange lying in close relation to the carrier, said flange having a gate leading to the inclosure of the flange and registering with the groove, and a pivoted scraper-plate disposed downwardly and forwardly in a direction against the movement of the bait-carrier, the lower edge of the scraper-plate being arched and lying with the ends of the arch against the bait-carrier.

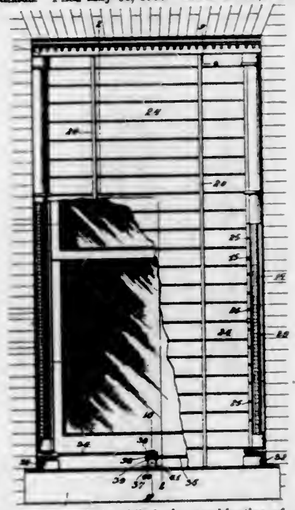
4. A fly-trap comprising a rotatable annular bait-carrier a fixed arm having a slot formed part way across it, a supporting-arm pivoted to the extremity of the first arm and having a lug for engagement with the slot to permit movement in one direction only from a position alining with the first arm, the supporting-arm having a loop at its opposite end adapted to lie above the bait-carrier when said arm is alined with the first arm, and a fly-receiver comprising a body portion supported removably in the loop and having a flange depending therefrom and lying in close proximity to the carrier, said flange having an entering-gate therein, and a pivoted scraper connected with the upper portion of the flange and extending downwardly and in the direction of the gate, the lower edge of the scraper being arched and having the ends of the arch resting slidably on the carrier.

664,450. TRIPHENYLMETHANE DYE AND PROCESS OF MAKING SAME. HENRI R. VIDAL, Paris, France. Filed Dec. 1, 1898. Serial No. 697,993. (No specimens.)

Claim.—1. The process of producing the coloring-matters herein described by condensation of a tetralkyl hydrol with a tolyl hydrazin in a sulfuric-acid medium, as set forth.

2. The products of the described process, namely, coloring-matters derived by condensation in sulfuric acid of a tetralkyl hydrol with a tolyl hydrazin as set forth, said coloring-matters being insoluble or little soluble in water and alkalies, and soluble in acids and alcohol.

664,451. OUTSIDE WINDOW-BLIND. WALTER ALFORD, Belleville, Canada. Filed May 16, 1900. Serial No. 16,836. (No model.)



Claim.—1. In a window-blind, the combination of a rock-shaft, a series of slats suspended therefrom, spindles having operative engagement with the lower slat to raise and lower the series by successive engagement or disengagement of the slats one with the other, and means between the rock-shaft and a spindle to rock the shaft by reversal of the spindle, whereby the slats may be opened and closed through the operation of the rock-shaft and the spindle, substantially as described.

2. In a window-blind, the combination with a series of suspended

slats, of revoluble screw-spindles, means for connecting the lowermost slat with the screw-spindles, a single operating mechanism connected with said screw-spindles, a rock-shaft from which the slats are suspended, and connections between the rock-shaft and one spindle for operating the shaft to change the position of the slats, substantially as described.

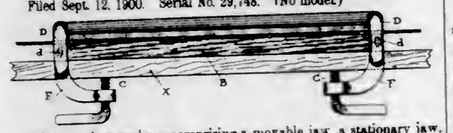
3. In a window-blind, the combination of the slotted side casings, vertical screw-spindles mounted within said casings, a common operating mechanism connected with said spindles, a rock-shaft, a series of slats suspended from said shaft and each having lugs slidably fitted in the slots of the casings, the lugs of the lowermost slats engaging with said screw-spindles, and connections between the rock-shaft and one screw-spindle for operating the shaft to change the position of the slats, substantially as described.

4. In a window-blind, the combination with a series of suspended slats, of vertical spindles situated on opposite sides of a window, and both connected operatively with the lowermost slat of the series, a single angular bracket fixed between said spindles, a short vertical shaft journaled in the upper horizontal part of said bracket, an operating-shaft journaled in the vertical portion of said angular bracket and geared to said short shaft, and individual sets of sprocket-gearing connecting the respective side spindles with the short vertical shaft, substantially as described.

5. In a window-blind, the combination of a horizontal rock-shaft, a series of slats suspended therefrom, vertical spindles for raising or lowering said slats, means for operating said spindles, and devices substantially as described between the rock-shaft and one of said spindles to turn the shaft and tilt the slats suspended therefrom.

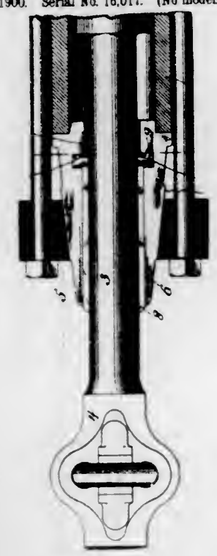
6. In a window-blind, the combination of a horizontal rock-shaft, slats suspended therefrom, vertical spindles having operating means, a notched head revoluble with said spindle, a disk provided with studs and made fast with the rock-shaft, and a pendulum loose on the rock-shaft and arranged for engagement with the notched head, substantially as described.

664,452. SAW-CLAMP. JOHN A. ALMQUIST, San Francisco, Cal. Filed Sept. 12, 1900. Serial No. 29,748. (No model.)



Claim.—A saw-clamp comprising a movable jaw, a stationary jaw, yokes at the ends of the stationary jaw, arms extending therefrom outside of and parallel with the movable jaw and clamping-screws in said arms fitted in screw-threaded bearings to work at right angles to the plane of the movable jaw, the said arms and clamping-screws being adapted to secure the clamp on a fixed support and to press the jaws together on the article to be held.

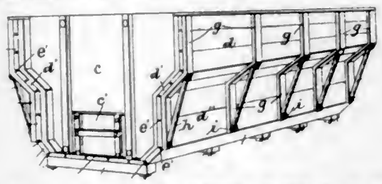
664,453. ENGINE CYLINDER-HEAD. ROBERT L. AMBROSE, Tarrytown, N. Y., assignor to the Rand Drill Company, New York, N. Y. Filed May 9, 1900. Serial No. 16,017. (No model.)



Claim.—1. The combination with a cylinder, of a cylinder-head comprising two members, each having formed therein semicircular recesses, a bushing composed of two members, each having a semicircular flange adapted to engage with the said recesses, means for securing the head members together, and a packing-ring having a flange portion, arranged to fit, and adapted to be held in place, between the sides of the recesses and the ends of the bushing members.

2. The combination with a cylinder, of a cylinder-head comprising two members, each having formed therein semicircular recesses, a bushing composed of two members, each having a semicircular flange adapted to engage with the said recesses, a packing-ring having a flange portion which is fitted to, and adapted to be held in place in, a cut-away portion between the ends of the bushing members and the walls of the said recesses, the said cut-away portion extending but a portion of the depth of the said recesses, and means for securing the head members together.

664,454. WAGON-BODY. AUGUST G. ANDERSON, Moorhead, Minn. Filed Apr. 11, 1900. Serial No. 12,469. (No model.)



Claim.—1. The grain-tank, substantially as described, having the floor and the sides, combined with the inclined planks arranged longitudinally of the tank and at opposite longitudinal edges interlocking with the lower edges of the sides and the outer edges of the bottom, whereby sagging of the bottom is prevented, substantially as described.

2. A grain-tank having the horizontal floor, the vertically-disposed side walls, and the two inclined planks arranged longitudinally of the tank and having their lower edges interlocked with the end longitudinal edges of the floor, respectively, by tongue-and-grooving, and their upper edges interlocked, respectively, with the lower longitudinal edges of the sides by tongue-and-grooving, and locking the parts together against separation, whereby sagging of the bottom is prevented, substantially as described.

3. A grain-tank having the floor, the vertical sides, the inclined planks arranged longitudinally of the tank and having their longitudinal edges cut at an angle and tongue-and-grooved, the lower edges of the sides and the longitudinal end edges of the floor being correspondingly cut at an angle and tongue-and-grooved, said inclined planks uniting the floor and sides by said tongue-and-grooving, and bolts locking the parts rigidly together for the purposes described.

4. A grain-tank, having the vertical ends, the horizontal floor, the vertically-disposed side walls, the inclined interlocking plank connections between the side walls and floor, and tie-bolts between the side walls and floor drawing the same toward each other and against the interposed inclined plank connections, substantially as described.

5. A grain-tank having the inclined connecting-planks between the side walls and floor of the tank, and the tie-bolts between the side walls and floor resting on the upper faces of said connecting-planks, substantially as described.

6. A grain-tank having the side walls with top overhangs, the floor, the inclined connections between the lower edges of the side walls and the side edges of the floor, the angles or braces for the overhangs, and the bolts passing through the lower ends of said braces and through the side walls and downwardly over said inclined connections and through the floor, substantially as described.

7. A grain-tank having the ends, the vertical side walls composed of tongue-and-grooved planking and formed with the top overhangs, the horizontal floor formed of tongue-and-grooved planking and provided with the lower cross-pieces, the angle-braces for the overhangs extending downwardly along the outer faces of the sides, the inclined planks extending longitudinally of the tank and having the tongue-and-grooved connections between the lower edges of said walls and the side edges of the floor, and the bent tie-bolts passing through the lower ends of said angle-braces inwardly through the side walls and from thence downwardly along said inclined planks and through the floor and cross-pieces, substantially as described.

664,455. LOCK FOR GRAIN-DISTRIBUTERS. OSCAR H. BAKER, Minneapolis, Minn. Filed Apr. 13, 1900. Serial No. 12,697. (No model.)

Claim.—1. The combination with a movable distributing-spout, of

locking mechanism adapted to be set in advance of the movement of said spout, to subsequently automatically lock the said spout in a predetermined position, substantially as described.



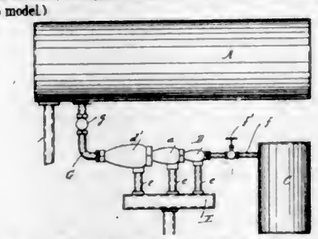
2. The combination with a movable distributing-spout, of a plurality of independent locks, normally inoperative, but adapted to be set at will and in advance of the movement of said spout, to automatically lock the said spout in the predetermined position, substantially as described.

3. The combination with an oscillating distributing-spout and a plurality of coöperating bin-spouts, of a plurality of independent locks, one for each bin-spout, said locks having independent connections whereby they may be operated at will, from a distant point, substantially as described.

4. The combination with an oscillating distributing-spout and a plurality of coöperating bin-spouts, of a plurality of individual locks one for each bin-spout, which locks are normally inoperative, and independent operating connections for said locks, serving to render them operative at will, the set lock serving to automatically lock said distributing-spout when the same is subsequently moved, substantially as described.

5. The combination with an oscillating distributing-spout and a plurality of bin-spouts, of a plurality of locks, one for each bin-spout, which locks are under strain to operate, independent lock-operating connections extending to a distant point and normally holding the locks inoperative, and laterally-spaced cam-blades on said distributing-spout coöperating with said locks, substantially as described.

664,456. BOILER-FEEDER. JOHN BARRY and MICHAEL L. SHAUGHNESSY, Westphalia, Kans. Filed May 8, 1900. Serial No. 15,871. (No model.)



Claim.—1. The combination, with a boiler, of a reservoir for gaseous fluid of greater pressure than the fluid in the said boiler, a series of injectors of increasing size the smallest having its inlet connected with the said reservoir and the largest having its outlet connected with the said boiler, and an exhaust-pipe for low-pressure and exhaust steam provided with branches which connect it with each of the said injectors, substantially as set forth.

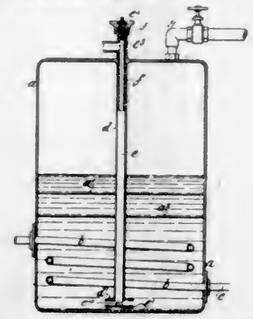
2. The combination, with a boiler, of a reservoir for gaseous fluid of greater pressure than the fluid in the said boiler, a series of injectors of increasing size the smallest having its inlet connected with the said reservoir and the largest having its outlet connected with the said boiler, a manifold provided with branch pipes connected to all the said injectors, and an exhaust-pipe for low-pressure and condensed steam connected with the said manifold, substantially as set forth.

664,457. CARBURETER. JAMES F. BENNETT, Sheffield, England. Filed May 24, 1900. Serial No. 17,839. (No model.)

Claim.—1. In a generator for hydrocarbon-motors, the combination of a vessel for containing liquid hydrocarbon, two parallel disks in the lower part of the vessel, means for supplying air between the disks, means for varying the distances of the disks apart, and an outlet for the carbureted air from the vessel.

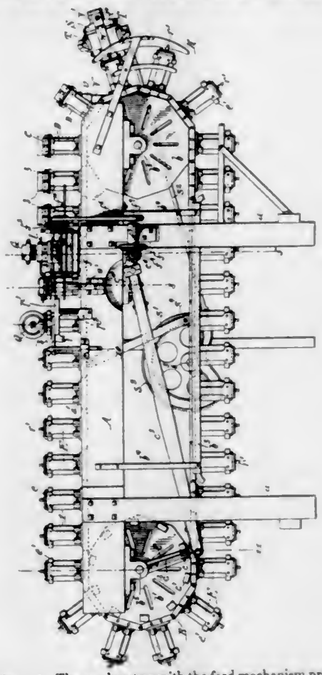
2. In a generator for hydrocarbon-motors, the combination of a vessel for containing liquid hydrocarbon, an air-supply pipe terminating in the lower part of the vessel, two parallel disks at the bottom of the pipe, means for varying the distances of the disks apart, and an outlet for the carbureted air from the vessel.

3. In a generator for hydrocarbon-motors, the combination of a vessel for containing liquid hydrocarbon, two parallel disks in the lower part of the vessel, means for supplying air between the disks, means for varying the distances of the disks apart, a perforated plate above the disks, and an outlet for the carbureted air from the vessel.



4. In a generator for hydrocarbon-motors, the combination of a vessel for containing liquid hydrocarbon, an air-supply pipe terminating in the lower part of the vessel, two parallel disks at the bottom of the pipe, means for varying the distances of the disks apart, a perforated plate above the disks, and an outlet for the carbureted air from the vessel.

664,458. MACHINE FOR MAKING PAPER BOXES. CHARLES H. BROOKS, Syracuse, N. Y., assignor to the Merrell-Soule Company, same place. Filed Nov. 15, 1898. Serial No. 696,509. (No model.)



Claim.—1. The combination with the feed mechanism provided with holders for carrying the boxes or blanks and presenting the same to the pasting and folding mechanisms, of a pasting mechanism whereby paste is applied to projecting flaps of the box or blank, a stationary folding mechanism arranged beyond the paste mechanism in the direction in which the feed mechanism moves and containing folders whereby the side flaps and the rear flap are folded down, and traveling final folders whereby the final flaps are folded down, one of which folders is arranged with each blank-holder and travels with the same, substantially as set forth.

2. The combination with the feed mechanism provided with holders for carrying the boxes or blanks and presenting the same to the pasting

and folding mechanisms, of a pasting mechanism whereby the paste is applied to the projecting flaps of the box or blank, a stationary folding mechanism containing fingers for folding the side flaps down, a sliding folder for folding the rear flap upon the side flaps, mechanism whereby said folder is actuated after said fingers have been actuated, traveling folders for folding the final flap down, one of which folders is arranged with each blank-holder and travels with the same, and mechanism whereby each traveling folder is swung against the final flap after the rear flap has been folded down and before such flap is released by its folder, substantially as set forth.

3. The combination with the feed mechanism provided with projecting holders for carrying the boxes or blanks and presenting the same to the pasting and folding mechanisms, of a paste mechanism which applies the paste to projecting flaps of the box or blank, a stationary folding mechanism arranged beyond the paste mechanism in the direction in which the feed mechanism moves and on one side of the path of the feed mechanism and its holders, such folding mechanism containing folders whereby the side flaps and the rear flap are folded down, and traveling folding-jaws arranged on the opposite side of said holders, pivoted at their lower ends to swing toward and from the holders and provided at their free upper ends with folding-blades adapted to project across the holders, substantially as set forth.

4. The combination with a traveling holder adapted to carry a box-blank or box, of a folding-jaw pivoted at its lower end to the base of the holder to swing toward and from the same and provided at its upper end with a folding-blade which projects across the top of the holder when the jaw is closed against the holder, substantially as set forth.

5. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box, of a folding-jaw pivoted at its lower end to the base of the holder and provided at its free end with a folding-blade and at its sides with clamping-fingers adapted to bear against opposite sides of the blank or box on the holder, substantially as set forth.

6. The combination with the feed mechanism provided with holders adapted to carry the box-blanks or boxes with the end flaps projecting therefrom and the paste-supply devices, of a reciprocating paste wiper or brush, and guide devices whereby said wiper or brush is raised while moving from the paste-supply devices to clear the front flap and lowered before reaching the rear flap to apply the paste first to the latter, substantially as set forth.

7. The combination with the feed mechanism provided with holders for carrying the box-blanks or boxes with their end flaps projecting therefrom, of a reciprocating paste wiper or brush traveling toward and from the paste-supply devices and across the path of said holders, and guide devices whereby the wiper or brush is raised while moving from the paste-supply devices to clear the front flap and lowered before reaching the rear flap, to apply the paste first to the front side of the latter, and is moved in its lowered position toward the paste-receptacle to apply the paste next to the rear side of the rear flap and then to the rear side of the front flap, substantially as set forth.

8. The combination with the paste-supply devices, of a wiper or brush, means whereby the same is moved toward and from the paste-supply devices, a slotted shifting guide whereby said wiper or brush is first raised and then lowered while moving from the paste-supply devices, and a cam whereby said guide is shifted, substantially as set forth.

9. The combination with paste-supply devices, of a supporting-bar provided with a paste wiper or brush, a rock-lever which is connected with the supporting-bar and whereby the wiper or brush is moved toward and from the paste-supply devices, a shifting guide pivoted near its front end and provided with a slot which receives a projection on said supporting-bar, a sliding cam engaging with the rear portion of said guide, and a link loosely connecting the cam with said rock-lever, substantially as set forth.

10. The combination with the paste-supply devices, the feed mechanism provided with holders for carrying the box-blanks or boxes, and a paste wiper or brush traveling toward and from the paste-supply devices and across the path of said holders, of a backing-finger arranged in rear of said path and adapted to support the rear flap against the rearward pressure of said wiper or brush, substantially as set forth.

11. The combination with the intermittently-moving feed mechanism provided with holders adapted to carry the box-blanks or boxes, of horizontal pivoted fingers which fold the side flaps and are provided with cam-slots, and a reciprocating folding-bar which folds the rear flap and which is provided with pins engaging in the slots in the fingers for actuating the same, substantially as set forth.

12. The combination with the intermittently-moving feed mechanism provided with holders adapted to carry the box-blanks or boxes, of horizontal pivoted folding-fingers for folding the side flaps, a reciprocating folding-bar for folding the rear flap, which bar is connected with said fingers and operates the same, folding-jaws mounted on the feed mechanism and moving therewith, and an actuating-finger whereby the folding-jaw of the holder which is in line with the folding mechanism is closed against the holder for folding the front flap, substantially as set forth.

13. The combination with the intermittently-moving feed mechanism provided with holders adapted to carry the box-blanks or boxes, of horizontal pivoted fingers which fold the side flaps and are provided with cam-slots, a reciprocating folding-bar which folds the rear flap and which is provided with pins engaging in the slots in the fingers for actuating the same, folding-jaws mounted on the feed mechanism and adapted to fold the front flaps, an actuating-finger adapted to engage the jaw which is in line with the folding mechanism, and a rock-lever connected with said folding-bar and actuating-finger, substantially as set forth.

14. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box and having a movable folding-jaw, of a catch arranged in the path of the movement of said jaw and movable in the direction in which said jaw moves with the feed mechanism, and an actuating device whereby said jaw is moved toward the holder and released from said catch, substantially as set forth.

15. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box and having a movable folding-jaw, of a catch arranged in the path of the movement of said jaw and movable in the direction in which said jaw moves with the feed mechanism, and an actuating device whereby said jaw is moved toward the holder and released from said catch, and a spring whereby the catch is returned after said jaw has been released therefrom, substantially as set forth.

16. The combination with the feed mechanism provided with holders for carrying the boxes or blanks and presenting the same to the pasting and folding mechanisms, of a pasting mechanism whereby paste is applied to projecting flaps of the box or blank, folding devices whereby the side flaps and the rear flap are successively folded down, a final folder whereby the front or final flap is folded down upon the rear flap, a pressure device which bears upon the rear flap after the same has been folded down and which clears the front flap, and means whereby the final folder is tightened upon the final flap after the rear flap has been acted upon by said pressure device, substantially as set forth.

17. The combination with the feed mechanism provided with holders for carrying the boxes or blanks and presenting the same to the pasting and folding mechanisms, of a pasting mechanism whereby paste is applied to projecting flaps of the box or blank, folding devices whereby the side flaps and the rear flap are successively folded down, traveling final folders which move with the holders and whereby each final flap is folded down upon the rear flap, a pressure device which bears upon the rear flap after the same has been folded down, and means whereby each final folder is tightened upon the final flap after the rear flap has been acted upon by said pressure device, substantially as set forth.

18. The combination with the feed mechanism provided with holders for carrying the boxes or blanks and presenting the same to the pasting and folding mechanisms, of a pasting mechanism whereby paste is applied to projecting flaps of the box or blank, a stationary folding mechanism arranged beyond the paste mechanism in the direction in which the feed mechanism moves and containing folders whereby the side flaps and the rear flap are successively folded down, traveling final folders which move with the feed mechanism and holders and whereby each final flap is folded down upon the rear flap, and a pressure device which is arranged beyond said folding mechanism and which bears upon the rear flap after the box or blank has passed beyond said folding mechanism, substantially as set forth.

19. The combination with the feed mechanism provided with holders adapted to carry the box-blanks or boxes, of folding devices whereby the side flaps and the rear flap are successively folded down, a folder whereby the front flap is folded down upon the rear flap, and a flanged pressure-roller which bears upon the rear flap after the same has been folded down, substantially as set forth.

20. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box, of folding devices whereby the side flaps and the rear flap are successively folded down, a folding-jaw connected with said holder for folding down the front flap, an actuating device whereby said jaw is closed, a pressure device bearing upon the rear flap after the same has been folded down, and a final folding-cam whereby said jaw is tightly closed down after the rear flap has been pressed down by said pressure device, substantially as set forth.

21. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box, of a folding-jaw pivoted at its lower end to the base of the holder and provided at its free end with a folding-blade, and a releasing-cam which swings the free end of the jaw away from the holder, substantially as set forth.

22. The combination with the feed mechanism provided with a holder adapted to carry a box-blank or box, of a folding-jaw pivoted at its lower end to the base of the holder and provided at its free end with a folding-blade and at its sides with yielding clamping-fingers adapted to bear against the sides of the blank or box on the holder, and a releasing-cam against which said jaw engages for withdrawing the free end of the jaw from the holder preparatory to removing the box from the holder, substantially as set forth.

23. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector movable toward and from the holder and having gripping-jaws which are closed upon the box on the holder for removing the box therefrom and opened for discharging the box, substantially as set forth.

24. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector movable toward and from said holder and having gripping-jaws which are closed upon the box on the holder for removing the box therefrom and opened for discharging the box, and an ejector-finger whereby the box is removed from the jaws when the latter are opened, substantially as set forth.

25. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector-carriage movable toward and from said holder, gripping-jaws attached to said carriage, a cam-plate by which said jaws are opened and closed, and stops whereby the movement of said cam-plate is arrested for effecting the opening and closing of the jaws, substantially as set forth.

26. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector-carriage movable toward and from the holder and having gripping-jaws which are closed upon the box on the holder for removing the same therefrom and opened for discharging the box, an ejector-finger arranged between the gripping-jaws, a spring whereby the ejector-finger is yieldingly held out of the path of the box, and an incline arranged on the ejector-carriage adapted to engage with an incline on the ejector-finger for moving the latter across the path of the gripping-jaws and discharging the box therefrom, substantially as set forth.

27. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector-carriage movable toward and from said holder, arms pivoted to said carriage and provided with gripping-jaws, a cam-plate guided on the carriage and provided with inclines adapted to engage with said arms for opening and closing said jaws, springs whereby said arms are held in engagement with said cam-plate, and stops arranged at the inner and outer ends of the path of the cam-plate for arresting the movement thereof and effecting the opening and closing of said jaws, substantially as set forth.

28. The combination with the feed mechanism provided with a holder upon which the box is carried, a reciprocating ejector-carriage movable toward and from said holder, a cam-plate moving with said carriage and capable of limited movement with reference thereto, gripping-jaws attached to said carriage and moved by said cam-plate, and a removable stop which can be placed in the path of the said cam-plate for arresting its movement while the carriage moves on or can be removed for allowing said cam-plate to move with said carriage, substantially as set forth

29. The combination with the feed mechanism provided with a holder upon which the box is carried, of a reciprocating ejector-carriage movable toward and from said holder, arms pivoted to said holder and having gripping-jaws which are closed upon the box on the holder, said jaws being provided with hollow four-sided gripping-faces having toothed edges, and means whereby said jaws are opened and closed, substantially as set forth.

30. The combination with the stationary frame and the traveling carrier provided with a holder for carrying the box or blank, of a stationary folding mechanism mounted on said frame and comprising two side-folders whereby the side flaps are folded down upon the holder, and a folder whereby one of the end flaps is folded down, and a traveling folder whereby the final flap is folded down and which is arranged opposite the holder on the traveling carrier, substantially as set forth.

31. The combination with the stationary frame and the traveling carrier provided with a plurality of holders for carrying the boxes or blanks, of a stationary folding mechanism which is mounted on the stationary frame and which acts upon the flaps, excepting the final flap, of each box or blank as it is presented to the stationary folding mechanism, and a traveling folder which is arranged opposite each holder on the traveling carrier and which folds the final flap and holds the same down while the box or blank is carried on the carrier, substantially as set forth.

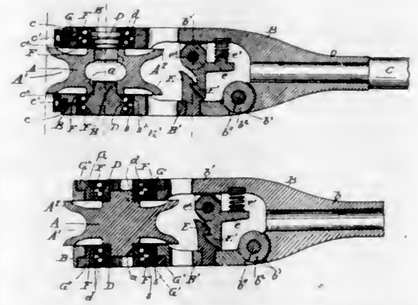
32. The combination with the stationary frame and the traveling carrier provided with a plurality of holders for carrying the boxes or blanks, of a stationary folding mechanism mounted on said frame and comprising fingers for folding the side flaps down, and a sliding folder for folding the rear flap upon the side flaps, and traveling final folders moving with said carrier and pivoted at their lower ends opposite said holders to swing toward and from the same, substantially as set forth.

33. A box-folding machine embracing a traveling carrier, and means for folding the last flap of the box and retaining it in position comprising a form or block mounted on said carrier, a pivoted retaining plate or arm and means engaging said plate in a manner to hold the same either in its raised or lowered position, substantially as set forth.

34. A box-folding machine embracing a traveling carrier, a form or block mounted on said carrier, a pivoted flap-holding plate or arm, means for automatically raising said plate from or lowering it upon the form and means acting to hold said plate either in its raised or lowered position, substantially as set forth.

35. A box-folding machine comprising a main frame provided in its opposite ends with rotative pulleys, a carrier trained over said pulleys and adapted to travel in ways mounted in said frame between the pulleys, a box-blank form mounted on said carrier, means for simultaneously folding the flaps connected with two opposite side walls together and upon the form, means for folding one of the intermediate flaps upon said first-mentioned flaps, and means for folding a fourth intermediate flap upon the form, to the under side of which paste has been applied and for holding said flap in place until the paste thereon becomes set, substantially as set forth.

664,459. OVERHEAD ELECTRIC TROLLEY. JAMES H. BROWN and WILLIAM H. TOBIN, Jr., Pittsfield, Mass. Filed July 10, 1900. Serial No. 23,109. (No model.)



Claim.—1. In an electric trolley, the combination with a trolley-pole and a revolving trolley-wheel, of a trolley-harp which comprises a rigid side member and a hinged side member which together are adapted to support between them the said trolley-wheel, and an automatic device which is adapted to lock and hold the said hinged side member of the harp in place for coöperation with the rigid side member thereof for supporting the said revolving trolley-wheel, as and for the purposes set forth.

2. In an electric trolley, the combination with a trolley-pole, a trolley-harp comprising a rigid side member which is fixed to said trolley-harp and a second side member jointed on said rigid side member and adapted to be turned in either direction in relation to the latter, and a trolley-wheel provided with the described central perforation *a*, an annular groove A′ and annular side flanges A^2 A^3 which are integral in said wheel, of a pair of ball-cups fixed in each of the said side members of said trolley-harp, a double ball-cone between the ball-cups of each pair, bearing-balls between said double ball-cone and the ball-cups of each pair, and coupling devices described, coupling the respective double ball-cones with centrally-perforated portion of the said trolley-wheel, as and for the purposes set forth.

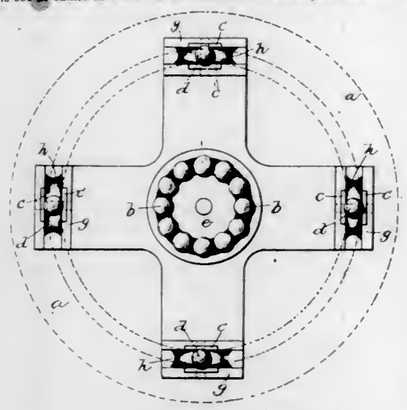
3. In an electric trolley, the combination with a trolley-wheel and a trolley-harp having one of its side members jointed to a fixed part of the same and adapted to be moved in either direction in relation to the trolley-wheel and a device adapted to operate to hold the said jointed side member of the trolley-harp rigidly fixed in place adjacent to the trolley-wheel and be moved at will away from the same, of two sets of ball-bearing adjuncts arranged one set in each said side member of the trolley-harp and comprising in each set two ball-cups a double ball-cone between said two ball-cups, two series of balls and a coupling device between each double ball-cone and the axis of the trolley-wheel, as and for the purposes set forth.

4. In an electric trolley, the combination with a revolving trolley-wheel and a trolley-harp comprising side members *b′* and B′ having in each perforation B^2, and removable circular ball-receiving walls G G′ secured in said perforations, of a pair of ball-cups and a double ball-cone and two series of bearing-balls and a coupling device between each of said double ball-cones and the axis of the said trolley-wheel, as and for the purposes set forth.

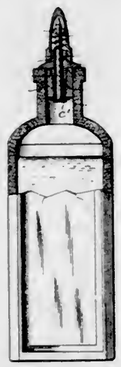
664,460. TURN-TABLE. EDGAR BURR, Reno, Nev., assignor of one-half to Edmund R. Dodge, same place. Filed Oct. 28, 1899. Serial No. 735,143. (No model.)

Claim.—A turn-table in which the outer circular track is dispensed with, and the outer edge of the platform or disk, when requiring it, is

supported by cast-steel balls set in boxing and resting on concave-faced wheels set in chairs in a circular foundation, substantially as aforesaid.

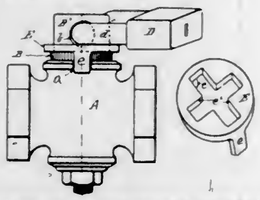


664,461. NOZZLE FOR OIL OR OTHER BOTTLES. LEON M. CABANA, Buffalo, N. Y. Filed May 31, 1899. Serial No. 718,911. (No model.)



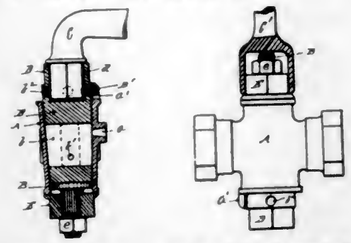
Claim.—In a dropping-nozzle for ventless liquid-receptacles, the combination with the nozzle having a discharge-passage of uniform diameter from end to end, of a sliding feed-rod of correspondingly uniform diameter fitted snugly in said passage and projecting past the outer end of said nozzle and provided at its inner end with a head or enlargement and outside of the nozzle with integral flattened portions forming laterally-projecting lugs which limit the inward movement of the feed-rod in the nozzle, substantially as set forth.

664,462. LOCK-COCK. JOSEPH B CAMPBELL, Erie, Pa. Filed Aug 24, 1900. Serial No. 27,866. (No model.)



Claim.—In a lock-cock the combination of a cock-body A having vertical slots *a* on opposite sides of the upper part thereof, a plug operating in said cock-body having a rectangular end B′ thereon and an opening *b* therethrough, the collar E having a cross-shaped opening e^3 adapted to pass down over the rectangular portion of said plug, and lugs *e e* on said collar adapted to enter the small slots *a a* in the cock-body, substantially as and for the purpose set forth.

664,463. STOP AND WASTE COCK. JOSEPH B. CAMPBELL, Erie, Pa. Filed Aug. 24, 1900. Serial No. 27,867. (No model.)



Claim.—1. The combination in a stop and waste cock of a cock-body having a waste-opening therein, a plug having a waste-opening, and operating in said cock-body, and a peripherally-squared washer on the smaller end of said plug non-rotatable thereon, substantially as and for the purpose set forth.

2. The combination in a stop and waste cock of a cock-body having a waste-opening therein, a plug operating therein, having its larger end squared, and having a waste-opening therein, and a washer, non-rotatable, on the smaller end of said plug, having its periphery squared, substantially as and for the purpose set forth.

3. The combination in a stop and waste cock of a cock-body having a waste-opening in one side thereof, a plug operating in said cock-body and having a waste-opening therein, stops on said cock-body adapted to engage an adjustable stop-screw in said plug, a squared end on the larger end of the plug having a square socket therein, and a peripherally-squared washer on the smaller end of said plug non-rotatable thereon, substantially as and for the purpose set forth.

4. The combination in a stop and waste cock of a cock-body A having a waste-opening *a* in the side thereof, and stops *a′ a′* on the top of said body, a plug B having a waterway *b* and a waste-opening *b′* therein, a squared end D on the upper end of the plug having a square socket *d* therein, and having screw-holes d^2 at opposite sides thereof, a screw-stop B′ adapted to be placed in one of the screw-holes b^2 and engage a handle C and also the stops *a′* on the cock-body, and a peripherally-squared washer E on the smaller end of the plug B non-rotatable thereon, substantially as and for the purpose set forth.

664,464. FASTENER FOR COLLAR-PADS. JOSEPH E. CHANTLER, Emporia, Kans., assignor of one-half to Justin R. Soden, same place. Filed Aug. 4, 1900. Serial No. 25,916. (No model.)

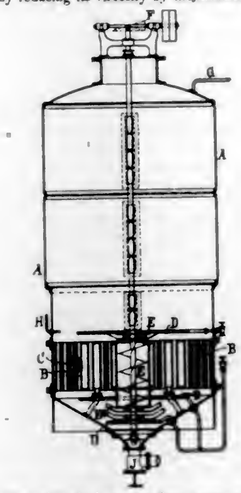


Claim.—A device of the character set forth comprising a spring-clip conforming in shape and removably applied to the roll or fore-wale of a horse-collar, the inner end of the clip being provided with a bolt-seat, a U-shaped bendable clamping-arm to embrace the front edge of a pad and having the inner terminal of the front member bifurcated to embrace the opposite ends of the bolt-seat on the inner end of said clip, both members of the arm having spurs extending in opposite directions from the sides of the same adjacent to the pad to transversely penetrate the latter, and a threaded bolt removably inserted through the parts of the bifurcated inner end of the arm member and the seat at the inner end of the clip.

664,465. PROCESS OF CRYSTALLIZING SUGAR. HERMANN CLAASSEN, Dormagen, Germany. Filed Jan. 4, 1900. Serial No. 301. (No specimens.)

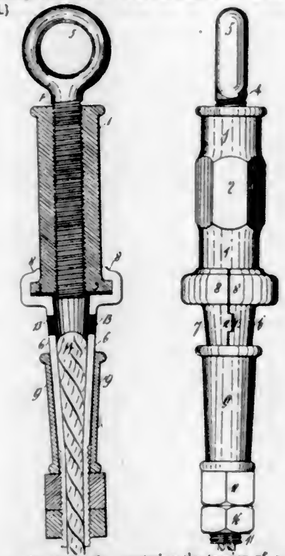
Claim.—1. In the operation of crystallizing out syrups, the process which consists in subjecting the mass alternately at each desired stage of the operation to the action of indirect heating-steam for creating a desired superconcentration of the syrup and of direct steam introduced into the mass for maintaining the mass at a temperature corresponding to the *vacuo* for the time being, maintaining all the while a superconcentration of the syrup.

2. In the operation of the crystallizing out of syrup, the process which consists in alternately acting upon the mass with indirect heating-steam for creating the desired superconcentration of the syrup and with direct steam introduced into the mass for maintaining the temperature corresponding to the *vacuo* for the time being, while maintaining the superconcentration of the syrup and the continued crystallizing out of the so-obtained mass by reducing its viscosity by the addition of a diluent.



3. The process of producing sugar from syrup, consisting in concentrating the first-drawn-in syrup according to the purity of the latter by boiling with indirect steam, stopping the indirect steam when the desired concentration has been obtained and replacing such indirect heating-steam by introducing steam direct into the mass for maintaining the temperature in the latter according to the *vacuo* for the time being while concentration remains unaltered, until formation of grain takes place, stopping the introducing of direct introduced steam, drawing in further syrup and continuing the alternate employment of indirect heating-steam for creating the desired concentration for the stage present and of direct-introduced steam for maintaining the temperature without alteration of the concentration, the mass being all the while stirred by mechanical means and continuing the treatment of the so-obtained masse-cuite for further crystallization by reducing its viscosity by the addition of a diluent corresponding to the decrease of temperature, and gaining the so-produced sugar by separating the same from the mother-liquid.

664,466. RIGGING-SCREW. HUGH S. CLEMENT and ALLAN S. THOMSON, Glasgow, Scotland. Filed July 25, 1900. Serial No. 24,856. (No model.)

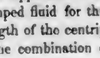


Claim.—1. Apparatus for regulating the tension of a rope and securely gripping one end thereof, comprising a screw-bolt; a rotatable nut thereon, a clamping device adapted to engage said nut and to permit of its rotation, and to firmly grip the end of the rope to be secured as and for the purposes hereinbefore described.

2. Apparatus for regulating the tension of a rope and securely clamping one end of the same, comprising a screw-bolt; an elongated nut coacting therewith provided with a non-circular part by which it may be turned, and with a circular flange; a tapered and split clamping-sleeve embracing the enlarged end of the rope to be secured, and having its larger end formed to engage the flange on the elongated nut, and its smaller end screwed to receive a nut preferably reinforced with a lock-nut; and an outer coned or tapered sleeve adapted to be forced upon the tapered portion thereof as and for the purposes hereinbefore described.

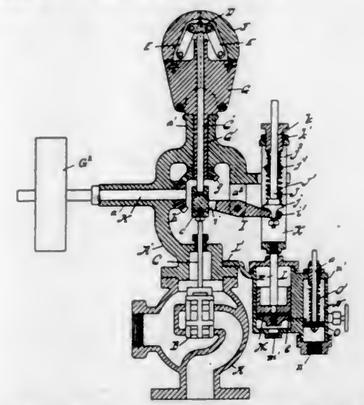
3. A rigging-screw comprising in combination a screw-bolt an elongated rotatable nut coacting therewith provided with a non-circular part and with a circular flange, a tapered and split sleeve engaging the said flange, adapted to embrace the end of the rope to be secured, having at one end a screwed portion whereon is a nut and an outer tapered sleeve adapted to be forced by said nut onto the inner sleeve; as and for the purposes hereinbefore described.

664,467. CLASP FOR SHOES, &c. SIMON COHEN, Düsseldorf, Germany. Filed Sept. 18, 1899. Serial No. 730,798. (No model.)



Claim.—A garment-fastener formed of an H-shaped blank doubled upon its bridge-piece and having bulged shanks, to form a pair of jaws, the two thicknesses of the bridge-piece being connected along one edge and disconnected along the other edge, substantially as specified.

664,468. PUMP-GOVERNOR. RUDOLPH CONRADER, Erie, Pa. Filed Jan. 31, 1900. Serial No. 3,473. (No model.)



Claim.—1. In a pump-governor, the combination of a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; and means actuated by the pumped fluid for varying the relative strength of one of the elements within the limits of the power exerted by the other element.

2. In a pump-governor, the combination of a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; and means actuated by the pumped fluid for varying the strength of said centripetal element within the limits of the power exerted by the centrifugal element.

3. In a pump-governor, the combination of a centrifugal element; a spring-actuated centripetal element arranged to act in opposition to said centrifugal element; and means actuated by the pumped fluid for varying the strength of the spring comprised in said centripetal element.

4. In a pump-governor, the combination of a centrifugal element; a centripetal element comprising a plurality of springs, said centripetal element being arranged to act in opposition to said centrifugal element; and means automatically actuated for throwing said springs into and out of action to vary the strength of the centripetal element.

5. In a pump-governor, the combination of a centrifugal element; a centripetal element comprising a plurality of springs, said centripetal element being arranged to act in opposition to said centrifugal element; and means actuated by the pumped fluid for throwing said springs into and out action to vary the strength of the centripetal element.

6. In a pump-governor, the combination of a centrifugal element

arranged to tend to move outwardly at the slowest speed at which the governor is designed to operate; a centripetal element arranged to act in opposition to said centrifugal element, and means actuated by the pumped fluid for automatically varying the strength of one of said elements within the limits of the power exerted by the other element.

7. In a pump-governor, the combination of a centrifugal element comprising a governor-weight pivoted with its center of gravity above said pivot; a centripetal element arranged to act in opposition to said centrifugal element; and means for varying the strength of the centripetal element within the limits of the power exerted by the centrifugal element.

8. In a pump-governor, the combination of a centrifugal element, comprising a governor-weight pivoted with its center of gravity above said pivot; a centripetal element arranged to act in opposition to said centrifugal element; and means actuated by the pumped fluid for varying the strength of the centripetal element within the limits of the power exerted by the centrifugal element.

9. In a pump-governor, the combination of a throttle-valve; a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; means for communicating the action of said elements to said valve; and means for automatically varying the strength of one of said elements within the limits of the power exerted by the other of said elements.

10. In a pump-engine, the combination of a throttle-valve; a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; means for communicating the action of said elements to said valve and means actuated by the pumped fluid for varying the relative strength of one of said elements within the limits of the power exerted by the other element.

11. In a pump-governor, the combination of a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; means for automatically varying the relative strength of one of the elements within the limits of the power exerted by the other element; and means for adjusting the range of said variations.

12. In a pump-governor, the combination of a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; means actuated by the pumped fluid for varying the relative strength of one of the elements within the limits of the power exerted by the other element; and means for adjusting the range of said variations.

13. In a pump-governor, the combination of a centrifugal element; a spring-actuating centripetal element arranged to act in opposition to said centrifugal element; means actuated by the pumped fluid for varying the strength of the spring comprised in said centripetal element; and means for adjusting the range of said variations.

14. In a pump-governor, the combination of a throttle-valve; a centrifugal element; a centripetal element arranged to act in opposition to said centrifugal element; means for communicating the action of said elements to said valve; means for automatically varying the strength of one of said elements relative to the strength of the other element; and means for adjusting the range of said variations.

15. In a pump-governor, the combination with the centrifugal element; the lever, I, arranged to act upon said governor and to convey the force of the centripetal element to the governor; the yoke, K; pin, J; a spring interposed between the yoke and the pin; and means for automatically varying the tension of said spring.

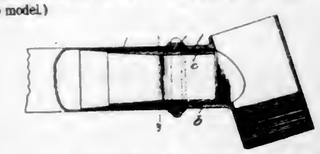
16. In a pump-governor, the combination with the centrifugal element; of the centripetal element comprising a spring, the pin J, and yoke, K, said spring being tensioned between said yoke, K, and the pin, J, the cylinder, L, piston, M, arranged in said cylinder and connected with said yoke; and connections leading from said cylinder to a supply of pumped fluid.

17. In a pump-governor, the combination of the rotary carrier, G; the governor-spindle, C'; means for giving said carrier rotary motion; the governor-weights pivoted in said carrier with their centers of gravity above the pivots; links connecting said governor-weights with said governor-spindle, C'; the lever, I, arranged to operate against said spindle; the pin J, arranged to operate upon the lever, I; the yoke, K, through which said pin passes; the springs, J' and J^2, arranged between the yoke and tensioned against the pin, J, said springs being of different strengths; the cylinder, L; piston, M, in said cylinder; a connection between the piston M, and yoke, K; the valve-chamber, N; plug-valve, O, therein, the said chamber, N, having the port, *e*, leading therefrom to the cylinder, L, and opening into the chamber, N, in position to be operated upon by the plug-valve, O; the spring, O', arranged against the plug-valve, O; and a connection from the pumped-fluid supply leading to the chamber, N.

18. In a pump-governor, the combination of the rotary carrier, G; the governor-spindle, C'; means for giving said carrier rotary motion; the governor-weights pivoted on said carrier with their centers of gravity above the pivots; links connecting said governor-weights with said governor-spindle, C'; the lever, I, arranged to operate against said spindle; the pin, J, arranged to operate upon the lever, I; the yoke, K, through which said pin passes; the springs, J' and J^2; said springs being of different strengths; the cylinder, L; piston, M, in said cylinder; a connection between the piston, M, and the yoke, K; the valve-chamber, N; plug-valve, O, therein; the said chamber, N, having the port, *e*, leading therefrom to the cylinder, L; and opening into the chamber, N, in position to be operated upon by the plug-valve, O; the spring, O' arranged against the plug-valve, O; a connection from the pumped-fluid supply leading to the chamber, N; the springs, P, holding the yoke normally in its lowest position; the bolt, Q', for limiting the downward movement of the yoke; the set-screw, Q, for limiting the upward movement of the yoke.

19. In a pump-governor, the combination of the rotary carrier, G; the governor, C'; means for giving said carrier rotary motion; the governor-weights pivoted on said carrier with their centers of gravity above the pivots; links connecting said governor-weights with said governor-spindle, C'; the lever, I, arranged to operate against said spindle; the pin, J, arranged to operate upon the lever, I; the yoke, K, through which said pin passes; the springs, J' and J^2; said springs being of different strengths; the cylinder, L; piston, M, in said cylinder; a connection between the piston, M, and the yoke, K; the valve-cylinder, L; plug-valve, O, therein, the said chamber, N, having the port, *e*, leading therefrom to the chamber, N and opening into the chamber, N, in position to be operated upon by the plug-valve, O; the spring, O', arranged against the plug-valve, O; a connection to the pumped-fluid supply leading to the chamber, N; the springs, P, for holding the yoke normally in its lowest position; the bolt, Q', for limiting the downward movement of the yoke; the set-screw, Q, for limiting the upward movement of the yoke; and the valve, e^2, for controlling the port *e*.

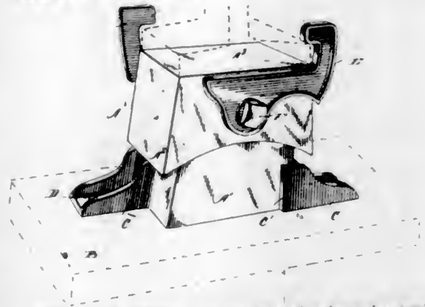
664,469. **JOINT FOR VEHICLE-FRAMES.** JAMES S. COPELAND, Hartford, Conn., assignor to the American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed May 20, 1897. Serial No. 637,406. (No model.)



Claim.—1. In combination in a vehicle-frame, a tubular member and a bracket member having threaded sockets, a threaded coupling fitting said sockets and having a lengthwise slot, the threads on the opposite ends of the coupling being of varying pitch, and a collar loosely mounted on the coupling and having a lug projecting into the slot in the coupling, all substantially as described.

2. In combination in a vehicle-frame, a tubular member and a bracket member each having a threaded socket fiting a thread on a coupling, the threaded coupling fitting said sockets and having a peripheral slot, the threads on the opposite ends of the coupling being of varying pitch, and a collar loosely mounted on the coupling with a lug engaging the slot in the coupling-sleeve and an overhanging edge beneath which the end of the tubular member projects, all substantially as described.

664,470. **CONSTRUCTION FOR THIRD-RAIL ELECTRIC RAILWAYS.** WILLIAM COURTENAY, New York, N. Y. Filed Sept. 29, 1900. Serial No. 31,550. (No model.)



Claim.—1. An insulator-block consisting of an integral generally rectangular piece of non-conducting material having a drip or overhang at the sides, and a perforation in the direction of the axis of the rail.

2. The insulator-block described, consisting of a generally rectangular piece of insulating material having flat top and bottom, side overhang, and a perforation as described.

3. The combination with the insulator-block, of the two anchors at diagonally opposite corners, each having an abutment to rest against the side of the block, and a flange extending along the end of the block.

4. The combination with the tie or sleeper and insulator-block, of the two anchors at diagonally opposite corners of the block, each embracing a corner of the block, and each held to the tie or sleeper by a bolt or the like passing through the anchor and into the sleeper or tie.

5. The combination with the insulator-block having upwardly-tapering sides, of the corner-anchors each having a socket corresponding to the taper of the block, substantially as described.

6. The combination with a perforated insulator-block, and means for securing the same to the tie or sleeper, of a pair of clamp-hooks constructed to lie against the ends of the said block, and a clamping-bolt passing through said hooks and block, substantially as described.

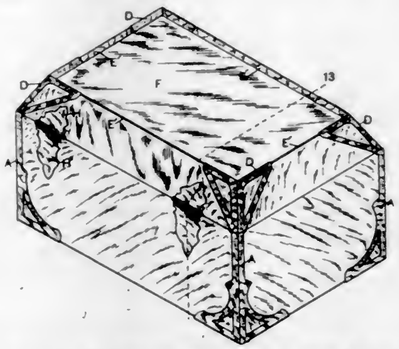
7. The combination with a perforated insulator-block, having an overhang, of a pair of clamp-hooks extending along the ends of the block and hooking over the rail-base, and a bolt extending through the block in the direction of the length of the rail.

8. In combination with the perforated insulator-block, the metallic hooks lying against the block and rail-base and extending above said base and means for attaching said hooks in adjusted position according to the size of the rail-base, substantially as described.

9. The combination with the perforated insulator-block, of a pair of metallic hooks lying against the ends of the block and provided with elongated holes, and a bolt passing through said hooks and block, substantially as described.

10. The clamp-hook for conductor-rails, having a side plate to lie against the insulator-block and a toe to project above the rail-base, and provided with an elongated perforation for the clamping-bolt, substantially as described.

664,471. **CONSTRUCTION FOR FANCY BOXES.** HUBERT J. ERKENSWICK, Chicago, Ill. Filed Mar. 2, 1898. Serial No. 672,239. (No model.)



Claim.—1. In a construction for fancy boxes a means for securing the sides, ends and bottom panels of the body of the box in position, consisting of corner-pieces contacting the outside surface of the box and covering the corner-joints between the ends of the panels thereof, the upper ends of the corner-pieces connected by means inside the box and in contact with the inner surface of the panels thereof, each corner-piece projecting inwardly at the lower end and adapted to support the bottom panel of the box, and means inside the box for connecting the ends of all the corner-pieces, which means also serves to hold the bottom panel in position, substantially as hereinbefore shown and described.

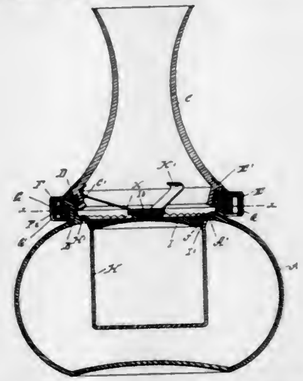
2. In a construction for fancy boxes, the lid thereof comprising a series of panels held in position by means of a series of corner-pieces adapted to clasp the ends of the panels thereof and cover the joints between the panels at the corners of the lid, pieces connecting the upper terminal ends of the corner-pieces and forming therewith a frame adapted to receive the top panel of the lid, means inside the lid also connecting all the corner-pieces and serving to hold the top panel thereof in position, in the manner substantially as and for the purpose stated.

3. In a construction for fancy boxes, the combination, with the corner-posts, each of which is L-shaped in cross-section and has each side projected into a bracket, the base of each bracket being bent inwardly and having portions thereof bent upwardly, a frame secured to the upwardly-projecting portions of said bases, and means for connecting the tops of the posts together.

4. In a construction for fancy boxes, the combination, with the corner-posts, each of which is L-shaped in cross-section and has the top and bottom portions thereof bent inwardly, the lower portion of each member of the L being extended into the form of a bracket, of a frame secured to said inwardly-projecting portions at the top and bottom for securing the walls and the bottom in place, said frames being at a distance from the L-shaped portions equal to the thickness of the walls.

5. A fancy box, the frame of which comprises angular posts and angular frames secured to the tops and bottoms thereof, the tops of the posts being bent inwardly and the bottoms being bent inwardly and a portion thereof bent upwardly, the walls of the box being secured between the bent portions of the tops and bottoms and the bottom being secured between the bottoms of the posts and the frame secured to the bent portions thereof.

664,472. **WATER-BOTTLE.** WILLIAM B. PENN, Winfield, N. Y., assignor to Ezra D. Beckwith, Little Falls, N. Y. Filed Feb. 7, 1900. Serial No. 4,335. (No model.)

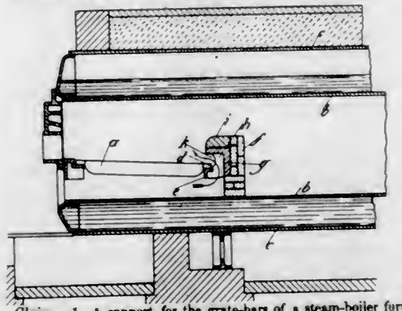


Claim.—1. In a water-bottle, the combination with the body A, the detachable neck C, the coupling-band E, the expansible ring F having peripheral spirally-inclined surfaces and studs F^2 projecting through said band, the ring G mounted on the outer side of the band and engaging the said studs, substantially as described.

2. In a water-bottle, the combination with the bottle and its detachable neck, a coupling-band having an expansible ring mounted on its inner side, said ring being capable of contracting and engaging projections on the bottle proper, means for rotating the expansible ring, substantially as described.

3. In a water-bottle composed of separable sections and having a contracted neck, an ice-receptacle removably mounted in said bottle so as to leave passages for the water between its upper portion and the inner sides of the bottle, substantially as described.

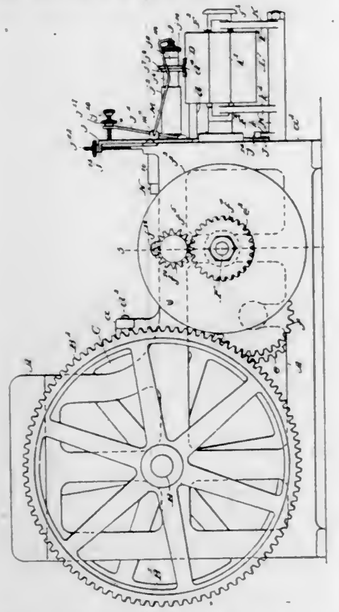
664,473. **STEAM-BOILER FURNACE.** CHRISTIAN W. FLEISCHMANN, Nuremberg, and KARL FISCHER, Sulzbach, Germany. Filed Aug. 17, 1900. Serial No. 27,186. (No model.)



Claim.—1. A support for the grate-bars of a steam-boiler furnace consisting of the part *g* adapted to extend from side to side of the fire-bridge and be supported thereby, said part *g* having ribs *h* projecting forwardly and forming slots for the admission of air and a ledge or projection *e* carried and supported by the said ribs and adapted to support the grate-bars, substantially as described.

2. In combination with the fire-bridge, of a steam-boiler furnace, the part *g* having the back piece of right-angular formation and supported by the fire-bridge wall, a ledge or projection *e* for supporting the grate and the ribs extending forwardly from the part *g* and supporting the said ledge, said ribs forming slots between the ledge and part *g* for the admission of air, substantially as described.

664,474. **WINDING-MACHINE.** JAMES F. GORDON, Lowell, Mass., assignor of one-half to Arthur A. Brigham, Weston, Mass. Filed Dec. 18, 1899. Serial No. 740,623. (No model.)



Claim.—1. The combination of a spindle-shaft, a guide, a main shaft, mechanism connecting said main shaft and guide, to cause the traverse of said guide, an intermediate shaft mechanism connecting said intermediate shaft and said main shaft and adapted to rotate said intermediate shaft a definite number of complete revolutions at one complete traverse of the guide, a driving-gear fast on said intermediate shaft, a gear fast on said spindle-shaft and having a different number of teeth from said driving-gear, and an intermediate gear engaging both of said named gears and mounted to have an orbital movement around the common center of said gears and to rotate freely on its own center and means for causing said orbital movement at a different angular speed from that of said driving-gear.

2. The combination of the cam-shaft, the guide, a cam to cause the same to traverse, the spindle and means of rotating the same, and means of stopping said traversing means and said spindle-rotating means without stopping said cam-shaft.

3. The combination of a spindle or bobbin-holder, means of rotating the same, a guide, tension-surfaces, means of pressing said surfaces together with a yielding pressure, a wedge to vary such pressure, and a lever controlling said wedge and operated by the increase of a cop on said spindle.

4. The combination of a spindle or bobbin-holder, means of rotating the same, a guide, tension-surfaces, means of pressing said surfaces together with a yielding pressure, a wedge to vary such pressure, a lever controlling said wedge and operated by the increase of a cop on said spindle, and an antifriction-roll carried by said lever and resting on said cop.

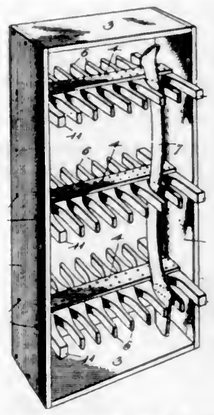
5. The combination of a frame, a spindle, means of rotating the same, a tension device, adapted to exert a yielding pressure upon the material being wound upon said spindle, a wedge, to vary such pressure, means of varying the angle between the operative faces of said wedge, a lever, engaging said wedge and resting upon a cop on said spindle and operated by the enlargement of said cop to move said wedge to diminish the pressure of said tension device.

6. The combination of a frame, a tension-stud, tension-pieces on said stud, a spring to crowd said tension-pieces together, a slide movable between said frame and said spring, an incline, pivoted to said slide, means of varying the angle of said incline to said slide, the spindle, means of rotating the same, a lever, engaging said slide and adapted to rest upon the cop on said spindle and to be operated by the increasing size of said cop to raise said slide and diminish the tension of said spring.

7. The combination of a rotating shaft, the spindle, a clutch device, connecting said shaft and spindle, means normally operating to open said clutch, a latch, to prevent the opening of said clutch, a slide, connected to said latch, and a lever, engaging said slide and resting upon a cop being wound on said spindle, to move said slide and to open said latch when said cop has attained a predetermined diameter.

8. The combination of a main shaft, a cam, loose thereon and forming one counterpart of a clutch, another clutch counterpart, rotary with said shaft and laterally movable thereon, a lever, to open and close said clutch, a spring, to move said lever to open said clutch, a latch, to prevent the clutch-opening movement of said lever, a spindle, a reciprocating guide, operated by said cam, a latch-lifter and a drop, carried by said lifter and normally held out of engagement with said guide by the tension of the material being wound on said spindle, but engaged by said guide to operate said lifter upon the breaking or slacking of said material.

664,475. **AX-HANDLE CRATE.** HERBERT G. GRAVES, Mayville, Mich. Filed Mar. 3, 1900. Serial No. 7,228. (No model.)

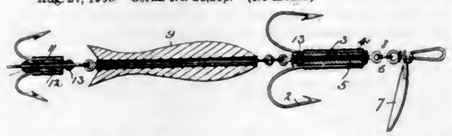


Claim.—1. A shipping and display crate for preventing crooking of ax-helves, having ax-helve-receiving seats arranged in groups, each of the latter being adapted for the reception of a single ax-helve, and consisting of longitudinally-alined terminal and intermediate seats spaced at intervals less than one-half of the length of an ax-helve, and formed to embrace an ax-helve at terminal and intermediate points, whereby the helve is held straight and is prevented from crooking.

2. A shipping and display crate for preventing crooking of ax-helves, comprising a frame having opposite side and end pieces forming a skeleton rectangular frame, which is open at its front and rear sides, and transverse end and intermediate substantially parallel ax-helve supports connected to the opposite sides of the frame, the end supports being spaced from the ends of the frame to accommodate the respective ends of the ax-helves, and the supports having corresponding ax-helve-receiving seats, which are arranged in longitudinally-alined groups and are open at their outer sides for the reception and removal of the ax-helves, the supports being spaced at intervals less than the length of an ax-helve, and the seats being formed to embrace a helve at terminal and intermediate points, whereby the helve is held straight and is prevented from crooking.

3. A shipping and display crate for preventing crooking of ax-helves, comprising end and side pieces forming a substantially rectangular skeleton frame, which is open at its front and rear, and transverse end and intermediate ax-helve supports, which are secured to the opposite side pieces and are spaced at intervals less than one-half of the length of an ax-helve, the end supports being spaced from the adjacent ends of the frame to accommodate the ends of the helves, and each support being formed by a plurality of transverse sections, which have laterally-enlarged intermediate portions, from which project the oppositely-disposed reduced longitudinal fingers, the opposite sides of the adjacent enlarged portions being in engagement, and opposite longitudinal strips embracing the intermediate enlarged portions of the sections and secured thereto forming a rigid support, the adjacent fingers being spaced apart and forming ax-helve-receiving seats, which are open at their outer ends for the reception and removal of the helves, the seats being arranged in groups of longitudinally-alined end and intermediate seats, which are formed to embrace a helve at terminal and intermediate points, whereby the helve is held straight and is prevented from crooking, the outer sides of the terminal-support sections being straight and flat and secured flat against the respective inner faces of the side pieces of the frame.

664,476. **FISH-HOOK.** JAMES R. HALL, Cleveland, Ohio. Filed Aug. 27, 1900. Serial No. 28,218. (No model.)

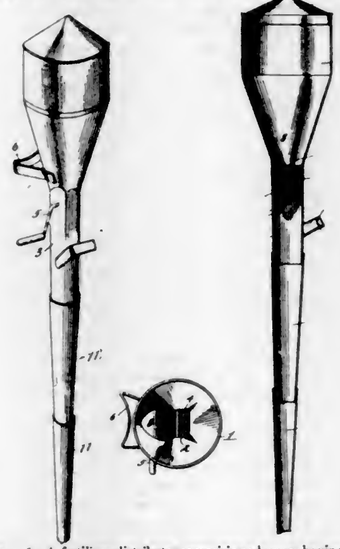


Claim.—1. In a fish-hook, a normally non-rotatable support, a lure connected therewith, and a rotatable set of hooks mounted on the support adjacent to the lure and adapted to be automatically rotated as the hook is drawn through the water.

2. In a fish-hook, a normally non-rotatable shaft, a set of hooks thereon arranged to automatically rotate upon the shaft as it is drawn through the water, and a lure secured to the shaft to the rear of the hooks.

3. In a fish-hook, a normally non-rotatable shaft, a sleeve on the shaft, a set of hooks on the sleeve, the points of which are bent at an inclination or spiral to the axis of the shaft, whereby the set of hooks will be automatically rotated upon the shaft when drawn through the water, a lure flexibly secured to the rear of the hooks, and a set of hooks to the rear of the lure.

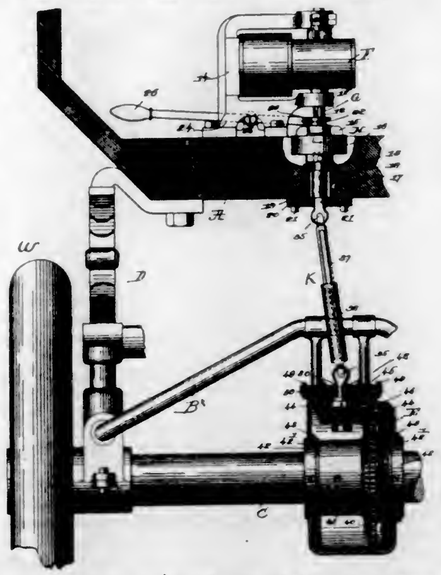
664,477. **FERTILIZER-DISTRIBUTER.** JAMES C. HOLTSCLAW, Palmetto, Fla. Filed Sept. 13, 1900. Serial No. 29,939. (No model.)



Claim.—1. A fertilizer-distributer comprising a hopper having a contracted discharge-opening at its lower end and a depending spout, a revoluble feed-wheel in said spout, immediately below and cutting off said discharge-opening, said feed-wheel having peripheral cups or valves, and a spring-plate in one side of the hopper and having its free end bearing on said feed-wheel and successively engaging the cups or valves thereof, said spring-plate retarding the rotation of said feed-wheel, substantially as described.

2. A fertilizer-distributer comprising a hopper having a contracted discharge-opening at its lower end and a depending spout, a revoluble feed-wheel in said spout, immediately below and cutting off said discharge-opening, said feed-wheel having peripheral cups or valves, a spring-plate in one side of the hopper and having its free end bearing on said feed-wheel and successively engaging the cups or valves thereof, said spring-plate retarding the rotation of said feed-wheel, a rest on one side of the hopper to bear against the body of the operator, a handle on the discharge-spout, on the side opposite said rest, and a crank to rotate said feed-wheel, substantially as described.

664,478. **MOTOR-VEHICLE.** FRANK B. HOPEWELL, Cambridge, Mass. Filed Nov. 3, 1899. Serial No. 735,708. (No model.)



Claim.—1. In a vehicle of the class described, a motor, a primary shaft driven by said motor, an axle having a gear-wheel fast thereon, a casing surrounding said gear-wheel said casing being held against longitudinal movement by said gear-wheel, a stub-shaft supported in said casing and having a gear meshing with the gear on the axle, and a telescopic shaft jointed respectively to the stub-shaft and primary shaft.

2. In a vehicle of the class described, a motor, a primary shaft driven by said motor, an axle having a gear-wheel fast thereon, a casing surrounding said gear-wheel said casing being held against longitudinal movement by said gear-wheel and having a removable cap, a stub-shaft supported by said removable cap said stub-shaft having a gear meshing with the gear on the axle, and a telescopic shaft jointed respectively to the primary shaft and the stub-shaft.

3. In a vehicle of the class described, a body, a motor carried thereby, a primary shaft supported in the floor of the body and driven by said motor, a clutch connecting the primary shaft and motor, an axle, a gear fast thereon, a housing surrounding said gear and carrying a stub-shaft, a gear on the stub-shaft connecting with the gear on the axle, and a two-part telescopic shaft connecting the stub-shaft and primary shaft.

4. In a vehicle of the class described, an axle provided with a gear, a fixed casing surrounding said gear, and having a removable cap, a stub-shaft journaled in the removable cap, said stub-shaft having a gear meshing with the gear on the axle, a motor on the body of the vehicle, and a two-part telescopic shaft having a universal joint, connecting the motor with the stub-shaft.

5. In a vehicle of the class described, a shaft or axle having a wheel, a gear secured to said shaft or axle, collars carried by the shaft at opposite sides of the gear, a fixed casing or boxing adapted to rotatively receive the collars and having a removable cap, a stub-shaft supported by said removable cap and having a gear meshing with the first-mentioned gear, a primary shaft, and a telescopic shaft jointed respectively to the primary shaft and the stub-shaft.

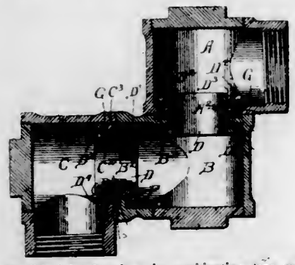
6. In a vehicle of the class described, a body, an axle having a wheel, a primary shaft upon the body, and driving connections between the primary shaft and the body, said driving connections including a shaft shiftably mounted relatively to the body and the axle.

664,479. **FLEXIBLE JOINT FOR PIPES.** GEORGE F. HUGHSON, Chicago, Ill. Filed Dec. 20, 1899. Renewed Nov. 8, 1900. Serial No. 35,886. (No model.)

Claim.—1. In a flexible joint for pipes, in combination, two members having coinciding fitting faces and contracted throats adjacent to said fitting faces; and a tubular sleeve adapted to lie within said contracted throats, and have an engagement with said members rearward of said throat portions, for holding the fitting faces together.

2. In a flexible joint for pipes, in combination, two members hav-

ing coinciding fitting faces, each member being provided with an internal, annular flange; and a tubular connecting-sleeve for holding said faces together.

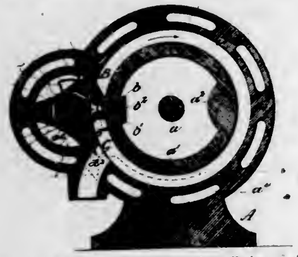


3. In a flexible joint for pipes, in combination, two members having coinciding fitting faces, each member being provided with an integral, internal, annular flange; and a tubular connecting-sleeve having an annular flange on one of its ends, and an annular nut on its other end, to hold said fitting faces together.

4. In a flexible joint for pipes, in combination, two members having coinciding fitting faces, with an annular recess in each of said faces; packing material for said recesses; each member also having an internal, annular flange; packing material for each of said flanges; and a tubular connecting-sleeve having an annular flange and an annular nut, to hold said fitting faces together.

5. In a flexible joint for pipes, in combination, three members having coinciding fitting faces with an annular recess in each of said fitting faces; two of said members being provided with an internal, annular flange; and the other member being provided with two internal, annular flanges; packing material for said recesses and for each of said annular flanges; and a tubular connecting-sleeve having an annular flange and an annular nut, to hold said fitting faces together.

664,480. **ROTARY ENGINE.** GIDEON R. IBACH, New York, N. Y. Filed Nov. 9, 1899. Serial No. 736,376. (No model.)



Claim.—1. In a rotary engine, a main cylinder, a piston mounted therein and having a longitudinal slot, a shoe having an enlarged head and a contracted portion fitting within said slot and provided with inner bearing-shoulders, and means for admitting steam or the like to said cylinder.

2. In a rotary engine, a main cylinder, a rotary piston mounted therein and having a longitudinal slot, a shoe secured within said slot and provided with inner bearing-shoulders and an outer enlargement having a longitudinal T-shaped slot, a packing-strip corresponding to the shape of said slot and located therein, a plate-spring interposed between the bottom of said slot and the under side of said packing, and means for admitting steam or the like to said cylinder.

3. In a rotary engine, a main cylinder, a hollow cylindrical piston mounted therein and provided with a longitudinal slot, a shoe having a contracted portion fitting within said slot, and provided with bearing-shoulders fitting against the inner periphery of said piston, a spring-pressed packing-strip carried by said shoe, and means for admitting steam or the like to said cylinder

4. In a rotary engine, a main cylinder, a hollow cylindrical piston mounted therein and having a longitudinal slot, a shoe secured within said slot and also having a longitudinal slot, said shoe having shoulders bearing against the inner periphery of said piston, a packing-strip located in the slot of said shoe, a spring interposed between said packing-strips and the bottom of said slot, and means for admitting steam or the like to said cylinder.

5. In a rotary engine, a main cylinder, a rotary piston mounted therein and having a longitudinal slot, said piston having annular grooves in its ends, a shoe secured to the slot in said piston, end plates having flanges fitting in the grooves of said piston, springs bearing against said end plates, corresponding end plates carried by said shoe, and means for admitting steam or the like to said cylinder.

6. In a rotary engine, a main cylinder, a rotary piston mounted in said cylinder, a rotary main valve of approximately triangular form arranged to control the admission of steam or the like to said cylinder, the longitudinal faces thereof being concaved on the same radius as the inner circumference of said cylinder, whereby when one of said faces becomes unfit for use by reason of wear, the remaining faces may be successively presented, and means operated by said piston for automatically operating said valve

7. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve of approximately triangular form and carrying spring-pressed packing-strips, the longitudinal faces of said valve being concaved on the same radius as the inner circumference of said cylinder, whereby when one of said faces becomes worn, the remaining faces may be successively presented, and means for admitting steam to said valve-chamber.

8. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve of approximately triangular form provided with longitudinal grooves, the longitudinal faces of said valve being concaved on the same radius as the inner circumference of said cylinder, whereby when one of said faces becomes worn or otherwise unfit for use the remaining faces may be successively presented, spring-pressed packing-strips located in said grooves, means for rotating said valve, and means for admitting steam or the like to said valve-chamber.

9. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein and having longitudinal grooves formed therein and provided with lateral enlargements, packing-strips located in said grooves and having shoulders fitting within said enlargements, springs bearing against said packing-strips, means for operating said valve, and means for admitting steam or the like to said main-valve chamber.

10. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main rotary valve mounted therein and having radiating recesses formed in its ends, spring-pressed plates located in said recesses, means for rotating said valve, and means for admitting steam or the like to said main-valve chamber.

11. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein having recesses formed in its ends, said recesses being provided with pockets or depressions, coil-springs located in said pockets or depressions, plates located in said grooves or recesses and engaged by said springs, means for rotating said main valve, and means for admitting steam or the like to said cylinder.

12. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve located in said chamber and having annular pockets in its ends provided with radiating slots or recesses, a ring-like plate fitting in each of said annular pockets, and having radiating arms corresponding to said slots or recesses, springs bearing against said plates, means for rotating said main valve, and means for admitting steam or the like to said main-valve chamber.

13. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve located in said chamber and having longitudinal grooves, packing-strips secured in said grooves and having grooves formed in their ends, said valve having annular pockets in its ends provided with radiating slots or recesses in alinement with the slots or grooves formed in said packing, a ring-like plate fitting in each of said annular pockets and having radiating arms corresponding to said slots or recesses, springs bearing against said plates, means for rotating said valve, and means for admitting steam or the like to said valve-chamber.

14. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve located therein, means for automatically rotating the same, an auxiliary-valve chamber arranged on a horizontal plane with said main-valve chamber, a partition-wall separating said valve-chambers and having a port or opening, a shaft mounted in said auxiliary-valve chamber, a valve keyed to said shaft and provided with a flange having a port designed to register with said port or opening, and means for rocking said shaft.

15. In a rotary engine, a main cylinder, a main shaft mounted in said cylinder, a rotary piston keyed to said shaft, and located within said cylinder, a main valve arranged to control the admission of steam or the like to said cylinder, a cam-wheel loosely mounted on a projection of said main cylinder, gearing operated by said main shaft and meshing with said cam-wheel, and a lever operated by said cam-wheel arranged to reciprocate said main valve.

16. In a rotary engine, a main cylinder, a main shaft mounted in said cylinder, a rotary piston keyed to said shaft and located within said cylinder, a main-valve chamber communicating with said cylinder, a shaft mounted therein, a main valve keyed to said shaft, a pinion also keyed to said shaft, a cam-wheel loosely mounted on said main cylinder, gear-ing operated by said main shaft and meshing with said cam-wheel, and a bell-crank lever pivoted to said main cylinder and having a toothed segment at one end in engagement with the pinion of said main-valve shaft, the opposite end of said bell-crank lever being in engagement with said cam-wheel and operated thereby.

17. In a rotary engine, a main cylinder, a main shaft mounted in said cylinder, a rotary piston keyed thereto and located within said cylinder, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for rotating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the auxiliary-valve chamber, a valve keyed thereto, an arm projecting from said main cylinder, a sleeve loosely mounted thereon and carrying a pinion, a second pinion meshing therewith and keyed to said main shaft, an eccentric keyed to said sleeve, and connections between said eccentric and said auxiliary-valve shaft.

18. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for rotating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said shaft, an eccentric operated by said piston, a lever keyed to said valve-shaft and designed to be engaged by said eccentric, and means for automatically disengaging said bell-crank lever from said eccentric.

19. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for rotating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said shaft, an eccentric operated by said piston, an arm or member loosely mounted on said auxiliary-valve shaft and having pivotal connection with said eccentric, a lever keyed to said valve-shaft and designed to be engaged by said arm or member, and means for automatically disengaging said lever from said arm or member.

20. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for rotating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said shaft, an eccentric operated by said piston and having diverging arms, a plate connecting the ends of said arms, an arm or member loosely mounted on said auxiliary-valve shaft and pivotally connected to said plate, a lever keyed to said valve-shaft and designed to be engaged by said arm or member, and means for automatically disengaging said lever from said arm or member.

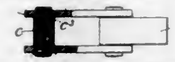
21. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for operating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said shaft, an eccentric operated by said piston, a lever keyed to said auxiliary-valve shaft and having a spring-pressed dog, an arm loosely mounted on said valve-shaft and pivotally connected to said eccentric, a lug carried by said arm and designed to engage said dog, and means for automatically disengaging said dog from said lug.

22. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for operating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said auxiliary-valve shaft and having a spring-pressed dog provided with a lateral pin, an arm loosely mounted on said shaft and pivotally connected to said eccentric, a lug carried by said arm and designed to engage said dog, and a guide designed to engage said pin, whereby said dog will be depressed.

23. In a rotary engine, a main cylinder, a rotary piston mounted therein, a main-valve chamber communicating with said cylinder, a main valve mounted therein, means for operating the same, an auxiliary-valve chamber communicating with said main-valve chamber, a shaft mounted in the former, a valve keyed to said shaft, an eccentric operated by said piston, means for adjusting the same, a lever keyed to said auxiliary-valve shaft and having a spring-pressed dog, an arm loosely mounted on said shaft and pivotally connected to said eccentric, said arm being designed to engage said dog, a curved guide designed to depress said dog, and means for adjusting said guide.

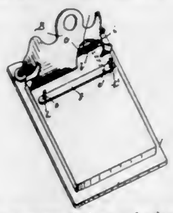
664,481. **BICYCLE-CHAIN.** ARTHUR L. JACOBS, Hartford, Conn., assignor to the American Bicycle Company, Jersey City, N. J., and New York, N. Y. Filed Dec. 23, 1895. Serial No. 573,039. (No model.)

Claim.—1. In combination in a driving-chain, a pivot-stud having a reduced portion and an annular groove of much less width than the reduced portion and formed near its end, and a link having an opening closely fitting said reduced portion and a lip closed into said annular groove flush with the outer surface of the link.



2. In combination in a driving-chain, a pivot-stud having a reduced portion and an annular groove of much less width than the reduced portion and formed near its end, and a link having an opening closely fitting said reduced portion and a lip formed from an upturned annular flange from the inner wall of the opening and closed into the groove.

664,482. **FILE FOR PRESCRIPTIONS.** HARRY I. JEFFERS, Aberdeen, Miss. Filed May 12, 1900. Serial No. 16,460. (No model.)

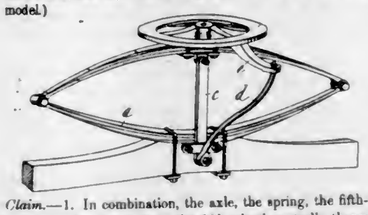


Claim.—1. A file for prescriptions and other papers, comprising a wire having a straight body, or center, eyes formed at each end thereof and arms projecting in parallel lines from said eyes, the ends of the arms bent at right angles, as described, in combination with a rod adapted to fit within the aforesaid eyes, for the purpose set forth.

2. In a file for papers, the combination of a rod, a wire provided at each side of its center with eyes adapted to receive said rod, the two ends of the wire projecting through the space between the rod and body of the wire and having their ends bent at right angles, as described, and means for holding the file, substantially as set forth.

3. The combination in files for papers, of a rod, a wire having its central part pivotally connected therewith by a pair of eyes, the ends of the wire projecting outwardly therefrom and bent as described, with an endless band having transverse pockets adapted to receive the aforesaid rod, a pair of band-rollers and a rectangular frame.

664,483. **VEHICLE.** JÖRGEN KLÖVSTAD and GUSTAV W. JONSEN, Christiania, Norway. Filed Aug. 22, 1900. Serial No. 27,669. (No model.)



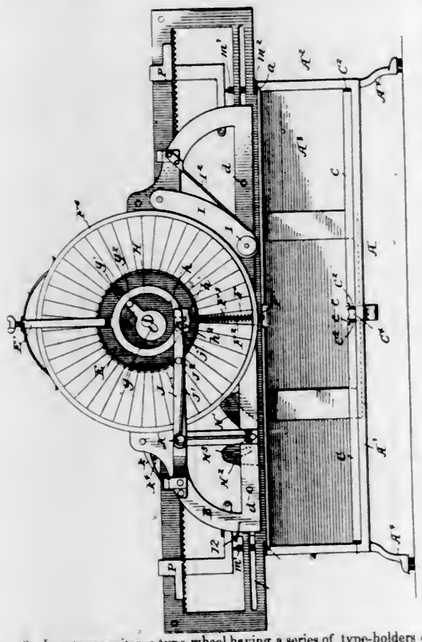
Claim.—1. In combination, the axle, the spring, the fifth-wheel, a stay-bar *c* extending down from the fifth-wheel centrally thereof and of the spring and a guide at the axle to permit vertical movement of the stay-bar and also lateral play thereof, said stay-bar resisting movement of the spring longitudinally of the vehicle, substantially as described.

2. In combination, the axle, the spring and fifth-wheel supported thereby, the stay-bar extending down from the fifth-wheel, the guide at the lower end of said bar for permitting vertical movement and lateral play of said bar, an arm *e* extending from the fifth-wheel and a rod *d* extending from said arm to the lower end of the stay-bar, said arm rod and bar forming a triangular structure to resist movement of the spring longitudinally of the vehicle, substantially as described.

664,484. **TYPE-WRITER.** GEORGE W. LANDON, Kent, Ind. Filed July 6, 1897. Serial No. 643,567. (No model.)

Claim.—1. In a type-writer, the combination with a rotatable type-wheel provided with a series of movable type-holders and a rotatable sweep adapted to engage any one of the type-holders to rotate the type-wheel and to be moved longitudinally independently of the type-wheel to actuate the type-holders to carry the type into contact with the paper, substantially as described.

2. In a type-writer, a type-wheel having on its face a series of type-holders, a rotatable and longitudinally-movable sweep adapted to engage the type and bring the wheel into position, and a guide for preventing the longitudinal movement of the sweep except at predetermined points, substantially as described.



3. In a type-writer, a type-wheel having a series of type-holders on its face, a sweep arranged to engage the type and bring the wheel into printing position, a guide having notches controlling the movement of the sweep, and an inking-wheel arranged adjacent to the type-wheel, the guide being arranged to permit the movement of the type to impinge on the inking-wheel substantially as described.

4. In a type-writer, a type-wheel having a series of type-holders mounted on its face, staples securing said type-holders, and a sweep arranged to engage the staples to move the wheel to printing position and to engage the type-holders to make the impression, substantially as described.

5. In a type-writer, a type-wheel having a series of type-holders on its face, staples securing the holders in position, a sweep having a notch to engage the staples to move the wheel into printing position and to engage the type-holders to make the impression, and a guide controlling the movements of the sweep, substantially as described.

6. In a type-writer, the combination with a type-wheel having a series of type-holders on its face, of staples for securing the holders in position, a sweep longitudinally movable on its axis arranged to engage the staples to move the type-wheel into position, and a guide controlling the movement of the sweep, said guide having a notch permitting the sweep to be moved to make the impression, substantially as described.

7. In a type-writer, the combination with a support for the material to be printed upon, of a type-wheel having type on its face, a rotatable and depressible sweep for bringing the type into position, and for moving them into contact with the material to be printed upon, a guide controlling the sweep constructed to permit the depression of the sweep at a predetermined point, a lever arranged adjacent the guide adapted to be engaged by the sweep when it is depressed and feeding mechanism connected with the lever for moving the wheel laterally relative to the support to make the type-space, substantially as described.

8. In a type-writer, the combination with a type-wheel carrying type on its face, of a sweep for bringing the type into printing position, a guide for said sweep, a notch in the guide controlling the movement of the sweep, a spring-actuated lever arranged adjacent to said notch whereby the lever can be operated and the spring put under tension, and feeding devices operated by said spring-actuated lever, substantially as described.

9. In a type-writer, the combination with a type-wheel carrying the type, of a feeding device comprising a rock-shaft, a spring-actuated lever connected thereto, pawls on the rock-shaft, a rack on the frame, and means for moving the lever when the impression is made whereby the act of making the impression puts the lever under tension and permits it to operate to feed the type-wheel, substantially as described.

10. In a type-writer, the combination with the type-wheel carriage, of a main carriage, a shaft mounted on the main carriage having pinions engaging a rack on the frame, a clutch also on the shaft, and connections between the type-wheel carriage and clutch whereby the main carriage is moved a line-space when the type-wheel carriage is retracted, substantially as described.

11. The combination with the main carriage, of a shaft mounted thereon having pinions engaging a rack on the frame, a clutch on the shaft, an inclined flight connected to the clutch to move the type-carriage, and devices on the type-carriage to engage the inclined flight for moving the main carriage, substantially as described.

12. The combination with the frame, of a table comprising separated independently-adjustable sections, each adapted to support one portion of a book, and a filling-piece for closing the space between the sections, substantially as described.

664,485. SMOKE-CONSUMER. JAMES F. LESTER, Atlanta, Ga. Filed Mar. 12, 1900. Serial No. 9,323. (No model.)



Claim.—1. The combination of a fire-box, and a heat-absorbing block, said block being provided on its under side with a cavity, a series of divergent combustion-flues communicating with said cavity, and means for supplying air thereto, as set forth.

2. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues, and a series of tapered air-flues for supplying air to the combustion-flues, as set forth.

3. The combination of a fire-box, an air-heating chamber, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues of variable lengths, and a series of air-inlet flues connecting the air-heating chamber and the combustion-flues, as set forth.

4. The combination of a fire-box, an air-heating chamber, a heat-absorbing block, said block being provided with a series of divergent combustion-flues, and means for supplying air to said combustion-flues from the said heating-chamber, as set forth.

5. The combination of a fire-box, a heat-absorbing block, said block being provided with a series of divergent combustion-flues and an air-heating chamber, and flues for supplying air to the combustion-flues from the air-chamber, as set forth.

6. The combination of a fire-box, a supplemental combustion-chamber, and a heat-absorbing block, said block being provided on its under side with a cavity, a series of divergent combustion-flues communicating with the cavity and the supplemental combustion-chamber, as set forth.

7. The combination of a fire-box, a supplemental combustion-chamber, a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and means for supplying air to said combustion-flues, as set forth.

8. The combination of a fire-box, a supplemental combustion-chamber, a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and an air-heating chamber, means for supplying air to the chamber and means for supplying air to the flues from said chamber, as set forth.

9. The combination of a fire-box, a supplemental combustion-chamber, means for supplying air to said chamber, a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with said cavity, a series of air-inlet flues for supplying air to the combustion-flues from the air-heating chamber, and means for supplying air to the combustion-flues from the means for supplying air to the combustion-chamber, as set forth.

10. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues of variable lengths, a heated-air chamber, and means for supplying air to the combustion-flues from said heated-air chamber, as set forth.

11. The combination of a fire-box, a supplemental combustion-chamber, means for supplying air thereto, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, an air-heating chamber and means for supplying air thereto, as set forth.

12. The combination of a fire-box, a supplemental combustion-chamber, a heat-absorbing block, said block being provided with a cavity on its under side, a series of divergent combustion-flues of variable lengths communicating with said cavity and the supplemental combustion-chamber, an air-heating chamber, a series of flues connecting the air-heating chamber and the divergent combustion-flues, as set forth.

13. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues of variable lengths, an air-heating chamber located over the combustion-flues and means for supplying air to the combustion-flues from the air-chamber, as set forth.

14. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues an air-heating chamber and means for supplying air to the combustion-flues from the air-chamber, as set forth.

15. The combination of a fire-box, a supplemental combustion-chamber and a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and an air-heating chamber, said chamber communicating with the combustion-flues and the supplemental combustion-chamber, as set forth.

16. The combination of a fire-box, a supplemental combustion-chamber, an air-heating chamber, means for regulating the supply of air to said chamber, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and flues for supplying air to the combustion-flues and the supplemental combustion-chamber simultaneously, as set forth.

17. The combination of a fire-box, a supplemental combustion-chamber, an air-heating chamber, said chamber communicating with the supplemental combustion-chamber, means for regulating the supply of air thereto, a heat-absorbing block, said block being provided with a cavity on its under side, a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and a series of air-inlet flues for supplying air to the combustion-flues from the air-heating chamber, as set forth.

18. The combination of a fire-box, a supplemental combustion-chamber, an air-heating chamber, said chamber communicating with the supplemental combustion-chamber, means for regulating the supply of air thereto, a heat-absorbing block, said block being provided with a cavity, a series of divergent combustion-flues of variable lengths communicating with the supplemental combustion-chamber, and a series of air-inlet flues, as set forth.

19. The combination of a fire-box, a heat-absorbing block, said block being provided with a series of divergent combustion-flues, means for supplying air to said flues, and means for regulating the supply of air, as set forth.

20. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of curved combustion-flues, as set forth.

21. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of divergent curved combustion-flues, as set forth.

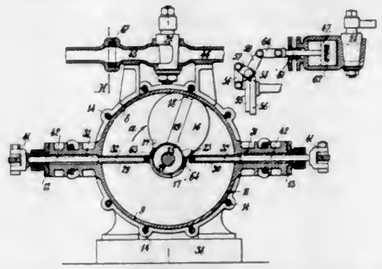
22. The combination of a fire-box, and a heat-absorbing block, said block being provided with a series of variable divergent curved combustion-flues, as set forth.

23. The combination of a fire-box, and a heat-absorbing block, said block being provided with a heated-air chamber, a cavity, a series of divergent curved combustion-flues, and air-flues connecting the air-chamber and the combustion-flues, as set forth.

24. The combination of a fire-box, and a heat-absorbing block, said block being provided with a cavity on its under side, a series of divergent combustion-flues of variable lengths communicating with the cavity, and means for supplying air to said flues, as set forth.

25. The combination of a fire-box, a supplemental combustion-chamber, an air-heating chamber having a contracted or tapered exit, said exit communicating with the supplemental combustion-chamber, and a heat-absorbing block, said block being provided with a series of divergent combustion-flues communicating with the supplemental combustion-chamber, and means for supplying air to said combustion-flues, as set forth.

664,486. ROTARY MOTOR. AUGUSTE LESTRADE, Vic en Bigorre, France. Filed Sept. 25, 1900. Serial No. 31,032. (No model.)



Claim.—A rotary motor with variable expansion comprising a piston rotating in a cylinder formed by two connected similar casings, two radially-acting slides in the cylinder, a cam on the motor-shaft for actuating said slides to bear against and form a tight joint with the hub of the piston, a second cam on the motor-shaft, having two projections, a slotted slide around said cam and means connected thereto for operating a slide in the driving-fluid-admission conduit and a two-way cock in the latter for admitting the driving fluid to the cylinder to drive the motor in one or the other direction, substantially as described.

664,487. PACKING. CHARLES H. MILLER, Philadelphia, Pa., assignor to Edward G. Webb, same place. Filed July 27, 1900. Serial No. 24,983. (No specimens.)



Claim.—1. A packing consisting of the packing proper, having the core formed of a piece of rubber, oblong in cross-section, when in the stuffing-box, covered with textile material, and a washer-strip, made of a flexible but fairly stiff material, placed at the side of said packing proper, and extending in width substantially from the rod-face to the box-face of the packing, and a textile cover inclosing both the packing proper and the washer-strips, substantially as described.

2. A packing consisting of the packing proper and having the core formed of a piece of soft robber, oblong in cross-section when in the stuffing-box, and covered with textile material, and washer-strips made of a flexible but fairly stiff material, and placed at either side of the packing proper, and extending in width substantially from the rod-face to the box-face of the packing and a textile cover inclosing both the packing proper and the washer-strips, substantially as described.

664,488. BATH FOR RENDERING ORE FRIABLE. KARL MILLER, London, England, assignor to the Karl Miller Ore Reduction Syndicate, Limited, same place. Filed Nov. 27, 1899. Serial No. 738,464. (No specimens.)

Claim.—The composition of a bath for rendering friable red-hot ore dipped therein, consisting of a mixture of a solution of equal quantities of sodium carbonate and caustic soda having a density of 15° Baumé, and about one and one-half per cent. of peroxid of hydrogen, substantially as described.

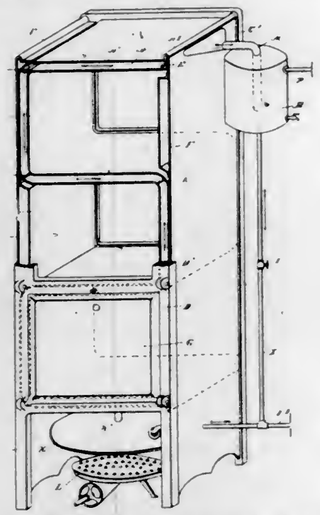
664,489. COOKING-STOVE. JAMES MCCARTNEY, San Francisco, Cal. Filed Jan. 25, 1900. Serial No. 2,792. (No model.)

Claim.—1. In a stove or the like, a single sheet of material bent upon itself to leave a space between the contiguous sheet-faces, said sheet forming a double wall of an oven; substantially as described.

2. In a stove or the like, a back plate having sets of vertical flanges at its sides and sets of horizontal flanges extending between said vertical flanges, a front plate having flanges corresponding to those upon the said back plate, a double wall extending between the front and back plates and alternately extending across between the sides thereof and upwardly, said double wall fitting between the said sets of flanges, whereby a plurality of ovens are produced, and means for closing the sides of the said ovens not closed by the said double walls, there being provided means for obtaining access to the interior of the ovens; substantially as described.

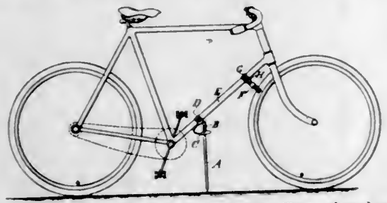
3. In a stove or the like, a back plate having sets of vertical flanges at its sides and sets of horizontal flanges extending between said vertical flanges, a front plate having flanges corresponding to those upon the said

back plate, side plates fitting against the outer side flanges of the said front and back plates and between the flanges of a given vertical set, a double wall extending between the front and back plates and alternately extending across between the side plates and upwardly, said double wall fitting between the said sets of flanges, whereby a plurality of ovens are produced, there being provided means for obtaining access to the interior of said ovens; substantially as described.



4. In a stove or the like, a back plate having sets of vertical flanges at its sides and sets of horizontal flanges extending between said vertical flanges, a front plate having flanges corresponding to those upon the said back plate, said front plate being cut away in the spaces bounded by said sets of flanges, side plates fitting against the outer side flanges of the said front and back plates and between the flanges of a given vertical set, and a double wall extending between the front and back plates and alternately extending across between the side plates and upwardly, said double wall fitting between the said sets of flanges, whereby a plurality of ovens are produced; substantially as described.

664,490. SUPPORT FOR BICYCLES. ARTHUR MCCOLLUM, San José, Cal. Filed Dec. 18, 1899. Serial No. 740,818. (No model.)



Claim.—1. In a support for bicycles and the like, a pivoted supporting-arm adapted to be thrown up into inoperative position and down into operative position, a wheel-lock having corresponding movement, and means for yieldingly holding said wheel-lock up in inoperative position, said wheel-lock having a member which, when the said lock and arm are in inoperative position, lies under the said arm, whereby the said lock, when in inoperative position, supports the said arm in corresponding position, while when said arm is thrown downwardly into operative position the said lock is correspondingly moved; substantially as described.

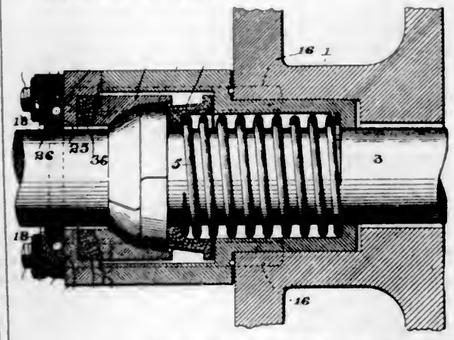
2. In a support for bicycles and the like, a pivoted supporting-arm adapted to be thrown into operative and inoperative position, and a wheel-lock adapted to be correspondingly thrown, said wheel-lock including a notched member which passes under the said arm when the said parts are in inoperative position and permits the said arm to lie in the said notch, whereby said arm is supported; substantially as described.

3. In a support for bicycles and the like, a pivoted supporting-arm adapted to be thrown into operative and inoperative position, a wheel-lock having corresponding movement, and means upon said wheel-lock for supporting said arm in inoperative position when the said lock is in either operative or inoperative position; substantially as described.

4. In a support for bicycles and the like, a pivoted supporting-arm adapted to be thrown into operative and inoperative position, a wheel-lock adapted to be thrown into operative and inoperative position and including a member adapted to rest under and support the said arm when the said parts are in inoperative position, and a pin upon said wheel-lock adapted to rest under and support the said arm in inoperative position when the said lock is thrown into operative position; substantially as described.

5. In a support for bicycles and the like, a pivoted supporting-arm adapted to be thrown into operative and inoperative position, a pivoted fork-like wheel-lock frame adapted to be thrown into corresponding positions, the connecting-arm between said fork sides being adapted to lie under the said supporting-arm and retain the same when the said parts are in inoperative position, and a bar between said fork sides and adapted to engage the wheel and lock the same when the said lock is in operative position; substantially as described.

664,491. LUBRICATING DEVICE FOR PISTON-RODS. ROBERT E. MCCUEN and PHILIP J. GORMLEY, Lexington, Ky. Filed Mar. 20, 1900. Serial No. 9,385. (No model.)



Claim.—1. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber encircling the rod at the end of the gland, a swab or capillary medium surrounding the rod within the chamber, and a compression device for said swab independent of and within said chamber; substantially as described.

2. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber encircling the rod at the end of the gland, a swab or capillary medium surrounding the rod within the chamber, and a spiral spring enveloping or inclosing said swab; substantially as described.

3. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber concentric with the rod at the end of the gland, a swab or capillary medium surrounding the rod within the chamber and formed with a circumferential groove, and a spiral spring fitting in said groove; substantially as and for the purposes described.

4. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber concentric with the rod at the end of the gland, a swab or capillary medium surrounding the rod within the chamber, and a spiral spring inclosing said swab under tension; substantially as described.

5. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber concentric with the rod at the end of the gland, and provided with a well or reservoir having a communicating port, a swab or capillary medium surrounding the rod within the chamber, and a spiral spring inclosing or encircling said swab; substantially as shown and for the purpose described.

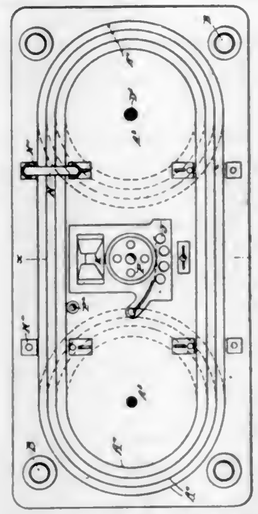
6. In a lubricating device for piston and like rods, the combination with the rod and gland, of an oil-chamber concentric with the rod at the end of the gland, and provided with a well or reservoir having a communicating port, the bottom of said well being inclined toward the said port, a swab or capillary medium surrounding the rod within the chamber, and a compression device for said swab independent of and within said chamber; substantially as described.

7. In a lubricating device for piston and like rods, the combination with the rod and its gland, of a plate or disk fitting the rod and secured to the gland, a cap-plate or annulus secured to said disk and formed with a flange abutting the said plate or disk, an oil-chamber formed by the latter plate and the cap-plate, a swab or capillary medium surrounding

the rod within the chamber, and a compression device for said swab substantially as described.

8. In a lubricating device for piston and like rods, the combination with the rod, the gland, and the stuffing-box, of a plate or disk fitting the rod and abutting the end of the gland, bolts passing through the said plate and gland and entering the stuffing-box, and nuts for securing said bolts, a cap-plate or annulus screwing into the outer face of said disk, an oil-chamber intermediate the two, nut and bolt fastenings also securing the cap-plate to the disk, a swab or capillary medium surrounding the rod within the chamber, and a compression device for said swab; substantially as described.

664,492. RACE GAME AND APPARATUS FOR PLAYING SAME. GEORGE MCMULLEN, Perth, Western Australia, assignor of one-half to Joshua Herbert Joseph, same place. Filed Oct. 7, 1899. Serial No. 732,953. (No model.)



Claim.—1. In a new race game apparatus: the mechanism consisting of slide-bars which concurrently operate a bell and also a detent whereby the race-barrier is released and removed so that the contesting figures may race substantially as and for the purposes herein set forth and described.

2. In combination in a race game, the rollers, the cords passing around the same, contestant figures secured to the cords and arranged to run side by side, a winning-post and push-button mechanism for operating the rollers, said push-buttons being independent of each other and arranged to impel the proper cord separately and continuously, the cords and contestant figures running freely when the impulse is given by the push-buttons, substantially as described.

3. In combination in a game apparatus, means for moving and carrying the contestant figures, a winning-post or other given point and means for exposing an indicator as the figures reach the winning-post, substantially as described.

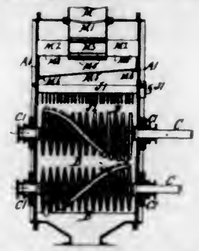
4. The combination of parts consisting of the press-button or vibratory means for imparting the racing motion to the figures together with the means for announcing the winner by the release of marbles and together with the mechanism for announcing the start of the game and the removal of the racing-barrier, the whole working as one apparatus for playing a new race game substantially as herein set forth and described.

5. In combination with the contestant figures, means for carrying and moving said figures, a series of marbles, a galley K into which the marbles may run and arrange themselves in order and means for holding the marbles, said means being released by the operation of the carrying means, substantially as described.

6. In combination, the race-barrier, a bell, means for holding the race-barrier in position, means for releasing the race-barrier and ringing the bell, the contestant figures and means for operating the same comprising push-buttons.

664,493. VACUUM-PAN. JOHN MCNEIL and CHARLES MCNEIL, Govan, Scotland. Filed Nov. 8, 1899. Serial No. 736,279. (No model.)

Claim.—1. In apparatus for evaporating or concentrating saccharine or other crystallizable liquids, a series of hollow lens-shaped disks, fixed upon a hollow shaft, with means for admitting steam thereto and withdrawing water of condensation therefrom, in combination with an inclosing casing for the whole, a vacuum-producing apparatus connected with said casing and baffling means at the top of the casing, comprising a box, tubes passing through the box and extending out from it across the casing and having ports or openings, a curved plate under the box, and vertical plates at the sides thereof, all substantially as described.



2. In apparatus for evaporating or concentrating saccharine or other crystallizable liquids, the combination in one vessel of two or more heaters, each comprising a series of hollow lens-shaped disks, a hollow shaft carrying the same, means for admitting steam thereto and withdrawing water of condensation therefrom, in combination with an inclosing casing for the whole, means at the top of the casing for baffling the rising vapors and a vacuum-producing apparatus, connected to the casing, substantially as described.

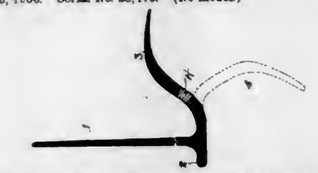
3. In apparatus for evaporating or concentrating saccharine or other crystallizable liquids, the combination of an inclosing casing with a hollow shaft, a series of hollow lens-shaped heating-disks on said shaft, frames helically fixed to the series of disks and blades carried by said frames, all substantially as described.

664,494. TACK-PULLER. LARS P. OLSEN, Council Bluffs, Iowa. Filed May 7, 1900. Serial No. 15,739. (No model.)



Claim.—As a new article of manufacture, a tack-puller consisting of a straight handle having an inclined, curved and tapering extension at one end and the end portion of said extension bifurcated and at the other end of the handle an extension projected in an opposite direction and corresponding angle, flat on its bottom, rounded on its top and tapering to a point to operate in the manner set forth, for the purposes stated.

664,495. PESSARY. HORACE M. PAINE, Atlanta, Ga. Filed July 13, 1900. Serial No. 23,476. (No model.)



Claim.—A pessary of the character described having a stem, a base, and a supporting part, all formed integrally of vulcanized rubber, the base and supporting parts being formed of two relatively non-flexible sections connected by an intermediate flexible section.

664,496. BEDCLOTHES-HOLDER. MAHLON S. PARSONS, Columbia Cross-Roads, Pa. Filed June 18, 1900. Serial No. 20,750. (No model.)

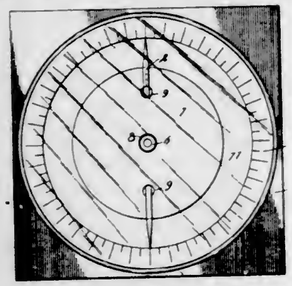
Claim.—1. The combination with a bed-rail, of a bedclothes-holding device having a pair of upwardly-extending diverging arms continuing into a jaw to engage the upper edge of the rail, and a rigid pressure-bar extending transversely across and adjustable on both arms.



2. The combination with a bed-rail, of a bedclothes-holder having downwardly-converging arms, and a pressure-bar having a series of angular slots in one side to adjustably engage said arms.

3. The combination with a bed-rail of a bedclothes-holder removably applied thereto and comprising downwardly-extending converging arms, upper horizontal legs with inner coils, and a downstanding jaw continuous with said coils, and a clamping-bar adjustably mounted on said arms and having slots to receive different portions of the latter.

664,497. **COMPASS ATTACHMENT.** SIMEON D. PATRICK, Litchfield, Minn. Filed July 26, 1900. Serial No. 24,952. (No model.)



Claim.—1. A compass, having an intermediately-pivoted magnetic needle, and a balancing-plate carried by the needle, arranged substantially concentric with respect to the pivotal support of the needle, projecting radially in all directions from said support, and also having an adjustment longitudinally in opposite directions upon the needle.

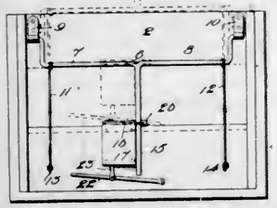
2. The combination with a compass-needle, of a balancing-plate, having a pair of diametrically opposite perforations, the opposite end portions of the needle extending through the respective perforations.

3. The combination with a compass-needle, of a balancing-plate, having diametrically opposite perforations, the needle extending loosely through the perforations.

4. The combination with a compass-needle, having a central projecting pivotal support, of a balancing-plate, having a central opening receiving the projecting support, and a pair of diametrically opposite perforations receiving the respective opposite ends of the needle.

5. A balancing-plate for compass-needles, having diametrically opposite perforations, and a diametric incision extending from the outer edge of one of the perforations to the adjacent marginal edge of the plate.

664,498. **END-GATE FASTENING.** JOHN PEARSON, Northwood, N. D. Filed Apr. 5, 1900. Serial No. 11,571. (No model.)



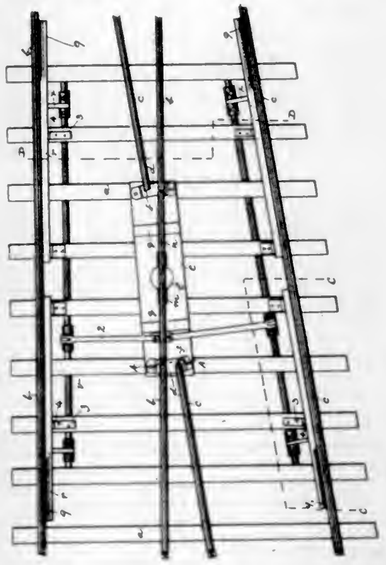
Claim.—1. The combination with a wagon-body and a sliding end-gate of a pivoted elevating-lever secured to the body and end-gate, a pivoted plate carried by the sliding gate and designed to lock the lever against operating.

2. The combination with a wagon-body and its sliding end-gate, of means for elevating said gate, secured to the body, a lock carried by the gate and engaging said means to prevent its operation, said lock comprising a pivoted and slotted plate and a spring-pressed bolt engaging it for the purpose set forth.

3. A sliding-gate fastening for cars and wagons, comprising a pivoted lever, the handle of which normally lies adjacent the gate, a pivoted plate or dog to engage said handle and lock it with relation to the gate and a spring-pressed bolt to engage the plate to normally retain the lever in engagement therewith.

4. The combination with a car or wagon body of a sliding gate secured thereto, a bifurcated lever journaled above the gate and connected thereto so as to raise it, a lock-case carried by the gate, an engaging plate or dog pivoted thereto for engagement with the lever, a spring-pressed bolt passing through the lock-case and adapted to engage the plate, and a lever pivoted below the case and connected to the bolt to withdraw the same from engagement with the plate or dog.

664,499. **AUTOMATIC FROG.** CHARLES E. PERRY, San Francisco, Cal., assignor to the Perry Combination Frog and Switch Company, of California. Filed Mar. 30, 1900. Serial No. 10,729. (No model.)

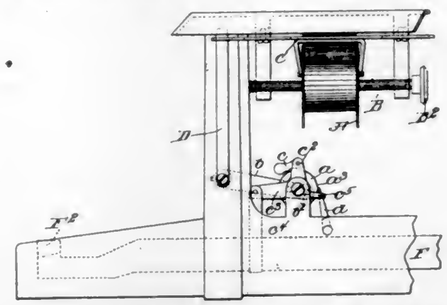


Claim.—1. In an automatic railway-frog, the combination with a swinging frog, of vertically-swinging levers extending alongside of and parallel with the inner side of the outer rail of each track, said rails being uniform in construction with the adjoining rails of the track, the levers by the side of each track extending in opposite directions from their pivots, and away from each other from their pivots, rock-shafts *y* extending parallel with the respective tracks, and operatively connected with the frog to swing the same, arms on said rock-shafts, and links connecting said levers with said arms, substantially as described.

2. In an automatic railway-frog, the combination with a swinging frog, of vertically-swinging levers extending alongside of and parallel with the inner side of the outer rail of each track, said rails being uniform in construction with the adjoining rails of the track, the levers by the side of each track extending in opposite directions from their pivots and away from each other from their pivots, said levers having their free end grooved at the top to form guides for the advancing flange of the wheel, rock-shafts *y* extending parallel with the respective tracks, and operatively connected with the frog to swing the same, arms on said rock-shafts, and links connecting said levers with said arms substantially as described.

664,500. **TYPE-WRITING MACHINE.** JOHN B. PRICE, Newark, N. J., assignor to the Manhattan Typewriter Company, of New Jersey. Filed Aug. 10, 1899. Serial No. 726,773. (No model.)

Claim.—1. In a type-writing machine, the combination with one only of the several keyboard-levers which coöperate with the carriage feeding mechanism; of means for laterally shifting the ribbon in response to the operative movement of said keyboard-lever, as set forth.



2. In a type-writing machine, the combination with the ribbon-spools; of mechanism for laterally shifting the said spools; keyboard-levers coöperating with the carriage feed mechanism; and means for connecting the shifting mechanism with one only of the said keyboard-levers, as set forth.

3. The combination with the ribbon-spools and the laterally-movable shifting frame therefor; of a step-by-step actuator whereby said frame is moved back and forth intermittingly; the space-bar lever; and means for connecting said actuator with said space-bar lever, as set forth.

4. The combination with the ribbon-spools, of the rock-shaft E adapted by its oscillation to shift the said ribbon-spools; an arm projecting from said rock-shaft; a rotatable member adapted to produce an oscillating movement of said arm; the space-bar; and means for producing a rotary movement of said rotatable member in the same direction each time the space-bar is operated, substantially as described.

5. The combination with the ribbon-spools, of the rock-shaft E adapted by its oscillation to shift the said ribbon-spools; an arm projecting from said rock-shaft; a ratchet-wheel adapted to produce an oscillating movement of said arm; a rocker connected with the space-bar lever; said space-bar lever; and a pawl carried by said rocker to coöperate with said ratchet-wheel, substantially as described.

6. The combination with the rock-shaft E adapted by its oscillation to shift the ribbon-spools; of an arm projecting from said rock-shaft; a ratchet-wheel adapted to produce an oscillating movement of said arm; a space-bar lever; a rocker connected with said space-bar lever; a pawl carried by said rocker to coöperate with said ratchet-wheel; a retaining-pawl; and a projection from said rocker to engage said retaining-pawl during the return movement of said arm and to carry said pawl into engagement with the ratchet-wheel, substantially as described.

7. The combination with the rock-shaft E; of the arm *b* connected therewith and provided with the slot b^2; the ratchet-wheel *a* having the wrist-pin a^2 projecting through said slot; and the pawl c and its rocker, the space-bar F, and means for connecting the said rocker with said space-bar F, substantially as and for the purpose described.

8. The combination with the ribbon, of a rock-shaft adapted by its oscillation to laterally shift the ribbon; an arm projecting radially from said rock-shaft and provided with a slot, a rotary member provided with a wrist-pin coöperating with said slot; and means for rotating said member, substantially as described.

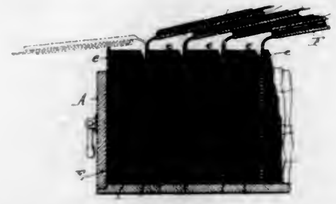
9. The combination with the ribbon, of a rock-shaft adapted by its oscillation to laterally shift the ribbon; an arm projecting radially from said rock-shaft and provided with a slot; a ratchet-wheel provided with a wrist-pin projecting into said slot; a pawl coöperating with said ratchet-wheel; and means for reciprocating said pawl, substantially as described.

10. The combination with the rock-shaft E; of the arm *b* connected therewith and provided with the slot b^2; the ratchet-wheel *a* having the wrist-pin a^2 projecting through said slot; and the pawl c and its rocker, provided with the projection c^4; means for oscillating said rocker, and the retaining-pawl *d* coacting with projection c^4, as set forth.

664,501. **CARD RECORD AND INDEX.** JAMES H. RAND, North Tonawanda, N. Y. Filed July 14, 1900. Serial No. 23,657. (No model.)

Claim.—1. In a card record and index, the combination with a case having a pocket or compartment, of a folding index flap or leaf arranged at the upper end of said pocket and attached to one of the walls thereof, and record or account cards arranged in said pocket and provided at their upper edges with tabs which correspond to the names or designations of said index-flap, substantially as set forth.

2. In a card record and index, the combination with a case having two or more upright card-pockets, of horizontal index flaps or leaves arranged at the upper ends of said pockets and flexibly attached to one of the side walls thereof, and record or account cards arranged in said pockets and provided at their upper edges with tabs which correspond to the names or designations of said index-flaps, substantially as set forth.

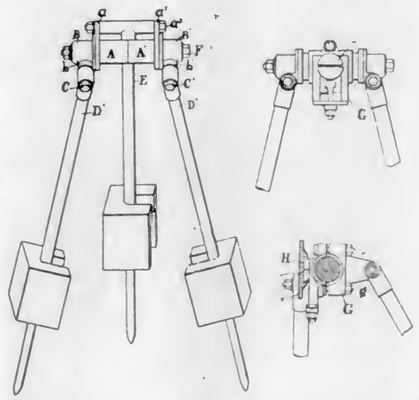


3. In a card record or index, the combination with a case having a pocket or compartment, of internal upright centering-strips located at the ends of said pocket and each having an inclined upper portion and a vertical lower portion arranged inwardly beyond said inclined portion, and record or account cards seated in said pockets against said centering-strips, substantially as set forth.

4. In a card record and index, the combination with a case having a pocket or compartment, of internal upright centering-strips located at the ends of said pocket and having their upper ends loosely engaged with the end walls of the pocket, and each having an upper inclined portion and a lower vertical portion arranged inwardly beyond said inclined portion and provided with a backing-block which bears against the end wall of the pocket, and record or account cards seated in said pocket against said centering-strips, substantially as set forth.

5. In a card record and index, the combination with a case and a number of transverse partitions arranged adjustably therein and forming upright card-pockets, of index-flaps flexibly connected to the upper edges of said partitions and adapted to overlap each other, and record or account cards arranged in said pockets, and each provided at its upper edge with a tab which is located in line with the corresponding name or designation of the adjacent index-flap, substantially as set forth.

664,502. **TRIPOD.** PATRICK H. REARDON, San Francisco, Cal. Filed Sept. 20, 1899. Serial No. 731,075. (No model.)

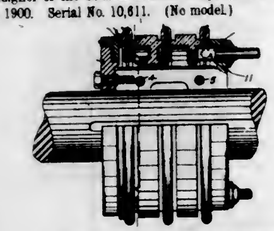


Claim.—1. In a support for a rock-drill, the combination of a cylindrical head comprising two parts A and A′, each provided with an integral arm, a leg hinged between said arms, each of said parts A and A′ having at its outer end an integral boss, a cap adjustably secured to each of said bosses, and a leg hinged to each of said caps and movable at an angle to the plane of movement of the cap, and means for securing said legs, substantially as described.

2. In a support for a rock-drill, the combination of a two-part cylindrical head A, A′, each part having formed integrally therewith a lateral arm and a boss at its end, a split cap journaled on each boss, a bolt F passing through said cylindrical head and caps, a leg having a head

journaled between the ends of said lateral arms, a bolt for each of said split caps for clamping the same on its boss and extending at an angle to the bolt F, and a leg journaled on each of said cap-clamping bolts and adapted thereby to be secured in adjusted positions, substantially as described.

664,503. COLLECTOR-RING. HENRY G. REIST, Schenectady, N. Y., assignor to the General Electric Company, of New York. Filed Mar. 29, 1900. Serial No. 10,611. (No model.)



Claim.—1. A current-collector composed of contact-rings provided at a plurality of points on the inner wall with insulating material, and metal centering-pieces clamped around the insulating material to afford a seat on the support.

2. A current-collector comprising a plurality of contact-rings provided on their inner walls with a number of distributed supports covered with insulating material, metal clamps shrunk on the supports around the insulating material, and a hub adapted to be clamped to the shaft fitting said rings.

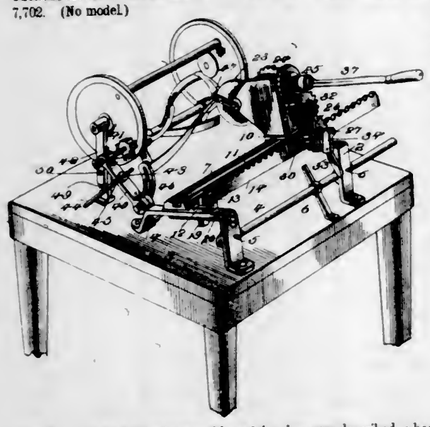
3. A current-collector comprising a split collar or hub adapted to be mounted on a shaft, and a split contact-ring provided with feet supported by said hub but separated therefrom by insulated metallic clamps.

4. A current-collector comprising a plurality of rings mounted upon a hub, but separated therefrom at a plurality of points by metallic clamps, barriers of insulating material between the several collector-rings, and means for clamping the parts firmly together.

5. A current-collector comprising a split hub adapted to engage a shaft, a flange at one end of the same forming an end plate for the collector, a plurality of insulated contact-rings, separating-rings of insulating material between them, an end plate, an adjustable clamping-ring concentrically supported in said plate, and adjusting-screws mounted on the plate for shifting the clamping-ring in its seat.

6. A current-collector comprising a plurality of contact-rings separated by spacers of insulating material engaging a bead or flange on the ring, and a flanged tread or contact surface above the plane of the spacers, for the purpose described.

664,504. APPARATUS FOR SHARPENING LAWN-MOWERS. GEORGE RICARDO, Hackensack, N. J. Filed Mar. 7, 1900. Serial No. 7,702. (No model.)



Claim.—1. In a grinding-machine of the character described, a bed, a rack-bar parallel with the bed, a head movable upon the bed and provided with a rotary grinder, a master-wheel, a train of gearing connecting the master-wheel with the grinder, a pinion intermeshing with the teeth of the rack-bar, a reducing train of gearing connecting the master-wheel with the said pinion, a clutch interposed between the pinion and train of gearing, and a shipper-lever constructed to shift the gear-wheel into and out of clutched engagement with said pinion, and means for securing the lever in either position.

2. In a grinding-machine of the character specified, end standards, tie-rods connecting said standards, the standards being adjustable on the tie-rods to vary the distance between them, a bed adjustably supported by the standards, and a head mounted on the bed and provided with a rotary grinder.

3. In a grinding-machine of the character described, end standards, tie-rods connecting said standards, the standards being adjustable on the tie-rods to vary the distance between them, a bed, a rack-bar supported by the standards in parallel relation and adapted to be positively connected therewith in any adjusted position within the range of movement of the standards, a head mounted upon the bed and provided with a rotary grinder, and means coöperating with the rack-bar for effecting a movement of the head upon the bed simultaneously with the action of the grinder, substantially as specified.

4. In a machine of the character described, a support having its top side sloping or inclined transversely with reference to the length of the machine, a bed mounted upon the support, means for adjusting the bed laterally, and a head movable longitudinally upon the bed and laterally therewith and comprising a rotary grinder and actuating mechanism therefor, substantially as set forth.

5. In a machine of the character described, a longitudinally-slotted bed, a head mounted upon the bed and adapted to travel thereon and provided with a rotary grinder and actuating mechanism therefor, a slide underlapping the bed and having a portion operating in the longitudinal slot thereof and connected with the aforesaid head, gibs interposed between the bottom side of the bed and the adjacent portions of the slide, and means for adjusting the gibs to take up wear and prevent any play between the head and bed, substantially as set forth.

6. In combination, a longitudinally-slotted bed, a head mounted to travel upon the bed and provided with a rotary grinder and actuating mechanism therefor, a slide having portions underlapping the bed and a part operating in the slot thereof and connected to the said head, gibs seated in grooves or depressions formed in the top side of the slide, and set-screws for adjusting the gibs, substantially as set forth.

7. In combination, a support having transverse slots, a longitudinally-slotted bed having pendent portions operating in the transverse slots of the support, means for securing the bed to the support and coöperating with the slots thereof, feed-screws applied to the support and adapted to effect a lateral shifting of the bed, and a head mounted upon the bed to travel longitudinally thereon and provided with a rotary grinder and actuating mechanism therefor, substantially as set forth.

8. In a machine of the character described, a support having a slot extending transversely of the machine, a plate slidably mounted upon the support and having pendent lugs passing through the slot of the support, means applied to one of the lugs for securing the plate to the support, a feed-screw coöperating with the other lug and with the support, a bed secured to the plate and movable therewith, and a head provided with a grinder and mounted upon the said bed, substantially as set forth.

9. In combination, end supports having their upper portions slotted, plates mounted upon the standards and having pendent lugs, means applied to one of the lugs for securing the plates upon the standards, feed-screws coöperating with the other lugs and having a swivel connection with the standards, a bed secured to the plates and movable transversely therewith, and a head mounted upon the bed to travel thereon and provided with a rotary grinder, substantially as set forth.

10. In a grinding apparatus of the character described, end standards, a plate seated on said standards, means for adjusting said plate lengthwise of the standards, said plate being formed with spaced lugs and with a depression, a rack-bar held between the lugs, a bed adjustably secured in said depressions, a head mounted on the bed and provided with a grinder, and feed mechanism for moving said head in relation to the bed.

11. In combination, a support, a framework secured thereto and having suitable grinding mechanism, a supporting-rod bearing on the support, a work-holder having pivotal connection with the framework, said rod having adjustable connection with the work-holder.

12. In combination with a framework provided with a grinding device, a support to which the framework is secured, arms having pivotal connection with the framework and provided at their free ends with centering devices, and rods having adjustable connection with the pivoted arms and bearing on said support.

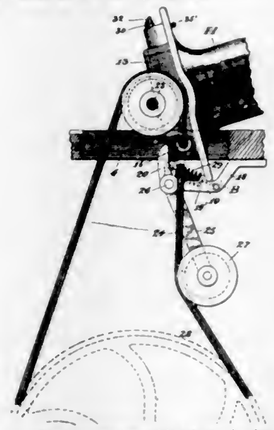
13. In combination with a frame for grinding apparatus, a support to which said frame is secured, arms having pivotal connection with the frame, centering devices having adjustable connection with the free ends of the arms to receive the work, and supporting-rods adjustably connected with the arms intermediate their ends and bearing on said support.

14. In combination with the frame of a grinding apparatus, a support therefor, an adjustable work-holder connected with the frame, and

posts adjustably coöperating with the work-holder and bearing on said support, said posts passing through the work-holder intermediate its ends.

15. In a grinding apparatus of the character described, end standards relatively adjustable toward and from each other, a bed adjustably supported by the standards and carrying the grinding mechanism, arms having pivotal connection with the end standards and provided at their ends with means for supporting the work, and means coöperating with the pivoted arms to hold them in adjusted position, said means comprising posts adjustably connected with the arms and bearing on a separate support.

664,505. DRIVING MECHANISM. HUBERT P. RICHARDS, New Britain, Conn., assignor to J. Evarts Tracy, Plainfield, N. J. Filed Apr. 15, 1898. Serial No. 677,728. (No model.)



Claim.—1. The combination, with a frame having a driving-wheel mounted thereon, of a tiltably-supported sewing-machine head having a driven wheel; a band extending around the driving and driven wheels and of a length sufficient to permit a change in relation between the driving and driven wheel; and a shiftably-supported device engaging one run of said band on its outer side and holding the same under tension irrespective of the position of one wheel relatively to the other.

2. The combination, with a driving and a driven wheel one of which is supported for movement toward and away from the other, of a band extending around said wheels and of a length sufficient to permit the movement of one wheel relatively to the other, and a shiftably-mounted spring-actuated belt-controller in bearing engagement with one run of said band and holding the same under tension irrespective of the relative positions of said wheels.

3. The combination, with two wheels supported with their axes in parallelism, of a fixed support for one of said wheels; a head or carrier for the other of said wheels, pivotally supported at one side the axis of the wheel carried thereby; a driving belt extending around both the wheels and of a length sufficient to permit a movement of one wheel bodily with relation to the other wheel; and a shiftable belt-controller supported for movement independently of the tilting of the head and having an idle-wheel in engagement with one run of said belt and holding the same constantly under tension irrespective of the relative positions of said wheels.

4. The combination, with a driving-wheel of large diameter and with a fixed support therefor, of a driven wheel of small diameter located above, and having its axis in parallelism with, the axis of the driving-wheel; a pivotally-supported head or carrier for the driven wheel, the pivot of which support is disposed at one side the axis of said driven wheel; a belt extending around both wheels and of a length to permit a movement of one wheel bodily with relation to the other; and a reactionary belt-actuated controller supported free of said driven-wheel carrier having an idle wheel in tensional engagement with one run of the belt irrespective of alterations in the relative positions of said wheels, whereby on the shifting of said carrier in one direction the belt acts to shift said controller.

5. The combination, with a driving-wheel of large diameter and with a fixed support therefor, of a driven wheel of small diameter located above, and having its axis in parallelism with, the axis of the driving-wheel; a pivotally-supported head or carrier for the driven wheel, the pivot of which support is disposed at one side the axis of said driven wheel; a belt extending around both wheels and of a length to permit a movement of one wheel bodily with relation to the other; a bracket mounted on the driving-wheel support; a belt-controlling lever pivotally supported intermediate its ends on said bracket; an idle wheel supported at one end of the belt-controlling lever in position to engage one run of the belt; and a spring in connection with the opposite end of said lever and holding the idle wheel in tensional engagement with one run of said belt.

6. The combination, with rotary driving and driven members one bodily shiftable relatively to the other, of a driving-band extending around said members and normally movable in a predetermined direction, and a belt-operated shiftable belt-controller coöperative with the idle run of the band, and normally having its band-engaging face within that common tangent to the two rotary members which corresponds to such run, and shiftable by said idle run to permit the loosening of the band on the reversal of the movement of the latter.

7. The combination, with a rotary driving member and a rotary driven member one of which is shiftable bodily relatively to the other, of a driving-band extending around said members and normally movable in a predetermined direction and of a length sufficient to permit the shifting of one of said members bodily relatively to the other, and a belt-operated shiftable belt-controller coöperative with the idle run of the band, and normally having its band-engaging face within that common tangent to the two rotary members which corresponds to such run, and shiftable by said idle run to permit the loosening of the band on the reversal of the movement of the latter.

8. The combination, with a rotary driving member and a bodily-shiftable driven member, of a driving-band extending around said members and normally movable in a predetermined direction, and a belt-retracted spring-protracted shiftable belt-controller coöperative with the idle run of the band and normally having its band-engaging face within that common tangent to the two rotary members which corresponds to such run, and shiftable by said idle run on an abnormal increase of the tension on the latter.

9. In a sewing-machine, the combination of a tilting head; a driving and a driven member; a belt extending around said members; a lever fulcrumed to the frame of the machine, its free end carrying a pulley engaging one run of said belt in such manner as to automatically maintain a uniform stress on said belt when the machine is running in a predetermined direction and when the head of said machine is in its normal position, said belt being of sufficient length to allow the head to be tilted without removing the belt from the driving or driven member.

10. In a sewing-machine, the combination of a tilting head; a driving and a driven member; a belt extending around said members; a lever pivoted to the frame of the machine, its free end carrying a pulley engaging one run of said belt in such manner that when said head is in its normal position and its driving member is running in a predetermined direction the stress on said belt is automatically held normal, but when said head is tilted or the running direction of the driving member is reversed the stress is automatically relaxed.

11. In a belt-operated machine, the combination of a driven and a driving member, a belt extending around said members, and means for permitting the bodily shifting of one of said members relatively to the other without the removal of the belt from either member, and automatically operative to effect the stoppage of the machine upon the reversal thereof.

12. In a belt-operated machine, the combination of a driven and a driving member normally rotating in a predetermined direction, a belt extending around said members, and means for permitting the bodily shifting of one of said members relatively to the other without the removal of the belt from either member, and automatically operative to effect the stoppage of the machine upon a change in the rotation of said members.

13. In a belt-operated sewing-machine, the combination of a tiltable head carrying a driven member; a driving member normally rotating in a predetermined direction; a belt extending around said members; means for permitting the shifting of the driven member without the removal of the belt from either member, and automatically operative to effect the stoppage of the machine upon a change in the rotation of said members.

14. In a belt-operated sewing-machine, the combination with the frame thereof, of a driven and a driving member, one supported for movement relatively to the other; a belt extending around said members; means pivoted to the frame of said machine; a device carried by said means in position to engage said belt; and means for yieldingly holding said device in engagement with the belt so as to permit the shifting of one of said members relatively to the other and also permit said device to be automatically shifted by the belt on the reversal of the driving member to prevent the rotation of the driven member in any but its normal direction.

15. In a belt-operated sewing-machine, the combination of a driven and a driving member normally rotating in a predetermined direction; a belt extending around said members; a spring-controlled idle-wheel located in the path of one run of the belt, and engaging said belt in such a manner as to permit the shifting bodily of one of the members relatively to the other without the removal of the belt from either member, and so

organized as to prevent the rotating of the driven member in a direction opposite to the said predetermined direction.

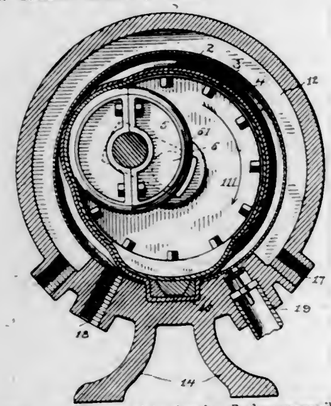
664,506. TIRE-TIGHTENER. LEON M. RICHARDSON, Amesbury, Mass., assignor of two-thirds to the Standard Anti-Friction Equipment Company, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,246. (No model.)



Claim.—1. A tire-tightener, consisting of a plate having suitable means for securing it to the rim of the wheel, a recess or mortise and an opening on line therewith to receive the nipple of the pneumatic tire, and wedge-shaped end walls to the recess or mortise, substantially as and for the purpose described.

2. A channel-tire to receive a pneumatic tire and having an opening therein to receive the nipple of the pneumatic tire, an expanding device for the rim of the wheel comprising a plate having suitable clips, a recess or mortise having its end walls inclined on its outer side, and an opening in the plate on line with the recess or mortise, substantially as and for the purpose specified.

664,507. PUMP. WILLIAM F. SINGER, New York, N. Y., assignor to the Automatic Ice Machine Company, of New York. Filed Nov. 1, 1899. Serial No. 735,504. (No model.)



Claim.—1. In a pump of the class described a compressible tube one side of which is flexible while the other side is a plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

2. In a pump of the class described a compressible tube one side of which is of rubber cloth or other fluid-tight flexible material while the other side is a plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

3. In a pump of the class described a compressible tube one side of which is of rubber cloth or other fluid-tight flexible material protected by an outer wear-resisting flexible fabric while the other side is a plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

4. In a pump of the class described a compressible tube one side of which is of rubber cloth or other fluid-tight flexible material protected by a covering-sheet of oil-tight flexible material while the other side is a plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

5. In a pump of the class described a compressible tube one side of which is flexible while the other side is a concave plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

6. In a pump of the class described a compressible tube one side of which is flexible while the other side is a detachable plate of metal or other heat-conducting material in combination with a liquid circulating and cooling chamber entirely separated from said tube of which chamber said plate forms a wall whereby the heat generated in compression may be conveyed to a liquid in said chamber, substantially as described.

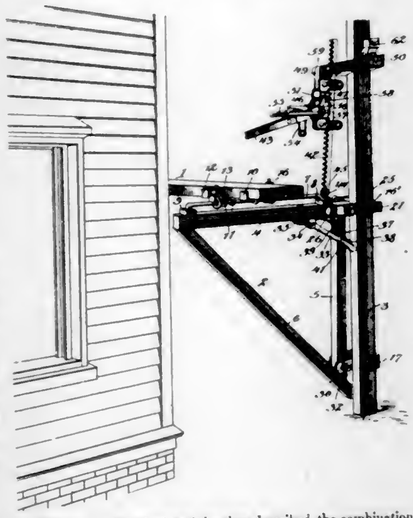
7. In a pump of the class described in combination a compressible tube the inner side of which is flexible, rotary means for compressing said tube so as to force a fluid therethrough, an outer circulating and cooling chamber of which the outer rigid wall of said tube forms the inner wall and inlet and outlet ports connecting with said outer chamber, substantially as described.

8. In a pump of the class described in combination a compressible tube, rotary means for compressing said tube so as to force a fluid therethrough, an outer cooling-chamber surrounding said tube and a separate inner cooling-chamber surrounded by said tube, substantially as described.

9. In a pump of the class described in combination a compressible tube, rotary means for compressing said tube so as to force a fluid therethrough, an outer cooling-chamber surrounding said tube, a separating inner cooling-chamber surrounded by said tube said outer and inner chambers being each provided with inlet and outlet ports, substantially as described.

10. In a pump of the class described in combination a compressible tube, rotary means for compressing said tube so as to force a fluid therethrough, a closed chamber of which a flexible side of said tube forms a wall and means substantially as described for reducing the fluid-pressure in said chamber.

664,508. SCAFFOLD. WALTER P. SMITE and ALLEN TENNISON, Clarksville, Iowa. Filed Oct. 1, 1900. Serial No. 31,717. (No model.)



Claim.—1. In a device of the class described, the combination with an upright or guide, a bracket slidingly connected with the upright or guide and provided with a horizontal guide, a pair of jaws slidingly mounted on the horizontal guide and having approximately L-shaped portions arranged to support a platform and adapted to clamp the side edges thereof, and means for securing the jaws to the bracket, substantially as described.

2. A device of the class described comprising a vertically-movable bracket provided with a horizontal rod, a pair of adjustable jaws slidingly mounted on the rod and arranged to receive a platform, and locking devices arranged at the outer sides of the jaws and engaging the rod, substantially as described.

3. A device of the class described comprising a vertically-movable bracket provided with a horizontal rod, a pair of jaws adapted to receive a platform and provided with upwardly-extending lugs for engaging the same, and having depending perforated ears arranged between their ends and receive the rod, and means for engaging the jaws, substantially as described.

4. A device of the class described comprising a vertically-movable bracket having a horizontal rod, a pair of jaws mounted on the rod, and locking devices located at opposite sides of the jaws and composed of eyebolts, yokes arranged on the eyebolts, and nuts engaging the threads of the eyebolts and bearing against the yokes, substantially as described.

5. A device of the class described comprising a bracket provided with upper and lower guide-loops having removable bars dividing the spaces inclosed by the loops, and means for raising and lowering the bracket, substantially as described.

6. A device of the class described comprising a bracket, upper and lower guides provided at their outer ends with openings, the central bars provided at their outer ends with lugs to engage the said openings, and having slots at their inner ends, and fastening devices passing through the guide-loops and through the slots of the said bars and securing the loops and bars to the bracket, substantially as described.

7. A device of the class described, comprising a bracket, an inclined dog mounted on the bracket, a spring fixed to the bracket and engaging the dog, and means for operating the dog, substantially as described.

8. In a device of the class described, the combination with an upright, of a bracket slidingly connected with the upright, a pivoted dog mounted on the bracket and arranged at an inclination and provided with an eye or loop, and a spring mounted on the bracket and extending through the eye or loop and holding the dog in engagement with the upright, substantially as described.

9. In a device of the class described, the combination of a bracket, an inclined dog pivoted to the bracket, a spring secured to the bracket and connected with the dog, and an operating-rod mounted on the bracket and provided with an arm located between the spring and the dog, substantially as described.

10. In a device of the class described, the combination of a bracket, a clutch adapted to engage an upright, a rack-bar connected with the bracket, a frame receiving the rack-bar and connected with the clutch, and operating mechanism carried by the frame for engaging the rack-bar, substantially as described.

11. In a device of the class described, the combination of an upright forming a guide, a bracket slidingly mounted on the upright, a clutch located above the bracket and detachably engaging the upright, a frame connected with the clutch, a rack-bar received by the frame and connected with the bracket, and means carried by the frame for engaging the rack-bar, substantially as described.

12. In a device of the class described, the combination of a bracket, a rack-bar connected therewith, a frame receiving the rack-bar, a gear-wheel mounted on the frame and meshing with the rack-bar, a lever fulcrumed on the frame, a pawl pivoted between its ends to the lever and provided at the pivot with a short arm arranged to swing to either side of the pivot, and a spring connected with the pivot and with the frame and adapted to hold the pawl either in or out of engagement with the gear-wheel, substantially as described.

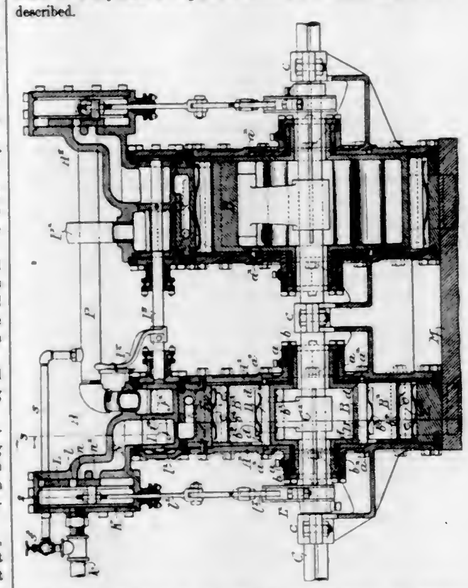
13. In a device of the class described, the combination of a bracket, a rack-bar connected therewith, a frame receiving the rack-bar, a spindle mounted on the frame and provided with a brake-wheel, a gear-wheel meshing with the rack-bar and fixed to the spindle, and means for operating the gear-wheel, a brake-lever engaging the brake-wheel, and a link connected with the lever and with the frame and engaging the brake-wheel, substantially as described.

14. In a device of the class described, the combination of a bracket, a rack bar connected therewith, a frame receiving the rack-bar, a clutch pivoted to the frame and adapted to engage an upright, and operating mechanism mounted on the frame for engaging the rack-bar, substantially as described.

15. In a device of the class described, the combination of a bracket, a clutch provided with a recess and having a flange at one end thereof, a pivoted block mounted on the clutch and arranged to swing within the recess and provided with a lug for engaging the said flange, and means for connecting the bracket and the clutch, substantially as described.

664,509. ROTARY ENGINE. FREDERICK G. TEES, Philadelphia, Pa., assignor of one-half to John H. Sorden, same place. Filed Sept. 13, 1899. Renewed May 8, 1900. Serial No. 15,978. (No model.)

Claim.—1. The combination of a cylinder of a rotary engine, a hub adapted to the cylinder having four blades, a steam-inlet passage communicating with the interior of the cylinder, two ports communicating with the steam-inlet passage, a valve having a single passage, means for operating said valve so that there will be four independent passages of steam to the cylinder during one revolution of the hub, substantially as described.



2. The combination of a cylinder of a rotary engine, a hub adapted to the cylinder having four blades, a steam-inlet passage communicating with the interior of the cylinder, two ports communicating with the steam-inlet passage, a slide-valve having a single passage, means for reciprocating said slide-valve so that there will be four independent passages of steam to the cylinder during one revolution of the hub, substantially as described.

3. The combination in a rotary engine, of a cylinder, a hub mounted therein having four blades, a single steam-inlet port, a valve-chest having two ports *n n'* communicating with the single steam-port, a slide-valve having a single passage and adapted to uncover the ports four times during the revolution of the hub, a controlling-valve in the steam-passage between the slide-valve chest and the cylinder, so as to control the admission of steam to the cylinder, substantially as described.

4. The combination in a compound rotary engine, of the two cylinders, one larger in diameter than the other, a hub in each cylinder, blades on the hub, a valve-chest, slide-valves in each chest, eccentrics on the shaft controlling the movement of the slide-valves, a pipe leading from the exhaust-passage of the high-pressure cylinder to the inlet-passage of the low-pressure cylinder, the shaft on which the hub is mounted being adapted to independent bearings, substantially as described.

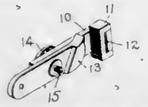
5. The combination in a rotary engine, of a cylinder, a hub mounted in the cylinder, bearings for said hub, blades carried by the hub, a shaft free of the hub, independent bearings for said shaft, an arm on the shaft engaging said hub, ports in the cylinder, and valve mechanism controlling the admission and exhaust of steam to and from the cylinder, substantially as described.

6. The combination in a cylinder having heads, cam-grooves in said heads, a hub adapted to bearings in the heads, radial slots in the hub, blades in these heads, bars back of the blades and having pins extending into the camways, ports in the casing, valves controlling the admission of steam to the cylinder, a shaft adapted to independent bearings and connected to the hub, substantially as described.

7. The combination in a rotary engine, of a casing, a hub, blades on the hub adapted to travel within the casing, a valve-chamber having a steam-inlet to the valve-chamber, a slide-valve having a single port, two ports in the valve-casing covered by the said valve, and means for reciprocating said slide-valve, substantially as described.

8. The combination in a rotary engine, of the cylinder, a hub within the cylinder having blades, passages leading to the cylinder, a valve-chest, ports *n n'* in said valve-chest communicating with the passage *N*, a controlling-valve chest I, a controlling-valve therein, a slide-valve having a single passage and adapted to cover the ports *n n'*, means for reciprocating said valve, a steam-inlet passage communicating with the valve-chest, substantially as described.

664,510. STARTING-JACK FOR ENGINE FLY-WHEELS. JAMES F. TRUMBLE, Wheelwright, Mass., assignor to himself and George W. Wheelwright, same place. Filed July 9, 1900. Serial No. 22,906. (No model.)



Claim.—1. In a starting-jack for turning engine fly-wheels, the combination of an elbow-piece having a jaw for engaging the inner side of a fly-wheel rim, an outside clamping-jaw having a pivotal connection therewith, an operating-lever connected to operate the outside clamping-jaw, and means for adjusting the pivotal connection of said outside clamping-jaw to adapt the starting-jack for use in connection with fly-wheels having rims of varying thicknesses, substantially as described.

2. In a starting-jack for turning engine fly-wheels, the combination of a piece or elbow having a jaw engaging the inner side of a fly-wheel rim, a pivot-pin adjustably mounted in the piece or elbow, an outside clamping-jaw mounted on said adjustable pivot-pin, and an operating-lever connected to the rear of the outside clamping-jaw, substantially as described.

3. In a starting-jack for turning engine fly-wheels, the combination of the piece or elbow which carries the jaw engaging the inner side of the engine fly-wheel, a pivot-pin extending through a slot in the piece or elbow which carries the inner clamping-jaw, a disk having a series of holes for receiving a screw to hold the pivot-pin in its adjusted position, an outer clamping-jaw mounted on the pivot-pin, and an operating-lever connected to the outer clamping-jaw, substantially as described.

4. In a starting-jack for turning engine fly-wheels, the combination of the piece or elbow 10 having a jaw 11 for engaging the inner side of a fly-wheel, a perforated disk 14 having an eccentric pivot-pin extending through a slot in the piece 10, a fastening-screw 16 for holding the pivot-pin in its adjusted position, an outside clamping-jaw 13 mounted on the pivot-pin, and an operating-lever 18 pivoted in a support 17 and connected by links 19 to the rear end of the outer clamping-jaw 13, substantially as described.

664,511. ELECTRIC CUT-OUT. JOHN H. TRUMBULL and HENRY TRUMBULL, Hartford, Conn., assignors to the Trumbull Electric Company, same place. Filed Apr. 17, 1899. Serial No. 713,232. (No model.)



Claim.—1. In combination in an electric cut-out, a base-piece, contacts on the base-piece each having a loop with a transverse opening and a clamp for a line-wire, a cap for the base-piece, contact-pieces on the cap with spring-arms that enter and engage the loop, the said arm being provided with a friction-catch at the outer end arranged in position to engage the loop, all substantially as described.

2. In combination in an electric cut-out, a base-piece, contacts on the base-piece each having a loop with a transverse opening and a clamp for a line-wire, a removable cap for the base-piece, contact-pieces on the cap with spring-arms that register with and engage respective loops, the arms being provided with a stop and on the outer end a latch located at an angle across the arm, all substantially as described.

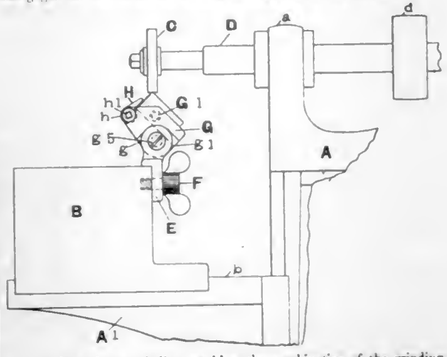
3. In combination in an electric cut-out, a base provided with contacts for the line-wires, and a cap removably secured to the base-piece, each contact on the base-piece having a projecting loop with a transverse opening, and the cap having contact-pieces that register with the contact-pieces on the base and have a spring-arm adapted to enter and lie within the socket in the loop, and a stop arranged to engage the loop.

664,512. CHASER-GRINDING MACHINE. JACOB B. WALLACE, Erie, Pa. Filed May 15, 1900. Serial No. 16,819. (No model.)

Claim.—1. In a chaser-grinding machine, the combination of a bracket; a chaser-holder pivotally secured thereto; and a pivoted gage on said holder, said gage being adapted to engage the face of a chaser in place in said holder.

2. In a chaser-grinding machine, the combination of a bracket; a chaser-holder pivotally secured thereto; a pivoted gage on said holder; said gage being adapted to engage the face of a chaser in place in said holder, and means for locking the gage at different angles to the chaser-holding means.

3. In a chaser-grinding machine, the combination of the bracket, E; the chaser-holder, G, having the slot, *g'*; a clamping-screw, *g*; the pivoted gage, H; and means for locking the gage at the angles desired.

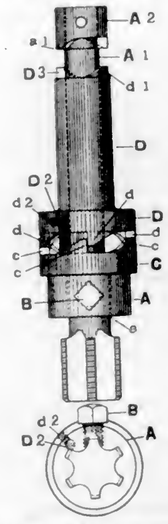


4. In a chaser-grinding machine, the combination of the grinding-wheel; the table, A', having the guide thereon; the sliding block, B; a chaser-holder secured on said block; means for shifting said chaser-holder relatively to a plane passing through the axis of the emery-wheel for the purpose described; and means moving on a pivot perpendicular to the said plane passing through the axis of the wheel for varying the angle of the holder to vary the angle of the cut on the chaser.

5. In a chaser-grinding machine, the combination of the table, A', having the guide thereon; the sliding block, B; a chaser-holder secured on said block; means for shifting said chaser-holder relatively to the axis of the emery-wheel for the purpose described; and a pivoted gage for positioning the chaser in the holder.

6. In a chaser-grinding machine, the combination of the table, A', having a guide thereon; a sliding block arranged on said guide; the bracket, E, having the slot, *e*; the set-screw, F, for securing said bracket to the block, B; the chaser-holder, G, provided with a joint for securing it to the bracket, E; means for locking the chaser-holder at different angles; the clamping-screw, G'; the pivoted gage, H; and means for locking the gage at various angles.

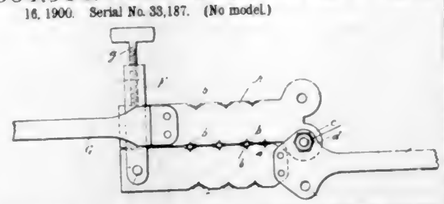
664,513. TAP AND DIE HOLDER. JACOB B. WALLACE, Erie, Pa. Filed May 15, 1900. Serial No. 16,821. (No model.)



Claim.—1. In a tap or die holder, the combination of the head, having a clutch-face provided with the clutch-lugs; a torret-piece having a clutch-face, provided with the clutch-lugs; and a stop for limiting the depth of engagement of said lugs.

2. In a tap and die holder, the combination of the head, having a clutch-face, provided with clutch-lugs; a torret-piece having a clutch-face, provided with clutch-lugs; and an adjustable stop for limiting the depth of engagement of said lugs.

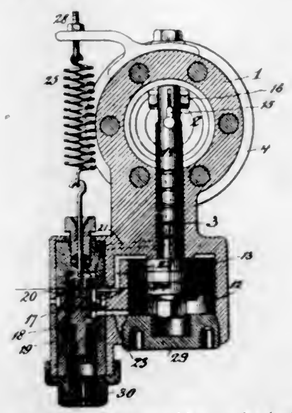
664,514. SCREW-PLATE. ZIBA G. WARD, Proffit, Va. Filed Oct. 16, 1900. Serial No. 33,187. (No model.)



Claim.—1. In a screw-plate, the combination, with two reversible parts having cutting-threads on their edges, of a pivot connecting the said parts at one end, and a forked bracket pivoted to the other end of one of the said parts and provided with a screw for pressing the two parts together, substantially as set forth.

2. In a screw-plate, the combination, with two reversible parts having cutting-threads on their edges, of a handle secured to the end portion of one part and overlapping the other part in each of its positions, a pin for pivoting the said handle to the other part, a cranked handle secured to one of the said parts, and a forked bracket pivoted to one of the parts at the other end thereof from its pivot and provided with a screw for pressing the two parts together, substantially as set forth.

664,515. REDUCING-VALVE. JOHN B. WARING, Newark, N. J., assignor of one-half to Hugh L. Fox, New York, N. Y. Filed Dec. 29, 1899. Serial No. 741,977. (No model.)



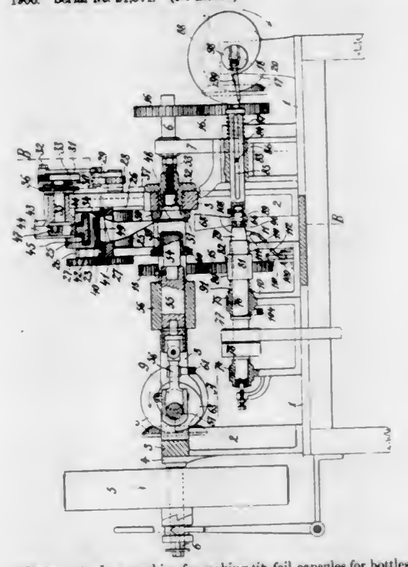
Claim.—1. A reducing-valve comprising a casing having a high-pressure chamber and a low-pressure chamber and a valve-seat, a valve constructed to work against the valve-seat and controlling the flow of fluid from the high-pressure chamber to the low-pressure chamber, means for operating said valve actuated by pressure from the low-pressure side of said valve and connected to said valve through an opening in the valve-seat, and a governing device operated under variations of pressure on the low-pressure side of said valve and controlling the admission of fluid under pressure from the low-pressure side of said valve to said valve-operating means and the exhaustion of fluid therefrom, substantially as set forth.

2. In a reducing-valve, in combination, a casing having two chambers and a partition separating said chambers comprising a valve-seat having the valve-port 11 therein, such valve-port having a restricted front portion, the slide-valve 10 guided on the valve-seat and controlling the flow of fluid through such port, the rod 14 and pressure-actuated means for actuating the same, the arm 15 and means for clamping the same in the rod 14, the slide-valve 10 having a recess in its face and the arm 15 extending through the valve-port and entering the recess in the face of the valve, substantially as set forth.

3. A reducing-valve comprising a casing having a high-pressure chamber and a low-pressure chamber and a valve-seat, a slide-valve located so as to be pressed against the valve-seat from the high-pressure chamber, a pressure-actuated device and a governing device, and a valve operated by the governing device and adapted in its movement to admit fluid under pressure from the low-pressure side of the valve to opposite sides of said pressure-actuated device, and to exhaust fluid from opposite sides of said pressure-actuated device, said pressure-actuated device including a rod in the low-pressure chamber and a valve-actuating arm extending therefrom and extending through an opening in the valve-seat and engaging the slide-valve, substantially as set forth.

4. In a reducing-valve, in combination, a casing having a high-pressure chamber and a low-pressure chamber and a partition separating said chambers comprising a valve-seat having a valve-port 11 therein, such valve-port having a restricted front portion, the slide-valve 10 guided on the valve-seat and controlling the flow of fluid through such port, a pressure-actuated device and a governing device, a valve operated by the governing device and adapted in its movement to admit fluid under pressure from the low-pressure side of the valve to opposite sides of said pressure-actuated device and to exhaust fluid from opposite sides of said pressure-actuated device, said pressure-actuated device including the rod 14, the arm 15 and means for clamping the same in the rod 14, the slide-valve 10 having a recess in its face and the arm 15 extending through the valve-port and entering the recess in the face of the valve, substantially as set forth.

664,516. MACHINE FOR MANUFACTURING CAPSULES FOR BOTTLES OR THE LIKE. EDUARD WATZEK, Friedberg, Austria-Hungary, assignor of one-half to Ignaz Nagy, same place. Filed June 25 1900. Serial No. 21,571. (No model.)



Claim.—1. In a machine for making tin-foil capsules for bottles, the combination of coöperating mechanisms comprising appliances for cutting circular blanks from tin-foil, feeding devices for feeding a continuous sheet or strip of foil to said appliances, forming appliances for imparting a cup shape to the discoidal blanks, feeding devices for feeding the blanks to the forming appliances, spinning mechanism for spinning out and finishing the cup-shaped blank, and feeding devices for feeding said blank to the spinning appliances, substantially as set forth.

2. A machine such as described, comprising a discoidal cutter-die and a reciprocating punch, feeding appliances for intermittingly feeding a continuous sheet or strip of foil to said die and punch, forming appliances comprising a mandrel and shaping-die operating to impart a cup shape to the discoidal foil blanks, feeding devices for feeding said blanks to the forming appliances, spinning appliances comprising a revoluble mandrel and coöperating spinning-wheel, and mechanism for feeding the cup-shaped blanks to said spinning appliances, substantially as described.

3. A machine such as described, comprising a discoidal cutter-die, a coöperating reciprocating punch and a discoidal spring-actuated holder or presser, feed mechanism for feeding a continuous sheet or strip of foil to the cutting appliances, comprising intermittingly-rotating feed-rolls, forming appliances comprising a flaring die 50, a coöperating reciprocating plunger 54, and a stripper-sleeve 59 mounted thereon and having motion with and independently of said plunger, said sleeve having its outer end beveled to fit the flaring end of the die, feed mechanism comprising a pocket 51 for the reception of the discoidal foil blank and a suitable

chute leading from the cutting appliances to said pocket, spinning appliances comprising a revoluble mandrel 76 a stripping-sleeve 80 mounted thereon and having motion with and independently of said mandrel, and a revoluble spinning-wheel having motion toward and from and lengthwise of the mandrel and coöperating therewith to spin out the formed blank, and feed mechanism comprising the reciprocating forked holder 67, a suitable chute leading from the forming appliances to said holder, and a plunger 84 reciprocating in the plane of the mandrel to push the cup-shaped blank from the holder onto said mandrel and hold such blank thereon during the spinning out, said plunger having a revoluble head, substantially as described.

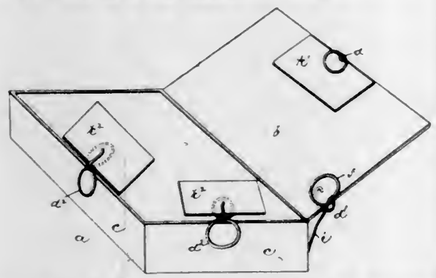
4. The combination with the revoluble mandrel 76, the spring-actuated sleeve 80 mounted to slide on and revolve with said mandrel, the slide-rod 84 having revoluble head 90, the shaft 18 carrying cam 88 acting on rod 84, the spring 87 acting to hold said rod in contact with its cam, and a spinning-wheel coöperating with the mandrel 76 to spin of draw out the blank; of the forked spring-retracted feeder 66, 67, constructed to receive the formed cup-shaped foil blank, the shaft 13 and the cam 71 thereon, substantially as and for the purpose set forth.

5. The combination with the revoluble mandrel 76, its sleeve 80 and the rod 84 having revoluble head 90 in line and coöperating with said mandrel to hold the cup-shaped foil blank thereon, and a spinning-wheel movable toward and from and along the mandrel, operating to spin of draw out said blank; of a rock-lever provided with a brake-shoe, and means for rocking said lever to move its brake-shoe into contact with the finished capsule as it is being stripped from the mandrel, substantially as and for the purpose set forth.

6. The combination with the spinning appliances comprising a revoluble mandrel for the reception of a dished foil blank, a spinning-wheel having motion toward, from and along said mandrel, a holder for holding the blank on the mandrel during the operation of spinning, and means for moving said holder out of contact with the spun-out or finished capsule; of a spring-actuated stripper-sleeve mounted to slide on and revolve with the mandrel, said sleeve moved against the stress of its spring by the spinning-wheel as it moves along said mandrel, a brake-lever, and mechanism for moving said lever into contact with the finished capsule when the spinning-wheel moves out of contact with it and the stripping-sleeve is thrown forward by its spring to strip the capsule off the mandrel, substantially as and for the purpose set forth.

7. The combination with the revoluble mandrel 76, its sleeve 80 and the rod or plunger 84 having revoluble head 90; of the slide-carriage 97, the slide 93 carrying the spinning-wheel 92, the shaft 18, the eccentric 98 thereon and the connecting-rod 99 connected with slide-carriage 97 and imparting motion thereto lengthwise of mandrel 76, the lever 96 taking in a transverse groove in slide 93, and means for periodically oscillating said lever to move said slide and the spinning-wheel periodically into and out of contact with the aforesaid mandrel, substantially as and for the purpose set forth.

664,517. CLIP OR CARD-HOLDER. FRANK S. WEBB, Newark, N. J. Filed Oct. 20, 1899. Serial No. 734,176. (No model.)



Claim.—1. As an article of manufacture, a wire clip comprising a single piece of wire bent into a body portion lying in a given plane, and a curved arm lying in a plane substantially perpendicular to the plane of the said body portion, substantially as set forth.

2. A clip formed of a piece of spring-wire bent into a body-frame lying in one plane and joined, and having one of its ends continued beyond the point of joining and forming a curved arm lying in a plane substantially perpendicular to the plane of the body-frame, substantially as set forth.

3. A clip comprising a piece of wire bent at an angle at a point intermediate of its two ends, and having one arm bent around and hooked at its extremity to the base of the other arm, and said other arm being bent into a ∩ shape, substantially as set forth.

4. A clip formed of a single piece of wire bent at substantially a right angle at a point intermediate of its ends, one arm thus formed being curved into a ring or hoop like form and having an eye, and the other arm being passed through said eye and bent into a curved form with its extremity lying in or near the plane of the first arm, substantially as set forth.

5. The herein-described clip, formed of a piece of wire bent at right angles intermediate of its ends, one of the arms thus formed being bent into a ring-like body portion and curled around the foot of the other arm, and said other arm being bent into a ∩ shape in a plane perpendicular to the said body portion and having its extremity recurved to form a rounded end which normally lies free in the opening of the body portion, substantially as set forth.

6. The herein-described clip, formed of a single piece of wire bent intermediate of its ends into a body portion, and having an end continued beyond said body portion and forming an arm curved outwardly in a plane perpendicular or approximately perpendicular to the body portion and adapted to coöperate therewith in grasping an object, substantially as set forth.

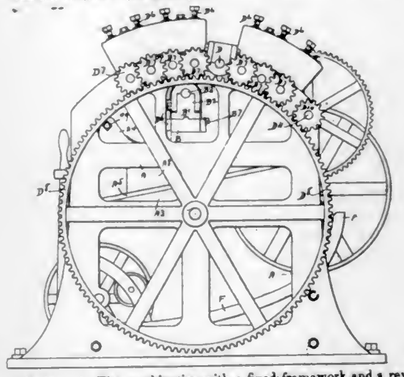
664,518. SAFETY-REIN. ORIN M. WHITMAN, Dickinson, N. Y. Filed May 23, 1900. Serial No. 17,727. (No model.)



Claim.—1. Driving-reins each consisting of a short rigid section, a flexible section at one end of the rigid section for connection with a bit-ring, and a short flexible section at the opposite end of the rigid section, the rigid section being located remote from the bit end of the rein, to lie with its forward end against the hip of a horse and with its body portion extending rearwardly therefrom.

2. Driving-reins each consisting of a short rigid section having slotted ends, a flexible section inserted in the slot at one end of the rigid section for connection with a bit-ring, and a short flexible section inserted in the slot at the opposite end of the rigid section, the rigid section being located remote from the bit-ring end of the rein, to lie with its forward end against the hip of a horse and with its body portion extending rearwardly therefrom.

664,519. WOOD-PLANING MACHINE FOR CURVED WORK. BAXTER D. WHITNEY, Winchendon, Mass. Filed Mar. 16, 1897. Serial No. 627,875. (No model.)



Claim.—1. The combination with a fixed framework and a revolving cutter-head journaled therein, of a framework supported by said fixed framework and vertically adjustable therein, a curved work-table rigidly attached to said adjustable framework, a curved work-table pivoted on said adjustable framework and means for adjusting said pivoted curved table, whereby its plane is varied relatively to said rigid table, substantially as described.

2. The combination with the feed-tables A^6 and A^{10} curved in the arcs of circles, of a lower cutter-head placed between the table A^6 and the table A^{10}, an upper cutter-head placed above the front edge of the table A^6, a series of feed-rolls adapted to engage the work upon the side opposite said tables, and means for oscillating the table A^{10}, whereby its front edge A^{22} is raised or lowered relatively to said lower cutter-head, substantially as described.

3. The combination with a fixed framework and a revolving cutter-head journaled therein, of a framework supported by said fixed framework and vertically adjustable therein, a curved work-table rigidly attached to said adjustable framework, a curved work-table pivoted on said adjustable framework, means for adjusting said pivoted table relatively to said rigid table and a series of pressure-rolls arranged above and concentrically with the curved work-tables, substantially as described.

4. The combination with a fixed framework and an upper cutter-head journaled therein, of an adjustable framework, a pair of sliding adjusting-wedges supported by said fixed framework and bearing against said adjustable frame, a pair of clamping-wedges between said fixed and said adjustable frameworks and acting in opposition to said adjusting-wedges to clamp said adjustable framework in position and connected means for moving said adjusting and said clamping wedges simultaneously, substantially as described.

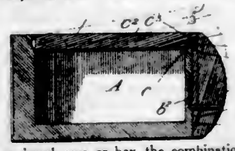
5. The combination with a fixed framework, of a movable framework, a pair of adjusting-wedges by which said movable frame is raised, or lowered, means for sliding said adjusting-wedges, a cross-bar connecting said wedges, a lug projecting upwardly from said cross-bar, a pair of clamping-wedges acting in opposition to said adjusting-wedges, an adjusting-screw carried by said lug and engaging said cross-bar whereby said clamping-wedges are moved simultaneously with said adjusting-wedges and are capable of independent adjustment, substantially as described.

6. The combination with a curved work-table A^6 and upper and lower cutter-heads D' and B^4 of a pivoted curved work-table A^{10} provided with an arm C and adjusting-screws carried by said arm, whereby said table A^{10} is rocked relatively to the table A^6 and held in position, substantially as described.

7. The combination with a curved work-table A^6, of an inclined trough F located beneath said table having an upwardly-curved rear end projecting beyond the curved plane of said table, substantially as described.

8. The combination of the curved work-supporting tables A^6 and A^{10}, a lower revolving cutter-head journaled between said tables and at one edge of table A^6, means for vertically adjusting said tables, means for adjusting said table A^{10} relatively to the table A^6, means for adjusting said lower cutter-head relatively to table A^6, a feed-roll arranged over the edge of table A^6 and at the rear of the lower cutter-head and means for applying pressure to said feed-roll, substantially as described.

664,520. JEWEL CASE OR BOX. MICHAEL WINDERL, Washington, D. C. Filed Sept. 19, 1900. Serial No. 30,478. (No model.)



Claim.—1. In a jewel case or box, the combination with a box proper, of a slidable locking member fitted to the side thereof, means inclosed between said member and the wall of the box for limiting the sliding movement thereof, and a cover on the top of the box adapted in closed position to engage the locking means, substantially as described.

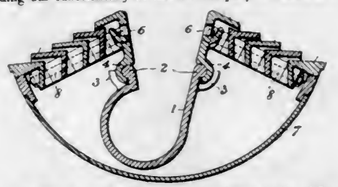
2. In a jewel case or box, the combination with a box proper, of a cover therefor, an independently-movable slidable section on the side of the box adapted to be withdrawn when the cover is in open position and returned to its normal position by the edge of the cover engaging the same when in closed position, substantially as described.

3. In a jewel case or box, the combination with a box proper, of a cover adapted to fit the top thereof, a sliding block fitted in a recess in the side of the box having a projection adapted to engage a recess in the edge of the cover, and means inclosed by said block for limiting the movement thereof, substantially as described.

4. In a jewel box or case, the combination with a box proper, of a cover, a series of fixed panels in the front wall thereof, a movable panel intermediate the fixed panels adapted to be withdrawn when the cover is in open position, and returned to its normal position by the engagement of the cover therewith when in closed position, substantially as described.

664,521. FURNACE-GRATE. WILFRED R. WOOD, London, England, assignor to the American Stoker Company, New York, N. Y. Filed Apr. 2, 1900. Serial No. 11,167. (No model.)

Claim.—1. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that the outer end of each bar overlaps the inner end of the succeeding bar substantially as and for the purpose described.

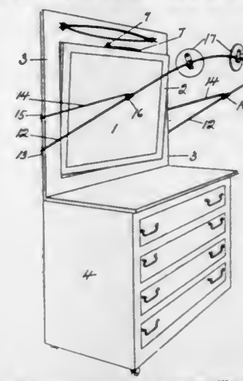


2. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that the outer end of each bar overlaps the inner end of the succeeding bar, a fuel-feed casing provided with a head and a curved end on the inner fire-bar adapted to engage with said head substantially as and for the purpose described.

3. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, distance-pieces between said bars, a bar or bolt holding said fire-bars in operative position as a rigid structure so that the outer end of each bar overlaps the inner end of the succeeding bar and an air-jacket secured to the outermost fire-bar substantially as and for the purpose described.

4. In furnace-grates and in combination, a series of fire-bars of substantially angular cross-section, a bar or bolt holding said fire-bars in operative position so that the outer end of each bar overlaps the inner end of the succeeding bar, a fuel-feed casing provided with a head, a curved end on the inner fire-bar adapted to engage with said head, and an air-jacket secured to the outermost fire-bar substantially as and for the purpose described.

664,522. MIRROR ATTACHMENT. WILLIAM H. H. WRIGHT, Kansas City, Mo. Filed Mar. 30, 1900. Serial No. 10,758. (No model.)



Claim.—1. The combination, in a dresser or like article of furniture supporting a mirror, of the inner mirror-frame 2, the outer mirror-frame 3, the socket-plate 5, the pivot 6 retained in said socket-plate and engaging the mirror-frame 2, the guide-bracket 7 secured to frame 3 above frame 2, a longitudinal slot 8 therein, a screw 10, carried by frame 2, the head of which engages said slot, and a compression-spring 11 located between mirror-frame 2 and the lower face of said guide-bracket; substantially as described.

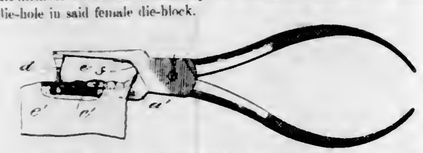
2. The combination, with a mirror-frame, of the U-shaped rod 12, the socket-pieces 13 and 15, secured to the mirror-frame, the braces 14, the clamps 16 connecting said braces slidably with said rod 12, and the auxiliary mirrors 17 adjustably mounted on the rod 12, substantially as described.

664,523. DIE-PUNCH. GEORGE C. AINSWORTH, Brookline, Mass. Filed Dec. 18, 1899. Serial No. 740,794. (No model.)

Claim.—1. A die-punch comprising two pivoted members, having comparatively long jaw portions, a female die carried by one of said jaws, and a male die member or plunger carried by the other jaw, both of said jaws being flexible to allow said male die member or plunger to seat itself accurately and in complete cutting contact.

2. A die-punch comprising two pivoted members having comparatively long jaw portions, a rotatable female die-block having a plurality of die-holes therein carried by one jaw, and a rigid male die member or plun-

ger carried by the other jaw, said jaws being flexible to allow said male die member to seat itself accurately and in complete cutting contact with a die-hole in said female die-block.



3. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block having a plurality of die-holes carried by one of said jaws; a male member or plunger carried by the other jaw, and means actuated by the closing of the jaws and coöperating with said female die-block to prevent complete closing of said jaws and contact of said die members until the movable die-block is in position to receive the male member in one of its die-holes.

4. In a die-punch, the combination with two pivoted members having jaw portions, of a rotatable female die-block having a plurality of die-holes carried by one of said jaws; a male member or plunger carried by the other jaw, and means actuated by the closing of the jaws and coöperating with said female die-block to prevent complete closing of said jaws and contact of said die members until the said rotatable die-block is in position to receive the male member in one of its die-holes.

5. In a die-punch, the combination with two pivoted members having jaw portions, of a rotatable female die-block having a plurality of die-holes carried by one of said jaws; a rigid male member carried by the other jaw, said jaws being flexible to allow accurate seating and complete cutting contact of said die members, and means actuated by the closing of the jaws and coöperating with said female die-block to prevent complete closing of the jaws and contact of said die members until the said rotatable die-block is in position to receive the male member in one of its die-holes.

6. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block carried by one of said jaws, a male member or plunger carried by the other jaw, and means independent of said male member and actuated by the closing of the jaws to automatically center said movable die-block in accurate position beneath said male member, said centering means serving also to lock said movable die-block against movement in either direction.

7. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block carried by one of said jaws; a rigid male member or plunger carried by the other jaw, said jaws being flexible to allow accurate seating and complete cutting contact of said die members, and means independent of said male die member to automatically center and lock said movable die-block in accurate position beneath said male member by the closing of the jaws.

8. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block carried by one of said jaws and provided with a plurality of die-holes, a male die member or plunger carried by the other jaw, and a spring actuated by the closing of the jaws to engage said movable die-block and automatically center it beneath said male member or plunger, said spring serving also to lock said movable die-block against movement in either direction.

9. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block carried by one of said jaws and provided with a plurality of die-holes, a male die member or plunger carried by the other jaw, and means independent of said male die member and actuated by the closing of the jaws to automatically engage and center said movable die-block in accurate position beneath the male die member, said means serving also to both lock said movable die-block against movement in either direction and to prevent complete closing of the jaws and contact of said die members when the die members are out of register with each other.

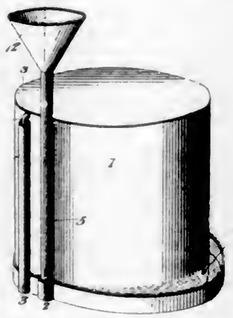
10. In a die-punch, the combination with two pivoted members having jaw portions, of a movable female die-block carried by one of said jaws and provided with a plurality of die-holes, a male die member or plunger carried by the other jaw, and a spring between said jaws and actuated by the closing of the jaws to automatically engage and center said movable die-block in accurate position beneath the male die member or plunger, said spring serving also to both lock said movable die-block against movement in either direction and to prevent complete closing of the jaws and contact of the die member when said die members are out of register with each other.

11. In a die-punch, the combination with two pivoted members having jaw portions, of a rotatable female die member pivoted to one of said jaws and provided with a plurality of die-holes, a rigid male member carried by the other jaw, a spring lying between said jaws and secured at one end to the male-die-supporting jaw, its other end sliding freely on the other jaw and engaging one of a series of notches or indentations in the periphery of said die-block on closing the punch, to lock said die-block in accurate position beneath said male member.

12. In a die-punch, the combination with two pivoted members having jaw portions, of a rotatable female die-block pivoted on one of said jaws and provided with a plurality of die-holes, a rigid male member carried by the other jaw, a spring lying between said jaws and secured at one end to the male-die-supporting jaw, its other end sliding freely on the other jaw and engaging one of a series of flaring notches or indentations in the periphery of said die-block on closing the punch, to automatically center and lock said die-block in accurate position beneath said male member.

13. In a die-punch, the combination with two pivoted members having jaw portions, of a rotatable female die-block carried by one of said jaws, a male die member or plunger carried by the other jaw, a spring lying between said jaws and secured at one end to the male-die-supporting jaw, and means for securing said spring to the other jaw so that it may have a limited movement thereon, said spring serving to center and lock said rotatable die-block in accurate position beneath said male die member.

664,524. AUTOMATIC STOCK-WATERING FOUNTAIN. JOHN R. BEEMAN and FRANK H. SCHMIDT, George, Iowa. Filed Sept. 27, 1900. Serial No. 31,316. (No model.)

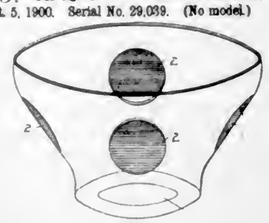


Claim.—1. In a stock-watering fountain, the combination with the reservoir-tank, and the drinking-trough associated therewith, of a filling device comprising an outer tube connected at one end with the tank, at or contiguous to the lower end of the latter, and a smaller interior filling-pipe, arranged within and spaced from the wall of said outer tube, said filling-pipe terminating at its lower end contiguous to the connection of the outer tube with the tank, and adapted to be sealed within the liquid in said tube.

2. In a stock-watering fountain, the combination with a reservoir or tank and a drinking-trough associated therewith, of an upright conducting-tube provided at its upper end with a filling-funnel and having an elbow connection at its lower end with the tank contiguous to the bottom of the latter, a baffle-lip arranged to obstruct the passage of water from the elbow connection into the tank, an imperforate bottom within the filling-funnel, and an interior filling-pipe suspended from said bottom and having its lower end terminating at or within said elbow connection.

3. In a stock-watering fountain, the combination with the drinking-trough, and the reservoir having an outlet opening into said trough, of a filling device for the tank, and a separate air-vent device comprising an escape-tube open at the top and adapted to contain a liquid seal at the bottom, and a vent-pipe extending longitudinally within said tube into the liquid seal thereof, and connected at one end with the top portion of the reservoir, said vent-pipe being independent of the outlet from the reservoir into the trough, substantially as set forth.

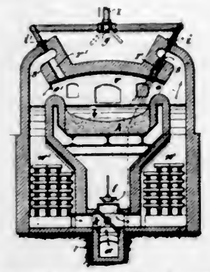
664,525. FINGER-BOWL. SILLIMAN BLAGDEN, Boston, Mass. Filed Sept. 5, 1900. Serial No. 29,039. (No model.)



Claim.—1. As a new article of manufacture, a finger-bowl constructed with a number of mirrors embedded therein and covered with glass, as herein set forth.

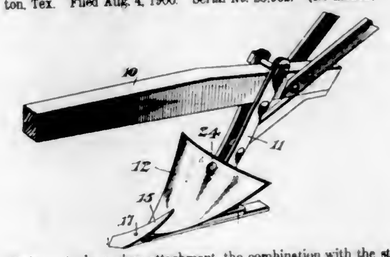
2. As a new article of manufacture, a finger-bowl formed with indentations and provided with mirrors located in said indentations and covered and hermetically sealed with glass blown over said mirrors, as herein set forth.

664,526. REGENERATIVE HEARTH-FURNACE. EDUARD BLASS, Essen, Germany. Filed July 2, 1900. Serial No. 22,415. (No model.)



Claim.—In a regenerative hearth-furnace the combination, with the hearth, the arch, two regenerators and reversing-valve, of two sets of gas-injecting nozzles arranged in diverging planes above the arch, a narrow blowing-in port for each nozzle located in the arch in axial line with its respective nozzle, hot-air passages leading from the regenerators to the upper orifices of said ports, and separate large exit-openings for the combustion-gases arranged in the side walls below the lower orifices of said ports and communicating with the regenerators, substantially as and for the purpose specified.

664,527. PLOW ATTACHMENT. WILLIAM B. BRACKWELL, Cotton, Tex. Filed Aug. 4, 1900. Serial No. 25,902. (No model.)



Claim.—1. In a plow attachment, the combination with the standard and plow-point, of a furrow-shoe interlocked at one end with the plow-point and extended rearwardly therefrom, and a brace interposed between the standard and the rearwardly-extended portion of the shoe and rigidly connected to both.

2. In a plow attachment, the combination with the standard and plow-point, of a furrow-shoe interlocked at one end with the plow-point and extended rearwardly therefrom, and a brace interposed between the standard and the rearwardly-extended portion of the shoe and adjustably connected to the standard.

3. In a plow attachment, the combination with the standard and plow-point, of a furrow-shoe interlocked at one end with the plow-point and extended rearwardly therefrom and a brace interposed between the standard and the rearwardly-extended portion of the shoe and adjustably connected to the standard at one end and having a longitudinal adjustable engagement with the shoe at its opposite ends.

4. A plow attachment comprising a shoe adapted to interlock with the point of a plow, and a brace having a longitudinal adjustable connection with the shoe, and means for securing said bracket to the plow-standard.

5. A plow attachment comprising a shoe adapted to interlock with the point of a plow and have its front end project beyond the front portion of the same, and a brace having a longitudinal adjustable connection with the shoe, means for securing said brace in fixed position on the shoe, and means for adjustably securing said bracket to a plow-standard.

6. In a plow attachment, the combination with the standard and plow-point, of a furrow-shoe having a detachable interlocking engagement at one end with the point and extending rearwardly beyond the standard, and an angular brace arranged in the angle formed by said standard and rearwardly-extending portion of the shoe, the arms of said brace resting flat upon the standard and shoe respectively and provided with slots, and bolts passing through the standard and shoe respectively so that the shoe is longitudinally adjustable upon the brace and the brace is longitudinally adjustable upon the standard.

664,528. BILLIARD-CUE. JEAN BRAUERS, Brussels, Belgium. Filed Apr. 4, 1900. Serial No. 11,474. (No model.)



Claim.—1. The combination with the portions 1 and 2 adapted to form a billiard-cue, of a disk, made of yielding material, inserted between the adjacent ends of said portions, a suitable bolt in the longitudinal axis and extending partially into each of the latter, means for holding said bolt in place, a sleeve secured on the outer surface of one of said portions and surrounding completely the outer surface of said yielding disk, and suitable means for preventing the relative rotation of the portions 1 and 2, substantially as and for the purpose set forth.

2. The combination to form a cue, of two lengthwise sections bored and internally screw-threaded at their meeting ends, two centrally-bored and externally-threaded members fitting into said sections and having flanged or discular heads about the diameter of the cue, a disk of elastic material interposed between said heads, and a bolt passing lengthwise through the central bore of said members and binding them together against said disk.

3. The combination to form a cue, of two lengthwise sections bored and internally screw-threaded at their meeting ends, two centrally-bored and externally-threaded members fitting into said sections and having flanged heads, a disk of elastic material interposed between said heads, a bolt passing through the central bore of said members and binding them against the disk, an external sleeve fixed to one of the cue-sections and covering the joint between said member and the corresponding flanged head, a sleeve upon the other section projecting past the corresponding flanged head, and a pin engaging with a slot in said latter sleeve to prevent rotation of the parts after assembled together.

664,529. PROCESS OF REGENERATING OLD GUM OR GUM WASTES. CARL BRIMMER, Munich, Germany. Filed Oct. 29, 1900. Serial No. 34,831. (No specimens.)

Claim.—1. The process of regenerating gum which consists in first dissolving the gum in ricinus-oil with the aid of heat, and then precipitating the gum with alcohol.

2. The process of regenerating gum which consists in first mixing the gum with ricinus-oil and then heating the mixture to a temperature of 180° to 210°, centigrade, until the gum is dissolved, next cooling the mixture, and then adding alcohol to said mixture, whereby the gum is precipitated.

3. The process of regenerating gum which consists in first mixing the gum with ricinus-oil, then heating the mixture to a temperature of 180° to 210°, centigrade, until the gum is dissolved, next cooling the mixture, then adding alcohol to said mixture whereby the gum is precipitated, separating the precipitated gum from the liquid, washing the gum thus separated, and finally applying pressure to the gum to compact it.

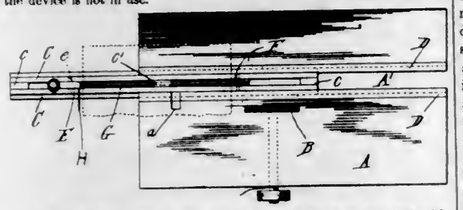
4. The process of regenerating gum, which consists in first mixing the gum, in a comminuted condition, with an equal weight of ricinus-oil, then heating the mixture to a temperature of 180° to 210°, centigrade, until the gum is dissolved, next cooling the mixture, then pouring it into double its volume of alcohol while stirring the latter, whereby the gum is precipitated, next removing the precipitate and washing it repeatedly with alcohol, then washing with a weak solution of caustic soda in warm water, then washing in clear water, and finally compressing the gum.

664,530. EDGING DEVICE. JOHN P. BROWN, Chicago, Ill. Filed Oct. 1, 1900. Serial No. 31,675. (No model.)

Claim.—1. An edging device comprising a movable carriage, two gripping-levers projecting upwardly therefrom and designed to engage the opposite margins of a board, and means for simultaneously swinging said levers into and out of engagement with a board, said parts being constructed to permit the levers to be thrown downwardly below the level of the carriage when the device is not in use.

2. An edging device comprising two parallel guide-rails, a carriage supported and sliding on said rails, two gripping-levers projecting upwardly from said carriage and designed to engage the opposite margins of a board, and means for simultaneously swinging said levers into and

out of engagement with a board, said parts being constructed to permit the levers to be thrown downwardly below the level of the carriage when the device is not in use.



3. An edging device comprising a movable carriage, provided with a longitudinal space, two upwardly-projecting gripping-levers pivoted to said carriage in said space and constructed to engage the opposite margins of a board, and a connecting-rod pivoted at its opposite ends to said levers in such manner that both levers are simultaneously swung into and out of engagement with the board, said levers and connecting-rod being constructed to be thrown downwardly into said longitudinal space below the upper surface of the carriage.

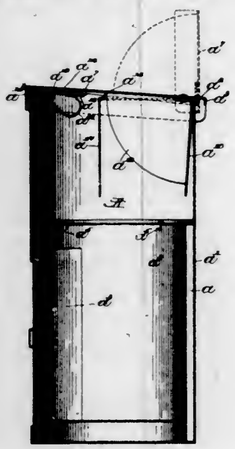
4. An edging device comprising a movable carriage, two gripping-levers pivoted to the carriage and projecting at their upper ends above the carriage, and designed to engage the opposite margins of a board, a connecting-rod pivoted at its opposite ends to said levers, and means for varying the distance between said levers.

5. An edging device comprising a movable carriage, two gripping-levers pivoted to the carriage and projecting at their upper ends above the carriage, said levers being designed to engage the opposite margins of a board, a connecting-rod pivoted at its opposite ends to said levers, one of said levers being detachably connected with the carriage and designed to be moved toward and from the other lever, and the actuating-rod having a corresponding detachable engagement with said lever.

6. An edging device comprising a movable carriage, two gripping-levers pivoted to the carriage and projecting at their upper ends above the carriage, said levers being designed to engage the opposite margins of a board, a connecting-rod pivoted at its opposite ends to said levers, in such manner as to simultaneously swing the levers into and out of engagement with the board, one of said levers being constructed to form an operating-handle and provided with a gage projecting laterally therefrom.

7. The combination with a saw-table provided with a cut-away space or groove at the side of and parallel with the plane of the saw, of an edging device comprising a carriage which is movable in said groove and flush at its upper surface with the upper surface of the table, two gripping-levers pivoted to said carriage and projecting above the upper surface of the same, and constructed to engage the opposite margins of a board, and a connecting-rod pivoted at its opposite ends to said levers and in a manner to give equal and opposite movements to the levers, said levers being constructed to be thrown downwardly below the plane of the upper surface of the saw-table when the attachment is not in use.

664,531. **PACKAGE MAIL-BOX.** AUSTIN C. CHASE, Cambridge, Mass. Filed Sept. 20, 1899. Renewed Nov. 20, 1900. Serial No. 37,147. (No model.)



Claim.—1. The herein-described package mail-box, comprising a can or receptacle having at its top both a hinged cover extending over the top of the box and two openings, one opening being controlled by means operated by the top-cover and capable of receiving packages of ordinary shape and size, and the other opening being normally closed by a small flap-door and otherwise unobstructed whereby extremely long packages may be entered therethrough, and yielding means for normally holding said flap-door in closed position to permit the passage of a long package and automatically returning the door to closed position, substantially as described.

2. The herein-described package mail-box, comprising a can or receptacle having at its top both a hinged cover extending over the top of the box and two openings, means operated by the top-cover for controlling one of said openings and permitting the depositing of packages of ordinary shape and size, and the other opening being normally closed by a small flap-door and otherwise unobstructed whereby extremely long packages may be entered therethrough, and yielding means for normally holding said flap-door in closed position, said top-cover having both a rearward extension inclosing the hinge thereof, and a peripheral flange inclosing the top edges of the box, substantially as described.

3. The herein-described package mail-box, comprising a can or receptacle having at its top both a hinged cover extending over the top of the box and two openings, one opening being capable of receiving packages of ordinary shape and size, means operated by the top-cover for controlling the latter opening, and the other opening being normally closed by a small flap-door and otherwise unobstructed whereby extremely long packages may be entered therethrough, and yielding means for normally holding said flap-door in closed position, said receptacle at its lower end having a double vertical wall forming a curved recess, a front opening, and a sliding door arranged to close said opening and slide in said recess without interference with the contained mail-matter, substantially as described.

4. The herein-described package mail-box, comprising a can or receptacle having at its top both a hinged cover extending over the top of the box and two openings, one opening being capable of receiving packages of ordinary shape and size, means operated by said top-cover for controlling said latter opening, the other opening having a long narrow portion capable of receiving long flat packages and a portion capable of receiving long and relatively thick packages, and yielding means normally obstructing this opening and permitting the depositing of said long packages, said receptacle at its lower end having a double wall forming a recess, a front opening, and a rigid, curved sliding door arranged to close said opening and slide in said recess without interference with the mail-matter, and a plurality of hooks within said receptacle about the walls thereof to receive a mail-bag and retain the same in open position to receive mail deposited through either of said top openings, substantially as described

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664,532. **SEWAGE-DISPOSAL APPARATUS.** WILLIAM L. CHURCH, New York, N. Y. Filed Dec. 7, 1899. Serial No. 739,467. (No model.)



Claim.—1. A sewage-disposal apparatus comprising means for intermittently discharging or releasing liquid, and a gravity-conduit having provisions for forming the discharges into a series of ramified waves.

2. A sewage-disposal apparatus comprising means for intermittently discharging or releasing liquid, and a gravity-conduit having provisions for forming the discharges into a series of ramified and shaded waves.

3. A sewage-disposal apparatus comprising means for intermittently discharging or releasing liquid, a porous bed, and a liquid-guiding support or holder therefor, said bed and holder being arranged to receive the discharges and conduct the same in a series of gravitating ramified waves.

4. A sewage-disposal apparatus comprising an impervious supporting-apron, a porous bed thereon, means for discharging liquid intermittently upon the apron, and means for retarding the escape of liquid from the apron, whereby the liquid is caused to alternately rise and subside in the porous bed.

5. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, means for admitting liquid intermittently to the upper portion of the said bed, and a shading, heat-retaining, and ventilating cover for said bed.

6. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, means for admitting liquid intermittently to the upper portion of the said bed, and a covering-bed superimposed upon the retarding-bed and of coarser material than the latter.

7. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, means for admitting liquid intermittently

to the upper portion of the said bed, a foot-wall below the lower end of the bed, and a filtering-bank interposed between the bed and the foot-wall.

8. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, a head-bay at the upper end of said bed having a porous wall through which liquid passes to the retarding-bed, and means for admitting liquid intermittently to the head-bay.

9. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, a flushing-tank located at the higher end of the bed and having means for intermittently discharging liquid to the retarding-bed, and a body of filtering material contained in said tank, the liquid admitted to the tank being caused to alternately rise and subside in said filtering material.

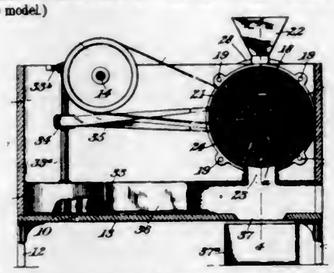
10. A sewage-disposal apparatus comprising an inclined apron, a porous retarding-bed thereon, a flushing-tank, located at the higher end of the bed and having means for intermittently discharging liquid to the retarding-bed, and a supply-pipe entering the flushing-tank and having a vertically-adjustable end section.

11. A sewage-disposal apparatus comprising an inclined apron having provisions for conducting liquid in a sinuous course, and a porous bed on said apron.

12. A sewage-disposal apparatus comprising an apron having a series of laterally-extending oppositely-inclined steps, walls or baffles extending from the higher ends of the steps partly to their lower ends, and a porous bed on said steps.

13. A sewage-disposal apparatus comprising an inclined apron, a porous bed on said apron, and side walls extending lengthwise of the bed and converging from the higher to the lower end of the bed.

664,533. **MACHINE FOR HULLING AND CLEANING RICE.** JAMES T. CLARK, Loango, Ala. Filed Jan. 31, 1899. Serial No. 703,993. (No model.)



Claim.—The combination of a casing formed as a complete inclosure at the sides and bottom and having a blast-opening at one end and a discharge-opening in the bottom, a fan, an inclosed scouring mechanism, gearing for connecting and driving said parts, a casing secured within the main casing and formed of metal shaped to constitute, in connection therewith, a casing for the fan and a horizontal blast-trunk continuous with the scourer casing and joined to the blast-opening in the end wall and provided with an opening through which the material falls from the scourer to the discharge-opening, substantially as described.

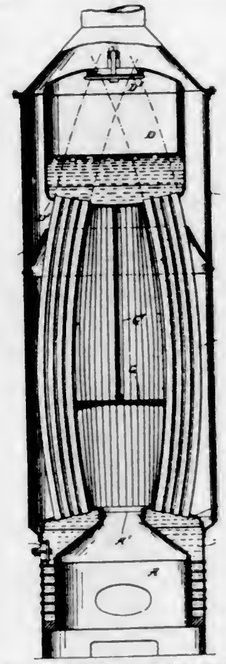
664,534. **BOILER.** THOMAS P. CONNELLY, Jersey City, N. J. Filed Apr. 12, 1900. Serial No. 12,568. (No model.)

Claim.—1. A boiler having steam and water compartments, and tubes connecting the same with each other, said tubes being curved and the bottom of said steam-compartment and the top of said water-compartment being dished toward each other, the ends of the curved tubes being approximately at right angles to said top and bottom, as set forth.

2. A boiler comprising a steam-compartment, having a manhole in its top, a water-compartment, and tubes connecting said compartments with each other, said tubes being curved to permit of removing the tubes through the manhole in the top of the steam-compartment, substantially as shown and described.

3. A boiler having a steam-compartment provided with a manhole in its top, a water-compartment, and tubes connecting said compartments with each other said tubes being curved to permit of removing the tubes through the manhole, the bottom of said steam-compartment and the top of said water-compartment being dished toward each other and the end of the tubes extending approximately at right angles to said top and bottom, and baffle-plates for deflecting the smoke and gases, substantially as set forth.

4. A boiler having a steam-compartment, a water-compartment, and tubes connecting said comparments with each other, said tubes being curved to permit of removing the tubes through a manhole in the top or the steam-compartment, the tube-opening in the bottom of the steam-compartment being somewhat larger than the tube-opening in the top of said water-compartment, to permit of readily removing a loosened tube as above described.



5. A boiler, comprising a fire-box, a water-compartment surrounding the fire-box, a steam-compartment, tubes connecting the compartments with each other and arranged in concentric circular rows to form a central space into which opens the fire-box, a boiler-shell surrounding said tubes and steam-compartment and forming an outer space with the same, a baffle-plate in the central space above the throat of the fire-box, and a baffle-plate in the form of a frustum of a cone, and secured with its base to the shell above said central baffle-plate, substantially as shown and described.

6. A boiler, comprising a fire-box, a water-compartment surrounding the fire-box, a steam-compartment, tubes connecting the compartments with each other and arranged in concentric circular rows to form a central space into which opens the fire-box, a boiler-shell surrounding said tubes and steam-compartment and forming an outer space with the same, a baffle-plate in the central space above the throat of the fire-box, and a baffle-plate in the form of a frustum of a cone and secured with its base to the shell above said central baffle-plate, the apex end of said cone-shaped baffle-plate reaching to the outermost row of tubes, as set forth.

664,535. **ROSSING ATTACHMENT FOR SAWMILLS.** ROBERT H. DICKINSON, Mount Hope, W. Va. Filed Feb. 24, 1900. Serial No. 6,397. (No model.)

Claim.—1. The combination with the supporting member, of the rosser carried thereby, the runner pivoted at one end to the supporting member, disposed parallel with the rosser and having its free end adjustably secured to the supporting member, substantially as described.

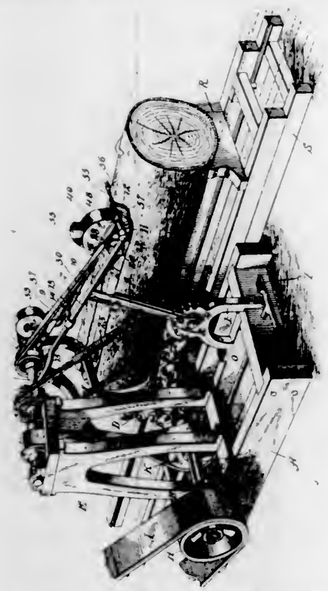
2. In a rosser for sawmills, a shield or casing disposed over the rosser, open on its outer side, and having an opening in its upper side in rear of the rosser, and deflecting-wings disposed obliquely to said opening, substantially as described.

3. In a rosser for sawmills, a shield or casing, disposed over the rosser, a runner disposed parallel with the rosser and pivotally connected at its front end to the shield or casing and means to adjust said pivoted runner, substantially as described.

4. In a rosser for sawmills, a shield or casing disposed over the rosser, a runner disposed parallel with the rosser, pivotally connected at its front end to the shield or casing, and having an upturned arm at its rear end adjustably secured to the shield or casing, substantially as described.

5. In a rosser for sawmills, a shield disposed over the rosser open

on its outer side and having obliquely-disposed deflecting-wings (one or more), substantially as described.



6. In a rosser for sawmills, a shield or casing disposed over the rosser, open on its outer side and having an opening in its upper side in rear of the rosser and a deflector disposed obliquely over said opening, said shield or casing being further provided at its rear portion with an adjustable, obliquely-disposed deflecting-wing, substantially as described.

7. In a sawmill, the combination of a counter-shaft and a rosser-supporting member thereon, a lever, connections between said lever and said supporting member to turn the latter on said counter-shaft and thereby raise and lower the rosser, and a tension device connected to said lever and counterbalancing said supporting member, substantially as described.

8. In a rosser attachment for sawmills, a supporting-arm having a shield comprising a bottom plate secured on the supporting-arm, and having an extension at its front end, a runner pivotally connected at its front end to said extension and adjustably secured at its rear end to said bottom plate, and a cover detachably secured to said bottom plate, substantially as described.

9. In a sawmill, the combination with a counter-shaft, a supporting-arm pivoted thereon, said arm carrying a rosser, a pulley attached to the pivotal end of said arm, a hand-lever having a sheave or pulley at its pivotal end, and connections, substantially as set forth between said sheaves and pulleys, substantially as described.

10. A supporting-arm for a rosser, having bearing-heads at its inner side, in combination with a counter-shaft on which said bearing-heads are adapted to turn, one of said bearing-heads having a shoulder or offset 18, a sheave or wheel on said counter-shaft and secured to said shoulder or offset, a lever and connections between the latter and said sheave or wheel, substantially as described.

664,536. KNIFE-BLADE. ROBERT H. DICKINSON, Mount Hope, W. Va. Filed Apr. 17, 1900. Serial No. 13,266. (No model.)

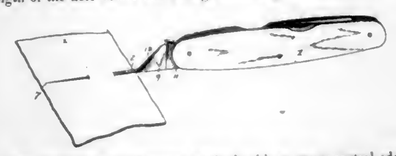
Claim.—1. A buttonhole-cutting blade, having a forward cutting edge, and a forwardly-projecting puncturing gage-point of a length in excess of the buttonhole to be cut.

2. A blade for the purposes set forth having an acicular body with scale-marks thereon and extending from a rear broadened support having a cutting edge in operative relation to said body.

3. A buttonhole-cutting blade, having a rear cutting portion and a forwardly-projecting puncturing gage-point of a length in excess of the buttonhole to be cut, the cutting portion having a cutting edge springing from the butt-end of the gage-point.

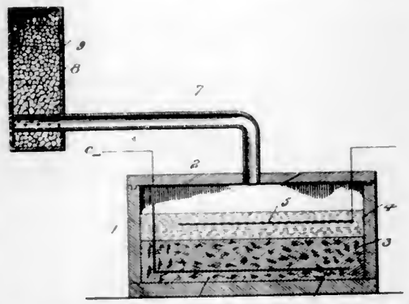
4. A blade for the purposes set forth having an acicular body with inwardly-beveled sides running to an edge and provided with a scale, and a rear cutting edge at an angle to and continuing into the said edge.

5. A buttonhole-cutting blade having a needle-like puncturing gage-point for threading into and out of material to be buttonholed, said point being of a length in excess of the proposed buttonhole, to determine the length of the hole before and during the cutting operation.



6. A blade for the purpose set forth with an upper central edge, the said blade being of acicular form and gradually enlarging from an outer point toward the inner termination thereof and having an inner cutting edge at an obtuse angle thereto and coinciding with the upper central edge set forth.

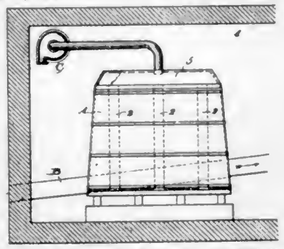
664,537. PROCESS OF EXTRACTING COPPER. JAMES DOUGLAS, New York, N. Y. Filed Sept. 22, 1900. Serial No. 30,785. (No specimens.)



Claim.—1. The process of reducing copper ore and matte, which consists in electrolyzing solid cuprous chlorid and employing the gases evolved in the treatment of copper ore and matte, substantially as described.

2. The process of reducing copper ore and matte, which consists in electrolyzing solid cuprous chlorid, employing the gases evolved in the treatment of copper ore and matte, employing the electrolyte resulting from the electrolyzing of the solid cuprous chlorid as a solvent for the cuprous chlorid so produced, and recovering the copper from the solution by electrolysis, substantially as specified.

664,538. APPARATUS FOR AGING WINES OR LIQUORS. ARTHUR B. C. DOWDELL, St. Helena, Cal. Filed Mar. 28, 1900. Serial No. 10,469. (No model.)



Claim.—1. An apparatus for aging wines including a tank having tubes extending through it, an exterior chamber inclosing said tank, means for heating the chamber, and an air-forcing mechanism connecting with the tubes whereby heated air is circulated through said tubes.

2. An apparatus for aging wines including a tank having tubes extending vertically through it, a chamber inclosing the tank, means for heating the chamber and means for inducing a circulation of hot air downwardly through the tubes.

3. An apparatus for aging wines including a tank, vertical tubes arranged therein and opening into spaces above and below the tank, a tight chamber inclosing the tank, means for heating the chamber, and means in the upper portion of the chamber for forcing the hot air downwardly through the tubes and inducing a circulation of air within the chamber.

4. An apparatus for aging wines including a tank, tubes vertically arranged in the tank, a chamber inclosing the tank, means for heating the chamber, and means for circulating the heated air within the chamber and forcing said air downwardly through the tubes.

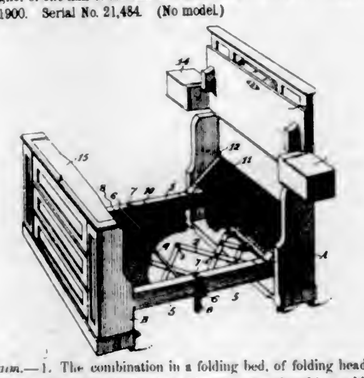
5. An apparatus for aging wines including a tank, a casing fitting the upper part of the tank, vertical tubes in said tank, the upper ends of said tubes opening into said chamber, a tight inclosure about the tank, means for heating the inclosure, and means connecting the inclosure with the casing on top of the tank and circulating the hot air of the inclosure through the tubes.

6. An apparatus for aging or ripening wines and the like consisting of a wooden tank with a vertical axis, tubes extending through said tank, a tight chamber in which the tank is supported with spaces at top and bottom for the circulation of air, means for heating the chamber and means for circulating the air within the room and downwardly through the tubes.

7. An apparatus for aging and ripening wines and the like, consisting of a wooden tank, tubes extending therethrough and disks or plates fitting and secured to the lower ends of the tubes and the tank-bottom and spanning the joints between the tubes and the holes in the bottom through which the tubes pass.

8. An apparatus for aging or ripening wines and the like consisting of a vertical wooden tank having vertical tubes exteoding from top to bottom, and means including flanged plates fitted to the ends of the tube for forming close joints with the tank-bottom, an exterior chamber within which the tank is contained, means for heating and means for circulating the air through the tank and within the chamber, and means for protecting the tubes against leakage when the wine is withdrawn from the tank, consisting of disks fitting over the bottoms of the tubes, and screw-rods extending upwardly, transverse bars at the tops, and nuts screwing upon the upper ends of the rods by which the closure-plates at the bottom are drawn tight whereby the tubes may be filled with liquid to prevent contraction.

664,539. FOLDING BED. DANIEL EISNER, San Francisco, Cal., assignor of one-half to Jaromir J. Justice, New York, N. Y. Filed June 25, 1900. Serial No. 21,484. (No model.)



Claim.—1. The combination in a folding bed, of folding head and foot sections said head-section having a hinged top board, and boxes hinged upon the side of the head-section and turnable inwardly over the top board or outwardly to release the same.

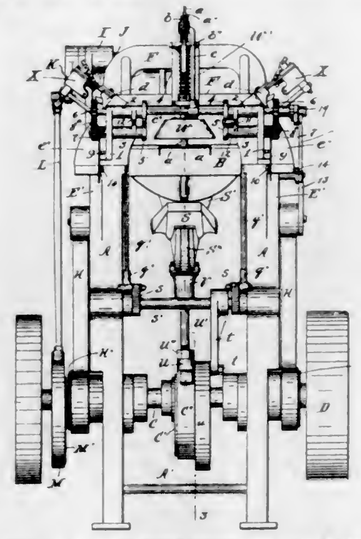
2. The combination of separable head and foot sections, and a folding connection between the same, a mattress, a head-rest having one end hinged, and connections between the opposite end of said head-rest and the head-section whereby the former may be adjusted to different inclinations.

3. The combination in a folding bed of head and foot portions united by crossed extensible levers, and movable to or from each other, said head-section having a series of holes, side rails hinged to said sections having central joints and supporting-legs, a mattress fixed upon said framework and a bolster or head-rest with spring-latches to engage said holes whereby its angle may be adjusted.

4. The combination in a folding bed of head and foot sections with jointed extensible and foldable connecting-bars, side rails pivoted to the sections having central joints and legs extending therefrom, a mattress extending from end to end forming the bed-bottom, a hinged adjustable bolster or head-support, a board hinged to the head-section adapted to fold down over the two sections when closed together, a latch by which the parts are locked in position and boxes hinged upon the side of the head portion and turnable inwardly over the top board or outwardly to release the same.

5. The combination in a folding bed of the head and foot portions with a lazy-tongs connection whereby they are extensible or closable toward each other, jointed pivoted side rails and a mattress carried thereon, a board hinged to the head portion and foldable so as to form a top when the device is closed together, and having a latch by which the foot portion of the structure is locked so as to resemble a bureau-front, boxes hinged to the sides of the head-section turnable in horizontal planes about the hinges, said boxes having angular notches adapted to engage corresponding notches in the board when the latter is turned upwardly about its hinges, and prevent its falling when the bed is extended.

664,540. MACHINE FOR MAKING DISHES OR TRAYS FROM VENEER-WOOD. CARL ENGBERG, St. Joseph, Mich., assignor to the American Mercantile Company, Dayton, Ohio. Filed Mar. 7, 1900. Serial No. 7,658. (No model.)



Claim.—1. In a dish-forming machine as a means for feeding the veneer, a standard rigidly attached to the rear of the machine, a rock-shaft carried thereby, an arm secured to the said rock-shaft, a slide feeding said veneer, a link connecting said arm and said slide, a second slotted arm secured to said rock-shaft, a shaft and means for operating the same and operative connections from said shaft to said second arm, and adjustable in the slot thereof, substantially as and for the purpose described.

2. In a dish-forming machine, as a means for feeding the veneer, a spring-controlled finger for gripping the veneer, a rock-shaft, an arm rigidly secured thereto, mechanism intermediate said arm and said finger, whereby said finger is caused to oscillate, a second arm rigidly secured to said rock-shaft, a slot in said second arm, a link pivoted in said slot, and means for operating said link, substantially as shown and described.

3. In a dish-forming machine the combination of a die in two parts, one part yieldingly supported in the machine-frame, an arm fulcrumed in the frame, and at its free end carrying the other part of the die, and means for operating said arm, substantially as and for the purpose described.

4. In a dish-forming machine, a female die yieldingly supported in the frame, a male die, an arm fulcrumed at one end to the frame and at the other end carrying said male die, a main driving-shaft, a cam mounted thereon, and mechanism whereby said cam causes said arm to oscillate, substantially as and for the purpose described.

5. In a dish-forming machine, the combination of a main driving-shaft, a cam mounted thereon, a curved arm fulcrumed at the rear of the machine, a male die carried at the forward end of said curved arm, a block pivoted to said curved arm, intermediate the fulcrum and the male die, and a rod adjustably connected to said block and to said cam, whereby said cam causes said curved arm to reciprocate, substantially as and for the purpose described.

6. In a dish-forming machine, a curved arm, a die carried at the forward end of said curved arm, sockets at each side of the rear ends of said curved arm, pins entering said sockets and acting as a fulcrum for said curved arm, a main driving-shaft, a cam mounted thereon, a block pivoted to said curved arm intermediate its two ends, and a rod adjustably connected to said cam and to said block, whereby said cam causes said curved arm to reciprocate, substantially as and for the purpose described.

7. In a dish-former, a female die yieldingly supported in the frame, a male die, an arm carrying said male die and fulcrumed at the rear, a block

pivoted intermediate said fulcrum and said male die, a cam mounted on a main driving-shaft, a strap on said cam, and a rod adjustable in length connecting said strap and said block, whereby said curved arm is caused to reciprocate, substantially as and for the purpose described.

8. In a dish-former, the combination of a pair of dies, of staple forming and driving mechanism, blocks yieldingly supported in one of said dies, and having openings to receive the ends of the staples, and anvils working in said openings and adapted to clench said staples as said blocks are depressed by the staple-driver, substantially as and for the purpose described.

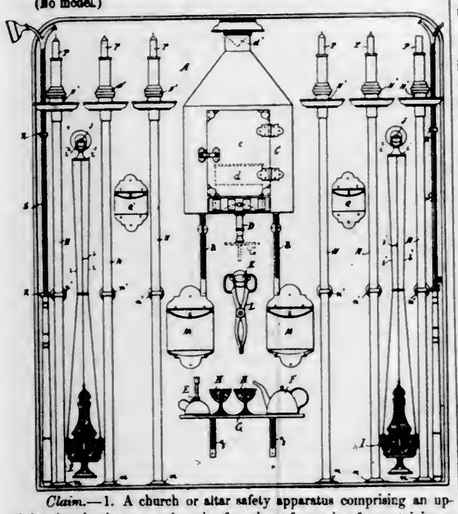
9. In a dish-former, the combination of a pair of dies, of staple forming and driving mechanism, blocks yieldingly supported in one of said dies, and having openings to receive the ends of the staples and anvils working in said openings, but fixed relative to the die, and adapted to clench said staples, as said blocks are depressed by the staple-driver, substantially as and for the purpose described.

10. A staple former and driver consisting of a rigidly-mounted shell, a face-plate beveled at its upper end, staple forming and driving slides, arranged to act conjointly to a certain point, a spring-controlled detent carried by said staple-driving slide, and engaging said staple-forming slide up to said predetermined point, extending lugs on said detent adapted to strike the beveled ends of said face-plate, whereby the conjoint action of the slides is discontinued, a spring-controlled staple-retaining block, and mechanism whereby said staple-driving slide is caused to reciprocate, substantially as and for the purpose described.

11. A staple forming and driving mechanism consisting of a rigidly-mounted shell, a face-plate, bifurcated at its upper end, and having said upper ends beveled, staple forming and driving slides arranged to act conjointly to a certain point, a spring-controlled detent carried by said staple-driving slide, and engaging said staple-forming slide up to said predetermined point, extending lugs on said detent adapted to strike the beveled ends of said face-plate, whereby the conjoint action of the slide is discontinued, a spring-controlled staple-retaining block, a roller mounted on said staple-driving slide, whereby said staple-retaining block is caused to release the staple, and mechanism operating said staple-driving slide, substantially as and for the purpose described.

12. A wire-feeding mechanism, consisting of a shaft with means for intermittently turning the same, a disk mounted thereon, a second shaft eccentrically and loosely mounted in a roller, a second disk mounted on said second shaft, gearing intermediate the two shafts whereby they are caused to revolve toward each other, and a coil-spring around said roller, having one end attached to said roller and the other end bearing against the frame supporting said roller, whereby said second disk is pressed against said first disk, substantially as and for the purpose described.

664,541. CHURCH OR ALTAR SAFETY APPARATUS. DANIEL G. FINNERTY, Boston, Mass. Filed Sept. 21, 1899. Serial No. 731,239. (No model.)

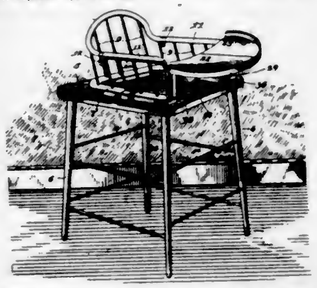


Claim.—1. A church or altar safety apparatus comprising an upright plate having secured to the face thereof a casing for containing a charcoal-burner, and means for supplying a flame to the charcoal, said plate having a forwardly-projecting integral footpiece, substantially as set forth.

2. A church or altar safety apparatus comprising an upright plate having brackets and a shelf secured to the face thereof, a fireproof casing mounted on said shelf, a charcoal-burner within the casing, and means for supplying a flame to the charcoal, said plate having a forwardly-projecting integral footpiece, substantially as set forth.

3. A church or altar safety apparatus comprising an upright plate having secured to the face thereof a casing for containing a charcoal-burner, means for igniting the charcoal, and supports attached to the plate for holding utensils or appliances in convenient locations adjacent to the burner-casing, but at safe distances therefrom, whereby inflammable substances carried by said utensils and appliances may not become ignited accidentally, said plate having a forwardly-projecting integral footpiece.

664,542. PLAYING-BOARD AND GUARD FOR INFANTS' CHAIRS. EDWARD FIRNHABER, Worms, Nebr., assignor of one-half to William Landgraf, Majors, Nebr. Original application filed Jan. 6, 1900, Serial No. 574. Divided and this application filed June 23, 1900. Serial No. 21,323. (No model.)



Claim.—1. The combination with a chair-seat of arms connected with the seat, a playing-board comprising separable sections pivotally connected with the arms, and a guard connected to the playing-board and adapted to rest upon the chair-seat when the latter is in its operative position.

2. The combination with a chair-seat having arms, of a playing-board comprising separable sections pivotally connected with the chair-arms, and a guard comprising sections each connected to a section of the playing-board and disposed to rest upon the chair-seat and support the playing-board when the latter is in its operative position.

3. The combination with a chair, of supporting-arms pivotally connected therewith, a playing-board comprising separable sections, each of which is slidably connected with a supporting-arm, and a guard comprising sections, each of which is connected to a section of the playing-board and adapted to rest upon the chair and support the playing-board when the latter is in its operative position.

4. The combination with a chair and supports pivotally connected therewith, of a playing-board comprising separable sections each of which is slidably connected with a support, and means for holding the sections in coöperative relation with respect to each other and the chair, whereby the playing-board may be moved slidably without disassembling or pivotally by disassembling, to permit placing and removal of an infant.

5. A playing-board adapted for connection to a chair, and a chair-guard connected with and sustained by the board and extending therebelow at both sides of the board to prevent egress from the chair below the board.

6. The combination with a chair of a playing-board pivoted thereto, a guard connected with the board and movable therewith, said guard being disposed to lie at times upon the adjacent portion of the chair and support the board.

7. The combination with a chair, of a playing-board comprising sections independently pivoted to the chair, a guard comprising sections connected with their respective sections of the playing-board and disposed to rest upon the chair-seat and support the playing-board, said guard-sections being movable with the playing-board sections into and out of operative relation.

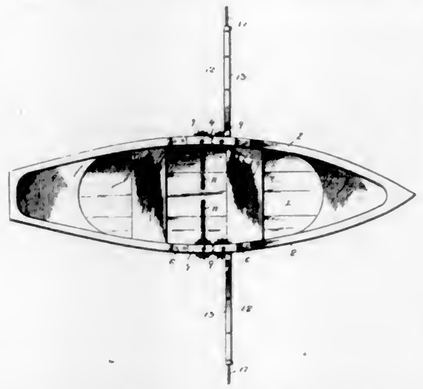
8. The combination with a chair, of a playing-board comprising sections pivotally and slidably mounted with respect to the chair, a guard including sections corresponding to and connected with their respective sections of the playing-board, said guard-sections being movable with the playing-board sections and adapted to rest upon the chair and support the playing-board when the sections thereof are in coöperative position.

9. A playing-board adapted for movable connection with a chair, a chair-guard connected to and movable with and adapted to support the playing-board when the board is in its operative position, and means carried by the guard for engagement with a chair to hold the playing-board against movement.

10. A playing-board adapted for movable connection with a chair, a chair-guard adapted to support the playing-board when said board is in its operative position, and means carried by the guard for holding the playing-board against movement.

11. A playing-board adapted for connection with a chair, said board comprising independently-movable sections, and a chair-guard comprising sections attached to and movable with the playing-board sections into and out of engagement with the chair, the guard-sections being disposed to lie at times upon the chair-seat to support the playing-board when the parts thereof are in cooperative position.

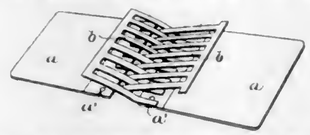
664,543. BOAT-PROPELLING MECHANISM. JOHANN H. D. GERKEN, New York, N. Y. Filed Aug. 3, 1900. Serial No. 25,834. (No model.)



Claim.—1. The combination with a boat; of a bracket secured thereto and comprising parallel portions, bolts passing through said portions and adapted to secure the bracket in position, meshing gears upon the bolts, sleeves to the gears adapted to prevent the vertical movement thereof, a lever secured to one of the gears, an arm secured to the remaining gear and comprising parallel strips, blocks secured therebetween, a blade, an ear thereto pivoted between the strips, and means upon one of the strips for limiting the movement of the ears.

2. A propelling mechanism for boats comprising a bracket, feet extending therefrom, bolts passing through the bracket, meshing gears upon the bolts, sleeves upon the gears adapted to prevent vertical movement thereof, a lever secured to one of the gears upon the bolts, parallel strips secured to the remaining gear, blocks between the strips, a blade, an ear thereto pivoted between the strips, and a tongue upon one of the strips for limiting the movement of the ear.

664,544. SEPARABLE BOOK. FRANKLIN H. GILSON, Wellesley, Mass., assignor to the F. H. Gilson Company, Boston, Mass. Filed Feb. 15, 1897. Renewed Apr. 14, 1898. Serial No. 677,625. (No model.)



Claim.—1. A book or album cover comprising two lids, and an adjustable back composed of two sections, one attached to each lid, said sections having alternating strips or tongues separated by spaces, the tongues of each section being adapted to slide in the spaces of the other.

2. A leaf for a book or album, having in its top and bottom edges near its inner end, slots to receive an encircling fastening band or cord, each slot having a flaring mouth or entrance, a narrow neck adapted to prevent the escape of the cord when loose, and a wide rear portion to receive the band or cord.

3. A book or album leaf, comparatively thick and unyielding at its inner end and having slots in the top and bottom edges of its inner end, said slots each having a flaring mouth, a constricted neck, and an enlarged inner portion, whereby when a cord or band is forced through said neck into the inner portion it is constricted by the unyielding walls thereof and prevented from slipping laterally out of the inner portion when loose.

4. A book or album comprising two lids, a series of leaves interposed therebetween, said lids and leaves having slots formed in their top and bottom edges near their inner ends, said slots each having a flaring mouth, a contracted neck, and an enlarged inner portion, and a compressible band or cord encircling the inner ends of said lids and leaves and lying in the inner portions of said slots, the said constricted neck retaining the cord in the enlarged inner portion of the slot when the cord is loose.

664,545. STAIR ROD AND SECURER. WILLIAM B. GOULD, Newark, N. J. Filed Jan. 10, 1900. Serial No. 921. (No model.)



Claim.—A stair-rod structure comprising two plates *a* with attaching means and laterally-projecting tubular sockets *e* and *f* adapted to receive a rod, a movable partition carried by and crossing one of the tubes, a spring *g* located in the said tube and bearing against the movable partition, means for retaining the partition in the tube and a rod adapted to enter both tubes and to receive the thrust of the spring.

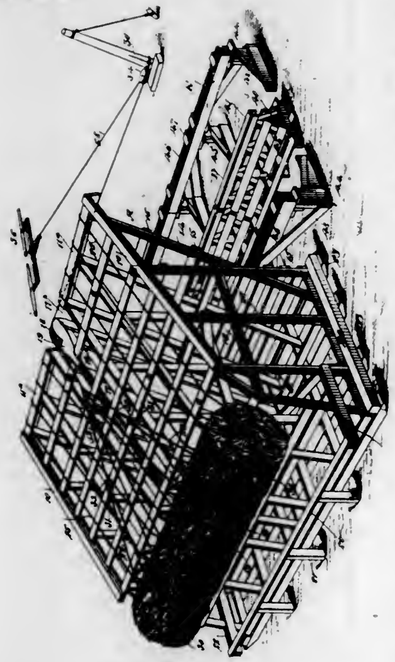
664,546. DEVICE FOR STACKING LOOSE HAY OR STRAW. ROBERT GRISWOLD, Grover, Colo. Filed Mar. 20, 1900. Serial No. 9,387. (No model.)

Claim.—1. In a device for stacking hay and the like, a directing-platform, a guide-pulley at the rear of the directing-platform, the platform having a space at each side of said pulley, guide-ropes attached to the platform at the rear and arranged to extend across the same and down to the front, a hoist-rope arranged to pass over the pulley, strands of varying lengths attached to the forward end of the hoist-rope, and a guide for the hoist-rope independent of the platform.

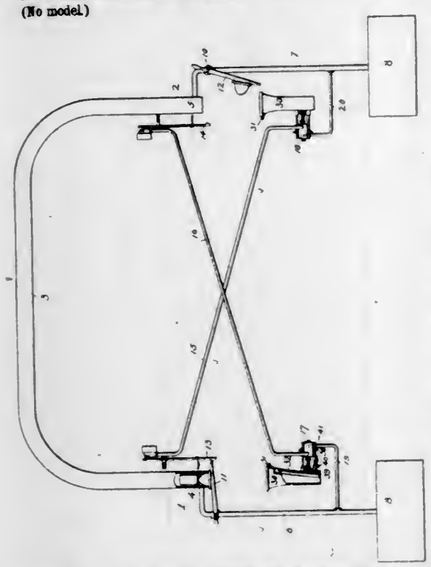
2. In a device for stacking hay and the like, a directing-platform having an inclined upper surface, a guide-pulley located at the central portion of the higher part of the platform, a space being provided at each side of the pulley, a guard for the pulley, sloping in direction of the said spaces, guide-ropes extending from the higher to the lower portion of the directing-platform, a hoist-rope arranged for engagement with the said pulley, means for exerting tension on the hoist-rope and guiding the same independent of the guide-pulley, a sling, and means for connecting the sling with the hoist and guide ropes.

3. In a device for stacking hay and the like, a directing-platform having an inclined upper face, the inclination being from the rear in direction of the front, said platform likewise having a space provided at its upper rear portion, a guide-pulley located in said space, a guard for the pulley inclined in direction of the space, a hoist-rope arranged for engagement with the pulley, provided with strands of varying lengths, guide-ropes extending from the upper to the lower portion of the platform, and a sling having the members at one of its ends varying in length, which ends are adapted for connection with the strands of the hoist-rope, the other ends of said members being adapted for attachment to the guide-ropes, as specified.

664,546.



664,547. PNEUMATIC-DESPATCH-CARRIER SYSTEM. JAMES M. HECTOR, Pittsburg, Pa. Filed Apr. 10, 1900. Serial No. 12,332. (No model.)



Claim.—1. In a pneumatic-despatch-carrier system, the combination with a source of air-pressure, of a transmitting-tube in connection therewith and connecting two stations, a controlling-valve at one station, a releasing mechanism at the other station, a branch pipe connecting said controlling-valve with the releasing mechanism, a connection between the source of pressure and the valve independent of the branch pipe, a movable member operatively connected with the controlling-valve and arranged in the path of the incoming carrier, and a fixed device in proximity to said movable member and serving to prolong the engagement of the carrier with the movable member.

2. In a pneumatic-despatch carrier the combination of two stations, a transmitting-pipe connecting them, receiving-chambers at said stations, gates for closing the same, releasing mechanisms for the gates, a source of air-pressure connected with the receiving-chambers, branch pipes extending from each station to the releasing mechanism of the other station, valves controlling the admission of pressure to said branch pipes, direct connections between the source of pressure and the controlling-valves independent of the branch pipes, receiving-casings for the carriers independent of the transmitting-tubes, movable members in said receiving-casings, and means for maintaining the engagement of the carriers with said movable members to prolong the opening of the valves.

3. In a pneumatic-despatch carrier the combination with a valve for controlling mechanism at the next station, of the movable member operatively connected with the valve, and extending obliquely of the path of the incoming carrier in the general direction of the same, and movable at right angles thereto to open the valve.

4. In a pneumatic-despatch carrier the combination with the valve for controlling mechanism at the next station, of a cylindrical casing in which the incoming carrier is received, a movable member mounted in said casing in the path of the incoming carrier, and a connection between the valve and the movable member.

5. In a pneumatic-despatch carrier the combination with the valve-casing, of a source of pressure connected thereto, a branch pipe also connected with the casing and leading to the next station, a movable valve in the casing adapted to control communication between the pressure and the branch pipe, a stem connected with the valve, a cylindrical receiving-casing in which the incoming carrier is received, and a longitudinal lever pivoted in the casing near its upper end and extending obliquely therein in the path of the carrier, said lever being movable transversely of the casing in position to engage the valve-stem.

6. In a pneumatic-despatch-carrier system the combination with a receiving-casing, of a transversely-movable member extending longitudinally thereof and adapted to be engaged by the incoming carrier, a controlling-valve and a communication between said member and the valve.

7. In a pneumatic-despatch-carrier system the combination of the receiving-casing, a member therein movable transversely by the passage of the carrier through the casing, a valve-casing, a valve in said casing operatively connected with the movable member and means for adjusting the valve-casing bodily in the direction of the movement of the member.

8. In a pneumatic-despatch-carrier system the combination with the receiving-casing, of a longitudinal member therein movable transversely, a valve-casing sustained by the receiving-casing and adjustable in the direction of movement of said member, a movable valve in the valve-casing, and connections between the longitudinal member and said valve.

9. In a pneumatic-despatch-carrier system the combination with the transmitting-tube of a receiving-casing disconnected therefrom and independent thereof, a longitudinal lever pivoted at its upper end to the receiving-casing and movable transversely therein and extending obliquely in the path of the carrier, and a valve adapted to be operated by the movement of said lever.

10. In a pneumatic-despatch-carrier system the combination of a transmitting-tube, a receiving-casing independent thereof in position to receive the incoming carrier, and a valve adapted to be operated by the passage of the carrier through the casing.

11. In a pneumatic-despatch-carrier system the combination with the receiving-casing of a movable member therein adapted to be engaged by the incoming carrier, a valve in position to be operated by the movement of said member, and means for adjusting the position of the member with respect to the casing; whereby the wear of the carrier may be compensated for by the adjustment of said member.

664,548. CUT-OFF FOR DOWN-SPOUTS. GEORGE A. HIGGINS, Galesburg, Ill. Filed June 5, 1900. Serial No. 19,165. (No model.)

Claim.—1. A cut-off for down-spouts, comprising a frame, having an opening in the upper side thereof, a down-spout-pipe section projecting in opposite directions through the opening, the lower side of the frame having a pair of openings, which are arranged equally at opposite sides of the longitudinal axis of the down-spout-pipe section and designed to communicate with a pair of discharge-pipes, a coupling-pipe, which has its upper end telescopically mounted upon and also swiveled to the inner end of the down-spout-pipe section, the opposite lower end of the pipe being adjustable from one to the other of the discharge-openings in the lower side of the frame, and an adjustable closure slidably mounted upon the lower side of the frame, adjustable from one to the other of the discharge-openings, and also entirely independent of the coupling-pipe.

2. In a device of the class described, the combination with a down-spout, and a plurality of discharge-pipes, which are located longitudinally opposite the down-spout, of an intermediate coupling-pipe, which is adjustable to connect the down-spout with the respective discharge-pipes, and a closure, which is adjustable from one to the other of the discharge-pipes, mounted independently of the coupling-pipe, and closing only one discharge-pipe at a time, the other discharge-pipe being connected to the coupling-pipe.

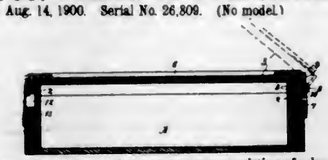


3. In a device of the class described, the combination with a down-spout, and a plurality of discharge-pipes, which are disposed longitudinally opposite the down-spout, of an intermediate connecting-frame therefor, an intermediate coupling-pipe, which is telescopically mounted upon the down-spout, and also adjustable to fit the respective discharge-pipes, and a closure, which is slidable upon the frame between the coupling and the discharge-pipes, and arranged to close the latter.

4. In a device of the class described, the combination with a down-spout, and a plurality of discharge-pipes located longitudinally opposite the down-spout, of a connecting-frame therefor, having corresponding openings for the down-spout and the discharge-pipes, an intermediate coupling-pipe, which has one end telescopically connected to and also swiveled upon the down-spout, and its opposite end arranged for adjustable connection with the respective discharge-pipes, and a slidable closure mounted upon the side of the frame having the openings for the discharge-pipes and movable between the latter and the adjacent end of the coupling, when the latter is adjusted away from the discharge-pipes.

5. In a device of the class described, the combination with a down-spout, and a pair of discharge-pipes located longitudinally opposite and also equally at opposite sides of the longitudinal axis of the down-spout, of a connecting-frame, the upper end thereof having a centrally-located opening for the reception of the lower end of the down-spout, and the base of the frame having a pair of openings corresponding with the discharge-pipes, an intermediate coupling-pipe, comprising opposite end sections, which are laterally offset, and a transversely-inclined intermediate section connecting the inner ends of the end sections, the upper end section telescopically receiving the lower end of the down-spout and also rotatable thereon, the lower end section being tapered to fit within the respective discharge-pipe openings, and a slidable closure-plate, having opposite flanges embracing the opposite longitudinal edges of the base of the frame, said plate being slidable longitudinally of the base to close either of the discharge-pipe openings.

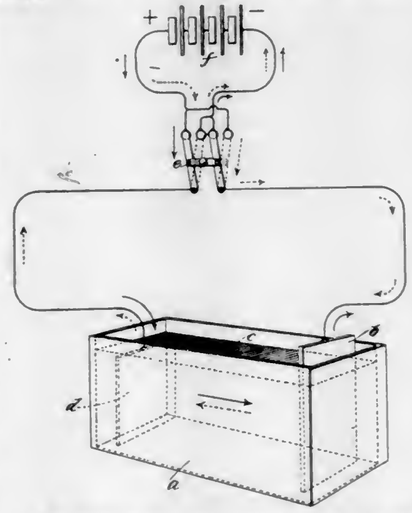
664,549. BUTTER-BOX. JOHN K. C. HOBBS, San Francisco, Cal. Filed Aug. 14, 1900. Serial No. 26,809. (No model.)



Claim.—An improved butter-receptacle consisting of a box, a cover therefor having a rim around its periphery and projecting downwardly said rim and the upper edge of the box formed with a rib-and-groove joint, hinge-plates secured to the top of the cover and bent downwardly over the said rim and other hinge-plates on the box and loosely connected with the first-named plates in the plane of the outer sides of the box, said box having a longitudinal groove in its front and a vertical groove or slot leading therefrom, and said cover having a strap depending from its front edge and bent inwardly and adapted to enter said slot so that its bent end rests upon the bottom of the longitudinal groove, a bolt slidable in the latter groove and adapted to engage said bent end and lock the cover, and means for retaining the bolt in its groove.

664,550. ELECTROLYTIC TREATMENT OF IRON FOR PRESERVATION THEREOF. HENRY L. HOLLIS, Chicago, Ill. Filed Feb. 20, 1899. Renewed May 16, 1900. Serial No. 16,917. (No specimens.)

Claim.—1. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in temporarily inserting the object to be treated in a solution of caustic soda as an electrolyte, temporarily connecting said object as a cathode with a source of electricity, passing an electric current from said source through the electrolyte and iron object to remove foreign material from the object, thereafter temporarily connecting said object as an anode with a source of electricity, passing an electric current from said source through the iron object and electrolyte, whereby oxidizing conditions are furnished at the surface of the iron object and oxygen will there be united with the iron to form the protective coating, and thereupon discontinuing the flow of current through the iron object, substantially as described.



2. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in temporarily inserting the object to be treated in a solution of caustic alkali as an electrolyte, temporarily connecting the said object as a cathode with a source of electricity, passing an electric current from said source through the electrolyte and iron object to remove foreign material from the object, thereafter temporarily connecting said object as an anode with a source of electricity, passing an electric current from said source through the iron object and electrolyte, whereby oxidizing conditions are furnished at the surface of the iron object and oxygen will there be united with the iron to form the protective coating, and thereupon discontinuing the flow of current through the iron object, substantially as described.

3. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in temporarily inserting the object to be treated in a suitable oxidizing and cleaning reagent as an electrolyte, temporarily connecting the said object as a cathode with a source of electricity, passing an electric current from said source through the electrolyte and iron object to remove foreign material from the object, thereafter connecting said object as an anode with a source of electricity, passing an electric current from said source through the iron object and electrolyte, whereby oxidizing conditions are furnished at the surface of the iron object thereby causing oxygen to unite with the iron to form the protective coating, thereupon discontinuing the flow of current through the iron object, and removing said object from the bath, substantially as described.

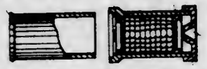
4. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in subjecting the object to be treated to a suitable oxidizing and cleaning reagent, at the same time passing a current of electricity through said reagent and object to remove foreign material therefrom, thereafter passing a current of electricity through said object and reagent in a reverse direction to furnish oxidizing conditions at the surface of the object and cause the union of oxygen with the iron to change the surface portions of the iron object to a protective coating of iron oxid, thereupon discontinuing the flow of current through the iron object, and removing said object from the bath, substantially as described.

5. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in subjecting the object to be treated to a suitable oxidizing and

cleaning reagent, at the same time passing a current of electricity through said reagent and object to remove foreign material from the object, thereafter continuing the flow of current to furnish oxidizing conditions at the surface of the iron object and cause the union of oxygen with the iron to change the surface portions of the iron object to a protective coating of iron oxid, thereupon discontinuing the flow of current through the iron object, and removing said object from the bath, substantially as described.

6. The method of electrolytically treating iron objects to change the surface portions of the iron to protective coatings of iron oxid, which consists in subjecting the object to be treated to a suitable oxidizing and cleaning reagent, at the same time passing a current of electricity through said reagent and object to remove foreign material therefrom, thereafter passing a current of electricity through said object and reagent in a reverse direction to furnish oxidizing conditions at the surface of the object and cause the union of oxygen with the iron to change the surface portions of the iron object to a protective coating of iron oxid, thereupon discontinuing the flow of current through the iron object, and removing said object from the bath, and subjecting the object to an annealing temperature, substantially as described.

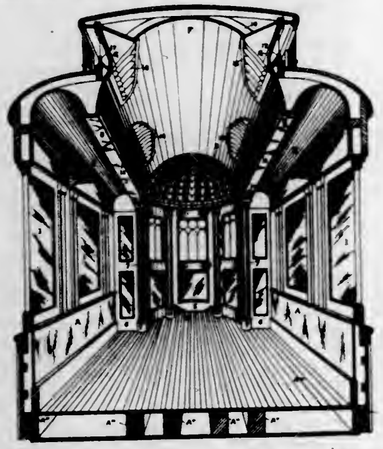
664,551. SLIVER-CAN. HEINRICH HONEGGER, Duisburg, Germany. Filed May 29, 1900. Serial No. 18,456. (No model.)



Claim.—1. A can for the reception of slivers during the bleaching and dyeing processes, comprising a body, a perforated cover of a size and shape to enter the top of the can and rest on the contained slivers, a perforated false bottom, and a true bottom provided with a perforated, inwardly-projecting seat, substantially as described.

2. A can for the reception of slivers during the bleaching and dyeing processes, comprising two sections, one adapted to rest upon and form a vertical continuation of the other, the upper section being provided with a perforated cover of a size and shape to enter it at the top and rest on the contained slivers, and the lower section having a perforated false bottom, and a true bottom with an inwardly-projecting perforated seat, substantially as described.

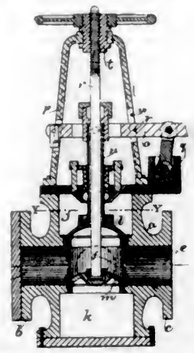
664,552. CONSTRUCTION OF RAILWAY-CARS. JAMES H. HORNE, Dayton, Ohio, assignor to the Barney & Smith Car Company, same place. Filed Sept. 13, 1900. Serial No. 29,878. (No model.)



Claim.—In a railway passenger-car having a plurality of rooms, the combination of an upper deck or clear-story, a ceiling below the same substantially semicircular in its cross-section and having spherically-formed ends and a vertical partition corresponding in shape to said spherically-formed ends of said ceiling and forming a continuation of same to the floor of the car, substantially as shown and described.

664,553. EXHAUST-VALVE FOR STEAM-ENGINES. EDWARD F. HUGHES, Boston, Mass. Filed Jan. 15, 1900. Serial No. 1,511. (No model.)

Claim.—1. In an exhaust-valve, the combination with an integral body having a fluid inlet or inlets connecting with two distinct discharge-passages, of a valve normally positioned by the fluid-pressure on its opposite sides to control one passage, and a vave positioned independently of the impressing fluids to govern the other passage, substantially as described.



2. In an exhaust-valve, an inlet-chamber having connections with several passages, combined with valves operated only by hand for some of the passages, and valves adapted to be opened by abnormal pressure of the fluid in the chamber, for other passages, substantially as described.

3. In an exhaust-valve, a passage provided with a valve and connected devices to govern it by hand, combined with a passage furnished with a valve normally closed by air-pressure, having means for retarding its motion, that is arranged to be opened by unusual pressure of a fluid in an inlet-chamber contiguous to both valves, substantially as described.

4. In an exhaust-valve, a chamber having suitable inlets; a valve, with a threaded stem and adapted to be positioned by a nut which is restrained in a yoke attached to the fitting, for governing a passage from the chamber; and a valve, having a pivoted hand-lever attached to its stem and connections with a dash-pot, arranged to open from the chamber into a separate passage, automatically upon excessive pressure in the chamber but also subject to control by the connections with the hand-lever, substantially as described.

5. In an exhaust-valve, a single structure having a stop-valve to govern one passage leading from the inlet-chamber, combined with an independent relief-valve to control another passage leading from the chamber, the latter valve being connected with a hand-lever having attached thereto a retarding device and having means for locking the said valve away from its seat, substantially as described.

6. In an exhaust-valve, the combination in a single structure having means for admitting a fluid, of valves for its outlets, the controlling-rod of one valve being arranged within the stem of the other, and one of the valves having connections with a retarding device, substantially as described.

7. In an exhaust-valve, a valve and connected devices for moving it by hand to govern a passage, combined with a valve having means for retarding its motion and normally actuated by the atmosphere to close a second passage, but that is arranged to be opened by unusual pressure of a fluid in an inlet-chamber contiguous to both valves, substantially as described.

8. In an exhaust-valve, a body having a chamber, provided with suitable inlets; a valve, with its stem threaded in a nut which is axially restrained in a yoke attached to the fitting, but free to be revolved by any suitable means, so the valve may govern a passage from the chamber; and a valve, having a controlling hand-lever attached to its stem and connections with a retarding device, arranged to open from the chamber into a separate passage, automatically upon excessive pressure in the chamber but also subject to control by the attached hand-lever, substantially as described.

664,554. REGULATING-SOCKET FOR MULTIFILAMENT INCANDESCENT ELECTRIC LAMPS. CHARLES A. HUSSEY, New York, N. Y., assignor to William P. Pinckard, Birmingham, Ala. Filed Aug. 29, 1900. Serial No. 28,421. (No model.)

Claim.—1. The combination, with a two-filament lamp, having contact-pieces, one of which is common to the two filaments and the others of which are connected to a single filament only, of a socket having contact-pieces corresponding to the lamp contact-pieces, and having also two line-terminals, to one of which one of the single-filament contact-pieces is connected through its corresponding socket contact-piece, two switch contact-pieces in the socket electrically connected each to one of the other socket contact-pieces, and a movable commutator, adapted to make contact with other contact-pieces on a movable commutator, a commutator, having two contact-pieces, electrically connected to the other line-terminal, corresponding to said switch contact-pieces, and adapted to make contact with their corresponding switch contact-pieces in different positions of the commutator, and a third contact-piece on said commutator, electrically connected to the first-mentioned line-terminal, and adapted to make contact with the single-filament switch contact-piece in a third position of the commutator in which the two-filament switch contact-piece is electrically connected with the second line-terminal, whereby the filaments may be connected to the line in series, singly, or in multiple.



2. The combination, with a two-filament lamp, having contact-pieces, one of which is common to the two filaments and the others of which are connected to a single filament only, of a socket having contact-pieces corresponding to the lamp contact-pieces, and having also two line-terminals, to one of which one of the single-filament contact-pieces is connected through its corresponding socket contact-piece, two switch contact-pieces in the socket electrically connected each to one of the other socket contact-pieces, and a revoluble four-sided commutator, formed of insulating material, but having contact-pieces suitably disposed upon its surface and adapted to make contact with such switch contact-pieces, and having also suitable conductors, connected to its contact-pieces, whereby, by the rotation of the commutator, said filaments may be connected to the line in series, singly, or in multiple, through the said commutator and the two switch contact-pieces.

3. The combination, with a two-filament lamp, having contact-pieces, one of which is common to the two filaments and the others of which are connected each to a single filament only, of a socket having contact-pieces corresponding to the lamp contact-pieces, and having also two line-terminals to one of which one of the single-filament contact-pieces is connected through its corresponding socket contact-piece, switch contact-pieces in the socket electrically connected to the other socket contact-pieces, and adapted to make contact with other contact-pieces on a movable commutator, a commutator, having two contact-pieces, electrically connected to the other line-terminal, corresponding to said switch contact-pieces, and adapted to make contact with their corresponding switch contact-pieces in different positions of the commutator, and a third contact-piece on said commutator, electrically connected to the first-mentioned line-terminal, and adapted to make contact with the single-filament switch contact-piece in a third position of the commutator in which the two-filament switch contact-piece is electrically connected with the second line-terminal, whereby the filaments may be connected to the line in series, singly, or in multiple.

4. The combination, with a two-filament lamp, having contact-pieces, one of which is common to the two filaments and the others of which are connected to a single filament only, of a socket having contact-pieces corresponding to the lamp contact-pieces, and having also two line-terminals, to one of which one of the single-filament contact-pieces is connected through its corresponding socket contact-piece, switch contact-pieces in the socket electrically connected to the other socket contact-pieces, and adapted to make contact with other contact-pieces on a movable commutator, and a revoluble four-sided commutator, formed of insulating material, one side of said commutator being blank, another side having a contact-piece electrically connected to the other line-terminal and adapted to make contact with the single-filament switch contact-piece, a third side having a contact-piece likewise connected to the last-mentioned line-terminal, and adapted to make contact with the two-filament switch contact-piece, and the fourth side having a contact-piece connected and disposed in the same manner as the contact-piece of the third side, and having also a contact-piece adapted to make contact with the single-filament switch contact-piece, and electrically connected to the first-mentioned line-terminal.

5. The combination, with a two-filament lamp having contact-pieces to which its filaments are electrically connected, one end of each filament being connected to a contact-piece which is insulated from the corresponding end of the other filament, of a socket having contact-pieces corresponding to the lamp contact-pieces, and having also line-terminals, one of said socket contact-pieces being electrically connected to a line-terminal, and two switch contact-pieces one of which is connected to a single filament through the socket and the other is connected to both filaments through the socket, and a movable commutator, adapted to coact with such switch contact-pieces, and having contact-pieces and conductors whereby, by the operation of the commutator, said filaments may be connected to the line in series, singly, or in multiple, through the said commutator and the said two switch contact-pieces.

6. In a switch for connecting two branch circuits in series, singly, or in multiple with a line-circuit, the combination, with means of connecting one of said branch circuits normally with one side of the line-circuit, and two switch contact-pieces, one adapted to be connected with each of said branch circuits, and the other adapted to be connected to that branch circuit which is not normally connected to the line, of a movable commutator, adapted to make contact with each of said switch contact-pieces, and having contact-pieces and conductors, connected to the line-terminals, whereby, by the operation of the commutator, said branch circuits may be connected to the line in series, singly, or in multiple, through the said commutator and the said two switch contact-pieces.

7. In a switch for connecting two branch circuits in series, singly, or in multiple, with a line-circuit, the combination, with means for connecting one of said branch circuits normally with one side of the line-circuit, and two switch contact-pieces, one adapted to be connected with each of said branch circuits and the other adapted to be connected to that branch circuit which is not normally connected to the line, of a revoluble four-sided commutator, formed of insulating material, but having contact-pieces suitably disposed on its surface and adapted to make contact with said switch contact-pieces, and having also suitable conductors, connected to its contact-pieces and to line-terminals, whereby, by the rotation of the commutator, said branch circuits may be connected to the line in series, singly, or in multiple, through the said commutator, and the said two switch contact-pieces.

8. In a switch for connecting two branch circuits in series, singly, or in multiple with a line-circuit, the combination, with means for connecting one of said branch circuits normally with one side of the line-circuit, and two switch contact-pieces, one adapted to be connected to each of said branch circuits, and the other adapted to be connected to that branch circuit which is not normally connected to the line, of a commutator having two contact-pieces electrically connected to a terminal for the opposite side of the line to that to which one branch circuit is normally connected, corresponding to said switch contact-pieces, and adapted to make contact with their corresponding switch contact-pieces in different positions of the commutator, and a third contact-piece on the commutator corresponding to that switch contact-piece which is connected to but one branch circuit, and connected to a terminal for the same side of the line-circuit as that to which one branch circuit is normally connected, and adapted to make contact with its corresponding switch contact-piece in a third position of the commutator in which the two-circuit contact-piece is in contact with its commutator contact-piece, whereby by the operation of the commutator the branch circuits may be connected with the line in series, singly, or in multiple.

9. In a switch for connecting two branch circuits in series, singly, or in multiple with a line-circuit, the combination, with means for connecting one of said branch circuits normally with one side of the line-circuit, and two switch contact-pieces, one adapted to be connected to each of the branch circuits, and the other adapted to be connected to that branch circuit which is not normally connected to the line, of a revoluble four-sided commutator, formed of insulating material, one side of said commutator being blank, another side having a contact-piece electrically connected to a line-terminal for the side of the line-circuit opposite to that to which one branch circuit is normally connected, a third side having a contact-piece likewise connected to the last-mentioned side of the line-circuit, and adapted to make contact with the two-circuit switch contact-piece, and the fourth side having a contact-piece connected and disposed in the same manner as the contact-piece on the third side, and having also a contact-piece adapted to make contact with the single-circuit switch contact-piece, and electrically connected to a line-terminal for that side of the line-circuit to which one branch circuit is normally connected.

664,555. APPARATUS FOR SECURING BARRELS WHEN STEAMING. FRANK E. JEWETT, Lowell, Mass. Filed Aug. 7, 1899. Renewed May 31, 1900. Serial No. 18,659. (No model.)



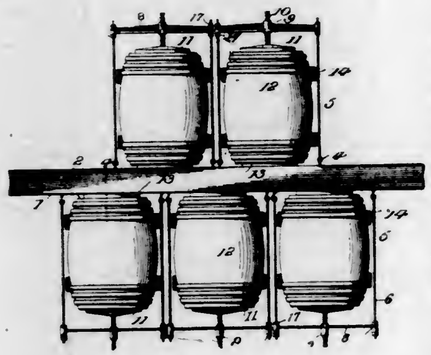
Claim.—1. A device of the character set forth, comprising upper and lower spiders, tie-rods connecting the spiders, one of the tie-rods be-

ing movable to admit of the receptacle being placed in position and removed from the device, a follower and means for bringing the follower into forceful engagement with a head of the barrel or receptacle, as and for the purpose set forth.

2. In a device of the character set forth, upper and lower spiders, tie-rods connecting the spiders, one of the tie-rods having pivotal connection with one of the spiders and detachably connected with the other spider, a follower, and a screw having swivel connection with the follower and threaded connection with the upper spider, substantially as and for the purpose set forth.

3. The herein-described device for the purposes set forth, comprising upper and lower spiders having corresponding sleeves at the outer ends of their arms, one corresponding sleeve of each spider being slotted, tie-rods having their lower ends headed to support the lower spider and having their upper ends threaded, a pair of nuts applied to the threaded end of each tie-rod, one of the tie-rods having pivotal connection with the lowermost slotted sleeve and having detachable connection at its threaded end with the upper slotted sleeve, a rest applied to the lower spider, a follower, a screw having threaded connection with the upper spider and supporting the follower, and means for turning the screw to bring the follower in engagement with the head of the receptacle, as and for the purpose set forth.

664,556. APPARATUS FOR SECURING BARRELS WHEN STEAMING. FRANK E. JEWETT, Lowell, Mass. Filed Aug. 7, 1899. Renewed May 31, 1900. Serial No. 18,660. (No model.)



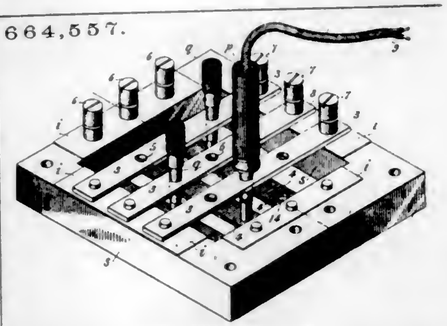
Claim.—1. In apparatus for treating barrels and the like to fit them for further service, the combination with a longitudinally-disposed beam, of a clamping device applied to a side thereof and comprising spaced bars pivotally connected at their inner ends with said beam, a yoke adjustably connecting the outer ends of the pivoted bars, a clamp-screw applied to said cross-bar, and plates to be clamped against the heads of the barrel by means of said clamp-screw, substantially as set forth.

2. In apparatus for treating barrels or the like to render them fit for further service, a beam composed of spaced members, fastenings applied to one of the members and projecting diagonally from a corner thereof and bordering upon the interspace, bars having pivotal connection at their inner ends with said fastenings and having their outer ends threaded, a cross-bar having a centrally-disposed threaded sleeve and terminal sleeves to receive the threaded ends of the pivoted bars, pairs of adjusting-nuts applied to the threaded ends of the bars and having the terminal sleeves of the cross-bar confined therebetween, a clamp-screw fitted to the central sleeve of the cross-bar, and plates to bear against the heads of the barrel or package held in place by the clamping device, substantially as set forth.

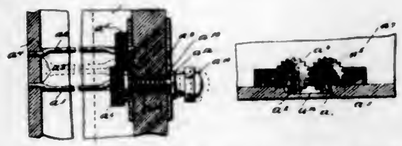
664,557. TELEGRAPH-SWITCHBOARD. FRANCIS W. JONES, New York, N. Y., assignor to the Postal Telegraph-Cable Company, same place. Filed July 16, 1900. Serial No. 23,706. (No model.)

Claim.—In a switchboard the combination of two transverse series of conducting-strips fixed at opposite sides of an insulating-frame, each strip having holes or perforations, the holes in the upper or exterior strips being larger than those in the lower or interior strips, and a double contact-plug consisting of a split metal pin engaging the smaller of said holes and a tapered metal sleeve or section located on said pin but insulated therefrom closely engaging the larger of said holes, substantially as described.

664,557.



664,558. CARD-HOLDER. JOHN D. KELLY, Chicago, Ill., assignor to the Library Bureau, Boston, Mass. Filed Feb. 2, 1900. Serial No. 3,675. (No model.)



Claim.—1. A card-holder, having a card-retaining device mounted therein, comprising two members capable of swinging in the arc of a circle, intermeshing pinions connecting said two members, and means for locking said pinions against rotation.

2. A card-holder, having a card-retaining device mounted therein, comprising two members capable of swinging in the arc of a circle, intermeshing pinions connecting said two members, one of said pinions having a stem extending through the holder and movable longitudinally therein and provided with engaging means at its projecting end for operating the same, and interlocking parts, one movable with said stem and the other stationary for locking the said stem against rotation.

3. In a card-holder, a card-retaining device having a movable locking member, and means to move said member, including a rotary stem projecting through the front of the holder, said stem being movable longitudinally in said holder, and coöperating interlocking portions on said stem and said holder, said stem being maintained non-rotatable by said interlocking portions when in its innermost position.

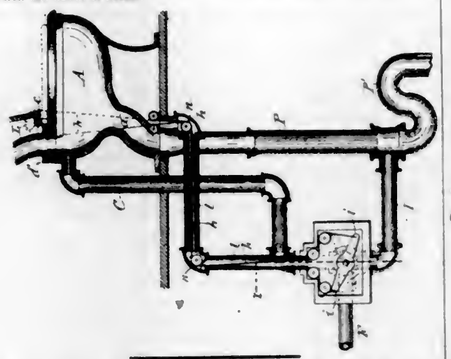
4. In a card-holder, a card-retaining device having a movable locking member, and means to move said member, including a rotary stem projecting through the front of the holder, said stem being movable longitudinally in said holder, coöperating interlocking portions on said stem and said holder, and a spring normally holding said rotary stem inwardly, pressing toward the rear end of the holder maintaining said interlocking portions in engagement and the stem locked against rotation.

5. A card-holder, a card-locking device mounted therein, and comprising a plurality of locking members secured at their opposite ends in said holder, a recess or chamber extending longitudinally of said holder in the bottom thereof beneath said card-locking device, and operating means for moving said locking members into said chamber out of contact with the cards for releasing the latter and up out of said chamber into contact with the cards for locking the said cards.

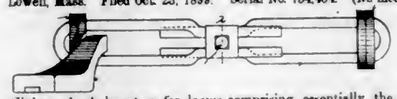
664,559. WATER-CLOSET. HILAND H. KENDRICK, Fulton, N. Y. Filed Mar. 10, 1899. Serial No. 708,481. (No model.)

Claim.—1. The combination with the bowl, its hinged cover, soil-pipe, flushing-pipe, and a water-supply valve disposed out of direct range with the flushing-pipe, of a pulley fastened to the axis of the cover to be actuated thereby, a cable or chain attached intermediate its ends to said pulley and having its ends connected to the valve to operate the same, pipes extending from the valve toward the bowl and inclosing said cable or chain, said pipes having elbows provided with detachable panels to afford access to the interiors thereof, and sheaves pivoted in said elbows and guiding said cables or chains, as set forth.

2. The combination with the bowl, its hinged cover, and soil-pipe, of a valve-cage having three ports, a supply-pipe leading to one of said ports, a flushing-pipe leading from another of said ports, a waste-pipe leading from the third port to the soil-pipe, a plug in said cage, having laterally-projecting arms, a device fixed on the axis of the cover, a cord or chain secured between its ends to said device and having its ends secured to the respective valve-arms, so as to turn the valve in one direction when the cover is raised and in another direction when the cover is lowered, sheaves over which said cord or chain passes, and a pipe to contain said cord or chain and sheaves, said pipe having detachable panel to afford access to the sheaves and cord or chain, and said plug having a port which opens communication of its interior with the waste-pipe when the cover is closed and also having an enlarged port which maintains the flushing-pipe constantly in communication with the interior of the plug and opens communication of the supply-pipe with the interior of the plug only when the cover is raised.



664,560. PICKING MECHANISM FOR LOOMS. MOSES M. LAHUE, Lowell, Mass. Filed Oct. 23, 1899. Serial No. 734,434. (No model.)



Claim.—1. A lug-strap for looms comprising, essentially, the two oppositely-disposed open or U-shaped loops adapted to receive within their closed ends the actuating-arm and the picker-stick, respectively, the said loops having their open ends overlapped, clamping means applied to said open ends, and cushions applied to said closed ends, substantially as described.

2. A lug-strap for looms, comprising, essentially, loops to receive and encircle the actuating-arm and the picker-stick, respectively, having their inner ends overlapped, a clamp engaging with such inner ends to secure the said loops with capacity for adjustment lengthwise of the strap and yielding washers 13, 14 strung on said loops and normally located adjacent the bends of the latter but out of contact therewith.

3. A lug-strap for looms, comprising, essentially, loops to receive and encircle the actuating-arm and the picker-stick, respectively, having their inner ends overlapped, the clamping-washers between and outside said overlapping ends, and the clamping-bolt.

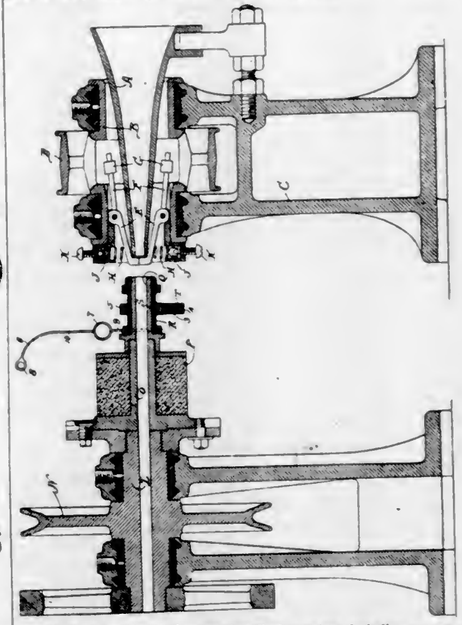
4. A lug-strap for looms, comprising, essentially, the loops to receive and encircle the actuating-arm and the picker-stick, respectively, having their inner ends overlapped, the grooved plates or washers between and outside said overlapping ends, and the clamping-bolt.

5. A lug-strap for looms, comprising, essentially, loops to receive and encircle the actuating-arm and the picker-stick, respectively, having their inner ends overlapped, the washers between and outside said overlapping ends, the clamping-bolt, the yielding washers 13, 13, applied to the said loops, and the washers 14, 14, also applied thereto and adapted to be connected with the said arm and the picker-stick, respectively.

6. A lug-strap for looms, comprising, essentially, the loops to receive and encircle the actuating-arm and the picker-stick, respectively, having their inner ends overlapped, the grooved plates or washers between and outside said overlapping ends, the clamping-bolt, the yielding washers 13, 13, applied to the said loops, and the washers 14, 14, also applied thereto and adapted to be connected with the said arm and the picker-stick, respectively.

664,561. MACHINE FOR MAKING GRASS TWINE. JUDSON LATTIN, St. Paul, Minn., assignor to the Northwestern Grass Twine Company, same place. Filed Apr. 26, 1899. Serial No. 714,486. (No model.)

Claim.—1. In a machine of the class described, a twister including a rotatable sleeve, arms pivotally mounted thereon and carrying clamping-jaws, weights carried by said arms and so arranged relative to said jaws that as the speed of rotation of said sleeve increases the clamping effect of said jaws correspondingly increases, in combination with an auxiliary tension imposed upon said clamping-jaws, and means for adjusting said auxiliary tension, as and for the purpose set forth.



2. In a machine of the class described, a twister including a rotatable sleeve having seats or recesses formed therein, arms pivotally mounted on said sleeve and carrying coöperating clamping-jaws at one end thereof and weights at the other end, and springs arranged to be received in said seats or recesses and bearing on the clamping-jaw ends of said levers, and means for adjusting the tension of said springs, as and for the purpose set forth.

3. In a machine of the class described, a twister including a rotatable sleeve having seats or recesses formed therein, blocks mounted in said recesses, and set-screws for adjusting said blocks, in combination with arms pivotally mounted on said sleeve and carrying coöperating clamping-jaws at one end thereof and weights at the other end, and springs arranged to bear at one end upon the clamping-jaw ends of said arms and at the other end upon said adjustable blocks, as and for the purpose set forth.

4. In a machine of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the wrapping thread or cord is sleeved, the material to be wrapped arranged to pass longitudinally through said shaft and spool, a casting loosely mounted upon said shaft, a thread or cord guide carried by said casting, and means for braking the rotative effort of said casting upon said sleeve, as and for the purpose set forth.

5. In an apparatus of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the thread is sleeved, a casting loosely sleeved upon said shaft, a thread-guide carried by said casting, a braking-block carried by said casting and arranged to bear against the surface of said shaft, and means for exerting a tension upon said block, as and for the purpose set forth.

6. In an apparatus of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the thread is sleeved, a casting also loosely sleeved upon said shaft, a thread-guide carried by said casting, a chamber formed on one side of said casting, a tension-block mounted in said chamber, a spring also arranged in said chamber and adapted to bear against said tension-block, and a screw-plug for adjusting the tension of said spring, as and for the purpose set forth.

7. In an apparatus of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the thread is sleeved, a casting loosely sleeved upon said shaft, a thread-guide carried by said casting, a chamber formed on one side of said casting, a tension-block mounted in said chamber, a spring arranged to bear on said tension-block, and a lug formed on said casting diametrically opposite said chamber to counterbalance the said casting, as and for the purpose set forth.

8. In a machine of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the thread is sleeved, a guide having an eye in the end thereof through which the end of the

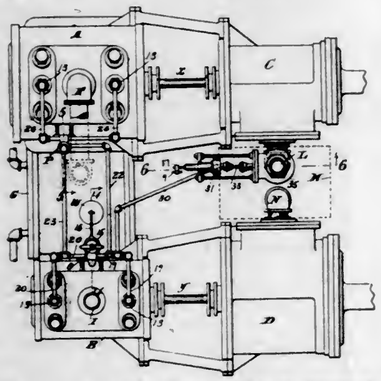
thread is led, said guide having coils formed therein intermediate its ends, and means for adjusting said guide transversely the length of the spool, whereby the eye in the end of said guide may be moved into closer relation to the surface of the spool as the spool diminishes in size, as and for the purpose set forth.

9. A thread-guide for a wrapping-machine comprising a spring-rod having an eye in the end thereof through which the thread is led, said rod formed into coils intermediate its ends in combination with a loosely-sleeved casting, said rod provided with legs arranged to straddle, and to be supported by said casting, and means for adjusting said legs transversely of said casting, as and for the purpose set forth.

10. In an apparatus of the class described, a wrapping mechanism comprising a support for the spool of wrapping-thread, a guide having an eye in the end thereof through which the wrapping-thread is led, a loosely-sleeved casting for said guide arranged in alinement with the spool-support, and means for adjusting said guide transversely of said spool, whereby the eye thereof may be brought into closer relation to the surface of the thread as the spool diminishes in size, as and for the purpose set forth.

11. In an apparatus of the class described, a wrapping mechanism comprising a tubular shaft upon which the spool carrying the thread is sleeved, a casting loosely sleeved upon said shaft, a thread-guide supported upon said casting, said guide having an eye in the end thereof through which the thread is led and provided with legs arranged to straddle said casting, and means for adjusting the legs of said guide transversely of said casting, as and for the purpose set forth.

664,562. **UNLOADING MEANS FOR AIR-COMPRESSORS.** GEO. DE LAVAL, Cambridge, and GEORGE P. ABORN, Boston, Mass., assignors to the George F. Blake Manufacturing Company, New York, N. Y. Filed Apr. 3, 1900. Serial No. 11,281. (No model.)



Claim.—1. In a multiple-stage compressor, the combination with cylinders operating at different pressures, of a valve controlled by the final pressure, and means controlled by the movement of said valve for unloading the pistons of the different cylinders, substantially as described.

2. In a multiple-stage compressor, the combination with a high-pressure cylinder and low-pressure cylinder, of a valve controlled by the final pressure, and means controlled by the movement of said valve for unloading and loading the pistons of both cylinders including an unloading-valve for the low-pressure cylinder actuated by the receiver-pressure of the low-pressure cylinder, substantially as described.

3. In a multiple-stage compressor, the combination with a high-pressure cylinder and low-pressure cylinder, of a valve controlled by the final-receiver pressure, and means controlled by the movement of said valve for unloading the pistons of both cylinders including an unloading-valve subjected to the final-receiver pressure and the intermediate-receiver pressure tending to move the valve in opposite directions and means for relieving said final-receiver pressure for the movement of said unloading-valve by the intermediate-receiver pressure when the pistons are to be unloaded, substantially as described.

4. In a multiple-stage compressor, the combination with a high-pressure cylinder and low-pressure cylinder, of a valve controlled by the final-receiver pressure, means controlled by the movement of said valve for unloading and loading the piston of the high-pressure cylinder, a valve subjected to the final-receiver pressure and the intermediate-receiver pressure tending to move the valve in opposite directions, means controlled by said last-mentioned valve for unloading and loading the low-pressure cylinder, and connections controlled by the first-mentioned valve for applying the final-receiver pressure to said last-mentioned valve and relieving said pressure for unloading and loading the low-pressure piston when the high-pressure piston is unloaded and loaded, substantially as described.

5. In a multiple-stage compressor, the combination with the high-pressure cylinder and its unloading-valve controlled by the final-receiver pressure, of a low-pressure cylinder and an unloading-valve therefor the unloading movement of which is opposed by the final receiver pressure, and means for applying and relieving the final-receiver pressure on the low-pressure unloading-valve by the unloading and loading movements of the high-pressure unloading-valve for unloading and loading the low-pressure piston, substantially as described.

6. In a multiple-stage compressor, the combination with a high-pressure cylinder and its unloading-valve controlled by the final-receiver pressure, of a low-pressure cylinder and an unloading-valve therefor, connections controlled by the high-pressure unloading-valve for applying the final-receiver pressure to the low-pressure unloading-valve, and connections for applying the intermediate-receiver pressure to the low-pressure unloading-valve in opposition to the final-receiver pressure, whereby the low-pressure unloading-valve is moved in one direction for unloading by the intermediate-receiver pressure and in the opposite direction for loading by the final-receiver pressure and the action of said low-pressure unloading-valve controlled by the high-pressure unloading-valve, substantially as described.

7. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the compressor-cylinders when said fluid-pressure is relieved, of a valve controlled by the final-receiver pressure, and means controlled by the movement of said valve for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the cylinder-pistons, substantially as described.

8. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the compressor-cylinders when said fluid-pressure is relieved, of a valve controlled by the final-receiver pressure, and means controlled by the movement of said valve for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the cylinder-pistons, including an unloading-valve for the low-pressure cylinder actuated by the receiver-pressure of the low-pressure cylinder, substantially as described.

9. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the compressor-cylinders when said fluid-pressure is relieved, of an unloading-valve for the high-pressure cylinder controlled by the final-receiver pressure, an unloading-valve for the low-pressure cylinder, connections controlled by the high-pressure unloading-valve for applying the final-receiver pressure to the low-pressure unloading-valve, connections for applying the intermediate-receiver pressure to the low-pressure unloading-valve in opposition to the final-receiver pressure, and means controlled by the movement of said valves for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the cylinder-pistons, substantially as described.

10. In a multiple-stage compressor, the combination with a low-pressure cylinder, of unloading means therefor including an unloading-valve subjected to a fluid-pressure tending to move the valve into its loading position and to the receiver-pressure of said cylinder tending to move the valve into unloading position, and means controlled by the final-receiver pressure for applying and relieving said fluid-pressure for loading and unloading the piston of said cylinder, substantially as described.

11. In a multiple-stage compressor, the combination with a low-pressure cylinder, of unloading means therefor including an unloading-valve subjected to the final-receiver pressure tending to move the valve into loading position and to the receiver-pressure of said cylinder tending to move the valve into unloading position, and means controlled by the final-receiver pressure for applying and relieving said final-receiver pressure for loading and unloading the piston of said cylinder, substantially as described.

12. In a multiple-stage compressor, the combination with a low-pressure cylinder, of unloading means therefor including a valve subjected on opposite sides to final-receiver pressure and the receiver-pressure of the low-pressure cylinder tending to move the valve into its loading and unloading positions, and a spring acting on said valve with the final-receiver pressure, substantially as described.

13. In a multiple-stage compressor, the combination with the cylinders operating at different pressures, of means for unloading the pistons of the different cylinders and controlling said unloading by the unloading of the high-pressure piston, substantially as described.

14. In a multiple-stage compressor, the combination with the cylinders operating at different pressures, of means for unloading and loading the pistons of the different cylinders and controlling said unloading and loading by the unloading and loading of the high-pressure piston, substantially as described.

15. In compressor-unloading means, a fluid-operated plunger controlling the unloading means and a seat therefor on which the plunger is normally seated and by which the effective area of the plunger is reduced in its normal position and increased at the beginning of its movement, substantially as described.

16. In compressor-unloading means, a fluid-operated plunger controlling the unloading means and a seat therefor on which the plunger is normally seated and by which the effective area of the plunger is reduced in its normal position and increased at the beginning of its movement, in combination with a weighted lever moved by said plunger, substantially as described.

17. In compressor-unloading means, a fluid-operated plunger and a seat therefor by which the effective area of the plunger is reduced in its normal position and increased at the beginning of its movement, and an unloading-valve actuated by the plunger with lost motion between the plunger and valve at the beginning of the plunger movement, substantially as described.

18. The combination with cylinder O, of plunger *b* having seat 1, pipe 17 for admitting receiver-pressure below said plunger and valve *d* seated in the cylinder above plunger *b*, substantially as described.

19. The combination with cylinder O, of plunger *b* having seat 1, pipe 17 for admitting receiver-pressure below said plunger and valve *d* having an enlarged head subjected to receiver-pressure and seated upon a shoulder in cylinder O, with space between the plunger and valve, substantially as described.

20. The combination with cylinder O and pressure-chamber 18, of valve *d* having a head subjected to the pressure in chamber 18 to seat the valve, plunger *c* on the opposite side of said chamber from the valve, and plunger *b* for actuating the valve with lost motion between the plunger and valve, substantially as described.

21. The combination with cylinder O and pressure and exhaust chambers 18, 21, of plunger *b* and rod 14 having ports 2, 3, and valve *d* having port 4 for connecting the pressure and exhaust chambers, substantially as described.

22. The combination with cylinder P, of valve *e* having seat 1 therein, unloading-ports controlled by said valve, pipe 24 for applying intermediate-receiver pressure to said valve, and pipe 23 for applying fluid-pressure in opposition to said intermediate-receiver pressure, substantially as described.

23. The combination with cylinder P, of valve *e*, unloading-ports controlled by said valve, pipe 24 for applying intermediate-receiver pressure to said valve, and pipe 23 connecting with the final receiver for applying said final-receiver pressure in opposition to said intermediate-receiver pressure, substantially as described.

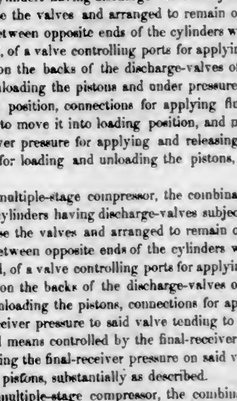
24. The combination with cylinder P, of valve *e*, unloading-ports controlled by said valve, pipe 24 for applying intermediate-receiver pressure to said valve, pipe 23 connecting with the final receiver for applying said final-receiver pressure in opposition to said intermediate-receiver pressure, and spring 29 acting with the final-receiver pressure, substantially as described.

26. The combination with low and high pressure cylinders A, B, of cylinders O, P, a high-pressure unloading-valve in cylinder O controlled by the final-receiver pressure, a low-pressure unloading-valve in cylinder P, pipe 24 connecting cylinder P with the intermediate receiver, and pipe 24 controlled by the high-pressure unloading-valve for applying final-receiver pressure to said low-pressure valve in opposition to the intermediate-receiver pressure, substantially as described.

664,563. **UNLOADING MEANS FOR AIR-COMPRESSORS.** GEO. DE LAVAL, Cambridge, and GEORGE P. ABORN, Boston, Mass., assignors to the George F. Blake Manufacturing Company, New York, N. Y. Filed Apr. 3, 1900. Serial No. 11,282. (No model.)

Claim.—1. In a multiple-stage compressor, the combination with cylinders operating at different pressures, of means for unloading the pistons including an unloading-valve controlled by the final-receiver pressure and controlling unloading-ports for the different cylinders, substantially as described.

2. In a multiple-stage compressor, the combination with cylinders operating at different pressures, of means for unloading the pistons including an unloading-valve controlling unloading-ports for the different cylinders and under pressure tending to move it into unloading position, connections for applying final-receiver pressure to said valve tending to move it into loading position and means controlled by the final-receiver pressure for applying and releasing the final-receiver pressure on said valve for loading and unloading the pistons, substantially as described.



4. In a multiple-stage compressor, the combination with cylinders operating at different pressures, of means for unloading the pistons including an unloading-valve controlling unloading-ports for the different cylinders, connections for applying final and intermediate receiver pressure to said valve tending to move it in opposite directions, and means controlled by the final-receiver pressure for applying and releasing the final-receiver pressure on said valve for loading and unloading the pistons, substantially as described.

5. In a multiple-stage compressor, the combination with cylinders operating at different pressures, of means for unloading the pistons including an unloading-valve controlling unloading-ports for the different cylinders, connections for applying final and intermediate receiver pressure to said valve tending to move it in opposite directions, and a valve moved by and against the final-receiver pressure and controlling ports for applying and releasing the final-receiver pressure on said unloading-valve for loading and unloading the pistons, substantially as described.

6. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the cylinders when said fluid-pressure is relieved, of a valve controlled by the final-receiver pressure and controlling ports for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the pistons, substantially as described.

7. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the cylinders when said fluid-pressure is relieved, of a valve controlling ports for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the pistons and under pressure tending to move it into unloading position, connections for applying fluid-pressure to said valve tending to move it into loading position, and means controlled by the final-receiver pressure for applying and releasing said fluid-pressure on said valve for loading and unloading the pistons, substantially as described.

8. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the cylinders when said fluid-pressure is relieved, of a valve controlling ports for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the pistons, connections for applying final and intermediate receiver pressure to said valve tending to move it in opposite directions, and means controlled by the final-receiver pressure for applying and releasing the final-receiver pressure on said valve for loading and unloading the pistons, substantially as described.

9. In a multiple-stage compressor, the combination with high and low pressure cylinders having discharge-valves subjected to fluid-pressure tending to close the valves and arranged to remain open for the circulation of fluid between opposite ends of the cylinders when said fluid-pres-

sure is relieved, of a valve controlling ports for applying and releasing the fluid-pressure on the backs of the discharge-valves of both cylinders for loading and unloading the pistons, connections for applying final and intermediate receiver pressure to said valve tending to move it in opposite directions, and a valve moved by and against the final-receiver pressure and controlling ports for applying and releasing the final-receiver pressure on said unloading-valve for loading and unloading the pistons, substantially as described.

10. In a multiple-stage compressor, the combination with high and low pressure cylinders, of means for unloading the pistons including an unloading-valve controlling unloading and loading ports for both cylinders, substantially as described.

11. In a multiple-stage compressor, the combination with high and low pressure cylinders, of means for unloading the pistons including an unloading-valve controlling unloading-ports for both cylinders, said valve and ports being arranged to normally unload the low-pressure cylinder before the high-pressure cylinder, substantially as described.

12. In a multiple-stage compressor, the combination with high and low pressure cylinders, of means for unloading and loading the pistons including a valve controlling unloading and loading ports for both cylinders, said valve and ports being arranged to normally unload the low-pressure cylinder before the high-pressure cylinder and to normally load the high-pressure cylinder before the low-pressure cylinder, substantially as described.

13. In a multiple-stage compressor, the combination with high and low pressure cylinders, of means for unloading the pistons including a valve subjected on opposite sides to final-receiver pressure and the receiver-pressure of the low-pressure cylinder tending to move the valve into its loading and unloading positions, unloading and loading ports for both cylinders controlled by said valve, and means for controlling the pressure on said valve by the final-receiver pressure, substantially as described.

14. The combination with a compressor-cylinder, of a plunger-valve controlling unloading-ports for said cylinder and subjected to fluid-pressures tending to move the valve in opposite directions, and a plunger-valve controlled by the receiver-pressure and controlling the pressure on the first-meutioned valve for loading and unloading the piston, substantially as described.

15. The combination with a compressor-cylinder, of a plunger-valve controlling unloading-ports for said cylinder and subjected to fluid-pressures teading to move the valve in opposite directions, said valve having a seat by which the effective area of the valve is reduced in its normal position and increased at the beginning of its unloading movement and a plunger-valve controlled by the receiver-pressure and controlling the pressure on the first-mentioned valve for loading and unloading the piston, substantially as described.

16. The combination with a compressor-cylinder, of a plunger-valve controlling unloading-ports for said cylinder and subjected to fluid-pressures tending to move the valve in opposite directions, and a plunger-valve controlled by the receiver-pressure and controlling the pressure on the first-mentioned valve for loading and unloading the piston, each of said valves having a seat by which the effective area of the valve is reduced in its normal position and increased at the beginning of the unloading movement, substantially as described.

17. The combination with a compressor-cylinder, of valve *g* having loading and unloading ports 5, 6, connections for applying receiver-pressure to said valve and port 5, port 38 for applying fluid-pressure to the opposite end of said valve, and valve *f* controlled by the receiver-pressure and acting to connect port 38 with a source of fluid-pressure or with an exhaust, substantially as described.

18. The combination with a compressor-cylinder, of valve *g* having loading and unloading ports 5, 6, connections for applying receiver-pressure to said valve and port 5, port 38 for applying receiver-pressure to the opposite end of said valve, and valve *f* controlled by the receiver-pressure and having ports 2, 3 acting to connect port 38 with a source of receiver-pressure or with an exhaust, substantially as described.

19. The combination with a compressor-cylinder, of valve *g* having loading and unloading ports 5, 6, connections for applying receiver-pressure to said valve and port 5, port 38 for applying receiver-pressure to the opposite end of said valve, valve *f* controlled by the receiver-pressure and having ports 2, 3 acting to connect port 38 with a source of receiver-pressure or with an exhaust, and spring 29 acting on said valve with the pressure from port 38, substantially as described.

20. The combination with cylinders Q and valves *f*, *g*, of chamber 18 and pipes 19, 20 controlled by said valve *g*, connections for applying fluid-pressure to both ends of valve *g* and receiver-pressure to one end of valve *f*, exhaust-pipe 22, ports controlled by valve *f* for connecting one end of valve *g* with a source of fluid-pressure or with exhaust-pipe 22, and ports controlled by valve *g* for connecting chamber 18 with a source of fluid-pressure or with exhaust-pipe 22, substantially as described.

21. The combination with cylinders Q and valves *f*, *g*, of chambers 18, 25 and pipes 19, 20, 26, controlled by said valve *g*, connections for applying fluid-pressure to both ends of valve *g* and receiver-pressure to one end of valve *f*, exhaust-pipe 22, ports controlled by valve *f* for connecting one end of valve *g* with a source of fluid-pressure or with exhaust-pipe 22, and ports controlled by valve *g* for connecting chambers 18, 25 with sources of fluid-pressure or with exhaust-pipe 22, substantially as described.

22. The combination with low and high pressure cylinders A, B, of a cylinder having unloading and loading ports for said cylinders A, B, valve *g* controlling said ports, pipe 24 and port 38 for admitting final-receiver and intermediate-receiver pressure to opposite ends of said valve and a valve controlled by the final-receiver pressure and acting to connect port 38 with the final receiver or the exhaust for loading and unloading the pistons, substantially as described.

23. The combination with low and high pressure cylinders A, B, of a cylinder having unloading and loading ports for said cylinders A, B, valve *g* controlling said ports, pipe 24 and port 38 for admitting final-receiver and intermediate-receiver pressure to opposite ends of said valve, spring 29 acting on said valve with the final-receiver pressure, and a valve controlled by the final-receiver pressure and acting to connect port 38 with the final receiver or the exhaust for loading and unloading the pistons, substantially as described.

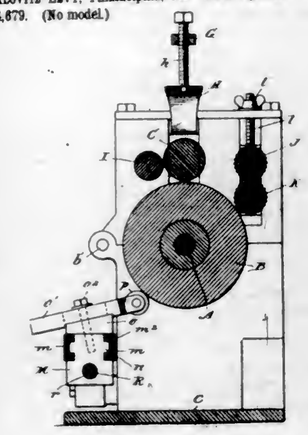
24. The combination with low and high pressure cylinders A, B, of a cylinder having chambers 25, 18 for the respective cylinders and exhaust-chamber 21, connections for admitting the final and intermediate receiver pressures to opposite ends of said cylinder, and valve *g* having loading-port 5 for admitting final-receiver pressure to chamber 18 and unloading-port 6 for connecting chamber 18 with exhaust-chamber 21, loading-port 9 for admitting intermediate-receiver pressure to chamber 25, and unloading-port 7 for connecting chamber 25 with exhaust-chamber 21, and a valve controlled by the final-receiver pressure and acting to connect one end of the cylinder with the final receiver or the exhaust for loading and unloading the pistons, substantially as described.

25. The combination with low and high pressure cylinders A, B, of a cylinder having chambers 25, 18 for the respective cylinders and exhaust-chamber 21, connections for admitting the final and intermediate receiver pressures to opposite ends of said cylinder, and valve *g* having loading-port 5 for admitting final-receiver pressure to chamber 18 and unloading-port 6 for connecting chamber 18 with exhaust-chamber 21, loading-port 9 for admitting intermediate-receiver pressure to chamber 25 and unloading-port 7 for connecting chamber 25 with exhaust-chamber 21, check-valve 40 controlling port 5 to prevent unloading through said port, and a valve controlled by the final-receiver pressure and acting to connect one end of the cylinder with the final receiver or the exhaust for loading and unloading the pistons, substantially as described.

26. In compressor-unloading means the combination with a valve controlling unloading and loading ports, of a check-valve opening to admit the loading pressure through the loading-port and closing to prevent unloading through the loading-port, substantially as described.

27. In compressor-unloading means the combination with a valve controlling unloading and loading ports for high or low pressure cylinders, of a check-valve opening to admit the loading pressure through the high-pressure loading-port and closing to prevent unloading the high-pressure piston through the loading-port, substantially as described.

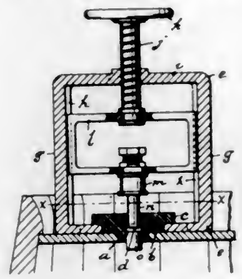
664,564. **MACHINE FOR GRINDING QUILLS OF FEATHERS.** SALOVITZ LEVY, Philadelphia, Pa. Filed Apr. 28, 1900. Serial No. 14,679. (No model.)



Claim.—1. In a quill-grinding machine, the combination with the supporting-frame, of a grinding-roll journaled in said frame, a presser-roll, C, bearings for said presser-roll suspended in the machine-frame so as to be capable of moving upwardly, means for adjusting said suspended bearings so as to regulate the distance between the presser-roll and the grinding-roll, a spring H, adapted to bear at each end on the suspended journal-bearings, means for adjusting the tension of the said spring, and a pair of feeding and crushing rolls arranged in front of the grinding and presser rolls located so as to hold the quills while the grinding-roll is operating to remove the pithy material from the bone of the quill, substantially as described.

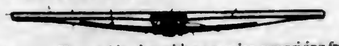
2. The combination with the grinding-roll, B, of a presser-roll, C, mounted in movable bearings, vertically-disposed bolts, *e*, secured in said bearings and passing through apertures provided in the supporting-frame, lock-nuts threaded on the bolts, *e*, above the frame-plate for supporting and adjusting said bolts, a bowed spring, H, adapted to bear at each end on the movable journal-boxes, a bar, G, supported on the frame above the spring, and a bolt, *k*, threaded in the said bar and adapted to bear on the center of the spring, H, for the purposes substantially as described.

664,565. **COMBINED SPIGOT AND BUNG-REMOVER.** THOMAS LIVINGOOD, Hamburg, Pa., assignor of one-half to Solomon K. Hoffman, same place. Filed Oct. 31, 1900. Serial No. 35,037. (No model.)



Claim.—In a combined spigot and bung-remover for barrels, constructed and arranged to be used in connection with a bushing *a* secured to the barrel and having an overhanging ledge *c*, an upright frame comprising two posts joined at the bottom by a semicircular web *f* adapted to engage said ledge *c* and carrying a sliding block *l* provided with a spigot *m*, operated by a hand-screw and adapted to force the spigot into the bung-hole and remove the bung at one operation, substantially as set forth.

664,566. **ENVELOP.** IRWIN F. LONG, Aurora, Ill. Filed July 18, 1900. Serial No. 24,090. (No model.)



Claim.—1. The combination with an envelop comprising front, back and sealing flaps and an inside flap permanently attached to the inside of the back flap to form a pocket for the reception of the sealing-flap, of a locking member permanently retained by the back flap and designed to extend through the sealing-flap, and a keeper permanently retained upon the inside flap and designed to receive and retain the locking member.

2. A sealing device of the character described, comprising a locking member having oppositely-disposed locking-shoulders formed upon its outer faces, a keeper arranged for the reception of the locking member, and a spreader arranged to pass into the locking member to spread the latter and thereby effect the engagement of the locking-shoulders with the keeper.

3. In a sealing device of the character specified, the combination with a hollow keeper provided with an internal spreader, of a locking member comprising yielding legs provided with oppositely-disposed locking-shoulders removed from the ends of the legs and designed to be engaged with the keeper by the spreading of said legs as the spreader is forced between them to effect and maintain such engagement.

4. A sealing device of the character specified, comprising a keeper composed of a pair of oppositely-convexed disks, one of said disks being provided with a slot, a U-shaped locking member arranged for reception within the keeper and provided with oppositely-disposed locking-shoulders, and a wedge-shaped spreader disposed to pass into the locking member to spread the legs and engage the shoulders with the walls of the keeper and to prevent the subsequent release of the latter.

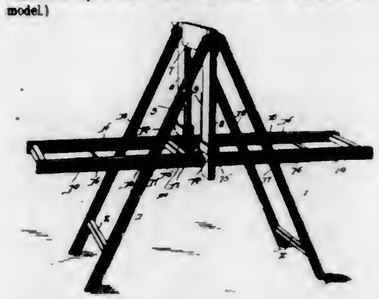
5. A sealing device of the character specified comprising a hollow keeper composed of oppositely-convexed disks, one of said disks being slotted and the other provided with tabs for holding the disks in place, a wedge-shaped spreader within the keeper opposite the slot, and an approximately U-shaped locking member having its legs provided with oppositely-disposed locking-shoulders designed for engagement with the slotted disk when the legs of the locking member are spread upon the introduction of said member to the interior of the keeper.

6. A keeper comprising a slotted convex disk, a second convex disk provided with peripheral tabs engaging the slotted disk, and a V-shaped spreader located within the keeper and provided with securing-straps bent around the edge of one of the disks.

7. A sealing device of the character described comprising a substantially U-shaped locking member having the extremities of its legs bent back upon said legs to form locking-shoulders removed from the ends thereof, and a hollow keeper designed for the reception of the locking member and provided with an internal spreader designed to spread the legs of the locking member to present the shoulders thereof against the wall of the keeper.

8. A sealing device of the character described comprising an apertured retaining-plate provided with securing-tabs, a substantially U-shaped locking member having its ends passed through the openings in the plate and formed, respectively, with a compound recurve to produce oppositely-disposed locking-shoulders removed from the ends of the legs, and a hollow keeper provided with an opening in one side and with a spreader located opposite the opening.

664,567. **COMBINED WASHBENCH AND RACK.** CHARLES E. MARTIN, Waupun, Wis. Filed June 30, 1900. Serial No. 22,197. (No model.)



Claim.—1. A device of the class described comprising a vertical frame adapted to support a wringer, standards pivotally connected with the said frame and provided between their ends with longitudinal slots, vertically-movable slides mounted on the vertical frame, and the supporting-frames pivotally connected with the slides and provided with devices arranged in the said slots, substantially as described.

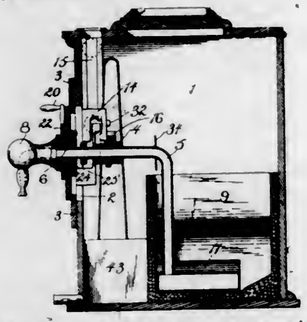
2. A device of the class described comprising the inclined standards, the vertical frame depending from the upper ends of the standards and having the same pivoted to it and extending downward and terminating above the supporting-surface at about the center of the standards, said vertical frame being provided at opposite sides with vertical grooves, slides mounted on the vertical frame and provided with vertical ribs fitting in the said grooves, and the horizontal supporting-frames pivoted between their ends to the standards and having their inner ends pivoted to the slides and arranged at the bottom of the vertical frame and adapted to move upward thereon to fold them, substantially as described.

3. A device of the class described comprising the pivoted inclined standards, the vertical frame depending from and supported by the upper ends of the standards, and having at opposite sides vertical bars terminating at their lower ends above the supporting-surface and at about the center of the standards and provided with grooves, the slides provided with vertical ribs to fit in the grooves and having horizontal loops arranged on the vertical bars, the horizontal frames pivoted between their ends to the standards and having their inner ends pivoted to the slides and arranged at the lower ends of the vertical bars and adapted to move upward thereon in folding the device, and fastening devices mounted on the vertical bars for retaining the slides, substantially as described.

664,568. **VENDING-MACHINE.** ROBERT E. MONGER, Morristown, Ind., assignor of one-half to Milton K. Bankert, same place. Filed Feb. 6, 1900. Serial No. 4,251. (No model.)

Claim.—1. A liquid-delivering machine comprising a liquid-receptacle, an oscillating hollow shaft having one end depending into a liquid-receptacle, a measuring-receptacle attached to the depending end of the

hollow shaft and within the liquid-receptacle, an operating-handle and means for operatively connecting said handle with the oscillating shaft, substantially as described.



2. A liquid measuring and delivering apparatus comprising a liquid-containing receptacle, an oscillating pipe having its end depending within the receptacle and carrying a measuring vessel in communication with the pipe, a handle adapted to be operatively connected with the pipe, and a faucet independent of the said pipe but in communication therewith, substantially as described.

3. A liquid measuring and delivering apparatus comprising a liquid-receptacle, an oscillating pipe having one end depending within the receptacle, a measuring vessel carried by the said depending end of the pipe and in communication therewith, a faucet, the opposite end of the pipe extending into the faucet, a handle journaled upon the said pipe, and means for operatively connecting the handle with the oscillating pipe, substantially as described.

4. A liquid measuring and delivering apparatus comprising a liquid-receptacle, an L-shaped pipe having one leg thereof extending within the liquid-receptacle and cartying a measuring vessel which is in communication with the pipe, the opposite end of the pipe in communication with an exit-orifice, a handle movable independent of the exit-orifice, and means for operatively connecting said handle with said pipe, substantially as described.

5. A liquid measuring and delivering apparatus comprising a case having a liquid-receptacle, an essentially L-shaped pipe having its horizontal portion journaled in the case and its vertical portion extending within the liquid-receptacle, the outer end of the horizontal portion of the shaft projecting through the case, the lower vertical end of the pipe provided with a measuring vessel which is in communication with the pipe, a handle, and means for operatively connecting said handle with the pipe, substantially as described.

6. A liquid measuring and delivering apparatus comprising an essentially L-shaped oscillating pipe having a jonrnal for its horizontal portion, a liquid-receptacle, a measuring vessel within the liquid-receptacle carried by the vertical portion of the pipe and in communication therewith, the liquid-receptacle having a carved bottom formed on the arc of a circle with the axis of the horizontal portion of the pipe as its center, a handle, and means for operatively connecting said handle with the pipe, substantially as described.

7. A liquid-delivering machine comprising a case, a liquid-receptacle within the case, an axially-movable hollow shaft having its inner end provided with a measuring-receptacle extending within the liquid-receptacle, an operating-handle situated outside of the case, and means for operatively connecting the said handle with the said hollow shaft, substantially as described.

8. A liquid-delivering machine comprising a casing containing a liquid-receptacle, an axially-movable hollow shaft carrying at its inner end a measuring-receptacle situated within the liquid-receptacle and in communication with the said hollow shaft, an operating-handle situated outside of the case, and means situated within the case for operatively connecting said handle with said hollow shaft, substantially as described.

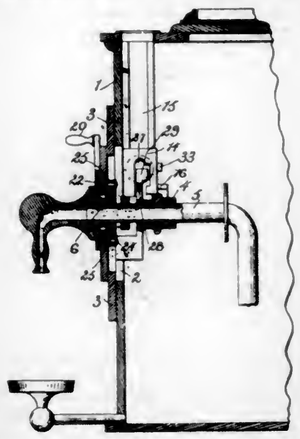
9. A liquid-delivering machine comprising a liquid-receptacle, an axially-movable hollow shaft, one end of the shaft carying a measuring-receptacle in communication therewith and movable within the said liquid-receptacle, an operating-handle, and means for operatively connecting the said handle with the said shaft, substantially as described.

10. In a liquid-delivering machine, the combination of a liquid-receptacle, a movable dipper located within the receptacle, and having an outlet communicating with the exterior of the liquid-receptacle, a handle outside of the liquid-receptacle and normally out of operative connection with the receptacle, and means for operatively connecting the handle with the said dipper for carrying the latter to an elevated and emptying position, substantially as described.

11. In a liquid-delivering machine, the combination of a liquid-receptacle, a vertically-movable dipper located within said liquid-receptacle, the dipper having an opening in communication with the outside of the liquid-receptacle, an operating-handle situated outside of the said liquid-receptacle and normally out of the operative connection with said dipper, and means for operatively connecting the said handle with the said dipper for elevating it to its emptying position, substantially as described.

12. A liquid-delivering machine comprising a liquid-receptacle, a case containing the said receptacle, a hollow shaft having an inlet-opening within the case and an outlet-opening communicating with the outside of the case, a movable measuring-receptacle within the liquid-receptacle and in communication with the said hollow shaft, an operating-handle located outside of the case and movable independent of the said measuring-receptacle, and means located within the case for operatively connecting the said handle and the movable liquid-receptacle, substantially as described.

664,569. COIN-CONTROLLED MECHANISM. ROBERT E. MONGER, Morristown, Ind., assignor of one-half to Milton K. Bankert, same place. Original application filed Feb. 6, 1900, Serial No. 4,251. Divided and this application filed Apr. 12, 1900. Serial No. 12,596. (No model.)



Claim.—1. A coin-controlled mechanism comprising an oscillating mechanism carrying a coin-engaging member, an independently-movable oscillating coin-engaging member journaled upon and supported by the said oscillating member, and a handle connected with the last said coin-engaging member, substantially as described.

2. A coin-controlled mechanism comprising an oscillating member, a coin-engaging member movable independent thereof, a handle attached to the coin-engaging member, a second coin-engaging member rigidly attached to the oscillating member, the said coin-engaging members arranged to receive between them a coin for establishing operative connection, the oscillating-member coin-engaging member having a notched flange, a detent or pawl adapted to engage the notches therein when the oscillating member is moved, and the handle coin-engaging member having a cam adapted to trip the said pawl or detent, substantially as described.

3. A coin-controlled mechanism comprising a delivery-controlling member having a coin-engaging member, an operating-handle having a coacting coin-engaging member, the coin-engaging members adapted to receive between them a coin for establishing operative connection, means for holding one of the said coin-engaging members in its operative position, and means carried by the other coin-engaging member for releasing the holding means and moved in the opposite direction, substantially as described.

4. A coin-controlled mechanism comprising an oscillating member carrying a coin-engaging member, an oscillating handle carrying a coöperating coin-engaging member, one of said coin-engaging members provided with a coin-stripping member, substantially as described.

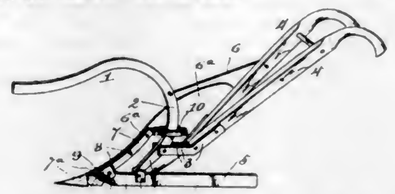
5. A coin-controlled mechanism comprising a case, an oscillating delivery member passing through the case, said oscillating member having a coin-engaging member, and independently concentrically arranged oscillating coin-engaging members situated within the case and adapted to coöperate with the aforesaid coin-engaging member, a handle situated outside of the case, the casing having a concentric slot and a connection between the handle through the said slot with the coin-engaging member within the case, substantially as described.

6. A coin-controlled mechanism comprising an oscillating delivery member having a coin-engaging member, an independently-movable handle having a coin-engaging member adapted to coöperate with the aforesaid coin-engaging member, one of the coin-engaging members having a coin-supported shoulder and the other coin-engaging member having a coin-stripping member, substantially as described.

7. A coin-controlled mechanism comprising an oscillating delivery member having a coin-engaging member, a U-shaped member loosely journaled upon the said oscillating delivery member, one arm of the said U-shaped member constituting a coacting coin-engaging member, and an operating-handle connected with the other arm of the said U-shaped member, substantially as described.

8. A coin-controlled mechanism comprising an oscillating delivery member having a laterally-extending U-shaped coin-engaging member, a second U-shaped coin-engaging member movable independent of the aforesaid coin-engaging member, a handle connected with the independently-movable U-shaped member, the said U-shaped coin-engaging members extending in opposite directions, the arm of one U-shaped member adapted to pass between the arms of the other U-shaped member, substantially as described.

664,570. PLOW. ROBERT L. MORRISON, Nathan, Tex. Filed May 24, 1900. Serial No. 17,870. (No model.)



Claim.—1. In a plow, the combination, with a shoe fixed to the standard or plow-beam extension, of the bracket connecting the plow-point with the moldboards and pivoted to the shoe, and having arms slidably connected to the said standard or extension.

2. In a plow, the combination, with a shoe fixed to the standard or depending portion of the plow-beam, of a bracket connecting the plow-point and moldboards together, and having rearwardly-projecting top arms loosely surrounding the said beam portion, and bottom ears to which the forward end of the said shoe is pivoted.

3. In a plow, the combination, with the shoe fixed to the depending end of the plow-beam, and the V-clamp carrying the plow-handles and secured adjacent to the said fixed point, of the bracket secured to the moldboards and plow-point, and having top arms free to slide on said beam above said clamp, and bottom ears pivoted to the forward end of the said shoe.

664,571. ELLIPTIC SPRING. OSGOOD MORRILL and HARLAN P. WELLS, Amesbury, Mass. Filed Aug. 9, 1900. Serial No. 26,437. (No model.)



Claim.—1. The combination in a spring of master-leaves; socket-pieces having recesses within which the ends of the master-leaves are located; and supplemental metallic springs to prevent rattling.

2. The combination in a spring of master-leaves; socket-pieces; and supplemental metallic leaf-springs to prevent rattling.

3. The combination in a spring of master-leaves having straight ends; socket-pieces having recesses within which the ends of the master-leaves are located; and supplemental springs having bent ends.

4. The combination in a spring of master-leaves; socket-pieces; and supplemental springs bearing against a socket-piece and a spring and holding the latter against excessive vibration and rattling.

5. The combination in a spring of master-leaves; socket-pieces rigidly secured to the ends of one master-leaf and loosely engaging and retaining the ends of the other master-leaf; and supplemental springs in connection with the leaf having loose and movable ends.

6. The combination in an elliptic spring, of master-leaves; socket-pieces having recesses, each socket-piece rigidly secured to the end of one of the master-leaves; and movable antifriction elements interposed between the ends of the master-leaves and which prevent the displacement of the loose master-leaf from the recesses in the sockets.

7. The combination in an elliptic spring, of master-leaves; socket pieces having recesses; bolts holding the ends of one master-leaf rigidly in the sockets; and movable antifriction elements which retain the end of the other and movable master-leaf within the recesses of the socket pieces.

8. The combination in an elliptic spring, of master-leaves having straight unbent ends; socket-pieces having recesses in the sides thereof; bolts holding the ends of one of the master-leaves rigidly in the recesses of the socket-pieces; the other master-leaf having seats for balls, and balls interposed between the ends of the master-leaves and holding the loose master-leaf against displacement.

9. The combination in an elliptic spring of master-leaves; socket-pieces; means for rigidly holding the ends of one master-leaf within the socket-pieces; and balls between the ends of the immovable master-leaf and the movable master-leaf for holding the latter leaf within the socket-pieces.

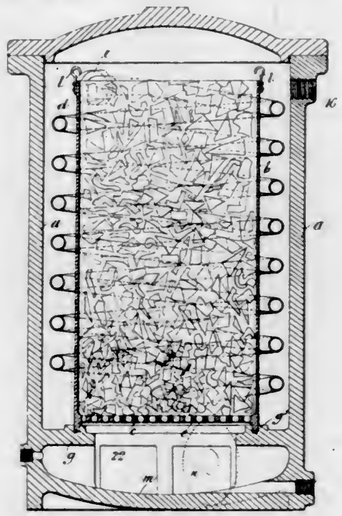
10. The combination in a spring of master-leaves; socket-pieces rigidly secured to the ends of one of the master-leaves and loosely retaining the ends of the other master-leaf; seats M and L in the ends of the master-leaves; and movable antifriction elements in the seats.

11. The combination in a spring of master-leaves; socket-pieces; antifriction-bearings; and supplemental springs engaging the socket-pieces.

12. The combination in a spring of master-leaves; socket-pieces; antifriction-bearings; and leaf supplemental springs, each engaging a socket-piece.

13. An elliptic spring having ball-bearings, and supplemental springs engaging the ends of a master-leaf and socket-pieces to prevent rattling.

664,572. APPARATUS FOR PURIFYING FEED-WATER. ISAAC S. MCDOUGALL, Didsbury, England. Filed Aug. 21, 1900. Serial No. 27,584. (No model.)

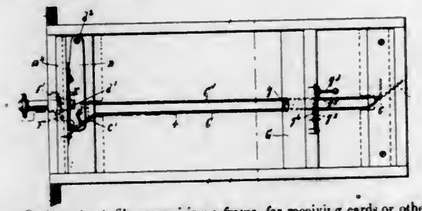


Claim.—1. In apparatus for purifying feed-water, in combination, a precipitation vessel having a shelf near its lower end, a steam-pipe coil adapted to heat the water in said vessel, an inner case having an open top and a perforated bottom and adapted to hold pieces of zinc and to rest water-tight on the aforesaid shelf so as to form a chamber below the shelf, an aperture for the inflowing water situated in the side of the precipitation vessel above the shelf, a filtering vessel, a pipe connected to said filtering vessel and to an aperture in the chamber below the shelf in the precipitation vessel and adapted to convey water from the precipitation vessel to the filtering vessel, and filtering-diaphragms within said filtering vessel adapted to filter the water coming from the precipitation vessel, substantially as and for the purpose described.

2. In apparatus for purifying feed-water, in combination, a precipitation vessel having a shelf near its lower end, a steam-pipe coil adapted to heat the water in said vessel, an inner case *b* having an open top and a perforated bottom *c* and adapted to hold pieces of zinc and to rest water-tight on the aforesaid shelf so as to form a chamber 22 below the shelf, an aperture *h* for the inflowing water situated in the side of the precipi-

tation vessel above the shelf, a filtering vessel, a pipe adapted to convey the water to the filtering vessel from the aforesaid chamber 22 in the precipitation vessel, filtering-diaphragms within said filtering vessel, the diaphragms comprising layers of filter-paper and jute, substantially as and for the purpose described.

664,573. FILE. LUTHER C. MCNEAL, Rochester, N. Y., assignor to the Library Bureau, Boston, Mass. Filed Oct. 27, 1896. Serial No. 610,192. (No model.)



Claim.—1. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar for entering the apertures, said bar being movable longitudinally and laterally in the apertures for holding the cards or other articles in position and permitting their withdrawal, and a spring for normally holding the locking-bar in its operative position, substantially as set forth.

2. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar for entering the apertures, said bar being movable longitudinally and laterally in the apertures for holding the cards or other articles in position and permitting their withdrawal, a spring for normally holding the locking-bar in its operative position, and means for holding the locking-bar in its inoperative position, substantially as described.

3. A file comprising a frame for receiving cards or other articles having apertures therein, a longitudinally-movable locking-bar for entering the apertures, said bar being laterally movable in the apertures, a spring for normally holding the locking-bar in its operative position, means for holding the locking-bar in its inoperative position, and means for automatically forcing the former means from its operative position, substantially as described.

4. A file comprising a frame for receiving cards or other articles having apertures therein, a pair of locking-bars for entering the apertures, one of the bars being fixed and the other being movable longitudinally, and being also movable laterally toward and away from the first bar, substantially as and for the purpose set forth.

5. A file comprising a frame for receiving cards or other articles having apertures therein, said frame having a guide or bearing, and a longitudinally-movable locking-bar for entering the apertures, said bar being provided with an inclined portion movable in the guide and being movable laterally in the apertures, substantially as and for the purpose set forth.

6. A file comprising a frame for receiving cards or other articles having apertures therein, said frame having an inclined guide, a longitudinally-movable locking-bar for entering the apertures, said bar being provided with a projecting arm at one extremity and an inclined portion at its opposite extremity movable in the guide, and being movable laterally in the apertures, and a movable operating-piece supported by the frame and provided with an inclined guide for receiving the projecting arm, substantially as and for the purpose described.

7. A file comprising a frame for receiving cards or other articles having apertures therein, said frame having an inclined guide, a longitudinally-movable locking-bar for entering the apertures, said bar being laterally movable in the apertures, and having a portion thereof movable lengthwise of said guide, and a follower movable lengthwise of the locking-bar, substantially as and for the purpose set forth.

8. A file comprising a frame for receiving cards or other articles having apertures therein, a pair of locking-bars for entering the apertures, one of the bars being fixed and the other being movable laterally toward and away from the first bar, substantially as and for the purpose set forth.

9. A file comprising a frame for receiving cards or other articles having apertures therein, and a longitudinally-movable locking-bar for entering the apertures, said bar having at its opposite ends inclined portions extending obliquely to the length of the bar and parallel to each other, and guides or bearings for said inclined portions, substantially as and for the purpose set forth.

10. A file comprising a frame for receiving cards or other articles having apertures therein, and a longitudinally-movable locking-bar for entering the apertures, said bar being outwardly bent at its forward end, and a plate or movable piece having sliding connection with said end, and means extending through the front of the drawer for moving said plate in the shifting operation of said bar, substantially as and for the purpose set forth.

11. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar for retaining the cards, and a follower movable lengthwise of said locking-bar, said follower being provided with holding means for holding the same in place along said bar, said holding means including a fastening member recessed to embrace said bar and adapted to be tipped one way or the other into or out of pinching engagement with said bar, substantially as and for the purpose set forth.

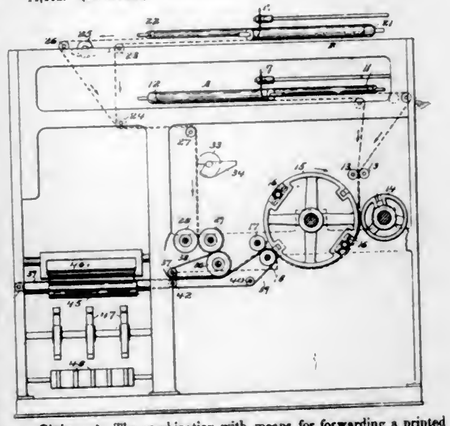
12. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar for retaining the cards, and a follower movable lengthwise of said locking-bar, said follower being provided with holding means for holding the same in place along said bar, said holding means including a fastening member recessed to embrace said bar and adapted to be tipped one way or the other into or out of pinching engagement with said bar, and means for maintaining said fastening member in pinching position, substantially as described.

13. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar for retaining the cards, and a follower movable lengthwise of said locking-bar, said follower being provided with holding means for holding the same in place along said bar, said holding means including a fastening member pivoted to said follower and extending over and under said bar whereby the turning of said fastening member upon its pivot into one position serves to grip the bar, and into another position serves to release the bar, and means for normally maintaining said member in gripping engagement with said bar.

14. A file comprising a frame for receiving cards and the like, and a follower movable lengthwise in said frame for following behind and supporting the cards, said follower being provided with holding means for holding the same in any desired position in said frame, said holding means including a fastening member recessed to embrace a bar, rod, or equivalent portion extending longitudinally of the frame and said holding means being adapted to be tipped one way or the other into or out of pinching engagement with the bar, and means for maintaining said fastening member in pinching position, substantially as described.

15. A file for holding cards and the like having apertures therein, a support for said file, a longitudinally-movable locking-bar in said file for entering the apertures in said cards, means extending through the front of the file for moving said bar, a pivoted stop carried by said file and having interlocking engagement with said moving means, and means carried by said support for automatically operating said stop for locking said bar and said moving means when the file is in closed position, substantially as described.

664,574. PRINTING-MACHINE. THOMAS M. NORTH, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Apr. 5, 1900. Serial No. 11,692. (No model.)



Claim.—1. The combination with means for forwarding a printed folded product having its columns parallel with the line of fold, of means for associating therewith a printed product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

2. The combination with means for forwarding a printed folded product having its columns parallel with the line of fold, of means for associating therewith an unfolded printed product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

3. The combination with means for forwarding a printed product, of means for giving it a fold parallel with its columns, means for associating therewith a printed product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

4. The combination with means for forwarding a printed product, of means for giving it a fold parallel with its columns, means for associating therewith an unfolded printed product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

5. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one product having its columns at right angles to those of the other product, of means for giving one of said products a fold on a line which is parallel with its columns, means for associating therewith the other product, said associated product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

6. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one product having its columns at right angles to those of the other product, of means for giving one of said products a fold on a line which is parallel with its columns, means for associating therewith the other product in an unfolded condition, said associated product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

7. The combination with means for forwarding a printed folded product consisting of a plurality of plies, said plies having their columns parallel with the line of fold, of means for associating therewith a printed product consisting of a plurality of plies, said product having its columns at right angles to the product with which it is associated, and means for folding the associated products, substantially as described.

8. The combination with means for forwarding a printed folded product consisting of a plurality of plies, said product having its columns parallel with the line of fold, of means for associating therewith an unfolded printed product consisting of a plurality of plies, said product having its columns at right angles to the product with which it is associated, and means for folding the associated product, substantially as described.

9. The combination with means for forwarding a printed folded product consisting of a plurality of plies, of means for giving said product a fold parallel with its columns, means for associating therewith a printed product consisting of a plurality of plies, said product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

10. The combination with means for forwarding a printed folded product consisting of a plurality of plies, of means for giving said product a fold parallel with its columns, means for associating therewith an unfolded printed product consisting of a plurality of plies, said unfolded product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

11. The combination with means for forwarding a printed product, of means for forwarding a second printed product, the pages of the first product being equal in size to a multiple of the pages of the second product, means for folding the first product, means for associating the two products, so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

12. The combination with a printing mechanism adapted to produce two printed products, the pages of one product being equal in size to a multiple of the pages of the other product, means for folding the product having the larger pages, means for associating the two products, so that the columns of one shall be at right angles to the columns of the other, and means for folding the associated products, substantially as described.

13. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, means for associating the two products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

14. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for associating the two products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

15. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, means for converging each of the products into a multiple-ply product, means for associating the two products, so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

16. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for converting each of the products into a multiple-ply product of the same size, means for associating the two products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

17. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one product having its pages printed in sets of two and the other product having its pages printed in sets of four, means for converting each of the products into a multiple-ply product, means for associating the two products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

18. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one product having its pages printed in sets of two and the other product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for converting each of the products into a multiple-ply product of the same size, means for associating the two products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

19. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, means for giving the two-page product a fold at right angles to its line of travel, means for associating therewith the four-page product with its columns at right angles to the columns of said two-page product, and means for folding the associated products, substantially as described.

20. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for giving the two-page product a fold at right angles to its line of travel, means for associating therewith the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

21. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, means for giving the two-page product a fold at right angles to its line of travel, means for associating therewith in an unfolded condition the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

22. The combination with means for forwarding a printed product having its pages printed in sets of two, of means for forwarding a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for giving the two-page product a fold at right angles to its line of travel, means for associating therewith in an unfolded condition the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

23. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one of said products having its columns at right angles to the columns of the other product, of means for giving one of said products a fold on a line which is parallel with its columns, means for associating therewith the other product, said associated product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

24. In a printing-machine, the combination with a printing mechanism adapted to produce two printed products, one of said products having its columns at right angles to the columns of the other product, of means for giving one of said products a fold on a line which is parallel with its columns, means for associating therewith the other product in an unfolded condition, said associated product having its columns at right angles to the columns of the product with which it is associated, and means for folding the associated products, substantially as described.

25. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, and a printed product having its pages printed in sets of four, of means for associating the products so that the columns of one product are at right angles to the columns of the other product, and means for folding the associated products, substantially as described.

26. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, and a printed product having its pages printed in sets of four, of means for giving the two-page product a fold on a line which is parallel with its columns, means for associating the four-page product therewith with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

27. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, and a printed product having its pages printed in sets of four, of means for giving the two-page product a fold on a line which is parallel with its columns, means for associating the four-page product therewith in an unfolded condition with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

28. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, of a printing mechanism adapted to produce a printed product having its pages printed in sets of four, means for giving the two-page product a fold on a line which is parallel with its columns, means for associating therewith the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

29. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, of a printing mechanism adapted to produce a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for giving the two-page product a fold on a line which is parallel with its columns, means for associating therewith the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

30. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, of a printing mechanism adapted to produce a printed product having its pages printed in sets of four, means for giving the two-page product a fold on a line which is parallel with its columns, means for associating therewith in an unfolded condition the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

31. In a printing-machine, the combination with a printing mechanism adapted to produce a printed product having its pages printed in sets of two, of a printing mechanism adapted to produce a printed product having its pages printed in sets of four, each set of two pages being equal in size to each set of four pages, means for giving the two-page product a fold on a line which is parallel with its columns, means for associating therewith in an unfolded condition the four-page product with its columns at right angles to the columns of the two-page product, and means for folding the associated products, substantially as described.

32. The combination with means for superposing a plurality of webs, each web having pages printed thereon in sets of two, of means for cutting sheets therefrom, means for folding said sheets, means for superposing a plurality of other webs, means for cutting sheets therefrom, means for associating said sheets in an unfolded condition with the folded product, so that the columns of the sheets are at right angles to the columns of the folded product, and means for folding the associated products, substantially as described.

33. The combination with means for superposing a plurality of webs, each web having pages printed thereon in sets of two, of means for cutting sheets therefrom, means for folding said sheets, means for forwarding a plurality of other webs, means for applying a line of paste between said last-mentioned webs and longitudinally thereof, means for cutting sheets from these webs, means for associating said sheets with the folded product so that the columns of the sheets are at right angles to the columns of the folded product, and means for folding the associated products, substantially as described.

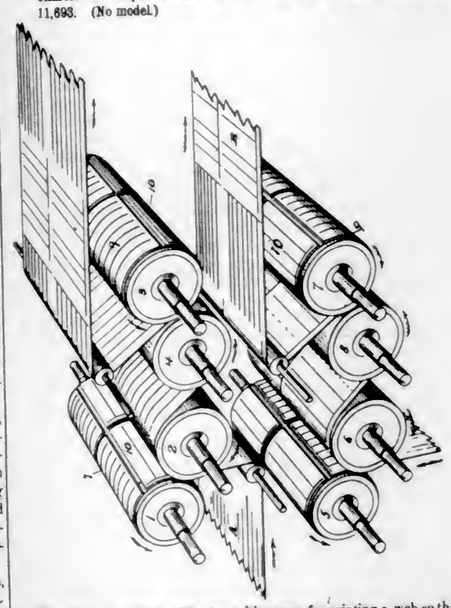
34. The combination with means for superposing a plurality of webs, each web having pages printed thereon in sets of two, of means for cutting sheets therefrom, means for folding said sheets, means for forwarding a plurality of other webs having pages printed thereon, means for applying a line of paste between said last-mentioned webs and longitudinally thereof, means for applying a line of paste to one of said webs longitudinally thereof and between every alternate set of pages, means for cutting sheets from said webs, means for collecting said sheets, means for associating the collected sheets with the folded product, and means for folding the associated products, substantially as described.

35. In a printing-machine, the combination with a printing-couple adapted to print pages in sets of two on a double-wide web, of a printing-couple adapted to print pages in sets of four on a double-wide web, means for slitting and superposing the two-page web, means for cutting sheets therefrom, means for folding the sheets, means for slitting and superposing the four-page web, means for cutting sheets therefrom, means for associating said sheets with the folded product from the two-page web with the columns of the sheets at right angles to the columns of the folded product, and means for folding the associated products, substantially as described.

36. In a printing-machine, the combination with a printing-couple adapted to print pages in sets of two on a double-wide web, of a printing-couple adapted to print pages in sets of four on a double-wide web, means for slitting and superposing the two-page web, means for cutting sheets therefrom, means for folding the sheets, means for slitting the four-page web, means for applying a line of paste longitudinally between the two parts of the web thus formed, means for cutting sheets therefrom, means for associating said sheets with the folded product from the two-page web, the columns of the sheets being at right angles to the columns of the folded product, and means for folding the associated products, substantially as described.

37. In a printing-machine, the combination with a printing-couple adapted to print pages in sets of two on a double-wide web, of a printing-couple adapted to print pages in sets of four on a double-wide web, means for slitting and superposing the two-page web, means for cutting sheets therefrom, means for folding the sheets, means for slitting the four-page web, means for applying a longitudinal line of paste between the parts of the web thus formed, means for applying a longitudinal line of paste to one of said parts of the web and between every alternate set of pages, means for cutting sheets from said web, means for collecting said sheets, means for associating the collected sheets with the folded product from the two-page web, so that the columns of the collected sheets are at right angles to the columns of the folded product, and means for folding the associated products, substantially as described.

664,575. PRINTING-MACHINE. THOMAS M. NORTH, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Apr. 5, 1900. Serial No. 11,693. (No model.)



Claim.—1. The combination with means for printing a web so that the columns of a set of the impressions will be parallel with the run of the web and the columns of another set of impressions will be at right angles to the run of the web, of means for giving the web a central fold, means for severing it into sheets, and means for associating the sheets having their columns at right angles to the run of the web with the sheets having their columns parallel with the run of the web, and means for folding the associated product, substantially as described.

2. The combination with means for forwarding a web having a set of impressions the columns of which are parallel with the run of the web, and a set of impressions the columns of which are at right angles to the run of the web, of means for giving the web a central fold, means for severing it into sheets between the sets of impressions, means for associating the sheets with the columns of one sheet at right angles to the columns of the other sheet, and means for folding the associated product, substantially as described.

3. The combination with means for printing a web so that the columns of a set of the impressions will be parallel with the run of the web and the columns of another set of impressions will be at right angles to the run of the web, of means for severing the web into sheets, part of the sheets containing the columns which run in one direction and part of the sheets containing the columns which run in the other direction, and means for associating the sheets having their columns running one way with the sheets having their columns running the other way, substantially as described.

4. The combination with means for forwarding a web having a set of impressions the columns of which are parallel with the run of the web, and a set of impressions the columns of which are at right angles to the run of the web, of means for severing the web into sheets between the sets of impressions, means for associating the sheets with the columns of one sheet at right angles to the columns of the other sheet, and means for folding the associated product, substantially as described.

5. The combination with means for printing a web so that each side of a section of it shall contain two pages with the columns running lengthwise of the web, and each side of a section of it shall contain four pages with the columns running at right angles to the run of the web, and said four pages being equal in size to the two pages whose columns run lengthwise of the web, and means for associating the section of web having two pages on each side with the section of web having four pages on each side, substantially as described.

6. The combination with means for printing pages on a web in sets of two and sets of four, the columns of the two-page set running in one direction and the columns of the four-page set being at right angles to the columns of the two-page set, of means for associating the sets, substantially as described.

7. The combination with means for printing pages on a web in sets of two and sets of four, the columns of the two-page set running in one direction and the columns of the four-page set being at right angles to the columns of the two-page set, of means for severing the web between the sets of impressions, and means for associating the sets, substantially as described.

8. The combination with means for printing pages on a web in sets of two and sets of four, the columns of the two-page set running in one direction and the columns of the four-page set being at right angles to the columns of the two-page set, of means for severing the web between the sets of impressions, and means for associating the sets with the columns of one set at right angles to the columns of the other set, substantially as described.

9. The combination with means for printing pages on a web in sets of two and sets of four, of a slitting mechanism, means for operating the slitting mechanism to divide that section of the web which carries the four-page impressions into two parts, means for folding the web longitudinally so as to give the two-page section a central fold and superpose the two slit parts, means for cutting the web into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

10. The combination with means for printing pages on a web in sets of two and sets of four, of a slitting mechanism, means for operating the slitting mechanism to divide that section of the web which carries the four-page impressions into two parts, a longitudinal folder for giving the two-page section a longitudinal central fold and superposing the two slit parts, means for cutting the web into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

11. The combination with means for printing pages on a web in sets of two and sets of four, of a slitting mechanism, means for operating the slitting mechanism to divide that section of the web which carries the four-page impressions into two parts, a longitudinal folder for giving the two-page section a longitudinal central fold and superposing the two slit parts, and cutting and collecting cylinders operating to cut the webs into sheets between the different sets of impressions and collect the sheets, substantially as described.

12. The combination with means for printing a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

13. The combination with means for forwarding a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

14. The combination with means for printing a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, a slitting mechanism operating to divide the sections of the webs having the sets of four pages into two parts, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

15. The combination with means for forwarding a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, a slitting mechanism operating to divide the sections of the webs having the sets of four pages into two parts, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

16. The combination with means for printing a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, a slitting mechanism operating to divide the sections of the webs having the sets of four pages into two parts, means for giving the webs a longitudinal fold, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

17. The combination with means for forwarding a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for superposing the webs with the several sets of two in register and the several sets of four in register, a slitting mechanism operating to divide the sections of the webs having the sets of four pages into two parts, means for giving the webs a longitudinal fold, means for severing the webs into sheets between the sets of impressions, and means for associating the sheets, substantially as described.

18. The combination with means for printing a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for applying a line of paste longitudinally of the webs and between the pages printed in sets of two, means for applying a line of paste between the webs and transversely thereof, said line of paste extending between the pages printed in sets of four, means for applying a line of paste to the under side of the under web, said line extending transversely of the web and lying between two of the pages of the sets of four, means for bringing the webs together, a slitting mechanism operating to cut the webs longitudinally into two parts between the pages printed in sets of four, means for giving the webs a longitudinal fold, means for severing the webs into sheets between the sets of impressions, and means for collecting the sheets, substantially as described.

19. The combination with means for forwarding a plurality of webs, each web having pages printed thereon in sets of two and sets of four, of means for applying a line of paste longitudinally of the webs and between the pages printed in sets of two, means for applying a line of paste between the webs and transversely thereof, said line of paste extending between the pages printed in sets of four, means for applying a line of paste to the under side of the under web, said line extending transversely of the web and lying between two of the pages of the sets of four, means for bringing the webs together, a slitting mechanism operating to cut the webs longitudinally into two parts between the pages printed in sets of four, means for giving the webs a longitudinal fold, means for severing the webs into sheets between the sets of impressions, and means for collecting the sheets, substantially as described.

20. The combination with means for forwarding two webs, of a pasting device cut away so as to apply a longitudinal line of paste to the upper side of a portion of the under web, a pasting device operating to apply a transverse line of paste to the under side of the upper web and entirely across the same, a pasting device operating to apply a transverse line of paste to the under side of the under web and partly across the same, and means for driving the several pasting devices, substantially as described.

21. The combination with means for forwarding two webs, of a pasting device cut away so as to apply a longitudinal line of paste to the upper side of a portion of the under web, a pasting device operating to apply a transverse line of paste to the under side of the upper web and entirely across the same, a pasting device operating to apply a transverse line of paste to the under side of the under web and partly across the same, and a common driving means for all the pasting devices, substantially as described.

664,576. MATCH-BOX. GUSTAVUS R. ODEAN, Minneapolis, Minn. Filed Dec. 11, 1899. Serial No. 739,934. (No model.)

Claim.—1. An automatic match-lighting box, comprising a box provided with a spring-actuated cover, a catch whereby the same is normally held in a closed position, a match-striker, and an ejector arranged in the box attached to and movable with said cover, and whereby upon the release of the cover a match is ejected from the box.

2. An automatic match-lighting box, comprising a box to contain matches, in combination, with a spring-actuated cover therefor, said cover operating as a lever, a catch normally holding the latter in its closed position, a striker provided in said box, and an ejector arranged in the box attached to said cover and movable therewith upon the release of the cover to eject or force a match from the box past said striker, to ignite the match.



3. An automatic match-lighting box, comprising a box to contain matches, a lid or cover hinged thereon, an ejector comprising wires attached to the free end of the cover and extending into the box, a footpiece thereon within the box, a striker, a catch for said lid or cover, and a single spring operating said catch and cover, substantially as described.

4. An automatic match-lighting box, comprising a box provided with a hinged spring-actuated lid or cover, a striker provided within the box, an ejector, and a movable lid or cover catch forming a closure for the top of the box when said spring-actuated cover is open, substantially as described.

5. An automatic match-lighting box, comprising a box having a tube portion, an ejector slidable in said tube portion, a spring-actuated lid for said box whereto said ejector is connected and by which it is operated, and a combined catch, closure and striker provided in the upper part of the box, substantially as described.

6. An automatic match-lighting box, comprising a box having a longitudinal tube portion, a spring-actuated ejector included and slidable longitudinally within the walls of said tube portion and adapted to engage the ends of the matches as they enter said tube portion one at a time, a catch whereby said ejector is normally held, and a striker, substantially as described.

7. An automatic match-lighting box, comprising a box having a tube portion, a spring-actuated lid or cover for said box, an ejector slidable in said tube portion and connected with said cover, a striker provided in the path of said ejector, and a catch whereby said ejector and cover are normally held, substantially as described.

8. An automatic match-lighting box wherein the matches are longitudinally arranged, comprising a box, a hinged spring-actuated lid or cover therefor, an ejector operating longitudinally within said box, and a combined cover-catch and striker provided near said ejector, substantially as described.

9. An automatic match-lighting box, comprising a box having a tubed or recessed portion in its walls adapted to receive matches one at a time, a spring-actuated ejector comprising wires 5 and a footpiece 6, arranged within said tubed portion, a striker provided near said ejector and a catch whereby said ejector is normally held, substantially as described.

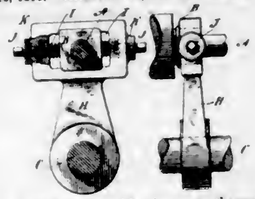
10. An automatic match-lighting box, comprising a box adapted to contain matches, a spring-actuated lid or cover therefor, an ejector provided in said box and connected with said cover, a lever 12 provided in the top of the box beneath said cover, and a combined cover-catch and match-striker provided on said lever near said ejector, substantially as described.

664,577. CUFF-HOLDER. PETER O'DONNELL, Chicago, Ill. Filed June 13, 1900. Serial No. 20,115. (No model.)



Claim.—The combination with a coat-sleeve, of a slotted and tongued cuff-holder provided with tenons at its ends each tenon having a central line of stitching-holes and an offset connecting it to the cuff-holder and beveled edges to said slot and tongue, substantially as specified.

664,578. PRINTING-PRESS. GEORGE E. PANCOAST, New York, N. Y., assignor to the American Lithographic Company, of New York. Filed Feb. 10, 1899. Serial No. 705,155. (No model.)



Claim.—1. In combination with a ductor or other roller or elongated device to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft, and means to rock the rock-shaft applied at or near one end thereof, of a spring interposed between the rock-shaft and the roller-support at at least one end of the shaft, whereby the motion is there conveyed from the rock-shaft to the support through the spring and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

2. In combination with a ductor or other roller or elongated device to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft, and means to rock the rock-shaft, of a spring at each end of the rock-shaft applied at or near one end thereof interposed between the rock-shaft and the roller-support, whereby the motion is there conveyed from the rock-shaft to the supports through the springs and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

3. In combination with a ductor or other roller or elongated device to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft, and means to rock the rock-shaft applied at or near one end thereof, of an adjustable spring interposed between the rock-shaft and the roller-support at at least one end of the shaft, whereby the motion is there conveyed from the rock-shaft to the support through the spring and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

4. In combination with a ductor or other roller or elongated device to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft, and means to rock the rock-shaft applied at or near one end thereof, of an adjustable spring at each end of the rock-shaft interposed between the rock-shaft and the roller-support, whereby the motion is there conveyed from the rock-shaft to the supports through the springs and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

5. In combination with a ductor or other roller or elongated device to be rocked and to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft and rocking them, and means to rock the rock-shaft arranged at one end thereof, of a spring interposed between the rock-shaft and the roller-support at the end of the rock-shaft near its rocking means and a more resistant spring interposed between the rock-shaft and the roller-support at the end of the rock-shaft farther from its rocking means, whereby the motion is there conveyed from the rock-shaft to the supports through the springs, and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller is counteracted, substantially as described.

6. In combination with a ductor or other roller or elongated device to be rocked and to operate by contact, and the contacting device itself with which it is to so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft and rocking them, and means to rock the rock-shaft arranged at one end thereof, of an adjustable spring interposed between the rock-shaft and the roller-support at the end of the rock-shaft near its rocking means and an adjustable spring interposed between the rock-shaft and the roller-support at the end of the rock-shaft farther from its rocking means, whereby the motion is there conveyed from the rock-shaft to the supports through the springs, and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

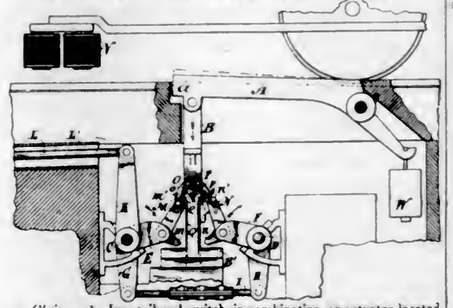
7. In combination with a ductor or other roller or elongated device

to be rocked and to operate by contact, and two contacting devices between which it is to so oscillate and so operate, and a suitable support for the roller at each end thereof and a rock-shaft carrying the said supports one at each end of the shaft and rocking them, and means to rock the rock-shaft arranged at one end thereof, of an adjustable double-acting spring or set of springs interposed between the rock-shaft and the roller-support at the end of the rock-shaft near its rocking means and an adjustable double-acting spring or set of springs interposed between the rock-shaft and the roller-support at the end of the rock-shaft farther from its rocking means, whereby the motion in both directions is there conveyed from the rock-shaft to the supports through the springs, and the effect of torsion in the rock-shaft upon the fact or character of contact from end to end of the roller with either of the two contacting devices may be counteracted, substantially as described.

8. The combination, substantially as described, of the rock-shaft C, the rocking mechanism D applied at or near one end of the shaft, arms H H, adjustable springs I I I I, sliding boxes B B, the ductor-roller A, and the contacting rollers E and F.

9. In combination with a ductor or other roller or elongated device to be rocked, and a suitable support for the roller at each end, and two contacting devices between which it is to so rock and so operate and a rock-shaft carrying the said supports one at each end of the shaft and rocking them, and means to rock the rock-shaft, applied at or near one end thereof, of a double-acting spring device interposed between the rock-shaft and the roller support at at least one end of the shaft, whereby the motion is conveyed from the rock-shaft to the support through the spring device and the effect of torsion in the rock-shaft or any imperfection in other parts of the mechanical movement upon the fact or character of contact from end to end of the roller may be counteracted, substantially as described.

664,579. SWITCH FOR RAILWAYS. FRED S. PEARSON, Boston, Mass. Filed Mar. 14, 1899. Serial No. 708,994. (No model.)



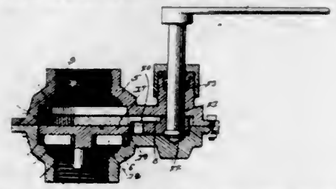
Claim.—1. In a railroad-switch, in combination, an actuator located in the car-track and adapted to be raised by mechanism on the car, and afterward depressed by the car-wheel, a magnet on the car by which the actuator is raised, and mechanism connected with the actuator and with the switch and operated by the former, whereby when the actuator is depressed the switch is reversed, substantially as described.

2. In a railroad-switch, in combination, an actuator located in the car-track and capable of being raised by mechanism on the car and afterward depressed by the car-wheel, a vertically-sliding post B attached to and operated by the actuator, oscillating arms E and F arranged and adapted to engage alternately with the post, and mechanism connecting the arms with the switch, whereby as the post moves down it engages with either one of the arms and reverses the switch, substantially as described.

3. In a railroad-switch, in combination, the actuator A located in the car-track and capable of being raised by mechanism on the car and afterward depressed, by the car-wheel; vertically-sliding post B, arms E, F connected together and adapted to engage alternately with the post, means whereby the disengaged arm is held from engagement with the post; mechanism connecting the arms with the switch, whereby as the post moves down it engages with either one of the arms and reverses the switch; and a magnet located on the car by which the actuator is raised, substantially as described.

4. In a railroad-switch, in combination, the actuator A, located in the car-track; post B attached to and operated by the actuator; arms E and F connected together and mounted on shafts C and D and adapted to engage alternately with the post; means whereby the disengaged arm is held from engagement with the post; arm K mounted on and moving with the shaft C; mechanism connecting the arm K with switch; and the magnet V on the car and adapted to raise the actuator, substantially as described.

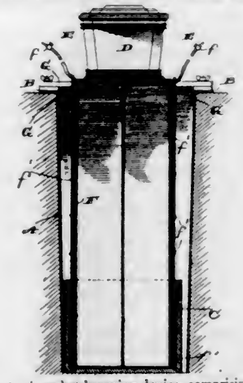
664,580. VALVE. CHARLES F. PEKOR, Columbus, Ga. Filed Aug. 25, 1900. Serial No. 28,075. (No model.)



Claim.—1. The combination with a valve-casing having a slotted seat, of an oscillatory disk disposed in coöperative relation to the seat and having radially-disposed slots or openings for registration at times with the slots of the seat, said disk having a segmental gear thereon, and being adapted for oscillation, stops in the path of oscillatory movement of the gear to limit the movement of the disk, said disk being bodily movable from its seat, and a second segmental gear engaged with the first gear and having a height greater than the bodily movement of the disk to maintain engagement of the gears at all times.

2. The combination with a valve-casing including a valve-chamber and a supplemental chamber communicating therewith, said valve-chamber having a valve-seat, of an oscillatory disk disposed in coöperative relation to the seat and having radially-disposed slots for registration at times with the slots of the seat, a segmental gear formed upon the periphery of the disk and projecting into the supplemental chamber and disposed for engagement with the walls of the supplemental chamber to limit the oscillatory movement of the disk, a second gear in the supplemental chamber and engaging the gear on the disk, and means for actuating the second gear to give oscillatory movement to the disk, the disk being bodily movable from its seat and the dimensions of the gears being such as to maintain engagement in all positions of the disk.

664,581. CASKET-LOWERING DEVICE. ALBERT C. RICHARDSON, Frankfort, Mich., assignor of one-half to Thomas Watson, same place. Filed Apr. 21, 1900. Serial No. 13,825. (No model.)



Claim.—1. A casket-lowering device, comprising a collapsible air-reservoir divided into a plurality of non-communicating compartments, and valve connections arranged to independently control the inflating and deflating of the several compartments, substantially as described.

2. A pneumatic cushion comprising a collapsible air-reservoir, adapted when inflated, to be positioned in an open grave with its upper surface near the top thereof, in combination with a valve connection arranged to control the inflation and deflation of the reservoir and means for withdrawing the reservoir from the grave when deflated, substantially as described.

3. A pneumatic cushion comprising a collapsible air-reservoir, constructed, when inflated, to be positioned in an open grave with its upper surface near the top thereof, in combination with a valve connection arranged to control the inflation and deflation of the reservoir, and means attached to the reservoir whereby when deflated it may be withdrawn from beneath the casket, substantially as described.

4. A pneumatic cushion comprising a collapsible air-reservoir, adapted when inflated to be positioned in an open grave with its upper surface near the top thereof, and provided with guiding-rings secured to its sides, in combination with a valve connection arranged to control the inflation and deflation of the reservoir, substantially as described.

5. A casket-lowering device comprising a collapsible air-reservoir divided into a plurality of non-communicating compartments, and adapted, when inflated, to be positioned in an open grave with its upper surface near the top thereof, in combination with valve connections arranged to independently control the inflating and deflating of the several compartments.

6. A pneumatic cushion comprising a collapsible air-reservoir adapted when inflated, to be positioned in an open grave with its surface near the top thereof, and valve connections arranged to control the inflation and deflation of the reservoir, in combination with means for guiding the cushion while deflating the same, substantially as described.

7. A pneumatic cushion comprising a collapsible air-reservoir divided into a plurality of compartments, adapted when inflated, to be positioned in an open grave with its upper surface near the top thereof, in combination with valve connections arranged to independently control the inflating and deflating of the several compartments, and substantially vertical guides arranged to guide and direct the cushion and its burden when deflating the same, substantially as described.

8. A pneumatic cushion comprising a collapsible air-reservoir adapted when inflated, to be positioned in an open grave with its upper surface near the top thereof, and provided with valve connections controlling the inflating and deflating of the same, in combination with substantially vertical guides, and means secured to the sides of the cushion coacting with the guides to guide and direct the cushion and its burden when deflating the former, substantially as described.

9. A casket-lowering device comprising a casing, substantially vertical guiding-rods, and means for retaining the guiding-rods in position, in combination with a pneumatic cushion comprising a collapsible air-reservoir adapted, when inflated, to be positioned between the guiding-rods with its upper surface near the top of the grave, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

10. A casket-lowering device comprising a casing, substantially vertical guiding-rods, and means for retaining the rods in position, in combination with a pneumatic cushion comprising a collapsible air-reservoir adapted when inflated to be positioned between the guiding-rods with its upper surface near the top of the grave, and provided with guiding-rings secured to the sides thereof, adapted to loosely embrace the guiding-rods, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

11. A casket-lowering device comprising a casing, guiding rods or bars, retaining-slats G, means for securing the slats in position, and means for securing the guiding-rods at the bottom of the grave, in combination with a pneumatic cushion comprising a collapsible air-reservoir adapted, when inflated, to be positioned between the guiding-rods with its upper surface near the top of the ground, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

12. A casket-lowering device comprising a casing, guiding rods or bars, retaining-slats G, means for securing the slats in position, and means for securing the guiding-rods at the bottom of the grave, in combination with a pneumatic cushion comprising a collapsible air-reservoir adapted when inflated, to be positioned between the guiding-rods with its upper surface near the top of the grave, and provided with rings secured to its sides, adapted to loosely embrace the guiding-rods, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

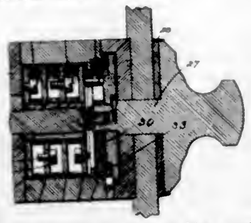
13. A casket-lowering device comprising a casing A, guiding rods or bars E, retaining-slats G; means for securing the retaining-slats in position, and means for securing the lower ends of the rods, in combination with a pneumatic cushion comprising a collapsible reservoir divided into a plurality of compartments, adapted, when inflated, to be positioned between the guide-rods with its upper surface near the top of the grave, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

14. A casket-lowering device comprising a casing A, guiding rods or bars E, retaining-slats G, means for securing the retaining-slats in position, and means for securing the lower ends of the rods, in combination with a pneumatic cushion comprising a collapsible reservoir divided into a plurality of compartments, adapted when inflated to be positioned between the guide-rods with its upper surface near the top of the grave, and provided with guiding-rings f' adapted to loosely embrace the guiding-rods, and valve connections arranged to control the inflation and deflation of the reservoir, substantially as described.

15. In an apparatus of the kind described, a pneumatic cushion provided with guiding-rings arranged upon its sides with valve connections for controlling the inflating and deflating of the cushion, in combination with vertical guiding-rods adapted to be passed loosely through said guiding-rings, the rods upon one side being provided with means at the lower end to engage the rings to withdraw the cushion, substantially as described.

16. A pneumatic cushion comprising a collapsible air-reservoir divided into a plurality of compartments and provided with guiding means secured to the sides thereof, in combination with valve connections, arranged to independently control the inflating and deflating of the several compartments, substantially as described.

664,582. LOCK. JAMES RIKARD, Lexington, S. C. Filed Dec. 2, 1899. Serial No. 739,040. (No model.)



Claim.—1. A permutation-lock comprising a casing, a series of rotary tumblers each provided with a peripheral recess and an adjustable stud, a rotary actuator provided with a series of peripheral recesses and with an adjustable stud, a gravity-actuated safety-tumbler and a knob in operative relation with the actuator.

2. A permutation-lock comprising a slotted casing, a latch-bar, a series of tumblers each provided with a peripheral recess, and an adjustable stud, a safety-tumbler, an actuator intermediate of the safety-tumbler and the series of tumblers and operatively related thereto and means for rotating the actuator.

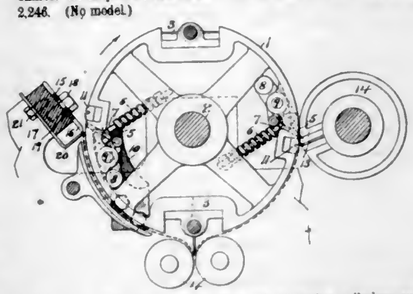
3. A permutation-lock comprising a slotted casing, a latch-bar, a series of rotary tumblers, a spindle within the casing, a tumbler-supporting disk carried thereby, a safety-tumbler loosely carried by said disk and a rotary actuator provided with oppositely-extending studs engaging the disk and one of the series of tumblers, said safety-tumbler being located in the path of one of said studs.

4. The combination with a boltwork comprising a series of bolts and a latch-bar, of a permutation-lock comprising a casing slotted to receive the latch-bar, a combination-knob, a series of rotary tumblers, a gravity-actuated safety-tumbler and an actuator intermediate of the knob and tumblers.

5. The combination with a support as for instance a door, of a boltwork comprising two sets of bolts, intermediate connecting mechanism, and a headed latch-bar, a spindle provided with a crank operatively connected with the boltwork, and a permutation-lock comprising a slotted casing, a series of rotary tumblers therein, a gravity-actuated safety-tumbler normally guarding the slot in the casing, an actuator in operative relation with all of the tumblers, and a knob operatively connected to the actuator.

6. A permutation-lock comprising a series of rotary tumblers provided respectively with a peripheral recess and a circular series of apertures, a stud with one aperture of each tumbler, a segmental safety-tumbler, an actuator provided with a series of peripheral recesses and a circular series of apertures and a pair of studs projecting oppositely from the actuator and operatively related with the safety-tumbler and the adjacent tumbler of the series, means for rotating the actuator and a slotted casing.

664,583. FOLDING MECHANISM. OSCAR ROESEN, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Jan. 22, 1900. Serial No. 2,246. (No model.)



Claim.—1. The combination with a pair of cutting-cylinders, one of which is provided with folding-off devices and with means for taking the leading edge of a web, of means cooperating with said cylinder and operating upon the leading edge of the web to prevent the material to be folded from being carried around the cylinder, substantially as described.

2. The combination with a pair of cutting-cylinders, one of which is provided with a folding-blade and devices for taking the leading edge of a web, of a pair of rollers with which the folding-blade coöperates, and means coöperating with said cylinder and acting upon the leading edge of the web to prevent the material to be folded from being carried around the cylinder; substantially as described.

3. The combination with a pair of cutting-cylinders, one of which is provided with folding-off devices and with means for taking the leading edge of a web, of a scraping-blade located near the path of rotation of the cylinder and serving to prevent the web from being carried around the cylinder, substantially as described.

4. The combination with a pair of cutting-cylinders one of which is provided with a folding-blade and with means for taking the leading edge of a web, of a pair of rollers with which the folding-blade coöperates, and a scraping-blade located near the path of rotation of the cylinder and serving to prevent the web from being carried around the cylinder.

5. The combination with a pair of cutting-cylinders, one of which is provided with folding-off devices and with means for taking the leading edge of a web, of a stationary scraping-blade located near the path of rotation of the cylinder and serving to prevent the web from being carried around the cylinder, and means for adjusting the blade, substantially as described.

6. The combination with a pair of cutting-cylinders, one of which is provided with a folding-blade and with means for taking the leading edge of a web, of a pair of rollers with which said blade coöperates, a stationary scraping-blade located near the path of rotation of the cylinder and serving to prevent the web from being carried around the cylinder, and means for adjusting the blade.

7. The combination with a cylinder carrying folding-off devices, and one of the coöperating members of a cutting device, said member being grooved, of a scraping-blade having a series of points, the grooves of the cutting member being arranged to register with the points of the scraping-blade as the cylinder revolves, substantially as described.

8. The combination with a cylinder having sheet-taking devices and folding-off devices, of a stop with which the leading edge of the product comes in contact after it has been released by the sheet-taking devices, substantially as described.

9. The combination with a cylinder having sheet-taking devices and folding-off devices, of an adjustable stop with which the leading edge of the product comes in contact after it has been released by the sheet-taking devices, substantially as described.

10. The combination with a cylinder having sheet-taking devices, folding-off devices and one member of a cutting device, of a scraping-blade for preventing the product from being carried around the cylinder, and a stop for the leading edge of the product, substantially as described.

11. The combination with a cylinder having sheet-taking devices, folding-off devices and one member of a cutting device, of an adjustable scraping-blade for preventing the product from being carried around the cylinder, and an adjustable stop, substantially as described.

3. The combination with a form-cylinder, of a plurality of sets of devices operating to prevent the plates from shifting angularly about the cylinder, a group of said sets of devices being operative when the cylinder is rotating in one direction and another group of said sets of devices being operative when the cylinder is rotating in the opposite direction, and means carried by the cylinder for simultaneously rendering one group operative and the other group inoperative, substantially as described.

4. The combination with a form-cylinder, of a plurality of sets of margin-stops carried by the cylinder, a group of said sets of stops being operative when the cylinder is rotating in one direction and another group of said sets of stops being operative when the cylinder is rotating in the opposite direction, and means carried by the cylinder for simultaneously rendering one group operative and the other group inoperative, substantially as described.

5. The combination with a form-cylinder, of a margin-stop, a recess in the cylinder in which said stop is mounted, and means for giving the stop a radial movement toward and from the axis of the cylinder, substantially as described.

6. The combination with a form-cylinder, of a plurality of sets of margin-stops carried by the cylinder, a plurality of shafts, one for each set of stops, means for rotating the shafts, and means intermediate the shafts and the stops whereby the stops are operated, substantially as described.

7. The combination with a form-cylinder, of a plurality of sets of margin-stops carried thereby, a plurality of shafts, one for each set of stops, means for simultaneously rotating the shafts, and means intermediate the shafts and the stops whereby the stops are operated, substantially as described.

8. The combination with a form-cylinder, of a plurality of sets of margin-stops, a plurality of shafts, one for each set of stops, a gear mounted on the shaft of the form-cylinder, gears mounted on each of the shafts and meshing with said gear, and snail-cams on each of the shafts, one for each of the margin-stops, substantially as described.

9. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of devices operating to prevent the plates from shifting angularly about the form-cylinder, and means whereby a part of said devices is rendered operative when the cylinder is rotating in one direction and another part of said devices is rendered operative when the cylinder is rotating in the opposite direction, substantially as described.

10. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of sets of margin-stops, and means whereby one set of stops may be rendered operative when the couple is rotating in one direction and another set of stops may be rendered operative when the couple is rotating in the opposite direction, substantially as described.

11. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of sets of devices for preventing the plates from shifting angularly about the cylinder, and means whereby a group of said sets of devices is rendered operative when the cylinder is rotating in one direction, and another group of said sets of devices is rendered operative when the cylinder is rotating in the opposite direction, substantially as described.

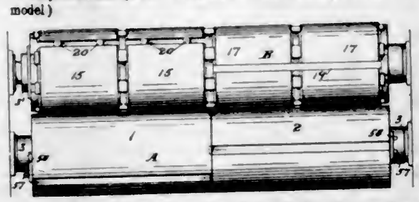
12. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of sets of margin-stops, and means whereby a group of said sets of stops is rendered operative when the cylinder is rotating in one direction and another group of said sets of stops is rendered operative when the cylinder is rotating in the opposite direction, substantially as described.

13. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of sets of devices for preventing the plates from shifting angularly about the cylinder, a group of said sets of devices being operative when the cylinder is rotating in one direction and another group of said sets of devices being operative when the cylinder is rotating in the opposite direction, and means for simultaneously rendering one group operative and the other group inoperative, substantially as described.

14. In a printing-couple, the combination with an impression-cylinder having a plurality of impression-surfaces, one of which is angularly adjustable, of a form-cylinder comprising a plurality of sections, one of which is provided with a plurality of sets of margin-stops, a group of said sets of stops being operative when the cylinder is rotating in one

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664,584. FORM-CYLINDER. OSCAR ROESEN, New York, N. Y., assignor, by direct and mesne assignments, to Robert Hoe and Charles W. Carpenter, same place. Filed Jan. 22, 1900. Serial No. 2,248. (No model.)

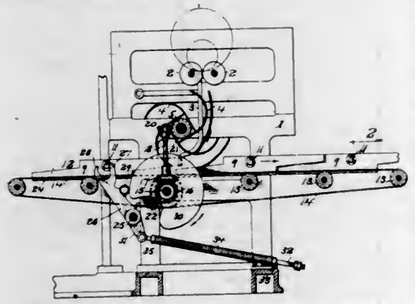


Claim.—1. The combination with a form-cylinder, of a plurality of devices operating to prevent the plates from shifting angularly about the cylinder, and means carried by the cylinder whereby a part of said devices is rendered operative when the cylinder is rotating in one direction and another part of said devices is rendered operative when the cylinder is rotating in the opposite direction, substantially as described.

2. The combination with a form-cylinder, of a plurality of sets of devices operating to prevent the plates from shifting angularly about the cylinder, a group of said sets of devices being operative when the cylinder is rotating in one direction, and another group of said sets of devices being operative when the cylinder is rotating in the opposite direction, and means carried by the cylinder for rendering one group operative and the other group inoperative, substantially as described.

direction and another group of said sets of stops being operative when the cylinder is rotating in the opposite direction, and means for simultaneously rendering one group operative and the other group inoperative, substantially as described.

664,585. DELIVERY MECHANISM. OSCAR ROSEN, New York, N. Y., assignor to Robert Hoe, same place. Filed May 22, 1900. Serial No. 17,573. (No model.)



Claim.—1. The combination with a sheet-delivery apparatus, of a plurality of independent sheet-receivers, and means whereby each receiver is presented to the sheet-delivery apparatus and is caused when so presented to receive a pack of sheets, substantially as described.

2. The combination with a sheet-delivery apparatus, of a plurality of independent sheet-receivers, and means whereby each receiver is to receive a pack of sheets which partly overlie each other, substantially as described.

3. In a sheet-delivery apparatus, the combination with sheet-delivery means, of a plurality of sheet-receivers in which the sheets are superposed by the delivery means, means for presenting each receiver to the delivery apparatus, and means for advancing each receiver during the time the sheets are delivered thereto, substantially as described.

4. In a sheet-delivery apparatus, the combination with sheet-delivering means, of a plurality of sheet-receivers, and means whereby the sheet-delivering means is caused to deposit a pack of sheets in each receiver, such sheets partly overlying each other, substantially as described.

5. In a sheet-delivery apparatus, the combination with sheet-delivering means, of a plurality of sheet-receiving trays, each tray being constructed so that a part of its sheet-supporting surface may be caused to overlie a part of the sheet-supporting surface of the next tray, substantially as described.

6. A tray for use in sheet-delivery apparatus having parts of its sheet-supporting surface arranged in different planes, whereby two such trays are adapted to be so arranged that a part of the sheet-supporting surface of one tray overlies a part of the sheet-supporting surface of the other tray, substantially as described.

7. A tray for use in sheet-delivery apparatus having parts of its sheet-supporting surface arranged in different planes and parts of the tops and parts of the bottoms of its sides similarly arranged, whereby each tray may be caused to overlap a similar tray at one end and to be overlapped by a similar tray at the other end, substantially as described.

8. A tray for use in sheet-delivery apparatus constructed to receive a pack of overlapping sheets and having the forward portion of its sheet-supporting surface arranged above the rear portion, whereby two such trays are adapted to be so arranged that the forward portion of the sheet-supporting surface of one overlies the rear portion of the sheet-supporting portion of the other, substantially as described.

9. A tray for use in sheet-delivery apparatus having its sides and bottoms at each end of the tray arranged at different heights, whereby two such trays are adapted to be so arranged that the part of the bottom of one tray overlies the part of the bottom of the next tray, substantially as described.

10. The combination with a sheet-delivery device, of a plurality of sheet-receivers, means for advancing a sheet-receiver with respect to the delivery device during the delivering operation so that a pack of overlapping sheets will be deposited in the receiver, and means for positioning a second receiver so that the first sheet deposited in it will overlie the last sheet deposited in the first receiver but will have its major portion supported by the second receiver, substantially as described.

11. The combination with a sheet-delivery device, of a plurality of sheet-receivers, means for advancing one or more of said receivers at a constant speed, means for preventing the advance of a succeeding receiver until the preceding receiver is filled, and means for positioning said succeeding receiver so that it will receive its first sheet without interfering with the advance of the preceding receiver, substantially as described.

12. The combination with a sheet-delivery device, of a plurality of sheet-receiving trays, each tray having the forward portion of its sheet-supporting surface arranged above its rear portion, means for advancing each tray during the delivery operation, whereby a pack of overlapping sheets will be deposited therein, and means for bringing a succeeding tray into position as the preceding tray is filled with the higher portion of the sheet-supporting surface of the succeeding tray overlying the lower portion of the sheet-supporting surface of the preceding tray, substantially as described.

13. The combination with a sheet-delivery device, of a constantly-running advancing mechanism, a plurality of trays arranged thereon, each tray having parts of its sheet-supporting surface arranged at different heights, and means for bringing each succeeding tray, as the preceding tray is filled, into a position where the higher portion of its sheet-supporting surface overlies the lower portion of the sheet-supporting surface of the preceding tray, substantially as described.

14. The combination with a sheet-delivery device, of a supporting and advancing mechanism, a plurality of sheet-receiving trays carried thereby, and a tray-positioning device, substantially as described.

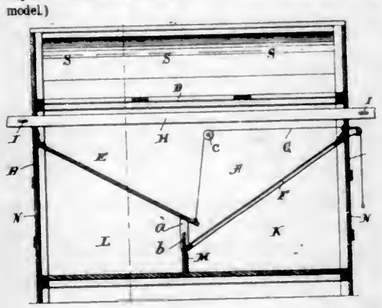
15. The combination with a sheet-delivery device, of a supporting and advancing mechanism, a plurality of sheet-receivers carried thereby, and a tray-positioning device, substantially as described.

16. The combination with a sheet-delivery device, of an advancing mechanism including belts and rollers, a plurality of trays carried thereby, each tray having parts of its sheet-supporting surface arranged at different heights, a tray-positioning arm, and means for intermittingly operating the arm, substantially as described.

17. The combination with a sheet-delivery device, of a tray-advancing mechanism, a plurality of trays, each tray having parts of its sheet-supporting surface arranged at different heights, a tray-positioning device, means whereby said device prevents the advance of each succeeding tray until the preceding tray is filled, and means whereby said positioning device brings each tray into position with the higher portion of its sheet-supporting surface overlying the lower portion of the sheet-supporting surface of the preceding tray after a predetermined number of sheets have been deposited in said preceding tray, substantially as described.

18. The combination with a sheet-delivery device, of an advancing mechanism, a plurality of trays, each tray having parts of its sheet-supporting surface arranged at different heights and having a projection, an arm having retaining and advancing fingers which engage the projection, and means for intermittently operating the arm, substantially as described.

664,586. CASTOR-BEAN-POPPING HOUSE. CHESTEEN SAXTON, Payne County, Okla. Filed Mar. 15, 1900. Serial No. 8,832. (No model.)



Claim.—1. A castor-bean popper comprising a case having in its upper portion a popping-grate, a heating means for the said grate, and a separating means below said grate, substantially as described.

2. A castor-bean popper comprising a case or housing having in its upper portion a popping-grate, a heater extending through the said house, below the grate, and bean and shell separating devices, situated below the heater and the popping-grate, substantially as described.

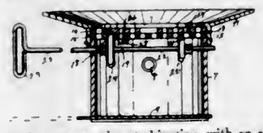
3. A castor-bean popper comprising a housing having in its upper portion a popping-grate, a heater extending through the house below the grate, an inwardly-inclined sieve below the heater and popping-grate, and an oppositely-inclined deflector above the said sieve and adapted to direct the hulls against the sieve for separation, substantially as described.

4. A castor-bean popper comprising a housing, a popping-grate situated in its upper portion, a heater situated below the grate, an inwardly-inclined sieve situated in one end of the housing below the heater and grate, a partition dividing the lower portion of the house into two chambers, and an inclined deflector situated in the opposite end of the house below the grate and above the said sieve, substantially as described.

5. A castor-bean popper comprising a housing, a popping-grate in the upper portion thereof, a movable top therefor, permitting access to the popping-grate, a heater located in the house below the said grate, and a separating means situated below the heater and the grate for separating the beans and the shells, substantially as described.

6. A castor-bean popper comprising a housing, a popper-grate situated in the upper portion thereof, a heater-pipe extending through the said housing, the said pipe having dampers for controlling the passage of the heat therethrough, an inclined sieve situated in one end of the housing below the said pipe, a partition dividing the housing into bean and shell chambers, and an inclined deflector in the opposite end of the housing, situated above the sieve and below the heating-pipe, substantially as described.

664,587. TWYER. JOSEPH SCHOELER, Hamilton, Ohio. Filed June 11, 1900. Serial No. 19,955. (No model.)



Claim.—1. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for the admission of air, of two rotatable plates at the bottom of the basin, one on top of the other, each plate being provided with radially-arranged air-passages upon diametrically opposite sides of the center thereof, the passages of the two plates being adapted to alternately pass into and out of register as the plates are rotated, and means for rotating said plates relatively to each other.

2. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for admitting air thereto, of two plates at the bottom of the basin, one on top of the other and each provided with enlongated openings, the openings of each plate being substantially parallel and arranged radially upon opposite sides of the center thereof, and means for simultaneously rotating said plates in opposite directions.

3. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for admitting a blast of air thereto, of two circular disks at the bottom of the basin, one on top of the other, each of which is provided with corresponding elongated openings, the openings of each plate being substantially segmental and arranged radially upon opposite sides of the center of the plate, and a handle provided with means for engaging with both of the disks to simultaneously rotate them in opposite directions.

4. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for admitting a blast of air thereto, of two rotary disks at the bottom of the basin, one on top of the other and each provided with diametrically-arranged openings, a rotary handle below the disks provided with actuators for engaging with the disks independently of each other and simultaneously rotating them in opposite directions.

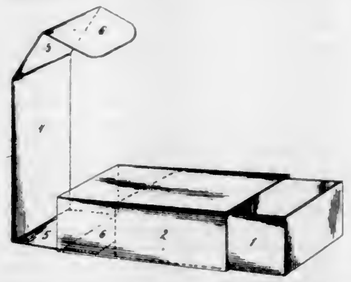
5. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for admitting a blast of air thereto, of two rotary disks at the bottom of the basin, each of which is provided with diametrically-arranged openings and one of them with a segmental slot and oppositely-located teeth and the other one with teeth to register with the slot, and a rotary handle below the disks provided with toothed actuators for engaging with the disks for rotating them in opposite directions.

6. In a twyer, the combination, with an air-chamber provided with a fuel-basin and means for admitting an air-blast thereto, of two rotary disks below the basin, each of which is provided with diametrically-arranged openings and one of them with a segmental slot and oppositely-located teeth and the other one with teeth to register with the slot, a rotary handle and two semicircular toothed actuators on the handle of different diameters, the one with the smaller diameter being located closer to the center of the disks than the other one.

7. In a twyer, the combination, with a cylindrical air-chamber provided with means for admitting an air-blast thereto, of a concave fuel-basin provided with a central opening and a depending collar, the collar encircling the top of the air-chamber and secured thereto with the basin at a distance above the top, two circular disks between the top of the chamber and the basin, each provided with diametrically-arranged openings, and means for simultaneously rotating the disks in opposite directions.

664,588. PAPER BOX. EBEN M. SCOTT, Bridgeport, Conn., assignor to the Warner Brothers Company, same place. Filed July 6, 1900. Serial No. 22,678. (No model.)

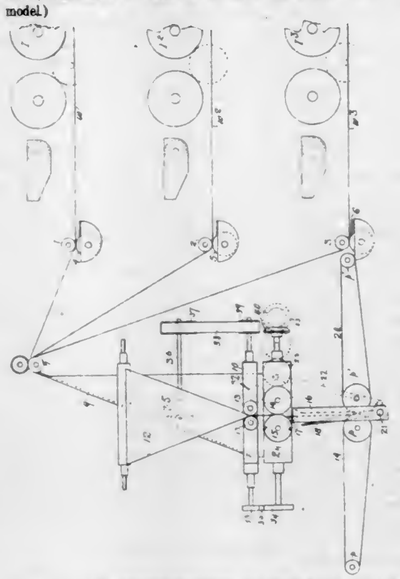
Claim.—1. In a paper box, the combination of a tray and a tubular cover adapted to receive the same, with a locking part adapted to be folded over the cover and across the ends of the tray, said locking part being provided with flaps adapted for insertion between the tray and the cover, substantially as described.



2. In a paper box, the combination of a tray and a tubular cover adapted to receive the same, with a locking part adapted to be folded over the cover and across the ends of the tray, said locking part being provided with flaps adapted for insertion between the tray and the cover, one of said flaps being permanently attached to the tray, substantially as described.

3. In a paper box, the combination of a tray and a tubular cover adapted to receive the same, with a locking part adapted to be folded over the cover and across the ends of the tray, said locking part being provided with flaps adapted for insertion between the tray and the cover, one of said flaps being permanently attached to the cover, substantially as described.

664,589. FOLDING AND DELIVERY MECHANISM. WALTER SCOTT, Plainfield, N. J. Filed Jan. 27, 1898. Serial No. 668,121. (No model.)



Claim.—1. In a folding mechanism, the combination of a longitudinal V-shaped former provided with a groove extending in the direction of travel of the web, and means for applying paste to said web along a longitudinal line thereof before the web reaches said former, with means for drawing the web over said former, laying the fold and pressing the parts of the web together, whereby said paste is caused to unite the web-sections, substantially as described.

2. In a folding mechanism, the combination of a longitudinal or V-shaped former, means for drawing a web thereover and associating the web-sections, and a paste-applying device located inside the web under the former and applying paste to the web after it leaves the edge of the former and before it reaches the drawing means, whereby said drawing

means also cause the web-sections to be pasted together, substantially as described.

3. In a folding mechanism, the combination of a longitudinal V-shaped former, drawing means coacting therewith, and a revolving blade for applying paste to the inner side of a web after it leaves the edge of said former and before it reaches said drawing means, substantially as described.

4. In a folding mechanism, the combination of a longitudinal V-shaped former, drawing means coacting therewith, a journaled shaft located between said former and said drawing means, a paste-applying blade mounted eccentrically of said shaft, and mechanism for revolving said blade independently of the motion of said shaft, substantially as described.

5. In a folding mechanism, the combination of a longitudinal V-shaped former, drawing means for coaction therewith, a revolving blade located to apply paste to the inner side of the web after it leaves the edge of said former and before it reaches said drawing means, mechanism for revolving said blade, and mechanism for moving the blade into and out of position for coaction with said web, substantially as described.

6. In a printing and folding machine, the combination of web-printing mechanism, a longitudinal folder to which the web is led without being turned over, cutting-cylinders adjacent the apex of said folder, a collecting or carrying cylinder at the left of said cutting-cylinders, impaling-pins on said carrying-cylinder, folding-rolls below said carrying-cylinder and between which the sheets are folded off, guides for the edges of the copies fed downwardly by said folding-rolls, a set of tapes for carrying the sheets from the cutting-cylinders to the carrying-cylinder and also coacting with said guides, a receiver, and a pusher, substantially as described.

7. In a folding mechanism, the combination of two longitudinal folders arranged to act in succession on the same web to fold it twice longitudinally and to associate sections thereof or half-width webs at the first folder and to fold the same or part thereof at the second folder, with two independent cutting and delivery mechanisms adapted one to coact with the first folder and the other to coact with the second folder, and means whereby the web may be led from the first folder to the second folder without being cut by the cutting mechanism for the first folder, substantially as described.

8. In a folding mechanism, the combination of a longitudinal former 9, guide or folding rolls 10 at its apex, cutting-cylinders 24 25, and delivery mechanism for delivering products at one place, with roll 11, former 12, the web going to former 12 being led thereto without being cut by cylinders 24 25, rolls 13 at the apex of former 12, cutting-cylinders 14 15, and delivery mechanism coacting therewith to deliver products at a second place, whereby various products may be delivered some at one place and some at another simultaneously or otherwise, substantially as described.

9. In a folding mechanism, the combination of a longitudinal folder to which the web is taken without being turned over, cutting-cylinders below said folder, a sheet-carrying cylinder at the left of said cutting-cylinders, guides for the sheets extending tangentially of said cutting and carrying cylinders at the under sides thereof, a pair of folding-rolls between which the carrying-cylinder delivers the sheets, and a delivery, substantially as described.

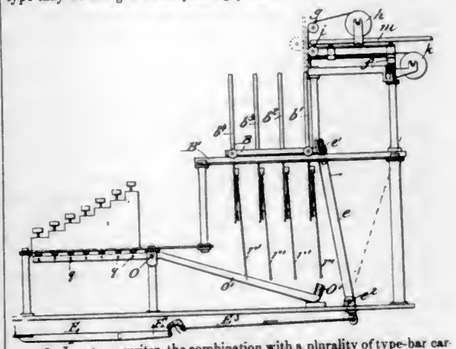
10. In a folding mechanism, the combination of a longitudinal folder to which the web is taken without being turned over, cutting-cylinders below said folder, a sheet-carrying cylinder at the left of said cutting-cylinders, guides for the sheets extending tangentially of said cutting and carrying cylinders at the under side thereof, a pair of folding-rolls between which the carrying-cylinder delivers the sheets, guides for the edges of the copies as they are run down by said rolls, a set of tapes coacting with said guides, a pusher, and a receiver, substantially as described.

11. In a folding mechanism, the combination of two longitudinal folders or V-shaped turners and associators adapted to act in succession on the same web, a paste-applier located to apply paste to the inner side of the web after it has left the edge of the first former or turner and before it reaches the rolls or associator, and two independent cutting and delivery mechanisms one for each folder and delivering products at different places, substantially as described.

664,590. TYPE-WRITER. ERNST SENSBURG, Munich, Germany. Filed Nov. 2, 1900. Serial No. 35,289. (No model.)

Claim.—1. In a type-writer, the combination with a plurality of type-bar carriers and type-bars bodily and vertically movable therein, each type-bar having a plurality of type, of means for moving the carriers to the plane of the printing-point, and means for moving the type-bars relative to the carriers to bring the desired type on the type-bar to the printing-point.

2. In a type-writer, the combination with a plurality of type-bar carriers, a carriage on which the same are mounted, and type-bars bodily movable in the carriers and provided with a plurality of type, of means for moving the carriage to bring the type-bar carriers to the plane of the printing-point, and means for moving the type-bars, whereby the desired type may be brought to the printing-point.



3. In a type-writer, the combination with a plurality of type-bar carriers, and a plurality of sets of type-bars, one set movably mounted in each carrier, the type-bars of each set being so arranged that their axes will intersect at the printing-point, of means for positioning the carriers and means for positioning the type-bars.

4. In a type-writing machine, the combination, with a horizontally-movable carriage, a plurality of type-bar carriers mounted therein, and means moving the carriage to position the type-bar carriers, of a plurality of vertically-movable type-bars mounted in each type-bar carrier, each type-bar having a plurality of type, and means for positioning the type-bars.

5. In a type-writing machine, the combination with a type-bar carrier, of a plurality of type-bars movably mounted in said carrier, a lifter-rod connected to each type-bar, and means for engaging the lifter-rod when its respective carrier has been positioned.

6. In a type-writing machine, the combination with a plurality of type-bar carriers, of a plurality of sets of type-bars, one set mounted in each carrier, each type-bar having a plurality of type, a lifting-rod connected to each type-bar, a set of actuating devices, and means for moving the type-bar carriers to bring any desired carrier with the lifting-rods of its set of type-bars into a position for engagement by the actuating devices.

7. In a type-writer, the combination with a type-bar carrier, and a plurality of type-bars movably mounted therein, each type-bar having a plurality of type, of a lifter-rod flexibly connected to each type-bar, and means for engaging the lifter-rods to position the type-bars.

8. In a type-writer, the combination with a type-bar carrier, and a type-bar movably mounted therein and provided with a plurality of type, of a lifter-rod flexibly connected to the type-bar, a spring arranged to hold the lifter-rod at an angle to its type-bar, and means for engaging the lifter-rods to position the type.

9. In a type-writer, the combination with a type-bar carrier, and a type-bar movably mounted therein and provided with a plurality of type, of a lifter-rod movably connected to the type-bar, means for holding the lifter-rod at a predetermined angle to the type-bar, a lever arranged to engage the lifter-rod, and means for operating the lever, whereby the type-bar is positioned.

10. In a type-writer, the combination with a series of type-bar carriers, and type-bars mounted to slide in a vertical plane therein, of a carriage to support the said type-bar carriers, and means for moving the carriage to bring any one of the said type-bars into position to print when actuated by the keys of the type-writer.

664,591. DEVICE FOR FEEDING AND WATERING POULTRY. DAVID E. SOUTHWICK, Ogdensburg, N. Y. Filed Apr. 3, 1900. Serial No. 11,373. (No model.)

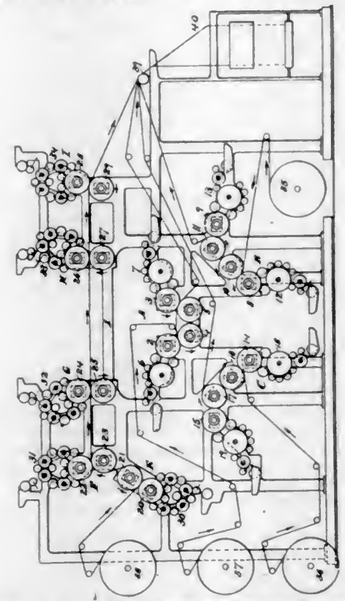
Claim.—1. A device of the class described comprising a guard or inclosure composed of substantially triangular ends, and inclined sides and having prongs or projections at the apex formed by the sides, one of the sides being hinged at such apex, and the upper and lower receptacles arranged within the guard or inclosure, substantially as described.

2. A device of the class described comprising a guard or inclosure provided with ends and having an inclined side, upper and lower receptacles arranged within the guard or inclosure, and fastening devices detachably securing the receptacles to the guard or inclosure, substantially as described.

3. A device of the class described comprising a guard or inclosure composed of substantially triangular ends, and inclined sides, a lower receptacle arranged at the bottom of the guard or inclosure and provided with partitions extending above its walls, an upper receptacle supported upon the said partitions, and fastening devices detachably securing the receptacles to the guard or inclosure, substantially as described.



664,592. PRINTING-MACHINE. WILLIAM SPALCKHAVER, New York, N. Y., assignor to Robert Hoe, same place. Filed June 2, 1900 Serial No. 18,793. (No model.)



Claim.—1. In a printing-machine, the combination with a frame, of a printing mechanism mounted substantially centrally in the frame, two sets of printing-couples, each set being mounted below and at one side of the said printing mechanism, and a series of couples mounted in the frame and arranged over said centrally-mounted mechanism, substantially as described.

2. In a printing-machine, the combination with a frame, of a printing mechanism mounted substantially centrally in the frame and capacitated to print a full-width web, two sets of printing-couples, each set being mounted below and at one side of the said printing mechanism and capacitated to print a full-width web, and a series of couples mounted in the frame and arranged over said centrally-mounted mechanism and capacitated to print a full-width web, substantially as described.

3. In a printing-machine, the combination with a frame, of a printing mechanism mounted substantially centrally in the frame and capacitated to print a full-width web, two sets of printing-couples, each set being mounted below and at one side of the said printing mechanism and capacitated to print a full-width web, a series of couples mounted in the frame and arranged over said centrally-mounted mechanism and capacitated to print a full-width web, and a common delivery mechanism to which all the webs are led, substantially as described.

4. In a printing-machine, the combination with a suitable frame, of a set of printing-couples mounted substantially centrally in the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted set and the other set being mounted below and at the other side of the centrally-mounted set, and a color-deck, the couples of which are mounted above the said sets of couples, the first couple of the deck being arranged to print on one side of a web in black and the last couple of the deck being arranged to print on the other side of the web in black, the intermediate couples being arranged to print on one side of the web in colors, the arrangement being such that the web may be led through all the couples of the deck, or through the first and last couples of the deck, substantially as described.

5. In a printing-machine, the combination with a suitable frame, of a set of printing-couples mounted substantially centrally in the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted set and the other set being mounted below and at the other side of the centrally-mounted set, a color-deck, the couples of which are mounted above the said sets of couples, the first couple of the deck being arranged to print on one side of a web in black, the last couple of the deck being arranged to print on the other side of the web in black, and the intermediate couples being arranged to print on one side of the web in colors, the arrangement being such that the web may be led through all the couples of the deck or through the first and last couples of the deck, and a common delivery mechanism to which all the webs are led, substantially as described.

6. In a printing-machine, the combination with a suitable frame, of a set of printing-couples mounted substantially centrally in the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted set and the other set being mounted below and at the other side of the centrally-mounted set, a color-deck, the couples of which are mounted above the said sets of couples, the first couple of the deck being arranged to print on one side of a web in black, the last couple of the deck being arranged to print on the other side of the web in black, and the intermediate couples being arranged to print on one side of the web in colors, the arrangement being such that the web may be led through all the couples of the deck or through the first and last couples of the deck, and a common delivery mechanism to which all the webs are led, substantially as described.

7. In a printing-machine, the combination with a suitable frame, of a set of printing-couples mounted substantially centrally in the frame and capacitated to print and perfect a full-width web, two sets of printing-couples one set being mounted below and at one side of the centrally-mounted set and the other set being mounted below and at the other side of the centrally-mounted set, and each of these sets being capacitated to print and perfect a full-width web, and a color-deck, the couples of which are mounted above the said sets of couples and capacitated to print and perfect a full-width web, the first couple of the deck being arranged to print on one side of the web in black, the last couple of the deck being arranged to print on the other side of the web in black, and the intermediate couples being arranged to print on one side of the web in colors, the arrangement being such that the web may be led through all the couples of the deck or through the first and last couples of the deck, substantially as described.

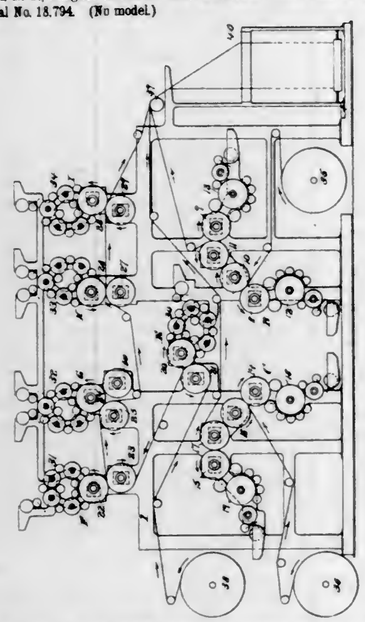
8. In a printing-machine, the combination with a suitable frame, of a set of printing-couples mounted substantially centrally in the frame and capacitated to print and perfect a full-width web, two sets of printing-couples one set being mounted below and at one side of the centrally-mounted set and the other set being mounted below and at the other side of the centrally-mounted set, and each of these sets being capacitated to print and perfect a full-width web, a color-deck, the couples of which are mounted above the said sets of couples and capacitated to print and perfect a full-width web, the first couple of the deck being arranged to print on one side of the web in black, the last couple of the deck being arranged to print on the other side of the web in black, and the intermediate couples being arranged to print on one side of the web in colors, the arrangement being such that the web may be led through all the couples of the deck or through the first and last couples of the deck, and a common delivery mechanism to which all the webs are led, substantially as described.

9. In a printing-machine, the combination with a frame, of a set of printing-couples and suitable inking apparatuses therefor, the couples and inking apparatuses being arranged substantially centrally of the frame, and the members of the couples being arranged between the inking apparatuses, two sets of printing-couples and suitable inking apparatuses therefor, one set of couples and its inking apparatuses being arranged at one side and below the centrally-mounted set of couples and the other set of couples and its inking apparatuses being arranged below and at the

other side of said centrally-mounted set of couples, the sets of couples being spaced apart from each other so as to allow ready access to the form-cylinders, and a color-deck arranged above the sets of couples, each couple of the deck being provided with a suitable inking apparatus, and the first couple of the deck being arranged at one end of the deck and below the other couples and printing on one side of a web and the last couple of the deck being arranged at the other end and printing on the other side of said web, and the intermediate couples being arranged to print on one side of the web, and the second and third couples and their inking apparatuses being spaced from the fourth and fifth couples and their inking apparatuses, whereby ready access is had to all the form-cylinders, substantially as described.

10. In a printing-machine, the combination with a frame, of a set of printing-couples and suitable inking apparatuses therefor, the couples and inking apparatuses being arranged substantially centrally of the frame, and the members of the couples being arranged between the inking apparatuses, two sets of printing-couples and suitable inking apparatuses therefor, one set of couples and its inking apparatuses being arranged at one side and below the centrally-mounted set of couples and the other set of couples and its inking apparatuses being arranged below and at the other side of said centrally-mounted set of couples, the sets of couples being spaced apart from each other so as to allow ready access to the form-cylinders, a color-deck arranged above the sets of couples, each couple of the deck being provided with a suitable inking apparatus, and the first couple of the deck being arranged at one end of the deck and below the other couples and printing on one side of the web and the last couple of the deck being arranged at the other end and printing on the other side of said web, and the intermediate couples being arranged to print on one side of the web, and the second and third couples and their inking apparatuses being spaced from the fourth and fifth couples and their inking apparatuses, whereby ready access is had to all the form-cylinders, and a common delivery mechanism to which all the webs are led, subetantially as described.

664,593. PRINTING-MACHINE. WILLIAM SPALCKHAVER, New York, N. Y., assignor to Robert Hoe, same place. Filed June 2, 1900. Serial No. 18,794. (No model.)



Claim.—1. In a printing-machine, the combination with a suitable frame, of a single printing-couple mounted substantially centrally of the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted couple and the other set being mounted below and at the other side of said centrally-mounted couple, and a series of couples mounted in the frame and arranged over the couple and sets of couples, substantially as described.

2. In a printing-machine, the combination with a suitable frame, of a single printing-couple mounted substantially centrally of the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted couple and the other set being mounted below and at the other side of said centrally-mounted couple, a series of couples mounted in the frame and arranged over the couple and the sets of couples, and a common delivery mechanism to which all the webs are led, substantially as described.

3. In a printing-machine, the combination with a suitable frame, of a single printing-couple capacitated to print a full-width web and mounted substantially centrally of the frame, two sets of printing-couples, one set being mounted below and at one side of the centrally-mounted couple and the other set being mounted below and at the other side of said centrally-mounted couple, each set of couples being capacitated to print and perfect a full-width web, and a series of couples capacitated to print and perfect a full-width web mounted in the frame and arranged over the couple and the sets of couples, substantially as described.

4. In a printing-machine, the combination with a suitable frame, of a single printing-couple capacitated to print a full-width web and mounted substantially centrally of the frame, two sets of printing-couples, one set being mounted below at one side of the centrally-mounted couple and the other set being mounted below and at the other side of said centrally-mounted couple, each set of couples being capacitated to print and perfect a full-width web, a series of couples capacitated to print and perfect a full-width web mounted in the frame and arranged over the couple and the sets of couples, and a common delivery mechanism to which all the webs are led, substantially as described.

5. In a printing-machine, the combination with a frame, of two sets of couples mounted therein, each set of couples being capacitated to print and perfect a web, and a color-deck, one couple of which is arranged above and between the two sets of couples and the remainder of which are arranged over the sets of couples, substantially as described.

6. In a printing-machine, the combination with a frame, of two sets of couples mounted therein, each set of couples being capacitated to print and perfect a web, a color-deck, one couple of which is arranged above and between the two sets of couples and the remainder of which are arranged over the sets of couples, and a common delivery mechanism to which all the webs are led, substantially as described.

7. In a printing-machine, the combination with a frame, of two sets of couples mounted therein, each set of couples being capacitated to print and perfect a full-width web, and a color-deck, capacitated to print a full-width web, one couple of which is arranged above and between the two sets of couples and the remainder of which are arranged over the sets of couples, substantially as described.

8. In a printing-machine, the combination with a frame, of two sets of couples mounted therein, each set of couples being capacitated to print and perfect a full-width web, a color-deck capacitated to print a full-width web, one couple of which is arranged above and between the two sets of couples and the remainder of which are arranged over the sets of couples, and a common delivery mechanism to which all the webs are led, substantially as described.

9. In a printing-machine, the combination with a suitable frame, of a plurality of sets of couples mounted therein, each set being arranged to print and perfect a full-width web, and a plurality of couples mounted in the frame independently of and over the sets of couples, one of said couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, said independently-mounted couples being arranged so that they may be used to print a full-width web in black and perfect it in colors, or a part of them may be used to print and perfect a full-width web in black, substantially as described.

10. In a printing-machine, the combination with a suitable frame, of a plurality of sets of couples mounted therein, each set being arranged to print and perfect a full-width web, a plurality of couples mounted in the frame independently of and over the sets of couples, one of said couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, said independently-mounted couples being arranged so that they may be used to print a full-width web in black and perfect it in colors, or a part of them may be used to print and perfect a full-width web in black, and a common delivery mechanism to which all the webs are led, substantially as described.

11. In a printing-machine, the combination with a suitable frame, of a plurality of sets of couples mounted therein, each set being capacitated to print and perfect a full-width web, and a color-deck located over the sets of couples, the first and last couples of which are arranged to print on opposite sides of a full-width web and the intermediate couples being arranged to print on one side of the web, one of said intermediate couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, substantially as described.

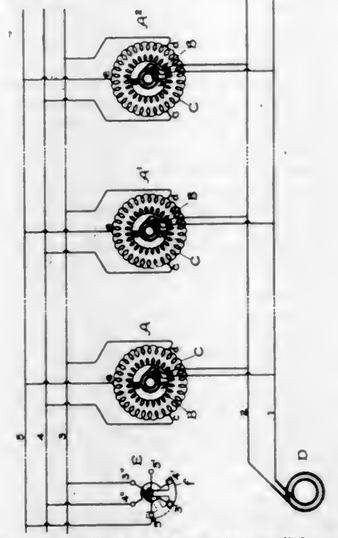
12. In a printing-machine, the combination with a suitable frame, of a plurality of sets of couples mounted therein, each set being capacitated to print and perfect a full-width web, a color-deck located over the sets of couples, the first and last couples of which are arranged to print on opposite sides of a full-width web and the intermediate couples being arranged to print on one side of the web, one of said intermediate couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, and a common delivery mechanism to which all the webs are led, substantially as described.

13. In a printing-machine, the combination with a suitable frame, of two sets of printing-couples mounted therein, each set being capacitated to print and perfect a full-width web, a printing-couple capacitated to print a full-width web arranged above and between said sets of couples, and a plurality of printing-couples capacitated to print a full-width web mounted over the sets of couples, one of said couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, substantially as described.

14. In a printing-machine, the combination with a suitable frame, of two sets of printing-couples mounted therein, each set being capacitated to print and perfect a full-width web, a single printing-couple capacitated to print a full-width web arranged above and between said sets of couples, a plurality of printing-couples capacitated to print a full-width web mounted above the sets of couples, one of said couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, and a common delivery mechanism to which all the webs are led, substantially as described.

15. In a printing-machine, the combination with a suitable frame, of two sets of printing-couples mounted therein, each set being capacitated to print and perfect a full-width web, a printing mechanism capacitated to print a full-width web arranged above and between said sets of couples, a plurality of printing-couples capacitated to print a full-width web mounted above the sets of couples, one of said couples consisting of a form-cylinder and two impression-cylinders, either of which may be caused to coöperate with the form-cylinder, and a common delivery mechanism to which all the webs are led, substantially as described.

664,594. MEANS FOR TRANSMITTING MOTION TO DISTANT POINTS. DAVID P. THOMSON, Lynn, Mass., assignor to the General Electric Company, of New York. Filed Sept. 29, 1900. Serial No. 31,542. (No model.)



Claim.—1. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, an alternating-current source connected to the winding on one of said members, and means for short-circuiting the winding on the other member along a predetermined line or lines.

2. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, an alternating-current source connected to the winding on one of said members, and means for successively short-circuiting the winding on the other member along lines angularly displaced from one another.

3. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, an alternating-current source connected to the winding on one of said members, a plurality of leads connected to points in the winding on the other member, and a switch for connecting together different leads in its different operative positions.

4. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, an alternating-current source connected to the winding on one of said members, a plurality of leads connected to points in the winding on the other member, and a switch for successively connecting the said leads in different combinations.

5. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, means for supplying alternating current to the winding on one of said members, a short-circuiting device for the winding on the other member, and means for producing a relative movement between the points in the winding connected to the alternating-current source, and the points through which the short circuit is completed.

6. As a means for transmitting a determinate movement, a device comprising relatively movable members provided with suitable windings, an alternating-current source of supply for one of said members, a short-circuiting device for the other member, and means located at a distant point for relatively shifting the points of connection to the source of supply and the points through which the short circuit is completed.

7. In combination, a device to be controlled comprising relatively movable members, a source of alternating-current supply connected to the winding on one of said members, means for short-circuiting the winding on the other member, and means for changing the line of short circuit of the latter member relatively to the line of polarization of the other member.

8. In combination, a device to be controlled comprising relatively movable members provided with suitable windings, a source of alternating current, means for supplying current from said source to the winding on one of said members, a short circuit for the other member, and means for relatively displacing the line of short circuit of one member and the line of polarization of the other.

9. In combination, a device to be controlled, an actuating device therefor, an alternating-current source for supplying current to said actuating device, and a controlling device for closing a circuit to produce a definite movement of said actuating device.

10. In a system of train control, a motor-controller having a series of operative positions, an actuating device therefor, an alternating-current source for supplying current to said actuating device, a master-controller having a series of positions corresponding to the positions of the motor-controller, and means whereby a movement of the master-controller, from one position to another, produces in the actuating device, a torque which gradually decreases as the motor-controller is moved to the corresponding position.

11. In a system of train control, a motor-controller having a series of operative positions, an actuating device therefor, an alternating-current source for supplying current to said actuating device, and a master-controller having a series of operative positions corresponding to the positions of the motor-controller, said master-controller operating to produce in the actuating device, a torque gradually decreasing with the movement of said device and disappearing when it reaches a position corresponding to that of the controlling device.

12. In a system of train control, a motor-controller, an actuating device therefor, an alternating-current source for supplying current to said actuating device, a master-controller, and means whereby a movement of the master-controller produces, in the actuating device, a torque which gradually decreases with the movement of said device and disappears when the motor-controller reaches a position corresponding to that of the master-controller.

13. In a system of train control, a motor-controller, an actuating device therefor comprising relatively movable members, a source of alternating-current supply connected to the winding on one of said members, a system of train-conductors to which the winding on the other member is connected, and a master-controller connected to said train-conductors and arranged to successively short-circuit the said winding along lines angularly displaced from one another.

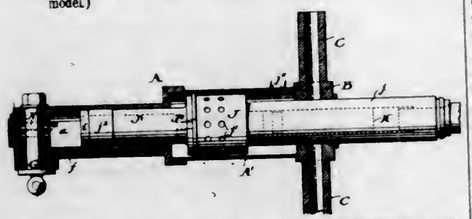
14. In a system of train control for direct-current motors, a motor-controller, an actuating device therefor comprising relatively movable members, a rotary converter operated from the direct-current source and having its alternating-current side connected to the winding on one of said members, a system of train-conductors to which the winding on the other member is connected, and a master-controller, connected to the said train-conductors, constructed and arranged to successively short-circuit the winding on said member along angularly-displaced lines.

664,595. ACETYLENE-GAS BURNER FOR COOKING-STOVES, &c. FRITZ TRENDEL, Berlin, Germany. Filed Dec. 5, 1899. Serial No. 739,282. (No model.)

Claim.—An acetylene-gas burner comprising the supply-pipe *h* shouldered at *i* and exteriorly threaded from said shoulder to its outer end, the collar *l* threaded upon said pipe, the arms *k* formed integral with the collar, the main mixing-pipe formed integral with and supported by said arms at a distance above said collar, said pipe *b* being provided with an opening in its bottom of less diameter than its main body, a mixing-pipe *e* secured in said opening, projecting up into the pipe *b* and leaving an annular space, and a main burner *c* formed integral with and at the upper end of pipe *b* and provided with openings *n*, all substantially as described and for the purposes set forth.



664,596. PNEUMATIC RIVETING APPARATUS. JOSEPH J. TYMAN and HENRY C. MOSTELLER, Philadelphia, Pa., assignors, by mesne assignments, to the Pneumatic Tool Improvement Company, same place and Camden, N. J. Filed Nov. 6, 1899. Serial No. 735,899. (No model.)



Claim.—1. In a riveting machine or similar instrument, in combination, a main casing, a hammer carrier mounted free for longitudinal movement in said casing, a hammer carried by and mounted free for reciprocation in said hammer carrier, and means for introducing a volume of air between the casing and the hammer carrier to occasion the concerted movement of said carrier and hammer and for introducing an independent volume of air within the carrier to occasion the independent movement of the hammer, substantially as set forth.

2. In a riveting machine or similar instrument, in combination, a main casing, a hammer carrier mounted free for longitudinal movement in said casing, a hammer carried by said carrier and adapted to have movement of reciprocation in relation to said hammer carrier, means for introducing air under pressure to the interior of the casing to act against the carrier to occasion the conjoint movement of the carrier and hammer, and means, for introducing air under pressure through a separate channel to the interior of the carrier to act against the hammer, substantially as set forth.

3. In a riveting machine or similar device, a casing, a hammer carrier mounted free for longitudinal movement therein, a hammer mounted free for reciprocation in said carrier but traveling with the carrier in the longitudinal movements of the latter, a hammer air inlet, an independent carrier air inlet, and means for controlling the said inlets, substantially as set forth.

4. In a riveting machine or similar device, in combination, a main casing embodying a carrier chamber and a guide chamber formed as an axial continuation thereof, a carrier mounted in said carrier chamber and extending into the guide chamber, and also extending through a suitable opening in the front or upper end of the carrier chamber, a hammer mounted wholly in said carrier, a hammer air inlet which opens into the guide chamber, a carrier air inlet which opens into the carrier chamber, and means for independently controlling said inlets, substantially as set forth.

5. In a riveting machine or similar device, a main casing embodying a carrier chamber and a guide chamber formed as an axial extension thereof, the lower portion of the wall of said carrier chamber being imperforate, a carrier mounted in said carrier chamber and extending into the guide-chamber, a tight joint being formed between the side of the carrier and the wall of the carrier chamber and a tight joint being formed between the wall of the extension of the carrier and the wall of the guide chamber, a hammer mounted for reciprocation within the carrier, and carried by said carrier, means for introducing compressed air within the lower end of the guide chamber, and independent means for introducing compressed air within the lower end of the carrier chamber, substantially as set forth.

6. In a riveting apparatus or similar device, a main casing embodying a carrier chamber the lower side wall of which is imperforate, a hammer carrier mounted in said carrier chamber and free to reciprocate therein and protruding through an opening in one end thereof, a packing disposed between said carrier and the wall of the carrier chamber, a guide chamber formed as an extension of said carrier chamber, an open ended tube or projection forming part of the carrier and extending within the guide chamber, a hammer mounted and contained in a suitable race in the interior of the carrier, a compressed air inlet opening into the lower end of the guide chamber, an independent air inlet opening into the lower portion of the carrier chamber, and means for controlling said inlets, substantially as set forth.

7. In a riveting apparatus or similar device, a main casing embodying a carrier chamber the lower wall of which is imperforate, a carrier mounted in said chamber and free to reciprocate therein and protruding through an opening in one end thereof, a hammer mounted for reciprocation in said carrier, and participating in all movements of said carrier, a guide chamber formed as an extension of said carrier chamber, an open ended tube or projection extending from the body of the carrier to within the guide chamber, a rivet tool mounted in the protruding end of the hammer carrier, and means for supplying compressed air to the exterior of the body of the carrier and independently to the interior of the body of the carrier, substantially as set forth.

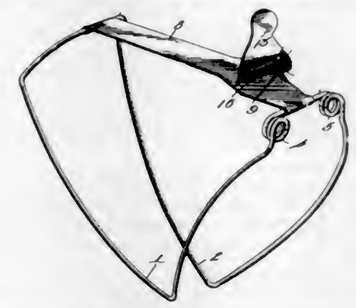
8. In a riveting apparatus or similar device, in combination, a main casing embodying a carrier chamber and a guide chamber formed as an extension thereof, a carrier mounted free for reciprocation therein, a hammer carried wholly by and mounted free for reciprocation within said carrier, a hammer air inlet formed in the normally closed lower end of the guide chamber in communication at its outer end with a constant source of supply of compressed air, a carrier air inlet extending along and through the wall of the guide chamber, opening as to its inner end within the carrier chamber and as to its outer end in communication with a source of compressed air, a valve seat which intersects said hammer air inlet and said carrier air inlet, an exhaust passage which leads from said valve seat to the atmosphere, a valve plug mounted for rotation in said seat, and embodying a hammer air inlet port, an independent carrier air inlet port and an independent exhaust air port, substantially as set forth.

9. In a riveting machine or similar device, a main casing embodying a carrier chamber and a guide chamber in communication with each other, a carrier comprising a tubular body having an enlarged head and an axial extension, said carrier being mounted in said carrier chamber with its extension projecting into and snugly fitting within the guide chamber, and its upper end protruding from the casing, a hammer mounted for reciprocation in and carried by said carrier, a hammer air inlet port passing through the normally closed lower end of the guide chamber, a carrier air inlet port or passage extending from end to end of the wall of the guide chamber, and opening at its inner end within the carrier chamber, and means for controlling said inlet passages, substantially as set forth.

10. In a riveting machine or similar device, a main casing embodying a carrier chamber and a guide chamber in communication with each other, a carrier comprising a tubular body having an enlarged head and an axial extension, said carrier being mounted in said chamber, with its extension projecting into the guide chamber and its upper end protruding through a suitable opening in the upper end of the carrier chamber, a hammer mounted for reciprocation in said carrier, and participating in all movements of the carrier, a hammer air inlet port passing through the normally closed lower end of the guide chamber, a carrier air inlet or passage extending from end to end of the wall of the guide chamber, and opening at its inner end within the carrier chamber, a valve seat formed in the lower or outer end of the guide chamber and intersecting said inlet passages, an exhaust air passage leading from said seat to the atmosphere, a valve plug mounted in said seat provided with three independent ports extending in different directions through it, one of which ports in one position of the valve plug is in registry with the carrier air inlet, another of which ports in another position of the valve plug is in registry with the hammer air inlet, and another of which ports in another position of the valve plug connects the inner branch of the carrier air inlet with the exhaust air passage, substantially as set forth.

11. In a riveting machine, in combination, a main casing embodying a carrier chamber, a hammer carrier mounted free for reciprocation in said chamber, said hammer carrier bearing a piston-head relationship to the said carrier chamber, a hammer mounted free for reciprocation in said hammer carrier but carried by the carrier in all movements of the latter, means for introducing a volume of air between the lower end of the carrier chamber and the adjacent end of the hammer carrier to cause the travel of said carrier, and means for introducing an independent volume of air within the hammer carrier for the propulsion of the hammer, substantially as set forth.

664,597. WORK-HOLDER. MYRTLE M. WALLIN, Rock Springs, Wyo. Filed June 7, 1900. Serial No. 19,447. (No model.)



Claim.—1. A work-holder for seamstresses comprising spring-jaws adapted to be clamped upon the knee and connected by cross-pieces; a plate secured to the cross-pieces; and a spring-pressed clamping-finger pivotally supported upon said plate.

2. A work-holder for seamstresses comprising cooperating clamping-jaws formed from a single piece of resilient wire bent to form said jaws; cross-wires and coils; a plate having its ends secured to said cross-wires; and a spring-pressed finger pivotally secured upon said plate and adapted to clamp the work upon said plate.

3. A work-holder consisting of spring-jaws connected by cross-wires and formed with coils; in combination with a plate secured at its ends to said cross-wires and having an upwardly-projecting perforated lip at one side; an arm projecting laterally from said plate and having a perforated ear: a shaft supported in the perforations of said lip and ear; a spring surrounding said shaft; and a clamping-finger pivotally secured upon said shaft and having a serrated lower edge.

664,598. PROCESS OF TREATING HIDES. FRANK WAYLAND, Newton, Mass. Filed May 13, 1899. Serial No. 716,758. (No specimens.)

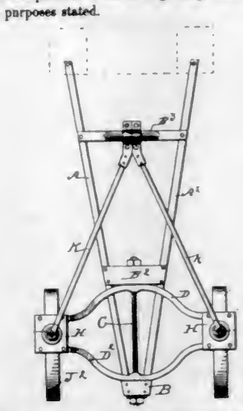
Claim.—1. The process of treating untanned hides which consists in soaking the hide to render it pliable, then shearing the hair off, then splitting the hide into layers before liming or unhairing it, whereby the splits and grains can be obtained for further independent treatment without effecting any injurious change in the condition of either layer, substantially as described.

2. The process of treating untanned hides which consists in soaking the hide to render it pliable, then shearing the hair off, then splitting off a level uniform layer on the grain side of the hide, and subsequently liming and unhairing the said grain layer, substantially as described.

3. The process of treating untanned hides which consists in soaking the hide to render it pliable, then shearing the hair off, then splitting the hide into layers and tanning the "split" or flesh layer into sole-leather without injuriously affecting its condition by the action of lime or the like, substantially as described.

664,599. TENDER FOR TRACTION-ENGINES. FRED J. WEIR, Gilmore City, Iowa, assignor of one-half to W. B. Weir, same place. Filed Sept. 11, 1900. Serial No. 29,663. (No model.)

Claim.—1. In a tender for traction-engines, a V-shaped frame adapted to be rigidly fixed to the rear end of an engine and composed of two mating straight bars rigidly connected at their rear ends, a coupling adapted for fastening the rear ends of said bars together rigidly and provided with a central bore to admit a round bar, a cross-bar having a transverse central bore fixed to said straight bars at some distance from said coupling, a round bar fixed at its rear end in the bore of said coupling and at its front end in the bore of said cross-bar and a second cross-bar fixed to the separated front end portions of the mating straight bars, as shown and described for the purposes stated.



2. A tender-carriage for traction-engines comprising a V-shaped frame composed of two mating straight bars, a coupling having a central bore fixed to their rear ends, a cross-piece having a central transverse bore fixed to said mating bars at some distance from said coupling, a second cross-piece fixed to the widely-separated portions of said mating bars, a round bar fixed in the bores of the coupling and cross-piece, a curved frame pivotally connected with said round bar and composed of two mating bars curved laterally and vertically and provided with transverse bores at their center and fixed together in parallel position at their ends, supports for caster-wheels fixed to the ends of the curved bars, caster-wheel bearers carrying wheels swiveled to said supports and braces fixed to said supports and pivotally connected with the cross-piece at the front portion of the V-shaped frame, all arranged and combined to operate in the manner set forth for the purposes stated.

664,600. UMBRELLA-HOLDER. FRANK WEITMAN, Millersburg, Ohio. Filed Feb. 1, 1900. Serial No. 3,622. (No model.)



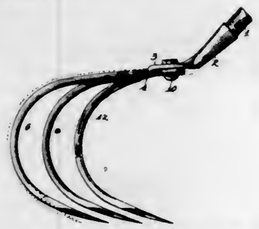
Claim.—1. In an umbrella-holder, the combination with a base, a reservoir having a threaded socket, and a receptacle, of a handle extending centrally through the receptacle and removably screwed into the socket.

2. In an umbrella-holder, the combination with a base, a reservoir having a threaded socket extending through the reservoir, and a receptacle, of a handle extending centrally through the receptacle and removably screwed into the socket.

664,601. HAND-CULTIVATOR. JOSEPH H. ANDERSON, St. Louis, Mo., assignor of one-fourth to G. C. Forry, same place. Filed Aug. 27, 1900. Serial No. 28,196. (No model.)

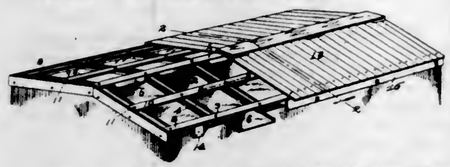
Claim.—1. A hand-cultivator, comprising a handle, a suitable concaved plate carried by the said handle, a plurality of plow-points supported by the said plate and means for adjusting the said plow-points at different elevations relative to said plate, substantially as specified.

2. A hand-cultivator, consisting of a handle, a plate carried by said handle, a flange integral with said plate, there being a series of notches formed in said flange, and a plurality of arms having plow-points on their lower ends carried by the said plate, the said arms being within the said notches, substantially as specified.



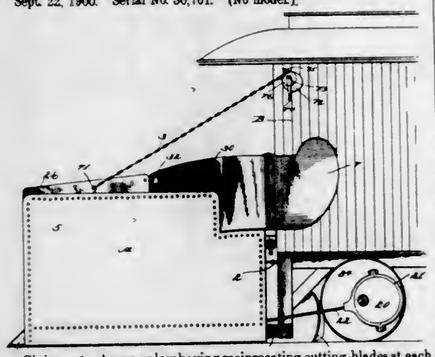
3. A hand-cultivator, consisting of a handle, a plate having an integral depending flange and notches formed in said flange, carried by the said handle, a series of pairs of arms, the arms of each pair being integral with each other, and resting in the said notches, a single fastening device for each pair of arms, plow-points formed on the said arms, and means for adjusting the said plow-points at different elevations relative to the said plate, substantially as specified.

664,602. CAR-ROOF. HENRY W. BEIMDIEK, Jr., St. Charles, Mo. Filed Sept. 17, 1900. Serial No. 30,375. (No model.)



Claim.—A roofing comprising suitable metallic rafters formed with central inverted-U-shaped portions, and having their edges bent to form guideways and terminating a slight distance above the bottom of the U-shaped central portions, in combination with metallic sections having their edges upturned and operating within the said guideways in which they fit closely, substantially as specified.

664,603. SNOW-PLOW. FRANK N. BELL, Milford, Mass. Filed Sept. 22, 1900. Serial No. 30,761. (No model.)



Claim.—1. A snow-plow having reciprocating cutting-blades at each side which are adapted to be projected beyond the nose of the plow, and means to convey the snow to one side of the plow.

2. In a snow-plow, an inclined way for conveying the snow to the side of the plow, and a reciprocating shovel or cutting-blade at the foot of the incline, said shovel being adapted to make a series of cuts under the snow as the plow advances.

3. In a snow-plow, an inclined way for conveying the snow to the side of the plow, a reciprocating shovel or cutting-blade at the foot of the incline, and reciprocating cutting-blades at the sides of the incline, said shovel and blades in their reciprocations projecting beyond the nose of the plow and making a series of cuts in the snow prior to its removal by the incline of the plow.

4. In a snow-plow, an inclined way for conveying the snow to the side of the plow, a reciprocating shovel or blade at the foot of the incline, vertically-reciprocating cutting-blades at the sides of the incline, means to reciprocate the blades and shovel in unison, the said cutting-blades in their reciprocation being projected beyond the front of the plow, whereby a series of cuts are made in the snow prior to its being removed by the plow.

5. A snow-plow having at its nose and in advance thereof a reciprocating shovel or cutting-blade, whereby the snow is loosened prior to its removal by the plow.

6. In a snow-plow a horizontally-arranged cutting-blade at the nose thereof, an incline terminating in curved wings, said incline being adapted to convey the snow to the side of the plow as the plow advances, and means to reciprocate the cutting-blade.

7. A snow-plow having at its ends a horizontally-arranged cutting-blade, an inclined way extending from the nose of the plow to the back thereof and terminating in oppositely-disposed deflecting-wings, and means to reciprocate said cutting-blade.

8. A snow-plow having at its nose a horizontally-arranged shovel or cutting-blade, an inclined way leading from the plow-nose to the back thereof, and terminating in oppositely-disposed deflecting-wings which are adapted to deflect the snow from the inclined way to the sides of the plow, vertically-arranged cutting-blades at the sides of the inclined way and at the front portion thereof, and means to reciprocate all said blades in unison.

9. A snow-plow having at its nose a horizontally-arranged cutting-blade, an inclined way terminating in oppositely-disposed deflecting-wings which are adapted to deflect the snow from the inclined way to the sides of the plow, and vertically-arranged guides at each side of said incline at its forward portion and vertically-arranged cutting-blades projecting from the forward end of said guides and means to reciprocate all of said blades in unison.

10. In a snow-plow, an inclined way leading from the nose to the back of the plow, and terminating in oppositely-disposed deflecting-wings, vertical guide-walls, at each side said incline, and at the forward portion thereof, a central partition or dividing-blade extending from the nose of the plow to the meeting edges of the wings, a horizontally-arranged cutting-blade at the foot of the incline, and the said blade in its reciprocations being projected forward beyond the nose of the plow and operating to loosen the snow prior to its removal by the plow.

11. In a snow-plow, an inclined way leading from the nose to the back of the plow and terminating in oppositely-disposed deflecting-wings, vertical guide-walls each side of said inclined way, a central partition extending from the nose of the plow to the meeting edges of the wings, horizontally-arranged reciprocating cutting-blades at the foot of the incline, vertical cutting-blades guided by the guide-walls, and means to reciprocate said blades in unison whereby in their reciprocations they are projected beyond the front portion of the plow thereby making a series of cuts in the snow and loosening the same prior to its removal.

12. In a snow-plow, an inclined way leading from the nose of the plow and terminating in oppositely-disposed deflecting-wings, vertical guide-walls on each side of said incline, a central partition extending from the said plow-nose to the meeting edges of the wings, said partition having a pivoted gate or wing which is adapted to be swung over into contact with either side wall, whereby the snow may be deposited on either side of the plow.

13. In a snow-plow, an inclined way leading from the nose to the back of the plow and terminating in oppositely-disposed deflecting-wings, vertical guide-walls at each side of the incline, a central partition extending from the said plow-nose to the meeting edges of the wings, said partition having a pivoted portion which is adapted to be swung into contact with either side wall of the plow whereby the entire volume of snow may be deposited on either side of the plow, and reciprocating cutting-blades adapted to be projected beyond the forward end of the plow to thereby loosen the snow preparatory to its removal by the plow.

14. A snow-plow having at its nose and in advance thereof a reciprocating shovel or cutting-blade, whereby the snow is loosened prior to its removal by the plow, and a scraper-blade contacting with the rail and adapted to throw the loose snow inward.

15. A snow-plow having at its nose a horizontally-arranged shovel or cutting-blade, an inclined way leading from the plow to the back thereof, and terminating in oppositely-disposed deflecting-wings which are adapted to deflect the snow from the inclined way to the sides of the plow, vertically-arranged cutting-blades at the sides of the inclined way and at the front portion thereof, and means to reciprocate all said blades in unison, and a scraper-blade contacting with the rail and adapted to throw the loose snow inward.

664,604. AUTOMATIC DEVICE FOR ENGAGING ENDS OF TRAVELING MUSIC-SHEETS. ROBERT J. BENNETT, Chicago, Ill., assignor to the Lyon & Healy, same place. Filed Feb. 8, 1898. Serial No. 669,605. (No model.)

Claim.—1. In a musical instrument of the character described, a winding-roller having a groove or recess therein, an engaging member fulcrumed in said groove or recess, an engaging part of said member which projects beyond or out of said groove or recess, when the winding-roller is at rest or rotating in a direction opposite to that of winding and an abutment or extension also on the engaging member operated by the end of the music-sheet when the latter is caught by the projecting part of the engaging member.



2. In a musical instrument of the kind described, a hook, or its equivalent, fulcrumed upon the winding-roller, and provided with an engaging end, or arm, K′, and at the opposite end therefrom an end, or arm, K^2, adapted through its gravity or other equivalent means, to cause the engaging arm, K′, when in its normal position, to protrude beyond the periphery of the winding-roller for the purposes herein set forth, substantially as described.

3. In a musical instrument of the kind described, an angular hooked lever fulcrumed upon the winding-roller, having one arm adapted to automatically engage with the music-sheet as the roller is rotated, and the other arm so constructed that the continued rotation of the roller in the winding direction causes the ring of the music-sheet to press against it and thereby withdraw the projecting arm into the groove of the roller.

4. In a musical instrument of the kind described, in combination with the winding-roller a hook, or lever, consisting of the base-plate, H, the lug or lugs, J, and the lever K, having the pointed arm, K′, the weighted arm K^2, the recess M, and the shoulder, M′, substantially as described.

664,605. NON-REFILLABLE BOTTLE. HOWARD J. BLOOMER, Norwalk, Conn. Filed Apr. 10, 1900. Serial No. 12,329. (No model.)



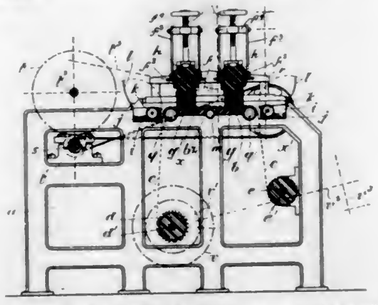
Claim.—1. A device of the class described comprising a receptacle provided with an aperture and having a superimposed neck located above the aperture and spaced entirely therefrom, a frangible connection supporting the neck and adapted to be broken at a point remote from the aperture whereby the edges of the bottle at the aperture are left smooth and unbroken, and a stopper arranged in the aperture and extending into the neck, said neck forming a handle for removing the stopper when the frangible connection is broken, substantially as described.

2. A device of the class described comprising a receptacle provided with an aperture, and a neck spaced entirely from the said aperture and connected with the receptacle by a frangible portion located at a point remote from the said aperture whereby the edges of the bottle at the aperture are left smooth and unbroken, substantially as described.

3. A device of the class described comprising a receptacle provided at its top with an aperture, a superimposed neck located above and spaced entirely from the aperture, frangible connections supporting the neck and united with the receptacle at points remote from the aperture whereby the edges of the bottle at the latter are left smooth and unbroken, and corks or stoppers arranged within the neck and the aperture, substantially as described.

4. A device of the class described comprising a receptacle provided with an aperture, a superimposed neck spaced entirely from the receptacle to leave the edges of the bottle at the aperture smooth and unbroken, the arms supporting the neck and connecting the same with the receptacle and provided with recesses forming weakened portions, and upper and lower stoppers arranged within the neck and the aperture, substantially as described.

664,606. CARPET-CLEANER. WILLIAM BOWIE and JOHN BOWIE, Glasgow, Scotland. Filed Jan. 21, 1899. Serial No. 702,881. (No model.)



Claim.—1. In a machine for cleaning and renovating textile fabrics, the combination of a supporting-frame, brushes supported from the frame, mechanical means for reciprocating the brushes, means for traversing the fabric under the brushes, troughs supplied with a fluid detergent supported by the frame, rollers revolving within the troughs and adapted to contact with the brushes, and means for revolving said rollers, substantially as described.

2. In a machine for cleaning and renovating textile fabrics, the combination of a supporting-frame, brushes supported from the frame, mechanical means for reciprocating the brushes, means for carrying the fabric under the brushes, means for supplying a fluid detergent to the brushes, and means whereby steam can be directed against the fabric, substantially as described.

3. In a machine for cleaning and renovating textile fabrics, the combination of a supporting-frame, slides moving reciprocally on the frame, brushes carried by the slides and vertically adjustable thereon, means for reciprocating the slides, means for vertically adjusting the brushes, a table arranged below the brushes, means for carrying the fabric over the table and below the brushes and means for supplying a fluid detergent to the brushes, substantially as described.

4. In a machine for cleaning and renovating textile fabrics the combination of a supporting-frame, slides working reciprocally on the frame, brushes arranged in sections carried by the slides and vertically adjustable thereon, mechanical means for reciprocating the slides, means for vertically adjusting the brushes, a table arranged below the brushes and having a longitudinal opening therein, a perforated plate covering the opening in the table, a perforated steam-pipe arranged below the said plate, means for traversing the fabric over the table and below the brushes, and means for supplying a fluid detergent to the brushes, substantially as described.

664,607. WASHING-MACHINE. DANIEL W. BOWMAN, Toledo, Ohio, assignor to Harry R. Wade, same place, and Joseph N. Clouse, St. Louis, Mo. Filed Aug. 23, 1899. Serial No. 728,181. (No model.)

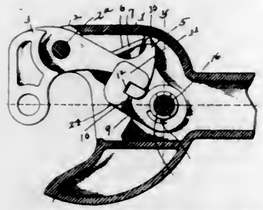


Claim.—In a washing-machine the pivot-supports for the lower concave rubber each consisting of the plate D, provided with a center flange and an outer segment of a flange, in combination with the segments C, each provided with an outer border-flange which turns and interlocks with said pivot-supports as shown and described.

664,608. CAR-COUPLING. SAMUEL P. BUSH, Columbus, Ohio. Filed June 17, 1899. Serial No. 720,888. (No model.)

Claim.—1. The combination with a recessed draw-head and a knuckle fulcrumed therein, of a pin capable of a vertical and rotary movement in said draw-head and a finger rotatably mounted on said pin and adapted by an upward movement of the latter to move the knuckle to an open position, substantially as specified.

2. In a car-coupling, the combination with a recessed draw-head and a fulcrumed knuckle in one of the jaws thereof, said knuckle having an arm adapted to extend within the draw-head recess, of a lock-operating pin, a knuckle-lock adapted to be lifted and swung by a vertical movement of said pin and capable of a swinging movement independent of said pin and adapted by engagement with said knuckle to move the lock to an open position, substantially as specified.



3. In a car-coupling, the combination with a recessed draw-head, a shoulder 24 in the lower portion thereof and a knuckle fulcrumed in one jaw of said head and having an arm 4, of a pin 16 extending loosely through the draw-head and capable of both a vertical and rotary movement, a knuckle-lock on said pin capable of being lifted by the latter or rotated thereon, said knuckle-lock adapted to engage said shoulder 24 and adapted to hold the knuckle-arm against outward movement and means whereby a lifting of the pin 16 operates to raise the lock out of engagement with said shoulder 24, swings said lock out of the path of the knuckle-arm and moves the latter outward, substantially as specified.

4. In a car-coupling, the combination with a recessed draw-head having a forward shoulder or stop-wall 24 in its lower portion and an internally-threaded pin-hole through its upper portion and an angular knuckle fulcrumed in one of the draw-head jaws of a lock-operating pin having a portion of its body threaded, a knuckle-lock adapted to be first lifted by and then swung on said pin by an upward movement of the latter to unlock the said knuckle said lock being normally seated in the lower portion of the draw-head in rear of said shoulder 24, substantially as specified.

5. In a car-coupling, the combination with a recessed draw-head and a fulcrumed knuckle in one of the jaws thereof, said knuckle having an arm adapted to extend within the draw-head recess and a lateral projection 6 on said knuckle-arm, of a lock-operating pin, a knuckle-lock mounted on said pin and adapted to be lifted and swung by a vertical movement of the latter, said lock having a finger 15 which is adapted by a preliminary vertical and swinging movement of the lock to be moved onto said knuckle-arm projection and by a continued swinging movement of the lock to move said knuckle-arm outward, substantially as specified.

6. In a car-coupling, the combination with a recessed draw-head and a fulcrumed knuckle in one of the jaws thereof, said knuckle having an arm adapted to extend within the draw-head recess and said arm being provided with a lateral recess 7ª on its inner portion, of a lock-operating pin, a lock mounted on said pin and adapted to be lifted and swung by a vertical movement of the latter, said lock having a finger 15 which is adapted by a preliminary vertical and swinging movement of the lock to be moved into said knuckle-recess 7ª without contact with said knuckle, substantially as specified.

7. In a car-coupling, the combination with a recessed draw-head having a lock-seat in its lower portion and a forwardly-projecting ledge 27 and downwardly-extending lug 28 in its upper portion, said lug having an inclined side and a knuckle fulcrumed in one of the draw-head jaws and having an arm extending within the recessed head, of a lock-operating pin, a lock mounted thereon and having a hooked or recessed portion 11 adapted to engage said lug 28, said lock adapted by its elevation to be disengaged from said lug and to be swung slightly by engagement with the inclined face of said lug, substantially as specified.

664,609. SAFETY-MATCH. CHARLES HASLWANTER, Jr., New York, N. Y., assignor to Harwood Huntington, same place. Filed July 14, 1899. Serial No. 723,853. (No specimens.)

Claim.—A headless, safety-match impregnated with barium hydroxid and chlorates substantially as described.

664,610. WATER-CLOSET ATTACHMENT. EDWARD J. HEALY, Jr., Baltimore, Md. Filed Mar. 10, 1900. Serial No. 8,208. (No model.)

Claim.—1. A seat-supporting bracket comprising a strip to lie against the edge of the seat, a flange at each side of said strip having perforations for fastening devices to secure said flanges to the faces of the seat, and a weighted arm or rod depending from said bracket.

2. The combination of a seat, brackets, each comprising a strip and flanges at the side edges of said strip, said flanges secured to the respective faces of the seat, and a weighted arm or rod depending from each bracket.



3. The combination with a seat, of a bracket secured to the respective faces of the seat and inclosing a portion thereof, a weighted rod depending from said bracket and means for pivotally supporting said rod between its ends.

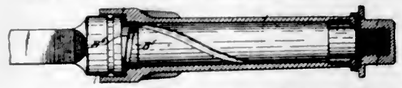
4. The combination with a bowl and a horizontal rod mounted adjacent thereto, of a cover, two brackets secured to said cover and depending below the same, said depending portions mounted between their ends on said horizontal rod and provided at their lower ends with weights.

5. The combination with a closet-seat, of brackets secured to the seat and inclosing a portion thereof, a rod depending from each bracket and having a bearing between its ends, a rod disposed in said bearings, means for supporting said rod and weights on the ends of said first-mentioned rods.

6. The combination with a closet-bowl having a rearwardly-projecting platform thereon, uprights on said platform and a rod supported thereby, of a seat for said bowl and brackets secured to said seat and inclosing a portion thereof and supported on said rod and weights connected with said brackets for automatically raising the seat.

7. The combination with a seat and a support therefor, of brackets at the respective side edges of the seat, each of said brackets comprising a strip lying against the edge of the seat and two flanges lying against and secured to the respective faces of the seat, a rod or extension depending from each bracket and mounted between its ends on said support and a weight at the lower end of each rod or extension.

664,611. VEHICLE AXLE AND BOX. JOHN G. ANDERSON, Rock Hill, S. C. Filed Sept. 6, 1900. Serial No. 29,159. (No model.)



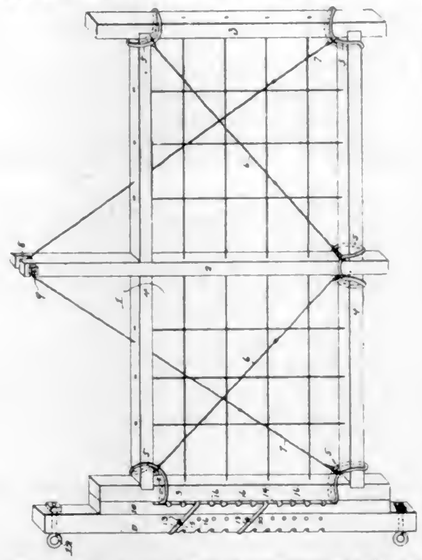
Claim.—1. A vehicle-axle having a spindle formed with a return oil-groove extending partly longitudinally on the top from the inner end toward the outer end, the outer portion of the groove curving downwardly and forwardly to the under side of the spindle, and a box for the spindle, having at its outer end an oil-chamber for containing the lubricant, the forward portion of said return-groove opening into the bottom of the said chamber, as set forth.

2. A vehicle-axle having a spindle formed with a spiral feed-groove extending rearwardly from the bottom of the spindle at the forward end to the top at the rear end, and a box for the spindle, having at its outer end an oil-chamber for containing the lubricant, the forward bottom portion of said feed-groove opening into said chamber, as set forth.

3. A vehicle-axle having a spindle formed with a return-groove extending partly on the top from the inner end of the spindle toward the outer end, the outer portion of the groove curving downwardly and forwardly to the under side of the spindle, the latter being also formed with a spiral feed-groove leading rearwardly from the bottom of the spindle at the outer end thereof and thence extending in a forward direction to the top of the spindle at the inner end of the same, and a box for the spindle, having at the outer end an oil-chamber for containing the lubricant, the forward portions of said grooves opening into said chamber, as set forth.

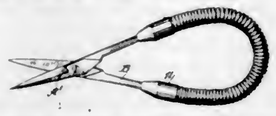
4. A vehicle-spindle having an enlarged inner end and a reduced outer end and provided with a return-groove extending for the greater portion of its length longitudinal of the spindle and having its outer end curved downwardly and forwardly to the under side of the spindle, a spiral feed-groove leading rearwardly from the under side at the outer end and thence extending forwardly to the top of the spindle at the inner end, and a groove in the enlargement of the spindle, said groove extending from the inner end of the feed-groove to the head of the spindle, substantially as herein shown and described.

664,612. GATE. DANIEL W. AYLWORTH, South Haven, Mich. Filed Jan. 13, 1900. Serial No. 1,293. (No model.)



Claim.—The combination with the horizontal bars and end bars of a gate, of a central straining-bar higher than the end bars and slotted at its upper extremity, and means for bracing the bars together consisting of metal loops passed over the gate-corners and a metal loop passed over the crossing of the central bar and lower bar and twisted straining-wires connecting the loop at the crossing of the central bar and lower bar with the loops at each upper corner of the gate, and a continuous twisted straining-wire connecting the loops at each lower corner of the gate and passing through the slot in the upper end of the central bar, substantially as described.

664,613. SCISSORS. JONATHAN BADGER, New York, N. Y. Filed Aug. 25, 1900. Serial No. 27,985. (No model.)



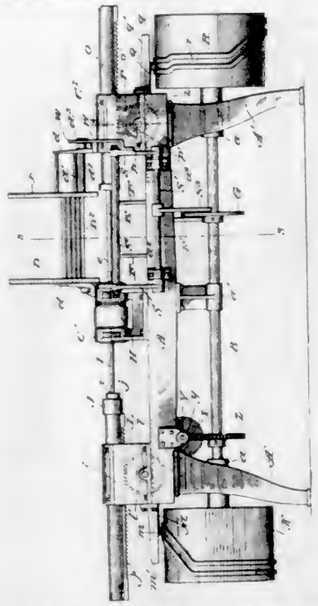
Claim.—A cutting instrument, having pivotally-connected blades, and a bowed spiral spring, the ends of which spring are connected with the blades and constitute a handle for the instrument.

664,614. MACHINE FOR MAKING PAPER TUBES. CHARLES A. BAILEY, Cromwell, Conn. Filed May 24, 1900. Serial No. 17,823. (No model.)

Claim.—1. In a machine for burnishing and cutting paper tubes, the combination, of a movable trough into which the tubes are dropped, said trough having a closed end; a revolving clamping head or stock located at the open end of the trough; and an arbor adapted to pass through the clamping head or stock and into the tube, the inner end of the tube being clamped between said arbor and jaws of the clamping head or stock, substantially as shown and for the purpose set forth.

2. In a machine for burnishing and cutting paper tubes, the combination, of a laterally-movable trough into which the tubes are dropped said trough having a closed end and hinged side; a revolving clamping head or stock located at the open end of the trough; and an arbor adapted to pass through the clamping-head and into the tube, the inner end of the tube being clamped between the arbor and jaws of the clamping head or stock, substantially as shown and for the purpose set forth.

3. In a machine for burnishing and cutting paper tubes, the combination, of a hopper having a pivoted trough-shaped bottom; a laterally-movable trough into which the tubes are dropped from said hopper, the trough having a closed end and hinged side; a revolving clamping head or stock located at the open end of the trough; and an arbor adapted to pass through the clamping-head and into the tube, the inner end of the tube being clamped between the arbor and jaws of the clamping-head, substantially as shown and for the purpose set forth.



4. In a machine for burnishing and cutting paper tubes, the combination, of a receiver into which the tubes are dropped, a reciprocating arbor, a revolving clamping head or stock through which the arbor passes into the tube, the jaws of the clamping-head clamping one end of the tube upon the arbor, a reciprocating burnishing device or hollow shaft movable upon the tube over the free end thereof, a gang of cutters, and means for moving said cutters against the tube, substantially as shown and described.

5. In a machine for burnishing and cutting paper tubes, the combination, of a receiver into which the tubes are dropped, a reciprocating arbor, a revolving clamping head or stock through which the arbor passes into the tube, a head at the rear end of the arbor adapted to move the jaws of the clamping-head into engagement with one end of the tube, a burnishing device or hollow shaft reciprocating upon the tube over the free end thereof, means for arresting the outward movement of the burnishing device to support the outer end of the tube, a gang of cutters, and means for moving said cutters against the tube, substantially as shown and described.

6. In a machine for burnishing and cutting paper tubes, the combination, of a laterally-movable trough into which the tubes are dropped, the trough having a closed end and hinged side, a reciprocating arbor, a revolving clamping head or stock through which the arbor passes into the tube, a head at the rear end of the arbor adapted to move the jaws of the clamping-head into engagement with one end of the tube, a burnishing device or hollow shaft reciprocating over the tube, means for arresting the outward movement of the burnishing device to support the outer end of the tube, a swinging cutter-frame carrying a shaft, and cutters mounted on said shaft, the burnishing device supporting the outer end of the tube during the cutting operation, substantially as shown and described.

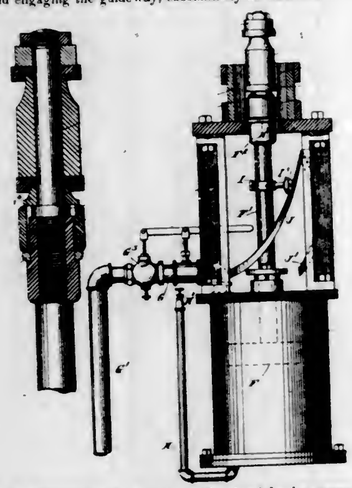
664,615. BROACHING-PRESS. JASON A. BAKER, Houston, Tex. Filed May 31, 1900. Serial No. 18,556. (No model.)

Claim.—1. A broaching-press, comprising a reciprocating head carrying spaced cutters for successively engaging brasses and finishing the same at one operation of the head, a fluid-pressure motor for imparting a reciprocating movement to said head, and means, substantially as described, for turning said head during the reciprocating movement, as set forth.

2. A broaching-press, comprising a reciprocating head having spaced cutters, a fluid-pressure motor, to the piston-rod of which the cutter-head is secured, and means for imparting a turning movement to the piston-rod as it is reciprocated, substantially as described.

3. A broaching-press, comprising a reciprocating head having spaced cutters, a fluid-pressure motor, to the piston-rod of which the cutter-head

is secured, a spiral guideway, and a roller carried by the piston-rod of the motor and engaging the guideway, substantially as described.

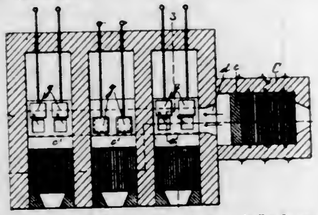


4. A broaching-press, provided with a head having spaced cutters for successively engaging brasses, and a split ring on said head below the main cutter, for centering the brasses previous to the main cutter engaging the brasses, as set forth.

5. In a broaching-press, the combination of a pin, a sleeve, to which the pin is secured, spaced cutters carried by the pin, and a centering-ring supported by the sleeve and having its upper end engaged by a washer of one of the cutters.

6. In a broaching-press, the combination of a pin having its ends screw-threaded and provided with a collar adjacent to one end, spaced cutters mounted on the pin, a washer being interposed between the lower cutter and the collar of the pin, a sleeve internally screw-threaded and into which the pin screws, a ring held on the sleeve, and a split ring between the first-named ring and the said washer, substantially as described.

664,616. SUBSIDIARY FURNACE FOR STEAM-BOILERS. WILLIAM J. BALDWIN, New York, N. Y. Filed July 2, 1900. Serial No. 22,277. (No model.)



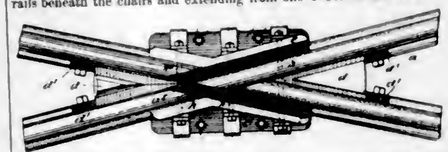
Claim.—1. The combination of a main steam-boiler furnace provided with a bridge-wall and a flame-space, a subsidiary furnace for refuse fuels, a flue behind said bridge-wall and operatively connecting said subsidiary furnace with said flame-space, and means for controlling the connection between said flue and said flame-space, substantially as described.

2. The combination with a battery of boilers and main furnaces provided with flame-spaces and bridge-walls, of a subsidiary furnace, a flue operatively connecting said subsidiary furnace with the flame-spaces of each main furnace behind the bridge wall thereof, and independently-shiftable dampers adapted to control the connection of said flue with each of said flame-spaces, substantially as described.

3. The combination of a main steam-boiler furnace provided with a hollow bridge-wall and a flame-space, a subsidiary furnace for refuse fuels, a flame-passage leading from the subsidiary furnace to the hollow bridge-wall, an opening connecting said hollow bridge-wall with the said main furnace, and means for controlling said opening, substantially as described.

664,617. RAILWAY-FROG. JAMES BARRY, Galveston, Tex., assignor of one-fourth to William H. Gayle, Jr., Houston, Tex. Filed Aug. 3, 1900. Serial No. 25,780. (No model.)

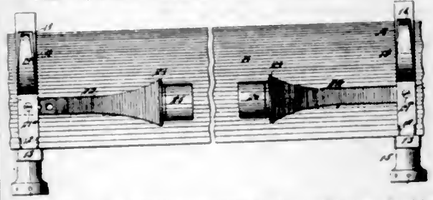
Claim.—1. A railway, having crossing rails, chairs or brace-blocks situated at the outer sides of the rails, U-bolts extending between the chairs and passing under the rails, and a connecting-plate fastened to the rails beneath the chairs and extending from one U-bolt to the other.



2. A railway-frog, comprising the combination with the crossing rails, of chairs located at the sides of the rails, flanged base-plates situated under the rails and having their flanges engaged with the base-flanges of the rails, U-bolts extending between the chairs and passing under the rails, a connecting-plate extending between and fastened to the U-bolts, the connecting-plate being located under the rails, and tapering frog-blocks situated and secured between the rails at each side of the crossing-points thereof.

3. A railway having crossed rails, chairs or side brace-blocks situated at the outer sides of the rails at the juncture thereof, tapered frog-blocks situated and secured between the rails at each side of the crossing-points thereof, bolts extending under the rails to connect the same, a connecting-plate extended between the bolts, and a bed-plate located under the connecting-plate and fastened to the chairs.

664,618. CURTAIN-FIXTURE. JOHN B. BERNIER, Spencer, Mass. Filed July 3, 1900. Serial No. 22,430. (No model.)



Claim.—1. A curtain-fixture comprising a body having a fixed jaw, a second jaw mounted to slide upon the body to and from the fixed jaw, a locking-nut for the movable jaw, which nut serves also as an adjusting-nut, a bracket carried by the body, having a slot to receive the trunnion of a shade-roller, an offset from the bracket, likewise slotted, and a sleeve adapted to extend over the said offset and close the slot therein.

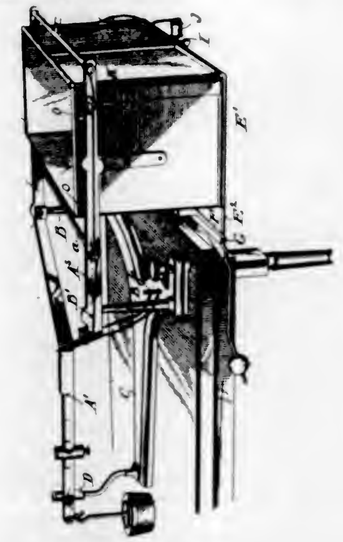
2. In curtain-fixtures, a body-bar provided with a fixed jaw, a second jaw mounted to slide on the body to and from the fixed jaw, the lower end of the body-bar being threaded, a nut on the threaded portion of the body-bar, adapted to lock and to adjust the movable jaw, a shade-roller support or hanger removably connected with the body-bar, the said hanger or support having a flange on its inner face, and a sleeve adapted to extend over the flange and likewise across the slot in the hanger which receives the trunnion of a shade-roller, as set forth.

664,619. AUTOMATIC FUR-SCALE. EDWARD B. BOGGS, New York, N. Y., assignor to the E. & T. Fairbanks & Company, St. Johnsbury, Vt. Filed Aug. 24, 1900. Serial No. 27,937. (No model.)

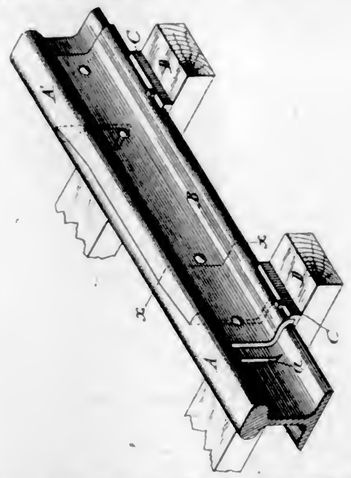
Claim.—1. The combination with a scale-beam, of a scale pan or hopper pivotally supported by the scale-beam and having a hinged bottom, a latch for holding said bottom in closed position, an electromagnet carried by the scale pan or hopper for releasing the latch, a normally open electric circuit, contact-points carried by the beam and means carried by the scale pan or hopper for closing said circuit, substantially as described.

2. The combination with a scale-beam, of a scale pan or hopper pivotally supported by the scale-beam and having a hinged bottom, a latch for holding said bottom in closed position, an electromagnet carried by the scale pan or hopper for releasing the latch, a normally open electric circuit, contact-points carried by the beam, and a mercury-cup carried by the scale pan or bopper adapted to receive said contact-points and close the circuits when the beam is depressed, substantially as described.

3. The combination with a base, having the posts B and a scale-beam having the arms A^2 and A^3 and the graduated arm A' pivotally supported on said parts, of a scale pan or hopper pivotally supported by the arms A^2 A^3 and having a swinging bottom, a catch carried by the scale pan or hopper for retaining the bottom in place, an electromagnet carried by the scale pan or hopper for releasing said catch, a normally open circuit, contact-points carried by the scale-beam and means carried by the scale pan or hopper for closing said circuit to actuate the electromagnet, substantially as described.



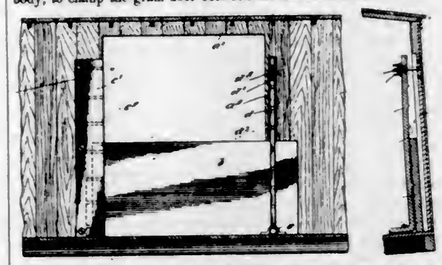
664,620. RAIL-JOINT. FRANCIS A. BREWER, Kirkville, N. Y. Filed Oct. 7, 1899. Serial No. 732,883. (No model.)



Claim.—A rail-joint composed of rails A, A', having reinforced web or neck *a*, at the ends of the rail; the ball, web or neck and base of the rails at the ends, cut vertically, longitudinally and laterally to form a splice, provided with sink *c* for the reception of lug *b*; the lug *b* and holes for the passage of bolts *e*, and plane angular fish-plates embracing the neck or web and base of the rails on opposite sides of the rails at the joint, and bolts to secure the various parts to one another substantially as shown and described.

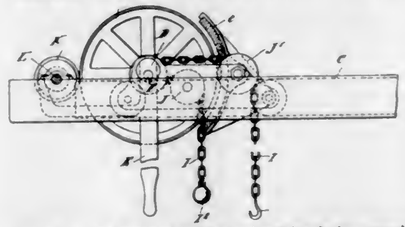
664,621. GRAIN-DOOR. JOSEPH R. BROWN and HENRY H. WINTERS, Victoria, Kans. Filed June 27, 1900. Serial No. 21,741. (No model.)

Claim.—1. A railway-car grain-door fastening, comprising a cleat with an overhanging portion or ledge, the inner face of which is formed with transverse ribs adapted to be engaged by the grain-door to hold one end in place, the cleat being fastened rigidly to the railway-car at one side of the door-opening, a bar arranged at the other side of the door-opening and having its lower end turned laterally to form a foot, a keeper fastened on the floor of the car loosely to receive the foot of the bar, and means at the upper end of the bar for drawing the same toward the car-body, to clamp the grain-door between the bar and the car.



2. A railway-car grain-door fastening, comprising means at one side of the door-opening for holding one end of the grain-door, a bar at the other side of the door-opening, the bar being disposed vertically and having its lower end turned horizontally to form a foot, a keeper on the floor of the car, in which keeper the foot is loosely mounted, and means at the upper end of the bar for drawing the bar toward the car-body to clamp the grain-door between the bar and the car.

664,622. OVERHEAD HOISTING AND CARRYING DEVICE. NORMAN E. BROWN, St. Joseph, Mich., assignor of three-fourths to Murwin C. Barnes, Edward N. Hatch, John Eklund, and John Lindt, same place. Filed Sept. 14, 1900. Serial No. 30,015. (No model.)



Claim.—1. An overhead hoisting and carrying device, comprising a carriage mounted to travel, a driven shaft having a driving-pulley, journaled in stationary bearings, a wheel on said carriage adapted to be geared with said pulley and controlling a hoisting chain or rope, a fixed friction-block carried by said carriage, and means for bodily moving said wheel in engagement with either the said driving-pulley or the said friction-block, said means being arranged to lock the wheel and pulley in position when thrown in gear, as set forth.

2. An overhead hoisting and carrying device, comprising a carriage mounted to travel, a driven shaft having a driving-pulley, journaled in stationary bearings, a wheel on said carriage adapted to be geared with said pulley and controlling a hoisting chain or rope, a fixed friction-block carried by said carriage, and means for bodily moving said wheel in engagement with either the said driving-pulley or the said friction-block, said means being arranged to lock the wheel and pulley in position when thrown in gear, said means being also arranged to compensate for any wear on the wheel and pulley to hold the latter in frictional contact, as set forth.

3. An overhead hoisting and carrying device, comprising a carriage mounted to travel, a driven shaft having a driving-pulley, journaled in stationary bearings, a wheel on said carriage adapted to be geared with said pulley and controlling a hoisting chain or rope, a fixed friction-block carried by said carriage, and means for bodily moving said wheel in engagement with either the said driving-pulley or the said friction-block, which means is arranged to lock the wheel and pulley in position when thrown in gear, said means comprising a disk in which the wheel is journaled eccentrically, the disk being mounted to turn in bearings on said carriage, a lever for turning the disk, an arm extending from the lever, and spools on the driven shaft and adapted to be engaged by said arm, as set forth.

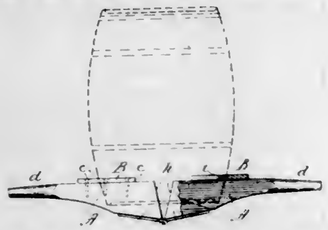
4. An overhead hoisting and carrying device, comprising a carriage mounted to travel, a driven shaft having a driving-pulley, journaled in stationary bearings, a wheel on said carriage adapted to be geared with said pulley and controlling a hoisting chain or rope, a fixed friction-block carried by said carriage, means for bodily moving said wheel in engagement with either the said driving-pulley or the said friction-block, which means is arranged to lock the wheel and pulley in position when thrown in gear, said means comprising a disk in which the wheel is journaled

eccentrically, the disk being mounted to turn in bearings on said carriage, a lever for turning the disk, an arm extending from the lever, and spools on the driven shaft and adapted to be engaged by said arm, the latter having an inclined edge to compensate for wear on the pulley and wheel, as set forth.

5. An overhead hoisting and carrying device, comprising an overhead track, a shaft journaled on said overhead track, and carrying a driving-pulley, a carriage mounted to travel on said overhead track, disks journaled on said carriage, a shaft mounted to turn eccentrically in said disks and carrying a wheel adapted to be thrown in gear with the said driving-pulley, a hoisting-chain controlled from said shaft, a lever on said disks, an arm on said lever, and spools on the track-shaft and engaged by said lever-arm, as set forth.

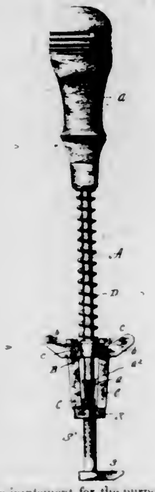
6. An overhead hoisting and carrying device, comprising a carriage, a fixed friction-block secured thereon, disks journaled in the frame of the carriage, a shaft journaled eccentrically in said disks, a wheel on said shaft and adapted to be thrown in frictional contact with said friction-block, a lever for turning the said disks, and a hoisting device controlled from said shaft, as set forth.

664,623. BARREL-CARRIER. SETH J. BUCKLAND, Springfield, Mass. Filed Oct. 23, 1900. Serial No. 34,029. (No model.)



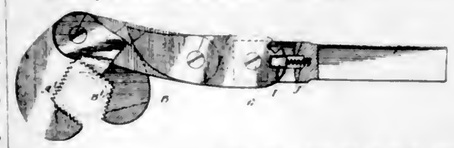
Claim.—A barrel-carrier consistsng of the four carrier-bars A, arranged in opposite side pairs having their approached end portions downwardly widened and hinge-connected at the junction of their under edges and adjacent ends, which ends from the hinge-point are inclined and upwardly divergent, as at *h*; and the boards, B B, extending between and secured to opposite pairs of the handle-bars, having their inner edges formed with arc-shaped recesses *i*, and constituting both the barrel-clamping members and the ties for uniting and bracing the opposite side pairs of the said bars, substantially as described.

664,624. ATTACHMENT FOR SCREW-DRIVERS. GEORGE C. CADY, Pine Bluff, Ark. Filed Sept. 13, 1900. Serial No. 29,944. (No model.)



Claim.—In an implement for the purpose set forth, the combination with the screw-driver having a shoulder on its shank, of a collar loosely mounted upon the shank above said shoulder, a spring bearing against the collar to force it toward the end of the screw-driver, and blades connected to the collar and extending parallel with the shank, the ends of said blades being flattened to engage the grooves in a nut, substantially as shown and described.

664,625. PIPE-WRENCH. EDWIN F. COMBER, Selkirk, Canada. Filed July 24, 1900. Serial No. 24,657. (No model.)



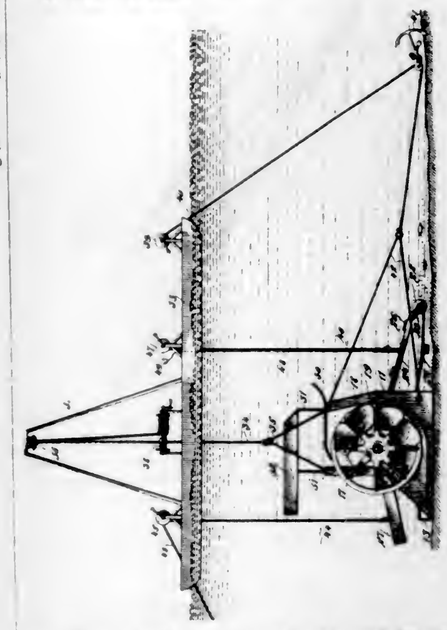
Claim.—1. A pipe-wrench, comprising a fixed jaw having an integral arm extending rearwardly, a movable jaw pivoted on said fixed jaw, a cam-lever fulcrumed on said arm and engaging said movable jaw, to swing the latter toward the fixed jaw and a handle connected with the cam-lever, as set forth.

2. A pipe-wrench, comprising a fixed jaw having an integral arm extending rearwardly, a movable jaw pivoted on said fixed jaw, a cam-lever fulcrumed on said arm and engaging said movable jaw, to swing the latter toward the fixed jaw, and a handle fulcrumed on the cam-lever and having an adjustable locking connection with said lever, to actuate the latter, as set forth.

3. A wrench, comprising a fixed jaw having at its inner end a rigidly-attached arm, a movable jaw mounted to work in opposition to the fixed jaw, and a cam-lever with means for operating it, the cam-lever being pivoted on the outer end of the arm of the fixed jaw and extending alongside of said arm to engage the movable jaw.

4. A wrench having two pivotally-connected jaws, a cam-lever, the fulcrum of which is carried by one jaw, and the cam-lever engaging the other jaw, and a handle adjustably attached to the cam-lever.

664,626. MACHINE FOR COLLECTING PRECIOUS METALS FROM RIVER-BEDS. JAMES R. DAKE, Merrill, Wis., assignor of one-half to Romuald A. Oleshak, same place. Filed June 20, 1900. Serial No. 20,986. (No model.)



Claim.—1. A machine for collecting precious metals from water-beds, comprising a frame, a shaft mounted in said frame, a current-pressure wheel attached to the said shaft, the said wheel having laterally-swinging blades and adapted to be entirely submerged, an endless carrier operated from said shaft, buckets on said carrier, and a sluice into which the buckets discharge, substantially as specified.

2. In a machine of the character described, a frame, an endless carrier arranged in said frame, a current-operated wheel for moving said carrier, buckets on the carrier, a compression-plate above the wheel, a sluice into which said buckets discharge, and riffles on the bottom wall of said sluice, substantially as specified.

3. In a machine of the character described, a frame, an air-chest rigidly attached to said frame, a shaft mounted in the frame, power-wheels attached to said shaft, an endless carrier operated from the shaft, buckets on said carrier, and a sluice mounted in the frame and into which the buckets discharge, substantially as specified.

4. In a machine of the character described, a frame, current-operated wheels mounted on a shaft having bearings in said frame, an endless carrier operated from said shaft, deflector-plates extended forward of the forward sides of the wheels, a compression-plate above each wheel, a sluice into which the carrier discharges, and means for imparting a vertical movement to said sluice, substantially as specified.

5. In a machine of the character described, a frame, current-operated wheels mounted on a shaft having bearings in said frame, an endless carrier operated from said shaft, deflector-plates extended forward of the forward sides of the wheels, a compression-plate above each wheel, and a sluice into which the carrier discharges, substantially as specified.

6. In a machine of the character described, a frame, an endless carrier arranged in said frame, a current-operated wheel for moving said carrier, a compression-plate above the wheel, buckets on the carrier, and a sluice into which said buckets discharge, substantially as specified.

7. In a machine for collecting gold from water-beds, a frame, a float, means for anchoring the frame and float, an air-chamber rigidly connected to the frame, a shaft mounted in the frame, a current-operated wheel mounted on said shaft, a sprocket-wheel on the shaft, a guide-board having swinging connection with the shaft, a sprocket-wheel carried at the outer end of said guide-board, a sprocket-chain extended around the two sprocket-wheels, buckets on said chain, means for raising and lowering the guide-board, a swinging sluice into which the buckets discharge, and means for continuously swinging said sluice, substantially as specified.

664,627. CORN-CUTTER. CHARLEY O. EBERLEIN, Shawano, Wis., assignor to himself and Michael G. Eberlein, same place. Filed Sept. 5, 1900. Serial No. 29,043. (No model.)



Claim.—1. A corn-cutting device, comprising a metal foot-plate having downwardly-pressed ribs, an extension-plate having a slot formed in it, a screw passing through said slot and into the foot-plate, downward extensions on the front end of said extension-plate and engaging in the channels formed by the depressed ribs, and a cutting-blade on the front end of said foot-plate, substantially as specified.

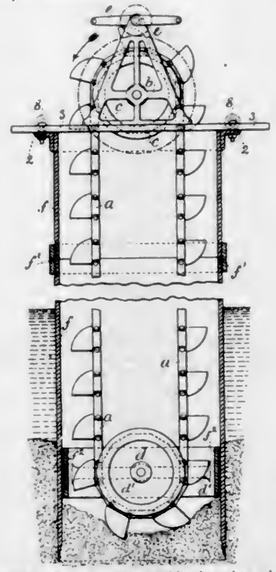
2. A corn-cutting device, comprising a foot-plate, a cutting-blade on the toe end thereof, and a rotary disk on the plate in line with the blade and located at one end thereof, substantially as specified.

3. A corn-cutting device, comprising a foot-plate, an adjustable extension-plate on one end thereof, fastening-straps attached to the foot-plate, a cutting-blade removably attached to the front end of said foot-plate, and a roller attached to the foot-plate at one end of the blade, substantially as specified.

664,628. DREDGING APPARATUS. FREDERIC ECAUBERT, New York, N. Y. Filed Mar. 3, 1900. Serial No. 7,158. (No model.)

Claim.—1. The combination in a dredging apparatus with a tubular inclosing body, of a chain-and-bucket conveyer, a supporting-platform upon the upper end of the tubular body, rotating mechanism carried upon said platform and supporting the chain-and-bucket conveyer and by which the same is operated, whereby with the operation of the conveyer and the removal of the material within and at the bottom of the tubular body, the same sinks by gravity, substantially as specified.

2. The combination in a dredging apparatus, with a tubular inclosing body, of a chain-and-bucket conveyer, a supporting-platform upon the upper end of the tubular body, rotating mechanism carried upon said platform and supporting the chain-and-bucket conveyer, and by which the same is operated, whereby with the operation of the conveyer and the removal of the material within and at the bottom of the tubular body, the same sinks by gravity, and a guide and support at the lower loop of the bucket conveyer, substantially as specified.



3. In a dredging apparatus, the combination with a chain-and-bucket conveyer, a support therefor and means for operating the same, of a weight-wheel in the lower loop of the chain-and-bucket conveyer and around which the lower portion of the same turns, a tubular body surrounding and inclosing the chain-and-bucket conveyer and the weight-wheel and extending down through a body of water and resting in and upon the sand or gravel bottom of the same, substantially as set forth.

4. In a dredging apparatus, the combination with a chain-and-bucket conveyer, a support therefor and means for operating the same, of a weight-wheel in the lower loop of the chain-and-bucket conveyer and around which the lower portion of the same turns, a tubular body surrounding and inclosing the chain-and-bucket conveyer and passing down through a body of water and resting in and upon the sand or gravel bottom of the same, and a guide connected to the axis of the weight-wheel and adapted to come adjacent to the inner surface of the tubular body to steady the chain-and-bucket conveyer, substantially as set forth.

5. The combination in a dredging apparatus with a chain-and-bucket conveyer and means for supporting and operating the same, of a tubular body surrounding and inclosing the chain-and-bucket conveyer and extending down through a body of water and resting in and upon the sand or gravel bottom thereof, there being an opening in one side of the said tubular body at or adjacent to the lower edge, substantially as set forth.

6. In a dredging apparatus, the combination with a chain-and-bucket conveyer, a support therefor and means for operating the same, of a weight-wheel in the lower loop of the chain-and-bucket conveyer and around which the lower portion of the same turns, a tubular body surrounding and inclosing the chain-and-bucket conveyer and passing down through a body of water and resting in and upon the sand or gravel bottom of the same, and a guide connected to the axis of the weight-wheel and adapted to come adjacent to the inner surface of the tubular body to steady the chain-and-bucket conveyer, there being an opening in one side of the said tubular body at or adjacent to the lower edge, substantially as set forth.

7. In a dredging apparatus, a group of tubular bodies passing down through a body of water and resting in and upon the sand or gravel bottom thereof at their lower edges, means such as a platform for connecting the said tubular bodies at their upper edges, chain-and-bucket conveyers passing down through the tubular bodies, supports therefor at the upper ends of the tubular bodies, and means for operating the chain-and-bucket conveyers, substantially as set forth.

8. The combination in a dredging apparatus with a chain-and-bucket conveyer and means for supporting and operating the same, of a tubular body surrounding and inclosing the chain-and-bucket conveyer and extending down through a body of water and resting in and upon the sand or gravel bottom thereof, a clamp or collar surrounding the tubular body

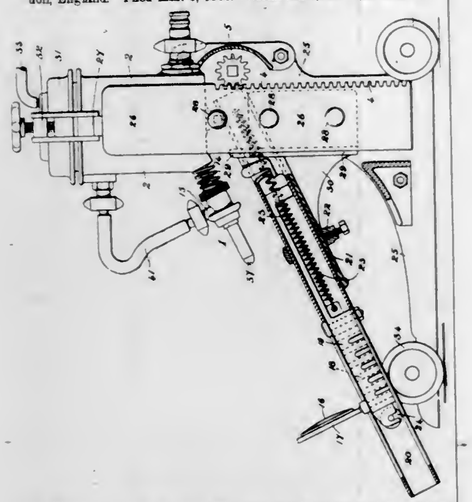
and having arms connected therewith and floats adapted to be placed under the said arms for raising or supporting the tubular body, substantially as set forth.

9. The combination with an open-ended tubular body forming substantially a well-inclosure, of a chain-and-bucket conveyer extending down through the tubular body, a support above the tubular body and resting thereon for the chain-and-bucket conveyer, and means carried by said support and independent of the movements or position of the tubular body for actuating the chain-and-bucket conveyer, whereby the operation of the conveyer and the removal of the material within and at the bottom of the tubular body permit the same to sink by gravity and the conveyer and support to follow the tubular body, substantially as specified.

10. The combination in a dredging apparatus, with an open-ended tubular body forming substantially a well-inclosure and extending down through a body of water, and resting in and upon and supported by the sand or gravel bottom thereof, of a chain-and-bucket conveyer extending down through the water within the tubular body and adapted to engage and automatically elevate the materials at the bottom and bring the same up to the surface, a support for the said conveyer resting on the tubular body and means for actuating the same whereby the tubular body sinks as the material within is removed and the conveyer and support follow the tubular body, substantially as set forth.

664,629. APPARATUS FOR DRAWING OFF LIQUIDS IN FIXED QUANTITIES.

EMIL FRANC, THOMAS COLE, and WILLIAM L. COLE, London, England. Filed Mar. 6, 1900. Serial No. 7,560. (No model.)



Claim.—1. In apparatus of the kind described for drawing off liquids, the combination of the bottle-support 17, sliding rod 19 carrying said support and tube 20 adapted to receive said rod as herein described, whereby the bottle-support can be adjusted to suit various sizes of bottles, as set forth.

2. In an apparatus of the kind described for drawing off liquids, the combination of the side plates 26, frame 30, tank 2, the side plates 26 and standards 25 being provided with means whereby the side plates, frame, and tank with their appurtenances can be raised and lowered as and for the purpose set forth.

3. In apparatus of the character described, the combination of the concentric pipes, the inner one fast to the charging chamber or tank, and having a lateral outlet opening into the outer pipe, and a head or enlargement closing the outer end of said outer pipe, and a branch air-outlet pipe adapted to connect with said charging-chamber and communicating with said outer pipe, substantially as set forth.

4. In apparatus of the character described, the combination of a tube supported from the charging chamber or tank, a second tube adjustable within the first-named tube and suitably supported at its outer end, a slide arranged in said second tube, and a bottle-support carried by said slide, substantially as specified.

5. In apparatus of the character described, the combination of a tube supported from the charging chamber or tank, a concentric tube adjustable within the first-referred-to tube and suitably supported at its outer end, a serially-apertured slide arranged in said second tube, and a bottle-support carried by said slide, substantially as set forth.

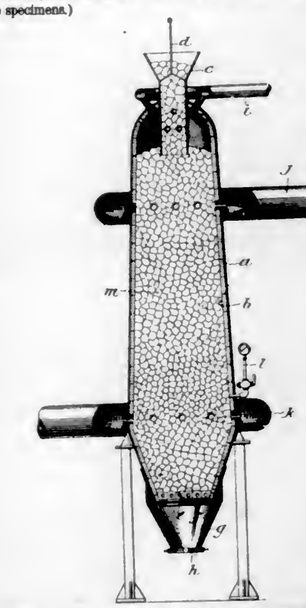
6. In apparatus of the character described, the combination of a tube supported from the charging chamber or tank, a second tube adjustable within the first-named tube, a slide having a series of apertures therein and arranged within said second tube, a spring connection between said slide and second tube, and a bottle-support carried by said slide, substantially as specified.

7. In apparatus of the character described, the combination of a charging chamber or tank having at the base or lower end brackets provided with wheels or rolls, a tube suitably supported from said tank or chamber, a second tube adjustable within the first-named tube and carried upon said wheels or rolls, and bottle-holding mechanism, substantially as set forth.

8. In apparatus of the character described, the combination of a charging chamber or tank having at the base or lower end brackets provided with wheels or rolls, a tube supported from said tank or chamber, a second tube adjustable within the first-named tube and carried upon said wheels or rolls, a slide arranged in said second tube and having a guide roll or wheel, a spring connection between said slide and first-named tube, and a bottle-support carried by said slide, substantially as specified.

664,630. METHOD OF MAKING SULFURIC ANHYDRID.

HANS A. FRASCH, New York, N. Y. Filed May 14, 1900. Serial No. 16,638. (No specimens.)



Claim.—1. The method of making sulfuric anhydrid by catalysis, which consists in burning a ferric-oxid-producing substance upon a body of ferric oxid in a converter and in the presence of air, and then conducting sulfur dioxid, derived from an external source, through the converter and over the contact substance while the latter is in a state of combustion, substantially as described.

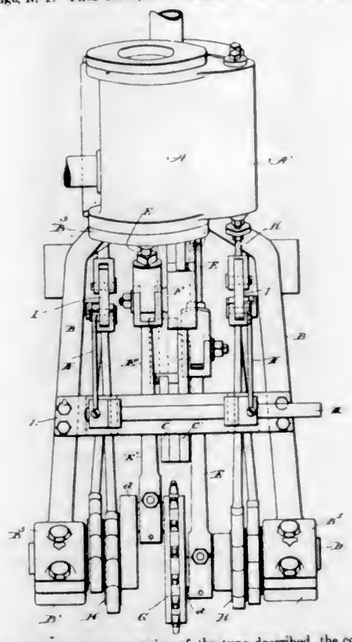
2. The method of making sulfuric anhydrid, which consists in constantly producing a fresh body of ferric oxid upon a ferric-oxid foundation, and supporting the combustion by means of hot air, and thereafter introducing sulfur dioxid and air into the burning body until oxidation is complete, and conducting away the sulfuric anhydrid and condensing the same, substantially as described.

3. The method of making sulfuric anhydrid, through the medium of a ferric-oxid catalytic contact substance, which consists in burning, in a converter, a ferric-oxid-producing substance upon a body of ferric oxid, in the presence of air, admitting sulfur dioxid thereto, and regulating the temperature of the converter by the quantity of ferric-oxid-producing substance freshly charged into the converter for the formation of additional ferric oxid for contact purposes, substantially as described.

4. In the process of making sulfuric anhydrid, by means of a ferric-oxid contact-converter, regulating the temperature of the converter by the quantity of ferric-oxid-producing substance charged into the same, and thereby and simultaneously renewing the ferric-oxid contact substance, substantially as described.

664,631. STEAM-ENGINE.

WALTER K. FREEMAN, Saratoga Springs, N. Y. Filed Oct. 3, 1900. Serial No. 31,897. (No model.)



Claim.—1. In a steam-engine of the type described, the combination with the cylinders and the crank-shaft and driving connections as described, of an intermediate frame formed in a single casting and having three depending members, two of said members constituting the connection between the cylinders and crank-shaft and lying outside of the driving connections and the third of said members being located at an intermediate point and constituting the guides for the slides of the driving connections; substantially as described.

2. An intermediate frame for connecting the cylinders and crank-shaft of an engine of the type described having the two depending arms B terminating in bearings B' underlying the crank-shaft, a bridge B² connecting said members at the upper end and having the cylinder-heads formed thereon and an intermediate member depending from said bridge and having the slideways C C' formed thereon; substantially as described.

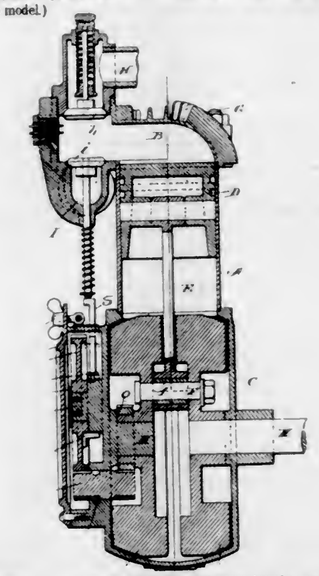
3. In an engine of the type specified, the combination with the crank-shaft, the intermediate frame formed in a single casting and having bearings at the lower end for said crank-shaft, the cylinder-heads formed integral with said frame and set at different angles to each other with relation to said crank-shaft whereby the cylinders may be brought into proximate parallel planes transversely of the crank-shaft, a member depending from said frame at an intermediate point and having converging guides for the slides of the driving connections formed thereon and driving connections for the crank-shaft located on opposite sides of said intermediate depending member and between the connecting-arms of the intermediate frame; substantially as described.

4. In an engine of the type specified, the combination with the twin cylinders formed in an integral casting and at an angle with relation to each other and the crank-shaft with driving mechanism interposed between the crank-shaft and cylinders, of an intermediate frame formed in an integral casting with two arms, one located on each side of the driving mechanism and having bearings for the crank-shaft in their extremities and a connecting portion at the upper end of said arms formed integral with the cylinder-heads and an intermediate depending portion forming the guideways for the slides, the said guideways being set out of line with each other to afford room for the bodies of the slides and converging toward the crank-shaft; substantially as described.

5. In an engine of the type specified, the combination with twin cylinders, crank-shaft and intermediate driving mechanism, of an integral frame formed with depending side arms B having bearings in their extremities for the crank-shaft, a connecting-bridge at the upper ends of said arms, an intermediate depending member constituting converging guideways for the slides, a cross-piece uniting said arms at an intermediate point and a valve-gear-controlling shaft journaled on said cross-piece; substantially as described.

664,632. INTERNAL-COMBUSTION ENGINE.

WALTER K. FREEMAN, Saratoga Springs, N. Y. Filed Oct. 3, 1900. Serial No. 31,898. (No model.)



Claim.—1. In an internal-combustion engine the combination with the cylinder, explosion-chamber and piston working in said cylinder with valves for the admission and exhaust of the explosive mixture and products of combustion respectively, of a housing connected with the cylinder, one side of said housing having an inwardly-projecting centrally-arranged stud axle or bearing and an outwardly-projecting stud axle or bearing, a fly-wheel journaled on said inwardly-projecting stud axle or bearing, a gear-wheel carried by said fly-wheel within the housing, a double pinion journaled in the wall of said housing and meshing with said gear-wheel, a second gear-wheel journaled on the outwardly-projecting stud axle or bearing and meshing with the outer end of said pinion, and a valve-operating mechanism operated by said last-mentioned gear-wheel; substantially as described.

2. In an internal-combustion engine the combination with the cylinder, explosion-chamber, piston and fly-wheel formed in two independent halves, united by the crank-pin, of a housing for said fly-wheel, a crank-shaft journaled in one side of said housing, and rigidly connected with one half of said fly-wheel, a stud-axle on the housing on which the opposite half of said fly-wheel is journaled, a gear-wheel connected with the fly-wheel, a pinion meshing with said gear-wheel, a second gear-wheel driven by said pinion and journaled on the outer side of said housing and a valve-operating mechanism operated by said last-mentioned gear-wheel; substantially as described.

3. In an internal-combustion engine the combination with the cylinder, explosion-chamber, piston and fly-wheel, of a housing for said fly-wheel having one of its sides formed with a bearing for the crank-shaft and its opposite side formed with an inwardly-projecting journal for the fly-wheel, an outwardly-projecting journal for the valve-operating gear-wheel and an outwardly-projecting annular flange, a gear-wheel mounted on the fly-wheel within the casing and a double pinion journaled in the wall of the housing and meshing with said gear-wheel, a second gear-wheel journaled on the outwardly-projecting bearing on the housing and meshing with said pinion, a valve-operating mechanism controlled by said last-mentioned gear-wheel and a face plate or cover seating on the outwardly-projecting flange of the housing for inclosing the valve-operating mechanism; substantially as described.

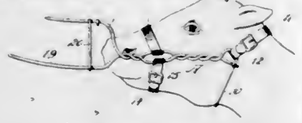
664,633. CALF OR COLT WEANER.

ALVY N. GOFF, Rocky Ford, Colo., assignor of one-half to Granville Nevinger, Pueblo, Colo. Filed Oct. 13, 1900. Serial No. 32,954. (No model.)

Claim.—1. A calf and colt weaner, consisting of side bars, upper and lower extensions from the forward ends of the side bars, a shield or guard secured to said extensions, and straps connected with the side bars, arranged to hold the bars upon the head of an animal.

2. A calf and colt weaner, consisting of side bars, which side bars are forked at their forward ends, the forked members being provided with

upwardly-tending extensions, a shield or guard secured to the said extensions, a throat-latch and head-strap connected with the side bars at their rear portions, and a nose and chin strap connected with said side bars at a point between their ends, as described.



664,634. WRENCH. LUDVIG GRANSTROM and ROBERT B. MCDONALD, McMinnville, Oreg. Filed July 5, 1900. Serial No. 22,627. (No model.)



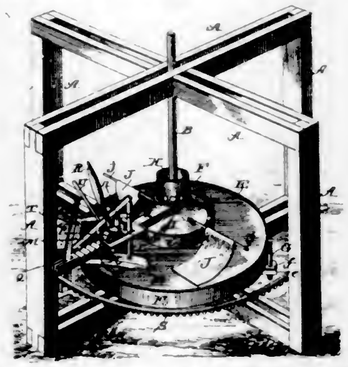
Claim.—The herein-described wrench, consisting essentially of the head formed of one piece of metal, and having the fixed jaw *a*, and the portion *b* disposed at right angles to the jaw *a* and provided with a bifurcation *c*, and also with the inwardly-directed flanges *d* at its lower side and in the said bifurcation; the bifurcation *c* extending from the rear end of the portion *b* forwardly to a point adjacent to the vertical plane of the face of jaw *a*, and having the lower portion of its front wall square, and the upper portion thereof inclined rearwardly, and the said flanges *d* being disposed at right angles to the jaw *a*, the sliding jaw formed of one piece of metal and having the grooves *h* in its sides, receiving the flanges *d* of the head, and also having the rack-teeth *i* on its upper edge, and the handle formed of one piece of metal and arranged in the bifurcation of and pivotally connected to the head, and having the teeth *j* intermeshed with the teeth of the sliding jaw; the pivot-point of the handle being arranged above and in the same vertical plane as the rear end of the sliding jaw when the latter abuts against the lower portion of the front wall of the bifurcation in the head, substantially as and for the purpose set forth.

664,635. ORE-SEPARATOR. AGUSTUS C. HARTUNG, Galena, Kans. Filed Apr. 19, 1900. Serial No. 13,561. (No model.)

Claim.—1. The combination, with a table adapted to rotate as described, of a plow or scraper, a bar arranged radially over the table, means for suspending the scraper from said bar, and a lever and pawl, the latter being adapted to engage teeth on the bar whereby the scraper may be forced inward, as shown and described.

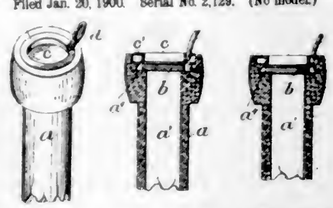
2. The combination, with a rotating table, and a scraper adapted to work thereon, of a bar arranged radially above said table and adapted to be adjusted laterally, a notched arc bar arranged concentrically with the table and exteriorly thereto, and a dog for locking the radial bar to such arc bar, substantially as shown and described.

3. The combination, with the rotating table, of a scraper arranged to work on the surface of said table, a vertical rotatable standard to which the scraper is rigidly attached, a lever pivoted to the scraper, a curved rack-bar wherewith said lever engages, a guide for the standard and support for said rack-bar, all arranged as shown and described.



4. The combination, with a rotating table, a scraper arranged over and adapted to work on said table, a standard secured to said scraper and adapted to slide vertically, a support or bearing for said standard, a lever having a jointed connection with the standard and adapted to swing in a vertical plane, and a device for locking said lever in any adjustment, substantially as shown and described.

664,636. BOTTLE-SEAL. WILLIAM E. HEATH, Baltimore, Md., assignor to the Coronet Bottle-Seal Company of Baltimore City, same place. Filed Jan. 20, 1900. Serial No. 2,129. (No model.)



Claim.—1. The bottle-seal comprising the hollow cup-shaped ductile-metal plug cylindrical in shape with the surrounding top flange and closed approximately flat lower end adapted to be annularly expanded in the bottle-neck, and an approximately rigid lever extractor-arm projecting from the upper end of the plug and having a securing portion under said flange and partially embracing said cylindrical portion, substantially as described.

2. The cup-shaped hollow ductile-metal sealing-plug adapted to be locked in a bottle-neck by expansion, and provided with a projecting lever extractor-arm at its upper end, means attaching the arm to the plug and constituting a fulcrum on which the plug rocks, during the extracting operation, in a plane traversing an intermediate portion of the diameter of the plug including said arm, substantially as set forth.

3. A hollow bottle-sealing plug formed of ductile metal and arranged to be expanded in a bottle-neck and provided with an approximately rigid lever extractor-arm projecting upwardly from its upper end, whereby the plug can be extracted from the bottle-neck by lateral pressure on said arm which tilts the plug, substantially as described, said plug constructed and arranged to tilt on an axis intermediately between the extractor-arm and the diametrically opposite portion of the plug, whereby the portion of the plug having the extractor-arm moves upwardly, while the diametrically opposite portion of the plug moves downwardly, substantially as described.

4. A bottle having a top recess around its mouth, and an internal seating-face, in combination with a hollow metal plug adapted to be locked in the bottle-neck by expansion and to form a liquid-tight seal in conjunction with said face, the plug having a top flange in said recess, a lever extractor-arm projecting from the upper end of the plug and having attaching-arms fitting the plug beneath said flange, and only partially encircling said plug, for the purposes substantially as described.

5. The bottle-seal consisting essentially of the imperforate sealing-disk, and the cup-shaped ductile-metal plug having the top flange and the closed flat lower end seated on said disk, the lower end of the plug formed to be radially expanded above said disk, and the upwardly-projecting rigid lever thumb-piece having attaching means fitting said plug below said flange, substantially as described.

6. A bottle having an annular sealing-shoulder in its liquid-passage, and a top recess, in combination with a cup-shaped ductile-metal sealing-plug having a flat closed lower end opposing said shoulder and a top flange at said recess, the plug formed to be locked by having its lower end expanded above said shoulder and a rigid upwardly-projecting lever thumb-piece fixed to the plug beneath said flange and entering said recess, the portion of the plug diametrically opposite said thumb-piece being collapsible, whereby lateral pressure against the thumb-piece will tilt the plug with a lever action from the bottle-mouth, said diametrically opposite portion of the plug capable of moving inwardly and downwardly, substantially as described.

7. A bottle having a top recess at its mouth and a sealing-seat below the same, in combination with a cup-shaped metal sealing-plug arranged to oppose said sealing-seat and formed for locking in the bottle by radial expansion, and provided with a rigid lever thumb-piece projecting upwardly therefrom and fixed to the plug in said recess, the upper portion of the plug diametrically opposite said thumb-piece free to move downwardly when the plug is tilted from the bottle by a lever action under lateral pressure applied to said thumb-piece, substantially as described.

8. The cup-shaped ductile-metal sealing-plug adapted to be locked in a bottle by radial expansion, and provided with an upwardly-projecting lever extractor-arm provided with securing means fitting the exterior of the plug immediately above the portion of the plug adapted for radial expansion, and forming fulcrum or bearing points for the plug during the lever-action extracting operation, substantially as described.

9. A bottle having the annular top recess, in combination with a cup-shaped metal sealing-plug formed for radial expansion in the bottle-neck and having a ranged upper end above the floor of said recess, and the upwardly-projecting extractor lever-arm rigid with a securing portion resting on the floor of said recess and extending from said arm in opposite directions only partially around said plug, whereby the portion of said plug diametrically opposite said arm and above the floor of said recess is free to move downwardly during the extracting operation, substantially as described.

10. A bottle having a seat in its mouth and a radial enlargement above the same, in combination with an imperforate ductile-metal disk opposing said seat, a sealing medium covering the disk and compressed between the same and said seat of the bottle-mouth, said disk having the vertical cylindrical flange extending upwardly and vertically approximately to the top of the bottle-mouth and expanded into said enlargement and provided with an upwardly-projecting extractor attached thereto, substantially as described.

11. A cup-shaped sealing-plug formed of ductile metal adapted to enter and be expanded within a bottle-neck to seal the same, in combination with a projecting approximately rigid thumb-piece, and means whereby said thumb-piece is confined to the upper part of the plug so that lateral pressure against said thumb-piece will tilt the plug with the thumb-piece, from the bottle-neck, substantially as described.

12. A metal bottle-seal formed of non-elastic ductile metal adapted to be bent into engagement with the bottle-neck to seal the same, said seal provided with an approximately rigid thumb-piece projecting from its edge and having an approximately non-elastic connection with the seal and forming a lever with the seal so that the seal and thumb-piece tilt together in extracting the seal, substantially as described.

13. A bottle in combination with a ductile-metal plug expanded therein, said plug provided with an approximately non-elastic thumb-piece projecting upwardly from its upper edge and having a non-elastic connection with the plug whereby the thumb-piece constitutes a lever when the plug is tilted from the bottle-neck by pressure against the thumb-piece, substantially as described.

14. A metal bottle-seal, having an edge flange and a wire bent to fit the seal beneath said flange and formed with a lateral deflection constituting a thumb-piece, whereby lateral pressure against the thumb-piece tilts the seal and thumb-piece together from the bottle-neck, substantially as described.

15. A bottle having a top recess, and an internal sealing-seat below the recess, the bottle internally enlarged above said seat and below the floor of said recess, in combination with a sealing medium, and a metal plug having a rigid upwardly-projecting lever-arm fixed to its upper part in said recess, the plug radially expanded into said enlargement and immediately under the plane of the attachment of said arm to the plug, whereby lateral pressure on the arm tilts the plug from the bottle with a lever action, substantially as described.

16. A bottle-seal comprising a metal plug having sealing means, and a rigid upwardly-projecting lever-arm fixed to the upper end thereof, the plug formed for radial expansion between the sealing medium and the plane of attachment of said arm to the plug, whereby the arm and plug move together approximately as one lever during the extracting operation, substantially as described.

17. A bottle-seal comprising a plug having a cylindrical portion formed for radial expansion to lock the plug in the bottle, and an upwardly-projecting lever-arm having attaching means fitting the plug immediately above said expansible portion, whereby lateral pressure against said arm exerts a direct extracting strain on the expanded portion of the plug immediately below said arm, substantially as described.

18. A hollow metal sealing-plug having a top flange, and a rigid projecting lever-arm having attaching-arms fitting the plug under the flange, the plug formed for radial expansion immediately under said attaching-arms, substantially as described.

19. A metal sealing-plug for bottles having an annular edge flange and provided with a projecting lever thumb-piece having an attaching portion fixed to said plug by said flange, said plug and thumb-piece tilting from the bottle together approximately as one lever, substantially as described.

20. A bottle having an annular floor or seat, and an internal enlargement immediately below said floor in combination with a cup-shaped sealing-plug adapted for radial expansion into said enlargement and having a top flange and a rigid lever extractor-arm formed with attaching means grasping the plug under the flange and immediately above said expansible portion, said means adapted to rest on said floor, substantially as described.

21. A hollow ductile-metal sealing-plug having a rigid lever extractor-arm projecting upwardly therefrom and rigid therewith, the arm and plug tilting from the bottle together approximately as one lever during the extracting operation, substantially as described.

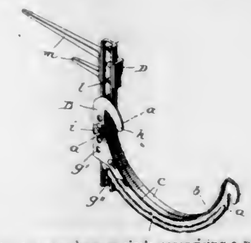
22. A bottle provided with a top annular recess in its mouth and an annular sealing-shoulder below the floor of said recess, in combination with a sealing-disk adapted to be expanded and locked in the bottle-mouth and having a top flange in said annular recess, said disk provided with a rigid upwardly-projecting thumb-piece extending from the portion of the disk in said recess, substantially as described.

23. A bottle having a top annular recess in its mouth and an annular shoulder below the floor of said recess, in combination with a sealing-plug adapted to be expanded in said bottle-mouth and thereby locked therein, a sealing medium interposed between said shoulder and the plug, and an upwardly-projecting rigid thumb-piece having attaching means located in said top recess and engaging the upper portion of said disk, substantially as described.

24. A bottle having a top annular recess, a radial enlargement below the recess and an annular seat below said enlargement, in combination with a cylindrical hollow metal plug having a flat bottom above said seat and a top lateral flange in said recess, the cylindrical wall of the plug expanded into said enlargement, said plug provided with extractor means below the flange, substantially as described.

25. A hollow metal sealing-plug having a top lateral flange and an upwardly-extending extractor-arm secured to the plug, the flange being displaced to receive said arm, substantially as described.

664,637. GUTTER-HANGER. WILLIAM HEIR, Philadelphia, Pa. Filed Apr. 26, 1900. Serial No. 14,500. (No model.)



Claim.—1. A gutter-hanger circle comprising a pair of integrally-formed juxtaposed web members and a pair of flanges substantially at right angles thereto.

2. A gutter-hanger circle comprising a pair of juxtaposed web members each having a bead formed therein, a flange integral with each of said web members and substantially at right angles thereto, and a hook formed from said web member, substantially as specified.

3. A gutter-hanger circle comprising a pair of juxtaposed web members each having a bead formed therein, a flange integral with each of said web members, and a heel formed from said web members, said parts forming an integral body, substantially as specified.

4. A gutter-hanger circle comprising a pair of juxtaposed web members, a flange integral with each of said web members, a perforated heel having a rib formed from said web members, and a perforated channel-bar connected with said rib, substantially as specified.

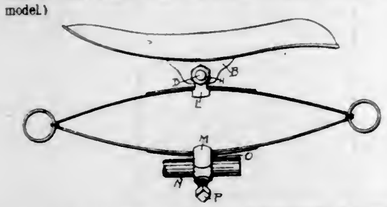
5. A gutter-hanger circle comprising a pair of juxtaposed web members, a flange integral with each of said web members, a perforated heel

having a rib formed from said web members, and a lug having a catch connected with said heel, substantially as specified.

6. In a gutter-hanger, a fastener having means for attaching it to a building and comprising a recessed seat having a stud therein integrally formed therewith, in combination with a perforated bar adapted to fit in said seat, and be engaged by said stud, substantially as specified.

7. In a gutter-hanger, a circle having a perforated heel with a rib thereon, in combination with a perforated channel-bar adapted to engage said rib and be secured to said circle, and a fastener having a recessed seat with a stud therein integrally formed therewith adapted to engage and be secured to said channel-bar, substantially as specified.

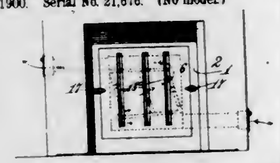
664,638. **SPRING-SEAT ATTACHMENT.** SOLOMON C. HITCHCOCK, Tacoma, Wash. Filed Aug. 21, 1899. Serial No. 727,966. (No model.)



Claim.—1. In a spring-seat attachment for bicycles, the combination with the seat and its supporting-spring, said spring having heads projecting above and below a portion thereof, of a cross-piece resting upon the spring and having a socket to receive one of said heads, a clamp passing beneath the spring and having a socket to receive the head on the under side of a portion of the spring, means for securing said clamp, spring and cross-head together, brackets secured to the seat and rotatably supported upon the end of said cross-head, and means for binding said brackets to said cross-head, substantially as described.

2. In a spring-seat attachment for bicycles, the combination with the seat, a supporting-spring and a pin for sustaining said seat and spring, said spring extending parallel with the seat-pin and having heads projecting above and below a portion of the spring, of a clamp encircling said spring and seat-pin and having a socket to receive the head projecting above a portion of the spring to prevent said spring and clamp from slipping one upon the other, a plate lying within the clamp between the spring and said sustaining-pin, and having a socket to receive the head projecting from the under portion of the spring to prevent the plate and spring from slipping one upon the other and a recess to receive the seat-pin, and means bearing against the seat-pin for binding the several parts together in various adjustments of the spring on the seat-pin, substantially as described.

664,639. **FIREPLACE.** WILLIAM C. HOLMES, Atlanta, Ga. Filed June 26, 1900. Serial No. 21,676. (No model.)



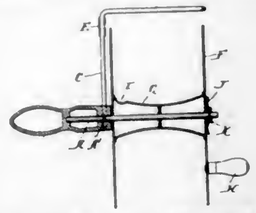
Claim.—1. In an open fireplace, the combination with a frame having a rearwardly-projecting casing provided with an inlet and outlet for air, of a main wall adapted to be set in said frame, and having partitions projecting from its rear face to form air-passages, a series of serrated strips arranged between said walls forming inlet and outlet passages, and having their serrated openings in staggered relation, substantially as described.

2. In an open fireplace or grate, the combination with a frame having a rearwardly-projecting casing provided with an air inlet and outlet, of a main wall adapted to be secured within said frame and provided with a series of channels on the outer face thereof, a partition secured to the inner face of said wall and forming a longitudinally-extending air-passage communicating with said outlet, and an inclined partition secured to the inner face of said wall and forming a contracted longitudinally-extending air-passage communicating with said inlet, substantially as described.

3. In an open fireplace or grate, the combination with a frame having a rearwardly-projecting casing provided with an air inlet and outlet, of a main wall adapted to be secured within said frame and provided with a series of channels on the outer face thereof, a partition secured to the inner face of said wall and forming a longitudinally-extending air-passage communicating with said outlet, an inclined partition secured to the inner face of said wall and forming a contracted longitudinally-extending air-passage communicating with said inlet, and a series of strips arranged between said partitions and provided with serrated openings, substantially as described.

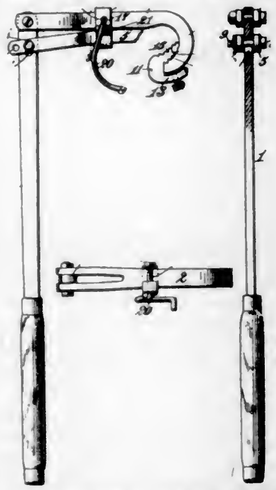
4. In an open fireplace, the combination with a frame having a rearwardly-projecting casing provided with an inlet and outlet for air, of a main wall set in a rabbet in said frame provided with half-round channels for mortar registering with like channels in the inner face of the frame, a partition secured to the inner face of said main wall near the top thereof and forming a longitudinally-extending air-passage communicating with said outlet, an inclined partition secured to the inner face of said main wall near the bottom thereof and forming a contracted longitudinally-extending air-passage, and a series of strips secured to the inner face of said main wall, between said partitions and provided with serrated openings, substantially as described.

664,640. **CLOTHES-LINE REEL.** HARRY HUEBNER, Philadelphia, Pa. Filed June 6, 1900. Serial No. 19,210. (No model.)



Claim.—In a clothes-line reel, a handle, a spindle secured therein at one end, a revolving member journaled upon the spindle, a guide consisting of a single piece of wire, so bent as to form a loop; said guide having its ends seated in the handle, and a looped portion bent at an angle with relation to the ends and supported above the revolving member, and a securing-pin run through the handle, spindle, and the guide-wire embedded in the handle, substantially as described.

664,641. **PIPE-WRENCH.** HENRY H. HUNTER, Berkeley Springs, W. Va. Filed Apr. 7, 1900. Serial No. 11,986. (No model.)



Claim.—1. In a pipe-wrench, a lever having an elongated slot therein, a main jaw pivoted thereto having a hook upon its free end, a guide-loop secured to said main jaw, a sliding jaw pivoted in said slot to said lever cooperating with the hook on the main jaw and extending through said guide-loop, and means for adjusting the point of pivotal connection of said sliding jaw with said lever.

2. In a pipe-wrench, a lever having an elongated slot therein, a main jaw pivoted to said lever having a hook upon its free end, a guide-loop secured to said main jaw, a sliding jaw extending through said loop co-operating with the hook of said main jaw and provided with a plurality of openings, and a removable pivot-pin extending through one of said openings and through the elongated slot in said lever, whereby the point of pivotal connection of said sliding jaw with said lever may be adjusted and whereby the engaging end of said sliding jaw may accommodate itself to pipes of different diameters.

3. In a pipe-wrench, the combination with two coöperating jaws, one of which is provided with a hook, of a jaw attachment adapted to be applied to said hook consisting of a toothed or serrated strip bent to form two arms which embrace the free end of said hook, and a set-screw extending through one of said arms and engaging said hook for securing said attachment in place.

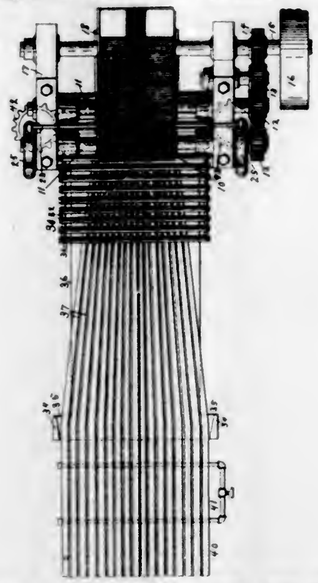
4. In a pipe-wrench, the combination with two coöperating jaws, one of which is provided with a hook, of an arm constituting a guard adapted to be moved toward and away from said hook, as and for the purpose set forth.

5. In a pipe-wrench, the combination with two coöperating jaws, one of which is provided with a hook, of an arm pivoted to one of said jaws and adapted to be moved toward and away from said hook, as and for the purpose set forth.

6. In a pipe-wrench, the combination with two coöperating jaws one of which is provided with a hook, of an arm pivotally mounted upon one of said jaws and adapted to be moved toward and away from said hook, and a spring acting upon said arm to hold the same in its normal position away from said hook and to maintain the same in its position adjacent to said hook, as and for the purpose set forth.

7. In a pipe-wrench, the combination with a main jaw having a hook thereon, and a movable jaw coöperating with said main jaw, of a guide-loop for said movable jaw, consisting of a U-shaped strip of spring metal embracing said main and movable jaws and slightly wider than said jaws, a rod having a head thereon extending through openings in the sides of said loop and through a corresponding opening in said main jaw, the said rod being bent adjacent to said loop to form an outwardly-extending, curved arm adapted to be moved toward and away from the hook on said main jaw, and an inclined lug or cam on one of the sides of said loop adapted to be engaged by said arm and formed with a recess in which said arm is adapted to be seated, as and for the purpose set forth.

664,642. **MATCH-MACHINE.** WILLIAM F. HUTCHINSON, Bound Brook, N. J., assignor to the Atlas Match Company, Jersey City, N. J. Filed Aug. 23, 1900. Serial No. 27,762. (No model.)



Claim.—1. A match-machine comprising a guide-plate having grooves therein, cutting mechanism adapted to deliver splints endwise into the aforesaid grooves so that the splints stand perpendicular to the plate, and a dipping-frame movable between the cutting mechanism and the grooves so as to clamp the ends of the splints which project from the grooves.

2. In a match-machine, the combination of the grooved guide-plate, of splint-clamping mechanism movable over the face of the guide-plate, and splint-cutting mechanism arranged to discharge the cut splints directly into the clamping means, and into the grooves of the guide-plate so that the splints are held essentially perpendicular to the plate.

3. In a match-machine, the combination with the guide-plate having diverging grooves therein, said grooves at their inner ends being curved or inclined, of cutting mechanism arranged to deliver a row of splints in the inner or curved ends of the grooves and another row in the straight portion of the grooves, and a holding or clamping device to grip the ends of the splints which project from the grooves.

4. In a match-machine, a combination with the guide-plate having diverging grooves therein, of the holding-frame movable over the face of the grooves, means for delivering splints into the dipping-frame and grooves, and means as the wedges of the frame and the cams of the plate for locking the dipping-frame, substantially as described.

5. In a match-machine, the combination with the guide-plate having grooves which diverge for a part of their length and then run parallel, of the dipping-frame movable over the face of the guide-plate, the wedges of the frame to close it, and cams or abutments located opposite the junction of the diverging and parallel portions of the grooves to engage the wedges and lock the dipping-frame, substantially as described.

664,643. **COP-TUBE MANDREL.** DAVID JACKSON, Pawtucket, R. I., assignor to the Jackson Patent Shell Roll Company, same place. Filed Apr. 9, 1900. Serial No. 12,062. (No model.)

Claim.—1. The combination in a cop-tube mandrel of a spindle, a cone or bearing held thereon for a shell or cop-tube, a plate fast on the lower end of the cone toothed dogs held in a vertically-radial position on said plate, a cam for raising the inner ends of said dogs and throwing the outer ends outward and downward, substantially as described.

2. The combination in a cop-tube mandrel of a spindle a cone or bearing thereon for a shell or cop-tube, a collar held to turn and slide loosely on said spindle, a pin fast in the spindle, cam-shaped notches made in the hub of said collar, dogs held in a vertically-radial position in a plate fast on the lower end of said cone, substantially as described.

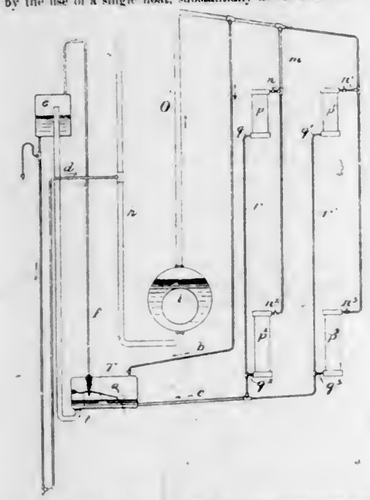
3. In a cop-tube mandrel the combination of a spindle, a cone or bearing fast thereon for a shell or cop-tube, a collar held free to slide and turn freely on the spindle below the cone or bearing and provided with notches, a pin fast in the spindle below the same, a plate attached to the lower end of said cone, toothed dogs held to swing in pivots on said plate, a spiral spring held on the spindle to depress said collar and inner ends of the dogs, substantially as described.

4. In a cop-tube mandrel, a spindle, a bearing for the cop-tube or shell on said spindle, dogs held on pivots on said bearing in a vertically-radial position to be operated by a cam sliding on said spindle, and said cam, substantially as described.

664,644. **LOW-PRESSURE STEAM HEATING APPARATUS.** JOHANNES KELLING, Vienna, Austria-Hungary. Filed July 22, 1899. Serial No. 724,868. (No model.)

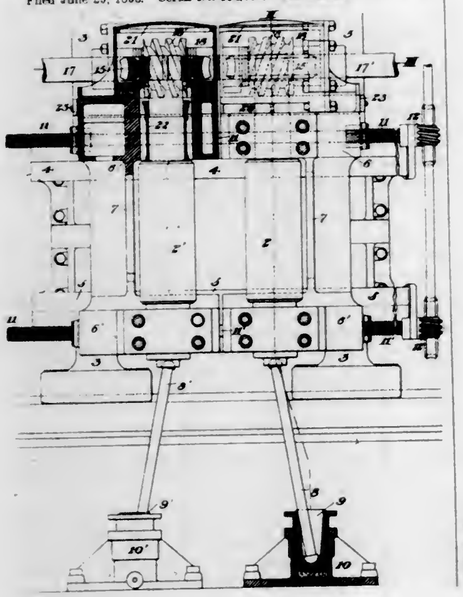
Claim.—1. A boiler and its inlet and outlet pipes, in combination with a reservoir *a* for water of condensation, a pipe conveying such water from the outlet-pipe to the said reservoir, a steam-pipe *b* extending from the said reservoir to the said outlet-pipe, a vacuum-chamber *e*, a steam-pipe *f* connecting the upper part of the said reservoir with the upper part

of the vacuum-chamber, a water-pipe *d* extending from the lower part of the said reservoir up into the said vacuum-chamber, a pipe *g* extending from the bottom of the said vacuum-chamber to the inlet-pipe *h*, and a float and valve arranged within the said reservoir for the purpose of closing the steam-pipe *f* when the water reaches a certain height and opening it as the water falls below the same, thereby maintaining an approximately even and continuous return of the water of condensation to the boiler by the use of a single float, substantially as set forth.



2. A boiler and its inlet and outlet pipes, in combination with a heating system supplied by said boiler, a reservoir *a* for water of condensation, pipes *b*, *c*, leading into the said reservoir from the outlet-pipe and heaters respectively, a vacuum-chamber, a steam-pipe leading from the said reservoir to the said chamber, a float and valve in the said reservoir, automatically opening or closing the said steam-pipe as the water of condensation falls or rises, a water-pipe connecting the said reservoir and chamber and an additional water-pipe connecting the latter with the inlet-pipe *h* of the boiler, substantially as set forth.

664,645. ROLLING-MILL. JULIAN KENNEDY, Pittsburg, Pa. Filed June 29, 1898. Serial No. 684,717. (No model.)



Claim.—1. Vertical rolls, having a bearing at each end, a slide-bar for each of said bearings upon which the bearings may slide, said slide-bars being on but one side of the rolls and secured to a suitable support, and a laterally and vertically movable support for the lower bearing of each of said rolls.

2. In a rolling-mill, a roll having a gear-wheel on its neck driven by gears mounted on shafts on each side thereof, and a box or frame containing the gearing and supported by the bearing of the roll, said box or frame and gearing being movable laterally thereon to permit automatic adjustment of the parts.

3. In a rolling-mill, a roll having a gear-wheel on its neck driven by gearing on both sides thereof, two driving-shafts, and a box supported by the bearing of the roll and containing the gearing, said box being closed and adapted to contain a lubricant.

4. In a rolling-mill, a roll having at its end a worm-wheel, power-shafts at each side thereof, and worms on the shafts having traveling connections with the shafts and in gear with the worm-wheel so as simultaneously to transmit power thereto from the power-shafts.

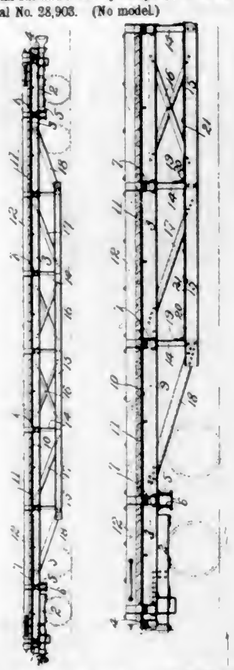
5. In a rolling-mill, a roll, having a gear-wheel on its neck driven by gearing on both sides thereof, two driving-shafts, a box or frame supported by the bearing of the roll and slidable thereon and containing the gearing, said box being closed and adapted to contain a lubricant.

6. In a rolling-mill, rolls having at one end worm-wheels, power-shafts extending along the sides thereof, worms mounted on said shafts having traveling connections with the shafts and in gear with the worm-wheels, bearings for the rolls carrying said worms, and adjusting mechanism whereby the bearings and rolls may be moved.

7. In a universal mill, the combination with a pair of main housings of slide-bars carried by said housings and extending beyond them, and a pair of vertical rolls carried on the slide-bars and adapted to be separated a distance equal to or greater than the distance between the main housings, and mechanism for adjusting the position of the rolls.

8. In a rolling-mill, a vertical roll having a laterally-movable lower bearing, a cylinder having a plunger, and a connection between said plunger and bearing, said connection being adapted to be moved laterally.

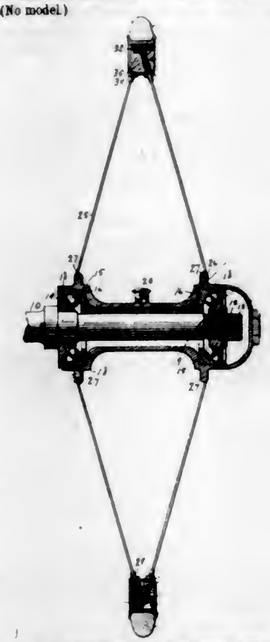
664,646. FLAT-CAR. GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed Sept. 4, 1900. Serial No. 28,903. (No model.)



Claim.—1. In a car, the combination with the side and center sills made up of channels with their flanges presented outwardly, of a cover-plate riveted to the top flanges of the center sills, floor-beams secured to the webs of the side and center sills and near the plane of the bottom flanges thereof, vertical posts riveted to the backs of the channels respectively and in approximately the transverse planes of the floor-beams, channels riveted to the lower ends of said posts, said channels having their flanges presented outwardly and being arranged substantially parallel to the side and center sills, diagonals secured to the center and side sills and to their respective parallel channels, and transverse tie-bars secured to the vertical posts near their lower ends; substantially as described.

2. In a car, the combination with the center sills in the form of channels with their flanges presented outwardly, of channel side sills having their flanges presented outwardly, a cover-plate 13 secured to the top flanges of the center sills, floor-beams 8 secured to the center and side sills near their bottom flanges respectively, vertical posts 14 in approximately the transverse planes of said floor-beams, channels 15 secured to the lower ends of said vertical posts and having their flanges presented outwardly, diagonals 16, 17 and 18, transverse tie-bars 20, and diagonals 21; substantially as described.

664,647. VEHICLE-WHEEL. HOWARD KINNEY, Passaic, N. J., and JOHN O. HANKINS, Richmond, Va. Filed Apr. 5, 1900. Serial No. 11,575. (No model.)



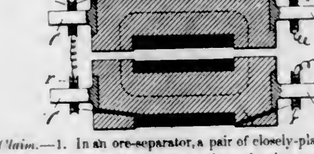
Claim.—1. As an improved article of manufacture, a vehicle-wheel comprising a felly countersunk on the outer side opposite the wheel-spokes, thus forming a series of sockets, a metallic rim fitting against the inner side of the felly, nipples piercing the felly and rim with their heads resting in the sockets, nuts for the nipples by which the felly is clamped between the nipple-heads and the rim, a hub, and spokes extending from the hub to the nipples.

2. In a vehicle-wheel, the combination of the felly countersunk on the outer side to form a series of sockets, a relatively thin rim fitting the inner side of the felly, spoke-nipples extending through the felly and rim with heads resting in the sockets, the inner ends of the nipples being screw-threaded, and nuts for the nipples by which the felly can be clamped between the nipple-heads and rim.

3. As an improved article of manufacture, a vehicle-wheel comprising oppositely-arranged bearing-cones and cups, one cone being shaped to slide on an axle, and the other being screw-threaded, a hub having enlarged ends to fit the cups and a pair of external flanges, a series of spokes removably secured to the flanges, a felly countersunk on the outer side, a rim on the inner side of the felly, nipples piercing the felly and rim and lying in the countersunk parts of the felly, and means for securing the spokes to the nipples, substantially as described.

664,648. COLLAR-SPRING. STANISLAUS A. KOLTONSKI, Boston, Mass., assignor to Hattie M. Perkins, administratrix of Edwin G. Carleton, deceased, same place. Filed June 25, 1900. Serial No. 21,415. (No model.)

Claim.—1. A collar-spring comprising a resilient strip of sufficient length to lie under the coat-collar with its ends underneath the lapels to hold the edges of the coat together, a member adapted to penetrate the coat for attaching the spring thereto, and a band or collar for securing the longitudinal adjustment of said member relatively to the spring.



2. A collar-spring consisting of a resilient metallic strip having its ends overlapping and adapted to be placed under the coat-collar, a safety-pin having its shank lying parallel to the spring and a band or collar for securing the longitudinal adjustment of said shank relatively to the said spring.

3. A collar-spring consisting of a resilient metallic strip having its ends overlapping and adapted to be placed under the coat-collar, a safety-pin having its shank substantially parallel to but out of contact with the edge of the spring, and a band or collar connecting said shank and the said spring, said band or collar having means for loosely engaging the said shank and said spring and maintaining the parallel relation of said spring and safety-pin.

664,649. BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES. CHRISTIAN W. KRAGE, Madison, Wis., assignor to the Northern Electrical Manufacturing Company, same place. Filed Sept. 11, 1899. Serial No. 730,060. (No model.)



Claim.—1. A brush-holder for dynamo-electric machines, comprising a holding-piece provided with an opening in which the brush is movably received, a contact-piece adapted to make stationary contact with the brush and with the holding-piece, said contact-piece formed to removably receive a portion of the brush, and means for elastically forcing said brush against the commutator.

2. A brush-holder for dynamo-electric machines, comprising a holding-piece provided with an opening in which the brush is movably mounted, a contact-piece bent at one end so as to form a channel in which a portion of the brush is received, so as to make stationary contact therewith, the other end of said contact-piece securely connected with the holding-piece, and a spring connected with said holding-piece and adapted to act upon the brush so as to force it toward the commutator.

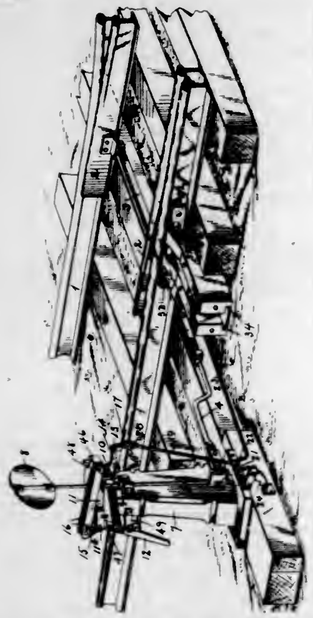
664,650. ELECTROMAGNETIC ORE-SEPARATOR. EMIL KREUSER, Mechernich, Germany. Filed Sept. 2, 1898. Serial No. 690,069. (No model.)

Claim.—1. In an ore-separator, a pair of closely-placed coöperating rotary cylindrical electromagnets recessed at points intermediate their ends for inducing-coils, the winding of one coil being opposite that of the other, whereby magnetic lines of force are produced directly in the coöperating magnets so that the path of magnetic flux forms the shortest possible closed circuit and the lines of force pass through a single air-space constituting the magnetic field, and connections between the coils and the source of energy which permits the rotation of the cylinders and coils therewith.

2. In an ore-separator, a pair of closely-placed coöperating rotary electromagnets, each provided with pole-surfaces and a cylindrical core having inducing-coils and arranged so that the magnetic lines of force are produced directly in the coöperating magnets, whereby the path of magnetic flux forms the shortest possible closed circuit and the lines of force pass through a single air-space constituting the magnetic field, and connections between the coils and the source of energy which permits the rotation of the cylinders and the coils therewith.

3. In an ore-separator, a pair of closely-placed cooperating rotary electromagnets, each provided with pole-surfaces and a cylindrical core having inducing-coils and arranged so that the magnetic lines of force are produced directly in the cooperating magnets, whereby the path of magnetic flux forms the shortest possible closed circuit and the lines of force pass through a single air-space constituting the magnetic field, connections for conducting the current from the coils of one magnet to and from the coils of the other, and connections between the coils and the source of energy which permits the rotation of the cylinders and the coils therewith.

664,651. SAFETY RAILROAD-SWITCH. ADAM KUENTZ and ALOIS TRENKER, Colby, Wis. Filed Oct. 1, 1900. Serial No. 31,655. (No model.)



Claim.—1. A pair of switch-points, and a lever for operating the same; in combination with a locking device for securing the switch-points, one part of which is secured to one of the rails of the track, and the other part secured to one of the switch-points, and means connected to the switch-operating lever for securing the two parts together.

2. A pair of switch-points, and a lever for operating the same; in combination with a locking device, one part of which is secured to one of the rails of the track, and the other part secured to one of the switch-points to move therewith, and a transverse pin engaging the members of the locking device and connected to the switch-operating lever.

3. A pair of switch-points, and a locking device, consisting of a pair of jaws secured to one of the rails of the track, a bolt connected to one of the points and moving therewith; in combination with a locking-pin engaging the jaws and the bolt, and a lever for operating the switch-points and the locking-pin.

4. A locking device for a switch consisting of a fixed part secured to one of the rails of the track, and a movable sectional member secured to one of the switch-points, and provided with means for allowing lateral movement of said member, and means for securing the parts together.

5. A locking device for a switch, consisting of a fixed part secured to one of the rails of the track, and a longitudinally-movable sectional member pivotally secured to one switch-point, and a pivotal connection between the sections of the movable member, and means for securing the parts in locked position.

6. A locking device for a switch, consisting of a fixed part secured to one of the rails of the track and having a way therein, a longitudinally-movable member connected to a switch-point and engaging said way, and a pin for locking the movable member in the fixed part.

7. A locking device for a switch, consisting of a fixed part secured to one of the rails of the track and having a way therein, a longitudinally-movable member connected to a switch-point and engaging said way, a pin for locking the movable member, and a lever connected to the switch and to the pin.

8. A locking device for a switch, consisting of a fixed part secured to one of the rails of the track, and a longitudinally-movable member connected directly to one of the switch-points, a laterally-movable pin, a lever-arm to which said pin is pivotally connected, and means for operating said pin.

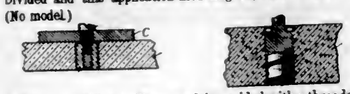
9. A switch, and a lever for operating said switch by swinging the lever in the arc of a circle; in combination with a locking device, one member of which is secured to one of the rails of the track and the other member connected to and moves with the switch, and a pin which is connected to and is operated by the switch-lever.

10. A switch, and a lever for operating said switch, in combination with a locking device consisting of a jaw secured to one of the rails of the track, a bolt connected directly to one of the switch-points, a pin engaging said jaw and bolt and supported by a crank, a bell-crank lever connected to the switch-lever, and a vertical swinging rod connecting the two cranks.

11. A locking device for switch-points consisting of a pair of jaws permanently secured to one of the rails of the track, a bolt made in two parts, pivotally secured together and engaging said jaws and pivotally connected directly to one of the switch-points; in combination with a switch-lever connected to said points, and a pin operated by said lever and engaging said jaws and bolt.

12. A locking device for switch-points consisting of a pair of jaws having laterally-extending flanges and permanently secured to the outside of one of the rails of the track, a bolt engaging said jaws, provided with means for allowing lateral adjustment and secured directly to one of the switch-points, a switch-operating lever, and a pin having a pivotal connection therein and connected to the switch-lever.

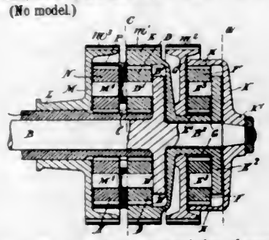
664,652. TILING, MARBLE, &c., PREPARED FOR HAVING FITTINGS, &c., SECURED THERETO. FRANK LAMBERT, New York, N. Y., assignor of two-thirds to Samuel A. Cunningham and David Belais, same place. Original application filed July 8, 1899, Serial No. 723,139. Divided and this application filed Aug. 30, 1899. Serial No. 728,960. (No model.)



Claim.—1. Tiling or like material provided with a threaded hole and a screw-threaded plug of a material of greater resistance than the said tiling or like material.

2. Tiling or like material provided with a threaded hole of a diameter greater than the diameter of a screw necessary to support a fitting to the tile, and a plug screwed into said threaded hole and adapted to carry the screw to hold the fitting.

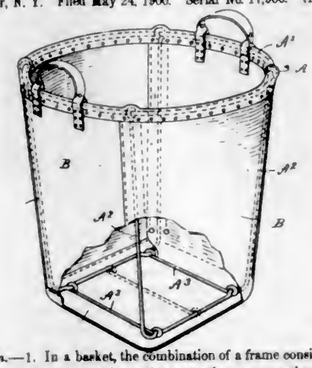
664,653. GEAR FOR TRANSMITTING POWER. FREDERICK W. LANCHESTER, Birmingham, England. Filed June 30, 1900. Serial No. 22,115. (No model.)



Claim.—1. In a gear for the transmission of power, change-speed mechanism, comprising two compounded epicyclic gear-trains, the central element of the first train receiving motion from the power driving-shaft, the intermediate element being connected to the driven shaft, and the outer element constituting a brake-drum, said brake-drum being adapted to receive motion through the intermediate element of the second epicyclic train, and a suitable brake for said brake-drum, the outer element of the second epicycle-train being connected to the driven shaft and the internal element fitted with a brake-wheel and a suitable brake for said brake-wheel, substantially as set forth.

2. In a gear for the transmission of power, the combination of change-speed mechanism, consisting of two compounded epicyclic gear-trains C, D, E and G, F, H, with a reversing-gear comprising a brake-drum M, a suitable brake for said brake-drum, pinions N supported by the brake-drum M, said pinions meshing with the central pinion C of the first epicyclic train, and an annulus I' supported on the axes of the intermediate element of the first gear-train, substantially as set forth.

664,654. BASKET. WILLIAM T. LANE and JOHN I. LANE, Port Chester, N. Y. Filed May 24, 1900. Serial No. 17,900. (No model.)



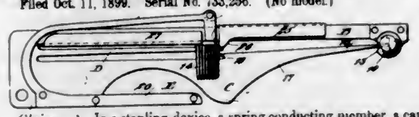
Claim.—1. In a basket, the combination of a frame consisting of an upper portion, side portions depending from the upper portion, means for connecting the side portions together at the bottom, and a flexible covering inclosing the frame and carried as a loose sack without supports for some distance below the bottom portion of the frame, substantially as and for the purpose set forth.

2. In a basket, the combination with a supporting-frame comprising a horizontally-disposed upper portion, vertically-disposed side portions and a horizontally-disposed bottom portion, of a covering of flexible material for said frame inclosing said frame and carried for some distance below the bottom of the frame, whereby a soft, flexible and collapsible bottom is provided for said basket.

3. In a basket, the combination of a frame consisting of the circular upper portion, the rectangular sides and the transverse bottom braces, of a flexible covering inclosing the circular and rectangular portions of the frame and carried under and at a distance below the bottom portion of the frame, substantially as and for the purpose set forth.

4. As a new article of manufacture, a basket provided with a frame arranged to support and distend the top of the basket and support and distend the sides of the basket except at the bottom of the basket, and a flexible covering inclosing the frame but carried below the frame so as to produce below the frame a soft, flexible and collapsible bottom for the basket.

664,655. STAPLING DEVICE. JOHN C. LARY, Clintonville, Ky. Filed Oct. 11, 1899. Serial No. 733,256. (No model.)



Claim.—1. In a stapling device, a spring conducting member, a carrying member movable to and from the conducting member, the conducting member being arranged to receive staples from the carrying member, and a head adapted to receive a staple and in which the staple is carried to driving position.

2. In a stapling device, a carrying member adapted to hold staples, a conducting member adapted to receive staples from the carrying member, the carrying member being movable to and from the conducting member and the conducting member being capable of side movement, a releasing device for the staples, and a head arranged to receive the staples, in which head the staples are carried to driving position by the action of the conducting member, as set forth.

3. In a stapling device, a spring conducting member, a carrying member movable to and from the conducting member, means for locking the two members together, and a head in which the free end of the conducting member enters, as and for the purpose set forth.

4. In a stapling device, a spring conducting member, a carrying member movable to and from the conducting member, a releasing device having movement to and from the carrying member, said releasing device being provided with a head having a spur arranged to enter between the staples located on the carrying member, and a chambered fixing-head in which the free end of the conducting member enters, the said chamber being so formed that a staple carried into the same by the conducting member will be brought to driving position, as described.

5. In a stapling device, a conducting member capable of side movement, and a head adapted to receive staples from the conducting member, the said head having a chamber in which the conducting member enters, the chamber of the head being so shaped that a staple will be carried to driving position by the side movement of the conducting member, as set forth.

6. In a stapling device, the combination, with a spring conducting member, a spring carrying member having movement to and from the conducting member, there being a locking engagement between the two said members, and a releasing device consisting of spring-arms and heads carried by the arms, which heads are provided with spurs arranged to enter spaces between staples located on the carrying member, of a gage, and a support for the said gage, the gage being adjustable upon its support and located adjacent to the free end of the carrying member of the device, as described.

7. In a stapling device, the combination, with a spring conducting member, a spring carrying member having movement to and from the conducting member, a locking engagement between the two said members, and a releasing device consisting of spring-arms and heads carried by the arms, which heads are provided with spurs arranged to enter spaces between staples located on the carrying member, of a gage and a support for the said gage, the gage being adjustable upon its support and located adjacent to the front end of the carrying member of the device, and a second gage located on the said support, facing the upper edge of the carrying member, the said second gage being adapted to control the width of the space above the carrying member in which the bow portions of the staples located on said member are adapted to have movement.

8. In a stapling-machine, a magazine or collecting arm for staples, consisting of a bifurcated body having a handle at one end at an angle to the body, a recess at the opposite end, and projections adjacent to the said recess, for the purpose described.

9. The combination, with the conducting member of a stapling machine and the carrying member of the same, of a magazine or collecting arm, comprising a bifurcated body arranged to fit over the conducting member of the said device, the said body being provided with a handle at its outer end at an angle to the body, and an inclined recess near the opposite end, together with projections located at the foot of the said recess, as described.

664,656. ADJUSTABLE GAS-CHECK. THADDEUS S. LEESE, Allegheny, Pa. Filed Apr. 28, 1900. Serial No. 14,680. (No model.)



Claim.—1. In a device of the character described, a base, a check carried thereby and provided with a dome-shaped portion having a centrally-arranged opening, a needle-valve loosely mounted upon said base and provided with an annular groove near its lower end, said valve adapted to operate through the said opening, and means carried by said base and engaging in said groove for adjusting the position of said valve.

2. In a device of the character described, a base, a diaphragm carried thereby and provided with a dome-shaped portion having a centrally-arranged opening, a needle-valve loosely mounted upon said base and provided with an annular groove near its lower end, said valve adapted to operate through the said opening, and eccentrically-mounted means carried by said base and adapted to engage in said groove for adjusting the position of said valve.

3. In a gas-check, a hollow base, a partition arranged therein and provided with suitable inlet-passages, a diaphragm mounted within said base and provided with a dome-shaped portion having a centrally-arranged opening, a gas-chamber formed by said diaphragm and partition, a needle-valve loosely mounted within said partition and operating through said opening of the diaphragm, an adjusting-plug mounted in said base, and eccentrically-arranged means carried by said plug and adapted to engage said valve for adjusting the position thereof.

4. In a gas-check, a hollow base, a partition arranged therein and provided with suitable inlet-passages, a diaphragm mounted within said base and provided with a suitable valve-seat, a needle-valve loosely mounted within said partition and adapted to engage said seat, an adjusting-plug mounted in said base, and an eccentrically-connected pin carried by said plug for adjusting the position of said valve.

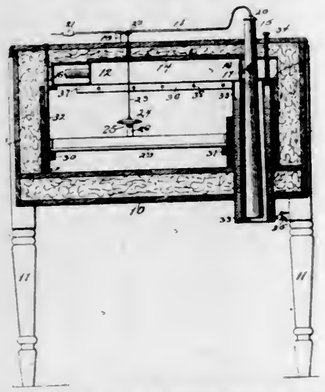
5. In a device of the character described, a base provided with a pair of diametrically-arranged inlet-passages, a vertically-adjustable needle-valve loosely mounted in said base and between said inlet-passages, a diaphragm provided with a centrally-arranged opening mounted within said base and above said valve, an adjusting-plug arranged in a longitudinal manner within said base, and a pin eccentrically connected to said plug and adapted to engage said valve for adjusting the same.

6. In a device of the character described, a base, a partition formed

in said base, a pair of diametrically-arranged inlet-passages formed in said partition, a diaphragm provided with a valve-seat arranged within said base above said partition, a gas-chamber formed between the said partition and said diaphragm and in communication with said inlet-passages, a vertically-adjustable needle-valve loosely mounted in said partition and operating through said gas-chamber and engaging said seat, an adjusting-plug mounted in a longitudinal manner within said base, and a pin eccentrically connected to said plug and adapted to engage said valve for adjusting the same.

7. In a device of the character described, a base, a needle-valve loosely mounted therein, and provided on its lower end with an annular groove, and eccentrically-mounted means adapted to engage the said groove for adjusting the position of said valve.

664,657. **INCUBATOR.** JETHRO L. MACY, Des Moines, Iowa. Filed May 3, 1898. Serial No. 679,598. (No model.)



Claim.—1. In an incubator, the combination of a casing, an egg-tray therein, and a hot-air tank in the upper portion of the casing, which tank is formed with a central opening to lessen the radiating area thereof, a chimney traversing and surrounded by one end portion of the air-tank, pipes 16, 17 leading laterally from the chimney, bent at right angles and extended in parallel planes on opposite sides of the central opening nearly to the opposite end of the air-tank and terminating with open ends within the tank and vent-pipes leading from the air-tank adjacent to the elbows of the pipes 16, 17.

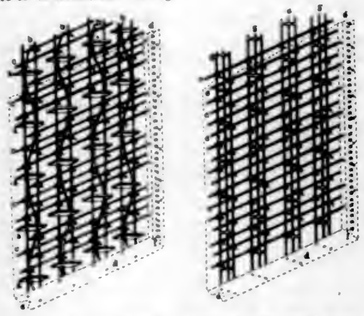
2. A hot-air tank formed as a hollow rectangle, the front side portion of said tank being greater in width than the other, in combination with a casing to receive said tank, a door in the casing, the widest portion of the tank being located adjacent the door, and means for supplying heated air to the tank.

3. In an incubator the combination of the casing, a chamber in the casing, an egg-tray in the casing, a ventilator-pipe in the casing, a hot-air tank in the casing-chamber above the tray, which tank is provided with an aperture vertically in one end portion thereof, a chimney mounted vertically in and extending through the casing-chamber and traversing the aperture in the end portion of the air-tank, pipes affording communication between the chimney and the interior of the air-tank, vent-pipes affording communication between the air-tank and the outside of the casing, a water-tank of annular form surrounding the lower portion of the chimney and depending from the air-tank, the water-tank being open at its top and communicating with the chamber in the casing, a pipe formed on the lower face of the hot-air tank and communicating with the open end of the water-tank and open at its other end within the chamber, which pipe is perforated laterally within the chamber, a thermostat controlling the draft through the chimney and means for heating the water in the water-tank and the air in the chimney.

4. An air-tank for incubators formed as a hollow rectangle, and provided with a vertical aperture near one end to receive a chimney, air-pipes in the tank and communicating at one end each with the chimney and open at the other end within the tank and vent-pipes leading from the tank.

664,658. **FIRE AND WATER PROOF REMOVABLE WALL, FLOOR, &c.** JOHN MASSARO, Frankfort-on-the-Main, Germany. Filed Feb. 21, 1900. Serial No. 6,109. (No model.)

Claim.—1. A skeleton framework, having two series of longitudinal members in different planes, connections uniting the members of one series with those of the other, transverse connections uniting the several members of the series, and a filling.



2. In building construction, a composite beam made up of a skeleton frame, having series of longitudinal members united by two series of transverse members, running at approximately right angles to each other and bracing the longitudinal members in two directions, and a filling.

3. A building-block, comprising longitudinal bars or rods arranged in sets, the rods or bars of each set being connected together, transverse rods or bars secured to and connecting the sets of longitudinal rods or bars, and a filling of cement, substantially as described.

4. A building-block, comprising longitudinal bars or rods arranged in sets, plates through which the rods pass and by which the said rods are connected together, transverse rods or bars secured to and connecting the said sets of rods or bars together, and a filling of cement, substantially as described.

5. A building-block, comprising longitudinal rods or bars arranged in sets, each set consisting of three rods or bars, the central one of which is serpentine, plates through which the rods or bars pass and by which they are connected together, transverse rods or bars secured to and connecting the said sets of rods or bars, and a filling of cement, substantially as described.

6. A building-block, comprising longitudinal bars or rods arranged in sets, the rods or bars being connected together, transverse rods or bars secured to and connecting the said sets of rods or bars, wooden blocks arranged at intervals, and a filling of cement, substantially as described.

7. In the construction of buildings, composite building-blocks formed of sets of rods or bars arranged at angles to each other and secured together, and a filling of cement, and beams for supporting the blocks forming a wall, said blocks and beams having a groove connection, substantially as described.

8. In the construction of buildings, composite building-blocks formed of sets of rods or bars arranged at angles to each other, and secured to one another, and a filling of cement, and beams grooved on opposite sides to receive the edges of the said blocks, substantially as described.

9. In the construction of buildings, composite building-blocks, formed of a skeleton metal frame, and a filling of cement, and a composite beam formed of a skeleton frame and cement, the said beam being grooved to receive the blocks, substantially as described.

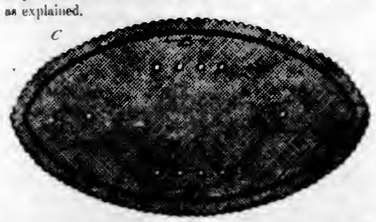
10. In the construction of buildings, a composite beam formed of cement having longitudinal rods embedded therein, and an auxiliary or partition beam also formed of cement having longitudinal rods or bars embedded in them, said auxiliary beam also having clasps embedded in them for connecting them with the main beam, substantially as described.

11. In the construction of buildings, a composite main beam formed of cement having longitudinal rods or bars embedded therein, an auxiliary or partition beam also formed of cement having longitudinal rods or bars embedded in them, said partition-beam also having clasps embedded in its ends, and means for securing the clasps to the longitudinal rods or bars of the main beams, substantially as described.

664,659. **CORSET-SHIELD.** PATRICK M. MATTHEW, Edinburgh, Scotland. Filed Oct. 21, 1899. Serial No. 734,287. (No model.)

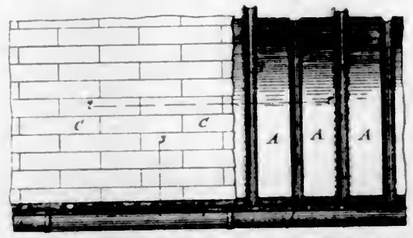
Claim.—1. A corset-shield comprising a thin combined rubber and fiber sheet in which the fibers are thoroughly mixed with the rubber, extend vertically crosswise of the sheet and overlap so as to break joint whereby the tensile strength of the fibers prevents breaking by vertical strain while their flexibility permits the bending of the sheet in a vertical plane; and whereby the curvature of the sheet in a horizontal plane is permitted by the elasticity of the sheet in that direction.

2. A corset-shield comprising a thin combined rubber and fiber sheet of customary elliptical form, having the fibers disposed crosswise of the sheet so as to be in vertical position when in use and overlapping so as to break joint and a fabric covering cut on the bias, and secured to the sheet, as explained.



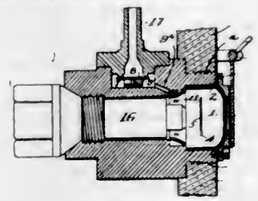
3. A corset-shield comprising a thin combined rubber and fiber sheet of elliptical shape having the fibers disposed crosswise of the sheet so as to assume a vertical position when in use and overlapping so as to break joint, and fabric coverings cut on the bias, and each having an adhesive coating whereby they are applied under pressure to the thin sheet so as to permit the thin sheet to yield in the manner explained.

664,660. **TIN ROOF.** LEOPOLD MAY, New York, N. Y. Filed Sept. 25, 1900. Serial No. 31,092. (No model.)



Claim.—A roof, consisting of the boarding, the individual boards of the same being provided with recesses at their adjacent edges, channeled shedding-strips secured in said recesses, said shedding-strips extending beyond the boarding, and an exterior covering of suitable material over the boards and strips, said covering being provided at the points where it extends over the lower ends of the boards with slits or openings, through which the projecting ends of the strips protrude, substantially as set forth.

664,661. **INCANDESCENT IGNITING DEVICE FOR EXPLOSION-ENGINES.** GIACOMO MIARI and FRANCESCO GIUSTI, Padua, Italy. Filed Dec. 9, 1897. Serial No. 661,222. (No model.)

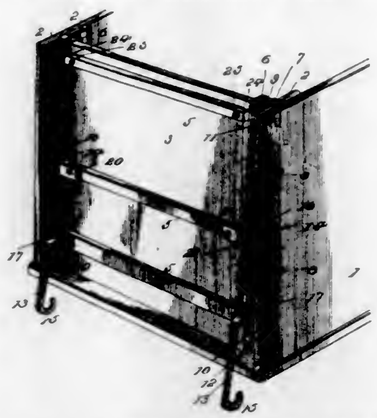


Claim.—1. A device of the character described, comprising an ignition-chamber having suitable outlets and an interiorly-arranged medium capable of receiving a degree of heat to cause ignition of an explosive mixture admitted to said ignition-chamber, a valved inlet-tube connecting by an intermediate passage and perforated chamber with said ignition-chamber, substantially as set forth.

2. A device of the character described, comprising an ignition-chamber having suitable outlets and an interiorly-arranged medium capable of receiving a degree of heat to effect ignition of an explosive mixture admitted to said ignition-chamber, a valved inlet-tube, an intermediate passage and perforated chamber between said inlet-tube and ignition-chamber, and an initial plug-closed ignition-chamber, substantially as set forth.

3. A device of the character described, comprising an ignition-chamber having suitable outlets and an interiorly-arranged gauze medium capable of receiving a degree of heat to effect ignition or combustion of an explosive mixture admitted to said chamber, a valved inlet-tube having communication through a passage and a perforated chamber with said ignition-chamber, and an initial plug-closed ignition-chamber, substantially as set forth.

664,662. **SHOVELING-BOARD.** NORMAN I. MILLIKEN, De Kalb, Ill. Filed Sept. 4, 1900. Serial No. 28,978. (No model.)



Claim.—1. In combination with a wagon-body, and an end-gate adapted to have a vertical and a pivotal movement with reference to the wagon-body, levers pivotally connected with the wagon-body and having bent or deflected portions at their pivotal ends, and runners having swivel connection with the end-gate and sliding connection with said levers and adapted to coöperate with the bent portions thereof to prevent vertical displacement of the end-gate, substantially as specified.

2. In combination with a wagon-body and an end-gate, guide-bars secured to the sides of the wagon-body near their rear ends, levers pivotally connected with the wagon-body, and runners having swivel connection with the end-gate and sliding connection with said levers and formed with extensions to engage with the aforesaid guide-bars and prevent spreading of the sides of the wagon-body, substantially as specified.

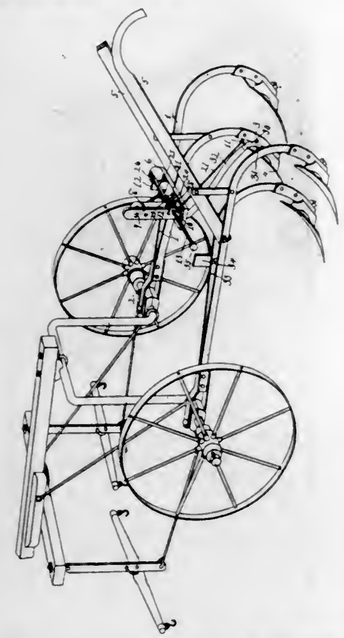
3. In combination with a wagon-body and an end-gate therefor, guide-bars secured to the sides of the wagon-body near their rear ends, hooks attached to the upper end of the gate and adapted to engage with the said guide-bars, headed studs provided at the lower end of the gate to coöperate with curved slots formed in the lower ends of the said guide-bars, levers pivotally connected with the wagon-body and having hooked portions at their free ends and bent portions at their pivotal ends, runners having swivel connection with the end-gate and sliding connection with said levers and formed with extensions to coöperate with the aforementioned guide-bars, catches to hold the levers in a given position, and clips applied to the upper end of the gate and adapted to coöperate with the guide-bars to prevent spreading of the sides of the wagon-body, substantially as set forth.

664,663. **REPLANTER ATTACHMENT FOR CULTIVATORS.** MILLARD G. MITCHELL, Arcadia, Kans. Filed Mar. 20, 1899. Serial No. 709,707. (No model.)

Claim.—1. A replanter attachment for cultivators consisting of a hopper mounted upon a suitable frame secured upon the beams of one pair of plows, a spring-actuated operating-rod slidingly mounted in brackets secured upon said frame, a head-block adjustably secured upon said rod, a spring-pawl secured to said head-block arranged to engage the notched periphery of the dropper-disk of said hopper, a lever mounted upon said frame, links connecting said lever with said head-block and with the stop-valve of said planter for operating said stop, a lever fulcrumed upon one of said brackets, a link connecting said lever with the fly-valve of said planter, and a stud on said head-block operating in an inclined slot in said lever for operating said valve, and a bumper-block secured upon the inner frame of the other pair of plows for operating said operating-rod, substantially as set forth.

2. The combination with a cultivator of a hopper having a rotating dropper-disk provided with a notched periphery, a stop-valve and a fly-valve, mounted upon a frame secured upon the beams of one pair of plows, brackets mounted upon said frame, a spring-operated operating-rod slidingly mounted in said brackets, an adjustable head-block mounted on said operating-rod, a spring-pawl secured upon said head-block arranged to engage the notches in said dropper-disk, a lever mounted upon said frame, links connecting said lever with said head-block and with said stop-valve for operating said stop, a lever fulcrumed on one of said brackets, a link connecting said lever with said fly-valve, a stud on said head-block operating in an inclined slot in said lever for operating said valve, and a

bumper-block on the inner beam of the other pair of plows for operating said operating-rod, substantially as set forth.

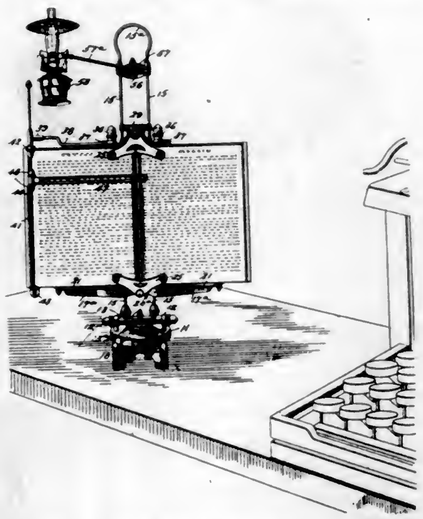


3. The combination with a cultivator of a frame secured upon the beams of one of the pairs of plows, a metal tube provided with a fly-valve secured to the shank of the inner plow of said pair, a hopper having a rotating dropper-disk provided with a notched periphery and a stop-valve, mounted upon said frame; a flexible tube secured to said frame under the opening of said stop-valve and telescoping with said shank-tube, brackets mounted upon said frame, an operating-rod slidingly mounted in said brackets, a head-block adjustably mounted upon said rod, a coiled spring on said rod, a spring-pawl secured upon said head-block arranged to engage the notches in said dropper-disk to operate the same, a lever mounted upon said frame, links connecting said lever with said head-block and with said stop-valve for operating said valve, a lever fulcrumed upon one of said brackets, a link connecting said lever with said fly-valve, a stud on said head-block operating in an inclined slot in said lever for operating said fly-valve, and means for operating said operating-rod, substantially as set forth.

4. The combination with a hopper mounted on a suitable frame, having a rotating dropper-disk provided with a notched periphery, and a stop-valve and a fly-valve, of brackets mounted on said frame, a spring-actuated operating-rod slidingly mounted in said brackets, a head-block adjustably mounted upon said rod, a spring-pawl secured upon said head-block arranged to engage said notches in said dropper-disk, to operate the same, a lever mounted upon the frame, links connecting said lever with said head-block and said stop-valve for operating said valve, a lever fulcrumed upon one of said brackets, a link connecting said lever with said fly-valve, a stud on said head-block operating in an inclined slot in said lever for operating said valve, and means for operating said operating-rod substantially as set forth.

5. The combination with a cultivator of a frame mounted upon the plow-beam, a hopper mounted on said frame, having a rotating dropper-disk provided with a notched periphery and a stop-valve, a metal tube provided with a fly-valve secured upon the shank of the inner plow, a flexible tube telescoping with said tube and secured to said frame under the opening closed by said stop-valve, brackets mounted upon said frame, a spring-actuated operating-rod slidingly mounted in said brackets, a head-block adjustably secured upon said rod, a spring-pawl secured upon said head-block arranged to engage said notches in said dropper-disk, a lever mounted on said frame, links connecting said lever with said head-block and with said stop-valve for operating said valve, a lever fulcrumed on one of said brackets, a link connecting said lever with said fly-valve, and a stud on said head-block operating in an inclined slot in said lever for operating said valve, substantially as set forth.

664,664. BOOK OR COPY HOLDER. BURGESS T. MONTGOMERY, Washington, D. C. Filed Apr. 10, 1900. Serial No. 12,338. (No model.)



Claim.—1. In a device of the character described, the combination with a pedestal; of a top plate pivoted about a vertical axis and bearing a horizontal spindle, main supporting-rods mounted to freely swing in a vertical plane on said top plate about this horizontal spindle, and a holder or rest slidably fitted on said rods and provided with legs substantially as shown and described.

2. In a device of the character described, a pedestal, supporting-rods rotatably and pivotally mounted on said pedestal, a rest or holder for the paper or the like slidable on said rods, and springs imparting tension to said rods whereby to create friction between the rods and the rest, as shown and described.

3. In a device of the character described, the combination with the pedestal; of a top plate pivoted about a vertical axis, and bearing a horizontal spindle, supporting-rods mounted on said horizontal spindle, and a holder or rest slidably fitted on said rods, and friction devices for holding it at various points thereon substantially as described.

4. In a device of the character described, the combination with a pedestal having a rotary top plate, of a horizontal spindle held to turn about its longitudinal axis on said top plate, supporting-rods secured at their lower ends to said spindle and provided with tension devices, and a holder or rest slidably fitted on said rods and held at various elevations on said rods, as set forth.

5. In a device of the character described, the combination with a pedestal, of supporting-rods mounted to swing in a vertical plane on said pedestal and also rotatable about said pedestal as a center, a rest or holder vertically slidable on said rods, and supporting-legs secured to said rest and provided with roller-feet arranged to move in the circumference of a circle of which the pedestal is a center, as set forth.

6. In a device of the character described, a pedestal provided with a rotary top plate, a horizontal spindle mounted to rotate about its longitudinal axis on said top plate and having a stop-lug, a slotted strap secured to said top plate and fitted around the lug on said spindle whereby to limit the movement of the latter, supporting-rods secured at their lower ends to said spindle, a rest or holder slidably mounted on said rods, bow-springs exerting tension between said rods whereby to create friction between the rods and rest, and a brake for locking said rest in adjusted position, as set forth.

7. In a device of the character described, supporting-rods, a rest or holder formed with apertures whereby it is slidably mounted on said rods, and a spring-brake secured to one of said rods and arranged to bind against the other rod, as set forth.

8. In a device of the character described, a rest or holder provided with cross-bars offset forwardly at their ends and fingers pivoted to the ends of said bars to swing in a plane parallel with that of the holder, and adapted to be turned over manuscript or the like on said holder, as set forth.

9. In a device of the character described, a rest or holder provided on its bottom with pivoted leaves or wings whose axis of motion is parallel to back of the rest and whose plane of adjustment is at right angles thereto and parallel to the bottom, forming widening extensions of the same substantially as described.

10. In a device of the character described, a rest or holder provided with a bottom rest or bar, and wings or leaves pivoted at one end to the face of said bottom bar, each wing being provided with a segmental slot and there being provided studs on the bar fitted in said slots, as set forth.

11. In a device of the character described, an auxiliary back or support constructed in hinged sections each of which is laterally extensible and provided with clips, as set forth.

12. The combination with a pedestal and parallel supporting-rods mounted thereon; of a book-holder and an adjustable bracket slidably mounted on said rods, and two book-spreaders one mounted on the lower portion of the holder and the other carried on the adjustable bracket and slidably mounted on the parallel supporting-rods of the book-holder in a position above the latter as described.

13. The combination with a pedestal and parallel supporting-rods mounted thereon; of a book-holder slidably mounted on said rods and two book-spreaders, one mounted on the book-holder and the other on the parallel supporting-rods above the book-holder said spreaders having an axial adjustment about an axis at right angles to the plane of the book-holder as described.

14. The combination with a pedestal and parallel supporting-rods mounted thereon; of a book-holder slidably mounted on said rods, and two book-spreaders one mounted on the book-holder and the other on the parallel supporting-rods above the book-holder, said spreaders having an axial supporting-rod arranged at right angles to the plane of the book-holder and being made adjustable in longitudinal direction and also adjustable about its axis as described.

15. In a device of the kind described the combination with the book-holder and its support; of a book-spreader comprising an axial rod arranged in bearings in a line substantially at right angles to the plane of the book-holder and having two bearing-arms offset to the same side of the axial center, said spreader being adjustable longitudinally as regards its axis, and in a circular path about its axis to remove the spreader from the edge of the book in turning the page substantially as described.

16. In a device of the kind described, the combination with the book-holder and its support; of a book-spreader comprising an axial rod arranged in a line substantially at right angles to the plane of the book-holder and having two bearing-arms offset to the same side of the axial center, a bearing for the axial rod and means for locking said axial rod and its arms substantially as described.

17. In a device of the kind described, the combination with the book-holder and its support; of a book-spreader comprising an axial rod arranged in a line substantially at right angles to the plane of the book-holder and having two bearing-arms offset to the same side of the axial center, a bearing for the said axial rod, and a friction device on said rod arranged to hold the bearing-arms down against the book substantially as described.

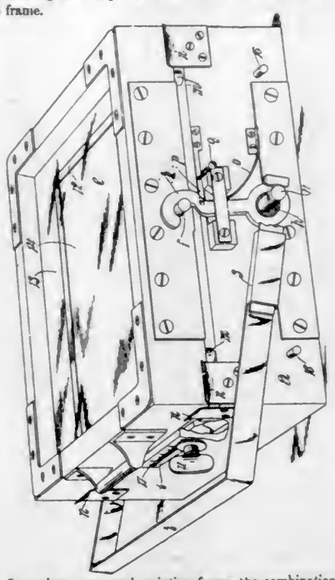
18. In a device of the kind described the combination with the book-holder and its two supporting-rods; of a cross-plate attached to said rods above the book-holder and having an arm attached thereto for supporting a lamp and friction-clamps 55 connecting said plate to the rods substantially as described.

664,665. PHOTO-ENGRAVER'S PRINTING-FRAME. SAMUEL MCLAUGHLIN, Los Angeles, Cal. Filed July 31, 1900. Serial No. 25,461. (No model.)

Claim.—1. The combination of a bed-holding frame; a negative-holding bed pivoted in the bed-holding frame; resilient means for supporting the bed at opposite sides of its pivotal axis; a transparent lid furnished with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; two catches to catch upon the pivots of the lid respectively; two cams journaled respectively on the opposite sides of the bed-holding frame to operate the catches respectively; and means for operating the cams.

2. The combination of a bed-supporting frame; a negative-holding bed pivoted in the bed-holding frame; adjustable supports for the bed-pivots; a transparent lid furnished with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; two catches to catch upon the pivots of the lid respectively; two cams journaled respectively on the opposite sides of the bed-holding frame to operate the catches respectively; and means for rotating the cams.

3. A photo-engraver's printing-frame, comprising a bed-holding frame provided at its top with cushions for supporting a lid, and also provided at the corners with guides which flare outwardly at the top to receive the lid; a bed pivoted in the bed-holding frame; a transparent lid to fit between the guides and to rest upon the cushions above the bed and provided with two oppositely-arranged coaxial pivots, the axis of which pivots is at right angles to the axis of the pivots of the bed; and means connecting the lid-pivots with the bed-frame to force the lid toward the frame.



4. In a photo-engraver's printing-frame, the combination of a bed-holding frame provided at its opposite ends with vertical ways; two wedge-shaped pivot-bearings at the lower ends of said ways respectively; a bed provided with pivots in said ways resting upon said wedge-shaped pivot-bearings respectively; a transparent lid above said bed; and means pivotally connecting the lid with the bed-frame to draw the lid toward said frame.

5. In a photo-engraver's printing-frame, the combination of a bed-holding frame provided at its opposite ends with vertical ways; wedge-ways extending inside the frame across the lower portion of the vertical ways; two wedge-shaped pivot-bearings to play in said wedgeways respectively; clamp-screws extending through slots in the bed-frame and screwed into said pivot-bearings to adjustably clamp the same to the bed-frame; a bed provided with pivots in said ways, resting above said wedge-shaped pivot-bearings respectively; a transparent lid above said bed; and means connecting the lid with the bed-frame to draw the lid toward said frame.

6. In a photo-engraver's printing-frame, the combination of a bed-holding frame; a transparent lid provided with coaxial pivots; cams journaled on the bed-holding frame at the opposite sides thereof respectively; hooks mounted on said cams respectively, and arranged to catch upon the pivots of the lid respectively; and a handle connecting the cams to simultaneously rotate the same.

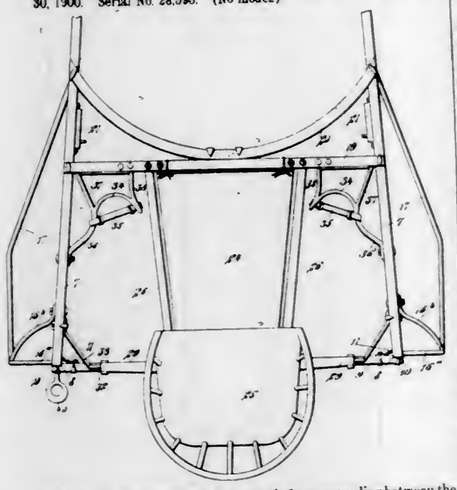
7. In a photo-engraver's printing-frame, the combination of a bed-holding frame; a transparent lid provided with coaxial pivots; cams journaled on the bed-frame at the opposite sides thereof respectively; hooks mounted on said cams respectively and arranged to catch upon the pivots of the lid respectively; springs for holding said hooks caught upon the pivots respectively; and means for rotating the cams.

8. A photo-engraver's printing-frame, comprising a bed-holding frame; a bed pivoted to said bed-holding frame; a transparent lid above said bed; cams journaled on the frame on the opposite sides thereof respectively; hooks on said cams respectively; springs to throw the hooks respectively to catch said pivots; catches to hold the hooks in retracted position; and means for rotating the cams.

9. In a photo-engraver's printing-frame, a plate-supporting bed, consisting of a top piece having dovetail grooves on the under side; cross-bars fitted in the dovetail grooves respectively, and extending across a portion of the top piece between the sides thereof; side bars provided with gains to fit the ends of the cross-bars, and fitted on the opposite ends of the cross-bars respectively; end bars fastened on the ends of the side bars; and means for fastening the bars and top piece together.

10. In a photo-engraver's printing-frame, a plate-supporting bed consisting in a top piece having dovetail grooves on its under side, extending from one edge toward the other edge; cross-bars fitted into the dovetails respectively, and shouldered at their ends respectively; side bars furnished with shouldered gains to fit the ends of the cross-bars; end bars fastened to the ends of the side bars; and means for fastening the parts together.

664,666. CART. JOHN J. MCNULTY, Carmel, N. Y. Filed Aug. 30, 1900. Serial No. 28,593. (No model.)



Claim.—1. A cart, having thills, an arch-frame extending between the rear ends of the thills and joined thereto, a cross-bar attached to and extending between the thills forward of the arch-frame, a spring mounted on the arch-frame, a seat-bar hinged to the cross-bar of the thills and extending over the spring, a hinge forming a connection between the spring and the seat-bar, and a seat carried by the seat-bar.

2. A cart, having thills, a cross-bar extending between the thills, a frame extending between the thills rearward of the cross-bar, a seat-bar hinged to the cross-bar, a spring mounted on the frame and having hinged connection with the seat-bar, and a seat carried rigidly by the seat-bar at a point over the spring.

3. A cart, having thills, an arch-frame extended between the ends of the thills, a spring mounted on the arch-frame, a spring-bar attached to the spring and having its end portions dropped or bent downward, seat-bars mounted on the ends of the spring-bar, and a seat carried by the spring-bar.

4. A cart, having a bar forming a foot-rest, and a stirrup-strap hanging downward therefrom to sustain the foot in engagement with the bar.

5. A cart having a foot-rest, and a stirrup-strap hanging downward therefrom to sustain the foot in engagement with the foot-rest.

664,667. ELECTRIC PUSH-BUTTON. THOMAS A. NATHANS, New York, N. Y. Filed June 1, 1900. Serial No. 18,701. (No model.)



Claim.—1. In a push-button device, the combination with a bottom plate, a casing held removably thereon, and a push-button slidable through the top of the casing, of a double contact device adapted to independently close a normally open circuit when the push-button is depressed, and also when the casing is partially removed from the bottom plate.

2. In a push-button device, the combination with a bottom plate, and a casing removably securable thereon, of a spring-pressed push-button slidable through the casing-top, electric wires in connection with open-circuit contacts in the casing, and means to complete the circuit upon depression of the push-button or partial displacement of the casing from the bottom plate.

3. In a push-button device, the combination with a casing, a bottom plate on which the casing is removably secured, a push-button slidable through the top of the casing, and a spring pressing the push-button upwardly, of electric wires terminating in the casing in open circuit, one wire connected to the spring and the other wire to a contact on the bottom plate, and means to effect the closure of the circuit when the push-button is depressed and also on partial removal of the casing from the bottom plate.

4. In a push-button device, the combination with a bottom plate, a spring-actuated push-button, and a casing removably held on the bottom plate, the push-button passing loosely up through the casing, of a cover-plate held on the bottom plate by the casing and adapted to prevent removal of said bottom plate from a building, two electric wires terminating in the casing in open circuit, and means to effect the closure of the circuit when the push-button is depressed and also when the casing is partially removed from the bottom plate.

5. In a push-button device, the combination with a bottom plate, a dome-like casing thereon, and a push-button slidable through the top of the casing, of a bent contact-spring engaging the bottom plate and pressing the push-button upwardly, two electric wires terminating in open circuit in the casing, and a contact adapted to engage the spring upon the depression of the push-button, thus closing the electric circuit, a partial removal of the casing also closing said circuit.

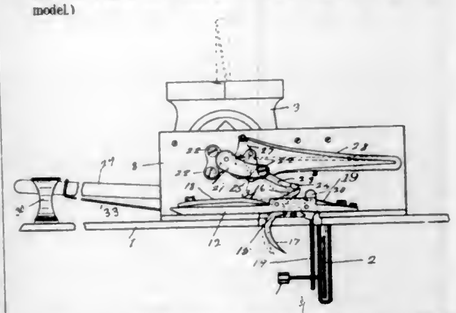
6. In a push-button of the character described, the combination with the bottom plate, the casing screwing upon the bottom plate, and the spring-pressed push-button, of the two-part contact device adapted to close a normally open circuit of two electric wires in the casing when the push-button is depressed, and also when the casing is moved to unscrew it.

7. In an electric push-button, the combination with a bottom plate, and a casing screwing upon a boss on the bottom plate, of a return-bent spring contact-plate secured by a foot portion thereof upon the boss, a push-piece working through the casing and pressed by the spring contact-plate, a base-plate seated upon the boss, two posts adapted to receive the impinge of the contact-plate on opposite sides thereof, and electric-circuit-wire terminals respectively secured upon the spring contact-plate and upon the base-plate.

8. In an electric push-button, the combination with a bottom plate having a peripherally-threaded boss thereon, a cover-plate apertured to pass over the boss and seat upon the bottom plate, means to prevent the cover-plate from turning, and a casing screwing upon the boss and pressing upon the cover-plate, of a spring contact-plate on the boss, a push-piece passing through the top of the casing and pressed by the spring contact-plate, and two contact-posts, one of which coacts with said contact-plate for closure of an electric circuit to ring a bell when the push-piece is depressed, and the other post together with the spring contact-plate closing the same electric circuit when the casing is partially unscrewed.

9. In an electric push-button, the combination with a bottom plate having screw-holes, and also a peripherally-threaded boss that is flat on its upper side, and an apertured cover-plate passing over the boss and seating upon the bottom plate, of a dome-like casing screwing upon the boss and pressing upon the cover-plate, means to prevent the cover-plate from turning, a return-bent spring contact-plate secured by a foot portion thereof upon the boss, a push-piece passing loosely through a perforation in the crown of the casing and pressed upon by the spring contact-plate, said push-piece having a flange screwed upon its lower end to prevent removal from the casing, a base-plate fast on the boss and insulated therefrom, a straight post on the base-plate adapted to receive the impinge of the spring contact-plate when said plate is depressed by the push-piece, an angularly-bent post on the base-plate, the horizontal member of this post overhanging the contact-plate, to contact therewith when the casing is partially unscrewed, terminals of an electric circuit respectively secured upon the spring contact plate and base-plate, and a bell in the electric circuit.

664,668. AUTOMATIC THERMOSTATIC VALVE. JOHN E. NOBLE, Fort Wayne, Ind. Filed May 17, 1900. Serial No. 16,984. (No model.)



Claim.—1. In a thermostatic valve the combination of a spigot-valve; an actuating-tumbler connected directly to said valve, as shown; a trigger mechanism connected to said tumbler; and a thermostat adapted to release said mechanism.

2. The combination in a thermostatic valve of a rotary spigot-valve; a rocking tumbler operatively connected with said valve, as shown; a tripping mechanism connected with said tumbler; and a thermostat adapted to release said mechanism.

3. An oscillatory spigot-valve in combination with a rocking tumbler in operative relation with said valve; a tripping mechanism connected with said tumbler; and a thermostat adapted to release said tripping mechanism; and a spring-pressed lever connected to said valve to assist in operating the said valve.

4. A thermostatic valve consisting of an oscillatory spigot-valve 4 arranged in a proper valve-casing; a rocking tumbler in direct operative connection with said valve; a trigger mechanism connected with said tumbler; and a thermostat adapted to release said trigger mechanism.

664,669. OIL-CAN. CARL NORDHAUGEN, Aneta, N. D., assignor of one-half to John G. Gunderson, same place. Filed Apr. 9, 1900. Serial No. 12,161. (No model.)



Claim.—1. In an oil-can or the like, a plunger adapted to expel the oil in its movement, said plunger comprising a plunger-head, an exterior cap under the control of the operator, and connection between said cap and head, said connection including means whereby the distance between the said cap and head can be adjusted; substantially as described.

2. In an oil-can or the like, a plunger adapted to expel the oil in its movement, said plunger comprising a plunger-head, an exterior cap under the control of the operator, telescoping connection between said cap and head whereby the distance between said parts can be adjusted, and means for holding said parts in adjusted position; substantially as described.

3. In an oil-can or the like, a plunger adapted to expel the oil in its movement, said plunger comprising a plunger-head, an exterior cap under the control of the operator, and a plunger-rod connecting said head and cap and having threaded connection with one of them, the threads extending a greater distance than that necessary for engagement only, whereby the distance between said cap and head can be adjusted; substantially as described.

4. In an oil-can or the like, a plunger adapted to expel the oil in its movement, said plunger comprising a plunger-head, an exterior rotatable cap under the control of the operator, and a plunger-rod connecting said head and cap and having threaded connection with one of them, the threads extending a greater distance than that necessary for engagement only, whereby the distance between said cap and head can be adjusted; substantially as described.

5. In an oil-can or the like, a chamber communicating with the spout and having a port connecting it with the can proper, a plunger movable across said port to expel oil from said chamber, a flange projecting from one side of said plunger, and a lug upon the can, whereby said plunger can be brought across the said port to close the same and turned to cause its flange to engage the lug to lock the parts in the position indicated; substantially as described.

6. In an oil-can or the like, a tube having an enlarged portion opening through a wall of the can, a shoulder being produced between the body portion and enlarged portion of said tube, said tube communicating with the spout and having a port connecting it with the can proper, a plunger operating in said tube and having a cap freely movable into and out of said enlarged portion, and a spring bearing against said shoulder and said cap, whereby said plunger and spring can be withdrawn from the tube; substantially as described.

7. In an oil-can or the like, a tube having an enlarged portion opening through a wall of the can, a shoulder being produced between the body portion and enlarged portion of said tube, said tube communicating with the spout and having a port connecting it with the can proper, a plunger operating in said tube and having a cap freely movable into and out of said enlarged portion, and a spring connected to said cap and bearing against said shoulder, whereby said plunger and spring can be withdrawn from the tube; substantially as described.

8. In an oil-can or the like, a tube having an enlarged portion opening through a wall of the can, a shoulder being produced between the body portion and enlarged portion of said tube, said tube communicating with the spout and having a port connecting it with the can proper, a plunger operating in said tube and having a cap freely movable into and out of said enlarged portion, a spring bearing against said shoulder and said cap, and an ear upon said cap bent over upon the spring and securing the same to the cap, whereby said plunger and spring can be withdrawn from the tube; substantially as described.

9. In an oil-can or the like, a chamber communicating with the spout and also having a port connecting it with the can proper, a plunger movable in said chamber across said port to expel the oil therefrom through said spout, the plunger-head being movable to the side of the port opposite the spout, a rotatable cap under the control of the operator, means for limiting the throw of said cap, connection between said cap and plunger-head whereby said parts are caused to move together, means for varying the distance between said cap and plunger-head to regulate the amount of oil expelled at each operation of the plunger, a flange projecting from one side of said plunger and serving to limit the throw of the same by engaging the can-body, and a lug upon the can, whereby said plunger can be brought across the said port to close the same and turned to cause its flange to engage the lug to lock the parts in the position indicated; substantially as described.

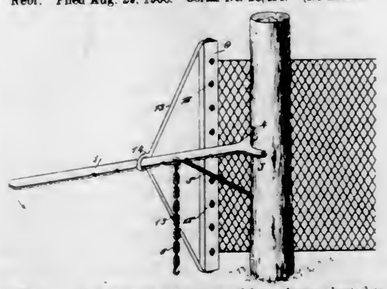
10. In an oil-can or the like, a chamber communicating with the spout and also having a port connecting it with the can proper, a plunger movable in said chamber across said port to expel the oil therefrom through said spout, the plunger-head being movable to the side of the port opposite the spout, a rotatable cap under the control of the operator, a plunger-rod connecting said head and cap and having threaded connection with one of them, whereby the distance between the cap and plunger-head can be adjusted, a flange projecting from one side of said plunger and serving to limit the throw of the same by engaging the can-body, and a lug upon the can, whereby said plunger can be brought across the said port to close the same and turned to cause its flange to engage the lug to lock the parts in the position indicated; substantially as described.

664,670. KNIFE FOR HARVESTERS, MOWERS, &c. HERSCHEL OLDHAM, Orleans, Ind., assignor of one-half to James Oldham, Leipsic, Ind. Filed July 17, 1900. Serial No. 23,884. (No model.)



Claim.—The combination of the casing having upper and lower plates or sections with flanges at their front and rear edges, said flanges being closer together than the bodies of the sections, an endless-chain knife having blades projecting outwardly between said flanges, a cover fitted over the rear flanges and the rear run of the knife, and means for operating the knife.

664,671. WIRE-STRETCHER. FRANK J. OLMSTED, Beaver City, Nebr. Filed Aug. 29, 1900. Serial No. 28,458. (No model.)



Claim.—1. A wire-stretcher, comprising a lever adapted to be engaged with and to be moved circumferentially of a post and having notches in one of its edges, a stretcher-head comprising a ring extending around and movable along the lever and adapted to engage in any one of said notches, a brace attached to one side of the lever and adapted to be engaged with a post to hold the lever against the pulling strain of a wire, and a chain attached to the lever, substantially as specified.

2. A wire-stretcher, comprising a lever adapted to be engaged with and to be moved circumferentially of a post and having notches in one of its edges, and a stretcher-head comprising a ring movable along the lever and adapted to engage in any one of said notches, a bar arranged at right angles to the lever and having connection with the ring, hook-bolts mounted in said bar, and tightening-nuts on said bolts, substantially as specified.

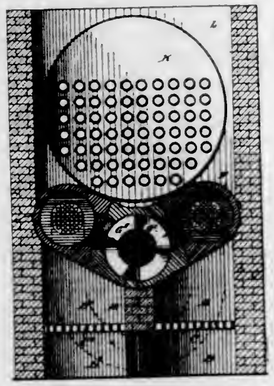
664,672. HAMMOCK-SUPPORT. ISAAC E. PALMER, Middletown, Conn. Filed Aug. 25, 1898. Serial No. 689,467. (No model.)



Claim.—1. A hammock-support comprising an extensible backbone, pairs of supporting-legs hinged to the backbone and means for permitting the pairs of legs to be moved bodily toward and away from each other along the extensible backbone, substantially as set forth.

2. The combination with a backbone and collars arranged to slide along the backbone, of supporting-legs hinged to the collars to swing toward each other into gripping contact with the backbone and means for holding the legs in their closed adjustment, substantially as set forth.

664,673. FURNACE. JOHN L. PESLIN, Chicago, Ill. Filed Aug. 15, 1900. Serial No. 26,969. (No model.)



Claim.—1. A furnace having a plurality of fire-boxes, a gas-flue for each fire-box, said flues being arranged above the said boxes, and a central combustion-chamber into which open the said flues, substantially as described.

2. A furnace having a plurality of fire-boxes, a gas-flue for each fire-box, said flues being arranged above the fire-boxes and communicating therewith at their rear ends, and a combustion-chamber between the flues and communicating therewith at their front ends, substantially as described.

3. A furnace having a plurality of fire-boxes, a gas-flue for each fire-box, said flues being arranged above the fire-boxes and communicating therewith at their rear ends, air-ducts leading into the rear ends of the flues, and a combustion-chamber between the flues and communicating with the front ends of said flues, substantially as described.

4. A furnace having a plurality of fire-boxes, a gas-flue for each box, said flues being arranged above the fire-boxes and communicating therewith at their rear ends, air-ducts leading from below the fire-boxes to the rear ends of the flues, the ducts being perforated at the point of discharge into the flues, and a combustion-chamber between the flues and communicating therewith at its front end, substantially as described.

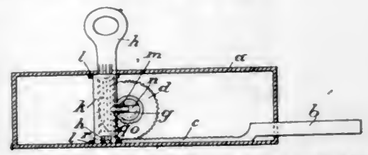
5. A furnace having two fire-boxes, a hollow bridge-wall communicating with the outer air, a flue arranged over each fire-box and communicating therewith at its rear end, said flues being also in communication with the hollow bridge-wall, and a combustion-chamber arranged on the partition of the fire-boxes between the said flues, said chamber communicating with the flues at their front ends, substantially as described.

6. A furnace having two fire-boxes, the lower portion of the partition-wall of said fire-boxes being provided with air-ducts, a hollow bridge-wall with which the air-ducts connect, a gas-flue arranged above each fire-box and communicating therewith at its rear end, said flues being in communication with the hollow bridge-wall, and a combustion-chamber supported upon the partition-wall of the fire-boxes between the gas-flues, said chamber communicating with the gas-flues at the front ends, substantially as described.

7. A furnace having a plurality of fire-boxes, gas-flues for carrying the products of combustion from the fire-boxes, and a central combustion-chamber into which open the said flues, said combustion-chamber having spiral blades at its inside, to mix the products of combustion from said gas-flues, as set forth.

8. A furnace, comprising a combustion-chamber, gas-flues arranged on opposite sides of said chamber and in communication therewith at opposite sides, independent fire-boxes for said gas-flues and opening into the rear open ends thereof, so that the products of combustion from said fire-boxes pass into said gas-flues at the rear ends, to then travel forward and pass into the combustion-chamber at or near the forward end thereof, and a mixing device in the rear portion of the combustion-chamber, for mixing the products of combustion from said gas-flues, as set forth.

664,674. LOCK. AXEL PETERSEN, Hellerup, Denmark. Filed May 17, 1900. Serial No. 17,062. (No model.)

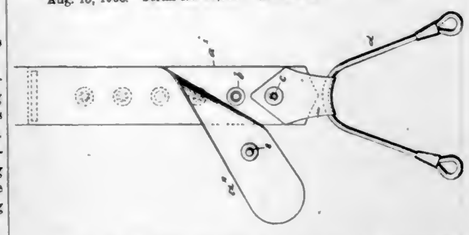


Claim.—1. In combination with the bolt having a rack, a lock-cylinder adapted to receive a key, a gear-and-spindle connection between the cylinder and the rack, the said cylinder having a slit in its side and having also an arm, and the said spindle having a notch to receive the said arm and a key having teeth to operate the gear connection, the parts being arranged so that when the key is in engagement with the gear connection the arm will be out of the notch, substantially as described.

2. In combination, the cylinder to receive the key and having a slit, a bolt having a rack, a gear connection to be operated by the key when inserted into the cylinder, said cylinder having a notch in its lower end and a spring *r* for engaging the said notch when the cylinder takes up a position in which the slit is not in line with the gear connection, substantially as described.

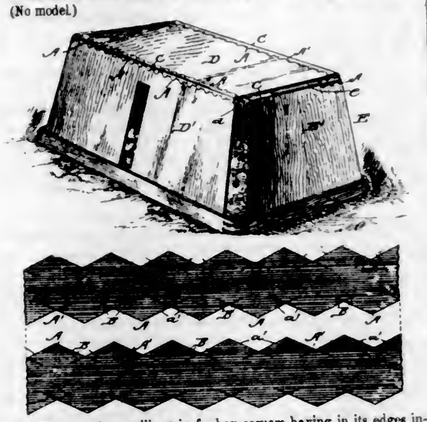
3. In combination with the bolt of a lock, a spring tending to force the same outwardly, a lug on the bolt having a notch therein, a disk *u* to engage said notch, the spindle *f* carrying the said disk, the gear connection between the bolt and spindle and means for operating and controlling the spindle, substantially as described.

664,675. SUSPENDERS. SAMUEL FICHL, New York, N. Y. Filed Aug. 15, 1900. Serial No. 26,966. (No model.)



Claim.—A suspender-strap provided with a stud at its upper end, a suspender-band having a series of sockets adapted to be engaged by said stud for adjusting the position of said strap, a flap secured to said band and adapted to cover the front of said sockets, a lining secured to said band and applied to the back of the said sockets, and a stud carried by said flap adapted to suitably engage said sockets, substantially as shown and described.

664,676. BINDING-STRIP FOR BOX-CORNERS. WALLACE J. PIERPONT, Crescent City, Fla. Filed Aug. 2, 1900. Serial No. 25,664. (No model.)



Claim.—1. A metallic strip for box-corners having in its edges inwardly-tapering recesses, and having incisions in line with and forming prolongations of the inwardly-tapering walls of said recesses, whereby there are freed the opposite edges of spurs or projections, both edges of the spurs or projections having the same angle substantially as set forth.

2. A metallic box-corner strip having at its opposite edges inwardly-tapering recesses and intervening projections of the same form as said recesses and having at the inner edges of said recesses incisions in alinement with the opposite walls of the recesses forming spurs which may be turned at right angles to the plane of the strip, the similar alternating recesses and projections at the opposite edges of the strip permitting the cutting of a number of such strips from a plate of metal without loss of material substantially as set forth.

3. A metallic strip for box-corners having in its opposite edges inwardly-tapering recesses, the tapering walls of which meet or intersect at their inner ends, and having beyond such inner meeting ends, incisions in line with and forming prolongations of the tapering walls of such recesses whereby there are freed the opposite edges of spurs or projections having the same angle on both edges, substantially as set forth.

4. A box-corner strip provided in its opposite edges with inwardly-tapering recesses and alternating tapering projections of the same form and size as said recesses the projections on one edge of the strip being opposite the recesses on the other edge thereof and the lines of the tapering walls of the recesses being prolonged or extended at their inner edges forming incisions freeing spurs which may be bent at right angles to the plane of the strip substantially as set forth.

664,677. PROCESS OF WASHING GAS. RICHARD E. PIPPIG and OTTO F. F. TRACHMANN, Kiel, Germany. Filed Aug. 22, 1900. Serial No. 27,701. (No specimens.)

Claim.—1. The process of purifying illuminating-gas, which consists in washing the gas with an amin capable of combining with bisulfid of carbon.

2. The process of purifying illuminating-gas, which consists in washing the gas with an amin capable of combining with bisulfid of carbon, and soluble in alcohol.

3. The process of purifying illuminating-gas, which consists in washing the gas with an alcoholic solution of anilin.

4. The process of purifying illuminating-gas, which consists in passing the gas over burnt lime, and then treating it with an amin capable of combining with bisulfid of carbon.

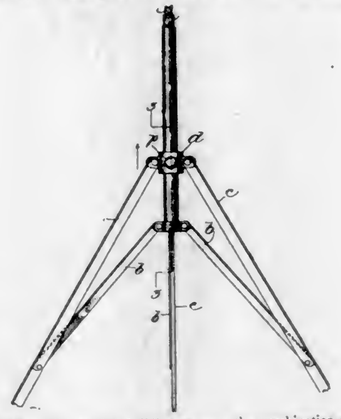
5. The process of purifying illuminating-gas, which consists in treating it with anilin, (which causes the production of hydrogen sulfid,) and removing the hydrogen sulfid by means of a substance capable of absorbing it.

6. The process of purifying illuminating-gas, which consists in treating it with anilin, (which causes the production of hydrogen sulfid,) and removing the hydrogen sulfid by means of mineral salts capable of absorbing it.

7. The process of purifying illuminating-gas, which consists in treating it with an amin solution to which is added sulfur.

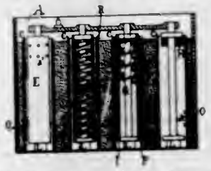
8. The process of purifying illuminating-gas, which consists in treating it with an amin, and then passing it through a heated solution of a nitrite.

664,678. SELF-LOCKING STAND. JOSEPH R. QUINN, Somerville, Mass. Filed Apr. 5, 1900. Serial No. 11,714. (No model.)



Claim.—In a frictional sliding support, the combination of a base-tube, and an inner tube, slidable within said base-tube, said inner tube being slitted longitudinally at intervals near its lower end and expanded internally at the slitted portion to form a resilient enlargement closely contacting with the base-tube, thereby constituting an improved frictional resistance therein, substantially as specified.

664,679. ACCUMULATOR. LOUIS RENAUD, Paris, France. Filed May 24, 1900. Serial No. 17,813. (No model.)

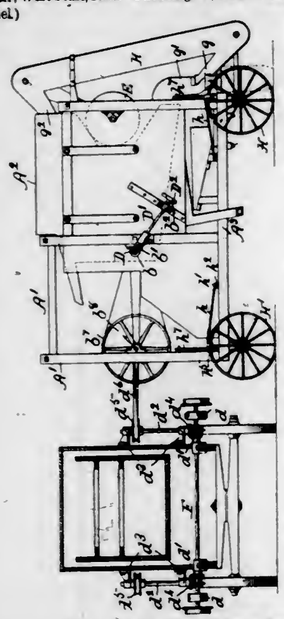


Claim.—1. In an electric accumulator or storage battery, the combination with a metallic vessel A containing a mixture of seventy per cent. litharge and thirty per cent. minium in which are perforations, and forming one electrode of another electrode or electrodes consisting of a perforated metallic tube or tubes filled with a mixture of five parts of minium, twenty-five parts of litharge and a modicum of sulfate of sodium located in each of the perforations and out of contact with the vessel A and its active material, and an electrolyte filling the space between the two electrodes, substantially as shown and described.

2. In an electric accumulator or storage battery, the combination with a metallic vessel A containing a mixture of seventy per cent. litharge and thirty per cent. minium in which are perforations, and forming one electrode of another electrode or electrodes consisting of a perforated metallic tube or tubes filled with a mixture of seventy-five parts of minium, twenty-five parts of litharge and a modicum of sulfate of sodium located in each of the perforations and out of contact with the vessel A and its active material, a perforate restraining-tube C forming the outer wall of each perforation, and an electrolyte filling the space between the two electrodes substantially as shown and described.

3. In an electric accumulator or storage battery, the combination with a metallic vessel A containing a mixture of seventy per cent. of litharge and thirty per cent. minium in which are perforations, and forming one electrode of another electrode or electrodes consisting of a perforated metallic tube or tubes filled with a mixture of seventy-five parts of minium, twenty-five parts of litharge and a modicum of sulfate of sodium located in each of the perforations and out of contact with the vessel A and its active material, each of such electrodes being provided with a central longitudinal hollow, an insulating supporting-block L for each of such electrodes provided with a passage or passages forming a free communication with the central longitudinal hollow of the electrode, and an electrolytic liquid filling the central hollow and the annular space surrounding each of the last-mentioned electrodes, substantially as shown and described.

664,680. SEED CLEANING AND SEPARATING MACHINE. JOHN RUMP, West Point, Iowa. Filed Aug. 22, 1898. Serial No. 689,191. (No model.)

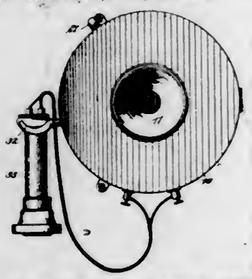


Claim.—1. A recleaner for the grain, as it comes from a threshing-machine, mounted on an indepeodent truck and provided with a driving-shaft and pulley, in combination with a threshing-machine provided at each side with a vertical shaft and pulley, and a transverse shaft geared to and driving each of these shafts; and a belt whereby the driving-shaft of the recleaner may be connected with either of the vertical shafts at will, substantially as set forth.

2. A recleaner for the grain as it comes from a threshing-machine mounted on an independent truck; releasable means for locking the wheels of said truck and converting them into stationary supports during the threshing operation, said recleaner being provided with a driving-shaft and pulley, in combination with a threshing-machine provided at each side with a vertical shaft and pulley and a transverse shaft geared to and driving each of these shafts; and a belt whereby the driving-shaft of the recleaner may be connected with either of the vertical shafts at will, substantially as set forth.

3. The combination of the threshing-machine A, provided at each side with a vertical shaft d^3, having suitable connections whereby it is driven, and a pulley d^5, of the recleaner A^2 mounted on an independent truck, and connections for imparting motion to all these parts, a transverse driving-shaft b^4 transmitting motion to these connections, and a belt and pulley whereby said shaft is driven at will from either of the vertical shafts on the thresher, substantially as set forth.

664,681. ELECTRIC CALL-BOX. EDGAR E. SALISBURY, Chicago, Ill., assignor to the National Autophone Company, same place. Filed July 24, 1900. Serial No. 24,650. (No model.)



Claim.—1. In an electric call-box, a spring-actuated circuit-closer, consisting of radial arms in the electric circuit, a circuit-breaker coacting with said arms, an actuating-lever adapted to wind the spring, and a retaining device for the circuit-closer adapted to be moved out of its retaining position by a movement of said lever, substantially as specified.

2. In an electric call-box, a spring-motor, circuit-closing arms operated by said motor, a circuit-breaker coacting with said arms, a receiver-lever, a retaining device for holding the arms in circuit-closing position and also for holding the arms in a normal or open position, and an actuating-lever for releasing said retaining device and also for winding the spring, substantially as specified.

3. In an electric call-box, a spring-motor, radial arms arranged in the electric circuit and adapted to be rotated by said motor, a circuit-breaker coacting with the arms, a receiver-lever, a disk on the shaft supporting the arms, the said disk being provided with notches, a pin on the receiver-lever for engaging in either one of said notches, a contact-spring adapted to be moved into circuit-closing position by the upward movement of the receiver-lever, and a lever for winding the motor, substantially as specified.

4. In an electric call-box, a motor, a shaft operated by the motor, circuit-closing arms extended radially from said shaft, a circuit-breaker coacting with said arms, a receiver-lever, a contact-spring arranged in the talking-circuit and adapted to be moved into circuit-closing position by the upward movement of the receiver-supporting lever, and a contact-plate arranged in the signal-circuit and adapted to be closed by either an upward or downward movement of said lever, substantially as specified.

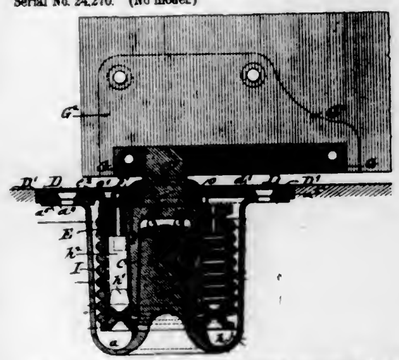
5. In an electric call-box, a motor, a shaft operated by said motor, circuit-closing arms extended from said shaft, a circuit-breaker coacting with the arms, a receiver-supporting lever, a contact-plate arranged in the talking-circuit and adapted to be moved to circuit-closing position by the upward movement of said supporting-lever, a retaining-plate having an outwardly-turned portion at one edge provided with a notch to receive an arm of the circuit-closer, a stop on said retaining-plate, a device carried by the receiver-supporting lever for depressing the retaining-plate to release the arm from the notch and permit it to move to the stop device on the retaining-plate, thus breaking the circuit, an actuating-lever, and means carried by said actuating-lever for depressing the retaining-plate to release it from an arm, substantially as specified.

6. In an electric call-box, a spring-actuated shaft, circuit-closing arms extended radially from said shaft, a circuit-breaker coacting with said arms, a receiver-supporting lever, a circuit-closer in the talking-circuit, and moved to its closing position by the upward movement of said lever, a spring-yielding retaining-plate, a stop device for the circuit-closing arms connected to said retaining-plate, a stop-lug also on said retaining-plate, a cam-plate having a projection bearing upon said retaining-plate, a hook carried by the receiver-supporting lever for engaging the outer surface of said cam-plate to depress the retaining-plate and thus release an arm from the first stop and permitting it to engage with the next stop, and means for winding the spring of the motor and at the same time releasing the arm from the first-named stop or lug, substantially as specified.

7. In an electric call device, a circuit-breaker, consisting of a metal plate having teeth formed on one edge adapted to be bent or turned laterally of the plate to circuit-closing position, substantially as specified.

8. In an electric call-box, a circuit-breaker, consisting of a segmental metal plate having a series of teeth on its concaved edge adapted to be turned at an angle relatively to the body of the plate, substantially as specified.

664,682. SPRING-HINGE. WILLIAM K. SANDSTROM, New York, N. Y., assignor to Bommer Brothers, same place. Filed July 20, 1900. Serial No. 24,270. (No model.)



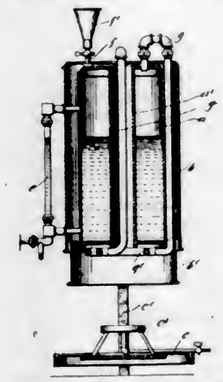
Claim.—1. The combination, with a casing provided with a bottom lug, of a spindle having its bearings in said casing, a top plate for said casing, provided with a central opening, and a segmental opening concentric thereto, a tension-regulating collar in the lower part of the casing, provided with lugs at diametrically opposite points, a tension-regulating collar at the upper part of the casing provided with tension-holes on said spindle, a tension-spring between said collars, a flange on said spindle engaging with the upper lug on the lower collar, and a locking-pin passing through one of said tension-holes and projecting into said segmental opening and adapted to engage with said top plate, substantially as set forth.

2. The combination, with a casing provided with a bottom lug, of a top plate for said casing, a spindle provided with a lower socket-shaped portion, extending around the center post of the casing, and with an upper projecting portion, partly cylindrical and partly rectangular, to engage with the swivel-bar of the door, said top plate being provided with a central opening and a segmental opening concentric thereto, a tension-regulating collar in the lower part of the casing provided with lugs at diametrically opposite points, a tension-regulating collar at the upper part of the casing on the spindle, said collar having tension-holes, a coil-spring between said tension-regulating collars, a flange on the lower portion of the spindle engaging with the upper lug on the lower tension-regulating collar, and a locking-pin passing through one of the tension-holes in the upper tension-regulating collar after the spring is set to tension and engaging the flange of the lower socket-shaped portion of the spindle, substantially as set forth.

3. The combination of a casing provided with a stop at its bottom part and an upwardly-extending center post, a seat-disk supported on said post, a spindle provided with a lower socket-shaped portion, antifriction-rollers between said seat-disk and the spindle, the top plate for said casing provided with a central opening for the spindle, and a segmental opening concentric thereto, a lower tension-regulating collar provided with a bottom lug interlocking with the bottom lug of the casing and with an upwardly-extending lug diametrically opposite thereto, a flange on the socket-shaped portion of the spindle, an upper tension-regulating collar provided with a number of equidistant holes for the tension-pin, a coil-spring between said tension-regulating collars attached at opposite ends thereto, and a locking-pin dropped into one of the holes in the upper tension-regulating collar when the spring has been set to proper tension so as to abut against the end of the segmental opening, substantially as set forth.

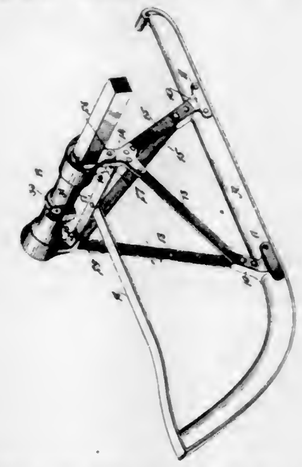
4. In a spring-hinge, the combination of a casing, a spindle having its bearings therein provided with a lower socket-shaped portion and an upper projecting portion, a top plate for said casing having a central opening for the spindle, and a segmental opening concentric thereto, tension-regulating collars in said casing, a tension-spring between said collars, the upper collar having tension-holes and projecting lugs adjacent to said holes, and a locking-pin for passing through one of the holes in the upper collar after the spring has been set to tension by means of the tension-holes said locking-pin projecting into said segmental opening and being adapted to abut against the end wall thereof, substantially as set forth.

664,683. STEAM-GENERATOR. JOSEPH SCHOETTL and CHRISTIAN JAEGER, New York, N. Y. Filed Sept. 11, 1900. Serial No. 29,653. (No model.)



Claim.—A steam-generator, comprising a boiler having a vertically-disposed flue passing therethrough, a jacket inclosing the boiler and provided with a skirt at its lower edge, the skirt projecting below the boiler, and a tube passing from the upper part of the boiler and conducting the steam therefrom, the tube extending downward between the boiler and the jacket and being coiled below the bottom of the boiler and thence projected upward through the flue and beyond the same.

664,684. RUNNER FOR WAGONS OR CARRIAGES. FRANK G. SCOTT and GEORGE L. SCOTT, Newport, R. I. Filed Sept. 7, 1900. Serial No. 29,285. (No model.)



Claim.—1. In a runner for wagons and carriages, a bearing-box constructed in sections adapted for engagement with each other, each section having its interior provided with a tapering central chamber and enlarged end chambers connected with the tapering chamber, the outer ends of the sections of the bearing-box being closed, the inner end of the upper section opened and the inner end of the lower section provided with a square jaw adapted to receive the square portion of an axle when the spindle of the axle is within the box-casing, substantially as described.

2. In a runner for wagons and carriages, a bearing-box constructed in sections adapted for engagement with each other, each section having its interior provided with a tapering central chamber and enlarged end chambers connected with the tapering chamber, the outer ends of the sections of the bearing-box being closed, the inner end of the upper section opened and the inner end of the lower section provided with a square jaw adapted to receive the square portion of an axle when the spindle of the axle is within the box-bearing, a locking device for the sections of the box-bearing, supports upon which the box-bearing is pivoted, which supports are adapted for connection with a runner, the upper ends of the said supports being adapted for engagement with the bottom of the box-bearing, preventing the runner from tilting up at the front beyond a certain point, as and for the purpose specified.

3. In a runner for wagons and carriages, the combination, with a bob-runner, socket-sections secured to the said bob-runner, having their upper sections inclined in direction of each other, braces attached to opposite sides of the socket-sections, extending upward in diverging lines, connecting-blocks to which the braces are attached, and a connecting-bar for the connecting-blocks, of a box-bearing for an axle-spindle pivotally attached to the connecting-blocks, which box-bearing is constructed in two sections, each section having an inner centrally-located conical chamber, enlarged end chambers connecting with the conical chambers, the outer end of each of the said sections being closed and the inner end of the upper section open, the inner end of the lower section of the bearing-box being provided with a square jaw, and a locking device for the sections of the box, for the purpose specified.

4. In a runner for wagons and carriages, the combination with an axle-box formed of sections hinged together, each section being provided with a lug at its free edge, of a curved lever pivoted to the lug of one of the box-sections, and a loop engaging the pivoted end of the lever and the lug of the other box-section, substantially as described.

5. In a runner for wagons and carriages, the combination with an axle-box formed of an upper and lower section, the sections being hinged together and each provided with a lug at its free edge, of a curved lever having an eccentric end pivoted to the lug of the upper box-section, and a spring-loop carried by the eccentric end of the lever and adapted to engage the under surface of the lug of the lower box-section, substantially as described.

6. In a runner for wagons or carriages, the combination with a runner, of braces secured a distance apart to the runner and each having diverging members, blocks to which the upper end of a member of each brace is secured, a two-part axle-box having its lower section pivoted to the said blocks, and means for locking the sections of the axle-box together, substantially as described.

7. In a runner for wagons or carriages, the combination with a runner, of braces secured a distance apart to the runner and each having diverging members, blocks to which the upper end of a member of each brace is secured, a cross-bar connecting the blocks, an axle-box formed of two hinged sections, the lower section being pivotally connected with the said blocks, and means for locking the box-sections together, substantially as described.

664,685. CLASP FOR GARMENT-SUPPORTERS OR THE LIKE. CASSIUS M. SIMPSON, Cincinnati, Ohio. Filed Aug. 11, 1900. Serial No. 26,559. (No model.)



Claim.—1. A clasp or fastening comprising two parts, one part having a chamber and the other part having a projecting portion and a locking device movable relatively to said projecting portion, the projecting portion being adapted for engagement in said chamber and the locking device being adapted for engagement with the part in which the chamber is formed to hold said projecting portion in the chamber, substantially as set forth.

2. A clasp or fastening comprising two parts, one part having a chamber and the other part having a projecting portion and a locking device, the projecting portion being adapted for engagement in said chamber and the locking device being arranged concentrically with respect to said projecting portion and being movable relatively thereto and being also adapted for engagement with the part in which the chamber is formed to hold the projecting portion in said chamber, substantially as set forth.

3. A clasp or fastening comprising two parts, one part having a chamber and the other part having a projecting portion and a locking-pin, the projecting portion being adapted for engagement in said chamber and having a bore formed in it and the locking-pin being movable in said bore with one end protruding therefrom for engagement with the chambered part of the clasp or fastening, substantially as set forth.

4. A clasp or fastening comprising two parts, one part having a chamber and the other part having a projecting portion and a locking-pin and being provided with a spring-arm on which said locking-pin is mounted, the projecting portion being adapted for engagement in the said chamber and having a bore formed in it and the locking-pin being movable in said bore with one end protruding therefrom for engagement with the chambered part of the clasp or fastening, substantially as set forth.

5. A clasp or fastening comprising two parts, one part having a chamber formed with overhanging edges and provided with an opening and the other part having a head provided with undercut edges and adapted for insertion in said chamber and a locking device movable relatively to the head for engagement with the opening of the chambered part, substantially as set forth.

6. A clasp or fastening comprising two parts, one part having a chamber formed with overhanging edges, a central channel and an opening into which said channel leads and the other part having an undercut head for insertion in said chamber and a spring-actuated locking device adapted to traverse said channel and to engage said opening, substantially as set forth.

664,686. CULTIVATOR AND HARROW. MICHAEL SMITH, Asotin, Wash. Filed Mar. 7, 1900. Serial No. 7,668. (No model.)

Claim.—1. In a cultivator and harrow provided with shovel-carrying beams, caster-wheels arranged to support the machine at the front and the rear thereof, vertical spindles carrying said wheels at their lower ends, the said spindles being mounted loosely in guides carried by the frame of the machine, chains or cables connected to the upper ends of the spindles, guide-pulleys for the chains or cables and fixed keepers for the free ends of the chains or cables, substantially as described.

2. In a cultivator and harrow provided with shovel-carrying beams, a supporting-wheel for the forward end of the machine, a cross-bar at the rear of the machine and projecting from the sides thereof vertical spindles mounted in the ends of the cross-bar and each carrying a wheel at its lower end, a cap on the upper end of each spindle, chains or cables connected at one end to said caps, guides on the cross-bar for the chains or cables and fixed keepers on the cross-bar for the free ends of said chains or cables, substantially as described.

3. In a cultivator and harrow, longitudinal shovel-carrying beams, cross-bars connecting the shovel-carrying beams, a tongue at the forward end of the machine, a draft-regulating device, a spindle adjustable in the forward end of the tongue, and carrying a wheel at its lower end, a chain or cable connected to the upper end of said spindle, a pulley on the tongue and under which the said chain or cable passes, a keeper on said tongue for the end of the chain or cable, spindles adjustable in the ends of the rear cross-bar of the machine, and carrying wheels at their lower ends, chains or cables connected with the upper ends of said spindles, and pulleys and keepers on said cross-bar for the cables or chains, substantially as described.



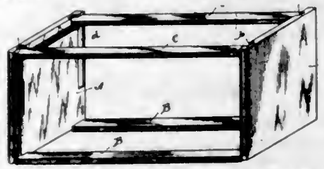
4. In a harrow and cultivator, the combination with a front frame and rear frames having a link connection with each other, of a platform carried by said frames, a pivot connecting the front of the platform with the forward frame, sockets on the rear frames of the machine, and hangers connected with the rear end of the platform, and removably secured in said sockets substantially as described.

5. In a harrow and cultivator, the combination, with a forward frame and rear frames having link connections with each other and arranged in triangular order, of an extension from the front of the forward frame, a draft-regulating device carried by said extension, spindles adjustably located in the said frames and in their connections, each spindle being provided with a wheel at its lower end, chains or cables attached to the upper ends of said spindles, pulleys on the frames and under which the said cables or chains pass, and keepers for the free ends of the said chains or cables, as and for the purpose specified.

6. In a harrow and cultivator, the combination with the forward and rear angular frames, adapted to carry shovel-standards, the said frames having their base portions facing rearward, link connections between the rear frames and forward frame and a link connection between the rear frames, a platform carried by said frames, a pivot connecting the front of the platform with the forward frame, and hangers having swinging connection with the rear end of the platform, of adjustable supports for the frames and their connections, a draft-regulating device located at the forward portion of the forward frame, and a shifting mechanism for the said draft-regulating device, capable of operation at the said platform, for the purpose described.

7. In a cultivator and harrow, a front frame and rear frames, the rear frames having a link connection with each other, and each rear frame having a link connection with the front frame and adjustable wheeled supports for the said frames and their connections, the link connecting the rear frames with each other being provided with a sleeve in which one of said wheeled supports is held to slide vertically, substantially as described.

664,687. SECTIONAL BOOKCASE. CHARLES SNYDER, Grand Rapids, Mich. Filed July 21, 1900. Serial No. 24,374. (No model.)



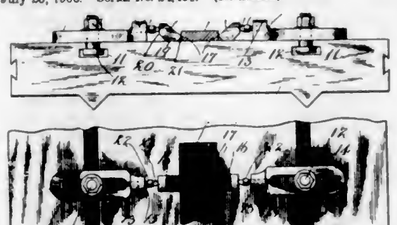
Claim.—1. A bookcase-section composed of end pieces, having gains at their bottom edges, base-pieces seating in said gains and projecting below the end pieces, top gains in said end pieces, longitudinal tie-strips seated in said gains, their top surfaces being depressed below the top of the end pieces and the gains therein, said section being adapted to receive the base-pieces of a corresponding section, said base-pieces resting in said top gains and on said tie-strips, substantially as specified.

2. A bookcase-section composed of end pieces, provided with top and bottom gains, two longitudinal base-pieces secured in said bottom gains and projecting below the end pieces and tie-strips seated in said top gains, the top surfaces of which tie-strips are depressed below the top of the end pieces and the gains therein, substantially as specified.

3. A bookcase composed of two or more detachable sections each formed of end pieces gained at the top and bottom, base and tie pieces seated in the gains formed in the end pieces, the base-pieces projecting below the end pieces and adapted to be seated in the gains formed in the end pieces of the underlying section and resting upon the top tie-pieces thereof, substantially as specified.

4. In a bookcase-section formed of gained end pieces having base and tie pieces at the top and bottom thereof seated in said gains, said end pieces provided with horizontal grooves near the top of the end pieces and vertical grooves at the rear side of said end pieces, in combination with a sliding door and a longitudinal rail hinged to said door and a folding slat-apron flexibly hinged to said rail, said door, slat and apron being adapted to be slid in said grooves to open and close the front of the bookcase-section, substantially as specified.

664,688. PLANER-CHUCK. JACOB SUESS, Chicago, Ill. Filed July 23, 1900. Serial No. 24,491. (No model.)



Claim.—1. In a clutch for metal-planers, in combination, a screw-head adapted to be secured to the planer-platen, a pressure-bolt projecting forwardly from the screw-head, and a tilting dog having a sharp edge for engaging the work to be secured and a rearward face adapted to receive the pressure of the screw-bolt at a point out of line with the sharp edge, whereby the pressure of the bolt tends to tilt the dog.

2. In a clutch for metal-planers, in combination, a screw-head adapted to be secured to the planer-platen, a pressure-bolt projecting forwardly from the screw-head, and a tilting dog having a sharp edge for engaging the work to be secured and a rearward face adapted to receive the pressure of the screw-bolt at a point more remote from the flattened bottom than is the sharp edge.

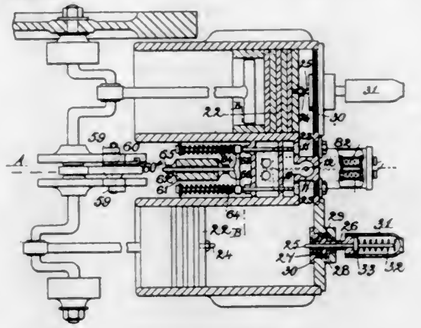
3. In a clutch for metal-planers, in combination, a screw-head adapted to be secured to the planer-platen, a pressure-bolt projecting forwardly from the screw-head and having a polygonal head at its outer end, and a tilting dog having a sharp edge for engaging the work to be secured and a rearward face adapted to receive the pressure of the screw-bolt.

4. In a clutch for metal-planers, in combination, a screw-head having its body longitudinally slotted to adjustably receive an attaching-bolt whereby it may be secured to the planer-platen, a pressure-bolt projecting forwardly from the screw-head, and a tilting dog having a sharp edge for engaging the work to be secured and a flattened rearward face adapted to receive the pressure of the screw-bolt.

5. In a clutch for metal-planers, in combination, a screw-head adapted to be secured to the planer-platen, a pressure-bolt projecting forwardly from the screw-head, a tilting dog having a sharp edge for engaging the work to be secured and a flattened rearward face adapted to receive the pressure of the screw-bolt, and having trunnions for detachably engaging the screw-head.

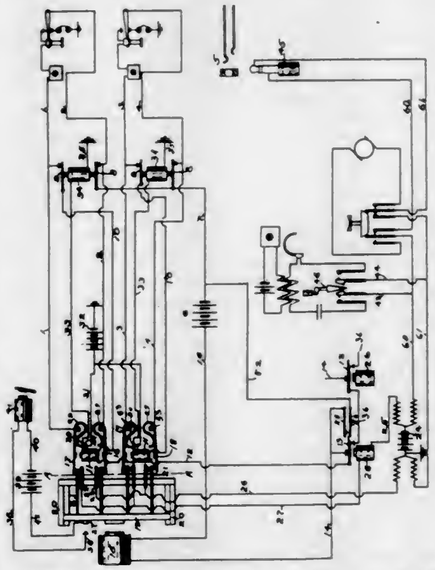
664,689. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. HENRY SUTTON, Melbourne, Victoria. Original application filed July 10, 1899, Serial No. 723,379. Divided and this application filed Jan. 22, 1900. Serial No. 2,352. (No model.)

Claim.—In an internal-combustion engine, the combination with the inlet and exhaust valves, of a sliding rod 62 having a cross-bar 63 thereon, tubes 64 carried by said cross-bar and sliding freely upon the spindles of the inlet-valves, springs located on the spindles of the inlet-valves in position to be compressed by outward movement of said cross-bar, a lever 65 for actuating the sliding rod and attached cross-bar, collars 67 on the spindles of the exhaust-valves, a pivotally-supported lever 66 having one end arranged to be acted on by the cross-bar 63 to cause the other end of said lever to act upon the collars 67 for holding the exhaust-valves open, and cam mechanism acting on the spindles of the exhaust-valves, substantially as described.



664,690. WITHDRAWN.

664,691. TELEPHONE-EXCHANGE SYSTEM. CHARLES TIMBERLAKE, Indianapolis, Ind. Filed Oct. 23, 1899. Serial No. 734,520. (No model.)



Claim.—1. In a telephone-exchange system the combination with suitable calling-lines and a series of connecting-circuits, of a switching-relay in each connecting-circuit so that if the connecting-circuit be in use the relay connects a calling-line with the switching-relay of the next connecting-circuit in the series.

2. In a telephone-exchange system, the combination of calling-lines, a connecting-circuit, a line-relay connected with the calling-lines, a locking in and out relay connected with the connecting-circuit, a switching-relay, and means for connecting the line-relay and locking in and out relay through the switching-relay.

3. In a telephone-exchange system, the combination of suitable calling-lines of the various subscribers, a number of connecting-circuits, a line-relay for each calling subscriber, a switching-relay and a locking in and out relay for each connecting-circuit, the line-relays and locking in and out relays being connected in series through the switching-relays.

4. In a telephone-exchange system, the combination with suitable calling-lines and connecting-circuits, of a switching-relay that connects a calling-line with a connecting-circuit not in use, a locking in and out relay, and a switch operated by the armature of the switching-relay that actuates the locking in and out relay and thereby disconnects the calling-line and connecting-circuit.

5. In a telephone-exchange system, the combination of the calling-lines of various subscribers, connecting-circuits, a switching-relay for each connecting-circuit that connects said calling-lines with a connecting-circuit not in use, locking in and out relays for each connecting-circuit, and a switch for each circuit operated by the armature of the switching-relay for said connecting-circuit and which actuates the locking in and out relay in such connecting-circuit and thus disconnects the calling-lines.

6. In a telephone-exchange system, the combination with the wires of the calling-line, a cut-off relay with two armatures connected with the wires of the calling-lines, a battery, a wire from the battery to the one armature of cut-off relay, and a line-relay, of a wire from the cut-off relay to the electromagnets of the line-relay, a switching-relay, a wire from the electromagnet of the line-relay to the armature of the switching-relay, a locking in and out relay, a wire from the armature of the switching-relay to the electromagnet of the locking in and out relay, and a wire from the electromagnet of the locking in and out relay to the battery.

7. In a telephone-exchange system the combination with the calling-lines of the various subscribers, a cut-off relay with the two armatures connected with the calling-wires of each subscriber, a common battery, a common wire from the battery to one of the armatures of the cut-off relays, and a line-relay for each subscriber, of a wire from the armature of the cut-off relay to the electromagnet of the line-relay of each subscriber, switching-relays, a connection between the electromagnets of the line-relays and the armatures of the switching-relays, locking in and out relays, a connection between the armatures of the switching-relays and electromagnets of the locking in and out relays, and a connection between the electromagnets of the locking in and out relays and the battery.

8. In a telephone-exchange system, the combination with the calling-lines of various subscribers, a cut-off relay with two armatures connected with the calling-wires of each subscriber, a battery, a common wire from the battery to one of the armatures of all the cut-off relays, and a line-relay for each subscriber, of a wire from an armature of the cut-off relay to the electromagnets of the line-relay of each subscriber, switching-relays, a common wire from the electromagnets of the line-relays to the armatures of the switching-relays, locking in and out relays, a connection between the armatures of the switching-relays and the electromagnets of the locking in and out relays, and a connection between the electromagnets of the locking in and out relays and the battery.

9. In a telephone-exchange system, the combination with the calling-lines of various subscribers, cut-off relays with two armatures connected with the calling-wires of each subscriber, a common battery, a comnion wire from the battery to one of the armatures of all the cut-off relays, and a line-relay for each subscriber, of a wire from the armature of the cut-off relay to the electromagnets of the line-relay of each subscriber, switching-relays, a common wire from the electromagnets of all the line-relays to the armatures of the switching-relays, locking in and out relays, a wire from the armature of each switching-relay to the electromagnet of a locking in and out relay, and a wire from the electromagnets of all the locking in and out relays to the battery.

10. In a telephone-exchange, the combination with the calling-lines of various subscribers, of a line-relay connected with the calling-wires of each subscriber and consisting of an electromagnet and two or more spring-armatures, connecting-circuits including a pair of contact-plates for each line-relay that the armatures thereof engage when actuated, and a switching-relay for switching the connection from the calling-wires to the first connecting-circuit not in use.

11. In a telephone-exchange system, the combination with the wires of a calling-line, of a line-relay connected therewith comprising an electromagnet and two spring-armatures, connecting-circuits each with a pair of contact-plates which said armatures engage when actuated, a switching-relay for switching the connection from the calling-wires to the first connecting-circuit not in use, a battery connected with the electromagnet of the switching-relay, a wire from one of said contact-plates to the electromagnet of the switching-relay, and a wire from the other contact-plate to the battery.

12. In a telephone-exchange system, the combination with the wires of a calling-line, of a line-relay connected therewith comprising an electromagnet and two spring-armatures, connecting-circuits each with a pair of contact-plates which said armatures engage when actuated, a switching-relay for switching the connection from the calling-wires to the first connecting-circuit not in use, a battery connected with the electromagnet of the switching-relay, a wire from one of said contact-plates to the electromagnet of the switching-relay, a wire from the other contact-plate to the battery, and means for temporarily locking the armatures of the line-relay in the actuated position.

13. In a telephone-exchange system, the combination with the calling-lines, a cut-off relay, and a line-relay connected with said calling-lines, of a contact-plate, a wire from said contact-plate to the electromagnet of the cut-off relay, a battery, a connection between the battery and said electromagnet, a wire from the battery to a contact-point near said contact-plate, and means for causing said plate and contact-point to engage when the armature of the line-relay is actuated.

14. In a telephone-exchange system, the combination with the calling-lines, a cut-off relay connected therewith and a line-relay connected with said calling-lines, of a movable contact-plate near said line-relay, a wire connecting said contact-plate and the electromagnet of the cut-off relay, a wire from said magnet to the ground, a battery, a contact-point near said contact-plate, a wire from said contact-plate to the battery, and a spring connected with the armature of the line-relay adapted when said armature is actuated to press the contact-plate into engagement with the contact-point.

15. In a telephone-exchange system, the combination with the calling-lines of various subscribers, and a cut-off relay connected with the calling-line of each subscriber, of a series of line-relays one connected with the calling-line of each subscriber, a spring contact-plate near each line-relay, a line from such contact-plate to the electromagnet of each cut-off relay, a battery, a connection from each of said electromagnets to the battery, a contact-point near each of said contact-plates, a common wire from the battery to each of said contact-points, and means for forcing the spring contact-plate into engagement with the contact-point near each line-relay by the action of the armature of said relay.

16. In a telephone-exchange system, the combination of the calling-wires of a telephone-circuit, a line-relay with two spring-armatures connected with said calling-wires, suitable connecting-circuits, a switching-relay for switching the connection from the calling-wires to the first connecting-circuit not in use, a battery connected with the electromagnet of said switching-relay, a connection between one armature of the line-relay when actuated and the electromagnet of the switching-relay, and another connection between the other armature of the line-relay when actuated and the battery.

17. In a telephone-exchange system, the combination with the calling-wires of a telephone-circuit, a line-relay with two sets of armatures connected with the calling-lines, suitable connecting-circuits, a switching-relay for switching the connection from the calling-wires to the first connecting-circuit not in use, a battery connected with the electromagnet of said switching-relay, a wire from the electromagnet of the line-relay to the armature of the switching-relay, a wire from one armature of said line-relay when actuated to the electromagnet of the switching-relay, and a wire from the other armature of the line-relay when actuated to said battery.

18. In a telephone-exchange system, the combination with the calling-wires of the various subscribers, of a line-relay with two armatures connected with said calling-lines, a switching-relay, a battery connected with the electromagnet of said switching-relay, a common wire connecting the electromagnets of all of the line-relays with the armature of the switching-relay, suitable contact-plates for all of the armatures of the line-relays when actuated, a common wire connecting the contact-plates for one set of the armatures of all of the line-relays with the electromagnet of the switching-relay, and another common wire connecting the contact-plates for the other set of armatures of all the line-relays with the battery.

19. In a telephone-exchange system the combination of the calling-lines of various subscribers, two or more connecting-circuits, one switching-relay for each connecting-circuit for connecting the calling-lines to a certain connecting-circuit, a contact-point near each switching-relay where it will be engaged by the armature thereof when actuated, and a wire from such contact-point to the armature of the next switching-relay in the series.

20. In a telephone-exchange system, the combination of line-relays having two armatures, a contact-plate for each armature when actuated, a locking in and out relay having a sliding armature, a pair of arms from said sliding armature that extend between the positions that the armatures of the line-relays occupy before actuation and after actuation.

21. In a telephone-exchange system, the combination of calling-lines, a connecting-circuit, a line-relay connected with the calling-line having two armatures adapted to connect with the connecting-circuit, a switching-relay, connection between the line-relay and switching-relay, a locking in and out relay, said locking in and out relay having a sliding armature, arms on said sliding armature adapted to hold the armatures of the line-relay in or out of connection with the connecting-circuit, and a line connecting the locking in and out relay with the switching-relay.

22. In a telephone-exchange system, the combination of the calling-lines of various subscribers, suitable connecting-circuits, a line-relay for each subscriber connected with each of said calling-lines and having two armatures, a series of switching-relays, a common line connecting the line-relays to the switching-relays, a locking in and out relay for each connecting-circuit, connection between the locking in and out relays and the switching-relays, a sliding armature in each of said locking in and out relays, a series of arms on said sliding armatures each pair of which is adapted to hold the armatures of a line-relay in an inoperative or actuated position.

23. In a telephone-exchange system, the calling-wires of subscribers, suitable connecting-circuits, a locking in and out relay and a signal-circuit for each connecting-circuit with one end of the signal-circuit leading from the armature of the locking in and out relay, and a contact-point for the other end of the signal-circuit that is engaged by the armature of the locking in and out relay when actuated, whereby the signal-circuit is closed.

24. In a telephone-exchange system, the calling-wires of subscribers, suitable connecting-circuits, a series of locking in and out relays and a series of signals for said connecting-circuits, a battery, a common wire from said battery to the armatures of all the locking in and out relays, a common wire from the battery to the electromagnets of the signals, contact-points so arranged as to be engaged by the armatures of the locking in and out relays when actuated, and wires from said contact-points to the electromagnets of the respective signals.

25. In a telephone-exchange system the combination with the calling-lines of various subscribers, a cut-off relay for each subscriber with two armatures connected with said calling-lines, a line-relay for each subscriber with two armatures to which the calling-lines of each subscriber are connected, a spring contact-plate near each line-relay, means whereby said contact-plate is operated when the armature of the relay is operated, a wire from such contact-plate to the electromagnet of the cut-off relay of each subscriber, a wire from each electromagnet to the ground, a contact-point that is engaged by said contact-plate when operated, a ground-battery, a common line from said battery to all of said contact-points, suitable connecting ground-circuits, a locking in and out relay for each connecting-circuit, a second battery, a common line from said second battery to all the locking in and out relays, a common line from said second battery to one of the armatures of all of the cut-off relays, a wire from the other armature of each of the cut-off relays to the electromagnet of its corresponding line-relay, a pair of contact-plates from each line-relay that are engaged by the armatures thereof when actuated, a series of switching-relays, a contact-point near each switching-relay that is engaged by the armature thereof when actuated, a wire from said contact-point to the armature of the next switching-relay in the series, a contact-point normally engaged by the armatures of each switching-relay, a wire from such contact-point to the electromagnet of the corresponding locking in and out relay, a third battery connected with the electromagnet of one of the switching-relays, a wire from the electromagnet to one of said contact-plates near each line-relay, and a wire from the other contact-plate near each line-relay to said third battery.

26. In a telephone-exchange system, a subscriber's-telephone switch, calling-lines, a locking in and out relay, a battery connected with the electromagnet of the locking in and out relay, connecting-circuits, a switching-relay combined with the connecting-circuits and the locking in and out relay for connecting the calling-lines with a certain connecting-circuit, and a switch connected with the locking in and out relay and battery that is so placed as to be actuated by the armature of the switching-relay when the subscriber's-telephone switch is opened.

27. In a telephone-exchange system, a subscriber's-telephone switch, calling-lines, a locking in and out relay, a battery connected with the electromagnet of the locking in and out relay, connecting-circuits, a switching-relay combined with the connecting-circuits and the locking in and out relay for connecting the calling-lines with a certain connecting-circuit, a contact-plate, a wire therefrom to the locking in and out relay, a spring so placed as to be operated by the armature of the switching-relay when it is returning from the actuated position to the normal position and pushed into contact with said contact-plate, and a wire from such spring to said battery.

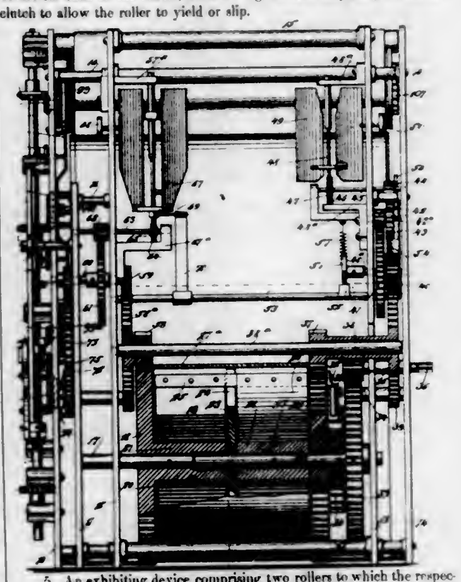
664,692. EXHIBITING DEVICE. BERNHARD TROPP, New York, N. Y., assignor to Jules Gabriel Vassias, Paris, France. Filed June 15, 1900. Serial No. 20,436. (No model.)

Claim.—1. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, and means for rotating said feed-drum intermittently.

2. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum intermittently in one direction, and a reversing mechanism for thereupon rotating the feed-drum intermittently in the opposite direction.

3. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating the feed-drum intermittently in one direction, and a reversing mechanism, controlled by said means, for periodically changing the direction in which the drum rotates.

4. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum intermittently, and a separate driving device for each of the rollers, each driving device comprising a friction-clutch to allow the roller to yield or slip.



5. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating said feed-drum, a locking device for arresting the rotation of the feed-drum, mechanism for releasing said locking device periodically, and a continuously-rotating motor for operating the releasing mechanism.

6. The combination of the two driving-springs coiled in opposite directions, independent gear-wheels with which the respective inner ends of the springs are connected, the radially-movable cross-bar to which the outer ends of the springs are fastened, winding mechanism connected with the inner end of one of the springs, and rollers adapted for connection with a strip of material and having their motion controlled by the said gear-wheels.

7. An exhibiting device comprising rollers adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely mounted on said shaft, a motor permanently connected with both wheels to rotate them in opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, and a clutch-shifting mechanism driven by said shaft.

8. An exhibiting device comprising rollers adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely mounted on said shaft, a motor permanently connected with both wheels to rotate them in opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, a rocking arm connected with the clutch, and a screw-shaft driven from said roller-operating shaft and carrying projections for shifting the rocking arm and the clutch.

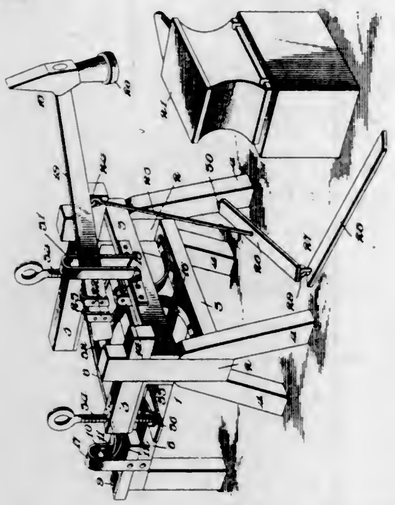
9. An exhibiting device comprising rollers adapted for connection with a strip of material, a shaft operatively connected with said rollers to drive them, two wheels loosely mounted on said shaft, a motor permanently connected with both wheels to rotate them in opposite directions, a clutch held to rotate with the shaft and movable from one wheel to the other, a rocking arm connected with the clutch and provided with a projection having conveying beveled surfaces, a spring-pressed lever provided with a wedge-shaped projection the point of which faces and engages the beveled surfaces of the projection on the rocking arm, and mechanism, driven by said shaft, for shifting the rocking arm and the clutch.

10. An exhibiting device comprising two rollers to which the respective ends of a strip of material are adapted to be secured, a feed-drum arranged to engage said strip on its passage from one roller to the other, means for rotating the feed-drum intermittently, and a spring-pressed friction-roller for pressing the strip against the feed-drum.

11. The combination of the two driving-springs coiled in opposite directions, independent gear-wheels with which the respective inner ends of the springs are connected, the radially-movable cross-bar to which the

outer ends of the springs are fastened, the disk having a guide for said cross-bar, winding mechanism connected with the inner end of one of the springs, rollers adapted for connection with the ends of a strip of material, a feed-drum arranged to engage the said strip on its passage from one roller to the other, mechanism operatively connected with one of said gear-wheels, for driving the feed-drum, separate devices connected with the same gear-wheel for driving the rollers, each of said driving devices comprising a friction-clutch to allow the roller to yield or slip, a reversing mechanism operatively connected with the driving devices of the rollers and of the feed-drum, to change the direction in which said parts rotate, a locking device for arresting the rotation of said parts, mechanism for releasing said locking device periodically, and an operative connection from the releasing mechanism to the other gear-wheel.

664,693. BLACKSMITH'S HAMMER. JACK WADE, Lexington, Miss., assignor of three-fourths to L. Mc. Gibson, E. D. Gibson, and W. J. Ewell, same place. Filed Aug. 25, 1900. Serial No. 28,050. (No model.)



Claim.—1. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, an adjustable fulcrum for said spring intermediate its ends, and a hammer having its handle detachably united with the free end of the spring.

2. In a machine of the class described, the stand or frame, a vibratory spring having a fixed support at one end, a brace-bearing for the spring contiguous to its fixed support, a fulcrum for the spring intermediate its ends, and a hammer carried solely upon the free end of the spring, substantially as set forth.

3. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, and provided contiguous to such point of support with a pivotal bearing-joint, a fulcrum for the spring independent of said bearing-joint, and a suitably-actuated hammer having its handle supported upon the free end of the spring, substantially as set forth.

4. In a machine of the class described, the stand or frame, an inclined or obliquely-arranged hammer-carrying spring having a fixed support at one end upon the stand or frame, a brace-bearing for the spring, a fulcrum for the spring, and a suitably-actuated hammer whose handle is provided with a detachable slip-joint connection with the free end of the spring, substantially as set forth.

5. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the frame, a brace arranged within the frame and having a bearing-head engaged by the spring contiguous to its fixed end, a fulcrum for the spring, and a suitably-actuated hammer having its handle supported upon the free end of the spring.

6. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support at one end upon the stand or frame, and contiguous to its point of support being provided with a bearing-offset, a brace-bar supported longitudinally within the frame and provided at one end with a rounded bearing-head loosely engaged by the bearing-offset of the spring, and a suitably-actuated hammer having its handle supported upon the free end of the spring, substantially as set forth.

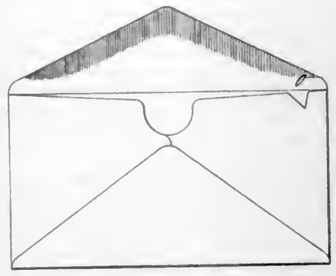
7. In a machine of the class described, the stand or frame, a vibratory or swinging hammer, a sectional treadle consisting of inner and outer sections loosely connected at their contiguous ends, the inner treadle-section being supported upon the stand or frame, and the outer section being shiftable to different positions, without disconnection from the inner section, and a link connection between the hammer-handle and the inner treadle-section, substantially as set forth.

8. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring having a fixed support upon the stand or frame, and an adjustable fulcrum for said spring, substantially as set forth.

9. In a machine of the class described, the stand or frame, a vibratory hammer-carrying spring secured fast at one end, a hammer supported upon the free end of the spring, and a vertically-adjustable fulcrum arranged to engage beneath the spring at a point intermediate its ends, substantially as set forth.

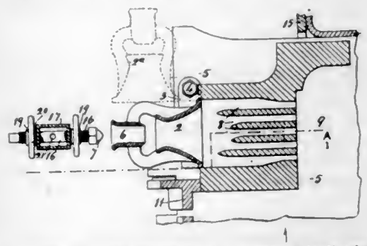
10. In a machine of the class described, the stand or frame, a vertically-vibrating hammer-carrying spring secured fast at one end upon the stand or frame, a hammer supported upon the free end of the spring, a stroke-adjusting device for the hammer comprising a transversely-arranged holding-bar, adjusting-screws engaging with said bar and supported by the stand or frame, and a transversely-arranged fulcrum-bar carried by said screws and holding-bar and engaging beneath the hammer-carrying spring at a point intermediate the ends thereof, substantially as set forth.

664,694. ENVELOP. JAMES A. ULLMAN, New York, N. Y. Filed Nov. 6, 1900. Serial No. 35,621. (No model.)



Claim.—An envelop, having a flap at the back thereof, which flap lies over another part of the back of the envelop, said flap being formed with an opening, and the said other part of the back of the envelop over which part the flap lies being formed with a notch registering with the opening in the flap, and leading toward the edge of the envelop which is to be cut, whereby the instrument used in cutting the envelop may be entered through the opening and notch and conveniently engaged with the edge of the envelop.

664,695. APPLIANCE FOR SUPPLYING AIR TO FURNACES. JOHN VICARS, Sr., and JOHN VICARS, Jr., Liverpool, England. Filed Mar. 14, 1900. Serial No. 8,603. (No model.)

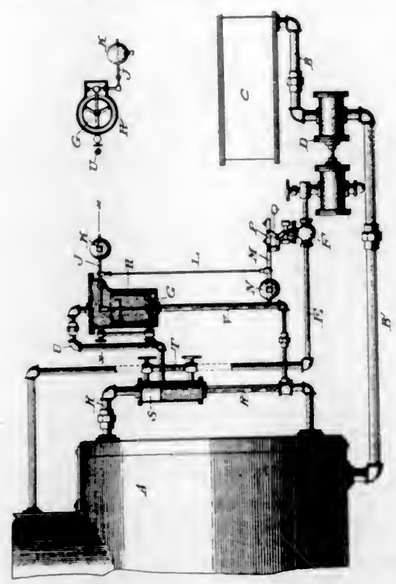


Claim.—1. The combination with an opening leading into a furnace of a laterally-movable air-inducing cone, and a steam-nozzle supported independently of the cone substantially as described.

2. The combination with an opening leading into a furnace of laterally-movable air-indneing cones, and a steam-nozzle on a hollow spindle

adjustable longitudinally through a steam-chest supported independently of the cones, substantially as described.

664,696. STEAM-BOILER FEEDER. GUSTAVE W. VIDLUND, Philadelphia, Pa. Filed June 8, 1900. Serial No. 19,556. (No model.)



Claim.—1. In a steam-boiler feeder, a steam-pump connected with the feed-pipe of the boiler and having a valve-controlled connection with the steam-space of the boiler, a pipe connected with said boiler above and below its water-line, a chamber having its upper end connected with said pipe just below the water-line and its lower end connected therewith below said point of connection of the upper end, and a cup suspended within said chamber from a movable part connected with the valve controlling the steam-supply of said pump.

2. In a steam-boiler feeder, a boiler, a feed-pipe, a steam-pump therefor, a valve-controlled connection between said pump and the steam-space of the boiler, a water-column pipe connected with said boiler above and below its normal water-line, a chamber having its upper end connected with said water-column pipe just below the normal water-line and its lower end connected therewith below the point of connection of said upper end, and a cup suspended within said chamber from a movable part that is connected with the valve controlling the steam-supply of said pump.

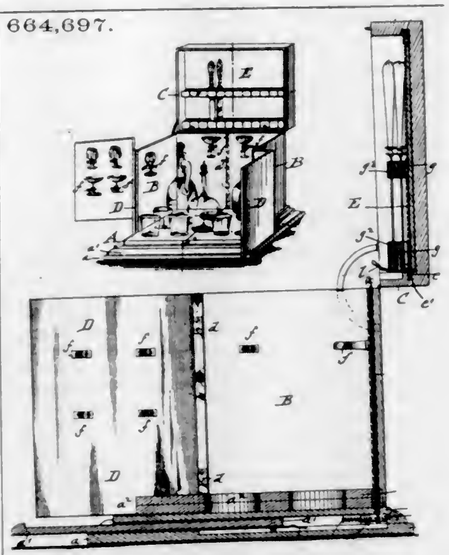
3. In a steam-boiler feeder, a steam-pump connected with the feed-pipe of the boiler and having a valve-controlled connection with the steam-space of the boiler, a water-column pipe having a cylinder at about the water-line of the boiler, a chamber having its upper end communicating with said cylinder just below the water-line of the boiler, a pipe leading from the lower end of said cylinder and communicating with said water-column pipe below the point of connection of the other pipe therewith, a cup open at its upper end situated within said chamber and suspended upon a weighted lever connected with a valve controlling the steam-supply of said pump.

664,697. BUFFET-CABINET. THEODORE G. WALPUSKI, New York, N. Y. Filed May 15, 1900. Serial No. 16,740. (No model.)

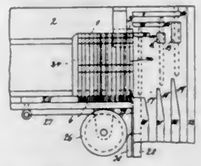
Claim.—1. In a buffet-cabinet, the combination with the bottom, the base of which is provided with a recessed portion, of a sliding tray, spring-actuated push-rods for said tray, means for locking said tray, and means for releasing the tray, substantially as set forth.

2. In a buffet-cabinet, the combination, with the cover provided with mortises in its rear wall, and a groove in its front wall, of a detachable tray provided with lugs fitting into the mortises and having a depression in its opposite edge, and a flat spring in the groove of the front wall and fitting in said depression for retaining the tray in position in the cover, substantially as set forth.

664,697.



664,698. DISTRIBUTING APPARATUS FOR MATRIX OR DIE SETTING MACHINES. ERNST WENTSCHER, Berlin, Germany. Filed Apr. 18, 1899. Serial No. 713,505. (No model.)



Claim.—1. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a plurality of separate guideways corresponding each to one sort of dies or matrices, means for detaching single dies or matrices from the line and variably shifting and stopping the same in accordance with and by the medium of the sort-nicks, and means for delivering the shifted dies or matrices to their respective guideways and forwarding the same, substantially as and for the purposes described.

2. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a common guide for the die or matrix line to be decomposed, a plurality of separate guides for the dies or matrices of the several sorts respectively, a plurality of guide-channels following the said separate guides and corresponding to them respectively, a plurality of distributing devices connected respectively to the delivery ends of the several guide-channels, means for detaching single dies or matrices from the line to be decomposed and delivering them to the several separate guides, and means for forwarding the same toward the several distributing devices, substantially as and for the purposes described.

3. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a plurality of separate guideways corresponding each to one sort of dies or matrices, means for detaching single dies or matrices from the line and variably shifting and stopping the same in accordance with and by the medium of the sort-nicks, means for delivering the shifted dies or matrices to their respective guideways and forwarding the same, and a plurality of distributing devices associated each with one of the said guideways to receive the forwarded dies or matrices and to definitely distribute them into assembling-receptacles, substantially as and for the purposes described.

4. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a common guide for the die or matrix line to be decomposed, a plurality of separate guides for the dies or matrices of the several sorts respectively following the common guide and provided with outlets at their ends, the said separate guides being arranged above each other to support the dies or matrices suspended thereon, a plurality of guide-channels arranged respec-

tively with their admitting ends beneath the outlets of the said separate guides to receive the dies or matrices from the latter, a plurality of distributing devices connected respectively to the delivery ends of the several guide-channels, means for detaching single dies or matrices from the line to be decomposed and lifting them to the level of the several separate guides in accordance with and by the medium of the sort-nicks, means for delivering the lifted dies or matrices to the corresponding separate guides, and means for forwarding the same toward the outlets so as to enter the several guide-channels and descend in the same by gravity substantially as and for the purposes described.

5. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a common guide for the die or matrix line to be decomposed, a plurality of separate guides for the dies or matrices of the several sorts respectively following the common guide and provided with outlets at their ends, the said separate guides being arranged above each other to support the dies or matrices suspended thereon, a plurality of guide-channels arranged respectively with their admitting ends beneath the outlets of the said separate guides to receive the dies or matrices from the latter, and provided with stops for the lower ends of the dies or matrices, a plurality of distributing devices connected respectively to the delivery ends of the several guide-channels, means for detaching single dies or matrices from the line to be decomposed and lifting them to the level of the several separate guides in accordance with and by the medium of the sort-nicks, means for delivering the lifted dies or matrices to the corresponding separate guides, and means for forwarding the same toward the outlets so as to enter the several guide-channels and descend in the same by gravity, substantially as and for the purposes described.

6. In an apparatus for decomposing lines of dies or matrices of several sorts controlled by specific sort-nicks, the combination of a common guide for the die or matrix line to be decomposed, a plurality of separate guides for the dies or matrices of the several sorts respectively following the common guide and provided with outlets at their ends, the said separate guides being arranged above each other and in an inclined position to support the dies or matrices suspended thereon, a plurality of guide-channels arranged respectively with their admitting ends beneath the outlets of the said separate guides to receive the dies or matrices from the latter and provided with stops for the lower ends of the dies or matrices, a plurality of distributing devices connected respectively to the delivery ends of the several guide-channels, means for detaching single dies or matrices from the line to be decomposed and lifting them to the level of the several separate guides in accordance with and by the medium of the sort-nicks, means for delivering the lifted dies or matrices to the corresponding separate guides, and means for forwarding the same toward the outlets so as to enter the several guide-channels and descend in the same by gravity, substantially as and for the purposes described.

7. In apparatus for decomposing lines of dies or matrices, the combination of a plurality of sorts of matrices, with a reciprocating pusher adapted to separate individual matrices from a line, the said matrices being so constructed and related to the pusher that they are moved different distances thereby.

8. In apparatus for decomposing lines of dies or matrices, the combination of a plurality of sorts of matrices, with a reciprocating pusher adapted to separate individual matrices from a line, the several sorts of matrices having differently-located portions with which the pusher coöperates whereby the matrices are moved different distances by a uniform movement of the pusher.

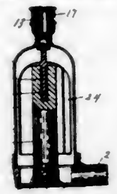
9. In apparatus for decomposing lines of dies or matrices, the combination of a plurality of sorts of matrices, with a reciprocating pusher adapted to separate individual matrices from a line, the several sorts of matrices having notches of different depths in which the pusher operates whereby the matrices are moved different distances by a common movement of the pusher.

10. In apparatus for decomposing lines of type or dies, the combination with a pusher and a fixed stop, of a plurality of sorts of matrices, the matrices of each sort having a surface to coöperate with the pusher, and a second surface to coöperate with the stop, the location of said surfaces being different in the different sorts and serving to limit the movement of the matrices.

664,699. AIR-VALVE. THOMAS WHEATLEY, Syracuse, N. Y. Filed Apr. 21, 1899. Serial No. 713,868. (No model.)

Claim.—1. In an air-valve, the combination of a valve-seat, approximately cup shape, a semispherical valve coöperating therewith, and an expansible rod adapted to close the valve, said valve having a slight lateral movement relative to the expansible rod.

2. In an air-valve the combination of a valve-seat, approximately cup shape, a semispherical valve coöperating therewith, an expansible rod adapted to close the valve, said valve having a slight lateral movement relative to the expansible rod, and a float rigidly secured to the valve and adapted to move the same independent of said expansible rod.



3. In an air-valve, the combination of an inverted-cup-shaped valve-seat, a semispherical valve coöperating therewith, and an expansible rod adapted to close the valve, said valve being loosely and removably seated in the expansible rod and having a slight lateral movement relative thereto.

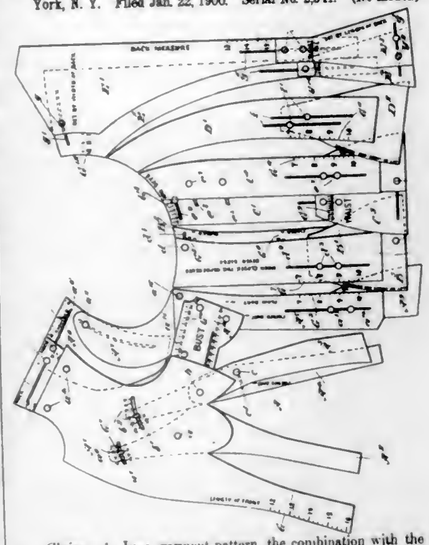
4. In an air-valve, the combination of an inverted-cup-shaped valve-seat, a semispherical valve coöperating therewith, an expansible rod adapted to close the valve, said valve being loosely and removably seated in the expansible rod and having a slight lateral movement relative thereto, and a float rigidly secured to the valve and adapted to move the same independent of said expansible rod.

5. In an air-valve, the combination of an inverted-cup-shaped valve-seat, a semispherical valve coöperating therewith, and an expansible rod having its lower end guided against lateral movement, said valve being loosely seated in and guided by the expansible rod.

6. In an air-valve, the combination of an inverted-cup-shaped valve-seat, a semispherical valve coöperating therewith, an expansible rod having its lower end guided against lateral movement, said valve being loosely seated in and guided by the expansible rod, and a float rigidly secured to the valve and adapted to move the same independent of said expansible rod.

7. In an air-valve, the combination of a valve-seat, a valve coöperating therewith, an expansible rod having its lower end guided against lateral movement, said valve being loosely seated in and guided by the expansible rod, and a float rigidly secured to the valve and adapted to move the same independent of said expansible rod.

664,700. ADJUSTABLE DRESS-CHART. HARRY C. WILSON, New York, N. Y. Filed Jan. 22, 1900. Serial No. 2,341. (No model.)



Claim.—1. In a garment-pattern, the combination with the front piece, a neck-piece adjustably secured to the front piece, and a shoulder-piece adjustably secured to the neck-piece, of an arm-piece adjustably pivoted to the shoulder-piece, three dart-pieces pivoted to the front piece, two of said dart-pieces being adjustably secured together and mounted on the same pivot, a bust-piece adjustably secured to the front piece, and a rear dart-piece to which the arm-piece is pivoted, adjustably secured to the bust-piece, and provided with an adjustable extension, substantially as described.

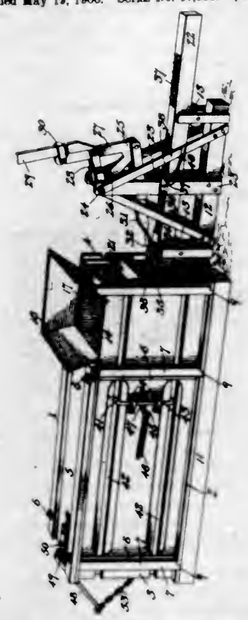
2. In a garment-pattern, the combination with a front piece, and dart-pieces pivoted thereto, of a bust-piece provided with alined guide-pins and with slots through which the pivots of the dart-pieces pass, an extension for the bust-piece provided with slots to receive the guide-pins and the pivots of the dart-pieces, and a rear dart-piece adjustably secured to the bust-piece, substantially as described.

3. In a garment-pattern, a front piece, three dart-pieces pivoted thereto, two of the dart-pieces being mounted on a common pivot and adjustably connected with each other, an extensible bust-piece adjustably secured to the front piece, a rear dart-piece adjustably secured to the outer end of the bust-piece, a neck-piece adjustably secured to the front piece, a shoulder-piece adjustably secured to the neck-piece, and an arm-piece having one end pivoted to the rear dart-piece and its other end adjustably secured to the shoulder-piece, substantially as described.

4. In a garment-pattern, a front piece having curved slots, dart-pieces pivoted to the front piece and each provided with a projection at one end working in a slot of the front piece, a third dart-piece pivoted on one of the pivots of the first-named dart-pieces and adjustably connected with the said dart-piece, an extensible bust-piece adjustably secured to the front piece, a rear dart-piece adjustably secured to the outer end of the bust-piece and provided with an adjustable extension at its lower end, a neck-piece adjustably secured to the front piece, a shoulder-piece adjustably secured to the neck-piece, and an arm-piece having one end pivoted to the rear dart-piece and its other end adjustably secured to the shoulder-piece, substantially as described.

5. In a garment-pattern, the combination with a front piece, and pivoted dart-pieces, of a bust-piece provided with slots through which the pivots of the dart-pieces pass and with guide-pins, an extension for the bust-piece provided with slots to receive the guide-pins and the pivots of the dart-pieces, and a rear dart-piece adjustably secured to the outer end of the bust-piece and provided with a lateral extension at its upper end, said extension having cut-out portions or slots to receive one of the said pivots and guide-pins, substantially as described.

664,701. BALING-PRESS. CHARLES S. WILLIAMSON, Goliad, Tex. Filed May 19, 1900. Serial No. 17,308. (No model.)



Claim.—1. In a baling-press, the combination with a press-box, plunger and plunger-beam, of an actuating-lever, a pawl carried thereby, means for detachably connecting the pawl to the plunger to effect the propulsion and retraction thereof during the formation of the bale, and a series of teeth upon the plunger-beam designed to be engaged by the pawl to impart a step-by-step progression to the plunger for the purpose of compressing the bale after said pawl is disconnected from the plunger.

2. In a baling-press, the combination with a press-box, plunger and plunger-beam, of an actuating-lever, a pawl connected to the lever and provided with a terminal hook, means carried by the plunger for engaging the hook detachably, a series of teeth upon the plunger-beam designed to be engaged by the pawl when the latter is disconnected from the plunger, and means for preventing the backward movement of the plunger.

3. In a baling-press, the combination with a press-box, plunger and plunger-beam, of an operating-lever, a pawl pivoted thereto and provided with a terminal hook, a transverse bar and an abutment-block designed for engagement with the pawl, a series of teeth upon the plunger-beam arranged for engagement with said pawl after the latter is disconnected from the plunger, a second series of teeth mounted upon the beam near its outer end, and a swinging dog engaging said last-named teeth.

4. In a baling-press, the combination with a press-box, plunger and plunger-beam, of a bell-crank lever having its arms in acute angular relation and pivotally mounted at one end above the beam, an actuating-lever extending from the opposite end of the bell-crank lever, a pawl directly pivoted at the angle of the bell-crank lever, means for operatively connecting the pawl with the plunger-beam to permit the actuation of the latter in both directions, and means for preventing the backward movement of said beam.

5. In a baling-press, the combination with a press-box, plunger and plunger-beam, of a bell-crank lever pivotally mounted at one extremity above the beam and having its arms in acute angular relation, an operating-lever connected to the other end of the bell-crank lever, a pawl pivoted at the angle of the lever and provided with a hook at its opposite extremity, a transverse bar and an abutment-block designed for detachable engagement with the hooked end of the pawl, a longitudinal series of teeth upon the beam designed for engagement with said pawl when the latter is disconnected from the beam, a series of teeth adjacent to the outer extremity of the beam, and a swinging dog designed for engagement with the last-named series of teeth.

6. In a baling-press, the combination with a press-box composed of separable sections and having an extended sill, of roller-bearings and standards mounted upon the extended end of the sill, a plunger within the press-box, a plunger-rod extending from the plunger and movable upon the roller-bearings and between the standards, a shaft mounted between the upper ends of the standards, a bell-crank lever pivotally mounted at one extremity upon the shaft and having its arms in acute angular relation, an operating-lever adjustably connected to the opposite extremity of the bell-crank lever, a pawl connected at the angle of the bell-crank lever and provided with a hooked extremity, a transverse bar and a contiguous abutment-block designed for engagement with the hooked end of the pawl, a longitudinal series of teeth upon the plunger-beam likewise designed for engagement with the pawl when the latter is disconnected from the beam, a second series of teeth mounted upon the plunger-beam adjacent to its outer end, and a swinging dog arranged for engagement with said last-named teeth.

7. In a baling-press, the combination with a press-box provided with slots, vertically-disposed retainer-shafts mounted outside of the box, each of said shafts having a medial, laterally-extending horizontal arm provided with an offset designed to impinge against the side of the box, retainers extending from the opposite ends of the shaft into the slots in the press-box, and a spring connected at its opposite ends to the box and to the outer end of the medial arm to draw the offset of the latter against the side of the press-box and thereby hold the retainers yieldingly in their retaining positions.

8. In a baling-press, the combination with a press-box, and a hinged end-gate, of an end-gate-locking device comprising a V-shaped lever pivoted at its angle to the top of the feed-box and having one end opposed to the end-gate, and means for retaining the opposite end of the lever.

9. In a baling-press, the combination with a press-box, and a hinged end-gate, of an end-gate-locking device comprising a V-shaped lever pivoted at its angle to the top of the feed-box and having one end opposed to the end-gate, a flexible piece connected to the opposite end of the lever, and means for detachably connecting the flexible piece to the end-gate.

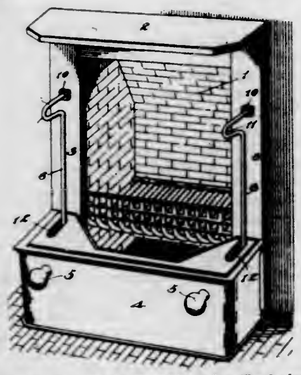
664,702. FENDER FOR FIREPLACES. PRESTON H. WOODS, Marion, Ky. Filed Apr. 13, 1900. Serial No. 12,758. (No model.)

Claim.—1. The combination with an open fireplace, of a box-like fender, having opposite slots in the top thereof, and a pair of opposite standards projecting upwardly through the respective slots, and having means for supporting the fender in an elevated position.

2. The combination with an open fireplace, of a vertically-movable box-like fender, having opposite slots or openings in the top thereof, and a pair of standards located exteriorly of and at opposite sides of the fireplace, received in the respective openings in the top of the fender, having terminal transverse arms connected to the outer walls of the fireplace, and provided at their upper ends with seats to receive the fender and support the latter in an elevated position.

3. The combination with an open fireplace, of a box-like fender, having opposite openings in the top thereof, and opposite standards located at opposite sides of the fireplace, having opposite terminal trans-

verse arms connected to the outer side of the fireplace, and the upper portion of each standard having an outwardly-directed loop to receive one wall of the adjacent opening in the fender and support the latter in an elevated position.



4. A fireplace attachment, comprising a box-like fender, having opposite openings in the top thereof, and opposite standards, each of the latter being formed from a rod, having terminal and lateral attaching-arms, each of the latter having an intermediate annular shoulder, and a nut at the outer end thereof, the openings of the fender slidably receiving the respective standards, and the upper ends of the latter being bent into transverse loops.

664,703. VALVE-BAG. IRVING C. WOODWARD, Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,260. (No model.)



Claim.—1. As an article of manufacture a bag or sack of the class described, having its side walls folded inwardly at one end to form the valve-flaps extending entirely across said end, said flaps being secured together by a pair of seams each extending from one of the side edges of said flaps along the base of same and terminating a considerable distance apart to provide a filling-aperture between their inner ends, substantially as described.

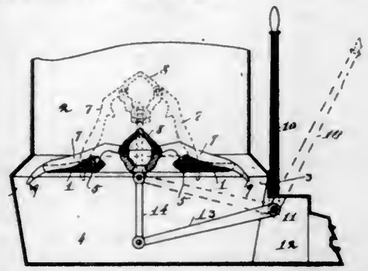
2. As an article of manufacture a bag or sack of the class described, having its side walls folded inwardly at one end to form the valve-flaps extending entirely across said end, said flaps being secured together by a pair of seams each extending from one of the side edges of said flaps along the base of same and terminating a considerable distance apart to provide a filling-aperture between their inner ends, and a second pair of seams each extending from one of the side edges of said flaps along the inner edges of same and terminating a considerable distance apart and near said filling-aperture, substantially as described.

3. As an article of manufacture a bag or sack of the class described, having its side walls folded inwardly at one end to form the valve-flaps extending entirely across said end, said flaps being secured together by two pairs of parallel seams, each pair extending from the side edges of said flaps, substantially parallel with the ends of the bag and terminating a considerable distance apart, to provide a filling-aperture between their inner ends, substantially as described.

4. As an article of manufacture a bag or sack of the class described, having its side walls folded inwardly at one end to form the valve-flaps, said flaps being secured together by a pair of seams each extending along and parallel with the base of said flaps and terminating a considerable distance apart to provide a filling-aperture between their inner ends, and a second pair of seams each extending along the inner edges of said flaps from opposite sides and terminating a considerable distance apart below and near said filling-aperture, substantially as described.

664,704. FURNACE-GRATE. CHARLES E. WYMAN, Cleveland, Ohio. Filed Jan. 16, 1899. Serial No. 702,317. (No model.)

Claim.—1. In a grate, the combination with a stationary portion, the bars in which are inclined outwardly from a supporting-ring, of a central vertical portion, comprising bars pivoted to a central support at their upper extremities and resting at their outer extremities upon said ring in the stationary portion of the grate, and means for raising and lowering said central portion, substantially as set forth.

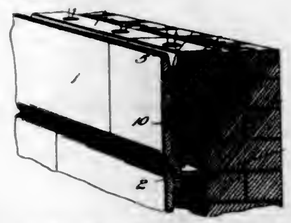


2. In a grate, the combination with a main stationary portion of a central vertically-movable portion, the lower extremities of the bars of the said vertical portion being pivoted about a common central support and constructed and arranged to move outwardly over and between the bars of the lower portion as the central support descends, and to withdraw together about the center of the grate as the central support rises, substantially as described.

3. In a furnace, the combination with a fuel-chamber, provided with an enlargement near its lower extremity, of a fixed grate provided with bars inclined from the center toward said enlarged portion of the fuel-chamber, and of less diameter than said enlarged portion, and provided also with a supporting-ring, a central vertically-movable grate having its bars resting upon said ring and pivoted above to a common central support, and means for raising and lowering said central support, substantially as described.

4. In a grate, the combination with bars mounted upon a stationary ring of a central movable head, bars pivotally attached to said head at one extremity and the other extremity resting upon the ring in combination with vibrating plates pivotally secured to said pivoted bars and adapted to move outwardly as said pivoted bars rise toward the vertical position, substantially as described.

664,705. WALL-TILE FOR HEATING AND VENTILATING. DAVID W. ANDERSON, Richmond, Va. Filed Jan. 17, 1900. Serial No. 1,737. (No model.)



Claim.—1. A facing for walls, comprising tiles each formed at one edge with an inwardly-extending tongue, and at its opposite edge with a horizontal groove, and a securing-flange projecting from the inner wall of said groove and adapted to be projected between adjacent layers of masonry to support the tile independently of supplemental fastening means.

2. A facing for walls comprising tiles each formed at one edge with an inwardly-extending tongue, and at its opposite edge with a horizontal groove and a horizontal securing-flange formed with an opening for the circulation of air.

3. The combination with a wall, of a tile facing comprising tiles each having a horizontally-projecting flange formed with an air-opening, and means for securing said flange to the wall so that an air-space will be left between the tiles and the wall.

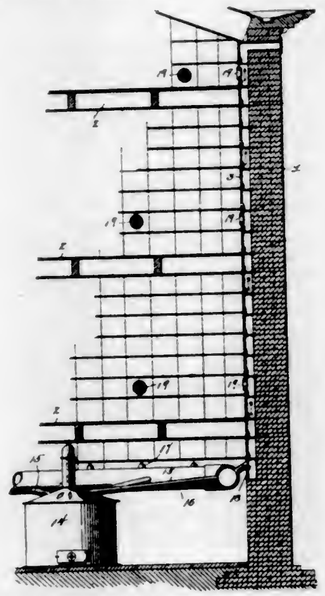
4. The combination with a masonry wall of a facing consisting of tiles, each having an inwardly-extending tongue at one edge, and a groove at its opposite edge, and a securing-flange projected from the inner wall of said groove, and secured between the layers of masonry.

5. A wall-facing comprising vertically-adjustable interlocking tiles, each having on its inner face a horizontally-projecting securing-flange adapted to be projected and secured between layers of masonry.

6. A wall-facing comprising interlocking vertically-adjustable tiles, each having an inwardly-extending tongue at one edge, a groove at its opposite edge, and a securing-flange projecting from the inner wall of said groove, and adapted to be secured between layers of masonry.

7. A wall-facing comprising interlocking tiles formed with horizontal securing-flanges formed with air-openings, and secured to the wall at a distance therefrom to leave a space for the circulation of air.

664,706. HEATING AND VENTILATING SYSTEM FOR BUILDINGS. DAVID W. ANDERSON, Richmond, Va. Filed Feb. 19, 1900. Serial No. 5,755. (No model.)



Claim.—1. In a heating and ventilating system, a wall-facing comprising tile sections provided with transverse perforated projections, said sections forming in connection with the wall horizontal air-passages, whereby air entering the lower sections will be distributed laterally or horizontally in its upward course.

2. In a heating and ventilating system, a wall-facing comprising tile sections forming in connection with the wall conduits, and having perforated projections serving to partially obstruct ascending currents of air and direct them along the horizontal conduits.

3. The combination with the wall of a building, of a facing built up from independent sections provided with perforated flanges, said flanges serving to divide the space between the facing and wall into divisions or channels, and to interrupt the upward course of the air-currents.

4. The combination with the wall of a building, of a facing built up from independent sections provided with perforated transverse flanges which divide the space between the facing and wall into horizontal chambers, the lower one of which is provided with air-inlet openings.

5. The combination with a wall, of tile-sections secured to the wall at a distance therefrom to form with the wall air-conduits and having horizontal perforated flanges, a heater and hot-air pipes connecting the heater with the wall-conduits.

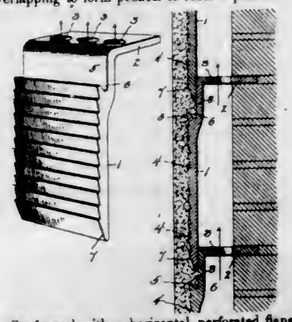
6. The combination with a wall, of series of wall-tiles or conduit-sections provided with perforated horizontal flanges, a heater, a conductor-pipe connected with said heater, and feeder-pipes connecting said conductor-pipe with the lowermost series of wall-tiles or conduit-sections.

7. In a heating and ventilating system the combination with a wall, of a facing therefor, comprising tiles or plates formed with horizontal perforated flanges assembled to form air-conduits; a heater connected with the lower portion of the facing to supply hot air thereto, and registers set into the facing.

664,707. TILE FOR FACING WALLS, &c. DAVID W. ANDERSON, Richmond, Va. Filed Apr. 9, 1900. Serial No. 12,129. (No model.)

Claim.—1. A wall-facing comprising tiles each having a horizontally-projecting securing-flange adapted to be projected between adjacent layers of masonry to support the tile, the tiles being so relatively arranged as to leave a space or recess between them for the reception of plaster.

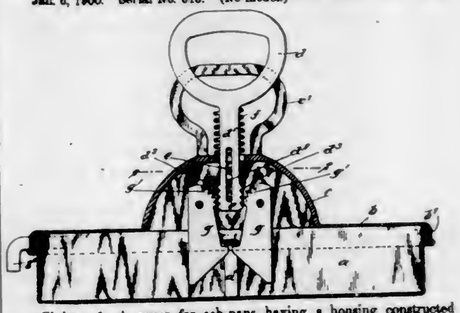
2. A wall-facing, comprising tiles each formed with a perforated laterally-projecting flange at its upper edge, and a grooved shoulder projecting from its outer face below the upper edge, the meeting edges of adjacent tiles overlapping to form pockets to receive plaster.



3. A tile formed with a horizontal perforated flange at its upper edge; a grooved shoulder on its outer face below its upper edge, and beveled along the outer face of its lower edge.

4. A facing-tile roughened on its outer face to form a plastering-surface, and having a laterally-projecting perforated flange at its upper edge, a grooved shoulder projecting from its outer face, and beveled at its lower edge.

664,708. ASH-PAN. WILLIAM S. ANDERSON, Jasper, Tenn. Filed Jan. 6, 1900. Serial No. 613. (No model.)



Claim.—1. A cover for ash-pans, having a housing constructed thereon and opening on the under side of the cover, a handle rigidly attached to the housing, a second handle with a shank sliding in the housing and formed with gear-teeth, dogs pivoted in the housing and extending below the cover to engage a part of the ash-pan and having gear-teeth meshed with the shank, and a spring actuating the shank.

2. The combination of an ash-pan provided with a bail standing on the bottom thereof at approximately the center of the ash-pan, a cover arranged to extend over the top of the ash-pan, to close the same, a handle carried by the cover, to facilitate carrying the cover and pan, and releasable fastening devices carried by the cover at the center thereof, to engage the bail of the ash-pan, whereby to fasten the cover on the ash-pan and permit carrying the ash-pan through the medium of the cover.

3. An ash-pan cover arranged to sit on the top of the ash-pan, to close the same, and provided with a handle on the top at about its middle and also provided with releasable fastening devices situate on its under side at approximately the middle of the cover, to engage a part of the ash-pan at approximately the center thereof, whereby to fasten the cover in place and permit carrying the ash-pan through the medium of the cover.

4. An ash-pan cover, provided with a pivoted dog serving to engage a part of the ash-pan, to hold the cover in place and having teeth thereon, and a rack slidably carried by the cover and meshing with the teeth of the dog, to actuate the dog.

5. A cover for ash-pans, having a handle rigidly attached, a second handle sliding on the covor and having a shank with teeth thereon, and a pivoted dog mounted on the cover and adapted to engage a part of the ash-pan, the dog having teeth with which the teeth of the shank of the handle mesh.

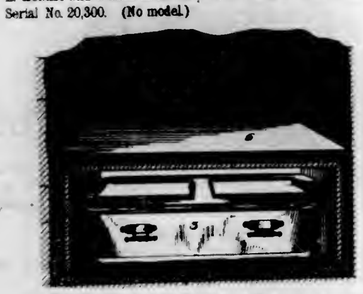
6. The combination with an ash-pan provided with a bail at its middle portion inside of the pan, of a cover for closing the pan, releasable fastening devices carried by the cover at the center thereof to engage the bail, and a handle having a shank slidably mounted on the cover to actuate the fastening devices, the said fastening devices being held in en-

gagement with the bail when the handle is grasped and lifted, whereby the ash-pan and its cover may be readily carried.

664,709. PROCESS OF RENDERING NITROSO BASES STABLE. ALFRED ANNELBURG, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Mar. 3, 1900. Serial No. 7,179. (No specimens.)

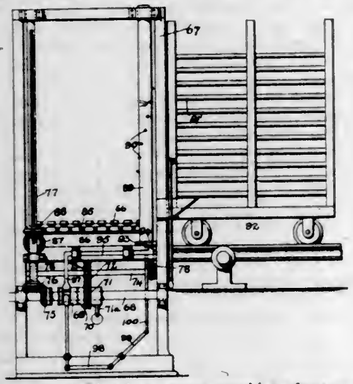
Claim.—The herein-described process of rendering nitroso bases of the type of mono or di methylanilin stable, which consists in adding to the pastes diluted with water salts of alkaline reaction capable of combining with hydrochloric acid, substantially as set forth.

664,710. METHOD OF FORMING GRAVE-VAULTS. DANIEL E. AUNKST and WILLIS H. LAWRENCE, Milton, Pa. Filed June 14, 1900. Serial No. 20,300. (No model.)



Claim.—The herein-described method of producing a composite underground vault of wood and waterproof plastic consisting in forming in a grave-trench a plastic floor, tightening and thoroughly saturating a wooden box or other hollow form of less dimension than the floor with water and while wet placing it on said floor, and applying plastic material subtantially as described in moist working condition over the sides, ends and top of the form so that the side and end portions will contact with and become secured to the floor, whereby the shrinkage of the box in drying out will permit the plastic material to contract in setting without liability of cracking.

664,711. APPARATUS FOR LOADING OR UNLOADING BRICKS. THEOPHILE E. AYOTTE and ARTHUR A. CHARBONNEAU, Montreal, Canada. Original application filed Oct. 9, 1897, Serial No. 654,662. Divided and this application filed July 7, 1899. Serial No. 723,045. (No model.)



Claim.—1. An elevating conveyer comprising a frame; a receiver movable vertically therein, said receiver being adapted to receive the material; a rotary shaft carried by said frame; means for intermittently connecting said shaft operatively with said receiver, whereby the latter will be intermittently raised; and means for automatically regulating the distance of movement of said receiver, the stopping-point of said receiver varying with each raising movement.

2. An elevating conveyer comprising a frame; a horizontally-traveling receiver movable vertically therein, said receiver being adapted to receive the material; a rotary shaft carried by said frame; means for intermittently connecting said shaft operatively with said receiver, whereby the latter will be intermittently raised; and means for automatically regulating the distance of movement of said receiver, the stopping-point of said receiver varying with each raising movement.

3. An elevating conveyer comprising a frame; a horizontally-traveling receiver movable vertically therein; said receiver being adapted to receive the material; a rotary shaft carried by said frame; automatic means for intermittently connecting said shaft operatively with said receiver, whereby the latter will be intermittently raised; and means for automatically regulating the distance of movement of said receiver, the stopping-point of said receiver varying with each raising movement.

4. An elevating conveyer comprising a frame; a horizontally-traveling receiver movable vertically therein, said receiver being adapted to receive the material; a rotary shaft carried by said frame; means for intermittently connecting said shaft operatively with said receiver, whereby the latter will be intermittently raised; means for automatically regulating the distance of movement of said receiver, the stopping-point of said receiver varying with each raising movement, and a carrier adapted to receive the material from said receiver, said carrier having provision to receive the material at the different raised positions of said receiver.

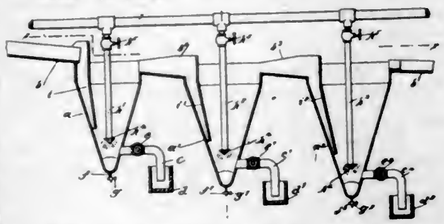
5. An elevating conveyer comprising a frame; a horizontally-traveling receiver movable vertically therein, said receiver being adapted to receive the material; a rotary shaft carried by said frame; means for intermittently connecting said shaft operatively with said receiver, whereby the latter will be intermittently raised; means for automatically regulating the distance of movement of said receiver, the stopping-point of said receiver varying with each raising movement; a carrier adapted to receive the material from said receiver, said carrier being removably held in juxtaposition to said receiver, the latter automatically delivering the material to said carrier; and means for releasing said carrier.

6. An elevator, comprising a frame; a rotary shaft in said frame; a horizontally-disposed frame; cables extended from said horizontally-disposed frame over pulleys on the first-named frame, the said cables being operated from the rotary shaft to raise and lower the horizontally-disposed frame; an endless carrier movable around the frame; and means operated by the shaft for moving said endless carrier to discharge its load of material, substantially as specified.

7. An elevator, comprising a frame; an elevator-platform movable vertically in said frame; an endless carrier movable around said platform; means for causing these movements; a rotary shaft having a spirally-disposed row of pins forming stops for the elevator; and a car divided into compartments for receiving material from the elevator, substantially as specified.

8. An elevator for receiving brick from the carrying devices, the said elevator comprising a frame; a horizontally-disposed frame movable vertically in the first-named frame; an endless carrier movable around the horizontally-disposed frame; rollers carried by said horizontally-disposed frame and upon which the carrier moves; a gear-wheel on the shaft of a pair of said wheels; a vertically-disposed shaft on the first-named frame; a gear-wheel movable vertically on and mounted to rotate with said shaft, said gear-wheel engaging with the first-named gear-wheel; a main shaft for operating the vertical shaft; a shaft mounted in the first-named frame so as to rotate and move vertically therein; a spirally-disposed row of pins on said shaft; a pinion on the lower end of said shaft; a dog extended from a rod for imparting a step-by-step motion to said shaft having the pins; and a clutch mechanism on the main shaft operated from said rod, substantially as specified.

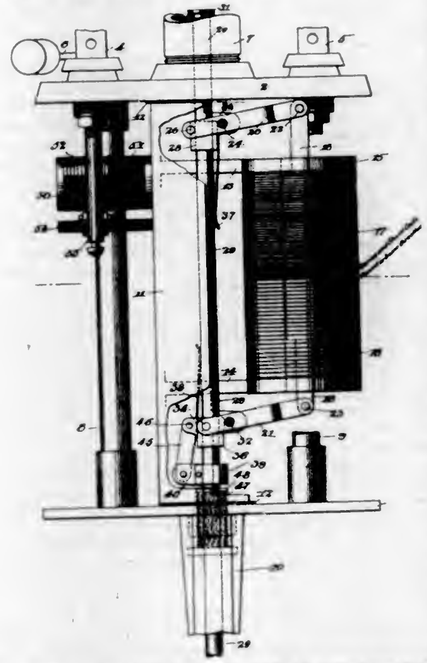
664,712. GRADING-AMALGAMATOR. ALFONSO Z. BALDENEBRO, Mexico, Mexico. Original application filed Sept. 14, 1898, Serial No. 690,941. Divided and this application filed Sept. 15, 1899. Serial No. 730,598. (No model.)



Claim.—1. A funnel-shaped amalgamating vessel having an inlet at the top, an axially-disposed water-supply pipe located in the said vessel and provided with a spraying device adjacent to the tapered bottom of the receptacle, an interior lateral channel extending downward from said inlet along the inclined wall of the vessel and terminating above the level of the spraying device, the forward wall of said channel having a convex inner face parallel with the opposing concave face of the vessel and a valve-controlled elbow-pipe leading from the side of the receptacle near the bottom thereof, substantially as described.

2. An apparatus for grading ores, comprising a series of funnel-shaped vessels, a water-supply pipe leading into each vessel, and provided with a spraying device adjacent to the tapered bottom of the vessel, overflow-channels connecting the vessels, an interior lateral channel extending downward from the inlet of each vessel along the inclined wall thereof and tapering toward its lower end, the outlet of said channel terminating above the spraying device, the forward wall of said channel having a convex inner face corresponding with the opposing concave inner face of the receptacle forming the rear wall of the channel, a valve-controlled pipe leading from the side of each vessel near the bottom, channels to which the said pipes lead, and a valve-controlled outlet for the bottom of each vessel, substantially as described.

664,713. ELECTRIC-ARC LAMP. ROYAL E. BALL, New York, N. Y., assignor to the Ball Electric Company, Yonkers, N. Y. Filed Sept. 21, 1899. Serial No. 731,149. (No model.)



Claim.—1. An electric-arc lamp comprising the combination of two carbon-rods, feeding mechanism for said carbon-rods provided with two separate levers one of which has a greater leverage than the other and the lever having the lesser leverage normally sustaining the weight of the carbon-rods during the burning of the first carbon, and means for transferring to the lever having the greater leverage, when the first carbon has been consumed, part of the weight sustained normally by the lever having the lesser leverage, whereby the loss of weight due to the consumption of the first carbon is compensated for by the increased leverage thrown upon the feeding mechanism, substantially as and for the purpose set forth.

2. An electric-arc lamp comprising the combination of two carbon-rods, feeding mechanism for the carbon-rods comprising two separate rockers one of which has a greater leverage than the other, the weight of the carbon-rods and carbons being sustained by the rocker having the lesser leverage until the first carbon is consumed, means for transferring the weight of the carbon-rods carrying the carbon first consumed to the rocker having the greater leverage, whereby the loss of weight of the consumed carbon is compensated for by the increased leverage exerted by its carbon-rod on the feeding mechanism, substantially as and for the purpose set forth.

3. An electric-arc lamp having carbon-feeding mechanism comprising a solenoid and its core, said solenoid consisting in a spool having the line and shunt circuit wound on the respective ends thereof and in the same direction so that both the line and shunt currents flow around the spool in the same direction, whereby the position of the magnetic core is determined by the variation in the strength of the line and shunt currents, substantially as and for the purpose set forth.

4. The combination of a carbon-rod and feeding mechanism therefor comprising a vertically-moving rocker and a solenoid for actuating said rocker, a guide for said carbon-rod pivoted to said rocker, and a feed-clutch for said carbon-rod consisting in a strap embracing the carbon-rod, a clutch-block pivoted to said strap for engaging the carbon-rod, and a link pivoted between said clutch-block and the rocker, substantially as and for the purpose set forth.

5. An electric-arc lamp comprising the combination of a carbon-rod, movable feeding mechanism for said carbon-rod, a pivoted guide for said carbon-rod mounted upon said movable mechanism, and a contact-brush carried by said guide, substantially as and for the purpose set forth.

6. An electric-arc lamp consisting in the combination of a carbon-rod, feeding mechanism comprising a solenoid and its core, a rocker fulcrumed on a fixed point and having one end pivoted to the core of the solenoid, and a guide for said carbon-rod pivoted to the other end of the rocker, a second rocker pivoted to said core of the solenoid and provided with a guide for said carbon-rod, a feed-clutch for said carbon-rod mounted upon the guide of said second rocker, substantially as and for the purpose set forth.

7. An electric-arc lamp consisting in the combination of a carbon-rod, feeding mechanism for the carbon-rod comprising a solenoid and its core, an upper and a lower rocker fulcrumed on a fixed point and each having one end pivoted to the solenoid-core, a guide pivoted to the other ends of said rockers for receiving the carbon-rod, substantially as and for the purpose set forth.

8. An electric-arc lamp consisting in the combination of two carbon-rods, feeding mechanism comprising a solenoid and its core, an upper and lower rocker moving in parallelism and each having its long arm pivoted to the end of the solenoid-core, a bar pivoted across the short arm of each rocker and two guides secured to each of said bars for receiving the carbon-rods and holding them in alinement, substantially as and for the purpose set forth.

9. An electric-arc lamp consisting in the combination of two carbon-rods, a solenoid and its core, an upper and a lower rocker pivoted so as to move in parallel and each having its long arm pivoted to the solenoid-core, a pair of guides pivoted to the upper rocker and a pair of guides pivoted to the lower rocker in alinement with each other, the pair of guides on the upper rocker being pivoted thereon at a greater distance from the fulcrum of the rocker than the pair of guides on the lower rocker, and means for transferring the weight of the carbon-rod carrying the carbon first consumed to its guide on the upper rocker, substantially as and for the purpose set forth.

10. An electric-arc lamp consisting in the combination of a carbon-rod, a solenoid and its core, an upper and a lower rocker pivoted so as to move in parallel and each having an arm pivoted to the solenoid-core, a guide for the carbon-rod mounted on the other end of each of said rockers, a clutch for the carbon-rod, said clutch being connected with and carried by the said guide on the lower rocker, substantially as and for the purpose set forth.

11. The combination of the upper and lower frame-plates of an electric-arc lamp, said plates being secured together for containing the working parts of the lamp between them, a single supporting-standard secured to each of said frame-plates and insulated therefrom, feeding mechanism comprising a solenoid and its core, said standard being provided with horizontal arms for supporting the solenoid in operative position, substantially as and for the purpose set forth.

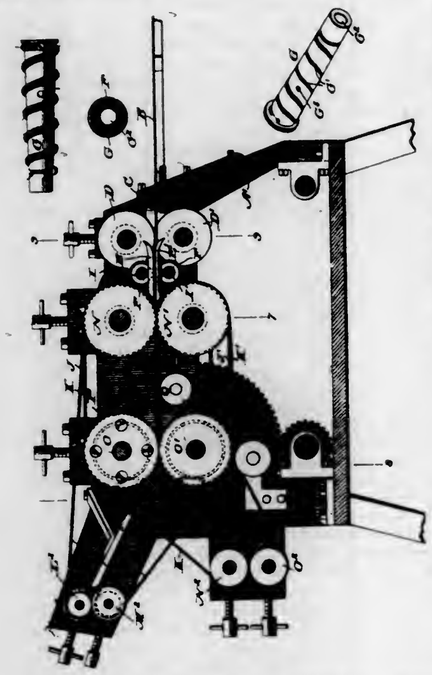
664,714. TOBACCO-STEMMING MACHINE. MILTON C. BAUGHAN, Barton Heights, Va., assignor to the Baughan Tobacco Stemming Machine Company, Richmond, Va. Filed Feb. 19, 1900. Serial No. 5,708. (No model.)

Claim.—1. A machine for stemming tobacco having means for seizing and holding the leaf and comprising belts for carrying the stems and belts for carrying the body of the leaf, such stem and leaf carrying belts extending for a part of their length side by side and diverging in advance of their discharge ends, and supports for said belts, substantially as set forth.

2. A machine for stemming tobacco having means for seizing and holding the leaf and comprising the stem-carrying belt and the leaf-carrying belt arranged to diverge in advance of their discharge ends, and stem-separating devices arranged to operate in advance of the point of divergence of the belts substantially as set forth.

3. A machine for stemming tobacco comprising the stem-carrying belts provided in their outer faces with longitudinal grooves which coincide in the adjacent runs of the belts, and the leaf-carrying belts extending for a part of their lengths alongside the stem-carrying belts, such stem-carrying belts and leaf-carrying belts being arranged to diverge in ad-

vance of their discharge ends, and supports for said belts substantially as set forth.



4. In a machine for stemming tobacco, the combination of opposing belts with their adjacent runs in close proximity whereby they are adapted to feed the body of the tobacco-leaf lengthwise between them, opposing belts alongside and closely adjacent to the first pair with their adjacent runs in close proximity and adapted to feed the stem lengthwise between them and a stemming device between said pairs of belts substantially as set forth.

5. A machine for stemming tobacco compriaing a pair of opposing belts for feeding the body of the leaf, a pair of opposing belts for feeding the stem and arranged alongside and closely adjacent to the body of the feeding-belts and means for separating the stem from the body of the leaf in the direction of length of the opposing belts substantially as set forth.

6. A machine for stemming tobacco having the two stem-carrying belts with their adjacent runs moving in the same direction, and having in their outer sides near their opposite edges coincident grooves adapted to receive the stem of a tobacco-leaf, combined with devices on opposite sides of said belts for operating upon the body of the leaf to spread the same, substantially as set forth.

7. A machine having the upper and lower feed-belts provided with coincident, longitudinal grooves and means for directing the stems thereto and for removing the stem substantially as set forth.

8. The combination in a machine for stemming tobacco, of the leaf-feeding devices, the table or plate adjacent thereto and having slots for the introduction of the stem to such devices, and the guide along the inner side of said slots whereby to direct the stem thereto and turn the body of the leaf over and outward, substantially as set forth.

9. An apparatus substantially as described, comprising a stem-holding device having a passage through which the stem may move longitudinally and a lateral opening for the passage of the body of the leaf in which the uncut leaf may move longitudinally, and the leaf-spreading devices arranged along the open side of the stem-holding devices substantially as set forth.

10. In a machine for stemming tobacco, a leaf-spreading device arranged transversely of the path of the leaf and comprising a brush having a spirally-disposed rib forming a worm by which to spread the leaf and means for moving the leaf past the brush substantially as set forth.

11. In a machine for stemming tobacco, the combination of devices for feeding the leaf and a brush arranged transversely of the path of the leaf and comprising a core having a spirally-twisted groove or channel and a yielding yarn or strand held therein, and means for rotating said brush, substantially as set forth.

12. The combination in a tobacco-stemming machine with devices for feeding the leaf, of opposing brushes arranged transversely of the path of the leaf and having a spiral twist whereby to open or spread the leaf.

13. The combination of devices for feeding the leaf, and opposing brushes arranged alongside said devices and extended transversely of the path of the leaf and having a spiral twist and arranged to open or spread the leaf as it passes between them.

14. The combination in a machine for stemming tobacco, of the means for feeding the leaf, the upper and lower brushes arranged transversely of and above and below the path of the leaf and having a spiral twist whereby to open or spread the leaf, and the stem-carrying belts and the leaf-carrying belts substantially as set forth.

15. A machine for stemming tobacco comprising carrying devices engaging the stem in the direction of its length and carrying devices engaging the body of the leaf in the direction of the leaf whereby the leaf may be carried through the machine longitudinally partly by its stem and partly by its body portion and means whereby the leaves may be fed lengthwise to said belts, substantially as set forth.

16. In a machine for stemming tobacco, the combination of devices for carrying the leaf, and a stem-holder composed of upper and lower sections and having the lateral opening forming a passage for the body of the leaf substantially as set forth.

17. A machine for stemming tobacco comprising two sets of belts arranged in pairs composed each of opposing belts, the belts of one pair ranging alongside and closely adjacent to those of the other pair whereby one pair of belts may feed the stem longitudinally and the other pair the body of the leaf longitodinally, and supports and operating devices whereby the adjacent runs of the opposing belts may be caused to move in the same direction and means whereby the leaves may be fed lengthwise to said belts.

18. A machine for stemming tobacco comprising the stem-carrying belts, and the pair of leaf-carrying belts alongside said first belts, the pairs of stem-carrying belts and leaf-carrying belts being deflected vertically at their discharge ends in opposite directions and arranged to discharge at different points, substantially as described.

19. In a machine for stemming tobacco, the combinatioo of the infeed-rollers, the stem-holding device in rear of said rollers and slotted at its end to receive the lower infeed-roller, and the leaf-spreading devices arranged alongside said stem-holding device, substantially as set forth.

20. In a machine for stemming tobacco, the combination of the upper and lower stem-carrying belts, the upper and lower leaf-carrying belts, the pulleys supporting said belts, and the rotary cutters operating alongside and in close proximity to the stem-carrying belts and between the same and the leaf-carrying belts substantially as set forth.

21. A machine for stemming tobacco having a stem-carrying belt, a leaf-carrying belt extending alongside the same, means for holding the leaf on the belt and a cutter operating between said belts and in close proximity to the stem-carrying belt substantially as set forth.

22. A machine for stemming tobacco comprising a stem-carrying belt having a groove to receive the stem, a leaf-carrying belt extending alongside the stem-carrying belt, means for holding the leaf on the belt and a cutter operating between said belts.

23. In a machine for stemming tobacco-leaves a brush arranged in operation transversely of the path of the leaf, having a spiral twist for spreading the leaf, and provided at or near its inner end with a circumferential portion by which to feed the leaf forward.

24. In a machine for stemming tobacco the combination of the opposing belts arranged to receive the stem lengthwise between them, rollers for feeding the stem lengthwise to the belts and a holder or guide for the stem between said rolls and belts.

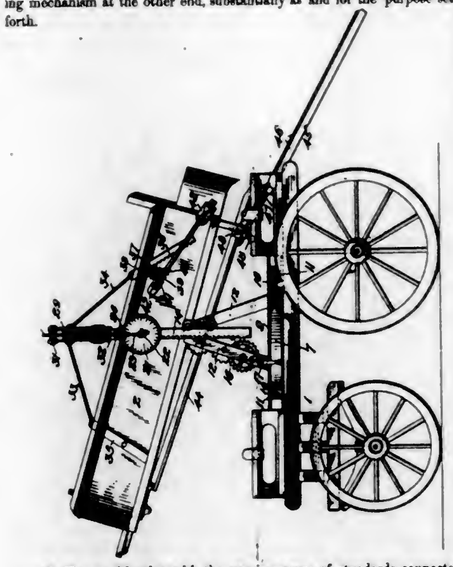
25. In a machine for stemming tobacco, the combination of the opposing belts for carrying the stem lengthwise between them, the rollers for feeding the stem lengthwise, the stem-holder between said rollers and the point of contact of the belts and the leaf-spreading device arranged alongside the said stem-holder.

26. A machine for stemming tobacco having opposing belts whose adjacent runs move in the same direction and are adapted to feed the stem of the leaf longitudinally between them, and means whereby the stem may be directed lengthwise between said belts.

27. A machine for stemming tobacco comprising opposing belts between which the stems of the leaves may pass longitudinally, a stem-holder for directing the stem longitudinally to said belts, and leaf-spreading devices arranged laterally to said holder and adapted to operate upon the body of the leaf.

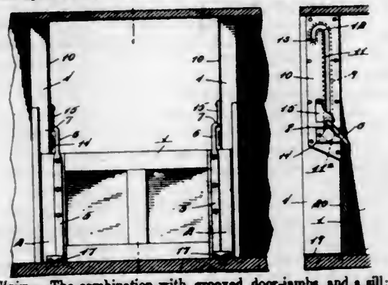
664,715. WEIGHING CHUTE-WAGON. CHARLES BERNHARDT, Philadelphia, Pa. Filed Apr. 26, 1900. Serial No. 14,463. (No model.)

Claim.—1. The combination with the running-gear; of standards connected to the running-gear and provided with a train of gearing, an operating-shaft for said gearing, rack-bars mounted to slide in said standards and provided with a truss-frame at their upper ends, weighing mechanism connected to one of said rack-bars, and a scale-beam pivoted to the truss-frame and connected to the wagon-body at one end and to the weighing mechanism at the other end, substantially as and for the purpose set forth.



2. The combination with the running-gear; of standards connected to the running-gear and provided with a train of gearing, an operating-shaft for said gearing, rack-bars mounted to slide in said standards and provided with a truss-frame at their upper ends, weighing mechanism connected to one of said rack-bars, a scale-beam pivoted to the truss-frame and connected to the wagon-body at one end and to the weighing mechanism at the other end, and mechanism for inclining the wagon-body when in its elevated position, substantially as and for the purpose set forth.

664,716. GRAIN-DOOR FOR CARS. AUGUST T. BRAMER, Wentworth, Mo., assignor of one-half to John W. Garetson, same place. Filed Apr. 13, 1900. Serial No. 12,763. (No model.)



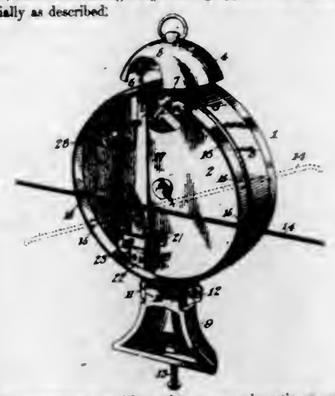
Claim.—The combination with grooved door-jambs and a sill; of irons having inner beveled edges and secured to said sill, a door, thickened end strips to said door, plates secured to said strips, arms projecting from the plates, lateral extensions to the arms slidably mounted within the grooves of the jambs, and dogs pivoted to the jambs and adapted to retain the extensions in lowered position.

664,717. CORD-TENSION ALARM. CHARLES BRAMBROVE, Luhi, Mich. Filed Feb. 15, 1900. Serial No. 5,335. (No model.)

Claim.—1. The combination with continuous alarm mechanism, of a cord-controlled spring-arm, a trip-finger carried thereby and normally engaging the alarm mechanism, and a spring presser-foot on said arm between which and the arm a running cord is adapted to travel, substantially as and for the purpose described.

2. The combination with continuous alarm mechanism, of a cord-controlled spring-arm, a trip-finger carried thereby and normally engaging the alarm mechanism, a presser-foot and means for adjusting said presser-foot, substantially as and for the purpose described.

3. The combination with a suitable frame, of continuous alarm mechanism, an alarm-trip connected with the frame and controlled by a running cord, and a surrounding flange having opposite cord-guide openings, substantially as described.

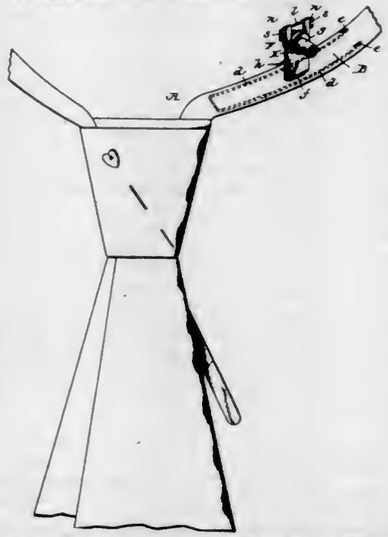


4. The combination with an alarm-case and continuous alarm mechanism, of a cord-controlled spring-arm, a trip-finger carried thereby and normally engaging the alarm mechanism, an annular flange provided with cord-guide eyes at opposite sides, and an annular clamping-band in which the alarm-case is adjustably mounted, substantially as described.

5. The combination with an alarm-case and continuous alarm mechanism, of a band in which the case is rotatably adjustable, a cord-controlled spring-arm on the case, a trip-finger carried thereby and normally engaging the alarm mechanism, an annular flange on the case having cord-guide eyes, and means for clamping the case within the band, substantially as described.

6. The combination with continuous alarm mechanism, of a cord-controlled spring-arm, a trip-finger carried thereby and normally engaging the alarm mechanism, a presser-foot associated with the spring-arm, a bracket embracing the presser-foot and arm, and an adjusting-screw for adjusting the presser-foot, substantially as and for the purpose specified.

664,718. VIOLIN-SUPPORT. CHARLES W. BREWSTER, El Monte, Cal. Filed Mar. 24, 1900. Serial No. 10,062. (No model.)

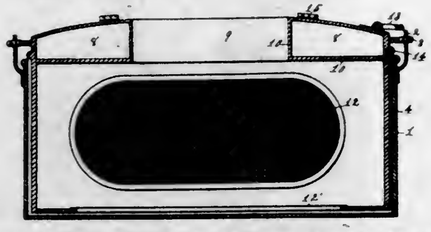


Claim.—1. The combination with a violin, of a detachable book attachment for the end button thereof, said attachment having a forked frame adapted to embrace said button, and a wedge-key for securing said frame in place upon said button, together with a detachable stiffener for a necktie or the like of the musician, said stiffener consisting of an open loop having pointed ends, which are of flexible metal and adapted to bend backwardly to secure the stiffener from displacement, substantially as specified.

2. The combination with a violin, of a detachable hook attachment for the end button thereof, said attachment having a forked frame, and a key for securing said frame in place upon said button, together with a detachable stiffener for a necktie or the like of the musician, and means for preventing displacement of said stiffener, substantially as specified.

3. A detachable hook attachment for the end button of a violin, having a forked frame adapted to embrace said button, and a wedge-key for securing said frame in place upon said button, substantially as specified.

664,719. MINNOW-BUCKET. JOHN R. BRINCK, Appleton, Wis., assignor of one-half to J. H. Kamps, same place. Filed June 18, 1900. Serial No. 20,686. (No model.)



Claim.—1. A minnow-bucket for carrying minnows for fish-bait, having its length largely exceeding its breadth with similar sharp-pointed ends, oval sides and a flat bottom, and comprising two parts, an outer part for holding water and an inner part for holding minnows, the inclosing end and side walls of both parts being vertical, the inner part having an air-chamber entirely around it in its upper part with an opening through it to the minnow-receptacle, said inner part being imperforate from each end and along each side approximately one-third of the distance to the center, and being adapted for being nested within the outer part and to float near the surface when separated from the outer part and placed in a body of water for being towed along with a fisherman's boat, substantially as described.

2. A minnow-bucket, comprising an outer receptacle for holding water of a length largely exceeding its breadth, with sharp-pointed ends, oval sides and flat bottom, its end and side inclosing walls being vertical and being provided with a bail for carrying said receptacle, an inner receptacle of a similar form upon a horizontal plane and being adapted for nesting within the outer receptacle, being imperforate from each end along each side approximately one-third of the distance to its center, and said inner receptacle having an air-chamber entirely around it in its upper portion, an opening through said air-chamber around its longitudinal and transverse center, to the interior of said inner receptacle, a perforated lid for closing said opening, perforations in the bottom and oval sides of the inner receptacle, a ring or similar device upon the inner receptacle to which a rope may be attached for towing said receptacle along with a boat through a body of water and a bail for lifting the inner receptacle into and out of the outer one, substantially as described.

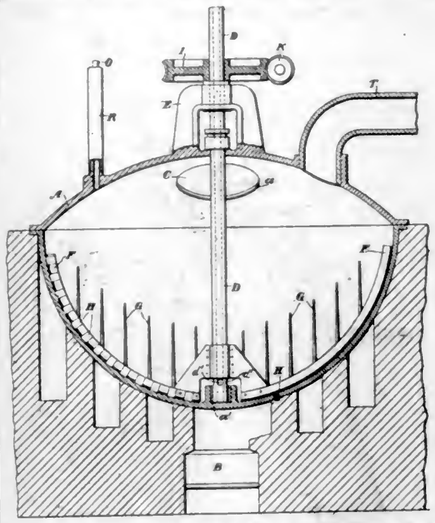
3. In a minnow-bucket for carrying minnows for fish-bait, the combination of an outer receptacle adapted for holding water, having a length largely exceeding its breadth with sharp-pointed ends, oval sides and flat bottom, and a bail for carrying said receptacle, an inner receptacle imperforate from each end along each side approximately one-third of the distance to the center, and being adapted for nesting within the outer one, the inclosing end and side walls of both receptacles being vertical, an air-chamber in the upper portion of the inner receptacle entirely around its longitudinal and transverse center, an opening through said air-chamber to the interior of said receptacle, a lid for covering said opening, perforations in the body of said receptacle below the air-chamber, a device to which a rope may be attached for towing it along with a boat through a body of water, and a bail for lifting the inner receptacle into or out of the outer one, substantially as described.

664,720. RENDERING APPARATUS. SAMUEL H. BROWN, Washington, D. C., assignor, by direct and mesne assignments, to the American Digester Manufacturing Company, of New Jersey. Filed Mar. 28, 1898. Serial No. 675,429. (No model.)

Claim.—1. The combination of a digester, and agitators therein whose upper ends are free and are in substantially different horizontal planes, substantially as and for the purpose described.

2. The combination of a digester, having a curved bottom, and agitators therein whose upper ends are free and are in substantially different horizontal planes, substantially as and for the purpose described.

3. The combination of a digester, with a curved bottom, and rotary arms carrying vertical agitators, whose upper ends are free and at points successively farther and farther from the center of motion of the arms are substantially higher and higher, substantially as described.



4. The combination of a digester with a curved bottom, arms carrying vertical knives whose upper ends at points successively farther and farther from the center of motion of the arms are higher and higher, substantially as described.

5. The combination of a digester, scrapers for the inner surface thereof, arms carrying said scrapers, and agitators projecting upward from said arms, said arms being close to the portion of the digester to which heat is applied, substantially as and for the purpose described.

6. The combination of a digester, scrapers for the inner surface thereof, arms carrying said scrapers, and fingers projecting upward from the arms, said arms being close to the portion of the digester to which heat is applied, substantially as and for the purpose described.

7. The combination of a digester, arms close to the portion of the digester to which heat is applied, and agitators carried by and reaching from the arms up into the material within the digester, substantially as and for the purpose described.

8. The combination of a digester, a central, rotatable shaft therein, arms attached to said shaft, and a series of knives carried by each arm, separated by spaces, the knives of one arm being arranged to agree in position with the spaces between the knives of the other arm, substantially as and for the purpose described.

9. The combination of a digester, a central, rotatable shaft therein, radial arms attached to said shaft, and a series of knives carried by each arm whose edges extend in the same direction as the arm, the knives of each arm being separated by spaces, substantially as and for the purpose described.

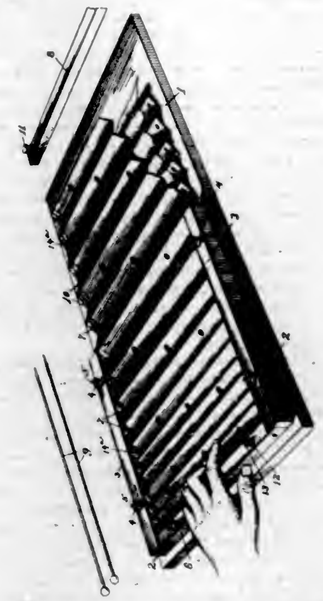
664,721. PLAITING APPARATUS. THOMAS W. CASTLEMAN, New Orleans, La. Filed Jan. 22, 1900. Serial No. 2,399. (No model.)

Claim.—1. A pair of matrices constructed with corresponding intermeshing folds and stiffening-strips located in the folds, so as to adapt the folded matrices to be placed as a body in horizontal position for ironing the edges of the folds on the stiffening-strips as a support for the folds.

2. A pair of matrices constructed with corresponding intermeshing folds, stiffening-strips located in the folds, and means for securely holding the folded matrices tightly together at the ends of the folds so as to adapt the folded matrices to be placed as a body in horizontal position, with the edges of the folds and their stiffening-strips in vertical position for ironing the edges of the folds on the edges of the stiffening-strips as a support for the folds independently of a manipulating-frame.

3. A pair of matrices constructed with corresponding intermeshing folds, each matrix being formed of two-ply material, and pockets in the folds between the plies, stiffening-strips located in the pockets, and means for securely holding the folded matrices tightly together at the ends of the folds so as to adapt the folded matrices to be placed as a body in horizontal position, with the edges of the folds and their stiffening-strips in vertical position for ironing the edges of the folds on the edges of the stiffening-strips as a support for the folds independently of a manipulating-frame.

4. A pair of matrices constructed with corresponding intermeshing folds, and stiffening-strips located at one side of each fold and alternately arranged in the matrices, and means for securely holding the folded matrices tightly together at the ends of the folds so as to adapt the folded matrices to be placed as a body in horizontal position, with the edges of the folds in vertical position for ironing the edges of the folds on the edges of the stiffening-strips as a support for the folds independently of a manipulating-frame.



5. A pair of matrices constructed with corresponding intermeshing folds, pockets located at one side of each fold and alternately arranged in the matrices, and stiffening-strips located in the pockets, and means for securely holding the folded matrices tightly together at the ends of the folds, so as to adapt the folded matrices to be placed as a body in horizontal position, with the edges of the folds in vertical position for ironing the edges of the folds on the edges of the stiffening-strips as a support for the folds independently of a manipulating-frame.

6. A plaiter comprising a pair of matrices constructed with corresponding intermeshing folds, and openings at the ends of the folds, locking-rods extending through the openings and on which the folded and gathered matrices are threaded to form a block of folds, and means secured to the rods for holding the block of folds solidly together.

7. A plaiter comprising a pair of matrices constructed with corresponding intermeshing folds, stiffening-strips located in the folds, and openings at the ends of the folds, locking-rods extending through the openings and on which the folded and gathered matrices are threaded to form a block of folds, and means secured to the rods for holding the block of folds solidly together.

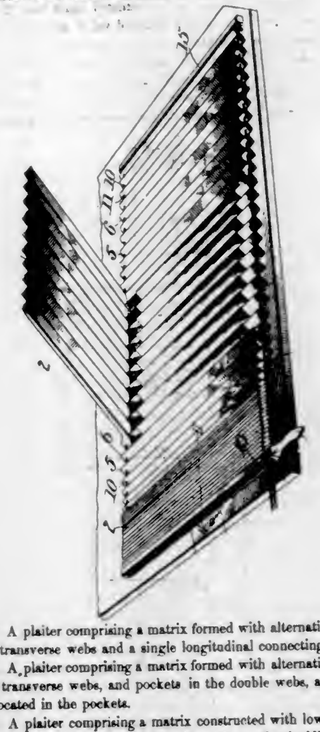
8. A plaiter comprising a continuous body of material folded to provide a series of suitably-formed matrix-spaces, having openings in the folds thereof and locking-rods on which the matrix is threaded at both side edges, and having the portions forming the sides of said spaces reinforced by strengthening-strips; substantially as and for the purposes set forth.

9. A plaiter comprising a pair of matrices constructed with corresponding intermeshing folds and openings at the ends of the folds, a clamping-bar having end openings coinciding with the openings in the folds, a locking-bar having end openings coinciding with the openings in the folds, locking-rods extending through the openings in the clamping-bar, folds, and a locking-bar, and means for securing the locking-bar to the locking-rods.

664,722. PLAITING APPARATUS. THOMAS W. CASTLEMAN, New Orleans, La. Filed July 3, 1900. Serial No. 22,423. (No model.)

Claim.—1. A plaiter comprising a matrix having its lower and upper matrix members formed integral so as to keep the intermeshing folds of the matrix members in correct alinement.

2. A plaiter comprising a matrix having its lower and upper matrix members formed integral at their inner side so as to keep the intermeshing folds of the matrix members in correct alinement.



3. A plaiter comprising a matrix formed with alternating single and double transverse webs and a single longitudinal connecting-web.

4. A plaiter comprising a matrix formed with alternating single and double transverse webs, and pockets in the double webs, and stiffening-strips located in the pockets.

5. A plaiter comprising a matrix constructed with lower and upper matrix members each formed with alternating and coinciding single and double webs providing pockets, so as to bring the pockets of each matrix member on the same side of the folds.

6. A plaiter comprising a matrix having lower and upper intermeshing matrix members formed with cord-holes in the folds thereof, clamping-bars formed with cord-holes, and the gathering and sustaining cords extending through the cord-holes of the folds and clamping-bars.

7. A plaiter comprising a matrix having a lower matrix member, an upper matrix member, formed integral with the lower matrix member at one side thereof so as to provide a cover having its outer side located in rear of the outer edge of the lower matrix member.

8. A plaiter comprising a matrix having a lower matrix member, and an upper matrix member formed in sections integral with the lower matrix member.

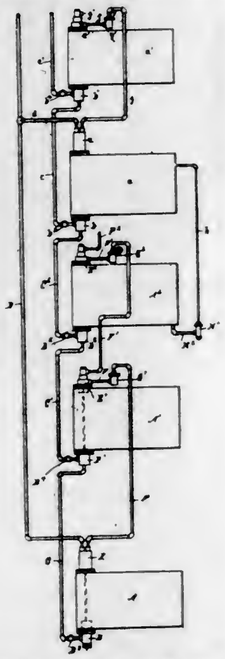
9. A plaiter comprising a matrix having a lower matrix member formed with mixed forms of folds and an upper matrix member having mixed forms of folds intermeshing therewith.

664,723. APPARATUS FOR ACTUATING LIQUID WITH COMPRESSED GAS. RUDOLPH CONRADER, Erie, Pa. Filed Aug. 28, 1899. Serial No. 728,718. (No model.)

Claim.—1. In an apparatus for actuating liquid with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of gas-supply; an independent gas connection between said chambers; means for admitting a liquid to each of said chambers; means for conducting an actuated liquid from said chambers; and automatically-actuated valve mechanism for controlling the movement of compressed gas, arranged to open the connection to the gas-supply during a closure of the connection between said chambers, and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply, and during the emptying of the liquid from the second of said chambers.

2. In an apparatus for actuating liquids with compressed gases, the combination of two pump-chambers arranged to bring liquid to be actuated and actuating-gas into contact within said chambers; a connection leading from the first of said chambers to a source of gas-supply; an in-

dependent gas connection between said chambers; a liquid connection between said chambers; means for admitting liquid to the first of said chambers; means for conducting the actuated liquid from the second of said chambers; and automatically-actuated valve mechanism controlling the movement of gas arranged to open the connection to the gas-supply during the closure of the gas connection between said chambers and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply and during the emptying of the second of said chambers.



3. In an apparatus for actuating liquid with compressed gas, the combination of two pump-chambers of the same size arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of motor-gas supply; an independent gas connection between said chambers; means for admitting a liquid to each of said chambers; means for conducting an actuated liquid from said chambers; and automatically-actuated valve mechanism controlling the movement of compressed gas, arranged to open the connection to the gas-supply during a closure between said chambers, and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply, and during the emptying of the liquid from the second of said chambers.

4. In an apparatus for actuating liquids by compressed gas, the combination of a high-pressure chamber and a low-pressure chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chambers; a connection leading from the high-pressure chamber to a source of gas-supply; means for conducting a liquid to be actuated to each of said chambers; lifts arranged for each of said chambers and proportioned to permit the expulsion of liquid from the low-pressure chamber by the expansive force of the volume of gas in the high-pressure chamber; an independent gas connection between said chambers; and automatically-actuated valve mechanism arranged to open the connection to the gas-supply during a closure of the connection between said chambers to expel the liquid from the high-pressure chamber, and to open the connection between said chambers during a closure of the connection to the gas-supply to allow the expulsion of liquid from the low-pressure chamber by the expansion of gas from the high-pressure chamber.

5. In an apparatus for actuating liquid by compressed gas, the combination of a high-pressure chamber and a low-pressure chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chambers; a connection leading from the high-pressure chamber to a source of gas-supply; means for conducting the liquid to be actuated to said high-pressure chamber; an independent gas connection between said chambers; a liquid connection between said chambers; a lift arranged from the low-pressure chamber and in such proportion to the lift incident to the connection between the high-pressure and low-pressure chambers as to permit of the expulsion of the liquid from the low-pressure chamber by the expansion of the gas in the high-pressure chamber; and automatically-actuated valve mechanism arranged to open the connection to the gas-supply during a closure of the gas connection between said chambers to expel the liquid from the high-pressure chamber and to open the gas connection between said chambers during a closure of the connection to the gas-supply to allow the expulsion of the liquid from the low-pressure chamber by the expansion of the gas from the high-pressure chamber.

6. In an apparatus for actuating liquid by compressed gas, the combination of a high-pressure chamber and a low-pressure chamber each of the same size arranged to bring the actuating-gas and the liquid to be actuated into contact within said chambers; a connection leading from the high-pressure chamber to a source of gas-supply; means for conducting the liquid to be actuated to said high-pressure chamber; an independent gas connection between said chambers; a liquid connection between said chambers; a lift arranged from the low-pressure chamber and in such proportion to the lift incident to the connection between the high-pressure and low-pressure chambers as to permit of the expulsion of the liquid from the low-pressure chamber by the expansion of the gas in the high-pressure chamber; and automatically-actuated valve mechanism arranged to open the connection to the gas-supply during a closure of the gas connection between said chambers to expel the liquid from the high-pressure chamber and to open the gas connection between said chambers during a closure of the connection to the gas-supply to allow the expulsion of the liquid from the low-pressure chamber by the expansion of the gas from the high-pressure chamber.

7. In an apparatus for actuating liquid by compressed gas, the combination of a high-pressure chamber, a low-pressure chamber, and a second high-pressure chamber arranged to bring the actuating-gas and liquid to be actuated into contact within said chambers; a connection leading from the high-pressure chambers to a source of gas-supply; means for conducting the liquid to be actuated to said high-pressure chamber; a liquid connection leading from the first high-pressure chamber to the low-pressure chamber; a liquid connection leading from the low-pressure chamber to the second high-pressure chamber; an independent gas connection between the first high-pressure chamber and the low-pressure chamber; an automatically-actuated valve mechanism arranged to open the connection of the first high-pressure chamber to the gas-supply during a closure of the connection between the first high-pressure chamber and the low-pressure chamber, and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection between the first high-pressure chamber and the source of gas-supply, and during the emptying of the liquid from the low-pressure chamber.

8. In an apparatus for actuating liquid by compressed gas, the combination of a high-pressure chamber, a low-pressure chamber, and a second high-pressure chamber arranged to bring the actuating-gas and liquid to be actuated into contact within said chambers; a connection leading from the high-pressure chambers to a source of gas-supply; means for conducting the liquid to be actuated to the first of said high-pressure chambers; a liquid connection leading from the first high-pressure chamber to the low-pressure chamber; a liquid connection leading from the low-pressure chamber to the second high-pressure chamber, the lift from the low-pressure chamber to the second high-pressure chamber being so proportioned to the lift between the first high-pressure chamber and the low-pressure chamber as to admit of the actuation of the liquid from the low-pressure chamber by the expansion of the gas from the high-pressure chamber; an independent gas connection between the first high-pressure chamber and the low-pressure chamber; and an automatically-actuated valve mechanism arranged to open the connection of the first high-pressure chamber to the gas-supply during a closure of the connection between the first high-pressure chamber and the low-pressure chamber, and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection between the first high-pressure chamber and the source of gas-supply and during the emptying of the liquid from the low-pressure chamber.

9. In an apparatus for actuating liquids with compressed gases, the combination of two pump-chambers arranged to bring liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection between said chambers; a valve mechanism for controlling the actuating-gas; and an overflow-valve for allowing the escape of the liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

10. In an apparatus for actuating liquids with compressed gas, the combination of two pump-chambers, said chambers being of equal size and arranged to bring liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection between said chambers; a valve mechanism for controlling the actuating-gas; and an overflow-valve for allowing the escape of the liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

11. In an apparatus for actuating liquids with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection for conveying liquid from the first of said chambers to the second of said chambers; a valve mechanism for controlling the actuating-gas arranged to be actuated by the movement of the liquid in the first of said chambers; and an overflow-valve for allowing the escape of liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

12. In an apparatus for actuating liquids with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection between said chambers; a valve mechanism for controlling the actuating-gas; and an automatically-actuated overflow-valve for allowing the escape of the liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

13. In an apparatus for actuating liquid with compressed gas, the combination of a high and a low pressure pump-chamber, arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection between said chambers arranged to convey a liquid from the high-pressure chamber to the low-pressure chamber; a gas connection between said chambers; a valve for controlling the movement of the actuating-gas; and an automatically-actuated overflow-valve for allowing the escape of liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

14. In an apparatus for actuating liquid with compressed gas, the combination of a high and a low pressure pump-chamber, each arranged to bring the liquid to be actuated and the actuating-gas into contact within said chamber; a liquid connection between said chambers arranged to convey a liquid from the high-pressure chamber to the low-pressure chamber; a gas connection between said chambers; a valve device for controlling the actuating-gas to effect the expulsion of the liquid from the high-pressure chamber by the direct pressure of the actuating-gas and the expulsion of the liquid from the second chamber by the expansion of the gas from the first chamber to the second chamber, said valve device being arranged to be actuated by the movement of the liquid in the first of said chambers; and an automatically-actuated overflow-valve mechanism for allowing the escape of liquid in excess of filling the second of said chambers from the liquid expelled from the first of said chambers.

15. In an apparatus for actuating liquids by compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a liquid connection between said chambers arranged to convey liquid from the first of said chambers to the second of said chambers; a gas-exhaust valve from the first of said chambers actuated by the movement of the liquid in said chamber; a gas-supply valve on the second of said chambers actuated by the movement of the liquid in said chamber; a normally-closed drain-valve for the first of said chambers; and means actuated with the incoming of actuating-gas in the second of said chambers for opening said drain-valve.

16. In an apparatus for actuating liquids with compressed gas, the combination of a first high-pressure chamber, a low-pressure chamber and a second high-pressure chamber; a liquid connection between the low-pressure chamber and the second high-pressure chamber; a gas connection between the gas-supply and the two high-pressure chambers; a gas connection between the first high-pressure chamber and the low-pressure chamber; a gas-exhaust valve in the low-pressure chamber arranged to be actuated by the movement of the liquid in said chamber; a valve mechanism controlling the supply of gas in the second high-pressure chamber, said valve mechanism being arranged to be actuated by the movement of the liquid in said chamber; a normally-closed drain-valve for the low-pressure chamber; and means actuated with the incoming of actuating-gas in the second high-pressure chamber for opening said drain-valve.

17. In an apparatus for actuating liquids with compressed gas, the combination of a first high-pressure chamber, a low-pressure chamber and a second high-pressure chamber; a liquid connection between the low-pressure chamber and the second high-pressure chamber; a gas connection between the gas-supply and the two high-pressure chambers; a gas connection between the first high-pressure chamber and the low-pressure chamber; a gas-exhaust valve in the low-pressure chamber arranged to be actuated by the movement of the liquid in said chamber; a valve mechanism controlling the supply of gas in the second high-pressure chamber, said valve mechanism being arranged to be actuated by the movement of the liquid in said chamber; a normally-closed drain-valve for the low-pressure chamber; means actuated with the incoming of actuating-gas in the second high-pressure chamber for opening said drain-valve; and an overflow-valve for allowing the escape of liquid in excess of filling the low-pressure chamber from the liquid expelled from the first high-pressure chamber.

18. In an apparatus for actuating liquids with compressed gas, the combination of a first high-pressure chamber, a low-pressure chamber and a second high-pressure chamber; a liquid connection between the low-pressure chamber and the second high-pressure chamber; a gas connection between the gas-supply and the two high-pressure chambers; a gas connection between the first high-pressure chamber and the low-pressure chamber; a gas-exhaust valve in the low-pressure chamber arranged to be actuated by the movement of the liquid in said chamber; a valve mechanism controlling the supply of gas in the second high-pressure chamber, said valve mechanism being arranged to be actuated by the movement of the liquid in said chamber; a normally-closed drain-valve for the low-pressure chamber; means actuated with the incoming of actuating-gas in the second high-pressure chamber for opening said drain-valve; an overflow-valve for allowing the escape of liquid in excess of filling the low-pressure chamber from the liquid expelled from the first high-pressure chamber; and a valve mechanism for controlling the flow of gas to the first high-pressure chamber and from the first high-pressure chamber to the low-pressure chamber, said valve mechanism being actuated by the movement of the liquid in said first high-pressure chamber.

19. In an apparatus for actuating liquids with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to the gas-supply; an independent gas connection between said chambers; means for admitting the liquid to be actuated to each of said chambers; means for conducting the actuated liquid from said chambers; and an automatically-actuated valve mechanism actuated by a movement of the liquid for controlling the movement of gas arranged to open the connection to the gas-supply during a closure of the connection between said chambers, and to open the connection between said chambers during a closure of the connection to the source of gas-supply.

20. In an apparatus for actuating liquid with compressed gas, the combination of a high-pressure and a low-pressure pump-chamber, each arranged to bring the liquid to be actuated and the actuating-gas into contact within said chamber; a connection leading from the high-pressure chamber to the source of gas-supply; an independent gas connection between said chambers; means for conducting a liquid to be actuated to each of said chambers; a valve mechanism automatically actuated by the movement of the liquid for controlling the movement of gas arranged to open the connection to the gas-supply during a closure of the connection between said chambers, and to govern said connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply and during the emptying of the liquid from the low-pressure chamber.

21. In an apparatus for actuating liquids with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from the first of said chambers to a source of gas-supply; an independent gas connection between said chambers; a liquid connection between said chambers; means for admitting liquid to the first of said chambers; means for conducting the actuated liquid from the second of said chambers; a valve mechanism automatically actuated by the movement of said liquid for controlling the movement of gas arranged to open the connection to the gas-supply during a closure of the gas connection between said chambers and to govern the gas connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply and during the emptying of the second of said chambers.

22. In an apparatus for actuating liquids by compressed gas, the combination of a high-pressure chamber and a low-pressure chamber each arranged to bring the actuating-gas and the liquid to be actuated into contact within said chamber; a connection leading from the high-pressure chamber to a source of gas-supply; means for conducting the liquid to be actuated to each of said chambers; lifts arranged for each of said chambers in proportion to permit the expulsion of liquid from the low-pressure chamber by the expansive force of the volume of gas in the high-pressure chamber; an independent gas connection between said chambers; a valve mechanism automatically actuated by the movement of liquid arranged to open the connection to the gas-supply during a closure of a connection between said chambers to expel the liquid from the high-pressure chamber, and to open the connection between said chambers during a closure of the connection to the gas-supply to allow the expulsion of liquid from the low-pressure chamber by the expansion of the gas from the high-pressure chamber.

23. In an apparatus for actuating liquid under pressure the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of gas-supply; an independent gas connection between said chambers; means for admitting a liquid to each of said chambers; means for conducting actuated liquid from said chambers; automatically-actuated valve mechanism for controlling the movement of compressed gas arranged to open the connection to the gas-supply during a closure of the connection between said chambers and to

govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply and during the emptying of the liquid from the second of said chambers, and to exhaust the gas from said chambers after the emptying of the second of said chambers.

24. In an apparatus for actuating liquid under pressure the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of gas-supply; an independent gas connection between said chambers; means for admitting a liquid to each of said chambers; means for conducting actuated liquid from said chambers; automatically-actuated valve mechanism for controlling the movement of compressed gas arranged to open the connection to the gas-supply during a closure of the connection between said chambers and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply and during the emptying of the liquid from the second of said chambers and to exhaust the gas from said chambers after the emptying of the second of said chambers, and to reopen connection with the gas-supply after the refilling of the first of said chambers during a closure of the gas connection between said chambers.

25. In an apparatus for actuating liquid with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of gas-supply; an independent gas connection between said chambers; means for admitting liquid to each of said chambers; means for conducting the actuated liquid from said chambers; valve mechanism automatically actuated by the movement of the liquid from the first of said chambers controlling the movement of compressed gas arranged to open the connection to the gas-supply during a closure of the connection between said chambers and to govern the connection between said chambers so as to maintain an opening between them during a closure of the connection to the source of gas-supply, and during the emptying of the liquid from the second of said chambers; and an exhaust-valve actuated by the movement of the liquid in the second of said chambers and arranged to exhaust the gas from said chambers after the emptying of the liquid from the second of said chambers.

26. In an apparatus for actuating liquid with compressed gas, the combination of two pump-chambers arranged to bring the liquid to be actuated and the actuating-gas into contact within said chambers; a connection leading from one of said chambers to a source of gas-supply; an independent gas connection between said chambers; means for admitting the liquid to the first of said chambers when the compressed gas is exhausted from said chambers; valve mechanism automatically actuated by the movement of liquid in the first of said chambers for controlling the movement of compressed gas arranged to open the connection to the gas-supply when said pump has become filled with liquid, and during a closure of the connection between said chambers and to govern the connection between said chambers so as to maintain an opening between them after the emptying of said first chamber during a closure of the connection to the source of gas-supply and during the emptying of the liquid from the second of said chambers; and an exhaust-valve actuated by the movement of the liquid in the second of said chambers to exhaust the compressed gas from said chamber after the emptying of the liquid from said second chamber.

27. In an apparatus for actuating liquid with compressed gases, the combination of the pump-chambers, A and A′; the check-valves, B and B′, leading to said pump-chamber; liquid connection, C, leading from the chamber, A, to the chamber, A′; a check-valve, B^3, therein; a supply connection, D; the gas connection, F, between the chambers, A and A′; the valve mechanism, E, arranged to control the flow of gas to and from the chamber, A; a float for actuating said valve mechanism to open the connection between said chamber, A, and the supply-pipe, D, during a closure of the connection through the pipe, F, and to open a connection through the pipe, F, during a closure of the connection through the pipe, D.

28. In an apparatus for actuating liquid with compressed gases, the combination of the pump-chambers, A and A′; the check-valves, B and B′, leading to said pump-chambers; liquid connection, C, leading from the chamber, A, to the chamber, A′; a check-valve, B^3, therein; a supply connection, D; the gas connection, F, between the chambers, A and A′; the valve mechanism, E, arranged to control the flow of gas to and from the chamber, A; a float for actuating said valve mechanism to open the connection between said chamber, A, and the supply-pipe, D, during a closure of the connection through the pipe, F, and to open a connection through the pipe, F, during a closure of the connection through the pipe, D; valve mechanism, E′, on the chamber, A′; and a float for actuating said valve to exhaust the gas in said chamber after the emptying of said chamber of liquid.

29. In an apparatus for actuating liquid with compressed gas, the combination of the pump-chambers, A and A′; the check-valves B and B′, leading to said pump-chamber; liquid connection, C, leading from the chamber, A, to the chamber, A′; a check-valve B^3, therein; a supply connection, D; the gas connection, F, between the chambers, A and A′; the valve mechanism, E, arranged to control the flow of gas to and from the chamber, A; a float for actuating said valve mechanism to open the connection between said chamber, A, and the supply-pipe, D, during a closure of the connection through the pipe, F, and to open a connection through the pipe, F, during a closure of the connection through the pipe, D; and an overflow-valve, G′, for automatically permitting the escape of any excess from the filling of the chamber, A, by a liquid expelled from the chamber, A.

30. In a valve device for controlling gases in an apparatus for actuating liquids with compressed gas, the combination of the valve-case, I′, containing the supply-chamber, i, having the supply-passage therefrom, an exhaust-chamber, i', having an exhaust-passage thereto, a cylinder, i^2, a valve-motor valve-chest, i^7, a port, i^7, leading from the supply-chamber to the valve-chest, a port leading from the valve-chest to the exhaust-chamber, and ports, i^5 and i^6, leading from the cylinder, i^2, to said valve-chest; the valve, J, controlling the passage from the supply-chamber; the valve, K, controlling the passage to the exhaust-chamber; the piston, M, arranged in the cylinder, i^2; the piston-rod, m, extending from said piston; the cross-head, L, secured to the valves, J and K, and rod, m; a valve in said valve-chest for controlling the movement of the gases to and from the ports, i^5 and i^6; and means for actuating said valve.

31. In an apparatus for actuating liquids with compressed gas, the combination of a chamber arranged to bring the liquid to be actuated and the actuating-gas into contact within said chamber; the valve-case, I′, containing the supply-chamber, i, having the supply-passage therefrom, an exhaust-chamber, i', having an exhaust-passage thereto, a cylinder, i^2, a valve-motor valve-chest, i^7, a port, i^7, leading from the supply-chamber to the valve-chest, a port leading from the valve-chest to the exhaust-chamber, and ports, i^5 and i^6, leading from the cylinder, i^2, to said valve-chest; the valve, J, controlling the passage from the supply-chamber; the valve, K, controlling the passage to the exhaust-chamber; the piston, M, arranged in the cylinder, i^2; the piston-rod, m, extending from said piston; the cross-head, L, secured to the valves, J and K, and rod, m; a valve in said valve-chest for controlling the movement of the gas to and from the ports, i^5 and i^6; means for actuating said valve; and a float actuated by the movement of the liquid in said chamber for actuating said valve.

32. In an exhaust-valve mechanism for an apparatus for actuating fluids by compressed gas, the combination of a case having a passage through it, and the valve-seat thereon; a plunger arranged to operate within said case; a valve connected within said plunger and actuated thereby from its seat; an auxiliary valve connecting the gas-supply with the valve-case outside of said plunger, said auxiliary valve having a smaller area than the exhaust-valve; and a float arranged to actuate said valve.

33. In an exhaust-valve mechanism for an apparatus for actuating liquids by compressed gas, the combination of the case, T, having a passage therethrough and a valve-seat thereon; the opening, F^3, therein; the plunger, U′, arranged in said case; the valve, U, operating upon the seat on said case; a sleeve-like extension, u, connecting the plunger, U′, with the valve, U; an auxiliary valve, U^2, operating upon an opening in the plunger; a stem extending from said valve through the sleeve, u; means for normally keeping the valve, U^2, to its seat; a float-rod connected with said stem; and a float arranged on said stem.

34. In an exhaust-valve mechanism for an apparatus for actuating liquid by compressed gas, the combination of the case, T, having a passage therethrough upon which is a valve-seat, t, and an opening, F^3; the plunger, U′, in said case of larger area than the seat, t, and having an opening, u', therein; the valve, U, operating upon the seat, t; the sleeve, u, connecting the valve, U, with the plunger, U′; an auxiliary valve, U^2, operating upon the opening, u'; means for normally pressing said valve to its seat; means for limiting the outward movement of the valve, U; a float-rod connected to the stem of the auxiliary valve; and a float arranged to actuate said rod.

35. In an exhaust-valve for an apparatus for actuating liquids by compressed gas, the combination of the fitting, S, having the opening, F^4, therein; the valve-case, T, passed through said fitting, said case having the passage through it around which is a valve-seat, t, and also an opening, F^3, therethrough; a cage T′, within the fitting, S, for securing the case in place; the plunger, U′, arranged within the case and having an opening, u', therein, said plunger being of greater area than the passage by the seat, t; the valve, U, arranged in the cage, T′, adapted to be seated on the seat, t; the sleeve, u, connecting the plunger U′, with the valve, U; the auxiliary valve, U^2, arranged over the opening, u'; the valve-stem, U^3, extending from the auxiliary valve through the sleeve, u; the cage, U^4; the shoulder, u^2, on the stem, U^3; and the spring, u^4, tensioned against said shoulder; the float-rod, U^5, connecting with the stem, U^3; and the float, D, arranged to operate said rod.

36. In an apparatus for actuating liquids by compressed gas, the combination with the chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chamber; an overflow-valve connected with said chamber comprising a case, passages to said case for a gas-supply, and a valve in said case actuated to allow the escape of liquid from said chamber when said liquid exceeds a certain amount, and to be closed by the gas-pressure when admitted to said chamber.

37. In an apparatus for actuating liquids by compressed gas, the combination with the chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chamber; an overflow-valve connected with said chamber comprising a case having a passage therethrough for the gas-supply, a float-actuated valve therein arranged to be opened by the liquid, and to be closed by the gas-pressure.

38. In an apparatus for actuating liquid by compressed gas, the combination with the chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chamber; an overflow-valve connected with said chamber comprising a case, a plunger in said case having an opening therethrough, a float arranged to close said opening in said plunger, and a valve actuated by said plunger for opening and closing an opening in said case to allow the outflow of excess of liquid.

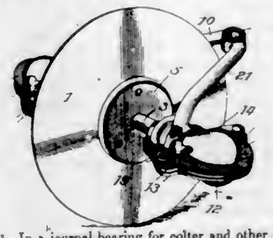
39. In an apparatus for actuating liquid by compressed gas, the combination with the chamber arranged to bring the actuating-gas and liquid to be actuated into contact within said chamber; an overflow-valve connected with said chamber comprising the case G^4, having the plunger, X, therein, with the opening, x^2, therethrough, the cage, X′, carried by said plunger and having the valve, x, thereon, and the float, X^2, having the valve surface, x^3, thereon arranged within said cage.

40. In an apparatus for actuating liquid by compressed gas, the combination with the chamber arranged to bring the actuating-gas and the liquid to be actuated into contact within said chamber; an overflow-valve connected with said chamber comprising the case, G^4, having the openings, F^6, F^7, and g^4, therein, the plunger, X, arranged within said case having the opening, x^2, therein, the cage, X′, suspended from said plunger and carrying the valve, x, thereon, arranged to operate over the opening, g^4, and the float, X^2, within said cage having the valve-surface, x^3, thereon, adapted to close the opening, x^2.

41. In an apparatus for actuating liquid by compressed gas, the combination of the chambers, A^2 and a; the valve-case, H; the plunger-valve, W, arranged within said case; the spring W^2, tensioned against said plunger; the valve, W′, actuated by said plunger; the pipe, h, connecting the plunger end of said case; and the pipe, H^2, connected with said gas below said plunger and above the valve, W′.

42. In an apparatus for actuating liquid by compressed gas, the combination of the chamber, A, the chamber, A^2, and the chamber, a; a liquid connection between the chamber, A, and the chamber, A^2; a gas connection between the chamber, A, and the chamber, A^2; checks in the liquid connections for preventing the return flow of the liquid; a liquid connection between the chamber, A^2, and the chamber, a; a connection between the chambers, A and a, and the gas-supply; valve mechanism, E and e, on the chambers, A and a, respectively, said valve mechanism being arranged to be actuated by a float in said chambers; a drain-valve H′, connected with the chamber, A^2; the pipe, h, connecting said valve with the chamber, a; and pipe, H^2, connecting said valve with the chamber, A^2, for the purposes described.

664,724. SELF-LUBRICATING AND DUST-PROOF BEARING FOR COLTER OR OTHER SHAFTS. ROBERT W. COOMBS and LOUIS A. BROOKS, Larimore, N. D. Filed Mar. 24, 1900. Serial No. 10,075. (No model.)



Claim.—1. In a journal-bearing for colter and other shafts, a shaft having an enlarged rounded journal and a sand-collar located adjacent thereto, in combination with a sectional box comprising cooperating parts having chambers for the reception of said journal and collar.

2. In a journal-bearing for colter and other shafts, a shaft having an enlarged tapered journal and a sand-collar located at or near the reduced end of the journal, in combination with a box comprising cooperating parts having matching concavo-convex portions forming chambers for said journal and collar.

3. In a journal-bearing for colter and other shafts, a shaft having a tober or knob like journal and a sand-collar at or near the reduced end of the journal, and a box comprising cooperating top and bottom plates having outpressed concavo-convex walls forming chambers for said journal and collar.

4. In a journal-bearing for colter and other shafts, a shaft having a rounded journal tapering inwardly and a sand-collar located at or near the tapered end of the collar and having a curved outer side rounded on a bevel and a substantially straight inner side, combined with a box formed of top and bottom plates having correspounding concavo-convex walls forming chambers for said journal and collar, the journal-chamber corresponding in form thereto and the collar-chamber being of approximately semicircular form in cross-section to form a dirt-retaining space at the inner end thereof, substantially as described.

5. In a colter, the combination of a shaft having enlarged, inwardly-tapering journals and collars adjacent thereto, boxes having concavo-convex walls forming chambers for the reception of the journals and collars, and a yoke having forked ends straddling the concavo-convex walls.

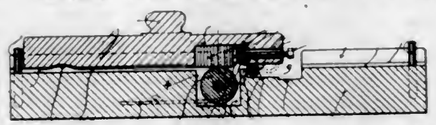
6. In a colter, the combination of a shaft having a rounded journal and sand-collar at each end, boxes therefor having concavo-convex walls forming chambers for the journal and collar, and a yoke having forked ends fitting into the space between the concavo-convex walls of each box and secured, substantially as described.

664,725. GEM-SETTING. DENNIS W. COSTIGAN, Providence, R. I. Filed Apr. 14, 1900. Serial No. 12,934. (No model.)



Claim.—The herein-described gem-setting D, upset and cut, respectively, from one piece of sheet metal, said piece having a central longitudinal curved portion d with outwardly-extending angle-walls e e, each of said walls cut inwardly to form prongs, each of said prongs provided with a shoulder g, so constructed that when the sides of said piece are bent upward a series of prongs are exposed to receive a series of gems, in combination therewith of the band E having each end united to each end of the said piece D by solder, substantially as described.

664,726. PENCIL-PRINTING MACHINE. CHARLES W. CUTTER, Denver, Colo. Filed Mar. 30, 1900. Serial No. 10,823. (No model.)



Claim.—1. In a pencil-printing machine, the combination with a base provided with an ink-roller, a pencil-receiving recess in said base, a spring on each side of said base arranged to resiliently hold pencils in printing position, with a printing-block slidably mounted in said base, means for securing type in said block in operative relation to said ink-roller, stops arranged in said base to define the operative printing stroke of said printing-block, and an automatic pencil-ejector comprising a pivoted lever secured to said base and arranged to be engaged at one end by said printing-block at the end of its printing stroke and to strike said pencils with its opposite end, substantially as described.

2. In a pencil-printing machine, the combination of a suitable base, a recess in said base, a suitable ink-roller rotatably mounted in said recess, a channel in said base, a printing-block arranged to slide in said channel, means for defining the movement of said printing-block, a type-receiving recess in said block, screws arranged to secure said type in said recess in inking relation to said ink-roller, a pencil-receiving recess in said base arranged to allow said printing-block to bear on said pencils and springs arranged on each side of said base having a curved portion arranged to partially surround said pencils and confine them in printing relation to said printing-block, substantially as described.

3. In a pencil-printing machine the combination of the base, the ink-roller mounted therein, the pencil-holding recess, the pencil-holding springs and the stop-pins, with the printing-block, the type-recess, the nuts and screws for holding type in said recess, the ink-distributing pad on the bottom of said printing-block and the pencil-ejector, substantially as described.

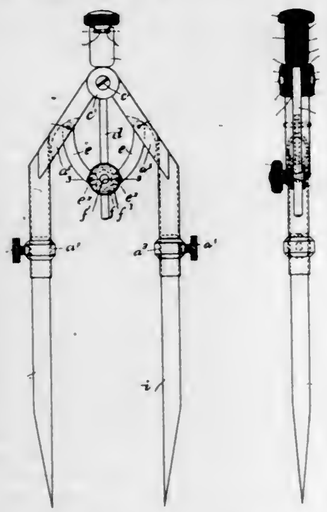
4. In a pencil-printing machine, the combination of a suitable base, the ink-roller mounted in said base, a station at which pencils are placed in said base, springs arranged to hold said pencils in operative printing rela-

tion, a printing-block adapted to reciprocate in said base, an ink-pad in the bottom of said block, a clearance-recess in said ink-pads for said ink-rolls at the end of the printing-block's stroke, means for securing type in said blocks in operative relation to said ink-roller and said pencils, means for defining the printing stroke of said printing-block in said base, a lever pivoted intermediate of its ends to said base, having one end adapted to be struck by the printing-block at the end of its printing stroke and its opposite end arranged to strike the pencils and eject them from the machine, a slot in said lever and a pin in said slot arranged to define the movement of said lever, substantially as described.

5. In a pencil-printing machine the combination of a suitable base, an ink-roller rotatably mounted in said base, a pencil-station in said base, springs arranged to hold pencils at said station, a printing-block reciprocally mounted in said base, a push-handle on said printing-block, pins at each end of said base arranged to define the movement of said printing-block, a type-receiving recess in said printing-block, slots in one wall of said recess, a nut in said recess, holes extending from said slots to the end of said printing-block, screws extending through said holes and nuts and adapted to secure said type in said recess, with the pencil-ejector comprising a lever pivoted to said base intermediate of its ends, a hooked end on one end of said lever arranged to extend into the reciprocal path of said printing-block, and adapted to be struck by said block at the end of its operative printing stroke and having its opposite end arranged and adapted for a gage to define the position of the pencils in the base and to move forcibly against them and eject them from the base when the hooked end is struck by said printing-block, substantially as described.

6. In a pencil-printing machine, the combination of the base, the ink-roller, the printing-block, means for securing type in said printing-blocks, the ink-distributing pad attached to said printing-block, the stop-pins in said base, with the pencil-slot, the pencil-holding springs adapted to hold pencils in said slot, and the automatic pencil-ejector adapted to discharge pencils from said machine, substantially as described.

664,727. **COMBINED DRAFTING AND MEASURING TOOL.** WILLIAM C. DAY, Rumford Falls, Me., assignor to the National Drafting Tool Company, Livermore Falls, Me. Filed Mar. 22, 1900. Serial No. 9,676. (No model.)



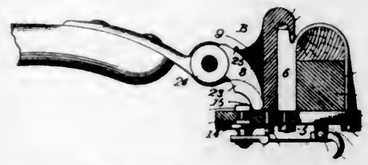
Claim.—1. An instrument of the character described, comprising a pivot-block having a socketed projection, a pair of legs jointed to said block, an adjusting-nut rotatable in the pivot-block, a rod extending through the pivot-block and adapted to slide therein, the upper portion of the rod having a screw-thread connection with the adjusting-nut, a pair of links pivoted to the legs, a sleeve pivoted to the links and having means for detachable connection with the rod, and a spring interposed between the socket and the adjusting-nut.

2. An instrument of the character described, comprising a pivot-block having a socketed projection, a pair of legs jointed to said block, an adjusting-nut rotatable in the pivot-block, a rod extending through the pivot-block and adapted to slide therein, the upper portion of the rod having a screw-thread connection with the adjusting-nut, a pair of links pivoted to the legs, a sleeve pivoted to the links, a transverse threaded stud movable in the sleeve and formed to bear on the rod within the sleeve, and a clamping-nut engaged with the stud and bearing against the sleeve.

3. An instrument of the character specified, comprising a pivot-block, a pair of legs jointed to the block, a rod movable in the pivot-block and projecting below the same, means carried by the pivot-block for adjusting the rod lengthwise, a pair of links pivoted to the legs, a sleeve pivoted to the links, a transverse stud movable in the sleeve and formed to bear on the rod within the sleeve, and a clamping-nut engaged with the stud and bearing against the sleeve.

4. An instrument of the character specified, comprising a pivot-block having trunnions, a pair of legs fitted to swing on said trunnions, means for retaining the legs on the trunnions, a rod movable in the pivot-block and projecting below the same, means carried by the pivot-block for adjusting the rod, a pair of links pivoted to the legs, and a sleeve pivoted to the links and provided with means for detachable connection with the rod.

664,728. **THILL-COUPLING.** ARSILL W. DECKER, Nicholson, Pa., assignor of one-half to William C. Nebelung and Fred. H. Thomas, Scranton, Pa. Filed May 11, 1900. Serial No. 16,307. (No model.)



Claim.—1. In a thill-coupling, the combination with an axle-clip and a cross-piece therefor, of an upward rectangular projection at the forward side of said clip, a coupling-piece to which the thill-iron is connected, said coupling-piece having its upper end formed with a rectangular socket adapted to hook over said projection, a pin at the lower end of said coupling-piece adapted to extend through an opening in the cross-piece, and means arranged beneath the cross-piece for locking said pin within the opening.

2. In a thill-coupling, the combination with an axle-clip and a cross-piece therefor, of an upward projection at the forward side of said clip, a coupling-piece to which the thill-iron is connected, said coupling-piece having its upper end arranged to hook over said piojection, a pin at the lower end of said coupling-piece adapted to extend through an opening in the cross-piece, said pin having a transverse slot therein, a cam or wedge pivoted to the under side of the cross-piece and adapted to enter said slot, and a lever for turning said cam.

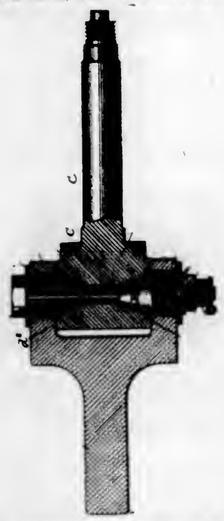
3. In a thill-coupling, the combination with an axle-clip and a cross-piece therefor, of an upward projection at the forward side of said clip, a coupling-piece to which the thill-iron is connected, said coupling-piece having its upper end arranged to hook over said projection, a pin at the lower end of said coupling-piece adapted to extend through an opening in the cross-piece, said pin having a transverse slot therein, a cam or wedge pivoted to the under side of the cross-piece and adapted to enter said slot, and a lever for turning said cam, said lever consisting of a spring-arm, and a lug depending from the cross-piece.

4. In a thill-coupling, the combination with an axle-clip and a cross-piece therefor, of an upward projection at the forward side of said clip, a coupling-piece to which the thill-iron is connected, said coupling-piece having its upper end arranged to hook over said projection, a pin at the lower end of said coupling-piece adapted to extend through an opening in the cross-piece, said pin having a transverse slot therein, a cam or wedge pivoted to the under side of the cross-piece and adapted to enter said slot, and a lever for turning said cam, said lever consisting of a spring-arm, a lug depending from the cross-piece, and an adjusting-screw extending through said lug and bearing against the lever.

5. In a thill-coupling, the combination with a clip having an upward projection on its forward side, and a cross-piece for said clip, of a coupling-piece to which the thill-iron is connected, said coupling-piece having a socketed portion fitting over the projection on the clip, side plates 11, and a pin at its lower end having a transverse slot therein, and a cam adapted to engage said slot.

6. The combination with a clip having an upward projection on its forward side and a cross-piece for said clip, of a coupling-piece to which the thill-iron is attached, said coupling-piece having its upper end arranged to hook over said projection, a pin at the lower end of said coupling-piece extending through the cross-piece, said pin having a transverse slot, and a rotary cam or wedge 14 beneath the cross-piece, said wedge being adapted to engage the slot in the pin and having a cut-out portion 19 and stop 20, substantially as described.

664,729. **STEERING-AXLE FOR AUTOMOBILES.** JACOB B. DECKER, Wilkes-Barré, Pa., assignor to the Sheldon Axle Company, same place. Filed Oct. 29, 1900. Serial No. 34,832. (No model.)



Claim.—1. The combination with a forked axle, of a knuckle or steering-axle comprising an axle supporting the wheel and an operating-arm for the axle the knuckle having an opening with conical enlargements, a swivel-pin passing through the opening, and adjustable cones fitting the enlargements and surrounding the swivel-pin, substantially as described.

2. The combination with a forked axle, of a knuckle having an opening provided with conical enlargements, a swivel-pin fitting said opening, and cones adjustable in the arms of the fork and fitting the enlargements of the opening, substantially as described.

3. The combination with a forked axle, of a knuckle having an opening provided with conical enlargements, openings in the arms of the fork, cones screw-threaded into the openings in the arms and fitting the enlargements in the knuckle, and means for adjusting and securing the cones in position, substantially as described.

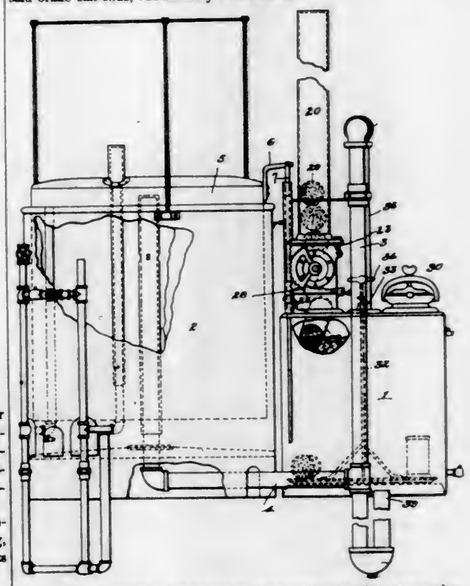
664,730. **LAWN-SPRINKLER.** RUDOLF H. DENGLER, Detroit, Mich. Filed Sept. 11, 1900. Serial No. 29,672. (No model.)



Claim.—A revolving sprinkler comprising, in combination, a body consisting of a casting shaped to represent an animal figure, said casting being provided on opposite sides with segmental flanges forming feet, and having a diagonal water-passage in communication at the rear and base portion with a coupling and opening at its upper end through the head of the figure, a comparatively short sleeve or thimble fitted in said upper end of the passage and projecting outwardly therefrom to form an extended bearing, and a sinuously-curved sprinkler-tube journaled to rotate in said sleeve, said tube being retained by its curvature from downward displacement in the sleeve, and being provided at its inner and lower end with a collar bearing against the under side of the sleeve to prevent upward and outward displacement of the tube, substantially as set forth.

664,731. **ACETYLENE-GAS GENERATOR.** DENNIE M. DORMAN, Binghamton, N. Y. Filed Oct. 28, 1899. Serial No. 735,096. (No model.)

Claim.—1. In an acetylene-gas generator, the combination with a generating-chamber, of a gas-holder having a movable bell, a chute having communication with said generating-chamber and adapted to contain a number of carbid cartridges, a bucket journaled in the bottom of said chute, a sector-gear secured on the journal of said bucket, a brake 24, carried by said gear, a rack-bar carried by the bell and meshing with said gear to revolve said bucket in the movement of the bell, and provided with an opening through which said brake can turn in the revolution of the gear and below its toothed portion with a plane surface over which said brake can slide, substantially as described.



2. In an acetylene-gas generator, the combination with a generating-chamber, of a gas-holder having a movable bell, a chute having communication with said generating-chamber and adapted to contain a number of carbid cartridges, a bucket journaled in the bottom of said chute, a sector-gear secured on the journal of said bucket, a brake carried by said gear having a straight side, a rack-bar carried by the bell and meshing with said gear to revolve said bucket in the movement of the bell and provided with an opening through which the brake can turn in the revolution of the gear, said opening having its bottom rounded to form a guide for the straight side of said brake, and having below its toothed portion a plane surface over which the straight side of said brake can slide, substantially as described.

3. In an acetylene-gas generator, the combination with a generating-chamber, of a casing mounted thereon having a bucket journaled therein, a chute hinged to the upper side of said casing and communicating at its lower end therewith and adapted to contain a number of carbid cartridges, said chute having an upper, permanently-closed end, a gasometer having a movable bell, and means operated in the movement of said gasometer to revolve said bucket, substantially as described.

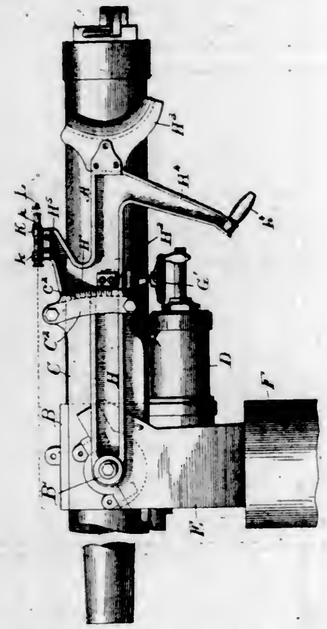
4. In an acetylene-gas generator, in combination with a generating-chamber having a closable opening in its upper side and with means for delivering carbid cartridges into the said chamber, a disk in said chamber having on its under side a scraping device, and a rod secured to said disk and projecting upward through the top of the generating-chamber, said rod having means for turning and lifting the same.

664,732. **GUN-MOUNT.** WILLIAM H. DRIGGS, Washington, D. C. Original application filed Oct. 28, 1898, Serial No. 694,815. Divided and this application filed May 14, 1900. Serial No. 16,634. (No model.)

Claim.—1. In a shoulder-pointed gun, the combination with a trunnioned rocking slide, a pointing-arm pivoted to one of the trunnions of the rocking slide, and a yielding adjustable connection between said pointing-arm and said rocking slide, substantially as described.

2. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a rocking slide and trunnions therefor, of a pointing-arm pivotally connected to one of said trunnions, a telescope-sight carried by said arm and a yielding adjustable connection between said arm and said rocking slide, substantially as described.

3. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a trunnioned rocking slide, of a pointing-arm journaled on an axis coincident with that of the trunnions of the rocking slide, and means adapted to yield to the shock of recoil for adjusting the vertical angle between the longitudinal axes of the pointing-arm and rocking slide, substantially as described.



4. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a trunnioned rocking slide, of a pointing-arm journaled on an axis coincident with that of the trunnions of the rocking slide, a fixed telescope-sight carried by said arm, and means adapted to yield to the shock of recoil for adjusting the vertical angle between the longitudinal axes of the pointing-arm and rocking slide, substantially as described.

5. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a trunnioned rocking slide, of a pointing-arm journaled on an axis coincident with that of the trunnions of the rocking slide, a telescope-sight rigidly mounted on said arm, a hand-wheel and worm-gearing for adjusting the vertical angle between the longitudinal axes of the pointing-arm and rocking slide, and a spring placed beneath said worm to yield to the shock of recoil, substantially as described.

6. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a rocking slide, of a pointing-arm pivotally connected to said rocking slide, a hand-wheel and worm-gearing, for adjusting the relative position of said arm and rocking slide, and a sprieg engaging one member of said worm-gearing to yield to the shock of the recoil, substantially as described.

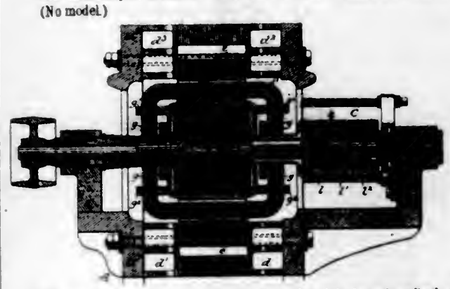
7. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a rocking slide, of a pointing-arm pivotally connected to said rocking slide, a gun-sight carried by said arm, worm-gearing for adjusting the relative position of said arm and rocking slide, means for operating said worm-gearing, and a spring engaging one member of said worm-gearing to yield to the shock of recoil, substantially as described.

8. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a rocking slide, of a pointing-arm pivotally connected to said rocking slide, a telescope-sight rigidly mounted on said arm and a hand-wheel and worm-gearing for adjusting the relative position of said arm and rocking slide, and a spring engaging one member of said worm-gearing to yield to the shock of recoil, substantially as described.

9. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a trunnioned rocking slide, of a pointing-arm journaled on an axis coincident with that of the trunnious of the rocking slide, worm-gearing for adjusting the vertical angle between the longitudinal axes of the pointing-arm and rocking slide, and a spring and ball-bearings for the worm, substantially as described.

10. In a rapid-fire gun to be pointed from the shoulder of the gunner, the combination with a trunnioned rocking slide, of a pointing-arm journaled on an axis coincident with that of the trumions of the rocking slide, a gun-sight carried by said arm, worm-gearing for adjusting the vertical angle between the longitudinal axes of the pointing-arm and rocking slide, and a spring and ball-bearings for the worm, substantially as described.

664,733. METHOD OF CONVERTING THE ENERGY OF ALTERNATING ELECTRIC CURRENTS INTO EFFECTIVE MECHANICAL ENERGY. RUDOLF EICKEMEYER, Yonkers, N. Y.; Rudolf Eickemeyer, Jr., Carl Eickemeyer, and Mary T. Eickemeyer executors of said Rudolf Eickemeyer, deceased. Filed Nov. 21, 1892. Serial No. 452,607. (No model.)



Claim.—1. The method substantially as hereinbefore described, of converting the energy of alternating electric currents into effective mechanical energy, which consists in eliminating counter electromotive force of self-induction from alternating-current machines, by establishing bifilar or inductionless circuits at appropriate portions of armature-circuits whereat self-induction would otherwise have been developed.

2. The method substantially as hereinbefore described, of reducing counter electromotive force of self-induction, in alternating-current machines, by employing air-space resistance in those armature magnetic circuits at which self-induction would otherwise have been developed.

3. The method, substantially as hereinbefore described, of converting the energy of alternating electric currents into effective mechanical energy, which consists in eliminating counter electromotive force of self-induction from alternating-current machines, by establishing bifilar or inductionless circuits at appropriate portions of armature-circuits, supplemented by air-space resistance adjacent to said bifilar circuits, in those armature magnetic circuits at which self-induction would otherwise have been developed.

4. The method of reducing counter electromotive force of self-induction in an alternating-current dynamo-electric machine, having commutated armature-circuits, which consists in reducing the self-induction of the field-windings with respect to that of the armature-windings.

5. The method, substantially as hereinbefore described, of converting the energy of alternating electric currents into effective mechanical energy, which consists in eliminating counter electromotive force of self-induction from alternating-current machines, by establishing bifilar or inductionless circuits at appropriate portions of the armature-circuits, and by reducing the self-induction of the field-windings with respect to that of the armature-windings.

6. The method, subtantially as hereinbefore described, of converting the energy of alternating electric currents into effective mechanical energy, which consists in eliminating counter electromotive force of self-induction from alternating-current machines, by reducing the self-induction of the field-windings with respect to that of the armature-windings, establishing bifilar or inductionless circuits at appropriate portions of the armature-circuits, and opposing a high magnetic resistance to the fluxes in the local magnetic circuits surrounding the armature-conductors.

7. The method of obviating the short-circuiting of the armature-coils of an alternating-current dynamo-electric machine, which consists in generating by induction from said alternating current an opposing electromotive force and balancing the electromotive force of the commutated armature-circuits by said opposing electromotive force.

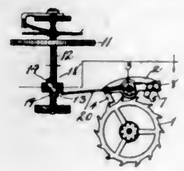
8. The method of obviating the short-circuiting of the armature-coils of an alternating-current dynamo-electric machine, which consists in generating by induction from said alternating current an electromotive force and opposing the electromotive force of the commutated armature-circuits by said induced electromotive force in a circuit containing resistance.

9. The method of reducing the self-induction of an alternating-current dynamo-electric machine, which consists in causing alternating currents to flow in windings in close proximity to the armature-conductors in such a manner as to oppose the effects of the currents flowing in said conductors.

10. The method of reducing the self-induction of an alternating-current dynamo-electric machine, which consists in passing the alternating current through windings external to the armature, but in close proximity thereto, in such a manner as to oppose the creation of a flux in local magnetic circuits surrounding the armature-conductors.

11. The method of reducing the counter electromotive force of self-induction in dynamo-electric machines, which consists in opposing a high magnetic resistance to the fluxes in the local magnetic circuits surrounding the armature-conductors.

664,734. BALANCE-ESCAPEMENT. LAURENCE ERIKSON, Evanston, Ill. Filed May 25, 1899. Serial No. 718,223. (No model.)



Claim.—1. An escapement mechanism comprising a hair-spring, a balance-wheel, a shaft at right angles to the balance-wheel shaft carrying pallets having locking-planes, oscillating cam-surfaces carried by one of said shafts, oscillating transmitting means carried by the other shaft for imparting impulses to and receiving impulses from said cam-surfaces, said cam-surfaces being such as to allow an oscillating motion to the balance-wheel independent of the transmitting means, but to coact with the locking-planes of the pallets to allow said means to remain stationary during such independent motion.

2. In a detached-lever escapement, the combination of an escapement-wheel, an oscillating lever, pallets carried by said lever, a balance-wheel, a shaft therefor disposed at right angles to the axis of oscillation of said lever, a hair-spring adapted to give impulses to the balance-wheel in both directions, two cam-surfaces carried by the balance-wheel shaft and occupying an oblique position with respect to the axis thereof, a lever-arm adapted to partake of the movement of said oscillating lever and having a part arranged in the paths of said cam-surfaces and adapted to give impulses to and receive impulses from them, and guards or stops for preventing the movement of the lever-arm under the influence of the pallets after each movement of said lever-arm under the influence of the pallet and before it receives the next impulse from the balance-wheel, each of the pallets having a locking-plane adapted to engage the teeth of the escapement-wheel and lock the pallets and lever-arm at rest after each impulse from the balance-wheel, substantially as set forth.

3. In a detached-lever escapement, the combination of a balance-wheel, a shaft therefor, a hair-spring adapted to give impulses to the balance-wheel in both directions, a disk carried by the balance-wheel shaft and having a cut-away portion, a band surrounding the disk and having oblique ends disposed opposite said cut-away portion and providing parallel cam-surfaces occupying an oblique position with respect to the axis of the balance-wheel shaft, a pallet, a lever-arm carried thereby and adapted to enter the space between the cam-surfaces, and means for holding the lever-arm out of engagement with the accessories of the balance-wheel shaft, excepting while giving or receiving an impulse, substantially as set forth.

4. In a detached-lever escapement, the combination of a balance-wheel, a shaft therefor, a hair-spring adapted to give impulses to the balance-wheel in both directions, two parallel cam-surfaces carried by the balance-wheel shaft and occupying an oblique position with respect to the axis thereof, said cam-surfaces being so disposed that each of them, at one end, projects beyond the corresponding end of the other, a lever-arm projecting into the paths of the projecting portions of the cam-surfaces, and means for holding the lever-arm out of engagement with the accessories of the balance-wheel shaft, excepting while giving or receiving an impulse, and means for moving the lever-arm, substantially as set forth.

664,735. MATCH-BOX. LIZZIE C. FAY, Pasadena, Cal. Filed Mar. 22, 1900. Serial No. 9,773. (No model.)

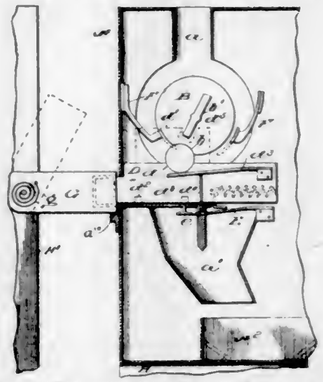
Claim.—1. A match-box comprising a box provided at its bottom with a tongue or flap, and a sliding cover formed with a slot or opening through which said tongue or flap is adapted to project.

2. A match-box comprising a box slitted at its bottom to form a tongue; and a cover formed with an opening through which said tongue is adapted to project.

3. A match-box comprising a box slitted at its bottom to form a tongue, and having one of its end walls separated at its ends from the sides of the box and formed with an opening; and a sliding cover formed with a slot or opening through which the tongue projects.



664,736. COIN-FREED RECEPTACLE. JONATHAN O. FOWLER, Jr., New York, N. Y. Filed Sept. 28, 1896. Serial No. 607,122. (No model.)



Claim.—1. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named, and having a coin-entrance, and also of means to engage both of said slots consisting of a bolt controlled by a coin, and a manually-actuated operating device therefor.

2. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named and having a coin-entrance, the slots of said keeper and case being constructed and arranged to be secured together by means of a coin, and of means to engage said slots by the manipulation of the coin, and also of a key to also actuate the parts.

3. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named and having a coin-entrance, the slots of said keeper and case being constructed and arranged to be secured together by means of a coin, and of coin-manipulated means to engage said slots.

4. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named and having a coin-entrance, the slots of said keeper and case being constructed and arranged to be secured together by means of a coin, and of means to engage said slots by the manipulation of the coin, and also of a normally-locked key, and means governing the release of the key.

5. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named and having a coin-entrance, the slots of said keeper and case being constructed and arranged to be secured together by a coin-lock, and of means whereby the securing means may be moved so that the said slots will register with each other at will.

6. The combination, with means for keeping an article in place and provided with a slot, of a case also provided with a slot registering with the one previously named and having a coin-entrance, the slots of said keeper and case being constructed and arranged to be secured together by the manipulation of a coin, and of means whereby the securing means may be moved so that the said slots will register with each other at will, and also of a key to also actuate the parts.

7. The combination, with a coin-controlled bolt, and a manually-actuated device, constructed and arranged to be operated by a key and a coin, to move the bolt forward and back, of a device to discharge the coin when the bolt is in a predetermined position.

8. The combination, with a coin-controlled bolt, and a manually-actuated device, constructed and arranged to be operated by a detachable key, to move the bolt forward and back, of means to discharge the coin when the bolt is in both forward and rear positions.

9. The combination, with a coin-controlled bolt, of a manually-actuated device, constructed and arranged to be engaged both by a key and a coin, and of securing means, and also of means to discharge the coin.

10. The combination, with a coin-controlled bolt provided with a coin-recess, of a manually-actuated device provided with a keyhole, both constructed and arranged to be operated by a detachable key, and also of securing means to be engaged by the bolt.

11. The combination, with a coin-controlled bolt, of a normally-unlocked manually-actuated device, constructed and arranged to be engaged both by a detachable key and a coin, and to be released by said detachable key, and also of securing means to be engaged by the bolt.

12. The combination, with a coin-controlled bolt, of a manually-actuated device, constructed and arranged to be engaged both by a key and a coin, and of a device to discharge the coin when the bolt is in a predetermined position, and also of securing means to be engaged by the bolt.

13. The combination, with a coin-controlled bolt, of a manually-actuated device, both constructed and arranged to be operated by a detachable key to move the bolt forward and back, and of means to discharge the coin when the bolt is in both rear and forward positions, and also of securing means to be engaged by the bolt.

14. The combination, with a coin-controlled bolt, of a manually-actuated device constructed and arranged to be engaged both by a key and a coin, and of securing means movable in its support, and also of means to discharge the coin.

15. The combination, with a coin-controlled bolt provided with a coin-recess, of a manually-actuated device provided with a keyhole, both constructed and arranged to be operated by a key and a coin, in order to move the said bolt and device, and also of securing means movable in its support to be engaged by the bolt.

16. The combination, with a coin-controlled bolt, of a manually-actuated device constructed and arranged to be engaged both by a key and a coin, and of a device to discharge the coin when the bolt is in a predetermined position, and also of securing means movable in its support to be engaged by the bolt.

17. The combination, with a coin-controlled bolt provided with a coin-recess, and of a manually-actuated device provided with a keyhole, of securing means, and also of means to hold the said securing means in an open position.

18. The combination, with a coin-controlled bolt, of a manually-actuated device to move the said bolt, and of means to discharge a coin when the bolt is in both forward and rearward positions, and also of a coin-chute bifurcated at its mouth.

19. A coin-controlled lock having a keyhole, a coin-slot, a chute, a coin-controlled bolt, a manually-actuated device, constructed and arranged to be operated by a key and a coin, to move the bolt forward and back, and a device to discharge the coin when the bolt is in a predetermined position, in combination with another similar lock also provided with a chute, and with a common money-receptacle communicating with the two chutes.

20. A coin-controlled lock having a keyhole, a coin-slot, a chute, a coin-controlled bolt, a manually-actuated device constructed and arranged to be engaged both by a key and a coin, securing means, and means to discharge the coin, in combination with another similar lock also provided with a chute, and with a common money-receptacle communicating with the two chutes.

21. A coin-controlled lock having a keyhole, a coin-slot, a chute, a coin-controlled bolt, a manually-actuated device, both constructed and arranged to be operated by a detachable key to move the bolt forward and back, means to discharge the coin when the bolt is in both rear and forward positions, and securing means to be engaged by the bolt, in combination with another similar lock also provided with a chute, and with a common money-receptacle communicating with the two chutes.

22. A coin-controlled lock, a coin-slot, a coin-controlled bolt, a manually-actuated device to move the said bolt, means to discharge a coin when the bolt is in both forward and rearward positions, and a coin-chute bifurcated at its mouth, in combination with another similar lock, also provided with a chute, and with a common money-receptacle communicating with the two chutes.

23. The combination, with a securing device, of a locking-bolt directly impelled and actuated by a coin and moved into operative position by a key for locking said securing means, and means governing the release of the key.

24. The combination, with means for keeping an article in place, of a locking-bolt directly impelled and actuated by a coin for engaging and locking said securing means controlled by a key, and means for governing the operation of the locking means and the release of the key.

25. The combination, with means for keeping an article in place, of a locking-bolt directly impelled and actuated by a coin for locking said securing means.

26. The combination, with means for keeping an article in place, of a locking-bolt directly impelled and actuated by a coin for locking and unlocking said securing means.

27. The combination, with means for keeping an article in place, of a locking-bolt directly impelled and actuated by a coin and provided with a coin-recess for locking said securing means.

28. The combination, with means for keeping an article in place, of a locking-bolt directly impelled and actuated by a coin and provided with a coin-recess for locking and unlocking said securing means.

29. In a locking device the combination of securing means and of a locking-bolt directly impelled and actuated by a coin and simultaneously operated by a key for locking the same.

30. In a locking device the combination, with securing means, of a locking-bolt directly impelled and actuated by a coin and controlled by a key for both locking and unlocking said securing means.

31. In a locking device the combination, with securing means, of a locking-bolt directly impelled and actuated by a coin and controlled by a key for both locking and unlocking said securing means, and means for governing the release of the key.

32. The combination, with a securing device, of a locking-bolt directly impelled and actuated by a coin for locking said securing device, and manually-actuated means, containing a normally-locked key, for moving said locking device into operative position, and of means for releasing the key simultaneously with the locking of the securing device.

33. The combination, with a locked securing device, of a locking-bolt directly impelled and actuated by a coin moved into position by a detachable key, and of means whereby, upon the securing means being unlocked, the key becomes locked in its position.

34. In a coin-controlled machine, a movable part mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically.

35. In a coin-controlled machine, a movable part provided with a notch or recess and mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, independently-mounted means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically.

36. In a coin-controlled machine, a movable part mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically, and also manually-actuated means to operate the coin-controlled mechanism.

37. In a coin-controlled machine, a movable part mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically, and also means to cause the movement of both of said parts to be made in the same plane.

38. In a coin-controlled machine, a movable part mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically, and also means to automatically engage the locking mechanism and the said movable part when the same register with each other.

39. In a coin-controlled machine, a movable part provided with a notch or recess and mounted on a shaft or spindle, means to normally tend to impel the same forward on its axis, independently-mounted means to engage and lock said movable part in position, and means constructed and arranged to be made operative by a coin whereby the locking means is moved and the movable part allowed to advance automatically, the movement of both of said parts being made in the same plane, and manually-actuated means to operate the coin-controlled mechanism, and also means to automatically engage the locking mechanism and the said movable part when the same register with each other.

40. The combination, with a support, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over an open space and to occupy alternately a practically horizontal and a relatively higher position, of reciprocating locking means made operative by the insertion of a coin constructed and arranged to be moved with a positive movement by the coin for maintaining said hinged or pivoted part, forming an obstruction, in one position, and also of means to move the said hinged or pivoted part to its other position, upon the same being released.

41. The combination, with a support, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over an open space and to occupy alternately a practically horizontal and a relatively higher position, of reciprocating locking means made operative by the insertion of a coin constructed and arranged to be moved with a positive movement by the coin for maintaining said hinged or pivoted part, forming an obstruction, in one position, and of an undetachable and movable manually-actuated device to control the same, and also of means to move the said hinged or pivoted part to its other position, upon the same being released.

42. The combination, with a support, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to engage and securely hold an article to be rented or vended, and to bridge over an open space and to occupy alternately a practically horizontal and a relatively higher position, and of reciprocating locking means constructed and arranged to be moved with a positive movement by a coin for maintaining said hinged or pivoted part, forming an obstruction, in one position, and for releasing the same upon the coin-lock being manipulated.

43. The combination, with a support, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to engage and securely hold an article to be rented or vended, and to bridge over an open space and to occupy alternately a practically horizontal and a relatively higher position, and of reciprocating locking means constructed and arranged to be moved with a positive movement by a coin for maintaining said hinged or pivoted part, forming an obstruction, in one position, and for releasing the same upon the coin-lock being manipulated, and also of an undetachable and movable manually-actuated device to control the same.

44. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means for maintaining said hinged or pivoted part, forming an obstruction, in one position, and constructed and arranged to project from between a support and the hinged part, and to be controlled by a coin and also of a spring to control the movement of said hinged or pivoted part.

45. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means for maintaining said hinged or pivoted part, forming an obstruction, in one position, and constructed and arranged to project from between a support and the hinged part, and to be controlled by a coin and also of a spring to control the movement of said hinged or pivoted part, and of an undetachable movable manually-actuated device to control the locking means.

46. The combination, with a support, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of reciprocating locking means for maintaining said hinged or pivoted part in one position controlled by a coin, and of a spring constructed and arranged to normally tend to hold said reciprocating locking means in an outward position projecting from said support, and also of a second spring to control the said hinged part.

47. The combination, with a supporting wall or frame provided with hinged or pivoted supporting means, of an oppositely-disposed wall or frame provided with a ledge or supporting edge, and of a coin-controlled part hinged or pivoted to the first-named support and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of reciprocating locking means for maintaining said hinged or pivoted part in one position, made operative by a coin, and of a spring to normally hold said reciprocating means in one position, and also of a second spring to control the said hinged part.

48. The combination, with a supporting wall or frame provided with hinged or pivoted supporting means, of an oppositely-disposed wall or frame provided with a ledge or supporting edge, and of a coin-controlled part hinged or pivoted to the first-named support and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of reciprocating locking means for maintaining said hinged or pivoted part in one position, made operative by a coin, and of a spring to normally hold said reciprocating means in one position, and also of a second spring to control the said hinged part, and of a movable manually-actuated device to control the locking means.

49. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame and of reciprocating locking means for maintaining said hinged or pivoted part in one position, made operative by a coin, and of a spring constructed and arranged to normally tend to hold said reciprocating locking means in an outward position projecting from between a support, and the hinged part, and also of a second spring to control the movement of said hinged or pivoted part.

50. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means for maintaining said hinged or pivoted part in one position, made operative by a coin, and of a spring constructed and arranged to normally tend to hold said reciprocating locking means in an outward position projecting from between a support, and the hinged part, and also of a second spring to control the movement of said hinged or pivoted part, and of an undetachable and movable manually-actuated device to control the locking means.

51. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame provided with a ledge or supporting edge, and of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released.

52. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame provided with a ledge or supporting edge, of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released, and of an undetachable movable manually-actuated device to control the locking means.

53. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released.

54. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released, and of an undetachable movable manually-actuated device to control the locking means.

55. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to engage and securely hold an article to be rented or vended and to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released.

56. The combination, with a supporting wall or frame, of a coin-controlled part hinged or pivoted thereto and constructed and arranged to engage and securely hold an article to be rented or vended and to bridge over or cover an open space and to occupy alternately a practically horizontal and a relatively higher position, of another supporting wall or frame, and of reciprocating locking means constructed and arranged to maintain said hinged or pivoted part in one position, and to release the same upon the coin-lock being manipulated, the said hinged or pivoted part being constructed and arranged to assume its normal position, upon being released, and of an undetachable movable manually-actuated device to control the locking means.

664,737. STEAM-ENGINE. WALTER K. FREEMAN, Saratoga Springs, N. Y. Filed Oct. 3, 1900. Serial No. 31,896. (No model.)

Claim.—1. In a steam-engine of the type specified the combination with a main frame formed in an integral casting with steam entrance and exhaust ports therein near the upper end and having its lower end bifurcated and curved rearwardly with the extremities of the bifurcations brought into alinement with the main frame, of twin cylinders secured to said main frame on opposite sides near the upper end, a crank-shaft journaled in the ends of the bifurcated portion and driving mechanism intermediate the cylinders and crank-shaft; substantially as described.



2. In an engine of the type specified the combination of the following instrumentalities, to wit, a main frame formed in an integral casting with its upper end having entrance and exhaust ports therein and its opposite sides having seats adapted for the attachment of cylinders to its opposite faces, its lower end bifurcated and having crank-shaft bearings formed in the ends of the arms and its intermediate portion provided with transversely-extending arms supporting slideways parallel with the central body of the frame, cylinders rigidly secured to said main frame on opposite sides of its upper end, a crank-shaft journaled in the bearings in the bifurcated portion near the bottom of said main frame, driving mechanism intermediate the cylinders and crank-shaft and slides for holding said driving mechanism in position and working upon the slideways carried by the transversely-extending arms of the main frame; substantially as described.

3. In a steam-engine, the combination with the cylinder, crank-shaft and slideway, of an integral slide and journal-pin, said pin projecting at right angles to the plane of the slide, a connecting-rod and a piston-rod both having bearings fitting on said pin, whereby the pin forms the sole connection between the two rods; substantially as described.

4. A main frame for engines of the type specified consisting of an integral casting having steam and exhaust passages in its upper end and with the opposite faces of its upper end formed for the attachment of twin cylinders, the portion of said main frame below the point of attachment of the cylinders being provided with transversely-extending and rearwardly-curved arms supporting slideways at their outer ends and below said transversely-extending arms formed into diverging downwardly-extending and rearwardly-curved arms provided at their extremities with bearings for the crank-shaft; substantially as described.

664,738. ANCHOR-ROPE ATTACHMENT FOR BOATS. CHARLES C. FREER, Hastings, Mich. Filed May 17, 1900. Serial No. 17,033. (No model.)

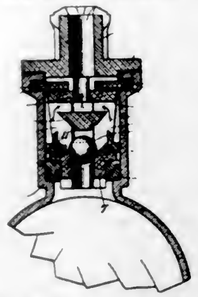


Claim.—1. The combination with a boat, of a bracket secured to one end thereof and having a sheave or pulley therein, a support on the inside of the gunwale having a sheave or pulley thereon, a lever with a guide-eye on the outer extremity and an inner cam-head eccentrically pivoted to the support in operable relation to the sheave or pulley, and an anchor rope or cable engaging the sheave on the end of the boat, the eye on the lever and passed between the cam-head of the latter and sheave or pulley on the support.

2. The combination with a boat, of a clamping device secured thereto and comprising a lever with a cam-head at its inner end and a guide-eye on its outer extremity, and an anchor rope or cable freely movable through the said guide-eye and over the cam-head of the lever.

3. In a device of the character set forth, the combination of a lever having a cam-head, a pulley or friction-roller contiguous to the said cam-head of the lever, and a rope or cable movable between the cam-head and pulley or roller and longitudinally over the lever to avoid lateral strain on the latter, the tension on the rope or cable being brought to bear on the free end of the lever to cause the cam-head to clamp the rope or cable against the pulley or friction-roller.

664,739. BOTTLE. WILLIAM A. FRIES, Sr., New York, N. Y. Filed Jan. 16, 1900. Serial No. 1,651. (No model.)



Claim.—1. A bottle, having an interior channel at its upper portion, the said channel having offset portions, a valve-casing adapted to be seated in said upper portion, recesses formed in said casing and adapted to register with said channel, the said recesses having opposite divergent walls, and substantially T-shaped keys arranged in said recesses and designed to be turned to project into the offsets of the channel to lock the valve-casing in place, substantially as specified.

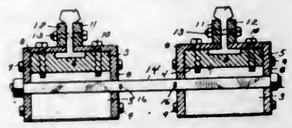
2. A bottle, having an interior channel at the upper portion of its neck, the said channel having opposite offsets, a valve-casing adapted to be seated in the neck and having recesses, the opposite walls of said recesses being divergent, and locking-keys movable in said recesses and in the offsets of the channel, said locking-keys each having a shank portion and oppositely-extended projections, one projection to engage when turned in the divergent portions of the recesses and the other projection with the shank to engage with the valve-casing, substantially as specified.

3. In a bottle, a valve-casing arranged in the neck thereof, a flange on said casing for engaging upon the upper end of the bottle-neck, the said flange having an irregular outline, and a mouth portion extended from the flange, and also having an irregular outline, substantially as specified.

4. In a bottle, a valve-casing secured in the neck portion thereof, the outlet or mouth of said valve-casing being made angular in cross-section and a mouthpiece extended from the casing and having an irregular outline, substantially as specified.

5. A bottle having a neck portion attached to the body, an extension-neck portion of irregular outline adapted to be secured to the first-named neck portion, a valve-casing attached to the extension-neck and extended into the bottle-neck, and a valve in said casing, substantially as specified.

664,740. BED FOR RAILWAY-TRACKS. JOHN W. GAY, Sodaville, Oreg. Filed May 22, 1900. Serial No. 17,599. (No model.)



Claim.—1. In a railway-track, a stringer, having a transverse socket or recess formed in the upper face thereof, a rail-chair seated in the socket or recess, a rail supported upon the chair, and opposite angle-plates embracing opposite sides of the stringer, overlapping the adjacent end portions of the rail-chair and the flanges of the rail, and also secured to the stringer.

2. In a railway-track, a stringer, having a transverse socket or recess formed entirely across the upper face thereof, and also vertical recesses intersecting the opposite ends of the transverse sockets, a rail-chair seated in the transverse socket, and having a transverse groove or seat, a rail having its flange received within the seat of the chair, opposite angle-plates fitted in the respective vertical recesses and overlapping the adjacent end portions of the rail-chair and the flanges of the rail, and fastenings, some of which pass transversely through the angle-plates and the stringer, and others pass downwardly through the upper portions of the plate, the rail-chair and into the stringer.

3. In a railway-track, the combination of opposite stringers, having corresponding transverse sockets in the upper faces thereof, and vertical recesses in the outer and inner faces and intersecting the opposite ends of the transverse sockets, rail-chairs seated in the respective sockets, and provided with transverse grooves, rails having their flanges seated in the respective grooves of the chairs, opposite angle-plates fitted in the respective vertical recesses and overlapping the respective end portions of the rail-chairs and the flanges of the rails, arched fish-plates fitting the webs of the rails and embracing the upper portions of the angle-plates, fastenings for the fish-plates, and transverse tie-bars extending in opposite directions through the stringers and corresponding angle-plates, nuts provided upon the outer projecting ends of the bars, and intermediate spaced gage-shoulders carried by the bars and for engagement with the inner faces of the respective stringers.

664,741. EARTH-AUGER. WILLIAM R. GIBSON, Morrilton, Ark. Filed Mar. 6, 1900. Serial No. 7,504. (No model.)



Claim.—1. In an earth-auger, the combination with a hollow boring-head, a boring-bar held to rotate axially thereon, a segmental gate carried by the boring-bar, and adapted by a rotatable movement of said bar to open or close an opening in the bottom wall of the boring-head, and an excavator-blade in said opening, of a counterboring cutter-blade having one side edge hinged to a side edge of a lateral opening in the boring-head so as to swing therein, a guard-flange projecting laterally from a top edge and also from a bottom edge of the cutter-blade inwardly so as to direct earth cut by the blade into the boring-head, and means operating independently of the boring-bar to actuate the swinging cutter-blade.

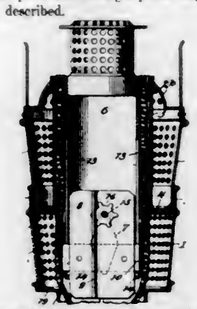
2. In an earth-auger of the character described, the combination with a cylindrical boring-head partly open in its bottom, an axially-disposed boring-bar rotatable in and with the boring-head, working a gate to close the opening in the bottom of the boring-head, and an excavator-blade in said opening, of a counterboring cutter-blade hinged by one side edge to a corresponding edge of a lateral opening in the boring-head, a vertically-reciprocating lifting-rod in the boring-head at one side of the boring-bar, a sleeve slidable on the lower portion of the boring-bar, an arm projected from the inner side of the cutter-blade, and links loosely connecting the sleeve and arm with the lower end of the lifting-rod.

664,742. LAMP-BURNER. JOSEPH GREGORY, Jersey City, N. J. Filed Mar. 19, 1900. Serial No. 9,284. (No model.)

Claim.—1. In a center-draft lamp, the combination with an inner wick-tube having air-ports, of a wick-raiser having a vertically-movable partition extending across the inner wick-tube between the air-ports, substantially as described.

2. In a center-draft lamp, the combination of an inner wick-tube, having laterally-extending air-ports, an outer wick-tube, a wick-raiser on the inner wick-tube having a vertically-movable partition extending across the inner wick-tube between the air-ports, and a shaft extending through one of the air-ports and having a pinion engaging a rack-bar with which said vertically-movable partition is provided, substantially as described.

3. In a center-draft lamp, the combination of an outer wick-tube, an inner wick-tube having laterally-extending air-ports below the lower end of the outer wick-tube and provided further with vertical slots on opposite sides, a wick-raiser on said inner wick-tube and having a bridge-piece adapted to work vertically in said slots, a partition-plate attached to said bridge-piece and having a vertical rack-bar, and a shaft extending through one of the air-ports and having a pinion engaging the said rack-bar, substantially as described.



4. In a center-draft-lamp burner, the combination of a lower air-distributer adapted to be attached to the collar of an oil-receptacle, an inner wick-tube supported at its base by said lower air-distributer, said inner wick-tube having air-ports, within said lower air-distributer, an upper air-distributer, on said lower air-distributer and non-communicating therewith, and an outer wick-tube supported by said upper air-distributer, substantially as described.

5. In a center-draft lamp, the combination with an inner wick-tube, having lateral air-ports, of a vertically-movable partition across the path of the air-ports, substantially as described.

6. In a center-draft lamp, the combination with the center tube having lateral air-ports, of a vertically-movable partition located within the center tube across the path of the air-ports, and a rack-bar fastened to the partition and movable therewith, substantially as described.

7. In a center-draft lamp, the combination with the center tube having lateral air-ports, of a wick-carrier sliding on the center tube and having a bridge extending through the center tube and fastened to the wick-carrier, the bridge adapted to move vertically in slots cut in the center tube extending from the bottom upward, a partition within the tube, across the path of the air-ports, a rack-bar fastened to the partition, and the partition fastened to the bridge, a pinion meshed into the rack-bar and having a shaft extending out through the air-port, a button on the end of the shaft whereby a rotary motion is given to the shaft and pinion imparting a vertical motion to the rack-bar, partition, bridge and wick-carrier causing them to travel together, substantially as described.

8. In a center-draft lamp, the combination with an oil-receptacle having a collar to receive a burner, of an inner wick-tube, having one or more air-ports, extending down into the collar, an air-distributer around the air-ports and detachably fastened to the collar, substantially as described.

9. In a center-draft lamp, the combination with an oil-receptacle having a collar to receive a burner, of air-ports to supply air to the inner wick-tube, the air-ports extending below the plane of the collar, a space being formed between the air-ports and collar and communicating with the outer air, substantially as described.

10. In the kind of lamp described, the combination with the center tube, of a wick-carrier formed in two sections, sliding on opposite sides of said tube, and united by a bridge extending through the center tube, said bridge adapted to move vertically in slots cut in opposite sides of the center tube.

11. In a central-draft lamp, the combination with an inner wick-tube supplied with air drawn through an opening in said tube above the oil, of an outer wick-tube terminating at its lower end at a point higher than the said opening in the inner wick-tube whereby the wick-space formed between said wick-tubes terminates at its lower end above said opening in the inner wick-tube, and means to admit air to the wick below said outer wick-tube.

12. In a central-draft lamp, an inner wick-tube, an outer wick-tube disposed around the upper portion thereof, a casing forming an air-space surrounding the lower portion of the inner wick-tube, and extending below the upper plane of the oil-fount, said inner wick-tube having air-ports opening into said air-space at a point below the upper plane of the oil-fount, substantially as described.

13. In a lamp of the class described, the combination with an inner wick-tube, of a detachable outer wick-tube, a wick-space between, said wick-space opening into and passing through an air-chamber before entering the oil-fount.

14. In a central-draft lamp, the combination with an inner wick-tube, supplied with air drawn through an opening in said tube above the oil, of a detachable outer wick-tube disposed around the upper portion of the inner wick-tube and terminating above said opening, said inner wick-tube extending a distance down into the oil-chamber, and means to admit air to the wick below said outer wick-tube, substantially as described.

15. In a lamp of the class described, the combination with an inner wick-tube having lateral air-ports, of a detachable outer wick-tube disposed around the upper portion of the inner wick-tube and terminating above said air-ports, the lower portion of said air-ports extending a distance down into the oil-chamber, and means to admit air to the wick below said outer wick-tube, substantially as described.

16. In a lamp of the class described, the combination of an oil-receptacle having a collar and a series of air-openings adjacent to the collar, a burner seated in said collar, and means, coacting with the burner, to prevent oil from shaking out through the said openings, substantially as described.

17. In a central-draft lamp, the combination with an inner wick-tube supplied with air drawn through an opening in said tube above the oil, of a detachable outer wick-tube, a wick-space between, a perforated air-distributer concentric with the lower portion of inner wick-tube forming an air-chamber, said wick-space opening into said air-chamber.

18. In a lamp of the class described, the combination with an inner and outer wick-tube, of a perforated casing concentric with both said tubes and supporting the same, the perforations in said outer casing extending below the outer wick-tube and said casing detachably connecting the burner to the oil-fount, substantially as described.

19. In a central-draft lamp, the combination with an inner wick-tube having air-ports, of a wick-raiser having a vertically-movable partition extending across the inner wick-tube between the air-ports.

20. The combination with an oil-receptacle having a series of air-openings adjacent to the collar, of a burner having an inner wick-tube provided with air-openings at its base to admit air to the interior thereof, an outer casing, and a detachable outer wick-tube having a base-flange extending to the outer casing, and above the air-inlet openings in said inner wick-tube, substantially as described.

21. In a central-draft-lamp burner, the combination of a fixed, outer, lower casing, adapted for the admission of air to the interior thereof, an inner wick-tube, having air-openings at its base, to admit air to the interior thereof, a detachable upper casing, adapted for the admission of air to the interior thereof, said upper and lower casings not communicating with each other, and an outer wick-tube extending downward to the base of the upper casing, a wick-space being formed between said inner and outer wick-tubes and said wick-space communicating at its lower side with the interior of the lower casing, substantially as described.

22. In a central-draft-lamp burner, the combination of a lower, outer casing, an inner wick-tube having air-inlet openings at its base, to admit air to the interior thereof, an upper casing detachable from the lower casing, and a detachable outer wick-tube having a base-flange forming a division between said upper and lower casings, a wick-space being formed between the inner and outer wick-tubes, said space, at its lower side, communicating with the interior of the lower casing, substantially as described.

23. In a lamp of the class described, the combination with an oil-receptacle having a downturned collar to receive the burner, a series of air-openings to admit air to the space surrounding said collar, and an annulus, below the said collar, of a burner adapted to fit within the said collar and said annulus, said burner having air-inlet openings communicating with the air-space surrounding said collar, substantially as described.

24. In a central-draft lamp, the combination with an inner wick-tube, of a wick-carrier having sections engaging and sliding on opposite sides of said wick-tube, a bridge uniting said sections, and upwardly-extending arms having teeth held out into engagement with the wick by riding on the inner wick-tube, substantially as described.

25. In a central-draft lamp, the combination with an inner wick-tube, of a wick-carrier having wick-engaging teeth held out into engagement with the wick by contact with the wick-tube, said wick-carrier having a bridge extending through the inner wick-tube, substantially as described.

26. In a central-draft lamp, an inner wick-tube, a casing forming an air-space surrounding the same, said wick-tube having air-ports opening into said air-space at a point below the upper plane of the oil-fount, substantially as described.

27. In a central-draft lamp, an inner wick-tube, an outer wick-tube, a casing forming an air-space surrounding the portion of inner wick-tube below the outer wick-tube and in which the lower portion of the wick is disposed and extending below the upper plane of the oil-fount, said inner wick-tube having air-ports opening into said air-space at a point below the upper plane of the oil-fount, substantially as described.

28. In a central-draft lamp, the combination of a casing, an inner wick-tube supported thereby, an outer wick-tube detachably secured to said casing, said outer wick-tube being disposed around the upper portion of the inner wick-tube and said casing forming an air-space surrounding the lower portion of the inner wick-tube, below the outer wick-tube, substantially as described.

29. A central-draft-lamp burner having a perforated outer casing forming the connection between said burner and the oil-fount, an inner and outer wick-tube disposed in said casing, the latter admitting air between said outer wick-tube and the oil-fount, to prevent the heating of the latter, substantially as described.

30. In a central-draft lamp, the combination with an inner wick-tube having laterally-extending air-ports at the lower end, a casing forming an air-space around the lower portion of said inner wick-tube, into which air-space said air-ports open, and an oil-fount having openings around the collar thereof to admit air to the lower end of said inner wick-tube, substantially as described.

31. In a central-draft burner, the combination of an inner wick-tube having lateral air-ports extending down into an oil-chamber, of a detachable outer wick-tube, a wick-space being formed between said wick-tubes, and an air-distributer detachably connecting said wick-tubes with the oil-chamber, substantially as described.

32. In a central-draft burner, the combination with an oil-chamber having a downturned collar, of an inner wick-tube supplied with air drawn through openings above the oil, a detachable outer wick-tube, a wick-space being formed between said wick-tubes, and a perforated air-distributer detachably connecting said wick-tubes with the oil-chamber, substantially as described.

33. In a lamp, the combination of an oil-receptacle having an air-space in its upper side communicating with the outer air, and a burner having inner and outer wick-tubes and having a casing surrounding said wick-tubes and forming an air-space, said inner wick-tubes having lateral air-ports opening outwardly into said air-spaces of said casing and said oil-receptacle, substantially as described.

34. In a central-draft burner, the combination with an inner wick-tube having lateral air-ports opening outwardly into an air-space and said air-space opening downwardly into the oil-chamber, of a perforated outer casing forming said air-space, and detachably connecting the burner with the oil-chamber, substantially as described.

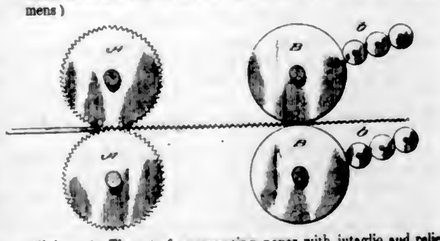
35. In a central-draft burner, the combination with an inner wick-tube supplied with air drawn through a plurality of openings surrounding the collar of the oil-chamber, of a detachable outer wick-tube, a wick-space being formed between said inner and outer wick-tubes, and a detachable air-distributer surrounding the outer wick-tube and supplying air to the exterior of the flame, substantially as described.

36. In a central-draft burner, the combination of an outer perforated casing extending above and below the upper plane of the oil-chamber and detachably connecting said burner with the oil-chamber and forming an air-space within said outer casing, of an inner wick-tube having lateral air-ports opening outwardly into said air-space above and below the upper plane of the oil-chamber, substantially as described.

37. In a central-draft lamp, the combination with an oil-chamber having a downturned collar and openings to admit air to the space surrounding said downturned collar, of a burner having a casing, the lower portion of which forms an air-chamber communicating with the outer air, an inner wick-tube having air-ports communicating with said air-chamber and leading to the center of said inner wick-tube, and a detachable outer wick-tube having a base-flange extending to and supported in said casing, at a point between the upper and lower sides thereof, an air-space being formed in said casing, around said outer wick-tube, above said flange, substantially as described.

38. In a central-draft lamp, the combination of an inner wick-tube, a detachable outer wick-tube and an oil-fount having openings above the oil-level, to admit air to the inner wick-tube, substantially as described.

664,748. PAPER AND ART OF PRODUCING SAME. PHILIPP HAKE, Hoboken, N. J. Filed Feb. 2, 1900. Serial No. 3,718. (Specimens.)

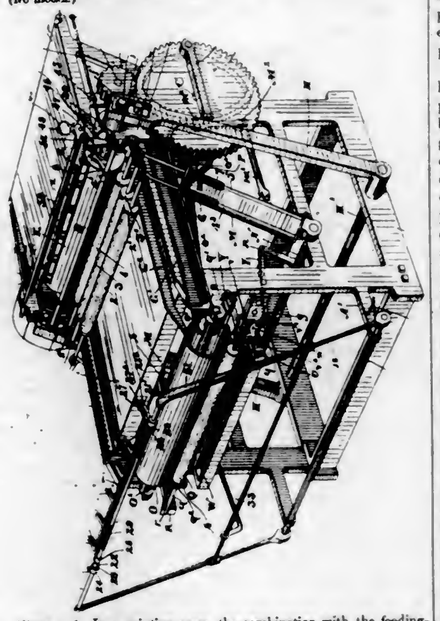


Claim.—1. The art of ornamenting paper with intaglio and relief designs of contrasting color, by forming upon each side thereof a raised design corresponding to the intaglio of the other side, and simultaneously evening and coloring the raised portions without destroying the relief, and producing a surface thereon.

2. As a new article of manufacture, writing-paper having upon its surface designs of intaglio and relief of contrasting colors, and with the relief portions evened to provide a suitable surface.

3. As a new article of manufacture, writing-paper provided on both sides with surface ornamentation comprising relief and intaglio designs of contrasting colors, with the relief of one side corresponding in position to the intaglio of the other side, and the raised portions of both sides being evened to produce writing or printing surfaces.

664,744. CYLINDER PRINTING-PRESS. FREDERICK J. HARRIDGE, Gravenhurst, Canada. Filed Mar. 9, 1899. Serial No. 708,415. (No model.)



Claim.—1. In a printing-press, the combination with the feeding-table, of the gaging-fingers located opposite the inner end of the table, the rods having bent ends pivotally supported, the springs normally pressing on the bent ends or arms, so as to hold up the gaging-fingers and means for intermittently overcoming the pressure of the springs, so as to press the fingers to the edge of the table as and for the purpose specified.

2. In a printing-press, the combination with the feeding-table, of the gaging-fingers located opposite the inner end of the table, the rods having bent ends pivotally supported, the springs normally pressing on the bent ends or arms, so as to hold up the gaging-fingers, the rod extending upwardly underneath the front end of the bent arms, suitable guides for supporting the same and the drop-cam on the main shaft with which the bent end of the rod is arranged to engage as and for the purpose specified.

3. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, means for raising the gripping-bar, so as to raise the fingers in order that they may be lowered to grasp the overhanging sheet at the edge of the feeding-table as and for the purpose specified.

4. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, means for raising the gripping-bar, so as to raise the fingers and means for lowering the gripping-fingers so that they may grasp the edge of the overhanging sheet on the feeding-table as and for the purpose specified.

5. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, pins attached to or forming part of the ends of the gripping-bar and extending through slots on the ends of the cylinder and means for raising and lowering the pins in the slots as and for the purpose specified.

6. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, pins attached to or forming part of the ends of the gripping-bar and extending through slots on the ends of the cylinder and the arms pivoted on a rod extending through the cylinder and provided with slotted ends through which the pins of the gripping-bar extend and means for controlling the tilting of such arms as and for the purpose specified.

7. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, pins attached to or forming part of the ends of the gripping-bar and extending through slots on the ends of the cylinder and the arms pivoted on a rod extending through the cylinder and provided with slotted ends through which the pins of the gripping-bar extend, a cross-rod supported on the bearing-standards of the cylinder, an arm carried by the same and having an inclined inner end, which extends into proximity with the pin at one end of the gripping-bar next the short arm on the end of the cylinder and designed to coact therewith as and for the purpose specified.

8. In a printing-press, the combination with the feeding-table, of the hollow cylinder journaled in suitable bearing-standards, means for imparting a rotary and reciprocating movement to the cylinder, a gripping-bar extending from end to end of the hollow cylinder and provided with gripping-fingers designed to extend through a slot in the cylinder and overhang one edge thereof, pins attached to or forming part of the ends of the gripping-bar and extending through slots on the ends of the cylinder and the arms pivoted on a rod extending through the cylinder and provided with slotted ends through which the pins of the gripping-bar extend, a cross-rod supported on the bearing-standards of the cylinder, an arm carried by the same and having an inclined inner end, which extends into proximity with the pin at one end of the gripping-bar next the short arm on the end of the cylinder and designed to coact therewith and an arm supported on the cross-arm and located at the opposite end of the cylinder and provided with an inclined end, a pin on the extended slotted bent arm at the opposite side of the cylinder designed to coact with the inclined end of the arm on the cross-rod when the cylinder is approaching the limit of its stroke toward the delivery-table as and for the purpose specified.

9. The combination with the cylinder and track for the inking-rollers and the grippers held in the cylinder, of the bar provided with upwardly-extending fingers located in the cylinder underneath the grippers and having depending ends extending through holes in the cylinder and designed to come in contact with the track when the grippers are being raised as the cylinder approaches the limit of its stroke toward the delivery-table as and for the purpose specified.

10. The combination with the cylinder and the spindle thereof and the slidable standards supported on suitable guideways and means for imparting a reciprocating movement to the standards, of the eccentric sleeves extending through the standards and forming a bearing for the spindles, an arm attached to or forming part of each sleeve and extending outwardly therefrom, a lateral projection to such arm designed normally to rest upon the top of the bearing-standard and having a bearing at one end, a rod extending through such bearing and provided with a stop at the opposite end and a guiding-lug support for the rod on the frame as and for the purpose specified.

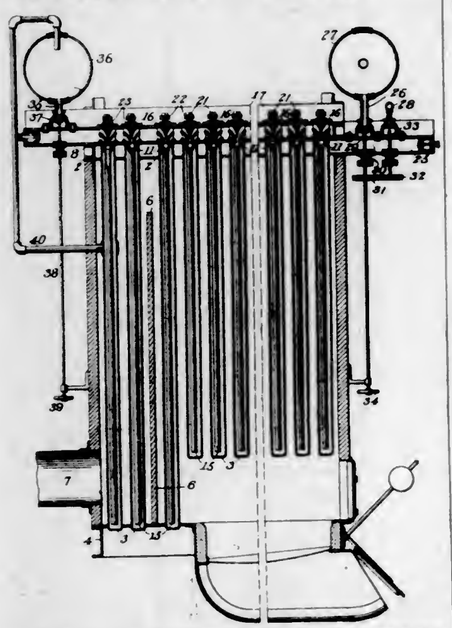
11. The combination with the cylinder and the spindle thereof and the slidable standards supported on suitable guideways and means for imparting a reciprocating movement to the standards, of the eccentric sleeves extending through the standards and forming a bearing for the spindles, a supplemental arm extending outwardly from the sleeve and a rocking detent pivoted in the frame, a pin for controlling the movement of the rocking detent in one direction only and means for locking the detent at the upper end as and for the purpose specified.

12. The combination with the cylinder and the spindle thereof and the slidable standards supported on suitable guideways and means for imparting a reciprocating movement to the standards, of the eccentric sleeves extending through the standards and forming a bearing for the spindles,

a supplemental arm extending outwardly from the sleeve and a rocking detent provided with a notch at the upper end, a pin-stop for the detent to allow of its movement in one direction only and a pivoted catch on the frame provided with a suitable end to engage the notch at the top of the rocking detent as and for the purpose specified.

13. In a printing-press the combination with the cylinder, of the standards therefor, supporting-rollers for the cylinder, tracks upon which the rollers run, cam projections on the rollers, delivery-arms, and gripper-fingers mounted therein, the cams on the rollers being designed to separate the gripping-fingers to receive the sheet, substantially as described.

664,745. WATER-TUBE BOILER. REUBEN M. HEAD, Allegheny, Pa. Filed Apr. 3, 1899. Serial No. 711,525. (No model.)



Claim.—1. In a tubular boiler, a header formed of a single plate, plates, or bars, dividing the header into an upper and a lower compartment, said plates, or bars having filleted shoulders or legs to facilitate the insertion of pressed flanges, closing the ends of the compartments and insuring the steam-tightness of the corner-joint therewith, a drop-tube extending into the lower compartment and having flanged openings to engage with the header, substantially as described.

2. A drop-tube boiler having an upper water-space above the steam-space, and connected with circulating-tubes within the drop-tubes, and inspirators in the upper water-space directed into the circulating-tubes; substantially as described.

3. A drop-tube boiler having inner circulating-tubes provided with inspirators connected to an auxiliary steam-supply; substantially as described.

4. A drop-tube boiler having a header provided with horizontal compartments, the drop-tubes extending into the lower compartment and provided with side holes opening into the lower compartment and flanges or lugs to engage the header, a series of circulating-tubes opening into the upper compartment which is connected with a water-supply, substantially as described.

5. A drop-tube boiler having a valved connection to a steam-drum and a relief-valve arranged to be opened when the valve to the steam-drum is closed; substantially as described.

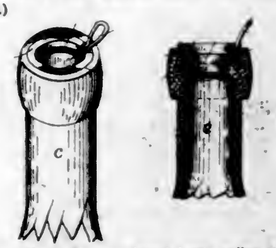
6. A boiler having separate headers each having valved connections to a steam-drum and a water-drum and relief-valves arranged to be opened when the steam-drum is shut off; substantially as described.

7. A water-tube boiler having drop-tubes with upper side openings having lower outwardly-extending lugs or flanges to reinforce its support and upper inwardly-extending lugs to engage an extracting-tool; substantially as described.

8. In a tubular boiler, a header comprising a water-compartment above a steam-compartment, a series of drop-tubes extending into the header and opening into the steam-compartment, a series of circulating-tubes opening into the water-compartment and arranged to cause siphonic action for maintaining the same water-level in the drop-tubes, substantially as described.

9. In a drop-tube boiler, a header formed of a single plate with openings in its bottom, channel bars or plates, dividing the header into a water-compartment and a steam-compartment, said channels being filleted to form steam-tight joints between the compartments, inspirators extending into the water-compartment, drop-tubes having side openings in communication with the steam-compartment and lugs, or flanges, for engaging with the header, and inner circulating-tubes attached to the inspirators, substantially as described.

664,746. BOTTLE-SEAL. WILLIAM E. HEATH, Baltimore, Md., assignor to the Coronet Bottle-Seal Company of Baltimore City, same place. Filed Oct. 9, 1899. Renewed June 19, 1900. Serial No. 20,907. (No model.)



Claim.—1. The hollow cup-shaped bottle-sealing plug formed of non-elastic thin ductile metal and formed to have its lower end expanded to lock the plug in and sealing the bottle-neck, and a metal ring permanently affixed to the upper end of the plug and provided with an upwardly-projecting lever thumb-piece, whereby the plug can be removed intact as described.

2. A bottle having an annular recess in the edge surrounding its mouth, in combination with a hollow cup-shaped metal plug in said mouth of the bottle and sealing the same and provided with a rigid metal ring permanently secured around its upper portion and seated in said recess and formed with a rigid upwardly-projecting lever-arm, the lower end of the plug being expanded to lock the same, substantially as described.

3. A cup-shaped metal sealing-plug having the top flange and provided with the metal surrounding ring permanently fixed beneath said flange having the rigid lateral upward deflection through the plane of said flange, the flange displaced for the passage of said deflection, whereby the plug is forced from the bottle by lateral pressure against said deflection which forms a thumb-piece and is rigid with the plug during the extracting operation, substantially as described.

4. A bottle formed with an internal stop-shoulder or ledge in its mouth or neck portion, in combination with a cup-shaped metal sealing-plug expanded at its lower extremity in the neck and formed with a corresponding stop-shoulder or ledge opposing said shoulder of the bottle and sealing means between said opposing ledges, whereby the liquid within the bottle is kept from contact with said sealing means, substantially as described.

5. A cup-shaped metal sealing-plug having the annular downwardly-facing stop-shoulder or seat intermediate its ends, and a flat packing-washer on the plug with its flat face against said seat the lower end of the plug a distance below said washer adapted to be expanded within the bottle-neck, substantially as described.

6. A bottle having a stop-shoulder or seat in its neck and below its mouth, the internal diameter of the neck being increased below said seat, in combination with a hollow cup-shaped sealing-plug in said neck and formed of non-elastic ductile metal, said plug between its ends having a downwardly-facing stop-shoulder opposing said seat of the neck and limiting the inward movement of the plug, sealing means compressed between said opposing shoulders of the plug and neck, the lower end of the plug projecting below said sealing means and shoulder of the neck and expanded against the inner face of the bottle-neck, substantially as described.

7. A bottle having an outwardly-facing seat in its neck portion or mouth with an internally-increased diameter below the seat, in combination with a cup-shaped metal sealing-plug in the bottle-neck provided with a packing-washer at an intermediate portion of its length and compressed between the plug and said seat, the lower portion of the plug below said washer expanded and locking the plug in the bottle-neck, substantially as described.

8. A bottle having the annular recess around the open top of its neck and the annular upwardly-facing seat within its neck, the neck formed with an increased internal diameter below said seat, in combination with the hollow cup-shaped ductile-metal plug having the annular top enlargement provided with the rigid thumb-piece fixed thereto, and projecting above the bottle-mouth, said enlargement located in said top recess of the bottle-neck, said plug having the intermediate flat annular downwardly-facing stop-shoulder opposing said seat within the bottle-neck, a flat washer compressed between and having its flat faces engaging said seat and shoulder, the lower end of the plug projecting below said washer being expanded into engagement with the inner face of the bottle-neck at said portion of increased diameter, substantially as described.

664,747. BOTTLE-SEAL. WILLIAM E. HEATH, Baltimore, Md., assignor to the Coronet Bottle-Seal Company of Baltimore City, same place. Filed Jan. 20, 1900. Serial No. 2,128. (No model.)



Claim.—1. A bottle provided with a top annular recess, in its mouth and an annular sealing-shoulder below the floor of said recess, in combination with a sealing-disk adapted to be expanded and locked in the bottle-mouth and having an annular shoulder opposing said shoulder of the bottle-mouth and a top flange in said annular recess, said disk provided with a rigid upwardly-projecting thumb-piece extending from the portion of the disk in said recess, substantially as described.

2. A bottle having a top annular recess in its mouth and an annular shoulder a distance below the floor of said recess, in combination with a sealing-plug adapted to be expanded in said bottle-mouth and thereby locked therein and having an annular shoulder opposing said shoulder of the bottle-mouth, a sealing medium interposed between said shoulders, and an upwardly-projecting rigid thumb-piece having attaching means located in said top recess and engaging the upper portion of said disk, substantially as described.

3. A cup-shaped metal sealing-plug formed with an upper cylindrical portion, and a reduced lower cylindrical portion, the upwardly-projecting lever thumb-piece secured to the plug, and a flat packing-washer surrounding the plug at the junction between said portions, said plug adapted to enter with said two cylindrical portions within, the neck of a bottle formed a distance below its mouth with an upwardly-facing annular shoulder on which the upper flat face of said washer is adapted to rest, whereby the upper portion of said plug on being expanded holds the flat washer compressed between the intermediate portion of the plug and said shoulder of the bottle-neck, substantially as described.

4. A bottle having an internal annular sealing-shoulder, and an internal enlargement above said shoulder, in combination with a cup-shaped ductile-metal sealing-plug having an intermediate annular shoulder opposing said shoulder of the bottle, a sealing-washer surrounding the lower portion of the plug and resting against its shoulder and seated on the shoulder of the bottle, the washer compressed between said two shoulders, and the plug radially expanded at an intermediate point in its length and immediately above said washer and into said enlargement in the bottle, and the lever thumb-piece fixed to the plug and projecting to the exterior of the bottle-mouth, substantially as described.

5. A bottle having an internal annular shoulder and a top annular recess, the bottle having an internally-enlarged portion between said shoulder and the floor of said recess, in combination with a cup-shaped ductile-metal sealing-plug having an annular portion opposing said shoulder of the bottle, an annular sealing medium interposed between said shoulder and the plug and compressed between the same, the plug radially expanded above said sealing medium and shoulder into said enlargement, the upper end of the plug having a flange in said recess, and the projecting lever thumb-piece secured under said flange, substantially as described.

6. In combination, a bottle having in its mouth an annular groove and a laterally-extending seat below the groove, a sealing device which consists of a sheet-metal disk with an upturned flange adapted to be expanded circumferentially within the said annular groove, a lever thumb-piece secured to said flange, the said disk having a projection stamped or drawn therefrom so as to extend below it, and an annular compressible gasket of a diameter greater than that of the interior of the annular seat, said gasket placed around the said projection which serves to hold the two elements of the sealing device together, substantially as described.

7. In combination, a bottle having a groove, in its mouth, and a laterally-extending annular seat below the groove, a sealing device which consists of a sheet-metal disk with an upturned flange and a projection on its under side stamped or drawn from the disk, the projecting lever thumb-piece secured to said flange, and a compressible gasket placed around the said projection, having a diameter which is greater than the inner diameter of the seat, the said gasket being compressed between the disk and seat, and the upturned flange of the disk expanded within said groove in the bottle-mouth, substantially as described.

8. A bottle-sealing device adapted for application to a bottle having a groove in its mouth and an annular enlargement situated near the said groove, substantially as described, which consists of a sheet-metal disk with an upturned flange formed for expansion, a projection formed on its under side by stamping or drawing, and the lever thumb-piece secured to said flange, combined with a joint-forming annular gasket which is placed around the said projection, substantially as described.

9. A bottle-sealing device consisting of a sheet-metal disk having the upturned flange or upper portion, a lever thumb-piece having attaching means embracing said upper portion, the central downwardly-extending projection, the annular seat or shoulder joining said flange and projection, and a sealing-washer surrounding said projection and seated against said shoulder, the disk locked in a bottle-mouth by having said upper portion thereof expanded radially beneath said attaching means, substantially as described.

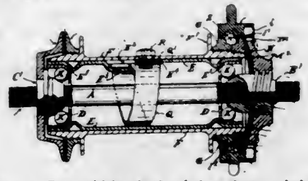
664,748. RETAINING-BAND FOR RUBBER TIRES. EDGAR A. HILL, Chicago, Ill., assignor to the Calumet Tire Rubber Company, same place. Filed Mar. 9, 1900. Serial No. 7,964. (No model.)



Claim.—1. A retaining-band for an elastic tire formed from a rod or piece of uniform cross-section, said band having thickened edges and having one of its ends longitudinally recessed on one side by swaging the metal of the thickened edges to receive the lapping opposite end of the band at whatever point it may be severed.

2. A retaining-band for rubber tires, one end whereof is formed with a central rib and with longitudinal recesses or seats at the opposite sides of said central rib, the opposite end of the band being formed with thickened edges adapted to enter said longitudinal seats or recesses.

664,749. BACK-PEDALING BRAKE. FREDERICK P. HINCKLEY, Jackson, Mich. Filed Oct. 26, 1899. Serial No. 734,799. (No model.)



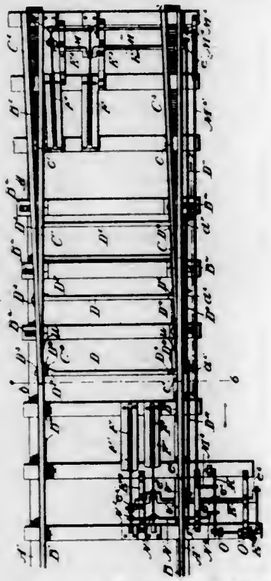
Claim.—1. In a vehicle-wheel, a hub, a sleeve, a hub surrounding it, a spring secured at one of its ends to the sleeve and at its other end to the hub, a grooved clutch-ring, a grooved lock-nut secured thereto, a sprocket-ring provided with tapering grooves, and clutch-balls in the grooves of the clutch-ring, the lock-nut and the sprocket-ring, substantially as described.

2. In a ball-bearing vehicle-wheel, the lock-nut H, and the coasting clutch-ring G, both secured to the hub, the two having a half-circular groove around in their peripheries, the sprocket-ring I, with its inclined channels I', matching the half-circular grooves in the coasting clutch-ring G, and the lock-nut H, forming ball-races, the clutch-balls S, operating as a clutch in the ball-races to drive the wheel forward, substantially as shown and described.

3. In a ball-bearing vehicle-wheel, the lock-nut H, and the coasting clutch-ring G, both secured to the hub, the two having a half-circular groove (transversely) around in their periphery, the sprocket-ring I, with its inclined channels I', matching the half-circular groove in the coasting clutch-ring G, and lock-nut H, forming ball-races, the clutch-balls S, operating as a clutch in the ball-races to drive the wheel forward, and release at will by back-pedaling, the balls also keeping the sprocket-ring I, in alinement with the clutch-ring G, and the lock-nut H, in combination with the ratchet-toothed threaded nut M, fitting the threaded cone, B, and connected when back-pedaling with the sprocket-ring I, the pawls L, pivotally attached to the sprocket-ring I, operating on the ratchet-teeth to carry the friction-face of the nut M, up against the reciprocal friction-face of the lock-nut H, said nut M, the friction-ring N, having the friction-face N', and the disk O, substantially as described.

4. In a ball-bearing wheel, a sleeve, a hub surrounding it, a spring secured at one of its ends to the sleeve and at its other end to the hub, and means for moving the hub longitudinally to serve as a brake, substantially as described.

664,750. AUTOMATIC RAILWAY-SWITCH. WILLIAM W. HOFFMAN and FRANCIS W POWERS, Lafayette, Ind. Filed Apr. 19, 1900. Serial No. 13,563. (No model.)



Claim.—1. In a railway-switch, the combination with pivoted switch-points having vertical movement, supports for the said switch-points arranged to elevate the one switch-point while the other is depressed, a lug on each of the said switch-points, a projection on one of the supports for each, arranged to strike said lug and insure the depression of the corresponding switch-point at the proper time, and connections between the said supports for simultaneously operating the series; of a cross-shaft having a crank thereon connected to the supports of the switch-points, and having cranks thereon between the rails of the track; and pivoted plates located between the rails of the track in positions for operating said cranks when depressed, substantially as described.

2. In a railway-switch, the combination with pivoted switch-points having vertical movement, supports for the said switch-points arranged to elevate the one switch-point while the other is depressed, a lug on each of the said switch-points, a projection on one of the supports for each, arranged to strike said lug and insure the depression of the corresponding switch-point at the proper time, and connections between the said supports for simultaneously operating the series; of a cross-shaft having a crank thereon connected to the supports of the switch-points, and having cranks thereon between the rails of the track; pivoted plates located between the rails of the track in positions for operating said cranks when depressed, and means for locking the switch-points in either adjustment, substantially as described.

3. In a railway-switch, the combination with pivoted switch-points having vertical movement, supports for the said switch-points arranged to elevate the one switch-point while the other is depressed, a lug on each of the said switch-points, a projection on one of the supports for each, arranged to strike said lug and insure the depression of the corresponding switch-point at the proper time, and connections between the said supports for simultaneously operating the series; of a cross-shaft having a crank thereon connected to the supports of the switch-points, and having cranks thereon between the rails of the track; pivoted plates located between the rails of the track in positions for operating said cranks when depressed, means for automatically locking the switch-points in either adjustment, and means for automatically unlocking the switch operated by the said pivoted plates, substantially as described.

4. In a railway-switch, the combination with vertically-movable switch-points, supports for the said switch-points arranged to elevate the one and depress the other alternately, connections between the said supports for operating the same simultaneously, and devices upon the track arranged to be operated by an attachment upon the locomotive for operating said supports; of spring-guides fixed to main-track rails, and bearing upon the inner faces of the said switch-points to hold the latter normally close against the sides of the rails, but to permit of their displacement by the flange of a car-wheel entering from the rear of the switch-point, substantially as described.

5. In an automatic railway-switch, the combination with pivoted switch-points, of a series of cross-shafts D, D' and D^2 mounted transversely of the track, and having supporting-blocks set at angles to each other for elevating and depressing the switch-points; fixed journal-blocks for the ends of said shafts; said journal-blocks forming supports for both the switch-points and the said shafts, and one set of said journal-blocks having a detachable journal-plate to permit of the disengagement of said shaft; cranks on the said shafts and connections between the said cranks; of devices located upon the track arranged to be operated by a mechanism upon the locomotive for rocking said shafts and operating the switch-points, substantially as described.

6. In an automatic railway-switch, the combination with pivoted plates having a long inclination, arranged upon the track; rock-shafts having cranks located beneath the said pivoted plates in position to be borne upon thereby, when said plates are depressed, and a spring for returning each of said plates to its elevated position after being depressed; of connections between the said rock-shafts and the switch-points for operating the latter upon the depression of one of said pivoted plates upon its corresponding crank on said rock-shaft, substantially as described.

7. In an automatic railway-switch, the combination with the ties of the track, of sills under the said ties, bearing-plates mounted upon the said sills, rock-shafts journaled in the said bearing-plates and provided with integral enlargements for elevating and supporting the switch-points successively; of pivoted switch-points having vertical movements; lugs projecting laterally from the said switch-points, projections on one of the said rock-shafts arranged to engage said lugs when turned to depress a switch-point, spring-guides for retaining the ends of the said switch-points in close relation with the sides of the track-rails; and means arranged to be operated by devices upon the locomotive, for rocking the said rock-shafts, substantially as described.

8. In an automatic railway-switch, the combination with the switch-points and devices for operating the same, a rock-shaft connected with such devices arranged to be actuated by devices upon the locomotive; of projections set at angles upon the said rock-shaft, a spring-operated catch arranged to engage one of said projections at a time, and a series of rock-shafts arranged when operated to disengage the said catch, and so release the switch mechanism, substantially as described.

9. In an automatic railway-switch, the combination with the switch-points and devices for operating the same, a rock-shaft connected with such devices arranged to be actuated by devices upon the locomotive; of a projection set at angles upon the said rock-shaft, a spring-operated catch arranged to engage one of said projections at a time, a series of rock-shafts actuated by the switch-operating mechanism from the locomotive to disengage the said catch and so release said mechanism, substantially as described.

10. In a switch-operating device for moving vehicles, the combination with a rigid swinging arm fixed to a wrist on the axle of said vehicle, a connecting-rod for operating said swinging arm, of two pairs of slotted plates rigidly connected to said wrist, and with rollers or wheels hung between said plates; rods pivotally connected to the journals of each of said wheels, and each of said rods having a separate stationary pivotal connection, substantially as described.

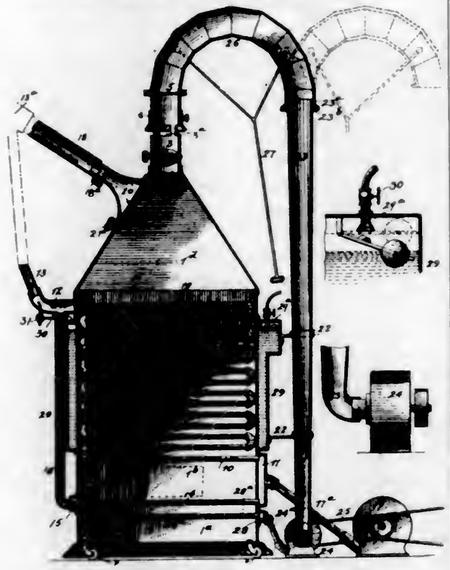
11. In a switch-operating device for moving vehicles, the combination with a rigid swinging arm on a wrist, a connecting-rod for operating said swinging arm; of two pairs of eccentrically-slotted plates rigidly connected to said wrist, rollers carried in between said slotted plates, rods pivotally connected to the journals of each of said rollers, and each of said rods having a separate stationary pivotal connection, substantially as described.

12. In a railway-switch, the combination with pivoted switch-points having vertical movement, supports for the said switch-points arranged to elevate the one switch-point while the other is depressed, a lug on each of the said switch-points, a projection on one of the supports for each, arranged to strike said lug and insure the depression of the corresponding switch-point at the proper time, connections between the said supports for simultaneously operating the series, and a lug or stop fixed to each of the switch-points projecting under the main-track rail; of a cross-shaft having a crank thereon connected to the supports of the switch-points, and having cranks thereon between the rails of the track; and pivoted plates located between the rails of the track in positions for operating said cranks when depressed, substantially as described.

13. In an automatic railway-switch, the combination with the switch-points and devices for operating the same, a rock-shaft connected with such devices arranged to be actuated by devices upon the locomotive; of projections set at angles upon the said rock-shaft, a spring-operated catch arranged to engage one of said projections at a time, a series of rock-shafts arranged when operated to disengage said catch, and so release the switch mechanism, a projection on said rock-shaft; and a flat spring c making frictional contact therewith, substantially as described.

14. In an automatic railway-switch, the combination with the switch-points, devices for operating the same; a rock-shaft connected with such devices arranged to be actuated by devices upon a locomotive; of projections set at angles upon said rock-shaft; a spring-operated catch arranged to engage said projections and a series of rock-shafts arranged when operated to disengage the said catch and so release the switch mechanism, a shaft on bearings with a lug arranged under said spring-catch, and with upturned arm to be locked by key to semaphore, to be unlocked by authorized persons, and a drop-lever pivoted to the upright shaft of the semaphore to be used as means for unlocking and operating the switch by hand; an operating-shaft on bearings having supporting-blocks arranged under the switch-points for the purpose of raising and lowering the same; the shaft extended and provided with a crank connected to a semaphore of ordinary design to be operated by hand as a hand-switch, all substantially as described.

664,751. PORTABLE HEATER. JAMES L. HOLLINGSWORTH, Newbern, Tenn. Filed Jan. 9, 1900. Serial No. 906. (No model.)



Claim.—An improved heating apparatus for the purposes specified, comprising in combination a heater having a hot-air outlet, the upper end of the heater having a valved offtake for the direct draft, and a supplemental valved smoke-outlet communicating with the hot-air outlet, the upper end of the direct outlet having a seat and suction-flue support upon the bed of the heater, a blast-fan communicating with the said flue, the upper end of the flue having a seat portion, and the elbow-section 26, forming a part of the flue mounted upon the upper end of the suction-flue portion supported upon the bed of the heater, the free end of the said elbow being shaped to engage with the seat of the main draft-pipe 3, said elbow-section having a pendent handle for turning it, all being arranged substantially as shown and described.

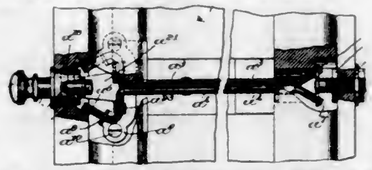
664,752. SEALING-WAX. HENRY A. HUGHES, Philadelphia, Pa., assignor to the Perfection Jar Closure Company, same place and Camden, N. J. Filed Oct. 19, 1900. Serial No. 33,646. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of paraffin, dammar gum, and an oil or fat.

2. The herein-described composition of matter consisting of paraffin, dammar gum, and lard-oil, in about the proportions named..

664,753. LOCK-ROD FOR CARD-HOLDERS. DAVID E. HUNTER, Cambridge, Mass., assignor to the Library Bureau, Boston, Mass. Filed Jan. 20, 1900. Serial No. 2,121. (No model.)

Claim.—1. In a card-holder, a lock-rod comprising two members adapted to extend longitudinally of said holder, said members having their opposite ends bent away from each other, and the forward extremities of said members being bent or deflected inwardly toward each other, the extremities of each member being in substantial parallelism.



2. In a card-holder, a lock-rod comprising a plurality of members movable toward and from each other, said members having portions thereof extending obliquely to the general length of the members, a bearing-plate having perforated ears in which said oblique portions are mounted, and means for moving said members longitudinally.

3. In a card-holder, a lock-rod comprising two members each having a portion thereof outwardly bent, and at the same end another portion obliquely bent, stationary bearings for said oblique portions, and an actuating device having at its inner end arms slidingly engaged with said outwardly-bent portions, and at its outer end provided with means for moving it in and out.

4. In a card-holder, a lock-rod having locking members, combined with a plate having at its rear end opposite U-shaped parts embracing said members, and an operating device for said plate and members connected to said plate.

5. In a card-holder, a lock-rod comprising a plurality of members having oppositely and obliquely bent portions, a stationary plate fixed in said holder and containing bearings for said oblique portions, and means for adjusting said plate to bring said members into accurate parallelism.

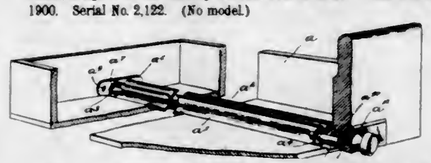
6. In a card-holder, a lock-rod comprising two separable members, and means for adjusting said members into accurate parallelism of movement.

7. In a card-locking apparatus of the kind described, a lock-rod comprising a plurality of members, and mechanism for contracting and expanding said members, said mechanism including two separated parts, one of said parts being provided with adjusting means for regulating the movement of said members.

8. In a card-holder, a lock-rod comprising a plurality of members having oppositely and obliquely bent portions, an adjusting member mounted in the end of the holder and provided with opposite bearings for the aforesaid members, and means for moving said adjusting member longitudinally along said members, relatively to the end of the holder.

9. In a card-holder, a lock-rod comprising a plurality of members having oppositely and obliquely bent portions, a threaded bolt having a head containing independent bearings for said members, and threaded means coöperating with said bolt for adjusting the same longitudinally of said members.

664,754. ROTARY LOCK-ROD. DAVID E. HUNTER, Cambridge, Mass., assignor to the Library Bureau, Boston, Mass. Filed Jan. 20, 1900. Serial No. 2,122. (No model.)



Claim.—1. A card-holder or similar device provided with locking members having lateral movement for operating to engage and disengage the cards, means for moving one of said members laterally, the lateral movement of said member directly moving the other of said members in an opposite direction without longitudinal movement.

2. A card-holder or similar device provided with laterally-movable locking members, and means for moving the same toward and from each other, said means including independently-pivoted interlocking devices for simultaneously operating the same.

3. A card-holder or similar receptacle having a locking member for locking cards therein, said locking member extending longitudinally of said holder and being mounted at its ends on pins, said locking member being free to move longitudinally on said pins to accommodate itself to the requirements of use.

4. A card-holder having a locking device mounted therein comprising two locking members laterally movable, and two rotary intermeshing devices for simultaneously moving said members laterally toward and from each other.

5. A card-holder provided with a card-locking device, comprising two locking members pivotally mounted in said holder, and pivoted segments for simultaneously turning said locking members into operative or inoperative position.

6. A card-holder provided with a card-locking device, comprising two locking members pivotally mounted in said holder, and means for simultaneously turning said locking members into operative or inoperative position, said locking members being in the form of segments of tubes having their outer and inner surfaces approximately parallel and curved approximately concentric to their pivots.

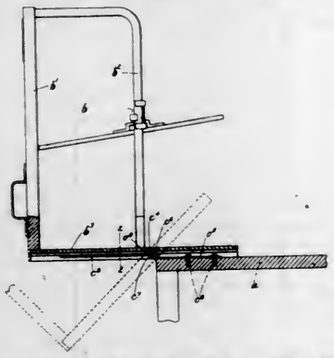
7. In a card-locking device, a locking member, having the shape of the segment of a cylinder and provided at its ends with inturned ears perforated to receive suitable bearing-pins.

8. In a card-holder, a locking device having a locking member journaled at its opposite ends in said holder and one of said journals consisting of a pin provided with a toothed rack, and means for operating said toothed rack.

9. The combination with a card-holder, adapted to contain cards, of a locking member for locking the cards in said holder, and means for rocking said member, said locking member being in cross-section the segment of a hollow cylinder or tube having its outer and inner surfaces approximately parallel and uniformly curved, and adapted to engage with one of its edges the cards, the latter having suitably-formed apertures therefor.

10. A card-holder, having opposite parallel holding members movable toward and from each other, and means for simultaneously operating said members, said means including intermeshing toothed gearing.

664,755. **SUSPENSION DEVICE FOR DOCUMENT-FILES.** DAVID B. HUNTER, Cambridge, Mass., assignor to the Library Bureau, Boston, Mass. Filed July 19, 1900. Serial No. 24,124. (No model.)



Claim.—1. A device of the kind described, comprising a file having opposite grooves, an intermediate guide-track, and pivotal stops extending into said grooves, combined with a plate having opposite suspension-tongues and an intermediate retaining device for engaging said track.

2. In a device of the kind described, a plate having at its opposite sides hook-like devices and an intermediate finger, combined with a file having a track to be engaged on its upper side by said finger, and pivotal stops to be engaged on their under sides by said hooks.

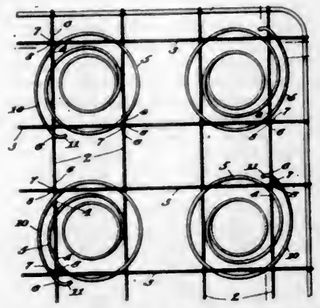
3. In a device of the kind described, a file having grooves in its bottom, round pins extending into said grooves, and a plate provided with opposite hook-like tongues to receive said pins and permit the file to turn thereon.

664,756. **SPRING BED-BOTTOM.** WARDER D. HUNT, Cincinnati, Ohio, assignor to M. A. Hunt & Co., same place. Filed Sept. 27, 1900. Serial No. 31,254. (No model.)

Claim.—1. A bed-bottom having springs provided with end coils and wires in two sets intersecting at four points outside the end coil of each spring, one set of wires being rested on the other at each intersection, and being extended below the plane of the other set between said intersections and the end coil of each spring being held between the two sets of wires intermediate the said intersections, substantially as set forth.

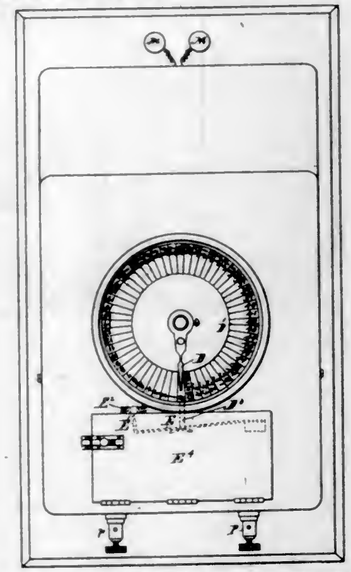
2. A bed-bottom having springs provided with end coils and wires in two sets intersecting at four points adjacent to the end coil of each spring, one set of wires being rested on those of the other at each intersection and being provided with downward bends forming seats at four substantially equidistant points for the end coil of each spring, substantially as set forth.

3. A bed-bottom having springs provided with end coils having locking ends and wires in two sets intersecting at four points adjacent to the end coil of each spring, each of the wires of one set being rested on a wire of the other set at its intersection therewith and being provided on opposite sides of said intersection with downward bends one of which forms a seat to receive the end coil of the spring and the other of which is adapted to receive and hold the locking end of said end coil, substantially as set forth.



4. A bed-bottom comprising parallel rows of vertical helical springs; an open-mesh frame or fabric composed of crossed wires equidistant apart corresponding to and supporting said rows of springs, and each spring being concentric to four intersecting points in the crossed fabric; and an outer marginal frame to which the ends of the crossed wires are secured, the outer coil of each spring interlocking with the crossed wires at the said four intersecting points, substantially as set forth.

664,757. **TELEPHONE-SERVICE APPARATUS.** URIAH S. JACKSON, Oakpee, N. H. Filed June 15, 1900. Serial No. 20,464. (No model.)



Claim.—1. In a system of telephone-service apparatus, a series of boxes each having a clock-train-operated disk and contact-pins in said disks, also contact-plates adapted to complete a telephone-circuit through said contact-pins and a magnetic device for controlling said clock-train; and a door for each of said boxes, the opening of which operates a switch whereby its connected telephone is put into the line-circuit, and the direct circuit to the said disk is cut out, substantially as and for the purpose set forth.

2. In a system of telephone-service apparatus each inclosing apparatus as described and having a door the opening of which operates a switch whereby its connected telephone is put into the line-circuit, and also having an electric cut-out switch which when operated starts a clock-train in each of the boxes, whereby the door of all closed boxes are locked and whereby an index-hand and a rotating disk having contact-pins in each of the boxes of the group are made to rotate to the desired position, substantially as and for the purpose set forth.

3. In a system of telephone-service apparatus; a number of mechanisms, one for each station consisting of a clock-train-operated disk and hand, said disk having insulated contact-pins as described, the said pins having a fixed rotation to the said hand; fixed contact-plates adapted to make electrical connection with said pins and thereby close an electric telephone-circuit, substantially as and for the purpose set forth.

4. In a system of telephone-service apparatus, a rotating contact-disk having insulated contact-pins and one insulated face; contact-plates adapted to close a telephone-circuit through said disk, substantially as and for the purpose set forth.

664,758. **SECTIONAL FLOATING CONSTRUCTION-DOCK.** WALTER JAMIESON, New York, N. Y. Filed Mar. 13, 1900. Serial No. 8,454. (No model.)



Claim.—1. A sectional floating construction-dock, consisting of water-tight bow, midship and stern pontoons, a plurality of hollow buoying-columns extending upwardly from said pontoons near the corners of the same, and means for locking said pontoons together, substantially as set forth.

2. A floating construction-dock pontoon, provided near each of the corners of the same with an upright hollow buoying-column, substantially as set forth.

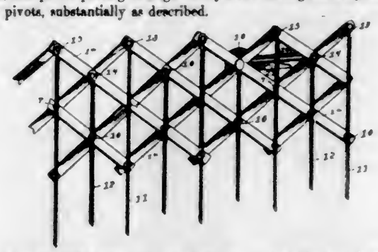
3. In a floating sectional construction-dock, the combination, with a water-tight pontoon composed of an exterior and an interior shell, and upright hollow columns at opposite sides of the pontoon, of sockets in the tops of said columns, and hoisting-cranes supported in said sockets, substantially as set forth.

4. In a floating sectional construction-dock, the combination, with a water-tight pontoon formed of an exterior and an interior shell, and upright hollow columns at opposite sides of the pontoon, of platform-supporting brackets on said columns, and means for locking said brackets to said columns, substantially as set forth.

664,759. **BUTTONHOLE MARKER AND SPACER.** GEORGE A. JOY, Bar Harbor, Me. Filed Dec. 22, 1899. Serial No. 741,297. (No model.)

Claim.—1. The herein-described marking device comprising a lazy-tongs frame provided with pivots connecting the bars of the frame and having openings extending entirely through them, solid pivots passing through the tubular pivots of the lazy-tongs frame and located at one side of the latter, the rods or markers extending entirely across the frame and provided at one end with eyes receiving the solid pivots, and the guides receiving the other ends of the rods or markers and provided with solid shanks passing through the adjacent tubular pivots of the lazy-tongs frame, substantially as described.

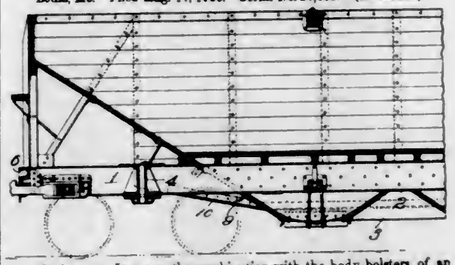
2. A device of the class described comprising a lazy-tongs frame composed of bars connected at their centers, ends and intermediate points by tubular pivots, the guides located at one side of the center of the frame and provided with shanks secured within the adjacent end and intermediate tubular pivots, the short and long markers or rods passing through the said guides and provided with eyes located at the other side of the frame, and pivots passing through the eyes and through the adjacent tubular pivots, substantially as described.



3. The herein-described marking device comprising a lazy-tongs frame provided with pivots connecting the bars and having openings extending entirely through them, the rods or markers extending across the frame and connected with the same by devices having solid shanks or portions passing through the tubular pivots, the slotted plate secured to the frame by one of the said devices, a screw passing through one of the tubular pivots and through the slot of the plate, a slide arranged on the plate and having an opening receiving the screw, and a clamping-nut arranged on the screw and engaging the slide and securing the frame at the desired adjustment, substantially as described.

4. A device of the class described comprising a lazy-tongs frame composed of bars crossing one another at their centers and at intermediate points and pivoted together at the said points and at their ends, the long rods or markers extending entirely across the frame and connected with the bars at the end pivots, and the short rods or markers located between the long rods or markers and connected with the bars at the intermediate pivots, substantially as described.

664,760. **DOUBLE-HOPPER-BOTTOM CAR.** GEORGE I. KING, Detroit, Mich., assignor to the American Car and Foundry Company, St. Louis, Mo. Filed Aug. 17, 1900. Serial No. 27,162. (No model.)



Claim.—1. In a car, the combination with the body-bolsters, of an angle extending throughout the length of the car and forming a side-sill member, said angle being secured to the ends of the bolsters, a web-plate also secured to the ends of the bolsters and having one edge riveted to said angle, and an angle riveted to the other edge of said web-plate; substantially as described.

2. In a car, the combination with the body-bolsters, of an angle 5 extending throughout the length of the car and secured to the ends of the bolsters, a web-plate 9 riveted to the angle 5 and secured to the ends of the bolsters, and an angle 10 riveted to the lower edge of said web-plate and forming the tension-flange of a plate-girder structure, of which the angle 5 is the compression-flange; substantially as described.

3. In a car, the combination with body-bolsters, of an angle 5 extending throughout the length of the car and secured to the ends of said bolsters, web-plates 9 which are deepest at their middle portions and which are secured to the ends of said body-bolsters, and to said angle 5, an angle 10 secured to the lower edge of said web-plate, and vertical posts secured to said plate; substantially as described.

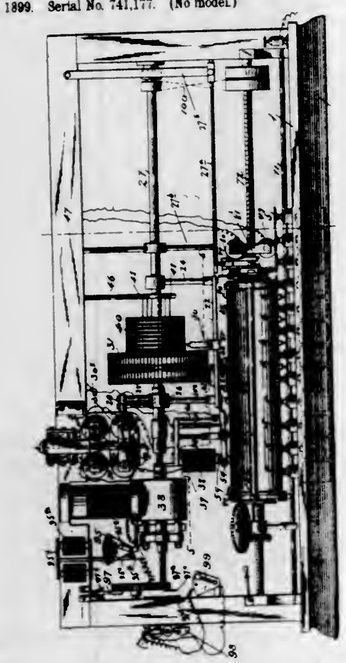
4. The combination with body-bolsters, of plate-girder side sills consisting of angles 5 and 10 and the web-plates 9, the ends of said web-plates being directly attached to the ends of the bolsters; the center sills, and the plates 2; substantially as described.

5. The combination with the center sills, of the plates 2 secured thereto and provided with flanges 3 at their lower edges, the body-bol-

sters 4, the angles 5, the end sills to which said angles 5 and the center sills are connected, the angles 7 parallel to the angles 5, the web-plates 9, and the angles 10 secured to the lower edges of said plates 9; substantially as described.

6. In a car, the combination with the body-bolsters, of a side sill consisting of parallel angles at the ends of the car, one of said angles extending throughout the length of the car, and the others terminating a short distance inside of the bolsters, a plate secured to the continuous angle, to the inwardly-projecting ends of the short angles, and to the ends of the body-bolsters, said plate being deepest at its middle portion, and an angle 10 secured to the lower edge of said plate, said angle conforming to the shape thereof; substantially as described.

664,761. **PRINTING-TELEGRAPH.** EDGAR KINSMAN, Malaga, N. J., assignor of one-half to Alfred B. Richman, same place. Filed Dec. 21, 1899. Serial No. 741,177. (No model.)



Claim.—1. In a printing-telegraph instrument, a type-plate, means for imparting four motions to said plate, keys for printing the types, keys for shifting the plate, and means for automatically locking the shifting-keys until another shift-key is actuated, substantially as described.

2. In a printing-telegraph instrument, a grooved cam-wheel, a type-plate carrying a set of types, a traveler connected to the type-plate and running in the grooves, means for rapidly revolving the cam-wheel to reciprocate the type-plate, means for moving the type-plate transversely to the reciprocation, a set of keys for actuating the types, substantially as described.

3. In a printing-telegraph instrument, a type-plate carrying a set of types, a cam-wheel for reciprocating said type-plate, a set of commutator-rings, a brush in contact therewith, a type-lever for giving impression to the type, and electrical means for actuating said parts, substantially as described.

4. In a printing-telegraph instrument, a grooved cam-roller, a type-plate actuated by said roller, a frame within which the type-plate slides, a commutator comprising a series of rings, a brush connected to the type-plate and moved simultaneously therewith, and means for swinging the frame transversely to present different lines of type to the printing-point, substantially as described.

5. In a printing-telegraph instrument, a set of types mounted in a plate having guide-ribs thereon, a grooved frame in which the ribs are adapted to slide, a cam-wheel for moving the type-plate longitudinally, said frame being suspended from a shaft, and an electromagnet for rocking said frame when a shift-key is actuated, a set of shift-keys, and a set of type-keys, substantially as described.

6. In a printing-telegraph instrument, a commutator comprising a series of metallic rings and interposed rubber rings, said rings having disconnected ends, brushes inside the rings and in contact therewith, a brush bearing on the outside of said rings, and means for shifting the outer brush, substantially as described.

7. A commutator consisting of a series of metallic rings insulated from one another, each of said rings having a transverse slot or cut therein, one or more projections or lugs on the periphery of each of said rings, means for maintaining a traveling contact with said rings which bridges said cuts, means for maintaining a traveling contact with said rings which is interrupted by its passage over said slots or cuts, and means for making and breaking a circuit through said lugs, substantially as described.

8. A shifting mechanism comprising a pivoted arm attached to a type-bearing plate, said type-bearing plate, armatures mounted on said arm and extending across the poles of electromagnets, electromagnets mounted adjacent to said armatures and adapted to actuate said arm and hold it in four independent positions, substantially as described.

9. A synchronizing system comprising an electric circuit, circuit-breakers one on the transmitter and one on the receiver, said circuit-breakers being connected to their respective instruments in such a way that the circuit is completed and broken by said circuit-breakers simultaneously at both stations, a switch for cutting out one of said circuit-breakers, and sounders included in said circuit and adjacent to said circuit-breakers, substantially as described.

10. In combination with a type-plate and a set of types mounted thereon, of a wheel having a groove therein which extends four times around its circumference and consists of alternate parallel and diagonal portions, constructed to reciprocate said type-plate longitudinally by turning on its axis in one direction, means for connecting said type-plate and said grooved wheel, to enable the plate to be reciprocated thereby, and means for printing said type.

11. In combination with a set of type mounted in a type-plate, of the grooved wheel constructed to intermittently actuate said type-plate to reciprocate it, by revolving on its axis in one direction and means for connecting said type-plate and said grooved wheel to enable the type-plate to be reciprocated thereby.

12. In combination with a set of type mounted in a type-plate, of the grooved wheel constructed to reciprocate said type-plate longitudinally by being revolved on its axis in one direction and means for connecting said type-plate and said grooved wheel to enable the plate to be reciprocated thereby.

13. In combination with a set of type mounted on a type-plate, of the grooved wheel constructed to reciprocate said type-plate longitudinally by revolving on its axis in one direction, means for connecting said type-plate and said grooved wheel to enable the plate to be reciprocated thereby, means for moving said type-plate transversely, and means for printing said type.

14. In combination with a set of type mounted in a type-plate and means for reciprocating said plate, of the brush adapted to be reciprocated in unison with said type-plate, the mechanism for printing said type, and means for completing a circuit through said brush to actuate said printing mechanism.

15. In combination with a paper-bearing or platen roll mounted on a worm shaft, of the ratchet-wheel secured to said roll, the dog adapted to engage said ratchet to actuate said roll, the armature, means for connecting said dog and said armature, means for holding said armature out of contact with the magnets when they are not attracting it, the magnets mounted in coils and adapted to attract said armature, and means for making and breaking a circuit through said magnet-coils to intermittently turn the platen-roll.

16. In combination with a paper-bearing roller supported on a worm-shaft and means for revolving said roller, of the clamps encircling said roller, near the ends, and adapted to support a type-ribbon, means for holding said clamps from turning with said roller, and the type-ribbon supported on said clamps.

17. In combination with a set of types mounted on a type-plate and means for actuating said type-plate, of the pivoted bar provided with a printing-hammer and an armature mounted thereon, the stop for limiting the upward movement of said bar, the spring adapted to hold said pivoted bar normally in contact with said stop, the magnets mounted in coils and positioned to attract said armature, when energized, to actuate said hammer to strike and print one of said types, and means for energizing said coils to energize said magnets.

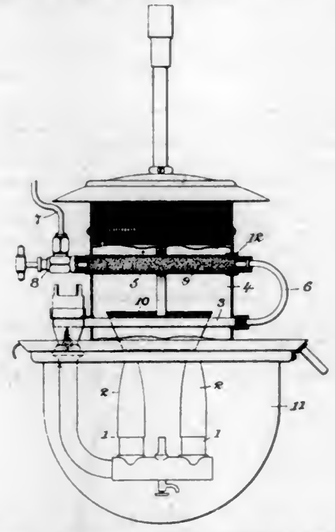
18. In a printing-telegraph instrument, a type-plate carrying a set of type, a grooved cam-wheel adapted to be revolved on its axis to reciprocate said type-plate, a traveler on said type-plate adapted to run in the groove in said cam-wheel, and means for printing said type.

19. In a printing-telegraph instrument, a type-plate provided with a set of type, means for actuating said type-plate, means for printing the type, said means being controlled by type-keys, means for rocking the plate which is controlled by shift-keys, means for locking each of said shift-keys after it has been depressed, and means for releasing the locked shift-keys, which is operated by one of the other shift-keys.

20. In a printing-telegraph, a commutator comprising a series of metallic rings and interposed dielectric rings, said metallic rings having disconnected ends and lugs thereon, brushes mounted inside said rings and adapted to contact therewith, a brush adapted to contact with said lugs to make and break a circuit, and means for actuating said rings.

21. In combination with the guide-frame having guide-grooves therein, of the type-plate bearing a set of type, the segments secured to said type-plate and provided with guide-ribs adapted to slide in said guide-grooves, the traveler-support comprising the top plate bearing a traveler and the segments secured to said top plate and adapted to fit the segments on said type-plate, and means for actuating the traveler to reciprocate said type-plate in said grooves.

664,762. **VAPORIZING APPARATUS.** ARTHUR KITSON, Philadelphia, Pa., assignor to the Kitson Hydrocarbon Heating and Incandescent Lighting Company, same place and Charleston, W. Va. Filed Feb. 23, 1900. Serial No. 6,199. (No model.)



Claim.—1. The combination with a vapor-burning apparatus of a heating-chamber through which the oil-supply is fed, and a filling for said chamber comprising material which, on the application of heat, gives off a gas capable of combining with carbon.

2. The combination with a vapor-burning apparatus of a heating-chamber through which the oil-supply is fed, and a filling for said chamber comprising material which, on the application of heat, gives off oxygen.

3. The combination with a vapor-burning apparatus of a heating-chamber through which the oil-supply is fed, and a body of iron sponge located in said chamber.

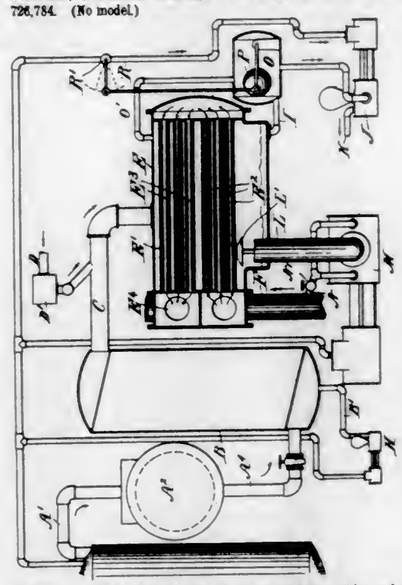
4. The combination with a vapor-burning apparatus of a heating-chamber through which the oil-supply is fed, and a filling for said chamber comprising material which, on the application of heat, gives off a gas capable of combining with carbon, said heating-chamber being located within the heating zone of the said vapor-burning apparatus.

5. The combination of the vapor-burning apparatus, the vaporizing-tube, a second heating-chamber farther removed from the vapor-burner, connections such that the oil-supply is passed through the heating-chamber to the vaporizing-tube, and a filling for the heating-chamber comprising a material which, on the application of heat, gives off a gas capable of combining with the carbon deposited by the oil.

6. The combination of the vapor-burning apparatus, the vaporizing-tube, a second heating-chamber farther removed from the vapor-burner, connections such that oil-supply is passed through the heating-chamber to the vaporizing-tube, and a filling for the heating-chamber comprising a material which, on the application of heat, gives off a gas capable of combining with the carbon deposited by the oil, together with the heat-shield interposed between the vaporizing-tube and the heating-chamber.

7. The combination of a vapor-burning apparatus, the oil-supply pipes, and a filter-chamber in the line of connections, located above the vapor-burning apparatus and within the heating zone thereof, together with a mass of material which combines with carbon when heated, located in said filter-chamber.

664,763. **METHOD OF DEAERATING WATER.** GEORGE M. KLEUCKER, Brunswick, Germany. Filed Aug. 10, 1899. Serial No. 726,784. (No model.)



Claim.—1. In deaerating water for the manufacture of ice and analogous purposes, the method described consisting in heating the water and introducing it in finely-divided streams at high points in a vacuum to descend both in a heated and finely-divided condition therein, all substantially as herein specified.

2. In the art of deaerating water for the manufacture of ice and analogous purposes, the method described consisting in heating the water by mingling it with steam and exposing the mingled fluids in a vacuum in an extended or divided condition and allowing the air to escape, as herein specified.

3. In the art of deaerating water for the manufacture of ice and analogous purposes, the method described consisting in heating water by mingling it with steam and exposing the mingled fluids in a vacuum in a filmy condition and allowing the air to escape, as herein specified.

4. In deaerating water for the manufacture of ice and analogous purposes, the method described of treating the water by mingling it with steam and introducing the mingled fluids in finely-divided streams at a high point in a vacuum to descend in both a heated and in a finely-divided condition therein, all substantially as herein specified.

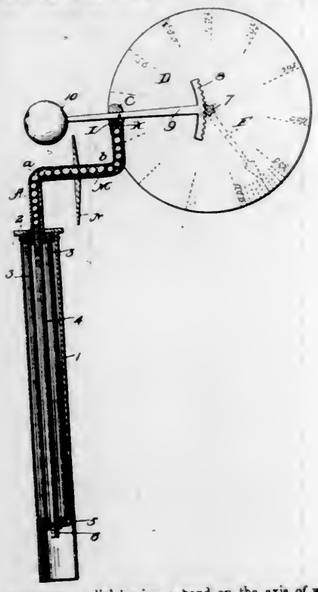
5. In deaerating water for the manufacture of ice and analogous purposes, the method described of heating the water by exhaust-steam exposing it to a vacuum so that the vacuum shall perform the double function of increasing the power of the steam-engine and also aiding to deaerate the water and interrupting the downward flow of the water so as to prolong the period of its exposure to the vacuum, all substantially as herein specified.

6. In the art of deaerating water for the manufacture of ice and analogous purposes, the method described consisting in heating the water by mingling it with steam and exposing the mingled fluids in a vacuum in both a filmly and a disseminated condition and allowing the air to escape, as herein specified.

7. In deaerating water for the manufacture of ice and analogous purposes, the method described of treating the water by mingling it with steam and introducing both in finely-divided streams at a high point in a vessel containing a vacuum to descend therein and interrupting or baffling the descending drops to augment the divided condition of the mingled fluids and prolong the period of the descent of the same and the exposure to the vacuum, substantially as herein specified.

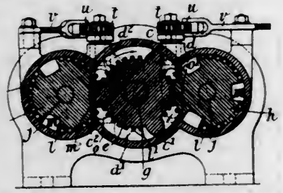
664,764. **PYROMETER.** HENRY VON KOHRING, Seguin, Tex. Filed July 5, 1900. Serial No. 22,544. (No model.)

Claim.—1. In a pyrometer, an indicator, means for operating the movable member thereof, an inclosing tube closed at top and open at bottom, an open framework supported from the upper portion of the tube and composed of columns of low expansive capacity, a tube entering the upper end of the inclosing tube and having a column of balls therein adapted to operate the movable member of the indicator, a cap or plate connecting the columns of the open framework at their lower ends, an expansive rod about which the columns are grouped, having its upper end projecting into the ball-tube, and an adjusting device on said cap or plate for supporting and adjusting said rod, substantially as set forth.



2. In a pyrometer, a dial having a hand on the axis of which is mounted a pinion, an inclosing tube, an open frame in said tube, an expansive rod in said frame, a tube connected to said inclosing tube and having a column of balls therein acted upon by said rod, and a lever upon the upper end of the ball-tube and provided upon its long arm with a toothed segment meshing with said pinion and upon its short arm with a counterbalancing-weight and means actuated by the balls for operating said lever, substantially as set forth.

664,765. ROTARY ENGINE. LOUIS LEGENDRE, London, England. Filed May 7, 1900. Serial No. 15,771. (No model.)



Claim.—1. In a rotary engine, the combination with a chamber, of a rotary piston-disk in said chamber, abutments for said disk, two pairs of ports on each side of the piston-disk, a valve for each pair of said ports, and means for rotating said valves simultaneously to reverse the engine, substantially as described.

2. In a rotary engine, the combination with a chamber, of a rotary piston-disk in said chamber, abutments for said disk, two pairs of ports on each side of the piston-disk, a valve for each pair of said ports, each valve having an aperture adapted to register with each port of its pair, and a passage connecting said apertures and means for rotating said valves simultaneously to reverse the engine, substantially as described.

3. In a rotary engine, the combination with a chamber, of a rotary piston-disk in said chamber, abutments for said disk, two pairs of ports on each side of the piston-disk, a valve for each pair of said ports, each valve being provided with two apertures on opposite sides of the valve and in different transverse planes and an internal passage connecting said apertures, each of said apertures being adapted to register with one of the adjacent ports and means for simultaneously rotating said valves to reverse the engine, substantially as described.

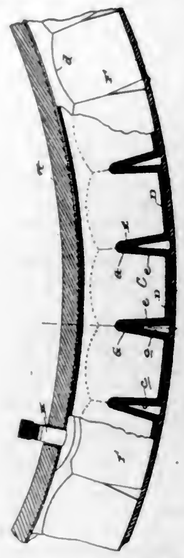
4. In a rotary engine, the combination with a chamber, of a rotary piston-disk in said chamber, abutments for said disk, two pairs of ports on each side of the piston-disk, a valve for each pair of said ports, a pinion operatively connected with each of said valves, a pair of racks each engaging two of said pinions, an operating-levor and connections between said lever and said racks for imparting a simultaneous partial rotation to said valves, substantially as described.

5. In a rotary engine, the combination with a chamber, of a rotary piston-disk in said chamber, abutments for said disk, two pairs of ports on each side of the piston-disk, a valve for each pair of said ports, a pinion operatively connected with each of said valves, a pair of racks each engaging two of said pinions, a bell-crank lever connected to each of said racks, a link connecting said bell-crank levers and means for operating one of said levers to simultaneously partially rotate all of said valves to reverse the engine, substantially as described.

6. In a rotary engine, the combination with a plurality of chambers of different areas located side by side, a rotary piston-disk in each chamber, abutments for said disks, said chambers being each provided with two pairs of ports on each side of its piston-disk, a valve for each pair of ports on the outer sides of said chambers, valves located between said chambers, each controlling a pair of ports for each adjacent chamber, and means for operating said valves simultaneously to reverse the engine, substantially as described.

7. A rotary engine provided with two chambers of different areas located side by side and having two valve-casings on the outer side of each chamber, and two intermediate valve-casings located between said chambers, each of said outer valve-casings having two ports communicating with its adjacent chamber, and said intermediate valve-casings having each two ports communicating with each chamber, of a revoluble valve in each of said valve-casings, provided with two apertures on opposite sides and in different transverse planes, and an internal passage connecting said apertures, and means for simultaneously rotating said valves to reverse the engine, substantially as described.

664,766. ARMORED PNEUMATIC TIRE. ALBERT H. LEWIS, Midvale, Ohio, assignor, by direct and mesne assignments, of three-fourths to Samuel Brannan, Charles Valot, and John A. Newport, Somerdale, Ohio. Filed Sept. 22, 1900. Serial No. 30,596. (No model.)



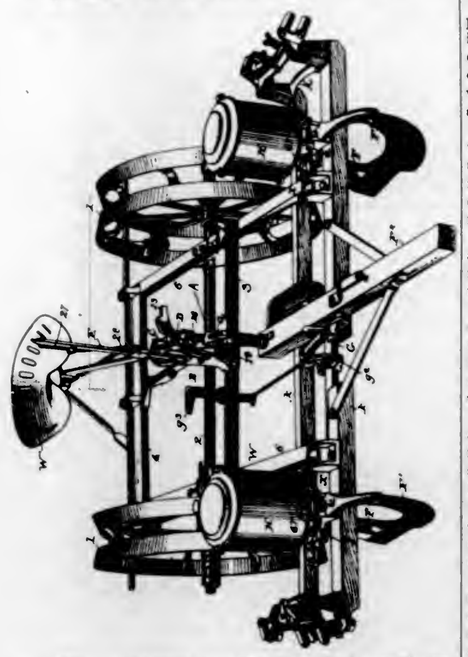
Claim.—1. In an armored pneumatic tire, the combination of an inflatable tube having portions separated by exterior spaces, armor-sections arranged on the said portions of the inflatable tube, and wear-plates arranged in the exterior spaces of the inflatable tube, and interposed between the said portions thereof and the armor-sections, substantially as specified.

2. The combination of a wheel-rim, an inflatable tube arranged thereon and having portions separated by exterior spaces, armor-sections arranged on the said portions of the inflatable tube, and an outer tube or case connected to the rim and inclosing the inner tube and armor-sections, substantially as specified.

3. In an armored pneumatic tire, the combination of an inflatable tube having the projecting portions separated by the transverse, exterior notches or spaces, the sheet-metal armor-sections arranged on the said projecting portions of the inflatable tube and having end walls resting in the exterior spaces or notches thereof and also having arms embracing the main portion of the tube, and V-shaped wear-plates arranged in the exterior spaces or notches of the inflatable tube and interposed between the end walls of the armor-sections and the projecting portions of the tube, substantially as specified.

4. The combination of a wheel-rim, an inflatable tube arranged thereon and having the projecting portions separated by the transverse exterior notches or spaces of V shape in cross-section, the sheet-metal armor-sections arranged on the said projecting portions of the inflatable tube and having end walls resting in the exterior spaces or notches thereof and also having curved arms embracing the main portion of the tube and extending to points within the plane of the rim, V-shaped wear-plates arranged in the exterior spaces or notches of the inflatable tube and interposed between the projecting portions thereof and the end walls of the armor-sections, and an outer tube or case inclosing the inflatable tube, the armor-section and the wear-plates, and connected to the rim, substantially as specified.

664,767. CORN-PLANTER. WARD LINCOLN, Rock Falls, Ill., assignor to the Sterling Manufacturing Company, Sterling Ill. Filed Apr. 17, 1900. Serial No. 13,247. (No model.)



Claim.—1. In a control device for agricultural implements, the combination of a foot-lever, a pawl pivoted thereto, a hand-lever having a curved bearing with a notch for receiving the end of said pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

2. In a control device for agricultural implements, the combination of a hand-lever and a foot-lever both pivoted on the same axis, a pawl pivoted on the foot-lever, a curved bearing on the hand-lever having a notch for receiving the end of the said pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

3. In a control device for agricultural implements, the combination of a foot-lever having a foot-rest at one end, a pawl pivoted to the lever at its other end and having a bearing for the foot, a hand-lever having a curved bearing with a notch for receiving the end of said pawl, and means for connecting the foot-lever to the part to be operated, substantially as set forth.

4. In a control device for agricultural implements, the combination of a foot-lever, a pawl pivoted thereto, a hand-lever having a curved bearing with a notch to receive the end of said pawl, means to lock the hand-lever in different positions, means for connecting the foot-lever with the part to be operated, means for releasing the pawl from the curved bearing on the hand-lever, and means for operating the foot-lever independently of the hand-lever, substantially as set forth.

5. The combination of the foot-lever, two pawls pivoted thereto, a hand-lever provided with a notched bearing engaged by one of said pawls, a stationary notched bearing engaged by the other pawl, and means for connecting the foot-lever with the part to be operated, substantially as set forth.

6. The combination of a foot-lever, two pawls pivoted thereto, a hand-lever having a notched bearing engaged by one of said pawls, a stationary notched bearing engaged by the other pawl, a locking device carried by the hand-lever to lock the latter in position, and connections between the said locking device and the pawl engaging the stationary notched bearing, whereby when the hand-lever is unlocked the said pawl is disengaged from the stationary notched bearing, substantially as set forth.

7. The combination with the seedbox, of the disk 30 and inclined ring 31 separated by an annular space, bridges extending across said space and connecting the disk and ring, a seed-plate below the disk having openings communicating with the annular space, an annular rack connected to the seed-plate, a pawl engaging said rack, means for vibrating the pawl, and a plate P below the seed-plate having a discharge-opening with which the openings in the seed-plate successively register, substantially as set forth.

8. The combination with the seedbox, of a circular seed-plate supported below the bottom of the box, a plate P having a discharge-opening and a ring M having outer and inner ratchet-teeth, a vibrating pawl engaging the outer set of teeth, a second pawl engaging the inner series of teeth, means whereby the inner pawl may be vibrated, and means whereby the inner pawl may be secured with its fulcrum in a fixed position, substantially as set forth.

9. The combination of the seedbox, seed-plate, ring connected with the said seed-plate and having inner and outer ratchets, a pawl engaging the outer ratchet, a pawl engaging the inner ratchet, a rock-shaft, and means whereby one pawl is carried with the ring on the rocking of the shaft in one direction and the other pawl upon the rocking of the shaft in the opposite direction, substantially as set forth.

10. The combination of the seed-plate, ratchet-ring having inner and outer ratchets, a lever L and pawl carried thereby and toothed segment thereon, and vibrating arm N carrying a pawl and provided with a toothed segment engaging that of the lever, substantially as set forth.

11. The combination of the seed-plate, ratchet-ring having inner and outer ratchets, a lever L and pawl carried thereby and toothed segment thereon, vibrating arm N carrying a pawl and provided with a toothed segment engaging that of the lever, and means for securing the arm N in position with its segment disconnected from that of the lever, substantially as set forth.

12. The combination of the seedbox, seed-plate, plate P below the seed-plate and having a hub *p*, an arm vibrating on said hub and carrying a pawl, a ring M having outer and inner ratchets, connected with the seed-plate, a lever L carrying a pawl, and means for vibrating the lever L and the arm N, substantially as set forth.

13. The combination with the rock-shaft, of a block having a rounded outer edge, an arm having a rounded socket adapted to receive said block, and means for clamping the arm upon the block in different positions, substantially as set forth.

14. The combination of the angular shaft G, arm *g* having a rounded socket, a block having a rounded edge adapted to fit in said socket, and an angular recess to receive said shaft, a clamp-block *g'* also having an angular recess to receive the shaft, and bolts holding the clamp-block and arm together, substantially as described.

15. The combination of the seedbox, seed-plate, a rack connected to the plate, an operating-lever L carrying a pawl engaging the rack, the rock-shaft G, an arm *g* adjustably connected to said shaft, and a connecting-rod attached to the arm and having a bent end fitting a recess in the lever L, substantially as set forth.

664,768. ORE-SEPARATOR. ALEXANDER R. MACDONALD, JR., Montreal, Canada. Filed Dec. 27, 1897. Renewed Dec. 3, 1900. Serial No. 38,561. (No model.)

Claim.—1. A sluiceway for ore-separators, comprising a sluice; a series of depressions formed therein; and bands extending vertically therefrom in series, said bands extending around the lower side of said depressions, the ends of bands of alternate series being joined, whereby the

material passing over said sluice will be given a backward rotary movement, said movement being in opposite directions during the passage of successive series of bands.



2. A sluiceway for ore-separators, comprising a sluice; a series of depressions formed therein; and semicylindrical bands extending therefrom, in series, said bands extending around the lower side of said depressions, the ends of bands of alternate series being joined, whereby the material passing over said sluice will be given a backward rotary movement, said movement being in opposite directions during the passage of successive series of bands.

3. A sluiceway for ore-separators, comprising a sluice; and bands extending vertically therefrom in series, the ends of bands of alternate series being joined, whereby the material passing over said sluice will be given a backward rotary movement, said movement being in opposite directions during the passage of successive series of bands.

4. A sluiceway for ore-separators, comprising a sluice; and semicylindrical bands extending upwardly therefrom in series, the ends of bands of alternate series being joined, whereby the material passing over said sluice will be given a backward rotary movement, said movement being in opposite directions during the passage of successive series of bands.

5. A sluiceway for ore-separators, comprising a sluice; and bands extending vertically therefrom in lateral and longitudinal series, the ends of bands of alternate longitudinal series being joined.

6. A sluiceway for ore-separators, comprising a sluice; and semicylindrical bands extending therefrom, in lateral and longitudinal series, the ends of bands of alternate longitudinal series being joined.

7. A sluiceway for ore-separators, comprising a sluice; a series of depressions formed therein; and bands extending vertically therefrom in lateral and longitudinal series, said bands extending around the lower side of said depressions, the ends of bands of alternate longitudinal series being joined.

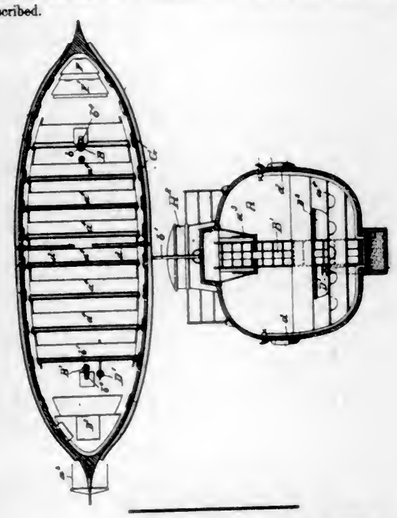
8. A sluiceway for ore-separators, comprising a sluice; a series of depressions formed therein; and semicylindrical bands extending vertically therefrom in lateral and longitudinal series, said bands extending around the lower side of said depressions, the ends of bands of alternate longitudinal series being joined.

664,769. LIFE-BOAT. EMILIEN A. MANNY, Beauharnois, Canada. Filed Feb. 24, 1900. Serial No. 6,325. (No model.)

Claim.—1. A life-boat comprising a structure closed on all sides, a fresh-water tank in the bottom thereof, collecting-gutters on the sides of the structure above the line of submergence, and pipes connecting said gutters with said tank, substantially as and for the purposes described.

2. A life-boat comprising a structure closed on all sides, a fresh-water tank in the bottom, collecting-gutters on the outside of the structure above the line of submergence thereof and extending longitudinally of the same, valved pipes connecting the gutters with said tank, and a pump in communication with the tank, substantially as described.

3. A life-boat comprising a structure closed on all sides, a fresh-water tank in the bottom of said structure, and collecting-gutters on the outside of the structure and in communication with said tank, substantially as described.



664,770. ROLL-HOLDING PHOTOGRAPHIC CAMERA. JOSEPH P. MEYER, Rochester, N. Y. Filed June 20, 1900. Serial No. 20,995. (No model.)



Claim.—1. In a photographic camera, the inner removable casing comprising end compartments for film-rolls, a middle compartment having an inclined mirror therein, and partitions between the end and middle compartments over which the film passes.

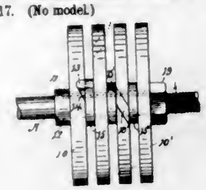
2. In a photographic camera, the combination of an outer casing having a lens-board connected thereto, said casing being open at the back, with an inner casing having end compartments for the film-rolls, a middle compartment provided with an inclined mirror, and partitions between said middle and end compartments.

3. In a photographic camera, the inner removable casing comprising end compartments for the film-rolls, a middle compartment in which is an inclined mirror, and a hinged front piece adapted to close the forward ends of the roll-compartments and assist in supporting the film-rolls.

4. In a photographic camera, the combination of a casing having a lens-board connected thereto, a film-holder removably fitted in said casing and having its interior divided into three compartments by suitable partitions, stationary supports for film-rolls arranged within the end compartments of said holder, an inclined mirror arranged in the middle compartment of the film-holder to reflect rays upon the surface of a film extending between said partitions, and a roll-support hinged to the body of the film-holder and adapted to close the end compartments therein.

5. In a photographic camera, the combination of an outer casing having a lens-board connected thereto, a removable film-holder having two transverse partitions dividing it into three compartments, a brace-rod connecting said partitions at one end, and an inclined mirror arranged in the compartment between said partitions to reflect rays upon a film supported by said partitions while passing from one of the end compartments of the film-holder to the other.

664,771. MECHANISM OR APPARATUS FOR BENDING TUBING. WILLIAM W. MCCALLUM, Milwaukee, Wis. Filed Apr. 12, 1900 Serial No. 12,517. (No model.)



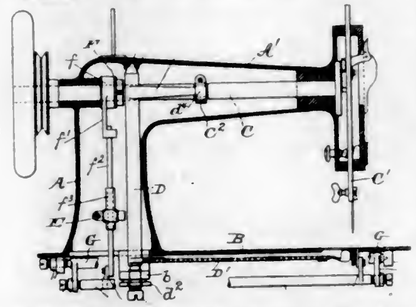
Claim.—1. The combination of a revoluble shaft, an initial plate on and revoluble with the shaft, said plate having a groove for taking and holding the end of tubing, a coil-core on the shaft adjacent to said plate, and a second plate on and revoluble with the shaft at a distance from the initial plate substantially equal to the diameter of the tubing to be bent, said second plate being secured to the shaft releasably.

2. The combination of a revoluble shaft, an initial plate on and revoluble with the shaft, means in the plate for taking and holding the end of tubing, other plates on and revoluble with and severally removable from the shaft, the plates being separated a distance from each other and the plate or plates intermediate of the end plates of the series of plates being slotted radially from near the shaft to the outer edge.

3. The combination of a revoluble shaft, an initial plate on and revoluble with the shaft, means in the plate for taking and holding the end of tubing, other plates on and revoluble with and severally removable from the shaft, the plate or plates intermediate of the end plates being slotted radially from near the shaft to the outer edge, and independent coil-cores on the shaft extending from a plate to the adjacent plate substantially as long as the diameter of the tubing to be bent.

4. In mechanism for bending tubing, a shaft, an initial radially-projecting plate thereon, one or more removable radially-projecting plates on the shaft and adjacent to but at a predetermined distance from the initial plate and from each other, the intermediate plate or plates being slotted radially from near the shaft to the outer edge, coil-cores about the shaft between the plates, each core being circumferentially eccentric in form and provided with a radially-disposed shoulder immediately in front (in the direction of motion) of the radial slot in the preceding plate, and means for securing the removable plates and the cores detachably to the shaft.

664,772. FEEDING MECHANISM FOR SEWING-MACHINES. J. F. MCKENNEY, Baltimore, Md. Filed Sept. 2, 1896. Serial No. 604,613. (No model.)



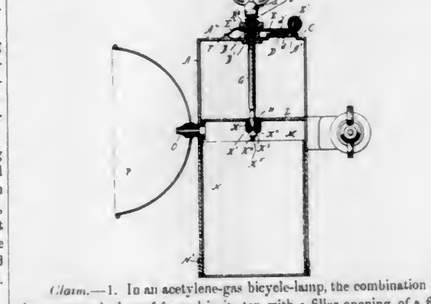
Claim.—1. In a sewing-machine, the combination with a rock-shaft having an arm extending therefrom and carrying the work-engaging feed-surface, of a pivoted hanger for said rock-shaft, an oscillating and longitudinally-moving rod operatively connected with said rock-shaft, and the driving-shaft and cam to impart the requisite motion to said rod, substantially as described.

2. In a sewing-machine the combination with a rock-shaft having two rigid arms extending therefrom, one of said arms carrying the work-engaging feed-surface, of an oscillating and longitudinally-moving rod connected to the other arm of said rock-shaft, the driving-shaft and cam for imparting the requisite movements to said rod, and a pivoted hanger for said rock-shaft, substantially as described.

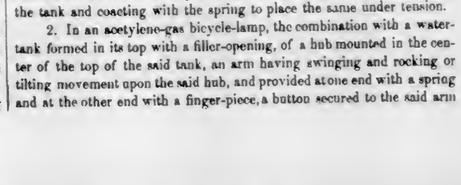
3. In a sewing-machine the combination with a rock-shaft carrying the work-engaging feed-surface of a pivoted hanger for supporting said rock-shaft a driving-shaft parallel to said rock-shaft provided with an operating-cam, a vertical rod connecting said cam and said rock-shaft, a guiding-sleeve on said rod provided with a spherical bearing, a bracket having a bearing to engage said spherical bearing portion of the sleeve and means for adjusting said bracket and sleeve longitudinally of said rod to vary the movements of said feeding devices, substantially as described.

664,773. SHUTTLE-ACTUATING MECHANISM FOR SEWING-MACHINES. J. F. MCKENNEY, Baltimore, Md. Original application filed Sept. 2, 1896. Serial No. 604,613. Divided and this application filed May 31, 1900. Serial No. 18,626. (No model.)

Claim.—In a sewing-machine the combination with the horizontal driving-shaft, provided with a crank, of a vertical rock-shaft out of the plane of the crank, said rock-shaft having an arm in the horizontal plane of said horizontal driving-shaft, a link connecting said arm and said crank and joined to each by universal-joint connections, and a shuttle-operating arm operatively connected with said rock-shaft, whereby the shuttle is given a dwell at one end of its movement, substantially as described.



664,774. HAMMOCK. ISAAC E. PALMER, Middletown, Conn. Filed Jan. 18, 1898. Serial No. 667,032. (No model.)



Claim.—1. The combination with a hammock, of a slat or rung provided with end projections, a holding-tongue and means for retaining the holding-tongue in position intermediate of the said end projections to form a clamp for engaging the edge of the body of the hammock to hold the slat or rung in removable adjustment, substantially as set forth.

2. The combination with a hammock, of a transverse slat or rung provided with recessed ends and clamps engaged with the slat or rung at its recessed ends, the said clamps comprising socket-pieces and a tongue intermediate of the socket-pieces, for engaging the edges of the hammock to hold the slat or rung in position, substantially as set forth.

3. A transverse slat or rung adapted to engage the opposite edges of the body of the hammock, the said slat or rung being provided at its end with a clamping device comprising a pair of socket-pieces connected together and connected to the end of the slat and a tongue hinged in the said socket-pieces and held in position by the portions of the slat which engage the socket-pieces, substantially as set forth.

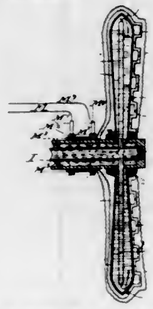
664,775. ACETYLENE-GAS BICYCLE-LAMP. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., same place. Filed Dec. 11, 1899. Serial No. 739,861. (No model.)

Claim.—1. In an acetylene-gas bicycle-lamp, the combination with the water-tank thereof formed in its top with a filler-opening, of a filler-cap, a swinging arm carrying the said cap and swiveled centrally above the top of the said tank, a spring carried by and coacting with the said arm to hold it in its closed position, and a cam located upon the top of the tank and coacting with the spring to place the same under tension.

2. In an acetylene-gas bicycle-lamp, the combination with a water-tank formed in its top with a filler-opening, of a hub mounted in the center of the top of the said tank, an arm having swinging and rocking or tilting movement upon the said hub, and provided at one end with a spring and at the other end with a finger-piece, a button secured to the said arm

near its finger-piece, an elastic filler-cap secured to the said button and larger in diameter than the same, and a cam mounted upon the top of the said tank for coaction with the said spring.

664,776. APPARATUS FOR COOLING AND AGITATING AIR. EDWIN F. PORTER, Boston, Mass., assignor to the Bay State Electric Heat and Light Company, Jersey City, N. J. Filed Dec. 20, 1897. Serial No. 662,541. (No model.)



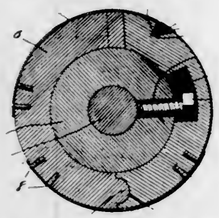
Claim.—1. In an apparatus of the character specified, a rotatable fan provided with a hollow blade, means for circulating a fluid through said hollow blade, a thermopile contacting with the face of said blade, and means for supplying electricity to said thermopile.

2. In an apparatus of the character specified, a fluid-supply chamber, a fluid-receiving chamber, a hollow shaft, means for rotating said shaft, a fan carried by said shaft having a hollow blade, passage-ways connecting said chambers through said hollow shaft with said hollow blade to circulate a fluid through said blade, a thermopile contacting with the face of said hollow blade, and means for supplying electricity to said thermopile.

3. In an apparatus of the character specified, a rotatable shaft, a fan carried by said shaft having a hollow blade, means for circulating a fluid through said blade, a thermopile contacting with the face of said hollow blade, collectors carried by said shaft, brushes electrically connected with a source of electricity engaging with said collectors, electrical connections between said collectors and said thermopile, and means for rotating said shaft.

4. In an apparatus of the character specified, a fluid-supply chamber, a fluid-receiving chamber, a hollow shaft, means for rotating said shaft, a fan carried by said shaft having a hollow blade, passage-ways connecting said chambers through said hollow shaft with said hollow blade to circulate a fluid through said blade, a thermopile contacting with the face of said hollow blade, collectors carried by said shaft, brushes electrically connected with a source of electricity engaging with said collectors, and electrical connections between said collectors and said thermopile.

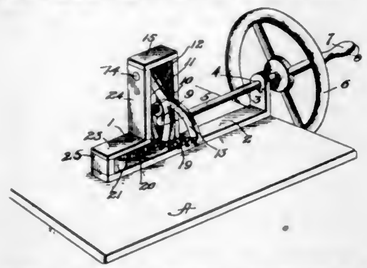
664,777. COVER OR GUARD FOR SET-SCREWS. RALPH W. PRATT, Orwell, N. Y. Filed May 7, 1900. Serial No. 15,761. (No model.)



Claim.—1. A guard or cover for set-screws, comprising two semicircular sections connected by a tongue-and-groove joint; a flat spring spanning said joint and conforming to the peripheral surface of the sections, secured at its ends to the sections, and a spring-catch secured to one of the sections, and adapted to engage a recess in the other section.

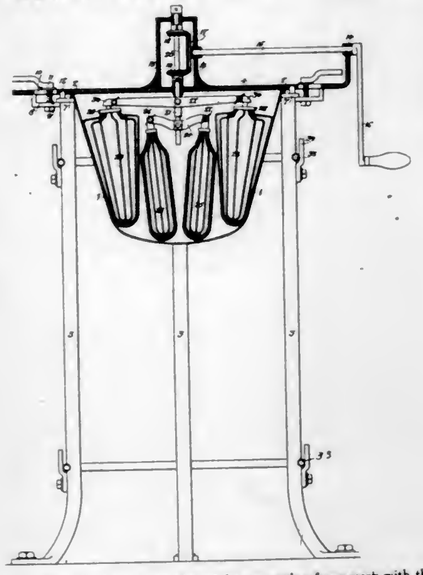
2. A guard or cover for set-screws, comprising two semicircular sections, one of which is recessed on both its inner and outer surface, connected by a semicircular tongue-and-groove joint; a flat spring spanning said joint and forming a hinge for the sections; and a catch device comprising a flat spring secured at one end to one section, and formed at its free end with a dog, having an extension.

664,778. GEARING. JOHN QUIST and CHARLES QUIST, Mystic Iowa. Filed Mar. 15, 1900. Serial No. 8,787. (No model.)



Claim.—In gearing for imparting rotary reciprocating motion, a frame comprising a horizontal bed-plate provided at one end with a vertical bearing-arm; a distance-block mounted vertically upon the opposite end of the bed-plate parallel with said arm; a vertical standard rising from the bed-plate; an L-shaped standard having its vertical body portion extending parallel with said vertical standard and its horizontal arm projecting outwardly above and parallel with the bed-plate and resting on said distance-block; and a bridge-piece joining the upper ends of said standards, in combination with gearing comprising a vertical shaft journaled in the bed-plate and horizontal arm of the L-shaped standard and carrying a pinion housed between said parts; a horizontal shaft journaled in the upper ends of the standards; a segmental gear mounted on said shaft to swing between the standards; a spool located on the horizontal shaft between one of said standards and the segmental gear; and a drive-shaft journaled in the said vertical arm of the bed-plate and the contiguous vertical standard and provided at its inner end with a crank-arm carrying a friction-roller to engage a slot in the segmental gear, substantially as set forth.

664,779. COMBINED EGG BEATER AND MIXER. ROBERT G. RABIGER and EMIL H. RABIGER, Philadelphia, Pa. Filed Apr. 16, 1900. Serial No. 13,071. (No model.)



Claim.—1. The combination of the supporting-framework with the vessel having a rib or flange resting thereupon, a cross-bar whereby said rib or flange is confined to the supporting-framework, and clamping devices for detachably securing said cross-bar in position, substantially as specified.

2. The combination of the posts of the supporting-framework, with the vessel having a rib or flange resting on said post, a sectional lid, and swinging clamps or turnbuckles whereby said sectional lid is confined to the vessel and the latter to the posts, substantially as specified.

3. The combination of the vessel, the supporting-framework having

posts with projecting caps, a slotted cross-bar and securing devices therefor comprising angle-clamps engaging with the projecting caps of the posts, screw-bolts passing through the slots of the cross-bar, and nuts engaging with said bolts, substantially as specified.

4. The combination of the vessel with a supporting-framework having posts with projecting dowel-pins at their upper ends, a cross-bar having openings for the reception of said dowel-pins, and clamps for vertically confining the cross-bar to the posts, substantially as specified.

5. The combination of the vessel and its support, with the inner and outer beaters or mixers mounted so as to revolve in opposite directions around a common axis, some of the beaters being rotatably mounted on their individual axes and having a limited amount of play whereby they may come into engagement with the oppositely-moving beaters and receive a whirling motion therefrom, substantially as specified.

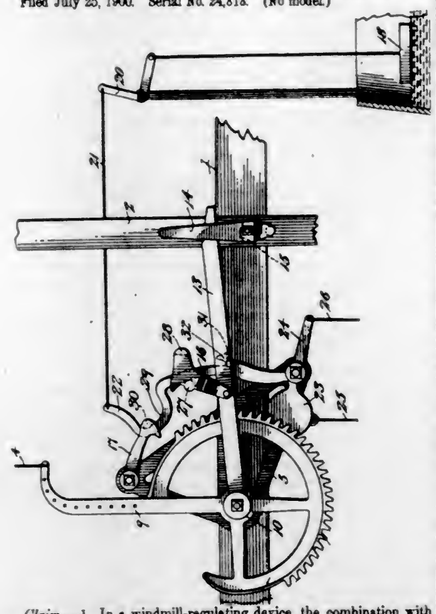
6. The combination of the vessel and its support, with a rotating arm or cross-bar, a slotted beater-head, and a transverse bolt and nut for securing said slotted beater-head to the arm or cross-bar whereby the beater can be readily removed or replaced when the nut is slackened without removing the nut or bolt, substantially as specified.

7. The combination of the rotating arm or cross-bar, a beater-head secured thereto and having a depending stem with enlarged lower end, and a beater having a top ring supported upon said enlarged lower end of the stem but having an opening somewhat greater in diameter than the stem, whereby a limited amount of lateral play of the beater on the stem is permitted, substantially as specified.

8. The combination of the legs of the supporting-framework, with the encircling rings bearing upon the outer sides of said legs and swinging clamp-levers or turnbuckles on the legs whereby the rings are confined thereto, substantially as specified.

9. The combination of the legs of the supporting structure having recesses in their outer sides with the rings fitted in said recesses and swinging clamp-levers or turnbuckles hung to the legs and serving to secure said rings thereto, substantially as specified.

664,780. WINDMILL-REGULATOR. FRED RICK, Shopiere, Wis. Filed July 25, 1900. Serial No. 24,818. (No model.)



Claim.—1. In a windmill-regulating device, the combination with a regulating-arm and a reciprocatory pump-rod, of an operating-lever operatively related to the regulating-arm and arranged for oscillation by the pump-rod, and automatically-operative means engaging and sustaining the operating-lever at one limit of its movement to prevent further actuation of said lever by the pump-rod.

2. In a windmill-regulating device, the combination with a regulating-arm and a reciprocatory pump-rod provided with a shoulder, of a sector movable with the regulating-arm, a check-pawl arranged for engagement with the sector, an oscillatory operating-lever having its free end opposed to the pump-rod and provided with an operating-pawl arranged for engagement with the sector, a governor-lever arranged to engage the pawls and to obstruct the path of movement of the operating-lever, and means for actuating the governor to operatively connect the pawls and the operating-lever with the sector and pump-rod or to effect the disconnection of said elements.

3. In a windmill-regulating device, the combination with a regulating-arm and a sector movable therewith, of a reciprocatory pump-rod, an operating-lever arranged for oscillation by the pump-rod and provided with an operating-pawl for engagement with the sector, and an automatically-operative device having direct coöperative relation with the pawl and operating-lever for throwing the pawl out of engagement with the sector and for directly supporting the operating-lever out of operative relation with the pump-rod.

4. In a windmill-regulating device, the combination with a regulating-arm controlling the operation of the mill, and a reciprocatory pump-rod, of a sector movable with the regulating-arm, an operating-lever mounted for oscillation by the pump-rod and having an operating-pawl designed to engage the sector, a check-pawl likewise engaging the sector, and an automatically-operated device for throwing both pawls out of engagement with the sector and for supporting the operating-lever out of operative relation with the pump-rod.

5. In a windmill-regulating device, the combination with a regulating-arm controlling the operation of a windmill and a reciprocatory pump-rod having a shoulder, of a sector movable with the regulating-arm, an operating-lever having its free end arranged for engagement with the shoulder of the pump-rod, and an operating-pawl mounted upon the lever, of an automatically-operated device for throwing the operating-pawl out of engagement with the sector and for directly supporting the operating-lever at a point above the path of movement of the shoulder during the reciprocation of the pump-rod in the intervals between the operations of the controlling mechanism.

6. In a windmill-regulating device, the combination with a regulating-arm controlling the operation of the mill and a reciprocatory pump-rod provided with a shoulder, of a sector movable with the regulating-arm, a check-pawl arranged for engagement with the sector, an oscillatory operating-lever having its free end opposed to the shoulder of the pump-rod and provided with an operating-pawl arranged for engagement with the sector, each of said pawls and the operating-lever being provided with projections, a governor-lever arranged to engage the projections of the pawls and provided with a shoulder arranged for engagement with the projection upon the operating-lever, and means for actuating the governor-lever to connect the pawls and the operating-lever with the sector and pump-rod or to effect the disconnection of said elements.

7. In a windmill-regulating device, the combination with a regulating-arm arranged to control the operation of the mill and a reciprocatory pump-rod provided with a shoulder, of a sector, an operating-lever arranged to be engaged by the shoulder of the pump-rod, an operating-pawl carried by the lever for engagement with the sector, a governor-lever disposed to throw the operating-pawl into or out of engagement with the sector and to engage and retain the operating-lever at one limit of its stroke to prevent the engagement of the operating-lever by the shoulder of the pump-rod, means for automatically operating the controlling-lever, and independent means for effecting its manual actuation.

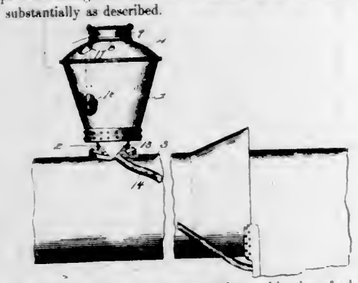
8. In a windmill-regulating device, the combination with a regulating-arm controlling the operation of the mill and a reciprocatory pump-rod provided with a shoulder, of a sector movable with the regulating-arm, an operating-lever arranged to be engaged by the shoulder of the pump-rod, an operating-pawl carried by the lever for engagement with the sector, a check-pawl likewise mounted to engage the sector, a counterweighted governor-lever mounted for direct engagement with both of the pawls and with the operating-lever to control the engagement of the pawls with the sector and to sustain the operating-lever at one limit of its movement to prevent further actuation of said lever by the pump-rod, and a float controlling the operation of the governor-lever.

9. In a windmill-regulating device, the combination with a triangular supporting-plate provided with trunnions extending laterally at each corner thereof, of a regulating-arm and an integral sector mounted for axial movement upon one of the trunnions, an operating-lever mounted upon the same trunnion, a check-pawl and a governor-lever mounted, respectively, upon trunnions at opposite corners of the supporting-plate, an operating-pawl carried by the operating-lever, a pump-rod provided with a shouldered keeper engaging the operating-lever, and means for shifting the position of the governor-lever to effect the disengagement of the pawls from the sector and to retain the operating-lever out of operative relation with the shoulder of the keeper.

664,781. SPARK ARRESTER AND CONSUMER. JAMES B. RIGHTER, Elroy, Wis. Filed Apr. 17, 1900. Serial No. 13,261. (No model.)

Claim.—1. A device of the class described comprising a casing de-

signed to be arranged around the short stack of a boiler, pipes or conduits extending from opposite sides of the casing to the fire-box, a deflector designed to be arranged over the short stack, and an approximately vertical air-tube located within the front portion of the casing and extending at its upper end through the same and depending below the top of the short stack, substantially as described.

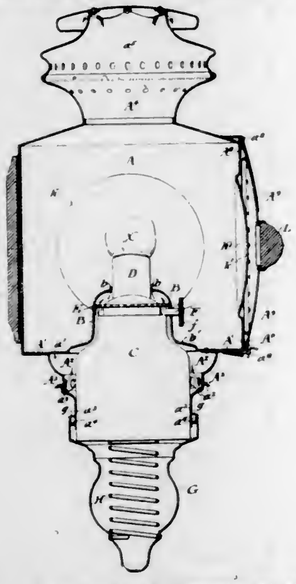


2. In a device of the class described, the combination of a boiler having a short stack, a casing surrounding the short stack and provided at opposite sides with tapered portions or hoppers, pipes or conduits extending from the tapered portions or hoppers to the fire-box, a deflector arranged within the casing and located above the short stack, and the air-tube arranged at the front of the casing and depending from the top thereof to a point below the top of the short stack, said air-tube being provided at its upper end with a funnel extending through the casing, substantially as and for the purpose described.

664,782. FILTERING MATERIAL. EDUARD VON RITTERSHAUSEN, Vienna, Austria-Hungary. Filed Aug. 29, 1900. Serial No. 28,471. (No specimens.)

Claim.—A filtering material in the form of slabs or hollow bodies (candles), composed of particles of syenite that have been caused to adhere together superficially by baking, substantially as described.

664,783. CARRIAGE-LAMP. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed July 30, 1900. Serial No. 25,271. (No model.)



Claim.—1. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber from the floor thereof, an oil-receptacle beneath said dome in removable relation therewith, a burner-tube upon said receptacle projecting through the top of said dome, an air-inlet at the bottom of said dome, and an air-outlet from said dome around and below the top of said burner-tube, substantially as set forth.

2. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber from the floor thereof, an oil-receptacle beneath said dome in removable relation therewith, a burner-tube upon said receptacle, projecting through the top of said dome, an air-inlet at the bottom of said dome, an air baffle-flange within said dome, above said inlet, and an air-outlet from said dome above said baffle-flange around and below the top of said burner-tube, substantially as set forth.

3. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber from the floor thereof, an oil-receptacle beneath said dome in removable relation therewith, a wick-tube upon said receptacle, a wick-shaft upon said receptacle, an opening in the top of said dome, an opening in the side of said dome, and means to secure said receptacle in removable relation with said flame-chamber, with said wick-tube projecting through the top of said dome, and said wick-shaft projecting through the side of said dome, substantially as set forth.

4. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber, from the floor thereof, an oil-receptacle beneath said dome in removable relation therewith, an air-draft space surrounding said receptacle, between the same and said dome, an air-outlet to said draft-space, at the bottom of said dome, an air-outlet from said draft-space at the top of said dome, and a burner-tube upon said receptacle projecting above said dome, through said air-outlet in the top thereof, substantially as set forth.

5. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber, from the floor thereof, an annular flange depending below said floor, of larger diameter than said dome, an air-inlet in said flange, an air-outlet through said floor, between said flange and said dome, an oil-receptacle fitted beneath said dome with an intervening air-draft space surrounding said receptacle, a burner-tube upon the top of said receptacle, projecting through the top of said dome, and an air-outlet in the top of said dome around and below the top of said burner-tube, substantially as set forth.

6. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber, from the floor thereof, an oil-receptacle beneath said dome in removable relation therewith, a burner-tube upon said receptacle projecting through the top of said dome, an air-inlet at the bottom of said dome, an air baffle-flange fixed upon said receptacle, above said inlet, and an air-inlet from said dome, above said baffle-flange, around and below the top of said burner-tube, substantially as set forth.

7. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber, from the floor thereof, an oil-receptacle beneath said dome, in removable relation therewith, a burner-tube upon said receptacle, projecting through the top of said dome, an air-draft space surrounding said receptacle between the same and said dome, an annular flange depending below said floor, of larger diameter than said dome, an air-inlet through said flange to said dome, an air-outlet through said floor between said depending flange and said dome, an air baffle-flange within said dome, above said floor, and an air-outlet from said dome above said baffle-flange, around and below the top of said burner-tube, substantially as set forth.

8. In a carriage-lamp, the combination with a flame-chamber, of a dome projecting within said chamber, from the floor thereof, an oil-receptacle beneath said dome, in removable relation therewith, a burner-tube upon the top of said receptacle, means to secure said receptacle beneath said dome, with said tube projecting through the top of said dome, and means to permit withdrawal of said receptacle from beneath said dome, substantially as set forth.

9. In a carriage-lamp, the combination with a flame-chamber; of an air-draft dome projecting within said chamber, and secured to the floor thereof, said dome being provided with a lateral opening *b'*, wider at its bottom than at its top, substantially as and for the purpose set forth.

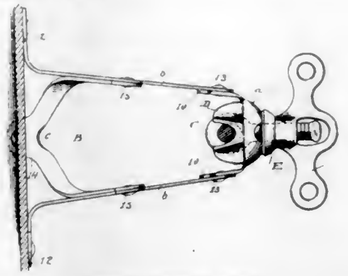
10. In a carriage-lamp, the combination with a flame-chamber, of an air-draft dome projecting within said chamber, from the floor thereof, an annular flange fixed to said floor, and means on said flange to detachably engage the bottom edge of said dome, substantially as set forth.

11. In a carriage-lamp, the combination with a flame-chamber, of an air-draft dome projecting within said chamber, from the floor thereof, a stud in fixed relation with said floor and detachably engaged with the lower edge of said dome, and a stud in movable relation with said floor, detachably engaged with the lower edge of said dome, substantially as set forth.

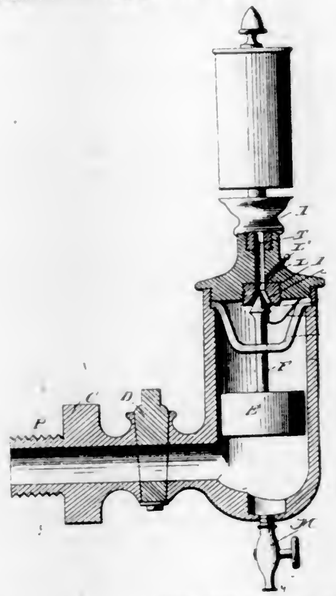
12. In a lamp, the combination with an inclosed flame-chamber, of a draft-dome projecting within said chamber, from the floor thereof, a burner, surrounded by and projecting through the top of said dome, and means to conduct a draft of air through said dome, and discharge the same around and below the top of said burner, substantially as set forth.

664,784. UMBRELLA-ROD CLAMP. ADOLPHUS G. SNELL, New Haven, Conn. Filed May 16, 1900. Serial No. 16,880. (No model.)

Claim.—A sheet-metal frame for carriage-rod clamps comprising a socket having a vertical slot, side pieces riveted to said socket and having attaching-feet and a V-shaped piece having an attaching-foot at the angle, the arms of said V-shaped piece being riveted to the side pieces, substantially as described.



664,785. LOW-WATER ALARM. MARTIN R. SCHAFFER, Weissport, Pa., assignor of one-half to Hiram A. Greenswerig, same place. Filed Mar. 31, 1900. Serial No. 10,916. (No model.)

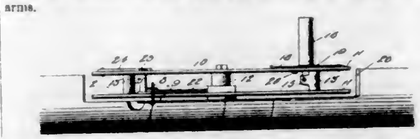


Claim.—1. In a low-water alarm for steam-boilers, the combination with the inclosing shell adapted to be connected to a steam-boiler, of a whistle having a screw-threaded hollow stem, a cap having a screw-threaded engagement with the shell and a screw-threaded connection with the whistle-stem and formed with a vertical passage intersected by a diagonal aperture closed by a screw-plug, a suitably-guided valve controlling the outlet of steam through said passage, and a float attached to said valve, substantially as set forth.

2. A low-water alarm comprising, in combination, a shell, provided with screw-threads adjacent its mouth and shoulders below said threads, a pendent yoke-shaped guide having its arms resting on said shoulders, a whistle having a screw-threaded hollow stem to engage the threaded mouth of the shell and formed with a vertically-disposed outlet intersected by a diagonal passage, a valve movable in said guide and adapted to be reached through said passage and controlling the outlet of steam through said passage, a float attached to the valve, and a spring tending to open the valve, substantially as set forth.

664,786. FISHING-POLE. GEORGE C. SETCHELL and HORACE R. SETCHELL, Philadelphia, Pa. Filed May 7, 1900. Serial No. 15,763. (No model.)

Claim.—1. The combination with a pole having a recess therein, of a plate secured within said recess, arms pivoted within the plate, a stud, and a reel mounted upon the stud, and adapted to be engaged by said arms.



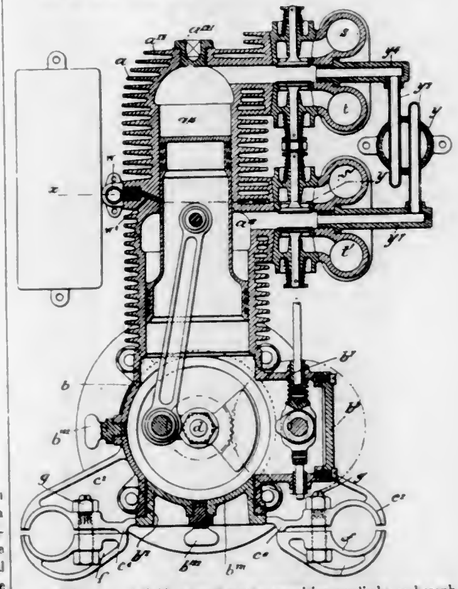
2. The combination with a pole, of a stud projecting therefrom, a toothed wheel upon the stud, a reel mounted upon the stud, a rod slidable within the reel, and means for locking said rod into, or out of, engagement with said wheel.

3. The combination with a pole, of a stud projecting therefrom, an annular flange upon the stud, a toothed wheel upon the stud, a reel mounted upon the stud and bearing upon the flange, a rod slidably mounted within the reel, and a catch adapted to hold said rod into, or out of, engagement with the wheel.

4. The combination with a pole, of a stud projecting therefrom and having a toothed wheel thereon, an annular flange upon the stud, a reel mounted upon the stud and bearing upon the flange, a rod slidably mounted within the reel, a catch for locking said rod into, or out of, engagement with the wheel, and means for locking the reel against rotation.

5. A reel comprising similar plates, having apertures therein, a handle pivoted within the reel, and adapted to swing outwardly therefrom and means for locking the handle in raised position.

664,787. FLUID-PRESSURE MOTOR. WILLIAM E. SIMPSON, London, England. Filed May 28, 1900. Serial No. 18,254. (No model.)



Claim.—1. A fluid-pressure motor comprising a cylinder and crank-chamber cast in one piece, inlet and exhaust ports upon said cylinder, said inlet and exhaust ports being cast in one with the cylinder and crank-chamber and arranged transversely to the axial line of the cylinder and entirely across the same to abut against the ports of adjacent cylinders, for the purposes and substantially as described.

2. In combination in a fluid-pressure motor, a plurality of cylinders with their inlet and exhaust ports, and incandescent-lamp-tube sections arranged to be coincident when the cylinders are assembled, said tube-sections extending entirely across and transversely of the cylinders and abutting, substantially as described.

3. In fluid-pressure motors, the combination of a plurality of cylinders having inlet and exhaust ports and vaporizer-sections upon said cylinders arranged to be coincident when the cylinders are assembled and connected together, said tube-sections extending entirely across and transversely of the cylinders and abutting, substantially as described.

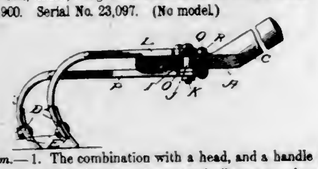
4. In fluid-pressure motors, the combination of a plurality of cyl-

inders having inlet and exhaust ports and sections of lubricating-oil-supply piping upon said cylinders arranged to be coincident when the cylinders are assembled and connected together, said tube-sections extending entirely across and transversely of the cylinders and abutting, substantially as described.

5. In fluid-pressure motors, the combination of a cylinder, a piston, a crank-shaft, a crank-chamber and a pipe or conduit extending transversely from one side of the cylinder to the other and open at each end, said pipe or conduit being arranged to abut against and coincide with a similar pipe on a cylinder located on either side of the cylinder first mentioned, substantially as described.

6. In fluid-pressure motors, the combination of a cylinder, a piston, a crank-shaft, a crank-chamber and a pipe or conduit extending transversely from one side of the cylinder to the other and open at each end, said pipe or conduit being arranged to abut against and coincide with a similar pipe on a cylinder located on either side of the cylinder first mentioned and a cover to inclose the remaining open end of the said pipe, substantially as described.

664,788. COMBINED RAKE AND MARKER. WILLIAM H. SMITH, Burr Oak, Kans., assignor of one-half to Powell B. Porter. Filed July 10, 1900. Serial No. 23,097. (No model.)

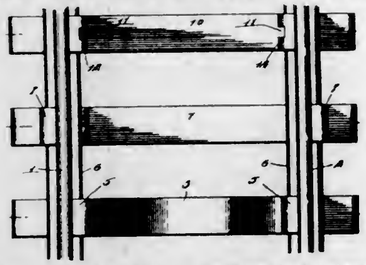


Claim.—1. The combination with a head, and a handle therefor, of a plurality of teeth-shanks pivoted concentrically on opposite sides of said head, and means for independently securing each shank in adjusted positions, substantially as described.

2. The combination with a head, and a handle therefor, of a pivot secured to said head, a plurality of teeth-shanks each pivoted on said pivot, part of said shanks located on one side and part on the opposite side of said head, said head having curved slots concentric with said pivot, and an adjusting device for each shank working in one of said slots, whereby said shanks can be independently adjusted angularly, substantially as described.

3. The combination of a head, a handle therefor, a pivot-bolt passing through said head, a plurality of teeth-shanks pivoted on said pivot-bolt on one side of the head, a plurality of teeth-shanks pivoted on said bolt on the opposite side of the head, said head having curved slots concentric with said pivot-bolt, adjusting-bolts for said shanks passing through said curved slots, and set-nuts for said bolts, whereby said shanks can be independently adjusted angularly, substantially as described.

664,789. METALLIC RAILWAY-TIE. ROBERT O. SOUTHWORTH, Abilene, Kans. Filed Apr. 26, 1900. Serial No. 14,454. (No model.)

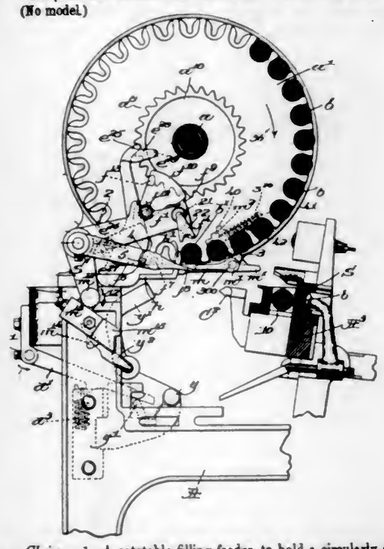


Claim.—1. A metallic railway-tie comprising a bar bent downward between its ends to form an anchoring-support of inverted-arch shape, and bent upon itself at its ends, and then outward to form rail-clamps.

2. A railway-track structure comprising the combination with the rails, of metallic ties consisting of bars bent to form anchoring-supports of inverted-arch shape, reinforced rail-seats, and clamps to embrace the inner flanges of the rails; and supplemental ties arranged between said first-named ties, consisting of straight bars passing under the rails and bent iuward to engage the outer flanges of the rails.

3. The combination with the rails of a railway-track, of a metallic tie comprising a bar bent to form an anchoring-support of inverted-arch shape, and bent upon itself to form reinforced ends, and rail-clamps, and formed with recesses on the inner sides of the rails, and a supplemental cross-brace comprising a metal bar formed at its ends with lugs fitting the recesses in the tie.

664,790. FILLING-REPLENISHING MECHANISM FOR LOOMS. EDWARD S. STIMPSON, Hopedale, Mass., assignor to the Draper Company, same place and Portland, Me. Filed Sept. 22, 1900. Serial No. 30,740. (No model.)



Claim.—1. A rotatable filling-feeder to hold a circularly-arranged series of filling-carriers, a transferrer, and means including a member movable with and also relatively to the transferrer, to move the feeder positively and intermittingly and place the filling-carriers one by one in position to be transferred.

2. A movable filling-feeder to hold a series of filling-carriers, a transferrer to move the feeder positively and intermittingly and place the filling-carriers one by one in position to be transferred, means to normally prevent movement of the feeder, and a starting device controlled by or through the transferrer to overcome the inertia of the feeder when free to move after a transfer has taken place.

3. A movable filling-feeder to hold a series of filling-carriers, a transferrer, a dog movably mounted thereon, and a toothed member movable with the feeder and engaged by the dog when the transferrer returns to normal position to positively overcome the inertia of and to move the feeder to bring into operative position the next filling-carrier to be transferred.

4. A rotatable filling-feeder adapted to hold a series of circularly-arranged filling-carriers, a ratchet-wheel rotatable therewith, a transferrer, a dog thereupon to coöperate with the ratchet-wheel, a detent to prevent retrograde movenient of the feeder, operation of the transferrer advancing the dog upon the ratchet-wheel, return of the transferrer to normal position acting through the dog to overcome the inertia of and move the feeder forward until the filling-carrier next to be transferred is in the path of the transferrer, and a stop independent of the transferrer to engage such filling-carrier and terminate feeding movement of the feeder.

5. A rotatable filling-feeder adapted to hold a series of filling-carriers, a ratchet-wheel movable therewith and notched to correspond to the position of the filling-carriers, a transferrer, a dog carried thereby to enter a notch of the ratchet-wheel and effect feeding movement of the feeder when the transferrer is retracted, to thereby bring the filling-carrier next to be transferred into the path of the transferrer, and means independent of the transferrer to stop the feeding movement when such filling-carrier is properly positioned.

6. A step-by-step rotatable holder adapted to contain a plurality of filling-supplies, a transferrer to remove the filling-supplies one after another, and means controlled by movement of the transferrer to commence and to continue the rotation of the holder after transfer of a filling-carrier therefrom.

7. A movable filling-feeder to hold a series of filling-carriers, a transferrer to engage and remove the latter one by one, means controlled by the transferrer to positively and intermittingly effect feeding movement of the feeder, and means independent of the transferrer to stop the feeding movement.

8. A movable holder to support a series of filling-supplies, a transferrer, and means, including a member movable with the transferrer, to overcome the inertia of and to thereafter effect a step-by-step movement of the holder and thereby present the filling-supplies one after another to the action of the transferrer.

9. A rotatable holder adapted to contain a plurality of filling-supplies, a transferrer to remove the latter singly from the holder, means controlled by the transferrer to move the holder through a variable arc of sufficient amplitude to bring into position the next filling-supply to be transferred, and means independent of the transferrer to stop such movement of the holder when the filling-supply next to be transferred is in operative position.

10. A rotatable filling-feeder adapted to hold a circularly-arranged series of filling-carriers with their resultant weight at one side of its axis, a transferrer movable at the opposite side of such axis to engage and remove one by one the filling-carriers as they are brought into operative position by movement of the feeder, means controlled by the transferrer and operating in conjunction with gravity to overcome the inertia of and effect feeding movement of the feeder, and means independent of the transferrer to stop such movement when the filling-carrier next to be transferred is in the path of the transferrer.

11. A movable filling-feeder to hold a series of filling-carriers, a transferrer, and means, including a member movable with and also relatively to the transferrer, to move the feeder positively and intermittingly, operation of the transferrer acting to position said member preparatory to feed movement, subsequent retraction of the transferrer acting through the said member to positively move the feeder and place the filling-carrier next to be transferred into the path of the feeder.

12. A movable filling-feeder to hold a series of filling-carriers, an attached ratchet-wheel, a transferrer, a dog fulcrumed thereon and adapted to coöperate with the ratchet-wheel to effect feed movement of the feeder upon retraction of the transferrer, to thereby bring the next filling-carrier into position to be transferred, operative movement of the transferrer positioning the dog relatively to the ratchet-wheel, and an independent stopping device to terminate the feeding movement of the feeder.

13. A movable filling-feeder to hold a series of filling-carriers, an attached ratchet-wheel, a transferrer, a dog pivotally mounted thereon and adapted to coöperate with the ratchet-wheel, the dog moving relatively to the transferrer when the latter operates, and means to move the dog in unison with the transferrer upon retraction of the latter, to effect feed of the feeder at such time and bring the filling-carrier next to be transferred into the path of the transferrer.

14. Filling-replenishing mechanism for looms, comprising a rotatable feeder to hold a series of filling-carriers, a ratchet-wheel movable with the feeder, a detent to prevent retrograde movement of the latter, and a stop to engage the leading filling-carrier of the series, the detent and stop normally coöperating to hold the feeder at rest, combined with a transferrer, and a dog fulcrumed thereon and adapted to coöperate with the ratchet-wheel when the transferrer is retracted, to positively move the feeder forward and bring the filling-carrier next to be transferred into the path of the transferrer and against the stop.

15. Filling-replenishing mechanism for looms, comprising a rotatable feeder to hold a series of filling-carriers, a ratchet-wheel movable with the feeder, a transferrer, a dog pivoted thereon and adapted to ride freely over the ratchet-wheel when the transferrer operates, a projection on the transferrer to lift the dog with the transferrer when the latter is retracted, to thereby engage the ratchet and effect positive feed of the feeder to bring the filling-carrier next to be transferred into operative position, and a stop against which such filling-carrier abuts at the completion of feed movement.

664,791. PAINTING APPARATUS. NELSON STOW, Binghamton, N. Y. Filed Jan. 13, 1900. Serial No. 1,343. (No model.)

Claim.—1. In painting apparatus, the feed-tube, having the flexible interior core, for the purpose set forth, substantially as described.

2. In painting apparatus, the combination with the feed-tube, of the interior flexible core made of spirally-disposed wire, for the purpose set forth, substantially as described.

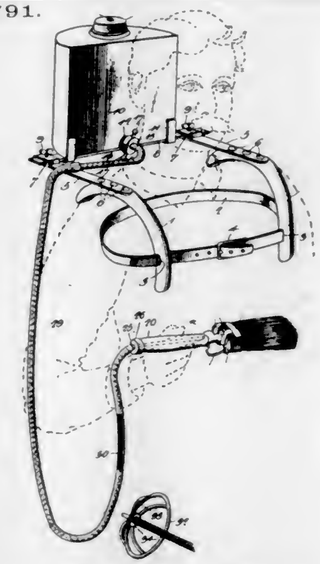
3. A painting apparatus, comprising the paint can or fountain, the angled swiveled pipe connected thereto and adapted to be swung to either side thereof, the feed-tube connected to the said swiveled pipe and a brush having a swiveled nozzle connected to the said feed-tube, substantially as described.

4. The flexible interior core, for the purpose set forth, having the open anchor device 31, at its inner end, substantially as described.

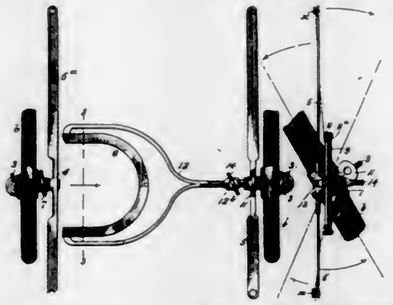
5. In a brush, the combination with the binding-band having the opposite sides inclined and flared outwardly, of the locking-yokes arranged transversely on the brush-head and engaging said inclined sides of said band, for the purpose set forth, substantially as described.

6. In a brush, the combination with the bristles, of the binding-band on the inner ends of the bristles, said inner ends of the bristles and said binding-band forming the brush-head, and the locking-yokes, spanning the brush-head and engaging opposite sides of the binding-band, substantially as described.

664,791.



664,792. ADJUSTABLE STORM-CURTAIN. FRANKLIN P. STUKEY, Lancaster, Ohio. Filed Oct. 1, 1900. Serial No. 31,709. (No model.)



Claim.—1. A storm-curtain for buggies, comprising a curtain-holding frame, means for detachably supporting said frame on the buggy-bows, and a fixedly-held member for carrying the sight-opening glass.

2. A storm-curtain for buggies, comprising a frame having rigid side members, means for connecting said members to the buggy-bows for vertical adjustment thereon, one of the said rigid members having a laterally-extending portion formed with a sight-glass-holding end, said side members having means for attaching the curtain, as set forth.

3. A storm-curtain for buggies, comprising clip members adapted to be adjustably secured to the buggy-bows, said clip members each having a socket, a curtain-supporting arm detachably and pivotally connected to each clip-socket, and means for holding the said arms to their adjusted positions, substantially as shown and for the purposes described.

4. In a storm-curtain of the character described, the combination with the curtain proper, adapted to be supported over the buggy-front and having a sight-opening, of a sight-glass connected with the said sight-opening, and a fixedly-held frame, in which the said glass is mounted, as specified.

5. In a storm-curtain as described, the combination with the bows; of clip members detachably and slidably mounted on the bows, a curtain-supporting arm for each clip member, said arms being pivotally held on the clips to swing backward or forward, means for holding said arms to their adjusted positions, said arms having buttons for attaching the curtain, substantially as shown and described.

6. In a storm-curtain as described, two independently-held curtain-supporting arms, one for each bow, said arms being pivotally supported to swing forward or backward and adjustably in the direction of the length of the bows, means for detachably connecting the arms to the bows and

for holding them to their adjusted position, said arms having means for attaching the curtain.

7. A storm-curtain, comprising a pair of curtain-holding side arms, a curtain detachably joining with said arms, a connection for securing said arms to the buggy-bows, said connection including clip members, slidably mounted on the bows, and means for pivotally holding the arms to swing in a forward or backward direction, as specified.

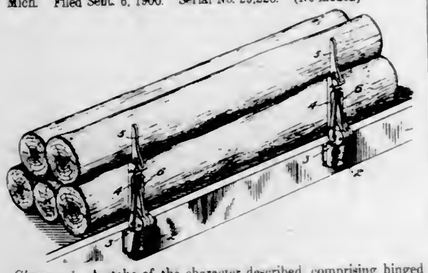
8. A storm-curtain, comprising in combination with the buggy-bows having each a laterally-extending socket, an arm for each bow, having a laterally-extending stud, adapted to fit the bow-sockets, set-screws for holding said arms in the said sockets, said arms having means for attaching the curtain, substantially as shown and described.

9. The combination with the clips having sockets, the curtain-carrying arms detachably and pivotally supported in the sockets, said arms having curtain-attaching means, and a sight-opening-glass-holding frame, rigidly connected with one of the clip-sockets, as specified.

10. In a storm-curtain as described, the combination with the curtain, having a sight-opening, and means for supporting it over the buggy-front; of a laterally-projecting socket-piece on one of the bows, and the sight-glass-holding frame, said frame having an arm terminating in a stud portion, adapted to fit and turn in the said socket, said stud portion having an annular recess, and a set-screw mounted on the socket member, and adapted to enter the socket and the annular stud-recess to hold the said stud portion from pulling out of the socket or rotating therein, as set forth.

11. In a curtain-fixture of the character described, the combination with a clip adapted to fit on the buggy-bow and having an inwardly-extending socket, a shank detachably held in said socket and to turn therein, a set-screw for engaging said shank, said shank extending inward over the buggy-front and terminating in a sight-glass-holding frame, said shank having a socket; and a curtain-supporting arm having a member adapted to interlock with the shank-socket, all being arranged substantially as shown and for the purposes described.

664,793. CAR OR WAGON STAKE. GEORGE H. WALL, Cadillac, Mich. Filed Sept. 6, 1900. Serial No. 29,228. (No model.)



Claim.—1. A stake of the character described, comprising hinged sections adapted to swing in opposite directions and provided with means for locking them against movement, substantially as set forth.

2. An outwardly-folding stake having an inwardly-folding skid-arm, substantially as set forth.

3. An outwardly-folding stake having an inwardly-folding skid-arm, and means for locking said stake and arm in vertical position.

4. The combination with a stock, of an arm hinged thereto to swing outwardly and provided with studs, and a lever pivoted to said arm and adapted to engage said studs and lock said arm to said stock, substantially as set forth.

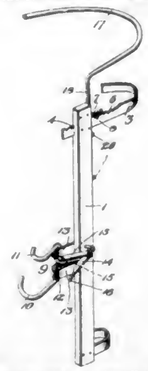
5. The combination with a stake provided with studs, of an arm having a rule-joint connection therewith and capable of swinging outwardly and prevented from swinging inwardly, a lever pivoted to said arm and engaged with said studs, and means for fastening the free end of the lever to said arm, substantially as set forth.

6. The combination with a stake, of an arm having a rule-joint connection therewith to swing outwardly, a second arm connected to the first arm by a rule-joint connection to swing inwardly, and means for locking said arms against movement, substantially as set forth.

664,794. DEVICE FOR PREVENTING COWS FROM KICKING. JOHN F. WALLACE, Ashland, Oreg. Filed Oct. 19, 1900. Serial No. 33,584. (No model.)

Claim.—1. In a device of the character described, the combination with a bar having upper and lower clips and means intermediate its ends for engaging the hock of the animal, and a bow supported at the upper end of the bar and adapted to pass under the belly of the animal in advance of the udder, substantially as set forth.

2. In a device of the character described, the combination with a bar having upper and lower clips and means for laterally adjusting the upper one, of means intermediate its ends for engaging the hock of the animal, and a bow supported at the upper end of the bar and adapted to pass under the belly of the animal in advance of the udder, substantially as set forth.

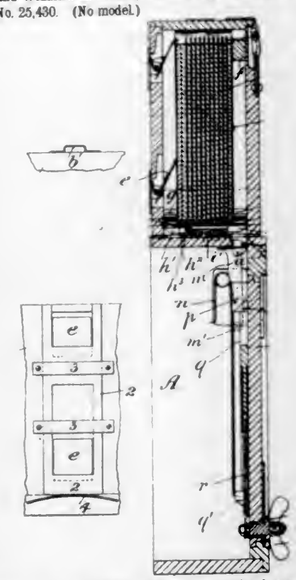


3. In a device of the character described, the combination with a bar provided with clips at its upper and lower ends for the purpose set forth, of a hook having a laterally-swinging connection with said bar intermediate its ends, a pivoted lever, and links connecting the lever with said hook, substantially as set forth.

4. In a device of the character described, the combination with a bar having clips at its upper and lower ends, of a crank-shaft located intermediate the ends of the bar, hooks connected to said crank-shaft, a lever, and a link connecting said lever with said crank-shaft, substantially as set forth.

5. In a device of the character described, the combination with a bar having upper and lower clips and means for laterally adjusting the upper one, of a hook supported by the bar intermediate its ends for engaging the hock of the cow, the upper clip being mounted to slide in a groove formed in the face of said bar and provided with ratchet-teeth, and a ratchet carried by said bar and adapted to engage said teeth, said ratchet having a finger or handpiece projecting therefrom, substantially as set forth.

664,795. MAGAZINE PLATE-HOLDER. CHRISTIAN G. WARNECKE and WILLIAM H. HEATH, London, England. Filed July 31, 1900. Serial No. 25,430. (No model.)

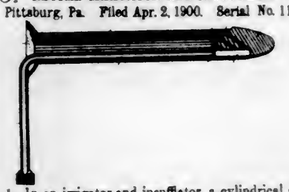


Claim.—1. In combination with a camera having a reciprocating carrier and an opening for the passage of the same with a closing-shutter

automatically actuated by the movement of the carrier, a box or receptacle reversibly connected to said camera and having openings adapted to aline with said opening in the camera, and shutters for said openings operated automatically by the movement of the carrier, substantially as described.

2. A changing-box adapted to contain a number of sheaths for plates or films, with means for maintaining the sheaths in position within the box, sliding light-tight shutters to provide for the ingress and egress of a carrier for removing and replacing the sheaths and means for removing the springs from contact with the sheaths on opening the lid of the box all arranged substantially as described.

664,796. RECTAL IRRIGATOR AND INSUFFLATOR. RODY E. WARNER, Pittsburg, Pa. Filed Apr. 2, 1900. Serial No. 11,137. (No model.)



Claim.—1. In an irrigator and insufflator, a cylindrical shell slitted from end to end and provided at its rear end with a stop-flange, a cone-shaped head secured to the forward end of said shell, said head provided in its lower face with a reservoir and in its rear end with rearwardly-extending inclined discharge-ports communicating with said reservoir and shell, and a supply-tube secured within the shell with its forward end communicating with the reservoir and its rear end projecting outwardly from the shell and bent at right angles thereto, substantially as described.

2. In an irrigator and insufflator, a cylindrical shell slitted from end to end, said shell provided at its rear end with a stop-flange and having its forward end cut at an incline, a cone-shaped head secured to said inclined forward end of the shell, said head having its rear end cut at an incline conforming to the incline of the forward end of the shell, a reservoir located within said head, discharge-ports communicating with said reservoir and with the shell, and a supply-tube connected to the reservoir with its part outside the shell bent at right angles thereto, as and for the purpose specified.

3. In an irrigator and insufflator, a cylindrical shell having a stop-flange formed integral with its rear end and its forward end cut at an incline, said shell being slitted throughout its length, a solid cone-shaped head provided with an inclined rear face, said head rigidly secured to said shell, a reservoir located within the head, a series of rearwardly-extending inclined discharge-ports communicating with said reservoir and shell, and a supply-tube secured within the shell and connecting with said reservoir, substantially as described and shown.

4. The combination with a cylindrical shell slitted from end to end and having its rear end provided with an integral stop-flange, of a solid cone-shaped head carrying a reservoir and provided with discharge-ports communicating with the reservoir and shell, and a supply-tube arranged within the shell, said supply-tube connected at its forward end to the reservoir with its rear end bent at right angles to the shell, as and for the purpose specified.

5. The combination with a cylindrical shell slitted from end to end, of a solid cone-shaped head rigidly secured to the forward end of said shell and carrying a reservoir communicating with the shell, rearwardly-extending inclined discharge-ports arranged in said head to register with the reservoir and shell, and a supply-pipe or tube arranged within the shell with the forward end connected to the reservoir and the portion outside the shell bent at right angles thereto to form a handle, substantially as shown and described.

6. In an irrigator and insufflator, a slitted shell, a cone-shaped head connected to said shell with its rear face formed at an incline, a reservoir arranged in said head and provided with a series of discharge-ports, and a supply-tube connected at one end to said reservoir and adapted to be connected at its opposite end to a source of supply.

7. In an irrigator and insufflator, a shell slitted from end to end, a cone-shaped head connected to the forward end of said shell, a reservoir arranged in said head and provided with a series of inclined discharge-ports, a supply-tube connected at one end to said reservoir, and means carried by the opposite end of said supply-tube for connecting the same to a source of supply.

8. The combination of the cylindrical shell slitted from end to end, the solid substantially cone-shaped head secured to the forward end of said shell, the reservoir located at the rear end of the head, the rearwardly-extending inclined discharge-ports communicating with said reservoir and the shell, and the supply-tube secured within the shell with its forward end connected to the reservoir and the portion outside the shell bent at right angles to form a handle, substantially as shown and described.

9. The combination, of the slitted cylindrical shell having the stop-flange formed integral with its rear end, the substantially cone-shaped head rigidly secured to the forward end of said shell, the reservoir located at the rear of said head, the discharge-ports communicating with said reservoir and shell, and the supply-tube secured to the inner face of the shell opposite the slit in said shell, said tube having its inner end connected to the reservoir and the portion outside the shell bent angularly to form a handle, substantially as shown and described

10. The combination of the slitted shell having a stop-flange formed integral with its rear end, the substantially cone-shaped head rigidly secured to the forward end of said shell, the reservoir carried by said head, the rearwardly-extending inclined discharge-ports arranged within the head and communicating with said reservoir and shell, and the supply-tube secured within the shell, said tube having its forward end connected to the reservoir and the portion outside the shell bent at right angles thereto with a coupling on its free end, as and for the purpose specified.

11. The combination with the slitted shell, of the substantially cone-shaped head secured to the forward end of said shell, the reservoir carried by said head, the discharge-ports arranged within the head and adapted to discharge the fluid from the reservoir at the rear face of the head, and the supply-tube connected to said reservoir, as and for the purpose specified.

12. The combination, of the cylindrical shell slitted from end to end, the supply-tube secured within the shell with the portion outside of the shell bent at right angles thereto, the substantially cone-shaped head secured to the forward end of said shell, the reservoir located at the rear of said head and connected to said supply-tube, and the discharge-ports so arranged as to discharge the fluid from the reservoir at the rear of said head, substantially as shown and described.

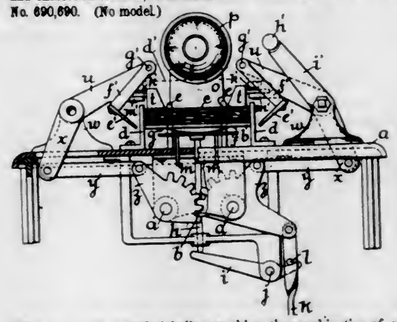
13. The combination of the slitted shell, the substantially cone-shaped head secured to the forward end of said shell, the series of rearwardly-extending inclined discharge-ports arranged within said head, the supply-tube in communication at one end with said discharge-ports, and the means carried by the opposite end of said supply-tube for connecting the same to a source of supply.

14. The combination with the slitted shell, the substantially cone-shaped head secured to the forward end of said shell, the series of rearwardly-extending inclined discharge-ports arranged within said head, the supply-tube in communication at one end with said discharge-ports, the means carried by the opposite end of said supply-tube for connecting the same to a source of supply, and the stop-flange formed integral with the rear end of said shell.

15. In an irrigator and insufflator, a slitted shell, a head secured to the forward end thereof and provided with a series of rearwardly-extending inclined discharge-ports, a supply-tube secured within said shell and having a portion thereof extending from said shell at an angle thereto, said supply-tube having its forward end connected to said head and in communication with said discharge-ports, and a coupling secured to the rear end of said tube for connecting the same to a source of supply.

16. In an irrigator and insufflator, a slitted shell, a head secured to the forward end of said shell and provided with a series of discharge-ports, a stop-flange formed integral with the rear end of said shell, a supply-tube arranged within said shell and having its forward end connected to said head and in communication with said discharge-ports and having a portion extending from the said shell at an angle thereto, and a coupling secured to the rear end of said tube for connecting the same to a source of supply.

664,797. BOTTLE-LABELING MACHINE. THEODORE A. WEBER, New York, N. Y., assignor of one-half to Ernst Lundgren, same place, and Charles A. Hanson, Cincinnati, Ohio. Filed Sept. 10, 1898. Serial No. 690,690. (No model.)



Claim.—1. In a bottle-labeling machine, the combination of a bottle-holding stand, a label-holder located in relation to the stand for enabling

the transfer of the labels directly upward from the top of the pack onto the bottles, means for pasting the labels, and means for detaching the labels from the top of the pack successively and transferring them separately from the pack onto the bottles, substantially as described.

2. In a bottle-labeling machine, the combination of a bottle-holding stand, a label-pack holder located in relation to the stand for holding the pack of labels directly under the bottles to be labeled, means for pasting the labels in such location, and means for detaching the labels from the top of the pack successively and transferring the pasted labels directly therefrom to the bottles, substantially as described.

3. In a bottle-labeling machine, the combination of a bottle-holding stand, a label-holder located in relation to the stand for holding the pack of labels directly under the bottles to be labeled, paste-boxes adapted for pasting opposite margins of the labels in such position and lifting said labels up to the bottles, and means for brushing the labels onto the bottles substantially as described.

4. In a bottle-labeling machine, the combination of a bottle-holding stand, a label-holder located in relation to the stand for holding the label pack directly under the bottles to be labeled, paste-boxes adapted for pasting opposite margins of the labels in such position, and lifting said labels up to the bottles, and brushes adapted to swing under the paste-boxes and the uplifted labels and brush them on the bottles substantially as described.

5. The combination with the bottle-holding stand, a label-holder located in relation for holding the label packs directly under the bottles to be labeled, paste-boxes for opposite margins of the labels, pivoted at opposite sides of the bottle-stand respectively, label-sticking brushes pivoted on the paste-box-carrying arms, means for actuating the paste-box-carrying arms and means for actuating the pivoted brushes relatively to the paste-boxes and bottles substantially as described.

6. In a bottle-labeling machine, the combination of the bottle-holding stand, a label-holder located in relation for holding the label pack directly under the bottles to be labeled, a label-supporting follower in said holder, paste-boxes for opposite margins of the labels, brushes for sticking the labels on the bottles, and means for retiring the follower to open the pack preparatory to applying the labels substantially as described.

7. In a bottle-labeling machine the combination of the bottle-holding stand, a label-holder located in relation for holding the label pack directly under the bottles to be labeled, swinging paste-boxes for opposite margins of the labels, and brushes for sticking the labels on the bottles, said paste-boxes pivoted on their carrying-arms for escaping the sides of the bottles substantially as described.

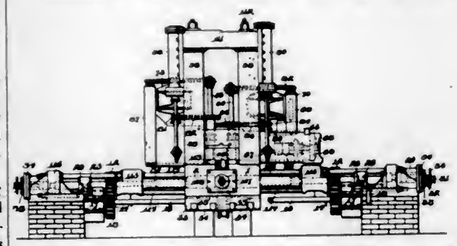
664,798. STOVE-LEG. GRANT WEIDMAN, Hillsborough, Ind. Filed May 10, 1900. Serial No. 16,141. (No model.)



Claim.—1. In a stove-leg, the combination of the upper right-angularly-disposed plates, the lower cylindrical shell, a horizontally-disposed web connecting said upper plates above said shell, a nut confined in the space between said web and the top of said shell, an externally-threaded sleeve engaged by said nut and adapted to be raised and lowered thereby, means for holding said sleeve against rotation, and a caster, having a swiveled connection with said sleeve, substantially as and for the purpose set forth.

2. In a stove-leg, the combination of the upper right-angularly-disposed plates, the lower cylindrical shell, a horizontally-disposed web connecting said plates, a cylindrical nut arranged in the space between the web and the top of said cylindrical shell, the top of said nut having a ball-bearing engagement with the under side of said web, radially-disposed orifices in the periphery of said cylindrical nut, for the insertion of a tool to turn the same, a vertically-disposed sleeve, having an upper cylindrical externally-threaded portion and a lower squared portion, the cylindrical threaded portion being engaged by said cylindrical nut, and adapted to be raised and lowered by the rotation of said nut, and the lower squared portion passing through a squared orifice in the top of said shell, thereby holding said sleeve against rotation, and a caster carried by said sleeve and having a ball-bearing swiveled connection with said sleeve, substantially as and for the purpose set forth.

664,799. CAR-WHEEL-ROLLING MILL. FRANK A. WHEELER, Pittsburg, Pa. Filed Nov. 15, 1899. Serial No. 737,096. (No model.)



Claim.—1. In a rolling-mill, a pair of operating-shafts mounted to rotate and move longitudinally during their rotation, a web-roll mounted in the end of each of said operating-shafts and adapted to endwise engage the web of a vertically-arranged car-wheel bloom or blank whereby the web of the car-wheel is completely rolled with a single pair of rolls, means for imparting rotary movement to said shafts and web-rolls, separate means for operating the shafts and web-rolls longitudinally during their rotation, and means for adjustably limiting the longitudinal movement of said shafts and rolls.

2. In a rolling-mill, a pair of operating-shafts mounted to rotate and move longitudinally during their rotation, a web-roll mounted in the adjacent ends of each of said shafts and adapted to endwise engage the web of a vertically-arranged wheel bloom or blank whereby the web of the car-wheel is completely rolled with but one pair of rolls, means for imparting rotary movement to said shafts and rolls, and separate means for operating the shafts and web-rolls longitudinally during their rotation, combined with a vertically-moving revolving tread-roll adapted to engage the peripbery of said wheel bloom or blank and roll the same into a tread and flange, and a pair of vertically-moving revolving edging-rolls adapted to engage the rim of the wheel bloom or blank and roll the same to the desired thickness.

3. In a car-wheel-rolling mill, a pair of operating-shafts mounted in horizontal alinement with each other and adapted to rotate and move longitudinally during their rotation, a pair of interlocking web-rolls connected to the adjacent ends of said shafts, means for rotating said shafts and rolls, and means for moving the same longitudinally during their rotation.

4. In a car-wheel-rolling mill, the combination with a pair of operating-shafts mounted in suitable housings in horizontal alinement with each other and adapted to rotate and move longitudinally toward each other during their rotation, means for rotating said shafts, and means for moving the shafts longitudinally during their rotation, of a pair of interlocking web-rolls mounted in the adjacent ends of said shafts, said web-rolls being adapted to endwise engage the web of a vertically-disposed car-wheel bloom or blank, as and for the purpose described.

5. In a car-wheel-rolling mill, a pair of longitudinally-moving operating-shafts, a pair of interlocking web-rolls suitably connected thereto, and means for revolving said rolls.

6. In a car-wheel-rolling mill, a pair of operating-shafts, a pair of interlocking web-rolls suitably connected thereto, means for revolving said shafts and rolls, means for connecting said shafts to said operating means to permit of a longitudinal movement of the shafts and rolls, and means connected to said shafts and adapted to move the rolls and shafts longitudinally while revolving.

7. In a car-wheel-rolling mill, a pair of operating-shafts, a pair of interlocking web-rolls mounted in the ends thereof, means for revolving said rolls and shafts simultaneously, means for connecting said shafts to said operating means to permit of a longitudinal movement, and means connected to said shafts and adapted to move the rolls and shafts longitudinally simultaneously with the revolution thereof.

8. In a car-wheel-rolling mill, a pair of rotating longitudinally-moving operating-shafts, an interlocking web-roll mounted in the end of each of the said shafts, means for operating said rolls and shafts simultaneously, and means for adjustably limiting the longitudinal movement of the said shafts and rolls.

9. In a car-wheel-rolling mill, a pair of operating-shafts supported in a suitable housing, an interlocking web-roll suitably connected to each of the said shafts, means for revolving said shafts and rolls, connections between said means and said shafts to permit of a longitudinal movement thereof, means for operating said shafts longitudinally while revolving, and connections between each of the said shafts and said means.

10. In a car-wheel-rolling mill, a pair of rotating longitudinally-moving operating-shafts, which are oppositely arranged and move toward each other during their rotation, and which are supported in a suitable housing, an interlocking web-roll suitably connected to each of the said shafts, means connected to each of the said shafts which rotates and permits an independent longitudinal movement thereof, operating means connected to the said means for rotating said shafts, and means connected to each of the said shafts for longitudinally moving the same.

11. In a car-wheel-rolling mill, a pair of rotating longitudinally-moving operating-shafts, which are oppositely arranged and move toward each other during their rotation, and which are supported in a suitable housing, a pair of interlocking web-rolls suitably connected to said shafts, means connected to each of the said shafts which rotates and permits an independent longitudinal movement thereof, operating means connected to said means for rotating said shafts, connections between said operating means for rotating said shafts simultaneously, and means connected to each of the said shafts for longitudinally moving the same.

12. In a rolling-mill, a pair of rotating longitudinally-moving operating-shafts, which are oppositely arranged and move toward each other during their rotation, and which are supported in a suitable housing, a pair of interlocking web-rolls suitably connected to said shafts, means for adjustably limiting the longitudinal movement of said rolls, means connected to each of the said shafts which rotates and permits an independent longitudinal movement thereof, operating means connected to said means for rotating said shafts, connections between said operating means for rotating said shafts simultaneously, and means connected to each of said shafts for longitudinally moving the same.

13. In a rolling-mill, a pair of rotating longitudinally-moving operating-shafts, which are oppositely arranged and move toward each other during their rotation, and which are supported in a suitable housing, a pair of interlocking web-rolls suitably connected to the said shafts, means connected to each of said shafts which rotates and permits an independent longitudinal movement thereof, operating means connected to said means for rotating the shafts, connections between said operating means for rotating said shafts simultaneously, and means for adjustably limiting the longitudinal movement of the said shafts.

14. In a rolling-mill, a pair of rotating longitudinally-moving operating-shafts, which are oppositely arranged and move toward each other during their rotation and which are supported in suitable housing, a pair of removable web-rolls mounted in the adjacent ends of said shafts, means connected to each of said shafts permitting a rotating and longitudinal movement thereof, gears connected to said means for rotating said shafts, connections between said gears for rotating said shafts simultaneously, means connected to each of the said shafts for longitudinally moving the same, and means for adjustably limiting the longitudinal movement of the shafts.

15. In a car-wheel-rolling mill, the combination with a pair of rotating and longitudinally-moving operating-shafts, and operating means therefor, of a pair of interlocking web-rolls connected to said shafts and endwise engaging the web of a vertically-positioned blank, and a tread-roll arranged in suitable relation with said web-rolls

16. In a car-wheel-rolling mill, the combination with a pair of simultaneously-rotating and longitudinally-moving operating-shafts, and means for operating said shafts, of a pair of removable web-rolls mounted in the adjacent ends of said shafts and adapted to rotate in unison therewith, a rotating and vertically-moving tread-roll, means for operating said tread-roll, a pair of edging-rolls, and separate operating means for each of the said edging-rolls.

17. In a car-wheel-rolling mill, a pair of rotating and longitudinally-moving operating-shafts, operating means therefor, a pair of interlocking web-rolls connected thereto and operating therewith, a rotating and vertically-moving tread-roll, and operating means therefor.

18. In a rolling-mill, a pair of simultaneously-rotating longitudinally-moving operating-shafts, operating means therefor, a pair of web-rolls connected thereto and operating therewith, a rotating and vertically-moving tread-roll, operating means therefor, a carriage or frame, an auxiliary carriage arranged therein, an edging-roll connected to each of said carriages, and separate means for operating each of the said edging-rolls.

19. In a rolling-mill, a pair of rotating and longitudinally-moving operating-shafts, operating means therefor, a pair of web-rolls connected thereto and operating therewith, a rotating and vertically-moving tread-roll, operating means therefor, a carriage or frame, a longitudinally-moving auxiliary carriage arranged therein, operating means for said auxiliary carriage, an edging-roll connected to each of the said carriages, and separate operating means for each of the said edging-rolls.

20. In a rolling-mill, a pair of simultaneously-rotating longitudinally-moving operating-shafts, operating means therefor, a pair of web-rolls connected thereto and operating therewith, a rotating and vertically-moving tread-roll, operating means therefor, a carriage or frame, a longitudinally-moving auxiliary carriage arranged therein, an edging-roll connected to each of the said carriages, separate operating means for each of the said edging-rolls, and means for elevating and lowering said carriages simultaneously.

21. In a rolling-mill, a pair of rotating and longitudinally-moving operating-shafts, operating means therefor, a pair of web-rolls connected to said shafts and operating therewith, a rotating and vertically-moving tread-roll, operating means therefor, a carriage or frame, a longitudinally-moving auxiliary carriage arranged therein, operating means for said auxiliary carriage, an edging-roll connected to each of said carriages, separate operating means for each of the said edging-rolls, means for elevating or lowering said carriage or frame, and suitable guiding means for the said carriage or frame.

22. In a rolling-mill, a pair of edging-rolls, a carriage or frame for one of said rolls, an auxiliary carriage for the other of said rolls mounted in the said carriage or frame, means for longitudinally moving said auxiliary carriage, means mounted upon the said carriage or frame and connected to one of said rolls for operating the same, means mounted upon the auxiliary carriage and connected to the other roll for operating the same, and means for elevating and lowering the said carriages.

23. In a rolling-mill, a pair of edging-rolls, means for operating each of said rolls independently of the other roll, means for moving one of said rolls laterally toward the other roll, and means for elevating and lowering said rolls simultaneously.

24. In a rolling-mill, a carriage or frame, an edging-roll, means carried by the said carriage or frame and connected to said roll for operating the same, an auxiliary carriage mounted in said carriage or frame, an edging-roll, means carried by the said auxiliary carriage and connected to last-named edging-roll for operating the same, and means for simultaneously elevating and lowering the said rolls.

25. In a rolling-mill, a carriage or frame, an edging-roll, means carried by the said carriage and connected to said roll for operating the same, an auxiliary carriage mounted in said carriage or frame, an edging-roll, means carried by said auxiliary carriage and connected to last-named edging-roll for operating the same, means for longitudinally moving said auxiliary carriage toward the first-mentioned edging-roll, and means connected to the said carriage or frame for simultaneously elevating and lowering said rolls.

26. In a rolling-mill, the combination of a pair of edging-rolls one of which is mounted to rotate in a vertically-moving bearing and the other of which is mounted to rotate in a horizontally-slidable bearing, means for operating each of said rolls independently of the other roll, and means for elevating or lowering the said rolls simultaneously with each other.

27. In a rolling-mill, a pair of vertically-disposed and rotatable operating-shafts, a removable edging-roll connected to the lower end of each of said shafts, radial bearings and thrust-bearings in which each of the said shafts are journaled, independent operating means for each of said shafts, means for moving one of said shafts and rolls toward the other shaft and its roll, and means for simultaneously elevating and lowering the said rolls.

28. In a rolling-mill, a carriage or frame, an auxiliary carriage arranged therein, an operating-shaft suitably supported by the said carriage or frame, an operating-shaft suitably supported by said auxiliary carriage, an edging-roll connected to each of the said operating-shafts, operating means carried by the said carriage or frame for the said shaft carried thereby, operating means carried by the said auxiliary carriage for the shaft carried thereby, means for longitudinally moving said auxiliary carriage, and means for simultaneously elevating and lowering the said carriages.

29. In a rolling-mill, a carriage or frame, an auxiliary carriage arranged therein, an operating-shaft supported by the said carriage or frame and journaled in radial and thrust bearings, an operating-shaft supported by the said auxiliary carriage and journaled in radial and thrust bearings, operating means carried by the said carriage or frame for the said shaft supported thereby, operating means carried by the said auxiliary carriage for the shaft supported thereby, means for longitudinally moving said auxiliary carriage, and means for simultaneously elevating and lowering the said carriages.

30. In a rolling-mill, a carriage or frame, an auxiliary carriage arranged therein, an operating-shaft supported by the said carriage or frame and journaled in radial and thrust bearings, an operating-shaft supported by the said auxiliary carriage and journaled in radial and thrust bearings, operating means carried by the said carriage or frame for the said shaft supported thereby, operating means carried by the said auxiliary carriage for the shaft supported thereby, means for simultaneously elevating and lowering the said carriages, and means for guiding the said carriages.

31. In a car-wheel-rolling mill, a pair of rotating longitudinally-moving interlocking web-rolls, and means for simultaneously operating the said rolls.

32. In a car-wheel-rolling mill, a pair of rotating longitudinally-moving interlocking web-rolls, means for limiting the movement of one roll within the other, and means for simultaneously operating said rolls.

33. In a car-wheel-rolling mill, a pair of rotating longitudinally-

moving interlocking web-rolls adapted to be interlocked at one side of the metal being worked upon, means for limiting the movement of one roll within the other, operating means for said rolls, and means for longitudinally moving the said rolls simultaneously.

34. In a rolling-mill, an intermediate bed-plate 53', a base-plate 53, a series of standards 110 supporting said bed-plate and mounted upon said base-plate 53, a series of housings 93 supported by the bed-plate 53', an entablature connecting the said housings, a series of tie-rods extending through the said bed-plate 53', base-plate 53, standards 110, housings 93, and an entablature suitably secured thereto, a series of tie-rods 113 connected to said housings 93 and bed-plate 53', a housing 115, a frame 116, and a series of tie-rods 114 extending through said bed-plate 53', housing 115, frame 116, and connected thereto, substantially as shown and described.

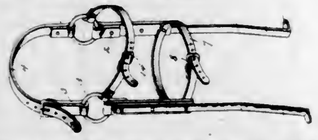
35. In a rolling-mill, a pair of rotating longitudinally-moving web-rolls, means for operating the same, a rotating and vertically-moving tread-roll, suitable operating means therefor, a pair of lower adjustable guide-rolls, means for operating the same, a carriage or frame, a pair of edging-rolls carried thereby, separate means for operating each of the said edging-rolls, a pair of upper guide-rolls carried by the said carriage, and means for elevating and lowering said carriage.

36 In a rolling-mill, a pair of rotating longitudinally-moving web-rolls, means for operating the same, a rotating and vertically-moving tread-roll, suitable operating means therefor, a pair of lower adjustable guide-rolls, means for operating the same, a carriage or frame, a pair of edging-rolls carried thereby, separate means for operating each of the said edging-rolls, a pair of upper guide-rolls carried by the said carriage, and means for elevating and lowering said carriage.

37. In a rolling-mill, a pair of rotating longitudinally-moving web-rolls, means for operating the same, a rotating and vertically-moving tread-roll, suitable operating means therefor, a pair of lower adjustable guide-rolls, means for operating the same, a carriage or frame, an edging-roll carried thereby, operating means for said roll, an auxiliary carriage mounted in the said carriage or frame, means for longitudinally moving said auxiliary carriage, an edging-roll carried by said auxiliary carriage, separate operating means therefor, a pair of upper guide-rolls suitably connected to said carriage or frame, and means for elevating and lowering said carriage or frame.

38. In a rolling-mill, a pair of operating-shafts, a web-roll connected to each of the said shafts, means for rotating said shafts and rolls, means for longitudinally moving said shafts and rolls while rotating, means for limiting the longitudinal movement of the said shafts, a rotating and vertically-moving tread-roll, suitable operating means therefor, a pair of lower adjustable guide-rolls, means for operating the same, a carriage or frame, an edging-roll carried thereby, operating means for said roll, an auxiliary carriage mounted in said carriage or frame, means for longitudinally moving said auxiliary carriage, an edging-roll carried by said auxiliary carriage, operating means for the edging-roll carried by said auxiliary carriage, a pair of upper guide-rolls suitably connected to said carriage or frame, and means for elevating and lowering said carriage or frame.

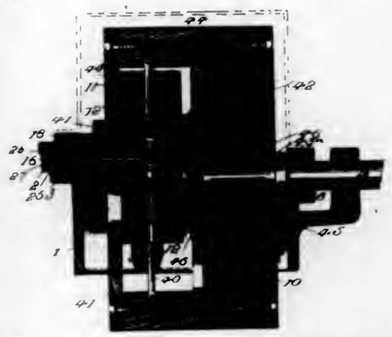
664,800. MUZZLE. THOMAS B. WHITE, Warsaw, Mo. Filed June 14, 1900. Serial No. 20,320. (No model.)



Claim.—An adjustable muzzle comprising side or cheek straps, extension bars or guards secured to and extending longitudinally of the cheek-straps and projecting beyond the lower ends thereof and having their extremities deflected to form laterally and outwardly projecting feet, and adjusting and holding means comprising a head-strap provided with an adjusting-buckle, and a nose-strap connecting the lower ends of the cheek-straps and provided with an adjusting-buckle, substantially as described.

664,801. ROTARY ENGINE. WM D. WILLIAMS, Fredericksburg, Va., assignor to the Williams Reciprocating Rotary Engine Company, Wilmington, Del. Filed Mar. 16, 1900. Serial No. 8,988. (No model.)

Claim.—1. In a rotary engine, two shafts arranged out of line, pairs of cylinders having an angular disposition and mounted to rotate about one of the shafts, and pistons arranged to work in the said cylinders, a plate secured to the other shaft to rotate therewith, and separate connections joining the respective pairs of pistons and having independent sliding attachment with the said plate, and acting jointly therewith and with the pistons and cylinders to cause the engine and plate-carrying shaft to rotate together, substantially as described.



2. In a rotary engine, two shafts arranged out of line, pairs of cylinders having an angular disposition and mounted to rotate about one of the shafts, and pistons arranged to work in the said cylinders, a plate secured to the other shaft to rotate therewith, and separate connections joining the respective pairs of pistons and having independent sliding attachment with the said plate and the shaft bearing the engine and directed in their movements thereby and serving to cause simultaneous rotation of the engine and plate-carrying shaft, substantially as specified.

3. In a rotary engine, two shafts arranged out of line, pairs of cylinders having an angular disposition and mounted to rotate about one of the shafts, and pistons arranged to work in the said cylinders, a plate secured to the other shaft to rotate therewith, and having guides at its opposite sides, and separate connections joining the respective pairs of pistons and having independent sliding attachment with the respective guides of the said plate and with the shaft of the engine and directed in their movements thereby and serving to cause simultaneous rotation of the engine and plate-carrying shaft, substantially as specified.

4. In a rotary engine, the combination with oppositely-disposed cylinders and pistons working therein, of a plate or disk eccentrically disposed with reference to the engine-shaft and having a transverse guideway, of a frame connecting the pistons and having one of its bars longitudinally slotted to receive the engine-shaft, and a cross-head applied to the said frame and operating in the guideway of the aforesaid plate or disk, substantially as set forth.

5. In a rotary engine, pairs of oppositely-disposed cylinders arranged relatively at a right angle to each other, pistons working in said cylinders, and a plate or disk eccentrically disposed with reference to the engine-shaft and having guideways in opposite faces, arranged relatively at a right angle to each other, of independent connections disposed at a right angle to each other and connecting corresponding pistons for simultaneous operation and having independent slidable connection with the respective guideways of the aforesaid plate or disk, substantially as set forth.

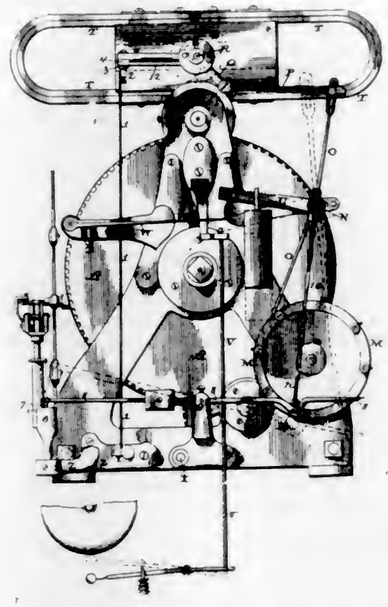
6. In a rotary engine, pairs of cylinders right-angularly disposed, pistons working therein and a plate or disk having guideways upon its opposite faces and arranged at a right angle to each other, of independent frames connecting coöperating pistons for simultaneous action and provided with cross-heads to operate in the respective guideways of the said plate or disk, substantially as set forth.

7. In a rotary engine, and in combination with pairs of cylinders disposed relatively at a right angle to each other, pistons working therein and a plate or disk having grooves or channels in opposite faces and extending at a right angle to each other with their side walls outwardly flaring, of independent frames connecting coöperating pistons and having their side bars longitudinally slotted to receive the respective shafts of the engine and plate or disk, and cross-heads secured to a bar or member of the frames and operating in the guideways of the said plate or disk and having their edges beveled and outwardly flared, substantially as set forth.

664,802. FIRE-ALARM TELEGRAPH. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to the National Magneto Electric Telegraph Company, Springfield, Ohio. Filed July 20, 1900. Serial No. 24,303. (No model.)

Claim.—1. In a fire-alarm-telegraph indicator, a suitable motive power, a regulating mechanism therefor, and a time-wheel operated by the motive power, combined with a magneto-electric generator, and means for operating the magneto-electric generator through the time-wheel, whereby an electrical impulse is sent out over the system at predetermined times, substantially as shown.

2. In a fire-alarm-telegraph-circuit indicator, a motive power, and a time-wheel operated thereby, combined with a magneto-electric generator, and a lever connected to the generator and operated by said time-wheel whereby an electric impulse is sent out over the fire-alarm system at predetermined times, substantially as described.



3. In a fire-alarm-telegraph-circuit indicator, a motive power, a time-wheel operated thereby, a lever operated by the time-wheel, and a magneto-electric generator operated by said lever, combined with a weighted lever, and an alarm mechanism operated by said weighted lever when the circuit is broken, substantially as set forth.

4. In a fire-alarm-telegraph-circuit indicator, a motive power, a time-wheel operated thereby, a lever operated by the time-wheel, and a magneto-electric generator which is operated by said lever, combined with a weighted lever which has its free end raised between the times at which impulses are sent out over the line, and which lever by its falling movement operates the electric generator, substantially as specified.

5. In a fire-alarm-telegraph-circuit indicator, a motive power, a regulator therefor, a time-wheel, a lever O operated by said time-wheel, and a weighted lever U' connected to the same arm, a lever connected to the upper end of the lever O, and a magneto-electric generator operated by the lever O, combined with an arm 10, connected to the same arm as the levers O and U', and a shunting device which is operated by said arm 10, substantially as shown.

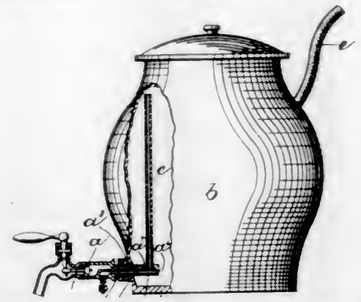
6. In a fire-alarm-telegraph-circuit indicator, a motive power, a time-wheel operated thereby, a lever operated by said time-wheel, and a magneto-electric generator operated by said lever, combined with a weighted lever, a spring which acts as a buffer for the lever, and an alarm which is also operated by said weighted lever, substantially as described.

7. In a fire-alarm-telegraph-circuit indicator, a motive power, a time-wheel operated thereby, a lever operated by the time-wheel, and a magneto-electric generator operated by said lever, combined with a weighted lever for operating the magneto-electric generator, an alarm which is also operated by said weighted lever, a spring which acts as a buffer for the weighted lever, an arm, and a shunting mechanism for shunting the magneto-electric generator out of circuit, substantially as set forth.

8. In a fire-alarm-telegraph-circuit indicator, a motive power, a regulator therefor, and a magneto-electric generator, combined with means for operating the electric generator at predetermined times, and a shunting device for said generator which is also operated at regular intervals, substantially as specified.

9. In a fire-alarm-circuit indicator, a shunting device, used in a normally-closed circuit, combined with means for operating the shunting device at predetermined times, and means located in the shunt for sending an electrical impulse over the normally-closed circuit when the shunting device is operated to interrupt the shunt, substantially as shown.

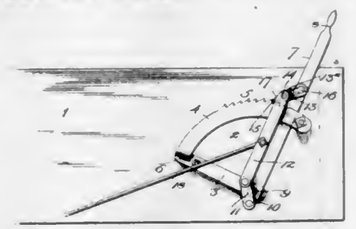
664,803. COMBINED FAUCET AND OVERFLOW. WALTER G. WUICHET, Dayton, Ohio, assignor to the Pasteur-Chamberland Filter Company, same place. Filed Mar. 12, 1900. Serial No. 8,261. (No model.)



Claim.—1. In a storage jar or reservoir, the combination of a faucet having two independent conduits or chambers with inlets and outlets formed integrally in the barrel thereof and a valve to control the outlet of one of said chambers, the outlet of the other chamber remaining open, said barrel being inserted through and attached to a single opening in the wall of said jar or reservoir, thereby extending the inlets of said conduits or chambers into said jar or reservoir and an overflow-pipe in said jar or reservoir attached to the inlet of the chamber having the open outlet, substantially as specified.

2. In a storage jar or reservoir, the combination of a faucet having two independent conduits or chambers with inlets and outlets formed integrally in the barrel thereof and a valve to control the outlet of one of said chambers the outlet of the other chamber remaining open, said barrel being screw-threaded on its outer periphery to insert and attach the same through a single opening in the wall of said jar or reservoir thereby extending the inlets of said conduits or chambers into said jar or reservoir and an overflow-pipe in said jar or reservoir attached to the inlet of the chamber having the open outlet, substantially as specified.

664,804. VEHICLE-BRAKE. JASPER R. YOUNG, Dexter, Mo., assignor of one-half to Edward Weber, same place. Filed Aug. 21, 1900 Serial No. 27,583. (No model.)



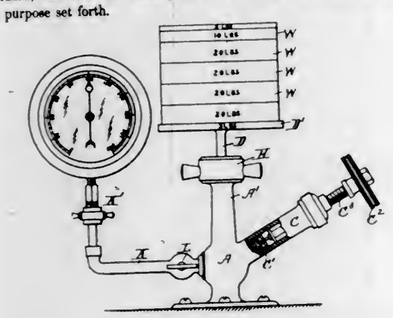
Claim.—1. In a vehicle-brake, the combination, with a frame having a segmental rack, of an operating-lever pivoted near its lower end to said frame, a short link pivoted at one end to the lower short arm of the lever, a draft link or lever pivotally connected at its lower end to the opposite end of the short link, and a locking-pawl having a pivotal connection with the upper end of the draft-lever, and a slot-and-pin connection with the said operating-lever, substantially as set forth.

2. In a vehicle-brake, the combination of a frame having an arm diagonally disposed, and an arc-shaped rack joined to said arm by an outstanding offset portion, an operating-lever located on one side of said rack and pivoted near its lower end to said arm, a short link pivotally connected at one end to the said lower end or short arm of the operating-lever, a draft link or lever located on the opposite side of the rack and pivotally connected at its lower end to the opposite end of the short link, and a locking-pawl having a pivotal connection with the upper end of the draft-lever, and a slot-and-pin connection with the said operating-lever, substantially as set forth.

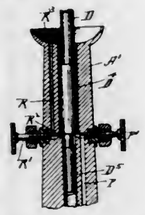
664,805. PRESSURE-GAGE-TESTING APPARATUS. CHARLES B. BOSWORTH, Everett, Mass., assignor to The Ashton Valve Company, Hartford, Conn. Filed May 7, 1900. Serial No. 15,829. (No model.)

Claim.—In a pressure-gage-testing apparatus, a cylinder-standard containing a pressure-transmitting fluid, and having a piston of determined area and adapted to support weights as described and to be balanced by

the said fluid: a pipe, as K, adapted to interiorly connect the said cylinder with the gage to be tested: sleeves of different internal diameters for receiving pistons of different sizes, said sleeves all having the same external diameter and the same heads, as F, whereby they fit the same cylinder-standard, and means for holding the said sleeves, substantially as and for the purpose set forth.

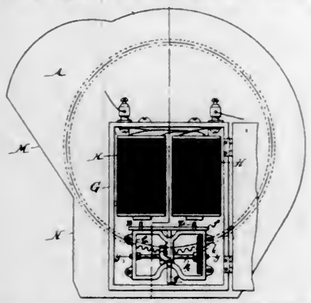


664,806. TESTING APPARATUS FOR PRESSURE-GAGES. CHARLES B. BOSWORTH, Everett, Mass., assignor to The Ashton Valve Company, Hartford, Conn. Original application filed May 7, 1900, Serial No. 15,827. Divided and this application filed May 28, 1900. Serial No. 18,321. (No model.)



Claim.—In a pressure-gage-testing apparatus, a cylinder-standard containing a pressure-transmitting fluid, and having a piston of two working areas and a valvular-controlled passage admitting the pressure-transmitting fluid to one of the said areas, as described, said piston adapted to support weights and to be balanced by said fluid; a pipe, as K, adapted to interiorly connect the said cylinder with the gage to be tested; substantially as and for the purpose set forth.

664,807. ELECTRIC ADVERTISING DEVICE. PAUL DAWSON, Detroit, Mich. Filed May 24, 1899. Serial No. 717,991. (No model.)



Claim.—1. In an electric advertising device, the combination of a revolving drum, a series of tablets pivotally secured to the drum at its outer periphery, an inclosing outer casing formed with the inwardly-inclined faces M, N, the sight-opening B in said faces, the ledge J above said sight-opening, the ledge K in the rear of the aforesaid ledge, an actuating device for imparting a step-by-step motion to the drum, comprising a pair of magnets H carrying a rack-bar *g*, the shaft *h*, and pinion *i* thereon engaging with said rack-bar, the gear-wheel *l*, and ratchet *k* on the shaft *h*, the dog *j'* carried by the pinion *i*, the shaft *n*, the pinion *m* on said shaft engaging with the gear-wheel *l*, the worm *d* on the shaft *n* and the worm-gear F on one end of the drum engaging with the worm *d*.

2. In an electric advertising device, the combination of a revolving drum composed of two heads or disks, formed with perforations near their periphery and fastened upon a shaft, and a series of flexible tablets pivotally secured in the perforations in the heads of said drum, said tablets being struck up from a blank of thin sheet metal and having one of its edges reinforced by doubling the metal back upon itself, said reinforced portion projecting beyond the opposite ends of said blank and forming flattened pivots therefor whereby any one of said tablets may be mounted or dismounted from the drum by slightly flexing them.

3. In an advertising device, the combination of a revolving drum, composed of two heads or disks, formed with perforations near their periphery and fastened upon a shaft, a series of flexible tablets pivotally secured in the perforations in the heads of said drum, and an outer inclosing casing formed with a sight-opening in front of the drum and exposing a portion thereof, through which the tablets may be independently removed or inserted in the drum, said tablets being made of thin sheet metal with the pivots integrally formed therewith by doubling the metal back upon itself to form flattened pivots.

4. In an electric advertising device, the combination with the revolving drum carrying the tablets, of the magnets H, means for intermittently energizing the same, the armature *f* supported below the magnets, the rack-bar *g* attached to said armature, the shaft *h* and loose pinion *i* thereon engaging with the rack-bar, the gear-wheel *l* and ratchet *k* on the shaft *h*, the dog *j'* carried by the pinion *i* the shaft *n*, the pinion *m* on said shaft engaging with the gear-wheel *l*, the worm *d* on the shaft *n* and the worm-gear F at one end of the drum engaging with the worm *d*.

664,808. KNITTING-MACHINE NEEDLE. AVERY B. DODGE, Manchester, N. H., assignor to the Dodge Needle Company, same place. Filed Dec. 13, 1899. Serial No. 740,147. (No model.)



Claim.—1. A knitting-machine needle having a thinned or weakened portion between its extremities the needle being crooked or bent at said portions that flat portions of the needle at its opposite sides may contact with the smooth inner walls of the grooves of the needle-cylinder.

2. A knitting-machine needle having a butt and a tail reduced in thickness and weakened said tail being bent at the weakened portion to present flat sides of the tail of the needle at opposite sides of its weakened portion to contact with opposite side walls of the grooves of the needle-cylinder.

3. A knitting-machine needle reduced in thickness and having a reinforced tail, one member of said tail being reduced in thickness between the butt and the extremity of the tail to form a bending-point.

4. A knitting-machine needle having a butt, the edges of said butt being notched, and a band embracing said butt and engaging the notched portion whereby it is held in place.

5. A knitting-machine needle having a butt notched at opposite sides, and a band embracing the butt, one of said parts being elastic to enable the band to be forced upon the butt and engage the notches.

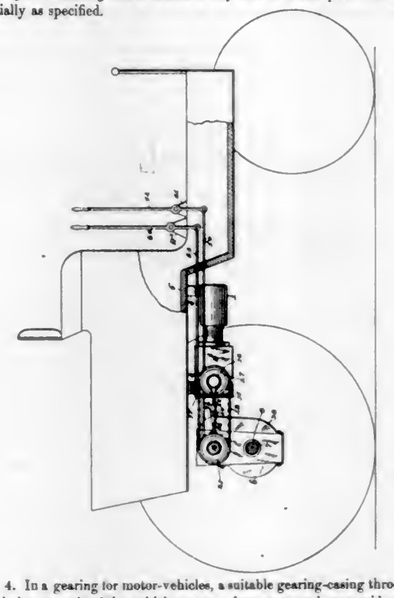
6. A knitting-machine needle having a butt provided with notches, and a split band adapted to be forced upon the butt to engage the notches.

664,809. GEARING FOR MOTOR-VEHICLES. GEORGE P. DORRIS, St. Louis, Mo. Filed Dec. 11, 1899. Serial No. 739,897. (No model.)

Claim.—1. In a gearing for motor-vehicles, an engine-casing, a gearing-frame positioned rearwardly from said engine-casing, driving-gears arranged within the gearing-casing for driving the rear axle, which driving-gear is driven by the engine, a connecting-rod between the driving and the driven shafts, and means under control of the operator whereby said gearing is thrown into and out of gear and shifted to obtain different speeds, substantially as specified.

2. In a gearing for motor-vehicles, an engine-casing swung beneath the vehicle-body, a gearing-frame positioned rearwardly from the engine-casing, through which gearing-frame the rear axle of the vehicle passes, gearing arranged within the gearing-casing for driving the rear axle, which gearing is driven by the engine, means whereby said gearing is thrown into and out of gear, means whereby a certain set of the gearing is shifted to obtain different speeds and to reverse the motion of the rear axle, and means whereby the shifting mechanism is locked in either of its set positions, substantially as specified.

3. In a gearing for motor-vehicles, a suitable gearing-casing through which the rear axle of the vehicle passes, a drum arranged upon said axle, gear-wheels of different diameters integral with said drum, a shaft passing through the gear-casing which is driven from the engine, a double pinion carried by and sliding upon said shaft, which double pinion meshes with the different-sized gear-wheels, a shifting rod arranged in the gear-casing, connections from said shifting rod to the double pinion, and means whereby said shifting rod is locked in any one of its set positions, substantially as specified.



4. In a gearing for motor-vehicles, a suitable gearing-casing through which the rear axle of the vehicle passes, a drum arranged upon said axle, gear-wheels of different diameters integral with said drum, a shaft passing through the gear-casing which is driven from the engine, a double pinion carried by and sliding upon said shaft, which double pinion meshes with the different-sized gear-wheels, a shifting rod arranged in the gear-casing, connections from said shifting rod to the double pinion, a lock for engaging the shifting rod in any one of its set positions, and means whereby said shifting rod and lock are operated from the front of the vehicle, substantially as specified.

5. In a gearing for motor-vehicles, an engine-casing a gear-casing through which gear-casing passes the rear axle of the vehicle, gearing arranged upon said rear axle, a counter-shaft, a double pinion carried by said shaft, means whereby said double pinion is shifted to mesh with the first-mentioned gearing, means whereby said shifting mechanism is locked at any one of its set positions, gearing from the counter-shaft to the crank-shaft of the engine, and means whereby said last-mentioned gearing is thrown into and out of gear, substantially as specified.

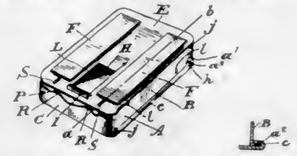
6. In a gearing for motor-vehicles, constructed with a plurality of differential speed-gears, the combination with a shifting rod in which is formed a plurality of notches, of a locking-bar adapted to engage in any one of said notches and of a spring-actuated pawl located beneath said shifting rod and adapted to engage in circular recesses in the under side of said rod substantially as specified.

7. In a gearing for motor-vehicles, constructed with a plurality of differential speed-gears, the combination with a shifting rod in which is formed a plurality of notches, of a locking-bar adapted to engage in any one of said notches, and means whereby the shifting rod and locking mechanism are independently operated, substantially as specified.

8. In a gearing for motor-vehicles, a gear-casing through which the rear axle of the vehicle passes, gearing arranged upon said rear axle, a counter-shaft driven from the crank-shaft of the engine, a double pinion upon said counter-shaft, a second counter-shaft, gearing mounted on said second counter-shaft, a brake arranged on said second counter-shaft, means whereby the double pinion is shifted upon the first counter-shaft to mesh with the gearing on the axle or with the gearing on the second counter-shaft, means whereby said shifting mechanism is locked in any one of its set positions, which locking mechanism actuates the friction-clutch on the second counter-shaft whenever the shifting mechanism is unlocked, substantially as specified.

9. A motor-vehicle having an engine-cylinder integral with which is a rearwardly-projecting crank-cylinder, both of which are rigidly suspended from the vehicle-bed, a gearing-casing; a rod having a turnbuckle joining the two parts thereof and pivotally joining the crank-shaft and a driven shaft, and a chain connecting sprocket-wheels located on each driven shaft and the crank-shaft, and causing the former to rotate when the mechanism is in gear, substantially as specified.

664,810. TICKET-BOX. JAMES HUMPHREY, Toronto, Canada. Filed July 2, 1900. Serial No. 22,300. (No model.)

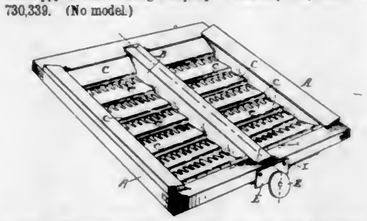


Claim.—1. In a box of the class described, the combination with the box-frame having the discharge edge of each end diagonally placed and cut away so as to form a passage-way for the tickets between said box-frame and the front end of each removable cover, two portions of said discharge edge of said ends extending a certain distance above the rest of said edge of said ends into said passage-way, the removable longitudinally-slotted covers therefor formed in one piece and slidably connected to said box-frame, stops S, S formed in said removable covers and extending downwardly so that their lower under surface is in the same plane as the most elevated portion of the above-mentioned points extending into said passage-ways, bedways F, F, formed in said removable covers, and centrally spring-controlled followers contained within said box-frame for feeding the tickets in proximity to a ticket ejector or feeder, of the feeders H, raised flanges I, formed integral with said feeders and operating in the slot in said removable covers, spurs O, formed in said feeders and so placed as to grasp the ejecting ticket to prevent lateral displacement of same, and springs G, G, secured to the feeders H, and said covers and operating in said bedways, all arranged as set forth and for the purpose specified.

2. In a box of the class described, the combination of the box-frame having the discharge edge of each end diagonally placed and cut away so as to form a passage-way for the tickets between said box-frame and the front end of each removable cover, two portions of said discharge edge of said ends extending a certain distance above the rest of said edge of said ends into said passage-ways, removable longitudinally-slotted covers for said box-frame, stops S, S, formed in said removable covers and extending downwardly so that their lower under surface is in the same plane as the most elevated portion of the above-mentioned points extending into said passage-ways, bedways F, F, formed in said removable covers, feeders H, spurs O, formed in said feeders and so placed as to grasp the ejecting ticket to prevent lateral displacement of same, raised flanges I secured to said feeders and resting upon the said covers and operating in the longitudinal slot formed in said covers, springs G, G, secured to the feeders H and said covers and operating in the said bedways, and centrally spring-controlled followers J, contained in said box-frame for feeding the tickets in proximity to said feeders H, all arranged as set forth and for the purpose specified.

3. In a box of the class described, the combination of the box-frame having the discharge edge of each end diagonally placed and cut away so as to form a passage-way for the tickets between said box-frame and the front end of each removable cover, two portions of said discharge edge of said ends extending a certain distance above the rest of said edge of said ends into said passage-way, removable longitudinally-slotted covers for said box-frame, stops S, S, formed in said removable covers and extending downwardly so that their lower under surface is in the same plane as the most elevated portion of the above-mentioned points extending into said passage-ways, followers J, contained in said box-frame, spring K connecting said followers together in their center, and means for grasping the tickets and tilting said followers upon said spring K to facilitate discharge of said tickets from said box through said passage-way, all arranged as set forth and for the purpose specified.

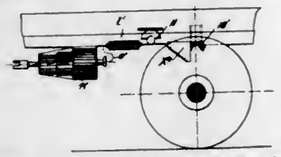
664,811. SCREEN OR RIDDLE FOR SEPARATORS. DAVID LIPPY, Mansfield, Ohio, assignor, by direct and mesne assignments, to the Lippy Manufacturing Company. Filed Sept. 13, 1899. Serial No. 730,339. (No model.)



Claim.—The combination of a frame provided with a center rail extending longitudinally of the frame, a series of transverse slats, each pro-

vided near its outer or upper edge with a shoulder extending longitudinally of said slat, teeth extended from the lower edge of the shoulder, said teeth inclined to correspond with the incline of the slat-surfaces under said teeth, a series of shafts having connected thereto the slats, and provided with cranks or bent portions, and means for rocking the shafts and slats, substantially as and for the purpose specified.

664,812. RAILWAY AERO-ELECTRIC BRAKE. CHARLES LUYERS, Brussels, Belgium. Filed Dec. 30, 1897. Serial No. 664,857. (No model.)



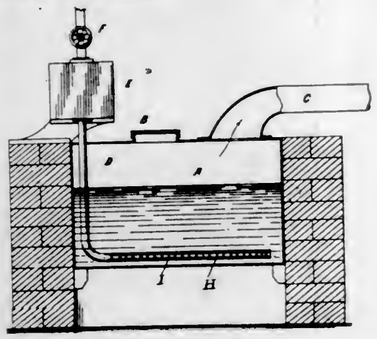
Claim.—1. In pneumatic train-brake mechanism, the combination of a main reservoir and main conduit with a principal reservoir for an individual vehicle, a number of auxiliary reservoirs for the latter, a cock adapted and arranged to control the feeding of these auxiliary reservoirs and also to make communication between each of them and the principal reservoir of the vehicle, a brake-cylinder communicating with and actuated by the latter and automatic mechanism for operating the said cock, in order that the main reservoir may be reinforced automatically by a greater or less number of the auxiliary reservoirs, thereby applying more or less power to the brake-cylinder according to the load, substantially as set forth.

2. In pneumatic train-brake mechanism, the combination of a brake-cylinder and the principal reservoir of a vehicle, with auxiliary reservoirs and means for making communication between the said principal reservoir and a greater or less number of these auxiliary cylinders each of the latter being regulated by means of plugs having a rod of variable volume, substantially as set forth.

3. In pneumatic train-brake mechanism, the combination of the air-reservoir pipes and brake-cylinder of a vehicle with a multiple-way cock comprising a cylinder and a piston moving therein, a spring bearing against one face of the said piston while compressed air bears against the other, a rack-rod moving with the said piston, a pinion gearing with the said rack and carrying a jointed needle, two springs which hold the said needle horizontal, a stop forming an inclined plane and held in fixed position for contact with the said needle when the latter accompanying the other mechanism above mentioned moves downward with the body of the vehicle, substantially as set forth.

4. In pneumatic train-brake mechanism, a main air-reservoir and main conduit, in combination with a working cock B provided with a series of grooves and the reservoirs feeding and exhaust mechanism and brake-cylinders of the several vehicles of the train, one of the said grooves allowing air to flow from the said reservoir through the said conduit to the reservoirs of the several cars, and another groove according to the position of the said cock making communication between said conduit and certain exhaust-chambers, the said cock also serving by means of one of its grooves to allow the flow of air from the said conduit to devices controlling communication between the vehicle-reservoirs and the brake-cylinders respectively operated thereby, substantially as set forth.

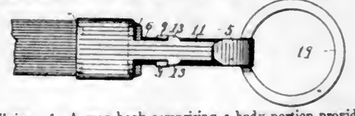
664,813. PROCESS OF DISTILLING AND REFINING OILS. THOMAS MACALPINE, London, England. Filed Sept. 10, 1900. Serial No. 29,591. (No specimens.)



Claim.—1. The process of treating oils, which consists in heating said oils in a closed vessel, maintaining a partial vacuum in said vessel, and introducing into said vessel steam below 212° in temperature, substantially as described.

2. The process of treating oils, which consists in heating said oils in a closed vessel, maintaining a partial vacuum in said vessel, and injecting directly into said oil steam below 180° in temperature, and condensing the products given off from said vessel, substantially as described.

664,814. SNAP-HOOK. EPHRAIM MANES, Chattanooga, Tenn., assignor to the McGregor & McCord Manufacturing Company, same place. Filed Apr. 4, 1900. Serial No. 11,502. (No model.)

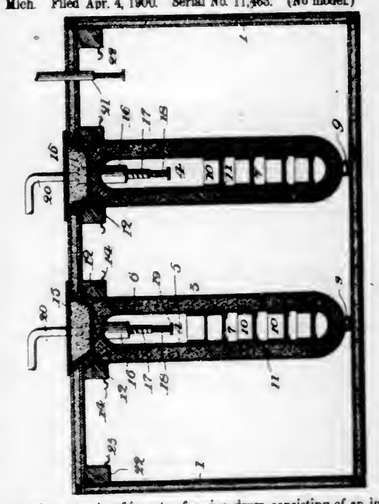


Claim.—1. A snap-hook comprising a body portion provided with spurs and with side lugs projecting from one face, and a tongue portion having box sides with underlaps to slip over the body portion, and further having lugs to engage the aforesaid side lugs, substantially as described.

2. A snap-hook comprising a hook portion and a tongue portion; one of these portions being fitted to slide forward upon the other portion and each of them provided with side lugs; the lugs of the outer portion being fitted to spring down beyond the lugs of the inner portion to engage the same, and to be raised out of engagement therewith, substantially as described.

3. A snap-hook comprising a hook portion and a tongue portion; one of these portions having box sides and underlaps to engage and slide forward upon the other; each of the portions having side lugs, the lugs of one portion to engage the lugs of the other portion and one of the portions having lips to engage the other portion and stop its forward movement thereon, substantially as described.

664,815. REFRIGERATOR. JOSEPH H. MANN, Sault Ste. Marie, Mich. Filed Apr. 4, 1900. Serial No. 11,463. (No model.)



Claim.—1. A refrigerator freezing-drum consisting of an inner casing which is closed at its bottom and top, and an outer casing having closed ends and bottom and an open top, said casings being spaced apart to form an annular receiving-space for the cooling agent, the walls of said outer casing being flared at the top, means for sealing the top of said outer casing, and a frost-controller secured in the top of the inner casing, substantially as described.

2. The combination with a refrigerator-casing, of a freezing-drum secured therein and consisting of an inner casing closed at its top and bottom and an outer casing closed at its ends and bottom, and open at its top, said casings being spaced apart to form a receiving-chamber for the cooling agent, means carried by the refrigerator-casing for sealing the outer casing, an adjustable frost-controller carried by the inner casing, and a ventilator secured in the refrigerator-casing, substantially as described.

3. The combination with a refrigerator-casing having removable hatches in its top, of a freezing-drum consisting of an inner and outer casing spaced apart to form a receiving-chamber for the cooling agent, the said outer casing being open at its top and adapted to be closed by the hatches of the refrigerator-casing, a frost-controller carried by said drum, and a ventilator carried by the refrigerator-casing, substantially as described.

4. The combination with a refrigerator-casing, of a freezing-drum consisting of an inner and outer casing, said inner casing having a closed bottom and top and said outer casing having a perforated bottom and open top, said casings being spaced apart to form a receiving-chamber for the cooling agent, means for sealing the top of said outer casing, and means for regulating the temperature within the inner casing, substantially as described.

5. The combination with the refrigerator-casing, of a freezing-drum consisting of an outer casing having a perforated bottom and an open top, an inner casing having a closed top and bottom, the space between said casings at their ends being closed, means for sealing the top of said outer casing, and means carried by the inner casing and extending downwardly into the same for regulating the temperature within said inner casing, as and for the purpose described.

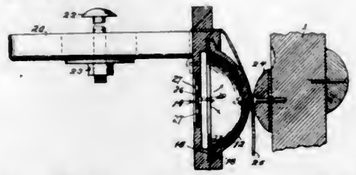
6. A freezing-drum adapted to be secured within a refrigerator-casing, said drum consisting of two casings, one within the other, the outer casing having a perforated bottom and an open top, and the inner casing having a closed top and bottom, the casings being spaced apart and the space between the casings closed at the ends of the drum, with the space between the walls of the inner casing open at the ends of the drum, substantially as described.

7. A freezing-drum for refrigerators, consisting of two casings, one within the other, the outer casing having an open top, and the inner casing having a closed top and bottom, the casings being spaced apart and the space between the casings closed at the ends of the drum, with the space between the walls of the inner casing open at the ends of the drum, and means carried by said inner casing for regulating the temperature thereof, substantially as described.

8. A freezing-drum for refrigerators consisting of two casings, one within the other, the outer casing having a flaring open top, and the inner casing having a closed top and bottom, the casings being spaced apart and the space between the casings closed at the ends of the drum, with the space between the walls of the inner casing open at the ends of the drum, and a frost-controller carried by said inner casing, as and for the purpose described.

9. The combination with the refrigerator-casing, of a freezing-drum consisting of two casings, one within the other, the outer casing having an open top, and the inner casing having a closed top and bottom, the casings being spaced apart and the space between the same closed at the ends of the drum, with the space between the walls of the inner casing open at the ends of the drum, means carried by the drum for regulating the temperature within the inner casing, and means for sealing the space between the casings at the top of the drum, substantially as described.

664,816. PNEUMATIC SHUTTLE AND PICKER-STAFF BUFFER FOR LOOMS. FRANCIS A. MILLS, Methuen, Mass., assignor of one-half to Grosvenor B. Emmons, same place. Filed Apr. 19, 1900. Serial No 13,496. (No model.)



Claim.—1. The combination in a loom, with the race-lay beam, the picker-staffs and their operating mechanism, of pneumatic rubber buffers having each a form less than half a sphere terminating in a base peripheral flange, and a holder for said buffer having an inclosed seating and self-locking groove for said flange and a perpetually open vent.

2. The combination in a loom, the race-lay, the picker-staffs and their operating mechanism, with a bracket device secured to the race-lay at each end of the picker-staff slot and formed with a base having a vent and an annular groove overhanging the base, and a pneumatic rubber cup terminating at its base in an outward-extending rim or flange adapted to be interlocked with a sealing-joint within said base-groove.

3. The combination in a loom with its race-lay, of picker-staffs each provided with button-buffers, and a bracket device secured to the race-lay at each end of the picker-staff slot and having a vent and circumferential groove overhanging the base, and pneumatic rubber cups each formed at its base with a peripheral outward-extending rim adapted to fill and be interlocked in the said base-groove.

4. In a loom, a pneumatic picker-staff buffer comprising a bracket having attaching means and provided with a seat having an aperture and an undercut marginal wall, a rubber air-sealing ring fitting the base of said seat, and a concavo-convex rubber cup provided with a peripheral flange adapted to be sprung under and engage said undercut wall.

5. In a loom, a pneumatic picker-staff buffer, comprising a bracket or attaching-plate provided with a seat having a recessed and apertured base and an undercut flaring marginal wall, a rubber air-sealing ring fitting the base and the undercut of the recess, and a concavo-convex rubber buffer provided with a flaring or inclined peripheral flange or rim adapted to be sprung under and into said undercut.

6. The rubber buffer in the form of a concavo-convex cup and provided with a peripheral attaching-flange having a flat base and an inclined or wedge-like outer side.

7. In a loom, a buffer for the impact of picker-staffs, comprising a bracket-base having a rim overhanging the face of the base and a groove around the inner wall of the rim above the surface of the base, and a rubber cup-buffer having an outward-standing rim or flange around its base edge, whereby it is supported in the groove above the base-surface to give increased depth to the buffer-chamber for the purpose stated.

8. A buffer-bracket for looms comprising an attaching-arm, a base-plate at right angles thereto having a peripheral rim overhanging the face of the base, and an annular groove in the inner wall of the rim above the surface of the base.

9. In a loom, in combination with the picker-staffs having button-buffers, of pneumatic rubber buffers formed with a circumferential rim or flange joining the spherical projection and a fabric layer extending to the edge of the rim for the purpose stated.

10. In a loom, a pneumatic buffer for the picker-staffs comprising a concavo-convex rubber body having a circumferential attaching-flange and a reinforcing cloth layer whereby it is rendered non-stretching under impact.

11. In a loom, a pneumatic picker-staff buffer comprising a bracket or attaching-plate having a vent, a concavo-convex rubber body secured to and projecting from one side of said plate, a flexible valve having a vent coincident with the plate-vent and secured thereto on the other side of its vent.

12. In a loom, a pneumatic picker-staff buffer comprising a bracket-attaching plate having an apertured base provided with an annular seat and an undercut marginal wall flange or lip overhanging said seat on one side of the base-plate, a concavo-convex rubber body having a circumferential flange or rim self-engaging with said wall, means for sealing the buffer-engaging rim upon its seat, an annular recess on the other side of the base-plate, having an undercut marginal wall flange or lip overhanging said recess, and a flexible valve having a vent registering with said base-aperture, openings surrounding said vent, and rendered self-engaging with said overhanging flange or lip.

13. In a loom, a pneumatic picker-staff buffer comprising a bracket-attaching plate having a vent, a concavo-convex rubber body secured to and projecting from one side of said plate, and a flexible valve having a vent registering with the plate-vent and secured thereto on the other side of said vent, the valve-vent being smaller than the plate-vent.

14 In a loom, a pneumatic picker-staff buffer comprising a bracket-attaching plate having a vent, a concavo-convex rubber cup secured to and projecting from one side of said plate, a flexible valve having a vent registering with and smaller than the plate-vent, and having openings around its vent of greater area than the plate-vent.

15. In a loom, a pneumatic picker-staff buffer comprising a bracket-attaching plate having a vent, a concavo-convex rubber buffer secured to the plate on one side of its vent, a flexible valve secured to the plate on the other side of its vent and having both inlet and outlet openings, the latter being of greater area than the inlet-openings.

16. In a loom, a pneumatic picker-staff buffer comprising a bracket-attaching plate having a vent, a concavo-convex rubber buffer secured to the plate on one side of its vent, a flexible valve having a vent smaller than and registering with the plate-vent secured to the plate on the other side of the plate-vent, and having openings around its vent of greater area than the plate-vent, opened by the outflow pressure of the air by the collapsing of the buffer and closed by the walls of the plate in the normal condition of the valve.

17. A pneumatic rubber buffer device for the shuttle and picker-staffs for looms comprising in a bracket device, an attaching-arm, a base depending therefrom, a groove surrounding the base, an apertured recess forming a base-vent chamber in the face of the base below the plane of the groove, and a rubber cup terminating at its base in a rim or flange the counterpart of the groove, whereby the cup is secured, sealed and allowed to be collapsed within the base.

18. In a loom, a buffer for the impact of the picker-staff composed

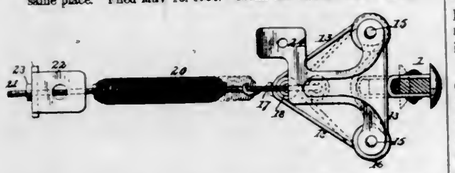
of an imperforate rubber impact-surface of a form less than half a sphere, a suitable seat and casing therefor, forming an air-chamber of fixed area and an unvalved opening from said chamber.

19. In a loom, a buffer for the impact of the picker-staff composed of an imperforate rubber impact-surface of a form less than half a sphere, a suitable seat and casing therefor, forming an air-chamber and an unvalved opening from said chamber.

20. In a loom, a buffer for the impact of the picker-staff composed of a rubber impact-surface, a suitable seat therefor, a chamber behind said impact-surface extending below the plane of said seat and an unvalved opening from said chamber.

21. In a loom, the combination of a picker-staff, the race-lay and the shuttle, of a buffer for the impact of the picker-staff composed of an imperforate rubber pneumatic impact-surface, a suitable seat therefor, and an air-chamber of fixed area behind and below the plane of said seat having a perpetually open vent, whereby the blow of the picker-staff is delivered without resilient effect thereon.

664,817. **PICKER-STAFF BUFFER FOR LOOMS.** FRANCIS A. MILLS, Methuen, Mass., assignor of one-half to Grosvenor B. Emmons, same place. Filed May 16, 1900. Serial No. 16,848. (No model.)



Claim.—1. In a loom and in combination with the picker-staffs, of buffers arranged to receive the shuttle-throwing blows of the picker-staff consisting of a pair of rolls loosely mounted on fixed studs at the inner end of the race-lay slot, a strap loosely confined around said rolls and a spring maintaining the seating of the strap upon the loose rolls whereby it is free to move with the rolling of both rolls in one direction under the impact of the picker-staff to throw the shuttle and with both rolls in the opposite direction under the tension of the spring.

2. In a loom and in combination with the picker-staffs, of buffers therefor consisting of a plurality of loosely-mounted rolls and a strap or band supported thereon free to move with the rolling of the rolls under the impact of the picker-staffs, one of said rolls supported to have a free rectilinear movement toward and from the others, and a spring connected to said roll.

3. In a loom an impact-buffer for picker-staffs, comprising an endless strap or band, a series of freely-rolling supports around which the strap or band is freely supported, one of said supports being freely movable inwardly in a line coincident with the path of the picker-staff, a spring holding the movable support in its normal position to keep the endless strap or band taut, and means for adjusting the tension of the spring.

4. In a loom an impact-buffer for picker-staffs, comprising three triangularly-arranged loose roll-bearings, and an endless strap or band supported freely and unattached around said bearings across the path of the picker-staff and a spring directly connecting and supporting one of said rolls.

5. In a loom an impact-buffer for picker-staffs, comprising a pair of loosely-mounted flanged spools, an intermediate loose roll, a yoke forming the axis of said inner loose roll, a spring connected at one end to said yoke, a threaded rod extending from the opposite end of the spring, a bracket in which said rod is seated, a nut on the rod bearing against the bracket to regulate the tension of the spring, and an endless strap or band freely supported upon the said three roll-bearings; the point of impact surface of the strap or band being its outer face between the two first-named rolls and in center line with the spring-connected roll.

6. In a loom, the combination with the shuttle race-lay, the picker-staff and the operating mechanism, of a buffer comprising bearings at opposite sides of the slot in the race-lay, a third bearing in rear and intermediate of the first two, and an endless strap or band supported upon said three bearings with the outer side of one run in the path of the picker-staff.

7. In a loom, the combination with the shuttle race-lay, the picker-staff and the operating mechanism, of a buffer comprising roll-bearings at opposite sides of the race-lay slot, a third or tension roll in rear and intermediate of the first two, a tension-spring connected to said third roll, means for adjusting the tension of said spring and an endless strap or band supported on said three bearings with the outer side of one run in the path of the picker-staff.

8. In a loom, the combination with the picker-staffs and wedge-shaped cushion-bunters thereon, of buffer-straps and loosely-mounted rolls therefor whereby the strap is free to move with the rolling of the rolls and the picker-staffs prevented from jumping up under their blows upon the strap.

9. In a loom, the combination with the shuttle race-lay, the picker-staff having a cushion-bunter on its inner side and a convex button-bunter on its outer side, and an operating mechanism, of a pneumatic rubber buffer at the outer end of the race-lay slot in the path of the button-bunter and an endless spring-pulled strap supported at the under side of the race-lay with its outer side or run in the path of said cushion-bunter.

10. In a loom, a picker-staff provided with a bunter comprising a leather pocket, side plates, a bolt passing through the sides of the pocket, the picker-staff and through said plates, and a filling of flexible material, within said pocket.

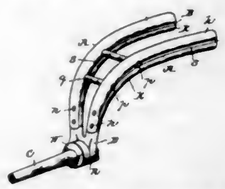
11. In a loom and in combination with the race-lay, the picker-staffs and operating mechanism therefor, of a pair of spools loosely mounted on fixed studs on each side of the race-lay slot, a tension-spring and a loosely-mounted roll carried by said spring, an endless strap or band loose and unattached on said spools and means for adjusting the tension of said spring.

12. In a loom and in combination with the race-lay, the picker-staffs and operating mechanism therefor, of a pair of spools mounted to turn freely on fixed studs on each side of the race-lay slot, a tension-spring and a loosely-mounted roll carried thereby in line with the path of the picker-staff, an endless strap or band loose and unattached on said spools, means for adjusting the tension of said spring, and a wedge-shaped cushioned bunter on the picker-staff arranged to operate as stated.

13. In a loom and in combination with the race-lay, the picker-staffs, operating mechanism therefor, a pair of spools mounted to turn freely on fixed studs on each side of the race-lay slot, an endless band loose on said spools and a tension-spring arranged to maintain said band under tension, of a roll loosely mounted upon said spring engaging the band in the path of the picker-staff and movable in said path to maintain the tension of said band under the blows of the picker-staff.

14. In a loom and in combination with the race-lay, the picker-staffs and operating mechanism therefor, of a pair of loosely-mounted spools, an endless band mounted loosely thereon to cross the slot of the race-lay, a spring arranged to maintain said strap under tension, and a roll connecting the spring and freely supporting one side of the band so that the impact upon the other side of the band will cause its two roll-supported sides to approach each other.

664,818. **RUNNING-GEAR FOR VEHICLES.** SAMUEL M. MORDEN, Buffalo, N. Y., assignor to Abraham E. Perren, same place. Filed Apr. 2, 1900. Serial No. 11,199. (No model.)



Claim.—1. An axle of tubular form, composed of upper and lower substantially semicylindrical sections of steel or the like of crescent form in cross-section, and separated from each other laterally by a narrow slot or interval, a filling of wood or the like, and means for connecting said sections and filling rigidly together, substantially as specified.

2. An axle, having upper and lower substantially semicylindrical steel shells, crescent form in cross-section, a wooden filling, and means for connecting said shells and filling rigidly together, substantially as specified.

3. A longitudinally-arched diverging two-part axle, each said part having upper and lower steel shells crescent form in cross-section, and approaching each other at their end portions to form a socket, a wooden filling for such shells, and spindles having diverging tenon-pins engaging said sockets, substantially as specified.

4. A longitudinally-arched diverging two-part axle, each said part having upper and lower steel shells crescent form in cross-section and separated from each other laterally by a narrow interval, a wooden filling, and tie-bolts for said axle parts passing through said intervals, substantially as specified.

5. A longitudinally-arched diverging two-part axle, each said part having upper and lower steel shells crescent form in cross-section, a wooden filling terminating short of the extremities of said shells to leave sockets, and spindles having diverging tenon-pins engaging such sockets, substantially as specified.

6. In an axle, the diverging arched two-part steel-shell axle-bodies, having wood fillings, and the tie-bolts and braces connecting the arched portions, substantially as specified.

7. In an axle, the diverging arched two-part steel-shell axle-bodies, having wood fillings, and braces, and tie-bolts passing through the wood filling and connecting the arched portions of the bodies, substantially as specified.

8. An axle, consisting of diverging arched two-part wood-filled steel shells, having end sockets, spindle-pieces having diverging tenon-pins engaging said sockets, and tie-and-brace connections at the arched portions, substantially as specified.

9. An axle, consisting of arched two-part steel-shell axle-bodies, spindle-pieces connected to said shell-bodies, and connecting the same at their ends, and detachable spindles connected to eyes of said spindle-pieces, and devices for locking said spindles against turning, substantially as specified.

10. The combination with diverging two-part arched steel-shell axle-bodies, having sockets at their ends and wood fillings between the sockets, of a detachable spindle and a spindle-piece having diverging tenon-pins engaging said sockets, and an eye engaging said spindle, substantially as specified.

664,819. **ELECTRIC SAFETY APPLIANCE FOR RAILROADS.** EDWARD L. ORCUTT, Somerville, Mass., assignor to the International Railroad Safety Appliance Company, Kittery, Me. Filed Jan. 3, 1898. Serial No. 665,309. (No model.)



Claim.—1. In an electric safety appliance for railroads, a track-circuit composed in part of the rails of the track, and including a contact-plate, a brush on the train, a supply of electricity on the train connected with said brush to charge the track-circuit when said brush engages said contact-plate, a parallel or line circuit on the track including a second contact-plate, a second brush on the train, a signal on the train connected with said second brush, and a mechanism on the track included within the track and line circuits at the opposite end of said circuits to where their respective contact-plates are connected, operated by the current of electricity in the track-circuit to generate a current of electricity in the line-circuit and thereby operate the signal on the train, for the purpose set forth.

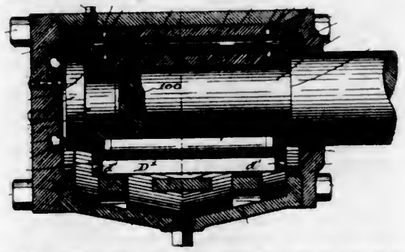
2. In an electric safety appliance for railroads, a track-circuit composed in part of the parallel lines of rails of the track, a supply of electricity to charge the track-circuit, a parallel or line circuit composed in part of one of the lines of the rails, a signal operated by a current of electricity in the parallel circuit, and a mechanism included within both circuits located at a position in said circuits which is the greatest distance from said supply of electricity and signal and operated by the current in the track-circuit to generate a current of electricity in the parallel circuit to operate said signal, for the purpose set forth.

3. In an electric safety appliance for railroads, a track mechanism consisting of a track-circuit, a parallel or line circuit, and a mechanism included within both circuits operated by a current of electricity in the track-circuit to supply a current of electricity in the parallel circuit, combined with a circuit on the train a supply of electricity and means to engage said track-circuit included in said train-circuit, a second closed circuit on the train, a signal and means to engage and loop in said parallel or line circuit included in said second train-circuit, and a mechanism operated by the supply of mechanism in the first train-circuit to supply a current of electricity in the second train-circuit to operate said signal but cut out and supplied by the current in the parallel circuit on the track when the train mechanism engages the track mechanism, for the purpose set forth.

664,820. **ROLLER-BEARING.** JULIUS A. PERKINS, Omaha, Nebr., assignor to the Moffett Bearing Company, Council Bluffs, Iowa. Filed Dec. 1, 1899. Serial No. 738,774. (No model.)

Claim.—1. A roller-bearing consisting of a plurality of bearing-rollers, a rigid traveling roller-carrying cage, non-rotatable supports to aline said rollers, antifriction means interposed between said supports and said rollers and traveling-cage controllers outside of and separated from said cage.

2. A roller-bearing containing a plurality of bearing-rollers, a rigid traveling alining-cage containing said rollers and having non-rotatable means to aline said rollers in said cage, antifriction means interposed between the ends of said rollers and the cage and between the rollers and the supports whereby contact of the rollers with said cage and support is prevented, and traveling-cage controllers located outside of and separated from the ends of said cage.



3. A roller-bearing containing a plurality of bearing-rollers, a rigid traveling roller-alining cage having non-rotatable axial supports to center and aline the respective rollers, and traveling-cage controllers outside of and separated from said cage.

4. A roller-bearing containing a plurality of bearing-rollers, a rigid traveling alining-cage containing said rollers and having non-rotatable axial supports to center and aline said rollers in said cage and about which said rollers revolve, antifriction means interposed between the ends of said rollers and the cage and between the rollers and the axial supports, whereby contact of the rollers with said cage or supports is prevented, and traveling-cage controllers located outside of and separated from the ends of said cage.

5. A roller-bearing containing a plurality of bearing-rollers having flanges at their ends, a rigid traveling alining-cage, a series of non-rotatable supports extended from said cage to center and aline said rollers in their rotation about said supports as the cage travels, a series of balls acting against the inner sides of the flanges at the ends of said rollers and rolling over the side walls of the cage and the peripheral surface of said supports, and traveling-cage controllers supported at a distance from the ends of said cage sufficient to enable the cage to run freely between said traveling controllers and without contact therewith.

6. In a roller-bearing, a box, a journal contained in said box, and a rigid traveling alining-cage interposed between the surfaces of the box and of the journal, a series of bearing-rollers contained in said cage, non-rotatable roller-supports extended from said cage to center and aline said bearing-rollers, traveling-cage controllers located outside of and separated from the ends of said cage, one of said cage-controllers being detachably mounted upon the part carrying it that it may be removed to permit the cage to be put in position to surround the journal.

7. In a roller-bearing containing a plurality of bearing-rollers, a rigid traveling cage containing non-rotatable axial supports to aline and center said bearing-rollers, and traveling-cage controllers separated from the ends of said cage for a distance sufficient to enable said cage to rotate freely and also to slide longitudinally in the space between said cage-controllers and a non-metallic facing for and moving with said traveling-cage controllers, said facings occupying a position distant from each other more than equal to the length of the traveling cage in the direction of the length of its bearing-rollers, whereby said cage may slide longitudinally of the axis of the journal and contact at intervals with one or the other of said facings.

8. In a roller-bearing, a box, a journal, and a rigid traveling cage containing a plurality of bearing-rollers flanged at their ends, supports carried by said cage to aline said rollers, a series of balls coacting with the inner sides of said flanges and sustained by said supports, the exterior of said flanges in the planetary motion of the bearing-rollers being unsupported by either the box or the journal to thereby obviate the hammering of said flanges.

9. A roller-bearing composed of a box, a journal in said box, a rigid traveling alining-cage surrounding said journal and having a series of supports to center and aline said bearing-rollers, the extremities of said rollers being flanged at their ends and being reduced in diameter outside said flanges, a series of balls contained in said chambers and contacting with the interiors of the flanges at the ends of the bearing-rollers and with the inner side walls of the cage and with the said supports, and traveling-cage controllers separated from the ends of said cage, whereby said rollers may be run without crystallization of the flanges, as described.

10. In a roller-bearing, a box having at the inner side of its outer end antifriction end-thrust means, a rotating journal provided with cage-controllers, one of which is detachably applied to said journal by a tenon on one entering a hole in the other, said detachable controller meeting the end-thrust means as the journal slides in the box.

11. In a roller-bearing, a box having at the inner side of its outer end an annular groove, a series of balls located in said groove, a keeper applied to the inner side of said box end and partially overlapping the groove and the balls to retain them in said groove, said keeper having a

connected shank extended through a hole in the box and rigidly secured in place at the outer side of the box by a head formed upon said shank.

12. A rigid cage containing a series of supports, a series of bearing-rollers alined or centered by said supports, antifriction means interposed between the ends of said rollers and the inner sides of the ends of the cage and of said supports, said rollers being reduced in diameter at their outer ends at a point outside the location of said antifriction means.

13. A roller-bearing containing a plurality of bearing-rollers, a rigid traveling cage, bearing-rollers in said cage, centering means sustained by said cage and about which said rollers may turn in the revolution of the cage about the journal, and faster traveling controllers movable with said cage in the same direction and adapted to strike said cage at intervals and move it into its free-running position.

14. In a roller-bearing, a box, a journal, a series of bearing-rollers interposed between the box and the journal and having a planetary motion between said box and journal, and a refuse-receptacle presenting a cross-support to sustain portions of said rollers while crossing said receptacle, different portions of said rollers being exposed in crossing the receptacle that particles carried by the rollers may descend by gravity and enter said receptacle.

15. In a roller-bearing, a box, a journal, a series of bearing-rollers interposed between the box and journal and having a planetary motion between said box and journal, and a refuse-receptacle extended over a space of greater length than the length of the bearing-rollers, said space presenting at suitable intervals roller-supports to insure the traveling of the rollers in the proper circular path, said rollers in their planetary motion exposing different portions of their surfaces opposite the openings that particles carried by the rollers may leave the rollers due to gravity and enter the receptacle.

16. In a roller-bearing, a box and a journal, one stationary and the other movable, an interposed cage revoluble between said box and journal, said cage being provided with bearing-rollers, the box or journal, whichever is stationary having a refuse-receptacle presenting within it a support to be met by the periphery of each bearing-roller in the traveling motion of the cage as said bearing-roller crosses said receptacle.

17. In a roller-bearing, a box, a journal, a rigid traveling cage located within said box and surrounding said journal and provided with a plurality of bearing-rollers sustained and alined in said cage, and a stationary refuse-receptacle of a length greater than the length of the rollers, and a plurality of roller-supports to sustain said rollers in their travel across said receptacle, said surfaces being so arranged that substantially every part of each bearing-roller may be uncovered during the planetary motion thereof with the cage to thereby enable any particles carried by the roller to drop therefrom by gravity into the receptacle.

18. In a roller-bearing, a box, a journal, a series of bearing-rollers interposed between said box and journal and having a planetary motion about said journal in the operation of the bearing, and a refuse-receptacle of greater length in the direction of the longitudinal axis of the journal than the length of the bearing-rollers, said receptacle presenting roller-supports extended from its edges in opposite directions and partially crossing the said receptacle from said opposite edges for the purposes herein set forth.

19. In a roller-bearing, a box, a journal, a rigid traveling cage located within said box and surrounding said journal and provided with a plurality of bearing-rollers sustained and alined in said cage, of a refuse-receptacle provided with supports extended from the opposite sides of said receptacle, the ends of said supports passing each other and having below them a refuse-receiving space.

20. In a roller-bearing, a box, a journal, a rigid traveling cage located within said box and surrounding said journal and provided with a plurality of bearing-rollers sustained in said cage, and a refuse-receptacle, said receptacle having a series of fixed roller-supports each support occupying a position at an angle to the longitudinal center of the journal and partially crossing the same whereby only portions of each bearing-roller in the direction of the length thereof is supported while passing said receptacle, different portions of each roller between its ends being supported while crossing the receptacle, said supports always supporting uniformly the bearing-rollers throughout their passage over said receptacle.

21. In a roller-bearing, a rigid cage having supports made as spindles having their ends shaped other than round, said spindles being locked in the cage by portions carried by said end pieces overlapping the ends of the spindles, and a series of bearing-rollers surrounding said spindles and centered and alined thereby.

22. A rotatable journal having radially-extended cage-controllers, combined with a rigid traveling alining-cage containing a plurality of bearing-rollers, said cage having supports to center and aline said rollers, the cage traveling in the direction of rotation of and with said journal in the space between said cage-controlling surfaces.

23. In a roller-bearing, a rigid cage having supports made as spindles having their ends shaped other than round, said spindles being locked in the cage by integral portions of the end pieces of the cage overlapping the ends of the spindles, and a series of bearing-rollers surrounding said spindles and centered and alined thereby.

24. In a roller-bearing, a rotatable journal provided with a plurality of cage-controllers moving with it, the controller at the end of the journal being detachable therefrom, antifriction-washers surrounding said journal and contacting one with the inner side of each controller, a traveling cage surrounding said journal between said controllers and provided with bearing-rollers, non-rotatable supports carried by said cage and entering the rollers, the rollers rotating about said supports, antifriction means to prevent the contact of said bearing-rollers with said cage or with said supports, said cage being of a length in the direction of the length of its bearing-rollers to run in the space between said washers without contact therewith, said washers striking at times the ends of the cage revolving with the journal and in the same direction, and a suitable box surrounding and inclosing the journal, its controllers and said cage.

25. In a roller-bearing, a rotatable journal provided with a plurality of cage-controllers moving with it, the controller at the end of the journal being detachable therefrom, antifriction-washers surrounding said journal and contacting one with the inner side of each controller, a traveling cage surrounding said journal between said controllers and provided with bearing-rollers, supports carried by said cage and entering the rollers, the rollers rotating about said supports, antifriction means to prevent the contact of said bearing-rollers with said cage or with said supports, said cage being of a length in the direction of the length of its bearing-rollers to run in the space between said washers without contact therewith, said washers striking at times the ends of the cage revolving with the journal and in the same direction, and a suitable box having a refuse-receptacle presenting a cross-support to sustain portions of said rollers while crossing said receptacle, different portions of said rollers being exposed in crossing the receptacle that particles carried by the rollers may descend by gravity and enter said receptacle.

26. In a roller-bearing, a rotatable journal provided with a plurality of cage-controllers moving with it, the controller at the end of the journal being detachable therefrom, antifriction-washers surrounding said journal and contacting one with the inner side of each controller, a traveling cage surrounding said journal between said controllers and provided with bearing-rollers, non-rotatable supports carried by said cage and entering the rollers, the rollers rotating about said supports, antifriction means to prevent the contact of said bearing-rollers with said cage or with said supports, said cage being of a length in the direction of the length of its bearing-rollers to run in the space between said washers without contact therewith, said washers striking at times the ends of the cage revolving with the journal and in the same direction, a suitable box surrounding and inclosing the journal, its controllers and said cage, and end-thrust means having a planetary motion and sustained by said box and meeting at intervals the face of said detachable controller.

27. In a roller-bearing, a cage having its end walls united rigidly by arms, said walls having a series of alined through-holes, a series of non-rotatable supports held in said alined holes, a series of bearing-rollers chambered at their ends and surrounding said supports, a series of balls to prevent the contact of said rollers with either said supports or cage ends, and faster-moving cage-controllers located outside and separated from the ends of and movable with said cage in the same direction and adapted to strike the opposite ends of said cage at intervals and move it into its free-running position.

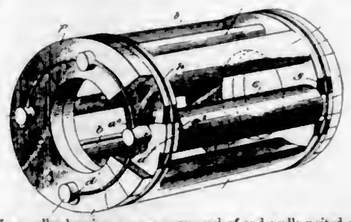
28. In a roller-bearing, a cage having its end walls united rigidly by arms, said walls having a series of alined through-holes, a series of non-rotatable supports held in said alined holes, a series of bearing-rollers chambered at their ends and surrounding said supports, a series of balls to prevent the contact of said rollers with either said supports or cage ends, faster-moving cage-controllers located outside and separated from the ends of and movable with said cage in the same direction and adapted to strike the opposite ends of said cage at intervals and move it into its free-running position, and antifriction-washers interposed between said cage ends and said controllers and supported at their outer sides by said controllers and traveling with them.

664,821. ROLLER-BEARING. JULIUS A. PERKINS, Omaha, Nebr., assignor to the Moffett Bearing Company, Council Bluffs, Iowa. Filed Dec. 4, 1899. Serial No. 739,086. (No model.)

Claim.—1. In a roller-bearing, a divided cage composed of segments united rigidly by bars, said segments being provided at their meeting ends with grooves and notches, and a locking device entering said grooves and notches and preventing the separation of said segments one from the other.

2. In a roller-bearing, a divided cage composed of bars having segments fixed to their opposite ends, the peripheries of said segments connected with both ends of the bars being grooved, and locking devices entering the grooves of each pair of abutting segments.

3. In a roller-bearing, a divided cage composed of segments connected rigidly by bars, each segment having in its periphery a groove, combined with a locking device entering said grooves and substantially encircling said segments, both ends of each locking device, the latter having surrounded both segments, entering suitable openings in one of the segments to thereby aid in retaining the locking device in its operative position.



4. In a roller-bearing, a cage composed of end walls united rigidly by bars and provided with alined holes, a series of bearing-rollers, and a series of roller-alining spindles in said holes, and locking means at the outer ends of said spindles to retain the same in said cage.

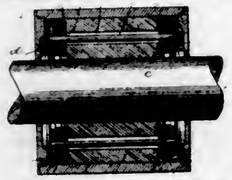
5. In a roller-bearing, a cage composed of end walls united rigidly by bars, said end walls having a series of alined holes, a series of bearing-rollers, roller-alining means located in said holes, and locking devices to engage the exposed ends of said roller-alining means outside the walls of said cage to retain the said alining means not only in said cage but against axial rotation therein.

6. In a roller-bearing, a cage composed of end walls united rigidly by bars, said end walls having a series of alined holes for the reception of spindles, combined with a series of bearing-rollers, a series of spindles sustained in said alined holes, and locking devices to engage the exposed ends of said spindles and retaining the same not only in said cage but against axial rotation in the cage.

7. In a roller-bearing, a cage composed of segmental end walls united rigidly by bars, and having a series of spindle-receiving holes in alinement, combined with locking-segments applied to the outer faces of the end walls, said segments crossing the abutting ends of the cage-segments, said spindles extended through said end walls and locking-segments, and a series of bearing-rollers revolving about said spindles.

8. In a roller-bearing, a cage composed of segmental end walls united rigidly by bars, and having a series of spindle-receiving holes in alinement, combined with spindles extended through said end walls, a series of bearing-rollers revoluble about said spindles, and a spindle-locking device coöperating with a plurality of said spindles to retain them in the cage and also to prevent the rotation of said spindles in said cage.

664,822. ANTIFRICTION ROLLER-BEARING. JULIUS A. PERKINS, Omaha, Nebr., assignor to the Moffett Bearing Company, Council Bluffs, Iowa. Filed Dec. 4, 1899. Serial No. 739,087. (No model.)



Claim.—1. A roller-bearing containing a plurality of bearing-rollers, a cage therefor having extended from its inner walls supports to center and aline said rollers, and antifriction-washers surrounding said supports and interposed between the ends of said rollers and the inner walls of said cage.

2. In a roller-bearing, a plurality of metallic bearing-rollers chambered at their ends, a rigid traveling roller-controlling cage having inwardly extended therefrom roller-supports entering said chambers, and antifriction-washers located at the ends of said rollers and surrounding said supports, said washers preventing the contact of said rollers with said supports.

3. A roller-bearing containing a plurality of bearing-rollers, a rigid traveling alining-cage therefor having extended from its inner walls supports to enter, center and aline said rollers, and antifriction-washers interposed between the ends of said rollers and the inner sides of the cage, said washers preventing contact of the rollers with said supports and also with said cage.

4. A roller-bearing containing a plurality of bearing-rollers chambered at their ends, a rigid traveling alining-cage therefor having extended inwardly from its inner walls supports to enter the chambers of and aline said rollers, and antifriction-washers interposed between the ends of said rollers and the inner sides of said cage, said washers preventing contact of said bearing-rollers with said supports and also with said cage.

5. In a roller-bearing, a rigid traveling alining-cage, a box, and a journal between which said cage is interposed, a plurality of bearing-rollers, a plurality of supports connected with the cage and entering and alining said rollers, and antifriction-washers surrounding said supports and interposed between the ends of the rollers and the inner side walls of the cage, said washers surrounding said supports and preventing the contact of the rollers therewith and with the cage.

6. In a roller-bearing, a rigid traveling alining-cage, a box, and a journal between which said cage is interposed, a plurality of bearing-rollers, a series of supports connected with said cage and entering said rollers, antifriction-washers surrounding said supports and interposed between the ends of the rollers and the inner side walls of the cage, said washers preventing the contact of the rollers with said supports and with the cage, and traveling-cage controllers located outside the ends of said cage and adapted to travel at a faster speed than the cage.

7. In a roller-bearing, a rigid traveling alining-cage, a box and a journal between which said cage is interposed, a plurality of bearing-rollers, a series of supports connected with the cage and entering said rollers, antifriction-washers surrounding said supports and interposed between the ends of the rollers and the inner side walls of the cage, said washers preventing the contact of the rollers with said supports and with the cage, and cage-controllers connected and traveling with said box but at a faster speed than the speed of the cage, and antifriction means interposed between said traveling-cage controller and the ends of the cage.

8. A bearing-roller for use in a roller-bearing, said roller consisting of a metallic body having applied to and contained within its ends antifriction-washers, the washers extending from the ends of the metallic body of the roller.

9. In a roller-bearing, a series of bearing-rollers, a cage having alining means for said rollers, and non-metallic means to prevent contact of said rollers with any part of said cage or its alining means.

10. In a roller-bearing, a cage containing a series of metallic rollers, each roller having fixed to its opposite ends and traveling therewith an antifriction-washer.

11. In a roller-bearing, a cage having a series of metallic bearing-rollers, and means for alining said rollers, each of said rollers presenting at its end an antifriction-washer of a diameter less than that of the bearing-roller and serving to prevent the metallic ends of the roller from contacting with the inner side walls of the cage.

12. In a roller-bearing, a cage containing a series of bearing-rollers chambered at their ends, and means to aline and space said rollers, combined with antifriction-washers contained in said chambers and extended beyond the ends of the rollers.

13. In a roller-bearing, a cage containing a series of rollers having chambers at their ends and antifriction-washers inserted in said chambers and adapted to meet at intervals the inner walls of the cage, said washers preventing the otherwise wear of the rollers and cage by contact.

14. In a roller-bearing, a cage composed of end walls united rigidly by bars to present roller-receiving spaces, roller-alining means projected inwardly from the inner sides of the walls of said cage and located between said bars, a series of bearing-rollers entered by said alining means, and non-metallic antifriction devices interposed between the ends of said bearing-rollers and the inner sides of the end walls of the cage, said antifriction devices meeting the inner sides of said end walls only as the rollers slide longitudinally in said cage.

15. In a roller-bearing, a cage composed of end walls held together by bars to present roller-receiving spaces, a series of bearing-rollers occupying said spaces, spindles supported by said walls and passed through bores at the centers of said bearing-rollers, said bores being of considerably greater diameter than the diameter of said spindles; combined with antifriction-washers located at the ends of said bearing-rollers and surrounding said spindles, said antifriction-washers normally revolving about said spindles and serving to aline or maintain said rollers parallel in said cage.

16. In a roller-bearing, the combination with a cage containing a series of bearing-rollers, of washers interposed between said rollers and said cage, said washers constituting the sole means for keeping said rollers and cage out of contact with each other as set forth.

17. In a roller-bearing, the combination with a cage having bearing-rollers and spindles extended through said rollers, of washers interposed between said rollers and said cage and surrounding said spindles, said washers constituting the sole means for keeping said rollers out of contact with the cage and the spindles.

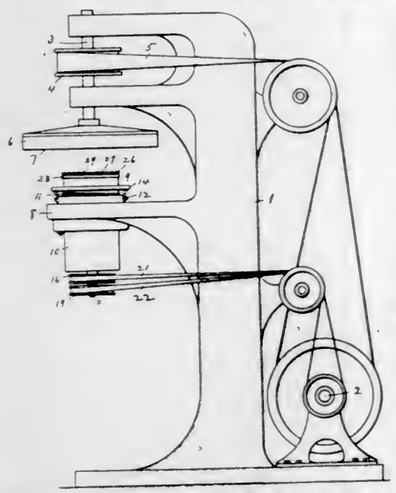
18. In a roller-bearing, a box, a journal, a traveling cage having a series of bearing-rollers sustained therein and interposed between said box and journal, non-metallic antifriction means at the ends of said rollers to

prevent contact between the ends of said rollers and their points of support in said cage.

19. In a roller-bearing, a rotatable box, a fixed journal, a traveling cage having a series of bearing-rollers sustained therein and interposed between said box and journal, non-metallic antifriction means at the ends of said rollers to prevent contact between the ends of said rollers and their points of support in said cage, and traveling-cage controllers which strike said cage only at intervals.

20. In a roller-bearing, a rotatable box, a fixed journal, a traveling cage having a series of bearing-rollers sustained therein and interposed between said box and journal, non-metallic antifriction means at the ends of said rollers to prevent contact between the ends of said rollers and their points of support in said cage, traveling-cage controllers which strike said cage only at intervals, and washers interposed between said cage and controllers.

664,823. MACHINE FOR GRINDING BALLS. HARRY M. PUTNAM, Fitchburg, Mass., assignor to the Fitchburg Steel Ball Company, same place. Filed Mar. 9, 1898. Serial No. 673,210. (No model.)



Claim.—1. The combination of a rotating ball-supporting plate, a rotating ball-retaining plate concentric with said ball-supporting plate and having a series of holes, or openings, to receive the balls to be ground, and a rotating grinding-wheel with its sides in contact with the balls held on said ball-supporting plate and having its axis eccentric to the axis of said supporting-plate, substantially as described.

2. The combination of a pair of ball-supporting plates placed side by side and in the same horizontal plane, ball-retaining plates above said supporting-plates and having a series of openings to receive the balls to be ground and a rotating grinding-wheel having the line of its axis passing between said ball-supporting plates and with the side of said wheel overlapping said ball-supporting plates, substantially as described.

3. The combination of a grinding-wheel, a ball-supporting plate by which the balls to be ground are held against the side of said grinding-wheel, and a ball-retaining plate interposed between said supporting-plate and said grinding-wheel, said retaining-plate having a series of holes, or openings, through said plate and arranged in straight lines, parallel with a diametrical line passing through the center of said plate, substantially as described.

4. The combination of a rotating grinding-wheel, a shaft, a ball-retaining plate supported on the end of said shaft, a ball-supporting plate held on the end of said sleeve and beneath said ball-retaining plate, a table beneath said ball-supporting plate and adjustably held in the framework of the machine, and means by which said table is moved into and out of contact with said ball-supporting plate, substantially as described.

5. The combination of a grinding-wheel, a non-rotatable supporting-table, a removable ball-supporting plate interposed between said table and said grinding-wheel, means for holding said ball-supporting and said ball-retaining plates concentric with each other, and means for bringing said table into contact with said ball-supporting plate, substantially as described.

6. The combination with a framework and a rotating grinding-wheel, of a cylinder held in said framework, means for moving said cylinder longitudinally in said framework, a removable ball-supporting plate supported in said cylinder, a rotating shaft engaging said plate, and a ball-retaining plate held concentrically on said ball-supporting plate and capable of an independent rotation, substantially as described.

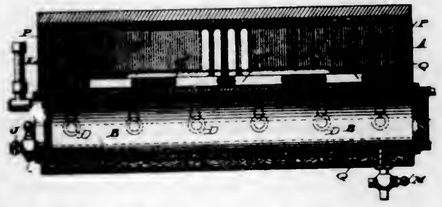
7. The combination of cylinder 10, means for raising and lowering said cylinder, a plate 23 held on said cylinder, a perforated plate 26 held concentrically above plate 23, said plate 23 being capable of rotating, and a grinding-wheel, substantially as described.

8. The combination of a grinding-wheel, a shaft 18, parallel with the shaft of said grinding-wheel but eccentric thereto, a ball-retaining plate provided with a boss 27, inclosing the end of said shaft, a sleeve 15 concentric with said shaft, a ball-retaining plate held on the end of said sleeve, a table provided with bearings for said sleeve 15, and means for moving said table into contact with said ball-supporting plate, substantially as described.

9. The combination with a grinding-wheel and a table parallel with the side of said wheel, of a removable ball-supporting plate having a central boss entering said concentric rib, whereby said ball supporting and retaining plates are held concentrically with each other when removed from the machine, substantially as described.

10. In a machine for grinding balls, the combination with a rigid framework, of a rotating grinding-wheel, a cylinder held in said framework and provided with a screw-thread, a nut engaging said screw-thread and held from longitudinal movement, a ball-supporting plate carried by said cylinder, by which the balls are moved toward said grinding-wheel, substantially as described.

664,824. COLD-AIR-PRESSURE APPARATUS FOR BEER OR OTHER FLUIDS. GOTTLIEB SCHMIDT, Philadelphia, Pa., assignor, by direct and mesne assignments, to Harry E. Bell and Emma Schmidt, same place. Filed Dec. 30, 1897. Renewed Oct. 30, 1900. Serial No. 34,963. (No model.)



Claim.—1. A casing, an air-chamber in the lower portion thereof, a cooling-chest having a curved base conforming to said air-chamber, supply and discharge cocks connected with said chamber, a fluid-conveying pipe in said cooling-chest and conforming to said base, inlet and outlet branches connected with said pipe, said casing extending continuously along the sides of said cooling-chest and under and around said air-chamber, and non-conducting material intermediate of said casing, chamber and chest, the bottom of said casing surrounding the bottom of said air-chamber and supporting the same and the bottom of said cooling-chest closing against the top of said air-chamber.

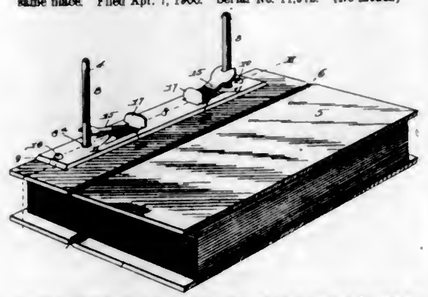
2. The combination of a casing, an air-chamber in the lower portion thereof, a cooling-chest in the upper portion thereof, having a curved base conforming to said chamber, supply and discharge cocks connected with the latter, a fluid-conveying pipe in the base of said cooling-chest, said pipe being folded upon itself in substantially parallel loops, and inlet and outlet branches connected with said pipe, the inlet branch entering said cooling-chest at the bottom thereof, and said outlet branch rising from said bottom in said chest, extending vertically and leaving the latter at the top thereof.

3. A casing, an air-chamber in the lower portion thereof, a curved cooling-chest in the upper portion thereof, a drip-pipe connected with said chest, the base of said chest closing against the upper portion of the wall of the air-chamber and conforming therewith thereby preventing the water from passing under said chest and chamber into the bottom of the casing, a tap, a connection thereto from the discharge-cock of said air-chamber, and a pipe leading from said tap through the lower portion of said cooling-chest, said casing surrounding said air-chamber and cooling-chest, non-conducting material adjacent said chest and chamber, and an insulated cover for said casing.

4. The combination of a casing, an air-chamber in the lower portion thereof, a cooling-chest having a curved base in the upper portion thereof, air supply and discharge cocks connected with said chamber, a tap, a connection therefrom to said discharge-cock, a pipe leading from said tap through the lower portion of said cooling-chest and coiled to conform to the base thereof, and a cover for said casing, the latter surrounding said air-chamber and cooling-chest and having non-conducting material adjacent thereto.

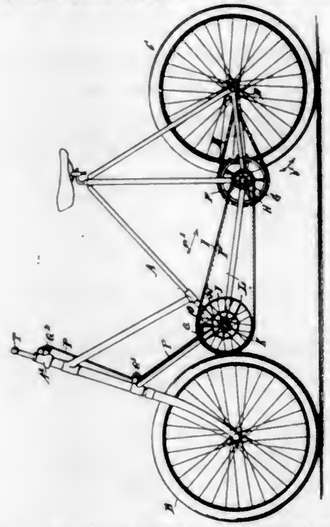
5. The combination of a casing, an air-chamber in the lower portion thereof, a cooling-chest in the upper portion thereof, air supply and discharge cocks connected with said chamber, a tap, a connection therefrom to said discharge-cock, a pipe leading from said tap through the lower portion of said cooling-chest, a screen in the latter above said pipes, and a cover for said casing, the latter surrounding said air-chamber and cooling-chest and having non-conducting material adjacent thereto.

664,825. AUTOMATIC LOCK-BINDER. EMORY A. TRUSSELL, St. Louis, Mo., assignor to the Sieber & Trussell Manufacturing Company, same place. Filed Apr. 7, 1900. Serial No. 11,972. (No model.)



Claim.—In a binder, the combination of a bottom board, posts carried thereby, a top board, a plate carried by said top board having a raised body, springs fixed to the body of said plate, clutch-levers arranged to bear upon said springs and having forked ends adapted to engage said posts, handles projecting upwardly from said levers, spurs projecting from the edges of said levers adapted to engage beneath the body of said plate, said plate being provided with depressed portions, said depressed portions of the plate being adapted to confine said spurs, substantially as described.

664,826. BICYCLE. HENRY C. WEEKS, New York, N. Y. Filed Mar. 26, 1896. Renewed May 8, 1900. Serial No. 15,981. (No model.)



Claim.—1. The improved bicycle, comprising front and rear wheels, a connecting-frame having braces inclined downward from the head, or front, tube and the saddle-post tube, a hanger connecting the lower ends of such braces, the transverse shaft arranged in said banger and having belt-pulleys on its extended ends, the rear hanger, the saddle-post tube and a brace extending to the front hanger and connecting with and suspending such rear hanger, the shaft arranged in the latter and having pulleys on its extended ends, broad endless belts running on the two sets of pulleys and inclined downward from front to rear, and gearing connecting the rear shaft and rear wheel, as shown and described.

2. In a bicycle, the handle-bar proper, composed of two horizontal parts having horizontal meshing gears arranged on the head of the machine and with which the parts of the handle-bar are rigidly connected, respectively, a rack-bar that meshes with one of said gears, a brake mechanism, and means which connect the rack with the brake, as shown and described, whereby the handle-bar is adapted to perform its usual function and also apply the brake, as specified.

3. A bicycle-gear, provided with a brake mechanism comprising a brake-pulley on one of the driven shafts, a brake-band encircling said pulley, a lever connected with the ends of the band, a rope connected with said lever, a rack connected with said rope, and a segmental gear-wheel in mesh with said rack and secured on one of the handle-bar stems, said stems being pivoted in vertical planes, and geared together and projecting laterally from their respective gears, substantially as shown and described.

DESIGNS.

33,768. GEM-SETTING. GERHARDT G. M. F. HARTMANN, New York, N. Y. Filed Nov. 22, 1900. Serial No. 37,406. Term of patent 7 years.



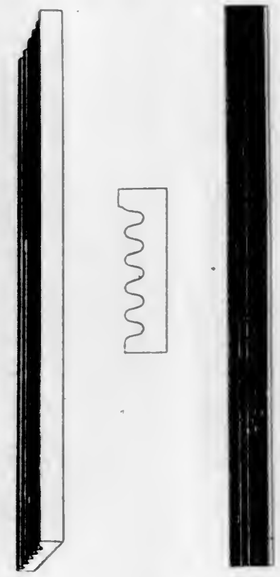
Claim.—The design for a gem-setting herein shown and described.

33,769. GEM-SETTING. GERHARDT G. M. F. HARTMANN, New York, N. Y. Filed Nov. 22, 1900. Serial No. 37,406. Term of patent 7 years.



Claim.—The design for a gem-setting herein shown and described.

33,770. CRAYON-HOLDER. FREDERICK D. JONES, Los Angeles, Cal. Filed Oct. 26, 1900. Serial No. 34,514. Term of patent 14 years.



Claim.—The design for a crayon-holder as herein shown and described.

33,771. STUD OR BUTTON FOR GARMENT-SUPPORTERS. DE VER H. WARNER, Bridgeport, Conn., assignor to the Warner Brothers Company, same place. Filed Mar. 21, 1900. Serial No. 9,615. Term of patent 14 years.



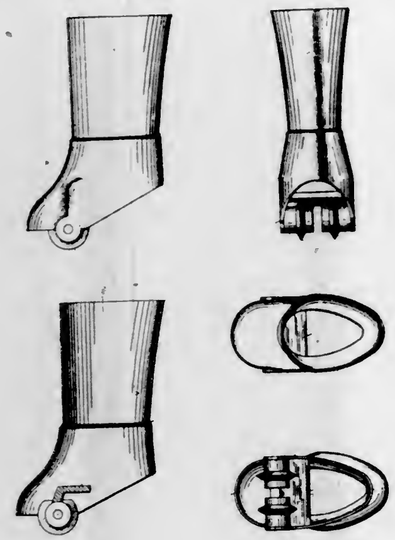
Claim.—The design for a stud or button for garment-supporters, substantially as herein shown and described.

33,772. STUD OR BUTTON FOR GARMENT-SUPPORTERS. DE VER H. WARNER, Bridgeport, Conn., assignor to the Warner Brothers Company, same place. Filed Mar. 21, 1900. Serial No. 9,616. Term of patent 14 years.



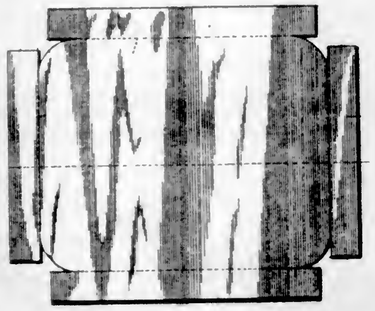
Claim.—The design for a stud or button for garment-supporters, substantially as herein shown and described.

33,773. ANKLE MEMBER FOR ARTIFICIAL LEGS. GEORGE W. FARRIER, Milwaukee, Wis. Filed Nov. 17, 1900. Serial No. 36,911. Term of patent 14 years.



Claim.—The design for an ankle member for artificial legs, substantially as shown and described.

33,774. BOX-BLANK. HARRY B. SMITH, New York, N. Y. Filed June 12, 1900. Serial No. 20,082. Term of patent 14 years.



Claim.—The design for a box-blank substantially as shown and described.

33,775. FISH-HOOK. WILLIAM C. BOWER, Birmingham, Ala. Filed Nov. 24, 1900. Serial No. 37,679. Term of patent 7 years.



Claim.—The design for a fish-hook substantially as shown and described.

33,776. MEMBER FOR PAIRS OF SHEARS. DAVID C. WHEELER, Bridgeport, Conn., assignor to the Acme Shear Company, same place. Filed Nov. 6, 1900. Serial No. 35,677. Term of patent 14 years.



Claim.—The design for a member of a pair of shears, substantially as herein shown and described.

33,777. LOCK AND HINGE FASTENER FOR BOXES. GEORGE B. SCHMIDT, New York, N. Y. Filed Nov. 6, 1900. Serial No. 35,678. Term of patent 7 years.



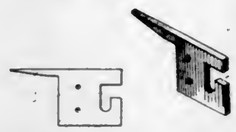
Claim.—The design for a lock and hinge fastener for boxes as herein shown and described.

33,778. PADLOCK. SAMUEL R. SLAYMAKER, Lancaster, Pa. Filed Oct. 26, 1900. Serial No. 34,507. Term of patent 7 years.



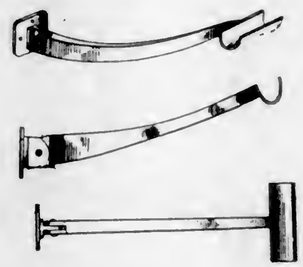
Claim.—The design for a padlock, as herein shown and described.

33,779. SHADE-ROLLER BRACKET. WILLIAM R. MADDERN and EDWARD H. HIGBEE, Jr., St. Louis, Mo. Filed Nov. 30, 1900. Serial No. 38,273. Term of patent 14 years.



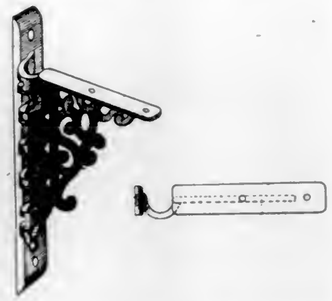
Claim.—The design for a shade-roller bracket, as herein shown and described.

33,780. SUPPORTING-BRACKET FOR TELEPHONE-RECEIVERS. EDGAR C. PRIXOTTO, Augusta, Ga. Filed Nov. 23, 1900. Serial No. 37,544. Term of patent 7 years.



Claim.—The design for a supporting-bracket for telephone-receivers, substantially as herein shown and described.

33,781. WINDOW-SHELF BRACKET. JAMES E. POWERS, Salina, Kans. Filed Mar. 15, 1900. Serial No. 8,840. Term of patent 7 years.



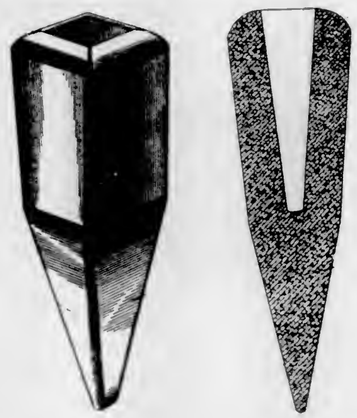
Claim.—The design for a window-shelf bracket as herein shown and described.

33,782. GASKET OR PACKING FOR JOINTS OF PIPES OR OTHER APPARATUS. CHARLES H. MERWARTH, South Bethlehem, and FREDERICK CONLIN, Bethlehem, Pa., assignors to the Merwarth Metallic Gasket Company, South Bethlehem, Pa. Filed Dec. 3, 1900. Serial No. 38,574. Term of patent 14 years.



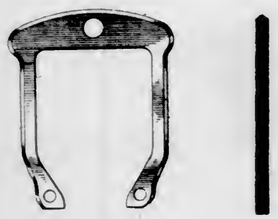
Claim.—The design for a gasket or packing for the joints of pipe or other apparatus, substantially as and for the purpose described.

33,783. POST-BASE. ROBERT T. WOOD, Buffalo, Tex. Filed Nov. 30, 1900. Serial No. 38,271. Term of patent 7 years.



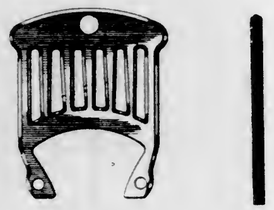
Claim.—The design for a post-base, herein shown and described.

33,784. SECTION FOR STEAM-BOILERS. FRANK B. HOWELL, Detroit, Mich., assignor to the American Radiator Company, of New Jersey. Filed Nov. 27, 1900. Serial No. 37,933. Term of patent 14 years



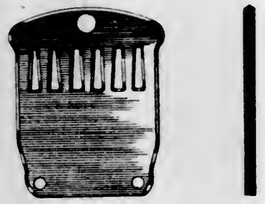
Claim.—The design for a section for a steam-boiler, as herein shown and described.

33,785. SECTION FOR STEAM-BOILERS. FRANK B. HOWELL, Detroit, Mich., assignor to the American Radiator Company, of New Jersey. Filed Nov. 27, 1900. Serial No. 37,934. Term of patent 14 years.



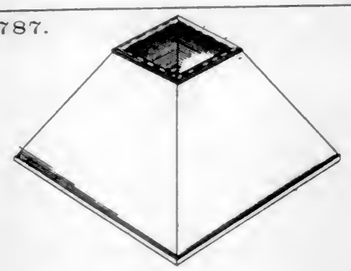
Claim.—The design for a section for a steam-boiler, as herein shown and described.

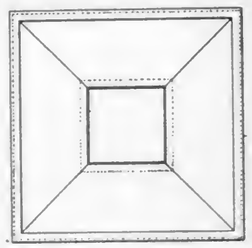
33,786. SECTION FOR STEAM-BOILERS. FRANK B. HOWELL, Detroit, Mich., assignor to the American Radiator Company, of New Jersey. Filed Nov. 27, 1900. Serial No. 37,935. Term of patent 14 years.



Claim.—The design for a section for a steam-boiler, as herein shown and described.

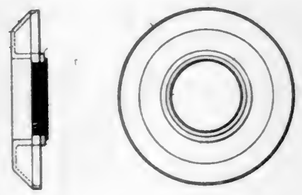
33,787. STOP-VALVE BOX. AUGUST H. MEINERS, St. Louis, Mo. Filed Nov. 27, 1900. Serial No. 37,937. Term of patent 14 years.





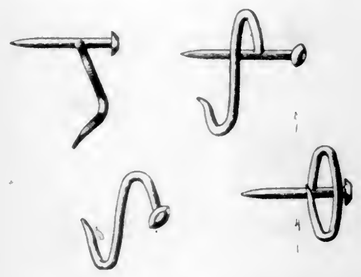
Claim.—The design for a stop-valve box, substantially as herein shown and described.

33,788. BRAKE-RING FOR COASTER-BRAKES. JOHN GEORGE ZIEGLER, Reading, Pa. Filed Nov. 24, 1900. Serial No. 37,691. Term of patent 7 years.



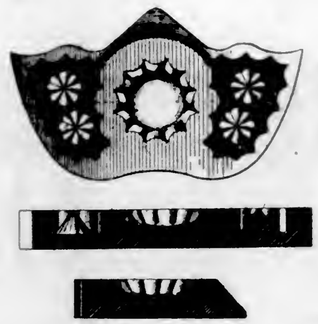
Claim.—The design for a brake-ring for coaster-brakes, substantially as set forth.

33,789. TUG-FASTENER. STEPHEN A. MORGAN, Coalgate, Ind. Ter., assignor of one-third to Joseph A. Bogy, same place. Filed Nov. 6, 1900. Serial No. 35,876. Term of patent 14 years.



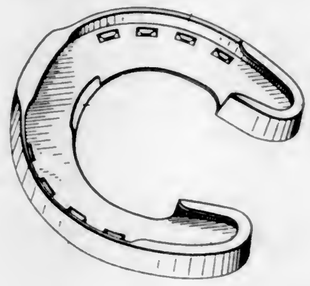
Claim.—The design for a tug-fastener substantially as herein shown and described.

33,790. RUBBER CUSHION FOR HORSESHOES. MARTIN LOGAN, New York, N. Y. Filed Nov. 24, 1900. Serial No. 37,693. Term of patent 14 years.



Claim.—The design for a rubber cushion for horseshoes, as herein shown and described.

33,791. METALLIC PLATE FOR ELASTIC-TREAD HORSESHOES. JOHN B. GRAVIS, Canton, Ohio. Filed Oct. 27, 1900. Serial No. 34,671. Term of patent 14 years.



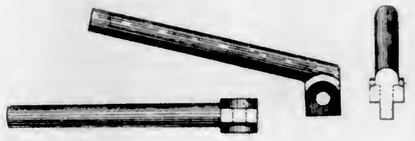
Claim.—The design for a metallic plate for elastic-tread horseshoes, herein shown and described.

33,792. NAIL-SET. JOSEPH ADKINS, Hillsborough, Ind., assignor of one-half to Austin R. Frazier, same place. Filed Feb. 2, 1900. Serial No. 3,752. Term of patent 14 years.



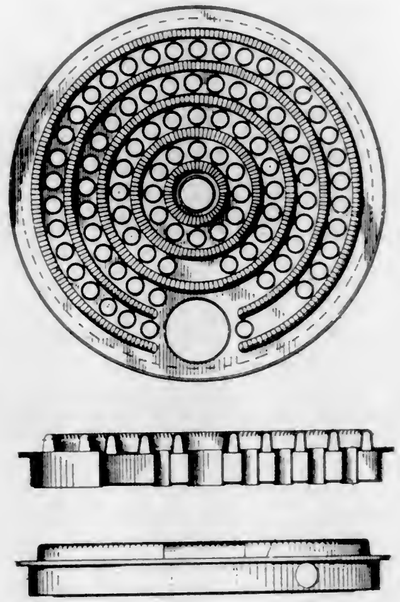
Claim.—The design for a nail-set, as herein shown and described.

33,793. STAY-END. CHARLES T. MCCUE, Hartford, Conn. Filed Nov. 20, 1900. Serial No. 37,183. Term of patent 7 years.



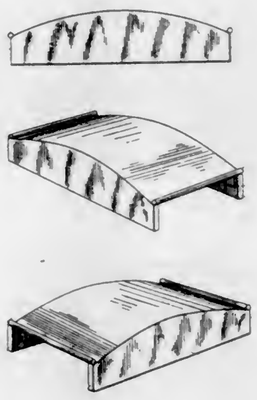
Claim.—The design for a stay-end as herein shown and described.

33,794. GAS-BURNER. ROLLIN HENRY WHITE, Cleveland, Ohio, assignor to the White Sewing Machine Company, same place. Filed Dec. 3, 1900. Serial No. 38,569. Term of patent 14 years.



Claim.—The design for a gas-burner substantially as herein shown and described.

33,795. DEFLECTOR FOR FLOOR-REGISTERS. JACOB S. LOWRY, Cincinnati, Ohio. Filed Nov. 26, 1900. Serial No. 37,842. Term of patent 14 years.



Claim.—The design for a floor-register deflector, as herein shown and described.

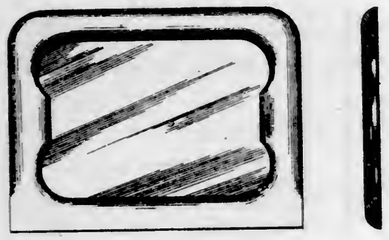
33,796. FURNACE-FRONT. THOMAS R. KENNEDY and EDWARD J. KING, Rochester, N. Y., assignors to the Cooperative Foundry Company, same place. Filed Nov. 30, 1900. Serial No. 38,274. Term of patent 7 years.

33,796.



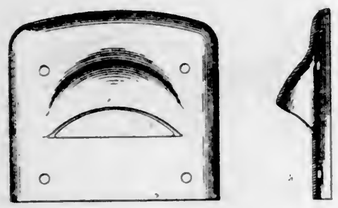
Claim.—The design for a furnace-front substantially as shown and described.

33,797. STOVE-DOOR. JOHN R. CARTER, Augusta, Ky., and JOSEPH E. HAUSFELD, Cincinnati, Ohio, assignors to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Dec. 3, 1900. Serial No. 38,566. Term of patent 14 years.



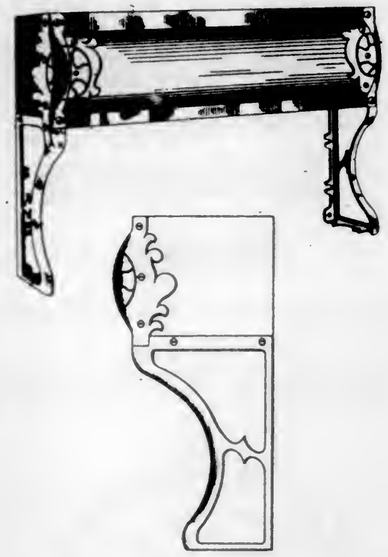
Claim.—The design for a stove-door herein shown and described.

33,798. ASH-PAN FRONT. JOHN R. CARTER, Augusta, Ky., and JOSEPH E. HAUSFELD, Cincinnati, Ohio, assignors to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Dec. 3, 1900. Serial No. 38,564. Term of patent 14 years.



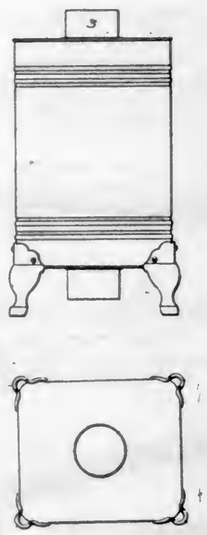
Claim.—The design for an ash-pan front shown and described.

33,799. WARMING-OVEN. JOHN R. CARTER, Augusta, Ky., and JOSEPH E. HAUSFELD, Cincinnati, Ohio, assignors to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Dec. 3, 1900. Serial No. 38,563. Term of patent 14 years.



Claim.—The design for a worming-oven shown and described.

33,800. HEATING-DRUM. ERNST H. HUENEFELD, Cincinnati, Ohio. Filed Dec. 3, 1900. Serial No. 38,577. Term of patent 14 years.



Claim.—The design for a heating-drum shown and described.

33,801. LAMP-STOVE. GODFRAY EBEL, Russell, Kans. Filed Aug. 10, 1900. Serial No. 26,533. Term of patent 7 years.



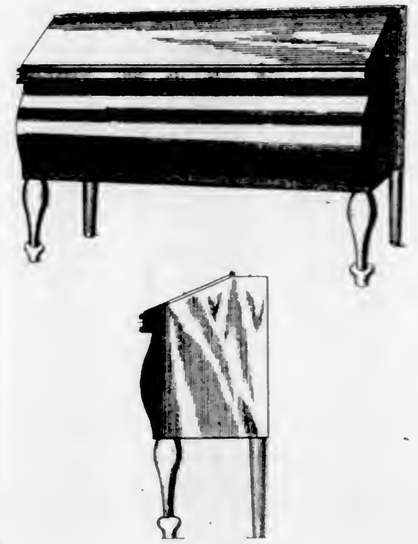
Claim.—The design for a lamp-stove herein shown and described.

33,802. DISPLAY-STAND. ISAAC STEINAU, New York, N. Y. Filed Nov. 26, 1900. Serial No. 37,837. Term of patent 3½ years.



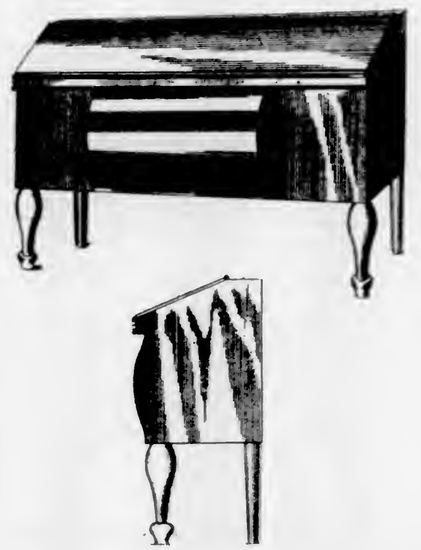
Claim.—The design for a display-stand, herein shown and described.

33,803. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20 1900. Serial No. 27,506. Term of patent 3½ years.



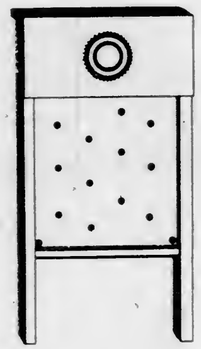
Claim.—The design for a caddy substantially as herein shown and described.

33,804. CADDY. JOSEPH B. LONG, Chicago, Ill. Filed Aug. 20, 1900. Serial No. 27,507. Term of patent 3½ years.



Claim.—The design for a caddy substantially as herein shown and described.

33,805. WASHBOARD. SAMUEL R. SARGENT, Cleveland, Ohio. Filed Oct. 24, 1900. Serial No. 34,215. Term of patent 14 years.



Claim.—The design for a washboard, subtantially as herein shown and described.

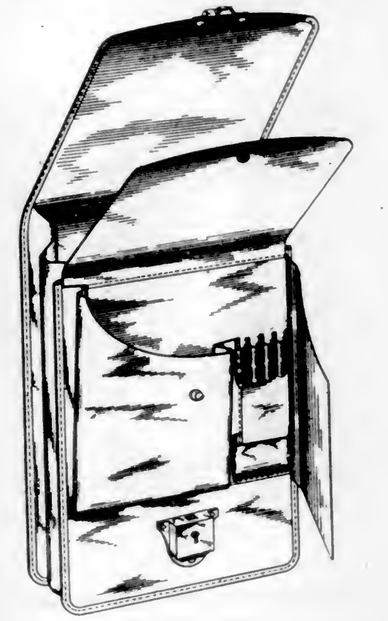
33,806. QUARTER FOR LOW SHOES. WILLIAM W. GLANVILLE, San Francisco, Cal. Filed Nov. 17, 1900. Serial No. 36,907. Term of patent 7 years.

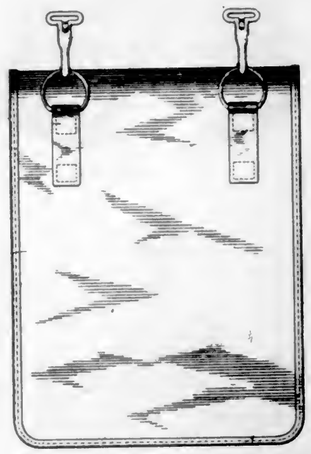


Claim.—The design for a quarter of a low shoe as herein shown and described.

33,807. SABRETASH. RICHARD W. OWEN, Chicago, Ill., assignor to the Lanz, Owen & Company, same place. Filed Jan. 20, 1900. Serial No. 2,211. Term of patent 14 years.

33,807.





Claim.—The design for a sabretash, as herein shown and described.

33,808. LEATHER FABRIC. CHARLES D. WILLIAMS, New York, N. Y. Filed Nov. 8, 1900. Serial No. 35,868. Term of patent 3½ years.



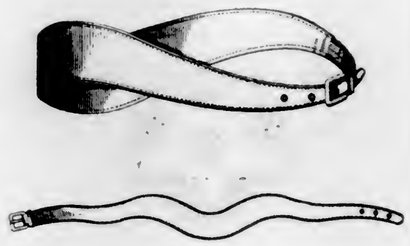
Claim.—The design for a leather fabric as herein shown and described.

33,809. DOILY. ROBERT GAIR, New York, N. Y. Filed Nov. 27, 1900. Serial No. 37,929. Term of patent 3½ years.



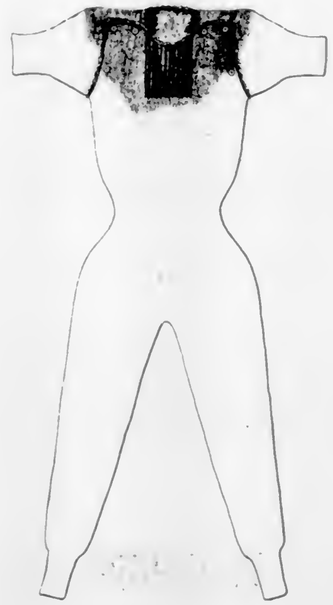
Claim.—The design for a doily or similar article, as herein shown and described.

33,810. BELT. LOUIS M. ROSENBERG, New York, N. Y. Filed Nov. 30, 1900. Serial No. 38,275. Term of patent 3½ years.



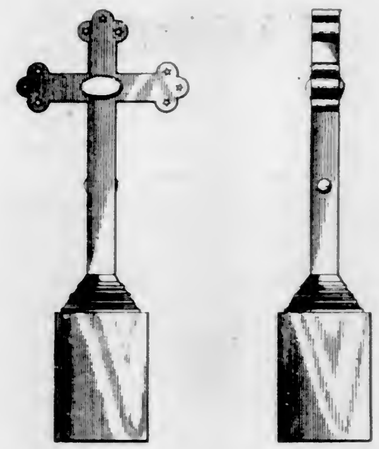
Claim.—The design for a belt, as herein shown and described.

33,811. UNDERGARMENT. GERALDINE O'BRIEN COOK, Boston, Mass., assignor to the Sterling Knit Goods Company, same place. Filed Nov. 24, 1900. Serial No. 37,696. Term of patent 14 years.



Claim.—The design for an undergarment substantially as shown and described.

33,812. TOMBSTONE. CHARLES A. SWEET, Boston, Mass. Filed Dec. 1, 1900. Serial No. 38,374. Term of patent 7 years.



Claim.—The design for a tombstone, as herein shown and described

TRADE-MARKS

REGISTERED DECEMBER 25, 1900.

35,629. DRY GLASS PHOTOGRAPHIC PLATES. KIRK, GEARY & Co., Sacramento and San Francisco, Cal. Filed Nov. 27, 1900.

PACIFIC

Essential feature.—The word "PACIFIC." Used since October 1, 1900.

35,630. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. THE KEYSTONE WATCH CASE COMPANY, Philadelphia, Pa. Filed Oct. 17, 1900.

SILVEROID

Essential feature.—The word "SILVEROID." Used since January, 1886.

35,631. LINEN GOODS. J. AUDLEY SPARROW & Co., London, England. Filed Dec. 4, 1900.

TAORO

Essential feature.—The word "TAORO." Used since January 1, 1895.

35,632. GUTTA-PERCHA, CAOUTCHOUC, AND RUBBER AND GOODS MADE THEREOF. NEDERLANDSCHE GUTTA PERCHA MAATSCHAPPIJ, Hague, Netherlands. Filed Nov. 24, 1900.



Essential feature.—A representation of leaves of a rubber-plant. Used since August 23, 1900.

35,633. BOOTS AND SHOES. E. W. BURT & Co., Boston, Mass. Filed Oct. 26, 1900.

Knickerbocker

Essential feature.—The word "KNICKERBOCKER." Used since February 1, 1898.

35,634. REMEDIES FOR DISEASES OF STOMACH AND INTESTINES. RAMÓN SALT Y CARLOS, Madrid, Spain. Filed Nov. 21, 1900.

STOMALIX

Essential feature.—The word "STOMALIX." Used since October 18, 1899.

35,635. BLOOD-PURIFIER. MARIE J. PFUNDER, Portland, Oreg. Filed Aug. 17, 1900.



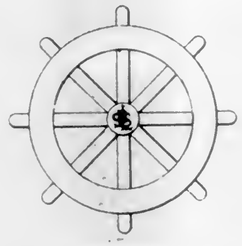
Essential feature.—A pictorial representation of an infant's head. Used since March 25, 1879.

35,636. INTERNAL REMEDIES FOR CERTAIN NAMED DISEASES. SCOTT & STARLING, Jacksonville, Tex. Filed Nov. 20, 1900.



Essential feature.—The letters "SS" with a star between them and a fly in the center of the star. Used since June, 1900.

35,637. CERTAIN NAMED PROPRIETARY MEDICINES. S. B. LEONARDI & Co., Tampa, Fla. Filed June 27, 1900.



Essential feature.—A monogram composed of the letters "S B L" and the representation of a steering-wheel. Used since June 21, 1900.

35,638. MEDICINAL PREPARATIONS FOR CERTAIN NAMED DISEASES. VAN VLEET-MANSFIELD DRUG COMPANY, Memphis, Tenn. Filed Nov. 19, 1900.



Essential feature.—The pictorial representation of a young lady, her face being in full or front view, the neck, bust, and right arm bare, and the latter being raised across the bosom and supporting loose flowing drapery, together with the representation of a leafy branch standing vertically over the left shoulder. Used since August, 1897.

35,639. CERTAIN NAMED CHEMICAL, PHARMACEUTICAL, AND SURGICAL PRODUCTS AND PREPARATIONS. JOHANNES ARTHUR SANDER, Hamburg, Germany. Filed Nov. 22, 1900

BACILLOL

Essential feature.—The word "BACILLOL." Used since March 30, 1897.

35,640. CHEMICAL AND PHARMACEUTICAL REMEDIES. CHARLES W. SCHROEDER, Green Bay, Wis. Filed Nov 10, 1900.

SUN RISE

Essential feature.—The word "SUNRISE." Used since October, 1898.

35,641. HORSE-LINIMENTS. LEONIE MEDICIS, VVE. TRICARD, Courbevoie, France. Filed Dec. 14, 1899.

J.B.A.T.

Essential feature.—The letters "J. B. A. T." Used since May, 1885.

35,642. HORSE-LINIMENTS. LEONIE MEDICIS, VVE. TRICARD, Courbevoie, France. Filed Nov. 30, 1900.



Essential feature.—The representation of a field scene. Used since May, 1885.

35,643. MINERAL WATER. JOHN CLIFFORD WILKINSON, Kobe, Japan. Filed July 27, 1900.

TANSAN

Essential feature.—The word "TANSAN." Used since April 1, 1896.

35,644. ALE. SPRINGFIELD BREWERIES COMPANY, Springfield, Mass. Filed Aug. 29, 1900.



Essential feature.—An annulus of black having inner and outer circular margins of gold and having inclosed and surrounded thereby a red ground. Used since June 15, 1900.

35,645. BEER. THE GEORGE GÜNTHER, Jr., BREWING COMPANY, Canton, Md. Filed Nov. 15, 1900.



Essential feature.—The letters "G J R" in monogram form, a hop-leaf, and barley-heads. Used since October 20, 1900.

35,646. WINE, BRANDY, AND CORDIALS. CARMEL WINE CO., New York, N. Y. Filed Nov. 24, 1900.



Essential feature.—The representation of a vineyard, a herd of camels, and two men bearing a grape. Used since January 1, 1896.

35,647. WHISKY. JOHN W. MCCULLOCH, Owensborough, Ky. Filed Apr. 10, 1900.



Essential feature.—The representation of an inverted horseshoe with a band across the same and a miniature barrel between its points. Used since 1890.

35,648. WHISKY. ROSSKAM, GERSTLEY & Co., Philadelphia, Pa. Filed Sept. 29, 1900.



Essential feature.—The word "MONOGRAM" in connection with the designation "KEYSTONE" expressed either by the word or the representation, or by both. Used since May, 1884.

35,649. COCKTAILS. THOMAS H. HANDY & Co., Parish of Orleans, La. Filed Nov. 15, 1900.



Essential feature.—The word "SAZERAC." Used since January 1, 1895.

35,650. FLAVORING EXTRACTS. WILLIAM MCMURRAY & Co., St. Paul, Minn. Filed Jan. 22, 1900.

35,650.



Essential feature.—An oblong vertical tablet of dark groundwork having an upwardly-curved light band near the top and a transverse light ellipse near the center. Used since January 1, 1896.

35,651. SPRUCE-GUM. ABBOT AUGUSTUS LOW, New York, N. Y. Filed Nov. 26, 1900.



Essential feature.—The representation of a plurality of spruce-trees in proximity to each other. Used since November 7, 1900.

35,652. MAPLE-SUGAR AND MAPLE-SYRUP. ABBOT AUGUSTUS Low, New York, N. Y. Filed Dec. 4, 1900.

GRASS RIVER
SUGAR BUSH

Essential feature.—The words "GRASS RIVER SUGAR BUSH." Used since August 1, 1899.

35,653. MAPLE-SUGAR AND MAPLE-SYRUP. ABBOT AUGUSTUS Low, New York, N. Y. Filed Dec. 4, 1900.

MAPLE VALLEY
SUGAR BUSH

Essential feature.—The words "MAPLE VALLEY SUGAR BUSH." Used since August 1, 1899.

35,654. MAPLE-SUGAR AND MAPLE-SYRUP. ABBOT AUGUSTUS Low, New York, N. Y. Filed Dec. 4, 1900.

WAKE ROBIN
SUGARBUSH

Essential feature.—The words "WAKE ROBBIN SUGAR BUSH." Used since August 1, 1899.

35,655. DRIED FRUITS. HARTWIS & BENNETT, New York, N. Y. Filed June 27, 1900.



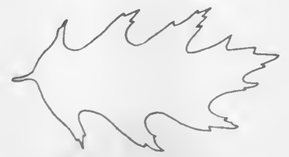
Essential feature.—The representation of a cat segant semigardant and the words "LOS GATOS." Used since July, 1897.

35,656. BUTTERIN OR OLEOMARGARINE. WM. J. MOXLEY, a corporation, Chicago, Ill. Filed Aug. 6, 1900.

DAISY

Essential feature.—The word "DAISY." Used since January 1, 1891.

35,657. OLEOMARGARINE AND BUTTERIN. THE OAKDALE MANUFACTURING COMPANY, Providence, R. I. Filed Dec. 3, 1900.



Essential feature.—The pictorial representation of an oak-leaf. Used since 1893.

35,658. SUBSTITUTE FOR EGGS. THE OVINE COMPANY, New York, N. Y. Filed Nov. 23, 1900.



Essential feature.—The word "OVINE" and a representation of the front view of a cow with a basket of eggs in her mouth. Used since March 1, 1900.

35,659. DESICCATED AND GRANULATED EGGS. SAMUEL T. G. SMITH, St. Louis, Mo. Filed Nov. 3, 1900.



Essential feature.—The word "DIAMOND" in connection with a diamond figure. Used since October 27, 1900.

35,660. MACARONI, SPAGHETTI, VERMICELLI, AND NOODLES. CHAS. MAULL MACARONI COMPANY, St. Louis, Mo. Filed Oct. 17, 1900.

DIAMOND

M

Essential feature.—A diamond-shaped figure embedding the letter "M" and the word "DIAMOND." Used since September, 1893.

35,661. MACARONI, SPAGHETTI, MEZZANI, VERMICELLI, AND NOODLES. CHAS. MAULL MACARONI COMPANY, St. Louis, Mo. Filed Nov. 19, 1900.



Essential feature.—The pictorial representation of a market and the monogram "M F" in a shield. Used since October, 1894.

35,662. CERTAIN NAMED BAKERY PRODUCTS AND CONFECTIONERY. NATIONAL BISCUIT COMPANY, Jersey City, N. J., and Chicago, Ill. Filed Nov. 3, 1900.

JUNIOR

Essential feature.—The word "JUNIOR." Used since March 15, 1900.

35,663. GROUND GLUTEN, CEREAL FOODS, AND STARCH. ARTHUR S. HOYT, New York, N. Y. Filed Dec. 1, 1900.



Essential feature.—Two sheaves of grain standing upright near each other and connected by a broad band of fabric. Used since November 26, 1900.

35,664. FLOUR. JOHN BOYD, Jr., & Co., New York, N. Y. Filed Nov. 17, 1900.

FLOR DE TRIGO

Essential feature.—The phrase "FLOR DE TRIGO." Used since July 21, 1893.

35,665. WASHING COMPOUND. WILLIAM H. RAGER, Omaha, Nebr. Filed Jan. 13, 1899.



Essential feature.—The letters "H" and "R" and the representation of a child surrounded by an oval-shaped frame. Used since July, 1898.

35,666. FURNITURE-POLISH. SOZO SUPPLY CO., Newark, N. J. Filed Nov. 13, 1900.



Essential feature.—The word "SOZO" used in connection with the representation of a brownie holding in one hand a bottle marked "Sozo" and with the other inviting attention to the reflection of the sun on the earth's surface. Used since October 1, 1900.

35,667. CHEMICAL COMPOUND FOR PURIFYING ACETYLENE. DEUTSCHE GOLD AND SILBER SCHEIDE-ANSTALT, VORMALS RÖSSLER, Frankfort-on-the-Main, Germany. Filed Dec. 1, 1900.

PURATYLEN

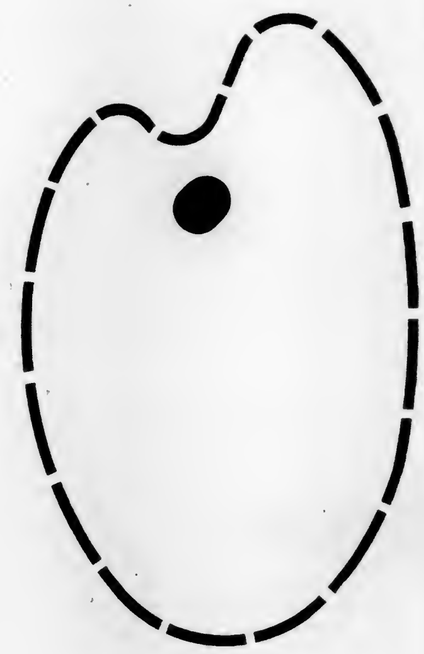
Essential feature.—The word "PURATYLEN." Used since March 15, 1900.

35,668. LUBRICATING-OILS. W. P. FULLER & COMPANY, San Francisco, Sacramento, Los Angeles, Oakland, San Diego, and Stockton, Cal.; Portland, Oreg., and Seattle, Wash. Filed Nov. 8, 1900.

OCEANIC

Essential feature.—The word "OCEANIC." Used since 1893.

35,669. METALLIC PAINTS. WINTER'S METALLIC PAINT COMPANY, Iron Ridge, Wis. Filed Mar. 5, 1900.



Essential feature.—The representation of a palette. Used since December 15, 1899.

35,670. PORTLAND CEMENT. THE HAMMER SOCIETY, Tournai, Belgium. Filed Nov. 23, 1900.



TROWEL

Essential feature.—The representation of a trowel with the word "TROWEL." Used since January 1, 1896.

35,671. HAIR-WAVERS. S. BEAUMONT & FILS, Roubaix, France. Filed July 6, 1900.

LA DONNA.

Essential feature.—The words "LA DONNA." Used since December 30, 1897.

35,672. BOLT-CLIPPERS. HENRY K. PORTER, Everett, Mass. Filed Nov. 30, 1900.

EASY

Essential feature.—The word "EASY." Used since April 6, 1880.

35,673. STOVES, RANGES, FURNACES, OVENS, AND HEATING-DRUMS. ERNST H. HUENEFELD, Cincinnati, Ohio. Filed Nov. 28, 1900.

UNEEDA

Essential feature.—The word "UNEEDA." Used since September, 1899.

35,674. STOVES, RANGES, FURNACES, OVENS, AND HEATING-DRUMS. ERNST H. HUENEFELD, Cincinnati, Ohio. Filed Nov. 28, 1900.

BOSS

Essential feature.—The word "BOSS." Used since October, 1894.

35,675. CERTAIN NAMED HARDWARE. ONEIDA COMMUNITY, LIMITED, Kenwood and Niagara Falls, N. Y. Filed July 21, 1900.

O C

Essential feature.—The letters "O C." Used since March, 1900.

35,676. CERTAIN NAMED WHEELED VEHICLES. SOUTHERN ROCK ISLAND PLOW COMPANY, Dallas, Tex. Filed Nov. 17, 1900.



Essential feature.—The representation of a long horn or the words "LONG HORN." Used since November 1, 1898.

35,677. AUTOMATICALLY-PROPELLED WHEELED VEHICLES. THE "LOCOMOBILE" COMPANY OF AMERICA, New York, N. Y. Filed Nov. 27, 1900.

Lococar

Essential feature.—The word "LOCOCAR." Used since November 2, 1900.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ERDMAN.

Decided November 27, 1900.

1. DIVISION—PROCESS AND PRODUCT—CONSTRUCTION OF RULE 41.
   That paragraph of Rule 41 which recites that claims for a process and its product may be presented in the same application gives the applicant authority to a certain extent to join claims for process and product or file separate applications therefor; but it does not take away the right of the Office to supervise and control this authority should occasion for the exercise of the reserve power arise.
2. SAME—SAME—PROJECTILE AND METHOD OF MAKING.
   Where it appears on examination of the application that the method of making the projectile and the projectile itself are examinable in different divisions and that the projectile may be made by other methods than that claimed, *Held* that division should be required.

ON petition.

MANUFACTURE OF HOLLOW PROJECTILES.

Application of Albert W. Erdman filed September 11, 1900, No. 29,699.

Messrs. Wilkinson & Fisher for the applicant.

DUELL, *Commissioner:*

This is a petition taken from a requirement of division. The record discloses that claims are made to the method and article, and the question of difference is whether under that paragraph of Rule 41 which recites that "claims for a process and its product may be presented in the same application" it is entirely within the discretion of the applicant to make his election irrespective of any requirement of division on the part of the Office. Applicant contends that the paragraph of the rule above quoted while permissive in its terms is only so in fact so far as the applicant chooses to exercise his election. The Examiner, on the other hand, insists that as the method is examinable in one division and the article in another the joinder of claims for both in one application would distribute methods of castings (to which art the method relates) throughout the Office or bring into the class of Metal-Founding articles which are classified in every division of the Office.

It was the intent in framing the paragraph in controversy that ordinarily the wish of the applicant should govern. In other words, that he might at his election join claims for method and article in one application or file separate applications for them.

It was, however, equally the intent to reserve to the Office the right to supervise and control this permissive authority given to an applicant should the occasion for the exercise of the reserve power arise. This paragraph of Rule 41 must be read in connection with Rule 42. As was said by the Supreme Court in *Bennett* v. *Fowler* (8 Wallace, 845) in speaking of the subject of division:

> Some discretion must necessarily be left on this subject to the head of the Patent Office. It is often a nice and perplexing question.

In the present case there seems sufficient reason for exercising the authority intended to be reserved to the Office, for an examination of the application discloses not only that the method and the article are examinable in different divisions, but, what is far more important than that fact, that the article may be made by other methods than that claimed and that the method claimed may be practiced to produce other articles.

The Examiner did not exceed his authority in requiring division, and the petition is therefore denied.

EX PARTE TAYLOR & LOCKETT.

Decided July 6, 1900.

1. TRADE-MARK—WORD-SYMBOL AND REPRESENTATION OF A RABBIT—ALTERNATIVE.
   Where applicants sought to register the word-symbol "Rabbit" or the representation of a rabbit and showed in their drawing only the head of a rabbit, *Held* that there was no objection to registering the mark as claimed by applicants.
2. SAME—SAME—SAME.
   Held also that there is no force in the position assumed by the Examiner that the alternative form of the claim is objectionable because only the head of the rabbit is shown.
3. SAME—RULE AS TO ALTERNATIVE FORMS.
   No arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered. The present application comes within that line of cases where registration is permissible.

ON appeal.

TRADE-MARK FOR COTTON, WOOLEN, AND SILK FABRICS.

Application for registration filed April 28, 1900, No. 61,056.

Messrs. Briesen & Knauth for the applicants.

DUELL, *Commissioner:*

It is a fact that the practice of the Office in registering trade-marks consisting of alternative forms has not been uniform. For example, the trade-mark "consisting in the term or designation 'Lion'" has been registered, as has a trade-mark the essential feature of which was stated to be "an eagle represented by word or symbol." On the

other hand, registration has been refused for the word "Squirrel" and the representation of one species of squirrel, while in another case it was held that the word "Buffalo" and the representation of a buffalo were not true alternatives. As there are many species of lions and eagles, it would seem as though their registration should not have been permitted under the same reasoning upon which the refusal to grant registration of the word "Squirrel" and the representation of a squirrel was based.

In the present case applicants seek to register "the word-symbol 'Rabbit' or the representation of a rabbit." They have illustrated the head portion of the conventional form of rabbit—that form which is best known, at least in this country.

I am of the opinion that no arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered. The present application seems to come within the line of cases where such registration is permissible. I am inclined to this conclusion in view of the case of *Hutchinson et al.* v. *Blumberg*, (51 Fed. Rep., 829,) where the court seems to have had no difficulty in sustaining as a trade-mark the word "Star" and the symbol of a star, although there was a difference in the form of stars used by the parties. There are as many forms of stars as there are species of rabbits.

It was suggested to the applicants that the phraseology employed in referring to the salient feature of the mark be changed, so that it read "a rabbit represented by word or symbol." I do not think there is any force in the position assumed by the Examiner that the alternative form of the claim is objectionable because only the *head* of the rabbit is shown.

The decision of the Examiner of Trade-Marks is reversed.

EX PARTE GRANT.

Decided November 1, 1900.

1. PETITION TO THE COMMISSIONER—FORM OF.

Petitions to the Commissioner should be drawn in the form set forth in the rules. One object of the rules is to insure an orderly method for the transaction of business in this Office, and there is no more excuse for loose practice in this rsepect than there is for improperly-prepared pleadings in court cases.

2. ABANDONED APPLICATION.

Presentation of an amendment which is refused entry after a decision by the Examiners-in-Chief does not save the case from abandonment.

ON petition.

METHOD OF EQUIPPING VEHICLE-WHEELS WITH RUBBER TIRES.

Application of Arthur W. Grant filed February 7, 1898, No. 669,335.

Mr. Paul A. Staley for applicant.

CHAMBERLIN, *Assistant Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter an amendment.

The facts are as follows:

The Examiners-in-Chief rendered a decision December 6, 1898, affirming the action of the Examiner in his rejection of all the claims. On September 23, 1899, applicant filed a substitute specification, drawing, and claims. The Examiner refused the entry and consideration of such substitute specification on the ground that it was contrary to the provisions of Rules 68 and 142. Applicant took no further action until October 8, 1900, when he filed a paper the opening paragraphs of which are as follows:

Please amend the above-entitled application as follows:
The amendment of September 18, 1899, and the drawings therewith are hereby withdrawn for the purpose of presenting the subject-matter thereof in another division of this application; which is filed herewith marked Division "C."
The Office is requested to reinstate the original drawings and specifications, and substitute the following for claims.

Then follow the claims, and the paper closes with the following:

It is thought that the foregoing amendment discloses sufficient cause for and the authority of the Commissioner is respectfully asked that it be entertained by the Examiner.

The Examiner treated the paper of October 8, 1900, as a petition to the Commissioner and in his answer held that the case was abandoned under Rule 171, the application having been filed February 7, 1898.

In my opinion the action by applicant on September 23, 1899, was not sufficient to save the case from abandonment, and the Examiner is correct in thus holding.

On the other hand, Rule 145 clearly sets forth the form in which petitions to the Commissioner should be drawn, and the Examiner was at fault in treating applicant's paper of October 8, 1900, as a petition. One object of the rules is to insure an orderly method for the transaction of business in this Office, and there is no more excuse for loose practice in this respect than there is for improperly-prepared pleadings in court cases. In this case the Examiner would have been warranted in refusing to treat the paper in question as a petition and to have refused its entry as an amendment.

The case will now be treated as an abandoned application.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the District of Columbia.

THE UNITED STATES, *ex rel.* STAPLETON, *v.* DURELL, COMMISSIONER OF PATENTS.

Decided November 24, 1900

1. COMMISSIONER OF PATENTS—POWER TO ASSIGN APPEAL TO THE ASSISTANT COMMISSIONER FOR HEARING AND DETERMINATION—CONSTRUCTION OF STATUTES—MANDAMUS.

Under the act of July 11, 1890, and subsequent statutes providing that the Assistant Commissioner of Patents shall perform such duties pertaining to the office of the Commissioner as may be assigned to him by the Commissioner, without specifying what the duties so assigned may be, the Commissioner in the due administration of the affairs of his office is empowered to determine what authority he has in the premises and a mandamus will not lie to control his action.

2. SAME—SAME—WEIGHT TO BE GIVEN TO COMMISSIONER'S DECISION BY THE COURT.

While the construction of the statute by the Commissioner would not be binding upon a court should the statute properly come before it for interpretation, yet such construction placed upon it for a number of years would be entitled to great respect and might be controlling.

3. SAME—SAME.

Where on appeal from the decision of the Examiners-in-Chief of the Patent Office to the Commissioner, the Commissioner referred the case to the Assistant Commissioner for his consideration and determination, although the Commissioner was present and engaged in other official duties, and the Assistant Commissioner heard and determined the case and thereafter the Commissioner declined to rehear the case, *Held* that a petition for writ of mandamus will not lie to compel the Commissioner to hear the case.

4. SAME—SAME—MANDAMUS—ANOTHER SPECIFIC REMEDY.

Held that a writ of mandamus is not available where the petitioner has another specific remedy, such as in this case—the right of appeal to the Court of Appeals from the decision of the Assistant Commissioner.

Mr. Chas. W. Stapleton for the relator.

Mr. W. A. Megrath for the respondent.

BRADLEY, *J.:*

This is an application for a writ of mandamus directing the respondent, the Commissioner of Patents, to hear and decide an appeal. A rule to show cause was issued upon filing the petition, to which rule the respondent has made due answer.

It appears from the petition and the answer that the relator is a party to an interference proceeding pending in the Patent Office in which the Board of Examiners-in-Chief awarded priority of invention to relator; that from that decision an appeal was taken by the adverse party to the Commissioner of Patents in person; that on the day set for hearing the appeal the Commissioner assigned the appeal to the Assistant Commissioner of Patents for hearing; that the appeal was heard by the Assistant Commissioner, the relator being present personally and by counsel, and the decision was made and signed by the Assistant Commissioner; that two days later the relator filed in the Patent Office a motion praying that the decision of the Assistant Commissioner be set aside and disregarded on the ground that he had no lawful authority to hear and determine the appeal, which motion the Commissioner refused to grant; that at the time of the hearing by the Assistant Commissioner the Commissioner was present in an adjoining room engaged in other official matters.

The respondent alleges that—

the office of Assistant Commissioner was created by the act of July 8, 1870, section 476 Revised Statutes; that the purpose of the act in creating the office of Assistant Commissioner of Patents was to provide an officer to assist or share the duties of the Commissioner of Patents; that a part of the duties of the Commissioner of Patents is to hear appeals from the Examiners-in-Chief; that for many years Congress in making appropriations for the Patent Office has recognized the functions of the Assistant Commissioner by expressly stating that he shall perform such duties pertaining to the office of the Commissioner as may be assigned to him by the Commissioner; that it has been the uniform practice or custom of the Patent Office since the office of Assistant Commissioner of Patents was created, for the Assistant Commissioner to hear and determine such appeals as were assigned to him for that purpose by the Commissioner, whether the Commissioner was present in his office or not, and that the Commissioners have refused to hear and decide again cases that have been regularly referred to and decided by the Assistant Commissioner—

and he denies that it is his duty under the circumstances to hear or determine the said appeal.

The office of Assistant Commissioner of Patents was created by act of Congress July 8, 1870, (16 Rev. Stats., 220,) and his duties were thus defined:

In case of the death, resignation, absence or sickness of the Commissioner his duties shall devolve upon the Assistant Commissioner until a successor be appointed or such absence or sickness shall cease.

The substance of this statute is embodied in the Revised Statutes of the United States, but this provision as to the duties and authority of the Assistant Commissioner was omitted. Although it is probable that the omission was an inadvertence, yet by section 5596 such omission operated as a repeal of the provision. It does not appear that this omission has been supplied by any subsequent legislation. The act of Congress of July 11, 1890, making appropriations for the legislative, executive, and judicial expenses of the Government, contains this item under the subject "United States Patent Office"—

Assistant Commissioner who shall perform such duties pertaining to the office of Commissioner as may be assigned to him by the Commissioner, three thousand dollars, (26 Rev. Stats., 259,)—

and such item is repeated *verbatim* in every subsequent annual appropriation act.

From the date of the approval of the Revised Statutes, June 22, 1874, until July 11, 1890, the Assistant Commissioner of Patents appears to have been without statutory power and to have been charged with no statutory duty. Since July 11, 1890, he has been annually clothed with the power and duty to perform such duties pertaining to the office of the Commissioner of Patents as that officer may assign to him. The relator contends that under the act of 1870 the authority of the Assistant Commissioner to perform any of the duties of the Commissioner was expressly limited to the occasions mentioned—viz., the death, resignation, absence, or sickness of the Commissioner; that no power was given to perform any of his functions when he was present. He also contends that the recited provision contained in the annual appropriation bills does not confer specific power upon the Commissioner to delegate any of his discretionary or judicial functions to the Assistant Commissioner or authorize the Assistant Commissioner to exercise such functions, and it must be construed to relate only to the administrative duties of the Commissioner. He also contends that the duty of the Commissioner to hear and determine appeals in interference cases is a personal judicial duty which the Commissioner cannot delegate in the absence of such express statutory authority.

The contention of the relator that the action of the Commissioner in hearing and deciding appeals is judicial in its nature cannot be successfully controverted. (*Commissioner of Patents* v. *Whiteley*, 4 Wall., 522; *Butterworth* v. *Hoe*, 112 U. S., 50, 67.) It is equally correct as a legal proposition that judicial functions cannot be delegated in the absence of statutory authorization. The cases in support of this proposition are numerous. Two cases may be cited in which the principle has been applied to the duty of the President to review, for the purpose of confirming or disapproving, the proceedings of a court-martial which in time of peace sentenced a commissioned officer to dismissal from the service. (*Runkle* v. *U. S.*, 122 U. S., 543; *U. S.* v. *Page*, 137 U. S., 673.)

In the *Runkle Case* Chief Justice Waite, delivering the opinion of the Court, says:

The action of the President is judicial in its character, not administrative. * * * He is, himself, to consider the proceed-

ings laid before him and decide personally whether they ought to be carried into effect. Such a power he cannot delegate.

The respondent says that Congress intended to confer the requisite authority to delegate the power to the Assistant Commissioner to hear and determine specified appeals from time to time, and by the Act of July 11, 1890, and by the annual reiteration of the provision that he and his predecessors in office have construed it as giving such authority, and that the practice in the Patent Office under such construction has been uniform for ten years. Congress has not interfered with it. Inasmuch as the statute failed to specify the duties pertaining to the office of the Commissioner that might be assigned by him to the Assistant Commissioner, it became the duty of the Commissioner as the head of the Office in the due administration of its affairs to determine what his authority was in the premises. His construction of the statute would not be binding upon the court if the statute should properly come before it for interpretation, but such construction acted upon for a number of years would be entitled to great respect and might be controlling. (*U. S.* v. *Ala. S. R. R.*, 142 U. S., 615; *U. S.* v. *Hill*, 120 U. S., 169; *U. S.* v. *Union Pac. R. R.*, 148 U. S., 662; *U. S.* v. *Philbrick*, 120 U. S., 52.)

As Justice Field remarks in *Robertson* v. *Downing*, (127 U. S., 607)—

the regulation of a department of the Government is not, of course, to control the construction of an act of Congress when its meaning is plain. But when there has been a long acquiescence in a regulation, and by it rights of parties for many years have been determined and adjusted, it is not to be disregarded without the most cogent reasons.

It is a plain statutory duty of the Commissioner to hear and determine a matter regularly appealed to him under the statutes, the rules of practice being complied with, and upon his arbitrary refusal so to do he might be compelled to act by mandamus. In this case, however, he says that he declines to hear the appeal because it was regularly assigned for hearing by him to the Assistant Commissioner, who has heard and decided it in conformity to law and the established practice of the Office; that no appeal lies to him inasmuch as the Assistant Commissioner performed the functions of the Commissioner in the premises, and that the relator has his remedy by appeal to the Court of Appeals of the District of Columbia. That the writ of mandamus does not lie to control the action of an executive officer of the Government where he is called upon to exercise discretion or judgment, and that the court will not interfere with such officer in the exercise of his ordinary official duties even where those duties require an interpretation of the law, is well settled. (*Decatur* v. *Paulding*, 14 Pet., 497; *Brashear* v. *Mason*, 6 How., 92; *U. S.* v. *Seaman*, 17 How., 225; *Commr.* v. *Whiteley*, 4 Wall., 522; *Gaines* v. *Thompson*, 7 Wall., 347; *Dunlap* v. *Black*, 128 U. S., 40.)

In the case of *Decatur* v. *Paulding* the widow of Stephen Decatur applied for and received a pension under a general law, and later she demanded of the Secretary of the Navy an additional pension granted to her by resolution of Congress of the same date as the general law. The Secretary, acting upon the advice of the Attorney-General, decided that she was not entitled to both, and she thereupon applied to the Circuit Court of the District of Columbia for a writ of mandamus to compel the Secretary to comply with her demand. The court denied the writ, and upon error to the Supreme Court, as remarked by Justice Bradley in *Dunlap* v. *Black*—

Chief Justice Taney delivered the opinion of the Court and laid down the law in terms that have never been departed from.

The Chief Justice said:

The head of an executive department of the Government in the administration of the various and important concerns of his office is continually required to exercise judgment and discretion. He must exercise his judgment in expounding the laws and resolutions of Congress under which he is from time to time required to act. If he doubts, he has a right to call on the Attorney-General to assist him with his counsel; and it would be difficult to imagine why a legal adviser was provided by law for the heads of the departments as well as for the President unless those duties were regarded as executive in which judgment and discretion were to be exercised. If a suit should come before this Court, which involved the construction of any of these laws, the Court certainly would not be bound to adopt the construction given by a head of a department. And if they supposed his decision to be wrong they would, of course, pronounce their judgment. But their judgment upon the construction of a law must be given in a case in which they have jurisdiction, and in which it is their duty to interpret the act of Congress in order to ascertain the rights of the parties in the cause before them. The Court could not entertain an appeal from the decision of one of the Secretaries, nor revise his judgment in any case where the law authorized him to exercise discretion or judgment. Nor can it by mandamus act directly upon the officer, and guide and control his judgment or discretion in the matters committed to his care, in the ordinary discharge of his official duties.

This decision is emphasized by Justice Miller in *Gaines* v. *Thompson*. Gaines filed a bill for injunction in this court to restrain the Secretary of the Interior and the Commissioner of the General Land Office from canceling an entry. Speaking of the functions of executive officers of the Government, that learned jurist says:

Certain powers and duties are confided to those officers and to them alone, and however the courts may in ascertaining the rights of parties in suits properly before them pass upon the legality of their acts after the matter has passed beyond their control, there exists no power in the courts by any of their processes to act upon the officer so as to interfere with the exercise of that judgment while the matter is properly before him for action. The reason for this is that the law reposes this discretion in him for that occasion and not in the court. The doctrine, therefore, is as applicable to the writ of injunction as it is to the writ of mandamus.

These principles control this case. The respondent has acted in the performance of his duty in the premises upon his construction of the laws regulating his official action, and his discretion and judgment cannot be controlled by the courts directly by any of its processes.

It may be added that the writ of mandamus is not available where there is another adequate specific remedy and that the relator has a well-recognized right of appeal to the Court of Appeals of this District from the decision of the Assistant Commissioner.

The rule is discharged and the petition is dismissed.

[No. 2.]

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

SUPPLEMENT

TO

VOL. 93,

CONTAINING THE

CLASSIFICATION OF SUBJECTS OF INVENTION, REVISED AND PUBLISHED BETWEEN JULY 1, AND DEC. 31, 1900.

O. G., DEC. 25, 1900.

REVISED CLASSIFICATION OF PATENTS

BY THE

CLASSIFICATION DIVISION OF THE PATENT OFFICE,

ORGANIZED NOVEMBER 17, 1898.

UNDER ORDER No. 1250, OF THE COMMISSIONER OF PATENTS.

Revision of Classification.

(ORDER No. 1,361.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 6, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division XXIII, class 234, Recorders, abolish subclass 11, Hand-stamps, recorders, manual, and transfer the patents composing the same to Division V, class 11, Bookbinding, subclass 22, Writing-tablets, continuous.

In Division XXIII, class 234, Recorders, abolish subclasses 1, Hand-stamps, settable-type carrier, and 3, Hand-stamps, settable-type carrier, inking attachments, and in lieu thereof establish in Division XVII, class 101, Printing, subclasses 159, Hand-stamps, settable-type carrier, and 160, Hand-stamps, settable-type carrier, inking attachments.

In Division XXIII, class 58, Horology, abolish the following subclasses:

99. Time-recorders—
100. Watchmen's—
101. Electric—
102. Receivers,
103. Receivers and transmitters,
104. Portable,
105. Workmen's—
106. Autograph,
107. Time-recorders—Workmen's—Disk,
108. Drum,
109. Electric,
110. Key,
111. Tag.
193. Time-checks—Check-receivers.

Also, abolish all the remaining subclasses in class 234, Recorders, and establish the following subclasses in lieu thereof:

CLASS 234.—RECORDERS.

7. Anemometer.
8. Cartographic.
6. Combined readings.
2. Combined recorders and registers—
Fare—
3. Individual-record,
4. Total-record,
5. Speed.
9. Fare.
10. Float.
11. Heat.
1. Miscellaneous.
12. Passenger—
13. Gate,
14. Seat,
15. Step.
16. Power.
17. Pressure—
18. Air-brake.
Gage—
19. Disk,
20. Drum,
26. Ship's course.
27. Signal.
28. Specific gravity.
29. Speed—
Shaft—
30. Continuous-record—
31. Governor-controlled,
32. Uniform-amplitude,
33. Intermittent-record.
21. Steam-engine indicators—
22. Bourdon type,
23. Drum,
24. Engine-connections,
25. Indicator-cylinder.
36. Time—
Watchmen's—
37. Miscellaneous,
Stationary-record—
38. Time-operated marker,
Time—
Watchmen's—
Time-operated record—
39. Multiple-key,
40. Single-key,
Workmen's—
42. Check-receivers,
Individual card—
43. Time-impression,
Intermittently-movable record—
Time-printing wheel—
44. Autographic,
45. Check-operated,
Individual-record—
46. Single-impression,
47. Printing-key—
48. Operating-lever,
41. Miscellaneous,
Time-operated record—
49. Autographic,
Individual-record—
50. Single-impression—
51. Printing-key,
52. Tag-operated marker.
53. Wage-computers.
Time-stamps—
Dial—
54. Movable-dial,
55. Movable-platen,
Drum—
56. Movable-drum,
57. Movable-platen.
34. Volume—
35. Meter-readings.

C. H. DUELL,
Commissioner.

CLASS 234.—RECORDERS.

DEFINITIONS.

Class.

234. RECORDERS. Mechanical devices for making a permanent record of the movements of machines or instruments whose motions are desired to be recorded and preserved; also, all mechanically-operated watchmen's and workmen's time-recorders, and also stamps for impressing or printing time where the printing-surface is actuated by time mechanism.

(Note.—Electrically-operated watchmen's, workmen's, and other recorders wherein the character of the recording is immaterial, but the invention resides in electric connections, circuit-breakers, etc., are classified in class 177, ELECTRIC SIGNALING. Devices connected or attached to weighing-machines for printing or impressing upon a card or paper the weight of the article weighed are classified in class 73, MEASURING INSTRUMENTS, BALANCES, RECORDING.)

Subclasses.

7. ANEMOMETER. Devices for recording the force or the direction of the wind.

8. CARTOGRAPHIC. Devices for recording the irregularities of the surface of the ground or the bed of a river or other body of water.

6. COMBINED READINGS. Patents for recording movements of two or more different characters, as pressure and speed, etc.

2. COMBINED RECORDERS AND REGISTERS. The miscellaneous subclass of patents wherein both a record and a registration are made.

3. COMBINED RECORDERS AND REGISTERS, FARE, INDIVIDUAL-RECORD. Patents combining a fare-register and a fare-recorder, a record being made of each individual fare.

4. COMBINED RECORDERS AND REGISTERS, FARE, TOTAL-RECORD. Patents combining a fare-register and a fare-recorder, a record being taken at the end of a trip or at any desired time of the total number of fares taken up to that time.

5. COMBINED RECORDERS AND REGISTERS, SPEED. Devices for recording the speed of a moving part and also an indicator for showing the speed at any particular time.

9. FARE. Devices for recording the number of fares taken in a car or other conveyance.
(Note.—Search also Combined recorders and registers, fare, individual-record, and Combined recorders and registers, fare, total-record, in this class.)

10. FLOAT. Devices for recording the variations in the level of water or other liquid, the marker being connected to a float resting upon the surface of the liquid.
(Note.—Search also subclass Specific gravity in this class.)

11. HEAT. Devices for recording the temperature—as, for example, recording thermometers or pyrometers.

1. MISCELLANEOUS. This subclass contains all recording devices that cannot properly be classified elsewhere.

12. PASSENGER. Devices, not classifiable in other subclasses of this group, for recording the number of persons or objects whose movements are desired to be recorded.

13. PASSENGER, GATE. Devices for recording the number of persons passing through a gate or turnstile.

14. PASSENGER, SEAT. Devices for recording the length of time a car or carriage seat has been occupied.

15. PASSENGER, STEP. Devices for recording the number of persons passing over a step, the step being movable and actuating the marker when depressed.

16. POWER. Devices for recording power—as, for example, recording-dynamometers.

17. PRESSURE. Pressure-recording devices not classifiable in other subclasses of this group.

18. PRESSURE, AIR-BRAKE. Devices for recording the pressure used in applying air-brakes to a train.

19. PRESSURE, GAGE, DISK. Recording-pressure gages where the record is made upon a rotating disk.

20. PRESSURE, GAGE, DRUM. Recording-pressure gages where the record is made upon a rotating drum or upon a strip of paper passing from one drum to another.

26. SHIP'S COURSE. Devices for making a continuous record of the course of a moving ship, such as recording-compasses, etc.

27. SIGNAL. Devices for recording the time or duration of steam-whistles or other signals.

28. SPECIFIC GRAVITY. Devices for recording the varying specific gravity of a liquid, as determined by a hydrometer or other instrument.

29. SPEED. Devices for recording the speed of any moving object except rotating shafts.

30. SPEED, SHAFT, CONTINUOUS-RECORD. Devices, not classifiable in Speed, shaft, continuous-record, governor-controlled, and Speed, shaft, continuous-record, uniform-amplitude, for making a continuous unbroken record of the speed of a rotating shaft.

31. SPEED, SHAFT, CONTINUOUS-RECORD, GOVERNOR-CONTROLLED. Devices controlled by a governor for making a continuous unbroken record of the speed of a rotating shaft.

32. SPEED, SHAFT, CONTINUOUS-RECORD, UNIFORM-AMPLITUDE. Devices for making a continuous unbroken record of the speed of a moving shaft, the marker being moved back and forth always the same distance.

33. SPEED, SHAFT, INTERMITTENT-RECORD. Devices for recording the speed of a rotating shaft, the record comprising a series of marks or punctures.

21. STEAM-ENGINE INDICATORS. Patents upon the construction of the entire indicator; also, patents for parts of the indicator not classifiable elsewhere.

22. STEAM-ENGINE INDICATORS, BOURDON TYPE. Steam-engine indicators where a Bourdon tube is employed instead of the ordinary steam-cylinder.

23. STEAM-ENGINE INDICATORS, DRUM. Patents upon the construction of the reciprocating drum carrying the paper and also for the connection with said drum of the operating-cord.

24. STEAM-ENGINE INDICATORS, ENGINE CONNECTIONS. Connections between the steam-engine or any of its parts and the indicator whereby the latter is operated or is secured in place.

25. STEAM-ENGINE INDICATORS, INDICATOR-CYLINDER. Patents on the construction of the indicator-cylinder, including also any pencil holding or operating devices.

36. TIME. Devices for recording the time of two or more successive movements of an object past the same point; also, devices for recording the absolute time at which a certain operation takes place; also, devices, such as chronographs, for recording very small intervals of time.

37. TIME, WATCHMEN'S, MISCELLANEOUS. Watchmen's time recorders not classified elsewhere.

38. TIME, WATCHMEN'S, STATIONARY-RECORD, TIME-OPERATED MARKER. Recorders having a stationary record-surface, usually graduated in divisions of time, over the surface of which passes a time-operated marker which is forced into contact with the record-surface by the watchman as he makes his round.

39. TIME, WATCHMEN'S, TIME-OPERATED RECORD, MULTIPLE-KEY. Recorders carried by the watchman on his round, each recorder comprising a time-operated record-surface and a marking device which is forced into contact with the record-surface by a key secured at the station, each station having its individual key.

40. TIME, WATCHMEN'S, TIME-OPERATED RECORD, SINGLE-KEY. Watchmen's time-recorders located at the several stations, each recorder comprising a time-operated record-surface upon which a mark or impression is made either through an aperture in the casing by a marker connected to the recorder or carried by the watchman or by means of a marker permanently affixed to the recorder and operated by means of a cord, lever, or key.

42. TIME, WORKMEN'S, CHECK-RECEIVERS. Machines having a number of compartments corresponding to divisions of time and in which a check deposited by the workman is automatically directed to the proper compartment.

43. TIME, WORKMEN'S, INDIVIDUAL-CARD, TIME-IMPRESSION. Machines for printing upon workmen's identification-cards inserted therein, the time of their insertion.
(Note.—Search also subclasses Time-stamps, dial, movable-dial, and movable-platen, and Time-stamps, drum, movable-drum, and movable-platen, in this class.)

44. TIME, WORKMEN'S, INTERMITTENTLY-MOVABLE RECORD, TIME-PRINTING WHEEL, AUTOGRAPHIC. Machines having a strip of paper upon which the workman writes his name, after which he operates a lever or moves some part of the machine which causes the time to be printed in line with the name and also moves the paper for the next workman.
(Note.—Search also subclass Time, workmen's, time-operated record, autographic, this class.)

45. TIME, WORKMEN'S, INTERMITTENTLY-MOVABLE RECORD, TIME-PRINTING WHEEL, CHECK-OPERATED. Machines where a check bearing the workman's designation is dropped into a chute, the check falling to a position in line with time-printing wheels and in its passage causing the operation of a printing-platen which imprints the workman's number and time upon a strip of paper which during the operation is moved to expose a fresh surface on the printing-line.

46. TIME, WORKMEN'S, INTERMITTENTLY-MOVABLE RECORD, TIME-PRINTING WHEEL, INDIVIDUAL-RECORD, SINGLE-IMPRESSION. Machines where a record is made by a set of time-printing wheels upon a record-sheet, there being a single operating-lever which by its operation first causes the record-sheet to move to place into printing position that portion corresponding to the workman's number and then causes the engagement of the printing-wheels therewith.

47. TIME, WORKMEN'S, INTERMITTENTLY-MOVABLE RECORD, TIME-PRINTING WHEEL, PRINTING-KEY. Machines wherein the workman inserts and turns a key bearing his individual designation, which key cooperates with time-printing wheels and in its operation causes the movement of a printing-platen and also advances the record-strip.

48. TIME, WORKMEN'S, INTERMITTENTLY-MOVABLE RECORD, TIME-PRINTING WHEEL, PRINTING-KEY, OPERATING-LEVER. Patents similar to those in subclass 47 in this class, except that instead of turning the key the key is inserted and a separate lever operated to cause the movements of the parts.

41. TIME, WORKMEN'S, MISCELLANEOUS. Workmen's time-recorders not classified elsewhere.

49. TIME, WORKMEN'S, TIME-OPERATED RECORD, AUTOGRAPHIC. Devices having a record-sheet moved by a time-train, the sheet having the time printed on its margin, either in and by the machine or before being placed therein, the workman writing his name upon an exposed portion of the paper.
(Note.—Search also Time, workmen's, intermittently-movable record, time-printing wheel, autographic, this class.)

50. TIME, WORKMEN'S, TIME-OPERATED RECORD, INDIVIDUAL-RECORD, SINGLE-IMPRESSION. Machines having a time-operated record-sheet with a separate place for the record of each workman, there being but a single key for all the workmen.

51. TIME, WORKMEN'S, TIME-OPERATED RECORD, INDIVIDUAL-RECORD, SINGLE IMPRESSION, PRINTING-KEY. Machines having a time-operated record-sheet with a separate place thereon for each workman's designation, each workman having an individual key.

52. TIME, WORKMEN'S, TIME-OPERATED RECORD, INDIVIDUAL-RECORD, TAG-OPERATED MARKER. Machines where an individual record is made, either by a continuous mark while the workman is employed or by single marks made at the beginning and end of work, the marker being operated by means of a tag hung on a hook or other part of the machine.

53. TIME, WORKMEN'S, WAGE-COMPUTERS. Devices for making a continuous record during the time the workman is employed, the recording-surface being graduated to indicate time employed or amount of wages due for such time, or both, so that the record will show at any time the amount due the workman.
(Note.—Search also Time, workmen's, time-operated record, individual-record, tag-operated marker, in this class.)

54. TIME-STAMPS, DIAL, MOVABLE-DIAL. Time-stamps having the time indications on the face of dials or disks and in which when operated the dials are forced against a stationary platen.

55. TIME-STAMPS, DIAL, MOVABLE-PLATEN. Time-stamps having the time indications on the face of dials or disks and in which when operated the platen is forced against the dials.

56. TIME-STAMP, DRUM, MOVABLE-DRUM. Time-stamps having the time indications on the periphery of drums or wheels and in which when operated the drums are forced against a stationary platen.

57. TIME-STAMPS, DRUM, MOVABLE-PLATEN. Time-stamps having the time indications on the periphery of drums or wheels and in which when operated the platen is forced against the drums.

34. VOLUME. Devices for continuously recording the volume of water or other fluid passing through a certain space.

35. VOLUME, METER-READING. Devices whereby the reading of a gas or other meter may be transferred to a card.

Revision of Classification.

(ORDER No. 1,364.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., July 19, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

In Division XIII, class 82, change the title of the class to class 90, Gear-Cutting, Milling, and Planing, and abolish the following subclasses therein:

1. Centerers.
2. Cutters and cutter-holders.
7. Mandrels and work-holders.
13. Rests.
Turning—
15. Irregular forms,
Turning—
16. Miscellaneous,
17. Tapers,
18. Wheels and axles.
19. Watchmakers' lathes.
20. Wrist-pin turners.

In Division XIII establish class 82, Turning, with the following subclasses and definitions:

CLASS 82.—TURNING.

11. Axial pattern—
12. Pivoted tool-rest,
13. Profiled cutter,
14. Templet-guide.
45. Centerers—
46. Cam-closing,
47. Coupled V-jaws.
48. Hollow-cone,
51. Indicators,
49. Pivoted-lever and cone,
50. Pivoted-link.
2. Lathes—
34. Attachments,
32. Beds,
6. Bench.
21. Carriage-feeds—
22. Apron mechanism—
24. Feed-nut controllers,
26. Change-gears,
27. Feed-screws and rods.
31. Slide-rests—
25. Multiple tool-support
33. Centers.
9. Crank and crank-pin—
10. Oscillating work.
28. Head-stocks—
29. Speed-changing gear,
30. Spindles and bearings,
Lathes—
20. Hollow cutter-head,
3. Multiple,
4. Portable,
7. Pulley,
5. Screw-cutting,
31. Tail-stocks,
8. Wheel and axle.
1. Miscellaneous,
18. Pattern section—
19. Cam-controlled cutter.
Rests—
36. Tool—
37. Tool-posts.
35. Tool and work.
38. Work—
39. Center rests.
Tapers—
15. Offset work-axis.
Transversely-shifted cutter—
16. Gear-controlled.
17. Templet-controlled.
40. Work-drivers—
41. Lathe-dogs—
42. Cam-grip,
43. Mandrels—
44. Expansible.

WALTER H. CHAMBERLIN,
Acting Commissioner.

CLASS 82.—TURNING.

DEFINITIONS.

Class.

82. TURNING. This class includes machines and devices for producing articles of predetermined section, usually circular, by means of cutters brought into engagement with the exterior of a continuously-rotating work-piece or by means of cutters revolving circumferentially around and in engagement with that portion of the work-piece to be shaped. It contains mainly metal-working machines, but is not confined thereto, including all such mechanisms of the above-named structure and function as are not specifically classified elsewhere.

Subclasses.

11. AXIAL PATTERN. Machines for producing articles of circular cross-section and of varying axial section other than cylindrical or conical forms.

12. AXIAL PATTERN, PIVOTED TOOL-REST. Machines in which the axial outline is traced by a tool rotating about an axis at right angles to the axis of the work. It mainly comprises lathes for turning spheres, though in some cases the tool traces a curve convex toward the work-axis.

13. AXIAL PATTERN, PROFILED CUTTER. Machines for producing articles the axial section of which is predetermined by that of a formed cutter or series of juxtaposed cutters.

14. AXIAL PATTERN, TEMPLET-GUIDE. Machines in which the axial pattern is produced by a tool the transverse movements of which are controlled by a templet.

45. CENTERERS. Devices for determining the centers or axes of work-pieces preparatory to mounting them on lathe-centers or for bringing such axes into coincidence with the line joining the lathe-centers after the work-pieces have been placed in the lathe.
(Note.—Search should also be made in rests, work, center rests in this class, and in drilling-machines, center-drills in class 77, BORING AND DRILLING; in machine-chucks and tool-sockets in class 29, METAL-WORKING.)

46. CENTERERS, CAM-CLOSING. Those in which the centering-pieces are moved inward by cam-surfaces, usually of the scroll type.

47. CENTERERS, COUPLED V-JAWS. Devices in which the center of the work-piece is determined or indicated by jaws which approach the piece from opposite sides and have approximately V-shaped recessed ends between which the work-piece is held by the jaw-coupling means.

48. CENTERERS, HOLLOW-CONE. Devices in which the center-marking means is located coaxially with a hollow cone, which is placed over the end of the piece to be centered.

51. CENTERERS, INDICATORS. Devices for indicating the eccentricity of rotating work-pieces and in some cases measuring its amount.

49. CENTERERS, PIVOTED-LEVER AND CONE. Centerers in which a series of circumferentially-arranged pivoted levers are closed equally upon the piece to be centered by an axially-moving cone.

50. CENTERERS, PIVOTED-LINK. Devices in which a series of surrounding pivoted links are caused to move equally toward the axis of the device until they impinge upon the work-piece.

2. LATHES. Organized machines and devices for producing articles of regular section, usually circular, by means of work-supports and guided cutters, with mechanism for effecting a relative rotation between the cutters and the work; also, details of such machines.

34. LATHES, ATTACHMENTS. Miscellaneous devices secured to lathes for facilitating their manipulation, increasing their accuracy, etc.

32. LATHES, BEDS. Patents showing the structure of the frame and ways of the lathe.

6. LATHES, BENCH. Light lathes without legs, mainly designed for jeweler's and watchmaker's use.

21. LATHES, CARRIAGE-FEEDS. All details of lathes instrumental in giving the cutting-tool either longitudinal or transverse feed or in limiting such feeds.

22. LATHES, CARRIAGE FEEDS, APRON MECHANISM. All gearing or feed-controlling mechanism attached to or covered by the apron secured to the lathe-carriage.

23. LATHES, CARRIAGE-FEEDS, APRON MECHANISM, FEED-NUT CONTROLLERS. Devices for closing the feed-nut upon the feed-screw or releasing it therefrom; also, for preventing the closing of the nut except in certain positions to insure "catching the thread" correctly with the tool in screw-threading.

26. LATHES, CARRIAGE-FEEDS, CHANGE-GEARS. Sets of gears and provisions for mounting and shifting them in order to change the speed of rotation of the feed-screw or other carriage-driving means, and consequently the rate of carriage-feed.

27. LATHES, CARRIAGE-FEEDS, FEED-SCREWS AND RODS. Mechanisms, usually in the form of rotating screws or splined rods, for transmitting motion from the head-stock or change-gears to the carriage to effect the necessary tool-feed.

24. LATHES, CARRIAGE-FEEDS, SLIDE-RESTS. Tool-supporting devices, usually mounted upon the lathe-carriage and longitudinally movable with it, for giving to the tool an additional feed, ordinarily one transverse to the axis of the work.

25. LATHES, CARRIAGE-FEEDS, SLIDE-RESTS, MULTIPLE TOOL-SUPPORT. Devices like the preceding, but carrying a plurality of cutting-tools, usually located on opposite sides of the axis of the work.

33. LATHES, CENTERS. Devices secured in the head-stock or tail-stock to rotatably support the work.

9. LATHES, CRANK AND CRANK-PIN. Lathes particularly designed for rotating cranks and crank-disks concentrically to turn the main journals or eccentrically to turn the crank-pin, or machines with offset revolving tools for turning crank-pins held stationary, but eccentric with respect to the lathe-centers.
Note.—This subclass includes only fully-organized power-driven machines. Portable pin-turners, usually hand-driven and clamped to the work to be turned, are classified in Lathes, Portable.

10. LATHES, CRANK AND CRANK-PIN, OSCILLATING WORK. Machines mainly for turning cross-head pins designed to rotate through a portion of the circumference only of such work as he tool cannot pass entirely around.

28. LATHES, HEAD-STOCKS. Patents showing general features and miscellaneous improvements in devices for supporting one end of the work-piece and for rotating it.

29. LATHES, HEAD-STOCKS, SPEED-CHANGING GEAR. Devices for giving variable rotation to the chuck or face-plate for a given rotation of the cone-pulley; ordinarily, back-gears.
(Note.—This subclass includes only such devices as are specifically designed for lathes and not for general application.)
(Note.—Search should also be made in Drilling-Machines, back-gears, class 77, BORING AND DRILLING, and in appropriate subclasses of Gearing, class 74, MACHINE ELEMENTS.)

30. LATHES, HEAD-STOCKS, SPINDLES AND BEARINGS. The title sufficiently defines the subclass.

20. LATHES, HOLLOW CUTTER-HEAD. Machines having rotating or stationary cutter-heads for supporting the cutters radially with their cutting ends toward the axis of the work and means for effecting relative rotation and axial feed between cutters and work.
(Note.—Search should also be made in Rests, tool and work, in this class.)

3. LATHES, MULTIPLE. Machines for operating simultaneously on more than one piece of work. The operations are usually the same on each piece.

4. LATHES, PORTABLE. Devices, usually hand-driven, readily transported and attached to axles, crank-pins, commutators, and other parts to be turned or trued.

7. LATHES, PULLEY. Machines especially designed for rotating and facing pulleys. They generally include special driving means and means for crowning the pulley-face.

5. LATHES, SCREW-CUTTING. Organized machines of the "engine-lathe" type having feed mechanism adapted to vary the rate of tool travel to cut screws of various pitches.

31. LATHES, TAIL-STOCKS. Devices for securing and rotatably supporting the end of the work-piece remote from the head-stock or driving end of the lathe.

8. LATHES, WHEEL AND AXLE. Organized machines for turning heavy wheels and axles, usually those of railway rolling-stock.
(Note.—For devices for finishing or re-turning worn wagon-axles search should also be made in Lathes, portable, in this class.)

1. MISCELLANEOUS. Various devices, not organized lathes, and processes for producing articles of circular cross-section.

18. PATTERN-SECTION. Machines for producing articles of predetermined non-circular section, usually by giving the cutter a motion radial with respect to the rotating work in addition to its usual feed motion.

19. PATTERN-SECTION, CAM-CONTROLLED CUTTER. Machines in which the radially-reciprocating motion of the cutter is governed by a cam.

RESTS. Devices for securing or supporting the cutting-tool or the work, or both, during the turning operation.

36. RESTS, TOOL. Devices for supporting lathe-tools held in the hand or for clamping them and effecting their rectilinear vertical adjustment or angular adjustment in a vertical plane.

37. RESTS, TOOL, TOOL-POSTS. The immediate clamping means for securing the tool or cutter of a lathe. These devices include adjusting means only when the adjustment is effected by unclamping and reclamping the cutter itself.

35. RESTS, TOOL AND WORK. Devices for simultaneously supporting both the tool and the work upon which it operates.
(Note.—Search should also be made in Lathes, hollow cutter-head, in this class.)

38. RESTS, WORK. Miscellaneous devices for supporting work in a lathe; either the free end of a piece of stock or the side opposite the cutting-tool, to receive the thrust of the tool, or for other purposes.

39. RESTS, WORK, CENTER RESTS. Devices secured to the bed or ways of a lathe and provided with a bushing or with centering-jaws in axial alinement with the work supported between the centers, to prevent springing of the work from the thrust of the cutter.
(Note.—Search should also be made in Centerers, in this class.)

TAPERS. Machines for producing conical surfaces in which the elements of the cone are usually at a comparatively-small angle to the axis of the work.

15. TAPERS, OFFSET WORK-AXIS. Machines in which the axis of the rotating work is at a slight angle to the line of feed, the tool or work having a simple straight-line feed only.

16. TAPERS, TRANSVERSELY-SHIFTED CUTTER, GEAR-CONTROLLED. Machines in which a conical surface is generated by giving the cutting-tool a compound feed, one parallel to the axis of the work and the other at right angles thereto, the latter feed being governed by a gear-train.

17. TAPERS, TRANSVERSELY-SHIFTED CUTTER, TEMPLET-CONTROLLED. Machines like the last preceding, in which the transverse feed of the cutter is governed by a fixed templet and connections between said templet and cutter or cutter-support.

40. WORK-DRIVERS. Miscellaneous devices for transmitting the rotary motion of the lathe-spindle to the work held between the centers.
(Note.—Search should also be made in Machine-chucks and tool-sockets, in Class 29, METAL-WORKING.)

41. WORK-DRIVERS, LATHE-DOGS. Driving devices which grip the work to be rotated and have a spur or other driving-connection which loosely engages a slot or other rotating portion of the face-plate or spindle.

42. WORK-DRIVERS, LATHE-DOGS, CAM-GRIP. Dogs which have cam-surfaces engaging the work to be driven in such a manner that rotation in the working direction causes the cam to grip the work the more firmly.

43. WORK-DRIVERS, MANDRELS. Rotating devices placed between the centers of the lathe and driving hollow work-pieces by engaging their interior surfaces.

44. WORK-DRIVERS, MANDRELS, EXPANSIBLE. Mandrels having work-engaging pieces capable of radial adjustment to center the work and secure driving contact therewith.
(Note.—Search should also be made in such analogous structures as wagon-hubs, paper-reels, pipe-expanders, and soldering-clamps.)

Revision of Classification.

(ORDER No. 1,367.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., September 4, 1900.

The following changes in classification of inventions are hereby directed, to take effect this day:

In Division XXIV, class 223, Apparel Apparatus, establish subclass—

55. Collar, cuff, and bosom machines,

and transfer thereto all the patents heretofore classified in class 93, Paper Manufactures, Collar, Cuff, and Bosom Machines.

In Division VIII, class 211, Store Furniture, establish subclasses as follows:

29. Serving apparatus—
30. Printing attachments,
31. Roll-holders—
32. Cutting attachments,

Serving apparatus—
Roll-holders—
33. Feeding attachment,

and transfer thereto the patents hitherto classified in the corresponding subclasses of class 93, Paper Manufactures.

In Division XV, class 92, Paper-Making, establish a new subclass as follows:

55. Reels.

In Division II abolish class 232, Paper-Tube Machines, the patents composing the same having been embodied in new subclasses under class 93, Paper Manufactures.

DIVISION XVII.—In class 198, Matrix-Making, establish a new subclass as follows:

7. Matrices and materials.

In class 101, Printing, change the number of subclass Bed-and-cylinder machines, bed-movements, from 156 to 158.

In class 101, Printing, abolish the following subclasses:

35. Electrotyping.
135. Stereotyping—
137. Matrices and materials.
138. Surfaces—
139. Bases,
141. Holders, sliding-clamp,

Surfaces—
142. Planographic—
143. Hectographs,
144. Holders and supports,
145. Rules,
157. Transferring,
146. Types.

In class 101, Printing, establish subclasses as follows:

181. Imitating.
Planographic—
172. Copying apparatus.
Planographic machines—
180. Damping.
Processes—
182. Miscellaneous.
179. Spaces and straight column-rules.
Surfaces—
165. Backing apparatus,
163. Elastic,
164. Fountain,
Holders—
167. Cylinder-mandrel,
168. Metal-sheet stretchers,
169. Miscellaneous,

Surfaces—
166. Mechanical transferring and registering,
161. Multicolor,
Planographic—
171. Elastic pantographs,
170. Hectographic compositions,
173. Miscellaneous,
Relief and intaglio—
177. Backs and blocks,
175. Combination,
174. Integral metal type,
178. Miscellaneous.
176. Non-elastic materials,
162. Tintographs.

In Division XXX abolish all subclasses of class 93, Paper Manufactures, and establish subclasses and definitions as follows:

CLASS 93.—PAPER MANUFACTURES.

Bag-machines—
13. Central-fold,
27. Closers,
26. Cutters and closers,
25. Cutters and openers,
21. Cutters, openers, and closers,
33. Cutting,
31. Hand bottom-folders, tables,
37. Methods,
8. Miscellaneous,
28. Openers—
29. Roll,
30. Side,
22. Openers and closers—
23. Openers, roll,
24. Openers, side,
11. Plate-mandrel,
34. Printing attachments,
12. Rectangular-mandrel,
32. Refolders,
Triangular-fold—
9. Blade-and-roller,
10. Mandrel,
20. Web-formers,
19. Web formers and cutters,
18. Web formers, cutters and closers,
17. Web formers, cutters and openers,
14. Web formers, cutters, openers and closers—
15. Openers, roll,
16. Openers, side.
Box-machines—
37. Cell-cases—
38. Traveling-carrier, shifting-form,
54. Covering,
58. Cutting and scoring,
44. Endless-mandrel carrier,
57. Fly-affixers,
49. Folding—
50. Driers,
51. Plunger-and-die,
52. Stationary folders,
45. Web-supply—
46. Driers,
47. Plunger-and-die,
48. Stationary folders,
40. Folding and covering,
39. Folding and setting up,
42. Folding and stapling,
41. Folding and staying,
59. Mandrels and dies,
36. Miscellaneous,
60. Plaiting,

Box-machines—
53. Refolders,
55. Setting up,
43. Setting up and covering,
56. Staying.
93. Bunching and banding.
Envelop-machines—
74. Drying—
75. Chain-discharging,
61. Miscellaneous,
73. Printing and stamping,
Reciprocating—
71. Carrying mechanism,
70. Creasing mechanism,
72. Ejecting mechanism,
67. Folding,
68. Gumming—
69. Picker-faces,
66. Gumming and folding,
65. Turret,
64. Web-supply,
Rotary—
62. Blank-supply,
63. Web-supply,
76. Thread-affixers.
Folding—
84. Miscellaneous,
85. Powder-paper machines,
86. Radial-fold.
1. Miscellaneous.
Tag-machines—.
90. Eyeleting,
87. Miscellaneous.
89. Pin-ticket making,
88. Pin-ticket making and attaching,
91. String-attaching.
92. Washer-attaching.
Tube-machines—
82. Axial-feed,
81. Convolute-wind,
78. Fuse-making,
77. Miscellaneous,
83. Sizing and burnishing,
80. Spiral-wind,
79. Tapering-wind.
94. Tubes.
Wrapping-machines—
5. Crimpers and twisters,
2. Miscellaneous,
4. Packet making and wrapping,
6. Receptacle filling and closing,
3. Receptacle making and filling,
7. Traveling-carrier.

WALTER H. CHAMBERLIN,
Acting Commissioner.

CLASS 93.—PAPER MANUFACTURES.

DEFINITIONS.

Class.

93. PAPER MANUFACTURES. Machines for working up previously-made paper into articles of commerce, except those which make the article from dry paper by means of drawing-dies, which are classified in class 113, SHEET-METAL WARE, MAKING, VESSELS, DIE-SHAPING, and those which mold the article from moist paper or in heated dies, which are classified in class 18, CAOUTCHOUC AND MINOR PLASTICS, MINOR PLASTICS, MOLDING DEVICES.
(Note.—Wood veneer, cloth, and similar flexible materials when handled in the same manner as paper to form specific articles are, for the purposes of classification, regarded as paper, and machines for working such materials to make specific articles are classified in paper manufactures, subject to the exceptions stated in the above general definition. Compound webs and sheets of paper are not regarded as specific articles, and patents relating to the formation of such webs and sheets are classified in class 92, PAPER-MAKING.)

Subclasses.

1. MISCELLANEOUS. Machines and appliances for working paper into articles and parts and adjuncts of such machines and appliances which are not classified under more specific titles.

2. WRAPPING-MACHINES, MISCELLANEOUS. Machines for applying wrappers to articles of commerce and parts and adjuncts of such machines which are not classified under more specific titles.
(Note.—Machines for wrapping newspapers are classified in class 101, PRINTING, FOLDERS, NEWSPAPER-WRAPPING MACHINES. Machines particularly designed for the boxing of matches are classified in class 144, WOODWORKING, MATCH-MAKING, BOX-FILLING.)

3. WRAPPING-MACHINES, RECEPTACLE MAKING AND FILLING. Machines which make a paper receptacle and fill the same with loose material.
(Note.—Search should also be made in class 144, WOODWORKING, MATCH-MAKING, BOX-FILLING.)

4. WRAPPING-MACHINES, PACKET MAKING AND WRAPPING. Machines which form a packet or cake of fibrous or other loose material and inclose the same in a paper covering.

5. WRAPPING-MACHINES, CRIMPERS AND TWISTERS. Machines which apply paper wrappers to articles of commerce by crimping or twisting the sheet about the article. These machines are usually designed to wrap oranges and other fruit, but are not confined to fruit-wrapping.

6. WRAPPING-MACHINES, RECEPTACLE FILLING AND CLOSING. Machines which fill a previously-made paper receptacle and thereafter close the same.
(Note.—Search should also be made in class 144, WOODWORKING, MATCH-MAKING, BOX-FILLING.)

7. WRAPPING-MACHINES, TRAVELING-CARRIER. Machines which employ a traveling carrier to convey the objects being operated on from place to place, where the several manipulations involved in the wrapping are performed.
(Note.—Search should also be made in subclasses Bag-machines, plate-mandrel, and rectangular-mandrel, and Box-machines, endless-mandrel carrier, in this class.)

8. BAG-MACHINES, MISCELLANEOUS. Machines for making paper bags and parts and adjuncts of such machines which are not classified under more specific titles.

9. BAG-MACHINES, TRIANGULAR-FOLD, BLADE-AND-ROLLER. Machines for making triangular or cone-shaped bags, the bags being formed by driving the material between rollers by means of a folding-blade.

10. BAG-MACHINES, TRIANGULAR-FOLD, MANDREL. Machines for making triangular or cone-shaped bags, the bags being formed by folding the material around a triangular or cone-shaped mandrel.

11. BAG-MACHINES, PLATE-MANDREL. Machines which form bags by folding the material around a plate or flat mandrel.

12. BAG-MACHINES, RECTANGULAR-MANDREL. Machines which form bags by folding the material around a rectangular mandrel.
(Note.—Search should also be made in subclasses Box-machines, endless-mandrel carrier, and Wrapping-machines, traveling-carrier, in this class.)

13. BAG-MACHINES, CENTRAL-FOLD. Machines which form bags by folding the material transversely on a line about equally distant from the sides or ends of the blank and securing the edges together.
(Note.—Search should also be made in subclasses Envelop-machines, rotary, blank-supply, and Rotary, web-supply, in this class.)

14. BAG-MACHINES, WEB-FORMERS, CUTTERS, OPENERS AND CLOSERS. Machines which fold and paste a web of paper longitudinally to form a tube, cut the tube into bag lengths, open into some form one end of each length as a preliminary step in the formation of the bottom, and close the opened formation to complete the bag. When the opening of the tube is effected by devices carried by rolls or by contrivances operating on the edges of the tube, the patents are classified in subclasses 15 and 16 of this group according to the opening mechanism.

15. BAG-MACHINES, WEB-FORMERS, CUTTERS, OPENERS AND CLOSERS, OPENERS, ROLL. Machines which fold and paste a web of paper longitudinally to form a tube, cut the tube into bag lengths, open into some form one end of each length by means of openers carried by rolls as a preliminary step in the formation of the bottom, and close the opened formation to complete the bag.

16. BAG-MACHINES, WEB-FORMERS, CUTTERS, OPENERS AND CLOSERS, OPENERS, SIDE. Machines which fold and paste a web of paper longitudinally to form a tube, cut the tube into bag lengths, open into some form one end of each length by means of openers operating on the edges of the bag length as a preliminary step in the formation of the bottom, and close the opened formation to complete the bag.

17. BAG-MACHINES, WEB-FORMERS, CUTTERS AND OPENERS. Machines which fold and paste a web of paper longitudinally to form a tube, cut the tube into bag lengths, and open into some form one end of each length as a preliminary step in the formation of the bottom, the opened formation being afterward closed by hand or by independent mechanism to complete the bag.

18. BAG-MACHINES, WEB-FORMERS, CUTTERS AND CLOSERS. Machines which fold and paste a web of paper longitudinally to form a tube, cut the tube into bag lengths, and fold one end of each length back upon itself to close the same and complete the bag.

19. BAG-MACHINES, WEB FORMERS AND CUTTERS. Machines which fold and paste a web of paper longitudinally to form a tube and cut the tube into bag lengths, the remaining operations necessary to complete the bag being afterward performed by hand or by independent mechanism.

20. BAG-MACHINES, WEB-FORMERS. Machines which fold and paste a web of paper longitudinally to form a tube, the remaining operations necessary to complete the bag being afterward performed by hand or by independent mechanism.

(Note.—Search should also be made in subclasses Box-machines, folding, web-supply, stationary folders, and Folding, stationary folders, and Tube-machines, axial-feed, in this class.)

21. BAG-MACHINES, CUTTERS, OPENERS AND CLOSERS. Machines which cut a previously-made tube into bag lengths, open into some form one end of each length as a preliminary step in the formation of the bottom, and close the opened formation to complete the bag.

22. BAG-MACHINES, OPENERS AND CLOSERS. Machines which open into some form one end of previously-made bag lengths as a preliminary step in the formation of the bottom and close the opened formation to complete the bag. When the opening of the tube is effected by devices carried on rolls or by contrivances operating on the edges of the tube, the patents are classified in subclasses 23 and 24 of this group according to the opening mechanism.

23. BAG-MACHINES, OPENERS AND CLOSERS, OPENERS, ROLL. Machines which open into some form one end of previously-made bag lengths by means of openers carried by rolls as a preliminary step in the formation of the bottom and close the opened formation to complete the bag.

24. BAG-MACHINES, OPENERS AND CLOSERS, OPENERS, SIDE. Machines which open into some form one end of previously-made bag lengths by means of openers operating on the edges of the bag lengths and close the opened formation to complete the bag.

25. BAG-MACHINES, CUTTERS AND OPENERS. Machines which cut previously-made tubes into bag lengths and open into some form one end of each length as a preliminary step in the formation of the bottom, the opened formation being afterward closed by hand or by independent mechanism to complete the bag.

26. BAG-MACHINES, CUTTERS AND CLOSERS. Machines which cut previously-made tubes into bag lengths and fold one end of each length back upon itself to complete the bag.

27. BAG-MACHINES, CLOSERS. Machines which close previously-prepared bag lengths to complete the bag.
(Note.—These machines are usually in the nature of attachments to bag-machines, but in some instances are complete machines to which the incomplete bags are fed.)

28. BAG-MACHINES, OPENERS. Machines which open into some form one end of previously-made bag lengths as a preliminary step in the formation of the bottom, the opened formation being afterward closed by hand or by independent mechanism. When the opening of the tube is effected by devices carried by rolls or by contrivances operating on the edges of the tube, the patents are classified in subclasses 29 and 30 of this group according to the opening mechanism.

29. BAG-MACHINES, OPENERS, ROLL. Machines which open into some form one end of previously-made bag lengths by means of openers carried by rolls as a preliminary step in the formation of the bottom, the opened formation being afterward closed by hand or by independent mechanism to complete the bag.

30. BAG-MACHINES, OPENERS, SIDE. Machines which open into some form one end of previously-made bag lengths by means of openers operating on the edges of the bag lengths as a preliminary step in the formation of the bottom, the opened formation being afterward closed by hand or by independent mechanism to complete the bag.

31. BAG-MACHINES, HAND BOTTOM-FOLDERS, TABLES. Work-tables designed to hold previously-made bag lengths or tubes while the bottoms are formed thereon by hand.

32. BAG-MACHINES, REFOLDERS. Machines for operating upon previously-made bags to change the formation or configuration of the same.

33. BAG-MACHINES, CUTTING. Cutting-machines and parts and adjuncts of such machines which are specially applicable for use in the manufacture of bags and which are not of general application.
(Note.—Search should also be made in subclasses Bag-machines, miscellaneous; Triangular-fold, blade-and-roller; Triangular-fold, mandrel; Plate-mandrel; Rectangular mandrel; Central-fold, in this class. To complete the search for cutters designed for use in connection with bag-machines, all subclasses in bag-machines which include "cutters" in the title should be examined.)

34. BAG-MACHINES, PRINTING ATTACHMENTS. Printing machines, attachments, and appliances which are specially applicable for use in conjunction with paper-bag machines and which are not of general application.

35. BAG-MACHINES, METHODS. Methods of making paper bags wherein the steps follow the operation of the machine, and an examination of the machine class is necessary to complete the search for the method.

36. BOX-MACHINES, MISCELLANEOUS. Machines for making paper boxes and parts and adjuncts of such machines which are not classified under more specific titles.

37. BOX-MACHINES, CELL-CASES. Machines for making boxes or cases having a plurality of compartments or cells, such as egg-cases, except such as are classified under more specific titles.

38. BOX-MACHINES, CELL-CASES, TRAVELING-CARRIER, SHIFTING-FORM. Machines for making boxes or cases having a plurality of compartments or cells, such as egg-cases, which are provided with a plurality of shifting forms arranged on a traveling carrier.

39. BOX-MACHINES, FOLDING AND SETTING UP. Machines which fold one blank to form an incomplete box and afterward set thereon or attach thereto other blanks to complete the box.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

40. BOX-MACHINES, FOLDING AND COVERING. Machines which fold a box-blank into shape and afterward apply ornamental covering-paper to the folded box.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

41. BOX-MACHINES, FOLDING AND STAYING. Machines which fold a box-blank into shape and afterward stay the adjoining edges.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

42. BOX-MACHINES, FOLDING AND STAPLING. Machines which fold a blank into shape and afterward secure the edges or joints by means of staples.
(Note.—Search should also be made in subclass Box machines, endless-mandrel carrier, in this class, and in class 1, NAILING AND STAPLING, the following subclasses: Machines, box, staple forming and setting; Machines, box, staple forming and setting, sheet-metal; Machines, box, staple-setting; Machines, staple forming and setting; Machines, book, staple forming and setting; Book, staple-setting; Machines, shoe, staple forming and setting; and Machines, shoe, staple setting.)
(Note.—Many of the machines make veneer or paper dishes for grocers' use.)

43. BOX-MACHINES, SETTING UP AND COVERING. Machines which make boxes by setting together two or more independent pieces of material and afterward apply ornamental covering-paper to the folded box.

44. BOX MACHINES, ENDLESS-MANDREL CARRIER. Machines for making paper boxes which employ a plurality of holders, forms, or mandrels mounted on a traveling carrier to hold the blanks while the several manipulations necessary to complete the boxes are performed thereon.
(Note.—Search should also be made in subclasses Wrapping-machines, traveling-carrier; Bag-machines, rectangular-mandrel, and plate-mandrel; Box-machines, folding, web-supply, driers; and Box-Machines, folding, driers, in this class.)

45. BOX-MACHINES, FOLDING, WEB-SUPPLY. Machines which cut box-blanks from a continuous web and fold boxes therefrom, except such as are classified under more specific titles.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

46. BOX-MACHINES, FOLDING, WEB-SUPPLY, DRIERS. Machines which cut box-blanks from a continuous web and fold boxes therefrom, the machines being provided with driers which dry the boxes during their manufacture or after their completion.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

47. BOX-MACHINES, FOLDING, WEB-SUPPLY, PLUNGER-AND-DIE. Machines which cut box-blanks from a continuous web and fold boxes therefrom by means of a plunger and die.
(Note.—Search should also be made in subclasses Box-machines, endless-mandrel carrier; Box-machines, folding, web-supply, driers, and Box-machines, folding, driers, in this class.)

48. BOX-MACHINES, FOLDING, WEB-SUPPLY, STATIONARY FOLDERS. Machines for making folded boxes from a continuous web, the folding operations being performed by means of stationary folders or guides over which the material is drawn. These machines either first fold a web of paper into a tube and then cut the boxes from such folded tube or else cut the blanks from a web and then fold the blanks to complete the box.
(Note.—Search should also be made in subclasses Envelop-machines, rotary, blank-supply, and web-supply, and Tube-machines, axial-feed, in this class.)

49. BOX-MACHINES, FOLDING. Machines which form boxes by folding into shape previously-prepared blanks and parts and adjuncts of such machines, except such as are classified under more specific titles.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier, in this class.)

50. BOX-MACHINES, FOLDING, DRIERS. Machines which form boxes by folding into shape previously-prepared blanks and which are provided with means for drying the folded boxes.
(Note.—Search should also be made in subclass Box-machines, endless-mandrel carrier.)

51. BOX-MACHINES, FOLDING, PLUNGER-AND-DIE. Machines which form boxes by folding into shape previously-prepared blanks by means of a plunger and die.
(Note.—Search should also be made in subclasses Box-machines, endless-mandrel carrier; Box-machines, folding, web-supply, driers, and Box-machines, folding, driers, in this class.)

52. BOX-MACHINES, FOLDING, STATIONARY FOLDERS. Machines which form boxes by folding into shape previously-prepared blanks by drawing the same over stationary folders or guides.
(Note.—Search should also be made in subclasses Envelop-machines, rotary, blank-supply, and rotary, web-supply, and Tube-machines, axial-feed, in this class.)

53. BOX-MACHINES, REFOLDERS. Machines for refolding or breaking on alternate edges previously-made boxes of rectangular form or tubes from which such boxes are to be made, so that the finished boxes will be equally flexible at all corners.

54. BOX-MACHINES, COVERING. Machines and appliances and parts and adjuncts of such machines and appliances for fixing covering material to boxes otherwise complete.

55. BOX-MACHINES, SETTING UP. Machines for setting together independent pieces of previously-prepared material to form boxes.

56. BOX-MACHINES, STAYING. Machines for applying strips of paper, cloth, or other material to the corners of paper boxes to secure the parts together or to strengthen the joint when otherwise secured.
(Note.—Machines for driving metallic stays into the corners of boxes are found in class 1, NAILING AND STAPLING.)

57. BOX-MACHINES, FLY-AFFIXERS. Machines for applying an inner fly or flap of ornamental paper to boxes otherwise complete.

58. BOX-MACHINES, CUTTING AND SCORING. Machines which cut and score box-blanks and machines which either cut or score such blanks and which are not of general application, but are specially designed for use in the manufacture of paper boxes.
(Note.—Search also in Box-machines the following subclasses: Miscellaneous; Cell-cases; Cell-cases, traveling-carrier, shifting-form; Folding and staying; Setting up and covering; Endless-mandrel carrier; Folding, web-supply; Folding, web-supply, driers; Folding, web-supply, plunger-and-die; Folding, web-supply, stationary folders; Covering; Staying.)

59. BOX-MACHINES, MANDRELS AND DIES. Mandrels, dies, and forming-blocks used in the manufacture of paper boxes.

60. BOX-MACHINES, PLAITING. Machines which make paper receptacles by plaiting the material from a single sheet or blank.

61. ENVELOP-MACHINES, MISCELLANEOUS. Machines for making envelops and parts and adjuncts of such machines which are not classified under more specific titles.

62. ENVELOP-MACHINES, ROTARY, BLANK-SUPPLY. Machines which make envelops from previously-cut blanks by means of continuously-operating rotary elements which gum and fold the blanks to complete the envelops.
(Note.—Search should also be made in subclasses Bag-machines, central-fold, and Envelop-machines, rotary, web-supply, in this class.)

63. ENVELOP-MACHINES, ROTARY, WEB-SUPPLY. Machines which make envelops from a continuous web by means of continuously-operating rotary elements which cut out the blanks and gum and fold the same to complete the envelops.
(Note.—Search should also be made in subclasses Bag-machines, central-fold, and Envelop-machines, rotary, blank-supply, in this class.)

64. ENVELOP-MACHINES, RECIPROCATING, WEB-SUPPLY. Machines which cut envelop-blanks from a continuous web, gum the same, and fold the blanks by means of reciprocating folding mechanism.

65. ENVELOP-MACHINES, RECIPROCATING, TURRET. Machines which gum previously-cut envelop-blanks and fold the same by means of reciprocating folding mechanism, the operating elements being arranged in the form of a turret, so that several blanks may be operated on at the same time.

66. ENVELOP-MACHINES, RECIPROCATING, GUMMING AND FOLDING. Machines which gum previously-cut envelop-blanks and fold the same by means of reciprocating folding mechanism.

67. ENVELOP-MACHINES, RECIPROCATING, FOLDING. Machines which are confined in their operation to folding previously cut and gummed envelop-blanks by means of reciprocating folding mechanism and parts and elements of such mechanism.

68. ENVELOP-MACHINES, RECIPROCATING, GUMMING. Machines which are confined in their operation to gumming previously-cut envelop-blanks as a step preliminary to the folding operation.

69. ENVELOP-MACHINES, RECIPROCATING, GUMMING, PICKER-FACES. Pads or heads for the gumming mechanism of envelop-machines.

70. ENVELOP-MACHINES, RECIPROCATING, CREASING MECHANISM. Devices which are confined in their operation to the creasing of envelop-blanks as a step preliminary to the operation of the folding mechanism.

71. ENVELOP-MACHINES, RECIPROCATING, CARRYING MECHANISM. Devices which are confined in their operation to the carrying of envelop-blanks from the stack to the creasing or the folding mechanism.

72. ENVELOP-MACHINES, RECIPROCATING, EJECTING MECHANISM. Devices which are confined in their operation to discharging or ejecting envelops from the folding-box into the receiving-box or drying-chain.

73. ENVELOP-MACHINES, PRINTING AND STAMPING. Printing and stamping machines, attachments, and appliances which are specially applicable for use in conjunction with envelop-machines and which are not of general application.

74. ENVELOP-MACHINES, DRYING. Drying-chains and other drying devices which are specially designed for use in conjuction with envelop-machines.

75. ENVELOP-MACHINES, DRYING, CHAIN-DISCHARGING. Devices which are confined in their operation to discharging or ejecting envelops from the drying devices into the counting-box or other receptacle.

76. Envelop-Machines, Thread-Affixers. Devices which are confined in their operation to applying a wire or thread to envelops as a means for opening the same.

77. Tube-Machines, Miscellaneous. Machines for making paper tubes and parts and adjuncts of such machines except such as are classified under more specific titles.

78. Tube-Machines, Fuse-Making. Machines which make fuses by forming a paper tube and filling the same with firing material.

79. Tube-Machines, Tapering-Wind. Machines for making tapered tubes, usually cigarette-holders, by winding a strip of paper over a tapered mandrel.

80. Tube-Machines, Spiral-Wind. Machines which wind one or more strips of paper spirally over a mandrel to form a tube.
(Note.—Search should also be made in class 153, Metal-Bending, Coiling, Traveling Die or Mandrel.

81. Tube-Machines, Convolute-Wind. Machines which wind a sheet of paper in a number of convolutions over a mandrel to form a tube.

82. Tube-Machines, Axial-Feed. Machines which feed a web of paper to a stationary mandrel in line with its axis and fold the same longitudinally to form a tube.
(Note.—Search should also be made in Box-machines, folding, web-supply, stationary folders. To complete a search in this class, inspection should be made of all the subclasses in 93, Paper Manufactures, Bag-Machines, which involve "web-formers.")

83. Tube-Machines, Sizing and Burnishing. Machines for reducing to uniform size and burnishing previously-made paper tubes.

84. Folding, Miscellaneous. Machines for making folded paper articles and parts and adjuncts of such machines, except such as are classified under more specific titles.
(Note.—Search should also be made in subclasses Bag-machines, web-formers, and Tube-machines, axial-feed, this class.)

85. Folding, Powder-Paper Machines. Machines for making folded powder-papers such as are used by physicians and druggists to incluse medicinal powders.

86. Folding, Radial-Fold. Machines for making radially-folded sheets of paper, usually filter-paper.

87. Tag-Machines, Miscellaneous. Machines for making shipping and marking tags and parts and adjuncts of such machines, except such as are classified under more specific titles.

88. Tag-Machines, Pin-Ticket Making and Attaching. Machines for making marking-tags, applying fastening pins or wires to the same, and securing the finished tag to the fabric to be marked.
(Note.—Search also subclass Box-machines, folding and stapling, this class. To complete the search for the pin making, attaching, and securing mechanism, the various subclasses of class 1, Nailing and Stapling, and of class 218, Button, Eyelet, and Rivet Setting, must be examined.)

89. Tag-Machines, Pin-Ticket Making. Machines for making marking-tags and for applying fastening pins or wires to the same.
(Note.—Search also subclass Box-machines, folding and stapling. To complete the search for the pin forming and attaching mechanism, the various subclasses of class 1, Nailing and Stapling, must be examined.)

90. Tag-Machines, Eyeleting. Machines for making marking or shipping tags which are provided with metallic eyelets.
(Note.—Search also subclasses Rivet-setting, implements, eyeleting; Machines, eyeleting, and Machines, eyeleting, magazine, in class 218, Button, Eyelet, and Rivet Setting.)

91. Tag-Machines, String-Attaching. Machines for making marking or shipping tags which are provided with securing strings or wires; also, machines for securing such strings to tags otherwise complete.

92. Tag-Machines, Washer-Attaching. Machines for making marking or shipping tags which have the perforated portion strengthened by washers secured around the opening.

93. Bunching and Banding. Machines for gathering manufactured paper articles into bunches of a predetermined number and machines for applying a band to such bunches already gathered and machines which both gather such articles and also band the same; mostly machines for counting, bunching, and banding for use with envelop-machines, but also includes machines for collecting and bunching other articles, such as bags, boxes, tags, etc.

94. Tubes. Includes all patents for paper tubes as articles of manufacture, except such as by reason of their peculiar construction are limited in use to some specific art.

Revision of Classification.

(Order No. 1,869.)

Department of the Interior,
United States Patent Office,
Washington, D. C., September 10, 1900.

The following change in the classification of inventions is hereby directed, to take effect this day:

In Division XIV, class 151, Nut and Bolt Locks, abolish all subclasses and substitute the following in lieu thereof:

Class 151.—NUT AND BOLT LOCKS.

2. Coupled nut and bolt—
5. Cross-key—
6. Spring-seated,
7. Elastic gripping action,
4. Flexible-key,
3. Flexible-washer,
8. Longitudinal-key,
Pawl-and-ratchet—
9. Bolt-carried pawl,
10. Nut-carried pawl—
11. Flexible,
12. Pivoted,
13. Washer-carried pawl,
14. Thread-lock—
19. Cam or cone grip.
20. Canted-nut,
21. Distorted-nut,
22. Distorted-thread,
23. Longitudinal-key,
24. Radial key or gib,
25. Side-clutch,
15. Superposed nuts—
16. Oppositely-threaded—
17. Key or pawl locked,
18. Side-locked,
26. Tangential-key,
27. Top-stop—
28. Positive-lock—
29. Side,
30. Thread-gripper,
31. Wedged slotted bolt.
1. Flowing metal.
32. Locked bolt.
33. Locked nut—
34. Base-clutch—
35. Biting-tooth—
36. Coiled-washer,

Locked nut—
Base-clutch—
37. Biting-tooth—
38. Nut-carried,
39. Friction,
Pawl-and-ratchet—
40. Nut-carried pawl,
41. Yielding interlocking washer,
42. Distorted,
43. Gravity nut or washer.
44. Side-lock—
49. Flexible—
50. Automatic—
51. Coiled washer,
52. Spring-tongued washer-plate,
53. Inelastic washer-tongue,
54. Longitudinal—
55. Nut-held—
56. Reversed-nut,
57. Side-pin,
58. Spike-heid,
59. Swinging,
60. Washer-tongue held,
48. Pawl-and-ratchet,
45. Rotatable washer—
46. Bent-tongue locked,
47. Pawl-locked,
61. Transversely-sliding—
62. Key, plate, or bar—
63. Nut-held,
64. Sliding-washer,
65. Transversely-swinging,
66. Transverse base-locking key.

C. H. DUELL,
Commissioner.

Class 151.—NUT AND BOLT LOCKS.

Definitions.

Class.

151. Nut and Bolt Locks. This class includes all special means which prevent or tend to prevent the rotation of a threaded nut or bolt, their relative rotation, or their endwise movement or separation.

Subclasses.

1. Flowing Metal. Includes fusible metal, which upon cooling locks the bolt or nut, and soft metal, some of whose parts by flowing or drawing lock the nut or bolt.

2. Coupled Nut and Bolt. The nut is locked to the bolt, so as to prevent their relative rotation or endwise separation.

3. Coupled Nut and Bolt, Flexible-Washer. A washer secured to the bolt has an inelastic portion turned against the nut after the nut is screwed on.
(Note.—Search should also be made in subclass Locked nut, side-lock, flexible, inelastic washer-tongue, in this class.)

4. Coupled Nut and Bolt, Flexible-Key. The nut and bolt are held together by a key which is bent after the nut is seated so as to form a connection between notches or slots in the nut and the bolt.

5. Coupled Nut and Bolt, Cross-Key. The nut and bolt are locked together by a key which has its locking portion lying transversely of the bolt.
(Note.—Keys which cut or bind against the threads of the nut or bolt are classified in subclasses Coupled nut and bolt, thread-lock, radial key or gib, and Coupled nut and bolt, thread-lock, tangential-key, this class.)

6. Coupled Nut and Bolt, Cross-Key, Spring-Seated. The key is forced to its seat by a spring.

7. Coupled Nut and Bolt, Elastic Gripping Action. The nut or washer is composed wholly or partly of elastic material, which grips the threaded or other part of the bolt.
(Note.—Search should also be made in subclasses Coupled nut and bolt, thread-lock, distorted-nut, and Coupled nut and bolt, thread-lock, superposed nuts, in this class.)

8. Coupled Nut and Bolt, Longitudinal-Key. The nut and bolt are locked together by a key whose locking portion extends longitudinally of the bolt.
(Note.—Keys which cut or bind against the threads are in Coupled nut and bolt, thread-lock, longitudinal-key.)

Coupled Nut and Bolt, Pawl-and-Ratchet. The nut and bolt are interlocked by pawl-and-ratchet mechanism, which automatically locks the nut or bolt from movement in one direction, but permits free movement in the other. Those pawl-like structures which are not automatic are regarded as keys.

9. Coupled Nut and Bolt, Pawl-and-Ratchet, Bolt-Carried Pawl. The bolt carries or holds from rotation a pawl which interlocks with ratchet-teeth in the nut.

10. Coupled Nut and Bolt, Pawl-and-Ratchet, Nut-Carried Pawl. The nut carries a pawl which rotates with the nut and interlocks with ratchet-teeth in the bolt.

11. Coupled Nut and Bolt, Pawl-and-Ratchet, Nut-Carried Pawl, Flexible. A flexible pawl interlocks with ratchet-teeth carried by the bolt or by a structure secured to the bolt.

12. Coupled Nut and Bolt, Pawl-and-Ratchet, Nut-Carried Pawl, Pivoted. The pawl carried by the nut moves on a pivot to lock and unlock.
(Note.—Search should also be made in subclass Coupled nut and bolt, thread-lock, side-clutch, in this class.)

13. Coupled Nut and Bolt, Pawl-and-Ratchet, Washer-Carried Pawl. The washer is secured to the bolt and carries a pawl which interlocks with a specially-made ratchet-surface of the nut. The corners of the ordinary nut are not regarded as forming a ratchet-surface.

14. Coupled Nut and Bolt, Thread-Lock. The nut is locked to the bolt directly or indirectly by the action upon the threads.

15. Coupled Nut and Bolt, Thread-Lock, Superposed Nuts. More than one nut is placed on a bolt, the outer one having some special construction or adjunct whereby it is adapted to lock the other nut. Jam-nuts are included only when they are specially adapted to serve as jam-nuts.
(Note.—Search should also be made in Coupled nut and bolt, elastic gripping-action; Coupled nut and bolt, top-stop, and Coupled nut and bolt, thread-lock, distorted-nut, in this class.)

16. Coupled Nut and Bolt, Thread-Lock, Superposed Nuts, Oppositely-Threaded. One nut has a right-hand thread and the other a left-hand thread, the threads coöperating with a similarly-threaded bolt.

17. Coupled Nut and Bolt, Thread-Lock, Superposed Nuts, Oppositely-Threaded, Key or Pawl Locked. The nuts are locked together by a key or by a pawl-and-ratchet mechanism

18. Coupled Nut and Bolt, Thread-Lock, Superposed Nuts, Oppositely-Threaded, Side-Locked. The nuts are locked together by a device engaging their sides.

19. Coupled Nut and Bolt, Thread-Lock, Cam or Cone Grip. The threads of the bolt are gripped by a cam-action between the nut and washer or other part or by the action of a cone and its coacting member forcing a part of the nut or washer against the bolt-threads.

20. Coupled Nut and Bolt, Thread-Lock, Canted-Nut. The nut at its final position tends to bend the bolt at the base of the nut. Usually the nut or the washer is wedge-shaped.

21. Coupled Nut and Bolt, Thread-Lock, Distorted-Nut. The whole or a part of the nut is distorted or changed in shape before, during, or after its application to the bolt, so that the threads of the nut grip the threads of the bolt.
(Note.—Search should also be made in Coupled nut and bolt, elastic gripping action, and Coupled nut and bolt, thread-lock, superposed nuts, in this class.)

22. Coupled Nut and Bolt, Thread-Lock, Distorted-Thread. The threads of the nut or bolt are during or after the application of the nut bent, crushed, or injured, so as to lock the nut and bolt from relative rotation.

23. Coupled Nut and Bolt, Thread-Lock, Longitudinal-Key. A key has its locking portion extending longitudinally of the bolt and biting or binding against the thread.

24. Coupled Nut and Bolt, Thread-Lock, Radial Key or Gib. A key or gib is moved radially toward the bolt and engages its threads.

25. Coupled Nut and Bolt, Thread-Lock, Side-Clutch. A device, not an integral part of the nut or bolt, clutches or bites the threads of the nut or bolt. The locking action in most cases resembles that of the pawl and ratchet, except the part engaged by such device has no coöperating notches.

26. Coupled Nut and Bolt, Thread-Lock, Tangential-Key. A key in the nut moves tangentially to the bolt and bites or binds against the threads thereof.

27. COUPLED NUT AND BOLT, TOP-STOP. A stop secured or locked to the bolt has a portion above the nut which locks the nut.
(Note.—Search should also be made in subclass Coupled nut and bolt, thread-lock, superposed nuts, in this class.)

28. COUPLED NUT AND BOLT, TOP-STOP, POSITIVE-LOCK. The stop, by a positive interlocking engagement with the nut, prevents the rotation of the nut on the bolt.
(Note.—Mere friction-locks are in the next preceding subclass.)

29. COUPLED NUT AND BOLT, TOP-STOP, POSITIVE-LOCK, SIDE. The nut is locked by a portion of the stop engaging the side of the nut.
(Note.—Search should also be made in subclass Locked nut, side-lock, in this class and the subclasses thereunder.)

30. COUPLED NUT AND BOLT, TOP-STOP, THREAD-GRIPPER. The stop is locked to the bolt by its gripping action on the bolt-threads.

31. COUPLED NUT AND BOLT, WEDGED SLOTTED BOLT. The bolt has a slit or slot in which a wedge-shaped device moves to cause the bolt-sections to expand against the nut. The said device may be removed.

32. LOCKED BOLT. Devices for locking the bolt regardless of whether the nut is locked or not, but does not include means for locking the bolt to the nut or the use of flowing metal.

33. LOCKED NUT. The nut is locked to the base or substructure, so as to prevent its rotation. Includes all means for locking the nut regardless of whether the bolt is locked or not, but does not include means for locking the nut to the bolt or the use of flowing metal.
(Note.—All rotatable washers will be cross-referenced into Locked nut, side-lock, rotatable-washer, or the subclasses thereunder.)

34. LOCKED NUT, BASE-CLUTCH. The base or inner face of the nut is clutched automatically to the substructure.

35. LOCKED NUT, BASE-CLUTCH, BITING-TOOTH. The base of the nut is locked to the substructure by the biting action of one or more teeth.

36. LOCKED NUT, BASE-CLUTCH, BITING-TOOTH, COILED-WASHER. The tooth bites the nut-base and is carried by a washer coiled about the bolt.

37. LOCKED NUT, BASE-CLUTCH, BITING-TOOTH, NUT-CARRIED. The biting tooth is carried by the nut as it is turned.
(Note.—Search should also be made in subclass Locked nut, side-lock, flexible, automatic, this class.)

38. LOCKED NUT, BASE-CLUTCH, FRICTION. The nut is held to the substructure by friction.
(Note.—Washers which yield as the nut is turned on, so as to raise their faces next to the sides of the nut above the base of the nut, are classified under Locked nut, side-lock, flexible, and Locked nut, side-lock, flexible, automatic, this class.)

39. LOCKED NUT, BASE-CLUTCH, PAWL-AND-RATCHET. Pawl-and-ratchet mechanism locks the base of the nut to the substructure. The pawl automatically locks against movement in one direction, but permits free movement in the other.
(Note.—Search should also be made in subclass Locked nut, side-lock, rotatable-washer, pawl-locked, in this class.)

40. LOCKED NUT, BASE-CLUTCH, PAWL-AND-RATCHET, NUT-CARRIED PAWL. The pawl is carried by the nut and locks under the base of the nut.
(Note.—Search should also be made in subclass Locked nut, side-lock, rotatable-washer, pawl-locked, in this class.)

41. LOCKED NUT, BASE-CLUTCH, PAWL-AND-RATCHET, YIELDING INTERLOCKING WASHER. The nut has a ratcheted base which interlocks with a yielding washer carrying ratchet-teeth.
(Note.—Washers with free yielding tongues are in Locked nut, base-clutch, pawl-and-ratchet, this class.)

42. LOCKED NUT, DISTORTED. After the nut is seated some portion of the nut is bent to engage the substructure.
(Note.—Search should also be made in subclass Locked nut, side-lock, rotatable-washer, bent-tongue locked.)

43. LOCKED NUT, GRAVITY NUT OR WASHER. The nut is heavier on one side of the bolt-hole than the other, or the nut is seated in and carried by a washer heavier on one side than the other.

44. LOCKED NUT, SIDE-LOCK. The side of the nut is locked to prevent rotation.

45. LOCKED NUT, SIDE-LOCK, ROTATABLE-WASHER. The washer and nut turn together as a single piece, there being a locking action between the washer and the substructure.
(Note.—All rotatable washers will be cross-referenced into this subclass, no matter how the washer and nut are connected.)

46. LOCKED NUT, SIDE-LOCK, ROTATABLE-WASHER, BENT-TONGUE LOCKED. The washer is locked to the nut and is prevented from rotation by bending a non-elastic portion thereof so as to engage a portion of the substructure.
(Note.—Search should also be made in subclass Locked nut, distorted, in this class.)

47. LOCKED NUT, SIDE-LOCK, ROTATABLE WASHER, PAWL-LOCKED. The washer and the substructure are interlocked by a pawl and ratchet. The pawl automatically locks against movement in one direction, but permits free movement in the other.
(Note.—Search should also be made in subclass Locked nut, side-lock, pawl-and-ratchet, in this class.)

48. LOCKED NUT, SIDE-LOCK, PAWL-AND-RATCHET. The nut is locked by pawl-and-ratchet mechanism. The pawl locks against movement in one direction, but permits it in the other. The corners of the nut are not regarded as ratchet-teeth.
(Note.—Pivoted devices locking against the side of the nut are classified in Locked nut, side-lock, transversely-swinging, and sliding devices having a similar function are classified in Locked nut, side-lock, transversely-sliding, in this class. Search should also be made in subclass Locked nut, side-lock, rotatable washer, pawl-locked, in this class.)

49. LOCKED NUT, SIDE-LOCK, FLEXIBLE. A flexible part of the locking device engages the side of the nut.

50. LOCKED NUT, SIDE-LOCK, FLEXIBLE, AUTOMATIC. The nut is automatically locked by a flexible device engaging the side thereof.

51. LOCKED NUT, SIDE-LOCK, FLEXIBLE, AUTOMATIC, COILED-WASHER. The nut is locked by a washer coiled about the bolt and having a portion automatically engaging the side of the nut.
(Note.—Search should also be made in subclass Locked nut, side-lock, flexible, inelastic washer-tongue.)

52. LOCKED NUT, SIDE-LOCK, FLEXIBLE, AUTOMATIC, SPRING-TONGUED WASHER-PLATE. A washer-plate has one or more spring locking-tongues engaging the side of the nut.
(Note.—Search should also be made in subclass Locked nut, side-lock, flexible, inelastic washer-tongue.)

53. LOCKED NUT, SIDE-LOCK, FLEXIBLE, INELASTIC WASHER-TONGUE. A washer has a non-elastic portion bent against the side of the nut after it is screwed to place. The washer must lock the nut which is seated thereon and not a nut seated on another washer.
(Note.—Search should also be made in subclasses Locked nut, side-lock, flexible, automatic, spring-tongued washer-plate, and Coupled nut and bolt, flexible-washer, in this class; also, Locked nut, side-lock, flexible, automatic, coiled-washer.)

54. LOCKED NUT, SIDE-LOCK, LONGITUDINAL. The locking device is, after the nut is seated, brought to locking position by a movement longitudinal of the bolt. The final locking movement alone is considered whatever previous movements the device has received.

55. LOCKED NUT, LONGITUDINAL, NUT-HELD. The nut which is locked holds in place its locking device. The locking device must not be held by a washer or other means applied under the nut before the seating thereof.

56. LOCKED NUT, LONGITUDINAL, NUT-HELD, REVERSED-NUT. After the nut has been seated and the locking device applied the nut is turned backwardly to lock said device.

57. LOCKED NUT, SIDE-LOCK, LONGITUDINAL, SIDE-PIN. A pin seated in the substructure is moved longitudinally of the bolt, so as to stand against the side of the nut.

58. LOCKED NUT, SIDE-LOCK, LONGITUDINAL, SPIKE-HELD. The locking device is held against the nut by a spike.

59. LOCKED NUT, SIDE-LOCK, LONGITUDINAL, SWINGING. The locking device swings to locking position against the side of the nut.
(Note.—Pawls engaging a ratcheted surface, not the sides of the common nut, are classified in Locked nut, side-lock, pawl-and-ratchet, in this class. Search should also be made in subclass Locked nut, side-lock, flexible, in this class.)

60. LOCKED NUT, SIDE-LOCK, LONGITUDINAL, WASHER-TONGUE HELD. The locking device is held in locking position by an integral portion of a washer standing over it.

61. LOCKED NUT, SIDE-LOCK, TRANSVERSELY-SLIDING. The locking device is slid transversely of the bolt after the nut is screwed on, so as to lock a side of the nut. The final locking movement alone is considered whatever previous movement the device has received.

62. LOCKED NUT, SIDE-LOCK, TRANSVERSELY-SLIDING, KEY, PLATE, OR BAR. The locking device is a key, plate, or bar.

63. LOCKED NUT, SIDE-LOCK, TRANSVERSELY-SLIDING, KEY, PLATE, OR BAR, NUT-HELD. The key, plate, or bar is held in place by the nut. The locking device must not be held by a washer or other means applied before the nut is seated.

64. LOCKED NUT, SIDE-LOCK, TRANSVERSELY-SLIDING, KEY, PLATE, OR BAR, SLIDING-WASHER. The locking device is a washer which is driven to locking position after the nut is seated, the washer bearing a stop to lock the side of the nut.

65. LOCKED NUT, SIDE-LOCK, TRANSVERSELY-SWINGING. The locking device swings transversely of the bolt after the nut is on, so as to engage a side of the nut.
(Note.—Pawl-and-ratchet mechanism where a special ratchet-face is employed may be found under Locked nut, side-lock, pawl-and-ratchet, this class. Flexible swinging devices are classified under Locked nut, side-lock, flexible, this class.)

66. LOCKED NUT, TRANSVERSE BASE-LOCKING KEY. A key extends transversely of the bolt between the base of the nut and the substructure.

Revision of Classification.

(ORDER NO. 1,372.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 3, 1898.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division V, class 11, Bookbinding, abolish subclass 5, Book cutting.

In Division XI abolish class 219, Punches.

In Division XV, class 30, Cutlery, abolish subclass 2, Buttonhole-cutters.

In Division XVII, class 101, Printing, abolish subclass 151, Feeding, sheet-cutters.

In Division XXIV, class 223, Apparel Apparatus, abolish the following subclasses:

5. Cutters—
6. Die,
7. Overboard—
8. Rotary,
9. Reciprocating—
10. Notchers,
Cutters—
11. Rotary—
12. Band-knife,
13. Traveling.

In Division XIV, class 81, Metal-Working Tools, establish subclass 82, Nut-lock tools.

In Division XIV abolish class 164, Metal Punching and Shearing, and all the subclasses thereof and establish in lieu of the same the following:

(Note.—Most of the patents in the groups of Cutters and Perforators in the former Class 93, PAPER MANUFACTURES, are included in the new Class 164, CUTTING AND PUNCHING SHEETS AND BARS.)

CLASS 164.—CUTTING AND PUNCHING SHEETS AND BARS.

1. Buttonholes—
3. Knives,
2. Machines,
4. Pliers—
5. Modified scissors,
6. Scissors attachments.
11. Combined machines—
18. Die cutting and punching,
14. Pivoted knife-carrier,
15. Reciprocating knife-carrier,
16. Roller-cutter and punch,
12. Work-feeding.
17. Cutting—
18. Die—
29. Dies—
31. Adjustable-face,
33. Blank-ejecting,
32. Multiple concentric.
30. Spiral-strip-cutting
19. Machines—
23. Reciprocating cross-head—
24. Shifting dies,
25. Reciprocating plunger—
26. Lever-operated,
27. Screw-operated,
28. Roller-die,
20. Work-feeding—
21. Reciprocating feeder,
22. Roller-feed,
80. Implements—
81. Pliers,
82. Sweep,
83. Traveling—
81. Roller-cutter,
34. Machines—
35. Band-knife,
78. Cutting-tables—
79. Work-clamping,
36. Fixed-cutter—
38. Work-feeding—
39 Roller-feed,
37. Spiral-strip,
40. Oscillating apertured cutters,
41. Pivoted-cutter—
44. Lever-operated—
46. Compound-lever-arge,
45. Work-clamping,
43. Transverse,
42. Work-feeding,
47. Reciprocating-cutter—
51. Automatic-clamp,
58. Cutters and bed blocks,
53. Draw-cut—
54. Automatic-clamp,
55. Separately-operated clamp,
56. Fluid-operated,
59. Gages,
57. Lever-operated,
50. Notched-work,
52. Separately-operated clamp,
48. Work-feeding—
49. Roller-feed,
60. Rotary-cutter—
63. Curved plate work,
Cutting—
Machines—
Rotary-cutter—
70. Cutters,
64. Notched-work,
69. Rotary work-mandrel,
65. Slitters and winders,
66. Transverse—
68. Work-feeding—
67. Printing-press attachments,
61. Work-feeding—
62. Reciprocating-feeder,
71. Sweep-cutter—
72. Elliptical work,
73. Traveling-cutter carriage—
74. Motor-driven cutter—
75. Reciprocating,
76. Rotary,
77. Roller-knife.
7. Fence-barbs—
8. Cutters and dies—
9. Roller,
10. Processes.
85. Punching—
119. Implements—
120. Pivoted handles—
121. Pliers—
122. Turret,
123. Traveling-roller.
86. Machines—
118. Dies and die-holders,
87. Feeding and punching—
88. Reciprocating-feed,
89. Roller-feed,
116. Feed mechanisms—
117. Reciprocating.
90. Gang—
91. Lever-operated—
92. Foot,
93. Pattern,
94. Hammer,
95. Hydraulic,
96. Lever-operated—
97. Foot,
98. Printers' rules,
111. Punch-selector—
112. Keyboard-controlled—
113. Electrically-operated,
114. Pattern-controlled—
115. Electrically-operated,
99. Roller—
100. Printing-press attachments,
101. Screw-operated,
102. Shaft-driven—
107. Safety devices,
104. Stop devices—
105. Shaft-clutch,
106. Stroke adjustments,
103. Tilting-frame,
110. Strippers and hold-downs,
109. Tie-band tongue,
108. Tube,
125. Processes,
124. Punches.

C. H. DUELL,
Commissioner.

CLASS 164.—CUTTING AND PUNCHING SHEETS AND BARS.

DEFINITIONS.

Class.

This class embraces machines and processes for cutting, including die cutting and punching sheets, plates, or bars of metal, cloth, rubber, leather, paper, etc.

Patents for splitting and skiving of leather are classified in 69, LEATHER-WORKING.

Patents for machines especially designed for working on boots and shoes, except die-cutting, are in the class of BOOT AND SHOE MAKING.

Subclasses.

1. BUTTONHOLES. Devices for cutting buttonholes, usually in cloth or leather.

2. BUTTONHOLES, MACHINES. Machines for cutting buttonholes.

3. BUTTONHOLES, KNIVES. Those having a knife form of cutter.

4. BUTTONHOLES, PLIERS. Those having a plier form.
(Note.—Search should also be made in Cutting, implements, pliers, and Punching, implements, pivoted handles, pliers, in this class.)

5. BUTTONHOLES, PLIERS, MODIFIED SCISSORS. Those in which an ordinary pair of scissors is modified to cut the buttonholes.

6. BUTTONHOLES, PLIERS, SCISSORS ATTACHMENTS. Devices adapted to be secured to ordinary scissors to cut the buttonholes.

7. FENCE-BARBS. Miscellaneous subclass of apparatus for cutting fence-barbs in strips of metal.

8. FENCE-BARBS, CUTTERS AND DIES. Those in which the novelty lies in the shape of the cutter or the die.
(Note.—Search should also be made in the following subclasses under the group of Cutting, this class: Die, machines, reciprocating-plunger; Machines, reciprocating-cutter; also, in Punching, machines, in this class.)

9. FENCE-BARBS, CUTTERS AND DIES, ROLLER. Those in which the strip is passed between rollers carrying the cutters or dies.
(Note.—Search should also be made in the following subclasses under Cutting:—Die, machines, roller-die; Machines, rotary-cutter; Machines, traveling-cutter-carriage, roller-knife; also, in Punching, machines, roller, and Combined machines, roller-cutter and punch, this class.)

10. FENCE-BARBS, PROCESSES. Processes of cutting out the fence-barbs.

11. COMBINED MACHINES. Miscellaneous subclass of machines each adapted to perform both the operations of cutting and punching.

12. COMBINED MACHINES, WORK-FEEDING. Those combined machines which also have novelty in the mechanism for feeding the work to the operating parts.
(Note.—Search also under Cutting, die, machines:—Work-feeding; Work-feeding, reciprocating-feeder; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; Rotary-cutter, work-feeding; also, Punching, machines, feeding and punching, and Punching, machines, feed mechanisms, all in this class.)

13. COMBINED MACHINES, DIE CUTTING AND PUNCHING. Each machine is adapted to both die cut and punch.

14. COMBINED MACHINES, PIVOTED KNIFE-CARRIER. Those combined machines in which the cutter or part to which it is attached is pivoted. The punch is usually either directly attached to this pivoted carrier or is actuated directly by it.

15. COMBINED MACHINES, RECIPROCATING KNIFE-CARRIER. The knife or its carrier has a reciprocating movement. The punch is usually a separate plunger; but sometimes both cutter and punch are attached to the same plunger or head.

16. COMBINED MACHINES, ROLLER CUTTER AND PUNCH. A roller or cylinder carries cutters and punches upon its periphery.

17. CUTTING. Miscellaneous subclass of cutting apparatus or processes.

18. CUTTING, DIE. Miscellaneous subclass of machines or processes for stamping out articles by dies.

19. CUTTING, DIE, MACHINES. Miscellaneous subclass of die-cutting machines.

20. CUTTING, DIE, MACHINES, WORK-FEEDING. Those machines having also feeding mechanism attached.
(Note.—Search also Combined machines, work-feeding, and under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; Rotary-cutter, work-feeding; also, Punching, machines, feeding and punching, and Punching, machines, feed mechanisms, all in this class.)

21. CUTTING, DIE, MACHINES, WORK-FEEDING, RECIPROCATING-FEEDER. The feeding device has a reciprocating movement.
(Note.—Search also under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments; also, under Punching, machines:—Feeding and punching; Feed mechanisms, reciprocating; also, Combined machines, work-feeding, all in this class.)

22. CUTTING, DIE, MACHINES, WORK-FEEDING, ROLLER-FEED. Work is fed to the machine by rolls.
(Note.—Search should also be made in Combined machines, working-feeding; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments, and under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms, all in this class.)

23. CUTTING, DIE, MACHINES, RECIPROCATING CROSS-HEAD. That type of machine having a cross head or bar, with guides at its ends, adapted to reciprocate with the attached die.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, and in Punching, machines, and Punching, machines, shaft-driven, in this class, and in Punching, cutters, and Punching, cutters, fixed-die, in class 144, WOODWORKING.)

24. CUTTING, DIE, MACHINES, RECIPROCATING CROSS-HEAD, SHIFTING DIES. Several dies, as right and left dies for shoe-soles, are adapted to be alternately or successively brought to operative position.

25. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER. The die is carried at the end of a simple plunger.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter; Punching, machines, and Punching, machines, shaft-driven, in this class; and Punching, cutters, and Punching, cutters, fixed-die, in class 144, WOODWORKING.)

26. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER, LEVER-OPERATED. Those in which the plunger is operated by a lever or system of levers.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, foot, all in this class.)

27. CUTTING, DIE, MACHINES, RECIPROCATING-PLUNGER, SCREW-OPERATED. The die-carrying plunger is adapted to be forced down by a screw.
(Note.—Search should also be made in Punching, machines, screw-operated, in this class.)

28. CUTTING, DIE, MACHINES, ROLLER-DIE. Those in which the cutting-die is secured to the periphery of a cylinder.
(Note.—Search should also be made in Fence-barbs, cutters and dies, roller; Cutting, machines, rotary-cutter, and in Punching, machines, roller, in this class.)

29. CUTTING, DIE, DIES. Various structures of dies for dieing or stamping out articles.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, cutters and bed-blocks, and Punching, machines, dies and die-holders, in this class.)

30. CUTTING, DIE, DIES, SPIRAL-STRIP CUTTING. The die is spiral on its face, so that a coiled strip or string can be stamped out at one operation.

31. CUTTING, DIE, DIES, ADJUSTABLE-FACE. The face of the die can be adjusted to vary its size or its contour.

32. CUTTING, DIE, DIES, MULTIPLE CONCENTRIC. Two or more dies are placed one within the other. Sometimes, as in stamping out washers, both or all dies are used simultaneously, while in other cases any one of the dies can be used alone.

33. CUTTING, DIE, DIES, BLANK-EJECTING. The die has means for ejecting the blank or piece from the die after the blank is stamped out.

34. CUTTING, MACHINES. Miscellaneous subclass of cutting-machines.

35. CUTTING, MACHINES, BAND-KNIFE. Those in which the cutter is of band or belt form and travels over pulleys or sheaves.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, motor-driven cutter, in this class.

36. CUTTING, MACHINES, FIXED-CUTTER. Machines having a stationary cutter or cutters, the work usually being fed or drawn along against the knife; usually strap and string trimmers and arrangements for slitting various fabrics.

37. CUTTING, MACHINES, FIXED-CUTTER, SPIRAL STRIPS. Those which are adapted to cut strings from disks, usually of leather. The disk is made to turn upon its center, while the string is continuously cut by the knife at the edge of the disk.

38. CUTTING, MACHINES, FIXED-CUTTER, WORK-FEEDING. Those having also a mechanism for feeding the work to or past the cutters.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, reciprocating-feeder; under Cutting, machines:—Pivoted-cutter, work-feeding, and Reciprocating-cutter, work-feeding; under Cutting, machines, rotary-cutter:—Transverse, work-feeding, printing-press attachments; Work-feeding, and Work-feeding, reciprocating-feeder, and under Punching machines:—Feeding and punching, and Feeding and punching, reciprocating-feed; Feed mechanisms, and Feed mechanisms, reciprocating, all in this class.)

39. CUTTING, MACHINES, FIXED-CUTTER, WORK-FEEDING, ROLLER-FEED. Those in which the work is fed by rolls.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; Cutting, machines, pivoted-cutter, work-feeding, and Cutting, machines, reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Transverse, work-feeding, and Transverse, work-feeding, printing-press attachments; Work-feeding; and Punching, machines, feeding and punching, roller-feed; also, Punching, machines, feed mechanisms, all in this class.)

40. CUTTING, MACHINES, OSCILLATING APERTURED CUTTERS. Those having two apertured plates or disks, the apertures being shaped to fit the material to be cut and placed coincident, and one or both plates are rotated to shear off the inserted bar or rail.

41. CUTTING, MACHINES, PIVOTED-CUTTER. Those in which the cutter or the part to which it is attached is pivoted.

42. CUTTING, MACHINES, PIVOTED-CUTTER, WORK-FEEDING. Those having mechanism for feeding the work to the cutter.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, transverse, work-feeding, Rotary-cutter, transverse, work-feeding, printing-press attachments; Rotary-cutter, work-feeding, reciprocating-feeder, and under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed; Feeding and punching, reciprocating-feed, roller-feed; Feed mechanisms, and Feed mechanisms, reciprocating, all in this class.)

43. CUTTING, MACHINES, PIVOTED-CUTTER, TRANSVERSE. Those in which the cutter lies parallel to the pivot or axis and operates, like the jaws of a pair of nippers, to cut transversely or across the length of the material.

44. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED. Those in which the pivoted cutter is operated by a lever.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, reciprocating-cutter, lever-operated, and under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

45. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED, WORK-CLAMPING. Those in which mechanism is provided for clamping the work while the pivoted cutter shears the material.
(Note.—Search also under Cutting, machines:—Cutting-tables, work-clamping; Reciprocating-cutter, draw-cut, separately-operated clamp, and Reciprocating-cutter, separately-operated clamp, in this class, and Clamps, in class 144, WOODWORKING.)

46. CUTTING, MACHINES, PIVOTED-CUTTER, LEVER-OPERATED, COMPOUND-LEVERAGE. Those in which the cutter is operated by a system of levers.
(Note.—Search also Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

47. CUTTING, MACHINES, RECIPROCATING-CUTTER. Miscellaneous subclass of machines having a reciprocating cutter.
(Note.—Search also Combined machines, reciprocating knife-carrier; under Cutting, die, machines:—Reciprocating cross-head, and Reciprocating-plunger, and Cutting, machines, traveling cutter-carriage, motor-driven cutter, reciprocating; under Punching, Machines:—Machines, gang; Machines, shaft-driven, and Machines, tie-band tongue, all in this class. Also 93, PAPER MANUFACTURES, Bag-machines, cutting; 144, WOODWORKING, Punching, cutters, and Punching, cutters, fixed-die; 144, WOODWORKING, Slicers, and 144, WOODWORKING, Splitting.)

48. CUTTING, MACHINES, RECIPROCATING-CUTTER, WORK-FEEDING. Those also having mechanism for feeding the work to the cutter.
(Note.—Search also Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, reciprocating-feeder; under Cutting, machines:—Pivoted-cutter, work-feeding; Fixed-cutter, work-feeding; under Cutting, machines, rotary-cutter:—Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; Work-feeding; Work-feeding, reciprocating-feeder; under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed; Feed mechanisms; Feed mechanisms, reciprocating, all in this class.)

49. CUTTING, MACHINES, RECIPROCATING-CUTTER, WORK-FEEDING, ROLLER-FEED. Those in which the work is fed by rolls.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding, and Rotary-cutter, transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms, all in this class.)

50. CUTTING, MACHINES, RECIPROCATING-CUTTER, NOTCHED-WORK. Those adapted to cut notches or scallops in the edges of materials, such as cloth for garments, leather for the button-flies of shoes, metal for currycomb-teeth, etc. Edge-pinking machines are here included.
(Note.—Search should also be made in Cutting, machines, rotary-cutter, notched-work, in this class.)

51. CUTTING, MACHINES, RECIPROCATING-CUTTER, AUTOMATIC-CLAMP. Those having clamping mechanism for holding the material, which mechanism is automatic in its action as distinguished from those machines in which the work-clamp is set up by hand.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, draw-cut, automatic-clamp, and Punching, machines, strippers, and hold-downs, in this class.)

52. CUTTING, MACHINES, RECIPROCATING-CUTTER, SEPARATELY-OPERATED CLAMP. Those in which the work-clamp is set up by hand.
(Note.—Search should also be made in Cutting, machines, pivoted-cutter, lever-operated, work-clamping; Cutting, machines, reciprocating-cutter, draw-cut, separately-operated clamp, and, Cutting, machines, cutting-tables, work-clamping, all in this class.)

53. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT. Those in which the reciprocating knife has also an endwise-shearing movement, usually in machines for cutting piles of paper.

54. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT, AUTOMATIC-CLAMP. Those having an automatic mechanism for clamping the work as distinguished from a hand-operated clamp.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, automatic-clamp, and Punching, machines, strippers, and holddowns, in this class.)

55. CUTTING, MACHINES, RECIPROCATING-CUTTER, DRAW-CUT, SEPARATELY-OPERATED CLAMP. Those in which the work-clamp is set up by hand.
(Note.—Search should also be made in the following subclasses under Cutting, machines:—Cutting-tables, work-clamping; Pivoted-cutter, lever-operated, work-clamping, and Reciprocating-cutter, separately-operated clamp, in this class.)

56. CUTTING, MACHINES, RECIPROCATING-CUTTER, FLUID-OPERATED. Those in which some fluid, as water, steam, etc., is employed to operate them.
(Note.—Search should also be made in Punching, machines, hydraulic, in this class.)

57. CUTTING, MACHINES, RECIPROCATING-CUTTER, LEVER-OPERATED. Those in which the cutter is actuated by lever movement.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; Cutting, machines, pivoted-cutter, lever-operated; Cutting, machines, pivoted-cutter, lever-operated, compound-leverage; under Punching, machines:—Gang, lever-operated; Gang, lever-operated, foot; Lever-operated, and Lever-operated, foot, all in this class.)

58. CUTTING, MACHINES, RECIPROCATING-CUTTER, CUTTERS AND BED-BLOCKS. Those patents in which the novelty lies in the cutter or the block which opposes or receives the thrust of the cutter.
(Note.—Search also Punching, machines, dies, and die-holders, in this class.)

59. CUTTING, MACHINES, RECIPROCATING-CUTTER, GAGES. Those in which the novelty lies in the gage or guide for determining the position of the cut with respect to the work; usually regulates the length of part cut off.

60. CUTTING, MACHINES, ROTARY-CUTTER. Those having a cutter which when in operation is rotated.
(Note.—Search should also be made in Punching, machines, roller, in this class, and in Bag-machines, cutting, in class 93, PAPER MANUFACTURES.)

61. CUTTING, MACHINES, ROTARY-CUTTER, WORK-FEEDING. Those machines which include mechanism for feeding the work to the cutter.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding, and Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, and Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching; Feeding and punching, roller-feed; Feed mechanisms, all in this class.)

62. CUTTING, MACHINES, ROTARY-CUTTER, WORK-FEEDING, RECIPROCATING-FEEDER. Those in which the feeder has a reciprocating motion.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines:—Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; under Cutting, machines, rotary-cutter: Transverse, work-feeding; under Punching, machines:—Feeding and punching, reciprocating-feed; Feed mechanisms, reciprocating, all in this class.)

63. CUTTING, MACHINES, ROTARY-CUTTER, CURVED-PLATE-WORK. Those for cutting disks or elliptical shapes. Usually the material is rotated about its center and a pair of opposed cutting-disks engage, one above and one below, the work near its edge and trim it to shape. Sometimes the work is stationary and the cutters travel around the edge.

64. CUTTING, MACHINES, ROTARY-CUTTER, NOTCHED-WORK. Those machines which pink, notch, or scallop the edges of various materials.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, notched-work, in this class.)

65. CUTTING, MACHINES, ROTARY-CUTTER, SLITTERS AND WINDERS. Those adapted to trim or cut into strips continuous webs and wind them up upon spools or drums. Many wall-paper-trimming machines are here included.

66. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE. Those in which the plane of the knife is parallel to the axis of rotation, as in an ordinary lawn-mower, and which cut the web of material transversely of its length.
(Note.—Search should also be made in class 144, WOODWORKING, Cutters, rotary, cylindrical, slotted bit-seat, and in Cutters, rotary, cylindrical, spiral-bit.)

67. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE, WORK-FEEDING, PRINTING-PRESS ATTACHMENTS. Those machines adapted to be attached to printing-presses to feed and cut the paper into lengths.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Punching, machines:—Feeding and punching, roller-feed, and Feed mechanisms; Cutting, machines, rotary-cutter, work-feeding; Cutting, machines, rotary-cutter, work-feeding, reciprocating-feeder, this class.)

68. CUTTING, MACHINES, ROTARY-CUTTER, TRANSVERSE, WORK-FEEDING. Those machines which have also feeding mechanism for the work.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding; Work-feeding, reciprocating-feeder; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Transverse, work-feeding, printing-press attachments; Work-feeding; and Work-feeding, reciprocating-feeder; under Punching, machines:—Feeding and punching; Feeding and punching, reciprocating-feed; Feeding and punching, roller-feed; Feed mechanisms; Feed mechanisms, reciprocating, all in this class.)

69. CUTTING, MACHINES, ROTARY-CUTTER, ROTARY WORK-MANDREL. Those in which the work is carried upon a rotary work-mandrel while being cut, as in cutting paper or other tubes into lengths, cutting rubber, leather or leather-board strings, rings, etc.

70. CUTTING, MACHINES, ROTARY-CUTTER, CUTTERS. Those patents in which the novelty resides in the cutter.

71. CUTTING, MACHINES, SWEEP-CUTTER. Those for cutting disks and curved shapes by a knife which is carried at the end of a sweep-arm.
(Note.—Search should also be made in Cutting, implements, sweep, in this class.)

72. CUTTING, MACHINES, SWEEP-CUTTER, ELLIPTICAL WORK. Those in which means is provided to move the knife or the work so as to make elliptical shapes.
(Note.—Search should also be made in Cutting, implements, sweep, in this class.)

73. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE. Miscellaneous subclass of those machines in which the cutter is moved about over the stationary work. Machines for cutting out garments, picture-mats, trimming cardboard, paper, etc., are here included.
(Note.—Search should also be made in Cutting, implements, traveling, and Punching, implements, traveling-roller, in this class.)

74. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER. Those in which the cutter is given a separate cutting movement by a motor, in addition to such motion as is imparted to it by being moved by hand. The garment "overboard" cutters are here included.
(Note.—Search should also be made in Cutting, implements, traveling, in this class.)

75. CUTTING MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER, RECIPROCATING. Those in which the motor gives a reciprocating movement to the cutter.
(Note.—Search should also be made in Combined machines, reciprocating knife-carrier; Cutting, die, machines, reciprocating-plunger; Cutting, machines, reciprocating-cutter; Punching, machines, and Punching, machines, shaft-driven, all in this class.)

76. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, MOTOR-DRIVEN CUTTER, ROTARY. Those in which the motor gives a rotary movement to the cutter.
(Note.—Search should also be made in Cutting, implements, traveling, roller-cutter, and Punching, implements, traveling-roller, in this class.)

77. CUTTING, MACHINES, TRAVELING CUTTER-CARRIAGE, ROLLER-KNIFE. Those in which the cutter rolls along as the carriage is moved over the board by hand.
(Note.—Search also Combined machines, roller-cutter and punch; Cutting, die, machines, roller-die; Cutting, implements, traveling, roller-cutter; Cutting, machines, rotary-cutter; Punching, implements, traveling-roller, and Punching, machines, roller, this class.)

78. CUTTING, MACHINES, CUTTING-TABLES. Tables or boards on which material is laid while being cut; tailors' cutting-boards, tables on which photograph and other cards are trimmed; also some die-blocks.

79. CUTTING, MACHINES, CUTTING-TABLES, WORK-CLAMPING. Those work-tables supplied with means for clamping the material.
(Note.—Search should also be made in Cutting, machines, pivoted-cutter, lever-operated, work-clamping; Cutting, machines, reciprocating-cutter, separately-operated clamp, and Cutting, machines, reciprocating-cutter, draw-cut, separately-operated clamp, in this class, and Clamps, in class 144, WOODWORKING.)

80. CUTTING, IMPLEMENTS. Miscellaneous subclass of hand implements for cutting sheet materials.
(Note.—Search should also be made in Punching, implements, in this class.)

81. CUTTING, IMPLEMENTS, PLIERS. The hand implement is in the form of a plier.
(Note.—Search should also be made in Punching, implements, pivoted handles, pliers, and Buttonholes, pliers, in this class.)

82. CUTTING, IMPLEMENTS, SWEEP. The implement has a sweep action, as in cutting rings, disks, and segments; includes bits for either the usual hand-brace or a machine.
(Note.—Search should also be made in Cutting, machines, sweep-cutter, and Cutting, machines, sweep-cutter, elliptical-work, in this class, and in Augers, sweeps, in class 145, WOODWORKING TOOLS; also, in Special-work machines, single or combined, disk-cutting, sweep-cutter, in class 144, WOODWORKING.

83. CUTTING, IMPLEMENTS, TRAVELING. Hand implements adapted to be moved generally in a straight line over the material in cutting it to shape, usually to trim or cut into lengths or strips, as leather-cutting gages, wall-paper trimmers, etc.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, and Cutting, machines, traveling cutter-carriage, motor-driven cutter, in this class.)

84. CUTTING, IMPLEMENTS, TRAVELING, ROLLER-CUTTER. Those in which the cutter is a disk.
(Note.—Search should also be made in Cutting, machines, traveling cutter-carriage, motor-driven cutter, rotary; and Cutting, machines, traveling cutter-carriage, roller-knife; also, in Punching, implements, traveling-roller, in this class.)

85. PUNCHING. Miscellaneous subclass of apparatus and processes for punching holes in sheets and bars. Under Cutting, die, will be found those machines which punch out blanks when the object is to secure the blank, while those machines which punch holes, when the object is to get a perforated strip, sheet, or bar, are here included in the subclasses of Punching.

86. PUNCHING, MACHINES. Miscellaneous subclass of machines for punching holes.
(Note.—Search should also be made in Cutting, die, machines; Cutting, machines; Cutting, machines, reciprocating-cutter, and Fence-barbs, cutters, and dies, in this class.)

87. PUNCHING, MACHINES, FEEDING AND PUNCHING. Those adapted to feed the material as well as punch it.
(Note.—Search also Combined machines, work-feeding; Cutting, die, machines, work-feeding; under Cutting, machines: Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding, and Punching, machines, feed mechanisms, in this class.)

88. PUNCHING, MACHINES, FEEDING AND PUNCHING, RECIPROCATING-FEED. Those in which the feeding mechanism has a reciprocating movement.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding, and Punching, machines, feed mechanisms, reciprocating, in this class.)

89. PUNCHING, MACHINES, FEEDING AND PUNCHING, ROLLER-FEED. Those having the work fed by rolls.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; Rotary-cutter, work-feeding; Rotary-cutter, transverse, work-feeding; Rotary-cutter, transverse, work-feeding, printing-press attachments, and Punching, machines, feed mechanisms, all in this class.)

90. PUNCHING, MACHINES, GANG. Those having a series of punches.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, in this class.)

91. PUNCHING, MACHINES, GANG, LEVER-OPERATED. Those in which the punch is operated by lever action.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; Punching, machines, lever-operated, and Punching, machines, lever-operated, foot, all in this class.)

92. PUNCHING, MACHINES, GANG, LEVER-OPERATED, FOOT. The lever is operated by foot.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Lever-operated, and Lever-operated, foot, all in this class.)

93. PUNCHING, MACHINES, GANG, PATTERN. Those in which the punches are so arranged as to punch out some pattern or design. Some permit of varying the design by rearranging the punches or leaving out some.

94. PUNCHING, MACHINES, HAMMER. Those machines in which a separate implement or the operator's hand is used to strike the punching-plunger.

95. PUNCHING, MACHINES, HYDRAULIC. Those in which the punch is operated by water.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, fluid-operated, in this class.)

96. PUNCHING, MACHINES, LEVER-OPERATED. Those in which the punch is operated by lever action.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines: Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines: Gang, lever-operated, and Gang, lever-operated, foot, all in this class.)

97. PUNCHING, MACHINES, LEVER-OPERATED, FOOT. The operating-lever is moved by foot.
(Note.—Search should also be made in Combined machines, pivoted knife-carrier; Cutting, die, machines, reciprocating-plunger, lever-operated; under Cutting, machines:—Pivoted-cutter, lever-operated; Pivoted-cutter, lever-operated, compound-leverage; Reciprocating-cutter, lever-operated; under Punching, machines:—Gang, lever-operated, and Gang, lever-operated, foot, all in this class.)

98. PUNCHING, MACHINES, PRINTERS' RULES. Small rules adapted to be placed in printing-presses to mark the paper sheets.

99. PUNCHING, MACHINES, ROLLER. Those having the punches on the periphery of a disk, cylinder, or other roller.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, roller-die; Cutting, machines, rotary-cutter; Cutting, machines, traveling cutter-carriage, roller-knife, and Punching, implements, traveling-roller, all in this class.)

100. PUNCHING, MACHINES, ROLLER, PRINTING-PRESS ATTACHMENTS. Attachments for printing-presses in which a rotary perforator contacts, usually with the cylinder of the press, to perforate the paper along certain lines either for pointing or for separation of the paper into sheets.

101. PUNCHING, MACHINES, SCREW-OPERATED. Those in which the punch is forced down by a screw.
(Note.—Search should also be made in Cutting, die, machines, reciprocating-plunger, screw-operated, in this class.)

102. PUNCHING, MACHINES, SHAFT-DRIVEN. Those in which the plunger, gate, or head is actuated by a rotary power-shaft, usually by cam or crank connection; principally machines for heavy work.
(Note.—Search should also be made in Buttonholes, machines; Cutting, die, machines, reciprocating cross-head; Cutting, die, machines, reciprocating plunger; Cutting, machines, reciprocating-cutter; Cutting, machines, traveling cutter-carriage, moter-driven cutter, reciprocating, all in this class.)

103. PUNCHING, MACHINES, SHAFT-DRIVEN, TILTING-FRAME. Those in which the frame carrying the punch can be tilted so as to work at any angle desired.

104. PUNCHING, MACHINES, SHAFT-DRIVEN, STOP DEVICES. Gags or other arrangements for disengaging the punch from the operating mechanism so as to avoid stopping the entire machine while the punch is inoperative.

105. PUNCHING, MACHINES, SHAFT-DRIVEN, STOP DEVICES, SHAFT-CLUTCH. Clutches for disengaging the rotating shaft from the other parts of the machine to permit the punch to remain stationary.

106. PUNCHING, MACHINES, SHAFT-DRIVEN, STROKE ADJUSTMENTS. Arrangements for adjusting the descent of the punch.

107. PUNCHING, MACHINES, SHAFT-DRIVEN, SAFETY DEVICES. Devices for automatically pushing away the operator's hands before the punch descends or which otherwise operate to prevent injury to the operator.

108. PUNCHING, MACHINES, TUBE. Those adapted to punch holes in tubes, usually thin-metal tubes.
(Note.—Search should also be made in Punching, machines, dies and die-holders, in this class.)

109. PUNCHING, MACHINES, TIE-BAND TONGUE. Those adapted to punch locking-tongues in tie-bands.
(Note.—Search also should be made in Punching, punches, in this class.)

110. PUNCHING, MACHINES, STRIPPERS AND HOLD-DOWNS. Attachments for stripping the material off the punch as the latter rises or for holding the material firmly while the punch is descending.
(Note.—Search should also be made in Cutting, machines, reciprocating-cutter, automatic-clamp, and Cutting, machines, reciprocating-cutter, draw-cut, automatic-clamp, in this class.)

111. PUNCHING, MACHINES, PUNCH-SELECTOR. Machines, usually for perforating paper, in which a series or gang of punches is employed and from which series any number or set may be selected by the operator to perforate a design, pattern, or character. In some cases the entire design is selected by locking into operative position the desired punches, and all are then simultaneously forced through the material. In other cases each punch is made to perforate as it is selected. These perforated strips or cards are used for operating self-playing instruments, for Jacquard looms, type-setting machines, printing-telegraphs, etc. Strips which are perforated in a telegraphic circuit where they act as receivers are not here included.

112. PUNCHING, MACHINES, PUNCH-SELECTOR, KEYBOARD-CONTROLLED. Those in which a keyboard is used by operating the keys of which the pattern is selected.

113. PUNCHING, MACHINES, PUNCH-SELECTOR, KEYBOARD-CONTROLLED, ELECTRICALLY-OPERATED. Those in which by depressing the selected key a circuit is closed and one or more punches actuated.

114. PUNCHING, MACHINES, PUNCH-SELECTOR, PATTERN-CONTROLLED. Those in which the selection of the punches is controlled by a pattern card or strip, so as to duplicate the pattern.

115. PUNCHING, MACHINES, PUNCH-SELECTOR, PATTERN-CONTROLLED, ELECTRICALLY-OPERATED. Those in which the pattern permits through its perforations the closing of the punch-actuating circuits to duplicate the pattern.

116. PUNCHING, MACHINES, FEED MECHANISMS. Those in which the only novelty lies in the mechanism for feeding the work.
(Note.—Search should also be made in Combined machines, work-feeding; under Cutting, die, machines:—Work-feeding; Work-feeding, roller-feed; under Cutting, machines:—Fixed-cutter, work-feeding; Fixed-cutter, work-feeding, roller-feed; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Reciprocating-cutter, work-feeding, roller-feed; under Cutting, machines, rotary-cutter:—Work-feeding; Transverse, work-feeding; Transverse, work-feeding, printing-press attachments; under Punching, machines:—Feeding and punching; Feeding and punching, roller-feed, all in this class.)

117. PUNCHING, MACHINES, FEED MECHANISMS, RECIPROCATING. Those in which the only novelty lies in a reciprocating feed device.
(Note.—Search should also be made in Combined machines, work-feeding; Cutting, die, machines, work-feeding, reciprocating-feeder; under Cutting, machines:—Fixed-cutter, work-feeding; Pivoted-cutter, work-feeding; Reciprocating-cutter, work-feeding; Rotary-cutter, work-feeding, reciprocating-feeder; Rotary-cutter, transverse, work-feeding, and Punching, machines, feeding and punching, reciprocating-feed, all in this class.)

118. PUNCHING, MACHINES, DIES AND DIE-HOLDERS. Those in which the novelty lies in the die which receives the thrust of the punch or in the means for holding the die.
(Note.—Search should also be made in Cutting, die, dies; Cutting, machines, reciprocating-cutter, cutters and bed-blocks, and Punching, machines, tube, all in this class.)

119. PUNCHING, IMPLEMENTS. Miscellaneous subclass of hand implements.
(Note.—Search should be made in Buttonholes, and in Cutting, implements, in this class.)

120. PUNCHING, IMPLEMENTS, PIVOTED HANDLES. Those in which the handles of the implements are pivoted together, as in conductors' punches.

121. PUNCHING, IMPLEMENTS, PIVOTED HANDLES, PLIERS. Those hand implements which take the form of pliers.
(Note.—Search should also be made in Buttonholes, pliers, and in Cutting, implements, pliers, in this class.)

122. PUNCHING, IMPLEMENTS, PIVOTED HANDLES, PLIERS, TURRET. One member of the pliers carries a turret which may be rotated to bring any one of several different punches into operative position.

123. PUNCHING, IMPLEMENTS, TRAVELING-ROLLER. Hand implements to be run over a stationary surface to perforate it, as in marking, etc.
(Note.—Search should also be made in Cutting, implements, traveling, roller-cutter; Cutting, machines, traveling cutter-carriage, roller-knife, both in this class.)

124. PUNCHING, PUNCHES. Those in which the novelty lies in the punch.
(Note.—Search should also be made in Punching, machines, tie-band tongue, in this class.)

125. PUNCHING, PROCESSES. Various methods or processes of punching.

Revision of Classification.

(Order No. 1,378.)

Department of the Interior,
United States Patent Office,
Washington, D. C., October 31, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division XXXV, class 40, Advertising, abolish subclasses—

28. Display-cards. 32. Pattern-exhibitors.

In Division VIII, class 211, Store Furniture, establish subclasses—

34. Display-cards. 35. Pattern-exhibitors.

In Division XXXV, class 180. Accoutrements, abolish subclass 1, Accoutrements.

In Division XXIV, class 2, Apparel, establish subclass 150, Trimmings, shoulder-straps and chevrons.

In Division XIII, abolish all the subclasses of class 90, Gear-cutting, Milling, and Planing, and establish the following subclasses in lieu thereof:

CLASS 90.—GEAR-CUTTING, MILLING, AND PLANING.

1. Gear-cutting—
2. Intermeshing-generator,
8. Reciprocating-cutter—
10. Templet-guide,
9. Tooth-curve generating,
3. Rotating-cutter—
7. Axially-traveling,
5. Bevel gears,
6. Blank-pillar and cutter-slide,
4. Helical gears.
56. Indexing—
57. Index-heads.
11. Milling—
16. Adjustable cutter-axis—
17. Angular,
Movable cutter-axis—
14. Axial,
15. Lateral,
13. Pattern-controller,
12. Portable,
18. Stationary cutter-axis—
20. Rotating work-holder, Vertical,
19. Tail-stocks.
23. Work-feeds—
21. Backlash-compensators.
24. Planing—
33. Broaching,
Curved surfaces—
30. Cycloids,
31. Laterally-moving cutter,
32. Laterally-moving work,
29. Roll-grooving,
Planers—
34. Reciprocating-bed—
37. Cross-rails,
Planing—
Planers—
Reciprocating-bed—
35. Rack-drive,
36. Screw-drive,
Reciprocating-cutter—
Horizontal—
38. Crank-drive,
40. Oscillating link-drive,
39. Rack-drive,
41. Screw-drive,
42. Vertical—
43. Crank-drive—
44. Inverted,
45. Rack-drive—
46. Inverted,
47. Reversing mechanisms,
48. Tool-feeds—
49. Clutch-boxes,
50. Stop mechanisms,
51. Tool-heads—
52. Cutter-lifters,
55. Oscillating double cutter,
53. Pivoted cutter-release,
54. Soft-metal—
25. Cylindrical stereotypes,
26. Double-rack cutter-drive,
27. Roller-feed.
28. Work-holders—
59. Machine-vises—
60. Angularly-adjustable jaws.
61. Work-tables.

C. H. DUELL,
Commissioner.

CLASS 90.—GEAR-CUTTING, MILLING, AND PLANING.

DEFINITIONS.

Class.

This class covers the three allied operations named, since gears are produced by either rotating milling-cutters or by reciprocating cutters similar to those used in planing-machines, and for the further reason that the work-indexing, work-supporting, and work-feeding devices employed in all three operations are structurally indistinguishable. Each of the general subclasses is separately defined.

Subclasses.

1. GEAR-CUTTING. Miscellaneous machines and devices for cutting gear-teeth on cylindrical, conical, or hemispherical blanks or for cutting separate cogs or teeth for subsequent insertion in such blanks.

2. GEAR-CUTTING, INTERMESHING-GENERATOR. Machines and devices in which the working faces of the teeth of the blank are "generated" by cutters which intermesh with the blank after the manner of a mating gear. Though the generating-cutter usually revolves, its cutting action is a planing or broaching rather than a milling action.

3. GEAR-CUTTING, ROTATING-CUTTER. Machines for producing gears, usually spur-gears, by means of rotating cutters which have the same section as the space between two teeth of the blank, there being also means for effecting a relative feeding movement between cutter and blank.

4. GEAR-CUTTING, ROTATING-CUTTER, HELICAL GEARS. Machines of the rotating-cutter type for producing worm-gearing or spiral gears.

5. GEAR-CUTTING, ROTATING-CUTTER, BEVEL-GEARS. Machines of the rotating-cutter type especially designed to produce bevel-gears.

6. GEAR-CUTTING, ROTATING-CUTTER, BLANK-PILLAR AND CUTTER-SLIDE. A type of rotating-cutter or "gear-milling" machines in which the blank-mandrel is adjustably supported upon an upright pillar, while the cutter is carried upon a slide traversing ways on the frame of the machine.

7. GEAR-CUTTING, ROTATING-CUTTER, AXIALLY-TRAVELING. Machines in which a gang of rotating cutters mounted on the same driving-mandrel have in addition to their rotary motion a rectilinear motion in a direction tangent to the synchronously rotated blank, thus generating the tooth curve.

8. GEAR-CUTTING, RECIPROCATING-CUTTER. Machines in which the tooth outline is produced by a cutter which reciprocates in the direction of the length of the tooth, whether of a spur or bevel gear, since most of the devices will produce either by merely changing the angular adjustment of the blank-holder. The subclass also contains machines for "broaching" teeth or even complete gears by a single forward movement of the cutter.

9. GEAR-CUTTING, RECIPROCATING-CUTTER, TOOTH-CURVE GENERATING. Machines in which a reciprocating cutter, often of rack-tooth outline, is given also a tangential or rotary lateral movement such as will generate a theoretically correct tooth curve on the blank.

10. GEAR-CUTTING, RECIPROCATING-CUTTER, TEMPLET-GUIDE. Gear-planing machines, usually for producing bevel-gears, in which the tooth curve is determined by a "master-tooth" or templet, which controls the movement of either the cutter or the blank.

11. MILLING. Machines and devices for shaping material, usually metal, by means of toothed rotary cutters which actually sever portions of the material by a clean cut, as distinguished from rotary disks, etc., which merely abrade. Reciprocating cutters similar to files are not included in this class.

12. MILLING, PORTABLE. Machines readily movable from place to place, usually having special clamping means for attachment to the work and being frequently hand-driven.
(Note.—Search also in classes 77, BORING AND DRILLING, Drilling-machines, Portable, and 82, TURNING, Lathes, Portable.)

13. MILLING, PATTERN-CONTROLLER. Machines for producing predetermined forms in which the movement of either the cutter or the work is controlled by a pattern or templet.

14. MILLING, MOVABLE CUTTER-AXIS, AXIAL. Machines in which the cutter-axis may be moved in the direction of its length during the progress of the cut.

15. MILLING, MOVABLE CUTTER-AXIS, LATERAL. Machines in which the cutter-axis may be moved during the cut in a direction at an angle, usually a right angle, to its length. This motion is the necessary feed-motion.
(Note.—Search also the subclasses of Milling, portable, and Milling, pattern-controller, in this class.)

16. MILLING, ADJUSTABLE CUTTER-AXIS. Milling-machines in which the cutter-axis is capable of either longitudinal or lateral adjustment in substantially straight lines, the cutter-axis, however, remaining stationary during the cutting operation.

17. MILLING, ADJUSTABLE CUTTER-AXIS, ANGULAR. Machines in which the cutter-axis, though stationary during the cutting operation, is capable of angular adjustment in one or more planes.

18. MILLING, STATIONARY CUTTER-AXIS. Machines in which the cutters have rotary motion only, the feed being effected by moving the work.
(Note.—Search also in subclass Milling, pattern-controller, in this class.)

19. MILLING, STATIONARY CUTTER-AXIS, VERTICAL. Machines in which the cutter-axis is placed vertical to facilitate the use of "end mills," usually called "vertical" milling-machines.

20. MILLING, STATIONARY CUTTER-AXIS, ROTARY WORK-HOLDER. Machines with stationary cutter-axes having means for rotating the work on its own axis, so as to produce articles of circular cross-section or arc-shaped cuts.

21. MILLING, WORK-FEEDS. Devices for bringing the work into operative contact with the cutting mechanism, usually in machines with stationary cutter-axes.
(Note.—Search also in subclass Milling, pattern-controller, in this class.)

22. MILLING, WORK-FEEDS, BACKLASH-COMPENSATORS. Devices for removing backlash or wear from screw-feeds, rack-and-pinion feeds, etc., to prevent the work from drawing under the cutter.

23. MILLING, TAIL-STOCKS. Tail-stocks with angularly-adjustable centers or other features particularly adapting them to milling-machines.
(Note.—Search should also be made in class 82, TURNING, Lathes, Tail-Stocks.)

24. PLANING. Machines and devices for removing material, usually metal, from a work-piece, mainly by means of comparatively light cuts of a non-rotary tool or series of such tools, between which tools and the work-piece there is relative reciprocatory movement in substantially straight lines. The class also includes a few devices for producing plane surfaces in which there is relative rotation in the same plane as the surface acted upon between tool and work and for producing curved surfaces by modifying the reciprocatory rectilinear travel of either tool or work.

25. PLANING, SOFT-METAL. Machines and devices for operating on type-metal, stereotypes, battery-plates, etc. They are usually characterized by broad cutters which cover at one cut the entire surface to be finished and by correspondingly-modified driving means.
(Note.—Search should also be made in class 144, WOODWORKING, Planers, Reciprocating-Cutter.)

26. PLANING, SOFT-METAL, CYLINDRICAL STEREOTYPES. Machines for finishing the concave surfaces of stereotyped forms for cylinder-presses.
(Note.—Search also in subclasses under Planing, curved surfaces, in this class.)

27. PLANING, SOFT-METAL, DOUBLE-RACK CUTTER-DRIVE. Machines in which the broad cutter is actuated by a rack secured at each end thereof, the racks being driven by suitably-mounted pinions.

28. PLANING, SOFT-METAL, ROLLER-FEED. Machines in which the metal is fed past the cutters by rolls after the manner of wood-planing machines.
(Note.—For similar feeding devices search should also be made in class 144, WOODWORKING, in the subclasses under Feed and presser mechanisms, rolls, feed.)

29. PLANING, CURVED SURFACES, ROLL-GROOVING. Machines for scoring the surfaces of grinding and crushing rolls, etc., with longitudinal, helical, sinuous, or other grooves.

30. PLANING, CURVED SURFACES, CYCLOIDS. Special machines for producing rotary pump and blower pistons, etc., the cross-sectional outlines of which are made up wholly or in part of cycloidal curves.

31. PLANING, CURVED SURFACES, LATERALLY-MOVING CUTTER. Machines in which the curved surface is produced by a tool given a feeding movement in a curved path, the work meanwhile reciprocating in a path substantially perpendicular to the plane in which the tool moves.
(Note.—Search should also be made in Planing, curved surfaces, cycloids; Planing, curved surfaces, roll-grooving, and Planing, soft-metal, cylindrical stereotypes, in this class.)

32. PLANING, CURVED SURFACES, LATERALLY-MOVING WORK. Machines which give the work both lateral and longitudinal movement with reference to a relatively stationary cutter.
(Note.—Search should also be made in Planing, curved surfaces, cycloids; Planing, curved surfaces, roll-grooving, and Planing, soft-metal, cylindrical stereotypes, in this class.)

33. PLANING, BROACHING. Machines and appliances for finishing surfaces, cutting slots, etc., by a single forward movement of either tool or work, the tool having usually a succession of gradually-elevated cutting-points which effect the same result as continued reciprocations of a single pointed tool.

34. PLANING, PLANERS, RECIPROCATING-BED. Machines having a cutter-head mounted on a cross-rail or similar supporting device and a work-holding bed reciprocating on suitable ways to present the work to the cutter.

35. PLANING, PLANERS, RECIPROCATING-BED, RACK-DRIVE. Machines in which the bed is reciprocated by means of an attached rack with which meshes the reversely-rotated driving-gear.

36. PLANING, PLANERS, RECIPROCATING-BED, SCREW-DRIVE. Machines in which the bed is reciprocated by an intermeshing nut and longitudinally-arranged screw.

37. PLANING, PLANERS, RECIPROCATING-BED, CROSS-RAILS. Adjustable rails extending horizontally from the uprights of the planer above the reciprocating bed to support and provide feeding-ways for the cutter-head.

38. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL. Machines and devices, usually known to the trade as "shapers," in which the work is held stationary while the cutter is horizontally reciprocated to effect the cut.

39. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, OSCILLATNG LINK-DRIVE. Machines having a slotted link pivoted in a vertical plane, usually at its lower end, in an upright pillar, and movably connected at its upper end to the horizontal tool-carrying ram, the link being driven by suitable gearing and ordinarily affording a quick return for the cutter.

40. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, CRANK-DRIVE. Machines in which the cutter is horizontally reciprocated by a crank and connecting-rod.

41. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, RACK-DRIVE. Machines in which the horizontally-reciprocating cutter-carrying ram is actuated through an attached rack and suitable reversing driving mechanism.

42. PLANING, PLANERS, RECIPROCATING-CUTTER, HORIZONTAL, SCREW-DRIVE. Machines in which the tool-head is actuated by screw-gearing, usually an attached nut and an intermeshing screw, with suitable reversing driving mechanism.

43. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL. Machines in which the work is usually clamped to a horizontal bed while the cutter is vertically reciprocated. This type of machine includes most of the tools known as "slotters" and "key-seaters."

44. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, CRANK-DRIVE. Machines of the "slotter" type having vertically-reciprocating cutter-heads actuated by a crank and connecting-rod.

45. PLANING, PLANERS, RECIPROCATING CUTTER, VERTICAL, CRANK-DRIVE, INVERTED. Machines with vertically-reciprocating cutter-carriers in which the work-holder is located at the top of the frame, while the actuating-crank is beneath the work-securing means—a type of machine frequently used for key-seating.

46. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, RACK-DRIVE. Machines in which the vertically-reciprocating cutter is actuated by means of an attached rack and a suitable intermeshing driving-train.

47. PLANING, PLANERS, RECIPROCATING-CUTTER, VERTICAL, RACK-DRIVE, INVERTED. Machines with vertically-reciprocating cutter-carriers having a superposed work table or support with the rack-and-pinion cutter-driving means located beneath it.

48. PLANING, PLANERS, REVERSING MECHANISMS. Devices for changing the direction of motion of either the work-table or cutter-carrying ram of planers.

49. PLANING, PLANERS, TOOL-FEEDS. Devices for giving the tool-heads of planers, "shapers," etc., an intermittent-feed motion in a direction at right angles to the direction of the cut.

50. PLANING, PLANERS, TOOL-FEEDS, CLUTCH-BOXES. Devices for giving an impulse to the feeding mechanism of a planer at the beginning or end of a stroke and then yielding frictionally or positively disengaging during the remainder of the stroke; usually in the form of frictionally-engaging disks, one attached to the reversible driving-shaft and the other to a feed-rod and oscillating between fixed stops.

51. PLANING, PLANERS, TOOL-FEEDS, STOP MECHANISMS. Devices for disengaging the intermittent-feed mechanism at any predetermined point.

52. PLANING, PLANERS, TOOL-HEADS. Mechanisms for supporting, adjusting, and releasing the cutting-tools of planers.

53. PLANING, PLANERS, TOOL-HEADS, OSCILLATING DOUBLE CUTTER. Tool-heads supporting a pair of cutters or a two-edged single cutter in such a manner as to cut in both directions of travel, one cutting edge being swung out of contact with the work while the other is acting.

54. PLANING, PLANERS, TOOL-HEADS, PIVOTED CUTTER-RELEASE. Tool heads and holders having cutters so pivoted as to rest against a backing-piece on the cutting stroke and swing clear of the work on the return stroke.

55. PLANING, PLANERS, TOOL-HEADS, CUTTER-LIFTERS. Devices for positively releasing the cutter and holding it out of contact with the work during the return stroke.

56. INDEXING. Complete devices, gear-trains, etc., for automatically spacing gears and other articles through aliquot parts of a circumference to produce a regular series of teeth or grooves.
(Note.—Search should also be made in Gear-cutting, this class, and in class 77, BORING AND DRILLING, Appliances, Work-Supports, Indexing.)

57. INDEXING, INDEX-HEADS. That portion of the indexing mechanism which includes an equally-divided disk or cylinder, means for intermittently rotating such divided part or a concentric engaging device, means for interlocking the said parts, and usually a center for supporting one end of the blank operated upon.
(Note.—Some form of indexing or spacing mechanism is essential to all gear-cutting and many milling machines, so that a complete search on such devices must necessarily cover both those main subclasses. The subclasses of Indexing and index-heads include only such patents and cross-references as contain claims to and are therefore supposed to show novel features in such mechanisms. Search should also be made in Gear-cutting, this class, and in class 77, BORING AND DRILLING, Appliances, Work-Supports, Indexing.)

58. WORK-TABLES. Movable or stationary tables for supporting the work operated upon or the clamp for securing such work. They are usually provided with slots for securing work and with adjusting means.

59. WORK-HOLDERS. Miscellaneous devices for supporting or securing work-pieces while being acted upon by planing, milling, or gear-cutting cutters.

60. WORK-HOLDERS, MACHINE-VISES. Devices with movable gripping-jaws adapted to be secured to machine-tables to clamp the work while being acted upon.
(Note.—Search should also be made in Vises, in class 81, METAL-WORKING TOOLS.)

61. WORK-HOLDERS, MACHINE-VISES, ANGULARLY-ADJUSTABLE JAWS. Vises having adjustable jaws or jaw-pieces adapted to clamp work with non-parallel sides.

Revision of Classification.

(ORDER No. 1,384.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 24, 1900.

The following changes in the classification of inventions are hereby directed, to take effect this day:

In Division XI, class 69, Leather-Working Machinery, abolish all subclasses and change the title to class 69, Leather Manufactures, and establish thereunder the following list of subclasses and definitions:

CLASS 69.—LEATHER MANUFACTURES.

21. Articles and processes.
1. Machines—
2. Cutting and impressing,
5. Folding and rolling,
8. Forming and pressing,
3. Horse-collar-shaping,
4. Horse-collar-stuffing,
6. Rounding,
7. Seam-pressing,
9. Skiving and splitting—
10. Belt-knife,
11. Fixed-knife—
12. Reciprocating-feed.
Machines—
Skiving and splitting—
Fixed-knife—
13. Roller-feed—
14. Trimming attachments,
15. Reciprocating-knife,
16. Rotary disk knife,
17. Strap-finishing,
18. Tack-leathering.
20. Tools.
19. Work-holders.

CLASS 69.—LEATHER MANUFACTURES.

DEFINITIONS.

Class.

This class includes leather-working apparatus and leather articles not elsewhere classified under more specific titles.

The class does not include boots, shoes, gloves, trunks, baggage, pocket-books, or other leather receptacles or their manufacture, except such apparatus as is clearly general in its capability of operation.

It does not include leather cutting, (except skiving and splitting,) punching, or sewing or the manufacture of leather from hides, skins, etc. The apparatus for the manufacture of harness is here included; but the articles of harness are elsewhere classified.

Subclasses.

1. MACHINES. Miscellaneous subclass of leather-working machines.

2. MACHINES, CUTTING AND IMPRESSING. Machines for cutting or trimming leather and at the same time creasing or otherwise impressing it for ornamental purposes or which simply crease or impress without cutting.

3. MACHINES, HORSE-COLLAR-SHAPING. Apparatus upon which horse-collars are shaped or given proper contour.
(Note.—Search also the subclass of Machines, forming and pressing, in this class.)

4. MACHINES, HORSE-COLLAR-STUFFING. Apparatus for stuffing the padding material into horse-collars.

5. MACHINES, FOLDING AND ROLLING. Machines for folding or rolling or both folding and rolling leather, usually for reins for harness.

6. MACHINES, ROUNDING. Machines which by drawing or passing a string or strip therethrough will cut or roll the same to circular or semicircular shape, usually for harness-reins, fillings, or whip-lashes.

7. MACHINES, SEAM-PRESSING. Machines for pressing, rubbing, or rolling down leather seams.

8. MACHINES, FORMING AND PRESSING. Various molding, clamping, and pressing apparatus for forming or shaping leather articles, mostly harness parts.
(Note.—Search also in this class the subclass of Machines, horse-collar-shaping.)

9. MACHINES, SKIVING AND SPLITTING. Miscellaneous subclass of machines for skiving, splitting, or beveling leather.
(Note.—Search should also include under class 12, BOOT AND SHOE MAKING, the subclass of Toe and heel stiffener machines, skiving, and that of Heel-machines, bevel and seat cutting.)

10. MACHINES, SKIVING AND SPLITTING, BELT-KNIFE. Those machines which employ a traveling belt or band knife.
(Note.—Search should also include under this class the subclass of Machines, skiving and splitting, fixed-knife, roller-feed; under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, band-knife; also, under class 143, WOOD-SAWING, the subclass of Band-saw machines.)

11. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE. Those machines which employ a stationary cutter against which the work is drawn or fed.
(Note.—Search should also include under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter.)

12. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, RECIPROCATING-FEED. Those machines in which a reciprocating feed mechanism is employed to carry the work to the fixed cutter.
(Note.—Search also under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter, work-feeding; also, under class 144, WOODWORKING, the subclass of Slicers, fixed-knife.)

13. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, ROLLER-FEED. Those in which the work is fed to the fixed cutter by positively-driven rolls.
(Note.—Search also under this class the subclass of Machines, skiving and splitting, belt-knife; under class 164, CUTTING AND PUNCHING SHEETS AND BARS, the subclass of Cutting, machines, fixed-cutter, work-feeding, roller-feed; also, under class 144, WOODWORKING, the subclass of Slicers, fixed-knife.)

14. MACHINES, SKIVING AND SPLITTING, FIXED-KNIFE, ROLLER-FEED, TRIMMING ATTACHMENTS. Those which employ a trimming-knife in addition to the skiving or splitting knife to trim the edge of the passing work.

15. MACHINES, SKIVING AND SPLITTING, RECIPROCATING-KNIFE. Those in which the cutter is reciprocated. Either the work is fed against the knife or lies stationary while the knife operates.

16. MACHINES, SKIVING AND SPLITTING, ROTARY DISK KNIFE. Those machines, usually for skiving, in which is employed a disk knife which shaves off the portions as it passes over the surface of the work.

17. MACHINES, STRAP-FINISHING. Machines for rubbing, blacking, polishing, creasing, burnishing, and otherwise finishing leather straps.

18. MACHINES, TACK-LEATHERING. Machines for attaching the leather heads to carpet-tacks. Usually the leather disks are cut out from a continuous strip and the tacks inserted by a plunger through the disks.
(Note.—Search also under class 1, NAILING AND STAPLING, the subclass of Machines, nail-driving, nail-feeding.)

19. WORK-HOLDERS. Various clamping apparatus for holding leather while it is being worked upon, mostly "stitching-horses" for saddlers or harness-makers.

20. TOOLS. Various hand-tools peculiar to the leather-workers' art.

21. ARTICLES AND PROCESSES. Various leather structures—such as bindings or pipings, seams, and ornamental pieces—of more or less general use in making up complete articles; also, some leather-working processes are here included.

In Division XXXV, class 190, Baggage, abolish subclass 16, Traveling-bags, fasteners, pivoted.

In Division XX, under class 70, Locks and Latches, establish subclass 116, Bag-fasteners.

In Division VIII, class 194, Coin-Controlled Apparatus, abolish all subclasses and change the class title to 194, Check-Controlled Apparatus, and establish thereunder the following subclasses and definitions:

CLASS 194.—CHECK-CONTROLLED APPARATUS.

4. Anomalous check—
5. Fluid-delivery.
96. Check-engaged alarm.
6. Check in circuit—.
7. Article-delivery,
8. Telephones.
9. Check-operated switch—
10. Article-delivery,
11. Electric meters,
12. Exhibitors,
13. Fluid-delivery,
14. Induction-coils,
15. Phonographs,
16. Telephones.
94. Check-rotated wheel.
72. Connectors—
91. Article-delivery,
Check—
74. Reciprocating and turning parts—
75. Article-delivery,
76. Chance and game apparatus,
77. Fluid-delivery,
78. Reciprocating parts—
79. Article-delivery—
80. Sliding pusher,
81. Chance and game apparatus,
82. Fluid-delivery.
83. Turning parts—
88. Article-delivery,
89. Chance and game apparatus,
84. Concentric—
85. Article-delivery,
86. Chance and game apparatus,
87. Fluid-delivery,
90. Fluid-delivery,
73. Gravity.
97. Fraud-preventives—
98. Check-exhibitors,
99. Combined size and material testers,
100. Material-testers—
101. Magnets,
102. Size-testers,
103. Weight-testers.
92. Lock-preventing—
93. Article-delivery.
17. Lock-releasing—
18. Gravity—
19. Forwardly-turning released part—
22. Article-delivery—
23. Chance,
24. Endless carrier—
25. Magazine,
26. Rotary feed,
27. Sliding pusher,
28. Exhibitors,
29. Fluid-delivery,
30. Game apparatus,
20. Measuring instruments—
Lock-releasing—
Gravity—
Forwardly-turning released part—
Measuring instruments—
21. Scales,
31. Phonographs,
32. Reciprocating released part—
37. Article-delivery—
38. Endless carrier,
39. Sliding pusher,
40. Article-securing stands,
41. Chance and game apparatus,
42. Exhibitors,
43. Fluid-delivery,
33. Measuring instruments—
34. Pull-testers,
35. Scales,
36. Strike-testers,
44. Telephones.
45. Reset turning released part—
48. Article-delivery,
49. Article-securing stands,
50. Chance and game apparatus,
51. Door and lid locks,
52. Exhibitors,
53. Fluid-delivery,
46. Measuring instruments—
47. Scales,
Thrust—
54. Pivoted detent—
71. Article-delivery,
55. Reciprocating coin-mover—
57. Article-delivery—
58. Sliding pusher,
59. Door and lid locks,
60. Fluid-delivery,
56. Measuring instruments,
61. Turning coin-mover—
63. Article-delivery,
64. Article-securing stands,
65. Door and lid locks,
66. Fluid-delivery,
62. Measuring instruments,
67. Reciprocating detent—
68. Article-delivery,
69. Reciprocating coin-mover,
70. Turning coin-mover.
1. Miscellaneous—
2. Article-delivery,
3. Fluid-delivery.
95. Shutter.

CLASS 194.—CHECK-CONTROLLED APPARATUS.

DEFINITIONS.

Class.

This class includes all patents which contain any claim for the check-controlled device or for the combination of such device with the apparatus or machine to which it is applied or for any structure of that apparatus which would be useful only in a check-controlled device.

The term "check" includes coins and substitutes therefor which have analogous function.

(Note.—Searches broadly for any particular art should be made not only in all subclasses having titles corresponding to such art, but also in the various miscellaneous subclasses of each group based on structure.)

Subclasses.

1. MISCELLANEOUS. Matter not classifiable in any other subclass.

2. MISCELLANEOUS, ARTICLE-DELIVERY. Apparatus for delivering articles of merchandise and not classifiable in any other subclass.

3. MISCELLANEOUS, FLUID-DELIVERY. Apparatus for delivering air, gas, water, or other fluid and not classifiable in any other subclass.

4. ANOMALOUS CHECK. The check is not a coin or other flat circular plate.

5. ANOMALOUS CHECK, FLUID-DELIVERY. The device uses an anomalous check and delivers air, gas, water, or other fluid.

6. CHECK IN CIRCUIT. The check becomes a bridge or plug through which the current passes.

7. CHECK IN CIRCUIT, ARTICLE-DELIVERY. The current traverses the check, the apparatus delivering an article of merchandise.

8. CHECK IN CIRCUIT, TELEPHONES. The current traverses the check inserted as toll for the use of a telephone.

9. CHECK-OPERATED SWITCH. The check operates by its weight or thrust an electric switch. The check does not place mechanism in such a condition that the switch may be subsequently closed, but is an active agent in the operation thereof.

10. CHECK-OPERATED SWITCH, ARTICLE-DELIVERY. An article-delivery device is actuated by the closing of an electric switch operated by the check.

11. CHECK-OPERATED SWITCH, ELECTRIC METERS. A switch is closed by the operation of the check inserted as payment for electricity passing through an electric meter.

12. CHECK-OPERATED SWITCH, EXHIBITORS. An electric switch operated by the check controls a device for exhibiting pictures, advertisements, automatons, etc.

13. CHECK-OPERATED SWITCH, FLUID-DELIVERY. An electric switch operated by the check causes the delivery of air, gas, water, or other fluid.

14. CHECK-OPERATED SWITCH, INDUCTION-COILS. An electric switch operated by the check causes an induction-coil to administer electricity to persons.

15. CHECK-OPERATED SWITCH, PHONOGRAPHS. An electric switch is operated by the check to place in operative condition a phonograph, gramophone, or other device having the same general function.

16. CHECK-OPERATED SWITCH, TELEPHONES. An electric switch is operated by the check inserted as toll for the use of a telephone.

17. LOCK-RELEASING. The check releases a locking device which normally prevents the movement of some mechanism. This subclass includes all lock-releasing mechanism not released by the gravity or the thrust of the check.

18. LOCK-RELEASING, GRAVITY. The gravity of the check operates the locking mechanism.

19. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART. The gravity of the check releases a part which always turns forward. Such part does not turn backward to be relocked, as in subclass Lock-releasing, gravity, reset turning released part, and its subordinate subclasses.

20. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, MEASURING INSTRUMENTS. A measuring instrument is controlled by the gravity of the check which releases a turning part having no retrograde movement in order to be relocked. Here are placed electric shocking-machines, electric meters, strength-testers, and the like.

21. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, MEASURING INSTRUMENTS, SCALES. Weighing devices controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

22. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY. Miscellaneous subclass of article-delivery devices controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

23. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, CHANCE. The delivery of an article is governed by a chance device controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

24. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER. The article is delivered by an endless carrier, as a belt or drum, controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

25. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER, MAGAZINE. The article is delivered by an endless carrier, as a belt or drum, which is fed from a magazine, the mechanism being controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

26. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, ROTARY FEED. The article is fed by a rotary device which does not carry the article around a portion of travel, as is the case in the last two subclasses above defined, the mechanism being controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

27. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, SLIDING PUSHER. The article is delivered by a sliding device by which it is pushed. The mechanism is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.
(Note.—Pivoted pushers are placed under subclass Lock-releasing, gravity, forwardly-turning released part, article-delivery, and rotating flat carriers under subclasses Lock-releasing, gravity, forwardly-turning released part, article-delivery, endless carrier, and Lock-releasing, gravity, forwardly-turning released part, article-delivery, endless carrier, magazine, in this class.)

28. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, etc., is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

29. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, FLUID-DELIVERY. A device which delivers air, gas, water, or other fluid is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

30. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, ARTICLE-DELIVERY, GAME APPARATUS. A game apparatus is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

31. LOCK-RELEASING, GRAVITY, FORWARDLY-TURNING RELEASED PART, PHONOGRAPHS. A phonograph, gramophone, or device having the same general function is controlled by the weight of the check which releases a turning part having no retrograde movement in order to be relocked.

32. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART. The gravity of the check releases a reciprocating part. Devices that are pivoted or swinging are not regarded as reciprocating.

33. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS. The weight of the check releases a reciprocating part of a measuring instrument, as electric meters, electric shocking devices, lung-testers, and the like.

34. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, PULL-TESTERS. Devices which measure the force exerted by a pull and controlled by the weight of the check which releases a reciprocating part.

35. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, SCALES. Devices which weigh and are controlled by the weight of the check which releases a reciprocating part.

36. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, MEASURING INSTRUMENTS, STRIKE-TESTERS. Devices which measure the force of a blow of the fist, foot, hammer, etc., and are controlled by the weight of the check which releases a reciprocating part.

37. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY. An article is delivered by a mechanism controlled by the weight of the check which releases a reciprocating part.

38. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY, ENDLESS CARRIER. The article is delivered by an endless carrier, as a drum or belt, controlled by the weight of the check which releases a reciprocating part.

39. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-DELIVERY, SLIDING PUSHER. A sliding device pushes out the article and is controlled by the weight of the check which releases a reciprocating part.
(Note.—A pivoted or turning device is not regarded as sliding. Such devices are in subclass Lock-releasing, gravity, reciprocating released part, article-delivery, in this class.)

40. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, ARTICLE-SECURING STANDS. Devices for securing temporarily articles such as bicycles, umbrellas, hats, and coats, such devices being controlled by the weight of the check which releases a reciprocating part.

41. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by the weight of the check which releases a reciprocating part.

42. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, and the like is controlled by the weight of the check which releases a reciprocating part.

43. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, FLUID-DELIVERY. A device for the delivery of air, gas, water, or other fluid is controlled by the weight of the check which releases a reciprocating part.

44. LOCK-RELEASING, GRAVITY, RECIPROCATING RELEASED PART, TELEPHONES. A reciprocating device is released by the weight of the check inserted as toll for the use of a telephone.

45. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART. A turning part is released by the weight of a check and afterward reset—that is, relocked—by being returned to its normal position.

46. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, MEASURING INSTRUMENTS. A measuring instrument is controlled by the weight of the check which releases a turning part reset by a retrograde movement. This subclass includes such devices as electric meters, electric shocking-machines, and strength-testers.

47. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, MEASURING INSTRUMENTS, SCALES. A weighing mechanism is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

48. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, ARTICLE-DELIVERY. An article-delivery device is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

49. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, ARTICLE-SECURING STANDS. A device for securing bicycles, umbrellas, hats, coats, and the like is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

50. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

51. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, DOOR AND LID LOCKS. A door or lid is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

52. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, EXHIBITORS. A device for exhibiting pictures, advertisements, automatons, and the like is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

53. LOCK-RELEASING, GRAVITY, RESET TURNING RELEASED PART, FLUID-DELIVERY. A device for delivering air, gas, water, or other fluid is controlled by the weight of the check which releases a turning part reset by a retrograde movement.

LOCK-RELEASING, THRUST. All the devices classified under this title have a detent or locking device releasable by the thrust or push of the check. The check acts as a connection or link, so that when the check is forced along it will move the detent out of locking position. In some instances the checks are pushed by the fingers. The check may move to thrust the detent out of locking position, or the detent may be thrust out of such position by moving against the check.

54. LOCK-RELEASING, THRUST, PIVOTED DETENT. The thrust or push of the check operates a pivoted detent or unlocking device. In this subclass the checks are pushed by the fingers or are stationary.
(Note.—In cases where the check-driven element is equivalent or analogous to a detent, or where the detent claimed is analogous or equivalent to a part not a detent, search should be made in the proper subclasses under Connectors, check, this class.)

55. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER. A reciprocating device directly engages and moves the coin to unlock a pivoted detent. Swinging or pivoted devices are not regarded as reciprocating. They are under subclass Lock-releasing, thrust, pivoted detent, turning coin-mover, and its subordinate subclasses.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

56. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, MEASURING INSTRUMENTS. A measuring instrument—such as a dynamometer, spirometer, electric shocking-machine, or an electric meter—is controlled by a reciprocating part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

57. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, ARTICLE-DELIVERY. An article-delivery device is controlled by a reciprocating part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

58. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, ARTICLE-DELIVERY, SLIDING PUSHER. A device that has a sliding pusher to deliver an article has a reciprocating pusher which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part, not a detent search should be made in the proper subclasses under Connectors, check, this class.)

59. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, DOOR AND LID LOCKS. A door or lid is controlled by a pivoted releasing device operated by a coin directly engaged by a reciprocating pusher.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

60. LOCK-RELEASING, THRUST, PIVOTED DETENT, RECIPROCATING COIN-MOVER, FLUID-DELIVERY. A device for delivering air, gas, water, or other fluid is controlled by a pivoted releasing means operated by a coin directly engaged by a reciprocating pusher.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

61. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER. A turning device directly engages and moves a coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

62. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, MEASURING INSTRUMENTS. A measuring instrument such as a dynamometer, spirometer, electric meter, or an electric shocking-machine is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, in this class.)

63. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, ARTICLE-DELIVERY. An article-delivery device is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

64. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, ARTICLE-SECURING STANDS. A device for temporarily securing bicycles, umbrellas, hats, coats, and the like is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

65. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, DOOR AND LID LOCKS. A door or lid is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

66. LOCK-RELEASING, THRUST, PIVOTED DETENT, TURNING COIN-MOVER, FLUID-DELIVERY. A device for delivering air, gas, water, or other fluid is controlled by a turning part which directly engages and moves the coin to unlock a pivoted detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

67. LOCK-RELEASING, THRUST, RECIPROCATING DETENT. The thrust or push of the check operates a reciprocating detent or unlocking device. In this subclass the checks are pushed by the finger or are stationary.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

68. LOCK-RELEASING THRUST, RECIPROCATING DETENT, ARTICLE-DELIVERY. An article-delivery device is controlled by a reciprocating detent which is unlocked by the thrust or push of the check. The checks are pushed by the fingers or are stationary.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

69. LOCK-RELEASING, THRUST, RECIPROCATING DETENT, RECIPROCATING COIN-MOVER. A reciprocating device directly engages and moves a coin which unlocks a reciprocating detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in proper subclasses under Connectors, check, this class.)

70. LOCK-RELEASING, THRUST, RECIPROCATING DETENT, TURNING COIN-MOVER. A turning device directly engages and moves a coin which unlocks a reciprocating detent.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

71. LOCK-RELEASING, THRUST, PIVOTED DETENT, ARTICLE-DELIVERY. An article-delivery device is controlled by the thrust or push of a check which operates a pivoted detent. The checks are pushed by the fingers or are stationary.
(Note.—In cases where the detent claimed is analogous or equivalent to a part not a detent search should be made in the proper subclasses under Connectors, check, this class.)

72. CONNECTORS. The check operates or becomes a connector between normally disconnected parts. This subclass embraces those devices that operate a connector and do not depend upon the gravity of the coin or deliver an article

73. CONNECTORS, GRAVITY. The gravity of the check operates a connector between disconnected parts.

CONNECTORS, CHECK. In this group the check is the connector between disconnected parts and transmits the pressure of its actuating means to another part not a detent or releasing device. Mechanisms employing checks to transmit motion therefrom to a detent are classified in subclasses under Lock-releasing, thrust, this class. In some instances the fingers are the means for driving the check.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in the proper subclasses under Lock-releasing, thrust, this class.)

4. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS. The check connects reciprocating and turning parts, neither operating a detent.
(Note.—For detents actuated by the thrust of a check search should be made in the subclasses under Lock-releasing, thrust, this class.)
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

75. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in the proper subclasses under Lock-releasing, thrust, this class.)

76. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, CHANCE AND GAME APPARATUS. A chance and game apparatus is controlled by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

77. CONNECTORS, CHECK, RECIPROCATING AND TURNING PARTS, FLUID-DELIVERY. A mechanism which delivers air, gas, water, or other fluid is controlled by a device wherein reciprocating and turning parts, neither operating a detent, are connected by the check.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

78. CONNECTORS, CHECK, RECIPROCATING PARTS. The check connects a plurality of reciprocating parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

79. CONNECTORS, CHECK, RECIPROCATING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

80. CONNECTORS, CHECK, RECIPROCATING PARTS, ARTICLE-DELIVERY, SLIDING PUSHER. An article delivered by a sliding (not swinging) pusher is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

81. CONNECTORS, CHECK, RECIPROCATING PARTS, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

82. CONNECTORS, CHECK, RECIPROCATING PARTS, FLUID-DELIVERY. A mechanism for the delivery of air, gas, water, or other fluid is controlled by a device wherein the check connects a plurality of reciprocating parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

88. CONNECTORS, CHECK, TURNING PARTS. The check connects a plurality of turning parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

84. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC. The check connects a plurality of parts having the same axis of motion. The parts may be telescopic or in the same longitudinal line. None of the parts operates a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

85. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, ARTICLE-DELIVERY. An article is delivered by a device wherein the check connects a plurality of concentric parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

86. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein the check connects a plurality of concentric parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

87. CONNECTORS, CHECK, TURNING PARTS, CONCENTRIC, FLUID-DELIVERY. A mechanism delivering air, gas, water, or other fluid is controlled by a device wherein the check connects a plurality of concentric parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

88. CONNECTORS, CHECK, TURNING PARTS, ARTICLE-DELIVERY. An article is delivered by a device wherein a check connects a plurality of turning non-concentric parts, none operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

89. CONNECTORS, CHECK, TURNING PARTS, CHANCE AND GAME APPARATUS. A chance or game apparatus is controlled by a device wherein a check connects a plurality of turning non-concentric parts, none of the parts operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

90. CONNECTORS, CHECK, TURNING PARTS, FLUID-DELIVERY. A mechanism delivering air, gas, water, or other fluid is controlled by a device wherein a check connects a plurality of turning non-concentric parts, none of the parts operating a detent.
(Note.—In cases where the check-driven element claimed is analogous or equivalent to a detent search should be made in proper subclasses under Lock-releasing, thrust, this class.)

91. CONNECTORS, ARTICLE-DELIVERY. The check operates a connector between disconnected parts in order to make an article-delivery device operative.

92. LOCK-PREVENTING. The locking device is not normally in locking position, and any attempt to operate the mechanism in the absence of the check causes the locking means to seek a locking position.

93. LOCK-PREVENTING, ARTICLE-DELIVERY. An article is delivered by a mechanism whose locking device is not normally in locking position, and any attempt to operate the mechanism in the absence of the check causes the locking means to seek a locking position.

94. CHECK-ROTATED WHEEL. A wheel is rotated by the positive action of the check, but not as the result of some mechanism released or set by the check.

95. SHUTTER. The check controls the operation of a shutter controlling the admission of light.

96. CHECK-ENGAGED ALARM. The check engages or strikes an alarm, usually the signal of a telephone toll apparatus or a fraud-signal.

97. FRAUD-PREVENTIVES. Devices for preventing fraud against the apparatus. This subclass includes miscellaneous devices not classifiable in the subtitles hereunder.
(Note.—For alarms whose body or tongue is struck by the check search should be made in subclass Check-engaged alarms in this class.)
(Note.—In those cases where a pusher enters the opening in a washer search should be made in the subclasses under Lock-releasing, thrust, and those under Connectors, check, in this class.)

98. FRAUD-PREVENTIVES, CHECK-EXHIBITORS. Devices for preventing fraud by having the check exposed for visual examination.

99. FRAUD-PREVENTIVES, COMBINED SIZE AND MATERIAL TESTERS. Devices for preventing fraud by rejecting checks of improper size and material.

100. FRAUD-PREVENTIVES, MATERIAL-TESTERS. Devices for preventing fraud by rejecting checks of improper material.
(Note.—Search should also be made in subclass Fraud-preventives, combined size and material testers, this class.)
(Note.—In those cases where a pusher pierces or enters a card or other soft or thin material search should be made in the subclasses under Lock releasing, thrust, and under Connectors, check, in this class.)

101. FRAUD-PREVENTIVES, MATERIAL-TESTERS, MAGNETS. Devices for preventing fraud by rejecting checks susceptible to magnetic attraction.

102. FRAUD-PREVENTIVES, SIZE-TESTERS. Devices for preventing fraud by rejecting checks of improper size.
(Note.—Search should also be made in Fraud-preventives, combined size and material testers, this class.)
(Note.—In those cases where the edge of the check is held between and gaged by the opposing ends of the check-pushed and the check-driven elements search should be made in the subclasses under Lock-releasing, thrust, and under Connectors, check, this class.)

103. FRAUD-PREVENTIVES, WEIGHT-TESTERS. Devices for preventing fraud by rejecting checks of improper weight.

C. H. DUELL,
Commissioner.

ERRATA.

Orders partly or entirely omitted from the Supplement to Vol. 91, Official Gazette, June 26, 1900.

Revision of Classification.

(ORDER No. 1,270.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 21, 1899.

The following changes in classification of inventions are hereby ordered:

Division XXIX, Class 108, Roofing is abolished and the following substituted in lieu thereof:

Class 108, Roofs:
2. Adjustable.
5. Car—
14. Fabric-lined,
15. Metal-lined.
6. Composite.
28. Eaves-troughs—
29. Hangers,
30. Strainers.
7. Fabric.
27. Fenders.
26. Flashings.
12. Lap-joint.
Metallic—
22. Interlocking lap-seam,
13. Miscellaneous,
18. Rib-seam—
19. Capped,
Metallic—
17. Shingle,
20. Standing-seam—
21. Capped.
1. Miscellaneous.
4. Observatory-domes.
3. Portable.
24. Ridges.
16. Skylights—
31. Operating devices.
8. Slate and shingle—
9. Laying.
11. Thatch.
10. Tile.
23. Trusses.
25. Valleys.

The patents formerly classified in Subclass 12, Conductor-supports, Class 108, are transferred to Division XIX, Class 126, Stoves and Furnaces, Subclass 94, Pipe-hangers.

C. H. DUELL,
Commissioner.

CLASS 108.—ROOFS.

DEFINITIONS.

Class.

108. ROOFS. Includes all roof construction, except fireproof roofs, which are found under Class 183, FIREPROOF BUILDINGS, and all roof-coverings, except roofing fabrics and compositions of matter to be spread on roofs. Conductor-supports for conveying water from the eaves-troughs of a building are classified in Class 126, STOVES AND FURNACES, Subclass 94, Pipe-hangers.

Subclasses.

2. ADJUSTABLE. Roofs which may be raised or lowered on standards and roofs made in sections which may be shifted in position to permit free circulation of air.

5. CAR. Roofs designed for use on cars exclusively and of types not shown in roofs for buildings.

14. CAR, FABRIC-LINED. An outer sheathing of wood covers an inner roof of cloth, rubber, roofing-felt, or other fabric.

15. CAR, METAL-LINED. An outer sheathing of wood covers an inner roof of sheet metal.

6. COMPOSITE. Roofs composed of one or more layers of material at least one of which must consist of a plastic substance or a plastic in combination with some other material.

28. EAVES-TROUGHS. Eaves-gutters of different materials, whether formed integral with the roof or suspended at its edge.

29. EAVES-TROUGHS, HANGERS. All supporting devices for eaves-troughs, even though one of the complementary parts of the supporting device be secured to the trough.

30. EAVES-TROUGHS, STRAINERS. Screens in or over eaves-troughs to exclude leaves or trash from eaves-troughs or conductor-pipes.

7. FABRIC. Fabric-covered roofs, including joints for the strips of fabric and methods of uniting the fabric and under-sheathing of the roof.

27. FENDERS. Devices attached to the surface of the roof to prevent snow and ice from sliding.

26. FLASHINGS. Constructions for making a close joint between the roof and structures passing through or above the roof.

12. LAP-JOINT. Roofs composed of wooden boards, in which the joints are protected by inside or outside battens or in which the joints are formed by the overlapping of boards forming the roof.

22. METALLIC, INTERLOCKING LAP-SEAM. The roofing-sheets are folded at the edge, so as to interlock and form a flat seam.

13. METALLIC, MISCELLANEOUS. Sheet-metal roofs not clearly classifiable in other subclasses.

18. METALLIC, RIB-SEAM. Seams formed along ribs in the roof by folding the roofing-sheets over an underlying batten or by bending the edges of the sheets into ribs and laying one over the other.

19. METALLIC, RIB-SEAM, CAPPED. Seams formed by upturning the margins of the sheets, bending their edges outward, covering them with a broad cap, and flattening the seams, or by placing a cap over a rib-seam of the ordinary type instead of lapping the sheets.

17. METALLIC, SHINGLE. Metallic sheets or plates prepared for laying like shingles and requiring no further manipulation to form joints.

20. METALLIC, STANDING-SEAM. The upturned margins of the sheets are brought together and the edges folded over to form the joints; also, the anchors and cleats for fastening the sheets.

21. METALLIC, STANDING-SEAM, CAPPED. The upturned margins of the sheets are covered by a cap clamped over them instead of being merely folded. The seams are not flattened.

1. MISCELLANEOUS. Non-metallic roofs not classifiable under the other subclasses; also, miscellaneous attachments to roofs.

4. OBSERVATORY-DOMES. The structure of domes of glass or other material for observatories and trucks for supporting such domes.

3. PORTABLE. Roofs designed for temporary use and adapted to be readily carried from place to place.

24. RIDGES. Saddle-pieces and ornamental crests for the ridges or hips of roofs.

16. SKYLIGHTS. Frames, glass bars, combined sheet-metal gutters and bars, arrangements for ventilating without admitting rain, and other structures pertaining to roof-skylights. Metal plates with small lenses inserted are classified under Class 94, PAVING, Vault-covers. Glass plates for greenhouse roofs or skylights and devices for fastening the plates to the bars are found under Class 108, ROOFS, Tile.

31. SKYLIGHTS, OPERATING DEVICES. Devices for opening, closing, and securing the skylight or its cover.

8. SLATE AND SHINGLE. Various forms of shingles of wood, slates, and artificial shingles and slates.

9. SLATE AND SHINGLE, LAYING. Methods of laying slate and shingle roofs and fastening devices for slates and shingles.

11. THATCH. Roofs composed of wisps of straw or grass.

10. TILE. Structure of roofing-tiles and methods of laying tiles on roofs, including fasteners for tiles.

23. TRUSSES. Frames of wood or metal for supporting roors.

25. VALLEYS. Constructions for forming a gutter between two oppositely-sloping portions of a roof and forming close joints therewith.

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UNITED STATES PATENT OFFICE,
Washington, D. C., March 21, 1899.

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C. H. DUELL,
Commissioner.

CLASS 108.—ROOFS.

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25. VALLEYS. Constructions for forming a gutter between two oppositely-sloping portions of a roof and forming close joints therewith.

Revision of Classification.

(ORDER No. 1,306.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., October 2, 1899.

The following changes in the classification of inventions are hereby directed, to take effect this day:

Abolish the following subclasses:

Division 11.—Class 12, Boots and Shoes. Subclass 32, Hand nailing implements; subclass 33, Heel-nailing machines; subclass 13, Pegging-machines, nails and pegs; subclass 35, Pegging-machines, wire.

Division 5.—Class 11, Bookbinding. Subclass 6, Book-stapling; subclass 34, Book-stapling, continuous-feed.

Division 29.—Class 144, Woodworking-machines. Subclass 78, Box-nailing machines; subclass 46, Wiring blinds.

The patents in these subclasses are transferred to a new class established in Division XI, with the following title and subclasses:

CLASS 1.—NAILING AND STAPLING.

44. Glaziers' point-setters.
Implements—
47. Nail-driving—
46. Magazine.
48. Staple forming and setting.
50. Staple-setting—
49. Magazine.
Strip—
52. Nail and peg,
53. Tack.
51. Wire-nail forming and driving,
43. Lath and shingle nailing.
Machines—
Blind slat and rod—
54. Staple forming and setting,
55. Staple-setting.
Book—
7. Staple forming and setting,
8. Staple-setting.
Box—
14. Assembling and nailing.
10. Nail-driving—
16. Nail-feeding,
15. Tables.
9. Nail forming and driving.
11. Staple forming and setting—
12. Sheet-metal,
13. Staple-setting.
1. Nail-driving—
5. Boxes,
6. Nail-feeding.
40. Packet-looping,
17. Paper folding and stapling,
Machines—
42. Reels.
Shoe—
32. Heel-nailing—
36. Cross-head,
35. Cross-head and turret,
37. Laterally-adjustable driver-block,
38. Multiple rotary heel-support,
39. Nail-feeding.
34. Heel-plate attaching,
33. Heel pressing and loading.
19. Nail-driving—
18. Magazine.
20. Staple forming and setting.
21. Staple-setting.
Strip—
22. Nail,
23. Peg,
24. Tack.
25. Wire inserting and cutting—
26. Screw.
27. Wire-nail forming and driving—
28. Direct wire-feed,
29. Pivoted nail-carrier,
30. Reciprocating nail-carrier,
31. Rotary nail-carrier.
41. Work-supports.
2. Staple forming and setting.
4. Staple-setting—
3. Magazine.
45. Magazine-hammers.

C. H. DUELL,
Commissioner.

CLASS 1.—NAILING AND STAPLING.

NAILING AND STAPLING. This class has been divided into "Implements" and "Machines" and the latter into the various types of blind slat and rod, book, box, shoe, heel, and miscellaneous nailing and stapling. Analogous lines for further subdivision under each heading have been followed. The subclasses are all more or less related and a complete search will frequently include all subclasses having analogous titles under the various headings.

(NOTE.—For features of staple-forming machines search should further be made in class 59, CHAINS, STAPLES, AND HORSESHOES, staples, making.)

(For features of staple setting and riveting machines search should also be made in the various subclasses in class 218, BUTTON, EYELET AND RIVET SETTING.)

(For features of shoe-nailing search should include the combined machines for nailing, lasting, trimming, etc., under class 12, BOOTS AND SHOES.)

44. GLAZIERS' POINT-SETTERS. Machines and implements for setting glaziers' brads or points.

47. IMPLEMENTS, NAIL-DRIVING. Miscellaneous nailing devices, nail-holders, etc., not classified in any of the other subclasses.

46. IMPLEMENTS, NAIL-DRIVING, MAGAZINE. Those adapted to drive loose nails which are fed by suitable chutes from hoppers, magazines, etc., to a position beneath the plunger.

48. IMPLEMENTS, STAPLE FORMING AND SETTING. Those which form the staple from a continuous wire, or cut it from a prepared metal staple-strip, and then set the staple in the work.

50. IMPLEMENTS, STAPLE-SETTING. Those which simply set staples which are placed by hand in the stapling-jaws.

49. IMPLEMENTS, STAPLE-SETTING, MAGAZINE. Those in which the loose staples are placed in a magazine or hopper and are automatically fed to a setting position.

52. IMPLEMENTS, STRIP, NAIL AND PEG. Those adapted to cut a nail from a metal strip (either ribbon or comb) or a peg from a peg-wood strip, which strip is automatically fed to position, and then drive the nail or peg.

53. IMPLEMENTS, STRIP, TACK. Those adapted to drive tacks from a tack-strip.

51. IMPLEMENTS, WIRE-NAIL FORMING AND DRIVING. Implements which cut the nail from wire or a nail-string and drive the nail.

43. LATH AND SHINGLE NAILING. Special machines for holding and nailing lath or shingles to position.

54. MACHINES, BLIND SLAT AND ROD, STAPLE FORMING AND SETTING. Blind-wiring machines which form the wire staple and set it into the slats or slat-rods, or both.

55. MACHINES, BLIND SLAT AND ROD, STAPLE-SETTING. Those machines which wire the slats or rods without forming the staples. The latter are usually fed down an incline.

7. MACHINES, BOOK, STAPLE FORMING AND SETTING. Machines adapted to cut short lengths from a continuous wire, bend them into staples, and insert and clench them in the work.

8. MACHINES, BOOK, STAPLE-SETTING. Those machines adapted to set previously-formed staples which are fed by hand or by a chute to the setting-jaws.

14. MACHINES, BOX, ASSEMBLING AND NAILING. Those in which the shooks or box-blanks are placed in receptacles or upon traveling belts and are automatically fed to position and nailed.

10. MACHINES, BOX, NAIL-DRIVING. Miscellaneous subclass containing various box-nailing machines which are not classifiable in any of the other subclasses of this art.

16. MACHINES, BOX, NAIL-DRIVING, NAIL-FEEDING. Those machines in which the novelty lies in means for arranging and distributing loose nails in position to be driven, *usually* by hoppers and chutes.

15. MACHINES, BOX, NAIL-DRIVING, TABLES. Machines in which the novelty lies in the table to support the box while it is being nailed, the devices for adjusting, elevating and depressing the table, clenching the nails, and also for clamping the box in the nailing position.

9. MACHINES, BOX, NAIL FORMING AND DRIVING. Machines adapted to cut the nail from a continuous wire, nail-string, nail strip or comb, and drive it into the box.

11. MACHINES, BOX, STAPLE FORMING AND SETTING. Machines adapted to cut short lengths from wire, bend them to staple form, and set them into the corners of pasteboard, veneer, and other light boxes.

12. MACHINES, BOX, STAPLE FORMING AND SETTING, SHEET-METAL. Machines adapted to stamp out, bend up, and set from a continuous ribbon, or cut from a previously-stamped continuous ribbon, (usually of tin,) many-pronged stays and set them into the corners of boxes of light materials.

13. MACHINES, BOX, STAPLE-SETTING. Machines adapted to set sheet-metal or wire stays or staples into box-corners.

1. MACHINES, NAIL-DRIVING. Miscellaneous subclass of nail-driving machines for various purposes, not classifiable in any of the other subclasses.

5. MACHINES, NAIL-DRIVING, BOXES. The box or throat which suspends the nail beneath the plunger while the latter descends to force the nail to position.

6. MACHINES, NAIL-DRIVING, NAIL-FEEDING. Miscellaneous subclass of devices not peculiar to any special kind of machine or implement, but capable of *general* use for arranging and feeding loose nails for nailing machines or implements.

40. MACHINES, PACKET-LOOPING. Machines adapted to insert hanging-loops, usually of wire, into the corners of packages of paper or pamphlets.

17. MACHINES, PAPER FOLDING AND STAPLING. Those adapted to fold sheets, usually continuously-fed newspapers from a printing-press, form wire staples, and set them in the work.

42. MACHINES, REELS. Reels for coils of wire from which the wire nail or staple lengths are cut in the forming and driving machines.

32. MACHINES, SHOE, HEEL-NAILING. Various types of machines for driving loose nails into shoe-heels to secure them to the shoes.

36. MACHINES, SHOE, HEEL-NAILING, CROSS-HEAD. That type of machine which has a reciprocating cross-head.

35. MACHINES, SHOE, HEEL-NAILING, CROSS-HEAD AND TURRET. Those machines in which the reciprocating cross-head supports a turret or revolving head which carries the gangs of awls, drivers, the spanker, etc.

37. MACHINES, SHOE, HEEL-NAILING, LATERALLY-ADJUSTABLE DRIVER-BLOCK. Those in which the driver-block is moved laterally to bring the awl or driver gang or the spanker into operative position.

38. MACHINES, SHOE, HEEL-NAILING, MULTIPLE ROTARY HEEL-SUPPORT. Machines in which several jacks or dies are mounted upon a rotary support.

39. MACHINES, SHOE, HEEL-NAILING, NAIL-FEEDING. Devices for arranging and distributing or feeding loose nails.

34. MACHINES, SHOE, HEEL-PLATE ATTACHING. Machines for attaching heel-plates to shoe or boot heels.

33. MACHINES, SHOE, HEEL PRESSING AND LOADING. Those machines adapted to press and tack the heel-lifts together, to prick them for loading, or to prick and also load them.

19. MACHINES, SHOE, NAIL-DRIVING. Miscellaneous loose nail-driving shoe-machines not classifiable in any of the other subclasses.

(Note.—Search should include combined lasting and nailing machines.)

18. MACHINES, SHOE, NAIL-DRIVING, MAGAZINE. Machines in which loose nails are automatically fed to the driving position, usually from a chute and rotary hopper.

20. MACHINES, SHOE, STAPLE FORMING AND SETTING. Those adapted to cut and form staples and set them into the shoe.

21. MACHINES, SHOE, STAPLE-SETTING. Those adapted to set staples.

22. MACHINES, SHOE, STRIP, NAIL. Machines adapted to cut nails from a metal ribbon or comb and drive the nail so formed.

23. MACHINES, SHOE, STRIP, PEG. Those adapted to cut pegs from a peg-wood strip and drive them.

24. MACHINES, SHOE, STRIP, TACK. Machines adapted to make tack-strips, those adapted to drive tacks from a strip, methods of making tack-strips, and novel forms of strips.

25. MACHINES, SHOE, WIRE INSERTING AND CUTTING. Those machines adapted to force wire into the work and afterward cut it off even with the surface of the sole.

26. MACHINES, SHOE, WIRE INSERTING AND CUTTING, SCREW. Machines adapted to insert screw-wire by a rotary movement of the spindle and afterward cut the wire even with the surface of the sole.

27. MACHINES, SHOE, WIRE-NAIL FORMING AND DRIVING. Machines which form a nail from a continuous wire and drive it.

28. MACHINES, SHOE, WIRE-NAIL FORMING AND DRIVING, DIRECT WIRE-FEED. Those in which the wire or nail string is fed into a throat directly beneath the plunger and there cut and driven.

29. MACHINES, SHOE, WIRE-NAIL FORMING AND DRIVING, PIVOTED NAIL-CARRIER. Those in which the wire is fed into a pivoted carrier and when the nail is cut the carrier is swung in position to bring the nail beneath the plunger.

30. MACHINES, SHOE, WIRE-NAIL FORMING AND DRIVING, RECIPROCATING NAIL-CARRIER. Those in which the carrier, which usually *shears* the nail off by movement, reciprocates from the position for receiving the end of the wire to that which brings the nail in line with the plunger.

31. MACHINES, SHOE, WIRE-NAIL FORMING AND DRIVING, ROTARY NAIL-CARRIER. Those in which the carrier rotates from the position of receiving the wire end to bring the cut-off nail in line with the driver.

41. MACHINES, SHOE, WORK-SUPPORTS. Horns and jacks to support the shoe in nailing position.

2. MACHINES, STAPLE FORMING AND SETTING. Miscellaneous subclass of machines, not classifiable in the other subclasses, which are adapted to form staples from short lengths cut from wire or from a prepared staple-strip and set them into various kinds of work.

4. MACHINES, STAPLE-SETTING. Miscellaneous subclass of machines which set staples placed in position by hand.

3. MACHINES, STAPLE-SETTING, MAGAZINE. Miscellaneous subclass of machines in which loose staples are automatically fed to setting position from receptacles or magazines.

45. MAGAZINE-HAMMERS. Hammers which are provided with magazines into which loose nails are placed and fed to driving position.

Revision of Classification.

(Order No. 1,816.)

Department of the Interior,
United States Patent Office,
Washington, D. C., November 21, 1899.

The following changes in the classification of inventions are hereby directed, to take effect this day:

Division XIII.—Abolish class 77, Metal Boring and Drilling, and in lieu thereof substitute class 77, Boring and Drilling, with subclasses as follows:

CLASS 77.—BORING AND DRILLING.

55. Appliances—
56. Boring-bars—
57. Feed devices,
58. Boring-heads,
59. Drill-braces,
60. Drill-holders,
62. Jigs,
61. Non-circular cut,
63. Work-supports—
64. Indexing.

Boring-machines—
3. Horizontal,
1. Miscellaneous,
2. Portable,
4. Vertical.

Drilling-machines—
31. Angular spindle adjustment,
35. Back gears,
19. Bench,
18. Center drills,
36. Counterweights,
32. Feed mechanisms—
33. Automatic-stop,
34. Frictional,
29. Friction-drive,
6. Independent-motor,
5. Miscellaneous,
Multiple-spindle—
21. Axially-opposite,
22. Parallel axes—
23. Circular gang,
24. Independent adjustment,
26. Radial axes,
25. Turret,
7. Portable—
16. Bow,
Clamped—
14. Chain,
12. Drilling and tapping,
13. Screw,
17. Cord-and-spring drive,
15. Flexible-shaft,
8. Rail-drills—
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28. Vertically-adjustable arm,
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66. Drills and countersinks,
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73. Pipe-bur,
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37. Tapping mains—
38. Closed tool-chamber—
39. Multiple-tool holder,
40. Valved—
41. Permanent—
42. Annular cutter.

C. H. DUELL,
Commissioner.

CLASS 77.—BORING AND DRILLING.

DEFINITIONS.

BORING AND DRILLING. This class includes machines and devices for producing finished holes, usually circular in cross-section, by means of a rotating cutter and mainly in metal, though the class is not limited to metal-working. Boring is distinguished from drilling in that boring enlarges and trues a hole already existing, while drilling produces a hole in solid material.

(Note.—Machines and tools for boring holes in wood are found in class 144, Woodworking, Boring; those for producing holes in stone are in class 125, Stone-Working, Drills, and those for bone, ivory, mother-of-pearl, etc., are found in class 79, Metal, Personal Wear, Making, Buttons, Drilling and Turning.)

55. APPLIANCES. Devices other than complete machines for driving, handling, and guiding tools or for supporting or securing the work. This is the miscellaneous subclass for such devices.

56. APPLIANCES, BORING-BARS. Rotary bars supported on centers and carrying a cutter or cutters intermediate the ends for enlarging and truing to circular cross-section and uniform or varying longitudinal sections openings already made in the work by coring or otherwise.

(Note.—To complete a search for these devices, subclass Boring-machines, portable; class 77, Boring and Drilling, should be investigated.)

57. APPLIANCES, BORING-BARS, FEED DEVICES. Mechanisms for giving the cutter of a boring-bar either axial or lateral movement with relation to the bar.

(Note.—To complete a search for these devices, subclass Boring-machines, portable, class 77, Boring and Drilling, should be investigated.)

58. APPLIANCES, BORING-HEADS. Cutting devices differing from boring-bars in being supported at but one end and carrying the cutter at or near the other.

59. APPLIANCES, DRILL-BRACES. Devices attached to the work to support the drilling mechanism and receive the thrust of the feed-screw.

60. APPLIANCES, DRILL-HOLDERS. Devices for surrounding the tang or shank of a drill to prevent its rotation when used in a lathe.

62. APPLIANCES, JIGS. Miscellaneous devices for securing precision in the size, direction, and location of drilling holes.

61. APPLIANCES, NON-CIRCULAR CUT. Coöperating cutters and templets or organized attachments for producing holes of various cross-sections other than circular.

(Note.—To complete a search for these devices, subclass Augers, square-hole cutters, class 145, Woodworking-Tools, should be investigated.)

63. APPLIANCES, WORK-SUPPORTS. Tables, centers, vises, etc., for supporting and securing work while being drilled.

(Note.—To complete a search for these devices, subclass Boring, class 144, Woodworking, and subclass Drilling-machines, center drills, class 77, Boring and Drilling, should be investigated.)

64. APPLIANCES, WORK-SUPPORTS, INDEXING. Those work-supports which are adapted to move the work-piece in such a manner that holes may be drilled at predetermined circumferential or linear distances apart.

BORING-MACHINES. Organized machines for enlarging rough holes—that is, holes previously cored or forged—as distinguished from drilling-machines in which the tool makes a hole in solid material. A further distinction, of degree only, is that boring-machines produce holes much larger in cross-section than do drilling-machines. Either tool or work may rotate.

3. BORING-MACHINES, HORIZONTAL. Machines in which the axis of the cutter-carrier is horizontally arranged.

1. BORING-MACHINES, MISCELLANEOUS. Machines for enlarging and finishing holes of circular cross-section not otherwise classified.

2. BORING-MACHINES, PORTABLE. Machines, mostly hand-driven, easily movable and which are secured to the work to re-bore worn surfaces or finish pieces of unwieldy size.

(Note.—To complete a search for these devices, subclasses Appliances, boring-bars, and Appliances, boring-bars, feed devices, class 77, Boring and Drilling, should be investigated.)

4. BORING-MACHINES, VERTICAL. Machines in which the cutter-carrying axis is vertically arranged or in which a non-rotary cutter has a vertical travel while the work rotates.

DRILLING-MACHINES. Machines for producing holes of circular cross-section in solid material, usually by means of a rotating end-cutting tool.

31. DRILLING-MACHINES, ANGULAR SPINDLE ADJUSTMENT. Machines in which the rotating spindle is angularly adjusted with reference to the work and the main frame of the machine.

35. DRILLING-MACHINES, BACK GEARS. Shiftable gear-trains for changing the speed or direction of rotation, or both, of the tool-carrying spindle.

19. DRILLING-MACHINES, BENCH. Machines with light (usually hand) driving mechanisms and short frames designed to be attached to a work-bench.

18. DRILLING-MACHINES, CENTER DRILLS. Machines for bringing lathework into axial alinement with a rotating tool or series of such tools, so as to drill and countersink its ends to receive the lathe-centers.

36. DRILLING-MACHINES, COUNTERWEIGHTS. Weights and suspension apparatus for counterbalancing the weight of drill-heads, spindles, and other vertically-moving parts of machines.

32. DRILLING-MACHINES, FEED MECHANISMS. Mechanisms for relatively moving the tool, the work, or both to produce a cut.

33. DRILLING-MACHINES, FEED MECHANISMS, AUTOMATIC-STOP. Feed mechanisms in which the relative movement of approach between tool and work is arrested or reversed when the tool has cut to a predetermined depth.

34. DRILLING-MACHINES, FEED MECHANISMS, FRICTIONAL. Feed mechanisms with a yielding frictional drive to prevent overfeed of the cutting-tool.

29. DRILLING-MACHINES, FRICTION-DRIVE. Machines in which the spindle is rotated by either friction-disks or friction-clutches.

6. DRILLING-MACHINES, INDEPENDENT-MOTOR. Machines in which the motor is integral with the machine-frame.

5. DRILLING-MACHINES, MISCELLANEOUS. All machines for drilling metal and analogous material not otherwise classified.

DRILLING-MACHINES, MULTIPLE-SPINDLE. Machines having a plurality of drill-spindles.

21. DRILLING-MACHINES, MULTIPLE-SPINDLE, AXIALLY-OPPOSITE. Multiple-spindle drills in which the spindles are in axial alinement and the drills cut toward each other from opposite sides of the work.

(Note.—To complete a search for these devices, subclass Boring, brush, multiple-bit, class 144, Woodworking, and subclass Buttons, drilling and turning, class 79, Metal Personal Wear, Making, should be investigated.)

22. DRILLING-MACHINES, MULTIPLE-SPINDLE, PARALLEL AXES. Machines in which the sets of spindles are arranged parallel to drill a number of holes in the same direction.

(Note.—To complete a search for these devices, subclass Drilling-machines, center drills, class 77, Boring and Drilling, should be investigated.)

23. DRILLING-MACHINES, MULTIPLE-SPINDLE, PARALLEL AXES, CIRCULAR GANG. Machines in which the parallel drill-spindles are arranged to drill holes in the circumference or a segment of the circumference of a circle.

24. DRILLING-MACHINES, MULTIPLE-SPINDLE, PARALLEL AXES, INDEPENDENT ADJUSTMENT. Machines in which one or more of the set of parallel drill-spindles can be laterally adjusted without disturbing the position of other spindles.

26. DRILLING-MACHINES, MULTIPLE-SPINDLE, RADIAL AXES. Machines in which the series of spindles direct the drills radially either toward or from a common center.

25. DRILLING-MACHINES, MULTIPLE-SPINDLE, TURRET. Machines in which the series of spindles are so arranged in a revolving frame that they can be brought successively into operative contact with a driving-spindle.

7. DRILLING-MACHINES, PORTABLE. Machines intended to be brought to the work or secured thereto, as distinguished from those placed on a foundation and supporting the work.

16. DRILLING-MACHINES, PORTABLE, BOW. Devices in which the drill-spindle is given intermittent reverse rotations by a reciprocating bow and cord or analogous means.

14. DRILLING-MACHINES, PORTABLE, CLAMPED, CHAIN. Drilling devices secured to the work by a chain passing around the work and having tightening means at its ends.

12. DRILLING-MACHINES, PORTABLE, CLAMPED, DRILLING AND TAPPING. Drilling devices secured to the work, usually by a chain, and carrying a combined tool for drilling and threading a hole at one operation.

(Note.—These devices differ from main-tapping machines in that there is no provision for preventing the flow of fluids from around the tool. They are equally well adapted for producing threaded bolt-holes in columns, etc.)

13. DRILLING-MACHINES, PORTABLE, CLAMPED, SCREW. Drilling devices which are secured to the work by screw-operated jaws or pointed screws.

17. DRILLING-MACHINES, PORTABLE, CORD-AND-SPRING DRIVE. Hand-drills in which the drill-spindle is rotated in the cutting direction by the pull of a cord, which movement also winds a spring, the spring upon release of the cord rotating the spindle in the reverse direction and recoiling the cord.

15. DRILLING-MACHINES, PORTABLE, FLEXIBLE-SHAFT. Portable drills to which power is supplied through flexible shafting.

8. DRILLING-MACHINES, PORTABLE, RAIL-DRILLS. Machines for drilling railroad-rails in place upon the track.

11. DRILLING-MACHINES, PORTABLE, RAIL-DRILLS, CLAMP-FRAMES. Frames for securing the drilling mechanism to the rail and for receiving the thrust of the feed-screw.

(Note.—To complete the search for these devices, subclass Drilling-machines, portable, rail-drills, ratchet, class 77, Boring and Drilling, should be investigated.)

9. DRILLING-MACHINES, PORTABLE, RAIL-DRILLS, QUICK-SETTING. Rail-drills in which either the securing means or spindle-driving means are readily detachable to permit the passage of trains.

10. DRILLING-MACHINES, PORTABLE, RAIL-DRILLS, RATCHET. Rail-drills in which the drill-spindle is rotated by pawl-and-ratchet mechanism.

(Note.—For this type of spindle-drive search must also be made in class 77, Boring and Drilling, Ratchet-Drills, and subclasses thereunder.)

20. DRILLING-MACHINES, POST. Light drills, usually hand-driven, adapted to be rigidly secured to an upright side post or column.

27. DRILLING-MACHINES, RADIAL. Machines with a swinging radial arm which permits the adjustment of the spindle to any position within a circle or a considerable sector of a circle.

28. DRILLING-MACHINES, RADIAL, VERTICALLY-ADJUSTABLE ARM. Radial drills in which the spindle-carrying arm is vertically movable on the central column.

30. DRILLING-MACHINES, TREADLE-FEED. Machines in which the drill and work are made to approach by depressing a treadle.

67. DRILLS. The immediate cutting portion of the drilling mechanism having cutting edges or "lips" for cutting on its advancing end.

69. DRILLS, ANNULAR. Cutters which remove the metal in an annular path, detaching a central core or disk entire.

(Note.—To complete a search for these devices, subclass Tapping mains, closed tool-chamber, valved, permanent, annular cutter, class 77, Boring and Drilling; subclass Augers, sweeps, class 145, Woodworking-Tools; subclass Special work machines, single or combined, disk-cutting, sweep-cutter, class 144, Woodworking, and subclass Tubular-saw machines, class 143, Wood-Sawing, should be investigated.)

65. DRILLS, COMBINED. Cutters in which the piercer or drill is combined with a facing-tool, reamer, or similar secondary cutter.

66. DRILLS, COMBINED, DRILLS AND COUNTERSINKS. Cutters in which the piercer is combined with a secondary cutter for producing a conical depression surrounding the drill-hole.

(Note.—To complete a search for these devices, subclasses Augers, countersinks, and Augers, secondary cutters, class 145, Woodworking-Tools, should be investigated.)

68. DRILLS, OIL CONDUIT. Cutting-tools having a groove or tube to conduct lubricants to the cutting-lip of the drill; also, oiling-sockets for such drills.

71. DRILLS, TANGS. Cutters showing special means for fastening them in the socket of the driving-spindle.

70. DRILLS, TWIST. Cutters having helical chip-discharging grooves.

44. RATCHET-DRILLS. Hand-driven devices in which the spindle is intermittently rotated by a lever operating a ratchet and pawl or some intermittently-gripping device analogous to a ratchet and pawl.

(Note.—To complete a search for these devices, subclass Pawls and ratchets, class 74, Machine Elements; subclass Metal wrenches, ratchet and wheel, class 81, Metal-Working Tools; subclass Drilling-machines, portable, rail-drills, ratchet, class 77, Boring and Drilling, and subclass Bit-stocks, ratchet, class 145, Woodworking-Tools, should be investigated.)

49. RATCHET-DRILLS, AXIALLY-YIELDING CLUTCH. Hand-lever drills in which the driving and driven members of the gripping device separate in the direction of the axis of the drill-spindle to secure a new driving position.

50. RATCHET-DRILLS, BAND-GRIP. Drilling devices in which a jointed or yielding band surrounding the drill-spindle is alternately tightened and released by the driving and return movements of the hand-lever.

43. RATCHET-DRILLS, COMBINATION. Hand-lever drills of the general ratchet-and-pawl type having combined with or readily substituted for the drill-socket means for performing some other function, such as tightening nuts, cutting threads, etc.

46. RATCHET-DRILLS, DOUBLE-ACTING, AXIALLY-SWINGING LEVER. Lever-drills in which the driving-lever swings in the plane of the drill-axis or one parallel thereto and produces a partial rotation of the spindle when swung in either direction.

47. RATCHET-DRILLS, DOUBLE-ACTING, TRANSVERSELY-SWINGING LEVER. Devices with a forward drive of the spindle for either forward or backward swing of the lever, the lever moving in a plane approximately at right angles to the drill-spindle axis.

54. RATCHET-DRILLS, FEED-SCREWS. Spindle-advancing screws adapted to ratchet-drills and arranged to bear at one end upon the spindle-axis and at the other upon a backing-piece.

48. RATCHET-DRILLS, REVERSIBLE. Devices in which the direction of rotation of the drill-spindle may be reversed—usually by manipulation of the driving pawl or pawls.

45. RATCHET-DRILLS, SELF-FEEDING. Devices in which the feed is operated by frictional means or by the same oscillations of the driving-lever which rotate the drill-spindle.

51. RATCHET-DRILLS, SLIDING-PAWL. Devices in which the pawl moves to and from the ratchet in the direction of its length instead of about a pivot.

52. RATCHET-DRILLS, WEDGING-PAWL. Devices in which the positively-driving pawl actuating on serrations of the ratchet is replaced by irregular pieces which grip by being canted or by being moved forward between approaching surfaces and are released on the backward stroke.

53. RATCHET-DRILLS, WEDGING-PAWL, ROLLER-GRIP. Devices, like the preceding, in which wedges constitute a system of rollers between surfaces against which they wedge on the working stroke and from which they are released on the backward stroke.

72. REAMERS. Rotating cutting devices with substantially longitudinal cutting edges converging at the forward end for removing small cuts to smooth and size or shape a hole. They are to be distinguished from boring-heads and other boring-cutters in that they are incapable of taking heavy cuts.

75. REAMERS, ADJUSTABLE. Reamers which may be varied in diameter either to compensate for wear or to vary the size of the cut.

76. REAMERS, ADJUSTABLE, CENTRAL-CONE. Adjustable reamers in which the diameter is varied by the axial movement of a centrally-located cone, upon which the cutting-blades rest, or of the blades upon the cone.

77. REAMERS, COUNTERSINKS. Cutting devices for producing or finishing conical depressions about the mouth of a hole.

78. REAMERS, PIPE-BUR. Devices for removing from the interior of pipes the bur thrown up by the pipe-cutter.

74. REAMERS, SHELL. Short reaming-heads with exterior cutting-teeth and central openings for the driving-mandrel.

87. TAPPING MAINS. Portable devices for tapping gas and water mains under pressure.

(Note.—Devices with no provision for arresting the flow of gas or water from the main will be found in subclass Drilling-machines, portable, clamped, chain, and subclass Drilling-machines, portable, clamped, drilling and tapping, of class 77, BORING AND DRILLING.)

38. TAPPING MAINS, CLOSED TOOL-CHAMBER. Devices in which the escape of fluid is prevented by inclosing the cutting-tool in a tight chamber and operating it from without the chamber by suitable driving means.

39. TAPPING MAINS, CLOSED TOOL-CHAMBER, MULTIPLE-TOOL HOLDER. Devices in which the tool-chamber incloses a series of tools, with provision for bringing them successively into the same position to drill, thread, and close a hole in the main.

40. TAPPING MAINS, CLOSED TOOL-CHAMBER, VALVED. Devices in which the tool may be withdrawn to the rearward portion of the working chamber and the flow cut off by a valve to permit a change of tools.

41. TAPPING MAINS, CLOSED TOOL-CHAMBER, VALVED, PERMANENT. Devices, like the preceding, in which the valved chamber is permanently secured to the main and remains as the branch connection after the main is tapped.

42. TAPPING MAINS, CLOSED TOOL-CHAMBER, VALVED, PERMANENT, ANNULAR CUTTER. Devices, like the preceding, in which the cutting mechanism travels in an annular path and removes a large portion of the main wall entire in line with the branch connection. There is usually provision for preventing the piece severed from falling into the main.

(Note.—To complete a search for these devices, subclass Drills, annular, class 77, BORING AND DRILLING; subclass Special work machines, single or combined, disk-cutting, sweep-cutter, class 144, WOODWORKING; subclass Augers, sweeps, class 145, WOODWORKING-TOOLS, and subclass Tubular-saw machines, class 143, WOOD-SAWING, should be investigated.)

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DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, ETC.

OFFICIAL GAZETTE—OCTOBER–DECEMBER, 1900.

DIGEST OF DECISIONS.

[Decisions of the United States courts are indicated by an asterisk (*).]

ABANDONMENT.

ABANDONED APPLICATION.

Presentation of an amendment which is refused entry after a decision by the Examiners-in-Chief does not save the case from abandonment.

[*Ex parte* Grant, 2532.

ACCOUNTING.

(See Contract to Prosecute an Application.)

ADMINISTRATOR.

(See Application, 2, 3; Withdrawal of Allowed Cases from Issue, 1, 2.)

AFFIDAVITS.

(See Interference, 16, 17, 18, 19.)

AMENDMENTS.

(See Abandonment; Interference, 6, 7; New Matter; Preliminary Statements, 3.)

1. REQUIREMENT OF DIVISION.

Where an amendment is presented which in the opinion of the Examiner covers two distinct and independent inventions, he should not admit it until the question of division has been disposed of. (*Ex parte Bailey*, 52 O. G., 608, and *ex parte Richter*, 85 O. G., 1908.)

[*Ex parte* Murmann, 1721.

2. SAME—APPLICATION INCORRECTLY CLASSIFIED.

Where an amendment is filed which proposes to cancel all the claims and substitute others which the Examiner states cover two distinct inventions, neither of which is examinable in his division, he should not admit the amendment and require division, but he should transfer the application so that the Examiner to whom it is transferred may comply with the practice of the Office and give the applicant an intelligent cursory examination to aid him in dividing. [Id.

3. NEW MATTER.

Where the original application showed and described a cylinder as inclined, and stated that the inclination may be changed to increase or diminish the feed, *Held* that this furnishes no basis for an amendment stating that it is important that the base of the cylinder should be level.

[*Ex parte* Welch, 2105.

4. PRACTICE OF RAISING FORMAL OBJECTIONS PIECEMEAL CONDEMNED.

The practice of raising objections to an amendment for the first time only after sending the applicant to the Commissioner on a petition directed to other objections to the same amendment has been repeatedly condemned. (*Ex parte Kitson*, 20 O. G., 1750; *ex parte Bertrand*, 69 MS. Dec., 54.)

[*Ex parte* Blanchard, 2106.

5. SAME—REFUSAL OF EXAMINER TO COMPLY WITH COMMISSIONER'S ORDER.

Where the Examiner refused to enter an amendment on the ground that the case stood finally rejected, and upon petition to the Commissioner he was directed to enter it, but thereafter for the first time raised the requirement for a supplemental oath against the amendment and again refused to enter it on the new ground that it was not accompanied by such an oath, *Held* that the Examiner's refusal to comply with the order to enter the amendment admits of no excuse. Having violated Rule 64, which requires that all objections be raised at one time, he is in no position to hide behind a strained construction of Rule 48 to excuse his refusal to comply with the Commissioner's order. [Id.

APPEAL TO THE COMMISSIONER OF PATENTS.

(See Assistant Commissioner of Patents; Interference, 2.)

APPEAL TO THE COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

(See Mandamus.)

APPEAL TO THE EXAMINERS-IN-CHIEF.

1. REJECTION UPON AN ALLOWED APPLICATION AND A PATENT.

It being settled that it is proper in some cases to reject claims on an applicant's allowed case, the question whether the facts of the particular case justify it relates to the merits and is properly appealable to the Examiners-in-Chief and should not be passed upon by the Commissioner on petition.

[*Ex parte* Davidson, 191.

2. NEW MATTER AFFECTING CLAIMS.

Where matter held to constitute a departure from the original disclosure is involved in the merits of the claims, *Held* that the question will not be reviewed on petition, but is appealable to the Examiners-in-Chief.

[*Ex parte* Welch, 2105.

APPLICATION.

(See Assignments; Contract to Prosecute an Application; Date of Filing Applications.)

1. DECEASE OF INVENTOR BETWEEN THE DATE OF THE APPLICATION AND THE DATE OF FILING—STRIKING APPLICATION FROM THE FILES.

On March 10, 1900, there was received in the Patent Office an application duly executed on February 23, 1900, by Lewis as inventor of the subject-matter described therein. After the application was filed it came to the notice of the Office that the inventor died on March 1, 1900. *Held* that as the application was not made by the party authorized by the statutes and rules of the Office to make it, it should be stricken from the files.

[*Ex parte* Lewis, 1311.)

2. SAME—CONSTRUCTION OF STATUTE AND RULE.

The statute and the rule require that the application should be made by the executor or administrator when an inventor dies before an application is made, and the words "applying for" and "made by" are construed to mean the actual making or filing of the application in the Patent Office, and not to mean, as contended for, the execution of the application papers which are deposited in the Office. [Id.

3. SAME—INVENTION ASSIGNED.

The fact that the application was assigned before it was filed and before the inventor died does not seem to change the situation, as the statute is positive on the subject that only an executor or administrator can apply for a patent in the event of the death of the inventor. [Id.

ASSIGNEES.

(See Application, 3; Assignments; Preliminary Statements.).

ASSIGNMENTS.

1. ASSIGNEE PROSECUTING AN APPLICATION—CONFLICTING ASSIGNMENTS—OFFICE DECLINING TO DECIDE TITLE.

This Office must refuse to decide the question of the title to an invention when there are conflicting assignments of record or which one of two or more assignees is entitled to be recognized in the prosecution of the case, as it has no judicial power to try and determine such questions, and when there is such a dispute as in this case between assignees the Office will recognize the applicant, leaving the question of the right of the assignees to be settled by the courts.

[*Ex parte* McTammany, 751.

2. SAME—SAME—REQUEST THAT PATENT ISSUE TO ASSIGNEE.

Where it appears that there are two or more assignments of record in which the whole right is transferred and in only one of the assignments is there a request that the patent issue to the assignee, that assignee should be recognized in the prosecution of the case to the exclusion of the other assignee.

[Id.

3. SAME—SAME—SAME.
Where there are two or more assignments purporting to convey the exclusive right and in each there is a request that the patent issue to the assignee named therein, the Office should not determine which assignee has the right to the invention and to prosecute the case, but the applicant should be permitted to prosecute it and to appoint an attorney of his own selection, the question which assignee has the right to the invention being left to the courts. [Id.

1. SAME—SAME—SAME—ASSIGNEE HAVING ACCESS TO THE APPLICATION.
In any case where there is an assignment of a whole interest in an invention disclosed in an application or an undivided part thereof, whether accompanied by a request or not, the assignee may be permitted to be represented by an attorney of his own selection for the purpose of having access to the application, but not for prosecuting it, unless the applicant can show some good and sufficient reason why such assignee should not be permitted to have access to the case. [Id.

ASSISTANT COMMISSIONER OF PATENTS.

(See Construction of Statutes; Mandamus.)

1. COMMISSIONER OF PATENTS—POWER TO ASSION APPEAL TO THE ASSISTANT COMMISSIONER FOR HEARING AND DETERMINATION—CONSTRUCTION OF STATUTES—MANDAMUS.
Under the act of July 11, 1890, and subsequent statutes providing that the Assistant Commissioner of Patents shall perform such duties pertaining to the office of the Commissioner as may be assigned to him by the Commissioner, without specifying what the duties so assigned may be, the Commissioner in the due administration of the affairs of his office is empowered to determine what authority he has in the premises and a mandamus will not lie to control his action.
[*United States, *ex rel.* Stapleton, *v.* Duell, Commissioner of Patents, 2532.

2. SAME—SAME.
Where on appeal from the decision of the Examiners-in-Chief of the Patent Office to the Commissioner, the Commissioner referred the case to the Assistant Commissioner for his consideration and determination, although the Commissioner was present and engaged in other official duties, and the Assistant Commissioner heard and determined the case and thereafter the Commissioner declined to rehear the case, *Held* that a petition for writ of mandamus will not lie to compel the Commissioner to hear the case. [*Id.

ATTORNEYS.

(See Assignments, 2, 3, 4.)

CERTIFICATES OF CORRECTION.

1. PATENT, ERROR IN—CHANGING TITLE OF INVENTION—CORRECTING PATENT BY CERTIFICATE OF CORRECTION.
Where the Office failed to change the title of invention as requested by applicant and the patent was returned to the Office for correction, *Held* that it was proper to correct the error in the patent by a certificate of correction and that the Office should not be put to the expense of reissuing the patent.
[*In re* Condict, 551.

2 SAME—SAME—RULE 170.
Rule 170 provides for correcting a patent by a certificate of correction, and it is believed that the rule is valid and that the Commissioner has authority to correct such a mistake as was made in the printing of this patent by certificate of correction.
[Id.

CLAIMS.

(See Division of Application, 1, 2, 3, 4.)

CLASSIFICATION.

(See Amendments, 2.)

COMBINATION.

(See Construction of Specifications and Patents, 3; Division of Application, 3.)

COMMISSIONER OF PATENTS.

(See Amendments, 4; Appeal to the Examiners-in-Chief; Assistant Commissioner of Patents; Certificates of Correction, 2; Construction of Statutes; Examiners, 2; Interference, 11; Petition to the Commissioner; Trade-Marks, 9, 10, 11.)

CONSTRUCTION OF RULES.

(See Amendments, 5; Certificates of Correction; Division of Application, 4; Examiners; Interference, 1, 2, 6; Petition to the Commissioner; Preliminary Statements, 2.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Interference, 17; Particular Patents.)

1. CONSTRUCTION OF CLAIM—CLAIMS INTERPRETED BY THE ACTIONS ON THE APPLICATION.
A claim as allowed in the patent must be read and interpreted with reference to the rejected claims and to the prior state of the art and cannot be construed to cover either that which was rejected by the Patent Office or disclosed by prior devices. [*Hubbel *v.* United States, 1124.

2. SAME—SAME—MERE CHANGES OF EXPRESSION.
Where a difference between claims as made and as allowed consists of mere changes of expression having substantially the same meaning, such changes made to meet the views of the Examiner ought not to be permitted to defeat a meritorious claimant. While not allowed to revive a rejected claim by a broad construction of the claim allowed, yet the patentee is entitled to a fair construction of the terms of his claim as actually granted. [*Id.

3. SAME—SAME—MATERIAL ELEMENTS OF THE COMBINATION.
If a claim to a combination be restricted to specified elements, all must be regarded as material, and limitations imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor and in favor of the public and looked upon as in the nature of disclaimers. [*Id.

CONSTRUCTION OF STATUTES.

(See Application, 2, 3; Assistant Commissioner of Patents; Trade-Marks, 10, 11.)

WEIGHT TO BE GIVEN TO COMMISSIONER'S DECISION BY THE COURT.
While the construction of the statute by the Commissioner would not be binding upon a court should the statute properly come before it for interpretation, yet such construction placed upon it for a number of years would be entitled to great respect and might be controlling.
[*United States, *ex rel.* Stapleton, *v.* Duell, Commissioner of Patents, 2532.

CONTRACT TO PROSECUTE AN APPLICATION.

CONTRACT BASED ON UNPATENTED INVENTION—ACCOUNTING—ROYALTY.
Where a company agreed in consideration of the sale to it by F. of all his interest in an invention for which two applications for patent were pending in the Patent Office to pay him royalty on each device manufactured and to use due diligence in manufacturing and selling, and the company's attorney took charge of the prosecution of the applications, and the manufacture of the device was begun and it was extensively advertised, but subsequently M., an officer of the company, obtained a patent for a device effecting the same purpose as that of F., whereupon the company ceased to make the latter's device and substituted that of M., and one of F.'s applications after being allowed was placed in interference with other applications and was abandoned by the failure of the attorney to prosecute it and the other application was allowed to become forfeited by failure of the company to pay the final Government fee, and meanwhile the company became the owners of another patent claimed to dominate the devices of both F. and M. under which it continued to manufacture the device of M., and on the failure of the company to make any returns or render any account F. instituted proceedings for an accounting, *Held* that a decree holding F. entitled to royalty from the company for the devices manufactured under M.'s patent, as well as for those professedly manufactured under its contract with him, and directing a reference to the auditor for a statement of such account should be affirmed.
[*Eclipse Bicycle Company *v.* Farrow, 1312.

DATE OF FILING APPLICATIONS.

1. APPLICATION, CHANGING DATE OF—DRAWING NOT PROPERLY SIGNED.
Where application papers were received on January 17, 1898, but the drawing was returned because not properly signed, and on January 26, 1898, the drawing was again received properly signed, and the case was then given January 26, 1898, as the date of complete filing, a petition to change the date to January 17, 1898, when the papers were first filed, *denied.*
[*Ex parte* Arndt, 751.

2. SAME—SAME—SECTION 4889.
Section 4889 of the Revised Statutes provides that an applicant must furnish a drawing signed by the inventor or by his attorney in fact. Unless a drawing is so signed it cannot be received by the Office and made a part of the application, and under the rules and the well-established practice of the Office, until all the parts of an application are received, the application cannot be given a serial number and date of filing as a complete application. [Id.

DEATH OF APPLICANT FOR PATENT.

(See Withdrawal of Allowed Cases from Issue, 2.)

DEATH OF INVENTOR AFTER EXECUTION, BUT BEFORE FILING APPLICATION.

(See Application.)

DECISIONS OF THE COMMISSIONER OF PATENTS.

(See Construction of Statutes.)

DELAY IN FILING APPLICATION.

(See Interference, 10, 20, 21.)

DILIGENCE.

(See Interference, 20, 21.)

DISCLAIMERS.

(See Construction of Specifications and Patents, 3.)

DISMISSAL OF INTERFERENCE.

(See Interference, 3.)

DIVISION OF APPLICATION.

(See Amendments, 1, 2.)

1. INCONSISTENT CLAIMS—DIFFERENT SPECIES.
Where a claim includes features which could not be used with the device set forth specifically in other claims, *Held* that the claims are inconsistent and cover different modifications of the invention.
[*Ex parte* Welch, 2104.

2. SAME—SAME.
Where the claims will not all read upon a single figure of the drawings, but are not inconsistent and will read upon a single device which might be shown in a single figure, *Held* that they do not cover different species or modifications.
[Id.

3. ILLUSTRATION—CLAIMS READING UPON ONE FIGURE OF THE DRAWINGS.
Where a party wishes to claim the general combination of parts and the specific form of some of the elements, he should include the preferred form of the elements in the figure of the drawings illustrating the combination which he wishes to claim, so that all claims will read upon the device shown in a single figure. [Id.

4. PROCESS AND PRODUCT—CONSTRUCTION OF RULE 41.
That paragraph of Rule 41 which recites that claims for a process and its product may be presented in the same application gives the applicant authority to a certain extent to join claims for process and product or file separate applications therefor; but it does not take away the right of the Office to supervise and control this authority should occasion for the exercise of the reserve power arise.
[*Ex parte* Erdman, 2531.

5. SAME—PROJECTILE AND METHOD OF MAKING.
Where it appears on examination of the application that the method of making the projectile and the projectile itself are examinable in different divisions and that the projectile may be made by other methods than that claimed, *Held* that division should be required. [Id.

DRAWINGS.

(See Date of Filing Applications; Division of Application, 2, 3.)

1. EXCESSIVE NUMBER OF SHEETS.
Upon a petition from the requirement of the Examiner that the number of sheets of drawings in an application be reduced, *Held* that the Examiner and draftsman are experts, and when they agree the well-established rule that the proper illustration is largely within the judgment and discretion of the Examiner should be followed.
[*Ex parte* Diescher, 551.

2. SAME.
The practice of unnecessarily multiplying the number of sheets of drawings filed with applications is open to severe condemnation. To file unnecessary sheets of drawings is to increase the cost of photolithographing and to multiply the records, thereby delaying the Office in its searches and placing an unnecessary burden upon applicants. [Id.

ESTOPPEL.

(See Priority of Invention.)

EXAMINATION OF APPLICATION.

(See Amendments, 5.)

EXAMINER OF INTERFERENCES.

(See Interference, 3, 4, 5, 6, 11.)

EXAMINERS.

(See Amendments, 1, 2, 5; Drawings, 1; Interference, 1, 2, 4, 5, 6, 7, 19.)

1. RULE 66—EXAMINER COMPLYING WITH THE PROVISIONS THEREOF.
Where an Examiner rejected claims upon an "old way" of doing a thing and upon request of the applicant refused to make a particular citation of this old way or to furnish the affidavit required by Rule 66, *Held* that this rule is explicit in its requirement and that there is no excuse for failure on the part of an Examiner to be guided by the Rules of Practice, particularly where the language admits of but one construction, as in this case.
[*Ex parte* Garms, 190.

2. SAME—SAME.
Held, further, that it would have been much easier for the Examiner to comply with the rule instead of assuming to arbitrarily override it and force applicant to repeatedly request compliance with it, and finally to take a petition, consuming the Examiner's time in answering and obliging the Commissioner to review the case and write an opinion for the guidance of the Examiner in construing a rule that is as plain as A B C.
[Id.

EXAMINERS-IN-CHIEF.

(See Abandonment.)

EXAMINER'S LETTER.

(See Rejection of Cases.)

EXECUTORS.

(See Application, 2, 3.)

FINAL FEES.

(See Withdrawal of Allowed Cases from Issue, 3.)

FORFEITED CASES.

(See Withdrawal of Allowed Cases from Issue, 1, 3.)

FORMER DECISIONS.

(See Interference, 12.)

FRAUD.

INJUNCTION—THREATENING SUITS FOR INFRINGEMENT OF PATENTS.
While the owner of a patent may lawfully warn others against infringement and by means of circulars or letters distributed among agents and customers of a manufacturer of goods claimed to infringe give notice of his rights as he understands them and of his intention to enforce them by suits when done in good faith, the sending of such notices and circulars in bad faith and without any intention of bringing the suits therein threatened, but solely for the purpose of destroying the business of such manufacturer, constitutes a fraudulent invasion of property rights, against which the party injured is entitled to relief in equity by injunction.
[*Farquhar Company *v.* National Harrow Company, 192.

HEARING.

(See Assistant Commissioner of Patents.)

INFRINGEMENT.

(See Interference, 9.)

INJUNCTION.

(See Fraud.)

INTERFERENCE.

(See Preliminary Statements; Priority of Invention.)

1. MOTION UNDER RULE 122 TO DISSOLVE AN INTERFERENCE—TRANSMITTING MOTION.
Where it appears that a party to an interference could and should have made a motion to dissolve the interference within the time allowed by Rule 122 and that he would not be deprived of any substantial rights by failing to have the Examiner again consider the state of facts known during the treatment of the two applications involved in the interference, the motion should not be transmitted to the Examiner.
[Annand *v.* Spalckhaver, 753.

2. SAME—SAME.
When a motion to dissolve an interference is not made within the time fixed by Rule 122, it is permissible to consider the probability of the grant of the motion to dissolve and whether substantial justice cannot be done without the delay incident to the transmission of the motion to dissolve, its decision by the Primary Examiner, and in proper cases an appeal to the Commissioner. [Id.

3. MOTION TO DISMISS—AUTHORITY OF THE EXAMINER OF INTERFERENCES.
Since there is no provision in the rules whereby the Examiner of Interferences is empowered to dismiss an interference, *Held* that he properly refused to dismiss an interference on the ground that the question of priority is *res adjudicata*.
[Cammett *v.* Hallett, 989.

4. MOTION TO DISSOLVE—DUTY OF EXAMINER OF INTERFERENCES.
Where a motion for dissolution is in proper form, alleges proper grounds, and is filed within the twenty days allowed by the rule, *Held* that the Examiner of Interferences cannot properly refuse to transmit it. It is for the Primary Examiner to determine the propriety and sufficiency of the reasons advanced in support of the allegations in the motion. [Id.

5. MOTIONS—JURISDICTION OF THE PRIMARY EXAMINER.
The practice is well settled that after an interference has been declared the Primary Examiner will take jurisdiction of the case only for the consideration of the motions transmitted by the Examiner of Interferences.
[Smith *v.* Carmichael, 1123.

6. SAME—RULE 109.
Rule 109 contemplates only amendments inserting a claim to matter claimed by another party to the interference, and therefore the Examiner of Interferences properly refused to transmit to the Primary Examiner a motion to amend involving merely descriptive matter in the specification. [Id.

7. RIGHT TO MAKE CLAIM—AMENDMENT LAYING FOUNDATION FOR CLAIM—REOPENING CASE.
Where on a motion to dissolve the Examiner has held that a party has no right to make the claim and the limit of appeal has expired without any appeal having been taken, *Held* that the party cannot be permitted to reopen the entire question by merely filing an amendment to the specification laying a foundation for the claim. [Id.

8. PRIORITY—PATENTEE AND APPLICANT.
Upon a review of the testimony, *Held* that the presumption founded upon the patent of the senior party more than counterbalances all the evidence produced for the junior party and applicant, and the decision of the Commissioner awarding priority to the patentee affirmed.
[*Locke *v.* Boch, 1722.

9. SAME—SAME—ANALOGY BETWEEN INFRINGEMENT SUIT AND INTERFERENCE CASE—BURDEN OF PROOF.
In trying the question of priority of invention in an interference case between an applicant and a patentee the principle to be applied is substantially analogous to that which is applicable in a case of infringement where the defense is that the patentee is not the original and first inventor. In all such cases it is a fundamental principle of patent law that to invalidate or supersede a patent by prior invention the proof must establish the fact beyond reasonable doubt. [*Id.

10. SAME—SAME—APPLICANT'S DELAY IN FILING APPLICATION—PRESUMPTION.
Where the applicant alleged that he made the invention in 1892, yet he did not apply for a patent until 1898, after his opponent had obtained a patent, and in the interim he had filed several other applications, *Held* that it is reasonable to suppose that if applicant had in his possession the invention at the time alleged he would have applied for a patent earlier and not have held the invention unprotected for more than five years and until after another had applied for and obtained a patent for the same thing. [*Id.

11. MOTION TO RESTORE JURISDICTION TO THE EXAMINER OF INTERFERENCES AFTER AWARD OF PRIORITY.
After the Examiner of Interferences has made a decision on priority and the limit of appeal has expired he has lost jurisdiction to further consider the case, and before he can consider a motion to transmit a motion to dissolve the interference application must be made to the Commissioner in person to restore jurisdiction to the Examiner of Interferences.
[Benger *v.* Burson, 1917.

12. SAME—PRIOR DECISION CONSTRUED.
It is not understood that by the decision of *Trevette v. Dexter* (84 O. G., 1283) it was intended to change the practice outlined in *Garrison v. Hübner*, (84 O. G., 1889.) [Id.

13. MOTION TO REOPEN INTERFERENCE AFTER DECISION ON PRIORITY—JURISDICTION.
Where a motion to reopen an interference to take more testimony is made after decision on appeal on the question of priority, *Held* that it should be accompanied by a motion before the Commissioner to restore to the Examiner of Interferences jurisdiction to consider it.
[McCallum *v.* Bremer, 1917.

14. SAME—EVIDENCE NOT NEWLY DISCOVERED.
The allegation that a party failed to present all of his evidence through overconfidence and through a desire not to disclose the full strength of his proofs constitutes no valid ground for reopening the case to take more testimony and does not warrant transmitting the case to the Examiner of Interferences to consider the motion to reopen. [Id.

15. SAME—SHOULD BE MADE WITH DILIGENCE.
Where it is shown that the alleged new evidence was discovered before a decision on priority, but the party allowed the case to go to decision and took successive appeals from adverse decisions on that question before making a motion to reopen to take more testimony, *Held* that the motion is made too late. Motions to reopen should be made with diligence. [Id.

16. MOTION TO DISSOLVE—STRIKING FROM FILE AFFIDAVITS AND EXHIBITS FILED WITH MOTION.
Where on a motion to dissolve an interference affidavits and exhibits were introduced, on a motion to strike them from the record on the ground that they attempt to show that the subject-matter of the interference was not patentable and that *ex parte* affidavits are not sufficient to show non-patentability, *Held* that the affidavits and exhibits should not remain a part of the record, as the Patent Office would not be warranted in dissolving an interference upon such affidavits and exhibits.
[McKenzie *v.* Gillespie *v.* Ellis *v.* McElroy *v.* Ocumpaugh *v.* Norton, 2103.

17. SAME—PATENTABILITY.
Held, further, that as the statutory bar of public use cannot be proved by *ex parte* affidavits, neither can a patent be supplemented by such affidavits to show that the invention is not patentable. [Id.

18. SAME.
Held, further, that the affidavits and accompanying exhibits should be removed from the files, but should remain in the Office for such further consideration as may be warranted by the subsequent proceedings in the case. [Id.

19. SAME—JURISDICTION OF THE EXAMINER.
Held, further, that no authority is vested in the Examiner to remove affidavits and accompanying exhibits from the files of the case, that power, so far as the Office is concerned, being vested in the Commissioner. [Id.

20. DILIGENCE IN REDUCING TO PRACTICE—ACQUIESCING IN DECISION OF THE PATENT OFFICE—PRIORITY.
W. filed an application in April, 1896, disclosing a collar attached to the heel of a knitting-machine needle and inserted between its limbs and so bent around it as to form the letter S. What he actually disclosed to his attorney, and that upon which the application was based, was a collar in shape of the figure 8. In February, 1897, N. filed an application in which he claimed both the S form and the 8 form indifferently. Two successive interferences were then declared, both of which were dissolved on N.'s motions that there was no interference in fact. W.'s application became a patent in August, 1898. In June, 1898, he filed the application which is now in interference with the application of N. N.'s earliest date of conception is October, 1896, and of reduction to practice January, 1897. *Held* that under the circumstances W. should not be charged with laches in filing the application involved, as the greater part of the delay was due not to his inaction, but to the course of action of the Patent Office, and being first to conceive and reasonably diligent in constructive reduction to practice he is entitled to an award of priority.
[*Newton *v.* Woodward, 2319.

21. SAME—SAME.
Held, further, that it was only when it was finally determined by the Patent Office that the S-shaped device and the 8-shaped device were distinct inventions and equally patentable that it became incumbent upon W. to take steps for the protection of his invention as he had actually made it. He is not chargeable with any want of due diligence when he acquiesced in the decisions of the Patent Office. [*Id.

ISSUANCE OF PATENTS.

(See Assignments, 2, 3.)

JURISDICTION.

(See Interference, 5, 19.)

JURISDICTION OF THE EXAMINER OF INTERFERENCES.

(See Interference, 11, 13, 14, 15.)

LETTERS TESTAMENTARY.

(See Applications, 2, 3; Withdrawal of Allowed Cases from Issue, 1.)

LIMITATION OF CLAIMS.

(See Construction of Specifications and Patents, 3.)

MANDAMUS.

(See Assistant Commissioner of Patents; Trade-Marks, 9, 10, 11, 12.)

ANOTHER SPECIFIC REMEDY.
Held that a writ of mandamus is not available where the petitioner has another specific remedy, such as in this case—the right of appeal to the Court of Appeals from the decision of the Assistant Commissioner.
[*United States, *ex rel.* Stapleton, *v.* Duell, Commisioner of Patents, 2532.

MODIFICATION OF INVENTION.

(See Division of Application, 1, 2.)

MOTION TO DISSOLVE INTERFERENCE.

(See Interference, 1, 2, 4, 7, 16, 17, 18, 19.)

MOTION TO REOPEN INTERFERENCE TO TAKE TESTIMONY.

(See Interference, 13, 14, 15.)

NEWLY-DISCOVERED EVIDENCE.

(See Interference, 14, 15.)

NEW MATTER.

(See Amendments, 3; Appeal to the Examiners-in-Chief, 2.)

OMISSION OF ELEMENTS.
Where certain features are merely additional and unnecessary elements which may or may not be used, and where their omission does not change in any way the function and operation of the other parts of the device, *Held* that their omission from the application does not involve new matter.
[*Ex parte* Smith and Hoyland, 939.

NOTICE OF ALLOWANCE.

(See Withdrawal of Allowed Cases from Issue, 1, 2.)

OBJECTIONS.

(See Amendments, 4.)

OMISSION OF ELEMENT.

(See New Matter.)

PARTICULAR PATENTS.

1. HUBBELL—METALLIC CARTRIDGE—No. 212,213—CONSTRUCTION OF CLAIM—INFRINGEMENT.
Letters Patent No. 212,313, granted to William W. Hubbell, for an improvement in metallic cartridges, given a limited construction and *Held* that the cartridges made and used by the Government were not within the description contained in the claim.
[*Hubbell *v.* United States, 1124.

PATENTEE AND APPLICANT.

(See Interference, 8, 10.)

PATENTS.

(See Assignments, 2; Certificates of Correction; Construction of Specifications and Patents; Interference, 9.)

PETITION TO THE COMMISSIONER OF PATENTS.

(See Amendments, 4; Appeal to the Examiners-in-Chief; Examiners, 2.)

FORM OF.
Petitions to the Commissioner should be drawn in the form set forth in the rules. One object of the rules is to insure an orderly method for the transaction of business in this Office, and there is no more excuse for loose practice in this respect than there is for improperly-prepared pleadings in court cases.
[*Ex parte* Grant, 2532.

PHOTOLITHOGRAPHY.

(See Drawings, 2.)

PRACTICE IN THE PATENT OFFICE.

(See Amendments, 4. 5; Construction of Statutes; Examiners.)

PRELIMINARY STATEMENTS.

1. BY ASSIGNEE—MOTION TO FILE.
Where it appeared that an applicant declined to make a preliminary statement and such preliminary statement was executed by the assignee of the entire interest, *Held* that such a statement should be accepted, although there was no motion made that the assignee instead of the inventor should be permitted to file the statement.
[Hastings *v.* Gallagher, 189.

2. SAME—RULE 131 CONSTRUED.
Rule 131, which relates only to the assignee of an undivided interest, affords no warrant for the assertion that the assignee of the entire interest is required to make a motion to be permitted to file a preliminary statement in place of the inventor.
[Id.

3. SAME.
The rules of the Office provide that an assignee of an entire interest may prosecute an application to the exclusion of an inventor, and there appears no reason why such an assignee should be permitted to make amendments and have sole charge of an application and yet not be allowed to conduct the interference, which includes thereunder the execution and submission of a preliminary statement. [Id.

PRIORITY OF INVENTION.

(See Interference, 8, 10.)

ESTOPPEL—QUESTION OF PRIORITY.
The question whether a party is estopped by prior proceedings from asserting priority of invention as against his opponent relates to the merits of the controversy, and the evidence of estoppel goes to establish the question of priority.
[Cammett *v.* Hallett, 989.

PRIOR PROCEEDINGS.

(See Priority of Invention.)

PROCESS AND PRODUCT.

(See Division of Application, 4, 5.)

PROSECUTION OF AN APPLICATION.

(See Assignments; Contract to Prosecute an Application.)

RECORDS OF THE PATENT OFFICE.

(See Drawings, 2.)

REDUCTION TO PRACTICE.

(See Interference, 20, 21.)

REISSUES.

(See Certificates of Correction, 1.)

REJECTED CASES.

(See Appeal to the Examiners-in-Chief; Construction of Specifications and Patents.)

REJECTED CLAIMS.

(See Construction of Specifications and Patents; Rejection of Cases.)

REJECTION OF CASES.

FINAL REJECTION—FORM OF LETTER.
In the letter which is intended to close the consideration of a case before him and place it in condition for appeal the Examiner should state that the rejected claims are *finally* rejected.
[*Ex parte* Kendall, 754.

RES ADJUDICATA.

(See Interference, 3.)

ROYALTY.

(See Contract to Prosecute an Application.)

STATE OF THE ART.

(See Construction of Specifications and Patents, 1.)

SUITS FOR INFRINGEMENT.

(See Fraud.)

TESTIMONY.

(See Interference, 13, 14, 15.)

TITLE TO INVENTION.

(See Assignment, 1.)

TRADE-MARKS.

1. "HUNYADI" FOR MEDICINAL WATERS—PROPER SUBJECT OF TRADE-MARK.
The name "Hunyadi" being neither descriptive nor geographical, but purely arbitrary and fanciful as applied to medicinal waters, was the proper subject of a trade-mark.
[*Saxlehner *v.* Eisner & Mendelson Company, 940.

2. SAME—ABANDONMENT.
Held with regard to the defense of abandonment that there is but slight evidence of any personal intention on the part of Saxlehner to abandon the use of the word "Hunyadi" or to dedicate the same to the public. [*Id.

3. SAME.
To establish the defense of abandonment, it is necessary to show not only acts indicating a practical abandonment, but an actual intent to abandon. Acts which unexplained would be sufficient to establish abandonment may be answered by showing that there never was an intent to give up and relinquish the right claimed. [*Id.

4. SAME.
Evidence that the Apollinaris Company, which had the exclusive right to sell the medicinal water for Saxlehner in the United States, intended to abandon the right to the name "Hunyadi" might be sufficient as against it to defeat a suit for an injunction, but it would not be binding upon Saxlehner unless done with his knowledge and acquiescence. [*Id.

5. SAME—APPROPRIATING PART OF A TRADE-MARK—INFRINGEMENT.
It is not necessary to constitute infringement that every word of a trade-mark should be appropriated. It is sufficient that enough be taken to deceive the public in the purchase of a protected article. [*Id.

6. SAME—LACHES.
Where the party who originally adopted the trade-mark "Hunyadi" was inactive and permitted the use of the word by numerous other importers for twenty years, *Held* that it is now too late to resurrect the original title which has been lost by laches. [*Id.

7. SHAPE OF BOTTLE—LABEL.
Held that the defendants infringed the shape of the bottle and the label of the complainant, and they are restrained from their further use. [*Id.

8. SAME—ABANDONMENT—LACHES.
Where the defendants adopted the shape of complainant's bottle and also his label with intent to deceive, *Held* that they are restrained from further use thereof, although the plaintiff delayed for several years from bringing suit against them. [*Id.

9. MANDAMUS—JURISDICTION OF THE COMMISSIONER TO REGISTER TRADE-MARKS.
Upon a petition for a writ of mandamus to require the Commissioner to register a word as a trade-mark which he considered not a valid trade-mark and refused to register, *Held* that it was the duty of the Commissioner to pass upon the question whether or not the trade-mark was a lawful one and that mandamus does not lie to control his action. (*Seymour v. State of South Carolina*, 66 O. G., 1167.)
[*United States, *ex rel.* Bronson Company *et al.*, *v.* Duell, Commissioner of Patents, 1491.

10. MANDAMUS TO COMPEL THE COMMISSIONER TO REGISTER A TRADE-MARK—SECTION 13 OF TRADE-MARK ACT.
Where an applicant sought to register a trade-mark under section 13 of the trade-mark act for the purpose of registering abroad and the Commissioner refused to register it on the ground that it was not a lawful trade-mark, upon petition for writ of mandamus to compel the Commissioner to register, *Held* that the Commissioner had jurisdiction to consider the question, and the petition denied.
[*United States, *ex rel.* Buffalo Pitts Company, *v.* Duell, Commissioner of Patents, 1491.

11. SAME—SAME.
Held also that the whole trade-mark act must be read and construed together, and every requisite to registration required by the previous sections must be held to apply to registration under section 13. [*Id.

12. SAME—SAME.
The petition for a writ of mandamus must be denied in this case for the same reason given in the case of Buffalo Pitts Company.
[*United States, *ex rel.* New York Condensed Milk Company, *v.* Duell, Commissioner of Patents, 1492.

13. WORD-SYMBOL AND REPRESENTATION OF A RABBIT—ALTERNATIVE.
Where applicants sought to register the word-symbol "Rabbit" or the representation of a rabbit and showed in their drawing only the head of a rabbit, *Held* that there was no objection to registering the mark as claimed by applicants.
[*Ex parte* Taylor & Lockett, 2531.

14. SAME—SAME.
Held also that there is no force in the position assumed by the Examiner that the alternative form of the claim is objectionable because only the head of the rabbit is shown.
[Id.

15. RULE AS TO ALTERNATIVE FORMS.
No arbitrary rule can be laid down to cover all cases where alternative forms are sought to be registered. The present application comes within that line of cases where registration is permissible. [Id.

VALIDITY OF PATENTS.

(See Interference, 9.)

VALID PATENTS.

(See Particular Patents.)

WITHDRAWAL OF ALLOWED CASES FROM ISSUE.

1. DEATH OF INVENTOR—NOTICE OF ALLOWANCE TO ADMINISTRATOR.
Where a case was allowed February 8, 1900, and notice of allowance was sent to the attorney of record and the final fee was not paid within the six months, but on the last day on which the payment could have been made certified copies of letters testamentary, showing that the inventor was dead and that an administrator was appointed, were filed, together with a request that the case be withdrawn from issue and notice of allowance sent to the administrator, *Held* that the request should be denied.
[*Ex parte* Deeter, 190.

2. SAME—SAME.
Held, further, that the administrator takes the place of the inventor in the prosecution of the application, and a notice to the inventor is binding upon the administrator afterward appointed. The death of the inventor and the appointment of an administrator do not affect the status of the case as a pending application. [Id.

3. SAME—FORFEITED APPLICATION.
Held, further, that the application has been forfeited by reason of the failure to pay the final fee within six months after the notice of allowance. [Id.

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING DECEMBER 31, 1900.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Labels, Prints and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. Featherstone & Company. (See Binns, William H., assignor.)						
A. I. Root Company. (See Weed, Edward B., assignor.)						
A. P. Smith Manufacturing Company. (See Burritt, Harvey H., assignor.)						
Aalborg, Christian. (See Wright and Aalborg.)						
Aarons, Joseph, Detroit, Mich. Vending device	659,198	Oct. 9	879	209	98	195
Abbott, Frederic B., Lynn, assignor to S. Porter & Co., Worcester, Mass. Last	660,321	Oct. 23	3029	671	98	658
Abbs, Edward, and J. J. Glynn, Toronto, Canada. Air-heating protector for furnaces	662,107	Nov. 20	1993	477	98	1377
Abdank-Abakanowicz, Bruno. (See Claude and Hess, assignors.)						
Aber, Edgar, Jacksonville, Tex. Brick-kiln	660,880	Oct. 30	4028	901, 902	98	871
Aborn, George P. (See De Laval and Aborn.)						
Abrahamson, Peter, San Francisco, Cal. Door or window ventilator	658,935	Oct. 2	393	95	98	80
Abram Cox Stove Company. (See Rankin, Thomas I., assignor.)						
Acetylene Lighting Company. (See McClary, Thomas D., assignor.)						
Ach, Fritz, Mannheim, assignor to C. F. Boehringer & Soehne, Waldhof, Germany. Para-xanthin and making same	660,744	Oct. 30	3771	.....	98	821
Acker, Charles, Rushville, Ill. Clothes-hook	663,711	Dec. 11	1470	325	98	2090
Ackerman, William G. (See Rendall and Ackerman.)						
Ackles, Mortimer A., Skaneateles, N. Y. Valve-repairing machine	663,000	Dec. 4	188	39, 40	98	1702
Acklin, Alfred M., and W. J. Patterson, assignors to Heyl & Patterson, Pittsburg, Pa. Apparatus for elevating and handling coal	663,651	Dec. 11	1351	299, 300	98	2006
Acme Harvesting Company. (See Green, Henry, assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Altschul, Julius, assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Brat, Heinrich, assignor.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Erdmann, Hugo and E., assignors.)						
Actien-Gesellschaft für Anilin Fabrikation. (See Haussmann, Emil, assignor.)						
Actien-Gesellschaft für Fein Mechanic, vormals Jetter & Scheerer. (See Scheerer, Wilhelm, assignor.)						
Actiengesellschaft für Glasindustrie, vormals Friedr. Siemens. (See Kretschmer, Otto, assignor.)						
Adam, Joseph. (See Dussault, Napoleon, assignor.)						
Adams, Edward T., Milwaukee, Wis. Steam-engine	663,403	Dec. 11	927	202	98	1925
Adams, Edward T., Milwaukee, Wis. Steam-engine	663,404	Dec. 11	934	208	98	1927
Adams, John, Pittsburg, and J. Crawford, Allegheny, Pa. Device for displaying advertisements	659,428	Oct. 9	1246	287	98	269
Adams, John Q., Marseilles, Ill. Conveyer	659,888	Oct. 16	2041	458	98	440
Adams, John Q., Marseilles, Ill. Corn-sheller	659,889	Oct. 16	2045	458, 459	98	441
Adams, Peter H. (See Paca, William S., assignor.)						
Adams, Robert, London, England. Means for lifting and regulating transoms	661,888	Nov. 13	1463	354	98	1255
Adams, Thomas E., Cleveland, Ohio. Dash-pot for electric-arc lamps	661,889	Nov. 13	1464	354	98	1255
Adams & Westlake Company. (See Hamm, William S., assignor.)						
Adams & Westlake Company. (See Mosher, John A., assignor.)						
Adams, William P., *et al.* (See Sprong, Severn D., assignor.)						
Aden, Henry G., Pomeroy, Iowa. Trace-support	662,554	Nov. 27	2858	678	98	1568
Adkins, David, and G. F. John, Pond, Ark. Drag-saw	660,177	Oct. 23	2731	608	98	599
Adler, Charles S. (See Adler, Marcus A., assignor.)						
Adler, Marcus A., assignor to C. S. Adler, New York, N. Y. Cloth-cutting apparatus	659,119	Oct. 2	714	171	98	145
Adriance, Platt & Company. (See Brown, Thomas S., assignor.)						
Adriance, Platt & Company. (See Case, Henry J., assignor.)						
Advance Machine Company. (See Davis, Bethuel M., assignor.)						
Aeolian Company. (See Pain, Robert W., assignor.)						
Agar, Jessie, administratrix. (See Agar, William.)						
Agar, William, deceased; (J. Agar, administratrix,) assignor of one-half to W. H. Clegg, Chicago, Ill. Sash-holder	661,728	Nov. 13	1269	307	98	1219
Agiar, Francis B., assignor to Interchangeable Brake Beam Company, St. Louis, Mo. Brake-beam	658,972	Oct. 2	457	108	98	92
Agnew, Daniel. (See Miller and Agnew.)						
Agor, Charles F., Shrub Oak, N. Y. Toy trolley-car system	661,926	Nov. 13	1620	392	98	1285
Ahern, Denis, New York, N. Y. Steam-boiler	659,780	Oct. 16	1941	436	98	420
Aiken, Edward L. (See Reist and Aiken.)						
Ainsworth, George C., Brookline, Mass. Die-punch	664,523	Dec 25	2908	683	98	2387
Akron Cultivator Company. (See Noaker, Milton K., assignor.)						
Aladdin Incandescent Gas Lamp Company. (See Peden, Joseph C., assignor.)						
Alaman, Harry, assignor of one-half to W. C. Arp, Terre Haute, Ind. Rod or rivet clutch	661,901	Nov. 13	1574	382	98	1276
Albach, Riley, Mount Gilead, Ohio. Pruning implement	662,052	Nov. 20	1888	453	98	1357
Albrecht, Otto. (See Tindel and Albrecht.)						
Albright, Arbannes S., Terra Alta, W. Va. Book-support	664,031	Dec. 18	2077	472	98	2177
Alden, Louis, Jr., Bryn Mawr, Pa. Draw-gage	664,032	Dec. 18	2079	473	98	2177
Aldrich, Frank, Detroit, Mich. Low-water alarm	664,111	Dec. 18	2216	504	98	2206
Aldrich, Wales, and H. E. Borger, assignors to D. L. Bates & Brother, Dayton, Ohio. Alternating-current motor	661,464	Nov. 6	780	185, 186	98	1108
Aldridge, Charles H. (See Boessneck, Ernst, assignor.)						
Alexander, Edger L. and S. B., Indianapolis, Ind. Non-puncturable pneumatic tire	662,160	Nov. 20	2084	505	98	1396

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Alexander, Eugene E., Porterfield, Tenn. Fan, &c	662,485	Nov. 27	2734	649	98	1545
Alexander, Samuel B. (See Alexander, Edger L. and S. B.)						
Alexander, Theophilus W., Burlington, Iowa. Oil-can	663,712	Dec. 11	1471	326	98	2090
Alford, Walter, Belleville, Canada. Outside window-blind	664,451	Dec. 25	2867	655	98	2361
Alfs, Herman R. (See Harrington, Charles E. and J. G., assignors.)						
All Right Manufacturing Co. (See Colver, Byron H., assignor.)						
Allan, George H., and S. H. Lackland, St. Louis, Mo.; said Lackland assignor to said Allan. Roller-truck	661,788	Nov. 13	1373	332	98	1239
Allegretti, Ignazio, Chicago, Ill. Confectioner's pan	664,206	Dec. 18	2386	544	98	2242
Allen, Arthur M., New York, N. Y. Bicycle	661,630	Nov. 13	1088	270	98	1184
Allen, Charles H. (See Allen, James H. and C. H.)						
Allen, Charles W., Philadelphia, Pa. Envelop-fastening	650,634	Oct. 16	1649	371	98	365
Allen, Charles W., Philadelphia, Pa. Envelop	662,382	Nov. 27	2501	604	98	1497
Allen, Frederick E., Lynn, assignor of one-half to Improvements Manufacturing Company, Boston, Mass. Fruit-picking machine	659,197	Oct. 2	872	207	98	173
Allen, Frederick E., Boston, and R. H. Danforth, Salem, assignors to Improvements Manufacturing Company, Boston, Mass. Steering mechanism	663,381	Dec. 4	871	187	98	1891
Allen, George G., Malden, Mass., assignor to Stenotype Company, Portland, Me. Keyboard	663,405	Dec. 11	938	203	98	1927
Allen, George H., North Creek, N. Y. Striping device	660,881	Oct. 30	4090	903	98	871
Allen, George L. (See Jaenecke, Wilhelm F., assignor.)						
Allen, George L., Bradford, Pa. Vehicle-tire	660,942	Oct. 30	4131	928	98	892
Allen, James H. and C. H., Seneca, Ill. Harrow-disk sharpener	663,481	Dec. 11	1097	233 234	98	1951
Allen, Leicester, New York, N. Y. Apparatus for expanding and compressing gases	661,784	Nov. 13	1374	332	98	1239
Allen, Samuel L., Moorestown, N. J. Cultivator-blade	664,071	Dec. 18	2133	487	98	2188
Allen, Samuel L., Moorestown, N. J. Seed-planter	664,072	Dec. 18	2135	487 488 489	98	2188
Allender, Henry, Newark, N. J. Type-writing-machine dog	662,215	Nov. 20	2208	532	98	1420
Alley, Cassius, Pendleton, assignor of one-third to C. H. Miller and H. Wagner, Anderson, Ind. Insulator	660,140	Oct. 23	2652	502	98	584
Alley, Frederick L., and E. E. Winkley, Lynn, Mass. Shuttle mechanism for sewing-machines	662,383	Nov. 27	2501	604	98	1497
Allgemeine Stadtereinigungs-Gesellschaft mit Beschränkter Haftung. (See Brix, Joseph J., assignor.)						
Allgier, Andrew, Grand Rapids, Mich. Button and button-fastener	663,321	Dec. 4	773	165	98	1872
Allison, William D., Indianapolis, Ind. Adjustable stirrup-bar for physicians' tables	661,433	Nov. 6	728	170	98	1098
Allison, William D., Indianapolis, Ind. Adjusting means for leg-rests of physicians' tables	661,434	Nov. 6	729	170	98	1098
Allison, William D., Indianapolis, Ind. Orchestra-harp	659,429	Oct. 9	1218	267	98	269
Almcrantz, Gerhard, and G. Törnqvist, Chicago, Ill. Whiffletree-hook	658,822	Oct. 2	181	43	98	41
Almquist, Martin O., Lake Andrew, Minn. Whiffletree-hook	664,452	Dec. 25	2870	655	98	2362
Almquist, John A., San Francisco, Cal. Saw-clamp	660,807	Oct. 30	3886	874	98	842
Almy, Frederick T. (See McDonnell, Francis J., assignor.)						
Alten, Henry, Sebastopol, Cal. Gate	662,181	Nov. 20	2126	513	98	1405
Altham, George J., and J. Beattie, Jr., Fall River, Mass. Gas-engine	659,997	Oct. 16	2340	526	98	502
Altmeyer, Mathias, assignor of one-half to F. Freismuth and J. F. Heil, Wheeling, W. Va. Brake	658,747	Oct. 2	1	.....	98	3
Altschul, Julius, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Compound of gelatin and tannin and producing same						
Aluminum Manufacturing Company. (See Koenig, Joseph, assignor.)						
Alvord, Edward L. (See Tucker, Irett F., assignor.)	658,938	Oct. 2	399	96	98	81
Alzugaray, Joseph B. de, London, England. Extracting gold, silver, &c., from ores	663,556	Dec. 11	1197	260	98	1976
Ambler, William L., Norristown, Pa. Shutter-slat fastener	661,927	Nov. 13	1621	392	98	1285
Ambrose, Robert L., North Tarrytown, assignor to Rand Drill Company, New York, N. Y. Rock-drill	664,458	Dec. 25	2871	655	98	2362
Ambrose, Robert L., Tarrytown, assignor to Rand Drill Company, New York, N. Y. Engine cylinder-head						
American Bell Telephone Company. (See Thompson, George K., assignor.)						
American Bicycle Company. (See Copeland, James S., assignor.)						
American Bicycle Company. (See Jacobs, Arthur I., assignor.)						
American Bicycle Company. (See Seymour, Herbert P., assignor.)						
American Brake Shoe Company. (See Sargent, William D., assignor.)						
American Car and Foundry Company. (See King, George L., assignor.)						
American Cotton Company. (See Dyer, Frank L., assignor.)						
American Cotton Company. (See Ringl, Haakon S., assignor.)						
American Cotton Company. (See Swenson, Magnus, assignor.)						
American Cotton Company. (See Swenson and Ringl, assignors.)						
American Digester Manufacturing Company. (See Brown, Samuel H., assignor.)						
American Encaustic Tiling Company. (See Stanbery, George A., assignor.)						
American Felt Company. (See Eaton and Boland, assignors.)						
American Lamp and Brass Company. (See Whitehead, William R., assignor.)						
American Lithographic Company. (See Grass r, Charles, assignor.)						
American Lithographic Company. (See Pancoast, George E., assignor.)						
American Mercantile Company. (See Engberg, Carl, assignor.)						
American-Multiplex Talking Machine Company. (See Gomber, George W., assignor.)						
American Process Company. (See Bussells, Josephus F., assignor.)						
American Pulley Company. (See Budd, Edward G., assignor.)						
American School Furniture Company. (See Cogger, William B., assignor.)						
American Shoe Machinery Company. (See Angell, Edwin E., assignor.)						
American Soda Fountain Company. (See Flesche, Hall, and Doherty, assignors.)						
American Steel Foundry Company. (See Doddridge, William B., assignor.)						
American Stoker Company. (See Wood, Wilfred R., assignor.)						
American Stopper Company. (See Bauer, Charles G., assignor.)						
American Sugar Refining Company. (See Gerbracht and Okell, assignors.)						
American Telephone and Telegraph Company. (See Pickernell, Frank A., assignor.)						
American Tobacco Company. (See Campbell, Daniel J., assignor.)						
American Toll Telephone Company. (See Foss, William A., assignor.)						
American Type Founders Company. (See Ziegler, George H., assignor.)						
American Voting Machine Company. (See Lee, Syver, assignor.)						
American Waltham Watch Company. (See Ohlson, Olof, assignor.)						
Amerling, Harmon B., *et al.* (See Pfautz, Daniel M., assignor.)						
Amerling, Henry W., *et al.* (See Pfautz, Daniel M., assignor.)						
Amesbury Pneumatic Gear Company. (See Stone, Charles E., assignor.)	659,045	Oct. 2	588	143	98	118
Amess, Agness, Minneapolis, Minn. Permutation-padlock						
Ammelburg, Alfred, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Rendering nitroso bases stable	664,709	Dec. 25	3350	.....	98	2402

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Amos, Alexander M., Buffalo, N. Y. Filter	659,430	Oct. 9	1251	288	98	270
Anderson, Andrew, Detroit, Mich. Drying-kiln	660,354	Oct. 23	3091	685	98	671
Anderson, August G., Moorhead, Minn. Wagon-body	664,454	Dec. 25	2872	656	98	2362
Anderson, Carl F., West New York, N. J. Ratchet wrench and drill	659,564	Oct. 9	1506	342	98	320
Anderson, Charles A. and O., Portland, Oreg. Can-opener	664,033	Dec. 18	2081	473	98	2178
Anderson, Charlie J., and G. Everson, Detroit, Mich. Machine for dipping matches	660,087	Oct. 23	2533	568	98	559
Anderson, David W., Richmond, Va. Wall-tile for heating and ventilating	664,705	Dec. 25	3344	760	98	2460
Anderson, David W., Richmond, Va. Heating and ventilating system for buildings	664,706	Dec. 25	3346	760 761	98	2461
Anderson, David W., Richmond, Va. Tile for facing walls, &c	664,707	Dec. 25	3348	761	98	2461
Anderson, Frank O., Jamestown, N. Y. Swell front for furniture	660,088	Oct. 23	2536	568	98	559
Anderson, George W., Hinton, W. Va. Combination hair cutting and combing device	660,238	Oct. 23	2845	633	98	622
Anderson, Gustaf Y., Dyea, Alaska. Combined saw jointer and gage	663,322	Dec. 4	774	165 166	98	1872
Anderson, James S., Salt Lake City, Utah. Automatic inker	663,406	Dec. 11	940	204	98	1928
Anderson, John, assignor to Ariel Electric and Manufacturing Company, St. Louis, Mo. Pleasure-railway or carousel	661,435	Nov. 6	730	171	98	1098
Anderson, John G., Rock Hill, S. C. Vehicle axle and box	664,611	Dec. 25	3184	721	98	2426
Anderson, Joseph H., assignor of one-fourth to G. C. Forry, St. Louis, Mo. Hand-cultivator	664,601	Dec. 25	3167	717	98	2423
Anderson, Louis J., Escanaba, Mich. Counterbalanced chute	663,323	Dec. 4	777	166	98	1873
Anderson, Martin. (See McAulay and Anderson.)						
Anderson, Milton J., Dufur, Oreg. Weed-destroyer	660,612	Oct. 30	3529	798	98	774
Anderson, Oscar. (See Anderson, Charles A. and O.)						
Anderson, Philander, New York, N. Y. Vise	661,942	Nov. 20	1671	406	98	1317
Anderson Prune Dipper Company. (See Farrell, Daniel, assignor.)						
Anderson, Robert S., Tacoma, Wash. Roller shield or breastwork	660,716	Oct. 30	3727	839	98	812
Anderson, Samuel C., Springfield, Ohio. Money-drawer	660,355	Oct. 23	3093	686	98	671
Anderson, Thomas J., Mount Solon, Va. Spring bed-bottom	660,745	Oct. 30	3774	849	98	821
Anderson, William, Scappoose, Oreg. Machine for pitting fruit	659,598	Oct. 9	1569	355	98	331
Anderson, William H., New York, N. Y. Chair-back desk	659,431	Oct. 9	1252	288	98	270
Anderson, William S., Jasper, Tenn. Ash-pan	664,708	Dec. 25	3348	761	98	2461
Andersson, Georg C. P., St. Paul, Minn. Rotary engine	660,676	Oct. 30	3656	821 822	98	798
Anderton, James W., Dayton, Ohio. Metal tag	659,199	Oct. 9	881	209	98	195
Andreas, Frederick, assignor of one-half to J. W. Schilling, St. Louis, Mo. Lock-hinge	661,680	Nov. 13	1187	289	98	1204
Andreen, John T., Florence, Kans. Tricycle	664,231	Dec. 18	2425	553	98	2250
Andrew, William E., Atlantic Highlands, N. J. Car-ventilator	664,112	Dec. 18	2218	505	98	2206
Andrew, William E., Atlantic Highlands, N. J. Car ventilation	664,113	Dec. 18	2221	505	98	2207
Andrews, C. J., *et al.* (See Parker, Nathan S., assignor.)						
Andrews, George F., Riverside, Cal. Mortising-machine	661,135	Nov. 6	199	50	98	992
Aneshaensel, Charles, Jr., Indianapolis, Ind. Water-pumping apparatus	658,823	Oct. 2	182	43	98	41
Aneshaensel, Charles, Jr., Indianapolis, Ind. Water-pumping apparatus	660,239	Oct. 23	2846	633	98	622
Angell, Edwin E., Somerville, Mass., assignor to American Shoe Machinery Company, Portland, Me. Rand-trimmer shield	660,829	Oct. 30	3940	883	98	854
Angell, Joseph P., Pine Bluff, Ark. Type-writer	662,333	Nov. 20	2407	580	98	1460
Annandale, James H., Polton, Scotland. Manufacture of paper	660,808	Oct. 30	3888	874	98	843
Annis, J. E. (See Moomaw, Henry E., assignor.)						
Anson, Will F., Camden, N. Y. Acetylene-gas generator	663,324	Dec. 4	778	166	98	1873
Anthony, Alfred R., and C. T. Cunnius, Wilkes-Barré, Pa. Back-pedaling brake	661,164	Nov. 6	250	60, 61	98	1002
Anthony, Alfred R., and C. T. Cunnius, Wilkes-Barré, Pa. Back-pedaling brake	663,842	Dec. 18	1733	387	98	2109
Anthony, Daniel E., Akron, Iowa. Attachment for washboilers, kettles, &c	660,080	Oct. 16	2519	563	98	536
Anthony, Daniel P., Tecumseh, Mich. Wire-fence machine	662,602	Nov. 27	3038	718 719 720	98	1603
Antisell, Frank L. (See Antisell, Thomas M. and F. L.)						
Antisell, Thomas M. and F. L., Matawan, N. J. Explosive-gas engine	661,300	Nov. 6	495	114 115	98	1050
Antiseptic Powder Company. (See Kelsey, David M., assignor.)						
Appert Glass Company. (See Crissy and Dulles, assignors.)						
Apple, Charles S., Indiana, Pa. Eyeglasses	658,748	Oct. 2	2	1	98	3
Appleby, Ernest L., Bradford, Pa. Umbrella-lock	662,334	Nov. 20	2409	580	98	1461
Appleman, Boyd K., Rohrsburg, Pa. Antislipping attachment for vehicle-wheels	659,908	Oct. 16	2174	489	98	467
Appleton Boat Propulsion Manufacturing Company. (See Belz, Albert, assignor.)						
Archer, David J., Toronto, Canada. Tooth-brush	660,677	Oct. 30	3659	822	98	798
Ardell, Robert, Rottneros, Sweden, assignor to Link Belt Machinery Company, Chicago, Ill. Elevator	661,186	Nov. 6	201	51	98	992
Arend, Francis J., New York, N. Y., assignor to De Laval Separator Company, of New Jersey. Centrifugal liquid-separator	661,948	Nov. 20	1673	406	98	1317
Arendt, Christian, and W. Hönicke, Büsum, Germany. Obtaining extract of shrimps	662,840	Nov. 27	3398	.....	98	1671
Arens, August, assignor to P. & F. Corbin, New Britain, Conn. Door-check	660,240	Oct. 23	2847	633	98	622
Argerbright, Daniel, Troy, Ohio. Photographic-print washer	659,278	Oct. 9	1007	237	98	219
Ariel Electric and Manufacturing Company. (See Anderson, John, assignor.)						
Arklay, David S., and E. W. Collier, London, England. Guard for ironing or other machines	663,713	Dec. 11	1472	326	98	2090
Arledter, Fritz, assignor to L. Keferstein, Berlin, E. J. Smith, Charlottenburg, Germany, and G. Huth, London, England. Apparatus for making rosin-soap	660,548	Oct. 30	3435	771	98	757
Armour & Co. (See Broman, Peter, assignor.)						
Armour Packing Company. (See Bright, Fredrick W., assignor.) (Reissue.)						
Armstrong, Adelbert B., East Otto, N. Y. Stock-feeder	662,384	Nov. 27	2503	604	98	1497
Armstrong, Albert H., Schenectady, N. Y., assignor to General Electric Company, of New York. System of motor control	663,951	Dec. 18	1929	434 435	98	2148
Armstrong, Ernest, Camden, N. J. Oiler for car-journals	663,407	Dec. 11	942	204	98	1928
Armstrong, John J., Sr., Weimar, Tex. Plow	663,714	Dec. 11	1473	326 327	98	2090
Armstrong, Walter S., Ruthven, Iowa. Nut or pipe wrench	662,901	Dec. 4	1	1	98	1727
Arner, Calvin E. and J., Weissport, assignors to Keyless Lock Company, Lehighton, Pa. Door-lock	661,208	Nov. 6	316	77	98	1016
Arner, Joseph. (See Arner, Calvin E. and J.)						
Arnold, Edward T., Eutaw, Pa. Wire-stretcher	661,027	Nov. 6	1	1	98	951
Arnold, Horace L., assignor to J. A. Hill, New York, N. Y. Clutch	661,479	Nov. 13	817	197	98	1120
Arnold, Horace L., assignor to J. A. Hill, New York, N. Y. Motor-vehicle	662,902	Dec. 4	2	1	98	1727
Arnold, Levi, Blackwell, Okla. Ter. Kitchen-cabinet	662,908	Dec. 4	7	2	98	1728
Arnold, Sidney S., Calamus, Iowa. Combined refrigerator and milk-cooler	663,843	Dec. 18	1734	387	98	2109

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Arnott, Alfred A., assignor of one-third to W. A. Granville, New Haven, Conn. Hydro-carbon-burner	662,385	Nov. 27	2505	604	93	1498
Aronson, Saul. (See Lambert and Aronson.)						
Arp, W. C. (See Alaman, Harry, assignor.						
Arrasmith, Charles W., Courtland, Cal. Receptacle for packing fruit	659,949	Oct. 16	2246	504	93	480
Arrowsmith, Walter A., Urbana, Ohio. Folding washbench	659,635	Oct. 16	1659	371	93	365
Arthur, Edward, London, England. Self-healing pneumatic tire	663,001	Dec. 4	190	40	93	1762
Arthur, John F., New York, N. Y. Rotary-cutter cleaner	662,749	Nov. 27	3214	761	93	1634
Asencio, Thomas, assignor to A. P. Boller, New York, N. Y. Fuel-feeding attachment	659,200	Oct. 9	882	209	93	195
Ash, Hugh M., assignor of one-half to J. Wouters, Agricultural College, N. D. Traction-engine	659,120	Oct. 2	715	171 172	93	145
Ashbaugh, John H., Irvington, and C. L. Webster, Indianapolis, Ind. Fruit-jar filler	661,681	Nov. 13	1188	290	93	1204
Ashbaugh, John W. (See Daniels, John B., assignor.)						
Ashdown, Arthur L. (See Ireland, Ashdown, and Holmes.)						
Ashley, Frank M., New York, N. Y. Ink-well	661,334	Nov. 6	567	131	93	1064
Ashley, George, assignor of two-thirds to A. W. Hadley and G. Ashley, Jr., New Britain, Conn. Door check and closer	663,844	Dec. 18	1735	387	93	2109
Ashton, Harold T., London, England. Turbine	663,715	Dec. 11	1475	327	93	2081
Ashton Valve Company. (See Bosworth, Charles B., assignor.)						
Asling, Charles H., and A. Helms, Siloam Springs, Ark. Rotary engine	663,716	Dec. 11	1478	327	93	2081
Asmore, Anthony, Alexanderville, Ga. Combined plow and fertilizer-distributer	658,936	Oct. 2	395	95	93	81
Asphalt Paper Pipe Company. (See Dixon, Albert S., assignor.)						
Aspinwall, Lewis A., assignor to Aspinwall Manufacturing Company, Jackson, Mich. Potato-digger	660,830	Oct. 30	3941	883	93	854
Aspinwall Manufacturing Company. (See Aspinwall, Lewis A., assignor.)						
Athearn, William E., New York, N. Y. Apparatus for locating faults in electric circuits	659,357	Oct. 9	1121	202	93	243
Athearn, William E., New York, N. Y. Telegraphy	664,369	Dec. 25	2705	614	93	2331
Atkinson, Henry C., assignor of one-half to M. Reisser, Louisville, Ky. Linking attachment for sausage-stuffing machines	661,426	Nov. 6	731	171 172	93	1098
Atkinson, James S., Louisville, Ky., assignor of one-fourth to W. C. Atkinson, Nashville, Tenn. Valve for pumping-engines	664,114	Dec. 18	2224	506	93	2208
Atkinson, John W. (See Burr, Stut, and Atkinson.)						
Atkinson, Margaret D., *et al.* (See Leidich, Peter C., assignor.)						
Atkinson, William C. (See Atkinson, James S., assignor.)						
Atlantic Motor Company. (See Steele, Herbert B., assignor.)						
Atlas Engine Works. (See Moore, Matthew R., assignor.)						
Atlas Match Company. (See Hutchinson, William F., assignor.)						
Attkisson, Otis G., assignor of one-half to J. Stratton, Campbellsburg, Ind. Weather-strip	664,370	Dec. 25	2707	614	93	2331
Atwater, Christopher G., Boston, Mass. Coking-oven	659,045	Oct. 2	591	143	93	118
Atwell, Henry G., Fox Lake, Ill. Clevis	660,068	Oct. 16	2500	559	93	582
Atwood, Ernest C., Goldengate, assignor to Pacific Coast Syrup Company, San Francisco, Cal. Can-heading machine	659,801	Oct. 16	1994	446	93	431
Audiger, Emil. (See Greil and Audiger.)						
Augspurg, Guillermo T. (See Bryant, Roessler, Mitchell, and Augspurg.)						
Ault, Edwin. (See Shone and Ault.)						
Ault, Playfair G. (See Davis, Ault, Bailey, and Wideman.)	661,480	Nov. 13	819	197	93	1129
Ault, Robert A. G., and J. C. Schmidt, York, Pa. Machine for indenting paper-stock	664,710	Dec. 25	3351	761	93	2462
Aungst, David B. (See Taneyhill, William H., assignor.)	659,386	Oct. 9	1169	271	93	254
Aunkst, Daniel E., and W. H. Lawrence, Milton, Pa. Forming grave-vaults						
Austen, Walter J., Boston, Mass. Waist and skirt adjuster						
Austin, Albert A. (See Cyr and Austin.)						
Austin Cartridge Company. (See Morris, William L., assignor.)						
Austin Cartridge Company. (See Wills, Cassius M., assignor.)						
Autocar Company. (See Clarke and Heaslet, assignors.)						
Automatic Bowling Alley Company. (See Downey, Richard F., assignor.)						
Automatic Cinograph Company. (See Wray, Cecil, assignor.)						
Automatic Ice Machine Company. (See Singer, William F., assignor.)						
Automatic Railway Switch Company. (See Dunn, Claude A., assignor.)						
Automatic Vending Company. (See Cook, Edgar H., assignor.)						
Auw, Sarah von. (See Bültzingslöwen, Bruno von, assignor.)	661,481	Nov. 13	820	198	93	1130
Averill, Elias M., Harrisburg, Mich. Shipping-crate	662,555	Nov. 27	2859	678	93	1568
Averitt, Converse, assignor of one-half to T. J. Bryant, Blakely, Ga. Hame and trace connector	662,559	Nov. 27	3399	808	93	1672
Avery, Henry W., Cleveland, Ohio. Tie-plate	661,082	Nov. 13	1189	290	93	1204
Avery, William, and A. Burrell, Chicago, Ill. Laryngoscope						
Ayer, James I., Malden, assignor to Simplex Electrical Company, Boston, Mass. Electric heater and circuit-controller therefor	664,371	Dec. 25	2708	614	93	2331
Ayers, Asher. (See Simmons, Lee H., assignor.)	664,612	Dec. 25	3186	721	93	2427
Aylworth, Daniel W., South Haven, Mich. Gate						
Ayotte, Theophile E., and A. A. Charbonneau, Montreal, Canada. Apparatus for loading or unloading bricks	664,711	Dec. 25	3352	762	93	2462
Ayres, Edward W., Washington, D. C. Appliance for automobiles	659,121	Oct. 2	716	172	93	145
Ayres, Harry S. (See Corwin, Frank E., assignor.)						
B. F. Barnes Company. (See Barnes, Benjamin F., assignor.)						
Baackes, Michael, Cleveland, Ohio. Machine for rolling car-wheels	663,002	Dec. 4	191	10,41	93	1763
Baasen, Elisabeth, *et al.* (See Hachmann, Frederick, assignor.)	660,480	Oct. 23	3305	739 740	93	713
Babbage, Edwin A., Cambria, Wyo. Coke-oven	658,824	Oct. 2	183	44	93	41
Babcock, Charles, assignor of one-third to B. Park, Salt Lake City, Utah. Pencil-sharpening device						
Babcock & Wilcox Company. (See Sewall, Minott W., assignor.)						
Babst, Joseph, New York, N. Y., assignor to W. Schimper & Co., Hoboken, N. J. Picture-support	662,140	Nov. 20	2040	496	93	1386
Bachelder, John, Watertown, N. Y. Copy-holder	661,785	Nov. 13	1381	333	93	1240
Bachellé, Otto V., Chicago, Ill. Automobile	659,012	Oct. 2	534	130	93	107
Bachellé, Otto V., Chicago, Ill. Brake for vehicles	660,549	Oct. 30	3435	771	93	757
Bachman, Chauncey C., Waterloo, N. Y. Dental polishing and finishing tool	661,382	Nov. 6	461	106	93	1043
Bacon Air Lift Company. (See Shaw, Clifford, assignor.)						
Bacon, Byron R. (See Richards, Charles F., assignor.)						
Baddeley, Edward L. (See Weaver and Baddeley.)						
Badger Brass Manufacturing Company. (See Frost, Walter J., assignor.)						
Badger Brass Manufacturing Company. (See Hinge, William, assignor.)						
Badger, Jonathan, New York, N. Y. Scissors	664,613	Dec. 25	3186	721	93	2427

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Badische Anilin and Soda Fabrik. (See Rally, Oscar, assignor.)						
Badische Anilin and Soda Fabrik. (See Bazlen, Max, assignor.)						
Badische Anilin and Soda Fabrik. (See Bohn, René, assignor.)						
Badische Anilin and Soda Fabrik. (See Fährmann, Alvin, assignor.)						
Badische Anilin and Soda Fabrik. (See Holt, Arthur H. S., assignor.)						
Badische Anilin and Soda Fabrik. (See Holt, Henry S. A., assignor.)						
Badische Anilin and Soda Fabrik. (See Seidel and Preuss, assignors.)						
Badische Anilin and Soda Fabrik. (See Siegmund, August, assignor.)						
Bagby, Orville. (See Conner and Bagby.)						
Bagley, Perkins H., Alameda, Cal. Smokeless furnace for steam-boilers	664,372	Dec. 25	2708	614	93	2332
Bagot, Charles H., Egremont, and D. Dishart, Sunderland, England. Coupling for railway or similar vehicles	659,190	Oct. 2	856	208	93	169
Bailey, Charles A., Cromwell, Conn. Machine for making paper tubes	659,599	Oct. 9	1567	355 356	93	332
Bailey, Charles A., Cromwell, Conn. Machine for making paper tubes	664,614	Dec. 25	3187	722	93	2427
Bailey, Edward G., Gainesville, Tex. Floating body	662,335	Nov. 20	2410	581	93	1461
Bailey, Harlow W., and W. J. Parkinson, Buffalo, N. Y. Repeating mechanism for clocks	662,904	Dec. 4	10	2, 3	93	1729
Bailey, Herbert L., assignor to Handy Things Company, Chicago, Ill. Automatic vehicle-brake	663,845	Dec. 18	1737	388	93	2110
Bailey, Herbert L., assignor to Handy Things Company, Chicago, Ill. Can-opener	663,846	Dec. 18	1740	388	93	2110
Bailey, Israel S., Southington, Conn Die for shaping carpenters' drawing-knives	662,750	Nov. 27	3216	761	93	1635
Bailey, Leonard C. (See Davies, Charles W. T., assignor.)						
Bailey, Wilber W. (See Davis, Ault, Bailey, and Wideman.)						
Baisieux, Arthur, Brussels, Belgium. Electric traction for tramway or similar vehicles	662,386	Nov. 27	2507	605	93	1498
Baker, Charles H., Topia, Mexico. Water-gate	660,356	Oct. 23	3095	686	93	672
Baker, David, Chicago, Ill. Hot-blast valve	659,805	Oct. 16	1995	446	93	431
Baker, David, Chicago, Ill. Pyrometer	663,557	Dec. 11	1198	260 261	93	1977
Baker, Frederick H. (See Baker, Shevlin, and Baker.)						
Baker, George S., London, England. Apparatus for manufacturing sugar-wafers or the like	661,729	Nov. 13	1271	308 309	93	1219
Baker, George S., London, England. Biscuit-making machine	662,336	Nov. 20	2411	581 582 583	93	1461
Baker, James H., G. F. Shevlin, and F. H. Baker, Saratoga Springs, N. Y. Wood-barking machine	663,211	Dec. 4	565	122	93	1833
Baker, Jason A., Houston, Tex. Broaching-press	664,615	Dec. 25	3191	722	93	2427
Baker, John G., Philadelphia, Pa. Pump	660,046	Oct. 16	2413	543	93	514
Baker, John G., Philadelphia, Pa. Photographic-print holder	661,840	Nov. 13	1465	355	93	1258
Baker, Joseph B., Newton, Mass. Amplifying electric currents	660,613	Oct. 30	3531	793 794	93	775
Baker, Oscar H., Minneapolis, Minn. Lock for grain-distributers	664,455	Dec. 25	2874	656	93	2362
Baker, Stephen D., assignor to Peck Bros. & Company, New Haven, Conn. Combined bath-tub seat and bidet	663,826	Dec. 11	1698	380	93	2080
Baker, Trion H., *et al.* (See Preston and Kendrick, assignors.)						
Baker, Vincent W., Plainfield, N. J. Dental head-rest	662,387	Nov. 27	2509	605	93	1498
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Loom	659,950	Oct. 16	2247	504 505 506	93	481
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Loom	659,951	Oct. 16	2258	506 507	93	484
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Loom	659,952	Oct. 16	2263	507 508	93	485
Bakken, Thore A., De Soto, assignor of one-half to O. M. Gilbertson, La Crosse, Wis. Trace hook and guard	659,909	Oct. 16	2176	489	93	467
Bakken, Thore A., De Soto, assignor of one-half to O. M. Gilbertson, La Crosse, Wis. Singletree-hook	661,391	Nov. 6	657	153	93	1088
Baldenebro, Alfonso Z., Mexico, Mexico. Grading-amalgamator	664,712	Dec. 25	3354	762	93	2462
Balding, Edgar W., Avon-by-the-Sea, N. J. Apparel-shirt-collar supporter	659,884	Oct. 16	2121	478	93	456
Baldwin, Leon F. N., Providence, R. I. Combined condenser and dashboard for automobiles	664,373	Dec. 25	2710	615	93	2332
Baldwin, Leroy W., New York, N. Y. Dial-face for weighing-machines	659,910	Oct. 16	2177	490	93	467
Baldwin, William J., New York, N. Y. Subsidiary furnace for steam-boilers	664,616	Dec. 25	3192	723	93	2428
Bales, Edward R., Centralia, Ill. Gearing	663,531	Dec. 11	1160	251	93	1969
Balfour, Edward W., Denver, Colo. Store-ladder	662,106	Nov. 20	1968	477	93	1377
Ball, Albert, and T. Officer, Claremont, N. H., assignors to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Rock-drill cylinder-head	661,683	Nov. 13	1190	290	93	1205
Ball, Albert, and T. Officer, Claremont, N. H., assignors to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Rock-drill cylinder-head	661,684	Nov. 13	1191	290	93	1205
Ball, Albert, and T. Officer, Claremont, N. H., assignors to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Engine	661,685	Nov. 13	1193	291	93	1205
Ball, Albert, and T. Officer, Claremont, N. H., assignors to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Engine for rock-drills	661,686	Nov. 13	1196	291	93	1205
Ball, Bert C., Plainfield, N. J., and W. H. Corbett, New York, N. Y. Clutch	660,266	Oct. 23	2916	649	93	636
Ball, Charles A., *et al.* (See Normand, Joseph E., assignor.)						
Ball, Charles J., Los Angeles, Cal. Flushing-tank for water-closets	660,178	Oct. 23	2732	608	93	600
Ball, Edward W., L. E. Vacheron, and F. H. Luce, assignors to Lalance & Grosjean Manufacturing Company, New York, N. Y. Apparatus for supporting and carrying into or withdrawing from ovens articles to be fired or burned	662,161	Nov. 20	2086	505	93	1396
Ball Electric Company. (See Ball, Royal E., assignor.)						
Ball, Frank, Brickner, Ohio. Shocking attachment for corn-harvesters	660,041	Oct. 16	2415	543	93	514
Ball, Herman F., Cleveland, Ohio. Car-buffer	659,781	Oct. 16	1943	436	93	421
Ball, Royal E., New York, assignor to Ball Electric Company, Yonkers, N. Y. Electric-arc lamp	664,718	Dec. 25	3355	762 763	93	2463
Ball, Samuel C., Chicago, Ill. Spring-fastener for bolts	660,206	Oct. 23	2702	620	93	611
Bally, Oscar, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Violet-red dye and making same	659,505	Oct. 9	1508	.....	93	320
Bally, Oscar, Mannheim assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Yellow-red dye and making same	659,506	Oct. 9	1509	.....	93	320
Balph, Charles A., Pittsburg, Pa. Fireproof construction	662,162	Nov. 20	2090	506	93	1397
Bamberger, Elias, Freeport, Ill. Device for hanging shelves, drawers, &c	661,234	Nov. 6	369	88	93	1026
Banan, Francis W., Oakland, Me. Tool-holder and wrench	662,905	Dec. 4	17	3	93	1730
Bancroft, Frank H., assignor of one-half to H. M. Rich, Gardner, Mass. Press	663,847	Dec. 18	1741	389	93	2110
Bankert, Milton K. (See Monger, Robert E., assignor.)						
Banks, Willis H. (See Smith and Banks.)						
Banning, Thomas A. (See McGill, Albert E., assignor.)						
Banning, Thomas A. (See Weir, John B., assignor.)						
Bannon, Martin J., Louisville, Ky. Die for molding clay pipes	660,386	Oct. 23	2947	656	93	643

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Baptist, William, New Orleans, La. Portable derrick	662,906	Dec. 4	18	3	93	1730
Barber, Hiram, Chicago, Ill. Heating-stove	660,357	Oct. 23	3006	686	93	672
Barber, John C., St. Paul, Minn. Car-truck	660,614	Oct. 30	3535	794 795	93	775
Barber, Walter C., and C. W. Furner, Philadelphia, Pa. Striped-cake-making machine	660,717	Oct. 30	3728	889	93	812
Barbour, Frank A., assignor of one-half to F. H. Snow, Brockton, Mass. Apparatus for applying sewage to bacteria-beds	663,151	Dec. 4	462	97 98 99	93	1814
Barclay, W. A. (See Bessonette, William T., assignor.)	659,013	Oct. 2	537	130	93	106
Barcley, Mary L., Newark, N. J. Apparel-corset	663,152	Dec. 4	468	99	93	1814
Barden, Frederick, Eagle Grove, Iowa. Farm-gate	662,337	Nov. 20	2420	584	93	1463
Barditzky, Herman, Florence, Ala. Cotton-seed-delinting machine	663,691	Dec. 11	1429	317	93	2022
Barger, Robert N., Hopedale, Ill. Syringe	663,003	Dec. 4	194	41	93	1763
Barger, Thomas J., Ford's Ferry, assignor to G. W. Robinson, Marion, Ky. Tobacco-sucker remover						
Barilitsch, Franz. (See Paulitschke and Barilitsch.)						
Barker, William H., assignor to Gray Telephone Pay Station Company, Hartford, Conn. Telephone-call register	664,346	Dec. 18	2658	604	93	2295
Barklage, Hermann H., St. Charles, Mo. Filling interstices of cob pipes	662,516	Nov. 27	2794	602	93	1556
Barkstrom, John F., assignor to W. W. Kimball Company, Chicago, Ill. Wind-motor	664,374	Dec. 25	2711	615	93	2332
Barlow, James, Watervliet, N. Y. Valve	662,517	Nov. 27	2795	662 663	93	1557
Barlow, John H., New Haven, Conn. Device for extracting shells from gun-barrels	659,953	Oct. 16	2267	508	93	486
Barnard, De Lonson E., Beloit, Wis. Gas-engine	659,911	Oct. 16	2178	490 491	93	467
Barnard, Herman J., Indianapolis, Ind. Saw-guard	660,481	Oct. 23	3307	740	93	713
Barnard & Leas Manufacturing Company. (See Johnson, August, assignor.)						
Barnard, William, Philadelphia, Pa. Envelop-fastener	659,806	Oct. 16	1996	447	93	431
Barnes, Benjamin F., assignor to B. F. Barnes Company, Rockford, Ill. Drilling-machine	659,639	Oct. 16	1650	371	93	365
Barnes, Erastus H., New York, N. Y. Wooden shipping-box	659,954	Oct. 16	2269	508	93	486
Barnes, Harold B., Edgewood Park, Pa. Collar and necktie fastener	660,882	Oct. 30	4032	903	93	871
Barnes, John H., Norwich, Conn. Non-refillable bottle	664,376	Dec. 25	2714	616	93	2333
Barnes, John W. (See Fry and Barnes.)	664,115	Dec. 18	2225	506	93	2208
Barnes, Joshua B., Springfield, Ill. Pneumatic track-sander for locomotives						
Barnes, Murwin C., *et al.* (See Brown, Norman E., assignor.)	660,981	Oct. 30	4184	940	93	903
Barnes, Nathan M., Minneapolis, Minn. Bicycle	663,801	Dec. 11	1643	369	93	2067
Barnett, Harry T. (See Duncan and Barnett.)						
Barney, George D., New York, N. Y. Dumping-scow	663,251	Dec. 4	649	139 140	93	1848
Barney, James W., Kansas City, Mo. Conveyer	663,848	Dec. 18	1743	389	93	2111
Barney & Smith Car Company. (See Horne, James H., assignor.)						
Barnwell, Harry T., Providence, R. I. Curtain-rod	664,375	Dec. 25	2712	615 616	93	2332
Baron, Bernhard, London, England. Drawing-tap for aerated or carbonated water	662,109	Nov. 20	1994	477 478	93	1378
Barr, Charles D. and J. P., Nebraska City, Nebr. Roller-top extension-table	663,153	Dec. 4	464	99	93	1815
Barr, Josephine P. (See Barr, Charles D. and J. P.)	664,116	Dec. 18	2227	507	93	2208
Barr, Mark, Bowdon, England. Apparatus for displaying photographs						
Barrallon, Antony, St. Etienne, France. Cartridge	662,518	Nov. 27	2798	663	93	1557
Barrett, John P. (See Stack, John T., assignor.)						
Barrett, John R., Chicago, Ill. Binder	661,482	Nov. 13	821	198	93	1130
Barrett, Thomas. (See Briggs and Barrett.)	661,483	Nov. 13	823	198	93	1130
Barrett, Wesley J., Marion, N. Y. Indicator for bottles						
Barrie, John D., Los Angeles, Cal. Compass-protractor	660,089	Oct. 23	2537	568	93	559
Barron, Walter J., New York, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	662,141	Nov. 20	2041	496	93	1386
Barron, Walter J., New York, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	662,142	Nov. 20	2044	497	93	1387
Barry, James, Galveston, assignor of one-fourth to W. H. Gayle, Jr., Houston, Tex. Railway-frog	664,617	Dec. 25	3104	723	93	2428
Barry, John, and M. L. Shaughnessy, Westphalia, Kans. Boiler-feeder	664,456	Dec. 25	2876	656	93	2363
Barry, Nicholas, Jr., Muscatine, Iowa. Button-blank-cutting machine	659,191	Oct. 2	858	204	93	170
Barry, Nicholas, Jr., Muscatine, Iowa. Button-drilling machine	659,192	Oct. 2	860	204 205	93	171
Barry, Nicholas, Jr., Muscatine, Iowa. Button-grinding machine	659,193	Oct. 2	866	206	93	172
Barry, William F., assignor of one-half to W. B. Lincoln, Woonsocket, R. I. Powder-incorporator	660,042	Oct. 16	2416	543	93	515
Bartel, Rudolph F., Bayonne, N. J. Cigar-cutter	662,751	Nov. 27	3217	761	93	1635
Bartell, Otto F., Chicago, Ill. Convertible billiard-table	661,928	Nov. 13	1625	393	93	1286
Bartell, Reinhold, Philadelphia, Pa. Garment-pocket	663,840	Dec. 18	1743	389 390	93	2111
Bartelmez, Franz A., New York, N. Y. Package	660,141	Oct. 23	2654	592	93	584
Bartelmez, Franz A., New York, N. Y. Carbon-sheet holder	660,142	Oct. 23	2655	592 593	93	584
Bartels, Ernest H., Elma, Iowa. Plow attachment	662,663	Nov. 27	3052	720	93	1605
Bartholomew, James S., Guerneville, Cal. Swimming apparatus	661,595	Nov. 13	1029	257	93	1172
Bartholomew, John B., Detroit, Mich. Combined carriage-lamp and foot-warmer	659,279	Oct. 9	1008	237	93	219
Bartlett, Granville, Lexington, Ky. Saw-filing machine	661,902	Nov. 13	1575	392	93	1276
Barton, Jessie, Metheringham, England. Life-preserver	659,807	Oct. 16	1997	447	93	431
Barton, Joshua. (See Hibberd and Barton.)	663,717	Dec. 11	1481	328	93	2092
Barwick, Charles, Denver, Colo. Gold-mining or placer machine						
Bashline, William. (See Myers and Bashline.)						
Bassett, Fred R. (See Le Suer and Bassett.)	661,254	Nov. 6	417	97	93	1035
Bassett, George P., Jr., Cincinnati, Ohio. Drying-oven	661,465	Nov. 6	781	186	93	1108
Bassett, Nathan, assignor to Globe Telephone Manufacturing Company, Philadelphia, Pa. Electrical switch	662,388	Nov. 27	2510	605	93	1499
Bassett, Thomas C., Cedar Rapids, Iowa. Ruler	660,765	Oct. 30	3805	854	93	827
Bastress, Alfred L., Shamokin, Pa. Account-book	658,906	Oct. 2	331	82	93	68
Batchelder, James H., Tama, Iowa. Egg-carton	663,408	Dec. 11	943	204	93	1928
Bateman, George E., Larimore, N. D. Label-holder						
Bates & Brother, D. L. (See Aldrich and Borger, assignors.)	661,654	Nov. 13	1133	280	93	1192
Bates, Chester M., assignor of one-half to F. N. Ruggles, Wilkes-Barré, Pa. Furnace						
Bates, Edwin G., and C. Spielmann, assignors to Bates Machine Company, New York, N. Y. Typographic numbering-machine	661,437	Nov. 6	734	172	93	1099

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bates, Francis G., Philadelphia, Pa. Rotary explosive-engine	660,482	Oct. 23	3308	740 741	93	713
Bates, George A., New York, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	659,865	Oct. 16	2091	470	93	450
Bates Machine Company. (See Bates and Spielmann, assignors.)						
Bates, Nathaniel, Dubbs, Miss. Fireplace	659,998	Oct. 16	2341	526	93	502
Bates, Robert, Grand Rapids, Wis. Angle-bending mechanism	662,664	Nov. 27	3052	720	93	1605
Bates, Theodore C., Worcester, Mass. Bottle-holder	664,117	Dec. 18	2228	507	93	2209
Batt, Frank X. (See Errick and Batt.)						
Battey, Peter. (See Titus and Battey.)						
Bauer, Charles G., New Rochelle, N. Y. Switch-controlling device for surface-cars	661,841	Nov. 13	1466	355	93	1255
Bauer, Charles G., assignor to American Stopper Company, New York, N. Y. Bottle-capping machine	660,322	Oct. 23	3030	671 672	93	659
Bauer, Frederick, and D. Genre, Wilmerding, Pa. Dumping-wagon	658,937	Oct. 2	397	96	93	81
Bauer, Martin, Cleveland, Ohio. Luggage-carrier for bicycles, &c	660,615	Oct. 30	3538	795	93	776
Bauer, Martin, Cleveland, Ohio. Luggage-carrier for bicycles, &c	660,616	Oct. 30	3540	795	93	776
Bauermeister, Hermann, Brunswick, Germany. Preparing dental remedies	660,943	Oct. 30	4133		93	893
Baughan, Milton C., Barton Heights, assignor to Baughan Tobacco Stemming Machine Company, Richmond, Va. Tobacco-stemming machine	664,714	Dec. 25	3359	763 764	93	2463
Baughan Tobacco Stemming Machine Company. (See Baughan, Milton C., assignor.)						
Bausch, Edward, assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Objective	660,747	Oct. 30	3777	850	93	822
Bausch, Edward, and G. Hommel, assignors to Bausch & Lomb Optical ompany, Rochester, N. Y. Centrifugal testing-machine	660,746	Oct. 30	3776	849	93	822
Bausch & Lomb Optical Company. (See Bausch, Edward, assignor.)						
Bausch & Lomb Optical Company. (See Bausch and Hommel, assignors.)						
Bawo & Dotter. (See Mayland, Rowland H., assignor.)						
Baxter, Alfred J. (See Brooker and Baxter.)						
Baxter, James P., assignor of one-half to H. H. Dick, Millsap, Tex. Rotary engine	659,782	Oct. 16	1946	437	93	421
Baxter, John A., London, England. Manufacture of boots or shoes	661,392	Nov. 6	658	154	93	1083
Baxter, William C., East Bridgewater, Mass., assignor to Planters' Cotton Company, Vicksburg, Miss. Cotton-seed delinter	659,840	Oct. 16	2050	460	93	442
Bay State Electric Heat and Light Company. (See Porter, Edwin F., assignor.)						
Bayley, Richard W., Chicago, Ill. Machine for severing metal rods	661,631	Nov. 13	1090	270 271	93	1184
Baylor, Charles A., La Porte, Ind. Driving-gear for velocipedes	659,504	Oct. 9	1396	318	93	299
Baynes, Frederick W., London, England. Speed-regulator	659,194	Oct. 2	867	206	93	172
Bazlen, Max, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Double hydrosulfite and making same	662,388	Nov. 20	2422		93	1463
Bazlen, Max, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Double hydrosulfite and making same	662,389	Nov. 20	2423		93	1463
Beach, Seth, Toledo, Ohio. Shoestring-fastener	662,519	Nov. 27	2800	664	93	1558
Beacham, L. C. (See Snipes, George W., assignor.)						
Beall, William L., assignor to Gale Manufacturing Company, Albion, Mich. Wheel-cultivator	659,885	Oct. 16	2122	478 479	93	456
Bean, John, Los Gatos, Cal. Power mechanism	658,825	Oct. 2	186	44	93	42
Beargeon, Arthur, Compton, Cal. Gravel-separator	663,212	Dec. 4	567	122	93	1833
Beath, Charles S., *et al.* (See Smith, Charles P., assignor.)						
Beattie, John, Jr. (See Altham and Beattie.)						
Beatty, Charles L., *et al.* (See Knowles, Joseph H., assignor.)						
Beatty, Edward, New York, N. Y. Snow-melting machine	663,718	Dec. 11	1483	328	93	2092
Beatty, George H., Dayton, Ohio. Flue-cover	663,566	Dec. 11	1259	278	93	1990
Beaudett, Oliver J., Pontiac, Mich. Bending-machine	659,163	Oct. 2	784	189	93	158
Beaver, Harry F., Augusta, Ga. Signal-flag	659,280	Oct. 9	1009	237	93	219
Bechtel, William D., Mansfield, Ohio, assignor of one-fourth to J. J. Casey, Romeo, Mich. Wrench	658,749	Oct. 2	2	1	93	3
Beck & Aubert. (See Beck, Ferdinand J., assignor.)						
Beck, Ferdinand J., assignor to Beck & Aubert, Chicago, Ill. Compressor-die for pill-machines	661,596	Nov. 13	1080	258	93	1172
Beck, John A., Pittsburg, Pa. Smoke preventer or consumer	659,600	Oct. 9	1572	356	93	333
Beck, Joseph A., Allegheny, Pa. Non-refillable bottle	663,952	Dec. 18	1935	435	93	2149
Beck, Matthias A. (See Theurer and Beck.)						
Beck, Theodore E., Newark, N. J., assignor, by mesne assignments, to Sager Gear Company, Rochester, N. Y. Velocipede-saddle	663,400	Dec. 11	945	205	93	1929
Becker, August, Göttingen, Germany, assignor to Spencer Lens Company, Buffalo, N. Y. Microtome	664,118	Dec. 18	2229	507	93	2209
Becker, Franz H., Wevelinghoven, Germany. Furnace	664,034	Dec. 18	2082	473	93	2178
Becker, George, New York, N. Y. Lock for vehicle-wheels	660,410	Oct. 23	3184	707	93	690
Becker, Hermann, Paris, France. Electrolytic apparatus	663,719	Dec. 11	1485	328	93	2093
Beckmann, Otto, Mannheim, Germany. Combined pencil holder or protector and letter-balance	660,883	Oct. 30	4032	903	93	872
Beckwith, Arthur C., East St. Louis, Ill., assignor, by mesne assignments, to Western Railway Equipment Company, of Missouri. Pneumatic hammer	661,786	Nov. 13	1383	333 334	93	1240
Beckwith, Ezra D. (See Fenn, William B., assignor.)						
Beckwith, Walter C., Fostoria, Ohio. Tube-making machine	659,567	Oct. 9	1510	342	93	320
Beddies, Alfred, Berlin, Germany. Making cattle-food	663,802	Dec. 11	1645		93	2067
Bedell, Frederick, Ithaca, N. Y. Transmission of electrical impulses	662,752	Nov. 27	3218	761 762	93	1635
Beede, Herbert G., Pawtucket, R. I. Twister-machine	661,301	Nov. 6	500	115	93	1051
Beeman, John R., and F. H. Schmidt, George, Iowa. Automatic stock-watering fountain	664,524	Dec. 25	3002	684	93	2388
Beeman, Joseph S., London, England. Automatic feed apparatus	660,831	Oct. 30	3944	884	93	855
Beeman, Joseph S., London, England. Automatic delivery apparatus	661,481	Nov. 13	824	198	93	1130
Beeman, Joseph S., London, England. Cigarette-mouthpiece-applying machine	662,389	Nov. 27	2511	606 607 245 246	93	1499
Beemer, Dennis, Detroit, Mich. Air-brake mechanism for cars	661,572	Nov. 13	987		93	1163
Beer, John R. (See Brown and Beer.)						
Beermaker, John, Wahoo, Nebr. Wrench	659,281	Oct. 9	1011	238	93	220
Beese, Richard, Dresden, Germany. Incandescent gas-lamp	660,350	Oct. 30	3438	771	93	758
Behm, Albert M. (See Keller and Behm.)						
Behr, Hans C., San Francisco, Cal., assignor to Fraser & Chalmers, Chicago, Ill. Hoisting apparatus	662,163	Nov. 20	2092	506 507	93	1397
Behr, Hans C., San Francisco, Cal., assignor to Fraser & Chalmers, Chicago, Ill. Brake.	663,597	Dec. 11	1260	278	93	1990
Behr, Hans C., San Francisco, Cal., assignor to Fraser & Chalmers, Chicago, Ill. Hoisting machinery	664,073	Dec. 18	2139	489	93	2190
Behrendt, Martin. (See Eibig, Paul, assignor.)						
Behrens, Martin, Appleton, Wis. Screw-threading device	661,597	Nov. 13	1033	258	93	1173

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Beimdiek, Henry W., Jr., St. Charles, Mo. Car-roof	664,602	Dec. 25	3168	717	93	2424
Beinke, August M., St Louis, Mo. Bowling game	661,730	Nov. 13	1275	309	93	1220
Belais, David, *et al.* (See Lambert, Frank, assignor.)						
Belcher, George E., Stoughton, Mass. Hinged last	661,485	Nov. 13	825	199	93	1130
Belden, Edgar S., Chicago, Ill. Apparatus for removing moisture from air	662,944	Nov. 20	1675	407	93	1317
Belfield, Gamaliel, *et al.* (See Belfield, William, assignor.)						
Belfield, William, assignor of three-fourths to R. Shearer, J. Findlay, and G. Belfield, Platteville, Ill. Lock-nut for vehicle-axles	661,255	Nov. 6	419	98	93	1035
Bell, Benjamin F., assignor of one-half to J. Wolf, Nashville, Tenn. Curtain-roller	662,758	Nov. 27	3222	762	93	1636
Bell, Chester L., El Paso, Tex. Dust and cinder fender	663,482	Dec. 11	1069	234	93	1952
Bell & Dawson. (See Bell, George W. S., assignor.)						
Bell, Edward A., New York, N. Y. Sectional flue	660,832	Oct. 30	3046	884	93	855
Bell, Frank M., assignor of one-half to W. Pollack, New York, N. Y. Translating device	662,110	Nov. 20	1997	478	93	1378
Bell, Frank N., Milford, Mass. Snow-plow	664,603	Dec. 25	3169	718	93	2424
Bell, George, Abingdon, Ill. Animal-trap	659,783	Oct. 16	1947	437	93	421
Bell, George W. S., assignor to Bell & Dawson, Tallula, Ill. Fence-machine	660,267	Oct. 23	2919	649	93	637
Bell, Harry E., *et al.* (See Schmidt, Gottlieb, assignor.)						
Bell, Harry W., New York, N. Y. Partition	660,833	Oct. 30	3047	884	93	855
Bell, John A., Naperville, Ill. Vaginal syringe	662,340	Nov. 20	2425	584	93	1464
Bell, Milton W., New Orleans, La. Apparatus for improving and preserving channels of streams	659,122	Oct. 2	717	172 and 173	93	145
Bellamy, Frederick A., London, England. Aerial recreation apparatus, &c	663,001	Dec. 4	195	41, 42	93	1763
Bellows, Arthur B., assignor to Pittsburgh Testing Laboratory, Limited, Pittsburg, Pa. Apparatus for purifying water	660,785	Oct. 30	3847	863, 864, 865	93	834
Beltz, Gustav A., Renville, Minn. Draft-equalizer	663,154	Dec. 4	470	100	93	1815
Belz, Albert, assignor to Appleton Boat Propulsion Manufacturing Company, Appleton, Wis. Propelling mechanism for boats	659,841	Oct. 16	2052	460	93	443
Bemis, Oliver H. (See Morse and Bemis.)						
Benckenstein, Leonard F., *et al.* (See Gatrell, Ottmar A., assignor.)						
Bender, Fritz, Frankfort-on-the-Main, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim-on-the-Main, Germany. Cyanmethyl-anthranilic acid and making same	662,754	Nov. 27	3225	------	93	1636
Bender, Fritz, Frankfort-on-the-Main, assignor to Farbwerk Mühlheim, vormals A. Leonhardt & Co., Mühlheim-on-the-Main, Germany. Making phenyl-glycocol-ortho-carboxylic acid	662,755	Nov. 27	3226	------	93	1636
Benedict & Burnham Manufacturing Company. (See Morse, Charles S., assignor.)						
Benedict, Charles W., assignor of one-half to C. J. Johnson, St. Louis, Mo. Pressure-regulator	661,283	Nov. 6	463	106	93	1043
Benedict, Henry O. (See Churchouse and Benedict.)						
Benedict, James E., Woodside, Md., assignor to Z. L. Tanner, U. S. Navy. Sounding-tube for navigators' use	663,850	Dec. 18	1745	390	93	2111
Beneké, George, Southport, England. Composition for blasting-powder	659,842	Oct. 16	2053	------	93	443
Benjamin, Frank, Mildred, Minn. Crank-wheel	662,496	Nov. 27	2736	650	93	1545
Benjamin, George H., New York, N. Y. Manufacturing diethyl-ether	662,585	Nov. 27	2912	------	93	1578
Benjamin, Reuben B., assignor of one-half to R. B. Swift, Chicago, Ill. Lighting attachment for firearms	664,074	Dec. 18	2141	490	93	2190
Benjamin, Reuben B., assignor of one-half to R. B. Swift, Chicago, Ill. Railway signaling device	664,207	Dec. 18	2387	545	93	2242
Benn, Alonzo N. (See Constantine, George W., assignor.)						
Benner, Lorenzo D., Peoria, assignor to L. G. Fisher, Chicago, Ill. Paper bag	659,601	Oct. 9	1574	357	93	334
Bennett, Albert, Puyallup, Wash. Hay-press	662,341	Nov. 20	2426	584 and 585	93	1464
Bennett, Bruce, and J. E. Moore, New Haven, Ill. Clod-crusher	661,028	Nov. 6	2	1	93	951
Bennett, Charles B., Philadelphia, Pa. Automatic reversing let-off motion for looms	660,834	Oct. 30	3049	884	93	856
Bennett, James F., Sheffield, England. Carbureter	664,457	Dec. 25	2877	657	93	2303
Bennett, John F. (See Johnson, James N., assignor.)						
Bennett, Robert J., assignor to Lyon & Healy, Chicago, Ill. Automatic device for engaging ends of traveling music-sheets	664,604	Dec. 25	3173	718	93	2424
Bennett, William W., Mesquite, Tex. Telephone system	663,412	Dec. 11	950	205 and 206	93	1929
Benson, George L., H. K. and J. Logan, Jr., Hannibal, Mo. Shoe-lace tip	660,241	Oct. 23	2848	633	93	623
Benson, Henry M., assignor to J. M. Gale and A. Ward, San Francisco, Cal. Combined curtain-pole support and shade-roller bracket	662,058	Nov. 20	1899	458	93	1357
Bentley, Albert L. (See Jordan, Harry F., assignor.)						
Benton, Francis E., Stoughton, Mass. Last-thimble	657,937	Oct. 16	1652	372	93	366
Benton, George P., Mattawan, assignor of one-half to C. S. Smith and C. A. Fuhrman, Lawton, Mich. Combined school desk and seat	662,182	Nov. 20	2128	513	93	1406
Benton, James W., Kings Station, Ky. Lever-derrick	658,999	Oct. 2	400	96, 97	93	82
Benton, Justin. (See Brooks, James W., assignor.)						
Berardi, Fortunato, Naples, Italy Device for securing pipes	662,586	Nov. 27	2913	692	93	1578
Berberich, Josef. (See Schmidt and Berberich.)						
Berendsen, Henry B., Milwaukee, Wis. Motor-vehicle	664,208	Dec. 18	2389	545	93	2243
Beresford, Walter, Liverpool, assignor of two-thirds to J. R. Crellin, Ilford, and F. T. Rushton, London, England. Type-writer	664,011	Dec. 18	2051	464 and 465	93	2171
Berg, Charles, *et al.* (See Hoglund and Hedman, assignors.)						
Berg, Charles I., New York, N. Y. Buoy	661,573	Nov. 13	988	246	93	1163
Berg, Ernst J., Schenectady, N. Y., assignor to General Electric Company, of New York. Transmission of power	660,483	Oct. 23	3311	741	93	714
Berg, Henry. (See Hitt, Adrian, assignor.)						
Berg, Henry. (See Moonelis, Julius, assignor.)						
Berger, Joseph A., assignor of one-half to J. P. Larson, Chicago, Ill. Pneumatic-tire fastening	658,750	Oct. 2	3	1	93	3
Bergheim, Samuel, London, England. Preparing meat extracts	658,887	Oct. 2	298	------	93	62
Berghoefer, Edward C., Milwaukee, Wis. Elevator and carrier	660,207	Oct. 23	2793	620	93	611
Bergmann, Sigmund. (See Lundqvist, Emil, assignor.)						
Bering, James E., *et al.* (See Parker, James W., assignor.)						
Bering, Wilson M., *et al.* (See Parker, James W., assignor.)						
Berlien, John W., Argo, Mo. Corn-planter	659,201	Oct. 9	883	210	93	195
Berlioz, Fernand, Grenoble, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Guaiacolated serum and making same	664,377	Dec. 25	2716	------	93	2333
Berlioz, Fernand, Grenoble, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Serum preparation for medical use	664,378	Dec. 25	2716	------	93	2333
Bernard, William A., assignor to Wm. Schollhorn Company, New Haven, Conn. Pliers. (Reissue)	11,868	Nov. 6	815	196	93	1114

Alphabetical list of patentees, October to December, inclusive—Continued.

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Bernardi, Enrico, Padua, Italy. Motor-vehicle	659,568	Oct. 9	1512	343	93	321
Bernhardt, Charles, Philadelphia, Pa. Weighing chute-wagon	664,715	Dec. 25	3363	765	93	2464
Bernhardt, Charles, and W. H. Luelf, Cincinnati, Ohio. Cushion-making apparatus	661,302	Nov. 6	503	115 and 116	93	1051
Bernier, John B., Spencer, Mass. Curtain-fixture	664,618	Dec. 25	3195	723	93	2428
Bernstein, Benny, New York, N. Y. Lock	663,413	Dec. 11	952	206	93	1929
Berrigan, John J., Avon, N. Y., assignor to De Laval Separator Company, of New Jersey. Centrifugal liquid-separator	663,111	Dec. 4	374	79	93	1796
Berrigan, John J., Avon, N. Y., assignor to De Laval Separator Company, of New Jersey. Centrifugal cream-separator	663,112	Dec. 4	375	79	93	1796
Berrigan, John J., Avon, N. Y., assignor to De Laval Separator Company, of New Jersey. Centrifugal cream-separator	663,113	Dec. 4	376	79	93	1796
Berrigan, John J., Avon, N. Y , assignor to De Laval Separator Company, of New Jersey. Device for assembling or disassembling the parts of centrifugal liquid-separators	663,114	Dec. 4	378	80	93	1797
Berrigan, John J., Avon, N. Y , assignor to De Laval Separator Company, of New Jersey. Centrifugal liquid-separator	663,115	Dec. 4	380	80	93	1797
Berry, Henry, Shelton, assignor to Derby Silver Company, Derby, Conn. Shaving mug and brush	659,282	Oct. 9	1012	238	93	220
Berry, James W., Iowa City, Iowa. Flushing apparatus	658,751	Oct. 2	4	1	93	3
Berry, James W., Iowa City, Iowa. Pipe-hook	662,342	Nov. 20	2428	585	93	1464
Berry, John W., Tacoma, Wash. Automatic weighing-machine	661,945	Nov. 20	1678	407	93	1318
Berry, Louis, New York, N. Y. Beam-supporter	661,946	Nov. 20	1680	408	93	1318
Berry, Susan A., Hampton, Va. Measuring can-filler	664,075	Dec. 18	2142	490	93	2190
Bertheau, Henrik A., Stockholm, Sweden. Valve-gear for explosive-engines	660,242	Oct. 23	2849	634	93	623
Besaw, Alexander, West Depere, Wis. Compound for exterminating weeds	663,071	Dec. 4	308	------	93	1783
Bessonette, Charles L., assignor to Gluners Compress Company, Chicago, Ill. Baling cotton	659,432	Oct. 9	1253	289	93	271
Bessonette, William T., assignor of five-eighths to W. A. Barclay, Temple, Tex. Cotton-press	660,243	Oct. 23	2851	634	93	623
Best, John H., Denver, Colo. Display-rack	659,195	Oct. 2	868	206 and 207	93	172
Best, Peter, Elizabeth, N. J. Car-fender	664,309	Dec. 18	2580	588	93	2280
Beswick, John T., New York, N. Y. Electric fan	660,551	Oct. 30	3438	772	93	758
Betts, Lewis F., New York, N. Y. Broiler	663,483	Dec. 11	1070	234	93	1952
Bevans, Thomas R., Kalamazoo, Mich. Drawbridge	663,484	Dec. 11	1072	234 and 235	93	1952
Beveridge, Henry L., and C. E. Frye, Indianapolis, Ind. Cylinder paper-machine	659,283	Oct. 9	1013	238	93	220
Bewan, Philip, *et al.* (See Sherman, William C., assignor.)						
Bianchi, Virginio. (See Ghezzi and Bianchi.)						
Biddle, Marshall D., Cleveland, Ohio. Skirt-fastener	659,047	Oct. 2	592	144	93	119
Bidle, William S., Cleveland, Ohio. Making metallic wire-rope sockets	662,216	Nov. 20	2210	583	93	1421
Bidle, William S., Cleveland, Ohio. Roll for rolling billets	663,485	Dec. 11	1075	235	93	1953
Biehl, Daniel K. (See Ehmke, Ferdinand, assignor.)						
Bienenzucht, Abraham. (See Bienenzucht, Samuel and A.)						
Bienenzucht, Samuel and A., New York, N. Y. Buckle	662,706	Nov. 27	3141	743	93	1621
Bierich, Johann G., Menkenhof, Itussia. Producing homogeneous horn substances	659,358	Oct. 9	1123	------	93	243
Bies, Alexander, Schenectady, N. Y. Handle-bar	659,123	Oct. 2	720	178	93	146
Biesel, John, McKeesport, Pa. Stopper for fruit-jars or bottles	658,752	Oct. 2	7	2	93	4
Bilfinger, Carl W., Washington, D. C. Wood-distilling apparatus	658,888	Oct. 2	299	73, 74	93	62
Billings, Fredric, and C. S. Prescott, assignors of one-third to H. C. Higgins, Marinette, Wis. Power set-works for sawmill-carriages	659,124	Oct. 2	720	173 and 174	93	146
Bing, William S. (See Callison and Bing.)						
Bingham, Herbert B., Nashua, N. H. Bread-cutter	662,756	Nov. 27	3228	763	93	1636
Binns, William H., assignor to A. Featherstone & Company, Chicago, Ill. Retainer for ball-bearings	662,520	Nov. 27	2801	664	93	1558
Bird & Son, F. W. (See Wyman, George R., assignor.)						
Birdsall, Edward T., New Rochelle, N. Y., assignor to Desberon Motor-Car Co., New York, N. Y. Sparking-plug for explosive-engines	660,786	Oct. 30	3852	866	93	835
Birney, Mae, New Whatcom, Wash. Jar-closure	662,757	Nov. 27	3229	763	93	1637
Bisbee, Edgar C., St. Paul, Minn. Oil-cake-forming apparatus	660,718	Oct. 30	3730	840 and 841	93	812
Bishoff, Charles S., Maryville, Mo. Cream-separator	659,638	Oct. 16	1653	372	93	366
Bishop, Harry, New York, N. Y. Commutator-brush holder	662,758	Nov. 27	3231	763	93	1637
Bishop, Lincoln, Lyons, N. Y. Husking-peg	660,552	Oct. 30	3440	772	93	758
Bishop, Samuel A., Smethport, Pa. Machine for smoothing and polishing floors	664,232	Dec. 18	2426	558	93	2250
Bissell, Louise, Arlington, Mass. Tether-ball	660,787	Oct. 30	3854	866	93	835
Bissinger, Benjamin, Chattanooga, Tenn. Sewing and cutting machine	660,617	Oct. 30	3541	796	93	776
Bissonnette, Edmond F., Nashua, Iowa. Band-cutter and feeder	661,682	Nov. 13	1092	271 and 272	93	1184
Bittiner, Carl, *et al.* (See Jaeger, Franz E., assignor.)						
Bittiner, Edmund, *et al.* (See Jaeger, Franz E., assignor.)						
Bittman, Frederic W., St. Louis, Mo. Cylinder-lubricator	659,639	Oct. 16	1655	373	93	366
Black, Walter, Chicago, Ill. Mortising-machine	662,390	Nov. 27	2517	607	93	1500
Blackman, Henry, New York, N. Y. Electrical connector	662,707	Nov. 27	3142	744	93	1621
Blackmore, Henry S., Mount Vernon, N. Y. Disinfecting composition	659,640	Oct. 16	1656	------	93	366
Blackwell, Charles, assignor to G. W. Blackwell, Vinita, Ind. Ter. Hay-stacker	659,641	Oct. 16	1657	372 and 373	93	366
Blackwell, George W. (See Blackwell, Charles, assignor.)						
Blagden, Silliman, Boston, Mass. Finger-bowl	664,525	Dec. 25	3003	684	93	2388
Blagdon-Richards, Albert F., Swansea, England. Clinical-thermometer case	659,642	Oct. 16	1658	373	93	367
Blaine, Eugene M. (See Jencke, Homrig, and Blaine.)						
Blaine, George E., and P. T. South, Dayton, Ohio. Clod-crusher and land-leveler	662,370	Nov. 20	2472	595	93	1473
Blaisdell, Byron R., Chicago, Ill. Bedstead	660,208	Oct. 23	2795	620	93	612
Blaisdell, Hiram W., Yuma, Ariz. Ter. Conveyer	661,842	Nov. 13	1468	355	93	1250
Blair, William J. (See Wood, Blair, and Webster.)						
Blake, Charles C., Portsmouth, N. H. Insulated support for electric conductors	662,587	Nov. 27	2914	692	93	1579
Blake, Charles P., Chester, Pa. Valve-gear for explosive-engines	660,090	Oct. 23	2539	569	93	560
Blake, Francis C., London, England. Cooling device for heat-radiators	663,851	Dec. 18	1747	390	93	2111
Blake, Lucien I., Lawrence, Kans. Protecting underground metallic structures from effects of electrolysis	661,165	Nov. 6	252	61	93	1002
Blakely, William P., *et al.* (See Pendleton, Winston K., assignor.)						
Blaker, Gilbert H. (See Hitz and Blaker.)						
Blakeslee, Cornelius, *et al.* (See Kelsey, Lovell L., assignor.)						
Blakesley, Gilbert H., Bristol, Conn. Garter	660,553	Oct. 30	3440	772	93	758
Blamire, James, Parsons, Pa. Chuck	663,825	Dec. 4	779	167	93	1873
Blanchard, George B., Seattle, Wash. Rail-bond	658,753	Oct. 2	8	2	93	4

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Blanchard, Helen A., Philadelphia, Pa. Sewing-machine needle	659,999	Oct. 16	2342	527	93	502
Blanchette, Joseph, Dayton, Minn. Spark-arrester	660,143	Oct. 23	2656	598	93	584
Blass, Eduard, Essen, Germany. Regenerative hearth-furnace	664,526	Dec. 25	3004	684	93	2289
Blass & Garnow. (See Fisher, Ora M., assignor.)						
Blees-Moore Instrument Company. (See Sadler, Charles J., assignor.)						
Blesch, August F., and E. Palmer, Columbus, Ohio. Sanitary flushing device	660,554	Oct. 30	3442	778	93	759
Block, Simon M., *et al.* (See Meyer, Otto, assignor.)						
Bloom, William O., Worcester, Mass. Device for measuring and administering medicines	662,588	Nov. 27	2915	662	93	1579
Bloomer, Howard J., Norwalk, Conn. Non-refillable bottle	661,605	Dec. 25	3174	719	93	2425
Blouth, Henry, Wilmington, Del. Bowling-alley	661,903	Nov. 18	1577	382 / 383	93	1276
Blue, Charles E., assignor of seven-sixteenths to A. G. Hubbard and L. V. Blue, Wheeling, W. Va. Mold for manufacturing pressed and blown narrow-neck bottles	662,759	Nov. 27	3232	763	93	1637
Blue, Louis V., *et al.* (See Blue, Charles E., assignor.)						
Bluhm, Charles A., Michigan City, Ind. Incandescent gas-burner	663,803	Dec. 11	1646	369	93	2067
Blum, Max. (See Hoch, Adam, assignor.)						
Blum, Robert, Corpus Christi, Tex. Dental plugger	660,411	Oct. 23	3185	707	93	690
Blumenberg, Henry, Jr., New York, N. Y. Car-brake-operating mechanism	663,671	Dec. 11	1395	309	93	2015
Blumenthal, Serge de. (See Zvorikin and Blumenthal.)						
Blumer, Arthur, La Varenne, France. Manufacturing stoppers	659,505	Oct. 9	1400	318	93	299
Blunt, Harrison N., New York, N. Y. Tile-base	659,464	Oct. 9	1322	302	93	284
Boardman, Claude S., Somerville, Mass. Sifter	662,111	Nov 20	1998	478	93	1378
Boch, Philipp, assignor of one-third to H. Mock, New York, N. Y. Car-brake	663,827	Dec. 11	1699	380 / 381	93	2080
Bock, William E., assignor to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	659,726	Oct. 16	1820	411 / 412	93	398
Boehle, William. (See Morck, Krickau, and Boehle.)						
Boehringer & Soehne, C. F. (See Ach, Fritz, assignor.)						
Boeklen, Reinhold, New York, N. Y. Hub and spigot pipe and joint	662,907	Dec. 4	19	4	93	1730
Boentgen, Carl, Astoria, Oreg. Combination reamer, tap, and countersink	659,125	Oct. 2	723	174	93	146
Boes, Hubert A., Kevelaer, Germany. Driving mechanism for unicycles	660,885	Oct. 30	3952	885	93	856
Boessneck, Ernst, Chemnitz, Germany, assignor to C. H. Aldridge, Loughborough, England. Knitting-machine	658,826	Oct. 2	187	44 / 45 / 46 / 47 / 48	93	42
Boettger, Henry W., New York, N. Y. Apparatus for dyeing	661,633	Nov. 13	1098	272	93	1185
Boettler, Adolph, *et al.* (See Farmer, John R., assignor.)						
Bogardus, John S., Stamford, Conn. Leveling, plumbing, and angle-measuring instrument	663,252	Dec. 4	654	141	93	1849
Bogardus, Washington A. H., New York, N. Y. Draining mechanism for tubular-despatch systems	661,363	Nov. 6	611	142	93	1073
Bogart, Charles H., New York, N. Y. Bottling-machine	662,760	Nov. 27	3233	764	93	1637
Boggs, Edward B., New York, N. Y., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Automatic fur-scale	664,619	Dec. 25	3196	723 / 724	93	2428
Boggs, William H., Covington, Ohio. Folding swing	660,179	Oct. 23	2735	608 / 609	93	600
Bogle, Harvey D. (See Clark and Bogle.)						
Bohlman, Segelke, West Alexandria, assignor of one-half to H. Meyer, Cincinnati, Ohio. Tobacco-casing table	661,787	Nov. 13	1387	334	93	1241
Böhm, Ludwig K., assignor to W. S. MacClymont, New York, N. Y. Manufacturing paper from straw	659,784	Oct. 16	1948	------	93	422
Böhm, Ludwig K., assignor to W. S. MacClymont, New York, N. Y. Pulp washing and straining machine	659,785	Oct. 16	1950	437	93	422
Bohn, Frederick W., Independence, Wis. Combined cut-off and governor	658,754	Oct. 2	10	2	93	4
Bohn, René, Mannheim, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black dye and making same	661,438	Nov. 6	737	------	93	1099
Boissier, Hermann R., New York, N. Y. Metal-depositing apparatus	660,884	Oct. 30	4033	903 / 904	93	872
Boland, Michael. (See Eaton and Boland.)						
Bollen, Walter W., Red Oak, Iowa. Time lighting device	663,852	Dec. 18	1748	391	93	2111
Boller, Alfred P. (See Asencio, Thomas, assignor.)						
Bolt, Frank C., trustee. (See Smyth, David M., assignor.)						
Boltshauser-Schmid, Conrad, assignor to S. Steiner & Co., Zurich, Switzerland. Holder for turning and boring tools	663,005	Dec. 4	196	42	93	1763
Bommer Brothers. (See Sandstrom, William K., assignor.)						
Bonafede, Carlo, Rome, Italy. Automatic funnel	663,621	Dec. 11	1209	287	93	1997
Bond, William A., trustee. (See Ripley and Wadsworth, assignors.)						
Bonhoeffer, Otto, and H. Dreser, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Methylpropylcarbinolurethane and making same	659,302	Oct. 9	895	------	93	196
Bonjour, Claude, Paris, France. Distributing mechanism for steam or other fluid-pressure engines	660,412	Oct. 23	3189	708 / 709	93	690
Bonsall, Seymour W., assignor to N. Hiss, New York, N. Y. Accessible garment-hanger	661,947	Nov. 20	1681	408	93	1318
Bonzagni, Vincenzo, Boston, Mass. Apparatus for cleansing water-pipes	659,613	Oct. 16	1659	373	93	397
Bookheim, Solomon, Albany, N. Y. Non-refillable bottle	661,948	Nov. 20	1682	408	93	1319
Booth, Albert C., assignor of twenty-three fiftieths to W. H. Dutton, Cedar Rapids, Iowa. Elevator-gate	663,953	Dec. 18	1996	435	93	2149
Booth, Charles H., New York, N. Y. Pipe-coupling	659,336	Oct. 9	1088	256	93	245
Booth, Kraft, Chicago, Ill. Soldering-iron	664,310	Dec. 18	2583	589	93	2280
Borchers, Richard C., Philadelphia, Pa. Napping-machine	662,589	Nov. 27	2916	692 / 693	93	1579
Borchers, Wilhelm, Aachen, Germany. Electrical furnace	660,043	Oct. 16	2417	544	93	515
Boren, Alfred, St. Paul, Minn. Combined folding chair and couch	663,486	Dec. 11	1077	235 / 236	93	1954
Borger, Henry E. (See Aldrich and Borger.)						
Born, Robert H., St. Louis, Mo. Towel-holder	659,164	Oct. 2	786	189	93	158
Born, Walter F., Downer's Grove, and W. G. Dunham, Clyde, Ill. Journal-box	659,284	Oct. 9	1014	238	93	220
Borsdorf, Reinhold, Pulsnitz, Germany. Adjustable metal fitting for earthenware	662,890	Nov. 27	3552	833	93	1709
Bortree Corset Company. (See Stone, James, assignor.)						
Bosch, Robert. (See Simms and Bosch.)						
Boston Footwear Machine Company. (See Davis, Orlando A., assignor.)						
Boston Shoe Tool Company. (See Childs, Eugene, assignor.)						
Bostwick, Perley P., Boston, Mass., assignor of one-half to Percy Lumber Company, Percy, N. H. Woodworking-machine	664,311	Dec. 18	2584	589	93	2281
Bosworth, Charles B., Everett, Mass., assignor to Ashton Valve Company, Hartford, Conn. Pressure-gage-testing apparatus	664,805	Dec. 25	3563	811	93	2505

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bosworth, Charles B., Everett, Mass., assignor to Ashton Valve Company, Hartford, Conn. Testing apparatus for pressure-gages	664,806	Dec. 25	3564	811	93	2506
Bosworth, Millard M., New Orleans, La. Nut-lock	662,343	Nov. 20	2429	585	93	1465
Bosworth, Percy B., assignor of one-half to F. G. Carnahan, Akron, Ohio. Device for truing commutators	660,618	Oct. 30	3542	796	93	776
Botz, Otto C., Sedalia, Mo. Folding flash-light bracket	661,364	Nov. 6	612	142	93	1074
Boucher, Allen, Rochester, N. Y., assignor to Caldwell Manufacturing Company, of New York. Garment hanger	662,908	Dec. 4	21	4	93	1730
Boughton, John A., Everett, Ohio. Machinery for treating molding-sand	661,256	Nov. 6	420	98	93	1085
Boulanger, Emile, St. Louis, Mo. Tone-sharpener for drums	663,853	Dec. 18	1751	391	93	2112
Boulanger, Emile, St. Louis, Mo. Combined orchestra and band drum	663,854	Dec. 18	1751	391	93	2112
Boulanger, Emile, St. Louis, Mo. Duplex tightening drum-rod	663,855	Dec. 18	1753	392	93	2112
Boulet, Joseph, Beverly, Mass. Micrometer-indicator	659,048	Oct. 2	593	144	93	119
Boulier, Alfred and E., Neuilly, France. Explosion-engine	661,439	Nov 6	738	172 / 173	93	1100
Boulier, Eugéne. (See Boulier, Alfred and E.)						
Bour, Joseph, Princeton, Ind. Bake-oven	660,695	Oct. 30	3691	830 / 831	93	804
Bourne, Stephen N., trustee. (See Janelle, Oscar, assignor.)						
Bourquin, Numa A., assignor of one-half to I. P. Fessler, Reading, Pa. Hinge	659,208	Oct. 9	886	210	93	196
Bouslog, George T., Winamac, Ind. Holdback and short hitch	663,720	Dec. 11	1487	329	93	2033
Bouton, Charles L., assignor of one-half to W. S. Kenny, Chicago, Ill. Magazine plate-holder	660,180	Oct. 23	2737	609	93	690
Bouton, Georges. (See De Dion and Bouton.)						
Bouvet, Gaston E., and E. A. Fix, Paris, France. Machine for printing in one or more colors	664,119	Dec. 18	2282	508	93	2209
Bowditch, Nathaniel. (See Miles, Don D., assignor.)						
Bowen, Charles D., assignor of one-half to F. McGrath, Boston, Mass. Holdfast for boots or shoes	659,615	Oct. 9	1601	362	93	339
Bowen, Fremont W., Paradise, Okla. Ter. Peanut-vine stripper	660,944	Oct. 30	4134	928	93	893
Bower, James, Topeka, Ill. Wagon-body	661,029	Nov. 6	4	1	93	962
Bowers, Jay M. (See Swain, Applus C., assignor.)						
Bowersox, W. H. (See Spencer, Watson W., assignor.)						
Bowes, John J., Jr., Pensacola, Fla. Hose-coupling	658,755	Oct. 2	12	2	93	5
Bowie, George M. (See Tuttle, Gutie H., assignor.)						
Bowie, John. (See Bowie, William and J.)						
Bowie, William and J., Glasgow, Scotland. Carpet-cleaner	664,606	Dec. 25	3176	719	93	2425
Bowling, Frederick T., Hughesville, Md. Combined damper and spark-arrester	660,678	Oct. 30	3660	822	93	798
Bowman, Daniel W., assignor to H. R. Wade, Toledo, Ohio, and J. N. Clouse, St. Louis, Mo. Washing-machine	664,607	Dec. 25	3178	719	93	2425
Bowman, George W., Palisade, Colo. Fruit-gathering bag	663,258	Dec. 4	657	141	93	1849
Bowman, James W. (See Riedy, John P., assignor.)						
Bowman, John W., Union Star, Mo. Buckle	659,912	Oct. 16	2183	491	93	468
Bowman, Jonathan, San Antonia, Tex. Water-closet flush	660,044	Oct. 16	2419	544 / 545	93	515
Bowman, Mark H., and W. O. Hughes, Pinkstaff, Ill. Machine-gun	662,761	Nov. 27	3235	764 / 765	93	1638
Bowman, William R., Sloan, Pa. Wire fabric	659,126	Oct. 2	724	174	93	146
Bowring, Edwin L. (See Vanderlinda, Peter J., assignor.)						
Boyd, George H., Sharon, and T. D. West, Sharpsville, Pa. Gear-blank	662,344	Nov. 20	2480	586	93	1465
Boyd, Henry M., Sierra Blanca, Tex., and H. Redmon, assignors of one-tenth to J. W. Renaker, Cynthiana, Ky. Rail-joint	660,484	Oct. 23	3313	742	93	714
Boyd, Lincoln. (See Willis, Boyd, and Hill.)						
Boyd, Robert R., Memphis, Tenn. Treating cotton-waste	661,166	Nov. 6	254	61, 62	93	1008
Boyd, Robert R., Memphis, Tenn. Cotton-cleaner and boll-huller	661,949	Nov. 20	1683	409	93	1319
Boyd, Thomas A., Glasgow, Scotland. Machinery for twisting yarns or threads	659,599	Oct. 9	1516	344	93	321
Boyer, Allen P., Goshen, Ind. Hay-track coupling	661,753	Nov. 13	1319	321	93	1228
Boyer, Edith E. L., Dayton, Ohio. Triple-action jack	660,766	Oct. 30	3806	855	93	828
Boyer, Frank, assignor of one-half to T. Ryan, Syracuse, N. Y. Leaf-turner	663,622	Dec. 11	1800	287 / 288	93	1997
Boyer, Manassa L. (See Coughlin, John J., assignor.)						
Boyle, Patrick F., Worcester, Mass. Faucet	659,285	Oct. 9	1016	289	93	221
Braceweil, William B., Cotton, Tex. Plow attachment	664,527	Dec. 25	3005	684	93	2289
Brachhausen, Gustav A., Rahway, N. J. Automatic mechanical musical instrument	661,466	Nov. 6	784	187 / 188	93	1109
Brackebush, Henry, Packwaukee, Wis. Reel for harvesting-machines	660,555	Oct. 30	3443	778	93	759
Brackebush, Henry, Packwaukee, Wis. Conveyer for harvesters	660,696	Oct. 30	3693	831	93	805
Brackelsberg, Ernst W., Ohligs, Germany. Type-writing machine	660,556	Oct. 30	3445	778	93	759
Braddock, Frank E., Middleport, N. Y. Bill or account-slip holding book	661,710	Nov. 13	1289	300	93	1213
Braden, Wade, Maroa, Ill. Farm-gate	660,323	Oct. 23	3033	672	93	659
Bradford, Eugene S., Philadelphia, Pa. Machine for making expanded metal	664,379	Dec. 25	2717	616 / 617	93	2334
Bradford, John T., Muncie, Ind., and A. R. Gordon, Delphos, Ohio. Oil-pump	662,617	Nov. 27	2961	703	93	1588
Bradley, George L., Patahn City, Wash. Cultivator	662,665	Nov. 27	3054	720 / 721	93	1605
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley, James J., Newark, and L. M. Pignolet, Orange, N. J.; said Bradley assignor to said Pignolet. Magnetic regulator for galvanometers	659,506	Oct. 9	1401	319	93	299
Bradley, Morton C. (See Whetsel and Bradley.)						
Bradley, William, Sheffield, England. Construction of high-pressure water-taps	659,644	Oct. 16	1661	374	93	367
Bradley, William J., Troy, N. Y., assignor to Continuous Rail Joint Company of America, Newark, N. J. Roll-train and its passes for shaping bars from which to sectionally cut fish-plates	663,598	Dec. 11	1961	278 / 279	93	1990
Bradloff, Ernestine, Malden, Mass. Apparel-hood	661,711	Nov. 13	1241	300	93	1213
Bradshaw, Charles T., Philadelphia, Pa. Advertising-automaton	660,485	Oct. 23	3314	742	93	714
Bradt, Harry U., assignor of one-half to W. G. Weaver, Barnes, Kans. Sewing-awl	660,413	Oct. 23	3191	709	93	691
Brady, James E. (See Moberg and Brady.)						
Brady, John F., Chicago, Ill. Means for conserving liquid gases	662,217	Nov. 20	2218	533	93	1421
Bragg, Henry W. (See Galbraith, Edward A., assignor.)						
Braine, Bancroft G., New York, N. Y. Railway-rail joint	659,387	Oct. 9	1169	272	93	254
Brake, John A., Dayton, Ohio. Manifolding sales-book	661,030	Nov. 6	6	2	93	932
Braley, William W., assignor of one-half to J. F. Montgomery, Taunton, Mass. Oven-thermometer	658,827	Oct. 2	198	48	93	43
Bramer, August T., assignor of one-half to J. W. Garetson, Wentworth, Mo. Grain-door for cars	664,716	Dec. 25	3364	765	93	2465
Bramlette, Andrew J. (See Northam and Bramlette.)						
Brand, George, New York, N. Y. Bed-bottom	663,692	Dec. 11	1431	317	93	2023

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brandt, Albert A., Birmingham, England. Micrometer-gage	664,120	Dec. 18	2235	508 509	93	2209
Brandt, Carl, Cedar Falls, Iowa. Heating-furnace	658,907	Oct. 2	332	82, 83	93	68
Brandt, Edward J., Watertown, Wis. Coin-delivery machine	658,828	Oct. 2	200	48, 49	93	44
Brandt, Joseph H., Philadelphia, Pa., assignor to Great Bear Spring Company, Jersey City, N. J. Pump attachment for bottle-coolers	661,687	Nov. 13	1198	201	93	1205
Brandts, Richard, München-Gladbach, Germany. Apparatus for dyeing, &c	662,590	Nov. 27	2030	693	93	1579
Brannan, Samuel, *et al.* (See Lewis, Albert H., assignor.)						
Branning, Joseph, Medford, assignor of one-half to R. J. Stopf, Owatonna, Minn. Draft-evener	662,164	Nov. 20	2094	507	93	1308
Brannon, James L., Fogg, W. G. Davis, Nashville, and W. B. Comer, deceased; S. C. Broom, Centreville, Tenn., administrator. Machine for loading railway-cars	663,326	Dec. 4	781	167	93	1873
Bransgrove, Charles, Lulu, Mich. Cord-tension alarm	664,717	Dec. 25	3365	766	93	2465
Brat, Heinrich, Rummelsburg, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Bromo-tannin-gelatin compound	659,204	Oct. 9	887	.....	93	196
Bratton, Robert A., Galena, Ill. Heating-stove	661,486	Nov. 13	826	199	93	1181
Brauer, Arthur J. and R. T., St. Louis, Mo. Ankle-brace	660,885	Oct 30	4084	904	93	872
Brauer, Robert T. (See Brauer, Arthur J. and R. T.)						
Brauers, Jean, Brussels, Belgium. Billiard-cue	664,528	Dec. 25	3007	685	93	2389
Braun, Albert, and E. McPherson, Allegheny, Pa. Folding shipping-crate	659,165	Oct. 2	787	189	93	159
Braun, Emil, New York, N. Y. Egg-saver	661,487	Nov. 13	827	199	93	1181
Bray, George, Leeds, England. Construction of gas-burners	659,843	Oct. 16	2054	461	93	443
Bray, John W., Leeds, England. Acetylene-gas burner	662,909	Dec. 4	21	4	93	1731
Bray, Mellen. (See Maynz, Edward, assignor.)						
Bray, Solon A., Carrol, Idaho. Gun-sight	661,031	Nov. 6	7	2	93	952
Brazel, Peter B., Cheboygan, Mich. Machine for sharpening horseshoe-calks	659,388	Oct. 9	1172	272	93	254
Brecher, Adolf, *et al.* (See Jung, Carl, assignor.)						
Breckenridge, Hickson O., Big Stone City, S. D. Tool	664,012	Dec. 18	2053	465	93	2172
Bredel, Frederick, Milwaukee, Wis. Recuperative furnace	659,602	Oct. 9	1575	357	93	334
Breed, George, Philadelphia, Pa. Track-supported sailing device	663,006	Dec. 4	197	42	93	1764
Breed, William A., *et al.* (See Hazelhurst, Charles E., assignor.)						
Brenenstul, Henry M. (See Griebel, Andrew, assignor.)						
Brennan, James A., Worcester, Mass. Electric-arc lamp	664,209	Dec. 18	2390	545	93	2243
Breuninger, Friedrich, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Dyeing sulfur colors	660,069	Oct. 16	2500	.....	93	532
Brewer, Francis A., Kirkville, N. Y. Rail-joint	664,620	Dec. 25	3197	724	93	2429
Brewer, Horatio J., New York, N. Y. Electrogalvanic battery	660,836	Oct. 30	3953	895	93	856
Brewster, Charles W., El Monte, Cal. Violin-support	664,718	Dec. 25	3367	766	93	2465
Brewster, Robert, Chicago, Ill. Artificial tooth	663,721	Dec. 11	1487	329	93	2033
Brewster, William F., New York, N. Y. Flexible supporting structure for electric lamps	663,532	Dec. 11	1162	251	93	1970
Bridges, Christopher M., San Francisco, Cal. Acetylene-gas generator	663,007	Dec. 4	198	43	93	1764
Briggs, Charlotte H., Clinton, Iowa. Dancing toy	661,082	Nov. 6	8	2	93	952
Briggs, Daniel, and W. H. Shepard, New York, assignors to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-bar for type-writing machines	660,287	Oct. 23	2948	656	93	643
Briggs, Edward R., Amesbury, Mass. Convertible carriage	660,524	Oct. 23	3385	761	93	729
Briggs, Edward R., Amesbury, Mass. Boot for carriages	662,183	Nov. 20	2129	514	93	1406
Briggs, Harriett C., *et al.* (See Holly, George W., assignor.)						
Briggs, John S., Los Angeles, Cal. Air-injecting device for lessening skin friction of vessels	661,303	Nov. 6	505	116	93	1051
Briggs, Robert A., Rudd, Iowa. Bit	659,286	Oct. 9	1018	239	93	221
Briggs, Thomas A., Arlington, and T. Barrett, Boston, Mass.; said Barrett assignor to said Briggs. Stapling-machine	662,184	Nov. 20	2130	514 515 516	93	1406
Brigham, Arthur A. (See Gordon, James F., assignor.)						
Bright, Ferguson G., Commerce, Mo. Cultivator	661,843	Nov. 13	1469	355 356	93	1256
Bright, Fredrick W., assignor to Armour Packing Company, Kansas City, Kans. Preserving meats. (Reissue)	11,875	Dec. 4	922	200	93	1901
Brimmer, Carl, Munich, Germany. Regenerating old gum or gum wastes	664,529	Dec. 25	3008	.....	93	2389
Brinck, John R., assignor of one-half to J. H. Kamps, Appleton, Wis. Minnow-bucket	664,719	Dec. 25	3368	766	93	2466
Brindle, Thomas, and M. O. Steere, Pawtucket, R. I. Friction let-off	664,380	Dec. 25	2720	618	93	2334
Brinkman, Henry, *et al.* (See Kennedy, William J., assignor.)	659,127	Oct. 2	725	174	93	147
Brisighelli, Alceo, Cordoba, Argentina. Life-preserver						
Bristol Brass and Clock Company. (See Fowler, Edward C., assignor.)						
Bristol Company. (See Bristol, William H. and E. H., assignors.)						
Bristol, Edgar H. (See Bristol, William H. and E. H.)						
Bristol, Edmund. (See Rowlands, Walter, assignor.)						
Bristol, William H., Hoboken, N. J., and E. H. Bristol, Naugatuck, Conn., assignors to Bristol Company, Waterbury, Conn., and New York, N. Y. Recording air-pyrometer	659,616	Oct. 9	1602	362	93	339
Britton, Clarence R., Cleveland, Ohio. Apparatus for applying coatings	662,910	Dec. 4	22	4, 5	93	1731
Britton, Louis H., and H. W. Morrow, Lisbon, Ohio. Sucker	662,345	Nov. 20	2431	586	93	1465
Brix, Joseph J., assignor to Allgemeine Städtereinigungs-Gesellschaft mit Beschränkter Haftung, Wiesbaden, Germany. Filtering apparatus	662,556	Nov. 27	2960	678	93	1569
Broadbooks, Peter, Batavia, N. Y. Combination clamp and lifting-jack	661,488	Nov. 13	828	200	93	1131
Broadbooks, Peter, assignor of one-half to J. H. Ward, Batavia, N. Y. Pruning-shears	660,288	Oct. 23	2950	656	93	643
Brock, George H., Huntington, N. Y. Musical chart	663,722	Dec. 11	1488	329	93	2033
Broman, Peter, assignor to Armour & Co., Chicago, Ill. Trap for refrigerator-cars	663,116	Dec. 4	382	80	93	1798
Bronder, Gaston A., New York, N. Y. Machinery for discharging gas-retorts	663,213	Dec. 4	568	122 123	93	1833
Brook, Augustus T., New York, N. Y. Wire post	658,889	Oct. 2	301	74	93	62
Brooke, Charles D., Coshocton, Ohio. Fishing-fly	661,788	Nov. 13	1388	334	93	1241
Brooke, Isaac, Pottstown, assignor to Floyd, Wells & Co., Royersford, Pa. Stove	661,257	Nov. 6	422	99	93	1036
Brooker, Henry, and A. J. Baxter, London, England. Micrometer or similar gage	659,570	Oct. 9	1517	344	93	321
Brooks, Charles H., assignor to Merrell-Soule Company, Syracuse, N. Y. Machine for making paper boxes	664,458	Dec. 25	2878	657 658	93	2363
Brooks & Co., T. H. (See Shepard, William H., assignor.)						
Brooks, Edward J., East Orange, N. J. Seal	660,837	Oct. 30	3955	885 886	93	857
Brooks, Frank M., New York, N. Y. Bunsen burner	658,890	Oct. 2	302	75	93	62
Brooks, Frank M., New York, N. Y. Bunsen burner	661,489	Nov. 13	829	200	93	1131
Brooks, Franklin W., Washington, D. C., assignor to Grant Manufacturing Company, of Virginia. Seal	663,693	Dec. 11	1433	318	93	2023
Brooks, James W., assignor of one-half to J. Benton, Indianapolis, Ind. Thill-coupling	663,487	Dec. 11	1079	236	93	1954
Brooks, John B., Bromsgrove, and J. Holt, Aston, assignors to J. B. Brooks & Company, Limited, Birmingham, England. Cycle-saddle attachment	662,346	Nov. 20	2432	586	93	1465

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Brooks, Louis A. (See Coombs and Brooks.)						
Brooks, Robert. (See Roth and Brooks.)						
Brooks, Thomas E., assignor of one-half to S. Nagy, Chicago, Ill. Thill-coupling	663,254	Dec. 4	659	142	93	1850
Brooks, William S., assignor to Goodyear Tire and Rubber Company, Akron, Ohio. Rubber-tire-setting machine	660,838	Oct. 30	3956	886	93	857
Broom, Stanley C., administrator. (See Brannon, Davis, and Comer.)						
Broomhead, William H. (See Tubby and Broomhead.)						
Brosius, Amos P. (See Reynolds, Brosius, and Unger.)						
Browder, Thomas F., Greenfield, Ohio. Fire-escape	663,856	Dec. 18	1753	392	93	2112
Browder, Thomas F., Greenfield, Ohio. Fire-escape	663,857	Dec. 18	1755	392	93	2113
Browder, Thomas F., Greenfield, Ohio. Fire-escape	662,218	Nov. 20	2215	534	93	1421
Brower, Irving B., Philadelphia, Pa. Electric car-sign	662,684	Nov. 27	3094	730	93	1613
Brower, John, Oakland, Cal. Machine for forming composite blocks	659,128	Oct. 2	727	175	93	147
Brown, Andrew B., Edinburgh, Scotland. Steering mechanism for ships	659,837	Oct. 9	1089	256	93	235
Brown, Anthony W., assignor, by mesne assignments, of one-half to J. L. Lockwood, Jr., New York, N. Y. Cigarette-roller	659,571	Oct. 9	1518	344	93	322
Brown, Anthony W., assignor, by mesne assignments, of one-half to J. L. Lockwood, Jr., New York, N. Y. Cigarette-roller	662,391	Nov. 27	2519	608	93	1501
Brown, Benjamin F., Wedington, Ark. Insect-destroyer						
Brown, Benjamin R. (See Stanley, May, assignor.)	661,950	Nov. 20	1685	409	93	1319
Brown, Bert A., Bristol, Conn. Pneumatic device applicable to rivet-heating furnaces						
Brown, Boggs & Co. (See Martin and Stewart, assignors.)						
Brown, Carl E., assignor to Harp-O-Chord Company, Columbus, Ohio. Musical instrument	659,014	Oct. 2	538	131	93	108
Brown, Charles C., assignor of two-thirds to W. F. Hoffa and S. H. Himmelreich, Lewisburg, Pa. Cheese-cabinet	660,538	Oct. 23	3412	766	93	733
Brown, Charles F., and J. J. Calhoun, Rumford Falls, Me. Combined napkin ring and holder	663,257	Dec. 4	667	143	93	1851
Brown, Charles H. (See Bryant and Brown.)						
Brown, Charles T. (See Trommlitz and Gibbs, assignors.)						
Brown, Chester W., Jackson, Mich. Photographic-exposure meter	659,727	Oct. 16	1824	412	93	399
Brown, Ethan A., assignor to B. Koplin, Waverly, Iowa. Windmill-regulator	661,490	Nov. 13	833	200	93	1132
Brown, Frank H. (See Gorman, Thomas, assignor.)						
Brown, Harry. (See Sanders, John F., assignor.)						
Brown, James H., and W. H. Tobin, Jr., Pittsfield, Mass. Overhead electric trolley	664,459	Dec. 25	2888	658	93	2365
Brown, John E., assignor of one-third to J. J. Shanfelter, Philadelphia, Pa. Electric heater	662,911	Dec. 4	24	5	93	1731
Brown, John G., Brookside, Colo. Can-opener	659,913	Oct. 16	2184	491	93	468
Brown, John P., Chicago, Ill. Edging device	664,580	Dec. 25	3009	685	93	2389
Brown, John W., Jr., Philadelphia, Pa. Work-holder and centering device therefor	660,486	Oct. 23	3316	742 743	93	715
Brown, John W., Jr., Philadelphia, Pa. Chuck mechanism for automatic cutting-machines	663,255	Dec. 4	662	142	93	1850
Brown, Joseph E. (See Preuthun, John F., assignor.)						
Brown, Joseph E., and H. H. Winters, Victoria, Kans. Grain-door	664,621	Dec. 25	3198	725	93	2429
Brown, Lyman, and H. W. Sturtevant, Middleborough, Mass., assignors to said Brown. Chicken-brooder	662,347	Nov. 20	2434	587	93	1465
Brown, Mark A., assignor of one-half to W. O. Paxson, Douglas, Ga. Water-wheel	659,120	Oct. 2	728	175	93	147
Brown, Mary A., Washington, D. C. Erasing-shield for type-writers	662,591	Nov. 27	2921	694	93	1580
Brown, Nelson, Lowell, Mass. Tire-armor	664,121	Dec. 18	2238	509	93	2210
Brown, Norman E., assignor of three-fourths to M. C. Barnes, E. N. Hatch, J. Ecklund, and J. Lindt, St. Joseph, Mich. Overhead hoisting and conveying device	664,622	Dec. 25	3199	725	93	2429
Brown, Percy H., Victoria, Canada. Type-writer	661,304	Nov. 6	506	116	93	1051
Brown, Samuel H., Washington, D. C., assignor to American Digester Manufacturing Company, of New Jersey. Rendering apparatus	664,720	Dec. 25	3370	766 767	93	2466
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Spring-straining device for harvesters	661,204	Nov. 6	318	78	93	1016
Brown, Thomas S., assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Draft-gear for harvesters	661,634	Nov. 13	1099	272 278	93	1185
Brown, William B. (See Royal, Henry W., assignor.)						
Brown, William B., Baltimore, Md. Filter	663,256	Dec. 4	664	142 143	93	1851
Brown, William J., and J. R. Beer, assignors to V. G. Osterroth, London, England. Apparatus for making and dispensing infusions	663,723	Dec. 11	1490	330	93	2034
Brown, William M., Johnstown, Pa. Emergency-brake switch	661,491	Nov. 13	835	201	93	1132
Brown, William O., Jr., assignor of one-half to J. H. Harvey, Toledo, Ohio. Envelop and envelop-fastener	663,327	Dec. 4	783	167	93	1874
Browne, George A., Wachapreague, Va. Truck-loading machine	661,904	Nov. 13	1581	383	93	1277
Brownell, Emerson P., Barton, Vt. Automatic spool-machine	663,214	Dec. 4	571	123 124	93	1834
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Clip for holding rolls or spools	662,762	Nov. 27	3238	765	93	1639
Brownfield, James G., Terrell, Tex. Grapple	661,033	Nov. 6	10	2	93	953
Browning, John M., Ogden, Utah. Recoil-operated firearm	659,507	Oct. 9	1404	319 320	93	300
Browning, John M., Ogden, Utah. Recoil-operated firearm	659,786	Oct. 16	1951	438	93	422
Browning, John M., Ogden, Utah. Machine for loading feed-belts for machine-guns	660,244	Oct. 23	2854	635	93	624
Browning Manufacturing Company. (See Watson, Thomas S., assignor.)						
Bruckman, John. (See McFarland, James D., Jr., assignor.)						
Brugger, Adolph G., assignor of one-half to F. A. Brugger, Newark, N. J. Milk-pail	663,382	Dec. 4	872	188	93	1891
Brugger, Frank A. (See Brugger, Adolph G., assignor.)						
Brunner, Henry E., Haywards, Cal. Acetylene-gas generator	661,284	Nov. 6	468	107	93	1044
Bruns, Henry F. A., and F. E. Eldredge, Waverly, Iowa. Automatic regulator for windwheels	658,940	Oct. 2	402	97	93	82
Brunson, Abram E., Mullins, S. C. Paper-bag holder	662,112	Nov. 20	2000	478	93	1379
Brutschke, Fritz, Charlottenburg, Germany. Road-locomotive	661,844	Nov. 13	1471	356 357	93	1256
Bryan & Co., M. B. (See Collier, Alfred, assignor.)						
Bryan, Edward J., Atlanta, Ga. Horse hoe and cultivator	661,905	Nov. 13	1582	384	93	1278
Bryan, Henry S., Two Harbors, Minn. Car construction	660,081	Oct. 16	2520	564	93	536
Bryan, John C., Augusta, Ga. Let-off motion for looms	659,205	Oct. 9	888	210	93	196
Bryan, John H. B., Buffalo, N. Y. Apparatus for drawing patterns from molds	658,972	Oct. 2	457	108 109	93	92
Bryan, John H. B., Buffalo, N. Y. Apparatus for drawing patterns from molds	660,289	Oct. 23	2951	657	93	643
Bryan, Lindsay M., Cincinnati, Ohio. Combination shoe cleaning, blacking, and polishing device	660,886	Oct. 30	4084	904	93	872
Bryant, Caleb F., and C. H. Brown, Cripple Creek, Colo. Blasting	663,724	Dec. 11	1492	330	93	2034

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Bryant, Charles H., A. C. Roessler, J. M. Mitchell, and G. T. Augspurg, London, England. Smoke-consuming and fuel-saving device	664,381	Dec. 25	2722	618	93	2334
Bryant, Edward R., assignor of one-half to J. H. Harrison, Ranger, Tex. Hay-press	664,233	Dec. 18	2427	553	93	2251
Bryant Electric Company. (See Platt, Clarence D., assignor.)	660,000	Oct. 16	2343	527	93	502
Bryant, Emery H., Boston, Mass. Rail-connector	661,655	Nov. 13	1135	281	93	1198
Bryant, Thomas J. (See Averitt, Converse, assignor.)	661,845	Nov. 13	1473	358	93	1257
Bryce, Andrew V., assignor of nine-twentieths to G. B. Wix, Allegheny, Pa. Lock-nut	664,210	Dec. 18	2392	545	93	2243
Brye, Lewis O., L. Grimsrud, and A. Thrune, Coon Valley, Wis. Folding-seat fastener	662,348	Nov. 20	2486	587	93	1466
Bryon, William J., Jr., New York, N. Y. Exercising apparatus						
Bryson, James W., and J. A. Evarts, New Castle, Pa. Transfer-table for rolling-mills						
Bub, George J. (See Rothschild and Bub.)						
Buchanan, Judson, assignor to Chattanooga Plow Company, Chattanooga, Tenn. Scraper for disk plows	661,137	Nov. 6	204	51	93	903
Buchsieb, Louis J., Grand Rapids, Mich. Lacing hook and fastener	660,945	Oct. 30	4135	929	93	893
Buck, George, assignor of one-half to E. S. Torrey, London, England. Exhaust-silencer for explosive-engines	663,725	Dec. 11	1493	331	93	2034
Buckeye Fish Company. (See Edson, Eugene R., assignor.)						
Buckeye Iron and Brass Works. (See Sauer, George A., assignor.)						
Buckeye Manufacturing Company. (See Lambert, George A., assignor.)						
Buckeye Manufacturing Company. (See Lambert, John W., assignor.)						
Buckingham, Charles L., and E. Germann, New York, N. Y.; said Germann assignor to said Buckingham. Perforator for preparing telegraphic messages	659,433	Oct. 9	1255	289, 290, 291	93	271
Buckland, Seth J., Springfield, Mass. Barrel-carrier	664,623	Dec. 25	3200	725	93	2430
Buckler, Arthur, Danville, Pa. Temporary binder	658,759	Oct. 2	13	3	93	5
Buckley, George L., Harlan, Iowa. Corn-planter	663,008	Dec. 4	200	43, 44	93	1764
Bucklin, Charles A., New York, N. Y. Syringe	659,130	Oct. 2	729	175	93	147
Budd, Edward G., Philadelphia, Pa., assignor to American Pulley Company, of Pennsylvania. Die for forming sheet metal	660,719	Oct. 30	3733	841	93	818
Buder, Rudolph F., St. Louis, Mo. Tripod	663,804	Dec. 11	1648	370	93	2068
Budke, John F., Cannonsburg, Pa. Manufacture of sheet metal	663,155	Dec. 4	472	100	93	1815
Budke, John F., Cannonsburg, Pa. Straightening metal sheets	663,150	Dec. 4	473	100	93	1815
Buegge, John H., Davenport, Iowa. Washing-machine	659,668	Oct. 9	1576	357	93	334
Buente, Charles F., Pittsburg, Pa. Fireproof floor construction	663,060	Dec. 4	285	60	93	1780
Buffalo Dental Manufacturing Company. (See Lewis, Theodore G., assignor.)						
Buffalo Lounge Company. (See Jacobs, Henry J., assignor.)						
Bugbee, George W., Delhi, assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Band-sawing machine	658,737	Oct. 2	14	34	93	5
Bühler, Emil von, Charlottenburg, Germany. Sterilizing or pasteurizing apparatus	659,808	Oct. 16	1998	447	93	432
Bühne, Friedrich W., Freiburg, Germany. Making metal wool	662,392	Nov. 27	2520	608	93	1501
Buigne, Josef de, Vienna, Austria-Hungary. Working device for railways with automatic correction of the axles	661,305	Nov. 6	508	116, 117	93	1062
Bull, Norris, Rochester, N. Y. Photographic-plate holder	658,974	Oct. 2	461	109	93	98
Bull, Schuyler W., assignor of one-half to L. C. Tower, Rochester, N. Y. Ball-bearing	660,324	Oct. 23	3034	673	93	659
Bullard, James H., Springfield, Mass. Safety device for steam-boilers	660,358	Oct. 23	3097	687	93	672
Bullard, James H., Springfield, Mass. Pressure-regulator	660,359	Oct. 23	3099	687	93	673
Bullivant, William P., London, England. Apparatus for lifting and gripping ropes, cables, or chains of rope or similar railways	659,573	Oct 9	1521	345	93	322
Bullock, John, Manvel, Cal. Hotel-register	659,572	Oct. 9	1519	344, 345	93	322
Bulock, Charles O., and B. C. Donnelly, Milwaukee, Wis. Telescopic lift	660,091	Oct. 23	2542	569	93	561
Bültzingslöwen, Bruno von, assignor of one-third to S. von Auw, New York, N. Y. Means for inserting shirring-strings into incandescent mantels	659,617	Oct. 9	1605	362, 363, 364	93	340
Bundy, Jesse E., San Francisco, Cal. Weather-strip for doors or windows	660,839	Oct. 30	3958	886	93	857
Bunte, John, and W. Scrimgeour, Jr., Portsmouth, Va. Hose-clamp	660,245	Oct. 23	2859	636	93	625
Bunyea, Emmet P. (See Shipman and Bunyea.)						
Burch, S. J., *et al.* (See Kottmeyer, Louis E., assignor.)	660,092	Oct. 23	2547	570	93	562
Burch, Willie, Lowell, Mich. Device for sealing fruit-jars	662,185	Nov. 20	2140	516	93	1408
Burdick, Ida R., Gloversville, N. Y. Ornamental-stitch machine						
Burger, Franz. (See Williams, Henry M., assignor.)						
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Locomotive-boiler	660,537	Oct. 30	3446	773, 774	93	759
Burger, John B., Newark, N. J. Overhead carriage-washer	662,592	Nov. 27	2922	694	93	1580
Burgess, Andrew, Buffalo, N. Y. Automatic firearm	662,954	Dec. 18	1937	436	93	2149
Burgess, Andrew, Buffalo, N. Y. Automatic firearm	663,955	Dec. 18	1940	436, 437	93	2150
Burgess, Andrew, Owego, N. Y. Automatic firearm	663,956	Dec. 18	1945	437	93	2151
Burgess, Edward W. (See Livesay, Crandall, and Burgess.)						
Burgess Sulphite Fibre Company. (See Lombard, Alvin O., assignor.)	659,131	Oct. 2	730	176	93	148
Burgett, Isaac C., Middleburg, Nebr. Bed						
Burgi, Frederick J., Rochester, N. Y. Apparatus for covering irregular surfaces, such as relief-maps	661,205	Nov. 6	319	78	93	1016
Burke, Cornelius, and J. Toole, Monroe, La. Vegetation-burner for railway-tracks, &c	661,846	Nov. 13	1474	358	93	1257
Burke, William, and W. H. Thompson, East Stroudsburg, Pa. Machine for applying wood pulp or fiber to bottles, &c	660,093	Oct. 23	2548	570	93	562
Burkhardt, John J., Tiffin, Ohio. Glass-working machine	660,697	Oct. 30	3694	831, 832	93	805
Burkholder, Adam, St. Louis, Mo. Carpet-cleaning machine	659,434	Oct. 9	1265	292	93	278
Burner, William L., assignor to Case Manufacturing Company, Columbus, Ohio. Bolter	662,666	Nov. 27	3056	721, 722	93	1606
Burnett, Charles F., Newburg, N. Y. Rib-clasp for umbrella-covers	660,325	Oct. 23	3035	673	93	660
Burnham, Arthur M., Gardiner, Me., assignor, by mesne assignments, to G. C. Morrell, Boston, Mass. Shutter-worker	663,858	Dec. 18	1757	392, 393	93	2118
Burnham, Frank A., assignor to Chandler & Price Company, Cleveland, Ohio. Milling-machine	661,492	Nov. 13	837	201	93	1133
Burnham, Williams & Co. (See Henszey, William P., assignor.)	661,440	Nov. 6	740	173	93	1100
Burno, Joseph N., East St. Louis, Ill. Pork-skinning machine						
Burns, Mathew A., *et al.* (See Downey, Richard F., assignor.)						
Burns, Michael J. (See Hurd, Delmar G., assignor.)	661,847	Nov. 13	1475	358, 359	93	1257
Burns, Robert, New York, N. Y. Apparatus for mixing tea, &c	664,460	Dec. 25	2890	659	93	2365
Burr, Edgar, assignor of one-half to E. R. Dodge, Reno, Nev. Turn-table						
Burr, Edmund C., San Francisco, J. C. H. Stut, Oakland, and J. W. Atkinson, Santa Maria, Cal. Carbonatation-vat	659,359	Oct. 9	1123	262	93	243

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Burr, Edmund C., San Francisco, J. C. H. Stut, Oakland, and J. W. Atkinson, Santa Maria, Cal. Lime-tank for sugar-factories	659,360	Oct. 9	1124	262, 263	93	244
Burr, Edmund C., San Francisco, J. C. H. Stut, Oakland, and J. W. Atkinson, Santa Maria, Cal. Releasing mechanism for diffusion-cell doors	659,361	Oct. 9	1126	263	93	244
Burrell, Abraham. (See Avery and Burrell.)	660,360	Oct. 23	3102	687	93	673
Burrell, David H., Little Falls, N. Y. Centrifugal liquid-separator	661,635	Dec. 18	2383	474	93	2178
Burrell, Thomas, North Melbourne, Victoria. Tire for cycles or other road-vehicles	662,368	Nov. 27	2522	600	93	1501
Burridge, Lee S., New York, N. Y. Type-writing machine	661,347	Dec. 18	2660	605	93	2295
Burridge, Lee S., New York, N. Y. Type-writing machine	659,787	Oct. 16	1955	439	93	423
Burriss, Basel, Portsmouth, Ohio. Ornamental staining	660,526	Oct. 23	3390	761, 762	93	729
Burritt, Harvey H., Newark, N. J. Branch connection for water-mains and means for forming same						
Burritt, Harvey H., Belleville, assignor, by mesne assignments, to A. P. Smith Manufacturing Company, Newark, N. J. Method of and means for forming branch connections with water-mains	660,525	Oct. 23	3387	761	93	729
Burrow, William J., assignor to Daisy Manufacturing Company, Plymouth, Mich. Air-rifle	660,070	Oct. 16	2501	560	93	532
Burrow, William J., assignor to Daisy Manufacturing Company, Plymouth, Mich. Repeating air-rifle	662,054	Nov. 20	1890	454	93	1358
Burrowes, Edward T., Portland, Me. Game-board	659,809	Oct. 16	1999	447, 448	93	432
Burrows, Stewart, *et al.* (See Greenwood, James H., assignor.)	663,859	Dec. 18	1758	393	93	2113
Burry, John, New York, N. Y. Receiver for printing-telegraphs	658,758	Oct. 2	23	4, 5	93	8
Burson, William W. (See Burson, Wilson W. and W. W.)						
Burson, Wilson W., Rockford, and W. W. Burson, Chicago, Ill. Steam-engine	662,912	Dec. 4	25	5, 6	93	1731
Burt, Chauncey I., assignor to Implement Manufacturing Company, Davenport, Iowa. Automatic corn-planter	663,957	Dec. 18	1948	438	93	2151
Burt, Eli A., and H. Harris, New York, N. Y. Mourning-band for hats	663,558	Dec. 11	1200	261	93	1977
Burtchaell, Samuel W., San Francisco, Cal. Punching and eyelet-setting machine	662,349	Nov. 20	2437	587	93	1466
Burton, Henry, Russellville, Ind. Carbureter	661,754	Nov. 13	1320	321	93	1228
Burton, Oscar F., Belleville, N. J. Elevator-brake	661,034	Nov. 6	10	3	93	958
Burwinkle, Charles H., Philadelphia, Pa. Center	661,441	Nov. 6	741	173	93	1100
Bush, Hiram T., Detroit, Mich. Closet seat and lid	662,918	Dec. 4	28	6, 7	93	1732
Bush, John, London, assignor of one-half to A. D. Jenkins, Borough, England. Elevator	664,608	Dec. 25	3179	720	93	2425
Bush, Samuel P., Columbus, Ohio. Car-coupling	660,748	Oct. 30	3778	850	93	822
Bush, Sumner O. (See Sargent and Dover, assignors.)						
Bush, Wilbern, Wichita Heights, Kans. Gas-releasing bit	664,122	Dec. 18	2239	509	93	2211
Bushnell, Glenn C., *et al.* (See Hayes, Porter C., assignor.)						
Buss, George W., Canton, Mass. Ironing-table	662,350	Nov. 20	2439	587	93	1466
Bussells, Josephus F., Irvington, Va., assignor to American Process Company, New York, N. Y. Feeding and disintegrating apparatus for fertilizers	662,636	Nov. 27	2997	709	93	1595
Bussinger, William J., assignor to Thomas Devlin & Company, Philadelphia, Pa. Grinding-mill	662,521	Nov. 27	2802	664	93	1558
Butler, James H., Columbia Heights, Ill. Piano-bridge	659,362	Oct. 9	1127	263	93	244
Butler, John S., Palo Alto, Cal. Step-ladder						
Butler, Patrick. (See McKown and Clark, assignors.)	660,946	Oct. 30	4136	929	93	893
Butler, Thomas, Cleburne, Tex. Apparatus for pumping water, sand, &c	660,840	Oct. 30	3960	886, 887	93	857
Butterfield, Samuel W., Three Rivers, Canada. Sawmill set-works						
Butterworth, John. (See Butterworth, William H. and J.)	662,522	Nov. 27	2803	664	93	1558
Butterworth, Samuel H., Philadelphia, Pa. Propeller for boats	659,132	Oct. 2	731	176	93	148
Butterworth, William H. and J., Trenton, N. J. Cylinder for threshing-machines	660,209	Oct. 23	2706	620, 621	93	612
Butz, Albert M., Chicago, Ill. Apparatus for regulating temperature in steam-heated buildings	661,848	Nov. 13	1477	359	93	1258
Buzzini, Salvatore J., and G. Ferracioli, New York, N. Y. Window-sash	660,841	Oct. 30	3962	887	93	858
Byler, David L., Clinton, Mo. Storm-weather door or window strip	659,574	Oct. 9	1522	346	93	323
Byrne, Hugh H., La Crosse, Wis. Combined skirt fastener and supporter	663,860	Dec. 18	1762	394	93	2114
Byrne, John R., Boston, assignor of one-half to H. Wright, Medford, Mass. Button-die	661,365	Nov. 6	613	149	93	1074
Byrne, Thomas F., Phœnixville, Pa. Machine for threading tape into edgings	664,461	Dec. 25	2891	659	93	2366
Cabana, Leon M., Buffalo, N. Y. Nozzle for oil or other bottles	661,035	Nov. 6	12	3	93	953
Cable, Colin, Kansas City, Mo. Box-lid holder						
Cadet, Eugene. (See Chevallier and Cadet.)	662,249	Nov. 20	2257	543	93	1430
Cadman, Alexander W., Edgewood, Pa. Valve	664,624	Dec. 25	3201	726	93	2480
Cady, George C., Pine Bluff, Ark. Attachment for screw-drivers						
Cahill, Dan J. (See Duncan, Perry R., assignor.)	662,165	Nov. 20	2095	507	93	1398
Cahill, Mortimer and V. B., Chicago, Ill. Lamp	662,166	Nov. 20	2096	507	93	1399
Cahill, Volney B. (See Cahill, Mortimer and V. B.)						
Calder, James, Carluke, Canada. Windmill						
Caldwell Manufacturing Company. (See Boucher, Allen, assignor.)	658,759	Oct. 2	24	5	93	8
Caldwell, William M. (See Schussler, John H., assignor.)						
Calhoun, Albert C., Somerville, Tex. Wire-stretcher	658,829	Oct. 2	204	50	93	44
Calhoun, John J. (See Brown and Calhoun.)	659,728	Oct. 16	1926	412	93	399
Calkins, John H., Columbus, Ohio. Acetylene-gas apparatus	659,788	Oct. 16	1956	439	93	423
Call, William T., New York, N. Y. Pocket game-board						
Callahan, Earle H., Chicago, Ill. Mailing device	661,596	Nov. 13	1084	258	93	1173
Callan, John G. (See Green and Callan.)						
Callison, Abner F., and W. S. Bing, Salt Lake City, Utah. Stock-marker	661,781	Nov. 13	1276	309	93	1220
Callow, Fred B., *et al.* (See Hartwell, Jacob E., assignor.)	661,782	Nov. 13	1277	310	93	1220
Callum, Robert G., Washington, D. C. Thermostatic device						
Callum, Robert G., Washington, D. C. Thermostatic device						
Calmbach, Charles. (See Koehler and Calmbach.)						
Calumet Tire Rubber Company. (See Hill, Edgar A., assignor.)	663,623	Dec. 11	1804	288, 289	93	1998
Cameron, Donald, F. J. Commin, and A. J. Martin, Exeter, England. Apparatus for generating gas	659,604	Oct. 9	1578	357	93	334
Cammack, James M., Newark, N. J. Curling-iron-heating apparatus	662,618	Nov. 27	2964	703	93	1589
Camp, Horace B., Akron, Ohio. Coupling for stoneware pipes	660,086	Oct. 16	2536	566, 567	93	537
Camp, Theodore L., assignor to J. H. Peirce, trustee, Chicago, Ill. Packing-machine						
Campbell, Daniel J., New York, N. Y., assignor to American Tobacco Company, Newark, N. J. Box	661,115	Nov. 6	160	39	93	984
Campbell, Daniel W., and A. E. Prescott, North Creek, N. Y. Watchcase-opener	659,049	Oct. 2	593	144	93	119
Campbell, Edward C. (See Lanceskes, Stephen, assignor.)						
Campbell, Edwin J. (See Wiltsie and Campbell.)						
Campbell, Joseph B., Erie, Pa. Lock-cock	664,462	Dec. 25	2892	659	93	2366
Campbell, Joseph B., Erie, Pa. Stop and waste cock	664,463	Dec. 25	2892	659	93	2366

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Campbell, Leon W., Woonsocket, R. I., assignor of one-half to M. Campbell, Boston, Mass. Loom-shuttle	659,435	Oct. 9	1266	202	93	273
Campbell, Malcolm. (See Campbell, Leon W., assignor.)						
Campbell, Thomas L., *et al.* (See Teeguarden and Himes, assignors.)						
Candrian, Christian, Springfield, Mass. Cover or sight-guard for firearms	660,361	Oct. 23	3108	687	93	673
Canfield, John A. (See Schoonmaker and Canfield.)						
Cannan, John J., Rochester, N. Y. Hat-holder	659,363	Oct. 9	1128	263 / 264	93	244
Cannon, Warren B., assignor of one-third to H. Manvel, Kalamazoo, Mich. Coupling device	663,009	Dec. 4	202	44	93	1765
Cantwell, James. (See Loeffler, John, assignor.)						
Capewell, George J., Hartford, Conn. Railway-car truck	663,414	Dec. 11	954	206 / 207	93	1030
Capra, Alessandro, Philadelphia, Pa. Cylinder-piano	659,465	Oct. 9	1323	302	93	284
Capwell, Courtland G., Boston, Mass. Dental cervical clamp	659,896	Oct. 16	2125	479	93	456
Capy, Alfred W. (See Washington and Capy.)						
Cardwell, James R., Chicago, Ill. Brake-shoe	663,058	Dec. 18	1948	438	93	2151
Carhart, John, Campbell, Cal. Burial apparatus	660,947	Oct. 30	4137	929	93	893
Carlaw, David, Glasgow, Scotland. Cutting-machine	662,186	Nov. 20	2142	517	93	1409
Carlen, John, Havana, N. D. Receiver for folded paper bags	663,726	Dec. 11	1494	331	93	2034
Carleton, Dores R., Haverhill, Mass. Circular-saw gage	661,206	Nov. 6	321	78	93	1017
Carli, Christopher H., Stillwater, Minn. Horse-blanket	660,414	Oct. 23	3192	709	93	691
Carlisle, George J., assignor of one-half to J. N. Robertson, Ashley, Ind. Reducing-cap for nozzles	660,948	Oct. 30	4189	930	93	894
Carlson, Carl O. (See Wickland, Iver, assignor.)						
Carlson, Gabriel, assignor to Confectioners' Machinery and Manufacturing Company, Springfield, Mass. Depositing-machine for confectionery	661,008	Oct. 30	4241	952 / 953	93	914
Carlson, Otto, and O. Gardeen, St. Paul, Minn. Folding umbrella	661,366	Nov. 6	614	143	93	1074
Carmelich, Frank W., Mobile, Ala. Clip for attaching umbrella-covers	664,123	Dec. 18	2241	509	93	2211
Carmichael, Henry, Malden, assignor to S. D. Warren & Co., Boston, Mass. Electrode and electrode connection	658,891	Oct. 2	303	75	93	62
Carmichael, John P., Milwaukee, Wis. Process of and attachment for building up broken or decayed teeth	659,206	Oct. 9	868	211	93	198
Carmona, Manuel S., Mexico, Mexico. Type-writer	661,849	Nov. 13	1478	359 / 360	93	1258
Carnahan, Cyrus M., Allegheny, Pa. Car-truck	664,312	Dec. 18	2587	589 / 590	93	2281
Carnahan, Cyrus M., Allegheny, assignor to National Rolled Steel Car Company, Pittsburg, Pa. Car-truck	661,009	Oct. 30	4246	963	93	914
Carnahan, Frank G. (See Bosworth, Percy B., assignor.)						
Carnegie, James, *et al.* (See Kennedy, William J., assignor.)						
Carnegie Steel Company. (See Monell and James, assignors.)						
Carnegie Steel Company. (See Parks, Frank E., assignor.)						
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Charles W., *et al.* (See North, Thomas M., assignor.)						
Carpenter, Charles W., *et al.* (See Roesen, Oscar, assignor.)						
Carpenter, Charles W., *et al.* (See Spalckhaver, William, assignor.)	660,558	Oct. 30	3448	774	93	760
Carpenter, Daniel A., New York, N. Y. Button	660,619	Oct. 30	3543	796	93	777
Carpenter, Daniel A., New York, N. Y. Button	663,215	Dec. 4	575	124 / 125	93	1834
Carpenter, Elmer E., Worcester, Mass. Track-sanding machine	663,216	Dec. 4	576	124 / 125	93	1835
Carpenter, Elmer E., Worcester, Mass. Railway telephone system	662,143	Nov. 20	2045	497	93	1388
Carpenter, Rolla C., Ithaca, assignor to Schaeffer & Budenberg, New York, N. Y. Calorimeter	659,575	Oct. 9	1524	346	93	323
Carpenter, Wesley, Enterprise, Ohio. End-gate for wagons	661,951	Nov. 20	1686	409	93	1320
Carr, Daniel C., Chicago, Ill. Cigar-perforator						
Carr-Lowrey Glass Company. (See Hilgenberg and Loper, assignors.)						
Carr, Walter C. (See Smith, Charles M. W., assignor.)						
Carr, Walter C. (See Webber, William O., assignor.)	661,393	Nov. 6	659	154	93	1064
Carrico, Henry F., Wingo, Ky. Washing-machine	660,210	Oct. 23	2900	621	93	613
Carrico, James M. and W. G., Towson, Md. Spigot						
Carrico, William G. (See Carrico, James M. and W. G.)						
Carroll, Adelbert E. (See Peck, Leach, and Johns, assignors.)						
Carroll, Michael J., T. D. and J. D. Millea, Springfield, Mass. Device for stopping engines	662,144	Nov. 20	2048	497 / 498	93	1388
Carroll, Thomas W. (See Olsen and Carroll.)						
Carroll, William M., Beaumont, Tex. Electrically-actuated sawmill set-works	660,045	Oct. 16	2421	545 / 546	93	516
Carruthers, William H., Chicago, Ill. Nut-lock	659,466	Oct. 9	1325	303	93	285
Carstensen, Larns F., Bridgeport, Conn. Pipe-threading machine	660,001	Oct. 16	2345	527 / 528	93	508
Carter, Albert S. (See Rosenbluth and Carter.)						
Carter, Byron B., Hinsdale, Ill. Impact-engine	662,763	Nov. 27	3239	765 / 766	93	1639
Carter, Charles D., Spring Arbor, Mich. Sulky-harrow	659,576	Oct. 9	1525	346	93	323
Carter-Crume Company. (See McDowell, Thomas, assignor.)						
Carter, George B., Petersburg, Va. Wrench	660,415	Oct. 23	3193	710	93	691
Carter, George B. and J. R., Petersburg, Va. Vending-machine	663,258	Dec. 4	668	143 / 144	93	1852
Carter, Howard G., Oak Hill, Pa. Cream-separator	661,207	Nov. 6	323	78	93	1017
Carter, James R. (See Carter, George B and J. R.)						
Carter, Lincoln J., Chicago, Ill. Theatrical appliance	662,708	Nov. 27	3144	744	93	1622
Carter, Oscar, Buena Vista, Ind., assignor of one-half to G. W. Cathcart, Myrtle, Miss. Whip-socket	662,219	Nov. 20	2216	534	93	1422
Carter, Roy, Bull Run, Va. Wrench	663,328	Dec. 4	784	168	93	1874
Carter, William V., Astor, Fla., assignor to Palmetto Company, Philadelphia, Pa. Adhesive composition and making same	660,144	Oct. 23	2657	------	93	584
Carvin, Edward O., assignor of one-half to T. J. French, Valley Springs, Cal. Bench-plane	659,287	Oct. 9	1019	239	93	221
Casad, Charles D., Seattle, Wash. Pipe-boiler	659,645	Oct. 16	1662	374	93	367
Casarietti, John. (See Morris, Joshua M., assignor.)						
Casavant, George W. (See Casavant, Herbert L., assignor.)						
Casavant, Herbert L., assignor of one-half to G. W. Casavant, Lynn, Mass. Mounting for rotary cutters	662,914	Dec. 4	31	7	93	1732
Case, Alfred W., Highland Park, Conn. Fiber-disintegrator	663,559	Dec. 11	1203	262	93	1978

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Case, Ella M., Pittsburg, Pa. Collapsible dress-skirt form	663,861	Dec. 18	1764	395	93	2114
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric brake	660,487	Oct. 23	3317	743	93	715
Case, Henry J., Owasco, assignor to Adriance, Platt & Company, Poughkeepsie, N. Y. Harrow	663,061	Dec. 4	287	61	93	1780
Case, Henry M., Phelps, N. Y. Combined cover and strainer for milk or creaming cans	661,403	Nov. 13	889	201	93	1133
Case Manufacturing Company. (See Burner, William L., assignor.)						
Casein Company of America. (See Hall, William A., assignor.)						
Casella, Secundo L., Alma, Cal. Fruit-packing form	660,362	Oct. 23	3105	688	93	674
Casey, Jacob S., St. Joseph, Mo. Fountain-brush	660,002	Oct. 16	2348	528	93	503
Casey, John J. (See Bechtel, William D., assignor.)						
Cash, Arthur W., assignor to Foster Engineering Company, Newark, N. J. Combination-valve	659,207	Oct. 9	896	211	93	198
Casler, Alonzo A., Mansfield, Ohio. Washing-machine	664,124	Dec. 18	2241	510	93	2211
Casler-Alton-Clarke Company. (See Cheheyl, Stephen F., assignor.)						
Cassella & Co., Leopold. (See Breuninger, Friedrich, assignor.)						
Cassella & Co., Leopold. (See Hoffmann and Kalischer, assignors.)						
Cassella & Co., Leopold. (See Weinberg, Arthur, assignor.)	661,688	Nov. 13	1199	292	93	1206
Castelow, Elijah D., Meriden, Conn. Lamp-bracket	661,952	Nov. 20	1688	409	93	1320
Castle, Walter S., Leesburg, Va. Thill-coupling						
Castleman, James W., West End, assignor of one-half to S. Haas, Birmingham, Ala. Apparatus for dumping cars	658,760	Oct. 2	26	5	93	9
Castleman, Thomas W., New Orleans, La. Plaiting apparatus	664,721	Dec. 25	3373	767 / 768	93	2466
Castleman, Thomas W., New Orleans, La. Plaiting apparatus	664,722	Dec. 25	3375	768 / 769	93	2467
Castor, Winfred. (See Tellerson, Henry A., assignor.)						
Cathcart, George W. (See Carter, Oscar, assignor.)						
Catlin, Charles M., administrator. (See Hulse, William W.)						
Cauffman, Leo, Rochester, N. Y. Trousers-guard	663,010	Dec. 4	204	44	93	1765
Cauvin, Octave, Happy Jack, La. Car-coupling	662,351	Nov. 20	2441	588	93	1467
Cavanagh, Joseph R., assignor to Mercantile Guide and Bureau Company, Indianapolis, Ind. Map	660,071	Oct. 16	2502	560	93	532
Cavanagh, Joseph R., and S. A. Townsend, Indianapolis, Ind. Identification-ticket	660,003	Oct. 16	2350	528	93	504
Caywood, Albert D., Chicago, Ill. Door	659,955	Oct. 16	2270	508 / 509	93	487
Cazes, Paul, Bayonne, France. Metallic cross-sleeper	662,764	Nov. 27	3244	766	93	1641
Cederstrom, John, New York, N. Y., assignor to United States Aerating Fountain Company, of New York. Draft apparatus	659,577	Oct. 9	1529	347	93	324
Cederstrom, John, assignor to U. S. Aerating Fountain Company, Buffalo, N. Y. Valve-tightener	661,712	Nov. 13	1242	301	93	1214
Chadoin, Albert C. (See Pike, Chadoin, and Pike.)						
Chadwick, Lee S. (See Rogers and Chadwick.)						
Chadwick, Richard U., Philadelphia, Pa. Combined vacuum and discharge valve	659,578	Oct. 9	1531	347	93	325
Challen, James R., Jr., Newark, N. J. Horn for use on talking-machines	663,011	Dec. 4	205	44	93	1765
Challenge Windmill and Feed Mill Company. (See Rodger, Joseph B., assignor.)						
Chamberlin, Frank W. (See Reynolds, Stephen K., assignor.)						
Chambers, Bering, Quinlan Company. (See Marsh, William C., assignor.)						
Chambers, Hamline J., Council Bluffs, Iowa. Detachable hinge-coupling for vehicles	664,234	Dec. 18	2429	551	93	2251
Chambers, John A., Newburg, Mo. Corn-planter	659,646	Oct. 16	1663	374 / 375	93	367
Chambers, John S., Elizabeth, N. J. Throttle-valve	663,599	Dec. 11	1263	279	93	1990
Chamrod, Frank J., Lima, Ohio. Steam-boiler	660,145	Oct. 23	2638	593	93	585
Chandler & Price Company. (See Burnham, Frank A., assignor.)						
Chandler, Theophilus P., Philadelphia, Pa. Electric railway	663,600	Dec. 11	1264	279 / 280	93	1991
Chantler, Joseph E., assignor of one-half to J. R. Soden, Emporia, Kans. Fastener for collar-pads	664,461	Dec. 25	2894	660	93	2366
Chapelle, Auguste. (See Chapelle, Louis and A.)						
Chapelle, Louis and A., St. Ouen l'Aumône, France. Motor-cycle	659,956	Oct. 16	2272	509 / 510	93	487
Chaplin-Fulton Manufacturing Company. (See Fulton, Louis B., assignor.)						
Chapin, Ralph E. (See McDonald, Don E., assignor.)						
Chapman, Charles F. (See Cryder, Russell E., assignor.)						
Chapman, Eugene B., Omaha, Nebr., assignor to M. Somerville, St. Louis, Mo. Device for converting vibratory into rotary motion	664,382	Dec. 25	2723	618	93	2385
Chapman, George T., deceased, New York, N. Y.; K. H. Chapman administratrix. Retainer for bottle-stoppers	661,789	Nov. 13	1389	334	93	1242
Chapman, Keren H., administratrix. (See Chapman, George T.)						
Chapman, Winthrop M. (See Richards, Charles W., assignor.)						
Chapman, Winthrop M. (See Richards and Chapman.)						
Charbonneau, Arthur A. (See Ayotte and Charbonneau.)						
Charbonneau, Philias, Montreal, Canada. Reclining-chair	660,146	Oct. 23	2659	594	93	557
Charles, George W., Kokomo, Ind. Metallic can	663,415	Dec. 11	937	207	93	1930
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Company of America, of New Jersey. Rolls	659,647	Oct. 16	1668	375	93	368
Charmois, Louis, Canton, Ohio. Steam-boiler	659,845	Oct. 16	2058	463	93	444
Charon, Louis, and F. Manaut, Paris, France. Petroleum-motor	661,235	Nov. 6	370	88, 89	93	1026
Charon, Louis, and F. Manaut, Paris, France. Burner for petroleum and compressed air	662,055	Nov. 20	1892	454	93	1358
Chase, Austin C., Cambridge, Mass. Package mail-box	664,531	Dec. 25	3011	685	93	2390
Chase, Frank H., Chicago, Ill., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Raisin-seeder	659,579	Oct. 9	1533	347 / 348	93	325
Chase, George W., Kansas City, Mo. Garden-cultivator	662,593	Nov. 27	2925	694	93	1581
Chase, John F., St. Petersburg, Fla. Condensing apparatus	662,765	Nov. 27	3245	766	93	1641
Chattanooga Plow Company. (See Buchanan, Judson, assignor.)						
Chattanooga Plow Company. (See Sanders, Newell, assignor.)						
Chatters, George W., Sr., Friar's Point, Miss. Washboard	664,125	Dec. 18	2243	510	93	2211
Chauveau, Gustave L. V., Paris, France. Balancing engine or motor	660,679	Oct. 30	3661	822	93	798
Cheese, Frank K., London, England. Making tiles	660,809	Oct. 30	3889	874	93	843
Cheeseman, Emily S., *et al.* (See Coplantz, Cyrus, assignor.)						
Cheheyl, Stephen F., assignor to Casler-Alton-Clarke Company, Cleveland, Ohio. Adjustable bracket	661,755	Nov. 13	1321	322	93	1228
Chemische Fabrik auf Actien, vormals E. Schering. (See Harries, Carl, assignor.)						
Cheney, Edwin F., Ainsworth, Nebr. Listed-corn cultivator	660,698	Oct. 30	3697	832	93	806

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cheney, Samuel A., Newburyport, Mass. Hot-air furnace	659,208	Oct. 9	900	211, 212	93	199
Cherry, Edgar, Santa Rosa, Cal. Mechanical movement	659,810	Oct. 16	2001	448	93	432
Cherry, Mary A. (See Cherry, Theron R., assignor.)						
Cherry, Theron R., assignor to M. A. Cherry, Baltimore, Md. Coin-controlled lock	663,488	Dec. 11	1081	236, 237	93	1954
Chesney, Cummings C., Pittsfield, Mass. Dynamo-electric machine	661,306	Nov. 6	510	118	93	1052
Chevallier, Charles, Saint Quentin, and E. Cadet, Péronne, France. Screw electric contact device	660,887	Oct. 30	4037	904, 905	93	872
Chicago Folding Box Company. (See Rice, Ida H., assignor.)						
Chicago Laboratory Supply and Scale Company. (See Stoelting and Linebarger, assignors.)						
Chicago-Rockford Hosiery Company. (See Harbaugh, Howard E., assignor.)	659,811	Oct. 16	2002	448	93	432
Chichester, Franklin, New York, N. Y. Type-writer's chair	663,062	Dec. 4	288	61	93	1780
Chigor, Amalie von, New York, N. Y. Flat-iron holder and heater with gas-generating attachment	663,117	Dec. 4	383	81	93	1798
Chigor, Amalie von, New York, N. Y. Flat-iron heater and holder	661,790	Nov. 13	1390	335	93	1242
Childers, Harvey L., Allerton, Iowa. Garden-tool	659,209	Oct. 9	901	212	93	199
Childress, Henderson P., Memphis, Tenn. Trace-fastener	660,720	Oct. 30	3735	841	93	814
Childs, Eugene, Boston, Mass. Determining hardening heat for steel						
Childs, Eugene, assignor to Boston Shoe Tool Company, Boston, Mass. Cutter-body and making same	662,352	Nov. 20	2442	588	93	1467
Chillingworth, Rudolf, Nuremberg, Germany. Sheet-metal wheel	659,648	Oct. 16	1670	376	93	369
Chilton, Franklin H., New York, N. Y. Machine for sewing on flat buttons	663,694	Dec. 11	1434	318	93	2023
Chilton, William, Dundee, Scotland. Double-acting fluid-pressure motor	662,056	Nov. 20	1892	454, 455	93	1358
Chisholm, Boyd & White Company. (See Flood, Harry J., assignor.)						
Chisholm, Samuel S., Chicago, Ill. Machine for compressing material into form	661,236	Nov. 6	373	89	93	1027
Christ, Franz J., Berlin, Germany. Music-leaf turner	661,791	Nov. 13	1391	335	93	1242
Christensen, Niels A., Milwaukee, Wis. High-pressure fluid-compressor	663,802	Dec. 18	1765	395	93	2114
Christie, Edward, Corning, N. Y. Game apparatus	660,004	Oct. 16	2350	529	93	504
Christie, James, and W. B. Hughes, Philadelphia, Pa. Hydraulic valve	663,727	Dec. 11	1495	331	93	2035
Church, Frederick F., Medford, Mass. Barrel tap and valve	659,288	Oct. 9	1020	239	93	221
Church, George W., Painesville, Ohio. Stove-truck	659,133	Oct. 2	733	176, 177	93	148
Church, Henry W., Lowell, Mass. Dyeing-machine	663,012	Dec. 4	206	45	93	1765
Church, Isaac, Toledo, Ohio. Expansion-bolt	660,559	Oct. 30	3449	774	93	760
Church, Melvin B., Grand Rapids, Mich. Fly-catching device	663,728	Dec. 11	1497	332	93	2035
Church, Walter A., Pittsburg, Pa. Electrical illuminated button	659,467	Oct. 9	1326	303	93	285
Church, Walter A., Pittsburg, Pa. Illuminated flower	660,842	Oct. 30	3993	887	93	858
Church, Walter A., Pittsburg, Pa. Ceiling cut-out	663,217	Dec. 4	578	125	93	1835
Church, William L., New York, N. Y. Sewage-disposal apparatus	664,532	Dec. 25	3013	685, 686	93	2390
Churchill, Joseph C., Whitt, Tex. Washing-machine	659,580	Oct. 9	1535	348	93	326
Churchouse, Frank W., Tacoma, and H. O. Benedict, Seattle, Wash. Self-closing valve for steam-pipes	659,134	Oct. 2	734	177	93	148
Cincinnati Milling Machine Company. (See Holz, Frederick, assignor.)						
Claassen, Hermann, Dormagen, Germany. Apparatus for controlling boiling of sugar-juice	661,756	Nov. 13	1392	322	93	1229
Claassen, Hermann, Dormagen, Germany. Crystallizing sugar	664,465	Dec. 25	2894	660	93	2366
Clancy, Thomas, Bridgeport, Conn. Valve	658,975	Oct. 2	461	109	93	93
Clapp, Charles W. (See Westervelt and Clapp.)						
Clapp, Edward C., Athol, Mass. Micrometer-gage	664,211	Dec. 18	2393	546	93	2244
Clare, Edmund S. (See Fox and Clare.)						
Clark, Albert H., and J. J. Dyler, Louisville, Ky. Combination eraser and pencil-sharpener	660,072	Oct. 16	2503	560	93	533
Clark, Ambrose B., assignor to Foster, Merriam & Company, Meriden, Conn. Furniture-caster	662,113	Nov. 20	2001	479	93	1379
Clark, Charles E., and H. F. A. Ullrich, Chicago, Ill. Curtain-pole	661,494	Nov. 13	840	202	93	1133
Clark, Charles H., *et al.* (See Long, Samuel W., assignor.)						
Clark, Frank R., assignor to Montague Manufacturing Company, St. Albans, W. Va. Turning-lathe	662,371	Nov. 20	2473	595, 596	93	1473
Clark, Harry E. (See McKown and Clark.)	664,583	Dec. 25	3016	686	93	2391
Clark, James T., Loango, Ala. Machine for hulling and cleaning rice	662,220	Nov. 20	2217	534	93	1422
Clark, Jerry W., *et al.* (See Seavolt, John W., assignor.)	659,210	Oct. 9	902	212	93	199
Clark, John L., Rockford, Ill. Flue-stopper	660,560	Oct. 30	3450	774	93	760
Clark, Melville, Chicago, Ill. Pneumatic organ	661,086	Nov. 6	13	3	93	953
Clark, Melville, Chicago, Ill. Pneumatically-operated musical instrument						
Clark, Robert P., Milwaukee, Wis. Folding stand or stool						
Clark, Thomas K., *et al.* (See Curtis, Frederic A., assignor.)						
Clark, William C. (See Gahlau, Emil, assignor.)	659,015	Oct. 2	540	131	93	108
Clark, William E., Springfield, Mass. Means for automatically supplying water to tanks	663,416	Dec. 11	958	208	93	1980
Clark, William F., and H. D. Bogle, Leon, Kans. Seeder attachment for cultivators						
Clark, William H. (See Joseph and Clark.)						
Clark, William J. (See Joseph and Clark.)	659,914	Oct. 16	2185	492	93	468
Clarke, Arthur R., and A. W. Rasmussen, Chicago, Ill. Circular-folding machine	660,268	Oct. 23	2922	650	93	698
Clarke, Charles L., Mount Vernon, N. Y. Indicator	660,561	Oct. 30	3453	775	93	761
Clarke, Charles L., Rye, N. Y. Electric indicator						
Clarke, Graham, Cleveland, Ohio. Bottle for containing liquids or gases under high pressure	660,326	Oct. 23	3036	673	93	660
Clarke, Ira P., Alameda, Cal. Separator and amalgamator	662,685	Nov. 27	3096	731	93	1613
Clarke, John, Orangeville, Canada. Car-ventilator	660,046	Oct. 16	2423	546	93	516
Clarke, John, Orangeville, Canada. Grain-car door	660,949	Oct. 30	4140	930	93	894
Clarke, John, Liberty Hill, Conn. Thill-coupling	664,013	Dec. 18	2054	466	93	2172
Clarke, John N., Evansville, Ind. Ice-creeper attachment for horseshoes	661,757	Nov. 13	1324	322	93	1220
Clarke, Louis S., and J. G. Heaslet, Ardmore, assignor to Autocar Company, Ardmore and Pittsburg, Pa. Sparking igniter for explosive-engines	663,729	Dec. 11	1498	332	93	2036
Clarkson, Joseph, Pittsburg, Pa. Chimney-cowl	660,888	Oct. 30	4038	905	93	873
Clarkson, Philip S., Beverly, N. J., assignor to Victor Koechl & Company, New York, N. Y. Dyer's color-card	660,363	Oct. 23	3106	688	93	674
Clarkson, Samuel E., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Car-brake	661,495	Nov. 13	841	202	93	1133
Clary, George, Zacatecas, Mexico, and G. W. Garrison, Goldfield, Colo. Hearth for roasting ores	660,982	Oct. 30	4186	940, 941	93	903
Claude, Georges M. A., St. Mandé, and G. A. Hess, Paris, assignors to B. Abdank-Abakanowicz, Parc St. Maur, France. Apparatus for storing and distributing acetylene gas.	664,383	Dec. 25	3725	618	93	2335

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Clausen, Marjorie, Hackensack, N. J., assignor of one-fourth to B. Wintjen, New York, N. Y. Hat-fastener	663,063	Dec. 4	289	61	93	1780
Clauss, William, assignor to Schaller Patent Bake Oven Company, Cincinnati, Ohio. Bake oven	662,221	Nov. 20	2218	534, 535	93	1422
Clawson, Spencer, Salt Lake City, Utah. Envelop	663,730	Dec. 11	1500	332	93	2036
Clay, Arthur C., London, England. Conveyer	662,709	Nov. 27	3145	744, 745	93	1622
Clay, Edwin, Wadsworth, Nev. Steam-boiler crown-bar	663,004	Dec. 4	290	61	93	1781
Clay, Harry C., assignor to Reeves & Company, Columbus, Ind. Straw-burning furnace	660,181	Oct. 23	2740	609	93	601
Clayton, George W., Lebanon, Iowa. Sheep-dipping apparatus	663,417	Dec. 11	959	208, 209	93	1931
Clayton, James, New York, N. Y. Apparatus for raising liquids	658,941	Oct. 2	405	97, 98	93	83
Clayton, Herbert, New York, N. Y. Sad-iron	663,259	Dec. 4	671	144	93	1852
Clayton, Thomas A., Philadelphia, Pa. Mechanism for charging closed compartments with gas	661,496	Nov. 13	842	202	93	1134
Clayton, Thomas A., New York, N. Y. Extinguishing fires in closed compartments	661,497	Nov. 13	844	203	93	1134
Clegg, William H. (See Agar, William, assignor.)						
Clement, Edward E., Washington, D. C., assignor to A. Geissert, Philadelphia, Pa. Box or vessel for powdered or granular material	662,353	Nov. 20	2445	588	93	1468
Clement, Frank H., Rochester, N. Y. Circular sawing machine	663,863	Dec. 18	1769	395, 396	93	2115
Clement, Hugh S., and A. S. Thomson, Glasgow, Scotland. Rigging-screw	664,466	Dec. 25	2897	661	93	2367
Clement, Nelson, assignor of one-half to M. H. Gibson, Chicago, Ill. Bed	658,830	Oct. 2	205	50	93	45
Clement, Nelson, assignor of one-half to M. H. Gibson, Chicago, Ill. Invalid-bed	661,087	Nov. 6	14	3, 4	93	953
Cleveland Machine Screw Company. (See Clyne, James B., assignor.)						
Cleveland, William B., Cleveland, Ohio. Electrical connection	663,489	Dec. 11	1083	237	93	1955
Cleveland, William B., Cleveland, Ohio. Forming electrical connections	663,490	Dec. 11	1084	237	93	1955
Cleverdon, Carl C., Austin, Ill. Speed-changing mechanism	662,710	Nov. 27	3147	745	93	1622
Cliff, Edward, Newark, N. J., assignor to Cliff & Guibert Company, New York, N. Y. Hose-reel	661,953	Nov. 20	1689	410	93	1320
Cliff & Guibert Company. (See Cliff, Edward, assignor.)						
Climax Manufacturing Company. (See Lellich, Francis T., assignor.)						
Clinch, C. E., *et al.* (See Froberg, Johann R., assignor.)						
Clough, William R., Alton, N. H. Machine for making corkscrews	659,649	Oct. 16	1671	376, 377	93	369
Clouse, Christopher C., assignor of two-thirds to J. Clouse, Jr. and Sr., Albany, Mo. Hay-stacker	662,607	Nov. 27	3059	722	93	1606
Clouse, J., Sr., *et al.* (See Clouse, Christopher C., assignor.)						
Clouse, Joseph N., *et al.* (See Bowman, Daniel W., assignor.)						
Clow, Alfred J., Chicago, Ill. Apparel-belt	661,689	Nov. 13	1200	232	93	1206
Clyne, James B., assignor to Cleveland Machine Screw Company, Cleveland, Ohio. Automatic lathe attachment	663,013	Dec. 4	209	45	93	1766
Coats, John V., Saratoga Springs, N. Y. Photographic shutter	661,367	Nov. 6	615	143, 144	93	1075
Coburn, Avon M., Daunt, Cal. Motor-vehicle	659,581	Oct. 9	1537	348, 349	93	326
Cochran, William A. (See Whitehead, George W., assignor.)						
Ceckings, Thomas G., Newport, Ky. Disappearing grain-car door	661,713	Nov. 13	1243	301	93	1214
Cockshutt Plow Company. (See Morphy, James, assignor.)						
Coe, Alfred, Bradford, England. Collotype or similar printing machine	663,864	Dec. 18	1770	396, 397	93	2115
Coffin, Arthur W., San Francisco, Cal. Seal-lock	661,467	Nov. 6	789	188	93	1110
Coffin, C. A., *et al.*, administrators. (See Van Depoele, Charles J.) (Reissue)						
Cogdal, W. E., *et al.* (See Lay, William, assignor.)						
Cogger, William B., Springfield, Ill., assignor to American School Furniture Company, Jersey City, N. J. School-desk	662,523	Nov. 27	2804	665	93	1558
Coggin, Frank F., Portland, Me. Device for heating cars	664,076	Dec. 18	2143	490	93	2191
Coghlan, Joseph M., Sayville, N. Y. Acetylene-gas machine	660,889	Oct. 30	4039	905	93	873
Cohen, Hartwig A. (See Grant, Thomas, assignor.)						
Cohen, Joshua L., New York, N. Y., assignor of fifty-one one-hundredths to H. P. Copeland, Jersey City, N. J. Electric fuse	661,496	Nov. 13	846	203	93	1134
Cohen, Simon, Düsseldorf, Germany. Clasp for shoes, &c	664,467	Dec. 25	2899	661	93	2367
Colborn, Edward F., *et al.* (See Hayes, Albert, assignor.)						
Colburn, Henry J., assignor to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	659,289	Oct. 9	1022	240, 241	93	222
Colburn, Leslie H., assignor to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	659,290	Oct. 9	1027	241	93	223
Colburn, Leslie H., assignor to Toledo Glass Company, Toledo, Ohio. Glass-blowing machine	659,291	Oct. 9	1029	241, 242	93	223
Colby, Charles D. W., Albion, Mich. Gage for shears	663,652	Dec. 11	1355	300	93	2007
Colby, John, Visalia, Cal. Planter	660,890	Oct. 30	4041	905	93	873
Coldwell, Thomas, Newburg, N. Y. Lever-locking mechanism	662,354	Nov. 20	2447	589	93	1468
Cole, Fred A. (See Stratton and Cole.)						
Cole, Frederick W., Newton, assignor to United States Fire and Police Telegraph Company, Boston, Mass. Non-interference signal-box	660,620	Oct. 30	3545	796, 797	93	777
Cole, George W., Bournemouth, England. Folding chair	662,557	Nov. 27	2861	679	93	1589
Cole, Harlan P., Hartford, Conn. Tip for syringes	661,167	Nov. 6	256	62	93	1003
Cole, Jonah R., New York, N. Y. Compartment-box	661,038	Nov. 6	18	4, 5	93	954
Cole, Thomas. (See Franc and Cole.)						
Cole, Thomas and W. L., London, England. Apparatus for producing cold air for refrigerating or like purposes	663,731	Dec. 11	1501	332, 333, 334	93	2036
Cole, William L. (See Cole, Thomas and W. L.)						
Cole, William L. (See Franc and Cole.)						
Coleman, Charles C., assignor to himself and N. O. Tate & Co., Keytesville, Mo. Mail-catcher	661,850	Nov. 13	1483	361	93	1259
Coleman, Edward J. F., Barrington, R. I. Pulley-block	660,864	Oct. 23	3107	688	93	674
Colley, William, and C. Nobs, Jr., assignors to C. Nobs & Son, Newark, N. J. Watchcase-spring	659,915	Oct. 16	2186	492	93	469
Collier, Alfred, East Orange, N. J., assignor to M. B. Bryan & Co., New York, N. Y. Making jewel-settings	659,016	Oct. 2	541	131	93	109
Collier, Edwin W. (See Arklay and Collier.)						
Collins, A. M., *et al.* (See Collins, Alva S., assignor.)						
Collins, Alva S., Troy, Ohio, assignor to L. A. Coppock, C. N. Peters, and A. M. Collins. Automatic measuring device	664,349	Dec. 18	2668	607	93	2297

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Collins, Caleb G., assignor to C. A. Stevens, New York, N. Y. Extracting zinc and copper from their ores	659,338	Oct. 9	1090	.....	93	236
Collins, Caleb G., assignor of C. A. Stevens, New York, N. Y. Extracting copper and zinc from their ores	659,339	Oct. 9	1091	.....	93	236
Collins, Caleb G., assignor to C. A. Stevens, New York, N. Y. Extracting zinc and copper from their ores	659,340	Oct. 9	1092	.....	93	236
Collins, Edmund R., assignor to A. Dewes, New York, N. Y. Hand-power press	661,368	Nov. 6	621	144	93	1076
Collins, Edson B., Chicago, Ill. Geared flexible shafting	661,954	Nov. 20	1692	410	93	1321
Collins, John F., Gloucester City, N. J. Folding stool	659,508	Oct. 9	1412	320	93	302
Collins, Lynne. (See Renz and Collins.)						
Collins, Samuel W., Indianapolis, Ind., assignor, by mesne assignments, to Consolidated Rubber Tire Company, Jersey City, N. J. Rubber-tire setter	662,686	Nov. 27	3098	731 / 732	93	1614
Collins, Ulysses L., St. Louis, Mo. Electric clock	664,348	Dec. 18	2663	606	93	2296
Collis, John, Des Moines, Iowa, assignor to W. P. Collis, New York, N. Y. Circulating-valve	659,050	Oct. 2	596	145	93	119
Collis, William P. (See Collis, John, assignor.)						
Colt, Samuel S., Orange, N. J. Time releasing mechanism	661,285	Nov. 6	467	107	93	1044
Colton, Charles E., Syracuse, N. Y. Sewer	661,286	Nov. 6	470	108	93	1045
Columbia Buckle Company. (See Friedenberg, Louis I., assignor.)						
Colver, Byron H., assignor to All Right Manufacturing Co., Cleveland, Ohio. Gas-burner	663,560	Dec. 11	1204	262	93	1978
Colvin, D. Earl. (See Lindsey, James B., assignor.)						
Colvin, John B., Anderson, Ind. Safety-signal railway-switch stand	660,488	Oct. 23	3319	744	93	716
Comber, Edwin F., Selkirk, Canada. Pipe-wrench	664,625	Dec. 25	3202	726	93	2480
Combs, John W., assignor of one-half to J. A. Thompson, Princeton, Mo. Stovepipe-fastener	659,211	Oct. 9	905	212	93	200
Comer, William B. (See Brannon, Davis, and Comer.)						
Comerford, William. (See Mead, John S., assignor.)						
Comey & Johnson. (See Johnson, Arthur L., assignor.)						
Comingor, William W., Danville, Ind. Rubber heel for shoes	663,865	Dec. 18	1771	397	93	2116
Commin, Frederick J. (See Cameron, Commin, and Martin.)						
Compressed Gas Capsule Company. (See Sterne, Emile, assignor.)						
Comstock, Cheney & Company. (See Moore, Hartwell R., assignor.)						
Condon, John T., Le Mars, Iowa. Railway-car chock	659,051	Oct. 2	597	145	93	120
Confectioners' Machinery and Manufacturing Company. (See Carlson, Gabriel, assignor.)						
Conklin, Joseph I., New York, N. Y. Electric-lighting system	660,047	Oct. 16	2426	546 / 547	93	516
Conn, Julius T., Lansing, Mich. Fastening device	660,680	Oct. 30	3662	823	93	798
Conn, William G., Charlestown, Ind. Watchmaker's tweezers	660,489	Oct. 23	3321	744	93	716
Connable, John L., Chattanooga, Tenn. Rubber tire	659,509	Oct. 9	1413	320	93	302
Connelly, James T., Milton, Pa. Locomotive-boiler	662,250	Nov. 20	2258	543	93	1430
Connelly, Thomas P., Jersey City, N. J. Boiler	664,534	Dec. 25	3017	686	93	2391
Conner, Daniel E., and O. Bagby; said Bagby assignor to L. Fritz, Covington, Ky., and said Conner assignor of one-half to G. M. Pearce, Washington, D. C. Hardening and tempering copper, gold, or silver	660,983	Oct. 30	4188	.....	93	904
Conner, George F., Port Huron, Mich. Traction-wheel	659,650	Oct. 16	1676	378	93	370
Conner, George F., Port Huron, Mich. Traction-engine	660,048	Oct. 16	2428	547	93	517
Conner, George F., Port Huron, Mich. Threshing-machine	661,039	Nov. 6	20	5	93	955
Conner, George F., Port Huron, Mich. Regulator for traction-engines	663,146	Dec. 4	457	96	93	1812
Conner, George F., Port Huron, Mich. Cab for traction-engines	663,147	Dec. 4	458	96	93	1813
Conner, George F., Port Huron, Mich. Spark arrester and extinguisher	663,148	Dec. 4	459	97	93	1813
Conner, George F., Port Huron, Mich. Smoke-preventing furnace	663,149	Dec. 4	460	97	93	1813
Conner, George F., Port Huron, Mich. Pneumatic straw-stacker	663,150	Dec. 4	461	97	93	1813
Conover, Charles F., New York, N. Y. Cooling attachment for condensers	658,942	Oct. 2	407	98	93	83
Conrad, Charles P., Elyria, assignor, by mesne assignments, to Conrad Manufacturing Company, Denver, Colo. Back-pedaling brake	661,468	Nov. 6	790	188 / 189	93	1110
Conrad Manufacturing Company. (See Conrad, Charles P., assignor.)						
Conrader, Rudolph, Erie, Pa. Pump-governor	664,468	Dec. 25	2899	602	93	2367
Conrader, Rudolph, Erie, Pa. Apparatus for actuating liquid with compressed gas	664,723	Dec. 25	3378	770	93	2467
Consolidated Fastener Company. (See Holmes, George A., assignor.)						
Consolidated Rubber Tire Company. (See Collins, Samuel W., assignor.)						
Consolidated Rubber Tire Company. (See Grant, Arthur W., assignor.)						
Consolidated Rubber Tire Company. (See Krotz, Alvaro S., assignor.)						
Constantine, George W., assignor of one-half to A. N. Benn, Chicago, Ill. Hog-dressing tool	663,561	Dec. 11	1205	262 / 263	93	1978
Continuous Rail Joint Company of America. (See Bradley, William J., assignor.)						
Continuous Rail Joint Company of America. (See Charlton, Richard B., assignor.)						
Converse, Albert L. (See Staley and Converse.)						
Converse, Maschil D., assignor to J. J. Tower, New York, N. Y. Plane	661,010	Oct. 30	4248	953 / 954	93	915
Converse, Maschil D., assignor to J. J. Tower, New York, N. Y. Pipe and nut wrench	661,011	Oct. 30	4250	954	93	915
Conway, William J., Chicago, Ill. Soft-tread horseshoe	660,788	Oct. 30	3854	866	93	815
Coody, Orville, Mount Pleasant, Tenn. Phosphate-rock drier	659,582	Oct. 9	1539	349	93	327
Cook, Caleb E., Whittier, Cal. Universal support	660,049	Oct. 16	2429	547	93	517
Cook, D., *et al.* (See Ervin, Oscar L., assignor.)						
Cook, E. J., *et al.* (See Ervin, Oscar L., assignor.)						
Cook, Edgar H., assignor to Automatic Vending Company, New York, N. Y. Coin-controlled weighing-machine	664,235	Dec. 18	2431	551	93	2251
Cook, Edgar H., assignor to Automatic Vending Company, New York, N. Y. Weighing-machine	664,313	Dec. 18	2589	590	93	2282
Cook, Frank B., Chicago, Ill. Lightning-arrester	658,976	Oct. 2	462	109	93	93
Cook, German D., *et al.* (See Richardson, George E., assignor.)						
Cook, Harry, McKeesport, Pa. Clothes-line reel	662,222	Nov. 20	2220	535	93	1423
Cook, John, Grafton, N. D. Grain-drier	663,418	Dec. 11	963	209	93	1992
Cook, Lewis N., *et al.* (See Curtis, Frederic A., assignor.)						
Cooke, Sidney S., Toledo, Ohio. Manifolding order-book	664,384	Dec. 25	2727	619	93	2335
Cooley, Charles H. (See Remington, Wolcott, assignor.)						
Coombs, Robert W., and L. A. Brooks, Larimore, N. D. Self-lubricating and dust-proof bearing for colter or other shafts	664,724	Dec. 25	3389	770 / 771	93	2471
Coon, Gustavus W., Washington, D. C., assignor to J. D. Kingsbery, trustee. Fire-extinguisher	661,442	Nov. 6	742	173	93	1100
Cooper, C. K., Sr. (See Williamson, David, assignor.)						
Cooper, John P., Providence, R. I. Garment-fastening device	664,212	Dec. 18	2395	546	93	2244
Cooper, John W., Park Ridge, N. J. Metal railroad-tie	663,157	Dec. 4	474	100	93	1816
Cooper, Lon J., assignor to L. J. Hunter, Covington, Ky. Sign for street or other cars	658,761	Oct. 2	27	6	93	9
Cooper, Madison, Minneapolis, Minn. Cold-storage apparatus	659,468	Oct. 9	1327	308	93	285

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Copeland, Alvin D. (See Pratt and Copeland.)						
Copeland, David W., *et al.* (See Lawson, Benjamin S., assignor.)						
Copeland, Franklin, New York, N. Y. Running-gear for vehicles	660,327	Oct. 23	3087	673 / 674	93	660
Copeland, Herschel P. (See Cohen, Joshua L., assignor.)						
Copeland, James S., Hartford, Conn. Chainless velocipede	662,891	Nov. 27	3552	883	93	1709
Copeland, James S., Hartford, Conn., assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Joint for vehicle-frames	664,469	Dec. 25	2903	662	93	2368
Copenhafer, Stephen A., assignor of one-half to J. McCoy and W. F. B. Stewart, York, Pa. Paper-drying apparatus	662,187	Nov. 20	2143	517 / 518	93	1409
Copes, James W., Philadelphia, Pa. Boiler-feed regulator	662,687	Nov. 27	3100	732	93	1614
Coplantz, Cyrus, assignor to L. Coplantz and E. S. Cheeseman, Joliet, Ill. Ladder	664,385	Dec. 25	2728	619	93	2335
Coplantz, Lydia, *et al.* (See Coplantz, Cyrus, assignor.)						
Coppens, Peter J., Grand Rapids, Mich. Fire-pot for stoves	661,258	Nov. 6	424	99	93	1036
Copperfield, James D., and B. M. Justice, Philadelphia, Pa., assignors to Removable Barrel-Head Company, Camden, N. J. Barrel-head	663,866	Dec. 18	1773	397	93	2116
Coppock, L. A., *et al.* (See Collins, Alva S., assignor.)						
Corbett, Perry H., Hannibal, Mo. Quick-releasing valve for air-brakes	661,574	Nov. 13	990	246	93	1164
Corbett, William H. (See Ball and Corbett.)						
Corbin, Frank, Lexington, Ky. Tobacco rack and truck	660,290	Oct. 23	2954	657	93	644
Corcoran, Daniel, Yonkers, N. Y. Worm-and-chain driving-gear	659,583	Oct. 9	1541	349	93	327
Cordes, Edward C., Carthage, Ohio. Spring shade-roller	659,584	Oct. 9	1542	350	93	327
Cornélis, Jean, Liége, Belgium. Screw-cutting attachment for lathes	662,188	Nov. 20	2145	518	93	1410
Cornelius, W. P., *et al.* (See Lay, William, assignor.)						
Cornell, Harvey B., assignor to H. J. Seamans, Scranton, and G. W. Patterson, Sayre, Pa. Refrigerant composition	661,851	Nov. 13	1485	.....	93	1259
Cornet, Edward, *et al.* (See Farmer, John R., assignor.)						
Cornick, Howard, administrator. (See Leiby, Charles L.)						
Coronet Bottle-Seal Company of Baltimore City. (See Heath, William E., assignor.)						
Correll, Clarence L., Burns, Kans. Combined header and thresher	660,021	Oct. 30	3549	797	93	778
Corry, William. (See Hollar and Corry.)						
Cortland, Harvey, Pittsburg, Pa. Thermostat	663,419	Dec. 11	964	210	93	1932
Corwin, Frank E., assignor of one-half to H. S. Ayres, Detroit, Mich. Cooking utensil	664,314	Dec. 18	2594	591	93	2283
Cory, Eber, Boone County, Ind. Spark-arrester	662,114	Nov. 20	2002	479	93	1379
Coryell, J. Sherman. (See Coryell, William C., assignor.)						
Coryell, Miers, New York, N. Y. Boiler	661,499	Nov. 13	846	203	93	1135
Coryell, William C., Youngstown, Ohio, assignor of one-half to J. S. Coryell, Chicago, Ill. Dental floss-holder	664,014	Dec. 18	2054	466	93	2172
Cosmopolitan Incandescent Gas Light Company. (See Loeb, Joseph, assignor.)						
Costigan, Dennis W., Providence, R. I. Gem-setting	664,725	Dec. 25	3391	771	93	2471
Cotton Seed Oil Syndicate. (See Stanley, John C. W., assignor.)						
Cotton, Walter H., Chicago, Ill. Electric igniter for gas-engines	663,653	Dec. 11	1356	300	93	2057
Coughlin, John J., assignor of one-half to M. L. Boyer, Bradford, Ohio. Spraying apparatus	663,732	Dec. 11	1503	335	93	2067
Coughlin, Thomas W., Binghamton, N. Y. Body-rest for caskets	661,695	Nov. 13	1100	273	93	1185
Coughtry, John W., assignor of one-half to W. C. Lipe, Syracuse, N. Y. Cigar	663,073	Dec. 4	305	65	93	1788
Coulon, Emery, Blaton, Belgium. Producing artificial stone	661,443	Nov. 6	743	174	93	1100
Courtenay, William, New York, N. Y. Construction for third-rail electric railways	664,470	Dec. 25	2901	662	93	2368
Covert, Henry W., Waterford, N. Y. Valved chimney-throat	663,562	Dec. 11	1296	283	93	1978
Cowan, James, Alea, Hawaii. Stake-holder	660,891	Oct. 30	4042	906	93	874
Cowan, James W., Geneseo, N. Y. Dental floss-holder	664,126	Dec. 18	2244	510	93	2211
Cowan, Mark L., Eddy, Tex. Mounting pictures	660,892	Oct. 30	4044	.....	93	874
Cowan, William J., Kansas City, Mo. Street-sweeper	662,057	Nov. 20	1896	455	93	1358
Cowey, Leonard E., London, England. Apparatus for indicating variations in terrestrial gravitation	660,050	Oct. 16	2431	548	93	517
Cowin, Frederick, Chicago, Ill. Meat-flattener	661,792	Nov. 13	1333	835 / 836	93	1242
Cowles, Arthur B., Rochester, N. Y. Box formed of paper, cardboard, &c.	659,651	Oct. 16	1677	378 / 379	93	370
Cowles, Frederick L. (See Jones, Charles B., assignor.)						
Cowper-Coles, Sherard O., assignor of one-half to Reflector Syndicate, Limited, London, England. Manufacture of reflectors	660,416	Oct. 23	3194	.....	93	691
Cox, Byron, Evart, Mich. Corn-planter	660,950	Oct. 30	4142	930 / 931	93	894
Cox, Charles S., Elizabeth, N. J. Drawing instrument	663,065	Dec. 4	291	62	93	1781
Cox, Daniel M., Moulton, Iowa. Combination hay and stock rack	662,766	Nov. 27	3246	766	93	1641
Cox, Frank P., Lynn, Mass., assignor to General Electric Company, of New York. Coin-controlled mechanism	660,810	Oct. 30	3891	875	93	843
Cox, Frederick W., Toronto, Canada. Feeding device for steam-stokers	663,867	Dec. 18	1774	397	93	2116
Cox, George W., Union, Kans. Wagon-brake	659,212	Oct. 9	906	213	93	200
Cox, Jesse C., *et al.* (See MacMaster, Abraham L., assignor.)						
Coy, Frederick W., Boston, Mass. Sole-leveling machine	663,072	Dec. 4	303	64	93	1788
Coy, John H., Salem, Ohio. Miter-box	661,444	Nov. 6	746	174 / 175	93	1101
Coyle, Rebecca, Philadelphia, Pa. Nursing-gown	660,843	Oct. 30	3964	888	93	858
Craddock, William H. (See Post, Howard A., assignor.)						
Crago, Charles C., Centreville, Iowa. Guard for shovels	661,287	Nov. 6	473	108	93	1046
Craig, Andrew, Lawrence, Mass. Weather-strip	661,040	Nov. 6	23	6	93	955
Craig, George C., Toronto, assignor of one-half to J. C. Craig, Kinmount, Canada. Lock and latch	664,315	Dec. 18	2595	591	93	2283
Craig, George W., Provo City, Utah. Railway-ticket	660,417	Oct. 23	3195	710	93	692
Craig, John C. (See Craig, George C., assignor.)						
Crakow, Louis N., New York, N. Y. Toy musical instrument	663,654	Dec. 11	1357	301	93	2008
Crampton Farley Brass Company. (See Farley, John P., assignor.)						
Crandall, Claude R., St. Louis, Mo., assignor to Pasteur-Chamberland Filter Company, Dayton, Ohio. Novelty for advertising or similar purposes	662,668	Nov. 27	3092	722	93	1607
Crandall, Henry F. (See Livesay, Crandall, and Burgess.)						
Crane, Benjamin C., Montesano, Wash. Fire-hose nozzle	660,147	Oct. 23	2661	594	93	585
Crane, Charles E., Seattle, Wash. Milk-bottle	663,733	Dec. 11	1504	335	93	2037
Crane, Clyde C. (See Dinkelbihler and Crane.)						
Crane Company. (See Doolittle, William W., assignor.)						
Crane, Henry M., New York, N. Y., assignor to Western Electric Company, Chicago, Ill. Signal for telephone trunk-lines	659,789	Oct. 16	1958	439	93	423
Crane, James L., Cleveland, Ohio. Show-case	661,237	Nov. 6	375	90	93	1027
Crane, Richard T., Chicago, Ill., assignor to Otis Elevator Company, of New Jersey. Hydraulic elevator	661,575	Nov. 13	991	247	93	1164

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Crane, Richard T., Chicago, Ill., assignor to Otis Elevator Company, of New Jersey. Hydraulic-elevator ram	661,576	Nov. 13	996	247	93	1165
Cranstone, William L., Melbourne, Victoria. Combination pencil point-protector and sharpener	661,955	Nov. 20	1696	410	93	1321
Cravener, Amos O., Indiana, Pa. Means for handling mail-bags upon moving trains	661,894	Nov. 6	660	154	93	1084
Craver, Charles F. (See Sharp, James A., assignor.)	658,977	Oct. 2	463	.....	93	93
Craveri, Juan, Buenos Ayres, Argentina. Composition of matter for wax tapers	660,365	Oct. 23	3108	.....	93	674
Craveri, Juan, Buenos Ayres, Argentina. Igniting composition for matches	660,366	Oct. 23	3109	.....	93	674
Craveri, Juan, Buenos Ayres, Argentina. Match composition	663,959	Dec. 18	1949	438	93	2152
Crawford, Albert, Battle Creek, Mich. Weighing-machine	662,223	Nov. 20	2221	535	93	1423
Crawford, Harvey F., Brocton, Mass. Medicinal boot or shoe						
Crawford, John. (See Adams and Crawford.)						
Crawford, Theron C. (See Voelker, William L., assignor.)						
Crawford, West J., *et al.*, trustees. (See Oliver, Jesse, assignor.)	663,805	Dec. 11	1650	370	93	2068
Crawford, William H., Weatherford, Tex. Churn-motor	663,868	Dec. 18	1776	398	93	2117
Crawley Scenic and Pleasure Railway Company. (See Welsh, Alexander A., assignor.)						
Crean, Francis C., Montreal, Canada. Treatment of wood-pulp	659,052	Oct. 2	598	145	93	120
Crellin, Joseph R., *et al.* (See Beresford, Walter, assignor.)	663,218	Dec. 4	579	125 126	93	1835
Crenshaw, Vasser, Augusta, Ark. Head-rest						
Crippen, George F., Ypsilanti, Mich. Bean-picker	664,127	Dec. 18	2245	510	93	2212
Crippen, H. D. (See De Remer, Jared R., assignor.)						
Crippen, Joseph J., Denver, Colo. Drill or bit chuck	664,036	Dec. 18	2084	474	93	2178
Crisler, Joseph L. (See Flesher and Crisler.)						
Crisp, John A., Jefferson, Ohio. Support for buggy-thills	662,167	Nov. 20	2098	506	93	1399
Crissy, Samuel T., Hackensack, and W. Dulles, Jr., Englewood, N. J., assignors to Appert Glass Company, New York, N. Y. Photographic-plate rack	659,812	Oct. 16	2003	449	93	433
Crites, Joseph, and J. Webb, East Liverpool, Ohio. Rail-joint	662,058	Nov. 20	1898	456	93	1359
Crobarger, George T., Newton, Kans. Cultivator-coupling						
Crocker-Wheeler Company. (See Dunn, Gano S., assignor.)						
Croft, Harry W. (See Walker and Croft.)						
Croft, John R., London, England. Means for facilitating hermetic sealing of tins or other receptacles	660,051	Oct. 16	2433	548	93	518
Crompton & Knowles Loom Works. (See Crompton, Randolph, assignor.)						
Crompton & Knowles Loom Works. (See Gordon, Albert A., assignor.)						
Crompton & Knowles Loom Works. (See Wyman, Horace, assignor.)						
Crompton, Randolph, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom	663,066	Dec. 4	203	62, 63	93	1781
Cronemeyer, William C., Allegheny County, assignor of one-half to S. Diescher, Pittsburg, Pa. Manufacturing black plates or other sheets	664,128	Dec. 18	2246	511	93	2212
Cronemeyer, William C., assignor of one-half to S. Diescher, Pittsburg, Pa. Apparatus for rolling sheets	664,129	Dec. 18	2249	511	93	2212
Cronstedt, Elias, St. Paul, Minn. Hydrant	660,721	Oct. 30	3737	842	93	814
Crooks, James W., assignor to said Crooks, E. M. Skinner, and W. Veazie, trustees, Boston, Mass. Pneumatic piano-playing action	663,118	Dec. 4	384	81, 82	93	1798
Crosby, John E. (See Godfrey, John S., assignor.)						
Crosby Steam Gage and Valve Company. (See Hughes, John, assignor.)						
Crosby Steam Gage and Valve Company. (See Millett, Joshua H., assignor.)						
Cross, William A., Chicago, Ill. Warehouse-door	663,219	Dec. 4	583	126	93	1835
Crosscup, Ira O., San Francisco, Cal. Filtering apparatus	662,252	Nov. 20	2260	543	93	1431
Croteau, Roch, and R. J. Messier, Denver, Colo. Device for removing and replacing incandescent lamps	659,681	Oct. 9	1635	369	93	345
Crouch, Walter A., Groton, Conn. Knob-latch	659,887	Oct. 16	2127	479	93	457
Crowe, Frederick C. (See Friedley and Crowe.)						
Crowe, Paul L., Duluth, Minn. Mechanism for raising or lowering grates	662,767	Nov. 27	3247	767	93	1641
Crowe, Paul L., Duluth, Minn. Sprocket-wheel for use on chain grates	662,768	Nov. 27	3249	767	93	1642
Crowe, Paul L., Duluth, Minn. Apparatus for raising or lowering grates	662,769	Nov. 27	3250	767	93	1642
Crowe, Paul L., Duluth, Minn. Fuel-feeding hopper	662,770	Nov. 27	3252	768	93	1643
Crowell, Elisha. (See Hoover, David W., assignor.)						
Crowell, Luther C., assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Folded and sealed packet	659,957	Oct. 16	2274	510	93	487
Crowley, Charles W., St. Louis, Mo. Starting-machine for race-horses	660,984	Oct. 30	4188	941	93	904
Crowther, Henry W., Exeter, England. Shovel for firing	660,527	Oct. 23	3392	762	93	730
Crowther, Matthias, West Pittston, Pa. Hydraulic ejector	664,037	Dec. 18	2084	474 475	93	2178
Cruickshanks, Alexander, and A. Scrivenor, Richmond, Va. Feed-water and water-level regulator	660,722	Oct. 30	3738	842	93	814
Crump, Edward T., assignor to R. G. Rennolds, Richmond, Va. Paper box	664,316	Dec. 18	2595	591	93	2283
Crutchfield, E. M. (See Jones and Philbrook, assignors.)						
Cruyt, William J., Brussels, Belgium. Rotary motor	659,790	Oct. 16	1962	440	93	424
Cryder, Russell E., assignor to C. F. Chapman, Chicago, Ill. Electromechanical clutch	661,385	Nov. 6	568	131	93	1064
Cubbidge, Elijah, New York, N. Y. Fireproof tar-kettle	662,258	Nov. 20	2262	544	93	1431
Cudlipp, Carlos V., Lima, Peru. Device for destroying flies	663,869	Dec. 18	1777	398	93	2117
Cudlipp, Carlos V., Lima, Peru. Device for destroying flies	663,870	Dec. 18	1778	398	93	2117
Cullen, George H., Sitka, Ind. Wire-fence tightener	661,041	Nov. 6	24	6	93	955
Cullen, John J. (See Kato, George P., Jr., assignor.)						
Culmann, Charles L., and C. A. L. W. Witter, Hamburg, Germany; said Witter assignor to said Culmann. Apparatus for making soap	664,130	Dec. 18	2251	511	93	2212
Culmer, John W., assignor to National Computing Scale Company, Cleveland, Ohio. Platform spring-balance scale	659,292	Oct. 9	1091	242	93	224
Cumming, David B., Liverpool, England. Feed-water heater	661,042	Nov. 6	25	6	93	955
Cummings, Henry H., Malden, Mass., assignor to A. L. Prescott, Passaic, N. J. Machine for making spikes	659,017	Oct. 2	543	131 132 133	93	109
Cummings, John N., Thamesville, Canada. Churn	661,852	Nov. 13	1485	361	93	1259
Cunniff, John V., New Bedford, and G. O. Draper, Hopedale, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Weft-replenishing loom	664,317	Dec. 18	2597	591 592	93	2283
Cunningham, Albert, Milwaukee, Wis., assignor to Filer & Stowell Company, of Wisconsin. Band-saw guide	662,254	Nov. 20	2264	544 545	93	1431
Cunningham Engineering Company. (See Cunningham, Patrick, assignor.)						
Cunningham, Michael F. (See McGrath, Lawrence A., assignor.)						
Cunningham, Patrick, New Bedford, assignor to Cunningham Engineering Company, Boston, Mass. Boiler	660,751	Oct. 30	3783	851	93	823
Cunningham, Patrick, assignor of three-fourths to F. D. Stanley, New Bedford, and W. A. Whittlesey, Pittsfield, Mass. Fluid clutch	660,749	Oct. 30	3779	850 851	93	822
Cunningham, Patrick, assignor of three-fourths to F. D. Stanley, New Bedford, and W. A. Whittlesey, Pittsfield, Mass. Driving mechanism	660,750	Oct. 30	3781	851	93	823

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Cunningham, Samuel A., *et al.* (See Lambert, Frank, assignor.)						
Cunnius, Calvin T. (See Anthony and Cunnius.)	663,871	Dec. 18	1779	398 399	93	2117
Curley, Thomas, Troy, N. Y. Scroll-sawing machine						
Curran, Charles H. (See Whalley, Enoch, assignor.)						
Curtain Supply Company. (See Davis, George H., assignor.)						
Curtis, Frederic A., assignor of three-fourths to W. J. Little, Anderson, F. J. Ley, Gas City, T. K. Clark and L. N. Cook, Marion, Ind. Consuming smoke	663,119	Dec. 4	387	82	93	1799
Curtis, William, Duluth, Minn. Machine for placing hoops upon barrels	661,395	Nov. 6	662	155	93	1084
Cushman, William F., Boston, Mass. Eyeglasses	663,533	Dec. 11	1164	252	93	1970
Cutcheon, James C. (See Johnson and Cutcheon.)	664,726	Dec. 25	3392	771	93	2471
Cutter, Charles W., Denver, Colo. Pencil-printing machine	663,420	Dec. 11	966	210	93	1932
Cutter Electrical and Manufacturing Company. (See Scott, William M., assignor.)						
Cutter, George, assignor to George Cutter Company, Chicago, Ill. Arc-light hanger	662,771	Nov. 27	3256	768 769	93	1643
Cutting, Frederick C., Rochester, N. Y. Pneumatic-cash-carrier terminal	658,978	Oct. 2	464	110	93	93
Cyr, Alfred A., Providence, and A. A. Austin, Cranston, R. I. Window-screen	659,866	Oct. 16	2093	470	93	451
Cytron, Gustav. (See Cytron, Jacob, G., and J.)						
Cytron, Jacob, G., and J., St. Louis, Mo. Mechanically-operated cradle	660,802	Oct. 30	3876	872	93	840
Cytron, Julius. (See Cytron, Jacob, G., and J.)						
D'Asar, Mario R., Genoa, Italy. Telephonic apparatus for use on vessels, &c.						
Daenzer, Frederick. (See Langguth, Charles, assignor.)						
Daisy Manufacturing Company. (See Burrow, William J., assignor.)	664,626	Dec. 25	3203	726 727	93	2480
Dake, James R., assignor of one-half to R. A. Oleshak, Merrill, Wis. Machine for collecting precious metals from river-beds	658,943	Oct. 2	408	98	93	83
Dallaire, Joseph G., St. Laurent D'Orleans, Canada. Corset-clasp	662,892	Nov. 27	3554	834	93	1709
Dalton, Harry B., Kansas City, Mo. Moistening device	662,524	Nov. 27	2805	665	93	1558
Dammann, George W., Athens, Ill. Boiler-cleaner	662,394	Nov. 27	2524	609	93	1502
Damon, George, Cranford, N. J., and E. S. Peets, New York, N. Y. Axle-sleeve	659,018	Oct. 2	547	133	93	110
Damrau, Emma, New York, N. Y. Curtain-support	662,915	Dec. 4	32	7	93	1732
Danforth, George D., Tyngsborough, Mass. Seal-lock						
Danforth, Raymond H. (See Allen and Danforth.)						
Dangel, Joseph, *et al.* (See Traxler, Charles, assignor.)	659,585	Oct. 9	1544	350	93	328
Daniels, George E., Rowley, Mass. Tail-board fastening for wagons						
Daniels, John B., assignor of one-half to J. W. Ashbaugh, Brownstown, W. Va. Ratchet-wrench	663,421	Dec. 11	970	210	93	1933
Danielsen, Wilhelm G., Logan, Utah. Push-rake	658,831	Oct. 2	397	51	93	45
Dannahower, William L., Kansas City, Mo. Hot-water heater	661,116	Nov. 6	161	40	93	984
Danvin, Roger, Paris, France. Dust-collector	658,832	Oct. 2	399	51	93	45
Darby, Sidney C. (See Darby, Thomas C., T. A., and S. C.)						
Darby, Thomas A. (See Darby, Thomas C., T. A., and S. C.)	661,307	Nov. 6	511	118	93	1052
Darby, Thomas C., T. A., and S. C., Pleshey, England. Implement for cultivating land	663,734	Dec. 11	1505	335 336	93	2087
Darley, John W., Jr., assignor of one-half to M. Holzman, P. and L. Hamburger, Baltimore, Md. Repetition piano-action	662,772	Nov. 27	3260	769	93	1644
Darling, Joseph, Chicora, Pa. Electric motor						
Darmstaedter, Ludwig. (See Göttig and Köttgen, assignors.)						
Darnell, Calvin F., *et al.* (See Duncan, John R., assignor.)	661,500	Nov. 13	848	203	93	1135
Darnes, Richard C., Coshocton, Ohio. Metal casing for tilework	660,844	Oct. 30	3965	888	93	858
Darrow, Wilton E., Sonora, Cal. Device for collecting finely-divided minerals and slimes	662,916	Dec. 4	33	8	93	1732
Daschbach, Joseph, Pittsburg, Pa. Device for holding rounds in rolling-mills	662,917	Dec. 4	36	8	93	1733
Daschbach, Joseph, Pittsburg, Pa. Device for holding rounds for rolling-mills						
Daseking, Georg. (See Henze, Max, assignor.)						
Dauber, John G. (See Ruth and Dauber.)	662,145	Nov. 20	2050	498	92	1889
Daugherty, Orie C., assignor to R. B. Goodrich, Cincinnati, Ohio. Bath-cabinet frame						
Daugherty, William, assignor of one-half to A. D. Sprinkell, Lawrenceville, Ill. Tire-setter	660,490	Oct. 23	3322	744	93	716
Davenport, Elmer E., and J. E. Robinson; said Robinson assignor of three-tenths to said Davenport and J. D. Miller, Chicago, Ill. Can	663,007	Dec. 4	298	64	93	1782
Davey, John T., Ashland, Wis. Moistening-case for cigars	663,329	Dec. 4	785	168	93	1874
David, James B., Neath, England. Tire for vehicle-wheels	661,099	Nov. 6	131	32	93	977
Davidson, James M., London, England. Electrical interrupter	663,695	Dec. 11	1442	319	93	2024
Davidson, John, Eccles, and T. R. Hampson, Chester, England. Steam-engine	660,562	Oct. 30	3455	775 776	93	761
Davidson-Martin Manufacturing Company. (See Ernst, George L., assignor.)						
Davidson, Samuel C., Belfast, Ireland. Centrifugal fan or pump	662,395	Nov. 27	2524	609 610 611 612	93	1502
Davidson, Samuel C., Belfast, Ireland. Centrifugal fan or pump	662,396	Nov. 27	2530	612	93	1503
Davidson, Samuel C., Belfast, Ireland. Centrifugal fan or pump	662,397	Nov. 27	2534	613	93	1504
Davidson, Samuel C., Belfast, Ireland. Centrifugal fan or pump	662,525	Nov. 27	2800	665	93	1559
Davidson, Samuel C., Belfast, Ireland. Speed-reducing or speed-multiplying gear	664,386	Dec. 25	3733	620 621	93	2336
Davies, Charles W. T., San Francisco, Cal., assignor to L. C. Bailey, Washington, D. C. Finger attachment for clerks	659,135	Oct. 2	735	177	93	149
Davies, Preston, and A. Ross, London, England. Steam-generator	662,255	Nov. 20	2260	545	93	1432
Davis, Albert, Duluth, Minn. Log-loading device	662,669	Nov. 27	3063	723	93	1607
Davis, Albert D., Yonkers, N. Y. Reversible back for cameras	661,956	Nov. 20	1694	410	93	1321
Davis, Bethuel M., assignor to Advance Machine Company, Chicago, Ill. Coin-controlled electric-shock machine	660,539	Oct. 23	3413	766 767	93	733
Davis, Charles W., and H. M. Hall, Columbia, Mo. Adjustable book-rest	660,148	Oct. 23	2662	594	93	585
Davis, David E., assignor of one-half to W. C. Davis, Milwaukee, Wis. Boiler-tube cutter	662,868	Nov. 27	3556	834	93	1709
Davis, Edward, Brazil, Ind. Railway-tie	662,773	Nov. 27	3262	769	93	1645
Davis, Edward E., New York, N. Y. Lubricator	661,396	Nov. 6	605	155	93	1085
Davis, Ernest J. S., Knoxville, Iowa. Thill-coupling	661,208	Nov. 6	325	79	93	1017
Davis, Frank B., Audubon, Iowa. Portable and adjustable stock-feeder	663,806	Dec. 11	1652	370	93	2068
Davis, Franklin P., Mobile, Ala. Tow-line operator and alarm	662,774	Nov. 27	3262	769	93	1645
Davis, George H., New York, N. Y. Perforating and recording machine	659,033	Oct. 2	599	146	93	120
Davis, George H., Portland, Me., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill. Curtain-fixture	661,043	Nov. 6	27	7	93	956
Davis, George W. (See Farnham and Davis.)						
Davis, Grace P. (See Davis, Lewis K., assignor.)						
Davis, Henry J., P. G. Ault, W. W. Bailey, and J. H. Wideman, Birmingham, Ala. Boiler-feeder	663,735	Dec. 11	1511	336 337	93	2038
Davis, Isaac E., Coralitos, Cal. Box-nailing device	661,957	Nov. 20	1696	411	93	1321

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Name, residence, and invention.	No.	Date	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Isaac H., Boston, Mass., assignor of one-half to H. H. Westinghouse, Pittsburg, Pa. Feed-water regulator	661,853	Nov. 13	1489	302	93	1260
Davis, Isaac H., Boston, Mass., assignor of one-half to H. H. Westinghouse, Pittsburg, Pa. Feed-water regulator	661,906	Nov. 13	1584	384	93	1278
Davis, James, Butler Springs, Ala. Vehicle-brake	659,136	Oct. 2	736	177	93	149
Davis, John, Pittsburg, Pa. Means for cleaning granular filter-beds	658,979	Oct. 2	465	110 111	93	94
Davis, John G. J., assignor of one-half to J. H. Day, Augusta, Ga. Thill-coupling	658,702	Oct. 2	29	6	93	9
Davis, Leonard D., Erie, Pa. Mechanism for rolling	662,146	Nov. 20	2051	498 499	93	1389
Davis, Lewis K., Indianapolis, Ind. Apparatus for preventing freezing of filters	660,563	Oct. 30	3459	776	93	761
Davis, Lewis K., assignor to G. P. Davis, New York, N. Y. Device for cleaning and replenishing sand filter-beds	659,916	Oct. 16	2188	492 493	93	469
Davis, Louis, and H. Hendriks, London, England. Cigarette-making machine	662,775	Nov. 27	3264	770	93	1645
Davis, Nelson W., Port Jefferson, N. Y. Bottle	664,350	Dec. 18	2670	607	93	2297
Davis, Orlando A., Rochester, N. Y., assignor to Boston Footwear Machine Company, of Maine. Shoe-trimming machine	662,355	Nov. 20	2448	589	93	1468
Davis & Roesch Temperature Controlling Company. (See Roesch, Alfred, assignor.)						
Davis, Thomas, Orange, N. J. Pipe-vise	660,367	Oct. 23	3110	688	93	674
Davis, Wallace C. (See Davis, David E., assignor.)						
Davis, Walter E., and J. L. Samson, Elizabeth, N. J. Cutter-setting gage	660,005	Oct. 16	2351	529	93	504
Davis, William E., Somerville, assignor to Simplex Electrical Company, Boston, Mass. Treeing-iron	660,723	Oct. 30	3743	843	93	815
Davis, William F., *et al.* (See Jenkins, Charles H., assignor.)						
Davis, William F., Milwaukee, Wis. Means for cooling explosive-engines	660,073	Oct. 16	2508	560 561	93	533
Davis, William G. (See Brannon, Davis, and Comer.)						
Davis, William H., McPherson, Kans. Egg-carton packer	659,469	Oct. 9	1329	304	93	286
Davis, William M. (See Stromberg and Davis.)						
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone system	659,958	Oct. 16	2275	510	93	488
Davis, William M., assignor to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	659,959	Oct. 16	2277	511	93	488
Davy, John G., *et al.* (See Reynolds, Samuel G., assignor.)						
Dawson, Arthur T., London, and J. Horne, Barrow-in-Furness, assignors to Vickers, Sons & Maxim, Limited, Sheffield, England. Elevating and ramming apparatus for turret or barbette guns	660,418	Oct. 23	3197	711	93	691
Dawson, Arthur T., and L. Silverman, assignors to Vickers, Sons & Maxim, Limited, London, England. Firing mechanism for automatic quick-firing guns	662,256	Nov. 20	2268	546	93	1432
Dawson, Edward. New York, N. Y. Work-support	663,980	Dec. 18	1951	439	93	2152
Dawson, Paul, Detroit, Mich. Electric advertising device	664,807	Dec. 25	3565	811	93	2506
Day, Charles M., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Controller for shedding mechanism	659,019	Oct. 2	548	133	93	110
Day, Edgar W., *et al.* (See Silkman, Edward J., assignor.)						
Day, Ephraim J., Lynn, Mass. Velocipede-saddle	659,054	Oct. 2	606	147	93	122
Day, James D., London, England. Hernial truss	660,368	Oct. 23	3111	689	93	674
Day, Joseph, Weston-Super-Mare, England. Oil-engine	661,599	Nov. 13	1035	258	93	1173
Day, Joseph H. (See Davis, John G. J., assignor.)						
Day, Maxwell W. (See Linn and Day.)						
Day, William A., assignor to Gorham Manufacturing Company, Providence, R. I. Metal ornamentation	663,624	Dec. 11	1308	289	93	1998
Day, William C., Rumford Falls, assignor to National Drafting Tool Company, Livermore Falls, Me. Combined drafting and measuring tool	664,727	Dec. 25	3394	771	93	2172
Dayton Paper Novelty Company. (See Neumann, Theodore L., assignor.)						
De Dion, Albert, and G. Bouton, Puteaux, France. Friction-clutch	664,038	Dec. 18	2086	475	93	2179
De Felice, Marco T., Rome, Italy. System of electric traction	663,025	Dec. 11	1309	290	93	1998
De la Harpe, Charles, assignor to Dye Works, formerly L. Durand, Huguenin & Co., Basle, Switzerland. Gallocyanin-sulfonic acid and making same	663,220	Dec. 4	584	------	93	1896
De la Harpe, Charles, assignor to Dye Works, formerly L. Durand, Huguenin & Co., Basle, Switzerland. Leucogallocyanin-sulfonic acid and making same	663,221	Dec. 4	585	------	93	1896
De la Harpe, Charles, C. Vaucher, and H. Lorétan, assignors to Dye-Works, formerly L. Durand, Huguenin & Co., Basle, Switzerland. Gallocyanin sulfite dye and making same	662,224	Nov. 20	2223	------	93	1423
De La Mare, Thomas, Tooele City, Utah. Neck-yoke	664,296	Dec. 18	2436	555	93	2252
De Lancey, Charles E., and J. L. Ritter, Newport, Pa. Compartment vessel	664,131	Dec. 18	2253	511 512	93	2213
De Laval, George, Cambridge, Mass. Automatic exhaust relief-valve	663,631	Dec. 11	1323	292	93	2001
De Laval, George, Cambridge, and G. P. Aborn, Boston, Mass., assignors to George F. Blake Manufacturing Company, New York, N. Y. Unloading means for air-compressors	664,562	Dec. 25	3067	698	93	2402
De Laval, George, Cambridge, and G. P. Aborn, Boston, Mass., assignors to George F. Blake Manufacturing Company, New York, N. Y. Unloading means for air-compressors	664,563	Dec. 25	3074	698 699	93	2403
De Laval Separator Company. (See Arend, Francis J., assignor.)						
De Laval Separator Company. (See Berrigan, John J., assignor.)						
De le Croix, Xavier, Brussels, Belgium, assignor to Delecroix Motor Syndicate, Limited, London, England. Gas-engine attachment	661,854	Nov. 13	1491	302	93	1260
De Lery, Joseph B. (See Richardson, Charles G., assignor.)						
De Maré, Baltzar E. L., Philadelphia, Pa. Projectile for ordnance	660,581	Oct. 30	3485	781	93	766
De Meulemeester, Emile, Brussels, Belgium. Making yeast extracts	659,214	Oct. 9	911	------	93	201
De Mooy, Charles W., Cleveland, Ohio. Reversing-gear and clutch combined	660,564	Oct. 30	3460	776	93	762
De Remer, Jared R., Glenwood Springs, assignor of one-third to H. D. Crippen, Denver, Colo. Impact water-wheel	659,652	Oct. 16	1678	379	93	370
De Sellem, John. (See Gunkle, James M., assignor.)						
De Vilbiss, Allen, Jr., Toledo, Ohio. Unscrewing device	661,855	Nov. 13	1492	302	93	1261
De Vilbiss, Allen, Jr., Toledo, Ohio. Computing-scale	661,856	Nov. 13	1493	302 303	93	1261
De Vilbiss, Allen, Jr., Toledo, Ohio. Unscrewing device	661,857	Nov. 13	1496	303	93	1261
De Waldo, Alfonso G., Warren, Ohio. Strainer for faucets	659,365	Oct. 9	1133	264	93	246
Dean, John, Paterson, N. J. Jacquard mechanism for looms	659,361	Oct. 9	1131	264	93	245
Dean, Julius E., Easton, Pa. Automatic signal for railway-crossings	662,918	Dec. 4	38	9	93	1733
Dean, Melvin C., Niles, Ohio. Welding and tempering compound	659,055	Oct. 2	607	------	93	122
Deatherage, Eda, Rio, Ill. Exhaust-nozzle	659,791	Oct. 16	1903	440	93	425
Decker, Ansill W., Nicholson, assignor of one-half to W. C. Nebelung and F. H. Thomas, Scranton, Pa. Thill-coupling	664,728	Dec. 25	3395	772	93	2472

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Decker, Edwin S., Malden, assignor to Steel Cable Engineering Company, Boston, Mass. Hopper delivery mechanism	663,422	Dec. 11	971	210 211	93	1933
Decker, Fillmore, Chicago, Ill. Last	661,397	Nov. 6	667	155	93	1085
Decker, Henry A., New York, N. Y. Shears	661,958	Nov. 20	1697	411	93	1822
Decker, Jacob B., assignor to Sheldon Axle Company, Wilkes-Barré, Pa. Steering-axle for automobiles	664,729	Dec. 25	3397	772	93	2473
Dederick, Peter K., Loudonville, N. Y. Wire-bale-band fastening	662,558	Nov. 27	2862	679	93	1569
Dederick, Peter K., Loudonville, N. Y. Bale-band fastening	663,423	Dec. 11	973	211	93	1934
Deering, Katherine A., Fernando, Cal. Corset-cover	663,014	Dec. 4	210	45	93	1766
Degelman, William C., Mansfield, Ohio. Apparatus for enameling bath-tubs	663,601	Dec. 11	1267	260	93	1991
Degemeyer, Carl, Jr., Bremen, Germany. Bottle case or cover	662,257	Nov. 20	2270	546	93	1433
Dehn, Carl W., Topeka, Kans. Miter-machine	659,213	Oct. 9	909	213	93	200
Delaney, Thomas A., assignor to Hills-McCanna Company, Chicago, Ill. Gage-cock	663,736	Dec. 11	1514	337	93	2039
Delaney, Thomas A., and B. T. McCanna, assignors to Hills-McCanna Company, Chicago, Ill. Lubricator	659,166	Oct. 2	788	190 191	93	159
Delanoy, Charles E., New York, N. Y. Ship's drag	661,100	Nov. 6	131	32	93	977
Delecroix Motor Syndicate. (See De le Croix, Xavier, assignor.)						
Delke, Andrew J., Chicago, Ill. Building-block	660,419	Oct. 23	3198	711	93	692
Demarest, Abram A., *et al.* (See Felter, Fred G., assignor.)						
Deming, Charles G., Kingston, N. Y. Hinge	663,260	Dec. 4	673	144	93	1852
Deming Company. (See Deming, William L., assignor.)						
Deming, Eugene W., New Orleans, La. Heat-absorber for defecating apparatus	663,602	Dec. 11	1268	280 281	93	1992
Deming, William L., assignor to Deming Company, Salem, Ohio. Kerosene-sprayer	664,237	Dec. 18	2437	555	93	2252
Deming, William L., assignor to Deming Company, Salem, Ohio. Agitator for spraying apparatus	664,238	Dec. 18	2439	555	93	2253
Demmer, Ewald. (See Linzen and Demmer.)						
Denaeyer, Alphonse, Brussels, Belgium. Evaporating apparatus	664,015	Dec. 18	2056	466	93	2172
Dengler, Ruloff H., Detroit, Mich. Lawn-sprinkler	664,730	Dec. 25	3398	772	93	2473
Denney, Charles A., and U. G. Silvers, Portland, Ind. Device for cutting noodles or dumplings	663,222	Dec. 4	586	126	93	1886
Denney, Harrison A., Reardan, Wash. Brake	664,213	Dec. 18	2396	546	93	2244
Dennis, Decatur D., Chicago, Ill. Truss	659,846	Oct. 16	2060	493	93	444
Dennis, Samuel K., assignor to Plano Manufacturing Company, Chicago, Ill. Finger-guard for grain-cutting machinery	662,637	Nov. 27	2998	709	93	1595
Denny, George H., Chickasha, Ind. Ter. Baling-press	659,792	Oct. 16	1965	440 441 442	93	425
Denny, Lewis A., Omaha, Nebr. Wire-splicing tool	663,261	Dec. 4	673	145	93	1853
Densmore, Joseph M., assignor of one-half to E. O. Loveland, Kansas City, Mo. Incandescent vapor-burner	663,120	Dec. 4	389	83	93	1799
Densmore Typewriter Company. (See Barron, Walter J., assignor.)						
Denton, Robert W. (See Denton, William D. and R. W.)	664,132	Dec. 18	2256	512	93	2213
Denton, William D. and R. W., Wellesley, Mass. Mount for entomological specimens	659,917	Oct. 16	2190	493	93	470
Deputy, Elijah E., assignor of one-half to E. B. Goodwin, Millville, N. J. Safety-razor	660,022	Oct. 30	3552	797 798	93	778
Derby Silver Company. (See Berry, Henry, assignor.)						
Derus, John, assignor of one-third to J. Gleriet, Minneapolis, Minn. Fire-escape	659,605	Oct. 9	1578	358	93	334
Des Isles, Leonard H., Cambridge, Mass. Electric thermostat	659,793	Oct. 16	1969	442	93	426
Des Isles, Leonard H., Cambridge, Mass., assignor to R. F. Hersey, St. Paul, Minn. Electric alarm system and testing apparatus	659,847	Oct. 16	2061	463	93	444
Des Jardins, Rodolphe. (See Devlin, James C., assignor.)	660,149	Oct. 23	2963	595	93	586
Desberon Motor-Car Co. (See Birdsall, Edward T., assignor.)						
Dette, Max H., assignor to Firm of P. Pryibil, New York, N. Y. Ice-cutting machine						
Deutsch, Ernest J., New York, N. Y. Combined type-writing and printing machine						
Devereaux, Alvin, Jr., *et al.* (See Scudder, Abram L., assignor.)						
Devlin, James C., assignor of one-half to R. Des Jardins, Memphis, Tenn. Propelling device for bicycles	658,763	Oct. 2	31	6	93	10
Dewar, William H., New York, N. Y. Catch-basin or fresh-air inlet	662,711	Nov. 27	3149	745	93	1623
Dewes, Abednego. (See Collins, Edmund R., assignor.)						
Dewitt, John P., Troy, Pa. Crosscut-saw	663,534	Dec. 11	1165	252	93	1970
Dexter, Talbot C., Pearl River, N. Y. Paper-feeding machine	659,510	Oct. 9	1415	321	93	392
Dexter, Talbot C., Pearl River, N. Y. Paper-feeding machine	663,672	Dec. 11	1396	309 310	93	2016
Diagonal and Universal Wood Working Machine Company. (See Messinesi, Leon M., assignor.)						
Diamond Match Company. (See Palmer, William N., assignor.)						
Diamond Rubber Company. (See Marks, Arthur H., assignor.)						
Dice, John R., assignor of one-third to J. Pappert, Allegheny, Pa. Bottle-stopper	660,150	Oct. 23	2666	595	93	586
Dick, Harvey H. (See Baxter, James P., assignor.)						
Dick, Idell H. (See Dick, Joseph C. F., assignor.)						
Dick, Joseph C. F., Chicago, assignor to I. B. Dick, La Grange, Ill. Acetylene-gas-generating lamp	659,436	Oct. 9	1267	292	93	273
Dickerson, Edward N. (See Kenny, Patrick, assignor.)						
Dickerson, Edward N., Stoval, N. C. Motor-controlling device	661,577	Nov. 13	997	248	93	1165
Dickerson, Edward N., New York, N. Y. Storing acetylene gas	662,258	Nov. 20	2271	------	93	1433
Dickey, Julia M., *et al.* (See Parker, Nathan S., assignor.)						
Dickinson, Albert. (See Tinewell, Arthur T., assignor.)						
Dickinson, Robert H., Mount Hope, W. Va. Rossing attachment for sawmills	664,535	Dec. 25	3019	687 688	93	2391
Dickinson, Robert H., Mount Hope, W. Va. Knife-blade	664,536	Dec. 25	3022	688	93	2392
Didierjean, Alexis, St. Quentin, France. Two-speed gearing for velocipedes	659,511	Oct. 9	1418	321 322	93	303
Diehl, Charles, New York, N. Y. Hose-coupling	662,225	Nov. 20	2221	535	93	1423
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Circularly-moving-hook sewing-machine	663,807	Dec. 11	1653	370 371	93	2069
Diehl, Philip, Elizabeth, N. J., assignor to Singer Manufacturing Company, of New Jersey. Revolving-hook sewing-machine	663,808	Dec. 11	1659	371	93	2070
Diehl, Philip, and A. Grieb, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Feeding mechanism for sewing-machines	663,673	Dec. 11	1402	310 311	93	2017
Diehl, Philip, and A. Grieb, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Circularly-moving-hook sewing-machine	663,696	Dec. 11	1443	319	93	2024
Diehl, Philip, and M. Hemleb, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Thread-case for sewing-machines	663,674	Dec. 11	1404	311	93	2017
Diehl, Philip, and M. Hemleb, Elizabeth, N. J., assignors to Singer Manufacturing Company, of New Jersey. Bobbin-case holder and bobbin-ejector for sewing-machines	663,675	Dec. 11	1405	311	93	2017

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Dierig, Herman A., Dayton, Ky., and A. A. Vorndieke, Cincinnati, Ohio. Lifting-jack	661,501	Nov. 13	849	204	93	1135
Diescher, Samuel. (See Cronemeyer, William C., assignor.)						
Diesel Motor Company of America. (See Dyckhoff, Frédéric C., assignor.)						
Dieterich, Charles H., Cooperstown, Ill. Receiver for discharged shells	663,262	Dec. 4	674	145	93	1853
Dieterich, Fred G. (See Moegling, Christopher, assignor.)						
Dietz, William H., Chicago, Ill. Toy money-box	662,059	Nov. 20	1899	456	93	1359
Diggs, Harrison A., Norfolk, Va. Ice-pick	660,052	Oct. 16	2435	548	93	518
Dikeman, Charles S. (See Dikeman, Joseph S., assignor.)						
Dikeman, Joseph S., assignor of one-half to C. S. Dikeman, Torrington, Conn. Bicycle-frame	662,115	Nov. 20	2003	479	93	1379
Dilg, Charles H. J. (See Dilg, Christian F. and C. H. J.)						
Dilg, Christian F. and C. H. J., New York, N. Y. Cutlery-polishing machine	662,919	Dec. 4	39	9	93	1733
Dillman, Ira M., Oakland, Cal. Ladder	662,060	Nov. 20	1901	456	93	1359
Dillon, John J., Albany, N. Y. Partition for pews	662,526	Nov. 27	2810	666	93	1559
Dilts, Stokley D., Decatur, Ill. Spring bed-bottom	661,959	Nov. 20	1699	411	93	1322
Dilts, Stokley D., Decatur, Ill. Ironing-table	661,960	Nov. 20	1700	412	93	1322
Dimock, Lucius, Leeds, Mass. Portable embroidery-hoop holder	663,424	Dec. 11	974	211	93	1934
Dinkelbihler, John G., Jr., and C. C. Crane, Cincinnati, Ohio. Autographic register	661,961	Nov. 20	1701	412	93	1322
Dinsmore, Frederick A., *et al.* (See Holly, George W., assignor.)						
Dishart, David. (See Bagot and Dishart.)						
Disselkamp, Eduard, *et al.* (See Linzen and Demmer, assignors.)						
Disselkamp, Ernst, *et al.* (See Linzen and Demmer, assignors.)						
Disselkamp, Rudolf, *et al.* (See Linzen and Demmer, assignors.)	658,833	Oct. 2	210	52	93	45
Dithridge, Edward, Ellwood City, Pa. Enameling-table for bath-tubs	662,226	Nov. 20	2225	536	93	1423
Dittgen, John J., Madisonville, Ohio. Cigar-pouch	661,502	Nov. 13	850	204	93	1135
Ditzler, George C., Uniondale, Ind. Seed-drill	659,437	Oct. 9	1209	292 293	93	974
Dixon, Albert S., assignor to Asphalt Paper Pipe Company, Los Angeles, Cal. Pipe-making apparatus	662,776	Nov. 27	3208	771 772	93	1645
Dixon, Edward B., Grantsborough, N. C. Seed-planter	662,920	Dec. 4	41	10	93	1734
Dixon, Robert M., East Orange, N. J. Gas-making apparatus	663,330	Dec. 4	787	168	93	1874
Dixon, Robert M., East Orange, N. J. Gasket and gasket-securing mechanism	661,656	Nov. 13	1137	281	93	1198
Dixon, William B., Philadelphia, Pa. Harness for cross-weaving						
Dixon, William W., Boston, Mass., assignor to Reece Button Hole Machine Company, Portland, Me. Clutch-pulley	662,894	Nov. 27	3557	834	93	1710
Doak, John E., assignor of one-half to W. Leviston, San Francisco, Cal. Transmission and reversing gear	663,603	Dec. 11	1271	281	93	1992
Doan & Gates Company. (See Ellis, Charles S., assignor.)						
Doane, George, Elmira, N. Y. Segmental or sectional column	664,239	Dec. 18	2441	556	93	2253
Dobensky, Francis B., Emmetsburg, Iowa. Feed-trough	664,241	Dec. 18	2443	556	93	2254
Doble, Lucius A., Huron, S. D. Washing-machine	663,425	Dec. 11	975	212	93	1994
Doble, Peter, Centreville, Mont. Hanger for picture-frames	663,737	Dec. 11	1515	337	93	2099
Doble, William A., San Francisco, Cal. Hydraulic nozzle	659,794	Oct. 16	1974	443	93	427
Doble, William A., San Francisco, Cal. Hydraulic regulating-nozzle	660,789	Oct. 30	3855	866	93	835
Dodd, Samuel M. (See Pickles, Charles K., assignor.)						
Dodd, William H., and J. F. Greer, Montclair, N. J. Self-leveling spoon	659,341	Oct. 9	1093	256	93	236
Doddridge, William B., assignor to American Steel Foundry Company, St. Louis, Mo. Splice-joint for railway-rails	662,712	Nov. 27	3151	746	93	1623
Dödel, Xaver, San Francisco, Cal. Dental elevator	663,008	Dec. 4	299	64	93	1782
Döderlein, Gustav, Carlsruhe, Germany. Regenerating and filtering apparatus for salt solutions in refrigerating or ice-making machines	664,387	Dec. 25	2735	622	93	2337
Dodge, Avery B., assignor to Dodge Needle Company, Manchester, N. H. Knitting-machine needle	664,808	Dec. 25	3567	812	93	2506
Dodge, Edmund R. (See Burr, Edgar, assignor.)						
Dodge, Nathaniel B., Fitchburg, Mass. Injector	660,182	Oct. 23	2741	610	93	601
Dodge, Nathaniel B., Fitchburg, Mass. Injector. (Reissue)	11,877	Dec. 11	1729	386	93	2087
Dodge Needle Company. (See Dodge, Avery B., assignor.)						
Dodshon, Frederick G., assignor to J. A. Sommers, Hamilton, Ohio. Apparel-coat	660,985	Oct. 30	4190	942	93	904
Doehring, Charles F. W., Philadelphia, assignor of one-half to G. H. Dunsford, Lafayette, Pa. Hose-truck	664,240	Dec. 18	2442	556	93	2253
Doelp, John L., New Martinsville, W. Va. Nut-lock	659,215	Oct. 9	912	213	93	201
Doherty, John. (See Flesche, Hall, and Doherty.)						
Doig, Emma, executrix. (See Doig, William S.)						
Doig, William S., deceased, New York, N. Y.; E. Doig, executrix. Box-making machine	663,223	Dec. 4	587	127 128	93	1836
Dolph, Andrew W., Cherokee, Iowa. Churn	661,793	Nov. 13	1395	336	93	1243
Dolson, John L., Charlotte, Mich. Vehicle-axle	662,777	Nov. 27	3270	772	93	1646
Dolter, Henri, Paris, France. Apparatus for electric traction	662,921	Dec. 4	42	10, 11	93	1734
Dom, Alexander. (See Tobey and Dom.)						
Donaldson, Arthur B., Dunseith, N. D. Armor-plate	663,961	Dec. 18	1963	439	93	2152
Donaldson, William H., Chicago, Ill. Invalid-bed	662,487	Nov. 27	2737	650	93	1545
Donaldson, William R., *et al.* (See Worth, William O., assignor.)						
Donally, Amalia M. (See Donally, Melvin E., assignor.)						
Donally, Melvin E., assignor to A. M. Donally, New York, N. Y. Bottle-washer	659,167	Oct. 2	790	191 192	93	159
Donnelly, Bertram C. (See Bulock and Donnelly.)						
Donnelly, Joseph C., Philadelphia, Pa. Machine for making wax matches	658,764	Oct. 2	32	6, 7	93	10
Donovan, Horace H., Abington, Mass. Lasting-machine	663,331	Dec. 4	788	169	93	1875
Dooley, Thomas B., Malden, Mass. Antifriction-bearing	662,373	Nov. 20	2480	597	93	1475
Dooley, Thomas B., Malden, Mass. Antifriction-bearing	662,374	Nov. 20	2482	597	93	1475
Dooley, Thomas B., Malden, Mass., assignor to E. D. Wiggin, trustee. Motor-vehicle	662,372	Nov. 20	2477	596 597	93	1475
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Apparatus for making castings	660,369	Oct. 23	3112	689	93	675
Doran, Percy J., Chicago, Ill. Adjustable shade-roller support	661,168	Nov. 6	257	62	93	1003
Doremus, Charles A., New York, N. Y. Treating kryolith	660,094	Oct. 23	2549		93	563
Dorman, Dennie M., Binghamton, N. Y. Acetylene-gas generator	664,731	Dec. 25	3399	773	93	2473
Dornfeld, John F., assignor of one-half to F. B. Giesler, Milwaukee, Wis. Malting-drum	662,398	Nov. 27	2537	614	93	1504
Dorris, George P., St. Louis, Mo. Gearing for motor-vehicles	664,809	Dec. 25	3569	812 813	93	2506
Dorval, Wilbrod, Binghamton, N. Y. Filter	660,151	Oct. 23	2667	595 596	93	586
Doty, Louis M. and M. F., Austin, Ill. Safety appliance for elevators	664,133	Dec. 18	2259	513	93	2214
Doty, Maurice F. (See Doty, Louis M. and M. F.)						
Doubler, Lola N., Milton, Pa. Apparatus for cooking and steaming meats, vegetables, &c.	659,137	Oct. 2	737	178	93	149

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Doughty, John G., Winsted, assignor of one-half to W. E. Simonds, Canton, Conn. Oil-filter	661,758	Nov. 13	1326	332	93	1230
Dougill, John, Manchester, England. Internal-combustion engine	664,134	Dec. 18	2261	518	93	2214
Douglas, Anderson J. (See Ong and Douglas.)						
Douglas, Emma S. (See Schulze, Andrew, assignor.)						
Douglas, James, New York, N. Y. Extracting copper	664,537	Dec. 25	3024	688	93	2302
Dover, Charlotte C. (See Sargent and Dover.)						
Dow, Alexander, New York, N. Y. Type-grab	658,944	Oct. 2	409	98	93	83
Dow, Charles A., *et al.* (See Knowles, Joseph H., assignor.)						
Dowdell, Arthur B. C., St. Helena, Cal. Apparatus for aging wines or liquors	664,538	Dec. 25	3025	688	93	2302
Dowling, Charles B., and W. D. Durham, Swansea, S. C. Dental chair	659,216	Oct. 9	918	214	93	201
Dowling, Charles J., Chapman, Kans. Automatic pump for bicycles	659,653	Oct. 16	1679	379	93	371
Downey, Richard F., assignor of four-fifths to M. A. Burns and A. Dudly, Menominee, Mich. Wrench	659,293	Oct. 9	1032	242	93	224
Downey, Richard F., Menominee, Mich., assignor to Automatic Bowling Alley Company, of Michigan. Tenpin-alley	664,016	Dec. 18	2057	466 467	93	2173
Downie, James H., Detroit, Mich. Clamping device	662,638	Nov. 27	2999	710	93	1505
Downie, John S., Detroit, Mich. Manuscript-holder	659,056	Oct. 2	608	147	93	122
Downing, William H., Wittens, Ohio. Gas-regulator for steam-boilers	663,158	Dec. 4	475	101	93	1816
Dowse, William B. H., Newton, Mass. Fastener	664,242	Dec. 18	2444	556	93	2254
Dowse, William B. H., Newton, Mass. Forming sockets of separable fasteners for gloves, &c.	664,243	Dec. 18	2445	557	93	2254
Doyen, Eugène L., Paris, France. Apparatus for inducing artificial respiration	659,512	Oct. 9	1419	322	93	303
Doyen, Eugène L., Paris, France. Shutter adapted for use in apparatus for exhibiting or viewing animated pictures	660,006	Oct. 16	2354	529	93	505
Doyle, James, Pittsburg, Pa. Serving apparatus for dining-rooms	659,057	Oct. 2	610	147 148	93	122
Drake, Clarke S. and H. F., Milwaukee, Wis. Vehicle	658,834	Oct. 2	211	52	93	46
Drake, Harry F. (See Drake, Clarke S. and H. F.)						
Drake, Thomas F., Rohrsburg, Pa. Farrier's implement	661,733	Nov. 13	1279	310	93	1220
Draper Company. (See Cunniff and Draper, assignors.)						
Draper Company. (See Day, Charles M., assignor.)						
Draper Company. (See Draper, George O., assignor.)						
Draper Company. (See Edmands, Artemas B., assignor.)						
Draper Company. (See Edwards, John C., assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper Company. (See Stimpson, Edward S., assignor.)						
Draper Company. (See Stimpson, Edward S. and W. L., assignors.)						
Draper Company. (See Sullivan and Draper, assignors.)						
Draper, Francis M., Dana, Ind. Acetylene-gas generator	658,835	Oct. 2	213	52, 53	93	46
Draper, George O. (See Cunniff and Draper.)						
Draper, George O. (See Sullivan and Draper.)						
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,623	Oct. 30	3554	798	93	778
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,624	Oct. 30	3556	798	93	779
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,625	Oct. 30	3557	799	93	779
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,626	Oct. 30	3559	799	93	779
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,627	Oct. 30	3560	799	93	780
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Yarn spinning or twisting apparatus	660,628	Oct. 30	3561	799	93	780
Draper, George O., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Spinning apparatus	663,738	Dec. 11	1516	337	93	2099
Dravo, Charles M., and T. B. Miller, McKeesport, Pa. Locking-cover for milk-cans	662,778	Nov. 27	3271	772	93	1646
Drennan, Alexander, A. Smith, and A. Graham, Bodie, Cal. Removable ventilating pitcher-cover	660,870	Oct. 23	3115	690	93	675
Dreser, Heinrich. (See Bonhoeffer and Dreser.)						
Dresser, Charles A. assignor to G. A. E. and F. W. Kohler, Chicago, Ill. Controller for electric motors	663,491	Dec. 11	1086	238	93	1955
Dresser, Solomon R., Bradford, Pa. Pipe-coupling	659,888	Oct. 16	2129	480	93	457
Drew, Charles E., Philadelphia, Pa., assignor to Friedberger Manufacturing Company, of Pennsylvania. Lace-knitting machine	660,053	Oct. 16	2437	549 550	93	518
Driggs, William H., Washington, D. C. Gun-mount	664,732	Dec. 25	3401	773 774	93	2473
Dring, John, and T. L. Mitchelmore, London, England. Velocipede-brake	659,138	Oct. 2	739	178	93	149
Droege, George H., New York, N. Y. Coffee-mill	660,007	Oct. 16	2355	530	93	505
Drösse, Hermann, Charlottenburg, Germany. Shaving apparatus	664,388	Dec. 25	2736	622	93	2337
Drummond, Thomas J. (See Martin, Morris, assignor.)						
Drury, Clinton H., *et al.* (See Hayes, Porter C., assignor.)						
Drysdale, Alexander T., Bessemer, Ala. Tobacco-stemming machine	664,389	Dec. 25	2738	622 623	93	2337
Du Bois, Benjamin F., New York, N. Y. Traveling-bag fastener	658,945	Oct. 2	410	99	93	84
Du Bois, Frank C., *et al.* (See Weeks, Hubbard F., assignor.)						
Du Brul, Ernest F., assignor to Miller, Du Brul & Peters Manufacturing Company, Cincinnati, Ohio. Ordering book or card for cigar-molds	663,382	Dec. 4	791	170	93	1875
Du Pont, Antoine B., Detroit, Mich., assignor to Lorain Steel Company, of Pennsylvania. Car-truck	661,962	Nov. 20	1704	412	93	1323
Dubus, Armand P., New Orleans, La. Square	659,518	Oct. 9	1421	322	93	303
Duchscher, Peter, Chicago, Ill. Mechanical movement	662,061	Nov. 20	1992	456 457	93	1360
Dudeck, Hugo, Risedorf, Germany. Stamping-press	661,794	Nov. 13	1396	336	93	1243
Dudgeon, Thomas M., Crafton, assignor to Pittsburg Stove and Range Company, Pittsburg, Pa. Gas-stove	663,811	Dec. 11	1670	373	93	2073
Dudley, William B., Hot Springs, S. D. Branding-iron	662,922	Dec. 4	44	11	93	1734
Dudly, Albert, *et al.* (See Downey, Richard F., assignor.)						
Duff, Edward J., Liverpool, England. Gas-producer	662,923	Dec. 4	45	11	93	1735
Duff, Edward J., assignor of one-half to United Alkali Company, Limited, Liverpool, England. Gas-producer	661,445	Nov. 6	748	175	93	1101
Duff, Edward J., assignor of one-half to United Alkali Company, Limited, Liverpool, England. Vacuum-pan	661,929	Nov. 13	1627	393	93	1986
Duff, Edward J., assignor of one-half to United Alkali Company, Limited, Liverpool, England. Steam-superheater for gas-producers	662,002	Nov. 20	1904	457	93	1360

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Duff, Edward J., assignor to United Alkali Company, Limited, Liverpool, England. Multiple-effect evaporating apparatus	662,399	Nov. 27	2540	614	93	1505
Duffy, Edward S., Chicago, Ill. Sink-strainer	659,514	Oct. 9	1422	322	93	303
Duffy, John, Grand Rapids, Mich. Sash-pulley	660,629	Oct. 30	3502	800	93	780
Duffy, Joseph, Paterson, N. J. Silk-doubler	661,209	Nov. 6	325	79	93	1017
Duffy, Thomas I., assignor to Morgan & Wright, Chicago, Ill. Saddle for bicycles, &c.	658,980	Oct. 2	467	111 112	93	94
Duffy, Thomas I., and C. S. McMahan, Chicago, Ill.; said Duffy assignor to said McMahan. Trolley-wheel	661,600	Nov. 13	1087	259	93	1173
Dufour, Corinne, Savannah, Ga. Electric sweeper and dust-gatherer	664,185	Dec. 18	2263	514	93	2215
Dugon, Charles, Lyons, France. Machine for cutting glass	662,924	Dec. 4	46	12	93	1735
Dull, Thompson A., assignor of one-half to H. S. Fischer, Chicago, Ill. Vehicle	660,291	Oct. 23	2957	658	93	645
Dulles, William, Jr. (See Crissy and Dulles.)						
Duncan, John H. H., and H. T. Barnett, London, England. Incandescent structure suitable for lighting	659,515	Oct. 9	1424	.....	93	304
Duncan, John R., assignor of five-eighths to C. F. Darnell and C. A. Schmidt, Indianapolis, Ind. Electric welding-tongs	660,152	Oct. 23	2670	596	93	587
Duncan, Perry R., assignor of one-half to D. J. Cahill, Cleveland, Ohio. Mechanism for manufacturing rivets	658,836	Oct. 2	215	53, 54	93	46
Duncan, Walter, assignor of one-half to A. H. Hedley, Los Angeles, Cal. Underreamer.	662,895	Nov. 27	3559	834	93	1710
Duncan, William A. (See Whitely and Duncan.)						
Dundon, John, Cork, Ireland. Coin-controlled race game	663,159	Dec. 4	477	101 102	93	1816
Dunham, George, Unionville, Conn. Machine for making nuts	658,981	Oct. 2	468	112 113	93	94
Dunham, William G. (See Born and Dunham.)						
Dunlap, John J., Canton, Ohio. Incandescent vapor-burner	660,528	Oct. 23	3393	762	93	730
Dunlap, John S., Chicago, Ill. Alcohol-stove	663,160	Dec. 4	479	102	93	1817
Dunlop, John B. and John B., Jr., Dublin, Ireland. Chain adjustment for cycles	663,962	Dec. 18	1954	439 440	93	2152
Dunn, Claude A., assignor to Automatic Railway Switch Company, Denver, Colo. Railway-switch	663,872	Dec. 18	1781	399	93	2118
Dunn, Frederick C., Chicago, Ill. Reversible window-sash	659,654	Oct. 16	1682	380	93	371
Dunn, Gano S., East Orange, N. J., assignor to Crocker-Wheeler Company, of New Jersey. Multiple-voltage controller	662,375	Nov. 20	2483	598	93	1476
Dunn, Henry C., Erie, Pa. Brick-kiln	664,136	Dec. 18	2264	514 515	93	2215
Dunne, Matthew E., New York, N. Y. Street conduit or subway	660,540	Oct. 23	3416	767	93	734
Dunning, William E., Fremont, Ohio. File-box	660,811	Oct. 30	3895	875	93	844
Dunsford, George H. (See Doehring, Charles F. W., assignor.)						
Duplanti, Joseph M., Bellevue, Pa. Music-leaf turner	660,630	Oct. 30	3564	800	93	780
Duquesnoy, Jules, Paris, France. Making artificial silk thread	663,739	Dec. 11	1517	.....	93	2040
Durand, Huguenin & Co., L. (See De la Harpe, Charles, assignor.)						
Durchholz, George, Greeley, Colo. Railway-switch	659,516	Oct. 9	1426	323	93	304
Durey, Camille, Paris, France. Hydraulic brake for railway or tramway vehicles	659,517	Oct. 9	1428	323 324	93	304
Durgin, Alfred B., Medford, Mass. Comb-brush	660,893	Oct. 30	4044	906	93	874
Durham, Benjamin F., assignor to United States Canopy Company, Knoxville, Tenn. Clamp or bracket	664,390	Dec. 25	2740	623	93	2398
Durham, William D. (See Dowling and Durham.)						
Durkee, George B., Chicago, Ill. Piano	660,183	Oct. 23	2744	610	93	602
Durkel, Carl C., Richmond, Ind. Mat-cutter	660,211	Oct. 23	2862	621	93	613
Dürr, Fritz, Berlin, Germany. Gasifying apparatus for explosive-engines	660,262	Oct. 23	2958	658	93	645
Dürr, Gustav, Dusseldorf, Germany. Steam-generator	659,217	Oct. 9	915	214	93	202
Dürr, Ludwig, Bremen, Germany. Vapor-burner	661,696	Nov. 13	1101	273	93	1186
Durst, Theodore H. (See Grosse and Lintz, assignors.)						
Duryea, Elva J., Dawson, Nebr. Finder for firearms	663,333	Dec. 4	793	170	93	1876
Duryea, James F., Springfield, Mass., assignor to United Power Vehicle Company, New York, N. Y. Steam-boiler feeder	663,828	Dec. 11	1701	381	93	2080
Duryea, James F., Springfield, Mass., assignor to United Power Vehicle Company, New York, N. Y. Throttle-valve for steam-engines	663,829	Dec. 11	1704	382	93	2081
Dussault, Napoleon, assignor to J. Adam, Montreal, Canada. Hand lasting-tool	658,765	Oct. 2	39	7, 8	93	11
Dussault, Napoleon, assignor to J. Adam, Montreal, Canada. Hand lasting-tool	658,766	Oct. 2	42	9, 10	93	12
Dutton, Charles O., Lachine, Canada. Life-saving corset	660,420	Oct. 23	3199	711	93	693
Dutton, William H. (See Booth, Albert C., assignor.)						
Duttweiler, Albert M., Cambridge City, Ind. Game apparatus	663,334	Dec. 4	794	170	93	1876
Duval, Martin L. E., assignor to La Compagnie de Fives Lille, Paris, France. Automatic brake for railways	658,767	Oct. 2	45	10	93	12
Dwyer, John A., and L. Whittaker, South Norwalk, Conn. Strainer for hatters' tanks	662,259	Nov. 20	2272	546	93	1433
Dyarman, George W., Columbus, Ohio. Paving or flooring construction	661,336	Nov. 6	570	131	93	1064
Dyekhoff, Frédéric C., Bar-le-Duc, France, assignor to Diesel Motor Company of America, of New York. Valve-gear for explosive-engines	661,339	Nov. 6	622	144 145	93	1076
Dye Works, formerly L. Durand, Huguenin & Co. (See De la Harpe, Charles, assignor.)						
Dye-Works, formerly L. Durand, Huguenin & Co. (See De la Harpe, Vaucher, and Loré-tan, assignors.)						
Dyer, Ernest E., assignor of one-third to E. H. Stroud, Chicago, Ill. Skirt-supporter	661,012	Oct. 30	4252	955	93	915
Dyer, Frank L. (See Dyer, Leonard H., assignor.)						
Dyer, Frank L., Montclair, N. J. Friction-clutch	661,117	Nov. 6	163	41	93	985
Dyer, Frank L., Washington, D. C., assignor to American Cotton Company, New York, N. Y. Apparatus for baling cotton	662,688	Nov. 27	3102	732 733	93	1615
Dyer, Frank L., Montclair, N. J., assignor to American Cotton Company, New York, N. Y. Core for cylindrical baling-presses	662,689	Nov. 27	3104	733	93	1615
Dyer, Henry, Chicago, Ill. Compound bicycle-gear	660,547	Oct. 23	3427	769	93	736
Dyer, Leonard H., Washington, D. C., assignor of one-fourth to F. L. Dyer, Montclair, N. J. Gearing for automobile vehicles	662,400	Nov. 27	2541	614 615	93	1505
Dyer, Leonard H., Washington, D. C., assignor of one-fourth to F. L. Dyer, Montclair, N. J. Gearing for automobile vehicles	662,401	Nov. 27	2545	615	93	1506
Dyler, John J. (See Clark and Dyler.)						
E. & A. H. Batcheller Company. (See Woods, Calvin W., assignor.)						
E. Bement's Sons. (See Hendon, Walter P., assignor.)						
E. D. Jones & Sons Company. (See Torrance, Charles E., assignor.)						
E. F. W. Meier China and Glass Company. (See Garesché, Arthur F., assignor.)						
E. Green & Son. (See Hulse, William W., assignor.)						
E. & T. Fairbanks & Company. (See Boggs, Edward B., assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Eagen, James, Wyoming, Pa. Coal or rock drill	659,139	Oct. 2	741	179	93	150

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Eagle Pencil Company. (See Kraus, Samuel, assignor.)						
Earl, Willard, Ontario Centre, N. Y. Nipple-wrench	664,244	Dec. 18	2446	557	93	2254
Earl, William H., Painesville, Ohio. Trolley for electric cars	663,740	Dec. 11	1518	338	93	2040
Earle, James T. (See Ross, Earle, Good, and Redmon.)						
Easterbee, George, Portland, Oreg. Coin-controlled mechanism for dispensing newspapers	659,140	Oct. 2	743	179	93	150
Eastman, Charles R. (See Eastman, Joel A., assignor.)						
Eastman, Ernest A. (See Specht, Eugene T., assignor.)						
Eastman, George, assignor to Eastman Kodak Company, Rochester, N. Y. Roll-holding camera	661,469	Nov. 6	793	189	93	1110
Eastman, Joel A., assignor to C. R. Eastman, Fruitvale, Cal. Lock	664,245	Dec. 18	2447	557	93	2254
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Eastman Kodak Company. (See Eastman, George, assignor.)						
Eastman Kodak Company. (See Ehlman, Mathias J., assignor.)						
Eastwood, Arthur C., Ensley, Ala., assignor to Electric Controller and Supply Company, Cleveland, Ohio. Controlling-brake for motors	660,054	Oct. 16	2430	550	93	519
Eastwood, David S., and N. H. Normand, New Bedford, assignors, by mesne assignments, to National Flax Fibre Company, Boston, Mass. Flax-machine	659,342	Oct. 9	1093	257	93	286
Eaton, Ethan W., Socorro, N. Mex. Ter. Ore washer and separator	659,813	Oct. 16	2004	449	93	433
Eaton & Glover Company. (See Eaton, William S., assignor.)						
Eaton, Harrison H., Cleveland, Ohio, assignor to United Shoe Machinery Company, Paterson, N. J. Lacing-hook for shoes. (Reissue)	11,874	Nov. 27	3583	838	93	1714
Eaton, Howard F., Quincy, Mass. Control apparatus for electric carriages	659,729	Oct. 16	1826	412 413	93	399
Eaton, Matthias B., Boston, Mass. Track-clearer	659,294	Oct. 9	1033	242	93	224
Eaton, Matthias B., Boston, Mass. Forming ice	663,426	Dec. 11	977	212	93	1935
Eaton, William S., Sag Harbor, N. Y. Engraving-machine	660,790	Oct. 30	3857	867	93	836
Eaton, William S., Sag Harbor, assignor to Eaton & Glover Company, New York, N. Y. Engraving-machine	663,563	Dec. 11	1208	263	93	1978
Eaton, Wyman, and M. Boland, Dolgeville, assignors to American Felt Company, New York, N. Y. Gluing-press	661,398	Nov. 6	669	156	93	1086
Eberhardt, Theophilus C., Prattville, Ala. Feeder and cleaner for cotton-gins	661,503	Nov. 13	852	204 205	93	1186
Eberlein, Charley O., assignor to himself and M. G. Eberlein, Shawano, Wis. Corn-cutter	664,627	Dec. 25	3206	727	93	2431
Eberlein, Michael G. (See Eberlein, Charley O., assignor.)						
Ecaubert, Frederic, New York, N. Y. Dredging apparatus	664,628	Dec. 25	3206	727	93	2431
Echelbarger, Charles F., assignor of one-half to S. Mayne, Bancroft, Iowa. Pump-jack	658,768	Oct. 2	46	11	93	13
Eclipse Stopper Company. (See Phillips, Darius T., assignor.)						
Eddy, Ida D., Quincy, Ill. Invalid-bedstead	663,427	Dec. 11	979	212	93	1935
Ede, Edgar F., Hartford, Conn. Clothes-drying apparatus	663,873	Dec. 18	1783	399	93	2118
Edey, Charles E. C., Tacoma, Wash. Car-coupling	660,491	Oct. 23	3323	745	93	716
Edge, Selwyn F. (See Napier, Montague S., assignor.)						
Edison, Thomas A., Llewellyn Park, N. J. Electric meter	659,389	Oct. 9	1174	272 273	93	255
Edison, Thomas A., Llewellyn Park, N. J. Electric meter	660,293	Oct. 23	2960	658	93	645
Edison, Thomas A., Llewellyn Park, N. J. Apparatus for sampling, averaging, mixing, and storing materials in bulk	660,845	Oct. 30	3967	888 889	93	859
Edison, Thomas A., Llewellyn Park, N. J. Machine for forming pulverized material into briquets	661,228	Nov. 6	378	90, 91	93	1028
Edison, Thomas A., Llewellyn Park, N. J. Sampling, averaging, mixing, and storing materials in bulk	662,063	Nov. 20	1905	457 458	93	1860
Edison, Thomas A., Llewellyn Park, N. J. Electric meter	663,015	Dec. 4	211	46	93	1766
Edlen, Emil A., Moline, Ill. Surgeon's case	659,058	Oct. 2	612	148	93	123
Edmands, Artemas B., Milford, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Shuttle-positioning mechanism for looms	660,986	Oct. 30	4191	942	93	904
Edser, Edwin, London, England. Apparatus for electrolytic decomposition of alkaline salts	659,655	Oct. 16	1683	380 381	93	371
Edson, Eugene R., assignor to Buckeye Fish Company, Cleveland, Ohio. Making gelatin	662,402	Nov. 27	2548	616	93	1507
Edson, Eugene R., assignor to Buckeye Fish Company, Cleveland, Ohio. Rendering apparatus	662,403	Nov. 27	2550	616	93	1507
Edson, Eugene R., assignor to Buckeye Fish Company, Cleveland, Ohio. Extracting oil	662,404	Nov. 27	2556	616	93	1509
Edson, Eugene R., assignor to Buckeye Fish Company, Cleveland, Ohio. Making gelatin	662,405	Nov. 27	2559	617	93	1509
Edson, Eugene R., assignor to Buckeye Fish Company, Cleveland, Ohio. Extracting oil and glue	662,406	Nov. 27	2565	617	93	1510
Edward Miller & Company. (See Williams, Frank T., assignor.)						
Edward P. Allis Company. (See Gray, William D., assignor.)						
Edwards, Arthur M., Newark, N. J. Manufacturing coke	664,017	Dec. 18	2059	467	93	2173
Edwards, Charles B., Weymouth, Mass. Feed-water regulator	660,294	Oct. 23	2963	659	93	646
Edwards, Edward D., *et al.* (See Traxler, Charles, assignor.)						
Edwards, Isaac L., Aurora, Ill. Railway-crossing	664,137	Dec. 18	2266	517	93	2215
Edwards, John, Homestead, assignor of one-half to J. Jarrett, Pittsburg, Pa. Automatic car-coupling	660,492	Oct. 23	3324	745 746	93	716
Edwards, John C., Brookline, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Yarn-spinning apparatus	660,631	Oct. 30	3566	800	93	781
Edwards, Oliver M., Syracuse, N. Y. Securing flexible material to window-sashes	661,963	Nov. 20	1705	413	93	1323
Edwards, Thomas C., Philadelphia, Pa. Sad-iron	660,055	Oct. 16	2441	550 551	93	519
Egan, William J., assignor to F. L. Kersten, Milwaukee, Wis. Carbureter	659,488	Oct. 9	1273	208	93	275
Egbert, James H. (See Hickey, John S., assignor.)						
Eggers, Anton C., assignor to Goodyear's India Rubber Glove Manufacturing Company, New York, N. Y. Syringe	659,470	Oct. 9	1331	304	93	286
Eggman, Ezekial A. (See Mills, Jefferson C., assignor.)						
Ehlman, Mathias J., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic-film cartridge	661,504	Nov. 13	856	205	93	1186
Ehmke, Ferdinand, assignor of one-half to D. K. Biehl, Reading, Pa. Tap and die	662,064	Nov. 20	1911	458	93	1362
Ehrensberger, Emil, assignor to F. Krupp, Essen, Germany. Deoxidating metals	660,846	Oct. 30	3972	.....	93	859
Ehrlich, Leo, St. Louis, Mo. Cash-register	659,141	Oct. 2	745	179 180	93	151
Elbig, Paul, assignor to M. Behrendt, Berlin, Germany. Electricity-meter	660,987	Oct. 30	4194	943	93	905
Elchelbaum, Georg, Berlin, Germany. Manufacture of food from yeast	660,008	Oct. 16	2358	.....	93	505
Elchelbaum, Georg, Berlin, Germany. Purifying albumen	662,779	Nov. 27	3273	.....	93	1646
Elchengrün, Arthur, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Company, of New York. Chlormethyl salicylate of thymol	662,116	Nov. 20	2005	.....	93	1379

Alphabetical list of patentees, October to December, inclusive—Continued.

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Eickemeyer, Carl, *et al.*, executors. (See Eickemeyer, Rudolf.)						
Eickemeyer, Mary T., *et al.*, executors. (See Eickemeyer, Rudolf.)						
Eickemeyer, Rudolf, deceased, Yonkers, N. Y., Rudolf, Jr., C., and M. T. Eickemeyer, executors. Converting energy of alternating electric currents into effective mechanical energy	664,733	Dec. 25	3403	774	93	2474
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Purse or bag frame	660,847	Oct. 30	3974	889	93	860
Eigen, Benno vom, assignor to A. Goertz & Co., Newark, N. J. Match-box	660,848	Oct. 30	3978	890	93	861
Einstein, Alfred C., St. Louis, Mo. Acetylene-gas-generating lamp	661,734	Nov. 13	1280	310	93	1221
Eiseman, Benjamin. (See Seaton, Benjamin C., assignor.)						
Eiseman, Moses H., Chicago, Ill. Coin-holder for pocket-books, purses, &c	663,016	Dec. 4	213	46	93	1767
Eisenhuth, John W., assignor, by mesne assignments, to M. G. Read, New York, N. Y. Running-gear for motor-vehicles	661,210	Nov. 6	327	79	93	1017
Eisenhuth, John W., assignor, by mesne assignments, to M. G. Read, New York, N. Y. Motor for vehicles	664,018	Dec. 18	2060	467 468	93	2173
Eisner, Daniel, San Francisco, Cal., assignor of one-half to J. J. Justice, New York, N. Y. Folding bed	664,539	Dec. 25	3026	689	93	2393
Ekelund, John A., assignor of one-third to A. Peterson, Minneapolis, Minn. Folding umbrella	661,169	Nov. 6	258	63	93	1008
Eklund, John, *et al.* (See Brown, Norman E., assignor.)						
Elam, John E., Whitehaven, Tenn. Pump	661,259	Nov. 6	425	99	93	1036
Elam, John E., Oakville, Tenn. Harness-connector	661,288	Nov. 6	474	108	93	1046
Elbel, Karl, and I. Rosenberg, assignors to Kalle & Co., Biebrich, Germany. Brown sulfur dye and making same	661,907	Nov. 13	1586	------	93	1279
Elder, Edward H., assignor to J. Stevens Arms and Tool Company, Chicopee, Mass. Extractor mechanism for firearms	663,604	Dec. 11	1273	281	93	1998
Elder, Edward H., assignor to J. Stevens Arms and Tool Company, Chicopee, Mass. Ejector mechanism for guns	663,830	Dec. 11	1708	382	93	2082
Eldredge, Albert H., Ware, Mass. Oar and rowlock connection	662,227	Nov. 20	2227	536	93	1424
Eldredge, Francies E. (See Bruns and Eldredge.)						
Electric Controller and Supply Company. (See Eastwood, Arthur C., assignor.)						
Electric Lighting Boards. (See Greil and Audiger, assignors.)						
Electric Tripartite Steel Pole Company. (See Serrell, Edward W., assignor.)						
Electrical Undertakings. (See Leitner, Henry, assignor.)	663,263	Dec. 4	675	145	93	1853
Elenius, August, Calumet, Mich. Winding-indicator for timepieces	659,218	Oct. 9	915	214	93	202
Elias, Abraham J., Buffalo, N. Y. Return-letter sheet	661,735	Nov. 13	1281	310 311	93	1221
Elick, John H., Decatur, Ind. Corn-harvester	662,527	Nov. 27	2810	666 667	93	1559
Ellicott, Edward B., assignor to Western Electric Company, Chicago, Ill. Telegraph signaling apparatus	664,391	Dec. 25	2742	623 624	93	2338
Ellicott, Francis, Baltimore, Md. Turbine water-wheel	664,392	Dec. 25	2744	624	93	2339
Ellicott, Francis, Baltimore County, Md. Centrifugal governor	664,393	Dec. 25	2748	624 625	93	2339
Ellicott, Francis, Baltimore County, Md. Turbine water-wheel	664,394	Dec. 25	2752	625 626	93	2340
Ellicott, Joseph R., *et al.* (See Normand, Joseph E., assignor.)						
Ellinwood, Augustus E., assignor to Goodyear Tire and Rubber Company, Akron, Ohio. Air-extractor for pneumatic tires in construction	659,730	Oct. 16	1829	414	93	400
Elliott, Alexander, and M. Shaen, Washington, D. C. Type-holder	660,056	Oct. 16	2443	551	93	520
Elliott & Hatch Book Typewriter Company. (See Hillard, Frederic W., assignor.)						
Elliott & Hatch Book Typewriter Company. (See Hopkins, Edward A., assignor.)						
Elliott, Joseph V., Santa Barbara, and C. Idlor, San Francisco, Cal. Bath-cabinet	659,366	Oct. 9	1135	265	93	246
Elliott, McDonald, Santa Rosa, Cal. Acetylene-gas apparatus	659,795	Oct. 16	1976	443	93	427
Elliott, Thomas, Dallas, Oreg. Band-cutter and feeder	660,632	Oct. 30	3567	800 801	93	781
Ellis, Charles S., assignor to Doan & Gates Company, Chicago, Ill. Dies for making upholsterers' buttons	661,239	Nov. 6	385	91	93	1029
Ellis, Robert M., Martin, Tenn. Non-refillable bottle	661,044	Nov. 6	28	7	93	956
Ellis, William F., New York, N. Y. Potato-harvester	661,170	Nov. 6	260	63, 64	93	1004
Ellis, Wilson R., Livermore, Cal. Candle	664,246	Dec. 18	2449	557	93	2255
Ellison William G. H., *et al.* (See Jones, Henry, assignor.)						
Ellsworth, Charles T., Forest City, Iowa. Kinetoscope	661,795	Nov. 13	1397	336	93	1243
Elmira Skirt Company. (See Feuchtwanger, Henry J., assignor.)						
Elstner, Charles E., Los Angeles, Cal. Hotel-register	664,138	Dec. 18	2267	516	93	2216
Elston, Robert W., Charlevoix, Mich. Driving-gear for motor-vehicles	661,964	Nov. 20	1709	413	93	1324
Ely, Charles E., Peebles, Ohio. Music-holder	661,240	Nov. 6	387	91	93	1029
Ely, Thomas L. (See Taylor, David J., assignor.)						
Emerick, Frederick A. (See Estes and Emerick.)						
Emerick, Frederick A., Oswego, N. Y., assignor to Great Bear Spring Company, Jersey City, N. J. Dispensing device for water-coolers	662,168	Nov. 20	2099	508	93	1399
Emerson Manufacturing Company. (See Traphagen, William H., assignor.)						
Emerson Manufacturing Company. (See Waterman, Lewis E., assignor.)						
Emerson, Victor L., Baltimore, Md., and W. R. Emerson, Washington, D. C. Obtaining calcium acetate	662,780	Nov. 27	3274	773	93	1646
Emerson, William R. (See Emerson, Victor L. and W. R.)						
Emery, Charles H. (See Sears, William A., Jr., assignor.)						
Emery, William E. (See Wood and Emery.)						
Emgarth, Victor E., Philadelphia, Pa. Rotary reciprocating pumping apparatus	660,681	Oct. 30	3664	823	93	799
Emmerson, George W., and J. Ward, Newcastle-upon-Tyne, England. Crucible-furnace	664,248	Dec. 18	2453	558	93	2256
Emmet, William L. R., Schenectady, N. Y., assignor to General Electric Company, of New York. Operating dynamo-electric machines	664,077	Dec. 18	2147	491	93	2191
Emmons, Grosvenor B. (See Mills, Francis A., assignor.)						
Emringer, Jules, and P. E. Marchand, Paris, France. Apparatus for inflating pneumatic tires	661,399	Nov. 6	671	156	93	1086
Engberg, Carl St. Joseph, Mich., assignor to American Mercantile Company, Dayton, Ohio. Machine for making dishes or trays from veneer-wood	664,540	Dec. 25	3028	689 690	93	2293
Engel, Franz. (See Wysgalla and Engel.)	659,059	Oct. 2	613	148	93	123
Engelhardt, Frederick C., New York, N. Y. Combination-tool	664,019	Dec. 18	2063	468	93	2174
Engels, Emil, Engelskirchen, Germany. Water-gage						
Engle, Perry, *et al.* (See Upham, Frank D., assignor.)						
Ennis, Henry J., Washington, D. C., assignor to G. McGovern, Richmond, Va. Life-preserver	664,395	Dec. 25	2750	626	93	2342
Ennis, Thomas A. (See McIntyre, Joseph J., assignor.)	661,965	Nov. 20	1713	413	93	1324
Enlind, Kanute A., Naugatuck, Conn. Non-slipping rubber tire	663,874	Dec. 18	1784	409	93	2118
Ensley, Joseph W., Trinway, Ohio. Napkin-holder						

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Enterprise Manufacturing Company of Pennsylvania. (See Chase, Frank H., assignor.)						
Enterprise Manufacturing Company of Pennsylvania. (See Leidy, Sylvester B., assignor.)	660,849	Oct. 30	3980	890	93	861
Entwistle, William I., Philadelphia, Pa. Lock strike and alarm	658,892	Oct. 2	306	75	93	63
Entz, Justus B., Philadelphia, Pa. Canal-boat propulsion	11,859	Oct. 2	873	207 208	93	173
Entz, Justus B., Philadelphia, Pa., assignor to General Electric Company, of New York. Electric railway. (Reissue)	664,247	Dec. 18	2450	558	93	2255
Entz, Justus B., Philadelphia, assignor of one-half to G. F. Greenwood, Allegheny, Pa. Dynamo-electric machine	662,559	Nov. 27	2803	680	93	1569
Erb, William B., Chicago, Ill. Dry-pipe valve						
Erdmann, Ernst. (See Erdmann, Hugo and E.)						
Erdmann, Hugo and E., Halle-on-the-Saale, assignors to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Methyl ether of anthranilic acid and making same	658,709	Oct. 2	49	------	93	13
Erikson, Laurence, Evanston, Ill. Balance-escapement	664,734	Dec. 25	3409	775	93	2475
Erikson, Leonard, Boston, Mass. Illuminating device	661,505	Nov. 13	859	205	93	1137
Erkenswick, Hubert J., Chicago, Ill. Construction for fancy boxes	664,471	Dec. 25	2906	662 663	93	2369
Ermold, Edward, New York, N. Y. Envelop-machine	659,960	Oct. 16	2279	511	93	489
Ernst, George L., assignor to Davidson-Martin Manufacturing Company, Port Huron, Mich. Purifier, separator, and grader	658,837	Oct. 2	218	54	93	47
Ernst, Joseph, Urbana, Iowa. Blast-regulator for threshing-machines	661,138	Nov. 6	205	52	93	998
Ernst, Victor H., Jersey City, N. J. Oiling device	660,894	Oct. 30	4045	906	93	874
Ernst, William M., New York, N. Y., assignor, by mesne assignments, to Phœnix Investment Company, of Delaware. Pulverizer	661,796	Nov. 13	1398	337	93	1243
Errick, Frank J., North Tonawanda, and F. X. Batt, Tonawanda, N. Y. Bicycle-lock	659,489	Oct. 9	1275	294	93	275
Ertsman, Emanuel E., Chicago, Ill. Syringe	660,212	Oct. 23	2803	621	93	613
Ertsman, Emanuel E., Chicago, Ill. Embalming apparatus	661,118	Nov. 6	165	41	93	985
Ervin, Oscar L., assignor of two-thirds to E. J. and D. Cook, Plano, Ill. Mower	660,153	Oct. 23	2671	596	93	587
Escher, Gustave E., New York, N. Y. Beam-hanger	662,228	Nov. 20	2228	536	93	1424
Eshlman, Irvin J. (See Kinley and Eshliman.)						
Esmond, William V., assignor, by mesne assignments, to Moving Picture Camera Company, Chicago, Ill. Kinetographic camera	661,119	Nov. 6	167	42	93	986
Essig, James M., Poe, Ind. Weeder	660,095	Oct. 23	2551	570	93	563
Essner, John F., and J. K. Love, Newark, N. J. Tripod	663,535	Dec. 11	1166	252	93	1970
Estabrook, Henry G. (See Spink and Estabrook.)						
Estell, Samuel F., Chicago, Ill. Car-seal	660,850	Oct. 30	3981	890	93	861
Estes, Eldridge W., Hoboken, N. J., and F. A. Emerick, Oswego, N. Y., assignors to Great Bear Spring Company, Jersey City, N. J. Bottle-cooler	661,308	Nov. 6	513	119	93	1053
Estlack, Thomas, Thorofare, N. J. Plant cutter and lifter	659,518	Oct. 9	1431	324	93	305
Esty, William, Laconia, N. H. Wheel	662,594	Nov. 27	2928	695	93	1581
Ettinger, Harry C. (See Lofy and Ettinger.)						
Eureka Coat Pad Company. (See Löwenthal, Isidore, assignor.)	660,791	Oct 30	3858	867	93	836
Eustis, John P., Newton, Mass. Tea or coffee pot strainer						
Evans, Amos E. (See Thompson and Evans.)						
Evans, Charles J. (See Wilson and Evans.)	660,496	Oct. 23	3326	746	93	717
Evans, Enoch B., Benning, D. C. Soft-tread horseshoe	660,494	Oct. 23	3327	746	93	717
Evans, Enoch B., Washington, D. C. Halter	660,752	Oct. 30	3784	852	93	824
Evans, Herbert S., Boston, Mass. Skate	659,295	Oct. 9	1034	243	93	224
Evans, James M., Chicago, Ill. Rotary engine	660,495	Oct. 23	3328	746	93	717
Evans, William, and N. McArthur, Sturgeon Falls, Canada. Cattle-guard	660,069	Oct. 16	2359	530	93	505
Evans, William J., Butte, Mont. Drill forging and sharpening machine	660,496	Oct. 23	3329	747	93	717
Evans, William S., Leechburg, Pa. Gun-barrel						
Evarts, James A. (See Bryson and Evarts.)	663,564	Dec. 11	1209	264	93	1979
Evenson, Even H., New Richland, Minn. Wrench	659,656	Oct. 16	1687	381 382	93	372
Everest, Augustine R., Lynn, Mass., assignor to General Electric Company, of New York. Testing transformers, &c	661,908	Nov. 13	1588	385	93	1279
Everich, John W., Annapolis, Md. Churn-dasher	660,057	Oct. 16	2446	551 552	93	520
Evershed, Sydney, assignor to himself and Evershed & Vignoles, Limited, London, England. Astatic armature for electric-supply meters						
Evershed & Vignoles. (See Evershed, Sydney, assignor.)						
Everson, George. (See Anderson and Everson.)						
Eves, Joshua V., Belfast, Ireland. Hackling-machine	662,117	Nov. 20	2005	479 480 481 482 483 484	93	1380
Ewart, John, Arlington, assignor of one-fourth to J. A. Ewart, Braintree, Mass. Fire-pump apparatus for buildings	662,229	Nov. 20	2229	536 537	93	1424
Ewart, Joseph A. (See Ewart, John, assignor.)						
Ewell, W. J., *et al.* (See Wade, Jack, assignor.)						
Ewen, Malcolm F., assignor to Grace-Church Syndicate, Limited, London, England. Apparatus for manufacturing prismatically-ridged glass	663,741	Dec. 11	1519	338	93	2040
Ezell, Francis L., assignor of one-fifth to E. D. Martin, Wilkerson, Tenn. Rocking valve for steam-engines	660,010	Oct. 16	2362	531	93	506
F. H. Gilson Company. (See Gilson, Franklin H., assignor.)						
Fack, August, *et al.* (See O'Brien, Arthur, assignor.)						
Fahnestock, James M. (See O'Leary, Samuel F., assignor.)						
Fährmann, Alvin, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyeing Turkey red	661,858	Nov. 13	1498	------	93	1262
Fährmann, Alvin, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Mordant	661,859	Nov. 13	1500	------	93	1262
Fairbanks, Clarence E., *et al.* (See Kelsey, Lovell L., assignor.)	661,120	Nov. 6	170	42, 43	93	986
Fajen, Gustav, Milwaukee, Wis. Rotary meter	660,895	Oct. 30	4046	907	93	874
Fandrey, Joseph, Los Angeles, Cal. Truss						
Farbenfabriken of Elberfeld Company. (See Bonhoeffer and Dreser, assignors.)						
Farbenfabriken of Elberfeld Company. (See Eichengrün, Arthur, assignor.)						
Farbenfabriken of Elberfeld Company. (See Israel and Kothe, assignors.)						
Farbwerk Mühlheim, vormals A. Leonhardt & Co. (See Bender, Fritz, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Ammelburg, Alfred, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Gus-mann, Hermann, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Gutzkow and Homolka, assignors.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Stock, August, assignor.)						
Farley, John P., assignor to Crampton, Farley Brass Company, Kansas City, Mo. Water-faucet	661,966	Nov. 20	1714	414	93	1325
Farmer, Ernest M., Cleveland, Ohio. Window-cleaner	662,713	Nov. 27	3152	746	93	1623

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Farmer, John. (See Haviland and Farmer.)						
Farmer, John R., assignor of five-sixths to A. Boettler, H. F. W. Ruhe, and E. Cornet, St. Louis, Mo. Bread-cutting machine	663,742	Dec. 11	1521	339	93	2040
Farmer, John R., assignor of five-sixths to A. Boettler, H. F. W. Ruhe, and E. Cornet, St. Louis, Mo. Dough-rolling machine	663,743	Dec. 11	1522	339, 340	93	2041
Farnham, Isaiah H., Wellesley, and G. W. Davis, Revere, assignors to New England Telephone and Telegraph Company, Boston, Mass. Telephone-circuit	661,714	Nov. 13	1245	301	93	1214
Farnham, Leroy A., Laingsburg, Mich. Garment-hanger	663,264	Dec. 4	676	145	93	1853
Farquhar, Henry S., Baltimore, Md. Machine for removing dirt from streets	659,440	Oct. 9	1277	264	93	276
Farrell, Daniel, assignor to Anderson Prune Dipper Company, San José, Cal. Bleaching nuts	663,069	Dec. 4	300	------	93	1782
Farrell, Sydney, E., Ottumwa, Iowa. Animal-shackle	661,637	Nov. 13	1103	273	93	1186
Farrell, William. (See Jones, Mathew F., assignor.)						
Fasig, Albert, Jersey City, N. J. Overflow-alarm device	660,269	Oct. 23	2926	650	93	628
Fatkin, James, Gulch, Colo. Wrench	663,161	Dec. 4	481	102, 103	93	1817
Fatkin, James, Gulch, Colo. Wrench	663,162	Dec. 4	483	103	93	1818
Fatkin, James, Gulch, Colo. Wrench	663,163	Dec. 4	484	103	93	1818
Fauber, William H., Chicago, Ill. Crank-hanger	662,260	Nov. 20	2273	546	93	1433
Fauber, William H., Chicago, Ill. Bicycle crank-hanger	662,781	Nov. 27	3277	773	93	1647
Fauber, William H., Chicago, Ill. Ball-caster	663,164	Dec. 4	486	104	93	1818
Faulds, John. (See Marshall and Faulds.)						
Faulkner, John B., deceased; G. Snyder, Mount Pleasant, Iowa, administrator. Machine for coaling or slacking ballast-kilns preparatory to burning	660,824	Oct. 30	3919	879, 880	93	849
Faulkner, William H., Syracuse, N. Y. Hurl cutting and separating machine	659,441	Oct. 9	1279	294, 295	93	276
Faure, Elie F. G. H. (See Mix and Faure.)						
Fauvre, Frank M., *et al.* (See Gaynor, John J., assignor.)						
Fawell, Joseph, Pittsburg, and J. E. Schwab, Duquesne, Pa. Rolling-mill	661,470	Nov. 6	796	190, 191, 192	93	1111
Fawkes, Charles G., Denver, Colo. Elastic bicycle-tire	661,601	Nov. 13	1038	259	93	1174
Fay, Albert T. (See Harmon and Fay.)						
Fay, F. Earle. (See Marvin, John, assignor.)						
Fay, Lizzie C., Pasadena, Cal. Match-box	664,735	Dec. 25	2412	775	93	2475
Fay, Owen H. (See Porter, Henry C., assignor.)						
Fayolle, Joseph, Lyons, France. Alarm device for railway-tracks	658,838	Oct. 2	222	54, 55, 56	93	47
Fearon, James J., Philadelphia, Pa. Mechanism for swinging tentering-machines	664,249	Dec. 18	2454	558	93	2295
Fedeler, John H., New York, N. Y. Steam-motor	659,219	Oct. 9	917	215	93	202
Feeney, George E., and J. E. Schroyer, Indianapolis, Ind. Stove	659,471	Oct. 9	1332	304	93	286
Feierer, Mike, Sleepy Eye, Minn. Draft-evener	663,875	Dec. 18	1785	400	93	2119
Feige, Ernest, Saginaw, Mich. Letter-copying cabinet	662,528	Nov. 27	2813	667	93	1560
Feistel, Augustus R., Phillipsburg, Pa. Machine for making shovel-handles	661,400	Nov. 6	672	156, 157	93	1086
Feitler, Siegmund, Ludwigshafen, Germany. Preserving roasted coffee	660,767	Oct. 30	3809	------	93	825
Felbel, Jacob. (See Gabrielson, Carl, assignor.)						
Felbel, Jacob. (See Stickney, Burnham C., assignor.)						
Felbel, Jacob, New York, N. Y. Type-writing machine	660,988	Oct. 30	4197	943, 944	93	905
Feldkamp, Fritz A., Newark, N. J. Acetylene-gas generator	659,618	Oct. 9	1669	364	93	340
Feldmann, John F. (See Krimmelbein, Leopold, assignor.)						
Fels, Charles M. (See Varrelman and Fels.)						
Felt, Door E., Chicago, Ill. Calculating-machine	661,121	Nov. 6	172	43, 44, 45	93	987
Felter, Frank P., Haverstraw, N. Y. Motor-plow	663,744	Dec. 11	1526	340	93	2041
Felter, Fred G., assignor of two-thirds to A. M. Gerow, New York, and A. A. Demarest, Nyack, N. Y. Carbonating apparatus	659,657	Oct. 16	1688	382	93	372
Feltmann, Adam W. (See Hartwig and Feltmann.)						
Fenlon, Henry T., London, England. Geyser or like water-heater	663,745	Dec. 11	1527	341, 342	93	2041
Fenn, William B., Winfield, assignor to E. D. Beckwith, Little Falls, N. Y. Water-bottle	664,472	Dec. 25	2908	663	93	2369
Fenner, John H., deceased; L. A. Fenner, Jersey City, N. J., executrix. Rope or cable guide	658,908	Oct. 2	333	83	93	68
Fenner, Lisena A., executrix. (See Fenner, John H.)						
Fenner, William. (See Herzler, Henninger, and Fenner.)						
Fenton, Charles L., Winfield, assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Type-writing machine	662,230	Nov. 20	2231	537	93	1425
Ferch, William F. (See Zuck, Albert O., assignor.)						
Ferguson, Dunklin, *et al.* (See Gordon, William R., assignor.)						
Ferguson, Richard H., Baltimore, Md. Transmitter	661,260	Nov. 6	427	100	93	1036
Fergusson, Alan R., New York, N. Y. Lock for safety-deposit boxes	663,876	Dec. 18	1786	400, 401	93	2119
Ferracioli, Giovanni. (See Buzzini and Ferracioli.)						
Ferris, James V. R. (See Thatcher, Wesley G., assignor.)						
Ferris, William H., assignor of one-half to G. T. Wade, Washington, D. C. Non-refillable bottle	662,065	Nov. 20	1912	458	93	1302
Fessenden, Harry M., New York, N. Y. Collapsible closet	660,246	Oct. 23	2860	626	93	625
Fessler, Irvin P. (See Bourquin, Numa A., assignor.)	662,714	Nov. 27	3153	746	93	1623
Feuchtwanger, Henry J., assignor to Elmira Skirt Company, Elmira, N. Y. Skirt						
Feuerlein, Otto, Charlottenburg, Germany, assignor to Siemens & Halske Electric Company, Chicago, Ill. Thermal cut-out or fuse	661,241	Nov. 6	388	92	93	1020
Field, Charles H., Providence, R. I. Engraving-machine	663,017	Dec. 4	215	46	93	1767
Field, Marcellus S., assignor of one-third to J. T. A. Lewis, Boston, Mass. Portable and collapsible assorting-case	660,541	Oct. 23	3419	768	93	785
Fielding, Philip H., New York, N. Y. Receptacle for incandescent lamps	660,154	Oct. 23	3072	597	93	587
Fierbaugh, Samuel, assignor of one-half to J. C. Miller, Huntington, W. Va. Track-gage	662,925	Dec. 4	48	12	93	1735
Fildes, Thomas, Chicago, Ill. Car-seal	663,070	Dec. 4	301	64	93	1782
Filer & Stowell Company. (See Cunningham, Albert, assignor.)	659,220	Oct. 9	918	215, 216	93	202
Fillis, George N., Canton, Ohio. Convertible street-car						
Filter und Brautechnische Maschinen Fabrik Actien Gesellschaft, vormals L. A. Enzinger, vormals Sellenscheidt. (See Langen, Günther von, assignor.)						
Filterwerke Kuffler & Co. (See Jolles and Trenkler, assignors.)						
Finch, George W., Homer, N. Y. Mop-wringer	661,930	Nov. 13	1628	304	93	1286

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Findlay, John, *et al.* (See Belfield, William, assignor.)						
Finfrock, Edgar H., Jackson, Minn. Toe-cap for boots or shoes	659,519	Oct. 9	1433	325	93	305
Finkler, Dittmar, Bonn, Germany. Obtaining soluble albumen	661,211	Nov. 6	330	------	93	1018
Finlayson, Christopher C., Bisbee, Ariz. Ter. Cuspidor	663,074	Dec. 4	306	65	93	1783
Finneke, Andy, Osakis, Minn. Window-frame	661,657	Nov. 13	1139	282	93	1194
Finnerty, Daniel G., Boston, Mass. Church or altar safety apparatus	664,541	Dec. 25	3032	690	93	2394
Firnhaber, Edward, Worms, assignor of one-half to W. Landgraf, Majors, Nebr. Infant's chair	660,951	Oct. 30	4143	931	93	894
Firnhaber, Edward, Worms, assignor of one-half to W. Landgraf, Majors, Nebr. Playing-board and guard for infants' chairs	664,542	Dec. 25	3033	691	93	2394
Fischer, Alexander, New York, N. Y. Changeable-speed gear	659,390	Oct. 9	1178	273	93	256
Fischer, Alexander, New York, N. Y. Automatically-closing float-valve apparatus	659,391	Oct. 9	1179	273	93	256
Fischer, Alexander, and A. T. Otto, New York, N. Y. Speed-changing mechanism	661,967	Nov. 20	1715	414	93	1325
Fischer, Alexander R., assignor of one-half to S. A. McDonald, Chicago, Ill. Spring-propelled vehicle	660,497	Oct. 23	3330	747	93	718
Fischer & Bendheim. (See Fischer, Philip, assignor.)						
Fischer, Camillo L. (See Lutzenkirchen, Henry, assignor.)						
Fischer, George K., Salt Lake City, Utah, and F. Klepetko, Great Falls, Mont. Electric conveying and elevator apparatus	660,724	Oct. 30	3744	843	93	815
Fischer, Harry S. (See Dull, Thompson A., assignor.)						
Fischer, Karl. (See Fleischmann and Fischer.)						
Fischer, Moris, New York, N. Y. Cover for water-closets	658,982	Oct. 2	472	113	93	95
Fischer, Philip, Plauderville, N. J., assignor to Fischer & Bendheim, New York, N. Y. Combination pipe, cigar-holder, and cigarette-holder	664,139	Dec. 18	2268	516	93	2216
Fisher, Alvan B., assignor of one-half to F. B. Stearns, Rutland, Mass. Stopper for milk-cans	662,782	Nov. 27	3279	773	93	1647
Fisher, Bevly A., Hamilton, Mont. Farm-gate	660,247	Oct. 23	2861	636, 637	93	625
Fisher, Charles C., assignor to C. P. Northrop, Warren, Pa. Pipe-coupling	661,506	Nov. 13	860	205	93	1137
Fisher, George. (See Haskins and Fisher.)						
Fisher, Israel, Boston, assignor to R. W. Waters, Newton, Mass. Dynamo-electric machine	664,396	Dec. 25	2760	627	93	2342
Fisher, Lucius G. (See Benner, Lorenzo D., assignor.)						
Fisher, Ora K. (See Ruth and Dauber, assignors.)						
Fisher, Ora M., assignor to Blass & Garnow, Erie, Pa. Shears	663,565	Dec. 11	1210	264	93	1979
Fisher, Robert J., Athens, Tenn., assignor to Fisher Typewriter Company, of Tennessee. Type-arm bearing	661,212	Nov. 6	331	80	93	1018
Fisher Typewriter Company. (See Fisher, Robert J., assignor.)						
Fisher, Walter S., Artman, Colo. Water stop or gate	663,265	Dec. 4	677	146	93	1853
Fisk, Samuel T., Toledo, Ohio. Coin-holder	663,428	Dec. 11	980	212	93	1935
Fiske, Bradley A., New York, N. Y. Combined range-finder and turret	661,968	Nov. 20	1717	414	93	1325
Fiske, Bradley A., U. S. Navy, assignor to Western Electric Company, Chicago, Ill. Apparatus for controlling mechanism of moving vessels or vehicles	660,155	Oct. 23	2673	597	93	588
Fiske, Bradley A., U. S. Navy, assignor to Western Electric Company, Chicago, Ill. Controlling moving vessels or vehicles	660,156	Oct. 23	2678	597	93	588
Fitch, Alice B. (See Fitch, Henry, assignor.)						
Fitch, Arden S., New York, N. Y., assignor to D. le S. M. D'Y. Fitch, Guyamas, Mexico. Producing scenic representations	663,266	Dec. 4	678	146	93	1854
Fitch, Arden S., New York, N. Y., assignor to D. le S. M. D'Y. Fitch, Guaymas, Mexico. Apparatus for producing scenic representations	663,267	Dec. 4	681	147	93	1854
Fitch, Dolores de S. M. D'Y. (See Fitch, Arden S., assignor.)						
Fitch, Henry, assignor to A. B. Fitch, Lawrenceburg, Ind. Temporary binder	661,213	Nov. 6	335	80	93	1019
Fitchburg Steel Ball Company. (See Putnam, Harry M., assignor.)						
Fithian, Edward C., St. Paul, Minn. Combined wall-paper display-rack and sample-case	660,157	Oct. 23	2682	597	93	589
Fitzgerald, Richard. (See Hibbard, Maury W., assignor.)						
Fitzler, Ferdinand H., Tiverton, R. I. Automatic water-circulator	663,429	Dec. 11	988	212, 213	93	1985
Fitzpatrick, Samuel N., Carthage, Tenn. Body-brace	664,250	Dec. 18	2456	559	93	2256
Fitzpatrick, Timothy J., Boston, Mass. Trap	661,122	Nov. 6	179	46	93	988
Fix, Edouard A. (See Bouvet and Fix.)						
Flagg, George H. P. (See Julian, Gideon, assignor.)						
Flaherty, N. F., *et al.* (See McCourt, Newton W., assignor.)						
Flanders, Herbert, assignor of one-half to C. E. Stearns, Manchester, N. H. Combined case and chair	660,989	Oct. 30	4202	944	93	906
Flanders, Herbert, assignor of one-half to J. Foster, Manchester, N. H. Can-opener	661,507	Nov. 13	861	206	93	1137
Flanigan, Joseph H., Leighton, Ala. Sliding-jaw wrench	660,421	Oct. 23	3200	711, 712	93	698
Flatter, Albert E., Greenville, Ohio. Tire	660,184	Oct. 23	2747	610	93	603
Fleetwood, Carl J. M., Freiburg, Germany. Tanning apparatus	662,896	Nov. 27	3560	835	93	1710
Fleischmann, Christian W., Nuremberg, and K. Fischer, Sulzbach, Germany. Steam-boiler furnace	664,473	Dec. 25	2909	663	93	2369
Fleming, James A., Globe, Ariz. Ter. Apparatus for leaching ores	660,498	Oct. 23	3332	747, 748	93	718
Fleming, James A., Globe, Ariz. Ter. Apparatus for leaching ores	660,499	Oct. 23	3334	748	93	718
Fleming, James H., Newark, N. J., assignor to National Dairy Machine Company, of New Jersey. Thrust-bearing	663,383	Dec. 4	874	188	93	1891
Fleming, Richard, Lynn, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	659,658	Oct. 16	1690	382, 383	93	372
Fleming, William B., Detroit, Mich. Pneumatic-regulator for musical instruments	659,442	Oct. 9	1282	295, 296	93	277
Flesche, Gustav A., H. A. Hall, New York, N. Y., and J. Doherty, Ash Brook, N. J., assignors to American Soda Fountain Company, Boston, Mass. Carbonator	662,407	Nov. 27	2567	617, 618	93	1510
Flesher, Albert, Alert, Okla. Ter., and J. L. Crisler, Perth, Kans.; said Flesher assignor to said Crisler. Clothes-pounder	659,299	Oct. 9	1035	248	93	225
Fletcher, Arthur M., assignor of one-half to P. J. Landrigan, Troy, N. Y. Folding-machine	660,328	Oct. 23	3039	674, 675	93	660
Fletcher, Charles T., Westborough, Mass., assignor, by mesne assignments, to Locomobile Company of America, New York, N. Y. Running-gear for vehicles	661,508	Nov. 13	862	206	93	1137
Flick, Melchior, Cleveland, Ohio. Toy horse	659,060	Oct. 2	614	148	93	123
Fligor, Guy G., assignor of one-half to E. Wall, Paragould, Ark. Harrow	662,670	Nov. 27	3004	723	93	1607
Flinder, Charles E., Washington, D. C. Combination keyhole-guard	660,295	Oct. 23	2967	659	93	647
Flood, Harry J., Chicago, Ill., assignor to Chisholm, Boyd & White Company, of Illinois. Elevator-boot	661,242	Nov. 6	389	92	93	1029
Flood, Matthew, Albany, N. Y. Compressed-air engine	662,189	Nov. 20	2146	519	93	1410
Florence, John, Newnan, Ga., assignor of one-half to O. A. Robbins, Charlotte, N. C. Expansible pulley	662,851	Nov. 27	3400	804	93	1672

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Floyd, George G., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Car-truck	660,896	Oct. 30	4047	907	98	874
Floyd, John, Washington, D. C. Crossing for suspended electric conductors	659,142	Oct. 2	747	180	98	151
Floyd, John, Washington, D. C. Paper box	662,560	Nov. 27	2867	680	98	1570
Floyd, Wells & Co. (See Brooke, Isaac, assignor.)						
Flynn, Ann. (See Flynn, Michael J., assignor.)						
Flynn, Michael J., assignor to A. Flynn, Hartford, Conn. Bicycle handle-bar	659,731	Oct. 16	1831	414	98	400
Focht, George H., *et al.* (See Leidich, Peter C., assignor.)						
Fogg, John S., Biddeford, Me. Traveler's hat-conformer	661,509	Nov. 13	863	206	98	1138
Foley, James R., Mount Crawford, Va. Door-stop	661,446	Nov. 6	749	175	98	1102
Foley, John J., Jay, Me. Pulp-refining engine	660,699	Oct. 30	3698	882, 883	98	806
Foley, Kate J., Berryessa, Cal. Heater	660,371	Oct. 23	3116	690	98	676
Foley, Michael J., and G. L. Rogers, Cloquet, Minn. End bearing for rolls	664,251	Dec. 18	2458	559	98	2256
Foley, Nelson, Naples, Italy. Umbrella-stick	660,248	Oct. 23	2863	637	98	630
Folsom, Frank P., Ashland, Nebr. Device for packing cigars	659,520	Oct. 9	1434	325	98	305
Foltz, Abner E., Akron, Ohio. Box and cover	662,619	Nov. 27	2965	703	98	1569
Fondu, Jean B., Brussels, Belgium. Indicator	661,510	Nov. 13	864	206, 207, 208	98	1138
Foot, James D. (See Turner, James, assignor.)						
Foote, James B., Fredericktown, Ohio. Axle-lubricator	662,715	Nov. 27	3151	747	98	1623
Ford, Alfred N., deceased, assignor, by mesne assignments, to H. M. Hart, Denver, Colo. Making oil fabrics. (Reissue)	11,862	Oct. 9	1644	------	98	847
Ford, Pierce. (See Foskett, John T., assignor.)						
Ford, William H., Lowell, Mass. Apparatus for making molds for rings, &c	663,018	Dec. 4	216	------	98	1767
Ford, William H., assignor of one-half to C. W. Russell, Lowell, Mass. Mold for casting rings	662,561	Nov. 27	2868	680	98	1570
Ford, William H., assignor of one-half to C. W. Russell, Lowell, Mass. Ring-mold	662,562	Nov. 27	2870	680	98	1570
Ford, William H., assignor of one-half to C. W. Russell, Lowell, Mass. Mold-cutter	663,019	Dec. 4	220	47	98	1768
Forehand Arms Company. (See Gates, William H., assignor.)						
Forehand Arms Company. (See Southgate, Philip W., assignor.)						
Foreman, Henry S. W. (See Holley, Robert B., assignor.)						
Foreman, Lewis T., Omaha, Nebr. Swinging hose-bracket	663,566	Dec. 11	1211	264	98	1979
Foreman, Martha E., Portsmouth, Va. Animal-trap	663,635	Dec. 11	1359	301	98	2008
Foreman, Stanton, assignor to Schaw, Ingram, Batcher & Company, Sacramento, Cal. Pipe-riveting machine	660,542	Oct. 23	3421	768	98	735
Forgues, Laurence Z., and A. Lavoie, Salem, Mass. Loom-picker	663,020	Dec. 4	224	47	98	1768
Formby, John, Formby, England. Means for sighting rifled firearms	659,606	Oct. 9	1580	358	98	335
Formey, Matthias N., New York, N. Y. Multiple-address envelop	661,690	Nov. 13	1201	292	98	1206
Forrest, Rolland, Philadelphia, Pa. Insect-guard	662,261	Nov. 20	2276	547	98	1434
Forrester, Enos J., assignor to C. W. and F. H. Walls, St. Louis, Mo. Soap-press	662,356	Nov. 20	2451	590	98	1469
Forry, G. C. (See Anderson, Joseph H., assignor.)						
Forsyth, Wilber D., assignor to Union Boiler Tube Cleaner Company, Pittsburg, Pa. Boiler-tube cleaner	664,140	Dec. 18	2269	516	98	2216
Forter, Samuel, Pittsburg, Pa. Reversing-valve	659,221	Oct. 9	921	216	98	203
Foskett, John T., assignor of one-half to P. Ford, Chicago, Ill. Shoe-polisher	659,168	Oct. 2	795	192	98	160
Foss, William A., assignor to American Toll Telephone Company, Cleveland, Ohio. Toll-collecting device for telephones	661,578	Nov. 13	998	248	98	1165
Foster, Arthur L. (See Pratt, John C., assignor.)						
Foster, Claude H., Cleveland, Ohio. Self-propelled vehicle	659,222	Oct. 9	922	216	98	203
Foster Engineering Company. (See Cash, Arthur W., assignor.)						
Foster, James A., Tacoma, Wash. Non-refillable bottle	663,335	Dec. 4	797	171	98	1876
Foster, John. (See Flanders, Herbert, assignor.)						
Foster, Merriam & Company. (See Clark, Ambrose B., assignor.)						
Foster, Thomas, Manchester, England. Friction-gearing	661,909	Nov. 13	1589	385	98	1279
Fouché, Edmond, Paris, France. Storing explosive gases	661,401	Nov. 6	674	------	98	1087
Fouts, George S., San Francisco, Cal. Mountain-locomotive	661,045	Nov. 6	29	7,8	98	956
Foveaux, Frank J., Alameda, Cal. Furnace	662,926	Dec. 4	50	12,13	98	1735
Fowler, Allen, and A. J. Harpole, Union City, Tenn. System of ventilation, heating, and cooling	663,746	Dec. 11	1529	342	98	2042
Fowler, Edward C., assignor to Bristol Brass and Clock Company, Bristol, Conn. Acetylene-gas lamp	661,511	Nov. 13	867	208, 209	98	1139
Fowler, Frank L., Philadelphia, Pa. Electric lamp	659,061	Oct. 2	615	149	98	123
Fowler, Jonathan O., Jr., New York, N. Y. Coin-freed receptacle	664,736	Dec. 25	3413	775	98	2475
Fowler, William M. (See Nichols and Fowler.)						
Fowler, William R., assignor to Polar Creamery Company, Lafayette, Ind. Refrigerator or creamery	659,020	Oct. 2	551	134	98	110
Fox, Bonham M. (See Locklin and Fox.)						
Fox, Gustave. (See Gebhardt, Edwin, assignor.)						
Fox, Hugh L. (See Waring, John B., assignor.)						
Fox, Irving P., Lexington, Mass. Clasp for binding-straps	659,297	Oct. 9	1036	243	98	225
Fox, John H., New York, N. Y. Siphon-filler and mineral-water charger	664,351	Dec. 18	2672	607, 608	98	2297
Fox, Samuel L., Haverford, and E. S. Clare, Philadelphia, Pa., assignors to Queen & Company, of Pennsylvania. Hemoglobinometer	663,536	Dec. 11	1169	258	98	1971
Franc, Emil, T. and W. L. Coe, London, England. Apparatus for drawing off liquids in fixed quantities	664,029	Dec. 25	3209	728	98	2432
France, Jason G., and J. R. Pearsall, Syracuse, N. Y. Coin-controlled machine	662,897	Nov. 27	3562	835	98	1711
Francis, Francis, Philadelphia, Pa. Razor-stropping device	664,252	Dec. 18	2459	559	98	2256
Francis, James H., Nettleton, Miss. Painter's brush-cabinet	658,983	Oct. 2	473	114	98	95
Francis, John S., Bloomington, Ill. Car-truck	660,422	Oct. 23	3201	712, 713	98	698
Francis, Nina H. P., New Rochelle, N. Y. Faucet	660,096	Oct. 23	2552	570	98	563
Frank, Bettie H., New York, N. Y. Garment-supporter	661,046	Nov. 6	35	8	98	957
Frank, Edward S., Clayton, and W. H. Kuhlman, Beardstown, Ill. Flood-gate	664,078	Dec. 18	2148	491	98	2192
Frank, Louis A., Chicago, Ill. Lock for vessel-covers	658,984	Oct. 2	473	114	98	95
Frank Mossberg Company. (See Mossberg, Frank, assignor.)						
Frankel, Abram M., New York, N. Y. Nose-gage	663,165	Dec. 4	488	104	98	1818
Frankel, Isaac, Pittsburg, Pa. Emergency stop or brake for elevators	660,851	Oct. 30	3982	891	98	861
Frankham, William, Canton, Ohio. Wire-coupling	663,605	Dec. 11	1275	282	98	1993
Franklin Churn Company. (See Franklin, Edward R., assignor.)						
Franklin, Edward R., Austin, Tex., assignor to Franklin Churn Company, Chicago, Ill. Churn-dasher	660,185	Oct. 23	2749	611	98	603
Franklyn, Claude L., *et al.* (See Starke, Fred C., assignor.)						
Frantz, Edward, and A. J. Lang, Jr., Allenport, Pa. Rail-joint	661,759	Nov. 13	1327	323	98	1290
Frasch, Hans A., New York, N. Y. Making sulfuric anhydrid	664,630	Dec. 25	3211	728	98	2132

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Fraser & Chalmers. (See Behr, Hans C., assignor.)						
Fraser, Dossabhoi S., Bombay, India. Saddle-supporting device for cycles	658,909	Oct. 2	334	83	98	68
Fraser, Simon A., New Glasgow, Canada, assignor of one-half to B. Talbot, Pencoyd, Pa. Gas-producer	659,472	Oct. 9	1333	304, 305	98	286
Fredrikson, Andrew J., Smålands Taberg, Sweden. Box for matches, cigarettes, cigars, confections, &c	664,141	Dec. 18	2271	517	98	2217
Freeman, C. E., *et al.* (See Van den Broek, Ivan, assignor.)						
Freeman, Edwin T. (See Sandahl, Victor and G., assignors.)						
Freeman, Walter K., Saratoga Springs, N. Y. Steam-engine	664,631	Dec. 25	3213	729	98	2433
Freeman, Walter K., Saratoga Springs, N. Y. Internal-combustion engine	664,632	Dec. 25	3214	729, 730	98	2433
Freeman, Walter K., Saratoga Springs, N. Y. Steam-engine	664,737	Dec. 25	3419	775, 776	98	2477
Freer, Charles C., Hastings, Mich. Anchor-rope attachment for boats	664,738	Dec. 25	3420	776	98	2478
Freer, Glyndon A., Jackson, Mich. Post-hole digger	660,812	Oct. 30	3897	876	98	845
Freese, Claus, New York, N. Y., assignor to J. H. Marsh. Disinfecting and deodorizing apparatus	660,543	Oct. 23	3423	768	98	736
Freismuth, Florentz, *et al.* (See Altmeyer, Mathias, assignor.)						
Fremery, Max, and J. Urban, Oberbruch, Germany. Washing spooled thread or strips of cellulose	661,214	Nov. 6	336	80	98	1019
French, Frederick W., Bostonia, Cal. Cultivator-shovel	664,397	Dec. 25	2768	627	98	2342
French, Joseph. (See Humphrey and French.)						
French, T. J. (See Carvin, Edward O., assignor.)						
Frerking, Adolph J., Concordia, Mo. Grain-unloading device	662,529	Nov. 27	2815	667	98	1560
Fretwell, Silas A. (See Jennings, Henry, and Fretwell.)						
Frey, William. (See Smith, Edward, assignor.)						
Freymann, Osckar, assignor of one-fourth to C. Tolman, New York, N. Y. Fire-alarm	661,736	Nov. 13	1284	311	98	1221
Frichette, Petar, Sheridan, Cal. Pipe-wrench	663,567	Dec. 11	1213	264	98	1979
Fricker, Guy C. (See Mordey and Fricker.)						
Fridolph, Anna S. and S. A., assignors of one-third to P. D. Minick, Villisca, Iowa. Washing-machine	659,223	Oct. 9	924	217	98	203
Fridolph, Samuel A. (See Fridolph, Anna S. and S. A.)						
Friedberger Manufacturing Company. (See Drew, Charles E., assignor.)						
Friedenberg, Louis L., assignor, by mesne assignments, to Columbia Buckle Company, New York, N. Y. Buckle	663,877	Dec. 18	1789	401	98	2119
Friedley, Harmon H., Indianapolis, Ind., and F. C. Crowe, Chicago, Ill. Portable apparatus for renovating grain	659,732	Oct. 16	1832	414, 415, 416	98	400
Friel, Patrick J., Cincinnati, Ohio. Egg-boiler	664,079	Dec. 18	2150	491	98	2192
Fries, John W., Salem, N. C. Dyeing	659,343	Oct. 9	1095	257	98	237
Fries, William A., Sr., New York, N. Y. Bottle	664,739	Dec. 25	3421	776	98	2478
Fritz, Louis, *et al.* (See Conner and Bagby, assignors.)						
Fritz, Louis. (See Hall, Henry C., assignor.)						
Frizell, Herbert L., Boston, Mass. Ladder	659,814	Oct. 16	2005	449	98	483
Froberg, Johan R., assignor of two-thirds to C. E. Clinch and A. Hall, Grass Valley, Cal. Mop-head	659,918	Oct. 16	2192	494	98	470
Froehling, Henry, *et al.* (See Meyer, Otto, assignor.)						
Frohman, Jonas L., Chicago, Ill. Apparel-shirt	661,139	Nov. 6	206	52	98	903
Frohnert, Louis, Connellsville, Pa. Sheave for cable-roads	660,500	Oct. 23	3336	748	98	719
Frost, John E., Watkins, N. Y. Heater	660,213	Oct. 23	2806	622	98	614
Frost, Walter J., assignor to Badger Brass Manufacturing Company, Kenosha, Wis. Lamp-bracket	663,121	Dec. 4	390	88	98	1799
Fruhling, William A. (See Harrison, Arthur W., assignor.)						
Fry, John, and J. W. Barnes, Liverpool, England. Horse-collar	663,021	Dec. 4	225	47, 48	98	1769
Fry, Joseph U., assignor of one-half to J. L. Hart, Grenola, Kans. Corn-harvester	660,708	Oct. 30	3810	855	98	828
Frye, Charles H., assignor to himself and A. E. Jewell, Buffalo, N. Y. Gas-burner	663,331	Dec. 11	1710	382	98	2082
Frye, Cyrus E. (See Beveridge and Frye.)						
Fryer, Percy W., Christchurch, New Zealand. Automatic belt-shifter	660,682	Oct. 30	3666	823	98	799
Fuerle, Rudolph L., Philadelphia, Pa., assignor to Queen & Company, of Pennsylvania. Microscope	660,372	Oct. 23	3117	690	98	676
Fuhr, Valentine, Hamlet, Ill. Combined corn-crusher and fodder-shredder	661,969	Nov. 20	1720	415	98	1320
Fuhrman, Calvin A., *et al.* (See Benton, George P., assignor.)						
Fuhrman, U J., West Salem, Ohio. Weight-motor	660,011	Oct. 16	2363	531	98	506
Fuld, Annie C., Baltimore, Md. Game-board	663,336	Dec. 4	799	171	98	1877
Fuller, Albert F., Newark, N. J., assignor to J. E. Mergott Company, of New Jersey. Purse or bag frame	661,579	Nov. 13	1000	248	98	1166
Fuller, Charles H., Oxford, Mich. Carriage-axle	660,074	Oct. 16	2507	561	98	583
Fuller, George H. (See Phillips, Tony C., assignor.)						
Fuller, Russell B., Holland, Mich. Wooden shipping and packing box	659,224	Oct. 9	926	217, 218	98	203
Fuller, Thomas S., assignor of one-half to A. F. Milian, Mannington, W. Va. Incandescent-mantle support	660,501	Oct. 23	3337	748	98	719
Fullerton, Robert, Des Moines, Iowa. Lumber-stacking machine	658,770	Oct. 2	49	11,12	98	18
Fullington, William H., assignor, by mesne assignments, to Manhattan Table Company, Dayton, Ohio. Game-table	663,878	Dec. 18	1790	401	98	2120
Fullmer, John H., Wilmerding, Pa. Water-motor	661,512	Nov. 13	909	209	98	1139
Fulton, Fred B., Anacortes, Wash. Can-filling machine	664,142	Dec. 18	2272	517, 518	98	2217
Fulton, Louis B., assignor to Chaplin-Fulton Manufacturing Company, Pittsburg, Pa. Water-regulator	662,488	Nov. 27	2739	650, 651	98	1546
Fulton, Louis B., assignor to Chaplin-Fulton Manufacturing Company, Pittsburg, Pa. Steam-trap	662,489	Nov. 27	2742	651	98	1546
Fulton, Ruth E., Perry, Okla. Ter. Door-stop	659,021	Oct. 2	552	134	98	111
Fulton, William H. (See Magagnos and Fulton.)						
Funck, Philipp, Rochester, N. Y., assignor to Johnson & Lund, Philadelphia, Pa. Vulcanizer	662,231	Nov. 20	2283	537	98	1425
Furber, Charles S. (See Ricke, George H., assignor.)						
Furber, Lewis I. (See Prescott and Furber.)						
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Ratchet mechanism	659,521	Oct. 9	1435	325	98	305
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Apparatus for making ribbed sleeves or wheels	659,522	Oct. 9	1436	325	98	306
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Tool-handle fastening	659,523	Oct. 9	1437	326	98	306
Furner, Charles W. (See Barber and Furner.)						
Furniss, William E., Cambridge, assignor of one-half to F. H. Pratt, Boston, Mass. Horn-support	663,537	Dec. 11	1171	253	98	1972
Fürstenau, Hermann, Wandsbeck, Germany. Street-car fender	660,565	Oct. 30	3461	776	98	762

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
G. P. Magann Air Brake Company. (See Omick, William K., assignor.)						
Gabrielson, Carl, assignor to J. Felbel, New York, N. Y. Type-writing machine	662,147	Nov. 20	2053	499, 500	93	1389
Gaedeke, John G. L., New York, N. Y. Intra-uterine battery	662,716	Nov. 27	3155	747	93	1624
Gage, Samuel E., New York, N. Y. Means for renewing house-walls	660,566	Oct. 30	3462	777	93	702
Gagnon, Andrew E., and H. Joncas, Minneapolis, Minn.; said Joncas assignor of part to said Gagnon. Knotter for binders	664,253	Dec. 18	2460	559, 560, 561	93	2257
Gahlan, Emil, assignor to W. C. Clark, Detroit, Mich. Lamp-guard	661,243	Nov. 6	391	92	93	1080
Gail, Ernest S., Highland Park, Ill. Fire-escape	660,702	Oct. 30	3859	867, 868	93	836
Gaillard, Henri L. de, and M. H. A. Portret, Toulouse, France. Apparatus for preventing collision of trains	661,513	Nov. 13	870	209, 210	93	1139
Gaillard, Tacitus W., New York, N. Y. Bicycle handle-bar	661,370	Nov. 6	623	145	93	1076
Gaillard, Zénaïde, St. Gervais Les Bains, France. Washing-machine	661,514	Nov. 13	872	210	93	1140
Gaisman, Henry J., New York, N. Y. Apparel-belt	661,447	Nov. 6	750	176	93	1102
Galagher, Virginia A., Newport, Ky. Window-blind fastener	661,140	Nov. 6	208	52	93	993
Galbraith, Edward A., assignor of one-half to H. W. Bragg, Boston, Mass. Packing-case	662,190	Nov. 20	2149	519	93	1410
Gale, George F., Boston, Mass. Mechanism for supplying electric power to railway-cars	659,169	Oct. 2	796	192	93	161
Gale, James M., *et al.* (See Benson, Henry M., assignor.)						
Gale Manufacturing Company. (See Beall, William L., assignor.)						
Gale, Thomas B. (See Jordan, Frank, assignor.)						
Galecki, Ladislaus, Warsaw, Russia. Working peat and manufacturing same into briquets	663,568	Dec. 11	1214	265	93	1979
Galecki, Ladislaus, P. and J. Lopatin, Warsaw, Russia. Manufacturing bricks from lime and sand	662,408	Nov. 27	2571	------	93	1511
Gallagher, Emma G., *et al.* (See Gallagher, George S., assignor.)						
Gallagher, George S., assignor to Z. B., E. G. and H. F. Gallagher, New York, N. Y. Smoke-consuming device for furnaces	661,760	Nov. 13	1328	323	93	1230
Gallagher, Harry F., *et al.* (See Gallagher, George S., assignor.)						
Gallagher, Zilliah B., *et al.* (See Gallagher, George S., assignor.)						
Galle, Charles, St. Louis, Mo. Paper box	663,968	Dec. 18	1955	440	93	2153
Galloway, Robert, Buffalo, N. Y. Feeding mechanism for grain-drills	659,367	Oct. 9	1130	265	93	246
Gallup, Elmer E., Sewickley, Pa. Packing-ring	663,879	Dec. 18	1792	402	93	2120
Gally, Robert A., New York, N. Y. Air motor or pump for automatic musical instruments, &c	661,860	Nov. 13	1501	363	93	1202
Galvin, Charles A., Modesto, Cal. Metallic shingle	662,202	Nov. 20	2277	547	93	1434
Gambrel, Algie D. (See Gambrel, Ora L., assignor.)						
Gambrel, Ora L., assignor of one-half to A. D. Gambrel, Lincoln, Ill. Counter-stool	661,861	Nov. 13	1503	363, 364	93	1202
Gamewell Fire-Alarm Telegraph Company. (See Kirnan, William H., assignor.)						
Gamewell Fire-Alarm Telegraph Company. (See Oehmen, Bartholomew, assignor.)						
Gamewell Fire-Alarm Telegraph Company. (See Ruddick, John J., assignor.)						
Gangolf, Eberhard. (See Holman and Gangolf.)						
Gano, William, Springfield, Ohio. Brush	663,697	Dec. 11	1447	320	93	2025
Ganter, Francis X., Baltimore, Md. Convertible billiard and pool table	662,927	Dec. 4	52	13	93	1736
Gardeen, Oscar. (See Carlson and Gardeen.)						
Gardiner, Charles C. (See Shoecraft, Judson, assignor.)						
Gardiner, Charles C. (See Shoecraft and Gardiner.)						
Gardner, Frederick, Thornton, Ill. Sod-cutting attachment for plows	664,254	Dec. 18	2466	561	93	2258
Gardner, Frederick, Thornton, Ill. Hay or load binder	664,255	Dec. 18	2467	561	93	2258
Gardner, Richard C., assignor of one-half to T. West, Columbus, Ohio. Rope-grip	660,813	Oct. 30	3898	876	93	845
Garesché, Arthur F., assignor of one-half to E. F. W. Meier China and Glass Company, St. Louis, Mo. Filter	661,602	Nov. 13	1040	259	93	1174
Garetson, John W. (See Bramer, August T., assignor.)						
Garfield, Alexander S., Paris, France, assignor to General Electric Company, of New York. System of motor control	660,502	Oct. 23	3338	749	93	719
Garford, Arthur L. (See Lincoln, John C., assignor.)						
Garland, Arthur, Howell, Mich. Treating cloth	661,261	Nov. 6	427	100	93	1087
Garland, Arthur, Howell, Mich. Apparatus for treating fabrics	661,289	Nov. 6	475	108, 109	93	1046
Garland, Frank M., New Haven, Conn. Ammunition-case	659,659	Oct. 16	1698	383	93	373
Garland, Frank M., New Haven, Conn. Ammunition-clip	663,880	Dec. 18	1793	402	93	2020
Garland, Michael, assignor to M. Garland Company, Bay City, Mich. Conveyer-pulley	661,970	Nov. 20	1722	415	93	1396
Garlick, William, Ashton-on-Mersey, England. Loom for weaving textile fabrics	661,715	Nov. 13	1248	302	93	1215
Garlock, Olin J., assignor to Garlock Packing Company, Palmyra, N. Y. Duplex packing-ring for piston-rods	664,143	Dec. 18	2278	519	93	2218
Garlock Packing Company. (See Garlock, Olin J., assignor.)						
Garretson, Albert D., assignor to Garretson Engine Company, Buffalo, N. Y. Gas-engine	663,091	Dec. 4	838	71	93	1789
Garretson Engine Company. (See Garretson, Albert D., assignor.)						
Garrett, Frank W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Control of electric motors	661,971	Nov. 20	1723	415, 416	93	1326
Garrett, Frank W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Controller for electric motors	661,972	Nov. 20	1726	416, 417	93	1327
Garrison, George W. (See Clary and Garrison.)						
Gartside, Annie L., *et al.* (See Sturgis, Herbert M., assignor.)						
Gary, Jefferson, St. Louis, Mo. Elevator	661,716	Nov. 13	1249	302	93	1215
Gassard, Louis, assignor to T. G. Mason, Toronto, Canada. Pianoforte	662,783	Nov. 27	3281	773	93	1647
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Apparatus for separating gold from magnetic sands	662,409	Nov. 27	2572	618	93	1511
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Magnetic separation	662,410	Nov. 27	2574	619	93	1512
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Magnetic separator	662,411	Nov. 27	2575	619	93	1512
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Magnetic separator	662,412	Nov. 27	2577	620	93	1512
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Magnetic separator	662,413	Nov. 27	2578	620	93	1512
Gates, Elmer, Chevy Chase, Md., assignor to T. J. Mayer, Washington, D. C. Magnetic separator	662,414	Nov. 27	2580	620	93	1513
Gates, Ernest H., Troy, N. H. Mechanical eraser	663,538	Dec. 11	1172	253, 254	93	1972
Gates, Huldah S., Rosedale, Kans. Abdominal support	664,398	Dec. 25	2764	627	93	2342
Gates, Virgil A., Charleston, W. Va. Wheelbarrow	662,006	Nov. 20	1918	458, 459	93	1362
Gates, William H., Worcester, Mass. Drive-chain	664,256	Dec. 18	2468	561	93	2259
Gates, William H., Worcester, Mass., assignor to Forehand Arms Company, of Massachusetts. Shell extractor and ejector	660,097	Oct. 23	2554	571	93	563

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gathmann, Emil, Washington, D. C., assignor to G. W. McMullen, Picton, Canada. Explosive charge and powder therefor	660,567	Oct. 30	3464	777	93	702
Gathmann, Emil, Washington, D. C., assignor to G. W. McMullen, Picton, Canada. Perforated powder rod for ordnance	660,568	Oct. 30	3465	777	93	702
Gathmann, Louis, Washington, D. C., assignor to G. W. McMullen, Picton, Canada. Purifying water	660,214	Oct. 23	2807	622	93	614
Gathright, Josiah B., Louisville, Ky., assignor to Herrmann Brothers & Co., Tell City, Ind. Trace-carrier	662,671	Nov. 27	3065	723	93	1607
Gatling, Richard J., New York, N. Y. Motor-driven vehicle	660,698	Oct. 23	2555	571	93	568
Gatrell, Ottmar A., assignor of two-thirds to E. B. Harang and L. F. Benckenstein, Columbus, Ohio. Voting-machine	658,771	Oct. 2	52	12, 13	93	14
Gauck, Robert, Bant, Germany. Penholder provided with device for drying pens	658,772	Oct. 2	54	13	93	14
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Making starch and cattle-food	664,257	Dec. 18	2468	562	93	2259
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Treating grain in making starch	664,258	Dec. 18	2472	562, 563	93	2259
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Separating germs, &c., in making starch	664,259	Dec. 18	2478	563	93	2260
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Manufacture of starch	664,260	Dec. 18	2481	563, 564	93	2260
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Device for separating germs from hulls of corn	664,261	Dec. 18	2485	564	93	2261
Gaunt, Thomas, Peoria, Ill., assignor of two-thirds to W. and H. Hamlin, Buffalo, N. Y. Manufacturing cattle-feed	664,262	Dec. 18	2487	565	93	2261
Gaut, Joseph, Leichhardt, assignor of one-half to J. J. Rouse, Sydney, New South Wales. Focusing attachment for cameras	659,062	Oct. 2	616	149	93	123
Gautier, Max, Brussels, Belgium. Automatic flushing and discharging apparatus for sanitary or other purposes	661,171	Nov. 6	264	64	93	1005
Gavin, George, Eureka, and W. E. Griffin, Reno, assignors to Safety Mail Pouch Fastener Company, Eureka, Nev. Mail-pouch closure and fastening	659,796	Oct. 16	1979	448	93	428
Gay, Herman T., assignor to Ideal Stopper Company, Baltimore, Md. Bottle-sealing device	662,263	Nov. 20	2278	547	93	1434
Gay, John W., Sodaville, Oreg. Bed for railway-tracks	664,740	Dec. 25	3424	777	93	2478
Gayle, William H., Jr. (See Barry, James, assignor.)						
Gaynor, John J., assignor of two-thirds to F. M. Fauvre and D. A. Murphy, Indianapolis, Ind. Soap cutter and separator	660,814	Oct. 30	3899	876	93	845
Gays, Henry W., St. Louis, Mo. Carline	659,961	Oct. 16	2280	511	93	489
Ge Frorer, Charles L., Philadelphia, Pa. Torch and heater	662,191	Nov. 20	2151	519	93	1411
Gebhardt, Edwin, assignor of one-half to G. Fox, Cincinnati, Ohio. Button	661,337	Nov. 6	571	132	93	1064
Gee, William V., assignor to Schaum & Uhlinger, Philadelphia, Pa. Needle-loom	662,717	Nov. 27	3158	747, 748	93	1624
Gehre, Max, Rath, Germany. Apparatus for periodical generation of electric currents by motors of irregular driving power	659,660	Oct. 16	1695	383	93	373
Geis, Charles, assignor of two-thirds to E. Geiss and H. A. Meyer, Cincinnati, Ohio. Fire-escape	661,141	Nov. 6	209	52, 53	93	994
Geis, Edward, *et al.* (See Geis, Charles, assignor.)						
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Space-block for armatures	662,928	Dec. 4	52	13	93	1736
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Space-block for armatures	663,075	Dec. 4	807	65	93	1783
Geisenhöner, Henry, Schenectady, N. Y., assignor to General Electric Company, of New York. Motor-switch	664,060	Dec. 18	2151	491, 492	93	2192
Geissert, Albert. (See Clement, Edward E., assignor.)	660,544	Oct. 23	3424	768	93	736
Gelsbert, William P., Sweet Springs, Mo. Buckle	662,929	Dec. 4	54	------	93	1736
Geldern-Egmond zu Arçen, Gustav von. (See Lipowska and Geldern-Egmond zu Arçen.)	663,337	Dec. 4	800	171	93	1877
Gelinek, Willibald, Merzdorf, Austria-Hungary. Manufacturing solid substances from fibrous material and product thereof						
Gemmill, George F., York, Pa. Hydraulic motor						
General Electric Company. (See Armstrong, Albert H., assignor.)						
General Electric Company. (See Berg, Ernst J., assignor.)						
General Electric Company. (See Case, Frank E., assignor.)						
General Electric Company. (See Cox, Frank P., assignor.)						
General Electric Company. (See Emmet, William L. R., assignor.)						
General Electric Company. (See Entz, Justus B., assignor.) (Reissue.)						
General Electric Company. (See Everest, Augustine R., assignor.)						
General Electric Company. (See Fleming, Richard, assignor.)						
General Electric Company. (See Garfield, Alexander S., assignor.)						
General Electric Company. (See Geisenhöner, Henry, assignor.)						
General Electric Company. (See Gilbert and Lundin, assignors.)						
General Electric Company. (See Green and Calian, assignors.)						
General Electric Company. (See Harthan, Charles E., assignor.)						
General Electric Company. (See Harthan and Stevens, assignors.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Howell, John W., assignor.)						
General Electric Company. (See Linn and Day, assignors.)						
General Electric Company. (See Martin, Charles B., assignor.)						
General Electric Company. (See Mix and Faure, assignors.)						
General Electric Company. (See Oxley, Eustace, assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Priest and Schermerhorn, assignors.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Reist and Aiken, assignors.)						
General Electric Company. (See Rice, Edwin W., Jr., assignor.)						
General Electric Company. (See Riddell, John, assignor.)						
General Electric Company. (See Rohrer, Albert L., assignor.)						
General Electric Company. (See Spinney, Henry C., assignor.)						
General Electric Company. (See Steinmetz, Charles P., assignor.)						
General Electric Company. (See Stevens, George E., assignor.)						
General Electric Company. (See Thomson, David P., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Wiswell, Ozro N., assignor.)						
General Electric Company. (See Wood, James J., assignor.)						
General Electro-Chemical Company. (See Jacobs, Charles B., assignor.)						
General Fire Extinguisher Company. (See Meloon, Jonathan C., assignor.)						
General Incandescent Arc Light Company. (See Klein, Charles J., assignor.)						
Genre, Dominick. (See Bauer and Genre.)						
Gentle, Richmond B., Yadkin College, N. C. Wheat-separator	659,919	Oct. 16	2134	484	93	470

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gentsch, Otto. (See Schiecke, Ludwig, assignor.)						
Genty, Lucien, Marseilles, France. Electric traction of trains of vehicles upon rails	661,448	Nov. 6	752	176, 177, 178	93	1102
Gentzel, Gustav H., assignor to John Mehl & Company, Jersey City, N. J. Apparel-belt.	659,022	Oct. 2	553	134	93	111
Gentzel, Gustav H., assignor to John Mehl & Company, Jersey City, N. J. Apparel-belt.	659,023	Oct. 2	554	134	93	111
Geofroy, George de, Paris, France. Magazine-camera	659,143	Oct. 2	748	180	93	151
Geoghegan, Samuel, Killiney, Ireland. Car-coupling	660,503	Oct. 23	3329	749, 750, 751	93	720
George Cutter Company. (See Cutter, George, assignor.)						
George F. Blake Manufacturing Company. (See De Laval and Aborn, assignors.)						
Georges, John J., assignor of one-half to W. W. Georges, Washington, D. C. Bunion or corn shield	663,224	Dec. 4	600	129	93	1838
Georges, William W. (See Georges, John J., assignor.)						
Georgoff, Jordan, St. Petersburg, Russia. Automatic regulator for atmospheric car-brakes	661,262	Nov. 6	429	100	93	1087
Geppert, Hermann, Carlsruhe, Germany. Producing cold	662,690	Nov. 27	3105	733	93	1616
Geraghty, Thomas, Bayonne, N. J. Car-starter	663,747	Dec. 11	1531	342	93	2042
Gerbracht, Ernst W., New York, N. Y., and J. R. Okell, Philadelphia, Pa., assignors to American Sugar Refining Company, New York, N. Y. Sack filling and closing machine	659,024	Oct. 2	555	135	93	111
Gerbracht, Ernst W., New York, N. Y., and J. R. Okell, Philadelphia, Pa., assignors to American Sugar Refining Company, New York, N. Y. Sack filling and closing machine	659,025	Oct. 2	559	135, 136	93	112
Gerhardt, William, Hazleton, Pa. Electrical connection	664,144	Dec. 18	2279	519	93	2218
Gerken, Johann H. D., New York, N. Y. Boat-propelling mechanism	664,543	Dec. 25	3035	691	93	2295
Gerlach, Rudolph P., Cleveland, and F. Stahl, Lakewood, Ohio. Stave-sawing machine.	664,309	Dec. 25	2764	627, 628, 629	93	2343
German, John, Aubrey, Wis. Milk-can	661,862	Nov. 13	1505	364	93	1263
German, Solomon, Davidsonville, Md. Life-preserving float	660,504	Oct. 23	3345	751	93	721
Germann, Emil. (See Buckingham and Germann.)						
Gerow, Arthur M., *et al.* (See Felter, Fred G., assignor.)						
Gertz, Emil A., Hanover, Germany, and R. W. Gertz, Cambridge, Mass. Piano construction	658,985	Oct. 2	475	114, 115	93	96
Gertz, Richard W. (See Gertz, Emil A. and R. W.)						
Gervais, Marcel, Paris, France. Petroleum-lamp	662,980	Dec. 4	55	13, 14	93	1736
Getter, Charles, *et al.* (See Sprong, Severn D., assignor.)						
Getz, Hiram L., Marshalltown, Iowa. Bicycle-ambulance	660,769	Oct. 30	3812	855, 856	93	828
Geuder, Gottlieb, Cleveland, Ohio. Engine operated by fluid under pressure	662,169	Nov. 20	2100	508, 509	93	1400
Gfeller, Alfred. (See Gracey and Gfeller.)						
Ghezzi, Romeo, and V. Bianchi, New York, N. Y. Cue-tip fastener	659,524	Oct. 9	1438	326	93	306
Gibbs, Frank J., Tyrone, Pa. Bicycle	661,973	Nov. 20	1729	417	93	1328
Gibbs, James, Williamstown, Mass., assignor of one-half to J. Veit and A. L. Kent, New York, N. Y. Holder	664,352	Dec. 18	2675	608	93	2296
Gibbs, James M. (See Trommlitz and Gibbs.)						
Gibbs, William E., Fanwood, N. J., assignor to A. C. Humphreys and A. G. Glasgow, New York, N. Y. Gas-burner	658,893	Oct. 2	307	75, 76	93	63
Gibson, Christopher, Cincinnati, Ohio. Draw-head	662,639	Nov. 27	3000	710	93	1596
Gibson, Claud C. (See Wilkinson and Gibson.)						
Gibson, E. D., *et al.* (See Wade, Jack, assignor.)						
Gibson, Edward, Jersey City, N. J. Dumping-grate	662,118	Nov. 20	2009	485	93	1380
Gibson, Jacob N., Chicago, Ill. Machine for bending or curving metal	660,505	Oct. 23	3346	752	93	722
Gibson, L. M., *et al.* (See Wade, Jack, assignor.)						
Gibson, M. H. (See Clement, Nelson, assignor.)						
Gibson, Robert L. (See Smith, Morton, and Gibson.)						
Gibson, William B., Morrilton, Ark. Earth-auger	664,741	Dec. 25	3425	777	93	2479
Giel, Francis S., New York, N. Y. Kinetoscope	661,515	Nov. 13	873	210	93	1140
Gieriet, John. (See Derus, John, assignor.)						
Giesecke, Carl, Hanover, Germany. Producing transfers	663,539	Dec. 11	1174	------	93	1972
Giesler, Franklin B. (See Dornfeld, John F., assignor.)						
Gifford, Abrom B., and E. E. Hull, Jessup, Iowa. Apparatus for raising towers	659,607	Oct. 9	1582	358	93	335
Gifford, Albert J., Worcester, Mass. Drilling-machine	660,249	Oct. 23	2864	697, 698	93	626
Gilbert, Frederick A., Brookline, and E. O. Lundin, Beachmont, Mass., assignors to General Electric Company, of New York. Electric-arc lamp	662,981	Dec. 4	56	14	93	1737
Gilbertson, Otto M. (See Bakken, Thore A., assignor.)						
Gilchrist, George E. (See Lewis, Samuel W., assignor.)						
Gilfillan, E. N. (See Spear, Arthur, assignor.)						
Gill, Edwin R., New York, N. Y., assignor to Invention Developing Company, of New Jersey. Commutator and making same	659,443	Oct. 9	1286	296	93	277
Gillespie, Robert T., Rochester, Pa. Pulverizing-plow	663,991	Dec. 18	2003	452	93	2163
Gillespie, William W., Milwaukee, Wis. Rail-joint	661,123	Nov. 6	181	46	93	988
Gillette, Paul F., assignor, by mesne assignments, to United Specialty Company, New York, N. Y. Automatic tire-inflator	661,172	Nov. 6	265	64, 65	93	1005
Gilliam Manufacturing Company. (See Sell, William E., assignor.)						
Gilliland, John F., New Vienna, Ohio. Tire-bolting machine	661,658	Nov. 13	1141	282	93	1194
Gilman, C. D. (See Peirce, George W., assignor.)						
Gilman, Charles H., Melrose, Mass. Snow-guard for roofs	659,302	Oct. 9	1180	274	93	256
Gilman, Willard H., Boston, Mass. Advertising apparatus	663,430	Dec. 11	984	213	93	1936
Gilson, Franklin H., Wellesley, assignor to F. H. Gilson Company, Boston, Mass. Separable book	664,544	Dec. 25	3030	691	93	2295
Giltz, Adam, Harmans, Md. Combined furrow opener, marker, and coverer	662,192	Nov. 20	2152	520	93	1411
Gimson, Arthur J. (See Gimson, Josiah M., J., A. J., and S. A.)						
Gimson, Josiah. (See Gimson, Josiah M., J., A. J., and S. A.)						
Gimson, Josiah M., J., A. J., and S. A., Leicester, England. Tack or nail driving machine	661,797	Nov. 13	1400	337	93	1244
Gimson, Sydney A. (See Gimson, Josiah M., J., A. J., and S. A.)						
Ginners Compress Company. (See Bessonette, Charles L., assignor.)						
Gipe, Emanuel C., assignor of three-fourths to F. J. Griffen, Chicago, H. Glos, Elmhurst, Ill., and G. W. Tassell, Waukesha, Wis. Store-service apparatus	660,099	Oct. 23	2560	572	93	564
Gipe, Emanuel C., assignor of three-fourths to F. J. Griffen, Chicago, H. Glos, Elmhurst, Ill., and G. W. Tassell, Waukesha, Wis. Store-service apparatus	660,100	Oct. 23	2561	572, 573	93	565
Girard, Adam C., Paris, France. Making explosives	663,166	Dec. 4	400	------	93	1819

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Giroud, Peter G., Newark, N. J., assignor to J. S. MacCoy, New York, N. Y. Workman's time-recorder	660,250	Oct. 23	2867	638	93	627
Giroux, Joseph, New York, N. Y. Shafting	663,748	Dec. 11	1532	343	93	2042
Glusti, Francesco. (See Miari and Glusti.)						
Glasgow, Arthur G., *et al.* (See Gibbs, William E., assignor.)						
Glass, Sheldon J., Milwaukee, Wis. Prepayment vending appliance	663,338	Dec. 4	800	171, 172	93	1877
Glaum, Conrad, Audubon, Minn. Straw-stacker	661,371	Nov. 6	625	145	93	1076
Glen, William J., London, England. Refuse-consuming furnace	664,039	Dec. 18	2087	475, 476	93	2179
Glenn, George G., and W. S. Sullivan, Philadelphia, Pa. Electric call or signal box	661,173	Nov. 6	268	65	93	1006
Glidden, Wright L., New York, N. Y. Step-ladder	663,330	Dec. 4	804	172	93	1878
Globe Telephone Manufacturing Company. (See Bassett, Nathan, assignor.)						
Globe-Wernicke Company. (See Tobey, Fred W., assignor.)						
Globe-Wernicke Company. (See Tobey and Dom, assignors.)						
Glock, Nicholas, Jr., Kenton, Ohio. Whiffletree-hook	660,423	Oct. 23	3203	714	93	693
Glos, Henry, *et al.* (See Gipe, Emanuel C., assignor.)						
Glossop, Gilbert, Leeds, England. Apparatus for making and sharpening rock-drills	661,708	Nov. 13	1401	337, 338	93	1244
Glover, Clarence, Leeds, England. Steam-generator	664,400	Dec. 25	2774	629	93	2348
Glover, Moses H. (See Griffeth, James R., assignor.)						
Glynn, James J. (See Abbs and Glynn.)						
Goddard, Charles F., Jr., Chicago, Ill. Photographic-printing frame	658,859	Oct. 2	224	56	93	48
Goddard, George B., Brockton, Mass. Mallet	662,691	Nov. 27	3108	733	93	1616
Goddu, Louis, Winchester, Mass., assignor to Goddu Sewing Machine Company, Portland, Me. Sole-trimming machine	662,415	Nov. 27	2381	621	93	1513
Goddu, Louis, Winchester, Mass., assignor to Goddu Sewing Machine Company, Portland, Me. Stitch-separator	662,416	Nov. 27	2383	621	93	1513
Goddu Sewing Machine Company. (See Goddu, Louis, assignor.)						
Godfrey, John S., assignor of one-half to J. E. Crosby, Harrington, Wash. Roller-bearing	661,863	Nov. 13	1505	364	93	1263
Goehst, Edward, Chicago, Ill. Floor	662,376	Nov. 20	2486	598	93	1476
Goertz & Co., Aug. (See Eigen, Benno vom, assignor.)						
Goettmann, Frederick G., Sr., Allegheny, Pa. Brake for vehicles	660,186	Oct. 23	2750	611	93	603
Goetz, Heinrich, Frankfort-on-the-Main, Germany. Stopper for bottles containing volatile liquids	661,659	Nov. 13	1142	282	93	1194
Goetze, Walter. Thierbach, Germany. Rein-holder	663,431	Dec. 11	986	214	93	1980
Goff, Alvy N., Rocky Ford, assignor of one-half to G. Nevinger, Pueblo, Colo. Calf or colt weaner	664,638	Dec. 25	3216	730	93	2433
Goff, Vina H., El Dorado Springs, Mo. Dress-cutting measure	662,620	Nov. 27	2965	704	93	1589
Goheen, Joseph S., assignor to A. C. Rutan, Wichita, Kans., and M. Reichenbach, St. Louis, Mo. Automatic ink-fountain for printing-presses	661,737	Nov. 13	1285	312	93	1221
Gohlin, Carl, New York, N. Y. Electrical heating apparatus	664,081	Dec. 18	2153	492	93	2193
Gold, Edward E., New York, N. Y. Safety-valve and valve proper	661,603	Nov. 13	1041	259	93	1174
Golden, George W., Detroit, Mich. Sash-center	659,144	Oct. 2	750	181	93	152
Golden Link Consolidated Gold Mines. (See Phillips, Henry J., assignor.)						
Golden, Minnie A. S., New York, N. Y. Corset	664,214	Dec. 18	2306	546	93	2244
Golding, William H., New York, N. Y. Cooking utensil	659,145	Oct. 2	751	181	93	152
Goldschmidt, Martin, Charlottenburg, Germany. Making oxalates	659,733	Oct. 16	1838	------	93	402
Goldsmith, Byron B., New York, N. Y. Making enameled sheets of fibrous material	661,263	Nov. 6	431	------	93	1087
Goldsmith, Edwin M., Philadelphia, Pa. Lead or other pencil	659,020	Oct. 2	562	136	93	113
Goldsmith, Louis, New York, N. Y. Wardrobe-trunk	659,889	Oct. 16	2131	480, 481	93	457
Goldsmith, Sebastian, Washington, D. C. Multiplex ice-cream packing and shipping can	663,076	Dec. 4	308	65	93	1783
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Coin-controlled mechanism for phonographs, &c	659,661	Oct. 16	1697	384	93	374
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Phonograph	659,734	Oct. 16	1841	416	93	402
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Phonograph	659,735	Oct. 16	1843	417	93	402
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Talking-machine	659,736	Oct. 16	1846	417, 418	93	403
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Talking-machine	659,737	Oct. 16	1849	418, 419	93	403
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Talking-machine	659,738	Oct. 16	1855	419	93	404
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Phonograph	659,739	Oct. 16	1858	419, 420	93	404
Gomber, George W., Conyngham, Pa., assignor, by mesne assignments, to American Multiplex Talking Machine Company, of West Virginia. Talking-machine	659,740	Oct. 16	1861	420	93	405
Good, Joshua J. (See Ross, Earle, Good, and Redmon.)						
Good, Oliver F., Dayton, Ohio. Explosive-engine	662,718	Nov. 27	3162	748	93	1625
Good, Oliver F., Dayton, Ohio. Piston for single-acting engines	664,401	Dec. 25	2775	630	93	2345
Good, Thomas L., Edwardsville, Ill. Potato-planter	661,799	Nov. 13	1404	338	93	1244
Gooding, Charles S. (See Wright and Gooding.)						
Goodlett, Joseph E. J., Memphis, Tenn. Automatic can-filling machine	660,101	Oct. 23	2564	573, 574	93	565
Goodlett, Joseph E. J., Memphis, Tenn. Can-filling machine	660,102	Oct. 23	2566	574, 575	93	566
Goodman, Walter. (See Theilengerdes, Frederick, assignor.)						
Goodrich, Clarence L. (See Kummel and Goodrich.)						
Goodrich, Clarence L., assignor to Pratt & Whitney Company, Hartford, Conn. Turret-tool	659,902	Oct. 16	2281	512	93	489
Goodrich, Harry C., Chicago, Ill. Baking or roasting oven	658,840	Oct. 2	226	56	93	48
Goodrich, Ralph B. (See Daugherty, Orie C., assignor.)						
Goodspeed, Charles E. (See Pierce, George L., assignor.)						
Goodwin, Alphonso M., Saco, Me. Baggage-check carrier	661,691	Nov. 13	1205	293	93	1207
Goodwin, Eugene B. (See Deputy, Elijah E., assignor.)						
Goodwin, Howard T. (See Paramore, Edward C., assignor.)						
Goodwin, Norman L., Thorp, Wash. Horse-hitching device	663,881	Dec. 18	1704	402	93	2120
Goodwin, William W. (See Ormerod and King, assignors.)						
Goodyear, Robert B., Philadelphia, assignor of one-half to J. Wolfenden, Cardington, Pa. Stop-motion for knitting-machines	663,432	Dec. 11	987	214	93	1936
Goodyear Tire and Rubber Company. (See Brooks, William S., assignor.)						
Goodyear Tire and Rubber Company. (See Ellinwood, Augustus E., assignor.)						
Goodyear's India Rubber Glove Manufacturing Company. (See Eggers, Anton C., assignor.)						
Goolsbey, Henry A., Lidgerwood, N. D. Animal-poke	661,738	Nov. 13	1286	312	93	1222

Alphabetical list of patentees, October to December, inclusive—Continued.

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Goozey, Charles A., Fall River, Mass. Lock-buckle	661,974	Nov. 20	1732	417	93	1328
Gordon, Albert A., assignor to Crompton & Knowles Loom Works, Worcester, Mass. Driving mechanism for looms	661,264	Nov. 6	434	101	93	1038
Gordon, Arthur R. (See Bradford and Gordon.)						
Gordon, George, *et al.* (See Teeguarden and Himes, assignors.)						
Gordon, George, Luther, Mich. Cover-holder for vessels	660,424	Oct. 23	3204	714	93	603
Gordon, Isaac O. (See Henderson, William, assignor.)						
Gordon, James F., Lowell, assignor of one-half to A. A. Brigham, Weston, Mass. Winding-machine	664,474	Dec. 25	2910	663 664	98	2370
Gordon, T. H., *et al.* (See Teeguarden and Himes, assignors.)						
Gordon, Thomas D., Monmouth, Ill. Blanket	658,894	Oct. 2	309	76	93	63
Gordon, William R., Osceola, assignor of one-half to H. Hines and D. Ferguson, Lancaster, S. C. Mail-bag lock	663,268	Dec. 4	683	147	93	1855
Gorham Manufacturing Company. (See Day, William A., assignor.)						
Gorham Manufacturing Company. (See Smith, William F., assignor.)						
Gorin, Frederick P., Chicago, Ill., assignor to Wyckoff, Seamans & Benedict, Ilion, N. Y. Feed attachment for type-writing machines	658,946	Oct. 2	411	99	93	84
Gorman, Thomas, Warren, assignor of one-half to F. H. Brown, Warwick, R. I. Spindle.	663,492	Dec. 11	1090	238	93	1956
Gormley, Philip J. (See McCuen and Gormley.)						
Gorringe, Edward V., and A. L. Read, Oakley, Idaho. Hopper	664,263	Dec. 18	2488	565	93	2282
Gorse, Frank W., Highlandville, Mass. Knee or elbow cap	663,749	Dec. 11	1533	349	93	2043
Goss, James M., Pekin, Ind. Churn	660,425	Oct. 23	3205	714	93	604
Goss, John H., assignor to Scovill Manufacturing Company, Waterbury, Conn. Inflation-valve attachment	661,174	Nov. 6	271	65	93	1006
Goss Printing Press Company. (See Goss, Samuel G., assignor.)						
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Delivery apparatus for printing-presses	658,773	Oct. 2	55	13, 14	93	14
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Casting-box for stereotyping	659,170	Oct. 2	797	192 198	93	161
Goss, Samuel G., assignor to Goss Printing Press Company, Chicago, Ill. Delivery mechanism for printing-presses	662,590	Nov. 27	2816	668	93	1560
Göttig, Christian, and W. Köttgen, Wilmersdorf, assignors to L. Darmstaedter, Berlin, Germany. Mixture for silvering metals	663,340	Dec. 4	805	------	93	1878
Goudreau, Marcel, Taunton, Mass. Support for curtains	659,662	Oct. 16	1701	384	93	374
Goughnour, Henry S., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Trolley	661,516	Nov. 13	875	211	93	1140
Goughnour, Henry S., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Trolley	661,975	Nov. 20	1733	418	93	1328
Gould, Charles M. (See Richards, Willard F., assignor.)						
Gould, Charles W., New York, N. Y., and O. B. Roberts, Dedham, Mass.; said Roberts assignor to said Gould. Marine-engine governor	663,498	Dec. 11	1091	239	93	1957
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould, William B., Newark, N. J. Stair-rod and securer	664,515	Dec. 25	3087	692	93	2395
Gowen, Thomas W. (See Shaw, Loring D., assignor.)						
Goyne, William H. (See Goyne, William J. and W. H.)						
Goyne, William J., Barton Heights, Va., and W. H. Goyne, Gowen, Pa. Ore-separator	658,947	Oct. 2	414	99	93	84
Graber, D. B., *et al.* (See Lee, John, Sr., assignor.)						
Grabler, Peter, Mansfield, Ohio. Pipe-hanger	661,604	Nov. 13	1043	260	93	1175
Grace-Church Syndicate. (See Ewen, Malcolm F., assignor.)						
Gracey, James G., and A. Gfeller, assignors to Positive Elevator Safety Company, St. Louis, Mo. Elevator safety appliance	662,264	Nov. 20	2280	547 548	93	1435
Graebner, William H., Milwaukee, Wis. Cuff-holder	661,692	Nov. 13	1206	298	93	1207
Graf, Adolf O., Demarest, N. J. Roll-holding camera	659,963	Oct. 16	2285	512 513	93	490
Graffin, John L., Wilmington, N. C. Key-seat cutter	663,509	Dec. 11	1215	265	93	1979
Grafton, Thomas E., New York, N. Y. Wall-tie	660,897	Oct. 30	4048	907	93	875
Graham, Archie. (See Drennan, Smith, and Graham.)						
Graham, Frederic L., Nareen, Victoria. Nib-ejecting pen-holder	661,910	Nov. 13	1560	385	93	1279
Graham, Levi P., Decatur, assignor to Parlin & Orendorff Company, Canton, Ill. Corn-planter	664,264	Dec. 18	2489	565	93	2282
Graham, Muckersie G., Ottumwa, Iowa. Wheel-cultivator	659,741	Oct. 16	1867	421	93	405
Graham, William S., assignor to Parlin & Orendorff Company, Canton, Ill. Cultivator	660,103	Oct. 23	2569	575	93	567
Granbery, Dee T., Memphis, Tenn. Trap for game, &c	663,022	Dec. 4	226	48	93	1769
Grand Rapids Brass Company. (See Tower, Daniel W., assignor.)						
Grandy, Edward F., Everett, Mass. Hand nailing instrument	662,808	Nov. 27	3567	836	93	1712
Granstrom, Ludvig, and R. B. McDonald, McMinnville, Oreg. Wrench	664,634	Dec. 25	3217	730	93	2434
Grant, Albert E., Troy, N. Y. Neckband-shaper	660,104	Oct. 23	2571	575	93	567
Grant, Arthur W., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, New York, N. Y. Rubber tire	659,920	Oct. 16	2197	494	93	471
Grant, Arthur W., Springfield, Ohio, assignor, by mesne assignments, to Consolidated Rubber Tire Company, Jersey City, N. J. Rubber-tire setter	662,640	Nov. 27	3002	710	93	1596
Grant, Arthur W., Springfield, Mass., assignor, by mesne assignments, to Consolidated Rubber Tire Company, Jersey City, N. J. Device for equipping vehicle-wheels with rubber tires	662,641	Nov. 27	3004	710 711	93	1596
Grant, Arthur W., Springfield, Mass., assignor, by mesne assignments, to Consolidated Rubber Tire Company, Jersey City, N. J. Device for equipping vehicle-wheels with rubber tires	662,642	Nov. 27	3005	711	93	1596
Grant Manufacturing Company. (See Brooks, Franklin W., assignor.)						
Grant, Nancy E. (See Wren and Grant.)						
Grant, Thomas, New York, N. Y., assignor of one-half to H. A. Cohen, Delamar, Nev. Single-cylinder compound compressor	660,703	Oct. 30	3861	868	93	837
Grant, Thomas, New York, N. Y., assignor of one-half to H. A. Cohen, Dalamar, Nev. Single-cylinder compound engine	662,417	Nov. 27	2584	621 622	93	1513
Grant, William A., West Orange, N. J. Washing-machine	659,663	Oct. 16	1702	384	93	374
Granville, William A. (See Arnott, Alfred A., assignor.)						
Grass, Henry, Flowerdale, Victoria. Fountain-pen	662,357	Nov. 20	2454	590	93	1469
Grasser, Charles, Passaic, N. J., assignor to American Lithographic Company, New York, N. Y. Printing-surface and producing same	661,142	Nov. 6	212	53	93	994
Grasser, Charles, Passaic, N. J., assignor to American Lithographic Company, New York, N. Y. Apparatus for casting hollow cylinders	661,143	Nov. 6	216	53	93	995
Grassmann, Hugo R., Philadelphia, Pa. Label-gumming machine	661,101	Nov. 6	133	33	93	978
Grath, Walter P., St. Louis, Mo. Brick-machine	660,187	Oct. 23	2751	612	93	603
Grath, Walter P., St. Louis, Mo. Brick-machine	660,188	Oct. 23	2753	612 613	93	604
Gratz, Michael, Los Angeles, Cal. Whisky-cooler	659,208	Oct. 9	1038	244	93	225
Grau, Adam A., West Bend, Wis. Display and cell case	659,225	Oct. 9	927	218	93	204

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Graves, Elbert G., Waxahachie, Tex. Cultivator and planter	661,047	Nov. 6	37	9	93	958
Graves, Herbert G., Mayville, Mich. Ax-handle crate	664,475	Dec. 25	2914	664	93	2370
Graves, Willis N., assignor to Hydraulic Press Brick Company, St. Louis, Mo. Hydraulic brick-machine	661,864	Nov. 13	1506	364 365 366	93	1263
Gray, Charles P. (See Hall and Gray.)						
Gray, Jacob A., Kansas City, Mo. Shoeing-stall for horses	664,402	Dec. 25	2776	630	93	2345
Gray, James H., London, England. Money-tray	658,910	Oct. 2	335	83	93	69
Gray, Philander R., Elizabeth, N. J. Apparatus for separating wax from paraffin-oil	660,251	Oct. 23	2869	638 639	93	627
Gray Telephone Pay Station Company. (See Barker, William H., assignor.)						
Gray, William D., assignor to Edward P. Allis Company, Milwaukee, Wis. Cleaner for shaking-sieves	660,569	Oct. 30	3467	777	93	762
Great Bear Spring Company. (See Brandt, Joseph H., assignor.)						
Great Bear Spring Company. (See Emerick, Frederick A., assignor.)						
Great Bear Spring Company. (See Estes and Emerick, assignors.)						
Green, Blanche M. (See Green, Michael J., assignor.)						
Green, Charles M., and J. G. Callan, Lynn, Mass., assignors to General Electric Company, of New York. System of electrical distribution	659,664	Oct. 16	1704	385	93	375
Green, George D., assignor to J. H. Sager, Rochester, N. Y. Motor-cycle	660,296	Oct. 23	2669	659	93	647
Green, Henry, assignor to Acme Harvesting Company, Pekin, Ill. Chain-tightener	660,570	Oct. 30	3469	778	93	763
Green, James A. (See Seay, John W., assignor.)						
Green, James W., Portland, Oreg. Saw-sharpener	660,105	Oct. 23	2572	576	93	567
Green, John H., assignor of forty-nine one-hundredths to D. J. Smith, Aurora, Ill. Adjustable hoop	664,082	Dec. 18	2155	492	93	2193
Green, Michael J., assignor to B. M. Green, New York, N. Y. Writing-tablet	659,742	Oct. 16	1869	421	93	406
Green, Thomas, Newark, N. J. Bicycle-saddle	661,338	Nov. 6	572	132	93	1064
Green, Thomas W., assignor to Wilbraham Baker Blowe. Company, Philadelphia, Pa. Rotary blower	659,619	Oct. 9	1612	365	93	341
Green, Will F. (See Lisher, Seth G., assignor.)						
Green, William B., Ragsdale, Ky. Short-turning gear for vehicles	659,743	Oct. 16	1870	422	93	406
Greenawalt, Peter C., Reading, Pa. Hasp-lock	660,571	Oct. 30	3471	778	93	763
Greene, Thomas H., Woonsocket, R. I. Cloth-shearing machine	664,040	Dec. 18	2087	476 477	93	2179
Greenawerig, Hiram A. (See Schaffer, Martin R., assignor.)						
Greenwood, Guy F. (See Entz, Justus B., assignor.)						
Greenwood, James H., assignor of one-half to T. N. Morrison, W. Long, S. Burrows, W. Hanley, R. F. Morrison, and J. Morrow, Boissevain, Canada. Automatic brake	662,418	Nov. 27	2586	622	93	1514
Greenwood, James H., assignor of one-half to T. N. Morrison, W. Long, S. Burrows, W. Hanley, R. F. Morrison, and J. Morrow, Boissevain, Canada. Mechanical brake	662,531	Nov. 27	2819	669	93	1561
Greer, Joseph F. (See Dodd and Greer.)						
Gregg, Norris B., St. Louis, Mo. Extracting oil	658,948	Oct. 2	416	100	93	85
Gregg, T. C., *et al.* (See Solomon, Jessie B., assignor.)						
Gregg, William C., Honolulu, Hawaii. Rail connection for railways	663,885	Dec. 18	1794	402	93	2121
Gregg, William W., Elmira, N. Y. Locomotive	660,898	Oct. 30	4049	908	93	875
Gregory, Eugene J., *et al.* (See Scott, William H., assignor.)						
Gregory, John H., Ione, Cal. Scraper for cleaning ditches or trenches	659,473	Oct. 9	1385	305	93	287
Gregory, Joseph, New York, N. Y. Lamp-burner	661,517	Nov. 13	876	211	93	1141
Gregory, Joseph, Jersey City, N. J. Lamp-burner	664,742	Dec. 25	3428	777	93	2479
Gregory, Julius, *et al.* (See Scott, William H., assignor.)						
Gregory, Robert B., Decatur, Ind. Scaffold-hook	663,888	Dec. 18	1796	408	93	2121
Greil, Ernest, and E. Audiger, Paris, France, assignors to Electric Lighting Boards, Limited, London, England. Electric contact or current-taking device	663,750	Dec. 11	1534	343 344	93	2043
Greiner, James C., Harrisonburg, Va. Steam-washboiler	662,265	Nov. 20	2282	548	93	1435
Grenamyer, Arthur G., and G. A. Robinson, Leetonia, Ohio. Filter	663,751	Dec. 11	1536	344	93	2043
Grenier Art Company of West Virginia. (See Grenier, Prosper M. C., assignor.)						
Grenier, Prosper M. C., New York, N. Y., assignor to Grenier Art Company of West Virginia. Colored photograph	661,976	Nov. 20	1734	------	93	1328
Gresham, James, New York, N. Y. Serpentine boat	662,067	Nov. 20	1916	459 460	93	1362
Greuter, Charles R., Holyoke, Mass., assignor to Holyoke Automobile Company, Jersey City, N. J. Brake for vehicles	659,665	Oct. 16	1705	385	93	375
Greve, Hermann C., Dayton, Ohio. Cigar-bunching machine	663,964	Dec. 18	1956	440	93	2153
Grever, Albert R., Philadelphia, Pa. Filter	661,339	Nov. 6	573	132	93	1065
Grever, Albert R., Philadelphia, Pa. Means for electrolyzing liquids	661,340	Nov. 6	575	133	93	1065
Grieb, Alfred. (See Diehl and Grieb.)						
Griebel, Andrew, Cleveland, assignor of two-thirds to H. M. Brenenstul, Wakeman, Ohio. Carbureter	661,660	Nov. 13	1148	282	93	1194
Grier, George E., Pomona, Cal. Peeling and gouging knife	658,774	Oct. 2	58	14	93	15
Griffen, Felix J., *et al.* (See Gipe, Emanuel C., assignor.)						
Griffeth, James R., assignor of one-half to M. H. Glover, Norwalk, Conn. Hat-brim trimmer	663,935	Dec. 18	1958	441	93	2153
Griffin, George A. (See Hayes, Richard F., assignor.)						
Griffin, Watson E. (See Gavin and Griffin.)						
Grimshaw, Frank B., *et al.* (See Ward, Charles A., assignor.)						
Grimsrud, Lucas. (See Brye, Grimsrud, and Thrune.)						
Grise, Edward S. (See Post and Grise.)						
Griswold, Robert, Grover, Colo. Device for stacking loose hay or straw	664,546	Dec. 25	3088	692	93	2395
Griswold, William S., Elyria, Ohio. Wall-plaster and cement for brickwork	662,643	Nov. 27	3006	------	93	1597
Groessl, George, Green Bay, Wis. Means for drying interiors of vats or casks and leading out all injurious gases	663,341	Dec. 4	807	172	93	1878
Groff, Clarence B., Camden, N. J. Ratchet-drill	662,644	Nov. 27	3007	711 712	93	1597
Gronewold, Jurgen W., Golden, Ill. Drinking-trough for hogs or cattle	661,102	Nov. 6	134	33	93	978
Groom, Amos E., Mars, Pa. Tire-bolt wrench	663,884	Dec. 18	1797	408	93	2121
Groom, Harry, St. Louis, Mo., assignor to Sempire Clock Company, of Missouri. Pendulum-locking device	664,403	Dec. 25	2783	630	93	2346
Gross, James L., Blackwell, Okla. Ter. Gate-spring	660,106	Oct. 23	2573	576	93	567
Gross, Solomon L., Des Moines, Iowa. Sad-iron	662,932	Dec. 4	59	14	93	1737
Grosse, Frederick F., and W. F. Lintz, assignors of one-third to T. H. Durst, Waukegan, Ill. Valve	664,368	Dec. 18	2699	613	93	2304
Grossiord, Samuel, Aux Moussleres, France. Manufacture of artificial stones	660,426	Oct. 23	3207	715	93	694
Grossman, Adolphe, New Orleans, La. Controller for motors and brakes of electric cars	662,858	Nov. 20	2456	591	93	1469
Grote, Ferdinand, Evansville, Ind. Press	659,964	Oct. 16	2287	513 514	93	490
Grote, George H, St. Louis, Mo. Steam-trap	661,372	Nov. 6	626	145	93	1077

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Grove, John H. (See Melven, Grove, Leitsch, and Melven.)						
Grubman, Joseph, New York, N. Y. Embroidering attachment for sewing-machines	663,752	Dec. 11	1537	344	93	2043
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Electric railway	662,419	Nov. 27	2588	623	93	1514
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Electric railway	662,420	Nov. 27	2593	624	93	1515
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Electric railway	662,421	Nov. 27	2595	624	93	1515
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Electrical resistance	662,422	Nov. 27	2596	624	93	1516
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Current-collector	662,423	Nov. 27	2597	624	93	1516
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Apparatus for interrupting relatively high potential circuits	662,784	Nov. 27	3282	774	93	1648
Grunow, William, Jr., assignor to McElroy-Grunow Electric Railway System, Bridgeport, Conn. Apparatus for rupturing high-potential electrical circuits without dangerous arcing	662,785	Nov. 27	3284	774 775	93	1648
Grupe, Durbin, Davenport, Iowa. Rotary drier	659,299	Oct. 9	1039	244	93	225
Guerrant, Estill C., assignor of one-fourth to R. P. Woodson, Memphis, Tenn. Nut and bolt lock	659,744	Oct. 16	1871	422	93	407
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Electric-snap-switch cover	660,633	Oct. 30	3571	801	93	782
Guett, Monroe, assignor to Hart & Hegeman Manufacturing Company, Hartford, Conn. Rotary snap electrical switch	660,634	Oct. 30	3572	801	93	782
Guggenheimer, Emanuel, Philadelphia, Pa. Window-cleaner	659,474	Oct. 9	1336	305	93	287
Guillaume, Narcisse A., Paris, France. Gas-motor	661,865	Nov. 13	1512	366 367	93	1264
Gunderson, John G. (See Nordhaugen, Carl, assignor.)						
Gundlack, Alexander E., *et al.* (See Ormsby, Charles E., assignor.)	664,145	Dec. 18	2280	519	93	2219
Gunkie, James M., assignor of one-half to J. De Sellem, Denver, Colo. Brick-truck	659,666	Oct. 16	1706	385	93	375
Gunn, Moses W., La Salle, Ill. Fence-tool	661,866	Nov. 13	1513	367	93	1264
Gunning, John, Bournemouth, England. Time lamplighter	660,572	Oct. 30	3473	778	93	704
Günther, Raimund, Vienna, Austria-Hungary. Telephonic apparatus						
Gussmann, Hermann, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Blue sulfur dye	660,770	Oct. 30	3815	------	93	829
Gutekunst, Jacob, Augsburg, Germany. Clock striking mechanism	664,404	Dec. 25	2783	631	93	2946
Guthrie, Ossian, Chicago, Ill. Refrigeration apparatus	660,771	Oct. 30	3815	856	93	829
Guthrie, Ossian, Chicago, Ill. Facilitating congelation of water	660,772	Oct. 30	3820	850 857	93	829
Gutknecht, Johann, Zurich, Switzerland. Collapsible boat or floating device	660,252	Oct. 23	2873	639	93	628
Gutridge, Samuel W., Granite, Oreg. Saw-filing machine	663,992	Dec. 18	2005	452	93	2163
Gutzkow, Hermann, and B. Homolka, Frankfort-on-the-Main, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Transforming carbon dyes	661,800	Nov. 13	1406	------	93	1245
Gutzkow, Hermann, and B. Homolka, Frankfort-on-the-Main, assignors to Farbwerke, vormals Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Dyeing coal-tar colors	663,225	Dec. 4	601	------	93	1839
Gwinn, George W., Baltimore, Md., assignor to Raymond Button Company of Baltimore City, of Maryland. Button-setting machine	661,310	Nov. 6	516	120	93	1054
Gwinn, George W., and H. C. Smith, Baltimore, Md., assignors to Raymond Button Company of Baltimore City, of Maryland. Button-setting machine	661,309	Nov. 6	514	119	93	1053
Gysel, Peter, assignor of one-half to P. W. Seiler, Rochester, N. Y. Window-screen	663,753	Dec. 11	1540	345	93	2044
H. B. Smith Company. (See Mercer, Andrew, assignor.)						
H. Haller Manufacturing Company. (See Hobbs, George P., assignor.)						
H. Mueller Manufacturing Company. (See Mueller, Oscar, assignor.)						
H. P. Deuscher Company. (See Schoeler, Joseph, assignor.)						
Haanel, Charles F. (See Montgomery, John H., assignor.)						
Haas, Sol. (See Castleman, James W., assignor.)	659,368	Oct. 9	1138	265	93	246
Haberlin, John E., and W. R. and T. F. Hayes, Bridgeport, Conn. Truing-gage						
Haberlin, William R. (See Haberlin and Hayes.)	661,244	Nov. 6	392	93	93	1030
Habirshaw, William M., New York, N. Y. Electric cable						
Hachmann, Frederick, assignor of three-fourths to L. Hill, M. Toltz, St. Paul, Minn., and E. Baasen, Milwaukee, Wis. Electrode for arc-lamps	660,852	Oct. 30	3983	891	93	861
Hackathorn, Charles F. (See Worstall and Hackathorn.)						
Hackett, Lewis E., Jackson, Mich. Steam-trap	663,433	Dec. 11	900	214	93	1937
Hackett, Thomas J., Wardner, Idaho. Check-valve	664,146	Dec. 18	2282	519	93	2219
Hackler, Andrew J. (See Wright and Hackler.)						
Hadaway, John B., Brockton, Mass. Stitch-separating machine	664,405	Dec. 25	2787	631	93	2347
Hadfield, Joseph, assignor of one-third to G. S. Mullally, New York, N. Y. Elevator	664,041	Dec. 18	2089	477	93	2179
Hadley, Alfred W., *et al.* (See Ashley, George, assignor.)						
Haering, Joseph, Louisville, Ky. Automatic rain-water cut-off	662,983	Dec. 4	60	15	93	1737
Hafter, Adolph, Chicago, Ill. Machine for cutting, raveling, and cleaning carpet-strips	661,605	Nov. 13	1045	260 261	93	1175
Hagen, Frederick, Belvidere, Ill. Corn-shredder. (Reissue)	11,866	Oct. 30	4285	962	93	922
Hagen, Martin, assignor of one-half to G. J. Moen, Cashton, Wis. Candle-holder	660,899	Oct. 30	4054	908	93	676
Hagerty, Thomas F., San Francisco, Cal. Plating-machine	659,171	Oct. 2	800	193	93	161
Haglin, Charles F., Minneapolis, Minn. Mold	662,266	Nov. 20	2283	548 549	93	1436
Hahn, Theodor, Kötzschenbroda, assignor to S. Mühlenthal and M. Loewenthal, Berlin, Germany. Gas-pressure regulator	661,867	Nov. 13	1515	367	93	1264
Haigh, Samuel, Cincinnati, Ohio. Valve	661,175	Nov. 6	272	66	93	1007
Haight, Charles L., Poughkeepsie, N. Y. Electric fire-alarm	662,719	Nov. 27	3164	748	93	1625
Haines, John B., Penfield, Ill. Gate	663,269	Dec. 4	684	147	93	1835
Hake, Harry, assignor of one-half to R. Y. Luthy, Cincinnati, Ohio. Holder for memorandum-blanks or the like	661,977	Nov. 20	1734	418	93	1328
Hake, Philipp, Hoboken, N. J. Paper and producing same	664,743	Dec. 25	3432	777	93	2480
Hakewessell, Reinhold, Hartford, and E. C. Henn, Bloomfield, Conn. Slotting-machine	663,122	Dec. 4	392	83	93	1800
Halbert, Fred E., Chicago, Ill. Hat sweat-band	662,645	Nov. 27	3009	712	93	1597
Hale, Elias E. (See Mack, Heman D., assignor.)						
Hale & Kilburn Manufacturing Company. (See Old, Ausborn F., assignor.)	659,393	Oct. 9	1188	274	93	256
Hale, William R., Gualala, Cal. Tobacco-pipe						
Halkyard Manufacturing Company. (See Hargraves, Robert F., assignor.)						
Hall, A., *et al.* (See Froberg, Johan R., assignor.)	661,449	Nov. 6	759	178	93	1108
Hall, Charles H., Frankfort, Ind. Corn-planter	663,157	Dec. 4	491	104	93	1819
Hall, Charles M., Niagara Falls, N. Y. Making alumina	660,952	Oct. 30	4145	931	93	895
Hall, George, Lima, Ohio. Mechanical device for art decorating						

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Hall, George E., Kansas City, Mo. Roller-ratchet for pulleys, &c	661,978	Nov. 20	1737	418	93	1329
Hall, George W., Hermon, Me. Clamping socket and support for cameras	658,911	Oct. 2	336	84	93	69
Hall, Henry A. (See Flesche, Hall, and Doherty.)						
Hall, Henry C., assignor of one-half to L. Fritz, Covington, Ky. Toy revolving pistol	661,450	Nov. 6	760	179	93	1104
Hall, Hugh M. (See Davis and Hall.)						
Hall, James B., Cleveland, Ohio. Fish-hook	664,476	Dec. 25	2916	664	93	2371
Hall, Lewis A., *et al.* (See Leaver, James M., assignor.)						
Hall, Ned, and C. P. Gray, San Marcos, Cal. Hand-car driving mechanism	662,563	Nov. 27	2872	681	93	1570
Hall, William A., Bellows Falls, Vt., assignor to Casein Company of America, of New Jersey. Making soluble casein	664,318	Dec. 18	2602	------	93	2285
Hall, William H., New York, N. Y. Tooth-powder box	661,911	Nov. 13	1502	366	93	1280
Hall, William L. (See Price, Bertha A., assignor.)						
Hallanan, Michael, New York, N. Y. Hoof-pad	660,427	Oct. 23	3208	715	93	694
Hallanan, Michael, New York, N. Y. Boot or shoe	663,270	Dec. 4	685	148	93	1855
Hallberg, Josef H., assignor to Standard Thermometer and Electric Company, Peabody, Mass. Electric-arc lamp	663,606	Dec. 11	1447	320	93	2025
Hallberg, Lawrence G., Chicago, Ill. Fireproof flooring	659,965	Oct. 16	2288	514 515	93	491
Hallberg, Lawrence G., Chicago, Ill. Fireproof flooring	659,966	Oct. 16	2291	515	93	491
Hallberg, Lawrence G., Chicago, Ill. Foundation	659,967	Oct. 16	2294	515	93	492
Hallett, Joseph, and G. Halliday, London, England. Steam-generator	661,868	Nov. 13	1517	368	93	1265
Halliday, George. (See Hallett and Halliday.)						
Hallidie, Andrew S., deceased, San Francisco, Cal.; M. E. Hallidie, executrix. Conveyer for ropeways	659,745	Oct. 16	1873	422	93	407
Hallidie, Martha E., executrix. (See Hallidie, Andrew S.)						
Hallock, George W. (See Perry, John F., assignor.)						
Halsey, Edward S., Chicago, Ill. Invisible suspenders	659,620	Oct. 9	1613	365	93	341
Halsey, Edward S., Chicago, Ill. Electric meter	664,265	Dec. 18	2490	565 566	93	2262
Halsey, Francis A., San Rafael, Cal. Powder mixing and incorporating mill	660,373	Oct. 23	3117	090 091	93	676
Halsey, William S., Pittsburg, Pa. Gas-engine	659,027	Oct. 2	563	136 137	93	113
Halsey, William S., Pittsburg, Pa. Valve-gear	663,885	Dec. 18	1790	403 404	93	2121
Halsey, William S., Pittsburg, Pa. Lowering-brake for hoists	663,886	Dec. 18	1801	404 405	93	2122
Halsey, William S., Pittsburg, Pa. Ratchet-drill	663,887	Dec. 18	1803	405	93	2122
Halstead, Thomas J., Dallas, Tex. Trace-lock	659,053	Oct. 2	618	149	93	124
Ham, Henry C., assignor to Rude Brothers Manufacturing Company, Liberty, Ind. Fertilizing-machine	662,532	Nov. 27	2820	669	93	1561
Hamburger, Leon, *et al.* (See Darley, John W., Jr., assignor.)						
Hamburger, Philip, *et al.* (See Darley, John W., Jr., assignor.)						
Hamelback, Jacob A., Zanesville, Ohio. Vehicle	662,267	Nov. 20	2285	549	93	1486
Hamer, John C., Radcliffe, England. Dyeing-centrifugal	663,868	Dec. 18	1805	405	93	2123
Hamilton, Augusta M., Medindie, South Australia. Pocket-filter	663,271	Dec. 4	686	148	93	1855
Hamilton, Clarence J. and C., Plymouth, Mich. Rifling gun-barrels	660,725	Oct. 30	3746	843	93	815
Hamilton, Clarence J. and C., Detroit, Mich. Rifle	662,068	Nov. 20	1918	460	93	1363
Hamilton, Coello. (See Hamilton, Clarence J. and C.)						
Hamilton, George C., Chicago, Ill. Faucet attachment	659,394	Oct. 9	1184	274	93	256
Hamilton, William, National Military Home, assignor of one-third to C. W. Swan, Wellston, Ohio. Switch-shifting mechanism	659,848	Oct. 16	2063	464	93	445
Hamilton, William D., Bearsden, Scotland. Water-tube boiler	660,506	Oct. 23	3349	752 753	93	722
Hamlin, Harry, *et al.* (See Gaunt, Thomas, assignor.)						
Hamlin, William, *et al.* (See Gaunt, Thomas, assignor.)						
Hamm, Mark H., Petaluma, and H. R. Taylor, Oakland, assignors to John Taylor & Company, San Francisco, Cal. Ore stamp-mill	661,144	Nov. 6	219	54	93	906
Hamm, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Acetylene-gas generator	661,761	Nov. 13	1339	323 324	93	1230
Hamm, William S., Chicago, Ill., assignor to Adams & Westlake Company, of Illinois. Washstand	663,889	Dec. 18	1806	406	93	2123
Hammann, Frederick B., Baltimore, Md. Banjo-bridge	660,953	Oct. 30	4145	932	93	865
Hammer, Edward W., Chicago, Ill. Controlling device for electric circuits	661,518	Nov. 13	879	211 212	93	1141
Hammond, Frank, assignor of one-third to Penman Manufacturing Company, Limited, Paris, Canada. Presser for spring-needle knitting-machines	662,268	Nov. 20	2287	549	93	1486
Hammond, Robert, assignor to H. C. Noyes, E. R. Ziebach, and C. A. West, Caldwell, N. Y. Music-leaf turner	660,498	Oct. 23	3210	715	93	694
Hampden Cancelling Machine Company. (See Landfear, William R., assignor.)						
Hampshire, Harry, *et al.* (See Singleton, Herbert E. S., assignor.)						
Hampson, Thomas R. (See Davidson and Hampson.)						
Hamshaw, Charles W., Lamar, Mo. Inkstand	659,968	Oct. 16	2297	516	93	492
Hanak, Edward, and G. Hoepner, San Francisco, assignors to Union Scale and Manufacturing Company, Sacramento, Cal. Automatic weighing-scale	660,794	Oct. 30	3863	868 869	93	837
Handly, Thomas F., Allegheny, Pa. Fire-extinguisher	661,215	Nov. 6	337	80, 81	93	1019
Handy Things Company. (See Bailey, Herbert L., assignor.)						
Hanford, Percy W., Oakesdale, Wash. Boiler	660,429	Oct. 23	3213	716	93	695
Hanhart, Louis J., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Sawing-machine	659,475	Oct. 9	1337	305 306	93	287
Hanhart, Louis J., assignor to J. A. Fay & Egan Company, Cincinnati, Ohio. Feeding mechanism for band-saw mills	660,635	Oct. 30	3574	801 802	93	782
Hanigan, Adam W., Baltimore, Md. Melting-pot for type-casting machines	659,525	Oct. 9	1439	326	93	307
Hankey, George W. A., York, Pa. Cigar-making machine	660,297	Oct. 23	2971	660	93	648
Hankins, John O. (See Kinney and Hankins.)						
Hanley, William, *et al.* (See Greenwood, James H., assignor.)						
Hann, Chester K., Columous, Ohio. Swing	659,300	Oct. 9	1041	244	93	226
Hanna, John N., Del Norte, Colo. Plow	660,430	Oct. 23	3214	716	93	695
Hansell, William H., Philadelphia, Pa. Egg-case filler	662,424	Nov. 27	2599	625	93	1516
Hansen, Hans G., Howard Lake, Minn. Bag-tie	663,540	Dec. 11	1175	254	93	1972
Hansen, John M. (See Schoen and Hansen.)						
Hansen, Julius G., Reading, Pa. Advertising-sign	663,892	Dec. 18	1811	406	93	2124
Hansmann, William, Manson, Iowa. Sawing-machine	662,720	Nov. 27	3165	749	93	1626
Hanson, Charles A., *et al.* (See Weber, Theodore A., assignor.)						
Hanson, Christian R., Savanna, Ill. Barber-pole	661,979	Nov. 20	1738	418	93	1329

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Hanson, Hans J., Hansonville, Minn. Calculating-machine	663,890	Dec. 18	1807	406, 407	93	2123
Hanson, Hans J., Hansonville, Minn. Computing-machine	663,891	Dec. 18	1809	407, 408	93	2123
Hanson, J. P. (See Overstrom, Gust A., assignor.)						
Hanson, John H., Oakland, Nebr. Stock-watering apparatus	661,980	Nov. 20	1740	419	93	1330
Hanson, Tom, Covington, Ind. Insect-exterminating machine	661,739	Nov. 13	1288	312, 313, 314, 315	93	1222
Harang, Edward B., *et al.* (See Gatrell, Ottmar A., assignor.)						
Harbaugh, Howard E., assignor to Chicago-Rockford Hosiery Company, Kenosha, Wis. Circular-knitting machine	664,266	Dec. 18	2498	506, 507	93	2264
Harbin, Joseph T., Condon, Oreg. Lifting-jack	660,507	Oct. 23	3350	753	93	722
Harboth, Barny, Effingham, Ill. Wagon-body	660,508	Oct. 23	3352	753	93	723
Harbridge, Frederick J., Gravenhurst, Canada. Cylinder printing-press	664,744	Dec. 25	3434	778	93	2481
Harding, Mason T., Overbrook, Kans. Lister corn-planter	662,621	Nov. 27	2970	704	93	1590
Harding, Russell, St. Louis, Mo. Side bearing for railway-cars	661,981	Nov. 20	1742	419	93	1330
Hards, Edward, Fremont, Nebr. Grinding-mill	658,841	Oct. 2	229	57	93	48
Hardsocg, Martin, Ottumwa, Iowa. Coal-drill	662,646	Nov. 27	3010	712	93	1597
Harlwick, Penton A., Colorado City, Colo. Washing-machine	660,431	Oct. 23	3216	716	93	696
Hardy, Isham B., assignor of one-third to G. C. Pylant, Gatesville, Tex. Sash-holder	661,606	Nov. 13	1046	261	93	1175
Hardy, Louisa, Chicago, Ill. Sad-iron heater	663,342	Dec. 4	808	173	93	1878
Hardy, Richard L., Chicago, Ill. Combined brush and soap holder	661,176	Nov. 6	273	66	93	1007
Hare, Charles N., Bowling Green, Ohio. Valved piston	658,912	Oct. 2	338	84	93	69
Harenc, Alexander H. B., *et al.* (See Smith, Jonathan P., assignor.)						
Hargraves, Robert F., Providence, R. I., assignor to Halkyard Manufacturing Company, of Rhode Island. Machine for setting lacing-hooks	659,746	Oct. 16	1874	422, 423, 215	93	407
Hargreaves, Wilson, Chicago, Ill. Lathing-machine	663,434	Dec. 11	991	216, 217	93	1988
Haring, William N., assignor to himself and A. Merritt, Nyack, N. Y. Tobacco-pipe	662,692	Nov. 27	3109	734	93	1616
Harling, Carl E., New York, N. Y. Chisel-gage	660,012	Oct. 16	2366	532	93	507
Harmon, John, and A. T. Fay, Minneapolis, Minn. Ladder	659,667	Oct. 16	1707	385	93	376
Harmon, Orville S., New York, N. Y. Bicycle-saddle	660,215	Oct. 23	2809	622, 623	93	614
Harmony, Jonas M., assignor of one-half to D. H. Jackson, Canton, Ohio. Bottle-stopper	659,895	Oct. 9	1185	274	93	257
Harms, Hinrich, and H. Seegelke, Eystrup, Germany. Potato-harvesting machine	664,406	Dec. 25	2789	632, 633	93	2347
Harp-O-Chord Company. (See Brown, Carl E., assignor.)						
Harper, George B., Menoken, Kans. Metallic railway-track construction	664,020	Dec. 18	2064	469	93	2174
Harper, John E., *et al.* (See West, Lee, assignor.)						
Harpole, Andrew J. (See Fowler and Harpole.)						
Harpstrite, Henry P., Dalton City, Ill. Car-loader	660,696	Oct. 30	3576	802	93	788
Harries, Carl, assignor to Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany. Unstable acetonalkamins and making same	663,754	Dec. 11	1542	------	93	2045
Harriman, Horace E. (See Weaver, George L., assignor.)						
Harrington, Charles E. and J. G., assignors of one-third to H. R. Alfs, Peoria, Ill. Computing-measure	662,533	Nov. 27	2920	669, 670	93	1561
Harrington, John G. (See Harrington, Charles E. and J. G.)						
Harris, Abraham B., Etter, Va. Horse-collar	664,267	Dec. 18	2503	568	93	2264
Harris Automatic Press Company. (See Harris and McNutt, assignors.)						
Harris, Charles G., Niles, and J. F. McNutt, Warren, assignors to Harris Automatic Press Company, Niles, Ohio. Printing-press	661,245	Nov. 6	393	93	93	1090
Harris, Charles R., Williamsport, Pa. Receptacle	660,107	Oct. 23	2574	576	93	568
Harris, Charles R., Williamsport, Pa., assignor to Harris Safety Company, New York, N. Y. Fire-escape	658,842	Oct. 2	230	57	93	48
Harris, Charles R., Williamsport, Pa., assignor to Harris Safety Company, New York, N. Y. Fire-extinguisher	662,786	Nov. 27	3286	775	93	1648
Harris, George W., Maharris, Miss. Fender attachment for cultivator-plows	663,494	Dec. 11	1094	239	93	1957
Harris, Hermen. (See Burt and Harris.)						
Harris, Isaac L., Jacksonville, Fla. Acetylene-gas generator	659,226	Oct. 9	929	218	93	204
Harris, John H., Willow, Ark. Lumber or log wagon	661,982	Nov. 20	1743	419	93	1330
Harris, Louie J., Boston, Mass. Steam-boiler	662,232	Nov. 20	2235	538	93	1426
Harris Safety Company. (See Harris, Charles R., assignor.)						
Harris, Thomas F., assignor of two-thirds to R. C. McWane, Radford, and H. E. McWane, Lynchburg, Va. Clamp	663,343	Dec. 4	809	173	93	1878
Harrison, Albert J., Luxor, Mo. Cutting apparatus	663,541	Dec. 11	1176	254	93	1973
Harrison, Arthur W., assignor of one-half to W. A. Fruhling, Los Angeles, Cal. Electric battery	662,622	Nov. 27	2973	705	93	1590
Harrison, James H. (See Bryant, Edward R., assignor.)						
Harsha, James W., Columbus, Ohio. Copy-holder	662,193	Nov. 20	2154	520	93	1411
Hart, Harry S., Chicago, Ill. Convertible dump-car	664,268	Dec. 18	2504	568, 569	93	2265
Hart & Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)						
Hart, Henry J., *et al.* (See Lawson, Benjamin S., assignor.)						
Hart, Henry M. (See Ford, Alfred N., assignor.)						
Hart, Howard S. (See Marwick and Hart.)						
Hart, Howard S., and D. B. Marwick, Chicago, Ill. Sheet-metal register	661,638	Nov. 13	1104	274	93	1186
Hart, Howard S., and D. B. Marwick, Chicago, Ill. Register	661,639	Nov. 13	1105	274	93	1186
Hart, Howard S., and D. B. Marwick, Chicago, Ill. Register						
Hart, James L. (See Fry, Joseph U., assignor.)	661,519	Nov. 13	882	212	93	1142
Hart, Joseph, and J. Worth, New York, N. Y. Bushing for barrels	662,269	Nov. 20	2288	550	93	1436
Hart, Sara C., Galveston, Tex. Ash-sifter	661,048	Nov. 6	38	9	93	958
Hart, Walter, New York, N. Y. Flagstaff-holder	661,912	Nov. 13	1593	386	93	1290
Hart, Walter B., Duncan, Ind. Ter. Calf-weaner	663,226	Dec. 4	603	129	93	1889
Hart, William H., Jr., Philadelphia, Pa. Bicycle-stand	663,077	Dec. 4	310	66	93	1783
Harte, Patrick A., San Francisco, Ca'. Safety-indicator for railway-wheels						
Hartel, Albert E., assignor of two-thirds to G. H. Mullin and P. B. Metzger, Philadelphia, Pa. Hydrocarbon-burner	659,668	Oct. 16	1709	386	93	376
Hartford Machine Screw Company. (See Mason and Witherell, assignors.)						
Harth, John, Jr., Ambia, Ind. Bucket	664,147	Dec. 18	2283	520	93	2219
Harthan, Charles E., Lynn, Mass., assignor to General Electric Company, of New York. Clutch for electric-arc lamps	664,083	Dec. 18	2157	493	93	2194
Harthan, Charles E., and G. E. Stevens, Lynn, Mass., assignors to General Electric Company, of New York. Electric-arc lamp	660,795	Oct. 30	3866	869	93	838

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hartley, William B., Southport, O. J. Parrish, Indianapolis, Ind., and O. M. Parrish, Chicago, Ill. Self-healing compound for tire-punctures	661,124	Nov. 6	182	------	93	980
Hartman, Henry A., Pittsburg, Pa. Washing-machine	662,425	Nov. 27	2601	625	93	1516
Harton, Pembroke D. (See Macartney, Edmund C., assignor.)						
Hartshorn, Edmund F., Newark, N. J., assignor to Stewart Hartshorn Company, of New Jersey. Spring shade-roller	662,148	Nov. 20	2061	500	93	1391
Hartsough, Lyman C., Cleveland, Ohio. Rotary washing-machine	659,921	Oct. 16	2198	494	93	471
Hartt, Henry, Chicago, Ill. Longitudinally folding and inserting printed webs	660,726	Oct. 30	3748	844	93	816
Hartt, Henry, Chicago, Ill. Printing-press	662,984	Dec. 4	62	15	93	1738
Hartung, Augustus C., Galena, Kans. Ore-separator	664,635	Dec. 25	3218	730, 731	93	2434
Hartwell, Jacob E., assignor of one-half to F. B. Callow and W. D. Savage, Troy, Mont. Engine	663,755	Dec. 11	1546	345, 346	93	2045
Hartwig, Henry, and A. W. Feltmann, Chicago, Ill. Dental vulcanizer and celluloid-press	659,747	Oct. 16	1876	423	93	408
Harvey, Charles, Yardley, England. Tubing	662,787	Nov. 27	3288	775	93	1649
Harvey, J. H. (See Brown, William O., Jr., assignor.)						
Harvey, Thomas, Jr., Hull, Canada. Wire-web guide for paper-making machines	661,983	Nov. 20	1744	419, 420	93	1330
Haskell, Henry L., assignor to Ludington Novelty Company, Ludington, Mich. Folding table	663,272	Dec. 4	688	148	93	1855
Haskell, Louis W., Savannah, Ga. Rice-drier	660,900	Oct. 30	4055	908	93	876
Haskins, Caryl D., Newton, Mass. Automatic steering device for torpedoes	661,520	Nov. 13	883	212	93	1142
Haskins, Robert B., Cincinnati, and G. Fisher, Elmwood Place, Ohio. Molder's chaplet or anchor	659,444	Oct. 9	1287	296	93	277
Haslam, John F. (See Peterson and Haslam.)						
Haslwanter, Charles, Jr., assignor to H. Huntington, New York, N. Y. Safety-match	664,609	Dec. 25	3182	------	93	2426
Hass, Caesar, London, England. Lumber-separating strip	658,913	Oct. 2	330	84	93	69
Hasselkus, John W., assignor to Ross, Limited, London, England. Prismatic binocular glasses	659,526	Oct. 9	1443	326, 327	93	307
Hastings, W. G. Sandusky, Ohio. Chair	659,301	Oct. 9	1042	245	93	226
Hatch, Edward N., *et al.* (See Brown, Norman E., assignor.)						
Hatch, Jacob D. (See Marston and Hatch.)						
Hatch, James E., Eaton, N. Y. Stove	661,984	Nov 20	1746	420	93	1331
Hatch, Robert N., Woodstock, Canada. Self-supporting bicycle-pump	660,509	Oct. 23	3353	754	93	723
Hausdoerfer, Paul B. (See Loeper and Hausdoerfer.)						
Hauser, Isaiah L., Chicago, Ill. Packing-case	664,084	Dec. 18	2158	493	93	2194
Hausmann, Otto, Minneapolis, Minn. Attachment for bicycles	661,145	Nov. 6	220	54	93	996
Haussmann, Emil, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Dyeing	661,985	Nov. 20	1747	------	93	1331
Haviland, Frederick H. (See Haviland and Farmer.)						
Haviland, John, Northampton, F. H. Haviland, Bournemouth, England, and J. Farmer, Glasgow, Scotland. Flexible piping	663,570	Dec. 11	1217	266	93	1980
Hawes, Franklin, Boston, Mass., assignor to Lambert Manufacturing Company, New York, N. Y. Claw for hammers	661,717	Nov. 13	1251	302	93	1216
Hawgood, Henry, Eccles, England. Hinge	663,571	Dec. 11	1218	267	93	1980
Hawkins, Edmund P. (See Laughlin, Samuel J., assignor.)						
Hawkins, John W., Cuyahoga Falls, Ohio. Clutch for wire-drawing machinery	662,270	Nov. 20	2289	550	93	1437
Hawkins, John W., Cuyahoga Falls, Ohio. Adjustable die-holder for wire-drawing machines	662,271	Nov. 20	2290	550, 551	93	1437
Hawkins, John W., Cuyahoga Falls, Ohio. Draw-in for wire-drawing machines	662,272	Nov. 20	2291	551	93	1437
Haworth, George D., Chicago, Ill. Grain-drill	659,227	Oct. 9	931	219	93	204
Haworth, Seymour R. (See Haworth, William S., assignor.)						
Haworth, William S., assignor of one-half to S. R. Haworth, Detroit, Mich. Hydrocarbon-burner	659,344	Oct. 9	1097	258	93	237
Hayden, Frank D., Richmond, Va. Measuring scoop or ladle	659,146	Oct. 2	752	181	93	152
Hayden, Lothrop A., Carver, Mass. Cranberry-separator	661,801	Nov. 13	1407	338, 339	93	1245
Hayes, Albert, assignor of one-half to M. H. Walker, W. A. Neiden, and E. F. Colborn, Salt Lake City, Utah. Fuel vaporizer and mixer for explosive-engines or other uses	660,954	Oct. 30	4147	932	93	895
Hayes, Clarke, assignor of one-half to B. H. Osborne, Franklin, Pa. Casing-head for oil-wells	661,913	Nov. 13	1594	396	93	1280
Hayes, Cleburne L., De Funiak Springs, Fla. Hat-box	661,521	Nov. 13	885	218	93	1142
Hayes, Edward, Lynn, Mass., assignor to Vaughn Machine Company, Portland, Me. Leather-working machine	661,580	Nov. 13	1003	249	93	1166
Hayes, Eugenio K., Galva, Ill. Swing	663,495	Dec. 11	1095	239	93	1957
Hayes, Frank, and W. H. C. McKesson, Chicago, Ill. Pencil-holder	660,189	Oct. 23	2756	613	93	604
Hayes, Joseph P., Moberly, Mo. Feed-water strainer for locomotives	661,981	Nov. 13	1629	394	93	1286
Hayes, Porter C., Burghill, assignor of one-half to C. H. Drury and G. C. Bushnell, Hartford, Ohio. Antirattler for thill-couplings	663,384	Dec. 4	876	188	93	1892
Hayes, Richard F., assignor of one-half to G. A. Griffin, New York, N. Y. Culinary masher and strainer	659,969	Oct. 16	2298	516	93	492
Hayes, Timothy F. (See Haberlin and Hayes.)						
Haylor, William, Belvidere, Ill. Stovepipe	662,233	Nov. 20	2237	538	93	1426
Hayman, George W., Dushore, Pa. Hame-fastener	661,718	Nov. 13	1253	303	93	1216
Haynes, Charles F., Boston, Mass. Siphon	659,669	Oct. 16	1710	386	93	376
Haynes, Henrietta L., Boston, Mass. Coin-holder	659,228	Oct. 9	932	210	93	205
Haynes, John W., Manchester, Conn. Trolley-wire suspension	662,595	Nov. 27	2969	695	93	1581
Haynes, Louis H., Newton, Mass. Rectifier of alternating polyphase currents	661,719	Nov. 13	1254	303	93	1216
Hays, Ira C., *et al.* (See Simoni, Jennie, assignor.)						
Hays, William K., *et al.* (See Simoni, Jennie, assignor.)						
Hazard, Vincent G., Wilmington, Del. Paper-making machine	662,426	Nov. 27	2902	625	93	1517
Hazazer, Edgar W., New York, N. Y. Circuit-closing device	662,284	Nov. 20	2237	538	93	1426
Hazelhurst, Charles E., assignor of one-third to W. A. Breed and F. L. Osgood, Norwich, Conn. Mechanical movement	661,698	Nov. 13	1207	298	93	1207
Head, Casimir J., and R. C. Wild, London, England. Treating telluride ores	659,670	Oct. 16	1711	------	93	377
Head, Casimir J., and R. C. Wild, London, England. Treating telluride ores	660,018	Oct. 16	2366	------	93	507
Head, Reuben M., Allegheny, Pa. Water-tube boiler	664,745	Dec. 25	3440	779	93	2482
Heald, Alfred, Philadelphia, Pa. Woven fabric	661,640	Nov. 13	1106	274	93	1186
Heald, William, Pleasantville, Pa. Sand-reel	663,626	Dec. 11	1314	290	93	1999
Healy, Edward J., Jr., Baltimore, Md. Water-closet attachment	664,610	Dec. 25	3183	720, 721	93	2426
Healy, John J., assignor of one-half to C. E. Van Laer, Rochester, N. Y. Piano-action	664,407	Dec. 25	2790	633, 634	93	2348
Healy, John T., Attleborough, Mass. Making plated wire	663,344	Dec. 4	812	173	93	1879

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	661,125	Nov. 6	182	46	93	989
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	661,126	Nov. 6	185	47	93	989
Heap, Charles. (See Shore and Heap.)						
Hearsey, Henry T. (See McCaskey, Perry A., assignor.)						
Heart, Charles, Frankton, Ind. Wheel-hub	662,721	Nov. 27	3166	749	93	1626
Heart, Charles, Frankton, Ind. Running-gear for vehicles	663,893	Dec. 18	1813	408	93	2124
Heaslet, James G. (See Clarke and Heaslet.)						
Heath, George S., Revere, Mass. Roller-bearing	663,435	Dec. 11	996	217	93	1988
Heath, William E., assignor to Coronet Bottle-Seal Company of Baltimore City, Baltimore, Md. Bottle-seal	664,636	Dec. 25	3220	731	93	2434
Heath, William E., assignor to Coronet Bottle-Seal Company of Baltimore City, Baltimore, Md. Bottle-seal	664,746	Dec. 25	3442	779	93	2482
Heath, William E., assignor to Coronet Bottle-Seal Company of Baltimore City, Baltimore, Md. Bottle-seal	664,747	Dec. 25	3445	780	93	2483
Heath, William H. (See Warnecke and Heath.)						
Heaton, Colenan. (See McClellan and Heaton.)						
Heavey, William, *et al.* (See Kennedy, William J., assignor.)						
Heckart, William, Bradner, Ohio. Hoisting mechanism for well-tubing	659,586	Oct. 9	1545	350, 351	93	328
Hector, James M., Pittsburg, Pa. Pneumatic-despatch-carrier system	664,547	Dec. 25	3089	692	93	2396
Hedley, Anthony H. (See Duncan, Walter, assignor.)						
Hedman, Carl M. (See Hoglund and Hedman.)						
Heenan, Hammersley. (See Slack, John E., assignor.)						
Hegbom, Marselius, assignor to F. Voss, Chicago, Ill. Hatchway-door	659,922	Oct. 16	2200	495	93	471
Heggem, Charles O., Massillon, Ohio. Shaft-governor	658,775	Oct. 2	59	14	93	15
Heib, William, Philadelphia, Pa. Gutter-hanger	664,637	Dec. 25	3225	731	93	2435
Heid, Nicolaus, Stockerau, Austria-Hungary. Grain-separator	658,843	Oct. 2	231	57, 58	93	49
Heil, John F., *et al.* (See Altmeyer, Mathias, assignor.)						
Heimann, Salomon, assignor to L. Toch, H. Mayer, and P. C. Ralli, New York, N. Y. Substitute for gutta-percha	663,572	Dec. 11	1219	------	93	1980
Heine & Co. (See Hesse, Albert, assignor.)						
Heineke, Martin, Springfield, Ill. Drag-belt for straw-stackers	661,607	Nov. 13	1048	261	93	1175
Heineman, Harry A., St. Louis, Mo. Skirt-supporter	660,545	Oct. 23	3425	769	93	736
Heinemann, Theodore P., assignor of one-half to F. T. Roots, Connersville, Ind. Triple sign	661,265	Nov. 6	435	601	93	1038
Heinemann, Theodore P., assignor of one-half to F. T. Roots, Connersville, Ind. Triple sign	661,266	Nov. 6	436	601	93	1038
Heinitz, Woldemar, Dresden, Germany. Locking device	661,522	Nov. 13	887	213	93	1143
Heinle, Albert G., Esplen, Pa. Rail-joint	663,894	Dec. 18	1814	408	93	2124
Heintz, John A., Menomonie, Wis. Protector for tool-handles	661,523	Nov. 13	887	213	93	1143
Heintzelman, Taylor W., Sacramento, Cal. Grate-bar	662,623	Nov. 27	2971	705	93	1590
Heisey, Augustus H., Idlewood, Pa. Machine for finishing articles of glassware	663,023	Dec. 4	227	48	93	1769
Heizer, John W., Chicago, Ill. Supporting block or bracket for electric fixtures	661,986	Nov. 20	748	420	93	1331
Helfritz, Otto F., Chicago, Ill. Sash-holder	662,722	Nov. 27	3167	749	93	1626
Helix Gear Company. (See Johnson, Moses C., assignor.)						
Hellyer, Commodore P., Russell, Iowa. Drag-saw motor	660,955	Oct. 30	4149	932	93	896
Helms, Albert. (See Asling and Helms.)						
Hembree, Elihue, Roanoke, Ga. Carpenter's tool	663,168	Dec. 4	492	104, 105	93	1819
Hemingway, Henry W., London, England. Stripping tin from tinned iron and recovering the metals	663,024	Dec. 4	229	------	93	1770
Hemleb, Martin. (See Diehl and Hemleb.)						
Hemmerdinger, John H., New York, N. Y. Razor-strop	661,694	Nov. 13	1209	294	93	1207
Hempe, Hugo B., Chicago, Ill. Satchel	660,270	Oct. 23	2927	651	93	639
Hemphill, Martin L., Rensselaer, Ind. Stock for shoeing horses	658,986	Oct. 2	479	115	93	96
Henderson, Alexander T., Reading, Pa. Sectional boiler	663,025	Dec. 4	230	49	93	1770
Henderson, Eugene A., Rising City, Nebr. End-gate	663,966	Dec. 18	1902	441	93	2154
Henderson, John C., New York, N. Y. Compound reaction steam-turbine	664,085	Dec. 18	2159	493	93	2194
Henderson, John C., assignor to Malze Products Company, New York, N. Y. Filter	664,408	Dec. 25	2792	634	93	2348
Henderson, John G. (See Henderson, Robert H. and J. G.)						
Henderson, Robert H. and J. G., Chicago, Ill. Insulating-knob for electric-light wiring	660,271	Oct. 23	2928	651	93	639
Henderson, William, assignor of one-half to I. O. Gordon, Washington, D. C. Excavating apparatus	660,956	Oct. 30	4150	932, 933	93	896
Hendon, Walter P., Dallas, Tex., assignor to E. Bement's Sons, Lansing, Mich. Frame-lifting device for disk plows or similar implements	660,668	Oct. 30	3667	824	93	799
Hendriks, Herman. (See Davis and Hendriks.)						
Henkel, Charles V., New York, N. Y. Perpetual ledger	660,432	Oct. 23	3218	717	93	696
Henkenius, Peter, assignor of one-half to J. M. Kane, Fort Wayne, Ind. Fishing-bait	661,809	Nov. 13	1518	368	93	1266
Henn, Edwin C. (See Hakewessell and Henn.)						
Henninger, Henry. (See Herzler, Henninger, and Fenner.)						
Henquin, Nestor, Schenectady, N. Y. Rotary engine	661,524	Nov. 13	888	213, 214	93	1143
Henquin, Nestor, Schenectady, N. Y. Valve mechanism	661,525	Nov. 13	891	214, 215	93	1143
Henrich, Julius, Philadelphia, Pa. Identifying device	661,641	Nov. 13	1108	274	93	1187
Henry, Andrew L., Ladoga, Ind. Letter-box	660,329	Oct. 23	3044	676	93	662
Henry, Andrew L., Ladoga, Ind. Mail receiving and delivering apparatus	660,773	Oct. 30	3824	857	93	830
Henry, Andrew L., Ladoga, Ind. Mail receiving and delivering apparatus	661,146	Nov. 6	222	54	93	997
Henry, James L. (See Jennings, Henry, and Fretwell.)						
Henry, James N., Providence, R. I. Curtain-rod	663,542	Dec. 11	1177	254	93	1978
Henry, Jasper J., Greencastle, Ind. Evaporating-pan	661,526	Nov. 13	894	215	93	1144
Henschel, Henry E., assignor to Standard Oil Company of New York, New York, N. Y. Machine for making boxes	658,844	Oct. 2	233	59, 60	93	49
Hensler, Joseph A., assignor of one-half to A. Muntzing, Akron, Colo. Wrench	659,369	Oct. 9	1139	266	93	247
Heuszey, William P., assignor to Burnham, Williams & Co., Philadelphia, Pa. Locomotive	660,433	Oct. 23	3220	717, 718	93	696
Hentschel, Augustin, Berlin, Germany. Street sprinkling and cleaning cart	658,845	Oct. 2	241	60	93	50
Hentz, Dennis, Edwardsville, Ill. Hose spanner and tongs	663,026	Dec. 4	231	49	93	1770
Henze, Ferdinand, Salzkotten, Germany. Safety-can for petroleum, benzene, or similar liquids	661,341	Nov. 6	576	133	93	1065
Henze, Max, assignor of one-half to G. Daseking, Hanover, Germany. Centrifugal liquid-separator	663,832	Dec. 11	1713	383	93	2083

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hepburn, Lewis L., assignor to Marlin Fire Arms Company, New Haven, Conn. Safety-locking device released by recoil	662,427	Nov. 27	2604	625, 626	93	1517
Heptinstall, Sidney, Marion, Va. Ventilator for windows	660,510	Oct. 23	3354	754	93	723
Herbert, George, Jr., Glasgow, Scotland. Apparatus for feeding or delivering biscuits for packing	663,627	Dec. 11	1315	200, 201	93	1999
Herbs, Joseph, Fall Brook, Cal. Power-transmitting machinery	663,895	Dec. 18	1815	409	93	2124
Herbst, Frederick, Ouray, Colo. Miner's candlestick and combination implement	660,573	Oct. 30	3474	779	93	764
Herlitschka, Lambert, Dusseldorf, Germany. Centrifugal cream-separator	661,527	Nov. 13	898	216	93	1145
Herman, Frank. (See Miller, Benjamin F. D., assignor.)						
Hermans, Helena, Tacoma, Wash. Foot-warmer	660,957	Oct. 30	4154	933	93	897
Herpel, John, Evansville, Ind. Ironing-board	664,148	Dec. 18	2284	520	93	2219
Herr, Christian A., Osborn, Ohio. Coin-holder	663,896	Dec. 18	1817	409	93	2125
Herrick, William, assignor to Morgan & Wright, Chicago, Ill. Hair-shedder	663,897	Dec. 18	1818	409, 410	93	2125
Herring, Archie W., Lima, Ohio. Locking whip-socket	663,756	Dec. 11	1548	346	93	2045
Herrmann Brothers & Co. (See Gathright, Josiah B., assignor.)						
Herrmann, Charles T., Northport, N. Y. Device for marking book-signatures	660,637	Oct. 30	3578	802	93	783
Herrmann, Otto. (See Schramm, Heinrich, assignor.)						
Herschmann, Arthur, assignor to L. C. Weir, New York, N. Y. Steam-generator	663,027	Dec. 4	233	49	93	1770
Herschmann, Arthur, assignor to L. C. Weir, New York, N. Y. Self-propelling vehicle	663,028	Dec. 4	234	50	93	1771
Hersey, Roscoe F. (See Des Isles, Leonard H., assignor.)						
Herskovitz, Abraham T. (See Herskovitz, Max and A. T.)						
Herskovitz, Max and A. T., Chicago, Ill. Mantle and mantle-support for incandescent gas-lights	662,881	Nov. 20	2493	600	93	1477
Hertel, Max E., Greenfield, Mass., assignor to Oakman Motor Vehicle Company, Chicago, Ill. Power-transmitter	663,757	Dec. 11	1549	346	93	2046
Herzler, John, H. Henninger, and W. Fenner, Belleville, Ill. Mining-machine	660,434	Oct. 23	3222	718	93	697
Herzog, Frederick E., and F. L. Martin, assignors to Household Hoisting Apparatus Company, New York, N. Y. Hoisting apparatus	660,272	Oct. 23	2929	651	93	639
Hess, Clarke F., Fernwood, Pa. Pencil-sharpener	662,788	Nov. 27	3289	776	93	1649
Hess, Georges A. (See Claude and Hess.)						
Hesse, Albert, assignor to Heine & Co., Leipsic, Germany. Artificial oil of jasmine	658,846	Oct. 2	242	------	93	51
Hetherington, Frederick A., Indianapolis, Ind. Paving-tool	659,867	Oct. 16	2094	470, 471	93	451
Hetlesaeter, Olaf, Chicago, Ill. Excavator	659,632	Oct. 9	1637	369	93	345
Hett, Edward, New York, N. Y. Producing surfaces for printing, &c	662,852	Nov. 27	3401	804	93	1672
Hett, Edward, New York, N. Y. Printing and making printing-forms	662,853	Nov. 27	3404	804, 805	93	1673
Hett, Edward, New York, N. Y. Printing-press	662,854	Nov. 27	3418	805, 806, 807, 808	93	1676
Hett, Edward, New York, N. Y. Printing-press	662,855	Nov. 27	3433	808	93	1679
Hett, Edward, New York, N. Y. Casting printing-cylinders	662,856	Nov. 27	3441	808, 809, 810	93	1681
Hett, Edward, New York, N. Y. Printing	662,857	Nov. 27	3446	810, 811	93	1682
Hett, Edward, New York, N. Y. Machine for casting printing-cylinders	662,858	Nov. 27	3452	811, 812	93	1683
Hett, Edward, New York, N. Y. Printing-cylinder	662,859	Nov. 27	3457	813, 814	93	1683
Hett, Edward, New York, N. Y. Apparatus for etching rolls	662,860	Nov. 27	3468	814, 815, 816	93	1684
Hett, Edward, New York, N. Y. Printing-press	662,861	Nov. 27	3467	816, 817	93	1684
Hett, Edward, New York, N. Y. Printing-press, &c	662,862	Nov. 27	3474	817	93	1687
Hett, Edward, New York, N. Y. Press	662,863	Nov. 27	3475	817, 818, 819	93	1687
Hett, Edward, New York, N. Y. Machine for making printing-surfaces	662,864	Nov. 27	3487	819, 820	93	1691
Hett, Edward, New York, N. Y. Printing form and press	662,865	Nov. 27	3496	821	93	1693
Hett, Edward, New York, N. Y. Press	662,866	Nov. 27	3500	821	93	1695
Hett, Edward, New York, N. Y. Printing form and press	662,867	Nov. 27	3504	821, 822	93	1696
Hett, Edward, New York, N. Y. Printing form and press	662,868	Nov. 27	3508	822	93	1697
Hett, Edward, New York, N. Y. Press	662,869	Nov. 27	3511	822, 823	93	1699
Hett, Edward, New York, N. Y. Press	662,870	Nov. 27	3516	823	93	1701
Hewitt, Joseph F. (See Wolfe, Andrew C., assignor.)						
Hewitt-Lindstrom Motor Company. (See Lindstrom, Charles A., assignor.)						
Hewitt Lindstrom Motor Company. (See Vance, Noble, assignor.)						
Hewitt, William W., Gettysburg, S. D. Disk-supporting attachment for grindstones	664,149	Dec. 18	2285	520	93	2219
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Magnetic blow-out or fuse-box	659,671	Oct. 16	1712	386	93	377
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric-distribution system	660,815	Oct. 30	3902	877	93	846
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Controlling end play of rotary machines	661,049	Nov. 6	40	9	93	958
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric switch	663,496	Dec. 11	1097	240	93	1958
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Regulator for electrically-actuated air-compressors	664,086	Dec. 18	2161	494	93	2194
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company, of New York. Automatic rheostat	664,087	Dec. 18	2164	494	93	2195
Heybeck, William H., Pittsburg, Pa. Drum-rod	663,543	Dec. 11	1178	255	93	1978
Heydebrand und der Lasa, Ferdinand C. von, New York, N. Y. Artificial fuel	660,753	Oct. 30	3785	------	93	824
Heyl, Frederick, Irvington, N. J. Milk-strainer	659,672	Oct. 16	1714	387	93	377
Heyl & Patterson. (See Acklin and Patterson, assignors.)						
Heylman, Edward M., assignor to Parlin & Orendorff Company, Canton, Ill. Scraper for soil-cutting disks	663,436	Dec. 11	997	217	93	1989
Heylmun, James W., Williamsport, Pa. Buckle	659,302	Oct. 9	1043	245	93	226
Hibbard, Henry D., North Plainfield, assignor to Hibbard-Rodman-Ely Safe Company, High Bridge, N. J., and New York, N. Y. Safe	662,428	Nov. 27	2606	626	93	1518

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hibbard, Henry D., North Plainfield, assignor to Hibbard-Rodman-Ely Safe Company, High Bridge, N. J., and New York, N. Y. Safe	662,429	Nov. 27	2611	027	93	1518
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Vault	662,430	Nov. 27	2617	027	93	1520
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Plate for safes or vaults	662,431	Nov. 27	2621	028	93	1521
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Safe	662,432	Nov. 27	2623	028	93	1521
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Fastening for safe or vault plates	662,433	Nov. 27	2628	028	93	1522
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Safe-hinge	662,434	Nov. 27	2630	029	93	1523
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman-Ely Safe Company, New York, N. Y. Locking mechanism for safes or vaults	662,435	Nov. 27	2632	029	93	1524
Hibbard, John M., Helwig, Mo. Post-holder	662,436	Nov. 27	2637	029	93	1525
Hibbard, Maury W., assignor to R. Fitzgerald, Chicago, Ill. Fluid-pressure brake	661,311	Nov. 6	517	120	93	1054
Hibbard-Rodman-Ely Safe Company. (See Hibbard, Henry D., assignor.)						
Hibberd, Charles, and J. Barton, London, England. Apparatus for indicating, assorting, and counting coins and delivering change	661,471	Nov. 6	798	{192 193	93	1111
Hibberd, George V. (See Hibberd, Harry H. and G. V.)						
Hibberd, Harry H. and G. V., Wheeling, W. Va. Plumber's tag or clamp-stay	662,935	Dec. 4	63	16	93	1738
Hickel, Christopher C., Muncie, Ind. Singletree and neck-yoke lathe	659,808	Oct. 16	2096	471	93	451
Hickey, Jennie C., Leipsic, Ohio. Mileage-ticket and holder therefor	662,723	Nov. 27	3170	750	93	1696
Hickey, John S., assignor of one-half to J. H. Egbert, Anaconda, Mont. Chute-closure	662,672	Nov. 27	3066	724	93	1606
Hickey, White W. M., San Francisco, Cal. Gold-separator	663,998	Dec. 18	2007	452	93	2163
Hicks, Bohn C., assignor to Hicks Motor Cycle Company, Chicago, Ill. Vehicle	660,158	Oct. 23	2683	598	93	589
Hicks, Frank O., Dallas, Tex. Riding-saddle	662,564	Nov. 27	2873	681	93	1571
Hicks, George C., Jr., St. Louis, Mo. Water-tube boiler	661,720	Nov. 13	1255	308	93	1216
Hicks Motor Cycle Company. (See Hicks, Bohn C., assignor.)						
Hicks, Schuyler C., and P. L. Hoffman, New Carlisle, Ind. Bag-holder	664,409	Dec. 25	2793	634	93	2348
Hicks, Thomas H., Fort Wayne, Ind. Amalgamator	660,774	Oct. 30	3826	{857 858	93	890
Hickson, Robert E., Moro, Oreg. Sled	664,215	Dec. 18	2398	547	93	2245
Hiett, Jeremiah W., Normal, Ill. Weeder	663,628	Dec. 11	1316	291	93	1999
Higgins, George A., Galesburg, Ill. Cut-off for down-spouts	664,548	Dec. 25	3042	698	93	2396
Higgins, Henry C. (See Billings and Prescott, assignors.)	663,758	Dec. 11	1550	{346 347	93	2046
Hight, William, Macon, Ill. Street-sweeper	658,847	Oct. 2	243	60	93	51
Higley, Christina J. (See Smith, Edward S., assignor.)	663,092	Dec. 4	342	71	93	1789
Hilder, Julius, New York, N. Y. Belt	661,695	Nov. 13	1210	294	93	1207
Hildreth, Percy S. (See White, Hildreth, and Liebmann.)						
Hilgenberg, Carl G., and H. R. Loper, Baltimore, Md., assignors to Carr-Lowrey Glass Company, Baltimore, Md., and New York, N. Y. Dentifrice-bottle	660,435	Oct. 23	3224	718	93	697
Hill, Barton B., Paris, France. Phonograph	659,028	Oct. 2	565	137	93	113
Hill, Edgar A., assignor to Calumet Tire Rubber Company, Chicago, Ill. Retaining-band for rubber tires	664,748	Dec. 25	3448	780	93	2483
Hill, George R., St. Louis, Mo. Sash-lock	658,847	Oct. 2	243	60	93	51
Hill, Hugh, Anderson, Ind. Threading-tool	663,092	Dec. 4	342	71	93	1789
Hill, Jacob. (See Willis, Boyd, and Hill.)						
Hill, James F., Stoughton, assignor to R. B. Grover & Company, Brocktou, Mass. Demonstrator	663,437	Dec. 11	998	218	93	1999
Hill, James H., Boone, Iowa. Pencil-sharpener	659,527	Oct. 9	1444	327	93	308
Hill, John A. (See Arnold, Horace L., assignor.)						
Hill, John A. (See Maschmeyer, Hermann, assignor.)	659,306	Oct. 9	1186	275	93	257
Hill, Joseph S., Los Angeles, Cal. Schedule-indicator	663,544	Dec. 11	1179	255	93	1978
Hill, Joseph S., Los Angeles, Cal. Pipe-cutter	664,319	Dec. 18	2603	592	93	2285
Hill, Louis, *et al.* (See Hachmann, Frederick, assignor.)	659,748	Oct. 16	1879	{423 424	93	408
Hill, Milton B., assignor to Norton Emery Wheel Company, Worcester, Mass. Oil-stone	663,123	Dec. 4	396	84	93	1800
Hill, Robert L., Saticoy, Cal. Disk cultivator	658,914	Oct. 2	340	84, 85	93	89
Hill, Russell C., Keene, N. H. Apparatus for making pails or the like	663,227	Dec. 4	604	129	93	1839
Hill, Thomas, Jersey City, N. J. Dumping-car	664,150	Dec. 18	2286	520	93	2220
Hill, Thomas, Jersey City, N. J. Cart	661,147	Nov. 6	223	54	93	997
Hill, Warren E. (See Rowland, Hill, and McLachlan.)	661,177	Nov. 6	274	66	93	1007
Hill, William, London, England. Machine for aerating liquids	661,178	Nov. 6	276	66	93	1007
Hill, William A., Ursa, Ill. Coupling for poles or thills						
Hill, William G., Jr., Malden, Mass. Vulcanization						
Hill, William G., Jr., Malden, Mass. Vulcanization						
Hillard, Frederic W., assignor to Elliott & Hatch Book Typewriter Company, New York, N. Y. Type-writing machine	661,472	Nov. 6	801	193	93	1112
Hilleary, William T., Jr., Baltimore, Md. Pea-cleaner	661,802	Nov. 13	1410	339	93	1245
Hiller, Hugo L., New York, N. Y. Lacing-blank	659,840	Oct. 16	2064	464	93	445
Hillery, John, Colchester, Ill. Check-row corn-planter	661,148	Nov. 6	224	55	93	997
Hilliker, John H. (See Werner and Hilliker.)						
Hills-McCanna Company. (See Delaney, Thomas A., assignor.)						
Hills-McCanna Company. (See Delaney and McCanna, assignors.)	664,042	Dec. 18	2090	477	93	2180
Hillyer, William H., Freeport, Ohio. Metallic railway-tie						
Hilton, Roland C., assignor of one-fourth to J. M. Willis, Jr., New Bedford, Mass. Valve for inflation	663,093	Dec. 4	343	71	93	1790
Himes, Joseph B. (See Teeguarden and Himes.)						
Himmelreich, S. H., *et al.* (See Brown, Charles C., assignor.)	659,064	Oct. 2	619	149	93	124
Hinchman, George W., Glenwood, Ind. Drop-light gas-fixture	664,749	Dec. 25	3449	780	93	2483
Hinckley, Frederick P., Jackson, Mich. Back-pedaling brake	660,436	Oct. 23	3225	{719 720	93	697
Hind, John H., Barrow-in-Furness, England. Bulkhead and door	663,438	Dec. 11	998	218	93	1989
Hinde, James J., Sandusky, Ohio. Forming curved articles from celluform board						
Hine, Adelbert P. (See Wood, William A., assignor.)						
Hine-Watt Manufacturing Company. (See Watt, Sern P., assignor.)						
Hines, Harry, *et al.* (See Gordon, William R., assignor.)						
Hinge, William, assignor to Badger Brass Manufacturing Company, Kenosha, Wis. Acetylene-gas generator	663,169	Dec. 4	494	105	93	1819
Hinkelbein, Frank B., San José, Cal. Oil or gasolene measuring can	662,273	Nov. 20	2293	552	93	1438
Hinks, James, Moukton, Canada. Stable	661,987	Nov. 20	1750	421	93	1331
Hinson, James A., Chicago, Ill. Buffing device for railway-cars	663,273	Dec. 4	689	{148 149	93	1856

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Hinton, William, assignor of one-half to G. O. Quesenberry, Hinton, W. Va. Non-refillable bottle	658,895	Oct. 2	311	76	93	64
Hippard, Emanuel, Youngstown, Ohio. Valley-gutter	661,870	Nov. 13	1520	368	93	1266
Hipwell, Harry H., assignor to Hipwell Manufacturing Co., Allegheny, Pa. Telephone-receiver	661,988	Nov. 20	1752	421	93	1332
Hipwell Manufacturing Co. (See Hipwell, Harry H., assignor.)						
Hirsch, Camilla M., New Ulm, Minn. Bag-holder	658,848	Oct. 2	245	61	93	51
Hirsch, Isaac, Chicago, Ill. Carving-fork	659,397	Oct. 9	1188	275	93	257
Hirst, Harry E., assignor of one-half to A. Wolfington, Philadelphia, Pa. Carriage-door lock	661,342	Nov. 6	577	133	93	1066
Hirst, William H., Hull, England. Driving-gear for velocipedes	658,896	Oct. 2	312	76,77	93	64
Hiss, Nelson. (See Bonsall, Seymour W., assignor.)						
Hitch, Ebenezer V. (See Takamine and Hitch.)						
Hitchcock, Solomon C., Tacoma, Wash. Spring-seat attachment	664,638	Dec. 25	3226	731	93	2486
Hitt, Adrian, Jersey City, assignor of two-thirds to H. Berg, Orange Valley, N. J. Shield or guard for protecting soldiers	660,700	Oct. 30	3700	833	93	806
Hitt, Adrian, Jersey City, assignor to H. Berg, Orange Valley, N. J. Wagon running-gear	660,701	Oct. 30	3703	{833 834	93	807
Hitt, Adrian, assignor to Imperial Manufacturing Company, Jersey City, N. J. Wagon-standard	660,702	Oct. 30	3705	834	93	807
Hitz, Stephen T., and G. H. Blaker, Indianapolis, Ind.; said Blaker assignor to said Hitz. Elevator safety-gate	663,228	Dec. 4	607	{129 130	93	1840
Hixson, Charles T. (See Hixson and Tarrant.)						
Hixson, Clarence B. and C. T., and A. L. Tarrant, Holt, Okla. Ter. Pneumatic stacker	660,159	Oct. 23	2685	598	93	590
Hoagland, Ingham, Baldwin, Iowa. Double-acting force-pump	662,437	Nov. 27	2638	630	93	1525
Hoagland, Monroe, Henderson, Ky. Fifth-wheel	659,528	Oct. 9	1445	{327 328	93	308
Hobbs, Clarence W. (See Morgan, Thomas, assignor.)						
Hobbs, George P., assignor of one-half to H. Haller Manufacturing Company, Limited, New Orleans, La. Lock-seam for metal articles	663,385	Dec. 4	877	189	93	1892
Hobbs, George P., assignor of one-half to H. Haller Manufacturing Company, Limited, New Orleans, La. Lock-seam	663,386	Dec. 4	878	189	93	1892
Hobbs, John K. C., San Francisco, Cal. Butter-box	664,549	Dec. 25	3044	693	93	2397
Hoch, Adam, Alameda, assignor to M. Blum, San Francisco, Cal. Adding-machine	660,108	Oct. 23	2574	{576 577 578	93	568
Hochbrunn, Frederick, New York, N. Y. Breech-loading firearm	660,437	Oct. 23	3227	721	93	698
Hocker, Jefferson C. (See McGuire, Squire D., assignor.)						
Hodder, Albert E., assignor of one-half to J. B. G. Lester, London, England. Carbureter	659,476	Oct. 9	1340	306	93	288
Hodge, John, Topeka, Kans. Car-roof	658,776	Oct. 2	62	15	93	15
Hodgkin, Philip E., and W. May, London, England. Type setting or composing machine	662,724	Nov. 27	3171	750	93	1626
Hodgman, Willis K., Taunton, Mass. Mechanical movement	664,151	Dec. 18	2287	521	93	2220
Hodgman, Willis K., Taunton, Mass. Bed-motion for printing-presses	664,216	Dec. 18	2400	547	93	2245
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoe, Robert, *et al.* (See North, Thomas M., assignor.)						
Hoe, Robert, *et al.* (See Roesen, Oscar, assignor.)						
Hoe, Robert, *et al.* (See Spalckhaver, William, assignor.)						
Hoeffer, Albert, *et al.* (See Mitchell, Hugh B., assignor.)						
Hoeffer, Albert, *et al.* (See Rose, Horace G., assignor.)						
Hoefner, Fred, New Melle, Mo. Tongs	662,936	Dec. 4	64	16	93	1738
Hoepfner, Carl, Frankfort-on-the-Main, Germany. Producing solutions of zinc chlorid, &c	663,759	Dec. 11	1552	------	93	2046
Hoepfner, Carl, Frankfort-on-the-Main, Germany. Recovering zinc	664,269	Dec. 18	2506	569	93	2265
Hoepner, George. (See Hanak and Hoepner.)						
Hoepner, George, San Francisco, assignor to Union Scale and Manufacturing Company, Sacramento, Cal. Automatic weighing-machine	659,923	Oct. 16	2201	495	93	471
Hoerle, Christian G., assignor to Union Hardware Company, Torrington, Conn. Truck for roller-skates	663,809	Dec. 11	1662	372	93	2071
Hoerr, Louis A., St. Louis, Mo. Sheave	663,229	Dec. 4	610	130	93	1840
Hoey, John, San Francisco, Cal. Bed-bottom attachment	663,170	Dec. 4	496	105	93	1820
Hoey, John, San Francisco, Cal. Bed-bottom	663,171	Dec. 4	497	105	93	1820
Hoff, Carlton L., York, Pa. Chain-link	661,661	Nov. 13	1145	283	93	1135
Hoff, Charles, and G. H. Klotter, Cincinnati, Ohio. Machine for manufacturing fire-kindlers, &c	659,229	Oct. 9	984	{219 220	93	205
Hoffa, W. F., *et al.* (See Brown, Charles C., assignor.)						
Hoffman, Joseph G., Buffalo, N. Y. Candy-casting machine	663,629	Dec. 11	1317	{291 292	93	2000
Hoffman, Peter L. (See Hicks and Hoffman.)						
Hoffman, Rudolph, Lorain, Ohio. Box or receptacle	661,050	Nov. 6	42	10	93	959
Hoffman, Solomon K. (See Livingood, Thomas, assignor.)						
Hoffman, William W., and F. W. Powers, Lafayette, Ind. Automatic railway-switch	664,750	Dec. 25	3450	{780 781	93	2484
Hoffmann, August von, Munich, Germany. Submarine apparatus	664,152	Dec. 18	2290	521	93	2220
Hoffmann, Christian W., Amsterdam, Netherlands. Rotary engine	664,320	Dec. 18	2604	592	93	2285
Hoffmann, Friedrich, Siegersdorf, Germany. Hydraulic-pressure dredging-machine	663,497	Dec. 11	1098	240	93	1958
Hoffmann, Meinhard, and G. Kallscher, assignors to L. Cassella & Co., Frankfort-on-the-Main, Germany. Brown sulfur dye	660,058	Oct. 16	2447	------	93	520
Hoffritz, Charles, Dayton, Ohio. Cylindrical cigar-box	659,924	Oct. 16	2205	496	93	473
Hogan, Daniel, assignor to Meinecke & Company, New York, N. Y. Ice-bag	660,014	Oct. 16	2367	532	93	507
Hogan, Daniel, assignor to Meinecke & Company, New York, N. Y. Douche-pan	661,402	Nov. 6	675	157	93	1087
Hogan, Daniel, assignor to Meinecke & Company, New York, N. Y. Urinal	661,403	Nov. 6	676	157	93	1087
Hogeland, Israel, assignor of two-thirds to C. E. Kregelo and A. W. Wishard, Indianapolis, Ind. Car-wheel	660,958	Oct. 30	4156	934	93	897
Hogg, Ada B. (See Hogg, Franklin S., assignor.)						
Hogg, Franklin S., assignor of one-half to A. B. Hogg, New York, N. Y. Dish-washer	660,703	Oct. 30	3707	834	93	808
Höglund, Gustavus, and C. M. Hedman, assignors of one-half to C. Berg and M. Lundin, Chicago, Ill. Hygienic resonator for telephones or other sound-transmitting devices	660,796	Oct. 30	3868	869	93	838
Höglund, Karl F., Örebro, Sweden. Swimming device	662,069	Nov. 20	1920	461	93	1363
Hogrebe, Christian, St. Louis, Mo. Musical instrument	661,312	Nov. 6	521	{120 121	93	1055
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,528	Nov. 13	898	216	93	1145
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,529	Nov. 13	901	{217 218	93	1146
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,530	Nov. 13	904	218	93	1146

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,531	Nov. 13	905	219, 220	93	1146
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,532	Nov. 13	907	220, 221	93	1147
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,533	Nov. 13	909	221, 222	93	1147
Hohenstein, Archie G., New Haven, Conn. Steam-boiler	661,534	Nov. 13	911	222, 223	93	1147
Hohenstein, Archie G., New Haven, Conn. Feed-water heater	661,932	Nov. 13	1630	394, 395	93	1286
Hohenstein, Archie G., New Haven, Conn. Water heater, purifier, and separator	661,933	Nov. 13	1633	395, 396	93	1287
Hohenstein, Archie G., New Haven, Conn. Water heater, purifier, and separator	661,934	Nov. 13	1635	396	93	1287
Hoisington, Benjamin R., Minneapolis, Minn. Fire-box	661,803	Nov. 13	1412	340	93	1245
Holbrook, Robert G., and R. H. King, Oswego, N. Y. Machine for forming plates	660,688	Oct. 30	3580	803	93	783
Holden, Elbridge G., San Antonio, Tex. Window-screen	662,725	Nov. 27	3173	751	93	1627
Holden, Emma A., Philadelphia, Pa. Combined shirt-waist and dress holder	663,439	Dec. 11	1090	218	93	1939
Holden, Maria E., Yonkers, N. Y. Ironing-board	663,274	Dec. 4	690	149	93	1856
Holder, Franklin B., Lansing, Mich. Toy	660,684	Oct. 30	3668	824	93	800
Holdsworth, George E. A., Hove, England. Brick	662,119	Nov. 20	2011	485	93	1380
Hollands Manufacturing Company. (See Renner, Henry F., assignor.)						
Hollar, William H., Philadelphia, Pa., and W. Corry, Cincinnati, Ohio; said Corry assignor to said Hollar. Interlocking device for safe-doors	662,789	Nov. 27	3290	776	93	1649
Hollar, William H., A. Kennedy, and A. L. Rhodes, Philadelphia, Pa.; said Kennedy and Rhodes assignors to said Hollar. Time-lock	659,445	Oct. 9	1288	296	93	277
Holley, Robert B., assignor of one-half to H. S. W. Foreman, Chicago, Ill. Interchangeable-letter sign	660,190	Oct. 23	2757	613	93	605
Hollings, Alfred, Chorlton-cum-Hardy, England. Guncotton-press	660,727	Oct. 30	3749	844	93	816
Hollingsworth, James L., Newbern, Tenn. Portable heater	664,751	Dec. 25	3456	781	93	2485
Hollingsworth, William W., *et al.* (See Leidich, Peter C., assignor.)						
Hollingworth, Albert, *et al.* (See Preston and Kendrick, assignors.)	664,550	Dec. 25	3045	693	93	2397
Hollis, Henry L., Chicago, Ill. Electrolytic treatment of iron for preservation thereof	661,246	Nov. 6	896	93, 94	93	1031
Holloway, George F., Oak Park, Ill. Boat						
Holloway, Robert A. (See Norcross and Holloway.)						
Holly, George W., assignor of one-half to A. A. Vallette, H. C. Briggs, and F. A. Dinsmore, Palo Alto, Cal. Window-sash	660,438	Oct. 23	3220	721	93	696
Holman, Calvin J., and E. Gangolf, Chicago, Ill. Lock for telescoping bags	664,043	Dec. 18	2091	478	93	2180
Holman, Olin Q., La Grange, Ill. Atomizer	661,313	Nov. 6	522	121	93	1055
Holmes, George A., Newton, Mass., assignor to Consolidated Fastener Company, Portland, Me. Machine for sawing kerfs	659,230	Oct. 9	996	220, 221	93	205
Holmes, Joseph W., Joplin, Mo. Rat-trap	660,191	Oct. 23	2761	614	93	605
Holmes, Lyman S., Schoharie, N. Y. Engine	660,160	Oct. 23	2687	598, 599	93	590
Holmes, Morris S. (See Ireland, Ashdown, and Holmes.)	662,534	Nov. 27	2822	670	93	1502
Holmes, Wheeler H., Pittston, Pa. Burglar-alarm	663,898	Dec. 18	1818	410	93	2125
Holmes, William, assignor to Morgan & Wright, Chicago, Ill. Device for use in securing rubber tires on vehicle-wheels	663,899	Dec. 18	1820	410	93	2125
Holmes, William, assignor to Morgan & Wright, Chicago, Ill. Vehicle-tire fastening	664,639	Dec. 25	3227	732	93	2436
Holmes, William C., Atlanta, Ga. Fireplace	659,147	Oct. 2	753	181, 182	93	152
Holsclaw, Charles, Louisville, Ky. Combination-tool	661,314	Nov. 6	524	122	93	1055
Holstein, Christian, and H. H. Sieh, Millard, Nebr. Mail-pouch catcher and deliverer	661,871	Nov. 13	1521	------	93	1266
Holt, Arthur H. S., assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making an indigo-leuco compound	659,673	Oct. 16	1716	387	93	377
Holt, Edward W., London, England. Air admission and check valve for pneumatic tires.						
Holt, Henry S. A., assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making nitrobenzaldehyde	661,872	Nov. 13	1522	------	93	1266
Holt, John. (See Brooks and Holt.)	664,153	Dec. 18	2291	522	93	2221
Holtman, Frederick W., Richmond, Va. Ore-roasting furnace	661,696	Nov. 13	1211	294	93	1207
Holtmann, Henry F., Indianapolis, Ind. Apparatus for forming irregular spirals	664,477	Dec. 25	2917	665	93	2371
Holtzclaw, James C., Palmetto, Fla. Fertilizer-distributer	661,608	Nov. 13	1049	261	93	1175
Holtzclaw, John B., assignor of one-half to O. A. Jose, Indianapolis, Ind. Portière						
Holyoke Automobile Company. (See Greuter, Charles R., assignor.)						
Holz, Frederick, assignor to Cincinnati Milling Machine Company, Cincinnati, Ohio. Milling-machine	658,777	Oct. 2	62	15, 16, 17	93	16
Holzgrafe, Fredrick W., *et al.* (See Tinkham, Oliver F., assignor.)						
Holzman, Michael, *et al.* (See Darley, John W., Jr., assignor.)	659,477	Oct. 9	1341	307	93	289
Holzmann, Ernest, New York, N. Y. Fishing-reel						
Homman, Grace B., administratrix. (See Homman, William F.)						
Homman, William F., deceased; G. B. Homman, Colorado Springs, Colo., administratrix. Individual calling apparatus	660,439	Oct. 23	3230	721	93	698
Hommel, George. (See Bausch and Hommel.)	664,154	Dec. 18	2293	------	93	2221
Hommel, Jacob, Los Angeles, Cal. Heat-insulating paint						
Hommel, Joseph M., assignor to National Toothpick Company, Detroit, Mich. Toothpick-machine	661,642	Nov. 13	1108	275	93	1187
Homolka, Benno. (See Gutzkow and Homolka.)						
Homrig, Charles A. (See Jencke, Homrig, and Blaine.)	664,551	Dec. 25	3047	693	93	2398
Honegger, Heinrich, Duisburg, Germany. Sliver-can						
Hönicke, Wilhelm. (See Arendt and Hönicke.)	659,025	Oct. 16	2206	406	93	473
Hooker, Le Roy, assignor to Rand, McNally & Company, Chicago, Ill. Fountain-pen	660,511	Oct. 23	3356	754, 755	93	724
Hoover, David W., assignor to E. Crowell, Lyons, Nebr. Haystacker	661,609	Nov. 13	1050	262	93	1176
Hoover, Frank K., and A. J. Mason, Kansas City, Mo. Dredging-machine	661,873	Nov. 13	1523	369	93	1266
Hopcroft, Ernest D., Kidderminster, England. Removing scale from boilers	664,478	Dec. 25	2918	665	93	2371
Hopewell, Frank B., Cambridge, Mass. Motor-vehicle	662,790	Nov. 27	3292	776, 777	93	1649
Hopkins, Edward A., New York, N. Y., assignor to Elliott & Hatch Book Typewriter Company, of New York. Type-writing machine	659,148	Oct. 2	758	182, 188	93	153
Hopkins, Frank P., and L. Manzke, Spirit Lake, Iowa. Gold-separator	663,094	Dec. 4	344	72	93	1790
Hopkins, James M., Chicago, Ill. Bearing for car journal-boxes	662,359	Nov. 20	2458	591	93	1470
Hopkins, James M., Frostville, Ark., assignor of one-half to L. Wallace. Car-coupling	663,275	Dec. 4	691	149	93	1856
Hopkinson, Joseph, and J. Lowis, assignors to J. Hopkinson & Company, Limited, Huddersfield, England. Valve	659,231	Oct. 9	938	221	93	206
Hoppe, Hermann, Sykeston, N. D. Attachment for horse hay-rakes						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Horine, Walter C., Arrowsmith, Ill. Corn-conveyer	663,276	Dec. 4	693	150	93	1856
Hörmann, Rudolf, Hoboken, N. J. Boot or shoe	664,044	Dec. 18	2093	478	93	2180
Horn, Schooler C., and W. S. Smith, Bladensburg, Ohio. Ice-cream freezer	660,109	Oct. 23	2579	578	93	568
Hornauer, Wilhelm. (See Sussman-Hellborn and Hornauer.)						
Hornbeck, Samuel W., Slate Hill, N. Y. Support for music-leaf turners	662,235	Nov. 20	2240	539	93	1427
Hornbostel, Charles, New York, N. Y. Combustion process	659,029	Oct. 2	566	------	93	114
Horne, James. (See Dawson and Horne.)						
Horne, James H., assignor to Barney & Smith Car Company, Dayton, Ohio. Construction of railway-cars	664,552	Dec. 25	3048	694	93	2398
Horner, William, Liverpool, England. Beehive bar-frame	660,574	Oct. 30	3476	779	93	764
Horsley, James, assignor of one-half to C. E. Perkins, Glade Mills, Pa. Oil-well pump	663,029	Dec. 4	236	50	93	1771
Horsman, Edward I. (See Whitman, James N., assignor.)						
Horst, Martin, North Lawrence, Ohio. Automatic cage-rest	659,970	Oct. 16	2299	516	93	493
Horton, Charles H., assignor to Horton Manufacturing Company, Painesville, Ohio. Brick-press	660,110	Oct. 23	2581	579	93	568
Horton Manufacturing Company. (See Horton, Charles H., assignor.)						
Horton, Mary B., Valda, Tex. Mirror attachment for bureaus	661,051	Nov. 6	44	10	93	959
Horvath, Louis, assignor of one-half to J. L. Walter, Los Angeles, Cal. Lawn-sprinkler	663,277	Dec. 4	695	151	93	1857
Houghton, Frank H., Daytona, Fla. Belt-retainer	660,990	Oct. 30	4203	945	93	907
House, Benjamin F. (See Pifer and House.)						
Household Hoisting Apparatus Company. (See Herzog and Martin, assignors.)						
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company, of Pennsylvania. Straight-knitting machine	663,900	Dec. 18	1821	410, 411, 412, 413	93	2126
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company, of Pennsylvania. Straight-knitting machine	663,901	Dec. 18	1834	413, 414, 415	93	2129
Houston, John B., Vancouver, Canada. Heat-economizer	659,065	Oct. 2	620	150	93	124
Houtman, Tjark J., New York, N. Y. Moistening device	664,155	Dec. 18	2293	522	93	2221
Houze, Ulgis, Muncie, Ind. Leer	661,315	Nov. 6	525	122	93	1056
Howard, Alfred and J., Ouray, Colo. Miner's candlestick	662,565	Nov. 27	2874	681	93	1571
Howard, Clarence H., St. Louis, Mo. Car-journal-bearing stop-key	659,232	Oct. 9	939	221	93	206
Howard, James H., Medford, Mass. Safe	661,389	Nov. 20	1754	421	93	1332
Howard, Joseph. (See Howard, Alfred and J.)						
Howe, Martin V. B., Gardner, Mass. Chair-seat	662,647	Nov. 27	3011	713	93	1598
Howell, John C., London, England. Hoist, winding-gear, &c	660,685	Oct. 30	3669	824	93	800
Howell, John C., London, England. Winch or like winding-gear	660,686	Oct. 30	3670	825	93	800
Howell, John W., Newark, N. J., assignor to General Electric Company, of New York. Producing high vacuums	660,816	Oct. 30	3903	877	93	846
Hower, Aten B., Logan, Utah, assignor of one-half to W. W. Teter, Bellington, W. Va. Heating-stove	659,971	Oct. 16	2301	517	93	493
Howle, Thomas, Venita, Ind. Ter. Umbrella attachment	660,111	Oct. 23	2585	579	93	569
Howitt, Edwin B., assignor of one-half to O. O. Stillman, New Brunswick, N. J. Eyeglass hook	659,890	Oct. 16	2132	481	93	458
Howland, James W., Cohoes, N. Y. Overdraw-checkrein	659,972	Oct. 16	2303	517	93	494
Hoxie, Orrin, *et al.* (See Long, Samuel W., assignor.)						
Hoy, Marius P., assignor of one-half to C. S. Upright, Tacoma, Wash. Life-boat	663,172	Dec. 4	498	106	93	1820
Hoy, Marius P., assignor of one-half to C. S. Upright, Tacoma, Wash. Means for ventilating boats	663,173	Dec. 4	501	106	93	1820
Hoy, Marius P., Rosedale, assignor of one-half to C. S. Upright, Tacoma, Wash. Anchor mechanism for boats	663,174	Dec. 4	502	106	93	1821
Hoyer, Rudolph C., Vicksburg, Miss. Fertilizer-distributer	659,233	Oct. 9	940	221	93	206
Hoyland, George M. (See Smith and Hoyland.)						
Hoyt, Henry B., *et al.* (See Reynolds, Samuel D., assignor.)						
Hub, born Hahn, Christine, Triers, Germany. Combined mane comb and brush	659,172	Oct. 2	802	194	93	102
Hubbard, Arthur G., *et al.* (See Blue, Charles E., assignor.)						
Hubbard, Delorma B., Albion, N. Y. Mustache-guard	662,120	Nov. 20	2012	485	93	1380
Hubbard, George M., assignor to W. & E. T. Fitch Company, New Haven, Conn. Sash-fastener	661,404	Nov. 6	677	157, 158	93	1087
Hubbartt, John J (See Lemmons, Hubbartt, and Rummell.)						
Hubbell, Harvey, Bridgeport, Conn. Belt-fastening	663,967	Dec. 18	1963	442	93	2154
Huber, Carl, Carlsruhe, Germany. Uniting metal surfaces by means of fluid-pressure	662,791	Nov. 27	3294	777	93	1650
Huber, Carl, Carlsruhe, Germany. Shaping and embossing metal objects by fluid-pressure	664,045	Dec. 18	2094	478	93	2180
Huckins, Walter C., Dayton, Ohio. Apparatus for cooling liquids	662,488	Nov. 27	2639	630	93	1585
Hudson, Lawrence. (See Hudson, William and L.)						
Hudson, Richard W., assignor of one-third to Kirk Manufacturing Company, Toledo, Ohio. Oil-well jack	660,059	Oct. 16	2448	552	93	530
Hudson, William and L., Burnley, England. Photographic-printing frame	659,973	Oct. 16	2304	518	93	494
Huebner, Harry, Philadelphia, Pa. Clothes-line reel	664,640	Dec. 25	3228	732	93	2436
Huebner, Paul, Milwaukee, Wis. Steam-engine	664,270	Dec. 18	2507	569	93	2265
Huelster, William W., Grand Rapids, Mich. File-box	660,797	Oct. 30	3869	870	93	839
Huestis, Frederick W., Newton, Mass., assignor to Universal Safety Tread Company, Jersey City, N. J. Making non-slipping treads, paving, &c	659,815	Oct. 16	2007	450	93	433
Huettig, Hugo G., and P. Schlossmann, Philadelphia, Pa. Knitting stockings	660,374	Oct. 23	3120	691	93	677
Hugendubel, Ernst, Stuttgart, Germany. Combined cane and umbrella	661,990	Nov. 20	1755	422	93	1332
Hughes, Edward F., Boston, Mass. Exhaust-valve for steam-engines	664,553	Dec. 25	3050	695	93	2398
Hughes, Henry A., Philadelphia, Pa., assignor to Perfection Jar Closure Company, Philadelphia, Pa., and Camden, N. J. Sealing-wax	664,752	Dec. 25	3458	------	93	2485
Hughes, John, Somerville, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Blow-off valve	659,234	Oct. 9	941	222	93	206
Hughes, John H., Mianus, Conn. Incubator	659,529	Oct. 9	1447	328	93	306
Hughes, Josiah, and J. F. McGowan, assignors to Iron Clad Manufacturing Company, New York, N. Y. Ornamental enamel-ware	664,321	Dec. 18	2605	------	93	2285
Hughes, William B. (See Christie and Hughes.)						
Hughes, William O. (See Bowman and Hughes.)						
Hughson, George F., Chicago, Ill. Flexible joint for pipes	664,479	Dec. 25	2920	665	93	2371
Hulett, Orville A., Luverne, Minn. Milk-stool	663,845	Dec. 4	812	173	93	1879
Hull, Arthur B., *et al.* (See Hull, Warren, assignor.)						
Hull, Edward E. (See Gifford and Hull.)						
Hull, John C., *et al.* (See Hull, Warren, assignor.)						
Hull, Warren, assignor of two-thirds to A. B. and J. C. Hull, Gasport, N. Y. Double-cylinder pump	661,874	Nov. 13	1525	369	93	1266
Hulme, William A., Ryan, Ind. Ter. Sash holder and fastener	661,991	Nov. 20	1756	422	93	1332

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Hulse, William W., deceased; C. M. Catlin, Washington, D. C., administrator, assignor to E. Green & Son, Limited, Wakefield, England. Boring and turning machine	659,844	Oct. 16	2055	461, 462	93	444
Humphrey, James, Toronto, Canada. Ticket-box	664,810	Dec. 25	3573	813	93	2507
Humphrey, James D., and J. French, Towanda, Pa. Stamping and numbering machine.	660,512	Oct. 23	3357	755, 756	93	724
Humphrey, William C., Jamestown, N. D. Cyclist's brace and back-support	660,216	Oct. 23	2811	623	93	615
Humphreys, Alexander C., *et al.* (See Gibbs, William E., assignor.)						
Hundhausen, Rudolf, Wilmersdorf, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. System of non-interchangeable contact parts	664,046	Dec. 18	2096	478	93	2181
Hunnicut, Homer H., Giltner, Nebr. Disk-sharpening attachment	660,704	Oct. 30	3708	834	93	808
Hunt, Charles W., New York, N. Y. Lubricating conveyer-wheel	662,596	Nov. 27	2980	695	93	1582
Hunt & Co., M. A. (See Hunt, Warder D., assignor.)						
Hunt, Franklin B., Washington, D. C. Velocipede	661,992	Nov. 20	1758	422, 423	93	1333
Hunt, James M. (See Kennedy and Hunt.)						
Hunt, Warder D., assignor to M. A. Hunt & Co., Cincinnati, Ohio. Spring bed-bottom	664,756	Dec. 25	3464	782	93	2486
Hunter, David E., Cambridge, assignor to Library Bureau, Boston, Mass. Lock-rod for card-holders	664,753	Dec. 25	3459	782	93	2485
Hunter, David E., Cambridge, assignor to Library Bureau, Boston, Mass. Rotary lock-rod	664,754	Dec. 25	3461	782	93	2485
Hunter, David E., Cambridge, assignor to Library Bureau, Boston, Mass. Suspension device for document-files	664,755	Dec. 25	3463	782	93	2486
Hunter, George D., Bloomington, Ind. Gang-frame for stone-sawing machines	663,078	Dec. 4	311	66	93	1784
Hunter, George D., Bloomington, Ind. Steam-engine valve	663,079	Dec. 4	312	66	93	1784
Hunter, Henry H., Berkley Springs, W. Va. Pipe-wrench	664,641	Dec. 25	3229	732	93	2436
Hunter, Lytle J. (See Cooper, Lon J., assignor.)						
Hunter, Lytle J., Covington, Ky. Station-indicator	658,778	Oct. 2	66	17	93	17
Huntington, Harwood. (See Haslwanter, Charles, Jr., assignor.)						
Huntress, John H., Janesville, Wis. Post or pole	658,779	Oct. 2	69	17	93	17
Huntsman, Clancy, deceased; K. Huntsman, Belleville, Ohio, administratrix. Milk-cooler.	661,762	Nov. 13	1331	324	93	1231
Huntsman, Katharine, administratrix. (See Huntsman, Clancy.)						
Hurd, Delmar G., assignor of one-half to M. J. Burns, Lowell, Mass. Advertising apparatus	662,937	Dec. 4	65	16	93	1738
Hurd, Judson B., Brookland, D. C. Dining-room service apparatus	663,810	Dec. 11	1663	372, 373	93	2071
Hurford, Emma L., *et al.* (See Jones, Robert V., assignor.)						
Hurson, O. G. (See McKelvey, Samuel P., assignor.)						
Hurwitz, Salomon S., Dresden, Germany. Machine for applying gold-leaf to paper	661,875	Nov. 13	1527	370, 371	93	1267
Huson, Winfield S. (See Whitlock and Huson.)						
Hussey, Charles A., New York, N. Y., assignor to W. P. Pinckard, Birmingham, Ala. Regulating-socket for multifilament incandescent electric lamps	664,554	Dec. 25	3052	695	93	2398
Hussle, John H., Omaha, Nebr. Saw-cabinet	659,974	Oct. 16	2305	518	93	494
Hussong, Joseph, Camden, N. J. Apparatus for dyeing	661,343	Nov. 6	578	133, 134	93	1066
Hutches, Benjamin F., Jr., Chicago, Ill. Massage apparatus	659,674	Oct. 16	1716	387	93	377
Hutchinson, Robert H., assignor to Swan & Finch Company, New York N. Y. Lubricant for fibers	661,473	Nov. 6	802	.....	93	1112
Hutchinson, William F., Bound Brook, assignor to Atlas Match Company, Jersey City, N. J. Match-machine	664,642	Dec. 25	3231	732, 733	93	2437
Hutchison, John, Jackson, Mich. Feed-regulator	663,902	Dec. 18	1844	416	93	2132
Hutchisson, James F., Mobile, Ala. Means for applying automatic air-brakes in emergencies	662,360	Nov. 20	2459	502	93	1470
Huth, Georg, *et al.* (See Arledter, Fritz, assignor.)						
Hyatt, H. A. (See Nicholson, Edward B., assignor.)						
Hydraulic Press Brick Company. (See Graves, Willis N., assignor.)						
Hydraulic Valve and Regulator Company. (See Kuhlewind, Cornelius, assignor.)						
Hydro-Carbon Gas Company. (See Kistler, John F., assignor.)	661,052	Nov. 6	45	10	93	959
Hyne, George H., Rochester, N. Y. Spinning-top	662,673	Nov. 27	3068	724	93	1608
Hysore, Alphenas V. and J. T., Philadelphia, Pa. Drier	664,480	Dec. 25	2921	665, 666	93	2372
Hysore, John T. (See Hysore, Alphenas V. and J. T.)						
Ibach, Gideon R., New York, N. Y. Rotary engine						
Ibson, John P. (See Smith, Frederick H., assignor.)						
Ideal Manufacturing Company. (See Taylor, William, assignor.)						
Ideal Manufacturing Company. (See Van Wie, Peter G., assignor.)						
Ideal Stopper Company. (See Gay, Herman T., assignor.)						
Idlor, Clinton. (See Elliott and Idlor.)	663,676	Dec. 11	1407	311	93	2018
Illingworth, John, Newark, N. J. Crucible-shaker						
Imperial Manufacturing Company. (See Hitt, Adrian, assignor.)						
Implement Manufacturing Company. (See Burt, Chauncey I., assignor.)						
Implement Manufacturing Company. (See Jarmin, James B., assignor.)						
Improvements Manufacturing Company. (See Allen, Frederick E., assignor.)						
Improvements Manufacturing Company. (See Allen and Danforth, assignors.)						
Infallible Truss Company. (See Kampf, John F., assignor.)	660,440	Oct. 23	3232	722	93	699
Ingram, Josh, Chambersburg, Ill. Housing for poultry	660,441	Oct. 23	3234	722	93	699
Insinger, Alfred, assignor to Insinger Company, Philadelphia, Pa. Loom						
Insinger Company. (See Insinger, Alfred, assignor.)						
Interchangeable Brake Beam Company. (See Aglar, Francis B., assignor.)						
International Power Vehicle Company. (See Underwood, Herbert G., assignor.)						
International Railroad Safety Appliance Company. (See Orcutt, Edward L., assignor.)						
Introstile Company. (See Scoville, George L., assignor.)						
Invention Developing Company. (See Gill, Edwin R., assignor.)						
Iowa Incubator Company. (See Sprague, Newton C., assignor.)						
Ireland, Robert, A. L. Ashdown, and M. S. Holmes, Portage La Prairie, Canada. Stubble-burner	659,869	Oct. 16	2099	472	93	452
Irish, Gilbert H., Dallas, Tex. Tabulating attachment for type-writers	659,587	Oct. 9	1548	351	93	328
Irish, Gilbert H., Dallas, Tex. Key-bar	660,959	Oct. 30	4157	934	93	897
Irmiger, Henry G., and J. McCarthy, Green Bay, Wis. Apparatus for measuring and mixing liquids	659,066	Oct. 2	622	150	93	125
Iron Clad Manufacturing Company. (See Hughes and McGowan, assignors.)						
Irving, Frank K., assignor of one-half to A. G. Vogt, Newark, N. J. Electric battery	660,375	Oct. 23	3121	692	93	677
Irwin, Edward, Gridley, Ill. Governor for engines	662,121	Nov. 20	2012	485, 486	93	1381
Irwin, Herbert E., Galesburg, Ill. Doffer for cutter-guards	661,053	Nov. 6	46	10, 11	93	960

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Irwin, William J., Hoboken, N. J. Reeling-machine	659,067	Oct. 2	624	150, 151	93	125
Isard, Daniel, Camden, N. J. Railway-switch	661,054	Nov. 6	48	11	93	960
Isbell, Frank, New York, N. Y. Musical instrument	663,440	Dec. 11	1001	218, 219	93	1939
Isbills, Charles E., Passaic, N. J. Electric-motor wheel	660,217	Oct. 23	2813	623, 624	93	615
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Blue trisazo dye	658,897	Oct. 2	313	.....	93	64
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Blue-red azo dye and making same	662,122	Nov. 20	2014	.....	93	1381
Israel, Adolf, and R. Kothe, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Company, of New York. Orange azo dye and making same	663,498	Dec. 11	1099	.....	93	1958
Ivens, Charles B., Lexington, Nebr. Hay-stacker	661,290	Nov. 6	477	109	93	1047
Ives, Frederic E., Philadelphia, Pa. Photochromoscopic apparatus	660,442	Oct. 23	3236	722, 723	93	699
Ives, Hobart B., New Haven, Conn. Adjustable fastener for window-beads	659,068	Oct. 2	626	151	93	125
Ives, Hobart B., New Haven, Conn. Sash-lock	659,069	Oct. 2	628	151	93	125
Ives, William G. (See Nisbett and Ives.)						
Ivins, Clifford E., Glenolden, Pa. Beater	659,345	Oct. 9	1098	258	93	238
J. A. Fay & Egan Company. (See Bugbee, George W., assignor.)						
J. A. Fay & Egan Company. (See Hanhart, Louis J., assignor.)						
J. B. Brooks & Company. (See Brooks and Holt, assignors.)						
J. E. Mergott Company. (See Fuller, Albert F., assignor.)						
J. Hopkinson & Company. (See Hopkinson and Lowis, assignors.)						
J. Stevens Arms and Tool Company. (See Elder, Edward H., assignor.)						
J. W. Sefton Manufacturing Company. (See Shipley, Columbus G., Jr., assignor.)						
J. W. Sefton Manufacturing Company. (See Simon, George E., assignor.)						
Jack, William A., and J. M. Kinner, Cleveland, Ohio. Pyramidal hat-box	658,849	Oct. 2	245	61	93	52
Jackson, Carl, *et al.* (See Ward, Charles A., assignor.)						
Jackson, Charles W., Washington, D. C. Acetylene-gas lamp	660,754	Oct. 30	3786	852	93	824
Jackson, David, assignor to Jackson Patent Shell Roll Company, Pawtucket, R. I. Cop-tube mandrel	664,643	Dec. 25	3234	732	93	2437
Jackson, David H. (See Harmony, Jonas M., assignor.)						
Jackson, George R., Palmyra, Ind. Wood-sawing machine	659,308	Oct. 9	1043	245	93	226
Jackson, Joseph H., Buffalo, Ala. Rotary engine	659,530	Oct. 9	1448	328, 329	93	308
Jackson, Manetho C., assignor of one-half to J. McDonough, Denver, Colo. Wrench	662,792	Nov. 27	3296	777	93	1650
Jackson Patent Shell Roll Company. (See Jackson, David, assignor.)						
Jackson, Peter H., San Francisco, Cal. Floor, sidewalk, or the like	662,597	Nov. 27	2931	695	93	1582
Jackson, Ralph, Altrincham, England. Self-propelled vehicle	660,192	Oct. 23	2762	614	93	606
Jackson, Uriah S., Ossipee, N. H. Telephone-service apparatus	664,757	Dec. 25	3466	783	93	2486
Jacobi, Carl, Aschersleben, Germany. Superheater	659,070	Oct. 2	633	152	93	126
Jacobs, Arthur I., assignor to Smyth Manufacturing Company, Hartford, Conn. Book-cover machine	661,763	Nov. 13	1332	324, 325	93	1231
Jacobs, Arthur I., Hartford, Conn., assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Bicycle-chain	664,481	Dec. 25	2925	666	93	2373
Jacobs, Charles B., East Orange, assignor, by mesne assignments, to General Electro-Chemical Company, Jersey City, N. J. Manufacturing abrasive material	659,926	Oct. 16	2207	496	93	473
Jacobs, Henry J., assignor to Buffalo Lounge Company, Buffalo, N. Y. Reclining-chair.	664,322	Dec. 18	2608	593	93	2285
Jacobsen, Frederik A., Austin, Tex. Hitching-strap	663,573	Dec. 11	1220	267	93	1980
Jacobsen, Johannes, Friedenau, Germany. Valve apparatus for hydraulic presses	658,915	Oct. 2	342	85	93	70
Jacobson, Charles, Warren, Pa. Gas-regulator	662,938	Dec. 4	67	17	93	1739
Jacobus, Francis B., assignor of one-half to J. Marsch, Jersey City, N. J. Curtain-fixture	661,876	Nov. 13	1531	371	93	1267
Jaeger, Christian. (See Schoetti and Jaeger.)						
Jaeger, Ferdinand, New York, N. Y. Bootjack	662,439	Nov. 27	2641	630	93	1526
Jaeger, Ferdinand, New York, N. Y. Bootjack	662,440	Nov. 27	2641	631	93	1526
Jaeger, Franz E., assignor of twelve twenty-fifths to E. and C. Bittiner, New York, N. Y. Lock for multibarrel firearms	663,545	Dec. 11	1181	255, 256	93	1974
Jaeger, Frederick W., New York, N. Y. Rotary-piston motor	659,675	Oct. 16	1718	387, 388	93	378
Jaenecke, Wilhelm F., assignor of one-half to G. L. Allen, Bradford, Pa. Reversing-gearing	663,546	Dec. 11	1184	256	93	1974
Jaks, Alfred, assignor of one-half to G. Lemke, Berlin, Germany. Confinement-mantle	663,080	Dec. 4	313	66, 67	93	1784
James, Rees. (See Monell and James.)						
Jameson, John M., Wigston Fields, England. Making fuel from floor-dust, house refuse, &c	663,441	Dec. 11	1002	.....	93	1940
Jamieson, Walter, New York, N. Y. Sectional floating construction-dock	664,758	Dec. 25	3468	784	93	2487
Jamison, James A., Russellville, Ark. Hame and trace connector	659,816	Oct. 16	2007	450	93	433
Jandus, William, Cleveland, Ohio. Filter	661,378	Nov. 6	627	146	93	1077
Janelle, Oscar, assignor to S. N. Bourne, trustee, Manchester, N. H. Filling-supply loom	662,441	Nov. 27	2642	631, 632	93	1526
Janet, Armand. (See Ravier and Janet.)						
Janssen, Henry. (See Thun and Janssen.)						
Janssen, Henry, and F. Thun, Reading, Pa. Braiding-machine	664,047	Dec. 18	2098	479, 480	93	2181
Jaques, Fernando O., Jr., Providence, R. I. Lathe-tool	660,376	Oct. 23	3124	692	93	678
Jarmin, James B., Osceola, Nebr., assignor, by mesne assignments, to Implement Manufacturing Company, Davenport, Iowa. Windmill	662,989	Dec. 4	69	17	93	1739
Jarrett, John. (See Edwards, John, assignor.)						
Jarvis, Robert C., Chicago, Ill. Feed-box	663,081	Dec. 4	314	67	93	1784
Jarvis, Walter C., Indianapolis, Ind. Apparatus for handling animal-carcasses	664,410	Dec. 25	2794	634	93	2348
Jasmatzi, Georg A., Dresden, Germany. Cigarette-making machine	662,940	Dec. 4	71	17	93	1740
Jassoy, Heinrich, Stuttgart, Germany. Railway-sleeper	659,749	Oct. 16	1882	424	93	409
Jeavons, William R., Cleveland, Ohio. Hydrocarbon-burner	662,941	Dec. 4	72	18	93	1740
Jeavons, William R., Cleveland, Ohio. Burner	662,942	Dec. 4	75	18	93	1741
Jeavons, William R., Cleveland, Ohio. Burner	662,943	Dec. 4	78	18	93	1742
Jeffers, Harry I., Aberdeen, Miss. File for prescriptions	664,482	Dec. 25	2926	666	93	2373
Jeffery, Thomas B., Chicago, Ill. Bicycle gearing-case	659,235	Oct. 9	942	222	93	207
Jeffery, Thomas B., Chicago, Ill. Carbureter	661,697	Nov. 13	1214	295	93	1208
Jelen, Josef, Norfolk, Nebr. Riding sulky-cultivator	662,194	Nov. 20	2156	520, 521	93	1412
Jelen, Josef, Norfolk, Nebr. Walking sulky-cultivator	662,195	Nov. 20	2158	521	93	1412
Jencke, Gus A., C. A. Homrig, and E. M. Blaine, Chicago, Ill. Suspension-hook	664,217	Dec. 18	2403	548	93	2246
Jenkins, Arthur D. (See Bush, John, assignor.)						
Jenkins, Benjamin B., Toronto, Canada. Sander	660,546	Oct. 23	3426	769	93	736

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jenkins, Charles H., assignor of one-half to F. B. Kendrick and W. F. Davis, Lebanon, N. H. Hand-vise	662,535	Nov. 27	2824	670	93	1502
Jenkins, Ebenezer C., Shrewsbury, Mass. Changeable running-gear for vehicles	661,721	Nov. 13	1256	304	93	1216
Jenkins, John H., Hubbard City, Tex. Metallic brush for cotton-gins	660,960	Oct. 30	4158	934	93	897
Jenkins, Thomas J., Indianapolis, Ind. Candy-machine	660,901	Oct. 30	4057	909	93	877
Jenne, Charles L., Springfield, Mass. Utensil for moistening stamps, envelops, &c.	662,196	Nov. 20	2160	521	93	1412
Jennings, David M., J. L. Henry, and S. A. Fretwell, Centralia, Mo. Mowing-machine attachment	662,442	Nov. 27	2647	632	93	1527
Jennings, Kimsey M., Philadelphia, Pa. Flower-stand	660,853	Oct. 30	3983	891	93	892
Jensen, William, Chicago, Ill. Repeating clock	660,075	Oct. 16	2508	501 502	93	534
Jensenius, Herman, New York, N. Y., assignor to H. R. Worthington, Elizabeth, N. J. Steam-engine	659,927	Oct. 16	2209	496 497	93	473
Jerauld, Dinarej N., Buffalo, N. Y. Thread-cutter	659,975	Oct. 16	2306	518	93	494
Jett, John, San Francisco, Cal. Saw-handle	664,048	Dec. 18	2099	480	93	2182
Jewell, Arthur E. (See Frye, Charles H., assignor.)						
Jewell, Ira H., Chicago, Ill. Accessible filter-screen	664,088	Dec. 18	2165	494 495	93	2196
Jewell, William H. C., Allegheny, Pa. Burglar-alarm	663,230	Dec. 4	611	130	93	1840
Jewett, Frank, assignor to O. H. Jones, Hartford, Conn. Ball-cock	663,231	Dec. 4	611	131	93	1840
Jewett, Frank E., Lowell, Mass. Apparatus for securing barrels when steaming	664,555	Dec. 25	3055	695	93	2399
Jewett, Frank E., Lowell, Mass. Apparatus for securing barrels when steaming	664,556	Dec. 25	3057	695	93	2400
Jewett, Nelson M., Riceville, Iowa. Milking-stool	661,055	Nov. 6	48	11	93	960
Jobes, Leslie D., Erie, Pa. Mail-bag catcher and deliverer and railway appliance therefor	664,271	Dec. 18	2508	570	93	2206
Johannsen, Nicholas A. L. J., New York, N. Y. Stove for continuous fire	659,080	Oct. 2	568	137	93	114
John A. Peeples Manufacturing Company. (See Shirk, Peter E., assignor.)						
John Brown & Company. (See Wallace, William C., assignor.)						
John, Gotthilf F. (See Adkins and John.)						
John Kroder and Henry Reubel Company. (See Kroder, John, assignor.)						
John Mehl & Company. (See Gentzel, Gustav H., assignor.)						
John R. Williams Company. (See Williams, John R., assignor.)						
John Rose Company. (See Rose, John, assignor.)						
John Taylor & Company. (See Hamm and Taylor, assignors.)						
Johns, Norman A. (See Peck, Leach, and Johns.)						
Johnson, Albert C., Baltimore, Md. Making sulfuric acid	659,296	Oct. 9	944	222	93	207
Johnson, Andrew G., *et al.* (See Reynolds, Samuel D., assignor.)						
Johnson, Andrew J., Ethel, Miss. Pea-thresher	660,687	Oct. 30	3671	825 826	93	800
Johnson, Arthur L., assignor to Comey & Johnson, Cleveland, Ohio. Apparel-hat	660,529	Oct. 23	3395	702	93	730
Johnson, August, assignor to Barnard & Leas Manufacturing Company, Moline, Ill. Magnetic ore-separator	663,760	Dec. 11	1554	347 348	93	2047
Johnson, August P., Ada, Minn. Dentistry	659,196	Oct. 2	870	207	93	173
Johnson, Axel, Winchester, Mass. Sparking igniter for explosive-engines	661,291	Nov. 6	479	109 110	93	1047
Johnson, Charles J. (See Benedict, Charles W., assignor.)						
Johnson, Charles S. and W. S., assignors to Klimax Leveller Company, Lynn, Mass. Beating-out machine	659,399	Oct. 9	1191	276	93	258
Johnson, Charles S., Lynn, and J. C. Cutcheon, Swampscott, assignors to Klimax Leveller Company, Lynn, Mass. Beating-out machine	659,398	Oct. 9	1189	275 276	93	258
Johnson, Charles W. L., Baltimore, Md. Supporting attachment for golf-flags	663,761	Dec. 11	1557	348	93	2048
Johnson, Ernest V., Chicago, Ill. Grain-elevator	664,323	Dec. 18	2609	593 594	93	2285
Johnson, Ernest V., Chicago, Ill. Construction of fireproof grain-bins, elevators, or other buildings	664,324	Dec. 18	2611	594	93	2286
Johnson, Ernest V., Chicago, Ill. Fireproof grain-bin, elevator, &c.	664,325	Dec. 18	2612	595	93	2286
Johnson, Floyd B., Aberdeen, S. D. Guard-finger and finger-bar	661,216	Nov. 6	340	81	93	1020
Johnson, George R., Hastings, Mich. Dental articulator	659,531	Oct. 9	1451	329	93	309
Johnson, George W., Mexico, Mexico. Measuring and registering apparatus	664,272	Dec. 18	2511	570 571	93	2207
Johnson, Harry T., Jersey City, N. J. Telegraphic instrument	663,908	Dec. 18	1845	416	93	2132
Johnson, Henry. (See Jones, William L., assignor.)						
Johnson, James N., assignor of one-fourth to J. F. Bennett, Hattiesburg, Miss. Vehicle-wheel	662,443	Nov. 27	2648	632	93	1527
Johnson, John H., Chicago, Ill., assignor to Peck Bros. Company, of Illinois. Stop and waste cock	664,354	Dec. 18	2678	608	93	2209
Johnson, John W., Trenton, Mo. Bicycle-brake	663,968	Dec. 18	1964	442	93	2154
Johnson, Joseph E., Paris, Tenn. Railway-velocipede	660,298	Oct. 23	3074	660	93	648
Johnson, Lafayette, assignor of one-half to H. C. Stilwell, Anderson, Ind. Sign	664,049	Dec. 18	2101	480	93	2182
Johnson, Louis C., Washington, D. C. Bicycle-lamp	660,639	Oct. 30	3583	803	93	784
Johnson & Lund. (See Funck, Philipp, assignor.)						
Johnson, Martin, Milwaukee, Wis. Car-moving mechanism	663,499	Dec. 11	1101	240	93	1959
Johnson, Moses C., assignor to Helix Gear Company, Hartford, Conn. Variable-speed gearing	663,442	Dec. 11	1003	219	93	1940
Johnson, Robert R., Detroit, Mich. Adjustable window-shade	661,581	Nov. 13	1005	249	93	1167
Johnson, T. W. (See Stanley, Robert B., assignor.)						
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Ejector for breech-loading firearms	659,928	Oct. 16	2214	497	93	474
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Adjustable rear sight	659,929	Oct. 16	2216	497	93	475
Johnson, Thomas C., assignor to Winchester Repeating Arms Company, New Haven, Conn. Temporary cartridge-clip	660,377	Oct. 23	3125	692	93	678
Johnson, Thomas J., Harrington, Wash. Attachment for sawbucks	660,015	Oct. 16	2398	532	93	507
Johnson, Walter C., and A. Wunderlich, London, England. Electric-arc lamp	663,346	Dec. 4	813	174	93	1879
Johnson, William C., Waukon, Iowa. Hame-clip	664,411	Dec. 25	3795	695	93	2349
Johnson, William R., New York, N. Y., assignor to himself, and G. Nichols, Leicester, England. Revivifying old plaster-of-paris	661,247	Nov. 6	400	.....	93	1032
Johnson, Williams S. (See Johnson, Charles S. and W. S.)						
Johnston, Daniel B., Parkersburg, W. Va. Saw	660,575	Oct. 30	3476	779	93	765
Johnston, David C., Marietta, Ohio. Derrick-pulley pumping-stand	663,702	Dec. 11	1558	348	93	2048
Johnston, Eduard A., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Grinder for sickles of mowers, reapers, &c.	663,278	Dec. 4	696	151	93	1857
Johnston, Howard B., Brownsville, Pa. Safety attachment for infants' high chairs	661,764	Nov. 13	1344	326	93	1233
Johnston, John M., and O. Vanorman, Los Angeles, Cal. Massage-chair	663,909	Dec. 18	1965	442	93	2155
Johnston, John P., assignor to himself and E. E. Morrell, Oak Park, Ill. Liquid-spraying device	662,236	Nov. 20	2241	539	93	1427

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Johnston, John P., assignor to himself and E. E. Morrell, Oak Park, Ill. Gas apparatus	664,355	Dec. 18	2680	609	93	2299
Johnston, William A., and E. I. McDonald, Buckland, Ohio. Churn	660,112	Oct. 23	2587	580	93	570
Joiles, Adolf. (See Jolles and Trenkler.)						
Jolles, Max and A., and J. Trenkler, assignors to Filterwerke Kuffler & Co., Vienna, Austria-Hungary. Filtering material and making same	661,056	Nov. 6	49	11	93	960
Joncas, Henry. (See Gagnon and Joncas.)						
Jones, Albert F., Salem, Mass. Stone-dressing machine	659,478	Oct. 9	1343	307 308	93	289
Jones, Alfred, assignor of one-half to Mound City Paint and Color Company, St. Louis, Mo. Meal-cake-forming machine	659,987	Oct. 2	481	116	93	97
Jones, Archer G., Richmond, Va., and C. H. Philbrook, New York, N. Y., assignors to E. M. Crutchfield, Richmond, Va. Smoke-consumer	661,451	Nov. 6	762	179	93	1104
Jones, Arthur B., Lincoln, Mass. Seat-cover	663,279	Dec. 4	699	152	93	1857
Jones, Charles B., assignor of one-half to F. L. Cowles, New Haven, Conn. Child's reclining carriage	661,344	Nov. 6	579	134	93	1066
Jones, Charles E. (See Permar, William R., assignor.)						
Jones, Charles J., Topeka, Kans. Wind-motor	662,944	Dec. 4	80	19	93	1742
Jones, David G. and J. W., Granbury, Tex. Hame-fastener	659,149	Oct. 2	759	188	93	153
Jones, Edward A., Pittsfield, Mass. Rag-engine	662,726	Nov. 27	3174	751	93	1627
Jones, Edwin B., Chatham, Canada. Attachment for arc-lamps	662,727	Nov. 27	3175	751	93	1627
Jones, Estella V., Chicago, Ill. Pocket-book attachment	661,397	Nov. 6	437	102	93	1038
Jones, Eugene E., New York, N. Y. Door-check	658,916	Oct. 2	343	85	93	70
Jones, Francis W., *et al.* (See Nicholson, Jacob H., assignor.)						
Jones, Francis W., assignor to Postal Telegraph-Cable Company, New York, N. Y. Telegraph-switchboard	664,557	Dec. 25	3058	696	93	2400
Jones, Grandville F., Exeter, Nebr. Animal-trap	662,624	Nov. 27	2976	705	93	1591
Jones, Harry F., Camden, N. J., assignor of one-half to E. E. Smith, Philadelphia, Pa. Dental handpiece	662,070	Nov. 20	1921	461	93	1364
Jones, Henry, assignor of one-fourth to W. G. H. Ellison and W. J. Wale, Colwood, Canada. Water-wheel	663,812	Dec. 11	1671	378	93	2073
Jones, Herbert I., Riverside, assignor of one-half to T. T. Morrisey, Providence, R. I. Yarn-guide for knitting-machines	664,273	Dec. 18	2519	571 572	93	2208
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Liquid door-check	658,780	Oct. 2	70	18	93	18
Jones, John A., New York, N. Y. Press copying-machine	659,797	Oct. 16	1980	444	93	428
Jones, John B., Fredricktown, Mo. Beer-faucet	663,347	Dec. 4	814	174	93	1879
Jones, John M., Palmyra, N. Y. Planetarium	659,817	Oct. 16	2008	450 451	93	434
Jones, John M. C., Gibson City, Ill. Egg-beater and churn	660,518	Oct. 23	3363	757	93	725
Jones, John W. (See Jones, David G. and J. W.)						
Jones, Jinkins W., Woburn, Mass. Portable staging	662,566	Nov. 27	2875	681 682	93	1571
Jones, Mathew F., assignor of one-half to W. Farrell, Lawrence, Mass. Pipe-wrench	658,850	Oct. 2	247	61	93	52
Jones, Owen H. (See Jewett, Frank, assignor.)						
Jones, Peter L., San Francisco, Cal. Spring connection for vehicles	659,798	Oct. 16	1984	444	93	429
Jones, Robert V., North Industry, assignor of one-half to E. L. Hurford and R. B. Kuhn, Canton, Ohio. Meat-grinder-knife sharpener	661,013	Oct. 30	4253	955	93	916
Jones, Sidney B., Fidelity, Ill. Insect-destroyer	659,870	Oct. 16	2101	473	93	452
Jones, Thomas J., Chicago, Ill. Machine for rolling iron	659,850	Oct. 16	2065	464	93	445
Jones, William D., and W. O. Pierce, Penmaen Mawr, assignors of one-third to W. M. Treglown, London, England. Pneumatic hammer for rock-drills	660,961	Oct. 30	4160	934	93	898
Jones, William L., Arlington, assignor to H. Johnson, Rahway, N. J. Die for forging fork-headed rods	661,014	Oct. 30	4255	955	93	916
Jones, William S., *et al.* (See Pendleton, Winston K., assignor.)						
Jonsen, Gustav W. (See Klövstad and Jonsen.)						
Jordan, Frank, assignor of one-half to T. B. Gale, New York, N. Y. Fountain-pen	658,917	Oct. 2	345	85	93	70
Jordan Gravitation Process Company. (See Jordan, Thomas R., assignor.)						
Jordan, Harry F., assignor of one-half to A. L. Bentley, Chicago, Ill. Electric program-clock	659,479	Oct. 9	1352	308	93	290
Jordan, Henry S., Grand Rapids, Mich. Adjustable table	659,532	Oct. 9	1452	329	93	309
Jordan, Henry S., Grand Rapids, Mich. Tenon-and-mortise joint	664,050	Dec. 18	2102	480	93	2182
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Crushing-machine	661,993	Nov. 20	1761	423	93	1333
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Apparatus for concentrating minerals, &c.	661,994	Nov. 20	1762	423 424	93	1333
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Amalgamating apparatus	661,995	Nov. 20	1764	424	93	1334
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Screening apparatus	661,996	Nov. 20	1766	424 425	93	1334
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Concentrating apparatus	661,997	Nov. 20	1767	425	93	1334
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Process Company, of New York. Crushing-machine	661,998	Nov. 20	1769	425	93	1335
Jose, Oscar A. (See Holtzclaw, John B., assignor.)						
Joseph, Joshua H. (See McMullen, George, assignor.)						
Joseph, Sheldon, Columbus, W. H. and W. J. Clark, assignors to W. J. Clark Company, Salem, Ohio. Hose-coupling	659,071	Oct. 2	636	152	93	127
Joughins, George R., Moncton, Canada. Stay-bolt	662,071	Nov. 20	1922	461	93	1364
Joy, George A., Bar Harbor, Me. Buttonhole marker and spacer	664,759	Dec. 25	3470	784 785	93	2487
Judd, George E. (See Vandercook, Frank E., assignor.)						
Julian, Gideon, assignor to G. H. P. Flagg, Boston, Mass. Automatic clutch and brake	663,630	Dec. 11	1321	292	93	2000
Julian, Gideon, assignor to G. H. P. Flagg, Boston, Mass. Sole-rounding machine	663,656	Dec. 11	1360	301	93	2008
Jung, Carl, assignor of two-thirds to A. Kittel and A. Brecher, Vienna, Austria-Hungary. Insulating composition	662,444	Nov. 27	2649	.....	93	1527
Jürgens, Emma, Friedenau, Germany. Cooking appliance	660,991	Oct. 30	4204	945	93	907
Just, Alexander, Vienna, Austria-Hungary. Incandescent body for electric glow-lamps	663,095	Dec. 4	846	.....	93	1790
Just, John A., Syracuse, N. Y. Solidified mineral oil and making same	658,988	Oct. 2	483	.....	93	97
Just, John A., Syracuse, N. Y. Rennet extract and making same	661,765	Nov. 13	1345	.....	93	1233
Justen, Joseph M., Toledo, Ohio. Bicycle handle-bar	660,576	Oct. 30	3478	779 780	93	765
Justice, Burton M. (See Copperfield and Justice.)						
Justice, Jaromir J. (See Elsner, Daniel, assignor.)						
Kaeferle, Fritz. Hanover, Germany. Pipe-coupling	664,218	Dec. 18	2403	548	93	2246
Kaeferle, Fritz. Hanover, Germany. Commutator	664,219	Dec. 18	2404	548	93	2246
Kahler, Gottlieb P., Douglas, Ill. Lawn-mower	661,914	Nov. 13	1595	386	93	1280

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Kahn & Bros., F. & L. (See Kahn, Lazard, assignor.)						
Kahn, Lazard, assignor to F. & L. Kahn & Bros., Hamilton, Ohio. Gas-stove	659,400	Oct. 9	1192	276	93	258
Kain, David F., Bluffton, Ind. Ditching-machine	661,405	Nov. 6	679	158	93	1088
Kalamazoo Wagon Company. (See Oswald, William C., assignor.)						
Kalina, Josef, Cleveland, Ohio. Safety device for triggers and hammers of firearms	660,378	Oct. 23	3127	693	93	678
Kalischer, Georg. (See Hoffmann and Kalischer.)						
Kalle & Co. (See Elbel and Rosenberg, assignors.)						
Kampf, John F., assignor, by mesne assignments, to Infallible Truss Company, Toledo, Ohio. Hernial truss	658,989	Oct. 2	485	116	93	98
Kampfe, Frederick, R., and O., New York, N. Y. Device for honing safety-razor blades	660,640	Oct. 30	3585	804	93	784
Kampfe, Otto. (See Kampfe, Frederick, R., and O.)						
Kampfe, Richard. (See Kampfe, Frederick, R., and O.)						
Kamps, J. H. (See Brinck, John R., assignor.)						
Kane, James M. (See Henkenius, Peter, assignor.)						
Kane, Maurice, Austin, Ill. Finger-bar for mowing-machines	663,443	Dec. 11	1005	220	93	1940
Kane, Thomas. (See Smith, Uzziel P., assignor.)						
Kaney, Seraphim, Tarentum, Pa. Washing-machine	663,657	Dec. 11	1362	302	93	2009
Kann, Richard, Jena, Germany. Electrically-controlled coin-feeding appliance for vending-machines	659,533	Oct. 9	1453	330	93	309
Karl Miller Ore Reduction Syndicate. (See Miller, Karl, assignor.)						
Karraker, Joseph F., Dongola, Ill. Hay-rack	661,057	Nov. 6	52	12	93	961
Kaselowsky, Emil, Berlin, Germany. Torpedo	661,535	Nov. 13	912	223, 224, 225, 226	93	1144
Kaster, Edwin M., Rimersburg, Pa. Rotary engine	661,103	Nov. 6	135	33	93	978
Kato, George P., Jr., assignor of one-half to J. J. Cullen, Jersey City, N. J. Candelabrum	658,898	Oct. 2	315	77	93	64
Katsch, Charles E., New Haven, Conn. Time circuit-closer	659,480	Oct. 9	1354	308, 309	93	290
Kautzmann, August. (See Schroeter and Kautzmann.)						
Kay Brothers. (See Shaw, George A., assignor.)						
Kaylor, John, Decatur, Ill. Convertible corn-planter	661,248	Nov. 6	401	94, 95	93	1032
Kayser, Joseph. (See Schwerdfeger and Kayser.)						
Kayser, Julius. (See Klemm, Hermann A., assignor.)						
Keach, William E., Fitchburg, Mass. Clearer for drawing-rolls	658,918	Oct. 2	346	86	93	71
Keen, William N., New Orleans, La. Nut-lock	662,274	Nov. 20	2294	552	93	1438
Keeton, Cary M. (See Noble and Keeton.)						
Keferstein, Louis, *et al.* (See Arledter, Fritz, assignor.)						
Keffer, Ephraim M., Hespeler, Canada. Picker mechanism for looms	659,072	Oct. 2	637	152	93	127
Keith, James, London, England. Apparatus for pumping or compressing gas and air	660,253	Oct. 23	2874	640, 641	93	628
Keith, James, London, England. Gas or air compressor or pump	663,500	Dec. 11	1102	241	93	1959
Keitnley, Herbert R., Buffalo, N. Y. Underframe for railway-cars	659,401	Oct. 9	1193	277	93	258
Keithley, Herbert R., Buffalo, N. Y. Underframe for railway-cars	659,402	Oct. 9	1195	277	93	259
Keithly, Willie C., San Francisco, Cal. Face-steamer	663,574	Dec. 11	1221	267	93	1980
Kelch, Wallace M. (See Ohmer, Kelly, and Kelch.)						
Keller, Albert T., Wilkinsburg, assignor of one-half to P. Keller, Edgewood Park, Pa. Ingot-manipulator	660,775	Oct. 30	3829	858	93	831
Keller, Anthony P., and A. M. Behm, Tiffin, Ohio. Acetylene-gas generator	660,514	Oct. 23	3364	757	93	725
Keller, Charles E., Los Angeles, Cal. Boot-heel	659,073	Oct. 2	640	153	93	128
Keller, Frederick M., York, Pa. Grain-separator	659,976	Oct. 16	2308	519	93	495
Keller, Henry, Sauk Centre, Minn. Sand-shield and truss for vehicle-axles	660,254	Oct. 23	2876	641	93	628
Keller, Philip. (See Keller, Albert T., assignor.)						
Keller Tool Company. (See Kotten, Herman G., assignor.)						
Keller, W. A., *et al.* (See Shuster, Martin, assignor.)						
Kellett-Chatham Machinery Company. (See Williams, George W., assignor.)						
Kelley, John T., assignor of one-half to S. R. Rawson, New London, Ohio. Making wheels	663,280	Dec. 4	700	152	93	1858
Kelling, Johannes, Vienna, Austria-Hungary. Low-pressure steam heating apparatus	664,644	Dec. 25	3235	733	93	2487
Kellner, Carl, Vienna, Austria-Hungary. Manufacturing incandescent bodies	661,610	Nov. 13	1052	------	93	1176
Kellogg, Henry W., *et al.* (See Worth, William O., assignor.)						
Kellogg, Hosford D., Philadelphia, Pa. Radiator	663,658	Dec. 11	1363	302	93	2009
Kellogg, Warren T., Lansingburg, N. Y. Sash-cord guide	658,781	Oct. 2	72	18	93	18
Kellogg, Warren T., Lansingburg, N. Y. Auger-cutter	658,782	Oct. 2	74	18	93	18
Kelly, John D., Chicago, Ill., assignor to Library Bureau, Boston, Mass. Card-holder	664,558	Dec. 25	3059	696	93	2400
Kelly, John E., Victor, N. C. Manual-training and industrial apparatus	660,641	Oct. 30	3587	804, 805	93	785
Kelly, John F., Pittsfield, Mass. Dynamo-electric machine	661,292	Nov. 6	482	110	93	1048
Kelly, Joseph N. (See Ohmer, Kelly, and Kelch.)						
Kelly, Timothy, Watertown, Mass. Fire-escape	660,060	Oct. 16	2449	552, 553	93	521
Kelsey, David M., assignor to Antiseptic Powder Company, Saratoga Springs, N. Y. Disinfectant	659,621	Oct. 9	1615	------	93	341
Kelsey, Lovell L., Guilford, Conn., assignor of three-fifths to C. Blakeslee, Rutherford, N. J., and C. E. Fairbanks, Wallingford, Conn. Making glue and products resulting therefrom	660,379	Oct. 23	3129	693	93	678
Kelso, Joseph. (See McConway and Kelso.)						
Kelso, Joseph, assignor to McConway & Torley Company, Pittsburg, Pa. Car-coupling	660,776	Oct. 30	3830	859	93	831
Kemble, Duston, Cleveland, Ohio. Steam-turbine	659,930	Oct. 16	2217	498	93	475
Kemp, Thomas L. (See Santmyer, Charles W., assignor.)						
Kempner, Edward M. (See Stern and Kempner.)						
Kendrick, Abraham L., South Norwalk, and W. J. Wiley, assignors of one-third to H. McLachlan, Danbury, Conn. Non-refillable bottle	662,945	Dec. 4	83	19	93	1742
Kendrick, Frank B., *et al.* (See Jenkins, Charles H., assignor.)						
Kendrick, George D. (See Preston and Kendrick.)						
Kendrick, Hiland H., Fulton, N. Y. Water-closet	664,559	Dec. 25	3060	696, 697	93	2400
Kennedy, Anthony. (See Hollar, Kennedy, and Rhodes.)						
Kennedy, Daniel J., assignor of one-half to A. King, Taunton, Mass. Combined dumb-bell and Indian club	660,962	Oct. 30	4161	935	93	898
Kennedy, Julian, Pittsburg, Pa. Rolling-mill feed-table	661,877	Nov. 13	1532	372	93	1208
Kennedy, Julian, Pittsburg, Pa. Rolling-mill	664,645	Dec. 25	3236	734	93	2438
Kennedy, Richard G., Pittsburg, Pa. Mower-knife grinder	662,793	Nov. 27	3297	778	93	1650
Kennedy, William, and J. M. Hunt, assignors of one-third to M. L. White, Harrisonville, Mo. Band-tying mechanism for baling-presses	661,015	Oct. 30	4257	955, 956	93	916

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Kennedy, William J., assignor of five-sixths to H. Brinkman, J. B. Morse, J. Thomson, W. Heavey, Jersey City, and J. Carnegie, Passaic, N. J. Device for launching life-boats	663,348	Dec. 4	815	174, 175	93	1880
Kenny, Patrick, assignor to himself and E. N. Dickerson, New York, N. Y. Cash-register	659,676	Oct. 16	1722	388, 389, 390, 391	93	378
Kenny, William S. (See Bouton, Charles L., assignor.)						
Kent, Arthur L., *et al.* (See Gibbs, James, assignor.)						
Kent, Henry R., New York, N. Y., assignor to Westinghouse Machine Company, of Pennsylvania. System of electrical distribution	663,659	Dec. 11	1364	302	93	2009
Kenyon, Charles C., assignor of one-half to D. R. Kenyon, Raritan, N. J. Piece-washing machine	662,377	Nov. 20	2487	598	93	1476
Kenyon, David R. (See Kenyon, Charles C., assignor.)						
Kern, Vernon D., Estherville, Iowa. Guide for drive-belts	659,370	Oct. 9	1141	266	93	247
Kerns, Augustus G. (See Rayner, Edwin B., assignor.)						
Kernwein, Sophia, Chicago, Ill. Attachable device for corsets	664,220	Dec. 18	2405	548	93	2246
Kerr, George G., Mount Jewett, Pa. Bicycle	664,274	Dec. 18	2520	572	93	2269
Kerr, George S., Morton, Pa. Toy rocker	660,016	Oct. 16	2370	532	93	507
Kerr, John, Dayton, Ky., assignor to Singer Manufacturing Company, of New Jersey. Two-needle sewing-machine. (Reissue)	11,876	Dec. 4	924	201	93	1901
Kersten, Frank L. (See Egan, William J., assignor.)						
Kertesz, Adolf, Mainkur, Germany. Machine for mercerizing	664,275	Dec. 18	2522	572, 573	93	2269
Kesselring, Wilhelm, and E. Röthenbacher, Strasburg, Germany. Trap or siphon for drains or the like	659,481	Oct. 9	1355	309	93	291
Kessler, Christian, Indianapolis, Ind. Automatic bread-making machine	661,999	Nov. 20	1770	425, 426, 427, 428	93	1335
Ketcham, Thomas J., Matamoras, Pa. Wheel and tire	663,175	Dec. 4	503	107	93	1821
Ketelsen, Anders J., Chicago, Ill. Miner's separating-pan	659,237	Oct. 9	946	223	93	207
Keyes, Frank E., New York, N. Y., assignor of one-half to C. R. Smith, Menasha, Wis. Apparatus for making pails from pulp	658,851	Oct. 2	248	61, 62	93	52
Keyes, Martin L., assignor to F. E. Robinson, Carthage, N. Y. Burial-case machine	660,642	Oct. 30	3590	805	93	785
Keyless Lock Company. (See Arner, Calvin E. and J., assignors.)						
Keyssner, Karl, Nuremberg, Germany. Lubricating-bearing	659,677	Oct. 16	1732	391	93	380
Keyte, Harry L., Merlin, Oreg. Type-case	662,625	Nov. 27	2978	706	93	1591
Kibler, John P., Eura, Va. Wrench	660,963	Oct. 30	4162	935	93	898
Kidd, Edward I., and G. C. Wurster, Prairie du Chien, Wis. Shell-blank-cutting machine	664,221	Dec. 18	2408	549, 550	93	2247
Kidd, John S., Des Moines, Iowa. Wagon-dump and elevator	660,992	Oct. 30	4205	945	93	907
Kiebbe, Emile, Lodz, Russia. Apparatus for opening or closing windows	662,794	Nov. 27	3299	778	93	1651
Kiefer, Earl, *et al.* (See Langenbach, Charles J., assignor.)						
Kiely, Humphrey J., New York, N. Y., assignor to Link-Belt Engineering Company, Philadelphia, Pa. Flat-car	661,878	Nov. 13	1533	373	93	1208
	662,149	Nov. 20	2062	500	93	1301
Kihn, Carl F., New York, N. Y. Bottle	659,238	Oct. 9	947	223	93	208
Kilby Manufacturing Company. (See Taylor and Kohn, assignors.)						
Killinger, John, Wayne, Pa. Folding receptacle	664,157	Dec. 18	2294	523	93	2221
Kilmer, Reuben W., Frankfort, Ind. Umbrella-cover	664,158	Dec. 18	2295	523	93	2221
Kilmer, Melvin D., Cleveland, Ohio. Spring-seat for chairs, sofas, wagon-seats, &c	662,871	Nov. 27	3520	823, 824	93	1702
Kilpatrick, David, Los Angeles, Cal. Fireproof structure						
Kimball, Edward J. (See White, Clarence O., assignor.)						
Kimber, Walter E., Johannesberg, South African Republic. Machine for sharpening rock-drills, &c	659,371	Oct. 9	1142	266	93	247
Kimes, Hugh W., assignor to Stilwell-Bierce & Smith-Vaile Company, Dayton, Ohio. Hydraulic valve	659,031	Oct. 2	570	137, 138	93	114
Kimman, Henry J., Chicago, Ill. Pneumatic tool	660,705	Oct. 30	3710	835	93	808
Kimman, Henry J., Chicago, Ill. Pneumatic riveter	663,124	Dec. 4	398	84, 85	93	1801
Kincaid, Joseph G., Hiawatha, Kans. Washing-machine	662,795	Nov. 27	3300	778	93	1651
Kincaid, Joseph W., assignor to Reading Crane and Hoist Works, Reading, Pa. Means for operating dumb-walters	658,990	Oct. 2	486	117	93	98
Kindermann, August. (See Levy and Kindermann.)						
Kindschuh, Jacob, Little Cedar, Iowa. Plate-lifter	659,678	Oct. 16	1733	391	93	380
King, Albert. (See Kennedy, Daniel J., assignor.)						
King, Albert W., Chicago, Ill. Wheel	661,611	Nov. 13	1054	262	93	1176
King, Charles B., Jr., *et al.* (See Rathbone, John J., assignor.)						
King, Early M., Ariosto, Ala. Convertible planter and fertilizer-distributer	659,304	Oct. 9	1045	245	93	227
King, Frank E., Lawrence, assignor to Lamson Store Equipment Company, Boston, Mass. Measuring instrument	664,276	Dec. 18	2524	573	93	2269
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Car construction	658,783	Oct. 2	75	19, 20, 21	93	18
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Body transom or bolster for railway-cars	658,784	Oct. 2	88	21	93	22
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Body transom or bolster for railway-cars	658,785	Oct. 2	90	21	93	22
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Car-truck	658,786	Oct. 2	92	22	93	23
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Draft-rigging	658,787	Oct 2	93	22	93	23
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Gondola car	658,788	Oct. 2	94	22, 23	93	23
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Hopper-bottom car	661,098	Nov. 13	1216	295	93	1209
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Double-hopper-bottom car	663,030	Dec. 4	238	51	93	1772
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Operating mechanism for car-doors	663,031	Dec. 4	240	51, 52	93	1772
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Flat-car	664,646	Dec. 25	3238	735	93	2438
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Double-hopper-bottom car	664,760	Dec. 25	3472	785	93	2487
King, Henry N. (See Kirk, Robert W., assignor.)						
King, Henry N., Adrian, Mich. Sign for streets or highways	661,536	Nov. 13	914	226	93	1148
King, Jerome J., *et al.* (See Lippy and Williams, assignors.)						
King, Patrick, New York, N. Y. Device for squeezing limes, lemons, &c	659,346	Oct. 9	1099	258	93	238

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
King, Robert B., Bristol, Pa. Cooler for milk-cans	659,150	Oct. 2	760	188	93	153
King, Robert H. (See Holbrook and King.)						
King, Rufus. (See Ormerod and King.)						
King, Samuel M., Paris, Me. Ventilating attachment for windows	659,305	Oct. 9	1046	246	93	227
Kingma, Jacobus L., Amsterdam, Netherlands. Means for teachingspeaking and reading	660,255	Oct. 23	2877	641	93	628
Kingsbery, Jesse D. (See Coon, Gustavus W., assignor.)						
Kingsford, Thomson. (See McRae, John D., assignor.)						
Kingsland, Jacob D., assignor of one-half to A. D. Zeigler, New York, N. Y. Spool or bobbin	659,306	Oct. 9	1047	246	93	227
Kingsland, William, London, England. Switch-box for electric railways	663,232	Dec. 4	612	131	93	1841
Kingsland, William, London, England. Connection of strikers to motor-vehicles for mechanically operating electric switches	663,233	Dec. 4	615	131 / 132	93	1841
Kinley, Oren W., and I. J. Eshliman, Glenwood, Iowa. Toe-clip	661,026	Oct. 30	4281	962	93	921
Kinnard Manufacturing Company. (See Knobeloch, Frank, assignor.)						
Kinner, John M. (See Jack and Kinner.)						
Kinney, Howard, Passaic, N. J., and J. O. Hankins, Richmond, Va. Vehicle-wheel	664,647	Dec. 25	3239	735	93	2439
Kinraide, Thomas B., Boston, Mass. Adjusting device for vacuum-tubes	659,891	Oct. 16	2133	481	93	458
Kinsman, Edgar, assignor of one-half to A. B. Richman, Malaga, N. J. Printing-telegraph	664,761	Dec. 25	3474	786 / 787 / 788	93	2488
Kinstler, Joseph, Chicago, Ill. Packing-bag	662,000	Nov. 20	1780	428	93	1337
Kintzing, William F., assignor of one-half to A. S. Norrish, Glen Rock, Pa. Wire-splicing machine	664,326	Dec. 18	2614	595	93	2286
Kip, Frederic E. (See Baker and Kip.)						
Kirchhofer, Joel G., Chicago, Ill. Cuff-holder	662,197	Nov. 20	2161	522	93	1413
Kirk, Harry D. and W. I., Chicago, Ill.; said W. I. Kirk assignor to said Harry D. Kirk. Tailor's tape-measure	661,537	Nov. 13	916	226	93	1149
Kirk Manufacturing Company. (See Hudson, Richard W., assignor.)						
Kirk, Robert W., assignor of one-half to H. N. King, Adrian, Mich. Wire-fence clamp	662,648	Nov. 27	3013	713	93	1508
Kirk, Thomas E., Deep Creek, Va. Land-clearing implement	663,176	Dec. 4	505	107	93	1821
Kirk, W. Stokes, *et al.* (See Wetherill, Frank W., assignor.)						
Kirk, Walter I. (See Kirk, Harry D. and W. I.)						
Kirk, William S., *et al.* (See Wetherill, Frank W., assignor.)						
Kirker, Ben M., Cincinnati, Ohio. Surface condenser	663,677	Dec. 11	1408	312	93	2018
Kirkwood, Ross B., Chattanooga, Tenn. Envelop-moistener	663,501	Dec. 11	1103	242	93	1959
Kirlin, Linden, Beattie, Kans. Disk cultivator	662,275	Nov. 20	2295	552	93	1438
Kirnan, William H., Bayonne, N. J., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Fire-alarm telegraph apparatus	663,082	Dec. 4	316	67	93	1785
Kistler, Edwin A., *et al.* (See Snell, George D., assignor.)						
Kistler, John F., assignor to Hydro-Carbon Gas Company, Tacoma, Wash. Gas-generating machine	662,276	Nov. 20	2296	553	93	1438
Kitchen, Benjamin F., *et al.* (See West, Lee, assignor.)						
Kitchin, Charles, Elwood, Ind. Automatic vehicle-hitch brake	664,159	Dec. 18	2296	523	93	2222
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Vaporizing apparatus	663,444	Dec. 11	1006	220	93	1940
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Vapor-burning apparatus	663,678	Dec. 11	1409	312	93	2018
Kitson, Arthur, Philadelphia, Pa., assignor to Kitson Hydrocarbon Heating and Incandescent Lighting Company, Philadelphia, Pa., and Charleston, W. Va. Vaporizing apparatus	664,762	Dec. 25	3482	788	93	2489
Kitson Hydrocarbon Heating and Incandescent Lighting Company. (See Kitson, Arthur, assignor.)						
Kittel, Adolf, *et al.* (See Jung, Garl, assignor.)						
Kitterman, Alexander, Portland, Oreg. Lamp-filling oil-can	659,977	Oct. 16	2310	519	93	495
Kittleson, Ole O., Lee, Ill. Lubricator	661,612	Nov. 13	1056	262 / 263	93	1176
Kittlinger, Frederick W., New York, N. Y. Last	661,699	Nov. 13	1219	295	93	1209
Klaber, Emile, New York, N. Y. Pedal-clutch mechanism	660,380	Oct. 23	3131	693	93	679
Klaber, Emile, New York, N. Y. Tone-modulating device for musical instruments	660,381	Oct. 23	3132	693	93	679
Kleber, Peter, Malatatt-Burbach, Germany. Producing artificial building stones, bricks, &c	663,904	Dec. 18	1846	416	93	2132
Klein, Adolph, Gross-Lichterfelde, Germany. Copying-machine	662,693	Nov. 27	3111	734	93	1617
Klein, Charles J., assignor to General Incandescent Arc Light Company, New York, N. Y. Panel-board and fuse-holder	660,113	Oct. 23	2589	580	93	570
Klein, Edward M., Reading, Pa. Signal-disk	662,872	Nov. 27	3522	824	93	1702
Klein, George C., Akron, Ohio. Shaft-tug	660,273	Oct. 23	2930	652	93	639
Klein, George H. (See Lockhart and Klein.)						
Klemm, Adam, *et al.* (See Liethegener, Henry, assignor.)						
Klemm, Hermann A., New York, N. Y. Overseaming sewing-machine	659,482	Oct. 9	1356	309	93	291
Klemm, Hermann A., New York, N. Y. Overseaming sewing-machine	660,777	Oct. 30	3832	860	93	831
Klemm, Hermann A., New York, N. Y. Trimmer for sewing-machines	664,277	Dec. 18	2527	574	93	2270
Klemm, Hermann A., assignor, by mesne assignments, to J. Kayser, New York, N. Y. Knitting-machine	660,577	Oct. 30	3479	780	93	765
Klepetko, Frank. (See Fischer and Klepetko.)						
Kleucker, George M., Brunswick, Germany. Deaerating water	664,763	Dec. 25	3481	788	93	2489
Klimax Leveller Company. (See Johnson, Charles S. and W. S., assignors.)						
Klimax Leveller Company. (See Johnson and Cutcheon, assignors.)						
Kline, Ed B., Laurel, Kans. Feed-regulating mechanism for threshing-machines	662,001	Nov. 20	1782	429	93	1337
Kline, John A., Reading, Pa. Stove-shelf	662,946	Dec. 4	84	19	93	1743
Kline, Theodore D. (See Prendergast, William H., assignor.)						
Kling, Frank M., Cairo, Ill. Extension-table	658,852	Oct. 2	249	62	93	52
Kling, Peter M., St. Louis, Mo. Car-seat	658,949	Oct. 2	417	100	93	85
Kling, Peter M., St. Louis, Mo. Car-seat	658,950	Oct. 2	418	100	93	85
Kling, Peter M., St. Louis, Mo. Car-seat	658,951	Oct. 2	419	101	93	86
Kling, Peter M., St. Louis, Mo. Seat	658,952	Oct. 2	420	101	93	86
Kling, Peter M., St. Louis, Mo. Lacing attachment	660,902	Oct. 30	4059	909 / 910	93	877
Kling, Peter M., St. Louis, Mo. Turnstile	660,903	Oct. 30	4060	910	93	877
Kling, Peter M., St. Louis, Mo. Buffer for street-cars	660,904	Oct. 30	4061	910	93	878
Kling, Peter M., St. Louis, Mo. Car-seat	663,177	Dec. 4	507	107	93	1822
Klink, George B., Tacoma, Wash. Twyer for blast-furnaces						
Klotter, George H. (See Hoff and Klotter.)						
Klotz, Jacob, Jr. (See Reynolds, Charles, assignor.)						
Klövstad, Jörgen, and G. W. Jonsen, Christiania, Norway. Vehicle	661,483	Dec. 25	2927	667	93	2373

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Knapp, Charles H., Paterson, N. J. Warping-machine	661,268	Nov. 6	438	102	93	1039
Knapp, Miland A., Minneapolis, Minn. Teeth-regulating appliance	664,412	Dec. 25	2797	635	93	2349
Knapp, Roland W., Minneapolis, Minn. Water-tube boiler	663,575	Dec. 11	1222	267 / 268	93	1981
Kneen, William, London, England. Boiler-furnace	663,576	Dec. 11	1226	269	93	1981
Knickerbocker, James B., assignor to Langsenkamp Brothers, Indianapolis, Ind. Thermostat	664,327	Dec. 18	2616	595	93	2287
Knieper, Wilhelm, Dortmund, Germany. Device for securing handles of brooms, scrubbing-brushes, &c	664,413	Dec. 25	2799	635	93	2349
Knight, Charles E., London, England. Letter-box	660,706	Oct. 30	3712	835	93	808
Knight, Claude H., Parker, S. D. Cream-separator	662,873	Nov. 27	3523	824	93	1703
Knight, Eli S., McCloud, Cal. Pulley-block	663,905	Dec. 18	1818	416	93	2133
Knight, Frank M. Z., New Haven, Conn. Break-away ladder	664,414	Dec. 25	2800	635	93	2349
Knight, John M. (See Urbach and Knight.)						
Knipe, William A., Haverhill, Mass. Welt for boots or shoes	662,378	Nov. 20	2488	599	93	1476
Knobel, John E., Chicago, Ill. Bookcase	659,851	Oct. 16	2066	464 / 465	93	445
Knobeloch, Frank, assignor to Kinnard Manufacturing Company, Dayton, Ohio. Package	659,931	Oct. 16	2219	498	93	475
Knoch, Paul, Berlin, Germany. Manufacturing corrugated roofing or the like from felt, canvas, &c	660,578	Oct. 30	3481	781	93	765
Knorzer, Augustus T., Middletown, Conn. Spring for couches, seats, &c	664,051	Dec. 18	2102	481	93	2182
Knowles, Joseph H., assignor to C. L. Beatty, Chicago, Ill., and C. A. Dow, Sioux City, Iowa. Combined box-lid support and tag-holder	660,854	Oct. 30	3984	891	93	802
Knowlson, Walter O., assignor of one-half to A. McConihe, Troy, N. Y. Water-line gage for steam-boilers	662,598	Nov. 27	2932	696	93	1582
Knox, Harry C., Kansas City, Mo. Box-fastener	664,415	Dec. 25	2801	636	93	2350
Knox, William F., Leavenworth, Kans. Lever-locking mechanism for switch-stands	663,906	Dec. 18	1850	417	93	2123
Koch, Albert, Schönberg, Germany. Incandescent mantle	662,170	Nov. 20	2108	.....	93	1401
Koch, James W., Reynolds, Pa. Railway-switch and means for operating same	663,907	Dec. 18	1851	417	93	2133
Koch, Julius J., St. Louis, Mo. Hydraulic brick-press	662,674	Nov. 27	3070	725 / 726 / 282	93	1608
Koch, Julius J., St. Louis, Mo. Brick-press	663,606	Dec. 11	1276	283 / 284	93	1993
Koch, Matthias, Montreal, Canada. Machine for folding or plaiting paper	658,919	Oct. 2	348	86, 87	93	71
Koch, Rudolph W., Fruit Vale, Cal. Roasting-machine	659,173	Oct. 2	802	194 / 195 / 196	93	162
Koehler, Otto, and C. Calmbach, San Antonio, Tex. Furnace	662,072	Nov. 20	1924	461 / 462	93	1364
Koehring, Henry von, Seguin, Tex. Pyrometer	664,764	Dec. 25	3486	788	93	2489
Koenig, Joseph, assignor to Aluminum Manufacturing Company, Two Rivers, Wis. Grinding, polishing, or buffing machine	662,536	Nov. 27	2825	671	93	1562
Koetschet, Joseph, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Indigo dye and making same	662,073	Nov. 20	1925	.....	93	1365
Koetschet, Joseph, St. Fons, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Nitro toluylic aldehyde	662,074	Nov. 20	1927	.....	93	1365
Koetschet, Joseph, St. Fons, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Nitro toluylic aldehyde	662,075	Nov. 20	1928	.....	93	1365
Koetschet, Joseph, St. Fons, assignor to La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Acetone compound of nitro-meta-toluylic aldehyde	662,076	Nov. 20	1929	.....	93	1365
Kohler, Franklin W., *et al.* (See Dresser, Charles A., assignor.)						
Kohler, G. A. Edward, *et al.* (See Dresser, Charles A., assignor.)						
Kohn, Joseph E. (See Taylor and Kohn.)						
Koken, Ernest E., St. Louis, Mo. Chair	660,905	Oct. 30	4062	911	93	878
Kolb, Jacob, Wichita, Kans. Railway grain-door	661,179	Nov. 6	277	67	93	1008
Kolb, Richard, Bamberg, Germany. Document holder or file	663,083	Dec. 4	323	67	93	1786
Koller, Hugo, Nuremberg, Germany. Electric smelting-furnace	662,537	Nov. 27	2826	671	93	1563
Koltonski, Stanislaus A., assignor to H. M. Perkins, administratrix of E. G. Carleton, deceased, Boston, Mass. Collar-spring	664,648	Dec. 25	3241	735	93	2439
Konkle, Mary E., Montoursville, Pa. Lid for cooking utensils	660,443	Oct. 23	3237	723	93	699
Konley, Frank, St. Mary's, Ohio. Clutch	659,679	Oct. 16	1733	391	93	380
Kootz, William, Milwaukee, Wis. Girth	663,445	Dec. 11	1008	220	93	1941
Koplin, Bert. (See Brown, Ethan A., assignor.)						
Kopp Anti-Corrosive and Anti-Barnacle Paint Company. (See Kopp, Robert, assignor.)						
Kopp, Robert, New York, N. Y. Butter-cutting apparatus	664,021	Dec. 18	2065	469	93	2174
Kopp, Robert, assignor to Kopp Anti-Corrosive and Anti-Barnacle Paint Company, Washington, D. C. Painting metal surfaces	663,281	Dec. 4	701	152	93	1858
Kornberg, Gustave A. (See Priestley, William W., assignor.)						
Korrodi, Heinrich, Berne, Switzerland. Sight for ordnance	661,269	Nov. 6	444	102	93	1040
Kortenhaus, Charles A., Philadelphia, Pa. Stem winding and setting watch	660,855	Oct. 30	3985	892	93	862
Korytowski, Gustav, Leipsic, Germany. Stylus-magazine for gramophones	661,662	Nov. 13	1145	283	93	1195
Kosters, Clements B., Buffalo, N. Y. Shoe-stretcher	662,728	Nov. 27	3177	752	93	1628
Kosters, Clements B., Buffalo, N. Y. Shoe-form	662,729	Nov. 27	3179	752	93	1628
Kothe, Richard. (See Israel and Kothe.)						
Kotten, Herman G., Englewood, N. J. Pneumatic tool	660,857	Oct. 30	3987	892	93	863
Kotten, Herman G., Englewood, N. J., assignor to Keller Tool Company, of Pennsylvania. Pipe-coupling for pneumatic tools	660,856	Oct. 30	3986	892	93	862
Köttgen, Carl A. B. D., Charlottenburg, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Means for towing canal-boats	661,663	Nov. 13	1148	283	93	1196
Köttgen, Walther. (See Göttig and Köttgen.)						
Kottmeyer, Louis E., assignor of one-half to J. J. Meritt and S. J. Burch, Rhineland, Mo. Engine	661,104	Nov. 6	136	34, 35	93	978
Kowsky, Johannes, Berlin, Germany. Bottle-stopper	660,515	Oct. 23	3370	758	93	726
Kragh, Christian W., assignor to Northern Electrical Manufacturing Company, Madison, Wis. Brush-holder for dynamo-electric machines	661,538	Nov. 13	917	220	93	1149
Kragh, Christian W., assignor to Northern Electrical Manufacturing Company, Madison, Wis. Brush-holder for dynamo-electric machines	664,649	Dec. 25	3242	736	93	2489
Krakau, Harry T., assignor to National Malleable Castings Company, Cleveland, Ohio. Draft-rigging	664,278	Dec. 18	2528	574 / 575	93	2270
Kram, Charles A. (See Watson, Robert, assignor.)						
Kramer, John A., Winigan, Mo. Harness-pad former	662,123	Nov. 20	2016	486	93	1381
Kramer, John A., Winigan, Mo. Harness-pad former	664,279	Dec. 18	2531	575	93	2271
Krank, Albert, Warkaus, Russia. Apparatus for making up timber into rafts	663,703	Dec. 11	1559	348 / 349	93	2048

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Krarup, Marius C., Chicago, Ill. Topographic map, chart, &c.	662,947	Dec. 4	86	20	93	1743
Kratz, John A., assignor of one-fourth to R. Rosenbush, Baltimore, Md. Railway-car	661,452	Nov. 6	765	179	93	1104
Kratz, John A., assignor of one-fourth to R. Rosenbush, Baltimore, Md. Railway-car-step	661,453	Nov. 6	767	180, 181	93	1105
Kratzer, David N., Mount Oreb, Ohio. Leaf-spring for carriages	662,124	Nov. 20	2018	486	93	1381
Kratzer, Frederick S., Detroit, Mich. Game apparatus	659,403	Oct. 9	1195	277	93	259
Kraus, Samuel, assignor to Eagle Pencil Company, New York, N. Y. Fountain-pen	662,796	Nov. 27	3301	779	93	1651
Krauser, Augustine, Portsmouth, Ohio. Shaft-loop	664,416	Dec. 25	2803	636	93	2350
Krauss, Charles H., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Templet	661,539	Nov. 13	919	227	93	1149
Kregelo, Charles E., *et al.* (See Hogeland, Israel.)						
Kreh, Henry M., Philadelphia, Pa. Cover for cigar or other boxes	660,858	Oct. 30	3089	892	93	863
Krehbiel, Henry P., Canton, Ohio. Newspaper or letter file	660,906	Oct. 30	4065	911	93	878
Kreidmann, Aisik, Altona, Germany. Making soluble compounds of quinin and caffein	660,859	Oct. 30	3990	.....	93	863
Kress, Carl F., Jr., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Railway-switch	661,540	Nov. 13	920	227	93	1149
Kress, John J., Perth Amboy, N. J. Hose-washer	663,282	Dec. 4	702	152	93	1858
Kretschmar, Hans A. von, Essen, and J. Vollmer, Altendorf, assignors to F. Krupp, Essen, Germany. Sighting apparatus for guns	660,817	Oct. 30	3904	877	93	846
Kretschmer, Otto, assignor to Actiengesellschaft für Glasindustrie, vormals Friedr. Siemens, Dresden, Germany. Vessel-closing device	660,530	Oct. 23	3395	763	93	731
Kreuser, Emil, Mechernich, Germany. Electromagnetic ore-separator	664,650	Dec. 25	3243	736	93	2439
Kreuser, Emil, and H. E. Langguth, assignors to Mechernicher Bergwerks-Actien-Verein, Mechernich, Germany. Magnetic separator	663,764	Dec. 11	1561	349	93	2049
Kreusler, Arnold, New York, N. Y. Utilizing liquefied gases	660,755	Oct. 30	3787	852	93	824
Kribs, Seraphin, New York, N. Y. Device for fixing shanks or screw-stems in handle-knobs or picture-hanging nails	660,444	Oct. 23	3238	723, 724	93	700
Krickau, Peter. (See Morck, Krickau, and Boehle.)						
Krimmelbein, Leopold, assignor of one-third to J. F. Feldmann, Baltimore, Md. Air-brake valve mechanism	661,474	Nov. 6	804	194	93	1112
Kring, Albert H. and S. A., Grape, Mich. Wagon end-gate	661,582	Nov. 13	1006	250	93	1167
Kring, Silas A. (See Kring, Albert H. and S. A.)						
Kroder, John assignor to John Kroder and Henry Reubel Company, New York, N. Y. Curtain-pole ring	659,534	Oct. 9	1457	330	93	310
Kroeninger, Augusta E., San Antonio, Tex. Shoe-lace fastener	660,643	Oct. 30	3593	806	93	786
Kroke, Lewis H., Dwight, N. D. Wrench	663,970	Dec. 18	1966	442	93	2155
Kromenaker, Charles W., Chicago, Ill. Book-marker	664,417	Dec. 25	2804	636	93	2350
Krone, Johannes, assignor to F. Krupp, Essen, Germany. Fluid-brake for guns	664,089	Dec. 18	2169	495	93	2196
Krottnaurer, Paul O. von, Berlin, Germany. Rotary kiln	661,217	Nov. 6	341	81	93	1020
Krotz, Alvaro S., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, New York, N. Y. Rubber-tire setter	662,649	Nov. 27	3014	713	93	1598
Krotz, Alvaro S., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, New York, N. Y. Rubber-tire setter	662,650	Nov. 27	3015	713	93	1598
Krotz, Alvaro S., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, New York, N. Y. Rubber-tire setter	662,651	Nov. 27	3016	714	93	1599
Krumbholz, John O., *et al.* (See Warneke, William, assignor.)						
Krumbholz, Paul, *et al.* (See Warneke, William, assignor.)						
Krumwiede, William R., Providence, R. I. Cover or shade for incandescent lamps	664,222	Dec. 18	2413	550	93	2248
Kruntschak, Woldemar, St. Petersburg, Russia. Balanced slide-valve	662,509	Nov. 27	2934	696	93	1582
Krupp, Fried. (See Ehrensberger, Emil, assignor.)						
Krupp, Fried. (See Kretschmar and Vollmer, assignors.)						
Krupp, Fried. (See Krone, Johannes, assignor.)						
Krupp, Fried. (See Pohlit, Carl, assignor.)						
Krupp, Fried. (See Schoeller, Gustav A., assignor.)						
Kruschwitz, Hermann, Neu-Untermhaus, Germany. Chime of bells	661,740	Nov. 13	1293	315, 316	93	1223
Küchmann, George, Wilkes-Barré, Pa. Beer-filter	663,765	Dec. 11	1562	349	93	2049
Kuentz, Adam, and A. Trenker, Colby, Wis. Safety railway-switch	664,651	Dec. 25	3245	736, 737	93	2440
Kugler, Henry, Fergus Falls, Minn. Draft-equalizer	662,198	Nov. 20	2163	522	93	1413
Kuhl, Edward H., Beardstown, Ill. Plow attachment	662,002	Nov. 20	1783	429	93	1338
Kuhlewind, Cornelius, Knoxville, assignor to Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Relief device for rolls	661,016	Oct. 30	4261	956, 957	93	917
Kuhlewind, Cornelius, Knoxville, assignor to Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Rolling-mill	661,017	Oct. 30	4263	957	93	918
Kuhlewind, Cornelius, Knoxville, assignor to Hydraulic Valve and Regulator Company, Limited, Pittsburg, Pa. Roll-relieving device	662,445	Nov. 27	2950	632, 633	93	1527
Kuhlman, Irene E., assignor of one-half to R. A. Pittack, Wilkes-Barré, Pa. Register	663,994	Dec. 18	2009	453	93	2164
Kuhlman, William H. (See Frank and Kuhlman.)						
Kuhn, Robert B., *et al.* (See Jones, Robert V., assignor.)						
Kulman, Oscar S., Savannah, Ga. Antiseptic broom	659,978	Oct. 16	2311	520	93	495
Kummell, Augustus F., and C. L. Goodrich, assignors to Pratt & Whitney Company, Hartford, Conn. Chuck-operating device	662,900	Nov. 27	3579	857, 858	93	1714
Kuns, Nathaniel, Santa Monica, Cal. Dental dam	663,178	Dec. 4	508	107	93	1822
Kunz, Gottlieb, Schwaben, Germany. Feed mechanism	662,797	Nov. 27	3301	779	93	1651
L. E. Rhodes Company. (See Spencer, Ira H., assignor.)						
La Casse, Napoleon C., assignor of one-half to B. M. Wilcox, Auburn, N. Y. Button-machine	659,347	Oct. 9	1101	258	93	288
La Compagnie de Fives Lille. (See Duval, Martin L. E., assignor.)						
La Force, Hippolyte, J., Levallois-Perret, France. Journal-box	659,074	Oct. 2	641	153	93	128
La Roche, Fredrick A., New York, N. Y. Electrical measuring instrument	661,197	Nov. 6	187	47	93	960
La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier. (See Berlioz, Fernand, assignor.)						
La Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier. (See Koetschet, Joseph, assignor.)						
La Turno, John T., Commerce, Mo. Extension-table	662,446	Nov. 27	2652	633	93	1528
Labadie, William D., South Bend, Ind. Ejector	661,180	Nov. 6	278	67	93	1008
Labofish, Charles S., Washington, D. C. Calculating device for type-writers	661,058	Nov. 6	54	12	93	961
Lacey, Lewis L., Austin, Tex. Germ-destroyer for telephone-mouthpieces	663,995	Dec. 18	2011	453	93	2164
Lackland, Samuel H. (See Allan and Lackland.)						
Lacroix, Joseph. (See Phillips and Lacroix.)						
Laffas, Jean M., Le Vésinet, France, assignor to Laffas Syndicate, Limited, London, England. Apparatus for automatically preventing railway accidents	659,307	Oct. 9	1049	246, 247	93	227
Laffas Syndicate. (See Laffas, Jean M., assignor.)						
Lagerquist, Erik S., Oxford Depot, N. Y. Milk-strainer	662,379	Nov. 20	2490	599	93	1477

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Lagonda Manufacturing Co. (See Weinland, Henry F., assignor.)						
Lahue, Moses M., Lowell, Mass. Picking mechanism for looms	664,560	Dec. 25	3063	697	93	2401
Laible, Philip D., Newark, N. J. Steaming-tray for bottled beverages	661,804	Nov. 13	1413	340, 341	93	1246
Lain, David E., Middletown, N. Y. Refrigerating milk or other perishable foods for preservation and transportation	663,502	Dec. 11	1105	242	93	1960
Lake, Judson N. (See Palmer and Lake.)						
Lalance & Grosjean Manufacturing Company. (See Ball, Vacheron, and Luce, assignors.)						
Lamb, George L., Nappanee, Ind. Boot-cleaner	662,237	Nov. 20	2243	539	93	1428
Lamb, James G., Johnstown, Pa. Thill or pole coupling for vehicles	660,256	Oct. 23	2879	641	93	629
Lambert, Frank, New York, N. Y. Safety device for hydraulic apparatus	660,382	Oct. 23	3133	694	93	679
Lambert, Frank, New York, N. Y. Disk for water-meters	660,383	Oct. 23	3135	694	93	679
Lambert, Frank, assignor of one-half to G. T. Montgomery, New York, N. Y. Mechanical motion	660,860	Oct. 30	3991	893	93	868
Lambert, Frank, assignor of two-thirds to S. A. Cunningham and D. Belais, New York, N. Y. Tiling, marble, &c., prepared for having fittings, &c., secured thereto	664,632	Dec. 25	3247	737	93	2440
Lambert, Frank, and S. Aronson, New York, N. Y. Registering apparatus	662,094	Nov. 27	3112	735, 736, 737, 738	93	1617
Lambert, George A., assignor to Buckeye Manufacturing Company, Anderson, Ind. Vehicle-pole	661,741	Nov. 13	1294	316	93	1223
Lambert, James, Sayre, Pa. Compound for protecting trees	658,953	Oct. 2	420	.....	93	86
Lambert, John W., assignor to Buckeye Manufacturing Company, Anderson, Ind. Mixer and vaporizer for gas-engines	660,778	Oct. 30	3834	860	93	832
Lambert, John W., assignor to Buckeye Manufacturing Company, Anderson, Ind. Speed-regulator for gas-engines	661,181	Nov. 6	279	67	93	1008
Lambert Manufacturing Company. (See Hawes, Franklin, assignor.)						
Lambert, Thomas B., Chicago, Ill. Phonograph-record	664,223	Dec. 18	2414	550	93	2248
Lambert, William, Los Angeles, Cal. Rotary engine	660,017	Oct. 16	2372	533	93	508
Lamdin, Edward D., *et al.* (See Nicholson, Jacob H., assignor.)						
Lamkin, Frank, Norwalk, Ohio. Gear-case for motor-vehicles	661,583	Nov. 13	1008	250	93	1167
Lamm, Alfred, Berlin, Germany. Washer	662,003	Nov. 20	1784	429, 430	93	1338
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Single-phase alternating-current generator	660,907	Oct. 30	4066	911	93	879
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Variable-speed electric motor	660,908	Oct. 30	4067	912	93	879
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Electric motor	660,909	Oct. 30	4069	912	93	879
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. System of electrical distribution	660,910	Oct. 30	4070	912	93	880
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Alternating-current induction-motor	660,911	Oct. 30	4071	912	93	880
Lamson Consolidated Store Service Company. (See Pearsall, Albert W., assignor.)						
Lamson Store Equipment Company. (See King, Frank E., assignor.)						
Lancaster, James H., New York, N. Y. Acetylene-gas generator	659,680	Oct. 16	1735	392	93	381
Lance, John D., Providence, R. I. Portable condensing apparatus	660,257	Oct. 23	2880	642	93	629
Lanceskes, Stephen, assignor of one-half to E. C. Campbell, Louisville, Ky. Boiler	660,258	Oct. 23	2881	642	93	629
Lanchester, Frederick W., Birmingham, England. Gear for transmitting power	664,653	Dec. 25	3248	737	93	2440
Landfear, William R., New York, N. Y., assignor to Hampden Cancelling Machine Company, Holyoke, Mass. Mail canceling and postmarking machine	663,446	Dec. 11	1010	220	93	1941
Landgraf, William. (See Firnhaber, Edward, assignor.)						
Landis, Frank F., Waynesborough, Pa. Straw-bottom for threshing-machines	660,299	Oct. 23	2977	661	93	649
Landon, George W., Kent, Ind. Type-writer	664,484	Dec. 25	3028	667, 668	93	2373
Landrigan, Patrick J. (See Fletcher, Arthur M., assignor.)						
Landy, William C., New York, N. Y. Camp cooking-stove	659,681	Oct. 16	1736	392	93	381
Lane, Francis L., assignor to Leeds Forge Company, Limited, Leeds, England. Apparatus for manufacturing flanged flues for boilers	662,125	Nov. 20	2020	487, 488	93	1382
Lane, Francis L., assignor to Leeds Forge Company, Limited, Leeds, England. Apparatus for manufacturing flanged flues for boilers	662,126	Nov. 20	2022	488, 489, 490	93	1382
Lane, Francis L., assignor to Leeds Forge Company, Limited, Leeds, England. Apparatus for manufacturing flanged flues for boilers	662,127	Nov. 20	2023	491, 492	93	1383
Lane, John I. (See Lane, William T. and J. I.)						
Lane, Reamer Y., Meridian, Miss. Metallic rod-packing	661,664	Nov. 13	1149	284	93	1196
Lane, William T. and J. I., Port Chester, N. Y. Basket	664,654	Dec. 25	3249	738	93	2441
Lang, Alfred J., Jr. (See Frantz and Lang.)						
Lang, Lincoln A., Yule, N. D., assignor to Lang Radial Valve Gear Company, St. Paul, Minn. Valve-gear	659,750	Oct. 16	1883	424	93	499
Lang Radial Valve Gear Company. (See Lang, Lincoln A., assignor.)						
Langan, Oliver P., St. Louis, Mo. Tug-stop	661,182	Nov. 6	280	68	93	1008
Langen, Günther von, Fürstenbrunn, assignor to Filter und Brautechnische Maschinen Fabrik Actien-Gesellschaft, vormals L. A. Enzinger, vormals Sellenscheidt, Berlin, Germany. Bottle-washing machine	661,805	Nov. 13	1416	341	93	1246
Langenbach, Charles J., assignor of one-half to L. F. Springer, T. Scarcliff, J. F. Van Vors, Independence, Iowa, and E. Kiefer, Mankato, Minn. Windmill	659,372	Oct. 9	1146	267	93	248
Langenbeck, Karl. (See Mueller and Langenbeck.)						
Langguth, Charles, assignor of one-half to F. Daenzer, Chicago, Ill. Soap cake and holder for same	658,991	Oct. 2	488	117	93	98
Langguth, Hugo E. (See Kreuser and Langguth.)						
Langhans, Rudolf, Berlin, Germany. Manufacturing incandescent bodies	660,114	Oct. 23	2591	.....	93	571
Langlands, Daniel G., Newfields, N. H. Steam-generator	663,084	Dec. 4	324	68	93	1786
Langsenkamp Brothers. (See Knickerbocker, James B., assignor.)						
Lankford, George W., Topeka, Kans. Hand stamping device	659,535	Oct. 9	1458	331	93	310
Lanston Monotype Machine Company. (See Lanston, Tolbert, assignor.)						
Lanston, Tolbert, assignor to Lanston Monotype Machine Company, Washington, D. C. Record-strip perforator for type-forming machines	663,971	Dec. 18	1907	443	93	2155
Lanston, Tolbert, assignor to Lanston Monotype Machine Company, Washington, D. C. Machine for perforating record-strips	663,996	Dec. 18	2012	453, 454, 455, 456, 457, 458	93	2164
Larcher, Lucien, Paris, France. Keyless or permutation lock	663,447	Dec. 11	1011	221	93	1941

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Large, Edward. (See Whitham and Large.)						
Larkin, George H., San Francisco, Cal. Hydrocarbon-burner	664,022	Dec. 18	2066	469	93	2175
Larkin, William J. (See McFarland and Larkin.)						
Larkin, William J., Chicago, Ill. Fireproof window	664,356	Dec. 18	2081	609	93	2299
Larsen, Eddy C., St. Louis, Mo. Smooth-surface folding square	659,032	Oct. 2	573	138	93	115
Larsen, Hans H., Campbell, Minn. Harrow	659,536	Oct. 9	1461	331	93	311
Larson, John P. (See Berger, Joseph A., assignor.)						
Larson, Peter. (See Miller and Larson.)						
Larter, Frederick H., *et al.* (See Larter, Halsey M., assignor.) (Reissue.)						
Larter, Halsey M., assignor of two-thirds to F. H. and H. C. Larter, Newark, N. J. Button or stud. (Reissue)	11,878	Dec. 18	2701	613	93	2304
Larter, Harry C., *et al.* (See Larter, Halsey M., assignor.) (Reissue.)						
Lary, John C., Clintonville, Ky. Stapling device	664,655	Dec. 25	3250	738	93	2441
Lasch, George W., Louisville, Ky. Guide for sewing-machines	663,908	Dec. 18	1855	417	93	2134
Lash, Fred B., Farmersburg, Ind. Headlight	664,418	Dec. 25	2805	637	93	2350
Latham, Charles E., Stonington, Conn. Carbureter	663,699	Dec. 17	1453	321	93	2026
Lathrop, Edward S., assignor to Parisian Novelty Company, Atlanta, Ga. Combined toy and advertising device	661,541	Nov. 13	922	207	93	1150
Lattimore, Thomas M., Palmer, Ind. Ter. Churn-power	661,613	Nov. 13	1057	263	93	1177
Lattin, Judson, assignor to Northwestern Grass Twine Company, St. Paul, Minn. Machine for making grass twine	664,561	Dec. 25	3064	697	93	2401
Laughlin, Alexander, Sewickley, and J. Reuleaux, Wilkinsburg, Pa.; said Reuleaux assignor to said Laughlin. Furnace. (Reissue.)	11,869	Nov. 13	1651	400, 401	93	1291
Laughlin, Amos H., Tariff, W. Va. Plow	663,032	Dec. 4	241	52	93	1772
Laughlin, Howard E., Cleveland, Ohio. Spring-bed	663,448	Dec. 11	1013	221	93	1941
Laughlin, Samuel J., assignor to E. P. Hawkins, Guelph, Canada. Toothing-machine	661,218	Nov. 6	342	81, 82	93	1020
Laureyns, Gustav G., assignor to C. F. Simes and H. C. Tum Suden, New York, N. Y. Lock	663,503	Dec. 11	1108	242, 243	93	1960
Laureyns, Gustav G., assignor of two-thirds to C. F. Simes and H. C. Tum Suden, New York, N. Y. Door check and closer	663,504	Dec. 11	1117	243, 244	93	1961
Lavery, Henry C., West Superior, Wis. Life-preserver	663,096	Dec. 4	347	72, 73	93	1790
Lavigne, Joseph P., New Haven, Conn. Pipe-wrench	661,374	Nov. 6	829	146	93	1077
Lavigne, Joseph P., New Haven, Conn., assignor to J. J. Tower, New York, N. Y. Expansible bit	662,199	Nov. 20	2164	522	93	1413
Lavoie, Alphonse. (See Forgues and Lavoie.)						
Lawnin, Louis D., Edwardsville, Ill., assignor to N. O. Nelson Manufacturing Company, St. Louis, Mo. Urinal	659,446	Oct. 9	1290	297	93	278
Lawnin, Louis D., Edwardsville, Ill., assignor to N. O. Nelson Manufacturing Company, St. Louis, Mo. Water-closet	661,454	Nov. 6	768	181	93	1105
Lawrence, Charles P. (See Ryan, Zeller, and Lawrence.)						
Lawrence, H. H., Jr. (See Lawrence and Philbrick, assignors.)						
Lawrence, Harry E., Fresno, Cal. Turfing implement	662,004	Nov. 20	1786	430	93	1338
Lawrence, Henry H., and O. S. Philbrick; said Philbrick assignor to H. H. Lawrence, Jr., Oakland, Cal. Billiard game	662,948	Dec. 4	89	20	93	1743
Lawrence, Willis H. (See Aunkst and Lawrence.)						
Lawry, Olin J., Redding, Cal. Bicycle	664,052	Dec. 18	2104	481	93	2183
Lawson, Benjamin S., New York, assignor of one-half to D. W. Copeland and H. J. Hart, Syracuse, N. Y. Automatic car-brake	661,345	Nov. 6	581	134, 135	93	1067
Lawson, Thomas, New York, N. Y. Dumping-scow	659,239	Oct. 9	948	223	93	208
Lay, William, Kremlin, assignor of five-sixths to W. D. Cornelius, H. H. Watkins, and W. E. Cogdal, Enid, Okla. Ter. Means for transmitting power	662,077	Nov. 20	1930	462	93	1365
Lazenby, Benjamin F., Wentworth, Mo. Rotary engine	663,766	Dec. 11	1564	350	93	2050
Lazier, Arthur A., Buffalo, N. Y. Governor for gas-engines	662,730	Nov. 27	3180	753	93	1629
Le Blanc, Alexis, New York, N. Y. Liquid-level indicator	664,328	Dec. 18	2617	596	93	2287
Le Blanc, Ben C. (See Nadler and Le Blanc.)						
Le Bosky, Jacob C., *et al.* (See MacMaster, Abraham L., assignor.)						
Le Cron, Daniel O. M., St. Louis, Mo. Dental appliance	662,538	Nov. 27	2827	671	93	1563
Le Fevre, Eugene R. (See Ritchie, Samuel, assignor.)						
Le Fevre, William D., Smyrna, Del. Rug or carpet fastener	661,220	Nov. 6	347	83	93	1021
Le Franc, Louis L., Bosc-le-Hard, France. Manufacture of wooden stoppers	663,234	Dec. 4	616	132, 133	93	1842
Le Suer, William H., and F. R. Bassett, Paw Paw, Mich. Means for operating churns	660,516	Oct. 23	3373	758	93	726
Lea, Ernest C., Kingston-upon-Thames, England. Shuttle mechanism for sewing-machines	661,806	Nov. 13	1417	341, 342	93	1246
Leach, Frederic. (See Peck, Leach, and Johns.)						
Leader, Adam H., *et al.* (See Thamsen, Harry C., assignor.)						
Leaver, James M., assignor to L. A. Hall and R. H. Munson, Bay Mills, Mich. Manufacturing articles from pulp materials	660,644	Oct. 30	3595	806	93	786
Leavitt, Frank M., assignor to E. W. Bliss Company, New York, N. Y. Steam pumping-engine	663,909	Dec. 18	1856	418	93	2134
Leavitt, Frank M., assignor to E. W. Bliss Company, New York, N. Y. Steam pumping-engine	663,910	Dec. 18	1859	419	93	2135
Lebiedzinski, Thomas, Chicago, Ill. Hog-scraping machine	663,449	Dec. 11	1014	221, 222	93	1942
Lebioda, Georg F., Boulogne, France. Preserving wood	660,756	Oct. 30	3788	------	93	824
Leblanc, Alfredo, Stamford, Conn. Garment-fastener	659,818	Oct. 16	2010	451	93	434
Lechler, Anthony J. (See Thompson and Lechler.)						
Lecompte, Charles O., *et al.* (See Sparrow, Stephen G., assignor.)						
Lederer, Benedict B., Providence, R. I. Hair-fastener	662,949	Dec. 4	90	20	93	1743
Lederer, Sigmund, Providence, R. I. Lady's guard-chain	662,171	Nov. 20	2109	509	93	1402
Lee, Edward, and J. S. Pickford, assignors to National Bakery Company, Limited, London, England. Show-case, &c	663,505	Dec. 11	1126	244	93	1963
Lee, Harmon I. (See Newman, Nedhum, assignor.)						
Lee, John, Sr., assignor of three-fourths to D. B. Graber and P. C. Steiner, Sterling, and C. A. Steinhoff, Medina, Ohio. Wrench	663,283	Dec. 4	704	153	93	1858
Lee, John T., Butler, N. J. Automatic uncoupling device for draw-heads	660,912	Oct. 30	4072	913	93	880
Lee, Robert, Sherrard, Ill. Mining-elevator	662,731	Nov. 27	3184	753, 754	93	1629
Lee, Sidney F., *et al.* (See Singleton, Herbert E. S., assignor.)						
Lee, Thomas, Philadelphia, Pa. Feeding device for carding-machines	659,240	Oct. 9	960	224	93	208
Lee, Thomas, assignor of one-third to W. D. Rowland, Philadelphia, Pa. Dumping-wagon	661,219	Nov. 6	344	82	93	1021
Leeds Forge Company. (See Lane, Francis L., assignor.)						
Leese, Thaddeus S., Allegheny, Pa. Adjustable gas-check	664,656	Dec. 25	3253	738	93	2441
Leffler, Charles, New York, N. Y. Sheet-metal can	662,447	Nov. 27	2654	633	93	1528
Legendre, Louis, London, England. Rotary engine	664,765	Dec. 25	3487	789	93	2490

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Legg, Isaac W., Norfolk, Va. Bed-pad or supplemental mattress	658,789	Oct. 2	98	23	93	24
Leggatt, John A., assignor to E. E. Peacock, Hamilton, Canada. Revolving and adjustable display-table	663,911	Dec. 18	1855	480	93	2135
Leggett, Clinton H., New York, N. Y. Sprayer	661,340	Nov. 6	409	96	93	1033
Legrand, Jean P., Levallois-Perret, France. Resilient tire for wheels	661,915	Nov. 13	1597	387	93	1281
Lehrritter, John A., *et al.* (See Smith, Jonathan P., assignor.)						
Leiby, Charles L., assignor to Leiby Company, Knoxville, Tenn. Hardening, purifying, and toughening metals	661,406	Nov. 6	682	------	93	1088
Leiby, Charles L., assignor to Leiby Company, Knoxville, Tenn. Making metals weldable and malleable	661,407	Nov. 6	682	------	93	1088
Leiby, Charles L., assignor, by mesne assignments, to Leiby Company, Knoxville, Tenn. Making metals weldable and malleable	661,807	Nov. 13	1419	------	93	1247
Leiby, Charles L., assignor to Leiby Company, Knoxville, Tenn. Overhead-trolley system	663,700	Dec 11	1455	321	93	2026
Leiby, Charles L., deceased; H. Cornick, administrator, assignor to Leiby Company, Knoxville, Tenn. Rendering copper weldable	662,251	Nov. 20	2259	------	93	1431
Leiby Company. (See Leiby, Charles L., assignor.)						
Leidgen, Nicolaus, assignor of one-half to E. H. Munkwitz, Milwaukee, Wis. Hide-working cylinder	663,097	Dec. 4	352	73	93	1791
Leidich, Peter C., Tamaqua, assignor of three-eighths to G. H. Focht, W. W. Hollingsworth, and M. D. Atkinson, Philadelphia, Pa. Motor-driven vehicle	664,160	Dec. 18	2208	523, 524	93	2222
Leidy, Sylvester B., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Collapsible screw-threading tap	662,361	Nov. 20	2460	592	93	1470
Leighton, Edward J., Boston, Mass. Stretcher for boots or shoes	658,790	Oct. 2	99	23	93	24
Leighton, John B., Brockton, Mass. Checkrein-guide	663,125	Dec. 4	403	85	93	1802
Leilich, Francis T., assignor to Climax Manufacturing Company, San Francisco, Cal., Machine for sewing on buttons	659,537	Oct. 9	1463	331, 332	93	311
Leineweber, Herman, and G. Leininger, Chicago, Ill. Pneumatic tool	662,675	Nov. 27	3078	727	93	1610
Leininger, George. (See Leineweber and Leininger.)						
Leister, William H., Westminster, Md. Can-labeling machine	659,075	Oct. 2	642	153, 154	93	128
Leitch, Meredith, Merchantville, N. J., assignor to Warren Webster & Company, of New Jersey. Drying apparatus	662,448	Nov. 27	2655	634	93	1529
Leitner, Henry, assignor to Electrical Undertakings, Limited, London, England. Separator for secondary-battery plates	662,277	Nov. 20	2298	553	93	1439
Leitsch, Joseph J. (See Melven, Grove, Leitsch, and Melven.)						
Leland, Edwin A., Great Barrington, Mass., assignor to Leland Filter Company, of Massachusetts. Filter	664,280	Dec. 18	2592	575	93	2271
Leland Filter Company. (See Leland, Edwin A., assignor.)						
Lemke, Georg. (See Jaks, Alfred, assignor.)						
Lemley, Morgan B., Delta, Iowa. Water-filter	663,547	Dec. 11	1187	256	93	1974
Lemmons, John A., Anderson, J. J. Hubbartt and E. C. Rummell, Ingalls, Ind. Invalid-bed	659,308	Oct. 9	1051	247	93	228
Lemon, Frank, New York, N. Y. Toilet hair-receiver	659,538	Oct. 9	1468	323	93	312
Lenhult, John E., Leetes Island, assignor of one-half to J. Mattson, Branford, Conn. Nut-locking device	661,059	Nov. 6	57	13	93	962
Lenhult, John E., Leetes Island, assignor of one-half to J. Mattson, Branford, Conn. Nut-locking device	661,060	Nov. 6	59	13	93	962
Lenhult, John E., Leetes Island, assignor of one-half to J. Mattson, Branford, Conn. Washer	662,600	Nov. 27	2935	697	93	1583
Lenk, Rudolph. (See Watkins and Lenk.)						
Lennard, Frederic, London, England. Separating free carbon from tar	659,076	Oct. 2	649	155	93	130
Lentz, Hugo, Brünn, Austria-Hungary. Valve-gear	659,892	Oct. 16	2135	481, 482	93	458
Leonard, William A., Wareham, Mass. Galvanizing or metal-coating apparatus	660,579	Oct. 30	3482	781	93	766
Leonhart, Rudolph, Jr., Fresno, Cal. Carpenter's bevel	663,349	Dec. 4	817	175	93	1880
Lepore, Felix M., assignor of one-half to D. Pantanella, trustee, Denver, Colo. Life-saving suit	659,682	Oct. 16	1739	393	93	381
Lerbakken, Amund A., Carlisle, Minn. Tongue-tip	662,362	Nov. 20	2462	592	93	1471
Leroi, Knud K., Jr., Newburg, Minn. Regulator for windmills	661,455	Nov. 6	769	181	93	1105
Lesch, Richard, and B. Polte, Konstadt, Germany. Machine for manufacturing tiles	658,791	Oct. 2	100	23, 24	93	24
Leslie, Elizabeth H., *et al.* (See Ormsby, Charles E., assignor.)						
Leslie, John K., *et al.* (See Ormsby, Charles E., assignor.)						
Lesser, Elizabeth M., Warren, Pa. Fastening-eye for garments	660,300	Oct. 23	2980	661	93	649
Lessing, Wilhelm, Ringebrauk, assignor to H. Staby, Unna, Germany. Safety device for elevators	658,853	Oct. 2	250	63	93	52
Lester, James F., Atlanta, Ga. Tanning apparatus	659,077	Oct. 2	650	155, 156	93	130
Lester, James F., Atlanta, Ga. Smoke-consumer	664,485	Dec. 25	2932	668	93	2374
Lester, John B. G. (See Holder, Albert E., assignor.)						
Lestrade, Auguste, Vic en Bigorre, France. Rotary motor	664,486	Dec. 25	2935	668, 669	93	2375
Létang, Marc P. E., Paris, France. Preparation of carbid of calcium	659,447	Oct. 9	1291	------	93	278
Létang, Marc P. E., Paris, France. Generating acetylene gas from carbid of calcium	659,448	Oct. 9	1293	------	93	278
Letord, Henri, Orlando, Fla., and J. S. Letord, Kansas City, Mo. Circuit-controller for electric engines	661,742	Nov. 13	1295	316, 317	93	1223
Letord, Joseph S. (See Letord, Henri and J. S.)						
Levalley, Christopher W., Milwaukee, Wis. Elevator-boot	661,879	Nov. 13	1534	373	93	1268
Levalley, Christopher W., Milwaukee, Wis. Aural battery	662,278	Nov. 20	2299	553	93	1439
Levalley, Christopher W., Milwaukee, Wis. Shaft-hanger	663,577	Dec. 11	1227	269	93	1982
Levalley, Christopher W., Milwaukee, Wis. Chain	664,161	Dec. 18	2300	524	93	2222
Levedahl, Axel, Aurora, Ill. Cotton-harvester	660,531	Oct. 23	3396	763, 764	93	731
Leveridge, Charles W. (See Lowe, Ernest A., assignor.)						
Levett, Louis, New York, N. Y. Polishing-wheel	663,912	Dec. 18	1866	420	93	2136
Levi, Abraham A., Syracuse, N. Y. Suspender-end	661,408	Nov. 6	683	158	93	1088
Levi, Louis. (See Samson and Levi.)						
Levings, William H., Minneapolis, Minn. Game-recorder	660,384	Oct. 23	3137	694	93	680
Leviston, William. (See Doak, John E., assignor.)						
Levy, Charles M., New York, N. Y. Finger-ring	662,449	Nov. 27	2657	634	93	1529
Levy, Myer, and A. Kindermann, Cincinnati, Ohio; said Kindermann assignor to said Levy. Hat-brim trimmer	660,861	Oct. 30	3908	893, 894	93	864
Levy, Salovitz, Philadelphia, Pa. Machine for grinding quills of feathers	664,564	Dec. 25	3081	699	93	2404
Lewis, Albert H., Midvale, assignor of three-fourths to S. Brannan, C. Valot, and J. A. Newport, Somerdale, Ohio. Armored pneumatic tire	664,766	Dec. 25	3489	789	93	2490
Lewis, Frederick H., Philadelphia, Pa. Apparatus for burning pulverized fuel	661,700	Nov. 13	1220	296	93	1209

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Lewis, George E. M. (See Lewis, John, assignor.)						
Lewis, George W., Chicago, Ill., assignor to Lewis Motor-Vehicle Company. Camden, N. J. Motor-vehicle	661,409	Nov. 6	684	159	93	1088
Lewis, James C., Tracy, Cal. Combination-tool	662,005	Nov. 20	1787	430, 431	93	1338
Lewis, James T. A. (See Field, Marcellus S., assignor.)						
Lewis, John, Brownville, Me., assignor of one-half to G. E. M. Lewis, Truro, Canada. Machine for cutting veneer	663,450	Dec. 11	1017	222	93	1942
Lewis, Lawrence F., assignor of one-half to C. G. Till, New York, N. Y. Electric candlestick	661,456	Nov. 6	770	182	93	1105
Lewis Motor-Vehicle Company. (See Lewis, George W., assignor.)						
Lewis, Samuel W., New York, N. Y., assignor to G. E. Gilchrist, Melrose, Mass. Flushing-valve	663,284	Dec. 4	700	153	93	1859
Lewis, Theodore G., assignor to Buffalo Dental Manufacturing Company, Buffalo, N. Y. Dental articulator	659,871	Oct. 16	2102	473	93	452
Lewis, Thomas H., and G. W. Terhorst, Pittsburg, Pa. Toy revolver	660,517	Oct. 23	3374	758	93	727
Ley, Frank J., *et al.* (See Curtis, Frederic A., assignor.)						
Libby, Albert F., Northwood, N. H. Horseshoe-gage	659,852	Oct. 16	2069	465	93	446
Libby, Harry L. (See Sergeant and Libby.)						
Library Bureau. (See Hunter, David E., assignor.)						
Library Bureau. (See Kelly, John D., assignor.)						
Library Bureau. (See McNeal, Luther C., assignor.)						
Licht, Adam, Newark, N. J. Eyeglasses	659,404	Oct. 9	1197	277	93	259
Lichtenstadt, Charles, Chicago, Ill. Compound for rendering fabrics water-repellent	662,695	Nov. 27	3123	------	93	1618
Lidback, John A., Portland, Me. Steam-engine cylinder	661,061	Nov. 6	59	14	93	962
Lieb, Charles A., New York, N. Y. Motor-vehicle	659,078	Oct. 2	653	156	93	131
Lieb, Charles A., New York, N. Y. Means for transmitting motion	659,079	Oct. 2	655	156	93	131
Lieberthal, Hyman, Chicago, Ill. Wheel	658,920	Oct. 2	353	87	93	72
Liebmann, Alfred. (See White, Hildreth, and Liebmann.)						
Liethegener, Henry, assignor of one-half to J. Zentner and A. Klemm, St. Louis, Mo. Air-compressor	663,126	Dec. 4	404	85	93	1802
Lillicrap, Charles, Swansea, England. Pneumatic-tire pressure-gage	660,445	Oct. 23	3241	724	93	700
Lillie, Samuel M., Philadelphia, Pa. Defecating sugar solutions	659,241	Oct. 9	951	224	93	208
Lilygreen, Frank G. (See Skoog, Rosen, and Lilygreen.)						
Lincoln, John C., Cleveland, assignor to A. L. Garford, Elyria, Ohio. Electric brake-controller	661,880	Nov. 13	1535	374	93	1269
Lincoln, Leontine. (See Tubby and Broomhead, assignors.)						
Lincoln, Marvin, Malden, Mass. Spring-hinge	661,346	Nov. 6	583	135	93	1067
Lincoln, Paul M., Niagara Falls, N. Y. Circuit making and breaking device	658,792	Oct. 2	102	25	93	25
Lincoln, Ward, Rock Falls, assignor to Sterling Manufacturing Company, Sterling, Ill. Sulky-rake	662,078	Nov. 20	1932	463, 464	93	1366
Lincoln, Ward, Rock Falls, assignor to Sterling Manufacturing Company, Sterling, Ill. Corn-planter	664,767	Dec. 25	3491	789, 790, 791	93	2491
Lincoln, William B. (See Barry, William F., assignor.)						
Lindbeck, Lars J., Bishop Hill, Ill. Mangle	660,301	Oct. 23	2982	662	93	650
Lindberg, Gustaf A., Malm, Russia. Life-buoy	661,410	Nov. 6	091	160	93	1089
Lindberg, John E., and J. A. Olson, Jamestown, N. Y. Bicycle-brake	663,913	Dec. 18	1867	420	93	2196
Linderman, Albert T., Whitehall, Mich. Lumber-joining machine	661,542	Nov. 13	923	228, 229	93	1150
Lindley, Burt C., *et al.* (See Sinclair, Cyrus H., assignor.)						
Lindsay, Leroy J., assignor of one-half to J. T. Phillips, Seymour, Iowa. Drive-wheel and marker for corn-planters	662,626	Nov. 27	2980	706	93	1591
Lindsey, James B., assignor of one-half to D. E. Colvin, Chester, S. C. Animal-trap	662,279	Nov. 20	2301	551	93	1439
Lindstrom, Charles A., assignor to Hewitt-Lindstrom Motor Company, Chicago, Ill. Supporting-frame for motors of electric carriages	659,080	Oct. 2	656	156	93	131
Lindstrom, Charles A., assignor to Hewitt-Lindstrom Motor Company, Chicago, Ill. Supporting device for electric motors	659,539	Oct. 9	1470	333	93	313
Lindt, John, *et al.* (See Brown, Norman E., assignor.)						
Linebarger, Charles E. (See Stoelting and Linebarger.)						
Link-Belt Engineering Company. (See Kiely, Humphrey J., assignor.)						
Link Belt Machinery Company. (See Ardell, Robert, assignor.)						
Link Belt Machinery Company. (See Peck, Staunton B., assignor.)						
Linke, Emil F., Hartford, Conn., assignor to Thorne Type Setting Machine Company, New York, N. Y. Type composing and distributing machine	662,652	Nov. 27	3017	714	93	1599
Linn, John B., and M. W. Day, Schenectady, N. Y., assignors to General Electric Company, of New York. Controller for electric motors	662,450	Nov. 27	2657	635	93	1520
Linotype Company. (See Pashley, Charles W., assignor.)						
Linotype Company. (See Place and Pashley, assignors.)						
Lint, George E., York, Pa. Window-sash holder	658,954	Oct. 2	421	101	93	86
Lint, George E., York, Pa. Sash-fastener	664,162	Dec. 18	2302	524	93	2223
Lintner, Robert E., East Pittsburg, Pa. Mechanism for raising or lowering footboards on open cars	662,006	Nov. 20	1790	431	93	1339
Lintz, William F. (See Grosse and Lintz.)						
Linzen, Clemens, Jr., Unna, and E. Demmer, Barmen, assignors of two-thirds to C. Linzen, Sr., Unna, E., E., and R. Disselkamp, Barmen, Germany. Stove for lignite cakes, peat, or like fuel	663,451	Dec. 11	1018	222	93	1942
Lipe, Willard C. (See Coughtry, John W., assignor.)						
Liphard, Horatio N., Lafayette, Ind. Combined button and cuff-holder	661,916	Nov. 13	1598	387	93	1281
Lipowska, Isabella von, Krakau, and G. von Geldern-Egmond zu Arçen, Vienna, Austria-Hungary. Metal bearing-plate	662,567	Nov. 27	2878	682, 683	93	1572
Lippmann, Gustav H., Milwaukee, Wis. Combined automatic gas-light extinguisher and electric sparker	664,163	Dec. 18	2304	525	93	2223
Lippy, David. (See Williams and Lippy.)						
Lippy, David, Mansfield, Ohio, assignor to Lippy Manufacturing Company. Screen or riddle for separators	664,811	Dec. 25	3574	813	93	2507
Lippy, David, and H. D. B. Williams, assignors of one-half to J. J. King and W. W. Stark, Mansfield, Ohio. Garbage-wagon	659,174	Oct. 2	805	196	93	102
Lippy Manufacturing Company. (See Lippy, David, assignor.)						
Lipsy, William, Bozeman, Mont. Scribing-tool	660,688	Oct. 30	3673	826	93	801
Lisher, Seth G., assignor of one-third to W. F. Green, Shelbyville, Ind. Combination bed and couch	661,270	Nov. 6	446	103	93	1040
Little, Thomas J., Jr., Philadelphia, Pa. Atmospheric burner	660,580	Oct. 30	3484	781	93	766
Little, Charles W. G., Heckington, England. Electric meter	661,881	Nov. 13	1598	374	93	1269
Little, Henry O., Bridgewater, Mass. Fruit box or basket	660,446	Oct. 23	3242	724	93	700
Little, Peter E., assignor to Ohio Rake Company, Dayton, Ohio. Disk harrow	659,353	Oct. 16	2071	465	93	446

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Little, William J., *et al.* (See Curtis, Frederic A., assignor.)						
Livesay, Robert C., H. F. Crandall, and E. W. Burgess, assignors to Milwaukee Harvester Company, Milwaukee, Wis. Cord-knotter for self-binding harvesters	661,882	Nov. 13	1541	374, 375	93	1270
Livingood, Thomas, assignor of one-half to S. K. Hoffman, Hamburg, Pa. Combined spigot and bung-remover	664,505	Dec. 25	3082	699	93	2405
Livingston, Reason C., Spring Valley, Minn. Fire-alarm	663,707	Dec. 11	1567	351	93	2050
Livingstone, Joseph H., Washington, D. C. Permutation-lock	660,018	Oct. 16	2374	534	93	508
Lloyd, Walter J., Birmingham, England. Valve for pneumatic tires	659,081	Oct. 2	659	157	93	132
Lobb, Justus W., Des Moines, Iowa. Spinning-top	660,161	Oct. 23	2680	600	93	590
Lockey, James M., Faulkton, S. D. Vaporizer	658,708	Oct. 2	105	25	93	25
Lockhart, William H., and G. H. Klein, Fowler, Colo. Bottle-closure	664,052	Dec. 18	2105	481	93	2183
Locklin, George C., and B. M. Fox, Chicago, Ill. Spring bed-bottom	661,808	Nov. 13	1420	342	93	1247
Lockwood, Benjamin F., Jamestown, N. Y. Valve-float for flush-tanks	659,819	Oct. 16	2012	451	93	434
Lockwood, Henry S., South Norwalk, Conn. Cylinder-lock	659,483	Oct. 9	1358	310	93	291
Lockwood, Henry S., South Norwalk, Conn. Cylinder-lock	659,484	Oct. 9	1360	310	93	291
Lockwood, John L., Jr. (See Brown, Anthony W., assignor.)						
Locomobile Company of America. (See Fletcher, Charles T., assignor.)						
Locomobile Company of America. (See Stanley, Francis E., assignor.)						
Locomobile Company of America. (See Stanley, Francis E. and F. O., assignors.)						
Loe, Syver, assignor to American Voting Machine Company, Minneapolis, Minn. Voting-machine	660,115	Oct. 23	2594	581, 582, 583	93	571
Loeb, Joseph, assignor to Cosmopolitan Incandescent Gas Light Company, Chicago, Ill. Mantle-support	663,127	Dec. 4	405	86	93	1802
Loeben, Gustave A., assignor of one-half to A. L. A. Toboldt, Philadelphia, Pa. Hydrocarbon-burner and pressure device therefor	658,794	Oct. 2	106	25, 26	93	25
Loeben, Gustave A., assignor of one-half to A. L. A. Toboldt, Philadelphia, Pa. Vapor-burning lamp	663,768	Dec. 11	1571	351	93	2051
Loeben, Gustave A., assignor of one-half to A. L. A. Toboldt, Philadelphia, Pa. Operating hydrocarbon-burners	663,813	Dec. 11	1672	374	93	2074
Loeben, Gustave A., assignor of one-half to A. L. A. Toboldt, Philadelphia, Pa. Pressure device for burners	663,814	Dec. 11	1674	374, 375	93	2074
Loebinger, Wilhelm, Berlin, Germany. Automatic cycle-pump	664,251	Dec. 18	2584	575	93	2271
Loeffler, John, assignor of one-half to J. Cantwell, Washington, D. C. Cushion for hand-stamps, inking-pads, &c	659,242	Oct. 9	954	224	93	209
Loeffler, William, Sheboygan, Wis. Steam-engine	663,972	Dec. 18	1969	443, 444	93	2156
Loeper, George J., and P. B. Hausdoerfer, Indianapolis, Ind. Attachment for high-speed governors	663,225	Dec. 4	619	183	93	1842
Loetzer, Christian E., Sayre, Pa. Globe and check valve	660,193	Oct. 23	2763	615	93	606
Loewenthal, Max, *et al.* (See Hahn, Theodor, assignor.)						
Lofy, Peter, and H. C. Ettinger, Springfield, Ill. Air-brake-instruction chart and apparatus	663,296	Dec. 4	621	183, 184, 185	93	1843
Logan, Harry K. (See Benson and Logan.)						
Logan, John, Jr. (See Benson and Logan.)						
Logan, Robert F. B., Cub Lake, assignor of one-half to T. R. Maxwell, Hernando, Miss. Well-bucket	661,883	Nov. 13	1543	375	93	1270
Lohrbach, Martin J., Peotone, Ill. Disk-sharpener	663,285	Dec. 4	713	153	93	1861
Lomax, Henry, and J. Tomlinson, Darwen, England. Door-latch	659,633	Oct. 9	1642	369	93	347
Lomax, Henry, and J. Tomlinson, Darwen, England. Knob attachment	660,259	Oct. 23	2882	642	93	629
Lombard, Alvin O., Waterville, Me., assignor to Burgess Sulphite Fibre Company, of Maine. Pulp-wood chipper	662,238	Nov. 20	2244	540	93	1428
Lombardi, Luigi, Turin, Italy. Manufacturing thin homogeneous plates	661,250	Nov. 6	413	------	93	1034
Long, Charles A., Pomeroy, Wash. Threshing machinery	662,950	Dec. 4	91	20, 21	93	1744
Long, Irwin F., Aurora, Ill. Envelop	664,566	Dec. 25	3083	700	93	2405
Long, Samuel W., assignor to O. Hoxie and C. H. Clark, Rochester, N. Y. Bread-cutter	659,688	Oct. 16	1742	398	93	382
Long, William, *et al.* (See Greenwood, James H., assignor.)						
Lonitz, Hugo, Neuhaldensleben, Germany. Two-part flower-pot	661,411	Nov. 6	092	160	93	1090
Lönnbeck, Fredrik W. (See Söderlund and Lönnbeck.)						
Loos, Heinrich F., Nuremberg, Germany. Lubricator	659,248	Oct. 9	955	224	93	209
Lopatin, John. (See Galecki and Lopatin.)						
Lopatin, Paul. (See Galecki and Lopatin.)						
Loper, Henry R. (See Hilgenberg and Loper.)						
Lorain Steel Company. (See Clarkson, Samuel E., assignor.)						
Lorain Steel Company. (See Du Pont, Antoine B., assignor.)						
Lorain Steel Company. (See Garrett, Frank W., assignor.)						
Lorain Steel Company. (See Goughnour, Henry S., assignor.)						
Lorain Steel Company. (See Krauss, Charles H., assignor.)						
Lorain Steel Company. (See Kress, Carl F., Jr., assignor.)						
Lorain Steel Company. (See Merrick, Frank A., assignor.)						
Lorain Steel Company. (See O'Shea, Henry, assignor.)						
Lorain Steel Company. (See Stull, Emmett W., assignor.)						
Lord, William K., Mount Carmel, Pa. Speed-regulator	662,568	Nov. 27	2880	683	93	1572
Lord, William K., Mount Carmel, Pa. Speed-regulator	662,569	Nov. 27	2881	684	93	1572
Loree, Manfred U., Montgomery County, Ohio. Toy vehicle	663,506	Dec. 11	1127	244	93	1963
Lorétan, Herman. (See De la Harpe, Vaucher, and Lorétan.)						
Lorimer, Charles. (See Murray, Charles F., assignor.)						
Loring, William J., Angel's Camp, Cal. Belt for ore-concentrators. (Reissue)	11,860	Oct. 2	876	208	93	174
Lount, Samuel, Barrie, Canada. Radial-flow steam-turbine engine or motor	661,183	Nov. 6	281	68	93	1009
Love, John K. (See Essner and Love.)						
Lovegrove, Thomas G., Philadelphia, Pa. Sediment-collector for boilers	659,540	Oct. 9	1471	333	93	313
Lovekin, Luther D., Philadelphia, Pa. Pipe-coupling	660,862	Oct. 30	3998	894, 895	93	864
Loveland, E. O. (See Densmore, Joseph M., assignor.)						
Lovell, Alfred. (See Posson, Edward, assignor.)						
Loving, Mabel F., St. Joseph, Mo. Garment fastening and supporting device	662,539	Nov. 27	2828	672	93	1563
Low, Abbot A. (See Tuck and Wassmann, assignors.)						
Low, Abbot A., New York, N. Y. Sap-pail	659,033	Oct. 2	574	188, 189	93	115
Low, Abbot A., New York, N. Y. Sap-pail	659,373	Oct. 9	1148	267	93	249
Low, Abbot A., New York, N. Y. Natural-wood fuel	660,868	Oct. 30	4000	895	93	865
Low, Abbot A., New York, N. Y. Sap-pail	661,221	Nov. 6	349	83	93	1022
Lowe, Enoch L., San Francisco, and J. M. Meighan, Groveland, Cal. Track-brake for railway-cars	660,645	Oct. 30	3599	807	93	787

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lowe, Ernest A., North Plainfield, assignor of one-half to C. W. Leveridge, Plainfield, N. J. Ceiling-switch	662,570	Nov. 27	2883	684	93	1573
Lowe, J. W., *et al.* (See Tuttle, Josiah S., assignor.)						
Lowell Machine Shop. (See Whitaker, Channing, assignor.)						
Löwenthal, Isidore, assignor to Eureka Coat Pad Company, Baltimore, Md. Garment-pad	661,935	Nov. 13	1638	396	93	1288
	661,412	Nov. 6	693	160	93	1090
Löwenthal, Louis. Berlin, Germany. Bass-bar for violins						
Lowis, John. (See Hopkinson and Lowis.)						
Lowman, George E., Virginia City, Mont. Scabbard	660,302	Oct. 23	2984	692	93	650
Lownes, Lewis M., Norristown, Pa. Carpet-stretcher	660,707	Oct. 30	3712	845	93	809
Lowrey Stopper and Sprinkler Company. (See Lowrey, William W., assignor.) (Reissue.)						
Lowrey, William W., New York, N. Y., assignor to Lowrey Stopper and Sprinkler Company, Baltimore, Md. Combined bottle-stopper and sprinkler. (Reissue)	11,861	Oct. 2	877	208	93	174
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, of West Virginia. Bale of fibrous material	661,475	Nov. 6	808	194	93	1113
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Feed-regulating device for presses	662,451	Nov. 27	2960	635	93	1529
	659,405	Oct. 9	1201	278	93	260
Loynd, Richard B., Philadelphia, Pa. Shuttle-motion for looms						
Loyster, Herbert E., assignor to J. M. Loyster, Hudson, Mich. Purifying cream or other liquids	664,329	Dec. 18	2619	596	93	2287
Loyster, Jennie M. (See Loyster, Herbert E., assignor.)	664,419	Dec. 25	2807	637	93	2350
Luby, William A., Kansas City, Mo. Attachment for book or music racks						
Luce, Francis H. (See Ball, Vacheron, and Luce.)	664,054	Dec. 18	2106	481	93	2183
Luckehe, Charles J. and T. T., Gridley, Cal. Draper-slat protector						
Luckehe, Theodor T. (See Luckehe, Charles J. and T. T.)						
Luckenbach, Harry, Seattle, assignor of one-half to W. McPhee, Arlington, Wash. Treating ores	663,914	Dec. 18	1808	.....	93	2136
Ludington Novelty Company. (See Haskell, Henry L., assignor.)						
Ludlow, James T., assignor to Vulcan Iron Works, San Francisco, Cal. Ammonia-compressor	661,184	Nov. 6	285	68	93	1009
	663,548	Dec. 11	1188	257	93	1974
Ludlow, Rodney F., Philadelphia, Pa. Mold having compressible core						
Luelf, William H. (See Bernhardt and Luelf.)						
Luense, William. (See Mammen, Lawrence, assignor.)	662,627	Nov. 27	2981	706	93	1591
Luhan, Joseph F. C., New York, N. Y. Sanitary dispenser for plastic substances	664,420	Dec. 25	2809	637	93	2351
Luhrs, Julius H., Fruita, Colo. Machine for topping beets	660,194	Oct. 23	2765	615	93	606
Lukens, Clarence D., St. Louis, Mo. Tooth-straightening appliance	659,830	Oct. 16	2012	.....	93	434
Lumière, Auguste and L., Lyons, France. Making persulfate of sodium						
Lumière, Louis. (See Lumière, Auguste and L.)	659,684	Oct. 16	1743	393	93	382
Lundborg, John A. W., San Francisco, Cal. Dental rubber-dam holder						
Lundgren, Ernst, *et al.* (See Weber, Theodore A., assignor.)						
Lundin, Emil O. (See Gilbert and Lundin.)						
Lundin, Maurice, *et al.* (See Hoglund and Hedman, assignors.)						
Lundqvist, Emil, assignor of one-half to S. Bergmann, Berlin, Germany. Steering apparatus for vehicles	663,350	Dec. 4	818	175	93	1880
	659,244	Oct. 9	956	225	93	209
Lungen, Adam, New York, N. Y. Circuit-controller	661,347	Nov. 6	584	135	93	1067
Lüning, Heinrich, Hamburg, Germany. Life-saving belt	659,082	Oct. 2	660	157	93	133
Lustig, Abram B., New York, N. Y. Size-indicator	661,018	Oct. 30	4264	958	93	918
Luther, Benjamin G., Worcester, Mass. Belt shifter and tightener	660,162	Oct. 23	2690	600	93	591
Luther, William F., Fall River, Mass. Loom-reed						
Luthy, Richard Y. (See Hake, Harry, assignor.)						
Lutzenkirchen, Henry, assignor of one-half to C. L. Fischer, Hartford, Conn. Car-fender	658,854	Oct. 2	254	63	93	58
Luyers, Charles, Brussels, Belgium. Railway aero-electric brake	664,812	Dec. 25	3576	813, 814, 815, 816	93	2508
Lyles, Gilbert S., Chicago, Ill. Knife for cutting wrapping-twine	659,245	Oct. 9	957	225	93	209
	663,033	Dec. 4	843	52	93	1772
Lynch, Harry B., Versailles, Pa. Galvanizing-furnace						
Lynch, Harry B., Versailles, Pa., assignor to National Tube Company, New York, N. Y., and Pittsburg, Pa. Apparatus for dipping pipes or bars	663,034	Dec. 4	846	53	93	1773
	663,607	Dec. 11	1283	284	93	1994
Lynch, Michael E., Elizabeth, N. J. Disk-holder for valves						
Lynch, Michael E., Elizabeth, N. J. Apparatus for making plastic polygonal-shaped valve-packings	663,608	Dec. 11	1284	284	93	1994
Lyon & Healy. (See Bennett, Robert J., assignor.)	664,224	Dec. 18	2415	551	93	2248
Lyons, William H., Orange, N. J. Hat-pouncing machine						
M. Garland Company. (See Garland, Michael, assignor.)						
Mabus, John, Minier, Ill. Incubator	659,083	Oct. 2	661	157	93	133
MacBain, Donald R., Jackson, Mich. Lubricator	664,170	Dec. 18	2314	527	93	2225
MacCarthy, Timothy J., Holyoke, Mass. Ladder-truck	659,449	Oct. 9	1205	297	93	278
MacClymont, William S. (See Pöhm, Ludwig K., assignor.)						
MacCoy, James S. (See Giroud, Peter G., assignor.)						
MacDonald, Alexander R., Jr., Montreal, Canada. Ore-separator	664,708	Dec. 25	3494	791, 792	93	2491
	663,883	Dec. 11	1713	383	93	2083
Maclvy, William G., London, England. Candle-holder	660,913	Oct. 30	4074	913	93	880
MacKirdy, James, New York, N. Y. Stamp-vending machine						
MacLaurin, Daniel P., assignor to Union Specialty Manufacturing Company, New York, N. Y. Device for picking up and affixing stamps	660,993	Oct. 30	4207	945	93	907
	658,955	Oct. 2	423	101, 102	93	86
MacMaster, Abraham L., assignor to J. C. Le Bosky and J. C. Cox, Chicago, Ill. Lock						
MacPherson Automobile Company. (See MacPherson, John G., assignor.)						
MacPherson, John G., assignor to MacPherson Automobile Company, Philadelphia, Pa. Controlling mechanism for automobiles	661,543	Nov. 13	928	229, 230	93	1151
MacPherson, John G., assignor to MacPherson Automobile Company, Philadelphia, Pa. Starting mechanism for automobiles	662,007	Nov. 20	1791	432	93	1339
	659,932	Oct. 16	2221	499	93	475
Macabee, Zephyr A., Los Gatos, Cal. Gopher-trap	664,813	Dec. 25	3584	816	93	2508
Macalpine, Thomas, London, England. Distilling and refining oils						
Macartney, Edmund C., assignor to himself and P. D. Harton, Philadelphia, Pa. Oven-shelf	663,286	Dec. 4	715	154	93	1861
	662,452	Nov. 27	2962	685	93	1530
Macdonald, James, Chicago, Ill. Grain-bin	662,951	Dec. 4	101	.....	93	1744
Mach, Ludwig, Jena, Germany. Manufacture of alloys of aluminium and magnesium	662,952	Dec. 4	102	.....	93	1745
Mach, Ludwig, Berlin, Germany. Making aluminium alloys	661,375	Nov. 6	630	146	93	1077
Mack, Frank, New York, N. Y. Bridle-blind	661,476	Nov. 6	810	194, 195	93	1113
Mack, Heman D., assignor of one-half to E. E. Hale, Brighton, N. Y. Milk-strainer	663,632	Dec. 11	1325	292	93	2001
Mack, Josiah D., Salem, N. Y. Foot-rest						

Alphabetical list of patentees, October to December, inclusive—Continued.

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Mackay, Angus, Douglas Island, Alaska, assignor of one-half to R. M. Mein, San Francisco, Cal. Amalgam-press	664,330	Dec. 18	2020	596	93	2288
Mackenzie, Frederick, and G. Wishart, Glasgow, Scotland. Photographic-plate holder	663,578	Dec. 11	1220	269	93	1982
Macnamara, John B. E., assignor of one-half to R. H. Warfield, San Francisco, Cal. Lock and latch combined	660,061	Oct. 16	2450	553	93	521
Maconochie, Archibald W., London, England. Apparatus for use in connecting together tins containing provisions	659,374	Oct. 9	1149	268	93	249
Macphail, James, Blue Island, assignor to Piano Manufacturing Company, Chicago, Ill. Grinder	661,348	Nov. 6	586	136	93	1067
Macphail, James, Blue Island, assignor to Piano Manufacturing Company, Chicago, Ill. Grinding-wheel center	662,239	Nov. 20	2245	540	93	1428
Macphail, James, Blue Island, assignor to Piano Manufacturing Company, Chicago, Ill. Grinding-wheel center	662,240	Nov. 20	2246	540	93	1428
Macy, Jethro L., Des Moines, Iowa. Incubator	664,657	Dec. 25	3254	738, 739	93	2442
			3835	860, 861	93	882
Madas, Lajos, assignor of one-half to A. Stern, New York, N. Y. Fender for trolley-cars	660,779	Oct. 30				
Madden, Augustine J., Prahran, Victoria. Self-winding electric clock	660,385	Oct. 23	3138	695	93	680
Maertens, Emile, Providence, R. I. Extracting oil	660,757	Oct. 30	3789	852	93	824
Maertens, Emile, Providence, R. I. Apparatus for extracting oil	660,758	Oct. 30	3793	853	93	825
Maertens, Emile, Providence, R. I. Machine for washing, rinsing, or chemically treating wool	663,452	Dec. 11	1020	223, 224	93	1943
Magagnos, Charles P., and W. H. Fulton, Alameda, Cal. Photographic finder	662,363	Nov. 20	2463	593	93	1471
Magann, George P. (See Omick and Magann.)						
Magee, Hugh, Meadville, Miss. Vehicle-brake	660,914	Oct. 30	4078	914	93	881
Mahedy, James, Kellerton, Iowa. Heating-drum	662,364	Nov. 20	2464	593	93	1471
Mahler, Robert M. (See Straube, Leopold P., assignor.)						
Mahoney, George M. (See St. Mary, Joseph, assignor.)						
Mahoney, Thomas L., San Francisco, Cal. Apparel-hat	660,062	Oct. 16	2452	553	93	521
Mahoney, William. (See Sullivan and Mahoney.)						
Mahony, Samuel, Revere, Mass. Steam-trap	663,453	Dec. 11	1024	224	93	1944
Maignen, Jean A., Philadelphia, Pa. Filter	659,485	Oct. 9	1361	310	93	291
	661,316	Nov. 6	527	122, 123	93	1056
Maignen, Jean A., Philadelphia, Pa. Decantation apparatus						
Maine, Andrew J., Appleton, Wis., assignor to R. Miller, W. McLeish, E. M. Wright, and A. Shannon. Car-mover	661,884	Nov. 13	1544	375	93	1270
Maize Products Company. (See Henderson, John C., assignor.)						
Mallery, Frank W., assignor of one-half to J. T. Smith, Overton, Ohio. Antirattler thill-coupling	661,149	Nov. 6	227	56	93	998
	659,854	Oct. 16	2072	466	93	446
Mallet, Justin, Marseilles, France, and A. R. Mosler, New York, N. Y. Steam-boiler						
Mallet, Justin, Marseilles, France, and A. R. Mosler, New York, N. Y.; said Mallet assignor to said Mosler. Steam-boiler	659,622	Oct. 9	1615	365	93	341
Mallet, Justin, Marseilles, France, and A. R. Mosler, New York, N. Y.; said Mallet assignor to said Mosler. Steam-boiler	659,623	Oct. 9	1617	366	93	341
Mallett, Charles E., New York, N. Y. Cotton-press	661,349	Nov. 6	590	137	93	1069
Mallett, Charles E., New York, N. Y. Cotton-press	661,350	Nov. 6	595	138	93	1069
Mallo, David A. (See Rodd, Fredrick W., assignor.)						
Maloney, John P., Woonsocket, R. I. Shuttle-check for looms	661,665	Nov. 13	1150	284	93	1196
Mammen, Lawrence, assignor of one-half to W. Luense, Chicago, Ill. Acetylene-gas generator	660,076	Oct. 16	2511	562	93	534
Manaut, Frédéric. (See Charon and Manaut.)						
Manchester, Isaac A., Fall River, Mass. Wagon	659,309	Oct. 9	1053	247	93	228
Mandrey, Jacob, New York, N. Y. Snow-melter	662,280	Nov. 20	2302	554	93	1439
Manegold, Henry, assignor to Milwaukee Paper Dampening Machine Company, Milwaukee, Wis. Paper-damping machine	664,055	Dec. 18	2106	482	93	2183
Manes, Ephraim, Chattanooga, Tenn. Curtain-hanger adjuster	663,915	Dec. 18	1868	421	93	2137
Manes, Ephraim, assignor to McGregor & McCord Manufacturing Company, Chattanooga, Tenn. Snap-hook	664,814	Dec. 25	3584	816	93	2508
Manes, John, San Francisco, Cal. Weighing-machine	660,077	Oct. 16	2515	562	93	535
Manhattan Table Company. (See Fullington, William H., assignor.)						
Manhattan Typewriter Company. (See Price, John B., assignor.)						
Manly, James S., Taylor, Tex. Band-cutter	660,195	Oct. 23	2767	615	93	607
Mann, Ignatz, New York, N. Y. Ear-ring fastener	661,271	Nov. 6	447	103	93	1041
Mann, Joseph H., Sault Ste. Marie, Mich. Refrigerator	664,815	Dec. 25	3586	817	93	2508
Manning, Alfred J., Irvington, N. Y. Bath-tub	661,351	Nov. 6	597	138	93	1070
Manning, Frederick P., Batavia, Ill. Metal tank	664,421	Dec. 25	2810	637	93	2351
Manny, Emilien A., Beauharnois, Canada. Life-boat	664,769	Dec. 25	3497	792, 793	93	2492
Mansell, Caleb B., Vancouver, Canada. Cream-whipping device	663,815	Dec. 11	1677	375	93	2075
Mantel, Jacob H., Amsterdam, Netherlands. Gear for bicycles	663,816	Dec. 11	1678	375, 376	93	2075
Manvel, Homer. (See Cannon, Warren B., assignor.)						
Manzke, Louis. (See Hopkins and Manzke.)						
Maquaire, Frédéric V. (See Possien and Macquaire.)						
Marceron, John A., assignor to W. H., H. C., and A. C. Moses, Washington, D. C. Window-screen	661,544	Nov. 13	929	230	93	1151
Marchand, Prosper E. (See Emringer and Marchand.)						
Marcofsky, Alexender W., Cleveland, Ohio. Hot-air furnace	658,855	Oct. 2	256	64	93	58
Marder, Clarence C., Chicago, Ill. Printer's rule	662,365	Nov. 20	2465	593	93	1471
Marino, Pascal, Brussels, Belgium. Electric accumulator	664,023	Dec. 18	2067	470	93	2175
Marks, Arthur H., assignor to Diamond Rubber Company, Akron, Ohio. Vehicle-tire	661,614	Nov. 13	1059	263	93	1177
Marks, Wilson, New York, N. Y. Foot-rest	659,933	Oct. 16	2222	499	93	476
Markwell, Abel, S. A., and P. W., Wichita, Kans. Brooding and hen house	663,916	Dec. 18	1871	421	93	2137
Markwell, Pleasant W. (See Markwell, Abel, S. A., and P. W.)						
Markwell, Sylvanus A. (See Markwell, Abel, S. A., and P. W.)						
Marlin Fire Arms Company. (See Hepburn, Lewis L., assignor.)						
Marlin, Henry A., Pittsburg, Pa. Sheet-metal pipe	660,019	Oct. 16	2377	534	93	509
Marmorit Gesellschaft, Gesellschaft mit Beschränkter Haftung. (See Uhlig, Heinrich E. G., assignor.)						
Marquardt, William F., Dysart, Iowa. Wagon-body and end-gate therefor	660,447	Oct. 23	3244	724	93	700
Marsch, John. (See Jacobus, Francis B., assignor.)						
Marsden, Mark W., Philadelphia, Pa. Paint	663,769	Dec. 11	1572	.....	93	2051
Marsh, James H. (See Freese, Claus, assignor.)						
Marsh, William C., Fort Madison, Iowa, assignor of one-third to Chambers, Bering, Quinlan Company, Decatur, Ill. Automatic weigher	661,092	Nov. 6	60	14	93	962
Marshall, Fredrick W., Westville, Conn. Spoke-securing nipple	661,376	Nov. 6	681	146	93	1078

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Marshall, James P., Independence, Mo. Washboard	660,708	Oct. 30	3714	885	93	809
Marshall, John I., and J. Faulds, Chicago, Ill. Bake-oven	662,874	Nov. 27	3524	825 826	93	1703
Marshall, Thomas J., Richmond, Va. Spark-arrester for locomotive-boilers	661,418	Nov. 6	693	160	93	1090
Marshall, William A., Washburn, Wis. Lumber-cart	660,020	Oct. 16	2377	534	93	509
Marston, Harry L., and J. D. Hatch, Brockton, Mass. Extension-ladder	659,310	Oct. 9	1053	248	93	228
Martens, Henry A. A., New York, N. Y. Crank-paddle	660,260	Oct. 23	2883	642 643	93	629
Martin, Arthur J. (See Cameron, Commin, and Martin.)						
Martin, Charles, Tiffin, Ohio. Vessel for containing and transferring liquids	660,303	Oct. 23	2984	662	93	650
Martin, Charles B., Waupun, Wis. Combined washbench and rack	664,567	Dec. 25	3085	700	93	2405
Martin, Charles B., New York, N. Y., assignor to General Electric Company, of New York. System of electric train control	661,666	Nov. 13	1151	284 285	93	1196
Martin, Clarence G. (See Martin, Jackson T. and C. G.)						
Martin, Elwin D. (See Ezell, Francis L., assignor.)						
Martin, Frank L. (See Herzog and Martin.)						
Martin, Frederick W., and F. Stewart, assignors of one-half to Brown, Boggs & Co., Hamilton, Canada. Electric-arc lamp	663,454	Dec. 11	1026	224 225	93	1944
Martin, George F., Springfield, Mass. Mattress-machine	661,063	Nov. 6	62	15	93	902
Martin, George L., New York, N. Y. Dynamo or motor	663,609	Dec. 11	1286	284	93	1994
Martin, Jackson T. and C. G., Springfield, Mo. Automatic cut-off for cisterns	659,541	Oct. 9	1472	334	93	313
Martin, James M., Knoxville, Tenn. Spring-bed	661,936	Nov. 13	1039	397	93	1288
Martin, Jesse C. and Jesse C., Jr., San Francisco, Cal. Metallic flexible joint	661,377	Nov. 6	633	147	93	1078
Martin, Morris, Malden, assignor to T. J. Drummond, Boston, Mass. Protective appliance for mills, factories, &c.	664,331	Dec. 18	2021	506	93	2288
Martin, Nehemiah, Pleasantville, N. J. Shutter-retainer	664,164	Dec. 18	2306	525	93	2 24
Martin, Samuel C., Belleville, N. J. Sash-lock	662,571	Nov. 27	2885	684	93	1573
Martin, Samuel P., Louisville, and W. H. Morris, Mortonsville, Ky. Harness-saddle	659,872	Oct. 16	2104	473	93	453
Martin, Thomas L., Lewisburg, Ky. Educational device	663,287	Dec. 4	716	154	93	1861
Martin, Wesley C., Delaware, Ohio. Grain-binder	662,079	Nov. 20	1934	464 465	93	1366
Martin, William C., New York, N. Y. Ventilator for cars	663,679	Dec. 11	1411	312	93	2018
Martinas, Charles W., Bloomsburg, Pa. Brake	660,964	Oct. 30	4163	935	93	899
Martine, John P., Louisville, Ky. Combination type-writer copy-holder	663,179	Dec. 4	510	108	93	1822
Marvin, John, assignor, by mesne assignments, to F. E. Fay, Marengo, Ill. Thill-coupling	659,868	Oct. 16	2136	482	93	459
Marwick, David B. (See Hart and Marwick.)						
Marwick, David B., and H. S. Hart, Chicago, Ill. Top plate for hot-air registers	661,615	Nov. 13	1060	264	93	1177
Maschmeyer, Hermann, assignor of one-fifth to J. A. Hill, Milwaukee, Wis. Pump-governor	659,311	Oct. 9	1055	248	93	228
Mason, Arthur J. (See Hoover and Mason.)						
Mason, Charles O., Strother, Mo. Hay-rake	663,288	Dec. 4	717	154	93	1861
Mason, Charles T., Sumter, S. C. Telephone-switchboard annunciator and jack	659,588	Oct. 9	1550	352	93	329
Mason, David, New York, N. Y. Cleaning and painting or treating surfaces submerged in water	660,646	Oct. 30	3608	808	93	788
Mason, David, New York, N. Y. Means for cleaning and painting or treating surfaces submerged in water	663,180	Dec. 4	511	108	93	1822
Mason, Francis C., Grand Rapids, Mich. Device for attaching handles to carpet-sweeper balls	659,084	Oct. 2	662	157	93	133
Mason, Frank H., Akron, Ohio. Pneumatic tire	663,633	Dec. 11	1326	293	93	2001
Mason, George L., Warehouse Point, and G. E. Witherell, assignors to Hartford Machine Screw Company, Hartford, Conn. Change-speed mechanism	663,098	Dec. 4	354	73	93	1792
Mason, Thomas G. (See Gassard, Louis, assignor.)						
Massaro, John, Frankfort-on-the-Main, Germany. Fire and water proof removable wall, floor, &c.	664,658	Dec. 25	3256	739 740	93	2442
Massey, Augustus C., assignor of one-half to M. McDonald, Los Angeles, Cal. Axle for railway or road vehicles	662,540	Nov. 27	2829	672	93	1563
Massey-Harris Company. (See McLeod, Charles, assignor.)						
Masters, William F., New York, N. Y. Tire for vehicles	662,008	Nov. 20	1792	432	93	1339
Mastin, George C., *et al.* (See Terry, Samuel L., assignor.)						
Mastin, J. W., *et al.* (See Terry, Samuel L., assignor.)						
Mastin, James G., Chicago, Ill. Sterilizing-case	660,994	Oct. 30	4208	946	93	907
Mather, William, Manchester, England. Apparatus for dyeing	662,281	Nov. 20	2303	555 556	93	1439
Mather, William S., Newark, N. J. Crucible-shaker	660,386	Oct. 23	3142	696	93	680
Mather, William S., Newark, N. J. Crucible-shaker	660,387	Oct. 23	3144	696	93	681
Mathews, William, Conneaut, Ohio. Saw-set	662,453	Nov. 27	2963	635	93	1530
Mathias, Paul, Leberau, Germany. Feeding air device for furnaces	659,312	Oct. 9	1056	248	93	229
Mathieu, Clément, Brussels, Belgium. Carbureter	663,549	Dec. 11	1189	257	93	1975
Mathys, Clement J., Mount Victory, Ohio. Cake-cutter	659,821	Oct. 16	2013	451	93	434
Matter, Edward P., Alexandria, Va. Alarm and releasing mechanism for fire-engine houses	661 616	Nov. 13	1061	264	93	1178
Mattes, Max, New York, N. Y. Vizor for caps	662,282	Nov. 20	2305	556	93	1440
Matthew, Patrick W., Edinburg, Scotland. Corset-shield	664,659	Dec. 25	3258	740	93	2442
Matthew, William H., Zanesville, Ohio. Axle-box and axle connection	660,905	Oct. 30	4164	935	93	899
Matthews, Fred. (See Phillips, Thomas E., assignor.)						
Matthews, Luther, Paris, Tenn. Baling-press	659,799	Oct. 16	1985	444	93	429
Matthewson, Ernest G., London, England. Coin-freed game	660,796	Oct. 30	3871	870 871	93	889
Mattson, Joseph. (See Lenhult, John E., assignor.)	663,035	Dec. 4	249	53, 54	93	1773
Maul, Alfred, Dresden, Germany. Apparatus for disconnecting machinery	658,956	Oct. 2	427	102	93	87
Maurice, Louis, Chicago, Ill. Nail-extractor	663,351	Dec. 4	622	175 176	93	1881
Mauser, Alfons, Stuttgart, Germany. Metal fabric	661,743	Nov. 13	1300	317	93	1224
Mauser, Paul, Oberndorf, Germany. Cartridge-holder for charging magazine-fire-arms	662,798	Nov. 27	3302	779	93	1651
Maxim, Hiram S., assignor to Vickers, Sons & Maxim, Limited, London, England. Projectile for ordnance	663,680	Dec. 11	1412	313	93	2019
Maxwell, Thomas R. (See Logan, Robert F. B., assignor.)	662,953	Dec. 4	102	21	93	1745
May, David, and M. Selig, New York, N. Y. Automatic fire-escape	664,660	Dec. 25	3260	741	93	2443
May, Joseph B., Lexington, Ky. Mail bag or pouch	664,056	Dec. 18	2108	482	93	2183
May, Leopold, New York, N. Y. Tin roof						
May, Thomas J., Kansas City, Mo. Cockroach-trap						
May, Walter. (See Hodgkin and May.)	659,246	Oct. 9	958	225 226	93	209
Mayall, Lewis A., Philadelphia, Pa. Machine for creasing cardboard	662,490	Nov. 27	2745	651	93	1547
Mayer, Franz X., Munich, Germany. Gas-proof bung-hole stave with metal lining						

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Mayer, Herman, *et al.* (See Hermann, Salomon, assignor.)						
Mayer, Johann, Cologne, Germany. Grain-sorting machine	662,454	Nov. 27	2965	685	93	1530
Mayer, Theodore J. (See Gates, Elmer, assignor.)						
Mayland, Rowland H., Freeport, assignor to Bawo & Dotter, New York, N. Y. Clock-chime	663,065	Dec. 4	326	68, 69	93	1786
Mayne, Samuel. (See Echelbarger, Charles F., assignor.)						
Maynz, Edward, Brookline, assignor to M. Bray, Newton, Mass. Fastening device for gloves, &c	662,676	Nov. 27	3079	727	93	1610
Mayr, Walter A., Chicago, Ill. Curtain-stretcher	662,628	Nov. 27	2983	707	93	1592
McAlpine, James G., Jr., Gilroy, Cal. Automatic shut-off and alarm for gas-burners	662,082	Nov. 20	1944	466	93	1368
McArthur, Neil. (See Evans and McArthur.)						
McAulay, Paul S., and M. Anderson, South Omaha, Nebr. School desk and seat	659,411	Oct. 9	1212	279	93	263
McBride, John, McKee's Rocks, Pa. Lubricator for pump or piston rods	661,317	Nov. 6	529	123	93	1056
McCabe, Thomas W. R., assignor to William L. Gilbert Clock Company, Winsted, Conn. Machine for making clock-pinions	663,998	Dec. 18	2028	458 459	93	2166
McCall, David. (See Weathers, Victor T., assignor.)						
McCall, Thaddeus D., Wichita, Kans. Tent	659,981	Oct. 16	2314	520 521	93	496
McCallip, William W., Columbus, Ohio. Musical instrument	659,756	Oct. 16	1805	427	93	411
McCallip, William W., Columbus, Ohio. Musical instrument	659,757	Oct. 16	1806	427	93	411
McCallum, Archibald, *et al.* (See Sherman, William C., assignor.)						
McCallum, William A., Cincinnati, Ohio. Suspending device for trolley-wires	659,823	Oct. 16	2015	452	93	435
McCallum, William A., Cincinnati, Ohio. Circuit-controller for electrical mechanism	659,824	Oct. 16	2016	452	93	435
McCallum, William W., Milwaukee, Wis. Mechanism or apparatus for bending tubing	664,771	Dec. 25	3499	798	93	2492
McCanna, Benjamin T. (See Delaney and McCanna.)						
McCanna, Edward W., Anaconda, Mont. Crushing-roll	661,617	Nov. 13	1063	264	93	1178
McCarthy, James. (See Irmiger and McCarthy.)						
McCartney, James, San Francisco, Cal. Cooking-stove	664,480	Dec. 25	2989	669 670	93	2375
McCarty, Andrew M., *et al.* (See Mitchell, Hugh B., assignor.)						
McCarty, Andrew M., *et al.* (See Rose, Horace G., assignor.)						
McCaskey, Perry A., assignor to H. T. Hearsey, Indianapolis, Ind. Bicycle-bell mechanism	658,995	Oct. 2	493	119	93	99
McCaskill, Hugh M., assignor of one-half to J. W. McCaskill, Antier, N. C. Sawmill attachment	660,022	Oct. 16	2382	535	93	510
McCaskill, John W. (See McCaskill, Hugh M., assignor.)						
McCaslin, George W., Hoboken, N. J. Conveyer	660,451	Oct. 23	3249	726 727	93	701
McCauley, John M., Binghamton, N. Y. Open-switch detector	659,152	Oct. 2	762	184	93	154
McCauley, Thomas H., Port Arthur, Canada. Automatic tire-inflating device	661,887	Nov. 13	1549	376	93	1271
McCausland, Joseph H., Lampasas, Tex. Churn	659,087	Oct. 2	666	159	93	184
McCausland, William J., Camden, N. J. Cop-tube	661,151	Nov. 6	280	56	93	998
McCausland, William J., Camden, N. J. Machine for making cop-tubes	661,152	Nov. 6	281	56, 57	93	998
McChesney, Bert T., Brewster, Minn. Hame-clip	663,457	Dec. 11	1032	225	93	1945
McClary, Thomas D., Washington, D. C., assignor to Acetylene Lighting Company, of Virginia. Acetylene-gas generator	661,547	Nov. 13	984	231	93	1152
McClellan, Stephen, assignor of one-half to D. Nunan, New York, N. Y. Universal brace and drill	661,418	Nov. 6	701	162	93	1092
McClellan, Stephen, assignor of one-half to D. Nunan, New York, N. Y. Universal brace	661,419	Nov. 6	705	163	93	1093
McClellan, William R., and C. Heaton, Xenia, Ohio. Bricklayer's gage	663,975	Dec. 18	1974	444	93	2157
McClelland, George E., Des Moines, Iowa. Hose attachment for stopping flow	662,955	Dec. 4	106	22	93	1745
McClenthen, Ira C., Hebron, Ind. Smoke-consumer	661,477	Nov. 6	812	195	93	1113
McClinchie, Uriah, New York, N. Y. Hand-strap	659,412	Oct. 9	1214	280	93	263
McClintick, Pearson F., Brookfield, Mo. Grappling-iron	660,219	Oct. 23	2815	624	93	616
McCollum, Arthur, San José, Cal. Support for bicycles	664,490	Dec. 25	2940	670	93	2376
McCollum, James C., assignor of one-half to S. White, Los Angeles, Cal. Hand street-sweeper	663,551	Dec. 11	1191	258	93	1975
McCollum, James H. K., Toronto, Canada. Friction-brake	662,012	Nov. 20	1799	433	93	1341
McConihe, Alonzo. (See Knowlson, Walter O., assignor.)						
McConnan, Charles S., Liverpool, England. Traversing or building device for fliers	661,019	Oct. 30	4265	958 959	93	918
McConnell Asbestos Co. (See Zitt, William M., assignor.)						
McConnell, Hugh E., Codington County, S. D. Straw-burning cook-stove	663,458	Dec. 11	1033	226	93	1946
McConway & Torley Company. (See Kelso, Joseph, assignor.)						
McConway & Torley Company. (See McConway, William, assignor.)						
McConway & Torley Company. (See McConway and Kelso, assignors.)						
McConway, William, assignor to McConway & Torley Company, Pittsburg, Pa. Car-coupling	660,780	Oct. 30	3837	861	93	833
McConway, William, and J. Kelso, assignors to McConway & Torley Company, Pittsburg, Pa. Car-coupling	661,153	Nov. 6	284	57	93	999
McConway, William, and J. Kelso, assignors to McConway & Torley Company, Pittsburg, Pa. Car-coupling	662,457	Nov. 27	2670	637	93	1531
McCorkell, James, and N. McEachern, Helix, Oreg. Weed-cutter	659,608	Oct. 9	1584	359	93	335
McCormick Harvesting Machine Company. (See Johnston, Eduard A., assignor.)						
McCormick, William W., Santa Rosa, Cal. Throat-shield	662,150	Nov. 20	2064	500	93	1891
McCourt, Newton W., assignor of two-thirds to R. Revels and M. F. Flaherty, Bradford, Pa. Bedstead attachment	663,774	Dec. 11	1578	353	93	2052
McCoy, Elijah, assignor to J. Trix, Detroit, Mich. Lubricator	663,976	Dec. 18	1975	445	93	2157
McCoy, John, *et al.* (See Copenhafer, Stephen A., assignor.)						
McCoy, John W., Sink's Grove, W. Va. Saddle	663,775	Dec. 11	1579	353	93	2052
McCoy, Robert, Urich, Mo. Rail-joint	663,354	Dec. 4	825	176	93	1882
McCracken, Ninian S., Union, Tex. Cotton chopper and cultivator	658,959	Oct. 2	492	103 104	93	88
McCready, Andrew J., Leemont, Va. Vine-cutter	661,811	Nov. 13	1424	343	93	1248
McCreary, Alfred T., assignor of one-third to J. H. Sikes, Springfield, Ill. Addressing newspapers	663,292	Dec. 4	723	155	93	1802
McCue, Charles T., assignor to Premier Manufacturing Company, Hartford, Conn. Carriage-coupling	663,636	Dec. 11	1331	294	93	2002
McCuen, Robert E., and P. J. Gormley, Lexington, Ky. Lubricating device for piston-rods	664,491	Dec. 25	2942	670	93	2376
McCurdy, George L., *et al.* (See Sinclair, Cyrus H., assignor.)						
McDade, James. (See Reardon, Patrick F., assignor.)						
McDonald, Don E., assignor to R. E. Chapin, Batavia, N. Y. Oil-can	664,093	Dec. 18	2177	497	93	2198
McDonald, Evertt I. (See Johnston and McDonald.)						
McDonald, Hugh, Williamsport, Pa. Telephone-arm	661,224	Nov. 6	353	84	93	1022

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McDonald, Lewis W., Lafayette, Ind. Balanced slide-valve	662,287	Nov. 20	2314	558, 559	98	1442
McDonald, Malcolm. (See Massey, Augustus C., assignor.)						
McDonald, Robert B. (See Granstrom and McDonald.)						
McDonald, Sarah A. (See Fischer, Alexander R., assignor.)						
McDonnell, Francis J., assignor of one-half to F. T. Almy, New Bedford, Mass. Paper-file	663,776	Dec. 11	1580	354	98	2052
McDonough, John. (See Jackson, Manetho C., assignor.)						
McDougall, Isaac S., Didsbury, England. Apparatus for purifying feed-water	664,572	Dec. 25	3095	702, 703	98	2407
McDowell, Adam C., *et al.* (See Mitchell, Hugh B., assignor.)						
McDowell, Adam C., *et al.* (See Rose, Horace G., assignor.)						
McDowell, Elwood F., Philadelphia, Pa. Lining brick or block for metallurgical furnaces and preparing same	662,298	Nov. 20	2316	.....	98	1442
McDowell, Thomas, assignor to Carter-Crume Company, Niagara Falls, N. Y. Manifold order-book	659,413	Oct. 9	1215	280	98	263
McDowell, Thomas, assignor to Carter-Crume Company, Niagara Falls, N. Y. Manifold-ing sales-book	659,414	Oct. 9	1217	281	98	264
McDowell, Thomas, assignor to Carter-Crume Company, Niagara Falls, N. Y. Manifold order-book	661,722	Nov. 13	1250	304, 305	98	1217
McEachern, Neil. (See McCorkell and McEachern.)						
McElroy-Grunow Electric Railway System. (See Grunow, William, Jr., assignor.)						
McFadden, Bernard A., New York, N. Y. Exercising and massage device	662,068	Nov. 20	1946	466	98	1368
McFadden, William H., Pittsburg, Pa. Caisson. (Reissue)	11,573	Nov. 20	2494	600, 601, 602, 603	98	1477
McFarland, James D., Jr., assignor of one-half to J. Bruckman, San Francisco, Cal. Revolving-cylinder engine	663,087	Dec. 4	329	69	98	1787
McFarland, John C., and W. J. Larkin, Chicago, Ill.; said Larkin assignor to said McFarland. Fireproof window	660,117	Oct. 23	2506	583	98	573
McFeely, Ronald F., Beverly, assignor to United Shoe Machinery Company, Boston, Mass. Pulling-over machine	663,777	Dec. 11	1581	354, 355, 356, 357, 358, 359, 360	98	2053
McGahan, Mary L., Northbridge, Mass. Shuttle-threader for looms	663,660	Dec. 11	1366	302	98	2010
McGary, Eugene L., Pittsburg, Pa. Air-conveyer	662,574	Nov. 27	2891	685	98	1574
McGaughey, Jerome G., assignor of one-half to W. F. Sheiry, Spokane, Wash. Nail	660,967	Oct. 30	4167	936	98	899
McGee, Ferdinand D., New Bedford, Mass. Door-securer	659,153	Oct. 2	763	184	98	154
McGhee, Nicholas B., Orange, Cal. Fruit-clipper	660,709	Oct. 30	3714	836	98	809
McGill, Albert E., assignor to T. A. Banning, Chicago, Ill. Seat-post for bicycles	661,461	Nov. 6	776	184	98	1107
McGill, George W., New York, N. Y. Shipping-tag	663,355	Dec. 4	827	177	98	1882
McGiven, William, Grove City, Ohio. Combined bubble-blowing and whistling device	659,758	Oct. 16	1897	427	98	412
McGoldrick, William H., San Antonio, Tex. Acetylene-gas apparatus	663,293	Dec. 4	725	156	98	1863
McGough, John, Pierre, S. D. Mowing or grain-cutting machine	662,084	Nov. 20	1947	467	98	1368
McGovern, George. (See Ennis, Henry J., assignor.)						
McGowan, James F. (See Hughes and McGowan.)						
McGowan, Joseph. (See Tefft and McGowan.)						
McGowan, Thomson, Cleveland, Ohio. Desulfurizing petroleum-oil	658,857	Oct. 2	260	64	98	54
McGrath, Daniel W., Columbus, Ohio. Mortar-mixing machine	662,173	Nov. 20	2111	510	98	1402
McGrath, Frederick. (See Bowen, Charles D., assignor.)						
McGrath, Lawrence A., assignor of one-fourth to M. F. Cunningham, Randolph, Mass. Gang-machine for setting lacing-hooks	663,387	Dec. 4	879	189, 190	98	1892
McGrath, Patrick H., Boston, Mass. Type-setting machine	660,163	Oct. 23	2691	600, 601	98	591
McGraw, James, West Almond, N. Y. Binding for books	660,904	Oct. 23	2985	663	98	651
McGregor, Ewen, Mangaonoho, New Zealand. Apparatus for dredging earth, &c	659,154	Oct. 2	765	185	98	154
McGregor & McCord Manufacturing Company. (See Manes, Ephraim, assignor.)						
McGuiness, John I., Janesville, Minn. Fire pot or box	663,637	Dec. 11	1332	294	98	2002
McGuire, James T., Albion, Mich. Handle-bar	663,195	Dec. 4	530	115	98	1828
McGuire, John F., Akron, Ohio. Cushion-tire for vehicles	660,452	Oct. 23	3250	727	98	702
McGuire, Squire D., assignor of one-half to J. C. Hocker, Guilford, Mo. Corn-cultivator	660,118	Oct. 23	2610	583	98	574
McGurty, James H., Jersey City, N. J. Alarm appliance for refrigerator-pans	660,119	Oct. 23	2611	584	98	574
McHardy, James, London, England. Golf-practice apparatus	661,381	Nov. 6	640	149	98	1080
McHenry, Edwin H., St. Paul, Minn. Apparatus for obtaining power from solar heat	659,450	Oct. 9	1296	297	98	279
McIntosh, Harry A., Liberty, Ind. Inhaler	659,542	Oct. 9	1474	334	98	314
McIntyre, Frank, New York, N. Y., assignor to W. Schimper & Co., Hoboken, N. J. Combined match-box and cigar-tip cutter	661,667	Nov. 13	1158	285	98	1198
McIntyre, Joseph J., assignor of one-half to T. A. Ennis, New York, N. Y. Wave and tidal engine	659,609	Oct. 9	1585	359	98	335
McKallip, John C., Athens, Ohio. Automatic gas cut-off	663,661	Dec. 11	1366	303	98	2010
McKay, James E., Detroit, Mich. Low-water alarm	663,128	Dec. 4	406	86	98	1802
McKay, Robert, and F. R. Welton, assignors to McKenney Button Fastening Company, Detroit, Mich. Staple-setting machine	662,495	Nov. 27	2751	654	98	1549
McKean, Joseph W., Charlerol, Pa. Car-fender	659,982	Oct. 16	2315	521	98	496
McKelvey, Samuel P., Chicago, Ill. Concrete-mixer	664,000	Dec. 18	2031	459, 460	98	2167
McKelvey, Samuel P., assignor of one-half to O. G. Hurson, Chicago, Ill. Concrete-mixer	663,999	Dec. 18	2030	459	98	2167
McKenney Button Fastening Company. (See McKay and Welton, assignors.)						
McKenney, J Freeman, Baltimore, Md. Feeding mechanism for sewing-machines	664,772	Dec. 25	3501	793, 794	98	2493
McKenney, J Freeman, Baltimore, Md. Shuttle-actuating mechanism for sewing-machines	664,773	Dec. 25	3503	794	98	2493
McKenzie, Joel B. L., Rahway, N. J. Cleaner for saws	659,088	Oct. 2	668	159	98	134
McKesson, William H. C. (See Hayes and McKesson.)						
McKey, Thomas F., Whitewater, Wis. Boat-rope reel	663,509	Dec. 11	1131	245	98	1963
McKinley, Robert F., Bedford, Ind. Stub-holder for check or other books	659,250	Oct. 9	964	227	98	211
McKinney, George B., Barry, Ill. Stool	659,089	Oct. 2	669	159	98	134
McKinnon, Archibald, Glasgow, Scotland. Window	659,087	Oct. 2	579	140, 141	98	116
McKinster, Ira F. J. (See Preston and McKinster.)						
McKown, Thomas D., and H. E. Clark, assignors of one-third to P. Butler, Cripple Creek, Colo. Surgical appliance	661,812	Nov. 13	1425	343	98	1248

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
McLachlan, Angus. (See Rowland, Hill, and McLachlan.)						
McLachlan, Harry. (See Kendrick and Wiley, assignors.)						
McLam, Walter T., Concord, N. H. Sewer-inlet grating	660,731	Oct. 30	3754	845	98	817
McLaughlin, Daniel M., Pana, Ill. Baling-press	664,423	Dec. 25	2814	638	98	2352
McLaughlin, John, Gloucester, Mass. Dough-mixer	663,038	Dec. 4	253	54	98	1774
McLaughlin, Samuel, Los Angeles, Cal. Photoengraver's printing-frame	664,665	Dec. 25	3270	743, 744	98	2445
McLeish, William, *et al.* (See Maine, Andrew J., assignor.)						
McLeish, William M., New Albany, Ind. Attachment for water-gages	662,732	Nov. 27	3189	755	98	1630
McLeod, Charles, assignor to Massey-Harris Company, Toronto, Canada. Seeding-machine	662,653	Nov. 27	3021	715	98	1599
McLeod, Robert A., Kaihu, New Zealand. Winch	664,171	Dec. 18	2315	527, 528	98	2226
McMahan, Charles S. (See Duffy and McMahan.)						
McMahon, Nevada, San Francisco, Cal. Hook and eye	662,677	Nov. 27	3081	727	98	1610
McMains, Montford C. (See Titus and McMains.)						
McMaken, Joseph H., assignor of one-half to J. Sisson, Toledo, Ohio. Anti-incrustation compound	662,956	Dec. 4	107	.....	98	1745
McMaster, Joseph, Chicago, Ill. Sifter	661,723	Nov. 13	1292	305	98	1218
McMillin, Henry C., Marietta, Ohio. Plastering composition	660,453	Oct. 23	3251	.....	98	702
McMullen, George, assignor of one-half to J. H. Joseph, Perth, Western Australia. Race game and apparatus for playing same	664,492	Dec. 25	2944	671, 422	98	2377
McMullen, George R., assignor of one-half to W. McMullen, Newark, Ohio. Bake-pan	663,921	Dec. 18	1878	423	98	2138
McMullen, George W. (See Gathmann, Emil, assignor.)						
McMullen, George W. (See Gathmann, Louis, assignor.)						
McMullen, William. (See McMullen, George R., assignor.)						
McMurdy, Perry, Osgood, Ohio. Cradle or crib	659,487	Oct. 9	1363	311	98	262
McMurray, Orville H., Springfield, Mo. Wrench	659,090	Oct. 2	670	159	98	135
McMurren, Duward. (See Moon and McMurren.)						
McNamara, William H., Cleveland, Ohio. Shelf protection	662,014	Nov. 20	1802	434	98	1341
McNaughton, Hart H. (See Morrell and McNaughton.)						
McNaughton, Peter, Charlotte, Mich. Plow	663,977	Dec. 18	1977	445	98	2157
McNeal, Luther C., Rochester, N. Y., assignor to Library Bureau, Boston, Mass. File	664,573	Dec. 25	3096	703, 704	98	2408
McNeil, Charles. (See McNeil, John and C.)						
McNeil, John and C., Govan, Scotland. Vacuum-pan	664,498	Dec. 25	2947	671, 672	98	2377
McNuity, John J., Carmel, N. Y. Cart	664,666	Dec. 25	3272	744	98	2446
McNutt, John F. (See Harris and McNutt.)						
McNutt, Lester J., Jefferson, Ohio. Artesian-well-drilling mechanism	662,289	Nov. 20	2317	559	98	1443
McPhee, William. (See Luckenbach, Harry, assignor.)						
McPherson, Eli. (See Braun and McPherson.)						
McPherson, Hugh A. (See Parker, Arthur J., assignor.)						
McPherson, Nelson, Silverdale Station, Canada. Grass-seeder	659,688	Oct. 16	1751	394	98	384
McQuarrie, James L., assignor to Western Electric Company, Chicago, Ill. Telephone-exchange system	659,759	Oct. 16	1898	428	98	412
McQueen, Neill, Johnston Station, Ga. Mail-crane hook	663,237	Dec. 4	629	135	98	1844
McRae, John D., assignor to T. Kingsford, Oswego, N. Y. Journal-bearing	660,532	Oct. 23	3402	764	98	731
McSherry, Charles, Pittsburg, Pa. Shears	660,197	Oct. 23	2769	616	98	607
McTaggart, David, Worcester, Mass. Warp-beaming machine	664,335	Dec. 18	2028	598	98	2289
McWane, Henry E., *et al.* (See Harris, Thomas F., assignor.)						
McWane, Robert C., *et al.* (See Harris, Thomas F., assignor.)						
McWhorter, Joseph M. (See Strealy, William J., assignor.)						
Mead, Clarence F., Kansas City, Mo. Rail-joint	661,150	Nov. 6	228	56	98	998
Mead, John S., assignor of one-half to W. Comerford, Buffalo, N. Y. Portable electrical device	662,491	Nov. 27	2745	652	98	1547
Mead, Madge L., Philadelphia, Pa. Rag doll	661,185	Nov. 6	286	69	98	1099
Meaney, John, and J. Stoever, Ridgefield Park, N. J.; said Stover assignor to said Meaney. Truck. (Reissue)	11,863	Oct. 9	1645	370	98	347
Means, Harry L. (See Williamson and Means.)						
Mechernicher Bergwerks-Actien-Verein. (See Kreuser and Langguth, assignors.)						
Mechlin, William H., Greenfield, Ohio. Elevator	659,406	Oct. 9	1201	278	98	261
Medici, Juan B., Buenos Ayres, Argentina. System for formation of permanent channels in navigable rivers	658,795	Oct. 2	108	90	98	26
Meguiar, Charles W., Franklin, Ky. Dental rubber-dam holder	663,507	Dec. 11	1128	245	98	1963
Mehring, Mary M. (See Smelker, Angeline, assignor.)						
Meighan, James M. (See Lowe and Meighan.)						
Mekleham, William J., Denver, Colo. Bake-furnace	659,175	Oct. 2	808	196, 197	98	163
Mein, Robert M. (See Mackay, Angus, assignor.)						
Meinecke & Company. (See Hogan, Daniel, assignor.)						
Meisselbach, August F. and W., Jr., Newark, N. J. Body for bicycle-saddles	660,261	Oct. 23	2885	643	98	630
Meisselbach, August F. and W., Jr. (See Meisselbach, August F. and W., Jr.)						
Meisselbach, William, Jr. (See Meisselbach, August F. and W., Jr.)						
Mélançon, Césaire, Plattenville, La. Stubble-shaver	661,414	Nov. 6	695	161	98	1091
Mélançon, Césaire, Plattenville, La. Hay-rake	661,415	Nov. 6	696	161	98	1091
Melber, Frederick, Pittsburg, Pa. Cement-and-steel construction	660,518	Oct. 23	3376	759	98	727
Meldrum, James J., *et al.* (See Wilkie, John, assignor.)						
Meldrum, John W., *et al.* (See Wilkie, John, assignor.)						
Meldrum, Thomas F., *et al.* (See Wilkie, John, assignor.)						
Mellin, Carl J., Richmond, Va. Piston-valve	661,766	Nov. 13	1346	326	98	1233
Meloon, Jonathan C., Providence, R. I., assignor to General Fire Extinguisher Company, New York, N. Y. Alarm mechanism	659,855	Oct. 16	2073	466	98	446
Melven, Galt M., J. H. Grove, J. J. Leitsch, and T. L. Melven, Louisville, Ky. Smoke-conveyer	663,917	Dec. 18	1873	421	98	2137
Melven, Theophilus L. (See Melven, Grove, Leitsch, and Melven.)						
Mendenhall, Hiram, Audubon, Iowa. Knockdown feed-trough	661,937	Nov. 13	1641	397	98	1289
Menzer, Frederick, Flint, Mich. Carriage-body	664,000	Dec. 18	2170	495, 496	98	2196
Mercantile Guide and Bureau Company. (See Cavanagh, Joseph R., assignor.)						
Mercer, Andrew, New York, N. Y., assignor to H. B. Smith Company, Westfield, Mass. Steam-boiler	662,080	Nov. 20	1942	465	98	1367
Mercer, Henry H., Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Cutting-chain for mining-machines	659,348	Oct. 9	1108	259	98	230
Merchant, Eugene, Skowhegan, Me. Attachment for picker-sticks	659,084	Oct. 2	574	139	98	115
Meredith, Charles T., San Diego, Cal. Machine for computing numbers	659,407	Oct. 9	1205	278	98	261

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Meredith, Katharine M. C., Cedarhurst, N. Y. Corset	662,283	Nov. 20	2306	557	93	1440
Mergenthaler Linotype Company. (See Bates, George A., assignor.)						
Mergenthaler Linotype Company. (See Pritchard, William C., assignor.)						
Mergenthaler Linotype Company. (See Rogers, John R., assignor.)						
Mergenthaler Linotype Company. (See Vassberg, Gustaf A., assignor.)						
Meritt, J. J., *et al.* (See Kottmeyer, Louis E., assignor.)	664,282	Dec. 18	2535	576	93	2272
Merker, George W., Belleville, Ill. Vapor-bath cabinet	659,934	Oct. 16	2224	499	93	476
Merralls, William A., San Francisco, Cal. Mortar for stamp-batteries						
Merrell-Soule Company. (See Brooks, Charles H., assignor.)						
Merrick, Frank A., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Trolley	662,009	Nov. 20	1793	432	93	1339
	661,064	Nov. 6	66	15	93	964
Merridew, Francis M., Boulogne-sur-Mer, France. Envelop						
Merrill, George S., Beloit, Wis., assignor to Merrill Process Steel Company, St. Louis, Mo. Working metal	664,091	Dec. 18	2172	496	93	2197
Merrill Process Steel Company. (See Merrill, George S., assignor.)						
Merritt, Arthur. (See Haring, William N., assignor.)						
Merritt, Charles J., Duquesne, Pa. Cuspidor	658,796	Oct. 2	109	26	93	26
Merritt, Louis G., Lockport, N. Y. Veneer-clipper	663,181	Dec. 4	518	108, 109	93	1822
	661,416	Nov. 6	698	161	93	1091
Merryweather, Charles, Anderson, Ind. Automatically-adjustable headlight						
Mershon, Ralph D., New York, N. Y., assignor to Westinghouse Electric and Manufacturing Company, of New Jersey. Governing prime movers	661,222	Nov. 6	349	83, 84	93	1022
Messerer Automobile Company. (See Messerer, Stephen, assignor.)						
Messerer, Stephen, Newark, N. J., assignor to Messerer Automobile Company, of New Jersey. Speed-controlling mechanism	662,455	Nov. 27	2666	636	93	1530
	663,770	Dec. 11	1573	352	93	2051
Mésserli, Josephine M. L., Paris, France. Fumigating device						
Messier, Richard J. (See Croteau and Messier.)						
Messinesi, Leon M., assignor to Diagonal and Universal Wood Working Machine Company, Limited, London, England. Woodworking machinery	663,182	Dec. 4	517	109	93	1823
	659,135	Oct. 2	575	139	93	115
Messing, Ferdinand J., Laar, Germany. Collapsible trestle	664,232	Dec. 18	2624	597	93	2298
Messinger, John C., Bethlehem, Pa. Garment-hanger	659,751	Oct. 16	1884	424	93	409
Messler, Fred E., Canton, Ill. Coffin-support						
Metal Bound Package Company. (See Stuckenberg, William S., assignor.)						
Metal Stamping Company. (See Worrest, Alfred H., assignor.)						
Metcalf, David H., Battle Creek, Mich. Windmill-regulator	663,579	Dec. 11	1230	270	93	1982
Metcalfe, Arthur W., Belfast, Ireland. Fan or blower for ventilating purposes	660,582	Oct. 30	3496	782	93	766
Metz, Charles H., Waltham, Mass. Bicycle	660,448	Oct. 23	3244	725	93	701
	660,449	Oct. 23	3246	725, 726	93	701
Metz, Charles H., Waltham, Mass. Bicycle-gearing	663,771	Dec. 11	1574	352	93	2051
Metzger, Frederick, Hondo, Tex. Acetylene-gas apparatus						
Metzger, Percy B., *et al.* (See Hartel, Albert E., assignor.)						
Meyers, William H., Sturgis, assignor of one-half to G. W. Pritchett, Corydon, Ky. Pneumatic cotton-picker	659,752	Oct. 16	1886	425	93	409
	658,957	Oct. 2	428	102, 103	93	87
Mey, Frederick H. C., Buffalo, N. Y. Malting and drying apparatus	663,289	Dec. 4	718	154	93	1802
Meyer, Ernest, Paris, France. Dry battery	664,225	Dec. 18	2416	551	93	2248
Meyer, Ernst F., Waverly Park, N. J. Mortising-machine	664,226	Dec. 18	2419	551	93	2249
Meyer, Ernst F., Waverly Park, N. J. Horseshoe-holder	661,885	Nov. 13	1545	375, 376	93	1270
Meyer, Fred W., Louisville, Ky. Flushing-valve						
Meyer, Henry. (See Bohlman, Segelke, assignor.)						
Meyer, Henry, Des Moines, Iowa. Spoke, tire, and felly tightener	660,915	Oct. 30	4079	914	93	881
Meyer, Henry A., *et al.* (See Geis, Charles, assignor.)						
Meyer, John W. (See Pries and Meyer.)						
Meyer, Joseph P., Rochester, N. Y. Roll-holding photographic camera	664,770	Dec. 25	3498	793	93	2492
Meyer, Otto, assignor of three-fourths to S. M. Block and H. Froehling, Richmond, Va. Separating tin from tin-scrap	660,116	Oct. 23	2605	583	93	573
Miari, Giacomo, and F. Giusti, Padua, Italy. Incandescent igniting device for explosion-engines	664,661	Dec. 25	3261	741	93	2443
	664,165	Dec. 18	2307	525	93	2224
Michaelis, Otto, Berlin, Germany. Means for cleaning tramway-rails						
Middlekauff, William D., *et al.* (See Titus and McMains, assignors.)						
Midgley, Thomas, Columbus, Ohio. Metallic vehicle-wheel	660,728	Oct. 30	3750	844	93	816
Midgley, Thomas, Columbus, Ohio. Metallic vehicle-wheel	660,729	Oct. 30	3751	845	93	817
Miehle Printing Press and Manufacturing Company. (See Miehle, Robert, assignor.)						
Miehle, Robert, assignor to Miehle Printing Press and Manufacturing Company, Chicago, Ill. Bed-motion for printing-presses	661,878	Nov. 6	634	147, 148	93	1078
	659,176	Oct. 2	809	197, 198	93	163
Miles, Don D., assignor to N. Bowditch, Aurora, Ill. Cotton-harvesting machine						
Military Equipment Stores and Tortoise Tents Company. (See Tomkins, Alfred S., assignor.)						
Millan, A. Frank. (See Fuller, Thomas S., assignor.)						
Millard, Alfred. (See Patten, Simon R., assignor.)						
Millea, John D. (See Carroll and Millea.)						
Millea, Thomas D. (See Carroll and Millea.)	660,519	Oct. 23	3378	759	93	727
Millea, Thomas D., Springfield, Mass. Shut-off mechanism for engines	662,572	Nov. 27	2887	684	93	1573
Millea, Thomas D., Springfield, Mass. Cushion for engine-governors						
Miller, Albert W. W. (See Myers, Frederick, assignor.)						
Miller, Alice M. (See Wartenberg, Heinrich, assignor.)						
Miller, Benjamin F. D., assignor to F. Herman, Wooster, Ohio. Oil tank and pump	664,288	Dec. 18	2536	576	93	2272
	660,916	Oct. 30	4080	914, 915	93	882
Miller, Caspar W., Wallingford, Pa. Air-gas apparatus						
Miller, Charles H., *et al.* (See Alley, Cassius, assignor.)						
Miller, Charles H., assignor to E. G. Webb, Philadelphia, Pa. Packing	664,487	Dec. 25	2937	669	93	2375
Miller, Charles R. (See Snyder, William H., assignor.)						
Miller, Du Brul & Peters Manufacturing Company. (See Du Brul, Ernest F., assignor.)						
Miller, Frank A., Washington, Pa. Utensil-handle	658,992	Oct. 2	489	118	93	98
Miller, Franz X., Regensburg, Germany. Rendering apparatus	659,085	Oct. 2	663	158	93	133
	659,086	Oct. 2	576	139, 140	93	115
Miller, Fred H., and P. Larson, Crookston, Minn. Log-carriage	660,730	Oct. 30	3752	845	93	817
Miller, George, Baltimore, Md. Sheet-metal can or box	660,330	Oct. 23	3046	676	93	662
Miller, George O., North Tonawanda, N. Y. Mantle-support	661,223	Nov. 6	352	84	93	1022
Miller, Henry C., Milwaukee, Wis. Book-leaf						
Miller, Hermann R. (See Pierron and Miller.)						
Miller, J. C. (See Fierbaugh, Samuel, assignor.)						
Miller, Jacob C. (See White and Miller.)						
Miller, James O., and D. Agnew, Rochester, Ind. Fire-escape	660,917	Oct. 30	4083	915	93	882

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Miller, Jay D., *et al.* (See Davenport and Robinson, assignors.)						
Miller, Karl, assignor to Karl Miller Ore Reduction Syndicate, Limited, London, England. Bath for rendering ore friable	664,488	Dec. 25	2938	.....	93	2375
	659,979	Oct. 16	2312	520	93	495
Miller, Michael, Glenwood, Iowa. Trestle						
Miller, Richard, *et al.* (See Maine, Andrew J., assignor.)						
Miller, Samuel G., McKeesport, Pa. Rail-joint	660,864	Oct. 30	4002	895	93	865
Miller, Theodore, New York, N. Y. Steam-generator	661,545	Nov. 13	930	230	93	1151
Miller, Thomas B. (See Draro and Miller.)						
Miller, Thomas O., Houston, Tex. Coin-holder	663,290	Dec. 4	718	155	93	1802
Miller, Walter H. B., Oakland, Cal. Reproducing type or the like	662,578	Nov. 27	2889	685	93	1574
Miller, Watts T., New York, N. Y. Bottle-washing apparatus	659,935	Oct. 16	2225	499, 500	93	476
Miller, William A., Wapinitia, Oreg. Drag-saw	659,753	Oct. 16	1888	425, 426	93	410
Miller, William C., assignor of one-half to A. Wendelboe, Lincoln, Nebr. Lamp-extinguisher	659,247	Oct. 9	960	226	93	210
	659,248	Oct. 9	962	226	93	210
Miller, William G., Pittsburg, Pa. Automatic gas-controller	659,685	Oct. 16	1744	394	93	382
Miller, William S., Maryville, Mo. Truss						
Millers Falls Company. (See Parsons, William J., assignor.)						
Millett, Joshua H., Malden, assignor to Crosby Steam Gage and Valve Company, Boston, Mass. Means for attaching wooden handles to metal spindles	663,772	Dec. 11	1575	352	93	2052
Millikan, Frank A., Warren, Ohio. Table-support	662,799	Nov. 27	3305	780	93	1652
Milliken, A. C., *et al.* (See Solomon, Jessie B., assignor.)						
Milliken, Norman I., De Kalb, Ill. Shoveling-board	664,662	Dec. 25	3262	741	93	2443
Millot, Benoit. (See Millot, Joseph and B.)						
Millot, Joseph and B., Gray, France. Speed-governor for explosive-engines	663,188	Dec. 4	519	110	93	1824
Mills, Albert E., Branxholme, Victoria. Car-coupling	660,320	Oct. 23	3381	760	93	728
Mills, Francis A., assignor of one-half to G. B. Emmons, Methuen, Mass. Pneumatic shuttle and picker-staff buffer for looms	664,816	Dec. 25	3588	817, 818	93	2509
Mills, Francis A., assignor of one-half to G. B. Emmons, Methuen, Mass. Picker-staff buffer for looms	664,817	Dec. 25	3593	818	93	2510
Milis, Jefferson C., assignor of one-half to E. A. Eggman, Anderson, Ind. Jar-closure	662,241	Nov. 20	2247	541	93	1428
Mills, Samuel J., Woodstock, Ill. Boot or shoe polishing device	664,166	Dec. 18	2307	525	93	2224
Mills, Victor O., Chicago, Ill. Hook and eye	661,065	Nov. 6	68	16	93	964
Milne, Frederick S., and T. W. Snow, Batavia, Ill. Water-cushioning tank-valve	663,918	Dec. 18	1874	422	93	2138
Milton, John, Washington, D. C. Steam-boiler furnace	661,066	Nov. 6	69	16	93	964
Milwaukee Harvester Company. (See Livesay, Crandall, and Burgess, assignors.)						
Milwaukee Paper Dampening Machine Company. (See Manegold, Henry, assignor.)						
Miner, Frank L. (See Whipple, Lewis D., assignor.)						
Miner, Robert J., Greenwich, Conn., and W. E. Miner, Roselle, N. J. Type-writer	659,980	Oct. 16	2313	520	93	495
Miner, Willis E. (See Miner, Robert J. and W. E.)						
Miners Supply Company. (See Newkirk, Daniel B., assignor.)						
Mingst, Charles P., Evansville, Ind. Cutting-tool	662,492	Nov. 27	2747	652	93	1547
Minick, Peter D. (See Fridolph, Anna S. and S. A., assignors.)						
Minick, William H. (See Pines, Burke E., assignor.)						
Minnesota Ore Reduction Company. (See Teller, John C., assignor.)						
Minor, James E. (See Phillips, Columbus, assignor.)						
Minshall, William E., Minonk, Ill. Smoke-consuming furnace	661,379	Nov. 6	636	149	93	1079
Miralles y Angles, Hermenegildo, Barcelona, Spain. Manufacture of pasteboard glazed tiles	660,966	Oct. 30	4166	.....	93	899
Misko Ice Company. (See Miskolczy, Joseph, assignor.)						
Miskolczy, Joseph, assignor to Misko Ice Company, New York, N. Y. Refrigerating article	662,541	Nov. 27	2880	672, 673	93	1563
	661,186	Nov. 6	287	69	93	1010
Mitchel, Birtrum, Oconomowoc, Wis. Smoke-stack coupling						
Mitchel, Samuel A., assignor to Sun Manufacturing Company, Greenfield, Ohio. Coffee-mill	662,128	Nov. 20	2025	498	93	1383
Mitchel, Samuel A., assignor to Sun Manufacturing Company, Greenfield, Ohio. Churn	662,129	Nov. 20	2026	498	93	1383
Mitchell, Burton C., Richmond, Ind. Door-fastener	663,096	Dec. 4	251	54	93	1774
Mitchell, Edward A., London, England. Internal-combustion engine	658,968	Oct. 2	490	118	93	98
Mitchell, Hugh B., assignor to A. M. McCarty, A. Hoeffer, and A. C. McDowell, Canton, Ohio. Varying-speed mechanism	662,380	Nov. 20	2491	599	93	1477
Mitchell, Hugh B., assignor to A. M. McCarty, A. Hoeffer, and A. C. McDowell, Canton, Ohio. Dental handpiece	663,096	Dec. 4	328	69	93	1787
	659,686	Oct. 16	1746	394	93	383
Mitchell, John F., Kneeland, Wis. Snap-hook						
Mitchell, John M. (See Bryant, Roessler, Mitchell, and Augspurg.)						
Mitchell, John W. (See Wright and Mitchell.)						
Mitchell, Martin A., *et al.* (See O'Brien, Arthur, assignor.)						
Mitchell, Millard G., Arcadia, Kans. Replanter attachment for cultivators	664,663	Dec. 25	3264	741, 742	93	2443
Mitchell, Robert J. C., Waterfoot, England. Pneumatic tire for wheels	659,589	Oct. 9	1553	352	93	329
Mitchell, Thomas W., South Omaha, Nebr. Brake-shoe	658,856	Oct. 2	258	64	93	54
Mitchell, Wickliff B., Owensburg, Ind. Churn	660,450	Oct. 23	3248	726	93	701
Mitchelmore, Thomas L. (See Dring and Mitchelmore.)						
Mitsch, Peter, Chicago, Ill. Windmill	661,809	Nov. 13	1421	343	93	1247
Mitzel, Harvey F., Akron, Ohio. Inflatable rubber bag for striking-bags or foot-balls	663,634	Dec. 11	1328	298	93	2002
Mix, Edward W., and E. F. G. H. Faure, Paris, France, assignors to General Electric Company, of New York. Space-block for armature-cores	662,010	Nov. 20	1795	433	93	1340
Mix, Frank G., Schoharie, N. Y. Packing-case	661,701	Nov. 13	1222	296	93	1210
Moberg, Charles A., and J. E. Brady, Portland, Me. Catamenial appliance	660,388	Oct. 23	3146	697	93	681
Möbus, Wilhelm, Reutlingen, Germany. Mold-making machine	663,773	Dec. 11	1576	352, 353	93	2052
Mock, Henry. (See Boch, Philipp, assignor.)						
Moegling, Christopher, assignor of three-fourths to F. G. Dieterich, Washington, D. C. Night-lamp	664,167	Dec. 18	2309	526	93	2224
Moeller, Frederick B., Philadelphia, Pa. Calendar	662,954	Dec. 4	104	21, 22	93	1745
Moen, George J. (See Hagen, Martin, assignor.)						
Moeres, Hermann, Eltorf, Germany. Cut-off cock or valve with separate closing device	658,797	Oct. 2	110	27	93	26
Moffett Bearing Company. (See Perkins, Julius A., assignor.)						
Moll, John, *et al.* (See Titus and McMains, assignors.)						
Möller, Ferdinand C. H. C., Altona, Germany. Last for boots or shoes	659,754	Oct. 16	1892	426	93	411
Monell, Ambrose, Pittsburg, and R. James, Munhall, assignors to Carnegie Steel Company, Pittsburg, Pa. Manufacture of open-hearth steel	663,701	Dec. 11	1456	.....	93	2027
Monell, Ira F., Boulder, Colo. Concentrating-table	661,886	Nov. 13	1547	376	93	1271
Monger, Robert E., assignor of one-half to M. K. Bankert, Morristown, Ind. Vending-machine	664,568	Dec. 25	3096	700, 701	93	2405

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Monger, Robert E., assignor of one-half to M. K. Bankert, Morristown, Ind. Coin-controlled mechanism	664,569	Dec. 25	3090	701, 702	93	2406
Monroe, William E., assignor to J. Plummer, Newport, Ky. Window-screen	663,508	Dec. 11	1130	245	93	1063
Montague Manufacturing Company. (See Clark, Frank R., assignor.)						
Monteith, Caroline, New York, N. Y. Printing apparatus	663,291	Dec. 4	720	155	93	1862
Montgomery, Burgess T., Washington, D. C. Book or copy holder	664,664	Dec. 25	3266	742, 743	93	2444
Montgomery, George T. (See Lambert, Frank, assignor.)						
Montgomery, James H., Denver, Colo. Aerial wire-rope tramway	663,817	Dec. 11	1679	376	93	2075
Montgomery, John F. (See Braley, William W., assignor.)						
Montgomery, John H., assignor of one-half to C. F. Haanel, St. Louis, Mo. Hot-air furnace	663,191, 661,352	Dec. 4, Nov. 6	530	113	93	1826, 1070
Moody, John R., Perry, Iowa. Fitting	659,177	Oct. 2	814	198	93	164
Moomaw, Henry E., Salem, Va., assignor to J. E. Annis, Chattanooga, Tenn. Metallic shingle	659,349	Oct. 9	1105	259	93	239
Moon, Herman, and D. McMurren, Grove City, Pa. Clutch	660,865	Oct. 30	4003	895, 896	93	865
Moonelis, Julius, New York, N. Y., assignor, by mesne assignments, to H. Berg, Orange, N. J. Cigarette-machine	660,078	Oct. 16	2516	563	93	535
Moore, Charles E., Somerville, Mass. String-fastener	664,168	Dec. 18	2312	526	93	2225
Moore, Hartwell R., Boston, Mass., assignor to Comstock, Cheney & Company, Ivoryton, Conn. Piano-action	658,921	Oct. 2	354	87	93	72
Moore Improved Gold Separator Company. (See Moore, John B., assignor.)						
Moore, John B., Oakland, Cal., assignor, by mesne assignments, to Moore Improved Gold Separator Company, of California. Ore-separator	661,353	Nov. 6	509	189	93	1071
Moore, John E. (See Bennett and Moore.)						
Moore, John W., J. A. White, and W. T. Wiegand, Philadelphia, Pa.; said Wiegand assignor to said Moore and White. Drying-cylinder	662,011	Nov. 20	1796	433	93	1340
Moore, Lysander R., Jr. (See Shonbeck, Oke A., assignor.)						
Moore, Matthew R., assignor to Atlas Engine Works, Indianapolis, Ind. Steam-engine dash-pot	664,422	Dec. 25	2811	638	93	2351
Moore, Thomas J., *et al.* (See Warren, Edmond A., assignor.)	659,822	Oct. 16	2014	452	93	435
Moore, William B., Chicago, Ill. Lock	661,272	Nov. 6	448	103	93	1041
Moore, William H., Deadwood, S. D. Salt-cellar	664,024	Dec. 18	2009	470	93	2175
Moore, William R., Eden, N. Y. Door-bell	659,408	Oct. 9	1207	279	93	202
Moran, Patrick J., Memphis, Tenn. Street-paving	661,380	Nov. 6	639	149	93	1079
Morck, William, P. Krickau, and W. Boehle, Oakland, Cal. Track cleaner and oiling device	664,818	Dec. 25	3508	819	93	2310
Mordan, Paul, and M. Roehr, Chicago, Ill. Combined oil can and measurer	660,021	Oct. 16	2379	534, 535	93	549
Morden, Samuel M., assignor to A. E. Perren, Buffalo, N. Y. Running-gear for vehicles	664,092	Dec. 18	2174	496, 497	93	2197
Mordey, William M., and G. C. Fricker, London, England. Electricity-meter	664,333	Dec. 18	2626	597	93	2289
Mordey, William M., and G. C. Fricker, London, England. Electricity-meter	664,334	Dec. 18	2628	597	93	2289
Morehead, John M., assignor to Union Carbide Company, Chicago, Ill. Electric furnace	660,799	Oct. 30	3872	871	93	839
Morehead, John M., assignor to Union Carbide Company, Chicago, Ill. Manufacture of carbid of calcium	663,818	Dec. 11	1681	377	93	2076
Morell, David, Cassel, Germany. Rotary engine	659,178	Oct. 2	815	198	93	164
Morey, Henry S. (See Seymour and Morey.)	659,179	Oct. 2	818	199	93	165
Morgan, Doctor F., Chicago, Ill. Boiler	663,919	Dec. 18	1876	422	93	2138
Morgan, Edmund C., assignor to Morgan Electric Machine Company, Chicago, Ill. Electric-railway system	663,087	Dec. 4	252	54	93	1774
Morgan, Edmund C., assignor to Morgan Electric Machine Company, Chicago, Ill. Combined third and traction rail for electric railways						
Morgan Electric Machine Company. (See Morgan, Edmund C., assignor.)						
Morgan, John T., Half Rock, Mo. Cultivator						
Morgan, Thomas, assignor to C. W. Hobbs, Worcester, Mass. Applying stay-strips to boxes						
Morgan & Wright. (See Duffy, Thomas I., assignor.)						
Morgan & Wright. (See Herrick, William, assignor.)						
Morgan & Wright. (See Holmes, William, assignor.)						
Morley Button Sewing Machine Company. (See Thomson, Robert W., assignor.)						
Morphy, James, assignor to Cockshutt Plow Company, Limited, Brantford, Canada. Disk-shoe for seeding-machines	660,759	Oct. 30	3797	853	93	826
Morrell, Charles W., and H. H. McNaughton, Charlotte, Mich. Head for tripods	658,958	Oct. 2	431	103	93	87
Morrell, Edward E. (See Johnston, John P., assignor.)						
Morrell, George C. (See Burnham, Arthur M., assignor.)	662,284	Nov. 20	2307	537	93	1440
Morrell, Glenn A., Grand Rapids, Mich. Combined hoe and weeder	664,571	Dec. 25	3093	702	93	2407
Morrill, Osgood, and H. P. Wells, Amesbury, Mass. Elliptic spring	663,997	Dec. 18	2025	458	93	2166
Morrill, Roland, Benton Harbor, Mich. Atomizer	664,357	Dec. 18	2682	609	93	2300
Morrin, Elizabeth T. (See Morrin, Thomas F., assignor.)	664,358	Dec. 18	2684	610	93	2300
Morrin, Thomas F., assignor to E. T. Morrin, Jersey City, N. J. Steam-generator	661,938	Nov. 13	1642	308	93	1289
Morrin, Thomas F., assignor to E. T. Morrin, Jersey City, N. J. Steam-generator	661,478	Nov. 6	814	195, 196	93	1114
Morris, John J., *et al.* (See Schaffer, Philip F., assignor.)	661,187	Nov. 6	288	69	93	1010
Morris, Joshua M., assignor of one-half to J. Casarietti, Rochester, N. Y. Pump	663,184	Dec. 4	521	110	93	1824
Morris, Thomas G., Chicago, Ill. Spring-hinge	659,936	Oct. 16	2227	500	93	477
Morris, Willard A., Cedar Bluffs, Nebr. Pipe-wrench	662,493	Nov. 27	2748	632, 633	93	1548
Morris, William, Youngstown, Ohio. Rotary pump	662,494	Nov. 27	2749	633	93	1548
Morris, William E., South Connellsville, Pa. Pipe-bending machine						
Morris, William L., assignor to Austin Cartridge Company, Cleveland, Ohio. Wad-punching and lubricating device						
Morris, William L., assignor to Austin Cartridge Company, Cleveland, Ohio. Wad-chute.						
Morris, Wyatt H. (See Martin and Morris.)						
Morrisey, Timothy T. (See Jones, Herbert I., assignor.)						
Morrison, Robert F., *et al.* (See Greenwood, James H., assignor.)	664,570	Dec. 25	3092	702	93	2407
Morrison, Robert L., Nathan, Tex. Plow						
Morrison, Thomas N., *et al.* (See Greenwood, James H., assignor.)						
Morrisse, James A. (See Pratt, Thomas J., assignor.)						
Morrow, Henry W. (See Britton and Morrow.)						
Morrow, John, *et al.* (See Greenwood, James H., assignor.)	660,521	Oct. 23	3382	760	93	728
Morrow, Oliver A., White Hall, Ill. Churn						
Morse Chain Company. (See Morse, Everett F., assignor.)						
Morse, Charles S., assignor to Benedict & Burnham Manufacturing Company, Waterbury, Conn. Device for cutting tubular metal shells	662,542	Nov. 27	2993	673	93	1563

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Morse, Everett F., assignor to Morse Chain Company, Trumansburg, N. Y. Drive-chain.	663,352	Dec. 4	823	176	93	1882
Morse, Everett F., assignor to Morse Chain Company, Trumansburg, N. Y. Drive-chain.	663,353	Dec. 4	824	176	93	1882
Morse, James B., *et al.* (See Kennedy, William J., assignor.)						
Morse, William E. H., and O. H. Bemis, Algona, Iowa. Combination-lock	662,285	Nov. 20	2308	557, 558	93	1440
Morterud, Elnar, Konga, Sweden. Apparatus for manufacturing cellulose	659,313	Oct. 9	1057	249	93	220
Morton, William W. (See Smith, Morton, and Gibson.)						
Moseley, Thomas J., Salem, Mo. Sash-holder	663,611	Dec. 11	1287	285	93	1995
Moser, Robert, assignor of one-half to J. G. Rompel, Kansas City, Mo. Adjustable hoof-expander	661,128	Nov. 6	188	47, 48	93	900
Moses, Arthur C., *et al.* (See Marceron, John A., assignor.)						
Moses, Harry C., *et al.* (See Marceron, John A., assignor.)						
Moses, William H., *et al.* (See Marceron, John A., assignor.)						
Mosher, Charles L., Chatham, N. Y. Electric bipolar dilator	659,409	Oct. 9	1209	279	93	202
Mosher, John A., assignor to Adams & Westlake Company, Chicago, Ill. Focusing device for cameras	658,994	Oct. 2	492	119	93	99
Mosler, Arthur R. (See Mallet and Mosler.)						
Moss, George. (See Van Dyke, Charles F., assignor.)						
Moss, Henry, New York, N. Y. Fly-catching device	663,550	Dec. 11	1190	257	93	1975
Mossberg, Frank, assignor to Frank Mossberg Company, Attleborough, Mass. Wrench.	661,810	Nov. 13	1422	343	93	1247
Mossman, Francis M., near Collins, assignor of one-half to J. F. Mossman, Coesse, Ind. Mechanical movement	661,417	Nov. 6	699	161, 162	93	1091
Mossman, John F. (See Mossman, Francis M., assignor.)						
Mostllier, Henry C. (See Tynan and Mostllier.)						
Motz, Emanuel, Jefferson, S. C. Electrolytic apparatus	662,286	Nov. 20	2311	558	93	1441
Moulton, Dustin, Montpelier, Vt. Invalid-bedstead	659,755	Oct. 16	1893	426, 427	93	411
Mound City Paint and Color Company. (See Jones, Alfred, assignor.)						
Moussette, Oliver J., New York, N. Y. Acetylene-gas generator	659,086	Oct. 2	665	158	93	134
Moving Picture Camera Company. (See Esmond, William V., assignor.)						
Mowry, Edward S., Middletown, Conn. Flagstaff-holder	661,643	Nov. 13	1111	276	93	1188
Moyer, Abraham, Antlers, Ind. Ter. Wagon-bed hoist	662,800	Nov. 27	3306	780	93	1632
Moyer, Eli N., Toronto, Canada. Chart-drawing instrument	659,410	Oct. 9	1210	279	93	202
Moynahan, George S. (See Olden, Louise J., assignor.)						
Muehlberg, Karl O., Braddock, Pa. Cutter-tool	663,455	Dec. 11	1029	225	93	1945
Mueller, Charles, New Britain, Conn. Etching metal	660,262	Oct. 23	2887	643	93	630
Mueller, Herman C., and K. Langenbeck, Zanesville, Ohio. Tile-setting	664,169	Dec. 18	2313	527	93	2225
Mueller, Oscar, assignor to H. Mueller Manufacturing Company, Decatur, Ill. Tapping-machine	660,760	Oct. 30	3709	853	93	826
Mueller, Oscar, assignor to H. Mueller Manufacturing Company, Incorporated, Decatur, Ill. Water-pressure regulator	662,013	Nov. 20	1801	433, 434	93	1341
Mühlberg, Albert, Berlin, Germany. Truck for autocars	659,590	Oct. 9	1554	353	93	329
Mühlenthal, Sigismund, *et al.* (See Hahn, Theodor, assignor.)						
Muir, William J., Poowong East, Victoria. Bucket-support	659,591	Oct. 9	1556	353	93	330
Mulford, William W., Columbus, Ohio. Apparatus for making bolts, &c	661,917	Nov. 13	1569	387, 388	93	1281
Mulholland, Mathew, Cleveland, Ohio. Fastening for hatchway-covers	662,130	Nov. 20	2027	493	93	1384
Mulholland, Thomas, Pittsburg, Pa. Safety device for street-railway cars	662,456	Nov. 27	2669	636	93	1531
Mullally, George S. (See Hadfield, Joseph, assignor.)						
Müller, August, Stuttgart, Germany. Producing dealcoholized fermented beverages	662,172	Nov. 20	2109	509	93	1402
Müller, Carl F., assignor to J. G. L. Schroeder, Frankfort-on-the-Main, Germany. Copying-machine	661,105	Nov. 6	138	35	93	978
Müller, Franz E., Dresden, Germany. Refrigerating apparatus	663,456	Dec. 11	1031	225	93	1945
Müllforth, Johann, Cologne, Germany. Rotary engine	659,151	Oct. 2	761	183, 184	93	154
Mullin, Gordon H., *et al.* (See Hartel, Albert E., assignor.)						
Mulloy, William H., St. Louis, Mo. Letter-box	659,486	Oct. 9	1362	310	93	292
Mumford, James T., Cromwell, Iowa. Support for picture-frames	663,974	Dec. 18	1972	444	93	2156
Mumford, Joseph F., Chicago, Ill. Brush	663,973	Dec. 18	1971	444	93	2156
Munford, Thomas T., Lynchburg, Va. Metallic bale-covering	662,801	Nov. 27	3307	780	93	1652
Munford, Thomas T., Lynchburg, Va. Bale-covering	662,802	Nov. 27	3308	781	93	1652
Munkwitz, Edward H. (See Leidgen, Nicolaus, assignor.)						
Munson, Robert H., *et al.* (See Leaver, James M., assignor.)						
Muntz, Henry M., Palmyra, Mich. Metallic tie	660,866	Oct. 30	4008	897	93	866
Muntzing, August. (See Hensler, Joseph A., assignor.)						
Murbarger, William E., Indianapolis, Ind. Combined shaft-support and coupling	660,218	Oct. 23	2814	624	93	615
Murdoch, Alexander, *et al.* (See Thamsen, Harry C., assignor.)						
Murphree, Claude L., Walnut Grove, Ala. Cultivating-plow	662,081	Nov. 20	1942	466	93	1367
Murphy, Dennis A., *et al.* (See Gaynor, John J., assignor.)						
Murphy, Edward E., Somerville, Mass., assignor to New Era Carbonator Company, Charlestown, W. Va. Carbonating apparatus	658,798	Oct. 2	111	27	93	26
Murphy, James, Chicago, Ill. Furnace	660,274	Oct. 23	2931	652	93	639
Murphy, Junius L., Denver, Colo. Burglar-alarm	662,803	Nov. 27	3309	781	93	1653
Murphy, Richard D., La Crosse, Wis. Harness-saddle	663,920	Dec. 18	1877	422	93	2138
Murray, Charles F., Wyandotte, assignor of one-half to C. Lorimer, Shabbona, Mich. Double-seated valve	660,995	Oct. 30	4209	946	93	908
Murray, Joseph B., Du Quoin, Ill. Fruit or vegetable slicing machine	663,635	Dec. 11	1329	293	93	2002
Myers, Abram S., assignor of one-half to J. T. Ricks, Springfield, Ohio. Fastening for bedsteads	660,196	Oct. 23	2768	615	93	607
Myers, Clarence A. (See Myers, John W. and C. A.)						
Myers, Frederick, New York, N. Y. Phonograph	663,194	Dec. 4	537	115	93	1827
Myers, Frederick, New York, N. Y., assignor to A. W. W. Miller, South Orange, N. J. Electric incandescent lamp	659,687	Oct. 16	1748	394	93	383
Myers, Frederick, assignor to Stylophone Company, New York, N. Y. Phonograph sound-box	660,275	Oct. 23	2932	653	93	640
Myers, Frederick, assignor to Stylophone Company, New York, N. Y. Sound recording and reproducing instrument	663,192	Dec. 4	531	113	93	1826
Myers, Frederick, assignor to Stylophone Company, New York, N. Y. Phonograph	663,193	Dec. 4	533	114	93	1827
Myers, George A., Kalamazoo, Mich. Extension-table	659,624	Oct. 9	1618	366	93	342
Myers, Isaac. (See Warning, Fred, assignor.)						
Myers, John A., Mercer, Pa. Spool-holder	659,249	Oct. 9	964	226	93	210
Myers, John A., North English, Iowa. Milk-cooling apparatus	659,375	Oct. 9	1150	268	93	249
Myers, John J., Wilmerding, Pa. Fan attachment for rockers	662,242	Nov. 20	2248	541	93	1429
Myers, John W. and C. A., Quincy, Ill. Incubator	660,583	Oct. 30	3488	782, 783	93	767
Myers, William I., and W. Bashline, Meadville, Pa. Liquid-dispensing vessel	661,546	Nov. 13	931	231	93	1152

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Myllenbeck, Peter A. (See Olson and Myllenbeck.)						
N. O. Nelson Manufacturing Company. (See Lawnin, Louis D., assignor.)						
Nadler, Henry, and B. C. Le Blanc, Plaquemine, La. Unloading or loading device	661,154	Nov. 6	236	57	93	999
Naef, Paul, New York, N. Y. Apparatus for making chlorin	663,088	Dec. 4	331	69, 70	93	1787
Naef, Paul, New York, N. Y. Making chlorin	663,089	Dec. 4	334	70	93	1788
Nagel, Oskar, New York, N. Y. Floor	662,438	Nov. 27	2671	637	93	1531
Nageldinger, John, New York, N. Y. Apparatus for drawing effervescent liquids	660,164	Oct. 23	2706	602	93	594
Nageldinger, John, New York, N. Y. Device for drawing effervescent liquids	660,331	Oct. 23	3048	676, 677	93	602
Nagle, John T., Butte, Mont. Fuse-igniter	660,220	Oct. 23	2816	625	93	616
Nagy, Ignar. (See Watzke, Eduard, assignor.)						
Nagy, Stephen. (See Brooks, Thomas E., assignor.)						
Napier, Montague S., assignor of one-half to S. F. Edge, London, England. Electric igniter for explosive-engines	663,388	Dec. 4	889	190	93	1895
Nash, Lewis H., South Norwalk, Conn. Water-meter	661,067	Nov. 6	72	16	93	965
Nash, Lewis H., South Norwalk, Conn. Gas-engine	664,025	Dec. 18	2071	470	93	2175
Nash, Lewis H., South Norwalk, Conn. Speed-regulator	664,026	Dec. 18	2072	471	93	2176
Nash, Lewis H., South Norwalk, Conn., assignor to National Meter Company, New York, N. Y. Gas-engine	658,858	Oct. 2	261	65	93	54
Nathans, Thomas A., New York, N. Y. Electric push-button	664,667	Dec. 25	3274	744	93	2446
National Autophone Company. (See Salisbury, Edgar E., assignor.)						
National Bakery Company. (See Lee and Pickford, assignors.)						
National Cash Register Company. (See Nutting, Fred J., assignor.)						
National Computing Scale Company. (See Culmer, John W., assignor.)						
National Computing Scale Company. (See Sanderson, William H., assignor.)						
National Dairy Machine Company. (See Fleming, James H., assignor.)						
National Drafting Tool Company. (See Day, William C., assignor.)						
National Elevator Safety Device Company. (See Roth and Brooks, assignors.)						
National Enameling and Stamping Company. (See Sekowsky, Hermann, assignor.) (Reissue.)						
National Flax Fibre Company. (See Eastwood and Normand, assignors.)						
National Magneto Electric Telegraph Company. (See Woolley, Leonidas G., assignor.)						
National Malleable Castings Company. (See Krakau, Harry T., assignor.)						
National Malleable Castings Company. (See Stephenson, John W., assignor.)						
National Malleable Castings Company. (See Willison, John, assignor.)						
National Meter Company. (See Nash, Lewis H., assignor.)						
National Railway Spring Company. (See Slocum, Thomas A., assignor.)						
National Rolled Steel Car Company. (See Carnahan, Cyrus M., assignor.)						
National Toothpick Company. (See Hommel, Joseph M., assignor.)						
National Tube Company. (See Lynch, Harry B., assignor.)						
National Tube Company. (See Patterson, Peter C., assignor.)						
Natusch, Carl O., Hamburg, Germany. Tanning	662,804	Nov. 27	3310	.....	93	1653
Neagle, Thomas F., Lexington, Ky. Hobble for driving-horses	659,856	Oct. 16	2074	466	93	447
Neal, John F., Kokomo, Ind. Plate or pan lifter	660,120	Oct. 23	2612	584	93	574
Near, Theodore, New York, N. Y. Thill-coupling	658,859	Oct. 2	262	65	93	55
Nebelung, William C., *et al.* (See Decker, Ansill W., assignor.)						
Nedrow, Benjamin F., Anacortes, Wash. Drag-saw	659,376	Oct. 9	1153	268	93	249
Neelly, Benjamin S., Anding, Miss. Fire-escape	663,922	Dec. 18	1890	423	93	2139
Nef, John J., New York, N. Y. Air-brake	661,702	Nov. 13	1225	297	93	1210
Neher, Levi M., North Manchester, Ind. Telephone-switch	662,543	Nov. 27	2934	674	93	1564
Nehf, George H., Tacoma, Wash. Inkstand	659,155	Oct. 2	768	186	93	155
Nehr, Herman F., assignor to J. Struse, New York, N. Y. Addressing-machine	662,575	Nov. 27	2892	685, 686, 687	93	1574
Neidich, Samuel A., Philadelphia, Pa. Ink-ribbon mechanism	662,805	Nov. 27	3311	781, 782	93	1653
Nelden, William A., *et al.* (See Hayes, Albert, assignor.)						
Nelson, Albert, Idaho Falls, Idaho. Whiffletree	661,888	Nov. 13	1552	377	93	1272
Nelson, Charles F., Galesburg, Ill. Animal-trap	661,068	Nov. 6	73	17	93	965
Nelson, Olof, Naugatuck, Conn. Fire-escape	662,243	Nov. 20	2250	541	93	1429
Nelson, Theodore. (See Phelps, Byron, assignor.)						
Nelson, Walter H., New York, N. Y. Steadying device for rope-hoists	661,318	Nov. 6	530	123	93	1057
Nelson, William, Jefferson Parish, La. Budding implement	664,172	Dec. 18	2317	528	93	2226
Nerad, Frank, Chicago, Ill. Detachable cover for upholstered furniture	659,251	Oct. 9	965	227	93	211
Nerger, Fredrick, Chicago, Ill. Heel	661,129	Nov. 6	189	48	93	990
Nesley, Joseph M., Grant, Mont. Reversible wrench	663,294	Dec. 4	727	156	93	1863
Nettl, Anton, Prague, Austria-Hungary. Separating metals from their combinations	661,188	Nov. 6	289	69, 70	93	1010
Neubert, Ernst H., Washington, D. C. Velocipede	663,295	Dec. 4	729	156, 157	93	1863
Neuens, Michael W., Milwaukee, Wis. Grinding-machine	660,389	Oct. 23	3147	697	93	682
Neumann, Theodore L., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Paper box	663,238	Dec. 4	630	135	93	1844
Neumeyer, Horace F., Macungie, Pa. Valve for hydrants	659,252	Oct. 9	966	227	93	211
Nevinger, Granville. (See Goff, Alvy N., assignor.)						
New England Telephone and Telegraph Company. (See Farnham and Davis, assignors.)						
New Era Carbonator Company. (See Murphy, Edward E., assignor.)						
New Ideas Machine Company. (See Nichols, Frank L., assignor.)						
New Ideas Machine Company. (See Nichols and Fowler, assignors.)						
Newburg, John I., Vicksburg, Miss. Mowing-machine	663,356	Dec. 4	826	177	93	1882
Newburn, Walter, Hamilton, Canada. Fire-escape	662,875	Nov. 27	3527	826	93	1703
Newcomb, Charles N., Davenport, Iowa. Loom	663,357	Dec. 4	830	177, 178	93	1888
Newell, John F., assignor to J. H. Smith, Chicago, Ill. Photographic-background carrier	660,332	Oct. 23	3051	677	93	663
Newhall, Henry B. (See Raymond, Robert R., assignor.)						
Newhall, Henry B. (See Richard, Fred J., assignor.)						
Newkirk, Daniel B., assignor to Miners Supply Company, Limited, Detroit, Mich. Gold-pan	663,296	Dec. 4	792	157	93	1864
Newman, Nedhum, assignor to H. I. Lee, Boston, Mass. Pocket-case	661,918	Nov. 13	1603	388	93	1282
Newman, William H., Marlborough, N. Y. Fire-escape	660,732	Oct. 30	3755	845	93	817
Newmarker, Benjamin C. (See Newmarker, Henry J., E. J., and B. C.)						
Newmarker, Edward J. (See Newmarker, Henry J., E. J., and B. C.)						
Newmarker, Henry J., E. J., and B. C., Reno, Nev. Air-draft propelling apparatus	661,724	Nov. 13	1263	305	93	1218
Newmarker, John, Reno, Nev. Protective top for chimneys	661,919	Nov. 13	1604	389	93	1282
Newnam, Edward B., Denver, Colo. Foot-vise	663,819	Dec. 11	1684	377	93	2076

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Newnham, Frank, *et al.* (See Smith, Charles P., assignor.)						
Newport, John A., *et al.* (See Lewis, Albert H., assignor.)						
Newsom, Robert H., Nashville, Tenn. Non-refillable bottle	662,806	Nov. 27	3314	782	93	1653
Newton, Albert L., Cove, Ark. Inkstand	664,424	Dec. 25	2815	638	93	2352
Newton, Frank B., Charlevoi, Pa. Apparatus for bending wood	662,654	Nov. 27	3022	715, 716	93	1600
Newton, John A. (See Tinkelpaugh, Ridgway, and Newton.)						
Newton, Richard T. (See Sibley and Newton.)						
Nice, Horace T., Wadsworth, Ohio. Injector	662,459	Nov. 27	2672	637	93	1531
Nice, Horace T., Wadsworth, Ohio. Injector	662,460	Nov. 27	2679	638	93	1533
Nichols, Andrew D., Everett, Mass. Hoof-pad	660,023	Oct. 16	2284	535	93	510
Nichols, Edward, St. Francisville, Mo. Gate	659,091	Oct. 2	671	160	93	135
Nichols, Frank L., New York, N. Y., assignor to New Ideas Machine Company, of West Virginia. Filler-tip	662,085	Nov. 20	1948	467	93	1369
Nichols, Frank L., New York, N. Y., and W. M. Fowler, Stamford, Conn., assignors to New Ideas Machine Company, of West Virginia. Bottle-support for bottle-filling machines	662,086	Nov. 20	1952	468	93	1369
Nichols, Frank L., New York, N. Y., and W. M. Fowler, Stamford, Conn., assignors to New Ideas Machine Company, of West Virginia. Bottle-filling machine	662,087	Nov. 20	1957	469	93	1370
Nichols, George. (See Johnson, William R., assignor.)						
Nichols, John J., Chicago, Ill. Lineal assorting-machine	663,681	Dec. 11	1414	313	93	2019
Nichols, William E., Winchendon, Mass. Head-cutting machine	659,488	Oct. 9	1364	311	93	202
Nicholson, Edward B., Oshkosh, Wis., assignor to H. A. Hyatt, St. Louis, Mo. Photograph-cutter	659,983	Oct. 16	2317	521	93	496
Nicholson, Jacob H., Baltimore, assignor to E. D. Lamdin and F. W. Jones, Perryville, Md. Hammock	660,063	Oct. 16	2453	553	93	521
Nicholson, Wayland B., Holly, Mich. Rifle	663,923	Dec. 18	1881	423	93	2139
Nickel, David, and E. W. Wainwright, Morris, Ill.; said Wainwright assignor to said Nickel. Caster	659,689	Oct. 16	1752	395	93	384
Nickel, David, and E. W. Wainwright, Morris, Ill.; said Wainwright assignor to said Nickel. Caster	659,857	Oct. 16	2075	467	93	447
Nicolson, John T., Manchester, England. Caloric-engine	660,906	Oct. 30	4210	946, 947	93	908
Nicolson, John T., Manchester, England. Cooling means for motor-compressors	660,907	Oct. 30	4213	947	93	908
Nield, Albert H., Coutolenc, assignor of one-half to P. M. Ream, Lovelock, Cal. Bicycle-brake	663,297	Dec. 4	733	157	93	1864
Nielsen, Niels A., Tikokino, New Zealand. Toasting-fork	663,662	Dec. 11	1368	308	93	2010
Nienstaedt, Hans O., Copenhagen, Denmark. Drilling-machine	663,778	Dec. 11	1606	360, 361	93	2058
Niles, Walter L. C., Lynn, Mass. Shoe-form	662,807	Nov. 27	3315	782	93	1654
Nilson, Nils, Absaraka, N. D. Pipe-wrench	664,425	Dec. 25	2816	639	93	2352
Nisbett, Adam, and W. G. Ives, Chicago, Ill. Rolls for reducing old railway-rails to bars	664,001	Dec. 18	2033	460	93	2168
Nissley, Isaac O., Middletown, Pa. Game apparatus	662,151	Nov. 20	2065	501	93	1391
Nix, Joshua J., Roversford, Pa. Gas or oil heater	663,779	Dec. 11	1608	361	93	2059
Noaker, Milton K., assignor to Akron Cultivator Company, Akron, Ohio. Spring cultivator-hoe	660,276	Oct. 23	2933	653	93	640
Noble, Donald, London, England, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Trimming attachment for sewing-machines	663,780	Dec. 11	1609	361	93	2059
Noble, George W., and C. M. Keeton, Collbran, Colo. Plow	662,131	Nov. 20	2029	498	93	1384
Noble, John E., Fort Wayne, Ind. Automatic thermostatic valve	664,668	Dec. 25	3277	745	93	2440
Nobs, Charles, Jr. (See Colley and Nobs.)						
Nobs & Son, Charles. (See Colley and Nobs, assignors.)						
Nock, Samuel, Pittsburg, Pa. Smoke-consumer for boiler or other furnaces	663,129	Dec. 4	408	86	93	1803
Noel, Henri A. (See Platt, James B., assignor.)						
Nolan, James M. (See Walbaum, Henry C., Jr., assignor.)						
Noll, Edward A., Cleveland, Ohio. Chuck	661,382	Nov. 6	642	150	93	1060
Nonnast, Herman, and W. Tesar, Chicago, Ill. Extension-table	662,290	Nov. 20	2318	559	93	1443
Norcross, George A., and R. A. Holloway, Henderson, Ky. Churning device	659,625	Oct. 9	1620	367	93	342
Norcross, William M., Philadelphia, Pa. Foot-rest for car-seats	660,733	Oct. 30	3756	846	93	812
Nordberg, Bruno V., assignor to Nordberg Manufacturing Company, Milwaukee, Wis. Static governor	663,298	Dec. 4	735	157, 158	93	1865
Nordberg Manufacturing Company. (See Nordberg, Bruno V., assignor.)						
Nordén, Fred F., New York, N. Y. Draft-hook	661,069	Nov. 6	74	17	93	965
Nordhaugen, Carl, assignor of one-half to J. G. Gunderson, Aneta, N. D. Oil-can	664,669	Dec 25	3278	745	93	2447
Nordmann, Max J., Dresden, Germany. Counting mechanism	663,924	Dec. 18	1883	424	93	2139
Nordmann, Max J., Dresden, Germany. Reel for yarn	663,925	Dec. 18	1884	424	93	2140
Norman, Fred E., Grand Rapids, Mich. Can-holder	661,389	Nov. 13	1553	377	93	1272
Norman, William F., Thompsonville, Conn. Pipe-cutter	660,584	Oct. 30	3490	783	93	767
Normand, Joseph E., Watertown, N. Y. Brake-operating mechanism	660,647	Oct. 30	3605	808	93	788
Normand, Joseph E., Watertown, N. Y. Brake-operating mechanism	660,648	Oct. 30	3606	808, 809	93	788
Normand, Joseph E., Watertown, N. Y. Equalizing-lever	660,649	Oct. 30	3606	809	93	788
Normand, Joseph E., Watertown, assignor of one-half to J. R. Ellicott, Nyack, and C. A. Ball, New York, N. Y. Air-brake	660,650	Oct. 30	3609	809, 810	93	789
Normand, Narcisse H. (See Eastwood and Normand.)						
Norrish, Arthur S. (See Kintzing, William F., assignor.)						
North Brothers Manufacturing Company. (See Furbish, Zachry T., assignor.)						
North, Charles H., assignor to North Electric Company, Cleveland, Ohio. Electric switch	660,818	Oct. 30	3907	877	93	846
North, Charles H., assignor to North Electric Company, Cleveland, Ohio. Magnetic signal	660,819	Oct. 30	3909	878	93	847
North, Charles H., assignor to North Electric Company, Cleveland, Ohio. Magneto-electric generator	660,820	Oct. 30	3912	878	93	848
North, Charles H., assignor to North Electric Company, Cleveland, Ohio. Telephone-receiver	663,196	Dec. 4	539	116	93	1828
North Electric Company. (See North, Charles H., assignor.)						
North, George W. (See Spink, Edward J., assignor.)						
North, Thomas M., assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Printing-machine	664,574	Dec. 25	3099	704	93	2408
North, Thomas M., assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Printing-machine	664,575	Dec. 25	3105	705, 706	93	2410
Northam, Robert J., Los Angeles, and A. J. Bramlette, Downey, Cal. Reversible pipe-wrench	660,734	Oct. 30	3757	846	93	818

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Northern Electrical Manufacturing Company. (See Kragh, Christian W., assignor.)						
Northrop, Charles P. (See Fisher, Charles C., assignor.)						
Northwestern Grass Twine Company. (See Lattin, Judson, assignor.)						
Norton Brothers. (See Norton, Edwin, assignor.)						
Norton Can Company. (See Wiley, Frank, assignor.)						
Norton, Edwin, Maywood, Ill., assignor to Norton Brothers, of Illinois. Can-soldering machine	659,156	Oct. 2	769	186	93	155
Norton Emery Wheel Company. (See Hill, Milton B., assignor.)						
Norton, Sereno E., Evanston, Ill. Street-sign post and holder	659,314	Oct. 9	1058	249	93	229
Noser, John J., Luther, Mo. Box-fastener	662,461	Nov. 27	2682	638	93	1534
Nottingham, Hilda A., Fort Benton, Mont. Hasp-lock	661,155	Nov. 6	238	58	93	1000
Nowak, Eugen, Berlin, Germany. Producing solid igniting bodies for automatic gas-igniters	663,820	Dec. 11	1686	.....	93	2077
Noxon, Charles P. L., Syracuse, N. Y. High-frequency transformer	659,760	Oct. 16	1900	428	93	412
Noyes, Harry C., *et al.* (See Hammond, Robert, assignor.)						
Noyes, La Verne W., Chicago, Ill. Driving-gear for windmills	662,015	Nov. 20	1803	434	93	1341
Nugent, C. W. (See Witcher, John C., assignor.)						
Nunan, Dennis. (See McClellan, Stephen, assignor.)						
Nungesser Electric Battery Company. (See Nungesser, Philip P., assignor.)						
Nungesser, Philip P., assignor to Nungesser Electric Battery Company, Cleveland, Ohio. Cover for battery-jars	658,860	Oct. 2	263	65	93	55
Nusser, Fritz, Fürth, Germany. Machine for beating leaf metal	661,618	Nov. 13	1064	265	93	1178
Nutter, Charles L., East Bridgewater, Mass. Eyelet-hole machine	663,389	Dec. 4	891	191 192	93	1895
Nutting, Fred J., Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J. Autographic register	664,359	Dec. 18	2685	610 611	93	2300
Nye, Reuben L., Battle Creek, Mich. Compasses	662,291	Nov. 20	2319	560	93	1443
Nystrom, Fred A., Cosmopolis, Wash. Grinding-machine	659,092	Oct. 2	673	160	93	136
O'Brien, Arthur, Helena, Mont. Faucet	663,979	Dec. 18	1979	446	93	2158
O'Brien, Arthur, assignor of three-fourths to M. A. Mitchell and A. Fack, Helena, Mont. Sanitary appliance	663,978	Dec. 18	1978	445	93	2158
O'Brien, Charles F., *et al.* (See Sturgis, Herbert M., assignor.)						
O'Brien, John H., Nasby, S. D. Whim	662,292	Nov. 20	2321	560	93	1443
O'Brien, Joseph S., Springfield, Mass. Folding lunch-box	661,767	Nov. 13	1347	326	93	1234
O'Connell, Martin, Minonk, Ill. Grain-harvester	661,890	Nov. 13	1553	377 378	93	1272
O'Connor, James, New York, N. Y. Self-playing musical instrument	661,920	Nov. 13	1605	389 390	93	1282
O'Connor, W. Scott. (See Sibley and Newton, assignors.)						
O'Conor, Maurice M. J. O., Drumshambo, Ireland. Dredging apparatus	662,293	Nov. 20	2322	560 561 562	93	1444
O'Donnell, Peter, Chicago, Ill. Cuff-holder	664,577	Dec. 25	3112	706	93	2412
O'Leary, John, assignor of one-half to L. Vermilyea, Cohoes, N. Y. Convertible car	661,921	Nov. 13	1610	390	93	1283
O'Leary, Samuel F., St. Paul, Minn., assignor of two-thirds to J. M. Fahnestock, Pittsburg, Pa. Bottle	662,088	Nov. 20	1901	469	93	1371
O'Mealia, John. (See Price and O'Mealia.)						
O'Meara, Jeremiah, New York, N. Y. Bolt	664,027	Dec. 18	2073	471	93	2176
O'Meara, Martin, Jackson, Mich. Butter-plate	661,071	Nov. 6	79	18	93	966
O'Meara, Michael J., Philadelphia, Pa. Fireproof floor construction	662,808	Nov. 27	3317	782 783	93	1654
O'Neill, Charles Z., New York, N. Y. Street-sweeper	663,390	Dec. 4	893	192 193	93	1895
O'Neill, Robert E. (See Sheehy and O'Neill.)						
O'Neill, William F. (See Wright, John A., assignor.)						
O'Shea, Henry, Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Railway-switch	662,016	Nov. 20	1804	434	93	1342
O'Shea, Henry, Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Track structure	662,017	Nov. 20	1805	435	93	1342
O'Toole, Edward, Leisenring, Pa. Mining-machine	659,984	Oct. 16	2318	521 522	93	497
Oakes, Oliver E., Webb City, Mo. Drilling-machine	660,968	Oct. 30	4169	936	93	900
Oakman Motor Vehicle Company. (See Hertel, Max E., assignor.)						
Obermier John G., Canton, Ohio. Centering device for lathes	660,821	Oct. 30	3915	878	93	849
Ochsner, Anton, assignor of one-half to R. Ochsner, New Haven, Conn. Coach-latch	660,822	Oct. 30	3916	879	93	849
Ochsner, Robert. (See Ochsner, Anton, assignor.)						
Ockers, Frederick, West Sayville, N. Y. Fire-escape	659,093	Oct. 2	674	160	93	136
Ocumpaugh, Charles H., Rochester, N. Y. Voting-machine	660,918	Oct. 30	4083	915	93	882
Ocumpaugh, Charles H., Rochester, N. Y. Voting-machine	660,919	Oct. 30	4085	916	93	883
Odean, Gustavus R., Minneapolis, Minn. Match-box	664,576	Dec. 25	3110	706	93	2411
Oehmen, Bartholomew, assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Auxiliary attachment for signal-boxes	663,926	Dec. 18	1885	424 425	93	2140
Oeser, Ernst, Berlin, Germany. Manufacturing colored or similar films	660,024	Oct. 16	2385	.....	93	510
Offermann, Hubert L., Leipsic, Germany. Apparatus for carding wool	662,733	Nov. 27	3190	755	93	1630
Officer, Thomas. (See Ball and Officer.)	660,390	Oct. 23	3151	697	93	683
Ogden, Herman B., New York, N. Y. Reversible engine						
Ohio Rake Company. (See Little, Peter E., assignor.)						
Ohio Rake Company. (See Trissel, Frank N., assignor.)						
Ohlson, Olof, assignor to American Waltham Watch Company, Waltham, Mass. Winding-indicator for watches	662,655	Nov. 27	3027	716	93	1601
Ohmer Car Register Company. (See Ohmer and Tyler, assignors.) (Reissue.)	659,180	Oct. 2	821	199	93	165
Ohmer, John F., Dayton, Ohio. Means for checking collectors in public conveyances, &c.	11,867	Oct. 30	4287	962 963	93	922
Ohmer, John F., and H. Tyler, Dayton, Ohio, assignors to Ohmer Car Register Company, Rochester, N. Y. Mechanism for operating fare-registers. (Reissue)						
Ohmer, Wilfred I., J. N. Kelly, and W. M. Kelch, Dayton, Ohio; said Kelly and Kelch assignors to said Ohmer. Letter-canceling machine	663,663	Dec. 11	1369	303 304 305	93	2010
Ohmer, Wilfred I., J. N. Kelly, and W. M. Kelch, Dayton, Ohio; said Kelly and Kelch assignors to said Ohmer. Letter-canceling machine	663,664	Dec. 11	1378	305 306	93	2012
Okell, John R. (See Gerbracht and Okell.)						
Okell, John R., Scranton, Pa. Coffee-roasting apparatus	662,294	Nov. 20	2330	562 563	93	1445
Okell, Samuel M., Victoria, Canada. Can	662,544	Nov. 27	2888	674	93	1565
Old, Ausborn F., New York, N. Y., assignor to Hale & Kilburn Manufacturing Company, of Pennsylvania. Bedstead	664,094	Dec. 18	2179	497	93	2198

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Olden, Louise J., assignor of one-fourth to G. S. Moynahan, Boston, Mass. Floral ornament	659,937	Oct. 16	2228	500	93	477
Oldham, Herschel, Orleans, assignor of one-half to J. Oldham, Leipsic, Ind. Knife for harvesters, mowers, &c	664,670	Dec. 25	3281	746	93	2447
Oldham, James. (See Oldham, Herschel, assignor.)						
Oldham, Joshua, New York, N. Y. Saw	659,094	Oct. 2	676	161	93	137
Olds, Ransom E., Detroit, Mich. Clutch mechanism	661,070	Nov. 6	76	17, 18	93	965
Oleklewicz, Anton, Warsaw, Russia. Apparatus for measuring and recording gage of railway-tracks	661,813	Nov. 13	1427	344 345	93	1248
Oleshak, Romuald A. (See Dake, James R., assignor.)						
Oliver, Jesse, assignor to T. B. Turley and W. J. Crawford, trustees, Memphis, Tenn. Thermo-electric battery	660,305	Oct. 23	2987	663	93	651
Olmsted, Aaron B., Oneida Castle, N. Y. Mud-guard for bicycles	660,306	Oct. 23	2989	663	93	651
Olmsted, Frank J., Beaver City, Nebr. Wire-stretcher	664,671	Dec. 25	3282	746	93	2447
Olmsted, Fred A., South Fallsburg, N. Y. Wagon-seat lock	660,651	Oct. 30	3614	810	93	790
Olschewsky, Wilhelm, Berlin, Germany. Device for slaking lime and drying artificial stones, &c	663,459	Dec. 11	1034	226	93	1946
Olsen, Charles D., and T. W. Carroll, Denver, Colo. Telegraph-repeater	663,460	Dec. 11	1035	226	93	1946
Olsen, Francis J., and E. H. Whitmore, Christchurch, New Zealand. Apparatus for filtering water	661,189	Nov. 6	291	70	93	1010
Olsen, John M., Elkhorn, Wis. Gasolene-engine	659,095	Oct. 2	678	161	93	137
Olsen, Lars P., Council Bluffs, Iowa. Tack-puller	664,494	Dec. 25	2949	672	93	2377
Olson, Alfred, San Diego, Cal. Cover for pots or kettles	661,190	Nov. 6	292	70	93	1010
Olson, Gustav A., Lerdal, Minn. Hay-sling	664,057	Dec. 18	2109	482	93	2183
Olson, John A. (See Lindberg and Olson.)						
Olson, Louis, Minneapolis, Minn. Ice or snow vehicle	658,861	Oct. 2	265	65	93	55
Olson, Ole W., and P. A. Myllenbeck, Ruthton, Minn. Cord-knotting device for grain-binders	659,090	Oct. 16	1753	395 396	93	385
Olson, Ottin, Minneapolis, Minn. Grate-bar	659,451	Oct. 9	1297	297	93	279
Oltrogge, Frederick C., Tripoli, Iowa. Ventilating-cover for shipping or storage vessels	662,295	Nov. 20	2333	563	93	1446
Omick, William K., Pontiac, assignor to G. P. Magann Air Brake Company, Detroit, Mich. Storage air-brake system	661,584	Nov. 13	1009	250	93	1108
Omick, William K., Pontiac, Mich., and G. P. Magann, Toronto, Canada. Air-brake	662,152	Nov. 20	2065	501	93	1392
Ong, Roger J., and A. J. Douglas, Yates Landing, Ill. Sauer-kraut press	661,191	Nov. 6	293	70	93	1010
Oram, Frederick H. P. P., London, England. Tillage-machine	660,689	Oct. 30	3674	826 827 828	93	801
Orbison, Benton, Chicago, Ill. Woodworking-machine	661,548	Nov. 13	935	232 233	93	1152
Orbison, Benton, Chicago, Ill. Woodworking-machine	663,391	Dec. 4	895	193 194	93	1896
Orcutt, Edward L., Somerville, Mass., assignor to International Railroad Safety Appliance Company, Kittery, Me. Electric safety appliance for railways	664,819	Dec. 25	3600	819	93	2511
Ormerod, Jacob, and R. King, New York, N. Y.; said Ormerod assignor to W. W. Goodwin, Philadelphia, Pa. Smoke-consumer	662,958	Dec. 4	110	23	93	1746
Ormerod, John, New York, N. Y. Double-stream draft-arm	660,735	Oct. 30	3758	846	93	818
Ormsby, Charles E., assignor to E. H. and J. K. Leslie and A. E. Gundlack, Toronto, Canada. Combined receiver and transmitter for speaking-tube termini	659,377	Oct. 9	1154	269	93	250
Orsoni, Philippe, Paris, France. Machine for coloring illustrations	661,072	Nov. 6	80	18 19 20	93	966
Orthmann, Friedrich. (See Puttkammer and Orthmann.)						
Osborn, Byron E., Auburn, N. Y. Electric-railway system	661,020	Oct. 30	4268	959 960	93	919
Osborn, Thomas F., Oakland, Cal. Sheet-metal framework for partitions	659,350	Oct. 9	1106	259	93	240
Osborne, Bryan H. (See Hayes, Clarke, assignor.)						
Osborne, Stephen C. (See Ostrom, Freeland W., assignor.)						
Osburn, Mary A., Auburn, N. Y. Dish-drainer	659,894	Oct. 16	2137	482	93	459
Osgood, Frederic L., *et al.* (See Hazelhurst, Charles E., assignor.)						
Osgood, Ralph R., Lansingburg, N. Y. Dredge	659,489	Oct. 9	1369	312	93	293
Osgood, Ralph R., Lansingburg, N. Y. Dredge	662,462	Nov. 27	2683	638 639	93	1534
Ostendorff, William, Union Hill, N. J. Water-cooling apparatus	661,192	Nov. 6	293	71	93	1011
Osterroth, Victor G. (See Brown and Beer, assignors.)						
Ostmann, Curt, Breslau, Germany. Electromagnetic tooth-stopping hammer	660,867	Oct. 30	4006	897	93	866
Ostrom, Freeland W., assignor of one-half to S. C. Osborne, Bridgeport, Conn. Suspenders	660,165	Oct. 23	2709	602	93	594
Oswald, William C., assignor to Kalamazoo Wagon Company, Kalamazoo, Mich. Runner attachment	660,710	Oct. 30	3715	836	93	809
Otis Elevator Company. (See Crane, Richard T., assignor.)						
Otis Elevator Company. (See Reynolds, George H., assignor.)						
Ott, Emil, Berlin, Germany. Furnace for preventing smoke and economizing fuel	662,957	Dec. 4	108	22	93	1745
Otto, Albert T. (See Fischer and Otto.)						
Otto, Albert T., New York, N. Y. Marine motor	663,185	Dec. 4	522	111	93	1825
Otto, Albert T., New York, N. Y. Igniter for gas or oil engines	664,360	Dec. 18	2688	611	93	2301
Otto, John H. F., Milwaukee, Wis. Tellurian	659,253	Oct. 9	969	227 228	93	211
Ovenden, Henry, Tunbridge Wells, England. Ladder	662,545	Nov. 27	2839	674	93	1565
Overstrom, Gust A., Deer Lodge, assignor of one-half to J. P. Hanson, Butte, Mont. Submarine dredge	658,922	Oct. 2	357	88	93	73
Owen, Frank J. (See Roush, Harvey H., assignor.)						
Owen, Thomas P., York, Nebr. Combination-padlock	660,307	Oct. 23	2990	663	93	651
Owen, William S., Tyndall, S. D. Car-coupling	660,652	Oct. 30	3616	811	93	790
Oxford Manufacturing Company. (See Smith, James M., assignor.)						
Oxley, Eustace, Lynn, Mass., assignor to General Electric Company, of New York. Maximum demand meter	663,461	Dec. 11	1038	227	93	1946
Oxley, Eustace, Lynn, Mass., assignor to General Electric Company, of New York. Circuit-changer	663,612	Dec. 11	1288	285	93	1995
Oyler, William R., Akron, Ohio. Plow	663,358	Dec. 4	832	178	93	1883
P. & F. Corbin. (See Arens, August, assignor.)						
Paca, William S., assignor of one-half to P. H. Adams, Erie, Pa. Telephone-switchboard	663,510	Dec. 11	1132	245	93	1963
Paca, William S., assignor of one-half to P. H. Adams, Erie, Pa. Telephone-switchboard apparatus	663,511	Dec. 11	1134	246	93	1964
Pacific Coast Syrup Company. (See Atwood, Ernest C., assignor.)						
Packer, George W., Chicago, Ill. Annealing-furnace	664,173	Dec. 18	2318	529	93	2226

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Packer, George W., Chicago, Ill. Molding-machine	664,426	Dec. 25	2817	639	93	2352
Paden, Henry, East Grand Forks, Minn. Automatic vehicle-brake	658,799	Oct. 2	116	27	93	28
Page, John W., Como, Miss. Cotton-scraper attachment for turning-plows	660,800	Oct. 30	3878	871	93	839
Pain, Robert W., New York, N. Y., assignor to Aeolian Company, of Connecticut. Auxiliary operating attachment for piano-actions	663,552	Dec. 11	1193	258	93	1975
Paine, Henry H., Philadelphia, Pa. Convertible chair	664,095	Dec. 18	2181	497	93	2199
Paine, Horace M., Newton, Mass. Pessary	660,781	Oct. 30	3838	862	93	833
Paine, Horace M., Atlanta, Ga. Pessary	664,495	Dec. 25	2949	672	93	2377
Palmer, Charles L., Albany, N. Y. Steam-generator	662,296	Nov. 20	2334	563	93	1446
Palmer, Charles M., Chicago, Ill. Propelling mechanism	659,858	Oct. 16	2077	467	93	447
Palmer, Edward. (See Blesch and Palmer.)						
Palmer, George E., and J. N. Lake, Elmira, N. Y. Egg-crate	662,018	Nov. 20	1807	435	93	1342
Palmer, Isaac E., Middletown, Conn. Hammock-support	664,672	Dec. 25	3283	746	93	2448
Palmer, Isaac E., Middletown, Conn. Hammock	664,774	Dec. 25	3504	791	93	2493
Palmer, Theron R., Erie, Pa. Inner tube for pneumatic tires	662,182	Nov. 20	2030	494	93	1384
Palmer, William N., Akron, Ohio, assignor to Diamond Match Company, Chicago, Ill. Composition-applying mechanism for match-machines	662,297	Nov. 20	2335	564	93	1446
Palmetto Company. (See Carter, William V., assignor.)						
Palmquist, Eric W., assignor to Shickle, Harrison & Howard Iron Company, St. Louis, Mo. Body-bolster for railway-cars	660,920	Oct. 30	4086	916	93	883
Pan Confection Company. (See Rosback, Frederick P., assignor.)						
Pancke, Johannes, Berlin, Germany. Combined stud and scarf-holder	659,859	Oct. 16	2080	467	93	448
Pancoast, George E., New York, N. Y., assignor to American Lithographic Company, of New York. Printing-press	659,351	Oct. 9	1108	260	93	240
Pancoast, George E., New York, N. Y., assignor to American Lithographic Company, of New York. Printing-press	664,578	Dec. 25	3112	707	93	2412
Panoulias, Panayfotis, New York, N. Y. Dipping-frame for coating candles	663,359	Dec. 4	834	178 179	93	1883
Pantanella, Dominic, trustee. (See Lepore, Felix M., assignor.)						
Pape, Harry W., Cincinnati, Ohio. Vending-machine	661,130	Nov. 6	191	48	93	990
Pappert, John. (See Dice, John R., assignor.)						
Paramore, Edward C., Philadelphia, assignor of one-half to H. T. Goodwin, Ridley Park, Pa. Telegraphophone	658,862	Oct. 2	266	66	93	56
Paramore, Edward C., Philadelphia, assignor of one-half to H. T. Goodwin, Ridley Park, Pa. Combined relay and repeater for telephone-lines	659,096	Oct. 2	680	161 162	93	137
Parfrey, William, New York, N. Y. Spring for vehicles	662,876	Nov. 27	3529	826	93	1708
Parisian Novelty Company. (See Lathrop, Edward S., assignor.)						
Park, Boyd. (See Babcock, Charles, assignor.)						
Park, James, Newark, N. J. Baker's pan	661,273	Nov. 6	450	108	93	1041
Park, Kennedy, Cambridge, Mass. Steam-generator. (Reissue)	11,870	Nov. 13	1653	401	93	1291
Park, William R., Philadelphia, Pa. Combination-target	659,352	Oct. 9	1114	260	93	242
Parker, Arthur J., assignor of one-half to H. A. McPherson, Howell, Mich. Feed attachment for die-presses	663,990	Dec. 18	1981	446	93	2158
Parker, Edward E., Woburn, Mass. Steam-trap	660,585	Oct. 30	3491	783	93	767
Parker, Edward K., Pomona, Cal. Tree-prop	661,891	Nov. 13	1557	378	93	1273
Parker, Frank R., Penacook, N. H. Motor-vehicle frame	662,296	Nov. 20	2337	564	93	1447
Parker, Frank R., Penacook, N. H. Spring-frame for vehicles	663,702	Dec. 11	1457	321	93	2027
Parker, Frank R., Penacook, N. H. Spring-frame for automobiles	663,703	Dec. 11	1459	322	93	2027
Parker, George E. (See Vinton, John H., assignor.)						
Parker, James W., Rock Island, assignor to J. E. Bering, W. J. Quinlan, and W. M. Bering, Decatur, Ill. Machine for making check-rower wire	658,800	Oct. 2	120	28, 29	93	29
Parker, Nathan S., assignor of two-thirds to C. J. Andrews and J. M. Dickey, Fort Dodge, Kans. Wire-fencing machine	664,174	Dec. 18	2319	529	93	2226
Parker, Simon B., Springfield, Mass. Pendulum-beat adjuster	659,985	Oct. 16	2320	522	93	497
Parkes, William N., New York, N. Y. Tripping device for stop-motion mechanism for buttonhole-machines	659,415	Oct. 9	1219	281	93	264
Parkes, William N., New York, N. Y. Sewing-machine presser-foot	659,543	Oct. 9	1475	334	93	314
Parkhurst, Frederic A. (See Perkins and Parkhurst.)						
Parkinson, William A., Syracuse, N. Y. Shoe-lace fastener	661,768	Nov. 13	1348	326	93	1234
Parkinson, William J. (See Bailey and Parkinson.)						
Parks, Frank E., Homestead, Pa., assignor to Carnegie Steel Company, Limited, Pittsburg, Pa. Manufacturing steel	661,549	Nov. 13	937	------	93	1153
Parks, Samuel, New York, N. Y. Tail-controller	662,959	Dec. 4	111	23	93	1746
Parlee, George A., Tache, Canada. Railway-signal	659,097	Oct. 2	681	162	93	137
Parlin & Orendorff Company. (See Graham, Levi P., assignor.)						
Parlin & Orendorff Company. (See Graham, William S., assignor.)						
Parlin & Orendorff Company. (See Heylman, Edward M., assignor.)						
Parr, Bernard R., and H. E. Sheldon, Leechburg, Pa.; said Parr assignor to said Sheldon. Annealing and oxidizing metal sheets or plates	660,533	Oct. 23	3408	765	93	731
Parrish, Homer A., assignor to Parrish Signal Company, Jackson, Mich. Electrical apparatus for controlling signal or other circuits	663,130	Dec. 4	409	87	93	1802
Parrish, Ora J. (See Hartley and Parrish.)						
Parrish, Oscar M. (See Hartley and Parrish.)						
Parrish Signal Company. (See Parrish, Homer A., assignor.)						
Parsons, George W., La Grange, Ill. Circuit-breaker	663,781	Dec. 11	1612	362	93	2060
Parsons, James A., Thayer, Iowa. Trace-fastener	661,420	Nov. 6	707	163	93	1093
Parsons, John G., Columbus, Ohio. Thill-coupling	662,200	Nov. 20	2166	523	93	1413
Parsons, Mahlon S., Columbia Cross-Roads, Pa. Bedclothes-holder	664,496	Dec. 25	2950	673	93	2377
Parsons, William J., Montague, assignor to Millers Falls Company, Miller's Falls, Mass. Chuck	660,121	Oct. 23	3613	584	93	575
Pasal, Edward C., Urbana, Ill. Book-holder	659,254	Oct. 9	973	228	93	212
Pashley, Charles W. (See Place and Pashley.)						
Pashley, Charles W., Broadheath, assignor to Linotype Company, Limited, London, England. Chuck and vise for engraving-machines	659,761	Oct. 16	1902	428 429	93	413
Passmore, Benjamine H., Stockdale, Tex. Wire-stretcher	662,133	Nov. 20	2031	494	93	1384
Pasteur-Chamberland Filter Company. (See Crandall, Claude R., assignor.)						
Pasteur-Chamberland Filter Company. (See Wuichet, Walter G., assignor.)						
Paterson, James W., Chicago, Ill. Shade-fixture	659,315	Oct. 9	1061	249	93	230
Patrick, Simeon D., Litchfield, Minn. Compass attachment	664,497	Dec. 25	2951	673	93	2378
Patten, James S., Baltimore, Md. Rail-joint	662,809	Nov. 27	3318	788	93	1654
Patten, Simon R., assignor of one-half to A. Millard, Omaha, Nebr. Apparatus for gripping and delivering mail-bags	659,098	Oct. 2	682	162 163	93	138
Patterson, G. W., *et al.* (See Cornell, Harvey B., assignor.)						
Patterson, Peter C., McKeesport, Pa., assignor to National Tube Company, New York, N. Y. Tool for charging plates into furnaces	660,198	Oct. 23	2770	616	93	607
Patterson, Warren A., Dallas, Tex. Cotton-press	662,299	Nov. 20	2339	565	93	1447

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Patterson, William J. (See Acklin and Patterson.)						
Patzack, Oscar, Mandan, N. D. Reach connection for vehicles	660,166	Oct. 23	2710	608	93	594
Paul, George H., New York, N. Y. Casing for electrical-conductor joints	662,463	Nov. 27	3085	689	93	1585
Pauley, Albert. (See Pauley, James H. and A.)						
Pauley, James H. and A., Copenhaver, W. Va. Telpher system	664,284	Dec. 18	2387	576	93	2372
Paulitschke, Wilhelm, and F. Barilitsch, Mödling, Austria-Hungary. Sausage stuffing and linking machine	661,073	Nov. 6	84	20	93	967
Pauls, Robert, Altona, Germany. Flushing device for water-closets	659,255	Oct. 9	974	229	93	212
Paulson, Chris E., Boyd, Minn. Car-coupling	663,186	Dec. 4	524	111 112	93	1825
Pawling & Harnischfeger. (See Theurer and Beck, assignors.)						
Paxson, William O. (See Brown, Mark A., assignor.)						
Payne, Halbert E., New York, N. Y. Carriage-shifting device	660,333	Oct. 23	3052	677 678	93	668
Payne, Stephen T., Louisville, Ky. Clod-crusher and sod-cutter	662,366	Nov. 20	2465	593 594	93	1471
Payton, James P., Lancaster, Mo. Animal-holder	662,900	Dec. 4	112	24	93	1746
Peach, Emma, Waterville, Minn. Fruit-cooker	659,316	Oct. 9	1063	249	93	230
Peacock, Ernest E. (See Leggatt, John A., assignor.)						
Peacock, Pliny H., Sheboygan, Wis. Apparatus for cutting butter	662,464	Nov. 27	2686	639 640	93	1525
Peak, Thomas F., Philadelphia, Pa. Jumping-bar	662,810	Nov. 27	3319	783	93	1655
Pearce, George M., *et al.* (See Conner and Bagby, assignors.)						
Pearne, Frank D., Davenport, Iowa. Telegraph system	659,544	Oct. 9	1477	334	93	314
Pearsall, Albert W., New York, N. Y., assignor to Lamson Consolidated Store Service Company, Newark, N. J. Carrier for pneumatic-despatch-tube apparatus	662,601	Nov. 27	2986	697	93	1583
Pearsall, James R. (See France and Pearsall.)						
Pearson, Fred S., Boston, Mass. Switch for railways	664,579	Dec. 25	3116	707	93	2413
Pearson, James T., Burnley, England. Machine for humidifying yarns	661,940	Nov. 13	1648	400	93	1290
Pearson, John, Northwood, N. D. End-gate fastening	664,498	Dec. 25	2953	673	93	2378
Pearson, Marshall H., Leicester, England, assignor to United Shoe Machinery Company, Paterson, N. J. Stitch-separating mechanism for sewing-machines	658,996	Oct. 2	497	119 120 121	93	100
Peck Bros. Company. (See Johnson, John H., assignor.)						
Peck Bros. & Company. (See Baker, Stephen D., assignor.)						
Peck, Cald H., F. Leach, Elmira, N. Y., and N. A. Johns, Huntington, Vt., assignors to A. E. Carroll, New York, N. Y. Hydraulic engine	662,678	Nov. 27	3082	727 728	93	1611
Peck, Edward J., Hannibal, Mo. Mop-wringer	659,256	Oct. 9	975	229	93	213
Peck, Staunton B., assignor to Link Belt Machinery Company, Chicago, Ill. Conveying apparatus	664,427	Dec. 25	2820	640	93	2353
Peddicord, Louis W., St. Joseph, Mo. Shirt-case	663,927	Dec. 18	1888	425	93	2140
Peden, Joseph C., assignor to Aladdin Incandescent Gas Lamp Company, New Albany, Ind. Carbureting-lamp	660,222	Oct. 23	2819	625 626	93	616
Peden, Joseph C., assignor to Aladdin Incandescent Gas Light Company, New Albany, Ind. Carbureter	662,496	Nov. 27	2755	654	93	1550
Pedrick, Joseph B., Columbus, Ind. Grain-separator	660,391	Oct. 23	3153	697 698	93	688
Peebles, John G., Jr. (See Sulfer, Charles, assignor.)						
Peer, John A., New Orleans, La. Automatic cotton-picker	661,388	Nov. 6	644	150	93	1080
Peer, John A., and W. E. Protzman, Bloomington, Ill. Nut-lock	662,811	Nov. 27	3321	784	93	1655
Peeso, Frederic A., Philadelphia, Pa. Stripper for punches	660,334	Oct. 23	3056	678	93	664
Peeso, Frederic A., Philadelphia, Pa. Punch	660,335	Oct. 23	3057	678	93	664
Peet, Edward B. (See Peet, Walter F., assignor.)						
Peet, Walter F., assignor of one-half to E. B. Peet, Philadelphia, Pa. Key-ring	664,285	Dec. 18	2539	577	93	2272
Peets, Elias S. (See Damon and Peets.)						
Peirce, George W., Abington, assignor of one-half to C. D. Gilman, Weymouth, Mass. Shifter for belts, &c.	660,454	Oct. 23	3252	727	93	702
Peirce, James H., trustee. (See Camp, Theodore L., assignor.)						
Pekor, Charles F., Columbus, Ga. Valve	664,580	Dec. 25	3119	708	93	2413
Pelletreau, Le Grand W., East Moriches, N. Y. Attachment for lawn-mowers	660,455	Oct. 23	3254	727 728	93	702
Pellinger, George, Weehawken, N. J. Inkstand	659,762	Oct. 16	1905	420	93	413
Pelton Fireproof Construction Company. (See Pelton, John C., assignor.)						
Pelton, Henry B., Mishawaka, Ind. Boot-tree	659,181	Oct. 2	828	200	93	167
Pelton, John C., assignor to Pelton Fireproof Construction Company, New York, N. Y. Building construction	663,239	Dec. 4	632	135 136	93	1844
Pemberton, Albert, Emporia, Kans. Toy	660,025	Oct. 16	2387	536	93	510
Pendleton, Winston K., assignor of two-thirds to W. P. Blakely and W. S. Jones, Ocoee, Fla. Thill-coupling	659,099	Oct. 2	686	163 164	93	139
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Composite reflector	660,336	Oct. 23	3058	678	93	664
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Acetylene-gas bicycle-lamp	664,775	Dec. 25	3505	794	93	2493
Penman Manufacturing Company. (See Hammond, Frank, assignor.)						
Pennsylvania Globe Gas Light Company. (See Shaw, Arthur E., assignor.)						
Pennsylvania Globe Gas Light Company. (See Slinack and Sanderson, assignors.)						
Pennsylvania Globe Gas Light Company. (See Thayer, Russell, assignor.)						
Pepper, Theresa M., Salem, Mass. Key-socket attachment	661,892	Nov. 13	1558	378	93	1273
Péraud, Gaston, La Rochelle, France. Filter for wines or other liquids	660,921	Oct. 30	4087	916 917	93	883
Percy Lumber Company. (See Bostwick, Perley P., assignor.)						
Perfection Jar Closure Company. (See Hughes, Henry A., assignor.)						
Perkins, Charles E. (See Horsley, James, assignor.)						
Perkins, Charles G., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Snap-switch commutator	659,878	Oct. 16	2100	478	93	453
Perkins, Charles G., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Flush-switch support	663,039	Dec. 4	255	55	93	1774
Perkins Electric Switch Manufacturing Company. (See Perkins, Charles G., assignor.)						
Perkins Electric Switch Manufacturing Company. (See Thomas, George B., assignor.)						
Perkins, Franklin J., Woburn, and F. A. Parkhurst, Peabody, Mass. Apparatus for applying liquid dressing to leather	663,665	Dec. 11	1384	306 307	93	2013
Perkins, George B., Medford, Mass. Telephone-transmitter	659,691	Oct. 16	1756	399	93	385
Perkins, Guy S., Medford, Mass. Roving can, basket, or box	659,895	Oct. 16	2019	453	93	435
Perkins, Harry J., Grand Rapids, Mich. Open-door lock	662,300	Nov. 20	2343	565 566	93	1448

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Perkins, Hattie M., administratrix. (See Koltonski, Stanislaus A., assignor.)						
Perkins, James H., Seattle, Wash. Drag-saw	660,922	Oct. 30	4088	917	93	884
Perkins, Julius A., Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Sheet-metal cage for roller-bearings	661,769	Nov. 13	1349	327	93	1234
Perkins, Julius A., Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Roller-bearing	664,820	Dec. 25	3603	819	93	2511
Perkins, Julius A., Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Roller-bearing	664,821	Dec. 25	3611	820	93	2512
Perkins, Julius A., Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Antifriction roller-bearing	664,822	Dec. 25	3614	820	93	2513
Perkins, Walter H., assignor to Waterbury Manufacturing Company, Waterbury, Conn. Foot-pump for bicycles	664,286	Dec. 18	2540	577	93	2278
Pernar, William R., Baltimore, Md., assignor of one-third to C. E. Jones, Cheapside, Va. Combined bath-tub and couch	661,703	Nov. 13	1227	297	93	1211
Perren, Abraham E. (See Morden, Samuel M., assignor.)						
Perret, David, Neufchatel, Switzerland. Electrical propelling apparatus	658,997	Oct. 2	505	121 122	93	101
Perry, Charles E., San Francisco, Cal., assignor to Perry Combination Frog and Switch Company, of California. Automatic frog	664,499	Dec. 25	2954	673 674	93	2378
Perry Combination Frog and Switch Company. (See Perry, Charles E., assignor.)						
Perry, John C., Clinton, Mass. Composite wire fabric	659,416	Oct. 9	1221	281 282	93	264
Perry, John C., Clinton, Mass. Self-adjusting circuit-breaker for electrical welding-machines	659,417	Oct. 9	1222	282	93	265
Perry, John F., assignor of one-half to G. W. Hallock, Chicago, Ill. Bottle-closure	662,812	Nov. 27	3322	784	93	1655
Pervenko, William, Kiew, Russia. Electrical rail-bond	663,360	Dec. 4	836	179	93	1884
Peschmann, Max, Waldenburg, Germany. Hollow glass letter	661,421	Nov. 6	708	163	93	1093
Peslin, John L., Chicago, Ill. Furnace	664,673	Dec. 25	3284	746 747	93	2448
Peters, Albert D. (See Voellner, George, assignor.)						
Peters, Arthur, Manitou, Colo. Electric-lighting appliance	663,981	Dec. 18	1983	446 447	93	2159
Peters, C. N., *et al.* (See Collins, Alva S., assignor.)	661,354	Nov. 6	600	139	93	1071
Peters, Fred C. F., Monroe, La. Bedstead-fastening	659,895	Oct. 16	2138	483	93	459
Peters, Jacob H., New York, N. Y. Bottle attachment	661,422	Nov. 6	709	164	93	1094
Peters, Jacob H., New York, N. Y. Bottle attachment	664,674	Dec. 25	3286	747	93	2448
Petersen, Axel, Hellerup, Denmark. Lock	661,725	Nov. 13	1264	306	93	1218
Peterson, Adolphus, Lansdown, Pa. Panoramic myrioscope						
Peterson, Alfred. (See Ekelund, John A., assignor.)						
Peterson, Anders G., Holdrege, Nebr. Presser-foot for sewing-machines	659,317	Oct. 9	1064	250	93	231
Peterson, August F., Kent, Ohio. Pulverizer	661,423	Nov. 6	710	164	93	1094
Peterson, August F., Kent, Ohio. Pulverizer	661,814	Nov. 13	1429	346	93	1249
Peterson, August F., Kent, Ohio. Pulverizer	664,428	Dec. 25	2821	640	93	2353
Peterson, Augustus G. W., and J. F. Haslam, Brockton, Mass. Lawn-sprinkler	663,512	Dec. 11	1137	246	93	1964
Peterson, Gideon L., Minneapolis, Minn. Music notation	662,301	Nov. 20	2345	566	93	1448
Petit, Ademor N., Newark, N. J. Machine for reproducing phonograph-records	662,961	Dec. 4	113	------	93	1746
Petit, Ademor N., Newark, N. J. Solvent material for treating surfaces of celluloid	663,782	Dec. 11	1615	362	93	2061
Petit, Joseph L., Birmingham, England. Metallic pen	664,429	Dec. 25	2823	640 641	93	2354
Pettee, Simon E., Cleveland, Ohio. Letter-canceling machine	662,089	Nov. 20	1902	469	93	1372
Pettey, Joseph A., Searcy, Ark. Display device	664,287	Dec. 18	2542	577	93	2278
Pettibone, James, Cincinnati, Ohio. Packing-case for tableware						
Pettijohn, Charles H., assignor of one-fourth to W. A. Watts, Litchfield, Ill. Straw-stacker	662,813	Nov. 27	3323	784	93	1655
Pfautz, Daniel M., assignor of one-half to H. W. Amerling, Philadelphia, Pa. Automobile	661,704	Nov. 13	1228	297 298	93	1211
Pfautz, Daniel M., assignor of two-thirds to H. B. and H. W. Amerling, Philadelphia, Pa. Coal-delivery wagon	659,826	Oct. 16	2020	453	93	436
Pfeffer, Frank, Chicago, Ill. Pipe fitting or coupling	658,863	Oct. 2	268	66	93	56
Pfister, Alois, St. Pölten, Austria-Hungary. Manufacturing matches	662,814	Nov. 27	3324	784	93	1656
Pflueger, Ernest F., Akron, Ohio. Horseshoe	661,424	Nov. 6	713	164 165	93	1094
Pfouts, Owen W., Alliance, Ohio. Purification of sewage	659,452	Oct. 9	1208	268	93	279
Phelan, Mattie G. (See Phelan, Stephen D. and M. G.)						
Phelan, Stephen D. and M. G., Poplar Bluff, Mo. Culinary utensil	663,361	Dec. 4	836	179	93	1884
Phelps, Byron, Seattle, Wash., assignor of one-half to T. Nelson, Chicago, Ill. Lock	660,736	Oct. 30	3759	847	93	818
Phelps, George N. (See Vogler, William, assignor.)						
Phenix, William P., Lubbock, Tex. Wrench	660,586	Oct. 30	3493	784	93	767
Philadelphia Textile Machinery Company. (See Proctor, Josiah K., assignor.)						
Philbrick, Orson S. (See Lawrence and Philbrick.)						
Philbrook, Charles H. (See Jones and Philbrook.)						
Philipp, Albert, Stanton, Nebr. Beet-harvester	663,834	Dec. 11	1716	383 384	93	2084
Phillips, Charles, and J. Lacroix, New Orleans, La. Cigar-bunch shaper	659,806	Oct. 16	2140	483 484	93	459
Phillips, Columbus, Meridian, Miss., assignor of one-half to J. E. Minor, New Haven, Conn. Boiler attachment	660,690	Oct. 30	3678	828 829	93	801
Phillips, Darius T., assignor to Eclipse Stopper Company, Chicago, Ill. Bottle-stopper	663,040	Dec. 4	256	55	93	1775
Phillips, Henry J., assignor to Golden Link Consolidated Gold Mines, Limited, London, England. Extracting precious metals from their ores	661,074	Nov. 6	86	------	93	967
Phillips, J. T. (See Lindsay, Leroy J., assignor.)						
Phillips, Thomas E., assignor of one-half to F. Matthews, Bloomington, Ind. Forming paper-pulp from cane-brake cane	659,490	Oct. 9	1372	------	93	294
Phillips, Thomas H., St. Davids, Pa. Impact-tool	662,815	Nov. 27	3326	785 786	93	1656
Phillips, Tony C., assignor to G. H. Fuller, San Francisco, Cal. Roll-paper holder	662,576	Nov. 27	2899	687	93	1576
Phoenix Investment Company. (See Ernst, William M., assignor.)						
Piat, Albert, Paris, France. Melting-furnace	662,019	Nov. 20	1808	436	93	1343
Pichl, Samuel, New York, N. Y. Suspenders	664,675	Dec. 25	3287	747	93	2448
Pickernell, Frank A., Newark, N. J., assignor to American Telephone and Telegraph Company, of New York. Selective-signal system	663,783	Dec. 11	1616	363	93	2061
Pickett, Thomas J., San Francisco, Cal. Washing-machine	661,726	Nov. 13	1267	306 307	93	1219
Pickford, John S. (See Lee and Pickford.)						
Pickles, Charles K., assignor to S. M. Dodd, St. Louis, Mo. Step-over car-seat	658,864	Oct. 2	269	66	93	56
Pickles, Charles K., assignor of one-half to D. Tredway, St. Louis, Mo. Pneumatic hammer	659,418	Oct. 9	1226	282	93	265

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Pieper, August, Gloversville, N. Y. Garment-stretcher	661,274	Nov. 6	451	104	93	1041
Pierce, George L., assignor of one-half to C. E. Goodspeed, New York, N. Y. Machine for sewing leather	663,462	Dec. 11	1040	227	93	1947
Pierce, William O. (See Jones and Pierce.)						
Piercy, John, New York, N. Y. Holsting-grip	659,100	Oct. 2	688	164	93	189
Pierpont, Wallace J., Crescent City, Fla. Binding-strip for box-corners	664,676	Dec. 25	3288	747	93	2449
Pierre, Henry B., Torrington, Conn. Switch-operating device	659,692	Oct. 16	1757	396	93	385
Pierron, Louis M., and H. R. Miller, Milwaukee, Wis. Camera attachment	659,592	Oct. 9	1557	353	93	330
Pierson-Hyslop, John K., Philadelphia, Pa. Window-ventilator	660,587	Oct. 30	3494	784	93	768
Pifer, Edward H., and B. F. House, Eureka, Ill. Cream-separator	658,923	Oct. 2	359	89	93	73
Pignolet, Louis M. (See Bradley and Pignolet.)						
Pike, Cornelius W. and J. F., Birmingham, England. Target-throwing apparatus	663,090	Dec. 4	338	70	93	1789
Pike, Hutchison M. (See Pike, Chadoin, and Pike.)						
Pike, John F. (See Pike, Cornelius W. and J. F.)						
Pike, William A., A. C. Chadoin, and H. M. Pike, Springfield, Tenn. Compound for treating tobacco	661,275	Nov. 6	452	------	93	1041
Pikhart, Emanuel, Vienna, Austria-Hungary. Incandescent mantle	662,734	Nov. 27	3192	755	93	1630
Pilkington, William W., St. Helen's, England. Machinery for rolling sheets of glass	661,893	Nov. 13	1559	378 379	93	1273
Pilling, Charles J., assignor to himself and G. P. Pilling, Philadelphia, Pa. Retractor	659,182	Oct. 2	880	200	93	167
Pilling, George P. (See Pilling, Charles J., assignor.)						
Pilling, James L. (See Vandresar and Pilling.)						
Pillings, George T., Elgin, Ill. Motor-vehicle	659,318	Oct. 9	1066	250	93	231
Pinckard, William P. (See Hussey, Charles A., assignor.)						
Pineo, John H., Brookline, Mass. Safety-guard for hinges	662,201	Nov. 20	2167	523	93	1414
Pines, Burke E., assignor of one-half to W. H. Minick, Newport, Pa. Extension car-step	659,807	Oct. 16	2142	484	93	460
Pingel, Frederick W., assignor to Wayside Novelty Company, Wayside, Wis. Barrel-bung	660,653	Oct. 30	3617	811	93	791
Pingel, Frederick W., assignor to Wayside Novelty Company, Wayside, Wis. Barrel-bung	660,654	Oct. 30	3618	811	93	791
Pinther, Felix, Berlin, Germany. Automatic air-feeding apparatus for furnaces	660,456	Oct. 23	3255	728	93	703
Piper, Alexander R., Sing Sing, N. Y., assignor to Seamless Metal Ware Company of New York. Seamless metal jar	663,392	Dec. 4	897	194	93	1896
Pippig, Richard E., and O. F. F. Trachmann, Kiel, Germany. Washing gas	664,677	Dec. 25	3289	------	93	2449
Pitkin, Julian H., Chicago, Ill. Headlight-lens	659,353	Oct. 9	1115	260 261	93	242
Piton, Alfred, Lille, France. Clutch	662,816	Nov. 27	3329	786 787	93	1657
Pittack, Richard A. (See Kuhlman, Irene E., assignor.)						
Pitts, Thomas W., Gainesville, Fla. Safety-pin	662,992	Dec. 4	114	24	93	1746
Pittsburg Stove and Range Company. (See Dudgeon, Thomas M., assignor.)						
Pittsburgh Testing Laboratory. (See Bellows, Arthur B., assignor.)						
Pixley, Orla G., Chicago, Ill. Dowel-pin for tiles or bricks	660,308	Oct. 23	2903	664	93	552
Placey, John, and C. W. Pashley, Broadheath, assignors to Linotype Company, Limited, London, England. Driving mechanism for engraving-machines	659,763	Oct. 16	1906	422	93	414
Placek, Frank A., Milligan, Nebr. Grain-drill	659,545	Oct. 9	1478	335	93	314
Plano Manufacturing Company. (See Dennis, Samuel K., assignor.)						
Plano Manufacturing Company. (See Macphail, James, assignor.)						
Plano Manufacturing Company. (See Reiner, Andrew L., assignor.)						
Plant, Alfred, assignor of one-half to F. W. Silkman, New York, N. Y. Floor and wall tile	659,453	Oct. 9	1300	298	93	280
Plant, John B., Pawtucket, R. I. Dress-chart	662,817	Nov. 27	3330	787	93	1657
Planters Compress Company. (See Lowry, George A., assignor.)						
Planters' Cotton Company. (See Baxter, William C., assignor.)						
Platt, Albert L., Clinton, Ill. Coat-holder	658,801	Oct. 2	129	30	93	30
Platt, Clarence D., assignor to Bryant Electric Company, Bridgeport, Conn. Receptacle for plugs or plug-switches	659,546	Oct. 9	1479	335	93	315
Platt, James B., assignor of one-half to H. A. Noel, Ashland, N. H. Feed mechanism for carding-machines	658,802	Oct. 2	130	30	93	30
Plawin, Alexander, Baltimore, Md. Beer-cooler	664,227	Dec. 18	2420	552	93	2249
Plew, James E. (See Stroud, Harold D., assignor.)						
Plock, William A., Burlington, Iowa. Clothes-hanger	663,580	Dec. 11	1232	270	93	1983
Plummer, George, Georgetown, Mass. Life saving and swimming apparatus	661,293	Nov. 6	483	110	93	1048
Plummer, George, Boston, Mass. Life-preserver	661,457	Nov. 6	771	182	93	1106
Plummer, Jule. (See Monroe, William E., assignor.)						
Pneumatic Goods Company. (See Sawtell, Albert H., assignor.)						
Pneumatic Tool Improvement Company. (See Tynan and Mostiller, assignors.)						
Podewils, Adalbert von, Munich, Germany. Rendering fats	660,655	Oct. 30	3619	812	93	791
Poetter, Heinrich, Dortmund, Germany. Coke-oven	663,638	Dec. 11	1833	294	93	2003
Pohl, Eduard, Kalk, assignor to A. Schenk, Bergedorf, Germany. Manufacturing carbons for electrical purposes	662,090	Nov. 20	1964	------	93	1372
Pohlit, Carl, assignor to F. Krupp, Essen, Germany. Breech-closing mechanism for recoil-guns	661,550	Nov. 13	938	233 234	93	1158
Polak, Henry, assignor of one-half to F. B. Ray, New York, N. Y. Apparel-belt	661,225	Nov. 6	354	84	93	1022
Polar Creamery Company. (See Fowler, William R., assignor.)						
Polehow, John W., Apple River, Ill. Farrier's knife	664,175	Dec. 18	2322	530	93	2227
Pollack, Max, New York, N. Y. Hanging device for pictures, &c	659,088	Oct. 2	581	141	93	116
Pollack, Wilma. (See Bell, Frank M., assignor.)						
Pollak, Anton, Buda-Pesth, Austria-Hungary. Telautograph or facsimile telegraph	664,430	Dec. 25	2825	641	93	2354
Pollak, Anton, Szentes, assignor of one-half to F. Silberstein, Vienna, Austria-Hungary. Telautograph or facsimile-telegraph	660,199	Oct. 23	2772	616 617	93	607
Pollak, Anton, and J. Virag, assignors of one-half to Vereinigte Elektricitäts Actien-Gesellschaft, Buda-Pesth, and F. Silberstein, Vienna, Austria-Hungary. Means for rapidly transmitting telegrams	662,020	Nov. 20	1812	436 437	93	1343
Pollak, Anton, and J. Virag, assignors of one-half to Vereinigte Elektricitäts Actien-Gesellschaft, Buda-Pesth, and F. Silberstein, Vienna, Austria-Hungary. Rapidly transmitting telegrams	662,021	Nov. 20	1817	437	93	1344
Polte, Bruno. (See Lesch and Polte.)						
Pomeroy, Henry C., assignor of one-fourth to F. H. Smith, Chicago, Ill. Riveting-machine	659,626	Oct. 9	1625	367	93	343
Pool, Lewis, *et al.* (See Reynolds, Samuel D., assignor.)						
Pooler, George E., Three Oaks, Mich. Saw-guide	661,106	Nov. 6	139	35	93	970
Porteous, James. (See Willis, Glenn T., assignor.)						
Porter, Artho D., Norwood, Mass. Shelf	663,784	Dec. 11	1619	363	93	2062
Porter & Co., Samuel. (See Abbott, Frederic B., assignor.)						
Porter, Edwin F., Boston, Mass., assignor to Bay State Electric Heat and Light Company, Jersey City, N. J. Apparatus for cooling and agitating air	664,776	Dec. 25	3506	795	93	2494

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Porter, Henry C., assignor to O. H. Fay, Chicago, Ill. Secondary battery	658,865	Oct. 2	270	66	93	56
Porter, John M., Boston, Mass. Sash-fastener	661,131	Nov. 6	192	48	93	999
Porter, Joseph E., Ottawa, Ill. Corn-planter	661,319	Nov. 6	533	124	93	1057
Porter, Powell B. (See Smith, William H., assignor.)						
Portret, Marie H. A. (See Gaillard and Portret.)						
Positive Elevator Safety Company. (See Gracey and Gfeller, assignors.)						
Possien, Gaston, and F. V. Maquaire, Paris, France. Rotary transporting device	659,693	Oct. 16	1759	397 398	93	886
Posson, Edward, St. Paul, Minn. Brake-beam	659,319	Oct. 9	1066	251	93	231
Posson, Edward, St. Paul, Minn. Metallic truck-bolster	659,320	Oct. 9	1068	251	93	231
Posson, Edward, St. Paul, Minn. Draft-rigging for cars	661,585	Nov. 13	1010	250 251 252	93	1168
Posson, Edward, assignor of one-half to A. Lovell, St. Paul, Minn. Draft-rigging for cars	663,463	Dec. 11	1041	227 228	93	1947
Post, Edward R., and E. S. Grise, Ottawa, Ohio. Nut-lock	660,457	Oct. 23	3256	728	93	703
Post, Friedrich G. J., Hamburg, Germany. Writing-paper	663,513	Dec. 11	1137	246	93	1964
Post, Howard A., Wichita, Kans., assignor of one-half to W. H. Craddock, Kansas City, Mo. Safe	661,226	Nov. 6	355	85	93	1022
Postal Telegraph-Cable Company. (See Jones, Francis W., assignor.)						
Potter, John A., Cleveland, Ohio. Manufacture of ordnance and projectiles	660,221	Oct. 23	2817	625	93	616
Potter, Morgan, Fishkill-on-the-Hudson, N. Y. Brake-block shoe	661,705	Nov. 13	1230	298	93	1212
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. High-potential trolley system	659,694	Oct. 16	1763	398	93	886
Potter, William B., Schenectady, N. Y., assignor to General Electric Company, of New York. Electric-railway system	664,096	Dec. 18	2181	498	93	2199
Potter, Sherman W., Dayton, Ohio. Toy bank	662,735	Nov. 27	3193	756	93	1630
Potts, William, Jr. (See Ruckel and Potts.)						
Poulsen, Valdemar, Copenhagen, Denmark. Recording and reproducing sounds or signals	661,619	Nov. 13	1006	265 266	93	1179
Poulter, John H., Newman, Ill. Automatic wagon-brake	660,026	Oct. 16	2388	536	93	510
Powel, Harford W. H., Newport, R. I. Device for inking draftsmen's pens	663,131	Dec. 4	414	87	93	1804
Powell, James, Cincinnati, Ohio. Gate-valve	663,515	Dec. 11	1139	247	93	1965
Powell, James, assignor to William Powell Company, Cincinnati, Ohio. Straightway valve	663,514	Dec. 11	1138	246	93	1964
Powell, Jasper N., Wichita, Kans. Railway-rail fastening and brace	659,257	Oct. 9	977	229	93	213
Powers, Charles T., Brisbane, Queensland. Type-writing machine	661,551	Nov. 13	941	234 235	93	1153
Powers, Francis W. (See Hoffman and Powers.)						
Powhatan Brass and Iron Works. (See Stahl, Frank H., assignor.)						
Pownall, Henry D., Cincinnati, Ohio. Cooling and condensing apparatus	658,809	Oct. 2	316	77,78	93	65
Prahar, Louis B., New York, N. Y. Picture-frame	662,736	Nov. 27	3194	756	93	1631
Pratt, Carroll H., and A. D. Copeland, Springfield, Mass. Plate-magazine for cameras	662,606	Nov. 27	3124	738 739	93	1618
Pratt, Charles H., Helena, Mont. Napkin-holder	659,258	Oct. 9	977	229	93	213
Pratt, Charles W. (See Southard, Abraham M., assignor.)						
Pratt, Frederick H. (See Furniss, William E., assignor.)						
Pratt, John C., Hartford, Conn. Pulley	663,928	Dec. 18	1890	425 426	93	2140
Pratt, John C., assignor of one-half to A. L. Foster, Hartford, Conn. Drive-chain and wheel therefor	661,021	Oct. 30	4271	960	93	919
Pratt, Ralph W., Orwell, N. Y. Cover or guard for set-screws	664,777	Dec. 25	3508	795	93	2494
Pratt, Thomas J., assignor of one-half to J. A. Morrisse, Paterson, N. J. Loading device	664,288	Dec. 18	2542	577 578	93	2273
Pratt & Whitney Company. (See Goodrich, Clarence L., assignor.)						
Pratt & Whitney Company. (See Kummel and Goodrich, assignors.)						
Premier Manufacturing Company. (See McCue, Charles T., assignor.)						
Prendergast, William H., assignor of one-half to T. D. Kline, Savannah, Ga. Metallic packing	661,384	Nov. 6	647	151	93	1081
Prentice, Vernon F., Worcester, Mass. Radial drilling-machine	661,586	Nov. 13	1012	252	93	1168
Prescott, Albert E. (See Campbell and Prescott.)						
Prescott, Amos L. (See Cummings, Henry H., assignor.)						
Prescott, Augustus, Salem, Oreg., and L. I. Furber, Winlock, Wash. Sluice-gate	662,022	Nov. 20	1821	438	93	1344
Prescott, Clay S. (See Billings and Prescott.)						
Pressed Steel Car Company. (See Schoen & Hansen, assignors.)						
Preston, Alfred E., Looe, England. Movable keel for boats	663,982	Dec. 18	1985	447	93	2159
Preston, Edward E., and G. D. Kendrick, assignors of one-half to T. H. Baker and A. Hollingworth, Leicester, England. Fabric for jackets for pneumatic tires	662,963	Dec. 4	115	24	93	1747
Preston, James, Tuckaho, N. Y. Velocipede	659,321	Oct. 9	1070	251	93	232
Preston, South G., Catlettsburg, and I. F. J. McKinster, Grayson, Ky. Mail-bag catcher and deliverer	660,122	Oct. 23	2614	584	93	575
Preuss, Henry, Hamburg, Germany. Driving apparatus for vehicles	661,815	Nov. 13	1433	346	93	1249
Preuss, Ludwig. (See Seidel and Preuss.)						
Preuthun, John F., assignor to J. E. Brown, Philadelphia, Pa. Metallic window frame and sash	661,922	Nov. 13	1612	390 391	93	1233
Price, Bertha A., assignor of one-half to W. L. Hall, Chicago, Ill. Hearing-tube	663,393	Dec. 4	808	194	93	1896
Price, Edwin H., Lansdale, Pa. Shutter-worker	659,419	Oct. 9	1229	283	93	266
Price, Isaac, and J. O'Meslia, Sherrard, Ill. Pick	659,101	Oct. 2	689	164	93	140
Price, John B., Newark, N. J., assignor to Manhattan Typewriter Company, of New Jersey. Type-writer machine	664,500	Dec. 25	2955	674	93	2378
Price, Joseph, London, England. Liquid-raising apparatus of the air-lift type	659,491	Oct. 9	1373	312 313	93	294
Price, Thomas J. (See Young, Richard L., assignor.)						
Prier, Arthur P., Kansas City, Kans. Chemical fire-extinguisher	660,588	Oct. 30	3495	784	93	768
Pries, Herman, and J. W. Meyer, Michigan City, Ind. Car-door fastener	660,656	Oct. 30	3621	812	93	791
Priest, Dan H. (See Tait, Allen J., assignor.)						
Priest, Edward D., and G. L. Schermerhorn, Schenectady, N. Y., assignors to General Electric Company, of New York. Commutator	662,465	Nov. 27	2688	640	93	1535
Priestley, William W., Smartsville, assignor of one-half to G. A. Kornberg, San Francisco, Cal. Subaqueous dredger	661,198	Nov. 6	295	71	93	1011
Prince, Samuel F., Jr., Reading, Pa. Boiler-stay	663,464	Dec. 11	1043	228	93	1948
Pring, Elza M., Allerton, Iowa. Header	659,547	Oct. 9	1480	335	93	315
Pringle, William T., Lansdowne, Pa. Electrical fitting	658,924	Oct. 2	361	89	93	73
Pritchard, William C. (See Stifel and Pritchard.)						
Pritchard, William C., Bristol, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Wiper mechanism for linotype-machines	659,800	Oct. 16	1986	445	93	429

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Pritchett, Green W. (See Mevers, William H., assignor.)						
Proctor, Josiah K., assignor to Philadelphia Textile Machinery Company, Philadelphia, Pa. Conveyer-belt	660,027	Oct. 16	2391	536	93	511
Protzman, William E. (See Peer and Protzman.)						
Proulx, Theodore, Chicago, Ill. Truck-guard	660,082	Oct. 16	2521	564	93	536
Prouty, Enoch, assignor to O. S. Prouty, Chicago, Ill. Clutch	664,431	Dec. 25	3827	641 642	93	2355
Prouty, Olive S. (See Prouty, Enoch, assignor.)						
Pruden, Harry B., Pittsburg, Pa. Apparatus for feeding fine fuel	660,458	Oct. 23	3258	729	93	708
Pryibil, Firm of P. (See Dette, Max H., assignor.)						
Puddefoot, Charles, Detroit, Mich. Acetylene-gas generator	662,546	Nov. 27	2889	674 675	93	1565
Pullen Battery and Electrical Manufacturing Company. (See Pullen, Leon W., assignor.)						
Pullen, Lawford G., *et al.* (See Tinkham, Oliver F., assignor.)						
Pullen, Leon W., Camden, N. J., assignor to Pullen Battery and Electrical Manufacturing Company, of New Jersey. Reversible primary battery	662,679	Nov. 27	3085	728	93	1611
Purcell, James, Winona, N. D. Bridle-bit	660,923	Oct. 30	4090	918	93	884
Puszkar, Marcin, New York, N. Y. Current-motor	662,737	Nov. 27	3195	756 757	93	1631
Putnam, Charles W. B., Fitchburg, Mass. Shaft-coupling	659,827	Oct. 16	2021	453 454	93	436
Putnam, Harry M., assignor to Fitchburg Steel Ball Company, Fitchburg, Mass. Machine for grinding balls	664,823	Dec. 25	3618	820	93	2514
Putnam, John, Philadelphia, Pa. Salt-cellar or flour-dredge	664,228	Dec. 18	2421	552	93	2250
Puttkammer, Karl, and F. Orthmann, Charlottenburg, Germany. Program-clock	663,465	Dec. 11	1044	228 229	93	1948
Puttkammer, Karl, and F. Orthmann, Charlottenburg, Germany. Workman's time-check	663,466	Dec. 11	1047	229	93	1948
Pylant, George C. (See Hardy, Isham B., assignor.)						
Pynchon, Lauriston F. L., Hartford, Conn. Trousers-hanger	662,656	Nov. 27	3029	716	93	1601
Quackenbush, James H., Grand Rapids, Mich. Pail-cover	658,806	Oct. 2	271	67	93	56
Quad, Henry P., East Orange, N. J. Switch-operating device for street-railways	663,209	Dec. 4	738	158 159	93	1866
Quarrie, Allan, Oak Lake, Canada. Clipper	662,302	Nov. 20	2349	566	93	1450
Queen & Company. (See Fox and Clare, assignors.)						
Queen & Company. (See Fuerle, Rudolph L., assignor.)						
Quesenberry, George O. (See Hinton, William, assignor.)						
Quincy, Charles F. (See Vaughan, Henry H., assignor.)						
Quinlan, William J., *et al.* (See Parker, James W., assignor.)						
Quinn, Joseph B., Somerville, Mass. Self-locking stand	664,678	Dec. 25	3290	748	93	2449
Quist, Charles. (See Quist, John and C.)						
Quist, John and C., Mystic, Iowa. Gearing	664,778	Dec. 25	3509	795	93	2494
R. B. Grover & Company. (See Hill, James F., assignor.)						
Raab, Carl D., Kaiserslautern, Germany. System for heating conductors of the second class	663,929	Dec. 18	1895	426	93	2141
Rabbeth, Francis J., Boston, Mass. Cushioned bearing	659,874	Oct. 16	2107	474	93	453
Rabiger, Emil H. (See Rabiger, Robert G. and E. H.)						
Rabiger, Robert G. and E. H., Philadelphia, Pa. Combined egg beater and mixer	664,770	Dec. 25	3510	795 796	93	2494
Raetz, Guglielmo, Pordenone, Italy. Cotton-opener	659,986	Oct. 16	2321	522	93	497
Raff, Edward S., Canton, Ohio. Stand for holding mucilage or paste	663,682	Dec. 11	1416	313	93	2019
Ragen, Werner, Cologne, Germany. Darning attachment for sewing-machines	662,202	Nov. 20	2168	528	93	1414
Rahmgren, Charles, Charlton, Iowa. Railway-rail anchor	660,028	Oct. 16	2392	537	93	511
Railsback, Lafayette D., Indianapolis, Ind. Acetylene-gas generator	661,320	Nov. 6	534	124	93	1058
Railsback, Lafayette D., Indianapolis, Ind. Acetylene-gas generator	661,321	Nov. 6	536	124	93	1058
Raleigh, Frank G., Chicago, Ill. Soldering-tool	663,983	Dec. 18	1986	447	93	2159
Ralli, P. C., *et al.* (See Heimann, Salomon, assignor.)						
Ralston, William G., Evansville, Ind. Bed-warmer	659,764	Oct. 16	1908	430	93	414
Ralya, Harvey G., Lapel, Ind. Putty-knife	663,362	Dec. 4	837	179	93	1884
Ramage, George W., Chicago, Ill. Geographical time-globe	664,289	Dec. 18	2544	578	93	2273
Ramseur, William H., and D. W. Ramsey, Charlotte, N. C. Doubling-machine	659,695	Oct. 16	1764	398	93	887
Ramsey, David W. (See Ramseur and Ramsey.)						
Rand Drill Company. (See Ambrose, Robert L., assignor.)						
Rand, James H., North Tonawanda, N. Y. Account-book	663,639	Dec. 11	1334	295	93	2008
Rand, James H., North Tonawanda, N. Y. Card record and index	664,501	Dec. 25	2957	674	93	2379
Rand, McNally & Company. (See Hooker, Le Roy, assignor.)						
Rand, Nathaniel D., Watertown, Mass. Electric switch	658,925	Oct. 2	363	90	93	74
Randall, Arthur F., assignor to H. M. White, Boston, Mass. Advertising motor-vehicle	658,960	Oct. 2	434	104	93	88
Randall-Faichney Company. (See Randall, William A., assignor.)						
Randall, George W., Springdale, Ark. Gate-latch	660,392	Oct. 23	3154	699	93	684
Randall, John, Gate, Wash. Shingle-jointer	662,818	Nov. 27	3332	788	93	1657
Randall, Horace N., Tracy, Minn. Corn-planter	658,803	Oct. 2	133	30 31 32	93	31
Randall, William A., Swampscott, assignor to Randall-Faichney Company, Boston, Mass. Pocket-case for thermometers	658,908	Oct. 2	507	122	93	102
Randolph, Oliver W., McClure, Ohio. Incubator	660,309	Oct. 23	2994	664	93	652
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Range	661,355	Nov. 6	601	140	93	1071
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Core-oven	662,303	Nov. 20	2351	567	93	1450
Rankin, Thomas I., assignor to Abram Cox Stove Company, Philadelphia, Pa. Water-heater	663,363	Dec. 4	838	180	93	1884
Ranney, Joseph B., Bellefontaine, Ohio. Incubator	663,984	Dec. 18	1989	447 448	93	2160
Ranz, Jacob, St. Louis, Mo. Saw-setting device	660,310	Oct. 23	2997	664	93	652
Ranz, Jacob, St. Louis, Mo. Work holder or clamp	661,322	Nov. 6	538	125	93	1058
Rapp, Charles A., Shannon City, Iowa. Road-grader	662,680	Nov. 27	3087	720	93	1612
Rapp, John W., New York, N. Y. Fireproof door	660,223	Oct. 23	2821	626	93	617
Rasch, Ewald, Nuremberg, Germany. Producing electric-arc lights	663,467	Dec. 11	1048	.....	93	1949
Rascher, Carl O., Davenport, Iowa. Water-tank heater	662,738	Nov. 27	3198	757	93	1631
Raschlé, Ernest, Paris, France. Knockdown box	662,739	Nov. 27	3199	757	93	1632
Rasmussen, Alfred W. (See Clarke and Rasmussen.)						
Rastede, Charles H., Cedar Rapids, Iowa. Thill-coupling	658,804	Oct. 2	133	32	93	31
Ratchford, Nicholas, Greenville, Ohio. Railway-crossing signal	662,497	Nov. 27	2750	654 655	93	1550
Ratchford, Nicholas, Greenville, Ohio. Railway-crossing signal	662,498	Nov. 27	2759	655	93	1550

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Rathbone, John J., assignor of two-thirds to E. R. Smith and C. B. King, Jr., London, England. Electric-arc lamp	660,393	Oct. 23	3156	699	93	684
Rathbun, Frank A., Indianapolis, Ind. Flexible match-strip	661,156	Nov. 6	239	58	93	1000
Ravier, Sylvain L., and A. Janet, Paris, France. Tube-stopper	662,819	Nov. 27	3334	788	93	1658
Rawson, Samuel R. (See Kelley, John T., assignor.)						
Ray, Francis B. (See Polak, Henry assignor.)	659,987	Oct. 16	2323	523	93	408
Ray, Hubert C., Visalia, Cal. Carbureter for explosive-engines	664,229	Dec. 18	2422	552	93	2250
Ray, Isaac. (See Taylor and Ray.)						
Raymond, Achille F., Grenoble, France. Glove-fastener-affixing machine						
Raymond Button Company of Baltimore City. (See Gwinn, George W., assignor.)						
Raymond Button Company of Baltimore City. (See Gwinn and Smith, assignors.)						
Raymond, Robert R., Boston, Mass., assignor to H. B. Newhall, Plainfield, N. J. Hoisting apparatus	660,908	Oct. 30	4215	948	93	909
Rayner, Edwin B., assignor to A. G. Kerns, Piqua, Ohio. Steam vacuum-pump	663,041	Dec. 4	257	55	93	1775
Read, Alonzo L. (See Gorringe and Read.)						
Read, Charles G., assignor of one-half to J. D. Read, Eden, N. Y. Dish-washing machine	663,394	Dec. 4	899	195	93	1897
Read, James D. (See Read, Charles G., assignor.)						
Read, John C. C., London, England. Incandescent oil-lamp	660,311	Oct. 23	3000	665	93	653
Read, Mamie G. (See Eisenhuth, John W., assignor.)						
Read, Walter C., Newark, N. J. Holding device for brush-blanks	660,589	Oct. 30	3496	784 / 785	93	768
Read, Walter G., Colusa, Cal. Almond huller and separator	659,801	Oct. 16	1988	445	93	429
Read, William J., Elkins, W. Va. Machine for cutting or sawing, &c.	659,898	Oct. 16	2144	484 / 485	93	460
Reade, Ralph M., Quebec, Canada. Nut-lock	662,023	Nov. 20	1822	438	93	1344
Reading Crane and Hoist Works. (See Kincaid, Joseph W., assignor.)						
Ream, P. M. (See Nield, Albert H., assignor.)	660,312	Oct. 23	3002	665 / 666	93	653
Reams, Andrew J., assignor to S. Reams, Chicago, Ill. Program-clock						
Reams, Sylvo. (See Reams, Andrew J., assignor.)						
Reardon, Patrick F., assignor of one-half to J. McDade, Kane, Pa. Apparatus for making lampblack	663,395	Dec. 4	901	195	93	1897
Reardon, Patrick H., San Francisco, Cal. Tripod	661,502	Dec. 25	2959	675	93	2379
Reardon, Robert E., Ottawa, Canada. Photographic-plate holder	660,394	Oct. 23	3157	699	93	684
Reaves, John W., Morgan, Ark. Plow	659,102	Oct. 2	690	165	93	140
Reddick, George A., Nashville, Tenn. Permutation-lock	659,627	Oct. 9	1627	368	93	343
Redington, Willard D., Binghamton, N. Y. Combined necktie-holder and collar and cuff fastener	661,425	Nov. 6	715	165	93	1095
Rédl, Karol. (See Zeke and Rédl.)						
Redmon, Hope. (See Boyd and Redmon.)						
Redmon, Hope. (See Ross, Earle, Good, and Redmon.)						
Reece Button Hole Machine Company. (See Dixon, William W., assignor.)						
Reed, Charles J., Philadelphia, Pa. Lightning-arrester	660,313	Oct. 23	3008	666	93	654
Reed, Franklin M., Indianapolis, and C. R. Umbenhower, Pendleton, Ind. Heating-stove	660,123	Oct. 23	2616	585	93	575
Reed, John J., Lyons, Iowa. Toy	659,765	Oct. 16	1910	430	93	414
Reed, Laura B., Monticello, Ind. Sealing-clamp	659,378	Oct. 9	1156	269	93	250
Reenstierna, Gustaf L., Winchester, Mass. Muffler and purifier for gasolene-engines	661,276	Nov. 6	453	104	93	1042
Reenstierna, Gustaf L., Winchester, Mass. Carbureter	662,304	Nov. 20	2352	567	93	1450
Reenstierna, Gustaf L., Winchester, Mass. Apparatus for charging liquids with gases	662,499	Nov. 27	2761	655	93	1551
Reese, Arnold K., Baltimore, Md., assignor of one-half to E. Smeeth, Chicago, Ill. Boshplate	663,613	Dec. 11	1289	285	93	1995
Reeves & Company. (See Clay, Harry C., assignor.)						
Reeves, Edwin A., New Haven, Conn. Picture-exhibitor	662,820	Nov. 27	3335	788 / 789	93	1658
Reeves, John M., Warren, Ohio. Creaming-can	664,290	Dec. 18	2546	579	93	2274
Reflector Syndicate. (See Cowper-Coles, Sherard O., assignor.)						
Regester, Thomas L., assignor to Rock Island Iron Works, Rock Island, Ill. Harrow-disk sharpener	664,097	Dec. 18	2183	498	93	2199
Reh, Wilhelm, Dresden, Germany. Machinery for automatically manufacturing screws, nuts, &c., from rough metal	664,098	Dec. 18	2184	498	93	2200
Rehm, Andreas, Vienna, Austria-Hungary. Device for interlocking removable parts of furniture	662,877	Nov. 27	3530	827	93	1704
Reichardt, Ferdinand A., Elizabeth, N. J. Hand-stone	659,420	Oct. 9	1220	283	93	266
Reichenbach, Henry M., assignor to Reichenbach, Morey & Will Company, Rochester, N. Y. Back for photographic cameras	661,894	Nov. 13	1561	379	93	1273
Reichenbach, Max, *et al.* (See Goheen, Joseph S., assignor.)						
Reichenbach, Morey & Will Company. (See Reichenbach, Henry M., assignor.)						
Reichheim, Edward P., Bayonne, N. J. Rotary blower	660,337	Oct. 23	3050	679	93	664
Reid, Alexander, Jersey City, N. J. Means for discharging fire-extinguishing liquid through gas-distributing pipes	659,548	Oct. 9	1482	336	93	315
Reid, Charles H., Danbury, Conn. Hat-pouncing machine	659,259	Oct. 9	978	220	93	213
Reid, Charles H., Danbury, Conn. Hat-pouncing machine	662,821	Nov. 27	3337	789 / 790	93	1658
Reid, Charles H., Danbury, Conn. Hat-pouncing machine	662,822	Nov. 27	3343	790 / 791	93	1660
	660,868	Oct. 30	4009	897	93	866
Reid, Philip S., Rosedale, N. J. Instrument-table for opticians, &c.						
Reid, Walter F., Addlestone, assignor to Velvril Company, Limited, London, England. Covering for drawing-rolls of spinning machinery	661,644	Nov. 13	1112	.....	93	1188
Reiff, Jacob D., Skippack, Pa. Butter-press	661,356	Nov. 6	602	140	93	1071
Reiner, Andrew L., Blue Island, assignor, by mesne assignments, to Plano Manufacturing Company, Chicago, Ill. Grinder	661,132	Nov. 6	194	49	93	991
Reinighaus, Carl, München-Gladbach, Germany. Artificial tooth	659,039	Oct. 2	582	142	93	117
Reis, Joseph L. M. A., Antwerp, Belgium. Means for facilitating production of steam	662,904	Dec. 4	117	25	93	1747
Reisser, Michael. (See Atkinson, Henry C., assignor.)						
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Slot-wedge for dynamo-electric machines	660,459	Oct. 23	3259	729	93	703
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Adjusting brush-holders	661,228	Nov. 6	360	86	93	1024
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company, of New York. Collector-ring	664,503	Dec. 25	2960	675	93	2380
Reist, Henry G., and E. L. Aiken, Schenectady, N. Y., assignors to General Electric Company, of New York. Commutator-collector	661,227	Nov. 6	357	85	93	1023
	660,657	Oct. 30	3622	812	93	792
Reitenour, Anthony, Deerfield, Ind. Fence-post						
Remington Automobile and Motor Company. (See Schmidt, William A., assignor.)						
Remington, Wolcott, Windsor, assignor of one-half to C. H. Cooley, Hartford, Conn. Acetylene-gas generator	663,240	Dec. 4	633	136	93	1845

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Removable Barrel-Head Company. (See Copperfield and Justice, assignors.)						
Remy, Charles, Paris, France. Apparatus for determining position of foreign bodies by means of Roentgen rays	661,385	Nov. 6	649	151	93	1082
Remy, Emile, Mulhouse, Germany. Apparatus for washing piece goods	660,029	Oct. 16	2393	537	93	511
Renaker, John W. (See Boyd and Redmon, assignors.)						
Renaud, Louis, Paris, France. Accumulator	664,679	Dec. 25	3291	748	93	2449
Renault, Edward, Waldo, Fla. Insulator	664,432	Dec. 25	2831	642	93	2356
Renault, Louis, Paris, France. Driving and speed-changing mechanism for motor-vehicles	660,924	Oct. 30	4091	918 / 919 / 920	93	884
Renaux, Prosper A., Paris, France. Driving mechanism for motor-cycles or motor-cars	661,816	Nov. 13	1434	346 / 347	93	1249
Rendall, Henry A., and W. G. Ackerman, Bridport, England; said Ackerman assignor to said Rendall. Machine for weaving rectangular-meshed netting	664,433	Dec. 25	2833	642 / 643 / 644 / 645 / 646 / 647 / 648	93	2356
Renfro, Francis N., Yazoo City, Miss. Cotton-scraper	660,909	Oct. 30	4170	987	93	900
Reniff, James R., Chicago, Ill., assignor to W. G. Taylor, Cleveland, Ohio. Universal pipe-coupling	664,291	Dec. 18	2547	579	93	2274
Renkel, George W. (See Saatweber, Charles R., assignor.)						
Renner, Henry F., assignor to Hollands Manufacturing Company, Erie, Pa. Pipe-vise	664,361	Dec. 18	2690	611	93	2302
Rennie, John T. (See Wallace, De Witt C., assignor.)						
Rennolds, Robert G. (See Crump, Edward T., assignor.)						
Renz, Carl J., New York, N. Y. Fountain-pen	659,696	Oct. 16	1766	399	93	387
Renz, Frank J., and L. Collins, St. Paul, Minn. Chute-spring for matrix-assembling machines, &c	659,322	Oct. 9	1072	252	93	232
Replogle, D. B. (See Thomson, Thomas N., assignor.)						
Reuleaux, Josef. (See Laughlin and Reuleaux.) (Reissue.)	663,785	Dec. 11	1621	363	93	2062
Reulos, Eugène L., Paris, France. Kinematographic apparatus	661,706	Nov. 13	1232	290	93	1212
Reussenzehn, Charles A., Dayton, Ohio. Printer's quoin						
Revels, Robert, *et al.* (See McCourt, Newton W., assignor.)						
Rey, Valentine J. A., San Francisco, Cal. Carbureter	662,924	Nov. 20	1824	438	93	1344
Reynolds, Charles, assignor to J. Klotz, Jr., New York, N. Y. Necktie-fastener	663,197	Dec. 4	541	116	93	1828
Reynolds, Elizabeth M., Cincinnati, Ohio. Pedestrian's skirt	664,002	Dec. 18	2085	460	93	2168
Reynolds, George H., Chicago, Ill., assignor, by mesne assignments, to Otis Elevator Company, East Orange, N. J. Hydraulic elevator	661,587	Nov. 13	1014	253	93	1169
Reynolds, James A., A. P. Brosius, and J. W. Unger, Carroll, Iowa. Machine for repairing vehicle-axles	664,003	Dec. 18	2086	461	93	2168
Reynolds, Joseph H., Ridgway, Pa. Lamp burner and chimney	663,468	Dec. 11	1049	230	93	1949
Reynolds, Peter G., Detroit, Mich. Pole-top	662,244	Nov. 20	2251	542	93	1429
Reynolds, Robert R., New York, N. Y. Weather-strip	663,469	Dec. 11	1050	230	93	1949
Reynolds, Samuel D., assignor to J. G. Davy, H. B. Hoyt, A. G. Johnson, and L. Pool, De Kalb, Ill. Road-grader	661,294	Nov. 6	485	110 / 111	93	1048
Reynolds, Stephen K., assignor of one-half to F. W. Chamberlin, New York, N. Y. Electrical piano	664,004	Dec. 18	2088	461	93	2169
	663,099	Dec. 4	357	74	93	1792
Reynolds, William H., Galveston, Tex. Steam and water separator	662,805	Nov. 20	2358	507 / 508	93	1450
Rheinberg, Ising and J., London, England. Comb						
Rheinberg, Julius. (See Rheinberg, Ising and J.)						
Rhodes, Alonzo L. (See Hollar, Kennedy, and Rhodes.)						
Rhodes, Fred F. (See Washburn and Tinkham, assignors.)						
Rhodes, John W., Havana, Ill. Grain-drill	662,823	Nov. 27	3346	791 / 792 / 793	93	1660
Rhodes, William A., Boston, Mass. Rein-guide	659,809	Oct. 16	2147	485	93	461
Riblet, Byron C., Nelson, Canada. Wire-rope and bucket clip	660,395	Oct. 23	3158	699	93	684
Ricardo, George, Hackensack, N. J. Apparatus for sharpening lawn-mowers	664,504	Dec. 25	2962	675 / 676	93	2380
Rice, Edwin W., Jr., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	659,828	Oct. 16	2023	454	93	486
Rice, Fred, Shopiere, Wis. Windmill-regulator	664,780	Dec. 25	3512	796	93	2495
Rice, Ida H., assignor to Chicago Folding Box Company, Chicago, Ill. Paper vessel	661,817	Nov. 13	1434	347	93	1250
Rice, John F., Centralia, Tex. Tongs	663,581	Dec. 11	1232	270	93	1983
Rich, Henry M. (See Bancroft, Frank H., assignor.)						
Rich, Lewis E. (See Rich, Thomas E. and L. E.)						
Rich, Thomas E. and L. E., Barre, Mass. Sandpapering-machine	661,552	Nov. 13	946	235 / 236	93	1154
Richard, Fred J., Bloomsburg, Pa., assignor to H. B. Newhall, Plainfield, N. J. Trolley-track	660,999	Oct. 30	4217	948	93	909
	663,666	Dec. 11	1386	307	93	2014
Richards, Charles E., Boonville, N. Y. Urinal						
Richards, Charles F., East Orange, assignor to himself and B. R. Bacon, South Orange, N. J. Freezing-tank for manufacturing artificial ice	659,157	Oct. 2	771	186	93	156
Richards, Charles W., San Francisco, Cal. Tooth-brush	659,508	Oct. 9	1558	353	93	330
Richards, Charles W., assignor of one-half to W. M. Chapman, Needham, Mass. Electric regulator	660,396	Oct. 23	3159	700	93	685
Richards, Charles W., and W. M. Chapman, Needham, Mass. Power-transmitting mechanism	659,097	Oct. 16	1769	399	93	388
Richards, Daniel U., Danvers, Minn. Arch-plate for steam-boiler furnaces	659,549	Oct. 9	1483	335	93	316
Richards, Francis H. (See Schmelz, Charles F., assignor.)						
Richards, George, Brussels, Belgium. Milling-machine	660,200	Oct. 23	2776	617	93	608
Richards, Hubert P., New Britain, Conn., assignor to J. E. Tracy, Plainfield, N. J. Driving mechanism	664,505	Dec. 25	2965	676	93	2381
Richards, Willard F., Buffalo, assignor to C. M. Gould, New York, N. Y. Dynamo-electric machine	659,829	Oct. 16	2024	454 / 455	93	437
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	663,640	Dec. 11	1335	295	93	2003
Richardson, Albert C., assignor of one-half to T. Watson, Frankfort, Mich. Casket-lowering device	664,581	Dec. 25	3120	708	93	2413
Richardson, Charles G., assignor to J. B. De Lery, New York, N. Y. Incandescible element	660,590	Oct. 30	3497	785	93	768
Richardson, George E., assignor to himself, G. D. Cook, Chief, and J. T. Richardson, Lake Ann, Mich. Scraper	662,740	Nov. 27	3201	758	93	1632
	663,100	Dec. 4	359	74	93	1793
Richardson, John H., Lawrence, Mass. Sewing-machine horn						

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Richardson, John R., assignor of two-fifths to J. F. Thomas, Scranton, Pa. Air-brake system	661,075	Nov. 6	87	21	93	907
Richardson, John T., *et al.* (See Richardson, George E., assignor.)						
Richardson, Leon M., Amesbury, Mass., assignor of two-thirds to Standard Anti-Friction Equipment Company, New York, N. Y. Tire-tightener	664,506	Dec. 25	2069	676	93	2382
Richardson, Lionel W., Roscoe, Ill. Mop-wringer	660,201	Oct. 23	2780	618	93	609
Richardson, Wilber E., assignor of one-half to W. S. Sherman, Milwaukee, Wis. Oil-feeding mechanism	661,323	Nov. 6	541	125	93	1059
Richens, John M., Fitzgerald, Ga. Buoying means for water-craft	660,658	Oct. 30	3624	812 813	93	792
Richman, Alfred B. (See Kinsman, Edgar, assignor.)						
Richmand, Francis J., San Francisco, Cal. Cornet	664,434	Dec. 25	2888	648	93	2356
Richmond, John S., Chicago, Ill. Apparel-shirt	659,040	Oct. 2	583	142	93	117
Richmond, William S., London, England. Cycle-saddle	659,328	Oct. 9	1074	252	93	293
Richter, Herman, Cincinnati, Ohio. Marker-holder	661,076	Nov. 6	89	21	93	968
Richter, Oscar, and E. L. Vognild, Chicago, Ill. Envelop	658,926	Oct. 2	365	90	93	74
Rickard, Simeon H., West Bridgewater, Pa. Electric burglar-alarm switchboard	661,229	Nov. 6	361	86	93	1024
Ricke, George H., Cincinnati, Ohio, assignor to C. S. Furber, Covington, Ky. Collapsible core	662,091	Nov. 20	1966	470	93	1372
Rickey, William H., East Orange, N. J. Edge-ironing machine	660,277	Oct. 23	2934	653	93	640
Rickords, Samuel B., Seymour, Iowa. Coping for graves	663,470	Dec. 11	1051	230	93	1949
Ricks, John T. (See Myers, Abram S., assignor.)						
Riddell, J. Elliott. (See Williamson, John B., assignor.)						
Riddell, John, Schenectady, N. Y., assignor to General Electric Company, of New York. Electrically-operated machine-tool	660,801	Oct. 30	3874	872	93	840
Riddell, William, San Francisco, Cal. Motor-vehicle	664,292	Dec. 18	2549	579	93	2274
Ridgway, Elzie L. (See Tinkelpaugh, Ridgway, and Newton.)						
Ridgway, Herbert N., Winthrop, Mass. Aquatic course	658,927	Oct. 2	367	90	93	74
Ridley, John H., New York, N. Y. Producing interchangeable letter or figure disks	661,770	Nov. 13	1350	327	93	1234
Riedmüller, Carl, New Ulm, Germany. Advertising device	663,614	Dec. 11	1291	285 286	93	1995
Riedy, John P., assignor of one-half to J. W. Bowman, Williamsport, Pa. Grass-cutter	659,594	Oct. 9	1558	354	93	330
Rieg, Jacob, Wilkes-Barré, Pa. Sidewalk-elevator	663,786	Dec. 11	1622	364	93	2062
Rieger, John C., Pinckneyville, Ill. Bicycle-support	664,353	Dec. 18	2077	608	93	2299
Ries, Frank, Tiffin, Ohio. Shears-sharpener	663,787	Dec. 11	1623	364	93	2062
Rieske, Otto G., Dayton, assignor, by mesne assignments, to E. B. Schneider, Zanesville, Ohio. Street-car turn-table	661,077	Nov. 6	91	21, 22	93	908
Rietzel, Adolph F., assignor to Thomson Electric Welding Company, Lynn, Mass. Electric welding apparatus	661,588	Nov. 13	1015	253 254 255	93	1169
Rietzel, Adolph F., assignor to Thomson Electric Welding Company, Lynn, Mass. Electric welding apparatus	661,589	Nov. 13	1020	255	93	1170
Riewe, Friedrich, Pottsville, Tex. Planter attachment for plows	661,668	Nov. 13	1158	286	93	1198
Rigamonti, Carlo, and G. Tagliani, Milan, Italy. Keir for bleaching	661,295	Nov. 6	487	111 112	93	1049
Rigby, Clark F., Mannington, W. Va. Piston-packing	660,167	Oct. 23	2710	603	93	595
Rigby, Clark F., Mannington, W. Va. Slide-valve	663,300	Dec. 4	743	159	93	1896
Rigby, William, Prescot, England. Foot-rest and brake	663,553	Dec. 11	1194	258 259	93	1972
Rigg, George E., Mount Carmel, Ill. Automatic gate	660,691	Oct. 30	3680	829	93	802
Riggle, William H., Charlerol, Pa. Clamp	661,133	Nov. 6	197	49, 50	93	991
Riggs, Addison H., Ocean Grove, N. J. Nut-tapping machine	662,965	Dec. 4	118	25	93	1747
Righter, James B., Elroy, Wis. Spark arrester and consumer	664,781	Dec. 25	3515	796	93	2495
Rikard, James, Lexington, S. C. Lock	664,582	Dec. 25	3122	708 709	93	2414
Riker, Andrew L., Stamford, Conn. Running-gear for motor-vehicles	661,553	Nov. 13	948	236	93	1155
Riker, Andrew L., New York, N. Y. Power-transmitting device	662,806	Nov. 20	2355	568	93	1451
Ring, Clarence L., Conway, Kans. Grain-separator	662,500	Nov. 27	2763	655 656	93	1551
Ringl, Haakon S. (See Swenson and Ringl.)						
Ringl, Haakon S., Chicago Heights, Ill., assignor to American Cotton Company, New York, N. Y. Cotton-press	662,878	Nov. 27	3730	827	93	1704
Ringle, Harvey E., Redlands, Cal. Bicycle-brake	661,022	Oct. 30	4273	960	93	920
Ripley, Daniel C., Pittsburg, and F. L. O. Wadsworth, Allegheny, Pa., assignors to W. A. Bond, trustee, Chicago, Ill. Prism-glass	661,023	Oct. 30	4275	960	93	920
Ripley, Daniel C., Pittsburg, and F. L. O. Wadsworth, Allegheny, Pa., assignors to W. A. Bond, trustee, Chicago, Ill. Apparatus for making glass	661,024	Oct. 30	4277	961	93	921
Ripley, Daniel C., Pittsburg, and F. L. O. Wadsworth, Allegheny, Pa., assignors to W. A. Bond, trustee, Chicago, Ill. Manufacture of prism-glass	661,025	Oct. 30	4280	961	93	921
Risheberger, James R., Wooddale, Pa. Coke-handling apparatus	659,900	Oct. 16	2149	485 486	93	461
Rishel, John A., Munhall, Pa. Dead-rail stand for track-scales	662,245	Nov. 20	2252	542	93	1430
Risler, Emil, Freiburg, Germany. Electric insulator	664,176	Dec. 18	2324	590	93	2227
Ritchie, Samuel, assignor of one-third to E. R. Le Fevre, Tomahawk Lake, Wis. Combined lock and burglar-alarm	660,737	Oct. 30	3761	847	93	819
Ritchie, Samuel, assignor of one-third to E. R. Le Fevre, Tomahawk Lake, Wis. Sash-lock and burglar-alarm	663,101	Dec. 4	360	74	93	1793
Ritter, Frank, Rochester, N. Y. Arm-rest	663,132	Dec. 4	418	87	93	1805
Ritter, Jerome L. (See De Lancey and Ritter.)						
Rittershausen, Eduard von, Vienna, Austria-Hungary. Filtering material	664,782	Dec. 25	3516	------	93	2496
Rivers, Campbell, St. Louis, Mo. Step-ladder	663,042	Dec. 4	259	55	93	1775
Rix, Edward A., San Francisco, Cal. Hydraulic brush	661,377	Nov. 6	454	104	93	1042
Robacker, Michael, Greenwich, Conn. Grass-catcher for lawn-mowers	661,290	Nov. 6	363	86	93	1025
Robbin, Frederick, Jr., Medina, N. Y. Locking device for adjustable chairs	663,582	Dec. 11	1233	270	93	1953
Robbins, Jackson. (See Seibert, Robert D., assignor.)						
Robbins, Oliver A. (See Florence, John, assignor.)						
Roberts, Charles E., Oak Park, Ill. Spoke-swaging machine	664,435	Dec. 25	2842	649	93	2357
Roberts Iron Works Company. (See Thornton, Henry H., assignor.)						
Roberts, John E., assignor to Straight Manufacturing Company, Jamestown, N. Y. Rotary cutter-head	661,554	Nov. 13	950	236	93	1155
Roberts, Lewis A., Carbondale, Pa. Lacing-guide	664,005	Dec. 18	2039	461	93	2169
Roberts, Matthew L., Watertown, S. D. Plow	661,278	Nov. 6	455	104	93	1042
Roberts, Odin B. (See Gould and Roberts.)						
Robertson, Cullen A., Sparta, Ga. Dressing-chair	662,025	Nov. 20	1827	439	93	1345
Robertson, James D., La Salle, Ill. Electric railway	659,550	Oct. 9	1485	336	93	316

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Robertson, Jasper N. (See Carlisle, George J., assignor.)						
Robertson, John H., Morrison, Ill. Automatic electric cut-out	659,766	Oct. 16	1912	430	93	415
Robertson, Robert B., Topeka, Kans. Power device for road-vehicles	662,026	Nov. 20	1828	439	93	1345
Robertson, Samuel B. J., Lutcler, La. Wrench	662,966	Dec. 4	121	25	93	1748
Robinson, Celinda P., New York, N. Y. Furniture-pad	660,064	Oct. 16	2454	554	93	522
Robinson, Franklin E. (See Keyes, Martin L., assignor.)						
Robinson, George A. (See Grenamyer and Robinson.)						
Robinson, George W. (See Barger, Thomas J., assignor.)						
Robinson, Hanson, Baltimore, Md. Cigarette-machine	662,027	Nov. 20	1829	439 440 441 442 443	93	1345
Robinson, Henry M. (See Robinson, Joseph S. and H. M.)						
Robinson, James E. (See Davenport and Robinson.)						
Robinson, Joseph S. and H. M., Chicago, Ill. Return-signal device for call-boxes	663,043	Dec. 4	260	56	93	1775
Robinson, Samuel M., *et al.* (See Wharton, Silas B., assignor.)						
Rock Island Iron Works. (See Regester, Thomas L., assignor.)						
Rock Island Plow Company. (See Tinsman, Samuel H., assignor.)						
Rockwell, Ralph, Oracle, Ariz. Ter. Saw	659,103	Oct. 2	602	165	93	140
Rodd, Fredrick W., assignor of one-half to D. A. Mallo, Cleveland, Ohio. Screw	662,134	Nov. 20	2032	494	93	1385
Roderick, Thomas, Columbus, Ohio. Heating-stove	661,857	Nov. 6	604	141	93	1072
Rodger, Joseph B., assignor to Challenge Windmill and Feed Mill Company, Batavia, Ill. Vapor-engine	661,078	Nov. 6	92	22, 23	93	908
Rodrick, John S. L., Washington, D. C. Furnace	659,104	Oct. 2	602	165 166	93	140
Roe, James P., Pottstown, Pa. Puddling iron	659,698	Oct. 16	1770	399 400	93	388
Roehbel, Frederic W., St. Louis, Mo. Tool-holder	661,000	Oct. 30	4218	948	93	909
Roehr, Magnus. (See Mordan and Roehr.)						
Roemisch, Anton, assignor to Seneca Glass Company, Morgantown, W. Va. Apparatus for glazing and finishing articles of glassware	664,038	Dec. 18	2110	482 483	93	2184
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Automatic temperature-regulator for water-heaters	662,092	Nov. 20	1968	470	93	1373
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Air-vent	662,093	Nov. 20	1970	470	93	1373
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Company, of New Jersey. Pressure-governor	662,094	Nov. 20	1971	470 471	93	1373
Roesen, Oscar, assignor to R. Hoe, New York, N. Y. Delivery mechanism	664,585	Dec. 25	3129	710	93	2416
Roesen, Oscar, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Impression-cylinder	660,711	Oct. 30	3717	836	93	810
Roesen, Oscar, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Offset device	660,712	Oct. 30	3720	837	93	810
Roesen, Oscar, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Guide for printing-machines	660,970	Oct. 30	4171	987	93	900
Roesen, Oscar, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Folding mechanism	664,583	Dec. 25	3124	709	93	2414
Roesen, Oscar, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Form-cylinder	664,584	Dec. 25	3126	709 710	93	2415
Roessler, Amandus C. (See Bryant, Roessler, Mitchell, and Augspurg.)						
Rogers, Carroll B., El Paso, Tex. Slime-jigging machine	660,869	Oct. 30	4010	898	93	867
Rogers, Christopher L., Helena, Mont. Steering apparatus	659,767	Oct. 16	1915	430	93	415
Rogers, Freeman C., Pueblo, Colo. Display-rack	661,045	Nov. 13	1113	276	93	1188
Rogers, George H., Pretoria, South African Republic. Petroleum or like internal-combustion engine	660,338	Oct. 23	3061	679	93	665
Rogers, Guy L. (See Foley and Rogers.)						
Rogers, John R., New York, N. Y., assignor to Mergenthaler Linotype Company, of New York. Linotype-machine	661,386	Nov. 6	651	151 152	93	1082
	661,818	Nov. 13	1436	347	93	1250
Rogers, Samuel J., Marion, Ind. Soda-fountain	659,379	Oct. 9	1156	269	93	250
Rogers, Winfield S., and L. S. Chadwick, Boston, Mass.; said Rogers assignor to said Chadwick. Clutch	663,102	Dec. 4	362	74, 75	93	1798
Rogerson, David M., Jamestown, N. Y. Mop-wringer	659,802	Oct. 16	1991	446	93	489
Rohlfs, Charles, Buffalo, N. Y. Pipe-holder	661,079	Nov. 6	95	23	93	969
Rohrbeck, Fritz, St. Veit-on-the-Triesting, Austria-Hungary. Belt-pulley	662,657	Nov. 27	3089	717	93	1602
Rohrdantz, Henry, Buffalo, N. Y. Electric burglar-alarm						
Rohrer, Albert L., Schenectady, N. Y., assignor to General Electric Company, of New York. Connecting-conductors to carbon brushes	661,669	Nov. 13	1160	286	93	1198
Rollert, Anton J., Chicago, Ill. Portable bowling-alley	660,460	Oct. 23	3260	729	93	704
Romanelli, Gennaro, New York, N. Y. Battery fluid	658,900	Oct. 2	318	------	93	65
Romans, Charles A., Danbury, Conn. Bicycle-frame pump	658,897	Oct. 2	272	67	93	56
Rompel, John G. (See Moser, Robert, assignor.)						
Roop, Silas D., Goodes, Va. Combined planter and fertilizer-distributer	662,135	Nov. 20	2033	494 495	93	1385
Root, Parley D., Wakefield, R. I. Elevator	659,988	Oct. 16	2324	523	93	498
Roots, Francis T. (See Heinemann, Theodore P., assignor.)						
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Loom	659,628	Oct. 9	1628	368	93	343
Ropp, Charles E., Milan, Kans. Tone-finder for stringed musical instruments	663,187	Dec. 4	536	112	93	1825
Rosback, Frederick P., Chicago, Ill., assignor to Pan Confection Company, of Illinois. Machine for cutting lozenges	660,461	Oct. 23	3261	730 731	93	704
Rose, Georges. (See Rose, Henri and G.)						
Rose, Henri and G., Poissy, France. Plansifter	660,925	Oct. 30	4094	920	93	885
Rose, Horace G., assignor to A. M. McCarty, A. Hoeffer, and A. C. McDowell, Canton, Ohio. Fountain-spittoon	662,967	Dec. 4	123	25, 26	93	1748
Rose, Israel M., Philadelphia, Pa. Grinding and polishing device	662,629	Nov. 27	2984	707	93	1592
Rose, John, Philadelphia, Pa., assignor to John Rose Company, Camden, N. J. Retaining-band for umbrellas	663,044	Dec. 4	263	56	93	1776
Roseberry, Lewis H., Easton, Pa. Roll-shaft for roller-mills	661,744	Nov. 13	1301	317	93	1224
Rosedale, Adolph, Tallahassee, Fla., assignor to Rosedale Automatic Dish-Washing Machine Company, of Illinois. Dish-cleansing apparatus	660,314	Oct. 23	3009	667	93	655
Rosedale Automatic Dish-Washing Machine Company. (See Rosedale, Adolph, assignor.)						
Rosen, Adolph T. (See Skoog, Rosen, and Lilygreen.)						
Rosenbaum, Henry, Cincinnati, Ohio. Wall, floor, or ceiling for buildings	658,868	Oct. 2	273	67	93	57
Rosenbaum, Henry, Cincinnati, Ohio. Wall, floor, or ceiling for buildings	658,869	Oct. 2	274	67	93	57
Rosenberg, Ignaz. (See Elbel and Rosenberg.)						
Rosenbloom, Abe N., Boston, Mass. Tailor's drafting implement	660,397	Oct. 23	3163	700 701	93	685

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rosenbluth, Edwin M., Philadelphia, Pa. Carriage-lamp	664,783	Dec. 25	3516	797	93	2496
Rosenbluth, Edwin M., and A. S. Carter, Philadelphia, Pa.; said Carter assignor to said Rosenbluth. Lamp-bracket	661,324	Nov. 6	543	125	93	1059
Rosenbush, Robert. (See Kratz, John A., assignor.)						
Rosenow, Bernhard, *et al.* (See Warneke, William, assignor.)	661,358	Nov. 6	605	141	93	1072
Rosenthal, Maurice, New York, N. Y. Brush	663,045	Dec. 4	264	.....	93	1776
Rosenthal, Sigmund A., London, England. Composition for matches	662,824	Nov. 27	3352	793	93	1662
Rosher, Frederick H., Caterham, England. Advertising-rack						
Ross, Alexander. (See Davies and Ross.)	662,879	Nov. 27	3531	827 828	93	1704
Ross, Alexander, assignor of one-half to A. Walker, Montreal, Canada. Car-ventilator	661,555	Nov. 13	952	237	93	1156
Ross, Alfred A., Montgomery, Ala. Fire-alarm						
Ross, E. P., *et al.* (See Tuttle, Josiah S., assignor.)						
Ross, Frank L., Cincinnati, Ohio, J. T. Earle, Latonia, J. J. Good, Harrodsburg, and H. Redmon, Cynthiana, Ky., assignors to B. M. Wilson, Cincinnati, Ohio. Autographic register	663,667	Dec. 11	1388	307 308	93	2014
Ross, Grant. (See Tate, John C., assignor.)	662,028	Nov. 20	1839	443	93	1347
Ross, Joseph, Vincennes, Ind. Hay-baler						
Ross, Limited. (See Hasselkus, John W., assignor.)	661,895	Nov. 13	1562	379	93	1273
Ross, Robert J., Bootle, England. Music-leaf turner	662,307	Nov. 20	2357	568	93	1451
Roszell, Stephen S., Lexington, Ky. Sewing-machine needle						
Roth, August A., and R. Brooks, assignors to National Elevator Safety Device Company, Baltimore, Md. Means for preventing accidents in elevators	664,208	Dec. 18	2532	580	93	2275
Roth, Henry G., Minneapolis, Minn. Adjustable-compartment display counter or cabinet	661,325	Nov. 6	544	125	93	1060
	664,968	Dec. 4	125	26	93	1748
Roth, Henry G., Minneapolis, Minn. Sampling-tube for cheese	662,969	Dec. 4	126	26, 27	93	1749
Roth, Henry G., Minneapolis, Minn. Carton or box	662,970	Dec. 4	128	27	93	1749
Roth, Henry G., Minneapolis, Minn. Cheese-cutter	663,930	Dec. 18	1897	426	93	2141
Roth, Reuben D., Mummasburg, Pa. Cow-milker						
Röthenbacher, Emil. (See Kesselring and Röthenbacher.)	660,659	Oct. 30	3625	813	93	792
Rothert, Alexander, Riga, Russia. Shaped spool for drum-armatures	661,194	Nov. 6	207	71, 72	93	1011
Rothschild, Alfred P., and G. J. Bub, Leavenworth, Kans. Table-desk trunk						
Rothschild, Walter, *et al.* (See Wilding, James A., assignor.)						
Rouse, John J. (See Gaut, Joseph, assignor.)						
Roush, Harvey H., Middleport, Ohio, assignor of one-half to F. J. Owen, Philippi, W. Va. Corn-harvesting and shock-forming machine	663,981	Dec. 18	1898	427	93	2141
Rowcroft, Thomas, assignor to Star and Crescent Mills Company, Philadelphia, Pa. Jacquard mechanism for looms	660,926	Oct. 30	4096	921	93	885
Rowcroft, Thomas, assignor to Star and Crescent Mills Company, Philadelphia, Pa. Fringe-pulling device for looms	660,927	Oct. 30	4099	921	93	886
Rowcroft, Thomas, assignor to Star and Crescent Mills Company, Philadelphia, Pa. Heddle mechanism for looms	660,928	Oct. 30	4100	921 922	93	886
Rowe, Levi L., Boston, Mass. Bunsen burner	661,646	Nov. 13	1115	276 277	93	1188
Rowell, Frank D. (See Van Trump and Rowell.)						
Rowland, Daniel L., Palisade, Nebr. Fastener for well-casings	663,516	Dec. 11	1140	247	93	1905
Rowland, Thomas F., W. E. Hill, and A. McLachlan, New York, N. Y.; said Hill and McLachlan assignors to said Rowland. Combustion-chamber for steam-generators	660,462	Oct. 23	3205	731	93	705
Rowland, William D. (See Lee, Thomas, assignor.)	662,697	Nov. 27	3127	739	93	1618
Rowland, William L., Philadelphia, Pa. Distilling and concentrating apparatus	664,436	Dec. 25	2845	650	93	2358
Rowlands, Walter, Montreal, assignor to E. Bristol, Toronto, Canada. Head-chair for stub-switches	660,463	Oct. 23	3207	731 732	93	705
Rowley, John T., Beaver Falls, Pa. Apparatus for producing tubing from hollow billets	659,699	Oct. 16	1771	400	93	388
Rowntree, Harold, Chicago, Ill. Door mechanism	662,741	Nov. 27	3203	758	93	1632
Roy, Bozil S., Worcester, Mass. Shuttle-actuating mechanism for looms	662,742	Nov. 27	3204	758	93	1632
Roy, Bozil S., Worcester, Mass. Machine for grinding cards	662,743	Nov. 27	3205	759	93	1632
Roy, Sylvanus B., Worcester, Mass. Mechanism for grinding cards	663,683	Dec. 11	1418	314	93	2020
Royal, Henry W., assignor of one-half to W. B. Brown, Baltimore, Md. Carbureter	662,095	Nov. 20	1973	471	93	1374
Rubbert, Ernest, Minneapolis, Minn. Elevator-door	660,971	Oct. 30	4172	897	93	901
Ruby, James E., Cosby, Mo. Bicycle	660,929	Oct. 30	4103	922 923	93	886
Ruckel, Carroll A., and W. Potts, Jr., White Hall, Ill. Steam-engine	661,771	Nov. 13	1352	327	93	1235
Rucker, Benjamin P., Philadelphia, Pa. Electric-circuit breaker	662,308	Nov. 20	2359	569	93	1451
Ruddick, John J., Newton, Mass., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Message-recording instrument	663,684	Dec. 11	1420	314	93	2020
Rude Brothers Manufacturing Company. (See Ham, Henry C., assignor.)	660,302	Oct. 23	2781	618	93	609
Rudisch, Phineas, New York, N. Y. Antimoth-paper	663,641	Dec. 11	1337	295	93	2003
Rudolph, Paul, assignor to Firm C. Zeiss, Jena, Germany. Photographic objective	659,454	Oct. 9	1302	299	93	280
Ruebekam, Charles A., Owosso, Mich. Burial-casket						
Ruff, Frederick A., Detroit, Mich. Switch-operating mechanism						
Ruggles, Frederick N. (See Bates, Chester M., assignor.)						
Ruhe, Henry F. W., *et al.* (See Farmer, John R., assignor.)	661,251	Nov. 6	414	96	93	1034
Rukenbrod, Samuel F., Youngstown, Ohio. Flour-sieve	661,020	Nov. 13	1070	266	93	1179
Rumbarger, Victor E., Dayton, Ohio. Tube-expander						
Rummell, Emanuel C. (See Lemmons, Hubbartt, and Rummell.)	661,021	Nov. 13	1071	266	93	1179
Rummler, William R., Chicago, Ill. Door-holder	664,680	Dec. 25	3203	748 749	93	2450
Rump, John, West Point, Iowa. Seed cleaning and separating machine	658,061	Oct. 2	436	104	93	88
Runge, Oscar, Passaic, N. J. Heddle attachment for looms	662,971	Dec. 4	130	27	93	1749
Rupert, John F., Conneautville, Pa. Nailless horseshoe						
Rushton, Frederick T., *et al.* (See Beresford, Walter, assignor.)	662,309	Nov. 20	2364	569 570	93	1452
Russell, Albert N., Cherryvale, Kans. Corn-harvester	660,591	Oct. 30	3498	785	93	769
Russell, Allen A. and H. A., Indianapolis, Ind. Hood for pneumatic stackers	662,972	Dec. 4	131	28	93	1749
Russell, Cyrus W. (See Ford, William H., assignor.)						
Russell, Daniel E., Dunbarton, Wis. Thill-coupling						
Russell, Edward D. (See White, Frank L., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell, Harley A. (See Russell, Allen A. and H. A.)						
Russell, James. (See White, Thomas, assignor.)						
Russell, John K., *et al.* (See Starke, Fred C., assignor.)	660,339	Oct. 23	3063	680	93	665
Russell, Richard, Stephen, Minn. Weed-puller	663,198	Dec. 4	543	116	93	1829
Russell, William H., Watertown, Mass. Clip or support for trolley-wires						
Rutan, Anson C., *et al.* (See Goheen, Joseph S., assignor.)						
Rütgers, Julius, Berlin, Germany. Wood-impregnating compound and making same	662,310	Nov. 20	2367	.....	93	1453

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ruth, Edwin L., and J. G. Dauber, assignors of one-fourth to O. K. Fisher, Loudonville, Ohio. Toy	662,577	Nov. 27	2900	688	93	1576
Rutledge, George E., Chicago, Ill. Knitted underwear	663,517	Dec. 11	1141	247	93	1965
Ruymann, C. J. (See Watkins, Daniel, assignor.)						
Ryan, David, G. A. Zeller, and C. P. Lawrence, Harrisburg, Pa. Tack-saving attachment for lasting-machines	663,471	Dec. 11	1052	230 231	93	1949
Ryan, Fortuneé R., Memphis, Tenn. Vapor-treatment apparatus	659,551	Oct. 9	1487	337	93	316
Ryan, Fortuneé R., Memphis, Tenn. Diagnosing-belt	660,972	Oct. 30	4174	937	93	901
Ryan, Franklin N. (See Torkelson, Gunder, assignor.)						
Ryan, James B., New York, N. Y. Corset	664,294	Dec. 18	2554	580	93	2275
Ryan, Michael C., Oswego, N. Y. Box-fastener	662,311	Nov. 20	2368	570	93	1458
Ryan, Thomas. (See Boyer, Frank, assignor.)						
Ryan, Thomas E., San Francisco, Cal. Pipe-wrench	658,962	Oct. 2	437	105	93	89
Ryd, Gustaf A., Stockholm, Sweden. Device for imparting rotary motion	664,028	Dec. 18	2074	471 472	93	2176
Ryther, James T., Lynn, Mass. Fluid clutch	661,001	Oct. 30	4219	948	93	909
S. S. White Dental Manufacturing Company. (See Wilkerson, Basil M., assignor.)						
Saatweber, Charles R., assignor of one-half to G. W. Renkel, Paterson, N. J. Loom-beam attachment	662,029	Nov. 20	1841	443	93	1347
Sachs, Joseph, Hartford, Conn. Safety cut-out for electric circuits	660,340	Oct. 23	3066	680	93	666
Sachs, Joseph, Hartford, Conn. Safety-fuse	660,341	Oct. 23	3068	681	93	666
Sachs, Joseph, Hartford, Conn. Lightning-arrester for safety cut-outs for electric circuits	662,466	Nov. 27	2690	640	93	1535
Sachs, Joseph, Hartford, Conn. Safety cut-out for electric circuits	662,501	Nov. 27	2765	656	93	1551
Sackett, Hiram B., Chicago, Ill. Coal-screen	661,080	Nov. 6	97	23	93	969
Sadler, Charles J., assignor to Blees-Moore Instrument Company, St. Louis, Mo. Stocking	664,295	Dec. 18	2555	581	93	2275
Safety Mail Pouch Fastener Company. (See Gavin and Griffin, assignors.)						
Sager Gear Company. (See Beck, Theodore E., assignor.)						
Sager, James H. (See Green, George D., assignor.)						
Salisbury, Edgar E., assignor to National Autophone Company, Chicago, Ill. Electric call-box	664,681	Dec. 25	3205	749	93	2450
Salisbury, Elmer E. (See Salisbury, Seneca M. and E. E.)	659,989	Oct. 16	2326	523	93	499
Salisbury, Seneca M. and E. E., Aberdeen, S. D. Fountain-penholder	661,819	Nov. 13	1436	348	93	1250
Saloman, Samuel, New York, N. Y. Photographic-plate washing and fixing apparatus	664,290	Dec. 18	2423	552	93	2250
Salyer, Harry M., New York, N. Y. Air-compressor						
Samson, Charles E. (See Van Schoick and Samson.)	662,973	Dec. 4	132	28	93	1750
Samson, Edwin J., and L. Levi, New York, N. Y. Shaving-brush						
Samson, James L. (See Davis and Samson.)						
Sandahl, Gustaf. (See Sandahl, Victor and G.)						
Sandahl, Victor and G., assignors of one-third to E. T. Freeman, Boston, Mass. Rotary engine	662,547	Nov. 27	2842	675 676	93	1505
Sandell, John A., Minneapolis, Minn. Beer-cooler	659,700	Oct. 16	1774	400	93	389
Sander, Carl, New York, N. Y. Refrigerator	659,105	Oct. 2	694	166	93	141
Sandera, Theodore, Canton, Ohio. Horse-detacher	660,592	Oct. 30	3500	785	93	769
Sanders, John F., assignor to H. Brown, Chicago, Ill. Apparatus for making lampblack	660,973	Oct. 30	4175	938	93	901
Sanders, John F., assignor to H. Brown, Chicago, Ill. Carbon pencil or electrode for electric lights	661,107	Nov. 6	140	35	93	979
Sanders, John T., Andrews, Tex. Lifting-jack	663,932	Dec. 18	1900	427	93	2142
Sanders, Newell, assignor to Chattanooga Plow Company, Chattanooga, Tenn. Plow	662,974	Dec. 4	133	28	93	1750
Sanderson, Edward S. (See Slinack and Sanderson.)						
Sanderson, George O., Grant, Iowa. Rotary-cylinder steam-engine	662,467	Nov. 27	2692	641	93	1536
Sanderson, Thomas C., London, England. Treating white lead	664,437	Dec. 25	2846	.....	93	2358
Sanderson, William H., assignor to National Computing Scale Company, Cleveland, Ohio. Weighing and counting machine	659,830	Oct. 16	2028	455	93	437
Sands, John, Seattle, Wash. Water-motor	659,901	Oct. 16	2151	486	93	461
Sandstrom, Frans O., Augusta, Ga. Axle-turning lathe	663,933	Dec. 18	1901	427	93	2142
Sandstrom, William K., assignor to Bommer Brothers, New York, N. Y. Spring-hinge	661,682	Dec. 25	3297	750	93	2450
Sanford, Henry H., Detroit, Mich. Stove	661,707	Nov. 13	1233	299	93	1212
Santmyer, Charles W., assignor of one-third to T. L. Kemp, Baltimore, Md. Bed	663,934	Dec. 18	1902	428	93	2142
Sargent, Edward W., Oshtemo, and C. C. Dover, Kalamazoo, assignors to S. O. Bush, Battle Creek, Mich. Changeable support for table-tops, &c	662,136	Nov. 20	2035	495	93	1385
Sargent, William D., assignor, by mesne assignments, to American Brake Shoe Company, Chicago, Ill. Composite metal casting	664,438	Dec. 25	2847	650	93	2358
Sartirana, Augustin, Lyons, France. Engraving-machine	660,080	Oct. 16	2294	537 538 539	93	511
Sarver, Edward, Deadwood, S. D. Steam-engine	660,464	Oct. 23	3268	732	93	705
Sarver, Edward, Deadwood, S. D. Track-cleaner	660,465	Oct. 23	3270	732 733	93	706
Sauer, Adelbert, Pittsburg, Pa. Rotary motor	662,975	Dec. 4	135	28	93	1750
Sauer, George A., assignor to Buckeye Iron and Brass Works, Dayton, Ohio. Hydraulic press	660,598	Oct. 23	3166	702	93	686
Sauerhering, Douglas L., Wausaw, Wis. Automobile	662,030	Nov. 20	1842	444	93	1348
Sauermilch, Emil, New York, N. Y. Apparatus for measuring textiles and recording sales, &c	662,153	Nov. 20	2068	501 502 503	93	1392
Sauvage, William H., assignor of two-thirds to H. N. Wood and C. C. Welch, Denver, Colo. Automatic brake-block	659,629	Oct. 9	1630	368	93	344
Savage, William D., *et al.* (See Hartwell, Jacob E., assignor.)						
Sawtell, Albert H., Malden, assignor to Pneumatic Goods Company, Boston, Mass. Air mattress or cushion	660,466	Oct. 23	3274	733	93	707
Sawtelle, Henry F. (See Trussell and Sawtelle.)						
Sawyer, Charles H., St. Louis, Mo. Draft-equalizer	659,824	Oct. 9	1075	253	93	233
Saxton, Augustus C., New York, N. Y. Saw-setting machine	661,647	Nov. 13	1117	277	93	1189
Saxton, Chesteen, Payne County, Okla. Ter. Castor-bean-popping house	664,586	Dec. 25	3183	710	93	2416
Saylor, Franklin P. (See Zeller, Thomas B., assignor.)						
Sayrs, William G., Burnside, Ill. Fruit-picker	660,974	Oct. 30	4176	938	93	901
Scaife, Margaret J., Camilla, Ga. Cotton renovator and batting-machine	663,583	Dec. 11	1235	271	93	1983
Scannell, Michael E., Worcester, Mass. Operating-table	658,960	Oct. 2	508	122 123	93	102
Scarcliff, Thomas, *et al.* (See Langenbach, Charles J., assignor.)						
Scard, Frederic I., Demerara, British Guiana. Evaporating-pan	662,976	Dec. 4	137	29	93	1751
Scatchard, William, Jr., *et al.* (See Schaffer, Philip F., assignor.)						
Schacht, Gustavus A., Cincinnati, Ohio, assignor of one-half to C. R. Talbott, Newport, Ky. Bedstead	663,685	Dec. 11	1421	314	93	2023

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schaeffer, Arthur D., assignor to P. M. Schaeffer, Hartford City, Ind. Making wood-pulp	659,184	Oct. 2	845	200	93	167
Schaeffer & Budenberg. (See Carpenter, Rolla C., assignor.)						
Schaeffer, Charles M., West Reading, Pa. Goods-exhibitor	663,046	Dec. 4	265	56	93	1776
Schaeffer, Pierce M. (See Schaeffer, Arthur D., assignor.)						
Schäffer & Budenberg. (See Serpollet, Léon, assignor.)						
Schaffer, Martin R., assignor of one-half to H. A. Greenswerig, Weissport, Pa. Low-water alarm	664,785	Dec. 25	3520	797	93	2497
Schaffer, Philip F., assignor of one-half to W. Scatchard, Jr., and J. J. Morris, Philadelphia, Pa. Ball-bearing hub	660,467	Oct. 23	3275	733	93	707
Schaller Patent Bake Oven Company. (See Clauss, William, assignor.)						
Schambach, Charles H. W., Nevada, Mo. Insecticide	659,552	Oct. 9	1489	.....	93	317
Schaum & Uhlinger. (See Gee, William V., assignor.)						
Schaw, Ingram, Batcher & Company. (See Foreman, Stanton, assignor.)						
Scheerer, Wilhelm, assignor to Actien-Gesellschaft für Fein Mechanic, vormals Jetter & Scheerer, Tuttlingen, Germany. Combined separating-spring and locking device for shears or the like	662,468	Nov. 27	2693	641	93	1536
	662,548	Nov. 27	2848	.....	93	1566
Scheid, Bernhard, Frankfort-on-the-Main, Germany. Manufacturing metallic silicium						
Scheidler, Reinhard, Newark, Ohio. Mechanism for propelling and guiding track-engaging carriages	663,518	Dec. 11	1142	248	93	1965
	659,106	Oct. 2	696	166	93	141
Schellenbach, George W., Joplin, Mo. Lathe-dog						
Schenck, Allen. (See Tripp, James, assignor.)						
Schenk, Adolph. (See Pohl, Eduard, assignor.)						
Schermerhorn, George L. (See Priest and Schermerhorn.)						
Scheuber, August W., assignor to M. Zinn, New York, N. Y. Safety-razor	664,177	Dec. 18	2324	580	93	2227
Scheuer, Ralph, New York, N. Y. Belt-buckle	663,472	Dec. 11	1055	231	93	1950
Scheuer, Ralph, New York, N. Y. Apparel-belt	663,473	Dec. 11	1056	231	93	1950
Schiecke, Ludwig, assignor to O. Gentsch, Magdeburg, Germany. Hardening iron or steel	662,502	Nov. 27	2767	.....	93	1552
Schiemann, Rudolf W. M., Dresden, Germany. Electric rail-brake	663,519	Dec. 11	1144	248	93	1966
Schifferle, Fridolin, St. Louis, Mo. Water-heater	658,963	Oct. 2	498	105	93	89
Schifferle, Fridolin, St. Louis, Mo. Water-heater	664,439	Dec. 25	2850	650	93	2358
Schild, Edward H., Baltimore, Md. Writing-pad	659,860	Oct. 16	2082	468	93	448
Schild, Hermann E., Pittsburg, Pa. Gas-reversing valve	661,670	Nov. 13	1162	286	93	1199
Schilling, Joseph W. (See Andreas, Frederick, assignor.)						
Schimper & Co., William. (See Babst, Joseph, assignor.)						
Schimper & Co., William. (See McIntyre, Frank, assignor.)						
Schindler, Henry J., Warren, Pa. File-case	662,825	Nov. 27	3353	793 794	93	1602
Schinke, Max G., Milwaukee, Wis. Road-roller	660,203	Oct. 23	2784	618	93	610
Schinneller, Jacob, Pittsburg, Pa. Registering mechanism	659,421	Oct. 9	1231	283 284	93	367
Schlabach, William, Nordheim, Tex. Fertilizer-distributing attachment	659,158	Oct. 2	773	187	93	156
Schlared, Charles, Columbus, Ohio. Car-coupling	661,002	Oct. 30	4220	949	93	910
Schlickeysen, Carl, Berlin, Germany. Combined sump, mixing-mill, and brick-press	663,103	Dec. 4	364	75, 76	93	1794
Schloss, Meyer W., New York, N. Y. Braid-machine	663,584	Dec. 11	1237	271 272	93	1984
Schlossmann, Paul. (See Huettig and Schlossmann.)						
Schmelz, Charles F., assignor of one-half to F. H. Richards, Hartford, Conn. Instrument for determining measurements	662,977	Dec. 4	138	29	93	1751
Schmelzle, Friedrich, New York, N. Y. Window-guard	661,772	Nov. 13	1353	328	93	1245
Schmick, Henry J., Hamburg, Pa. Valve for compression-engines	662,154	Nov. 20	2075	503	93	1393
Schmick, Henry J., Hamburg, Pa. Cam for operating machinery	663,704	Dec. 11	1460	322	93	2028
Schmid, William A., Cincinnati, Ohio. Surface steam-condenser	659,831	Oct. 16	2080	456	93	438
Schmidt, C. Augustus, *et al.* (See Duncan, John R., assignor.)						
Schmidt, Charles G., Cincinnati, Ohio. Mixing-machine	662,978	Dec. 4	140	30	93	1751
Schmidt, Emma, *et al.* (See Schmidt, Gottlieb, assignor.)						
Schmidt, Frank H. (See Beeman and Schmidt.)						
Schmidt, Frank S., Fort Wayne, Ind. Gearing	661,157	Nov. 6	240	58	93	1000
Schmidt, George A., Chicago, Ill. Soap	662,096	Nov. 20	1974	.....	93	1374
Schmidt, Gottlieb, assignor to H. E. Bell and E. Schmidt, Philadelphia, Pa. Cold-air-pressure apparatus for beer or other fluids	664,824	Dec. 25	3620	821	93	2514
Schmidt, John C. (See Ault and Schmidt.)						
Schmidt, Julius, Ludlow, Ky. Fruit-evaporator	663,474	Dec. 11	1056	232	93	1950
Schmidt, Julius H., Bayonne, assignor to Schmidt-Perrin Manufacturing Company, Jersey City, N. J. Tobacco-stripping machine	662,241	Dec. 4	035	136	93	1845
Schmidt, Lambert, Weehawken, N. J. Telephone system	660,124	Oct. 23	2617	585	93	576
Schmidt-Perrin Manufacturing Company. (See Schmidt, Julius H., assignor.)						
Schmidt, Richard H. W., Kansas City, Mo. Water-faucet	662,503	Nov. 27	2768	656	93	1552
Schmidt, Wilhelm, Heidelberg, and J. Berberich, Neustadt, Germany. Velocipede-brake	662,602	Nov. 27	2937	697	93	1583
Schmidt, William A. (See Strümpell, Oscar, assignor.)						
Schmidt, William A., assignor to Remington Automobile and Motor Company, Ilion, N. Y. Carbureter	660,125	Oct. 23	2620	586	93	576
	660,168	Oct. 23	2712	603 604	93	595
Schmitt, Edmund P., Chicago, Ill. Merry-go-round	663,935	Dec. 18	1903	428	93	2143
Schmitt, Martin A., Paterson, N. J. Clutch mechanism for looms	661,108	Nov. 6	142	36	93	979
Schmitz, Albert, Raunheim-on-the-Main, Germany. Manufacture of compound tubes	661,109	Nov. 6	143	36	93	979
Schmitz, Albert, Dusseldorf, Germany. Manufacturing pipes	663,047	Dec. 4	268	57	93	1777
Schmitz, Frank, Chicago, Ill. Elastic hub and axle						
Schmitz, Henry. (See Weiner, Wilhelm, assignor.)						
Schmolka, Wilhelm, Pola, Austria-Hungary. Balanced slide-valve	663,936	Dec. 18	1905	428	93	2143
Schneider, Arthur W., Columbus, Ohio. Garment-supporter	661,559	Nov. 13	952	237	93	1156
Schneider, Ernest B. (See Rieske, Otto G., assignor.)						
Schneider, George, Baltimore, Md. Hat-fastener	658,805	Oct. 2	140	32	93	31
Schneider, John H., Norwood, Ohio. Computing-scale	662,097	Nov. 20	1974	471	93	1374
Schneider, Louis C., Mittweida, Germany. Machine for making card-clothing	662,469	Nov. 27	2695	641	93	1537
Schoeler, Joseph, Hamilton, Ohio. Twyer	664,587	Dec. 25	3131	711	93	2417
Schoeler, Joseph, assignor to H. P. Deuscher Company, Hamilton, Ohio. Clod-crusher	660,975	Oct. 30	4178	988	93	902
Schoeller, Gustav A., Mulheim-on-the-Ruhr, assignor to F. Krupp, Essen, Germany. Ammunition conveyer or rammer for guns	663,242	Dec. 4	628	137	93	1846
Schoellkopf, Hartford & Hanna Company. (See Taggesell, Richard, assignor.)						
Schoen, August, assignor to S. B., R. J., J. C., and T. Stinson, Philadelphia, Pa. Cop-winding machine	660,593	Oct. 30	3502	786	93	769
Schoen, Charles T., Philadelphia, and J. M. Hansen, Bellevue, assignors to Pressed Steel Car Company, Pittsburg, Pa. Draft-rigging for railway-cars	662,698	Nov. 27	3128	740	93	1619
Schoenewald, William, Philadelphia, Pa. Automatic railway-switch	660,315	Oct. 23	3012	668	93	655

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Schoenmehl, Charles B., assignor to Waterbury Battery Company, Waterbury, Conn. Primary battery	663,937	Dec. 18	1906	429	93	2143
Schoenmehl, Charles B., assignor to Waterbury Battery Company, Waterbury, Conn. Galvanic battery	663,938	Dec. 18	1908	429	93	2144
Schoenmehl, Charles B., assignor to Waterbury Battery Company, Waterbury, Conn. Galvanic battery	664,006	Dec. 18	2040	461	93	2169
Schoenmehl, Charles B., assignor to Waterbury Battery Company, Waterbury, Conn. Galvanic battery	664,007	Dec. 18	2042	462	93	2169
Schoenmehl, Charles B., assignor to Waterbury Battery Company, Waterbury, Conn. Galvanic battery	664,008	Dec. 18	2043	462	93	2170
Schoenwetter, August F., and W. H. Schultz, Juneau, Wis. Combined heater and stock-tank	662,098	Nov. 20	1976	472	93	1374
Schoettl, Joseph, and C. Jaeger, New York, N. Y. Steam-generator	664,683	Dec. 25	3299	750	93	2451
Schofield, George W., New York, N. Y. Pleasure-canal	664,179	Dec. 18	2326	531	93	2228
Schofield, William H., Chicago, Ill. Vehicle-wheel	659,861	Oct. 16	2084	468	93	448
Scholl, Anton, Murray, Iowa. Automatic car-coupling	663,686	Dec. 11	1422	315	93	2021
Schooler, Joseph P., Colorado, Tex. Bicycle	659,595	Oct. 9	1559	354	93	330
Schoonmaker, George H. L., and J. A. Canfield, Danbury, Conn. Hat-forming machine	661,648	Nov. 13	1120	278	93	1190
Schouboe, Niels C., Copenhagen, Denmark. Apparatus for conveying or transporting building or other materials	659,492	Oct. 9	1376	313 314	93	295
Schrader, George H. F., New York, N. Y. Tire or other valve	661,671	Nov. 13	1165	286	93	1200
Schrader, George H. F., New York, N. Y. Tire or other valve	661,672	Nov. 13	1169	287	93	1200
Schrader, George H. F., New York, N. Y. Tire and valve-attacher and valve therefor	661,673	Nov. 13	1171	287	93	1201
Schramm, Heinrich, Nuremberg, Germany, assignor to O. Herrmann, New York, N. Y. Current-distributer for electric railways	661,458	Nov. 6	772	182	93	1106
Schratz, Alfred A., Detroit, Mich. Fluid-mixing fixture	659,260	Oct. 9	981	230	93	214
Schreck, Phillipp, Versoix, Switzerland. Acetylene-gas generator	662,504	Nov. 27	2770	657	93	1552
Schreiber, Georges M., Czenstochow, Russia. Apparatus for preventing collisions, &c., on railways	658,806	Oct. 2	140	33 34 35	93	32
Schreiner, Ludwig, Barmen-Rittershausen, Germany. Apparatus for dyeing	663,687	Dec. 11	1423	315	93	2021
Schroeder, Johann G. L. (See Müller, Carl F., assignor.)						
Schroeter, William, and A. Kautzmann, Dallas, Tex. Trolley-pole	663,788	Dec. 11	1624	364	93	2063
Schrottke, Franz, Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Measuring instrument	660,803	Oct. 30	3878	872	93	840
Schrottke, Karl O. F., Berlin, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Measuring instrument for alternating currents	660,804	Oct. 30	3880	873	93	841
Schroyer, Jones E. (See Feeney and Schroyer.)						
Schuch, John P., Jr., Cripple Creek, Colo. Ore-mixing machine	664,059	Dec. 18	2115	483	93	2185
Schuch, John P., Jr., Cripple Creek, Colo. Extracting precious metals from their ores	664,060	Dec. 18	2118	484	93	2185
Schulthess, Walter, Zurich, Switzerland. Apparatus for slaking lime	664,440	Dec. 25	2851	650 651	93	2358
Schultz, William H. (See Schoenwetter and Schultz.)						
Schulze, Andrew, Washington, D. C., assignor of one-half to E. S. Douglas, St. Louis, Mo. Centrifugal governor	664,336	Dec. 18	2632	598 599	93	2290
Schulze, Andrew, Washington, D. C., assignor of one-half to E. S. Douglas, St. Louis, Mo. Governor for water-wheels	664,337	Dec. 18	2633	599 600 601	93	2291
Schupner, Martin, Nyack, N. Y. Electrical apparatus	661,820	Nov. 13	1437	348	93	1250
Schussler, John H., assignor of one-half to W. M. Caldwell, Denver, Colo. Inking-roll truck for printing-presses	662,880	Nov. 27	3535	828	93	1705
Schütte, Johann, Bremerhaven, Germany. Steam-boiler	663,364	Dec. 4	839	180	93	1885
Schwab, Gustav, Boston, Mass. Picture hook and molding	661,557	Nov. 13	954	237	93	1156
Schwab, Joseph E. (See Fawell and Schwab.)						
Schwedtmann, Ferdinand, St. Louis, Mo. Radiator	658,928	Oct. 2	368	90	93	75
Schwerdfeger, Harry, and J. Kayser, Philadelphia, Pa. Cooling apparatus	661,110	Nov. 6	143	36	93	979
Scofield, Charles, Marengo, Ill. Paper-perforator	664,206	Dec. 18	2556	581	93	2275
Scott, Charles F., Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Varying active lengths of electrical conductors	660,930	Oct. 30	4105	923	93	887
Scott, Charles W., Lynchburg, Va. Electric switch	664,061	Dec. 18	2120	484	93	2185
Scott, Daniel W. (See Tapley, Emmitt A., assignor.)						
Scott, Eben M., assignor to Warner Brothers Company, Bridgeport, Conn. Paper box	664,588	Dec. 25	3135	711	93	2417
Scott, Frank G. and G. L., Newport, R. I. Runner for wagons or carriages	664,684	Dec. 25	3300	750	93	2451
Scott, George L. (See Scott, Frank G. and G. L.)						
Scott, Robert P., Cadiz, Ohio. Pneumatic tire	659,701	Oct. 16	1776	401	93	390
Scott, Walter, Plainfield, N. J. Printing-machine	662,699	Nov. 27	3130	740 741	93	1619
Scott, Walter, Plainfield, N. J. Bed-motion for cylinder printing-machines	664,100	Dec. 18	2188	499	93	2200
Scott, Walter, Plainfield, N. J. Folding and delivery mechanism	664,589	Dec. 25	3136	711 712	93	2417
Scott, William, Medford, Mass. Chuck	662,470	Nov. 27	2697	642	93	1537
Scott, William H., assignor to E. J. and J. Gregory, New York, N. Y., and T. T. Wiseman, Weehawken, N. J. Pyrographical tool	663,615	Dec. 11	1292	286	93	1966
Scott, William M., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Automatic magnetic circuit-breaker	661,195	Nov. 6	299	72, 73	93	1012
Scott, William M., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Rheostat and circuit-breaker	661,196	Nov. 6	301	73	93	1012
Scott, William M., Philadelphia, Pa., assignor to Cutter Electrical and Manufacturing Company, of New Jersey. Automatic magnetic circuit-breaker	662,979	Dec. 4	141	30	93	1752
Scovill Manufacturing Company. (See Goss, John H., assignor.)						
Scoville, George L., West Superior, Wis., assignor to Introstile Company, Duluth, Minn. Weather-strip	659,455	Oct. 9	1304	299	93	280
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Pilot-signal for telephone-switchboards	659,768	Oct. 16	1916	431	93	415
Scrimgeour, William, Jr. (See Bunte and Scrimgeour.)						
Scrivenor, Arthur. (See Cruickshanks and Scrivenor.)						
Scudder, Abram L., assignor of one-half to A. Devereaux, Jr., and M. D. Scudder, Deposit, N. Y. Rotary engine	663,989	Dec. 18	1909	429 430	93	2144
Scudder, Mabel D., *et al.* (See Scudder, Abram L., assignor.)						
Seamans, H. J., *et al.* (See Cornell, Harvey B., assignor.)						
Seamless Metal Ware Company of New York. (See Piper, Alexander R., assignor.)						
Sears, Henry C., Boston, Mass. Hansom-cab	661,279	Nov. 6	457	105	93	1042
Sears, William A., Jr., assignor of one-half to C. H. Emery, Bedford, Ind. Fertilizer-distributer attachment	663,642	Dec. 11	1337	296	93	2004

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Seaton, Benjamin C., assignor of one-half to B. Eiseman, St. Louis, Mo. Third rail for electric railways	660,738	Oct. 30	3763	847	93	819
Seaver, John W. (See Wellman and Seaver.)						
Seaver, John W., assignor to Wellman-Seaver Engineering Company, Cleveland, Ohio. Crane structure	660,031	Oct. 16	2400	539, 540	93	511
Seaver, John W., assignor to Wellman-Seaver Engineering Company, Cleveland, Ohio. Coke-loading machine	660,032	Oct. 16	2401	540, 541	93	512
Seavolt, John W., assignor of one-half to E. A. Vanscoy, Lock 53, Md., and J. W. Clark, Jamestown, N. Y. Shingle-sawing machine	660,931	Oct. 30	4106	923	93	887
Seay, John W., assignor of one-half to J. A. Green, Pidcoke, Tex. Blab or muzzle for weaning calves or colts, &c	662,471	Nov. 27	2702	643	93	1538
Sedgwick, Earl P., Chicago, Ill. Nut-cracker	660,033	Oct. 16	2404	541	93	512
Seebach, George W., New York, N. Y. Incandescent gas-burner	660,408	Oct. 23	3276	733	93	707
Seegelke, Heinrich. (See Harms and Seegelke.)						
Seelye, William E., Brainerd, Minn. Combination-tool	660,204	Oct. 23	2786	619	93	610
Seibert, Robert D., assignor of one-half to J. Robbins, Millville, Pa. Automatic railway-switch	664,297	Dec. 18	2557	581, 582	93	2276
Seidel, Paul, Ludwigshafen, and L. Preuss, Bonn, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Making anthranilic acid	661,821	Nov. 13	1439	------	93	1251
Seiler, Peter W. (See Gysel, Peter, assignor.)						
Sekian, Sarkis H., Manchester, England. Machine for ironing shirt-fronts or other articles	663,585	Dec. 11	1239	272	93	1984
Sekowsky, Hermann, Milwaukee, Wis., assignor to National Enameling and Stamping Company, New York, N. Y. Pipe-elbow machine. (Reissue)	11,871	Nov. 13	1655	402, 403, 404	93	1292
Selden, Charles, *et al.* (See Silkman, Edward J., assignor.)						
Selig, Michael. (See May and Selig.)						
Sell, William E., assignor to Gilliam Manufacturing Company, Canton, Ohio. Snap attachment	661,773	Nov. 13	1354	328	93	1235
	663,780	Dec. 11	1626	364	93	2003
Selle, Joseph, Mansfield, Ohio. Can	659,325	Oct. 9	1076	253	93	223
Sellers, Walker L., Pittsburg, Pa. Switch-turning mechanism	658,904	Oct. 2	440	105	93	89
Sellers, William F., Gallitzin, Pa. Rail-joint	661,081	Nov. 6	98	24	93	970
Selstrom, Carl A., Princeton, Ill. Lawn-mower						
Sempire Clock Company. (See Groom, Harry, assignor.)						
Seneca Glass Company. (See Roemisch, Anton, assignor.)						
Senior, Joseph. (See Simpson and Senior.)						
Senna, Charles E., Boston, Mass. Necktie-holder	658,965	Oct. 2	441	105	93	90
Sensburg, Ernst, Munich, Germany. Type-writer	664,590	Dec. 25	3141	712	93	2418
Sergeant, Charles S., Brookline, and H. L. Libby, Boston, Mass. Sign	659,875	Oct. 16	2109	474	93	454
Sergeant, George S., Greensborough, N. C. Grate-bar	663,365	Dec. 4	840	180	93	1885
Serpollet, Léon, Paris, France; assignor to Schäffer & Budenberg, Magdeburg-Buckau, Germany. Lubricating apparatus	664,180	Dec. 18	2328	531, 532	93	2228
Serrell, Edward W., New York, N. Y., assignor, by mesne assignments, to Electric Tripartite Steel Pole Company, of New Jersey. Pole for telegraphs, &c	662,312	Nov. 20	2369	570	93	1453
	664,786	Dec. 25	3521	708	93	2497
Setchell, George C. and H. E., Philadelphia, Pa. Fishing-pole						
Setchell, Horace E. (See Setchell, George C. and H. E.)	659,261	Oct. 9	982	------	93	214
Setterberg, Carl T., Stockholm, Sweden. Producing glue or gelatin free from fat	659,000	Oct. 2	510	123	93	102
Sewall, Minott W., Roselle, N. J., assignor to Babcock & Wilcox Company, New York, N. Y. Self-closing aperture-cover	662,099	Nov. 20	1977	472	93	1374
Seybold, Charles, Dayton, Ohio. Press for embossing, &c	660,761	Oct. 30	3800	853	93	827
Seyfarth, Edward, Chicago, Ill. Boiler-flue						
Seymour, Charles E., and H. S. Morey, Placerville, Cal. Mechanism for sizing and segregating ores or disintegrated materials	658,807	Oct. 2	143	35	93	32
	661,622	Nov. 13	1072	296, 297	93	1179
Seymour, Frederick S., Dubuque, Iowa. Water-supply regulator						
Seymour, Herbert P., Hartford, Conn., assignor, by mesne assignments, to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Back-pedaling brake	662,881	Nov. 27	3536	828, 829	93	1705
Shaen, Michael. (See Elliott and Shaen.)						
Shaffer, John B., Mount Carroll, Ill. Gate	659,107	Oct. 2	697	167	93	141
Shaffer, Richard M., Baltimore, Md. Steam-generator	662,472	Nov. 27	2703	643	93	1538
Shammo, Luther C., Harrisburg, Pa. Nut-lock	660,594	Oct. 30	3503	786	93	769
Shands, William H., Clinton, S. C. Ticket-punch	661,896	Nov. 13	1564	380	93	1274
Shanfelter, John J. (See Brown, John E., assignor.)						
Shannon, Archibald, *et al.* (See Maine, Andrew J., assignor.)						
Sharood, Charles K., assignor to Sharood & Crooks, St. Paul, Minn. Ventilated shoe	660,522	Oct. 23	3383	760	93	728
Sharood & Crooks. (See Sharood, Charles K., assignor.)						
Sharp, James A., assignor of one-half to C. F. Craver, Harvey, Ill. Self-binding harvester	661,231	Nov. 6	365	87	93	1025
	659,553	Oct. 9	1490	337	93	317
Sharpe, George E., Steubenville, Ohio. Gas-grate	662,826	Nov. 27	3355	794	93	1662
Sharples, James, Birmingham, England. Burner for oil-lamps						
Shaughnessy, Micheal L. (See Barry and Shaughnessy.)						
Shaver, John W. and O. P., Friedens, Pa. Changeable-speed and reversible friction-gearing	663,940	Dec. 18	1911	430	93	2144
	661,590	Nov. 13	1022	256	93	1170
Shaver, Joseph, Milwaukee, Wis. Vehicle-hub						
Shaver, Oliver P. (See Shaver, John W. and O. P.)						
Shaw, Arthur E., assignor to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Ventilator-cap for street-lamps	662,313	Nov. 20	2370	571	93	1453
	661,624	Nov. 13	1077	267	93	1181
Shaw, Clifford, New York, N. Y. Apparatus for lifting water						
Shaw, Clifford, assignor to Bacon Air Lift Company, New York, N. Y. Apparatus for lifting water	661,623	Nov. 13	1075	267	93	1180
Shaw, George A., assignor to Kay Brothers, Limited, Stockport, England. Sticky fly-catcher	662,608	Nov. 27	2037	497	93	1583
Shaw, Loring D., Chelsea, assignor of three-eighths to T. W. Gowen, Malden, Mass. Steam-generator	662,882	Nov. 27	3538	829	93	1705
	658,870	Oct. 2	275	68	93	57
Shaw, Robert L., Paterson, N. J. Jacquard-card wire						
Shaw, Samuel H., and W. G. Toplis, Philadelphia, Pa.; said Toplis assignor of one-third to said Shaw. Printing-press	663,790	Dec. 11	1627	365	93	2064
	659,769	Oct. 16	1918	431, 432	93	416
Shea, Michael J. New York, N. Y. Mail-marking machine	661,822	Nov. 13	1440	348	93	1251
Shea, Thomas A., assignor to National Railway Spring Company, Oswego, N. Y. Spring.						
Shearer, Robert, *et al.* (See Belfield, William, assignor.)	662,314	Nov. 20	2371	571	93	1453
Shedd, Ephraim C., Wichita, Kans. Cuff-holder	661,082	Nov. 6	101	24	93	970
Shedlock, Alfred, Jersey City, N. J. Corset-fastener	661,774	Nov. 13	1355	328	93	1236
Sheehy, Patrick J., and R. E. O'Neill, San Francisco, Cal. Prospecting-shovel	660,595	Oct. 30	3504	786	93	770
Sheets, David, Beard, Ind. Fence						

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Sheiry, William F. (See McGaughey, Jerome G., assignor.)						
Shekell, Forrest L. (See Watzel and Shekell.)						
Shelby Steel Tube Company. (See Thust, George J., assignor.)						
Sheldon Axle Company. (See Decker, Jacob B., assignor.)						
Sheldon, Harry E. (See Parr and Sheldon.)						
Shepard, Amos, Plantsville, Conn. Drawer-pull	664,181	Dec. 18	2331	532	93	2229
Shepard, Charles S., Cherry Creek, N. Y. Pumping device	662,980	Dec. 4	144	31	93	1752
Shepard, John T., assignor of one-half to F. Tardy, Evansville, Ind. Propeller-shaft bearing	660,899	Oct. 23	3168	702	93	686
Shepard, William H. (See Briggs and Shepard.)						
Shepard, William H., Allegheny, Pa. Adjustable range-boiler stand	659,938	Oct. 16	2230	500	93	477
Shepard, William H., assignor to T. H. Brooks & Co., Cleveland, Ohio. Vault-light construction	663,190	Dec. 4	544	117	93	1820
	664,182	Dec. 18	2333	532	93	2230
Shepherd, Burchard P., Winona, Minn. Holder for shoe-laces	659,493	Oct. 9	1380	314	93	295
Shepler, George E., Pittsburg, Pa. Safety device for elevators	662,827	Nov. 27	3356	794, 795	93	1663
Sheppard, Howard R., Philadelphia, Pa. Combined gas and coal range	662,700	Nov. 27	3131	741	93	1619
Sheppard, Joseph W., New York, N. Y. Interchangeable adjustable book-lock	660,823	Oct. 30	3917	879	93	849
Sherman, William C., assignor of two-thirds to A. McCallum and P. Bewan, Orlando, Fla. Fountain-pen	662,100	Nov. 20	1980	473	93	1375
Sherman, Willis S. (See Richardson, Wilber E., assignor.)						
Sherrer, August, La Grange, Tex. Hay-press	661,426	Nov. 6	716	165, 166	93	1095
Sherwood, Morgan A., Washington, D. C. Stage illusion apparatus						
Shevlin, George F. (See Baker, Shevlin, and Baker.)						
Shickle, Harrison & Howard Iron Company. (See Floyd, George G., assignor.)						
Shickle, Harrison & Howard Iron Company. (See Palmquist, Eric W., assignor.)						
Shidler, George W., York, Nebr. Surgical instrument	659,422	Oct. 9	1236	284	93	207
Shields, Sanford S., Columbus, Ohio. Railway-switch	664,178	Dec. 18	2326	530	93	2228
Shimer, Samuel J., Milton, Pa. Cutter-head	659,990	Oct. 16	2329	524	93	499
Shine, George, Bangor, Mich. Gate	663,366	Dec. 4	841	181	93	1885
Shinholser, John W., Macon, Ga. Indicator attachment for type-writing machines	660,224	Oct. 23	2821	626	93	617
Shipherd, William C., Cleveland, Ohio. Thill-coupling	659,262	Oct. 9	983	231	93	214
Shipley, Columbus G., Jr., Dayton, Ohio, assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Paper box	663,133	Dec. 4	419	88	93	1805
Shipley, James T., Detroit, Mich. Operating-table	661,232	Nov. 6	307	87	93	1026
Shipley, Joseph J., Washington, D. C. Headlight	662,744	Nov. 27	3207	750	93	1633
Shipley, Thomas, York, Pa. Ice-making machinery	659,554	Oct. 9	1492	338	93	317
Shipley, Thomas, York, Pa. Ice-making machinery	659,610	Oct. 9	1588	359	93	336
Shipman, Madison D., De Kalb, Ill. Glove-fastener	663,520	Dec. 11	1146	248	93	1966
Shipman, Madison D., De Kalb, Ill., and E. P. Bunyea, Washington, D. C.; said Bunyea assignor to said Shipman. Glove-fastening	663,521	Dec. 11	1148	248	93	1967
Shirk, Peter E., Blue Ball, assignor to John A. Peeples Manufacturing Company, Lancaster, Pa. Machine for cutting cigar-wrappers. (Reissue)	11,854	Oct. 9	1646	370	93	347
Shirreffs, David W., Oswego Falls, N. Y. Picker-check for looms	661,083	Nov. 6	103	21	93	971
Shoecraft, Judson, Eskridge, assignor to C. C. Gardiner, Bradford, Kans. Semaphore-operating mechanism	662,549	Nov. 27	2849	676, 677	93	1567
Shoecraft, Judson, Topeka, and C. C. Gardiner, Bradford, Kans., said Shoecraft assignor to said Gardiner. Electrical semaphore system	658,929	Oct. 2	370	91	93	75
Shoemaker, John A., La Salle, N. Y. Button-polishing machine	664,101	Dec. 18	2190	500	93	2201
Shoemaker, Louis H., Paterson, N. J. Locomotive turn-table	662,031	Nov. 20	1844	444	93	1348
Shoenberg, Jeannette, Cleveland, Ohio. Garment-hanger	660,816	Oct. 23	3013	668	93	656
Shonbeck, Oke A., assignor of one-half to L. R. Moore, Jr., Kansas City, Mo. Grain-scourer	660,205	Oct. 23	2787	619	93	610
Shone, Isaac, and E. Ault, London, England. Ejector for raising sewage or other liquids	664,183	Dec. 18	2335	533, 534	93	2230
Shore, Charles, Bolton, and C. Heap, Caldershaw Rochdale, England. Switchboard for telephonic or telegraphic purposes	663,367	Dec. 4	843	181	93	1886
Short, Sidney H., Cleveland, Ohio, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Brush-holder for electric machines	662,630	Nov. 27	2685	707	93	1502
Short, William A., Putnam, Tex. Wire-tightener	662,101	Nov. 20	1982	473	93	1375
Shortridge, Ernest W., Farnum, W. Va. Toy engine	661,252	Nov. 6	415	97	93	1034
Shotwell, Marcus A. K., Silver City, N. Mex. Saw-clamp	661,727	Nov. 13	1269	307	93	1219
Shourek, John, Pittsburg, Pa. Air-brake	661,111	Nov. 6	144	36, 37, 38	93	980
Shriver, Augustus F., Arbuckle, assignor of two-thirds to himself, W. Storey, San Francisco, and J. H. Smith, Stonyford, Cal. Acetylene-gas generator	663,391	Dec. 4	744	159	93	1867
Shuey, William, Wellsburg, W. Va. Pipe-joint	662,828	Nov. 27	3357	795	93	1663
Shuff, Ervin A., Mathewson, Okla Ter. Nut-lock	661,558	Nov. 13	955	237	93	1156
Shumaker, Wilson B., Fordyce, Ark. Gate-latch	662,604	Nov. 27	2938	698	93	1589
Shuman, Charles, St. Louis, Mo. Filter	659,876	Oct. 16	2111	474	93	454
Shuman, Constantine. (See Shuman, Frank and C.)						
Shuman, Frank and C., Philadelphia, Pa. Mercerizing machine	661,649	Nov. 13	1122	278, 279	93	1190
Shupert, Frank W. and H. L., Spokane, Wash. Exhaust-nozzle tip	664,298	Dec. 18	2502	582	93	2277
Shupert, Henry L. (See Shupert, Frank W. and H. L.)						
Shuping, Jacob A., Morgantown, N. C. Car-coupling attachment	659,877	Oct. 16	2112	475	93	454
Shuster, Martin, assignor of three-fifths to W. A. Keller and W. A. Wiegand, Great Falls, Mont. Toy	659,555	Oct. 9	1493	338	93	317
Siber, Hans, Sömmerda, Germany. Means for uniting gun-barrels	661,745	Nov. 13	1304	317	93	1225
Sibley, James T., and R. T. Newton, assignors to W. S. O'Connor, New York, N. Y. Sled	661,427	Nov. 6	718	167	93	1096
Sieber & Trussell Manufacturing Company. (See Trussell, Emory A., assignor.)						
Siegmund, August, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Dyeing	659,556	Oct. 9	1495	------	93	318
Sieh, Hans H. (See Holstein and Sieh.)						
Siemens & Halske Electric Company. (See Feuerlein, Otto, assignor.)						
Siemens & Halske Electric Company of America. (See Hundhausen, Rudolf, assignor.)						
Siemens & Halske Electric Company of America. (See Köttgen, Carl A. B. D., assignor.)						
Siemens & Halske Electric Company of America. (See Schrottke, Franz, assignor.)						
Siemens & Halske Electric Company of America. (See Schrottke, Karl O. F., assignor.)						
Sievert, Paul T., Dresden, Germany. Apparatus for manufacturing hollow glass articles	662,908	Nov. 20	2169	523	93	1414
Sievert, Paul T., Dresden, Germany. Apparatus for manufacturing hollow glass articles	664,102	Dec. 18	2195	501	93	2202
Sieverts, Wilhelm H. A., Hamburg, Germany. Mantle for incandescent lamps	660,932	Oct. 30	4108	924	93	887
Sigley, George W., Havana, Ill. Cupboard-latch	662,681	Nov. 27	3088	729	93	1612

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Signor, Alfred J., Elkhart, Ind. Multiple-cylinder explosive-engine	662,155	Nov. 20	2076	503	93	1393
Signor, Alfred J., Elkhart, Ind. Sparking-igniter for explosive-engines	662,315	Nov. 20	2372	571	93	1454
Sikes, John H. (See McCreary, Alfred T., assignor.)						
Silberstein, Friedrich. (See Pollak, Anton, assignor.)						
Silberstein, Friedrich, *et al.* (See Pollak and Virag, assignors.)	661,775	Nov. 13	1356	328, 329	93	1296
Silfversparre, Arcut, Bofors, Sweden. Breech mechanism for breech-loading guns						
Silkman, Edward J., assignor of one-third to C. Selden and E. W. Day, Baltimore, Md. Signaling system	660,469	Oct. 23	3278	734	93	707
Silkman, Edward J., assignor of one-third to C. Selden and E. W. Day, Baltimore, Md. System of signaling	660,470	Oct. 23	3284	735	93	708
Silkman, Frank W. (See Plant, Alfred, assignor.)	660,126	Oct. 23	2021	586	93	576
Silsby, Eugene W., La Grange, Ill. Die-press	660,127	Oct. 23	2024	586	93	577
Silsby, Eugene W., La Grange, Ill. Button						
Silverman, Louis. (See Dawson and Silverman.)						
Silvers, Ulysses G. (See Denney and Silvers.)						
Simes, Charles F., *et al.* (See Laureyns, Gustav G., assignor.)	662,204	Nov. 20	2170	524	93	1414
Simkins, Adelbert C., Philadelphia, Pa. Advertising-cover for baskets, &c	659,108	Oct. 2	698	167	93	141
Simmermaker, Charles F., Tipton, Iowa. Combined barrel and bag truck	658,808	Oct. 2	148	36	93	33
Simmons, Herbert, Wellston, Ohio. Motor-wheel for automobiles	658,871	Oct. 2	275	68	93	57
Simmons, Hymon H., Simmonsville, Miss. Device for hoisting well-buckets						
Simmons, Lee H., Rocky Mount, N. C., assignor of one-half to A. Ayers, Baltimore, Md. Railway-advertiser and station-indicator	658,809	Oct. 2	149	36	93	33
Simmons, Lewis B., assignor of one-half to G. Tritch, Jr., Denver, Colo. Wad-seating machine	659,630	Oct. 9	1632	368	93	344
Simmons, Samuel T., Columbus, Ohio. Lock	663,791	Dec. 11	1629	365	93	2004
Simms, Frederick R., London, England. Electric-ignition plug for internal-combustion engines	662,317	Nov. 20	2374	572	93	1454
Simms, Frederick R., London, England, and R. Bosch, Stuttgart, Germany. Magneto-electric machine	662,316	Nov. 20	2373	571, 572	93	1454
Simms, Frederick R., London, England, and R. Bosch, Stuttgart, Germany. Sparking igniter for explosion-engines	663,643	Dec. 11	1339	296	93	2004
Simon, George E., Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Paper box	663,134	Dec. 4	421	88	93	1806
Simonds, William E. (See Doughty, John G., assignor.)						
Simoni, Jennie, assignor of one-half to W. K. and I. C. Hays, San Francisco, Cal. Burglar-alarm door-lock	663,586	Dec. 11	1240	273	93	1985
Simplex Electrical Company. (See Ayer, James I., assignor.)						
Simplex Electrical Company. (See Davis, William E., assignor.)	664,685	Dec. 25	3302	751	93	2452
Simpson, Cassius M., Cincinnati, Ohio. Clasp for garment-supporters or the like	662,318	Nov. 20	2375	572, 573	93	1454
Simpson, Charles H., Southampton, and J. Senior, Wakefield, England. Smoke-house						
Simpson, Henry, Liverpool, England. Apparatus for arresting motion of navigable vessels	662,829	Nov. 27	3358	795	93	1663
Simpson, William C., Strother, Mo. Fruit-jar	661,746	Nov. 13	1305	318	93	1225
Simpson, William E., London, England. Variable-speed gearing	660,068	Oct. 16	2522	564	93	536
Simpson, William E., London, England. Fluid-pressure motor	664,787	Dec. 25	3522	798, 799, 800	93	2497
Sims, David P., Lincoln, Nebr. Valve-regulating device for water-motors	660,317	Oct. 23	3015	668	93	656
Sims, Smith S., Beatrice, Nebr. Disk harrow	662,981	Dec. 4	145	31	93	1753
Sinclair, Cyrus H., assignor of two-thirds to G. L. McCurdy and B. C. Lindley, Chicago, Ill. Portable hoist	658,810	Oct. 2	152	37	93	34
Singer Manufacturing Company. (See Diehl, Philip, assignor.)						
Singer Manufacturing Company. (See Diehl and Grieb, assignors.)						
Singer Manufacturing Company. (See Diehl and Hemleb, assignors.)						
Singer Manufacturing Company. (See Kerr, John, assignor.) (Reissue.)						
Singer, William F., New York, N. Y., assignor to Automatic Ice Machine Company, of New York. Pump	664,507	Dec. 25	2970	677	93	2382
Single, Leonard, Hamilton, Ohio. Packing-box for steam-joints	663,587	Dec. 11	1241	273	93	1985
Singleton, Herbert E. S., assignor of one-half to S. F. Lee and H. Hampshire, San Francisco, Cal. Focusing device for cameras	658,872	Oct. 2	277	68	93	57
Singley, Joseph J., El Dorado, Kans. Stock-feeder	660,596	Oct. 30	3506	787	93	770
Sinkovic, Ferdinand, Klausenleopoldsdorf, Austria-Hungary. Bob-level	660,870	Oct. 30	4012	898	93	867
Sinnberg, Theodore E., London, England. Gas-burner	660,933	Oct. 30	4109	924	93	887
Sipp, Grant, Paterson, N. J. Air pump and compressor	659,832	Oct. 16	2031	456	93	438
Sisco, Henry C., Anderson, Ind. Fluid-pressure regulator	662,550	Nov. 27	2853	677	93	1567
Sisson, Jesse. (See McMaken, Joseph H., assignor.)	662,082	Nov. 20	1845	444	93	1348
Sitts, Ernest F., Herkimer, N. Y. Automatic fire-alarm device	663,104	Dec. 4	366	76	93	1794
Siversleth, Hans C. P., Copenhagen, Denmark. India-rubber tire for vehicles	663,792	Dec. 11	1630	365	93	2064
Skinner, Edward H., Springbrook, Oreg. Cherry-pitter						
Skinner, Ernest M., *et al.*, trustees. (See Crooks, James W., assignor.)	663,368	Dec. 4	844	181	93	1886
Skinner, Ernest M., Boston, Mass. Automatic piano-player	662,830	Nov. 27	3360	796	93	1664
Sklar, John, New York, N. Y. Speculum	663,105	Dec. 4	367	76, 77	93	1794
Skoog, Carl G., A. T. Rosen, and F. G. Lilygreen, St. Paul, Minn.; said Rosen and Lilygreen assignors to said Skoog. Convertible stool and cane	663,588	Dec. 11	1242	273, 274	93	1985
Slack, John E., assignor of two-thirds to H. Heenan, Manchester, England. Water-tube boiler	659,770	Oct. 16	1924	432	93	417
Slappey, William H., East End, Ga. Fireplace	662,102	Nov. 20	1983	473	93	1375
Slater, James, Pittsburg, Pa. Smoke-consuming furnace						
Slaughter, Sallie, *et al.* (See Sparrow, Stephen G., assignor.)						
Sleeper, Charles W., Lancaster, N. H., assignor to Sleeper Machine Company, of Maine. Can-numbering machine	663,048	Dec. 4	269	57	93	1777
Sleeper Machine Company. (See Sleeper, Charles W., assignor.)	661,823	Nov. 13	1441	349	93	1251
Slick, Edwin E., Braddock, Pa. Transfer mechanism						
Slinack, Victor H., and E. S. Sanderson, assignors to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Antivibration-lamp for Welsbach or other incandescent lights	662,831	Nov. 27	3361	796	93	1664
Sloan, John O., Indianapolis, Ind. Fare-register	664,103	Dec. 18	2197	501	93	2292
Slocum, Eason L., Pawtucket, R. I. Galvanic battery	664,362	Dec. 18	2691	611	93	2302
Slowe, Charles P., Huntingdon Valley, Pa. Hood for cooking stoves or ranges	661,428	Nov. 6	719	167	93	1096
Small, David. (See Taylor and Small.)						
Smead, Isaac D., Toledo, Ohio. Heating and ventilating system	662,103	Nov. 20	1984	474	93	1376
Smeeth, Elizabeth. (See Reese, Arnold K., assignor.)						
Smelker, Angeline, North Star, Ohio, assignor of one-third to M. M. Mehring, Indianapolis, Ind. Fruit-jar closure	663,616	Dec. 11	1293	286	93	1996

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smit, Johannes, Leeuwarden, Netherlands. Compound for preventing boiler incrustations	662,205	Nov. 20	2171	.....	93	1414
Smith, Andrew. (See Drennan, Smith, and Graham.)						
Smith, Burton A., and G. M. Hoyland, Jackson, Mich. Car-seal	663,895	Dec. 11	1718	384	93	2084
Smith, Charles E., Bridgeport, Conn. Punch	664,299	Dec. 18	2564	582	93	2277
Smith, Charles M. W., Cambridge, Mass., assignor to W. C. Carr, New York, N. Y. Relief-valve	659,263	Oct. 9	984	231	93	214
Smith, Charles P., assignor of two-thirds to F. Newnham and C. S. Beath, Los Angeles, Cal. Moistener and liquid-distributer	659,100	Oct. 2	699	167	93	142
Smith, Charles R. (See Keyes, Frank E., assignor.)						
Smith, Charles S., *et al.* (See Benton, George P., assignor.)						
Smith, Clara B. A., Cleveland, Ohio. Garment-stay	664,441	Dec. 25	2853	651	93	2359
Smith, Clare, Columbus, Ohio. Toy parachute	662,701	Nov. 27	3182	741	93	1619
Smith, Daniel J. (See Green, John H., assignor.)						
Smith, David, Cleveland, Ohio. Hose-coupling	660,225	Oct. 23	2823	626, 627	93	617
Smith, David E., Oswayo, Pa. Oil-cup	659,159	Oct. 2	775	187	93	156
Smith, David E., Oswayo, Pa. Furnace	659,596	Oct. 9	1561	354	93	331
Smith, De Wane B., Deerfield, N. Y. Swivel for hose	659,326	Oct. 9	1077	253	93	233
Smith, De Wane B., Deerfield, N. Y. Sprayer	663,200	Dec. 4	545	117	93	1829
Smith, Edward, assignor of one-half to W. Frey, Canton, Ohio. Dry-pan	660,278	Oct. 23	2935	654	93	640
Smith, Edward E. (See Jones, Harry F., assignor.)						
Smith, Edward J., *et al.* (See Arledter, Fritz, assignor.)						
Smith, Edward S., Waterbury, Conn., assignor to C. J. Higley, New York, N. Y. Button	662,033	Nov. 20	1846	444	93	1348
Smith, Elbridge G. P., Portland, Me. Bell-buoy	663,941	Dec. 18	1913	430	93	2145
Smith, Eric R., *et al.* (See Rathbone, John J., assignor.)						
Smith, Frank L., Marietta, Kans. Stovepipe	661,824	Nov. 13	1442	349	93	1251
Smith, Fred H. (See Pomeroy, Henry C., assignor.)						
Smith, Frederick H., assignor of nine-sixteenths to J. P. Ibson, Denver, Colo. Framing device	660,084	Oct. 16	2523	565	93	536
Smith, George G., Florence, Italy. Acetylene-gas generator	660,169	Oct. 23	2715	604, 605	93	596
Smith, George G., Florence, Italy. Calcium-carbid cartridge	660,170	Oct. 23	2720	605	93	597
Smith, George M., Readsborough, Vt. Chair	661,280	Nov. 6	459	106	93	1043
Smith, Gerald D., *et al.* (See Wilding, James A., assignor.)						
Smith, Harry J., New York, N. Y. Bicycle	659,833	Oct. 16	2033	456	93	439
Smith, Henry C. (See Gwinn and Smith.)						
Smith, Henry K., Philadelphia, Pa., W. W. Morton, Camden, N. J., and R. L. Gibson, Philadelphia, Pa.; said Smith and Morton assignors to said Gibson. Spring-motor	663,402	Dec. 4	918	199	93	1900
Smith, Herbert M. (See Stanley and Smith.)						
Smith, Hinsdale, Springfield, Mass. Gas-engine	663,475	Dec. 11	1058	232	93	1950
Smith, Isaac N., Ashley, Ill. Halter	659,110	Oct. 2	701	168	93	142
Smith, James B. (See Wade and Smith.)						
Smith, James H. (See Newell, John F., assignor.)						
Smith, James H., *et al.* (See Shriver, Augustus F., assignor.)						
Smith, James H., Providence, R. I. Feeding device for printing-presses	658,811	Oct. 2	154	37, 38	93	34
Smith, James M., Newark, N. J., assignor to Oxford Manufacturing Company, Oxford, Pa. Muffler for engines	659,456	Oct. 9	1306	299	93	280
Smith, James T. (See Mallery, Frank W., assignor.)						
Smith, John, London, England. Apparatus for burning liquid fuel	662,819	Nov. 20	2378	573, 574	93	1455
Smith, John C., Massapeag, Conn. Vehicle-wheel	660,401	Oct. 23	3169	703	93	687
Smith, Jonathan P., Denver, assignor of one-half to A. H. B. Harenc and J. A. Lehrritter, Salida, Colo. Ore-separator	660,842	Oct. 23	3069	681	93	667
Smith, Lewis M., and W. H. Banks, Jefferson, Wis. Chair	661,084	Nov. 6	104	24	93	971
Smith, Mary E. (See Smith, Perry C., assignor.)						
Smith, Michael, Asotin, Wash. Cultivator and harrow	664,686	Dec. 25	3304	751	93	2432
Smith, Millage M., Stockdale, Tex. Gage attachment for bench-planes	661,559	Nov. 13	957	238	93	1157
Smith, Norbury L., Waterford, N. Y. Apparatus for dyeing	660,402	Oct. 23	3171	703, 704	93	687
Smith, Perry C., assignor to M. E. Smith, Indianapolis, Ind. Milk and cream separator	659,494	Oct. 9	1383	315	93	206
Smith, Preston A., Richford, Vt. Toy hoop	662,084	Nov. 20	1848	445	93	1349
Smith, Ralph J., Sunderland, England. Valve	660,400	Oct. 23	3169	702, 703	93	686
Smith, Richard J., New Haven, Ohio. Reversible friction-clutch gearing	662,702	Nov. 27	3133	742	93	1620
Smith, Richard N., *et al.* (See Sparrow, Stephen G., assignor.)						
Smith, Theodore, Georgetown, Ill. Means for suspending incandescent electric lights	659,702	Oct. 16	1778	401	93	390
Smith, Uzziel P., assignor of one-half to T. Kane, Chicago, Ill. Pneumatic tire for vehicles	659,557	Oct. 9	1496	339	93	318
Smith, Walter M., Newcastle-upon-Tyne, England. Compound locomotive-engine	662,578	Nov. 27	2001	688, 689	93	1576
Smith, Walter P., Clarksville, Iowa. Harrow	662,605	Nov. 27	2040	698	93	1584
Smith, Walter P., and A. Tennison, Clarksville, Iowa. Scaffold	664,508	Dec. 25	2972	677	93	2382
Smith, Wilbur T., assignor to W. T. Smith Company, New Haven, Conn. Automatic locking device	663,589	Dec. 11	1243	274	93	1985
Smith, William F., assignor to Gorham Manufacturing Company, Providence, R. I. Portmanteau-frame	659,878	Oct. 16	2112	475	93	454
Smith, William H. (See Yost and Smith.)						
Smith, William H., Blythedale, Mo. Sealed leg-band	664,062	Dec. 18	2128	484	93	2186
Smith, William H., Burr Oak, Kans., assignor of one-half to P. B. Porter. Combined rake and marker	664,788	Dec. 25	3524	801	93	2498
Smith, William J. (See Waldburger and Smith.)						
Smith, William S. (See Horn and Smith.)						
Smithson, Arthur. (See Warren and Smithson.)						
Smock, Rulief P., *et al.* (See Weeks, Hubbard F., assignor.)						
Smyth, David G., Hartford, Conn. Sheet or signature gathering machine	658,812	Oct. 2	158	38	93	35
Smyth, David M., assignor to F. C. Bolt, trustee, Pasadena, Cal. Gumming mechanism for book-sewing machines	664,300	Dec. 18	2565	583	93	2277
Smyth, Lewis M., Uvalde, Tex. Gate-latch	660,226	Oct. 23	2824	627	93	618
Smyth Manufacturing Company. (See Jacobs, Arthur I., assignor.)						
Smyth, Thomas P., Pocatello, Idaho. Car-coupling attachment	663,793	Dec. 11	1633	366	93	2065
Smyth, William H., Berkeley, Cal. Means for applying fluid metals	659,380	Oct. 9	1158	269, 270	93	250
Smyth, William H., Berkeley, Cal. Soldering-machine	659,381	Oct. 9	1163	270	93	252
Sneden, James C., Philadelphia, Pa. Water-closet attachment	663,794	Dec. 11	1634	366	93	2065

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Snell, Adolphus G., New Haven, Conn. Umbrella-rod clamp	664,784	Dec. 25	3519	797	93	2496
Snell, George D., assignor of two-thirds to A. M. Whaples and E. A. Kistler, Denver, Colo. Support for boxes, cards, or similar articles	660,171	Oct. 23	2721	605	93	597
Snipes, George W., Condor, assignor of one-half to L. C. Beacham, Dublin, Ga. Combined planter and fertilizer-distributer	660,079	Oct. 16	2517	563	93	535
	659,611	Oct. 9	1589	360	93	336
Snook, Frank G., Sacramento, Cal. Check-hook						
Snow, Frank H. (See Barbour, Frank A., assignor.)						
Snow, Theodore W. (See Milne and Snow.)						
Snyder, Albert J., Philadelphia, Pa. Store-goods lifter	661,674	Nov. 13	1174	287	93	1201
Snyder, Charles, Grand Rapids, Mich. Sectional bookcase	664,687	Dec. 25	3307	751	93	2452
Snyder, George, administrator. (See Faulkner, John B.)						
Snyder, Robert M., Vandergrift, Pa. Boiler-furnace and chain-grate stoker therefor	661,675	Nov. 13	1175	287, 288	93	1202
Snyder, William H., assignor of one-half to C. R. Miller, Canton, Ohio. Darning-last	664,104	Dec. 18	2198	502	93	2202
Soblik, Maximilian, Merxem, Belgium. Pneumatic type-writer	659,708	Oct. 16	1780	401, 402	93	390
Soden, Justin R. (See Chantler, Joseph E., assignor.)						
Söderlund, Anders G., Stockholm, Sweden, and F. W. Lönnbeck, Ekenäs, Russia; said Söderlund assignor to said Lönnbeck. Ventilating and heating apparatus	662,473	Nov. 27	2705	643, 644	93	1539
Söderlund, Anders G., Stockholm, Sweden, and F. W. Lönnbeck, Ekenäs, Russia; said Söderlund assignor to said Lönnbeck. Hot-air furnace	662,983	Nov. 27	3539	829, 830	93	1706
Solomon, Jessie B., assignor of one-half to A. C. Milliken and T. C. Gregg, Jefferson, Ohio. Drilling-machine	659,704	Oct. 16	1783	402	93	391
Somerville, Mary. (See Chapman, Eugene B., assignor.)						
Sommers, Jacob A. (See Dodshon, Frederick G., assignor.)						
Sonnema, Charles J., Pekin, Ill. Lantern	658,873	Oct. 2	278	68	93	57
Soper, Benjamin J., Hoboken, N. J. Fountain-pen	663,590	Dec. 11	1245	274, 275	93	1986
Soper, George E., Kankakee, Ill. Clip-forming machine	659,111	Oct. 2	701	168	93	142
Sorden, John H. (See Tees, Frederick G., assignor.)						
South, Philip T. (See Blaine and South.)						
Southard, Abraham M., assignor to C. W. Pratt, Denver, Colo. Rock-drill	659,185	Oct. 2	845	201	93	167
Southgate, Philip W., assignor to Forehand Arms Company, Worcester, Mass. Shell extractor and ejector for breakdown guns	660,227	Oct. 23	2825	627	93	618
	664,591	Dec. 25	3143	712, 713	93	2418
Southwick, David E., Ogdensburg, N. Y. Device for feeding and watering poultry	664,789	Dec. 25	3525	801	93	2498
Southworth, Robert O., Abilene, Kans. Metallic railway-tie	662,246	Nov. 20	2253	542	93	1430
Sowden, Susie B., Plainfield, N. J. Skirt-protector	660,128	Oct. 23	2625	596	93	577
Sowle, Frederick L., New Bedford, Mass. Valve for inflation	664,592	Dec. 25	3145	713, 714	93	2419
Spalckhaver, William, assignor to R. Hoe, New York, N. Y. Printing-machine	664,593	Dec. 25	3148	714, 715	93	2420
Spalckhaver, William, assignor to R. Hoe, New York, N. Y. Printing-machine	660,343	Oct. 23	3073	682	93	668
Spalckhaver, William, assignor to R. Hoe and C. W. Carpenter, New York, N. Y. Rotary folding-machine	659,457	Oct. 9	1308	299, 300	93	281
Spalding, Chester M. (See Winn and Spalding.)						
Sparks, Lorenzo H., Pittsburg, Pa. Sash-lock	663,369	Dec. 4	847	182	93	1886
Sparrow, George, Freeport, Ill. Measuring-fancet	660,984	Oct. 30	4110	924	93	888
Sparrow, Stephen G., assignor of two-thirds to C. O. Lecompte, R. N. Smith, and S. Slaughter, Eminence, Ky. Planter	661,326	Nov. 6	545	126	93	1060
Spates, Charles D., Rossway, assignor of one-half to W. C. Specht, Barton, Canada. Rowlock	658,966	Oct. 2	442	106	93	90
Spaulding, David L., Boston, and A. S. Vose, Brookline, Mass. Acetylene-gas-generating apparatus	662,832	Nov. 27	3302	796	93	1664
Spear, Arthur, assignor to E. N. Gilfillan, Chicago, Ill. Looper mechanism for sewing-machines	661,676	Nov. 13	1178	288	93	1202
Spear, Horace A., Jr. (See Sullivan, Lawrence, assignor.)						
Specht, Eugene T., assignor of thirteen-twentieths to E. A. Eastman, Chicago, Ill. Suspenders	663,135	Dec. 4	422	88, 89	93	1806
Specht, William C. (See Spates, Charles D., assignor.)	658,874	Oct. 2	280	69	93	58
Spencer, Ira H., assignor to L. E. Rhodes Company, Hartford, Conn. Fluid-motor						
Spencer, John A., Los Angeles, Cal. Valve for pneumatic tires						
Spencer Lens Company. (See Becker, August, assignor.)						
Spencer Lens Company. (See Zirngibl, Hermann, assignor.)						
Spencer, Watson W., assignor of one-third to W. H. Bowersox, Wilkinsburg, Pa. Nut-lock	661,923	Nov. 13	1614	391	93	1284
	660,871	Oct. 30	4013	898	93	867
Spengler, Charles C. and G. H., Rockford, Ill. Lock					93	618
Spengler, George H. (See Spengler, Charles C. and G. H.)	660,228	Oct. 23	2826			
Sperry, Elmer A., Cleveland, Ohio. Plate or element for storage batteries	660,318	Oct. 23	3016	669, 670	93	656
Sperry, Elmer A., Cleveland, Ohio. Apparatus for governing and controlling marine or other engines	660,805	Oct. 30	3882	873	93	841
Sperry, Elmer A., Cleveland, Ohio. Actuating device for railway appliances	660,825	Oct. 30	3922	880, 881	93	850
Sperry, Elmer A., Cleveland, Ohio. Actuating device for railway appliances						
Spielmann, Charles. (See Bates and Spielmann.)						
Spink, Edward J., assignor of thirteen twenty-fifths to G. W. North, Davenport, Iowa. Mailing-tube	661,747	Nov. 13	1306	318	93	1225
	663,476	Dec. 11	1060	232	93	1951
Spink, Frederick W., and H. G. Estabrook, Chicago, Ill. Soap-holding apparatus	659,705	Oct. 16	1785	403	93	391
Spinney, Henry C., Lynn, Mass., assignor to General Electric Company, of New York. Clutch for electric-arc lamps	659,706	Oct. 16	1787	403	93	391
Spinney, Henry C., Lynn, Mass., assignor to General Electric Company, of New York. Globe-holder	658,875	Oct. 2	281	69	93	58
Spiettstosser, Fritz, Stryker, Tex. Bale-band tightener						
Sprague Electric Company. (See Sprague, Frank J., assignor.)						
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Company, of New Jersey. Traction system	660,065	Oct. 16	2455	554, 555, 556, 557, 558, 559	93	522
Sprague, Frank J., New York, N. Y., assignor to Sprague Electric Company, of New Jersey. Regulating motors	660,066	Oct. 16	2465	559	93	531
Sprague, Henry H., Bridgeport, Conn. Device for practicing golf	664,338	Dec. 18	2639	601	93	2202
Sprague, Newton C., assignor to Iowa Incubator Company, Des Moines, Iowa. Incubator	661,776	Nov. 13	1358	329	93	1236

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Spring, Charles A. (See Spring, Henry T. and C. A.)						
Spring, Henry T., Lansdale, and C. A. Spring, Philadelphia, Pa. Washer and concentrator for ores, &c	658,813	Oct. 2	160	38, 39	93	36
Springer, Louis F., *et al.* (See Langenbach, Charles J., assignor.)						
Sprinkell, A. D. (See Daugherty, William, assignor.)						
Sprong, Severn D., assignor of two-thirds to C. Getter and W. P. Adams, Long Branch, N. J. Coil for electromagnets	664,442	Dec. 25	2854	651	93	2359
St. Louis, Philip M., Carmel, Wis. Stove	660,602	Oct. 30	3630	814, 815	93	793
St. Mary, Joseph, assignor to G. M. Mahoney, San Francisco, Cal. Steam-trap	662,552	Nov. 27	2856	677	93	1568
Staby, Heinrich. (See Lessing, Wilhelm, assignor.)						
Stack, John T., Chicago, Ill., assignor to J. P. Barrett, Chicago, Ill. Rail-bond	658,967	Oct. 2	450	107	93	91
Stacy, Edward D., Chicago, Ill. Automatic gong-bell	659,327	Oct. 9	1077	253, 254	93	233
Stafford, Nelson, New York, N. Y. Nut-lock	659,001	Oct. 2	511	123	93	102
Stahl, Frank. (See Gerlach and Stahl.)						
Stahl, Frank H., assignor to Powhatan Brass and Iron Works, Charlestown, W. Va. Self-closing cock or faucet	661,008	Oct. 30	4221	949	93	910
Staiger, Godfrey, Toledo, Ohio. Bung and bung-bushing	663,049	Dec. 4	270	57	93	1777
Stalder, Harry C., Portsmouth, Ohio. Car-truck bolster	661,777	Nov. 13	1359	329	93	1237
Staley, James B., *et al.* (See Wharton, Silas B., assignor.)						
Staley, Raleigh H., Springfield, Ill. Automatic former for bricks	663,688	Dec. 11	1425	316	93	2021
Staley, Raleigh H., and A. L. Converse, Springfield, Ill.; said Converse assignor to said Staley. Device for indenting and severing bars of clay, &c	663,689	Dec. 11	1427	316	93	2022
Stall, Adam N., Greenville, S. C. Combination-lock	661,560	Nov. 13	958	238	93	1157
Stallings, Francis J., Effingham, Ill. Non-refillable bottle	659,186	Oct. 2	848	201	93	168
Stanbery, George A., Zanesville, Ohio, assignor to American Encaustic Tiling Company, Limited, New York, N. Y. Tile-cutting machine	661,625	Nov. 13	1078	268	93	1181
Stanbon, Charles P., Lynn, Mass. Channeling-machine	663,050	Dec. 4	271	57, 58	93	1777
Standard Anti-Friction Equipment Company. (See Richardson, Leon M., assignor.)						
Standard Machine Company. (See Houseman, Harry A., assignor.)						
Standard Machinery Company. (See White, Samuel K., assignor.)						
Standard Oil Company of New York. (See Henschel, Henry E., assignor.)						
Standard Thermometer and Electric Company. (See Hallberg, Josef H., assignor.)						
Standish, Philander H., Cleveland, Ohio. Rotary explosive-motor	660,129	Oct. 23	2626	587	93	577
Stanecki, Zdzislaw, Lemberg, Austria-Hungary. Making accumulator-plates	661,085	Nov. 6	105	.....	93	971
Stanley Aerial Navigation Company. (See Stanley, Charles, assignor.)						
Stanley Automobile Company. (See Stanley, Francis E. and F. O., assignors.)						
Stanley Automobile Company. (See Stanley, Frank E. and F. O., assignors.)						
Stanley, Charles, San Francisco, Cal., assignor to Stanley Aerial Navigation Company, of California. Air-ship	659,264	Oct. 9	986	231, 232	93	215
Stanley Electric Manufacturing Company. (See Sterling, Richard H., assignor.)						
Stanley, Francis E., Newton, Mass., assignor to Locomobile Company of America, Wheeling, W. Va. Vapor-burner for steam-generators	659,902	Oct. 16	2332	524, 525	93	500
Stanley, Francis E. and F. O., Newton, Mass., assignors to Locomobile Company of America, Wheeling, W. Va. Steam-generator	659,991	Oct. 16	2331	524	93	500
Stanley, Francis E. and F. O., Newton, Mass., assignors, by mesne assignments, to Stanley Automobile Company, New York, N. Y. Running-gear for vehicles	663,836	Dec. 11	1719	384, 385	93	2084
Stanley, Frank E. and F. O., Newton, Mass., assignors to Stanley Automobile Company, of New York. Tubular steam-boiler	661,561	Nov. 13	960	238	93	1157
Stanley, Fred D., *et al.* (See Cunningham, Patrick, assignor.)						
Stanley, Freelan O. (See Stanley, Francis E. and F. O.)						
Stanley, Freelan O. (See Stanley, Frank E. and F. O.)						
Stanley, Henry F., New Orleans, La. Refrigerator-car	661,429	Nov. 6	721	167	93	1066
Stanley Instrument Company. (See Stanley, William, assignor.)						
Stanley Instrument Company. (See Stanley and Smith, assignors.)						
Stanley, James C., Birmingham, Iowa. Check-row corn-planter	662,174	Nov. 20	2112	510	93	1402
Stanley, James F., Mooreland, Ind. Lawn-mower	661,748	Nov. 13	1307	318	93	1225
Stanley, John C. W., assignor to Cotton Seed Oil Syndicate, Limited, London, England. Treatment of cotton-seed	658,876	Oct. 2	282	69	93	58
Stanley, John C. W., assignor to Cotton Seed Oil Syndicate, Limited, London, England. Apparatus for treating cotton-seed	658,877	Oct. 2	283	69	93	59
Stanley, John C. W., assignor to Cotton Seed Oil Syndicate, Limited, London, England. Apparatus for heating and dampening oleaginous meal	659,265	Oct. 9	988	232	93	215
Stanley, John C. W., assignor to Cotton Seed Oil Syndicate, Limited, London, England. Drying-conveyer	659,771	Oct. 16	1925	433	93	417
Stanley, May, assignor of one-half to B. R. Brown, Rosenberg, Tex. Spark and dust arrester for cars	662,551	Nov. 27	2854	677	93	1567
Stanley, Robert B., Kansas City, Mo., assignor of one-third to T. W. Johnson, Kansas City, Kans. Apparatus for applying paste to wall-paper	662,606	Nov. 27	2945	699	93	1585
Stanley, William, Great Barrington, Mass., assignor to Stanley Instrument Company, of Massachusetts. Producing phase displacement	658,815	Oct. 2	164	39, 40	93	37
Stanley, William, and H. M. Smith, Great Barrington, Mass., assignors to Stanley Instrument Company, of Massachusetts. Means for delicately suspending moving parts	658,814	Oct. 2	163	39	93	36
Stapleton, Charles W., New York, N. Y. Bottle	663,617	Dec. 11	1295	286	93	1996
Star and Crescent Mills Company. (See Rowcroft, Thomas, assignor.)						
Stare, Fredrick A., Bangor, Me. Garment-hanger	664,063	Dec. 18	2123	485	93	2186
Stark, Wells W., *et al.* (See Lippy and Williams, assignors.)						
Starke, Fred C., assignor of two-thirds to C. L. Franklyn and J. K. Russell, Milwaukee, Wis. Hydraulic air-compressor	662,884	Nov. 27	3540	830	93	1706
Starks, John L., West Nashville, Tenn. Oven	662,175	Nov. 20	2113	510	93	1402
Starman, Joseph, Cedar Rapids, Iowa. Cell-case machine	658,930	Oct. 2	375	91, 92, 93	93	76
Starrett, Laroy S., Athol, Mass. Measuring-gage	661,502	Nov. 13	961	238	93	1157
Stauff, Heinrich, Cologne, Germany. Shut-off valve for water-chambers of liquid-forcing apparatus	660,935	Oct. 30	4113	925	93	888
Stearns, Albert. (See Wyckoff, James H., assignor.)						
Stearns, Charles E. (See Flanders, Herbert, assignor.)						
Stearns, E. C. (See Trebert, Henry L. F., assignor.)						
Stearns, Frederic B. (See Fisher, Alvan B., assignor.)						
Stearns, Thomas O. (See Williams and Lippy, assignors.)						
Stebbins, Albert H., Little Rock, Ark. Ore-concentrator	661,086	Nov. 6	106	25	93	971
Stedeford, Samuel E., Allegheny, Pa. Railway-rail joint	663,243	Dec. 4	640	137	93	1846

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Steel Cable Engineering Company. (See Decker, Edwin S., assignor.)						
Steele, Herbert B., Malden, Mass., assignor to Atlantic Motor Company, Portland, Me. Counterbalance for explosion-engines	662,631	Nov. 27	2086	707 708	93	1593
Steele, Leslie, Washington, Pa. Valve-gear	659,458	Oct. 9	1309	300	93	281
Steere, Merrill O. (See Brindle and Steere.)						
Steinback, Erwin. (See Straten, Hubert J., assignor.)						
Steiner & Co., S. (See Boltshauser-Schmid, Conrad, assignor.)						
Steiner, P. C., *et al.* (See Lee, John, Sr., assignor.)						
Steinhoff, C. A., *et al.* (See Lee, John, Sr., assignor.)						
Steinmetz, Andreas, Berlin, Germany. Steam-trap	662,607	Nov. 27	2945	699	93	1585
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. Regulating dynamo-electric machines	660,534	Oct. 23	3405	765	93	732
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	664,105	Dec. 18	2199	502	93	2203
Steinmetz, Charles P., Schenectady, N. Y., assignor to General Electric Company, of New York. System of electrical distribution	664,106	Dec. 18	2203	502	93	2203
Stenhouse, Katherine L., Chicago, Ill. Convertible bed	661,626	Nov. 13	1080	268 269	93	1182
Stenotype Company. (See Allen, George G., assignor.)	659,002	Oct. 2	512	124	93	103
Stephan, John C. J., New York, N. Y. Thermo-annunciator	660,936	Oct. 30	4114	925	93	889
Stephens, Daniel, Pottsville, Pa. Rail-joint	661,708	Nov. 13	1254	299	93	1212
Stephens, De Witt, Alcove, N. Y. Stall for animals	659,707	Oct. 16	1788	403	93	392
Stephens, James S., assignor to Stephens & Westcott Company, Maywood, Ill. Railway turn-table	661,825	Nov. 13	1443	349	93	1252
Stephens & Westcott Company. (See Stephens, James S., assignor.)						
Stephens, William C., Carn Brea, England. Rock-drilling engine	663,705	Dec. 11	1461	322 323	93	2028
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Axle-box lid	663,706	Dec. 11	1463	323	93	2028
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Axle-box lid						
Sterling Manufacturing Company. (See Lincoln, Ward, assignor.)						
Sterling, Richard H., assignor to Stanley Electric Manufacturing Company, Pittsfield, Mass. Insulator	664,301	Dec. 18	2567	583	93	2278
Stern, Adolf. (See Madas, Lajos, assignor.)	662,104	Nov. 20	1986	474	93	1376
Stern, Lionel M., and E. M. Kempner, Buffalo, N. Y. Apparatus for impregnating wood.						
Sterné, Emile, Paris, France, assignor to Compressed Gas Capsule Company, of New Jersey. Instrument for injecting gas into the human body	662,658	Nov. 27	3082	717	93	1602
Stetson, George W., Seattle, Wash. Planer	659,708	Oct. 16	1789	403 404	93	392
Stevens, Alexander H., Thomasville, Ga. Bridle for pianoforte-actions	663,644	Dec. 11	1341	296	93	2005
Stevens, Calvin A. (See Collins, Caleb G., assignor.)	659,709	Oct. 16	1790	404	93	392
Stevens, Edwin W., Lake Carey, Pa. Folding crate						
Stevens, George E. (See Harthan and Stevens.)						
Stevens, George E., Lynn, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	659,710	Oct. 16	1792	404	93	392
Stevens, George E., Lynn, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	659,711	Oct. 16	1796	405	93	393
Stevens, James F., Port Chester, N. Y. Dough-mixer	663,795	Dec. 11	1635	366	93	2005
Stevens, John A., Lowell, Mass. Steam-boiler	660,660	Oct. 30	3627	813 814	93	792
Stevens, John A., Lowell, Mass. Boiler-furnace	660,661	Oct. 30	3629	814	93	793
Stevens, Leo, New York, N. Y. Controllable balloon	661,826	Nov. 13	1444	349 350	93	1252
Stevens, Perley E., St. Paul, Minn. Guide for picture-trimming	662,982	Dec. 4	146	31	93	1753
Stevens, William N. (See Van Vleck and Stevens.)						
Stevenson, William A. (See Wilson, Stevenson, and Torrance.)						
Steward, Aurelius, assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Presser-foot mechanism for sewing-machines	662,505	Nov. 27	2772	657	93	1553
Steward, Clarence S., Chattanooga, Tenn. Gas-burner	662,035	Nov. 20	1848	445	93	1349
Steward, John F., Chicago, Ill. Hinge-joint for mowing-machines	660,597	Oct. 30	3507	787	93	770
Stewart, Benjamin F., Chicago, Ill. Speed-governor for explosive-engines	662,983	Dec. 4	148	31,32	93	1753
Stewart, Charles E., Bobcaygeon, Canada. Rack or support for music, books, or the like	658,878	Oct. 2	285	70	93	59
Stewart, Elisha T., Poetry, Tex. Mechanical movement	659,993	Oct. 16	2334	525	93	500
Stewart, Frank. (See Martin and Stewart.)						
Stewart Hartshorn Company. (See Hartshorn, Edmund F., assignor.)						
Stewart, James, Jr., Yonkers, N. Y. Machine for rounding hat-brims	662,176	Nov. 20	2115	511	93	1408
Stewart, Robert I., Xenia, Ohio. Cushioning-body	659,266	Oct. 9	989	232	93	215
Stewart, W. F. Bay, *et al.* (See Copenhafer, Stephen A., assignor.)	659,160	Oct. 2	776	187	93	157
Stewart, Walter G., Reading, Pa. Wagon-body	658,981	Oct. 2	379	94	93	76
Stickney, Burnham C., Elizabeth, N. J., assignor to J. Felbel, New York, N. Y. Type-writing machine	660,937	Oct. 30	4115	925 926	93	889
Stickney, Burnham C., Elizabeth, N. J., assignor to J. Felbel, New York, N. Y. Type-writing machine	661,459	Nov. 6	773	183	93	1106
Stifel, George W., and W. C. Pritchard, Cambridge City, Ind. Roller-bending machine	659,712	Oct. 16	1798	405	93	394
Stiles, Linford S., Philadelphia, Pa. Engine adapted for operating rammers	659,902	Oct. 16	2159	486	93	464
Still, Charles I. and I. F., Sing Sing, and E. L. Still, New York, N. Y. Combination-tool						
Still, Edward L. (See Still, Charles I., I. F., and E. L.)						
Still, Isaac F. (See Still, Charles I., I. F., and E. L.)						
Stillman, Otto O. (See Howitt, Edwin B., assignor.)	659,718	Oct. 16	1802	406	93	395
Stilmant, Léon, Brussels, Belgium. Change-speed gear for cycles						
Stilwell-Bierce & Smith-Vaile Company. (See Kimes, Hugh W., assignor.)						
Stilwell, Horace C. (See Johnson, Lafayette, assignor.)						
Stimpson, Edward S., Hopedale, and W. I. Stimpson, Milford, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Loom	662,320	Nov. 20	2382	574	93	1456
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Oil-guard for loom shedding-cams	664,339	Dec. 18	2641	602	93	2202
Stimpson, Edward S., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Filling-replenishing mechanism for looms	664,790	Dec. 25	3526	801	93	2498
Stimpson, Wallace I. (See Stimpson, Edward S. and W. I.)						
Stimpson, Walter F. (See Strubler, Charles G., assignor.)						
Stimpson, Walter F., Detroit, Mich. Scale	659,939	Oct. 16	2231	501	93	477
Stimpson, Walter F., Detroit, Mich. Scale-bearing	661,087	Nov. 6	108	25	93	972
Stimson, Samuel E., New York, N. Y. Coin-controlled passage-closing device	663,985	Dec. 18	1990	448	93	2160

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Stinson, Joseph C., *et al.* (See Schoen, August, assignor.)						
Stinson, Robert J., *et al.* (See Schoen, August, assignor.)						
Stinson, Samuel B., *et al.* (See Schoen, August, assignor.)						
Stinson, Thomas, *et al.* (See Schoen, August, assignor.)						
Stock, August, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Hochst-on-the-Main, Germany. Indoxyl derivatives and making same	662,703	Nov. 27	3134	.....	93	1620
Stockford, William F., South Bend, Ind. Handle-bar	661,563	Nov. 13	902	239	93	1158
Stocks, Jean C., Toronto, Canada. Musical-note building-blocks	663,477	Dec. 11	1061	232	93	1951
Stoekley, Alfred W., assignor to K. Stoekley, Philadelphia, Pa. Brush skirt-binding	660,663	Oct. 30	3632	815	93	793
Stoekley, Katherine. (See Stoekley, Alfred W., assignor.)						
Stoelting, Christian H., assignor to W. A. Vawter, Chicago, Ill. Lock for binders	664,107	Dec. 18	2205	502 503	93	2203
Stoelting, Christian H., and C. E. Linebarger, assignors to Chicago Laboratory Supply and Scale Company, Chicago, Ill. Balance	661,158	Nov. 6	241	59	93	1000
Stoever, John. (See Meaney and Stoever.) (Reissue.)	663,522	Dec. 11	1150	249	93	1967
Stokes, Anson P., Jr., Cambridge, Mass. Game apparatus	662,036	Nov. 20	1849	445	93	1349
Stoll, Charles, Chicago, Ill. Fire-escape	664,184	Dec. 18	2341	534	93	2231
Stoll, Jacob W., Chicago, Ill. Pneumatic-cushioned seat-post for bicycles						
Stone, Charles E., assignor of one-half to Amesbury Pneumatic Gear Company, Amesbury, Mass. Stiffening-plate for vehicle-shafts	661,827	Nov. 13	1445	350	93	1252
Stone, Edward F., Boston, Mass. Friction-clutch	663,396	Dec. 4	903	196	93	1897
Stone, George C., Jersey City, N. J. Fuel-gas burner	659,862	Oct. 16	2086	468	93	449
Stone, James, assignor to Bortree Corset Company, Jackson, Mich. Garment-waist closure	659,459	Oct. 9	1310	300	93	282
Stone, Oliver M., Gays, Ill. Grain weighing and conveying machine	664,443	Dec. 25	2855	652	93	2359
Stonebridge, Charles H., New York, N. Y. Bicycle-tender	660,598	Oct. 30	3508	787	93	770
Stonebridge, Charles H., New York, N. Y. Collapsible lantern	662,474	Nov. 27	2706	644	93	1539
Stoneburner, David E., Bailey's Cross-Roads, Va. Buckle and cockeye	663,397	Dec. 4	905	196	93	1898
Stopf, Robert J. (See Branning, Joseph, assignor.)						
Storey, John. (See Taylor and Small, assignors.)						
Storey, Walter, *et al.* (See Shriver, Augustus F., assignor.)						
Storm, Alfred W., Ramsey, N. J. Electric linotype-machine	660,263	Oct. 23	2889	644 645 646 647 648	93	631
Storm, Charles W., Elgin, Ill. Hose-nozzle	659,714	Oct. 16	1803	406	93	395
Storm, Edwin R., New York, N. Y. Divisible shelf	660,264	Oct. 23	2913	648	93	636
Storrs, Aaron P., Owego, N. Y. Incandescent gas-burner	662,321	Nov. 20	2385	574	93	1456
Stout, William B., New Orleans, La. Flue-scraper	661,088	Nov. 6	109	25	93	972
Stow, Nelson, Binghamton, N. Y. Painting apparatus	664,791	Dec. 25	3531	801	93	2499
Stowe, Fernando F., Worcester, Mass. Vehicle-hub	663,802	Dec. 4	745	159	93	1867
Strachan, William L., London, England. Lamp shade or globe	663,796	Dec. 11	1637	367	93	2065
Straight Manufacturing Company. (See Roberts, John E., assignor.)						
Strait, John G., Wolcott, N. Y. Gage for sawing-machines	663,645	Dec. 11	1342	297	93	2005
Stran, Charles W., Cleveland, Ohio. Keg, barrel, or cask	664,185	Dec. 18	2342	535	93	2231
Straten, Hubert J., Jersey City, N. J., assignor to E. Steinback, New York, N. Y. Apparel-collar	660,344	Oct. 23	3076	682	93	668
Stratton, Eugene, and F. A. Cole, New York, N. Y. Alarm	660,229	Oct. 23	2828	627	93	618
Stratton, John. (See Attkisson, Otis G., assignor.)						
Straube, Leopold P., assignor of one-half to R. M. Mahler, Chicago, Ill. Bottle-filling device	663,136	Dec. 4	428	89	93	1807
Strauss, Louis C., Cincinnati, Ohio. Package for containing whisky, &c.	659,328	Oct. 9	1079	254	93	234
Strealy, William J., assignor of one-half to J. M. McWhorter, Lewisburg, W. Va. Pipe-wrench	658,908	Oct. 2	451	107	93	91
Streeter, David C., Christchurch, New Zealand. Automatic valve-governor	660,034	Oct. 16	2405	541	93	513
Streily, Alexander, Coal Bluff, Ind. Car-loading apparatus	662,087	Nov. 20	1851	445 446	93	1349
Strickland, Arthur, Hamilton, Canada. Steering and brake device for automobile carriages	662,475	Nov. 27	2708	644 645	93	1540
Strickler, Alexander H., Mount Pleasant, Pa. Wringer	663,668	Dec. 11	1390	308	93	2015
Stride, Charles, Chichester, England. Support and locking device for bicycles	662,506	Nov. 27	2773	658	93	1553
Strobel, Christain, Waterbury, Conn. Cooler	664,186	Dec. 18	2344	535	93	2232
Strohm Automatic Electric Safety Block System Company. (See Strohm, Samuel D., assignor.)	661,327	Nov. 6	547	126	93	1060
Strohm, John, Sharpsburg, Pa. Adjustable harness-strap extension	662,833	Nov. 27	3363	797 798	93	1664
Strohm, Samuel D., assignor to Strohm Automatic Electric Safety Block System Company, Philadelphia, Pa. Railway-signal	663,707	Dec. 11	1463	323	93	2028
Strom, Axel A., Austin, assignor to Strom Manufacturing Company, Chicago, Ill. Railway-switch	659,940	Oct. 16	2232	501	93	478
Strom Manufacturing Company. (See Strom, Axel A., assignor.)	662,984	Dec. 4	150	32	93	1754
Stromberg, Alfred, Chicago, Ill. Telephone-switch	662,985	Dec. 4	152	32	93	1754
Stromberg, Alfred, Chicago, Ill. Telephone-exchange system	662,986	Dec. 4	155	33	93	1755
Stromberg, Alfred, Chicago, Ill. Telephone-transmitter	662,987	Dec. 4	158	33	93	1756
Stromberg, Alfred, Chicago, Ill. Telephone-exchange system and apparatus	662,988	Dec. 4	160	33	93	1756
Stromberg, Alfred, Chicago, Ill. Circuit-protector	663,244	Dec. 4	642	137	93	1846
Stromberg, Alfred, and W. M. Davis, assignors to Stromberg-Carlson Telephone Manufacturing Company, Chicago, Ill. Telephone-exchange system	660,664	Oct. 30	3634	816	93	794
Stromberg-Carlson Telephone Manufacturing Company. (See Davis, William M., assignor.)	660,826	Oct. 30	3927	881	93	851
Stromberg-Carlson Telephone Manufacturing Company. (See Stromberg and Davis, assignors.)	661,296	Nov. 6	488	112	93	1049
Strong, George, Detroit, Mich. Hot-water heater	662,307	Nov. 20	2467	594	93	1472
Strong, William E. S., Detroit, Mich. Metal-bending machine	660,782	Oct. 30	3839	862	93	833
Stroud, Edmund H. (See Dyer, Ernest E., assignor.)						
Stroud, Harold D., assignor of one-half to J. E. Plew, Chicago, Ill. Telephone-call recorder						
Struble, Charles E., Hartwell, Ohio. Record blank or form						
Strubler, Charles G., assignor to W. F. Stimpson, Detroit, Mich. Scale-beam						
Strümpell, Oscar, assignor of one-half to W. A. Schmidt, New York, N. Y. Mount for natural-history specimens						
Strupp, Ferdinand A. (See Welgand, John B., assignor.)						
Struse, John. (See Nehr, Herman F., assignor.)	663,106	Dec. 4	369	77	93	1794
Struss, Henry W., New York, N. Y. Explosion-engine	664,444	Dec. 25	2857	652 653	93	2360
Stubbs, Sheldon H., Manchester, England. Pneumatic spring or cushion						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stuckenberg, William S., Indianapolis, Ind., assignor to Metal Bound Package Company, of Illinois. Box-forming machine	659,772	Oct. 16	1927	433	93	417
Stukes, John M., Snyder, Tex. Pump	660,471	Oct. 23	3289	736	93	710
Stukes, John M., Snyder, Tex. Pump-strainer	661,591	Nov. 13	1024	256	93	1171
Stukey, Franklin P., Lancaster, Ohio. Adjustable storm-curtain	664,792	Dec. 25	3533	802	93	2499
Stull, Emmett W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Controller	662,038	Nov. 20	1852	446	93	1350
Stull, Emmett W., Johnstown, Pa., assignor to Lorain Steel Company, of Pennsylvania. Control of electric motors	662,039	Nov. 20	1853	446 447	93	1350
Stuparich, Paul J., San Francisco, Cal. Producing photographic mounts	662,579	Nov. 27	2905	689	93	1577
Sturgis, Herbert M., Kansas City, Mo. Brush	663,245	Dec. 4	643	137	93	1846
Sturgis, Herbert M., Kansas City, Mo. Brush	663,246	Dec. 4	644	138	93	1847
Sturgis, Herbert M., Kansas City, Mo. Brush	663,247	Dec. 4	645	138	93	1847
Sturgis, Herbert M., Kansas City, Mo. Spraying attachment for sponges	663,248	Dec. 4	646	138	93	1847
Sturgis, Herbert M., assignor of three-fourths to C. F. O'Brien, Kansas City, Mo., and A. L. Gartside, Chicago, Ill. Egg-beater	659,558	Oct. 9	1499	339	93	318
Sturtevant, Charles A., Plainfield, N. J., assignor of one-half to D. C. Weld, Jr., Sing Sing, N. Y. Paper-feeding machine	664,340	Dec. 18	2642	602 603	93	2202
Sturtevant, Herbert W. (See Brown and Sturtevant.)						
Sturtevant, Thomas J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Newton, Mass. Explosion-engine	662,040	Nov. 20	1857	447 448	93	1351
Stut, John C. H. (See Burr, Stut, and Atkinson.)						
Stylophone Company. (See Myers, Frederick, assignor.)						
Suess, Jacob, Chicago, Ill. Planer-chuck	664,688	Dec. 25	3308	752	93	2453
Sulfer, Charles, San Antonio, Tex., assignor of one-half to J. G. Peebles, Jr., Portsmouth, Ohio. Railway-switch-locking device	660,665	Oct. 30	3688	817	93	794
Sullivan, John L., and W. Mahoney, Los Angeles, Cal. Chain car-coupling	661,941	Nov. 13	1650	400	93	1291
Sullivan, Lawrence, assignor of one-half to H. A. Spear, Jr., Walpole, Mass. Fiber-cleaning apparatus	661,749	Nov. 13	1308	319	93	1226
Sullivan Machinery Company. (See Ball and Officer, assignors.)						
Sullivan Machinery Company. (See Mercer, Henry H., assignor.)						
Sullivan, Michael E., New Bedford, and G. O. Draper, Hopedale, Mass., assignors to Draper Company, Portland, Me., and Hopedale, Mass. Yarn spinning or twisting apparatus	660,666	Oct. 30	3642	818	93	795
Sullivan, William S. (See Glenn and Sullivan.)						
Summers, George L., Barboursville, W. Va. Cattle-guard	663,188	Dec. 4	527	112	93	1826
Sun Manufacturing Company. (See Mitchel, Samuel A., assignor.)						
Suppes, Maximilian M., Elyria, Ohio. Furnace construction	661,564	Nov. 13	993	239	93	1158
Sürth, Francis, Dortmund, Germany. Closing-up device for axle-bearings	664,445	Dec. 25	3858	853	93	2360
Sussmann-Hellborn, Ernst, and W. Hornauer, Munich, Germany. Electric railway	663,398	Dec. 4	906	196 197	93	1808
Sutherland, Robert W. J., Caerphilly, England. Time-indicating mechanism	659,329	Oct. 9	1080	254	93	234
Sutton, Charles A., Pitkin, Colo. Scraper	663,303	Dec. 4	747	160	93	1867
Sutton, Henry, Melbourne, Victoria. Speed-regulator for explosive-engines	664,689	Dec. 25	3309	752	93	2453
Sutton, Maxwell, Welch Glade, W. Va. Latch	660,403	Oct. 23	3173	704	93	687
Svensen, Svend G., Taylor, Tex. Planter and cultivator	660,599	Oct. 30	3509	787 788	93	770
Svenson, Daniel, Twin Valley, Minn. Hoisting apparatus	661,592	Nov. 13	1025	256	93	1171
Swain, Applus C., assignor of one-half to J. M. Bowers, San Francisco, Cal. Gas-purifier	663,837	Dec. 11	1721	385	93	2085
Swaine, James J., Baltimore, Md. Ventilating attachment for railway-tunnels	661,387	Nov. 6	653	152	93	1082
Swan, C. W. (See Hamilton, William, assignor.)						
Swan & Finch Company. (See Hutchinson, Robert H., assignor.)						
Swanson, Nils, Olean, N. Y. Tire for bicycles	660,976	Oct. 30	4178	938	93	902
Swartz, James T., assignor to C. A. Van Pelt, Nebraska City, Nebr. Anchor-setting tool	660,667	Oct. 30	3644	818	93	796
Swartz, James T., assignor to C. A. Van Pelt, Nebraska City, Nebr. Wire-stay-weaving device	660,668	Oct. 30	3646	818	93	796
Sweeney, Samuel, Los Angeles, Cal. Wheel for vehicles	658,879	Oct. 2	286	70	93	59
Swenson, Magnus, Chicago, Ill., assignor, by mesne assignments, to American Cotton Company, New York, N. Y. Mechanism for producing cylindrical cotton-bales	662,885	Nov. 27	3543	830	93	1707
Swenson, Magnus, Chicago, Ill., assignor to American Cotton Company, New York, N. Y. Cotton-baling apparatus	662,886	Nov. 27	3544	831	93	1707
Swenson, Magnus, Chicago, Ill., assignor to American Cotton Company, New York, N. Y. Cotton-condenser	662,887	Nov. 27	3547	831	93	1708
Swenson, Magnus, Chicago, Ill., assignor to American Cotton Company, New York, N. Y. Apparatus for baling cotton	662,888	Nov. 27	3548	831 832	93	1708
Swenson, Magnus, Chicago, and H. S. Ringl, Chicago Heights, Ill., assignors to American Cotton Company, New York, N. Y. Cotton-press	662,889	Nov. 27	3550	832 833	93	1708
Swenson, Paul, Hopkins, Minn. Trip-lock for use in starting explosive-engines	662,507	Nov. 27	2774	658	93	1553
Swenson, Paul, Hopkins, Minn. Cylinder-tooth	664,446	Dec. 25	3858	853	93	2360
Swett, Edward E., Philadelphia, Pa. Lubricator for windmills	660,472	Oct. 23	3291	736	93	710
Swift, Rodney B. (See Benjamin, Reuben B., assignor.)						
Swindell, William, Allegheny, Pa. Furnace	659,495	Oct. 9	1384	315	93	296
Swindell, William, Allegheny, Pa. Metallurgical furnace	659,941	Oct. 16	2234	501	93	478
Swindell, William, Allegheny, Pa. Gas-furnace	662,608	Nov. 27	2946	699 700	93	1586
Swinnerton, James F., New York, N. Y. Acetylene-gas generator	660,345	Oct. 23	3077	682 683	93	668
Swinnerton, James F., New York, N. Y. Gas-washer	660,346	Oct. 23	3080	683	93	669
Sydney, Sidney J., New Orleans, La. Conveyer	661,197	Nov. 6	302	73, 74	93	1013
Sykes, Benjamin, Curwensville, Pa. Device for emptying leaches	659,112	Oct. 2	702	168	93	142
Sykes, William E., Canal Dover, Ohio. Stovepipe-collar holder	662,041	Nov. 20	1895	448	93	1353
Symons, Wilson E., Savannah, Ga. Car-truck	659,903	Oct. 16	2161	487	93	464
Taber, William, Poughkeepsie, N. Y. Registering device for pool games	662,322	Nov. 20	2386	575	93	1456
Taggesell, Richard, assignor to Schoellkopf, Hartford & Hanna Company, Buffalo, N. Y. Meta-amidotolyloxaminsulfo-acid	659,496	Oct. 9	1386	------	93	297
Taggesell, Richard, assignor to Schoellkopf, Hartford & Hanna Company, Buffalo, N. Y. Meta-amidotolyloxaminsulfo-acid	659,497	Oct. 9	1387	------	93	297
Tagliani, Giovanni. (See Rigamonti and Tagliani.)						
Taintor, Charles C., Elizabeth, N. J., assignor to Taintor Manufacturing Company, of New York. Saw-setting implement	660,595	Oct. 23	3409	765	93	733
Taintor Manufacturing Company. (See Taintor, Charles C., assignor.)						
Tait, Allen J., Oakland, assignor to D. H. Priest, San Francisco, Cal. Filter	663,646	Dec. 11	1344	297	93	2005
Tait, Arthur F., Yonkers, N. Y. Canvas-stretcher	659,994	Oct. 16	2335	525	93	501
Takamine, Jokichi, New York, N. Y., and E. V. Hitch, Chicago, Ill. Filter-bag or strainer	659,041	Oct. 2	584	142	93	117
Takken, Black S. E., Holland, Mich. Axle-box	663,189	Dec. 4	528	112	93	1826

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Talbot, Benjamin. (See Fraser, Simon A., assignor.)						
Talbott, Charles R. (See Schacht, Gustavus A., assignor.)						
Tandy, John L., Horton, Kans. Cabinet	658,880	Oct. 2	287	70 78	93	60
Taneyhill, William H., Columbus, assignor of one-half to D. B. Aungst, Akron, Ohio. Machine for rolling tubes for pneumatic tires	658,901	Oct. 2	310	79 80	93	65
Tanner, John, Paterson, N. J. Adjustable window-screen	661,089	Nov. 6	110	26	93	972
Tanner, Zera L. (See Benedict, James E., assignor.)						
Tapley, Emmitt A., assignor of one-half to D. W. Scott, Chicago, Ill. Musical instrument	659,330	Oct. 9	1082	255	93	234
Taplin, Alvin, Forestville, Conn. Fertilizer-distributer	660,600	Oct. 30	3511	788	93	771
Taplin, Alvin, Forestville, Conn. Cultivator	660,669	Oct. 30	3648	818 819	93	796
Tardy, Frank. (See Shepard, John T., assignor.)						
Tarr, Herbert J., Chicago, Ill. Dental cuspidor	660,172	Oct. 23	2722	605 606	93	598
Tarrant, Asa L. (See Hixson and Tarrant.)						
Tassell, George W., *et al.* (See Gipe, Emanuel C., assignor.)						
Tassell, William G., London, England. Bicycle-brake	662,558	Nov. 27	2857	678	93	1568
Tate & Co., Nathan O. (See Coleman, Charles C., assignor.)						
Tate, John C., assignor of one-half to G. Ross, Des Moines, Iowa. Cylindrical wooden vessel	663,591	Dec. 11	1247	275	93	1986
Tauveron, Jean B., New York, N. Y. Bottle	660,401	Oct. 23	3173	704	93	687
Taylor, Augustus C., Washington, D. C. Salve-box	660,739	Oct. 30	3765	818	93	820
Taylor, Benjamin F. (See Taylor, Benjamin S. and B. F.)						
Taylor, Benjamin S. and B. F., Providence, R. I. Window-blind hinge	659,559	Oct. 9	1499	339	93	319
Taylor, Charles M., Georgetown, Ky. Lightning-arrester						
Taylor, Charles W. A., Alloa, and D. Small, Glasgow, Scotland, assignors of one-third to J. Storey, Liverpool, England. Valve-operating mechanism	659,003	Oct. 2	515	124	93	103
Taylor, Clarence W., Sioux City, Iowa. Incandescent gas-burner	662,323	Nov. 20	2389	575	93	1457
Taylor, Clarence W., Sioux City, Iowa. Incandescent gas-burner	662,324	Nov. 20	2391	576	93	1457
Taylor, David J., assignor to T. L. Ely, St. Louis, Mo. Leaf-protector for books	661,828	Nov. 6	548	126	93	1060
Taylor, Francis B., Taylor, Iowa. Band-cutter and feeder	662,508	Nov. 27	2776	659	93	1554
Taylor, George, and I. Ray, London, England. Liquid hydrocarbon	663,370	Dec. 4	843	------	93	1886
Taylor, Henry R. (See Hamm and Taylor.)						
Taylor, James H., Wallace, Idaho. Axle	664,447	Dec. 25	2860	653	93	2360
Taylor, John, and J. E. Kohn, assignors to Kilby Manufacturing Company, Cleveland, Ohio. Rotary drier	664,187	Dec. 18	2347	535 536	93	2232
Taylor, Marion, Soudan, Va. Back-band buckle and trace-carrier	659,004	Oct. 2	516	124	93	103
Taylor, Percy B., Newark, N. J. Pressure regulating or reducing valve	660,872	Oct. 30	4014	899	93	868
Taylor, Sam, Clayton, Miss. Support or holder for wheels or light vehicles	661,677	Nov. 13	1181	288	93	1203
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Trunk-lock	663,797	Dec. 11	1638	367	93	2066
Taylor, William, assignor to Ideal Manufacturing Company, Detroit, Mich. Seat-controlled valve-operating mechanism for water-closets	660,977	Oct. 30	4179	939	93	902
Taylor, William, assignor to Ideal Manufacturing Company, Detroit, Mich. Valve	662,989	Dec. 4	163	34	93	1757
Taylor, William G. (See Renff, James R., assignor.)						
Tcherkassov, Baron P., St. Petersburg, Russia. Touch-type-writing keyboard	662,834	Nov. 27	3370	708	93	1666
Tcherkassov, Baron P., St. Petersburg, Russia. Type-writing machine	663,708	Dec. 11	1466	324	93	2029
Teeguarden, Freeman M., and J. B. Himes, assignors, by mesne assignments, to said Teeguarden and Himes, T. H. and G. Gordon, and T. L. Campbell, New Castle, Ind. Corn husker and shredder	664,448	Dec. 25	2861	654	93	2360
Tees, Frederick G., assignor of one-half to J. H. Sorden, Philadelphia, Pa. Rotary engine	664,509	Dec. 25	2970	677 678	93	2383
Tefft, Charles E., and J. McGowan, Pawtucket, R. I.; said McGowan assignor to said Tefft. Blind-fastener	661,460	Nov. 6	775	184	93	1107
Teller, John C., assignor to Minnesota Ore Reduction Company, Minneapolis, Minn. Treating refractory ores	660,173	Oct. 23	2724	606	93	598
Tellerson, Henry A., Oakland, assignor of one-half to W. Castor, San Francisco, Cal. Combination gun-cartridge	662,137	Nov. 20	2037	495	93	1385
Temple, John, Watervliet, N. Y. Machine for folding collars, &c	660,601	Oct. 30	3513	788 789	93	771
Tennison, Allen. (See Smith and Tennison.)						
Terhorst, George W. (See Lewis and Terhorst.)						
Terpening, Francis A., Albia, Kans. Tire-tightener	661,388	Nov. 6	654	152	93	1083
Terry, Samuel L., Chicago, Ill., assignor of twelve twenty-fifths to J. W. Mastin, Denver, Colo., and G. C. Mastin, Oak Park, Ill. Automatic pressure-relief mechanism for railway air-brakes	662,476	Nov. 27	2710	645	93	1540
Tesar, Wilhelm. (See Nonnast and Tesar.)						
Tesch, Charles H., Milwaukee, Wis. Wardrobe-bedstead	662,704	Nov. 27	3135	742	93	1620
Tesla, Nikola, New York, N. Y. Insulating electric conductors. (Reissue)	11,865	Oct. 23	3429	770	93	737
Teter-Heany Developing Company. (See Heany, John A., assignor.)						
Teter, William W. (See Hower, Aten B., assignor.)						
Thacker, James H., Oswego, S. C. Thill-coupling	661,828	Nov. 13	1446	350	93	1252
Thamsen, Harry C., assignor of two-thirds to A. Murdoch, Hamburg, and A. H. Leader, Reading, Pa. Muffler	659,834	Oct. 16	2034	456	93	439
Thaney, John, Milwaukee, Wis. Horseshoe-calk	660,265	Oct. 23	2914	649	93	696
Thatcher, Wesley G., Buffalo, assignor of one-half to J. V. R. Ferris, New York, N. Y. Plastic composition for plastering walls	659,942	Oct. 16	2234	------	93	478
Thayer, Clark F., Joliet, Ill. Couch	660,347	Oct. 23	3081	683	93	669
Thayer, Russell, assignor to Pennsylvania Globe Gas Light Company, Philadelphia, Pa. Apparatus for heating water	663,107	Dec. 4	370	77, 78	93	1795
Theilengerdes, Frederick, assignor of one-half to W. Goodman, Memphis, Tenn. Magnetic separator	663,301	Dec. 4	748	160	93	1868
Themans, Bendix, Enschede, Netherlands. Treating worn-out heddles	659,715	Oct. 16	1804	------	93	395
Theurer, Jacob F., and M. A. Beck, assignors, by mesne assignments, to Pawling & Harnischfeger, Milwaukee, Wis. Cask-pitching apparatus	664,009	Dec. 18	2345	463 464	93	2170
Thiels, Albert, Hamburg, Germany. Protecting apparatus for tramway-cars or similar vehicles	658,816	Oct. 2	167	40	93	37
Thomas Devlin & Company. (See Bussinger, William J., assignor.)						
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Guide for band-saw mills	664,108	Dec. 18	2209	503	93	2204
Thomas, Edwin E., assignor to Union Iron Works, Minneapolis, Minn. Band-saw mill	664,188	Dec. 18	2350	536	93	2233
Thomas, Emma G., Comstock, Ohio. Churn-dasher	661,159	Nov. 6	243	59	93	1001
Thomas, Fred. H., *et al.* (See Decker, Ansill W., assignor.)						
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Electrical-switch cap	664,180	Dec. 18	2352	536	93	2234

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Thomas, Isaac N., Lima, Ohio. Washing-machine	663,371	Dec. 4	849	182	93	1886
Thomas, James and W. R., Catasauqua, Pa. Mandrel	662,835	Nov. 27	3371	798	93	1666
Thomas, John F. (See Richardson, John R., assignor.)						
Thomas, Luther B., Ringgold, La. Calculator	659,835	Oct. 16	2035	457	93	439
Thomas, Norma, St. Stephens, Ala. Cake-beating machine	663,942	Dec. 18	1914	431	93	2145
Thomas White Stove Company. (See Wilson, Henry, assignor.)						
Thomas, William R. (See Thomas, James and W. R.)						
Thompson, Alfred and C., Fort Ransom, N. D. Device for preventing horses from cribbing	662,745	Nov. 27	3208	759	93	1633
Thompson, Carl. (See Thompson, Alfred and C.)						
Thompson, Ellsworth, and A. E. Evans, Golden, Ill. Toy velocipede	659,267	Oct. 9	991	232	93	215
Thompson, George H., Somerville, Mass. Gage for carpenters	658,881	Oct. 2	288	71	93	60
Thompson, George K., Malden, assignor to American Bell Telephone Company, Boston, Mass. Call-register or service-meter circuit for switchboard apparatus	664,191	Dec. 18	2335	537	93	2234
Thompson, George L., Chicago, Ill. Nut-cracker	660,762	Oct. 30	3801	854	93	827
Thompson, George L., Chicago, Ill. Nut-cracker	660,763	Oct. 30	3802	854	93	827
Thompson, George T., and A. J. Lechler, Philadelphia, Pa. Combined rail chair and joint lock	663,138	Dec. 4	431	90	93	1808
Thompson, James A. (See Combs, John W., assignor.)						
Thompson, Lynn C., Darlington, Ind. Suspensory bandage	662,659	Nov. 27	3094	717	93	1602
Thompson & Norris Company. (See Warner, Asa F., assignor.)						
Thompson, Richard, New York, N. Y. Boiler-tube cleaner	659,836	Oct. 16	2037	457	93	440
Thompson, Robert, Holyoke, Mass. Packing-box	661,329	Nov. 6	548	126	93	1061
Thompson, William, Fremont, Ohio. Breakdown gun	663,669	Dec. 11	1392	308	93	2015
Thompson, William H. (See Burke and Thompson.)						
Thomsen, Jurgen C., Clinton, Iowa. Combined tank and heater	661,090	Nov. 6	111	26	93	972
Thomson, Allan S. (See Clement and Thomson.)						
Thomson, David P., Lynn, Mass., assignor to General Electric Company, of New York. Means for transmitting motion to distant points	664,594	Dec. 25	3152	715	93	2421
Thomson Electric Welding Company. (See Rietzel, Adolph F., assignor.)						
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Adjusting reluctance of magnetic circuits	659,716	Oct. 16	1805	407	93	395
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Contact device	659,717	Oct. 16	1806	407	93	395
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Alternating-current electric motor	664,190	Dec. 18	2353	537	93	2234
Thomson-Houston Electric Company. (See Van Depoele, Charles A., assignor.) (Reissue.)						
Thomson, James, *et al.* (See Kennedy, William J., assignor.)						
Thomson, Robert W., Lynn, Mass., assignor to Morley Button Sewing Machine Company, Saco, Me., and Boston, Mass. Thread-cutter for sewing-machines	660,130	Oct. 23	2627	587 588	93	578
Thomson, Thomas N., assignor to D. B. Replogle, Scranton, Pa. Egg-holder	663,190	Dec. 4	529	113	93	1826
Thornburgh, John H., Knightstown, Ind. Stock-waterer	662,990	Dec. 4	164	34	93	1757
Thorne Type Setting Machine Company. (See Linke, Emil F., assignor.)						
Thornton, Henry H., Somerville, assignor to Roberts Iron Works Company, Cambridge, Mass. Riveting-machine	661,778	Nov. 13	1360	330	93	1237
Thornycroft, John E., London, England. Motor-vehicle	662,206	Nov. 20	2171	524 525	93	1414
Thornycroft, John E., London, England. Driving mechanism for motor-vehicles	662,207	Nov. 20	2180	525	93	1416
Thornycroft, John E., London, England. Steering apparatus for motor-vehicles	663,986	Dec. 18	1994	448 449	93	2161
Thornycroft, John I., London, England. Water-tube boiler	659,005	Oct. 2	517	125	93	103
Thornycroft, John I., London, England. Water-tube boiler	659,006	Oct. 2	520	125	93	104
Thorp, James M., Alameda, Cal. Apparatus for swelling staves of wooden tanks	661,160	Nov. 6	243	59	93	1001
Throop, Francis W., Niagara Falls, N. Y. Dynamo-electric machine	662,042	Nov. 20	1866	449	93	1353
Thrune, Albert. (See Brye, Grimsrud, and Thrune.)						
Thun, Ferdinand. (See Janssen and Thun.)						
Thun, Ferdinand, and H. Janssen, Wyomissing, Pa. Braid	664,064	Dec. 18	2124	485	93	2186
Thurman, John S., St. Louis, Mo. Carpet-renovator	663,948	Dec. 18	1915	431	93	2145
Thurston, Herbert A. (See Thurston, James W. and H. A.)						
Thurston, James W. and H. A., Indianapolis, Ind. Hammer for straightening saw-blades	661,198	Nov. 6	305	74	93	1014
Thurston, Samuel H., Long Branch, N. J. Coating one metal with another and resulting product	661,650	Nov. 13	1127	279	93	1191
Thust, George J., Toledo, Ohio, assignor to Shelby Steel Tube Company, Pittsburg, Pa. Mandrel mechanism for rolling billets into tubes	658,882	Oct. 2	289	71	93	60
Ticknor, Joseph A., Claremont, N. H. Boot or shoe holder	661,565	Nov. 13	964	239	93	1158
Tiefel, Leonard C., Rochester, N. Y. Bicycle-rack	661,359	Nov. 6	606	141	93	1072
Tietjen, Dietrich W., Milwaukee, Wis. Ice-cycle	659,560	Oct. 9	1501	340	93	319
Tilden, Henry, Minneapolis, Minn. Furnace	659,460	Oct. 9	1311	300 301	93	282
Tilden, Marshall, Willimantic, Conn. Rotary self-inking stamp	663,944	Dec. 18	1918	431	93	2146
Till, Charles G. (See Lewis, Lawrence F., assignor.)						
Tilt, Joseph E., Chicago, Ill. Last	660,279	Oct. 23	2936	654	93	641
Timberlake, Charles, Indianapolis, Ind. Telephone-exchange system	664,691	Dec. 25	3314	753 754	93	2453
Timby, Theodore R., New York, N. Y. Ripening coffee	660,602	Oct. 30	3514	790	93	772
Timewell, Arthur T., assignor to A. Dickinson, Chicago, Ill. Sack filling and sewing machine	661,091	Nov. 6	112	26 27 28	93	973
Tindel, Adam, and O. Albrecht, Philadelphia, Pa. Crank-pin-turning attachment for lathes	660,978	Oct. 30	4181	939	93	902
Tingley, Philo B., New York, N. Y. Egg-beater or cream-whipper	663,305	Dec. 4	749	160	93	1868
Tinkelpaugh, Virgil D., E. L. Ridgway, and J. A. Newton, Elreno, Okla. Ter. Washing-machine	660,692	Oct. 30	3662	829 830	93	802
Tinkham, Clarence H. (See Washburn and Tinkham.)						
Tinkham, Oliver F., assignor of one-half to L. G. Pullen and F. W. Holzgrafe, Havana, Ill. Rotary engine	659,007	Oct. 2	522	126 127	93	105
Tinsman, Samuel H., assignor to Rock Island Plow Company, Rock Island, Ill. Wheeled plow	664,109	Dec. 18	2211	504	93	2205
Tischer, Alfred H., Minneapolis, Minn. Portable window-platform	660,174	Oct. 23	2725	606	93	598
Titus, Charley B., and P. Battey, Little River, Kans. Cream-separator	662,325	Nov. 20	2392	576	93	1458
Titus, Charley B., and M. C. McMains, assignors to themselves, W. D. Middlekauff, and J. Moll, Little River, Kans. Curtain-fixture	660,405	Oct. 23	3175	705	93	688
Tobey, Fred W., Grand Rapids, Mich., assignor to Globe-Wernicke Company, Cincinnati, Ohio. Door or drawer equalizer	664,065	Dec. 18	2125	485	93	2186
Tobey, Fred W., Cincinnati, and A. Dom, Hartwell, assignors to Globe-Wernicke Company, Cincinnati, Ohio. Roller copying-press	663,051	Dec. 4	274	58	93	1778

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Tobin, John, New York, N. Y. Prospecting-pan	664,066	Dec. 18	2126	485	93	2187
Tobin, William H., Jr. (See Brown and Tobin.)						
Toboldt, Albert L. A. (See Loeben, Gustave A., assignor.)						
Toch, Lucas, *et al.* (See Heimann, Salomon, assignor.)						
Todd, George N., Los Angeles, Cal. Wave-motor	660,035	Oct. 16	2406	541	93	513
Todd, George N., Los Angeles, Cal. Wave-motor	660,036	Oct. 16	2408	542	93	513
Todd, Henry B., Avon Park, Fla. Crate	663,052	Dec. 4	276	58	93	1778
Todd, James C., Philadelphia, Pa. Muzzle	663,108	Dec. 4	371	78	93	1795
Toledo Glass Company. (See Bock, William E., assignor.)						
Toledo Glass Company. (See Colburn, Henry J., assignor.)						
Toledo Glass Company. (See Colburn, Leslie H., assignor.)						
Toll, Herman H., Clarinda, Iowa. Machine-gun	661,897	Nov. 13	1566	380 381	93	1274
Tolman, Charles. (See Freymann, Oscar, assignor.)						
Tolman, Henry, Newton, Mass. Elastic tire for vehicles	662,177	Nov. 20	2119	511	93	1404
Toltz, Max, *et al.* (See Hachmann, Frederick, assignor.)						
Tombeur, Joseph, Brussels, Belgium. Fire-extinguishing appliance	661,430	Nov. 6	723	168	93	1096
Tombs, Charles C., Johnstown, Pa. Nut-cracker	660,806	Oct. 30	3885	873	93	842
Tomkins, Alfred S., Caterham, assignor to Military Equipment Stores and Tortoise Tents Company, Limited, London, England. Cooking-stove	662,326	Nov. 20	2394	576 577	93	1458
Tomlin, Albert B., Fort Collins, Colo. Cash-drawer	658,883	Oct. 2	290	71, 72	93	60
Tomlinson, John. (See Lomax and Tomlinson.)						
Tompkins, Harry S., Newark, N. J. Lamp-cover	663,306	Dec. 4	751	160	93	1868
Toole, John. (See Burke and Toole.)						
Toplis, William G. (See Shaw and Toplis.)						
Topping, Ross B., Chicago, Ill. Folding baby-carriage	659,423	Oct. 9	1238	284	93	268
Topping, Wilbur, Harvey, Ill. Composition of matter for enameling metal ware	663,618	Dec. 11	1296		93	1996
Torkelson, Gunder, assignor of one-half to F. N. Ryan, St. Paul, Minn. Thill-coupling	663,709	Dec. 11	1468	324	93	2029
Törnqvist, Gideon. (See Almcrantz and Törnqvist.)						
Torrance, Charles E. (See Wilson, Stevenson, and Torrance.)						
Torrance, Charles E., Northampton, assignor to E. D. Jones & Sons Company, Pittsfield, Mass. Refining-engine	662,746	Nov. 27	3208	759 760	93	1633
Torrey, Augustus, Detroit, Mich. Machine for excavating, conveying, and loading ballast upon railway-cars	659,008	Oct. 2	525	127	93	105
Torrey, Edward S. (See Buck, George, assignor.)						
Toussaint, Winand W. J., Brookline, Mass. Stove	661,360	Nov. 6	608	141	93	1073
Tower, Daniel W., assignor to Grand Rapids Brass Company, Grand Rapids, Mich. Picture-adjuster	660,938	Oct. 30	4121	926	93	890
Tower, John J. (See Converse, Maschil D., assignor.)						
Tower, John J. (See Lavigne, Joseph P., assignor.)						
Tower, Lewis C. (See Bull, Schuyler W., assignor.)	659,044	Oct. 2	588	143	93	118
Towers, Charles R., Thornton, Tex. Clothes-pin						
Townsend, Samuel A. (See Cavanagh and Townsend.)						
Trachmann, Otto F. F. (See Pippig and Trachmann.)						
Tracy, J. Evarts. (See Richards, Hubert P., assignor.)						
Tracy, Mabel. (See Turck, Frederick M., assignor.)						
Traphagen, William H., assignor to Emerson Manufacturing Company, Rockford, Ill. Harvesting-machine	660,280	Oct. 23	2938	654	93	641
Traphagen, William H., assignor to Emerson Manufacturing Company, Rockford, Ill. Harvesting-machine	660,281	Oct. 23	2939	654	93	641
Traxler, Charles, assignor of two-fifths to J. Dangel and E. D. Edwards, Akron, Ohio. Photographic-film-developing apparatus	659,498	Oct. 9	1388	315 316	93	297
Treadwell, George T., Selma, Ala. Collapsible crate	664,192	Dec. 18	2359	537	93	2235
Treat, John J., New Britain, Conn. Lock	660,230	Oct. 23	2829	628	93	619
Trebert, Henry L. F., Syracuse, N. Y., assignor to E. C. Stearns. Bicycle-fork crown	659,187	Oct. 2	850	202	93	168
Tredinnick, Stephen, assignor of one-fourth to A. Wetzstein, Butte, Mont. Apparatus for refining and desilverizing lead	662,836	Nov. 27	3372	798 799	93	1666
Tredway, Dwight. (See Pickles, Charles K., assignor.)						
Treglown, William M. (See Jones and Pierce, assignors.)						
Trendel, Fritz, Berlin, Germany. Acetylene-gas burner for cooking-stoves, &c	664,595	Dec. 25	3158	715	93	2421
Trenker, Alois. (See Kuentz and Trenker.)						
Trenkler, Julius. (See Jolles and Trenkler.)						
Trent, Martin V. B., Iberia, Mo. Churn-dasher	664,802	Dec. 18	2568	583	93	2278
Tripp, Chester L., New Bedford, Mass. Trousers-guard	660,670	Oct. 30	3650	819	93	796
Tripp, James, assignor to A. Schenck, New York, N. Y. Feeding mechanism for sewing-machines	663,399	Dec. 4	908	197	93	1898
Trissel, Frank N., assignor to Ohio Rake Company, Dayton, Ohio. Hay-loader	659,382	Oct. 9	1165	270	93	258
Tritch, George, Jr. (See Simmons, Lewis B., assignor.)						
Trix, John. (See McCoy, Elijah, assignor.)						
Trommlitz, George W., and J. M. Gibbs; said Trommlitz assignor and said Gibbs assignor of one-half to C. T. Brown, Denver, Colo. Gripping connection for inflation-valves	664,341	Dec. 18	2649	608	93	2293
Tropp, Bernhard, New York, N. Y., assignor to J. G. Vassias, Paris, France. Exhibiting device	664,692	Dec. 25	3319	754 755	93	2455
Trotz, Johan O. E., Worcester, Mass. Gas-producer	662,609	Nov. 27	2947	700	93	1586
Trotz, Johan O. E., Worcester, Mass. Reheating-furnace for steel ingots	662,610	Nov. 27	2949	701	93	1586
Troxel, Harvey H., Wooster, Ohio. Valve	660,603	Oct. 30	3516	790	93	772
Truax, Charles, Chicago, Ill. Needle-holder	662,178	Nov. 20	2120	511 512	93	1404
True, David, Amesbury, Mass. Spring-gear for vehicles	659,718	Oct. 16	1808	407 408	93	396
Truitt, Robert H., Benton, Ky. Check-row planter and fertilizer-distributer	661,566	Nov. 13	965	239 240	93	1158
Trumble, James F., assignor to himself and G. W. Wheelwright, Wheelwright, Mass. Starting-jack for engine fly-wheels	664,510	Dec. 25	2978	678	93	2384
Trumbull Electric Company. (See Trumbull, John H. and H., assignors.)						
Trumbull, Henry. (See Trumbull, John H. and H.)						
Trumbull, John H. and H., assignors to Trumbull Electric Company, Hartford, Conn. Electric cut-out	664,511	Dec. 25	2980	678	93	2384
Trump, Fuller, Springfield, Ohio. Water-wheel	660,282	Oct. 23	2941	655	93	641
Trussell, Emory A., assignor to Sieber & Trussell Manufacturing Company, St. Louis, Mo. Automatic lock-binder	664,825	Dec. 25	3622	821	93	2515
Trussell, Wilbert C., Boston, and H. F. Sawtelle, Leominster, Mass. Hydraulic motor	660,131	Oct. 23	2636	589	93	580
Tubby, Walter W., and W. H. Broomhead, assignors of one-half to L. Lincoln, Fall River, Mass. Shuttle-check for looms	663,139	Dec. 4	433	90	93	1808
Tuchfarber, Frank, Cincinnati, Ohio. Advertising-sign and making same	660,283	Oct. 23	2943	655	93	642

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tuck, William W., and A. Wassmann, assignors to A. A. Low, New York, N. Y. Reversing-gear	663,372	Dec. 4	850	182, 183	93	1887
Tucker, Bernard, Philadelphia, Pa. Hoist or lift	663,109	Dec. 4	372	78	93	1795
Tucker, George W., Waterbury, Conn. Covered nail	663,307	Dec. 4	752	161	93	1868
Tucker, Irett F., Sumner, Mich., assignor of one-half to E. L. Alvord, Detroit, Mich. Sugar-beet harvester	659,773	Oct. 16	1929	434	93	418
Tucker, James C., near Smith Centre, Kans. Animal and fowl water-trough	659,774	Oct. 16	1932	434	93	419
Tucker, James F., Brooksville, Fla. Process of and apparatus for protecting trees or vegetation against cold	661,898	Nov. 13	1569	381	93	1275
Tucker, John, New York, N. Y. Floor cesspool or drain	660,348	Oct. 23	3082	683	93	669
Tuerk, Gustavus A., Chicago, Ill. Igniter for explosive-engines	663,798	Dec. 11	1639	367	93	2066
Tum Suden, Henry C., *et al.* (See Laureyns, Gustav G., assignor.)	659,904	Oct. 16	2165	487	93	465
Turbush, James H., New York, N. Y. Train air-signaling apparatus	662,043	Nov. 20	1870	449, 450	93	1354
Turck, Frederick M., assignor, by mesne assignments, of one-half to M. Tracy, New York, N. Y. Manifold sales-book	660,349	Oct. 23	3084	684	93	670
Turley, Thomas B., *et al.*, trustees. (See Oliver, Jesse, assignor.)	664,198	Dec. 18	2360	538, 539	93	2235
Turnbull, Alexander, Bishopbriggs, Scotland. Stop-valve	663,523	Dec. 11	1151	249	93	1968
Turnbull, George A., Chicago, Ill. Machine for making expanded metal	663,137	Dec. 4	430	89	93	1807
Turner, Ephraim M., Fort Worth, Tex. Stirrup	660,604	Oct. 30	3517	790, 791	93	772
Turner, Harriet H., Rochester, N. Y. Cream and finger guard for freezers	661,092	Nov. 6	114	28	93	973
Turner, James, Paterson, N. J., assignor to J. D. Foot, New York, N. Y. Rasp-cutting machine	664,067	Dec. 18	2127	486	93	2187
Turner, James B., and J. F. Webb, Centre, Mo. Churn	658,902	Oct. 2	324	80, 81	93	66
Turner, James L., Indianapolis, Ind. Lawn-sprinkler	659,113	Oct. 2	704	168, 169	93	143
Turner, Samuel B., Chicago, Ill. Mechanical music-chart	664,449	Dec. 25	2864	654	93	2361
Turner, Samuel B., Chicago, Ill. Mechanical music-chart	663,308	Dec. 4	754	161	93	1868
Turton, George W., Alma, Wis. Fly-trap	663,309	Dec. 4	754	161	93	1869
Tuttle, Gutie H., Montgomery, Ala., assignor to himself, and G. M. Bowie, Whitecastle, La. Vulcanizing rubber	661,431	Nov. 6	723	168	93	1097
Tuttle, Gutie H., Montgomery, Ala., assignor to himself, and G. M. Bowie, Whitecastle, La. Vulcanizer	660,671	Oct. 30	3650	819	93	796
Tuttle, Hiram H., York, Pa. Washboiler	660,319	Oct. 23	3024	671	93	658
Tuttle, Josiah S., assignor to J. M. Wilson, Kansas City, Kans., E. P. Ross and J. W. Lowe, Kansas City, Mo. Baling-press	664,596	Dec. 25	3158	716	93	2422
Twist, Joseph F., San Francisco, Cal. Apparatus for making seamless tooth-crowns	659,879	Oct. 16	2113	475	93	454
Tyler, Hiram. (See Ohmer and Tyler.) (Reissue.)	664,194	Dec. 18	2368	.....	93	2237
Tynan, Joseph J., and H. C. Mostiller, Philadelphia, Pa., assignors, by mesne assignments, to Pneumatic Tool Improvement Company, Philadelphia, Pa., and Camden, N. J. Pneumatic riveting apparatus	659,499	Oct. 9	1390	316	93	297
Ullman, Isaac W., New York, N. Y. Signal system	664,694	Dec. 25	3825	756	93	2456
Ullman, James A., New York, N. Y. Envelop	662,477	Nov. 27	2716	645, 646	93	1541
Ullrich, Henry F. A. (See Clark and Ullrich.)	661,567	Nov. 13	969	240	93	1159
Ullrich, Charles B., Duluth, Minn. Lifting device for invalids	659,188	Oct. 2	851	202	93	169
Umbenhower, Cornelius R. (See Reed and Umbenhower.)	662,138	Nov. 20	2038	495, 496	93	1386
Underdown, John K., Philadelphia, Pa. Adjustable window-screen	661,199	Nov. 6	306	75, 76	93	1014
Underwood, George B., New York, N. Y. Inhaler	658,903	Oct. 2	327	81	93	66
Underwood, Herbert G., New York, N. Y., assignor to International Power Vehicle Company, of West Virginia. Motor-vehicle						
Underwood, Joseph B., Fayetteville, N. C., assignor, by mesne assignments, to Underwood Stemming Machine Company, of New Jersey. Tobacco-stemming machine						
Underwood Stemming Machine Company. (See Underwood, Joseph B., assignor.)						
Unger, John W. (See Reynolds, Brosius, and Unger.)						
Ungethüm, Franz L., Oetzsch, Germany. Massage apparatus						
Union Boiler Tube Cleaner Company. (See Forsyth, Wilber D., assignor.)						
Union Carbide Company. (See Morehead, John M., assignor.)						
Union Hardware Company. (See Hoerle, Christian G., assignor.)						
Union Iron Works. (See Thomas, Edwin E., assignor.)						
Union Scale and Manufacturing Company. (See Hanak and Hoepner, assignors.)						
Union Scale and Manufacturing Company. (See Hoepner, George, assignor.)						
Union Specialty Manufacturing Company. (See MacLaurin, Daniel P., assignor.)						
Union Welt Insole Company. (See West, Stillman A., assignor.)						
United Alkali Company. (See Duff, Edward J., assignor.)						
United Power Vehicle Company. (See Duryea, James F., assignor.)						
United Shoe Machinery Company. (See Eaton, Harrison H., assignor.) (Reissue.)						
United Shoe Machinery Company. (See McFeely, Ronald F., assignor.)						
United Shoe Machinery Company. (See Pearson, Marshall H., assignor.)						
United Specialty Company. (See Gillette, Paul F., assignor.)						
United States Aerating Fountain Company. (See Cederstrom, John, assignor.)						
United States Canopy Company. (See Durham, Benjamin F., assignor.)						
United States Fire and Police Telegraph Company. (See Cole, Frederick W., assignor.)						
Universal Safety Tread Company. (See Huestis, Frederick W., assignor.)						
Upham, Frank D., assignor of two-thirds to P. Engle and G. A. Upham, Newton, Iowa. Self-adjusting tray for sample-cases, trunks, &c	664,368	Dec. 18	2692	612	93	2302
Upham, Georgia A., *et al.* (See Upham, Frank D., assignor.)	661,281	Nov. 6	460	106	93	1043
Upright, Chauncey S. (See Hoy, Marius P., assignor.)						
Urbach, John T., and J. M. Knight, Baltimore, Md. Pen and pencil holder						
Urban, Johann. (See Fremery and Urban.)						
Vacheron, Louis E. (See Ball, Vacheron, and Luce.)						
Vail, Jonathan H., Philadelphia, Pa. Apparatus for supplying water to occupants of buildings	662,632	Nov. 27	2688	708	93	1598
Valentine, P. Anderson, *et al.* (See Van den Broek, Ivan, assignor.)	662,837	Nov. 27	3375	799	93	1666
Valiquette, Edward A., Rutland, Vt. Float-valve						
Vallette, Abby A., *et al.* (See Holly, George W., assignor.)						
Valot, Charles, *et al.* (See Lewis, Albert H., assignor.)	659,880	Oct. 16	2115	476	93	455
Van Brunt, Willard A., Horicon, Wis. Grain-drill	659,881	Oct. 16	2116	476, 477	93	455
Van Brunt, Willard A., Horicon, Wis. Grain-drill	662,509	Nov. 27	2779	660	93	1554
Van den Broek, Ivan, assignor, by mesne assignments, to C. E. Freeman and P. A. Valentine, Chicago, Ill. Apparatus for treating liquids with ozone, &c						

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Van Depoele, Charles J., deceased; A. Wahl and C. A. Coffin, administrators, assignors to Thomson-Houston Electric Company, Boston, Mass. Traveling contact for electric railways. (Reissue)	11,872	Nov. 13	1667	404, 405	93	1295
Van Dorn, Dwight B., Cleveland, Ohio. Car truck and brake	661,432	Nov. 6	724	168, 169, 170	93	1097
Van Dyke, Charles F., assignor of one-half to G. Moss, Atchison, Kans. Automatic stop mechanism	664,068	Dec. 18	2129	486	93	2187
Van Gülpen, Max, Mulhelm-on-the-Rhine, Germany. Velocipede	661,939	Nov. 13	1644	398, 399	93	1289
Van Laer, Charles E. (See Healy, John J., assignor.)	662,991	Dec. 4	165	34	93	1758
Van Luvan, Josiah H., West Pittston, Pa. Spirit-level	662,660	Nov. 27	3035	718	93	1603
Van Manen, William, Grand Rapids, Mich. Bench-vise	659,461	Oct. 9	1315	301	93	283
Van Norman, Frederick D., Springfield, Mass. Engraving and die-sinking machine						
Van Pelt, Charles A. (See Swartz, James T., assignor.)	663,478	Dec. 11	1062	233	93	1951
Van Schoick, George R., and C. E. Samson, Ypsilanti, Mich. Bicycle-pedal	660,873	Oct. 30	4020	900	93	869
Van Trump, Samuel H., Lawson, and F. D. Rowell, Liberty, Mo. Vehicle-wheel	659,424	Oct. 9	1239	285	93	268
Van Valkenburgh, Henry J., Mattawan, Mich. Fence-post	661,004	Oct. 30	4223	949, 950	93	910
Van Vechten, Orville R., New York, N. Y. Overseaming sewing-machine	659,268	Oct. 9	992	233	93	216
Van Vleck, John, and W. N. Stevens, New York, N. Y. Glower-heating apparatus for electric lamps						
Van Vors, Jason F., *et al.* (See Langenbach, Charles J., assignor.)	664,364	Dec. 18	2693	612	93	2302
Van Wie, Peter G., assignor to Ideal Manufacturing Company, Detroit, Mich. Adjustable gas-burner	664,195	Dec. 18	2369	539, 540	93	2238
Vance, Noble, assignor to Hewitt Lindstrom Motor Company, Chicago, Ill. Controller-switch	660,473	Oct. 23	3292	736	93	710
Vandenhoff, Paul W., Chicago, Ill. Window-shade cover	660,605	Oct. 30	3519	791	93	772
Vandercook, Frank E., assignor of one-half to G. E. Judd, Waterbury, Conn. Sheet-metal chain	661,112	Nov. 6	153	38	93	982
Vanderlinda, Peter J., assignor of one-half to E. L. Bowring, Grand Rapids, Mich. Knock-down refrigerator	662,838	Nov. 27	3376	799, 800	93	1667
Vandresar, Elmer L., and J. L. Pilling, Chicago, Ill. Pneumatic lubricating system	663,310	Dec. 4	756	161	93	1869
Vanorman, Oliver. (See Johnston and Vanorman.)						
Vansant, Isaac L., Philadelphia, Pa. Dumping-car, &c						
Vanscoy, Emmet A., *et al.* (See Seavolt, John W., assignor.)	661,005	Oct. 30	4232	950, 951	93	912
Varrelman, George, and C. M. Fels, New York, N. Y. Musical box	659,863	Oct. 16	2088	469	93	449
Vassberg, Gustaf A., Stockholm, Sweden, assignor to Mergenthaler Linotype Company, of New York. Linotype-machine						
Vassias, Jules G. (See Tropp, Bernhard, assignor.)						
Vaucher, Charles. (See De la Harpe, Vaucher, and Lorétan.)	660,474	Oct. 23	3293	736, 737	93	711
Vauclain, Samuel M., Philadelphia, Pa. Valve for compound engines	663,799	Dec. 11	1640	368	93	2066
Vaughan, Henry H., assignor to C. F. Quincy, Chicago, Ill. Motive-fluid drill	663,110	Dec. 4	373	78	93	1795
Vaughn, Benson, New Castle, Pa. Air-brake coupling						
Vaughn Machine Company. (See Hayes, Edward, assignor.)						
Vawter, William A. (See Stoelting, Christian H., assignor.)						
Veazie, Winchester, *et al.*, trustees. (See Crooks, James W., assignor.)						
Veit, Josef, *et al.* (See Gibbs, James, assignor.)						
Velvril Company. (See Reid, Walter F., assignor.)	661,678	Nov. 13	1182	288, 289	93	1208
Verdier, Albert R., St. Louis, Mo. Office indicator and register						
Vereinigte Elektricitäts Actien-Gesellschaft *et al.* (See Poliak and Virag, assignors.)	663,311	Dec. 4	757	162	93	1869
Verhoeven, John P., and F. A. Westerman, Monroe, Mich. Hat-sweat	662,327	Nov. 20	2395	577	93	1458
Vermilye, William M., New York, N. Y. Fabric-strength-testing device						
Vermilyea, Le Roy. (See O'Leary, John, assignor.)	660,672	Oct. 30	3652	820	93	797
Vernon, Joseph A., Homestead, Pa. Chalk-line holder	662,580	Nov. 27	2906	689, 690	93	1577
Vicarino, Charles, Nancy, France. Apparatus for electrically lighting railway-carriages, &c						
Vicars, John, Sr., and John, Jr., Liverpool, England. Appliance for supplying air to furnaces	664,695	Dec. 25	3326	756	93	2456
Vickers, Sons & Maxim. (See Dawson and Horne, assignors.)						
Vickers, Sons & Maxim. (See Dawson and Silverman, assignors.)						
Vickers, Sons & Maxim. (See Maxim, Hiram S., assignor.)						
Victor Koechl & Company. (See Clarkson, Philip S., assignor.)	664,450	Dec. 25	2896	.....	93	2361
Vidal, Henri R., Paris, France. Triphenylmethane dye and making same	664,696	Dec. 25	3327	756	93	2457
Vidlund, Gustave W., Philadelphia, Pa. Steam-boiler feeder	658,932	Oct. 2	389	94	93	79
Vill, Otto, Minnesota City, Minn. Metallic railway-tie	662,638	Nov. 27	2908	708	93	1594
Vinez, Louis, Louisville, Ohio. Kiln-furnace	662,247	Nov. 20	2254	542	93	1430
Vinton, John H., assignor to G. E. Parker, Boston, Mass. Coated wire	662,248	Nov. 20	2255	545	93	1430
Vinton, John H., assignor to G. E. Parker, Boston, Mass. Japanning wire						
Virag, Josef. (See Poliak and Virag.)	663,800	Dec. 11	1643	369	93	2067
Virgin, Horace G., Penrith, W. Va. Clay-screening apparatus	659,775	Oct. 16	1933	434	93	419
Viser, William M., Harrodsburg, Ky. Flour-sifter						
Voelker, William L., London, England, assignor to T. C. Crawford, New York, N. Y. Manufacture of incandescing electric lamps	660,475	Oct. 23	3294	737	93	711
Voellner, George, assignor of one-half to A. D. Peters, Elizabeth, N. J. Bandage	660,874	Oct. 30	4023	900	93	869
Vogel, Louis D., Omaha, Nebr. Machine for sawing off and gaining staves	662,839	Nov. 27	3381	800	93	1667
Vogler, William, Somerville, assignor of one-half to G. N. Phelps, Boston, Mass. Upholstered furniture	661,829	Nov. 13	1447	350, 351	93	1253
Vogul'd, Erik L. (See Richter and Vogulld.)						
Vogt, Andrew G. (See Irving, Frank K., assignor.)						
Vogt, Louis J., assignor to Vogt Optical Company, Rochester, N. Y. Photographic shutter	660,476	Oct. 23	3295	737, 738	93	711
Vogt Optical Company. (See Vogt, Louis J., assignor.)						
Vollmer, John. (See Kretschmar and Vollmer.)	661,779	Nov. 13	1363	330	93	1237
Vollmers, John, Lake City, Minn. Needle for grain-binders	659,114	Oct. 2	706	169	93	143
Voorhies, Alexis, New Iberia, La. Cotton-picker's shade						
Vorbach, Emil, Kladno, Austria-Hungary, assignor to Wellman-Seaver Engineering Company, Cleveland, Ohio. Hot-blast stove	660,037	Oct. 16	2410	542	93	514
Vorndieke, Anton A. (See Dierig and Vorndieke.)						
Vose, Ambrose S. (See Spaulding and Vose.)						
Voss, Frederick. (See Hegbom, Marselius, assignor.)						
Vreeland, Aaron, Bloomfield, N. J. Pneumatic tire and shoe	662,208	Nov. 20	2181	526	93	1416

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vries, Luitjen J. R. de, Panola, Ill. Ladder	663,821	Dec. 11	1687	378	93	2077
Vulcan Iron Works. (See Ludlow, James T., assignor.)						
W. & E. T. Fitch Company. (See Hubbard, George M., assignor.)						
W. J. Clark Company. (See Joseph and Clark, assignors.)						
W. T. Smith Company. (See Smith, Wilbur T., assignor.)						
W. W. Kimball Company. (See Barkstrom, John F., assignor.)						
Wächter, Heinrich, Bielefeld, Germany. Bleaching compound	659,719	Oct. 16	1810	.....	93	396
	660,827	Oct. 30	3095	881 / 882	93	853
Waddell, Montgomery, New York, N. Y. Bridge	661,113	Nov. 6	155	38, 39	93	982
Waddell, Montgomery, New York, N. Y. Bascule-bridge	662,840	Nov. 27	3383	801	93	1668
Wade, Charles J., Washington, D. C. Bedclothes-holder						
Wade, George T. (See Ferris, William H., assignor.)						
Wade, Harry R., *et al.* (See Bowman, Daniel W., assignor.)						
Wade, Jack, assignor of three-fourths to L. M. and E. D. Gibson and W. J. Ewell, Lexington, Miss. Blacksmith's hammer	664,698	Dec. 25	3323	755	93	2456
Wade, James R., St. Louis, Mo. Steam-heating system	659,776	Oct. 16	1934	434	93	419
Wade, William A., and J. B. Smith, Louisville, Ky. Ticket-rack	661,627	Nov. 13	1062	269	93	1182
Wadsworth, Frank L. O. (See Ripley and Wadsworth.)						
Wagner, Emil L., Aberdeen, S. D. Rope-pulley	660,783	Oct. 30	3840	862 / 863	93	833
Wagner, Franz X., assignor to Wagner Typewriter Company, New York, N. Y. Type-writing machine	660,231	Oct. 23	2830	628	93	619
Wagner, Henry, *et al.* (See Alley, Cassius, assignor.)						
Wagner Typewriter Company. (See Wagner, Franz X., assignor.)						
Wagner Typewriter Company. (See Winne, Ernest, assignor.)						
Wahl, Albert, *et al*, administrators. (See Van Depoele, Charles J.) (Reissue)	663,373	Dec. 4	852	183	93	1887
Wahlgren, John A., Vicksburg, Miss. Apparatus for reboring cylinders						
Wainwright, Edward W. (See Nickel and Wainwright.)						
Waite, William F., Palmer, assignor to W. F. Young, Springfield, Mass. Hoof-pad retainer	660,536	Oct. 23	3410	765	93	733
	663,479	Dec. 11	1063	.....	93	1951
Waitt, Arthur M., Cleveland, Ohio. Cleaning and polishing composition						
Walbaum, Henry C., Jr., assignor of one-third to J. M. Nolan, Rochester, N. Y. Combination saw-vise and tool-basket handle	664,342	Dec. 18	2850	603	93	2293
	663,945	Dec. 18	1919	431	93	2146
Waldburger, John A., and W. J. Smith, McKeesport, Pa. Ladle for molten metal						
Waldburger, John A., and W. J. Smith, McKeesport, Pa. Power apparatus for removing skull from ladles	663,946	Dec. 18	1921	432	93	2146
Wale, William J., *et al.* (See Jones, Henry, assignor.)						
Wales, Robert, Invercargill, New Zealand. Fastening device	659,500	Oct. 9	1392	316	93	297
Walker, Alexander. (See Ross, Alexander, assignor.)						
Walker, Everett W., Springfield, Mass. Seat for bicycles, &c.	660,132	Oct. 23	2641	589	93	581
Walker, James, London, England. Gland-packing	660,523	Oct. 23	3384	760	93	729
Walker, James C., Waco, Tex. Motion-transmitter	662,611	Nov. 27	2951	701	93	1586
Walker, John B., Irvington, N. Y. Vaporizer for automobile-boilers	661,651	Nov. 13	1129	279	93	1192
	664,069	Dec. 18	2131	486 / 487	93	2188
Walker, John T., Norman, Okla. Ter. Pump						
Walker, Matthew H., *et al.* (See Hayes, Albert, assignor.)						
Walker, Millard F., Flatonia, Tex. Cotton-chopper	662,747	Nov. 27	3210	760	93	1634
Walker, William, Allegheny, and H. W. Croft, Pittsburg, Pa. Die for forming clay	663,140	Dec. 4	435	91	93	1808
Walker, William, Allegheny, and H. W. Croft, Pittsburg, Pa. Forming clay blocks	663,141	Dec. 4	436	91	93	1808
Wall, Alfred, Ramsey, England. Apparatus for carbonating liquids	660,740	Oct. 30	3766	848	93	820
Wall, Earnest. (See Fligor, Guy G., assignor.)						
Wall, George H., Cadillac, Mich. Car or wagon stake	664,793	Dec. 25	3535	802	93	2500
Wallace, Casper D., Bridgeport, Conn., assignor to Yost Writing Machine Company, Ilion, N. Y. Type-writing machine	661,628	Nov. 13	1084	269 / 270	93	1182
Wallace, De Witt C., assignor of one-half to J. T. Rennie, Cairo, Ill. Car-fender	663,201	Dec. 4	546	117	93	1899
Wallace, Jacob B., Erie, Pa. Chaser-grinding machine	664,512	Dec. 25	2981	678	93	2384
Wallace, Jacob B., Erie, Pa. Tap and die holder	664,513	Dec. 25	2982	679	93	2384
Wallace, James C., Colorado City, Colo. Filter-bed	664,196	Dec. 18	2372	540	93	2239
Wallace, John F., Ashland, Oreg. Device for preventing cows from kicking	664,794	Dec. 25	3536	803	93	2500
Wallace, Lee. (See Hopkins, James M., assignor.)						
Wallace, William C., assignor of one-half to John Brown & Company, Limited, Sheffield, England. Apparatus for heating air to be supplied to furnaces	659,561	Oct. 9	1502	340 / 341	93	319
	663,374	Dec. 4	854	183	93	1887
Wallenthin, Nils C., Attleborough, Mass. Bell	659,269	Oct. 9	903	233	93	216
Waller, Benjamin, Detroit, Mich. Annunciator for telephone-exchanges	664,597	Dec. 25	3163	716	93	2423
Wallin, Myrtle M., Rock Springs, Wyo. Work-holder						
Walls, C. W., *et al.* (See Forrester, Enos J., assignor.)						
Walls, F. H., *et al.* (See Forrester, Enos J., assignor.)						
Walpuski, Theodore G., New York, N. Y. Buffet-cabinet	664,697	Dec. 25	3328	757	93	2457
Walraven, Parker C. (See Yates, Fred E., assignor.)						
Walsh, Francis E., Cedar Rapids, Iowa. Oat-grader	660,282	Oct. 23	2832	628	93	619
Walsh, Henry, Oldham, England. Mechanism for stripping teeth of revolving flats or carding-engines	662,581	Nov. 27	2909	690 / 691	93	1577
	664,010	Dec. 18	2949	464	93	2171
Walsh, John E., New York, N. Y. Submarine excavator	658,983	Oct. 2	389	95	93	80
Walsh, John J., Manassas, Va. Trap attachment for nests	663,202	Dec. 4	548	118	93	1829
Walter, Frederick A., Philadelphia, Pa. Partitioned duplex envelop	658,969	Oct. 2	452	107	93	91
Walter, George, Fort Benton, Mont. Current-motor						
Walter, Joseph L. (See Horvath, Louis, assignor.)	660,606	Oct. 30	3520	.....	93	773
Walter, Kurt, Berlin, Germany. Stencil-sheet for autographic apparatus	661,568	Nov. 13	971	241	93	1159
Walter, William, New York, N. Y. Coffee-roaster	659,777	Oct. 16	1937	435	93	420
Walters, Alfred C., Uniontown, Pa. Mine-car latch	663,312	Dec. 4	758	162	93	1869
Walton, James, Phœnicia, N. Y. Acetylene-gas generator						
Wambach, George. (See Wambach, John and G.)						
Wambach, John and G., Philadelphia, Pa. Bicycle-guard	660,875	Oct. 30	4023	900	93	870
Wandscheer, Daniel, Sioux Centre, Iowa. Feed attachment for corn-shelling machines	662,105	Nov. 20	1988	475	93	1376
Wangler, Charles J., St. Louis, Mo. Boiler-maker's spacer	663,053	Dec. 4	277	59	93	1778
Ward, Arthur, *et al.* (See Benson, Henry M., assignor.)						
Ward, Charles A., assignor of two-thirds to C. Jackson and F. B. Grimshaw, Clark, S. D. Acetylene-gas generator	659,720	Oct. 16	1811	408	93	396
Ward, James. (See Emmerson and Ward.)						
Ward, John H. (See Broadbooks, Peter, assignor.)						
Ward, Ziba G., Proffit, Va. Screw-plate	664,514	Dec. 25	2983	679	93	2385
Warfield, R. H. (See Macnamara, John B. E., assignor.)						
Waring, John, Hartford, Conn. Gaging high vacuums	662,156	Nov. 20	2076	508	93	1394
Waring, John B., Newark, N. J., assignor of one-half to H. L. Fox, New York, N. Y. Reducing-valve	664,515	Dec. 25	2984	679	93	2385
	662,841	Nov. 27	3385	801	93	1668
Warley, Jacob S., Pottstown, Pa. Metallic railway-tie						

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Warnecke, Christian G., and W. H. Heath, London, England. Magazine plate-holder	664,795	Dec. 25	3537	803	93	2500
Warneke, William, assignor of three-fourths to P. and J. O. Krumbholz and B. Rosenow, Milwaukee, Wis. Railway-switch-operating mechanism	660,673	Oct. 30	3653	820	93	797
Warner, Asa F., Boston, Mass., assignor to Thompson & Norris Company, of New Jersey. Knockdown paper box	659,943	Oct. 16	2235	501 / 502	93	478
Warner Brothers Company. (See Scott, Eben M., assignor.)						
Warner, Ernest P., assignor to Western Electric Company, Chicago, Ill. Incandescent-lamp socket	662,510	Nov. 27	2781	660	93	1555
Warner, Jane, Kansas City, Mo. Hat-fastener	662,511	Nov. 27	2783	660	93	1555
Warner, Rody E., Pittsburg, Pa. Rectal irrigator and insufflator	664,706	Dec. 25	3539	804	93	2501
Warning, Fred, assignor to I. Myers, Milwaukee, Wis. Machine for cleaning lye from the exterior of lye-containing cans	663,142	Dec. 4	438	91, 92	93	1809
Warren, Bernard J., Dover, Me. Fish-gaff	659,383	Oct. 9	1166	271	93	253
Warren & Co., S. D. (See Carmichael, Henry, assignor.)						
Warren, David B., West Plains, Mo. Bait-box	661,093	Nov. 6	115	28	93	973
Warren, Edmond A., assignor to E. A. Warren and T. J. Moore, New York, N. Y. Artificial bait for fishing	662,189	Nov. 20	2040	496	93	1386
Warren, Harry M., Schenectady, N. Y. Electric-current indicator	662,992	Dec. 4	166	34	93	1758
Warren Webster & Company. (See Leitch, Meredith, assignor.)						
Warren, William C., and A. Smithson, Sedan, Minn. Wagon-box support	658,904	Oct. 2	328	81	93	67
Warren, William P., Baker, Ill. Wheel-scraper	661,094	Nov. 6	117	28, 29	93	974
Warsing, Charles A., Altoona, Pa. Safety-valve for trucks	663,947	Dec. 18	1922	432	93	2146
Wartenberg, Heinrich, assignor of one-fifth to A. M. Miller, Chicago, Ill. Manufacturing carbon	660,693	Oct. 30	3684	.....	93	803
Washburn, Edwin M., Hillsdale, Mich. Furnace	659,161	Oct. 2	778	188	93	157
Washburn, Samuel D., Boston, and C. H. Tinkham, Cambridge; said Tinkham assignor to F. F. Rhodes, Boston, Mass. Incandescent lamp	663,524	Dec. 11	1152	249	93	1968
Washburne, James V., Waterbury, Conn. Penholder	660,850	Oct. 23	3085	684	93	670
Washburne, James V., Waterbury, Conn. Mechanism for assembling, forming, and setting garment-fasteners	661,297	Nov. 6	490	113	93	1049
Washington, Reade M., and A. W. Capy, Dallas, Tex., assignors of one-fourth to said Washington. Attachment for barrels of firearms	658,934	Oct. 2	391	95	93	80
Wassmann, August. (See Tuck and Wassmann.)						
Waste, Charles, Galesburg, Ill. Soft-tread horseshoe	661,508	Nov. 13	1026	257	93	1171
Waterbury Battery Company. (See Schoenmehl, Charles B., assignor.)						
Waterbury, Edwin H., Stamford, Conn. Triangle	660,406	Oct. 23	3176	705	93	688
Waterbury, James E., Holley, N. Y. Adjustable head-rest	660,694	Oct. 30	3686	830	93	803
Waterbury Manufacturing Company. (See Perkins, Walter H., assignor.)						
Waterman, Frank W., Baltimore, Md. Steam-motor for automobiles	659,162	Oct. 2	780	188	93	157
Waterman, Lewis E., Moline, assignor to Emerson Manufacturing Company, Rockford, Ill. Wheeled plow	659,009	Oct. 2	528	128	93	106
Waters, Reuel W. (See Fisher, Israel, assignor.)						
Watkins, Alfred W., and R. Lenk, New York, N. Y. Appliance for making metallic connection between electric conduits	660,741	Oct. 30	3767	848	93	820
Watkins, Daniel, assignor of two-thirds to C. J. Ruymann, Davenport, Iowa. Electric-current regulator	658,905	Oct. 2	328	81, 82	93	67
Watkins, H. H., *et al.* (See Lay, William, assignor.)						
Watson, Joseph C., Bentonville, Ark. Necktie-retainer	660,133	Oct. 23	2642	590	93	582
Watson, Robert, assignor of one-half to C. A. Kram, Washington, D. C. Apparatus for treating diseases of the ear	660,233	Oct. 23	2834	629	93	619
Watson, Thomas. (See Richardson, Albert C., assignor.)						
Watson, Thomas S., assignor to Browning Manufacturing Company, Milwaukee, Wis. Electric motor	660,713	Oct. 30	3722	837	93	811
Watson, William T., Victoria, Canada. Life-guard for tram-cars	663,313	Dec. 4	760	162	93	1870
Watt, Sern P., assignor to Hine-Watt Manufacturing Company, Chicago, Ill. Acetylene-gas lamp	662,842	Nov. 27	3386	801	93	1668
Watt, Sern P., assignor to Hine-Watt Manufacturing Company, Chicago, Ill. Acetylene-gas generator	662,843	Nov. 27	3389	801	93	1669
Wattles, Hiram J., Syracuse, N. Y. Heating apparatus	661,629	Nov. 13	1067	270	93	1183
Watts, David H., Philadelphia, Pa. Umbrella-stick	664,197	Dec. 18	2373	540	93	2239
Watts, David H., assignor of one-half to D. H. Watts, Jr., Philadelphia, Pa. Brazing-furnace	663,822	Dec. 11	1689	378	93	2077
Watts, Warren A. (See Pettijohn, Charles H., assignor.)						
Watzel, William B., and F. L. Shekell, Washington, D. C. Automatic circuit breaker and closer	660,184	Oct. 23	2643	590	93	582
Watzke, Eduard, assignor of one-half to I. Nagy, Friedberg, Austria-Hungary. Machine for manufacturing capsules for bottles or the like	664,516	Dec. 25	2986	680	93	2385
Waugh, Daniel S., Marion, Ohio. Pneumatic hammer	662,993	Dec. 4	167	35	93	1758
Wayland, Frank, Newton, Mass. Treating hides	664,598	Dec. 25	3164	.....	93	2423
Wayside Novelty Company. (See Pingel, Frederick W., assignor.)						
Weatherly, Frank S., Los Angeles, Cal. Power-transmitter	662,179	Nov. 20	2123	512	93	1405
Weathers, Victor T., assignor of two-thirds to D. McCall, Ione, Cal. Acetylene-gas generator	664,029	Dec. 18	2975	472	93	2176
Weaver, Amasa R., Harvard, Nebr. Lathe-chuck for grinding watch-crystals	659,778	Oct. 16	1937	435	93	420
Weaver, Emily, and E. L. Baddeley, Southport, England. Damping-pad or the like	662,328	Nov. 20	2396	577	93	1458
Weaver, George L., Boston, assignor to H. E. Harriman, Georgetown, Mass. Spool for electromagnets	659,882	Oct. 16	2118	477	93	455
Weaver, George W., Rochester, N. Y. Card-box	662,478	Nov. 27	2718	646	93	1541
Weaver, Robert T., New York, N. Y. Filter	663,592	Dec. 11	1248	275 / 276	93	1986
Weaver, William G. (See Bralt, Harry U., assignor.)						
Weaver, William J., Leetonia, Ohio. Mail-box	661,361	Nov. 6	609	142	93	1073
Webb, Edward G. (See Miller, Charles H., assignor.)						
Webb, Frank S., Newark, N. J. Clip or card-holder	664,517	Dec. 25	2990	681	93	2386
Webb, James F. (See Turner and Webb.)						
Webb, John. (See Crites and Webb.)						
Webb, Robert E., Syracuse, N. Y. Apparatus for making molds of butter, &c.	660,939	Oct. 30	4122	927	93	891
Webb, Samuel J., Minden, La. Compressing cotton	659,612	Oct. 9	1589	360	93	336
Webber, George S., Chicago, Ill. Shoe	660,284	Oct. 23	2944	656	93	642
Webber, Wesley, New York, N. Y. Means for connecting vending-machines to meters	663,823	Dec. 11	1690	378	93	2078
Webber, William O., Brookline, Mass., assignor to W. C. Carr, New York, N. Y. Hydraulic air-compressing apparatus	659,270	Oct. 9	994	234	93	216
Weber, Edward. (See Young, Jasper R., assignor.)						
Weber, Henry H., Loretto, Ill. Portable grain-elevator	664,908	Dec. 18	2569	584	93	2278
Weber, Louis, Új-Verbász, Austria-Hungary. Fire-escape	660,674	Oct. 30	3654	830	93	797
Weber, Theodore A., assignor of one-half to E. Lundgren, New York, N. Y., and C. A. Hanson, Cincinnati, Ohio. Bottle-labeling machine	664,707	Dec. 25	3542	804	93	2501

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Weber, William A., Wapakoneta, Ohio. Horseshoe toe-calk	658,884	Oct. 2	292	72	93	61
Webster, Cheever L. (See Ashbaugh and Webster.)						
Webster, Dean S., Chicago, Ill. Life-saving apparatus	659,883	Oct. 16	2119	477	93	455
Webster, George, Parramatta, New South Wales. Machine for extracting gold	663,375	Dec. 4	855	184	93	1888
Webster, John A. (See Wood, Blair, and Webster.)						
Webster, Joseph S., Minneapolis, Minn. Corner-stake	661,830	Nov. 13	1449	351	93	1253
Weed, Edward B., assignor to A. I. Root Company, Medina, Ohio. Apparatus for manufacturing honeycomb-foundations	662,082	Nov. 27	3089	729	93	1612
Weed, Harry D., Syracuse, N. Y. Gas-engine	659,944	Oct. 16	2226	502	93	479
Weeks, Henry C., New York, N. Y. Bicycle	664,826	Dec. 25	3623	821, 822	93	2515
Weeks, Hubbard F., assignor of two-thirds to R. P. Smock and F. C. Du Bois, Freehold, N. J. Ball-bearing	659,462	Oct. 9	1819	301	93	283
Wegmann-Hauser, Arnold, Zurich, Switzerland. Acetylene-gas generator	663,054	Dec. 4	278	59	93	1778
Wehinger, Johann, Zurich, Switzerland. Slide-cock for mixing water and steam	661,200	Nov. 6	810	76	93	1015
Weichelt, Charles L., Philadelphia, Pa. Mercerizing-machine	659,721	Oct. 16	1814	408, 409	93	397
Weidman, Grant, Hillsborough, Ind. Stove-leg	664,798	Dec. 25	3544	804	93	2502
Weidmüller, Carl R., Chemnitz, Germany. Button for gloves	662,844	Nov. 27	3391	802	93	1670
Weigand, John B., assignor of one-eighth to F. A. Strupp, Athens, Wis. Voting-machine	661,831	Nov. 13	1451	351	93	1253
Weightman, William H., New York, N. Y. Liquid distribution for vaporizing, cooling, and aerating apparatus	662,612	Nov. 27	2954	702	93	1587
Weil, Alphonse D., Paris, France. System of roundabouts	663,948	Dec. 18	1923	433	93	2147
Weimer, Edgar A., Lebanon, Pa. Steam-engine valve	662,994	Dec. 4	170	35	93	1759
Weinberg, Arthur, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Brown sulfur dye and making same	660,067	Oct. 16	2499	------	93	582
Weinberger, Mor, Guthrie, Okla. Ter. Cuspidor	660,135	Oct. 23	2644	590	93	582
Weiner, Wilhelm, assignor of one-half to H. Schmitz, Wymore, Nebr. Spring-motor vehicle	659,189	Oct. 2	853	203	93	169
Weinland, Henry F., assignor to Lagonda Manufacturing Co., Springfield, Ohio. Tube-cleaner	660,328	Oct. 30	3937	882	93	853
Weinman, Christian J., Dayton, Ohio. Drill-press	663,055	Dec. 4	280	59	93	1778
Weir, Frank M., Monmouth, Ill. Jar-closure	663,314	Dec. 4	762	168	93	1870
Weir, Fred J., assignor of one-half to W. B. Weir, Gilmore City, Iowa. Tender for traction-engines	664,599	Dec. 25	3165	716	93	2423
Weir, John B., assignor, by mesne assignments, to T. A. Banning, Chicago, Ill. Seat-post for bicycles	660,285	Oct. 23	2945	655	93	642
Weir, L. C. (See Herschmann, Arthur, assignor.)						
Weir, W. B. (See Weir, Fred J., assignor.)						
Weis, John P. C., Providence, R. I. Button	659,905	Oct. 16	2166	488	93	465
Weiss, August, Strasburg, Germany. Flash-powder	659,331	Oct. 9	1083	------	93	234
Weiss, George, Chicago, Ill. Molding-machine	659,613	Oct. 9	1591	360, 361	93	337
Weissenthanner, Alfred L., New York, N. Y. Closure for jars, bottles, &c	663,480	Dec. 11	1064	288	93	1951
Weitman, Frank, Millersburg, Ohio. Umbrella-holder	664,600	Dec. 25	3166	717	93	2423
Welch, Charles C., *et al.* (See Sauvage, William H., assignor.)						
Welch, Edward J., Fitchburg, Mass. Screen-plate for straining paper-pulp	660,764	Oct. 30	3803	854	93	827
Welch, Hermann, Osceola, Nebr. Pump	660,136	Oct. 23	2645	590	93	582
Weld, De Witt C., Jr. (See Sturtevant, Charles A., assignor.)						
Weldon, John E., Portage, Wis., Cow-tail holder	662,044	Nov. 20	1873	450	93	1354
Weldon, Leonard, Amsterdam, N. Y. Yarn-dyeing machine	659,906	Oct. 16	2167	488	93	465
Welkee, May, Oakland, Cal. Dinner-pail	659,562	Oct. 9	1503	341	93	319
Welker, Alice, Wayne, Nebr. Cooking utensil	661,652	Nov. 13	1131	280	93	1192
Weller, Chester A., White Plains, N. Y. Soap-holder attachment	659,803	Oct. 16	1992	446	93	430
Wellman, Charles H. (See Wellman and Seaver.)						
Wellman, Samuel T. and C. H., and J. W. Seaver, Cleveland, Ohio. Soaking-pit crane	660,477	Oct. 23	3290	738, 739	93	712
Wellman-Seaver Engineering Company. (See Seaver, John W., assignor.)						
Wellman-Seaver Engineering Company. (See Vorbach, Emil, assignor.)						
Wellner, Julius, Jersey City, N. J. Tune-sheet feeder	658,885	Oct. 2	293	72	93	61
Wells, Charles, Woodville, Tex. Cultivating-plow	662,613	Nov. 27	2956	702	93	1588
Wells, Frederic E., Greenfield, Mass. Tool-turret for screw-machines, &c	662,209	Nov. 20	2183	526	93	1417
Wells, George W., Southbridge, Mass. Spectacle or eyeglass case	663,647	Dec. 11	1345	297	93	2005
Wells, Harlan P. (See Morrill and Wells.)						
Wells, Henry M., Toronto, Canada. Shield for use in warfare	660,478	Oct. 23	3301	739	93	712
Welsh, Alexander A., Allegheny, Pa., assignor to Crawley Scenic and Pleasure Railway Company, Cincinnati, Ohio. Elevated single-rail railway	663,525	Dec. 11	1152	249	93	1908
Welte, Carl M., New York, N. Y. Pneumatic valve-action	662,705	Nov. 27	3139	743	93	1621
Welton, Frank R. (See McKay and Welton.)						
Wendelboe, August. (See Miller, William C., assignor.)						
Wendell, Ferdinand J., New York, N. Y. Printing-plate and base	659,384	Oct. 9	1167	271	93	253
Wendell, Ferdinand J., New York, N. Y. Printing-plate and base	659,385	Oct. 9	1166	271	93	253
Wendler, Fritz, Glatz, Germany. Hook	659,271	Oct. 9	906	204	93	217
Wendtland, Wilhelm, and W. F. Wunderlich, Shiner, Tex. Seed-planter	661,750	Nov. 13	1309	319	93	1226
Wennersten, John P., Chicago, Ill. Machine for rolling screws or other articles	661,462	Nov. 6	776	184	93	1107
Wentscher, Ernst, Berlin, Germany. Distributing apparatus for matrix or die setting machines	664,608	Dec. 25	3330	757	93	2457
Wentworth, Everett A., Bar Harbor, Me. Ball-bearing door for show-cases, &c	662,614	Nov. 27	2958	702	93	1588
Wenzelmann, Gustave, Streator, Ill. Portable farm-derrick	660,137	Oct. 23	2647	591	93	583
Werner, Adolph, Milwaukee, Wis. Fruit-jar gripper	663,619	Dec. 11	1297	287	93	1906
Werner, George, and J. H. Hilliker, New York, N. Y. Grain-drier	660,407	Oct. 23	3176	705, 706	93	688
Werner, Louis C., Louisville, Ky. Electrical railway signaling system	663,376	Dec. 4	856	184, 185	93	1888
Wesel, Ferdinand, New York, N. Y. Stereotype-plate holder	661,780	Nov. 13	1364	330, 331	93	1238
Wesnidge, Henry, Worthington, Ind. Sliding-door hanger	661,208	Nov. 6	492	113	93	1049
West, Chandler A., *et al.* (See Hammond, Robert, assignor.)						
West, Derrick S., Boston, Mass. Try-square	660,876	Oct. 30	4024	900	93	870
West, John C., Simcoe, Canada. Cannery-hoist	662,157	Nov. 20	2078	504	93	1394
West, Lee, assignor of seven-twentieths to B. F. Kitchen, Wellston, and J. E. Harper, Glen Roy, Ohio. Apparatus for applying coatings of metal to boiler-tubes or other articles	663,824	Dec. 11	1692	379, 380	93	2078
West, Leonidas D., Dundee, N. Y. Apparatus for producing combustion	663,315	Dec. 4	763	163	93	1870
West, Leonidas D., Dundee, N. Y. Attachment for heaters	663,987	Dec. 18	1997	449, 450	93	2161

Alphabetical list of patentees, October to December, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
West, Samuel A., assignor to B. A. Weyl, San Francisco, Cal. Dredger	662,329	Nov. 20	2397	578, 579	93	1459
West, Stillman A., Rochester, N. Y., assignor to Union Welt Insole Company. Feeding mechanism for sewing-machines	662,479	Nov. 27	2722	646, 647	93	1543
West, Thomas. (See Gardner, Richard C., assignor.)						
West, Thomas D. (See Boyd and West.)						
Wester, John, Triumph, Minn. Leather-punching machine	663,949	Dec. 18	1924	433	93	2147
Westerman, Frank A. (See Verhoeven and Westerman.)						
Western Electric Company. (See Crane, Henry M., assignor.)						
Western Electric Company. (See Ellicott, Edward B., assignor.)						
Western Electric Company. (See Fiske, Bradley A., assignor.)						
Western Electric Company. (See McQuarrie, James L., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Warner, Ernest P., assignor.)						
Western Railway Equipment Company. (See Beckwith, Arthur C., assignor.)						
Westervelt, Edmund C., and C. W. Clapp, South Bend, Ind. Riding disk plow	662,845	Nov. 27	3392	802	93	1670
Westervelt, Herbert E., South Bend, Ind. Paper-bag machine	661,330	Nov. 6	549	127, 128	93	1061
Westervelt, Herbert E., South Bend, Ind. Paper-bag machine	661,331	Nov. 6	555	128, 129, 130	93	1062
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Mershon, Ralph D., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Scott, Charles F., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Short, Sidney H., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Wright and Aalborg, assignors.)						
Westinghouse Electric and Manufacturing Company. (See Young, Charles L., assignor.)						
Westinghouse, George. (See Wurts, Alexander J., assignor.)						
Westinghouse, Henry H. (See Davis, Isaac H., assignor.)						
Westinghouse Machine Company. (See Kent, Henry R., assignor.)						
Weston, Nathaniel, Shelbina, Mo. Spring-gear for buggies	661,709	Nov. 13	1237	299, 300	93	1213
Wetherill, Frank W., assignor of three-fourths to W. S. and W. S. Kirk, Philadelphia, Pa. Secondary battery	664,198	Dec. 18	2374	541	93	2239
Wetzel, Hervey E., Detroit, Mich. Golf-tee	662,368	Nov. 20	2469	594	93	1472
Wetzstein, Adolph. (See Tredinnick, Stephen, assignor.)						
Weyl, Bertin A. (See West, Samuel A., assignor.)						
Weymersch, Henri, Paris, France. Electric accumulator or secondary battery	660,979	Oct. 30	4182	------	93	903
Whalen, Thomas B., Clayton, Md. Folding crate	659,945	Oct. 16	2238	502, 503	93	479
Whaling, Laura. (See Whaling, Michael, assignor.)						
Whaling, Michael, assignor to L. Whaling, Amsterdam, N. Y. Standing attachment for bicycles	661,233	Nov. 6	368	87	93	1026
Whalley, Enoch, Willimansett, assignor of one-half to C. H. Curran, Holyoke, Mass. Front wheel and yoke for trucks or other vehicles	659,332	Oct. 9	1084	255	93	234
Whalley, Enoch, Willimansett, assignor of one-half to C. H. Curran, Holyoke, Mass. Running-gear for trucks	661,006	Oct. 30	4238	951	93	913
Whaples, Arthur M., *et al.* (See Snell, George D., assignor.)						
Wharton, Silas B., assignor of one-half to J. B. Staley and S. M. Robinson, South Bend, Ind. Rail-joint	664,199	Dec. 18	2375	541	93	2239
Wheatley, Thomas, Syracuse, N. Y. Air-valve	664,699	Dec. 25	3334	757	93	2458
Wheeler, Benjamin B., Apex, Colo. Awning for mine shafts or tunnels	663,316	Dec. 4	766	168	93	1871
Wheeler, Benjamin F., assignor, by mesne assignments, to Wheeler Manufacturing Company, Detroit, Mich. Bicycle-saddle	662,158	Nov. 20	2082	504	93	1395
Wheeler, Frank A., Pittsburg, Pa. Manufacturing car-wheels	663,317	Dec. 4	767	164	93	1871
Wheeler, Frank A., Pittsburg, Pa. Car-wheel-rolling mill	664,799	Dec. 25	3545	805, 806, 807, 808	93	2502
Wheeler, Harry R., New York, N. Y. Dredging apparatus	662,210	Nov. 20	2184	526, 527	93	1417
Wheeler, James A., Oswego, N. Y. Door	659,354	Oct. 9	1117	261	93	243
Wheeler, James A., Oswego, N. Y. Making artificial lumber	663,056	Dec. 4	280	59	93	1779
Wheeler, James H., assignor of one-half to W. Wilson, San Francisco, Cal. Comb-cleaner	664,030	Dec. 18	2077	472	93	2127
Wheeler Manufacturing Company. (See Wheeler, Benjamin F., assignor.)						
Wheeler, Marshall G., Winsted, Conn. Coffin-handle	660,742	Oct. 30	3768	848	93	820
Wheeler, Morris, Chicago, Ill. Sanitary garbage-tank	658,817	Oct. 2	168	40	93	37
Wheeler, Seth, Castleton, N. Y. Delivery mechanism	660,714	Oct. 30	3725	838	93	811
Wheeler, Seth, Castleton, N. Y. Delivery mechanism	663,057	Dec. 4	281	60	93	1779
Wheeler, Webster B., Washington, D. C. Coin-operated opera-glass	664,343	Dec. 18	2632	603	93	2294
Wheeler & Wilson Manufacturing Company. (See Noble, Donald, assignor.)						
Wheeler & Wilson Manufacturing Company. (See Steward, Aurelius, assignor.)						
Wheelwright, George W. (See Trumble, James F., assignor.)						
Whetsel, Everard N., and M. C. Bradley, Bloomington, Ind. Collar-button and necktie-holder	663,203	Dec. 4	550	118	93	1890
Whipple, Lewis D., Groton, Conn., assignor of one-half to F. L. Miner, Philadelphia, Pa. Machine for sharpening razors	659,501	Oct. 9	1308	317	93	298
Whitaker, Channing, Tyngsborough, assignor to Lowell Machine Shop, Lowell, Mass. Warp stop-motion for looms	661,161	Nov. 6	244	59, 60	93	1001
Whitcher & Co., Frank W. (See Whitcher, Frank W., assignor.)						
Whitcher, Frank W., assignor to F. W. Whitcher & Co., Boston, Mass. Rubber or cushion heel for boots or shoes	658,970	Oct. 2	454	107	93	92
Whitcomb, Friend N. and H. W., Barre, Vt. Friction-brake	659,115	Oct. 2	708	170	93	143
Whitcomb, Harry W. (See Whitcomb, Friend N. and H. W.)						
White, Arthur, Sheboygan Falls, Wis. Boy's wagon	663,526	Dec. 11	1154	250	93	1968
White, Arthur, Sheboygan Falls, Wis. Wheeled coaster	663,527	Dec. 11	1156	250	93	1968
White, Clarence O., assignor of one-half to E. J. Kimball, Minneapolis, Minn. Igniter for explosion-engines	664,110	Dec. 18	2215	504	93	2206
White, Clarence O., assignor of one-half to E. J. Kimball, Minneapolis, Minn. Gasolene engine	664,200	Dec. 18	2376	541, 542	93	2240
White, Edmund F. (See White, John J. and E. F.)						
White, Frank L., assignor of one-half to E. D. Russell, Pine Bluff, Ark. Baling-press	659,116	Oct. 2	709	170	93	144

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
White, Franklin P., Wilmington, N. C. Hame-and-trace connector	659,425	Oct. 9	1240	285	93	268
White, Harvey T., Washington, D. C. Non-refillable bottle	659,272	Oct. 9	997	234	93	217
White, Henry M. (See Randall, Arthur F., assignor.)						
White, James B., Hastings, Nebr. Display-stand	663,838	Dec. 11	1723	385	93	2086
White, John J. and E. F., Holyoke, Mass. Folding lunch or other box	661,162	Nov. 6	247	60	93	1001
White, Joseph, Paterson, N. J. Adjustable bearing	660,743	Oct. 30	3769	849	93	820
White, Joseph A. (See Moore, White, and Wiegand.)						
White, Lee Lindall, Tex. Wedge-buckle	662,846	Nov. 27	3395	803	93	1671
White, Mary L. (See Kennedy and Hunt, assignors.)						
White, Robert D., P. S. Hildreth, and A. Liebmann, New York, N. Y. Movable coal or ore handling and storage device	659,502	Oct. 9	1394	317	93	208
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Steam-generator	659,837	Oct. 16	2089	457	93	440
White, Samuel K., assignor to Standard Machinery Company, Mystic, Conn. Sheet-feeder	659,907	Oct. 16	2168	488 489	93	466
White Sewing Machine Company. (See White, Rollin H., assignor.)						
White, Silvanus. (See McCollum, James C., assignor.)						
White, Stephen P., and J. C. Miller, Pulaski, Tenn. Portable stock-inclosure	659,117	Oct. 2	710	170 171	93	144
White, Theodore H., Baltimore, Md. Game apparatus	661,781	Nov. 13	1366	331	93	1238
White, Thomas, assignor of one-half to J. Russell, Ogden, Utah. Car-seal	662,615	Nov. 27	2959	702	93	1588
White, Thomas B., Warsaw, Mo. Muzzle	664,800	Dec. 25	3555	806	93	2504
White, William, Philadelphia, Pa. Fireproof construction	663,204	Dec. 4	551	119	93	1830
White, William, assignor of one-half to H. Wiederhold, Philadelphia, Pa. Fireproof construction	662,634	Nov. 27	2994	709	93	1594
White, William, assignor of one-half to H. Wiederhold, Philadelphia, Pa. Fireproof construction	662,635	Nov. 27	2995	709	93	1594
White, William R., Troy, Ala. Cotton-chopper	659,864	Oct. 16	2089	409	93	450
Whitehead, George W., assignor of one-half to W. A. Cochran, Montezuma, Iowa. Rotary engine	664,201	Dec. 18	2880	542	93	2241
Whitehead, William R., assignor to American Lamp and Brass Company, Trenton, N. J. Lamp	661,332	Nov. 6	561	130	93	1063
Whitehurst, Walter I., Baltimore, Md. Stop mechanism for spur-gearing	660,351	Oct. 23	3087	684	93	670
Whiteley, William and William, Jr., Huddersfield, England. Electrically-operated clip for tentering-machines	663,528	Dec. 11	1157	250	93	1909
Whitely, Alexander A., and W. A. Duncan, assignors to M. I. Whitely, New York, N. Y. Punching-bag support	662,045	Nov. 20	1874	450	93	1355
Whitely, Alexander A., and W. A. Duncan, assignors to M. I. Whitely, New York, N. Y. Punching-bag exerciser	663,690	Dec. 11	1429	317	93	2022
Whitely, Maude I. (See Whiteiy and Duncan, assignors.)						
Whiteman, Abram V., Port Chester, N. Y. Bottle-cap	663,988	Dec. 18	1999	451	93	2102
Whitham, Challenger, and E. Large, Oldham, England. Prepayment gas-meter	660,234	Oct. 23	2837	629	93	620
Whitham, Fredric E., Sowerby Bridge, England. Machine for grinding	664,202	Dec. 18	2881	543	93	2241
Whiting, John H., New York, N. Y. Motor toy	664,203	Dec. 18	2882	543	93	2241
Whitlock Printing Press Manufacturing Company. (See Whitlock and Huson, assignors.)						
Whitlock, Sturges, Shelton, and W. S. Huson, assignors to Whitlock Printing Press Manufacturing Company, Derby, Conn. Flat-bed printing-press	661,924	Nov. 13	1615	391	93	1284
Whitman, James N., assignor to E. I. Horsman, New York, N. Y. Game-board	663,249	Dec. 4	646	136	93	1847
Whitman, Orin M., Dickinson, N. Y. Safety-rein	664,518	Dec. 25	2991	681	93	2386
Whitmore, Edward H. (See Olsen and Whitmore.)						
Whitner, Hiram K., Chicago, Ill. Reversible balance-window	658,818	Oct. 2	169	41	93	37
Whitner, Hiram K., Chicago, Ill. Swinging window	658,886	Oct. 2	296	72, 73	93	61
Whitney, Baxter D., Winchendon, Mass. Wood-planing machine for curved work	664,519	Dec. 25	2992	681 682	93	2386
Whitney, Charles, deceased, Winnetka, Ill.; O. Whitney, administratrix. Mowing and reaping machine	660,607	Oct. 30	3521	791	93	773
Whitney, Charles A., Stevensville, Pa. Folding umbrella	659,563	Oct. 9	1504	341	93	320
Whitney, Orrila, administratrix. (See Whitney, Charles.)						
Whitney, Thomas J., Philadelphia, Pa. Boiler-feeder	661,782	Nov. 13	1367	331 332	93	1238
Whittaker, Leigh. (See Dwyer and Whittaker.)						
Whittingham, Ernest, Chicago, Ill. Knob-lock	661,899	Nov. 13	1572	381	93	1275
Whittingham, George H., Baltimore, Md. Electric switch	659,946	Oct. 16	2239	508	93	479
Whittingham, George H., Baltimore, Md. Automatic circuit-controller	662,480	Nov. 27	2727	647	93	1543
Whittlesey, William A., *et al.* (See Cunningham, Patrick, assignor.)						
Wich, Ferdinand J., Broadheath, England. Linotype-machine	662,106	Nov. 20	1990	475 476 477	93	1377
Wickes, Milton O., Holyoke, Mass. Low-down short-turn gear for vehicles	660,608	Oct. 30	3522	792	93	773
Wickland, Iver, South Superior, assignor to C. O. Carlson, Superior, Wis. Sad-iron	661,095	Nov. 6	118	29	93	974
Wideman, James H. (See Davis, Ault, Bailey, and Wideman.)						
Wiederhold, Henry. (See White, William, assignor.)						
Wiederhold, Oscar, East Orange, N. J. Manufacture of mantels	662,481	Nov. 27	2729	------	93	1544
Wiedersheim, John A., Philadelphia, Pa. Apparatus for filtering or purifying and aerating water	662,211	Nov. 20	2188	527	93	1417
Wiegand, W. A., *et al.* (See Shuster, Martin, assignor.)						
Wiegand, William T. (See Moore, White, and Wiegand.)						
Wigert, David. (See Wigert, Joseph C. and D.)						
Wigert, Joseph C. and D., Bushnell, Ill. Furnace	661,751	Nov. 13	1312	320	93	1227
Wiggin, Everett D., trustee. (See Dooley, Thomas B., assignor.)						
Wilbraham Baker Blower Company. (See Green, Thomas W., assignor.)						
Wilcomb, Frank, Norristown, Pa. Driving means for knitting or like machines	662,159	Nov. 20	2083	505	93	1395
Wilcox, Benjamin M. (See La Casse, Napoleon C., assignor.)						
Wild, Fred, Denver, Colo. Automatic smokeless furnace	660,085	Oct. 16	2524	565	93	587
Wild, Roland C. (See Head and Wild.)						
Wilder, Leslie S., Springfield, Mass. Electric temperature-indicator	660,352	Oct. 23	3088	685	93	670
Wilding, James A., assignor of two-thirds to W. Rothschild and G. D. Smith, London, England. Ammunition-box	661,201	Nov. 6	313	76	93	1015
Wildman, William, Spadra, Cal. Pump	662,180	Nov. 20	2125	512 513	93	1405
Wiley, Frank, New York, N. Y., assignor to Norton Can Company, Chicago, Ill. Sheet-metal ware	664,070	Dec. 18	2132	487	93	2188
Wiley, William J. (See Kendrick and Wiley.)						
Wilharms, Adolph J. (See Wilharms, Edwin C. and A. J.)						
Wilharms, Edwin C. and A. J., Greenleaf, Wis. Pneumatic feed-conveyer for feed-cutters	659,722	Oct. 16	1815	409	93	397

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wilkerson, Basil M., Baltimore, Md., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Supporting and elevating mechanism for dental chairs	663,143	Dec. 4	441	92 93 94 95	93	1809
Wilkie, John, assignor to J. J., T. F., and J. W. Meldrum, Manchester, England. Destructor-furnace	661,463	Nov. 6	778	185	93	1107
Wilkinson, Francis A., Manchester, and C. C. Gibson, London, England. Calculating apparatus	661,096	Nov. 6	120	29, 30	93	974
Wilkinson, John, Birmingham, England. Fireproof flooring	661,832	Nov. 13	1455	352	93	1254
Wilkinson, Wilbur B., New York, N. Y. Generating heat by combustion of fuel	664,304	Dec. 18	2570	584	93	2278
Willcox, George B., Bay City, Mich. Means for controlling water ballast in ships	662,339	Nov. 20	2402	579	93	1459
William L. Gilbert Clock Company. (See McCabe, Thomas W. R., assignor.)						
William Powell Company. (See Powell, James, assignor.)						
Williams, Adolph A., Superior, Wis. Gas-engine	659,426	Oct. 9	1242	285 286	93	269
Williams, Allen G., Baltimore, Md. Heel-protector	661,833	Nov. 13	1456	352	93	1254
Williams, Benjamin F., Quanah, Tex. Acetylene-gas generator	659,213	Oct. 9	998	235	93	217
Williams, Charles A., Randolph, Vt. Short-turning gear	659,274	Oct. 9	1000	235	93	217
Williams, Charles I., Dayton, Ohio. Rotary engine	660,675	Oct. 30	3655	820	93	797
Williams, Edward, Birmingham, England. Machine for manufacturing sheet-metal wheels	659,723	Oct. 16	1817	409	93	397
Williams, Edward L. (See Williams, Thomas F., assignor.)						
Williams, Frank T., Meriden, Conn., assignor to Edward Miller & Company, of Connecticut. Lamp-burner	659,333	Oct. 9	1085	255	93	235
Williams, Frank T., Meriden, Conn., assignor to Edward Miller & Company, of Connecticut. Lamp-burner	659,334	Oct. 9	1086	255	93	235
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lamp-burner	662,582	Nov. 27	2909	691	93	1578
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lamp-burner	662,583	Nov. 27	2910	691	93	1578
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Lamp-burner	662,584	Nov. 27	2911	691	93	1578
Williams, George M., Santa Rosa, Cal. Truck	661,834	Nov. 13	1457	352	93	1254
Williams, George W., assignor to Kellett-Chatham Machinery Company, Waco, Tex. Cotton-valve	659,118	Oct. 2	713	171	93	144
Williams, Harry C., Pasadena, Cal. Trolley finder and guard	659,355	Oct. 9	1118	261	93	243
Williams, Henry F., San Francisco, Cal. Composition for paving, &c	661,362	Nov. 6	609	------	93	1073
Williams, Henry M. (See Burger and Williams.)						
Williams, Henry M., assignor of one-fourth to F. Burger, Fort Wayne, Ind. Assembly-building	663,950	Dec. 18	1928	434	93	2148
Williams, Hubbard D. B. (See Lippy and Williams.)						
Williams, Hubbard D. B., and D. Lippy, assignors of one-half to T. O. Stearns, Mansfield, Ohio. Store-service apparatus	659,614	Oct. 9	1597	361	93	338
Williams, John R., East Orange, N. J., assignor to John R. Williams Company, New York, N. Y. Tobacco stripping and booking machine	662,212	Nov. 20	2189	528 529 530	93	1418
Williams, Otis, St. Johnsville, N. Y. Device for lifting sashes, doors, or shutters	663,648	Dec. 11	1346	298	93	2005
Williams Reciprocating Rotary Engine Company. (See Williams, Win D., assignor.)						
Williams, Thomas F., Chicago, Ill., assignor to E. L. Williams, Gillham, Ark. Acetylene-gas generator	658,819	Oct. 2	174	41	93	30
Williams, William D., Westville, Ind. Ter. Ribbon holding and winding device	661,114	Nov. 6	157	30	93	983
Williams, William E., Chicago, Ill. Cell-case machine	659,010	Oct. 2	529	128 129	93	106
Williams, William R., Lawrence, Kans. Adjustable chart	660,175	Oct. 23	2727	607	93	599
Williams, Willard C., Benton Harbor, Mich. Stovepipe-holder	661,389	Nov. 6	655	153	93	1083
Williams, Win D., Fredericksburg, Va., assignor to Williams Reciprocating Rotary Engine Company, Wilmington, Del. Rotary engine	664,801	Dec. 25	3556	809	93	2504
Williamson, Charles S., Goliad, Tex. Baling-press	664,701	Dec. 25	3337	758 759	93	2459
Williamson, David, assignor of one-half to C. K. Cooper, Sr., New York, N. Y. Friction-clutch	659,275	Oct. 9	1001	235 236	93	218
Williamson, David, assignor of one-half to C. K. Cooper, Sr., New York, N. Y. Power-transmitter	659,276	Oct. 9	1003	236	93	218
Williamson, John B., Louisville, Ky. Condiment-holder	662,482	Nov. 27	2730	648	93	1544
Williamson, John B., assignor to J. E. Riddell, Louisville, Ky. Mirror	664,365	Dec. 18	2694	612	93	2303
Williamson, John B., and H. L. Means, Louisville, Ky.; said Williamson assignor to said Means. Music-sheet turner	660,980	Oct. 30	4182	940	93	908
Willis, Charles E., New York, N. Y. Device for controlling horses	662,331	Nov. 20	2403	580	93	1460
Willis, Glenn T., assignor to J. Porteous, Fresno, Cal. Finger-guard bar for headers or harvesters	663,318	Dec. 4	769	164	93	1871
Willis, James M., Jr. (See Hilton, Roland C., assignor.)						
Willis, John E., L. Boyd, and J. Hill, Pueblo, Colo. Twyer	663,206	Dec. 4	553	119	93	1831
Willson, John, assignor to National Malleable Castings Company, Cleveland, Ohio. Coupling-unlocking device	661,835	Nov. 13	1459	352 353	93	1254
Willson, John, assignor to National Malleable Castings Company, Cleveland, Ohio. Coupling	663,710	Dec. 11	1469	324 325	93	2029
Willson, John, assignor to National Malleable Castings Company, Cleveland, Ohio. Coupling for railway-carriages	664,305	Dec. 18	2572	585 586	93	2270
Wills, Cassius M., assignor to Austin Cartridge Company, Cleveland, Ohio. Alarm for cartridge-loading machines	659,734	Oct. 16	1818	410	93	398
Wilmot, Frank A., assignor to Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Capsule-bottle top	661,836	Nov. 13	1460	353	93	1254
Wilmot & Hobbs Manufacturing Company. (See Wilmot, Frank A., assignor.)						
Wilmot, John F., Detroit, Mich. Folding bed	662,213	Nov. 20	2202	530 531	93	1419
Wilson, Blanche M. (See Ross, Earle, Good, and Redmon, assignors.)						
Wilson, Curtis S., Forest, Ohio. Incubator	661,007	Oct. 30	4240	952	93	913
Wilson, Ernest, and C. J. Evans, London, England. Controlling mechanism by means of electric or electromagnetic waves of high frequency	663,400	Dec. 4	910	198	93	1899
Wilson, Fitzland L., West Bay City, Mich. Tie-plug machine	664,306	Dec. 18	2576	587	93	2279
Wilson, George L., Oak Park, Ill. Acetylene-gas generator	661,333	Nov. 6	503	130	93	1063
Wilson, Gerald, Leeds, England. Dress-stud	660,609	Oct. 30	3523	792	93	773
Wilson, Harry C., New York, N. Y. Adjustable dress-chart	664,700	Dec. 25	3335	758	93	2458
Wilson, Henry, assignor to Thomas White Stove Company, Quincy, Ill. Grate	663,877	Dec. 4	866	185	93	1890
Wilson, J. M., *et al.* (See Tuttle, Josiah S., assignor.)						
Wilson, James, London, England. Paper-pulp strainer	663,529	Dec. 11	1158	250	93	1969

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wilson, James G., New York, N. Y. Venetian blind	663,530	Dec. 11	1159	251	93	1969
Wilson, James G., New York, N. Y. Combined rolling and folding shutter	663,554	Dec. 11	1194	259	93	1976
Wilson, James G., New York, N. Y. Shutter for doors or windows	663,989	Dec. 18	2001	451	93	2162
Wilson, John W., Pocahontas, Va. Churn	662,616	Nov. 27	2960	703	93	1588
Wilson, Leonidas E., Broken Bow, Neb. Shoulder-brace and antisnoring attachment	663,825	Dec. 11	1697	380	93	2079
Wilson, Robert, St. Louis, Mo. Feeding device for printing-presses	650,277	Oct. 9	1004	236, 237	93	218
Wilson, William. (See Wheeler, James H., assignor.)						
Wilson, William, Danbury, Conn. Sizing-kettle	661,837	Nov. 13	1462	353, 354	93	1255
Wilson, William W., Holyoke, W. A. Stevenson and C. E. Torrance, Northampton, Mass. Valve	663,598	Dec. 11	1254	277	93	1988
Wilt, Jacob H., Franklin, Pa. Adjusting device for pump-rods	658,971	Oct. 2	456	108	93	92
Wiltsie, Arthur, and E. J. Campbell, Hannibal, N. Y. Cattle-stanchion	663,058	Dec. 4	282	60	93	1779
Winans, John C., Waldron, Mich. Carbureter	661,569	Nov. 13	974	241	93	1160
Winchester Repeating Arms Company. (See Johnson, Thomas C., assignor.)						
Winderl, Michael, Washington, D. C. Jewel case or box	664,520	Dec. 25	2995	682	93	2397
Winkle, George J., Seneca Falls, N. Y. Tool-holder for turret-machines	664,344	Dec. 18	2654	604	93	2294
Winkley, Erastus E. (See Alley and Winkley.)						
Winn, Frank C., Worcester, Mass. Type-writing machine for writing music	661,097	Nov. 6	122	30, 31	93	975
Winn, Henry, Malden, and C. M. Spalding, Boston, Mass. Counting-register	662,899	Nov. 27	3570	836, 837	93	1713
Winne, Ernest, assignor to Wagner Typewriter Company, New York, N. Y. Automatic ribbon-reversing mechanism for type-writers	661,098	Nov. 6	127	31, 32	93	976
Winslow, Charles F., Pawtucket, R. I. Gage	660,176	Oct. 23	2730	607	93	599
Winter, James, Gilmore City, Iowa. Pulley	662,046	Nov. 20	1876	451	93	1355
Winter, Rudolph G., Minneapolis, Minn. Sash stay and fastener	663,555	Dec. 11	1196	260	93	1976
Winters, Henry H. (See Brown and Winters.)						
Wintjen, Behrend. (See Clausen, Marjorie, assignor.)						
Wintrode, Charles E., Huntington, Ind. Machine for making wire-fence stays	659,995	Oct. 16	2337	525, 526	93	501
Wisdom, Phillip, Chicago, Ill. Means for scraping hulls of vessels	659,779	Oct. 16	1938	435, 436	93	420
Wiseman, Thomas T., *et al.* (See Scott, William H., assignor.)						
Wishard, Albert W., *et al.* (See Hogeland, Israel, assignor.)						
Wishart, George. (See Mackenzie and Wishart.)						
Wiswall, Marion W., Boston, Mass. Apparel dusting-cap	663,670	Dec. 11	1394	308, 309	93	2015
Wiswell, Ozro N., Lynn, Mass., assignor to General Electric Company, of New York. Electric-arc lamp	662,995	Dec. 4	171	35	93	1759
Witcher, John C., assignor of one-half to C. W. Nugent, Conroe, Tex. Stove-damper	662,661	Nov. 27	3036	718	93	1608
Witherell, George E. (See Mason and Witherell.)						
Witkowski, Louis C., Washington, D. C. Can-opener	661,570	Nov. 13	976	241, 242	93	1160
Witten, William S., Chicago, Ill. Gate	663,378	Dec. 4	867	185, 186	93	1800
Witter, Carl A. L. W. (See Culmann and Witter.)						
Wix, George B. (See Bryce, Andrew V., assignor.)						
Wm. Schollhorn Company. (See Bernard, William A., assignor.) (Reissue.)	660,408	Oct. 23	3179	706	93	689
Wolf, Adolf, Silverton, Oreg. Hop-drier						
Wolf, Joseph. (See Bell, Benjamin F., assignor.)						
Wolf, Simon, Essen, Germany. Electric time-alarm	659,725	Oct. 16	1820	410, 411	93	306
Wolf, Theodore S., New York, N. Y. Necktie-retainer	663,319	Dec. 4	771	165	93	1872
Wolfe, Abner K., Kansas City, Kans. Whiffletree-hook	662,512	Nov. 27	2784	660	93	1555
Wolfe, Andrew C., Freeport, assignor of one-third to J. F. Hewitt, Allegheny, Pa. Phonographic annunciator for cars	659,011	Oct. 2	533	129	93	107
Wolfe, Andrew C., Freeport, assignor of one-third to J. F. Hewitt, Allegheny, Pa. Base for trolley-poles	659,335	Oct. 9	1067	256	93	235
Wolfenden, Jonathan. (See Goodyear, Robert B., assignor.)						
Wolff, Oscar M., Chicago, Ill. Fruit-pitting machine	663,206	Dec. 4	555	119	93	1831
Wolfington, Alexander. (See Hirst, Harry E., assignor.)						
Wolven, George C., Poughkeepsie, N. Y. Gage for printing-presses	662,047	Nov. 20	1877	451	93	1355
Wood, Albert A., Atlanta, Ga. Hollow auger	662,683	Nov. 27	3091	730	93	1613
Wood, Alpheus H., Amarillo, Tex. Lock-plate	662,847	Nov. 27	3396	808	93	1671
Wood, Charles M., Slate Hill, W. J. Blair and J. A. Webster, New York, N. Y.; said Blair and Webster assignors to said Wood. Music-leaf turner	664,204	Dec. 18	2384	543	93	2242
Wood, Edward G., Liverpool, England. Cycle-frame joint	662,848	Nov. 27	3397	803	93	1671
Wood, Henry N., *et al.* (See Sauvage, William H., assignor.)						
Wood, James J., Fort Wayne, Ind. Electric-arc lamp	662,996	Dec. 4	172	35, 36, 37	93	1760
Wood, James J., Fort Wayne, Ind. Means for starting or stopping electric motors	663,207	Dec. 4	557	120	93	1831
Wood, James J., Fort Wayne, Ind., assignor to General Electric Company, of New York. Electric-arc lamp	662,048	Nov. 20	1878	451, 452	93	1355
Wood, John R., Burlington, Iowa. Baggage-car	663,144	Dec. 4	455	96	93	1812
Wood, Richard G., Allegheny, Pa. Manufacture of sheet metal	662,513	Nov. 27	2785	661	93	1555
Wood, Robert J. G., Leonia, N. J. Apparatus for treating sewage	659,503	Oct. 9	1395	317	93	298
Wood, Wilfred R., London, England, assignor to American Stoker Company, New York, N. Y. Furnace-grate	664,521	Dec. 25	2996	682, 683	93	2387
Wood, William A., Ansonia, assignor to A. P. Hine, Torrington, Conn. Continuous centrifugal machine	662,214	Nov. 20	2205	531, 532	93	1419
Wood, William C., New York, N. Y. Railway-crossing structure	660,353	Oct. 23	3060	685	93	671
Wood, William P., and W. E. Emery, Pawtucket, R. I. Separable cone-bobbin	659,597	Oct. 9	1502	354	93	331
Wood, Winthrop E., Boston, Mass. Tool-handle	662,748	Nov. 27	3213	760	93	1634
Woodard, James H., Dayton, Ky. Traveling oiler for elevator-guides	661,925	Nov. 13	1619	392	93	1285
Woods, Calvin W., North Brookfield, Mass., assignor to E. & A. H. Batcheller Company, of Massachusetts. Heel-attaching machine	659,463	Oct. 9	1320	302	93	284
Woods, Edward D., Granville, N. Y., assignor to Woods Specialty Company, of New York. Polishing-wheel	663,839	Dec. 11	1723	385	93	2086
Woods, Enoch S., Hartford, Conn. Engraving-machine	658,820	Oct. 2	176	42, 43	93	39
Woods, Granville T., Monsey, N. Y. Automatic circuit-breaking apparatus	662,049	Nov. 20	1883	452	93	1356
Woods, Preston H., Marion, Ky. Fender for fireplaces	664,702	Dec. 25	3341	759	93	2459
Woods Specialty Company. (See Woods, Edward D., assignor.)						
Woodson, Richard P. (See Guerrant, Estill C., assignor.)						
Woodward, Ezra, Columbus, Ohio. Compensator for railway-signal wires	664,345	Dec. 18	2656	604	93	2294

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Woodward, Irving C., Chicago, Ill. Valve-bag	664,708	Dec. 25	3342	759	93	2460
Woody, Edward G., Wilmington, N. C. Ink-pad stand	660,877	Oct. 30	4024	901	93	870
Woolley, Leonidas G., Kenton, Ohio. Electric generator	658,821	Oct. 2	180	43	93	40
Woolley, Leonidas G., Kenton, assignor to National Magneto Electric Telegraph Company, Springfield, Ohio. Fire-alarm-telegraph box	664,366	Dec. 18	2696	612, 613	93	2308
Woolley, Leonidas G., Kenton, assignor to National Magneto Electric Telegraph Company, Springfield, Ohio. Electric-circuit indicator	664,367	Dec. 18	2698	613	93	2308
Woolley, Leonidas G., Kenton, assignor to National Magneto Electric Telegraph Company, Springfield, Ohio. Fire-alarm telegraph	664,802	Dec. 25	3559	809, 810	93	2504
Worrest, Alfred H., Lancaster, Pa., assignor to Metal Stamping Company, New York, N. Y. Thill-coupling	662,050	Nov. 20	1885	452, 453	93	1357
Worstall, Robert A., and C. F. Hackathorn, Cleveland, Ohio. Making varnish	663,594	Dec. 11	1255	277	93	1988
Worth, George, New York, N. Y. Window	660,235	Oct. 23	2839	630	93	621
Worth, George, New York, N. Y. Sash-cord fastener	660,236	Oct. 23	2841	630	93	621
Worth, Jacob. (See Hart and Worth.)						
Worth, William O., Chicago, Ill., assignor of two-thirds to W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battle Creek, Mich. Frictional driving-wheel	659,427	Oct. 9	1245	286	93	269
Worthington, Charles C., Dunnfield, N. J. Steam-engine	659,947	Oct. 16	2241	503, 504	93	479
Worthington, Henry R. (See Jensenius, Herman, assignor.)						
Wouters, John. (See Ash, Hugh M., assignor.)						
Wowra, Carl J., Chicago, Ill. Ash-sifter	660,784	Oct. 30	3844	863	93	834
Wray, Cecil, Bradford, assignor to Automatic Cinograph Company, Limited, Leeds, England. Coin-freed photograph-exhibiting apparatus	661,299	Nov. 6	493	113, 114	93	1050
Wren, James F., and N. E. Grant, Mineola, Tex. Ironing-table	662,997	Dec. 4	163	37	93	1761
Wrensch, William C., Montclair, N. J. Sectional nut	663,208	Dec. 4	561	120	93	1832
Wright, Charles S., Kansas City, Kans. End-gate	660,479	Oct. 23	3303	739	93	713
Wright, E. M., *et al.* (See Maine, Andrew J., assignor.)						
Wright, Gilbert, and C. Aalborg, Wilkinsburg, Pa., assignors to Westinghouse Electric and Manufacturing Company, of Pennsylvania. Insulating-support for switchboard-conductors	660,878	Oct. 30	4026	901	93	870
Wright, Harvey. (See Byrne, John R., assignor.)						
Wright, John, and J. W. Mitchell, Dunedin, New Zealand. Apparatus for branding or tattooing	663,320	Dec. 4	772	165	93	1872
Wright, John A., Irwin, assignor of one-half to W. F. O'Neill, Wilkinsburg, Pa. Knife-switch	663,209	Dec. 4	562	120	93	1832
Wright, John C., Hilton, N. Y. Attachment for lead-pencils, penholders, &c	661,202	Nov. 6	315	77	93	1015
Wright, John S., Jr., Churchland, Va. Barrel-machine	664,205	Dec. 18	2685	544	93	2342
Wright, John S., Duxbury, and C. S. Gooding, Brookline, Mass. Photographic camera	662,998	Dec. 4	184	37, 38, 39	93	1761
Wright, William A., Atlanta, Ga. Tire	662,332	Nov. 20	2405	580	93	1460
Wright, William H. H., Kansas City, Mo. Mirror attachment	664,522	Dec. 25	2997	683	93	2387
Wright, William L., and A. J. Hackler, Bettie, Tex. Seed-planter	660,038	Oct. 16	2411	542	93	514
Wrigley, John, Elmira, N. Y. Railway-signal	663,990	Dec. 18	2002	451	93	2162
Wuichet, Walter G., assignor to Pasteur-Chamberland Filter Company, Dayton, Ohio. Combined faucet and overflow	664,803	Dec. 25	3561	810	93	2505
Wunderlich, Adolph. (See Johnson and Wunderlich.)						
Wunderlich, William F. (See Wendtland and Wunderlich.)						
Wünsche, Richard, Herrnhut, Germany. Carbureter	662,514	Nov. 27	2790	661	93	1556
Wurster, Gottlieb C. (See Kidd and Wurster.)						
Wurster, Julius, Derendingen, Germany. Saw-machine	660,715	Oct. 30	3726	838, 839	93	812
Wurts, Alexander J., assignor to G. Westinghouse, Pittsburg, Pa. Terminal connection for electric lamps	662,369	Nov. 20	2470	595	93	1472
Wyckoff, James H., assignor of one-half to A. Stearns, Syracuse, N. Y. Machine for filling packages	661,679	Nov. 13	1185	289	93	1204
Wyckoff, Seamans & Benedict. (See Briggs and Shepard, assignors.)						
Wyckoff, Seamans & Benedict. (See Fenton, Charles L., assignor.)						
Wyckoff, Seamans & Benedict. (See Gorin, Frederick P., assignor.)						
Wyman, Charles E., Cleveland, Ohio. Furnace-grate	664,704	Dec. 25	3343	759, 760	93	2460
Wyman, George R., assignor to F. W. Bird & Son, Walpole, Mass. Carrier for package-filling	660,587	Oct. 23	3411	766	93	733
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Shuttle-changing loom	661,752	Nov. 13	1314	320, 321	93	1227
Wysgalla, Andreas, and F. Engel, Breslau, Germany. Means for preventing ships from sinking	659,948	Oct. 16	2246	504	93	480
Yale, Rodney H., Beatrice, Nebr. Piston-stroke regulator	662,515	Nov. 27	2791	662	93	1556
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)						
Yates, Fred E., assignor of one-half to P. C. Walraven, Lyons, Iowa. Neck-yoke and pole thimble	663,379	Dec. 4	868	186	93	1890
Yearian, Abraham L., assignor of one-half to Z. F. Yearian, St. Anthony, Idaho. Stove	661,134	Nov. 6	197	50	93	901
Yearian, Zardla F. (See Yearian, Abraham L., assignor.)						
Yoder, Lorenzo T., Pittsburg, Pa. Supporting-strap for cars, &c	660,610	Oct. 30	3524	792	93	773
Yost, Ernest F., and W. H. Smith, New York, N. Y. Thermo-electric cell	660,138	Oct. 23	2649	591	93	583
Yost, Ernest F., and W. H. Smith, New York, N. Y. Thermo-electric cell	660,139	Oct. 23	2651	591	93	583
Yost, Willard S., New York, N. Y. Collar-button	660,039	Oct. 16	2412	543	93	514
Yost Writing Machine Company. (See Wallace, Casper D., assignor.)						
Youlten, William, London, England. Casement	661,653	Nov. 13	1132	280	93	1192
Youlten, William, London, England. Stove for heating purposes	663,380	Dec. 4	870	186, 187	93	1890
Young, Charles E., Fremont, Wash. Rock-drill	660,409	Oct. 23	3180	706, 707	93	689
Young, Charles I., Philadelphia, Pa., assignor to Westinghouse Electric and Manufacturing Company, of Pennsylvania. System of electrical distribution	660,320	Oct. 23	3026	671	93	658
Young, Eaustace S., Muncie, Ind. Machine for capping jars	663,401	Dec. 4	913	198, 199	93	1899
Young, Edmund T., Hamilton, Canada. Puzzle	661,163	Nov. 6	249	60	93	1002
Young, Edward, Jeffersonville, Ohio. Picture-holder	662,483	Nov. 27	2731	648	93	1544
Young, Frank L., Lockport, N. Y. Cultivator	659,356	Oct. 9	1120	262	93	243
Young, George R., Memphis, Tenn. Hose-reel	659,996	Oct. 16	2339	526	93	502
Young, Jasper R., assignor of one-half to E. Weber, Dexter, Mo. Vehicle-brake	664,804	Dec. 25	3562	810	93	2505
Young, John F., Marshalton, Pa. Sheaf or bundle registering machine	660,879	Oct. 30	4027	901	93	871
Young, Mark, Kalamazoo, Mich. Cutting and raveling machine for rug materials	663,210	Dec. 4	563	121	93	1832
Young, Oresta W., Chicago, Ill. Collar-button	664,307	Dec. 18	2578	587	93	2280

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Name, residence, and invention	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Young, Richard L., assignor of one-half to T. J. Price, Milwaukee, Wis. Vehicle	661,594	Nov. 13	1027	257	93	1172
Young, Robert L., Glasgow, Scotland. Corset	662,999	Dec. 4	188	39	93	1762
Young, Wilbur F. (See Waite, William F., assignor.)						
Youngblood, Amos, North Augusta, S. C. Operating railway-switches	663,595	Dec. 11	1257	277, 278	93	1989
Zahniser, Montgomery J., Washington, Pa. Oil-cup	662,051	Nov. 20	1887	453	93	1357
Zander, John, Chicago, Ill. Prepayment gas-meter	660,940	Oct. 30	4125	927, 928	93	891
Zang, George C., Philadelphia, Pa. Deflector for locomotive-engine cabs	660,941	Oct. 30	4130	928	93	892
Zehnder, Peter J., and B. H. Ziehler, Dayton, Ohio. Sorting means	660,611	Oct. 30	3525	792	93	773
Zeigler, Alfred D. (See Kingsland, Jacob D., assignor.)						
Zeiss, Firm Carl. (See Rudolph, Paul, assignor.)						
Zeke, Adolf von, Buda-Pesth, and K. Rédl, Gödöllö, Austria-Hungary. Repeating rifle	661,900	Nov. 13	1573	382	93	1275
Zeller, George A. (See Ryan, Zeller, and Lawrence.)						
Zeller, Thomas B., assignor of one-half to F. P. Saylor, Pittsburg, Pa. Electrotherapeutic spectacles	664,308	Dec. 18	2579	587	93	2280
Zeman, Frank L., New York, N. Y. Apparatus for dyeing	663,250	Dec. 4	648	139	93	1847
Zentner, Joseph, *et al.* (See Llethegener, Henry, assignor.)						
Ziebach, Edwin R., *et al.* (See Hammond, Robert, assignor.)						
Ziegler, George H., Philadelphia, Pa., assignor to American Type Founders Company, Newark, N. J. Type-casting machine	660,237	Oct. 23	2842	631, 632	93	621
Ziehl, Emil, Berlin, Germany. Electric top for gyroscopes	662,484	Nov. 27	2733	648, 649	93	1544
Ziehler, Bernard H. (See Zehnder and Ziehler.)						
Zimmerman, John, Chicago, Ill. Can-opening key	661,253	Nov. 6	416	97	93	1034
Zinkhann, John W., Evans City, Pa. Vapor-bath cabinet	661,390	Nov. 6	656	153	93	1083
Zinn, Mary. (See Scheuber, August W., assignor.)						
Zirngibl, Hermann, assignor to Spencer Lens Company, Buffalo, N. Y. Microscope	663,649	Dec. 11	1347	298	93	2006
Zirngibl, Hermann, assignor to Spencer Lens Company, Buffalo, N. Y. Microscope	663,650	Dec. 11	1349	298, 299	93	2006
Zitt, William M., Chicago, Ill., assignor to McConnell Asbestos Co., Limited, Pittsburg, Pa. Making light magnesia	663,840	Dec. 11	1724	------	93	2066
Zoeller, Theodore J., Nashville, Tenn. Filter	663,841	Dec. 11	1726	386	93	2066
Zoeller, William, Chicago, Ill. Molding-machine	661,571	Nov. 13	978	242, 243, 244, 245	93	1161
Zuck, Albert O., Faulkner, assignor of one-half to W. F. Ferch, Chetopa, Kans. Hoisting device for hay-presses	663,620	Dec. 11	1298	287	93	1997
Zvorikin, Wladimir W., and S. de Blumenthal, Moscow, Russia. Automatic electrical apparatus for indicating leaks in ships	663,059	Dec. 4	283	60	93	1779
Zwart, Edward J., St. Louis, Mo., Chain-gear parallel carpenter's vise	663,145	Dec. 4	456	96	93	1812

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Official Gazette. Page.
A. L. Gray Syringe Company. (See Gray, Albert L., assignor.)				
Acme Shear Company. (See Wheeler, David C., assignor.)				
Adams, George E., New Britain, Conn. Metallic member for garment-supporters	33,635	Dec. 4	93	1904
Adams, George E., New Britain, Conn. Metallic loop for garment-supporters	33,636	Dec. 4	93	1904
Adcock, Albert W., Chicago, Ill. Badge	33,276	Oct. 2	93	174
Adkins, Joseph, assignor of one-half to A. R. Frazier, Hillsborough, Ind. Nail-set	33,702	Dec. 25	93	2519
Adler, Emanuel B., Allegheny, assignor to H. Adler, Pittsburg, Pa. Gas-stove	33,653	Dec. 4	93	1907
Adler, Henry. (See Adler, Emanuel B., assignor.)				
Adler, Henry, Pittsburg, Pa. Gas-stove	33,654	Dec. 4	93	1908
Ahrenfeldt, Charles J., New York, N. Y. Covered dish or similar article	33,629	Dec. 4	93	1903
Aitcheson, George P., Alexandria, Va. Badge	33,354	Oct. 16	93	538
Alexander, Rova E., Garfield, Wash. Thimble	33,400	Oct. 16	93	545
American Ball-Bearing Company. (See Baker, Walter C., assignor.)				
American Hard Rubber Company. (See Grell, Frederick W., assignor.)				
American Radiator Company. (See Downe, George E., assignor.)				
American Radiator Company. (See Howell, Frank B., assignor.)				
American Toll Telephone Company. (See Foss, William A., assignor.)				
Anderson, Alfred, Chicago, Ill. Bracket for curtain-poles and window-shades	33,588	Nov. 20	93	1481
Archarena Company. (See Williams, Edgar L., assignor.)				
Armstrong, Lillian M., assignor to F. A. Constable and H. Arnold, New York, N. Y. Rug or similar article	33,608	Nov. 20	93	1485
Arnold, Hicks, *et al.* (See Armstrong, Lillian M., assignor.)				
Arvonen, Isaac V., Calumet, Mich. Bracelet	33,611	Nov. 27	93	1715
Asbury, Harry E., Philadelphia, Pa. Sad-iron	33,733	Dec. 18	93	2306
Ashley, Edward G., Rochester, N. Y. Bicycle-saddle spring	33,519	Nov. 6	93	1119
Atwell, Howard J., Washington, D. C. Penholder and envelop-opener	33,324	Oct. 9	93	348
Atwood, Harry A., assignor to Crocker Chair Company, Sheboygan, Wis. Chair-top	33,664	Dec. 4	93	1909
August Maag Company. (See Whalen, William A., assignor.)				
Bailey, Joseph T., Philadelphia, Pa. Badge	33,493	Nov. 6	93	1114
Bailey, Leonard, Wethersfield, Conn. Frame for copying-presses	33,560	Nov. 13	93	1299
Baker, Walter C., assignor to American Ball-Bearing Company, Cleveland, Ohio. Yoke for automobile steering-gear	33,646	Dec. 4	93	1906
Ballard, George, Philadelphia, Pa. Door-check	33,424	Oct. 23	93	740
Baringer, Irvin Y., Perkasie, Pa. Sleeve-button and cuff-holder	33,356	Oct. 16	93	538
Barr, William J., Cleveland, Ohio. Telephone-transmitter-arm base	33,640	Dec. 4	93	1905
Beach, Thomas, Freeport, Pa. Vehicle-tire	33,647	Dec. 4	93	1906
Beaudry, Marcel. (See De Voll, Charles H., assignor.)				
Bechtold, William S., Newark, N. J., assignor to J. Eschwege and M. G. Cohn, New York, N. Y. Hair-retainer	33,726	Dec. 18	93	2305
Beck, Rudolph H., Philadelphia, Pa. Curtain-pole holder	33,375	Oct. 16	93	541
Bedle, Aaron H., Dayton, Ohio. Jelly-waffle fork	33,415	Oct. 23	93	739
Behee, Joseph H., Leavenworth, Kans. Guitar-body	33,685	Dec. 11	93	2089
Belden, Edward H., Fort Wayne, Ind. Electric-arc-lamp casing	33,430	Oct. 23	93	741
Beltz, Daniel C., Birmingham, Ala. Turpentine-box	33,542	Nov. 13	93	1296
Berger Manufacturing Company. (See Schlafly, Julius H., assignor.)				
Bertram, William L. (See Cope and Bertram.)				
Bick, Emile, New Haven, Conn. Headpiece for graves	33,602	Nov. 20	93	1484
Bick, Emile, Buffalo, N. Y. Pen, pencil, and ink holder	33,676	Dec. 11	93	2088
Bidle, William S., Cleveland, Ohio. Wire-rope socket	33,373	Oct. 16	93	540
Blank, Bernard H., New York, N. Y. Clamp for eyeglasses or similar articles	33,355	Oct. 16	93	538
Blank, Nathan. (See Cohen, Herman, assignor.)				
Blankenburg & Co., R. (See Kelley, Caroline B., assignor.)				
Bleesmore Instrument Company. (See Sadler, Charles J., assignor.)				
Bliss, Francis E., Jr., Cranston, R. I. Bracelet	33,674	Dec. 11	93	2087
Blun, Ferdinand S. M., *et al.* (See Ross, Joseph, assignor.)				
Boekel, Julius. (See Boekel, William and J.)				
Boekel, William and J., Philadelphia, Pa. Nebulizer-frame	33,349	Oct. 9	93	353
Boettcher, Frederich W. G., Detroit, Mich. Toy	33,666	Dec. 4	93	1910
Bogy, Joseph A. (See Morgan, Stephen A., assignor.)				
Bolens, Harry W., Port Washington, Wis. Chair-spindle	33,313	Oct. 2	93	181
Booraem, John F., New York, N. Y., and B. Jacquart, South River, N. J. Tile	33,481	Oct. 30	93	929
Bower, William C., Birmingham, Ala. Fish-hook	33,775	Dec. 25	93	2516
Bowring, Edwin L. (See Vanderlinda, Peter J., assignor.)				
Boyle, Robert E., Norristown, Pa. Game or puzzle board	33,564	Nov. 13	93	1300
Bradley, Christopher C., Syracuse, N. Y. Draft-eye for vehicle-shackles	33,379	Oct. 16	93	541
Bradley, Christopher C., Syracuse, N. Y. Axle	33,381	Oct. 16	93	542
Brandt, Louis, New York, N. Y. Braid	33,569	Nov. 13	93	1301
Brewer, Benjamin B., and W. M. H. Burfeind, San Francisco, Cal. Draw-plate for swaging dental crowns	33,544	Nov. 13	93	1296
Brindle, Philip S., Columbus, Ohio. Gas-stove	33,476	Oct. 30	93	928
Brinkerhoff, Warren M., Auburn, N. Y. Fire-pot	33,521	Nov. 6	93	1119
Brinkerhoff, Warren M., Auburn, N. Y. Fire-pot	33,522	Nov. 6	93	1119
Brinkerhoff, Warren M., Auburn, N. Y. Fire-brick	33,601	Nov. 20	93	1484
Bristol Manufacturing Company. (See Marshall, William, assignor.)				
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Ornamented sheet or plate of glass.	33,343	Oct. 9	93	352
Brogan, Anthony D., and A. M. Malloch, Glasgow, Scotland. Ornamented sheet or plate of glass.	33,344	Oct. 9	93	352
Brown, Alexander T., Syracuse, N. Y. Type-bar for type-writing machines	33,736	Dec. 18	93	2306
Brown, Jacob W., Boston, Mass. Game-board or similar article	33,397	Oct. 16	93	545
Brown, James G., assignor of one-half to Cleveland Window Glass Company, Cleveland, Ohio. Prism-plate	33,562	Nov. 13	93	1299
Brown, Louis H., assignor to M. J. Whittall, Worcester, Mass. Carpet	33,407	Oct. 16	93	546
Browne, Edgar L., Cleveland, Ohio. Advertising-cabinet	33,393	Oct. 16	93	544

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Buckley, Thomas H., Worcester, Mass. Lunch-wagon body	33,515	Nov. 6	93	1118
Buff, George L., Boston, Mass. Vernier-plate for surveying instruments	33,545	Nov. 13	93	1297
Bumbaugh, William S., Monessen, Pa. Annealing-box bottom	33,367	Oct. 16	93	540
Burfeind, William M. H. (See Brewer and Burfeind.)	33,298	Oct. 2	93	178
Burk, Hiram C., Cleveland, Ohio. Corner-piece for staircases	33,563	Nov. 13	93	1300
Burkhardt, Gustave, Chicago, Ill. Bowling-alley light-reflector and pin-indicator	33,603	Nov. 20	93	1485
Buttler, William, Redkey, Ind. Sheet-glass				
Caldwell & Co., J. E. (See Van Roden, George C., assignor.)	33,510	Nov. 6	93	1117
Canfield, Gordon D., assignor to Spruks Manufacturing Company, Washington, N. C. Barrel	33,710	Dec. 11	93	2094
Carr, William C., Toledo, Ohio. Advertising-cabinet				
Carter, John R., Augusta, Ky., and J. E. Hausfeld, assignors to E. H. Huenefeld, Cincinnati, Ohio. Stove-door	33,797	Dec. 25	93	2520
Carter, John R., Augusta, Ky., and J. E. Hausfeld, assignors to E. H. Huenefeld, Cincinnati, Ohio. Ash-pan front	33,798	Dec. 25	93	2520
Carter, John R., Augusta, Ky., and J. E. Hausfeld, assignors to E. H. Huenefeld, Cincinnati, Ohio. Warming-oven	33,799	Dec. 25	93	2520
Cascaden, Thomas, Jr., assignor to Davis Gasoline Engine Works Company, Waterloo, Iowa. Grinding-mill body	33,558	Nov. 13	93	1299
Cassell, William H., Wheeling, W. Va. Drinking vessel	33,458	Oct. 30	93	924
Causey & Blanchard. (See Perine, Irving V., assignor.)				
Chaillet, Adolphe A., assignor to Shelby Electric Company, Shelby, Ohio. Filament for incandescent electric lamps	33,431	Oct. 23	93	742
Chandler, James, assignor of one-half to C. Nelson, New York, N. Y. Extension-pencil	33,677	Dec. 11	93	2088
Cheney, George H., Rochester, N. Y. Bicycle-hub	33,383	Oct. 16	93	542
Clark, George F., Utica, N. Y. Sprayer-body	33,500	Nov. 6	93	1115
Clark, George F., Utica, N. Y. Sprayer-body	33,580	Nov. 20	93	1480
Clark, George F., Utica, N. Y. Sprayer-body	33,581	Nov. 20	93	1480
Clark, John, and A. Hoeft, Chicago, Ill. Gas-burner	33,554	Nov. 13	93	1298
Clark, William F., San Francisco, Cal. Label	33,712	Dec. 11	93	2094
Clement, Edward E., Washington, D. C. Powder packing and dispensing box	33,284	Oct. 2	93	176
Cleveland Window Glass Company. (See Brown, James G., assignor.)				
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles	33,457	Oct. 30	93	924
Cohen, Herman, assignor of one-half to N. Blank, New York, N. Y. Scarf-pin	33,450	Oct. 30	93	923
Cohn, Max G., *et al.* (See Bechtold, William S., assignor.)	33,638	Dec. 4	93	1904
Cole, Nathaniel, Ottawa, Ill. Double harness-loop				
Conlin, Frederick. (See Merwarth and Conlin.)				
Constable, Frederick A., *et al.* (See Armstrong, Lillian M., assignor.)	33,811	Dec. 25	93	2523
Cook, Geraldine O., assignor to Sterling Knit Goods Company, Boston, Mass. Undergarment				
Cooper, Herbert W. (See Creedon, John J., assignor.)				
Cooperative Foundry Company. (See Kennedy and King, assignors.)				
Co-Operative Foundry Company. (See King and Kennedy, assignors.)				
Cope, George W., and W. L. Bertram, Detroit, Mich., assignors to C. Emrich, Columbus, Ohio. Cooking-stove	33,477	Oct. 30	93	928
Cort, John, Seattle, Wash. Nut-lock washer	33,300	Oct. 2	93	178
Covert, Fred W., assignor to Covert Manufacturing Company, Watervliet, N. Y. Hook	33,411	Oct. 23	93	738
Covert, James C., assignor to Covert Manufacturing Company, Watervliet, N. Y. Guard for hooks	33,360	Oct. 16	93	538
Covert, James C., assignor to Covert Manufacturing Company, Watervliet, N. Y. Hook	33,409	Oct. 23	93	738
Covert, James C., assignor to Covert Manufacturing Company, Watervliet, N. Y. Hook	33,410	Oct. 23	93	738
Covert Manufacturing Company. (See Covert, Fred W., assignor.)				
Covert Manufacturing Company. (See Covert, James C., assignor.)				
Creamer, John M., Knoxville, Tenn. Electric switchboard	33,303	Oct. 2	93	179
Creedon, John J., assignor to H. W. Cooper, Moline, Ill. Trace carrier	33,471	Oct. 30	93	927
Crittenden, Fred B., New York, N. Y. Corn-cutting scoop	33,327	Oct. 9	93	349
Crocker Chair Company. (See Atwood, Harry A., assignor.)				
Crosby, Dell S., and J. R. Meyers, Chicago, Ill. Cheese	33,706	Dec. 11	93	2093
Crowell, Gilbert L., Jr., Arlington, N. J. Handle for spoons or similar articles	33,323	Oct. 9	93	348
Cummings, George K., New York, N. Y. Prism-window	33,669	Dec. 4	93	1910
Cummings, George K., New York, N. Y. Prism-window	33,670	Dec. 4	93	1910
Cummings, George K., New York, N. Y. Prism-window	33,671	Dec. 4	93	1911
Dalrymple, Joseph A., Haverhill, Mass. Slipper ornament	33,538	Nov. 13	93	1295
Darr, George G., and P. W. Eschman, Sharpsburg, Pa. Bottle	33,459	Oct. 30	93	924
Davis Gasoline Engine Works Company. (See Cascaden, Thomas, Jr., assignor.)				
Davis, John T., San Francisco, Cal. Briquet of artificial fuel	33,520	Nov. 6	93	1119
Day, Benjamin, West Hoboken, N. J. Printing-film	33,707	Dec. 11	93	2093
De Voll, Charles H., Seattle, assignor of one-half to M. Beaudry, Anacortes, Wash. Lamp	33,391	Oct. 16	93	544
Deemer, Ora M., Gilmore, Nebr. Bracket for rotary brushes	33,326	Oct. 9	93	350
Degelman, William C., assignor to Humphryes Manufacturing Company, Mansfield, Ohio. Soap-holder and overflow-strainer	33,683	Dec. 11	93	2089
Dienst, Elizabeth R., Kansas City, Mo. Shoe-lace fastener	33,359	Oct. 16	93	538
Diggs, Wilmot H., Baltimore, Md. Tool-sharpener	33,329	Oct. 9	93	349
Dippert, William E., Des Moines, Iowa. Trace-carrier	33,382	Oct. 16	93	542
Dippo, George H., Chagrin Falls, assignor to Ferrosteel Company, Cleveland, Ohio. Sad-iron	33,286	Oct. 2	93	176
Dodshon, Frederick G., Hamilton, Ohio. Coat-pattern	33,492	Oct. 30	93	931
Doyle, Henry L., New York, N. Y. Calendar	33,675	Dec. 11	93	2088
Doyle, Peter J., Stamford, Conn. Cribbage-board	33,766	Dec. 18	93	2313
Downe, George E., Chicago, Ill., assignor to American Radiator Company, of New Jersey. Fire-pot for heaters	33,388	Oct. 16	93	543
Drucker, Morris N., Cincinnati, Ohio. Protecting-plate for trunks	33,643	Dec. 4	93	1905
Drucker, Morris N., Cincinnati, Ohio. Corner-shield for trunks	33,743	Dec. 18	93	2308
Drucker, Morris N., Cincinnati, Ohio. Trunk-clamp	33,744	Dec. 18	93	2308
Ducasble, Alfred, Paris, France. Tire	33,302	Oct. 2	93	179
Ducasble, Alfred, Paris, France. Tire	33,338	Oct. 9	93	351
Duvall, Francis, National Military Home, Kans. Wind-wheel	33,652	Dec. 4	93	1907
Ebel, Godfray, Russell, Kans. Lamp-stove	33,801	Dec. 25	93	2521
Eggleston, Lillian A., Canyon, Colo. Tailor's square and scroll	33,546	Nov. 13	93	1297
Eicholtz, Edward B., St. Louis, Mo. Door-securer	33,425	Oct. 23	93	741
Emrich, C. (See Cope and Bertram, assignors.)				
Engberg, Carl, assignor to A. W. Wells and J. W. Mullen, St. Joseph, Mich. Box-blank	33,511	Nov. 6	93	1117
Enterprise Manufacturing Company of Pennsylvania. (See Mosher, Charles P., assignor.)				
Eschman, Peter W. (See Darr and Eschman.)				
Eschwege, Julius, *et al.* (See Bechtold, William S., assignor.)	33,740	Dec. 18	93	2307
Evans, Charles W., Fort Thomas, Ky. Hoop-nail	33,691	Dec. 11	93	2090
Ewing, John, San Francisco, Cal. Horseshoe-pad				
Excelsior Stove and Manufacturing Company. (See Ohnemus, Anton, assignor.)				
Farrier, George W., Milwaukee, Wis. Ankle member for artificial legs	33,773	Dec. 25	93	2516

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Fauber, William H. (See Price, Albert M., assignor.)				
Fauber, William H., and A. M. Price, Chicago, Ill.; said Price assignor to said Fauber. Fork for bicycle or like tubular frames	33,596	Nov. 20	93	1483
Fellows, Joseph, Philadelphia, Pa. Clamp	33,692	Dec. 11	93	2090
Felsenthal, Julius L., Chicago, Ill. Display-case	33,346	Oct. 9	93	352
Ferrosteel Company. (See Dippo, George H., assignor.)	33,467	Oct. 30	93	926
Fischer, Herman C., Cleveland, Ohio. Caster-platform	33,651	Dec. 4	93	1907
Fleming, Myron, Elizabeth, N. J. Motor-bicycle frame	33,570	Nov. 13	93	1301
Fletcher, William H., assignor to Peerless Plush Manufacturing Company, Paterson, N. J. Fabric	33,495	Nov. 6	93	1115
Foltz, Charles O., Chicago, Ill. Match-lighter	33,322	Oct. 9	93	348
Forde, Magne, Osage, Iowa. Badge				
Foss, William A., assignor to American Toll Telephone Company, Cleveland, Ohio. Case for slot-telephones	33,593	Nov. 20	93	1482
Foster, Samuel, assignor to F. F. Hawks, Chicago, Ill. Lamp-body	33,502	Nov. 6	93	1116
Foster, Samuel P., assignor of one-half to F. H. Hellman, Sherman Heights, Tenn. Buckle	33,358	Oct. 16	93	538
Fox, Abraham L., Danville, Ill. Pump-body	33,421	Oct. 23	93	740
Frazier, Austin R. (See Adkins, Joseph, assignor.)				
Freese, John D., Chicago, Ill. Game-table	33,315	Oct. 2	93	182
Freihofer, Charles. (See Hanson and Freihofer.)	33,610	Nov. 20	93	1486
Freihofer, Charles, and F. Hanson, Philadelphia, Pa. Loaf of bread or similar arricle				
French, Francis J., assignor of one-half to J. R. Holliday, Miles Grove, Pa. Comb and pencil holder	33,573	Nov. 20	93	1478
Freund, G. Garson, *et al.* (See Vitzthum, William, assignor.)				
Freund, Max, *et al.* (See Vitzthum, William, assignor.)				
Fuller, Frank D., Chicago, Ill., assignor to Ludington Novelty Company, Ludington, Mich. Game-board	33,604	Nov. 20	93	1485
Fyan, William H., Port Huron, Mich. Vehicle-thill	33,516	Nov. 6	93	1118
Galr, Robert, New York, N. Y. Dolly	33,809	Dec. 25	93	2523
Galsman, Henry J., *et al.* (See Ross, Joseph, assignor.)	33,442	Oct. 23	93	744
Galsman, Henry J., New York, N. Y. Belt-body				
Gallaher, Edward B., New York, N. Y., assignor, by mesne assignments, to New York Air Compressor Company, of New Jersey. Frame for gas engines and compressors	33,517	Nov. 6	93	1118
Gallaway, Robert V., Thornton, Tex. Bed-slat holder	33,335	Oct. 9	93	350
Gally, Robert A., New York, N. Y. Case or stand for mechanical musical instruments	33,394	Oct. 16	93	544
Gambrel, William, Lincoln, Ill. Salt-box	33,472	Oct. 30	93	927
Gamewell Fire-Alarm Telegraph Company. (See King, George E., assignor.)	33,730	Dec. 18	93	2305
Gardy, Henry D., Chester, Pa. Match-safe	33,465	Oct. 30	93	925
Gavin, John H., assignor to L. Wolff Manufacturing Company, Chicago, Ill. Drain-board for sinks	33,565	Nov. 13	93	1300
Geer, John, London, England. Book-leaf	33,366	Oct. 16	93	539
Geinder, William, Milwaukee, Wis. Sheet-metal vessel				
General Power Company. (See Secor, John A., assignor.)	33,490	Oct. 30	93	930
George, Gilbert D., St. Paul, Minn. Encircling band	33,764	Dec. 18	93	2312
Georges, John J., assignor of one-half to W. W. Georges, Washington, D. C. Bunion or corn shield	33,436	Oct. 23	93	743
Georges, William W. (See Georges, John J., assignor.)				
Gerstendorfer, Albert, New York, N. Y. Display-card	33,697	Dec. 11	93	2091
Gesick, Charles C., *et al.* (See Marquis, Isaac N., assignor.)	33,594	Nov. 20	93	1483
Geurink, Bernard A., assignor to Schneider & Trenkamp Company, Cleveland, Ohio. Heating-burner	33,350	Oct. 9	93	353
Gharky, William D., Philadelphia, Pa. Telephone-pole box	33,717	Dec. 11	93	2095
Gibbs, Adanirom J., Mena, Ark. Bag	33,469	Oct. 30	93	926
Gibson, Charles E., Conway, N. H. Doll	33,289	Oct. 2	93	177
Giencke, Frederick A., Brookfield, Wis. Wire-fence tool	33,290	Oct. 2	93	177
Gillett, Clarence R., assignor to Magic Light Company, Chicago, Ill. Lamp-fixture	33,291	Oct. 2	93	177
Gillett, Clarence R., assignor to Magic Light Company, Chicago, Ill. Lamp-fixture	33,806	Dec. 25	93	2522
Gillett, Clarence R., assignor to Magic Light Company, Chicago, Ill. Lamp-fixture	33,463	Oct. 30	93	925
Glanville, William W., San Francisco, Cal. Quarter for low shoes				
Glauber, Joseph H., Cleveland, Ohio. Coupling-joint	33,619	Nov. 27	93	1716
Gobeille, Joseph L., Cleveland, assignor to Youngstown Range and Stove Company, Youngstown, Ohio. Steel range	33,667	Dec. 4	93	1910
Goetting, George A. C., New York, N. Y. Wrapping-paper	33,725	Dec. 18	93	2304
Goldner, Simon, New York, N. Y. Finger-ring	33,690	Dec. 11	93	2090
Goodman, Forest E., Waco, Tex. Stirrup	33,536	Nov. 13	93	1295
Goodyear's India Rubber Glove Manufacturing Company. (See Schaffer, Frederick F., assignor.)				
Gordon, Mary M., Washington, D. C. Badge	33,555	Nov. 13	93	1298
Gorham Manufacturing Company. (See Codman, William C., assignor.)	33,426	Oct. 23	93	741
Gothberg, Ernest, Jersey City, N. J. Ornamental trimming for gas and electric-light fixtures	33,791	Dec. 25	93	2519
Grafton, Thomas E., New York, N. Y. Wall-tie	33,684	Dec. 11	93	2089
Gravis, John B., Canton, Ohio. Metallic plate for elastic-tread horseshoes	33,392	Oct. 16	93	544
Gray, Albert L., St. Louis, Mo., assignor to A. L. Gray Syringe Company, of Missouri. Syringe	33,745	Dec. 18	93	2308
Gray, George, New York, N. Y. Chandelier	33,574	Nov. 20	93	1478
Green, George D., assignor to J. H. Sager, Rochester, N. Y. Frame for motor-cycles	33,537	Nov. 13	93	1295
Grell, Frederick W., New York, N. Y. Comb	33,612	Nov. 27	93	1715
Grell, Frederick W., assignor to American Hard Rubber Company, New York, N. Y. Comb	33,280	Oct. 2	93	175
Grell, Frederick W., assignor to American Hard Rubber Company, New York, N. Y. Dish				
Grindley, William H., Cougleton, England, assignor to W. S. Pitcairn, New York, N. Y. Covered dish	33,281	Oct. 2	93	175
Grover, Samuel K., Providence, R. I. Hat-pin	33,451	Oct. 30	93	928
Haight, Douglas, Coshocton, Ohio. Weather-vane	33,547	Nov. 13	93	1297
Haight, Douglas, Coshocton, Ohio. Weather-vane	33,586	Nov. 20	93	1481
Haldeman, Harry M., assignor of one-half to McElwaine-Richards Company, Indianapolis, Ind. Bowl for water-closets	33,642	Dec. 4	93	1905
Hale, Henry S., Philadelphia, Pa. Hinge-arm for car-seat backs	33,339	Oct. 9	93	351
Hall, Milton C., Bakersfield, Cal. Calendar	33,572	Nov. 20	93	1478
Halladay, Lewis P., assignor to P. Matter, Marion, Ind. Scale-beam	33,369	Oct. 16	93	540
Hallenbeck, George M. (See Wilks, Walter L., assignor.)				
Hamilton, Thomas W., Springfield, Mass. Bedclothes-holder	33,523	Nov. 6	93	1120
Hancock, Henry J., assignor of one-half to W. S. Jessup, New York, N. Y. Sewing-machine frame	33,585	Nov. 20	93	1481
Handley, William A., Arlington, Wash. Stand for sawing-machines	33,529	Nov. 6	93	1121
Hansen, Adolph C., assignor of one-half to G. J. Ordnung, Chicago, Ill. Match-lighter	33,460	Oct. 30	93	925
Hanson, Fredrick. (See Friehofer and Hanson.)				
Hanson, Fredrick, and C. Freihofer, Philadelphia, Pa. Cover for bake-pans	33,583	Nov. 20	93	1480
Hanson, Fredrick, and C. Freihofer, Philadelphia, Pa. Loaf of bread or similar article	33,609	Nov. 20	93	1486

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Harris, William W., assignor to Max Huncke Chemical Company, New York, N. Y. Catheter	33,456	Oct. 30	93	924
Hartford Rubber Works Company. (See Turner, Frank H., assignor.)				
Hartmann, Gerhardt G. M. F., New York, N. Y. Gem-setting	33,768	Dec. 25	93	2515
Hartmann, Gerhardt G. M. F., New York, N. Y. Gem-setting	33,769	Dec. 25	93	2515
Hartung, Charles C., assignor to E. Walsh, Jr., St. Louis, Mo. Sheet-glass	33,673	Dec. 4	93	1911
Haskell, Henry L., Ludington, Mich. Game-table	33,437	Oct. 23	93	743
Haskell, Henry L., Ludington, Mich. Game-board	33,714	Dec. 11	93	2095
Hausfeld, Joseph E. (See Carter and Hausfeld.)				
Havana-American Company. (See Switzer, Maurice, assignor.)				
Hawks, Frederick F. (See Foster, Samuel, assignor.)				
Hayden, William H., assignor to P. Hayden Saddlery Hardware Company, Columbus, Ohio. Hame-hook	33,741	Dec. 18	93	2307
	33,294	Oct. 2	93	177
Heimann, Morris A., St. Louis, Mo. Trousers-hanger				
Heine Safety Boiler Company. (See Tidemann, Henry G., assignor.)				
Hellman, F. H. (See Foster, Samuel P., assignor.)	33,347	Oct. 9	93	353
Hemphill, Robert H., Hattiesburg, Miss. Soda-water fountain				
Henckel & Elcox. (See Henckel, Gustave A., assignor.)	33,607	Nov. 20	93	1485
Henckel, Gustave A., New York, N. Y., assignor to Henckel & Elcox. Ring				
Henry Disston & Sons. (See Shaw, Edwin F., assignor.)				
Henry Huber Company. (See Hornbostel, Henry, assignor.)	33,398	Oct. 16	93	545
Herrick, William, assignor to Morgan & Wright, Chicago, Ill. Golf-tee	33,404	Oct. 16	93	546
Hertlein, Christopher E., New York, N. Y. Skirt-protector	33,758	Dec. 18	93	2310
Hien, Phillip, Chicago, Ill. Cam-block for car-couplings	33,750	Dec. 18	93	2309
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Knuckle for car-couplings	33,751	Dec. 18	93	2309
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Filling-block and support for gravity-acting dogs for car-couplings	33,752	Dec. 18	93	2310
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Draw-head for car-couplings	33,754	Dec. 18	93	2310
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Gravity-acting dog for car-couplings	33,755	Dec. 18	93	2311
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Lifting-pin for car-couplings	33,756	Dec. 18	93	2311
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Locking-pin for car-couplings	33,757	Dec. 18	93	2311
Hien, Phillip, assignor to D. S. Wegg, Chicago, Ill. Lock for lifting-pins for car-couplings				
Higbee, Edward H., Jr. (See Maddern and Higbee.)	33,589	Nov. 20	93	1481
Higgins, Eugene B., East Orange, N. J. Tool handle and receptacle	33,401	Oct. 16	93	546
Hilder, Julius, New York, N. Y. Belt attachment	33,453	Oct. 30	93	923
Hill, John E., Center Harbor, N. H. Collar or cuff button	33,445	Oct. 23	93	745
Hiller, Hugo L., New York, N. Y. Lacing				
Hoeft, Albert. (See Clark and Hoeft.)	33,428	Oct. 23	93	741
Hoffman, Mathew, Chicago, Ill. Auxiliary stove-cover	33,361	Oct. 16	93	588
Hoffman, Philip F., Newburg, N. Y. Nursing-nipple				
Hogan, Daniel. (See Meinecke and Hogan.)	33,543	Nov. 13	93	1296
Hogan, Daniel, New York, N. Y., and C. W. Meinecke, Jersey City, N. J., assignors to Meinecke & Company, New York, N. Y. Air-cushion	33,613	Nov. 27	93	1715
Hogan, Daniel, New York, N. Y., and C. W. Meinecke, Jersey City, N. J., assignors to Meinecke & Company, New York, N. Y. Air-cushion	33,598	Nov. 20	93	1484
Holley, George M., Bradford, Pa. Frame for motor-cycles	33,599	Nov. 20	93	1484
Holley, George M., Bradford, Pa. Crank-hanger for motor-cycles				
Holliday, John R. (See French, Francis J., assignor.)				
Holman, James H., *et al.* (See Marquis, Isaac N., assignor.)	33,496	Nov. 6	93	1115
Homes, Solomon S., Spring Hill, Iowa. Snap-hook	33,749	Dec. 18	93	2309
Hooper, John C., Baltimore, Md. Valve-casing for locomotive sander apparatus	33,308	Oct. 2	93	180
Hornbostel, Henry, assignor to Henry Huber Company, New York, N. Y. Lavatory-slab	33,765	Dec. 18	93	2312
Horne, William N., Nashville, Tenn. Shoe				
Howell, Frank B., Detroit, Mich., assignor to American Radiator Company, of New Jersey. Section for steam-boilers	33,784	Dec. 25	93	2518
Howell, Frank B., Detroit, Mich., assignor to American Radiator Company, of New Jersey. Section for steam-boilers	33,785	Dec. 25	93	2518
Howell, Frank B., Detroit, Mich., assignor to American Radiator Company, of New Jersey. Section for steam-boilers	33,786	Dec. 25	93	2518
Howell, Richard, Ridley Park, Pa. Fruit-jar wrench	33,732	Dec. 18	93	2306
Huenefeld, Ernst H. (See Carter and Hausfeld, assignors.)	33,800	Dec. 25	93	2520
Huenefeld, Ernst H., Cincinnati, Ohio. Heating-drum	33,742	Dec. 18	93	2307
Hull, Scott H., Oskaloosa, Iowa. Slide-D				
Humphryes Manufacturing Company. (See Degelman, William C., assignor.)	33,482	Oct. 30	93	929
Hutchison, James H., London, England. Font of printing-type	33,531	Nov. 6	93	1121
Hutchison, James H., London, England. Font of printing-type	33,747	Dec. 18	93	2308
Ivor, Barry, Chicago, Ill. Lubricator-pump body	33,748	Dec. 18	93	2309
Ivor, Barry, Chicago, Ill. Lubricator-pump body	33,365	Oct. 16	93	539
Jackson, Austin F., assignor to Reed & Barton Corporation, Taunton, Mass. Teapot				
Jacquart, Bernard. (See Booraem and Jacquart.)	33,380	Oct. 16	93	541
Jamison, James A., Russellville, Ark. Buggy-top spring				
Jenney, Robert T., London, England, assignor to Lamson Consolidated Store Service Company, Newark, N. J. Tubular connection for pneumatic-despatch tubes	33,432	Oct. 23	93	742
Jenney, Robert T., London, England, assignor to Lamson Consolidated Store Service Company, Newark, N. J. Receiving-tube for pneumatic-despatch systems	33,548	Nov. 13	93	1297
Jenney, Robert T., London, England, assignor to Lamson Consolidated Store Service Company, Newark, N. J. Receiving-terminal for pneumatic-despatch systems	33,699	Dec. 11	93	2091
Jenney, Robert T., London, England, assignor to Lamson Consolidated Store Service Company, Newark, N. J. Receiving-terminal for pneumatic-despatch systems	33,700	Dec. 11	93	2092
Jennings Bros. Manufacturing Company. (See Mosman, Charles F., assignor.)				
Jessup, William S. (See Hancock, Henry J., assignor.)	33,644	Dec. 4	93	1905
Johnson, Jeremiah P., Detroit, Mich. Brace-bar for carriage-bodies	33,533	Nov. 6	93	1122
Johnson, John, Manistee, Mich. Crease-retainer for hats	33,709	Dec. 11	93	2094
Johnson, Willis L., Seymour, Ind. Coat-form	33,770	Dec. 25	93	2515
Jones, Frederick D., Los Angeles, Cal. Crayon-holder	33,681	Dec. 11	93	2089
Jones, Willis, Buffalo, N. Y. Knife-handle				
Jordan Gravitation Company. (See Jordan, Thomas R., assignor.)	33,578	Nov. 20	93	1479
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Company, of New York. Tube for concentrating minerals	33,579	Nov. 20	93	1479
Jordan, Thomas R., New York, N. Y., assignor to Jordan Gravitation Company, of New York. Tube for concentrating minerals	33,767	Dec. 18	93	2313
Kaelin, Frederick G., Cutchogue, N. Y. Game-board	33,589	Nov. 13	93	1296
Kaiser, Joseph M., Chicago, Ill. Match-safe				
Katzenberg, Max, *et al.* (See Vitzthum, William, assignor.)	33,320	Oct. 2	93	183
Kauffman, Adele M., St. Paul, Minn. Abdominal band				
Keim, John R. (See Smith, William H., assignor.)	33,340	Oct. 9	93	351
Keithley, Herbert R., Buffalo, N. Y. Railway-car sill				

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Keller, Isaac B., Steelton, Pa. Shirt sleeves and yoke	33,566	Nov. 13	93	1300
Kelley, Caroline B., assignor to R. Blankenburg & Co., Philadelphia, Pa. Embroidery-pattern	33,722	Dec. 11	93	2096
Kellogg, Hosford D., Philadelphia, Pa. Radiator	33,390	Oct. 16	93	544
Kelly, Nellie J., Victor, N. C. Plate for food-boilers	33,478	Oct. 30	93	928
Kemether, Frank, Glasgow, Del. Hook	33,551	Nov. 13	93	1298
Kennedy, Thomas R. (See King and Kennedy.)				
Kennedy, Thomas R., and E. J. King, assignors to Cooperative Foundry Company, Rochester, N. Y. Furnace-front	33,796	Dec. 25	93	2519
	33,328	Oct. 9	93	349
Kent, Viola E., Kalamazoo, Mich. Meat or vegetable chopper				
Kessler, George, assignor to Tuttle & Bailey Manufacturing Company, New York, N. Y. Smoke-pipe register	33,696	Dec. 11	93	2091
	33,630	Dec. 4	93	1903
Kilmer, Chauncey J., New York, N. Y. Bottle				
King, Edward J. (See Kennedy and King.)				
King, Edward J., and T. R. Kennedy, assignors to Co-Operative Foundry Company, Rochester, N. Y. Cooking-stove	33,310	Oct. 2	93	180
King, Edward J., and T. R. Kennedy, assignors to Co-Operative Foundry Company, Rochester, N. Y. Heating-stove	33,311	Oct. 2	93	180
King, George E., Newton, Mass., assignor to Gamewell Fire-Alarm Telegraph Company, New York, N. Y. Frame for time-stamps	33,708	Dec. 11	93	2094
	33,419	Oct. 23	93	739
Kingsley, Edwin L., Olyphant, Pa. Accompaniment-indicator	33,374	Oct. 16	93	541
Klemm, Emil R., Chicago, Ill. Lifting-jack casing	33,631	Dec. 4	93	1903
Klumpp, George W. and H. F., New York, N. Y. Bottle	33,704	Dec. 11	93	2092
Klumpp, Herman F. (See Klumpp, George W. and H. F.)				
Knight, James S., Portland, Me. Can				
Knox, Edward M. (See Koenigs, William, assignor.)				
Koenigs, William, Paterson, N. J., assignor, by mesne assignments, to E. M. Knox, New York, N. Y. Hat-band	33,319	Oct. 2	93	183
Koenigs, William, Paterson, N. J., assignor, by mesne assignments, to E. M. Knox, New York, N. Y. Hat-band	33,446	Oct. 23	93	745
	33,474	Oct. 30	93	927
Kofske, Charles, Aplington, Iowa. Railway-rail				
Kokomo Wire and Nail Company. (See Ward, Harry, assignor.)				
Korts, William A. (See Smith, William B., assignor.)	33,665	Dec. 4	93	1910
Kramer, Clarence E., Lithopolis, Ohio. Trousers-hanger	33,512	Nov. 6	93	1117
Kruttschnitt, Gustav A., Newark, N. J. Box or receptacle	33,518	Nov. 6	93	1118
Kruttschnitt, Gustav A., Newark, N. J. Box or receptacle	33,614	Nov. 27	93	1715
Kruttschnitt, Gustav A., Newark, N. J. Box or receptacle				
Kursheedt Manufacturing Company. (See Taylor, George H., assignor.)				
L. Wolff Manufacturing Company. (See Gavin, John H., assignor.)	33,317	Oct. 2	93	182
Lafferty, Erastus S., Galesburg, Ill. Building-block				
Lamson Consolidated Store Service Company. (See Jenney, Robert T., assignor.)				
Landers, Frary & Clark. (See Landers, George M., assignor.)				
Landers, Frary & Clark. (See Munson, Samuel R., assignor.)				
Landers, Frary & Clark. (See Smith, Charles F., assignor.)				
Landers, Frary & Clark. (See Walker, George, assignor.)	33,728	Dec. 18	93	2305
Landers, George M., assignor to Landers, Frary & Clark, New Britain, Conn. Knife-handle				
Lanz, Owen & Company. (See Owen, Richard W., assignor.)				
Larsen, Peter. (See Ransom, Hans, assignor.)	33,561	Nov. 13	93	1299
Lathrop, Frank K., assignor to Ohio Rake Company, Dayton, Ohio. Seed-plate for corn-planters				
Lawson & Son, Judson. (See McDowell and Strike, assignors.)	33,353	Oct. 9	93	354
Lazare, Maurice, Chicago, Ill. Game-board	33,648	Dec. 4	93	1906
Leach, Orville L., Providence, R. I. Wheel				
Leding, Robert. (See Pohl, George R., assignor.)	33,582	Nov. 6	93	1122
Leonard, Charles H., Grand Rapids, Mich. Game-board				
Libenow, Ferdinand E., Spokane, Wash., assignor of two-thirds to D. J. Munn, New Westminster, Canada. Lantern	33,288	Oct. 2	93	176
Library Bureau. (See Meleney, George B., assignor.)	33,364	Oct. 16	93	539
Lindemeyr, Philip, assignor to Maryland Stopper Company, Baltimore, Md. Bottle				
Lissner, Morris. (See Poalk, James L., assignor.)				
Litchfield, Edgar C. (See Litchfield, Henry L. and E. C.)	33,688	Dec. 11	93	2096
Litchfield, Henry L. and E. C., Webster City, Iowa. End-gate extension				
Locomobile Company of America. (See Speirs, John C., assignor.)	33,534	Nov. 6	93	1122
Logan, Martin, New York, N. Y. Heel-cushion	33,790	Dec. 25	93	2519
Logan, Martin, New York, N. Y. Rubber cushion for horseshoes	33,524	Nov. 6	93	1120
Long, Joseph B., Chicago, Ill. Caddy	33,525	Nov. 6	93	1120
Long, Joseph B., Chicago, Ill. Caddy	33,526	Nov. 6	93	1120
Long, Joseph B., Chicago, Ill. Caddy	33,527	Nov. 6	93	1121
Long, Joseph B., Chicago, Ill. Caddy	33,808	Dec. 25	93	2521
Long, Joseph B., Chicago, Ill. Caddy	33,804	Dec. 25	93	2521
Long, Joseph B., Chicago, Ill. Caddy	33,491	Oct. 30	93	931
Looker, Oscar R., Detroit, Mich. Necktie-form	33,727	Dec. 18	93	2305
Looker, Oscar R., Detroit, Mich. Pen-rack	33,634	Dec. 4	93	1904
Lord, William S., Jr., Portland, Me. Key-ring and bottle-seal breaker	33,417	Oct. 23	93	739
Lorenz, William A., Hartford, Conn. Jar	33,649	Dec. 4	93	1907
Lowe, Gilbert Y., Washington, Ga. Axle-shield	33,309	Oct. 2	93	180
Lowry, Jacob S., Cincinnati, Ohio. Deflector for wall-registers	33,694	Dec. 11	93	2091
Lowry, Jacob S., Cincinnati, Ohio. Floor-register deflector	33,795	Dec. 25	93	2519
Lowry, Jacob S., Cincinnati, Ohio. Deflector for floor-registers				
Ludington Novelty Company. (See Fuller, Frank D., assignor.)	33,557	Nov. 13	93	1299
Lyman, William L., Newark, N. J. Nut-lock	33,779	Dec. 25	93	2517
Maddern, William R., and E. H. Higbee, Jr., St. Louis, Mo. Shade-roller bracket				
Magic Light Company. (See Gillett, Clarence R., assignor.)				
Malloch, Andrew M. (See Brogan and Malloch.)				
Marquis, Isaac N., Rosedale, Kans., assignor to J. H. Holman and C. C. Gesick, Kansas City, Mo. Vapor-burner	33,587	Nov. 20	93	1481
	33,576	Nov. 20	93	1479
Marshall, Amanda M., Newburg, N. Y. Garment-eye				
Marshall, William F., Providence, R. I., assignor, by mesne assignments, to Bristol Manufacturing Co., Attleborough, Mass. Back for brushes or similar articles	33,575	Nov. 20	93	1479
Maryland Stopper Company. (See Lindemeyr, Philip, assignor.)	33,711	Dec. 11	93	2094
Mason, Francis C., Grand Rapids, Mich. Display-stand				
Matter, Philip. (See Halladay, Lewis P., assignor.)	33,285	Oct. 2	93	176
Matthews, James F., El Reno, Okla. Ter. Clothes-pin				
Max Huncke Chemical Company. (See Harris, William W., assignor.)				
Mayer, Willy. (See Rosenberg, Benjamin, assignor.)	33,693	Dec. 11	93	2090
McAllister, Albert H., New Albany, Miss. Nut-lock washer	33,433	Oct. 23	93	742
McCabe, Jefferson D., Woodbury, Tenn. Wagon-body bow-socket	33,434	Oct. 23	93	742
McCabe, Jefferson D., Woodbury, Tenn. Wagon-body brace				

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McCaslin, Elton W., assignor to Morgan & Wright, Chicago, Ill. Valve-case for pneumatic tires	33,301	Oct. 2	93	179
McClain, Edward L., Greenfield, Ohio. Back-band hook	33,470	Oct. 30	93	926
McCue, Charles T., Hartford, Conn. Stay-end	33,793	Dec. 25	93	2519
McCutchon, Louis, Havana, Cuba. Towel-holder	33,584	Nov. 20	93	1480
McDermott, William J., Kandiyohi, Minn. Tread-power wheel	33,559	Nov. 13	93	1299
McDowell, Charles E., and H. G. Strike; said McDowell assignor to J. Lawson & Son, New York, N. Y. Newspaper-stand	33,760	Dec. 18	93	2312
McElwaine-Richards Company. (See Haldeman, Harry M., assignor.)				
McGuire, James F., New York, N. Y. Bottle	33,326	Oct. 9	93	349
McHenry John F., Cameron, Mo. Lamp-chimney	33,553	Nov. 13	93	1298
McMillan, John W., Chicago, Ill. Valve-casing	33,746	Dec. 18	93	2308
McRae, Roderick W. (See Smith, Charles F., assignor.)				
McRay, William S., Cosmopolis, Wash. Display-rack	33,761	Dec. 18	93	2312
Meeker, Stephen J., Newark, N. J. Knuckle for car-couplings	33,591	Nov. 20	93	1482
Meeker, William P., Newark, N. J. Tile	33,480	Oct. 30	93	929
Meinecke, Christian W. (See Hogan and Meinecke.)				
Meinecke, Christian W., Jersey City, N. J., and D. Hogan, assignors to Meinecke & Company, New York, N. Y. Air-cushion	33,763	Dec. 18	93	2312
Meinecke & Company. (See Hogan and Meinecke, assignors.)				
Meinecke & Company. (See Meinecke and Hogan, assignors.)				
Meiners, August H., St. Louis, Mo. Stop-valve box	33,787	Dec. 25	93	2518
Melchers, Edward, Toledo, Ohio. Picture-hook	33,550	Nov. 13	93	1298
Meleney, George B., Chicago, Ill., assignor to Library Bureau, Boston, Mass. Desk	33,314	Oct. 2	93	181
Merkel, Hermann, St. Louis, Mo. Hydrocarbon-burner	33,377	Oct. 16	93	541
Merrill, George D., East Orange, N. J. Spoon or similar article	33,413	Oct. 23	93	738
Merrill, George D., East Orange, N. J. Spoon or similar article	33,414	Oct. 23	93	738
Merrow, George W., Merrow, Conn. Trimming	33,568	Nov. 13	93	1301
Merssmann, Benjamin F., Webb City, Mo. Dispensing vessel	33,582	Nov. 20	93	1480
Merwarth, Charles H., South Bethlehem, and F. Conlin, Bethlehem, assignors to Merwarth Metallic Gasket Company, South Bethlehem, Pa. Gasket or packing for joints of pipes or other apparatus	33,782	Dec. 25	93	2517
Merwarth Metallic Gasket Company. (See Merwarth and Conlin, assignors.)				
Messler, Arnold C., Pawtucket, R. I. Badge	33,277	Oct. 2	93	175
Meyers, Julius R. (See Crosby and Meyers.)				
Morgan, Stephen A., assignor of one-third to J. A. Bogy, Coalgate, Ind. Ter. Tug-fastener	33,789	Dec. 25	93	2518
Morgan & Wright. (See Herrick, William, assignor.)				
Morgan & Wright. (See McCaslin, Elton W., assignor.)				
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,655	Dec. 4	93	1908
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,656	Dec. 4	93	1908
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,657	Dec. 4	93	1908
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,658	Dec. 4	93	1908
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,659	Dec. 4	93	1908
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,660	Dec. 4	93	1909
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,661	Dec. 4	93	1909
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,662	Dec. 4	93	1909
Mosher, Charles P., assignor to Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa. Sad-iron handle	33,663	Dec. 4	93	1909
Mosman, Charles F., assignor to Jennings Bros. Manufacturing Company, Bridgeport, Conn. Clock-case	33,279	Oct. 2	93	175
Moulton, Luther V., Grand Rapids, Mich. Garment-supporting loop	33,357	Oct. 16	93	538
Muir, Erwin T., Elgin, Ill. Side section of corsets	33,606	Nov. 20	93	1485
Mullen, John W., *et al.* (See Engberg, Carl, assignor.)				
Muller, Ernest P., assignor of one-half to J. K. Young, New York, N. Y. Advertising-cabinet	33,484	Oct. 30	93	929
Munn, Daniel J. (See Libenow, Ferdinand E., assignor.)				
Munson, Samuel R., Hartford, assignor to Landers, Frary & Clark, New Britain, Conn. Case for price-scales	33,735	Dec. 18	93	2306
Myers & Brother, F. E. (See Myers, Philip A., assignor.)				
Myers, Philip A., assignor to F. E. Myers & Brother, Ashland, Ohio. Door-hanger pulley-frame	33,590	Nov. 20	93	1482
Nelson, Charles. (See Chandler, James, assignor.)				
New Haven Novelty Machine Company. (See Thompson, Henry G., assignor.)				
New York Air Compressor Company. (See Gallaher, Edward B., assignor.)				
Newman, Abraham, Chicago, Ill. Box for patrol-stations	33,514	Nov. 6	93	1118
Norman, Addison, Davisville, Canada. Plate or similar article	33,416	Oct. 23	93	739
Norman, Addison, Davisville, Canada. Rug or similar article	33,448	Oct. 23	93	745
Norris, William E., Flat River, Mo. Clamp member for sash-balances	33,499	Nov. 6	93	1115
Northgraves, William, Perth, Canada. Corn-fork	33,626	Dec. 4	93	1902
Northrop, Howard G., Chicago, Ill. Faucet-cushion	33,464	Oct. 30	93	925
Norton, William E., Minneapolis, Minn. Sprocket-wheel	33,595	Nov. 20	93	1483
O'Brien, Michael J., Philadelphia, Pa. Stand for draining glasses	33,504	Nov. 6	93	1116
Ohio Rake Company. (See Lathrop, Frank K., assignor.)				
Ohnemus, Anton, assignor to Excelsior Stove and Manufacturing Company, Quincy, Ill. Stove	33,758	Dec. 18	93	2311
Ohnemus, Anton, assignor to Excelsior Stove and Manufacturing Company, Quincy, Ill. Stove	33,759	Dec. 18	93	2311
Oleson, Albert, Toledo, Ohio. Pommel-spring for bicycle-saddles	33,549	Nov. 13	93	1298
Ordnung, George J. (See Hansen, Adolph C., assignor.)				
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Handle for spoons or similar articles	33,625	Dec. 4	93	1902
Oswald, Phillip, Syracuse, N. Y. Buckle-frame	33,686	Dec. 11	93	2089
Owen, Richard W., assignor to Lanz, Owen & Company, Chicago, Ill. Sabretash	33,807	Dec. 25	93	2522
Oxley & Enos Manufacturing Company. (See Watkins, Howard E., assignor.)				
P. Hayden Saddlery Hardware Company. (See Hayden, William H., assignor.)				
Pancoast, Richard M., Camden, N. J. Ventilator	33,429	Oct. 23	93	741
Patent Button Company. (See White, Franklin R., assignor.)				
Patrick, Pliny, Cincinnati, Ohio. Base for display characters	33,483	Oct. 30	93	929
Pauling, Robert, and J. Sutter, Lewistown, Mont. Gearing-frame for churns	33,479	Oct. 30	93	928
Paulson, Martin, Missouri Valley, Iowa. Wheel-clamping foot for lifting-jacks	33,376	Oct. 16	93	541
Pax, John W., Chicago, Ill. Holder	33,452	Oct. 30	93	923
Peerless Plush Manufacturing Company. (See Fletcher, William H., assignor.)				
Peet, Charles H., Binghamton, N. Y. Tray	33,729	Dec. 18	93	2305

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Peixotto, Edgar C., Augusta, Ga. Supporting-bracket for telephone-receivers	33,780	Dec. 25	93	2517
Pelouze, William N., Chicago, Ill. Scale-frame	33,420	Oct. 23	93	740
Perine, Irving V., East Orange, N. J., assignor to Causey & Blanchard, New York, N. Y. Bow-shield	33,622	Nov. 27	93	1717
Perkins Electric Switch Manufacturing Company. (See Thomas, George B., assignor.)				
Perkins, James D., Greenville, S. C. Valve-casing	33,306	Oct. 2	93	180
Pfouts, Leroy S., Canton, Ohio. Chandelier	33,731	Dec. 18	93	2305
Pitcairn, William S. (See Grindley, William H., assignor.)				
Poalk, James L., Merchantville, N. J., assignor of one-half to M. Lissner, Philadelphia, Pa. Buckle	33,577	Nov. 20	93	1479
Pohl, George R., assignor to R. Leding, Washington, D. C. Plate or plaque	33,628	Dec. 4	93	1903
Porteous, James. (See Willis, Glenn T., assignor.)				
Potteiger, Henry W., Reading, Pa. Buckle	33,637	Dec. 4	93	1904
Power, Frank A., Marlborough, Mass. Engine chest-plate and support	33,435	Oct. 23	93	742
Powers, James E., Salina, Kans. Window-shelf bracket	33,781	Dec. 25	93	2517
Prahar, Louis B., New York, N. Y. Buckle	33,454	Oct. 30	93	923
Price, Albert M. (See Fauber and Price.)				
Price, Albert M., assignor to W. H. Fauber, Chicago, Ill. Fork for bicycle or like tubular frames	33,597	Nov. 20	93	1483
Probasco, Abraham B., Lebanon, Ohio. Arm member for reels	33,507	Nov. 6	93	1117
Proudfit, Alexander C., Boston, Mass. Electric bicycle-lamp	33,466	Oct. 30	93	926
Pryibil, Oscar, St. Louis, Mo. Pool-table	33,713	Dec. 11	93	2085
Purser, George F., Sarnia, Canada. Game-table	33,395	Oct. 16	93	544
Quinlan, Jeremiah, New York, N. Y. Flask	33,363	Oct. 16	93	539
Randolph, William M., Pittsburg, Pa. Cigar-protector	33,494	Nov. 6	93	1114
Ransom, Hans, assignor of one-half to P. Larsen, Cattaraugus, N. Y. Hammer	33,330	Oct. 9	93	349
Reed & Barton Corporation. (See Jackson, Austin F., assignor.)				
Reid, Patrick J., Chicago, Ill. Wagon-body	33,600	Nov. 20	93	1484
Reynolds, Mortimer L., Hebron, Nebr. Fastener for chairs	33,528	Nov. 6	93	1121
Rich, Adolphus W., Milwaukee, Wis. Low shoe	33,443	Oct. 23	93	744
Richardson, Dwight S., New York, N. Y. Fire-pot	33,389	Oct. 16	93	543
Rieseck, Peter, Allegheny, Pa. Wall-tie	33,342	Oct. 9	93	352
Ritter, Abraham, New York, N. Y. Belt	33,535	Nov. 6	93	1122
Robertson, James L., Jr., New York, N. Y. Game-board	33,316	Oct. 2	93	182
Rogers, Charles S., Hot Springs, Ark. Badge	33,449	Oct. 30	93	923
Rondell, Carl, Stillwater, Minn. Marine propeller	33,386	Oct. 16	93	542
Rosenberg, Benjamin, assignor to W. Mayer, New York, N. Y. Nail-file and holder	33,678	Dec. 11	93	2088
Rosenberg, Louis M., New York, N. Y. Belt	33,810	Dec. 25	93	2523
Rosenbluth, Edwin M., Philadelphia, Pa. Burner draft-dome	33,698	Dec. 11	93	2091
Ross, Joseph, assignor to H. J. Gaisman and F. S. M. Blun, New York, N. Y. Buckle-frame	33,455	Oct. 30	93	424
Roth, Henry G., Minneapolis, Minn. Display-fixture for stores	33,345	Oct. 9	93	352
Russell, Josephine, Tabor, Iowa. Badge	33,624	Dec. 4	93	1902
Sadler, Charles J., assignor to Bleesmore Instrument Company, St. Louis, Mo. Surgical stocking	33,447	Oct. 23	93	745
Sager, James H. (See Green, George D., assignor.)	33,498	Nov. 6	93	1115
Salomon, Siegmund, New York, N. Y. Furniture-buffer	33,789	Dec. 18	93	2307
Sargent & Company. (See Sargent, Henry B., assignor.)	33,805	Dec. 25	93	2522
Sargent, Henry B., assignor to Sargent & Company, New Haven, Conn. Lever for sash-fasteners	33,403	Oct. 16	93	546
Sargent, Samuel R., Cleveland, Ohio. Washboard	33,405	Oct. 16	93	546
Schaefer, Henry A., assignor to Schaefer & Schlegel, Rochester, N. Y. Skirt-protector	33,715	Dec. 11	93	2095
Schaefer, Henry A., assignor to Schaefer & Schlegel, Rochester, N. Y. Skirt-binding	33,716	Dec. 11	93	2095
Schaefer, Peter A., assignor to United States Playing Card Company, Cincinnati, Ohio. Game-chip	33,444	Oct. 23	93	745
Schaefer, Peter A., assignor to United States Playing Card Company, Cincinnati, Ohio. Game-chip	33,275	Oct. 2	93	174
Schaefer & Schlegel. (See Schaefer, Henry A., assignor.)	33,295	Oct. 2	93	178
Schaffer, Frederick F., Naugatuck, Conn., assignor to Goodyear's India Rubber Glove Manufacturing Company, New York, N. Y. Overshoe	33,296	Oct. 2	93	178
Schaller, Robert D., Newark, N. J. Badge	33,297	Oct. 2	93	178
Schaum, Otto W., Philadelphia, Pa. Jacquard-lever	33,489	Oct. 30	93	930
Schaum, Otto W., Philadelphia, Pa. Arm member for jacquard-levers	33,487	Oct. 30	93	930
Schaum, Otto W., Philadelphia, Pa. Yoke member for jacquard-levers	33,488	Oct. 30	93	930
Scheuer, Max, New York, N. Y. Apparel-belt	33,480	Oct. 30	93	930
Scheuer, Max, New York, N. Y. Apparel-belt	33,334	Oct. 9	93	350
Scheuer, Max, New York, N. Y. Apparel-belt	33,406	Oct. 16	93	546
Scheuer, Max, New York, N. Y. Apparel-belt	33,777	Dec. 25	93	2517
Schlafly, Julius H., assignor to Berger Manufacturing Company, Canton, Ohio. Pump-stock	33,530	Nov. 6	93	1121
Schloss, Joseph W., New York, N. Y. Braid	33,412	Oct. 23	93	738
Schmidt, George B., New York, N. Y. Lock and hinge-fastener for boxes	33,387	Oct. 16	93	543
Schmidt, Henry A., Milwaukee, Wis. Cabinet for medical treatment	33,641	Dec. 4	93	1905
Schneider & Trenkamp Company. (See Geurink, Bernard A., assignor.)	33,627	Dec. 4	93	1903
Schulte, August K., assignor of one-half to J. J. Walter, Philadelphia, Pa. Mouthpiece	33,518	Nov. 6	93	1118
Secor, John A., New York, N. Y., assignor to General Power Company, of New Jersey. Engine-frame	33,473	Oct. 30	93	927
Secor, John A., New York, N. Y., assignor to General Power Company, of New Jersey. Motor base-frame	33,718	Dec. 11	93	2095
Seiter, Charles J., New York N. Y. Plate	33,617	Nov. 27	93	1716
Senderling, Martin L., Jersey City, N. J. Fifth-wheel for vehicles	33,468	Oct. 30	93	926
Severance, Herbert, Sac and Fox Agency, Okla. Ter. Cushion-spring for carriage-top bows	33,668	Dec. 4	93	1910
Seward, Louise R., New York, N. Y. Collar-protector	33,702	Dec. 18	93	2312
Shaw, Edwin F., assignor to Henry Disston & Sons, Incorporated, Philadelphia, Pa. Saw-handle	33,368	Oct. 16	93	540
Shelby Electric Company. (See Chaillet, Adolphe A., assignor.)	33,325	Oct. 9	93	349
Shepard, Amos, Plantsville, Conn. Wrench member	33,282	Oct. 2	93	175
Shonk, Charles W., Chicago, Ill. Sign	33,288	Oct. 2	93	176
Shuman, Timothy B., Tyrone, Pa. Trousers-hanger	33,605	Nov. 20	93	1485
Sicardi, Charles L., New York, N. Y. Sprayer-body	33,778	Dec. 25	93	2517
Skaer, James A., Augusta, Kans. Pencil-holder	33,337	Oct. 9	93	351
Slater, John, Hanley, England. Covered dish	33,615	Nov. 27	93	1715
Slater, John, Hanley, England. Plate	33,682	Dec. 11	93	2089
Slater, John, New York, N. Y. Arch-spring for shoes	33,508	Nov. 6	93	1117
Slaymaker, Samuel R., Lancaster, Pa. Padlock	33,774	Dec. 25	93	2516
Smith, Alonzo F., Bogard, Mo. Rein-holder	33,331	Oct. 9	93	349
Smith, Charles F., Copenhagen, assignor to R. W. McRae, Lowville, N. Y. Hoof-pad				
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Knife blade and bolster				
Smith, De Wane B., Deerfield, N. Y. Piston-head for pumps				
Smith, Harry B., New York, N. Y. Box-blank				
Smith, William B., assignor of one-half to W. A. Korts, Boisé, Idaho. Hoe				

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Smith, William H., Buffalo, assignor to J. R. Keim, New York, N. Y. Axle-frame for motor-vehicles	33,650	Dec. 4	93	1907
Sommer, John L., Newark, N. Y. Handle for paper-knives or similar articles	33,679	Dec. 11	93	2088
Speirs, John C., Worcester, Mass., assignor to Locomobile Company of America, New York, N. Y. Top plate for hydrocarbon-burners	33,737	Dec. 18	93	2307
Spruks Manufacturing Company. (See Canfield, Gordon D., assignor.)				
Stahl, Louis, London, England, assignor to W. H. S. Lloyd Company, New York, N. Y. Wall-paper	33,724	Dec. 11	93	2097
Starrett, Laroy S., Athol, Mass. Micrometer-gage frame	33,734	Dec. 18	93	2306
Stebbins, Timothy, Davenport, Iowa. Well-pipe	33,462	Oct. 30	93	925
Stegeman, William, Chicago, Ill. Meat-hook	33,506	Nov. 6	93	1116
Steinau, Isaac, New York, N. Y. Display-stand	33,802	Dec. 25	93	2521
Stember, John, New York, N. Y. Body for belts	33,438	Oct. 23	93	743
Stember, John, New York, N. Y. Body for belts	33,439	Oct. 23	93	743
Stember, John, New York, N. Y. Body for belts	33,440	Oct. 23	93	744
Stember, John, New York, N. Y. Body for belts	33,441	Oct. 23	93	744
Stember, John, New York, N. Y. Belt	33,620	Nov. 27	93	1716
Stember, John, New York, N. Y. Belt	33,721	Dec. 11	93	2096
Steppe, John P., assignor to S. Sternau and L. Strassburger, New York, N. Y. Brush-holder	33,702	Dec. 11	93	2092
Sterling Knit Goods Company. (See Cook, Geraldine O., assignor.)				
Sternau, Sigmund, *et al.* (See Steppe, John P., assignor.)				
Stevens, Frederick A., Providence, R. I. Clamp for rimless spectacles	33,278	Oct. 2	93	175
Steward, Demetrius M., Chattanooga, Tenn. Argand burner for acetylene gas	33,503	Nov. 6	93	1116
Stewart, William J., Chicago, Ill. Sewing-machine frame or head	33,312	Oct. 2	93	181
Stockley, Alfred W., Philadelphia, Pa. Skirt-protector	33,321	Oct. 2	93	183
Strassburger, Lionel, *et al.* (See Steppe, John P., assignor.)				
Strauss, Sigismund, New York, N. Y. Tobacco-moistener	33,540	Nov. 13	93	1296
Strike, Horace G. (See McDowell and Strike.)				
Stroh, Martin. (See Supper, John, assignor.)				
Stuart, James W., Macomb, Ill. Frame for power-hammers	33,423	Oct. 23	93	740
Supper, John, assignor to M. Stroh, Philadelphia, Pa. Hand-washer	33,701	Dec. 11	93	2092
Sutter, Joseph. (See Pauling and Sutter.)				
Sweet, Charles A., Boston, Mass. Tombstone	33,812	Dec. 25	93	2523
Switzer, Maurice, New York, N. Y., assignor to Havana-American Company, Jersey City, N. J. Cigar-box	33,541	Nov. 13	93	1296
Taft, Oscar A., Leominster, Mass. Base for boot-cleaners	33,485	Oct. 30	93	930
Tally, H. Washington, *et al.* (See Tiner, John F., assignor.)				
Taussig, Emil, New York, N. Y. Casing for disinfecting apparatus	33,623	Dec. 4	93	1904
Taylor, George H., assignor to Kursheedt Manufacturing Company, New York, N. Y. Fabric	33,723	Dec. 11	93	2097
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Cam for sash-fasteners	33,618	Nov. 27	93	1716
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Lining for switch-caps	33,304	Oct. 2	93	179
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Lining for switch-caps	33,305	Oct. 2	93	179
Thompson, Henry G., assignor to New Haven Novelty Machine Company, New Haven, Conn. Pipe-coupling	33,307	Oct. 2	93	180
Thompson, Henry G., assignor to New Haven Novelty Machine Company, New Haven, Conn. Pipe-coupling	33,370	Oct. 16	93	540
Thompson, Henry G., assignor to New Haven Novelty Machine Company, New Haven, Conn. Pipe-coupling	33,371	Oct. 16	93	540
Thompson, Henry G., assignor to New Haven Novelty Machine Company, New Haven, Conn. Pipe-coupling	33,372	Oct. 16	93	540
Thompson, Israel S., Ashland, Wis. Bread-board	33,418	Oct. 23	93	739
Thorn, Oliver, London, England. Gun-carrying attachment for cycles	33,384	Oct. 16	93	542
Thorn, Oliver, London, England. Spade-carrying attachment for cycles	33,385	Oct. 16	93	542
Thorn, Oliver, London, England. Gun-carrier	33,645	Dec. 4	93	1906
Thorn, Oliver, London, England. Golf-club-carrying attachment for cycles	33,689	Dec. 11	93	2090
Tidemann, Henry G., assignor to Heine Safety Boiler Company, St. Louis, Mo. Furnace-tile	33,427	Oct. 23	93	741
Tierney, Thomas F., New York, N. Y. Churn-dasher	33,505	Nov. 6	93	1116
Timblin, Espy A., *et al.* (See Timblin, George A., assignor.)				
Timblin, George A., assignor of two-thirds to W. F. Troast, Lancaster, and E. A. Timblin, Connellsville, Pa. Frame for gas-engines	33,502	Nov. 20	93	1482
Timmerhoff, Ernst, Elkhart, Ind. Housing for screen-rollers	33,738	Dec. 18	93	2307
Tiner, John F., assignor of one-half to H. W. Tally and E. A. Warren, Sutherland Springs, Tex. Nut-lock washer	33,639	Dec. 4	93	1904
Troast, William F., *et al.* (See Timblin, George A., assignor.)				
Toups, Cleophas A., Houma, La. Hoe	33,378	Oct. 16	93	541
Tucker, George M., Kingston, R. I. Crucible	33,632	Dec. 4	93	1904
Turner, Frank H., assignor to Hartford Rubber Works Company, Hartford, Conn. Rubber foot-mat	33,571	Nov. 13	93	1301
Tuttle & Bailey Manufacturing Company. (See Kessler, George, assignor.)				
United States Playing Card Company. (See Schaefer, Peter A., assignor.)				
Valentine, Lewis, Claquato, Wash. Saw set and gage	33,333	Oct. 9	93	350
Van Roden, George C., assignor to J. E. Caldwell & Co., Philadelphia, Pa. Badge	33,623	Dec. 4	93	1902
Vanderlinda, Peter J., assignor of one-half to E. L. Bowring, Grand Rapids, Mich. Refrigerator	33,348	Oct. 9	93	353
Vesey, Richard H., Denver, Colo. Pessary	33,362	Oct. 16	93	539
Vitzthum, William, Hoboken, N. J., assignor to M. Katzenberg, G. G. and M. Freund, New York, N. Y. Belt	33,402	Oct. 16	93	546
Vitzthum, William, Hoboken, N. J., assignor to M. Katzenberg, G. G. and M. Freund, New York, N. Y. Belt-body or similar article	33,567	Nov. 13	93	1300
W. H. S. Lloyd Company. (See Stahl, Louis, assignor.)				
Walker, George, Plantsville, assignor to Landers, Frary & Clark, New Britain, Conn. Frame for vegetable-slicers	33,552	Nov. 13	93	1298
Walker, Lillian G., Boston, Mass. Corset	33,719	Dec. 11	93	2096
Walker, Lillian G., Boston, Mass. Corset	33,720	Dec. 11	93	2096
Walsh, Edward, Jr. (See Hartung, Charles C., assignor.)				
Walsh, Edward, Jr., St. Louis, Mo. Sheet-glass	33,672	Dec. 4	93	1911
Walter, John J. (See Schulte, August K., assignor.)				
Ward, Harry, assignor to Kokomo Wire and Nail Company, Kokomo, Ind. Wire fence	33,509	Nov. 6	93	1117
Warner Brothers Company. (See Warner, De Ver H., assignor.)				
Warner, De Ver H., assignor to Warner Brothers Company, Bridgeport, Conn. Stud or button for garment-supporters	33,771	Dec. 25	93	2516
Warner, De Ver H., assignor to Warner Brothers Company, Bridgeport, Conn. Stud or button for garment-supporters	33,772	Dec. 25	93	2516

Alphabetical list of patentees of designs, October to December, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Warren, Edward K., Three Oaks, Mich. Collar-foundation	33,351	Oct. 9	93	353
Warren, Edward K., Three Oaks, Mich. Foundation for collars	33,352	Oct. 9	93	354
Warren, Eugene A., *et al.* (See Tiner, John F., assignor.)				
Wasserstrom, William, New York, N. Y. Belt	33,621	Nov. 27	93	1717
Watkins, Howard E., assignor to Oxley & Enos Manufacturing Company, New York, N. Y. Ornamental tube for gas or electric fixtures	33,461	Oct. 30	93	925
Webb, John G., Springfield, Ohio. Vehicle-tire channel-rim	33,616	Nov. 27	93	1716
Weber, Aaron M., New York, N. Y. Member for garment-supporters	33,687	Dec. 11	93	2089
Wegg, David S. (See Hien, Phillip, assignor.)				
Weinman, Christian J., Dayton, Ohio. Frame for hacksaws	33,422	Oct. 23	93	740
Wells, Abel W., *et al.* (See Engberg, Carl, assignor.)				
Whalen, William A., assignor to August Maag Company, Baltimore, Md. Cake-pan	33,705	Dec. 11	93	2093
Wheatley, Thomas, Syracuse, N. Y. Deflector for valves	33,556	Nov. 13	93	1298
Wheeler, David C., assignor to Acme Shear Company, Bridgeport, Conn. Member for pairs of shears	33,776	Dec. 25	93	2516
Whelen, James R., Denver, Colo. Meat-tenderer plate	33,703	Dec. 11	93	2092
White, Franklin R., assignor to Patent Button Company, Waterbury, Conn. Eyelet-die	33,501	Nov. 6	93	1115
White, Rollin H., assignor to White Sewing Machine Company, Cleveland, Ohio. Gas-burner	33,794	Dec. 25	93	2519
White Sewing Machine Company. (See White, Rollin H., assignor.)				
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)				
Whitmore, Albert H., New York, N. Y. Pincushion	33,399	Oct. 16	93	545
Whittall, Matthew J. (See Brown, Louis H., assignor.)				
Witgus, Edmund S., Princeton, N. J. Railway-frog	33,341	Oct. 9	93	352
Wilks, Walter L., assignor to G. M. Hallenbeck, Wallingford, Conn. Handle for spoons, forks, or similar articles	33,680	Dec. 11	93	2089
Williams, Charles D., New York, N. Y. Leather fabric	33,808	Dec. 25	93	2523
Williams, Edgar L., assignor to Archarena Company, Peoria, Ill. Game-board	33,396	Oct. 16	93	545
Williams, James P., Newcastle, Pa. Picture-hook	33,497	Nov. 6	93	1115
Willis, Glen T., assignor to J. Porteous, Fresno, Cal. Finger-guard bar for headers and harvesters	33,475	Oct. 30	93	928
Wilson, Joseph N., Chicago, Ill. Campaign-badge	33,408	Oct. 23	93	738
Wilson, Peter J., Ben Lomond, Cal. Tree-root protector	33,332	Oct. 9	93	350
Woehr, Edwin S., Geneseo, Ill. Book-holder	33,293	Oct. 2	93	177
Wolff, Elzy M., Mansfield, Ohio. Monument	33,318	Oct. 2	93	182
Wollenweber, Oswald, Marion, Ohio. Split-pulley spoke-arm	33,299	Oct. 2	93	178
Wood, Robert T., Buffalo, Tex. Post-base	33,783	Dec. 25	93	2517
Woodhull, Bradley, Scranton, Pa. Lining-plate for stoves or ranges	33,695	Dec. 11	93	2091
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)				
Young, J. K. (See Muller, Ernest P., assignor.)				
Youngstown Range and Stove Company. (See Gobeille, Joseph L., assignor.)				
Ziegler, John G., Reading, Pa. Brake-ring for coaster-brakes	33,788	Dec. 25	93	2518
Zumbach, Gotlieb, Helvetia, W. Va. Ax	33,287	Oct. 2	93	176

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. Leschen & Sons Rope Company, St. Louis, Mo. Wire rope	35,552	Dec. 4	93	1916
Abram Lyle & Sons, Limited, London, England. Syrup	35,185	Oct. 2	93	186
Acme Milling Company, Indianapolis, Ind. Wheat-flour	35,294	Oct. 23	93	748
Acme Road Machinery Company, Frankfort, N. Y. Road-building machinery and supplies	35,205	Oct. 2	93	188
Adam Roth Grocery Company, St. Louis, Mo. Canned goods	35,191	Oct. 2	93	187
Adams & Co., J. J., New York, N. Y. Brushes	35,308	Oct. 23	93	749
Adams & Elting Company, Chicago, Ill. Painters' supplies exclusive of paints	35,440	Nov. 13	93	1309
Adams & Johnson Company, Galesburg, Ill. Certain named harness	35,566	Dec. 11	93	2099
Aeolian Company, Meriden, Conn., and New York, N. Y. Certain named musical instruments	35,171	Oct. 2	93	185
Aeolian Company, Meriden, Conn., and New York, N. Y. Certain named musical instruments	35,172	Oct. 2	93	185
Aeolian Company, Meriden, Conn., and New York, N. Y. Certain named musical instruments	35,173	Oct. 2	93	185
Aeolian Company, Meriden, Conn., and New York, N. Y. Certain named musical instruments	35,174	Oct. 2	93	185
Aeolian Company, Meriden, Conn., and New York, N. Y. Certain named musical instruments	35,495	Nov. 27	93	1718
Alaska Packers Association, San Francisco, Cal. Fish in hermetically-sealed tins	35,192	Oct. 2	93	187
Albany Hardware and Iron Company, Albany, N. Y. Roofing-tin	35,444	Nov. 13	93	1309
Alden Rubber Company, Barberton, Ohio. Certain named rubber goods	35,492	Nov. 27	93	1718
Aluminium Industrie Actien-Gesellschaft, Neuhausen, Switzerland. Chemicals for photographic purposes	35,333	Oct. 30	93	933
American Brewing Company, St. Louis, Mo. Beer	35,532	Dec. 4	93	1914
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,206	Oct. 23	93	748
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,435	Nov. 13	93	1308
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,436	Nov. 13	93	1309
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,437	Nov. 13	93	1309
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,438	Nov. 13	93	1309
American Cotton Oil Company, New York, N. Y. Cotton-seed oils	35,439	Nov. 13	93	1309
American Exterminating Co., Philadelphia, Pa. Exterminators for rats, mice, roaches, ants, and bugs	35,227	Oct. 9	93	357
American Milling Company, Philadelphia, Pa. Cattle-food	35,501	Nov. 27	93	1719
American Optical Company, Southbridge, Mass. Spectacles or eyeglasses	35,376	Nov. 13	93	1302
American Steel Buckle Co., Baltimore, Md. Buckles, buttons, and clasps	35,491	Nov. 27	93	1718
American Steel Hoop Company, Jersey City, N. J.; New York, N. Y., and Pittsburg, Pa. Iron and steel and manufactures of iron and steel	35,312	Oct. 23	93	750
American Tobacco Company, Newark, N. J., and New York, N. Y. Smoking-tobacco and cigarettes	35,226	Oct. 9	93	356
Apsley Rubber Company, Hudson, Mass. Rubber boots and shoes	35,167	Oct. 2	93	185
Apsley Rubber Company, Hudson, Mass. Rubber boots	35,168	Oct. 2	93	185
Arbuckle Bros., New York, N. Y., and Pittsburg, Pa. Roasted coffee	35,419	Nov. 13	93	1307
Arnold & Co., Charles W., Haverhill, Mass. Cut soles	35,281	Oct. 23	93	746
Ashby, Alfred R., Brunswick, Ga. Tonic	35,182	Oct. 2	93	186
Ashton, Hoare & Company, Limited, Manchester, England. Certain named cotton piece goods	35,521	Dec. 4	93	1913
Ashton, Hoare & Company, Limited, Manchester, England. Unbleached-cotton piece goods not figured or printed	35,522	Dec. 4	93	1913
Aste, Anthony L., New York, N. Y. Shoe and leather dressings	35,537	Dec. 4	93	1915
Bahl, James F., Philadelphia, Pa. Remedy for certain named diseases	35,409	Nov. 13	93	1305
Baker, Louisa, Buffalo, N. Y. Whips	35,309	Oct. 23	93	749
Bartram Brothers, New York, N. Y. Butter	35,295	Oct. 23	93	748
Bath, Jacob H., Columbus Junction, Iowa. Cigars	35,255	Oct. 16	93	548
Bay City Manufacturing and Rubber Company, San Francisco, Cal. Coil-packing	35,275	Oct. 16	93	550
Beales, James A. G., New York, N. Y. Certain named game	35,375	Nov. 13	93	1302
Beaumont & Fils, S., Roubaix, France. Hair-wavers	35,671	Dec. 25	93	2529
Bell & Co., Catton, San Francisco, Cal. Certain named articles of food	35,262	Oct. 16	93	549
Benedict, Charles L., Toronto, Canada. Letter-envelops	35,322	Oct. 30	93	932
Bennett Milling Company, Geneva, Ill. Gluten-flour	35,598	Dec. 18	93	2315
Bigelow, Henry J., Boston, Mass. Butter or substitute for butter	35,188	Oct. 2	93	187
Bittel, Tepel & Co., New York, N. Y. Certain named leather	35,159	Oct. 2	93	184
Black & Co., H., Cleveland, Ohio. Certain named wearing-apparel	35,451	Nov. 20	93	1487
Bliss & Co., L. C., Boston, Mass. Boots and shoes	35,282	Oct. 23	93	746
Bliss & Co., L. C., Boston and Whitman, Mass. Certain named boots and shoes	35,241	Oct. 16	93	547
Bliss & Co., L. C., Boston and Whitman, Mass. Boots and shoes and leather for same	35,242	Oct. 16	93	547
Bliss & Co., L. C., Boston and Whitman, Mass. Boots and shoes and leather for same	35,243	Oct. 16	93	547
Bliss & Co., L. C., Boston and Whitman, Mass. Boots and shoes and leather for boots and shoes	35,564	Dec. 11	93	2099
Bly, John F., Chicago, Ill. Paste	35,196	Oct. 2	93	187
Bokschizky & Rotkowltz, New York, N. Y. Certain named medicines	35,502	Nov. 27	93	1719
Borden's Condensed Milk Company, New York, N. Y. Certain named dairy products	35,600	Dec. 18	93	2315
Bortree Corset Company, Jackson, Mich. Corsets and bust-forms	35,452	Nov. 20	93	1487
Boucher, William, Baltimore, Md. Cigars	35,193	Oct. 2	93	187
Boyd & Co., John, Jr., New York, N. Y. Flour	35,664	Dec. 25	93	2528
Brandes & Kreutzberg, Marine, Ill. Ventilators for chimneys and other parts of buildings	35,274	Oct. 16	93	550
Brandon, George T., Cleveland, Ohio. Preparations for the complexion	35,463	Nov. 20	93	1488
Bredow, Wilhelmine, Schiltigheim, Germany. Substitute for coffee	35,467	Nov. 20	93	1488
Brewer, Edward J., Mullin's Station, Tenn. Ointment	35,280	Oct. 23	93	747
Breyer, Theodor E., Peoria, Ill. Candy	35,253	Oct. 16	93	548
Brice & Co., Springfield, Ohio. Baking-powder	35,190	Oct. 2	93	187
Bridgeport Brass Company, Bridgeport, Conn. Wire for electric conduction	35,310	Oct. 23	93	749
Broas, John S., Jersey City, N. J. Remedy for certain named diseases	35,574	Dec. 11	93	2100
Brown & Co., John B., New York, N. Y. Teas, coffees, and spices	35,292	Oct. 23	93	747
Buck, Harry K., Philadelphia, Pa. Certain named toilet articles	35,199	Oct. 2	93	188
Buckeye Fish Company, Cleveland, Ohio. Canned fresh-water fish	35,473	Nov. 20	93	1489
Bückle, George, New York, N. Y. Medicated bathing liquids	35,200	Oct. 2	93	188
Bückle, George, New York, N. Y. Medicated bathing fluid	35,400	Nov. 13	93	1304
Burt & Co., E. W., Boston, Mass. Boots and shoes	35,633	Dec. 25	93	2524
Butler, James, New York, N. Y. Table-salt and baking-powder	35,426	Nov. 13	93	1308
C. F. Weber Company, Chicago, Ill. Blackboards	35,489	Nov. 27	93	1718
C. Howard Hunt Pen Manufacturing Company, Camden, N. J. Stub-pens	35,246	Oct. 16	93	547
C. Howard Hunt Pen Manufacturing Company, Camden, N. J. Certain pens	35,247	Oct. 16	93	547
Carmel Wine Co., New York, N. Y. Wine, brandy, and cordials	35,646	Dec. 25	93	2526

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Carpenter-Morton Company, Boston, Mass. Certain named medicated viscous compound	35,545	Dec. 4	93	1915
Cellulose Products Company, Wilmington, Del., and Boston, Mass. Certain named paint and varnish remover	35,611	Dec. 18	93	2316
Central Foundry Company, Newark, N. J., and New York, N. Y. Pipes, pipe-couplings, and pipe-fittings	35,483	Nov. 20	93	1490
Central Foundry Company, Newark, N. J., and New York, N. Y. Pipes, pipe-couplings, and pipe-fittings	35,484	Nov. 20	93	1490
Chain Belt Company, Milwaukee, Wis. Certain named gearing and machinery	35,273	Oct. 16	93	550
Chas. Maull Macaroni Company, St. Louis, Mo. Macaroni, spaghetti, vermicelli, and noodles	35,660	Dec. 25	93	2528
Chas. Maull Macaroni Company, St. Louis, Mo. Macaroni, spaghetti, mezzani, vermicelli, and noodles	35,661	Dec. 25	93	2528
Chas. Truax, Greene & Company, Chicago, Ill. Certain named specific in granular form	35,579	Dec. 11	93	2100
Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany. Ammonia preparations	35,540	Dec. 4	93	1915
Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany. Alkamine derivatives	35,541	Dec. 4	93	1915
Chemische Fabrik Guestrow, Guestrow, Germany. Alkaloids	35,181	Oct. 2	93	186
Cherry Kola Co., Williamsport, Pa. Non-alcoholic beverage	35,356	Oct. 30	93	936
Chicago Nut Food Co., Chicago, Ill. Nuts and tubers	35,189	Oct. 2	93	187
China and Japan Trading Company, Limited, New York, N. Y. Certain named textile fabrics	35,502	Dec. 11	93	2098
Chubbuck, William, New York, N. Y. Certain named skin remedies	35,339	Oct. 30	93	934
Church & Dwight Company, New York, N. Y. Soda and saleratus and sal-soda	35,359	Oct. 30	93	937
Cleveland Refining Company, Cleveland, Ohio. Certain named oils and lubricants	35,334	Oct. 30	93	933
Cleveland Varnish Company, Cleveland, Ohio. Certain named varnish	35,233	Oct. 9	93	357
Cohen & Lang, New York, N. Y. Coats and pants for boys and youths	35,395	Nov. 13	93	1304
Comar & Fils et Cie., F., Paris, France. Medicinal tonics	35,410	Nov. 13	93	1305
Conder & Bro., C. E., Cambridge, Mass. Certain named groceries	35,214	Oct. 9	93	356
Consumers Preserved Milk Company, New York, N. Y. Condensed milk	35,357	Oct. 30	93	936
Continental Manufacturing Company, Philadelphia, Pa. Certain named paints, pigments, and painters' supplies	35,441	Nov. 13	93	1309
Cook Chemical Co., Milwaukee, Wis. Ointments	35,288	Oct. 23	93	747
Copeland & Durgin Company, Rochester, N. Y. Furniture	35,447	Nov. 13	93	1310
Corner, Richard C., New York, N. Y. Refined petroleum	35,460	Nov. 20	93	1488
Creighton & Burch, New York, N. Y. Checked cotton cloth	35,561	Dec. 11	93	2098
Crescent Ice Company, New Orleans, La. Water for drinking purposes	35,413	Nov. 13	93	1305
Cross & Tucker, Lynn and Boston, Mass. Certain named boots and shoes	35,163	Oct. 2	93	184
Crum & Rushmore, New York, N. Y. Shirts	35,493	Nov. 27	93	1718
Cudahy Packing Company, Chicago, Ill., and South Omaha, Nebr. Certain named groceries	35,476	Nov. 20	93	1489
Curtis & Co., H. C., Troy, N. Y. Collars, cuffs, shirts, and waists	35,391	Nov. 13	93	1304
Curtis Publishing Company, Camden, N. J., and Philadelphia, Pa. Monthly magazine	35,277	Oct. 23	93	749
Curtis Publishing Company, Camden, N. J., and Philadelphia, Pa. Certain named monthly magazine	35,321	Oct. 30	93	932
Cycle Components Company, New York, N. Y. Vehicle-pedals	35,202	Oct. 2	93	188
D. Lutz & Son Brewing Company, Allegheny, Pa. Malt extract	35,500	Nov. 27	93	1719
Day, Charles, London, England. Certain named dental composition	35,571	Dec. 11	93	2099
Deering Harvester Co., Chicago, Ill. Agricultural machinery	35,488	Nov. 20	93	1490
Deering Harvester Co., Chicago, Ill. Harvesting machinery	35,553	Dec. 4	93	1916
Delta Powder Company, Redwood City, Cal. Explosives	35,510	Nov. 27	93	1720
Deutsche Gold and Silber Scheide-Anstalt, vormals Rössler, Frankfort-on-the-Main, Germany. Chemical compound for purifying acetylene	35,667	Dec. 25	93	2528
Doerflinger Artificial Limb Company, Milwaukee, Wis. Certain named surgical instruments and appliances	35,331	Oct. 30	93	933
Donaldson, Percy, Baltimore, Md. Vinegar and pickles	35,187	Oct. 2	93	186
Downing, George H., New York, N. Y. Fire-extinguishers	35,371	Oct. 30	93	938
Dudley & Co., U. H., New York, N. Y. Dried or evaporated fruits	35,520	Dec. 4	93	1914
Dudley & Co., U. H., New York, N. Y. Dried or evaporated fruit	35,530	Dec. 4	93	1914
Dudley & Co., U. H., New York, N. Y. Dried or evaporated fruit	35,594	Dec. 18	93	2314
Duluth Universal Mill Company, Duluth, Minn. Wheat-flour	35,219	Oct. 9	93	356
Duluth Universal Mill Company, Duluth, Minn. Wheat-flour	35,472	Nov. 20	93	1489
Dunbar's Sons, G. W., New Orleans, La. Oysters	35,427	Nov. 13	93	1308
Duquesne Distributing Company, Incorporated, Harmarville, Pa. Mineral water and non-alcoholic beverages	35,412	Nov. 13	93	1305
Dykman, George P., Patterson, N. Y. Certain named medicines	35,544	Dec. 4	93	1915
E. E. Hogan Shoe Manufacturing Company, Newark, N. J. Welted shoes	35,283	Oct. 23	93	746
Eastern Shore of Virginia Produce Exchange, Onley, Va. Irish and sweet potatoes	35,216	Oct. 9	93	356
Eisendrath, Benjamin D., Racine, Wis. Tanned leather	35,454	Nov. 20	93	1487
Ennis, Edward, Cambridge, Mass. Certain named dental supplies	35,329	Oct. 30	93	933
Esser, Bleul & Loerner, New York, N. Y. Cocoa-paste	35,567	Dec. 11	93	2099
Estes & Sons, E. B., New York, N. Y. Certain named woodenware	35,307	Oct. 23	93	749
Fabien & Co., R., New York, N. Y. Eggs	35,528	Dec. 4	93	1914
Farina, Johann M., Cologne, Germany. Cologne-water	35,604	Dec. 18	93	2315
Firth Carpet Company, New York, N. Y. Rugs	35,155	Oct. 2	93	181
Fobes, Hayward & Company, Incorporated, Boston, Mass. Confectionery	35,212	Oct. 9	93	355
Fording, Harry L., Buffalo, N. Y. Certain named article of underwear	35,453	Nov. 20	93	1487
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,325	Oct. 30	93	933
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,326	Oct. 30	93	933
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,327	Oct. 30	93	933
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,328	Oct. 30	93	933
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,455	Nov. 20	93	1487
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,456	Nov. 20	93	1487
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,457	Nov. 20	93	1487
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,523	Dec. 4	93	1913
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,524	Dec. 4	93	1913
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,525	Dec. 4	93	1913
Forster, Charles, Dixfield and Strong, Me. Wooden toothpicks	35,271	Oct. 16	93	550
Fox, Arthur O., Madison, Wis. Certain metal castings	35,272	Oct. 16	93	550
Fox, Arthur O., Madison, Wis. Certain metal castings	35,543	Dec. 4	93	1915
Fraga, Manuel, Key West, Fla. Remedy for headache and neuralgia	35,285	Oct. 23	93	747
Francisco, Fred E., Lexington, Ky. Certain named medicine	35,276	Oct. 23	93	746
Franklin & Co., E. I., North Attleborough, Mass. Certain named jewelry	35,563	Dec. 11	93	2099
Franks & Co., Charles, New York, N. Y. Certain named sheetings	35,425	Nov. 13	93	1307
Fulton Milling Company, Sioux Falls, S. D. Flour	35,256	Oct. 16	93	548
G. J. Johnson Cigar Company, Grand Rapids, Mich. Cigars	35,263	Oct. 16	93	549
Gandolfi, Moss, Pellerano & Co., Buenos Ayres, Argentina; Paris, France, and Genoa, Italy. Kerosene	35,497	Nov. 27	93	1719
Gardiner-Lucas Company, New York, N. Y. Confectionery in tablet form	35,252	Oct. 16	93	548
Gardner, Robert W., New York, N. Y. Throat-tablets	35,590	Dec. 18	93	2314
Garrettson & Co., F. P., Newport, R. I., and New York, N. Y. Coffee	35,645	Dec. 25	93	2525
George Günther, Jr., Brewing Company, Canton, Md. Beer	35,459	Nov. 20	93	1488
Gerstendörfer Bros., New York, N. Y. Paints and enamels				

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Gerstle, Leopold, Highland Park, Tenn. Remedy for certain named diseases	35,177	Oct. 2	93	186
Gill Brothers & Co., Steubenville, Ohio. Certain named boxes or cartons	35,549	Dec. 4	93	1916
Globe Cabinet Company, Kansas City, Mo. Kitchen-cabinets	35,267	Oct. 16	93	549
Gold Crown Medicine Co., Utica, Mo. Certain named medical compounds	35,210	Oct. 9	93	355
Goodman Manufacturing Co., Troy, N. Y. Collars, cuffs, neckbands, and wristbands	35,317	Oct. 30	93	932
Grape Capsule Company, Allentown, Pa. Medicine in capsule form for certain named diseases	35,578	Dec. 11	93	2100
Greene & Co., W. L., Boston, Mass. Religious periodical	35,555	Dec. 11	93	2098
Grube, Charles H., New York, N. Y. Tonic medicine	35,606	Dec. 18	93	2316
Gundlach Optical Company, Rochester, N. Y. Certain named optical apparatus	35,235	Oct. 9	93	357
H. B. Claflin Company, New York, N. Y. Velvets and velveteens	35,278	Oct. 23	93	746
H-O (Hornby's Oatmeal) Company, New York, N. Y. Meal preparation	35,218	Oct. 9	93	356
H. W. Johns Manufacturing Company, New York, N. Y.; Boston, Mass.; Philadelphia and Pittsburg, Pa.; Columbus, Ohio, and Chicago, Ill. Asbestos cellular-pipe and boiler covering	35,496	Nov. 27	93	1718
Hage & Co., J. D., New York, N. Y. Sugar-syrups	35,186	Oct. 2	93	186
Hahn, John W., San Francisco, Cal. Certain named medicinal preparations	35,462	Nov. 20	93	1488
Hamburger & Sons, A., Los Angeles, Cal. Ladies' shoes	35,514	Dec. 4	93	1912
Hamilton, William C., Topeka, Kans. Remedy for zymotic fevers	35,575	Dec. 11	93	2100
Hammer Society, Tournai, Belgium. Portland cement	35,461	Nov. 20	93	1488
Hammer Society, Tournai, Belgium. Portland cement	35,670	Dec. 25	93	2529
Hampden Watch Company, Canton, Ohio. Watch-movements	35,234	Oct. 9	93	357
Hampden Watch Company, Canton, Ohio. Watch-movements	35,377	Nov. 13	93	1302
Handy & Co., Thomas H., Parish of Orleans, La. Cocktails	35,649	Dec. 25	93	2526
Hardy, William A., Fitchburg, Mass. Antifriction metal	35,508	Nov. 27	93	1720
Harting & Bennett, New York, N. Y. Dried fruits	35,655	Dec. 25	93	2527
Hartshorn, William N., Boston, Mass. Certain named publications	35,511	Dec. 4	93	1912
Haughton, Hugh L., Pittsburg, Pa. Lager-beer	35,225	Oct. 9	93	356
Hecker, John V., Darien, Conn. Cereal products and preparations	35,424	Nov. 13	93	1307
Heissler & Junge Company, Chicago, Ill. Extract of malt	35,358	Oct. 16	93	548
Heyman, George, New York, N. Y. Certain named household furnishings	35,306	Oct. 23	93	749
Hezel Milling Company, East St. Louis, Ill. Flour	35,293	Oct. 23	93	747
Higgins, Frank S., Lewiston, Me. Certain named medicinal compound	35,341	Oct. 30	93	934
Hill & Sons, William, Philadelphia, Pa. Tea	35,223	Oct. 9	93	356
Hill & Sons, William, Philadelphia, Pa. Tea	35,224	Oct. 9	93	356
Hodge, Annie B., Hartford, Conn. Corsets	35,392	Nov. 13	93	1304
Houde & Cie., B., Quebec, Canada. Certain named tobacco and cigarettes	35,428	Nov. 13	93	1308
Howe Scale Company of 1886, Rutland, Vt. Certain named weighing-scales	35,588	Dec. 11	93	2102
Hoyt, Arthur S., New York, N. Y. Ground gluten, cereal foods, and starch	35,663	Dec. 25	93	2528
Huenefeld, Ernst H., Cincinnati, Ohio. Stoves, ranges, furnaces, ovens, and heating-drums	35,673	Dec. 25	93	2529
Huenefeld, Ernst H., Cincinnati, Ohio. Stoves, ranges, furnaces, ovens, and heating-drums	35,674	Dec. 25	93	2529
Huet & Ligier, Paris, France. Certain named fancy metallic articles	35,313	Oct. 23	93	750
Hull Coal and Coke Company, Roanoke, Va. Coal and coke	35,536	Dec. 4	93	1914
Hunt & Co., Chicago, Ill. Tea	35,414	Nov. 13	93	1306
Hunt & Co., Chicago, Ill. Tea	35,415	Nov. 13	93	1306
Hunt & Co., Chicago, Ill. Tea	35,416	Nov. 13	93	1306
Hunt & Co., Chicago, Ill. Tea	35,417	Nov. 13	93	1306
Hunt & Co., Chicago, Ill. Tea	35,418	Nov. 13	93	1307
Hunt & Co., Chicago, Ill. Tea	35,572	Dec. 11	93	2100
Hunt, Henry M., St. Paul, Minn. Certain named tonic	35,573	Dec. 11	93	2100
Hunt & Hunt, St. Paul, Minn. Certain named specific				
Ichthyol-Gesellschaft Cordes, Hermanni & Co., Hamburg, Germany. Certain named chemical, pharmaceutical, surgical, dietetic, and cosmetic products and preparations	35,548	Dec. 4	93	1916
International Metal Lath Company, New York, N. Y. Expanded sheet-metal structures	35,203	Oct. 2	93	188
J. A. Wright & Company, Keene, N. H. Metal-polish	35,266	Oct. 16	93	549
J. F. Humphreys & Company, Bloomington, Ill. Certain named groceries	35,477	Nov. 20	93	1490
J. F. Humphreys & Company, Bloomington, Ill. Certain named groceries	35,478	Nov. 20	93	1490
J. F. Humphreys & Company, Bloomington, Ill. Certain named groceries	35,479	Nov. 20	93	1490
J. G. Haas Soap Company, St. Louis, Mo. Soap powder	35,299	Oct. 23	93	748
J. Hungerford Smith Company, Rochester, N. Y. Syrup dispensed in soda-fountains	35,595	Dec. 18	93	2314
J. J. Newman Lumber Company, Hattiesburg, Miss. Lumber	35,509	Nov. 27	93	1720
James C. Lindsay Hardware Company, Pittsburg, Pa. Hardware, cutlery, and edge-tools	35,627	Dec. 18	93	2318
Johansen Bros., St. Louis, Mo. Certain named shoes	35,240	Oct. 16	93	547
Jolles, Adolf, Vienna, Austria-Hungary. Nutritive ferruginous preparations	35,183	Oct. 2	93	186
Jones & Sons, D., New York, N. Y. Shirts, bed-robes, and pajamas	35,450	Nov. 20	93	1487
Jourdain, Jean B., St. Jean Baptiste de Rouville, Canada. Certain named remedy	35,408	Nov. 13	93	1305
Karczewski, Anton, Colegrove, Cal. Cure for certain named diseases	35,178	Oct. 2	93	185
Keuffel & Esser Company, New York, N. Y. Mathematical and drawing instruments	35,513	Dec. 4	93	1912
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,378	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,379	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,380	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,381	Nov. 13	93	1302
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,382	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,383	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,384	Nov. 13	93	1303
Keystone Watch Case Company, Philadelphia, Pa. Watches, watchcases, and watch-movements	35,630	Dec. 25	93	2524
Kiger, Cornelius A., Kansas City, Mo. Watches, clocks, cutlery, and gold and fountain pens	35,388	Nov. 13	93	1305
Kirdorf, Johannes, Berlin, Germany. Fountain-pens, penholders, and gold pens	35,557	Dec. 11	93	2098
Kirk, Geary & Co., Sacramento and San Francisco, Cal. Dry glass photographic plates	35,629	Dec. 25	93	2524
Klocke, Frank W., St. Louis, Mo. Headache-powders	35,208	Oct. 9	93	355
Krogh Manufacturing Company, San Francisco, Cal. Mineral machinery and implements	35,446	Nov. 13	93	1310
L. Wolff Manufacturing Company, Chicago, Ill. Metal trimmings for plumbers' supplies	35,364	Oct. 30	93	937
La Crosse Plow Company, La Crosse, Wis. Grain-seeders and grain-drills	35,445	Nov. 13	93	1309
La Prelle-Williams Shoe Company, St. Louis, Mo. Shoes	35,244	Oct. 16	93	547
La Prelle-Williams Shoe Company, St. Louis, Mo. Children's shoes	35,284	Oct. 23	93	747
Ladd & Coffin, New York, N. Y. Perfumes, toilet waters, and colognes	35,534	Dec. 4	93	1914
Lagerkrans, Adolph, Oakland, Nebr. Liniment	35,401	Nov. 13	93	1304
Laing, Thomas F., Bound Brook, N. J. Certain named liniment	35,287	Oct. 23	93	747
Lalo, Henri, l'Isle-sur-Sorgue, France. Sweet-almond biscuit	35,422	Nov. 13	93	1307
Lalo, Henri, l'Isle-sur-Sorgue, France. Sweet-almond biscuit	35,423	Nov. 13	93	1307
Landis Machine Company, St. Louis, Mo. Linen or cotton thread	35,156	Oct. 2	93	184
Leonardi & Co., S. B., Tampa, Fla. Certain named proprietary medicines	35,637	Dec. 25	93	2525
Lever Brothers, Limited, Port Sunlight, England. Certain named cleaning materials	35,228	Oct. 9	93	357
Lever Brothers, Limited, Port Sunlight, England. Certain named cleaning materials	35,229	Oct. 9	93	357
Levinstein, Israel, Baltimore, Md. Boots, shoes, and overshoes	35,166	Oct. 2	93	185
Libby, McNeill & Libby, Chicago, Ill. Certain named packing-house products	35,602	Dec. 18	93	2315
Litchfield Manufacturing Co., Webster City, Iowa. Grinders, shoveling-boards, and end-gates	35,314	Oct. 23	93	750
Liviérato Bros., New York, N. Y. Coffee	35,358	Oct. 30	93	936
"Locomobile" Company of America, New York, N.Y. Automatically-propelled wheeled vehicles.	35,677	Dec. 25	93	2530

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Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Loewitz & Rohlfs, Ottensen, Germany. Gutta-percha paper	35,320	Oct. 30	93	932
Loomer, Justus, Everett, Mass. Kidney, blood, and nerve cure	35,607	Dec. 18	93	2316
Low, Abbot A., New York, N. Y. Maple syrup and maple sugar	35,213	Oct. 9	93	355
Low, Abbot A., New York, N. Y. Preserves, extracts, wine, jam, and jelly made from the raspberry	35,349	Oct. 30	93	935
Low, Abbot A., New York, N. Y. Preserved cherries and jelly and wine made from the cherry	35,350	Oct. 30	93	935
Low, Abbot A., New York, N. Y. Canned and preserved blueberries	35,351	Oct. 30	93	935
Low, Abbot A., New York, N. Y. Jelly and butter made from the crab-apple	35,352	Oct. 30	93	936
Low, Abbot A., New York, N. Y. Preserves and jelly derived from the cranberry	35,353	Oct. 30	93	936
Low, Abbot A., New York, N. Y. Wine and jelly made from the wild black cherry	35,354	Oct. 30	93	936
Low, Abbot A., New York, N. Y. Wine and preserves	35,355	Oct. 30	93	936
Low, Abbot A., New York, N. Y. Jelly, butter, cider, and boiled cider made from apples	35,469	Nov. 20	93	1489
Low, Abbot A., New York, N. Y. Wine, jelly, and preserves made from wild grapes	35,470	Nov. 20	93	1489
Low, Abbot A., New York, N. Y. Spruce-gum	35,651	Dec. 25	93	2526
Low, Abbot A., New York, N. Y. Maple-sugar and maple-syrup	35,652	Dec. 25	93	2526
Low, Abbot A., New York, N. Y. Maple-sugar and maple-syrup	35,653	Dec. 25	93	2526
Low, Abbot A., New York, N. Y. Maple-sugar and maple-syrup	35,654	Dec. 25	93	2527
Low, Abbot A., New York, N. Y. Maple-sugar and maple-syrup	35,389	Nov. 13	93	1303
Lütters & Cie., C., Solingen, Germany. Certain named cutlery and surgical instruments	35,261	Oct. 16	93	549
M. A. Gedney Pickling Company, Minneapolis, Minn. Certain named foods and relishes	35,498	Nov. 27	93	1719
M. A. Gedney Pickling Company, Minneapolis, Minn. Certain named foods and relishes	35,603	Dec. 18	93	2315
M. C. Wetmore Tobacco Company, St. Louis, Mo. Plug-tobacco	35,590	Dec. 18	93	2314
Mahony, William F., Washington, D. C. Eye-shades	35,599	Dec. 18	93	2315
Malted Cereals Company, Burlington, Vt. Certain named cereal products	35,582	Dec. 11	93	2101
Manilla Manufacturing Co., Roaring Spring, Pa. Salves, tablets, and ointments	35,550	Dec. 4	93	1916
Manogue-Pidgeon Iron Company, Memphis, Tenn. Tin-plate	35,160	Oct. 2	93	184
Mathieu & Co., J. P., Philadelphia, Pa. Certain named skins and leather	35,161	Oct. 2	93	184
Mathieu & Co., J. P., Philadelphia, Pa. Certain named skins and leather	35,184	Oct. 2	93	186
Matthews, Julius A., New York, N. Y. Tea	35,589	Dec. 11	93	2102
"Maud S" Windmill and Pump Company, Lansing, Mich. Windmills and pumps	35,198	Oct. 2	93	188
Mayer, Amelia, Omaha, Nebr. Certain named toilet article	35,197	Oct. 2	93	187
Mayer, Leopold, New York, N. Y. Talcum and tooth powder	35,647	Dec. 25	93	2526
McCulloch, John W., Owensborough, Ky. Whisky	35,569	Dec. 11	93	2098
McGuire, Mary A., New York, N. Y. Hats	35,650	Dec. 25	93	2526
McMurray & Co., William, St. Paul, Minn. Flavoring extracts	35,215	Oct. 9	93	356
McSparran, Edgar L., Goshen, Pa. Certain named dairy products	35,641	Dec. 25	93	2525
Medicis Leonie, veuve Tricard, Courbevoie, France. Horse-liniments	35,642	Dec. 25	93	2525
Medicis Leonie, veuve Tricard, Courbevoie, France. Horse-liniments	35,220	Oct. 9	93	356
Michel, Jacob, Philadelphia, Pa. Flour	35,176	Oct. 2	93	186
Milburn, Thomas, Toronto, Canada. Liniment	35,361	Oct. 30	93	937
Miller, Elenore, Kansas City, Mo. Flour	35,179	Oct. 2	93	186
Moore Chemical and Manufacturing Company, Kansas City, Mo. Disinfectants	35,394	Nov. 13	93	1304
Morris Bros., New York, N. Y. Suspenders and shoulder-braces	35,208	Oct. 16	93	549
Mossberg Co., Frank, Attleborough, Mass. Bells	35,546	Dec. 4	93	1916
Muhlhauser, Sigmund, Cleveland, Ohio. Certain named salve	35,393	Nov. 13	93	1304
Muir, Erwin T., Chicago, Ill. Corsets	35,300	Oct. 23	93	748
Munyon's Homeopathic Home Remedy Company, Philadelphia, Pa. Soaps	35,420	Nov. 13	93	1307
Muscatine Oat Meal Company, Muscatine, Iowa. Coffee substitute	35,211	Oct. 9	93	355
Musgrove, Joseph A., Ottawa, Canada. Certain named medical compounds	35,301	Oct. 23	93	748
N. K. Fairbank Company, Chicago, Ill. Laundry soap	35,397	Nov. 13	93	1304
Naamlooze Vennootschap Eau de Cologne Fabriek, Voorheen J. C. Boldoot, Amsterdam, Netherlands. Certain named toilet preparations	35,602	Dec. 25	93	2528
National Biscuit Company, Jersey City, N. J., and Chicago, Ill. Certain named bakery products and confectionery	35,466	Nov. 20	93	1488
National Brewery Company, St. Louis, Mo. Beer	35,260	Oct. 16	93	549
National Nutrient Company, Jersey City, N. J. Milk products and products containing milk	35,499	Nov. 27	93	1719
Navena Co., Milton, Mass. Non-alcoholic beverages	35,632	Dec. 25	93	2524
Nederlandsche Gutta Percha Maatschappij, Hague, Netherlands. Gutta-percha, caoutchouc, and rubber and goods made thereof	35,222	Oct. 9	93	356
Nervine Food Co., Buffalo, N. Y. Vegetable and cereal preparations for food drinks	35,429	Nov. 13	93	1308
Neu Guinea Compagnie, Berlin, Germany. Twist-tobacco	35,430	Nov. 13	93	1308
Neu Guinea Compagnie, Berlin, Germany. Twist-tobacco	35,542	Dec. 4	93	1915
Neuralgyline Co., Sistersville, W. Va. Headache tablets or remedies	35,506	Nov. 27	93	1719
New Home Sewing Machine Company, Orange, Mass., and New York, N. Y. Sewing-machines, attachments, and accessories	35,471	Nov. 20	93	1489
New York Condensed Milk Company, New York, N. Y. Certain named dairy products	35,343	Oct. 30	93	934
New York Quinine and Chemical Works, New York, N. Y. Certain named medicines	35,512	Dec. 4	93	1912
New York Standard Watch Company, Jersey City, N. J. Watches, watchcases, and watch-movements	35,245	Oct. 16	93	547
Norden, Hermann, New York, N. Y. Sheetings and drills	35,443	Nov. 13	93	1309
North Western Horse Nail Manufacturing Company, Chicago, Ill. Horseshoe-nails	35,551	Dec. 4	93	1916
North Western Horse Nail Manufacturing Company, Chicago, Ill. Horseshoe-nails	35,265	Oct. 16	93	549
"Noval" Gesellschaft mit Beschränkter Haftung, Berlin, Germany. Polish-paste for silver	35,657	Dec. 25	93	2527
Oakdale Manufacturing Company, Providence, R. I. Oleomargarin and butterin	35,303	Oct. 23	93	749
Obear-Nester Glass Company, St. Louis, Mo., and East St. Louis, Ill. Prescription-bottles	35,304	Oct. 23	93	749
Obear-Nester Glass Company, St. Louis, Mo., and East St. Louis, Ill. Prescription-bottles	35,305	Oct. 23	93	749
Obear-Nester Glass Company, St. Louis, Mo., and East St. Louis, Ill. Prescription-bottles	35,220	Oct. 9	93	357
Oelschlaeger Bros., New York, N. Y. Clinical thermometers	35,597	Dec. 18	93	2315
Ohio Baking Company, Cleveland, Ohio. Certain named bakery and confectionery products	35,675	Dec. 25	93	2529
Oneida Community, Limited, Kenwood and Niagara Falls, N. Y. Certain named hardware	35,323	Oct. 30	93	932
Otis, Frederick J., Apollonia, Wis. Fountain-pens	35,180	Oct. 2	93	186
Orienta Chemical Co., Mamaroneck, N. Y. Antiseptic	35,531	Dec. 4	93	1914
Ortega & Knapp, Los Angeles, Cal. Certain named relish	35,658	Dec. 25	93	2527
Ovine Company, New York, N. Y. Substitute for eggs	35,336	Oct. 30	93	934
Pacific Pine Needle Company, San Francisco, Cal. Certain named pine-needle products	35,347	Oct. 30	93	935
Pan Confection Company, Chicago, Ill. Candies	35,348	Oct. 30	93	935
Pan Confection Company, Chicago, Ill. Candies	35,365	Oct. 30	93	937
Parker, Charles F., Somerville, Mass. Shoemakers' outfits or kits of tools	35,432	Nov. 13	93	1308
Pearl Lustre Dye Co., Sebec, Me. Certain named dyes	35,399	Nov. 13	93	1304
Pease, Joseph G., New York, N. Y. Dentifrice	35,302	Oct. 23	93	748
Peek, David T., New York, N. Y. Pianos	35,311	Oct. 23	93	750
Peerless Gas Light Company, Chicago, Ill. Incandescent mantles and attachments therefor	35,398	Nov. 13	93	1304
Péne, Xavier, New York, N. Y. Toilet and medicinal preparation	35,635	Dec. 25	93	2524
Pfunder, Marie J., Portland, Oreg. Blood-purifier	35,319	Oct. 30	93	932
Phalanx Silk Mill, Jersey City, N. J. Silk dress goods or silk fabrics	35,576	Dec. 11	93	2100
Pheelan, John J., New York, N. Y. Remedy for certain named diseases				
Philadelphia Watch Case Company, Riverside, N. J. Watches, watchcases, and watch-movements	35,385	Nov. 13	93	1303

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Philadelphia Watch Case Company, Riverside, N. J. Watches, watchcases, and watch-movements	35,386	Nov. 13	93	1303
Philadelphia Watch Case Company, Riverside, N. J. Watches, watchcases, and watch-movements	35,387	Nov. 13	93	1303
Phoenix Cont Pad Company, Baltimore, Md. Coat-pads	35,158	Oct. 2	93	184
Pierson, Romaine, Chicago, Ill. Laxative tablets	35,402	Nov. 13	93	1304
Pittsburgh Stove and Range Company, Pittsburg, Pa. Stoves, ranges, furnaces, and parts thereof	35,481	Nov. 20	93	1490
Pneumatic Carriage Company, New York, N. Y. Motor-driven vehicles	35,816	Oct. 23	93	750
Porter, Henry K., Chelsea, Mass. Bolt-clippers	35,672	Dec. 25	93	2529
Pray-Small Company, Auburn, Me., and Boston, Mass. Boots and shoes	35,165	Oct. 2	93	185
Priebe & Simater, Minonk, Ill. Dressed poultry	35,475	Nov. 20	93	1489
Puritan Corset Company, Kalamazoo, Mich. Corsets	35,515	Dec. 4	93	1912
Rager, William H., Omaha, Nebr. Washing compound	35,665	Dec. 25	93	2528
Ragué, Laura von, Barmen, Germany. Metallic percussion-caps	35,201	Oct. 2	93	188
Raymond Button Company of Baltimore City, Baltimore, Md. Certain named garment-fasteners	35,559	Dec. 11	93	2098
Regis & Co., E. M., Haverhill, Mass. Certain named medicine	35,503	Nov. 27	93	1719
Remington Arms Company, Ilion, N. Y. Firearms	35,485	Nov. 20	93	1490
Reversible Collar Company, Boston and Cambridge, Mass. Stay-tape	35,516	Dec. 4	93	1912
Rice, Arthur L., Watertown, N. Y. Paint composition	35,458	Nov. 20	93	1487
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes and leather for same	35,396	Nov. 13	93	1304
Rice & Hutchins, Incorporated, Boston, Mass. Boots and shoes and leather for same	35,592	Dec. 18	93	2314
Rich, Augustus E., Fall River, Mass. Machines for washing bottles	35,487	Nov. 20	93	1490
Richardson, Alonzo F., New York, N. Y. Hair-tonic	35,605	Dec. 18	93	2316
Richardson Shoe Company, Menominee, Mich. Shoes	35,565	Dec. 11	93	2099
Robinson-Danforth Milling Company, St. Louis, Mo. Manufactured cereal products	35,569	Dec. 11	93	2099
Roger & Gallet, Paris, France. Certain named toilet preparations	35,570	Dec. 11	93	2099
Rosskam, Gerstley & Co., Philadelphia, Pa. Whisky	35,200	Oct. 23	93	747
Rosskam, Gerstley & Co., Philadelphia, Pa. Whisky	35,648	Dec. 25	93	2526
Rothschild Bros., St. Louis, Mo. Hats	35,390	Nov. 13	93	1303
Rothschild, Meyers & Co., New York, N. Y. Enameled-steel utensils for culinary and surgical purposes	35,507	Nov 27	93	1720
Rotkowitz Bros., New York, N. Y. Salves and medicinal skin-soaps	35,337	Oct. 30	93	934
Rotkowitz Bros., New York, N. Y. Certain named medicines and soap	35,338	Oct. 30	93	934
S. M. Howes Company, Boston, Mass. Dampers for hot-air pipes and smoke-pipes	35,482	Nov. 20	93	1490
Saiz y Carlos, Ramón, Madrid, Spain. Remedies for diseases of stomach and intestines	35,634	Dec. 25	93	2524
Salts Textile Manufacturing Company, Bridgeport, Conn., and New York, N. Y. Velvets	35,517	Dec. 4	93	1912
Sander, Johannes A., Hamburg, Germany. Certain named chemical, pharmaceutical, and surgical products and preparations	35,639	Dec. 25	93	2525
Schenck & Co., J. P., Matteawan, N. Y. Remedy for certain named diseases	35,340	Oct. 30	93	934
Schenkein, Samuel, New York, N. Y. Certain named devices and articles for rearing prematurely and weakly born infants	35,335	Oct. 30	93	934
Schlageter & Nölck, New York, N. Y. Writing-paper and mourning paper and envelops	35,372	Nov. 13	93	1302
Schmidt, Jacob A., Solingen, Germany. Cutlery, edge-tools, and hardware	35,587	Dec. 11	93	2101
Schroeder, Charles W., Green Bay, Wis. Chemical and pharmaceutical remedies	35,640	Dec. 25	93	2525
Scott & Co., Cincinnati, Ohio. Stovepipe	35,209	Oct. 16	93	549
Scott & Starling, Jacksonville, Tex. Internal remedies for certain named diseases	35,636	Dec. 25	93	2524
Sea Foam Baking Powder Company, New York, N. Y. Baking-powder	35,360	Oct. 30	93	937
Sears, Roebuck & Company, Chicago, Ill. Organs	35,613	Dec. 18	93	2316
Sears, Roebuck & Company, Chicago, Ill. Organs	35,614	Dec. 18	93	2316
Sears, Roebuck & Company, Chicago, Ill. Organs	35,615	Dec. 18	93	2316
Sears, Roebuck & Company, Chicago, Ill. Organs	35,616	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,617	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,618	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,619	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,620	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,621	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Organs	35,622	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Pianos	35,623	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Pianos	35,624	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Sewing-machines	35,625	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Sewing-machines	35,626	Dec. 18	93	2317
Sears, Roebuck & Company, Chicago, Ill. Bicycles	35,332	Oct. 30	93	933
Seeger & Clarke, New York, N. Y. Electrical curative apparatus	35,344	Oct. 30	93	939
Seely, Jared T., Paterson, N. J. Certain named proprietary medicines	35,250	Oct. 16	93	548
Seljas, Simeon, New York, N. Y. Remedy for certain named diseases	35,362	Oct. 30	93	937
Seneca Lake Salt Company, New York, N. Y. Salt	35,526	Dec. 4	93	1913
Seydel-Reder Candy Co., St. Louis, Mo. Chewing-gum	35,270	Oct. 16	93	549
Shaeffer, Harry B., Altoona, Pa. Flash-lamps and flash-light powder therefor	35,324	Oct. 30	93	933
Silver, J. C. & B. C., New York, N. Y. Gold and silver ware, jewelry, and plated ware	35,207	Oct. 9	93	355
Simen, Gottfried D., Allegheny, Pa. Boots and shoes	35,533	Dec. 4	93	1914
Simmons & Hammond, Portland, Me. Soda-syrup and root-beer	35,369	Oct. 30	93	938
Simonds Manufacturing Company, Fitchburg, Mass., and Chicago, Ill. Handsaws	35,237	Oct. 9	93	357
Simonds Manufacturing Company, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Handsaws	35,238	Oct. 9	93	358
Simonds Manufacturing Company, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Handsaws	35,239	Oct. 9	93	358
Simonds Manufacturing Company, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Handsaws	35,583	Dec. 11	93	2101
Simonds Manufacturing Company, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Handsaws	35,584	Dec. 11	93	2101
Simonds Manufacturing Company, Fitchburg, Mass.; New York, N. Y.; Chicago, Ill., and San Francisco, Cal. Handsaws	35,585	Dec. 11	93	2101
Sir Elkanah Armitage & Sons, Limited, Manchester, England. Cotton piece goods	35,279	Oct. 23	93	746
Sir Elkanah Armitage & Sons, Limited, Manchester, England. Cotton piece goods	35,280	Oct. 23	93	746
Sloan, Earl S., Boston, Mass. Certain named medicine	35,406	Nov. 13	93	1305
Smith-Courtney Company, Richmond, Va. Antifriction and bearing metal	35,586	Dec. 11	93	2101
Smith, David H., Buffalo, N. Y. Coffee substitutes	35,468	Nov. 20	93	1489
Smith-Gardner Co., New York, N. Y. Remedies for certain named diseases	35,251	Oct. 16	93	548
Smith, Henry B., Chicago, Ill. Wheat-flour	35,527	Dec. 4	93	1913
Smith, John F., Palmer, Ind. Ter. Cleaning compounds	35,206	Oct. 23	93	748
Smith, Kline & French Company, Philadelphia, Pa. Food for infants and invalids	35,346	Oct. 30	93	935
Smith, Samuel T. G., St. Louis, Mo. Desiccated and granulated eggs	35,659	Dec. 25	93	2527
Smith & Scott, Paducah, Ky. Plug chewing-tobacco	35,431	Nov. 13	93	1308
Smith, Thomas, Jr., New York, N. Y. Boiler-cleaning compound	35,230	Oct. 9	93	357

Alphabetical list of registrants of trade-marks, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Société en Commandite par Actions Produits Alimentaires Louit Frères et Cie., Bordeaux, France. Mustard	35,568	Dec. 11	93	2099
Société l'Aster, St. Denis, France. Vehicles and motors therefor	35,315	Oct. 23	93	750
Sotomayor, Mucio P., Laredo, Tex. Cleaning compound for steam-boilers	35,433	Nov. 13	93	1308
Southern Rock Island Plow Company, Dallas, Tex. Certain named wheeled vehicles	35,676	Dec. 25	93	2530
Sozo Supply Co., Newark, N. J. Furniture-polish	35,666	Dec. 25	93	2528
Sparrow & Co., J. Audley, London, England. Linen goods	35,681	Dec. 25	93	2524
Spencerian Pen Company, New York, N. Y. Certain named articles of stationery	35,373	Nov. 13	93	1302
Sprague, George W., South Presque Isle, Me. Salve	35,581	Dec. 11	93	2101
Springfield Breweries Company, Springfield, Mass. Ale	35,291	Oct. 23	93	747
Springfield Breweries Company, Springfield, Mass. Ale	35,644	Dec. 25	93	2525
St. Louis Condensed Milk Company, St. Louis, Mo. Condensed milk	35,601	Dec. 18	93	2315
Steel, Firm of Robert, Philadelphia, Pa. Certain named beverages	35,237	Oct. 16	93	548
Stein & Langlos, New York, N. Y. Badges, buttons, and pins	35,170	Oct. 2	93	185
Sterrett, Samuel O., Duluth, Minn. Certain named medicinal preparation	35,407	Nov. 13	93	1305
Stirling Silk Manufacturing Company, Stirling, N. J., and New York, N. Y. Silk	35,206	Oct. 9	93	355
Stockum, Adam, Dayton, Ohio. Cleansing compound for machinery-belts	35,195	Oct. 2	93	187
Stoppel & Andrews, Cleveland, Ohio. Compound or mixture for making molds	35,434	Nov. 13	93	1308
Stowe, Fuller & Co., Cleveland, Ohio. Fire-brick	35,628	Dec. 18	93	2318
Strauss, Sachs & Co., New York, N. Y. Bone collar-buttons	35,558	Dec. 11	93	2098
Summers, Henry B., Baltimore, Ohio. Medicine for certain named diseases	35,206	Oct. 9	93	355
Swan & Finch Company, New York, N. Y. Certain named oil, grease, or compound	35,297	Oct. 23	93	748
Sweet, Orr & Co., Newburg, N. Y. Sack coats	35,449	Nov. 20	93	1487
Swetland, Truman M., Cleveland, Ohio. Chocolates	35,254	Oct. 16	93	548
Swetland, Truman M., Cleveland, Ohio. Chocolates	35,421	Nov. 13	93	1307
Swindell, James D., Pittsburg, Pa. Cement	35,585	Dec. 4	93	1914
Tabor, Thomas H., Ellijay, Ga. Washing compound	35,538	Dec. 4	93	1915
Tabor, Thomas H., Ellijay, Ga. Washing fluid	35,539	Dec. 4	93	1915
Tannenbaum & Co., L., New York, N. Y. American turquoise	35,169	Oct. 2	93	185
Tanqueray, Gordon & Company, Limited, London, England. Gin	35,465	Nov. 20	93	1488
Thibouville-Lamy & Co., Jerome, New York, N. Y. Musical instruments excepting pianos and their parts	35,612	Dec. 18	93	2316
Thomas, Robert, Jr., Thomasville, Ga. Medicated plasters	35,609	Dec. 18	93	2316
Thomas, Robert, Jr., Thomasville, Ga. Medicated plasters	35,610	Dec. 18	93	2316
Thomas' Sons, J. R., Youngstown, Ohio. Flour	35,221	Oct. 9	93	356
Toof, Edwin J., New Haven, Conn. Sewing-machines and accessories	35,366	Oct. 30	93	937
Toof, Edwin J., New Haven, Conn. Sewing-machines and accessories	35,367	Oct. 30	93	937
Torrey, Bates, Boston, Mass. Type-writer manuals and reference-sheets used therewith	35,490	Nov. 27	93	1718
Torrey, Charles A., Jr., Philadelphia, Pa. Ointment	35,608	Dec. 18	93	2316
Trommer Company, Fremont, Ohio. Medicament	35,403	Nov. 13	93	1305
Trommer Company, Fremont, Ohio. Medicament	35,404	Nov. 13	93	1305
Tucker, William L., Waco, Tex. External remedies	35,580	Dec. 11	93	2101
Typewriter Cushion Key Company, Newark, N. J. Carbon-paper	35,448	Nov. 20	93	1487
U. S. Chemical and Power Company, Kittery, Me., and Boston, Mass. Certain named fire-extinguisher	35,554	Dec. 4	93	1916
Union Bag and Paper Company, Chicago, Ill. Paper bags	35,556	Dec. 11	93	2098
Union Saw Manufacturing Company of New Jersey, Camden, N. J. Hacksaws and butcher-saws	35,370	Oct. 30	93	938
United States Playing Card Company, Cincinnati, Ohio. Playing-cards	35,374	Nov. 13	93	1302
Utica Drop Forge and Tool Company, Utica and New York, N. Y. Nippers, pincers, and cutting-pliers	35,363	Oct. 30	93	937
Vacuum Oil Company, Rochester, N. Y. Compound for currying leather	35,232	Oct. 9	93	357
Van Vleet-Mansfield Drug Company, Memphis, Tenn. Medicinal preparations for certain named diseases	35,638	Dec. 25	93	2525
Vapo-Cresolene Company, Stanley, N. J., and New York, N. Y. Certain named medicinal compounds	35,286	Oct. 23	93	747
Vapo-Cresolene Company, Stanley, N. J., and New York, N. Y. Medical compounds for the cure of lung and throat diseases	35,577	Dec. 11	93	2100
Vater & Co., Gesellschaft mit Beschränkter Haftung, Biebrich, Germany. Certain named dough-ware	35,217	Oct. 9	93	356
Vlasto, Demetrius J., New York, N. Y. Cotton sheetings	35,593	Dec. 18	93	2314
W. P. Fuller & Company, San Francisco, Sacramento, Los Angeles, Oakland, San Diego, and Stockton, Cal.; Portland, Oreg., and Seattle, Wash. Lubricating-oils	35,668	Dec. 25	93	2529
Wacker & Birk Brewing and Malting Company, Chicago, Ill. Lager-beer	35,411	Nov. 13	93	1305
Walton & Co., L. L., Williamsport, Pa. Medicine	35,345	Oct. 30	93	934
Wanamaker, John, Philadelphia, Pa., and New York, N. Y. Shirts, pajamas, and bath-robes	35,318	Oct. 30	93	932
Wanzer & Sons, Sidney, Chicago, Ill. Bottled milk	35,259	Oct. 16	93	548
Ward, Hanbury & Co., London, England. Cotton fabrics	35,518	Dec. 4	93	1912
Ward, Hanbury & Co., London, England. Cotton fabrics	35,519	Dec. 4	93	1913
Ward, Hanbury & Co., London, England. Cotton fabrics	35,520	Dec. 4	93	1913
Ward, Seth, Sr., Princeton, Ind. Back-band hooks	35,442	Nov. 13	93	1309
Warnier & Co., M., New York, N. Y. Sizing and finishing preparations for textile fabrics	35,504	Nov. 27	93	1719
Warnier & Co., M., New York, N. Y. Sizing and finishing preparations for textile fabrics	35,505	Nov. 27	93	1719
Webster & Son, John A., Boston, Mass. Rubber water-bottles and syringes	35,330	Oct. 30	93	933
Wells-Whitehead Tobacco Company, Wilson, N. C. Cigarettes	35,194	Oct. 2	93	187
Westcott Chuck Company, Oneida, N. Y. Lathe and drill chucks	35,486	Nov. 20	93	1490
Western Electrical Supply Company, St. Louis, Mo. Certain named electrical appliances	35,204	Oct. 2	93	188
Whitcomb, Charles B., Holbrook, Mass. Leather boots and shoes	35,162	Oct. 2	93	184
White-Warner Company, Taunton, Mass. Stoves, ranges, and heating apparatus	35,368	Oct. 30	93	938
Whittemore Bros. & Co., Boston, Mass. Paste or wax for polishing shoes	35,231	Oct. 9	93	357
Whittier, Francis F., Brookline, Mass. Mineral waters and drinks made from same	35,464	Nov. 20	93	1487
Wichert & Gardiner, New York, N. Y. Certain named shoes	35,164	Oct. 2	93	185
Wilburine Oil Works, Limited, New York, N. Y. Illuminating-oil	35,264	Oct. 16	93	549
Wilhoft, Frank Y., New York, N. Y. Certain named medicines and surgical appliances	35,547	Dec. 4	93	1916
Wilkinson, John C., Kobe, Japan. Mineral water	35,643	Dec. 25	93	2525
Winter's Metallic Paint Company, Iron Ridge, Wis. Metallic paints	35,669	Dec. 25	93	2529
Wisse, Iman, Grand Rapids, Mich. Certain named proprietary medicines and remedies	35,248	Oct. 16	93	547
Wissner, Otto, New York, N. Y. Pianos	35,480	Nov. 20	93	1490
Wm. J. Moxley, Chicago, Ill. Butterin or oleomargarin	35,656	Dec. 25	93	2527
Wolf, August, Buffalo, N. Y. Canvas	35,157	Oct. 2	93	184
Wolfe, David E., Coldwater, Mich. Certain named medicines	35,249	Oct. 16	93	548
Wolferman, Fred, Kansas City, Mo. Canned meats	35,474	Nov. 20	93	1489
Woolley & Co., George, Manchester, England. Drillings and sheetings	35,494	Nov. 27	93	1718
Wright & Co., Hoboken, N. J. Bust-forms	35,591	Dec. 18	93	2314
Wright & Hills Linseed Oil Company, Chicago, Ill. Veterinary remedies	35,175	Oct. 2	93	185
Yglesias & Yglesias, Los Angeles, Cal. Certain named medicinal compounds	35,342	Oct. 30	93	934

ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Adams, Irwin M., New York, N. Y. "Derma (I. McG. A.) Tone." (For a Medicine)	7,948	Dec. 4	93	1725
Ahrens, J. W. H., New York, N. Y. "Pearl-E-Teeth." (For a Tooth-Wash)	7,813	Oct. 9	93	198
Amend, Joseph E., Fond du Lac, Wis. "Sand Stone Brand." (For Butter)	7,894	Nov. 20	93	1315
American Brewing Association, Houston, Tex. "The Blue and the Gray." (For Beer)	7,908	Nov. 20	93	1315
American Brewing Company, St. Louis, Mo. "A. B. C." (For Beer)	7,869	Nov. 13	93	1127
American Brewing Company, St. Louis, Mo. "Black Bass." (For Beer)	7,870	Nov. 13	93	1127
American Brewing Company, St. Louis, Mo. "Black Bass Beer." (For Beer)	7,871	Nov. 13	93	1127
American Brewing Company, St. Louis, Mo. "A. B. C." (For Beer)	7,909	Nov. 20	93	1315
American Brewing Company, St. Louis, Mo. "A. B. C." (For Beer)	7,910	Nov. 20	93	1315
American Brewing Company, St. Louis, Mo. "A. B. C." (For Beer)	7,911	Nov. 20	93	1315
American Lithographic Company, New York, N. Y. "Armoza." (For Cigars)	7,902	Nov. 20	93	1315
Atlantic Match Company, Philadelphia, Pa. "Lightning Parlor Match." (For Matches)	7,886	Oct. 23	93	557
Baum, William, Washington, D. C. "Will B." (For Cigars)	7,977	Dec. 18	93	2107
Bell Manufacturing Company, St. Louis, Mo. "Star Metal Polish." (For Metal-Polish)	7,884	Nov. 13	93	1127
Bellamy, Frank E., Ames, Iowa. "Bellamy's Iron Grasp Cement." (For Cement)	7,948	Dec. 4	93	1725
Bennison, Charles E., Boston, Mass. "Red Cross." (For Disinfectants)	7,824	Oct. 16	93	363
Berg, C. T., Baltimore, Md. "Berg's Famous Bread." (For Bread)	7,992	Dec. 18	93	2107
Blaskower, Max, San Francisco, Cal. "U. S. Grant." (For Cigars)	7,817	Oct. 9	93	198
Boston Confectionery Co., New York, N. Y. "The Boston." (For Candy)	7,815	Oct. 9	93	198
Buxbaum Bros., New York, N. Y. "Trimble Cigar." (For Cigars)	7,899	Oct. 2	93	1
C. F. Sauer Company, Richmond, Va. "Good Luck." (For Flavoring Extracts)	8,000	Dec. 25	93	2329
C. F. Sauer Company, Richmond, Va. "Old Dominion." (For Flavoring Extracts)	8,001	Dec. 25	93	2329
Canniff & Waring, Newburg, N. Y. "B. B. Odell, Jr." (For Cigars)	7,818	Oct. 9	93	198
Cleveland & Sandusky Brewing Company, Sandusky, Ohio. "Crystal Rock." (For Beer)	7,912	Nov. 20	93	1315
Cliff, August, Chicago, Ill. "Horse Radish Jack." (For Horse-Radish)	7,899	Nov. 20	93	1315
Connelly & Sons, James, Philadelphia, Pa. "Newport." (For Cheviots)	7,950	Dec. 11	93	1923
Corrective Syrup Co., Boston, Mass. "Corrective Syrup." (For a Medicine)	7,892	Nov. 13	93	1127
Cotzhausen, Alfred E. von, Milwaukee, Wis. "Probono." (For Canned Goods)	7,863	Nov. 13	93	1127
Cotzhausen, Alfred E. von, Milwaukee, Wis. "Durkasco." (For Canned Goods)	7,864	Nov. 13	93	1127
Cowgill, William, Camden, N. J. "Cowgill's Expectorant." (For a Medicine)	7,889	Nov. 13	93	1127
Crispy Wafer Co., Anderson, Ind. "Crispy Corn Wafers." (For Confections)	7,816	Oct. 9	93	198
Cuban American Manufacturing Company, Tampa, Fla. "Murillo." (For Cigars)	7,906	Nov. 20	93	1315
Dalley Malt Co., H. & J., Fall River, Mass. "Dalley's Pure Malt." (For Extract of Malt)	7,982	Dec. 18	93	2107
Dairy Association, Lyndon, Vt. "Kow-Kure." (For a Veterinary Medicine)	7,921	Nov. 27	93	1495
Davis, George D., Philadelphia, Pa. "The New Process Butter Co." (For Oleomargarin and Butterin)	7,895	Nov. 20	93	1315
Demonet, Jules A., Washington, D. C. "Demonet's Oyster Cocktail Sauce." (For a Sauce)	7,987	Dec. 4	93	1725
E. Dean Morlan Company, Indianapolis, Ind. "Miners Asthma Cure." (For a Medicine)	7,951	Dec. 11	93	1923
Eppens, Smith & Wiemann Company, New York, N. Y. "Genuine Pollawattee Tea." (For Ceylon Tea)	7,935	Dec. 4	93	1725
Erb, Ludwig G. B., New York, N. Y. "Erb's Health Capsules." (For a Medicine)	7,814	Oct. 9	93	198
Erb, Ludwig G. B., New York, N. Y. "Erb's Never Chap." (For a Lotion)	7,956	Dec. 11	93	1923
Erb, Ludwig G. B., New York, N. Y. "Dr. Mill's Pectoral Syrup." (For a Cough Medicine)	7,971	Dec. 18	93	2107
Farrell, T. A., Boston, Mass. "Roman Liniment." (For a Liniment)	7,957	Dec. 11	93	1923
Ferté, Emile P., Butte, Mont. "Ferte's Celery Headache Tablets." (For a Tablet)	7,942	Dec. 4	93	1725
Fichter, Edward A., Syracuse, N. Y. "Bright-ine." (For Silver-Polish)	7,883	Nov. 13	93	1127
Filer & Wolf, Philadelphia, Pa. "Chappene." (For a Lotion)	7,854	Oct. 23	93	557
Finkelstein, L., New York, N. Y. "Charmion Egyptian Cigarettes." (For Cigarettes)	7,877	Nov. 13	93	1127
Finzer Bros. Tobacco Company, Louisville, Ky. "Plug Smoking." (For Smoking-Tobacco)	7,879	Nov. 13	93	1127
Finzer Bros. Tobacco Company, Louisville, Ky. "Boss John." (For Tobacco)	7,880	Nov. 13	93	1127
Finzer Bros. Tobacco Company, Louisville, Ky. "Spurt." (For Plug-Tobacco)	7,881	Nov. 13	93	1127
Finzer Bros. Tobacco Company. Louisville, Ky. "Old Loyalty." (For Plug-Tobacco)	7,882	Nov. 13	93	1127
Finzer Bros. Tobacco Company, Louisville, Ky. "Three Boys." (For Tobacco)	7,931	Dec. 4	93	1725
Flegenheimer Bros., New York, N. Y. "Tonic Port." (For Port-Wine)	7,829	Oct. 16	93	363
Forbes, Andrew, Philadelphia, Pa. "Blue Label." (For Whisky)	7,913	Nov. 20	93	1315
Fox Pharmacy Company, Birmingham, Ala. "Fox's Nutted Dates." (For Nutted Dates)	7,990	Dec. 18	93	2107
Freeman, Frederick W., Columbus, Ohio. "Peanut Relish." (For a Relish)	7,810	Oct. 9	93	198
Gallagher, Edward J., Boston, Mass. "Gallagher's Hair Elixir." (For Hair-Elixir)	7,852	Oct. 23	93	557
Gallaud Brothers, New York, N. Y. "Non-Sweat-Shop-Make." (For Garments)	7,884	Oct. 23	93	557
Garcia & Bros., F., New York, N. Y. "F. Garcia & Bros." (For Cigars)	8,002	Dec. 25	93	2329
Geiger & Klein, New York, N. Y. "The 20th Century Cigar." (For Cigars)	8,003	Dec. 25	93	2329
George Bechtel Brewing Company, New York, N. Y. "Bechtel Brew." (For Bottled Lager-Beer)	7,872	Nov. 13	93	1127
Gleason & Lansing, Buffalo, N. Y. "Sweet Clover Pure Butter." (For Butter)	7,848	Oct. 23	93	557
Gleason & Lansing, Buffalo, N. Y. "Litchfield County Print Butter." (For Butter)	7,849	Oct. 23	93	557
Godfrey, C. H., Benton Harbor, Mich. "Yum Yum Plums." (For Plums)	7,809	Oct. 9	93	198
Grebert, Romain, New York, N. Y. "Gerbert's Celebrated Worcestershire Sauce Globe Brand." (For Sauce)	7,803	Oct. 2	93	1
Greenabaum Bros., Seaford, Del. "Greenabaum Bros. Plum Pudding." (For Plum-Pudding)	7,991	Dec. 18	93	2107
Greenhouse, Sarah B., Camden, N. J. "Taku Tea." (For Tea and Coffee)	7,927	Nov. 27	93	1495
Griswold, Eugene, San Francisco, Cal. "Sierra Mineral Bath Crystals." (For a Compound for the Bath)	7,975	Dec. 18	93	2107
Gross, Emanuel, Jersey City, N. J. "Liberty Club." (For Whisky)	7,838	Oct. 23	93	557
Guenther & Mueller Co., St. Louis, Mo. "U. P. Special." (For Cigars)	7,825	Oct. 16	93	363
H. R. Hale Company, Hartford, Conn. "Hale's Ton-A-Quin for the Hair." (For a Hair-Tonic)	7,967	Dec. 18	93	2107
Haugh & Co., Marcus, Philadelphia, Pa. "Kretyur." (For Whisky)	7,923	Nov. 27	93	1495
Herrmann & Son, J. F., Washington, D. C. "Herrmann's Tiger Brand Root Beer." (For Root-Beer)	7,924	Nov. 27	93	1495
Herrmann & Son, J. F., Washington, D. C. "Herrmann's Tiger Brand Ginger Ale." (For Ginger-Ale)	7,925	Nov. 27	93	1495
Herrmann & Son, J. F., Washington, D. C. "Herrmann's Tiger Brand Ginger Ale." (For Ginger-Ale)	7,926	Nov. 27	93	1495

Alphabetical list of registrants of labels, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Herzberg, Aaron, New York, N. Y. "American Gentleman Rye Whiskey." (For Whisky)	7,914	Nov. 20	93	1315
Hines & Son, Julius, Baltimore, Md. "The Famous Maryland Carpets." (For Carpets)	7,915	Nov. 20	93	1315
Isaacson, Joseph R., Chicago, Ill. "La Flor de Victorius." (For Cigars)	7,837	Oct. 23	93	557
J. C. Buffum Company, Pittsburg, Pa. "Cherry Pepsin." (For Cherry-Pepsin)	7,858	Oct. 30	93	755
Jackson, Philip, Rochester, N. Y. "The New Game of Presidents." (For a Game)	7,833	Oct. 23	93	557
Jordan, Linwood F., Portland, Me. "Rolo Polo Solitaire or Two Ball Hockey." (For a Game)	7,966	Dec. 18	93	2107
Khasan, Naum, New York, N. Y. "Dreyfus' Pills." (For a Medicine)	7,972	Dec. 18	93	2107
Knubel Tobacco Company, New York, N. Y. "Saracen." (For Cigarettes)	7,826	Oct. 16	93	363
Koch, Mary, New York, N. Y. "Kill-Bug." (For a Germicide)	7,920	Nov. 27	93	1495
Kodziesen, Abe, New York, N. Y. "Little Casino Whiskey." (For Whisky)	7,922	Nov. 27	93	1495
Krafft, Emil, New York, N. Y. "Rocky Bracer." (For a Medicine)	7,851	Oct. 23	93	557
Lamont, D., Springwater, N. Y. "Oil of Vanilla." (For an Extract)	7,898	Nov. 20	93	1315
Lamparter & Co., John, Akron, Ohio. "Dr. Camel's Thick Neck Cure." (For a Medicine)	7,952	Dec. 11	93	1923
Lamparter & Co., John, Akron, Ohio. "Dr. Camel's Congo Blood Pills." (For a Medicine)	7,953	Dec. 11	93	1923
Lamparter & Co., John, Akron, Ohio. "Dr. Camel's Congo Compound." (For a Medicine)	7,954	Dec. 11	93	1923
Lee Broom and Duster Company, Davenport, Iowa, and Lincoln, Nebr. "Better Buy." (For Brooms)	7,861	Oct. 30	93	755
Lesher, H. Stanley, Philadelphia, Pa. "Best." (For Flour)	7,832	Oct. 16	93	363
Levy & Co., Ben., Boston, Mass. "Perluxe." (For a Lotion for the Complexion)	8,005	Dec. 25	93	2329
Levy, Israel, New York, N. Y. "National Uniform Cap Co." (For Caps)	7,999	Dec. 25	93	2329
Lipscomb, Speights & Company, Augusta, Ga. "Chosen Few." (For Canned Fruits)	7,802	Oct. 2	93	1
Los Angeles Company, Boston, Mass. "Olden Time Rye Whiskey." (For Whisky)	7,964	Dec. 18	93	2107
Los Angeles Company, Boston, Mass. "Mayflower Rye." (For Whisky)	7,965	Dec. 18	93	2107
Los Angeles Company, Boston, Mass. "Winner Whiskey." (For Whisky)	7,966	Dec. 18	93	2107
Los Angeles Company, Boston, Mass. "Domino Rye Whiskey." (For Whisky)	7,967	Dec. 18	93	2107
Los Angeles Company, Boston, Mass. "Raceabout Rye." (For Whisky)	7,968	Dec. 18	93	2107
Los Angeles Company, Boston, Mass. "Domino Bourbon Whiskey." (For Whisky)	8,004	Dec. 25	93	2329
Lovelady Brothers, New York, N. Y. "Lovelady's Egyptian Dainties." (For Confectionery)	7,830	Oct. 16	93	363
Magid Hope Silk Manufacturing Company, Milford, Mass. "Natura Artis Magistra." (For Spun Silk Yarn)	7,821	Oct. 9	93	193
Markarian, Henry, Fresno, Cal. "Uncle Sam Brand." (For Figs)	7,850	Oct. 23	93	557
Martin, Louis R., Duluth, Minn. "Railway Supplies and Pulp Wood." (For Railway Supplies, &c)	7,916	Nov. 20	93	1315
McLaughlin, William F., Chicago, Ill. "Nodoubt." (For Coffee)	7,804	Oct. 2	93	1
Meyer, A. & G., Newburg, N. Y. "Our Doctors Baking Powder." (For Baking-Powder)	7,929	Nov. 27	93	1495
Meyer & Gleim, Cleveland, Ohio. "Red Raven Dentine." (For a Tooth and Mouth Wash)	7,970	Dec. 18	93	2107
Meyers, Abraham, New York, N. Y. "Kil-Kold." (For a Medicine)	7,973	Dec. 18	93	2107
Milliken, Tomlinson Company, Portland, Me. "Prize Medal." (For Tea)	7,986	Dec. 4	93	1725
Mock, Hugo, St. Paul, Minn. "Inkerine Paste." (For a Paste)	7,947	Dec. 4	93	1725
Mueller & Co., C. F., Jersey City, N. J. "Mueller's Macaroni Flag Brand." (For Macaroni)	7,994	Dec. 18	93	2107
National Soap Works, Titusville, Pa. "Premo." (For Soap)	7,801	Oct. 2	93	1
National Soap Works, Titusville, Pa. "Wm. Penn Family Soap." (For Soap)	7,812	Oct. 9	93	193
Nelson, Olaf, New York, N. Y. "Nelson's Hair Restorer." (For a Hair-Restorer)	7,857	Oct. 30	93	755
Newlander & Co., M., Chicago, Ill. "La Dominencia." (For Cigars)	7,819	Oct. 9	93	193
Nutriol Chemical Company, New York, N. Y. "Nutriol Emulsion." (For a Medicine)	7,823	Oct. 16	93	363
Olmstead, Albert H, St. Louis, Mich. "Pa-kal." (For a Medicine)	7,901	Nov. 20	93	1315
Oppeau, J., St. Louis, Mo. "Oppeau's Treatment for the Hair." (For a Remedy for Baldness)	7,968	Dec. 18	93	2107
Ormsby, D. L., New York, N. Y. "Iwanta." (For Ginger-Ale)	7,805	Oct. 2	93	1
Paride, Grasso, Philadelphia, Pa. "Paride's Odontale." (For a Preparation for the Treatment of the Teeth)	7,853	Oct. 23	93	557
Paul, William L., Chicago, Ill. "Lustre." (For a Polish)	7,976	Dec. 18	93	2107
Petersen, Niels P., Davenport, Iowa. "Colonel Davenport." (For Cigars)	7,932	Dec. 4	93	1725
Ph. Hake Manufacturing Company, New York, N. Y. "Silk Fibre Bond." (For Stationery)	7,800	Oct. 2	93	1
Pike, N. T., Bainbridge, Ga. "Dr. La Faure's 33337 Balsam." (For a Medicine)	7,919	Nov. 27	93	1495
Pitkin, Emma V., New York, N. Y. "Arm-Pit-Ease." (For a Toilet Preparation)	7,918	Nov. 27	93	1495
Pittsburgh Homeopathic Pharmacy, Pittsburg, Pa. "Cincalco Tonic." (For a Tonic)	7,888	Nov. 13	93	1127
Powers & Co., J. J., Ripon, Wis. "Silver Creek Creamery." (For Butter)	7,803	Nov. 20	93	1315
Pure Food Company, Kansas City, Mo. "Egg Flake." (For Egg-Flake)	7,831	Oct. 16	93	363
Rawson, Malcolm A., Des Moines, Iowa. "Coffee Ette." (For a Coffee Substitute)	7,969	Dec. 18	93	2107
Rea Bros. & Co., Minneapolis, Minn. "Cascarine." (For a Stomach Medicine)	7,891	Nov. 13	93	1127
Red Cross Chemical Company, Boston, Mass. "Red Cross Disinfecting and Deodorizing Powder." (For a Powder)	7,885	Nov. 13	93	1127
Red Cross Chemical Company, Boston, Mass. "Red Cross Antiseptic Shampoo." (For a Shampoo)	7,886	Nov. 13	93	1127
Red Cross Chemical Company, Portland, Me., and Boston, Mass. "Red Cross Liniment." (For a Medicine)	7,856	Oct. 30	93	755
Red Cross Chemical Company, Portland, Me., and Boston, Mass. "Red Cross Capillaris." (For a Hair-Tonic)	7,944	Dec. 4	93	1725
Red Cross Chemical Company, Portland, Me., and Boston, Mass. "Red Cross Antiseptic Dentifrice." (For a Dentifrice)	7,955	Dec. 11	93	1923
Robbin, Fannie, New York, N. Y. "Robbin's Fat Consumer." (For a Medicine)	8,007	Dec. 25	93	2329
Robinson-Danforth Milling Company, St. Louis, Mo. "Ralston Breakfast-Food." (For Breakfast-Food)	7,807	Oct. 2	93	1
Robinson-Danforth Milling Company, St. Louis, Mo. "Ralston Barley Food." (For Barley Food)	7,808	Oct. 2	93	1
S. S. Pierce Company, Boston, Mass. "Café des Invalides or Antidote Coffee." (For a Coffee-Blend)	7,928	Nov. 27	93	1495
Salsburg, Jacob, Philadelphia, Pa. "The S & S Shirt Waist Trousers." (For Trousers)	7,892	Nov. 13	93	1127
Schmidt & Co., New York, N. Y. "Nanine." (For Cigars)	7,904	Nov. 20	93	1315
Schmidt & Co., New York, N. Y. "Montana Sport." (For Cigars)	7,905	Nov. 20	93	1315
Schmidt & Co., New York, N. Y. "La Introduccion." (For Cigars)	7,906	Nov. 20	93	1315
Schmidt & Co., New York, N. Y. "La Rosa Calie." (For Cigars)	7,978	Dec. 18	93	2107
Schmidt & Co., New York, N. Y. "Daisy Blue." (For Cigars)	7,979	Dec. 18	93	2107
Schoneberger & Noble, New York, N. Y. "Carbonated Celery." (For a Beverage)	7,827	Oct. 16	93	363
Seligman Bros., Jacksonville, Ill. "Gravel Spring." (For Mineral Water)	7,868	Nov. 13	93	1127
Serwazi, Peter J., Philadelphia, Pa. "Ptisan." (For Bottled Beer)	7,933	Dec. 4	93	1725
Shapiro, Morris, New York, N. Y. "Champion." (For Manties)	7,930	Nov. 27	93	1495
Slusser, Aaron A., Louisville, Ohio. "Slusser's Gall Cure." (For a Gall Cure)	8,006	Dec. 25	93	2329
Smith, B. B., Alexandria, Va. "Our Senator." (For Cigars)	7,820	Oct. 9	93	193
Smith Brothers, Lake Nebagamon, Wis. "Eddie's German Sal-Lea." (For a Medicine)	7,974	Dec. 18	93	2107
Sozo Supply Company, Newark, N. J. "Sozo." (For a Furniture Polishing and Cleaning Compound)	7,946	Dec. 4	93	1725
Specialty Manufacturing Co., Davenport, Iowa. "Seltone." (For a Catarrh Cure)	7,909	Dec. 18	93	2107
Stahl & Co., Jacob, Jr., New York, N. Y. "Little Brunswick." (For Cigars)	7,965	Dec. 11	93	1923
Standard Remedy Co., New York, N. Y. "Woman's Friend." (For an Antiseptic)	7,900	Nov. 20	93	1315
Stansbury, Harry, Kansas City, Mo. "Stansbury's Hair Restorer and Dandruff Cure." (For a Hair-Restorer)	7,945	Dec. 4	93	1725

Alphabetical list of registrants of labels, October to December, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Stecher Lithographic Company, Rochester, N. Y. "Rockaway Beach Cove Oysters." (For Canned Goods)	7,859	Oct. 30	93	755
Stecher Lithographic Company, Rochester, N. Y. "Le Roi." (For Canned Goods)	7,860	Oct. 30	93	755
Stern, Marcus, New York, N. Y. "A. B. C. Metal Polish." (For Metal-Polish)	7,855	Oct. 23	93	557
Stover, W. T., York, Pa. "Wheat Germ." (For a Food)	7,938	Dec. 4	93	1725
Strader, Wilson P., Lexington, Ky. "Old Pugh." (For Whisky)	7,828	Oct. 16	93	363
Strader, Wilson P., Lexington, Ky. "Old Barton." (For Whisky)	7,839	Oct. 23	93	557
Suckow, John K., Pueblo, Colo. "Suckow's Rheumatic Remedy." (For a Medicine)	7,890	Nov. 13	93	1127
Taubel, Lewis E., Norristown, Pa. "Pickaninny." (For Stockings)	7,835	Oct. 23	93	557
Tha-Mou, Cure Co., Kokomo, Ind. "Ro-Zone Dust Bag." (For a Medical Compound)	7,887	Nov. 13	93	1127
Thompson, Joseph, Atlanta, Ga. "Brookwood." (For Whisky)	7,874	Nov. 13	93	1127
Thompson, Joseph, Atlanta, Ga. "Great Dane." (For Whisky)	7,875	Nov. 13	93	1127
Toledo Brewing and Malting Company, Limited, Toledo, Ohio. "Laurel Label." (For Malt Beverages)	7,934	Dec. 4	93	1725
United Incandescent Light Company, New York, N. Y. "The Gloria Mantle." (For Mantles for Incandescent Gas-Lamps)	7,822	Oct. 16	93	363
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Lobelia Sweet Corn." (For Canned Corn)	7,811	Oct. 9	93	193
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Small Stringless Beans." (For Canned Beans)	7,840	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Green Gages." (For Canned Green Gages)	7,841	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Peaches." (For Canned Peaches)	7,842	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Grapes." (For Canned Grapes)	7,843	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Apricots." (For Canned Apricots)	7,844	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Bartlett Pears." (For Canned Bartlett Pears)	7,845	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Strawberries." (For Canned Strawberries)	7,846	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Cherries." (For Canned Cherries)	7,847	Oct. 23	93	557
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Howdah Brand." (For Canned Sugar-Corn)	7,865	Nov. 13	93	1127
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Manx Brand." (For Canned Corn)	7,866	Nov. 13	93	1127
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Summer Beauties Brand." (For Canned Tomatoes)	7,867	Nov. 13	9	1127
United States Prtating Company, Cincinnati, Ohio, and New York, N. Y. "Love Knot Brand." (For Canned Tomatoes)	7,896	Nov. 20	93	1315
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Dotty Dimple." (For Canned Tomatoes)	7,897	Nov. 20	93	1315
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Hearts-Ease." (For Canned Sugar-Corn)	7,939	Dec. 4	93	1725
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Honey Comb." (For Canned Sweet Corn)	7,940	Dec. 4	93	1725
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Tomatoes." (For Canned Tomatoes)	7,941	Dec. 4	93	1725
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Brook Brand." (For Canned Goods)	7,958	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Equestrian Brand." (For Canned Goods)	7,959	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Marengo Brand." (For Canned Goods)	7,960	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Summer Glory Brand." (For Canned Goods)	7,961	Dec. 11	93	1923
United Stated Printing Company, Cincinnati, Ohio, and New York, N. Y. "Jaguar." (For Canned Corn)	7,962	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Lasso." (For Canned Corn)	7,963	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Refugee Stringless Beans." (For Canned Beans)	7,964	Dec. 11	93	1923
United States Printing Company, Cincinnati, Ohio, and New York, N. Y. "Refugee Stringless Beans." (For Canned Beans)	7,993	Dec. 18	93	2107
Upmann, Carl, New York, N. Y. "Upmann's Extra 5." (For Cigars)	7,980	Dec. 18	93	2107
Upmann, Carl, New York, N. Y. "Upmann's Extra 5." (For Cigars)	7,981	Dec. 18	93	2107
Vail Bros., Philadelphia, Pa. "Cyclo." (For an Extract)	8,008	Dec. 25	93	2329
Valentine's Meat Juice Company, Richmond, Va. "Corned Beef Hash." (For Corned-Beef Hash)	7,995	Dec. 18	93	2107
Valentine's Meat Juice Company, Richmond, Va. "Ox Tongue." (For Potted Meats)	7,996	Dec. 18	93	2107
Valentine's Meat Juice Company, Richmond, Va. "Potted Beef." (For Potted Beef)	7,997	Dec. 18	93	2107
Valentine's Meat Juice Company, Richmond, Va. "Ox Tongue." (For Potted Ox-Tongue)	7,998	Dec. 18	93	2107
Watson, Harriet C., New York, N. Y. "Louis XV." (For Corsets)	7,917	Nov. 27	93	1495
We Girls Co., Clinton, N. Y. "The We Girls Company Cigar." (For Cigars)	7,907	Nov. 20	93	1315
Western Distilling Co., Omaha, Nebr. "Red Cross." (For Whisky)	7,876	Nov. 13	9	1127
Weyrich & Schley, New York, N. Y. "Black Tulip Claret." (For Wine)	7,878	Nov. 13	9	1127
Wiseman Manufacturing Co., New York, N. Y. "Pyropen." (For Pyropens)	7,949	Dec. 11	93	1923
Wm. Ulmer Brewery, New York, N. Y. "Wm. Ulmer Brewery." (For Lager-Beer)	7,983	Dec. 18	93	2107
Wood Mercantile Co., Concordia, Kans. "Our Lulu." (For Cigars)	7,878	Nov. 13	93	1127

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Alpers, William C., Bayonne, N. J. "Elixir Guaiacol Co." (For a Pharmaceutical Preparation).	270	Oct. 16	93	303
Bernhard, Michael J., Buffalo, N. Y. "Saloon, Store and Barber Fixtures." (For Saloon, Store, and Barber-Shop Fixtures)	273	Oct. 30	93	755
Datz, Jacob A., Philadelphia, Pa. "Neverbreak." (For Corset-Clasps)	280	Dec. 4	93	1725
Demonet, Jules A., Washington, D. C. "Demonet's." (For Confectionery)	277	Dec. 4	93	1725
Farmers and Market-Gardners Union, New York, N. Y. "Farmers and Market-Gardners Union Print." (For Farm and Garden Produce)	272	Oct. 30	93	755
Hill, Josephine D., Chicago, Ill. "Ziz." (For Cement)	283	Dec. 11	93	1923
Indian Leather Co., Boston, Mass. "The Indian Leather Co." (For Sole-Leather)	281	Dec. 4	93	1725
Indian Leather Co., Boston, Mass. "The Indian Leather Co." (For Sole-Leather)	282	Dec. 4	93	1725
McCormick Harvesting Machine Company, Chicago, Ill. "McCormick." (For Harvesting-Machines)	274	Oct. 30	93	755
McLoughlin Brothers, New York, N. Y. "Gipsy Fortune Telling Game Card." (For a Game)	266	Oct. 2	93	1
Pfening, W. E., Lake City, Iowa. "Royal Seal." (For Cigars)	285	Dec. 25	93	2329
Pillsbury-Washburn Flour Mills Company, Limited, Minneapolis, Minn. "We Feed the World." (For Flour)	269	Oct. 16	93	633
Schloss Bros. & Co., Baltimore, Md. "The Introduction." (For Clothing)	268	Oct. 16	93	633
Schmidt & Co., New York, N. Y. "Francisco Goya." (For Cigars)	267	Oct. 9	93	196
Schmidt & Co., New York, N. Y. "La Numancia." (For Cigars)	275	Nov. 20	93	1815
Schossow, Frederick A., Detroit, Mich. "The Stubborn Donkeys." (For a Puzzle)	284	Dec. 18	93	2107
United States Playing Card Company, Cincinnati, Ohio. "Motorcycle and Motorette Backs Bicycle Playing Cards." (For Playing-Cards)	279	Dec. 4	93	1725
We Girls Co., Clinton, N. Y. "The We Girls Company." (For Cigars)	276	Nov. 20	93	1315
Webb & Co., Newark, Ohio. "Prince Rupert." (For Cigars)	271	Oct. 30	93	755
Wilson, C. W., York, Pa. "Jadway's Elixir for Infants." (For a Medicine)	278	Dec. 4	93	1725

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Brill, George Martin, Philadelphia, Pa.; disclaimer filed by assignee. Car-truck	478,218	Oct. 18, 1900	93	557
Metz, Charles N., Waltham, Mass.; disclaimer filed by patentee. Bicycle-pedal	546,071	Oct. 6, 1900	93	903
Scott, Richard H., and Henry C. Teel, Toledo, Ohio; disclaimer filed by patentees. Automatic sheet-feeding mechanism	640,709	Nov. 3, 1900	93	1127

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Drawing.	Official Gazette. Volume.	Page.
Abdominal support	H. S. Gates	664,398	Dec. 25	2764	627	93	2342
Abrasive material. Manufacturing	C. B. Jacobs	659,926	Oct. 16	2207	496	93	473
Accumulator	L. Renaud	664,679	Dec. 25	3291	748	93	2449
Accumulator-plates. Making	Z. Stanecki	661,085	Nov. 6	105	.....	93	971
Acetonalkamins and making same. Unstable	C. Harries	663,754	Dec. 11	1542	.....	93	2045
Acetone compound of nitro-meta-toluylic aldehyde	J. Koetschet	662,076	Nov. 20	1929	.....	93	1305
Acid and making same. Cyanmethyl-anthranilic	F. Bender	662,754	Nov. 27	3225	.....	93	1630
Acid and making same. Gallocyanin-sulfonic	C. De la Harpe	663,220	Dec. 4	584	.....	93	1836
Acid and making same. Leucogallocyanin-sulfonic	C. De la Harpe	663,221	Dec. 4	585	.....	93	1836
Acid. Making anthranilic	P. Seidel and L. Preuss	661,821	Nov. 13	1439	.....	93	1251
Acid. Making phenyl-glycocol-ortho-carboxylic	F. Bender	662,755	Nov. 27	3226	.....	93	1636
Acid. Making sulfuric	A. C. Johnson	659,236	Oct. 9	944	222	93	207
Acid. Meta-amidotolyloxaminsulfo-	R. Taggesell	659,496	Oct. 9	1386	.....	93	297
Acid. Meta-amidotolyloxaminsulfo-	R. Taggesell	659,497	Oct. 9	1387	.....	93	297
Adding-machine	A. Hoch	660,106	Oct. 23	2574	576, 577, 578, 685, 686, 687	93	568
Addressing-machine	H. F. Nehr	662,575	Nov. 27	2892	686, 687	93	1574
Addressing newspapers	A. T. McCreary	663,292	Dec. 4	723	155	93	1802
Adhesive composition and making same	W. V. Carter	660,144	Oct. 23	2057	.....	93	584
Adjustable bracket	S. F. Cheheyl	661,755	Nov. 13	1321	322	93	1228
Adjustable hoop	J. H. Green	664,082	Dec. 18	2135	492	93	2193
Adjustable table	H. S. Jordan	659,532	Oct. 9	1452	329	93	300
Advertiser and station-indicator. Railway-	L. H. Simmons	658,809	Oct. 2	149	36	93	33
Advertising apparatus	W. H. Gilman	663,430	Dec. 11	984	213	93	1530
Advertising apparatus	D. G. Hurd	662,937	Dec. 4	65	16	93	1738
Advertising-automaton	C. T. Bradshaw	660,485	Oct. 23	3314	742	93	714
Advertising-cover for baskets, &c	A. C. Simkins	662,204	Nov. 20	2170	524	93	1414
Advertising device	C. Riedmüller	663,614	Dec. 11	1291	285, 286	93	1905
Advertising device. Electric	P. Dawson	664,807	Dec. 25	3505	811	93	2506
Advertising motor-vehicle	A. F. Randall	658,960	Oct. 2	434	104	93	88
Advertising, &c. Novelty for	C. R. Crandall	662,668	Nov. 27	3002	722	93	1607
Advertising-rack	F. H. Rosher	662,824	Nov. 27	3352	793	93	1662
Aerating machine. Liquid-	W. Hill	664,150	Dec. 18	2286	520	93	2220
Aerial recreation apparatus, &c	F. A. Bellamy	663,004	Dec. 4	195	41, 42	93	1763
Aging apparatus. Wine or liquor	A. B. C. Dowdell	664,538	Dec. 25	3025	688	93	2392
Air. Apparatus for removing moisture from	E. S. Belden	661,944	Nov. 20	1675	407	93	1317
Air-brake	J. J. Nef	661,702	Nov. 13	1225	207	93	1210
Air-brake	J. E. Normand	660,650	Oct. 30	3809	809, 810	93	789
Air-brake	W. K. Omick and G. P. Magann	662,152	Nov. 20	2065	501	93	1392
Air-brake	J. Shourek	661,111	Nov. 6	144	36, 37, 38	93	980
Air-brake coupling	B. Vaughn	663,110	Dec. 4	373	78	93	1795
Air-brake-instruction chart and apparatus	P. Lofy and H. C. Ettinger	663,236	Dec. 4	621	133, 134, 135	93	1843
Air-brake mechanism. Car	D. Beemer	661,572	Nov. 13	987	245, 246	93	1163
Air-brake system	J. R. Richardson	661,075	Nov. 6	87	21	93	967
Air-brake system. Storage	W. K. Omick	661,584	Nov 13	1009	250	93	1168
Air-brakes. Automatic pressure-relief mechanism for railway	S. L. Terry	662,476	Nov. 27	2710	645	93	1540
Air-brakes in emergencies. Means for applying automatic	J. F. Hutchisson	662,360	Nov. 20	2459	592	93	1470
Air-compressing apparatus. Hydraulic	W. O. Webber	659,270	Oct. 9	994	234	93	216
Air-compressor	H. Liethegener	663,126	Dec. 4	404	85	93	1802
Air-compressor	H. M. Salyer	664,230	Dec. 18	2423	552	93	2250
Air-compressor. Hydraulic	F. C. Starke	662,884	Nov. 27	3540	830	93	1706
Air-compressors. Regulator for electrically-actuated	E. M. Hewlett	664,086	Dec. 18	2161	494	93	2194
Air-compressors. Unloading means for	G. de Laval and G. P. Aborn	664,562	Dec. 25	3067	698	93	2402
Air-compressors. Unloading means for	G. de Laval and G. P. Aborn	664,563	Dec. 25	3074	698, 699	93	2403
Air cooling and agitating apparatus	E. F. Porter	664,776	Dec. 25	3506	795	93	2494
Air engine. Compressed-	M. Flood	662,189	Nov. 20	2146	519	93	1410
Air-ship	C. Stanley	659,264	Oct. 9	986	231, 232	93	215
Air-vent	A. Roesch	662,093	Nov. 20	1970	470	93	1373
Alarm: *See* Burglar-alarm. Cord-tension alarm. Fire-alarm. Low-water alarm. Railway-track alarm. Refrigerator-pan alarm. Time-alarm.							
Alarm	E. Stratton and F. A. Cole	660,229	Oct. 23	2828	627	93	618
Alarm mechanism	J. C. Meloon	659,855	Oct. 16	2073	466	93	446

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Alarm system and testing apparatus. Electric	L. H. Des Isles	659,798	Oct. 16	1909	442	93	426
Albumen. Obtaining soluble	D. Finkler	661,211	Nov. 6	330	.....	93	1018
Albumen. Purifying	G. Eichelbaum	662,779	Nov. 27	3273	.....	93	1646
Alkaline salts. Apparatus for the electrolytic decomposition of	E. Edser	659,655	Oct. 16	1683	380 / 381	93	371
Alloys. Making aluminium	L. Mach	662,952	Dec. 4	102	.....	93	1745
Alloys of aluminium and magnesium. Manufacture of	L. Mach	662,951	Dec. 4	101	.....	93	1744
Almond huller and separator	W. G. Read	659,801	Oct. 16	1988	445	93	429
Alumina. Making	C. M. Hall	663,167	Dec. 4	491	104	93	1819
Amalgam-press	A. Mackay	664,330	Dec. 18	2620	596	93	2288
Amalgamating apparatus	T. R. Jordan	661,995	Nov. 20	1764	424	93	1334
Amalgamator	T. H. Hicks	660,774	Oct. 30	3826	857 / 858	93	880
Amalgamator. Grading	A. Z. Baldenebro	664,712	Dec. 25	3354	762	93	2462
Ambulance. Bicycle	H. L. Getz	660,769	Oct. 30	3812	855 / 856	93	828
Ammonia-compressor	J. T. Ludlow	661,184	Nov. 6	285	68	93	1009
Ammunition-box	J. A. Wilding	661,201	Nov. 6	313	76	93	1015
Ammunition-case	F. M. Garland	659,659	Oct. 16	1693	383	93	373
Ammunition-clip	F. M. Garland	663,880	Dec. 18	1793	402	93	2120
Anchor mechanism for boats	M. P. Hoy	663,174	Dec. 4	502	106	93	1821
Anchor-rope attachment. Boat	C. C. Freer	664,738	Dec. 25	3420	776	93	2478
Anchor-setting tool	J. T. Swartz	660,667	Oct. 30	3644	818	93	796
Animal-holder	J. P. Payton	662,960	Dec. 4	112	24	93	1746
Animal-trap	G. Bell	659,783	Oct. 16	1947	437	93	421
Animal-trap	M. E. Foreman	663,655	Dec. 11	1359	301	93	2008
Animal-trap	G. F. Jones	662,624	Nov. 27	2976	705	93	1591
Animal-trap	J. B. Lindsey	662,279	Nov. 20	2201	554	93	1439
Animal-trap	C. F. Nelson	661,068	Nov. 6	73	17	93	965
Animal-trap	A. J. and R. T. Brauer	660,885	Oct. 30	4034	904	93	872
Ankle-brace	B. R. Parr and H. E. Sheldon	660,533	Oct. 23	3403	765	93	731
Annealing and oxidizing metal sheets or plates	G. W. Packer	664,179	Dec. 18	2218	529	93	2226
Annealing-furnace	J. C. J. Stephan	659,062	Oct. 2	512	124	93	108
Annunciator. Thermo	J. H. McMaken	662,956	Dec. 4	107	.....	93	1745
Anti-incrustation compound	H. N. Ridgway	658,927	Oct. 2	307	90	93	74
Aquatic course	G. Cutter	663,420	Dec. 11	966	210	93	1932
Arc-light hanger	F. Ritter	663,132	Dec. 4	418	87	93	1805
Arm-rest	E. W. Mix and E. F. G. H. Faure	662,010	Nov. 20	1795	433	93	1340
Armature-core space-block	S. Evershed	660,057	Oct. 16	2446	551 / 552	93	520
Armature for electric-supply meters. Astatic	H. Geisenhöner	662,928	Dec. 4	52	13	93	1736
Armature space-block	H. Geisenhöner	663,075	Dec. 4	307	65	93	1783
Armature space-block	A. Rothert	660,659	Oct. 30	3625	813	93	792
Armatures. Shaped spool for drum	A. B. Donaldson	663,961	Dec. 18	1953	439	93	2152
Armor-plate	W. S. Anderson	664,708	Dec. 25	3348	761	93	2461
Ash-pan	M. S. Field	660,541	Oct. 23	3419	768	93	735
Assorting-case. Portable and collapsible	T. J. Litle, Jr	660,580	Oct. 30	3484	781	93	766
Atmospheric burner	O. Q. Holman	661,313	Nov. 6	522	121	93	1055
Atomizer	R. Morrill	663,997	Dec. 18	2025	458	93	2166
Atomizer	W. T. Kellogg	658,782	Oct. 2	74	18	93	18
Auger-cutter	W. B. Gibson	664,741	Dec. 25	3425	777	93	2479
Auger. Earth	A. A. Wood	662,683	Nov. 27	3091	790	93	1613
Auger. Hollow	C. W. Levalley	662,278	Nov. 20	2299	553	93	1439
Aural battery	J. G. Dinkelbihler, Jr., and C. C. Crane.	661,961	Nov. 20	1701	412	93	1322
Autographic register	F. J. Nutting	664,359	Dec. 18	2685	610 / 611	93	2300
Autographic register	F. L. Ross, J. T. Earle, J. J. Good, and H. Redmon.	663,667	Dec. 11	1888	307 / 308	93	2014
Automatic brake	J. H. Greenwood	662,418	Nov. 27	2586	622	93	1514
Automatic gate	G. E. Rigg	660,091	Oct. 30	3680	829	93	802
Automobile	O. V. Bachellé	659,012	Oct. 2	534	130	93	107
Automobile	D. M. Pfautz	661,704	Nov. 13	1228	297 / 298	93	1211
Automobile	D. L. Sauerhering	662,080	Nov. 20	1842	444	93	1348
Automobile appliance	E. W. Ayres	659,121	Oct. 2	716	172	93	145
Automobile-boiler vaporizer	J. B. Walker	661,651	Nov. 13	1129	279	93	1192
Automobile carriages. Steering and brake device for	A. Strickland	662,475	Nov. 27	2708	644 / 645	93	1540
Automobile controlling mechanism	J. G. MacPherson	661,543	Nov. 13	928	229 / 230	93	1151
Automobile motor-wheel	H. Simmons	658,806	Oct. 2	148	36	93	33
Automobile spring-frame	F. R. Parker	663,708	Dec. 11	1459	322	93	2027
Automobile starting mechanism	J. G. MacPherson	662,007	Nov. 20	1791	432	93	1339
Automobile steam-motor	F. W. Waterman	659,162	Oct. 2	780	188	93	157
Automobiles. Combined condenser and dashboard for	L. F. N. Baldwin	664,373	Dec. 25	3710	615	93	2382
Awl. Sewing	H. U. Bradt	660,413	Oct. 23	3191	709	93	691
Axle	J. H. Taylor	664,447	Dec. 25	3860	653	93	2360
Axle and box. Vehicle	J. G. Anderson	664,611	Dec. 25	3184	721	93	2426
Axle-box	B. S. E. Takken	663,189	Dec. 4	528	112	93	1826
Axle-box and axle connection	W. H. Matthew	660,985	Oct. 30	4164	935	93	899
Axle-box lid	J. W. Stephenson	663,705	Dec. 11	1461	322 / 323	93	2028
Axle-box lid	J. W. Stephenson	663,706	Dec. 11	1463	323	93	2028
Axle. Carriage	C. H. Fuller	660,074	Oct. 16	2507	561	93	533
Axle for automobiles. Steering	J. B. Decker	664,729	Dec. 25	3397	772	93	2479
Axle for railway or road vehicles	A. C. Massey	662,540	Nov. 27	2829	672	93	1563
Axle-lubricator	J. B. Foote	662,715	Nov. 27	3154	747	93	1623
Axle-repairing machine. Vehicle	J. A. Reynolds, A. P. Brosius, and J. W. Unger.	664,008	Dec. 18	2086	461	93	2168
Axle-sleeve	G. Damon and E. S. Peets	662,394	Nov. 27	2524	609	93	1502
Axle. Vehicle	J. L. Dolson	662,777	Nov. 27	3270	772	93	1646
Axles. Sand-shield and truss for vehicle	H. Keller	660,254	Oct. 23	2876	641	93	628
Back-pedaling brake	A. R. Anthony and C. T. Cunnius	661,164	Nov. 6	250	60,61	93	1002

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Back-pedaling brake	A. R. Anthony and C. T. Cunnius	663,842	Dec. 18	1733	387	93	2209
Back-pedaling brake	C. P. Conrad	661,468	Nov. 6	790	188 / 189	93	1110
Back-pedaling brake	F. P. Hinckley	664,749	Dec. 25	3449	780	93	2438
Back-pedaling brake	H. P. Seymour	662,881	Nov. 27	3536	828 / 829	93	1705
Bag: *See* Filter-bag. Fruit-gathering bag. Ice-bag. Mail-bag. Packing-bag. Paper bag. Valve-bag.							
Bag fastener. Traveling	B. F. Du Bois	658,045	Oct. 2	410	99	93	84
Bag-holder	S. C. Hicks and P. L. Hoffman	664,409	Dec. 25	2703	634	93	2348
Bag-holder	C. M. Hirsch	658,848	Oct. 2	345	61	93	51
Bag-lock. Telescoping	C. J. Holman and E. Gangolf	664,043	Dec. 18	2091	478	93	2180
Bag-tie	H. G. Hansen	663,540	Dec. 11	1175	254	93	1972
Bait-box	D. B. Warren	661,068	Nov. 6	115	28	93	973
Bake-furnace	W. J. Melkleham	659,175	Oct. 2	808	196 / 197	93	163
Bake-pan	G. R. McMullen	663,921	Dec. 18	1878	422 / 423	93	2138
Baker's pan	J. Park	661,273	Nov. 6	450	103	93	1041
Balance	C. H. Stoelting and C. E. Linebarger.	661,158	Nov. 6	241	59	93	1000
Balance-escapement	L. Erikson	664,734	Dec. 25	3409	775	93	2475
Balancing engine or motor	G. L. V. Chauveau	660,679	Oct. 30	3661	822	93	798
Bale-band fastening	P. K. Dederick	663,423	Dec. 11	973	211	93	1934
Bale-band fastening. Wire	P. K. Dederick	662,558	Nov. 27	2892	679	93	1569
Bale-band tightener	F. Spiettstosser	658,875	Oct. 2	281	69	93	58
Bale-covering	T. T. Munford	662,802	Nov. 27	3308	781	93	1652
Bale-covering. Metallic	T. T. Munford	662,801	Nov. 27	3307	780	93	1652
Bale of fibrous material	G. A. Lowry	661,475	Nov. 6	808	194	93	1118
Bales. Mechanism for producing cylindrical cotton	M. Swenson	662,885	Nov. 27	3543	830	93	1707
Baler. Hay	J. Ross	662,028	Nov. 20	1839	443	93	1347
Baling apparatus. Cotton	F. L. Dyer	662,688	Nov. 27	3102	732 / 733	93	1615
Baling apparatus. Cotton	M. Swenson	662,886	Nov. 27	3544	831	93	1707
Baling apparatus. Cotton	M. Swenson	662,888	Nov. 27	3548	831 / 832	93	1708
Baling cotton	C. L. Bessonette	659,432	Oct. 9	1253	289	93	271
Baling-press	G. H. Denny	659,792	Oct. 16	1965	440 / 441 / 442	93	425
Baling-press	L. Matthews	659,799	Oct. 16	1985	444	93	429
Baling-press	D. M. McLaughlin	664,423	Dec. 25	2814	638	93	2352
Baling-press	J. S. Tuttle	660,671	Oct. 30	3650	819	93	796
Baling-press	F. L. White	659,116	Oct. 2	709	170	93	144
Baling-press	C. S. Williamson	664,701	Dec. 25	3337	758 / 759	93	2459
Baling-press band-tying mechanism	W. Kennedy and J. M. Hunt	661,015	Oct. 30	4257	955 / 956	93	916
Baling-press core. Cylindrical	F. L. Dyer	662,689	Nov. 27	3104	733	93	1615
Ball: *See* Tether-ball.							
Balloon. Controllable	L. Stevens	661,826	Nov. 13	1444	349 / 350	93	1252
Band-cutter	J. S. Manly	660,195	Oct. 23	2767	615	93	607
Band-cutter and feeder	E. F. Bissonette	661,632	Nov. 13	1092	271 / 272	93	1184
Band-cutter and feeder	T. Elliott	660,632	Oct. 30	3567	800 / 801	93	781
Band-cutter and feeder	F. B. Taylor	662,506	Nov. 27	2776	659	93	1554
Bandage	G. Voellner	660,874	Oct. 30	4023	900	93	869
Bandage. Suspensory	L. C. Thompson	662,659	Nov. 27	3034	717	93	1602
Banjo-bridge	F. B. Hammann	660,953	Oct. 30	4145	932	93	895
Bar: *See* Grate-bar. Handle-bar. Jumping-bar.							
Barber-pole	C. R. Hanson	661,979	Nov. 20	1788	418	93	1329
Barrel-carrier	S. J. Buckland	664,023	Dec. 25	3200	725	93	2430
Barrel-head	J. D. Copperfield and B. M. Justice	663,866	Dec. 18	1773	397	93	2116
Barrel-machine	J. S. Wright, Jr	664,205	Dec. 18	2385	544	93	2242
Barrels when steaming. Apparatus for securing	F. E. Jewett	664,555	Dec. 25	3055	695	93	2399
Barrels when steaming. Apparatus for securing	F. E. Jewett	664,556	Dec. 25	3057	695	93	2400
Basin or fresh-air inlet. Catch	W. H. Dewar	662,711	Nov. 27	3149	745	93	1623
Basket	W. T. and J. I. Lane	664,654	Dec. 25	3249	738	93	2441
Bath-cabinet	J. V. Elliott and C. Idlor	659,366	Oct. 9	1135	265	93	246
Bath-cabinet frame	O. C. Daugherty	662,145	Nov. 20	2050	498	93	1380
Bath cabinet. Vapor	G. W. Merker	664,282	Dec. 18	2395	576	93	2272
Bath cabinet. Vapor	J. W. Zinkham	661,300	Nov. 6	656	153	93	1068
Bath-tub	A. J. Manning	661,351	Nov. 6	597	138	93	1070
Bath-tub and couch. Combined	W. R. Permar	661,708	Nov. 13	1227	297	93	1211
Bath-tub seat and bidet. Combined	S. D. Baker	663,826	Dec. 11	1698	380	93	2080
Battery: *See* Aural battery. Dry battery. Electric battery. Electrogalvanic battery. Galvanic battery. Primary battery. Secondary battery. Thermo-electric battery.							
Battery fluid	G. Romanelli	658,900	Oct. 2	318	.....	93	65
Battery-jar cover	P. P. Nungesser	658,860	Oct. 2	293	65	93	55
Battery plate or element. Storage	E. A. Sperry	660,228	Oct. 23	2826	.....	93	618
Battery-plate separator. Secondary	H. Leitner	662,277	Nov. 20	2208	553	93	1489
Beam-hanger	G. E. Escher	662,228	Nov. 20	2228	536	93	1424
Beam-supporter	L. Berry	661,946	Nov. 20	1680	408	93	1318

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bean-picker	G. F. Crippen	663,218	Dec. 4	579	125	93	1835
					126		
Bearing. Adjustable	J. White	660,743	Oct. 30	3769	849	93	820
Bearing. Antifriction	T. B. Dooley	662,373	Nov. 20	2480	597	93	1475
Bearing. Antifriction	T. B. Dooley	662,374	Nov. 20	2482	597	93	1475
Bearing. Antifriction	J. A. Perkins	664,822	Dec. 25	3614	820	93	2513
Bearing. Antifriction roller	J. A. Perkins	660,324	Oct. 23	3084	673	93	659
Bearing. Ball	S. W. Bull	659,462	Oct. 9	1319	301	93	283
Bearing. Ball	H. F. Weeks	659,874	Oct. 16	2107	474	93	453
Bearing. Cushioned	F. J. Rabbeth				770		
Bearing for colter or other shafts. Self-lubricating and dust-proof	R. W. Coombs and L. A. Brooks	664,724	Dec. 25	3389	771	93	2471
Bearing for rolls. End	M. J. Foley and G. L. Rogers	664,251	Dec. 18	3458	559	93	2256
Bearing. Lubricating	K. Keyssner	659,677	Oct. 16	1732	391	93	380
Bearing retainer. Ball	W. H. Binns	662,520	Nov. 27	2801	664	93	1558
Bearing. Roller	J. S. Godfrey	661,863	Nov. 13	1505	364	93	1263
Bearing. Roller	G. S. Heath	663,435	Dec. 11	996	217	93	1988
Bearing. Roller	J. A. Perkins	664,820	Dec. 25	3608	819	93	2511
Bearing. Roller	J. A. Perkins	664,821	Dec. 25	3611	820	93	2512
Bearing. Roller	J. A. Perkins	663,383	Dec. 4	874	188	93	1891
Bearing. Thrust	J. H. Fleming	664,445	Dec. 25	2858	653	93	2260
Bearings. Closing-up device for axle	F. Sürth	661,769	Nov. 13	1349	327	93	1234
Bearings. Sheet-metal cage for roller	J. A. Perkins	659,345	Oct. 9	1098	258	93	238
Beater	C. E. Ivins				275		
	C. S. Johnson and J. C. Cutcheon	659,398	Oct. 9	1189	276	93	258
Beating-out machine	C. S. and W. S. Johnson	659,399	Oct. 9	1191	276	93	258
Beating-out machine	I. C. Burgett	659,131	Oct. 2	730	176	93	148
Bed	N. Clement	658,890	Oct. 2	205	50	93	45
Bed	C. W. Santmyer	663,934	Dec. 18	1902	428	93	2142
Bed	S. G. Lisher	661,270	Nov. 6	446	103	93	1040
Bed and couch. Combination	G. Brand	663,692	Dec. 11	1431	317	93	2023
Bed-bottom	J. Hoey	663,171	Dec. 4	497	105	93	1820
Bed-bottom	J. Hoey	663,170	Dec. 4	496	105	93	1820
Bed-bottom attachment	T. J. Anderson	660,745	Oct. 30	3774	849	93	821
Bed-bottom. Spring	S. D. Dilts	661,959	Nov. 20	1999	411	93	1322
Bed-bottom. Spring	W. D. Hunt	664,756	Dec. 25	3464	782	93	2486
Bed-bottom. Spring	G. C. Locklin and B. M. Fox	661,808	Nov. 13	1420	342	93	1247
Bed-bottom. Spring	M. S. Parsons	664,496	Dec. 25	2950	673	93	2377
Bedclothes-holder	C. J. Wade	662,840	Nov. 27	3383	801	93	1608
Bedclothes-holder	K. L. Stenhouse	661,626	Nov. 13	1080	268	93	1182
					269		
Bed. Convertible	D. Eisner	664,539	Dec. 25	3026	689	93	2303
Bed. Folding	J. F. Wilmot	662,213	Nov. 20	2202	530	93	1419
					531		
Bed. Folding	N. Clement	661,037	Nov. 6	14	3, 4	93	953
Bed. Invalid	W. H. Donaldson	662,487	Nov. 27	2737	650	93	1545
Bed. Invalid	J. A. Lemmons, J. J. Hubbartt, and E. C. Rummell.	659,308	Oct. 9	1051	247	93	228
Bed. Invalid	I. W. Legg	658,789	Oct. 2	96	23	93	24
Bed-pad or supplemental mattress	H. E. Laughlin	663,448	Dec. 11	1013	221	93	1941
Bed. Spring	J. M. Martin	661,936	Nov. 13	1639	397	93	1288
Bed. Spring	W. G. Ralston	659,764	Oct. 16	1908	430	93	414
Bed-warmer	B. R. Blaisdell	660,268	Oct. 23	2795	620	93	612
Bedstead	A. F. Old	664,094	Dec. 18	2179	497	93	2198
Bedstead	G. A. Schacht	663,085	Dec. 11	1421	314	93	2029
Bedstead	N. W. McCourt	663,774	Dec. 11	1572	353	93	2052
Bedstead attachment	A. S. Myers	660,196	Oct. 23	2768	615	93	607
Bedstead-fastening	F. C. F. Peters	661,354	Nov. 6	600	139	93	1071
Bedstead-fastening	I. D. Eddy	663,427	Dec. 11	979	212	93	1935
Bedstead. Invalid	D. Moulton	659,755	Oct. 16	1803	426	93	411
					427		
Bedstead. Invalid	C. H. Tesch	662,704	Nov. 27	3135	742	93	1620
Bedstead. Wardrobe	W. Horner	660,574	Oct. 30	3476	779	93	764
Beehive bar-frame	G. Schmidt	664,824	Dec. 25	3620	821	93	2514
Beer, &c. Cold-air-pressure apparatus for	A. Plawin	664,227	Dec. 18	2420	552	93	2249
Beer-cooler	J. A. Sandell	659,700	Oct. 16	1774	400	93	389
Beer-cooler	J. H. Luhrs	664,420	Dec. 25	2809	637	93	2351
Beet-topping machine	N. C. Wallenthin	663,374	Dec. 4	854	183	93	1887
Bell	E. D. Stacy	659,327	Oct. 9	1077	253	93	233
					254		
Bell. Automatic gong	W. R. Moore	661,272	Nov. 6	448	103	93	1041
Bell. Door	P. A. McCaskey	658,995	Oct. 2	493	119	93	99
Bell mechanism. Bicycle	H. Kruschwitz	661,740	Nov. 13	1293	315	93	1223
					316		
Bells. Chime of	J. Hilder	661,695	Nov. 13	1210	294	93	1207
Belt	A. J. Clow	661,689	Nov. 13	1200	292	93	1205
Belt. Apparel	H. J. Gaisman	661,447	Nov. 6	750	176	93	1102
Belt. Apparel	G. H. Gentzel	659,022	Oct. 2	553	134	93	111
Belt. Apparel	G. H. Gentzel	659,023	Oct. 2	554	134	93	111
Belt. Apparel	H. Polak	661,225	Nov. 6	354	84	93	1022
Belt. Apparel	R. Scheuer	663,473	Dec. 11	1056	231	93	1950
Belt. Conveyer	J. K. Proctor	660,027	Oct. 16	2391	536	93	511
Belt. Diagnosing	F. R. Ryan	660,972	Oct. 30	4174	987	93	901
Belt-fastening	H. Hubbell	663,907	Dec. 18	1963	442	93	2154
Belt for ore-concentrators	W. J. Loring. (Reissue)	11,860	Oct. 2	876	208	93	174
Belt for straw-stackers. Drag	M. Heineke	661,607	Nov. 13	1048	261	93	1175
Belt-retainer	F. H. Houghton	660,990	Oct. 30	4208	945	93	907
Belt shifter and tightener	B. G. Luther	661,018	Oct. 30	4254	958	93	918
Belt-shifter. Automatic	P. W. Fryer	660,682	Oct. 30	3666	823	93	709
Belts. Guide for drive	V. D. Kern	659,370	Oct. 9	1141	266	93	247
Belts, &c. Shifter for	G. W. Peirce	660,454	Oct. 23	3252	727	93	702
Bench: *See* Washbench.							
Bending-machine	O. J. Beaudett	659,163	Oct. 2	784	189	93	158
Bending mechanism. Angle	R. Bates	662,664	Nov. 27	3052	720	93	1605
Bevel. Carpenter's	R. Leonhart, Jr	663,349	Dec. 4	817	175	93	1880
Beverages. Producing dealcoholized fermented	A. Müller	662,172	Nov. 20	2100	509	93	1402

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Beverages. Steaming-tray for bottled	P. D. Laible	661,804	Nov. 13	1413	340	93	1246
					341		
Bicycle	A. M. Allen	661,630	Nov. 13	1088	270	93	1184
Bicycle	N. M. Barnes	660,981	Oct. 30	4184	940	93	903
Bicycle	F. J. Gibbs	661,973	Nov. 20	1729	417	93	1328
Bicycle	G. G. Kerr	664,274	Dec. 18	2520	572	93	2269
Bicycle	O. J. Lawry	664,052	Dec. 18	2104	481	93	2183
Bicycle	C. H. Metz	660,448	Oct. 23	3244	725	93	701
Bicycle	J. E. Ruby	660,971	Oct. 30	4172	937	93	901
Bicycle	J. P. Schooler	659,505	Oct. 9	1559	354	93	330
Bicycle	H. J. Smith	659,838	Oct. 16	2033	456	93	439
Bicycle	H. C. Weeks	664,826	Dec. 25	3623	821	93	2515
					822		
Bicycle attachment	O. Hausmann	661,145	Nov. 6	220	54	93	906
Bicycle-brake	J. W. Johnson	663,968	Dec. 18	1964	442	93	2154
Bicycle-brake	J. E. Lindberg and J. A. Olson	663,913	Dec. 18	1807	420	93	2136
Bicycle-brake	A. H. Nield	663,297	Dec. 4	733	157	93	1854
Bicycle-brake	H. E. Ringle	661,022	Oct. 30	4273	960	93	920
Bicycle-brake	W. G. Tassell	662,558	Nov. 27	2857	678	93	1568
Bicycle-brake	A. I. Jacobs	664,481	Dec. 25	3025	666	93	2373
Bicycle-chain	W. H. Fauber	662,781	Nov. 27	3277	773	93	1647
Bicycle crank-hanger	W. H. Perkins	664,286	Dec. 18	2540	577	93	2273
Bicycle foot-pump	H. L. F. Trebert	659,187	Oct. 2	850	202	93	168
Bicycle-fork crown	J. S. Dikeman	662,115	Nov. 20	2003	479	93	1379
Bicycle-frame	C. A. Romans	658,867	Oct. 2	272	67	93	56
Bicycle-frame pump	J. H. Mantel	663,816	Dec. 11	1678	375	93	2075
					376		
Bicycle-gear	H. Dyer	660,547	Oct. 23	3427	769	93	736
Bicycle-gear. Compound	C. H. Metz	660,449	Oct. 23	3246	725	93	701
					726		
Bicycle-gearing	T. B. Jeffery	659,235	Oct. 9	942	222	93	207
Bicycle-gearing-case	J. and G. Wambach	660,875	Oct. 30	4023	900	93	870
Bicycle-guard	M. J. Flynn	659,731	Oct. 16	1831	414	93	400
Bicycle handle-bar	T. W. Gaillard	661,370	Nov. 6	623	145	93	1076
Bicycle handle-bar	J. M. Justen	660,576	Oct. 30	3478	779	93	765
					780		
Bicycle-lock	F. J. Errick and F. X. Batt	659,489	Oct. 9	1275	294	93	275
Bicycle mud-guard	A. B. Olmsted	660,300	Oct. 23	2989	663	93	651
Bicycle-pedal	G. R. Van Schoick and C. E. Samson.	663,478	Dec. 11	1062	233	93	1951
Bicycle propelling device	J. C. Devlin	658,763	Oct. 2	31	6	93	10
Bicycle-pump. Automatic	C. J. Dowling	659,653	Oct. 16	1670	379	93	371
Bicycle-pump. Self-supporting	R. N. Hatch	660,509	Oct. 23	3353	754	93	723
Bicycle-rack	L. C. Tiefel	661,359	Nov. 6	606	141	93	1072
Bicycle-saddle	T. Green	661,838	Nov. 6	572	132	93	1064
					622		
Bicycle-saddle	O. S. Harmon	660,215	Oct. 23	2809	623	93	614
Bicycle-saddle	B. F. Wheeler	662,158	Nov. 20	2082	504	93	1305
Bicycle-saddle body	A. F. and W. Meisselbach, Jr	660,261	Oct. 23	2885	643	93	630
Bicycle seat-post	A. E. McGill	661,461	Nov. 6	776	184	93	1107
Bicycle seat-post	J. B. Weir	660,285	Oct. 23	2945	655	93	642
Bicycle-stand	W. H. Hart, Jr	663,226	Dec. 4	603	129	93	1839
Bicycle standing attachment	M. Whaling	661,233	Nov. 6	368	87	93	1020
Bicycle-support	A. McCollum	664,490	Dec. 25	2940	670	93	2376
Bicycle-support	J. C. Rieger	664,353	Dec. 18	2677	608	93	2290
Bicycle-support	C. Stride	662,506	Nov. 27	2773	658	93	1553
Bicycle support and locking device	C. H. Stonebridge	661,598	Oct. 30	3508	787	93	770
Bicycle-tender	M. Bauer	660,615	Oct. 30	3538	795	93	776
Bicycles, &c. Luggage-carrier for	M. Bauer	660,616	Oct. 30	3540	795	93	776
Bicycles, &c. Luggage-carrier for	J. W. Stoll	664,184	Dec. 18	2341	534	93	2231
Bicycles. Pneumatic-cushioned seat-post for	T. I. Duffy	658,980	Oct. 2	467	111	93	94
					112		
Bicycles, &c. Saddle for	E. W. Walker	660,122	Oct. 23	2641	589	93	581
Bicycles, &c. Seat for	F. X. Ganter	662,927	Dec. 4	52	13	93	1736
Billiard and pool table. Convertible	J. Brauers	664,528	Dec. 25	3007	685	93	2389
Billiard-cue	O. F. Bartel	661,928	Nov. 13	1625	393	93	1286
Bin: *See* Grain-bin.							
Binder	J. R. Barrett	662,518	Nov. 27	2708	663	93	1557
Binder. Automatic lock	E. A. Trussell	664,825	Dec. 25	3022	821	93	2515
Binder-knotter	A. E. Gagnon and H. Joncas	664,253	Dec. 18	2460	559	93	2257
					560		
					561		
Binder-lock	C. H. Stoelting	664,107	Dec. 18	2205	502	93	2203
					508		
Binder. Temporary	A. Buckler	658,756	Oct. 2	13	3	93	5
Binder. Temporary	H. Fitch	661,213	Nov. 6	335	80	93	1019
Binding. Brush skirt	A. W. Stoekley	660,663	Oct. 30	3632	815	93	793
Binding-strap clasp	I. P. Fox	659,297	Oct. 9	1086	243	93	225
Binocular glasses. Prismatic	J. W. Hasselkus	659,526	Oct. 9	1443	326	93	307
					327		
Biscuit-making machine	G. S. Baker	662,336	Nov. 20	2411	581	93	1461
					582		
					583		
Biscuits for packing. Apparatus for feeding or delivering	G. Herbert, Jr	663,627	Dec. 11	1315	290	93	1999
					291		
Bit: *See* Bridle-bit. Expansible bit.							
Bit	R. A. Briggs	659,286	Oct. 9	1018	239	93	221
Black plates or other sheets. Manufacturing	W. C. Cronemeyer	664,128	Dec. 18	2246	511	93	2212
Blanket	T. D. Gordon	658,894	Oct. 2	309	76	93	63
Blasting	C. F. Bryant and C. H. Brown	663,724	Dec. 11	1492	339	93	2084
Bleaching compound	H. Wächter	659,719	Oct. 16	1810		93	396
Bleaching-keir	C. Rigamonti and G. Tagliani	661,295	Nov. 6	487	111	93	1049
					112		
Blind-fastener	C. E. Tefft and J. McGowan	661,460	Nov. 6	775	184	93	1107
Blind fastener. Window	V. A. Galagher	661,140	Nov. 6	208	52	93	993

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Blind. Outside window	W. Alford	664,451	Dec. 25	2867	655	93	2361
Blind. Venetian	J. G. Wilson	663,530	Dec. 11	1159	251	93	1969
Block: *See* Brake-block. Pulley-block. Building-block.							
Blocks. Machine for forming composite	J. Brower	662,684	Nov. 27	3094	730	93	1613
Blow-out or fuse-box. Magnetic	E. M. Hewlett	659,671	Oct. 16	1712	386	93	377
Blower. Rotary	T. W. Green	659,619	Oct. 9	1612	305	93	341
Blower. Rotary	E. P. Reichhelm	660,337	Oct. 23	3059	679	93	664
Board: *See* Game-board. Panel-board.							
Boat	G. F. Holloway	661,246	Nov. 6	396	93, 94	93	1031
Boat-keel. Movable	A. E. Preston	663,962	Dec. 18	1985	447	93	2159
Boat-launching device. Life-	W. J. Kennedy	663,348	Dec. 4	815	174, 175	93	1880
Boat. Life-	M. P. Hoy	663,172	Dec. 4	498	106	93	1820
Boat. Life-	E. A. Manny	664,769	Dec. 25	3497	702, 703	93	2492
Boat or floating device. Collapsible	J. Gutknecht	660,252	Oct. 23	2873	639	93	628
Boat-rope reel	T. F. McKey	663,509	Dec. 11	1131	245	93	1968
Boat. Serpentine	J. Gresham	662,067	Nov. 20	1916	459, 460	93	1362
Boats. Means for ventilating	M. P. Hoy	663,173	Dec. 4	501	106	93	1820
Bobbin. Separable cone-	W. P. Wood and W. E. Emery	659,597	Oct. 9	1562	354	93	331
Body-brace	S. N. Fitzpatrick	664,250	Dec. 18	2456	559	93	2256
Boiler: *See* Egg-boiler. Steam-boiler. Locomotive-boiler. Washboiler. Pipe-boiler. Water-tube boiler. Sectional boiler.							
Boiler	T. P. Connelly	664,534	Dec. 25	3017	686	93	2391
Boiler	M. Coryell	661,499	Nov. 13	846	203	93	1135
Boiler	P. Cunningham	660,751	Oct. 30	3783	851	93	823
Boiler	P. W. Hanford	660,429	Oct. 23	3213	716	93	695
Boiler	S. Lanceskes	660,258	Oct. 23	2881	642	93	629
Boiler	D. F. Morgan	663,818	Dec. 11	1681	377	93	2076
Boiler	C. Phillips	660,690	Oct. 30	3678	828, 829	93	801
Boiler attachment	G. W. Dammann	662,524	Nov. 27	2805	665	93	1598
Boiler-cleaner	E. Clay	663,064	Dec. 4	290	61	93	1781
Boiler crown-bar. Steam-	E. Seyfarth	660,761	Oct. 30	3800	853	93	827
Boiler-flue	F. L. Lane	662,125	Nov. 20	2020	487, 488	93	1382
Boiler-flues. Apparatus for manufacturing flanged	F. L. Lane	662,126	Nov. 20	2022	488, 489	93	1382
Boiler-flues. Apparatus for manufacturing flanged	F. L. Lane	662,127	Nov. 20	2023	490, 491, 492	93	1383
Boiler-furnace	W. Kneen	663,576	Dec. 11	1226	269	93	1981
Boiler-furnace	J. A. Stevens	660,661	Oct. 30	3629	814	93	793
Boiler-furnace and chain-grate stoker therefor	R. M. Snyder	661,675	Nov. 13	1175	287, 288	93	1202
Boiler furnace. Steam-	C. W. Fleischmann and K. Fischer	664,473	Dec. 25	2909	663	93	2360
Boiler furnace. Steam-	J. Milton	661,066	Nov. 6	69	16	93	964
Boiler gas-regulator. Steam-	W. H. Downing	663,158	Dec. 4	475	101	93	1816
Boiler incrustations. Compound for preventing	J. Smit	662,205	Nov. 20	2171	------	93	1414
Boiler-maker's spacer	C. J. Wangler	663,053	Dec. 4	277	59	93	1778
Boiler safety device. Steam-	J. H. Bullard	660,358	Oct. 23	3097	687	93	672
Boiler sediment-collector	T. G. Lovegrove	659,540	Oct. 9	1471	333	93	313
Boiler stand. Adjustable range-	W. H. Shepard	659,938	Oct. 16	2239	500	93	477
Boiler-stay	S. F. Prince, Jr	663,464	Dec. 11	1043	228	93	1948
Boiler-tube cleaner	W. D. Forsyth	664,140	Dec. 18	2269	516	93	2216
Boiler-tube cleaner	R. Thompson	659,896	Oct. 16	2037	457	93	440
Boiler-tube cutter	D. E. Davis	662,893	Nov. 27	3556	834	93	1709
Boiler water-line gage. Steam-	W. O. Knowlson	662,598	Nov. 27	2082	696	93	1582
Boilers. Removing scale from	E. D. Hopcroft	661,873	Nov. 13	1523	369	93	1266
Bolt: *See* Expansion-bolt. Stay-bolt.							
Bolt	J. O'Meara	664,027	Dec. 18	2073	471	93	2176
Bolt spring-fastener	S. C. Ball	660,206	Oct. 23	2702	620	93	611
Bolts, &c. Apparatus for making	W. W. Mulford	661,917	Nov. 13	1509	387, 388	93	1281
Bolter	W. L. Burner	662,666	Nov. 27	3056	721, 722	93	1606
Book. Account-	A. L. Bastress	660,765	Oct. 30	3805	854	93	827
Book. Account-	J. H. Rand	663,639	Dec. 11	1394	295	93	2003
Book. Bill or account-slip holding	F. E. Braddock	661,710	Nov. 13	1239	300	93	1213
Bookbinding	J. McGraw	660,304	Oct. 23	3098	663	93	651
Bookcase	J. E. Knobel	659,851	Oct. 16	2066	464, 465	93	445
Bookcase. Sectional	C. Snyder	664,687	Dec 25	3307	751	93	2452
Book-cover machine	A. I. Jacobs	661,763	Nov. 13	1332	324, 325	93	1231
Book-holder	E. C. Pasal	659,254	Oct. 9	973	228	93	212
Book-leaf	H. C. Miller	661,323	Nov. 6	352	84	93	1022
Book-leaf protector	D. J. Taylor	661,328	Nov. 6	548	126	93	1060
Book-lock. Interchangeable adjustable	J. W. Sheppard	662,700	Nov. 27	3131	741	93	1619
Book. Manifold order-	T. McDowell	659,413	Oct. 9	1215	280	93	263
Book. Manifold order-	T. McDowell	661,722	Nov. 13	1259	304, 305	93	1217
Book. Manifold sales-	F. M. Turck	662,043	Nov. 20	1870	449, 450	93	1354
Book. Manifolding order-	S. S. Cooke	664,384	Dec. 25	2727	619	93	2235
Book. Manifolding sales-	J. A. Brake	661,080	Nov. 6	6	2	93	952
Book. Manifolding sales-	T. McDowell	659,414	Oct. 9	1217	280, 281	93	264
Book-marker	C. W. Kromenaker	664,417	Dec. 25	2804	636	93	2350

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Pages.
Book or copy holder	B. T. Montgomery	664,664	Dec. 25	3366	742, 743	93	2444
Book or music rack attachment	W. A. Luby	664,419	Dec. 25	2807	637	93	2350
Book-rest. Adjustable	C. W. Davis and H. M. Hall	660,148	Oct. 23	2662	594	93	585
Book. Separable	F. H. Gilson	664,544	Dec. 25	3036	691	93	2395
Book-signatures. Device for marking	C. T. Herrmann	660,637	Oct. 30	3578	802	93	783
Book-support	A. S. Albright	664,031	Dec. 18	2077	472	93	2177
Books. Stub-holder for check or other	R. F. McKinley	659,250	Oct. 9	964	227	93	211
Boot-cleaner	G. L. Lamb	662,237	Nov. 20	2243	509	93	1428
Bootjack	F. Jaeger	662,439	Nov. 27	2641	630	93	1526
Bootjack	F. Jaeger	662,440	Nov. 27	2641	631	93	1526
Boot or shoe	M. Hallanan	663,270	Dec. 4	685	148	93	1855
Boot or shoe	R. Hörmann	664,044	Dec. 18	2093	476	93	2180
Boot or shoe	J. A. Ticknor	661,565	Nov. 13	964	229	93	1158
Boot or shoe holder	C. D. Bowen	659,615	Oct. 9	1601	362	93	339
Boot or shoe holdfast	S. J. Mills	664,166	Dec. 18	2307	525	93	2224
Boot or shoe polishing device	E. J. Leighton	658,790	Oct. 2	99	23	93	24
Boot or shoe stretcher	E. H. Finfrock	659,519	Oct. 9	1433	325	93	305
Boot or shoe toe-cap	W. A. Knipe	662,378	Nov. 20	2488	599	93	1476
Boot or shoe welt	H. B. Pelton	659,181	Oct. 2	828	200	93	167
Boot-tree	J. A. Baxter	661,392	Nov. 6	658	154	93	1083
Boots or shoes. Manufacture of	W. W. Hulse	659,844	Oct. 16	2055	461, 462	93	444
Boring and turning machine	A. K. Reese	663,613	Dec. 11	1289	285	93	1995
Bosh-plate	N. W. Davis	664,350	Dec. 18	2670	607	93	2297
Bottle	W. A. Fries, Sr	664,739	Dec. 25	3421	776	93	2478
Bottle	C. F. Klin	662,149	Nov. 20	2062	500	93	1391
Bottle	S. F. O'Leary	662,088	Nov. 20	1961	469	93	1371
Bottle	C. W. Stapleton	663,617	Dec. 11	1295	286	93	1996
Bottle	J. B. Tauveron	660,404	Oct. 23	3173	704	93	687
Bottle	J. H. Peters	659,805	Oct. 16	2138	483	93	459
Bottle attachment	J. H. Peters	661,422	Nov. 6	709	164	93	1094
Bottle attachment	A. V. Whiteman	663,988	Dec. 18	1999	451	93	2162
Bottle-cap	C. G. Bauer	660,322	Oct. 23	3080	671, 672	93	659
Bottle-capping machine	C. Degemeyer, Jr	662,257	Nov. 20	2270	546	93	1433
Bottle case or cover	W. H. Lockhart and G. H. Klein	664,053	Dec. 18	2105	481	93	2188
Bottle-closure	J. F. Perry	662,812	Nov. 27	3322	784	93	1655
Bottle-closure	E. W. Estes and F. A. Emerick	661,308	Nov. 6	513	119	93	1053
Bottle-cooler	J. H. Braudt	661,687	Nov. 13	1198	291	93	1206
Bottle-cooler pump attachment	C. G. Hilgenberg and H. R. Loper	660,435	Oct. 23	3224	718	93	697
Bottle. Dentifrice-	L. P. Straube	663,136	Dec. 4	428	89	93	1807
Bottle-filling device	F. L. Nichols and W. M. Fowler	662,087	Nov. 20	1967	469	93	1370
Bottle-filling machine	F. L. Nichols and W. M. Fowler	662,086	Nov. 20	1962	468	93	1369
Bottle-filling-machine bottle-support	G. Clarke	660,326	Oct. 23	3086	673	93	660
Bottle for containing liquids or gases under high pressure.	T. C. Bates	664,117	Dec. 18	2228	507	93	2209
Bottle-holder	W. J. Barrett	661,482	Nov. 13	821	198	93	1130
Bottle-indicator	C. E. Crane	663,734	Dec. 11	1504	335	93	2037
Bottle. Milk-	J. H. Barnes	664,376	Dec. 25	2714	616	93	2333
Bottle. Non-refillable	J. A. Beck	663,952	Dec. 18	1985	435	93	2149
Bottle. Non-refillable	H. J. Bloomer	664,605	Dec. 25	3174	718	93	2425
Bottle. Non-refillable	S. Bookheim	661,948	Nov. 20	1682	408	93	1319
Bottle. Non-refillable	R. M. Ellis	661,044	Nov. 6	28	7	93	956
Bottle. Non-refillable	W. H. Ferris	662,465	Nov. 20	1912	458	93	1362
Bottle. Non-refillable	J. A. Foster	663,335	Dec. 4	797	171	93	1876
Bottle. Non-refillable	W. Hinton	658,895	Oct. 2	811	76	93	64
Bottle. Non-refillable	A. L. Kendrick and W. J. Wiley	662,945	Dec. 4	83	19	93	1742
Bottle. Non-refillable	R. H. Newsom	662,809	Nov. 27	3314	782	93	1633
Bottle. Non-refillable	F. J. Stallings	659,186	Oct. 2	848	201	93	168
Bottle. Non-refillable	H. T. White	659,272	Oct. 9	997	234	93	217
Bottle. Non-refillable	J. R. Dice	660,150	Oct. 23	2666	595	93	586
Bottle-stopper	J. M. Harmony	659,395	Oct. 9	1185	274	93	257
Bottle-stopper	J. Kowsky	660,515	Oct. 23	3370	758	93	720
Bottle-stopper	D. T. Phillips	663,040	Dec. 4	256	55	93	1775
Bottle-stopper	W. W. Lowrey. (Reissue)	11,861	Oct. 2	877	208	93	174
Bottle-stopper and sprinkler. Combined	G. T. Chapman	661,789	Nov. 13	1389	344	93	1242
Bottle-stopper retainer	F. A. Wilmot	661,836	Nov. 13	1400	353	93	1254
Bottle top. Capsule-	M. E. Donally	659,167	Oct. 2	790	191, 192	93	159
Bottle-washer	W. T. Miller	659,935	Oct. 16	2225	499, 500	93	476
Bottle-washing apparatus	G. von Langen	661,805	Nov. 13	1416	341	93	1246
Bottle-washing machine	W. B. Fenn	664,472	Dec. 25	2908	663	93	2369
Bottle. Water-	H. Goetz	661,659	Nov. 13	1142	282	93	1194
Bottles containing volatile liquids. Stopper for	C. E. Blue	662,759	Nov. 27	3232	763	93	1637
Bottles. Mold for manufacturing pressed and blown narrow-neck	C. H. Bogart	662,760	Nov. 27	3233	764	93	1637
Bottling-machine	H. Blouth	661,908	Nov. 13	1577	382, 383	93	1276
Bowling-alley	A. J. Rollert	660,460	Oct. 23	3260	729	93	704
Bowling-alley. Portable							
Box: *See* Ammunition-box. Lunch or other box. Bait-box. Mail-box. Butter-box. Match-box. Card-box. Miter-box. Cigar-box. Musical box. Compartment box. Packing-box. Feed-box. Paper box. File-box. Salve-box. Fruit-box. Shipping-box. Hat-box. Shipping and packing box. Journal-box. Knockdown box. Ticket-box. Letter-box. Tooth-powder box. Lunch-box. Toy money-box.							
Box	D. J. Campbell	661,115	Nov. 6	160	39	93	984

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Box and cover	A. E. Foltz	662,619	Nov. 27	2995	703	93	1589
Box-corner binding-strip	W. J. Pierpont	664,676	Dec. 25	3288	747	93	2449
Box cover. Cigar or other	H. M. Kreh	660,858	Oct. 30	3089	892	93	863
Box-fastener	H. C. Knox	664,415	Dec. 25	2801	636	93	2350
Box-fastener	J. J. Noser	662,461	Nov. 27	2952	638	93	1534
Box-fastener	M. C. Ryan	662,311	Nov. 20	2908	570	93	1453
Box-fastener	A. J. Fredrikson	664,141	Dec. 18	2271	517	93	2217
Box for matches, cigarettes, cigars, confections, &c.	A. B. Cowles	659,651	Oct. 16	1677	378 379	93	370
Box formed of paper, cardboard, &c	W. S. Stuckenberg	659,772	Oct. 16	1927	433	93	417
Box-forming machine	C. Cable	661,095	Nov. 6	12	3	93	953
Box-lid holder	J. H. Knowles	660,854	Oct. 30	3084	891	93	892
Box-lid support and tag-holder. Combined	W. S. Dolg	663,223	Dec. 4	587	127 128	93	1896
Box-making machine	H. E. Henschel	658,844	Oct. 2	233	58 59 60	93	49
Box-nailing device	I. E. Davis	661,957	Nov. 20	1696	411	93	1321
Box or receptacle	R. Hoffman	661,050	Nov. 6	42	10	93	959
Box or vessel for powdered or granular material	E. E. Clement	662,353	Nov. 20	2445	588	93	1468
Box-stay strips. Applying	T. Morgan	663,087	Dec. 4	252	54	93	1774
Boxes, cards, or similar articles. Support for	G. D. Snell	669,171	Oct. 23	2721	605	93	597
Boxes. Construction for fancy	H. J. Erkenswick	664,471	Dec. 25	2906	662 663	93	2309
Brace: *See* Ankle-brace. Body-brace. Shoulder-brace. Universal brace.							
Bracket: *See* Adjustable bracket. Flash-light bracket. Lamp-bracket.							
Braid	F. Thun and H. Janssen	664,064	Dec. 18	2124	485	93	2186
Braid-machine	M. W. Schloss	663,584	Dec. 11	1237	271 272	93	1961
Braiding-machine	H Janssen and F. Thun	664,047	Dec. 18	2098	479 480	93	2181
Brake: *See* Air-brake. Automatic brake. Back-pedaling brake. Bicycle-brake. Car-brake. Car track-brake. Electric brake. Elevator-brake. Fluid-pressure brake. Friction-brake. Hoist lowering-brake. Mechanical brake. Motor-controlling brake. Rail-brake. Railway-brake. Vehicle-brake. Vehicle hitch-brake. Velocipede-brake. Wagon-brake.							
Brake	M. Altmeyer	659,997	Oct. 16	2340	526	93	502
Brake	H. C. Behr	663,597	Dec. 11	1260	278	93	1999
Brake	H. A. Denney	664,213	Dec. 18	2396	546	93	2214
Brake	C. W. Martinas	660,964	Oct. 30	4163	935	93	899
Brake-beam	F. B. Aglar	658,972	Oct. 2	457	108	93	92
Brake-beam	E. Posson	659,319	Oct. 9	1066	251	93	231
Brake-block. Automatic	W. H. Sauvage	659,629	Oct. 9	1690	368	93	344
Brake-block shoe	M. Potter	661,705	Nov. 13	1230	295	93	1212
Brake-controller. Electric	J. C. Lincoln	661,880	Nov. 13	1535	374	93	1269
Brake-operating mechanism	J. E. Normand	660,647	Oct. 30	3005	808	93	788
Brake-operating mechanism	J. E. Normand	660,648	Oct. 30	3006	808 809	93	788
Brake-shoe	J. R. Cardwell	663,958	Dec. 18	1948	438	93	2151
Brake-shoe	T. W. Mitchell	658,856	Oct. 2	258	64	93	51
Brake switch. Emergency	W. M. Brown	661,491	Nov. 13	835	201	93	1132
Branding-iron	W. B. Dudley	662,922	Dec. 4	44	11	93	1794
Branding or tattooing apparatus	J. Wright and J. W. Mitchell	663,320	Dec. 4	772	165	93	1872
Brazing-furnace	D. H. Watts	663,822	Dec. 11	1689	378	93	2077
Bread-cutter	H. B. Bingham	662,756	Nov. 27	3228	733	93	1636
Bread-cutter	S. W. Long	659,683	Oct. 16	1742	398	93	382
Bread-cutting machine	J. R. Farmer	663,742	Dec. 11	1521	339 425	93	2040
Bread-making machine. Automatic	C. Kessler	661,999	Nov. 20	1770	426 427 428	93	1335
Brick	G. E. A. Holdsworth	662,119	Nov. 20	2011	485	93	1380
Brick-kiln	E. Aber	660,880	Oct. 30	4028	901 902	93	871
Brick-kiln	H. C. Dunn	664,136	Dec. 18	2264	514 515	93	2215
Bricklayer's gage	W. R. McClellan and C. Heaton	663,975	Dec. 18	1974	441	93	2157
Brick loading or unloading apparatus	T. E. Ayotte and A. A. Charbonneau	664,711	Dec. 25	3352	762	93	2402
Brick-machine	W. P. Grath	660,187	Oct. 23	2751	612	93	603
Brick-machine	W. P. Grath	660,188	Oct. 23	2753	612 613	93	604
Brick-machine. Hydraulic	W. N. Graves	661,864	Nov. 13	1506	364 365 366	93	1263
Brick or block for metallurgical furnaces and preparing same. Lining	E. F. McDowell	662,288	Nov. 20	2316	------	93	1442
Brick-press	C. H. Horton	660,110	Oct. 23	2581	579	93	568
Brick-press	J. J. Koch	663,606	Dec. 11	1276	282 283 284	93	1993
Brick-press. Hydraulic	J. J. Koch	662,674	Nov. 27	3070	725 726	93	1608
Brick-truck	J. M. Gunkle	664,145	Dec. 18	2280	519	93	2219
Bricks. Automatic former for	R. H. Staley	663,688	Dec. 11	1425	316	93	2021
Bricks from lime and sand. Manufacturing	L. Galecki, P. and J. Lopatin	662,408	Nov. 27	2571	------	93	1511

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bridge	M. Waddell	660,827	Oct. 30	3935	881 882	93	853
Bridge. Bascule	M. Waddell	661,113	Nov. 6	155	38, 39	93	962
Bridge. Draw	T. R. Bevans	663,484	Dec. 11	1072	234 235	93	1952
Bridle-bit	J. Purcell	660,923	Oct. 30	4060	918	93	884
Bridle-blind	F. Mack	661,375	Nov. 6	630	146	93	1077
Briquets. Machine for forming pulverized material into	T. A. Edison	661,238	Nov. 6	378	90, 91	93	1028
Broaching-press	J. A. Baker	664,615	Dec. 25	3191	722	93	2427
Broiler	L. F. Betts	663,483	Dec. 11	1070	234	93	1952
Bromo-tannin-gelatin compound	H. Brat	659,204	Oct. 9	887	------	93	196
Brooder. Chicken	L. Brown and H. W. Sturtevant	662,347	Nov. 20	2434	587	93	1465
Brooding and hen house	A., S. A., and P. W. Markwell	663,916	Dec. 18	1871	421	93	2137
Broom. Antiseptic	O. S. Kulman	659,978	Oct. 16	2311	520	93	495
Brush	W. Gano	663,697	Dec. 11	1447	320	93	2025
Brush	J. F. Mumford	663,973	Dec. 18	1971	444	93	2156
Brush	M. Rosenthal	661,358	Nov. 6	605	141	93	1072
Brush	H. M. Sturgis	663,245	Dec. 4	643	137	93	1846
Brush	H. M. Sturgis	663,246	Dec. 4	644	138	93	1847
Brush	H. M. Sturgis	663,247	Dec. 4	645	138	93	1847
Brush and soap holder. Combined	R. L. Hardy	661,176	Nov. 6	273	66	93	1007
Brush-blank-holding device	W. C. Read	660,589	Oct. 30	3496	784 785	93	768
Brush-cabinet. Painter's	J. H. Francis	658,988	Oct. 2	473	114	93	95
Brush. Comb	A. B. Durgin	660,893	Oct. 30	4044	906	93	874
Brush. Fountain	J. S. Casey	660,002	Oct. 16	2348	528	93	508
Brush-holders. Adjusting	H. G. Reist	661,228	Nov. 6	360	86	93	1024
Brush. Hydraulic	E. A. Rix	661,377	Nov. 6	454	104	93	1042
Brush. Shaving	E. J. Samson and L. Levi	662,973	Dec. 4	132	28	93	1750
Brush. Tooth	D. J. Archer	660,677	Oct. 30	3659	822	93	798
Brush. Tooth	C. W. Richards	659,593	Oct. 9	1558	353	93	330
Bubble-blowing and whistling device. Combined	W. McGiven	659,758	Oct. 16	1897	427	93	412
Bucket	J. Harth, Jr	664,147	Dec. 18	2283	520	93	2219
Bucket. Minnow	J. R. Brinck	664,719	Dec. 25	3368	766	93	2466
Bucket-support	W. J. Muir	659,591	Oct. 9	1556	353	93	330
Bucket. Well	R. F. B. Logan	661,883	Nov. 13	1543	375	93	1270
Buckle	S. and A. Bienenzucht	662,706	Nov. 27	3141	748	93	1621
Buckle	J. W. Bowman	659,912	Oct. 16	2183	491	93	468
Buckle	L. I. Friedenberg	663,877	Dec. 18	1789	401	93	2119
Buckle	W. P. Gelabert	660,544	Oct. 23	3424	768	93	736
Buckle	J. W. Heylmun	659,302	Oct. 9	1043	245	93	226
Buckle	D. E. Stoneburner	663,397	Dec. 4	905	196	93	1898
Buckle and cockeye	M. Taylor	659,604	Oct. 2	516	124	93	103
Buckle and trace-carrier. Back-band	R. Scheuer	663,472	Dec. 11	1055	231	93	1950
Buckle. Belt	C. A. Goozey	661,974	Nov. 20	1732	417	93	1328
Buckle. Lock	L. White	662,846	Nov. 27	3395	808	93	1671
Buckle. Wedge	W. Nelson	664,172	Dec. 18	2317	528	93	2226
Budding implement	N. Weston	661,709	Nov. 13	1237	299 300	93	1213
Buggy spring-gear	H. M. Williams	663,950	Dec. 18	1928	434	93	2148
Building. Assembly	A. J. Delke	660,419	Oct. 23	3198	711	93	692
Building-block	J. C. Pelton	663,239	Dec. 4	632	135 136	93	1844
Building construction	N. C. Schouboe	659,492	Oct. 9	1376	313 314	93	295
Building or other materials. Apparatus for conveying or transporting	J. H. Hind	660,436	Oct. 23	3225	719 720	93	697
Bulkhead and door	G. Staiger	663,049	Dec. 4	270	57	93	1777
Bung and bung-bushing	F. W. Pingel	660,653	Oct. 30	3617	811	93	791
Bung. Barrel	F. W. Pingel	660,654	Oct. 30	3618	811	93	791
Bung. Barrel	F. X. Mayer	662,490	Nov. 27	2745	651	93	1547
Bung-hole stave with metal lining. Gas-proof	J. J. Georges	663,224	Dec. 4	600	129	93	1838
Bunion or corn shield	F. M. Brooks	658,890	Oct. 2	302	75	93	62
Bunsen burner	F. M. Brooks	661,489	Nov. 13	829	200	93	1131
Bunsen burner	L. L. Rowe	661,646	Nov. 13	1115	276 277	93	1188
Buoy	C. I. Berg	661,573	Nov. 13	988	246	93	1163
Buoy. Bell	E. G. P. Smith	663,941	Dec. 18	1913	430	93	2145
Buoying means for water-craft	J. M. Richens	660,658	Oct. 30	3024	812 813	93	792
Burglar-alarm	W. H. Holmes	662,534	Nov. 27	2822	670	93	1562
Burglar-alarm	W. H. C. Jewell	663,230	Dec. 4	611	130	93	1840
Burglar-alarm	J. L. Murphy	662,803	Nov. 27	3309	781	93	1653
Burglar-alarm. Electric	H. Rohrdantz	662,657	Nov. 27	3030	717	93	1602
Burglar-alarm switchboard. Electric	S. H. Rickard	661,229	Nov. 6	361	86	93	1024
Burial apparatus	J. Carhart	660,947	Oct. 30	4137	929	93	893
Burial-case machine	M. L. Keyes	660,642	Oct. 30	3590	805	93	785
Burial-casket	C. A. Ruebekam	663,641	Dec. 11	1337	295	93	2003
Burner: *See* Atmospheric burner. Bunsen burner. Gas-burner. Hydrocarbon-burner. Lamp-burner. Stubble-burner. Vapor-burner. Vegetation-burner.							
Burner	W. R. Jeavons	662,942	Dec. 4	75	18	93	1741
Burner	W. R. Jeavons	662,943	Dec. 4	78	18	93	1742
Burner pressure device	G. A. Loeben	663,814	Dec. 11	1674	374 375	93	2074
Burning liquid fuel. Apparatus for	J. Smith	662,319	Nov. 20	2378	573 574	93	1455
Burning pulverized fuel. Apparatus for	F. H. Lewis	661,700	Nov. 13	1220	296	93	1209
Bushing. Barrel	J. Hart and J. Worth	661,519	Nov. 13	882	212	93	1142
Butter, &c. Apparatus for making molds of	R. E. Webb	660,939	Oct. 30	4122	927	93	891
Butter-box	J. K. C. Hobbs	664,549	Dec. 25	3044	693	93	2397
Butter-cutting apparatus	R. Kopp	664,021	Dec. 18	2065	469	93	2174

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Butter-cutting apparatus	P. H. Peacock	662,464	Nov. 27	2686	639 640	93	1535
Butter-plate	M. O'Meara	661,071	Nov. 6	79	18	93	996
Butter-press	J. D. Reiff	661,356	Nov. 6	602	140	93	1071
Button	D. A. Carpenter	660,558	Oct. 30	3448	774	93	760
Button	D. A. Carpenter	660,619	Oct. 30	3543	796	93	777
Button	E. Gebhardt	661,337	Nov. 6	571	132	93	1064
Button	E. W. Silsby	660,127	Oct. 23	2624	586	93	577
Button	E. S. Smith	662,033	Nov. 20	1846	444	93	1348
Button	J. P. C. Weis	659,905	Oct. 16	2166	488	93	465
Button	A. Allgier	663,321	Dec. 4	773	165	93	1872
Button and button-fastener	H. N. Liphard	661,916	Nov. 13	1598	387	93	1281
Button and cuff holder. Combined	E. N. Whetsel and M. C. Bradley	663,203	Dec. 4	530	118	93	1830
Button and necktie-holder. Collar-	N. Barry, Jr	659,191	Oct. 2	858	204	93	170
Button-blank-cutting machine	W. S. Yost	660,089	Oct. 16	2412	543	93	514
Button. Collar-	O. W. Young	664,307	Dec. 18	2578	587	93	2280
Button. Collar-	J. R. Byrne	663,860	Dec. 18	1762	394	93	2114
Button-die	N. Barry, Jr	659,192	Oct. 2	860	204 205	93	171
Button-drilling machine	W. A. Church	659,467	Oct. 9	1326	303	93	285
Button. Electrically-illuminated	C. R. Weidmüller	662,844	Nov. 27	3391	802	93	1670
Button. Glove-	N. Barry, Jr	659,193	Oct. 2	866	206	93	172
Button-grinding machine	W. N. Parkes	659,415	Oct. 9	1219	281	93	264
Buttonhole-machines. Tripping device for stop-motion mechanisms for	G. A. Joy	664,759	Dec. 25	3470	784 785	93	2487
Buttonhole marker and spacer	N. C. La Casse	659,347	Oct. 9	1101	258	93	238
Button-machine	H. M. Larter. (Reissue)	11,878	Dec. 18	2701	618	93	2304
Button or stud	J. A. Shoemaker	664,101	Dec. 18	2190	500	93	2201
Button-polishing machine	G. W. Gwinn	661,310	Nov. 6	516	120	93	1054
Button-setting machine	G. W. Gwinn and H. C. Smith	661,309	Nov. 6	514	119	93	1053
Button-setting machine	C. S. Ellis	661,239	Nov. 6	385	91	93	1029
Buttons. Dies for making upholsterers'	H. C. Sears	661,279	Nov. 6	457	105	93	1042
Cab. Hansom-	J. L. Tandy	658,880	Oct. 2	287	70	93	60
Cabinet	T. G. Walpuski	664,697	Dec. 25	3328	757	93	2457
Cabinet. Buffet-	L. Arnold	662,903	Dec. 4	7	2	93	1728
Cabinet. Kitchen-	L. Frohnert	660,500	Oct. 23	3336	748	93	719
Cable-roads. Sheave for	M. Horst	659,970	Oct. 16	2299	516	93	498
Cage-rest. Automatic	N. Thomas	663,942	Dec. 18	1914	431	93	2145
Cake-beating machine	C. J. Mathys	659,821	Oct. 16	2013	451	93	434
Cake-cutter	W. C. Barber and C. W. Furner	660,717	Oct. 30	3728	839	93	812
Cake-making machine. Striped-	W. H. McFadden. (Reissue)	11,873	Nov. 20	2494	600 601 602 603	93	1477
Caisson	V. L. and W. R. Emerson	662,780	Nov. 27	3274	773	93	1646
Calcium acetate. Obtaining	G. G. Smith	660,170	Oct. 23	2720	605	93	597
Calcium-carbid cartridge	J. M. Morehead	664,334	Dec. 18	2628	597	93	2289
Calcium carbid. Manufacture of	M. P. E. Létang	659,447	Oct. 9	1291		93	278
Calcium carbid. Preparation of	F. A. Wilkinson and C. C. Gibson	661,096	Nov. 6	120	29, 30	93	974
Calculating apparatus	D. E. Felt	661,121	Nov. 6	172	43 44 45	93	987
Calculating-machine	H. J. Hanson	663,890	Dec. 18	1807	406 407	93	2123
Calculator	L. B. Thomas	659,835	Oct. 16	2095	457	93	439
Calendar	F. B. Moeller	662,954	Dec. 4	104	21, 22	93	1745
Call-box. Electric	E. E. Salisbury	664,681	Dec. 25	3295	749	93	2450
Call-box return-signal device	J. S. and H. M. Robinson	663,043	Dec. 4	260	56	93	1775
Call or signal box. Electric	G. G. Glenn and W. S. Sullivan	661,173	Nov. 6	208	65	93	1006
Call-register or service-meter circuit for switch-board apparatus	G. K. Thompson	664,191	Dec. 18	2355	537	93	2234
Calling apparatus. Individual	W. F. Homman	660,439	Oct. 23	3230	721	93	698
Caloric-engine	J. T. Nicolson	660,996	Oct. 30	4210	946 947	93	908
Calorimeter	R. C. Carpenter	662,143	Nov. 20	2045	491	93	1388
Cam for operating machinery	H. J. Schmick	663,704	Dec. 11	1460	322	93	2028
Camera attachment	L. M. Pierron and H. R. Miller	659,592	Oct. 9	1557	353	93	330
Camera back. Photographic	H. M. Reichenbach	661,894	Nov. 13	1561	379	93	1273
Camera clamping socket and support	G. W. Hall	658,911	Oct. 2	396	84	93	69
Camera focusing attachment	J. Gaut	659,062	Oct. 2	616	149	93	123
Camera focusing device	J. A. Mosher	658,994	Oct. 2	492	119	93	99
Camera focusing device	H. E. S. Singleton	658,872	Oct. 2	277	68	93	57
Camera. Kinetographic	W. V. Esmond	661,119	Nov. 6	167	42	93	986
Camera. Magazine-	G. de Geofroy	659,143	Oct. 2	748	180	93	151
Camera. Photographic	J. S. Wright and C. S. Gooding	662,998	Dec. 4	184	37 38 39	93	1761
Camera plate-magazine	C. H. Pratt and A. D. Copeland	662,696	Nov. 27	3124	738 739	93	1618
Camera. Roll-holding	G. Eastman	661,469	Nov. 6	793	189	93	1110
Camera. Roll-holding	A. O. Graf	659,963	Oct. 16	2285	512 513	93	490
Camera. Roll-holding photographic	J. P. Meyer	664,770	Dec. 25	3498	703	93	2492
Cameras. Reversible back for	A. D. Davis	661,956	Nov. 20	1694	410	93	1321
Can: *See* Creaming-can. Measuring-can. Metallic can. Milk-can. Oil-can. Roving can. Safety-can. Sheet-metal can. Silver-can.							
Can	E. E. Davenport and J. E. Robinson	663,067	Dec. 4	298	64	93	1782
Can	S. M. Okell	662,544	Nov. 27	3338	674	93	1565
Can	J. Selle	663,799	Dec. 11	1626	364	93	2003
Can	R. B. King	659,150	Oct. 2	760	183	93	153
Can cooler. Milk-	C. M. Dravo and T. B. Miller	662,778	Nov. 27	3271	772	93	1646
Can cover. Locking milk-							

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Invention.	Name.	No	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Can-filler. Measuring	S. A. Berry	664,075	Dec. 18	2142	490	93	2190
Can-filling machine	F. B. Fulton	664,142	Dec. 18	2272	517 518	93	2217
Can-filling machine	J. E. J. Goodlett	660,102	Oct. 23	2566	574 575	93	566
Can-filling machine. Automatic	J. E. J. Goodlett	660,101	Oct. 23	2564	573 574	93	565
Can-heading machine	E. C. Atwood	659,804	Oct. 16	1994	446	93	431
Can-holder	F. E. Norman	661,889	Nov. 13	1553	377	93	1272
Can-numbering machine	C. W. Sleeper	663,048	Dec. 4	269	57	93	1777
Can-opener	C. A. and O. Anderson	664,033	Dec. 18	2081	473	93	2178
Can-opener	H. L. Bailey	663,846	Dec. 18	1740	388	93	2110
Can-opener	J. G. Brown	659,913	Oct. 16	2184	491	93	468
Can-opener	H. Flanders	661,597	Nov. 13	861	206	93	1137
Can-opener	L. C. Witkowski	661,570	Nov. 13	976	241 242	93	1160
Can-opening key	J. Zimmerman	661,253	Nov. 6	416	93	93	1034
Can stopper. Milk-	A. B. Fisher	662,782	Nov. 27	3279	778	93	1647
Cans. Combined cover and strainer for milk or creaming	H. M. Case	661,493	Nov. 13	839	201	93	1133
Canal. Pleasure-	G. W. Schofield	664,179	Dec. 18	2326	531	93	2228
Canceling and postmarking machine. Mail	W. R. Landfear	663,446	Dec. 11	1010	220	93	1941
Canceling machine. Letter-	W. I. Ohmer, J. N. Kelly, and W. M. Kelch.	663,663	Dec. 11	1369	303 304 305	93	2010
Canceling machine. Letter-	W. I. Ohmer, J. N. Kelly, and W. M. Kelch.	663,664	Dec. 11	1378	305 306	93	2012
Canceling machine. Letter-	S. E. Pettee	664,429	Dec. 25	2823	640 641	93	2354
Candelabrum	G. P. Kato, Jr	658,806	Oct. 2	315	77	93	64
Candle	W. R. Ellis	664,246	Dec. 18	2449	557	93	2255
Candle-holder	M. Hagen	660,899	Oct. 30	4054	908	93	876
Candle-holder	W. G. MacIvy	663,833	Dec. 11	1718	383	93	2088
Candlestick and combination implement. Miner's	F. Herbst	660,573	Oct. 30	3474	779	93	764
Candlestick. Electric	L. F. Lewis	661,456	Nov. 6	770	182	93	1105
Candlestick. Miner's	A. and J. Howard	662,565	Nov. 27	2874	681	93	1571
Candy-casting machine	J. G. Hoffman	663,629	Dec. 11	1317	291 292	93	2000
Candy-machine	T. J. Jenkins	660,901	Oct. 30	4057	909	93	877
Candies. Dipping-frame for coating	P. Panoulias	663,359	Dec. 4	834	178 179	93	1883
Cane and umbrella. Combined	E. Hugendubel	661,990	Nov. 20	1755	422	93	1332
Canvas-stretcher	A. F. Tait	659,994	Oct. 16	2335	525	93	501
Cap. Apparel dusting-	M. W. Wiswall	663,670	Dec. 11	1394	308 309	93	2015
Cap. Knee or elbow	F. W. Gorse	663,749	Dec. 11	1533	343	93	2043
Cap-vizor	M. Mattes	662,282	Nov. 20	2305	556	93	1440
Capsules for bottles, &c. Machine for manufacturing	E. Watzke	664,516	Dec. 25	2966	680	93	2385
Car. Baggage-	J. R. Wood	663,144	Dec. 4	455	96	93	1812
Car body-bolster. Railway-	E. W. Palmquist	660,920	Oct. 30	4086	916	93	883
Car body transom or bolster. Railway-	G. I. King	658,784	Oct. 2	88	21	93	22
Car body transom or bolster. Railway-	G. I. King	658,785	Oct. 2	90	21	93	22
Car-brake	P. Boch	663,827	Dec. 11	1699	380 381	93	2080
Car-brake	S. E. Clarkson	661,495	Nov. 13	841	202	93	1133
Car-brake. Automatic	B. S. Lawson	661,345	Nov. 6	581	134 135	93	1067
Car-brake-operating mechanism	H. Blumenberg, Jr	663,671	Dec. 11	1395	309	93	2015
Car-brakes. Automatic regulator for atmospheric	J. Georgoff	661,262	Nov. 6	429	100	93	1037
Car-buffer	H. F. Ball	659,781	Oct. 16	1948	436	93	421
Car buffer. Street-	P. M. Kling	660,908	Oct. 30	4060	910	93	877
Car buffing device. Railway-	J. A. Hinson	663,273	Dec. 4	689	148 149	93	1856
Car chock. Railway-	J. T. Condon	659,051	Oct. 2	597	145	93	120
Car construction	H. S. Bryan	660,081	Oct. 16	2520	564 19	93	586
Car construction	G. I. King	658,783	Oct. 2	75	20 21	93	18
Car construction. Railway-	J. H. Horne	664,552	Dec. 25	3048	694	93	2398
Car. Convertible	J. O'Leary	661,921	Nov. 13	1610	330	93	1283
Car. Convertible dump-	H. S. Hart	664,268	Dec. 18	2504	568 569	93	2265
Car. Convertible street-	G. N. Fillis	659,220	Oct. 9	918	215 216	93	202
Car-coupling	S. P. Bush	664,606	Dec. 25	3179	720	93	2425
Car-coupling	O. Cauvin	662,351	Nov. 20	2441	588	93	1467
Car-coupling	C. E. C. Edey	660,491	Oct. 23	3323	744 749	93	716
Car-coupling	S. Geoghegan	660,503	Oct. 23	3339	750 751	93	720
Car-coupling	J. M. Hopkins	662,859	Nov. 20	2458	591	93	1470
Car-coupling	J. Kelso	660,776	Oct. 30	3880	859	93	831
Car-coupling	W. McConway	660,780	Oct. 30	3887	861	93	833
Car-coupling	W. McConway and J. Kelso	661,153	Nov. 6	234	57	93	999
Car-coupling	W. McConway and J. Kelso	662,457	Nov. 27	2670	637	93	1531
Car-coupling	A. E. Mills	660,520	Oct. 23	3351	760	93	728
Car-coupling	W. S. Owen	660,652	Oct. 30	3616	811	93	790
Car-coupling	C. E. Paulson	663,186	Dec. 4	524	111 112	93	1825
Car-coupling	W. F. Richards	663,640	Dec. 11	1335	295	93	2003
Car-coupling	C. Schlared	661,002	Oct. 30	4220	949	93	910
Car-coupling attachment	J. A. Shuping	659,877	Oct. 16	2112	475	93	454
Car-coupling attachment	T. P. Smyth	663,793	Dec. 11	1633	366	93	2065
Car-coupling. Automatic	J. Edwards	660,492	Oct. 23	3324	745 746	93	716

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling. Automatic	A. Scholl	663,686	Dec. 11	1422	315	93	2021
Car-coupling. Chain	J. L. Sullivan and W. Mahoney	661,941	Nov. 13	1650	400	93	1291
Car door. Disappearing grain	T. G. Cockings	661,713	Nov. 13	1243	301	93	1214
Car-door fastener	H. Pries and J. W. Meyer	660,656	Oct. 30	3621	812	93	791
Car door. Grain	J. Clarke	660,949	Oct. 30	4140	930	93	894
Car-door-operating mechanism	G. I. King	663,031	Dec. 4	240	51, 52	93	1772
Car. Double-hopper-bottom	G. I. King	663,030	Dec. 4	298	51	93	1772
Car. Double-hopper-bottom	G. I. King	664,760	Dec. 25	3472	785	93	2487
Car draft-rigging	E. Posson	661,585	Nov. 13	1010	250, 251, 252	93	1168
Car draft-rigging	E. Posson	663,463	Dec. 11	1041	227, 228	93	1947
Car draft-rigging. Railway	C. T. Schoen and J. M. Hansen	662,698	Nov. 27	3128	740	93	1619
Car driving mechanism. Hand	N. Hall and C. P. Gray	662,563	Nov. 27	2872	681	93	1570
Car. Dumping	T. Hill	658,914	Oct. 2	340	84, 85	93	69
Car, &c. Dumping	I. L. Vansant	663,310	De: 4	756	161	93	1869
Car-dumping apparatus	J. W. Castleman	658,760	Oct. 2	26	5	93	9
Car-fender	P. Best	664,309	Dec. 18	2580	588	93	2280
Car-fender	H. Lutzenkirchen	658,854	Oct. 2	254	63	93	53
Car-fender	J. W. McKean	659,982	Oct. 16	2315	521	93	496
Car-fender	D. C. Wallace	663,201	Dec. 4	546	117	93	1829
Car-fender	H. Fürstenau	660,565	Oct. 30	3461	776	93	762
Car fender. Street	L. Madas	660,779	Oct. 30	3835	860, 861	93	832
Car fender. Trolley	H. J. Kiely	661,878	Nov. 13	1533	373	93	1268
Car. Flat	G. I. King	664,646	Dec. 25	3238	735	93	2438
Car. Flat	G. I. King	658,788	Oct. 2	94	22, 23	93	23
Car. Gondola	A. T. Bramer	664,716	Dec. 25	3364	765	93	2465
Car grain-door	F. F. Coggin	664,076	Dec. 18	2143	490	93	2190
Car-heating device	G. I. King	661,698	Nov. 13	1216	295	93	1209
Car. Hopper-bottom	C. H. Howard	659,232	Oct. 9	939	221	93	206
Car-journal-bearing stop-key	J. M. Hopkins	663,094	Dec. 4	344	72	93	1790
Car-journal-box bearing	W. T. Watson	663,313	Dec. 4	760	162	93	1870
Car life-guard. Tram	H. P. Harpstrite	660,636	Oct. 30	3576	802	93	783
Car-loader	A. Streily	662,037	Nov. 20	1851	445, 446	93	1349
Car-loading apparatus	J. L. Brannon, W. G. Davis, and W. B. Comer.	663,326	Dec. 4	781	167	93	1873
Car-loading machine. Railway	A. Grossman	662,358	Nov. 20	2456	591	93	1469
Car motors and brakes. Controller for electric	A. J. Maine	661,884	Nov. 13	1544	375	93	1270
Car-mover	M. Johnson	663,499	Dec. 11	1101	240	93	1959
Car-moving mechanism	G. H. Wall	664,798	Dec. 25	3535	802	93	2500
Car or wagon stake	J. A. Kratz	661,452	Nov. 6	765	179, 180	93	1104
Car. Railway	H. W. Beimdiek, Jr.	664,602	Dec. 25	3168	717	93	2424
Car-roof	J. Hodge	658,776	Oct. 2	62	15	93	15
Car-roof	T. Mulholland	662,456	Nov. 27	2669	636	93	1531
Car safety device. Street-railway	P. M. Kling	658,949	Oct. 2	417	100	93	85
Car-seat	P. M. Kling	658,950	Oct. 2	418	100	93	85
Car-seat	P. M. Kling	660,904	Oct. 30	4061	910	93	878
Car-seat	W. M. Norcross	660,733	Oct. 30	3756	847	93	818
Car-seat foot-rest	C. K. Pickles	658,864	Oct. 2	269	66	93	56
Car-seat. Step-over	R. Harding	661,081	Nov. 20	1742	419	93	1330
Car side bearing. Railway	I. B. Brower	662,218	Nov. 20	2215	534	93	1421
Car-sign. Electric	L. J. Cooper	658,761	Oct. 2	27	6	93	9
Car sign. Street or other	T. Geraghty	663,747	Dec. 11	1531	342	93	2012
Car-starter	B. E. Pines	659,897	Oct. 16	2142	484	93	460
Car-step. Extension	J. A. Kratz	661,453	Nov. 6	767	180, 181	93	1105
Car step. Railway	C. G. Bauer	661,841	Nov. 13	1466	355	93	1255
Car switch-controlling device. Surface	E. L. Lowe and J. M. Meighan	660,645	Oct. 30	3599	807	93	787
Car track-brake. Railway	O. G. Rieske	661,077	Nov. 6	91	21, 22	93	998
Car turn-table. Street	H. R. Keithley	659,401	Oct. 9	1193	277	93	258
Car underframe. Railway	H. R. Keithley	659,402	Oct. 9	1195	277	93	259
Car underframe. Railway	W. E. Andrew	664,113	Dec. 18	2221	505	93	2207
Car ventilation	W. E. Andrew	664,112	Dec. 18	2218	505	93	2206
Car-ventilator	J. Clarke	660,046	Oct. 16	2423	546	93	516
Car-ventilator	W. C. Martin	663,679	Dec. 11	1411	312	93	2018
Car-ventilator	A. Ross	662,879	Nov. 27	3531	827, 828	93	1704
Car-wheel	I. Hogeland	660,958	Oct. 30	4156	934	93	897
Car-wheels. Manufacturing	F. A. Wheeler	663,317	Dec. 4	767	164	93	1871
Cars. Mechanism for raising or lowering footboards on open	R. E. Lintner	662,006	Nov. 20	1790	431	93	1339
Cars. Mechanism for supplying electric power to railway	G. F. Gale	659,169	Oct. 2	796	192	93	161
Cars. Phonographic annunciator for	A. C. Wolfe	659,011	Oct. 2	533	129	93	107
Cars. Protecting apparatus for tramway	A. Thiels	658,816	Oct. 2	167	40	93	37
Cars, &c. Supporting-strap for	L. T. Yoder	660,610	Oct. 30	3524	792	93	773
Carbon brushes. Connecting conductors to	A. L. Rohrer	661,669	Nov. 13	1160	286	93	1198
Carbon from tar. Separating free	F. Lennard	659,076	Oct. 2	619	155	93	130
Carbon. Manufacturing	H. Wartenberg	660,693	Oct. 30	3684	----	93	803
Carbon pencil or electrode for electric lights	J. F. Sanders	661,107	Nov. 6	140	35	93	979
Carbon-sheet holder	F. A. Bartelmez	660,142	Oct. 23	2655	592, 593	93	584
Carbons for electrical purposes. Manufacturing	E. Pohl	662,090	Nov. 20	1964	----	93	1372
Carbonatation-vat	E. C. Burr, J. C. H. Stut, and J. W. Atkinson.	659,359	Oct. 9	1123	262	93	343
Carbonating apparatus	F. G. Felter	659,657	Oct. 16	1688	392	93	372
Carbonating apparatus	E. E. Murphy	658,798	Oct. 2	111	27	93	26
Carbonating apparatus. Liquid	A. Wall	660,740	Oct. 30	3766	848	93	820
Carbonator	G. A. Flesche, H. A. Hall, and J. Doherty.	662,407	Nov. 27	2567	617, 618	93	1510
Carbureter	J. F. Bennett	664,457	Dec. 25	2877	657	93	2363
Carbureter	H. Burton	662,349	Nov. 20	2437	587	93	1466

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drf.	Official Gazette. Vol.	Official Gazette. Page.
Carbureter	W. J. Egan	659,438	Oct. 9	1273	293	93	275
Carbureter	A. Griebel	661,660	Nov. 13	1143	282	93	1194
Carbureter	A. E. Hodder	659,476	Oct. 9	1340	306	93	288
Carbureter	T. B. Jeffery	661,697	Nov. 13	1214	295	93	1206
Carbureter	C. E. Latham	663,699	Dec. 11	1453	321	93	2026
Carbureter	C. Mathieu	663,549	Dec. 11	1189	257	93	1975
Carbureter	J. C. Peden	662,496	Nov. 27	2755	654	93	1550
Carbureter	G. L. Reenstierna	662,304	Nov. 20	2352	567	93	1450
Carbureter	V. J. A. Rey	662,024	Nov. 20	1824	438	93	1344
Carbureter	H. W. Royal	663,683	Dec. 11	1418	314	93	2020
Carbureter	W. A. Schmidt	660,125	Oct. 23	2620	586	93	576
Carbureter	J. C. Winans	661,569	Nov. 13	974	241	93	1160
Carbureter	R. Wünsche	662,514	Nov. 27	2790	661	93	1556
Carbureter	H. C. Ray	659,987	Oct. 16	2323	523	93	498
Carbureter for explosive-engines	W. C. Jarvis	664,410	Dec. 25	2794	634	93	2348
Carcasses. Apparatus for handling animal	L. A. Mayall	659,246	Oct. 9	958	225, 226	93	209
Cardboard-creasing machine	G. W. Weaver	662,478	Nov. 27	2718	646	93	1541
Card-box	L. C. Schneider	662,409	Nov. 27	2695	641	93	1537
Card-clothing. Machine for making	B. S. Roy	662,742	Nov. 27	3204	758	93	1632
Card-grinding machine	S. B. Roy	662,743	Nov. 27	3205	759	93	1632
Card-grinding mechanism	J. D. Kelly	664,558	Dec. 25	3059	696	93	2400
Card-holder	D. E. Hunter	664,753	Dec. 25	3459	782	93	2485
Card-holder lock-rod	R. L. Shaw	658,870	Oct. 2	275	68	93	57
Card wire. Jacquard	H. L. Offermann	662,733	Nov. 27	3190	755	93	1630
Carding apparatus. Wool	H. Walsh	662,581	Nov. 27	2909	690, 691	93	1577
Carding-engine revolving flats. Mechanism for stripping teeth of	J. B. Platt	658,802	Oct. 2	130	30	93	30
Carding-machine feed mechanism	T. Lee	659,240	Oct. 9	950	224	93	208
Carding-machine feeding device	H. W. Gays	659,961	Oct. 16	2280	511	93	489
Carline	G. H. Thompson	658,881	Oct. 2	288	71	93	60
Carpenter's gage	E. M. Hembree	663,168	Dec. 4	492	104, 105	93	1819
Carpenter's tool	W. and J. Bowie	664,606	Dec. 25	3176	719	93	2425
Carpet-cleaner	A. Burkholder	659,434	Oct. 9	1265	292	93	273
Carpet-cleaning machine	J. S. Thurman	663,948	Dec. 18	1915	431	93	2145
Carpet-renovator	L. M. Lownes	660,707	Oct. 30	3712	835	93	809
Carpet-stretcher	A. Hafter	661,605	Nov. 13	1045	260, 261	93	1175
Carpet-strips. Machine for cutting, raveling, and cleaning.	F. C. Mason	659,084	Oct. 2	662	157	93	133
Carpet-sweeper bails. Device for attaching handles to	F. Menzer	664,090	Dec. 18	2170	495, 496	93	2196
Carriage-body	E. R. Briggs	662,183	Nov. 20	2129	514	93	1406
Carriage-boot	C. B. Jones	661,344	Nov. 6	579	134	93	1066
Carriage. Child's reclining	E. R. Briggs	660,524	Oct. 23	3385	761	93	729
Carriage. Convertible	C. T. McCue	663,636	Dec. 11	1331	294	93	2020
Carriage-coupling	H. E. Hirst	661,342	Nov. 6	577	133	93	1066
Carriage-door lock	R. B. Topping	659,423	Oct. 9	1238	284	93	268
Carriage. Folding baby	D. N. Kratzer	662,124	Nov. 20	2018	486	93	1381
Carriage leaf-spring	C. A. Lindstrom	659,080	Oct. 2	656	156	93	131
Carriage-motors. Supporting-frame for	H. E. Payne	660,333	Oct. 23	3052	677, 678	93	663
Carriage-shifting device	J. B. Burger	662,592	Nov. 27	2922	694	93	1580
Carriage-washer. Overhead	H. F. Eaton	659,729	Oct. 16	1826	412, 413	93	399
Carriages. Control apparatus for electric	R. Scheidler	663,518	Dec. 11	1142	248	93	1965
Carriages. Mechanism for propelling and guiding track-engaging							
Carrier: *See* Barrel-carrier. Buckle and trace carrier.							
Cart	T. Hill	663,227	Dec. 4	604	129	93	1839
Cart	J. J. McNulty	664,666	Dec. 25	3272	744	93	2446
Cart. Lumber	W. A. Marshall	660,020	Oct. 16	2377	534	93	509
Carton or box	H. G. Roth	662,969	Dec. 4	126	26, 27	93	1749
Cartridge	A. Barrallon	664,116	Dec. 18	2227	507	93	2208
Cartridge-clip. Temporary	T. C. Johnson	660,377	Oct. 23	3125	692	93	678
Cartridge. Combination gun	H. A. Tellerson	662,187	Nov. 20	2037	495	93	1385
Cartridge-holder for charging magazine-firearms	P. Mauser	661,743	Nov. 13	1300	317	93	1224
Cartridge-loading-machine alarm	C. M. Wills	659,794	Oct. 16	1818	410	93	398
Carving-fork	I. Hirsch	659,397	Oct. 9	1188	275	93	257
Case: *See* Ammunition-case. Assorting-case. Bicycle gearing-case. Bookcase. Bottle-case. Cigar-moistening case. Display and cell case. File-case. Jewel-case. Packing-case. Pocket-case. Shirt-case. Show-case. Spectacle or eyeglass case. Sterilizing-case. Surgeon's case. Thermometer-case.							
Case and chair. Combined	H. Flanders	660,989	Oct. 30	4202	944	93	906
Casein. Making soluble	W. A. Hall	664,318	Dec. 18	2602	----	93	2285
Casement	W. Youlten	661,653	Nov. 13	1132	280	93	1192
Cash-carrier terminal. Pneumatic	F. C. Cutting	662,771	Nov. 27	3256	768, 769	93	1643
Cash-register	L. Ehrlich	659,141	Oct. 2	745	179, 180, 388, 389, 390, 391	93	151
Cash-register	P. Kenny	659,676	Oct. 16	1792	463, 464	93	378
Cask-pitching apparatus	J. F. Theurer and M. A. Beck	664,009	Dec. 18	2045		93	2170

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Casket body-rest	T. W. Coughlin	661,635	Nov. 13	1100	273	93	1185
Casket-lowering device	A. C. Richardson	664,581	Dec. 25	3120	708	93	2413
Caster	D. Nickel and E. W. Wainwright	659,689	Oct. 16	1752	395	93	384
Caster	D. Nickel and E. W. Wainwright	659,857	Oct. 16	2075	467	93	447
Caster	W. H. Fauber	663,164	Dec. 4	486	104	93	1818
Caster. Ball-	A. B. Clark	662,113	Nov. 20	2001	479	93	1879
Caster. Furniture-	W. D. Sargent	664,438	Dec. 25	3847	650	93	2358
Casting. Composite metal	C. Grasser	661,143	Nov. 6	216	53	93	995
Casting hollow cylinders. Apparatus for	W. W. Doolittle	660,369	Oct. 23	3112	689	93	675
Casting-making apparatus	C. Saxton	664,586	Dec. 25	3133	710	93	2416
Castor-bean-popping house	C. A. Moberg and J. E. Brady	660,388	Oct. 23	3146	697	93	681
Catamenial appliance	W. Evans and N. McArthur	660,495	Oct. 23	3328	746	93	717
Cattle-guard	G. L. Summers	663,188	Dec. 4	527	112	93	1826
Cattle-guard	E. A. Lowe	662,570	Nov. 27	2883	684	93	1573
Ceiling-switch	J. Starman	658,930	Oct. 2	375	91 92 93	93	76
Cell-case machine	W. E. Williams	659,010	Oct. 2	529	128 129	93	106
Cell doors. Releasing mechanism for diffusion-	E. C. Burr, J. C. H. Stut, and J. W. Atkinson	659,361	Oct. 9	1126	263	93	244
Cell. Thermo-electric	E. F. Yost and W. H. Smith	660,139	Oct. 23	2649	591	93	583
Cell. Thermo-electric	E. F. Yost and W. H. Smith	663,438	Dec. 11	998	218	93	1939
Celluform board. Forming curved articles from	J. J. Hinde	662,961	Dec. 4	113	------	93	1746
Celluloid. Solvent material for treating surfaces of	A. N. Petit	659,313	Oct. 9	1057	249	93	229
Cellulose-manufacturing apparatus	E. Morterud	661,214	Nov. 6	336	80	93	1019
Cellulose. Washing spooled threads or strips of	M. Fremery and J. Urban	660,518	Oct. 23	3376	759	93	727
Cement-and-steel construction	F. Melber	661,094	Nov. 6	10	3	93	953
Center	C. H. Burwinkle	662,214	Nov. 20	2205	531 532	93	1419
Centrifugal machine. Continuous	W. A. Wood	660,348	Oct. 23	3082	683	93	669
Cesspool or drain. Floor	J. Tucker	664,161	Dec. 18	2890	524	93	2222
Chain	C. W. Levalley	661,021	Oct. 30	4271	960	93	919
Chain and wheel therefor. Drive-	J. C. Pratt	664,256	Dec. 18	2468	561	93	2259
Chain. Drive-	W. H. Gates	663,352	Dec. 4	823	176	93	1832
Chain. Drive-	E. F. Morse	663,353	Dec. 4	824	176	93	1832
Chain. Drive-	E. F. Morse	662,171	Nov. 20	2109	509	93	1402
Chain. Lady's guard-	S. Lederer	661,661	Nov. 13	1145	288	93	1195
Chain-link	C. L. Hoff	660,605	Oct. 30	3519	791	93	772
Chain. Sheet-metal	F. E. Vandercook	660,570	Oct. 30	3469	778	93	763
Chain-tightener	H. Green						
Chair: *See* Convertible chair. Dental chair. Dressing-chair. Folding chair. Infant's chair. Massage-chair. Reclining-chair. Type-writer's chair.							
Chair	W G Hastings	659,301	Oct. 9	1042	245	93	226
Chair	E. E. Koken	660,905	Oct. 30	4062	911	93	878
Chair	G. M. Smith	661,280	Nov. 6	459	106	93	1043
Chair	L. M. Smith and W. H. Banks	661,084	Nov. 6	104	24	93	971
Chair	F. Robbin, Jr	663,582	Dec. 11	1238	270	93	1983
Chair-locking device. Adjustable	M. V. B. Howe	662,647	Nov. 27	3011	713	93	1598
Chair-seat	E. Firnhaber	661,542	Dec. 25	3083	691	93	2394
Chairs. Playing-board and guard for infants'	H. B. Johnston	661,764	Nov. 13	1344	326	93	1233
Chairs. Safety attachment for infants' high	J. A. Vernon	660,672	Oct. 30	3652	820	93	797
Chalk-line holder	C. P. Stanbon	663,050	Dec. 4	271	57, 58	93	1777
Channeling-machine	M. W. Bell	659,122	Oct. 2	717	172 173	93	145
Channels of streams. Apparatus for improving and preserving	W. R. Williams	660,175	Oct. 23	2727	607	93	599
Chart. Adjustable	H. C. Wilson	664,700	Dec. 25	3335	758	93	2458
Chart. Adjustable dress-	J. B. Plant	662,817	Nov. 27	3389	787	93	1657
Chart. Dress-	A. M. Goodwin	661,691	Nov. 13	1205	293	93	1207
Check carrier. Baggage-	F. G. Snook	659,611	Oct. 9	1589	369	93	336
Check-hook	J. B. Leighton	663,125	Dec. 4	403	85	93	1802
Checkrein-guide	J. W. Howland	659,972	Oct. 16	2303	517	93	494
Checkrein. Overdraw-	J. W. Parker	658,800	Oct. 2	120	28, 29	93	29
Check-rower wire. Machine for making	J. F. Ohmer	659,180	Oct. 2	821	199	93	165
Checking collectors in public conveyances, &c. Means for	C. C. Brown	660,538	Oct. 23	3412	766	93	733
Cheese-cabinet	H. G. Roth	662,970	Dec. 4	128	27	93	1749
Cheese-cutter	H. G. Roth	662,968	Dec. 4	125	26	93	1748
Cheese-sampling tube	E. H. Skinner	663,792	Dec. 11	1639	365	93	2064
Cherry-pitter	J. Clarkson	660,888	Oct. 30	4038	905	93	873
Chimney-cowl	H. W. Covert	663,562	Dec. 11	1206	263	93	1978
Chimney-throat. Valved	J. Newmarker	661,919	Nov. 13	1604	389	93	1282
Chimney-top. Protective	C. E. Harling	660,012	Oct. 16	2366	532	93	507
Chisel-gage	P. Naef	663,089	Dec. 4	334	70	93	1788
Chlorin. Making	P. Naef	663,088	Dec. 4	331	69, 70	93	1787
Chlorin-making apparatus	A. Eichengrün	662,116	Nov. 20	2005	------	93	1379
Chlormethyl salicylate of thymol							
Chopper: *See* Cotton-chopper.							
Chuck	J. Blamire	663,325	Dec. 4	779	167	93	1873
Chuck	E. A. Noll	661,382	Nov. 6	642	150	93	1080
Chuck	W. J. Parsons	660,121	Oct. 23	2613	584	93	575
Chuck	W. Scott	662,470	Nov. 27	2697	642	93	1537
Chuck. Drill or bit	J. J. Crippen	664,127	Dec. 18	2245	510	93	2212
Chuck mechanism for automatic cutting-machines	J. W. Brown, Jr	663,255	Dec. 4	662	142	93	1850
Chuck-operating device	A. F. Kummel and C. L. Goodrich	662,900	Nov. 27	3579	837 838	93	1714
Chuck. Planer-	J. Suess	664,688	Dec. 25	3308	752	93	2453
Church or altar safety apparatus	D. G. Finnerty	664,541	Dec. 25	3032	690	93	2394
Churn	J. N. Cummings	661,852	Nov. 13	1485	361	93	1259
Churn	A. W. Dolph	661,798	Nov. 13	1395	336	93	1243
Churn	J. M. Goss	660,425	Oct. 23	3205	714	93	694

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Churn	W. A. Johnston and E. I. McDonald.	660,112	Oct. 23	2587	580	93	570
Churn	J. H. McCausland	659,087	Oct. 2	666	159	93	184
Churn	S. A. Mitchel	662,120	Nov. 20	2026	498	93	1383
Churn	W. B. Mitchell	660,450	Oct. 23	3248	720	93	701
Churn	O. A. Morrow	660,521	Oct. 23	3382	760	93	728
Churn	J. B. Turner and J. F. Webb	661,092	Nov. 6	114	28	93	973
Churn	J. W. Wilson	662,616	Nov. 27	2960	703	93	1588
Churn	J. W. Everich	661,908	Nov. 13	1588	385	93	1279
Churn-dasher	E. R. Franklin	660,185	Oct. 23	2749	611	93	608
Churn-dasher	E. G. Thomas	661,159	Nov. 6	248	59	93	1001
Churn-dasher	M. V. B. Trent	664,302	Dec. 18	2568	583	93	2278
Churn-dasher	W. H. Crawford	663,805	Dec. 11	1650	370	93	2068
Churn-motor	W. H. Le Suer and F. R. Bassett	660,516	Oct. 23	3373	758	93	726
Churn-operating means	T. M. Lattimore	661,613	Nov. 13	1057	263	93	1177
Churn-power	G. A. Norcross and R. A. Holloway	659,625	Oct. 9	1620	367	93	342
Churning device	J. S. Hickey	662,672	Nov. 27	3066	724	93	1608
Chute-closure	L. J. Anderson	663,323	Dec. 4	777	166	93	1873
Chute. Counterbalanced	F. J. Renz and L. Collins	659,322	Oct. 9	1072	252	93	232
Chute-spring for matrix-assembling machines, &c	J. W. Coughtry	663,073	Dec. 4	305	65	93	1783
Cigar	C. Hoffritz	659,924	Oct. 16	2205	496	93	473
Cigar-box. Cylindrical	C. Phillips and J. Lacroix	659,896	Oct. 16	2140	483 484	93	459
Cigar-bunch shaper	H. C. Greve	663,964	Dec. 18	1956	440	93	2153
Cigar-bunching machine	R. F. Bartel	662,751	Nov. 27	3217	761	93	1635
Cigar-cutter	G. W. A. Hankey	660,297	Oct. 23	2971	660	93	648
Cigar-making machine	J. T. Davey	663,329	Dec. 4	785	169	93	1874
Cigar-moistening case	E. F. Du Brul	663,332	Dec. 4	791	170	93	1875
Cigar-molds. Ordering book or card for	F. P. Folsom	659,520	Oct. 9	1434	325	93	305
Cigar-packing device	D. C. Carr	661,951	Nov. 20	1686	409	93	1320
Cigar-perforator	J. J. Dittgen	662,226	Nov. 20	2225	536	93	1423
Cigar-pouch	P. E. Shirk. (Reissue)	11,864	Oct. 9	1646	370	93	347
Cigar-wrapper-cutting machine	J. Moonelis	660,865	Oct. 30	4003	895 896 897	93	805
Cigarette-machine	H. Robinson	662,027	Nov. 20	1829	439 440 441 442 443	93	1345
Cigarette-making machine	L. Davis and H. Hendriks	662,775	Nov. 27	3264	770	93	1645
Cigarette-making machine	G. A. Jasmatzi	662,940	Dec. 4	71	17	93	1740
Cigarette-mouthpiece-applying machine	J. S. Beeman	662,389	Nov. 27	2511	606 607	93	1499
Cigarette-roller	A. W. Brown	659,387	Oct. 9	1089	256	93	235
Cigarette-roller	A. W. Brown	659,571	Oct. 9	1518	344	93	322
Cigarette-roller	G. W. Parsons	663,781	Dec. 11	1612	362	93	2060
Circuit-breaker	W. B. Watzel and F. L. Shekell	660,134	Oct. 23	2648	590	93	582
Circuit breaker and closer. Automatic	W. M. Scott	661,195	Nov. 6	299	72, 73	93	1012
Circuit-breaker. Automatic magnetic	W. M. Scott	662,979	Dec. 4	141	30	93	1762
Circuit-breaker. Automatic magnetic	G. T. Woods	662,049	Nov. 20	1883	452	93	1356
Circuit-breaking apparatus. Automatic	E. Oxley	663,612	Dec. 11	1288	285	93	1995
Circuit-changer	C. E. Katsch	659,480	Oct. 9	1354	308 309	93	290
Circuit-closer. Time	E. W. Hazazer	662,234	Nov. 20	2237	538	93	1426
Circuit-closing device	A. Lungen	659,244	Oct. 9	956	225	93	209
Circuit-controller	G. H. Whittingham	662,480	Nov. 27	2727	647	93	1543
Circuit-controller. Automatic	P. M. Lincoln	658,792	Oct. 2	102	25	93	25
Circuit making and breaking device	A. Stromberg	662,987	Dec. 4	158	33	93	1756
Circuit-protector	W. Grunow, Jr	662,784	Nov. 27	3282	774	93	1648
Circuits. Apparatus for interrupting relatively high potential							
Clamp: *See* Dental cervical clamp. Fence-clamp. Hose-clamp. Saw-clamp. Sealing-clamp. Umbrella-rod clamp.							
Clamp	T. F. Harris	663,343	Dec. 4	809	173	93	1878
Clamp	W. H. Riggle	661,133	Nov. 6	197	49, 50	93	991
Clamp and lifting-jack. Combination	P. Broadbooks	661,488	Nov. 13	828	200	93	1131
Clamp or bracket	B. F. Durham	664,300	Dec. 25	2740	623	93	2338
Clamping device	J. H. Downie	662,638	Nov. 27	2999	710	93	1595
Clasp: *See* Corset-clasp.							
Clasp for garment-supporters, &c	C. M. Simpson	664,685	Dec. 25	3302	751	93	2452
Clasp for shoes, &c	S. Cohen	664,467	Dec. 25	2899	661	93	2367
Clay blocks. Forming	W. Walker and H. W. Croft	663,141	Dec. 4	436	91	93	1808
Clay, &c. Device for indenting and severing bars of	R. H. Staley and A. L. Converse	663,689	Dec. 11	1427	316	93	2022
Clay-forming die	W. Walker and H. W. Croft	663,140	Dec. 4	435	91	93	1808
Clay-pipe-molding die	M. J. Bannon	660,286	Oct. 23	2947	656	93	643
Clay-screening apparatus	H. G. Virgin	663,800	Dec. 11	1643	369	93	2057
Cleaner: *See* Boiler-cleaner. Boiler-tube cleaner. Boot-cleaner. Carpet-cleaner. Comb-cleaner. Cotton-cleaner. Pea-cleaner. Rotary-cutter cleaner. Saw-cleaner. Sieve-cleaner. Track-cleaner. Tube-cleaner. Window-cleaner.							
Cleaning and painting or treating surfaces submerged in water	D. Mason	660,646	Oct. 30	3603	808	93	788
Cleaning and painting or treating surfaces submerged in water. Means for	D. Mason	663,180	Dec. 4	511	108	93	1822
Cleaning and polishing composition	A. M. Waitt	663,479	Dec. 11	1063	------	93	1951
Clevis	H. G. Atwell	660,068	Oct. 16	2500	559	93	532

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clip: *See* Ammunition-clip. Trolley-wire clip. Hame-clip. Wire-rope and bucket clip. Toe-clip.							
Clip for holding rolls or spools	F. A. Brownell	662,762	Nov. 27	3238	765	93	1639
Clip-forming machine	G. E. Soper	659,111	Oct. 2	701	168	93	142
Clip or card-holder	F. S. Webb	664,517	Dec. 25	2990	681	93	2286
Clipper	A. Quarrie	662,302	Nov. 20	2349	566	93	1450
Clock-chime	R. H. Mayland	663,085	Dec. 4	326	68, 69	93	1786
Clock. Electric	U. L. Collins	664,348	Dec. 18	2963	696	93	2296
Clock. Electric program-	H. F. Jordan	659,479	Oct. 9	1352	308	93	200
Clock-pinions. Machine for making	T. W. R. McCabe	663,998	Dec. 18	2928	458 459	93	2166
Clock. Program-	K. Puttkammer and F. Orthmann	663,465	Dec. 11	1044	228 229	93	1948
Clock. Program-	A. J. Reams	660,312	Oct. 23	3002	665 666	93	653
Clock. Repeating	W. Jensen	660,075	Oct. 16	2508	561 562	93	534
Clock repeating mechanism	H. W. Bailey and W. J. Parkinson	662,904	Dec. 4	10	2, 3	93	1729
Clock. Self-winding electric	A. J. Madden	660,385	Oct. 23	3138	695	93	680
Clock striking mechanism	J. Gutekunst	664,404	Dec. 25	2783	631	93	2346
Clod-crusher	B. Bennett and J. E. Moore	661,028	Nov. 6	2	1	93	951
Clod-crusher	J. Schoeler	660,975	Oct. 30	4178	938	93	902
Clod-crusher and land-leveler	G. E. Blaine and P. T. South	662,370	Nov. 20	2472	595	93	1473
Clod-crusher and sod-cutter	S. T. Payne	662,366	Nov. 20	2465	593 594	93	1471
Closet: *See* Collapsible closet.							
Closet seat and lid	H. T. Bush	661,441	Nov. 6	741	173	93	1100
Cloth-cutting apparatus	M. A. Adler	659,119	Oct. 2	714	171	93	145
Cloth-shearing machine	T. H. Green	664,040	Dec. 18	3087	476 477	93	2179
Cloth. Treating	A. Garland	661,261	Nov. 6	427	100	93	1037
Clothes-drying apparatus	E. F. Ede	663,873	Dec. 18	1783	399	93	2118
Clothes-hanger	W. A. Plock	663,580	Dec. 11	1232	270	93	1983
Clothes-hook	C. Acker	663,711	Dec. 11	1470	325	93	2030
Clothes-line reel	H. Cook	662,222	Nov. 20	2220	535	93	1423
Clothes-line reel	H. Huebner	664,640	Dec. 25	3228	732	93	2436
Clothes-pin	C. R. Towers	659,044	Oct. 2	568	143	93	118
Clothes-pounder	A. Flesher and J. L. Crisler	659,296	Oct. 9	1035	243	93	225
Clutch	H. L. Arnold	661,479	Nov. 13	817	197	93	1129
Clutch	B. C. Ball and W. H. Corbett	660,266	Oct. 23	2916	649	93	636
Clutch	F. Konley	659,679	Oct. 16	1733	391	93	380
Clutch	H. Moon and D. McMurren	659,349	Oct. 9	1105	259	93	289
Clutch	A. Piton	662,816	Nov. 27	3329	786 787	93	1657
Clutch	E. Prouty	664,431	Dec. 25	2827	641 642	93	2355
Clutch	W. S. Rogers and L. S. Chadwick	659,379	Oct. 9	1156	269	93	250
Clutch	G. Julian	663,630	Dec. 11	1321	292	93	2000
Clutch and brake. Automatic	R. E. Cryder	661,335	Nov. 6	568	131	93	1064
Clutch. Electromechanical	P. Cunningham	660,749	Oct. 30	3779	850 851	93	822
Clutch. Fluid	J. T. Ryther	661,001	Oct. 30	4219	948	93	909
Clutch. Fluid	J. W. Hawkins	662,270	Nov. 20	2289	570	93	1437
Clutch for wire-drawing machinery	A. De Dion and G. Bouton	664,038	Dec. 18	2066	475	93	2179
Clutch. Friction-	F. L. Dyer	661,117	Nov. 6	163	41	93	985
Clutch. Friction-	E. F. Stone	663,396	Dec. 4	908	196	93	1897
Clutch. Friction-	D. Williamson	659,275	Oct. 9	1001	235 236	93	218
Clutch gearing. Reversible friction-	R. J. Smith	662,702	Nov. 27	3133	742	93	1620
Clutch mechanism	R. E. Olds	661,070	Nov. 6	76	17, 18	93	965
Clutch. Rod or rivet	H. Alaman	661,901	Nov. 13	1574	382	93	1276
Coal-drill	M. Hardsocg	662,646	Nov. 27	3010	712	93	1597
Coal elevating and handling apparatus	A. M. Acklin and W. J. Patterson	663,651	Dec. 11	1351	299 300	93	2006
Coal or ore handling and storage device. Movable	R. D. White, P. S. Hildreth, and A. Liebmann.	659,502	Oct. 9	1304	317	93	298
Coal or rock drill	J. Eagen	659,139	Oct. 2	741	179	93	150
Coal-screen	H. B. Sackett	661,080	Nov. 6	97	23	93	969
Coaster. Wheeled	A. White	663,527	Dec. 11	1156	250	93	1968
Coat. Apparel-	F. G. Dodshon	660,985	Oct. 30	4190	942	93	904
Coat-holder	A. L. Platt	658,801	Oct. 2	120	30	93	30
Coating one metal with another and resulting product.	S. H. Thurston	661,650	Nov. 13	1127	279	93	1191
Coatings. Apparatus for applying	C. R. Britton	662,910	Dec. 4	22	4, 5	93	1731
Coatings of metal to boiler-tubes, &c. Apparatus for applying	L. West	663,824	Dec. 11	1602	379 380	93	2078
Cob pipes. Filling interstices of	H. H. Barklage	662,516	Nov. 27	2794	602	93	1556
Cock. Ball-	F. Jewett	663,231	Dec. 4	611	131	93	1840
Cock for mixing water and steam. Slide-	J. Wehlnger	661,200	Nov. 6	310	76	93	1015
Cock. Gage-	T. A. Delaney	663,736	Dec. 11	1314	337	93	2039
Cock. Lock-	J. B. Campbell	664,462	Dec. 25	2892	650	93	2366
Cock or faucet. Self-closing	F. H. Stahl	661,003	Oct. 30	4221	949	93	910
Cock or valve with separate closing device. Cut-off.	H. Moeres	658,797	Oct. 2	110	27	93	26
Cock. Stop and waste-	J. B. Campbell	664,463	Dec. 25	2892	650	93	2366
Cock. Stop and waste	J. H. Johnson	664,354	Dec. 18	2678	608	93	2299
Cockroach-trap	T. J. May	664,056	Dec. 18	2108	482	93	2183
Coffee-mill	G. H. Droege	660,007	Oct. 16	2455	530	93	505
Coffee-mill	S. A. Mitchel	662,128	Nov. 20	2625	493	93	1383
Coffee. Preserving roasted	S. Feitler	660,767	Oct. 30	3809	.....	93	828
Coffee. Ripening	T. R. Timby	660,602	Oct. 30	3514	790	93	772
Coffee-roaster	W. Walter	661,568	Nov. 13	971	241	93	1159
Coffee-roasting apparatus	J. R. Okell	662,294	Nov. 20	2330	562 563	93	1445

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Coffin-handle	M. G. Wheeler	660,742	Oct. 30	3768	848	93	820
Coffin-support	F. E. Messler	659,751	Oct. 16	1884	424	93	409
Coin-controlled lock	T. R. Cherry	663,488	Dec. 11	1081	296 297	93	1954
Coin-controlled machine	J. G. France and J. R. Pearsall	662,897	Nov. 27	3562	835	93	1711
Coin-controlled mechanism	F. P. Cox	660,810	Oct. 30	3891	875	93	843
Coin-controlled mechanism	R. E. Monger	664,560	Dec. 25	3090	701 702	93	2406
Coin-controlled mechanism for dispensing newspapers.	G. Easterbee	659,140	Oct. 2	743	179	93	150
Coin-delivery machine	E. J. Brandt	658,828	Oct. 2	200	48, 49	93	44
Coin-holder	S. T. Fisk	663,428	Dec. 11	980	212	93	1935
Coin-holder	H. L. Haynes	659,228	Oct. 9	982	219	93	205
Coin-holder	C. A. Herr	663,896	Dec. 18	1817	409	93	2125
Coin-holder	T. O. Miller	663,200	Dec. 4	718	155	93	1862
Coins and delivering change. Apparatus for indicating, assorting, and counting	C. Hibberd and J. Barton	661,471	Nov. 6	798	192 193	93	1111
Coke-handling apparatus	J. R. Risheberger	659,900	Oct. 16	2149	485 486	93	461
Coke-loading machine	J. W. Seaver	660,082	Oct. 16	2401	540 541	93	512
Coke. Manufacturing	A. M. Edwards	664,017	Dec. 18	2059	467	93	2173
Coke-oven	E. A. Babbage	660,480	Oct. 23	3305	739 740	93	718
Coke-oven	H. Poetter	663,638	Dec. 11	1333	294	93	2003
Coking-oven	C. G. Atwater	659,046	Oct. 2	591	143	93	118
Cold. Producing	H. Geppert	662,690	Nov. 27	3105	733	93	1616
Cold-storage apparatus	M. Cooper	659,468	Oct. 9	1327	308	93	285
Collapsible closet	H. M. Fessenden	660,246	Oct. 23	2860	636	93	625
Collar and necktie fastener	H. B. Barnes	660,882	Oct. 30	4032	903	93	871
Collar. Apparel-	H. J. Straten	660,344	Oct. 23	3076	682	93	668
Collar. Horse-	J. Fry and J. W. Barnes	663,021	Dec. 4	225	47, 48	93	1769
Collar. Horse-	A. B. Harris	664,267	Dec. 18	2503	567	93	2264
Collar-pad fastener	J. E. Chantler	664,464	Dec. 25	2894	660	93	2366
Collar-spring	S. A. Koltonski	664,648	Dec. 25	3241	735	93	2439
Collar supporter. Apparel-shirt-	E. W. Balding	659,884	Oct. 16	2121	478	93	450
Collector-ring	H. G. Reist	664,508	Dec. 25	2960	675	93	2380
Color-card. Dyer's	P. S. Clarkson	660,363	Oct. 23	3106	688	93	674
Coloring illustrations. Machine for	P. Orsoni	661,072	Nov. 6	80	18 19 20	93	966
Column. Segmental or sectional	G. Doane	664,239	Dec. 18	2441	556	93	2253
Comb: *See* Mane-comb.							
Comb	I. and J. Rheinberg	662,305	Nov. 20	2353	567 568	93	1450
Comb-cleaner	J. H. Wheeler	664,080	Dec. 18	2077	472	93	2177
Combination-lock	W. E. H. Morse and O. H. Bemis	662,285	Nov. 20	2306	557 558	93	1440
Combination-lock	A. N. Stall	661,560	Nov. 13	958	238	93	1157
Combustion. Apparatus for producing	L. D. West	663,315	Dec. 4	703	163	93	1870
Combustion process	C. Hornbostel	659,020	Oct. 2	566	.....	93	114
Commutator	F. Kaeferle	664,219	Dec. 18	2404	548	93	2246
Commutator	E. D. Priest and G. L. Schermerhorn	662,465	Nov. 27	2688	640	93	1535
Commutator and making same	E. R. Gill	659,443	Oct. 9	1286	296	93	277
Commutator-brush holder	H. Bishop	662,758	Nov. 27	3231	769	93	1637
Commutator-collector	H. G. Reist and E. L. Aiken	661,227	Nov. 6	357	85	93	1023
Commutator. Snap-switch	C. G. Perkins	659,873	Oct. 16	2106	473	93	453
Commutator-truing device	P. B. Bosworth	660,618	Oct. 30	3542	790	93	776
Compartment-box	J. R. Cole	661,038	Nov. 6	18	4, 5	93	954
Compass attachment	S. D. Patrick	664,497	Dec. 25	2951	673	93	2378
Compass-protractor	J. D. Barrie	661,483	Nov. 13	823	198	93	1130
Compasses	R. L. Nye	662,291	Nov. 20	2319	560	93	1443
Compound engine. Single-cylinder	T. Grant	662,417	Nov. 27	2584	621 622	93	1513
Compressing material into form. Machine for	S. S. Chisholm	661,236	Nov. 6	373	89	93	1027
Compressor. Single-cylinder compound	T. Grant	660,738	Oct. 30	3861	868	93	837
Computing-machine	H. J. Hanson	663,891	Dec. 18	1809	407 408	93	2123
Computing numbers. Machine for	C. T. Meredith	659,407	Oct. 9	1205	278	93	261
Concentrating apparatus	T. R. Jordan	661,997	Nov. 20	1767	425	93	1334
Concentrating minerals, &c. Apparatus for	T. R. Jordan	661,994	Nov. 20	1762	423 424	93	1333
Concentrating-table	I. F. Monell	661,886	Nov. 13	1547	376	93	1271
Concrete-mixer	S. P. McKelvey	663,999	Dec. 18	2030	459	93	2167
Concrete-mixer	S. P. McKelvey	664,000	Dec. 18	2031	459 460	93	2167
Condenser cooling attachment	C. F. Conover	658,942	Oct. 2	407	98	93	83
Condenser. Surface	B. M. Kirker	663,677	Dec. 11	1408	312	93	2018
Condenser. Surface steam-	W. A. Schmid	659,381	Oct. 16	2030	456	93	438
Condensing apparatus	J. F. Chase	662,765	Nov. 27	3245	706	93	1641
Condensing apparatus. Portable	J. D. Lance	660,257	Oct. 23	2880	642	93	629
Condiment-holder	J. B. Williamson	662,482	Nov. 27	2730	648	93	1544
Conductors of the second class. System for heating	C. D. Raab	663,929	Dec. 18	1895	426	93	2141
Confectioner's pan	I. Allegretti	664,206	Dec. 18	2386	544	93	2242
Confectionery-depositing machine	G. Carlson	661,008	Oct. 30	4241	952 953	93	914
Confinement-mantle	A. Jaks	663,080	Dec. 4	313	66, 67	93	1784
Contact device	E. Thomson	659,717	Oct. 16	1806	407	93	395
Contact parts. System of non-interchangeable	R. Hundhausen	664,046	Dec. 18	2096	478	93	2181
Controller	E. W. Stull	662,038	Nov. 20	1852	446	93	1350
Controller-switch	N. Vance	664,195	Dec. 18	2369	539 540	93	2238
Convertible chair	H. H. Paine	664,095	Dec. 18	2181	497	93	2199
Conveyer	J. Q. Adams	659,838	Oct. 16	2041	458	93	440

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Conveyer	J. W. Barney	663,251	Dec. 4	649	139 140	98	1848
Conveyer	H. W. Blaisdell	661,842	Nov. 13	1468	355	98	1256
Conveyer	A. C. Clay	662,709	Nov. 27	3145	744 745	98	1622
Conveyer	G. W. McCaslin	660,451	Oct. 23	3249	726 727	98	701
Conveyer	S. J. Sydney	661,197	Nov. 6	302	73, 74	98	1013
Conveyer	E. L. McGary	662,574	Nov. 27	2891	685	98	1574
Conveyer. Air-	A. S. Hallidie	659,745	Oct. 16	1873	422	98	407
Conveyer. Ropeway	C. W. Hunt	662,596	Nov. 27	2930	695	98	1582
Conveyer-wheel. Lubricating	G. K. Fischer and F. Klepetko	660,724	Oct. 30	3744	843	98	2353
Conveying and elevator apparatus. Electric	S. B. Peck	664,427	Dec. 25	2820	640	98	230
Conveying apparatus	E. Peach	659,316	Oct. 9	1063	249	98	230
Cooker. Fruit-	L. N. Doubler	659,137	Oct. 2	737	178	98	149
Cooking and steaming meats, vegetables, &c. Apparatus for	E. Jürgens	660,991	Oct. 30	4204	945	98	907
Cooking appliance	F. E. Corwin	664,314	Dec. 18	2594	591	98	2283
Cooking utensil	W. H. Golding	659,145	Oct. 2	751	181	98	152
Cooking utensil	A. Welker	661,652	Nov. 13	1131	280	98	1192
Cooking utensil	M. E. Konkle	660,443	Oct. 23	3237	723	98	699
Cooking-utensil lid							
Cooler: *See* Beer-cooler. Milk-cooler. Bottle-cooler. Whisky-cooler. Can-cooler.							
Cooler	C. Strobel	664,186	Dec. 18	2344	535	98	2232
Cooling and condensing apparatus	H. D. Pownall	658,899	Oct. 2	316	77, 78	98	65
Cooling apparatus	H. Schwerdfeger and J. Kayser	661,110	Nov. 6	143	36	98	979
Cop-tube	W. J. McCausland	661,151	Nov. 6	230	56	98	998
Cop-tube-making machine	W. J. McCausland	661,152	Nov. 6	231	56, 57	98	998
Cop-tube mandrel	D. Jackson	664,643	Dec. 25	3234	733	98	2437
Coping. Grave-	S. B. Rickords	663,470	Dec. 11	1051	230	98	1949
Copper and zinc from their ores. Extracting	C. G. Collins	659,339	Oct. 9	1091	------	98	236
Copper. Extracting	J. Douglas	664,537	Dec. 25	3024	688	98	2392
Copper, gold, or silver. Hardening and tempering	D. E. Conner and O. Bagby	660,983	Oct. 30	4188	------	98	904
Copper weldable. Rendering	C. L. Leiby	662,251	Nov. 20	2259	------	98	1431
Copy-holder	J. Bachelder	661,785	Nov. 13	1381	333	98	1240
Copy-holder	J. W. Harsha	662,193	Nov. 20	2154	520	98	1411
Copying cabinet. Letter-	E. Feige	662,528	Nov. 27	2813	667	98	1560
Copying-machine	A. Klein	662,693	Nov. 27	3111	734	98	1617
Copying-machine	C. F. Müller	661,105	Nov. 6	138	35	98	978
Copying-machine. Press	J. A. Jones	659,797	Oct. 16	1960	444	98	428
Copying-press. Roller	F. W. Tobey and A. Dom	663,051	Dec. 4	274	58	98	1778
Cord-tension alarm	C. Bransgrove	664,717	Dec. 25	3395	766	98	2465
Core. Collapsible	G. H. Ricke	662,091	Nov. 20	1960	470	98	1372
Core-oven	T. I. Rankin	662,303	Nov. 20	2351	567	98	1450
Corkscrew-making machine	W. R. Clough	659,649	Oct. 16	1671	376 377	98	369
Corn-conveyer	W. C. Horine	663,276	Dec. 4	693	150	98	1856
Corn-crusher and fodder-shredder. Combined	V. Fuhr	661,969	Nov. 20	1720	415	98	1326
Corn-cutter	C. O. Eberlein	664,627	Dec. 25	3206	727	98	2431
Corn. Device for separating germs from hulls of	T. Gaunt	664,261	Dec. 18	2485	564	98	2261
Corn husker and shredder	F. M. Teeguarden and J. B. Himes	664,448	Dec. 25	2861	654	98	2360
Corn-sheller	J. Q. Adams	659,839	Oct. 16	2045	458 459	98	441
Corn-shelling-machine feed attachment	D. Wandscheer	662,105	Nov. 20	1988	475	98	1376
Corn-shredder	F. Hazen. (Reissue)	11,866	Oct. 30	4285	962	98	922
Corner-stake	J. S. Webster	661,830	Nov. 13	1449	351	98	1253
Cornet	F. J. Richmand	664,434	Dec. 25	2838	648	98	2356
Corset	M. A. S. Golden	664,214	Dec. 18	2396	546	98	2244
Corset	K. M. C. Meredith	662,283	Nov. 20	2306	557	98	1440
Corset	J. B. Ryan	664,294	Dec. 18	2554	580	98	2275
Corset	R. L. Young	662,999	Dec. 4	188	39	98	1762
Corset	M. L. Barcley	659,013	Oct. 2	537	130	98	108
Corset. Apparel-	S. Kernwein	664,220	Dec. 18	2405	548	98	2246
Corset attachable device	J. G. Dallaire	658,943	Oct. 2	408	98	98	83
Corset-clasp	K. A. Deering	663,014	Dec. 4	210	45	98	1766
Corset-cover	A. Shedlock	661,082	Nov. 6	101	24	98	970
Corset-fastener	P. M. Matthew	664,659	Dec. 25	3258	740	98	2412
Corset-shield	M. F. Walker	662,747	Nov. 27	3210	760	98	1634
Cotton-chopper	W. R. White	659,864	Oct. 16	2089	469	98	450
Cotton-chopper	N. S. McCracken	658,959	Oct. 2	432	103 104	98	88
Cotton chopper and cultivator	R. R. Boyd	661,949	Nov. 20	1683	409	98	1319
Cotton-cleaner and boll-huller	S. J. Webb	659,612	Oct. 9	1589	360	98	336
Cotton. Compressing	M. Swenson	662,887	Nov. 27	3547	881	98	1708
Cotton-condenser	T. C. Eberhardt	661,503	Nov. 13	852	204 205	98	1136
Cotton-gin feeder and cleaner	J. H. Jenkins	660,960	Oct. 30	4158	934	98	897
Cotton-gins. Metallic brush for	G. Raetz	659,986	Oct. 16	2021	522	98	497
Cotton-opener	J. A. Peer	661,389	Nov. 6	644	150	98	1080
Cotton-picker. Automatic	W. H. Mevers	659,752	Oct. 16	1886	425	98	409
Cotton-picker. Pneumatic	A. Voorhies	659,114	Oct. 2	706	169	98	143
Cotton-picker's shade	W. T. Bessonette	660,243	Oct. 23	2851	634	98	623
Cotton-press	C. E. Mallett	661,349	Nov. 6	590	137	98	1069
Cotton-press	C. E. Mallett	661,350	Nov. 6	595	138	98	1069
Cotton-press	W. A. Patterson	662,209	Nov. 20	2339	545	98	1447
Cotton-press	H. S. Ringl	662,878	Nov. 27	3530	827	98	1704
Cotton-press	M. Swenson and H. S. Ringl	662,889	Nov. 27	3550	832 833	98	1708
Cotton renovator and batting-machine	M. J. Scalfe	663,588	Dec. 11	1235	271	98	1983
Cotton-valve	G. W. Williams	659,118	Oct. 2	713	171	98	144
Cotton-waste. Treating	R. R. Boyd	661,166	Nov. 6	254	61, 62	98	1003
Couch	C. F. Thayer	660,347	Oct. 23	3081	683	98	669
Counting mechanism	M. J. Nordmann	663,924	Dec. 18	1883	424	98	2139

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Counting-register	H. Winn and C. M. Spalding	662,899	Nov. 27	3570	836 837	98	1718
Coupling: *See* Air-brake coupling. Railway or similar vehicle coupling. Car-coupling. Shaft-coupling. Carriage-coupling. Smoke-stack coupling. Cultivator-coupling. Thill-coupling. Hay-track coupling. Thill or pole coupling. Hose-coupling. Vehicle hinge-coupling. Pipe-coupling. Wire-coupling. Pole or thill coupling. Railway-carriage coupling.							
Coupling	J. Willison	663,710	Dec. 11	1469	824 825	98	2029
Coupling device	W. B. Cannon	663,009	Dec. 4	202	44	98	1765
Coupling-unlocking device	J. Willison	661,835	Nov. 13	1459	852 853	98	1254
Cover for pots or kettles	A. Olson	661,190	Nov. 6	292	70	98	1010
Cover for shipping or storage vessels. Ventilating-	F. C. Oltrogge	662,295	Nov. 20	2233	563	98	1446
Cover holder. Vessel-	G. Gordon	660,424	Oct. 23	3204	714	98	603
Coverlock. Vessel-	L. A. Frank	658,984	Oct. 2	473	114	98	95
Cover. Self-closing aperture-	M. W. Sewall	659,000	Oct. 2	510	123	98	102
Covered nail	G. W. Tucker	663,307	Dec. 4	752	161	98	1868
Cow-tail holder	J. E. Weldon	662,044	Nov. 20	1873	450	98	1354
Cows from kicking. Device for preventing	J. F. Wallace	664,794	Dec. 25	3536	803	98	2500
Cradle. Mechanically-operated	J., G., and J. Cytron	659,866	Oct. 16	2093	470	98	451
Cradle or crib	P. McMurdy	659,487	Oct. 9	1363	311	98	292
Cranberry-separator	L. A. Hayden	661,801	Nov. 13	1407	338 339	98	1245
Crane. Soaking-pit	S. T. and C. H. Wellman and J. W. Seaver.	660,477	Oct. 23	3299	738 739	98	712
Crane structure	J. W. Seaver	660,031	Oct. 16	2400	539 540	98	511
Crank-hanger	W. H. Fauber	662,260	Nov. 20	2273	546	98	1433
Crank-paddle	H. A. A. Martens	660,260	Oct. 23	2883	642 643	98	620
Crank-wheel	F. Benjamin	662,486	Nov. 27	2730	650	98	1545
Crate	H. B. Todd	663,052	Dec. 4	276	58	98	1778
Crate. Ax-handle	H. G. Graves	664,475	Dec. 25	2914	664	98	2310
Crate. Collapsible	G. T. Treadwell	664,192	Dec. 18	2359	537	98	2235
Crate. Egg-	G. E. Palmer and J. N. Lake	662,018	Nov. 20	1807	435	98	1342
Crate. Folding	E. W. Stevens	659,709	Oct. 16	1790	404	98	392
Crate. Folding	T. B. Whalen	659,945	Oct. 16	2238	502 503	98	479
Crate. Folding shipping-	A. Braun and E. McPherson	659,165	Oct. 2	787	189	98	159
Crate. Shipping-	E. M. Averill	661,481	Nov. 13	820	198	98	1130
Cream or other liquids. Purifying	H. E. Loyster	664,329	Dec. 18	2619	590	98	2287
Cream-separator	C. S. Bishoff	659,638	Oct. 16	1653	372	98	366
Cream-separator	H. G. Carter	661,207	Nov. 6	328	78	98	1017
Cream-separator	C. H. Knight	662,873	Nov. 27	3523	824	98	1703
Cream-separator	E. H. Pifer and B. F. House	658,920	Oct. 2	359	89	98	73
Cream-separator	C. B. Titus and P. Battey	662,325	Nov. 20	2392	576	98	1458
Cream-separator	J. J. Berrigan	663,112	Dec. 4	375	79	98	1796
Cream-separator. Centrifugal	J. J. Berrigan	663,113	Dec. 4	376	79	98	1796
Cream-separator. Centrifugal	L. Herlitschka	661,527	Nov. 13	898	216	98	1145
Cream-separator. Centrifugal	C. B. Mansell	663,815	Dec. 11	1077	375	98	2075
Cream-whipping device	J. M. Reeves	664,290	Dec. 18	2546	579	98	2274
Creaming-can	P. Cazes	662,764	Nov. 27	3244	766	98	1641
Cross-sleeper. Metallic	G. W. Emmerson and J. Ward	664,248	Dec. 18	2453	558	98	2256
Crucible-furnace	J. Illingworth	663,676	Dec. 11	1407	311	98	2018
Crucible-shaker	W. S. Mather	660,386	Oct. 23	3142	696	98	680
Crucible-shaker	W. S. Mather	660,387	Oct. 23	3144	696	98	681
Crusher: *See* Clod-crusher. Corn-crusher.							
Crushing-machine	T. R. Jordan	661,998	Nov. 20	1761	423	98	1333
Crushing-machine	T. R. Jordan	661,998	Nov. 20	1769	425	98	1335
Crushing roll	E. W. McCanna	661,617	Nov. 13	1063	264	98	1178
Cue-tip fastener	R. Ghezzi and V. Bianchi	659,524	Oct. 9	1438	326	98	306
Cuff-holder	W. H. Graebner	661,692	Nov. 13	1206	293	98	1207
Cuff-holder	J. G. Kirchhofer	662,197	Nov. 20	2161	522	98	1413
Cuff-holder	P. O'Donnell	664,577	Dec. 25	3112	706	98	2412
Cuff-holder	E. C. Shedd	662,314	Nov. 20	2371	571	98	1453
Cuff-holder	S. D. and M. G. Phelan	663,361	Dec. 4	836	179	98	1884
Culinary utensil	T. C., T. A., and S. C. Darby	661,307	Nov. 6	511	118	98	1052
Cultivating implement. Land-	G. L. Bradley	662,605	Nov. 27	3054	720 721	98	1605
Cultivator	F. G. Bright	661,843	Nov. 13	1469	355 356	98	1256
Cultivator	W. S. Graham	660,103	Oct. 23	2569	575	98	567
Cultivator	J. T. Morgan	663,919	Dec. 18	1876	422	98	2138
Cultivator	A. Taplin	660,669	Oct. 30	3648	818 819	98	796
Cultivator	F. L. Young	659,356	Oct. 9	1120	292	98	243
Cultivator and harrow	M. Smith	664,686	Dec. 25	3304	751	98	2452
Cultivator and planter	E. G. Graves	661,047	Nov. 6	37	9	98	958
Cultivator-blade	S. L. Allen	664,071	Dec. 18	2133	487	98	2188
Cultivator. Corn-	S. D. McGuire	660,118	Oct. 23	2610	583	98	574
Cultivator-coupling	G. T. Crobarger	662,058	Nov. 20	1898	456	98	1359
Cultivator. Disk	R. L. Hill	659,748	Oct. 16	1879	423 424	98	408
Cultivator. Disk	L. Kirlin	662,275	Nov. 20	2295	532	98	1438
Cultivator. Garden-	G. W. Chase	662,593	Nov. 27	2925	694	98	1581
Cultivator. Hand-	J. H. Anderson	664,601	Dec. 25	3167	717	98	2423
Cultivator-hoe. Spring	M. K. Noaker	660,276	Oct. 23	2983	653	98	640
Cultivator. Listed-corn	E. F. Cheney	660,698	Oct. 30	3697	832	98	806

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cultivator replanter attachment	M. G. Mitchell	664,663	Dec. 25	3264	741 742	93	2443
Cultivator. Riding sulky	J. Jelen	662,194	Nov. 20	2156	520 521	93	1412
Cultivator seeder attachment	W. F. Clark and H. D. Bogle	663,416	Dec. 11	958	208	93	1930
Cultivator-shovel	F. W. French	664,397	Dec. 25	2763	627	93	2342
Cultivator. Walking sulky	J. Jelen	662,195	Nov. 20	2158	521	93	1412
Cultivator. Wheel	W. L. Beall	659,885	Oct. 16	2122	478 479	93	456
Cultivator. Wheel	M. G. Graham	659,741	Oct. 16	1867	421	93	405
Cup: *See* Oil-cup.							
Curling-iron-heating apparatus	J. M. Cammack	659,604	Oct. 9	1578	358	93	334
Current-collector	W. Grunow, Jr	662,423	Nov. 27	2597	624	93	1516
Current generator. Single-phase alternating	B. G. Lamme	660,907	Oct. 30	4066	911	93	879
Current-motor	M. Puszkar	662,737	Nov. 27	3195	756 757	93	1631
Current-motor	G. Walter	658,969	Oct. 2	452	107	93	91
Current motor. Alternating	W. Aldrich and H. E. Borger	661,464	Nov. 6	780	185 186	93	1108
Currents. Rectifier of alternating polyphase	L. H. Haynes	661,719	Nov. 13	1254	303	93	1216
Curtain. Adjustable storm	F. P. Stukey	664,792	Dec. 25	3593	802	93	2499
Curtain-fixture	J. B. Bernler	664,618	Dec. 25	3195	723	93	2428
Curtain-fixture	G. H. Davis	661,043	Nov. 6	27	7	93	956
Curtain-fixture	F. B. Jacobus	661,876	Nov. 13	1531	371	93	1297
Curtain-fixture	C. B. Titus and M. C. McMains	660,405	Oct. 23	3175	705	93	688
Curtain-fixture	E. Manes	663,915	Dec. 18	1808	421	93	2137
Curtain-hanger adjuster	C. E. Clark and H. F. A. Ullrich	661,494	Nov. 13	840	202	93	1133
Curtain-pole	J. Kroder	659,534	Oct. 9	1457	330	93	310
Curtain-pole ring	H. M. Benson	662,053	Nov. 20	1899	453	93	1357
Curtain-pole support and shade-roller bracket. Combined	H. T. Barnwell	663,848	Dec. 18	1743	389	93	2111
Curtain-rod	J. N. Henry	663,542	Dec. 11	1177	254	93	1973
Curtain-rod	B. F. Bell	662,753	Nov. 27	3222	762	93	1636
Curtain-roller	W. A. Mayr	662,628	Nov. 27	2983	707	93	1592
Curtain-stretcher	E. Damrau	659,018	Oct. 2	547	133	93	110
Curtain-support	M. Goudreau	659,662	Oct. 16	1701	384	93	374
Curtain-support	C. Bernhardt and W. H. Luelf	661,302	Nov. 6	503	115 116	93	1051
Cushion-making apparatus	R. I. Stewart	659,266	Oct. 9	989	232	93	215
Cushioning-body	C. C. Finlayson	663,074	Dec. 4	306	65	93	1783
Cuspidor	C. J. Merritt	658,796	Oct. 2	109	26	93	26
Cuspidor	M. Weinberger	660,135	Oct. 23	2644	590	93	582
Cuspidor	F. W. Bohn	658,754	Oct. 2	10	2	93	4
Cut-off and governor. Combined	J. Haering	662,933	Dec. 4	60	15	93	1737
Cut-off. Automatic rain-water	G. A. Higgins	664,548	Dec. 25	3042	698	93	2396
Cut-off. Down-spout	J. T. and C. G. Martin	659,541	Oct. 9	1472	334	93	313
Cut-off for cisterns. Automatic	W. A. Church	663,217	Dec. 4	578	125	93	1835
Cut-out. Ceiling	O. Feuerlein	661,241	Nov. 6	388	92	93	1029
Cut-out or fuse. Thermal	C. F. and C. H. J. Dilg	662,919	Dec. 4	30	9	93	1733
Cutlery-polishing machine							
Cutter: *See* Auger-cutter. Band-cutter. Boiler-tube cutter. Bread-cutter. Cake-cutter. Cheese-cutter. Cigar-cutter. Corn-cutter. Grass-cutter. Key-seat cutter. Mat-cutter. Mold-cutter. Photograph-cutter. Pipe-cutter. Plant-cutter. Rotary cutter. Soap-cutter. Thread-cutter. Vine-cutter. Weed-cutter.							
Cutter-body and making same	E. Childs	662,352	Nov. 20	2442	588	93	1467
Cutter-guard doffer	H. E. Irwin	661,053	Nov. 6	46	10, 11	93	960
Cutter-head	S. J. Shimer	659,990	Oct. 16	2329	524	93	499
Cutter-head. Rotary	J. E. Roberts	661,554	Nov. 13	950	236	93	1155
Cutter-setting gage	W. E. Davis and J. L. Samson	660,005	Oct. 16	2351	529	93	504
Cutter-tool	K. O. Muehlberg	663,455	Dec. 11	1029	225	93	1945
Cutting apparatus	A. J. Harrison	663,541	Dec. 11	1176	254	93	1973
Cutting-machine	D. Carlaw	662,186	Nov. 20	2142	517	93	1409
Cutting or sawing, &c. Machine for	W. J. Read	659,898	Oct. 16	2144	484 485	93	460
Cutting-tool	C. P. Mingst	662,492	Nov. 27	2747	652	93	1547
Cycle-chain adjustment	J. B. and J. B. Dunlop, Jr	663,962	Dec. 18	1954	439 440	93	2152
Cycle change-speed gear	L. Stillmant	659,713	Oct. 16	1802	406	93	395
Cycle-frame joint	E. G. Wood	662,848	Nov. 27	3397	803	93	1671
Cycle. Ice	D. W. Tietjen	659,560	Oct. 9	1501	340	93	319
Cycle. Motor	L. and A. Chapelle	659,956	Oct. 16	2272	509 510	93	487
Cycle. Motor	G. D. Green	660,266	Oct. 23	2909	659	93	647
Cycle-pump. Automatic	W. Loebinger	664,281	Dec. 18	2534	575	93	2271
Cycle-saddle	W. S. Richmond	659,323	Oct. 9	1074	252	93	293
Cycle-saddle attachment	J. B. Brooks and J. Holt	662,346	Nov. 20	2433	586	93	1465
Cycle saddle-supporting device	D. S. Fraser	658,909	Oct. 2	334	83	93	68
Cycles or cars. Driving mechanism for motor	P. A. Renaux	661,816	Nov. 13	1434	346 347	93	1249
Cyclist's brace and back-support	W. C. Humphrey	660,216	Oct. 23	2811	623	93	615
Cylinder-lock	H. S. Lockwood	659,483	Oct. 9	1358	310	93	291
Cylinder-lock	H. S. Lockwood	659,484	Oct. 9	1360	310	93	291
Cylinder-lubricator	F. W. Bittman	659,639	Oct. 16	1655	379	93	366
Cylinder-reboring apparatus	J. A. Wahlgren	663,373	Dec. 4	852	183	93	1887
Cylinder-tooth	P. Swenson	664,446	Dec. 25	2858	653	93	2390
Damper and spark-arrester. Combined	F. T. Bowling	660,678	Oct. 30	3660	822	93	798
Damper. Stove	J. C. Witcher	662,661	Nov. 27	3033	718	93	1608
Damping-pad, &c	E. Weaver and E. L. Baddeley	662,338	Nov. 20	2396	577	93	1458

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Decantation apparatus	J. A. Maignen	661,316	Nov. 6	527	122 123	93	1056
Decorating. Mechanical device for art	G. Hall	660,952	Oct. 30	4145	931	93	895
Defecating-apparatus heat-absorber	E. W. Deming	663,602	Dec. 11	1268	280 281	93	1992
Delivery apparatus. Automatic	J. S. Beeman	661,484	Nov. 13	824	198	93	1130
Delivery mechanism	O. Roesen	664,585	Dec. 25	3129	710	93	2416
Delivery mechanism	S. Wheeler	660,714	Oct. 30	3723	838	93	811
Delivery mechanism	S. Wheeler	663,057	Dec. 4	281	60	93	1779
Demonstrator	J. F. Hill	663,437	Dec. 11	908	218	93	1939
Dental appliance	D. O. M. Le Cron	662,538	Nov. 27	2827	671	93	1563
Dental articulator	G. R. Johnson	659,531	Oct. 9	1451	329	93	309
Dental articulator	T. G. Lewis	659,871	Oct. 16	2102	473	93	452
Dental cervical clamp	C. G. Capwell	659,886	Oct. 16	2125	479	93	456
Dental chair	C. B. Dowling and W. D. Durham	659,216	Oct. 9	913	214	93	201
Dental chairs. Supporting and elevating mechanism for	B. M. Wilkerson	663,143	Dec. 4	441	92 93 94 95	93	1809
Dental cuspidor	H. J. Tarr	660,172	Oct. 23	2722	605 606	93	598
Dental dam	N. Kuns	663,178	Dec. 4	506	107	93	1822
Dental elevator	X. Dódel	663,068	Dec. 4	299	64	93	1782
Dental floss-holder	W. C. Coryell	664,014	Dec. 18	2054	466	93	2172
Dental floss-holder	J. W. Cowan	664,126	Dec. 18	2244	510	93	2211
Dental handpiece	H. F. Jones	662,070	Nov. 20	1921	461	93	1364
Dental handpiece	H. B. Mitchell	663,096	Dec. 4	328	69	93	1787
Dental head-rest	V. W. Baker	662,387	Nov. 27	2509	605	93	1498
Dental plugger	R. Blum	660,411	Oct. 23	3185	707	93	690
Dental polishing and finishing tool	C. C. Bachman	661,282	Nov. 6	461	106	93	1043
Dental remedies. Preparing	H. Bauermeister	660,943	Oct. 30	4133	------	93	898
Dental rubber-dam holder	J. A. W. Lundborg	659,684	Oct. 16	1743	393	93	382
Dental rubber-dam holder	C. W. Meguiar	663,507	Dec. 11	1128	245	93	1963
Dental vulcanizer and celluloid-press	H. Hartwig and A. W. Feltmann	659,747	Oct. 16	1876	423	93	408
Dentistry	A. P. Johnson	659,196	Oct. 2	870	207	93	173
Derrick. Lever	J. W. Benton	658,939	Oct. 2	400	96, 97	93	82
Derrick. Portable	W. Baptist	662,906	Dec. 4	18	3	93	1730
Derrick. Portable farm	G. Wenzelmann	660,137	Oct. 23	2647	591	93	583
Desk and seat. Combined school	G. P. Benton	662,182	Nov. 20	2128	513	93	1406
Desk and seat. School	P. S. McAulay and M. Anderson	659,411	Oct. 9	1212	279	93	263
Desk. Chair-back	W. H. Anderson	659,431	Oct. 9	1232	288	93	270
Desk. School	W. B. Cogger	662,523	Nov. 27	2804	665	93	1558
Despatch systems. Draining mechanism for tubular	W. A. H. Bogardus	661,363	Nov. 6	611	142	93	1073
Destructor-furnace	J. Wilkie	661,463	Nov. 6	778	185	93	1107
Die: *See* Button-die. Clay-forming die.							
Die-press	E. W. Silsby	660,126	Oct. 23	2621	586	93	576
Die-press feed attachment	A. J. Parker	663,980	Dec. 18	1981	446	93	2158
Diethyl-ether. Manufacturing	G. H. Benjamin	662,585	Nov. 27	2912	------	93	1578
Digger: *See* Post-hole digger. Potato-digger.							
Dilator. Electric bipolar	C. L. Mosher	659,409	Oct. 9	1209	279	93	262
Dining-room service apparatus	J. B. Hurd	663,810	Dec. 11	1663	372 373	93	2071
Dish-cleansing apparatus	J. Doyle	659,057	Oct. 2	610	147 148	93	122
Dish-drainer	A. Rosedale	660,314	Oct. 23	3009	667	93	655
Dish-washer	M. A. Osburn	659,894	Oct. 16	2137	482	93	459
Dish-washing machine	F. S. Hogg	660,703	Oct. 30	3707	834	93	808
Disinfectant	C. G. Read	663,394	Dec. 4	899	195	93	1897
Disinfecting and deodorizing apparatus	D. M. Kelsey	659,021	Oct. 9	1615	------	93	341
Disinfecting composition	C. Freese	660,543	Oct. 23	3423	768	93	736
Display and cell case	H. S. Blackmore	659,640	Oct. 16	1656	------	93	366
Display counter or cabinet. Adjustable-compartment	A. A. Grau	659,225	Oct. 9	927	218	93	304
Display device	H. G. Roth	661,325	Nov. 6	544	125	93	1060
Display-rack	J. A. Pettey	662,089	Nov. 20	1962	469	93	1372
Display-rack	J. H. Best	659,195	Oct. 2	868	206 207	93	172
Display-rack and sample-case. Combined wall-paper	F. C. Rogers	661,645	Nov. 13	1113	276	93	1188
Display-stand	E. C. Fithian	660,157	Oct. 23	2682	597	93	589
Display-table. Revolving and adjustable	J. B. White	663,838	Dec. 11	1723	385	93	2086
Displaying advertisements. Device for	J. A. Leggatt	663,911	Dec. 18	1865	420	93	2136
Displaying apparatus. Photograph	J. Adams and J. Crawford	659,428	Oct. 9	1246	287	93	269
Distilling and concentrating apparatus	M. Barr	663,153	Dec. 4	469	99	93	1815
Distilling and refining oils	W. L. Rowland	662,697	Nov. 27	3127	739	93	1613
Distilling apparatus. Wood	T. Macalpine	664,813	Dec. 25	3584	816	93	2508
Ditching-machine	C. W. Bilfinger	658,888	Oct. 2	299	73, 74	93	62
Dock. Sectional floating construction	D. F. Kaln	661,405	Nov. 6	679	158	93	1088
Document holder or file	W. Jamieson	664,758	Dec. 25	3468	784	93	2487
Doll. Rag	R. Kolb	663,083	Dec. 4	323	67	93	1781
Door	M. L. Mead	661,185	Nov. 6	296	60	93	1009
Door	A. D. Caywood	659,955	Oct. 16	2270	508 509	93	487
Door-check	J. A. Wheeler	659,354	Oct. 9	1117	261	93	243
Door-check	A. Arens	660,240	Oct. 23	2847	633	93	622
Door check and closer	E. E. Jones	658,916	Oct. 2	343	85	93	70
Door check and closer	G. Ashley	663,844	Dec. 18	1735	387	93	2109
Door-check. Liquid	G. G. Laureyns	663,504	Dec. 11	1117	243 244	93	1961
Door-fastener	H. K. Jones	658,780	Oct. 2	70	18	93	18
Door for show-cases, &c. Ball-bearing	B. C. Mitchell	663,036	Dec. 4	251	54	93	1774
Door. Grain	E. A. Wentworth	662,614	Nov. 27	2958	702	93	1588
	J. E. Brown and H. H. Winters	664,021	Dec. 25	3198	725	93	2429

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Door hanger. Sliding	H. Wesnidge	661,298	Nov. 6	492	113	93	1049
Door-holder	W. R. Rummler	661,621	Nov. 13	1071	266	93	1179
Door-lock	C. E. and J. Arner	661,203	Nov. 6	316	77	93	1016
Door-lock. Burglar-alarm	J. Simoni	663,586	Dec. 11	1240	273	93	1985
Door lock. Open	H. J. Perkins	662,300	Nov. 20	2343	565, 566	93	1448
Door mechanism	H. Rowntree	659,699	Oct. 16	1771	400	93	388
Door or drawer equalizer	F. W. Tobey	664,065	Dec. 18	2125	485	93	2186
Door or window ventilator	P. Abrahamson	658,935	Oct. 2	393	95	93	80
Door. Railway grain	J. Kolb	661,179	Nov. 6	277	67	93	1008
Door-securer	F. D. McGee	659,153	Oct. 2	763	184	93	154
Door-stop	J. R. Foley	661,446	Nov. 6	749	175	93	1102
Door-stop	R. E. Fulton	659,021	Oct. 2	552	134	93	111
Door. Warehouse	W. A. Cross	663,219	Dec. 4	583	126	93	1835
Doubler. Silk	J. Duffy	661,209	Nov. 6	325	79	93	1017
Doubling-machine	W. H. Ramseur and D. W. Ramsey	659,095	Oct. 16	1764	398	93	387
Douche-pan	D. Hogan	661,402	Nov. 6	675	157	93	1087
Dough-mixer	J. McLaughlin	663,088	Dec. 4	253	54	93	1774
Dough-mixer	J. F. Stevens	663,795	Dec. 11	1635	366	93	2065
Dough-rolling machine	J. R. Farmer	663,743	Dec. 11	1522	339, 340	93	2041
Dowel-pin. Tile or brick	O. C. Pixley	660,308	Oct. 23	2968	664	93	652
Draft apparatus	J. Cederstrom	659,577	Oct. 9	1529	347	93	318
Draft-arm. Double-stream	J. Armerod	660,735	Oct. 30	3758	847	93	1815
Draft-equalizer	G. A. Beltz	663,154	Dec. 4	470	100	93	1815
Draft-equalizer	H. Kugler	662,198	Nov. 20	2163	522	93	1413
Draft-equalizer	C. H. Sawyer	659,324	Oct. 9	1075	253	93	232
Draft-equalizer	J. Branning	662,164	Nov. 20	2094	507	93	1398
Draft-evener	M. Feierer	663,875	Dec. 18	1785	400	93	2119
Draft-evener	F. F. Nordén	661,069	Nov. 6	74	17	93	965
Draft-hook	G. I. King	658,787	Oct. 2	93	22	93	23
Draft-rigging	H. T. Krakau	664,278	Dec. 18	2528	574, 575	93	2270
Drafting and measuring tool. Combined	W. C. Day	664,727	Dec. 25	3394	771	93	2472
Drafting implement. Tailor's	A. N. Rosenbloom	660,397	Oct. 23	3163	700, 701	93	685
Draper-slat protector	C. J. and T. T. Luckehe	664,054	Dec. 18	2106	481	93	2188
Draw-gage	L. Alden, Jr	664,082	Dec. 18	2079	473	93	2177
Draw-head	C. Gibson	662,039	Nov. 27	3000	710	93	1596
Draw-heads. Automatic uncoupling device for	J. T. Lee	660,912	Oct. 30	4072	913	93	880
Drawer. Cash	A. B. Tomlin	658,883	Oct. 2	200	71,72	93	60
Drawer. Money	S. C. Anderson	660,355	Oct. 23	3093	686	93	671
Drawer-pull	A. Shepard	664,181	Dec. 18	2331	532	93	2229
Drawing instrument	C. S. Cox	663,065	Dec. 4	291	62	93	1781
Drawing instrument. Chart	E. N. Moyer	659,410	Oct. 9	1210	279	93	262
Drawing-knives. Die for shaping carpenters'	I. S. Bailey	662,750	Nov. 27	3216	761	93	1635
Drawing-roll clearer	W. E Keach	658,918	Oct. 2	346	86	93	71
Dredge	R. R. Osgood	659,489	Oct. 9	1369	312	93	298
Dredge	R. R. Osgood	662,462	Nov. 27	2983	638, 639	93	1534
Dredge. Submarine	G. A. Overstrom	658,922	Oct. 2	357	88	93	73
Dredger	S. A. West	662,329	Nov. 20	2397	578, 579	93	1459
Dredger. Subaqueous	W. W. Priestley	661,198	Nov. 6	295	71	93	1011
Dredging apparatus	F. Ecaubert	664,628	Dec. 25	3206	727	93	2431
Dredging apparatus	M. M. J. O. O'Conor	662,293	Nov. 20	2322	560, 561, 562	93	1444
Dredging apparatus	H. R. Wheeler	662,210	Nov. 20	2184	526, 527	93	1417
Dredging earth, &c. Apparatus for	E. McGregor	659,154	Oct. 2	765	185	93	154
Dredging-machine	F. K. Hoover and A. J. Mason	661,609	Nov. 13	1050	262	93	1176
Dredging-machine. Hydraulic-pressure	F. Hoffmann	663,497	Dec. 11	1098	240	93	1958
Dressing-chair	C. A. Robertson	662,025	Nov. 20	1827	439	93	1845
Drier: *See* Grain-drier. Hop-drier. Phosphate-rock drier. Rice-drier. Rotary drier.							
Drier	A. V. and J. T. Hysore	662,673	Nov. 27	3068	724	93	1608
Dry battery	E. Meyer	663,289	Dec. 4	718	154	93	1802
Dry-pan	E. Smith	660,278	Oct. 23	2935	654	93	640
Drying apparatus	M. Leitch	662,448	Nov. 27	2955	694	93	1529
Drying-conveyer	J. C. W. Stanley	659,771	Oct. 16	1925	433	93	417
Drying-cylinder	J. W. Moore, J. A. White, and W. T. Wiegand.	661,353	Nov. 6	599	139	93	1071
Drying-kiln	A. Anderson	660,354	Oct. 23	3091	685	93	671
Drying-oven	G. P. Bassett, Jr.	661,254	Nov. 6	417	97	93	1085
Drill: *See* Coal-drill. Coal or rock drill. Grain-drill. Motive-fluid drill. Ratchet-drill. Rock-drill. Seed-drill.							
Drill forging and sharpening machine	W. J. Evans	660,009	Oct. 16	2359	530	93	505
Drill-press	C. J. Weinman	663,055	Dec. 4	280	59	93	1778
Drilling-machine	B. F. Barnes	659,696	Oct. 16	1650	371	93	365
Drilling-machine	A. J. Gifford	660,249	Oct. 23	2864	637	93	626
Drilling-machine	H. O. Nienstaedt	663,778	Dec. 11	1606	360, 361	93	2058
Drilling-machine	O. E. Oakes	660,968	Oct. 30	4169	936	93	900
Drilling-machine	J. B. Solomon	659,704	Oct. 16	1783	402	93	391
Drilling-machine. Radial	V. F. Prentice	661,586	Nov. 13	1012	252	93	1168
Drinking-trough for hogs or cattle	J. W. Gronewold	661,102	Nov. 6	134	33	93	978
Driving mechanism	P. Cunningham	660,750	Oct. 30	3781	851	93	823
Driving mechanism	A. B. Tomlin	664,505	Dec. 25	2965	676	93	2281
Driving-wheel. Frictional	H. P. Richards	659,427	Oct. 9	1245	286	93	269
Drum. Combined orchestra and band	W. O. Worth	663,854	Dec. 18	1751	391	93	2112
	E. Boulanger						

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Drum. Heating	J. Mahedy	662,364	Nov. 20	2464	593	93	1471
Drum-rod	W. H. Heybeck	663,543	Dec. 11	1178	255	93	1973
Drum-rod. Duplex tightening	E. Boulanger	663,855	Dec. 18	1753	392	93	2112
Drum tone-sharpener	E. Boulanger	663,853	Dec. 18	1751	391	93	2112
Dumb-bell and Indian club. Combined	D. J. Kennedy	660,962	Oct. 30	4161	935	93	898
Dumb-waiters. Means for operating	J. W. Kincaid	658,990	Oct. 2	486	117	93	98
Dust and cinder fender	C. L. Bell	663,482	Dec. 11	1069	234	93	1932
Dust-collector	R. Danvin	658,882	Oct. 2	209	51	93	45
Dye and making same. Black	R. Bohn	661,438	Nov. 6	737	.....	93	1099
Dye and making same. Blue-red azo	A. Israel and R. Kothe	662,122	Nov. 20	2014	.....	93	1381
Dye and making same. Brown sulfur	K. Elbel and I. Rosenberg	661,907	Nov. 13	1586	.....	93	1279
Dye and making same. Brown sulfur	A. Weinberg	660,067	Oct. 16	2499	.....	93	532
Dye and making same. Gallocyanin sulfite	C. De la Harpe, C. Vaucher, and H. Lorétan.	662,224	Nov. 20	2223	.....	93	1423
Dye and making same. Indigo	J. Koetschet	662,073	Nov. 20	1925	.....	93	1365
Dye and making same. Orange azo	A. Israel and R. Kothe	663,498	Dec. 11	1099	.....	93	1958
Dye and making same. Triphenylmethane	H. R. Vidal	664,450	Dec. 25	2866	.....	93	2361
Dye and making same. Violet-red	O. Bally	659,565	Oct. 9	1508	.....	93	320
Dye and making same. Yellow-red	O. Bally	659,566	Oct. 9	1509	.....	93	320
Dye. Blue sulfur	H. Gussmann	660,770	Oct. 30	3815	.....	93	829
Dye. Blue trisazo	A. Israel and R. Kothe	658,897	Oct. 2	313	.....	93	64
Dye. Brown sulfur	M. Hoffmann and G. Kalischer	660,058	Oct. 16	2447	.....	93	520
Dyes. Transforming carbon	H. Gutzkow and B. Homolka	661,800	Nov. 13	1406	.....	93	1245
Dyeing	J. W. Fries	659,343	Oct. 9	1095	257	93	237
Dyeing	E. Haussmann	661,985	Nov. 20	1747	.....	93	1331
Dyeing	A. Siegmund	659,356	Oct. 9	1495	.....	93	318
Dyeing apparatus	H. W. Boettger	661,693	Nov. 13	1098	272	93	1185
Dyeing apparatus	J. Hussong	661,343	Nov. 6	578	133, 134	93	1066
Dyeing apparatus	W. Mather	662,281	Nov. 20	2303	555, 556	93	1439
Dyeing apparatus	L. Schreiner	663,687	Dec. 11	1423	315	93	2021
Dyeing apparatus	N. L. Smith	660,402	Oct. 23	3171	703, 704	93	687
Dyeing apparatus	F. L. Zeman	663,250	Dec. 4	648	139	93	1847
Dyeing, &c. Apparatus for	R. Brandts	662,590	Nov. 27	2920	693	93	1579
Dyeing-centrifugal	J. C. Hamer	663,888	Dec. 18	1805	405	93	2123
Dyeing coal-tar colors	H. Gutzkow and B. Homolka	663,225	Dec. 4	601	.....	93	1899
Dyeing-machine	H. W. Church	663,012	Dec. 4	206	45	93	1765
Dyeing machine. Yarn	L. Weldon	659,906	Oct. 16	2167	488	93	465
Dyeing sulfur colors	F. Breuninger	660,069	Oct. 16	2500	.....	93	532
Dyeing turkey red	A. Fährmann	661,858	Nov. 13	1498	.....	93	1262
Dynamo or motor	G. L. Martin	663,609	Dec. 11	1286	284	93	1994
Ear. Apparatus for treating diseases of the	R. Watson	660,233	Oct. 23	2834	629	93	619
Ear-ring fastener	I. Mann	661,271	Nov. 6	447	108	93	1041
Earthenware. Adjustable metallic fitting for	R. Borsdorf	662,890	Nov. 27	3352	833	93	1709
Edging device	J. P. Brown	664,580	Dec. 25	3009	685	93	2389
Educational device	T. L. Martin	663,287	Dec. 4	716	154	93	1861
Egg-beater	H. M. Sturgis	659,558	Oct. 9	1499	339	93	318
Egg-beater and churn	J. M. C. Jones	660,513	Oct. 23	3363	757	93	725
Egg beater and mixer. Combined	R. G. and E. H. Rabiger	664,779	Dec. 25	3510	795, 796	93	2494
Egg-beater or cream-whipper	P. B. Tingley	663,305	Dec. 4	749	160	93	1868
Egg-boiler	P. J. Friel	664,079	Dec. 18	2150	491	93	2192
Egg-carton	J. H. Batchelder	658,906	Oct. 2	331	82	93	68
Egg-carton packer	W. H. Davis	659,469	Oct. 9	1329	304	93	286
Egg-case filler	W. H. Hansell	662,424	Nov. 27	2599	625	93	1516
Egg-holder	T. N. Thomson	663,190	Dec. 4	529	113	93	1826
Egg-saver	E. Braun	661,487	Nov. 13	827	199	93	1131
Ejector	W. D. Labadie	661,180	Nov. 6	278	67	93	1008
Ejector. Hydraulic	M. Crowther	664,037	Dec. 18	2084	474, 475	93	2178
Electric accumulator	P. Marino	664,028	Dec. 18	2067	470	93	2175
Electric accumulator or secondary battery	H. Weymersch	660,979	Oct. 30	4182	.....	93	908
Electric-arc lights. Producing	E. Rasch	663,467	Dec. 11	1048	.....	93	1949
Electric battery	A. W. Harrison	662,622	Nov. 27	2973	705	93	1590
Electric battery	F. K. Irving	660,375	Oct. 23	3121	692	93	677
Electric brake	F. E. Case	660,487	Oct. 23	3317	743	93	715
Electric cable	W. M. Habirshaw	661,244	Nov. 6	392	93	93	1030
Electric-circuit breaker	B. P. Rucker	661,771	Nov. 13	1352	327	93	1235
Electric-circuit-controlling device	E. W. Hammer	661,518	Nov. 13	879	211, 212	93	1141
Electric-circuit indicator	L. G. Woolley	664,367	Dec. 18	2096	513	93	2308
Electric circuits. Apparatus for locating faults in	W. E. Athearn	659,357	Oct. 9	1121	262	93	243
Electric circuits. Safety cut-out for	J. Sachs	660,340	Oct. 23	3066	680	93	666
Electric circuits. Safety cut-out for	J. Sachs	662,501	Nov. 27	2765	656	93	1551
Electric conductors. Crossing for suspended	J. Floyd	659,142	Oct. 2	747	180	93	151
Electric conduits. Appliance for making metallic connections between	A. W. Watkins and R. Lenk	660,741	Oct. 30	3767	848	93	820
Electric contact device. Screw	C. Chevallier and E. Cadet	660,887	Oct. 30	4037	904, 905	93	872
Electric contact or current-taking device	E. Greil and E. Audiger	663,750	Dec. 11	1534	343, 344	93	2043
Electric-current indicator	H. M. Warren	662,992	Dec. 4	166	34	93	1758
Electric-current regulator	D. Watkins	658,905	Oct. 2	328	81, 82	93	67
Electric currents. Amplifying	J. B. Baker	660,613	Oct. 30	3531	793, 794	93	775
Electric currents by motors of irregular driving power. Apparatus for periodical generation of	M. Gehre	659,660	Oct. 16	1695	383	93	373
Electric currents into effective mechanical energy. Converting the energy of alternating	R. Eickemeyer	664,733	Dec. 25	3403	774	93	2474
Electric cut-out	J. H. and H. Trumbull	664,511	Dec. 25	2980	678	93	2384
Electric cut-out. Automatic	J. H. Robertson	659,766	Oct. 16	1912	430	93	415
Electric-distribution system	E. M. Hewlett	660,815	Oct. 30	3902	877	93	846
Electric fixtures. Supporting block or bracket for	J. W. Helzer	661,986	Nov. 20	1748	420	93	1331
Electric furnace	J. M. Morehead	664,333	Dec. 18	2026	597	93	2289

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric generator	L. G. Woolley	658,821	Oct. 2	180	43	93	40
Electric heater	J. E. Brown	662,911	Dec. 4	24	5	93	1731
Electric heater and circuit-controller therefor	J. I. Ayer	664,371	Dec. 25	2708	614	93	2341
Electric indicator	C. L. Clarke	660,561	Oct. 30	3453	775	93	761
Electric-lighting appliance	A. Peters	663,981	Dec. 18	1983	446, 447	93	2159
Electric-lighting system	J. I. Conklin	660,047	Oct. 16	2426	546, 547	93	516
Electric lights. Means for suspending incandescent	T. Smith	659,702	Oct. 16	1778	401	93	390
Electric-machine brush-holder	S. H. Short	662,630	Nov. 27	2985	707	93	1592
Electric-machine brush-holder. Dynamo-	C. W. Kragh	661,538	Nov. 13	917	226	93	1149
Electric-machine brush-holder. Dynamo-	C. W. Kragh	664,649	Dec. 25	3242	736	93	2439
Electric machine. Dynamo-	C. C. Chesney	661,306	Nov. 6	510	118	93	1052
Electric machine. Dynamo-	J. B. Entz	664,247	Dec. 18	2450	558	93	2255
Electric machine. Dynamo-	I. Fisher	664,396	Dec. 25	2760	627	93	2342
Electric machine. Dynamo-	J. F. Kelly	661,202	Nov. 6	482	110	93	1048
Electric machine. Dynamo-	W. F. Richards	659,829	Oct. 16	2024	454, 455	93	437
Electric machine. Dynamo-	F. W. Throop	662,042	Nov. 20	1866	449	93	1353
Electric-machine slot-wedge. Dynamo-	H. G. Reist	660,459	Oct. 23	3259	729	93	703
Electric machines. Operating dynamo-	W. L. R. Emmet	664,077	Dec. 18	2147	491	93	2191
Electric machines. Regulating dynamo-	C. P. Steinmetz	660,534	Oct. 23	3405	765	93	732
Electric meter	T. A. Edison	659,389	Oct. 9	1174	272, 273	93	255
Electric meter	T. A. Edison	660,293	Oct. 23	2990	658	93	645
Electric meter	T. A. Edison	663,015	Dec. 4	211	46	93	1766
Electric meter	E. S. Halsey	664,265	Dec. 18	2490	565, 566	93	2362
Electric meter	C. W. G. Little	661,881	Nov. 13	1538	374	93	1269
Electric motor	J. Darling	662,772	Nov. 27	3260	769	93	1644
Electric motor	B. G. Lamme	660,909	Oct. 30	4069	912	93	879
Electric motor	T. S. Watson	660,713	Oct. 30	3722	837	93	811
Electric motor. Alternating-current	E. Thomson	664,190	Dec. 18	2353	537	93	2234
Electric-motor control	F. W. Garrett	661,971	Nov. 20	1723	415, 416	93	1326
Electric-motor control	E. W. Stull	662,089	Nov. 20	1853	446, 447	93	1350
Electric-motor controller	C. A. Dresser	663,491	Dec. 11	1086	238	93	1955
Electric-motor controller	F. W. Garrett	661,972	Nov. 20	1726	416, 417	93	1327
Electric-motor controller	J. B. Linn and M. W. Day	662,450	Nov. 27	2657	634	93	1529
Electric-motor controller	C. A. Lindstrom	659,539	Oct. 9	1470	333	93	313
Electric-motor-supporting device	B. G. Lamme	660,908	Oct. 30	4067	912	93	879
Electric motor. Variable-speed	C. E. Isbills	660,217	Oct. 23	2813	623, 624	93	615
Electric-motor wheel	J. J. Wood	663,207	Dec. 4	557	129	93	1831
Electric motors. Means for starting or stopping	E. Wilson and C. J. Evans	663,400	Dec. 4	910	198	93	1899
Electric or electromagnetic waves of high frequency. Controlling mechanism by means of	C. W. Richards	660,396	Oct. 23	3159	700	93	685
Electric regulator	B. M. Davis	660,589	Oct. 23	3418	766, 767	93	738
Electric-shock machine. Coin-controlled	M. Guett	660,633	Oct. 30	3571	801	93	782
Electric-snap-switch cover	E. M. Hewlett	663,496	Dec. 11	1097	240	93	1958
Electric switch	C. H. North	660,818	Oct. 30	3907	877	93	846
Electric switch	N. D. Rand	658,925	Oct. 2	363	90	93	74
Electric switch	C. W. Scott	664,061	Dec. 18	2120	484	93	2185
Electric switch	G. H. Whittingham	659,946	Oct. 16	2239	503	93	479
Electric switch	H. Dolter	662,921	Dec. 4	42	10, 11	93	1734
Electric-traction apparatus	M. T. De Felice	663,025	Dec. 11	1309	290	93	1908
Electric-traction system	C. B. Martin	661,666	Nov. 13	1151	284, 285	93	1196
Electric train control. System of	M. Schupner	661,820	Nov. 13	1437	348	93	1250
Electrical apparatus	H. A. Parrish	663,130	Dec. 4	409	87	93	1808
Electrical apparatus for controlling signal or other circuits	W. Grunow, Jr	662,785	Nov. 27	3284	774, 775	93	1648
Electrical circuits without dangerous arcing. Apparatus for rupturing high-potential	G. H. Paul	662,463	Nov. 27	2685	639	93	1535
Electrical-conductor joints. Casing for	C. F. Scott	660,930	Oct. 30	4105	923	93	897
Electrical conductors. Varying active lengths of	W. B. Cleveland	663,489	Dec. 11	1083	237	93	1955
Electrical connection	W. Gerhardt	664,144	Dec. 18	2279	519	93	2218
Electrical connection	W. B. Cleveland	663,490	Dec. 11	1084	237	93	1955
Electrical connections. Forming	H. Blackman	662,707	Nov. 27	3142	744	93	1621
Electrical connector	J. S. Mead	662,491	Nov. 27	2745	652	93	1547
Electrical device. Portable	C. M. Green and J. G. Callan	659,664	Oct. 16	1704	385	93	375
Electrical-distribution system	H. R. Kent	663,659	Dec. 11	1364	302	93	2009
Electrical-distribution system	B. G. Lamme	660,910	Oct. 30	4070	912	93	880
Electrical-distribution system	E. W. Rice, Jr	659,828	Oct. 16	2023	454	93	436
Electrical-distribution system	C. P. Steinmetz	664,105	Dec. 18	2199	502	93	2203
Electrical-distribution system	C. P. Steinmetz	664,106	Dec. 18	2203	502	93	2203
Electrical-distribution system	C. I. Young	660,320	Oct. 23	3026	671	93	658
Electrical fitting	W. T. Pringle	658,924	Oct. 2	361	89	93	73
Electrical furnace	W. Borchers	660,043	Oct. 16	2417	544	93	515
Electrical impulses. Transmission of	F. Bedell	662,732	Nov. 27	3218	761, 762	93	1635
Electrical interrupter	J. M. Davidson	663,695	Dec. 11	1442	319	93	2024
Electrical mechanism. Circuit-controller for	W. A. McCallum	659,824	Oct. 16	2016	452	93	435
Electrical resistance	W. Grunow, Jr	662,422	Nov. 27	2596	624	93	1516
Electrical switch	N. Bassett	661,465	Nov. 6	781	186	93	1108
Electrical switch. Rotary snap	M. Guett	660,634	Oct. 30	3572	801	93	782
Electrically lighting railway-carriages, &c. Apparatus for	C. Vicarino	662,580	Nov. 27	2906	689, 690	93	1577
Electricity-meter	P. Elbig	660,987	Oct. 30	4194	943	93	905
Electricity-meter	W. M. Mordey and G. C. Fricker	660,021	Oct. 16	2379	534, 535	93	509
Electricity-meter	W. M. Mordey and G. C. Fricker	664,092	Dec. 18	2174	496, 497	93	2197

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electrode and electrode connection	H. Carmichael	658,891	Oct. 2	303	75	93	62
Electrode. Arc-lamp	F. Hachmann	660,852	Oct. 30	3983	891	93	861
Electrogalvanic battery	H. J. Brewer	660,836	Oct. 30	3953	885	93	856
Electrolysis. Protecting underground metallic structures from effects of	L. I. Blake	661,165	Nov. 6	252	61	93	1002
Electrolytic apparatus	H. Becker	663,719	Dec. 11	1485	328	93	2033
Electrolytic apparatus	E. Motz	662,286	Nov. 20	2311	558	93	1441
Electromagnet-coil	S. D. Sprong	664,442	Dec. 25	2854	651	93	2359
Electromagnet-spool	G. L. Weaver	659,882	Oct. 16	2118	477	93	455
Elevator: *See* Grain-elevator. Mining-elevator. Hydraulic elevator. Sidewalk-elevator.	R. Ardell	661,136	Nov. 6	201	51	93	992
Elevator	J. Bush	662,913	Dec. 4	28	6, 7	93	1732
Elevator	J. Gary	661,716	Nov. 13	1249	302	93	1215
Elevator	J. Hadfield	664,041	Dec. 18	2089	477	93	2179
Elevator	W. H. Mechlin	659,406	Oct. 9	1201	278	93	261
Elevator	P. D. Root	659,988	Oct. 16	2324	523	93	498
Elevator	E. C. Berghoefer	660,207	Oct. 23	2703	620	93	611
Elevator and carrier	H. J. Flood	661,242	Nov. 6	389	92	93	1029
Elevator-boot	C. W. Levalley	661,879	Nov. 13	1534	373	93	1268
Elevator-boot	O. F. Burton	661,754	Nov. 13	1320	321	93	1228
Elevator-brake	E. Rubbert	662,095	Nov. 20	1973	471	93	1374
Elevator-door	I. Frankel	660,851	Oct. 30	3982	891	93	861
Elevator emergency stop or brake	A. C. Booth	663,953	Dec. 18	1936	435	93	2149
Elevator-gate	R. T. Crane	661,576	Nov. 13	990	247	93	1165
Elevator ram. Hydraulic-	L. M. and M. F. Doty	664,133	Dec. 18	2259	513	93	2214
Elevator safety appliance	J. G. Gracey and A. Gfeller	662,264	Nov. 20	2280	547, 548	93	1485
Elevator safety device	W. Lessing	658,853	Oct. 2	250	63	93	52
Elevator safety device	G. E. Shepler	659,493	Oct. 9	1380	314	93	295
Elevator safety-gate	S. T. Hitz and G. H. Blaker	663,228	Dec. 4	607	129, 130	93	1840
Elevators. Means for preventing accidents in	A. A. Roth and R. Brooks	664,293	Dec. 18	2552	580	93	2275
Elliptic spring	O. Morrill and H. P. Wells	664,571	Dec. 25	3093	702	93	2407
Embalming apparatus	E. E. Ertsman	661,118	Nov. 6	165	41	93	985
Embroidery-hoop holder. Portable	L. Dimock	663,424	Dec. 11	974	211	93	1934
Enamel-ware. Ornamental	J. Hughes and J. F. McGowan	664,321	Dec. 18	2605	------	93	2285
Enameled sheets of fibrous material. Making	B. B. Goldsmith	661,263	Nov. 6	431	------	93	1037
Enameling bath-tubs. Apparatus for	W. C. Degelman	663,601	Dec. 11	1267	280	93	1991
Enameling metal ware. Composition of matter for	W. Topping	663,618	Dec. 11	1296	------	93	1996
Enameling-table for bath-tubs	E. Dithridge	658,833	Oct. 2	210	52	93	45
End-gate	E. A. Henderson	663,866	Dec. 18	1902	441	93	2154
End-gate	C. S. Wright	660,479	Oct. 23	3303	739	93	718
End-gate fastening	J. Pearson	664,498	Dec. 25	2953	673	93	2378
End-gate. Wagon	W. Carpenter	659,575	Oct. 9	1524	346	93	328
End-gate. Wagon	A. H. and S. A. Kring	661,582	Nov. 13	1006	250	93	1167
Engine: *See* Air-engine. Rag-engine. Balancing-engine. Refining-engine. Caloric-engine. Reversible engine. Compound engine. Revolving-cylinder engine. Explosion-engine. Explosive-engine. Rock-drill engine. Gas-engine. Rock-drilling engine. Gasolene-engine. Rotary engine. Hydraulic engine. Rotary explosive-engine. Impact-engine. Steam-engine. Internal-combustion engine. Toy engine. Traction-engine. Locomotive-engine. Turbine engine. Oil-engine. Vapor-engine. Pulp-refining engine. Wave and tidal engine. Pumping-engine.	A. Ball and T. Officer	661,685	Nov. 13	1198	291	93	1205
Engine	J. E. Hartwell	663,755	Dec. 11	1546	345, 346	93	2045
Engine	L. S. Holmes	660,160	Oct. 23	2687	598, 599	93	590
Engine	L. E. Kottmeyer	661,104	Nov. 6	136	34, 35	93	978
Engine adapted for operating rammers	L. S. Stiles	659,712	Oct. 16	1798	405	93	394
Engine attachment. Gas-	X. De la Croix	661,854	Nov. 13	1491	361	93	1260
Engine cab. Traction-	G. F. Conner	663,147	Dec. 4	458	96	93	1818
Engine circuit-controller. Electric-	H. and J. S. Letord	661,742	Nov. 13	1295	316, 317	93	1223
Engine counterbalance. Explosion-	H. B. Steele	662,631	Nov. 27	2980	707, 708	93	1593
Engine cylinder-head	R. L. Ambrose	664,453	Dec. 25	2871	655	93	2362
Engine cylinder. Steam-	J. A. Lidback	661,061	Nov. 6	59	14	93	962
Engine dash-pot. Steam-	M. R. Moore	662,011	Nov. 20	1796	433	93	1340
Engine fly-wheels. Starting-jack for	J. F. Trumble	664,510	Dec. 25	2978	678	93	2384
Engine igniter. Explosion-	C. O. White	664,110	Dec. 18	2215	504	93	2206
Engine igniter. Explosive-	G. A. Tuerk	663,798	Dec. 11	1639	367	93	2066
Engine igniter. Gas or oil	A. T. Otto	664,360	Dec. 18	2088	611	93	2380
Engine-muffler	J. M. Smith	659,456	Oct. 9	1306	299	93	201
Engine operated by fluid under pressure	G. Geuder	662,169	Nov. 20	2100	508, 509	93	1400
Engine. Petroleum or like internal-combustion	G. H. Rogers	660,338	Oct. 23	3061	679	93	665
Engine regulator. Traction-	G. F. Conner	663,146	Dec. 4	457	96	93	1812
Engine shut-off mechanism	T. D. Millea	660,519	Oct. 23	3378	759	93	727
Engine speed-regulator. Explosive-	H. Sutton	664,689	Dec. 25	3309	732	93	2453
Engine speed-regulator. Gas-	J. W. Lambert	661,181	Nov. 6	279	67	93	1008
Engine-stopping device	M. J. Carroll, T. D. and J. D. Millea	662,144	Nov. 20	2048	497, 498	93	1338
Engine tender. Traction-	F. J. Weir	664,599	Dec. 25	3165	716	93	2423

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engines. Distributing mechanism for steam or other fluid-pressure	C. Bonjour	660,412	Oct. 23	3189	708, 709	93	690
Engines. Electric igniter for explosive-	M. S. Napier	663,388	Dec. 4	889	190	93	1895
Engines. Electric igniter for gas-	W. H. Cotton	663,653	Dec. 11	1356	300	93	2007
Engines. Electric-ignition plug for internal-combustion	F. R. Simms	662,317	Nov. 20	2374	572	93	1454
Engines. Exhaust-silencer for explosive-	G. Buck	663,725	Dec. 11	1498	331	93	2031
Engines, &c. Fuel vaporizer and mixer for explosive-	A. Hayes	660,954	Oct. 30	4147	932	93	895
Engines. Gasifying apparatus for explosive-	F. Dürr	660,292	Oct. 23	2958	658	93	645
Engines. Incandescent igniting device for explosion-	G. Miari and F. Giusti	664,661	Dec. 25	3261	741	93	2443
Engines. Means for cooling explosive-	W. F. Davis	660,078	Oct. 16	2505	560, 561	93	533
Engines. Mixer and vaporizer for gas-	J. W. Lambert	660,778	Oct. 30	3834	950	93	832
Engines. Muffler and purifier for gasolene-	G. L. Reenstierna	661,276	Nov. 6	453	104	93	1042
Engines. Sparking igniter for explosive-	L. S. Clarke and J. G. Heaslet	663,729	Dec. 11	1498	332	93	2036
Engines. Sparking-igniter for explosive-	A. Johnson	661,291	Nov. 6	479	109, 110	93	1047
Engines. Sparking-igniter for explosive-	A. J. Signor	662,315	Nov. 20	2372	571	93	1454
Engines. Sparking igniter for explosion-	F. R. Simms and R. Bosch	663,643	Dec. 11	1339	296	93	2004
Engines. Sparking-plug for explosive-	E. T. Birdsall	660,780	Oct. 30	3852	866	93	835
Engines. Trip-lock for use in starting explosive-	P. Swenson	662,507	Nov. 27	2774	658	93	1553
Engraving and die-sinking machine	F. D. Van Norman	659,461	Oct. 9	1315	301	93	283
Engraving-machine	W. S. Eaton	660,790	Oct. 30	3857	867	93	836
Engraving-machine	W. S. Eaton	663,563	Dec. 11	1208	263	93	1978
Engraving-machine	C. H. Field	663,017	Dec. 4	215	46	93	1767
Engraving-machine	A. Sartirana	660,030	Oct. 16	2394	537, 538, 539	93	511
Engraving-machine	E. S. Woods	658,820	Oct. 2	176	42, 43	93	39
Engraving-machines. Chuck and vise for	C. W. Pashley	659,761	Oct. 16	1902	428, 429	93	413
Engraving-machines. Driving mechanism for	J. Place and C. W. Pashley	659,763	Oct. 16	1906	429	93	414
Entomological specimens. Mount for	W. D. and R. W. Denton	664,132	Dec. 18	2256	512	93	2213
Envelop	C. W. Allen	662,382	Nov. 27	2501	604	93	1497
Envelop	S. Clawson	663,730	Dec. 11	1500	332	93	2036
Envelop	I. F. Long	664,566	Dec. 25	3083	700	93	2405
Envelop	F. M. Merridew	661,064	Nov. 6	66	15	93	964
Envelop	O. Richter and E. L. Vognild	658,926	Oct. 2	365	90	93	74
Envelop	J. A. Ullman	664,694	Dec. 25	3325	756	93	2456
Envelop	W. O. Brown, Jr.	663,327	Dec. 4	788	167	93	1874
Envelop and envelop-fastener	W. Barnard	659,806	Oct. 16	1906	447	93	431
Envelop-fastener	C. W. Allen	659,634	Oct. 16	1649	371	93	365
Envelop-fastening	E. Ermold	659,960	Oct. 16	2279	511	93	480
Envelop-machine	M. N. Forney	661,690	Nov. 13	1201	292	93	1206
Envelop. Multiple-addresss	F. A. Walter	663,202	Dec. 4	518	118	93	1829
Eraser and pencil-sharpener. Combination	A. H. Clark and J. J. Dyler	660,072	Oct. 16	2503	560	93	533
Eraser. Mechanical	E. H. Gates	663,538	Dec. 11	1172	253, 254	93	1972
Etching apparatus. Roll-	E. Hett	662,860	Nov. 27	3463	814, 815, 816	93	1684
Etching metal	C. Mueller	660,262	Oct. 23	2887	543	93	630
Evaporating apparatus	A. Denaeyer	664,015	Dec. 18	2056	466	93	2172
Evaporating apparatus. Multiple-effect	E. J. Duff	662,399	Nov. 27	2540	614	93	1505
Evaporating-pan	J. J. Henry	661,525	Nov. 13	894	215	93	1144
Evaporating-pan	F. I Scard	662,976	Dec. 4	137	20	93	1751
Evaporator. Fruit-	J. Schmidt	663,474	Dec. 11	1056	232	93	1950
Excavating apparatus	W. Henderson	660,956	Oct. 30	4150	932, 933	93	896
Excavating, conveying, and loading ballast upon railway-cars. Machine for	A. Torrey	659,008	Oct. 2	525	127	93	105
Excavator	O. Hetlesaeter	659,632	Oct. 9	1637	369	93	345
Excavator. Submarine	J. E. Walsh	664,010	Dec. 18	2049	464	93	2171
Exercising and massage device	B. A. McFadden	662,063	Nov. 20	1946	466	93	1368
Exercising apparatus	W. J. Bryon, Jr	664,210	Dec. 18	2392	545	93	2243
Exhibiting apparatus. Coin-freed photograph-	C. Wray	661,299	Nov. 6	493	113, 114	93	1050
Exhibiting device	B. Tropp	664,692	Dec. 25	3319	754, 755	93	2455
Exhibitor. Goods-	C. M. Schaeffer	663,046	Dec. 4	265	56	93	1776
Expansible bit	J. P. Lavigue	662,199	Nov. 20	2164	522	93	1413
Expansion-bolt	I. Church	660,559	Oct. 30	3449	774	93	760
Explosion-engine	A. and E. Boulier	661,439	Nov. 6	738	172, 173	93	1100
Explosion-engine	H. W. Struss	663,106	Dec. 4	369	77	93	1794
Explosion-engine	T. L. and T. J. Sturtevant	662,040	Nov. 20	1857	447, 448	93	1351
Explosive charge and powder therefor	E. Gathmann	660,567	Oct. 30	3464	777	93	762
Explosive-engine	O. F. Good	662,718	Nov. 27	3162	748	93	1625
Explosive-engine. Multiple-cylinder	A. J. Signor	662,155	Nov. 20	2076	503	93	1393
Explosives. Making	A. C. Girard	663,166	Dec. 4	490	.....	93	1819
Extension-table	F. M. Kling	658,852	Oct. 2	249	62	93	52
Extension-table	J. T. La Turno	662,446	Nov. 27	2652	633	93	1528
Extension-table	G. A. Myers	659,624	Oct. 9	1618	366	93	342
Extension-table	H. Nonnast and W. Tesar	662,200	Nov. 20	2318	559	93	1443
Extension-table. Roller-top	C. D. and J. P. Barr	662,109	Nov. 20	1904	477, 478	93	1378
Extractor: *See* Nail-extractor. Shell-extractor.							
Eyeglass-hook	E. B. Howitt	659,890	Oct. 16	2132	481	93	458
Eyeglasses	C. S. Apple	658,748	Oct. 2	2	1	93	3
Eyeglasses	W. F. Cushman	663,583	Dec. 11	1164	252	93	1970
Eyeglasses	A. Licht	659,404	Oct. 9	1197	277	93	259

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Eyelet-hole machine	C. L. Nutter	663,389	Dec. 4	891	191, 192	93	1895
Fabric: *See* Wire fabric. Woven fabric.							
Fabric-strength-testing device	W. M. Vermilye	662,327	Nov. 20	2395	577	93	1458
Fabric-treating apparatus	A. Garland	661,289	Nov. 6	475	108, 109	93	1046
Fan, &c	E. E. Alexander	662,485	Nov. 27	2734	649	93	1545
Fan. Electric	J. T. Beswick	660,551	Oct. 30	3438	772	93	758
Fan or blower for ventilating purposes	A. W. Metcalfe	660,582	Oct. 30	3486	782	93	766
Fan or pump. Centrifugal	S. C. Davidson	662,395	Nov. 27	2324	609, 610, 611, 612	93	1502
Fan or pump. Centrifugal	S. C. Davidson	662,396	Nov. 27	2530	612	93	1506
Fan or pump. Centrifugal	S. C. Davidson	662,397	Nov. 27	2534	613	93	1504
Fan or pump. Centrifugal	S. C. Davidson	662,525	Nov. 27	2806	665	93	1559
Fare-register	J. O. Sloan	664,103	Dec. 18	2197	501	93	2202
Fare-registers. Mechanism for operating	J. F. Ohmer and H. Tyler. (Reissue.)	11,867	Oct. 30	4287	962, 963	93	922
Farm-gate	F. Barden	663,152	Dec. 4	468	99	93	1814
Farm-gate	W. Braden	660,323	Oct. 23	3033	672	93	659
Farm-gate	B. A. Fisher	660,247	Oct. 23	2861	636, 637	93	625
Farrier's implement	T. F. Drake	661,733	Nov. 13	1279	310	93	1220
Farrier's knife	J. W. Polchow	664,175	Dec. 18	2322	530	93	2227
Fastener	W. B. H. Dowse	664,242	Dec. 18	2444	556	93	2254
Fasteners. Mechanism for assembling, forming, and setting garment-	J. V. Washburne	661,297	Nov. 6	490	113	93	1049
Fastening device	J. T. Conn	660,680	Oct. 30	3662	823	93	798
Fastening device	R. Wales	659,500	Oct. 9	1392	316	93	297
Fastening eye. Garment-	E. M. Lesser	660,300	Oct. 23	2980	661	93	649
Faucet	P. F. Boyle	659,285	Oct. 9	1016	239	93	221
Faucet	N. H. F. Francis	660,096	Oct. 23	2552	570	93	563
Faucet	A. O'Brien	663,979	Dec. 18	1979	446	93	2158
Faucet and overflow. Combined	W. G. Wulchet	664,808	Dec. 25	3561	810	93	2505
Faucet attachment	G. C. Hamilton	659,394	Oct. 9	1184	274	93	256
Faucet. Beer-	J. B. Jones	663,347	Dec. 4	814	174	93	1879
Faucet. Measuring-	G. Sparrow	663,369	Dec. 4	847	182	93	1886
Faucet. Water-	J. P. Farley	661,966	Nov. 20	1714	414	93	1325
Faucet. Water-	R. H. W. Schmidt	662,508	Nov. 27	2768	656	93	1552
Feather quills. Machine for grinding	S. Levy	664,564	Dec. 25	3081	699	93	2404
Feed apparatus. Automatic	J. S. Beeman	660,831	Oct. 30	3944	884	93	855
Feed-box	R. C. Jarvis	663,081	Dec. 4	314	67	93	1784
Feed-cutters. Pneumatic feed-conveyer for	E. C. and A. J. Wilharms	659,722	Oct. 16	1815	409	93	397
Feed. Manufacturing cattle-	T. Gaunt	664,262	Dec. 18	2487	565	93	2261
Feed mechanism	G. Kunz	662,797	Nov. 27	3301	779	93	1651
Feed-regulator	J. Hutchison	663,902	Dec. 18	1844	416	93	2132
Feed regulator. Boiler-	J. W. Copes	662,687	Nov. 27	3100	782	93	1614
Feed-trough	F. B. Dobensky	664,241	Dec. 18	2443	556	93	2254
Feed-trough. Knockdown	H. Mendenhall	661,937	Nov. 13	1641	397	93	1289
Feed-water and water-level regulator	A. Cruickshanks and A. Scrivenor	660,722	Oct. 30	3738	842	93	814
Feed-water heater	D. B. Cumming	661,042	Nov. 6	25	6	93	955
Feed-water heater	A. G. Hohenstein	661,932	Nov. 13	1630	394, 395	93	1286
Feed-water-purifying apparatus	I. S. McDougall	664,572	Dec. 25	3095	702, 703	93	2407
Feed-water regulator	I. H. Davis	661,858	Nov. 13	1489	362	93	1260
Feed-water regulator	I. H. Davis	661,906	Nov. 13	1584	384	93	1278
Feed-water regulator	C. B. Edwards	660,294	Oct. 23	2963	659	93	646
Feed-water strainer for locomotives	J. P. Hayes	661,931	Nov. 13	1629	394	93	1286
Feeder. Boiler-	J. Barry and M. L. Shaughnessy	664,456	Dec. 25	2876	656	93	2363
Feeder. Boiler-	H. J. Davis, P. G. Ault, W. W. Bailey, and J. H. Wideman.	663,735	Dec. 11	1511	336, 337	93	2038
Feeder. Boiler-	T. J. Whitney	661,782	Nov. 13	1367	331, 332	93	1238
Feeder. Portable and adjustable stock-	F. B. Davis	663,806	Dec. 11	1652	370	93	2068
Feeder. Steam-boiler	J. F. Duryea	663,828	Dec. 11	1701	381	93	2080
Feeder. Steam-boiler	G. W. Vidlund	664,696	Dec. 25	3327	756	93	2457
Feeder. Stock-	A. B. Armstrong	662,384	Nov. 27	2503	604	93	1497
Feeder. Stock-	J. J. Singley	660,596	Oct. 30	3506	787	93	770
Feeding and watering poultry. Device for	D. E. Southwick	664,591	Dec. 25	3143	712, 713	93	2418
Fence	D. Sheets	660,595	Oct. 30	3504	786	93	770
Fence clamp. Wire-	R. W. Kirk	662,648	Nov. 27	3013	713	93	1568
Fence-machine	G. W. S. Bell	660,267	Oct. 23	2919	649	93	637
Fence machine. Wire-	D. P. Anthony	662,662	Nov. 27	3088	718, 719, 720	93	1603
Fence-post	A. Reitenour	660,657	Oct. 30	3622	812	93	792
Fence-post	H. J. Van Valkenburgh	659,424	Oct. 9	1239	285	93	268
Fence stays. Machine for making wire-	C. E. Wintrode	659,995	Oct. 16	2337	525, 526	93	501
Fence tightener. Wire-	G. H. Cullen	661,041	Nov. 6	24	6	93	955
Fence-tool	M. W. Gunn	659,666	Oct. 16	1706	385	93	375
Fencing machine. Wire-	N. S. Parker	664,174	Dec. 18	2319	529	93	2226
Fender: *See* Car-fender. Fireplace-fender. Dust and cinder fender.							
Fertilizer-distributer	J. C. Holtzclaw	664,477	Dec. 25	2917	665	93	2371
Fertilizer-distributer	R. C. Hoyer	659,233	Oct. 9	940	221	93	206
Fertilizer-distributer	A. Taplin	660,600	Oct. 30	3511	788	93	771
Fertilizer-distributer attachment	W. A. Sears, Jr	663,642	Dec. 11	1337	296	93	2004
Fertilizer-distributing attachment	W. Schlabach	659,158	Oct. 2	773	187	93	156
Fertilizer feeding and disintegrating apparatus	J. F. Bussells	662,350	Nov. 20	2439	587	93	1466
Fertilizing-machine	H. C. Ham	662,532	Nov. 27	2820	660	93	1561

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fiber-cleaning apparatus	L. Sullivan	661,749	Nov. 13	1308	319	93	1226
Fiber-disintegrator	A. W. Case	663,559	Dec. 11	1208	262	93	1978
Fibrous material and product thereof. Manufacturing solid substances from	W. Gelinek	662,929	Dec. 4	54	.....	93	1796
Fibrous materials. Apparatus for cleansing	A. Ubbelohde	659,879	Oct. 16	2113	475	93	454
Fifth-wheel	M. Hoagland	659,528	Oct. 9	1445	327 328	93	308
File	L. C. McNeal	664,573	Dec. 25	3096	703 704	93	2408
File-box	W. E. Dunning	660,811	Oct. 30	3895	875	93	844
File-box	W. W. Huelster	660,797	Oct. 30	3869	870	93	839
File-case	H. J. Schindler	662,825	Nov. 27	3353	793 794	93	1662
File. Newspaper or letter	H. P. Krehbiel	660,906	Oct. 30	4065	911	93	878
File. Paper-	F. J. McDonnell	663,776	Dec. 11	1580	354	93	2052
File. Prescription-	H. I. Jeffers	664,432	Dec. 25	2926	666	93	2373
File suspension device. Document-	D. E. Hunter	664,755	Dec. 25	3463	782	93	2486
Filler-tip	F. L. Nichols	662,085	Nov. 20	1948	467	93	1369
Films. Manufacturing colored or similar	E. Oeser	660,024	Oct. 16	2385	.....	93	510
Filter	A. M. Amos	659,430	Oct. 9	1251	288	93	270
Filter	W. B. Brown	663,256	Dec. 4	664	142 143	93	1851
Filter	W. Dorval	660,151	Oct. 23	2667	595 596	93	586
Filter	A. F. Garesché	661,602	Nov. 13	1040	259	93	1174
Filter	A. G. Grenamyer and G. A. Robinson	663,751	Dec. 11	1536	344	93	2043
Filter	A. R. Grever	661,339	Nov. 6	573	132	93	1065
Filter	J. C. Henderson	664,408	Dec. 25	2792	634	93	2348
Filter	W. Jandus	661,373	Nov. 6	627	146	93	1077
Filter	E. A. Leland	664,280	Dec. 18	2532	575	93	2271
Filter	J. A. Maignen	659,485	Oct. 9	1361	310	93	291
Filter	C. Shuman	659,876	Oct. 16	2111	474	93	454
Filter	A. J. Talt	663,646	Dec. 11	1344	297	93	2005
Filter	R. T. Weaver	663,592	Dec. 11	1248	275 276	93	1986
Filter	T. J. Zoeller	663,841	Dec. 11	1726	386	93	2086
Filter	J. Takamine and E. V. Hitch	659,041	Oct. 2	584	142	93	117
Filter-bag or strainer	J. C. Wallace	664,196	Dec. 18	2372	540	93	2239
Filter-bed	L. K. Davis	659,916	Oct. 16	2188	492 493	93	469
Filter-beds. Device for cleaning and replenishing sand	J. Davis	658,979	Oct. 2	465	110 111	93	94
Filter-beds. Means for cleaning granular	G. Küchmann	663,765	Dec. 11	1562	349	93	2049
Filter. Beer-	G. Péraud	660,921	Oct. 30	4087	916 917	93	883
Filter for wines, &c.	J. G. Doughty	661,758	Nov. 13	1326	322	93	1230
Filter. Oil-	A. M. Hamilton	663,271	Dec. 4	696	148	93	1855
Filter. Pocket-	I. H. Jewell	664,088	Dec. 18	2165	494 495	93	2196
Filter-screen. Accessible	M. B. Lemley	663,547	Dec. 11	1187	256	93	1974
Filter. Water-	L. K. Davis	660,563	Oct. 30	3459	776	93	761
Filters. Apparatus for preventing freezing of	J. J. Brix	662,856	Nov. 27	2960	678	93	1569
Filtering apparatus	I. O. Crosscup	662,252	Nov. 20	2260	543	93	1431
Filtering apparatus	F. J. Olsen and E. H. Whitmore	661,189	Nov. 6	291	70	93	1010
Filtering apparatus. Water-	E. von Rittershausen	664,782	Dec. 25	3516	.....	93	2496
Filtering material	M. and A. Jolles and J. Trenkler	661,056	Nov. 6	49	11	93	960
Filtering material and making same	J. A. Wiedersheim	662,211	Nov. 20	2188	527	93	1417
Filtering or purifying and aerating water. Apparatus for	C. W. T. Davies	659,135	Oct. 2	735	177	93	149
Finger attachment for clerks	S. Blagden	664,525	Dec. 25	3008	684	93	2388
Finger-bowl	C. M. Levy	662,449	Nov. 27	2657	634	93	1529
Finger-ring	O. Freymann	661,736	Nov. 13	1284	311	93	1221
Fire-alarm	R. C. Livingston	663,767	Dec. 11	1567	351	93	2050
Fire-alarm	A. A. Ross	661,555	Nov. 13	952	237	93	1156
Fire-alarm	E. F. Sitts	662,032	Nov. 20	1845	444	93	1348
Fire-alarm device. Automatic	C. L. Haight	662,719	Nov. 27	3164	748	93	1625
Fire-alarm. Electric	L. G. Woolley	664,802	Dec. 25	3559	809 810	93	2504
Fire-alarm telegraph	W. H. Kirnan	663,082	Dec. 4	316	67	93	1785
Fire-alarm telegraph apparatus	L. G. Woolley	664,366	Dec. 18	2696	612 613	93	2303
Fire-alarm telegraph box	J. Massaro	664,658	Dec. 25	3256	739 740	93	2442
Fire and water proof removable wall, floor, &c	A. Burgess	663,954	Dec. 18	1937	436	93	2149
Firearm. Automatic	A. Burgess	663,955	Dec. 18	1940	436 437	93	2150
Firearm. Automatic	A. Burgess	663,956	Dec. 18	1945	437	93	2151
Firearm. Automatic	R. M. Washington and A. W. Capy	658,984	Oct. 2	391	95	93	80
Firearm barrel attachment	F. Hochbrunn	660,437	Oct. 23	3227	721	93	698
Firearm. Breech-loading	C. Candrian	660,361	Oct. 23	3103	687	93	673
Firearm cover or sight-guard	E. H. Elder	663,604	Dec. 11	1273	281	93	1998
Firearm extractor mechanism	E. J. Duryea	663,333	Dec. 4	793	170	93	1876
Firearm-finder	R. B. Benjamin	664,074	Dec. 18	2141	490	93	2190
Firearm lighting attachment	F. E. Jaeger	663,545	Dec. 11	1181	255 256	93	1974
Firearm lock. Multibarrel-	J. M. Browning	659,507	Oct. 9	1404	319 320	93	300
Firearm. Recoil-operated	J. M. Browning	659,786	Oct. 16	1951	488	93	422
Firearm. Recoil-operated	T. C. Johnson	659,928	Oct. 16	2214	497	93	474
Firearms. Ejector for breech-loading	J. Formby	659,606	Oct. 9	1580	358	93	335
Firearms. Means for sighting rifled	J. Kalina	660,378	Oct. 23	3127	698	93	678
Firearms. Safety device for triggers and hammers of	B. R. Hoisington	661,803	Nov. 13	1412	340	93	1245
Fire-box	E. P. Matter	661,616	Nov. 13	1061	264	93	1178
Fire-engine houses. Alarm and releasing mechanism for	T. F. Browder	663,856	Dec. 18	1758	392	93	2112
Fire-escape	T. F. Browder	663,857	Dec. 18	1755	392	93	2113
Fire-escape	J. Derus	660,022	Oct. 30	3552	797 798	93	778
Fire-escape	E. S. Gall	660,792	Oct. 30	3859	867 868	93	836
Fire-escape	C. Gels	661,141	Nov. 6	209	52, 53	93	994
Fire-escape	C. R. Harris	658,842	Oct. 2	230	57	93	48
Fire-escape	T. Kelly	660,060	Oct. 16	2449	552 553	93	521
Fire-escape	J. O. Miller and D. Agnew	660,917	Oct. 30	4063	915	93	882
Fire-escape	B. S. Neelly	663,922	Dec. 18	1880	423	93	2139
Fire-escape	O. Nelson	662,243	Nov. 20	2250	541	93	1429
Fire-escape	W. Newburn	662,875	Nov. 27	3527	826	93	1703
Fire-escape	W. H. Newman	660,782	Oct. 30	3755	845	93	817
Fire-escape	F. Ockers	659,068	Oct. 2	674	160	93	136
Fire-escape	C. Stoll	662,090	Nov. 20	1849	445	93	1349
Fire-escape	L. Weber	660,674	Oct. 30	3654	820	93	797
Fire-escape. Automatic	D. May and M. Selig	663,680	Dec. 11	1412	313	93	2019
Fire-extinguisher	G. W. Coon	661,442	Nov. 6	742	173	93	1100
Fire-extinguisher	T. F. Handly	661,215	Nov. 6	337	80, 81	93	1019
Fire-extinguisher	C. R. Harris	662,786	Nov. 27	3286	775	93	1648
Fire-extinguisher	A. P. Prier	660,588	Oct. 30	3495	784	93	768
Fire-extinguisher. Chemical	J. Tombeur	661,430	Nov. 6	723	168	93	1096
Fire-extinguishing appliance	A. Reid	659,548	Oct. 9	1482	396	93	315
Fire-extinguishing liquid through gas-distributing pipes. Means for discharging	B. C. Crane	660,147	Oct. 23	2661	594	93	585
Fire-hose nozzle	C. Hoff and G. H. Klotter	659,229	Oct. 9	934	219 220	93	205
Fire-kindlers, &c. Machine for manufacturing	N. Bates	659,908	Oct. 16	2341	526	93	502
Fireplace	W. C. Holmes	664,639	Dec. 25	3227	732	93	2436
Fireplace	W. H. Slappey	659,770	Oct. 16	1924	432	93	417
Fireplace	P. H. Woods	664,702	Dec. 25	3341	759	93	2459
Fireplace-fender	J. I. McGuiness	663,637	Dec. 11	1332	294	93	2002
Fire pot or box	C. A. Balph	662,162	Nov. 20	2000	506	93	1397
Fireproof construction	W. White	662,634	Nov. 27	2994	709	93	1594
Fireproof construction	W. White	662,635	Nov. 27	2995	709	93	1594
Fireproof construction	W. White	663,204	Dec. 4	551	119	93	1830
Fireproof construction	J. W. Rapp	660,223	Oct. 23	2821	626	93	617
Fireproof door	C. F. Buente	663,060	Dec. 4	285	60	93	1789
Fireproof floor construction	M. J. O'Meara	662,808	Nov. 27	3317	782 783	93	1654
Fireproof flooring	L. G. Hallberg	659,965	Oct. 16	2288	514 515	93	491
Fireproof flooring	L. G. Hallberg	659,966	Oct. 16	2291	515	93	491
Fireproof flooring	J. Wilkinson	661,852	Nov. 13	1455	352	93	1254
Fireproof grain-bin, elevator, &c.	E. V. Johnson	664,325	Dec. 18	2612	595	93	2286
Fireproof grain-bins, elevators, &c. Construction of	E. V. Johnson	664,324	Dec. 18	2611	594	93	2286
Fireproof structure	D. Kilpatrick	662,871	Nov. 27	3520	823 824	93	1702
Fireproof window	W. J. Larkin	664,356	Dec. 18	2681	609	93	2299
Fireproof window	J. C. McFarland and W. J. Larkin	660,117	Oct. 23	2606	583	93	578
Fire-pump apparatus for buildings	J. Ewart	662,229	Nov. 20	2229	536 537	93	1424
Fires in closed compartments. Extinguishing	T. A. Clayton	661,497	Nov. 13	844	203	93	1134
Fired or burned. Apparatus for supporting and carrying into or withdrawing from ovens articles to be	E. W. Ball, L. E. Vacheron, and F. H. Luce.	662,161	Nov. 20	2086	505	93	1396
Firing-shovel	H. W. Crowther	660,527	Oct. 23	3392	762	93	730
Fish-gaff	B. J. Warren	659,383	Oct. 9	1166	271	93	258
Fish-hook	J. B. Hall	664,476	Dec. 25	2916	664	93	2371
Fishing-bait	P. Henkenius	661,869	Nov. 13	1518	368	93	1266
Fishing-bait. Artificial	E. A. Warren	662,139	Nov. 20	2040	496	93	1386
Fishing-fly	C. D. Brooke	661,788	Nov. 13	1388	334	93	1241
Fishing-pole	G. C. and H. E. Setchell	664,796	Dec. 25	3521	798	93	2497
Fishing-reel	E. Holzmann	659,477	Oct. 9	1341	307	93	289
Fitting	J. R. Moody	661,352	Nov. 6	596	139	93	1070
Flag. Signal-	H. F. Beaver	659,280	Oct. 9	1009	237	93	219
Flagstaff-holder	W. Hart	661,048	Nov. 6	38	9	93	958
Flagstaff-holder	E. S. Mowry	661,643	Nov. 13	1111	276	93	1188
Flash-light bracket. Folding	O. C. Botz	661,364	Nov. 6	612	142	93	1074
Flash-powder	A. Weiss	659,331	Oct. 9	1083	.....	93	284
Flat-iron heater and holder	A. von Chigor	663,117	Dec. 4	383	81	93	1798
Flat-iron holder and heater with gas-generating attachment.	A. von Chigor	663,062	Dec. 4	288	61	93	1780
Flax-machine	D. S. Eastwood and N. H. Normand	659,342	Oct. 9	1093	257	93	236
Fliers. Traversing or building device for	C. S. McConnan	661,019	Oct. 30	4065	958 959	93	918
Floating body	E. G. Bailey	662,335	Nov. 20	2410	581	93	1461
Flood-gate	E. S. Frank and W. H. Kuhlman	664,078	Dec. 18	2148	491	93	2192
Floor	E. Goehst	662,376	Nov. 20	2486	598	93	1476
Floor	O. Nagel	662,458	Nov. 27	2671	637	93	1531
Floor, sidewalk, &c	P. H. Jackson	662,597	Nov. 27	2931	696	93	1582
Floor smoothing and polishing machine	S. A. Bishop	664,232	Dec. 18	2426	553	93	2250
Floral ornament	L. J. Olden	659,937	Oct. 16	2228	500	93	397
Flower. Illuminated	W. A. Church	660,842	Oct. 30	3963	887	93	858
Flower-pot. Two-part	H. Lonitz	661,411	Nov. 6	692	160	93	1090
Flower-stand	K. M. Jennings	660,853	Oct. 30	3983	891	93	862
Flue-cover	G. H. Beatty	663,596	Dec. 11	1259	278	93	1990
Flue-scraper	W. B. Stout	661,068	Nov. 6	109	25	93	972
Flue. Sectional	E. A. Bell	660,882	Oct. 30	3946	884	93	855
Flue-stopper	J. L. Clark	662,220	Nov. 20	2217	534	93	1422
Fluid-compressor. High-pressure	N. A. Christensen	663,862	Dec. 18	1765	395	93	2114
Fluid-mixing fixture	A. A. Schratz	659,260	Oct. 9	961	230	93	214
Fluid-motor	I. H. Spencer	663,135	Dec. 4	422	88, 89	93	1806
Fluid-pressure brake	M. W. Hibbard	661,311	Nov. 6	517	120	93	1054

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Fluid-pressure motor	W. E. Simpson	664,787	Dec. 25	3522	798, 799, 800	93	2497
Fluid-pressure motor. Double-acting	W. Chilton	662,056	Nov. 20	1892	454, 455	93	1358
Fluid-pressure regulator	H. C. Sisco	662,550	Nov. 27	2853	677	93	1567
Flush-tank valve-float	B. F. Lockwood	659,819	Oct. 16	2012	451	93	434
Flushing and discharging apparatus for sanitary or other purposes. Automatic	M. Gautier	661,171	Nov. 6	264	64	93	1005
Flushing apparatus	J. W. Berry	658,751	Oct. 2	4	1	93	3
Flushing device. Sanitary	A. F. Blesch and E. Palmer	660,554	Oct. 30	3442	773	93	759
Fly-catcher. Sticky	G. A. Shaw	662,608	Nov. 27	2937	697	93	1583
Fly-catching device	M. B. Church	663,728	Dec. 11	1497	332	93	2085
Fly-catching device	H. Moss	663,550	Dec. 11	1190	257	93	1975
Fly-destroying device	C. V. Cudlipp	663,869	Dec. 18	1777	398	93	2117
Fly-destroying device	C. V. Cudlipp	663,870	Dec. 18	1778	398	93	2117
Fly-trap	G. W. Turton	664,449	Dec. 25	2964	654	93	2361
Folding and delivery mechanism	W. Scott	664,589	Dec. 25	3136	711, 712	93	2417
Folding chair	G. W. Cole	662,557	Nov. 27	2861	679	93	1569
Folding chair and couch. Combined	A. Boren	663,486	Dec. 11	1077	235, 236	93	1954
Folding collars, &c. Machine for	J. Temple	660,601	Oct. 30	3513	788, 789	93	771
Folding-machine	A. M. Fletcher	660,328	Oct. 23	3089	674, 675	93	660
Folding machine. Circular-	A. R. Clarke and A. W. Rasmussen	659,914	Oct. 16	2185	492	93	468
Folding-machine. Rotary	W. Spalckhaver	660,348	Oct. 23	3073	682	93	608
Folding mechanism	O. Roesen	664,583	Dec. 25	3124	709	93	2414
Folding stand or stool	R. P. Clark	661,096	Nov. 6	13	3	93	953
Folding table	H. L. Haskell	663,272	Dec. 4	688	148	93	1855
Food from yeast. Manufacture of	G. Eichelbaum	660,008	Oct. 16	2358	------	93	505
Food. Making cattle-	A. Beddies	663,802	Dec. 11	1645	------	93	2067
Foot-rest	J. D. Mack	663,632	Dec. 11	1325	292	93	2001
Foot-rest	W. Marks	659,993	Oct. 16	2222	499	93	476
Foot-rest and brake	W. Rigby	663,553	Dec. 11	1194	258, 259	93	1975
Foot-warmer	H. Hermans	660,957	Oct. 30	4154	933	93	897
Forging fork-headed rods. Die for	W. L. Jones	661,014	Oct. 30	4255	955	93	916
Fork: *See* Carving-fork. Toasting-fork.	E. M. Case	663,861	Dec. 18	1764	394	93	2114
Form. Collapsible dress-skirt	O. Roesen	664,584	Dec. 25	3126	709, 710	93	2415
Forun-cylinder	L. G. Hallberg	659,967	Oct. 16	2204	515	93	492
Foundation							
Fountain: *See* Watering-fountain.							
Frame: *See* Photographic-printing frame. Picture-frame.	F. H. Smith	660,084	Oct. 16	2523	565	93	536
Framing device	H. H. Turner	663,137	Dec. 4	430	89	93	1807
Freezers. Cream and finger guard for	J. H. K. McCollum	662,012	Nov. 20	1799	433	93	1341
Friction-brake	F. N. and H. W. Whitcomb	659,115	Oct. 2	706	170	93	143
Friction-brake	C. E. Perry	664,499	Dec. 25	2954	673, 674	93	2378
Frog. Automatic	E. Whalley	659,332	Oct. 9	1084	255	93	234
Front wheel and yoke for trucks or other vehicles	H. O. Little	660,446	Oct. 23	3242	724	93	700
Fruit box or basket	N. B. McGhee	660,709	Oct. 30	3714	896	93	809
Fruit-clipper	G. W. Bowman	663,253	Dec. 4	657	141	93	1849
Fruit-gathering bag	W. C. Simpson	661,746	Nov. 13	1305	318	93	1225
Fruit-jar	S. L. Casella	660,362	Oct. 23	3105	688	93	674
Fruit-packing form	C. W. Arrasmith	659,949	Oct. 16	2246	504	93	480
Fruit-packing receptacle	W. G. Sayrs	660,974	Oct. 30	4176	938	93	901
Fruit-picker	F. E. Allen	659,197	Oct. 2	872	207	93	173
Fruit-picking machine	W. Anderson	659,598	Oct. 9	1563	355	93	331
Fruit-pitting machine	O. M. Wolff	663,206	Dec. 4	555	119	93	1831
Fruit-pitting machine	H. B. Pruden	660,458	Oct. 23	3258	729	93	703
Fuel. Apparatus for feeding fine	F. C. von Heydebrand und der Lasa	660,753	Oct. 30	3785	------	93	824
Fuel. Artificial	T. Asencio	659,200	Oct. 9	882	209	93	195
Fuel-feeding attachment	P. L. Crowe	662,770	Nov. 27	3252	768	93	1643
Fuel-feeding hopper	J. M. Jameson	663,441	Dec. 11	1002	------	93	1940
Fuel from floor-dust, house refuse, &c. Making	J. M. L. Messerli	663,770	Dec. 11	1573	352	93	2051
Fumigating device	C. Bonafede	663,621	Dec. 11	1299	287	93	1997
Funnel. Automatic							
Furnace: *See* Annealing-furnace. Bake-furnace. Boiler-furnace. Brazing-furnace. Crucible-furnace. Destructor-furnace. Electric furnace. Electrical furnace. Galvanizing-furnace. Gas-furnace. Heating-furnace. Hot-air furnace. Kiln-furnace. Melting-furnace. Metallurgical furnace. Ore-roasting furnace. Recuperative furnace. Refuse-consuming furnace. Regenerative hearth-furnace. Reheating-furnace. Smelting-furnace. Smoke-consuming furnace. Smoke-preventing furnace. Smokeless furnace. Straw-burning furnace. Subsidiary furnace.	C. M. Bates	661,654	Nov. 13	1133	280	93	1192
Furnace	F. H. Becker	664,034	Dec. 18	2062	473	93	2178
Furnace	F. J. Foveaux	662,926	Dec. 4	50	12, 13	93	1735
Furnace	O. Koehler and C. Calmbach	662,072	Nov. 20	1924	461, 462	93	1364

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Furnace	A. Laughlin and J. Reuleaux. (Reissue.)	11,869	Nov. 13	1651	400, 401	93	1291
Furnace	J. Murphy	660,274	Oct. 23	2931	652	93	689
Furnace	J. L. Peslin	664,673	Dec. 25	3284	746, 747	93	2448
Furnace	J. S. L. Rodrick	659,104	Oct. 2	692	165, 166	93	140
Furnace	D. E. Smith	659,596	Oct. 9	1561	354	93	331
Furnace	W. Swindell	659,495	Oct. 9	1384	315	93	296
Furnace	H. Tilden	659,460	Oct. 9	1311	300, 301	93	282
Furnace	E. M. Washburn	659,161	Oct. 2	778	188	93	157
Furnace	J. C. and D. Wigert	661,751	Nov. 13	1312	320	93	1227
Furnace	E. Abbs and J. J. Glynn	662,107	Nov. 20	1903	477	93	1377
Furnace air-heating protector	D. U. Richards	659,549	Oct. 9	1483	336	93	316
Furnace arch-plate. Steam-boiler-	M. M. Suppes	661,564	Nov. 13	963	239	93	1158
Furnace construction	E. Ott	662,957	Dec. 4	108	32	93	1745
Furnace for preventing smoke and economizing fuel	W. R. Wood	664,521	Dec. 25	2966	682, 683	93	2387
Furnace-grate	C. E. Wyman	664,704	Dec. 25	3343	759, 760	93	2460
Furnaces. Apparatus for heating air to be supplied to	W. C. Wallace	659,561	Oct. 9	1502	340, 341	93	319
Furnaces. Appliance for supplying air to	J., Sr., and J. Vicars, Jr	664,695	Dec. 25	3326	756	93	2456
Furnaces. Automatic air-feeding apparatus for	F. Pinther	660,456	Oct. 23	3255	728	93	708
Furnaces. Feeding air device for	P. Mathias	659,312	Oct. 9	1056	248	93	229
Furnaces. Pneumatic device applicable to rivet-heating	B. A. Brown	661,960	Nov. 20	1685	409	93	1319
Furnaces. Tool for charging plates into	P. C. Patterson	660,198	Oct. 23	2770	616	93	607
Furniture. Detachable cover for upholstered	F. Nerad	659,251	Oct. 9	965	227	93	211
Furniture. Device for interlocking removable parts of	A. Rehm	662,877	Nov. 27	3530	827	93	1704
Furniture-pad	C. P Robinson	660,064	Oct. 16	2454	554	93	522
Furniture swell front	F. O. Anderson	660,088	Oct. 23	2536	568	93	559
Furniture. Upholstered	W. Vogler	661,829	Nov. 13	1447	350, 351	93	1253
Furrow opener, marker, and coverer. Combined	A. Glitz	662,192	Nov. 20	2152	520	93	1411
Fuse. Electric	J. L. Cohen	661,498	Nov. 13	846	203	93	1184
Fuse-igniter	J. T. Nagle	660,220	Oct. 23	2816	625	93	616
Fuse. Safety-	J. Sachs	660,341	Oct. 23	3068	681	93	666
Gage: *See* Boiler water-line gage. Bricklayer's gage. Carpenter's gage. Chisel-gage. Cutter-setting gage. Draw-gage. Horseshoe-gage. Measuring gage. Micrometer-gage. Micrometer or similar gage. Nose-gage. Printing-press gage. Saw-gage. Sawing-machine gage. Shears-gage. Tire pressure-gage. Track-gage. Truing-gage. Water-gage.	C. F. Winslow	660,176	Oct. 23	2730	607	93	599
Galvanic battery	C. B. Schoenmehl	663,938	Dec. 18	1908	429	93	2144
Galvanic battery	C. B. Schoenmehl	664,006	Dec. 18	2040	461	93	2160
Galvanic battery	C. B. Schoenmehl	664,007	Dec. 18	2042	462	93	2160
Galvanic battery	C. B. Schoenmehl	664,008	Dec. 18	2043	462	93	2170
Galvanic battery	E. L. Slocum	663,033	Dec. 4	243	52	93	1772
Galvanizing-furnace	H. B. Lynch	660,579	Oct. 30	3482	781	93	766
Galvanizing or metal-coating apparatus	J. J. Bradley and L. M. Pignolet	659,506	Oct. 9	1401	319	93	290
Galvanometers. Magnetic regulator for	G. McMullen	664,492	Dec. 25	2944	671	93	2377
Game and apparatus for playing same. Race	E. Christie	660,004	Oct. 16	2350	529	93	509
Game apparatus	A. M. Duttweiler	663,334	Dec. 4	794	170	93	1876
Game apparatus	F. S. Kratzet	659,403	Oct. 9	1195	277	93	259
Game apparatus	I. O. Nissley	662,151	Nov. 20	2065	501	93	1391
Game apparatus	A. P. Stokes, Jr	663,522	Dec. 11	1150	249	93	1967
Game apparatus	T. H. White	661,781	Nov. 13	1366	331	93	1238
Game. Billiard	H. H. Lawrence and O. S. Philbrick	662,948	Dec. 4	89	20	93	1743
Game-board	E. T. Burrowes	659,809	Oct. 16	1999	447, 448	93	432
Game-board	A. C. Fuld	663,336	Dec. 4	799	171	93	1877
Game-board	J. N. Whitman	663,249	Dec. 4	646	138	93	1847
Game-board. Pocket	W. T. Call	659,728	Oct. 16	1826	412	93	366
Game. Bowling	A. M. Beinke	661,780	Nov. 13	1275	300	93	1220
Game. Coin-controlled race	J. Dundon	663,159	Dec. 4	477	101, 102	93	1816
Game. Coin-freed	E. G. Matthewson	660,798	Oct. 30	3871	870, 871	93	830
Game-recorder	W. H. Levings	660,381	Oct. 23	3137	694	93	680
Game-registering device. Pool-	W. Taber	662,322	Nov. 20	2386	575	93	1456
Game-table	W. H. Fullington	663,878	Dec. 18	1760	401	93	2120
Garbage-tank. Sanitary	M. Wheeler	658,817	Oct. 2	168	40	93	37
Garbage-wagon	D. Lippy and H. D. B. Williams	659,174	Oct. 2	805	196	93	162
Garden-tool	H. L. Childers	661,790	Nov. 13	1390	335	93	1242
Garment-fastener	A. Leblanc	659,818	Oct. 16	2010	451	93	434
Garment fastening and supporting device	M. F. Loving	662,539	Nov. 27	2828	672	93	1593
Garment-fastening device	J. P. Cooper	664,212	Dec. 18	2395	546	93	2244
Garment-hanger	A. Boucher	662,908	Dec. 4	21	4	93	1730
Garment-hanger	L. A. Farnham	663,264	Dec. 4	676	145	93	1853
Garment-hanger	J. C. Messinger	664,232	Dec. 18	2624	597	93	2288
Garment-hanger	J. Shoenberg	660,316	Oct. 23	3013	668	93	656
Garment-hanger	F. A. Stare	664,063	Dec. 18	2123	485	93	2186
Garment-hanger. Accessible	S. W. Bonsall	661,047	Nov. 20	1681	408	93	1318
Garment-pad	I. Löwenthal	661,935	Nov. 13	1638	390	93	1288
Garment-stretcher	A. Pieper	661,274	Nov. 6	451	104	93	1041

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Garment-supporter	B. H. Frank	661,046	Nov. 6	35	8	93	957
Garment-supporter	A. W. Schneider	661,556	Nov. 13	952	237	93	1156
Garment-waist closure	J. Stone	659,459	Oct. 9	1310	300	93	282
Garter	G. H. Blakesley	660,553	Oct. 30	3440	772	93	758
Gas apparatus	J. P. Johnston	664,355	Dec. 18	2680	609	93	2209
Gas apparatus. Acetylene-	J. H. Calkins	658,829	Oct. 2	204	50	93	44
Gas apparatus. Acetylene-	M. Elliott	659,795	Oct. 16	1976	443	93	427
Gas apparatus. Acetylene-	W. H. McGoldrick	663,298	Dec. 4	725	156	93	1863
Gas apparatus. Acetylene-	F. Metzger	663,771	Dec. 11	1574	352	93	2051
Gas apparatus. Air-	C. W. Miller	660,916	Oct. 30	4080	914 915	93	882
Gas-burner	B. H. Colver	663,560	Dec. 11	1204	262	93	1978
Gas-burner	C. H. Frye	663,831	Dec. 11	1710	382	93	2062
Gas-burner	W. E. Gibbs	658,803	Oct. 2	307	75, 76	93	63
Gas-burner	T. E. Sinnberg	660,933	Oct. 30	4109	924	93	887
Gas-burner	C. S. Steward	662,085	Nov. 20	1848	445	93	1349
Gas-burner	J. W. Bray	662,909	Dec. 4	21	4	93	1731
Gas burner. Acetylene-	P. G. Van Wie	664,364	Dec. 18	2663	612	93	2202
Gas-burner. Adjustable	F. Trendel	664,595	Dec. 25	3158	715	93	2421
Gas burner for cooking-stoves, &c. Acetylene-	G. C. Stone	659,862	Oct. 16	2086	468	93	449
Gas burner. Fuel-	C. A. Bluhm	663,803	Dec. 11	1646	369	93	2067
Gas-burner. Incandescent	G. W. Seebach	660,468	Oct. 23	3276	733	93	707
Gas-burner. Incandescent	A. P. Storrs	662,321	Nov. 20	2385	574	93	1456
Gas-burner. Incandescent	C. W. Taylor	662,323	Nov. 20	2390	575	93	1457
Gas-burner. Incandescent	C. W. Taylor	662,324	Nov. 20	2391	576	93	1457
Gas-burner. Incandescent	J. G. McAlpine, Jr.	662,092	Nov. 20	1944	466	93	1368
Gas-burners. Automatic shut-off and alarm for	G. Bray	659,843	Oct. 16	2054	461	93	443
Gas-burners. Construction of	T. S. Leese	664,656	Dec. 25	3253	738	93	2441
Gas-check. Adjustable	W. G. Miller	659,248	Oct. 9	902	226	93	210
Gas-controller. Automatic	J. C. McKallip	663,661	Dec. 11	1366	308	93	2010
Gas cut-off. Automatic	G. J. Altham and J. Beattie, Jr	662,181	Nov. 20	2126	513	93	1406
Gas-engine	D. E. Barnard	659,911	Oct. 16	2178	490 491	93	467
Gas-engine	A. D. Garretson	663,091	Dec. 4	338	71	93	1789
Gas-engine	W. S. Halsey	659,027	Oct. 2	563	136 137	93	113
Gas-engine	L. H. Nash	656,858	Oct. 2	261	65	93	54
Gas-engine	L. H. Nash	664,025	Dec. 18	2071	470	93	2175
Gas-engine	H. Smith	663,475	Dec. 11	1058	232	93	1950
Gas-engine	H. D. Weed	659,944	Oct. 16	2236	502	93	479
Gas-engine	A. A. Williams	659,426	Oct. 9	1242	285 286	93	269
Gas engine. Explosive-	T. M. and F. L. Antisell	661,300	Nov. 6	495	114 115	93	1050
Gas-fixture. Drop-light	G. W. Hinchman	659,064	Oct. 2	619	149	93	124
Gas from carbid of calcium. Generating acetylene	M. P. E. Létang	659,448	Oct. 9	1293	------	93	278
Gas-furnace	W. Swindell	662,608	Nov. 27	2946	699 700	93	1586
Gas-generating apparatus	D. Cameron, F. J. Commin, and A. J. Martin.	663,623	Dec. 11	1304	288 289	93	1908
Gas-generating apparatus. Acetylene-	D. L. Spaulding and A. S. Vose	658,966	Oct. 2	442	106	93	90
Gas-generating machine	J. F. Kistler	662,276	Nov. 20	2226	553	93	1458
Gas generator. Acetylene-	W. F. Anson	663,324	Dec. 4	778	166	93	1873
Gas generator. Acetylene-	C. M. Bridges	663,007	Dec. 4	198	43	93	1764
Gas generator. Acetylene-	H. E. Brunner	661,284	Nov. 6	463	107	93	1044
Gas generator. Acetylene-	D. M. Dorman	664,731	Dec. 25	3399	773	93	2473
Gas generator. Acetylene-	F. M. Draper	658,835	Oct. 2	213	52, 53	93	46
Gas generator. Acetylene-	F. A. Feldkamp	659,618	Oct. 9	1609	364	93	340
Gas generator. Acetylene-	W. S. Hamm	661,761	Nov. 13	1330	323 324	93	1230
Gas generator. Acetylene-	I. L. Harris	659,226	Oct. 9	929	218	93	204
Gas generator. Acetylene-	W. Hinge	663,169	Dec. 4	494	105	93	1819
Gas generator. Acetylene-	A. P. Keller and A. M. Behm	660,514	Oct. 23	3364	757	93	725
Gas generator. Acetylene-	J. H. Lancaster	659,680	Oct. 16	1735	392	93	381
Gas generator. Acetylene-	L. Mammen	660,076	Oct. 16	2511	582	93	584
Gas generator. Acetylene-	T. D. McClary	661,547	Nov. 13	994	231	93	1152
Gas generator. Acetylene-	O. J. Moussette	659,086	Oct. 2	665	158	93	134
Gas generator. Acetylene-	C. Puddefoot	662,546	Nov. 27	2839	674 675	93	1565
Gas generator. Acetylene-	L. D. Railsback	661,320	Nov. 6	534	124	93	1058
Gas generator. Acetylene-	L. D. Railsback	661,321	Nov. 6	536	124	93	1058
Gas generator. Acetylene-	W. Remington	663,240	Dec. 4	693	136	93	1845
Gas generator. Acetylene-	P. Schreck	662,504	Nov. 27	2770	657	93	1552
Gas generator. Acetylene-	A. F. Shriver	663,301	Dec. 4	744	159	93	1867
Gas generator. Acetylene-	G. G. Smith	660,169	Oct. 23	2715	604 605	93	596
Gas generator. Acetylene-	J. F. Swinnerton	660,845	Oct. 23	3077	682 683	93	668
Gas generator. Acetylene-	J. Walton	663,312	Dec. 4	758	162	93	1869
Gas generator. Acetylene-	C. A. Ward	659,720	Oct. 16	1811	408	93	396
Gas generator. Acetylene-	S. P. Watt	662,843	Nov. 27	3389	801	93	1669
Gas generator. Acetylene-	V. T. Weathers	664,029	Dec. 18	2075	472	93	2176
Gas generator. Acetylene-	A. Wegmann-Hauser	663,054	Dec. 4	278	59	93	1778
Gas generator. Acetylene-	B. F. Williams	659,273	Oct. 9	998	235	93	217
Gas generator. Acetylene-	T. F. Williams	658,819	Oct. 2	174	41	93	39
Gas generator. Acetylene-	G. L. Wilson	661,333	Nov. 6	563	130	93	1063
Gas generator. Acetylene-	E. Nowak	663,820	Dec. 11	1686	------	93	2077
Gas-igniters. Producing solid igniting bodies for automatic	E. Sterné	662,658	Nov. 27	3032	717	93	1602
Gas into the human body. Instrument for injecting	G. H. Lippmann	664,163	Dec. 18	2304	525	93	2223
Gas-light extinguisher and electric sparker. Combined automatic	M. and A. T. Herskovitz	662,381	Nov. 20	2493	600	93	1477
Gas-lights. Mantle and mantle-support for incandescent	J. M. Coghlan	660,889	Oct. 30	4089	905	93	873
Gas machine. Acetylene-	R. M. Dixon	662,920	Dec. 4	41	10	93	1734
Gas-making apparatus							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gas. Mechanism for charging closed compartments with	T. A. Clayton	661,496	Nov. 13	842	202	93	1134
Gas-meter. Prepayment	C. Whitham and E. Large	660,234	Oct. 23	2897	699	93	620
Gas-meter. Prepayment	J. Zander	660,940	Oct. 30	4125	927 928	93	891
Gas-motor	N. A. Guillaume	661,865	Nov. 13	1512	366 367	93	1264
Gas or air compressor or pump	J. Keith	663,500	Dec. 11	1102	241	93	1959
Gas or oil heater	J. J. Nix	663,779	Dec. 11	1608	361	93	2059
Gas-pressure regulator	T. Hahn	661,857	Nov. 13	1515	367	93	1264
Gas-producer	E. J. Duff	661,445	Nov. 6	748	175	93	1101
Gas-producer	E. J. Duff	662,923	Dec. 4	45	11	93	1735
Gas-producer	S. A. Fraser	659,472	Oct. 9	1333	304 305	93	286
Gas-producer	J. O. E. Trotz	662,609	Nov. 27	2947	700	93	1586
Gas-producers. Steam-superheater for	E. J. Duff	662,062	Nov. 20	1904	457	93	1360
Gas-purifier	A. C. Swain	663,837	Dec. 11	1721	385	93	2085
Gas-regulator	C. Jacobson	662,988	Dec. 4	67	17	93	1739
Gas-releasing bit	W. Bush	660,748	Oct. 30	3778	850	93	822
Gas-retort-discharging machinery	G. A. Bronder	663,213	Dec. 4	568	122 123	93	1833
Gas-reversing valve	H. E. Schild	661,670	Nov. 13	1162	286	93	1199
Gas. Storing acetylene	E. N. Dickerson	662,258	Nov. 20	2271	------	93	1433
Gas storing and distributing apparatus. Acetylene-	G. M. A. Claude and G. A. Hess	664,383	Dec. 25	2725	618	93	2395
Gas-washer	J. F. Swinnerton	660,846	Oct. 23	3080	689	93	609
Gas. Washing	R. E. Pippig and O. F. F. Trachmann.	664,677	Dec. 25	3289	------	93	2449
Gases. Apparatus for expanding and compressing	L. Allen	661,784	Nov. 13	1374	332	93	1239
Gases. Means for conserving liquid	J. F. Brady	662,217	Nov. 20	2213	533	93	1421
Gases. Storing explosive	E. Fouché	661,401	Nov. 6	674	------	93	1087
Gases. Utilizing liquefied	A. Kreusler	660,755	Oct. 30	3787	852	93	824
Gasket and gasket-securing mechanism	R. M. Dixon	663,830	Dec. 4	787	169	93	1874
Gasolene-engine	J. M. Olsen	659,095	Oct. 2	678	161	93	187
Gasolene-engine	C. O. White	664,200	Dec. 18	2376	541 542	93	2240
Gate: *See* Automatic gate. Elevator safety-gate. End-gate. Farm-gate. Flood-gate. Sluice-gate. Water-gate.							
Gate	H. Alten	660,807	Oct. 30	3886	874	93	842
Gate	D. W. Aylworth	664,612	Dec. 25	3186	721	93	2427
Gate	J. B. Haines	663,269	Dec. 4	684	147	93	1855
Gate	E. Nichols	659,091	Oct. 2	671	160	93	135
Gate	J. B. Shaffer	659,107	Oct. 2	697	167	93	141
Gate	G. Shine	663,366	Dec. 4	841	181	93	1885
Gate	W. S. Witten	663,378	Dec. 4	867	185 186	93	1890
Gate-spring	J. L. Gross	660,106	Oct. 23	2573	576	93	567
Gear and clutch combined. Reversing-	C. W. De Mooy	660,564	Oct. 30	3460	776	93	762
Gear-blank	G. H. Boyd and T. D. West	662,344	Nov. 20	2430	586	93	1465
Gear. Changeable-speed	A. Fischer	659,390	Oct. 9	1178	273	93	256
Gear for transmitting power	F. W. Lanchester	664,653	Dec. 25	3248	737	93	2440
Gear. Reversing-	W. W. Tuck and A. Wassmann	663,372	Dec. 4	850	182 183	93	1887
Gear. Short-turning	C. A. Williams	659,274	Oct. 9	1000	235	93	217
Gear. Speed reducing or multiplying	S. C. Davidson	664,386	Dec. 25	2733	620 621	93	2336
Gear. Transmission and reversing	J. E. Doak	663,608	Dec. 11	1271	281	93	1992
Gear. Worm-and-chain driving-	D. Corcoran	659,583	Oct. 9	1541	349	93	327
Gearing	E. R. Bales	663,531	Dec. 11	1160	351	93	1969
Gearing	J. and C. Quist	664,778	Dec. 25	3509	795	93	2494
Gearing	F. S. Schmidt	661,157	Nov. 6	240	58	93	1000
Gearing. Changeable-speed and reversible friction-	J. W. and O. P. Shaver	663,940	Dec. 18	1911	430	93	2144
Gearing. Friction-	T. Foster	661,909	Nov. 13	1589	385	93	1279
Gearing. Reversing-	W. F. Jaenecke	663,546	Dec. 11	1184	256	93	1974
Gearing stop mechanism. Spur-	W. I. Whitehurst	660,351	Oct. 23	3067	684	93	670
Gearing. Variable-speed	M. C. Johnson	663,442	Dec. 11	1003	219	93	1940
Gearing. Variable-speed	W. E. Simpson	660,083	Oct. 16	2522	564	93	586
Gelatin and tannin compound and producing same	J. Altschul	658,747	Oct. 2	1	------	93	8
Gelatin. Making	E. R. Edson	662,402	Nov. 27	2518	616	93	1507
Gelatin. Making	E. R. Edson	662,405	Nov. 27	2559	617	93	1509
Gem-setting	D. W. Costigan	664,725	Dec. 25	3391	771	93	2471
Generator: *See* Current-generator. Electric generator. Gas-generator. Magneto-electric generator. Steam-generator.							
Girth	W. Kootz	663,445	Dec. 11	1008	220	93	1941
Glass. Apparatus for manufacturing prismatically-ridged	M. F. Ewen	663,741	Dec. 11	1519	338	93	2040
Glass articles. Apparatus for manufacturing hollow	P. T. Sievert	662,203	Nov. 20	2169	523	93	1414
Glass articles. Apparatus for manufacturing hollow	P. T. Sievert	664,102	Dec. 18	2195	501	93	2202
Glass-blowing machine	W. E. Bock	659,726	Oct. 16	1820	411 412	93	398
Glass-blowing machine	H. J. Colburn	659,289	Oct. 9	1022	240 241	93	222
Glass-blowing machine	L. H. Colburn	659,290	Oct. 9	1027	241	93	223
Glass-blowing machine	L. H. Colburn	659,291	Oct. 9	1029	241 242	93	223
Glass-cutting machine	C. Dugon	662,924	Dec. 4	46	12	93	1735
Glass letter. Hollow	M. Peschmann	661,421	Nov. 6	708	163	93	1098
Glass-making apparatus	D. C. Ripley and F. L. O. Wadsworth	661,024	Oct. 30	4277	961	93	921
Glass. Manufacture of prism-	D. C. Ripley and F. L. O. Wadsworth	661,025	Oct. 30	4280	961	93	921
Glass. Prism-	D. C. Ripley and F. L. O. Wadsworth	661,023	Oct. 30	4275	960	93	920

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Glass sheets. Machine for rolling	W. W. Pilkington	661,893	Nov. 13	1539	378 379	93	1273
Glass-working machine	J. J. Burkhardt	660,697	Oct. 30	3694	831 832	93	805
Glassware articles. Apparatus for glazing and finishing	A. Roemisch	664,058	Dec. 18	2110	482 483	93	2184
Glassware articles. Machine for finishing	A. H. Heisey	663,023	Dec. 4	227	48	93	1769
Globe. Geographical time	G. W. Ramage	664,289	Dec. 18	2544	578	93	2273
Globe-holder	H. C. Spinney	659,706	Oct. 16	1787	408	93	801
Glove-fastener	M. D. Shipman	663,520	Dec. 11	1146	248	93	1966
Glove-fastener-affixing machine	A. F. Raymond	664,229	Dec. 18	2422	552	93	2250
Glove-fastening	M. D. Shipman and E. P. Bunyea	663,521	Dec. 11	1148	248	93	1967
Gloves, &c. Fastening for	E. Maynz	662,676	Nov. 27	3079	727	93	1610
Gloves, &c. Forming sockets of separable fasteners for	W. B. H. Dowse	664,243	Dec. 18	2445	557	93	2254
Glue and products resulting therefrom. Making	L. L. Kelsey	660,379	Oct. 23	3129	668	93	678
Glue or gelatin free from fat. Producing	C. T. Setterberg	659,261	Oct. 9	982	.....	93	214
Gluing-press	W. Eaton and M. Boland	661,398	Nov. 6	669	156	93	1086
Gold-extracting machine	G. Webster	663,375	Dec. 4	855	184	93	1888
Gold from magnetic sands. Apparatus for separating	E. Gates	662,409	Nov. 27	2572	618	93	1511
Gold-leaf to paper. Machine for applying	S. S. Hurwitz	661,875	Nov. 13	1527	370 371	93	1267
Gold-pan	D. B. Newkirk	663,206	Dec. 4	732	157	93	1864
Gold-separator	W. W. M. Hickey	663,968	Dec. 18	2007	452	93	2163
Gold-separator	F. P. Hopkins and L. Manzke	659,148	Oct. 2	758	182 183	93	153
Gold, silver, &c., from ores. Extracting	J. B. de Alzugaray	658,988	Oct. 2	399	96	93	81
Golf-flag-supporting attachment	C. W. L. Johnson	663,761	Dec. 11	1557	348	93	2048
Golf-practice apparatus	J. McHardy	661,381	Nov. 6	640	149	93	1090
Golf-practicing device	H. H. Sprague	664,398	Dec. 18	2639	601	93	2292
Golf-tee	H. E. Wetzel	662,368	Nov. 20	2469	594	93	1472
Gopher-trap	Z. A. Macabee	659,982	Oct. 16	2221	499	93	475
Governing and controlling marine or other engines. Apparatus for	E. A. Sperry	660,318	Oct. 23	3016	669 670	93	656
Governing prime movers	R. D. Mershon	661,222	Nov. 6	349	83, 84	93	1022
Governor attachment. High-speed	G. J. Loeper and P. B. Hausdoerfer	663,235	Dec. 4	619	133	93	1842
Governor. Centrifugal	F. Ellicott	664,392	Dec. 25	2744	624	93	2339
Governor. Centrifugal	A. Schulze	664,336	Dec. 18	2632	598 599	93	2290
Governor cushion. Engine	T. D. Millea	662,572	Nov. 27	2887	684	93	1573
Governor. Engine	E. Irwin	662,121	Nov. 20	2012	485 486	93	1381
Governor for explosive-engines. Speed	J. and B. Millot	663,183	Dec. 4	519	110	93	1824
Governor for explosive-engines. Speed	B. F. Stewart	662,983	Dec. 4	148	31, 32	93	1753
Governor. Gas-engine	A. A. Lazier	662,730	Nov. 27	3180	753	93	1629
Governor. Marine-engine	C. W. Gould and O. B. Roberts	663,403	Dec. 11	1091	239	93	1957
Governor. Pressure	A. Roesch	662,094	Nov. 20	1971	470 471	93	1373
Governor. Prime-motor	F. Ellicott	664,394	Dec. 25	2752	625 626	93	2340
Governor. Shaft	C. O. Heggem	658,775	Oct. 2	59	14	93	15
Governor. Static	B. V. Nordberg	663,298	Dec. 4	735	157 158	93	1865
Gown. Nursing	C. A. Rapp	660,843	Oct. 30	3964	888	93	858
Grader. Road	R. Coyle	662,680	Nov. 27	3087	729	93	1612
Grader. Road	S. D. Reynolds	661,294	Nov. 6	485	110 111	93	1048
Grain-bin	J. Macdonald	662,452	Nov. 27	2662	635	93	1590
Grain-binder	W. C. Martin	662,079	Nov. 20	1934	464 465	93	1366
Grain-binder cord-knotting device	O. W. Olson and P. A. Myllenbeck	659,690	Oct. 16	1753	395 396	93	385
Grain-binder needle	J. Vollmers	661,779	Nov. 13	1303	330	93	1237
Grain-cutting machinery. Finger-guard for	S. K. Dennis	662,637	Nov. 27	2998	709	93	1595
Grain-distributer lock	O. H. Baker	664,455	Dec. 25	2874	656	93	2302
Grain-drier	J. Cook	663,418	Dec. 11	963	209	93	1932
Grain-drier	G. Werner and J. H. Hilliker	660,407	Oct. 23	3176	705 706	93	688
Grain-drill	G. D. Haworth	659,227	Oct. 9	931	219	93	204
Grain-drill	F. A. Placek	659,545	Oct. 9	1478	335	93	314
Grain-drill	J. W. Rhodes	662,823	Nov. 27	3346	791 792 793	93	1660
Grain-drill	W. A. Van Brunt	659,880	Oct. 16	2115	476	93	455
Grain-drill	W. A. Van Brunt	659,881	Oct. 16	2116	476 477	93	455
Grain-drill feeding mechanism	R. Galloway	659,367	Oct. 9	1136	205	93	246
Grain-elevator	E. V. Johnson	664,323	Dec. 18	2609	593 594	93	2285
Grain-elevator. Portable	H. H. Weber	664,303	Dec. 18	2569	584	93	2278
Grain-renovating apparatus. Portable	H. H. Friedley and F. C. Crowe	659,732	Oct. 16	1832	414 415 416	93	400
Grain-scourer	O. A. Shonbeck	660,205	Oct. 23	2787	619	93	610
Grain-separator	N. Held	658,843	Oct. 2	231	57, 58	93	49
Grain-separator	F. M. Keller	659,976	Oct. 16	2308	519	93	495
Grain-separator	J. B. Pedrick	660,391	Oct. 23	3158	697 698	93	689
Grain-separator	C. L. Ring	662,500	Nov. 27	2768	655 656	93	1551
Grain-sorting machine	J. Mayer	662,454	Nov. 27	2665	635	93	1590
Grain-unloading device	A. J. Frerking	662,529	Nov. 27	2815	667	93	1560
Gramophones. Stylus-magazine for	G. Korytowski	661,662	Nov. 13	1145	283	93	1195
Grapple	J. G. Brownfield	661,033	Nov. 6	10	2	93	953
Grappling-iron	P. F. McClintick	660,219	Oct. 23	2815	624	93	616

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Grass-cutter	J. P. Riedy	650,594	Oct. 9	1558	354	93	330
Grate	H. Wilson	663,377	Dec. 4	866	185	93	1890
Grate-bar	T. W. Heintzelman	662,623	Nov. 27	2974	705	93	1590
Grate-bar	O. Olson	659,451	Oct. 9	1297	297	93	279
Grate-bar	G. S. Sergeant	663,365	Dec. 4	840	180	93	1885
Grate-bar	E. Gibson	662,118	Nov. 20	2009	485	93	1380
Grate. Dumping	G. E. Sharpe	659,553	Oct. 9	1490	337	93	317
Grate. Gas	P. L. Crowe	662,769	Nov. 27	3250	767	93	1642
Grate raising or lowering apparatus	P. L. Crowe	662,767	Nov. 27	3247	767	93	1641
Grate raising or lowering mechanism	A. Beargeon	663,212	Dec. 4	567	122	93	1833
Gravel-separator	L. E. Cowey	660,050	Oct. 16	2431	548	93	517
Gravitation. Apparatus for indicating variations in terrestrial	J. Macphail	661,348	Nov. 6	586	136	93	1067
Grinder	A. L. Reiner	661,182	Nov. 6	194	49	93	991
Grinder	E. A. Johnston	663,278	Dec. 4	696	151	93	1857
Grinder for sickles of mowers, reapers, &c	R. G. Kennedy	662,793	Nov. 27	3297	778	93	1650
Grinder. Mower-knife	I. M. Rose	662,629	Nov. 27	2984	707	93	1592
Grinding and polishing device	M. W. Neuens	660,389	Oct. 23	3147	697	93	682
Grinding-machine	F. A. Nystrom	659,062	Oct. 2	673	160	93	136
Grinding-machine	F. E. Whitham	664,202	Dec. 18	2381	543	93	2241
Grinding-machine	H. M. Putnam	664,823	Dec. 25	3618	820	93	2514
Grinding machine. Ball	J. B. Wallace	664,512	Dec. 25	3081	678	93	2384
Grinding machine. Chaser	W. J. Bussinger	662,686	Nov. 27	2967	709	93	1595
Grinding-mill	E. Hards	658,841	Oct. 2	229	57	93	48
Grinding-mill	J. Koenig	662,536	Nov. 27	2825	671	93	1502
Grinding, polishing, or buffing machine	J. Macphail	662,239	Nov. 20	2245	540	93	1428
Grinding-wheel center	J. Macphail	662,240	Nov. 20	2246	540	93	1428
Grinding-wheel center	W. W. Hewitt	664,149	Dec. 18	2285	520	93	2219
Grindstone-disk-supporting attachment	F. Berlioz	664,377	Dec. 25	2716	.....	93	2333
Guaiacolated serum and making same	F. B. Johnson	661,216	Nov. 6	340	81	93	1020
Guard-finger and finger-bar	C. Brimmer	664,529	Dec. 25	3008	.....	93	2389
Gum or gum wastes. Regenerating old	W. S. Evans	660,406	Oct. 23	3329	747	93	717
Gun-barrel	J. H. Barlow	659,953	Oct. 16	2267	508	93	486
Gun-barrels. Device for extracting shells from	H. Siber	661,745	Nov. 13	1304	317	93	1225
Gun-barrels. Means for uniting	C. J. and C. Hamilton	660,725	Oct. 30	3746	843	93	815
Gun-barrels. Rifling	W. Thompson	663,609	Dec. 11	1392	308	93	2015
Gun. Breakdown	E. H. Elder	663,830	Dec. 11	1708	382	93	2082
Gun ejector mechanism	J. Krone	664,089	Dec. 18	2169	495	93	2196
Gun fluid-brake	M. H. Bowman and W. O. Hughes	662,761	Nov. 27	3235	764 765	93	1638
Gun. Machine	H. H. Tall	661,897	Nov. 13	1506	380 381	93	1274
Gun-mount	W. H. Driggs	664,732	Dec. 25	3401	773 774	93	2473
Gun-sight	S. A. Bray	661,081	Nov. 6	7	2	93	952
Gun sighting apparatus	H. A. von Kretschmar and J. Vollmer.	660,817	Oct. 30	3904	877	93	846
Guns. Ammunition conveyer or rammer for	G. A. Schoeller	663,242	Dec. 4	638	187	93	1846
Guns. Breech-closing mechanism for recoil	C. Pohlit	661,550	Nov. 13	988	233 234	93	1153
Guns. Breech mechanism for breech-loading	A. Silfversparre	661,775	Nov. 13	1356	328 329	93	1236
Guns. Elevating and ramming apparatus for turret or barbette	A. T. Dawson and J. Horne	660,418	Oct. 23	3197	711	93	692
Guns. Firing mechanism for automatic quick-firing	A. T. Dawson and L. Silverman	662,256	Nov. 20	2268	546	93	1432
Guns. Machine for loading feed-belts for machine	J. M. Browning	660,244	Oct. 23	2854	635	93	624
Guns. Shell extractor and ejector for breakdown	P. W. Southgate	660,227	Oct. 23	2825	627	93	618
Guncotton-press	A. Hollings	660,727	Oct. 30	3749	844	93	816
Gutta-percha substitute	S. Heimann	663,572	Dec. 11	1219	.....	93	1980
Gutter-hanger	W. Helb	664,637	Dec. 25	3225	731	93	2435
Gutter. Valley	E. Hippard	661,870	Nov. 13	1520	368	93	1266
Gyroscope electric top	E. Ziehl	662,484	Nov. 27	2733	648 649	93	1544
Hackling-machine	J. V. Eves	662,117	Nov. 20	2005	479 480 481 482 483 484	93	1380
Hair cutting and combing device. Combination	G. W. Anderson	660,238	Oct. 23	2845	633	93	692
Hair-fastener	B. B. Lederer	662,949	Dec. 4	90	20	93	1743
Hair-receiver. Toilet	F. Lemon	659,538	Oct. 9	1468	333	93	312
Hair-shedder	W. Herrick	663,807	Dec. 18	1818	409 410	93	2125
Halter	E. B. Evans	660,404	Oct. 23	3327	746	93	717
Halter	I. N. Smith	659,110	Oct. 2	701	168	93	142
Hame and trace connector	C. Averitt	662,555	Nov. 27	2859	678	93	1568
Hame and trace connector	J. A. Jamison	659,816	Oct. 16	2007	450	93	433
Hame-and-trace connector	F. P. White	659,425	Oct. 9	1240	285	93	268
Hame-clip	W. C. Johnson	664,411	Dec. 25	2795	635	93	2349
Hame-clip	B. T. McChesney	663,457	Dec. 11	1032	225	93	1945
Hame-fastener	G. W. Hayman	661,718	Nov. 13	1253	303	93	1216
Hame-fastener	D. G. and J. W. Jones	659,140	Oct. 2	759	183	93	153
Hammer. Blacksmith's	J. Wade	664,098	Dec. 25	3323	755	93	2456
Hammer-claw	F. Hawes	661,717	Nov. 13	1251	302	93	1216
Hammer. Electromagnetic tooth-stopping	C. Ostmann	660,807	Oct. 30	4008	897	93	866
Hammer. Pneumatic	A. C. Beckwith	661,786	Nov. 13	1383	333 334	93	1240
Hammer. Pneumatic	C. K. Pickles	659,418	Oct. 9	1226	282	93	265
Hammer. Pneumatic	D. S. Waugh	662,903	Dec. 4	167	35	93	1758
Hammock	J. H. Nicholson	660,063	Oct. 16	2458	553	93	521
Hammock	I. E. Palmer	664,774	Dec. 25	3504	794	93	2493
Hammock-support	I. E. Palmer	664,672	Dec. 25	3288	746	93	2448
Hand-stone	F. A. Reichardt	659,490	Oct. 9	1230	283	93	265
Hand-strap	U. McClinchie	659,412	Oct. 9	1214	280	93	263

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Handle: *See* Coffin-handle. Utensil-handle. Tool-handle.							
Handle-bar	A. Bies	659,123	Oct. 2	720	173	93	146
Handle-bar	J. T. McGuire	663,195	Dec. 4	539	115	93	1828
Handle-bar	W. F. Stockford	661,563	Nov. 13	962	239	93	1158
Handles. Machine for making shovel-	A. R. Feistel	661,400	Nov. 6	672	156 157	93	1086
Handles of brooms, scrubbing-brushes, &c. Device for securing	W. Knieper	664,413	Dec. 25	2799	635	93	2349
Handles to metal spindles. Means for attaching wooden	J. H. Millett	663,772	Dec. 11	1575	352	93	2052
Hanger: *See* Arc-light hanger. Gutter-hanger. Beam-hanger. Picture-frame hanger. Clothes-hanger. Pipe-hanger. Crank-hanger. Shaft-hanger. Garment-hanger. Trousers-hanger.							
Harness-connector	J. E. Elam	661,288	Nov. 6	474	108	93	1046
Harness-pad former	J. A. Kramer	662,123	Nov. 20	2016	486	93	1381
Harness-pad former	J. A. Kramer	664,279	Dec. 18	2531	575	93	2271
Harness-strap extension. Adjustable	J. Strohm	661,327	Nov. 6	547	126	93	1060
Harp. Orchestra-	G. Almcrantz and G. Törnqvist	659,429	Oct. 9	1248	287	93	1780
Harrow	H. J. Case	663,061	Dec. 4	287	61	93	1607
Harrow	G. G. Fligor	662,670	Nov. 27	3064	723	93	311
Harrow	H. H. Larsen	659,536	Oct. 9	1461	331	93	1584
Harrow	W. P. Smith	662,905	Nov. 27	2940	698	93	446
Harrow	P. E. Little	659,853	Oct. 16	2071	465	93	1753
Harrow. Disk	S. S. Sims	662,961	Dec. 4	145	31	93	323
Harrow. Disk	C. D. Carter	659,576	Oct. 9	1525	346	93	2084
Harrow. Sulky-	A. Philipp	663,834	Dec. 11	1716	383 384	93	805
Harvester. Beet-	H. Brackebush	660,696	Oct. 30	3693	831	93	1270
Harvester-conveyer	R. C. Livesay, H. F. Crandall, and E. W. Burgess.	661,882	Nov. 13	1541	374 375	93	1221
Harvester cord-knotter. Self-binding-	J. H. Elick	661,735	Nov. 13	1281	310 311	93	928
Harvester. Corn-	J. U. Fry	660,768	Oct. 30	3810	855	93	1452
Harvester. Corn-	A. N. Russell	662,309	Nov. 20	2364	569 570	93	731
Harvester. Cotton-	A. Levedahl	660,531	Oct. 23	3396	763 764	93	1185
Harvester draft-gear	T. S. Brown	661,634	Nov. 13	1099	272 273	93	1272
Harvester. Grain-	M. O'Connell	661,890	Nov. 13	1553	377 378	93	1004
Harvester. Potato-	W. F. Ellis	661,170	Nov. 6	260	63, 64	93	1025
Harvester. Self-binding	J. A. Sharp	661,231	Nov. 6	365	87	93	514
Harvester shocking attachment. Corn-	F. Ball	660,041	Oct. 16	2415	543	93	1016
Harvester spring-straining device	T. S. Brown	661,204	Nov. 6	318	78	93	418
Harvester. Sugar-beet	I. F. Tucker	659,773	Oct. 16	1929	434	93	2447
Harvesters, mowers, &c. Knife for	H. Oldham	664,670	Dec. 25	3281	746	93	2141
Harvesting and shock-forming machine. Corn-	H. H. Roush	663,981	Dec. 18	1898	427	93	641
Harvesting-machine	W. H. Traphagen	660,280	Oct. 23	2088	654	93	641
Harvesting-machine	W. H. Traphagen	660,281	Oct. 23	2089	654	93	641
Harvesting machine. Cotton-	D. D. Miles	659,176	Oct. 2	809	197 198	93	163
Harvesting machine. Potato-	H. Harms and H. Seegelke	664,406	Dec. 25	2799	632 633	93	2347
Harvesting-machine reel	H. Brackebush	660,555	Oct. 30	3443	773	93	759
Hasp-lock	P. C. Greenawalt	660,571	Oct. 30	3471	778	93	763
Hasp-lock	H. A. Nottingham	661,155	Nov. 6	238	58	93	1000
Hat. Apparel-	A. L. Johnson	660,529	Oct. 23	3395	762	93	730
Hat. Apparel-	T. L. Mahoney	660,062	Oct. 16	2452	558	93	521
Hat-box	C. L. Hayes	661,521	Nov. 13	885	213	93	1142
Hat-box. Pyramidal	W. A. Jack and J. M. Kinner	658,849	Oct. 2	245	61	93	52
Hat-brim-rounding machine	J. Stewart, Jr	662,176	Nov. 20	2115	511	93	1403
Hat-brim trimmer	J. R. Griffeth	663,965	Dec. 18	1958	441	93	2153
Hat-brim trimmer	M. Levy and A. Kindermann	660,861	Oct. 30	3903	893 894	93	864
Hat-conformer. Traveler's	J. S. Fogg	661,509	Nov. 13	863	206	93	1138
Hat-fastener	M. Clausen	663,063	Dec. 4	289	61	93	1780
Hat-fastener	G. Schneider	658,805	Oct. 2	140	32	93	31
Hat-fastener	J. Warner	662,511	Nov. 27	2783	660	93	1555
Hat-forming machine	G. H. L. Schoonmaker and J. A. Canfield.	661,648	Nov. 13	1120	278	93	1190
Hat-holder	J. J. Cannan	659,363	Oct. 9	1128	263 264	93	244
Hat mourning-band	E. A. Burt and H. Harris	663,957	Dec. 18	1948	438	93	2151
Hat-pouncing machine	W. H. Lyons	664,224	Dec. 18	2415	551	93	2248
Hat-pouncing machine	C. H. Reid	659,259	Oct. 9	978	230	93	213
Hat-pouncing machine	C. H. Reid	662,821	Nov. 27	3337	789 790	93	1658
Hat-pouncing machine	C. H. Reid	662,822	Nov. 27	3343	790 791	93	1660
Hat-sweat	J. P. Verhoeven and F. A. Westerman.	663,311	Dec. 4	757	102	93	1809
Hat sweat-band	F. E. Halbert	662,645	Nov. 27	3009	712	93	1597
Hatter's-tank strainer	J. A. Dwyer and L. Whittaker	662,259	Nov. 20	2272	546	93	1433
Hatchway-cover fastening	M. Mulholland	662,130	Nov. 20	2027	493	93	1384
Hatchway-door	M. Hegbom	659,922	Oct. 16	2200	495	93	471
Hay and stock rack. Combination	D. M. Cox	662,766	Nov. 27	3246	766	93	1641
Hay-loader	F. N. Trissel	659,382	Oct. 9	1165	270	93	253
Hay or load binder	F. Gardner	664,255	Dec. 18	2467	561	93	2258
Hay-press	A. Bennett	662,341	Nov. 20	2426	584 585	93	1464

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hay-press	E. R. Bryant	664,233	Dec. 18	2427	553	93	2251
Hay-press	A. Sherrer	662,100	Nov. 20	1980	473	93	1375
Hay-press hoisting device	A. O. Zuck	663,620	Dec. 11	1298	287	93	1997
Hay-rack	J. F. Karraker	661,057	Nov. 6	52	12	93	961
Hay-rake	C. O. Mason	663,288	Dec. 4	717	154	93	1861
Hay-rake	C. Méiançon	661,415	Nov. 6	606	161	93	1091
Hay-rake	G. A. Olson	664,057	Dec. 18	2109	482	93	2183
Hay-sling	A. P. Boyer	661,753	Nov. 13	1319	321	93	1228
Hay-track coupling	W. E. Nichols	659,488	Oct. 9	1364	311	93	292
Head-cutting machine	V. Crenshaw	659,052	Oct. 2	598	145	93	120
Head-rest	J. E. Waterbury	660,694	Oct. 30	3686	830	93	803
Head-rest. Adjustable	E. M. Pring	659,547	Oct. 9	1480	335	93	315
Header	C. L. Correll	660,621	Oct. 30	3549	797	93	778
Header and thresher. Combined	G. T. Willis	663,318	Dec. 4	769	164	93	1871
Header or harvester finger-guard bar	F. B. Lash	664,418	Dec. 25	2805	637	93	2350
Headlight	J. J. Shipley	662,744	Nov. 27	3207	759	93	1633
Headlight	C. Merryweather	661,416	Nov. 6	608	161	93	1091
Headlight. Automatically-adjustable	B. A. Price	663,393	Dec. 4	808	194	93	1896
Hearing-tube	W. B. Wilkinson	664,304	Dec. 18	2570	584	93	2278
Heat by combustion of fuel. Generating	J. B. Houston	659,065	Oct. 2	620	150	93	124
Heat-economizer							
Heater: *See* Electric heater. Hot-water heater. Feed-water heater. Portable heater. Flat-iron heater. Water-heater. Gas or oil heater. Water-tank heater.							
Heater	K. J. Foley	660,371	Oct. 23	3116	690	93	676
Heater	J. E. Frost	660,213	Oct. 23	2805	622	93	614
Heater and stock-tank. Combined	A. F. Schoenwetter and W. H. Schultz.	662,098	Nov. 20	1976	472	93	1374
Heater attachment	L. D. West	663,987	Dec. 18	1907	449 450	93	2161
Heaters. Automatic temperature-regulator for water-	A. Roesch	662,092	Nov. 20	1968	470	93	1373
Heating and ventilating system	I. D. Smead	662,108	Nov. 20	1984	474	93	1376
Heating and ventilating system for buildings	D. W. Anderson	664,706	Dec. 25	3346	760 761	93	2461
Heating apparatus	H. J. Wattles	661,629	Nov. 13	1087	270	93	1183
Heating apparatus. Electrical	C. Gohlin	664,061	Dec. 18	2153	492	93	2193
Heating apparatus. Low-pressure steam	J. Kelling	664,644	Dec. 25	3235	733	93	2437
Heating-furnace	C. Brandt	658,907	Oct. 2	332	82 83	93	68
Heating system. Steam-	J. R. Wade	659,776	Oct. 16	1934	434	93	410
Heddles. Treating worn-out	B. Themans	659,715	Oct. 16	1804	------	93	395
Heel	F. Nerger	661,129	Nov. 6	189	48	93	900
Heel-attaching machine	C. W. Woods	659,463	Oct. 9	1320	302	93	284
Heel. Boot-	C. E. Keller	659,073	Oct. 2	640	158	93	128
Heel-protector	A. G. Williams	661,833	Nov. 13	1456	352	93	1254
Hemoglobinometer	S. L. Fox and E. S. Clare	663,536	Dec. 11	1169	258	93	1971
Hide-working cylinder	N. Leidgen	663,097	Dec. 4	352	73	93	1791
Hides. Treating	F. Wayland	664,506	Dec. 25	3164	------	93	2423
Hinge	N. A. Bourquin	659,208	Oct. 9	886	210	93	196
Hinge	C. G. Deming	663,260	Dec. 4	673	144	93	1852
Hinge	H. Hawgood	663,571	Dec. 11	1218	267	93	1980
Hinge. Lock-	F. Andreas	661,690	Nov. 13	1187	289	93	1204
Hinge. Safe-	H. D. Hibbard	662,434	Nov. 27	2630	625	93	1523
Hinge safety-guard	J. H. Pineo	662,201	Nov. 20	2167	523	93	1414
Hinge. Spring-	M. Lincoln	661,346	Nov. 6	588	135	93	1067
Hinge. Spring-	T. G. Morris	661,478	Nov. 6	814	195 196	93	1114
Hinge. Spring-	W. K. Sandstrom	664,682	Dec. 25	3297	750	93	2450
Hinge. Window-blind	B. S. and B. F. Taylor	659,042	Oct. 2	586	142	93	117
Hitching device. Horse-	N. L. Goodwin	663,881	Dec. 18	1794	402	93	2120
Hitching-strap	F. A. Jacobsen	663,573	Dec. 11	1220	267	93	1980
Hoe and cultivator. Horse	E. J. Bryan	661,905	Nov. 13	1582	384	93	1278
Hoe and weeder. Combined	G. A. Morrell	662,284	Nov. 20	2307	557	93	1440
Hog-dressing tool	G. W. Constantine	663,561	Dec. 11	1205	202 203	93	1978
Hog-scraping machine	T. Lebiedzinski	663,449	Dec. 11	1014	221 222	93	1942
Hoist. Cannery-	J. C. West	662,157	Nov. 20	2078	504	93	1394
Hoist lowering-brake	W. S. Halsey	663,886	Dec. 18	1801	404 405	93	2122
Hoist or lift	B. Tucker	663,109	Dec. 4	372	78	93	1795
Hoist. Portable	C. H. Sinclair	658,810	Oct. 2	152	37	93	34
Hoist, winding-gear, &c	J. C. Howell	660,685	Oct. 30	3669	824	93	800
Hoists. Steadying device for rope-	W. H. Nelson	661,318	Nov. 6	530	128	93	1057
Hoisting and carrying device. Overhead	N. E. Brown	664,622	Dec. 25	3199	725	93	2429
Hoisting apparatus	H. C. Behr	662,163	Nov. 20	2092	506 507	93	1397
Hoisting apparatus	F. E. Herzog and F. L. Martin	660,272	Oct. 23	2929	651	93	630
Hoisting apparatus	R. R. Raymond	660,998	Oct. 30	4215	948	93	909
Hoisting apparatus	D. Svenson	661,592	Nov. 13	1025	256	93	1171
Hoisting-grip	J. Piercy	659,100	Oct. 2	688	164	93	130
Hoisting machinery	H. C. Behr	664,073	Dec. 18	2139	489	93	2190
Holdback and short hitch	G. T. Bouslog	663,720	Dec. 11	1487	329	93	2033
Holder	J. Gibbs	664,352	Dec. 18	2675	608	93	2298
Homogeneous plates. Manufacturing thin	L. Lombardi	661,250	Nov. 6	413	------	93	1084
Honeycomb-foundations. Apparatus for manufacturing	E. B. Weed	662,682	Nov. 27	3089	729	93	1612
Hood. Apparel-	E. Bradloff	661,711	Nov. 13	1241	300	93	1218
Hoof-expander. Adjustable	R. Moser	661,128	Nov. 6	188	47, 48	93	990
Hoof-pad	M. Hallanan	660,427	Oct. 23	3208	715	93	694
Hoof-pad	A. D. Nichols	660,023	Oct. 16	2384	535	93	510
Hoof-pad retainer	W. F. Waite	660,536	Oct. 23	3410	765	93	733

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Invention.	Name.	No	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hook: *See* Check-hook. Clothes-hook. Draft-hook. Eyeglass-hook. Fish-hook. Lacing-hook. Mail-crane hook. Picture-hook. Pipe-hook. Scaffold-hook. Singletree-hook. Snap-hook. Suspension-hook. Thill-hook. Trace-hook. Whiffletree-hook.							
Hook	F. Wendler	659,271	Oct. 9	990	234	93	217
Hook and eye	N. McMahon	662,677	Nov. 27	3081	727	93	1610
Hook and eye	V. O. Mills	661,065	Nov. 6	68	16	93	964
Hoop: *See* Adjustable hoop.							
Hoops upon barrels. Machine for placing	W. Curtis	661,395	Nov. 6	602	155	93	1084
Hop-drier	A. Wolf	660,408	Oct. 23	3179	706	93	689
Hopper-delivery mechanism	E. S. Decker	663,422	Dec. 11	971	210, 211	93	1983
Hopple	E. V. Gorringe and A. L. Read	664,263	Dec. 18	2488	565	93	2202
Horn substances. Producing homogeneous	J. G. Bierich	659,358	Oct. 9	1123	.....	93	1972
Horn-support	W. E. Furniss	663,537	Dec. 11	1171	253	93	691
Horse-blanket	C. H. Carli	660,414	Oct. 23	3192	709	93	1460
Horse-controlling device	C. E. Willis	662,331	Nov. 20	2408	580	93	769
Horse-detacher	T. Sanders	660,592	Oct. 30	3500	785	93	1633
Horses from cribbing. Device for preventing	A. and C. Thompson	662,745	Nov. 27	3208	759	93	1633
Horses. Hobble for driving	T. F. Neagle	659,856	Oct. 16	2074	466	93	447
Horseshoe	E. F. Pflueger	661,424	Nov. 6	713	164, 165	93	1094
Horseshoe-calk	J. Thaney	660,265	Oct. 23	2914	649	93	636
Horseshoe-calk-sharpening machine	P. B. Brazel	659,388	Oct. 9	1172	272	93	254
Horseshoe-gage	A. F. Libby	659,852	Oct. 16	2069	465	93	446
Horseshoe-holder	E. F. Meyer	664,226	Dec. 18	2419	551	93	2249
Horseshoe ice-creeper attachment	J. N. Clarke	661,757	Nov. 13	1324	322	93	1229
Horseshoe. Nailless	J. F. Rupert	662,971	Dec. 4	130	27	93	1749
Horseshoe. Soft-tread	W. J. Conway	660,788	Oct. 30	3854	866	93	835
Horseshoe. Soft-tread	E. B. Evans	660,493	Oct. 23	3326	746	93	717
Horseshoe. Soft-tread	C. Waste	661,503	Nov. 13	1026	257	93	1171
Horseshoe toe-calk	W. A. Weber	658,884	Oct. 2	202	72	93	61
Horseshoeing-stall	J. A. Gray	664,402	Dec. 25	2776	630	93	2245
Horseshoeing-stock	M. L. Hemphill	658,986	Oct. 2	479	115	93	90
Hose attachment for stopping flow	G. E. McClelland	662,955	Dec. 4	106	22	93	1745
Hose-bracket. Swinging	L. T. Foreman	663,566	Dec. 11	1211	264	93	1979
Hose-clamp	J. Bunte and W. Scrimgeour, Jr.	660,245	Oct. 23	2859	636	93	625
Hose-coupling	J. J. Bowes, Jr	658,755	Oct. 2	12	2	93	5
Hose-coupling	C. Diehl	662,225	Nov. 20	2224	535	93	1423
Hose-coupling	S. Joseph, W. H. and W. J. Clark	659,071	Oct. 2	686	152	93	127
Hose-coupling	D. Smith	660,225	Oct. 23	2823	626, 627	93	617
Hose-coupling	C. W. Storm	659,714	Oct. 16	1803	406	93	395
Hose-nozzle	E. Cliff	661,953	Nov. 20	1689	410	93	1320
Hose-reel	G. R. Young	659,996	Oct. 16	2339	526	93	502
Hose-reel	D. Hentz	663,026	Dec. 4	231	49	93	1770
Hose spanner and tongs	D. B. Smith	659,326	Oct. 9	1077	253	93	233
Hose-swivel	C. F. W. Doehring	664,240	Dec. 18	2442	556	93	2253
Hose-truck	J. J. Kress	663,282	Dec. 4	702	152	93	1858
Hose-washer	S. A. Cheney	659,208	Oct. 9	900	211, 212	93	199
Hot-air furnace	A. W. Marcofsky	658,855	Oct. 2	256	64	93	53
Hot-air furnace	J. H. Montgomery	663,191	Dec. 4	530	113	93	1826
Hot-air furnace	A. G. Söderlund and F. W. Lönnbeck.	662,888	Nov. 27	3539	829, 830	93	1706
Hot-air-register top plate	D. B. Marwick and H. S. Hart	661,615	Nov. 13	1060	264	93	1177
Hot-water heater	W. L. Dannahower	661,116	Nov. 6	161	40	93	984
Hot-water heater	G. Strong	663,244	Dec. 4	642	137	93	1846
Hotel-register	J. Bullock	659,572	Oct. 9	1519	344, 345	93	322
Hotel-register	C. E. Elstner	664,138	Dec. 18	2207	516	93	2216
House: *See* Brooding and hen house. Smoke-house.							
Hub and axle. Elastic	F. Schmitz	663,047	Dec. 4	268	57	93	1777
Hub and spigot pipe and joint	R. Boekien	662,907	Dec. 4	19	4	93	1730
Hub. Ball-bearing	P. F. Schaffer	660,467	Oct. 23	3275	733	93	707
Hub. Vehicle	J. Shaver	661,590	Nov. 13	1022	256	93	1170
Hub. Vehicle	F. F. Stowe	663,302	Dec. 4	745	159	93	1897
Hub. Wheel	C. Heart	662,721	Nov. 27	3166	749	93	1626
Huller: *See* Almond-huller.							
Hurl cutting and separating machine	W. H. Faulkner	659,441	Oct. 9	1279	294, 295	93	276
Husking-peg	L. Bishop	660,552	Oct. 30	3440	772	93	758
Hydrant	E. Cronstedt	660,721	Oct. 30	3737	842	93	814
Hydraulic-apparatus safety device	F. Lambert	660,382	Oct. 23	3133	694	93	679
Hydraulic elevator	R. T. Crane	661,575	Nov. 13	991	247	93	1164
Hydraulic elevator	G. H. Reynolds	661,587	Nov. 13	1014	253	93	1169
Hydraulic engine	C. H. Peck, F. Leach, and N. A. Johns.	662,678	Nov. 27	3082	727, 728	93	1611
Hydraulic motor	G. F. Gemmill	663,337	Dec. 4	800	171	93	1877
Hydraulic motor	W. C. Trussell and H. F. Sawtelle	660,131	Oct. 23	2636	580	93	580
Hydraulic press	G. A. Sauer	660,398	Oct. 23	3156	702	93	686
Hydrocarbon-burner	A. A. Arnott	662,385	Nov. 27	2505	604	93	1498
Hydrocarbon-burner	A. E. Hartel	659,668	Oct. 16	1709	386	93	376
Hydrocarbon-burner	W. S. Haworth	659,344	Oct. 9	1097	258	93	237
Hydrocarbon-burner	W. R. Jeavons	662,941	Dec. 4	72	18	93	1740

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Hydrocarbon-burner	G. H. Larkin	664,022	Dec. 18	2066	469	93	2175
Hydrocarbon-burner and pressure device therefor	G. A. Loeben	658,794	Oct. 2	106	25, 26	93	25
Hydrocarbon-burners. Operating	G. A. Loeben	663,813	Dec. 11	1672	374	93	2074
Hydrocarbon. Liquid	G. Taylor and I. Ray	663,370	Dec. 4	848	.....	93	1895
Hydrosulfite and making same. Double	M. Bazlen	662,338	Nov. 20	2422	.....	93	1463
Hydrosulfite and making same. Double	M. Bazlen	662,339	Nov. 20	2423	.....	93	1463
Ice-bag	D. Hogan	660,014	Oct. 16	2307	532	93	507
Ice-cream freezer	S. C. Horn and W. S. Smith	660,109	Oct. 23	2570	578	93	568
Ice-cream packing and shipping can. Multiplex	S. Goldsmith	663,076	Dec. 4	308	65	93	1783
Ice-cutting machine	M. H. Dette	659,847	Oct. 16	2061	463	93	444
Ice. Forming	M. B. Eaton	663,426	Dec. 11	977	212	93	1935
Ice. Freezing-tank for manufacturing artificial	C. F. Richards	659,157	Oct. 2	771	186	93	156
Ice-making machinery	T. Shipley	659,554	Oct. 9	1492	338	93	317
Ice-making machinery	T. Shipley	659,610	Oct. 9	1588	359	93	336
Ice-pick	H. A. Diggs	660,052	Oct. 16	2435	548	93	518
Identifying device	J. Henrich	661,641	Nov. 13	1108	274	93	1187
Illuminating device	L. Erikson	661,505	Nov. 13	859	205	93	1137
Impact-engine	B. B. Carter	662,768	Nov. 27	3239	765, 766	93	1639
Impact-tool	T. H. Phillips	662,815	Nov. 27	3326	785, 786	93	1656
Impression-cylinder	O. Roesen	660,711	Oct. 30	3717	836	93	810
Incandescent bodies. Manufacturing	C. Kellner	661,610	Nov. 13	1052	.....	93	1176
Incandescent bodies. Manufacturing	R. Langhans	660,114	Oct. 23	2591	.....	93	571
Incandescent mantle	A. Koch	662,170	Nov. 20	2108	.....	93	1401
Incandescent mantle	E. Pikhart	662,734	Nov. 27	3192	755	93	1630
Incandescent-mantle support	T. S. Fuller	660,501	Oct. 23	3337	748	93	719
Incandescent mantles. Means for inserting shirring-strings into	B. von Bültzingslöwen	659,617	Oct. 9	1605	362, 363, 364	93	340
Incandescent structure suitable for lighting	J. H. H. Duncan and H. T. Barnett	652,515	Oct. 9	1424	.....	93	304
Incandescible element	C. G. Richardson	660,500	Oct. 30	3497	785	93	768
Incubator	J. H. Hughes	659,529	Oct. 9	1447	328	93	306
Incubator	J. Mabus	650,083	Oct. 2	661	157	93	138
Incubator	J. L. Macy	664,657	Dec. 25	3254	738, 739	93	2442
Incubator	J. W. and C. A. Myers	660,583	Oct. 30	3488	782, 783	93	767
Incubator	O. W. Randolph	660,309	Oct. 23	2994	664	93	652
Incubator	J. B. Ranney	663,984	Dec. 18	1989	447, 448	93	2160
Incubator	N. C. Sprague	661,776	Nov. 13	1358	329	93	1236
Incubator	C. S. Wilson	661,007	Oct. 30	4240	952	93	913
Indicator: *See* Bottle-indicator. Electric indicator. Electric-circuit indicator. Electric-current indicator. Liquid-level indicator. Micrometer-indicator. Office-indicator. Schedule-indicator. Size-indicator. Station-indicator. Temperature-indicator. Timepiece winding-indicator.							
Indicator	C. L. Clarke	660,268	Oct. 23	2962	650	93	638
Indicator	J. B. Fondu	661,510	Nov. 13	864	206, 207, 208	93	1138
Indigo-leuco compound. Making	A. H. S. Holt	661,871	Nov. 13	1521	.....	93	1266
Indoxyl derivatives and making same	A. Stock	662,703	Nov. 27	3134	.....	93	1620
Induction-motor. Alternating-current	B. G. Lamme	660,911	Oct. 30	4071	912	93	880
Infant's chair	E. Firnhaber	660,951	Oct. 30	4143	931	93	894
Infusions. Apparatus for making and dispensing	W. J. Brown and J. R. Beer	663,723	Dec. 11	1490	330	93	2034
Ingot-manipulator	A. T. Keller	660,775	Oct. 30	3829	858	93	831
Inhaler	H. A. McIntosh	659,542	Oct. 9	1474	334	93	314
Inhaler	N. B. Dodge	659,188	Oct. 2	851	202	93	169
Injector	N. B. Dodge. (Reissue)	660,182	Oct. 23	2741	610	93	601
Injector	H. T. Nice	11,877	Dec. 11	1729	386	93	2087
Injector	H. T. Nice	662,459	Nov. 27	2672	687	93	1531
Injector	E. G. Woody	662,460	Nov. 27	2679	688	93	1533
Ink-pad stand	S. A. Neidich	660,877	Oct. 30	4024	901	93	870
Ink-ribbon mechanism	F. M. Ashley	662,805	Nov. 27	3311	781, 782	93	1653
Ink-well	J. S. Anderson	661,334	Nov. 6	567	131	93	1064
Inker. Automatic	C. W. Hamshaw	663,406	Dec. 11	940	204	93	1928
Inkstand	G. H. Nehf	659,968	Oct. 16	2297	516	93	492
Inkstand	A. L. Newton	659,155	Oct. 2	768	186	93	155
Inkstand	G. Pellinger	664,424	Dec. 25	2815	688	93	2252
Inkstand	B. F. Brown	659,762	Oct. 16	1905	420	93	413
Insect-destroyer	S. B. Jones	662,391	Nov. 27	2519	608	93	1501
Insect-destroyer	T. Hanson	659,870	Oct. 16	2101	473	93	452
Insect-exterminating machine	R. Forrest	661,789	Nov. 13	1288	312, 313, 314, 315	93	1222
Insect-guard	C. H. W. Schambach	662,261	Nov. 20	2276	547	93	1434
Insecticide	P. S. Reid	659,532	Oct. 9	1489	.....	93	317
Instrument-table for opticians, &c	C. C. Blake	660,868	Oct. 30	4000	897	93	866
Insulated support for electric conductors	C. Jung	662,587	Nov. 27	2914	692	93	1570
Insulating composition	N. Tesla. (Reissue)	662,444	Nov. 27	2649	.....	93	1527
Insulating electric conductors	R. H. and J. G. Henderson	11,895	Oct. 23	3429	770	93	737
Insulating-knob for electric-light wiring	G. Wright and C. Aalborg	660,271	Oct. 23	2928	651	93	639
Insulating support for switchboard-conductors	C. Alley	660,878	Oct. 30	4026	901	93	870
Insulator	E. Renault	660,140	Oct. 23	2652	592	93	584
Insulator	R. H. Sterling	664,432	Dec. 25	2831	692	93	2256
Insulator	E. Risler	664,301	Dec. 18	2567	583	93	2278
Insulator. Electric		664,176	Dec. 18	2324	530	93	2227

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Internal-combustion engine	J. Dougill	664,134	Dec. 18	2261	513	93	2214
Internal-combustion engine	W. K. Freeman	664,632	Dec. 25	3214	729, 730	93	2433
Internal-combustion engine	E. A. Mitchell	658,993	Oct. 2	490	118	93	98
Intra-uterine battery	J. G. L. Gaedeke	662,716	Nov. 27	3155	747	93	1624
Invalid-lifting device	C. B. Ulrich	662,477	Nov. 27	2716	645, 646	93	1541
Iron: *See* Branding-iron. Soldering-iron. Sad-iron.							
Iron for preservation thereof. Electrolytic treatment of	H. L. Hollis	664,550	Dec. 25	3045	698	93	2397
Iron or steel. Hardening	L. Schiecke	662,502	Nov. 27	2767	------	93	1552
Iron. Puddling	J. P. Roe	659,698	Oct. 16	1770	399, 400	93	388
Ironing-board	J. Herpel	664,148	Dec. 18	2284	520	93	2219
Ironing-board	M. E. Holden	663,274	Dec. 4	690	149	93	1856
Ironing machine. Edge-	W. H. Rickey	660,277	Oct. 23	2934	653	93	640
Ironing or other machines. Guard for	D. S. Arklay and E. W. Collier	663,713	Dec. 11	1472	326	93	2039
Ironing shirt-fronts or other articles. Machine for	S. H. Sekian	663,585	Dec. 11	1239	272	93	1984
Ironing-table	G. W. Buss	664,122	Dec. 18	2239	509	93	2211
Ironing-table	S. D. Dilts	661,960	Nov. 20	1700	412	93	1322
Ironing-table	J. F. Wren and N. E. Grant	662,997	Dec. 4	183	37	93	1761
Irrigator and insufflator. Rectal	R. E. Warner	664,796	Dec. 25	3539	804	93	2501
Jack: *See* Bootjack. Lifting-jack. Pump-jack. Triple-action jack. Well-jack.							
Jar: *See* Fruit-jar. Metal jar.	E. S. Young	663,401	Dec. 4	913	198, 199	93	1899
Jar-capping machine	M. Birney	662,757	Nov. 27	3229	763	93	1637
Jar-closure	J. C. Mills	662,241	Nov. 20	2247	541	93	1428
Jar-closure	F. M. Weir	663,314	Dec. 4	762	163	93	1870
Jar-closure	A. Smelker	663,616	Dec. 11	1293	286	93	1996
Jar closure. Fruit-	J. H. Ashbaugh and C. L. Webster	661,681	Nov. 13	1188	290	93	1204
Jar filler. Fruit-	A. Werner	663,619	Dec. 11	1297	287	93	1996
Jar gripper. Fruit-	J. Biesel	658,752	Oct. 2	7	2	93	4
Jar or bottle stopper. Fruit-	A. L. Weissenthanner	663,480	Dec. 11	1064	233	93	1951
Jars, bottles, &c. Closure for	J. H. Flanigan	660,421	Oct. 23	3200	711, 712	93	693
Jaw wrench. Sliding-	M. Winderl	664,520	Dec. 25	2995	682	93	2387
Jewel case or box	A. Collier	659,016	Oct. 2	541	131	93	109
Jewel-settings. Making	C. B. Rogers	660,869	Oct. 30	4010	898	93	867
Jigging machine. Slime-							
Joint: *See* Cycle-frame joint. Rail-joint. Metallic flexible joint. Railway-rail joint. Pipe-joint. Vehicle-frame joint.							
Journal-bearing	J. D. McRae	660,582	Oct. 23	3402	764	93	731
Journal-box	W. F. Born and W. G. Dunham	659,284	Oct. 9	1014	228	93	220
Journal-box	H. J. La Force	659,074	Oct. 2	641	153	93	128
Jumping-bar	T. F. Peak	662,810	Nov. 27	3319	783	93	1655
Keg, barrel, or cask	C. W. Stran	664,185	Dec. 18	2342	535	93	2231
Kettle. Sizing-	W. Wilson	661,837	Nov. 13	1462	353, 354	93	1255
Key: *See* Can-opening key.							
Key-bar	G. H. Irish	660,959	Oct. 30	4157	934	93	897
Keyboard	G. G. Allen	663,405	Dec. 11	998	208	93	1927
Keyhole-guard. Combination	C. E. Flinder	660,295	Oct. 23	2967	659	93	647
Keyless or permutation lock	L. Larcher	663,447	Dec. 11	1011	221	93	1941
Key-ring	W. F. Peet	664,285	Dec. 18	2539	577	93	2272
Key-seat cutter	J. L. Graffiin	663,569	Dec. 11	1215	265	93	1979
Key-socket attachment	T. M. Pepper	661,892	Nov. 13	1558	378	93	1278
Kiln: *See* Brick-kiln. Drying-kiln. Rotary kiln.							
Kiln-furnace	L. Vinez	662,633	Nov. 27	2993	708	93	1594
Kilns preparatory to burning. Machine for coaling or slacking ballast-	J. B. Faulkner	660,824	Oct. 30	3919	879, 880	93	849
Kinematographic apparatus	E. L. Reulos	663,785	Dec. 11	1021	363	93	2092
Kinetoscope	C. T. Ellsworth	661,706	Nov. 13	1397	336	93	1243
Kinetoscope	F. S. Giel	661,515	Nov. 13	873	210	93	1140
Knife: *See* Farrier's knife. Putty-knife. Peeling and gouging knife.							
Knife-blade	R. H. Dickinson	664,536	Dec. 25	3022	688	93	2392
Knife for cutting wrapping-twine	G. S. Lyles	659,245	Oct. 9	957	225	93	209
Knife switch	J. A. Wright	663,209	Dec. 4	562	120	93	1882
Knitted underwear	G. E. Rutledge	663,517	Dec. 11	1141	247	93	1965
Knitting-machine	E. Boessneck	658,826	Oct. 2	187	44, 45, 46, 47, 48	93	42
Knitting-machine	H. A. Klemm	660,577	Oct. 30	3479	780	93	765
Knitting machine. Circular-	H. E. Harbaugh	664,206	Dec. 18	2498	566, 567	93	2264
Knitting machine. Lace-	C. E. Drew	660,053	Oct. 16	2487	549, 550	93	518
Knitting-machine needle	A. D. Dodge	664,808	Dec. 25	3567	812	93	2506
Knitting-machine stop-motion	R. B. Goodyear	663,432	Dec. 11	967	214	93	1936

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Knitting machine. Straight-	H. A. Houseman	663,900	Dec. 18	1821	411, 412, 413	93	2126
Knitting machine. Straight-	H. A. Houseman	663,901	Dec. 18	1834	414, 415	93	2129
Knitting-machine yarn-guide	H. I. Jones	664,273	Dec. 18	2519	571, 572	93	2268
Knitting-machines. Presser for spring-needle	F. Hammond	662,268	Nov. 20	2287	549	93	1436
Knitting or like machines. Driving means for	F. Wilcomb	662,159	Nov. 20	2083	505	93	1395
Knitting stockings	H. G. Huettig and P. Schlossmann	660,374	Oct. 23	3120	691	93	677
Knob attachment	H. Lomax and J. Tomlinson	660,259	Oct. 23	2882	642	93	629
Knob-lock	E. Whittingham	661,899	Nov. 13	1572	381	93	1275
Knobs or picture-hanging nails. Device for fixing shanks or screw-stems in handle-	S. Kribs	660,414	Oct. 23	3238	723, 724	93	700
Knockdown box	E. Raschlé	662,739	Nov. 27	3199	757	93	1632
Kryolith. Treating	C. A. Doremus	660,094	Oct. 23	2549	------	93	563
Label-gumming machine	H. R. Grassmann	661,101	Nov. 6	133	33	93	978
Label-holder	G. E. Bateman	663,408	Dec. 11	943	204	93	1928
Labeling machine. Bottle-	T. A. Weber	664,797	Dec. 25	3542	804	93	2501
Labeling machine. Can-	W. H. Leister	659,075	Oct. 2	642	153, 154	93	128
Lace fastener. Shoe-	A. E. Kroenlnger	660,648	Oct. 30	3593	806	93	786
Lace fastener. Shoe-	W. A. Parkinson	661,768	Nov. 13	1348	326	93	1234
Lace holder. Shoe-	B. P. Shepherd	664,182	Dec. 18	2333	532	93	2230
Lace tip. Shoe-	G. L. Benson, H. K. and J. Logan, Jr.	660,241	Oct. 23	2848	633	93	623
Lacing attachment	P. M. Kling	658,952	Oct. 2	420	101	93	86
Lacing-blank	H. L. Hiller	659,849	Oct. 16	2064	464	93	445
Lacing-guide	L. A. Roberts	664,005	Dec. 18	2039	461	93	2169
Lacing hook and fastener	L. J. Buchsieb	660,945	Oct. 30	4135	920	93	893
Lacing hook. Shoe-	H. H. Eaton. (Reissue)	11,874	Nov. 27	3583	838	93	1714
Lacing-hooks. Gang-machine for setting	L. A. McGrath	663,887	Dec. 4	870	189, 190	93	1892
Lacing-hooks. Machine for setting	R. F. Hargraves	659,746	Oct. 16	1874	422, 423	93	407
Ladder	C. Coplantz	664,385	Dec. 25	2728	619	93	2335
Ladder	I. M. Dillman	662,060	Nov. 20	1901	456	93	1359
Ladder	H. L. Frizell	659,814	Oct. 16	2005	449	93	433
Ladder	J. Harmon and A. T. Fay	659,667	Oct. 16	1707	385	93	376
Ladder	H. Ovenden	662,545	Nov. 27	2839	674	93	1565
Ladder	L. J. R. de Vries	663,821	Dec. 11	1687	378	93	2077
Ladder. Break-away	F. M. Z. Knight	664,414	Dec. 25	2800	635	93	2349
Ladder. Extension-	H. L. Marston and J. D. Hatch	659,310	Oct. 9	1053	248	93	228
Ladder. Step-	J. S. Butler	659,362	Oct. 9	1127	263	93	244
Ladder. Step-	W. L. Glidden	663,339	Dec. 4	804	172	93	1878
Ladder. Step-	C. Rivers	663,042	Dec. 4	259	55	93	1775
Ladder. Store-	E. W. Balfour	662,108	Nov. 20	1993	477	93	1377
Ladle for molten metal	J. A. Waldburger and W. J. Smith	663,945	Dec. 18	1919	431	93	2146
Ladles. Power apparatus for removing skull from	J. A. Waldburger and W. J. Smith	663,946	Dec. 18	1921	432	93	2146
Lamp	M. and V. B. Cahill	662,165	Nov. 20	2095	507	93	1398
Lamp	W. R. Whitehead	661,332	Nov. 6	561	130	93	1063
Lamp. Acetylene-gas	E. C. Fowler	661,511	Nov. 13	867	208, 209	93	1189
Lamp. Acetylene-gas	C. W. Jackson	660,754	Oct. 30	3786	852	93	824
Lamp. Acetylene-gas	S. P. Watt	662,842	Nov. 27	3386	801	93	1668
Lamp. Acetylene-gas bicycle-	W. A. Penfield	664,775	Dec. 25	3505	794	93	2493
Lamp. Acetylene-gas-generating	J. C. F. Dick	659,436	Oct. 9	1267	292	93	273
Lamp. Acetylene-gas-generating	A. C. Einstein	661,734	Nov. 13	1280	310	93	1221
Lamp and foot-warmer. Combined carriage-	J. B. Bartholomew	659,279	Oct. 9	1008	237	93	219
Lamp attachment. Arc-	E. B. Jones	662,727	Nov. 27	3175	751	93	1627
Lamp. Bicycle-	L. C. Johnson	660,630	Oct. 30	3583	803	93	784
Lamp-bracket	E. D. Castelow	661,688	Nov. 13	1199	292	93	1206
Lamp-bracket	W. J. Frost	663,121	Dec. 4	390	83	93	1799
Lamp-bracket	E. M. Rosenbluth and A. S. Carter	661,824	Nov. 6	543	125	93	1059
Lamp-burner	J. Gregory	661,517	Nov. 13	876	211	93	1141
Lamp-burner	J. Gregory	664,742	Dec. 25	3428	777	93	2479
Lamp-burner	F. T. Williams	659,333	Oct. 9	1085	255	93	235
Lamp-burner	F. T. Williams	659,334	Oct. 9	1086	255	93	235
Lamp-burner	F. T. Williams	662,582	Nov. 27	2909	691	93	1578
Lamp-burner	F. T. Williams	662,583	Nov. 27	2910	691	93	1578
Lamp-burner	F. T. Williams	662,584	Nov. 27	2911	691	93	1578
Lamp burner and chimney	J. H. Reynolds	663,468	Dec. 11	1049	230	93	1949
Lamp burner. Oil-	J. Sharples	662,826	Nov. 27	3355	794	93	1602
Lamp. Carbureting-	J. C. Peden	660,222	Oct. 23	2810	625, 626	93	616
Lamp. Carriage-	E. M. Rosenbluth	664,783	Dec. 25	3516	797	93	2496
Lamp clutch. Electric-arc-	C. E. Harthan	664,083	Dec. 18	2157	493	93	2194
Lamp clutch. Electric-arc-	H. C. Spinney	659,705	Oct. 16	1785	403	93	391
Lamp-cover	H. S. Tompkins	663,306	Dec. 4	751	160	93	1868
Lamp cover or shade. Incandescent-	W. R. Krumwiede	664,222	Dec. 18	2413	550	93	2248
Lamp dash-pot. Electric-arc-	T. E. Adams	661,829	Nov. 13	1464	354	93	1255
Lamp. Electric	F. L. Fowler	659,061	Oct. 2	615	149	93	121
Lamp. Electric-arc	R. E. Ball	664,718	Dec. 25	3355	762, 763	93	2463
Lamp. Electric-arc	J. A. Brennan	664,209	Dec. 18	2390	545	93	2243
Lamp. Electric-arc	R. Fleming	659,658	Oct. 16	1690	382, 383	93	372
Lamp. Electric-arc	F. A. Gilbert and E. O. Lundin	662,981	Dec. 4	56	14	93	1737
Lamp. Electric-arc	J. H. Hallberg	663,696	Dec. 11	1447	320	93	2025
Lamp. Electric-arc	C. E. Harthau and G. E. Stevens	660,705	Oct. 30	3866	869	93	838
Lamp. Electric-arc	J. A. Heany	661,125	Nov. 6	182	46	93	989
Lamp. Electric-arc	J. A. Heany	661,126	Nov. 6	185	47	93	989
Lamp. Electric-arc	W. C. Johnson and A. Wunderlich	663,346	Dec. 4	813	174	93	1879
Lamp. Electric-arc	F. W. Martin and F. Stewart	663,454	Dec. 11	1026	224, 225	93	1944

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lamp. Electric-arc	J. J. Rathbone	660,393	Oct. 23	3156	699	93	684
Lamp. Electric-arc	G. E. Stevens	659,710	Oct. 16	1792	404	93	392
Lamp. Electric-arc	G. E. Stevens	659,711	Oct. 16	1796	405	93	393
Lamp. Electric-arc	O. N. Wiswell	662,995	Dec. 4	171	35	93	1759
Lamp. Electric-arc	J. J. Wood	662,048	Nov. 20	1878	451, 452	93	1355
Lamp. Electric-arc	J. J. Wood	662,996	Dec. 4	172	35, 36, 37	93	1760
Lamp. Electric incandescent	F. Myers	659,687	Oct. 16	1748	394	93	388
Lamp-extinguisher	W. C. Miller	659,247	Oct. 9	960	226	93	210
Lamp for Welsbach or other incandescent lights. Antivibration	V. H. Slinack and E. S. Sanderson	662,831	Nov. 27	3361	796	93	1664
Lamp-guard	E. Gahlau	661,243	Nov. 6	391	92	93	1030
Lamp. Incandescent	S. D. Washburn and C. H. Tinkham	663,524	Dec. 11	1152	249	93	1908
Lamp. Incandescent gas	R. Beese	660,550	Oct. 30	3438	771	93	758
Lamp. Incandescent oil	J. C. C. Read	660,311	Oct. 23	3000	665	93	653
Lamplighter. Time	J. Gunning	661,866	Nov. 13	1513	367	93	1264
Lamp mantle. Incandescent	W. H. A. Sieverts	660,932	Oct. 30	4108	924	93	887
Lamp. Night	C. Moegling	664,167	Dec. 18	2309	526	93	2224
Lamp. Petroleum	M. Gervais	662,930	Dec. 4	55	13, 14	93	1736
Lamp receptacle. Incandescent	P. H. Fielding	660,154	Oct. 23	2672	597	93	587
Lamp shade or globe	W. L. Strachan	663,796	Dec. 11	1637	367	93	2065
Lamp socket. Incandescent	E. P. Warner	662,510	Nov. 27	2781	660	93	1555
Lamp. Vapor-burning	G. A. Loeben	663,768	Dec. 11	1571	351	93	2051
Lamp ventilator-cap. Street	A. E. Shaw	662,313	Nov. 20	2370	571	93	1453
Lamps. Device for removing and replacing incandescent	R. Croteau and R. J. Messier	659,631	Oct. 9	1635	369	93	345
Lamps. Flexible supporting structure for electric	W. F. Brewster	663,532	Dec. 11	1162	251	93	1970
Lamps. Glower-heating apparatus for electric	J. Van Vleck and W. N. Stevens	659,268	Oct. 9	992	233	93	216
Lamps. Incandescent body for electric glow	A. Just	663,095	Dec. 4	346	------	93	1790
Lamps. Manufacture of incandescent electric	W. L. Voelker	660,475	Oct. 23	3294	737	93	711
Lamps. Regulating-socket for multifilament incandescent electric	C. A. Hussey	664,554	Dec. 25	3052	695	93	2398
Lamps. Terminal connection for electric	A. J. Wurts	662,369	Nov. 20	2470	595	93	1472
Lampblack. Apparatus for making	J. F. Sanders	660,973	Oct. 30	4175	938	93	901
Lampblack-making apparatus	P. F. Reardon	663,395	Dec. 4	901	195	93	1897
Land-clearing implement	T. E. Kirk	663,176	Dec. 4	505	107	93	1821
Lantern	C. J. Sonnema	658,873	Oct. 2	278	68	93	57
Lantern. Collapsible	C. H. Stonebridge	662,474	Nov. 27	2706	644	93	1539
Laryngoscope	W. Avery and A. Burrell	661,682	Nov. 13	1189	290	93	1204
Last	F. B. Abbott	660,321	Oct. 23	3029	671	93	658
Last	F. Decker	661,397	Nov. 6	667	155	93	1085
Last	F. W. Kittlinger	661,699	Nov. 13	1219	295	93	1209
Last	J. E. Tilt	660,279	Oct. 23	2686	654	93	641
Last. Boot or shoe	F. C. H. C. Möller	659,754	Oct. 16	1892	426	93	411
Last. Darning	W. H. Snyder	664,104	Dec. 18	2198	502	93	2292
Last. Hinged	G. E. Belcher	661,485	Nov. 13	825	199	93	1130
Last-thimble	F. E. Benton	659,637	Oct. 16	1652	372	93	366
Lasting-machine	H. H. Donovan	663,331	Dec. 4	788	169	93	1875
Lasting-machine tack-saving attachment	D. Ryan, G. A. Zeller, and C. P. Lawrence.	663,471	Dec. 11	1052	230, 231	93	1949
Lasting-tool. Hand	N. Dussault	658,765	Oct. 2	39	7, 8	93	11
Lasting-tool. Hand	N. Dussault	658,766	Oct. 2	42	9, 10	93	12
Latch	M. Sutton	660,403	Oct. 23	3173	704	93	687
Latch. Coach	A. Ochsner	660,822	Oct. 30	3916	879	93	849
Latch. Cupboard	G. W. Sigley	662,681	Nov. 27	3068	729	93	1612
Latch. Door	H. Lomax and J. Tomlinson	659,633	Oct. 9	1642	369	93	347
Latch. Gate	G. W. Randall	660,392	Oct. 23	3154	699	93	681
Latch. Gate	W. B. Shumaker	662,604	Nov. 27	2938	698	93	1582
Latch. Gate	L. M. Smyth	660,226	Oct. 23	2824	627	93	618
Latch. Knob	W. A. Crouch	659,887	Oct. 16	2127	479	93	457
Latch. Mine-car	A. C. Walters	659,777	Oct. 16	1937	435	93	420
Lathe attachment. Automatic	J. B. Clyne	663,013	Dec. 4	209	45	93	1766
Lathe. Axle-turning	F. O. Sandstrom	663,933	Dec. 18	1901	427	93	2142
Lathe-centering device	J. G. Obermier	660,821	Oct. 30	3915	878	93	849
Lathe-dog	G. W. Schellenbach	659,106	Oct. 2	696	166	93	141
Lathe screw-cutting attachment	J. Cornélis	662,188	Nov. 20	2145	518	93	1410
Lathe. Singletree and neck-yoke	C. C. Hickel	659,868	Oct. 16	2096	471	93	451
Lathe-tool	F. O. Jaques, Jr	660,376	Oct. 23	3124	692	93	678
Lathe. Turning	F. R. Clark	662,371	Nov. 20	2473	595, 596	93	1473
Lathes. Crank-pin-turning attachment for	A. Tindel and O. Albrecht	660,978	Oct. 30	4181	989	93	902
Lathing-machine	W. Hargreaves	663,434	Dec. 11	991	215, 216, 217	93	1938
Lawn-sprinkler	R. H. Dengler	664,730	Dec. 25	3398	772	93	2473
Lawn-sprinkler	L. Horvath	663,277	Dec. 4	695	151	93	1857
Lawn-sprinkler	A. G. W. Peterson and J. F. Haslam	664,428	Dec. 25	2821	640	93	2353
Lawn-sprinkler	J. L. Turner	664,007	Dec. 18	2127	486	93	2187
Leach-emptying device	B. Sykes	659,112	Oct. 2	702	168	93	142
Lead refining and desilverizing apparatus	S. Tredinnick	662,836	Nov. 27	3372	795, 796	93	1666
Lead. Treating white	T. C. Sandersou	664,437	Dec. 25	2846	------	93	2358
Leaf-turner	F. Boyer	663,622	Dec. 11	1300	287, 288	93	1997
Leather. Apparatus for applying liquid dressing to	F. J. Perkins and F. A. Parkhurst	663,665	Dec. 11	1384	306, 307	93	2013
Leather-punching machine	J. Wester	663,949	Dec. 18	1924	433	93	2147
Leather-working machine	E. Hayes	661,580	Nov. 13	1003	249	93	1166
Ledger. Perpetual	C. V. Henkel	660,432	Oct. 23	3218	717	93	696
Leer	U. Houze	661,315	Nov. 6	525	122	93	1056
Leg-band. Sealed	W. H. Smith	664,062	Dec. 18	2123	484	93	2186
Lens. Headlight	J. H. Pitkin	659,353	Oct. 9	1115	260, 261	93	242
Let-off. Friction	T. Brindle and M. O. Steere	664,380	Dec. 25	2720	618	93	2334

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Letter-box	A. L. Henry	660,329	Oct. 23	3044	676	93	662
Letter-box	C. E. Knight	660,706	Oct. 30	3712	835	93	808
Letter-box	W. H. Mulloy	659,486	Oct. 9	1362	310	93	292
Letter or figure disks. Producing interchangeable	J. H. Ridley	661,770	Nov. 13	1350	327	93	1234
Letter sheet. Return	A. J. Elias	659,218	Oct. 9	915	214	93	202
Level. Bob	F. Sinkovic	660,870	Oct. 30	4012	808	93	867
Level. Spirit	J. H. Van Luvan	662,991	Dec. 4	165	34	93	1758
Leveling, plumbing, and angle-measuring instrument.	J. S. Bogardus	663,252	Dec. 4	654	141	93	1849
Lever. Equalizing	J. E. Normand	660,649	Oct. 30	3608	809	93	788
Lever-locking mechanism	T. Coldwell	662,354	Nov. 20	2447	589	93	1468
Life-buoy	G. A. Lindberg	661,410	Nov. 6	691	160	93	1089
Life-preserver	J. Barton	659,807	Oct. 16	1997	447	93	431
Life-preserver	A. Brisighelli	659,137	Oct. 2	725	174	93	147
Life-preserver	H. J. Ennis	664,395	Dec. 25	2759	626	93	2342
Life-preserver	H. C. Lavery	663,096	Dec. 4	347	72, 73	93	1790
Life-preserver	G. Plummer	661,457	Nov. 6	771	182	93	1106
Life-preserver float	S. German	660,504	Oct. 23	3345	751	93	721
Life-saving and swimming apparatus	G. Plummer	661,208	Nov. 6	483	110	93	1048
Life-saving apparatus	D. S. Webster	659,883	Oct. 16	2119	477	93	455
Life-saving belt	H. Lüning	661,347	Nov. 6	584	135	93	1067
Life-saving corset	C. O. Dutton	660,420	Oct. 23	3199	711	93	693
Life-saving suit	F. M. Lepore	659,682	Oct. 16	1739	393	93	381
Lift. Telescopic	C. O. Bulock and B. C. Donnelly	660,091	Oct. 23	2542	569	93	561
Lifter: *See* Plate-lifter. Store-goods lifter. Plate or pan lifter.	H. A. Dierig and A. A. Vorndieke	661,501	Nov. 13	849	204	93	1135
Lifting-jack	J. T. Harbin	660,507	Oct. 23	3350	758	93	722
Lifting-jack	J. T. Sanders	663,932	Dec. 18	1900	427	93	2142
Lifting-jack	W. W. Bollen	663,852	Dec. 18	1748	391	93	2111
Lighting device. Time	F. B. Cook	658,976	Oct. 2	462	109	93	93
Lightning-arrester	C. J. Reed	660,313	Oct. 23	3008	666	93	654
Lightning-arrester	C. M. Taylor	659,559	Oct. 9	1499	339	93	319
Lightning-arrester	J. Sachs	662,466	Nov. 27	2690	640	93	1535
Lime and drying artificial stones, &c. Device for slaking	W. Olschewsky	663,459	Dec. 11	1084	226	93	1946
Lime-slaking apparatus	W. Schulthess	664,440	Dec. 25	2851	650, 651	93	2358
Limes, lemons, &c. Device for squeezing	P. King	659,846	Oct. 9	1099	258	93	238
Lineal assorting-machine	J. J. Nichols	663,681	Dec. 11	1414	318	93	2019
Linotype-machine	G. A. Bates	659,865	Oct. 16	2091	470	93	450
Linotype-machine	J. R. Rogers	661,386	Nov. 6	651	151, 152	93	1082
Linotype-machine	G. A. Vassberg	659,863	Oct. 16	2088	469	93	449
Linotype-machine	F. J. Wich	662,106	Nov. 20	1990	475, 476, 477, 644, 645	93	1377
Linotype-machine. Electric	A. W. Storm	660,263	Oct. 23	2889	646, 647, 648	93	681
Linotype-machine wiper mechanism	W. C. Pritchard	659,800	Oct. 16	1986	445	93	429
Liquid-cooling apparatus	W. C. Huckins	662,438	Nov. 27	2689	630	93	1525
Liquid-dispensing vessel	W. I. Myers and W. Bashline	661,546	Nov. 13	931	231	93	1152
Liquid-drawing apparatus. Effervescent	J. Nageldinger	660,164	Oct. 23	2706	602	93	594
Liquid-drawing device. Effervescent	J. Nageldinger	660,331	Oct. 23	3048	676, 677	93	662
Liquid-level indicator	A. Le Blanc	664,328	Dec. 18	2617	596	93	2287
Liquid-raising apparatus	J. Clayton	658,941	Oct. 2	405	97, 98	93	83
Liquid-raising apparatus of the air-lift type	J. Price	659,491	Oct. 9	1373	312, 313	93	294
Liquid-separator. Centrifugal	F. J. Arend	661,948	Nov. 20	1673	406	93	1317
Liquid-separator. Centrifugal	J. J. Berrigan	663,111	Dec. 4	374	79	93	1799
Liquid-separator. Centrifugal	J. J. Berrigan	663,115	Dec. 4	380	80	93	1797
Liquid-separator. Centrifugal	D. H. Burrell	660,360	Oct. 23	3102	687	93	673
Liquid-separator. Centrifugal	M. Henze	663,832	Dec. 11	1713	388	93	2088
Liquid-separators. Device for assembling or disassembling the parts of centrifugal	J. J. Berrigan	663,114	Dec. 4	378	80	93	1797
Liquid with compressed gas. Apparatus for actuating	R. Conrader	664,723	Dec. 25	3378	770	93	2467
Liquids in fixed quantities. Apparatus for drawing off	E. Franc, T. and W. L. Cole	664,629	Dec. 25	3209	728	93	2432
Liquids. Means for electrolyzing	A. R. Grever	661,340	Nov. 6	575	133	93	1065
Liquids with gases. Apparatus for charging	G. L. Reenstierna	662,499	Nov. 27	2761	655	93	1551
Liquids with ozone, &c. Apparatus for treating	I. Van den Broek	662,509	Nov. 27	2779	660	93	1554
Loading device	T. J. Pratt	664,288	Dec. 18	2542	577, 578	93	2273
Loading machine. Truck	G. A. Browne	661,904	Nov. 13	881	383	93	1277
Lock: *See* Bag-lock, Bicycle-lock, Binder-lock, Book-lock, Carriage-door lock, Coin-controlled lock, Combination-lock, Cover-lock, Cylinder-lock, Door-lock, Hasp-lock, Knob-lock, Mail-bag lock, Nut-lock, Padlock, Permutation-lock, Sash-lock, Seal-lock, Time-lock, Trace-lock, Trunk-lock, Vehicle-wheel lock, Wagon-seat lock.	B. Bernstein	663,413	Dec. 11	952	206	93	1929

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lock	J. A. Eastman	664,245	Dec. 18	2447	557	93	2254
Lock	G. G. Laureyns	663,508	Dec. 11	1108	242 243	93	1960
Lock	A. L. MacMaster	658,955	Oct. 2	423	101 102	93	86
Lock	W. B. Moore	664,422	Dec. 25	2811	698	93	2351
Lock	A. Petersen	664,674	Dec. 25	3286	747	93	2448
Lock	B. Phelps	660,736	Oct. 30	3759	847	93	818
Lock	J. Rikard	664,582	Dec. 25	3122	708 709	93	2414
Lock	S. T. Simmons	663,791	Dec. 11	1629	365	93	2064
Lock	C. C. and G. H. Spengler	660,871	Oct. 30	4013	898	93	867
Lock	J. J. Treat	660,230	Oct. 23	2829	628	93	619
Lock	S. Ritchie	660,737	Oct. 30	3761	847	93	819
Lock and burglar-alarm. Combined	G. C. Craig	664,315	Dec. 18	2595	591	93	2283
Lock and latch	J. B. E. Macnamara	660,061	Oct. 16	2450	553	93	521
Lock and latch combined	A. R. Fergusson	663,876	Dec. 18	1786	400 401	93	2119
Lock for safety-deposit boxes	A. H. Wood	662,847	Nov. 27	3396	807	93	1671
Lock-plate	D. E. Hunter	664,754	Dec. 25	3461	782	93	2485
Lock-rod. Rotary	W. I. Entwistle	660,849	Oct. 30	3990	890	93	861
Lock strike and alarm	W. Heinitz	661,522	Nov. 13	887	213	93	1143
Locking device	W. T. Smith	663,589	Dec. 11	1243	274	93	1985
Locking device. Automatic	L. L. Hepburn	662,427	Nov. 27	2604	625 626	93	1517
Locking device released by recoil. Safety	H. D. Hibbard	662,435	Nov. 27	2632	625	93	1524
Locking mechanism. Safe or vault	W. W. Gregg	660,898	Oct. 30	4049	908	93	875
Locomotive	W. P. Henszey	660,433	Oct. 23	3220	717 718	93	696
Locomotive	F. Burger and H. M. Williams	660,557	Oct. 30	3446	773 774	93	759
Locomotive-boiler	J. T. Connelly	662,250	Nov. 20	2258	543	93	1430
Locomotive-boiler	G. C. Zang	660,941	Oct. 30	4130	928	93	892
Locomotive-engine cabs. Deflector for	W. M. Smith	662,578	Nov. 27	2901	688 689	93	1576
Locomotive-engine. Compound	G. S. Fouts	661,045	Nov. 6	29	7, 8	93	956
Locomotive. Mountain	F. Brutschke	661,844	Nov. 13	1471	356 357	93	1256
Locomotive. Road	L. H. Shoemaker	662,031	Nov. 20	1844	444	93	1348
Locomotive turn-table	F. H. Miller and P. Larson	659,036	Oct. 2	576	139 140	93	115
Log-carriage	A. Davis	662,669	Nov. 27	3063	723	93	1607
Log-loading device	W. H. Baker and F. E. Kip	659,950	Oct. 16	2247	504 505 506	93	481
Loom	W. H. Baker and F. E. Kip	659,951	Oct. 16	2258	506 507	93	484
Loom	W. H. Baker and F. E. Kip	659,952	Oct. 16	2263	507 508	93	985
Loom	R. Crompton	663,066	Dec. 4	293	62, 63	93	1781
Loom	A. Insinger	660,441	Oct. 23	3234	722	93	699
Loom	C. N. Newcomb	663,357	Dec. 4	830	177 178	93	1883
Loom	C. F. Roper	659,628	Oct. 9	1628	368	93	343
Loom	E. S. and W. I. Stimpson	662,320	Nov. 20	2382	574	93	1456
Loom	C. R. Saatweber	662,029	Nov. 20	1841	443	93	1347
Loom-beam attachment	M. A. Schmitt	663,935	Dec. 18	1903	428	93	2143
Loom clutch mechanism	A. A. Gordon	661,264	Nov. 6	434	101	93	1088
Loom driving mechanism	E. S. Stimpson	664,700	Dec. 25	3526	801	93	2498
Loom filling-replenishing mechanism	O. Janelle	662,441	Nov. 27	2642	631 632	93	1526
Loom. Filling-supply	W. Garlick	661,715	Nov. 13	1248	302	93	1215
Loom for weaving textile fabrics	T. Rowcroft	660,927	Oct. 30	4099	921	93	886
Loom fringe-pulling device	O. Runge	658,961	Oct. 2	436	104	93	88
Loom heddle attachment	T. Rowcroft	660,928	Oct. 30	4100	921 922	93	886
Loom heddle mechanism	J. Dean	659,364	Oct. 9	1131	264	93	245
Loom jacquard mechanism	T. Rowcroft	660,926	Oct. 30	4096	921	93	885
Loom jacquard mechanism	J. C. Bryan	659,205	Oct. 9	888	210	93	199
Loom let-off motion	W. V. Gee	662,717	Nov. 27	3158	747 748	93	1624
Loom. Needle	L. Z. Forgues and A. Lavoie	663,020	Dec. 4	224	47	93	1768
Loom-picker	D. W. Shirreffs	661,083	Nov. 6	103	24	93	971
Loom picker-check	E. M. Keffer	659,072	Oct. 2	637	152	93	137
Loom picker mechanism	F. A. Mills	664,817	Dec. 25	3503	818	93	2310
Loom picker-staff buffer	M. M. Lahue	664,560	Dec. 25	3063	697	93	2401
Loom picking mechanism	W. F. Luther	660,162	Oct. 23	2990	690	93	591
Loom-reed	E. S. Stimpson	664,339	Dec. 18	2641	602	93	2292
Loom shedding-cams. Oil-guard for	L. W. Campbell	659,435	Oct. 9	1266	292	93	273
Loom-shuttle	B. S. Roy	662,741	Nov. 27	3203	758	93	1632
Loom-shuttle-actuating mechanism	H. Wyman	661,752	Nov. 13	1314	320 321	93	1227
Loom. Shuttle-changing	J. P. Maloney	661,665	Nov. 13	1150	264	93	1196
Loom shuttle-check	W. W. Tubby and W. H. Broomhead	663,139	Dec. 4	433	90	93	1808
Loom shuttle-check	R. B. Loynd	659,405	Oct. 9	1201	278	93	260
Loom shuttle-motion	A. B. Edmands	660,986	Oct. 30	4191	942	93	904
Loom shuttle-positioning mechanism	M. L. McGahan	663,660	Dec. 11	1366	302	93	2010
Loom shuttle-threader	C. Whitaker	661,161	Nov. 6	244	59, 60	93	1001
Loom warp stop-motion	J. V. Cunniff and G. O. Draper	664,317	Dec. 18	2597	591 592	93	2283
Loom. Weft-replenishing	C. B. Bennett	660,834	Oct. 30	4049	884	93	856
Looms. Automatic reversing let-off motion for	F. A. Mills	664,816	Dec. 25	3588	817 818	93	2509
Looms. Pneumatic shuttle and picker-staff buffer for	F. Aldrich	664,111	Dec. 18	2216	504	93	2306
Low-water alarm	J. E. McKay	663,128	Dec. 4	406	86	93	1802
Low-water alarm	M. R. Schaffer	664,785	Dec. 25	3520	797	93	2497

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lozenge-cutting machine	F. P. Rosback	660,461	Oct. 23	3261	730 731	93	704
Lubricant for fibers	R. H. Hutchinson	661,473	Nov. 6	802	.....	93	1112
Lubricating apparatus	L. Serpollet	664,180	Dec. 18	2928	531 532	93	2228
Lubricating device for piston-rods	R. E. McCuen and P. J. Gormley	664,491	Dec. 25	2942	670	93	2376
Lubricating system. Pneumatic	E. L. Vandresar and J. L. Pilling	662,838	Nov. 27	3376	799 800	93	1667
Lubricator. See Axle-lubricator. Windmill-lubricator. Cylinder-lubricator.							
Lubricator	E. E. Davis	661,896	Nov. 6	665	155	93	1085
Lubricator	T. A. Delaney and B. T. McCanna	659,166	Oct. 2	788	190 191	93	159
Lubricator	O. O. Kittleson	661,612	Nov. 13	1056	262 263	93	1176
Lubricator	H. F. Loos	659,243	Oct. 9	955	234	93	209
Lubricator	D. R. MacBain	664,170	Dec. 18	2314	527	93	2225
Lubricator	E. McCoy	663,976	Dec. 18	1975	445	93	2157
Lumber-joining machine	A. T. Linderman	661,542	Nov. 13	923	228 229	93	1150
Lumber. Making artificial	J. A. Wheeler	663,056	Dec. 4	280	59	93	1779
Lumber-separating strip	C. Hass	658,913	Oct. 2	339	84	93	69
Lumber-stacking machine	R. Fullerton	658,770	Oct. 2	49	11, 12	93	13
Lunch-box. Folding	J. S. O'Brien	661,767	Nov. 13	1347	326	93	1234
Lunch or other box. Folding	J. J. and E. F. White	661,102	Nov. 6	247	60	93	1001
Lye from the exterior of lye-containing cans. Machine for cleaning	F. Warning	663,142	Dec. 4	438	91, 92	93	1809
Machinery-disconnecting apparatus	A. Maul	663,035	Dec. 4	249	53, 54	93	1773
Magnesia. Making light	W. M. Zitt	663,840	Dec. 11	1724	.....	93	2086
Magnetic circuits. Adjusting reluctance of	E. Thomson	659,716	Oct. 16	1805	407	93	395
Magnetic separation	E. Gates	662,410	Nov. 27	2574	619	93	1512
Magnetic separator	E. Gates	662,411	Nov. 27	2575	619	93	1512
Magnetic separator	E. Gates	662,412	Nov. 27	2577	620	93	1512
Magnetic separator	E. Gates	662,413	Nov. 27	2578	620	93	1512
Magnetic separator	E. Gates	662,414	Nov. 27	2580	620	93	1513
Magnetic separator	E. Kreuser and H. E. Langguth	663,764	Dec. 11	1561	349	93	2049
Magnetic separator	F. Theilengerdes	663,304	Dec. 4	748	160	93	1868
Magnetic signal	C. H. North	660,819	Oct. 30	3909	878	93	847
Magneto-electric generator	C. H. North	660,820	Oct. 30	3912	878	93	848
Magneto-electric machine	F. R. Simms and R. Bosch	662,316	Nov. 20	2373	571 572	93	1451
Mail-bag catcher and deliverer	S. G. Preston and I. F. J. McKinster	663,122	Oct. 23	2614	584	93	575
Mail-bag catcher and deliverer and railway appliance therefor.	L. D. Jobes	664,271	Dec. 18	2508	570	93	2266
Mail-bag gripping and delivering apparatus	S. R. Patten	659,098	Oct. 2	682	162 163	93	158
Mail-bag lock	W. R. Gordon	663,268	Dec. 4	683	147	93	1835
Mail bag or pouch	J. B. May	662,953	Dec. 4	102	21	93	1745
Mail-bags upon moving trains. Means for handling	A. O. Cravener	661,394	Nov. 6	660	154	93	1084
Mail-box	W. J. Weaver	661,361	Nov. 6	609	142	93	1073
Mail-box. Package	A. C. Chase	664,531	Dec. 25	3011	685	93	2390
Mail-catcher	C. C. Coleman	661,850	Nov. 13	1483	361	93	1259
Mail-crane hook	N. McQueen	663,237	Dec. 4	629	135	93	1844
Mail-marking machine	M. J. Shea	659,769	Oct. 16	1918	431 432	93	410
Mail-pouch catcher and deliverer	C. Holstein and H. H. Sieh	661,314	Nov. 6	594	122	93	1055
Mail-pouch closure and fastening	G. Gavin and W. E. Griffin	659,796	Oct. 16	1979	443	93	428
Mail receiving and delivering apparatus	A. L. Henry	660,773	Oct. 30	3894	857	93	880
Mail receiving and delivering apparatus	A. L. Henry	661,146	Nov. 6	222	54	93	997
Mailing device	E. H. Callahan	659,788	Oct. 16	1956	439	93	423
Mailing-tube	E. J. Spink	661,747	Nov. 13	1306	318	93	1225
Mains and means for forming same. Branch connection for water-	H. H. Burritt	660,526	Oct. 23	3890	761 762	93	729
Mains Method of and means for forming branch connections with water-	H. H. Burritt	660,525	Oct. 23	3887	761	93	729
Mallet	G. B. Goddard	662,091	Nov. 27	3108	738	93	1616
Malting and drying apparatus	F. H. C. Mey	658,957	Oct. 2	428	102 103	93	87
Malting-drum	J. F. Dornfeld	662,398	Nov. 27	2537	614	93	1504
Mandrel	J. and W. R. Thomas	662,835	Nov. 27	3371	798	93	1666
Mane comb and brush. Combined	C. Hub, born Hahn	659,172	Oct. 2	802	194	93	162
Mangle	L. J. Lindbeck	660,301	Oct. 23	2982	602	93	650
Mantle-support	J. Loeb	663,127	Dec. 4	405	86	93	1802
Mantle-support	G. O. Miller	660,330	Oct. 23	3046	676	93	662
Mantles. Manufacture of	O. Wiederhold	662,481	Nov. 27	2720	.....	93	1644
Manual-training and industrial apparatus	J. E. Kelly	660,641	Oct. 30	3587	804 805	93	785
Manuscript-holder	J. S. Downie	659,056	Oct. 2	608	147	93	122
Map	J. R. Cavanagh	660,071	Oct. 16	2502	560	93	582
Map, chart, &c. Topographic	M. C. Krarup	662,947	Dec. 4	86	20	93	1743
Maps. Apparatus for covering irregular surfaces, such as relief-	F. J. Burgi	661,205	Nov. 6	319	78	93	1016
Marine motor	A. T. Otto	663,185	Dec. 4	522	111	93	1825
Marker-holder	H. Richter	661,076	Nov. 6	89	21	93	908
Marker. Stock-	A. F. Callison and W. S. Bing	661,598	Nov. 13	1034	258	93	1173
Masher and strainer. Culinary	R. F. Hayes	659,969	Oct. 16	2298	516	93	492
Massage apparatus	B. F. Hutches, Jr	659,674	Oct. 16	1716	387	93	377
Massage apparatus	F. L. Ungethüm	658,908	Oct. 2	327	81	93	66
Massage-chair	J. M. Johnston and O. Vanorman	663,969	Dec. 18	1965	442	93	2155
Mat-cutter	C. C. Durkel	660,211	Oct. 23	2802	621	93	613
Match-box	B. vom Elgen	660,848	Oct. 30	3978	890	93	861
Match-box	L. C. Fay	664,735	Dec. 25	3412	775	93	2475
Match-box	G. R. Odean	664,576	Dec. 25	3110	706	93	2411
Match-box and cigar-tip cutter. Combined	F. McIntyre	661,667	Nov. 13	1158	285	93	1198
Match composition	J. Craverl	660,366	Oct. 23	3109	.....	93	674

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Match composition	S. A. Rosenthal	663,045	Dec. 4	264	------	93	1776
Match-dipping machine	C. J. Anderson and G. Everson	660,067	Oct. 23	2533	568	93	559
Match-igniting composition	J. Craveri	660,365	Oct. 23	3106	------	93	674
Match-machine	W. F. Hutchinson	664,642	Dec. 25	3231	732, 733	93	2437
Match-machines. Composition-applying mechanism for	W. N. Palmer	662,297	Nov. 20	2335	564	93	1446
Match. Safety	C. Haslwanter, Jr	664,609	Dec. 25	3182	------	93	2426
Match-strip. Flexible	F. A. Rathbun	661,156	Nov. 6	239	58	93	1000
Matches. Machine for making wax	J. C. Donnelly	658,764	Oct. 2	32	6,7	93	10
Matches. Manufacturing	A. Pfister	662,814	Nov. 27	3324	784	93	1056
Matrix or die setting machines. Distributing apparatus for	E. Wentscher	664,698	Dec. 25	3330	757	93	2457
Mattress-machine	G. F. Martin	661,063	Nov. 6	62	15	93	962
Mattress or cushion. Air	A. H. Sawtell	660,466	Oct. 23	3274	733	93	707
Maximum-demand meter	E. Oxley	663,461	Dec. 11	1038	227	93	1946
Meal-cake-forming machine	A. Jones	658,987	Oct. 2	481	116	93	97
Measure. Computing	C. E. and J. G. Harrington	662,533	Nov. 27	2820	669, 670	93	1561
Measure. Dress-cutting	V. H. Goff	662,620	Nov. 27	2965	704	93	1589
Measure. Tailor's tape	H. D. and W. I. Kirk	661,537	Nov. 13	916	226	93	1149
Measurements. Instrument for determining	C. F. Schmelz	662,977	Dec. 4	138	29	93	1751
Measuring and mixing apparatus. Liquid	H. G. Irmiger and J. McCarthy	659,066	Oct. 2	622	150	93	125
Measuring and registering apparatus	G. W. Johnson	664,272	Dec. 18	2511	570, 571	93	2267
Measuring can. Oil or gasolene	F. B. Hinkelbein	662,273	Nov. 20	2293	552	93	1438
Measuring device. Automatic	A. S. Collins	664,349	Dec. 18	2668	607	93	2297
Measuring-gage	L. S. Starrett	661,562	Nov. 13	961	238	93	1157
Measuring instrument	F. E. King	664,276	Dec. 18	2524	573	93	2269
Measuring instrument	F. Schrottke	660,803	Oct. 30	3878	872	93	840
Measuring instrument. Electrical	F. A. La Roche	661,127	Nov. 6	187	47	93	990
Measuring instrument for alternating currents	K. O. F. Schrottke	660,804	Oct. 30	3880	873	93	841
Measuring textiles and recording sales, &c. Apparatus for	E. Sauermilch	662,153	Nov. 20	2068	501, 502, 503	93	1392
Meat extracts. Preparing	S. Bergheim	658,887	Oct. 2	298	------	93	62
Meat-flattener	F. Cowin	661,792	Nov. 13	1393	335, 336	93	1242
Meats. Preserving	F. W. Bright. (Reissue)	11,875	Dec. 4	922	200	93	1901
Mechanical brake	J. H. Greenwood	662,531	Nov. 27	2819	669	93	1561
Mechanical motion	F. Lambert	660,860	Oct. 30	3991	893	93	863
Mechanical movement	E. Cherry	659,810	Oct. 16	2001	448	93	432
Mechanical movement	P. Duchscher	662,061	Nov. 20	1902	456, 457	93	1360
Mechanical movement	C. E. Hazelhurst	661,693	Nov. 13	1207	293	93	1207
Mechanical movement	W. K. Hodgman	664,151	Dec. 18	2287	521	93	2220
Mechanical movement	F. M. Mossman	661,417	Nov. 6	699	161, 162	93	1091
Mechanical movement	E. T. Stewart	659,993	Oct. 16	2334	525	93	500
Mechanical movement	F. Berlioz	664,378	Dec. 25	2716	------	93	2333
Medical use. Serum preparation for	H. F. Crawford	662,223	Nov. 20	2221	535	93	1423
Medicinal boot or shoe	W. O. Bloom	662,588	Nov. 27	2915	692	93	1579
Medicines. Device for measuring and administering	A. Piat	662,019	Nov. 20	1808	436	93	1343
Melting-furnace	H. Hake	661,977	Nov. 20	1734	418	93	1328
Memorandum-blanks or the like. Holder for	A. Kertesz	664,275	Dec. 18	2522	572, 573	93	2269
Mercerizing-machine	F. and C. Shuman	661,649	Nov. 13	1122	278, 279	93	1190
Mercerizing-machine	C. L. Weichelt	659,721	Oct. 16	1814	408, 409	93	397
Mercerizing-machine	E. P. Schmitt	660,168	Oct. 23	2712	603, 604	93	595
Merry-go-round	I. von Lipowska and G. von Geldern-Egmond zu Argen.	662,567	Nov. 27	2878	682, 683	93	1572
Metal bearing-plate	F. Nusser	661,618	Nov. 13	1064	265	93	1178
Metal-beating machine. Leaf	W. E. S. Strong	660,664	Oct. 30	3934	816	93	794
Metal-bending machine	J. N. Gibson	660,505	Oct. 23	3346	752	93	722
Metal bending or curving machine	H. R. Boissier	660,884	Oct. 30	4033	903, 904	93	872
Metal-depositing apparatus	A. Mauser	663,351	Dec. 4	822	175, 176	93	1881
Metal fabric	A. R. Piper	663,392	Dec. 4	897	194	93	1896
Metal jar. Seamless	E. S. Bradford	664,379	Dec. 25	2717	616, 617	93	2334
Metal. Machine for making expanded	G. A. Turnbull	664,193	Dec. 18	2360	538, 539	93	2235
Metal. Machine for making expanded	C. Huber	664,045	Dec. 18	2094	478	93	2180
Metal objects by fluid-pressure. Shaping and embossing	W. A. Day	663,624	Dec. 11	1308	289	93	1998
Metal ornamentation	R. W. Bayley	661,631	Nov. 13	1090	270, 271	93	1184
Metal-rod-severing machine	J. F. Budke	663,156	Dec. 4	473	100	93	1815
Metal sheets. Straightening	C. S. Morse	662,542	Nov. 27	2933	673	93	1563
Metal shells. Device for cutting tubular	C. Huber	662,791	Nov. 27	3294	777	93	1650
Metal surfaces by means of fluid-pressure. Uniting	F. P. Manning	664,421	Dec. 25	2810	637	93	2351
Metal tank	F. W. Bühne	662,392	Nov. 27	2520	608	93	1501
Metal wool. Making	G. S. Merrill	664,091	Dec. 18	2172	496	93	2197
Metal. Working	E. Ehrensberger	660,846	Oct. 30	3972	------	93	598
Metals. Deoxidating	A. Nettl	661,188	Nov. 6	259	69, 70	93	1010
Metals from their combinations. Separating	C. L. Leiby	661,406	Nov. 6	682	------	93	1088
Metals. Hardening, purifying, and toughening	W. H. Smyth	659,380	Oct. 9	1158	269, 270	93	250
Metals. Means for applying fluid	C. L. Leiby	661,407	Nov. 6	682	------	93	1088
Metals weldable and malleable. Making	C. L. Leiby	661,807	Nov. 13	1419	------	93	1247
Metals weldable and malleable. Making	G. W. Charles	663,415	Dec. 11	957	207	93	1930
Metallic can							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Metallic flexible joint	J. C. and J. C. Martin, Jr	661,377	Nov. 6	633	147	93	1078
Metallic tie	H. M. Muntz	660,866	Oct. 30	4008	897	93	866
Metallurgical furnace	W. Swindell	659,941	Oct. 16	2234	501	93	478
Meter: *See* Electric meter. Rotary meter. Electricity-meter. Water-meter. Gas-meter. Maximum-demand meter.	H. and E. Erdmann	658,769	Oct. 2	49	------	93	13
Methyl ether of anthranilic acid and making same	O. Bonhoeffer and H. Dreser	659,202	Oct. 9	886	------	93	196
Methylpropylcarbinolurethane and making same	A. A. Brandt	664,120	Dec. 18	2235	508, 509	93	2209
Micrometer-gage	E. C. Clapp	664,211	Dec. 18	2393	546	93	2244
Micrometer-gage	J. Boulet	659,048	Oct. 2	593	144	93	119
Micrometer-indicator	H. Brooker and A. J. Baxter	659,570	Oct. 9	1517	344	93	321
Micrometer or similar gage	R. L. Fuerle	660,872	Oct. 23	3117	690	93	676
Microscope	H. Zirngibl	663,649	Dec. 11	1847	408	93	2006
Microscope	H. Zirngibl	663,650	Dec. 11	1349	298, 299	93	2006
Microtome	A. Becker	664,118	Dec. 18	2229	507	93	2209
Milk and cream separator	P. C. Smith	659,494	Oct. 9	1383	315	93	296
Milk-can	J. German	661,862	Nov. 13	1505	364	93	1203
Milk-cooler	C. Huntsman	661,762	Nov. 13	1331	324	93	1231
Milk-cooling apparatus	J. A. Myers	659,375	Oct. 9	1150	268	93	249
Milker. Cow	R. D. Roth	663,930	Dec. 18	1897	426	93	2141
Mill: *See* Coffee-mill. Sawmill. Grinding-mill. Stamp-mill. Rolling-mill. Windmill.	M. Martin	664,331	Dec. 18	2021	506	93	2288
Mills, factories, &c. Protective appliance for	F. A. Burnham	661,492	Nov. 13	837	201	93	1133
Milling-machine	F. Holz	658,777	Oct. 2	62	15, 16, 17	93	16
Milling-machine	G. Richards	660,200	Oct. 23	2776	617	93	606
Mine shafts or tunnels. Awning for	B. B. Wheeler	663,316	Dec. 4	766	163	93	1871
Miner's separating-pan	A. J. Ketelsen	659,237	Oct. 9	946	223	93	207
Mining-elevator	R. Lee	662,731	Nov. 27	3184	753, 754	93	1629
Mining-machine	J. Herzler, H. Henninger, and W. Fenner.	660,434	Oct. 23	3222	718	93	697
Mining-machine	E. O'Toole	659,984	Oct. 16	2318	521, 522	93	497
Mining-machines. Cutting-chain for	H. H. Mercer	659,348	Oct. 9	1103	259	93	239
Mining or placer machine. Gold	C. Barwick	663,717	Dec. 11	1481	328	93	2032
Minerals and slimes. Device for collecting finely-divided	W. E. Darrow	660,844	Oct. 30	3965	888	93	858
Mirror	J. B. Williamson	664,305	Dec. 18	2094	612	93	2303
Mirror attachment	W. H. H. Wright	664,522	Dec. 25	2907	683	93	2387
Mirror attachment. Bureau	M. B. Horton	661,051	Nov. 6	44	10	93	959
Miter-box	J. H. Coy	661,444	Nov. 6	746	174, 175	93	1101
Miter-machine	C. W. Dehn	659,213	Oct. 9	909	213	93	200
Mixer: *See* Concrete-mixer. Dough-mixer.	C. G. Schmidt	662,978	Dec. 4	140	30	93	1751
Mixing-machine	C. P. Smith	659,109	Oct. 2	699	167	93	142
Moistener and liquid-distributer	R. B. Kirkwood	663,501	Dec. 11	1103	242	93	1959
Moistener. Envelop	H. B. Dalton	662,892	Nov. 27	3354	834	93	1709
Moistening device	T. J. Houtman	664,155	Dec. 18	2268	522	93	2221
Moistening device	C. L. Jenne	662,196	Nov. 20	2160	521	93	1412
Moistening stamps, envelops, &c. Utensil for	C. F. Haglin	662,266	Nov. 20	2283	548, 549	93	1436
Mold: *See* Ring-mold. Ring-casting mold.	W. H. Ford	663,019	Dec. 4	220	47	93	1768
Mold	R. F. Ludlow	663,548	Dec. 11	1188	257	93	1974
Mold-cutter	W. Möbus	663,773	Dec. 11	1576	332, 333	93	2052
Mold having compressible core	J. H. B. Bryan	658,973	Oct. 2	457	108, 109	93	92
Mold-making machine	J. H. B. Bryan	660,289	Oct. 23	2951	657	93	643
Molds. Apparatus for drawing patterns from	W. H. Ford	663,018	Dec. 4	216	47	93	1767
Molds. Apparatus for drawing patterns from	R. B. Haskins and G. Fisher	659,444	Oct. 9	1287	296	93	277
Molds for rings, &c. Apparatus for making	G. W. Packer	664,426	Dec. 25	2817	639	93	2353
Molder's chaplet or anchor	G. Weiss	659,618	Oct. 9	1591	360, 361	93	337
Molding-machine	W. Zoeller	661,571	Nov. 13	978	242, 243, 244, 245	93	1161
Molding-machine	J. A. Boughton	661,256	Nov. 6	420	98	93	1085
Molding-sand. Machinery for treating	J. H. Gray	658,910	Oct. 2	335	88	93	69
Money-tray	J. R. Froberg	659,918	Oct. 16	2192	404	93	470
Mop-head	G. W. Finch	661,980	Nov. 13	1628	394	93	1286
Mop-wringer	E. J. Peck	659,256	Oct. 9	975	229	93	213
Mop-wringer	L. W. Richardson	660,201	Oct. 23	2780	618	93	609
Mop-wringer	D. M. Rogerson	663,102	Dec 4	862	74, 75	93	1798
Mop-wringer	A. Fährmann	661,859	Nov. 13	1500	------	93	1262
Mordant	D. W. McGrath	662,173	Nov. 20	2111	510	93	1402
Mortar-mixing machine	G. F. Andrews	661,135	Nov. 6	199	50	93	902
Mortising-machine	W. Black	662,390	Nov. 27	2517	607	93	1500
Mortising-machine	E. F. Meyer	664,225	Dec. 18	2416	551	93	2248
Mortising-machine	E. B. Chapman	664,382	Dec. 25	2723	618	93	2335
Motion. Device for converting vibratory into rotary	G. A. Ryd	664,028	Dec. 18	2074	471, 472	93	2176
Motion. Device for imparting rotary							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Motion. Means for transmitting	C. A. Lieb	659,079	Oct. 2	655	156	93	131
Motion to distant points. Means for transmitting	D. P. Thomson	664,594	Dec. 25	3152	715	93	2421
Motion-transmitter	J. C. Walker	662,611	Nov. 27	2951	701	93	1586
Motive-fluid drill	H. H. Vaughan	663,799	Dec. 11	1640	368	93	2066
Motor: *See* Automobile steam-motor. Churn-motor. Current-motor. Electric motor. Fluid-motor. Fluid-pressure motor. Gas-motor. Hydraulic motor. Induction-motor. Marine motor. Petroleum-motor. Rotary motor. Rotary explosive-motor. Rotary-piston motor. Saw-motor. Spring-motor. Steam-motor. Vehicle-motor. Water-motor. Wave-motor. Weight-motor. Wind-motor.							
Motor-compressor cooling means	J. T. Nicolson	660,997	Oct. 30	4213	947	93	908
Motor-control system	A. H. Armstrong	663,951	Dec. 18	1929	434 / 435	93	2148
Motor-control system	A. S. Garfield	660,502	Oct. 23	3338	749	93	719
Motor-controlling brake	A. C. Eastwood	660,054	Oct. 16	2439	550	93	519
Motor-controlling device	E. N. Dickerson	661,577	Nov. 13	907	248	93	1165
Motor-switch	H. Geisenhöner	664,080	Dec. 18	2151	491 / 492	93	2192
Motors. Regulating	F. J. Sprague	660,066	Oct. 16	2405	559	93	531
Mount for natural-history specimens	O. Strümpell	660,782	Oct. 30	3839	862	93	833
Mower	O. L. Ervin	660,153	Oct. 23	2671	596	93	587
Mower attachment. Lawn-	L. W. Pelletreau	660,455	Oct. 23	3254	727 / 728	93	702
Mower grass-catcher. Lawn-	M. Robacker	661,290	Nov. 6	363	86	93	1025
Mower. Lawn-	G. P. Kahler	661,914	Nov. 13	1595	386	93	1280
Mower. Lawn-	C. A. Sellstrom	661,061	Nov. 6	98	24	93	970
Mower. Lawn-	J. F. Stanley	661,748	Nov. 13	1307	318	93	1225
Mower. Lawn-	C. Whitney	660,607	Oct. 30	3521	791	93	773
Mowing and reaping machine	J. I. Newburg	663,356	Dec. 4	828	177	93	1882
Mowing-machine	D. M. Jennings, J. L. Henry, and S. A. Fretwell.	662,442	Nov. 27	2647	632	93	1527
Mowing-machine attachment	M. Kane	663,443	Dec. 11	1005	220	93	1940
Mowing-machine finger-bar	J. F. Steward	660,597	Oct. 30	3507	787	93	770
Mowing-machine hinge-joint	J. McGough	662,084	Nov. 20	1947	467	93	1368
Mowing or grain-cutting machine	E. S. Raff	663,682	Dec. 11	1416	313	93	2019
Mucilage or paste holding stand	H. C. Thamsen	659,834	Oct. 16	2034	456	93	439
Muffler	C. E. Stewart	658,878	Oct. 2	285	70	93	59
Music, books, &c. Rack or support for	S. B. Turner	658,902	Oct. 2	324	80, 81	93	66
Music-chart. Mechanical	S. B. Turner	659,113	Oct. 2	704	168 / 169	93	143
Music-holder	C. E. Ely	661,240	Nov. 6	387	91	93	1029
Music-leaf turner	F. J. Christ	661,791	Nov. 13	1391	335	93	1242
Music-leaf turner	J. M. Duplante	660,630	Oct. 30	3564	800	93	780
Music-leaf turner	R. Hammond	660,428	Oct. 23	3210	715	93	694
Music-leaf turner	R. J. Ross	661,895	Nov. 13	1502	379	93	1273
Music-leaf turner	C. M. Wood, W. J. Blair, and J. A. Webster.	664,204	Dec. 18	2384	543	93	2242
Music-leaf-turner support	S. W. Hornbeck	662,235	Nov. 20	2240	539	93	1427
Music notation	G. L. Peterson	663,518	Dec. 11	1137	246	93	1964
Music-sheet turner	J. B. Williamson and H. L. Means	660,980	Oct. 30	4182	940	93	903
Music-sheets. Automatic device for engaging ends of traveling	R. J. Bennett	664,604	Dec. 25	3173	718	93	2424
Musical box	G. Varrelman and C. M. Fels	661,005	Oct. 30	4232	950 / 951	93	912
Musical chart	G. H. Brock	663,722	Dec. 11	1488	329	93	2033
Musical instrument	C. E. Brown	659,014	Oct. 2	538	131	93	108
Musical instrument	C. Hogrebe	661,312	Nov. 6	521	120 / 121	93	1055
Musical instrument	F. Isbell	663,440	Dec. 11	1001	218 / 219	93	1989
Musical instrument	W. W. McCallip	659,756	Oct. 16	1895	427	93	411
Musical instrument	W. W. McCallip	659,757	Oct. 16	1896	427	93	411
Musical instrument	E. A. Tapley	659,330	Oct. 9	1082	255	93	234
Musical instrument. Automatic mechanical	G. A. Brachhausen	661,466	Nov. 6	784	187 / 188	93	1109
Musical instrument. Pneumatically-operated	M. Clark	660,560	Oct. 30	3450	774	93	760
Musical instrument. Self-playing	J. O'Connor	661,920	Nov. 13	1605	389 / 390	93	1282
Musical-instrument tone-finder. Stringed	C. E. Ropp	663,187	Dec. 4	526	112	93	1825
Musical-instrument tone-modulating device	E. Klaber	660,381	Oct. 23	3132	693	93	679
Musical instruments, &c. Air motor or pump for automatic	R. A. Gally	661,860	Nov. 13	1501	363	93	1262
Musical instruments. Pneumatic-regulator for	W. B. Fleming	659,442	Oct. 9	1282	295 / 296	93	277
Musical-note building-blocks	J. C. Stocks	663,477	Dec. 11	1061	232	93	1951
Mustache-guard	D. B. Hubbard	662,120	Nov. 20	2012	485	93	1380
Muzzle	J. C. Todd	663,108	Dec. 4	371	78	93	1795
Muzzle	T. B. White	664,800	Dec. 25	3535	808	93	2504
Nail: *See* Covered nail.							
Nail	J. G. McGaughey	660,967	Oct. 30	4167	936	93	899
Nail-extractor	L. Maurice	658,956	Oct. 2	427	102	93	87
Nailing-machine. Hand	E. F. Grandy	662,898	Nov. 27	3567	896	93	1712
Napkin-holder	J. W Ensley	663,874	Dec. 18	1784	400	93	2118
Napkin-holder	C. H. Pratt	659,258	Oct. 9	977	229	93	213
Napkin ring and holder. Combined	C. F. Brown and J. J. Calhoun	663,257	Dec. 4	667	143	93	1851
Napping-machine	R. C. Borchers	662,589	Nov. 27	2916	692 / 693	93	1579
Neckband-shaper	A. E. Grant	660,104	Oct. 23	2571	575	93	567

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Necktie-fastener	C. Reynolds	663,197	Dec. 4	541	116	93	1828
Necktie-holder	C. E. Senna	658,965	Oct. 2	441	105	93	90
Necktie-holder and collar and cuff fastener. Combined	W. D. Redington	661,425	Nov. 6	715	165	93	1095
Necktie-retainer	J. C. Watson	660,133	Oct. 23	2642	590	93	582
Necktie-retainer	T. S. Wolf	663,319	Dec. 4	771	165	93	1872
Needle-holder	C. Truax	662,178	Nov. 20	2120	511 / 512	93	1404
Nest trap attachment	J. J. Walsh	658,933	Oct. 2	389	95	93	80
Nipple-wrench	W. Earl	664,244	Dec. 18	2446	557	93	2254
Nitrobenzaldehyde. Making	H. S. A. Holt	661,872	Nov. 13	1522	.....	93	1266
Nitro toluylic aldehyde	J. Koetschet	662,074	Nov. 20	1957	.....	93	1365
Nitro toluylic aldehyde	J. Koetschet	662,075	Nov. 20	1958	.....	93	1365
Nitroso bases stable. Rendering	A. Ammelburg	664,709	Dec. 25	3350	.....	93	2462
Noodle or dumpling cutting device	C. A. Denney and U. G. Slivers	663,222	Dec. 4	586	126	93	1836
Nose-gage	A. M. Frankel	663,165	Dec. 4	488	104	93	1818
Nozzle. Exhaust-	E. Deatherage	659,791	Oct. 16	1963	440	93	425
Nozzle for oil or other bottles	L. M. Cabana	664,461	Dec. 25	2891	659	93	2366
Nozzle. Hydraulic	W. A. Doble	659,794	Oct. 16	1974	448	93	427
Nozzle. Hydraulic regulating-	W. A. Doble	660,789	Oct. 30	3855	866	93	835
Nozzle reducing-cap	G. J. Carlisle	660,948	Oct. 30	4139	930	93	894
Nozzle tip. Exhaust-	F. W. and H. L. Shupert	664,208	Dec. 18	2502	582	93	2277
Numbering-machine. Typographic	E. G. Bates and C. Spielmann	661,437	Nov. 6	734	172	93	1099
Nut and bolt lock	E. C. Guerrant	659,744	Oct. 16	1871	422	93	407
Nut-cracker	E. P. Sedgwick	660,033	Oct. 16	2404	541	93	512
Nut-cracker	G. L. Thompson	660,762	Oct. 30	3801	854	93	827
Nut-cracker	G. L. Thompson	660,763	Oct. 30	3802	854	93	827
Nut-cracker	C. C. Tombs	660,806	Oct. 30	3885	873	93	842
Nut for vehicle-axles. Lock-	W. Belfield	661,255	Nov. 6	419	98	93	1035
Nut. Lock-	A. V. Bryce	661,655	Nov. 13	1135	281	93	1198
Nut-lock	M. M. Bosworth	662,343	Nov. 20	2420	585	93	1465
Nut-lock	W. H. Carruthers	659,466	Oct. 9	1325	308	93	285
Nut-lock	J. L. Doelp	659,215	Oct. 9	912	213	93	201
Nut-lock	W. N. Keen	662,274	Nov. 20	2294	552	93	1438
Nut-lock	J. A. Peer and W. E. Protzman	662,811	Nov. 27	3321	784	93	1655
Nut-lock	E. R. Post and E. S. Grise	660,457	Oct. 23	3256	728	93	703
Nut-lock	R. M. Reade	662,023	Nov. 20	1822	438	93	1344
Nut-lock	L. C. Shammo	660,594	Oct. 30	3503	786	93	769
Nut-lock	E. A. Shuff	661,558	Nov. 13	955	237	93	1156
Nut-lock	W. W. Spencer	661,923	Nov. 13	1614	391	93	1284
Nut-lock	N. Stafford	659,001	Oct. 2	511	123	93	102
Nut-locking device	J. E. Lenhult	661,059	Nov. 6	57	13	93	962
Nut-locking device	J. E. Lenhult	661,060	Nov. 6	59	13	93	962
Nut-making machine	G. Dunham	658,981	Oct. 2	468	112 / 113	93	94
Nut or pipe wrench	W. S. Armstrong	662,901	Dec. 4	1	1	93	1727
Nut. Sectional	W. C. Wrensch	663,208	Dec. 4	561	120	93	1832
Nut-tapping machine	A. H. Riggs	662,965	Dec. 4	118	25	93	1747
Nuts. Bleaching	D. Farrell	663,069	Dec. 4	800	.....	93	1782
Oar and rowlock connection	A. H. Eldredge	662,227	Nov. 20	2227	536	93	1424
Oat-grader	F. E. Walsh	660,232	Oct. 23	2832	628	93	619
Objective	E. Bausch	660,747	Oct. 30	3777	850	93	822
Office indicator and register	A. R. Verdier	661,678	Nov. 13	1182	288 / 289	93	1203
Offset device	O. Roesen	660,712	Oct. 30	3720	837	93	810
Oil and glue. Extracting	E. R. Edson	662,406	Nov. 27	2565	617	93	1510
Oil and making same. Solidified mineral	J. A. Just	658,988	Oct. 2	483	.....	93	97
Oil-cake-forming apparatus	E. C. Bisbee	660,718	Oct. 30	3780	839 / 841	93	812
Oil-can	T. W. Alexander	663,712	Dec. 11	1471	326	93	2030
Oil-can	D. E. McDonald	664,063	Dec. 18	2177	497	93	2198
Oil-can	C. Nordhaugen	661,669	Dec. 25	3278	745	93	2447
Oil can and measurer. Combined	P. Mordan and M. Roehr	661,380	Nov. 6	630	149	93	1079
Oil-can. Lamp-filling	A. Kitterman	659,977	Oct. 16	2310	519	93	495
Oil-cup	D. E. Smith	659,159	Oct. 2	775	187	93	156
Oil-cup	M. J. Zahniser	662,051	Nov. 20	1887	453	93	1357
Oil. Desulfurizing petroleum-	T. McGowan	658,857	Oct. 2	260	64	93	51
Oil-engine	J. Day	661,566	Nov. 13	1035	258	93	1173
Oil. Extracting	E. R. Edson	662,404	Nov. 27	2556	616	93	1509
Oil. Extracting	N. B. Gregg	658,948	Oct. 2	416	100	93	85
Oil. Extracting	E. Maertens	660,757	Oct. 30	3789	852	93	821
Oil. Extracting	E. Maertens	660,758	Oct. 30	3793	853	93	825
Oil-extracting apparatus	A. N. Ford. (Reissue)	11,862	Oct. 9	1644	.....	93	347
Oil fabrics. Making	E. Richardson	661,323	Nov. 6	541	125	93	1059
Oil-feeding mechanism	A. Hesse	658,846	Oct. 2	242	.....	93	51
Oil of jasmin. Artificial	M. B. Hill	664,319	Dec. 18	2603	592	93	2285
Oil-stone	B. F. D. Miller	664,288	Dec. 18	2586	576	93	2272
Oil tank and pump	E. Armstrong	663,407	Dec. 11	942	204	93	1928
Oiler. Car-journal	J. H. Woodard	661,925	Nov. 13	1619	392	93	1285
Oiler for elevator-guides. Traveling	V. H. Ernst	660,894	Oct. 30	4015	906	93	874
Oiling device	J. C. W. Stanley	659,265	Oct. 9	988	232	93	215
Oleaginous meal. Apparatus for heating and dampening	J. M. McCauley	659,152	Oct. 2	762	184	93	154
Open-switch detector	W. B. Wheeler	664,343	Dec. 18	2652	603	93	2291
Opera-glass. Coin-operated	M. E. Scannell	658,999	Oct. 2	508	122 / 123	93	102
Operating-table	J. T. Shipley	661,232	Nov. 6	367	87	93	1026
Ordnance and projectiles. Manufacture of	J. A. Potter	660,221	Oct. 23	2817	625	93	616
Ordnance. Perforated powder rod for	E. Gathmann	660,568	Oct. 30	3465	777	93	762
Ordnance-sight	H. Korrodi	661,269	Nov. 6	444	102	93	1040
Ore-concentrator	A. H. Stebbins	661,086	Nov. 6	100	25	93	971
Ore friable. Bath for rendering	K. Miller	664,488	Dec 25	2938	.....	93	2375
Ore-leaching apparatus	J. A. Fleming	660,498	Oct. 23	3332	747 / 748	93	718
Ore-leaching apparatus	J. A. Fleming	660,499	Oct. 23	3334	748	93	718
Ore-mixing machine	J. P. Schuch, Jr	664,059	Dec. 18	2115	483	93	2185

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ore-roasting furnace	F. W. Holtman	664,153	Dec. 18	2291	522	93	2221
Ore-roasting hearth	G. Clary and G. W. Garrison	660,982	Oct. 30	4186	940, 941	93	903
Ore-separator	W. J. and W. H. Goyne	658,947	Oct. 2	414	99	93	84
Ore-separator	A. C. Hartung	664,635	Dec. 25	3218	730, 731	93	2434
Ore-separator	A. R. MacDonald, Jr	664,768	Dec. 25	3494	791, 792	93	2491
Ore-separator	J. B. Moore	658,921	Oct. 2	354	87	93	72
Ore-separator	J. P. Smith	660,342	Oct. 23	3069	681	93	667
Ore-separator. Electromagnetic	E. Kreuser	664,650	Dec. 25	3243	736	93	2439
Ore-separator. Magnetic	A. Johnson	663,760	Dec. 11	1554	347, 348	93	2047
Ore washer and separator	E. W. Eaton	659,813	Oct. 16	2004	449	93	433
Ores or disintegrated materials. Mechanism for sizing and segregating	C. E. Seymour and H. S. Morey	658,807	Oct. 2	143	35	93	32
Ores. Treating	H. Luckenbach	663,914	Dec. 18	1868	------	93	2136
Ores. Treating refractory	J. C. Teller	660,173	Oct. 23	2724	606	93	598
Ores. Treating telluride	C. J. Head and R. C. Wild	659,670	Oct. 16	1711	------	93	377
Ores. Treating telluride	C. J. Head and R. C. Wild	660,013	Oct. 16	2366	------	93	507
Ores, &c. Washer and concentrator for	H. T. and C. A. Spring	658,813	Oct. 2	160	38, 39	93	36
Organ. Pneumatic	M. Clark	659,210	Oct. 9	902	212	93	199
Oven	J. L. Starks	662,175	Nov. 20	2113	510	93	1402
Oven. Bake-	J. Bour	660,695	Oct. 30	3091	880, 881	93	804
Oven. Bake-	W. Clauss	662,221	Nov. 20	2218	534, 535	93	1422
Oven. Bake-	J. I. Marshall and J. Faulds	662,874	Nov. 27	3524	825, 826	93	1703
Oven. Baking or roasting	H. C. Goodrich	658,840	Oct. 2	226	56	93	48
Oven-shelf	E. C. Macartney	663,286	Dec. 4	715	154	93	1861
Overflow-alarm device	A. Fasig	660,269	Oct. 23	2926	650	93	698
Oxalates. Making	M. Goldschmidt	659,733	Oct. 16	1838	------	93	402
Package	F. A. Bartelmez	660,141	Oct. 23	2654	592	93	584
Package	F. Knobeloch	659,931	Oct. 16	2219	498	93	475
Package-filling carrier	G. R. Wyman	660,537	Oct. 23	3411	766	93	733
Package-filling machine	J. H. Wyckoff	661,679	Nov. 13	1185	269	93	1204
Package for containing whisky, &c	L. C. Strauss	659,359	Oct. 9	1079	254	93	234
Packet. Folded and sealed	L. C. Crowell	659,957	Oct. 16	2274	510	93	487
Packing	C. H. Miller	664,487	Dec. 25	2937	669	93	2375
Packing-bag	R. Thompson	662,000	Nov. 20	1780	428	93	1337
Packing-box	L. Single	661,329	Nov. 6	548	126	93	1061
Packing-box. Steam-joint	E. A. Galbraith	663,587	Dec. 11	1241	273	93	1965
Packing-case	I. L. Hauser	662,190	Nov. 20	2149	519	93	1410
Packing-case	F. G. Mix	664,084	Dec. 18	2158	493	93	2194
Packing-case	J. Pettibone	661,701	Nov. 13	1222	296	93	1210
Packing-case for tableware	J. Walker	664,287	Dec. 18	2542	577	93	2273
Packing. Gland-	T. L. Camp	660,523	Oct. 23	3384	760	93	729
Packing-machine	W. H. Prendergast	660,086	Oct. 16	2526	566, 567	93	537
Packing. Metallic	R. Y. Lane	661,384	Nov. 6	647	151	93	1061
Packing. Metallic rod-	C. F. Rigby	661,664	Nov. 13	1149	284	93	1106
Packing. Piston-	E. E. Gallup	660,167	Oct. 23	2710	603	93	595
Packing-ring	O. J. Garlock	663,879	Dec. 18	1792	402	93	2120
Packing-ring for piston-rods. Duplex	M. E. Lynch	664,143	Dec. 18	2278	519	93	2218
Packings. Apparatus for making plastic polygonal-shaped valve-		663,608	Dec. 11	1284	284	93	1004
Pad: *See* Bed-pad, Damping-pad, Furniture-pad, Garment-pad, Hoof-pad, Writing-pad.							
Padlock. Combination-	T. P. Owen	660,307	Oct. 23	2990	663	93	651
Padlock. Permutation-	A. Amess	659,045	Oct. 2	588	143	93	118
Pail-cover	J. H. Quackenbush	658,866	Oct. 2	271	67	93	56
Pail. Dinner-	M. Welkee	659,562	Oct. 9	1508	341	93	319
Pail. Milk-	A. G. Brugger	663,389	Dec. 4	872	188	93	1891
Pail. Sap-	A. A. Low	659,083	Oct. 2	574	138, 139	93	115
Pail. Sap-	A. A. Low	659,373	Oct. 9	1148	267	93	249
Pail. Sap-	A. A. Low	661,221	Nov. 6	349	83	93	1022
Pails, &c. Apparatus for making	R. C. Hill	663,123	Dec. 4	396	84	93	1800
Paint	M. W. Marsden	663,769	Dec. 11	1572	------	93	2051
Paint. Heat-insulating	J. Hommel	664,154	Dec. 18	2293	------	93	2221
Painting apparatus	N. Stow	664,791	Dec. 25	3531	801	93	2490
Painting metal surfaces	R. Kopp	663,281	Dec. 4	701	152	93	1858
Pan: *See* Ash-pan, Bake-pan, Baker's pan, Confectioner's pan, Douche-pan, Dry-pan, Evaporating-pan, Gold-pan, Miner's separating-pan, Prospecting-pan, Vacuum-pan.							
Panel-board and fuse-holder	C. J. Klein	660,113	Oct. 23	2589	580	93	570
Panoramic myrioscope	A. Peterson	661,725	Nov. 13	1264	306	93	1218
Paper and producing same	P. Hake	664,743	Dec. 25	3482	777	93	2480
Paper. Antimoth-	P. Rudisch	663,684	Dec. 11	1420	314	93	2020
Paper. Apparatus for applying paste to wall-	R. B. Stanley	662,606	Nov. 27	2945	699	93	1585
Paper bag	L. D. Benner	659,601	Oct. 9	1574	357	93	334
Paper-bag holder	A. E. Brunson	662,112	Nov. 20	2000	478	93	1379
Paper-bag machine	H. E. Westervelt	661,330	Nov. 6	549	127, 128	93	1061
Paper-bag machine	H. E. Westervelt	661,331	Nov. 6	555	128, 129, 130	93	1062
Paper bags. Receiver for folded	J. Carlen	663,726	Dec. 11	1494	331	93	2034
Paper box	E. T. Crump	664,316	Dec. 18	2595	591	93	2283

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Paper box	J. Floyd	662,560	Nov. 27	2867	680	93	1570
Paper box	C. Galle	663,963	Dec. 18	1955	440	93	2153
Paper box	T. L. Neumann	663,238	Dec. 4	630	135	93	1844
Paper box	E. M. Scott	664,588	Dec. 25	3135	711	93	2417
Paper box	C. G. Shipley, Jr	663,133	Dec. 4	419	88	93	1805
Paper box	G. E. Simon	663,134	Dec. 4	421	88	93	1806
Paper box. Knockdown	A. F. Warner	659,943	Oct. 16	2235	501, 502	93	478
Paper boxes. Machine for making	C. H. Brooks	664,458	Dec. 25	2878	657, 658	93	2363
Paper-damping machine	H. Manegold	664,055	Dec. 18	2106	482	93	2183
Paper-drying apparatus	S. A. Copenhafer	662,187	Nov. 20	2143	517, 518	93	1409
Paper-feeding machine	T. C. Dexter	659,510	Oct. 9	1415	321	93	302
Paper-feeding machine	T. C. Dexter	663,672	Dec. 11	1896	309, 310	93	2016
Paper-feeding machine	C. A. Sturtevant	664,340	Dec. 18	2042	602, 603	93	2292
Paper folding or plaiting machine	M. Koch	658,919	Oct. 2	348	86, 87	93	71
Paper from straw. Manufacturing	L. K. Böhm	659,784	Oct. 16	1948	------	93	422
Paper holder. Roll-	T. C. Phillips	662,576	Nov. 27	2899	687	93	1576
Paper-machine. Cylinder	H. L. Beveridge and C. E. Frye	659,283	Oct. 9	1013	238	93	220
Paper-making machine	V. G. Hazard	662,426	Nov. 27	2602	625	93	1517
Paper-making machines. Wire-web guide for	T. Harvey, Jr	661,983	Nov. 20	1744	419, 420	93	1330
Paper. Manufacture of	J. H. Annandale	660,808	Oct. 30	3888	874	93	843
Paper-perforator	C. Scofield	664,296	Dec. 18	2556	581	93	2275
Paper-pulp from cane-brake cane. Forming	T. E. Phillips	659,490	Oct. 9	1372	------	93	294
Paper-pulp. Screen-plate for straining	E. J. Welch	660,764	Oct. 30	3803	854	93	827
Paper-pulp strainer	J. Wilson	663,529	Dec. 11	1158	250	93	1669
Paper-stock. Machine for indenting	R. A. G. Ault and J. C. Schmidt	661,480	Nov. 13	819	197	93	1129
Paper-tube-making machine	C. A. Bailey	659,599	Oct. 9	1567	335, 336	93	332
Paper tubes. Machine for making	C. A. Bailey	664,614	Dec. 25	3187	722	93	2427
Paper vessel	I. H. Rice	661,817	Nov. 13	1431	347	93	1250
Paper. Writing-	F. G. J. Post	663,518	Dec. 11	1137	246	93	1964
Paraxanthin and making same	F. Ach	660,744	Oct. 30	3771	------	93	821
Partition	H. W. Bell	660,833	Oct. 30	3947	884	93	855
Partitions. Sheet-metal framework for	T. F. Osborn	659,350	Oct. 9	1106	250	93	240
Passage-closing device. Coin-controlled	S. E. Stimson	663,985	Dec. 18	1990	448	93	2160
Paving, &c. Composition for	H. F. Williams	661,362	Nov. 6	609	------	93	1073
Paving or flooring construction	G. W. Dyarman	661,336	Nov. 6	570	131	93	1064
Paving. Street-	P. J. Moran	664,024	Dec. 18	2069	470	93	2175
Paving-tool	F. A. Hetherington	659,867	Oct. 16	2094	470, 471	93	451
Pea-cleaner	W. T. Hilleary, Jr	661,802	Nov. 13	1410	339	93	1245
Peanut-vine stripper	F. W. Bowen	660,944	Oct. 30	4184	928	93	898
Peat and manufacturing same in briquets. Working	L. Galecki	663,568	Dec. 11	1214	235	93	1979
Pedal-clutch mechanism	E. Klaber	660,380	Oct. 23	3131	603	93	670
Peeling and gouging knife	G. E. Grier	658,774	Oct. 2	58	14	93	15
Pen and pencil holder	J. T. Urbach and J. M. Knight	661,281	Nov. 6	460	106	93	1043
Pen. Fountain-	H. Grass	662,857	Nov. 20	2454	500	93	1469
Pen. Fountain-	L. Hooker	659,925	Oct. 16	2206	496	93	473
Pen. Fountain-	F. Jordan	658,917	Oct. 2	345	85	93	70
Pen. Fountain-	S. Kraus	662,706	Nov. 27	3301	779	93	1651
Pen. Fountain-	C. J. Renz	659,696	Oct. 16	1766	390	93	387
Pen. Fountain-	W. C. Sherman	660,823	Oct. 30	3917	879	93	849
Pen. Fountain-	B. J. Soper	663,590	Dec. 11	1245	274, 275	93	1986
Penholder	J. V. Washburne	660,350	Oct. 23	3085	684	93	670
Penholder. Fountain-	S. M. and E. E. Salisbury	659,989	Oct. 16	2326	523	93	490
Penholder. Nib-ejecting	F. L. Graham	661,010	Nov. 13	1590	385	93	1279
Penholder provided with device for drying pens	R. Gauck	658,772	Oct. 2	54	13	93	14
Pen-inking device. Draftsman's	H. W. H. Powel	663,131	Dec. 4	414	87	93	1804
Pen. Metallic	J. L. Petit	663,782	Dec. 11	1615	362	93	2061
Pencil-holder	F. Hayes and W. H. C. McKesson	660,189	Oct. 23	2756	613	93	604
Pencil holder or protector and letter-balance. Combined	O. Beckmann	660,883	Oct. 30	4032	903	93	872
Pencil. Lead or other	E. M. Goldsmith	659,026	Oct. 2	502	130	93	113
Pencil point-protector and sharpener. Combination	W. L. Cranstone	661,955	Nov. 20	1693	410	93	1321
Pencil-sharpener	C. F. Hess	662,788	Nov. 27	3289	776	93	1649
Pencil-sharpener	J. H. Hill	659,527	Oct. 9	1444	327	93	308
Pencil-sharpening device	C. Babcock	658,824	Oct. 2	188	44	93	41
Pencils, penholders, &c. Attachment for lead-	J. C. Wright	661,202	Nov. 6	315	77	93	1015
Pendulum-beat adjuster	S. B. Parker	659,985	Oct. 16	2320	522	93	497
Pendulum-locking device	H. Groom	664,403	Dec. 25	2783	630	93	2346
Perforating and recording machine	G. H. Davis	659,053	Oct. 2	599	146	93	120
Perforating record-strips. Machine for	T. Lanston	663,966	Dec. 18	2012	453, 454, 455, 456, 457, 458	93	2164
Permutation-lock	J. H. Livingstone	660,018	Oct. 16	2374	534	93	508
Permutation-lock	G. A. Reddick	659,627	Oct. 9	1627	368	93	343
Pessary	H. M. Paine	660,781	Oct. 30	3838	862	93	833
Pessary	H. M. Paine	664,495	Dec. 25	2949	672	93	2377
Petroleum and compressed-air burner	L. Charon and F. Manaut	662,055	Nov. 20	1892	454	93	1358
Petroleum-motor	L. Charon and F. Manaut	661,285	Nov. 6	370	88, 89	93	1026
Pew-partition	J. J. Dillon	662,526	Nov. 27	2810	666	93	1559
Phase displacement. Producing	W. Stanley	658,815	Oct. 2	164	39, 40	93	37
Phonograph	G. W. Gomber	659,784	Oct. 16	1841	416	93	402
Phonograph	G. W. Gomber	659,785	Oct. 16	1843	417	93	402

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Phonograph	G. W. Gomber	659,739	Oct. 16	1858	419, 420	93	404
Phonograph	B. B. Hill	659,028	Oct. 2	565	137	93	113
Phonograph	F. Myers	663,193	Dec. 4	533	114	93	1827
Phonograph	F. Myers	663,194	Dec. 4	537	115	93	1827
Phonograph	T. B. Lambert	664,223	Dec. 18	2414	550	93	2248
Phonograph-record	A. N. Petit	662,301	Nov. 20	2345	566	93	1448
Phonograph-records. Machine for reproducing	F. Myers	660,275	Oct. 23	2032	653	93	640
Phonograph sound-box	G. W. Gomber	659,661	Oct. 16	1697	384	93	374
Phonographs, &c. Coin-controlled mechanism for	O. Coody	659,582	Oct. 9	1539	349	93	327
Phosphate-rock drier	F. E. Ives	660,442	Oct. 23	3236	722, 723	93	699
Photochromoscopic apparatus	S. McLaughlin	664,665	Dec. 25	3270	743, 744	93	2445
Photo-engraver's printing-frame	P. M. C. Grenier	661,976	Nov. 20	1734	------	93	1328
Photograph. Colored	E. B. Nicholson	659,983	Oct. 16	2317	521	93	496
Photograph-cutter	J. F. Newell	660,332	Oct. 23	3051	677	93	663
Photographic-background carrier	C. W. Brown	659,727	Oct. 16	1824	412	93	399
Photographic-exposure meter	M. J. Ehlman	661,504	Nov. 13	856	205	93	1186
Photographic-film cartridge	C. Traxler	659,498	Oct. 9	1388	315, 316	93	297
Photographic-film-developing apparatus	C. P. Magagnos and W. H. Fulton	662,363	Nov. 20	2468	593	93	1471
Photographic finder	P. J. Stuparich	662,579	Nov. 27	2905	689	93	1577
Photographic mounts. Producing	P. Rudolph	660,202	Oct. 23	2781	618	93	609
Photographic objective	N. Bull	658,974	Oct. 2	461	109	93	93
Photographic-plate holder	F. Mackenzie and G. Wishart	663,578	Dec. 11	1229	269	93	1982
Photographic-plate holder	R. E. Reardon	660,394	Oct. 23	3157	699	93	684
Photographic-plate holder	S. T. Crissy and W. Dulles, Jr	662,167	Nov. 20	2098	508	93	1399
Photographic-plate rack	S. Saloman	661,819	Nov. 13	1436	348	93	1250
Photographic-plate washing and fixing apparatus	J. G. Baker	661,840	Nov. 13	1465	355	93	1255
Photographic-print holder	D. Argerbright	659,278	Oct. 9	1007	237	93	219
Photographic-print washer	C. F. Goddard, Jr	658,839	Oct. 2	224	56	93	48
Photographic-printing frame	W. and L. Hudson	659,973	Oct. 16	2304	518	93	494
Photographic-printing frame	J. V. Coats	661,367	Nov. 6	615	143, 144	93	1075
Photographic shutter	L. J. Vogt	660,476	Oct. 23	3295	737, 738	93	711
Photographic shutter	W. D. Allison	661,433	Nov. 6	728	170	93	1068
Physicians' tables. Adjustable stirrup-bar for	W. D. Allison	661,434	Nov. 6	729	170	93	1096
Physicians' tables. Adjusting means for leg-rests of	G. B. Durkee	660,183	Oct. 23	2744	610	93	602
Piano	J. J. Healy	664,407	Dec. 25	2790	633, 634	93	2348
Piano-action	H. R. Moore	664,168	Dec. 18	2312	526	93	2225
Piano-action	J. W. Darley, Jr	663,734	Dec. 11	1505	325, 326	93	2037
Piano-action. Repetition	R. W. Pain	663,552	Dec. 11	1193	258	93	1975
Piano-actions. Auxiliary operating attachment for	J. H. Butler	662,521	Nov. 27	2802	664	93	1558
Piano-bridge	E. A. and R. W. Gertz	658,985	Oct. 2	475	114, 115	93	96
Piano construction	A. Capra	659,465	Oct. 9	1323	302	93	284
Piano. Cylinder	S. K. Reynolds	664,004	Dec. 18	2038	461	93	2169
Piano. Electrical	L. Gassard	662,783	Nov. 27	3281	773	93	1647
Pianoforte	A. H. Stevens	663,644	Dec. 11	1341	296	93	2005
Pianoforte-actions. Bridle for	E. M. Skinner	663,368	Dec. 4	844	181	93	1896
Piano-player. Automatic	J. W. Crooks	663,118	Dec. 4	384	81, 82	93	1798
Piano-playing action. Pneumatic	I. Price and J. O'Mealia	659,101	Oct. 2	689	164	93	140
Pick							
Picker: *See* Bean-picker. Cotton-picker. Fruit-picker.							
Picker-stick attachment	E. Merchant	659,034	Oct. 2	574	139	93	115
Picture-adjuster	D. W. Tower	660,938	Oct. 30	4121	926	93	890
Picture-exhibitor	E. A. Reeves	662,820	Nov. 27	3335	788, 789	93	1658
Picture-frame	L. B. Prahar	662,736	Nov. 27	3194	756	93	1631
Picture-frame hanger	P. Doble	663,737	Dec. 11	1515	337	93	2039
Picture-frame support	J. T. Mumford	663,974	Dec. 18	1972	444	93	2156
Picture-holder	E. Young	662,483	Nov. 27	2731	648	93	1544
Picture hook and molding	G. Schwab	661,557	Nov. 13	954	237	93	1156
Picture-support	J. Babst	662,140	Nov. 20	2040	496	93	1395
Picture-trimming guide	P. E. Stevens	662,962	Dec. 4	146	31	93	1753
Pictures, &c. Hanging device for	M. Pollack	659,038	Oct. 2	581	141	93	116
Pictures. Mounting	M. L. Cowan	660,892	Oct. 30	4044	------	93	874
Pictures. Shutter adapted for use in apparatus for exhibiting or viewing animated	E. L. Doyen	660,000	Oct. 16	2354	529	93	505
Pill-machine compressor-die	F. J. Beck	661,596	Nov. 13	1090	258	93	1172
Pin: *See* Clothes-pin. Dowel-pin. Safety-pin.							
Pipe: *See* Sheet-metal pipe. Tobacco-pipe.							
Pipe and nut wrench	M. D. Converse	661,011	Oct. 30	4250	954	93	915
Pipe-bending machine	W. E. Morris	659,936	Oct. 16	2227	500	93	477
Pipe-boiler	C. D. Casad	659,645	Oct. 16	1662	374	93	367
Pipe, cigar-holder, and cigarette-holder. Combination	P. Fischer	664,130	Dec. 18	2308	516	93	2216
Pipe-cleaning apparatus. Water-	V. Bonzagni	659,643	Oct. 16	1659	373	93	367
Pipe-coupling	C. H. Booth	659,336	Oct. 9	1068	256	93	235
Pipe-coupling	S. R. Dresser	659,898	Oct. 16	2129	480	93	457
Pipe-coupling	C. C. Fisher	661,506	Nov. 13	860	205	93	1137
Pipe-coupling	F. Kaeferle	664,218	Dec. 18	2403	548	93	2246
Pipe-coupling	L. D. Lovekin	660,862	Oct. 30	3998	894, 895	93	864
Pipe-coupling	H. G. Kotten	660,856	Oct. 30	3986	892	93	862
Pipe-coupling for pneumatic tools	H. B. Camp	662,618	Nov. 27	2964	703	93	1589
Pipe coupling. Stoneware-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pipe-coupling. Universal	J. R. Reniff	664,291	Dec. 18	2547	579	93	2274
Pipe-cutter	J. S. Hill	663,544	Dec. 11	1179	255	93	1973
Pipe-cutter	W. F. Norman	660,584	Oct. 30	3490	783	93	767
Pipe-elbow machine	H. Sekowsky. (Reissue)	11,871	Nov. 13	1655	402, 403, 404	93	1292
Pipe fitting or coupling	F. Pfeffer	658,863	Oct. 2	268	66	93	56
Pipe-hanger	P. Grabler	661,604	Nov. 13	1043	260	93	1175
Pipe-holder	C. Rohlfs	659,802	Oct. 16	1991	446	93	430
Pipe-hook	J. W. Berry	662,342	Nov. 20	2428	585	93	1464
Pipe-joint	W. Shuey	662,828	Nov. 27	3357	795	93	1663
Pipe-joint. Flexible	G. F. Hughson	664,479	Dec. 25	2920	665	93	2371
Pipe-making apparatus	A. S. Dixon	659,437	Oct. 9	1269	292, 293	93	274
Pipe or bar dipping apparatus	H. B. Lynch	663,084	Dec. 4	246	53	93	1773
Pipe-riveting machine	S. Foreman	660,542	Oct. 23	3421	768	93	735
Pipe-securing device	F. Berardi	662,586	Nov. 27	2913	692	93	1578
Pipe-threading machine	L. F. Carstensen	660,001	Oct. 16	2345	527, 528	93	503
Pipe-wrench	E. F. Comber	664,625	Dec. 25	3202	726	93	2430
Pipe-wrench	P. Frichette	663,567	Dec. 11	1213	264	93	1979
Pipe-wrench	H. H. Hunter	664,641	Dec. 25	3220	732	93	2436
Pipe-wrench	M. F. Jones	658,850	Oct. 2	247	61	93	52
Pipe-wrench	J. P. Lavigne	661,374	Nov. 6	629	146	93	1077
Pipe-wrench	W. A. Morris	661,187	Nov. 6	238	69	93	1010
Pipe-wrench	N. Nilson	664,425	Dec. 25	2816	639	93	2352
Pipe-wrench	T. E. Ryan	658,962	Oct. 2	437	105	93	89
Pipe-wrench	W. J. Strealy	658,968	Oct. 2	451	107	93	91
Pipe-wrench. Reversible	R. J. Northam and A. J. Bramlette	660,734	Oct. 30	3757	847	93	818
Pipes. Manufacturing	A. Schmitz	661,109	Nov. 6	143	36	93	979
Piping. Flexible	J. and F. H. Haviland and J. Farmer	663,570	Dec. 11	1217	266	93	1980
Piston for single-acting engines	O. F. Good	664,401	Dec. 25	2775	630	93	2345
Piston-stroke regulator	R. H. Yale	662,515	Nov. 27	2791	662	93	1556
Piston. Valved	C. N. Hare	658,912	Oct. 2	338	84	93	69
Pitcher-cover. Removable ventilating	A. Drennan, A. Smith, and A. Graham.	660,870	Oct. 23	3115	690	93	675
Plaiting apparatus	T. W. Castleman	664,721	Dec. 25	3372	767, 768	93	2466
Plaiting apparatus	T. W. Castleman	664,722	Dec. 25	3375	768, 769	93	2467
Plaiting-machine	T. F. Hagerty	659,171	Oct. 2	800	198	93	161
Plane	M. D. Converse	661,010	Oct. 30	4248	953, 954	93	915
Plane. Bench-	E. O. Carvin	659,287	Oct. 9	1019	230	93	221
Plane gage attachment. Bench-	M. M. Smith	661,559	Nov. 13	957	238	93	1157
Planer	G. W. Stetson	659,708	Oct. 16	1789	403, 404	93	392
Planetarium	J. M. Jones	659,817	Oct. 16	2008	450, 451	93	434
Planing machine for curved work. Wood-	B. D. Whitney	664,519	Dec. 25	2992	681, 682	93	2380
Plansifter	H. and G. Rose	660,925	Oct. 30	4094	920	93	885
Plant cutter and lifter	T. Estlack	659,518	Oct. 9	1431	324	93	305
Planter	J. Colby	660,890	Oct. 30	4041	905	93	873
Planter	S. G. Sparrow	660,934	Oct. 30	4110	924	93	888
Planter and cultivator	S. G. Svensen	660,599	Oct. 30	3509	787, 788	93	770
Planter and fertilizer-distributer. Check-row	R. H. Truitt	661,566	Nov. 13	965	239, 240	93	1158
Planter and fertilizer-distributer. Combined	S. D. Roop	662,135	Nov. 20	2083	494, 495	93	1385
Planter and fertilizer-distributer. Combined	G. W. Snipes	660,079	Oct. 16	2517	563	93	535
Planter and fertilizer-distributer. Convertible	E. M. King	659,804	Oct. 9	1045	245	93	227
Planter. Automatic corn-	C. I. Burt	662,912	Dec. 4	25	5, 6	93	1731
Planter. Check-row corn-	J. Hillery	661,148	Nov. 6	224	55	93	997
Planter. Check-row corn-	J. C. Stanley	662,174	Nov. 20	2112	510	93	1402
Planter. Convertible corn-	J. Kaylor	661,248	Nov. 6	401	94, 95	93	1082
Planter. Corn-	J. W. Berlien	659,201	Oct. 9	883	210	93	195
Planter. Corn-	G. L. Buckley	663,008	Dec. 4	200	43, 44	93	1764
Planter. Corn-	J. A. Chambers	659,646	Oct. 16	1663	374, 375	93	367
Planter. Corn-	B. Cox	660,950	Oct. 30	4142	880, 881	93	894
Planter. Corn-	L. P. Graham	664,264	Dec. 18	2489	505	93	2262
Planter. Corn-	C. H. Hall	661,449	Nov. 6	759	178	93	1108
Planter. Corn-	W. Lincoln	664,767	Dec. 25	3491	789, 790, 791	93	2491
Planter. Corn-	J. E. Porter	661,319	Nov. 6	533	124	93	1057
Planter. Corn-	H. N. Randall	658,808	Oct. 2	133	80, 81, 82	93	31
Planter drive-wheel and marker. Corn-	L. J. Lindsay	662,626	Nov. 27	2980	706	93	1591
Planter. Lister corn-	M. T. Harding	662,621	Nov. 27	2970	704	93	1590
Planter. Potato-	T. L. Good	661,799	Nov. 13	1404	338	93	1244
Planter. Seed-	S. L. Allen	664,072	Dec. 18	2135	487, 488, 489	93	2188
Planter. Seed-	E. B. Dixon	662,776	Nov. 27	3268	771, 772	93	1645
Planter. Seed-	W. Wendtland and W. F. Wunderlich.	661,750	Nov. 13	1309	319	93	1226
Planter. Seed-	W. L. Wright and A. J. Hackler	660,038	Oct. 16	2411	542	93	514
Plaster and cement for brickwork. Wall-	W. S. Griswold	662,643	Nov. 27	3006	------	93	1597
Plaster-of-paris. Revivifying old	W. R. Johnson	661,247	Nov. 6	400	------	93	1032

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Plastering composition	H. C. McMillin	660,453	Oct. 23	3251	.....	93	702
Plastic composition for plastering walls	W. G. Thatcher	659,942	Oct. 16	2234	.....	93	478
Plastic substances. Sanitary dispenser for	J. F. C. Luhan	662,627	Nov. 27	2961	706	93	1591
Plate-forming machine	R. G. Holbrook and R. H. King	660,638	Oct. 30	3580	803	93	783
Plate-holder. Magazine	C. L. Bouton	660,180	Oct. 23	2737	609	93	600
Plate-holder. Magazine	C. G. Warnecke and W. H. Heath	664,795	Dec. 25	3537	803	93	2560
Plate-lifter	J. Kindschuh	659,678	Oct. 16	1733	391	93	380
Plate or pan lifter	J. F. Neal	660,120	Oct. 23	2612	584	93	574
Platform: *See* Window-platform.							
Pliers	W. A. Bernard. (Reissue)	11,868	Nov. 6	815	196	93	1114
Plow	J. J. Armstrong, Sr	663,714	Dec. 11	1473	326 / 327	93	2030
Plow	J. N. Hanna	660,430	Oct. 23	3214	716	93	695
Plow	A. H. Laughlin	663,082	Dec. 4	241	52	93	1772
Plow	P. McNaughton	663,977	Dec. 18	1977	445	93	2157
Plow	R. L. Morrison	664,570	Dec. 25	3092	702	93	2407
Plow	G. W. Noble and C. M. Keeton	662,131	Nov. 20	2029	493	93	1384
Plow	W. R. Oyler	663,358	Dec. 4	832	178	93	1883
Plow	J. W. Reaves	659,102	Oct. 2	690	165	93	140
Plow	M. L. Roberts	661,278	Nov. 6	455	104	93	1042
Plow	N. Sanders	662,974	Dec. 4	133	28	93	1750
Plow	A. Asmore	658,936	Oct. 2	395	95	93	81
Plow and fertilizer-distributer. Combined	E. H. Bartels	662,663	Nov. 27	3052	720	93	1605
Plow attachment	W. B. Bracewell	664,527	Dec. 25	3005	684	93	2389
Plow attachment	E. H. Kuhl	662,002	Nov. 20	1783	429	93	1398
Plow attachment	J. W. Page	660,800	Oct. 30	3873	871	93	889
Plow cotton-scraper attachment. Turning-	C. L. Murphree	662,081	Nov. 20	1942	466	93	1367
Plow. Cultivating-	C. Wells	662,613	Nov. 27	2956	702	93	1588
Plow. Cultivating-	G. W. Harris	663,494	Dec. 11	1094	239	93	1957
Plow fender attachment. Cultivator-	F. P. Felter	663,744	Dec. 11	1520	340	93	2041
Plow. Motor-	F. Riewe	661,663	Nov. 13	1158	286	93	1198
Plow planter attachment	R. T. Gillespie	663,991	Dec. 18	2003	452	93	2163
Plow. Pulverizing-	E. C. Westervelt and C. W. Clapp	662,845	Nov. 27	3392	802	93	1670
Plow. Riding disk	J. Buchanan	661,137	Nov. 6	204	51	93	993
Plow scraper. Disk-	F. Gardner	664,254	Dec. 18	2466	561	93	2258
Plow sod-cutting attachment	S. H. Tinsman	664,109	Dec. 18	2211	504	93	2205
Plow. Wheeled	L. E. Waterman	659,009	Oct. 2	528	128	93	106
Plow. Wheeled	W. P. Hendon	660,683	Oct. 30	3667	824	93	799
Plows or similar implements. Frame-lifting device for disk	C. D. Platt	659,546	Oct. 9	1479	335	93	315
Plug or plug-switch receptacle	H. H. and G. V. Hibberd	662,935	Dec. 4	63	16	93	1738
Plumber's tag or clamp-stay	J. M. Hector	664,547	Dec. 25	3089	692	93	2390
Pneumatic-despatch-carrier system	A. W. Pearsall	662,601	Nov. 27	2966	697	93	1583
Pneumatic-despatch-tube apparatus. Carrier for	S. H. Stubbs	664,444	Dec. 25	2857	652 / 653	93	2360
Pneumatic spring or cushion	H. J. Kimman	660,705	Oct. 30	3710	835	93	808
Pneumatic tool	H. G. Kotten	660,857	Oct. 30	3987	892	93	863
Pneumatic tool	H. Leineweber and G. Leininger	662,675	Nov. 27	3078	727	93	1610
Pneumatic tool	E. V. Jones	661,267	Nov. 6	437	102	93	1038
Pocket-book attachment	M. H. Elseman	663,016	Dec. 4	213	46	93	1767
Pocket-books, purses, &c. Coin-holder for	N. Newman	661,918	Nov. 13	1603	398	93	1282
Pocket-case	R. Bartell	663,849	Dec. 18	1743	389 / 390	93	2111
Pocket. Garment-	H. A. Goolsbey	661,738	Nov. 13	1286	312	93	1222
Poke. Animal-	E. W. Serrell	662,312	Nov. 20	2369	570	93	1453
Pole for telegraphs, &c	W. A. Hill	661,147	Nov. 6	223	54	93	997
Pole or thill coupling	P. G. Reynolds	662,244	Nov. 20	2251	542	93	1429
Pole-top	G. A. Lambert	661,741	Nov. 13	1294	316	93	1223
Pole. Vehicle-	L. Levett	663,912	Dec. 18	1866	420	93	2136
Polishing-wheel	E. D. Woods	663,839	Dec. 11	1723	385	93	2066
Polishing-wheel	J. N. Burno	661,440	Nov. 6	740	173	93	1100
Pork-skinning machine	J. L. Hollingsworth	664,751	Dec. 25	3456	781	93	2485
Portable heater	J. B. Holtzclaw	661,608	Nov. 13	1049	261	93	1175
Portière	W. F. Smith	659,878	Oct. 16	2112	475	93	454
Portmanteau-frame							
Post: *See* Fence-post. Wire post. Sign-post.							
Post-holder	J. M. Hibbard	662,436	Nov. 27	2637	629	93	1325
Post-hole digger	G. A. Freer	660,812	Oct. 30	3897	876	93	845
Post or pole	J. H. Huntress	658,779	Oct. 2	69	17	93	17
Potato-digger	L. A. Aspinwall	660,880	Oct. 30	3941	883	93	854
Poultry. Housing for	J. Ingram	660,440	Oct. 23	3232	722	93	699
Powder. Composition for blasting-	G. Beneké	659,842	Oct. 16	2053	.....	93	443
Powder-insufflator	W. F. Barry	660,042	Oct. 16	2416	543	93	515
Powder mixing and incorporating mill	F. A. Halsey	660,373	Oct. 23	3117	690 / 691	93	676
Power: *See* Churn-power.							
Power from solar heat. Apparatus for obtaining	E. H. McHenry	659,450	Oct. 9	1206	297	93	279
Power. Means for transmitting	W. Lay	662,077	Nov. 20	1930	462	93	1365
Power mechanism	J. Bean	658,825	Oct. 2	186	44	93	42
Power press. Hand-	E. R. Collins	661,368	Nov. 6	621	144	93	1076
Power transmission	E. J. Berg	660,483	Oct. 23	3311	741	93	714
Power-transmitter	M. E. Hertel	663,757	Dec. 11	1549	346	93	2046
Power-transmitter	F. S. Weatherly	662,179	Nov. 20	2123	512	93	1405
Power-transmitter	D. Williamson	659,276	Oct. 9	1003	236	93	218
Power-transmitting device	A. L. Riker	662,306	Nov. 20	2355	568	93	1451
Power-transmitting machinery	J. Herbs	663,895	Dec. 18	1815	409	93	2124
Power-transmitting mechanism	C. W. Richards and W. M. Chapman	659,697	Oct. 16	1769	399	93	388
Precious metals from river-beds. Machine for collecting	J. R. Dake	664,626	Dec. 25	3203	726 / 727	93	2430
Precious metals from their ores. Extracting	H. J. Phillips	661,074	Nov. 6	86	.....	93	967
Precious metals from their ores. Extracting	J. P. Schuch, Jr	664,060	Dec. 18	2118	481	93	2185

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Press: *See* Amalgam-press. Baling-press. Brick-press. Broaching-press. Butter-press. Copying-press. Cotton-press. Die-press. Drill-press. Gluing-press. Guncotton-press. Hay-press. Hydraulic press. Power-press. Printing-press. Saur-kraut press. Soap-press. Stamping-press.							
Press	F. H. Bancroft	663,847	Dec. 18	1741	389	93	2110
Press	F. Grote	659,904	Oct. 16	2287	513 / 514	93	490
Press	E. Hett	662,863	Nov. 27	3475	817 / 818 / 819	93	1687
Press	E. Hett	662,866	Nov. 27	3500	821	93	1695
Press	E. Hett	662,869	Nov. 27	3511	822 / 823	93	1699
Press	E. Hett	662,870	Nov. 27	3516	823	93	1701
Press feed-regulator device	G. A. Lowry	662,451	Nov. 27	2660	635	93	1529
Press for embossing, &c	C. Seybold	662,099	Nov. 20	1977	472	93	1374
Pressure-gage-testing apparatus	C. B. Bosworth	664,805	Dec. 25	3563	811	93	2505
Pressure-gage-testing apparatus	C. B. Bosworth	664,806	Dec. 25	3564	811	93	2506
Pressure-regulator	C. W. Benedict	661,283	Nov. 6	463	106	93	1043
Pressure-regulator	J. H. Bullard	660,359	Oct. 23	3099	687	93	673
Primary battery	C. B. Schoenmehl	663,937	Dec. 18	1906	429	93	2143
Primary battery. Reversible	L. W. Pullen	662,679	Nov. 27	3085	728	93	1611
Printed webs. Longitudinally folding and inserting	H. Hartt	660,726	Oct. 30	3748	844	93	816
Printer's quoin	C. C. Marder	661,706	Nov. 13	1232	299	93	1212
Printer's rule	E. Hett	662,365	Nov. 20	2465	593	93	1471
Printing	E. Hett	662,857	Nov. 27	3446	810 / 811	93	1682
Printing and making printing-forms	E. Hett	662,858	Nov. 27	3404	804 / 805	93	1673
Printing apparatus	C. Monteith	663,291	Dec. 4	720	155	93	1862
Printing-cylinder	E. Hett	662,859	Nov. 27	3457	813 / 814	93	1683
Printing-cylinders. Casting	E. Hett	662,856	Nov. 27	3441	808 / 809 / 810	93	1681
Printing-cylinders. Machine for casting	E. Hett	662,858	Nov. 27	3452	811 / 812	93	1683
Printing form and press	E. Hett	662,865	Nov. 27	3496	820 / 821	93	1693
Printing form and press	E. Hett	662,867	Nov. 27	3504	821 / 822	93	1696
Printing form and press	E. Hett	662,868	Nov. 27	3508	822	93	1697
Printing in one or more colors. Machine for	G. E. Bouvet and E. A. Fix	664,119	Dec. 18	2232	508	93	2209
Printing-machine	T. M. North	664,574	Dec. 25	3099	704	93	2408
Printing-machine	T. M. North	664,575	Dec. 25	3105	705 / 706	93	2410
Printing-machine	W. Scott	662,699	Nov. 27	3130	740 / 741	93	1619
Printing-machine	W. Spalckhaver	664,592	Dec. 25	3145	713 / 714	93	2419
Printing-machine	W. Spalckhaver	664,593	Dec. 25	3148	714 / 715	93	2420
Printing-machine bed-motion. Cylinder-	W. Scott	664,100	Dec. 18	2188	499	93	2200
Printing-machine. Collotype or similar	A. Coe	663,864	Dec. 18	1770	396 / 397	93	2115
Printing-machine guide	O. Roesen	660,970	Oct. 30	4171	937	93	900
Printing machine. Pencil-	C. W. Cutter	664,726	Dec. 25	3392	771	93	2471
Printing-plate and base	F. J. Wendell	659,384	Oct. 9	1167	271	93	253
Printing-plate and base	F. J. Wendell	659,385	Oct. 9	1168	271	93	253
Printing-press	C. G. Harris and J. F. McNutt	661,245	Nov. 6	393	93	93	1080
Printing-press	H. Hartt	662,934	Dec. 4	62	15	93	1738
Printing-press	E. Hett	662,854	Nov. 27	3418	805 / 806 / 807 / 808	93	1676
Printing-press	E. Hett	662,855	Nov. 27	3433	808	93	1679
Printing-press	E. Hett	662,861	Nov. 27	3467	816 / 817	93	1684
Printing-press, &c	E. Hett	662,862	Nov. 27	3474	817	93	1687
Printing-press	G. E. Pancoast	659,351	Oct. 9	1106	260	93	240
Printing-press	G. E. Pancoast	664,578	Dec. 25	3112	707	93	2412
Printing-press	S. H. Shaw and W. G. Toplis	663,790	Dec. 11	1627	365	93	1994
Printing-press automatic ink-fountain	J. S. Goheen	661,737	Nov. 13	1285	312	93	1221
Printing-press bed-motion	W. K. Hodgman	664,216	Dec. 18	2400	547	93	2245
Printing-press bed-motion	R. Miehle	661,378	Nov. 6	634	147 / 148	93	1078
Printing-press. Cylinder	F. J. Harbridge	664,744	Dec. 25	3434	778	93	2481
Printing-press delivery apparatus	S. G. Goss	658,773	Oct. 2	55	13, 14	93	14
Printing-press delivery mechanism	S. G. Goss	662,530	Nov. 27	2816	668	93	1560
Printing-press feeding device	J. H. Smith	658,811	Oct. 2	154	37, 38	93	34
Printing-press feeding device	R. Wilson	659,277	Oct. 9	1004	236 / 237	93	218
Printing-press. Flat-bed	S. Whitlock and W. S. Huson	661,924	Nov. 13	1615	391	93	1284
Printing-press gage	G. C. Wolven	662,047	Nov. 20	1877	451	93	1355
Printing-press inking-roll truck	J. H. Schussler	662,880	Nov. 27	3535	828	93	1705
Printing, &c. Producing surfaces for	E. Hett	662,852	Nov. 27	3401	804	93	1672
Printing-surface and producing same	C. Grasser	661,142	Nov. 6	212	53	93	994
Printing-surfaces. Machine for making	E. Hett	662,864	Nov. 27	3487	819 / 820	93	1691
Projectile for ordnance	B. E. L. De Maré	660,581	Oct. 30	3485	781	93	766

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Projectile. Ordnance	H. S. Maxim	662,708	Nov. 27	3302	779	93	1651
Propeller. Boat	S. H. Butterworth	662,522	Nov. 27	2803	664	93	1558
Propeller-shaft bearing	J. T. Shepard	660,399	Oct. 23	3168	702	93	686
Propelling apparatus. Air-draft	H. J., E. J., and B. C. Newmarker	661,724	Nov. 13	1263	305	93	1218
Propelling mechanism	C. M. Palmer	659,858	Oct. 16	2077	467	93	447
Propelling mechanism. Boat	A. Belz	659,841	Oct. 16	2052	460	93	443
Propelling mechanism. Boat	J. H. D. Gerken	664,548	Dec. 25	3085	691	93	2395
Propelling mechanism. Electrical	D. Perret	658,997	Oct. 2	505	121 122	93	101
Propulsion. Canal-boat	J. B. Entz	658,892	Oct. 2	306	75	93	63
Prospecting-pan	J. Tobin	664,066	Dec. 18	2126	485	93	2187
Prospecting-shovel	P. J. Sheehy and R. E. O'Neill	661,774	Nov. 13	1355	328	93	1226
Pruning implement	R. Albach	662,052	Nov. 20	1888	453	93	1357
Pruning-shears	P. Broadbooks	660,288	Oct. 23	2950	656	93	643
Puller: *See* Tack-puller. Weed-puller.							
Pulley	J. C. Pratt	663,928	Dec. 18	1890	425 426	93	2140
Pulley	J. Winter	662,046	Nov. 20	1876	451	93	1355
Pulley. Belt	F. Rohrbeck	661,079	Nov. 6	95	23	93	969
Pulley-block	E. J. E. Coleman	660,364	Oct. 23	3107	688	93	674
Pulley-block	E. S. Knight	663,905	Dec. 18	1848	416	93	2133
Pulley. Clutch	W. W. Dixon	662,894	Nov. 27	3557	884	93	1710
Pulley. Conveyer	M. Garland	661,970	Nov. 20	1722	415	93	1326
Pulley. Expansible	J. Florence	662,851	Nov. 27	3400	804	93	1672
Pulley. Rope	E. L. Wagner	660,783	Oct. 30	3840	862 863	93	833
Pulley. Sash	J. Duffy	660,629	Oct. 30	3562	800 354 355 356	93	780
Pulling-over machine	R. F. McFeely	663,777	Dec. 11	1581	357 358 359 360	93	2053
Pulp. Apparatus for making pails from	F. E. Keyes	658,851	Oct. 2	248	61, 62	93	52
Pulp. Making wood	A. D. Schaeffer	659,184	Oct. 2	845	200	93	167
Pulp materials. Manufacturing articles from	J. M. Leaver	660,644	Oct. 30	3595	806	93	786
Pulp or fiber to bottles, &c. Machine for applying wood	W. Burke and W. H. Thompson	660,098	Oct. 23	2548	570	93	502
Pulp-refining engine	J. J. Foley	660,699	Oct. 30	3698	832 833	93	806
Pulp. Treatment of wood	F. C. Crean	663,868	Dec. 18	1776	398	93	2117
Pulp washing and straining machine	L. K. Böhm	659,785	Oct. 16	1950	437	93	422
Pulp-wood chipper	A. O. Lombard	662,238	Nov. 20	2244	540	93	1428
Pulverizer	W. M. Ernst	661,796	Nov. 13	1398	337	93	1243
Pulverizer	A. F. Peterson	661,423	Nov. 6	710	164	93	1094
Pulverizer	A. F. Peterson	661,814	Nov. 13	1429	346	93	1249
Pulverizer	J. G. Baker	660,040	Oct. 16	2413	543	93	514
Pump	J. E. Elam	661,259	Nov. 6	425	99	93	1096
Pump	J. M. Morris	661,938	Nov. 13	1642	398	93	1289
Pump	W. F. Singer	664,507	Dec. 25	2970	677	93	2282
Pump	J. M. Stukes	660,471	Oct. 23	3289	736	93	710
Pump	J. T. Walker	664,069	Dec. 18	2131	486 487	93	2788
Pump	H. Welch	660,136	Oct. 23	2645	590	93	582
Pump	W. Wildman	662,180	Nov. 20	2125	512 513	93	1405
Pump and compressor. Air	G. Sipp	659,882	Oct. 16	2081	456	93	438
Pump. Double-acting force	I. Hoagland	662,437	Nov. 27	2638	630	93	1525
Pump. Double-cylinder	W. Hull	661,874	Nov. 13	1525	369	93	1266
Pump-governor	R. Conrader	664,468	Dec. 25	2899	662	93	2367
Pump-governor	H. Maschmeyer	659,311	Oct. 9	1055	248	93	228
Pump-jack	C. F. Echelbarger	658,768	Oct. 2	46	11	93	13
Pump. Oil	J. T. Bradford and A. R. Gordon	662,617	Nov. 27	2961	708	93	1588
Pump. Oil-well	J. Horsley	663,029	Dec. 4	236	50	93	1771
Pump or piston rod lubricator	J. McBride	661,317	Nov. 6	529	123	93	1056
Pump-rod-adjusting device	J. H. Wilt	658,971	Oct. 2	456	106	93	92
Pump. Rotary	W. Morris	663,184	Dec. 4	521	110	93	1824
Pump. Steam vacuum	E. B. Rayner	663,041	Dec. 4	257	55	93	1775
Punch. Ticket	W. H. Shands	661,896	Nov. 13	1564	380	93	1274
Pumping apparatus. Rotary reciprocating	V. E. Emgarth	660,681	Oct. 30	3064	823	93	799
Pumping apparatus. Water	C. Aneshaensel, Jr	658,823	Oct. 2	182	43	93	41
Pumping apparatus. Water	C. Aneshaensel, Jr	660,239	Oct. 23	2846	633	93	622
Pumping device	C. S. Shepard	662,980	Dec. 4	144	31	93	1752
Pumping-engine. Steam	F. M. Leavitt	663,909	Dec. 18	1856	418	93	2134
Pumping-engine. Steam	F. M. Leavitt	663,910	Dec. 18	1859	419	93	2135
Pumping or compressing gas and air. Apparatus for	J. Keith	660,253	Oct. 23	2874	640 641	93	628
Pumping-stand. Derrick-pulley	D. C. Johnston	663,762	Dec. 11	1558	348	93	2048
Pumping water, sand, &c. Apparatus for	T. Butler	660,946	Oct. 30	4136	929	93	893
Punch	F. A. Peeso	660,335	Oct. 23	3057	678	93	664
Punch	C. E. Smith	664,299	Dec. 18	2564	582	93	2277
Punch. Die	G. C. Ainsworth	664,523	Dec. 25	2998	693	93	2387
Punch-stripper	F. A. Peeso	660,334	Oct. 23	3056	678	93	664
Punching and eyelet-setting machine	S. W. Burtchaell	663,558	Dec. 11	1200	261	93	1977
Punching-bag exerciser	A. A. Whitely and W. A. Duncan	663,690	Dec. 11	1429	317	93	2022
Punching-bag support	A. A. Whitely and W. A. Duncan	662,045	Nov. 20	1874	450	93	1355
Purifier, separator, and grader	G. L. Ernst	658,837	Oct. 2	218	54	93	47
Purse or bag frame	B. vom Eigen	660,847	Oct. 30	3974	889	93	860
Purse or bag frame	A. F. Fuller	661,579	Nov. 13	1000	248	93	1166
Push-button. Electric	T. A. Nathans	664,667	Dec. 25	3274	744	93	2446
Push-rake	W. G. Danielsen	658,831	Oct. 2	207	51	93	45
Putty-knife	H. G. Ralya	663,362	Dec. 4	887	179	93	1884
Puzzle	E. T. Young	661,163	Nov. 6	249	60	93	1002
Pyrographical tool	W. H. Scott	663,615	Dec. 11	1292	286	93	1996

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pyrometer	D. Baker	663,557	Dec. 11	1198	260 261	93	1977
Pyrometer	H. von Koehring	664,764	Dec. 25	3486	788	93	2489
Pyrometer. Recording air	W. H. and E. H. Bristol	659,616	Oct. 9	1602	362	93	339
Quinin and caffein. Making soluble compounds of	A. Kreidmann	660,859	Oct. 30	3990	.....	93	863
Race-horse-starting machine	C. W. Crowley	660,984	Oct. 30	4188	941	93	904
Rack: *See* Advertising-rack. Hay-rack. Bicycle-rack. Hay and stock rack. Book or music rack. Ticket-rack. Display-rack. Tobacco-rack.							
Radiator	H. D. Kellogg	663,658	Dec. 11	1363	302	93	2009
Radiator	F. Schwedtmann	658,928	Oct. 2	368	90	93	75
Radiator-cooling device. Heat	F. C. Blake	663,851	Dec. 18	1747	390	93	2111
Rag-engine	E. A. Jones	662,726	Nov. 27	3174	751	93	1627
Rail-bond	G. B. Blanchard	658,758	Oct. 2	8	2	93	4
Rail-bond	J. T. Stack	658,967	Oct. 2	450	107	93	91
Rail-bond. Electrical	W. Pervenko	663,360	Dec. 4	886	179	93	1884
Rail-brake. Electric	R. W. M. Schiemann	663,519	Dec. 11	1144	248	93	1966
Rail chair and joint lock. Combined	G. T. Thompson and A. J. Lechler	663,138	Dec. 4	431	90	93	1808
Rail-connector	E. H. Bryant	660,000	Oct. 16	2343	527	93	502
Rail-joint	H. M. Boyd and H. Redmond	660,484	Oct. 23	3318	742	93	714
Rail-joint	F. A. Brewer	664,620	Dec. 25	3197	724	93	2429
Rail-joint	J. Crites and J. Webb	659,812	Oct. 16	2008	449	93	433
Rail-joint	E. Frantz and A. J. Lang, Jr	661,759	Nov. 13	1327	323	93	1230
Rail-joint	W. W. Gillespie	661,122	Nov. 6	181	46	93	988
Rail-joint	A. G. Helnle	663,894	Dec. 18	1814	408	93	2124
Rail-joint	R. McCoy	663,354	Dec. 4	825	176	93	1882
Rail-joint	C. F. Mead	661,150	Nov. 6	228	56	93	968
Rail-joint	S. G. Miller	660,864	Oct. 30	4002	895	93	805
Rail-joint	J. S. Patten	662,809	Nov. 27	3318	783	93	1654
Rail-joint	W. F. Sellers	658,964	Oct. 2	440	105	93	89
Rail-joint	D. Stephens	660,986	Oct. 30	4114	925	93	889
Rail-joint	S. B. Wharton	664,199	Dec. 18	2375	541	93	2239
Rails. Electric traction of trains of vehicles upon	L. Genty	661,448	Nov. 6	752	176 177 178	93	1102
Rails. Means for cleaning tramway	O. Michaelis	664,165	Dec. 18	2307	525	93	2224
Railway accidents. Apparatus for automatically preventing	J. M. Laffas	659,307	Oct. 9	1049	246 247 813	93	227
Railway aero-electric brake	C. Luyers	664,812	Dec. 25	3576	814 815 816	93	2508
Railway appliances. Actuating device for	E. A. Sperry	660,805	Oct. 30	3882	873	93	841
Railway appliances. Actuating device for	E. A. Sperry	660,825	Oct. 30	3922	880 881	93	850
Railway-brake. Automatic	M. L. E. Duval	658,767	Oct. 2	45	10	93	12
Railway-carriage coupling	J. Willison	664,305	Dec. 18	2572	585 586	93	2279
Railway-crossing	I. L. Edwards	664,137	Dec. 18	2206	515	93	2215
Railway-crossing signal	N. Ratchford	662,497	Nov. 27	2756	654 655	93	1550
Railway-crossing signal	N. Ratchford	662,498	Nov. 27	2759	655	93	1550
Railway-crossing signal. Automatic	J. E. Dean	662,918	Dec. 4	88	9	93	1733
Railway-crossing structure	W. C. Wood	660,353	Oct. 23	3090	685	93	671
Railway current-distributer. Electric	H. Schramm	661,458	Nov. 6	772	182	93	1106
Railway. Electric	T. P. Chandler	663,600	Dec. 11	1264	279 280	93	1991
Railway. Electric	J. B. Entz. (Reissue)	11,859	Oct. 2	873	207 208	93	173
Railway. Electric	W. Grunow, Jr	662,419	Nov. 27	2588	623	93	1514
Railway. Electric	W. Grunow, Jr	662,420	Nov. 27	2593	624	93	1515
Railway. Electric	W. Grunow, Jr	662,421	Nov. 27	2595	624	93	1515
Railway. Electric	J. D. Robertson	659,550	Oct. 9	1485	336	93	316
Railway. Electric	E. Sussmann-Hellborn and W. Horauer.	663,398	Dec. 4	906	196 197	93	1898
Railway electric safety appliance	E. L. Orcutt	664,819	Dec. 25	3600	819	93	2511
Railway. Elevated single-rail	A. A. Welsh	663,525	Dec. 11	1152	249	93	1908
Railway-frog	J. Barry	664,617	Dec. 25	3194	723	93	2428
Railway or carousel. Pleasure	J. Anderson	661,435	Nov. 6	730	171	93	1098
Railway or similar vehicle coupling	C. H. Bagot and D. Dishart	659,190	Oct. 2	856	208	93	169
Railway or tramway vehicles. Hydraulic brake for	C. Durey	659,517	Oct. 9	1428	323 324	93	304
Railway-rail anchor	C. Rahmgren	660,028	Oct. 16	2302	537	93	511
Railway-rail connection	W. C. Gregg	663,882	Dec. 18	1704	402	93	2121
Railway-rail fastening and brace	J. N. Powell	659,257	Oct. 9	977	229	93	213
Railway-rail joint	B. G. Braine	659,387	Oct. 9	1169	272	93	254
Railway-rail joint	S. E. Stedeford	663,243	Dec. 4	640	137	93	1846
Railway-rail splice-joint	W. B. Doddridge	662,712	Nov. 27	3151	746	93	1623
Railway-rails to bars. Rolls for reducing old	A. Nisbett and W. G. Ives	664,001	Dec. 18	2033	460	93	2168
Railway-signal	G. A. Parlee	659,097	Oct. 2	681	162	93	137
Railway-signal	J. Wrigley	663,900	Dec. 18	2002	451	93	2162
Railway-signal wires. Compensator for	E. Woodward	664,345	Dec. 18	2556	604	93	2294
Railway signaling	S. D. Strohm	662,833	Nov. 27	3363	797 798	93	1664
Railway signaling device	R. B. Benjamin	664,207	Dec. 18	2387	545	93	2242
Railway signaling system. Electrical	L. C. Werner	663,376	Dec. 4	856	184 185	93	1888
Railway-sleeper	H. Jassoy	659,749	Oct. 16	1882	424	93	409
Railway-switch	C. A. Dunn	663,872	Dec. 18	1781	399	93	2118
Railway-switch	G. Durchholz	659,516	Oct. 9	1426	323	93	304
Railway-switch	D. Isard	661,054	Nov. 6	48	11	93	960

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Railway-switch	C. F. Kress, Jr	661,540	Nov. 13	920	227	93	1149
Railway-switch	H. O'Shea	662,016	Nov. 20	1804	434	93	1342
Railway-switch	F. S. Pearson	664,579	Dec. 25	3116	707	93	2413
Railway-switch	S. S. Shields	664,178	Dec. 18	2326	530	93	2228
Railway-switch	A. A. Strom	663,707	Dec. 11	1463	323	93	2028
Railway-switch	J. W. Koch	663,907	Dec. 18	1851	417	93	2133
Railway-switch and means for operating same	W. W. Hoffman and F. W. Powers.	664,750	Dec. 25	3450	780, 781	93	2484
Railway-switch. Automatic	W. Schoenewald	660,315	Oct. 23	3012	668	93	655
Railway-switch. Automatic	R. D. Seibert	664,297	Dec. 18	2557	581, 582	93	2276
Railway-switch. Automatic	W. Kingsland	663,232	Dec. 4	612	131	93	1841
Railway switch-box. Electric	C. Sulfer	660,665	Oct. 30	3638	817	93	794
Railway-switch-locking device	H. P. Quad	663,299	Dec. 4	738	158, 159	93	1866
Railway switch-operating device. Street	W. Warneke	660,673	Oct. 30	3653	820	93	797
Railway-switch-operating mechanism	A. Kuentz and A. Trenker	664,651	Dec. 25	3245	736, 737	93	2440
Railway-switch. Safety	J. B. Colvin	660,488	Oct. 23	3319	744	93	716
Railway-switch stand. Safety-signal	A. Youngblood	663,595	Dec. 11	1257	277, 278	93	1989
Railway-switches. Operating	E. C. Morgan	659,178	Oct. 2	815	198	93	164
Railway system. Electric	B. E. Osborn	661,020	Oct. 30	4268	959, 960	93	919
Railway system. Electric	W. B. Potter	664,006	Dec. 18	2181	498	93	2199
Railway-tie	E. Davis	662,773	Nov. 27	3262	769	93	1645
Railway-tie. Metal	J. W. Cooper	663,157	Dec. 4	474	100	93	1816
Railway-tie. Metallic	W. H. Hillyer	664,042	Dec. 18	2090	477	93	2180
Railway-tie. Metallic	R. O. Southworth	664,789	Dec. 25	3525	801	93	2406
Railway-tie. Metallic	O. Vill	658,932	Oct. 2	389	94	93	79
Railway-tie. Metallic	J. S. Warley	662,841	Nov. 27	3385	801	93	1668
Railway-track alarm device	J. Fayolle	658,838	Oct. 2	222	54, 55, 56	93	47
Railway-track bed	J. W. Gay	664,140	Dec. 25	3424	777	93	2478
Railway-track construction. Metallic	G. B. Harper	664,020	Dec. 18	2064	469	93	2174
Railway-tracks. Apparatus for measuring and recording gage of	A. Olekiewicz	661,813	Nov. 13	1427	344, 345	93	1248
Railway-tunnel ventilating attachment	J. J. Swaine	661,387	Nov. 6	653	152	93	1092
Railway turn-table	J. S. Stephens	659,707	Oct. 16	1788	403	93	392
Railway-wheel safety-indicator	P. A. Harte	663,077	Dec. 4	310	66	93	1783
Railways. Apparatus for lifting and gripping ropes, cables, or chains of rope or similar	W. P. Bullivant	659,573	Oct. 9	1521	345	93	322
Railways. Apparatus for preventing collisions, &c., on	G. M. Schreiber	658,806	Oct. 2	140	33, 34, 35	93	32
Railways. Combined third and traction rail for electric	E. C. Morgan	659,179	Oct. 2	818	199	93	165
Railways. Construction for third-rail electric	W. Courtenay	664,470	Dec. 25	2904	662	93	2368
Railways. Third rail for electric	B. C. Seaton	660,738	Oct. 30	3763	847	93	819
Railways. Traveling contact for electric	C. J. Van Depoele. (Reissue)	11,879	Nov. 13	1667	404, 405	93	1205
Railways with automatic correction of the axles. Working device for	J. de Buigne	661,305	Nov. 6	508	116, 117	93	1052
Raisin-seeder	F. H. Chase	659,579	Oct. 9	1533	347, 348	93	325
Rake: *See* Hay-rake. Sulky-rake. Push-rake.							
Rake and marker. Combined	W. H. Smith	664,788	Dec. 25	3524	801	93	2498
Rake attachment. Horse-hay	H. Hoppe	659,231	Oct. 9	938	221	93	206
Rand-trimmer shield	E. E. Angell	660,829	Oct. 30	3940	883	93	854
Range	T. I. Rankin	661,355	Nov. 6	601	140	93	1071
Range. Combined gas and coal	H. R. Sheppard	662,827	Nov. 27	3356	794, 795	93	1663
Range-finder and turret. Combined	B. A. Fiske	661,968	Nov. 20	1717	414	93	1325
Rasp-cutting machine	J. Turner	660,604	Oct. 30	3517	790, 791	93	772
Rat-trap	J. W. Holmes	660,191	Oct. 23	2761	614	93	605
Ratchet-drill	C. B. Groff	662,644	Nov. 27	3007	711, 712	93	1597
Ratchet-drill	W. S. Halsey	663,887	Dec. 18	1808	405	93	2122
Ratchet for pulleys, &c. Roller	G. E. Hall	661,978	Nov. 20	1737	418	93	1329
Ratchet mechanism	Z. T. Furbish	659,521	Oct. 9	1435	325	93	305
Ratchet-wrench	J. B. Daniels	663,421	Dec. 11	970	210	93	1933
Ratchet wrench and drill	C. F. Anderson	659,564	Oct. 9	1506	342	93	320
Razor blades. Device for honing safety	F., R., and O. Kampfe	660,640	Oct. 30	3585	804	93	784
Razor. Safety	E. E. Deputy	659,917	Oct. 16	2190	493	93	470
Razor. Safety	A. W. Scheuber	664,177	Dec. 18	2324	530	93	2227
Razor-strop	J. H. Hemmerdinger	661,694	Nov. 13	1209	294	93	1207
Razor-stropping device	F. Francis	664,252	Dec. 18	2459	559	93	2256
Reamer, tap, and countersink. Combination	C. Boentgen	659,125	Oct. 2	723	174	93	146
Rear sight. Adjustable	T. C. Johnson	659,929	Oct. 16	2216	497	93	475
Receptacle	C. R. Harris	660,107	Oct. 23	2574	576	93	568
Receptacle. Coin-freed	J. O. Fowler, Jr	664,736	Dec. 25	3413	775	93	2475
Receptacle. Folding	J. Killinger	659,298	Oct. 9	947	223	93	206
Reclining-chair	P. Charbonneau	660,146	Oct. 23	2659	594	93	585
Reclining-chair	H. J. Jacobs	664,322	Dec. 18	2608	593	93	2285
Record and index. Card	J. H. Rand	664,501	Dec. 25	2957	674	93	2379
Record blank or form	C. E. Struble	661,296	Nov. 6	488	112	93	1049
Recorder: *See* Game-recorder. Time-recorder. Telephone-call recorder.							
Recording instrument. Message	J. J. Ruddick	662,308	Nov. 20	2359	569	93	1451
Recuperative furnace	F. Bredel	659,602	Oct. 9	1575	357	93	334

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Reel: *See* Boat-rope reel. Hose-reel. Clothes-line reel. Sand-reel. Fishing-reel. Yarn-reel.							
Reeling-machine	W. J. Irwin	659,067	Oct. 2	694	150, 151	93	125
Refining-engine	C. E. Torrance	662,746	Nov. 27	3208	759, 760	93	1633
Reflector. Composite	W. A. Penfield	660,336	Oct. 23	3058	678	93	664
Reflectors. Manufacture of	S. O. Cowper-Coles	660,416	Oct. 23	3194	.....	93	691
Refrigerant composition	H. B. Cornell	661,851	Nov. 13	1485	.....	93	1259
Refrigerating apparatus	F. E. Müller	663,456	Dec. 11	1031	225	93	1945
Refrigerating, &c. Apparatus for producing cold air for	T. and W. L. Cole	663,731	Dec. 11	1501	332, 333, 334	93	2086
Refrigerating article	J. Miskolczy	662,541	Nov. 27	2830	672, 673	93	1563
Refrigerating milk or other perishable foods for preservation and transportation	D. E. Lain	663,502	Dec. 11	1105	242	93	1960
Refrigerating or ice-making machines. Regenerating and filtering apparatus for salt solutions in	G. Döderlein	664,387	Dec. 25	2735	622	93	2337
Refrigeration apparatus	O. Guthrie	660,771	Oct. 30	3815	856	93	829
Refrigerator	J. H. Mann	664,815	Dec. 25	3586	817	93	2508
Refrigerator	C. Sander	659,105	Oct. 2	694	166	93	141
Refrigerator and milk-cooler. Combined	S. S. Arnold	663,843	Dec. 18	1734	387	93	2100
Refrigerator-car	H. F. Stanley	661,429	Nov. 6	721	167	93	1096
Refrigerator-car trap	P. Broman	663,116	Dec. 4	382	80	93	1796
Refrigerator. Knockdown	P. J. Vanderlinda	661,112	Nov. 6	153	38	93	992
Refrigerator or creamery	W. R. Fowler	659,020	Oct. 2	551	134	93	110
Refrigerator-pan alarm appliance	J. H. McGurty	660,119	Oct. 23	2611	584	93	574
Refuse-consuming furnace	W. J. Glen	664,039	Dec. 18	2087	475, 476	93	2179
Regenerative hearth-furnace	E. Blass	664,526	Dec. 25	3004	684	93	2389
Register: *See* Autographic register. Hot-air register. Cash-register. Hotel-register. Counting-register. Sheet-metal register. Fare-register. Telephone-call register.							
Register	H. S. Hart and D. B. Marwick	661,639	Nov. 13	1105	274	93	1186
Register	I. E. Kuhlman	663,994	Dec. 18	2009	453	93	2164
Registering apparatus	F. Lambert and S. Aronson	662,694	Nov. 27	3112	735, 736, 737, 738	93	1617
Registering mechanism	J. Schinneller	659,421	Oct. 9	1231	283, 284	93	267
Regulator: *See* Boiler gas-regulator. Gas-regulator. Electric-current regulator. Gas-pressure regulator. Engine-regulator. Piston-stroke regulator. Engine-speed regulator. Pressure-regulator. Feed-regulator. Speed-regulator. Feed-water regulator. Water-regulator. Fluid-pressure regulator. Water-pressure regulator. Windmill-regulator. Water-supply regulator. Wind-wheel regulator.							
Reheating-furnace for steel ingots	J. O. E. Trotz	662,610	Nov. 27	2949	701	93	1586
Rein-guide	W. A. Rhodes	659,899	Oct. 16	2147	485	93	461
Rein-holder	W. Goetze	663,431	Dec. 11	986	214	93	1936
Rein. Safety	O. M. Whitman	664,518	Dec. 25	2991	681	93	2386
Releasing mechanism. Time	S. S. Colt	661,285	Nov. 6	467	107	93	1044
Rendering apparatus	S. H. Brown	664,720	Dec. 25	3370	766, 767	93	2466
Rendering apparatus	E. R. Edson	662,403	Nov. 27	2550	616	93	1507
Rendering apparatus	F. X. Miller	659,085	Oct. 2	663	158	93	133
Rendering fats	A. von Podewils	660,655	Oct. 30	3619	812	93	791
Rennet extract and making same	J. A. Just	661,765	Nov. 13	1345	.....	93	1233
Respiration. Apparatus for inducing artificial	E. L. Doyen	659,512	Oct. 9	1419	322	93	303
Retractor	C. J. Pilling	659,182	Oct. 2	830	200	93	167
Reversible engine	H. B. Ogden	660,390	Oct. 23	3151	697	93	683
Reversible wrench	J. M. Nesley	663,294	Dec. 4	727	156	93	1863
Revolving-cylinder engine	J. D. McFarland, Jr	663,067	Dec. 4	329	69	93	1787
Rheostat and circuit-breaker	W. M. Scott	661,196	Nov. 6	301	73	93	1012
Rheostat. Automatic	E. M. Hewlett	664,067	Dec. 18	2164	494	93	2195
Ribbon holding and winding device	W. D. Williams	661,114	Nov. 6	157	39	93	983
Rice-drier	L. W. Haskell	660,900	Oct. 30	4055	908	93	876
Rice hulling and cleaning machine	J. T. Clark	664,533	Dec. 25	3016	686	93	2391
Rifle	C. J. and C. Hamilton	662,068	Nov. 20	1918	460	93	1362
Rifle	W. B. Nicholson	663,923	Dec. 18	1881	423	93	2139
Rifle. Air	W. J. Burrow	660,070	Oct. 16	2501	560	93	532
Rifle. Repeating	A. von Zeke and K. Rédl	661,900	Nov. 13	1573	382	93	1275
Rifle. Repeating air	W. J. Burrow	662,054	Nov. 20	1890	454	93	1358
Ring: *See* Collector-ring. Key-ring. Curtain-pole ring. Napkin-ring. Finger-ring. Packing-ring.							
Ring-casting mold	W. H. Ford	662,561	Nov. 27	2868	680	93	1570
Ring-mold	W. H. Ford	662,562	Nov. 27	2870	680	93	1570
Rivers. System for formation of permanent channels in navigable	J. B. Medici	658,795	Oct. 2	108	26	93	26
Rivet-manufacturing mechanism	P. R. Duncan	658,836	Oct. 2	215	53, 54	93	46
Riveter. Pneumatic	H. J. Kimman	663,124	Dec. 4	398	84, 85	93	1801
Riveting apparatus. Pneumatic	J. J. Tynan and H. C. Mostiller	664,596	Dec. 25	3158	716	93	2422

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Riveting-machine	H. C. Pomeroy	659,620	Oct. 9	1625	367	93	343
Riveting-machine	H. H. Thornton	661,778	Nov. 13	1960	330	93	1237
Road-roller	M. G. Schinke	660,208	Oct. 23	2784	618	93	610
Roaster: *See* Coffee-roaster.							
Roasting-machine	R. W. Koch	659,173	Oct. 2	802	194, 195, 196	93	162
Rock-drill	R. L. Ambrose	661,927	Nov. 13	1621	392	93	1285
Rock-drill	A. M. Southard	659,185	Oct. 2	845	201	93	167
Rock-drill	C. E. Young	660,409	Oct. 23	3180	706, 707	93	689
Rock-drill	A. Ball and T. Officer	661,683	Nov. 13	1190	290	93	1205
Rock-drill cylinder-head	A. Ball and T. Officer	661,684	Nov. 13	1191	290	93	1205
Rock-drill cylinder-head	A. Ball and T. Officer	661,686	Nov. 13	1196	291	93	1205
Rock-drill engine	G. Glossop	661,798	Nov. 13	1401	337, 338	93	1244
Rock-drill making and sharpening apparatus	W. D. Jones and W. O. Pierce	660,961	Oct. 30	4160	934	93	896
Rock-drills. Pneumatic hammer for	W. C. Stephens	661,825	Nov. 13	1443	349	93	1252
Rock-drilling engine	J. J. Myers	662,242	Nov. 20	2248	541	93	1429
Rocker fan attachment							
Rod: *See* Curtain-rod. Lock-rod. Drum-rod. Stair-rod.							
Roentgen rays. Apparatus for determining position of foreign bodies by means of	C. Remy	661,385	Nov. 6	649	151	93	1082
Roll relief device	C. Kuhlewind	661,016	Oct. 30	4261	956, 957	93	917
Roll-relieving device	C. Kuhlewind	662,445	Nov. 27	2650	632, 633	93	1527
Roll-train and its passes for shaping bars from which to sectionally cut fish-plates.	W. J. Bradley	663,598	Dec. 11	1261	278, 279	93	1990
Rolls	R. B. Charlton	659,647	Oct. 16	1668	375	93	368
Roller: *See* Cigarette-roller. Shade-roller. Road-roller.							
Roller-bending machine	G. W. Stifel and W. C. Pritchard	661,459	Nov. 6	773	183	93	1106
Roller-mill roll-shaft	L. H. Roseberry	661,744	Nov. 13	1301	317	93	1224
Rolling apparatus. Sheet-	W. C. Cronemeyer	664,129	Dec. 18	2249	511	93	2212
Rolling billets into tubes. Mandrel mechanism for	G. J. Thust	658,882	Oct. 2	289	71	93	60
Rolling billets. Roll for	W. S. Bidle	663,485	Dec. 11	1075	235	93	1953
Rolling machine. Car-wheel-	M. Baackes	663,002	Dec. 4	191	40, 41	93	1763
Rolling machine. Iron-	T. J. Jones	659,850	Oct. 16	2065	464	93	445
Rolling mechanism	L. D. Davis	662,146	Nov. 20	2051	498, 499	93	1389
Rolling-mill	J. Fawell and J. E. Schwab	661,470	Nov. 6	796	190, 191, 192	93	1111
Rolling-mill	J. Kennedy	664,645	Dec. 25	3236	734	93	2438
Rolling-mill	C. Kuhlewind	661,017	Oct. 30	4263	957	93	918
Rolling-mill	F. A. Wheeler	664,799	Dec. 25	3545	805, 806, 807, 808	93	2502
Rolling mill. Car-wheel-	J. Kennedy	661,877	Nov. 13	1532	372	93	1269
Rolling-mill feed-table	J. W. Bryson and J. A. Evarts	662,348	Nov. 20	2436	587	93	1466
Rolling-mill transfer-table	J. Daschbach	662,917	Dec. 4	36	8	93	1733
Rolling-mills. Device for holding rounds for	J. Daschbach	662,916	Dec. 4	33	8	93	1732
Rolling-mills. Device for holding rounds in	J. P. Wennersten	661,462	Nov. 6	776	184	93	1107
Rolling screws, &c. Machine for	W. H. Taneyhill	658,901	Oct. 2	319	78, 79, 80	93	65
Rolling tubes for pneumatic tires. Machine for	L. May	664,660	Dec. 25	3260	741	93	2443
Roof. Tin	P. Knoch	660,578	Oct. 30	3481	781	93	765
Roofing or the like from felt, canvas, &c. Manufacturing corrugated	R. C. Gardner	660,813	Oct. 30	3898	876	93	845
Rope-grip	J. H. Fenner	658,908	Oct. 2	333	83	93	68
Rope or cable guide	J. F. Arthur	662,749	Nov. 27	3214	761	93	1634
Rotary-cutter cleaner	H. L. Casavant	662,914	Dec. 4	31	7	93	1732
Rotary-cutter mounting	G. O. Sanderson	662,467	Nov. 27	2692	641	93	1536
Rotary-cylinder steam-engine	D. Grupe	659,299	Oct. 9	1089	214	93	225
Rotary drier	J. Taylor and J. E. Kohn	664,187	Dec. 18	2347	535, 536	93	2232
Rotary drier	G. C. P. Andersson	660,676	Oct. 30	3656	821, 822	93	798
Rotary engine	C. H. Asling and A. Helms	663,716	Dec. 11	1478	327	93	2031
Rotary engine	J. P. Baxter	659,782	Oct. 16	1946	437	93	421
Rotary engine	J. M. Evans	659,295	Oct. 9	1034	243	93	224
Rotary engine	N. Henquin	661,524	Nov. 13	888	213, 214	93	1143
Rotary engine	C. W. Hoffmann	664,320	Dec. 18	2604	592	93	2285
Rotary engine	G. R. Ibach	664,480	Dec. 25	2921	605, 606	93	2372
Rotary engine	J. H. Jackson	659,530	Oct. 9	1448	328, 329	93	306
Rotary engine	E. M. Kaster	661,103	Nov. 6	135	93	93	978
Rotary engine	W. Lambert	660,017	Oct. 16	2372	533	93	508
Rotary engine	B. F. Lazenby	663,766	Dec. 11	1564	350	93	2050
Rotary engine	L. Legendre	664,765	Dec. 25	3487	789	93	2490
Rotary engine	D. Morell	660,799	Oct. 30	3872	871	93	839
Rotary engine	J. Müllforth	659,151	Oct. 2	761	183, 184	93	154
Rotary engine	V. and G. Sandahl	662,547	Nov. 27	2842	675, 676	93	1565
Rotary engine	A. L. Scudder	663,939	Dec. 18	1909	429, 430	93	2144

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Rotary engine	F. G. Tees	664,509	Dec. 25	2976	677, 678	93	2383
Rotary engine	O. F. Tinkham	659,007	Oct. 2	522	126, 127	93	105
Rotary engine	G. W. Whitehead	664,201	Dec. 18	2380	542	93	2241
Rotary engine	C. I. Williams	660,675	Oct. 30	3655	820	93	797
Rotary engine	W. D. Williams	664,801	Dec. 25	3556	809	93	2504
Rotary explosive-engine	F. G. Bates	660,482	Oct. 23	3308	740, 741	93	713
Rotary explosive-motor	P. H. Standish	660,129	Oct. 23	2626	587	93	577
Rotary kiln	P. O. von Krottnaurer	661,217	Nov. 6	341	81	93	1020
Rotary machines. Controlling end play of	E. M. Hewlett	661,049	Nov. 6	40	9	93	958
Rotary meter	G. Fajen	661,120	Nov. 6	170	42, 43	93	986
Rotary motor	W. J. Cruyt	659,790	Oct. 16	1962	440	93	424
Rotary motor	A. Lestrade	664,486	Dec. 25	2935	668, 669	93	2375
Rotary motor	A. Sauer	662,975	Dec. 4	135	28	93	1750
Rotary-piston motor	F. W. Jaeger	659,675	Oct. 16	1718	387, 388	93	378
Roundabout system	A. D. Weil	663,948	Dec. 18	1923	433	93	2147
Roving can, basket, or box	G. S. Perkins	659,825	Oct. 16	2019	453	93	435
Rowlock	C. D. Spates	661,326	Nov. 6	545	126	93	1060
Rubber heel for shoes	W. W. Comingor	663,865	Dec. 18	1771	397	93	2116
Rubber or cushion heel for boots or shoes	F. W. Whitcher	658,970	Oct. 2	454	107	93	92
Rubber. Vulcanizing	G. H. Tuttle	663,308	Dec. 4	754	161	93	1868
Rug materials. Cutting and raveling machine for	M. Young	663,210	Dec. 4	563	121	93	1832
Rug or carpet fastener	W. D. Le Fevre	661,220	Nov. 6	347	83	93	1021
Ruler	T. C. Bassett	662,388	Nov. 27	2510	605	93	1499
Runner attachment	W. C. Oswald	660,710	Oct. 30	3715	836	93	869
Sack filling and closing machine	E. W. Gerbracht and J. R. Okell	659,024	Oct. 2	555	135	93	111
Sack filling and closing machine	E. W. Gerbracht and J. R. Okell	659,025	Oct. 2	559	135, 136	93	112
Sack filling and sewing machine	A. T. Timewell	661,091	Nov. 6	112	26, 27, 28	93	973
Sad-iron	H. Clayton	663,259	Dec. 4	671	144	93	1852
Sad-iron	T. C. Edwards	660,055	Oct. 16	2441	550, 551	93	519
Sad-iron	S. L. Gross	662,932	Dec. 4	59	14	93	1737
Sad-iron	I. Wickland	661,095	Nov. 6	118	29	93	974
Sad-iron heater	L. Hardy	663,342	Dec. 4	808	173	93	1878
Saddle	J. W. McCoy	663,775	Dec. 11	1579	353	93	2052
Saddle. Harness-	S. P. Martin and W. H. Morris	659,872	Oct. 16	2104	473	93	453
Saddle. Harness-	R. D. Murphy	663,920	Dec. 18	1877	422	93	2138
Saddle. Riding-	F. O. Hicks	662,564	Nov. 27	2873	681	93	1571
Safe	H. D. Hibbard	662,428	Nov. 27	2606	626	93	1518
Safe	H. D. Hibbard	662,429	Nov. 27	2611	627	93	1518
Safe	H. D. Hibbard	662,432	Nov. 27	2623	628	93	1521
Safe	J. H. Howard	661,989	Nov. 20	1754	421	93	1332
Safe	H. A. Post	661,226	Nov. 6	355	85	93	1022
Safe-door-interlocking device	W. H. Hollar and W. Corry	662,789	Nov. 27	3290	776	93	1649
Safe or vault plate	H. D. Hibbard	662,431	Nov. 27	2621	628	93	1521
Safe or vault plate fastening	H. D. Hibbard	662,433	Nov. 27	2628	628	93	1522
Safety-can for petroleum, benzene, or similar liquids.	F. Henze	661,341	Nov. 6	576	133	93	1065
Safety-pin	T. W. Pitts	662,962	Dec. 4	114	24	93	1746
Sailing device. Track-supported	G. Breed	663,006	Dec. 4	197	42	93	1764
Salt-cellar	W. H. Moore	659,822	Oct. 16	2014	452	93	435
Salt-cellar or flour-dredge	J. Putnam	664,228	Dec. 18	2421	552	93	2250
Salve-box	A. C. Taylor	660,739	Oct. 30	3765	848	93	820
Sampling, averaging, mixing, and storing materials in bulk.	T. A. Edison	662,063	Nov. 20	1905	457, 458	93	1360
Sampling, averaging, mixing, and storing materials in bulk. Apparatus for	T. A. Edison	660,845	Oct. 30	3967	888, 889	93	859
Sand-reel	W. Heald	663,626	Dec. 11	1814	290	93	1999
Sander	B. B. Jenkins	660,546	Oct. 23	3426	760	93	736
Sandpapering-machine	T. E. and L. E. Rich	661,552	Nov. 13	946	235, 236	93	1154
Sanitary appliance	A. O'Brien	663,978	Dec. 18	1978	445	93	2158
Sash-center	G. W. Golden	659,144	Oct. 2	750	181	93	152
Sash-cord fastener	G. Worth	660,236	Oct. 23	2841	630	93	621
Sash-cord guide	W. T. Kellogg	658,781	Oct. 2	72	18	93	18
Sash-fastener	G. M. Hubbard	661,404	Nov. 6	677	157, 158	93	1087
Sash-fastener	G. E. Link	664,102	Dec. 18	2302	524	93	2223
Sash-fastener	J. M. Porter	661,131	Nov. 6	102	48	93	990
Sash-holder	W. Agar	661,728	Nov. 13	1299	307	93	1219
Sash-holder	I. B. Hardy	661,606	Nov. 13	1046	261	93	1175
Sash-holder	O. F. Helfritz	662,722	Nov. 27	3107	749	93	1626
Sash-holder	T. J. Moseley	663,611	Dec. 11	1287	285	93	1995
Sash-holder	W. A. Hulme	661,991	Nov. 20	1756	422	93	1332
Sash holder and fastener	G. E. Lint	658,954	Oct. 2	421	101	93	86
Sash holder. Window-	G. R. Hill	658,847	Oct. 2	243	60	93	51
Sash-lock	H. B. Ives	659,069	Oct. 2	628	151	93	125
Sash-lock	S. C. Martin	662,571	Nov. 27	2885	684	93	1573
Sash-lock	L. H. Sparks	659,457	Oct. 9	1308	299, 300	93	281
Sash-lock and burglar-alarm	S. Ritchie	663,101	Dec. 4	360	74	93	1793
Sash. Reversible window-	F. C. Dunn	659,654	Oct. 16	1682	380	93	371
Sash stay and fastener	R. G. Winter	663,555	Dec. 11	1196	260	93	1976
Sash. Window-	S. J. Buzzini and G. Ferracioli	661,848	Nov. 13	1477	359	93	1258
Sash. Window-	G. W. Holly	660,438	Oct. 23	3229	721	93	608
Sashes, doors, or shutters. Device for lifting	O. Williams	663,648	Dec. 11	1346	208	93	2005
Sashes. Securing flexible material to window-	O. M. Edwards	661,963	Nov. 20	1705	413	93	1323
Satchel	H. B. Hempe	660,270	Oct. 23	2927	651	93	639
Sauer-kraut press	R. J. Ong and A. J. Douglas	661,191	Nov. 6	238	70	93	1010

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sausage stuffing and linking machine	W. Paulitschke and F. Barilitsch	661,073	Nov. 6	84	20	93	967
Sausage-stuffing-machine linking attachment	H. C. Atkinson	661,436	Nov. 6	731	171, 172	93	1098
Saw	D. B. Johnston	660,575	Oct. 30	3476	779	93	765
Saw	J. Oldham	659,094	Oct. 2	676	161	93	137
Saw	R. Rockwell	659,108	Oct. 2	692	165	93	140
Saw	J. W. and H. A. Thurston	661,198	Nov. 6	305	74	93	1014
Saw-blades. Hammer for straightening	T. J. Johnson	660,015	Oct. 16	2368	532	93	507
Sawbuck attachment	J. H. Hussie	659,974	Oct. 16	2305	518	93	494
Saw-cabinet	J. A. Almquist	664,452	Dec. 25	2870	655	93	2362
Saw-clamp	M. A. K. Shotwell	661,727	Nov. 13	1269	307	93	1219
Saw-clamp	J. B. L. McKenzie	659,088	Oct. 2	668	159	93	134
Saw-cleaner	J. P. Dewitt	663,534	Dec. 11	1165	252	93	1970
Saw. Crosscut-	D. Adkins and G. F. John	660,177	Oct. 23	2731	608	93	599
Saw. Drag-	W. A. Miller	659,753	Oct. 16	1888	425, 426	93	410
Saw. Drag-	B. F. Nedrow	659,376	Oct. 9	1153	268	93	249
Saw. Drag-	J. H. Perkins	660,922	Oct. 30	4088	917	93	884
Saw-filing machine	G. Bartlett	661,902	Nov. 13	1575	382	93	1276
Saw-filing machine	S. W. Gutridge	663,992	Dec. 18	2005	452	93	2163
Saw gage. Circular-	D. R. Carleton	661,206	Nov. 6	321	78	93	1017
Saw-guard	H. J. Barnard	660,481	Oct. 23	3307	740	93	713
Saw-guide	G. E. Pooler	661,106	Nov. 6	189	35	93	979
Saw guide. Band-	A. Cunningham	662,254	Nov. 20	2264	544, 545	93	1431
Saw-handle	J. Jett	664,048	Dec. 18	2099	480	93	2182
Saw jointer and gage. Combined	G. Y. Anderson	663,322	Dec. 4	774	165, 166	93	1872
Saw-machine	J. Wurster	660,715	Oct. 30	3726	838, 839	93	812
Sawmill attachment	H. M. McCaskill	660,022	Oct. 16	2382	535	93	510
Saw mill. Band-	E. E. Thomas	664,188	Dec. 18	2350	536	93	2233
Sawmill-carriages. Power set-works for	F. Billings and C. S. Prescott	659,124	Oct. 2	720	173, 174	93	146
Saw-mill feeding mechanism. Band-	L. J. Hanhart	660,635	Oct. 30	3574	801, 802	93	782
Saw-mill guide. Band-	E. E. Thomas	664,108	Dec. 18	2209	503	93	2204
Sawmill rossing attachment	R. H. Dickinson	664,535	Dec. 25	3019	687, 688	93	2391
Sawmill set-works	S. W. Butterfield	660,840	Oct. 30	3960	886, 887	93	857
Sawmill set-works. Electrically-actuated	W. M. Carroll	660,045	Oct. 16	2421	545, 546	93	516
Saw motor. Drag-	C. P. Hellyer	660,955	Oct. 30	4149	932	93	896
Saw-set	W. Mathews	662,453	Nov. 27	3663	835	93	1530
Saw-setting device	J. Ranz	660,310	Oct. 23	2697	604	93	652
Saw-setting implement	C. C. Taintor	660,535	Oct. 23	3409	765	93	733
Saw-setting machine	A. C. Saxton	661,647	Nov. 13	1117	277	93	1189
Saw-sharpener	J. W. Green	660,105	Oct. 23	2572	576	93	567
Saw-vise and tool-basket handle. Combination	H. C. Walbaum, Jr.	664,342	Dec. 18	2650	603	93	2293
Sawing kerfs. Machine for	G. A. Holmes	659,230	Oct. 9	936	220, 221	93	205
Sawing-machine	L. J. Hanhart	659,475	Oct. 9	1337	305, 306	93	287
Sawing-machine	W. Hansmann	662,720	Nov. 27	3165	749	93	1626
Sawing-machine. Band	G. W. Bugbee	658,757	Oct. 2	14	3, 4	93	5
Sawing machine. Circular	F. H. Clement	663,863	Dec. 18	1769	395, 396	93	2115
Sawing-machine gage	J. G. Strait	663,645	Dec. 11	1342	297	93	2005
Sawing machine. Scroll-	T. Curley	663,871	Dec. 18	1779	398, 399	93	2117
Sawing machine. Wood-	G. R. Jackson	659,303	Oct. 9	1043	245	93	226
Scabbard	G. E. Lowman	660,302	Oct. 23	2984	692	93	650
Scaffold	W. P. Smith and A. Tennison	664,508	Dec. 25	2972	677	93	2382
Scaffold-hook	R. B. Gregory	663,883	Dec. 18	1796	403	93	2121
Scale	W. F. Stimpson	659,939	Oct. 16	2231	501	93	477
Scale. Automatic fur-	E. B. Boggs	664,619	Dec. 25	3196	723, 724	93	2428
Scale. Automatic weighing-	E. Hanak and G. Hoepner	660,794	Oct. 30	3863	868, 869	93	837
Scale-beam	C. G. Strubler	662,367	Nov. 20	2467	594	93	1472
Scale-bearing	W. F. Stimpson	661,087	Nov. 6	108	25	93	972
Scale. Computing-	A. De Vilbiss, Jr.	661,856	Nov. 13	1493	362, 363	93	1261
Scale. Computing-	J. H. Schneider	662,097	Nov. 20	1974	471	93	1374
Scale. Platform spring-balance	J. W. Culmer	659,292	Oct. 9	1031	242	93	224
Scales. Dead-rail stand for track-	J. A. Rishel	662,245	Nov. 20	2252	542	93	1430
Scenic representations. Apparatus for producing	A. S. Fitch	663,267	Dec. 4	681	147	93	1854
Scenic representations. Producing	A. S. Fitch	663,266	Dec. 4	678	146	93	1854
Schedule-indicator	J. S. Hill	659,396	Oct. 9	1186	275	93	257
Scissors	J. Badger	664,613	Dec. 25	3186	721	93	2427
Scoop or ladle. Measuring	F. D. Hayden	659,146	Oct. 2	752	181	93	152
Scow. Dumping-	G. D. Barney	663,801	Dec. 11	1643	369	93	2067
Scow. Dumping-	T. Lawson	659,239	Oct. 9	948	223	93	208
Scraper	G. E. Richardson	662,740	Nov. 27	3301	758	93	1632
Scraper	C. A. Sutton	663,303	Dec. 4	747	169	93	1867
Scraper	F. N. Renfrow	660,069	Oct. 30	4170	937	93	900
Scraper. Cotton-	J. H. Gregory	659,473	Oct. 9	1335	305	93	287
Scraper for cleaning ditches or trenches	E. M. Heylman	663,436	Dec. 11	997	217	93	1939
Scraper for soil-cutting disks	W. P. Warren	661,094	Nov. 6	117	28, 29	93	974
Scraper. Wheel-							
Screen: *See* Coal-screen. Window-screen. Separator-screen.							
Screening apparatus	T. R. Jordan	661,996	Nov. 20	1766	424, 425	93	1334
Screw	F. W. Rodd	662,134	Nov. 20	2032	404	93	1385

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Screw cover or guard. Set-	R. W. Pratt	664,777	Dec. 25	3508	795	93	2494
Screw-driver attachment	G. C. Cady	664,624	Dec. 25	3201	726	93	2430
Screw-machines, &c. Tool-turret for	F. E. Wells	662,209	Nov. 20	2183	526	93	1417
Screw-plate	Z. G. Ward	664,514	Dec. 25	2983	679	93	2385
Screw. Rigging-	H. S. Clement and A. S. Thomson	664,466	Dec. 25	2897	661	93	2367
Screw-threading device	M. Behrens	661,597	Nov. 13	1033	258	93	1173
Screws, nuts, &c., from rough metal. Machinery for automatically manufacturing	W. Reh	664,098	Dec. 18	2184	498	93	2200
Scribing-tool	W. Lipsy	660,688	Oct. 30	3673	826	93	801
Seal	E. J. Brooks	660,837	Oct. 30	3955	885, 886	93	857
Seal	F. W. Brooks	663,693	Dec. 11	1433	318	93	2023
Seal. Bottle-	W. E. Heath	664,636	Dec. 25	3220	731	93	2434
Seal. Bottle-	W. E. Heath	664,746	Dec. 25	3442	779	93	2482
Seal. Bottle-	W. E. Heath	664,747	Dec. 25	3445	780	93	2483
Seal. Car-	S. F. Estell	660,850	Oct. 30	3981	890	93	861
Seal. Car-	T. Fildes	663,070	Dec. 4	301	64	93	1782
Seal. Car-	B. A. Smith and G. M. Hoyland	663,835	Dec. 11	1718	384	93	2084
Seal. Car-	T. White	662,615	Nov. 27	2959	702	93	1588
Seal. Car-	A. W. Coffin	661,467	Nov. 6	789	188	93	1110
Seal-lock	G. D. Danforth	662,915	Dec. 4	32	7	93	1732
Seal-lock	L. B. Reed	659,378	Oct. 9	1150	269	93	250
Sealing-clamp	H. T. Gay	662,268	Nov. 20	2278	547	93	1434
Sealing device. Bottle-	W. Burch	660,092	Oct. 23	2547	570	93	592
Sealing fruit-jars. Device for	J. R. Croft	660,051	Oct. 16	2433	548	93	518
Sealing of tins or other receptacles. Means for facilitating hermetic	G. P. Hobbs	663,885	Dec. 4	877	189	93	1892
Seam for metal articles. Lock-	G. P. Hobbs	663,886	Dec. 4	878	189	93	1892
Seam. Lock-							
Seat: *See* Car-seat. Spring-seat.							
Seat	P. M. Kling	658,951	Oct. 2	419	101	93	86
Seat attachment. Spring-	S. C. Hitchcock	664,638	Dec. 25	3226	731	93	2436
Seat-cover	A. B. Jones	663,279	Dec. 4	699	152	93	1857
Seat-fastener. Folding-	L. O. Brye, L. Grimsrud, and A. Thrune.	661,845	Nov. 13	1473	358	93	1257
Secondary battery	H. C. Porter	658,865	Oct. 2	270	66	93	56
Secondary battery	F. W. Wetherill	664,198	Dec. 18	2374	541	93	2239
Sectional boiler	A. T. Henderson	663,025	Dec. 4	230	49	93	1770
Seed. Apparatus for treating cotton-	J. C. W. Stanley	658,877	Oct. 2	283	69	93	59
Seed cleaning and separating machine	J. Rump	664,680	Dec. 25	3203	748, 749	93	2450
Seed delinter. Cotton-	W. C. Baxter	659,840	Oct. 16	2050	460	93	442
Seed-delinting machine. Cotton-	H. Barditzky	662,337	Nov. 20	2420	584	93	1463
Seed-drill	G. C. Ditzler	661,502	Nov. 13	850	204	93	1135
Seed. Treatment of cotton-	J. C. W. Stanley	658,876	Oct. 2	282	69	93	58
Seeder. Grass-	N. McPherson	659,688	Oct. 16	1751	394	93	354
Seeding-machine	C. McLeod	662,653	Nov. 27	3021	715	93	1599
Seeding-machine disk-shoe	J. Morphy	660,759	Oct. 30	3797	853	93	826
Self-locking stand	J. B. Quinn	664,678	Dec. 25	3290	748	93	2449
Semaphore-operating mechanism	J. Shoecraft	662,549	Nov. 27	2849	676, 677	93	1567
Semaphore system. Electrical	J. Shoecraft and C. C. Gardiner	658,929	Oct. 2	370	91	93	75
Separator: *See* Cranberry-separator. Cream-separator. Gold-separator. Grain-separator. Gravel-separator. Liquid-separator. Magnetic separator. Milk and cream separator. Ore-separator. Steam and water separator. Stitch-separator. Wheat-separator.							
Separator and amalgamator	I. P. Clarke	662,685	Nov. 27	3096	731	93	1613
Separator screen or riddle	D. Lippy	664,811	Dec. 25	3574	813	93	2507
Sewage-disposal apparatus	W. L. Church	664,582	Dec. 25	3018	685, 686	93	2390
Sewage, &c. Ejector for raising	I. Shone and E. Ault	664,183	Dec. 18	2335	533, 534	93	2230
Sewage. Purification of	O. W. Pfouts	659,452	Oct. 9	1298	298	93	279
Sewage to bacteria-beds. Apparatus for applying	F. A. Barbour	663,151	Dec. 4	462	97, 98, 99	93	1814
Sewage-treating apparatus	R. J. G. Wood	659,503	Oct. 9	1395	317	93	298
Sewer	C. E. Colton	661,286	Nov. 6	470	108	93	1045
Sewer-inlet grating	W. T. McLam	660,731	Oct. 30	3754	845	93	817
Sewing and cutting machine	B. Bissinger	660,617	Oct. 30	3541	796	93	776
Sewing-machine bobbin-case holder and bobbin-ejector.	P. Diehl and M. Hemleb	663,675	Dec. 11	1405	311	93	2017
Sewing-machine. Circularly-moving-hook	P. Diehl	663,807	Dec. 11	1653	370, 371	93	2069
Sewing-machine. Circularly-moving-hook	P. Diehl and A. Grieb	663,696	Dec. 11	1443	319	93	2024
Sewing-machine darning attachment	W. Ragen	662,202	Nov. 20	2168	523	93	1414
Sewing-machine embroidering attachment	J. Grubman	663,752	Dec. 11	1537	344	93	2048
Sewing-machine feeding mechanism	P. Diehl and A. Grieb	663,673	Dec. 11	1402	310, 311	93	2017
Sewing-machine feeding mechanism	J. F. McKenney	664,772	Dec. 25	3501	703, 704	93	2493
Sewing-machine feeding mechanism	J. Tripp	663,399	Dec. 4	908	197	93	1898
Sewing-machine feeding mechanism	S. A. West	662,479	Nov. 27	2722	646, 647	93	1548
Sewing-machine guide	G. W. Lasch	663,908	Dec. 18	1855	417	93	2134
Sewing-machine horn	J. H. Richardson	663,100	Dec. 4	359	74	93	1793
Sewing machine. Leather-	G. L. Pierce	663,462	Dec. 11	1040	227	93	1947
Sewing-machine looper mechanism	A. Spear	662,832	Nov. 27	3362	706	93	1664
Sewing-machine needle	H. A. Blanchard	659,999	Oct. 16	2342	527	93	502
Sewing-machine needle	S. S. Roszell	662,307	Nov. 20	2357	508	93	1451

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine. Overseaming	H. A. Klemm	659,482	Oct. 9	1356	309	93	291
Sewing-machine. Overseaming	H. A. Klemm	660,777	Oct. 30	3832	860	93	831
Sewing-machine. Overseaming	O. R. Van Vechten	661,004	Oct. 30	4223	949 950	93	910
Sewing-machine presser-foot	W. N. Parkes	659,543	Oct. 9	1475	334	93	314
Sewing-machine presser-foot	A. G. Peterson	659,317	Oct. 9	1064	250	93	231
Sewing-machine presser-foot mechanism	A. Steward	662,505	Nov. 27	2772	657	93	1533
Sewing-machine. Revolving-hook	P. Diehl	663,808	Dec. 11	1659	371	93	2070
Sewing-machine shuttle-actuating mechanism	J. F. McKenney	664,773	Dec. 25	3503	794	93	2493
Sewing-machine shuttle mechanism	F. L. Alley and E. E. Winkley	662,383	Nov. 27	2501	604	93	1497
Sewing-machine shuttle mechanism	E. C. Lea	661,806	Nov. 13	1417	341 342	93	1246
Sewing-machine stitch-separating mechanism	M. H. Pearson	658,996	Oct. 2	497	119 120 121	93	100
Sewing-machine thread-case	P. Diehl and M. Hemleb	663,674	Dec. 11	1404	311	93	2017
Sewing-machine thread-cutter	R. W. Thomson	660,130	Oct. 23	2627	587 588	93	578
Sewing-machine trimmer	H. A. Klemm	664,277	Dec. 18	2527	574	93	2270
Sewing-machine trimming attachment	D. Noble	663,780	Dec. 11	1609	361	93	2059
Sewing-machine. Two-needle	J. Kerr. (Reissue)	11,876	Dec. 4	924	201	93	1901
Sewing machines. Gumming mechanism for book-	D. M. Smyth	664,300	Dec. 18	2565	588	93	2277
Sewing on buttons. Machine for	F. T. Leilich	659,537	Oct. 9	1463	331 332	93	311
Sewing on flat buttons. Machine for	F. H. Chilton	663,604	Dec. 11	1434	318	93	2023
Shackle. Animal-	S. E. Farrell	661,637	Nov. 13	1103	273	93	1186
Shade. Adjustable window-	R. R. Johnson	661,581	Nov. 13	1005	249	93	1167
Shade cover. Window-	P. W. Vandenhoff	660,473	Oct. 23	3262	736	93	710
Shade-fixture	J. W. Paterson	659,315	Oct. 9	1061	249	93	230
Shade-roller. Spring	E. C. Cordes	659,584	Oct. 9	1542	350	93	327
Shade-roller. Spring	E. F. Hartshorn	662,148	Nov. 20	2661	500	93	1391
Shade-roller support. Adjustable	P. J. Doran	661,168	Nov. 6	257	62	93	1003
Shaft-coupling	C. W. B. Putnam	659,827	Oct. 16	3021	453 454	93	436
Shaft-hanger	C. W. Levalley	663,577	Dec. 11	1227	269	93	1982
Shaft-loop	A. Krauser	664,416	Dec. 25	2803	636	93	2350
Shaft stiffening-plate. Vehicle-	C. E. Stone	661,827	Nov. 13	1445	350	93	1252
Shaft-support and coupling. Combined	W. E. Murbarger	660,218	Oct. 23	2814	624	93	615
Shafting	J. Giroux	663,748	Dec. 11	1532	343	93	2042
Shafting. Geared flexible	E. B. Collins	661,954	Nov. 20	1692	410	93	1321
Sharpener. Disk-	M. J. Lohrbach	663,285	Dec. 4	713	153	93	1861
Sharpener. Harrow-disk	J. H. and C. H. Allen	663,481	Dec. 11	1067	233 234	93	1951
Sharpener. Harrow-disk	T. L. Regester	664,097	Dec. 18	2183	498	93	2199
Sharpener. Meat-grinder-knife	R. V. Jones	661,013	Oct. 30	4253	955	93	916
Sharpener. Shears-	F. Ries	663,787	Dec. 11	1623	364	93	2062
Sharpening apparatus. Lawn-mower-	G. Ricardo	664,504	Dec. 25	2962	675 676	93	2280
Sharpening attachment. Disk-	H. H. Hunnicut	660,704	Oct. 30	3708	834	93	808
Sharpening machine. Razor-	L. D. Whipple	659,501	Oct. 9	1393	317	93	298
Sharpening rock-drills, &c. Machine for	W. E. Kimber	659,371	Oct. 9	1142	266	93	247
Shaving apparatus	H. Drösse	664,388	Dec. 25	2736	622	93	2337
Shaving mug and brush	H. Berry	659,282	Oct. 9	1012	238	93	220
Sheaf or bundle registering machine	J. F. Young	660,879	Oct. 30	4027	901	93	871
Shears: *See* Pruning-shears.							
Shears	H. A. Decker	661,958	Nov. 20	1697	411	93	1322
Shears	O. M. Fisher	663,565	Dec. 11	1210	264	93	1979
Shears	C. McSherry	660,197	Oct. 23	2769	616	93	607
Shears	W. Scheerer	662,468	Nov. 27	2693	641	93	1536
Shears, &c. Combined separating-spring and locking device for	C. D. W. Colby	663,652	Dec. 11	1355	300	93	2007
Shears-gage	L. A. Hoerr	663,229	Dec. 4	610	130	93	1840
Sheave	C. M. Day	659,019	Oct. 2	548	133	93	110
Shedding-mechanism controller	G. W. Clayton	663,417	Dec. 11	959	208 209	93	1931
Sheep-dipping apparatus	S. K. White	659,907	Oct. 16	2168	488 489	93	466
Sheet-feeder	C. Leffler	662,447	Nov. 27	2654	633	93	1528
Sheet-metal can	G. Miller	660,730	Oct. 30	3752	845	93	817
Sheet-metal can or box	E. G. Budd	660,719	Oct. 30	3733	841	93	813
Sheet-metal-forming die	J. F. Budke	663,155	Dec. 4	472	100	93	1815
Sheet metal. Manufacture of	R. G. Wood	662,513	Nov. 27	2785	661	93	1535
Sheet metal. Manufacture of	H. A. Marlin	660,019	Oct. 16	2377	534	93	509
Sheet-metal pipe	H. S. Hart and D. B. Marwick	661,638	Nov. 13	1104	274	93	1186
Sheet-metal register	F. Wiley	664,070	Dec. 18	2182	487	93	2188
Sheet-metal ware	R. Chillingworth	659,648	Oct. 16	1670	376	93	369
Sheet-metal wheel	D. G. Smyth	658,812	Oct. 2	188	38	93	35
Sheet or signature gathering machine	A. D. Porter	663,784	Dec. 11	1619	363	93	2062
Shelf	E. R. Storm	660,264	Oct. 23	2913	648	93	636
Shelf. Divisible	W. H. McNamara	662,014	Nov. 20	1802	434	93	1341
Shelf protection	E. Bamberger	661,234	Nov. 6	869	88	93	1026
Shelves, drawers, &c. Device for hanging	E. I. Kidd and G. C. Wurster	664,221	Dec. 18	2408	549 550	93	2247
Shell-blank-cutting machine	W. H. Gates	660,097	Oct. 23	2554	571	93	563
Shell extractor and ejector	C. H. Dieterich	663,262	Dec. 4	674	145	93	1853
Shell receiver. Discharged-							
Sheller: *See* Corn-sheller.							
Shield for use in warfare	H. M. Wells	660,478	Oct. 23	3301	739	93	712
Shield or breastwork. Roller	R. S. Anderson	660,716	Oct. 30	3727	839	93	812
Shield or guard for protecting soldiers	A. Hiltt	660,700	Oct. 30	3700	833	93	806
Shingle-jointer	J. Randall	662,818	Nov. 27	3332	788	93	1657
Shingle. Metallic	C. A. Galvin	662,202	Nov. 20	2277	547	93	1434
Shingle. Metallic	H. E. Moomaw	659,177	Oct. 2	814	198	93	164
Shingle-sawing machine	J. W. Seavolt	660,981	Oct. 30	4106	923	93	887

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ships. Automatic electrical apparatus for indicating leaks in	W. W. Zvortkin and S. de Blumenthal.	663,059	Dec. 4	283	60	93	1779
Ship's drag	C. E. Delanoy	661,100	Nov. 6	131	32	93	977
Ships from sinking. Means for preventing	A. Wisgalla and F. Engel	659,948	Oct. 16	2246	504	93	480
Ships. Means for controlling water ballast in	G. B. Willcox	662,330	Nov. 20	2402	579	93	1459
Shipping and packing box. Wooden	R. B. Fuller	659,224	Oct. 9	926	217 218	93	208
Shipping-box. Wooden	E. H. Barnes	659,954	Oct. 16	2269	506	93	486
Shirt. Apparel-	J. L. Frohman	661,139	Nov. 6	206	52	93	998
Shirt. Apparel-	J. S. Richmond	659,040	Oct. 2	582	142	93	117
Shirt-case	L. W. Peddicord	663,927	Dec. 18	1888	425	93	2140
Shirt-waist and dress holder. Combined	E. A. Holden	663,439	Dec. 11	1000	218	93	1939
Shoe	G. S. Webber	660,284	Oct. 23	2944	655	93	642
Shoe cleaning, blacking, and polishing device. Combination	L. M. Bryan	660,886	Oct. 30	4085	904	93	872
Shoe-form	C. B. Kosters	662,720	Nov. 27	3179	752	93	1628
Shoe-form	W. L. C. Niles	662,807	Nov. 27	3315	782	93	1654
Shoe-form	J. T. Foskett	650,166	Oct. 2	795	192	93	160
Shoe-polisher	C. B. Kosters	662,723	Nov. 27	3177	752	93	1628
Shoe-stretcher	S. Beach	662,519	Nov. 27	2800	664	93	1558
Shoestring-fastener	O. A. Davis	662,355	Nov. 20	2448	589	93	1468
Shoe-trimming machine	C. K. Sharood	660,522	Oct. 23	3383	760	93	728
Shoe. Ventilated	L. E. Wilson	663,825	Dec. 11	1697	380	93	2079
Shoulder-brace and antisnoring attachment							
Shovel: *See* Firing-shovel. Prospecting-shovel.							
Shovel-guard	C. C. Crago	661,287	Nov. 6	473	108	93	1046
Shoveling-board	N. I. Milliken	664,662	Dec. 25	3262	741	93	2448
Show-case	J. L. Crane	661,237	Nov. 6	375	90	93	1027
Show-case, &c.	E. Lee and J. S. Pickford	663,505	Dec. 11	1126	244	93	1963
Shrimps. Obtaining extract of	C. Arendt and W. Hönicke	662,849	Nov. 27	3398	.....	93	1671
Shutter. Combined rolling and folding	J. G. Wilson	663,554	Dec. 11	1194	259	93	1976
Shutter. Door or window	J. G. Wilson	663,989	Dec. 18	2001	451	93	2162
Shutter-retainer	N. Martin	664,164	Dec. 18	2306	525	93	2224
Shutter-slat fastener	W. L. Ambler	663,536	Dec. 11	1197	260	93	1976
Shutter-worker	A. M. Burnham	663,858	Dec. 18	1757	392 393	93	2118
Shutter-worker	E. H. Price	659,419	Oct. 9	1229	283	93	266
Sidewalk-elevator	J. Rieg	663,786	Dec. 11	1622	364	93	2062
Sieve cleaner. Shaking-	W. D. Gray	660,569	Oct. 30	3467	777	93	702
Sieve. Flour-	S. F. Rukenbrod	661,251	Nov. 6	414	96	93	1034
Sifter	C. S. Broadman	662,111	Nov. 20	1998	478	93	1378
Sifter	J. McMaster	661,723	Nov. 13	1202	305	93	1218
Sifter	S. C. Hart	662,269	Nov. 20	2288	550	93	1496
Sifter. Ash-	C. J. Wowra	660,784	Oct. 30	3844	863	93	834
Sifter. Ash-	W. M. Viser	659,775	Oct. 16	1933	434	93	419
Sifter. Flour-	L. Johnson	664,049	Dec. 18	2101	489	93	2182
Sign	C. S. Sergeant and H. L. Libby	659,875	Oct. 16	2109	474	93	454
Sign	J. G. Hansen	663,892	Dec. 18	1811	408	93	2124
Sign. Advertising-	F. Tuchfarber	660,283	Oct. 23	2943	655	93	642
Sign and making same. Advertising-	H. N. King	661,536	Nov. 13	914	226	93	1148
Sign for streets or highways	R. B. Holley	660,190	Oct. 23	2757	613	93	605
Sign. Interchangeable-letter	S. E. Norton	659,314	Oct. 9	1058	249	93	229
Sign post and holder. Street-	T. P. Heinemann	661,265	Nov. 6	435	101	93	1038
Sign. Triple	T. P. Heinemann	661,266	Nov. 6	436	101	93	1038
Sign. Triple							
Signal: *See* Magnetic signal. Railway-crossing signal. Railway-signal.							
Signal-box auxiliary attachment	B. Oehmen	663,926	Dec. 18	1885	424 425	93	2140
Signal-box. Non-interference	F. W. Cole	660,630	Oct. 30	3545	796 797	93	777
Signal-disk	E. M. Klein	662,872	Nov. 27	3522	824	93	1702
Signal system	I. W. Ullman	659,499	Oct. 9	1390	316	93	297
Signal system. Selective-	F. A. Pickernell	663,783	Dec. 11	1616	363	93	2061
Signaling apparatus. Train air-	J. H. Turbush	659,904	Oct. 16	2105	487	93	465
Signaling system	E. J. Silkman	660,469	Oct. 23	3278	734	93	707
Signaling system	E. J. Silkman	660,470	Oct. 23	3284	735	93	708
Silicium. Manufacturing metallic	B. Scheid	662,548	Nov. 27	3248	.....	93	1566
Silk thread. Making artificial	J. Duquesnoy	663,739	Dec. 11	1517	.....	93	2040
Silvering metals. Mixture for	C. Göttig and W. Köttgen	663,340	Dec. 4	805	.....	93	1878
Singletree-hook	T. A. Bakken	661,391	Nov. 6	657	153	93	1083
Siphon	C. F. Haynes	650,669	Oct. 16	1710	386	93	376
Siphon-filler and mineral-water charger	J. H. Fox	664,351	Dec. 18	2672	607 608	93	2297
Size-indicator	A. B. Lustig	659,082	Oct. 2	660	157	93	133
Skate	H. S. Evans	660,752	Oct. 30	3784	852	93	824
Skate truck. Roller-	C. G. Hoerle	663,809	Dec. 11	1662	372	93	2071
Skirt	H. J. Feuchtwanger	662,714	Nov. 27	3153	746	93	1623
Skirt-fastener	M. D. Biddle	659,047	Oct. 2	592	144	93	119
Skirt fastener and supporter. Combined	H. H. Byrne	659,574	Oct. 9	1522	346	93	323
Skirt. Pedestrian's	E. M. Reynolds	664,002	Dec. 18	2035	460	93	2168
Skirt-protector	S. B. Sowden	662,246	Nov. 20	2253	542	93	1430
Skirt-supporter	E. E. Dyer	661,012	Oct. 30	4252	955	93	915
Skirt-supporter	H. A. Heineman	660,545	Oct. 23	3425	769	93	736
Skirt-supporter	R. E. Hickson	664,215	Dec. 18	2398	547	93	2245
Sled	J. T. Sibley and R. T. Newton	661,427	Nov. 6	718	167	93	1096
Sled	Z. T. Furbish	659,522	Oct. 9	1486	325	93	306
Sleeves or wheels. Apparatus for making ribbed	J. B. Murray	663,635	Dec. 11	1329	293	93	2002
Slicing machine. Fruit or vegetable	H. Honegger	664,551	Dec. 25	3047	693	93	2398
Sliver-can	R. Hakewessell and E. C. Henn	663,122	Dec. 4	392	83	93	1800
Slotting-machine	A. Prescott and L. I. Furber	662,022	Nov. 20	1821	438	93	1344
Sluice-gate	H. Koller	662,537	Nov. 27	2826	671	93	1563
Smelting-furnace. Electric	A. G. Jones and C. H. Philbrook	661,451	Nov. 6	762	179	93	1104
Smoke-consumer	J. F. Lester	664,485	Dec. 25	2982	668	93	2374
Smoke-consumer	I. C. McClenthen	661,477	Nov. 6	812	195	93	1113
Smoke-consumer	J. Ormerod and R. King	662,958	Dec. 4	110	23	93	1746

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smoke-consumer for boiler or other furnaces	S. Nock	663,129	Dec. 4	408	86	93	1803
Smoke. Consuming	F. A. Curtis	663,119	Dec. 4	387	89	93	1799
Smoke-consuming and fuel-saving device	C. H. Bryant, A. C. Roessler, J. M. Mitchell, and G. T. Augspurg.	664,381	Dec. 25	2722	618	93	2334
Smoke-consuming device. Furnace	G. S. Gallagher	661,760	Nov. 13	1328	323	93	1230
Smoke-consuming furnace	W. E. Minshall	661,379	Nov. 6	636	149	93	1079
Smoke-consuming furnace	J. Slater	662,102	Nov. 20	1983	473	93	1375
Smoke-conveyer	G. M. Melven, J. H. Grove, J. J. Leitsch, and T. L. Melven.	663,917	Dec. 18	1873	421	93	2137
Smoke-house	C. H. Simpson and J. Senior	662,318	Nov. 20	2375	573	93	1454
Smoke preventer or consumer	J. A. Beck	659,600	Oct. 9	1572	356	93	338
Smoke-preventing furnace	G. F. Conner	663,149	Dec. 4	460	97	93	1813
Smoke-stack coupling	B. Mitchel	661,186	Nov. 6	287	69	93	1010
Smokeless furnace. Automatic	F. Wild	660,085	Oct. 16	2524	565	93	537
Smokeless furnace. Steam-boiler	P. H. Bagley	664,372	Dec. 25	2708	614	93	2332
Snap attachment	W. E. Sell	661,773	Nov. 13	1354	328	93	1235
Snap-hook	E. Manes	664,814	Dec. 25	3584	816	93	2508
Snap-hook	J. F. Mitchell	659,686	Oct. 16	1746	394	93	383
Snow-guard. Roof	C. H. Gilman	659,392	Oct. 9	1180	274	93	256
Snow-melter	J. Mandrey	662,280	Nov. 20	2302	554	93	1439
Snow-melting machine	E. Beatty	663,718	Dec. 11	1483	328	93	2092
Snow-plow	F. N. Bell	664,603	Dec. 25	3169	718	93	2424
Soap	G. A. Schmidt	662,096	Nov. 20	1974	------	93	1374
Soap. Apparatus for making rosin-	F. Arledter	660,548	Oct. 30	3435	771	93	757
Soap cake and holder for same	C. Langguth	658,991	Oct. 2	488	117	93	98
Soap cutter and separator	J. J. Gaynor	660,814	Oct. 30	3899	876	93	845
Soap-holder attachment	C. A. Weller	659,808	Oct. 16	1992	446	93	430
Soap-holding apparatus	F. W. Spink and H. G. Estabrook	663,476	Dec. 11	1060	232	93	1951
Soap-making apparatus	C. L. Culmann and C. A. L. W. Witter.	664,130	Dec. 18	2251	511	93	2212
Soap-press	E. J. Forrester	662,356	Nov. 20	2451	590	93	1469
Soda-fountain	S. J. Rogers	661,818	Nov. 13	1436	347	93	1250
Sodium. Making persulfate of	A. and L. Lumière	659,820	Oct. 16	2012	------	93	434
Soldering-iron	K. Booth	664,310	Dec. 18	2583	589	93	2280
Soldering-machine	W. H. Smyth	659,381	Oct. 9	1163	270	93	252
Soldering machine. Can-	E. Norton	659,156	Oct. 2	769	180	93	155
Soldering-tool	F. G. Raleigh	663,983	Dec. 18	1986	447	93	2159
Sole-leveling machine	F. W. Coy	663,072	Dec. 4	303	64	93	1788
Sole-rounding machine	G. Julian	663,656	Dec. 11	1300	301	93	2008
Sole-trimming machine	L. Goddu	662,415	Nov. 27	2581	621	93	1513
Sorting means	P. J. Zehnder and B. H. Ziehler	660,611	Oct. 30	3525	792	93	773
Sound recording and reproducing instrument	F. Myers	663,192	Dec. 4	531	118	93	1826
Sounds or signals. Recording and reproducing	V. Poulsen	661,619	Nov. 13	1066	265 / 266	93	1179
Sounding tube for navigators' use	J. E. Benedict	663,850	Dec. 18	1745	390	93	2111
Spark and dust arrester for cars	M. Stanley	662,551	Nov. 27	2854	677	93	1567
Spark-arrester	J. Blanchette	660,143	Oct. 23	2656	593	93	584
Spark-arrester	E. Cory	662,114	Nov. 20	2002	479	93	1379
Spark arrester and consumer	J. B. Righter	664,781	Dec. 25	3515	796	93	2495
Spark arrester and extinguisher	G. F. Conner	663,148	Dec. 4	459	97	93	1813
Spark-arrester. Locomotive-boiler	T. J. Marshall	661,413	Nov. 6	698	160	93	1090
Speaking-tube termini. Combined receiver and transmitter for	C. E. Ormsby	659,377	Oct. 9	1154	269	93	250
Spectacle or eyeglass case	G. W. Wells	663,647	Dec. 11	1345	297	93	2005
Spectacles. Electrotherapeutic	T. B. Zeller	664,398	Dec. 18	2579	587	93	2280
Speculum	J. Sklar	662,890	Nov. 27	3360	796	93	1664
Speed-changing mechanism	C. C. Cleverdon	662,710	Nov. 27	3147	745	93	1622
Speed-changing mechanism	A. Fischer and A. T. Otto	661,967	Nov. 20	1715	414	93	1325
Speed-controlling mechanism	S. Messerer	662,455	Nov. 27	2666	636	93	1580
Speed mechanism. Change-	G. L. Mason and G. E. Witherell	663,098	Dec. 4	354	73	93	1792
Speed mechanism. Varying-	H. B. Mitchell	662,880	Nov. 20	2491	599	93	1477
Speed-regulator	F. W. Baynes	659,194	Oct. 2	867	206	93	172
Speed-regulator	W. K. Lord	662,568	Nov. 27	2880	683	93	1572
Speed-regulator	W. K. Lord	662,569	Nov. 27	2881	684	93	1572
Speed-regulator	L. H. Nash	664,026	Dec. 18	2072	471	93	2176
Spigot	J. M. and W. G. Carrico	660,210	Oct. 23	2800	621	93	613
Spigot and bung-remover. Combined	T. Livingood	664,565	Dec. 25	3082	699	93	2405
Spike-making machine	H. H. Cummings	659,017	Oct. 2	543	131 / 132 / 133	93	109
Spindle	T. Gorman	663,492	Dec. 11	1090	238	93	1956
Spinning apparatus	G. O. Draper	663,738	Dec. 11	1516	337	93	2039
Spinning apparatus. Yarn-	J. C. Edwards	660,631	Oct. 30	3596	800	93	781
Spinning-machinery drawing-rolls. Covering for	W. F. Reid	661,644	Nov. 13	1112	------	93	1188
Spinning or twisting apparatus. Yarn	G. O. Draper	660,623	Oct. 30	3551	798	93	778
Spinning or twisting apparatus. Yarn	G. O. Draper	660,624	Oct. 30	3556	798	93	779
Spinning or twisting apparatus. Yarn	G. O. Draper	660,625	Oct. 30	3557	799	93	779
Spinning or twisting apparatus. Yarn	G. O. Draper	660,626	Oct. 30	3559	799	93	779
Spinning or twisting apparatus. Yarn	G. O. Draper	660,627	Oct. 30	3560	799	93	780
Spinning or twisting apparatus. Yarn	G. O. Draper	660,628	Oct. 30	3561	799	93	780
Spinning or twisting apparatus. Yarn	M. E. Sullivan and G. O. Draper	660,666	Oct. 30	3642	818	93	795
Spirals. Apparatus for forming irregular	H. F. Holtmann	661,696	Nov. 13	1211	294	93	1207
Spittoon. Fountain-	H. G. Rose	662,967	Dec. 4	123	25, 26	93	1748
Spoke-securing nipple	F. W. Marshall	661,376	Nov. 6	631	146	93	1078
Spoke-swaging machine	C. E. Roberts	664,435	Dec. 25	2842	649	93	2357
Spoke, tire, and felly tightener	H. Meyer	660,915	Oct. 30	4079	914	93	881
Spool-holder	J. A. Myers	659,249	Oct. 9	964	226	93	210
Spool-machine. Automatic	E. P. Brownell	663,214	Dec. 4	571	123 / 124	93	1834
Spool or bobbin	J. D. Kingsland	659,306	Oct. 9	1047	246	93	227
Spoon. Self-leveling	W. H. Dodd and J. F. Greer	659,341	Oct. 9	1093	256	93	236
Sprayer	C. H. Leggett	661,249	Nov. 6	409	96	93	1033
Sprayer	D. B. Smith	663,200	Dec. 4	545	117	93	1829
Sprayer. Kerosene-	W. L. Deming	664,237	Dec. 18	2437	555	93	2252
Spraying apparatus	J. J. Coughlin	663,732	Dec. 11	1503	335	93	2037

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Spraying-apparatus agitator	W. L. Deming	664,238	Dec. 18	2439	555	93	2253
Spraying attachment for sponges	H. M. Sturgis	663,248	Dec. 4	646	138	93	1847
Spraying device. Liquid-	J. P. Johnston	662,236	Nov. 20	2241	539	93	1427
Spring: *See* Carriage leaf-spring. Vehicle-spring. Collar-spring. Pneumatic spring. Elliptic spring. Watchcase-spring. Gate-spring.							
Spring	T. A. Shea	661,822	Nov. 13	1440	348	93	1251
Spring for couches, seats, &c	A. T. Knorzer	664,051	Dec. 18	2102	481	93	2182
Spring-motor	H. K. Smith, W. W. Morton, and R. L. Gibson.	663,402	Dec. 4	918	199	93	1900
Spring-seat for chairs, sofas, wagon-seats, &c	M. D. Kilmer	664,158	Dec. 18	2295	523	93	2221
Sprinkler: *See* Lawn-sprinkler.							
Sprocket-wheel for use on chain grates	P. L. Crowe	662,768	Nov. 27	3249	707	93	1642
Square	A. P. Dubus	659,513	Oct. 9	1421	322	93	303
Square. Smooth-surface folding	E. C. Larsen	659,032	Oct. 2	573	138	93	115
Square. Try-	D. S. West	660,876	Oct. 30	4024	900	93	870
Stable	J. Hinks	661,987	Nov. 20	1750	421	93	1331
Stacker. Hay-	C. Blackwell	659,641	Oct. 16	1657	372 / 373	93	366
Stacker. Hay-	C. C. Clouse	662,667	Nov. 27	3059	722	93	1606
Stacker. Hay-	D. W. Hoover	660,511	Oct. 23	3356	754 / 755	93	724
Stacker. Hay-	C. B. Ivens	661,200	Nov. 6	477	109	93	1047
Stacker hood. Pneumatic-	A. A. and H. A. Russell	660,591	Oct. 30	3498	785	93	769
Stacker. Pneumatic	C. B. and C. T. Hixson and A. L. Tarrant.	660,159	Oct. 23	2685	598	93	590
Stacker. Pneumatic straw-	G. F. Conner	663,150	Dec. 4	461	97	93	1813
Stacker. Straw-	C. Glaum	661,371	Nov. 6	625	145	93	1076
Stacker. Straw-	C. H. Pettijohn	662,813	Nov. 27	3323	784	93	1655
Stacking loose hay or straw. Device for	R. Griswold	664,546	Dec. 25	3038	692	93	2395
Stage illusion apparatus	M. A. Sherwood	661,426	Nov. 6	716	165 / 166	93	1095
Staging. Portable	J. W. Jones	662,566	Nov. 27	2875	681 / 682	93	1571
Staining. Ornamental	B. Burriss	659,787	Oct. 16	1955	430	93	423
Stair-rod and securer	W. B. Gould	664,545	Dec. 25	3037	692	93	2395
Stake-holder	J. Cowan	660,891	Oct. 30	4042	906	93	874
Stall. Animal-	D. Stephens	661,708	Nov. 13	1234	299	93	1212
Stamp-battery mortar	W. A. Merralls	659,934	Oct. 16	2224	499	93	476
Stamp-mill. Ore	M. H. Hamm and H. R. Taylor	661,144	Nov. 6	219	54	93	996
Stamp picking-up and affixing device	D. P. MacLaurin	660,998	Oct. 30	4207	945	93	907
Stamp. Rotary self-inking	M. Tilden	663,944	Dec. 18	1918	431	93	2146
Stamps, inking-pads, &c. Cushion for hand-	J. Loeffler	659,242	Oct. 9	954	224	93	209
Stamping and numbering machine	J. D. Humphrey and J. French	660,512	Oct. 23	3357	755 / 756	93	724
Stamping device. Hand	G. W. Lankford	659,535	Oct. 9	1458	331	93	310
Stamping-press	H. Dudeck	661,794	Nov. 13	1396	336	93	1243
Stanchion. Cattle-	A. W. Wiltsie and E. J. Campbell	663,058	Dec. 4	282	60	93	1779
Stand: *See* Display-stand. Ind-pad stand. Flower-stand. Self-locking stand. Folding stand. Washstand.							
Staple-setting machine	R. McKay and F. R. Welton	662,495	Nov. 27	2751	654	93	1549
Stapling device	J. C. Lary	664,655	Dec. 25	3250	738	93	2441
Stapling-machine	T. A. Briggs and T. Barrett	662,184	Nov. 20	2130	514 / 515 / 516	93	1406
Starch and cattle-food. Making	T. Gaunt	664,257	Dec. 18	2468	502	93	2259
Starch. Manufacture of	T. Gaunt	664,260	Dec. 18	2481	503 / 504	93	2260
Starch. Separating germs, &c., in making	T. Gaunt	664,259	Dec. 18	2478	503	93	2260
Starch. Treating grain in making	T. Gaunt	664,258	Dec. 18	2472	502 / 503	93	2259
Station-indicator	L. J. Hunter	658,778	Oct. 2	66	17	93	17
Stave-sawing machine	R. P. Gerlach and F. Stahl	664,399	Dec. 25	2764	627 / 628 / 629	93	2343
Stave sawing-off and gaining machine	L. D. Vogel	662,839	Nov. 27	3381	800	93	1667
Staves of wooden tanks. Apparatus for swelling	J. M. Thorp	661,160	Nov. 6	248	59	93	1001
Stay-bolt	G. R. Joughins	662,071	Nov. 20	1922	461	93	1364
Stay. Garment-	C. B. A. Smith	664,441	Dec. 25	2853	651	93	2359
Steam and water separator	W. H. Reynolds	663,099	Dec. 4	357	74	93	1792
Steam-boiler	D. Ahern	659,780	Oct. 16	1941	436	93	420
Steam-boiler	F. J. Chamrod	660,145	Oct. 23	2658	593	93	585
Steam-boiler	L. Charmois	659,845	Oct. 16	2058	463	93	444
Steam-boiler	L. J. Harris	662,232	Nov. 20	2235	538	93	1426
Steam-boiler	A. G. Hohenstein	661,528	Nov. 13	898	216	93	1145
Steam-boiler	A. G. Hohenstein	661,529	Nov. 13	901	217 / 218	93	1145
Steam-boiler	A. G. Hohenstein	661,530	Nov. 13	904	218	93	1146
Steam-boiler	A. G. Hohenstein	661,531	Nov. 13	905	219 / 220	93	1146
Steam-boiler	A. G. Hohenstein	661,532	Nov. 13	907	220 / 221	93	1147
Steam-boiler	A. G. Hohenstein	661,533	Nov. 13	909	221 / 222	93	1147
Steam-boiler	A. G. Hohenstein	661,534	Nov. 13	911	222 / 223	93	1147
Steam-boiler	J. Mallet and A. R. Mosier	659,622	Oct. 9	1615	365	93	341
Steam-boiler	J. Mallet and A. R. Mosier	659,623	Oct. 9	1617	366	93	341
Steam-boiler	J. Mallet and A. R. Mosier	659,854	Oct. 16	2072	466	93	446
Steam-boiler	A. Mercer	662,080	Nov. 20	1942	465	93	1367
Steam-boiler	J. Schütte	663,364	Dec. 4	839	180	93	1885

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Steam-boiler	J. A. Stevens	660,660	Oct. 30	3627	813, 814	93	792
Steam-boiler. Tubular	F. E. and F. O. Stanley	661,561	Nov. 13	960	238	93	1157
Steam-engine	E. T. Adams	663,403	Dec. 11	927	202	93	1925
Steam-engine	E. T. Adams	663,404	Dec. 11	934	203	93	1927
Steam-engine	W. W. and W. W. Burson	658,758	Oct. 2	23	4, 5	93	8
Steam-engine	J. Davidson and T. R. Hampson	660,562	Oct. 30	3455	775, 776	93	761
Steam-engine	W. K. Freeman	664,631	Dec. 25	3213	720	93	2433
Steam-engine	W. K. Freeman	664,737	Dec. 25	3419	775, 776	93	2477
Steam-engine	P. Huebner	664,270	Dec. 18	2507	599	93	2265
Steam-engine	H. Jensenius	659,927	Oct. 16	2209	496, 497	93	473
Steam-engine	W. Loeffler	663,972	Dec. 18	1969	443, 444	93	2156
Steam-engine	C. A. Ruckel and W. Potts, Jr	660,929	Oct. 30	4103	922, 923	93	886
Steam-engine	E. Sarver	660,464	Oct. 23	3208	732	93	705
Steam-engine	C. C. Worthington	659,947	Oct. 16	2241	503, 504	93	479
Steam-generator	P. Davies and A. Ross	662,255	Nov. 20	2266	545	93	1432
Steam-generator	G. Dürr	659,217	Oct. 9	915	214	93	202
Steam-generator	C. Glover	664,400	Dec. 25	2774	629	93	2344
Steam-generator	J. Hallett and G. Halliday	661,868	Nov. 13	1517	368	93	1265
Steam-generator	A. Herschmann	663,027	Dec. 4	233	49	93	1770
Steam-generator	D. G. Langlands	663,084	Dec. 4	324	68	93	1786
Steam-generator	T. Miller	661,545	Nov. 13	930	230	93	1151
Steam-generator	T. F. Morrin	664,357	Dec. 18	2682	609	93	2300
Steam-generator	T. F. Morrin	664,358	Dec. 18	2684	610	93	2300
Steam-generator	C. L. Palmer	662,290	Nov. 20	2334	563	93	1446
Steam-generator	K. Park. (Reissue)	11,870	Nov. 13	1653	401	93	1291
Steam-generator	J. Schoettl and C. Jaeger	664,683	Dec. 25	3299	750	93	2451
Steam-generator	R. M. Shaffer	662,472	Nov. 27	2703	643	93	1528
Steam-generator	L. D. Shaw	662,882	Nov. 27	3538	829	93	1705
Steam-generator	F. E. and F. O. Stanley	659,991	Oct. 16	2231	524	93	500
Steam-generator	R. H. White	659,837	Oct. 16	2089	457	93	440
Steam-generator combustion-chamber	T. F. Rowland, W. E. Hill, and A. McLachlan.	660,402	Oct. 23	3295	731	93	705
Steam. Means for facilitating production of	J. L. M. A. Reis	662,964	Dec. 4	117	25	93	1747
Steam-motor	J. H. Fedeler	659,219	Oct. 9	917	215	93	202
Steam-trap	L. B. Fulton	662,489	Nov. 27	2742	651	93	1546
Steam-trap	G. H. Grote	661,372	Nov. 6	626	145	93	1077
Steam-trap	L. E. Hackett	663,433	Dec. 11	990	214	93	1937
Steam-trap	S. Mahony	663,453	Dec. 11	1024	224	93	1944
Steam-trap	E. E. Parker	660,585	Oct. 30	3491	783	93	767
Steam-trap	J. St. Mary	662,552	Nov. 27	2856	677	93	1568
Steam-trap	A. Steinmetz	662,607	Nov. 27	2945	699	93	1585
Steam-trap	W. C. Keithly	663,574	Dec. 11	1221	267	93	1980
Steamer. Face-	E. Childs	660,720	Oct. 30	3735	841	93	814
Steel. Determining hardening heat for	A. Monell and R. James	663,701	Dec. 11	1456	------	93	2027
Steel. Manufacture of open-hearth	F. E. Parks	661,549	Nov. 13	937	------	93	1153
Steel. Manufacturing	C. L. Rogers	659,767	Oct. 16	1915	430	93	415
Steering apparatus	F. E. Allen and R. H. Danforth	663,381	Dec. 4	871	187	93	1891
Steering mechanism	A. B. Brown	658,128	Oct. 2	727	175	93	147
Steering mechanism. Ship	K. Walter	660,606	Oct. 30	3520	------	93	773
Stencil-sheet for autographic apparatus	F. Wesel	661,780	Nov. 13	1364	330, 331	93	1238
Stereotype-plate holder	S. G. Goss	659,170	Oct. 2	797	192, 193	93	161
Stereotyping. Casting-box for	J. G. Mastin	660,994	Oct. 30	4208	946	93	907
Sterilizing-case	E. von Bühler	659,808	Oct. 16	1998	447	93	432
Sterilizing or pasteurizing apparatus	E. M. Turner	663,528	Dec. 11	1151	249	93	1968
Stirrup	I. R. Burdick	662,185	Nov. 20	2140	516	93	1408
Stitch machine. Ornamental-	J. B. Hadaway	664,405	Dec. 25	2787	631	93	2347
Stitch-separating machine	L. Goddu	662,416	Nov. 27	2583	621	93	1513
Stitch-separator	S. P. White and J. C. Miller	659,117	Oct. 2	710	170	93	144
Stock-inclosure. Portable	C. J. Sadler	664,295	Dec. 18	2555	581	93	2275
Stocking	F. W. Cox	663,867	Dec. 18	1774	397	93	2116
Stokers. Feeding device for steam-	A. F. Jones	659,478	Oct. 9	1343	307, 308	93	289
Stone-dressing machine	E. Coulon	661,443	Nov. 6	743	174	93	1100
Stone. Producing artificial	G. D. Hunter	663,078	Dec. 4	311	66	93	1784
Stone-sawing machines. Gang-frame for	H. E. G. Uhlig	664,194	Dec. 18	2368	------	93	2237
Stone. Veining or marbling artificial	P. Kleber	663,904	Dec. 18	1846	416	93	2122
Stones, bricks, &c. Producing artificial building	S. Grossiord	660,426	Oct. 23	3307	715	93	694
Stones. Manufacture of artificial	G. B. McKinney	659,039	Oct. 2	669	159	93	134
Stool	C. G. Skoog, A. T. Rosen, and F. G. Lilygreen.	663,105	Dec. 4	367	76, 77	93	1794
Stool and cane. Convertible	O. L. Gambrel	661,861	Nov. 13	1503	363, 364	93	1262
Stool. Counter-	J. F. Collins	659,508	Oct. 9	1412	320	93	302
Stool. Folding	O. A. Hulett	663,345	Dec. 4	812	178	93	1879
Stool. Milk-	N. M. Jewett	661,055	Nov. 6	48	11	93	960
Stool. Milking-	C. F. Van Dyke	664,068	Dec. 18	2129	486	93	2187
Stop mechanism. Automatic							
Stopper: *See* Bottle-stopper. Can-stopper. Flue-stopper. Jar or bottle stopper. Tube-stopper.							
Stoppers. Manufacturing	A. Blumer	659,505	Oct. 9	1400	318	93	299
Store-goods lifter	A. J. Snyder	661,674	Nov. 13	1174	287	93	1201
Store-service apparatus	E. C. Gipe	660,099	Oct. 23	2560	572	93	564
Store-service apparatus	E. C. Gipe	660,100	Oct. 23	2561	572, 573	93	565
Store-service apparatus	H. D. B. Williams and D. Lippy	659,614	Oct. 9	1597	362	93	338
Stove	I. Brooke	661,257	Nov. 6	422	99	93	1036

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stove	G. E. Feeney and J. E. Schroyer	659,471	Oct. 9	1332	304	93	286
Stove	J. E. Hatch	661,984	Nov. 20	1746	420	93	1331
Stove	H. H. Sanford	661,707	Nov. 13	1233	299	93	1212
Stove	P. M. St. Louis	660,662	Oct. 30	3630	814, 815	93	798
Stove	W. W. J. Toussaint	661,360	Nov. 6	608	141	93	1073
Stove	A. L. Yearian	661,134	Nov. 6	197	50	93	991
Stove	J. S. Dunlap	663,160	Dec. 4	479	102	93	1817
Stove. Alcohol-	W. C. Landy	659,681	Oct. 16	1736	392	93	381
Stove. Camp cooking-	J. McCartney	664,489	Dec. 25	2689	669, 670	93	2375
Stove. Cooking-	A. S. Tomkins	662,326	Nov. 20	2394	576, 577	93	1458
Stove. Cooking-	P. J. Coppens	661,258	Nov. 6	424	99	93	1086
Stove fire-pot	N. A. L. J. Johannsen	659,030	Oct. 2	598	137	93	114
Stove for continuous fire	W. Youlten	663,880	Dec. 4	870	186, 187	93	1890
Stove for heating purposes	C. Linzen, Jr., and E. Demmer	663,451	Dec. 11	1018	222	93	1942
Stove for lignite cakes, peat, &c	T. M. Dudgeon	663,811	Dec. 11	1670	378	93	2073
Stove. Gas-	L. Kahn	659,400	Oct. 9	1192	276	93	258
Stove. Gas-	H. Barber	660,357	Oct. 23	3096	686	93	672
Stove. Heating-	R. A. Bratton	661,486	Nov. 13	826	199	93	1131
Stove. Heating-	A. B. Hower	659,971	Oct. 16	2301	517	93	493
Stove. Heating-	F. M. Reed and C. R. Umbenhower	660,123	Oct. 23	2616	585	93	575
Stove. Heating-	T. Roderick	661,357	Nov. 6	604	141	93	1072
Stove. Heating-	E. Vorbach	660,037	Oct. 16	2410	542	93	514
Stove. Hot-blast	G. Weidman	664,798	Dec. 25	3544	804	93	2502
Stove-leg	W. Haylor	662,233	Nov. 20	2237	538	93	1426
Stovepipe	F. L. Smith	661,824	Nov. 13	1442	349	93	1251
Stovepipe	W. E. Sykes	662,041	Nov. 20	1865	448	93	1353
Stovepipe-collar holder	J. W. Combs	659,211	Oct. 9	905	212	93	200
Stovepipe-fastener	W. C. Williams	661,389	Nov. 6	655	153	93	1083
Stovepipe-holder	J. A. Kline	662,946	Dec. 4	84	19	93	1743
Stove-shelf	H. E. McConnell	663,458	Dec. 11	1033	226	93	1946
Stove. Straw-burning cook-	C. P. Slowe	661,428	Nov. 6	719	167	93	1096
Stoves or ranges. Hood for cooking	A. G. De Waldo	659,365	Oct. 9	1133	264	93	246
Strainer. Faucet-	F. Heyl	659,672	Oct. 16	1714	387	93	377
Strainer. Milk-	E. S. Lagerquist	662,379	Nov. 20	2190	509	93	1477
Strainer. Milk-	H. D. Mack	661,476	Nov. 6	810	194, 195	93	1113
Strainer. Milk-	J. M. Stukes	661,591	Nov. 13	1024	256	93	1171
Strainer. Pump-	E. S. Duffy	659,514	Oct. 9	1422	322	93	303
Strainer. Sink-	J. P. Eustis	660,791	Oct. 30	3858	867	93	896
Strainer. Tea or coffee pot							
Strap: *See* Hand-strap. Hitching-strap.							
Straw-burning furnace	H. C. Clay	660,181	Oct. 23	2740	609	93	601
Street conduit or subway	M. E. Dunne	660,540	Oct. 23	3416	767	93	734
Street sprinkling and cleaning cart	A. Hentschel	658,845	Oct. 2	241	60	93	50
Street-sweeper	W. J. Cowan	662,057	Nov. 20	1896	455	93	1358
Street-sweeper	W. Hight	663,758	Dec. 11	1550	346, 347	93	2046
Street-sweeper	C. Z. O'Neill	663,390	Dec. 4	893	192, 193	93	1895
Street-sweeper. Hand	J. C. McCollum	663,551	Dec. 11	1191	258	93	1975
Streets. Machine for removing dirt from	H. S. Farquhar	659,440	Oct. 9	1277	294	93	276
Striking-bags or foot-balls. Inflatable rubber bag for	H. F. Mitzel	663,634	Dec. 11	1828	293	93	2002
String-fastener	C. E. Moore	660,078	Oct. 16	2516	563	93	535
Striping device	G. H. Allen	660,881	Oct. 30	4030	903	93	871
Stubble-burner	R. Ireland, A. L. Ashdown, and M. S. Holmes.	659,869	Oct. 16	2099	472	93	452
Stubble-shaver	C. Mélançon	661,414	Nov. 6	695	161	93	1091
Stud and scarf-holder. Combined	J. Pancke	659,859	Oct. 16	2080	467	93	448
Stud. Dress-	G. Wilson	660,609	Oct. 30	3523	792	93	773
Submarine apparatus	A. von Hoffmann	664,152	Dec. 18	2290	521	93	2220
Subsidiary furnace for steam-boilers	W. J. Baldwin	664,616	Dec. 25	3192	723	93	2428
Sucker	L. H. Britton and H. W. Morrow	662,345	Nov. 20	2431	586	93	1465
Sugar. Crystallizing	H. Claassen	664,465	Dec. 25	2894	660	93	2366
Sugar-factories. Lime-tank for	E. C. Burr, J. C. H. Stut, and J. W. Atkinson.	659,360	Oct. 9	1124	262, 263	93	244
Sugar-juices. Apparatus for controlling the boiling of	H. Claassen	661,756	Nov. 13	1322	322	93	1229
Sugar solutions. Defecating	S. M. Lillie	659,241	Oct. 9	951	224	93	208
Sulfuric anhydrid. Making	H. A. Frasch	664,630	Dec. 25	3211	728	93	2432
Sulky-rake	W. Lincoln	662,078	Nov. 20	1932	463, 464	93	1366
Sump, mixing-mill, and brick-press. Combined	C. Schlickeysen	663,108	Dec. 4	364	75, 76	93	1794
Superheater	C. Jacobi	659,070	Oct. 2	633	152	93	126
Support. Universal	C. E. Cook	660,049	Oct. 16	2429	547	93	517
Surgeon's case	E. A. Edlen	659,058	Oct. 2	612	148	93	123
Surgical appliance	T. D. McKown and H. E. Clark	661,812	Nov. 13	1425	343	93	1248
Surgical instrument	G. W. Shidler	659,422	Oct. 9	1236	284	93	267
Suspender-end	A. A. Levi	661,408	Nov. 6	683	158	93	1088
Suspenders	F. W. Ostrom	660,165	Oct. 23	2709	602	93	594
Suspenders	S. Pichl	664,675	Dec. 25	3287	747	93	2448
Suspenders	E. T. Specht	661,670	Nov. 13	1178	288	93	1202
Suspenders	E. S. Halsey	659,620	Oct. 9	1618	365	93	341
Suspenders. Invisible	W. Stanley and H. M. Smith	658,814	Oct. 2	163	39	93	36
Suspending moving parts. Means for delicately	G. A. Jencke, C. A. Homrig, and E. M. Blaine.	664,217	Dec. 18	2408	548	93	2246
Suspension-hook	C. Dufour	664,135	Dec. 18	2263	514	93	2215
Sweeper and dust-gatherer. Electric	J. S. Bartholomew	661,595	Nov. 13	1029	257	93	1172
Swimming apparatus	K. F. Höglund	662,069	Nov. 20	1920	461	93	1363
Swimming device	C. K. Hann	659,300	Oct. 9	1041	244	93	226
Swing	E. K. Hayes	663,495	Dec. 11	1095	239	93	1957
Swing							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Swing. Folding	W. H. Boggs	660,179	Oct. 23	2735	608, 609	93	600
Switch: *See* Brake-switch. Knife-switch. Ceiling-switch. Motor-switch. Controller-switch. Railway-switch. Electric switch. Telephone-switch. Electrical switch.							
Switch cap. Electrical	G. B. Thomas	664,189	Dec. 18	2352	536	93	2234
Switch head-chair. Stub	W. Rowlands	664,436	Dec. 25	2445	650	93	2358
Switch-operating device	H. B. Pierre	659,692	Oct. 16	1757	396	93	385
Switch-operating mechanism	F. A. Ruff	659,454	Oct. 9	1302	299	93	280
Switch-shifting mechanism	W. Hamilton	659,848	Oct. 16	2063	464	93	445
Switch-stand lever-locking mechanism	W. F. Knox	663,906	Dec. 18	1850	417	93	2133
Switch support. Flush	C. G. Perkins	663,039	Dec. 4	253	55	93	1774
Switch-turning mechanism	W. L. Sellers	659,325	Oct. 9	1076	253	93	233
Syringe	R. N. Barger	663,691	Dec. 11	1429	317	93	2022
Syringe	C. A. Bucklin	659,180	Oct. 2	720	175	93	147
Syringe	A. C. Eggers	659,470	Oct. 9	1331	304	93	286
Syringe	E. E. Ertsman	660,212	Oct. 23	2803	621	93	613
Syringe-tip	H. P. Cole	661,167	Nov. 6	256	62	93	1008
Syringe. Vaginal	J. A. Bell	662,340	Nov. 20	2425	584	93	1464
Table: *See* Adjustable table. Extension-table. Billiard-table. Folding table. Billiard and pool table. Game-table. Concentrating-table. Instrument-table. Display-table. Operating-table. Enameling-table. Tobacco-casing table.							
Table-support	F. A. Millikan	662,799	Nov. 27	3305	780	93	1652
Table-tops, &c. Changeable support for	E. W. Sargent and C. C. Dover	662,136	Nov. 20	2035	495	93	1385
Tablet. Writing	M. J. Green	659,742	Oct. 16	1869	421	93	406
Tack or nail driving machine	J. M., J., A. J., and S. A. Gimson	661,797	Nov. 13	1400	337	93	1244
Tack-puller	L. P. Olsen	664,494	Dec. 25	2949	672	93	2377
Tag. Metal	J. W. Anderton	659,199	Oct. 9	881	209	93	195
Tag. Shipping	G. W. McGill	663,355	Dec. 4	827	177	93	1882
Tail-controller	S. Parks	662,959	Dec. 4	111	23	93	1746
Talking-machine	G. W. Gomber	659,736	Oct. 16	1846	417, 418	93	403
Talking-machine	G. W. Gomber	659,737	Oct. 16	1849	418, 419	93	403
Talking-machine	G. W. Gomber	659,738	Oct. 16	1855	419	93	404
Talking-machine	G. W. Gomber	659,740	Oct. 16	1861	420	93	405
Talking-machines. Horn for use on	J. R. Challen, Jr	663,011	Dec. 4	205	44	93	1765
Tank: *See* Garbage-tank. Oil-tank. Metal tank.							
Tank and heater. Combined	J. C. Thomsen	661,090	Nov. 6	111	26	93	972
Tanning	C. O. Natusch	662,804	Nov. 27	3310	----	93	1653
Tanning apparatus	C. J. M. Fleetwood	662,896	Nov. 27	3560	835	93	1710
Tanning apparatus	J. F. Lester	659,077	Oct. 2	650	155, 156	93	130
Tap and die	F. Ehmke	662,064	Nov. 20	1911	458	93	1362
Tap and die holder	J. B. Wallace	664,513	Dec. 25	2982	679	93	2384
Tap and valve. Barrel	F. F. Church	659,288	Oct. 9	1020	239	93	221
Tap. Collapsible screw-threading	S. B. Leidy	662,361	Nov. 20	2460	592	93	1470
Tap for aerated or carbonated water. Drawing	B. Baron	664,375	Dec. 25	2712	615, 616	93	2332
Taps. Construction of high-pressure water	W. Bradley	659,644	Oct. 16	1661	374	93	307
Tapping-machine	O. Mueller	660,760	Oct. 30	3799	853	93	826
Tape into edgings. Machine for threading	T. F. Byrne	661,365	Nov. 6	613	143	93	1074
Tar-kettle. Fireproof	E. Cubbidge	662,250	Nov. 20	2332	544	93	1431
Target. Combination	W. R. Park	659,352	Oct. 9	1114	260	93	242
Target-throwing apparatus	C. W. and J. F. Pike	663,090	Dec. 4	338	70	93	1789
Tea, &c. Apparatus for mixing	R. Burns	661,847	Nov. 13	1475	358, 359	93	1257
Teaching speaking and reading. Means for	J. L. Kingma	660,255	Oct. 23	2377	641	93	628
Teeth. Process of and attachment for building up broken or decayed	J. P. Carmichael	659,206	Oct. 9	893	211	93	198
Teeth-regulating appliance	M. A. Knapp	664,412	Dec. 25	2707	635	93	2349
Telautograph or facsimile-telegraph	A. Pollak	660,199	Oct. 23	2772	616, 617	93	607
Telautograph or facsimile-telegraph	A. Pollak	664,430	Dec. 25	2825	641	93	2354
Telegrams. Means for rapidly transmitting	A. Pollak and J. Virag	662,020	Nov. 20	1812	436, 437	93	1343
Telegrams. Rapidly transmitting	A. Pollak and J. Virag	662,021	Nov. 20	1817	437	93	1344
Telegraph. Printing	E. Kinsman	664,761	Dec. 25	3474	786, 787, 788	93	2488
Telegraph receiver. Printing	J. Burry	663,859	Dec. 18	1758	393	93	2113
Telegraph-repeater	C. D. Olsen and T. W. Carroll	663,460	Dec. 11	1085	226	93	1946
Telegraph signaling apparatus	E. B. Ellicott	662,527	Nov. 27	2810	666, 667	93	1559
Telegraph-switchboard	F. W. Jones	664,557	Dec. 25	3058	696	93	2400
Telegraph system	F. D. Pearne	659,544	Oct. 9	1477	334	93	314
Telegraphic instrument	H. T. Johnson	663,908	Dec. 18	1845	416	93	2132
Telegraphic messages. Perforator for preparing	C. L. Buckingham and E. Germann	659,433	Oct. 9	1255	289, 290, 291	93	271
Telegraphophone	E. C. Paramore	658,862	Oct. 2	266	66	93	56
Telegraphy	W. E. Athearn	664,369	Dec. 25	2705	614	93	2331
Telephone-arm	H. McDonald	661,224	Nov. 6	353	84	93	1022
Telephone-call recorder	H. D. Stroud	660,826	Oct. 30	3927	881	93	851
Telephone-call register	W. H. Barker	664,346	Dec. 18	2658	604	93	2295

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Telephone-circuit	I. H. Farnham and G. W. Davis	661,714	Nov. 13	1245	301	93	1214
Telephone-exchange annunciator	B. Waller	659,269	Oct. 9	993	233	93	216
Telephone-exchange system	W. M. Davis	659,959	Oct. 16	2277	511	93	488
Telephone-exchange system	J. L. McQuarrie	659,759	Oct. 16	1898	428	93	412
Telephone-exchange system	A. Stromberg	662,984	Dec. 4	150	32	93	1754
Telephone-exchange system	A. Stromberg and W. M. Davis	662,988	Dec. 4	160	33	93	1756
Telephone-exchange system	C. Timberlake	664,091	Dec. 25	3314	753, 754	93	2453
Telephone-exchange system and apparatus	A. Stromberg	662,986	Dec. 4	155	33	93	1755
Telephone-lines. Combined relay and repeater for	E. C. Paramore	659,096	Oct. 2	680	161, 162	93	137
Telephone-mouthpieces. Germ-destroyer for	L. L. Lacey	663,995	Dec. 18	2011	453	93	2164
Telephone-receiver	H. H. Hipwell	661,988	Nov. 20	1752	421	93	1332
Telephone-receiver	C. H. North	663,196	Dec. 4	539	116	93	1828
Telephone-service apparatus	U. S. Jackson	664,757	Dec. 25	3466	783	93	2486
Telephone-switch	L. M. Neher	662,543	Nov. 27	2834	674	93	1564
Telephone-switch	A. Stromberg	659,940	Oct. 16	2232	501	93	478
Telephone-switchboard	W. S. Paca	663,510	Dec. 11	1132	245	93	1963
Telephone-switchboard annunciator and jack	C. T. Mason	659,588	Oct. 9	1550	352	93	320
Telephone-switchboard apparatus	W. S. Paca	663,511	Dec. 11	1134	246	93	1964
Telephone-switchboard pilot-signal	C. E. Scribner	659,768	Oct. 16	1916	431	93	415
Telephone system	W. W. Bennett	663,412	Dec. 11	950	205, 206	93	1920
Telephone system	W. M. Davis	659,958	Oct. 16	2275	510	93	488
Telephone system	L. Schmidt	660,124	Oct. 23	2617	585	93	576
Telephone system. Railway	E. E. Carpenter	663,216	Dec. 4	576	124, 125	93	1835
Telephone toll-collecting device	W. A. Foss	661,578	Nov. 13	998	248	93	1165
Telephone-transmitter	G. B. Perkins	659,691	Oct. 16	1756	396	93	385
Telephone-transmitter	A. Stromberg	662,985	Dec. 4	152	32	93	1754
Telephone trunk-line signal	H. M. Crane	659,789	Oct. 16	1958	439	93	423
Telephones, &c. Hygienic resonator for	G. Hoglund and C. M. Hedman	660,706	Oct. 30	3868	869	93	838
Telephonic apparatus	R. Günther	660,572	Oct. 30	3473	778	93	764
Telephonic apparatus for use on vessels, &c	M. R. D'Asar	660,802	Oct. 30	3876	872	93	840
Telephonic or telegraphic switchboard	C. Shore and C. Heap	663,367	Dec. 4	843	181	93	1886
Tellurian	J. H. F. Otto	659,253	Oct. 9	969	227, 228	93	211
Telpher system	J. H. and A. Pauley	664,284	Dec. 18	2537	576	93	2272
Temperature in steam-heated buildings. Apparatus for regulating	A. M. Butz	660,209	Oct. 23	2796	620, 621	93	612
Temperature-indicator. Electric	L. S. Wilder	660,352	Oct. 23	3088	685	93	670
Templet	C. H. Krauss	661,539	Nov. 13	919	227	93	1149
Tenon-and-mortise joint	H. S. Jordan	664,050	Dec. 18	2102	480	93	2182
Tenpin-alley	R. F. Downey	664,016	Dec. 18	2057	466, 467	93	2173
Tent	T. D. McCall	659,981	Oct. 16	2314	520, 521	93	496
Tentering-machine swinging mechanism	J. J. Fearon	664,249	Dec. 18	2454	558	93	2256
Tentering-machines. Electrically-operated clip for	W. and W. Whiteley, Jr	663,528	Dec. 11	1157	250	93	1909
Testing-machine. Centrifugal	E. Bausch and G. Hommel	660,746	Oct. 30	3776	849	93	822
Tether-ball	L. Bissell	660,787	Oct. 30	3854	866	93	835
Theatrical appliance	L. J. Carter	662,708	Nov. 27	3144	744	93	1622
Thermo-electric battery	J. Oliver	660,305	Oct. 23	2987	663	93	651
Thermometer case. Clinical	A. F. Biagdon-Richards	659,642	Oct. 16	1658	373	93	307
Thermometer-case. Pocket	W. A. Randall	658,998	Oct. 2	507	122	93	102
Thermometer. Oven	W. W. Braley	658,827	Oct. 2	198	48	93	43
Thermostat	H. Cortland	663,419	Dec. 11	964	210	93	1932
Thermostat	J. B. Knickerbocker	664,327	Dec. 18	2616	595	93	2287
Thermostat. Electric	L. H. Des Isles	659,605	Oct. 9	1578	358	93	334
Thermostatic device	R. G. Callum	661,731	Nov. 13	1276	309	93	1220
Thermostatic device	R. G. Callum	661,732	Nov. 13	1277	310	93	1220
Thill-coupling	J. W. Brooks	663,487	Dec. 11	1079	236	93	1954
Thill-coupling	T. E. Brooks	663,254	Dec. 4	659	142	93	1850
Thill-coupling	W. S. Castle	661,952	Nov. 20	1688	400	93	1320
Thill-coupling	J. Clarke	664,013	Dec. 18	2054	466	93	2172
Thill-coupling	E. J. S. Davis	661,208	Nov. 6	325	79	93	1017
Thill-coupling	J. G. J. Davis	658,762	Oct. 2	29	6	93	9
Thill-coupling	A. W. Decker	664,728	Dec. 25	3395	772	93	2472
Thill-coupling	J. Marvin	659,808	Oct. 16	2136	482	93	459
Thill-coupling	T. Near	658,859	Oct. 2	262	65	93	55
Thill-coupling	J. G. Parsons	662,200	Nov. 20	2166	523	93	1413
Thill-coupling	W. K. Pendleton	659,099	Oct. 2	686	163, 164	93	139
Thill-coupling	C. H. Rastede	658,804	Oct. 2	138	32	93	31
Thill-coupling	D. E. Russell	662,972	Dec. 4	131	28	93	1749
Thill-coupling	W. C. Shipherd	659,292	Oct. 9	983	231	93	214
Thill-coupling	J. H. Thacker	661,828	Nov. 13	1446	350	93	1252
Thill-coupling	G. Torkelson	663,709	Dec. 11	1468	324	93	2020
Thill-coupling	A. H. Worrest	662,050	Nov. 20	1885	452, 453	93	1357
Thill-coupling antirattler	P. C. Hayes	663,384	Dec. 4	876	188	93	1892
Thill-coupling. Antirattler	F. W. Mallery	661,149	Nov. 6	227	56	93	998
Thill or pole coupling. Vehicle	J. G. Lamb	660,256	Oct. 23	2879	641	93	629
Thill support. Buggy	J. A. Crisp	664,086	Dec. 18	2084	474	93	2178
Thread-cutter	D. N. Jerauld	659,975	Oct. 16	2295	518	93	494
Threading-tool	H. Hill	663,092	Dec. 4	342	71	93	1780
Thresher. Pea	A. J. Johnson	660,687	Oct. 30	3671	825, 826	93	800
Threshing-machine	G. F. Conner	661,039	Nov. 6	20	5	93	955
Threshing-machine blast-regulator	J. Ernst	661,138	Nov. 6	205	52	93	998
Threshing-machine cylinder	W. H. and J. Butterworth	659,182	Oct. 2	731	176	93	148
Threshing-machine feed-regulating mechanism	E. B. Kline	662,001	Nov. 20	1782	429	93	1337
Threshing-machine straw-bottom	F. F. Landis	660,299	Oct. 23	2977	661	93	649
Threshing machinery	C. A. Long	662,950	Dec. 4	91	20, 21	93	1744
Throat-shield	W. W. McCormick	662,150	Nov. 20	2064	501	93	1391
Ticket and holder therefor. Mileage	J. C. Hickey	662,723	Nov. 27	3170	750	93	1626
Ticket-box	J. Humphrey	664,810	Dec. 25	3573	813	93	2507

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Ticket. Identification-	J. R. Cavanagh and S. A. Townsend.	660,003	Oct. 16	2350	528	93	504
Ticket-rack	W. A. Wade and J. B. Smith	661,627	Nov. 13	1082	269	93	1182
Ticket. Railway-	G. W. Craig	660,417	Oct. 23	3195	710	93	692
Tie: See Bag-tie. Metallic tie. Railway-tie. Wall-tie.							
Tie-plate	H. W. Avery	662,850	Nov. 27	3399	803	93	1672
Tie-plug machine	F. L. Wilson	664,306	Dec. 18	2576	587	93	2279
Tile-base	H. N. Blunt	659,464	Oct. 9	1322	302	93	284
Tile-cutting machine	G. A. Stanbery	661,625	Nov. 13	1078	268	93	1181
Tile. Floor and wall	A. Plant	659,453	Oct. 9	1300	296	93	280
Tile for facing walls, &c	D. W. Anderson	664,707	Dec. 25	3348	761	93	2461
Tile for heating and ventilating. Wall-	D. W. Anderson	664,705	Dec. 25	3344	760	93	2460
Tile-manufacturing machine	R. Lesch and B. Polte	658,791	Oct. 2	100	23, 24	93	24
Tile-setting	H. C. Mueller and K. Langenbeck	664,169	Dec. 18	2313	527	93	2225
Tiles. Making	F. K. Cheese	660,809	Oct. 30	3889	874	93	843
Tiles. Manufacture of pasteboard glazed	H. Miralles y Angles	660,966	Oct. 30	4166	------	93	899
Tiling, marble, &c., prepared for having fittings, &c., secured thereto.	F. Lambert	664,652	Dec. 25	3247	737	93	2440
Tilework. Metal casing for	R. C. Darnes	661,500	Nov. 13	848	203	93	1135
Tillage-machine	F. H. P. P. Oram	660,089	Oct. 30	3674	826, 827, 828	93	801
Timber into rafts. Apparatus for making up	A. Krank	663,763	Dec. 11	1559	348, 349	93	2048
Time-alarm. Electric	S. Wolf	659,725	Oct. 16	1820	410, 411	93	398
Time-check. Workman's	K. Puttkammer and F. Orthmann	663,466	Dec. 11	1047	229	93	1948
Time-indicating mechanism	R. W. J. Sutherland	659,329	Oct. 9	1060	254	93	284
Time-lock	W. H. Hollar, A. Kennedy, and A. L. Rhodes.	659,445	Oct. 9	1288	296	93	277
Timepiece winding-indicator	A. Elenius	663,263	Dec. 4	675	145	93	1853
Time-recorder. Workman's	P. G. Giroud	660,250	Oct. 23	2897	638	93	627
Tin from tin-scrap. Separating	O. Meyer	660,116	Oct. 23	2905	583	93	573
Tin from tinned iron and recovering the metals. Stripping	H. W. Hemingway	663,024	Dec. 4	229	------	93	1770
Tins containing provisions. Apparatus for use in connecting together	A. W. Maconochie	659,374	Oct. 9	1149	268	93	249
Tire	A. E. Flatter	660,184	Oct. 23	2747	610	93	603
Tire	W. A. Wright	662,332	Nov. 20	2405	580	93	1460
Tire and shoe. Pneumatic	A. Vreeland	662,208	Nov. 20	2181	526	93	1416
Tire and valve attacher and valve therefor	G. H. F. Schrader	661,673	Nov. 13	1171	287	93	1201
Tire-armor	N. Brown	664,121	Dec. 18	2238	509	93	2210
Tire. Armored pneumatic	A. H. Lewis	664,766	Dec. 25	3489	789	93	2490
Tire. Bicycle-	A. E. Groom	660,976	Oct. 30	4178	938	93	902
Tire-bolt wrench	J. F. Gilliland	663,884	Dec. 18	1797	408	93	2121
Tire-bolting machine	C. G. Fawkes	661,658	Nov. 13	1141	282	93	1194
Tire. Elastic bicycle-	J. A. Berger	661,601	Nov. 13	1038	259	93	1174
Tire fastening. Pneumatic-	W. Holmes	658,750	Oct. 2	3	1	93	3
Tire fastening. Vehicle-	T. Burrell	663,899	Dec. 18	1820	410	93	2125
Tire for cycles, &c	H. Tolman	664,085	Dec. 18	2083	474	93	2178
Tire for vehicles. Elastic	H. C. P. Siversleth	662,177	Nov. 20	2119	511	93	1404
Tire for vehicles. India-rubber	U. P. Smith	663,104	Dec. 4	366	76	93	1794
Tire for vehicles. Pneumatic	R. J. C. Mitchell	659,557	Oct. 9	1496	339	93	318
Tire for wheels. Pneumatic	J. P. Legrand	659,589	Oct. 9	1553	352	93	329
Tire for wheels. Resilient	P. F. Gillette	661,915	Nov. 13	1597	387	93	1281
Tire-inflater. Automatic	J. Emringer and P. E. Marchand	661,172	Nov. 6	265	64, 65	93	1005
Tire-inflating apparatus. Pneumatic-	T. H. McCauley	661,399	Nov. 6	671	156	93	1066
Tire-inflating device. Automatic	E. E. Preston and G. D. Kendrick	661,887	Nov. 13	1549	376	93	1271
Tire jackets. Fabric for pneumatic-	E. L. and S. B. Alexander	662,963	Dec. 4	115	24	93	1747
Tire. Non-puncturable pneumatic	K. A. Enlind	662,160	Nov. 20	2084	505	93	1396
Tire. Non-slipping rubber	G. H. F. Schrader	661,965	Nov. 20	1713	413	93	1324
Tire or other valve	G. H. F. Schrader	661,671	Nov. 13	1165	286	93	1200
Tire or other valve	F. H. Mason	661,672	Nov. 13	1169	287	93	1200
Tire. Pneumatic	R. P. Scott	663,693	Dec. 11	1326	293	93	2001
Tire. Pneumatic	C. Lillicrap	659,701	Oct. 16	1776	401	93	390
Tire pressure-gage. Pneumatic-	W. B. Hartley, O. J. and O. M. Parrish.	660,445	Oct. 23	3241	724	93	700
Tire-punctures. Self-healing compound for	E. A. Hill	661,124	Nov. 6	182	------	93	989
Tire-retaining band. Rubber-	J. L. Connable	664,748	Dec. 25	3448	780	93	2483
Tire. Rubber	A. W. Grant	659,509	Oct. 9	1413	320	93	302
Tire. Rubber	E. Arthur	659,920	Oct. 16	2197	494	93	471
Tire. Self-healing pneumatic	W. Daugherty	663,001	Dec. 4	190	40	93	1762
Tire-setter	S. W. Collins	660,490	Oct. 23	3322	744	93	716
Tire setter. Rubber-	A. W. Grant	662,686	Nov. 27	3006	731, 732	93	1614
Tire setter. Rubber-	A. S. Krotz	662,640	Nov. 27	3002	710	93	1596
Tire setter. Rubber-	A. S. Krotz	662,649	Nov. 27	3014	713	93	1598
Tire setter. Rubber-	A. S. Krotz	662,650	Nov. 27	3015	713	93	1598
Tire setter. Rubber-	A. S. Krotz	662,651	Nov. 27	3016	714	93	1599
Tire-setting machine. Rubber-	W. S. Brooks	660,838	Oct. 30	3956	886	93	857
Tire-tightener	L. M. Richardson	664,506	Dec. 25	2969	676	93	2382
Tire-tightener	F. A. Terpening	661,388	Nov. 6	654	152	93	1063
Tire valve. Pneumatic-	W. J. Lloyd	659,061	Oct. 2	659	157	93	132
Tire valve. Pneumatic-	J. A. Spencer	658,874	Oct. 2	280	69	93	58
Tire. Vehicle-	G. L. Allen	660,942	Oct. 30	4131	928	93	902
Tire. Vehicle-	A. H. Marks	661,614	Nov. 13	1059	263	93	1177
Tire. Vehicle-	W. F. Masters	662,008	Nov. 20	1702	432	93	1339
Tire. Vehicle cushion-	J. F. McGuire	660,452	Oct. 23	3250	727	93	702
Tire. Vehicle-wheel	J. B. David	661,099	Nov. 6	131	32	93	977
Tires. Air-admission and check valve for pneumatic	E. W. Holt	659,673	Oct. 16	1716	387	93	377
Tires. Device for equipping vehicle-wheels with rubber	A. W. Grant	662,641	Nov. 27	3004	710, 711	93	1596
Tires. Device for equipping vehicle-wheels with rubber	A. W. Grant	662,642	Nov. 27	3005	711	93	1596
Tires in construction. Air-extractor for pneumatic.	A. E. Ellinwood	659,730	Oct. 16	1829	414	93	400

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Tires. Inner tube for pneumatic	T. R. Palmer	662,132	Nov. 20	2080	494	93	1384
Tires on vehicle-wheels. Device for securing rubber.	W. Holmes	663,898	Dec. 18	1818	410	93	2125
Toasting-fork	N. A. Nielsen	663,662	Dec. 11	1968	308	93	2010
Tobacco-casing table	S. Bohlman	661,787	Nov. 13	1387	334	93	1241
Tobacco. Compound for treating	W. A. Pike, A. C. Chadoin, and H. M. Pike.	661,275	Nov. 6	452	------	93	1041
Tobacco-pipe	W. R. Hale	659,368	Oct. 9	1188	274	93	256
Tobacco-pipe	W. N. Haring	662,692	Nov. 27	3109	734	93	1616
Tobacco rack and truck	F. Corbin	660,200	Oct. 23	2954	657	93	644
Tobacco-stemming machine	M. C. Baughan	664,714	Dec. 25	3359	763, 764	93	2468
Tobacco-stemming machine	A. T. Drysdale	664,389	Dec. 25	2738	622, 623	93	2337
Tobacco-stemming machine	J. B. Underwood	661,199	Nov. 6	306	75, 76	93	1014
Tobacco stripping and booking machine	J. R. Williams	662,212	Nov. 20	2189	528	93	1418
Tobacco-stripping machine	J. H. Schmidt	663,241	Dec. 4	635	136	93	1845
Tobacco-sucker remover	T. J. Barger	663,003	Dec. 4	194	41	93	1763
Toe-clip	O. W. Kinley and I. J. Eshliman	661,026	Oct. 30	4284	902	93	921
Tongs	F. Hoefner	662,936	Dec. 4	64	16	93	1738
Tongs	J. F. Rice	663,581	Dec. 11	1232	270	93	1968
Tongs	A. A. Lerbakken	662,362	Nov. 20	2402	592	93	1471
Tongue-tip	H. O. Breckenridge	664,012	Dec. 18	2053	465	93	2172
Tool	F. C. Englehardt	659,059	Oct. 2	613	148	93	123
Tool. Combination-	C. Holsclaw	659,147	Oct. 2	753	181, 182	93	152
Tool. Combination-	J. C. Lewis	662,005	Nov. 20	1787	430, 431	93	1338
Tool. Combination-	W. E. Seelye	660,204	Oct. 23	2786	619	93	610
Tool. Combination-	C. I., I. F., and E. L. Still	659,902	Oct. 16	2159	486	93	464
Tool. Electrically-operated machine-	J. Riddell	660,801	Oct. 30	3874	872	93	840
Tool-handle	W. E. Wood	663,748	Nov. 27	3213	760	93	1634
Tool-holder and wrench	F. W. Banan	662,905	Dec. 4	17	3	93	1730
Tool-handle fastening	Z. T. Furbish	659,523	Oct. 9	1437	326	93	306
Tool-handle protector	J. A. Heintz	661,523	Nov. 13	887	213	93	1143
Tool-holder	F. W. Roebbel	661,000	Oct. 30	4218	948	93	909
Tooth. Artificial	R. Brewster	663,721	Dec. 11	1487	329	93	2033
Tooth. Artificial	C. Reininghaus	659,039	Oct. 2	582	142	93	117
Tooth-crowns. Apparatus for making seamless	J. F. Twist	660,319	Oct. 23	3024	671	93	658
Toothpick-machine	J. M. Hommel	661,642	Nov. 13	1108	275	93	1187
Tooth-powder box	W. H. Hall	661,911	Nov. 13	1592	386	93	1280
Tooth-straightening appliance	C. D. Lukens	660,194	Oct. 23	2765	615	93	606
Toothing-machine	S. J. Laughlin	661,218	Nov. 6	342	81, 82	93	1020
Top. Spinning-	G. H. Hyne	661,052	Nov. 6	45	10	93	959
Top. Spinning-	J. W. Lobb	660,161	Oct. 23	2689	600	93	590
Torch and heater	C. L. Ge Frorer	662,191	Nov. 20	2151	519	93	1411
Torpedo	E. Kaselowsky	661,535	Nov. 13	912	223, 224, 225, 226	93	1148
Torpedoes. Automatic steering device for	C. D. Haskins	661,520	Nov. 13	883	212	93	1142
Tow-line operator and alarm	F. P. Davis	662,774	Nov. 27	3262	769	93	1645
Towing canal-boats. Means for	C. A. B. D. Köttgen	661,668	Nov. 13	1148	283	93	1196
Towel-holder	R. H. Born	659,164	Oct. 2	786	189	93	158
Towers. Apparatus for raising	A. B. Gifford and E. E. Hull	659,607	Oct. 9	1582	358	93	335
Toy	F. B. Holder	660,684	Oct. 30	3668	824	93	800
Toy	A. Pemberton	660,025	Oct. 16	2387	536	93	510
Toy	J. J. Reed	659,765	Oct. 16	1910	430	93	414
Toy	E. L. Ruth and J. G. Dauber	662,577	Nov. 27	2900	688	93	1576
Toy	M. Shuster	659,555	Oct. 9	1493	338	93	317
Toy and advertising device. Combined	E. S. Lathrop	661,541	Nov. 13	922	227	93	1150
Toy bank	S. W. Pottert	662,735	Nov. 27	3193	756	93	1630
Toy. Dancing	C. H. Briggs	661,032	Nov. 6	8	2	93	952
Toy engine	E. W. Shortridge	661,252	Nov. 6	415	97	93	1034
Toy hoop	P. A. Smith	662,034	Nov. 20	1848	445	93	1349
Toy horse	M. Flick	659,060	Oct. 2	614	148	93	123
Toy money-box	W. H. Dietz	662,059	Nov. 20	1899	456	93	1359
Toy. Motor	J. H. Whiting	664,203	Dec. 18	2382	543	93	2241
Toy musical instrument	L. N. Crakow	663,654	Dec. 11	1357	301	93	2008
Toy parachute	C. Smith	662,701	Nov. 27	3132	741	93	1619
Toy revolver	T. H. Lewis and G. W. Terhorst	660,517	Oct. 23	3374	758	93	727
Toy revolving pistol	H. C. Hall	661,450	Nov. 6	760	179	93	1104
Toy rocker	G. S. Kerr	660,016	Oct. 16	2370	532	93	507
Toy trolley-car system	C. F. Agor	661,926	Nov. 13	1620	392	93	1285
Toy vehicle	M. U. Loree	663,506	Dec. 11	1127	244	93	1963
Toy velocipede	E. Thompson and A. E. Evans	659,267	Oct. 9	991	232	93	215
Trace-carrier	J. B. Gathright	662,671	Nov. 27	3065	723	93	1607
Trace-fastener	H. P. Childress	659,209	Oct. 9	901	212	93	199
Trace-fastener	J. A. Parsons	661,420	Nov. 6	707	163	93	1093
Track-gage	S. Fierbaugh	662,925	Dec. 4	48	12	93	1735
Trace hook and guard	T. A. Bakken	659,909	Oct. 16	2176	489	93	467
Trace-lock	T. J. Halstead	659,068	Oct. 2	618	149	93	124
Trace-support	H. G. Aden	662,554	Nov. 27	2858	678	93	1568
Track-cleaner	E. Sarver	660,465	Oct. 23	3270	732, 733	93	706
Track cleaner and oiling device	W. Morck, P. Krickau, and W. Boehle.	659,408	Oct. 9	1207	279	93	262
Track-clearer	M. B. Eaton	659,294	Oct. 9	1033	242	93	224
Track-sander for locomotives. Pneumatic	J. B. Barnes	664,115	Dec. 18	2225	506	93	2208
Track-sanding machine	E. E. Carpenter	663,215	Dec. 4	575	134	93	1834
Track structure	H. O'Shea	662,017	Nov. 20	1805	435	93	1342
Traction-engine	H. M. Ash	659,120	Oct. 2	715	171, 172	93	145
Traction-engine	G. F. Conner	660,048	Oct. 16	2428	547	93	517

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Traction system	F. J. Sprague	660,065	Oct. 16	2455	554, 555, 556, 557, 558, 559	93	522
Traction-wheel	G. F. Conner	659,650	Oct. 16	1676	378	93	370
Train collisions. Apparatus for preventing	H. L. de Gallard and M. H. A. Portret.	661,513	Nov. 13	870	209, 210	93	1139
Tramway. Aerial wire-rope	J. H. Montgomery	663,817	Dec. 11	1679	376	93	2075
Transfer mechanism	E. E. Slick	661,823	Nov. 13	1441	349	93	1251
Transfers. Producing	C. Giesecke	663,539	Dec. 11	1174		93	1972
Transformer. High-frequency	C. P. L. Noxon	659,760	Oct. 16	1900	428	93	412
Transformers, &c. Testing	A. R. Everest	659,656	Oct. 16	1687	381, 382	93	372
Translating device	F. M. Bell	662,110	Nov. 20	1997	478	93	1378
Transmitter	R. H. Ferguson	661,260	Nov. 6	427	100	93	1086
Transoms. Means for lifting and regulating	R. Adams	661,838	Nov. 13	1463	354	93	1255
Transporting device. Rotary	G. Posslen and F. V. Maquaire	659,698	Oct. 16	1759	397, 398	93	386
Trap: *See* Animal-trap. Cockroach-trap. Fly-trap. Gopher-trap. Rat-trap. Refrigerator-car trap. Steam-trap.							
Trap	T. J. Fitzpatrick	661,122	Nov. 6	179	46	93	988
Trap for game, &c	D. T. Granbery	663,022	Dec. 4	226	48	93	1769
Trap or siphon for drains or the like	W. Kesselring and E. Röthenbacher.	659,481	Oct. 9	1355	309	93	291
Tray for sample-cases, trunks, &c. Self-adjusting	F. D. Upham	664,363	Dec. 18	2692	612	93	2302
Treads, paving, &c. Making non-slipping	F. W. Huestis	659,815	Oct. 16	2007	450	93	433
Tree-prop	E. K. Parker	661,891	Nov. 13	1557	378	93	1273
Tree-protecting compound	J. Lambert	658,953	Oct. 2	420		93	86
Trees, &c., against cold. Process of and apparatus for protecting	J. F. Tucker	661,898	Nov. 13	1569	381	93	1275
Treeing-iron	W. E. Davis	660,723	Oct. 30	3743	843	93	815
Trestle	M. Miller	659,979	Oct. 16	2312	520	93	495
Trestle. Collapsible	F. J. Messing	659,035	Oct. 2	575	139	93	115
Triangle	E. H. Waterbury	660,406	Oct. 23	3176	705	93	688
Tricycle	J. T. Andreen	664,231	Dec. 18	2425	553	93	2250
Triple-action jack	E. E. L. Boyer	660,766	Oct. 30	3806	855	93	828
Tripod	R. F. Buder	663,804	Dec. 11	1648	370	93	2068
Tripod	J. F. Essner and J. K. Love	663,595	Dec. 11	1166	252	93	1970
Tripod	P. H. Reardon	664,502	Dec. 25	2959	675	93	2379
Tripod-head	C. W. Morrell and H. H. McNaughton.	658,958	Oct. 2	431	108	93	87
Trolley	H. S. Goughnour	661,516	Nov. 13	875	211	93	1140
Trolley	H. S. Goughnour	661,975	Nov. 20	1733	418	93	1328
Trolley	F. A. Merrick	662,009	Nov. 20	1793	432	93	1339
Trolley	W. H. Earl	663,740	Dec. 11	1518	338	93	2040
Trolley. Electric-car	H. C. Williams	659,355	Oct. 9	1118	261	93	243
Trolley finder and guard	J. H. Brown and W. H. Tobin, Jr.	664,459	Dec. 25	2888	658	93	2365
Trolley. Overhead electric	W. Schroeter and A. Kautzmann	663,788	Dec. 11	1694	364	93	2063
Trolley-pole	A. C. Wolfe	659,335	Oct. 9	1067	256	93	235
Trolley-pole base	W. B. Potter	659,694	Oct. 16	1763	398	93	396
Trolley system. High-potential	C. L. Leiby	663,700	Dec. 11	1455	321	93	2026
Trolley system. Overhead	F. J. Richard	660,999	Oct. 30	4217	948	93	909
Trolley-track	T. I. Duffy and C. S. McMahan	661,600	Nov. 13	1037	259	93	1173
Trolley-wheel	W. H. Russell	663,198	Dec. 4	543	116	93	1829
Trolley-wire clip or support	W. A. McCallum	659,823	Oct. 16	2015	452	93	435
Trolley-wire-suspending device	J. W. Haynes	662,595	Nov. 27	2929	695	93	1581
Trolley-wire suspension							
Trough: *See* Drinking-trough. Feed-trough. Water-trough.							
Trousers-guard	L. Cauffman	663,010	Dec. 4	204	44	93	1765
Trousers-guard	C. L. Tripp	660,670	Oct. 30	3650	819	93	798
Trousers-hanger	L. F. L. Pynchon	662,656	Nov. 27	3029	716	93	1601
Truck	J. Meaney and J. Stoever. (Reissue.)	11,803	Oct. 9	1645	370	93	347
Truck	G. M. Williams	661,834	Nov. 13	1457	352	93	1254
Truck and brake. Car	D. B. Van Dorn	661,432	Nov. 6	724	168, 169, 170	93	1097
Truck bolster. Car-	H. C. Stalder	661,777	Nov. 13	1359	329	93	1237
Truck-bolster. Metallic	E. Posson	659,320	Oct. 9	1068	251	93	231
Truck. Car-	J. C. Barber	660,514	Oct. 30	3535	794, 795	93	775
Truck. Car-	C. M. Carnahan	661,009	Oct. 30	4246	953	93	914
Truck. Car-	C. M. Carnahan	664,312	Dec. 18	2587	589, 590	93	2281
Truck. Car-	A. B. Du Pont	661,902	Nov. 20	1704	412	93	1323
Truck. Car-	G. G. Floyd	660,896	Oct. 30	4047	907	93	874
Truck. Car-	J. S. Francis	660,422	Oct. 23	3201	712, 713	93	693
Truck. Car-	G. I. King	658,786	Oct. 2	92	22	93	23
Truck. Car-	W. E. Symons	659,903	Oct. 16	2161	487	93	464
Truck. Car-	C. F. Simmermaker	659,108	Oct. 2	698	167	93	141
Truck. Combined barrel and bag	A. Mühlberg	659,590	Oct. 9	1554	353	93	329
Truck for autocars	T. Proulx	660,082	Oct. 16	2321	564	93	536
Truck-guard	T. J. MacCarthy	659,449	Oct. 9	1295	279	93	278
Truck. Ladder-	G. J. Capewell	663,414	Dec. 11	954	206, 207	93	1930
Truck. Railway-car	G. H. Allan and S. H. Lackland	661,783	Nov. 13	1373	322	93	1239
Truck. Roller-	E. Whalley	661,006	Oct. 30	4238	951	93	913
Truck running-gear	G. W. Church	659,133	Oct. 2	733	176, 177	93	148
Truck. Stove-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Truing-gage	J. E. and W. R. Haberlin and T. F. Hayes.	659,868	Oct. 9	1138	265	93	246
Trunk-lock	W. H. Taylor	663,797	Dec. 11	1638	367	93	2066
Trunk. Table-desk	A. P. Rothschild and G. J. Bub	661,194	Nov. 6	297	71, 72	93	1011
Trunk. Wardrobe	L. Goldsmith	659,889	Oct. 16	2131	480, 481	93	457
Truss	D. D. Dennis	656,846	Oct. 16	2060	463	93	444
Truss	J. Fandrey	660,895	Oct. 30	4046	907	93	874
Truss	W. S. Miller	659,685	Oct. 16	1744	394	93	382
Truss. Hernial	J. D. Day	660,368	Oct. 23	3111	689	93	674
Truss. Hernial	J. F. Kampf	658,989	Oct. 2	485	116	93	98
Tub: *See* Bath-tub.							
Tube: *See* Cop-tube. Hearing-tube. Mailing-tube. Sounding-tube.							
Tube-adjusting device. Vacuum-	T. B. Kinraide	659,891	Oct. 16	2133	481	93	458
Tube-cleaner	H. F. Weinland	660,828	Oct. 30	3937	882	93	853
Tube-expander	V. E. Rumbarger	661,620	Nov. 13	1070	266	93	1179
Tube-making machine	W. C. Beckwith	659,567	Oct. 9	1510	342	93	320
Tube-stopper	S. L. Ravier and A. Janet	662,819	Nov. 27	3334	788	93	1558
Tubes. Manufacture of compound	A. Schmitz	661,108	Nov. 6	142	36	93	979
Tubing	C. Harvey	662,787	Nov. 27	3288	775	93	1649
Tubing from hollow billets. Apparatus for producing	J. T. Rowley	660,463	Oct. 23	3207	731, 732	93	705
Tubing. Mechanism or apparatus for bending	W. W. McCallum	664,771	Dec. 25	3499	793	93	2492
Tug. Shaft-	G. C. Klein	660,273	Oct. 23	2930	652	93	630
Tug-stop	O. P. Langan	661,182	Nov. 6	280	68	93	1008
Tune-sheet feeder	J. Wellner	658,885	Oct. 2	203	72	93	61
Turbine	H. T. Ashton	663,715	Dec. 11	1475	327	93	2031
Turbine. Compound reaction steam-	J. C. Henderson	664,085	Dec. 18	2159	493	93	2194
Turbine engine or motor. Radial-flow steam-	S. Lount	661,153	Nov. 6	281	68	93	1009
Turbine. Steam-	D. Kemble	659,930	Oct. 16	2217	498	93	475
Turfing implement	H. E. Lawrence	662,004	Nov. 20	1786	430	93	1338
Turnstile	P. M. Kling	660,902	Oct. 30	4059	909, 910	93	877
Turn-table	E. Burr	664,460	Dec. 25	2890	659	93	2365
Turning and boring tool holder	C. Boltshauser-Schmid	663,005	Dec. 4	196	42	93	1768
Turret-machine tool-holder	G. J. Winkle	661,344	Dec. 18	2654	604	93	2294
Turret-tool	C. L. Goodrich	659,962	Oct. 16	2281	512	93	489
Twine. Machine for making grass	J. Lattin	664,561	Dec. 25	3064	697	93	2401
Twister-machine	H. G. Beede	661,301	Nov. 6	500	115	93	1051
Twisting machinery. Yarn or thread	T. A. Boyd	659,569	Oct. 9	1516	344	93	321
Twyer	J. Schoeler	664,587	Dec. 25	3134	711	93	2417
Twyer	J. E. Willis, L. Boyd, and J. Hill	663,205	Dec. 4	553	119	93	1831
Twyer for blast-furnaces	G. B. Klink	663,177	Dec. 4	507	107	93	1822
Type-arm bearing	R. J. Fisher	661,212	Nov. 6	331	80	93	1018
Type-case	H. L. Keyte	662,625	Nov. 27	2978	706	93	1591
Type-casting machine	G. H. Ziegler	660,237	Oct. 23	2842	631, 632	93	621
Type-casting machines. Melting-pot for	A. W. Hanigan	659,525	Oct. 9	1439	326	93	307
Type composing and distributing machine	E. F. Linke	662,652	Nov. 27	3017	714	93	1599
Type-forming machines. Record-strip perforator for	T. Lanston	663,971	Dec. 18	1967	448	93	2155
Type-grab	A. Dow	658,944	Oct. 2	409	98	93	83
Type-holder	A. Elliott and M. Shaen	660,056	Oct. 16	2448	551	93	520
Type or the like. Reproducing	W. H. B. Miller	662,573	Nov. 27	2889	685	93	1574
Type-setting machine	P. H. McGrath	660,163	Oct. 23	2601	600, 601	93	591
Type setting or composing machine	P. E. Hodgkin and W. May	662,724	Nov. 27	3171	750	93	1636
Type-writer	J. P. Angell	662,333	Nov. 20	2407	580	93	1460
Type-writer	W. Beresford	664,011	Dec. 18	2051	464, 465	93	2171
Type-writer	P. H. Brown	661,304	Nov. 6	506	116	93	1051
Type-writer	M. S. Carmona	661,849	Nov. 13	1478	359, 360	93	1258
Type-writer	G. W. Landon	664,484	Dec. 25	2968	667, 668	93	2373
Type-writer	R. J. and W. E. Miner	659,980	Oct. 16	2313	520	93	495
Type-writer	E. Sensburg	664,590	Dec. 25	3141	712	93	2418
Type-writer calculating device	C. S. Laboflish	661,058	Nov. 6	54	12	93	961
Type-writer copy-holder. Combination	J. P. Martine	663,179	Dec. 4	510	108	93	1832
Type-writer erasing-shield	M. A. Brown	662,591	Nov. 27	2921	694	93	1580
Type-writer. Pneumatic	M. Soblik	659,703	Oct. 16	1780	401, 402	93	390
Type-writers. Automatic ribbon-reversing mechanism for	E. Winne	661,098	Nov. 6	127	31, 32	93	976
Type-writer's chair	F. Chichester	659,811	Oct. 16	2002	448	93	432
Type-writers. Tabulating attachment for	G. H. Irish	659,587	Oct. 9	1548	351	93	328
Type-writing and printing machine. Combined	E. J. Deutsch	660,149	Oct. 23	2693	595	93	586
Type-writing keyboard. Touch-	B. P. Tcherkassov	662,834	Nov. 27	3370	798	93	1666
Type-writing machine	W. J. Barron	660,089	Oct. 23	2537	568	93	559
Type-writing machine	W. J. Barron	662,141	Nov. 20	2041	496	93	1396
Type-writing machine	W. J. Barron	662,142	Nov. 20	2044	497	93	1397
Type-writing machine	E. W. Brackelsberg	660,556	Oct. 30	3445	773	93	759
Type-writing machine	L. S. Burridge	662,393	Nov. 27	2522	609	93	1501
Type-writing machine	L. S. Burridge	664,347	Dec. 18	2660	605	93	2295
Type-writing machine	J. Felbel	660,988	Oct. 30	4197	943, 944	93	905
Type-writing machine	C. L. Fenton	662,230	Nov. 20	2231	587	93	1425
Type-writing machine	C. Gabrielson	662,147	Nov. 20	2053	499, 500	93	1389
Type-writing machine	F. W. Hillard	661,472	Nov. 6	891	193	93	1112
Type-writing machine	E. A. Hopkins	662,790	Nov. 27	3292	776, 777	93	1649

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Type-writing machine	C. T. Powers	661,551	Nov. 13	941	234, 235	93	1153
Type-writing machine	J. B. Price	664,500	Dec. 25	2955	674	93	2378
Type-writing machine	B. C. Stickney	658,931	Oct. 2	379	94	93	76
Type-writing machine	B. C. Stickney	660,937	Oct. 30	4115	925, 926	93	889
Type-writing machine	B. P. Tcherkassov	663,708	Dec. 11	1466	324	93	2029
Type-writing machine	F. X. Wagner	660,231	Oct. 23	2880	628	93	619
Type-writing machine	C. D. Wallace	661,628	Nov. 13	1084	269, 270	93	1182
Type-writing-machine dog	H. Allender	662,215	Nov. 20	2208	532	93	1420
Type-writing-machine feed attachment	F. P. Gorin	658,946	Oct. 2	411	99	93	84
Type-writing machine for writing music	F. C. Winn	661,097	Nov. 6	122	30, 31	93	975
Type-writing-machine indicator attachment	J. W. Shinholser	660,224	Oct. 23	2821	626	93	617
Type-writing-machine type-bar	D. Briggs and W. H. Shepard	660,287	Oct. 23	2948	656	93	643
Umbrella attachment	T. Howle	660,111	Oct. 23	2585	579	93	589
Umbrella-cover	R. W. Killmer	664,157	Dec. 18	2294	523	93	2221
Umbrella-cover rib-clasp	C. F. Burnett	660,325	Oct. 23	3035	673	93	660
Umbrella-covers. Clip for attaching	F. W. Carmelich	664,123	Dec. 18	2241	509	93	2211
Umbrella. Folding	O. Carlson and O. Gardeen	661,366	Nov. 6	614	143	93	1074
Umbrella. Folding	J. A. Ekelund	661,169	Nov. 6	258	63	93	1003
Umbrella. Folding	C. A. Whitney	659,563	Oct. 9	1504	341	93	320
Umbrella-holder	F. Weitman	664,600	Dec. 25	3166	717	93	2423
Umbrella-lock	E. L. Appleby	662,334	Nov 20	2409	580	93	1461
Umbrella retaining-band	J. Rose	663,044	Dec. 4	263	56	93	1776
Umbrella-rod clamp	A. G. Snell	664,784	Dec. 25	3519	797	93	2496
Umbrella-stick	N. Foley	660,248	Oct. 23	2863	637	93	626
Umbrella-stick	D. H. Watts	664,197	Dec. 18	2373	540	93	2239
Underreamer	W. Duncan	662,895	Nov. 27	3559	834	93	1710
Unicycle driving mechanism	H. A. Boes	660,535	Oct. 30	3952	885	93	856
Universal brace	S. McClellan	661,419	Nov. 6	705	163	93	1093
Universal brace and drill	S. McClellan	661,418	Nov. 6	701	162	93	1092
Unloading or loading device	H. Nadler and B. C. Le Blanc	661,154	Nov. 6	236	57	93	999
Unscrewing device	A. De Vilbiss, Jr	661,855	Nov. 13	1492	362	93	1261
Unscrewing device	A. De Vilbiss, Jr	661,857	Nov. 13	1496	363	93	1261
Urinal	D. Hogan	661,403	Nov. 6	676	157	93	1097
Urinal	L. D. Lawnin	659,446	Oct. 9	1290	297	93	278
Urinal	C. E. Richards	663,666	Dec. 11	1386	307, 308	93	2014
Utensil-handle	F. A. Miller	658,992	Oct. 2	489	118	93	98
Vacuum-pan	E. J. Duff	661,929	Nov. 13	1627	393	93	1286
Vacuum-pan	J. and C. McNeil	664,493	Dec. 25	2947	671, 672	93	2377
Vacuums. Gaging high	J. Waring	662,156	Nov. 20	2076	503	93	1394
Vacuums. Producing high	J. W. Howell	660,816	Oct. 30	3903	877	93	846
Valve	J. Barlow	662,517	Nov. 27	2795	662, 663	93	1557
Valve	A. W. Cadman	662,249	Nov. 20	2257	543	93	1430
Valve	T. Clancy	658,975	Oct. 2	461	109	93	93
Valve	F. F. Grosse and W. F. Lintz	664,368	Dec. 18	2699	613	93	2304
Valve	S. Haigh	661,175	Nov. 6	272	66	93	1007
Valve	J. Hopkinson and J. Lowis	663,275	Dec. 4	691	149	93	1856
Valve	C. F. Pekor	664,580	Dec. 25	3119	708	93	2413
Valve	R. J. Smith	660,400	Oct. 23	3169	702, 703	93	686
Valve	W. Taylor	662,969	Dec. 4	163	34	93	1757
Valve	H. H. Troxel	660,603	Oct. 30	3516	790	93	772
Valve	W. W. Wilson, W. A. Stevenson, and C. E. Torrance.	663,593	Dec. 11	1254	277	93	1988
Valve-action. Pneumatic	C. M. Welte	662,705	Nov. 27	3139	743	93	1621
Valve. Air-	T. Wheatley	664,699	Dec. 25	3334	757	93	2458
Valve and valve proper. Safety-	E. E. Gold	661,603	Nov. 13	1041	259	93	1174
Valve apparatus. Automatically-closing float-	A. Fischer	659,891	Oct. 9	1179	273	93	256
Valve apparatus for hydraulic presses	J. Jacobsen	658,915	Oct. 2	342	85	93	70
Valve attachment. Inflation-	J. H. Goss	661,174	Nov. 6	271	65	93	1006
Valve. Automatic exhaust relief-	G. de Laval	663,631	Dec. 11	1323	292	93	2001
Valve. Automatic thermostatic	J. E. Noble	664,668	Dec. 25	3277	745	93	2446
Valve-bag	I. C. Woodward	664,708	Dec. 25	3342	759	93	2460
Valve. Balanced slide-	W. Kruntschak	662,599	Nov. 27	2934	696	93	1582
Valve. Balanced slide-	L. W. McDonald	662,287	Nov. 20	2314	558, 559	93	1442
Valve. Balanced slide-	W. Schmolka	663,936	Dec. 18	1905	428	93	2143
Valve. Blow-off	J. Hughes	659,234	Oct. 9	941	222	93	206
Valve. Check-	T. J. Hackett	664,146	Dec. 18	2282	519	93	2219
Valve. Circulating-	J. Collis	659,050	Oct. 2	596	145	93	119
Valve. Combination-	A. W. Cash	659,207	Oct. 9	896	211	93	198
Valve. Combined vacuum and discharge	R. U. Chadwick	659,578	Oct. 9	1531	347	93	325
Valve. Compound-engine	S. M. Vaucain	660,474	Oct. 23	3293	736, 737	93	711
Valve. Compression-engine	H. J. Schmick	662,154	Nov. 20	2075	503	93	1393
Valve disk-holder	M. E. Lynch	663,607	Dec. 11	1283	284	93	1954
Valve. Double seated	C. F. Murray	660,995	Oct. 30	4209	946	93	908
Valve. Dry-pipe-	W. B. Erb	662,550	Nov. 27	2863	680	93	1509
Valve. Float-	E. A. Valiquette	662,837	Nov. 27	3375	799	93	1666
Valve. Flushing-	S. W. Lewis	663,284	Dec. 4	706	153	93	1859
Valve. Flushing-	F. W. Meyer	661,885	Nov. 13	1545	375, 376	93	1270
Valve for air-brakes. Quick-releasing	P. H. Corbett	661,574	Nov. 13	990	246	93	1164
Valve for steam-engines. Throttle-	J. F. Duryea	663,829	Dec. 11	1704	382	93	2081
Valve for steam-pipes. Self-closing	F. W. Churchouse and H. O. Benedict.	659,134	Oct. 2	734	177	93	148
Valve for trucks. Safety-	C. A. Warsing	663,947	Dec. 18	1922	432	93	2146
Valve for water-chambers of liquid-forcing apparatus. Shut-off	H. Stauff	660,935	Oct. 30	4113	925	93	888
Valve. Gate-	J. Powell	663,515	Dec. 11	1139	247	93	1955

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Valve-gear	W. S. Halsey	663,885	Dec. 18	1799	403, 404	93	2121
Valve-gear	L. A. Lang	659,750	Oct. 16	1883	424	93	409
Valve-gear	H. Lentz	659,892	Oct. 16	2135	481, 482	93	458
Valve-gear	L. Steele	659,458	Oct. 9	1309	300	93	281
Valve-gear. Explosive-engine	H. A. Bertheau	660,242	Oct. 23	2849	634	93	623
Valve-gear. Explosive-engine	C. P. Blake	660,090	Oct. 23	2539	569	93	560
Valve-gear. Explosive-engine	F. C. Dyckhoff	661,369	Nov. 6	622	144, 145	93	1076
Valve. Globe and check	C. E. Loetzer	660,193	Oct. 23	2763	615	93	606
Valve-governor. Automatic	D. C. Streeter	660,084	Oct. 16	2405	541	93	513
Valve. Hot-blast	D. Baker	659,805	Oct. 16	1995	446	93	431
Valve. Hydrant-	H. F. Neumeyer	659,252	Oct. 9	956	227	93	211
Valve. Hydraulic	J. Christie and W. B. Hughes	663,727	Dec. 11	1495	331	93	2035
Valve. Hydraulic	H. W. Kimes	659,031	Oct. 2	570	137, 138	93	114
Valve. Inflation-	R. C. Hilton	663,093	Dec. 4	343	71	93	1790
Valve. Inflation-	F. L. Sowle	660,128	Oct. 23	2625	586	93	577
Valve mechanism	N. Henquin	661,525	Nov. 13	891	214, 215	93	1143
Valve mechanism. Air-brake	L. Krimmelbein	661,474	Nov. 6	804	194	93	1112
Valve-operating mechanism	C. W. A. Taylor and D. Small	659,008	Oct. 2	515	124	93	108
Valve. Piston-	C. J. Mellin	661,766	Nov. 13	1346	326	93	1233
Valve. Pressure regulating or reducing	P. B. Taylor	660,872	Oct. 30	4014	899	93	868
Valve. Pumping-engine	J. S. Atkinson	664,114	Dec. 18	2224	506	93	2206
Valve. Reducing-	J. B. Waring	664,515	Dec. 25	2964	679	93	2385
Valve-regulating device for water-motors	D. P. Sims	660,317	Oct. 23	3015	668	93	656
Valve. Relief-	C. M. W. Smith	659,263	Oct. 9	984	231	93	214
Valve-repairing machine	M. A. Ackles	663,000	Dec. 4	188	39, 40	93	1792
Valve. Reversing-	S. Forter	659,221	Oct. 9	921	216	93	203
Valve. Slide-	C. F. Rigby	663,300	Dec. 4	748	159	93	1866
Valve. Steam-engine	G. D. Hunter	663,079	Dec. 4	312	66	93	1784
Valve. Steam-engine	E. A. Weimer	662,994	Dec. 4	170	35	93	1759
Valve. Steam-engine exhaust-	E. F. Hughes	664,553	Dec. 25	3050	695	93	2398
Valve. Steam-engine rocking	F. L. Ezell	660,010	Oct. 16	2302	531	93	506
Valve. Stop-	A. Turnbull	660,849	Oct. 23	3084	684	93	670
Valve. Straightway	J. Powell	663,514	Dec. 11	1138	246	93	1941
Valve. Throttle-	J. S. Chambers	663,599	Dec. 11	1263	279	93	1990
Valve-tightener	J. Cederstrom	661,712	Nov. 13	1242	301	93	1214
Valve. Water-cushioning tank-	F. S. Milne and T. W. Snow	663,918	Dec. 18	1874	422	93	2138
Valves. Gripping connection for inflation-	G. W. Trommlitz and J. M. Gibbs	664,341	Dec. 18	2649	608	93	2293
Vapor-burner	L. Dürr	661,636	Nov. 13	1101	273	93	1186
Vapor-burner for steam-generators	F. E. Stanley	659,992	Oct. 16	2332	524, 525	93	500
Vapor-burner. Incandescent	J. M. Densmore	663,120	Dec. 4	389	88	93	1799
Vapor-burner. Incandescent	J. J. Dunlap	660,528	Oct. 23	3393	762	93	730
Vapor-burning apparatus	A. Kitson	663,678	Dec. 11	1409	312	93	2018
Vapor-engine	J. B. Rodger	661,078	Nov. 6	92	22, 23	93	968
Vapor-treatment apparatus	F. R. Ryan	659,551	Oct. 9	1487	337	93	316
Vaporizer	J. M. Lockey	658,793	Oct. 2	105	25	93	25
Vaporizing apparatus	A. Kitson	663,444	Dec. 11	1006	220	93	1940
Vaporizing apparatus	A. Kitson	664,762	Dec. 25	3482	788	93	2489
Vaporizing, cooling, and aerating apparatus. Liquid distribution for	W. H. Weightman	662,612	Nov. 27	2954	702	93	1587
Varnish. Making	R. A. Worstall and C. F. Hackathorn.	663,594	Dec. 11	1255	277	93	1988
Vat: See Carbonatation-vat.							
Vats or casks and leading out all injurious gases. Means for drying interiors of	G. Groessl	663,341	Dec. 4	807	172	93	1878
Vault	H. D. Hibbard	662,480	Nov. 27	2617	627	93	1590
Vault-light construction	W. H. Shepard	663,199	Dec. 4	544	117	93	1829
Vaults. Forming grave-	D. E. Aunkst and W. H. Lawrence	664,710	Dec. 25	3351	761	93	2462
Vegetation-burner for railway-tracks, &c	C. Burke and J. Toole	661,846	Nov. 13	1474	358	93	1257
Vehicle	C. S. and H. F. Drake	658,894	Oct. 2	211	52	93	46
Vehicle	T. A. Dull	660,291	Oct. 23	2957	658	93	645
Vehicle	J. A. Hamelback	662,267	Nov. 20	2285	549	93	1436
Vehicle	B. C. Hicks	660,158	Oct. 23	2683	598	93	589
Vehicle	J. Klövstad and G. W. Jonsen	664,488	Dec. 25	2927	687	93	2378
Vehicle	R. L. Young	661,594	Nov. 13	1027	257	93	1172
Vehicle-brake	O. V. Bachellé	660,549	Oct. 30	3435	771	93	757
Vehicle-brake	J. Davis	659,136	Oct. 2	736	177	93	149
Vehicle-brake	F. G. Goettmann, Sr	660,186	Oct. 23	2750	611	93	603
Vehicle-brake	C. R. Greuter	659,665	Oct. 16	1705	385	93	375
Vehicle-brake	H. Magee	660,914	Oct. 30	4078	914	93	881
Vehicle-brake	J. R. Young	664,804	Dec. 25	3502	810	93	2505
Vehicle-brake. Automatic	H. L. Bailey	663,845	Dec. 18	1737	388	93	2110
Vehicle-brake. Automatic	H. Paden	658,799	Oct. 2	116	27	93	28
Vehicle driving apparatus	H. Preuss	661,815	Nov. 13	1433	346	93	1249
Vehicle driving-gear. Motor-	R. W. Elston	661,964	Nov. 20	1709	413	93	1324
Vehicle driving mechanism. Motor-	J. E. Thornycroft	662,207	Nov. 20	2180	525	93	1416
Vehicle-frame joint	J. S. Copeland	664,469	Dec. 25	2908	662	93	2368
Vehicle frame. Motor-	F. R. Parker	662,296	Nov. 20	2337	564	93	1447
Vehicle gear-case. Motor-	F. Lamkin	661,583	Nov. 13	1008	250	93	1167
Vehicle-gear. Low-down short-turn	M. O. Wickes	660,606	Oct. 30	3522	792	93	773
Vehicle gearing. Automobile-	L. H. Dyer	662,400	Nov. 27	2541	614, 615	93	1505
Vehicle gearing. Automobile-	L. H. Dyer	662,401	Nov. 27	2545	615	93	1506
Vehicle gearing. Motor-	G. P. Dorris	664,809	Dec. 25	3509	812, 813	93	2506
Vehicle hinge-coupling. Detachable	H. J. Chambers	664,234	Dec. 18	2429	554	93	2251
Vehicle hitch-brake. Automatic	C. Kitchin	664,159	Dec. 18	2396	523	93	2222
Vehicle. Ice or snow	L. Olson	658,861	Oct. 2	265	65	93	55
Vehicle. Motor-	H. L. Arnold	662,902	Dec. 4	2	1	93	1727
Vehicle. Motor-	H. B. Berendsen	664,208	Dec. 18	2389	545	93	2343

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle. Motor-	E. Bernardi	659,568	Oct. 9	1512	343	93	321
Vehicle. Motor-	A. M. Coburn	659,581	Oct. 9	1537	348 349	93	326
Vehicle. Motor-	T. B. Dooley	662,372	Nov. 20	2477	596 597	93	1475
Vehicle. Motor-	F. B. Hopewell	664,478	Dec. 25	2918	665	93	2371
Vehicle. Motor-	G. W. Lewis	661,409	Nov. 6	684	159	93	1088
Vehicle. Motor-	C. A. Lieb	659,078	Oct. 2	653	156	93	131
Vehicle. Motor-	G. T. Pillings	659,318	Oct. 9	1066	250	93	231
Vehicle. Motor-	W. Riddell	664,292	Dec. 18	2549	579	93	2274
Vehicle. Motor-	J. E. Thornycroft	662,206	Nov. 20	2171	524 525	93	1414
Vehicle. Motor-	H. G. Underwood	662,138	Nov. 20	2088	495 496	93	1386
Vehicle-motor	J. W. Eisenhuth	664,018	Dec. 18	2060	467 468	93	2173
Vehicle. Motor-driven	R. J. Gatling	660,098	Oct. 23	2555	571	93	563
Vehicle. Motor-driven	P. C. Leidich	664,160	Dec. 18	2298	523 524	93	2222
Vehicle reach connection	O. Patzack	660,166	Oct. 23	2710	603	93	594
Vehicle running-gear	F. Copeland	660,327	Oct. 23	3037	673 674	93	660
Vehicle running-gear	C. T. Fletcher	661,506	Nov. 13	862	206	93	1137
Vehicle running-gear	C. Heart	663,893	Dec. 18	1813	408	93	2124
Vehicle running-gear	S. M. Morden	664,818	Dec. 25	3598	819	93	2510
Vehicle running-gear	F. E. and F. O. Stanley	663,836	Dec. 11	1719	384 385	93	2084
Vehicle running-gear. Changeable	E. C. Jenkins	661,721	Nov. 13	1256	304	93	1216
Vehicle running-gear. Motor-	J. W. Eisenhuth	661,210	Nov. 6	327	79	93	1017
Vehicle running-gear. Motor-	A. L. Riker	661,553	Nov. 13	948	236	93	1155
Vehicle. Self-propelled	C. H. Foster	659,222	Oct. 9	922	216	93	208
Vehicle. Self-propelled	R. Jackson	660,192	Oct. 23	2762	614	93	606
Vehicle. Self-propelling	A. Herschmann	663,028	Dec. 4	234	50	93	1771
Vehicle-spring	W. Parfrey	662,876	Nov. 27	3529	826	93	1708
Vehicle-spring connection	P. L. Jones	659,798	Oct. 16	1984	444	93	429
Vehicle spring-frame	F. R. Parker	663,702	Dec. 11	1457	321	93	2027
Vehicle spring-gear	D. True	659,718	Oct. 16	1808	407 408	93	306
Vehicle. Spring-motor	W. Weiner	659,180	Oct. 2	853	203	93	169
Vehicle. Spring-propelled	A. R. Fischer	660,497	Oct. 23	3330	747	93	718
Vehicle steering apparatus	E. Lundqvist	663,350	Dec. 4	818	175	93	1880
Vehicle steering apparatus. Motor-	J. E. Thornycroft	663,086	Dec. 18	1994	448 449	93	2161
Vehicle-wheel	J. N. Johnson	662,443	Nov. 27	2648	632	93	1527
Vehicle-wheel	H. Kinney and J. O. Hankins	664,647	Dec. 25	3239	735	93	2439
Vehicle-wheel	W. H. Schofield	659,861	Oct. 16	2064	468	93	448
Vehicle-wheel	J. C. Smith	660,401	Oct. 23	3169	703	93	687
Vehicle-wheel	S. Sweeney	658,879	Oct. 2	286	70	93	59
Vehicle-wheel	S. H. Van Trump and F. D. Rowell	660,873	Oct. 30	4020	900	93	869
Vehicle-wheel	G. Becker	660,410	Oct. 23	3184	707	93	690
Vehicle-wheel lock	T. Midgley	660,728	Oct. 30	3750	844	93	816
Vehicle-wheel. Metallic	T. Midgley	660,729	Oct. 30	3751	845	93	817
Vehicle-wheel. Metallic	L. Renault	660,924	Oct. 30	4091	918 919 920	93	884
Vehicles. Driving and speed-changing mechanism for motor-	A. Balsieux	662,386	Nov. 27	2507	605	93	1498
Vehicles. Electric traction for tramway or similar	W. Kingsland	663,233	Dec. 4	615	131 132	93	1841
Vehicles for mechanically operating electric switches. Connection of strikers to motor-	R. E. Robertson	662,026	Nov. 20	1828	439	93	1345
Vehicles. Power device for road-	W. B. Green	659,743	Oct. 16	1870	422	93	406
Vehicles. Short-turning gear for	F. B. Hunt	661,992	Nov. 20	1758	422 423	93	1333
Velocipede	E. H. Neubert	663,295	Dec. 4	729	156 157	93	1863
Velocipede	J. Preston	659,321	Oct. 9	1070	251	93	232
Velocipede	M. Van Gülpen	661,939	Nov. 13	1644	398 399	93	1299
Velocipede	J. Dring and T. L. Mitchelmore	659,138	Oct. 2	739	178	93	149
Velocipede-brake	W. Schmidt and J. Berberich	662,602	Nov. 27	2937	667	93	1583
Velocipede-brake	J. S. Copeland	662,891	Nov. 27	3552	833	93	1709
Velocipede. Chainless	C. A. Baylor	659,504	Oct. 9	1396	318	93	299
Velocipede driving-gear	W. H. Hirst	658,896	Oct. 2	312	76,77	93	64
Velocipede driving-gear	J. E. Johnson	660,298	Oct. 23	2974	660	93	648
Velocipede. Railway-	T. E. Beck	663,409	Dec. 11	945	205	93	1929
Velocipede-saddle	E. J. Day	659,054	Oct. 2	606	147	93	122
Velocipede-saddle	A. Didierjean	659,511	Oct. 9	1418	321 322	93	308
Velocipedes. Two-speed gearing for	S. J. Glass	663,388	Dec. 4	800	171 172	93	1877
Vending appliance. Prepayment	J. Aarons	659,198	Oct. 9	879	209	93	195
Vending device	G. B. and J. R. Carter	663,258	Dec. 4	668	143 144	93	1852
Vending-machine	R. E. Monger	664,568	Dec. 25	3086	700 701	93	2405
Vending-machine	H. W. Pape	661,130	Nov. 6	191	48	93	990
Vending machine. Stamp-	J. MacKirdy	660,913	Oct. 30	4074	913	93	880
Vending machines. Electrically-controlled coin-feeding appliance for	R. Kann	659,583	Oct. 9	1458	330	93	309
Vending-machines to meters. Means for connecting.	W. Webber	663,823	Dec. 11	1690	878	93	2078
Veneer-clipper	L. G. Merritt	663,181	Dec. 4	513	108 109	93	1822
Veneer-cutting machine	J. Lewis	663,450	Dec. 11	1017	222	93	1942
Ventilating and heating apparatus	A. G. Söderlund and F. W. Lönnbeck	662,473	Nov. 27	2705	643 644	93	1539
Ventilation, heating, and cooling. System of	A. Fowler and A. J. Harpole	663,746	Dec. 11	1529	342	93	2042

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ventilator: *See* Car-ventilator. Window-ventilator. Door or window ventilator.	O. Kretschmer	660,530	Oct. 23	3395	763	93	731
Vessel-closing device	C. E. De Lancey and J. L. Ritter	664,131	Dec. 18	2253	511 512	93	2218
Vessel. Compartment	C. Martin	660,803	Oct. 23	2984	682	93	650
Vessel for containing and transferring liquids	P. Wisdom	659,779	Oct. 16	1938	435 436	93	420
Vessel-hulls. Means for scraping	J. S. Briggs	661,303	Nov. 6	505	116	93	1051
Vessels. Air-injecting device for lessening skin friction of	H. Simpson	662,829	Nov. 27	3358	795	93	1663
Vessels. Apparatus for arresting motion of navigable	B. A. Fiske	660,155	Oct. 23	2673	597	93	588
Vessels or vehicles. Apparatus for controlling mechanism of moving	B. A. Fiske	660,156	Oct. 23	2678	597	93	588
Vessels or vehicles. Controlling moving	A. J. McCready	661,811	Nov. 13	1424	343	93	1248
Vine-cutter	L. Löwenthal	661,412	Nov. 6	698	160	93	1090
Violin bass-bar	C. W. Brewster	664,718	Dec. 25	3367	766	93	2465
Violin-support	P. Anderson	661,942	Nov. 20	1671	406	93	1317
Vise	W. Van Manen	662,660	Nov. 27	3085	718	93	1608
Vise. Bench-	E. J. Zwart	663,145	Dec. 4	456	96	93	1812
Vise. Chain-gear parallel carpenter's	E. B. Newnam	663,819	Dec. 11	1684	377	93	2076
Vise. Foot-	C. H. Jenkins	662,535	Nov. 27	2824	670	93	1562
Vise. Hand-	T. Davis	660,367	Oct. 23	3110	688	93	674
Vise. Pipe-	H. F. Renner	664,861	Dec. 18	2690	611	93	2302
Vise. Pipe-	G. S. Dunn	662,375	Nov. 20	2483	598	93	1476
Voltage controller. Multiple-	O. A. Gatrell	658,771	Oct. 2	52	12,13	93	14
Voting-machine	S. Loe	660,115	Oct. 23	2594	581 582 583	93	571
Voting-machine	C. H. Ocumpaugh	660,918	Oct. 30	4063	915	93	882
Voting-machine	C. H. Ocumpaugh	660,919	Oct. 30	4065	916	93	883
Voting-machine	J. B. Weigand	661,831	Nov. 13	1451	351	93	1253
Vulcanization	W. G. Hill, Jr	661,177	Nov. 6	274	66	93	1007
Vulcanization	W. G. Hill, Jr	661,178	Nov. 6	276	66	93	1007
Vulcanizer	P. Funck	662,231	Nov. 20	2233	537	93	1425
Vulcanizer	G. H. Tuttle	663,309	Dec. 4	754	161	93	1969
Wad-chute	W. L. Morris	662,494	Nov. 27	2749	633	93	1548
Wad punching and lubricating device	W. L. Morris	662,498	Nov. 27	2748	632 633	93	1548
Wad-seating machine	L. B. Simmons	659,630	Oct. 9	1632	368	93	344
Wafers, &c. Apparatus for manufacturing sugar	G. S. Baker	661,729	Nov. 13	1271	308 309	93	1219
Wagon	I. A. Manchester	659,309	Oct. 9	1053	247	93	228
Wagon-bed hoist	A. Moyer	662,800	Nov. 27	3306	780	93	1652
Wagon-body	A. G. Anderson	664,454	Dec. 25	2872	656	93	2362
Wagon-body	J. Bower	661,029	Nov. 6	4	1	93	952
Wagon-body	B. Harboth	660,508	Oct. 23	3352	758	93	723
Wagon-body	W. G. Stewart	659,160	Oct. 2	776	187	93	157
Wagon-body	W. F. Marquardt	660,447	Oct. 23	3244	734	93	700
Wagon-body and end-gate therefor	W. C. Warren and A. Smithson	658,904	Oct. 2	328	81	93	67
Wagon-box support	A. White	663,526	Dec. 11	1151	250	93	1968
Wagon. Boy's	G. W. Cox	659,212	Oct. 9	906	213	93	200
Wagon-brake	J. H. Poulter	660,026	Oct. 16	2388	536	93	510
Wagon-brake. Automatic	D. M. Pfautz	659,826	Oct. 16	2020	453	93	436
Wagon. Coal-delivery	J. S. Kidd	660,992	Oct. 30	4205	945	93	907
Wagon-dump and elevator	F. Bauer and D. Genre	658,937	Oct. 2	397	96	93	81
Wagon. Dumping-	T. Lee	661,219	Nov. 6	344	82	93	1021
Wagon. Dumping-	J. H. Harris	661,992	Nov. 20	1748	419	93	1330
Wagon. Lumber or log	F. G. and G. L. Scott	664,684	Dec. 25	3300	750	93	2451
Wagon or carriage runner	A. Hitt	660,701	Oct. 30	3703	833 834	93	807
Wagon running-gear	F. A. Olmsted	660,651	Oct. 30	3614	810	93	790
Wagon-seat lock	A. Hitt	660,702	Oct. 30	3705	834	93	807
Wagon-standard	G. E. Daniels	659,585	Oct. 9	1544	350	93	328
Wagon tail-board fastening	C. Bernhardt	664,715	Dec. 25	3363	765	93	2464
Wagon. Weighing chute-	W. J. Austen	659,396	Oct. 9	1169	271	93	254
Waist and skirt adjuster	H. Rosenbaum	658,868	Oct. 2	273	67	93	57
Wall, floor, or ceiling for buildings	H. Rosenbaum	658,869	Oct. 2	274	67	93	57
Wall, floor, or ceiling for buildings	T. E. Grafton	660,897	Oct. 30	4048	907	93	875
Wall-tie	S. E. Gage	660,506	Oct. 30	3462	777	93	702
Walls. Means for renewing house-	D. McTaggart	664,335	Dec. 18	2028	598	93	2289
Warp-beaming machine	C. H. Knapp	661,268	Nov. 6	438	102	93	1039
Warping-machine	C. B. Martin	664,567	Dec. 25	3085	700	93	2405
Washbench and rack. Combined	W. A. Arrowsmith	659,635	Oct. 16	1650	371	93	305
Washbench. Folding	G. W. Chatters, Sr	664,125	Dec. 18	2243	510	93	2211
Washboard	J. P. Marshall	660,708	Oct. 30	3714	835	93	809
Washboard	H. H. Tuttle	661,431	Nov. 6	723	168	93	1097
Washboiler	J. C. Greiner	662,205	Nov. 20	2282	548	93	1435
Washboiler. Steam-	D. E. Anthony	660,080	Oct. 16	2519	563	93	596
Washers, kettles, &c. Attachment for							
Washer: *See* Bottle-washer. Hose-washer. Carriage-washer. Ore-washer. Dish-washer. Photographic-print washer. Gas-washer.	A. Lamm	662,008	Nov. 20	1784	429 430	93	1338
Washer	J. E. Lenhuit	662,600	Nov. 27	2935	697	93	1583
Washer	D. W. Bowman	664,607	Dec. 25	3178	719	93	2425
Washing-machine	J. H. Buegge	659,608	Oct. 9	1576	357	93	334
Washing-machine	H. F. Carrico	661,393	Nov. 6	659	154	93	1041
Washing-machine	A. A. Casler	664,124	Dec. 18	2241	510	93	2211
Washing-machine	J. C. Churchill	659,580	Oct. 9	1535	348	93	320
Washing-machine	L. A. Doble	663,425	Dec. 11	975	211	93	1934
Washing-machine	A. S. and S. A. Fridolph	659,223	Oct. 9	924	217	93	208

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Washing-machine	Z. Gaillard	661,514	Nov. 13	872	210	93	1140
Washing-machine	W. A. Grant	659,663	Oct. 16	1702	384	93	374
Washing-machine	P. A. Hardwick	660,431	Oct. 23	3216	716	93	696
Washing-machine	H. A. Hartman	662,425	Nov. 27	2601	625	93	1516
Washing-machine	S. Kaney	663,657	Dec. 11	1362	302	93	2009
Washing-machine	J. G. Kincaid	662,795	Nov. 27	3300	778	93	1651
Washing-machine	T. J. Pickett	661,726	Nov. 13	1267	306 307	93	1219
Washing-machine	I. N. Thomas	663,371	Dec. 4	849	182	93	1886
Washing-machine	V. D. Tinkelpaugh, E. L. Ridgway, and J. A. Newton.	660,692	Oct. 30	3682	829 830	93	802
Washing machine. Piece-	C. C. Kenyon	662,377	Nov. 20	2487	598	93	1476
Washing-machine. Rotary	L. C. Hartsough	659,921	Oct. 16	2198	494	93	471
Washing piece goods. Apparatus for	E. Remy	660,029	Oct. 16	2393	537	93	511
Washstand	W. S. Hamm	663,889	Dec. 18	1806	406	93	2123
Watchcase-opener	D. W. Campbell and A. E. Prescott	659,049	Oct. 2	595	144	93	119
Watchcase-spring	W. Colley and C. Nobs, Jr	659,915	Oct. 16	2186	492	93	469
Watch-crystals. Lathe-chuck for grinding	A. R. Weaver	659,778	Oct. 16	1937	435	93	420
Watchmaker's tweezers	W. G. Conn	660,489	Oct. 23	3221	744	93	716
Watch. Stem winding and setting	C. A. Kortenhaus	660,855	Oct. 30	3085	892	93	862
Watch winding-indicator	O. Ohlson	662,655	Nov. 27	3027	716	93	1601
Water-circulator. Automatic	F. H. Fitzler	663,429	Dec. 11	988	212 213	93	1935
Water-closet	H. H. Kendrick	664,559	Dec. 25	3060	696 697	93	2400
Water-closet	L. D. Lawnin	661,454	Nov. 6	768	181	93	1105
Water-closet attachment	E. J. Healy, Jr	664,610	Dec. 25	3183	720 721	93	2426
Water-closet attachment	J. C. Sneden	663,794	Dec. 11	1634	366	93	2065
Water-closet cover	M. Fischer	658,982	Oct. 2	472	113	93	95
Water-closet flush	J. Bowman	660,044	Oct. 16	2419	544 545	93	515
Water-closet-flushing device	R. Pauls	659,255	Oct. 9	974	229	93	212
Water-closet flushing-tank	C. J. Ball	660,178	Oct. 23	2732	608	93	600
Water-closets. Seat-controlled valve-operating mechanism for	W. Taylor	660,977	Oct. 30	4179	939	93	902
Water-cooler dispensing device	F. A. Emerick	662,168	Nov. 20	2099	508	93	1399
Water-cooling apparatus	W. Ostendorff	661,192	Nov. 6	293	71	93	1011
Water. Deaerating	G. M. Kleucker	664,763	Dec. 25	3484	788	93	2489
Water. Facilitating congelation of	O. Guthrie	660,772	Oct. 30	3820	856 857	93	829
Water-gage	E. Engels	664,019	Dec. 18	2063	468	93	2174
Water-gage attachment	W. M. McLeish	662,732	Nov. 27	3189	755	93	1630
Water-gate	C. H. Baker	660,356	Oct. 23	3095	686	93	672
Water-heater	T. I. Rankin	663,363	Dec. 4	838	180	93	1884
Water-heater	F. Schifferle	658,963	Oct. 2	438	105	93	89
Water-heater	F. Schifferle	664,439	Dec. 25	2850	650	93	2358
Water-heater. Geyser or like	H. T. Fenlon	663,745	Dec. 11	1527	341 342	93	2041
Water heater, purifier, and separator	A. G. Hohenstein	661,933	Nov. 13	1633	395 396	93	1287
Water heater, purifier, and separator	A. G. Hohenstein	661,934	Nov. 13	1635	396	93	1287
Water-heating apparatus	R. Thayer	663,107	Dec. 4	370	77,78	93	1795
Water-lifting apparatus	C. Shaw	661,623	Nov. 13	1075	267	93	1180
Water-lifting apparatus	C. Shaw	661,624	Nov. 13	1077	267	93	1181
Water-meter	L. H. Nash	661,067	Nov. 6	72	16	93	965
Water-meter disk	F. Lambert	660,383	Oct. 23	3135	694	93	679
Water-motor	J. H. Fullmer	661,512	Nov. 13	869	209	93	1139
Water-motor	J. Sands	659,901	Oct. 16	2151	486	93	461
Water-pressure regulator	O. Mueller	662,013	Nov. 20	1801	433 434	93	1341
Water. Purifying	L. Gathmann	660,214	Oct. 23	2807	622	93	614
Water-purifying apparatus	A. B. Bellows	660,785	Oct. 30	3847	863 864 865	93	834
Water-regulator	L. B. Fulton	662,488	Nov. 27	2739	650 651	93	1546
Water-repellent. Compound for rendering fabrics	C. Lichtenstadt	662,695	Nov. 27	3123	------	93	1618
Water stop or gate	W. S. Fisher	663,265	Dec. 4	677	146	93	1853
Water-supply regulator	F. S. Seymour	661,622	Nov. 13	1072	266 267	93	1179
Water-tank heater	C. O. Rascher	662,738	Nov. 27	3198	757	93	1631
Water to occupants of buildings. Apparatus for supplying	J. H. Vail	662,632	Nov. 27	2988	708	93	1593
Water to tanks. Means for automatically supplying	W. E. Clark	659,015	Oct. 2	540	131	93	108
Water-trough. Animal and fowl	J. C. Tucker	659,774	Oct. 16	1932	434	93	419
Water-tube boiler	W. D. Hamilton	660,506	Oct. 23	3349	752 753	93	722
Water-tube boiler	R. M. Head	664,745	Dec. 25	3440	779	93	2482
Water-tube boiler	G. C. Hicks, Jr	661,720	Nov. 13	1255	308	93	1216
Water-tube boiler	R. W. Knapp	663,575	Dec. 11	1222	267 268	93	1981
Water-tube boiler	J. E. Slack	663,588	Dec. 11	1242	273 274	93	1985
Water-tube boiler	J. I. Thornycroft	659,005	Oct. 2	517	125	93	103
Water-tube boiler	J. I. Thornycroft	659,006	Oct. 2	520	125	93	104
Water-wheel	M. A. Brown	659,120	Oct. 2	728	175	93	147
Water-wheel	H. Jones	663,812	Dec. 11	1671	373	93	2073
Water-wheel	F. Trump	660,282	Oct. 23	2941	655	93	641
Water-wheel governor	A. Schulze	664,337	Dec. 18	2633	599 600 601	93	2291
Water-wheel. Impact	J. R. De Remer	659,652	Oct. 16	1678	379	93	370
Water-wheel. Turbine	F. Ellicott	664,391	Dec. 25	2742	623 624	93	2338

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Water-wheel. Turbine	F. Ellicott	664,398	Dec. 25	2748	624 625	93	2339
Waterer. Stock-	J. H. Thornburgh	662,990	Dec. 4	164	34	93	1757
Watering apparatus. Stock-	J. H. Hanson	661,980	Nov. 20	1740	419	93	1330
Watering fountain. Automatic stock-	J. R. Beeman and F. H. Schmidt	664,524	Dec. 25	3002	684	93	2388
Wave and tidal engine	J. J. McIntyre	659,609	Oct. 9	1585	350	93	335
Wave-motor	G. N. Todd	660,085	Oct. 16	2406	541	93	513
Wave-motor	G. N. Todd	660,086	Oct. 16	2408	542	93	513
Wax from paraffin-oil. Apparatus for separating	P. R. Gray	660,251	Oct. 23	2869	638 639	93	627
Wax, Sealing-	H. A. Hughes	664,752	Dec. 25	3458	------	93	2485
Wax tapers. Composition of matter for	J. Craveri	658,977	Oct. 2	463	------	93	93
Weaner. Calf-	W. B. Hart	661,912	Nov. 13	1593	386	93	1289
Weaner. Calf or colt	A. N. Goff	664,633	Dec. 25	3216	730	93	2433
Weaning calves or colts, &c. Blab or muzzle for	J. W. Seay	662,471	Nov. 27	2702	643	93	1538
Weather-strip	O. G. Attkisson	664,370	Dec. 25	2707	614	93	2331
Weather-strip	A. Craig	661,040	Nov. 6	23	6	93	955
Weather-strip	R. R. Reynolds	663,469	Dec. 11	1050	230	93	1949
Weather-strip	G. L. Scoville	659,455	Oct. 9	1304	299	93	280
Weather-strip. Door or window	J. E. Bundy	660,839	Oct. 30	3958	896	93	857
Weather-strip. Door or window	D. L. Byler	660,841	Oct. 30	3962	897	93	858
Weaving. Harness for cross-	W. B. Dixon	661,656	Nov. 13	1137	281 642 643 644	93	1198
Weaving rectangular-meshed netting. Machine for	H. A. Rendall and W. G. Ackerman	664,483	Dec. 25	2833	645 646 647 648	93	2356
Weed-cutter	J. McCorkell and N. McEachern	659,608	Oct. 9	1584	359	93	335
Weed-destroyer	M. J. Anderson	660,612	Oct. 30	3529	798	93	774
Weed-exterminating compound	A. Besaw	663,071	Dec. 4	303	------	93	1783
Weed-puller	R. Russell	660,339	Oct. 23	3063	680	93	665
Weeder	J. M. Essig	660,095	Oct. 23	2551	570	93	563
Weeder	J. W. Hiett	663,628	Dec. 11	1316	291	93	1999
Weigher. Automatic	W. C. Marsh	661,062	Nov. 6	60	14	93	962
Weighing and conveying machine. Grain	O. M. Stone	664,443	Dec. 25	2855	652	93	2359
Weighing and counting machine	W. H. Sanderson	659,880	Oct. 16	2028	455	93	437
Weighing-machine	E. H. Cook	664,313	Dec. 18	2589	590	93	2282
Weighing-machine	A. Crawford	663,959	Dec. 18	1949	438	93	2152
Weighing-machine	J. Manes	660,077	Oct. 16	2515	562	93	535
Weighing-machine	J. W. Berry	661,945	Nov. 20	1678	407	93	1318
Weighing-machine. Automatic	G. Hoepner	659,923	Oct. 16	2201	495	93	471
Weighing-machine. Automatic	E. H. Cook	664,235	Dec. 18	2431	554	93	2251
Weighing-machine. Coin-controlled	L. W. Baldwin	659,910	Oct. 16	2177	490	93	467
Weighing-machine dial-face	U J. Fuhrman	660,011	Oct. 16	2363	531	93	506
Weight-motor	M. C. Dean	659,055	Oct. 2	607	------	93	122
Welding apparatus. Electric	A. F. Rietzel	661,588	Nov. 13	1015	253 254 255	93	1169
Welding apparatus. Electric	A. F. Rietzel	661,589	Nov. 13	1020	255	93	1170
Welding-machines. Self-adjusting circuit-breaker for electrical	J. C. Perry	659,417	Oct. 9	1222	282	93	265
Welding-tongs. Electric	J. R. Duncan	660,152	Oct. 23	2670	596	93	587
Well-bucket-hoisting device	H. H. Simmons	658,871	Oct. 2	275	68	93	57
Well-casing fastener	D. I. Rowland	663,516	Dec. 11	1140	247	93	1965
Well-casing head. Oil-	C. Hayes	661,913	Nov. 13	1594	386	93	1280
Well-drilling mechanism. Artesian-	L. W. Hudson	662,289	Nov. 20	2317	550	93	1443
Well jack. Oil-	W. Heckart	660,059	Oct. 16	2448	552	93	520
Well-tubing. Hoisting mechanism for	R. B. Gentle	659,586	Oct. 9	1545	350 351	93	328
Wheat-separator		659,919	Oct. 16	2194	494	93	470
Wheel: *See* Automobile motor-wheel. Car-wheel. Conveyer-wheel. Crank-wheel. Driving-wheel. Electric-motor wheel. Fifth-wheel. Front wheel. Planter drive-wheel. Polishing-wheel. Sheet-metal wheel. Sprocket-wheel. Traction-wheel. Trolley-wheel. Vehicle-wheel. Water-wheel.							
Wheel	W. Esty	662,594	Nov. 27	2928	695	93	1581
Wheel	A. W. King	661,611	Nov. 13	1054	262	93	1176
Wheel	H. Lieberthal	658,920	Oct. 2	353	87	93	72
Wheel and tire	T. J. Ketcham	663,175	Dec. 4	508	107	93	1821
Wheels. Antislipping attachment for vehicle-	B. K. Appleman	659,908	Oct. 16	2174	489	93	467
Wheels. Machine for manufacturing sheet-metal	E. Williams	659,723	Oct. 16	1817	409	93	397
Wheels. Making	J. T. Kelley	663,240	Dec. 4	700	152	93	1858
Wheels or light vehicles. Support or holder for	S. Taylor	661,677	Nov. 13	1181	288	93	1203
Wheelbarrow	V. A. Gates	662,066	Nov. 20	1913	458 459	93	1362
Whiffletree	A. Nelson	661,888	Nov. 13	1552	377	93	1272
Whiffletree-hook	M. O. Almquist	658,822	Oct. 2	181	43	93	41
Whiffletree-hook	N. Glock, Jr	660,423	Oct. 23	3203	714	93	693
Whiffletree-hook	A. K. Wolfe	662,512	Nov. 27	2784	660	93	1555
Whim	J. H. O'Brien	662,292	Nov. 20	2321	560	93	1443
Whip-socket	O. Carter	662,219	Nov. 20	2216	534	93	1422
Whip-socket. Locking	A. W. Herring	663,756	Dec. 11	1548	346	93	2045
Whisky-cooler	M. Gratz	659,298	Oct. 9	1038	244	93	225
Winch	R. A. McLeod	664,171	Dec. 18	2315	527 528	93	2226
Winch or like winding-gear	J. C. Howell	660,686	Oct. 30	3670	825	93	800
Wind-motor	J. F. Barkstrom	664,374	Dec. 25	2711	615	93	2332
Wind-motor	C. J. Jones	662,944	Dec. 4	80	19	93	1742
Wind-wheel regulator. Automatic	H. F. A. Bruns and F. E. Eldredge	658,940	Oct. 2	402	97	93	82

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Winding-machine	J. F. Gordon	664,474	Dec. 25	2910	663, 664	98	2370
Winding machine. Cop-	A. Schoen	660,598	Oct. 30	3502	786	98	769
Windmill	J. Calder	662,166	Nov. 20	3096	507	98	1399
Windmill	J. B. Jarmin	662,989	Dec. 4	69	17	98	1739
Windmill	C. J. Langenbach	659,372	Oct. 9	1146	267	98	248
Windmill	P. Mitsch	661,809	Nov. 13	1421	343	98	1247
Windmill	L. W. Noyes	662,015	Nov. 20	1808	434	98	1341
Windmill driving-gear	E. E. Swett	660,472	Oct. 23	3291	736	98	710
Windmill-lubricator	E. A. Brown	661,490	Nov. 13	883	200	98	1132
Windmill-regulator	K. K. Lerol, Jr	661,455	Nov. 6	769	181	98	1105
Windmill-regulator	D. H. Metcalf	663,579	Dec. 11	1290	270	98	1992
Windmill-regulator	F. Rice	664,780	Dec. 25	3512	796	98	2495
Window	A. McKinnon	659,037	Oct. 2	579	140, 141	98	116
Window	G. Worth	660,235	Oct. 23	2889	630	98	621
Window-bead fastener. Adjustable	H. B. Ives	659,068	Oct. 2	626	151	98	125
Window-cleaner	E. M. Farmer	662,713	Nov. 27	3152	746	98	1623
Window-cleaner	E. Guggenheimer	659,474	Oct. 9	1336	305	98	287
Window-frame	A. Finneké	661,657	Nov. 13	1139	282	98	1194
Window frame and sash. Metallic	J. F. Preuthun	661,922	Nov. 13	1612	390, 391	98	1288
Window-guard	F. Schmelzle	661,772	Nov. 13	1353	328	98	1235
Window opening or closing apparatus	E. Klebbe	662,794	Nov. 27	3299	778	98	1651
Window-platform. Portable	A. H. Tischer	660,174	Oct. 23	2725	606	98	598
Window. Reversible balance	H. K. Whitner	658,818	Oct. 2	169	41	98	97
Window-screen	A. A. Cyr and A. A. Austin	658,978	Oct. 2	464	110	98	98
Window-screen	P. Gysel	663,758	Dec. 11	1540	345	98	2044
Window-screen	E. G. Holden	662,725	Nov. 27	3173	751	98	1627
Window-screen	J. A. Marceron	661,544	Nov. 13	929	220	98	1151
Window-screen	W. E. Monroe	663,508	Dec. 11	1130	245	98	1965
Window-screen	J. Tanner	661,089	Nov. 6	110	26	98	972
Window-screen. Adjustable	J. K. Underdown	661,567	Nov. 13	969	240	98	1159
Window-screen. Adjustable	H. K. Whitner	658,896	Oct. 2	296	72, 73	98	61
Window. Swinging	S. M. King	659,305	Oct. 9	1046	246	98	227
Window ventilating attachment	S. Heptinstall	660,510	Oct. 23	3354	754	98	724
Window-ventilator	J. K. Pierson-Hyslop	660,587	Oct. 30	3494	784	98	768
Window-ventilator	J. H. Vinton	662,247	Nov. 20	2254	542	98	1430
Wire. Coated	W. Frankham	663,605	Dec. 11	1275	282	98	1993
Wire-coupling	J. W. Hawkins	662,272	Nov. 20	2291	551	98	1437
Wire-drawing-machine draw-in	J. W. Hawkins	662,271	Nov. 20	2290	550, 551	98	1437
Wire-drawing machines. Adjustable die-holder for	W. R. Bowman	659,126	Oct. 2	724	174	98	146
Wire fabric	J. C. Perry	659,416	Oct. 9	1221	281, 282	98	264
Wire fabric. Composite	J. H. Vinton	662,248	Nov. 20	2255	543	98	1430
Wire. Japanning	J. T. Healy	663,344	Dec. 4	812	173	98	1879
Wire. Making plated	A. T. Brook	658,889	Oct. 2	301	74	98	92
Wire post	B. C. Riblet	660,395	Oct. 23	3158	699	98	684
Wire-rope and bucket clip	W. S. Bidle	662,216	Nov. 20	2210	533	98	1421
Wire-rope sockets. Making metallic	W. F. Kintzing	664,326	Dec. 18	2614	595	98	2286
Wire-splicing machine	L. A. Denny	663,261	Dec. 4	673	145	98	1853
Wire-splicing tool	J. T. Swartz	660,668	Oct. 30	3646	818	98	796
Wire-stay-weaving device	E. T. Arnold	661,027	Nov. 6	1	1	98	951
Wire-stretcher	A. C. Calhoun	658,759	Oct. 2	24	5	98	8
Wire-stretcher	F. J. Olmsted	664,671	Dec. 25	3282	746	98	2447
Wire-stretcher	B. H. Passmore	662,133	Nov. 20	2061	494	98	1384
Wire-stretcher	W. A. Short	662,101	Nov. 20	1982	473	98	1375
Wire-tightener	J. H. Baker, G. F. Shevlin, and F. H. Baker.	663,211	Dec. 4	565	122	98	1883
Wood-barking machine	F. B. Newton	662,654	Nov. 27	3022	715, 716	98	1600
Wood-bending apparatus	A. A. Low	660,863	Oct. 30	4000	895	98	865
Wood fuel. Natural	L. M. Stern and E. M. Kempner	662,104	Nov. 20	1986	474	98	1376
Wood-impregnating apparatus	J. Rütgers	662,310	Nov. 20	2367	.....	98	1453
Wood-impregnating compound and making same	C. Engberg	664,540	Dec. 25	3028	689, 690	98	2393
Wood. Machine for making dishes or trays from veneer	G. F. Lebloda	660,756	Oct. 30	3788	.....	98	824
Wood. Preserving	P. P. Bostwick	664,311	Dec. 18	2584	589	98	2281
Woodworking-machine	B. Orbison	661,548	Nov. 13	935	232, 233	98	1152
Woodworking-machine	B. Orbison	663,391	Dec. 4	895	193, 194	98	1906
Woodworking machinery	L. M. Messinesi	663,182	Dec. 4	517	109	98	1823
Wooden stoppers. Manufacture of	L. L. Le Franc	663,234	Dec. 4	616	132, 133	98	1842
Wooden vessel. Cylindrical	J. C. Tate	663,591	Dec. 11	1247	275	98	1986
Wool. Machine for washing, rinsing, or chemically treating	E. Maertens	663,452	Dec. 11	1020	223, 224	98	1943
Work-holder	M. M. Wallin	664,597	Dec. 25	3163	716	98	2423
Work-holder and centering device therefor	J. W. Brown, Jr	660,486	Oct. 23	3316	742, 743	98	715
Work-holder or clamp	J. Ranz	661,322	Nov. 6	538	125	98	1058
Work-support	E. Dawson	663,960	Dec. 18	1951	439	98	2152
Woven fabric	A. Heald	661,640	Nov. 13	1106	274	98	1186
Wrench: *See* Jaw-wrench. Nipple-wrench. Nut or pipe wrench. Pipe-wrench. Pipe and nut wrench. Ratchet-wrench. Reversible wrench. Tire-bolt wrench.							
Wrench	W. D. Bechtel	658,749	Oct. 2	2	1	98	3
Wrench	J. Beermaker	659,281	Oct. 9	1011	238	98	220
Wrench	G. B. Carter	660,415	Oct. 23	3198	710	98	691
Wrench	R. Carter	663,328	Dec. 4	784	168	98	1874
Wrench	R. F. Downey	659,263	Oct. 9	1032	242	98	224
Wrench	E. H. Evenson	663,564	Dec. 11	1209	264	98	1979

Alphabetical list of inventions, October to December, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wrench	J. Fatkin	663,161	Dec. 4	481	102, 103	98	1817
Wrench	J. Fatkin	663,162	Dec. 4	483	103	98	1818
Wrench	J. Fatkin	663,163	Dec. 4	484	103	98	1818
Wrench	L. Granstrom and R. B. McDonald	664,634	Dec. 25	3217	730	98	2434
Wrench	J. A. Hensler	659,369	Oct. 9	1139	266	98	247
Wrench	M. C. Jackson	662,792	Nov. 27	3296	777	98	1650
Wrench	J. P. Kibler	660,963	Oct. 30	4102	935	98	898
Wrench	L. H. Kroke	663,970	Dec. 18	1966	442	98	2155
Wrench	J. Lee, Sr	663,283	Dec. 4	704	158	98	1858
Wrench	O. H. McMurray	659,060	Oct. 2	670	159	98	135
Wrench	F. Mossberg	661,810	Nov. 13	1422	348	98	1247
Wrench	W. P. Phenix	660,586	Oct. 30	3493	784	98	767
Wrench	S. B. J. Robertson	662,966	Dec. 4	121	25	98	1748
Wringer: *See* Mop-wringer.							
Wringer	A. H. Strickler	663,668	Dec. 11	1390	306	98	2015
Writing-pad	E. H. Schild	659,860	Oct. 16	2092	468	98	448
Yarns. Machine for humidifying	J. T. Pearson	661,940	Nov. 13	1648	400	98	1290
Yarn-reel	M. J. Nordmann	663,925	Dec. 18	1884	424	98	2140
Yeast extracts. Making	E. De Meulemeester	659,214	Oct. 9	911	.....	98	201
Yoke and pole thimble. Neck-	F. E. Yates	663,379	Dec. 4	868	186	98	1890
Yoke. Neck-	T. De La Mare	664,236	Dec. 18	2486	555	98	2252
Zinc and copper from their ores. Extracting	C. G. Collins	659,338	Oct. 9	1090	.....	98	236
Zinc and copper from their ores. Extracting	C. G. Collins	659,340	Oct. 9	1092	.....	98	236
Zinc chlorid, &c. Producing solutions of	C. Hoepfner	663,759	Dec. 11	1552	.....	98	2046
Zinc. Recovering	C. Hoepfner	664,269	Dec. 18	2506	569	98	2265

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Abdominal band	A. M. Kauffman	33,320	Oct. 2	93	183
Accompaniment-indicator	E. L. Kingsley	33,419	Oct. 23	93	739
Advertising-cabinet	E. L. Browne	33,393	Oct. 16	93	544
Advertising-cabinet	W. C. Carr	33,710	Dec. 11	93	2094
Advertising-cabinet	E. P. Muller	33,484	Oct. 30	93	929
Advertising-cabinet	D. Hogan and C. W. Melnecke	33,548	Nov. 13	93	1296
Air-cushion	D. Hogan and C. W. Melnecke	33,618	Nov. 27	93	1715
Air-cushion	C. W. Melnecke and D. Hogan	33,703	Dec. 18	93	2312
Air-cushion	W. S. Bumbaugh	33,367	Oct. 16	93	540
Annealing-box bottom	J. R. Carter and J. E. Hausfeld	33,798	Dec. 25	93	2520
Ash-pan front	W. C. Baker	33,646	Dec. 4	93	1906
Automobile steering-gear. Yoke for	G. Zumbach	33,287	Oct. 2	93	176
Ax	C. C. Bradley	33,381	Oct. 16	93	542
Axle	W. H. Smith	33,650	Dec. 4	93	1907
Axle-frame for motor-vehicles	G. Y. Lowe	33,649	Dec. 4	93	1907
Axle-shield	A. W. Adcock	33,276	Oct. 2	93	174
Badge	G. P. Aitcheson	33,354	Oct. 16	93	538
Badge	J. T. Bailey	33,493	Nov. 6	93	1114
Badge	M. Forde	33,322	Oct. 9	93	348
Badge	M. M. Gordon	33,536	Nov. 13	93	1295
Badge	A. C. Messler	33,277	Oct. 2	93	175
Badge	C. S. Rogers	33,449	Oct. 30	93	923
Badge	J. Russell	33,624	Dec. 4	93	1902
Badge	R. D. Schaller	33,275	Oct. 2	93	174
Badge	G. C. Van Roden	33,623	Dec. 4	93	1902
Badge	J. N. Wilson	33,408	Oct. 23	93	738
Badge. Campaign-	A. J. Gibbs	33,350	Oct. 9	93	353
Bag	G. D. George	33,490	Oct. 30	93	930
Band. Encircling	G. D. Canfield	33,510	Nov. 6	93	1117
Barrel	T. W. Hamilton	33,523	Nov. 6	93	1120
Bedclothes-holder	R. V. Gallaway	33,335	Oct. 9	93	350
Bed-slat holder	A. Ritter	33,535	Nov. 6	93	1122
Belt	L. M. Rosenberg	33,810	Dec. 25	93	2523
Belt	J. Stember	33,620	Nov. 27	93	1716
Belt	J. Stember	33,721	Dec. 11	93	2096
Belt	W. Vitzthum	33,402	Oct. 16	93	546
Belt	W. Wasserstrom	33,621	Nov. 27	93	1717
Belt	M. Scheuer	33,486	Oct. 30	93	930
Belt. Apparel-	M. Scheuer	33,487	Oct. 30	93	930
Belt. Apparel-	M. Scheuer	33,488	Oct. 30	93	930
Belt. Apparel-	M. Scheuer	33,489	Oct. 30	93	930
Belt. Apparel-	J. Hilder	33,401	Oct. 16	93	546
Belt attachment	H. J. Galsman	33,442	Oct. 23	93	744
Belt-body	J. Stember	33,438	Oct. 23	93	743
Belt-body	J. Stember	33,439	Oct. 23	93	743
Belt-body	J. Stember	33,440	Oct. 23	93	744
Belt-body	J. Stember	33,441	Oct. 23	93	744
Belt-body	W. Vitzthum	33,567	Nov. 13	93	1300
Belt-body or similar article	M. Fleming	33,651	Dec. 4	93	1907
Bicycle frame. Motor-	G. H. Cheney	33,353	Oct. 16	93	540
Bicycle-hub	W. H. Fauber and A. M. Price	33,596	Nov. 20	93	1483
Bicycle or like tubular frames. Fork for	A. M. Price	33,597	Nov. 20	93	1483
Bicycle or like tubular frames. Fork for	A. Oleson	33,549	Nov. 13	93	1296
Bicycle-saddle pommel-spring	E. G. Ashley	33,519	Nov. 6	93	1119
Bicycle-saddle spring	H. A. Schaefer	33,405	Oct. 16	93	546
Binding. Skirt-	F. B. Howell	33,784	Dec. 25	93	2518
Boiler section. Steam-	F. B. Howell	33,785	Dec. 25	93	2518
Boiler section. Steam-	F. B. Howell	33,786	Dec. 25	93	2518
Boiler section. Steam-	N. J. Kelly	33,478	Oct. 30	93	928
Boilers. Plate for food-	E. S. Woehr	33,298	Oct. 2	93	177
Book-holder	J. Geer	33,565	Nov. 13	93	1300
Book-leaf	O. A. Taft	33,485	Oct. 30	93	930
Boot-cleaner base	G. G. Darr and P. W. Eschman	33,459	Oct. 30	93	924
Bottle	C. J. Kilmer	33,630	Dec. 4	93	1903
Bottle	G. W. and H. F. Klumpp	33,631	Dec. 4	93	1903
Bottle	P. Lindemeyr	33,364	Oct. 16	93	539
Bottle	J. F. McGuire	33,326	Oct. 9	93	349
Bottle	I. V. Perine	33,622	Nov. 27	93	1717
Bow-shield	G. Burkhardt	33,563	Nov. 13	93	1300
Bowling-alley light-reflector and pin-indicator	C. Engberg	33,511	Nov. 6	93	1117
Box-blank	H. B. Smith	33,774	Dec. 25	93	2516
Box-blank	A. Newman	33,514	Nov. 6	93	1118
Box for patrol-stations	G. B. Schmidt	33,777	Dec. 25	93	2517
Box lock and hinge fastener	G. A. Kruttschnitt	33,512	Nov. 6	93	1117
Box or receptacle	G. A. Kruttschnitt	33,518	Nov. 6	93	1118
Box or receptacle	G. A. Kruttschnitt	33,614	Nov. 27	93	1715
Box or receptacle	W. Gambrel	33,472	Oct. 30	93	927
Box. Salt-	I. V. Arvonen	33,611	Nov. 27	93	1715
Bracelet	F. E. Bliss, Jr	33,674	Dec. 11	93	2087
Bracelet	A. Anderson	33,588	Nov. 20	93	1481
Bracket for curtain-poles and window-shades	J. E. Powers	33,781	Dec. 25	93	2517
Bracket. Window-shelf	L. Brandt	33,569	Nov. 13	93	1301
Braid					

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Braid	J. W. Schloss	33,406	Oct. 16	93	546
Bread-board	I. S. Thompson	33,418	Oct. 23	93	739
Bread or similar article. Loaf of	C. Freihofer and F. Hanson	33,610	Nov. 20	93	1486
Bread or similar article. Loaf of	F. Hanson and C. Freihofer	33,609	Nov. 20	93	1486
Brick. Fire-	W. M. Brinkerhoff	33,601	Nov. 20	93	1484
Brush bracket. Rotary-	O. M. Deemer	33,396	Oct. 9	93	350
Brush-holder	J. P. Steppe	33,702	Dec. 11	93	2092
Brushes, &c. Back for	W. F. Marshall	33,575	Nov. 20	93	1479
Buckle	S. P. Foster	33,358	Oct. 16	93	538
Buckle	J. L. Poalk	33,577	Nov. 20	93	1479
Buckle	H. W. Potteiger	33,637	Dec. 4	93	1904
Buckle	L. B. Prahar	33,454	Oct. 30	93	925
Buckle	P. Oswald	33,696	Dec. 11	93	2089
Buckle-frame	J. Ross	33,455	Oct. 30	93	924
Buckle-frame	J. A. Jamison	33,380	Oct. 16	93	541
Buggy-top spring	E. S. Lafferty	33,317	Oct. 2	93	182
Building-block	J. J. Georges	33,764	Dec. 18	93	2312
Bunion or corn shield	E. M. Rosenbluth	33,698	Dec. 11	93	2091
Burner draft-dome	I. Y. Baringer	33,356	Oct. 16	93	538
Button and cuff-holder. Sleeve-	J. E. Hill	33,453	Oct. 30	93	923
Button. Collar or cuff	J. B. Long	33,524	Nov. 6	93	1120
Caddy	J. B. Long	33,525	Nov. 6	93	1120
Caddy	J. B. Long	33,526	Nov. 6	93	1121
Caddy	J. B. Long	33,527	Nov. 6	93	1121
Caddy	J. B. Long	33,803	Dec. 25	93	2521
Caddy	J. B. Long	33,804	Dec. 25	93	2521
Caddy	H. L. Doyle	33,675	Dec. 11	93	2088
Calendar	M. C. Hall	33,572	Nov. 20	93	1478
Calendar	J. S. Knight	33,704	Dec. 11	93	2092
Can	P. Hien	33,753	Dec. 18	93	2310
Car-coupling cam-block	P. Hien	33,752	Dec. 18	93	2310
Car-coupling draw-head	P. Hien	33,750	Dec. 18	93	2309
Car-coupling knuckle	S. J. Meeker	33,591	Nov. 20	93	1482
Car-coupling knuckle	P. Hien	33,755	Dec. 18	93	2311
Car-coupling lifting-pin	P. Hien	33,757	Dec. 18	93	2311
Car-coupling lifting-pin lock	P. Hien	33,756	Dec. 18	93	2311
Car-coupling locking-pin	P. Hien	33,751	Dec. 18	93	2309
Car-couplings. Filling-block and support for gravity-acting dogs for	P. Hien	33,754	Dec. 18	93	2310
Car-couplings. Gravity-acting dog for	H. S. Hale	33,339	Oct. 9	93	351
Car-seat backs. Hinge-arm for	H. R. Keithley	33,340	Oct. 9	93	351
Car sill. Railway-	L. H. Brown	33,407	Oct. 16	93	546
Carpet	J. P. Johnson	33,644	Dec. 4	93	1905
Carriage-body brace-bar	H. Severance	33,473	Oct. 30	93	927
Carriage-top bows. Cushion-spring for	H. C. Fischer	33,467	Oct. 30	93	926
Caster-platform	W. W. Harris	33,456	Oct. 30	93	924
Catheter	M. I. Reynolds	33,528	Nov. 6	93	1121
Chair-fastener	H. W. Bolens	33,313	Oct. 2	93	181
Chair-spindle	H. A. Atwood	33,604	Dec. 4	93	1909
Chair-top	G. Gray	33,392	Oct. 16	93	544
Chandelier	L. S. Plouts	33,731	Dec. 18	93	2305
Chandelier	D. S. Crosby and J. R. Meyers	33,706	Dec. 11	93	2093
Cheese	T. F. Tierney	33,505	Nov. 6	93	1116
Churn-dasher	R. Pauling and J. Sutter	33,479	Oct. 30	93	928
Churn-gearing frame	M. Switzer	33,541	Nov. 13	93	1296
Cigar-box	W. M. Randolph	33,494	Nov. 6	93	1114
Cigar-protector	J. Fellows	33,692	Dec. 11	93	2090
Clamp	C. F. Mosman	33,279	Oct. 2	93	175
Clock-case	J. F. Matthews	33,285	Oct. 2	93	178
Clothes-pin	J. G. Ziegler	33,788	Dec. 25	93	2518
Coaster-brake brake-ring	E. K. Warren	33,351	Oct. 9	93	356
Collar-foundation	E. K. Warren	33,352	Oct. 9	93	354
Collar-foundation	L. R. Seward	33,718	Dec. 11	93	2095
Collar-protector	F. W. Grell	33,537	Nov. 13	93	1295
Comb	F. W. Grell	33,574	Nov. 20	93	1478
Comb	F. W. Grell	33,612	Nov. 27	93	1715
Comb	F. J. French	33,573	Nov. 20	93	1478
Comb and pencil holder	T. R. Jordan	33,578	Nov. 20	93	1479
Concentrating minerals. Tube for	T. R. Jordan	33,579	Nov. 20	93	1479
Concentrating minerals. Tube for	L. Bailey	33,560	Nov. 13	93	1299
Copying-press frame	L. G. Walker	33,719	Dec. 11	93	2095
Corset	L. G. Walker	33,720	Dec. 11	93	2096
Corset	E. T. Muir	33,606	Nov. 20	93	1485
Corset side section	J. H. Glauber	33,463	Oct. 30	93	925
Coupling-joint	F. D. Jones	33,770	Dec. 25	93	2515
Crayon-holder	P. J. Doyle	33,766	Dec. 18	93	2313
Cribbage-board	G. M. Tucker	33,632	Dec. 4	93	1904
Crucible	R. H. Beck	33,375	Oct. 16	93	541
Curtain-pole holder	G. M. Holley	33,599	Nov. 20	93	1484
Cycle crank-hanger. Motor-	G. D. Green	33,745	Dec. 18	93	2308
Cycle frame. Motor-	G. M. Holley	33,598	Nov. 20	93	1484
Cycle frame. Motor-	O. Thorn	33,384	Oct. 16	93	542
Cycles. Gun-carrying attachment for	O. Thorn	33,385	Oct. 16	93	542
Cycles. Spade-carrying attachment for	B. B. Brewer and W. M. H. Burfeind	33,544	Nov. 13	93	1296
Dental crowns. Draw-plate for swaging	G. B. Meleney	33,314	Oct. 2	93	181
Desk	W. H. Grindley	33,280	Oct. 2	93	175
Dish	W. H. Grindley	33,281	Oct. 2	93	175
Dish. Covered	J. Slater	33,282	Oct. 2	93	175
Dish. Covered	C. J. Ahrenfeldt	33,629	Dec. 4	93	1903
Dish or similar article. Covered	E. Taussig	33,633	Dec. 4	93	1904
Disinfecting-apparatus casing	B. F. Merssmann	33,582	Nov. 20	93	1480
Dispensing vessel	A. Gerstendorfer	33,496	Oct. 23	93	743
Display-card	J. L. Felsenthal	33,346	Oct. 9	93	352
Display-case	P. Patrick	33,483	Oct. 30	93	929
Display characters. Base for	H. G. Roth	33,345	Oct. 9	93	352
Display-fixture for stores	W. S. McRay	33,761	Dec. 18	93	2312
Display-rack	F. C. Mason	33,711	Dec. 11	93	2094
Display-stand	I. Steinau	33,802	Dec. 25	93	2521
Display-stand	R. Gair	33,809	Dec. 25	93	2523
Dolly	C. E. Gibson	33,717	Dec. 11	93	2095
Doll	G. Ballard	33,424	Oct. 23	93	740
Door-check	P. A. Myers	33,590	Nov. 20	93	1483
Door-hanger pulley-frame	E. B. Elcholtz	33,425	Oct. 23	93	741
Door-securer	J. H. Gavin	33,465	Oct. 30	93	925
Drain-board for sinks	W. H. Cassell	33,458	Oct. 30	93	924
Drinking vessel	E. H. Huenefeld	33,800	Dec. 25	93	2520
Drum. Heating-	J. M. Creamer	33,308	Oct. 2	93	179
Electric switchboard	C. B. Kelley	33,722	Dec. 11	93	2096
Embroidery-pattern	H. L. and E. C. Litchfield	33,688	Dec. 11	93	2090
End-gate extension	F. A. Power	33,435	Oct. 23	93	742
Engine chest-plate and support	J. A. Secor	33,387	Oct. 16	93	543
Engine-frame	G. A. Timblin	33,592	Nov. 20	93	1482
Engine frame. Gas-	E. B. Gallaher	33,517	Nov. 6	93	1118
Engines and compressors. Frame for gas	A. M. Marshall	33,576	Nov. 20	93	1479
Eye. Garment-	B. H. Blank	33,355	Oct. 16	93	538
Eyeglasses or similar articles. Clamp for	F. R. White	33,501	Nov. 6	93	1115
Eyelet-die	W. H. Fletcher	33,570	Nov. 13	93	1301
Fabric	G. H. Taylor	33,723	Dec. 11	93	2097
Fabric	H. G. Northrop	33,464	Oct. 30	93	925
Faucet-cushion	F. A. Glencke	33,469	Oct. 30	93	926
Fence tool. Wire-	H. Ward	33,509	Nov. 6	93	1117
Fence. Wire	A. A. Chaillet	33,431	Oct. 23	93	742
Filament for incandescent electric lamps	S. Goldner	33,725	Dec. 18	93	2304
Finger-ring	W. M. Brinkerhoff	33,521	Nov. 6	93	1119
Fire-pot	W. M. Brinkerhoff	33,522	Nov. 6	93	1119
Fire-pot	D. S. Richardson	33,389	Oct. 16	93	543
Fire-pot	G. E. Downe	33,388	Oct. 16	93	543
Fire-pot. Heater	W. C. Bower	33,775	Dec. 25	93	2516
Fish-hook	J. Quinlan	33,363	Oct. 16	93	539
Flask	W. Northgraves	33,696	Dec. 4	93	1902
Fork. Corn-	A. H. Bedle	33,415	Oct. 23	93	739
Fork. Jelly-waffle	W. L. Johnson	33,709	Dec. 11	93	2094
Form. Coat-	J. T. Davis	33,520	Nov. 6	93	1119
Fuel briquet. Artificial-	T. R. Kennedy and E. J. King	33,796	Dec. 25	93	2516
Furnace-front	S. Salomon	33,498	Nov. 6	93	1115
Furniture-buffer	F. D. Fuller	33,604	Nov. 20	93	1485
Game-board	H. L. Haskell	33,714	Dec. 11	93	2095
Game-board	F. G. Kaelin	33,767	Dec. 18	93	2318
Game-board	M. Lazare	33,353	Oct. 9	93	354
Game-board	C. H. Leonard	33,532	Nov. 6	93	1122
Game-board	J. L. Robertson, Jr.	33,316	Oct. 2	93	182
Game-board	E. L. Williams	33,396	Oct. 16	93	545
Game-board	J. W. Brown	34,397	Oct. 16	93	545
Game-board or similar article	P. A. Schaefer	33,715	Dec. 11	93	2095
Game-chip	P. A. Schaefer	33,716	Dec. 11	93	2095
Game-chip	R. E. Boyle	33,564	Nov. 13	93	1300
Game or puzzle board	J. D. Freese	33,315	Oct. 2	93	182
Game-table	H. L. Haskell	33,437	Oct. 23	93	743
Game-table	G. F. Purser	33,395	Oct. 16	93	544
Game-table	A. M. Weber	33,687	Dec. 11	93	2089
Garment-supporter member	G. E. Adams	33,636	Dec. 4	93	1904
Garment-supporters. Metallic loop for	G. E. Adams	33,635	Dec. 4	93	1904
Garment-supporters. Metallic member for	L. V. Moulton	33,357	Oct. 16	93	538
Garment-supporting loop	E. Gothberg	33,555	Nov. 13	93	1298
Gas and electric-light fixtures. Ornamental trimming for	D. M. Steward	33,503	Nov. 6	93	1116
Gas Argand burner. Acetylene-	J. Clark and A. Hoeft	33,554	Nov. 13	93	1298
Gas-burner	R. H. Whlte	33,794	Dec. 25	93	2519
Gas-burner	H. E. Watkins	33,461	Oct. 30	93	925
Gas or electric fixtures. Ornamental tube for	C. H. Merwarth and F. Conlin	33,782	Dec. 25	93	2517
Gasket or packing for joints of pipes or other apparatus	G. G. M. F. Hartmann	33,768	Dec. 25	93	2515
Gem-setting	G. G. M. F. Hartmann	33,769	Dec. 25	93	2515
Gem-setting	M. J. O'Brien	33,504	Nov. 6	93	1116
Glass-draining stand	A. D. Brogan and A. M. Malloch	33,343	Oct. 9	93	352
Glass. Ornamented sheet or plate of	A. D. Brogan and A. M. Malloch	33,344	Oct. 9	93	352
Glass. Ornamented sheet or plate of	W. Buttler	33,608	Nov. 20	93	1485
Glass. Sheet-	C. C. Hartung	33,673	Dec. 4	93	1911
Glass. Sheet-	E. Walsh, Jr.	33,672	Dec. 4	93	1911
Glass. Sheet-	O. Thorn	33,689	Dec. 11	93	2090
Golf-club-carrying attachment for cycles	W. Herrick	33,398	Oct. 16	93	545
Golf-tee	E. Bick	33,602	Nov. 20	93	1484
Grave-headpiece	T. Cascaden, Jr	33,558	Nov. 13	93	1299
Grinding-mill body	J. H. Behee	33,685	Dec. 11	93	2089
Guitar-body	O. Thorn	33,645	Dec. 4	93	1906
Gun-carrier	W. S. Bechtold	33,726	Dec. 18	93	2305
Hair-retainer	H. Ransom	33,330	Oct. 9	93	349
Hammer	J. W. Stuart	33,423	Oct. 23	93	740
Hammer frame. Power-	J. Supper	33,701	Dec. 11	93	2092
Hand-washer	N. Cole	33,638	Dec. 4	93	1904
Harness-loop. Double	W. Koenigs	33,319	Oct. 2	93	188
Hat-band	W. Koenigs	33,446	Oct. 23	93	745
Hat-band	J. Johnson	33,533	Nov. 6	93	1122
Hat-crease retainer	G. T. Willis	33,475	Oct. 30	93	928
Headers and harvesters. Finger-bar for	B. A. Geurink	33,697	Dec. 11	93	2091
Heating-burner	M. Logan	33,534	Nov. 6	93	1122
Heel-cushion	W. B. Smith	33,331	Oct. 9	93	349
Hoe	C. A. Toups	33,378	Oct. 16	93	541
Hoe	J. W. Pax	33,452	Oct. 30	93	923
Holder	C. F. Smith	33,615	Nov. 27	93	1715
Hoof-pad	F. W. Covert	33,411	Oct. 23	93	738
Hook	J. C. Covert	33,409	Oct. 23	93	738
Hook	J. C. Covert	33,410	Oct. 23	93	738
Hook	F. Kemether	33,551	Nov. 13	93	1296
Hook					

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Display-stand	F. C. Mason	33,711	Dec. 11	93	2094
Display-stand	I. Steinau	33,802	Dec. 25	93	2521
Dolly	R. Gair	33,809	Dec. 25	93	2523
Doll	C. E. Gibson	33,717	Dec. 11	93	2095
Door-check	G. Ballard	33,424	Oct. 23	93	740
Door-hanger pulley-frame	P. A. Myers	33,590	Nov. 20	93	1483
Door-securer	E. B. Elcholtz	33,425	Oct. 23	93	741
Drain-board for sinks	J. H. Gavin	33,465	Oct. 30	93	925
Drinking vessel	W. H. Cassell	33,458	Oct. 30	93	924
Drum. Heating-	E. H. Huenefeld	33,800	Dec. 25	93	2520
Electric switchboard	J. M. Creamer	33,308	Oct. 2	93	179
Embroidery-pattern	C. B. Kelley	33,722	Dec. 11	93	2096
End-gate extension	H. L. and E. C. Litchfield	33,688	Dec. 11	93	2090
Engine chest-plate and support	F. A. Power	33,435	Oct. 23	93	742
Engine-frame	J. A. Secor	33,387	Oct. 16	93	543
Engine frame. Gas-	G. A. Timblin	33,592	Nov. 20	93	1482
Engines and compressors. Frame for gas	E. B. Gallaher	33,517	Nov. 6	93	1118
Eye. Garment-	A. M. Marshall	33,576	Nov. 20	93	1479
Eyeglasses or similar articles. Clamp for	B. H. Blank	33,355	Oct. 16	93	538
Eyelet-die	F. R. White	33,501	Nov. 6	93	1115
Fabric	W. H. Fletcher	33,570	Nov. 13	93	1301
Fabric	G. H. Taylor	33,723	Dec. 11	93	2097
Faucet-cushion	H. G. Northrop	33,464	Oct. 30	93	925
Fence tool. Wire-	F. A. Glencke	33,469	Oct. 30	93	926
Fence. Wire	H. Ward	33,509	Nov. 6	93	1117
Filament for incandescent electric lamps	A. A. Chaillet	33,431	Oct. 23	93	742
Finger-ring	S. Goldner	33,725	Dec. 18	93	2304
Fire-pot	W. M. Brinkerhoff	33,521	Nov. 6	93	1119
Fire-pot	W. M. Brinkerhoff	33,522	Nov. 6	93	1119
Fire-pot	D. S. Richardson	33,389	Oct. 16	93	543
Fire-pot	G. E. Downe	33,388	Oct. 16	93	543
Fire-pot. Heater	W. C. Bower	33,775	Dec. 25	93	2516
Fish-hook	J. Quinlan	33,363	Oct. 16	93	539
Flask	W. Northgraves	33,696	Dec. 4	93	1902
Fork. Corn-	A. H. Bedle	33,415	Oct. 23	93	739
Fork. Jelly-waffle	W. L. Johnson	33,709	Dec. 11	93	2094
Form. Coat-	J. T. Davis	33,520	Nov. 6	93	1119
Fuel briquet. Artificial-	T. R. Kennedy and E. J. King	33,796	Dec. 25	93	2516
Furnace-front	S. Salomon	33,498	Nov. 6	93	1115
Furniture-buffer	F. D. Fuller	33,604	Nov. 20	93	1485
Game-board	H. L. Haskell	33,714	Dec. 11	93	2095
Game-board	F. G. Kaelin	33,767	Dec. 18	93	2318
Game-board	M. Lazare	33,353	Oct. 9	93	354
Game-board	C. H. Leonard	33,532	Nov. 6	93	1122
Game-board	J. L. Robertson, Jr.	33,316	Oct. 2	93	182
Game-board	E. L. Williams	33,396	Oct. 16	93	545
Game-board	J. W. Brown	34,397	Oct. 16	93	545
Game-board or similar article	P. A. Schaefer	33,715	Dec. 11	93	2095
Game-chip	P. A. Schaefer	33,716	Dec. 11	93	2095
Game-chip	R. E. Boyle	33,564	Nov. 13	93	1300
Game or puzzle board	J. D. Freese	33,315	Oct. 2	93	182
Game-table	H. L. Haskell	33,437	Oct. 23	93	743
Game-table	G. F. Purser	33,395	Oct. 16	93	544
Game-table	A. M. Weber	33,687	Dec. 11	93	2089
Garment-supporter member	G. E. Adams	33,636	Dec. 4	93	1904
Garment-supporters. Metallic loop for	G. E. Adams	33,635	Dec. 4	93	1904
Garment-supporters. Metallic member for	L. V. Moulton	33,357	Oct. 16	93	538
Garment-supporting loop	E. Gothberg	33,555	Nov. 13	93	1298
Gas and electric-light fixtures. Ornamental trimming for	D. M. Steward	33,503	Nov. 6	93	1116
Gas Argand burner. Acetylene-	J. Clark and A. Hoeft	33,554	Nov. 13	93	1298
Gas-burner	R. H. Whlte	33,794	Dec. 25	93	2519
Gas-burner	H. E. Watkins	33,461	Oct. 30	93	925
Gas or electric fixtures. Ornamental tube for	C. H. Merwarth and F. Conlin	33,782	Dec. 25	93	2517
Gasket or packing for joints of pipes or other apparatus	G. G. M. F. Hartmann	33,768	Dec. 25	93	2515
Gem-setting	G. G. M. F. Hartmann	33,769	Dec. 25	93	2515
Gem-setting	M. J. O'Brien	33,504	Nov. 6	93	1116
Glass-draining stand	A. D. Brogan and A. M. Malloch	33,343	Oct. 9	93	352
Glass. Ornamented sheet or plate of	A. D. Brogan and A. M. Malloch	33,344	Oct. 9	93	352
Glass. Ornamented sheet or plate of	W. Buttler	33,608	Nov. 20	93	1485
Glass. Sheet-	C. C. Hartung	33,673	Dec. 4	93	1911
Glass. Sheet-	E. Walsh, Jr.	33,672	Dec. 4	93	1911
Glass. Sheet-	O. Thorn	33,689	Dec. 11	93	2090
Golf-club-carrying attachment for cycles	W. Herrick	33,398	Oct. 16	93	545
Golf-tee	E. Bick	33,602	Nov. 20	93	1484
Grave-headpiece	T. Cascaden, Jr	33,558	Nov. 13	93	1299
Grinding-mill body	J. H. Behee	33,685	Dec. 11	93	2089
Guitar-body	O. Thorn	33,645	Dec. 4	93	1906
Gun-carrier	W. S. Bechtold	33,726	Dec. 18	93	2305
Hair-retainer	H. Ransom	33,330	Oct. 9	93	349
Hammer	J. W. Stuart	33,423	Oct. 23	93	740
Hammer frame. Power-	J. Supper	33,701	Dec. 11	93	2092
Hand-washer	N. Cole	33,638	Dec. 4	93	1904
Harness-loop. Double	W. Koenigs	33,319	Oct. 2	93	188
Hat-band	W. Koenigs	33,446	Oct. 23	93	745
Hat-band	J. Johnson	33,533	Nov. 6	93	1122
Hat-crease retainer	G. T. Willis	33,475	Oct. 30	93	928
Headers and harvesters. Finger-bar for	B. A. Geurink	33,697	Dec. 11	93	2091
Heating-burner	M. Logan	33,534	Nov. 6	93	1122
Heel-cushion	W. B. Smith	33,331	Oct. 9	93	349
Hoe	C. A. Toups	33,378	Oct. 16	93	541
Hoe	J. W. Pax	33,452	Oct. 30	93	923
Holder	C. F. Smith	33,615	Nov. 27	93	1715
Hoof-pad	F. W. Covert	33,411	Oct. 23	93	738
Hook	J. C. Covert	33,409	Oct. 23	93	738
Hook	J. C. Covert	33,410	Oct. 23	93	738
Hook	F. Kemether	33,551	Nov. 13	93	1296
Hook					

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Hook. Back-band	E. L. McClain	33,470	Oct. 30	93	926
Hook-guard	J. C. Covert	33,360	Oct. 16	93	588
Hook. Hame-	W. H. Hayden	33,741	Dec. 18	93	2307
Hook. Meat-	W. Stegeman	33,506	Nov. 6	93	1116
Hook. Picture-	E. Melchers	33,550	Nov. 13	93	1298
Hook. Picture-	J. P. Williams	33,497	Nov. 6	93	1115
Hook. Snap-	S. S. Homes	33,496	Nov. 6	93	1115
Horseshoe-pad	J. Ewing	33,691	Dec. 11	93	2090
Horseshoe rubber cushion	M. Logan	33,790	Dec. 25	93	2519
Horseshoes. Metallic plate for elastic-tread	J. B. Gravis	33,791	Dec. 25	93	2519
Hydrocarbon-burner	H. Merkel	33,377	Oct. 16	93	541
Hydrocarbon-burner top plate	J. C. Speirs	33,737	Dec. 18	93	2307
Jar	W. A. Lorenz	33,417	Oct. 23	93	739
Jar wrench. Fruit-	R. Howell	33,732	Dec. 18	93	2306
Key-ring and bottle-seal breaker	W. S. Lord, Jr	33,634	Dec. 4	93	1904
Knife blade and bolster	C. F. Smith	33,682	Dec. 11	93	2089
Knife-handle	W. Jones	33,681	Dec. 11	93	2089
Knife-handle	G. M. Landers	33,728	Dec. 18	93	2305
Label	W. F. Clark	33,712	Dec. 11	93	2094
Lace fastener. Shoe-	E. R. Dienst	33,359	Oct. 16	93	538
Lacing	H. L. Hiller	33,445	Oct. 23	93	745
Lamp	C. H. De Voll	33,391	Oct. 16	93	544
Lamp-body	S. Foster	33,502	Nov. 6	93	1116
Lamp casing. Electric-arc-	E. H. Belden	33,430	Oct. 23	93	741
Lamp-chimney	J. F. McHenry	33,553	Nov. 13	93	1298
Lamp. Electric bicycle-	A. C. Proudfit	33,466	Oct. 30	93	926
Lamp-fixture	C. R. Gillett	33,289	Oct. 2	93	177
Lamp-fixture	C. R. Gillett	33,290	Oct. 2	93	177
Lamp-fixture	C. R. Gillett	33,291	Oct. 2	93	177
Lantern	F. E. Libenow	33,288	Oct. 2	93	176
Lavatory-slab	H. Hornbostel	33,306	Oct. 2	93	180
Leather fabric	C. D. Williams	33,808	Dec. 25	93	2523
Legs. Ankle member for artificial	G. W. Farrier	33,773	Dec. 25	93	2516
Lever. Jacquard-	O. W. Schaum	33,295	Oct. 2	93	178
Levers. Arm member for jacquard-	O. W. Schaum	33,296	Oct. 2	93	178
Levers. Yoke member for jacquard-	O. W. Schaum	33,297	Oct. 2	93	178
Lifting-jack casing	E. K. Klemm	33,374	Oct. 16	93	541
Lifting-jack wheel-clamping foot	M. Paulson	33,376	Oct. 16	93	541
Lubricator-pump body	B. Ivor	33,747	Dec. 18	93	2308
Lubricator-pump body	B. Ivor	33,748	Dec. 18	93	2309
Match-lighter	C. O. Foltz	33,495	Nov. 6	93	1115
Match-lighter	A. C. Hansen	33,460	Oct. 30	93	925
Match-safe	H. D. Gardy	33,730	Dec. 18	93	2305
Match-safe	J. M. Kaiser	33,589	Nov. 13	93	1296
Meat or vegetable chopper	V. E. Kent	33,328	Oct. 9	93	349
Meat-tenderer plate	J. R. Whelen	33,708	Dec. 11	93	2092
Medical treatment. Cabinet for	H. A. Schmidt	33,530	Nov. 6	93	1121
Micrometer-gage frame	L. S. Starrett	33,734	Dec. 18	93	2306
Monument	E. M. Wolff	33,318	Oct. 2	93	182
Motor base-frame	J. A. Secor	33,641	Dec. 4	93	1905
Mouthpiece	A. K. Schulte	33,412	Oct. 23	93	738
Musical instrument case or stand. Mechanical	R. A. Gally	33,394	Oct. 16	93	544
Nail-file and holder	B. Rosenberg	33,678	Dec. 11	93	2088
Nail. Hoop-	C. W. Evans	33,740	Dec. 18	93	2307
Nail-set	J. Adkins	33,792	Dec. 25	93	2519
Nebulizer-frame	W. and J. Boekel	33,349	Oct. 9	93	353
Necktie-form	O. R. Looker	33,491	Oct. 30	93	931
Nipple. Nursing-	A. K. Schulte	33,361	Oct. 16	93	538
Nut-lock	R. A. Gally	33,394	Oct. 16	93	544
Nut-lock washer	B. Rosenberg	33,678	Dec. 11	93	2088
Nut-lock washer	C. W. Evans	33,740	Dec. 18	93	2307
Nut-lock washer	J. B. Gravis	33,792	Dec. 25	93	2519
Oven. Warming-	H. Merkel	33,349	Oct. 9	93	353
Overshoe	J. C. Speirs	33,491	Oct. 30	93	931
Padlock	W. A. Lorenz	33,361	Oct. 16	93	538
Pan. Cake-	R. Howell	33,557	Nov. 13	93	1299
Pan cover. Bake-	W. L. Lyman	33,300	Oct. 2	93	178
Paper-knives, &c. Handle for	J. Cort	33,693	Dec. 11	93	2090
Paper. Wall-	A. H. McAllister	33,639	Dec. 4	93	1904
Paper. Wrapping-	J. F. Tiner	33,799	Dec. 25	93	2520
Pattern. Coat-	J. R. Carter and J. E. Hausfeld	33,444	Oct. 23	93	745
Penholder and envelop-opener	F. F. Schaffer	33,778	Dec. 25	93	2517
Pen, pencil, and ink holder	S. R. Slaymaker	33,705	Dec. 11	93	2093
Pen-rack	W. A. Whalen	33,588	Nov. 20	93	1480
Pencil. Extension-	F. Hanson and C. Freihofer	33,679	Dec. 11	93	2088
Pencil-holder	J. L. Sommer	33,724	Dec. 11	93	2097
Pessary	L. Stahl	33,667	Dec. 4	93	1910
Pincushion	G. A. C. Goetting	33,492	Oct. 30	93	931
Pin. Hat-	F. G. Dodshon	33,324	Oct. 9	93	348
Pin. Scarf-	H. J. Atwell	33,676	Dec. 11	93	2088
Pipe-coupling	E. Bick	33,727	Dec. 18	93	2305
Pipe-coupling	O. R. Looker	33,677	Dec. 11	93	2088
Pipe-coupling	J. Chandler	33,325	Oct. 9	93	349
Pipe-coupling	J. A. Skaer	33,362	Oct. 16	93	539
Pipe-coupling	R. H. Vesey	33,399	Oct. 16	93	545
Pipe. Well-	A. H. Whitmore	33,451	Oct. 30	93	923
Planter seed-plate. Corn-	S. K. Grover	33,450	Oct. 30	93	923
Plate	H. Cohen	33,307	Oct. 2	93	180
Plate	H. G. Thompson	33,370	Oct. 16	93	540
Plate	H. G. Thompson	33,371	Oct. 16	93	540
Plate or plaque	H. G. Thompson	33,372	Oct. 16	93	540
Plate or similar article	H. G. Thompson	33,462	Oct. 30	93	925
Pneumatic-despatch systems. Receiving-terminal for	T. Stebbins	33,561	Nov. 13	93	1299
Pneumatic-despatch systems. Receiving-terminal for	F. K. Lathrop	33,627	Dec. 4	93	1903
Pneumatic-despatch systems. Receiving-tube for	C. J. Selter	33,293	Oct. 2	93	176
Pneumatic-despatch tubes. Tubular connection for	J. Slater	33,628	Dec. 4	93	1903
Pool-table	G. R. Pohl	33,416	Oct. 23	93	739
Post-base	A. Norman	33,699	Dec. 11	93	2091
	R. T. Jenney	33,700	Dec. 11	93	2092
	R. T. Jenney	33,548	Nov. 13	93	1297
	R. T. Jenney	33,432	Oct. 23	93	742
	R. T. Jenney	33,713	Dec. 11	93	2095
	O. Pryibil	33,783	Dec. 25	93	2517
	R. T. Wood				

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Powder packing and dispensing box	E. E. Clement	33,284	Oct. 2	93	176
Printing-film	B. Day	33,707	Dec. 11	93	2093
Prism-plate	J. G. Brown	33,502	Nov. 13	93	1299
Propeller. Marine	C. Rondell	33,386	Oct. 16	93	542
Pump-body	A. L. Fox	33,421	Oct. 23	93	740
Pump piston-head	D. B. Smith	33,508	Nov. 6	93	1117
Pump-stock	J. H. Schlafly	33,334	Oct. 9	93	350
Radiator	H. D. Kellogg	33,390	Oct. 16	93	544
Railway-frog	E. S. Wilgus	33,341	Oct. 9	93	352
Railway-rail	C. Kofske	33,474	Oct. 30	93	927
Range. Steel	J. L. Gobeille	33,619	Nov. 27	93	1716
Reel arm member	A. B. Probasco	33,507	Nov. 6	93	1117
Refrigerator	P. J. Vanderlinda	33,348	Oct. 9	93	353
Register deflector. Floor-	J. S. Lowry	33,694	Dec. 11	93	2091
Register deflector. Floor-	J. S. Lowry	33,795	Dec. 25	93	2519
Registers. Deflector for wall-	J. S. Lowry	33,309	Oct. 2	93	180
Rein-holder	A. F. Smith	33,337	Oct. 9	93	351
Ring	G. A. Henckel	33,607	Nov. 20	93	1485
Rubber foot-mat	F. H. Turner	33,571	Nov. 13	93	1301
Rug, &c	L. M. Armstrong	33,608	Nov. 20	93	1485
Rug or similar article	A. Norman	33,448	Oct. 23	93	745
Sabretash	R. W. Owen	33,807	Dec. 25	93	2522
Sad-iron	H. E. Asbury	33,733	Dec. 18	93	2306
Sad-iron	G. H. Dippo	33,286	Oct. 2	93	176
Sad-iron handle	C. P. Mosher	33,635	Dec. 4	93	1908
Sad-iron handle	C. P. Mosher	33,656	Dec. 4	93	1908
Sad-iron handle	C. P. Mosher	33,657	Dec. 4	93	1908
Sad-iron handle	C. P. Mosher	33,658	Dec. 4	93	1908
Sad-iron handle	C. P. Mosher	33,659	Dec. 4	93	1909
Sad-iron handle	C. P. Mosher	33,660	Dec. 4	93	1909
Sad-iron handle	C. P. Mosher	33,661	Dec. 4	93	1909
Sad-iron handle	C. P. Mosher	33,662	Dec. 4	93	1909
Sad-iron handle	C. P. Mosher	33,663	Dec. 4	93	1909
Sad-iron handle	C. P. Mosher	33,749	Dec. 18	93	2309
Sander apparatus. Valve-casing for locomotive	J. C. Hooper	33,499	Nov. 6	93	1115
Sash-balance clamp member	W. E. Norris	33,618	Nov. 27	93	1716
Sash-fastener cam	W. H. Taylor	33,739	Dec. 18	93	2307
Sash-fastener lever	H. B. Sargent	33,422	Oct. 23	93	740
Saw frame. Hack-	C. J. Weinman	33,617	Nov. 27	93	1716
Saw-handle	E. F. Shaw	33,333	Oct. 9	93	350
Saw set and gage	L. Valentine	33,360	Oct. 16	93	540
Scale-beam	L. P. Halladay	33,735	Dec. 18	93	2306
Scale case. Price-	S. R. Munson	33,420	Oct. 23	93	740
Scale-frame	W. N. Pelouze	33,327	Oct. 9	93	349
Scoop. Corn-cutting	F. B. Crittenden	33,738	Dec. 18	93	2307
Screen-roller housing	E. Timmerhoff	33,585	Nov. 20	93	1481
Sewing-machine frame	H. J. Hancock	33,312	Oct. 2	93	181
Sewing-machine frame or head	W. J. Stewart	33,529	Nov. 6	93	1121
Sewing-machine stand	W. A. Handley	33,779	Dec. 25	93	2517
Shade-roller bracket	W. R. Maddern and E. H. Higbee, Jr.	33,329	Oct. 9	93	349
Sharpener. Tool-	W. H. Diggs	33,776	Dec. 25	93	2516
Shears member	D. C. Wheeler	33,366	Oct. 16	93	539
Sheet-metal vessel	W. Gender	33,566	Nov. 13	93	1300
Shirt sleeves and yoke	I. B. Keller	33,765	Dec. 18	93	2312
Shoe	W. N. Horne	33,605	Nov. 20	93	1485
Shoe arch-spring	J. Slater	33,443	Oct. 23	93	744
Shoe. Low	A. W. Rich	33,806	Dec. 25	93	2522
Shoe quarter. Low-	W. W. Glanville	33,668	Dec. 4	93	1910
Sign	C. W. Shonk	33,404	Oct. 16	93	546
Skirt-protector	C. E. Hertlein	33,403	Oct. 16	93	546
Skirt-protector	H. A. Schaefer	33,321	Oct. 2	93	183
Skirt-protector	A. W. Stoekley	33,552	Nov. 13	93	1298
Slicer frame. Vegetable-	G. Walker	33,742	Dec. 18	93	2307
Slide-D	S. H. Hull	33,538	Nov. 13	93	1295
Slipper-ornament	J. A. Dalrymple	33,696	Dec. 11	93	2091
Smoke-pipe register	G. Kessler	33,683	Dec. 11	93	2089
Soap-holder and overflow-strainer	W. C. Degelman	33,347	Oct. 9	93	353
Soda-water fountain	R. H. Hemphill	33,278	Oct. 2	93	175
Spectacle clamp. Rimless-	F. A. Stevens	33,299	Oct. 2	93	178
Spoke-arm. Split-pulley	O. Wollenweber	33,413	Oct. 23	93	738
Spoon or similar article	G. D. Merrill	33,414	Oct. 23	93	738
Spoon or similar article	G. D. Merrill	33,457	Oct. 30	93	924
Spoons, forks, &c. Handle for	W. C. Codman	33,689	Dec. 11	93	2089
Spoons, forks, &c. Handle for	W. L. Wilks	33,625	Dec. 4	93	1902
Spoons, &c. Handle for	C. Osborne	33,323	Oct. 9	93	348
Spoons or similar articles. Handle for	G. L. Crowell, Jr	33,500	Nov. 6	93	1115
Sprayer-body	G. F. Clark	33,580	Nov. 20	93	1480
Sprayer-body	G. F. Clark	33,581	Nov. 20	93	1480
Sprayer-body	G. F. Clark	33,368	Oct. 16	93	540
Sprayer-body	C. L. Sicardi	33,546	Nov. 13	93	1297
Square and scroll. Tailor's	L. A. Eggleston	33,298	Oct. 2	93	178
Staircases. Corner-piece for	H. C. Burk	33,708	Dec. 11	93	2094
Stamp frame. Time-	G. E. King	33,760	Dec. 18	93	2312
Stand. Newspaper-	C. E. McDowell and H. G. Strike	33,793	Dec. 25	93	2519
Stay-end	C. T. McCue	33,690	Dec. 11	93	2090
Stirrup	F. E. Goodman	33,758	Dec. 18	93	2311
Stove	A. Ohnemus	33,759	Dec. 18	93	2311
Stove	A. Ohnemus	33,477	Oct. 30	93	928
Stove. Cooking-	G. W. Cope and W. L. Bertram	33,310	Oct. 2	93	180
Stove. Cooking-	E. J. King and T. R. Kennedy	33,428	Oct. 23	93	741
Stove-cover. Auxiliary	M. Hoffman	33,797	Dec. 25	93	2520
Stove-door	J. R. Carter and J. E. Hausfeld	33,633	Dec. 4	93	1907
Stove. Gas	E. B. Adler	33,634	Dec. 4	93	1908
Stove. Gas-	H. Adler	33,476	Oct. 30	93	928
Stove. Gas-	P. S. Brindle				

Alphabetical list of designs, October to December, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Stove. Heating-	E. J. King and T. R. Kennedy	33,311	Oct. 2	93	180
Stove. Lamp-	G. Ebel	33,801	Dec. 25	93	2521
Stove or range lining-plate	B. Woodhull	33,696	Dec. 11	93	2091
Stud or button for garment-supporters	D. H. Warner	33,771	Dec. 25	93	2516
Stud or button for garment-supporters	D. H. Warner	33,772	Dec. 25	93	2516
Surgical stocking	C. J. Sadler	33,447	Oct. 23	93	745
Surveying instruments. Vernier-plate for	G. L. Buff	33,545	Nov. 13	93	1297
Switch-cap lining	G. B. Thomas	33,304	Oct. 2	93	179
Switch-cap lining	G. B. Thomas	33,305	Oct. 2	93	179
Syringe	A. L. Gray	33,684	Dec. 11	93	2089
Teapot	A. F. Jackson	33,365	Oct. 16	93	539
Telephone case. Slot-	W. A. Foss	33,598	Nov. 20	93	1482
Telephone-pole box	W. D. Gharky	33,594	Nov. 20	93	1483
Telephone-receiver supporting-bracket	E. C. Piexotto	33,780	Dec. 25	93	2517
Telephone-transmitter-arm base	W. J. Barr	33,640	Dec. 4	93	1905
Thill. Vehicle-	W. H. Fyan	33,516	Nov. 6	93	1118
Thimble	R. E. Alexander	33,400	Oct. 16	93	545
Tile	J. F. Boonem and B. Jacquart	33,481	Oct. 30	93	929
Tile	W. P. Meeker	33,480	Oct. 30	93	929
Tile. Furnace-	H. G. Tidemann	33,427	Oct. 23	93	741
Tire	A. Ducasble	33,302	Oct. 2	93	179
Tire	A. Ducasble	33,338	Oct. 9	93	351
Tire channel-rim. Vehicle-	J. G. Webb	33,616	Nov. 27	93	1716
Tire. Vehicle-	T. Beach	33,647	Dec. 4	93	1906
Tires. Valve-case for pneumatic	E. W. McCaslin	33,301	Oct. 2	93	179
Tobacco-moistener	S. Strauss	33,540	Nov. 13	93	1296
Tombstone	C. A. Sweet	33,812	Dec. 25	93	2523
Tool handle and receptacle	E. B. Higgins	33,589	Nov. 20	93	1481
Towel-holder	L. McCutchon	33,584	Nov. 20	93	1480
Toy	F. W. G. Boettcher	33,666	Dec. 4	93	1910
Trace-carrier	J. J. Creedon	33,471	Oct. 30	93	927
Trace-carrier	W. E. Dippert	33,326	Oct. 16	93	542
Tray	C. H. Peet	33,720	Dec. 18	93	2305
Tread-power wheel	W. J. McDermott	33,559	Nov. 13	93	1299
Tree-root protector	P. J. Wilson	33,332	Oct. 9	93	350
Trimming	G. W. Merrow	33,568	Nov. 13	93	1301
Trousers-hanger	M. A. Heimann	33,294	Oct. 2	93	177
Trousers-hanger	C. E. Kramer	33,665	Dec. 4	93	1910
Trousers-hanger	T. B. Shuman	33,762	Dec. 18	93	2312
Trunk-clamp	M. N. Drucker	33,744	Dec. 18	93	2308
Trunk corner-shield	M. N. Drucker	33,743	Dec. 18	93	2308
Trunk protecting-plate	M. N. Drucker	33,643	Dec. 4	93	1905
Tug-fastener	S. A. Morgan	33,789	Dec. 25	93	2518
Turpentine-box	D. C. Beltz	33,542	Nov. 13	93	1296
Type. Font of printing-	J. H. Hutchison	33,482	Oct. 30	93	929
Type. Font of printing-	J. H. Hutchison	33,531	Nov. 6	93	1121
Type-writing-machine type-bar	A. T. Brown	33,736	Dec. 18	93	2304
Undergarment	G. O. Cook	33,811	Dec. 25	93	2523
Valve box. Stop-	A. H. Meiners	33,787	Dec. 25	93	2518
Valve-casing	J. W. McMillan	33,746	Dec. 18	93	2308
Valve-casing	J. D. Perkins	33,306	Oct. 2	93	180
Valve-deflector	D. Wheatley	33,556	Nov. 13	93	1298
Vapor-burner	I. N. Marquis	33,587	Nov. 20	93	1481
Vehicle-shackles. Draft-eye for	C. C. Bradley	33,379	Oct. 16	93	541
Ventilator	R. M Pancoast	33,429	Oct. 23	93	741
Wagon-body	P. J. Reid	33,600	Nov. 20	93	1484
Wagon-body bow-socket	J. D. McCabe	33,433	Oct. 23	93	742
Wagon-body brace	J. D. McCabe	33,434	Oct. 23	93	742
Wagon body. Lunch-	T. H. Buckley	33,515	Nov. 6	93	1118
Wall-tie	T. E. Grafton	33,426	Oct. 23	93	741
Wall-tie	P. Rieseck	33,342	Oct. 9	93	352
Washboard	S. R. Sargent	33,805	Dec. 25	93	2522
Water-closet bowl	H. M. Haldeman	31,642	Dec. 4	93	1905
Weather-vane	D. Haight	33,547	Nov. 13	93	1297
Weather-vane	D. Haight	33,585	Nov. 20	93	1481
Wheel	O. L. Leach	33,648	Dec. 4	93	1906
Wheel. Sprocket-	W. E. Norton	33,595	Nov. 20	93	1483
Wheel. Vehicle fifth-	M. L. Senderling	33,518	Nov. 6	93	1118
Wind-wheel	F. Duvall	33,652	Dec. 4	93	1907
Window. Prism-	G. K. Cummings	33,669	Dec. 4	93	1910
Window. Prism-	G. K. Cummings	33,670	Dec. 4	93	1911
Window. Prism-	G. K. Cummings	33,671	Dec. 4	93	1911
Wire-rope socket	W. S. Bidle	33,373	Oct. 16	93	540
Wrench member	A. Shepard	33,468	Oct. 30	93	926

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Acetylene. Chemical compound for purifying	Deutsche Gold and Silber Scheide-Anstalt, vormals Rössler.	35,667	Dec. 25	93	2528
Agricultural machinery	Deering Harvester Co	35,488	Nov. 20	93	1490
Ale	Springfield Breweries Company	35,291	Oct. 23	93	747
Ale	Springfield Breweries Company	35,644	Dec. 25	93	2525
Alkaloids	Chemische Fabrik Guestrow	35,181	Oct. 2	93	186
Alkamine derivatives	Chemische Fabrik auf Actien, vormals E. Schering.	35,541	Dec. 4	93	1915
Ammonia preparations	Chemische Fabrik auf Actien, vormals E. Schering.	35,540	Dec. 4	93	1915
Antiseptic	Orienta Chemical Co	35,180	Oct. 2	93	186
Apparel. Certain named wearing-	H. Black & Co	35,451	Nov. 20	93	1487
Asbestos cellular-pipe and boiler covering	H. W. Johns Manufacturing Company.	35,496	Nov. 27	93	1718
Badges, buttons, and pins	Stein & Langlos	35,170	Oct. 2	93	185
Bakery and confectionery products. Certain named	Ohio Baking Company	35,597	Dec. 18	93	2315
Bakery products and confectionery. Certain named	National Biscuit Company	35,662	Dec. 25	93	2528
Baking-powder	Brice & Co	35,190	Oct. 2	93	187
Baking-powder	Sea Foam Baking Powder Company	35,360	Oct. 30	93	937
Bathing liquid. Medicated	G. Blickle	35,200	Oct. 2	93	188
Beer	American Brewing Company	35,532	Dec. 4	93	1914
Beer	George Günther, Jr., Brewing Company.	35,645	Dec. 25	93	2525
Beer	National Brewery Company	35,466	Nov. 20	93	1488
Beer. Lager-	H. L. Haughton	35,225	Oct. 9	93	356
Beer. Lager-	Wacker & Birk Brewing and Malting Company.	35,411	Nov. 13	93	1305
Bells	F. Mossberg Co	35,268	Oct. 16	93	549
Belt-cleansing compound. Machinery-	A. Stockum	35,195	Oct. 2	93	187
Beverage. Non-alcoholic	Cherry Kola Co	35,356	Oct. 30	93	936
Beverages. Certain named	Firm of R. Steel	35,257	Oct. 16	93	548
Beverages. Non-alcoholic	Navena Co	35,499	Nov. 27	93	1719
Bicycles	Sears, Roebuck & Company	35,626	Dec. 18	93	2317
Biscuit. Sweet-almond	H. Lalo	35,422	Nov. 13	93	1307
Biscuit. Sweet-almond	H. Lalo	35,423	Nov. 13	93	1307
Blackboards	C. F. Weber Company	35,489	Nov. 27	93	1718
Blood-purifier	M. J. Pfunder	35,635	Dec. 25	93	2524
Boiler-cleaning compound	T. Smith, Jr	35,230	Oct. 9	93	357
Boilers. Cleaning compound for steam-	M. P. Sotomayor	35,432	Nov. 13	93	1308
Boots and shoes	L. C. Bliss & Co	35,282	Oct. 23	93	746
Boots and shoes	E. W. Burt & Co	35,633	Dec. 25	93	2524
Boots and shoes	Pray-Small Company	35,165	Oct. 2	93	185
Boots and shoes	G. D. Simen	35,307	Oct. 9	93	355
Boots and shoes and leather for boots and shoes	L. C. Bliss & Co	35,564	Dec. 11	93	2099
Boots and shoes and leather for same	L. C. Bliss & Co	35,242	Oct. 16	93	547
Boots and shoes and leather for same	L. C. Bliss & Co	35,243	Oct. 16	93	547
Boots and shoes and leather for same	Rice & Hutchins	35,396	Nov. 13	93	1304
Boots and shoes and leather for same	Rice & Hutchins	35,592	Dec. 18	93	2314
Boots and shoes. Certain named	L. C. Bliss & Co	35,241	Oct. 16	93	547
Boots and shoes. Certain named	Cross & Tucker	35,163	Oct. 2	93	184
Boots and shoes. Leather	C. B. Whitcomb	35,162	Oct. 2	93	184
Boots, shoes, and overshoes	I. Levinstein	35,166	Oct. 2	93	185
Bottle-washing machines	A. E. Rich	35,487	Nov. 20	93	1490
Bottles. Prescription-	Obear-Nester Glass Company	35,303	Oct. 23	93	749
Bottles. Prescription-	Obear-Nester Glass Company	35,304	Oct. 23	93	749
Bottles. Prescription-	Obear-Nester Glass Company	35,305	Oct. 23	93	749
Boxes or cartons. Certain named	Gill Brothers & Co	35,549	Dec. 4	93	1916
Brick. Fire-	Stowe, Fuller & Co	35,628	Dec. 18	93	2318
Brushes	J. J. Adams & Co	35,306	Oct. 23	93	749
Buckles, buttons, and clasps	American Steel Buckle Co	35,491	Nov. 27	93	1718
Butter	Bartram Brothers	35,295	Oct. 23	93	748
Butter or substitute for butter	H. J. Bigelow	35,188	Oct. 2	93	187
Butterin or oleomargarin	Wm. J. Moxley	35,656	Dec. 25	93	2527
Buttons. Bone collar-	Strauss, Sachs & Co	35,558	Dec. 11	93	2098
Cabinets. Kitchen-	Globe Cabinet Company	35,267	Oct. 16	93	549
Candies	Pan Confection Company	35,347	Oct. 30	93	936
Candies	Pan Confection Company	35,348	Oct. 30	93	935
Candy	T. E. Breyer	35,253	Oct. 16	93	548
Canned and preserved blueberries	A. A. Low	35,351	Oct. 30	93	935
Canned fresh-water fish	Buckeye Fish Company	35,473	Nov. 20	93	1489
Canned goods	Adam Roth Grocery Company	35,191	Oct. 2	93	187
Canned meats	F. Wolferman	35,474	Nov. 20	93	1489
Canvas	A. Wolf	35,157	Oct. 2	93	184
Cards. Playing-	United States Playing Card Company.	35,374	Nov. 13	93	1302
Castings. Certain metal	A. O. Fox	35,271	Oct. 16	93	550
Castings. Certain metal	A. O. Fox	35,272	Oct. 16	93	550
Cement	J. D. Swindell	35,585	Dec. 4	93	1914
Cement. Portland	Hammer Society	35,461	Nov. 20	93	1488
Cement. Portland	Hammer Society	35,670	Dec. 25	93	2529
Cereal products and preparations	J. V. Hecker	35,424	Nov. 13	93	1307
Cereal products. Certain named	Malted Cereals Company	35,599	Dec. 18	93	2315

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cereal products. Manufactured	Robinson-Danforth Milling Company.	35,569	Dec. 11	93	2099
Chemical, pharmaceutical, and surgical products and preparations. Certain named	J. A. Sander	35,639	Dec. 25	93	2525
Chemical, pharmaceutical, surgical, dietetic, and cosmetic products and preparations. Certain named	Ichthyol-Gesellschaft Cordes, Hermanni & Co.	35,548	Dec. 4	93	1916
Chocolates	T. M. Swetland	35,254	Oct. 16	93	548
Chocolates	T. M. Swetland	35,421	Nov. 13	93	1307
Chucks. Lathe and drill	Westcott Chuck Company	35,486	Nov. 20	93	1490
Cigarettes	Wells-Whitehead Tobacco Company	35,194	Oct. 2	93	187
Cigars	J. H. Bath	35,295	Oct. 16	93	548
Cigars	W. Boucher	35,193	Oct. 2	93	187
Cigars	G. J. Johnson Cigar Company	35,256	Oct. 16	93	548
Cigars	J. F. Smith	35,298	Oct. 23	93	748
Cleaning compounds	Lever Brothers	35,228	Oct. 9	93	357
Cleaning materials. Certain named	Lever Brothers	35,229	Oct. 9	93	357
Cleaning materials. Certain named	H. K. Porter	35,672	Dec. 25	93	2529
Clippers. Bolt	Hull Coal and Coke Company	35,536	Dec. 4	93	1914
Coal and coke	Phoenix Coat Pad Company	35,158	Oct. 2	93	184
Coat-pads	Cohen & Lang	35,395	Nov. 13	93	1304
Coats and pants for boys and youths	Sweet, Orr & Co	35,449	Nov. 20	93	1487
Coats. Sack	T. H. Handy & Co	35,649	Dec. 25	93	2526
Cocktails	Esser, Bleul & Loerner	35,567	Dec. 11	93	2099
Cocoa-paste	F. P. Garrettson & Co	35,590	Dec. 18	93	2314
Coffee	Livierato Bros	35,358	Oct. 30	93	936
Coffee	Arbuckle Bros	35,419	Nov. 13	93	1307
Coffee. Roasted	W. Bredow	35,467	Nov. 20	93	1488
Coffee substitute	Muscatine Oat Meal Company	35,420	Nov. 13	93	1307
Coffee substitute	D. H. Smith	35,468	Nov. 20	93	1489
Coffee substitutes	Goodman Manufacturing Co	35,317	Oct. 30	93	932
Collars, cuffs, neckbands, and wristbands	H. C. Curtis & Co	35,391	Nov. 13	93	1304
Collars, cuffs, shirts, and waists	J. M. Farina	35,604	Dec. 18	93	2315
Cologne-water	Fobes, Hayward & Company	35,212	Oct. 9	93	355
Confectionery	Gardiner-Lucas Company	35,497	Nov. 27	93	1719
Confectionery in tablet form	A. B. Hodge	35,392	Nov. 13	93	1304
Corsets	E. T. Mulr	35,393	Nov. 13	93	1304
Corsets	Puritan Corset Company	35,515	Dec. 4	93	1912
Corsets	Bortree Corset Company	35,452	Nov. 20	93	1487
Corsets and bust-forms	Creighton & Burch	35,561	Dec. 11	93	2098
Cotton cloth. Checked	Ward, Hanbury & Co	35,518	Dec. 4	93	1912
Cotton fabrics	Ward, Hanbury & Co	35,519	Dec. 4	93	1913
Cotton fabrics	Ward, Hanbury & Co	35,520	Dec. 4	93	1913
Cotton fabrics	Sir Elkanah Armitage & Sons	35,279	Oct. 23	93	746
Cotton piece goods	Sir Elkanah Armitage & Sons	35,280	Oct. 23	93	746
Cotton piece goods. Certain named	Ashton, Hoare & Company	35,521	Dec. 4	93	1913
Cotton piece goods not figured or printed. Unbleached	Ashton, Hoare & Company	35,522	Dec. 4	93	1913
Cure for certain named diseases	A. Karczewski	35,178	Oct. 2	93	186
Cutlery and surgical instruments. Certain named	C. Lütters & Cie	35,389	Nov. 13	93	1303
Cutlery, edge-tools, and hardware	J. A. Schmidt	35,587	Dec. 11	93	2101
Dairy products. Certain named	Borden's Condensed Milk Company.	35,600	Dec. 18	93	2315
Dairy products. Certain named	E. L. McSparran	35,215	Oct. 9	93	356
Dairy products. Certain named	New York Condensed Milk Company.	35,471	Nov. 20	93	1489
Dampers for hot-air pipes and smoke-pipes	S. M. Howes Company	35,482	Nov. 20	93	1490
Dental composition. Certain named	C. Day	35,571	Dec. 11	93	2099
Dental supplies. Certain named	E. Ennis	35,329	Oct. 30	93	933
Dentifrice	J. G. Pease	35,390	Nov. 13	93	1304
Disinfectants	Moore Chemical and Manufacturing Company.	35,179	Oct. 2	93	186
Doughware. Certain named	Vater & Co., Gesellschaft mit Beschränkter Haftung.	35,217	Oct. 9	93	356
Drillings and sheetings	G. Woolley & Co	35,494	Nov. 27	93	1718
Dyes. Certain named	Pearl Lustre Dye Co	35,482	Nov. 13	93	1308
Egg substitute	Ovine Company	35,658	Dec. 25	93	2527
Eggs	R. Fabien & Co	35,528	Dec. 4	93	1914
Eggs. Desiccated and granulated	S. T. G. Smith	35,659	Dec. 25	93	2527
Electric-conduction wire	Bridgeport Brass Company	35,310	Oct. 23	93	749
Electrical appliances. Certain named	Western Electrical Supply Company.	35,204	Oct. 2	93	188
Electrical curative apparatus	Seeger & Clarke	35,332	Oct. 30	93	933
Envelops. Letter	C. L. Benedict	35,322	Oct. 30	93	932
Explosives	Delta Powder Company	35,510	Nov. 27	93	1720
Exterminators for rats, mice, roaches, ants, and bugs	American Exterminating Co	35,227	Oct. 9	93	357
Eye-shades	W. F. Mahony	35,590	Dec. 18	93	2314
Fabrics. Certain named textile	China and Japan Trading Company	35,562	Dec. 11	93	2098
Firearms	Remington Arms Company	35,485	Nov. 20	93	1490
Fire-extinguisher. Certain named	U. S. Chemical and Power Company.	35,554	Dec. 4	93	1916
Fire-extinguishers	G. H. Downing	35,371	Oct. 30	93	938
Fish in hermetically-sealed tins	Alaska Packers Association	35,192	Oct. 2	93	187
Flavoring extracts	W. McMurray & Co	35,650	Dec. 25	93	2526
Flour	J. Boyd, Jr., & Co	35,654	Dec. 25	93	2528
Flour	Fulton Milling Company	35,425	Nov. 13	93	1307
Flour	Hezel Milling Company	35,298	Oct. 23	93	747
Flour	J. Michel	35,220	Oct. 9	93	356
Flour	E. Miller	35,361	Oct. 30	93	937
Flour	J. R. Thomas' Sons	35,221	Oct. 9	93	356
Flour	Bennett Milling Company	35,598	Dec. 18	93	2315
Flour. Gluten	Acme Milling Company	35,294	Oct. 23	93	748
Flour. Wheat	Duluth Universal Mill Company	35,219	Oct. 9	93	356
Flour. Wheat	Duluth Universal Mill Company	35,472	Nov. 20	93	1489
Flour. Wheat	H. B. Smith	35,527	Dec. 4	93	1913
Flour. Wheat	American Milling Company	35,501	Nov. 27	93	1719
Food. Cattle	C. Bell & Co	35,269	Oct. 16	93	549
Food. Certain named articles of	Nervine Food Co	35,222	Oct. 9	93	356
Food drinks. Vegetable and cereal preparations for					

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Food for infants and invalids	Smith, Kline & French Company	35,346	Oct. 30	93	935
Foods and relishes. Certain named	M. A. Gedney Pickling Company	35,261	Oct. 16	93	549
Foods and relishes. Certain named	M. A. Gedney Pickling Company	35,498	Nov. 27	93	1719
Forms. Bust	Wright & Co	35,591	Dec. 18	93	2314
Fruit. Dried or evaporated	U. H. Dudley & Co	35,654	Dec. 25	93	2527
Fruits. Dried	Hartwig & Bennett	35,520	Dec. 4	93	1914
Fruits. Dried or evaporated	U. H. Dudley & Co	35,530	Dec. 4	93	1914
Fruits. Dried or evaporated	Copeland & Durgin Company	35,447	Nov. 13	93	1310
Furniture	J. A. G. Beales	35,375	Nov. 13	93	1308
Game. Certain named	Raymond Button Company of Baltimore City.	35,559	Dec. 11	93	2098
Garment-fasteners. Certain named	Chain Belt Company	35,273	Oct. 16	93	550
Gearing and machinery. Certain named	Tanqueray, Gordon & Company	35,405	Nov. 20	93	1488
Gin	A. S. Hoyt	35,663	Dec 25	93	2528
Gluten, cereal foods, and starch. Ground	J. C. and B. C. Silver	35,324	Oct. 30	93	933
Gold and silver ware, jewelry, and plated ware	Litchfield Manufacturing Co	35,314	Oct. 24	93	750
Grinders, shoveling-boards, and end-gates	C. E. Conder & Bro	35,214	Oct. 9	93	356
Groceries. Certain named	Cudahy Packing Company	35,476	Nov. 20	93	1489
Groceries. Certain named	J. F. Humphrey & Company	35,477	Nov. 20	93	1490
Groceries. Certain named	J. F. Humphrey & Company	35,478	Nov. 20	93	1490
Groceries. Certain named	J. F. Humphrey & Company	35,479	Nov. 20	93	1490
Groceries. Certain named	Seydel-Reder Candy Co	35,526	Dec. 4	93	1913
Gum. Chewing	A. A. Low	35,651	Dec. 25	93	2526
Gum. Spruce	Nederlandsche Gutta Percha Maatschappij.	35,682	Dec. 25	93	2524
Gutta-percha, caoutchouc, and rubber and goods made thereof.	Loewitz & Rohlfs	35,320	Oct. 30	93	932
Gutta-percha paper	A. F. Richardson	35,605	Dec. 18	93	2316
Hair-tonic	S. Beaumont & Fils	35,671	Dec. 25	93	2529
Hair-wavers	Oneida Community	35,675	Dec. 25	93	2529
Hardware. Certain named	James C. Lindsay Hardware Company.	35,627	Dec. 18	93	2318
Hardware, cutlery, and edge-tools	Adams & Johnson Company	35,566	Dec. 11	93	2099
Harness. Certain named	Deering Harvester Co	35,553	Dec. 4	93	1916
Harvesting machinery	M. A. McGuire	35,560	Dec. 11	93	2098
Hats	Rothschild Bros	35,390	Nov. 13	93	1303
Hats	F. W. Klocke	35,208	Oct. 9	93	355
Headache-powders	S. Ward, Sr	35,442	Nov. 13	93	1309
Hooks. Back-band	North Western Horse Nail Manufacturing Company.	35,443	Nov. 13	93	1309
Horseshoe-nails	North Western Horse Nail Manufacturing Company.	35,551	Dec. 4	93	1916
Horseshoe-nails	G. Heyman	35,306	Oct. 23	93	749
Household furnishings. Certain named	Peerless Gas Light Company	35,311	Oct. 23	93	750
Incandescent mantles and attachments therefor	S. Schenkeln	35,335	Oct. 30	93	934
Infants. Certain named devices and articles for rearing prematurely and weakly born	American Steel Hoop Company	35,312	Oct. 23	93	750
Iron and steel and manufactures of iron and steel	A. A. Low	35,352	Oct. 30	93	936
Jelly and butter made from the crab-apple	A. A. Low	35,469	Nov. 20	93	1489
Jelly, butter, cider, and boiled cider made from apples	E. I. Franklin & Co	35,276	Oct. 23	93	746
Jewelry. Certain named	Gandolfi, Moss, Pellerano & Co	35,263	Oct. 16	93	549
Kerosene	J. Loomer	35,607	Dec. 18	93	2316
Kidney, blood, and nerve cure	H. B. Shaeffer	35,276	Oct. 16	93	549
Lamps and flash-light powder therefor. Flash	Bittel, Tepel & Co	35,159	Oct. 2	93	184
Leather. Certain named	Vacuum Oil Company	35,232	Oct. 9	93	357
Leather-currying compound	B. D. Eisendrath	35,454	Nov. 20	93	1487
Leather. Tanned	J. A. Sparrow & Co	35,651	Dec. 25	93	2524
Linen goods	A. Lagerkrans	35,401	Nov. 13	93	1304
Liniment	T. Milburn	35,176	Oct. 2	93	186
Liniment	T. F. Laing	35,287	Oct. 23	93	747
Liniment. Certain named	L. Medicis, veuve Tricard	35,651	Dec. 25	93	2525
Liniments. Horse	L. Medicis, veuve Tricard	35,652	Dec. 25	93	2525
Liniments. Horse	J. J. Newman Lumber Company	35,549	Nov. 27	93	1720
Lumber	Chas. Maull Macaroni Company	35,661	Dec. 25	93	2528
Macaroni, spaghetti, mezzani, vermicelli, and noodles	Chas. Maull Macaroni Company	35,660	Dec. 25	93	2528
Macaroni, spaghetti, vermicelli, and noodles	Curtis Publishing Company	35,321	Oct. 30	93	932
Magazine. Certain named monthly	Curtis Publishing Company	35,277	Oct. 23	93	746
Magazine. Monthly	Heissler & Junge Company	35,258	Oct. 16	93	548
Malt extract	D. Lutz & Son Brewing Company	35,500	Nov. 27	93	1719
Malt extract	Keuffel & Esser Company	35,513	Dec. 4	93	1912
Mathematical and drawing instrument	H-O (Hornby's Oatmeal) Company	35,218	Oct. 9	93	356
Meal preparation	Gold Crown Medicine Co	35,249	Oct. 9	93	355
Medical compounds. Certain named	J. A. Musgrove	35,211	Oct. 9	93	355
Medical compounds. Certain named	Vapo-Cresolene Company	35,577	Dec. 11	93	2100
Medical compounds for the cure of lung and throat diseases	Trommer Company	35,403	Nov. 13	93	1305
Medicament	Trommer Company	35,404	Nov. 13	93	1305
Medicament	G. Bickle	35,400	Nov. 13	93	1304
Medicated bathing fluid	R. Thomas, Jr	35,609	Dec. 18	93	2316
Medicated plasters	R. Thomas, Jr	35,610	Dec. 18	93	2316
Medicated plasters	Carpenter-Morton Company	35,545	Dec. 4	93	1915
Medicated viscous compound. Certain named	F. S. Higgins	35,341	Oct. 30	93	934
Medicinal compound. Certain named	Vapo-Cresolene Company	35,286	Oct. 23	93	747
Medicinal compounds. Certain named	Yglesias & Yglesias	35,342	Oct. 30	93	934
Medicinal compounds. Certain named	S. O. Sterrett	35,497	Nov. 13	93	1305
Medicinal preparation. Certain named	J. W. Hahn	35,462	Nov. 20	93	1488
Medicinal preparations. Certain named	Van Vleet-Mansfield Drug Company.	35,688	Dec. 25	93	2525
Medicinal preparations for certain named diseases	F. Comar & Fils et Cie	35,410	Nov. 13	93	1305
Medicinal tonics	L. L. Walton & Co	35,345	Oct. 30	93	934
Medicine	F. E. Francisco	35,285	Oct. 23	93	747
Medicine. Certain named	E. M. Regis & Co	35,503	Nov. 27	93	1719
Medicine. Certain named	E. S. Sloan	35,405	Nov. 13	93	1305
Medicine. Certain named	H. B. Summers	35,209	Oct. 9	93	355
Medicine for certain named diseases	Grape Capsule Company	35,578	Dec. 11	93	2100
Medicine in capsule form for certain named diseases	C. H. Grube	35,606	Dec. 18	93	2316
Medicine. Tonic	I. Wisse	35,248	Oct. 16	93	547
Medicines and remedies. Certain named proprietary					

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Medicines and soap. Certain named	Rotkowitz Bros	35,338	Oct. 30	93	934
Medicines and surgical appliances. Certain named	F. Y. Wilhoft	35,547	Dec. 4	93	1916
Medicines. Certain named	Bokschizky & Rotkowitz	35,502	Nov. 27	93	1719
Medicines. Certain named	G. P. Dykman	35,544	Dec. 4	93	1915
Medicines. Certain named	New York Quinine and Chemical Works.	35,343	Oct. 30	93	934
Medicines. Certain named	D. E. Wolfe	35,249	Oct. 16	93	548
Medicines. Certain named proprietary	S. B. Leonardi & Co	35,637	Dec. 25	93	2525
Medicines. Certain named proprietary	J. T. Seely	35,344	Oct. 30	93	934
Metal. Antifriction	W. A. Hardy	35,508	Nov. 27	93	1720
Metal. Antifriction and bearing	Smith-Courtney Company	35,586	Dec. 11	93	2101
Metal-polish	J. A. Wright & Company	35,266	Oct. 16	93	549
Metallic articles. Certain named fancy	Huet & Ligier	35,313	Oct. 23	93	750
Milk. Bottled	S. Wanzer & Sons	35,250	Oct. 16	93	548
Milk. Condensed	Consumers Preserved Milk Company.	35,357	Oct. 30	93	936
Milk. Condensed	St. Louis Condensed Milk Company.	35,601	Dec. 18	93	2315
Milk products and products containing milk	National Nutrient Company	35,260	Oct. 16	93	549
Mineral machinery and implements	Krogh Manufacturing Company	35,446	Nov. 13	93	1305
Mineral water	J. C. Wilkinson	35,643	Dec. 25	93	2525
Mineral water and non-alcoholic beverages	Duquesne Distributing Company	35,412	Nov. 13	93	1305
Mineral waters and drinks made from same	F. F. Whittier	35,464	Nov. 20	93	1488
Molds. Compound or mixture for making	Stoppel & Andrews	35,434	Nov. 13	93	1308
Musical instruments. Certain named	Aeolian Company	35,171	Oct. 2	93	185
Musical instruments. Certain named	Aeolian Company	35,172	Oct. 2	93	185
Musical instruments. Certain named	Aeolian Company	35,173	Oct. 2	93	185
Musical instruments. Certain named	Aeolian Company	35,174	Oct. 2	93	185
Musical instruments. Certain named	Aeolian Company	35,495	Nov. 27	93	1718
Musical instruments excepting pianos and their parts	J. Thibouville-Lamy & Co	35,612	Dec. 18	93	2316
Mustard	Société en Commandite par Actions Produits Alimentaires Louit Frères et Cie.	35,568	Dec. 11	93	2099
Nippers, pincers, and cutting-pliers	Utica Drop Forge and Tool Company.	35,363	Oct. 30	93	937
Nutritive ferruginous preparation	A. Jolles	35,183	Oct. 2	93	186
Nuts and tubers	Chicago Nut Food Co	35,189	Oct. 2	93	187
Oil, grease, or compound. Certain named	Swan & Finch Company	35,297	Oct. 23	93	748
Oil. Illuminating	Wilburine Oil Works	35,264	Oct. 16	93	549
Oils and lubricants. Certain named	Cleveland Refining Company	35,334	Oct. 30	93	933
Oils. Cotton-seed	American Cotton Oil Company	35,296	Oct. 23	93	748
Oils. Cotton-seed	American Oil Company	35,435	Nov. 13	93	1308
Oils. Cotton-seed	American Oil Company	35,436	Nov. 13	93	1309
Oils. Cotton-seed	American Oil Company	35,437	Nov. 13	93	1309
Oils. Cotton-seed	American Oil Company	35,438	Nov. 13	93	1309
Oils. Cotton-seed	American Oil Company	35,439	Nov. 13	93	1309
Oils. Lubricating	W. P. Fuller & Company	35,668	Dec. 25	93	2529
Ointment	E. J. Brewer	35,289	Oct. 23	93	747
Ointment	C. A. Torrey, Jr	35,608	Dec. 18	93	2316
Ointments	Cook Chemical Co	35,288	Oct. 23	93	747
Oleomargarin and butterin	Oakdale Manufacturing Company	35,657	Dec. 25	93	2527
Optical apparatus. Certain named	Gundlach Optical Company	35,235	Oct. 9	93	357
Organs	Sears, Roebuck & Company	35,613	Dec. 18	93	2316
Organs	Sears, Roebuck & Company	35,614	Dec. 18	93	2316
Organs	Sears, Roebuck & Company	35,615	Dec. 18	93	2316
Organs	Sears, Roebuck & Company	35,616	Dec. 18	93	2317
Organs	Sears, Roebuck & Company	35,617	Dec. 18	93	2317
Organs	Sears, Roebuck & Company	35,618	Dec. 18	93	2317
Organs	Sears, Roebuck & Company	35,619	Dec. 18	93	2317
Organs	Sears, Roebuck & Company	35,620	Dec. 18	93	2317
Organs	Sears, Roebuck & Company	35,621	Dec. 18	93	2317
Oysters	G. W. Dunbar's Sons	35,427	Nov. 13	93	1308
Packing. Coil	Bay City Manufacturing and Rubber Company.	35,275	Oct. 16	93	550
Packing-house products. Certain named	Libby, McNeill & Libby	35,602	Dec. 18	93	2315
Paint and varnish remover. Certain named	Cellulose Products Company	35,611	Dec. 18	93	2316
Paint composition	A. L. Rice	35,458	Nov. 20	93	1487
Paints and enamels	Gerstendörfer Bros	35,459	Nov. 20	93	1488
Paints. Metallic	Winter's Metallic Paint Company	35,669	Dec. 25	93	2529
Paints, pigments, and painters' supplies. Certain named	Continental Manufacturing Company.	35,441	Nov. 13	93	1309
Painters' supplies exclusive of paints	Adams & Elting Company	35,440	Nov. 13	93	1309
Paper and envelops. Writing and mourning	Schlageter & Nölck	35,372	Nov. 13	93	1302
Paper bags	Union Bag and Paper Company	35,536	Dec. 11	93	2098
Paper. Carbon	Typewriter Cushion Key Company	35,448	Nov. 20	93	1487
Paste	J. F. Bly	35,196	Oct. 2	93	187
Pens. Certain	C. Howard Hunt Pen Manufacturing Company.	35,247	Oct. 16	93	547
Pens. Fountain	F. J. Otis	35,823	Oct. 30	93	932
Pens, penholders, and gold pens. Fountain	J. Kirdorf	35,557	Dec. 11	93	2098
Pens. Stub	C. Howard Hunt Pen Manufacturing Company.	35,246	Oct. 16	93	547
Percussion-caps. Metallic	L. von Ragué	35,201	Oct. 2	93	188
Perfumes, toilet waters, and colognes	Ladd & Coffin	35,544	Dec. 4	93	1914
Periodical. Religious	W. L. Greene & Co	35,555	Dec. 11	93	2098
Petroleum. Refined	R. C. Corner	35,490	Nov. 20	93	1488
Photographic plates. Dry glass	Kirk, Geary & Co	35,629	Dec. 25	93	2524
Photographic purposes. Chemicals for	Aluminium Industrie Actien-Gesellschaft.	35,333	Oct. 30	93	933
Pianos	D. T. Peek	35,302	Oct. 23	93	748
Pianos	Sears, Roebuck & Company	35,622	Dec. 18	93	2317
Pianos	Sears, Roebuck & Company	35,623	Dec. 18	93	2317
Pianos	O. Wissner	35,480	Nov. 20	93	1490
Pine-needle products. Certain named	Pacific Pine Needle Company	35,336	Oct. 30	93	934
Pipes, pipe-coupligns, and pipe-fittings	Central Foundry Company	35,483	Nov. 20	93	1490
Pipes, pipe-coupligns, and pipe-fittings	Central Foundry Company	35,484	Nov. 20	93	1490
Plumbers' supplies. Metal trimmings for	L. Wolff Manufacturing Company.	35,364	Oct. 30	93	937

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Polish. Furniture	Sozo Supply Co	35,666	Dec. 25	93	2528
Potatoes. Irish and sweet	Eastern Shore of Virginia Produce Exchange.	35,216	Oct. 9	93	350
Poultry. Dressed	Priebe & Simater	35,475	Nov. 20	93	1489
Powders. Talcum and tooth	L. Mayer	35,197	Oct. 2	93	187
Preparations for the complexion	G. T. Brandon	35,463	Nov. 20	93	1488
Preserved cherries and jelly and wine made from the cherry	A. A. Low	35,350	Oct. 30	93	935
Preserves and jelly derived from the cranberry	A. A. Low	35,353	Oct. 30	93	936
Preserves, extracts, wine, jam, and jelly made from the raspberry.	A. A. Low	35,349	Oct. 30	93	935
Publications. Certain named	W. N. Hartshorn	35,511	Dec. 4	93	1912
Relish. Certain named	Ortega & Knapp	35,531	Dec. 4	93	1914
Remedies. Chemical and pharmaceutical	C. W. Schroeder	35,640	Dec. 25	93	2525
Remedies. Certain named skin	W. Chubbuck	35,339	Oct. 30	93	934
Remedies. External	W. L. Tucker	35,580	Dec. 11	93	2101
Remedies for certain named diseases	Smith-Gardner Co	35,251	Oct. 16	93	548
Remedies for certain named diseases. Internal	Scott & Starling	35,636	Dec. 25	93	2524
Remedies for diseases of stomach and intestines	R. Salz y Carlos	35,634	Dec. 25	93	2524
Remedy. Certain named	J. B. Jourdain	35,408	Nov. 13	93	1305
Remedy for certain named diseases	J. F. Bahl	35,409	Nov. 13	93	1305
Remedy for certain named diseases	J. S. Broas	35,574	Dec. 11	93	2100
Remedy for certain named diseases	L. Gerstle	35,177	Oct. 2	93	186
Remedy for certain named diseases	J. J. Pheelan	35,576	Dec. 11	93	2100
Remedy for certain named diseases	J. P. Schenck & Co	35,340	Oct. 30	93	934
Remedy for certain named diseases	S. Seljas	35,250	Oct. 16	93	548
Remedy for headache and neuralgia	M. Fraga	35,543	Dec. 4	93	1915
Remedy for zymotic fevers	W. C. Hamilton	35,575	Dec. 1	93	2100
Road-building machinery and supplies	Acme Road Machinery Company	35,205	Oct. 2	93	188
Rubber boots	Apsley Rubber Company	35,168	Oct. 2	93	185
Rubber boots and shoes	Apsley Rubber Company	35,167	Oct. 2	93	185
Rubber goods. Certain named	Alden Rubber Company	35,492	Nov. 27	93	1718
Rubber water-bottles and syringes	J. A. Webster & Son	35,330	Oct. 30	93	933
Rugs	Firth Carpet Company	35,155	Oct. 2	93	184
Salt	Seneca Lake Salt Company	35,302	Oct. 30	93	937
Salt and baking-powder. Table	J. Butler	35,426	Nov. 13	93	1308
Salve	G. W. Sprague	35,581	Dec. 11	93	2101
Salve. Certain named	S. Muhlhauser	35,546	Dec. 4	93	1916
Salves and medicinal skin-soaps	Rotkowitz Bros	35,337	Oct. 30	93	934
Salves, tablets, and ointments	Manilla Manufacturing Co	35,582	Dec. 11	93	2101
Saws. Hack and butcher	Union Saw Manufacturing Company of New Jersey.	35,370	Oct. 30	93	938
Saws. Hand	Simonds Manufacturing Company	35,237	Oct. 9	93	357
Saws. Hand	Simonds Manufacturing Company	35,238	Oct. 9	93	358
Saws. Hand	Simonds Manufacturing Company	35,239	Oct. 9	93	358
Saws. Hand	Simonds Manufacturing Company	35,360	Oct. 30	93	938
Saws. Hand	Simonds Manufacturing Company	35,583	Dec. 11	93	2101
Saws. Hand	Simonds Manufacturing Company	35,584	Dec. 11	93	2101
Saws. Hand	Simonds Manufacturing Company	35,585	Dec. 11	93	2101
Saws. Hand	Howe Scale Company of 1896	35,588	Dec. 11	93	2102
Scales. Certain named weighing	La Crosse Plow Company	35,445	Nov. 13	93	1309
Seeders and drills. Grain	Sears, Roebuck & Company	35,624	Dec. 18	93	2317
Sewing-machines	Sears, Roebuck & Company	35,625	Dec. 18	93	2317
Sewing-machines	E. J. Toof	35,366	Oct. 30	93	937
Sewing-machines and accessories	E. J. Toof	35,367	Oct. 30	93	937
Sewing-machines and accessories	New Home Sewing Machine Company.	35,506	Nov. 27	93	1719
Sewing-machines, attachments, and accessories	International Metal Lath Company	35,203	Oct. 2	93	188
Sheet-metal structures. Expanded	H. Norden	35,245	Oct. 16	93	547
Sheetings and drills	C. Franks & Co	35,563	Dec. 11	93	2099
Sheetings. Certain named	D. J. Vlasto	35,598	Dec. 18	93	2314
Sheetings. Cotton	Cruin & Rushmore	35,498	Nov. 27	93	1718
Shirts	D. Jones & Sons	35,450	Nov. 20	93	1487
Shirts, bed-robes, and pajamas	J. Wanamaker	35,318	Oct. 30	93	932
Shirts, pajamas, and bath-robes	A. L. Aste	35,537	Dec. 4	93	1915
Shoe and leather dressings	C. F. Parker	35,365	Oct. 30	93	937
Shoemakers' outfits or kits of tools	La Prelle-Williams Shoe Company	35,244	Oct. 16	93	547
Shoes	Richardson Shoe Company	35,565	Dec. 11	93	2099
Shoes	Johansen Bros	35,240	Oct. 16	93	547
Shoes. Certain named	Wichert & Gardiner	35,164	Oct. 2	93	185
Shoes. Certain named	La Prelle-Williams Shoe Company	35,284	Oct. 23	93	747
Shoes. Children's	A. Hamburger & Sons	35,514	Dec. 4	93	1912
Shoes. Ladies'	Whittemore Bros. & Co	35,231	Oct. 9	93	357
Shoes. Paste or wax for polishing	E. E. Hogan Shoe Manufacturing Company.	35,288	Oct. 23	93	746
Shoes. Welted	Stirling Silk Manufacturing Company.	35,206	Oct. 9	93	335
Silk	Phalanx Silk Mill	35,319	Oct. 30	93	132
Silk dress goods or silk fabrics	"Noval" Gesellschaft mit Beschränkter Haftung.	35,265	Oct. 16	93	749
Silver polish-paste	M. Warnler & Co	35,504	Nov. 27	93	1719
Sizing and finishing preparations for textile fabrics	M. Warnler & Co	35,505	Nov. 27	93	1719
Sizing and finishing preparations for textile fabrics	J. P. Mathieu & Co	35,160	Oct. 2	93	184
Skins and leather. Certain named	J. P. Mathieu & Co	35,161	Oct. 2	93	184
Skins and leather. Certain named	N. K. Fairbank Company	35,301	Oct. 23	93	748
Soap. Laundry	J. G. Haas Soap Company	35,299	Oct. 23	93	748
Soap powder	Munyon's Homeopathic Home Remeny Company.	35,300	Oct. 23	93	748
Soaps	Church & Dwight Company	35,359	Oct. 30	93	937
Soda and saleratus and sal-soda	J. Hungerford Smith Company	35,595	Dec. 18	93	2314
Soda-fountains. Syrup dispensed in	Simmons & Hammond	35,583	Dec. 4	93	1914
Soda-syrup and root-beer	C. W. Arnold & Co	35,281	Oct. 23	93	746
Soles. Cut	Hunt & Hunt	35,573	Dec. 11	93	2100
Specific. Certain named	Chas. Truax, Greene & Company	35,579	Dec. 11	93	2100
Specific in granular form. Certain named	American Optical Company	35,376	Nov. 13	93	1302
Spectacles or eyeglasses	Spencerian Pen Company	35,373	Nov. 13	93	1302
Stationery. Certain named articles of					

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Steel utensils for culinary and surgical purposes. Enameled.	Rothschild, Meyers & Co	35,507	Nov. 27	93	1720
Stovepipe	Scott & Co	35,269	Oct. 16	93	549
Stoves, ranges, and heating apparatus	White-Warner Company	35,368	Oct. 30	93	938
Stoves, ranges, furnaces, and parts thereof	Pittsburgh Stove and Range Company.	35,181	Nov. 20	93	1400
Stoves, ranges, furnaces, ovens, and heating-drums	E. H. Huenefeld	35,673	Dec. 25	93	2529
Stoves, ranges, furnaces, ovens, and heating-drums	E. H. Huenefeld	35,674	Dec. 25	93	2529
Sugar and syrup. Maple	A. A. Low	35,652	Dec. 25	93	2526
Sugar and syrup. Maple	A. A. Low	35,653	Dec. 25	93	2527
Sugar and syrup. Maple	A. A. Low	35,651	Dec. 25	93	2527
Sugar-syrups	J. D. Hage & Co	35,186	Oct. 2	93	186
Surgical instruments and appliances. Certain named	Doerflinger Artificial Limb Company	35,331	Oct. 30	93	933
Suspenders and shoulder-braces	Morris Bros	35,394	Nov. 13	93	1304
Syrup	Abram Lyle & Sons	35,185	Oct. 2	93	186
Syrup and sugar. Maple	A. A. Low	35,213	Oct. 9	93	355
Tablets. Laxative	R. Pierson	35,402	Nov. 13	93	1304
Tablets or remedies. Headache	Neuralgyline Co	35,542	Dec. 4	93	1915
Tablets. Throat	R. W. Gardner	35,232	Oct. 16	93	548
Tape. Stay	Reversible Collar Company	35,516	Dec. 4	93	1912
Tea	W. Hill & Sons	35,223	Oct. 9	93	356
Tea	W. Hill & Sons	35,224	Oct. 9	93	356
Tea	Hunt & Co	35,414	Nov. 13	93	1306
Tea	Hunt & Co	35,415	Nov. 13	93	1307
Tea	Hunt & Co	35,416	Nov. 13	93	1307
Tea	Hunt & Co	35,417	Nov. 13	93	1307
Tea	Hunt & Co	35,418	Nov. 13	93	1307
Tea	J. A. Matthews	35,184	Oct. 2	93	186
Tea	J. B. Brown & Co	35,292	Oct. 23	93	747
Teas, coffees, and spices	Oelschlaeger Bros	35,226	Oct. 9	93	357
Thermometers. Clinical	Landis Machine Company	35,156	Oct. 2	93	184
Thread. Linen or cotton	Manogue-Pidgeon Iron Company	35,550	Dec. 4	93	1916
Tin-plate	Albany Hardware and Iron Company.	35,444	Nov. 13	93	1309
Tin. Roofing	B. Houde & Cie	35,428	Nov. 13	93	1308
Tobacco and cigarettes. Certain named	American Tobacco Company	35,226	Oct. 9	93	356
Tobacco and cigarettes. Smoking	M. C. Wetmore Tobacco Company	35,603	Dec. 18	93	2315
Tobacco. Plug	Smith & Scott	35,431	Nov. 13	93	1308
Tobacco. Plug chewing	Neu Guinea Compagnie	35,429	Nov. 13	93	1308
Tobacco. Twist	Neu Guinea Compagnie	35,430	Nov. 13	93	1308
Tobacco. Twist	X. Pène	35,308	Nov. 13	93	1304
Toilet and medicinal preparations	A. Mayer	35,198	Oct. 2	93	188
Toilet article. Certain named	H. K. Buck	35,199	Oct. 2	93	188
Toilet articles. Certain named	Naamlooze Vennootschap Eau de Cologne Fabriek, Voorheen J. C. Boldoot.	35,397	Nov. 13	93	1304
Toilet preparations. Certain named	Roger & Gallet	35,570	Dec. 11	93	2099
Tonic	A. R. Ashby	35,182	Oct. 2	93	186
Tonic. Certain named	H. M. Hunt	35,572	Dec. 11	93	2100
Toothpicks. Wooden	C. Forster	35,325	Oct. 30	93	933
Toothpicks. Wooden	C. Forster	35,326	Oct. 30	93	933
Toothpicks. Wooden	C. Forster	35,327	Oct. 30	93	933
Toothpicks. Wooden	C. Forster	35,328	Oct. 30	93	933
Toothpicks. Wooden	C. Forster	35,455	Nov. 20	93	1487
Toothpicks. Wooden	C. Forster	35,456	Nov. 20	93	1487
Toothpicks. Wooden	C. Forster	35,457	Nov. 20	93	1487
Toothpicks. Wooden	C. Forster	35,523	Dec. 4	93	1913
Toothpicks. Wooden	C. Forster	35,524	Dec. 4	93	1913
Toothpicks. Wooden	C. Forster	35,525	Dec. 4	93	1913
Toothpicks. Wooden	L. Tannenbaum & Co	35,169	Oct. 2	93	185
Turquoise. American	B Torrey	35,490	Nov. 27	93	1718
Type-writer manuals and reference-sheets used therewith	H. L. Fording	35,453	Nov. 20	93	1487
Underwear. Certain named article of	Cleveland Varnish Company	35,293	Oct. 9	93	357
Varnish. Certain named	Cycle Components Company	35,202	Oct. 2	93	188
Vehicle-pedals	Société l'Aster	35,315	Oct. 23	93	750
Vehicles and motors therefor	"Locomobile" Company of America.	35,677	Dec. 25	93	2530
Vehicles. Automatically-propelled wheeled	Southern Rock Island Plow Company.	35,676	Dec. 25	93	2530
Vehicles. Certain named wheeled	Pneumatic Carriage Company	35,316	Oct. 23	93	750
Vehicles. Motor-driven	Salts Textile Manufacturing Company.	35,517	Dec. 4	93	1912
Velvets	H. B. Claflin Company	35,278	Oct. 23	93	746
Velvets and velveteens	Brandes & Kreutzberg	35,274	Oct. 16	93	550
Ventilators for chimneys and other parts of buildings	Wright & Hills	35,175	Oct. 2	93	185
Veterinary remedies	P. Donaldson	35,187	Oct. 2	93	186
Vinegar and pickles	W. H. Rager	35,665	Dec. 25	93	2528
Washing compound	T. H. Tabor	35,538	Dec. 4	93	1915
Washing compounds	T. H. Tabor	35,539	Dec. 4	93	1915
Washing fluid	Hampden Watch Company	35,234	Oct. 9	93	357
Watch-movements	Hampden Watch Company	35,377	Nov. 13	93	1302
Watch-movements	C. A. Kiger	35,388	Nov. 13	93	1303
Watches, clocks, cutlery, and gold and fountain pens	Keystone Watch Case Company	35,378	Nov. 13	93	1302
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,379	Nov. 13	93	1302
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,380	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,381	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,382	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,383	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,384	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Keystone Watch Case Company	35,630	Dec. 25	93	2524
Watches, watchcases, and watch-movements	New York Standard Watch Company.	35,512	Dec. 4	93	1912
Watches, watchcases, and watch-movements	Philadelphia Watch Case Company.	35,385	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Philadelphia Watch Case Company.	35,386	Nov. 13	93	1303
Watches, watchcases, and watch-movements	Philadelphia Watch Case Company.	35,387	Nov. 13	93	1303

Alphabetical list of trade-marks, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Water for drinking purposes	Crescent Ice Company	35,413	Nov. 13	93	1305
Whips	L. Baker	35,201	Oct. 23	93	749
Whisky	J. W. McCulloch	35,647	Dec. 25	93	2526
Whisky	Rosskam, Gerstley & Co	35,230	Oct. 23	93	747
Whisky	Rosskam, Gerstley & Co	35,648	Dec. 25	93	2526
Whisky	"Maul S" Windmill and Pump Company.	35,589	Dec. 11	93	2102
Windmills and pumps	A. A. Low	35,354	Oct. 30	93	936
Wine and jelly made from the wild black cherry	A. A. Low	35,355	Oct. 30	93	936
Wine and preserves	Carmel Wine Co	35,646	Dec. 25	93	2526
Wine, brandy, and cordials	A. A. Low	35,470	Nov. 20	93	1489
Wine, jelly, and preserves made from wild grapes	A. Leschen & Sons Rope Company	35,552	Dec. 4	93	1916
Wire rope	E. B. Estes & Sons	35,307	Oct. 23	93	749
Woodenware. Certain named					

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"A. B. C." (For Beer)	American Brewing Company	7,889	Nov. 13	93	1127
"A. B. C." (For Beer)	American Brewing Company	7,909	Nov. 20	93	1315
"A. B. C." (For Beer)	American Brewing Company	7,910	Nov. 21	93	1315
"A. B. C." (For Beer)	American Brewing Company	7,911	Nov. 20	93	1315
"A. B. C. Metal Polish." (For Metal-Polish)	M. Stern	7,855	Oct. 23	93	557
"American Gentleman Rye Whiskey." (For Whisky)	A. Herzberg	7,914	Nov. 20	93	1315
"Apricots." (For Canned Apricots)	United States Printing Company	7,844	Oct. 28	93	557
"Arm-Pit-Ease." (For a Toilet Preparation)	E. V. Pitkin	7,918	Nov. 27	93	1495
"Armoza." (For Cigars)	American Lithographic Company	7,902	Nov. 20	93	1315
"B. B. Odell, Jr." (For Cigars)	Canuff & Waring	7,818	Oct. 9	93	193
"Bartlett Pears." (For Canned Bartlett Pears)	United States Printing Company	7,845	Oct. 23	93	557
"Bechtel Brew." (For Bottled Lager-Beer)	George Bechtel Brewing Company	7,872	Nov. 13	93	1127
"Bellamy's Iron Grasp Cement." (For Cement)	F. E. Bellamy	7,948	Dec. 4	93	1725
"Berg's Famous Bread." (For Bread)	C. T. Berg	7,992	Dec. 18	93	2107
"Best." (For Flour)	H. S. Leslier	7,832	Oct. 16	93	363
"Better Buy." (For Brooms)	Lee Broom and Duster Company	7,861	Oct. 30	93	735
"Black Bass." (For Beer)	American Brewing Company	7,870	Nov. 13	93	1127
"Black Bass Beer." (For Beer)	American Brewing Company	7,871	Nov. 13	93	1127
"Black Tulip Claret." (For Wine)	Weyrich & Schley	7,873	Nov. 13	93	1127
"Blue Label." (For Whisky)	A. Forbes	7,913	Nov. 20	93	1315
"Boss John." (For Tobacco)	Finzer Bros. Tobacco Company	7,880	Nov. 13	93	1127
"Bright-ine." (For Silver-Polish)	E. A. Fichter	7,883	Nov. 13	93	1127
"Brook Brand." (For Canned Goods)	United States Printing Company	7,958	Dec. 11	93	1923
"Brookwood." (For Whisky)	J. Thompson	7,874	Nov. 13	93	1127
"Café des Invalides or Antidote Coffee." (For a Coffee-Blend.)	S. S. Pierce Company	7,928	Nov. 27	93	1495
"Carbonated Celery." (For a Beverage)	Schoneberger & Noble	7,827	Oct. 16	93	363
"Cascarine." (For a Stomach Medicine)	Rea Bros. & Co.	7,891	Nov. 13	93	1127
"Champion." (For Mantles)	M. Shapiro	7,930	Nov. 27	93	1495
"Chappene." (For a Lotion)	Flier & Wolf	7,854	Oct. 23	93	557
"Charmion Egyptian Cigarettes." (For Cigarettes)	L. Finkelstein	7,877	Nov. 13	93	1127
"Cherries." (For Canned Cherries)	United States Printing Company	7,847	Oct. 23	93	557
"Cherry Pepsin." (For Cherry-Pepsin)	J. C. Buffum Company	7,858	Oct. 30	93	735
"Chosen Few." (For Canned Fruits)	Lipscomb, Speights & Company	7,802	Oct. 2	93	1
"Cincalco Tonic." (For a Tonic)	Pittsburgh Homeopathic Pharmacy.	7,888	Nov. 13	93	1127
"Coffee Ette." (For a Coffee Substitute)	M. A. Rawson	7,989	Dec. 18	93	2107
"Colonel Davenport." (For Cigars)	N. P. Petersen	7,932	Dec. 4	93	1725
"Corned Beef Hash." (For Corned-Beef Hash)	Valentine's Meat Juice Company	7,995	Dec. 18	93	2107
"Corrective Syrup." (For a Medicine)	Corrective Syrup Co	7,892	Nov. 13	93	1127
"Cowgill's Expectorant." (For a Medicine)	W. Cowgill	7,889	Nov. 13	93	1127
"Crispy Corn Wafers." (For Confections)	Crispy Wafer Co	7,816	Oct. 9	93	193
"Crystal Rock." (For Beer)	Cleveland & Sandusky Brewing Company.	7,912	Nov. 20	93	1315
"Cyclo." (For an Extract)	Vail Bros	8,008	Dec. 25	93	2329
"Dailey's Pure Malt." (For Extract of Malt)	H. & J. Dailey Malt Co	7,982	Dec. 18	93	2107
"Daisy Blue." (For Cigars)	Schmidt & Co	7,979	Dec. 18	93	2107
"Demonet's Oyster Cocktail Sauce." (For a Sauce)	J. A. Demonet	7,937	Dec. 4	93	1725
"Derma (I. McG. A.) Tone." (For a Medicine)	I. M. Adams	7,943	Dec. 4	93	1725
"Domino Bourbon Whiskey." (For Whisky)	Los Angeles Company	8,004	Dec. 25	93	2329
"Domino Rye Whiskey." (For Whisky)	Los Angeles Company	7,987	Dec. 18	93	2107
"Dotty Dimple." (For Canned Tomatoes)	United States Printing Company	7,897	Nov. 20	93	1315
"Dr. Camel's Congo Blood Pills." (For a Medicine)	J. Lamparter & Co	7,953	Dec. 11	93	1923
"Dr. Camel's Congo Compound." (For a Medicine)	J. Lamparter & Co	7,954	Dec. 11	93	1923
"Dr. Camel's Thick Neck Cure." (For a Medicine)	J. Lamparter & Co	7,952	Dec. 11	93	1923
"Dr. La Faure's 8887 Balsam." (For a Medicine)	N. T. Pike	7,919	Nov. 27	93	1495
"Dr. Mill's Pectoral Syrup." (For a Cough Medicine)	L. G. B. Erb	7,971	Dec. 18	93	2107
"Dreyfus' Pills." (For a Medicine)	N. Khasan	7,972	Dec. 18	93	2107
"Durkasco." (For Canned Goods)	A. E. von Cotzhausen	7,864	Nov. 13	93	1127
"Eddie's German Sal-Lea." (For a Medicine)	Smith Brothers	7,974	Dec. 18	93	2107
"Egg Flake." (For Egg-Flake)	Pure Food Company	7,831	Oct. 16	93	363
"Equestrian Brand." (For Canned Goods)	United States Printing Company	7,959	Dec. 11	93	1923
"Erb's Health Capsules." (For a Medicine)	L. G. B. Erb	7,814	Oct. 9	93	193
"Erb's 'Never Chap.'" (For a Lotion)	L. G. B. Erb	7,956	Dec. 11	93	1923
"F. Garcia & Bros." (For Cigars)	F. Garcia & Bros	8,002	Dec. 25	93	2329
"Ferte's Celery Headache Tablets." (For a Tablet)	E. P. Ferté	7,942	Dec. 4	93	1725
"Fox's Nutted Dates." (For Nutted Dates)	Fox Pharmacy Company	7,990	Dec. 18	93	2107
"Gallagher's Hair Elixir." (For Hair-Elixir)	E. J. Gallagher	7,852	Oct. 23	93	557
"Genuine Pollawattee Tea." (For Ceylon Tea)	Eppens, Smith & Wiemann Company.	7,935	Dec. 4	93	1725
"Gerbert's Celebrated Worcestershire Sauce Globe Brand." (For Sauce.)	R. Gerbert	7,803	Oct. 2	93	1
"Good Luck." (For Flavoring Extracts)	C. F. Sauer Company	8,000	Dec. 25	93	2329
"Grapes." (For Canned Grapes)	United States Printing Company	7,843	Oct. 23	93	557
"Gravel Spring." (For Mineral Water)	Seligman Bros	7,868	Nov. 13	93	1127
"Great Dane." (For Whisky)	J. Thompson	7,875	Nov. 13	93	1127
"Green Gages." (For Canned Green Gages)	United States Printing Company	7,841	Oct. 23	93	557
"Greenabaum Bros. Plum Pudding." (For Plum-Pudding)	Greenabaum Bros	7,991	Dec. 18	93	2107
"Hale's Ton-A-Quin for the Hair." (For a Hair-Tonic)	H. R. Hale Company	7,967	Dec. 18	93	2107
"Hearts-Ease" (For Canned Sugar-Corn)	United States Printing Company	7,939	Dec. 4	93	1725
"Herrmann's Tiger Brand Ginger Ale." (For Ginger-Ale)	J. F. Herrmann & Son	7,925	Nov. 27	93	1495
"Herrmann's Tiger Brand Ginger Ale." (For Ginger-Ale)	J. F. Herrmann & Son	7,926	Nov. 27	93	1495

Alphabetical list of labels, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Herrmann's Tiger Brand Root Beer." (For Root-Beer)	J. F. Herrmann & Son	7,924	Nov. 27	93	1495
"Honey Comb." (For Canned Sweet Corn)	United States Printing Company	7,940	Dec. 4	93	1725
"Horse Radish Jack." (For Horse-Radish)	A. Cliff	7,899	Nov. 20	93	1315
"Howdah Brand." (For Canned Sugar-Corn)	United States Printing Company	7,865	Nov. 13	93	1127
"Inkerine Paste." (For a Paste)	H. Mack	7,947	Dec. 4	93	1725
"Iwanta." (For Ginger-Ale)	D. L. Ormsby	7,805	Oct. 2	93	1
"Jaguar." (For Canned Corn)	United States Printing Company	7,902	Dec. 11	93	1923
"Kil-Kold." (For a Medicine)	A. Meyers	7,973	Dec. 18	93	2107
"Kill-Bug." (For a Germicide)	M. Koch	7,920	Nov. 27	93	1495
"Kow-Kure." (For a Veterinary Medicine)	Dairy Association	7,921	Nov. 27	93	1495
"Kretyur." (For Whisky)	M. Haugh & Co	7,923	Nov. 27	93	1495
"La Dominencia." (For Cigars)	M. Newlander & Co	7,819	Oct. 9	93	193
"La Flor de Victorius." (For Cigars)	J. R. Isaacson	7,837	Oct. 23	93	557
"La Introduccion." (For Cigars)	Schmidt & Co	7,906	Nov. 20	93	1315
"La Rosa Calie." (For Cigars)	Schmidt & Co	7,978	Dec. 18	93	2107
"Lasso." (For Canned Corn)	United States Printing Company	7,963	Dec. 11	93	1923
"Laurel Label." (For Malt Beverages)	Toledo Brewing and Malting Company.	7,934	Dec. 4	93	1725
"Le Roi." (For Canned Goods)	Stecher Lithographic Company	7,800	Oct. 30	93	755
"Liberty Club." (For Whisky)	E. Gross	7,838	Oct. 23	93	557
"Lightning Parlor Match." (For Matches)	Atlantic Match Company	7,836	Oct. 23	93	557
"Litchfield County Print Butter." (For Butter)	Gleason & Lansing	7,840	Oct. 23	93	557
"Little Brunswick." (For Cigars)	J. Stahl, Jr., & Co	7,963	Dec. 11	93	1923
"Little Casino Whiskey." (For Whisky)	A. Kodziesen	7,922	Nov. 27	93	1495
"Lobelia Sweet Corn." (For Canned Corn)	United States Printing Company	7,811	Oct. 9	93	193
"Louis XV." (For Corsets)	H. C. Watson	7,917	Nov. 27	93	1495
"Love Knot Brand." (For Canned Tomatoes)	United States Printing Company	7,896	Nov. 20	93	1315
"Lovelady's Egyptian Dainties." (For Confectionery)	Lovelady Brothers	7,830	Oct. 16	93	363
"Lustre." (For a Polish)	W. L. Paul	7,976	Dec. 18	93	2107
"Manx Brand." (For Canned Corn)	United States Printing Company	7,866	Nov. 13	93	1127
"Marengo Brand." (For Canned Goods)	United States Printing Company	7,960	Dec. 11	93	1923
"Mayflower Rye." (For Whisky)	Los Angeles Company	7,985	Dec. 18	93	2107
"Miners Asthma Cure." (For a Medicine)	E. Dean Morlan Company	7,951	Dec. 11	93	1923
"Montana Sport." (For Cigars)	Schmidt & Co	7,905	Nov. 20	93	1315
"Mueller's Macaroni Flag Brand." (For Macaroni)	C. F. Mueller & Co	7,994	Dec. 18	93	2107
"Murillo." (For Cigars)	Cuban American Manufacturing Company.	7,903	Nov. 20	93	1315
"Nanine." (For Cigars)	Schmidt & Co	7,904	Nov. 20	93	1315
"National Uniform Cap Co." (For Caps)	I. Levy	7,999	Dec. 25	93	2329
"Natura Artis Magistra." (For Spun Silk Yarn)	Magid Hope Silk Manufacturing Company.	7,821	Oct. 9	93	193
"Nelson's Hair Restorer." (For a Hair-Restorer)	O. Nelson	7,857	Oct. 30	93	755
"Newport." (For Cheviots)	J. Connelly & Sons	7,950	Dec. 11	93	1923
"Nodoubt." (For Coffee)	W. F. McLaughlin	7,804	Oct. 2	93	1
"Non-Sweat-Shop-Make." (For Garments)	Gallaud Brothers	7,834	Oct. 23	93	557
"Nutriol Emulsion." (For a Medicine)	Nutriol Chemical Company	7,823	Oct. 16	93	363
"Oil of Vanilla." (For an Extract)	D. Lamont	7,898	Nov. 20	93	1315
"Old Barton." (For Whisky)	W. P. Strader	7,839	Oct. 23	93	557
"Old Dominion." (For Flavoring Extracts)	C. F. Sauer Company	8,001	Dec. 25	93	2329
"Old Loyalty." (For Plug-Tobacco)	Finzer Bros. Tobacco Company	7,882	Nov. 13	93	1127
"Old Pugh." (For Whisky)	W. P. Strader	7,828	Oct. 16	93	363
"Olden Time Rye Whiskey." (For Whisky)	Los Angeles Company	7,984	Dec. 18	93	2107
"Oppeau's Treatment for the Hair." (For a Remedy for Baldness.)	J. Oppeau	7,968	Dec. 18	93	2107
"Our Doctors Baking Powder." (For Baking-Powder)	A. & G. Meyer	7,929	Nov. 27	93	1495
"Our Lulu." (For Cigars)	Wood Mercantile Co	7,878	Nov. 13	93	1127
"Our Senator." (For Cigars)	B. B. Smith	7,820	Oct. 9	93	193
"Ox Tongue." (For Potted Meats)	Valentine's Meat Juice Company	7,966	Dec. 18	93	2107
"Ox Tongue." (For Potted Ox-Tongue)	Valentine's Meat Juice Company	7,998	Dec. 18	93	2107
"Pa-kal." (For a Medicine)	A. H. Olmstead	7,901	Nov. 20	93	1315
"Paride's Odontale." (For a Preparation for the Treatment of the Teeth.)	G. Paride	7,853	Oct. 23	93	557
"Peaches." (For Canned Peaches)	United States Printing Company	7,842	Oct. 23	93	557
"Peanut Relish." (For a Relish)	F. W. Freeman	7,810	Oct. 9	93	193
"Pearl-E-Teeth." (For a Tooth-Wash)	J. W. H. Ahrens	7,813	Oct. 9	93	193
"Perluxe." (For a Lotion for the Complexion)	B. Levy & Co	8,005	Dec. 25	93	2329
"Piekaninny." (For Stockings)	L. E. Taubel	7,835	Oct. 23	93	557
"Plug Smoking." (For Smoking-Tobacco)	Finzer Bros. Tobacco Company	7,879	Nov. 13	93	1127
"Potted Beef." (For Potted Beef)	Valentine's Meat Juice Company	7,997	Dec. 18	93	2107
"Premo." (For Soap)	National Soap Works	7,801	Oct. 2	93	1
"Prize Medal." (For Tea)	Milliken, Tomlinson Company	7,936	Dec. 4	93	1725
"Probono." (For Canned Goods)	A. E. von Cotzhausen	7,863	Nov. 13	93	1127
"Ptisan." (For Bottled Beer)	P. J. Serwazi	7,933	Dec. 4	93	1725
"Pyropen." (For Pyropens)	Wiseman Manufacturing Co	7,949	Dec. 11	93	1923
"Raceabout Rye." (For Whisky)	Los Angeles Company	7,988	Dec. 18	93	2107
"Railway Supplies and Pulp Wood." (For Railway Supplies, &c.)	L. R. Martin	7,916	Nov. 20	93	1315
"Ralston Barley Food." (For Barley Food)	Robinson-Danforth Milling Company.	7,808	Oct. 2	93	1
"Ralston Breakfast Food." (For Breakfast-Food)	Robinson-Danforth Milling Company.	7,807	Oct. 2	93	1
"Red Cross." (For Disinfectants)	C. E. Bennison	7,824	Oct. 16	93	363
"Red Cross." (For Whisky)	Western Distilling Co	7,876	Nov. 13	93	1127
"Red Cross Antiseptic Dentifrice." (For a Dentifrice)	Red Cross Chemical Company	7,955	Dec. 11	93	1923
"Red Cross Antiseptic Shampoo." (For a Shampoo)	Red Cross Chemical Company	7,886	Nov. 13	93	1127
"Red Cross Capillaris." (For a Hair-Tonic)	Red Cross Chemical Company	7,944	Dec. 4	93	1725
"Red Cross Disinfecting and Deodorizing Powder." (For a Powder.)	Red Cross Chemical Company	7,885	Nov. 13	93	1127
"Red Cross Liniment." (For a Medicine)	Red Cross Chemical Company	7,856	Oct. 30	93	755
"Red Raven Dentine." (For a Tooth and Mouth Wash)	Meyer & Gleim	7,970	Dec. 18	93	2107
"Refugee Stringless Beans." (For Canned Beans)	United States Printing Company	7,964	Dec. 11	93	1923
"Refugee Stringless Beans." (For Canned Beans)	United States Printing Company	7,998	Dec. 18	93	2107
"Ro-Zone Dust Bag." (For a Medical Compound)	Tha-Mou Cure Co	7,887	Nov. 13	93	1127
"Robbin's Fat Consumer." (For a Medicine)	F. Robbin	8,007	Dec. 25	93	2329
"Rockaway Beach Cove Oysters." (For Canned Goods)	Stecher Lithographic Company	7,859	Oct. 30	93	755
"Rocky Bracer." (For a Medicine)	E. Kraffe	7,851	Oct. 23	93	557

Alphabetical list of labels, October to December, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Rolo Polo Solitaire or Two Ball Hockey." (For a Game)	L. F. Jordan	7,966	Dec. 18	93	2107
"Roman Liniment." (For a Liniment)	T. A. Farrell	7,957	Dec. 11	93	1923
"Sand Stone Brand." (For Butter)	J. E. Amend	7,894	Nov. 20	93	1315
"Saracen." (For Cigarettes)	Knubel Tobacco Company	7,826	Oct. 16	93	363
"Seltone." (For a Catarrh Cure)	Specialty Manufacturing Co	7,969	Dec. 18	93	2107
"Sierra Mineral Bath Crystals." (For a Compound for the Bath.)	E. Griswold	7,975	Dec. 18	93	2107
"Silk Fibre Bond." (For Stationery)	Ph. Hake Manufacturing Company	7,800	Oct. 2	93	1
"Silver Creek Creamery." (For Butter)	J. J. Powers & Co	7,893	Nov. 20	93	1315
"Slusser's Gall Cure." (For a Gall Cure)	A. A. Slusser	8,006	Dec. 25	93	2329
"Small Stringless Beans." (For Canned Beans)	United States Printing Company	7,840	Oct. 23	93	557
"Sozo." (For a Furniture Polishing and Cleaning Compound.)	Sozo Supply Company	7,946	Dec. 4	93	1725
"Spurt." (For Plug-Tobacco)	Finzer Bros. Tobacco Company	7,881	Nov. 13	93	1127
"Stansbury's Hair Restorer and Dandruff Cure." (For a Hair-Restorer.)	H. Stansbury	7,945	Dec. 4	93	1725
"Star Metal Polish." (For Metal-Polish)	Bell Manufacturing Company	7,884	Nov. 13	93	1127
"Strawberries." (For Canned Strawberries)	United States Printing Company	7,846	Oct. 23	93	557
"Suckow's Rheumatic Remedy." (For a Medicine)	J. K. Suckow	7,890	Nov. 13	93	1127
"Summer Beauties Brand." (For Canned Tomatoes)	United States Printing Company	7,867	Nov. 13	93	1127
"Summer Glory Brand." (For Canned Goods)	United States Printing Company	7,961	Dec. 11	93	1923
"Sweet Clover Pure Butter." (For Butter)	Gleason & Lansing	7,848	Oct. 23	93	557
"Taku Tea." (For Tea and Coffee)	S. B. Greenhouse	7,927	Nov. 27	93	1495
"The Blue and the Gray." (For Beer)	American Brewing Association	7,908	Nov. 20	93	1315
"The Boston." (For Candy)	Boston Confectionery Co	7,815	Oct. 9	93	193
"The Famous Maryland Carpets." (For Carpets)	J. Hines & Son	7,915	Nov. 20	93	1315
"The Gloria Mantle." (For Mantles for Incandescent Gas-Lamps.)	United Incandescent Light Company.	7,862	Oct. 16	93	363
"The New Game of Presidents." (For a Game)	P. Jackson	7,883	Oct. 23	93	557
"The New Process Butter Co." (For Oleomargarin and Butterin.)	G. D. Davis	7,895	Nov. 20	93	1315
"The S & S Shirt Waist Trousers." (For Trousers)	J. Salsburg	7,862	Nov. 13	93	1127
"The 20th Century Cigar." (For Cigars)	Geiger & Klein	8,003	Dec. 25	93	2329
"The We Girls Company Cigar." (For Cigars)	We Girls Co	7,907	Nov. 20	93	1315
"Three Boys." (For Tobacco)	Finzer Brothers Tobacco Company	7,931	Dec. 4	93	1725
"Tomatoes." (For Canned Tomatoes)	United States Printing Company	7,941	Dec. 4	93	1725
"Tonic Port." (For Port-Wine)	Flegenheimer Bros	7,829	Oct. 16	93	363
"Trimble Cigar." (For Cigars)	Buxbaum Bros	7,806	Oct. 2	93	1
"U. P. Special." (For Cigars)	Guenther & Mueller Co	7,825	Oct. 16	93	363
"U. S. Grant." (For Cigars)	M. Blaskower	7,817	Oct. 9	93	193
"Uncle Sam Brand." (For Figs)	H. Markarian	7,850	Oct. 23	93	557
"Upmann's Extra 5." (For Cigars)	C. Upmann	7,980	Dec. 18	93	2107
"Upmann's Extra 5." (For Cigars)	C. Upmann	7,981	Dec. 18	93	2107
"Wheat Germ." (For a Food)	W. T. Stover	7,938	Dec. 4	93	1725
"Will B." (For Cigars)	W. Baum	7,977	Dec. 18	93	2107
"Winner Whiskey." (For Whisky)	Los Angeles Company	7,986	Dec. 18	93	2107
"Wm. Penn Family Soap." (For Soap)	National Soap Works	7,812	Oct. 9	93	193
"Wm. Ulmer Brewery." (For Lager-Beer)	Wm. Ulmer Brewery	7,983	Dec. 18	93	2107
"Woman's Friend." (For an Antiseptic)	Standard Remedy Co	7,900	Nov. 20	93	1315
"Yum Yum Plums." (For Plums)	C. H. Godfrey	7,809	Oct. 9	93	193

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Demonet's." (For Confectionery)	J. A. Demonet	277	Dec. 4	93	1725
"Elixir Guaiacol Co." (For a Pharmaceutical Preparation)	W. C. Alpers	270	Oct. 16	93	363
"Farmers and Market-Gardners Union Print." (For Farm and Garden Produce.)	Farmers and Market-Gardners Union.	272	Oct. 30	93	755
"Francisco Goya." (For Cigars)	Schmidt & Co	267	Oct. 9	93	198
"Gipsy Fortune Telling Game Card." (For a Game)	McLoughlin Brothers	266	Oct. 2	93	5
"Jadway's Elixir for Infants." (For a Medicine)	C. W. Wilson	278	Dec. 4	93	1725
"La Numancia." (For Cigars)	Schmidt & Co	275	Nov. 20	93	1315
"McCormick." (For Harvesting-Machines)	McCormick Harvesting Machine Company.	274	Oct. 30	93	755
"Motorcycle and Motorette Backs Bicycle Playing Cards." (For Playing-Cards.)	United States Playing Card Company.	279	Dec. 4	93	1725
"Neverbreak." (For Corset-Clasps)	J. A. Datz	280	Dec. 4	93	1725
"Prince Rupert." (For Cigars)	Webb & Co	271	Oct. 30	93	755
"Royal Seal." (For Cigars)	W. E. Pfening	285	Dec. 25	93	2329
"Saloon, Store and Barber Fixtures." (For Saloon, Store, and Barber-Shop Fixtures.)	M. J. Bernhard	273	Oct. 30	93	755
"The Indian Leather Co." (For Sole-Leather)	Indian Leather Co	281	Dec. 4	93	1725
"The Indian Leather Co." (For Sole-Leather)	Indian Leather Co	282	Dec. 4	93	1725
"The Introduction." (For Clothing)	Schloss Bros. & Co	268	Oct. 16	93	363
"The Stubborn Donkeys." (For a Puzzle)	F. A. Schossow	284	Dec. 18	93	2107
"The We Girls Company." (For Cigars)	We Girls Co	276	Nov. 20	93	1315
"We Feed the World." (For Flour)	Pillsbury-Washburn Flour Mills Company.	269	Oct. 16	93	363
"Ziz." (For Cement)	J. D. Hill	283	Dec. 11	93	1923

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Automatic sheet-feeding mechanism	Richard H. Scott and Henry C. Teel.	640,709	Jan. 2, 1900	Nov. 3, 1900	93	1127
Bicycle-pedal	Charles H. Metz	546,071	Sept. 10, 1895	Oct. 6, 1900	93	363
Car-truck	George Martin Brill	478,218	July 5, 1892	Oct. 13, 1900	93	557

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